HENDERSON WATER UTILITY

INVITATION FOR BIDS
and TECHNICAL SPECIFICATIONS

Riverport/Custom Resins
Water Main Project
Phase II

HENDERSON, KENTUCKY

October 2018
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RIVERPORT/CUSTOM RESINS WATER MAIN INSTALLATION

- Invitation to Bid, Solicitation Instructions and Conditions, [Bid Form and List of Required Attachments](#) and [Non-Collusive Bid Statement](#).

- **Required Affidavit for Bidders, Offerors and Contractors Claiming Qualified Bidder Status**

- **Required Affidavit for Bidders, Offerors and Contractors Claiming Resident Bidder Status**

- Technical Specifications

- HWU Purchase Order Form – *Sample – Shown for information only*

*Note:* Items shown with **Bold Underline** in this Table of Contents must be completed in their entirety in the bid submittal.
INVITATION FOR BID

The Henderson Water and Sewer Commission of the City of Henderson, Kentucky will receive sealed competitive bids at its office at 111 Fifth Street, Henderson, Kentucky 42420, until 1:30 p.m. (CDT), on the 31st day of October 2018, at which time the bids will be opened and considered for the purchase of the following:

HENDERSON RIVERPORT/CUSTOM RESINS WATER MAIN PROJECT
FOR THE
HENDERSON WATER UTILITY

REF# 201828 Riverport Water Main Loop – Phase II

Specifications and Instructions to Bidders, and copies of plan sheets for this project may be obtained from:

HWU website:  http://tinyurl.com/hwu-bids

HWU Bobby Gish Administration Building:  111 Fifth Street, Henderson, KY  42420

The Water and Sewer Commission reserves the right to accept or reject any or all bids in whole or in part and to waive informalities and/or technicalities in the bids. Conflicts of interest, gratuities and kickbacks as defined and provided for in K.R.S. 45A.455 are absolutely prohibited.

Clarifications and Addenda will be posted on the HWU procurement web site as listed above.
SOLICITATION INSTRUCTIONS AND CONDITIONS

1. DEFINITIONS:
   
   As used herein:
   
   a. The term “solicitation” includes the Invitation for Bid, Solicitation Instructions and Conditions, Bid Form and Technical Specifications, and any Clarifications or Addenda issued by the Owner.
   b. The term “offer” means “bid” or “proposal”.
   c. The term “Vendor” shall mean the party responsible for furnishing submittals, equipment, accessories, controls, operation and maintenance manuals and training, startup services and warranting the equipment as required in this Request for Proposals. Prior to award of contract, a potential Vendor may be referred to by the terms “Bidder” or “Offeror”.
   d. The term “Owner” shall mean the Henderson Water Utility (HWU), 111 Fifth Street, Henderson, Kentucky, 42420.
   e. The term “Engineer” refers to an individual employee of the Owner, acting as design engineer or inspector for this project or procurement.
   f. The term “Purchase Order” shall mean the document executed by the Vendor and the Owner of which each of the following form a part: the Invitation for Bids; the Vendor’s Proposal; plans entitled “12” Water Line Loop - Custom Resins”; and the attached technical specifications for Riverport Water Main Loop – Phase II Project, prepared by Henderson Water Utility.
   g. The term "Nonresident bidder" is defined by KRS 45A.494(3).
   h. The term "Resident bidder" is defined by KRS 45A.494(2).
   i. The term "Qualified bidder" means Kentucky Industries for the Blind, Incorporated; any nonprofit corporation that furthers the purposes of KRS Chapter 163; or a qualified nonprofit agency for individuals with severe disabilities as described in KRS 45A.465(3).

2. PREPARATION OF OFFERS:
   
   a. Offerors shall examine the drawings, specifications, schedule, and all instructions. Failure to do so shall be at the offeror’s risk.
   b. Offers shall set forth full, accurate, and complete information as required by the solicitation. Offers that contain an offeror’s own special terms and conditions in conflict with the terms of the solicitation or state statutes and regulations may be rejected.
   c. Each offeror shall furnish the information required by the solicitation on the bid forms included herein. The offeror shall sign the solicitation in ink and type or print in ink his name, firm, address, telephone number, and date. Erasures or other changes shall be initialed in ink by the person signing the offer. Approved electronic format may also be accepted.
   d. Any explanation or statement which the offeror wishes to make concerning the bid shall be written separately and independently of the proposal or bid, attached to the bid form, and placed in the envelope with the bid. Any such statement or explanation must refer to the bid submitted and shall also be signed by the offeror.
   e. Unit price for each unit offered shall be shown and such price shall include packing and delivery to HWU unless otherwise specified within the Bid Form, and shall include startup and training services where specified in the Technical Specifications. Fuel Surcharges and any other miscellaneous charges should be included in the unit price. A total shall be entered in
the amount column of the schedule for each item offered. In case of discrepancy between a unit price and extended price, the unit price shall govern.

f. Cash discounts shall not be considered in making the award of the contract.
g. Trade discounts shall be deducted by the vendor in calculating the unit price quoted, unless otherwise stated.
h. Offers for supplies or services other than those specified shall not be considered unless authorized by the solicitation.
i. Proposal shall include guaranteed time schedules for submission of shop drawings after award of the Purchase Order, and for shipment of equipment after receipt of approved shop drawings. The award of the Purchase Order will be based on the quoted price and an acceptable shop drawing and equipment delivery schedule.
j. Time, if stated as a number of days, shall include Saturdays, Sundays, and Holidays. One day is 24 hours; one week is 7 days; one month is 28 days.

3. OFFEROR CLARIFICATION – REQUEST AND RESPONSE
Any explanation desired by an offeror regarding the meaning or interpretation of the solicitation drawings, specifications, etc., shall be requested in writing to the HWU Purchasing Manager, not less than five (5) calendar days prior to the bid opening date. Oral explanations or instructions given before the award of the contract shall not be binding. Any information given to a prospective vendor concerning a solicitation shall be furnished to all prospective vendors as an amendment or clarification of the solicitation, if such information is necessary to vendors in submitting offers on the solicitation, or if the lack of such information would be prejudicial to uninformed vendors.

4. ACKNOWLEDGEMENT OF ADDENDA TO SOLICITATIONS
Receipt of an addendum to a solicitation shall be acknowledged by the offeror. Acknowledgement shall be received prior to the hour and date specified for receipt of offers, or shall be shown in the appropriate place on the Bid Form. Verbal acknowledgement shall not be accepted. Failure to acknowledge addenda may cause the bid to be considered non-responsive.

5. PROTEST PROCEDURES
   a. Protests prior to bid opening
   Any protests, prior to bid opening must be submitted in writing and received by HWU at least ten (10) calendar days prior to bid opening. This ten (10) calendar day deadline may be waived by the HWU Purchasing Manager for good cause shown. The HWU Purchasing Manager will issue a response to the protest no later than five (5) calendar days after receipt of the protest. The response shall be in writing and set forth the reasons for the response. Upon receipt of a protest, the HWU Purchasing Manager will immediately determine if the bid opening should be postponed. If the bid opening is postponed, HWU will notify all prospective bidders who have been furnished a copy of the specifications that a request for review has been received and that the bid opening is postponed. Upon issuance of its response to the protest, HWU will issue an appropriate addendum rescheduling the bid opening.
b. **Protests after bid opening**

Protests after bid opening will be considered only as to issues which were not apparent before bid opening. After bid opening no protests of specifications will be considered. Any protest after bid opening, including a protest of contract award, must be submitted in writing and received by HWU within five (5) calendar days of the action being protested. No other form of protest will be considered. After the time for protest of contract award has expired, these protest procedures will be considered to be inapplicable, and any disputes will be resolved by HWU under contract provisions or other remedies, if available.

Protests submitted to HWU shall:

(a) Include the name and address of the protestor.
(b) Identify clearly the procurement under which the protest is being submitted.
(c) Identify the action being protested and provide sufficient detailed documentation to support the protest action.
(d) Indicate the action, ruling or relief desired from HWU.

The HWU Purchasing Manager will review the protest and render his or her decision in writing within five (5) calendar days of receipt of the protest, setting forth reasons for his or her decision. HWU is responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of the procurement, including protests, contract defaults, disputes or breaches. The decision of the HWU Purchasing Manager as to protests shall be final and conclusive, unless, within five (5) calendar days of the date a decision was rendered by the HWU Purchasing Manager, a written appeal of the same is submitted by the bidder to the City of Henderson Water and Sewer Commissioners. Any appeal to the Commissioners shall include:

(a) A statement of the grounds for review and any supporting documentation.
(b) A copy of the protest filed with HWU and a copy of the HWU Purchasing Manager’s decision.

If the appeal is submitted prior to award of a contract, HWU will not award until the matter is resolved. If the contract has been awarded prior to the appeal, the contractor shall proceed diligently with the performance of the contract.

6. **SUBMISSION OF OFFERS**

a. Offers and modifications thereof shall be enclosed in sealed envelopes and addressed to the office specified in the solicitation. The offeror shall show the opening hour and date specified in the solicitation, the solicitation number, and the name and address of the offeror on the face of the envelope(s).

b. Telegraphic or facsimile offers shall not be considered unless authorized by the solicitation; however, offers may be modified by telegraphic or facsimile notice, if such notice is received prior to the hour and date specified for receipt. Telegraphic or facsimile modifications shall not mention unit prices or total price; but shall only refer to percentage change or numerical change (i.e., “reduce unit price of item 1 by $1.00”).

c. Samples of items, if required, shall be submitted within the time specified, and not unless otherwise specified, at no expense to HWU. If not destroyed by testing, samples shall be
returned at the offeror’s request and expense, unless otherwise specified by the solicitation. Unless a request for their return is made within thirty (30) days of award of contract, all samples shall become property of HWU.

7. MODIFICATION OR WITHDRAWAL OF OFFERS
Offers may be modified or withdrawn by written notice received prior to the exact hour and date specified for receipt of offers. An offer may also be withdrawn in person by an offeror or his authorized representative, if his identity is made known and he signs a receipt for the offer, but only if the withdrawal is made prior to the exact hour and date set for receipt of offers.

8. LATE OFFERS AND MODIFICATIONS
Offers and modifications of offers received at the office designated in the solicitation after the exact hour and date specified for receipt shall not be considered for an award of contract, UNLESS:
   a. No bids are received other than the late bid; and
   b. The needs of HWU are determined to preclude the re-solicitation of bids.

9. MULTIPLE AND ALTERNATE BIDS
Bidders shall submit one response only to the solicitation and shall not propose more than one price, model, and brand for each bid item. Multiple or alternate bids offering more than one bid price in total (or by line-item) shall be cause for rejection unless specifically called for in special provisions provided elsewhere in the solicitation.

10. AWARD OF CONTRACT
   a. It is the intent of HWU to award this contract to the vendor or vendors offering the lowest evaluated bid price for products which meet the specifications set forth in this document. Any and all anticipated costs for HWU to implement the project will be taken into consideration.
   b. HWU reserves the right to reject any offers and to waive informalities and minor irregularities in offers received. The award of this contract will be contingent upon funds being appropriated for this purchase.
   c. The bidder, if awarded an order or contract, agrees to protect, defend, and save harmless the Henderson Water and Sewer Commission and the Henderson Water Utility against any demand for the use of any patented materials, process, article, or device, that may enter into the manufacture, construction, or form a part of the work covered by either order or contract and he further agrees to indemnify and save harmless the Henderson Water and Sewer Commission and the Henderson Water Utility from suits or actions of every nature and description brought against it, for on account of any injuries or damages received or sustained by any party or parties, by or form any of the acts of the contractor, his servants, or agents.
   d. The awarded contract shall agree to offer the prices and the terms and conditions offered herein to any municipality, county or state government; public utility; non-profit hospital; educational institute; special governmental agency; and non-profit corporation performing governmental functions in Western Kentucky area who wish to participate in a cooperative purchase program with Henderson Water Utility. Other agencies will be responsible for entering into separate agreements with the Contract and for all payments thereunder.
   e. The bidder agrees to hold the proposed pricing for up to 90 days after bid proposal is opened, or for such time as specified on the Bid Form, if different.
f. A written award mailed (or otherwise furnished) to the successful offeror within the time for acceptance specified in the offer shall be deemed to result in a contract without further actions by either party.

11. METHOD OF AWARD: BEST VALUE - RANKING APPROACH
The Owner intends to award a Contract to the Contractor whose bid, conforming to the BID FORM, is the most advantageous on the basis of "best value" for all products, services, and requirements contained herein. An evaluation committee or a designated individual will evaluate the information provided by the Contractor in response to the established measurable criteria contained herein.

**Measurable Criteria: Price 100 Points**

**TOTAL POINTS 100 Points**

Each Contractor is responsible for submitting all relevant, factual and correct information with their Bid to enable the evaluator(s) to afford each Contractor the maximum score based on the available data submitted by the Contractor. The Contractor shall explicitly adhere to the BID FORM which contains adequate space for the Contractor's pricing.

**Bid Price (100 Points)**

The bidder with the lowest Bid Price receives the maximum score. The bidder with the next lowest Price receives points by dividing the lowest Price by the next lowest Price and multiplying that percentage by the available points. For Example, 100 points is allocated to the lowest Price criteria for this procurement, Bidder "A" bids $3.00 as the lowest bidder and receives the maximum 100 points ($3.00 / $3.00 = 1.00 X 100 = 100). Assume Bidder "B" is next lowest bidder at $4.00, then "B" receives 75 points ($3.00 / $4.00 = .75 X 100 = 75).

Best Value scoring is subject to Reciprocal preference for Kentucky resident bidders and Preferences for a Qualified Bidder or the Department of Corrections, Division of Prison Industries (KAR 200 5:410). The Contractor is required to submit a complete copy of the "Required Affidavit for Bidders, Offerors, and Contractors Claiming Resident Bidder Status" attached to the BID FORM.

12. KENTUCKY / INDIANA SALES AND USE TAXES
Sales of tangible personal property or services to HWU are not subject to state sales or use taxes. Henderson Water Utility's Kentucky/Indiana sales tax exemption number will be provided to the successful bidder(s).

13. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS
Any contracts or orders placed as a result of the offer shall be governed by the laws of the Commonwealth of Kentucky. The rights and obligations of the parties thereto shall be determined in accordance with these laws. Any offer conditioned upon governance by the laws of a state other than Kentucky shall not be considered.

Conflicts of interest, gratuities and kickbacks as defined and provided for in KRS 45A.455 are absolutely prohibited. Bidder acknowledges and certifies by submission of his bid that all the provisions of KRS 45A.455 are complied with fully.
A City of Henderson business license is required for all vendors servicing accounts within the City of Henderson.

A Henderson County business license is required for all vendors servicing accounts at HWU locations outside the City of Henderson but in Henderson County. Information regarding the business license can be obtained by calling the business license office at 270-831-1200. Vendors will be allowed ten (10) days after award of bid to submit a copy of their current business license(s) to the Purchasing Manager.

14. CONFLICTS OF INTEREST – Gratuities and kickbacks – Use of confidential information (KRS 45A.455)

a. It shall be a breach of ethical standards for any employee with procurement authority to participate directly in any proceeding or application; request for ruling or other determination; claim or controversy; or other particular matter pertaining to any contract, or subcontract, and any solicitation or proposal therefore, in which to his knowledge:
   i. He, or any member of his immediate family has a financial interest therein; or
   ii. A business or organization in which he or any member of his immediate family has a financial interest as an officer, director, trustee, partner, or employee, is a party; or
   iii. Any other person, business, or organization with whom he or any member of his immediate family is negotiating or has an arrangement concerning prospective employment is a party. Direct or indirect participation shall include but not be limited to involvement through decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or purchase standard, rendering of advice, investigation, auditing or in any other advisory capacity.

b. It shall be a breach of ethical standards for any person to offer, give, or agree to give any employee or former employee, or for any employee or former employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment, in connection with any decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or purchase standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling or other determination, claim or controversy, or other particular matter, pertaining to any contract or subcontract and any solicitation or proposal therefore.

c. It is a breach of ethical standards for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

d. The prohibition against conflicts of interest and gratuities and kickbacks shall be conspicuously set forth in every local public agency written contract and solicitation therefore.

e. It shall be a breach of ethical standards for any public employee or former employee knowingly to use confidential information for his actual or anticipated personal gain, or the actual or anticipated personal gain of any other person.
15. CONTRACT MODIFICATIONS

During the period of the contract, no modification shall be permitted in any of its conditions and specifications unless the contractor receives written approval from the Purchasing Manager. If the contractor finds at any time that existing conditions make modification in requirements necessary, he shall promptly report such matter to the Purchasing Manager for consideration and decision. All contract modifications shall be subject to the provisions of 200 KAR 5:311.

16. ADDITIONAL CHARGES/FEES

The bid price of the product is the complete product price. There will be no fuel surcharges, delivery fees, handling fees, container return fees, or any other fees/charges associated with the purchase, installation or delivery of products.

17. SELLER’S INVOICES

Invoices shall be prepared and transmitted via fax or USPS to HWU at the provided address. Invoices shall contain, at a minimum, the following information: Purchase Order number, Bill of Lading number, delivery location, and an appropriate weight ticket, where applicable.

HWU is a municipality and invoices are processed for payment not less than once per month. Terms are net 30 after receipt of invoice.

18. PRECEDENCE OF PROVISIONS

In the event of an inconsistency between provisions of the solicitation, the inconsistency shall be resolved by giving precedence in the following order: (a) Addenda, if issued; (b) Solicitation Instructions and Conditions; (c) General Conditions; (d) other provisions of the contract, whether incorporated by reference or otherwise; and, e) the Technical Specifications.

19. NONDISCRIMINATION

Civil Rights Act of 1964: In accordance with the provisions of Title VI of the Civil Rights Act of 1964 and the regulations of the Federal Department of Transportation (49 CFR, part 21) issued pursuant to such Act, all bidders are hereby notified that HWU will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the responsible bidder with the lowest evaluated bid without discrimination on the grounds of race, color, national origin, disability, gender, or age.

Americans with Disabilities Act: In accordance with the provisions of The Americans with Disabilities Act of 1990 (ADA) which specifically prohibits discrimination against persons with disabilities, all bidders are hereby notified that the contract entered into pursuant to this advertisement shall include a clause that specifically requires compliance with the ADA and prohibits discrimination against persons with disabilities. The ADA further requires that all new construction, reconstruction, and alterations to existing pedestrian facilities be constructed in accordance with Federal accessibility standards.
20. WAGES AND HOURS

Contractor shall conform to the provisions of all rules, regulations and statutes pertaining to wages and hours of work, including the requirements of the wage determination attached to these specifications and made a part thereof. The schedule of wages shall be attached to and made a part of the contract for construction between HWU and the Contractor. Contractor shall not pay less than the prevailing hourly wage as shown to all laborers, workmen and mechanics performing work under the contract. Contractor’s bonds shall include provisions that guarantee faithful performance of the prevailing hourly wage clause in the contract.

Contractors shall conform to the requirements of KRS Chapter 337 as regards posting of wage schedules, submittal of certified payroll records, and recording and retention of payroll reports and records, including wages and working hours.
21. INSURANCE

Contractors, including all Subcontractors, furnishing labor, and/or equipment under this requirement shall carry the following insurance in addition to all insurance required by law. Valid certificates of insurance shall be furnished to the Owner prior to the Contractor causing any work to begin.

<table>
<thead>
<tr>
<th>A. Workman’s Compensation</th>
<th>Statutory</th>
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<tbody>
<tr>
<td>B. Broad Form Comprehensive General Liability including coverage for Bodily Injury, Personal Injury, Products, Completed Operations, and Broad Form Property Damage, (No deductible clauses are acceptable for these coverages), and Independent Contractors (Subcontractors)</td>
<td>Bodily Injury: $1,000,000 each occurrence $2,000,000 aggregate Property Damage: $1,000,000 each occurrence</td>
</tr>
<tr>
<td>C. Comprehensive Automobile Liability, including Hired Car and Employer’s Non-Ownership Liability Coverage.</td>
<td>$1,000,000 Combined Single Limit</td>
</tr>
<tr>
<td>D. Endorsement naming as additional insured “The Henderson Water and Sewer Commission, its elected and appointed officials, employees, agents, boards, consultants, assigns, volunteers and successors in interest.”</td>
<td></td>
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<tr>
<td>E. Endorsement that Contractor’s insurance coverage shall be primary insurance as respects HWU. Any insurance or self-insurance maintained by HWU shall be separate from Contractor’s insurance and shall not contribute with it.</td>
<td></td>
</tr>
<tr>
<td>F. Certificates of insurance, issued by companies authorized to do business in the state of Kentucky, satisfactory in form to the HWU and signed by the Bidder’s insurer shall be supplied by Bidder to HWU evidencing that the above insurance is in force and that not less than thirty (30) calendar days written notice will be given to the HWU prior to any cancellation or restrictive modification of the policies. Bidder shall replace any cancelled policy within the thirty (30) day notice period so that there is no lapse in coverage at any time during the period covered by this contract.</td>
<td></td>
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</tbody>
</table>

The insurance shall:

a) Include the interests of the Owner, Contractor, Subcontractor, Engineer, Engineer’s consultants and any other individuals, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

b) Be written on a Builder’s Risk “all-risk” or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss.

c) Remain in effect for the duration of the contract and warranty period.
BID FORM

PROJECT IDENTIFICATION: Henderson Riverport/Custom Resins Water Main Project
Henderson Water Utility
Ref# - 2018 - 28

THIS BID SUBMITTED TO: Henderson Water Utility
111 Fifth Street
Henderson, KY  42420

CONTACT INFORMATION: All questions regarding this bid solicitation should be directed to the
Purchasing Manager as per item #3 in the Solicitation Instructions and Conditions.

DATE REFERENCES: Last day for bid clarifications:  29 October 2018
Bid Closing:  31 October 2018, 1:30 p.m.
HWU Board Meeting (award): 19 November 2018

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to furnish equipment as
specified or indicated in the Bid Documents and Technical Specifications for the Bid Price(s) and in
accordance with the other terms and conditions of the Bid Documents and Technical Specifications.

2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and the Bid
Documents and Specifications. This bid will remain subject to acceptance for ninety days after the day
of bid closing.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement that:

   a. BIDDER has examined copies of all the Bidding Documents and of the following addenda
      (receipt of all which is hereby acknowledged):

      | DATE | NUMBER |
      |------|--------|
      |      |        |

   b. BIDDER has familiarized itself with the nature and extent of the Bid Documents and Technical
      Specifications, and all conditions, laws and regulations that in any manner may affect cost, or
      furnishing the equipment required.

   c. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person,
      firm or corporation and is not submitted in conformity with any agreement or rules of any
      group, association, organization or corporation; BIDDER has not directly or indirectly induced
      or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or
      induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought
      by collusion to obtain for itself any advantage over any other Bidder or over the PURCHASER.
Bidder acknowledges and certifies by submission of his bid that all the provisions and statutes of KRS 45a.465 are complied with fully.

d. Specify a unit price in figures for each bid item for which a quantity is given and show the products of the respective unit prices and quantities written in figures in the space provided for that purpose. Round the products by dropping all digits past the cent. Write in ink or type all figures. In case of discrepancy between a unit price and extended price, the unit price shall govern.

Bid Form
Furnish and Install Pipe, Valves, Fittings and Accessories
Pricing to be held for 60 days after submittal is opened

ITEM No. 1: Mobilization & Demobilization
Includes Mobilization and Demobilization of personnel and subcontractors to site, general conditions, traffic control, Bid Bond, Performance and Payment Bond, etc., and all other costs not included in the other items under this Contract. This item will be paid 75% with the first pay application after the start of construction, and 25% with the last pay application, and includes all costs of any subsequent demobilizations and re-mobilizations as required by the project schedule.

LUMP SUM BID PRICE____________________________________________________
____________________________________________ Dollars ($_______________).
(Use words)       (figures)

ITEM No. 2: 12” Potable Water Line
2,400 Linear Feet of 12” Water Pipe, PVC C-900, 235 psi pressure class, DR-18, including excavation and disposal of trench materials; furnishing and installing all pipe, tees for hydrant connections, reducers, gate valves (line), joint restraint and other materials, as shown on the plans; moving the fire hydrant at Detail “F”; furnishing and installing all thrust blocking; furnishing and installing bedding and backfill (Methods A, B or C, as required) including pavement replacement in areas that are currently paved; furnishing and installing tracer wire and metallic locator tape per HWU Standard detail; testing and disinfection; all complete and ready for use.

2,400 Linear Feet @ $_______________ Equals $________________________
Unit Price L.F.             Extended Amount
ITEM No. 3: Standard 3-Way Hydrant Installation (complete)

Four (4) – 4-Foot Bury, 5-1/4 inch (5-1/4”) AWWA Standard 3-Way Hydrant, (per Standard Detail HWU 001) including excavation and disposal of trench materials; furnishing and installing all materials, including 6” water pipe as required between mainline tee, gate valve and hydrant (PVC, C-900, DR 18); thrust blocks; 6” gate valve and valve box with cast iron cover; 3/8-inch copper ground rod; anchoring tee; megalug retainer glands; tracer wire; river gravel backfill; all other items shown on the detail drawing attached, testing; furnishing and installing bedding and backfill; all complete and ready for use. (Note: the 12” x 12” x 6” pipe tee required at each hydrant location shall be included in Item 2 above).

\[
\begin{align*}
4 \text{ Each} @ \$ & \quad \text{Equals } \$ \\
\text{Unit Price L.F.} & \quad \text{Extended Amount}
\end{align*}
\]

ITEM No. 4: 22” Diameter Steel Casing Bore Under CSX Railroad

130 Linear Feet of 22” Diameter Steel Casing Pipe (minimum wall thickness 0.344 inches) bored under CSX Railroad tracks, including excavation and refilling of boring and receiving pits; furnishing and installing all casing pipe, stainless steel casing insulators with nylon shoes, and casing end seals; installation of water main in the casing (paid for under Item 2 above); all complete and ready for use. (Note: the 12” PVC pipe inside the casing shall be included in Item 2 above).

\[
\begin{align*}
130 \text{ Linear Feet} @ \$ & \quad \text{Equals } \$ \\
\text{Unit Price L.F.} & \quad \text{Extended Amount}
\end{align*}
\]

ITEM No. 5: Grading, Seeding, Mulching, and Erosion Control

Includes all backfill of trenches; grading of ditches as shown on the plans, including setting alignment and grade; seeding and mulching all disturbed areas after construction is complete; erosion control during construction and post construction; warranty repairs as required; all complete in place and ready for use.

\[
\text{LUMP SUM BID PRICE } \$ ________
\]

\[
\text{Dollars } (\$ ________). \quad \text{(Use words)} \quad \text{(figures)}
\]
TOTAL BASE BID PRICE

TOTAL BID PRICE____________________________________________________

____________________________________________ Dollars ($______________).

(Use words) (figures)

Bidders – please attach a “post-it” note or other tag to this page, in your completed bid.
Shop Drawing / Equipment Delivery Schedule:

Number of days from Award of Purchase Order to shop drawings: ________ days

Number of days from shop drawing approval to substantial completion: ________ days

Note: Schedule will not be considered as a rating factor in bid evaluation.

Exceptions Taken to this Proposal: List any and all exceptions. (If none, check here). □
SIGNATURE PAGE

Non-Collusive Bid Statement: The undersigned bidder, having fully informed himself regarding the accuracy of the statements made herein, certifies that: (1) The bid has been arrived at by the bidder independently and has been submitted without collusion with and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment, or services described in the bid, designed to limit independent bidding or competition, and (2) The contents of the bid have not been communicated by the bidder or its employees or agents to any person not any employee or agent of the bidder or its surety on any bond furnished with the bid, and will not be communicate by any such person prior to the official opening of the bid.

_________________________________
Signature of Authorized Official

_________________________________
Name and Title (printed)

_________________________________
Legal Name of Business

_________________________________
Address

_________________________________
Address

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Address

_________________________________
Telephone Number

_________________________________
Date

Affix seal below if bid is by corporation.

This seal was herewith affixed in the presence of:

Signature ____________________________ Title ______________________________
REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS
CLAIMING QUALIFIED BIDDER STATUS

FOR BIDS AND CONTRACTS IN GENERAL:
I. The bidder or offeror swears and affirms under penalty of perjury that the entity bidding, and all subcontractors therein, meets the requirements to be considered a “qualified bidder” in accordance with 200 KAR 5:410(3); and will continue to comply with such requirements for the duration of any contract awarded. Please identify below the particular “qualified bidder” status claimed by the bidding entity.

_______ A nonprofit corporation that furthers the purposes of KRS Chapter 163

_______ Per KRS 45A.465 (3), a “Qualified nonprofit agency for individuals with severe disabilities” means an organization that:

(a) Is organized and operated in the interest of individuals with severe disabilities; and

(b) Complies with any applicable occupational health and safety law of the United States and the Commonwealth; and

(c) In the manufacture or provision of products or services listed or purchased under KRS 45A.470, during the fiscal year employs individuals with severe disabilities for not less than seventy-five percent (75%) of the man hours of direct labor required for the manufacture or provision of the products or services; and

(d) Is registered and in good standing as a nonprofit organization with the Secretary of State.

The BIDDING AGENCY reserves the right to request documentation supporting a bidder’s claim of qualified bidder status. Failure to provide such documentation upon request may result in disqualification of the bidder or contract termination.

______________________________       ________________________________
Signature                     Printed Name

______________________________       ________________________________
Title                        Date

______________________________       ________________________________
Company Name                Address

Subscribed and sworn to before me by __________________________ this _____ day of
________________________________, 2018.

______________________________       ________________________________
Notary Public               My Commission Expires

[Seal of Notary]

Check this box if not claiming Qualified Bidder Status ☐
REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS CLAIMING RESIDENT BIDDER STATUS

FOR BIDS AND CONTRACTS IN GENERAL:

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

1. Is authorized to transact business in the Commonwealth;
2. Has for one year prior to and through the date of advertisement
   a. Filed Kentucky corporate income taxes;
   b. Made payments to the Kentucky unemployment insurance fund established in KRS 341.49; and
   c. Maintained a Kentucky workers’ compensation policy in effect.

The BIDDING AGENCY reserves the right to request documentation supporting a bidder’s claim of resident bidder status. Failure to provide such documentation upon request shall result in disqualification of the bidder or contract termination.

__________________________  __________________________
Signature                  Printed Name

__________________________  __________________________
Title                     Date

__________________________  __________________________
Company Name               Address

__________________________  __________________________
Subscribed and sworn to before me by ______________________ this _____ day of __________________, 2018.

__________________________  __________________________
Notary Public               My Commission Expires

[Seal of Notary]

Check this box if not claiming Resident Bidder Status [ ]
A. GENERAL

1. SCOPE OF WORK

This request is for a proposal to furnish and install pipe, valves, fittings and accessories on the Henderson Riverport/Custom Resins Water Main project for the Henderson Water Utility, Henderson, Kentucky.

Each bid item should include any delivery fees, handling fees, fuel surcharges, or any other fees/charges associated with the purchase, delivery and installation of the product.

If the total construction contract amount (bid) awarded is an amount more than twenty-five thousand dollars ($25,000), a Performance bond and a Payment bond shall be furnished. Performance and Payment bonds shall be in an amount equal to one hundred percent (100%) of the contract price.

Bid security (bid bond) in an amount equal to five percent (5%) of the amount of the bid shall be furnished for all bids.

2. SUBMITTALS (Shop Drawings)

The Vendor shall submit to the Engineer a minimum of three copies of information describing and depicting the details of the equipment, controls, materials and/or services to be provided, hereinafter referred to as “shop drawings.” After approval, the Engineer will distribute the shop drawings as follows: two sets to Owner’s central files, and one set to the Vendor. If the Vendor requires more copies, specify that at the time of submittal; the Engineer will review up to five sets of each shop drawing submittal.

Shop drawings shall be submitted no later than 30 days after the purchase order date.

Rejection of the same shop drawings on three separate occasions shall constitute grounds for total rejection of the proposed vendor as being unable or unwilling to meet the requirements of this request for proposals.

Shop drawings for the equipment and materials described in this Request for Proposals must show, as a minimum, the following information:

- Manufacturer’s cut sheets or other detailed product information.
- Detailed dimensional drawings of each valve and fitting.
- Detailed description of materials of construction and applicable standards.

3. MATERIAL TO BE OBTAINED FROM THE CONTRACTOR

The Bidder shall provide all items named in this Request for Proposals or so noted on the Purchase Order and such incidental items as may be required for the safe and proper installation and operation of the materials and equipment furnished for the purpose(s) intended.
The Vendor shall provide all gaskets, bolts, and other miscellaneous items required to install the material described in this Request for Proposals.

Equipment or materials offered contrary to the provisions of this Paragraph will be subject to rejection.

4. TRANSPORT AND DELIVERY

Transport and handle coated pipe and other items using equipment and methods that prevent damage to the coating. Deliver pipe adequately stored on timbers or pallets. Valves, gaskets, fittings and small parts shall be delivered on pallets, and shall be boxed, shrink-wrapped, or otherwise protected from weather and loss.

Repair minor damage to exterior and interior coatings as the Engineer directs before pipe installation. Significant damage due to improper procedures for packing and handling of pipe and other materials will be reason for rejection.

5. MATERIALS OR EQUIPMENT TO BE FURNISHED (“OR EQUAL” CLAUSES)

Where the specifications state "equal to" followed by a brand name or model, a standard of quality is being set. The naming of a brand or model is a matter of convenience to avoid writing a volume. Other brands or equipment under this category may be submitted. The Engineer will consider other products on the basis of materials of construction, weight, function, size (it must fit the space provided), service history and electrical and mechanical characteristics.

Where the specifications state one or more model numbers and manufacturers followed by the words "or approved equal" the meaning is that the product(s) specified is acceptable and that while there may be other products that are acceptable the only way to be assured is to submit the desired substitution during the BID PROCESS and receive an affirmative answer. The Engineer will consider the factors previously described in making the determination.

Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. The Engineer shall have the right to require the use of such specifically designated material, article, or process. The Engineer, where practical, may require submission of actual samples of materials or products.

B. MATERIALS

1. PVC PIPE
   a. PVC pipe 4” thru 12” diameter for potable water main shall conform to AWWA C900, 235 psi pressure class, dimension ratio DR 18.0. Joints shall be of the push-on type as specified.
   b. PVC pipe with rubber gaskets shall conform to dimensions and tolerances: ASTM D-2241, ASTM D-2122, and NSF International F-14.
   c. Materials: ASTM D-1784 and NSF International for potable water use. Pipe and couplings shall be made of virgin PVC compounds with a cell classification of 12454-A or 12454-B. The hydrostatic design basis rating shall be 4,000 psi for water at 73.4 degrees F (23 degrees C).
e. Lubricants: Compatible with PVC materials and approved for use in potable water line pipe.

f. Each piece of pipe shall bear the manufacturer’s name or trademark, and the NSF International (NSF) mark of approval.

2. DUCTILE IRON FITTINGS

a. Ductile iron fittings shall be designed in accordance with the latest revision of ANSI/AWWA C153/A21.53 for a minimum 150 psi pressure (or project requirements, whichever is greater) rated working pressure plus a 100psi surge allowance, (if anticipated surge pressures are other than 100 psi, the actual anticipated pressure should be used); a 2 to 1 factor of safety on the sum of working pressure, plus surge pressure.

b. Ductile iron fittings shall be manufactured in the U.S.A. in accordance with the latest revision of ANSI/AWWA C153/A21.53.

c. Fittings shall have a standard asphaltic coating on the exterior. The fittings shall also have a cement-mortar lining on the interior in accordance with the latest revision of ANSI/AWWA C104/A21.4.

d. All fittings shall be mechanical joint ends. The joints shall be in accordance with the latest revision of ANSI/AWWA C111/A21.11.

e. Fittings shall be the fitting alone with no accessory packs.

3. ACCESSORY PACKS & PIPE RESTRAINTS KITS

a. All accessory packs and pipe restraints shall be manufactured in the U.S.A.

b. Accessory packs and pipe restraints shall be designed in accordance with the latest revision of ASTM A536, Grade 65-45-12. The accessory pack gaskets shall be designed in accordance to ANSI/AWWA C111/A21.11. The accessory pack T-bolts and nuts shall be UNC T-bolts, heavy hex nuts, high strength, low-alloy steel per AWWA C111. The pipe restraints shall be Ford UFR1500-CA-U series or approved equal and shall be furnished with the gasket and T-bolts and nuts.

c. Flange accessory packs shall consist of a 1/8-inch-thick red rubber full faced gasket, and 18.8 stainless steel hex cap bolts and nuts.

d. Joint Restraint Harness shall be Series 1500TD by EBBA Iron, or approved equal.

4. FIRE HYDRANTS

a. Fire hydrants shall be designed and manufactured in accordance with the latest revision of ANSI/AWWA C502.

b. Hydrants shall be furnished for a minimum 3'-6” bury depth. The operating nut shall be an open left 1-1/2-in pentagonal operating nut. The hydrant barrel shall have a safety breakage feature above the ground line. All hydrants shall have 6-inch mechanical joint shoe connection; two 2-1/2-inch hose discharge nozzles and one 4-1/2-inch pumper nozzle. The nozzle connection threads shall be National Standard Hose Coupling Threads (N.S.T.). The main valve shall have 5-1/4-inch full opening and be of the compression type, opening against water pressure so that the main valve remains...
closed should the barrel be broken off. Each nozzle is to be protected by nozzle caps. The caps shall be furnished with a 1-1/2-in pentagonal opening nut, gasket and attachment chains. The pumper nozzle shall be furnished with a 5” quick connect nozzle, Storz or approved equal.

c. Coating shall be Fusion Bonded Epoxy and Polyester. Hydrants shall be painted yellow, including the bonnet.

d. Fire Hydrants shall be fully bronze mounted, or a stainless-steel construction. The main valves shall have a threaded bronze seat ring assembly of such design that is easily removable by unscrewing from a threaded bronze drain ring. Drainage waterways shall be completely bronze to prevent rust or corrosion. Bronze parts that meet potable water shall conform to NSF/ANSI 61-G.

e. The operating stem shall be equipped with anti-friction thrust bearings to reduce operating torque and assure easy opening. A stop shall be provided to limit stem travel. Stem threads shall be enclosed in a permanently sealed lubricant reservoir protected from weather and waterway with O-ring seals.

f. Quick-connect nozzles shall be “Storz” by Kochek Co., Inc., or approved equal, and shall have a 5” metal face, a 4 1/2” NH female face for connection to the hydrant, (3) set screws, low profile hydrant nut cap, and 3/32-inch stainless steel aircraft cable retainer. Color shall be dark grey.

g. Fire hydrants shall be AVK Model 2780-5” Storz, Kennedy K81D, or approved equal.

5. GATE VALVES

a. Ductile Iron Gate valves shall be designed in accordance with the latest revision of ANSI/AWWA C509.

b. Ductile Iron Gate valves shall be manufactured in the USA in accordance with the latest revision of ANSI/AWWA C509, and shall conform to NSF/ANSI 61-G.

c. All valves shall be furnished with 2” square operating nut and shall be opened by turning to the left (counterclockwise).

d. Ductile Iron Gate valves shall be Kennedy Model 4571, 4561, or equal.

e. Mechanical Joint Tapping Gate valves shall be Kennedy 8950SS, or approved equal.

6. BRASS COUPLINGS AND FITTINGS

a. All brass couplings and fittings shall be constructed of a lead-free brass alloy, meeting the requirements of UNS/CDA number C89833 as listed in ANSI/AWWA C800, and the products produced with this alloy shall meet ANSI/NSF Standard 61 and/or ANSI NSF Standard 372 as applicable.

b. Corporation stops sized for 3/4 –inch and 1-inch services, shall be Ford F600-NL series or approved equal.

c. The Flare x Flare straight coupling shall be FORD C22-NL series, or approved equal.
7. VALVE BOXES
   a. Valve boxes shall be 5-1/4-inch, standard cast iron, three (3) piece, screw-type with drop covers marked “Water”.
   b. Valve boxes and covers shall be as manufactured by Tyler Corporation, Opelika Foundry, Bingham & Taylor, or approved equal.

8. TRACER WIRE
   a. Tracer wire shall be a solid copper core 12-gauge THHN wire.
   b. Tracer wire shall be a length of five hundred foot (500’) on a spool.
   c. Tracer wire color shall be one of the following colors: Yellow, Green, Blue, Red, or White.
   d. Tracer wire shall be manufactured by Republic Wire, Inc. or approved equal. (Manufacturer’s Part Number - 12ga SOL THHN 0.015 INS-AWM Style 1408).

9. DETECTABLE BURY TAPE
   a. Detectable bury tape shall be a two-inch (2”) by one-thousand-foot (1,000’) length roll.
   b. Detectable bury tape shall be a laminated ply tape with a magnetic detectable core, capable of being detected/located by either conductive or inductive location techniques.
   c. Detectable bury tape shall have the top side marked and color-band coded in the accepted APWA recommended color, Blue for water Green for sewer and storm lines.
   d. Detectable bury tape shall be marked with a continuous message “CAUTION WATER LINE BURIED BELOW” every twenty to thirty-six (20” to 36”) inches.
   e. Detectable bury tape shall be manufactured by Mutual Industries Inc. or approved equal. (Manufacturer’s Part Numbers 17774-25-2000, 17774-32-2000).

10. STEEL CASING PIPE AND ACCESSORIES
    a. Casing pipe shall be steel, plain end, uncoated and unwrapped, have a minimum yield point strength of 35,000 psi and conform to ASTM A252 Grade 2 or ASTM A139 Grade B without hydrostatic tests. The steel pipe shall have welded joints and be in at least 18-foot lengths. Pipe shall be straight along the centerline axis within 1/50 of the outside diameter and shall be free from dents or humps with a depth greater than ¼ inch.
    b. Casing pipe shall be a minimum of Schedule 20.
    c. Casing spacers for PVC pipe shall be provided at six-foot (6’) intervals. Provide Cascade Waterworks Manufacturing CSS series or approved equal.
    d. Casing end seals shall be model “AM” by Advance Products & Systems, Inc., (www.apsonline.com) or approved equal.
C. INSTALLATION

1. TRENCH EXCAVATION

Trenching shall be accomplished as described hereinafter. All excavation shall be “unclassified” and no additional payment will be made for rock excavation unless a separate bid item is provided for rock excavation. Rock is defined herein as hardpan or bedrock of such consistency as to not be breakable with standard excavating equipment and excludes any rubble or boulders.

Unless otherwise directed by the Engineer, trenches in which pipes are to be laid shall be excavated in open cut to the depths shown on the plans. Excavation in earth shall undercut the pipe to a depth below the required invert elevation that will permit laying the pipe in a bed of granular material to provide continuous support for the bottom quadrant of the pipe. The bedding shall be as set out in hereinafter.

Trenches shall be of sufficient width to provide free working space on each side of the pipe and to permit backfilling around the pipe, but unless specifically authorized by the Engineer, trenches shall in no case be excavated or permitted to become wider than 2 feet 6 inches plus the nominal diameter of the pipe at the level of or below the top of the pipe. If the trench does become wider than 2 feet 6 inches at the level of or below the top of the pipe, special precautions may be necessary, such as providing compacted, granular fill up to top of the pipe or providing the pipe with additional crushing strength as determined by the Engineer after taking into account the actual trench loads that may result and the strength of the pipe being used. The Contractor shall bear the cost of such special precautions as are necessary.

Prior to excavating the trench, Contractor shall pothole far enough ahead to reveal obstructions that may necessitate changing the line or grade of the pipeline, in order to avoid delays or the addition of avoidable fittings. Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may necessitate changing the line or grade of the pipeline.

Unless specifically directed otherwise by the Engineer, not more than 100 feet of trench shall be opened ahead of pipe laying work of any one crew, and not more than 100 feet of open ditch shall be left behind the pipe laying work of any one crew. Watchman 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, excavation and other obstructions, shall be provided by and at the expense of the Contractor. Conformance to all state highway requirements shall be the responsibility of the Contractor when encroachment on state right-of-way is necessary.

When directed by the Engineer, only one-half of street crossings and road crossing 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 a manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and property owners abutting shall be taken into consideration. All public or private drives shall be taken into consideration and shall be promptly backfilled.
or bridged at the direction of the Engineer. Disposal of excavated materials shall cause as little interference with the work as possible, and in every case the disposition of materials shall be satisfactory to the Engineer. Trenches in which pipes are to be laid shall be excavated in open cut to the depths shown on the approved plans, cut sheets or as specified by the Engineer.

Where conditions exist that may be conductive to slides or cave-ins, proper and adequate sheeting, shoring and bracing shall be installed to provide safe working conditions and to prevent damage to work. Trenches shall be kept free of water during the laying of the pipe and until the pipeline has been backfilled. All excavation shall be in accordance with OSHA and/or KOSHA regulations. Where a trench box is used, the excavation shall be made such that the box rests on undisturbed soil fully above the top of the installed pipe to a maximum of two (2) feet or the maximum allowed by other regulation, whichever is less; to avoid disturbing the pipe bedding when the box is pulled forward. Where sheeting or shoring is used, it shall be fully removed with the completion of backfilling unless otherwise approved in writing by HWU.

Water line trenches shall be excavated to the depths shown on the plans or as directed by the Engineer. If depths are not shown on the plans, all water lines shall have 3'-6” to 4’-0” cover unless otherwise approved by the Engineer.

Dewatering of trenches shall be considered a part of trenching, at no extra cost to the Owner. Dewatering of trenches shall include ground water and storm or sanitary sewage. Suitable pumping and other dewatering equipment are to be provided by the Contractor, to insure the installation of the pipeline structure in a dewatered trench and under the proper conditions. Dewatering shall include all practical means available for prevention of surface runoff into trenches and scouring against newly laid pipe.

Wherever pipelines are in, or cross, driveways and streets, the Contractor shall be responsible for any trench settlement which occurs within these rights-of-way within one (1) year from the time of final acceptance of the work. If paving shall require replacement because of trench settlement within this time, it shall be removed and/or replaced by the Contractor at no extra cost to the Owner. Repair of settlement damage shall meet the approval of the Engineer, and the agency having jurisdiction over the roadway.

2. LAYING OF PIPE

2.1 Laying Requirements

Pressure pipe shall be installed in accordance with AWWA C600, latest revision, and laid to lines, cover or grades shown on the drawings. Water lines installed on a slope greater than 20 percent shall be approved on a case by case basis by HWU.

Each segment of pipe must be swabbed out before lowering into trench. All pipe shall be visually inspected for cleanliness and proper jointing.
All pipe shall be laid with: proper alignment; evenness of width and depth of joints; perfection in jointing; and care of the pipe in handling. Joint deflections shall not exceed one-half of the manufacturer’s recommended maximum allowable.

Precautions must be taken to prevent flotation of the pipe should water enter the trench prior to putting the pipeline into operation.

In wet, yielding or mucky locations where pipe is in danger of sinking below grade or floating out of grade or alignment, or where the backfill materials are of such a fluid nature that such movements of the 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. If crushed rock fill beneath the pipe is necessary for stability, it will be paid for at the unit price bid per ton of such material in place except in cases where instability is caused by neglect of the Contractor.

Whenever pipe laying is stopped, the end of the pipe shall be securely plugged with a watertight plug.

Elbows, plugs, dead end valves, and tees shall be firmly blocked, as shown on the Drawings, to prevent internal pressure from springing the pipe from the intended alignment, with permanent materials solidly placed without covering pipe joints.

No pipe shall be laid resting on solid rock, blocking or other unyielding objects. Pipe shall not be belled prior to being lowered into the trench except as otherwise stated herein or pre-approved by HWU.

When locating near sewer lines, the horizontal separation between water and sewer lines should be at least 10 feet measured to the pipe wall exterior. Should conditions prevent a horizontal separation of 10 feet, HWU may allow a deviation on a case by case basis. Such deviation may be allowed if the sewer is laid in a separate trench or if it is laid in the same trench with the water main located at one side on a bench of undisturbed earth. In either case, the elevation of the crown of the sewer must be at least 18 inches below the invert of the water main.

Water mains crossing above sewer lines shall be waterworks grade ductile iron pipe. The crossing shall be at the midpoint of the section of sewer pipe. The ductile iron water pipe shall be laid with a 20-foot section of pipe centered at the sewer line to ensure that joints are as far as possible from the crossing.

Water mains crossing sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. Should conditions prevent the water main from being buried to meet the above requirements and maintain minimum cover, HWU may allow a deviation on a case by case basis, if supported by data from the Engineer. Such deviation may be allowed if the sanitary sewer line is constructed with ductile iron pipe with protective internal coating of “Protecto-401” or equivalent epoxy coating (RCP or cement lined DIP for storm sewer) for a distance of 10 feet on each side of the water line and one full length of water main is centered over the sewer so that both joints will be as far from the sewer as possible.
As an alternative for existing sewers, the sewer line may be encased in a steel casing pipe with end seals for 10 feet on each side of the water line.

2.2 PIPE BEDDING

All water main pipe shall be bedded with select material. Where suitable soil conditions are encountered, the trench bottom may be shaped to cradle the bottom 60 degrees of the pipe.

All water main pipe shall be supported on a smoothly graded trench bottom. Holes in the trench bottom or bedding for pipe bells must be provided at each joint and should be no larger than necessary for proper joint assembly and assurance that pipe barrel will lie flat on trench bottom. The trench must supply true and even support for pipe.

In no case shall the pipe be supported directly on solid rock. When rock is encountered in the trench bottom, bedding shall consist of fine gravel or size #9 crushed stone only.

2.3 SPECIAL BACKFILL

Crushed stone for “Special Backfill” where required as set out in these specifications, shall be Kentucky Transportation Cabinet crushed stone, size #9. In locations that require “SPECIAL BACKFILL” the entire trench shall be filled with No. 9 crushed stone to a point 4” below the final subgrade. In most cases this will occur under road crossings. The top 6” of the trench shall be filled with DGA followed by the appropriate layer of surface material (asphalt, concrete, gravel, etc.) to bring the trench to final grade.

All bore pits and any over digging related to such will be stabilized with #3 stone and backfilled with #9 stone to sub-grade.

2.4 INSTALLATION AND JOINTING

Jointing of push-on type Ductile Iron Pipe or PVC Pipe with rubber gasket couplings shall be accomplished in accordance with the manufacturer’s specifications.

Pipe shall not be laid in water or upon frozen sub grade at any time or condition when, in the opinion of the Engineer, conditions are unsuitable.

HDPE shall be installed either by Open Trench construction or Directional Bore method. HDPE pipe shall be joined by thermal butt fusion. HDPE joints shall be made in strict compliance with the manufacturer’s recommendations.

Mechanical connections of HDPE pipe to valves, meters, etc. shall be through flanged connections which shall consist of the following: A polyethylene flange shall be thermally butt-fused to the stub end of the pipe; a 316 stainless steel back up ring shall mate with a 316 stainless steel flange; 316 stainless steel bolts and nuts shall be used.

3. BACKFILL AND PAVING

Backfilling of pipeline trenches shall be accomplished in accordance with the details set forth hereinafter.

In all cases walking or working on the completed pipelines, except as may be necessary in tamping or backfilling, will not be permitted until the trench has been backfilled to a
point one foot (1') above the top of the pipe. The filling of the trench and compaction of the backfill shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipeline will not be disturbed and injurious side pressures do not occur. The methods of backfilling shall be as follows:

**Method “A” - Backfilling in Open Terrain:**

The lower portion of the trench, from the pipe bedding to a point six (6) inches above the top outside surface of the pipe, shall be backfilled with previously excavated soil material which is free from rock and/or acceptable to the Engineer. This soil material shall be placed in a manner approved by the Engineer and shall be lightly compacted by walking in or hand tamping to avoid displacement of the pipe. Crushed stone or fine gravel may be used as backfill in lieu of the compacted soil materials. Tamping or compaction, or materials used in lieu of same, is not a separate pay item.

The upper portion of the trench above the compacted portion shall be backfilled with material which is free from large rock. Incorporation of rock with any individual piece having a volume exceeding eight (8) cubic inches is prohibited. Backfilling this portion of the trench may be accomplished by any means approved by the Engineer. The trench backfill shall be heaped over the top of the trench or leveled as directed by the Engineer. Material for backfilling the upper portion of the trench is not a separate pay item.

**Method “B” - Backfilling Under Sidewalks and Unpaved Driveways:**

The trench from the bottom of the trench to grade shall be backfilled with No. 9 crushed stone.

**Method “C” - Backfilling Under Streets, Roads and Paved Driveways:**

The lower portion of the trench to a point six inches (6") below the bottom of the pavement or concrete sub-slab shall be backfilled with No. 9 crushed stone or fine gravel. Backfill for the lower portion of the trench is not a separate pay item.

The upper portion of the trench, from the top of the #9 stone to grade, shall be backfilled with a base course of dense graded aggregate. At such time that pavement replacement is accomplished, the excess base course shall be removed as required. Material for backfilling the upper portion of the trench is not a separate pay item.

Before final acceptance, the Contractor will be required to level off all trenches or to bring the trench up to grade. The Contractor shall, at his expense, also remove and legally dispose of all excess earth or other materials from roadways, rights-of-way and/or private property. Hazardous materials shall be handled and disposed of in accordance with all local, State and Federal requirements.

In the event that pavement is not placed immediately following trench backfilling in streets and highways, the Contractor shall be responsible for maintaining the trench surface in a smooth and level condition at proper pavement grade at all times. The Contractor shall be liable for any damage to persons or property resulting from the Contractor’s failure to maintain the trench surface.
Flowable fill shall be allowed as an alternate method for backfilling of utility cuts and trenches, with approval of the Engineer.

3.1 BASE COURSE FOR ASPHALT AND CEMENT CONCRETE SURFACES

Base course shall be of Dense Graded Aggregate (DGA) as per the KYTC Standard Specifications and shall be a minimum of six (6) inches thick after compaction for asphalt pavements. Additional DGA thickness may be required as shown on approved plans.

Number 610 crushed stone or crushed (recycled) concrete may be used in lieu of DGA where permitted by the Engineer. Crushed concrete used as base shall meet grading requirements set by the Engineer and shall be reasonably free from metal and other deleterious material.

The DGA shall be placed on the prepared subgrade, shaped and compacted to the lines, grades and cross sections shown on the plans or approved by the engineer. It shall have no more than plus or minus 1/2-inch deviation from the typical section after compaction. The base material shall be placed in a manner that produces uniform grades and cross sections satisfactory to the Engineer.

The DGA base shall be compacted to a density of not less than 90% of solid volume throughout the layer. The density determination will be based on the oven-dry bulk specific gravity, ASTM C-127 and the dry weight of the aggregate from the test hole. The in-place density will be determined by the Method of Test for Density of Soil in place by the Rubber-Balloon Method, ASTM D-2167.

3.2 ASPHALT BASE AND SURFACE COURSE

All asphalt shall be hot-mixed and hot-laid on a prepared subgrade, old surface or underlying course. The pavement shall consist of not less than:

Three (3) inches of KYTC Class 2 Asphalt Base, 1.00D PG64-22; and
One and one half (1-1/2) inches of KYTC Class 2 Asphalt Surface, 0.38D PG64-22.

3.2.1 SPREADING AND FINISHING

All asphalt shall be laid using self-propelled pavers which are capable of spreading and screeding all courses to the indicated widths and depths, true to line, grade and cross section as shown on the plans or directed by the Engineer, with a smooth finish uniform in density and texture. The screed shall be preheated uniformly throughout its length. The paver shall be equipped with hopper and distributing screws of the reversing type that will place the material evenly in front of the screed. Mechanical or electronic devices shall be provided to confine the edge to true line and to adjust the gradeline so that minor changes in subgrade elevation will not be reflected in the finished surface.

A string line shall be used for the first lane of each layer of mixture placed to provide alignment control for the paver, except that a string line will not be required when the first layer is placed adjacent to a curb section.

Pavers shall be equipped with quick and efficient steering mechanism and shall operate at variable speeds consistent with proper placement of materials, but shall not exceed a
speed of 50 feet per minute. When placing adjacent lanes of the same course, pavers shall be equipped with a joint matching device which will automatically provide control of the depth of the mixture being placed so that, when compacted, it will match the depth of the existing lane. All paving machines shall be kept in first class mechanical condition.

All asphalt shall be placed at a temperature of not less than 225 degrees F and not more than 300 degrees F. After screeding and before rolling, the surface of each course shall be checked for irregularities and corrected as necessary. In areas where machine paving is impractical, hand spreading is allowed. The material shall be uniformly distributed, without segregation, to the depth necessary to provide the required compacted depth. Rakes may be used, but the final leveling and surface adjustment shall be done with mechanical or manually operated screeds or lutes.

Where new asphalt pavement abuts old, an edge key or other milling may be required by the Engineer to insure a smooth transition between surfaces.

3.2.2 COMPACTION

Roll each course as soon as the mixture has cooled sufficiently to bear the weight of the roller without undue displacement. Each paving operation shall have a minimum of the following rollers:

For initial or breakdown rolling on asphalt base course, one tandem steel-wheeled roller weighing not less than ten (10) tons and having a compressive capability at the rear wheels of at least 325 pounds per lineal inch of wheel width.

Provide intermediate rolling of at least 3 complete coverages with a tandem roller weighing at least ten (10) tons. Pneumatic tired rollers may be used when approved by the Engineer.

These rollers shall be in good condition, capable or reversing without backlash. The steel-wheel rollers shall be equipped with wetting devices to prevent the mixture from sticking to the roller wheels.

Perform final rolling of the uppermost layer or surface course with a tandem roller. Operate the roller, at all times, parallel to the centerline. Begin rolling at the sides and progress to the center on crowned surfaces. Begin rolling at the low side and progress to the high side on superelevated sections. Operate the rollers parallel to the centerline, and lap successive trips of each roller uniformly to the previous trip. End alternate trips of the rollers on transverse lines at least 3 feet apart. Regulate starting and stopping of the rollers to avoid distorting the surface.

In areas inaccessible to equipment, the mixture shall be thoroughly compacted by the use of hand tampers or hand operated mechanical tampers.
3.2.3 SURFACE TOLERANCE

Final surface shall show no deviation greater than 1/4 inch from a ten (10) foot straight edge placed parallel to the centerline of the street, nor more than 1/4 inch from the typical cross-section.

3.3 CONCRETE CRADLE, ANCHORS, THRUST BLOCKS OR ENCASEMENTS

Concrete anchors and thrust blocking of water mains and fittings shall be placed where shown on the Drawings, required by the Specifications, or as directed by the Engineer. Concrete shall be 2,500 psi and shall be mixed sufficiently wet to permit it to flow under the pipe to form a continuous bed. In tamping concrete, care shall be taken not to disturb the grade or line of the pipe or injure the joints.

All valves shall be anchored in accordance with the details on the project drawings.

No fitting shall be totally encased in concrete to prohibit future excavation or repairs.

Concrete cradles and/or encasement shall not be allowed except with express written permission by HWU. If concrete trench stabilization is necessary, excavate the trench and place the concrete to allow a minimum of four (4) inches of granular material between the concrete and the installed pipeline or structure. If concrete protection is required over the top of the pipeline, place a minimum of four (4) inches of granular material between the pipeline and the concrete. If flowable fill concrete is used to backfill the trench, bed the pipeline as indicated on the drawings to a point at least 6 inches above the top of the pipe prior to placement of the flowable fill.

3.4 FIRE HYDRANT INSTALLATION

Hydrants shall be located as shown on the plans or as directed by the Engineer. The location shall provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians. When placed behind the curb or sidewalk, the hydrant barrel shall be set so that no portion of the pumper or hose nozzle cap will be less than 4'-0” from the gutter face of the curb, the edge of sidewalk, or a driveway. All hydrants shall stand plumb with the pumper nozzle facing the curb. Hydrants shall be set to the established grade, with nozzles at 18 inches above finished grade as shown on the drawings or as directed by the Engineer. Unless otherwise shown, each hydrant on the drawings shall be connected to the main with a 6-inch branch connection controlled by an independent 6-inch gate valve. Fine grade river gravel to be placed 6” from surface to 6” below waterline in a 2’-0” radius around hydrant barrel, for dissipation of weep hole drainage. No drainage sump shall be connected to a sanitary sewer. No hydrant shall be set over any other utility.

All hydrants shall be provided with a thrust block, minimum of two (2), 4” x 8” x 16” precast concrete blocks, set against undisturbed earth. The backing shall be placed between undisturbed ground and the fitting to be anchored. The backing shall be so placed that the pipe and fitting joints will be accessible for repair. If shown on the
drawings or directed by the Engineer any movement shall be prevented by attaching suitable metal rods, clamps, or restrained fittings.

3.5 FITTING INSTALLATION

M.J. Fittings shall be installed with a restraining gland (Meg-a-Lug by Ebaa Iron, Uni-Flange Series 1400 by Ford Meter Box, or approved equal) or other mechanical restraining system approved in writing by HWU and torqued at the specified foot-pounds of the manufacturer. Additionally, joining restraint is required along the length of pipe as specified in the table below for the various type and size of fitting.

<table>
<thead>
<tr>
<th>PVC Pipe - Joint Restraint Length (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe Size</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>6”</td>
</tr>
<tr>
<td>8”</td>
</tr>
<tr>
<td>12”</td>
</tr>
</tbody>
</table>

Parameters

<table>
<thead>
<tr>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Type: MH (silt/clay with granular backfill)</td>
</tr>
<tr>
<td>Safety Factor: 1.5 to 1</td>
</tr>
<tr>
<td>Trench Type: 3</td>
</tr>
<tr>
<td>Depth of Bury: 3.5 ft.</td>
</tr>
<tr>
<td>Test Pressure: 150 psi</td>
</tr>
</tbody>
</table>

1.) For Vertical Bend, the Low Side Depth is 6 ft.
2.) For Tee, Length Along Run is 18 inches.

All rubber gaskets in M.J. fittings shall be soaped as per manufacturer recommendations.

Mechanical joints shall be made in accordance with the recommendations of the manufacturer. Joint bolts shall be drawn up equally around the entire periphery maintaining equal spacing from the gland to the face of the flange at all points around the joint. All bolts shall be tightened to within the following torque range. Bolts may be snugged with an air wrench.

Final tightening shall be by hand-operated torque wrench with bolts torqued to the following specifications:

<table>
<thead>
<tr>
<th>PIPE SIZE (in.)</th>
<th>BOLT SIZE (in.)</th>
<th>RANGE OF TORQUE (ft.-lb.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5/8</td>
<td>45-60</td>
</tr>
<tr>
<td>4-24</td>
<td>¾</td>
<td>75-90</td>
</tr>
<tr>
<td>30-36</td>
<td>1</td>
<td>100-120</td>
</tr>
<tr>
<td>42-48</td>
<td>1-1/4</td>
<td>120-150</td>
</tr>
</tbody>
</table>
3.6 LINE VALVES
Line valves shall be installed as shown on the plans.

3.7 HYDRANT VALVES
Hydrant valves shall be installed on a single 6” tee line with no other taps or services. Hydrant valve must isolate the hydrant only.

Valve boxes for gate valves shall be two or three-piece type. Valve boxes shall be accurately centered over valve operating nut, with backfill thoroughly tamped about them. Valve box bases shall not rest on the valves but shall be supported on crushed stone fill. They shall be set vertically and properly cut and/or adjusted so that the tops of boxes will be at grade in any paving, walk or road surface, and 2 to 3 inches above ground in grass plots, fields, woods, or other open terrain.

3.8 CASING PIPE FOR BORE OR DITCH CROSSING
Steel casing pipe for bore or ditch crossings shall be placed at the elevations shown on the Drawings. All joints between lengths shall be solidly welded with a smooth non-obstructing joint inside. The casing pipe shall be installed without bends. The pipelines shall be installed after the casing pipe is in place.

Provide and install stainless steel casing spacers and end seals.

3.9 LOCATOR WIRE AND TAPE
Tracer wire and locator tape shall be furnished and installed with all water mains. The tracer wire shall be taped or suitably held over the top center of the pipe and shall be #12 single strand copper wire with THW insulation or approved equal. All splices shall be made with the aid of DBR Direct Bury Splice Connectors as manufactured by 3M Electrical Products Division to insure continuity and insulation of the copper wire from the soil. Tracer wire shall be securely connected at flange bolts to all valves, fittings and hydrants to provide a suitable electrical connection. The electrical continuity of tracer wire between valves and fire hydrants shall be verified and defects found shall be corrected prior to acceptance by the Engineer. A metallic locator tape shall be buried in the trench a minimum of 12” over the top of the pipe and a minimum of 12” below the finished grade. The words “Caution Water Line Below” shall be repetitively printed along the length of the tape.

4. FIELD QUALITY CONTROL

4.1 TESTING PIPE
The Contractor will be required to test all pipelines and appurtenances with water. The maximum test pressure, measured at the lowest elevation of the pipeline being tested, shall be the pressure class of the pipe unless a specific test pressure is shown on the Drawings. The minimum test pressure shall be 1.5 times the design static pressure or 150 psi, whichever is greater.
When the line or section being tested is pumped up to the required pressure, it shall be valved off from the pump and a pressure gauge placed in the line. The pressure drop in the line, if any, shall be noted. If no pressure drop is noted in 4 hours, HWU, at its discretion, may accept the line or section as being tested, or HWU may require the test run the full 24 hours.

At the end of the 24-hour test period, the pressure shall be recorded. If there is a drop in pressure, the Contractor shall be required to find and repair any leaks, and retest until there is no pressure drop over the test period.

Regardless of the testing, all leaks that are evident, in the opinion of the Engineer, due to water at the surface of the ground, or by listening, the leak can be heard underground with the geophone, or any other means of determining a leak, the Contractor shall be required to repair those leaks.

The Contractor shall furnish the meter or suction tank, pipe test plugs, and bypass piping, and make all connections for conducting the above tests. The pumping equipment used shall be centrifugal pump, or other pumping equipment, which will not place shock pressures on the pipeline. Power plunger or positive displacement pumps will not be permitted for use on closed pipe system for any purpose.

Inspection of pipe laying shall in no way relieve the Contractor of the responsibility for passing tests or correcting poor workmanship.

All testing will be observed by HWU or HWU’s representative.

Test sections of water main shall not exceed 2500 feet in length. Valves are to be suitably located along the water main to accommodate this requirement.

4.2 DISINFECTION

The new section must be ready for use before disinfection is done and the new line placed into service. Disinfection shall be coordinated with and witnessed by Water Quality staff of HWU. Disinfection, dichlorination and flushing are solely the responsibility of the Contractor.

Before any new section is put into service and prior to final acceptance, the Contractor shall disinfect all constructed water lines carrying treated water in accordance with AWWA C651-14, and local and state regulations.

Prior to starting disinfection, all water mains shall be filled with water, removing air pockets, then thoroughly flushed to remove debris. Flushing velocity in the main shall be not less than three feet per second (3.0 ft/second). For larger main, pigging is an option in place of high velocity flushing.

Disinfection will then be accomplished by the adding of the chlorine solution while filling the main to obtain the initial 50 ppm of chlorine. The Contractor shall supply all equipment, labor, etc. necessary for flushing and disinfecting the mains. The Contractor shall submit, in writing, to the Engineer, the method he proposes to use for adding the
chlorine, including backflow/cross connection control, and dechlorination of highly chlorinated water used in disinfection (see section 4.3 below).

Disinfection shall be accomplished by filling the new and/or repaired portions of the system with water having a chlorine content of at least 50 parts per million and at the end of a 24-hour contact time a residual of at least 25 parts per million shall remain. During the 24-hour period, valves and hydrants shall be operated to insure disinfection of all appurtenances. At the end of the 24-hour contact period, all the sterilized surfaces and areas shall be thoroughly flushed from the water system.

For tie-ins to an existing system such as the use of tapping valves where keeping the main out of service would restrict service to existing customers, disinfection may consist of thoroughly cleaning the new part with a solution containing not less than 1 percent chlorine.

After initial disinfection and flushing, the Contractor will use a certified lab to collect water samples for bacteriological testing. For new water mains, sets of samples shall be collected for every 1,200 feet of the new main, plus one set from the end of the line, and at least one from each branch greater than one pipe length. A new or routine replacement main shall not be placed in service until negative laboratory results are obtained on the bacteriological analyses. Sample bottles shall be clearly identified as “special” construction tests. If any of the samples are found to be positive or contain confluent growth, the Contractor shall repeat the disinfection procedure until the required numbers of negative samples are obtained.

For new mains two options are available for bacteriological testing.

Option A: Take an initial set of samples, and then resample after a minimum of 16 hours. Both sets of samples must pass for the line to be put into service.

Option B: Before approving a main for use, let it sit for a minimum of 16 hours without any water use. Then collect two samples, without flushing the main, a minimum of 15 minutes apart while the sampling taps are left running. Both sets of samples must pass for the line to be put into service.

Since new mains do not typically contain coliform bacteria but often contain HPC bacteria, a standard heterotrophic plate count (HPC) test may be required. If sample results show HPC greater than 500 CFU/ml, flushing should resume and another set of HPC and coliform samples collected until no coliform are present and the HPC is less than 500 CFU/ml.

Certified results shall be presented to HWU in writing before the new section is put in service. HWU personnel will then place the new section in service if usage connections are made and the section is ready for use. Under no circumstances are valves to be operated by anyone other than HWU personnel.

Water used for flushing shall be metered and charged to the Contractor.
4.3 DE-CHLORINATION

Chlorinated water shall be disposed of in accordance with 401 KAR 5:031 and 8:020 which state that the allowable in stream concentration of chlorine is 10 ug/l, which is equal to 0.01 mg/l. The Contractor shall submit, in writing to the Engineer, the method he proposes for dechlorinating. Recommended chemicals, per AWWA C655, are sulfur dioxide, sodium bisulfate, sodium sulfite, and sodium thiosulfate.

4.4 WATER FOR TESTING, FLUSHING, AND DISINFECTION

Water for filling the line, pressure testing, flushing, and disinfection will be supplied or paid for by the Owner.

5. OTHER ITEMS OF WORK

5.1 SEEDING AND MULCHING

Unless otherwise specified by the Engineer, all graded areas shall be left smooth and sown with a mixture of grasses at a rate of not less than 100 pounds per acre. Seed mixture shall be as shown below. When final grading has been completed, the area to be seeded shall be fertilized with number 12-12-12 fertilizer at a rate of 1000 lbs. per acre. After the fertilizer has been distributed, the Contractor shall disc or harrow the ground to thoroughly work the fertilizer into the soil. The seed shall then be broadcast either by hand or by approved sowing equipment. After the seed has been distributed, the contractor shall then lightly cover the seed by use of a drag or other approved device. All seed shall be certified. The seeded area shall then be mulched with clean, weed-free straw to a depth of approximately 2 inches. Any necessary reseeding or repairing shall be performed by the contractor prior to final acceptance.

Seed mixture for permanent seeding shall consist of the following:

a. 30% Kentucky 31 Tall Fescue (Festuca arundinacea)
b. 20% Creeping Red Fescue (Festuca rubra)
c. 35% Hard Fescue (Festuca longifolia)
d. 10% Ryegrass, Perennial (Lolium perenne)
e. 5% White Dutch Clover (Trifolium repens)

5.2 EROSION CONTROL

Contractor shall control water pollution through use of best management practices that limit eroded sediment leaving the site and shall coordinate these measures with the construction schedule to ensure effective and continuous erosion control throughout the construction and post construction periods.

Contractor shall be responsible for submitting a Notice of Intent to the Kentucky Division of Water, if more than 1 acre in total area is cumulatively disturbed at any time on this project.

Before any disturbance is made, perform an initial site inspection with the Engineer, record what areas are to be disturbed, submit an erosion and sediment control plan showing what BMPs will be used, design BMPs according to good engineering practices, and install the
designated BMPs. Before opening or affecting any new areas, repeat this process and ensure all BMPs are installed before starting work.

Erosion control measures shall include the following:

(i.) Soil stabilization shall be initiated within fourteen (14) days of clearing or inactivity in construction.
(ii.) If seeding or another vegetative erosion control method is used, adequate temporary erosion control shall be provided until permanent cover is established.
(iii.) Techniques shall be employed to prevent the blowing of dust or sediment from the site.

Construction site access requirements shall include:

(i.) Approved temporary access entrance(s) provided at all sites.
(ii.) Other measures necessary to ensure that sediment is not tracked onto public streets by construction vehicles or washed into storm drains.

Other requirements include:

(i.) Trash control.
(ii.) Contained washout facility for concrete trucks.

5.3 EXISTING UTILITIES

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

Where existing utilities or appurtenant structures, whether underground or aboveground are encountered, they shall not be displaced or disturbed unless necessary, and in such cases shall be replaced in as good or better condition than found as quickly as possible.

The Contractor shall bear the entire responsibility for locating, avoiding or repairing damage to said existing utilities. No work shall be performed prior to contacting Kentucky 811 and existing underground utilities being located and marked. Contractor is responsible for contacting utilities that do not subscribe to Kentucky 811.
FIRE HYDRANT ASSEMBLY PROFILE

NOTE:

HYDRANTS SHALL BE KENNEDY K81A OR AVK 2780 WITH STARZ PUMPER CONNECTION.

WASHED #9 GRAVEL TO BE PLACED 6" FROM SURFACE TO 6" BELOW WATER LINE IN A 2'-0" RADIUS AROUND HYDRANT BARREL, FOR DISSIPATION OF WEEP HOLE DRAINAGE.

SPICES MADE ON TRACER WIRE WILL BE MADE WITH THE AID OF DBR DIRECT BURY SPICE CONNECTORS AS MANUFACTURED BY 3M ELECTRICAL PRODUCTS DIVISION.

MAINTAIN CONTINUITY OF TRACER WIRE AT ALL TIMES.

SEE LATEST EDITION OF THE HWU "REQUIREMENTS AND SPECIFICATIONS FOR POTABLE WATER FACILITIES" FOR SPECIFIC PART NUMBERS OF ITEMS SHOWN IN DIAGRAM.

SEE DIAGRAM 5 FOR PLAN VIEW OF VALVE PLACEMENT AT HYDRANT.
GATE VALVE & BOX
(IN LAWN/LANDSCAPED AREAS)

NOTE:

SPLICES MADE ON TRACER WIRE WILL BE MADE WITH THE AID
OF DBR DIRECT BURY SPLICE CONNECTORS AS MANUFACTURED
BY SM ELECTRICAL PRODUCTS DIVISION.

MAINTAIN CONTINUITY OF TRACER WIRE AT ALL TIMES.

PLACE BURIED METALLIC LOCATOR TAPE 18"—24" ABOVE TOP OF
PIPE AS SHOWN. TAPE MUST CONTINUOUSLY READ: "WARNING:
BURIED WATER LINE BELOW".
TYPICAL MAIN LINE TEE

HYDRANT IN CONJUNCTION WITH MAIN LINE TEE

TEE FOR HYDRANT OFF OF MAIN
6" & 8" WATER MAIN ONLY

*—THESE VALVES MAY NOT BE REQUIRED IF MAIN LINE VALVE SPACING REQUIREMENTS HAVE BEEN MET

VALVE PLACEMENT AT TEES PLAN VIEW

NOTE:
ALL FITTINGS TO BE DUCTILE IRON MECHANICAL JOINTS.
GATE VALVE ON ALL BRANCHES OF THE TEE, UNLESS OTHERWISE INSTRUCTED BY HWU.

SEE LATEST EDITION OF THE HWU "REQUIREMENTS AND SPECIFICATIONS FOR POTABLE WATER FACILITIES" FOR SPECIFIC PART NUMBERS OF ITEMS SHOWN IN DIAGRAMS.

MINIMUM DISTANCE BETWEEN FITTING BELLS OF 2'-0".
PLAN OF 45° OR 22 1/2° BEND

PLAN OF TEE
THRUST BLOCKING

NOTE:
ALL FITTINGS TO BE DUCTILE IRON MECHANICAL JOINTS.
GATE VALVE ON ALL BRANCHES OF THE TEE, UNLESS OTHERWISE INSTRUCTED BY HWU.

MAXIMUM WIDTH OF TRENCH TO BE 2' + PIPE DIAMETER.

SEE LATEST EDITION OF THE HWU "REQUIREMENTS AND SPECIFICATIONS FOR POTABLE WATER FACILITIES" FOR
SPECIFIC PART NUMBERS OF ITEMS SHOWN IN DIAGRAMS.
Cased Water Main Crossing Under a Roadway

Note:
Extend casing pipe at least 5'-0" past the edge of the shoulder or 6'-0" past the top outside edge of the ditch if present, whichever is greater.

Install field lok gaskets within all encasement pipe and one pipe length outside of the casing on both ends.

The sleeve used will be casing seal model "AM" by Advance Products & Systems, Inc. or approved equal. Stainless steel bands to be placed on both ends of the seal.

Maintain continuity of tracer wire at all times. Tracer wire is to be run through casing with water main.

Place buried metallic locator tape 18"-24" above top of pipe as shown. Tape must continuously read: "Caution: Buried Water Line Below".

See latest edition of HWU "Requirements and Specifications for Potable Water Facilities" for specific part numbers of items shown in diagram.
CASING DETAIL

NOTE:
SEE LATEST EDITION OF THE HWU "REQUIREMENTS AND SPECIFICATIONS FOR POTABLE WATER FACILITIES" FOR SPECIFIC PART NUMBERS OF ITEMS SHOWN IN DIAGRAMS.

INSTALL FIELD LOK GASKETS WITHIN ALL ENCASEMENT PIPE AND ONE PIPE LENGTH OUTSIDE OF THE CASING ON BOTH ENDS.

THE SLEEVE USED WILL BE CASING SEAL MODEL "AM" BY ADVANCE PRODUCTS & SYSTEMS, INC., OR APPROVED EQUAL. STAINLESS STEEL BANDS WILL BE PLACED ON BOTH ENDS OF THE SEAL.

MAINTAIN CONTINUITY OF TRACER WIRE AT ALL TIMES. TRACER WIRE IS TO BE RUN THROUGH THE CASING WITH THE WATER MAIN.

IN THE CASE OF A SLOPED BORING, CASING SHALL BE INSTALLED FROM THE DOWN-HILL SIDE WHERE POSSIBLE.

ALL BORE AND CASING MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND THE HWU "REQUIREMENTS AND SPECIFICATIONS FOR POTABLE WATER FACILITIES".