



**CALL NO. 107**

**CONTRACT ID. 241312**

**WASHINGTON COUNTY**

**FED/STATE PROJECT NUMBER STP 1501(126)**

**DESCRIPTION US150**

**WORK TYPE GRADE & DRAIN WITH ASPHALT SURFACE**

**PRIMARY COMPLETION DATE 11/1/2025**

**LETTING DATE: June 20,2024**

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME June 20,2024. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

**PLANS AVAILABLE FOR THIS PROJECT.**

**DBE CERTIFICATION REQUIRED - 7%**

**REQUIRED BID PROPOSAL GUARANTY:** Not less than 5% of the total bid.

TABLE OF CONTENTS

PART I	SCOPE OF WORK <ul style="list-style-type: none"><li>PROJECT(S), COMPLETION DATE(S), &amp; LIQUIDATED DAMAGES</li><li>CONTRACT NOTES</li><li>FEDERAL CONTRACT NOTES</li><li>FUEL AND ASPHALT PAY ADJUSTMENT</li><li>ASPHALT PAVEMENT RIDE QUALITY CAT A</li><li>COMPACTION OPTION A</li><li>SPECIAL NOTE(S) APPLICABLE TO PROJECT</li><li>TREE REMOVAL</li><li>PIPELINE INSPECTION</li><li>PAVER MOUNTED TEMPERATURE PROFILES</li><li>NON-TRACKING TACK COAT</li><li>EXPERIMENTAL KYCT AND HAMBURG TESTING</li><li>BRIDGE DEMOLITION, RENOVATION AND ASBESTOS ABATEMENT</li><li>ASBESTOS ABATEMENT REPORT</li><li>RIGHT OF WAY CERTIFICATION</li><li>UTILITY IMPACT &amp; RAIL CERTIFICATION NOTES</li><li>WATER STANDARD UTILITY BID ITEMS</li><li>WATERLINE SPECIFICATIONS</li><li>DEPT OF ARMY - NATIONWIDE PERMIT</li><li>KPDES STORM WATER PERMIT, BMP AND ENOI</li></ul>
PART II	SPECIFICATIONS AND STANDARD DRAWINGS <ul style="list-style-type: none"><li>STANDARD AND SUPPLEMENTAL SPECIFICATIONS</li><li>[SN-1I] PORTABLE CHANGEABLE SIGNS</li><li>[SN-6J] NON-EPOXY ADHESIVES</li><li>[SN-11D] ROCK BLASTING</li><li>[SN-11F] TURF REINFORCEMENT MAT</li><li>[SN-11M] BARCODE LABEL ON PERMANENT SIGNS</li><li>[SN-11N] LONGITUDINAL PAVEMENT JOINT ADHESIVE</li></ul>
PART III	EMPLOYMENT, WAGE AND RECORD REQUIREMENTS <ul style="list-style-type: none"><li>FEDERAL-AID CONSTRUCTION CONTRACTS - FHWA 1273</li><li>NONDISCRIMINATION OF EMPLOYEES</li><li>EXECUTIVE BRANCH CODE OF ETHICS</li><li>PROJECT WAGE RATES LOCALITY 3 / FEDERAL</li><li>NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EEO WASHINGTON</li></ul>
PART IV	INSURANCE
PART V	BID ITEMS

**PART I**

**SCOPE OF WORK**

ADMINISTRATIVE DISTRICT - 04

CONTRACT ID - 241312

STP 1501(126)

COUNTY - WASHINGTON

PCN - DE11501502412

STP 1501(126)

US150 IMPROVE SAFETY ALONG US150 FROM WEST OF OLD FREDERICKTOWN-BARDSTOWN ROAD (KY1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LANE (CR1336), A DISTANCE OF 02.65 MILES.GRADE & DRAIN WITH ASPHALT SURFACE SYP NO. 04-00396.20.

GEOGRAPHIC COORDINATES LATITUDE 37:45:35.00 LONGITUDE 85:18:59.00

ADT 19,181

COMPLETION DATE(S):

COMPLETED BY 11/01/2025

APPLIES TO CONTRACT



## **CONTRACT NOTES**

### **PROPOSAL ADDENDA**

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

### **BID SUBMITTAL**

Bidder must use the Department's electronic bidding software. The Bidder must download the bid file located on the Bid Express website ([www.bidx.com](http://www.bidx.com)) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

### **JOINT VENTURE BIDDING**

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

### **UNDERGROUND FACILITY DAMAGE PROTECTION**

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. When prescribed in said directives, the contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom shall be contacted through their individual Protection Notification Center. Non-compliance with these directives can result in the enforcement of penalties.

### **REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY**

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by [KRS 14A.9-010](#) to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under [KRS 14A.9-030](#) unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in [KRS 14A.9-010](#), the foreign entity should identify the applicable exception. Foreign entity is defined within [KRS 14A.1-070](#).

**For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity's solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.**

Businesses can register with the Secretary of State at <https://secure.kentucky.gov/sos/ftbr/welcome.aspx>.

### **SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT**

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by email to [kytc.projectquestions@ky.gov](mailto:kytc.projectquestions@ky.gov). The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website ([www.transportation.ky.gov/construction-procurement](http://www.transportation.ky.gov/construction-procurement)). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

### **HARDWOOD REMOVAL RESTRICTIONS**

The US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, to prevent the spread of an invasive insect, the emerald ash borer. Hardwood cut in conjunction with the project may not be removed from the state. Chipping or burning on site is the preferred method of disposal.

### **INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES**

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

### **ACCESS TO RECORDS**

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and

shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004.

### **BOYCOTT PROVISIONS**

If applicable, the contractor represents that, pursuant to [KRS 45A.607](#), they are not currently engaged in, and will not for the duration of the contract engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which Kentucky can enjoy open trade.

**Note:** The term Boycott does not include actions taken for bona fide business or economic reasons, or actions specifically required by federal or state law.

If applicable, the contractor verifies that, pursuant to KRS 41.480, they do not engage in, and will not for the duration of the contract engage in, in energy company boycotts as defined by KRS 41.472.

### **LOBBYING PROHIBITIONS**

The contractor represents that they, and any subcontractor performing work under the contract, have not violated the agency restrictions contained in [KRS 11A.236](#) during the previous ten (10) years, and pledges to abide by the restrictions set forth in such statute for the duration of the contract awarded.

The contractor further represents that, pursuant to [KRS 45A.328](#), they have not procured an original, subsequent, or similar contract while employing an executive agency lobbyist who was convicted of a crime related to the original, subsequent, or similar contract within five (5) years of the conviction of the lobbyist.

Revised: 2/29/2024

## 1.0 BUY AMERICA REQUIREMENT.

Follow the “Buy America” provisions as required by 23 U.S.C. § 313 and 23 C.F.R. § 635.410. Except as expressly provided herein all manufacturing processes of steel or iron materials including but not limited to structural steel, guardrail materials, corrugated steel, culvert pipe, structural plate, prestressing strands, and steel reinforcing bars shall occur in the United States of America, including the application of:

- Coating,
- Galvanizing,
- Painting, and
- Other coating that protects or enhances the value of steel or iron products.

The following are exempt, unless processed or refined to include substantial amounts of steel or iron material, and may be used regardless of source in the domestic manufacturing process for steel or iron material:

- Pig iron,
- Processed, pelletized, and reduced iron ore material, or
- Processed alloys.

The Contractor shall submit a certification stating that all manufacturing processes involved with the production of steel or iron materials occurred in the United States.

Produce, mill, fabricate, and manufacture in the United States of America all aluminum components of bridges, tunnels, and large sign support systems, for which either shop fabrication, shop inspection, or certified mill test reports are required as the basis of acceptance by the Department.

Use foreign materials only under the following conditions:

- 1) When the materials are not permanently incorporated into the project; or
- 2) When the delivered cost of such materials used does not exceed 0.1 percent of the total Contract amount or \$2,500.00, whichever is greater.

The Contractor shall submit to the Engineer the origin and value of any foreign material used.

## 2.0 – BUILD AMERICA, BUY AMERICA (BABA)

Contractor shall comply with the Federal Highway Administration (FHWA) Buy America Requirement in 23 C.F.R. § 635.410 and all relevant provisions of the Build America, Buy America Act (BABA), contained within the Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, §§ 70901-52 enacted November 15, 2021. The BABA requires iron, steel, manufactured products, and construction materials used in infrastructure projects funded by federal financial assistance to be produced in the United States. Comply with 2 C.F.R § 184.

BABA permits FHWA participation in the Contract only if domestic steel and iron will be used on the Project. To be considered domestic, all steel and iron used, and all products manufactured from steel and iron must be produced in the United States and all manufacturing processes, including application of a coating, for these materials must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied. This requirement does not preclude a minimal use of foreign steel and iron materials, provided the cost of such materials does not exceed 0.1% of the total contract amount under the Contract or \$2,500.00 whichever is greater.

BABA permits FHWA participation in the Contract only if all “construction materials” as defined in the Act are made in the United States. The Buy America preference applies to the following construction materials

SPECIAL NOTE – BUY AMERICA REQUIREMENTS AND BUILD  
AMERICA, BUY AMERICA (BABA) ACT

10/26/2023

incorporated into infrastructure projects: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); Fiber optic cable; optical fiber; lumber; engineered wood; and drywall. Contractor will be required to use construction materials produced in the United States on this Project. The Contractor shall submit a certification stating that all construction materials are certified to be BABA compliant.

Finally, BABA permits the continuation of FHWA's current general applicability waivers for manufactured products, raw materials, and ferryboat parts, but these waivers are subject to reevaluation, specifically the general applicability waiver for manufactured products.

The Contractor has completed and submitted, or shall complete and submit, to the Cabinet a Buy America/Build America, Buy America Certificate prior to the Cabinet issuing the notice to proceed, in the format below. After submittal, the Contractor is bound by its original certification.

A false certification is a criminal act in violation of 18 U.S.C. § 1001. The Contractor has the burden of proof to establish that it is in compliance.

At the Contractor's request, the Cabinet may, but is not obligated to, seek a waiver of Buy America requirements if grounds for the waiver exist under 23 C.F.R. § 635.410(c) or will comply with the applicable Buy America requirements if a waiver of those requirements is not available or not pursued by the Cabinet.

Please refer to the Federal Highway Administration's Buy America webpage for more information.

[Buy America - Construction Program Guide - Contract Administration - Construction - Federal Highway Administration \(dot.gov\)](#)

October 26, 2023 Letting

**BUY AMERICA / BUILD AMERICA, BUY AMERICA (ACT) MATERIALS CERTIFICATE OF COMPLIANCE**

The Contractor hereby certifies that it will comply with all relevant provisions of the Build America, Buy America Act, contained within the Infrastructure Investment and Jobs Act, Pub. L. NO. 117-58, §§ 70901-52, the requirements of 23 U.S.C. § 313, 23 C.F.R. § 635.410 and 2 C.F.R § 184.

Date Submitted:\_\_\_\_\_

Contractor:\_\_\_\_\_

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

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

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

**NOTE: THIS CERTIFICATION IS IN ADDITION TO ANY AND ALL REQUIREMENTS OUTLINED IN THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND/OR SPECIAL NOTES CONTAINED IN THE PROJECT PROPOSAL.**

## **FEDERAL CONTRACT NOTES**

The Kentucky Department of Highways, in accordance with the Regulations of the United States Department of Transportation 23 CFR 635.112 (h), hereby notifies all bidders that failure by a bidder to comply with all applicable sections of the current Kentucky Standard Specifications, including, but not limited to the following, may result in a bid not being considered responsive and thus not eligible to be considered for award:

- |                                |  |
|--------------------------------|--|
| 102.02 Current Rating          | 102.08 Preparation and Delivery of Proposals |
| 102.13 Irregular Bid Proposals | 102.14 Disqualification of Bidders           |
| 102.09 Proposal Guaranty       |  |

### **CIVIL RIGHTS ACT OF 1964**

The Kentucky Transportation Cabinet, Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, sex, age (over 40), religion, sexual orientation, gender identity, veteran status, disability, income- level, or Limited English Proficiency (LEP) in consideration for an award.

### **NOTICE TO ALL BIDDERS**

To report bid rigging activities call: 1-800-424-9071.

The U.S. Department of Transportation (DOT) operates the above toll-free “hotline” Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the “hotline” to report such activities.

The “hotline” is part of the DOT’s continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

### **SECOND TIER SUBCONTRACTS**

Second tier subcontracts are acceptable per Section 108.01 of the Standard Specifications for Road and Bridge Construction. Sub-Contractors fulfilling a disadvantaged business enterprise goal on a project may enter into a 2<sup>nd</sup> tier subcontract with a Non-DBE Subcontractor. However, in this instance, none of the work subcontracted to the Non-DBE Contractor will count toward fulfilling the established Disadvantaged Goal for the project.

### **DISADVANTAGED BUSINESS ENTERPRISE PROGRAM**

It is the policy of the Kentucky Transportation Cabinet (“the Cabinet”) that Disadvantaged Business Enterprises (“DBE”) shall have the opportunity to participate in the performance of highway construction projects financed in whole or in part by Federal Funds in order to create a level playing field for all businesses who wish to contract with the Cabinet. To that end, the Cabinet will comply with the regulations found in 49 CFR Part 26, and the definitions and requirements contained therein shall be adopted as if set out verbatim herein.

The Cabinet, contractors, subcontractors, and sub-recipients shall not discriminate on the basis of race, color, national origin, or sex in the performance of work performed pursuant to Cabinet contracts. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federally assisted highway construction projects. The contractor will include this provision in all its subcontracts and supply agreements pertaining to contracts with the Cabinet.

Failure by the contractor to carry out these requirements is a material breach of its contract with the Cabinet, which may result in the termination of the contract or such other remedy as the Cabinet deems necessary.

### **DBE GOAL**

The Disadvantaged Business Enterprise (DBE) goal established for this contract, as listed on the front page of the proposal, is the percentage of the total value of the contract.

The contractor shall exercise all necessary and reasonable steps to ensure that Disadvantaged Business Enterprises participate in a least the percent of the contract as set forth above as goals for this contract.

### **OBLIGATION OF CONTRACTORS**

Each contractor prequalified to perform work on Cabinet projects shall designate and make known to the Cabinet a liaison officer who is assigned the responsibility of effectively administering and promoting an active program for utilization of DBEs.

If a formal goal has not been designated for the contract, all contractors are encouraged to consider DBEs for subcontract work as well as for the supply of material and services needed to perform this work.

Contractors are encouraged to use the services of banks owned and controlled by minorities and women.



### **CERTIFICATION OF CONTRACT GOAL**

Contractors shall include the following certification in bids for projects for which a DBE goal has been established. BIDS SUBMITTED WHICH DO NOT INCLUDE CERTIFICATION OF DBE PARTICIPATION WILL NOT BE ACCEPTED. These bids will not be considered for award by the Cabinet and they will be returned to the bidder.

“The bidder certifies that it has secured participation by Disadvantaged Business Enterprises (“DBE”) in the amount of \_\_\_\_\_ percent of the total value of this contract and that the DBE participation is in compliance with the requirements of 49 CFR 26 and the policies of the Kentucky Transportation Cabinet pertaining to the DBE Program.”

**The certification statement is located in the electronic bid file. All contractors must certify their DBE participation on that page. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted.**

### **DBE PARTICIPATION PLAN**

Lowest responsive bidders must submit the *DBE Plan/ Subcontractor Request*, form TC 14-35 DBE, within **5** days of the letting. This is necessary before the Awards Committee will review and make a recommendation. **The project will not be considered for award prior to submission and approval of the apparent low bidder’s DBE Plan/Subcontractor Request.**

The DBE Participation Plan shall include the following:

1. Name and address of DBE Subcontractor(s) and/or supplier(s) intended to be used in the proposed project;
2. Description of the work each is to perform including the work item, unit, quantity, unit price and total amount of the work to be performed by the individual DBE. The Proposal Line Number, Category Number, and the Project Line Number can be found in the “material listing” on the Construction Procurement website under the specific letting;
3. The dollar value of each proposed DBE subcontract and the percentage of total project contract value this represents. DBE participation may be counted as follows:
  - a) If DBE suppliers and manufactures assume actual and contractual responsibility, the dollar value of materials to be furnished will be counted toward the goal as follows:
    - The entire expenditure paid to a DBE manufacturer;
    - 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to the public, maintain an inventory and own and operate distribution equipment; and
    - The amount of fees or commissions charged by the DBE firms for a bona fide service, such as professional, technical, consultant, or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, supplies, delivery of materials and supplies or for furnishing bonds, or insurance, providing such fees or commissions are determined to be reasonable and customary.
  - b) The dollar value of services provided by DBEs such as quality control testing, equipment repair and maintenance, engineering, staking, etc.;

- c) The dollar value of joint ventures. DBE credit for joint ventures will be limited to the dollar amount of the work actually performed by the DBE in the joint venture;
- 4. Written and signed documentation of the bidder's commitment to use a DBE contractor whose participation is being utilized to meet the DBE goal; and
- 5. Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment.

**AFTER PROJECT AWARD AND BEFORE NOTICE TO PROCEED/WORK ORDER IS ISSUED (SEE SECTION 103.06, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION**

Prime Contractors awarded a federally funded project with a DBE Goal greater than zero will be required to submit DBE Subcontract Agreement Form, TC 14-36, along with the attached FHWA 1273 and Certificate of Liability Insurance for each DBE Firm submitted as part of the previously approved DBE Utilization Plan (TC 14-35). A signed quote or purchase order shall be attached when the DBE subcontractor is a material supplier or broker.

The Certificate of Liability Insurance submitted must meet the requirements outlined in Section 107.18 of the Standard Specifications for Road and Bridge Construction.

Changes to **APPROVED** DBE Participation Plans must be approved by the Cabinet. The Cabinet may consider extenuating circumstances including, but not limited to, changes in the nature or scope of the project, the inability or unwillingness of a DBE to perform the work in accordance with the bid, and/or other circumstances beyond the control of the prime contractor.

**CONSIDERATION OF GOOD FAITH EFFORTS REQUESTS**

If the DBE participation submitted in the bid by the apparent lowest responsive bidder does not meet or exceed the DBE contract goal, the apparent lowest responsive bidder must submit a Good Faith Effort Package to satisfy the Cabinet that sufficient good faith efforts were made to meet the contract goals prior to submission of the bid. Efforts to increase the goal after bid submission will not be considered in justifying the good faith effort, unless the contractor can show that the proposed DBE was solicited prior to the letting date. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted. One complete set (hard copy along with an electronic copy) of this information must be received in the Division of Contract Procurement no later than 12:00 noon of the tenth calendar day after receipt of notification that they are the apparent low bidder.

Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a sample representative letter along with a distribution list of the firms solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Cabinet considers in judging good faith efforts. This documentation may include written subcontractors' quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

The Good Faith Effort Package shall include, but may not be limited to information showing evidence of the following:

1. Whether the bidder attended any pre-bid meetings that were scheduled by the Cabinet to inform DBEs of subcontracting opportunities;
2. Whether the bidder provided solicitations through all reasonable and available means;
3. Whether the bidder provided written notice to all DBEs listed in the DBE directory at the time of the letting who are prequalified in the areas of work that the bidder will be subcontracting;
4. Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainty whether they were interested. If a reasonable amount of DBEs within the targeted districts do not provide an intent to quote or no DBEs are prequalified in the subcontracted areas, the bidder must notify the Disadvantaged Enterprise Business Liaison Officer (DEBLO) in the Office for Civil Rights and Small Business Development to give notification of the bidder's inability to get DBE quotes;
5. Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise perform these work items with its own forces;
6. Whether the bidder provided interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract;
7. Whether the bidder negotiated in good faith with interested DBEs not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached;
8. Whether quotations were received from interested DBE firms but were rejected as unacceptable without sound reasons why the quotations were considered unacceptable. The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in itself be considered as a sound reason for rejecting the quotation as unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a DBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE goals;
9. Whether the bidder specifically negotiated with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be subcontracted includes potential DBE participation;
10. Whether the bidder made any efforts and/or offered assistance to interested DBEs in obtaining the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal; and
11. Any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include DBE participation.

### **FAILURE TO MEET GOOD FAITH REQUIREMENT**

Where the apparent lowest responsive bidder fails to submit sufficient participation by DBE firms to meet the contract goal and upon a determination by the Good Faith Committee based upon the information submitted that the apparent lowest responsive bidder failed to make sufficient reasonable efforts to meet the contract goal, the bidder will be offered the opportunity to meet in person for administrative reconsideration. The bidder will be notified of the Committee's decision within 24 hours of its decision. The bidder will have 24 hours to request reconsideration of the Committee's decision. The reconsideration meeting will be held within two days of the receipt of a request by the bidder for reconsideration.

The request for reconsideration will be heard by the Office of the Secretary. The bidder will have the opportunity to present written documentation or argument concerning the issue of whether it met the goal or made an adequate good faith effort. The bidder will receive a written decision on the reconsideration explaining the basis for the finding that the bidder did or did not meet the goal or made adequate Good Faith efforts to do so.

The result of the reconsideration process is not administratively appealable to the Cabinet or to the United States Department of Transportation.

The Cabinet reserves the right to award the contract to the next lowest responsive bidder or to rebid the contract in the event that the contract is not awarded to the low bidder as the result of a failure to meet the good faith requirement.

### **SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT**

Failure by the prime contractor to fulfill the DBE requirements of a project under contract or to demonstrate good faith efforts to meet the goal constitutes a breach of contract. When this occurs, the Cabinet will hold the prime contractor accountable, as would be the case with all other contract provisions. Therefore, the contractor's failure to carry out the DBE contract requirements shall constitute a breach of contract and as such the Cabinet reserves the right to exercise all administrative remedies at its disposal including, but not limited to the following:

- Suspension of Prequalification;
- Disallow credit toward the DBE goal;
- Withholding progress payments;
- Withholding payment to the prime in an amount equal to the unmet portion of the contract goal; and/or
- Termination of the contract.

### **PROMPT PAYMENT**

The prime contractor will be required to pay the DBE and Non-DBE Subcontractors within seven (7) working days after he or she has received payment from the Kentucky Transportation Cabinet for work performed or materials furnished.

### **CONTRACTOR REPORTING**

All contractors must keep detailed records and provide reports to the Cabinet on their progress in meeting the DBE requirement on any highway contract. These records may include, but shall not be limited to payroll, lease agreements, cancelled payroll checks, executed subcontracting agreements, etc. Prime contractors will be required to complete and submit a **signed and notarized** Affidavit of Subcontractor Payment (TC 18-7) and copies of checks for any monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. These documents must be completed and signed within 7 days of being paid by the Cabinet.

Payment information that needs to be reported includes date the payment is sent to the DBE, check number, Contract ID, amount of payment and the check date. Before Final Payment is made on this contract, the Prime Contractor will certify that all payments were made to the DBE subcontractor and/or DBE suppliers.

\*\*\*\*\* IMPORTANT \*\*\*\*\*

**Please mail the original, signed and completed TC (18-7) Affidavit of Subcontractor Payment form and all copies of checks for payments listed above to the following address:**

Office for Civil Rights and Small Business Development  
6<sup>th</sup> Floor West 200 Mero Street  
Frankfort, KY 40622

The prime contractor should notify the KYTC Office for Civil Rights and Small Business Development seven (7) days prior to DBE contractors commencing work on the project. The contact in this office is Mr. Tony Youssefi. Mr. Youssefi's current contact information is email address – [tyousseffi@ky.gov](mailto:tyousseffi@ky.gov) and the telephone number is (502) 564-3601.

### **DEFAULT OR DECERTIFICATION OF THE DBE**

If the DBE subcontractor or supplier is decertified or defaults in the performance of its work, and the overall goal cannot be credited for the uncompleted work, the prime contractor may utilize a substitute DBE or elect to fulfill the DBE goal with another DBE on a different work item. If after exerting good faith effort in accordance with the Cabinet's Good Faith Effort policies and procedures, the prime contractor is unable to replace the DBE, then the unmet portion of the goal may be waived at the discretion of the Cabinet.

### **PROHIBITION ON TELECOMMUNICATIONS EQUIPMENT OR SERVICES**

In accordance with the FY 2019 National Defense Authorization Act (NDAA), 2 CFR 200.216, and 2 CFR 200.471, Federal agencies are prohibited, after August 13, 2020, from obligating or expending financial assistance to obtain certain telecommunications and video surveillance services and equipment from specific producers. As a result of these regulations, contractors and subcontractors are prohibited, on projects with federal funding participation, from providing telecommunication or video surveillance equipment, services, or systems produced by:

- Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities)
- Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities)

**LEGAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC – CARGO  
PREFERENCE ACT (CPA).**

**(REV 12-17-15) (1-16)**

SECTION 7 is expanded by the following new Article:

**102.10 Cargo Preference Act – Use of United States-flag vessels.**

Pursuant to Title 46CFR Part 381, the Contractor agrees

- To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph 1 of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

### **FUEL AND ASPHALT PAY ADJUSTMENT**

The Department has included the Contract items Asphalt Adjustment and Fuel Adjustment for possible future payments at an established Contract unit price of \$1.00. The Department will calculate actual adjustment quantities after work is completed. If existing Contract amount is insufficient to pay all items on the contract with the adjustments, the Department will establish additional monies with a change order.

### **ASPHALT PAVEMENT RIDE QUALITY CATEGORY A**

The Department will apply Pavement Rideability Requirements on this project in accordance with Section 410, Category A.

### **OPTION A**

Be advised that the Department will accept compaction of asphalt mixtures furnished for driving lanes and ramps, at 1 inch (25mm) or greater, on this project according to OPTION A in accordance with Section 402 and Section 403 of the current Standard Specifications. The Department will require joint cores as described in Section 402.03.02 for surface mixtures only. The Department will accept compaction of all other asphalt mixtures according to OPTION B.

## **SPECIAL NOTE FOR CONCRETE PATCHING REPAIR**

### **I. DESCRIPTION**

Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highways 2019 Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings, this Note, and the Contract Documents. Section references are to the Standard Specifications.

This work consists of the following:

1. Furnish all labor, materials, tools, equipment, and incidental items necessary to complete the work.
2. Provide safe access to the bridge, in accordance with Section 107.01.01, for the Engineer to sound possible repair areas and for workers to complete the construction.
3. Remove the deteriorated concrete.
4. Prepare the surfaces for patching in accordance with Phoscrete Formula 3-VO Installation Guide.
5. Apply Phoscrete Primer in accordance with Phoscrete Formula 3-VO Installation Guide.
6. Place and finish Phoscrete in Phoscrete Formula 3-VO Installation Guide.
7. Apply an epoxy seal coat as directed and in accordance with the manufacturer's instructions.
8. Any other work specified as part of this contract.

### **II. MATERIALS**

**A. Epoxy Resin.** Conform to Section 826.

**B. Phoscrete Formula 3-VO.**

**C. Phoscrete Primer.**

### **III. CONSTRUCTION**

**A. Remove Deteriorated Concrete.** Prior to beginning the concrete repairs, provide safe access to the substructure, in accordance with Section 107.01.01, for the Engineer to sound possible repair areas. The Engineer will sound the concrete with a hammer and mark the areas of concrete to be removed and patched. All areas of deteriorated concrete found should be repaired as part of this work. Final payment for "Concrete Patching Repair" will be the field-measured quantity of patching completed in accordance with this Note and as designated by the Engineer.

Remove specified areas of deteriorated concrete as shown on the attached detail drawings, Contract Plans, and/or as directed by the Engineer. The removal of unsound material shall be accomplished with hand tools, hydrodemolition, or pneumatic hammers that do not exceed twenty (20) pounds. Precautions shall be exercised to protect the



underlying sound material. Saw, route, or otherwise manipulate the sides of the patch so that the interface between the old concrete and the concrete patch are perpendicular. Remove all deteriorated loose concrete to a minimum depth of 2". Also ensure concrete removal in the patch area extends at least three-quarters (3/4) inch beyond any steel reinforcement more than 50 percent exposed. Dispose of all removed material entirely away from the job site or as directed by the Engineer.

Extreme care shall be taken when removing the existing spalled or delaminated concrete so as not to damage the existing reinforcing steel. Completely clean all existing steel reinforcement encountered free of rust and leave in place. Wire brushing may be required to thoroughly clean exposed steel reinforcement. Repair or replace any damaged steel reinforcement as directed by the Engineer at no additional cost to the Department. Ensure that all exposed steel reinforcement is tied in accordance with Section 602.03.04. The Contractor must consult the Engineer before removing any concrete that is directly below the beam bearings.

- B. Prepare Concrete Surfaces for Patching.** Prepare concrete surfaces to be patched in accordance with Section 510.03.01. Final blast cleaning shall be completed within twelve (12) hours prior to placement of Phoscrete patch. Concrete must be sound, dry, and clean prior to placement of Phoscrete Primer.
- C. Apply Phoscrete Primer in accordance with Phoscrete Primer Technical Data Guide.**
- D. Place and Finish Phoscrete Formula 3-VO in accordance with Installation Guide.**
- E. Apply Epoxy Resin Seal Coat.** As soon as 15 minutes after the final set of the last Phoscrete pour, apply a coat of epoxy resin over the entire patch and on the adjacent old concrete a minimum of two (2) inches. Be sure to work the epoxy resin seal coat thoroughly into any cracks that may have developed in the patch or in the interface of the patch and the old concrete. Place masking tape on the old concrete prior to applying this sealing coat of epoxy resin to insure a neat line. Remove tape after the sealing coat has cured adequately.

#### **IV. MEASUREMENT**

- A. Concrete Patching Repair.** The Department will measure the quantity in square feet. Double payment will not be made on both faces of corner repairs.

#### **V. PAYMENT**

The Department will make payment for the completed and accepted quantities of concrete patching under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
22146EN	Concrete Patching Repair	Square Feet

The Department will consider payment as full compensation for all work required.

## ***SPECIAL NOTE***

### **For Tree Removal**

**Washington County  
IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-  
150 FROM WEST OF OLD FREDERICKTOWN-BARDSTOWN  
ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO  
MAYFIELD LN (CR-1336)  
Item No. 4-396.2**

**NO CLEARING OF TREES 5 INCHES OR GREATER (DIAMETER BREAST  
HEIGHT) FROM JUNE 1- JULY 31**

**If there are any questions regarding this note, please contact Danny Peake, Director,  
Division of Environmental Analysis, 200 Mero Street, Frankfort, KY 40601, Phone:  
(502) 564-7250.**

## **SPECIAL NOTE FOR PIPELINE INSPECTION**

**1.0 DESCRIPTION.** The Department will perform visual inspections on all pipe on the project. A video inspection will be required on projects having more than 250 linear feet of storm sewer and/or culvert pipe and on routes with an ADT of greater than 1,000 vehicles. Conduct video inspections on all pipe located under the roadway and 50 percent of the remaining pipe not under the roadway. Storm sewer runs and outfall pipes not under the roadway take precedence over rural entrance pipes. Contractors performing this item of work must be prequalified with the Department in the work type J51 (Video Pipe Inspection and Cleaning). Deflection testing shall be completed using a mandrel in accordance with the procedure outlined below or by physical measurement for pipes greater than 36 inches in diameter. Mandrel testing for deflection must be completed prior to the video inspection testing. Unless otherwise noted, Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

**2.0 VIDEO INSPECTION.** Ensure pipe is clear of water, debris or obstructions. Complete the video inspection and any necessary measurement prior to placing the final surface over any pipe. When paving will not be delayed, take measurements 30 days or more after the completion of earthwork to within 1 foot of the finished subgrade. Notify the Engineer a minimum of 24 hours in advance of inspection and notify the Engineer immediately if distresses or locations of improper installation are logged.

### **2.1 INSPECTION FOR DEFECTS AND DISTRESSES**

**A)** Begin at the outlet end and proceed through to the inlet at a speed less than or equal to 30 ft/minute. Remove blockages that will prohibit a continuous operation.

**B)** Document locations of all observed defects and distresses including but not limited to: cracking, spalling, slabbing, exposed reinforcing steel, sags, joint offsets, joint separations, deflections, improper joints/connections, blockages, leaks, rips, tears, buckling, deviation from line and grade, damaged coatings/paved inverts, and other anomalies not consistent with a properly installed pipe.

**C)** During the video inspection provide a continuous 360 degree pan of every pipe joint.

**D)** Identify and measure all cracks greater than 0.1" and joint separations greater than 0.5".

**E)** Video Inspections are conducted from junction to junction which defines a pipe run. A junction is defined as a headwall, drop box inlet, curb box inlet, manhole, buried junction, or other structure that disturbs the continuity of the pipe. Multiple pipe inspections may be conducted from a single set up location, but each pipe run must be on a separate video file and all locations are to be referenced from nearest junction relative to that pipe run.

**F)** Record and submit all data on the TC 64-765 and TC 64-766 forms.

**3.0 MANDREL TESTING.** Mandrel testing will be used for deflection testing. For use on Corrugated Metal Pipe, High Density Polyethylene Pipe, and Polyvinyl Chloride Pipe, use a mandrel device with an odd number of legs (9 minimum) having a length not less than the outside diameter of the mandrel. The diameter of the mandrel at any point shall not be less than the diameter specified in Section 3.6. Mandrels can be a fixed size or a variable size.

**3.1** Use a proving ring or other method recommended by the mandrel manufacturer to verify mandrel diameter prior to inspection. Provide verification documentation for each size mandrel to the Engineer.

**3.2** All deflection measurements are to be based off of the AASHTO Nominal Diameters. Refer to the chart in section 3.6.

**3.3** Begin by using a mandrel set to the 5.0% deflection limit. Place the mandrel in the inlet end of the pipe and pull through to the outlet end. If resistance is met prior to completing the entire run, record the maximum distance achieved from the inlet side, then remove the mandrel and continue the inspection from the outlet end of the pipe toward the inlet end. Record the maximum distance achieved from the outlet side.

**3.4** If no resistance is met at 5.0% then the inspection is complete. If resistance occurred at 5.0% then repeat 3.1 and 3.2 with the mandrel set to the 10.0% deflection limit. If the deflection of entire pipe run cannot be verified with the mandrel then immediately notify the Engineer.

**3.5** Care must be taken when using a mandrel in all pipe material types and lining/coating scenarios. Pipe damaged during the mandrel inspection will be video inspected to determine the extent of the damage. If the damaged pipe was video inspected prior to mandrel inspection then a new video inspection is warranted and supersedes the first video inspection. Immediately notify the Engineer of any damages incurred during the mandrel inspection and submit a revised video inspection report.

**3.6 AASHTO Nominal Diameters and Maximum Deflection Limits.**

Base Pipe Diameter	AASHTO Nominal Diameter	Max. Deflection Limit	
		5.0%	10.0%
(inches)	(inches)	(inches)	
15	14.76	14.02	13.28
18	17.72	16.83	15.95
24	23.62	22.44	21.26
30	29.53	28.05	26.58
36	35.43	33.66	31.89
42	41.34	39.27	37.21
48	47.24	44.88	42.52
54	53.15	50.49	47.84
60	59.06	56.11	53.15

**4.0 PHYSICAL MEASUREMENT OF PIPE DEFLECTION.** Alternate method for deflection testing when there is available access or the pipe is greater than 36 inches in diameter, as per 4.1. Use a contact or non-contact distance instrument. A leveling device is recommended for establishing or verifying vertical and horizontal control.

**4.1** Physical measurements may be taken after installation and compared to the AASHTO Nominal Diameter of the pipe as per Section 3.6. When this method is used, determine the smallest interior diameter of the pipe as measured through the center point of the pipe (D2). All measurements are to be taken from the inside crest of the corrugation. Take the D2 measurements at the most deflected portion of the pipe run in question and at intervals no greater than ten (10) feet through the run. Calculate the deflection as follows:

$$\% \text{ Deflection} = [(AASHTO \text{ Nominal Diameter} - D2) / AASHTO \text{ Nominal Diameter}] \times 100\%$$

Note: The Engineer may require that preset monitoring points be established in the culvert prior to backfilling. For these points the pre-installation measured diameter (D1) is measured and recorded. Deflection may then be calculated from the following formula:

$$\% \text{ Deflection} = [(D1 - D2) / D1] (100\%)$$

**4.2** Record and submit all data.

**5.0 DEDUCTION SCHEDULE.** All pipe deductions shall be handled in accordance with the tables shown below.

FLEXIBLE PIPE DEFLECTION	
Amount of Deflection (%)	Payment
0.0 to 5.0	100% of the Unit Bid Price
5.1 to 9.9	50% of the Unit Bid Price <sup>(1)</sup>
10 or greater	Remove and Replace <sup>(2)</sup>

*<sup>(1)</sup> Provide Structural Analysis for HDPE and metal pipe. Based on the structural analysis, pipe may be allowed to remain in place at the reduced unit price. <sup>(2)</sup> The Department may allow the pipe to remain in place with no pay to the Contractor in instances where it is in the best interest to the public and where the structural analysis demonstrates that the pipe should function adequately.*

RIGID PIPE REMEDIATION TABLE PIPE	
Crack Width (inches)	Payment
≤ 0.1	100% of the Unit Bid Price
Greater than 0.1	Remediate or Replace <sup>(1)</sup>

*(1) Provide the Department in writing a method for repairing the observed cracking. Do not begin work until the method has been approved.*

**6.0 PAYMENT.** The Department will measure the quantity in linear feet of pipe to inspect. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24814EC	Pipeline Inspection	Linear Foot
10065NS	Pipe Deflection Deduction	Dollars

Rev 9/2021

## SPECIAL NOTE FOR PAVER MOUNTED TEMPERATURE PROFILES

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction current edition.

**1.0 DESCRIPTION.** Provide a paver mounted infrared temperature equipment to continually monitor the temperature of the asphalt mat immediately behind all paver(s) during the placement operations for all mainline pavements (including ramps for Interstates and Parkways) within the project limits. Provide thermal profiles that include material temperature and measurement locations.

**2.0 MATERIALS AND EQUIPMENT.** In addition to the equipment specified in Subsection 403.02 Utilize a thermal equipment supplier that can provide a qualified representative for on-site technical assistance during the initial setup, pre-construction verification, and data management and processing as needed during the Project to maintain equipment within specifications and requirements.

Provide operator settings, user manuals, required viewing/export software for analysis. Ensure the temperature equipment will meet the following:

(A) A device with one or more infrared sensors that is capable of measuring in at least 1 foot intervals across the paving width, with a minimum width of 12 feet, or extending to the recording limits of the equipment, whichever is greater. A **Maximum of two (2)** brackets are allowed in the influence area under the sensors. A temperature profile must be made on at least 1 foot intervals longitudinally down the road:

(B) Infrared sensor(s):

(1) Measuring from 32°F to 400°F with an accuracy of  $\pm 2.0\%$  of the sensor reading.

(C) Ability to measure the following:

(1) The placement distance using a Global Positioning System (GPS) or a Distance Measuring Instrument (DMI) and a Global Positioning System (GPS).

(2) Stationing

(D) GPS: Accuracy  $\pm 4$  feet in the X and Y Direction

(E) Latest version of software to collect, display, retain and analyze the mat temperature readings during placement. The software must have the ability to create and analyze:

(1) Full collected width of the thermal profiles,

(2) Paver speed and

(3) Paver stops and duration for the entire Project.

(F) Ability to export data automatically to a remote data server ("the cloud").

At the preconstruction meeting, provide the Cabinet with rights to allow for web access to the data file location. Access to the data is not to be hindered in any way. The Contractor will provide the Cabinet with any vendor specific software, user id, passwords, etc. needed to access the data through this service, cost of this access is incidental to the thermal profile bid item. The Cabinet is to have access to all data as it is being collected. If a third party is used for collecting and distributing the data the Cabinet is to have the same access rights and time as the Contractor.

This web-based software must also provide the Department with the ability to download the raw files and software and to convert them into the correct format.

(G) The thermal profile data files must provide the following data in a neat easy to read table format.

(1) Project information including Road Name and Number, PCN, Beginning and Ending MPs.

(2) IR Bar Manufacturer and Model number

(3) Number of Temperature Sensors (N)

(4) Spacing between sensors and height of sensors above the asphalt mat

(5) Total number of individual records taken each day (DATA BLOCK)

- (a) Date and Time reading taken
- (b) Latitude and Longitude
- (c) Distance paver has moved from last test location
- (d) Direction and speed of the paver
- (e) Surface temperature of each of the sensors

**3.0 CONSTRUCTION.** Provide the Engineer with all required documentation at the pre-construction conference.

- (A) Install and operate equipment in accordance with the manufacturer’s specifications.
- (B) Verify that the temperature sensors are within ± 2.0% using an independent temperature device on a material of known temperature. Collect and compare the GPS coordinates from the equipment with an independent measuring device.
  - (1) Ensure the independent survey grade GPS measurement device is calibrated to the correct coordinate system (using a control point), prior to using these coordinates to validate the equipment GPS.
  - (2) The comparison is considered acceptable if the coordinates are within 4 feet of each other in the X and Y direction.
- (C) Collect thermal profiles on all Driving Lanes during the paving operation and transfer the data to the “cloud” network or if automatic data transmission is not available, transfer the data to the Engineer at the end of daily paving.
- (D) Contact the Department immediately when System Failure occurs. Daily Percent Coverage will be considered zero when the repairs are not completed within two (2) working days of System Failure. The start of this two (2) working day period begins the next working day after System Failure.
- (E) Evaluate thermal profile segments, every 150 feet, and summarize the segregation of temperature results. Results are to be labeled as Minimal 0°-25°F, Moderate 25.1°-50°F and Severe >50°. Severe readings over 3 consecutive segments or over 4 or more segments in a day warrant investigation on the cause of the differential temperature distribution.

**4.0 MEASUREMENT.** The Department will measure the total area of the pavement lanes mapped by the infrared scanners. Full payment will be provided for all lanes with greater than 85% coverage. Partial payment will be made for all areas covered from 50% coverage to 85% coverage at the following rate Coverage area percentage X Total bid amount. And area with less than 50% coverage will not be measured for payment.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

- 1. Payment is full compensation for all work associated with providing all required equipment, training, and documentation.
- 2. Delays due to GPS satellite reception of signals or equipment breakdowns will not be considered justification for contract modifications or contract extensions.

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24891EC	PAVE MOUNT INFRARED TEMP EQUIPMENT	SQFT



## SPECIAL NOTE FOR NON-TRACKING TACK COAT

1. DESCRIPTION AND USEAGE. This specification covers the requirements and practices for applying a non-tracking tack asphalt coating. Place this material on the existing pavement course, prior to placement of a new asphalt pavement layer. Use when expedited paving is necessary or when asphalt tracking would negatively impact the surrounding area. This material is not suitable for other uses. Ensure material can “break” within 15 minutes under conditions listed in 3.2.
2. MATERIALS, EQUIPMENT, AND PERSONNEL.

2.1 Non-Tracking Tack. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide a tack conforming to the following material requirements:

Property	Specification	Test Procedure
Viscosity, SFS, 77 ° F	20 – 100	AASHTO T 72
Sieve, %	0.3 max.	AASHTO T 59
Asphalt Residue <sup>1</sup> , %	50 min.	AASHTO T 59
Oil Distillate, %	1.0 max.	AASHTO T 59
Residue Penetration, 77 ° F	0 - 30	AASHTO T 49
Original Dynamic Shear (G*/sin δ), 82 ° C	1.0 min.	AASHTO T 315
Softening Point, ° F	149 min.	AASHTO T 53
Solubility, %	97.5 min.	AASHTO T 44

<sup>1</sup> Bring sample to 212 °F over a 10-15 minute period. Maintain 212 °F for 15-20 minutes or until 30-40 mL of water has distilled. Continue distillation as specified in T59.

- 2.2. Equipment. Provide a distributor truck capable of heating, circulating, and spraying the tack between 170 °F and 180 °F. Do not exceed 180 °F. Circulate the material while heating. Provide the correct nozzles that is recommend by the producer to ensure proper coverage of tack is obtained. Ensure the bar can be raised to between 14” and 18” from the roadway.
- 2.3. Personnel. Ensure the tack supplier has provided training to the contractor on the installation procedures for this product. Make a technical representative from the supplier available at the request of the Engineer.

## 3. CONSTRUCTION.

3.1 Surface Preparation. Prior to the application of the non-tracking tack, ensure the pavement surface is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the surface by scraping, sweeping, and the use of compressed air. Ensure this preparation process occurs shortly before application to prevent the return of debris on to the pavement. If rain is expected within one hour after application, do not apply material. Apply material only when the surface is dry, and no precipitation is expected.

3.2 Non-tracking Tack Application. Placement of non-tracking tack is not permitted from October 1<sup>st</sup> to May 15<sup>th</sup>. When applying material, ensure the roadway temperature is a minimum of 40°F and rising. Prior to application, demonstrate competence in applying the tack according to this note to the satisfaction of the Engineer. Heat the tack in the distributor to between 170 – 180 °F. After the initial heating, between 170 – 180 °F, the material may be sprayed between 165 °F and 180 °F. Do not apply outside this temperature range. Apply material at a minimum rate of 0.70 pounds (0.08 gallons) per square yard. Ensure full coverage of the material on the pavement surface. Full coverage of this material is critical. Increase material application rate if needed to achieve full coverage. Schedule the work so that, at the end of the day's production, all non-tracking tack is covered with the asphalt mixture. If for some reason the non-tracking tack cannot be covered by an asphalt mixture, ensure the non-tracking tack material is clean and reapply the non-tracking tack prior to placing the asphalt mixture. Do not heat material more than twice in one day.

3.3 Non-tracking Tack Certification. Furnish the tack certification to the Engineer stating the material conforms to all requirements herein prior to use.

3.4 Sampling and Testing. The Department will require a sample of non-tracking tack be taken from the distributor at a rate of one sample per 15,000 tons of mix. Take two 1 gallon samples of the heated material and forward the sample to the Division of Materials for testing within 7 days. Ensure the product temperature is between 170 and 180 °F at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of non-tracking tack in tons. The Department will not measure for payment any extra materials, labor, methods, equipment, or construction techniques used to satisfy the requirements of this note. The Department will not measure for payment any trial applications of non-tracking tack, the cleaning of the pavement surface, or furnishing and placing the non-tracking tack. The Department will consider all such items incidental to the non-tracking tack.
5. PAYMENT. The Department will pay for the non-tracking tack at the Contract unit bid price and apply an adjustment for each manufacturer's lot of material based on the degree of compliance as defined in the following schedule. Non-tracking tack will not be permitted for use from October 1<sup>st</sup> to May 15<sup>th</sup>. During this timeframe, the department will allow the use of an approved asphalt emulsion in lieu of a non-tracking tack product but will not adjust the unit bid price of the material. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.

Non-Tracking Tack Price Adjustment Schedule						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
Viscosity, SFS, 77 ° F	20 – 100	19 - 102	17 - 18	15 - 16	14	≤13
			103 - 105	106 - 107	108 - 109	≥ 110
Sieve, %	0.30 max.	≤ 0.40	0.41 - 0.50	0.51 - 0.60	0.61 - 0.70	≥ 0.71
Asphalt Residue, %	50 min.	≥49.0	48.5 – 48.9	48.0 – 48.4	47.5-47.9	≤ 47.4
Oil Distillate, %	1.0 max.	≤1.0	1.1-1.5	1.6 - 1.7	1.8-1.9	>2.0
Residue Penetration, 77 ° F.	30 max.	≤ 31	32 - 33	34 - 35	36 - 37	≥ 38
Original Dynamic Shear (G*/sin δ), 82 ° C	1.0 min.	≥0.95	0.92 – 0.94	0.90 – 0.91	0.85 - 0.89	≤ 0.84
Softening Point, ° F	149 min.	≥145	142 - 144	140 - 141	138 - 139	≤ 137
Solubility, %	97.5 min.	≥ 97.0	96.8 – 96.9	96.6 – 96.7	96.4 – 96.5	≤ 96.3

Code  
24970EC

Pay Item  
Asphalt Material for Tack Non-Tracking

Pay Unit  
Ton

Revised: May 23, 2022

## **SPECIAL NOTE FOR EXPERIMENTAL KYCT AND HAMBURG TESTING**

### **1.0 General**

**1.1 Description.** The KYCT (Kentucky Method for Cracking Test) and the Hamburg test results will help determine if the mixture is susceptible to cracking and rutting. During the experimental phase, data will be gathered and analyzed by the Department to determine the durability of the bituminous mixes. Additionally, the data will help the Department to create future performance-based specifications which will include the KYCT and Hamburg test methods.

### **2.0 Equipment**

**2.1 KYCT Testing Equipment.** The Department will require a Marshall Test Press with digital recordation capabilities. Other CT testing equipment may be used for testing with prior approval by the Department.

**2.2 Water Baths.** One or more water baths will be required that can maintain a temperature of 77° +/- 1.8° F with a digital thermometer showing the water bath temperature. Also, one water bath shall have the ability to suspend gyratory specimen fully submerged in water in accordance with AASHTO T-166, current edition.

**2.3 Hamburg Wheel Track Testing.** The department encourages the use of the PTI APA/Hamburg Jr. test equipment to perform the loaded wheel testing. The Department will allow different equipment for the Hamburg testing, but the testing device must be approved by the Department prior to testing.

**2.4 Gyratory Molds.** Gyratory molds will be required to assist in the production of gyratory specimens in accordance with AASHTO T-312, current edition.

**2.5 Ovens.** Adequate (minimum of two ovens) will be required to accommodate the additional molds and asphalt mixture necessary to perform the acceptance testing as outlined in Section 402 of the Kentucky Standard Specifications for Road and Bridge Construction, current edition.

**2.6 Department Equipment.** The Department will provide gyratory molds, PINE 850 Test Press with digital recordation, and CT testing equipment to assist during this experimental phase so data can be gathered. Hamburg test specimens will be submitted to the Division of Materials for testing on the PTI APA/Hamburg Jr if the asphalt contractor or district materials office does not have an approved Hamburg testing device.

### **3.0 Testing Requirements**

**3.1 Acceptance Testing.** Perform all acceptance testing and aggregate gradation as according with Section 402 and Section 403 of the Kentucky Standard Specifications for Road and Bridge Construction, current edition.

**3.2 KYCT Testing.** Perform crack resistance analysis (KYCT) in accordance with the current Kentucky Method for KYCT Index Testing during the mix design phase and during the plant production of all surface mixtures. For mix design approvals, submit KYCT results on the Department MixPack. For Class 4 mixtures, submit ingredient materials to the Division of Materials for verification.

**3.2.1 KYCT Frequency.** Obtain an adequate sample of hot mix asphalt to ensure the acceptance testing, gradation, and KYCT gyratory samples can be fabricated and is representative of the bituminous mixture. Acceptance specimens shall be fabricated first, then immediately after, fabricate the KYCT samples with the gyratory compactor in accordance with Section 2.4 of this Special Note. Analysis of the KYCT specimens and gradation will be required one per subplot produced from the same asphalt material and at the same time as the acceptance specimen is sampled and tested.

**3.2.2 Number of Specimens and Conditioning.** Fabricate specimens in accordance with the Kentucky Method for KYCT Index Testing. Contrary to the method, for field specimens, fabricate a minimum of 3 and up to 6 test specimens. The specimens shall be compacted at the temperature in accordance with KM 64-411. KYCT mix design specimens shall be short-term conditioned uncovered for four hours at compaction temperature in accordance with KM 64-411. Contrary to the Kentucky Method, plant produced bituminous material shall be short-term conditioned immediately after sampling for two hours uncovered in the oven at compaction temperature in accordance with KM 64-411. Additionally, fabricated specimens shall be allowed to cool in air (fan is permissible) for 30 minutes +/- 5 minutes and conditioned in a 77 °F water bath for 30 minutes +/- 5 minutes. To ensure confidence and reliability of the test results provided by KYCT testing and Hamburg testing, reheating of the asphalt mixture is prohibited.

**3.2.3 Record Times.** For each subplot, record the time required between drying aggregates in the plant to KYCT specimen fabrication. The production time may vary due to the time that the bituminous material is held in the silo. Record the preconditioning time when the time exceeds the one-hour specimen cool down time as required in accordance with The Kentucky Method for KYCT Index Testing. The preconditioning time may exceed an hour if the technician is unable to complete the test on the same day or within the specified times as outlined in The Kentucky Method for KYCT Index Testing. The production time and the preconditioning time shall be recorded on the AMAW.

**3.2.4 File Name.** As according to section 7.12 of The Kentucky Method for KYCT Index Testing, save the filename with the following format: "CID\_Approved Mix Number\_Lot Number\_Sublot Number\_Date"

**3.3 Hamburg Testing.** Perform the rut resistance analysis (Hamburg) in accordance with AASTHO T-324, not to exceed 20,000 passes for all bituminous mixtures during the mix design phase and production. For mix design approvals, submit Hamburg results on the Department MixPack. For Class 4 mixtures, submit ingredient materials to the Division of Materials for informational verification.

**3.3.1 Hamburg Testing Frequency.** Perform testing and analysis per lot of material. The plant produced bituminous material sampled for the Hamburg test does not have to be obtained at the same time as the acceptance and KYCT sample. If the Hamburg test sample is not obtained at the same time as the KYCT sample, determine the Maximum Specific Gravity of the KYCT sample in accordance with AASHTO T-209 coinciding with the Hamburg specimens.

**3.3.2 Record Times.** Record the production time as according to section 3.2.3 in this special note. Also record the time that the specimens were fabricated and the time the Hamburg testing was started. All times shall be recorded on the AMAW.

**3.3.3 File Name.** Save the Excel spreadsheet with the following file name; “Hamburg\_CID\_Approved Mix Number\_Lot Number\_Sublot Number\_Date” and upload the file into the AMAW.

#### **4.0 Data**

Submit the AMAW and all test data that was obtained for acceptance, gradation, KYCT, and Hamburg testing within five working days once all testing has been completed for a lot to Central Materials Lab and the District Materials Engineer. Also, any data and or comments that the asphalt contractor or district personnel deem informational during this experimental phase, shall also be submitted to the Central Materials Lab and the District Materials Engineer. Any questions or comments regarding any item in this Special Note can be directed to the Central Office, Division of Materials, Asphalt Branch.

#### **5.0 Payment**

Any additional labor and testing equipment that is required to fabricate and test the KYCT and Hamburg specimens shall be considered incidental to the asphalt surface line item. The Department will perform the testing for the KYCT and Hamburg specimens if a producer does not possess the proper equipment.

June 15<sup>th</sup>, 2022

### **Special Note for Bridge Demolition, Renovation and Asbestos Abatement**

If the project includes any bridge demolition or renovation, the successful bidder is required to notify Kentucky Division for Air Quality (KDAQ) via filing of form (DEP 7036) a minimum of 10 working days prior to commencement of any bridge demolition or renovation work.

Any available information regarding possible asbestos containing materials (ACM) on or within bridges to be affected by the project has been included in the bid documents. These are to be included with the Contractor's notification filed with the KDAQ. If not included in the bid documents, the Department will provide that information to the successful bidder for inclusion in the KDAQ notice as soon as possible. If there are no documents stating otherwise, the bidders should assume there are no asbestos containing materials that will in any way affect the work.



**Andy Beshear**  
GOVERNOR

## TRANSPORTATION CABINET

200 Mero Street  
Frankfort, Kentucky 406 01

**Jim Gray**  
SECRETARY

### Asbestos Inspection Survey

To: Joe Ferguson

District: 4

Date: April 11, 2024

Conducted By: O'Dail Lawson

Report Prepared By: O'Dail Lawson

#### Project and Structure Identification

Project Number: Washington 04-0396.20

Structure ID: 115B00021N

Structure Location: US-150 (Bardstown Road) over Parker Run

Sample Description: Any suspect materials collected were negative for asbestos.

Inspection Date: April 2, 2024

#### Results and Recommendations

This asbestos survey was performed in accordance with the current USEPA regulations, specifically [40 CFR Part 61](#), Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP) revision, final rule effective November 20, 1990.

The results of the samples collected were negative for the presence of asbestos above 1%. No abatement is required at this time. However, the [OSHA Standard 1926.1101](#) applies if any level of asbestos is present in the samples collected.

It is recommended that this report accompany the 10-Day Notice of Intent for Demolition ([Notification Form DEP 7036](#)) which is to be submitted to the Kentucky Division of Air Quality prior to abatement, demolition, or renovation of any building or structure in the Commonwealth. This form can be submitted electronically at the [EEC Forms Homepage](#)





(502) 495-1212  
Fax: (502) 491-7111

Analysis N#	# 3404092 F	Address:	Washington - 115 B00021N
Client Name:	K Y T C		
Sampled By:	O'Dail Lawson		

[illegible]

Reviewed By:

Winters and Menap  
Signature

AJHA #1 02459





**Andy Beshear**  
GOVERNOR

## TRANSPORTATION CABINET

200 Mero Street  
Frankfort, Kentucky 406 01

**Jim Gray**  
SECRETARY

### Asbestos Inspection Survey

To: Joe Ferguson

District: 4

Date: April 11, 2024

Conducted By: O'Dail Lawson

Report Prepared By: O'Dail Lawson

#### Project and Structure Identification

Project Number: Washington 04-0396.20

Structure ID: 115B00023N

Structure Location: US-150 (Bardstown Road) over Cartwright Creek

Sample Description: Any suspect materials collected were negative for asbestos.

Inspection Date: April 2, 2024

#### Results and Recommendations

This asbestos survey was performed in accordance with the current USEPA regulations, specifically [40 CFR Part 61](#), Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP) revision, final rule effective November 20, 1990.

The results of the samples collected were negative for the presence of asbestos above 1%. No abatement is required at this time. However, the [OSHA Standard 1926.1101](#) applies if any level of asbestos is present in the samples collected.

It is recommended that this report accompany the 10-Day Notice of Intent for Demolition ([Notification Form DEP 7036](#)) which is to be submitted to the Kentucky Division of Air Quality prior to abatement, demolition, or renovation of any building or structure in the Commonwealth. This form can be submitted electronically at the [EEC Forms Homepage](#)

(502) 495-1212  
Fax: (502) 491-7111

## BULK SAMPLE ASBESTOS ANALYSIS

Analysis N #	# 3404092 G	Address:	Washington - 115 B00023N
Client Name:	K Y T C		
Sampled By:	O'Dail Lawson		

[illegible]

Methodology : EPA Method 600/R-93-116

Date Analyzed : 9-Apr-24

Analyst : Winterford Mensah

Reviewed By:

Winters and Menap  
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459

AJHA #1 02459

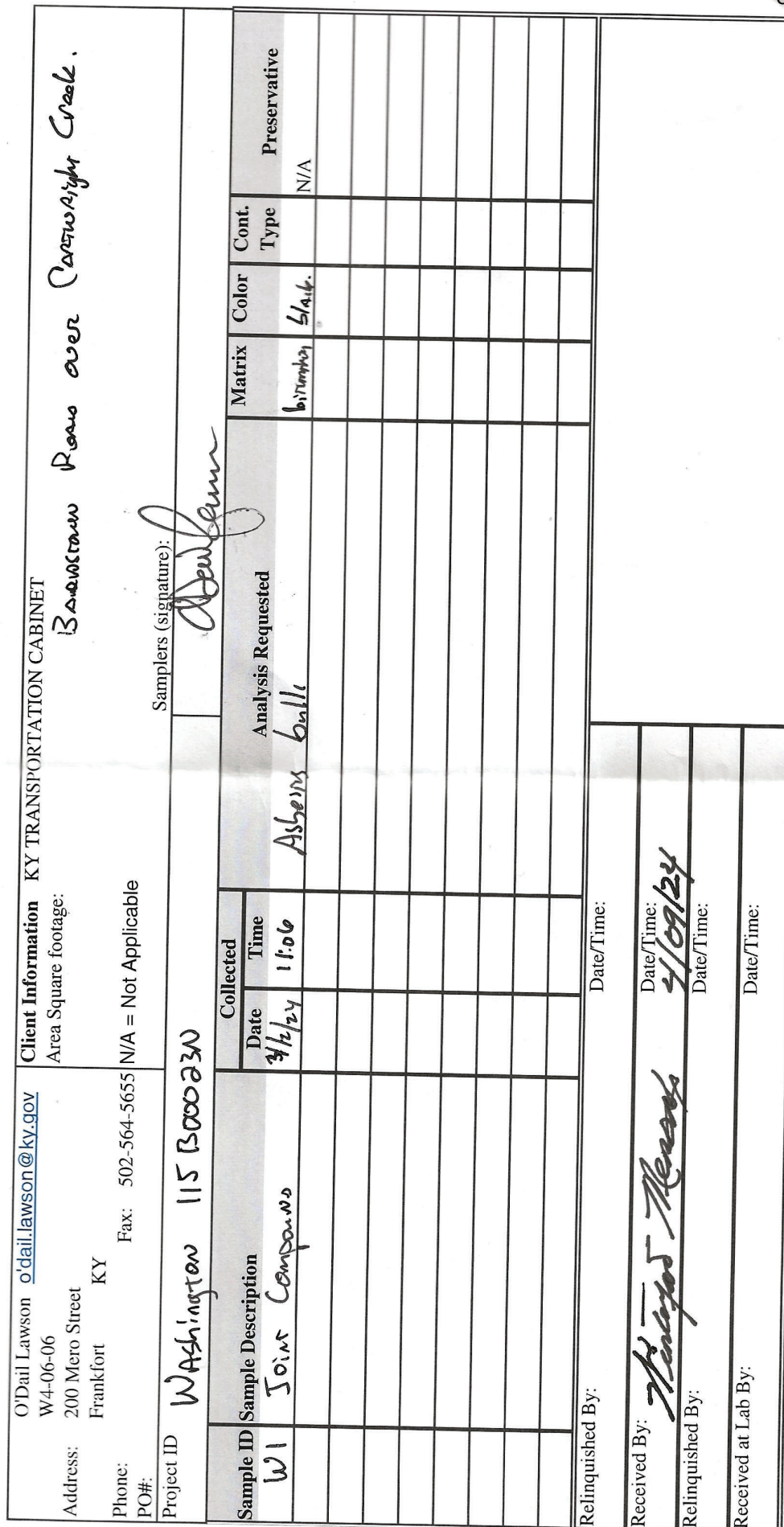


# Kentucky Transportation Cabinet

200 Mero Street, 4th Floor West

Frankfort, Kentucky 40622

(502) 564-7250 fax (502) 564-5655



**ENVIRONMENTAL TRAINING CONCEPTS, INC**  
P.O Box 99603 Louisville, KY 40269  
(502)640-2951

Certification Number: ETC-AIR-032223-00200

# O'Dail Lawson

has on 03-22-2023 attended and successfully completed the requirements and passed the examination with a score of 70% of better on the entitled course.

## ASBESTOS INSPECTOR REFRESHER

Training was in accordance with 40 CFR Part 763 (AHERA) approved by the Commonwealth of Kentucky, the Indiana Department of Environmental Management, Tennessee Department of Environment & Conservation and The Arkansas Department of Environmental Quality. The above student received requisite training for Asbestos Accreditation under Title II of the Toxic Substance Act (TSCA).

Conducted at: 1520 Alliant Ave., Louisville, KY

\_\_\_\_\_  
Name - Training Manager

Expiration Date: 03-22-2024

\_\_\_\_\_  
Name - Instructor



## **SPECIAL NOTE FOR STRUCTURE REMOVAL and RENOVATIONS**

### **Notice of Intent (NOI) to Division of Air Quality**

The roadway contractor is required to file a Notice of Intent (NOI) to the Division of Air Quality ten (10) business days (M-F) prior to the start of any demolition or rehabilitation work on the bridge superstructure (115B0000021N). Please use the KY Environmental and Energy Cabinet eForm Portal (<https://dep.gateway.ky.gov/eForms/Account/Home.aspx>) to complete this task. It is also advised that copies of the submittal are to be sent to the Regional Office of the Kentucky Division of Air Quality [KY DAQ Regional Offices](#) to complete the notification process.

DEP 7038

**NOTIFICATION OF ASBESTOS  
ABATEMENT/DEMOLITION/RENOVATION**  
(Instructions for completing form on back)

\*\*\*File this form with *Regional Office where project will be performed\*\*\**

Kentucky Division for Air Quality  
300 Sower Boulevard, 2<sup>nd</sup> Floor  
Frankfort, KY 40601

PAGE 1 OF

INITIAL SUBMITTAL DATE

REVISION DATE

NOTIFICATION #

OFFICE USE ONLY

ID #

LOG #

**Contractor**

Address

City

State

Zip

Phone

Contact Person

**Owner**

Address

City

State

Zip

Phone

Contact Person

**Project Location**

Address

City

State

Zip

Facility Age (yrs.)

Size of Facility or Affected Part (sq.ft.)

#Floors Affected

Present and Prior Use of Facility

**TYPE OF PROJECT (CHECK ONLY ONE):**

Renovation

Demolition

Ordered Demolition

Emergency

Long-term

**PROJECT DATES:**

Start Removal

End Removal

Start Renovation/Demolition

End Renovation/Demolition

**Amount of ACM to be Removed:**

	Regulated ACM (FACM)	Category II nonfriable ACM (optional)	Category I nonfriable ACM (optional)
Linear Feet			
Square Feet			
Cubic Feet			

**Description** of planned renovation/demolition, including abatement methods  
& demo/reno methods.

**Description** of affected facility components

**Asbestos** detection technique

**Amount of Cat. I & II nonfriable ACM** involved but will not be removed:

Describe **physical characteristics** that make it nonfriable and **methods**  
to keep it nonfriable (optional):

Describe **contingency plan** should nonfriable ACM become friable or  
additional ACM be uncovered during renovation/ demolition:

**Transporter**

Address

City

State

Zip

Phone

**Disposal Site**

Address

City

State

Zip

I hereby certify that at least one person trained as required by 40 CFR  
61.145(c)(8) will supervise the abatement work described herein. (optional  
for strictly non-friable work)

**Submitted by:**

**Company Name:**



**INSTRUCTIONS FOR COMPLETING FORM DEP7036: NOTIFICATION OF ASBESTOS ABATEMENT/DEMOLITION/RENOVATION**

**Filing Deadline:** This form must be completed and filed with the Kentucky Division for Air Quality at least ten (10) working days before starting any asbestos removal, demolition, or other work which will disturb asbestos-containing material (ACM) in Kentucky facilities outside Jefferson County and in schools statewide, including Jefferson County. File with appropriate Regional Office.

**Renotification:** If developments occur that invalidate information on a notification (e.g., changes in dates, amounts, locations), file a revised form within the time frames specified in 401 KAR 58:025. Notifications may be numbered in the top-left corner (optional). First two digits are project year; remaining digits are project number (e.g., the first project in 1999 is 99-1).

**Attachments:** Attachments may be included to provide additional information, propose alternative procedures, declare nonfriable removal, identify secondary transporters, etc.

**Line-by-Line Instructions:**

**Contractor/Owner:** the asbestos remover (or, for zero-asbestos demolitions, the demolition contractor). The owner is the entity having the work done.

**Project Location:** The location at the address given where the work is taking place (e.g., which building/floor/room?).

**Present/Prior Use:** Enter the present and prior use(s) of the facility.

**Type of Project:** Each choice shown in this category has a specific description under 401 KAR 58:025:  
Emergency renovations result from a sudden, unexpected event. If the project is an emergency renovation, attach a detailed description of the sudden, unexpected event that necessitated removal. Include the exact date and hour the event occurred and explain how the event caused an unsafe condition, or would cause equipment damage or unreasonable financial burden.  
Planned renovations are renovations that do not qualify as emergency renovations.  
A long-term notification is a type of planned renovation which involves a number of nonscheduled small-scale removals whose annual total exceeds the NESHAP threshold amounts and can be estimated based on past years' experience. File yearly estimate at least 10 working days before the beginning of the calendar year for which a long-term notification is being given.  
Demolitions involve the wrecking or taking out of a load-supporting structural member, such as a load-bearing beam or wall. Tearing down a structure, dismantling it piecemeal, and moving it from one place to another are all considered demolitions.  
Ordered demolitions must result from a demolition order issued by a government agency because the building is structurally unsound and in danger of imminent collapse. For ordered demolitions, attach to the notification a signed, dated copy of order that includes demolition deadlines and name/title/authority of the government representative issuing the order.

**Project Dates:** Schedules must be precise and accurate. The "start removal" date is the date the removers arrive on-site and begin physically preparing the work area for removal. "End removal" is the date the removers dismantle the work area after cleaning and clearing it. If circumstances arise that invalidate previously submitted start dates, a revised notification must be submitted showing the updated, correct start date. If the start date has been moved up, submit written renotification at least ten working days before the new start date. If the start date has been moved back, telephone the Division as soon as possible before the original date and submit written renotification no later than the original start date.  
Schedules for renovation and demolition (next line after removal schedule) are handled similarly, except that renotification is required only for schedule changes involving demolitions, not renovations.

**Amount of ACM:** In this table, enter the amount and type (RACM, Category I, and/or Category II) of asbestos that will be removed. Although the regulation does not require you to identify the amount of nonfriable ACM that will be removed, the table provides space for nonfriable ACM to accommodate those notifiers who choose to document these removals.

**Description of project:** Describe the demolition or renovation work to be performed and method(s) to be used, including work practices and engineering controls to be used.

**Asbestos Detection Technique:** Give a general description of the asbestos survey, for example, "ASHERA-style survey by accredited inspector; samples analyzed by PLM."

**Amount of nonfriable ...:** If all nonfriable ACM will be properly removed, enter "NA."

**Contingency Plans:** If Category II nonfriable ACM becomes crumbled, pulverized, or reduced to powder, or if additional RACM is discovered, describe procedures to be followed. For example, "Move demolition activity away from ACM immediately; remove the ACM using regulation-required procedures." Even "Stop work, call Division for Air Quality" is OK.



KENTUCKY TRANSPORTATION CABINET

Department of Highways

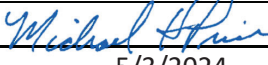

DIVISION OF RIGHT OF WAY & UTILITIES

TC 62-226

Rev. 01/2016

Page 1 of 1

RIGHT OF WAY CERTIFICATION

<input checked="" type="checkbox"/>	Original	<input type="checkbox"/>	Re-Certification	RIGHT OF WAY CERTIFICATION	
ITEM #		COUNTY		PROJECT # (STATE)	PROJECT # (FEDERAL)
04-8809		Nelson		12F0 FD52 090 92783 01R	STP 8334 (005)
PROJECT DESCRIPTION					
NEW ROUTE BETWEEN US 62 AND KY 245 WEST OF BARDSTOWN (2020CCN) (2022CCR)					
<input type="checkbox"/>	No Additional Right of Way Required				
Construction will be within the limits of the existing right of way. The right of way was acquired in accordance to FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional right of way or relocation assistance were required for this project.					
<input checked="" type="checkbox"/>	Condition # 1 (Additional Right of Way Required and Cleared)				
All necessary right of way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Just Compensation has been paid or deposited with the court. All relocations have been relocated to decent, safe, and sanitary housing or that KYTC has made available to displaced persons adequate replacement housing in accordance with the provisions of the current FHWA directive.					
<input type="checkbox"/>	Condition # 2 (Additional Right of Way Required with Exception)				
The right of way has not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Just Compensation has been paid or deposited with the court for most parcels. Just Compensation for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract					
<input type="checkbox"/>	Condition # 3 (Additional Right of Way Required with Exception)				
The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. All remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary right of way will not be fully acquired, and/or some occupants will not be relocated, and/or the just compensation will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction.					
Total Number of Parcels on Project		25	EXCEPTION (S) Parcel #	ANTICIPATED DATE OF POSSESSION WITH EXPLANATION	
Number of Parcels That Have Been Acquired					
Signed Deed		20			
Condemnation					
Signed ROE		5			
Notes/ Comments (Text is limited. Use additional sheet if necessary.)					
Solitication for demolition is out with demolition to begin soon. will be complete prior to letting.					
LPA RW Project Manager			Right of Way Supervisor		
Printed Name			Printed Name		Michael H Price
Signature			Signature		
Date			Date		5/3/2024
Right of Way Director			FHWA		
Printed Name			Printed Name		
Signature			Signature		
Date			Date		
Digitally signed by Kelly Divine Date: 2024.05.03 14:21:08 +05'00'					

## UTILITIES AND RAIL CERTIFICATION NOTE

Washington County  
00STP1501126  
FD52 115 8940001U  
Mile point: 0.426 TO 2.500  
**IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN-  
BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336).  
(2016BOP) (2020CCR)(D-Auth under 4-396) (2022CCR) (\$2 MILLION CONGRESSIONAL EARMARK DEMO  
ID K  
ITEM NUMBER: 04-396.20**

### PROJECT NOTES ON UTILITIES

The contractor should be aware that there is UTILITY WORK INCLUDED IN THIS ROAD CONSTRUCTION CONTRACT. The Contractor shall review the GENERAL UTILITY NOTES AND INSTRUCTIONS which may include KYTC Utility Bid Item Descriptions, utility owner supplied specifications, plans, list of utility owner preapproved subcontractors, and other instructions. Utility contractors may be added via addendum if KYTC is instructed to do so by the utility owner. Potential contractors must seek prequalification from the utility owner. Any revisions must be sent from the utility owner to KYTC a minimum of one week prior to bid opening.

For all projects under 2000 Linear feet which require a normal excavation locate request pursuant to KRS 367.4901-4917, the awarded contractor shall field mark the proposed excavation or construction boundaries of the project (also called white lining) using the procedure set forth in KRS 367.4909(9)(k). For all projects over 2000 linear feet, which are defined as a "Large Project" in KRS 367.4903(18), the awarded contractor shall initially mark the first 2000 linear feet minimally of proposed excavation or construction boundaries of the project to be worked using the procedure set forth in KRS 367.4909(9)(k). This temporary field locating of the project excavation boundary shall take place prior to submitting an excavation location request to the underground utility protection Kentucky Contact Center. For large projects, the awarded contractor shall work with the impacted utilities to determine when additional white lining of the remainder of the project site will take place. This provision shall not alter or relieve the awarded contractor from complying with requirements of KRS 367.4905 to 367.4917 in their entirety.

Please Note: The information presented in this Utility Note is informational in nature and the information contained herein is not guaranteed.

The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and

## UTILITIES AND RAIL CERTIFICATION NOTE

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(2016BOP) (2020CCR)(D-Auth under 4-396) (2022CCR) (\$2 MILLION CONGRESSIONAL EARMARK DEMO  
ID K  
ITEM NUMBER: 04-396.20**

Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs. The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. The contractor is instructed to contact KY 811 for the location of existing underground utilities. Contact shall be made a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY 811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom are to be contacted through their individual Protection Notification Center. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area. Non-compliance with these directives can result in the enforcement of penalties.

**NOTE: DO NOT DISTURB THE FOLLOWING FACILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS**

**\*The Contractor is fully responsible for protection of all utilities listed above\***

## UTILITIES AND RAIL CERTIFICATION NOTE

Washington County  
00STP1501126  
FD52 115 8940001U  
Mile point: 0.426 TO 2.500  
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ID K  
ITEM NUMBER: 04-396.20**

**THE FOLLOWING FACILITY OWNERS ARE RELOCATING/ADJUSTING THEIR FACILITIES WITHIN THE  
PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION**

AT&T - KY – Communication – Has existing buried 30 fiber along Fredericktown Road and is rt Sta. 15+00 to RT approximate Sta. 82+50, existing 72 fiber & 100 PR copper line from Rt 52+47 to Lt approximate Sta. 55+75 to Sta. 81+20, existing buried 100 PR Copper line & 72 count buried fiber line rt Sta. 80+25 to approximately rt Sta. 92+50. These facilities are to be removed or abandoned.

Existing facilities to remain in place/adjusted are 50 PR fiber approximately 100' Rt Sta. 14+37 to approximately 52' Rt Sta. 20+00, crossing to 75' Lt Sta. 22+50 and continues to 75.93' Rt Sta. 30+25. Existing aerial 100 PR Copper & 50 PR crossing rt Sta. 80+18 to Approximately 100' Lt Sta. 81+75, Existing 30 & 72 Aerial Fiber Cable & 100 PR Aerial Copper Cable from approximate Rt Sta 82+81 to Rt Sta. 137+99.

New facilities to be installed are: 144 PR aerial fiber cable 100' Rt Sta. 14+37 to approximate 52' RT Sta 20+00, crossing to 75' Lt Sta. 22+50 and continues to 75.93' Rt Sta. 30+25; 144 & 25 aerial fiber from approximate Rt Sta. 52+47.28 crossing to approximate 25' Lt Sta. 56+40 to Lt Sta. 81+25 and then crossing back to approximate 63' Rt Sta. 80+20 where it continues to approximate 72' RT Sta. 81+75. Anticipated completion July 1, 2024.

Bluegrass Network, LLC – Communication – Has exiting buried 144 fiber that varies from center line from Lt Sta. 4+00 to Lt Sta. 72+00, then aerial 144 fiber to Lt Sta. 81+75 crossing back to rt Sta. 82+50 to Rt Sta. 90+00. This facility is to be removed or abandoned in place.

BNLCC new facilities is a 144 buried fiber from Lt 4+00 Sta. to Lt Sta. 56+36, then goes aerial on Salt River poles to Lt Sta 81+75 crossing back to Rt Sta. 80+36 then onto AT&T poles to Rt Sta. 100+00 where it connects to existing 144 aerial fiber that is being moved over to new AT&T poles until approximate Sta. 122+80 where it follows the old pole route. Anticipated Completion July 1, 2024.

Salt River Electric - Electric – Has completed adjusted of facilities from Sta. 52+00 to Sta. 81+75.

## UTILITIES AND RAIL CERTIFICATION NOTE

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ID K  
ITEM NUMBER: 04-396.20**

**THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE OWNER OR  
THEIR SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT**

Salt River Electric Cooperative Corp. – Electric – Rt Sta. 17+40 to Rt 21+90 will be relocated after excavation of slope from 19+50 to 27+35.

AT&T – Communications – New & Existing facilities in area of Rt 17+40 to Rt 21+90 will be adjusted to new Salt River Electric poles after completion of slope excavation and Salt River Electric Cooperative Corp. completing their relocation work.

City of Bardstown - CATV – Facilities in area of Rt Sta 17+40 to Rt 21+90 will be relocated after slope excavation is completed and Salt River Electric & AT&T have adjusted their facilities in this area.

**THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD  
CONTRACTOR AS INCLUDED IN THIS CONTRACT**

Springfield Water and Sewer Commission – Water - Has existing 6-inch water line starting Rt Sta. 61+00 through station Rt 111+50, crossing to Lt Sta. 111+75, and extending to end of project at Lt. Sta. 137+58 which is to be abandoned. The new 6-inch water line begins Rt Sta. 60+00 to 66+00 on the back side of the ditch; from Rt Sta. 66+00 to Rt Sta. 76+00, water line is installed 10' outside of R/W line and transitions to run 7.5' within the R/W from Rt Sta. 77+80 to 83+25; water line then runs off R/W at approximate Rt Sta. 83+50 and then crosses back to approximate Lt Sta. 84+25 and then is located at the back side of the ditch from Lt Sta. 84+25 to Lt. sta. 131+50 where it ties back into the existing water line.



## UTILITIES AND RAIL CERTIFICATION NOTE

<p>Washington County 00STP1501126 FD52 115 8940001U Mile point: 0.426 TO 2.500 IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN- BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336). (2016BOP) (2020CCR)(D-Auth under 4-396) (2022CCR) (\$2 MILLION CONGRESSIONAL EARMARK DEMO ID K ITEM NUMBER: 04-396.20</p>
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Also, a new 4-inch water line is being constructed along Grundy Home Road Lt. Sta. 149+51.81 to approximate Lt. Sta. 144+38 where it ties into the existing 4-inch water line.

City of Bardstown - Water – Has an existing 1 ¼ inch galvanized water line from Fredericktown Road approach Sta. Lt 200+64 to 201+50 and Rt Sta. 15+10 to Rt Sta. 18+50 that is to be abandoned; an existing 2-inch PVC water line crossing from Lt to Rt @ Sta. 18+50 then ahead Rt Sta. 18+50 to Rt. Sta.33+15. On the Lt at Sta.13+00 to 21+65 is an existing 2-inch PVC line that is also to be abandon once the new 3-inch water line which is on the Lt Sta. 13+00 to 33+15 is installed. There are two crossing of the new 3-inch one, one is at Sta. 14+36 and the second is at 33+20.

### RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

☒ No Rail Involvement   ☐ Rail Involved   ☐ Rail Adjacent

**UTILITIES AND RAIL CERTIFICATION NOTE**

**Washington County**  
**00STP1501126**  
**FD52 115 8940001U**  
**Mile point: 0.426 TO 2.500**

**IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN-  
BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336).  
(2016BOP) (2020CCR)(D-Auth under 4-396) (2022CCR) (\$2 MILLION CONGRESSIONAL EARMARK DEMO  
ID K  
ITEM NUMBER: 04-396.20**

**AREA FACILITY OWNER CONTACT LIST**



## UTILITIES AND RAIL CERTIFICATION NOTE

<p align="center"> <b>Washington County</b>  <b>00STP1501126</b>  <b>FD52 115 8940001U</b>  <b>Mile point: 0.426 TO 2.500</b>  <b>IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN-              BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336).              (2016BOP) (2020CCR)(D-Auth under 4-396) (2022CCR) (\$2 MILLION CONGRESSIONAL EARMARK DEMO              ID K</b>  <b>ITEM NUMBER: 04-396.20</b> </p>
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Facility Owner	Address	Contact Name	Phone	Email
AT&T - KY - Communication	894 E. Main St. Ext. Georgetown KY 40324	Frank Ambrose	8597538377	fa2207@att.com
Bluegrass Network, LLC - Communication	115 W. Williams St. Elizabethtown KY 42701	Terry Hullett	2707342177	thullett@bluegrassnetwork.com
City of Bardstown - CATV	220 North 5th Street Bardstown KY 40004	Rick Workman	5023485947	rworkman@Bardstownconnect.com
City of Bardstown - Water	220 N. Fifth ST. Bardstown KY 40004	Jessica Filiatreau	5023485947	jhfiliatreau@bardstownconnect.com
Salt River Electric Cooperative Corp. - Electric	2230 Parkway Drive. Bardstown ky 40004	Daniel Carrico	5023737730	dcarrico@srelectric.com
Springfield Water & Sewer - Water	603 W. Main St. Springfield KY 40069	Daren Thompson	8593365454	Daren.Thompson@lebanonwaterworks.com

**UTILITIES AND RAIL CERTIFICATION NOTE**

<p><b>Washington County</b> <b>00STP1501126</b> <b>FD52 115 8940001U</b> <b>Mile point: 0.426 TO 2.500</b> <b>IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN-</b> <b>BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336).</b> <b>(2016BOP) (2020CCR)(D-Auth under 4-396) (2022CCR) (\$2 MILLION CONGRESSIONAL EARMARK DEMO</b> <b>ID K</b> <b>ITEM NUMBER: 04-396.20</b></p>
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# Standard Water Bid Item Descriptions

**THESE BID ITEM DESCRIPTIONS SHALL SUPERCEDE ANY BID ITEM DESCRIPTIONS CONTAINED IN UTILITY OWNER SUPPLIED SPECIFICATIONS PROVIDED ELSEWHERE IN THIS PROPOSAL.**

**W AIR RELEASE VALVE** This bid item description shall apply to all air release valve installations of every size except those defined as “Special”. This item shall include the air release valve, main to valve connecting line or piping, manhole, vault, structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill, and restoration required to install the air release valve at the location shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**BOLLARDS** This item is for payment for furnishing and installing protective guard posts at above-ground utility installations. A bollard may consist of, but is not limited to, a steel post set in concrete or any other substantial post material. This item shall include all labor, equipment, and materials needed for complete installation of the bollard, as specified by the utility owner specifications and plans. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

*NOTE: A bid code for this item has been established in standard roadway bid items and shall be used for payment of this item. The bid code is 2134IND.*

**W CAP EXISTING MAIN** This item shall include the specified cap, concrete blocking and/or mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the cap on an existing main to be left in service at the location shown on the plans or as directed, in accordance with the specifications. This item is not to be paid to cap new main installations or mains that are to be abandoned. This pay item is only to be paid to cap existing mains to be left in service. Caps on new mains are to be considered incidental to the new main, as are other fittings, and are not to be paid under this item. All caps on existing mains shall be paid under this one bid item included in the contract, regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

*Plugging of existing abandoned mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**W CATHODIC PROTECTION** This item is for providing and installing all cathodic protection materials to iron pipe and fittings, as specified in plans and specifications, complete and ready-for-use. Materials to be supplied and installed by the contractor shall include, but are not limited to, anodes, wire, fusion kits, test stations, and/or marker posts. All cathodic protection required for the entire project shall be paid under this one item. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LUMP SUM (LS) when complete.

**W DIRECTIONAL BORE** Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized to minimize the impact of open-cut for the installation of water main under streets, creeks, etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore, whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at

each end of the bore, when specified, to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract, regardless of size. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W ENCASEMENT CONCRETE** This item shall include all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, etc., to construct the concrete encasement of the water main as shown on the plans, and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe, as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasements shall be paid under one bid item included in the contract, regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement, as specified in the plans and specifications. No separate bid items will be established for size variations. Measurement of pay quantity shall be from end of concrete to end of concrete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W ENCASEMENT STEEL BORED** This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready-for-use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

*(Encasement sizes of 2 inches internal diameter or less shall not be paid separately but shall be considered incidental to the carrier pipe.)* Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W ENCASEMENT STEEL OPEN CUT** This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open-cut and install the encasement in accordance with the plans and specifications, complete and ready-for-use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

*(Encasement sizes of 2 inches internal diameter or less shall not be paid separately but shall be considered incidental to the carrier pipe.)* Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W FIRE HYDRANT ADJUST** This item includes all labor, equipment, excavation, materials, and backfill to adjust the existing fire hydrant using the fire hydrant manufacturer's extension kit for adjustments of 18" or less. Adjustments greater than 18" require anchoring couplings and vertical bends to adjust to grade. The Contractor will supply and install all anchor couplings, bends, fire hydrant extension, concrete blocking, restoration, granular drainage material, etc., needed to adjust the fire hydrant, complete and ready-for-use as shown on the plans, and in accordance with the specifications and standard drawings. This also includes allowing for the utility owner inspector to inspect the existing fire hydrant prior to adjusting, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete and ready for use.

**W FIRE HYDRANT ASSEMBLY** This item includes all labor, equipment, new fire hydrant, isolating valve and valve box, concrete pad around valve box (when specified in specifications or plans), piping, anchoring tee, anchoring couplings, fire hydrant extension, excavation, concrete blocking, granular drainage material, backfill, and restoration, to install a new fire hydrant assembly as indicated on plans and standard drawings, complete and ready-for-use. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FIRE HYDRANT RELOCATE** This item includes all labor and equipment to remove the existing fire hydrant from its existing location and to reinstall at a new location. This item shall include a new isolating valve and valve box, concrete pad around valve box (when required in specifications or plans), new piping, new anchoring tee, anchoring couplings, fire hydrant extensions, concrete blocking, restoration, granular drainage material, excavation, and backfill as indicated on plans, specifications, and standard drawings, complete and ready-for-use. This item shall also include allowing for utility owner inspector to inspect the existing fire hydrant prior to reuse, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant for use if the existing fire hydrant is determined unfit for reuse. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FIRE HYDRANT REMOVE** This item includes removal of an abandoned fire hydrant, isolating valve, and valve box, to the satisfaction of the engineer. The removed fire hydrant, isolating valve, and valve box shall become the property of the contractor for his disposal as salvage or scrap. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FLUSH HYDRANT ASSEMBLY** This item shall include the flushing hydrant assembly, service line, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the flush hydrant at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready-for-use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FLUSHING ASSEMBLY** This item shall include the flushing device assembly, service line, meter box and lid, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the flushing device at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready-for-use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W LEAK DETECTION METER** This item is for payment for installation of a water meter at main valve locations, as shown on the plans, for detection of water main leaks. The meter shall be of the size and type specified in the plans or specifications. This item shall include all labor, equipment, meter, meter box or vault, connecting pipes between main and meter, main taps, tapping saddles, casting, yoke, and any other associated material needed for installation of a functioning water meter in accordance with the plans and specifications, complete and ready-for-use. No separate payment will be made under any other contract item for connecting pipe or main taps. All leak detection meters shall be paid under one bid item included in the contract, regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete and ready for use.

**W LINE MARKER** This item is for payment for furnishing and installing a water utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

**W LINE STOP SIZE 1 OR 2** This item shall include the line stop saddle/sleeve, valve, completion plug and any other material, labor, and equipment necessary to complete the line stop as indicated in the plans and/or specifications. This installation shall allow the waterline system to operate as usual without any interruption of service. The size shall be the measured internal diameter of the live pipe to be tapped. The line stop size to be paid under sizes 1 or 2 shall be as follows:

Size 1 = All live tapped main sizes up to and including 8 inches

Size 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W MAIN POINT RELOCATE** This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the location shown on the plans. This bid item is to be used to relocate an existing water main at point locations, such as to clear a conflict at a proposed drainage structure, pipe, or any other similar short relocation situation, and where the existing pipe material is to be reused. The contractor shall provide any additional pipe or fitting material needed to complete the work, as shown on the plans and specifications. The materials provided shall be of the same type and specifications as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case-by-case basis. New polyethylene wrap is to be provided (if wrap exists or is specified in the specifications to be used). If it is necessary that the pipe be disassembled for relay, payment under this item shall also include replacement of joint gaskets as needed. Bedding and backfill shall be provided and performed the same as with any other pipe installation as detailed in the plans and specifications. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically, regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Water Main Relocate shall not be paid on a linear feet basis but shall be paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

**W METER** This item is for payment for installation of all standard water meters of all sizes 2 inches in diameter or less as specified on the plans. This item shall include all labor, equipment, meter, meter box, casting, yoke, and any other associated materials needed for installation of a functioning water meter, in accordance with the plans and specifications, complete and ready-for-use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER ADJUST** This item includes all labor, equipment, excavation, materials, backfill, restoration, etc., to adjust the meter casting to finished grade (whatever size exists) at the location shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER RELOCATE** This item includes all labor, equipment, excavation, additional fittings, disinfection, testing, restoration, etc., to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, etc., from its old location to the location shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. The new service pipe (if required) will be paid under the short side or long side service bid item. Any and all meter relocations of 2 inches or less shall be paid under one bid item included in the contract, regardless of size. Each individual relocation shall be paid individually under this item; however, no separate bid items will be established for meter size variations of 2 inches in diameter or less. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER VAULT SIZE RANGE 1 OR 2** This item is for payment for installation of an underground structure for housing of a large water meter, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s) valve(s), all piping, and fitting materials associated with installing a functioning meter and vault in accordance with the plans, standard drawings, and specifications, complete and ready-for-use. The size shall be the measured internal diameter of the meter and piping to be installed. The size meter vault to be paid under size 1 or 2 shall be as follows:

Size Range 1 = All meter and piping sizes greater than 2 inches up to and including 6 inches  
Size Range 2 = All meter and piping sizes greater than 6 inches

This item shall be paid EACH (EA) when complete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

**W METER/FIRE SERVICE COMBO VAULT** This item is for payment for installation of an underground structure for housing of a water meter and fire service piping, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s), valve(s), all piping, and fitting materials associated with installing a functioning meter and fire service vault, in accordance with the plans and specifications, complete and ready-for-use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER WITH PRESSURE REDUCING VALVE (PRV)** This item is for payment for installation of all standard water meters with pressure reducing valves (PRV) of all sizes 2 inches in diameter or less,

as specified on the plans. This item shall include all labor, equipment, meter, PRV, meter box, casting, yoke, and any other associated materials needed for installation of a functioning water meter with PRV, in accordance with the plans and specifications, complete and ready-for-use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W PIPE** This item shall apply to all pipe of every size and type material to be used as water main, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specifications), polyethylene wrap (when specified), labor, equipment, excavation, bedding, backfill, restoration, testing, sanitizing, etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. This item shall include all temporary and permanent materials, as well as equipment required to pressure test and sanitize mains including, but not limited to, pressurization pumps, hoses, tubing, gauges, main taps, saddles, temporary main end caps or plugs and blocking, main end taps for flushing, chlorine liquids or tablets for sanitizing, water for testing/sanitizing and flushing (when not supplied by the utility), chlorine neutralization equipment and materials, and any other items needed to accomplish pressure testing and sanitizing the main installation. This item shall also include pipe anchors at each end of polyethylene pipe runs, when specified to prevent the creep or contraction of the pipe. When owner specifications require, this bid item shall include contractor preparation of as-built drawings to be provided to the engineer and/or utility owner at the end of construction. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W PLUG EXISTING MAIN** This item shall include the specified plug, concrete blocking and/or mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the plug on an existing main to be left in service at the location shown on the plans or as directed, in accordance with the specifications. This item is not to be paid to plug new main installations or mains that are to be abandoned. This pay item is only to be paid to plug existing mains that are to be left in service. Plugs on new mains are to be considered incidental to the new main, as are other fittings, and are not to be paid under this item. All plugs on existing mains left in service shall be paid under this one bid item included in the contract, regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

*Plugging of existing abandoned mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**W PRESSURE REDUCING VALVE** This item shall apply to all pressure reducing valves (PRV) of every size required in the plans and specifications, except those bid items defined as "Special". Payment under this description is to be for PRVs being installed with new main. This item includes the PRV as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), pit or vault, backfill, restoration, testing, disinfection, etc., required to install the specified PRV at the location shown on the plans, in accordance with the specifications and standard



drawings, complete and ready-for-use. If required on the plans and/or proposed adjoining DIP is restrained, PRVs shall be restrained. PRV restraint shall be considered incidental to the PRV and adjoining pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W PUMP STATION** This item is for payment for installation of pumps and an above or below ground structure for housing of the pumps. This item shall include all pumps, piping, fittings, valves, electrical components, building materials, concrete, any other appurtenances, labor, equipment, excavation, and backfill, to complete the pump station installation as required by the plans, standard drawings, and specifications, complete and ready-for-use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LUMP SUM (LS) when complete.

**W REMOVE TRANSITE (AC) PIPE** This item shall include all labor, equipment, and materials needed for removal and disposal of the pipe as hazardous material. All work shall be performed by trained and certified personnel, in accordance with all environmental laws and regulations. Any and all transite AC pipe removed shall be paid under one bid item included in the contract, regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W SERVICE LONG SIDE** This item shall apply to all service line installations of every size bid up to and including 2-inch inside diameter, except those service bid items defined as "Special". This item includes the specified piping material, main tap, tapping saddle (if required), corporation stop materials, coupling for connecting the new piping to the surviving existing piping, encasement of 2 inches or less internal diameter (if required by plans or specifications), labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. This bid item is to pay for service installations where the ends of the service connection are on opposite sides of the public roadway and the service line crosses the centerline of the public roadway, as shown on the plans. The length of the service line is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for special bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W SERVICE SHORT SIDE** This item shall apply to all service line installations of every size up to and including 2-inch internal diameter, except those service bid items defined as "Special". This item includes installation of the specified piping material of the size specified on plans, encasement of 2 inches or less internal diameter (if required by plans or specifications), main tap, tapping saddle (if required), corporation stop, coupling for connecting the new piping to the surviving existing piping, labor, equipment, excavation, backfill, testing, disinfection, and restoration at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. This bid item is to pay for service installations where both ends of the service connection are on the same side of the public roadway, or when an existing service crossing a public roadway will remain and is being extended, reconnected, or relocated, with all work on one side of the public roadway centerline as shown on the plans. The length of

the service line is not to be specified and shall not be restricted to any minimum or maximum length. Placement of a service lateral across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W SERVICE RELOCATE** This item is for the relocation of an existing water service line where a meter is not involved, and where an existing service line can easily be adjusted by excavating alongside and moving the line horizontally and/or vertically a short distance without cutting the service line to avoid conflicts with road construction. This item shall include excavation, labor, equipment, bedding, and backfill to relocate the line, in accordance with the plans and specifications, complete and ready-for-use. Payment under this item shall be for each location requiring relocation. Payment shall be made under this item regardless of service size or relocation length. No separate pay items will be established for size or length variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W STRUCTURE ABANDONMENT** This item is to be used to pay for abandonment of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, etc. Payment under this item shall not be limited to size or scope; however, structures with connecting pipes of 2 inches or less shall not be paid under this item but shall be considered incidental to water construction (i.e., abandonment of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted fill or flowable fill for abandonment of the structure in-place and complete restoration. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W STRUCTURE REMOVAL** This item is to be used to pay for removal of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, etc. Payment under this item shall not be limited to size or scope; however, structures with connecting pipes of 2 inches or less shall not be paid under this item but shall be considered incidental to water construction (i.e., removal of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted backfill for removal of the structure and complete restoration. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W TAPPING SLEEVE AND VALVE SIZE 1 OR 2** This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready-for-use, in accordance with the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

- Size 1 = All live tapped main sizes up to and including 8 inches
- Size 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W TIE-IN** This item shall be used for all main tie-in bid items of every size, except those defined as “Special”. This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, blocking, anchoring, restoration, disinfection, testing, and backfill required to make the water main tie-in as shown on the plans and in accordance with the specifications, complete and ready-for-use. Pipe for tie-ins shall be paid under separate bid items. This item shall be paid EACH (EA) when complete.

*Plugging of existing abandoned mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**W VALVE** This item shall apply to all valves of every size required in the plans and specifications, except those bid items defined as “Special”. Payment under this description is to be for gate or butterfly valves being installed with new main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specifications), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specifications), restoration, testing, disinfection, etc., required to install the specified valve at the location shown on the plans, in accordance with the specifications and standard drawings, complete and ready-for-use. If required on plans and/or proposed adjoining DIP is restrained, valves shall be restrained. Valve restraint shall be considered incidental to the valve and adjoining pipe. This description does not apply to cut-in valves. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE ANCHOR EXISTING** This item is intended to pay for installation of restraint hardware on an existing valve where no restraint exists, to hold the valve in place to facilitate tie-ins and other procedures where restraint is prudent. This work shall be performed in accordance with water specifications and plans. This bid item shall include all labor, equipment, excavation, materials, and backfill to complete restraint of the designated valve, regardless of size, at the location shown on the plans, complete and ready-for-use. Materials to be provided may include, but are not limited to, retainer glands, lugs, threaded rod, concrete, reinforcing steel, or any other material needed to complete the restraint. Should the associated valve box require removal to complete the restraint, the contractor shall reinstall the existing valve box, the cost of which shall be considered incidental to this bid item. No separate bid items are being provided for size variations. All sizes shall be paid under one bid item. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE BOX ADJUST** This item include all labor, equipment, valve box and valve stem extensions (if required), excavation, backfill, concrete pad around valve box (when specified in specifications or plans), restoration, etc., to adjust the top of the box to finished grade, complete and ready-for-use. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE BOX REMOVE** This item is in payment for all labor, equipment, restoration materials, disposal, and any other effort for removal of a valve box, leaving the valve in place. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE CUT-IN** This item is for new cut-in valve installations of all sizes, where installation is accomplished by cutting out a section of existing main. This item shall include cutting the existing pipe, supplying the specified valve, couplings or sleeves, valve box, concrete pad around valve box (when required in specifications or plans), labor, equipment, and materials to install the valve at the locations

shown on the plans, or as directed by the engineer, complete and ready-for-use. Any pipe required for installation shall be cut from that pipe removed or supplied new by the contractor. No separate payment will be made for pipe required for cut-in valve installation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE REMOVE** This item is in payment for all labor, equipment, and restoration materials for cutting of existing pipe and any other effort necessary for total removal of an existing valve and valve box. This bid item shall include disposal of the valve and box, unless plans or specifications state the valve and box are to be salvaged and delivered to the utility owner for reuse. No separate pay items are to be established for size variations. All valve removals, regardless of size, shall be paid under this one pay item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

*If plugging of existing abandoned mains is needed after valve removal, the work shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**W VALVE VAULT** This item is for payment for installation of an underground structure for housing of specific valve(s), as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or doors, the specified valve(s), all piping, and fitting materials associated with installing a functioning valve vault, in accordance with the plans, standard drawings, and specifications, complete and ready-for-use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

# **BARDSTOWN**

## General Specifications and Guidelines for Design and Construction

March 2019

## Section 1 – General Information

## Section 2 – Streets

## Section 3 – Water

## Section 4 – Sewer

## Section 5 – Stormwater

# SECTION 1

## GENERAL INFORMATION

**TABLE OF CONTENTS**

**1.1 INTRODUCTION ..... 1-1**

**1.2 DEFINITIONS..... 1-1**

**1.3 PROCEDURES..... 1-2**

**1.4 CONSTRUCTION PLANS ..... 1-2**



## 1.1 INTRODUCTION

The purpose of these General Provisions is to establish the minimum standards required for the design and construction of public roadways, water facilities, sanitary sewer facilities, and stormwater infrastructure in the City of Bardstown. These General Provisions are intended to assist designers and developers in the design and construction of public roadways, water facilities, sanitary sewer facilities, and stormwater infrastructure which will be dedicated to the City of Bardstown for public use, repair, and maintenance. These provisions are to be a supplement to the Joint City-County Planning Commission's "Subdivision Regulations of Nelson County, Kentucky."

## 1.2 DEFINITIONS

City of Bardstown: The local Government Agency which shall be responsible for all current and future repair and maintenance of existing and newly developed City roadways.

Public Works Department: The Public Works Department, when used in these provisions, shall mean the Public Works Superintendent or other designated representative of the City of Bardstown Public Works Department. The Public Works Department shall be responsible for construction review and inspection of any public roadway. The Public Works Department is located at the City of Bardstown's Public Works Shop, 999 Kelly Drive, Bardstown, KY 40004 and has phone number (502) 348-3098.

City Engineer: City Engineer, when used in these provisions, shall mean the City Engineer employed by the City of Bardstown. The City Engineer shall be responsible for the design review and construction review of any public roadway owned and maintained by the City of Bardstown. The City Engineer's office is located at City Hall, 220 North 5th Street, Bardstown, KY 40004 and has phone number (502) 348-5947.

Standard Specifications: The Kentucky Standard Specifications for Road and Bridge Construction commonly used for all new, repair, and maintenance work associated with State highways and bridges in Kentucky. The Edition of this book to be utilized shall be that edition which is in effect when the design/construction plans for a new proposed City roadway has been submitted to the City for approval. When the term "Engineer" or phrase "as approved by the Engineer" is used in the Standard Specifications, it shall be construed to mean the City Engineer. The Standard Specifications shall be the minimum standard utilized for construction and inspection of the City of Bardstown Public Roadways. Any developer who intends to utilize different specifications than the Standard Specifications shall specifically identify the difference in the Construction Plans. If a specific item is noted in these General Specifications and Guidelines for Design and Construction that differs from the minimum standards of the Standard Specifications, then the specified item shall govern per the City of Bardstown minimum standards.

## 1.3 PROCEDURES

All developers/contractors who wish to construct a new road or extend an existing road, and of which that developer intends to dedicate ownership of that road to the City of Bardstown once constructed, shall accomplish the following:

- Comply with all zoning regulations required by the Nelson County Joint City-County Planning Commission.
- Comply with “Subdivision Regulations for Nelson County, Kentucky” developed by the Planning Commission.
- Submit “Preliminary Construction Plans” (with or after the “Preliminary Plat” submittal) to the City Engineer for review. No construction of a proposed public roadway shall begin until the City Engineer has reviewed and approved the Construction Plan.
- Review the site with the City Engineer. Be prepared to discuss locations of borrow material, sample locations and number of proctors (to be used for soil densities), cross drain culverts, easements, and right-of-ways.
- Revise Preliminary Construction Plans to comply with the City Engineer’s comments and concerns. Re-submit “Final Construction Plans” for final approval by the City Engineer.
- Once the Final Construction Plans have been approved by the City Engineer, construction may begin (provided the preliminary plat and other requirements of the Planning Commission have been complied with).

*NOTE: Any construction activities which begin prior to construction plan review and approval shall be at the owner’s own risk.*

## 1.4 CONSTRUCTION PLANS

All newly developed roadways, either in subdivisions or extensions of existing roads, which are intended to be dedicated to the City at a later date, shall be required to have construction plans. These construction plans shall be submitted to, reviewed by, and approved by the City Engineer prior to construction.

To assure proper review and approval of the Construction Plans prior to Final Plat approval, the Construction Plans shall be submitted to the City Engineer a minimum of ten (10) working days prior to the Planning and Zoning subdivision plat review committee meeting. This subdivision plat review committee meeting is typically held on the third Wednesday of each month.

These plans shall be in sufficient detail to properly inform the City Engineer of all fills, cuts, ditches, culverts, bridges, preliminary lot layout, and any other information necessary which may be required for a City owned roadway. The plans shall comply with the following:

- Roads shall be designed and constructed in accordance with this document and the “Subdivision Regulations for Nelson County, Kentucky.”
- The minimum requirements for Construction Plans shall be:
  - Plan, profile, curve data, etc. of the roadway showing roadway cuts, fills, alignment, and road grades.
  - Existing contour lines at a minimum of two feet. Contour lines shall be of sufficient detail to depict all hills, creeks, sink holes, ponds, and other features which might impact roadway construction.
  - Typical roadway cross-sections showing pavement structure, width, and side drainage ditches.
  - Roadway cross-sections at a maximum of 50 feet intervals and at other locations necessary to define earthwork volumes, slopes, intersections, utilities, drainage facilities, etc. Cross sections should show station, offset (left and right) of centerline, the proposed roadway template, permanent drainage features, underground utilities, and construction notes. Each cross section should be annotated with proposed grade point elevations along centerline and edge of travelled way, ditch flow line elevations, proposed slopes, and lane widths.
  - Roadway location with respect to subdivision lot layouts, adjacent property owners, connection roads (names), new phases (proposed), etc.
  - Cross drain culverts, including sizes, lengths, locations, and materials (including headwalls). Culverts shall be sized for a 25 year storm event and certified by a Professional Engineer. The 100 year storm event shall not overtop the roadway and designed to be one (1) foot below the roadway elevation. Show all retention structures if required.
  - Roadway side ditches and proposed driveway culverts.
  - Roadway “right-of-way” to be dedicated to the City.
  - Utility easements with proposed utilities.
  - Construction or maintenance easements if needed.
  - If septic tanks/lateral fields are to be used for sewage disposal, provide a copy of the preliminary on-site evaluation provided by the Nelson County Health Department.
  - All plans shall be prepared, sealed, and signed by a Licensed Professional Engineer of Kentucky who routinely prepares such design assuring that all features such as culverts, bridges, and any other structures are properly designed to carry intended loads.
  - All variances to the above requirements shall be specifically noted or requested.

# SECTION 2

## STREETS

**TABLE OF CONTENTS**

**2.1 SPECIFICATIONS ..... 2-1**

**2.2 ROADWAY CONSTRUCTION (TO SUBGRADE) ..... 2-1**

**2.3 ROADWAY CONSTRUCTION (PAVEMENT STRUCTURE) ..... 2-2**

**2.3.1 Dense Graded Aggregate (DGA)..... 2-2**

**2.3.2 Asphalt Bituminous Base Course..... 2-3**

**2.3.3 Asphalt Tack Coat ..... 2-3**

**2.3.4 Asphalt Bituminous Surface Course..... 2-3**

**2.4 SLOPES / DITCHES / CULVERTS..... 2-3**

**2.4.1 Slopes..... 2-3**

**2.4.2 Ditches..... 2-4**

**2.4.3 Culverts..... 2-4**

**2.5 RIGHT-OF-WAY ..... 2-4**

**2.6 EASEMENTS..... 2-5**

**2.7 CURB & GUTTERS / SIDEWALKS ..... 2-5**

**2.8 STREET LIGHTING..... 2-5**

**2.9 STREET SIGNS..... 2-5**

**2.10 STORMWATER MANAGEMENT & DRAINAGE PLAN  
AND ENCROACHMENT ON CITY ROADS ..... 2-5**

## 2.1 SPECIFICATIONS

All materials and procedures utilized in the design and construction of a new City roadway shall comply with the appropriate Section in the Standard Specifications such as concrete, asphalt, dense graded aggregate, pipe materials, etc. Typical details such as culvert headwalls shall be as specified in the Standard Drawings Manual developed by the Kentucky Department of Highways. Reference to this manual shall be made when designing such structures. Any variance to this manual shall be noted.

## 2.2 ROADWAY CONSTRUCTION (TO SUBGRADE)

All roadway fills and cuts shall be shown on the plans. In areas that require embankments to be constructed, the developer shall understand they will be required to comply with *Section 206 – Embankment* of the Standard Specifications. Soil Proctors (target densities) shall be required as determined in the Construction Plan review and/or during roadway grading operations. The number of proctors shall depend on the soil type at the proposed development site. Proctors will involve soil samples to be collected and sent off to an acceptable laboratory with target densities (with acceptable moisture contents) developed for the soil to be used in the embankment construction. Field Densities shall be obtained at 100 foot centers and checked by using Nuclear Density Meters operated by an approved Construction Inspection company. These field densities will be the responsibility of the developer/contractor when required by the City Engineer.

Density reports shall be routinely provided to the City Engineer during construction. Materials which fail the field density check will be required to be excavated, refilled, and compacted with suitable material in accordance with the Standard Specifications.

The minimum in place dry density of subgrade soils utilized for subgrade construction shall be as described in *Section 205* of the Standard Specifications. Specifically, all subgrade construction shall obtain 95% of the maximum density (based on the proctor) or 98 pounds per cubic foot (whichever is greater).

Most soils within the City of Bardstown and Nelson County have a California Bearing Ration (CBR) less than six (6). Subgrade stabilization is recommended for any soil with a CBR less than seven (7).

As a means to provide a barrier between the subgrade and pavement base materials, geotextile fabrics should be used in accordance with the Standard Specifications in saturated foundation areas and in embankment benching areas or as required by the City Engineer.

Subgrade drainage systems shall be installed so as to drain any subsurface water from the pavement structure. Either porous aggregate underdrains or perforated and non-perforated pipe underdrains shall be used in accordance with the Standard Specifications. Underdrain systems shall be installed at a minimum of 100 feet center-to-center spacing alternating each side (underdrain every 50 feet) along the edges of the roadway and may be required as directed by the City Engineer.

The subgrade shall be free from ruts, large stones, and excessive dust. The subgrade shall be subject to a subgrade proof roll test prior to placement of pavement stone base materials so that soft, wet, or pumping areas may be identified. The truck shall be operated at walking speed over the entire subgrade. Any excessive deflections such as rutting or pumping shall be stabilized as directed by the City Engineer or his/her representative.

In order to aid in construction inspection and grade control, grade stakes shall be set every 50 feet to the typical subgrade section. Elevations shall be computed to the nearest 0.01-foot of the required grade. Elevations should be set for the top of subgrade and the top of the aggregate base material at a minimum. Grade stakes should be located along each side of the roadway and offset no more than four (4) feet from the edge of pavement. It may be necessary in the case of passing lanes or wide curb and gutter sections to set additional grade stakes to aid in grade control.

2.3 ROADWAY CONSTRUCTION (PAVEMENT STRUCTURE)

City streets shall be designed according to the following minimum pavement sections for the specified street classification. Designs are based on soils with a CBR of three (3) or less and a design life of 15 years. Alternate pavement designs may be submitted to the Office of the City Engineer for approval by a licensed Engineer with an accompanying geotechnical report. Alternate designs shall be in accordance with the current edition of KYTC’s *Pavement Design Guide* and Standard Specifications.

Street Classification	Minimum Pavement Section
Residential Cul-de-sac (<1,000 ft.)	9” DGA, 3” Asph. Base, 1.25” Asph. Surface
Residential Collector (≥1,000 ft.)	9” DGA, 3.5” Asph. Base, 1.25” Asph. Surface
Commercial	12” DGA, 4.5” Asph. Base, 1.25” Asph. Surface
Light Industrial (LIP)	12” DGA, 5.5” Asph. Base, 1.5” Asph. Surface
Industrial	14” DGA, 6” Asph. Base, 1.5” Asph. Surface

Use of Concrete roads or any other variance from this minimum standard shall be prepared and submitted by a Licensed Professional Engineer to the City Engineer for approval.

2.3.1 Dense Graded Aggregate (DGA)

The DGA to be used shall comply with the Standard Specifications in that the DGA shall be run through a pugmill and water added to achieve a moisture content of plus or minus 2% of optimum. The DGA may be placed in one lift no thicker than 6 inches compacted. The DGA shall be spread with a stone spreader capable of obtaining a uniform depth. For roads less than 300 feet in length, tailgate spreading may be used provided it is graded to the correct depths. The DGA shall be compacted while still wet to 84% of solid volume. The contractor shall be responsible for testing compaction which shall comply with the Standard Specifications.

The DGA base layer shall be subject to a proof roll test prior to placement of asphalt base materials so that potential failure locations may be identified. The proof roll may be conducted immediately following placement of DGA base materials, but an additional proof roll may be

required prior to placement of asphalt base materials, as determined by the City of Bardstown. The proof roll shall be conducted as described in Section 2.2. Any excessive deflections such as rutting or pumping shall be stabilized as directed by the City Engineer or his/her representative.

### **2.3.2 Asphalt Bituminous Base Course**

The Asphalt base shall be laid in one lift and compacted. The initial compaction pass shall be with a static roller and at least two more passes of a roller in the vibratory mode or as specified in *Section 403.03.10 Compaction* of the Standard Specifications. Finish rolling shall be accomplished with a static roller.

### **2.3.3 Asphalt Tack Coat**

Asphalt tack coat shall be applied to any Asphalt Base Course prior to Surface Placement. The Tack Coat shall comply with and be applied as specified in *Section 406 – Asphalt Curing Seal and Asphalt Prime and Tack Coats* of the Standard Specifications.

### **2.3.4 Asphalt Bituminous Surface Course**

The surface course shall be placed and compacted as required by the Standard Specifications.

Both the Bituminous Base and Bituminous Surface Courses shall meet the current Standard Specifications for gradation and asphalt content for work on similar projects by the Kentucky Department of Transportation. The Bituminous Base shall be compacted to within 95% of the Job Mix formula for the material being used as specified in the Standard Specifications *Section 403 – Production and Placement of Asphalt Mixtures*. The contractor shall provide density reports on the compaction.

The pavement width shall be as described in the Planning Commission's "Subdivision Regulations of Nelson County, Kentucky." No DGA shoulders will be required unless determined necessary by the City Engineer. See Appendix 1 for typical roadway sections intended for use in the City. Any variance to this section shall be shown on the construction plans when practical.

## **2.4 SLOPES / DITCHES / CULVERTS**

### **2.4.1 Slopes**

The grades of the proposed roadway shall be specifically shown on the profile sheet. Roadway side slopes (embankment fill areas, including over culverts) shall be a maximum (steepest) of a three (3) horizontal to one (1) vertical – 3H:1V.



## 2.4.2 Ditches

Parallel roadway ditches shall typically be a “V” type ditch with a 3H:1V side slope designed to a depth to properly channel surface drainage away from the pavement structure. Ditches shall be a minimum of six (6) inches below the bottom of the pavement stone base layer so as to allow the subgrade drainage system to function properly. Typical ditches shall be shown on the plan and profile sheets. When the roadway grade is greater than five (5) percent, side ditches shall be rip rap lined two feet up each side slope. Ditches shall, at a minimum, be at a longitudinal slope of one (1) percent to provide sufficient drainage.

All other ditches shall be seeded and strawed with a Seed Mix Type I, of *Section 212.03.03 Permanent Seeding and Protection* of the Standard Specifications. Any variance of this mixture shall be identified in the Construction Plans. The rates of application shall be as detailed in *Section 212 – Erosion Control* of the Standard Specifications.

All disturbed right-of-way areas shall be seeded at a rate of eighty (80) pounds per acre. Within 48 hours of seeding, the area shall be mulched with straw at rates detailed in *Section 212 – Erosion Control* of the Standard Specifications.

## 2.4.3 Culverts

Culverts shall be sized to carry the flow rates expected for a 25-year storm event. In the design, the HW/D ratio shall be as close to 1.0 as is practical, however, shall not exceed 1.5, or cause unnecessary ponding. A 100-year storm event should not reach an elevation of one (1) foot below the roadway surface so as to prevent overtopping during extreme storm events.

Culvert material shall be, as a minimum, aluminized corrugated metal pipe (ACMP), 16 gage thickness complying with ASTM A819 and AASHTO M274 and the Standard Specifications. Alternative pipe materials may be utilized provided the Owner/Developer specifically identifies and request a variance on the construction plans. All materials to be used shall comply with the Standard Specifications.

Cross drain round culverts twenty-four (24) inches or larger shall require concrete headwalls. All concrete box culverts require headwalls. The culvert length shall be what is necessary for the 3H:1V embankment slope to toe out at the culvert flowline. Rip-rap (shot limestone rock) shall be required at culvert inlets/outlets. The minimum size for a roadway cross drain culvert shall be eighteen (18) inches.

All culverts (box or pipe), and utility structures (pipelines) within the pavement structure area shall be constructed and properly backfilled in accordance with *Section 611 – Precast Reinforced Concrete Box Culvert Sections* of the Standard Specifications.

## 2.5 RIGHT-OF-WAY

Right-of-way to be dedicated to the City shall be a minimum width identified in the Planning Commission’s “Subdivision Regulations of Nelson County, Kentucky.” Permanent right-of-way

markers shall be installed at all roadway change of direction. These right-of-way marker locations shall be shown on the construction plans.

## **2.6 EASEMENTS**

All utility construction, and/or maintenance easements shall be shown on the Construction Plans. Typically, no utility easements shall be located in the right-of-way unless specifically requested and identified on the plans. All underground utilities which cross the roadway (i.e. electric lines) shall be specifically shown on the Construction Plans. All utilities which are to be installed in the City right-of-way shall have “utility identification tape” installed during backfill of the utility trench. This identification tape shall be placed at approximately 18 inches above the utility. All utilities which are installed within the pavement structure area shall be properly backfilled and compacted in accordance with *Section 701 – Culvert Pipe, Entrance Pipe, Storm Sewer Pipe, and Equivalents* of the Standard Specifications.

## **2.7 CURB & GUTTERS / SIDEWALKS**

Curb, gutters, and sidewalks shall be installed when required by the Planning Commission’s “Subdivision Regulations of Nelson County, Kentucky.” The minimum sizes/configuration for the curb/gutters and sidewalks are shown in the Appendix 2 and Appendix 3. Any variance from this detail shall be identified in the Construction Plans.

Adequate surface drain structures (i.e. curb box inlets with clean out manholes) shall be installed along the curb and gutters (at all low points in roadways or at sufficient intervals along relatively flat roadways as designed by the Engineer) to allow surface water to drain off from the pavement structure. Catch basin clean out manhole spacing shall not exceed 150 feet.

The Design Engineer shall take into account any subsurface drainage problems that could result from curb/gutter installation due to the site’s soil/clay material and/or terrain. The requirement for subsurface drainage is a designer decision.

## **2.8 STREET LIGHTING**

Street lighting shall be installed to meet City requirements.

## **2.9 STREET SIGNS**

A list of the Streets’ names shall be provided to the City for a particular development. It shall be the responsibility of the City to purchase and install all street signs for new and old developments.

## **2.10 STORMWATER MANAGEMENT & DRAINAGE PLAN AND ENCROACHMENT ON CITY ROADS**

See City Ordinance *Chapter 156: Drainage Control*.

# SECTION 3

## WATER

**TABLE OF CONTENTS**

**3.1 DISTRIBUTION MAINS ..... 3-1**

**3.1.1 Design..... 3-1**

    3.1.1.1 Pressure ..... 3-1

    3.1.1.2 Sizing ..... 3-1

    3.1.1.3 Fire Protection ..... 3-1

    3.1.1.4 Valves ..... 3-1

    3.1.1.5 Water Main Depth ..... 3-2

    3.1.1.6 Sewer Main Clearance..... 3-2

    3.1.1.7 Dead Ends & Loops..... 3-2

**3.1.2 Materials ..... 3-2**

    3.1.2.1 Polyvinyl Chloride (PVC) Pipe ..... 3-2

    3.1.2.2 Ductile Iron Pipe (D.I.P.) ..... 3-3

**3.1.3 Installation..... 3-4**

    3.1.3.1 Existing Utilities and Other Obstructions..... 3-4

    3.1.3.2 Pipe Laying ..... 3-4

    3.1.3.3 Jointing ..... 3-4

    3.1.3.4 Creek & Utility Crossing Concrete Encasement ..... 3-5

    3.1.3.5 Bituminous & Concrete Pavement Replacement..... 3-5

    3.1.3.6 Trenching..... 3-5

- 3.1.3.7 Bedding & Backfilling ..... 3-6
- 3.2 VALVES AND FITTINGS..... 3-8
  - 3.2.1 Gate Valves & Boxes ..... 3-8
  - 3.2.2 Tapping Valves & Sleeves..... 3-9
  - 3.2.3 Air Relief Valves ..... 3-9
  - 3.2.2 Thrust Blocks ..... 3-9
- 3.3 HYDRANTS..... 3-9
  - 3.3.1 Location & Spacing ..... 3-10
  - 3.3.2 Valves & Nozzles..... 3-10
  - 3.3.1 Hydrant Leads ..... 3-10
  - 3.3.1 Hydrant Drainage..... 3-10
  - 3.3.2 Flushing Hydrants ..... 3-11
- 3.4 SERVICES & METERS ..... 3-11
- 3.5 INSPECTION ..... 3-11
- 3.6 TESTING ..... 3-11
- 3.7 DISINFECTION OF WATER MAINS ..... 3-12
- 3.8 EASEMENTS ..... 3-13

## **3.1 DISTRIBUTION MAINS**

Distribution mains are water pipes used to transport large volumes of potable water from Bardstown's Water Treatment Plant to smaller areas throughout the City and surrounding areas. Leaving the plant, distribution mains are large in size and become smaller depending on the amount of users being served in an area.

### **3.1.1 Design**

#### **3.1.1.1 Pressure**

All water mains, including those not designed to provide fire protection, shall be sized after a hydraulic analysis based on flow demands and pressure requirements. The system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. The normal working pressure in the distribution system shall be at least 35 psi and should be approximately 60 psi to 80 psi.

#### **3.1.1.2 Sizing**

The minimum size of a water main which provides for fire protection and serving fire hydrants shall be six (6) inch diameter. Larger size mains will be required if necessary to allow the withdrawal of the required fire flow while maintaining the minimum residual pressure specified in Section 3.1.1.1.

The minimum size of water main in the distribution system where fire protection is not to be provided should be a minimum of three (3) inch diameter. Any departure from minimum requirements shall be justified by hydraulic analysis and future water use, and can be considered only in special circumstances.

#### **3.1.1.3 Fire Protection**

When fire protection is to be provided, system design should be such that fire flows and facilities are in accordance with the requirements of the State Insurance Services Office.

#### **3.1.1.4 Valves**

Gate valves of the same size as the distribution main shall be installed in lines at each intersection and in such a manner that only customers on one street between intersections will be without service whenever line repair or servicing is required. Additional valves shall be installed such that the distance between gate valves on distribution mains shall not exceed 1,000 feet.

### **3.1.1.5 Water Main Depth**

In general, water mains shall be sufficiently deep to prevent freezing and laid with a minimum cover of three (3) feet and maximum cover of five (5) feet above the top of the pipe, unless approved by the City Engineer. Water mains crossing streams, creeks, or ditches shall have a minimum cover of two (2) feet above the top of the pipe.

### **3.1.1.6 Sewer Main Clearance**

Water mains shall be laid at least ten (10) feet horizontally from existing or proposed sanitary sewer mains. The distance shall be measured edge of pipe to edge of pipe. Water mains crossing sewer mains shall be laid to provide a minimum of 18 inches clearance between the outside of the water main and the outside of the sewer main. When possible, the water main should be laid above the sewer main. The crossing shall be arranged so that the joints will be equidistant and as far as possible from the water main joints.

### **3.1.1.7 Dead Ends & Loops**

Dead ends shall be minimized by making appropriate tie-ins whenever practical, in order to provide increased reliability of service and reduce head loss. All distribution mains more than 500 feet long shall be looped to eliminate dead end lines.

Distribution mains that are looped and/or designed for future extension shall be eight (8) inches or larger in size.

Dead end mains shall be equipped with a means to provide adequate flushing. Flushing devices should be sized to provide flows which will give a velocity of at least 2.5 feet per second in the water main being flushed. They may be provided with a fire hydrant if flow and pressure are sufficient. No flushing device shall be directly connected to any sewer.

## **3.1.2 Materials**

### **3.1.2.1 Polyvinyl Chloride (PVC) Pipe**

PVC pipe and fittings shall conform to the requirements of ASTM Standard Specifications Designation D 2241. Unless otherwise specified, pipe shall be not less than pressure Class 200.

Joints shall be of the push on type conforming to ASTM D 3139 and F477 requirements for elastometric gasket joints. All jointing material and lubricants shall be non-toxic.

Unless specifically approved by the Engineer, pipe shall be furnished in lengths of not more than 20 feet.

PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, and the designation ASTM D 2241.

### **3.1.2.2 Ductile Iron Pipe (D.I.P.)**

Ductile iron pipe (D.I.P.) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard. The pipe, fittings and joints should be capable of accommodating pressure up to 250 psi.

Push on type joints shall be single rubber gasket, with cast gasket socket and recessed bell with a tapered annular opening and flared socket and shall conform to ANSI/AWWA C111/A21.11. Plain spigot ends shall be suitably beveled to permit easy entry into the bell, centering and compressing the gasket.

Ductile iron flanged joint pipe shall conform to ANSI/AWWA C115/A21.15 Standard and have a thickness class of 53. The pipe shall have a rated working pressure of 250 psi with Class 125 flanges. Gaskets shall be ring gaskets with a thickness of 1/8 inch. Flange bolts shall conform to ANSI B 16.1.

Flanged fittings shall meet all requirements of ANSI/AWWA C110/A21.10 and have Class 125 flanges. Fittings shall accommodate a working pressure up to 250 psi and be supplied with all accessories.

Ductile iron mechanical joint fittings shall have a body thickness and radii of curvature conforming to ANSI A21.10 and have joints in accordance with ANSI/AWWA C111/A21.11. Fittings and joints shall be supplied with all accessories.

All pipe and fittings shall be tar coated outside and shall receive a standard cement lining with bituminous seal coat on the inside in accordance with ASA Specification A21.40 (AWWA C104).

Cement mortar lining and seal coating for pipe and fittings, where applicable, shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.

All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast iron grade 80 60 03 per ASTM Specification A339 55.

All valves, fittings, and hydrants or other appurtenances shall be bolted with all thread bolts when connected in series.



### **3.1.3 Installation**

#### **3.1.3.1 Existing Utilities and Other Obstructions**

Prior to beginning construction, all utilities should be field located. If utility lines, above or below ground, may be affected during construction, the appropriate utility company should be contacted to determine who may replace, displace, or alter those lines, if necessary, during construction.

#### **3.1.3.2 Pipe Laying**

All pipe shall be laid with ends abutting and true to the lines and grades indicated on the plans. The pipe shall be laid straight between changes in alignment and at uniform grade between changes in grade. Pipe shall be fitted and matched so that when laid in the trench, it will provide a smooth and uniform invert. In no case shall the supporting of pipe on blocks be permitted.

Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fitting is discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting. In case a length of pipe is cut to fit in a line, it shall be cut so as to leave a smooth end at right angles to the longitudinal axis of the pipe and beveled to match the factory bevel for insertion into gasketed joints. The bevel can be made with hand or power tools.

As work progresses, the interior of the pipe shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be capped so as to exclude earth or other material.

Solid copper #12 tracer wire shall be run the full length of the water main extension and terminate up to the ground surface beside a gate valve box. Tracer wire shall be located on top of the pipe. Utility marking tape shall also be installed over all new water mains, approximately eighteen (18) inches from final grade.

#### **3.1.3.3 Jointing**

All joint surfaces shall be cleaned immediately before connecting pipe joints. The bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer of the joint material and of the pipe. The resulting joints shall be watertight and flexible.

#### **3.1.3.4 Creek & Utility Crossing Concrete Encasement**

At locations shown on the Plans, or as directed by the Engineer, concrete and/or pipe encasement shall be used.

Concrete shall be Class B (3,000 psi) and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.

#### **3.1.3.5 Bituminous & Concrete Pavement Replacement**

Disturbed pavement shall be reconstructed to original lines and grades with bituminous or concrete pavement as detailed on the plans and in such manner so as to leave all surfaces in as good or better condition as they existed prior to construction. Only as much of the existing pavement shall be removed as is necessary in order to complete the work.

Prior to trenching, the pavement shall be scored or cut to straight edges along each side of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be recut and trimmed as necessary to square, straight edges after the pipe has been installed and prior to placement of the specified pavement material.

Backfilling of trenches shall be in accordance with the applicable portions of Section 3.1.3.7.

Bituminous concrete pavement materials, placement, and compaction shall be in accordance with applicable provisions of the Standard Specifications, Section 402.

#### **3.1.3.6 Trenching**

Trenches are to be excavated in open cuts except at paved areas subject to vehicular traffic which shall be bored unless otherwise approved by the City.

Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed.

Trenches shall be of sufficient width to provide free working space on each side of the pipe and to permit proper backfilling around the pipe. Trench width at the top of the pipe shall not be less than one (1) foot plus the nominal diameter of the pipe or greater than two (2) feet plus the nominal diameter of the pipe. The trench shall be excavated to a depth at least 6 inches below the bottom of the pipe.

All excavated materials shall be placed a safe distance from the edge of the trench.

No more than 500 feet of trench shall be opened ahead of or behind the pipe laying work of any one crew. Watchmen or barricades, lighting and other such signs and signals may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions.

Only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public, unless the roadway is closed to normal traffic. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. All public or private drives shall be promptly backfilled or bridged as necessary.

Where unstable materials are encountered or where the depth of excavation in earth exceeds 5 feet, the sides of the trench or excavation shall be supported by substantial sheeting, bracing and shoring, or the sides sloped to the angle of repose. Sloping the sides of the trench to the angle of repose will not be permitted in streets, roads, narrow rights of way or other constricted areas unless otherwise specified. The design and installation of all sheeting, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained. Adequate and proper shoring of all excavation shall be the entire responsibility of the Contractor. The Standards of the Federal Occupational Safety and Health Act shall be followed.

#### **3.1.3.7 Bedding & Backfilling**

Crushed stone material shall conform to the requirements of the applicable sections of the Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.

For both earth-bottom and rock-bottom trenches, pipe shall be laid on a bed of No. 9 crushed stone to a minimum depth of six (6) inches. No pipe shall ever be laid on solid or blasted rock.

Any uneven areas in the trench bottom shall be shaved off or filled in with No. 9 crushed stone. The bedding shall be graded to provide a uniform and continuous support beneath the pipe at all joints.

In wet, yielding locations where the pipe is in danger of sinking below grade or floating out of grade, or where backfill materials are of such a fluid nature that such movements of pipe might take place during placement of backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.

Where a trench bottom is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be undercut to a depth as determined by the City and replaced with crushed stone material. The depth of the foundation and size of the crushed aggregate used is dependent upon the condition of the unstable material. Once the trench bottom has been stabilized, the required No. 9 crushed stone bedding may be placed.

After the pipe has been bedded properly, the trench shall be backfilled with No. 9 crushed stone to a minimum of twelve (12) inches above the top of the pipe.

Final backfill shall be done in accordance with one of the following cases:

- Case I – Pipe and trenches in non-paved areas. The trench shall be backfilled from a point twelve (12) inches above the top of the pipe to the finished grade elevation with consolidated soil (no rock greater than six inches in diameter), No. 9 crushed stone, or No. 57 crushed stone. The top of the trench shall be replaced with a minimum of four (4) inches and a maximum of twelve (12) inches of fertile topsoil capable of supporting vegetation. See Standard Drawing No. G-01-01.
- Case II – Pipe and trenches in paved areas (bituminous pavement). The trench shall be backfilled with No. 9 crushed stone or No. 57 crushed stone from a point twelve (12) inches above the top of the pipe to a point at least fourteen (14) inches below the existing pavement surface. A minimum of six (6) inches of DGA shall then be placed and compacted. A six (6) inch reinforced concrete cap and two (2) inch bituminous surface shall be placed on top of the compacted DGA layer to final grade. The reinforced concrete cap shall be composed of Class A concrete (3,500 psi) with #4 rebar spaced at twelve (12) inches on center in each direction. The concrete cap shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-02-01.
- Case III – Pipe and trenches in paved areas (concrete pavement). The trench shall be backfilled with No. 9 crushed stone or No. 57 crushed stone from a point twelve (12) inches above the top of the pipe to a point at least twelve (12) inches below the existing pavement surface. A minimum of six (6) inches of DGA shall then be placed and compacted. A reinforced concrete cap, six (6) inches minimum or equal to existing pavement thickness, whichever is greater, shall be placed on top of the compacted DGA layer to final grade. The reinforced concrete cap shall be composed of Class A concrete (3,500 psi) with #4 rebar spaced at twelve (12) inches on center in each direction. The concrete cap shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-02-01.

Flowable fill may be used as an alternate backfill material for pipe and trenches in paved areas. Flowable fill shall be in accordance with the Standard Specifications, Section 601. After the pipe has been bedded properly and if using flowable fill, the trench shall be backfilled in accordance with one of the following cases:

- Case I – Pipe and trenches in paved areas (bituminous pavement). The trench shall be backfilled with flowable fill from the top of the pipe to a point six (6) inches below the existing pavement surface. Five (5) inches of bituminous base and one (1) inch of bituminous surface shall be placed and compacted on top of the flowable fill and shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-03-01.

- Case II – Pipe and trenches in paved areas (concrete pavement). The trench shall be backfilled with flowable fill from the top of the pipe to a point at least six (6) inches below the existing pavement surface. A reinforced concrete cap, six (6) inches minimum or equal to existing pavement thickness, whichever is greater, shall be placed on top of the flowable fill to final grade. The reinforced concrete cap shall be composed of Class A concrete (3,500 psi) with #4 rebar spaced at twelve (12) inches on center in each direction. The concrete cap shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-03-01.

Trench subgrade, bedding, and backfill shall be compacted to not less than 95 percent of the density determined from the Standard Proctor Test. Bedding and backfill shall be placed and compacted in equal, continuous layers not exceeding six (6) inches compacted depth. Place and compact material in a way that does not disturb or damage utilities in the trench.

Continuous, detectable underground marking tape shall be installed approximately 12 to 18 inches above all utility lines. Care shall be taken to insure that the buried marking tape is not broken when installed. The identification tape shall bear the printed identification of the utility line below it, such as “Caution – Water Line Buried Below.” Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be two (2) inches in width. Color is blue for water mains.

## **3.2 VALVES AND FITTINGS**

### **3.2.1 Gate Valves & Boxes**

All gate valves shall be of the resilient double disc, parallel seat type, iron body, non-rising stem, fully bronze mounted with O ring seals. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship and shall conform to the latest revisions of AWWA Specification C 500. Mueller valves may not be used unless otherwise approved. Valves shall have a rated working pressure of 200 psi.

Gate valves for buried service shall be furnished with mechanical joint and connections, unless otherwise shown on the plans or specified herein. The end connections shall be suitable to receive PVC Pipe, unless ductile iron is specified.

All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve.

Buried service gate valves shall be provided with a 2" square operating nut and shall be open by turning to the left (counterclockwise).

Gate valves shall be installed in a vertical position with valve box as detailed on the plans. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or street. There shall be a 24" square, 4" thick concrete pad around all valve box tops.

### **3.2.2 Tapping Valves & Sleeves**

Tapping valves and sleeves shall be installed in the locations shown on the Plans. The valves shall be a gate valve with a mechanical joint outlet and a flanged joint connection to the sleeves. They shall be provided with a valve box, counterclockwise opening and installed as described in detail on the plans.

The sleeves shall be of the mechanical joint type and have a 200 psi working pressure when cast iron or ductile iron. The mechanical joint gaskets shall be sized to match the existing tapped pipe outside diameter. A flanged outlet shall connect to the tapping valve and a thrust block poured as detailed in the Plans.

### **3.2.3 Air Relief Valves**

Air relief valves or hydrants shall be placed at necessary high points in water mains where air can accumulate. The Contractor shall install air relief valves at all locations as identified on project plans.

### **3.2.4 Thrust Blocks**

At all tees, plugs, caps and bends of 11¼ degrees and over, and at reducers or in fittings where changes in pipe diameter occur, movement shall be prevented by using suitable harness, thrust blocks or ballast. Thrust blocks shall be as shown on the Drawings. Care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by the Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair. Thrust blocks shall be placed on suitable material to provide adequate support for resisting movement.

Bridles, harness or pipe ballasting shall meet the approval of the Engineer. Steel rods and clamps shall be galvanized or otherwise rust proofed or painted.

## **3.3 HYDRANTS**

Fire hydrants shall be approved AWWA compression model with 5¼ inch hydrant valve, two (2) 2½ inch hose outlets, one (1) 4½ inch pumper nozzle, national standard threads, national standard pentagon operating nut opening left. Fire hydrant shall be equipped with safety flanges designed to prevent barrel breakage when struck by a vehicle, flanged inlets and auxiliary gate valves. All hydrants shall be 3½ foot bury-type unless specifically designated otherwise in drawings. Fire hydrants connected to mains four (4) inches and larger shall have six (6) inch inlet shoes.

Inlet cover depth shall be forty-two (42) inches and the minimum dimension from ground to centerline of lowest opening shall be eighteen (18) inches. Fire hydrants shall be supported on a poured in place concrete thrust block and provided with a drainage pit as indicated on Standard Detail Sheet.

All hydrants and riser extensions shall be ordered and installed to match proposed grade by means of one riser pipe section. No additional riser extensions will be permitted to be added to the one riser pipe section if the hydrant does not meet proposed grade.

All fire hydrants shall receive two (2) field coats of approved OSHA yellow enamel.

### **3.3.1 Location & Spacing**

Fire hydrants should be provided at each street intersection and at intermediate points between intersections as recommended by the State Insurance Office. Fire hydrants shall be spaced no more than 500 feet along a roadway in residential and commercial developments and shall be within 300 feet of all building corners in commercial and industrial developments. Hydrant spacing shall meet or exceed minimum requirements for the City's Insurance Service Office (ISO) rating.

Water mains not designed to carry fire-flows shall not have fire hydrants connected to them. Flushing hydrants shall be provided on these systems. Flushing devices should be sized to provide flows which will give a velocity of at least 2.5 feet per second in the water main being flushed. No flushing device shall be directly connected to any sewer.

### **3.3.2 Valves & Nozzles**

Fire hydrants should have a bottom valve size of at least five (5) inches, one (1) 4½ inch pumper nozzle and two (2) 2½ inch nozzles.

### **3.3.3 Hydrant Leads**

The hydrant lead shall be a minimum of six inches in diameter. Auxiliary valves shall be installed on all hydrant leads.

### **3.3.4 Hydrant Drainage**

Hydrant drains should be plugged. When the drains are plugged the barrels must be pumped dry after use during freezing weather. Where hydrant drains are not plugged, a gravel pocket or dry well shall be provided unless the natural soils will provide adequate drainage. Hydrant drains shall not be connected to or located within 10 feet of sanitary sewers, storm sewers, or storm drains. Hydrant drains, where allowed, must be above the seasonal groundwater table.



### **3.3.5 Flushing Hydrants**

For water mains that dead end, a fire hydrant or blow-off shall be required at the end of each six (6) inch or larger diameter water main and a flush hydrant or blow-off shall be required at the end of each water main that is less than six (6) inches in diameter.

Each blow-off, fire hydrant, or flush hydrant shall be sized so that velocity of greater than or equal to 2.5 feet per second can be achieved in the water main served by the blow-off or hydrant during flushing.

Flushing devices, blow-offs, or air relief valves shall not be connected to any non-storm sewer or any storm sewer or storm drain, and shall be located at a distance greater than ten (10) feet from any non-storm sewer. Chambers, pits, or manholes containing valves, blow-offs, meters, or other such appurtenances shall not be directly connected to any non-storm sewer or any storm sewer or storm drain. Such chambers, pits, or manholes shall be drained to absorption pits underground or to the surface of the ground where they are not subject to flooding by surface water.

## **3.4 SERVICES & METERS**

Each service connection should be individually metered. A water/sewer connection form should be filled out and submitted to the City a minimum of two weeks prior to when a connection is needed. The Contractor shall assure the meter is set at grade and not damaged at the time of final grading.

For services that will extend under a roadway, a minimum two (2) inch diameter PVC conduit sleeve shall be installed during initial construction so that future connections to the public water main can be made without boring or cutting the roadway. Conduit sleeves shall extend from property line to property line on either side of the street and shall in no case terminate under and existing or future driveway.

## **3.5 INSPECTION**

No backfilling (except for securing pipe in place) over pipe will be allowed until the Engineer has the opportunity to make an inspection of the joints, alignment and grade in the section laid, but such inspection shall not relieve the Contractor of further liability in case of defective joints, misalignment caused by backfilling and other such deficiencies that are noted later.

## **3.6 TESTING**

All testing required for the acceptance of water systems by the City of Bardstown is the responsibility of the contractor and/or developer. A City of Bardstown representative shall be present during all required testing and should be notified at least 48 hours in advance.



The completed work shall comply with the provisions listed herein, or similar requirements which will insure equal or better results. Suitable test plugs, water pump or other equipment and apparatus, and all labor required to properly conduct the tests shall be furnished by the Contractor.

Water main piping shall be pressure tested to 250 percent of the normal system operating pressure or to 150 percent of the rated working pressure of the pipe, whichever is less. At no time shall the test pressure exceed 150 percent of the pipe's working pressure. A pipe section shall be accepted if the test pressure does not fall more than 5 psi during the minimum 2 hour test period. The pipe shall be tested for allowable leakage according to AWWA C 600 (latest revision) concurrently with the pressure test.

Where practicable, pipelines shall be tested between line valves or plugs in lengths of not more than 6000 feet. Testing shall proceed from the source of water toward the termination of the line. The line shall be tested upon the completion of the first 6000 feet. After the completion of the two consecutive tests without failure, the Contractor, at his option and with the Engineer's approval, may discontinue testing until the system is complete.

All pipe, fittings and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.

Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at high points within the test section, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water.

Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting. All visible leaks are to be repaired regardless of the amount of leakage.

### **3.7 DISINFECTION OF WATER MAINS**

All water mains shall be disinfected by the use of chlorine or chlorine compound in such amounts as to produce a concentration of at least 50 ppm and a residual of at least twenty-five (25) ppm at the end of the twenty-four (24) hours. Lines shall be thoroughly flushed upon meeting the chlorine residual requirements. Before the lines are placed in service, samples of the water must be taken by the Contractor and submitted to the State Department of Health for testing. No lines shall be placed in service until the samples have been approved by the Health Department. The Contractor shall bear all the cost of the sampling, testing and postage.

Copies of the results of the testing shall be submitted to the City.

### **3.8 EASEMENTS**

Easements for public water mains shall be a minimum of 20 feet to allow for maintenance operations and repairs. Larger easements may be required depending on the size and depth of the water line.

No permanent structures shall be built over a water main or within its easement area. This includes home extensions, garages, decks, sheds, out buildings, swimming pools, etc.

No trees shall be planted within the water easement and no shrubs shall be planted closer than five (5) feet from the water main unless permission is granted by the City of Bardstown Water Department in writing.

Fencing shall be installed outside of the water easement unless otherwise approved by the City of Bardstown Water Department in writing.

Adding or removing fill over top of a water main may harm the line and/or make maintenance difficult. Grade changes in excess of one (1) foot are prohibited unless written permission is granted by the City Engineer.

Water valve boxes, hydrants, meter boxes, covers or other appurtenances located at grade shall be adjusted when grade is changed by the property owner at the property owner's expense. Access to the public water system must be maintained at all times. Water valve boxes, hydrants, meter boxes, covers or other appurtenances shall not be buried. Any found buried shall be raised to grade by the property owner or the City will perform the necessary work and the property owner shall reimburse the City for all expenses.

# SECTION 4

## SEWER

**TABLE OF CONTENTS**

**4.1 SANITARY SEWER LINES..... 4-1**

**4.1.1 Design..... 4-1**

    4.1.1.1 Flow Calculations..... 4-1

    4.1.1.2 Sizing ..... 4-3

    4.1.1.3 Slope & Velocity ..... 4-3

    4.1.1.4 Sewer Depth ..... 4-3

    4.1.1.5 Water Main Clearance ..... 4-4

    4.1.1.6 Private Service Connections..... 4-4

**4.1.2 Materials ..... 4-5**

    4.1.2.1 Polyvinyl Chloride (PVC) Pipe ..... 4-5

    4.1.2.2 Ductile Iron Pipe (D.I.P.) and Fittings..... 4-5

**4.1.3 Installation..... 4-6**

    4.1.3.1 Existing Utilities and Other Obstructions..... 4-6

    4.1.3.2 Pipe Laying ..... 4-6

    4.1.3.3 Jointing ..... 4-7

    4.1.3.4 Creek & Utility Crossing Concrete Encasement ..... 4-7

    4.1.3.5 Bituminous & Concrete Pavement Replacement..... 4-7

    4.1.3.6 Trenching..... 4-8

    4.1.3.7 Bedding & Backfilling ..... 4-9

- 4.2 MANHOLES..... 4-11
  - 4.2.1 Design..... 4-11
    - 4.2.1.1 Location ..... 4-11
    - 4.2.1.2 Diameter ..... 4-11
    - 4.2.1.3 Drop Type ..... 4-11
    - 4.2.1.4 Flow Channel..... 4-11
    - 4.2.1.5 Corrosion Protection ..... 4-12
    - 4.2.1.6 Manhole Bench ..... 4-12
  - 4.2.2 Materials ..... 4-12
    - 4.2.2.1 Precast Concrete Sections ..... 4-12
    - 4.2.2.2 Manhole Frames and Covers..... 4-12
    - 4.2.2.3 Manhole Steps ..... 4-13
    - 4.2.2.4 Premolded Elastomeric-Sealed Joints ..... 4-13
    - 4.2.2.5 Chimney Seals ..... 4-13
  - 4.2.3 Installation..... 4-14
    - 4.2.3.1 Setting Precast Manhole Sections ..... 4-14
    - 4.2.3.2 Adjusting Manhole Frames and Covers to Grade ..... 4-14
    - 4.2.3.3 Grading Rings ..... 4-15
    - 4.2.3.4 Setting Manhole Frames and Covers ..... 4-15
- 4.3 PUMP STATIONS..... 4-15

- 4.3.1 Design..... 4-15
- 4.3.2 Materials..... 4-15
- 4.3.3 Installation..... 4-15
- 4.4 INSPECTION..... 4-16
- 4.5 TESTING..... 4-16
  - 4.5.1 Cleaning..... 4-16
  - 4.5.2 Deflection Test..... 4-16
  - 4.5.3 Leakage Tests..... 4-17
    - 4.5.3.1 Smoke Tests..... 4-17
    - 4.5.3.2 Air Tests..... 4-17
    - 4.5.3.3 Infiltration Tests ..... 4-18
    - 4.5.3.4 Exfiltration Tests ..... 4-18
  - 4.5.4 Manhole Vacuum Testing..... 4-19
- 4.6 EASEMENTS ..... 4-20

## 4.1 SANITARY SEWER LINES

Sanitary sewer lines include both gravity and force main sewers. Gravity sewer lines are those lines which carry sewage under the force of gravity provided by sloping the sewer line in a downhill manner. Force main sewers carry sewage under the force of pressure provided by a pump. Gravity sewer lines are recommended for use over sewer force mains and should be utilized whenever possible.

### 4.1.1 Design

Sanitary sewers and pump stations shall be designed to serve the entire drainage area in which a proposed development is located. Wastewater flows shall be calculated using the best available information for the drainage area. The current proposed development, all known future developments, and allowances for undeveloped land must be included in the flow calculations. The maximum number of units allowed by current zoning shall be used for undeveloped areas.

Allowances for undeveloped land must consider the current zoning of the land, possible future zoning changes, the Joint City-County Planning Commission of Nelson County's Comprehensive Plan, other land-use planning documents, and any other relevant information.

#### 4.1.1.1 Flow Calculations

At a minimum, sanitary sewers and pump stations shall be designed for an average daily flow of 100 gallons per capita per day (gpcd). When more accurate data is not available, sanitary sewer and pump station average flows shall be determined using the information in Table 4.1 – Design Wastewater Flows (Zoning), Table 4.2 – Design Wastewater Flows (Future Land Use), and Table 4.3 – Design Wastewater Flows (Development Type).

**TABLE 4.1 – DESIGN WASTEWATER FLOWS (ZONING)**

<b>Zoning District</b>	<b>Average GPD/Acre</b>	<b>Zoning District</b>	<b>Average GPD/Acre</b>
A-1*	-	B-1	2,000
R-1A	1,200	B-2	2,500
R-1B	2,000	B-3	2,500
R-1C	2,400	B-4	3,000
R-1D	3,600	B-5	3,000
R-1T	7,000	LIP**	3,600
R-2	4,000	I-1**	3,600
R-3	4,800	I-1M**	3,600
R-4	7,200	I-2**	3,600
P-1	2,000	-	-

\* Flows shall be based on the future land use as shown in the Nelson County Comprehensive Plan and flows in Table 4.2.

\*\* Actual measured wastewater flows should be used when available. This figure may be adjusted if more accurate data is available for a proposed development.

**TABLE 4.2 – DESIGN WASTEWATER FLOWS (FUTURE LAND USE)**

<b>Land Use</b>	<b>Average GPD/Acre</b>
Central Business District	2,500
Commercial/Retail Center	2,500
Community Facilities	3,000
Core Commercial Service Area	2,000
Neighborhood Business Area	2,000
Industrial Center	3,600
Historic Downtown District	2,500
Traditional Residential Neighborhood	2,400
Outer Residential Neighborhood	2,000
Suburban Residential Neighborhood	1,200
Village Residential Neighborhood	1,200
Hamlet Residential Neighborhood	1,200
Crossroads Residential Neighborhood	1,200
Naturally Sensitive Area	100
Rural Area	100

**TABLE 4.3 – DESIGN WASTEWATER FLOWS (DEVELOPMENT TYPE)**

<b>Development (Unit)</b>	<b>Average GPD/Unit</b>	<b>Development (Unit)</b>	<b>Average GPD/Unit</b>
Single Family Home	400	Nursing Homes (Person)	100
Duplex	800	Offices (Person)	20
Apartment – 1 BR	200	Hospitals (Bed)	200
Apartment – 2 BR	300	Restaurants – 24 hour (Seat)	50
Apartment – 3 BR	400	Restaurants – not 24 hour (Seat)	35
Condominiums	350	Church (Seat)	8
Townhomes	350	Commercial (acre)*	2,000
Mobile Homes	300	Industrial (acre)*	3,600
Hotel/Motel (Room)	100	Non-developable Land (acre)	100
Schools (Student)	15	-	-

\* Actual measured wastewater flows should be used when available, with allowance for future expansion.



After obtaining the average flow rate using Tables 4.1 – 4.3 or other data, a peaking factor shall be applied to obtain the design peak flow rate. The peaking factor shall be determined using the following formula:

$$P.F. = \frac{18 + \sqrt{P}}{4 + \sqrt{P}}$$

Where  $P$ , the equivalent population in thousands, is:

$$P = \frac{\text{Average Daily Flow}}{100 \text{ gpcd}} \times \frac{1}{1000}$$

#### 4.1.1.2 Sizing

Based on the design peak flow using the above equations, Manning's Equation should be used to determine the appropriate size and slope of the proposed sewer main. For design purposes, the roughness coefficient shall be considered 0.013, regardless of the proposed pipe material. No gravity sewer main shall be less than eight (8) inches in diameter. Size changes shall only take place within a manhole or junction box structure.

Collector sewers are primarily used to receive water from private service connections and transport the wastewater to trunk sewers. Collector sewers are ten (10) inches or less in diameter and shall be designed for full flow conditions.

Trunk sewers serve as the main line to which collector sewers flow into. Trunk sewers are twelve (12) inches or greater in diameter and shall be designed for two-thirds (2/3) full conditions.

#### 4.1.1.3 Slope & Velocity

All sanitary sewers shall be designed for a minimum velocity of 2 ft/s and a maximum velocity of 15 ft/s. Gravity sewers shall be sloped so as to maintain the minimum velocity and not exceed the maximum velocity. In order to aid in construction, though, gravity sewers shall have a minimum slope of 0.50 percent, regardless of size. Where severe topographic or unusual conditions require a design velocity greater than 15 ft/s, the hydraulic design and pipe material must be approved in writing by the City. When sewer slope is 20 percent or greater, the sewer shall be securely anchored by using concrete anchors or a specially designed anchoring system to prevent slippage.

#### 4.1.1.4 Sewer Depth

In general, sanitary sewers shall be sufficiently deep to receive sewage from existing and proposed service connections. Sanitary sewer lines shall be designed to have four (4) feet minimum cover above the top of the pipe, unless the sewer is constructed with ductile iron pipe, where the minimum cover shall be two and a half (2.5) feet. For sewers requiring less than four (4) feet of cover, or two and a half (2.5) feet of cover for ductile iron pipe, a minimum six (6) inch thick concrete cap shall be used as approved by the City Engineer.

Sanitary sewer lines crossing streams, creeks, or ditches shall have a minimum cover of one (1) foot where the sewer is located in rock and three (3) feet for other materials. When the sewer is in rock, it shall also be encased in concrete a minimum of ten (10) feet into each bank.

#### **4.1.1.5 Water Main Clearance**

Sewers shall be laid at least ten (10) feet horizontally from existing or proposed potable water lines. The distance shall be measured edge of pipe to edge of pipe. Sewers crossing water mains shall be laid to provide a minimum of 18 inches clearance between the outside of the water main and the outside of the sewer. When possible, the sewer main should be laid below the water main. The crossing shall be arranged so that the joints will be equidistant and as far as possible from the water main joints.

#### **4.1.1.6 Private Service Connections**

A private service connection is the section of a property's private sewer line between the property or easement line and the public sewer. Private service connections shall be of the same material as the sewer main.

At a minimum, services shall extend to the edge of the utility easement and past all existing and proposed utilities to allow for ease of future connection. Where possible, private service connections shall empty into a manhole instead of the sewer main. All private service connections shall be water-tight and not protrude into the sewer main or manhole.

For single family houses, private service connections shall be four (4) inches in diameter and connect to the sewer main with a four (4) inch tee. If two (2) or more residential units are connected to a common service line, the line and tee shall be a minimum six (6) inches in diameter. For multi-family, commercial, and industrial connections, the private service lines shall be sized based on the number of units or usage, but in no case less than six (6) inches in diameter.

A minimum slope of two (2) percent for private service connections shall be used for determining design elevations.

Where service lines extend under the public street, cleanouts shall be installed at the property line and/or near the connection point of the service. A cleanout is required every 100 feet on a service line. Services at manholes shall enter manholes with the top of service elevation equal to the top of sewer main elevation.

The end of each service connection shall be capped and marked with rebar from the invert of the connection to 2' above grade. Rebar above ground shall be marked with a sleeved-in 1½" or larger PVC pipe and painted green.

For more information, see *Bardstown Sanitary Sewer Service Policy*.

## **4.1.2 Materials**

Sanitary sewers shall be constructed only of the following materials and to the material specifications given hereafter. Any other materials must be submitted for approval to the City of Bardstown.

### **4.1.2.1 Polyvinyl Chloride (PVC) Pipe**

PVC pipe and fittings shall conform to the requirements of ASTM Standard Specifications for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, Designation D 3034. All pipe shall have a minimum pipe diameter to wall thickness ratio (SDR) of 35 for 8 inch diameter pipe and the equivalent minimums for other size pipes, as specified. Depending on depth, location, and soil conditions, pipe with greater wall thickness may be required as determined by the City Engineer.

Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D3212 and F 477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use.

Pipes shall be furnished in lengths of not more than 13 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length.

PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the legend "Type PSM SDR 35 PVC Sewer Pipe" and the designation "ASTM D 3034". Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", "PSM" and the designation "ASTM D 3034".

### **4.1.2.2 Ductile Iron Pipe (D.I.P.) and Fittings**

Ductile iron pipe (D.I.P) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard. The pipe, fittings and joints should be capable of accommodating pressure up to 250 psi.

Push-on type joints shall be single rubber gasket, with cast gasket socket and recessed bell with a tapered annular opening and flared socket and shall conform to ANSI/AWWA C111/A21.11. Plain spigot ends shall be suitably beveled to permit easy entry into the bell, centering and compressing the gasket.

Ductile iron flanged joint pipe shall conform to ANSI/AWWA C115/A21.15 Standard and have a thickness class of 53. The pipe shall have a rated working pressure of 250 psi with Class 125 flanges. Gaskets shall be ring gaskets with a thickness of 1/8-inch. Flange bolts shall conform to ANSI B 16.1.

Flanged fittings shall meet all requirements of ANSI/AWWA C110/A21.10 and have Class 125 flanges. Fittings shall accommodate a working pressure up to 250 psi and be supplied with all accessories.

Ductile iron mechanical joint fittings shall have a body thickness and radii of curvature conforming to ANSI A21.10 and have joints in accordance with ANSI/AWWA C111/A21.11.

All pipe and fittings shall be tar coated outside and shall receive a standard cement lining with bituminous seal coat on the inside in accordance with ASA Specifications A21.40 (AWWA-C104).

Cement mortar lining and seal coating for pipe and fittings, where applicable, shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.

All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 80-60-03 per ASTM Specifications A339-55.

### **4.1.3 Installation**

#### **4.1.3.1 Existing Utilities and Other Obstructions**

Prior to beginning construction, all utilities should be field located. If utility lines, above or below ground, may be affected during construction, the appropriate utility company should be contacted to determine who may replace, displace, or alter those lines, if necessary, during construction.

#### **4.1.3.2 Pipe Laying**

All pipe shall be laid with ends abutting and true to the lines and grades indicated on the plans. The pipe shall be laid straight between changes in alignment and at uniform grade between changes in grade. Pipe shall be fitted and matched so that when laid in the trench, it will provide a smooth and uniform invert. In no case shall the supporting of pipe on blocks be permitted.

Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fitting is discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting. In case a length of pipe is cut to fit in a line, it shall be cut so as to leave a smooth end at right angles to the longitudinal axis of the pipe and beveled to match the factory bevel for insertion into gasketed joints. The bevel can be made with hand or power tools.

As work progresses, the interior of the pipe shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be capped so as to exclude earth or other material.

All pipes shall be laid starting at the lowest point and installed so that the spigot ends point in the direction of flow.

The connection point or outlet of the new sewer line being installed shall be plugged or capped until the line has been cleaned, passed all required testing and inspections, and accepted into the City's system. All debris, cleaning water, runoff, or other materials found in the line shall be removed before the plug or cap is removed and the line is put into service so the materials are not discharged into the City's public sewer system.

Sanitary sewer marking tape shall be installed over all new sanitary sewer lines, approximately eighteen (18) inches from final grade.

#### **4.1.3.3 Jointing**

All joint surfaces shall be cleaned immediately before connecting pipe joints. The bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer of the joint material and of the pipe. The resulting joints shall be watertight and flexible.

#### **4.1.3.4 Creek & Utility Crossing Concrete Encasement**

For creek and utility crossings, concrete encasement shall be used when the clearance between the proposed sanitary sewer pipe and any creek or utility pipe is eighteen (18) inches or less. Utility pipe includes underground water, gas, telephone and electrical conduit, storm sewers, and any other pipe as determined by the City of Bardstown.

There are two cases of utility crossing encasement. Case I is applicable when the proposed sanitary sewer line is below the other utility line or creek. Case II is applicable when the proposed sanitary sewer line is above the other utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.

Concrete shall be Class B (3,000 psi) and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.

#### **4.1.3.5 Bituminous & Concrete Pavement Replacement**

Disturbed pavement shall be reconstructed to original lines and grades with bituminous or concrete pavement as detailed on the plans and in such manner so as to leave all surfaces

in as good or better condition as they existed prior to construction. Only as much of the existing pavement shall be removed as is necessary in order to complete the work.

Prior to trenching, the pavement shall be scored or cut to straight edges along each side of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be recut and trimmed as necessary to square, straight edges after the pipe has been installed and prior to placement of the specified pavement material.

Backfilling of trenches shall be in accordance with the applicable portions of Section 4.1.3.7.

Bituminous concrete pavement materials, placement, and compaction shall be in accordance with applicable provisions of the Standard Specifications, Section 402.

#### **4.1.3.6 Trenching**

Trenches are to be excavated in open cuts except at paved areas subject to vehicular traffic which shall be bored unless otherwise approved by the City.

Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed.

Trenches shall be of sufficient width to provide free working space on each side of the pipe and to permit proper backfilling around the pipe. Trench width at the top of the pipe shall not be less than one (1) foot plus the nominal diameter of the pipe or greater than two (2) feet plus the nominal diameter of the pipe. The trench shall be excavated to a depth at least 6 inches below the bottom of the pipe.

All excavated materials shall be placed a safe distance from the edge of the trench.

No more than 500 feet of trench shall be opened ahead of or behind the pipe laying work of any one crew. Watchmen or barricades, lighting and other such signs and signals may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions.

Only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public, unless the roadway is closed to normal traffic. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. All public or private drives shall be promptly backfilled or bridged as necessary.

Where unstable materials are encountered or where the depth of excavation in earth exceeds 5 feet, the sides of the trench or excavation shall be supported by substantial sheeting, bracing and shoring, or the sides sloped to the angle of repose. Sloping the sides of the trench to the angle of repose will not be permitted in streets, roads, narrow rights of

way or other constricted areas unless otherwise specified. The design and installation of all sheeting, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained. Adequate and proper shoring of all excavation shall be the entire responsibility of the Contractor. The Standards of the Federal Occupational Safety and Health Act shall be followed.

#### **4.1.3.7 Bedding & Backfilling**

Crushed stone material shall conform to the requirements of the applicable sections of the Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.

For both earth-bottom and rock-bottom trenches, pipe shall be laid on a bed of No. 9 crushed stone to a minimum depth of six (6) inches. No pipe shall ever be laid on solid or blasted rock. For areas where soft soils are present or when existing sags are being replaced, thicker bedding may be required as determined by the City Engineer.

Any uneven areas in the trench bottom shall be shaved off or filled in with No. 9 crushed stone. The bedding shall be graded to provide a uniform and continuous support beneath the pipe at all joints.

In wet, yielding locations where the pipe is in danger of sinking below grade or floating out of grade, or where backfill materials are of such a fluid nature that such movements of pipe might take place during placement of backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.

Where a trench bottom is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be undercut to a depth as determined by the City and replaced with crushed stone material. The depth of the foundation and size of the crushed aggregate used is dependent upon the condition of the unstable material. Once the trench bottom has been stabilized, the required No. 9 crushed stone bedding may be placed.

After the pipe has been bedded properly, the trench shall be backfilled with No. 9 crushed stone to a minimum of twelve (12) inches above the top of the pipe.

Final backfill shall be done in accordance with one of the following cases:

- Case I – Pipe and trenches in non-paved areas. The trench shall be backfilled from a point twelve (12) inches above the top of the pipe to the finished grade elevation with consolidated soil (no rock greater than six inches in diameter), No. 9 crushed stone, or No. 57 crushed stone. The top of the trench shall be replaced with a minimum of four (4) inches and a maximum of twelve (12) inches of fertile topsoil capable of supporting vegetation. See Standard Drawing No. G-01-01.



- Case II – Pipe and trenches in paved areas (bituminous pavement). The trench shall be backfilled with No. 9 crushed stone or No. 57 crushed stone from a point twelve (12) inches above the top of the pipe to a point at least fourteen (14) inches below the existing pavement surface. A minimum of six (6) inches of DGA shall then be placed and compacted. A six (6) inch reinforced concrete cap and two (2) inch bituminous surface shall be placed on top of the compacted DGA layer to final grade. The reinforced concrete cap shall be composed of Class A concrete (3,500 psi) with #4 rebar spaced at twelve (12) inches on center in each direction. The concrete cap shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-02-01.
- Case III – Pipe and trenches in paved areas (concrete pavement). The trench shall be backfilled with No. 9 crushed stone or No. 57 crushed stone from a point twelve (12) inches above the top of the pipe to a point at least twelve (12) inches below the existing pavement surface. A minimum of six (6) inches of DGA shall then be placed and compacted. A reinforced concrete cap, six (6) inches minimum or equal to existing pavement thickness, whichever is greater, shall be placed on top of the compacted DGA layer to final grade. The reinforced concrete cap shall be composed of Class A concrete (3,500 psi) with #4 rebar spaced at twelve (12) inches on center in each direction. The concrete cap shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-02-01.

Flowable fill may be used as an alternate backfill material for pipe and trenches in paved areas. Flowable fill shall be in accordance with the Standard Specifications, Section 601. After the pipe has been bedded properly and if using flowable fill, the trench shall be backfilled in accordance with one of the following cases:

- Case I – Pipe and trenches in paved areas (bituminous pavement). The trench shall be backfilled with flowable fill from the top of the pipe to a point six (6) inches below the existing pavement surface. Five (5) inches of bituminous base and one (1) inch of bituminous surface shall be placed and compacted on top of the flowable fill and shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-03-01.
- Case II – Pipe and trenches in paved areas (concrete pavement). The trench shall be backfilled with flowable fill from the top of the pipe to a point at least six (6) inches below the existing pavement surface. A reinforced concrete cap, six (6) inches minimum or equal to existing pavement thickness, whichever is greater, shall be placed on top of the flowable fill to final grade. The reinforced concrete cap shall be composed of Class A concrete (3,500 psi) with #4 rebar spaced at twelve (12) inches on center in each direction. The concrete cap shall extend a minimum of twelve (12) inches either side of the trench. See Standard Drawing No. G-03-01.

Trench subgrade, bedding, and backfill shall be compacted to not less than 95 percent of the density determined from the Standard Proctor Test. Bedding and backfill shall be



placed and compacted in equal, continuous layers not exceeding six (6) inches compacted depth. Place and compact material in a way that does not disturb or damage utilities in the trench.

Continuous, detectable underground marking tape shall be installed approximately 12 to 18 inches above all utility lines. Care shall be taken to insure that the buried marking tape is not broken when installed. The identification tape shall bear the printed identification of the utility line below it, such as “Caution – Sewer Line Buried Below.” Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be two (2) inches in width. Colors are green for gravity sewers and brown for force mains.

## **4.2 MANHOLES**

### **4.2.1 Design**

#### **4.2.1.1 Location**

Manholes shall be placed at all changes in pipe grade, pipe size, alignment, pipe intersections, and at the end of a run of pipe. For pipes 15 inches and smaller, spacing shall not exceed 400 feet, maximum. For pipes larger than 15 inches, spacing shall not exceed 500 feet, maximum.

#### **4.2.1.2 Diameter**

Manholes shall be a minimum 48 inches in diameter. Larger diameter manholes are required for large diameter sewers and/or where the deflection angle is small. All manholes must be checked to ensure that sufficient wall is supplied between pipe openings. A minimum access diameter of 24 inches shall be provided.

#### **4.2.1.3 Drop Type**

When the difference in elevation between the incoming sewer and manhole invert is less than 24 inches, the invert shall be filleted to prevent solids deposition. A drop manhole shall only be used when the difference in elevation between the incoming sewer and the manhole invert is 24 inches or more. Drop manholes should be constructed with an outside drop connection which should be fully encased in concrete.

#### **4.2.1.4 Flow Channel**

The flow channel through a manhole shall be made to conform to the shape and slope of the connecting sewers. The channel walls should be formed or shaped to the full height of the crown of the outlet sewer so as not to obstruct maintenance, inspection, or flow in the sewers. The minimum elevation drop across new manholes shall be 0.1 feet for changes in pipe direction greater than 45 degrees.

#### **4.2.1.5 Corrosion Protection**

Where corrosive conditions due to septicity or other causes are anticipated, corrosion protection on the interior of the manhole shall be provided. In addition to corrosion protection, vents shall be provided along a line to release corrosive gases from the system.

#### **4.2.1.6 Manhole Bench**

A bench shall be provided on each side of any manhole channel. The bench should be sloped no less than one (1) inch per foot. No lateral sewer, service connection, or drop manhole pipe shall discharge onto the surface of the bench. All inlets shall have a flow channel.

### **4.2.2 Materials**

All manholes shall have precast reinforced concrete developed bases. No other type of base will be allowed. Invert channels may be factory constructed when the base is made. When the difference in elevation between the incoming sewer and manhole invert is less than 24 inches, the invert shall be filleted to prevent solids deposition.

Manhole barrels and cones shall be precast concrete sections. The top of the cone shall be built of reinforced concrete adjustment rings to permit adjustment of the frame to meet the finished grade.

The inverts of the developed bases shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent, within the manhole, to the centerlines of the adjoining pipelines.

#### **4.2.2.1 Precast Concrete Sections**

Precast concrete sections and appurtenances shall conform to the ASTM Standard Specifications for Precast Reinforced Concrete Manhole Sections, Designations C478, latest revision, with the following exceptions and additional requirements:

- The wall sections shall not be less than five (5) inches thick.
- Type II cement shall be used except as otherwise permitted.
- Joints between sections shall be made watertight through the use of gaskets or butyl sealant conforming to ASTM C443 and C990, latest revisions.

#### **4.2.2.2 Manhole Frames and Covers**

All cast-iron manhole frames and covers shall conform to the details shown on the Drawings or as specified herein.

The castings shall be of good quality, strong, tough, eve-grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render

them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined to prevent rocking of covers.

All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

Castings shall be at least Class 30 conforming to the ASTM Standard Specifications for Gray Iron Castings, Designation A48, latest revision.

Unless otherwise specified, manhole covers shall be 22-3/4 inches in diameter, weighing not less than 350 pounds per frame and cover. Manhole covers shall set neatly in the rings, with contact edges machined for even bearings and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness. The covers shall have two (2) pick holes about 1-1/4 inches wide and 1/2 inch deep with 3/8 inch undercut all around. Covers shall not be perforated. Frames and covers shall be J.R. Hoe and Sons, MC-350, or approved equal.

All covers shall be marked in large letters "SANITARY SEWER" in the center.

#### **4.2.2.3 Manhole Steps**

Manhole steps shall be the polypropylene plastic type reinforced with a 1/2 inch diameter deformed steel rod. Step treads shall have anti-skid properties for hand and foot grips. Steps shall be cast, epoxy grouted, or attached by mechanical means into the walls of the manholes a minimum of 3-3/8 inches and/or in such manner as to conform to ASTM C478. The steps shall be 10-3/4 inches wide and extend 5-3/4 inches from the manhole wall. Steps shall line up over the downstream invert of the manhole and be centered on the grate or lid opening. Steps shall be uniformly spaced vertically at 12-inch to 16-inch intervals and shall be so arranged that the lowest rung is no more than 12 inches above the bench, and the top rung is no more than 18 inches below the bottom of the casting.

#### **4.2.2.4 Premolded Elastomeric-Sealed Joints**

All holes for pipe connections in barrels and bases shall have a factory-installed flexible rubber gasket to prevent infiltration. The gasket shall conform to the latest revision of ASTM C443 and C923.

#### **4.2.2.5 Chimney Seals**

All manholes shall be sealed and made watertight using either a mechanically locking internal or external rubber seal conforming to ASTM C-923 with stainless expansion bands meeting the requirements of A-240 Type 304, or a chemically bonded chimney seal.

## **4.2.3 Installation**

### **4.2.3.1 Setting Precast Manhole Sections**

Precast reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment.

Rubber gaskets shall be installed in all joints in accordance with the manufacturer's recommendations.

All holes in sections used for their handling shall be thoroughly plugged with rubber plugs mad specifically for this purpose.

### **4.2.3.2 Adjusting Manhole Frames and Covers to Grade**

Except where shown on the Drawings, the top of the precast concrete eccentric cone of a standard manhole or the top of the flat slab of a shallow manhole shall terminate four (4) inches below existing grade in an unpaved non-traffic area except in a residential yard and 13 inches below existing grade in a paved or unpaved traffic area and in a residential yard. The remainder of the manhole shall be adjusted to the required grade as described below in this section.

When a manhole is located in an unpaved non-traffic area other than in a residential yard, the frame and cover shall be adjusted to an elevation three (3) to five (5) inches above the existing grade at the center of the cover. If field changes have resulted in the installed manhole invert elevation to be lower than the invert elevation shown on the Drawings, the adjustment to an elevation of three (3) to five (5) inches above existing grade shall be accomplished by the use of precast concrete adjustment rings. If field changes have resulted in the completed manhole invert to be greater than the invert shown on the Drawings and the cover is higher than five (5) inches above existing grade, then the top of the eccentric cone, when used, or the top of the barrel section, when used, shall be trimmed down so that the manhole cover, after installation, is no greater than five (5) inches above existing grade at the center of the cover. The area around the adjusted frame and cover shall be filled with the required material, sloping it away from the cover at a grade of one (1) inch per foot.

When a manhole is located in a bituminous, concrete, or crushed stone traffic area, or in a residential yard, the frame and cover shall be adjusted to the grade of the surrounding area by the use of precast concrete adjustment rings. The adjusted cover shall conform to the elevation and slope of the surrounding area. If field changes have resulted in the installed manhole invert elevation to be so much higher than the invert elevation shown on the Drawings that the top of the eccentric cone, when used, or the top of the flat slab, when used, is less than the thickness of the frame and cover, seven (7) inches, from the grade of the surrounding area, then the top of the cone or barrel section shall be trimmed down enough to permit the cover, after installation, to conform to the elevation and slope of the

surrounding area. After installation, the inside and outside surfaces shall receive a waterproofing bitumastic coating.

- The Contractor shall coordinate elevations of manhole covers in paved streets with the City of Bardstown. If resurfacing of the street in which sewers are laid is expected within twelve (12) months, covers shall be set 1-1/2 inches above the existing pavement surface in anticipation of the resurfacing operation.

#### **4.2.3.3 Grading Rings**

Only clean grading rings shall be used. Each grading ring shall be laid in a full bed of mortar and shall be thoroughly bonded. Vertical keyways shall be completely filled with mortar.

In no case shall the sum of the heights of all grading rings, existing and proposed, exceed twelve (12) inches. If the sum of the heights of all grading rings is more than twelve (12) inches, a barrel section shall be used to meet the required elevation change.

#### **4.2.3.4 Setting Manhole Frames and Covers**

Manhole frames shall be set with the tops conforming to the required elevations set forth hereinbefore. Frames shall be set concentric with the top of the masonry and in a full bed of butyl mastic sealant so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight.

Manhole covers shall be left in place in the frames on completion of other work at the manholes.

### **4.3 PUMP STATIONS**

The use of a pumping station shall be considered only when the area cannot be served by gravity sewers, including reasonable extensions to existing or proposed gravity lines. Multiple small pumping stations in lieu of a larger single pumping station shall not be permitted. At such time that an Engineer/Developer becomes aware of the need for a sewage pumping station, they shall immediately advise the City Engineer and arrange for a meeting with them.

#### **4.3.1 Design**

#### **4.3.2 Materials**

#### **4.3.3 Installation**

## **4.4 INSPECTION**

The City Engineer or his/her representative shall be present for all connections to the public sewers system. The City should be contacted a minimum of 48 hours in advance of any such connection. Any connections made without a City representative present shall be disconnected and public system sealed to prevent leaks at the Contractor's expense. The reconnection shall be done with proper 48 hour notice and with a City representative present.

For sewer systems to be dedicated to the City, the Engineer or his/her representative will inspect each individual line, from manhole, either by use of lights, television or other means at their disposal to determine whether the completed lines are true to line and grade as laid out or as shown on the Drawings.

All lines or sections of lines that are found to be laid improperly with respect to line or grade, that are found to contain broken or leaking sections of pipe, or are obstructed in such a manner that they cannot be satisfactorily corrected otherwise, shall be removed and replaced at the Contractor's expense.

## **4.5 TESTING**

All testing required for the acceptance of sewer systems and pumping stations by the City of Bardstown is the responsibility of the contractor and/or developer. A City of Bardstown representative shall be present during all required testing and should be notified at least 48 hours in advance. All required testing shall be conducted by a third party. No contractor responsible for the installation of any portion of the sewer system being tested shall perform any of the required testing.

### **4.5.1 Cleaning**

Water shall be turned into the system in such quantities to carry off the dirt, debris and trash in order to clean the system prior to final inspection. The Contractor shall rod out the entire system by pushing through each individual line in the system, from manhole to manhole appropriate tools for the removal from the lines of any and all dirt, debris, and trash, if necessary.

### **4.5.2 Deflection Test**

Deflection tests shall be performed on all flexible pipe. The tests shall be conducted after the final backfill has been in place at least 30 days to allow stabilization of the soil-pipe system.

No pipe shall exceed a deflection of five (5) percent of the inside diameter. If deflection exceeds five (5) percent, the pipe shall be excavated and replaced or corrected at the Contractor's expense. Replacement or correction shall be in accordance with the requirements in these approved specifications.

The rigid ball or mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter of the pipe depending on which is specified in the ASTM Specification, including the appendix, to which the pipe is manufactured. The tests shall be performed without mechanical pulling devices.

### **4.5.3 Leakage Tests**

The pipe shall be made as nearly watertight as practicable, and leakage tests and measurements shall be made. All apparatus and equipment required for testing shall be furnished by the third party testing contractor.

#### **4.5.3.1 Smoke Tests**

The Engineer may require the Contractor to smoke test the first section (manhole to manhole) of each size of pipe and type of joint prior to backfilling, to establish and check laying and jointing procedures. The test shall consist of smoke blown into closed off sections of sewer under pressure and observing any smoke coming from the pipe line indicating the presence of leaks. Other supplementary smoke tests prior to backfilling may be performed by the Contractor at his/her option; however, any such tests shall not supplant the final tests of the completed work unless such final tests are waived by the Engineer.

#### **4.5.3.2 Air Tests**

Where the groundwater level is more than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either infiltration tests or low pressure air test on the completed pipeline. See Section 4.4.3.3 for Infiltration Tests.

Where the groundwater level is less than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either exfiltration tests or low pressure air tests on the completed pipeline. See Section 4.4.3.4 for Exfiltration Tests.

Low pressure air tests shall be made using equipment specifically designed and manufactured for the purpose of testing sewer lines using low pressure air. The equipment shall be provided with an air regulator valve or air safety valve so set that the internal pressure in the pipeline cannot exceed 8 psig.

The test shall be made on each manhole-to-manhole section of pipeline after placement of the backfill. The Engineer or his/her designated representative must be present to witness each satisfactory air tests before it will be accepted as fulfilling the requirements of these specifications.

Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.



Low pressure air passing through a single control panel, shall be introduced into the sealed line until the internal air pressure reaches 4 psig greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe at the time of test. However, the internal air pressure in the sealed line shall not be allowed to exceed 8 psig. When the maximum pressure exerted by the groundwater is greater than 4 psig, the Contractor shall conduct only an infiltration test.

At least two minutes shall be allowed for the air pressure to stabilize in the section under test. After the stabilization period the low-pressure air supply hose shall be quickly disconnected from the control panel. The time required in minutes for the pressure in the section under test to decrease from 3.5 to 2.5 psig (greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe) shall not be less than that shown in the following table:

<u>Pipe Diameter (in.)</u>	<u>Minutes</u>	<u>Pipe Diameter (in.)</u>	<u>Minutes</u>
4	2.0	15	7.5
6	3.0	18	8.5
8	4.0	21	10.0
10	5.0	24	11.5
12	5.5	30	13.5

When the sewer section to be tested contains more than one size of pipe, the minimum allowable time shall be based on the largest diameter pipe in the section, and shall be the time shown in the table reduced by 0.5 minutes.

**4.5.3.3      Infiltration Tests**

Infiltration tests shall be made after underdrains, if present, have been plugged and other ground water drainage has been stopped such that the groundwater is permitted to return to its normal level insofar as practicable.

Upon completion of a section of the pipeline, the line shall be dewatered and a satisfactory test conducted to measure infiltration for at least 24 hours. The amount of infiltration, including manholes, tees and connections, shall not exceed 200 gallons per nominal inch diameter per mile of sewer per 24 hours.

**4.5.3.4      Exfiltration Tests**

Exfiltration tests which subject the pipeline to an internal pressure, shall be made by plugging the pipe at the lower end and then filling the line and manholes with clean water to a height of 2 feet above the top of the sewer at its upper end. Where conditions between manholes may result in test pressures which would cause leakage at the plugs or stoppers in branches, provisions shall be made by suitable ties, braces and wedges to secure the plugs against leakage resulting from the test pressure.

The rate of leakage from the sewers shall be determined by measuring the amount of water required to maintain the level 2 feet above the top of the pipe.



#### 4.5.4 Manhole Vacuum Testing

Vacuum testing shall be according to ASTM C1244, except as specified otherwise herein. Other forms of testing of some manholes may be required, as deemed necessary by the City of Bardstown.

Manholes shall be tested after installation with all connections in place.

- Lift holes, if any, shall be plugged with approved, non-shrinkable grout prior to testing.
- Drop connections shall be installed prior to testing.
- The vacuum test shall include testing of the seal between the cast iron frame and the concrete cone, slab or grade rings.
- Manhole vacuum testing shall be performed after all adjacent underground utilities have been installed and all manholes have been backfilled and finished to final grade. Upon request of the Contractor, manhole vacuum testing may be performed prior to installation of adjacent utilities, after all manholes have been backfilled and finished to final grade and after all the sewer leakage testing has been completed, with the following special condition: All manholes found to have been damaged or disturbed prior to the final (one-year) inspection shall be corrected and vacuum tested at that time.
- If a coating or lining is to be applied to the interior of a manhole the vacuum test must not be performed until the coating or lining has been cured according to the manufacturer's recommendations.
- If existing manholes are to be vacuum tested (e.g. in the case of a sewer rehabilitation project), the manhole must be structurally sound as determined by the City prior to vacuum testing.

Procedures for testing shall be as follows:

- Temporarily plug all pipes entering the manhole. Each plug must be installed at a location beyond the manhole/pipe gasket (i.e. outside the manhole wall), and shall be braced to prevent the plug or pipe from being drawn into the manhole.
- The test head shall be placed inside the rim of the cast iron frame at the top of the manhole and inflated, in accordance with the manufacturer's recommendations.
- A vacuum of at least ten inches of mercury (10" Hg) shall be drawn on the manhole. Shut the valve on the vacuum line to the manhole and shut off the pump or disconnect the vacuum line from the pump.
- The pressure gauge shall be liquid filled, having 3.5 inch diameter face with a reading from zero to thirty inches of mercury.
- The manhole shall be considered to pass the vacuum test if the vacuum reading does not drop more than 1" Hg (i.e. from 10" Hg to 9" Hg) during the following minimum test times.

<b>MINIMUM TEST TIMES FOR VARIOUS MANHOLE DIAMTERS</b>			
<b>MH Depth</b>	<b>4' Diameter MH</b>	<b>5' Diameter MH</b>	<b>6' Diameter MH</b>
15 Feet or Less	50 sec.	1 min. 5 sec.	1 min. 20 sec.
15.01 to 30 Feet	1 min. 20 sec.	1 min. 45 sec.	2 min. 10 sec.

- If a manhole fails the vacuum test, the manhole shall be repaired with a non-shrinkable grout or other material or method approved by the City. The manhole surfaces shall be properly prepared prior to any repairs. Once the repair material has cured according to the manufacturer's recommendations the vacuum test shall be repeated. This process shall continue until a satisfactory test is obtained.
- All temporary plugs and braces shall be removed after each test is obtained.

## **4.6 EASEMENTS**

Easements for public sanitary sewer shall be a minimum of 20 feet to allow for maintenance operations and repairs. Larger easements may be required depending on the size and depth of the sanitary sewer line.

No permanent structures shall be built over a sewer main or within its easement area. This includes home extensions, garages, decks, sheds, out buildings, swimming pools, etc.

No trees shall be planted within the sewer easement and no shrubs shall be planted closer than five (5) feet from the sewer main unless permission is granted by the City of Bardstown Sewer Department in writing.

Fencing shall be installed outside of the sewer easement unless otherwise approved by the City of Bardstown Sewer Department in writing.

Adding or removing fill over top of a sewer main may harm the line and/or make maintenance difficult. Grade changes in excess of one (1) foot are prohibited unless written permission is granted by the City Engineer.

Manhole covers and/or cleanouts shall be adjusted when grade is changed by the property owner at the property owner's expense. Access to the public sewer system must be maintained at all times. Manhole covers shall not be buried. Any manhole cover found buried shall be raised to grade by the property owner or the City will perform the necessary work and the property owner shall reimburse the City for all expenses.

In the event a home or building that is connected to the public sanitary sewer system is demolished or burned beyond repair, or when the sewer service is abandoned, the sewer service shall be capped at the property line by the property owner. This is to prevent damage to the sewer system from dirt, debris, ground water, and/or stormwater. This shall take place at the time other utility services are disconnected.

# SECTION 5

# STORMWATER

## **5.1 STORMWATER**

Currently in progress...

# B

# BARDSTOWN

## Standard Drawings

March 2019

City of Bardstown Standard Drawings

Table of Contents

**DRAINAGE**

Std. Dwg. No.	Title	Effective Date
D-01-01		

**GENERAL**

Std. Dwg. No.	Title	Effective Date
G-01-01	Bedding & Backfilling (non-paved areas)	1/1/2019
G-02-01	Bedding & Backfilling (paved areas)	1/1/2019
G-03-01	Bedding & Backfilling (paved areas w/ flowable fill)	1/1/2019

**ROADS**

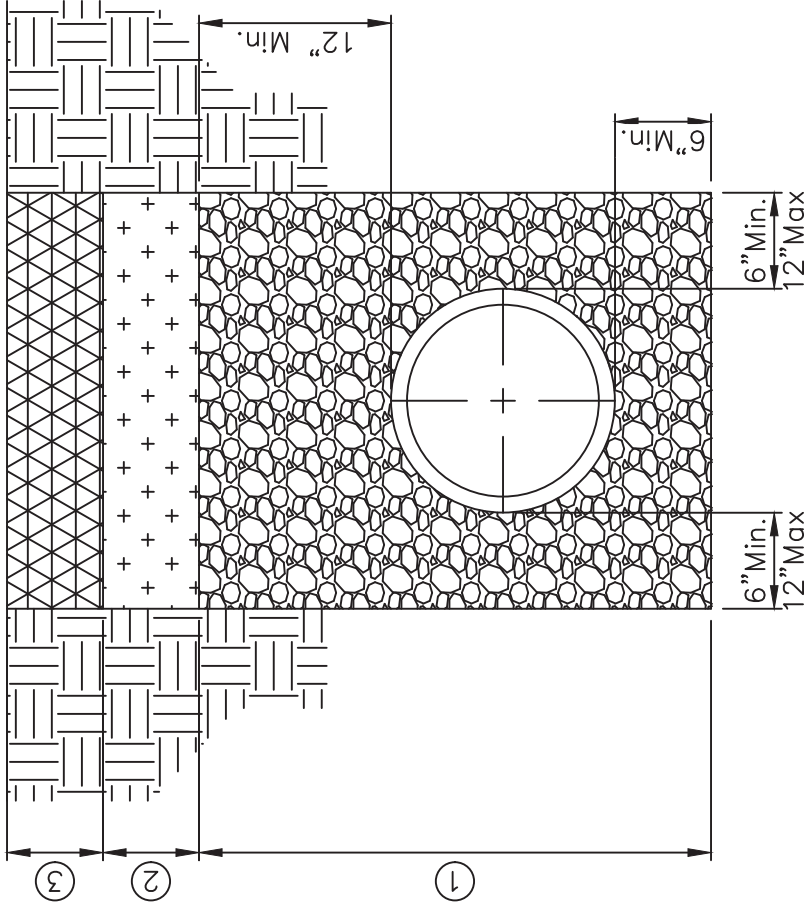
Std. Dwg. No.	Title	Effective Date
R-01-01	Typical Street Sections	1/1/2019
R-02-01	Pavement Design Detail	1/1/2019
R-03-01	Curb & Gutter and Sidewalk Details	1/1/2019
R-04-01	Roadway Failure Repair Detail	1/1/2019

**SANITARY SEWER**

Std. Dwg. No.	Title	Effective Date
S-01-01		

**WATER**

Std. Dwg. No.	Title	Effective Date
W-01-01		



- ① No. 9 Stone
- ② Consolidated soil (no rock greater than 6" diameter), No. 9, or No. 57 stone
- ③ 4" min. to 12" max topsoil, no rock allowed

NOTES:

1. Continuous, detectable marking tape shall be installed approximately 12 to 18 inches above all utility lines.
2. For water mains, solid copper #12 tracer wire shall be run the full length of the main on top of the pipe.

PIPE LAID IN ROCK OR SOIL TRENCH

**B** **BARDSTOWN**

BEDDING & BACKFILLING  
(NON-PAVED AREAS)

STANDARD DRAWING NO. G-01-01

APPROVED BY: *Jessica Robinson* 01/01/19  
CITY ENGINEER DATE



**BEDDING & BACKFILLING  
(PAVED AREAS)**

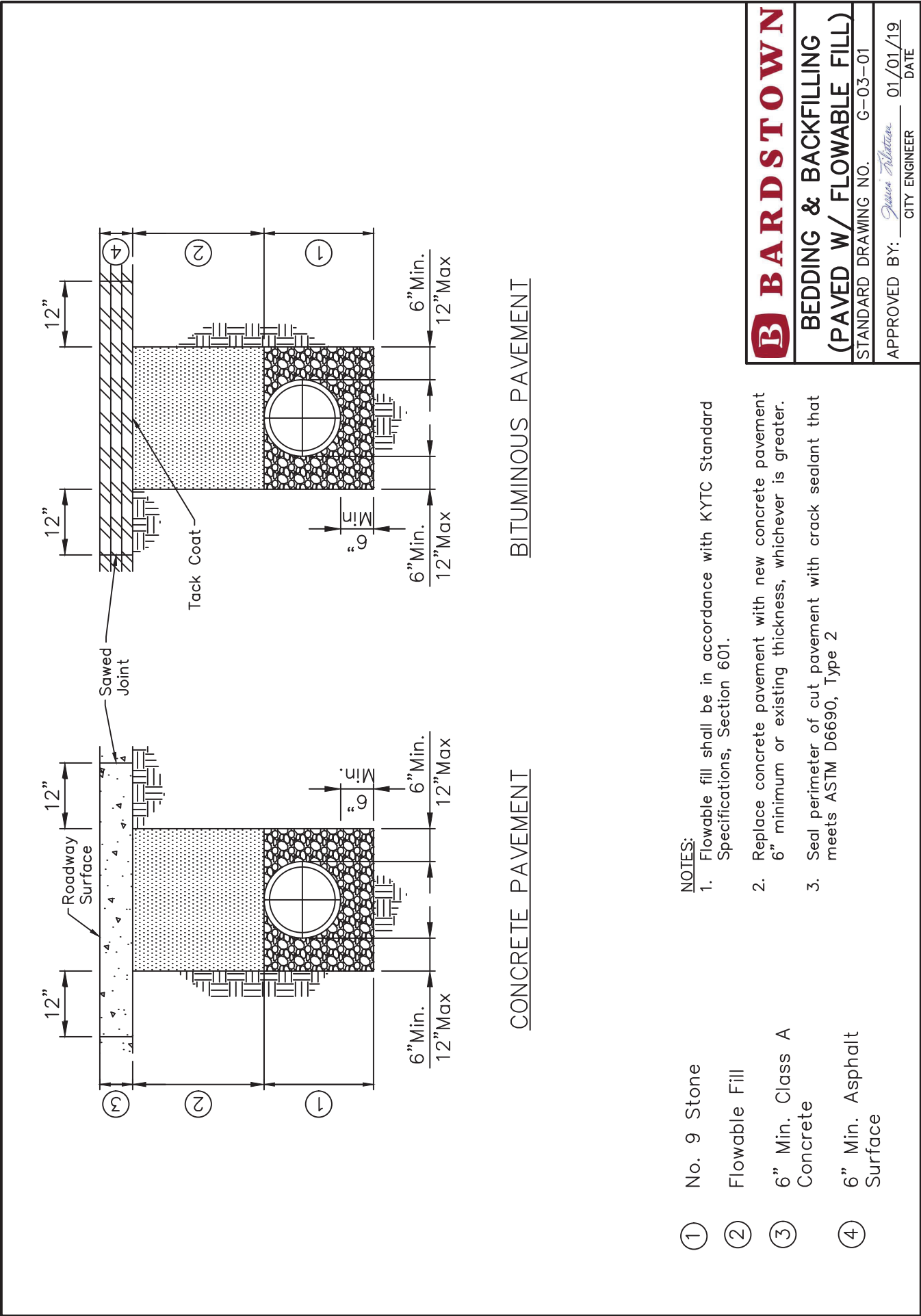
STANDARD DRAWING NO. G-02-01

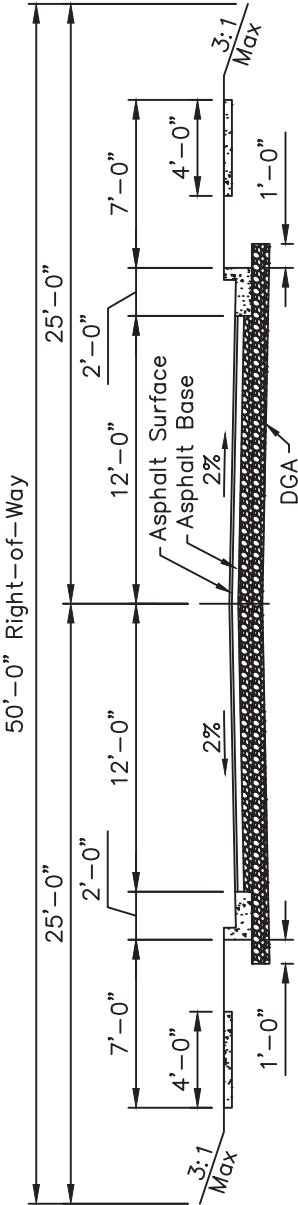
APPROVED BY: James T. Hutton 01/01/19  
CITY ENGINEER DATE

⑤ 2" Min. Asphalt Surface

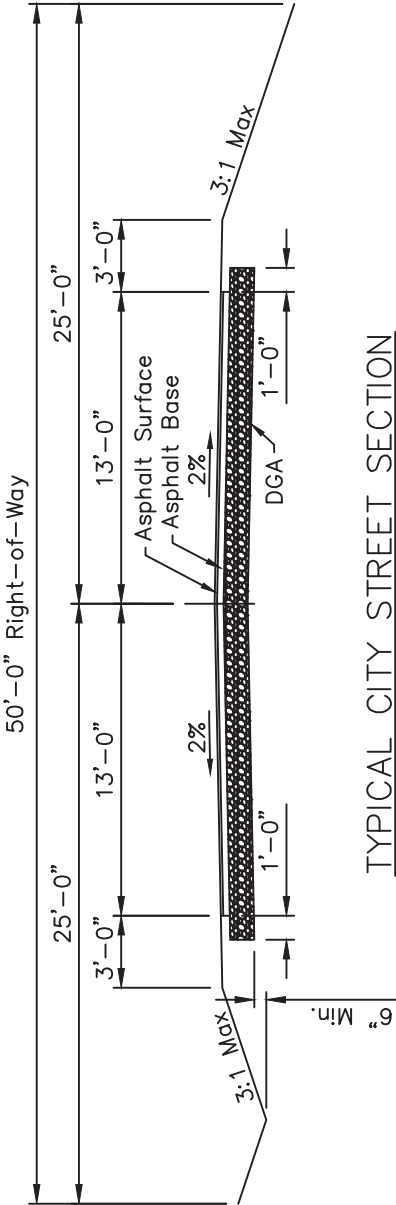
4. Seal perimeter of cut pavement with crack sealant that meets ASTM D6690, Type 2







TYPICAL CITY STREET SECTION  
(curb/gutter & sidewalks)



TYPICAL CITY STREET SECTION

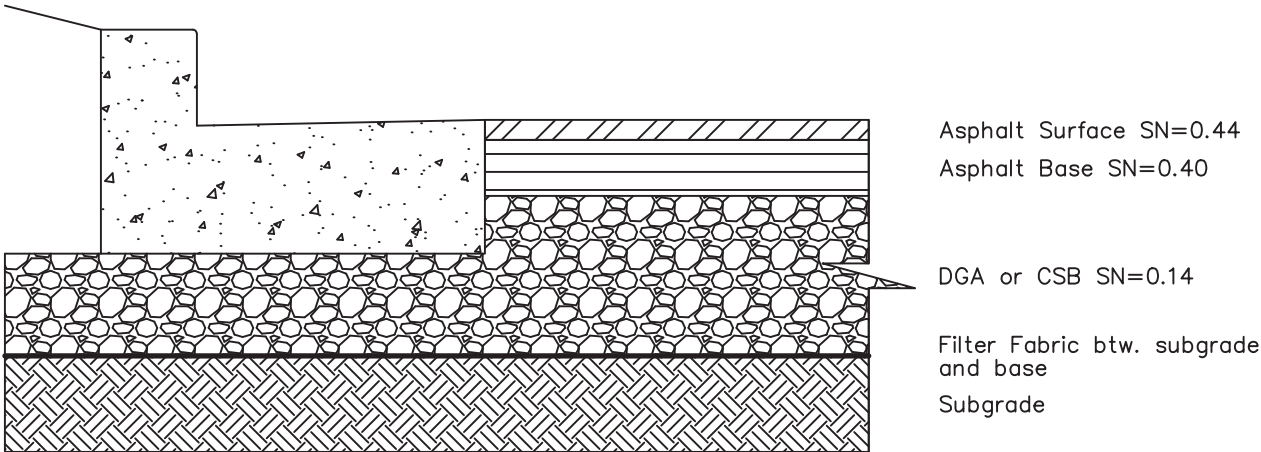
**B** **BARDSTOWN**

TYPICAL STREET SECTIONS

STANDARD DRAWING NO. R-01-01

APPROVED BY: *Jessie Robinson* 01/01/19  
CITY ENGINEER DATE

Typical Pavement Section



Minimum Pavement Sections

Street Classification	Minimum Layer Thicknesses*
Residential Cul-de-sac (<1,000 ft.)	9" DGA, 3" Asphalt Base, 1.25" Asphalt Surface
Residential Collector (>1,000 ft.)	9" DGA, 3.5" Asphalt Base, 1.25" Asphalt Surface
Commercial	12" DGA, 4.5" Asphalt Base, 1.25" Asphalt Surface
Light Industrial (LIP)	12" DGA, 5.5" Asphalt Base, 1.5" Asphalt Surface
Industrial	14" DGA, 6" Asphalt Base, 1.5" Asphalt Surface

\*Minimum pavement designs based on a 15 year design life and a CBR of 3 or less.

NOTES:

- Alternate pavement designs may be submitted to the Office of the City Engineer for approval by a licensed Engineer with an accompanying geotechnical report.
- Alternate designs shall be in accordance with the current edition of KYTC's Pavement Design Guide and Standard Specifications.
- Subgrade stabilization is recommended for any soil with a CBR less than 7.
- Use geotextile fabrics in accordance with KYTC standards in saturated foundation areas and in embankment benching areas or as required by the City Engineer.
- Roadside ditches shall be a minimum of six (6) inches below the bottom of the pavement stone base layer and shall be sloped, at a minimum, of one (1) percent longitudinally.
- A subgrade drainage system shall be installed in accordance with the Standard Specifications with underdrains at a minimum spacing of 100 feet center-to-center along the edges of the roadway or as required by the City Engineer.

B

BARDSTOWN

PAVEMENT DESIGN DETAIL

STANDARD DRAWING NO. R-02-01

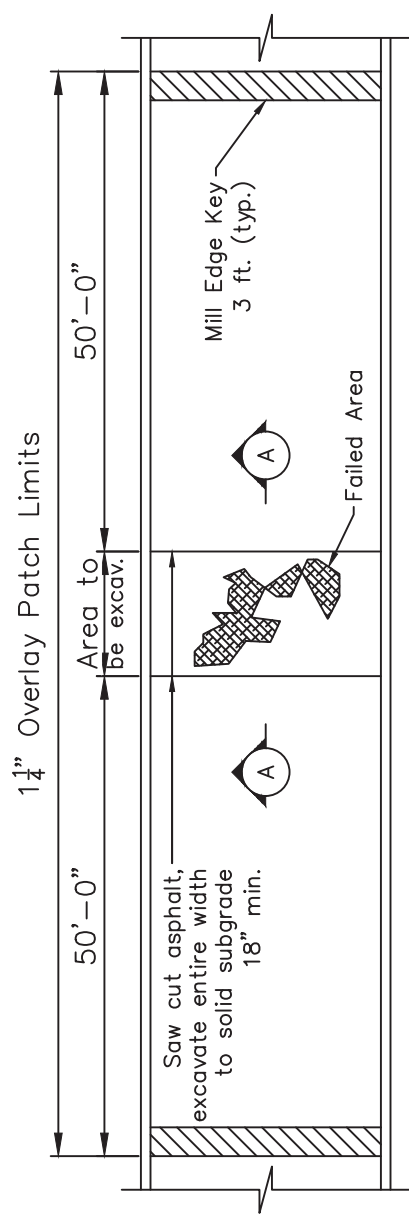
APPROVED BY: *Janice Filiberto* 01/01/19  
CITY ENGINEER DATE



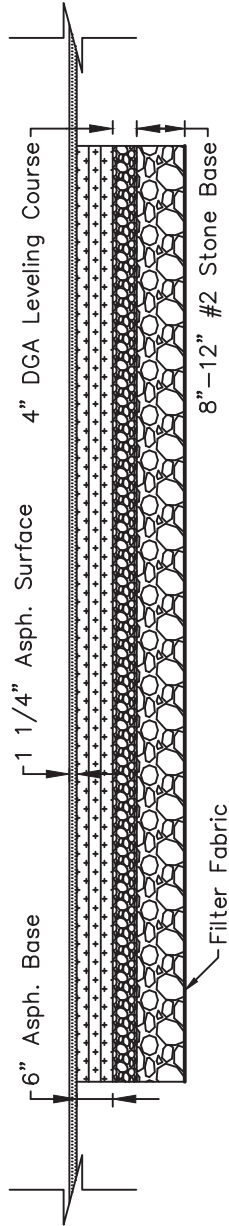
## CURB & GUTTER AND SIDEWALK DETAILS

STANDARD DRAWING NO. R-03-01

APPROVED BY: Jason T. Hutton 01/01/19  
CITY ENGINEER DATE



PLAN VIEW



SECTION A-A  
(Minimum Section)

NOTES:

1. 1 1/4" Overlay patch is NOT required if the final asphalt surface has not been placed.
2. If numerous failures exist, then entire road may be required to be overlaid.
3. #2 Stone base layer shall be placed to "day light" to nearest ditch or cross drain.
4. Subgrade underdrains or "bleeders" may be installed using min. 4" diameter perforated pipe with min. 6" envelope of size #57 stone.

**B** **BARDSTOWN**

ROADWAY FAILURE  
REPAIR DETAIL

STANDARD DRAWING NO. R-04-01

APPROVED BY: *Jessie Heston* 01/01/19  
CITY ENGINEER DATE

SPECIFICATIONS FOR  
CONTRACT 306-23-01

WATER LINE RELOCATION FOR KY 150  
ROAD WIDENING  
KYTC ITEM NO. 04-396.20  
WASHINGTON COUNTY, KENTUCKY

*SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, KENTUCKY*



*May 2024*



2480 Fortune Drive,  
Suite 350  
Lexington, KY 40509  
859/278-5412

107 Forbes Drive  
Hopkinsville, KY 42240  
270/886-5466

205 E. Mt. Vernon Street  
Somerset, KY 42501  
606/485-4011

306-23-01 (06/2023)

INDEX

CONTRACT 306-23-01  
WATER LINE RELOCATION FOR KY 150 ROAD WIDENING  
KYTC ITEM NO. 04-396.20  
WASHINGTON COUNTY, KENTUCKY

<u>SECTION NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
<u>DIVISION 0</u>	<u>GENERAL SPECIFICATIONS, BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT</u>	
00820	Special Conditions	00820-1 Thru 00820-5
<u>DIVISION 1</u>		
	Not Applicable	
<u>DIVISION 2</u>	<u>SITEWORK</u>	
02110	Site Clearing and Grubbing	02110-1 Thru 02110-2
02140	Dewatering	02140-1
02235	Crushed Stone and Dense Graded Aggregate (DGA)	02235-1 Thru 02235-3
02326	Steel Cover Pipe	02326-1 Thru 02326-5
02610	Water Main Pipe	02610-1 Thru 02610-41
<u>DIVISION 3</u>	<u>CONCRETE</u>	
03301	Cast-in-Place Concrete (Minor Structures)	03301-1 Thru 03301-4
03480	Precast Concrete Specialties	03480-1 Thru 03480-8
<u>DIVISION 4</u>		
	Not Applicable	
<u>DIVISION 5</u>		
05540	Castings	05540-1 Thru 05540-3
<u>DIVISIONS 6 THRU 10</u>		
	Not Applicable	

306-23-01 (06/2023)

<u>SECTION NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
<u>DIVISION 15</u>	<u>MECHANICAL</u>	
15107	Water Meters, Service Valves, Stops and Miscellaneous Appurtenances for Water Line Projects	15107-1 Thru 15107-9
<u>DIVISION 16</u>		
	Not Applicable	
	<b>END</b>	



306-23-01 (06/2023)

## SECTION 00820

### SPECIAL CONDITIONS

#### 1. DESCRIPTION OF THE WORK; DESIGNATION OF OWNER AND ENGINEER

1.1 These Specifications and the accompanying Drawings describe the work to be done and the materials to be furnished for the construction of Contract 306-23-01 Water Line Relocation for KY 150 Road Widening KYTC Item No. 04-396.20, Washington County, Kentucky.

1.2 All references to the OWNER in these Specifications, Contract Documents and Drawings shall mean the Springfield Water and Sewer Commission.

1.3 All references to the ENGINEER in these Specifications, Contract Documents and Drawings shall mean Bell Engineering.

#### 2. AVAILABLE FUNDS

2.1 The attention of all Bidders is directed to the fact that funds will be made available for the award of this Contract from the following source:

Kentucky Transportation Cabinet (KYTC) Transportation Funds

#### 3. TIME OF COMPLETION

3.1 The time allowed for completion of this Contract and/or portions shall be provided in the KYTC Contract.

3.2 The time allowed for completion shall begin at midnight, local time, 10 calendar days from the date on which the OWNER, or his authorized representative, the ENGINEER, shall instruct the CONTRACTOR in writing to start work. In case of awarding more than one Contract to a CONTRACTOR, periods of construction are not additive, but will run concurrently. The same applies to divisions within a Contract.

#### 4. LIQUIDATED DAMAGES

4.1 It is understood that time is of the essence of this Contract, and that the OWNER will sustain damages, monetary and otherwise, in the event of delay in completion of the work hereby contracted.

4.2 Therefore, if the said CONTRACTOR shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a part consideration for the awarding of this Contract, to pay to the OWNER the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the work.

306-23-01 (06/2023)

4.3 The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain, and said amount is agreed to be the amount of damages which the OWNER would sustain and said amount shall be retained from time to time by the OWNER from current periodical estimates.

4.4 Liquidated damages are fixed at the following amounts per calendar day of overrun beyond the date set for completion or authorized extension thereof for each of the Contracts, divisions, sections, or combinations thereof:

a. Liquidated damages shall be as set in the KYTC Contract.

## 5. METHOD OF BIDDING

5.1 The Form of Proposal and the Project are in 1 Contract and shall be bid by unit price, the sum of extension of unit prices determining the amount of the bid. The sum of the unit price extensions shall cover the complete construction of the work as estimated, planned and specified.

5.2 The CONTRACTOR must bid all divisions and all listed unit price items and/or lump sums to complete a Contract. The OWNER will not award the work on divisions or sections within a Contract separately. Each Contract shall be bid separately and in full on the Form of Proposal provided.

5.3 In the case of major equipment item bidding, the CONTRACTOR must bid the base bid item.

5.4 The OWNER reserves the right, should financing considerations require or allow, to delete or add physical units to the unit price items bid. However, the monetary value of such deletions or additions shall not exceed 25 percent of the total amount bid for the Contract without specific approval of the CONTRACTOR.

5.5 If deletions or additions are made, comparison of bids will be made on the basis of portions of the Contract to be awarded and not on the total of the base bid made by the CONTRACTOR.

## 6. VIDEOTAPING AND PHOTOGRAPHS

6.1 Continuous video recording of preconstruction surface conditions is required for this Contract. All recording and photographs **must be completed and submitted to the ENGINEER for approval before any construction activity will be allowed**. Recording must be performed by persons experienced with this type equipment and must be acceptable to the ENGINEER. Recording and photography equipment used shall utilize digital media that the CONTRACTOR shall transfer to high-capacity USB media sticks. The digital recording format shall be a file type that is viewable on any standard Microsoft Windows based computer.

306-23-01 (06/2023)

6.2 The video recording shall be supplemented with continuous audio description of the area traversed. Verbal description of problem areas and items of special interest shall be elaborated upon.

6.3 All locations, streets and/or easements on or in which construction activity will occur shall be recorded for the complete length or boundary of the construction area.

6.4 An index shall be furnished for each USB media stick coordinating the location of the recorded area with the location of the proposed facilities as shown on the Drawings.

6.5 The CONTRACTOR shall be responsible for providing access to all areas to be recorded. All recordings shall be viewed by the ENGINEER before any construction is started. The CONTRACTOR shall provide USB media stick viewing equipment for the duration of the project.

6.6 The cost of preconstruction audio/video recording shall be at no additional cost to the OWNER, the cost being incorporated into the CONTRACTOR's unit price or lump sum bid for the items of work as listed on the Form of Proposal.

6.7 The CONTRACTOR is also urged to document on video any structure within a reasonable distance of his blasting or other work operations for reference and file.

6.8 Digital color print still photographs shall be used to supplement the continuous video recording of preconstruction conditions and/or pertinent construction items.

6.8.1 All photographs shall be compiled and saved onto a standard high-capacity USB media stick, along with an index coordinating the pictures with the location of the work shown on the drawings. Individual pictures shall be a minimum of 3 MB each.

6.9 Any photographs or audio/video recordings required by governing agencies will be the responsibility of the OWNER.

6.10 The CONTRACTOR shall submit to the ENGINEER a number of copies of the documentation media in accordance with the Contract Documents.

6.10.1 Video recordings or photography on high-capacity USB media sticks shall be submitted in a quantity greater than or equal to 4 copies.

## 7. MINIMUM WAGE RATES

7.1 Minimum wage rates shall be determined by the KYTC.

## 8. SALES AND USE TAX

8.1 See Specification Section 00700, Article 7.09, for instructions.

306-23-01 (06/2023)

9. EXCAVATION

9.1 It is to be specifically noted that no separate payment for solid rock excavation will be made under this Contract. All excavation shall be considered unclassified, and payment for same included in the appropriate furnishing and laying or other items containing excavation.

10. PERMISSION TO USE PROPERTY OTHER THAN THAT PROVIDED BY OWNER

10.1 Should the CONTRACTOR desire or elect to use, pass over and/or encroach on private property other than that provided by the OWNER, either by fee simple title or right-of-way for a specific purpose, he shall obtain such rights and permission from the individual property owner at his own expense and risk.

11. TIE-IN TO EXISTING WATER MAINS

11.1 As far as possible, the locations and sizes of existing mains are indicated on the Drawings; however, exact locations, pipe materials and sizes cannot be guaranteed. It shall be the responsibility of the CONTRACTOR to locate and uncover existing lines, to which new mains are to be connected, and provide all connecting fittings of the correct size and type for each connection. Payment for the above shall be included in the unit price bid for each item used for the connection as indicated on the Drawings or as specified.

12. EXTRA FILL MATERIAL

12.1 Extra fill material required to complete the finished grading to the line and grade shown on the Drawings shall be obtained by the CONTRACTOR at no extra cost to the OWNER above that included in his lump sum bid.

13. USE OF SPECIALS IN VERTICAL PLANE OPTIONAL

13.1 Where specials (fittings) are shown at change in grade of pipeline, the CONTRACTOR, at his option, may use fittings as shown with blocking, or he may, where possible without exceeding maximum allowable deflection in pipe joints, avoid the use of specials at grade changes, by increasing the trench depth, provided the pipe installed to such extra depth is designed to withstand the extra depth cover and the maximum internal pressure specified. No additional compensation will be given for installing the pipe at an extra depth to avoid the use of fittings and thrust blocking.

17. ACCESS TO THE WORK

17.1 The representatives of the OWNER, the ENGINEER, and KYTC shall have access to the work wherever it is in preparation or progress, and the CONTRACTOR shall provide proper facilities for such access and inspection.

18. Contractor performing work on this project shall be one of the five approved contractors listed below:

306-23-01 (06/2023)

Rame Contracting  
651 CO-OP Drive  
Springfield, Kentucky 40069

Cumberland Pipe  
2909 Cane Valley Mill Road  
Columbia, Kentucky 42728

Gary Clifford  
5114 New Jackson Hwy  
Hodgenville, Kentucky 42748

Hubert Excavating and Contracting LLC  
1870 Fox Creek Road  
Lawrenceburg, Kentucky 40342

Weddle Enterprises Inc.  
25 Shanes Lane  
Somerset, Kentucky 42501

20. FUNDING AGENCY CONDITIONS

20.1 Funding agency special or supplemental conditions are included as a separate section in Division Zero.

**END OF SECTION**

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00820-5

306-23-01 (06/2023)

**SECTION 02110**  
**SITE CLEARING AND GRUBBING**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- A. Furnish all labor and equipment required and perform all clearing, grubbing and stripping of topsoil complete as shown on the Drawings and as specified herein.

**1.02 RELATED WORK**

- A. Earth and rock work are included in Section 02200.

**1.03 SUBMITTALS**

- A. None required for this Section.

**PART 2 PRODUCTS**

None in this Section.

**PART 3 EXECUTION**

**3.01 GENERAL**

- A. The proposed building sites, paved areas, areas designated for ditches and channel changes, borrow pits, etc., (except any portions thereof that may be reserved) shall be cleared of all trees, timber, brush, stumps, rubbish and other debris. All this material, unless otherwise specified, shall be removed and disposed of away from the site.
- B. Open burning is not allowed.
- C. Where clearing is to be done, stumps shall be grubbed where embankments are less than 5 feet in height, where the profile indicates excavation, in all areas designated for the construction of other facilities and in borrow areas. In all other areas the stumps may be cut off even with the ground. In areas to be grubbed, all stumps and roots must be removed.
- D. No debris will be allowed to be left under or in the embankments.
- E. In felling trees near tracks, structures and wire lines, necessary precaution must be exercised in order to prevent damage to wire lines, structures, the facilities of others, or obstruct tracks.
- F. No extra payment for clearing and grubbing shall be included in the lump sum bid.

306-23-01 (06/2023)

3.02 TREES

- A. Trees (3-inch caliper and larger) shall not be disturbed by construction without written permission from the OWNER, except in those areas to be cleared. Trees disturbed by construction shall be replaced by the CONTRACTOR with same size and type at no additional cost to the OWNER.

**END OF SECTION**

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02110-2

306-23-01 (06/2023)

## **SECTION 02140**

### **DEWATERING**

#### **PART 1 GENERAL**

##### **1.01 WORK INCLUDED**

- A. Furnish all labor and equipment required to dewater all excavations. Dewatering of all excavations shall be the responsibility of the CONTRACTOR, and no additional compensation will be allowed for same unless specifically included as a bid item.
- B. Leaking pipes and structures are to be anticipated on this project. For this reason, no additional payment will be made for dewatering associated with leakage from any existing facility.

##### **1.02 RELATED WORK**

- A. Crushed stone and DGA are included in Section 02235.

##### **1.03 SUBMITTALS**

- A. None.

#### **PART 2 PRODUCTS**

None in this Section.

#### **PART 3 EXECUTION**

##### **3.01 GENERAL**

- A. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, backfill or other material or structure in the excavation. Dewatering shall include proper removal of any and all liquid, regardless of source, from the excavation and the use of all practical means available to prevent surface runoff from entering any excavation.

**END OF SECTION**

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02140-1



306-23-01 (06/2023)

## **SECTION 02235**

### **CRUSHED STONE AND DENSE GRADED AGGREGATE (DGA)**

#### **PART 1 GENERAL**

##### **1.01 SCOPE OF WORK**

- A. Furnish and install crushed stone aggregates and DGA as indicated on the Drawings and/or required in the Specifications for such uses as surfaces and/or bases of roads, parking areas and walkways; temporary and permanent traffic bound surfacing over trenches; permanent traffic bound roadway surface maintenance; replacement of unsuitable material; and other miscellaneous applications required in the work.
- B. Various sizes, types and quality of crushed stone aggregates are specified in this Section depending on applicability which may be specified in detail in other sections of these Specifications.
- C. The ENGINEER may require the use of crushed stone aggregates for purposes other than those specified in this or other Specification sections if such use is advisable in his opinion. Payment for crushed stone aggregate shall be by negotiation unless agreed pricing has been previously established.

##### **1.02 RELATED WORK**

- A. Dewatering is included in Section 02140.
- B. Earthwork is included in Section 02200.

##### **1.03 SUBMITTALS**

- A. Testing Service shall submit required test reports directly to the ENGINEER with copy to CONTRACTOR.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Crushed stone aggregate shall meet the applicable requirements for the intended use in accordance with Section 805 of the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction.
- B. Unless otherwise referred to on the Drawings or in these Specifications, crushed stone aggregate shall be graded size No. 57 according to the table below.
- C. When referred to on the Drawings or in these Specifications, dense graded aggregate (DGA) shall have a sand equivalent value of not less than 25 and shall be graded according to the table below.
- D. Coarse aggregate gradations referred to by number size on the Drawings or in these Specifications shall conform to the following table (as copied from the

306-23-01 (06/2023)

above Kentucky Transportation Cabinet Specifications, Table 805.07, 1994 Edition):

TABLE I - SIZES OF COARSE AGGREGATES - KENTUCKY																			
Size	Max. Size Square Openings (1)	AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS) PERCENTAGE BY WEIGHT																	
		100 (4)	90 (3 1/2)	75 (3)	63 (2 1/2)	50 (2)	37.5 (1-1/2)	25 (1)	19 (3/4)	12.5 (1/2)	9.5 (3/8)	4.75 (No. 4)	2.36 (No. 8)	2 (No. 10)	1.18 (No. 16)	600 (3) (No. 30)	425 (3) (No. 40)	150(3) (No. 100)	75 (3) (No. 200)
1	90 (3 1/2)	100	90-100		25-60		0-15		0-5										
2	63 (2 1/2)			100	90-100	35-70	0-15		0-5										
23	63 (2 1/2)			100		40-90		0-15		0-5									
3	50 (2)				100	90-100	35-70	0-15		0-5									
357	50 (2)				100	95-100		35-70		10-30		0-5							
4	37.5 (1-1/2)					100	90-100	20-55	0-15		0-5								
467	37.5 (1-1/2)					100	95-100		35-70		10-30	0-5							
5	25 (1)						100	90-100	20-55	0-10	0-5								
57	25 (1)						100	95-100		25-60		0-10	0-5						
610	25 (1)						100	85-100		40-75		15-40							
67	19 (3/4)							100	90-100		20-55	0-10	0-5						
68	19 (3/4)							100	90-100		30-65	5-25	0-10		0-5				
710	19 (3/4)							100	80-100		30-75	0-30							
78	12.5 (1/2)								100	90-100	40-75	5-25	0-10		0-5				
8	9.5 (3/8)									100	85-100	10-30	0-10		0-5				
9-M	9.5 (3/8)									100	75-100	0-25	0-5						
10	4.75 (No. 4)										100	85-100						10-30	
11	4.75 (No. 4)										100	40-90	10-40					0-5	
DGA(2)	19 (3/4)							100	70-100		50-80	30-65				10-40			2-10
GRAVEL BASE(2)	37.5 (1-1/2)					100						25-65					6-30	5-20	
CSB(2)	50 (2)				100		90-100		60-95		30-70	15-55				5-20			0-8

(1) Nominal size in mm (inches), unless otherwise shown(2) Gradation performed by wet sieve KM 64-420(3) micrometers

E. Testing

1. Unless otherwise required in this Section, the ENGINEER shall determine the tests required for crushed stone aggregates according to Section 805. The CONTRACTOR shall be responsible, initially and periodically at no cost to the OWNER, to deliver materials proposed for use or being used in the work to a testing laboratory selected by the OWNER. This provision shall apply to any other aggregate tests required in this Section.
2. The OWNER shall be responsible to pay the laboratory testing costs. However, once a material has been tested and accepted for use, the CONTRACTOR shall be responsible throughout the job to use materials which are equal in all respects and from the same source as that accepted material delivered to the testing laboratory.
3. The CONTRACTOR shall pay for additional tests ordered by the ENGINEER after acceptance of tested materials when such tests show the quality of materials has become deficient or when the CONTRACTOR requests a change of material supplier and/or source.
4. The ENGINEER shall request tests on Form HKB DE-16 "Requisition for Material and Design Mix Tests."

306-23-01 (06/2023)

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

#### **A. Compacted Crushed Stone Aggregate**

1. Crushed stone shall be placed in uniform layers not greater than 6 inches deep and shaped by power equipment to required lines, grades, cross sections, and depths. No minimum compacted density, method of compaction, or compaction equipment is required since a nominal amount of compaction effort with vibration can establish the desired intergranular locking of the aggregate under controlled placement depth. Acceptable compaction can be achieved with pneumatic-tired and tracked equipment and rollers.
2. All compaction operations shall be performed to the satisfaction of the ENGINEER.
3. Crushed stone shall be placed in those areas as shown on the Drawings and as may be directed by the ENGINEER.

#### **B. Compacted Dense Graded Aggregate (DGA)**

1. Dense graded aggregate shall be plant mixed with water, transported in such a manner as to deliver the mix to the project without loss or segregation, spread, and compacted to produce a density throughout not less than 84 percent of solid volume. Minimum dry density for compacted limestone DGA shall be 139 pounds per cubic foot when S.G. of limestone is 2.65.
2. Density tests shall be required in such number as determined by the ENGINEER. Density tests shall be made by the sand cone method or by nuclear gauges. The CONTRACTOR shall furnish all necessary labor, equipment and materials for making the density tests under observations of the ENGINEER.
3. In the event compacted material does not meet the required density of an area, the CONTRACTOR shall either continue compaction efforts or rework the entire area until the required density is obtained. If material has to be removed and reworked, the ENGINEER shall determine if removed material can be remixed and used again for fill.
4. All compacted DGA fill shall be included in the CONTRACTOR'S lump sum bid unless otherwise indicated on the Drawings.

**END OF SECTION**

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02235-3

306-23-01 (06/2023)

## SECTION 02326

### STEEL COVER PIPE

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

- A. Steel cover pipe shall be furnished and installed as shown on the Drawings and specified herein.

##### 1.02 RELATED WORK

- A. Sewer and Drain Pipe is specified in Section 02700.
- B. Pressure pipe is specified in Section 02610.

#### PART 2 PRODUCTS

##### 2.01 STEEL COVER PIPE

- A. Steel cover or jack pipe shall be plain end steel pipe with minimum yield strength of 35,000 psi and tensile strength of 60,000 psi per API-5L Grade B, ASTM A252 Grade 2, ASTM A139 Grade B, ASTM A135 Grade B, ASTM A106 Grade B, and ASTM A53 Grade B material. The steel pipe supplied shall be manufactured by the seamless, electric resistance weld, submerged arc weld or gas metal-arc weld process as specified in API-5L, ASTM A252, A139, A135, A106, and A53. Certification of 35,000 psi minimum yield strength shall be furnished by the supplier through the CONTRACTOR to the ENGINEER in sufficient copies before pipe is shipped to job to permit the ENGINEER to retain 3 copies.
- B. Used pipe shall be acceptable if it meets the minimum requirements for size, thickness, strength, roundness, and straightness for new pipe. Supplier shall furnish through the CONTRACTOR to the ENGINEER 3 copies of certification of test results of strength tests conducted on the used pipe prior to shipment to job site. Used pipe with excessive corrosion and pitting present shall not be supplied.
- C. The minimum inside diameter of steel cover pipe shall be at least 2 inches greater than the largest outside diameter of the carrier pipe, joints or couplings, except for carrier pipe 6 inches or greater in diameter under railroads, the difference shall be 4 inches instead of 2 inches. In the case of fused polyethylene or welded steel carrier pipe, the cover pipe inside diameter shall be a minimum of 4 inches greater than the largest actual outside diameter of the carrier pipe.
- D. Cover pipe shall have a **minimum** wall thickness as shown in the following table, unless noted thicker on the Contract Drawings:

306-23-01 (06/2023)

Cover Pipe Diameter	Minimum Nominal Wall Thickness (in.)	For KYTC Road Crossings Minimum Nominal Wall Thickness (in.)
Under 10	0.250	0.375
10 & 12	0.250	0.375
14	0.250	0.375
16	0.281	0.375
18	0.312	0.375
20	0.344	0.500
22	0.344	0.500
24	0.375	0.500
26	0.406	0.500
28	0.438	0.500
30	0.469	0.500
32	0.500	0.532
34 & 36	0.532	0.532
38	0.562	0.625
40	0.594	0.625
42	0.625	0.625
44 & 46	0.657	*
48	0.688	*
50	0.719	*
52	0.750	*
54	0.782	*
56 & 58	0.813	*
60	0.844	*
62	0.875	*
64	0.906	*
66 & 68	0.938	*
70	0.969	*
72	1.000	*

[NOTE TO SPECWRITER: The above noted sizes are based on CSX requirements as of June 5, 2018, and the KYTC Standards as of June 15, 2012. \*Check with KYTC for allowance of cover pipe larger than 42 inches in diameter. Check with other railroads for their requirements.

[NOTE TO SPECWRITER: The different standard specifications are available in the sizes noted below.

NPS = Nominal Pipe Size, OD = Outside Diameter  
API 5L Gr B – NPS 0.4” to 84”OD ASTM A139 Gr B – NPS 1/8” to 60” OD  
ASTM A252 Gr 2 – NPS 6” to 24” OD    ASTM A135 Gr B – NPS 2” to 30” OD  
ASTM A106 Grade B – NPS 1/8” to 48” OD    ASTM A53 Gr B – NPS 1/8” to 26” OD]

306-23-01 (06/2023)

## **PART 3 EXECUTION**

### **3.01 TUNNELING, BORING OR JACKING**

- A. Boring or jacking as specified herein will be allowed at locations other than those noted on the Drawings, where advantageous to lay pipe under streets, driveways, and sidewalks, without their monolithic structure being destroyed.
- B. Tunneling under paving, railroads, buildings and underground structures is included as an alternate to boring or repaving required by open cut trenching at no extra cost to the OWNER. Bore and cover pipe is also included as an alternate to tunneling. Backfilling of tunnels shall be mechanically tamped in not more than 3 inch layers and with materials rendered suitable for tamping before being placed in tunnel unless otherwise shown on the Drawings. No payment will be made for tunnels less than 3 feet long.
- C. In tunneling under buildings, the CONTRACTOR will be held responsible for all damage by his operations and methods of excavation and backfilling. No payment will be made for tunnels less than 3 feet in length.
- D. Should the CONTRACTOR elect and receive permission to tunnel or bore, other than at locations designated on the Drawings or required by the ENGINEER to be tunneled or bored, the entire compensation therefor shall be the same as the unit prices bid for installation in open trench, including paving replacement, but not including bore or tunnel unit prices.
- E. At locations where tunneling or boring or jacking is called for on the Drawings, in addition to the unit prices for permanent tunnel, tunnel liner, temporary tunnel, boring or jacking and/or cover pipe, payment will be made for furnishing and laying sewer lines inside the tunnel or cover pipe. No payment will be made for separate trench and backfill unit price items where permanent tunnel, tunnel liner, temporary tunnel, boring or jacking and/or cover pipe unit prices are paid.
- F. Boring or jacking under highways, railroads, sidewalks, pipelines, etc., shall be done at the locations shown on the Drawings. It shall be performed by mechanical means and accurate vertical and horizontal alignment must be maintained. When shown on the Drawings, cover pipe shall be used and shall be installed inside bored holes concurrently with boring, or jacking.

### **3.02 STEEL COVER PIPE INSTALLATION**

- A. Steel cover pipe shall be of the size and wall thickness as shown on the Drawings.
- B. When cover pipe is jacked, concurrent with boring, all joints shall be solidly welded. The weld shall be such that the joint shall be of such strength to withstand the forces exerted from the boring and jacking operation as well as the vertical loading imposed on the pipe after installation. The weld shall also be such that it provides a smooth, nonobstructing joint in the interior of the pipe

306-23-01 (06/2023)

which will allow easy installation of the carrier pipe without hanging or abrasion to the carrier pipe upon installation.

- C. When cover pipe is installed in open trench or permanent tunnel, it shall be bedded and backfilled per Specifications applying to sewer pipe in such locations. When cover pipe is installed in temporary tunnel, it shall be laid accurately to alignment of proposed sewer and at an elevation below sewer necessary to support it at the planned elevation. Bedding and backfill for cover pipe in temporary tunnel shall be per Specifications for sewer in temporary tunnel.
- D. Cover pipe in open trench, permanent tunnel and temporary tunnel shall be joined in such manner that they will not be moved out of alignment or grade and that will prevent backfill material from entering joint. Where cover pipes are shown on the Drawings to be equipped with vent pipes, vents shall be installed as shown on the Drawings with cost of same included in the price bid for the cover pipe unless otherwise specified.

### 3.03 CARRIER PIPE IN COVER PIPE INSTALLATION

#### A. Pipeline Spacers

- 1. Pipes installed inside cover pipes shall be centered throughout the length of cover pipe. Centering shall be accomplished by the installation of bolt on style spacers with a 2-piece solid shell made from T-304 stainless steel of a minimum 14 gauge thickness. The shell shall be lined with a ribbed PVC sheet of a 0.090 inch thickness that overlaps the edges. Runners, made from UHMW polymer, shall be attached to the pipe in such a manner as to prevent the dislodgement of the spacers as the carrier pipe is pulled or pushed through the cover pipe. Risers shall be made from T-304 stainless steel of a minimum 10 gauge thickness and shall be attached to the shell by MIG welding. All welds shall be fully passivated to ASTM A380. All fasteners shall be made from T-304 stainless steel.
- 2. Spacers shall be of such dimensions to provide 1) full supportive load capacity of the pipe and contents; 2) of such thickness to allow installation and/or removal of the pipe; and 3) to allow no greater than 1/2-inch movement of the carrier pipe within the cover pipe after the carrier pipe is installed.
- 3. Spacers shall be located immediately behind and within 2 feet of each bell and at a maximum spacing distance as shown below unless a lesser maximum spacing distance is recommended by the pipe manufacturer:

306-23-01 (06/2023)

Pipeline Diameter (in.)	Maximum Spacing (ft.)
2 to 2-1/2	4
3-8	7
10-26	10
28	9
30	8
32	7
34	6
36-38	5.5
40-44	5
46-48	4

4. Spacers on all plastic pipe, PVC, HDPE, etc., shall be no more than 5 feet apart regardless of size. Spacers shall be no more than 8 feet apart for steel pipe and 6 feet for ductile iron pipe when the distance between the carrier pipe and the cover pipe is greater than 5 inches unless 12-inch wide spacers are used.
5. The materials and spacing to be used shall be accepted by the ENGINEER prior to installation. The pipeline spacers shall be manufactured by Cascade Waterworks Manufacturing Co., of Yorkville, Illinois; BWM Company, Forest City, North Carolina; or equal. Installation shall be in accordance with manufacturer's recommendations.

**B. End Seals for Carrier Pipe**

1. Upon completion of installation of the carrier pipe, the annular space at the ends of the cover pipe shall be sealed to prevent the entrance of groundwater, silt, etc., into the cover pipe. The seal shall be a manufactured product specially made for this purpose. The seal shall be Link Seal, Model "C" or "L," as manufactured by the Thunderline Corporation, or equal.
2. The device (Model "C" or "L") shall have composite pressure plates and modular seals to be corrosion resistant EPDM suitable for use in water, direct ground burial, and atmospheric conditions. In areas where hydrocarbon resistant is specified, the seals shall be of nitrile and rated for the application (Model OS-316). All nuts and bolts for all models shall be 316 stainless steel (ANSI Type 316 per ASTM F695-95, 85,000 psi average tensile strength).
3. Seal sizes shall be per manufacturer's recommendations for each size of cover pipe and installed per manufacturer's recommendations to provide a watertight seal.

**END OF SECTION**

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02326-5



306-23-01 (06/2023)

## **SECTION 02610**

### **WATER MAIN PIPE**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. For Cover Pipe and Boring and/or Jacking see Section 02326.
- B. All pipe, fittings, and jointing materials shall be of one manufacturer unless different types are shown on the Drawings or otherwise accepted by the ENGINEER.

##### **1.02 SUBMITTALS**

###### **A. General**

- 1. Prior to the shipment of any water and/or sewage force main piping to the project site, the CONTRACTOR shall submit to the ENGINEER a bill of materials, shop drawings, and descriptive literature for all piping, in the number of copies listed in Section 00700 of these Specifications.

###### **B. Plant and Site Piping**

- 1. Submit shop drawings of all interior and exterior piping.
- 2. Submit testing and certifications for interior and exterior piping.

###### **C. Water Main and Sewage Force Main Projects**

- 1. Submit shop drawings for all piping.
- 2. Submit descriptive literature for all piping.
- 3. Submit testing and certifications for all piping.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS-WATER MAIN AND SEWAGE FORCE MAIN PIPE**

###### **A. Ductile Iron Pipe-Mechanical and Rubber Slip Joint Type**

###### **1. Pipe**

###### **a. General**

- (1) Ductile iron pipe shall be furnished for all piping 3 inches and over in size designated "D.I." on Drawings and shall be designed in accordance with ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51 specifications and supplements thereto.

306-23-01 (06/2023)

- b.

Design Conditions

(1)

Pressure: Minimum 200 to 350 psi operating pressure, plus 100 psi water hammer allowance.

(2)

Trench Loading: Laying Condition Type 3, depth of cover as shown on Drawings.

c.

Metal Design Strength PSI (Minimum)

Tensile Strength	60,000
Yield Strength	42,000
Percent Elongation	10

d.

Minimum Nominal Thickness

(1)

Minimum design thicknesses for 200 through 350 psi operating pressures, depths of cover, trench loading and other conditions shall be per ANSI/AWWA C150/ A21.50 specifications.

e.

Lengths

(1)

Pipe may be furnished in 18 or 20 foot nominal laying lengths.

f.

Marking

(1)

The net weight, class or nominal thickness, and casting period shall be shown on each pipe. The manufacturer's mark, the year in which the pipe was produced, and the letters "DI" or "DUCTILE" shall be cast or stamped on the pipe.

g.

Weighing

(1)

Each pipe shall be weighed before application of lining or coating other than standard coating and the weight shown on the outside or inside of the bell or spigot end.

h.

Spigot End of Pipe

(1)

The spigot end of the pipe shall be free of blemishes and defects which, in the opinion of the ENGINEER, might be responsible for a poor fit with the rubber ring gasket and result in leakage.

2.

Fittings

a.

General

306-23-01 (06/2023)

- (1) Ductile iron mechanical joint, restrained joint and fittings shall conform to ANSI/AWWA C110/A21.10 Standard for Gray Iron and Ductile Iron Fittings – 3 inches through 48 inches. Mechanical joints and push on joints shall also conform in all respects to ANSI/AWWA C111/A21.11.
- (2) Ductile iron compact fittings, meeting the requirements of ANSI/AWWA C153/A21.53, will also be accepted.
- (3) Fittings shall be 350 psi pressure rating for sizes through 24 inches and shall be 250 psi rating for sizes above 24 inches unless a higher operating pressure is shown on the Drawings, and in such cases the fitting pressure rating shall be equal to or above the operating pressure. The pressure rating for all compact fittings shall be 350 psi.
- (4) Fittings shall be ductile iron meeting the above requirements and shall be furnished complete with all joint accessories.

b. Lining and Coating

- (1) All fittings shall be lined and coated the same as adjacent pipe.

3. Joints

a. General

- (1) Pipe joints shall be mechanical joint, rubber ring slip joint or restrained joint as shown on the Drawings.
- (2) All items used for jointing pipe shall be furnished with the pipe. The joints shall be made with tools and lubricant in strict conformity with the manufacturer's instructions. Copies of the instructions shall be delivered to the ENGINEER at start of construction in sufficient numbers that will permit the ENGINEER to retain 3 copies.

b. Mechanical Joints

- (1) Mechanical joints are to be furnished according to ANSI/AWWA C111/A21.11. All pipe joints must be furnished complete with all accessories. Mechanical joint bolts and nuts shall be of alloy cast iron or alloy steel (Corten type such as U.S. Alloy) or equal. Rubber gaskets shall be made of plain first grade rubber, free of imperfections and porosity. Hardness shall be 75 X 5 durometer.

c. Rubber Ring Slip Joint (Push On)

306-23-01 (06/2023)

(1) Rubber ring slip joint shall be equal to ANSI/AWWA C111/A21.11. The joints shall be of the following materials and assembled in the sequence outlined below:

- (a) Rubber ring gasket compressed in groove in bell of pipe.
- (b) Beveled spigot end of pipe for initial centering into rubber gasket in bell.

d. Restrained Joints

(1) For Pipe

- (a) Restrained joint for push-on type bell with rubber O-ring shall meet the applicable requirements of ANSI/AWWA C 111/A21.11. The bell/spigot configuration for the restrained joint shall be such that restraint shall be provided for the joint based on a sustained pressure equal to the pressure class of the pipe.
- (b) The restrained joint shall allow the same deflection as standard push-on joint pipe.
- (c) Where field welding is required for restrained field cut pipe, the welder shall be properly instructed in the methods and materials for welding on ductile iron pipe.

(2) For Fittings

- (a) Where restrained joint fittings are called for, the bell configuration for the fittings shall be the same as for the pipe.
- (b) Where fittings with restrained joint bell configuration are not available, restrained materials for use with mechanical joint bell configurations shall be used as follows:
  - (i) Connect mechanical joint bell assemblies with stainless steel all-thread rods.
  - (ii) Install restraints glands on each side of the fitting. The restraining glands shall be "Meg-a-Lug," as manufactured by EBAA Iron Sales, Inc., of Eastland Texas; "Grip Ring," as manufactured by Romac Industries, Inc., of Seattle, Washington; or equal.

e. Special Gaskets

306-23-01 (06/2023)

- (1) Where a water main is located within a 200-foot radius of an underground storage tank (UST), special rubber gaskets shall be provided for the water main joints.
- (2) These gaskets shall be manufactured of “nitrile rubber” material or other acceptable material possessing superior resistance to deterioration from petroleum based products.
- (3) This requirement will apply to the gaskets supplied for mechanical joints, restrained joints, and push-on joints when located within the 200-foot radius of a UST.
- (4) The cost of the special gasket shall be incorporated into the cost of the installed pipe.

4. Lining and Coating

a. Water Service

- (1) All ductile iron pipe for water service shall have manufacturer's standard outside bituminous or asphaltic base coating and a cement lining and bituminous seal coat on the inside. Cement mortar lining and bituminous seal coat inside shall conform to ANSI/AWWA C104/A21.4.

b. Sewer Force Main Service

- (1) All ductile iron pipe for sewer force main service shall be bituminous coated outside and shall be cement lined with seal coat on the inside per the above specifications.

c. Bitumastic Finish Coat

- (1) Only a coal tar outside coating, or other compatible coating, shall be applied to pipe which is to receive a bitumastic finish coat.

B. Ductile Iron Pipe-Flanged, Grooved and Special Coupling

1. Pipe

a. Flanged Pipe

- (1) Flanged pipe shall be made in accordance with ANSI/AWWA C115/A21.15 Specifications, and shall be thickness Class 53.
- (2) Where plain ends of flanged and plain end pipe fit into mechanical joint bells, centrifugally cast pipe shall be used.

306-23-01 (06/2023)

b. Grooved Pipe

- (1) Where flanged ductile iron pipe is shown on the Drawings, grooved joint piping may be substituted where acceptable to the ENGINEER.
- (2) Grooved joint piping shall conform to ANSI/AWWA Specification C 606.

2. Fittings

a. Flanged Pipe

- (1) Flanged joint fittings shall conform to ANSI/AWWA C110/A21.10 Standard for Gray Iron and Ductile Iron Fittings- 3-inch through 48-inch.
- (2) Fittings shall be 250 psi pressure rating for all sizes unless a higher operating pressure is shown on the Drawings and in such cases the fitting pressure rating shall be equal to or above the operating pressure.
- (3) Fittings shall be ductile iron meeting the above requirements and shall be furnished complete with all joint accessories.

3. Joints

a. General

- (1) Pipe joints shall be as shown on the Drawings.
- (2) All items used for jointing pipe shall be furnished with the pipe. The joints shall be made with tools and lubricant in strict conformity with the manufacturer's instructions. Copies of the instructions shall be delivered to the ENGINEER at start of construction in sufficient numbers that will permit the ENGINEER to retain 3 copies.

b. Flanged Pipe

- (1) All ductile iron flanged pipe shall have flanges faced and drilled, 125 pound in accordance with ANSI/AWWA C110/A21.10 unless otherwise specified.
- (2) Flanges may be cast integrally with the pipe or they may be screwed on specially designed long hub flanges, refaced across both face of flange and end of pipe.
- (3) Flanged joints are to be furnished according to ANSI/AWWA C115/A21.15 and shall be ductile iron only. Flanged joints shall have 1/8-inch rubber full face gaskets made especially

306-23-01 (06/2023)

for water pipe use. Bolts for ductile iron flanged pipe must be of standard sizes for pipe to be fitted, and must be black steel, machine bolts with heavy hexagon heads and nuts meeting ANSI B18.2.1 and ANSI B18.2.2, respectively. In unheated vaults, submerged and/or damp locations, bolts and nuts for ductile iron flanged pipe shall be stainless steel. Prior to stainless steel nuts being placed on stainless steel bolts, the bolt threads shall be coated with anti-seize.

- (4) The American Toruseal Flange Gasket Manufactured by American Cast Iron Pipe Company is an acceptable alternate to the above described gasket.

c. Grooved Pipe

- (1) Victaulic Style 31 couplings, or equal, with flush seal gaskets shall be used. Rigid cut grooves shall be used except where flexible couplings are shown on the Drawings. In such case, flexible cut grooves shall be substituted.

d. Special Coupling

- (1) Flexible couplings for flanged pipe shall be a mechanical joint cast to a special flanged joint using a neoprene O-ring in place of the usual 1/16-inch rubber ring gasket. The mechanical bell and special flanged joint piece shall be of ductile iron (ANSI/AWWA C110/A21.10) with bolt circle, bolt size and spacing conforming to ANSI/AWWA C110/A21.10 specifications. Mechanical joint follower flange shall be of ductile iron ASTM A 536 or malleable iron ASTM A 47, Grade 35018 or 32510, with high strength/weight ratio design. Bolts shall be fine grained high tensile malleable iron with malleable iron hexagon nut. Stainless steel bolts and nuts shall be used in vaults and wet wells. Where pressures may exceed 20 psi, anchor studs shall be included with spigots of pipes connected drilled to receive ends of studs.
- (2) At locations in flanged pipe where adaptors are not shown on the Drawings, the CONTRACTOR may, at his own cost and for flexibility of installation, use a coupling adapter after acceptance by the ENGINEER. In no event shall unrestrained mechanical joints or dresser type couplings be substituted for flanged joints.

306-23-01 (06/2023)

4. Lining and Coating

a. Flanged Pipe

- (1) Flanged pipe for water and wastewater service shall be cement lined and bituminous coated the same as written herein for ductile iron pipe, mechanical and rubber slip joint type.

b. Grooved Pipe

- (1) Lining and coating shall be as specified for flanged pipe.

C. Polyvinyl Chloride (PVC) Pipe (AWWA)

1. Pipe

a. Distribution Mains

- (1) This Specification covers 4-inch through 12-inch PVC pressure pipe made from Class 12454-B material as defined in ASTM D1784 and conforming with the outside diameter dimensions of ductile iron pipe and with wall thicknesses of DR series 14, 18 or 25.
- (2) The pipe shall be manufactured to meet the requirements of ANSI/AWWA Specification C900 and these Specifications. It shall be furnished in the size and pressure class as shown on the Drawings, and in 20-foot lengths.
- (3) The pipe shall have an integral bell end and gasket seal which is in compliance with the requirements of ASTM D 3139 and F 477.

b. Transmission and Distribution Mains

- (1) This Specification covers 14-inch through 48-inch PVC pressure pipe made from Class 12454-B material, as defined in ASTM D1784, and conforming with the outside diameter dimensions of ductile iron pipe. Wall thicknesses shall conform to DR Series 14, 18, 21, 25 or 26 as shown on the Drawings.
- (2) The pipe shall be manufactured to meet the requirements of ANSI/AWWA Specification C905 and these specifications. It shall be furnished in 20-foot lengths in the size and pressure class as shown on the Drawings.
- (3) The pipe shall have an integral bell end and gasket seal which is in compliance with the requirements of ASTM D3139 and F477.



306-23-01 (06/2023)

- c. The marking of each piece shall include:
  - (1) Nominal size and O.D. base.
  - (2) PVC.
  - (3) Dimension ratio number.
  - (4) AWWA pressure class.
  - (5) AWWA standard designation number.
  - (6) Manufacturer's name or trademark and production record code.
  - (7) Seal (mark) of the testing agency that verified the suitability of the pipe material for potable water service.

2. Fittings and Couplings

- a. Fittings for use with PVC pipe shall be ductile iron, slip-on or mechanical joint type.
- b. If couplings are required, they shall be of the elastomeric-gasket type and shall conform with ANSI/AWWA C900.

D. Polyvinyl Chloride (PVC) Pipe (ASTM)

1. Pipe

- a. This Specification covers rigid polyvinyl chloride pipe and fittings, hereinafter called PVC pipe and PVC fittings, for sizes 3/4-inch through 12-inch.
- b. PVC pipe shall be extruded from Class 12454-B polyvinyl chloride material with a hydrostatic design stress of 2000 psi for water at 73.4 degrees Fahrenheit, designated as PVC 1120, meeting ASTM Specifications D 1784 for material. Three-fourths inch through 1-1/2 inch water service piping shall be PVC Schedule 40 as specified in ASTM D 1785. Two inch through 12-inch pipe for water and sewage force main service shall be SDR 21 for 200 psi allowable working pressure at 73.4 degrees Fahrenheit and a safety factor of 2.0, as specified in ASTM D 2241.
- c. The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform as commercially practical in color.
- d. The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures, burst pressures, flattening, extrusion quality, marking and all other

306-23-01 (06/2023)

requirements of ASTM D 2241 shall be conformed with in all respects.

- e. Pipe shall be furnished in 20-foot lengths. The pipe shall be plain end with bell on one end. Male ends of pipe must be beveled on the outside.
- f. Pipe shall have a ring painted around the male end in such a manner as to allow field checking of setting depth of pipe in the socket. This requirement is made to assist construction superintendents and inspectors in visual inspection of pipe installation.
- g. Pipe must be delivered to job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical.
- h. Pipe must not be exposed to the direct rays of the sun for an extended period of time. If pipe is not to be installed shortly after delivery to the job site, it must be stored in a shaded location.

## 2. Fittings

### a. Ductile Iron

- (1) Ductile iron mechanical joint or push-in type fittings with appropriate adapters may be used with exterior PVC pipe. All such fittings shall be approved by the pipe manufacturer, and complete data sent to the ENGINEER, including the manufacturer's approval, for review.

## 3. Joints

### a. Exterior Buried Pipe - Slip Joint Type

- (1) Exterior buried pipe shall be jointed with slip-type joints with rubber gaskets.
- (2) Pipe with bell end shall have all parts of the bell, including the gasket groove, made from the same extruded piece, integral with the pipe, and shall be thickened to meet standard dimension ratios of wall thickness to outside diameter. The gasket groove shall be constructed such that gasket rollout will not occur. Rubber gasketing shall conform to ASTM D 3139.

### b. Interior - Solvent Weld

- (1) Interior pipe shall be jointed by solvent welds.

306-23-01 (06/2023)

- (2) Since PVC welding solvent is engineered and formulated to perform with a given joint design, all solvent must be purchased from the manufacturer of the pipe.
- (3) The PVC welding solvent shall be compounded to conform with the socket fit and the weather conditions at the time of installation and be such as to assure minimum installation cost and a weld of maximum strength.

c. Couplings

- (1) Couplings shall be of the same material as the pipe and may be of the molded, or extruded type. They shall have a beveled entrance to prevent the wiping off of the lubricant from the male end of the pipe.
- (2) PVC couplings shall have a minimum rating of 200 psi for continuous operation at 73.4 degrees Fahrenheit.
- (3) The couplings shall have a positive pipe stop that will automatically and accurately position the pipe ends within the couplings. The pipe stop shall also permit the thermal expansion or contraction of the pipe ends.

E. Polyethylene Pipe for Water Mains and Force Mains

1. Pipe

a. General

- (1) Polyethylene pipe and fittings shall comply with the requirements of ASTM D 1248, D 1505, D 1693, D 1928, D 2657, D 3035, D 2837 and D 2321.

b. Resins

- (1) Only virgin polyethylene resins classified as Type III, Category 5, Grade P34 per ASTM D 3035 with densities of 0.955 p/cc maximum and melt index of 0.15 g/10 minutes maximum shall be used in the process of making the pipe. The resin shall contain antioxidants and be stabilized with carbon black.

c. Design

- (1) The pipe shall have a long-term strength rating of 1,600 psi or more and be resistant to environmental stress cracking per procedure C of ASTM D 1928 for not less than 200 hours. The maximum allowable deflection is 5 percent with the pipe installed in accordance with these Specifications, using backfill material at 130 pounds per cubic foot, H-20 live load plus 50 percent impact but no

306-23-01 (06/2023)

internal pressure. The live load and impact may be disregarded in the calculations for trench conditions with 8 feet or more cover. Operating pressures are shown on the Drawings. Hydrostatic loading shall be considered when the pipe is to be installed below a permanent water table or body of water.

d. Wall Thickness Calculations

- (1) The pipe manufacturer shall furnish calculations to support the pipe wall thickness for these various conditions for the ENGINEER'S review/acceptance before the materials are sent to the job site.

e. Quality

- (1) No cracks, holes, foreign material, blisters or other deleterious faults are permitted in the polyethylene pipe. It shall be homogeneous throughout including the heat fused joint. Polyethylene pipe will not be installed containing gouges or cuts that penetrate more than 10 percent of the wall thickness.

f. Water Stops

- (1) The pipe manufacturer shall furnish a waterstop assembly for use with the pipe where the pipe passes through a structure wall so as to provide a watertight seal. The assembly shall be attached to the pipe with noncorroding materials.

g. Marking

- (1) Each length of polyethylene pipe shall contain the manufacturer's brand name, pipe size and other data to enable an accurate tracing of the raw material source. Polyethylene pipe will not be installed containing gouges or cuts that penetrate more than 10 percent of the wall thickness.

2. Joints

a. Fusion

- (1) Polyethylene pipe shall be joined by the heat fusion welding process. Welding equipment may be either gas fired or electric as the CONTRACTOR may select. The welding equipment must be capable of attaining the temperature recommended by the manufacturer for the particular polyethylene extrusion used on the project.

306-23-01 (06/2023)

- (2) The fusion equipment shall have hydraulic controls and gauges for monitoring fusion pressures. Also, an engine powered facing unit to trim the irregularities of the pipe ends shall be provided. The heated and thermostatically controlled plate shall contain a temperature gauge for monitoring the heat temperature throughout the fusion process.

b. Flange Adapters

- (1) Threaded or solvent weld joints and connections are not permitted. Flange adapters as manufactured by the pipe supplier shall be used, butt-fused to the pipe and connected to other pipe material using a rubber gasket for sealing.

## 2.02 MATERIALS-SERVICE LINE PIPE

### A. Copper Pipe and Fittings

#### 1. Inside, Rigid with Solder Joint Connections

- a. Small piping inside structures shall consist of standard copper tubing for water; Type "L" for general plumbing purposes. All fittings shall be "solder joint connection" cast or wrought bronze for water service for inside diameter of pipe sizes given. All stops, valves, hose bibbs, and unions shall be made with same joints or threaded iron pipe standard, and be of brass or copper. Use 95-5 tin-antimony solder for "solder joints."
- b. Buried Copper Tubing with Compression Joints
  - (1) Small copper piping for buried service shall be of standard soft copper tubing for water service pipe, ASTM Specifications B 88, Type "K," with bronze fittings, stops, and valves having compression connections for flared copper tubing.

### B. Polyethylene Pipe for Water Service

#### 1. Pipe

- a. Polyethylene flexible pipe (I.P.O.D. or PVC O.D.) for sizes 1/2-inch through 3-inch water service piping shall be PE 3408, Type III, Grade P34 Class C, DR-9, OD Based for 200 psi working pressure at 73.4 degrees Fahrenheit, meeting ASTM Specification D 1248 for material, D 3350 for cell classification and AWWA C901 Specification for pipe.
- b. Polyethylene flexible pipe (copper pipe O.D.) for sizes 1/2-inch through 2-inch water service piping shall be PE 3408, Type III, Grade P34 Class C, DR, OD Based for 200 psi working pressure at 73.4 degrees Fahrenheit, meeting ASTM Specification D 1248 for

306-23-01 (06/2023)

material, D 3350 for cell classification and AWWA C901 Specification for pipe.

- c. Pipe shall meet all applicable provisions of the Commercial Standards and shall bear the National Sanitation Foundation (NSF) seal of approval.

2. Fittings

- a. Fittings shall be standard bronze fittings as specified for copper tubing in this Section of these Specifications.

2.03 SERVICE CONNECTIONS

A. General

- 1. All service connections shall be made by means of tees, factory tapped couplings, or bronze service clamps manufactured specifically for use with the pipe upon which it is to be installed. Whenever possible, corporation stops shall be placed in the service connection prior to conducting hydrostatic tests on the mains.

B. Service Clamps

- 1. Service clamps for use on ductile iron mains shall be bronze, double strap, Mueller BR 2 B Series, Ford, or equal.
- 2. Service clamps for use on PVC and polyethylene pipe shall be bronze, wide strap, 2 piece for 2-inch through 8-inch mains, Mueller H-01300 Series, Ford, or equal. For 10-inch and 12-inch mains, use Mueller 3-piece, H-13000 Series, Ford, or equal.
- 3. The use of Dresser Style 294 plastic saddles will also be permitted for use on PVC or polyethylene mains.

2.04 WALL AND FLOOR SLEEVES WITH RUBBER MECHANICAL SEAL FOR CARRIER PIPE SIZES 2 INCHES THROUGH 48 INCHES

A. General

- 1. Sleeves shall be required for 2-inch through 48-inch carrier pipes penetrating poured concrete walls and floor slabs. The use of sleeves will require the use of a rubber link, mechanical type seal assembly around the carrier pipe.
- 2. The CONTRACTOR shall determine the required inside diameter of each individual wall opening or sleeve before ordering, fabricating or installing. The inside diameter of each wall or floor sleeve shall be sized as recommended by the closure assembly manufacturer to fit the carrier pipe, and seal to assure a watertight joint. The CONTRACTOR shall follow the manufacturer's instructions for installing and tightening the seal to provide a watertight pipe penetration.

306-23-01 (06/2023)

B. Description

1. The pipe closure assembly shall consist of a heavy wall welded or seamless steel pipe with 4 inches larger than sleeve O.D. continuous water stop plate, modular mechanical type interlocking synthetic rubber links shaped to continuously fill the annular space between the carrier pipe and wall or floor opening sleeve. Links shall be loosely assembled with stainless steel bolts to form a continuous sealing element of EPDM rubber belt around the carrier pipe with glass reinforced nylon plastic pressure plate under each bolt head and nut. Tightening of the bolts shall cause the sealing element to expand and provide absolute watertight seal between the carrier pipe and wall or floor sleeve. The entire closure assembly shall be tagged for location to match the nomenclature on the Drawings.
2. The sleeve shall be factory primed per Paint Specifications, Section 09900.

C. Manufacturers

1. Thunderline Corporation, Link-Seal Century Line Model CS-100, Model LS, FS, and WS. All models used shall be for Type S corrosive service, or equal.

2.05 SOURCE QUALITY CONTROL

A. Ductile Iron Pipe (Mechanical Joint and Rubber Slip Joint Type)

1. Hydrostatic and physical properties acceptance tests shall be in accordance with ANSI/AWWA Specification C151/A21.51 for ductile iron pipe centrifugally cast in metal molds or sand lined molds for water or other liquids.
2. The ENGINEER shall be provided with sufficient copies of each of the tests for each Contract to permit the ENGINEER to retain 3 copies.
3. All items used for jointing pipe shall be tested before shipment.

B. Polyvinyl Chloride (PVC) Pipe (AWWA)

1. The manufacturer shall furnish an affidavit that all delivered materials comply with the requirements of this Specification.
2. Each length of pipe shall be proof tested at four times its rated class pressure.

C. Polyvinyl Chloride (PVC) Pipe (ASTM)

1. Samples of pipe and physical and chemical data sheets shall be submitted to the ENGINEER for review and acceptance before pipe is delivered to job.

306-23-01 (06/2023)

2. Samples of solvents and the recommended instruction for their use must be submitted for the ENGINEER'S review and acceptance before delivery of solvent to the job.

D. Polyethylene Pipe for Water Mains and Force Mains

1. Results of tests on the raw materials and the polyethylene pipe in accordance with ASTM standards and the Plastic Pipe Institute shall be furnished along with catalogs and other descriptive literature in the number of copies required by the listing in Section 00700 before the materials are sent to the job site.

**PART 3 EXECUTION**

**3.01 TRENCH EXCAVATION-WATER AND SEWAGE FORCE MAINS**

A. General

1. Trenching shall include all clearing and grubbing, including all weeds, briars, trees and stumps encountered in the trenching, regardless of size. The CONTRACTOR shall dispose of any such material by burning, burial or hauling away or as noted on the Drawings, at no extra cost to the OWNER. Ornamental shrubs, hedges and small trees (3 inches in diameter or less) shall be removed, protected and replanted, at no extra cost to the OWNER.
2. Trenching also includes such items as railroad, street, road, sidewalk, pipe and small creek crossings; cutting, moving or repairing damage to fences, poles or gates and other surface structures, regardless of whether shown on the Drawings. The CONTRACTOR shall protect existing facilities against danger or damage while pipeline is being constructed and backfilled or from damage due to settlement of the backfill.
3. Materials encountered in excavation will be divided into 2 classes only: solid rock excavation and other materials. Solid rock excavation is defined as material requiring the use of specialty equipment for removal, such as "hoe ramming," or the use of explosive materials for breakage prior to removal. Other materials shall include earth, loose rock, street or road surfacing and base concrete, and boulders less than 1/3 cubic yard in one piece.
4. In case of "unclassified excavation," as designated in the Drawings and/or Specifications, the price bid shall include earth, solid rock, roots, street or road surfacing and base concrete and boulders.
5. In case of "classified excavation," as designated in the Drawings and/or Specifications, the CONTRACTOR will be paid an additional cost for the removal of solid rock over that bid for other materials.
6. All excavation shall be open trench, except where the Drawings call for tunneling, boring or jacking under structures, railroads, sidewalks, roads or highways.



306-23-01 (06/2023)

B. Trees and Shrubs

1. Where pipelines run through wooded terrain, cutting of trees within limits of maximum permissible trench widths, as set forth in this article, will be permitted. However, cutting of additional trees on sides of trench to accommodate operating of trenching machine will not be permitted. The CONTRACTOR shall obtain specific permission of the OWNER before cutting any tree larger than 4 inches in diameter.

C. Highways, Streets and Railroads

1. Construction equipment injurious to paving encountered shall not be used. Curbs, sidewalks, and other structures shall be protected by the CONTRACTOR from damage by his construction equipment.
2. Where trenching is cut through paving which does not crumble on edges, trench edge shall be cut to at least 2 inches deep to straight and neat edges, before excavation is started, and care taken to preserve the edge to facilitate neat repaving.
3. The CONTRACTOR shall so coordinate his work as to produce a minimum of interference with normal traffic on highways and streets. He may, with the approval of the governing agency, close a street to traffic for such length of time considered necessary, provided persons occupying property abutting the street have an alternate route of access to the property which is suitable for their needs during the time of closure. It shall be the responsibility of the CONTRACTOR to give 24 hours advance notice to fire and police departments and to occupants of a street which will be closed, in a manner approved by the governing body.
4. The CONTRACTOR shall maintain road crossings in a passable condition for traffic until the final acceptance of the work, being paid only by unit price for crushed rock used, within limitations as hereinafter specified.
5. The amount of crushed stone placed shall be paid for at the unit price per ton up to the maximum limits of 225 pounds per linear foot of trench over which it is placed for pipe sizes through 16 inches, 300 pounds per linear foot for pipe sizes 18 inches through 24 inches and 400 pounds per linear foot for sizes 27 inches through 48 inches. The ENGINEER shall have control of thickness and width to be placed and paid for, and may order changes in depth and width as conditions dictate. No payment will be made for crushed rock surfacing required as a result of unnecessarily wide trenches, omission of sheeting and shoring, or damage by the CONTRACTOR'S equipment, or for maintenance of surface level.
6. Railroad and Highway Department requirements in regard to trenching, tunneling, boring and jacking shall take precedence over the foregoing general specifications and the tunneling and boring or jacking specifications, where they are involved. Where work is within railroad right-of-way, Railroad Protective Insurance shall be carried by the CONTRACTOR in the amounts required by the Railroad Company.

306-23-01 (06/2023)

7. The insurance policy shall name the railroad as the insured and the original policy shall be delivered to the railroad after submitting same to the OWNER for review. The cost of flagmen required by the railroad and highway departments and railroad inspectors shall be paid by the CONTRACTOR.
8. Uneven surfaces or humps in the ground encountered and high driveways and road crossings shall be dug through to such depth that pipe may be laid to a reasonably even grade and have minimum cover at the low places. Such places requiring extra depths shall be included in the bid and no extra payment will be made for such extra depths required, which are evident from an examination of the ground before bidding, as required for 1 foot cover over valve nuts, or are indicated on the Drawings.

#### D. Existing Utilities

1. The CONTRACTOR shall determine, as far as possible in advance, the location of all existing sewer, culvert, drain, water, electric, telephone conduits, and gas pipes, and other subsurface structures and avoid disturbing same in opening his trenches. In case of sewer, water and gas services and other facilities easily damaged by machine trenching, same shall be uncovered without damage ahead of trenching machine and left intact or removed without permanent damage ahead of trenching and restored immediately after trenching machine has passed, without extra cost to the OWNER. The CONTRACTOR shall protect such existing facilities, including power and telephone poles and guy wires, against danger or damage while pipeline is being constructed and backfilled, or from damage due to settlement of his backfill. It shall be the responsibility of the CONTRACTOR to inform the customers of utilities of disruption of any utility service as soon as it is known that it has been or will be cut off.
2. The CONTRACTOR shall, at all times during trenching operations, carry a stock of pipe and fittings likely to be needed for replacement of pipelines to facilitate immediate repair.

#### E. Pipelines in Same Trench

1. Pipelines, force mains, and sewers laid in same trench shall, in all cases, be bedded on original earth, or other specified bedding materials, regardless of divergence in their elevations, unless otherwise specified. They shall never be laid in unsupporting backfill or one above the other. The CONTRACTOR shall receive full trenching and backfilling unit prices for each pipeline, force main, and sewer so laid, the same as if laid in widely separated trenches.

#### F. Location of Proposed Pipelines

1. The location of pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present

306-23-01 (06/2023)

themselves before construction on any line is started that would indicate desirable changes in location. Also, development of property traversed may require location changes. In such cases, the OWNER reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by the application of the unit prices bid to the quantities actually involved. The OWNER is under no obligation to locate pipelines so that they may be excavated by machine.

**G. Trench Requirements**

1. All trenches must be dug neatly to lines and grades.
2. The opening of more than 500 feet of trench ahead of pipe laying and more than 500 feet of open ditch left behind pipe laying, before backfilling, will not be permitted, except upon written consent of the OWNER. No trench shall be left open or work stopped on same for a considerable length of time. In case of objectionable delay trench shall be refilled according to backfill specifications.
3. Where subgrade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusive of dewatering normally required for construction and instability caused by neglect of the CONTRACTOR, it shall be paid for at unit prices set up in the Contract, such as extra excavation, crushed rock for pipe bedding, concrete cradle or piling.
4. Excavation for pipe laying must be made of sufficient width to allow for proper jointing and alignment of the pipe, but not greater than the maximums permitted in the following table:

**MAXIMUM TRENCH WIDTH AT TOP OF PIPE**

Nominal Pipe Size (Ins.)	Trench Width (Ins.)	Nominal Pipe Size (Ins.)	Trench Width (Ins.)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

5. Trenches in earth or rock shall be dug as shown on the Drawings and be sufficiently deep to insure a 30 inch or 36 inch minimum cover over water lines and force mains, as noted on the Drawings. Depths of trenching shall also be adequate for at least 1 foot minimum cover over valve nuts. In order to eliminate the necessity for digging bell holes into the trench subgrade by hand and to insure an earth cushion under the pipe for

306-23-01 (06/2023)

uniform bearing, trench depth shall be the cover requirement plus outside diameter of barrel of pipe plus the required bedding cushion. The cushion construction requirement shall also apply to tunnels.

6. Wherever it is deemed necessary by the ENGINEER to lay the pipes to an extra depth exceeding the depths required by the Drawings and Specifications and not apparent from unevenness of ground, the CONTRACTOR will be paid for such excavation under extra excavation in earth at the price bid per cubic yard, computed on the basis of maximum trench widths in the preceding table. In unclassified excavation contracts the same width limitations will apply.
7. Trench line stations and locations of accessories will be set ahead of the trenching. These will be set at least each 100 feet of pipeline. Trenches must be dug true to alignment of stakes. Alignment of trenches or pipes in trench must not be changed to pass around obstacles such as poles, fences and other evident obstructions without the permission of the ENGINEER. Lines will be laid out to avoid obstacles as far as possible, contingent with maintenance of alignment necessary to finding pipeline in the future and avoiding obstruction to future utilities.

#### H. Damage to Existing Structures

1. Hand trenching is required, at no extra payment, where undue damage would be caused to existing structures and facilities by machine trenching.
2. In case of damage to any existing structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structure will be in as good condition and serve its purpose as completely as before, and such restoration and repair shall be done without extra charge, except as set forth under the applicable provisions of the General and Special Conditions. Where there is the possibility of damage to existing utility lines by trenching machine, the CONTRACTOR shall make hand search excavation ahead of machine trenching, to uncover same, at no extra cost to the OWNER.

#### I. Excavation Unclassified

1. Excavation for pipelines shall be unclassified and the cost of all excavation of whatever nature and state, including solid rock, shall be included in the CONTRACTOR'S unit price bid for furnishing, trenching, laying and backfilling the pipe.
2. Excavation for structures such as manholes, pump stations, and vaults is likewise unclassified and the cost of all excavation of whatever nature and state, including solid rock, shall be included in the CONTRACTOR'S lump sum or unit price bid, as the case may be.

306-23-01 (06/2023)

J. Dewatering of Trenches

1. Dewatering of trenches shall be considered a part of trenching, at no extra cost to the OWNER. Dewatering of trenches shall include groundwater and storm or sanitary sewage. Suitable pumping and other dewatering equipment is 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.
2. Piles of excavated materials shall be trenched or temporarily piped to prevent, as far as practical, blockage of drainage ditches and gutters, and water carriage of excavated materials over street and highway surfaces.

3.02 LAYING WATER AND SEWAGE FORCE MAINS

A. General

1. Inspection of Materials
  - a. All pipe, fittings and accessories shall be subject to an inspection by the OWNER at the job site. Any damaged materials shall be repaired or replaced to the satisfaction of the OWNER. Should repairs to the piping materials be necessary, then same shall be made in the presence of the ENGINEER using proven methods prescribed by the pipe manufacturer.
  - b. The OWNER'S inspection of materials shall in no way relieve the CONTRACTOR of his responsibility.
2. Laying Requirements
  - a. Water and sewage force main pipe shall be laid to lines, cover or grades shown on the Drawings.
  - b. Pipes must be swabbed out before lowering into trench. In the case of pipelines 4 inch through 20 inch, a swab must also be dragged through the pipe after it is in place. Larger size pipe shall be visually inspected for cleanliness and proper jointing.
  - c. The points insisted upon in the laying of pipe will be: Proper alignment, evenness of width and depth of joints, perfection in jointing, and care of the pipe in handling.
  - d. Precautions must be taken to prevent flotation of the pipe should water enter the trench prior to putting the pipeline into operation.
  - e. In wet, yielding and 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

306-23-01 (06/2023)

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.

- f. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged with the manufacturer's standard plug held in place by bracing and/or blocking.
- g. 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. Restrained type pipe joints may be substituted for thrust blocks with the ENGINEER'S permission. Pipe shall be free of all structures, other than manholes, vaults or planned entries into other structures.
- h. No pipe shall be laid resting on solid rock, blocking or other unyielding objects. Jointing before placing in the trench and subsequent lowering of more than one section jointed together may be allowed, subject to the ENGINEER'S permission.
- i. For PVC and polyethylene pipe, there shall be installed with the pipe #12 AWG insulated wire for the entire length of the pipeline. The wire shall be installed on top of the 12-inch initial backfill and weighted at locations along the wire sufficient to prevent dislodgement during the backfilling process. The wire shall be accessible at valve boxes or at locator stations along the route of the pipeline, as shown on the Drawings.
- j. Concrete line markers shall be installed at property lines or at bends in the pipeline. Markers may be long markers or short markers as shown on the Drawings or as called for in these Specifications.
- k. Fiberglass line markers shall be installed at valve locations or at locations as shown on the Drawings. Fiberglass markers shall be Carsonite Utility Marker, Style No. 375, or approved equal. Markers shall be equipped with the OWNER'S standard logo.

3. Installing Water Pipe in Cover Pipe

- a. Installation of water pipe in cover pipe is covered in Section 02326 of these specifications.

B. Laying Ductile Iron Pipe

1. Bedding and Backfilling

- a. The laying condition shall be Type 3 specified in ANSI/AWWA C600. The pipe shall be bedded in 4 inches minimum loose soil

306-23-01 (06/2023)

and the hand placed loose soil backfill lightly consolidated to the top of the pipe. "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign materials and frozen earth.

- b. The selected material shall be hand placed to a point 12 inches above the barrel of the pipe. After the specified backfill is hand placed, rock may be used in machine placed backfill in pieces no larger than 8 inches in any dimension and to an extent not greater than 1/2 the volume of the backfill materials used.
- c. The top 12 inches of backfill shall contain no rock over 1-1/2 inches in diameter nor pockets of crushed rock.
- d. Larger rock fill will be allowed in wide trenches where side slopes are low enough to prevent rock from dropping over pipeline. If additional earth is required, it must be obtained and placed by the CONTRACTOR. Filling with rock and earth shall proceed simultaneously, in order that all voids be filled with earth.
- e. If select material is not available from the trench excavation, or if the CONTRACTOR so desires, he may use crushed stone bedding and backfill to the top of the pipe at no extra cost to the OWNER.
- f. Sufficient space, limited to a maximum of 2 feet length, shall be left out of the specified earth or crushed stone bedding to facilitate proper jointing of the pipe.

## 2. Installation of Pipe

- a. Ductile iron pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the pipe manufacturer. Sufficient copies of the manufacturer's installation instructions shall be furnished the ENGINEER to permit the ENGINEER to retain 3 copies. One copy shall be available at all times at the site of the work.
- b. All pipes must be forced and held together or "homed" at the joints before bolting. Pipe must be aligned as each joint is placed, so as to present as nearly true, straight lines and grades as practical, and all curves and changes in grades must be laid in such manner that 1/2 of the maximum allowable deflection shown in the pipe manufacturer's catalog is not exceeded.
- c. Concrete blocking of fittings shall be as specified hereinafter in this Specification Section 02610.
- d. Cutting of pipe may be done by special pipe cutters as the CONTRACTOR may elect, but the CONTRACTOR will be held responsible for breakage or damage caused by careless cutting or handling. Cut edges of the pipe shall be made smooth and a bevel



306-23-01 (06/2023)

formed on the exterior of the pipe barrel when using rubber gasket type pipe.

### C. Laying Copper Pipe and Fittings

#### 1. Bedding and Backfilling

- a. The pipe shall be bedded in 4 inches minimum of loose soil and the hand placed backfill lightly consolidated to a depth of 12 inches above the top of the pipe. "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign materials and frozen earth. The machine placed backfill may contain rock no larger than 8 inches in any dimension and to an extent no greater than half the volume of backfill materials used. The top 12 inches of backfill shall contain no rocks over 1-1/2 inches in diameter nor pockets of crushed rock.

#### 2. Installing Copper Pipe and Fittings

- a. Exterior copper pipe shall be laid of type K pipe, with brass compression fittings. Joints shall be neatly reamed and flared and joints drawn up firmly. Pipe shall have at least 30 inch cover. Joints shall be tested and all leakage stopped before backfilling the pipe trench.
- b. Interior copper pipe shall be installed of Type L pipe, with sweat joint fittings. Pipe shall be tested and all leaks stopped before the system will be accepted. The pipe shall be free of dents and bends. The sweat joints shall present a neat appearance. All pipe shall be parallel to walls and floors with unions on all runs and branches. The pipe shall be secured to the walls and ceilings by clamps and hangers manufactured for the purpose. Strap hangers are not acceptable. Unions and valves shall be placed on each outlet to facilitate dismantling and shutting off.
- c. All copper pipe shall be installed by experienced workmen.

### D. Installation of Flanged or Threaded Pipe and Fittings (Interior)

#### 1. Installation - General

- a. The CONTRACTOR shall thoroughly clean the pipe and fittings before starting erection. All scale, rust and dirt shall be removed by power brushing and/or solvent cleaning.
- b. The erection of piping requires that it progress from the equipment it is connected to, after the equipment has been accurately leveled and aligned, without putting a strain on same. The pipe shall be erected in a workmanlike manner with runs in the true horizontal or vertical plane or as shown on the Drawings.



306-23-01 (06/2023)

- c. The piping shall be supported by standard pipe hangers or piers rather than by the equipment. The pipe shall be free of all openings in walls and slabs when the final position of the piping is attained and before sealing the annular space about the pipe.

2. Flanged Joint Connection

- a. All flanged type connections shall be made using an acceptable gasket and bolts. The bolts shall be tightened evenly to compress the gasket. Care is to be taken not to distort the flanges and/or piping by overtightening the bolts. Final tightening of bolts shall be done with a properly adjusted torque wrench.

3. Threaded Joint Connection

- a. All threads shall be full, complete and made with sharp dies. The ends of the pipe shall be reamed to remove all burrs and all threads must be free of rust and other foreign matter at the time the joint compound is applied. Joint thread compounds must be acceptable to the ENGINEER before use.
- b. Pipe threads shall be tapered and in accordance with API Standard 5B. Not more than 3 threads at each joint may be exposed after the connection is made.
- c. Unions shall be included to allow for proper assembly and disassembly of each run of pipe. Provide a union on each run of pipe connecting to threaded valves, devices and equipment.

4. Interface with Other Products

- a. When a pipe transitions from ductile iron to pipe of another material, a transition fitting shall be used. The transition material shall be a dielectric material or insulator. For pressure applications above 20 psi the transition fitting shall be a Straub pipe joint, a Dresser type coupling, or equal. For low pressure or gravity applications, the transition fitting shall be a Straub pipe joint, a Dresser type coupling, a Fernco fitting, or equal. All transition couplings shall be approved by the ENGINEER prior to installation.

E. Laying Plastic Pipe

1. Bedding and Backfill

- a. The pipe shall be bedded in 4 inches minimum depth (for pipe sizes through 16 inches) of "loose soil" or "select material" meeting the requirements of Class II or III of ASTM D 2321. For pipe sizes greater than 16 inches in diameter, the pipe bedding shall be a minimum depth of one-fourth the pipe diameter or 6 inches minimum.

306-23-01 (06/2023)

- b. Similar material shall be used for haunching up to the spring line of the pipe and it shall be worked under the haunch of the pipe to provide adequate side support. The same material shall then be hand placed to a point 12 inches above the top of the pipe.
  - c. After the placement of each lift of the Class II or III bedding, haunching and initial backfill material, the material shall be compacted to 85 percent and/or 90 percent Standard Proctor Density, respectively.
  - d. The remaining backfill, except for the top 12 inches which shall contain no rock over 1-1/2 inch diameter nor pockets of crushed rock, may be excavated material containing no rock over 8 inches in any dimension. Larger rock will be allowed in wide trenches where side slopes are low enough to prevent rock from dropping over pipeline. If additional earth is required, it must be obtained and placed by the CONTRACTOR. Filling with rock and earth shall proceed simultaneously, in order that all voids may be filled with earth.
  - e. In trenches in solid rock or where flowing water is present, crushed stone bedding and backfill to 12 inches above the top of the pipe shall be substituted for the select material. Kentucky Department of Highways No. 9 stone shall be used for pipe up to 16 inches in diameter.
  - f. If select material is not available from the trench excavation, or if the CONTRACTOR so desires, he may use crushed stone bedding and backfill to a point 12 inches above the top of the pipe at no extra cost to the OWNER.
  - g. Sufficient space, limited to a maximum of 2 feet length, shall be left out of the bedding to facilitate proper jointing of the pipe.
  - h. No pipe shall be laid resting on solid rock, blocking, or other unyielding objects. Jointing before placing in the trench and subsequent lowering of more than one section may be allowed subject to the ENGINEER'S permission.
2. Installation of Polyvinyl Chloride (PVC) Pressure Pipe
- a. Prior to laying, all PVC pipe shall be stored in a shaded place for protection from the direct rays of the sun. Pipe shall be distributed from storage as the work progresses as permitted by the ENGINEER.
  - b. The pipe, fittings, and valves shall be placed in the trench with care. Under no circumstances shall pipe or other materials be dropped or dumped into the trench. The pipe shall not be dragged in a manner which would cause scratching of the pipe surface. An

306-23-01 (06/2023)

excessive amount of scratching on the surface of the pipe will be considered cause for rejection.

- c. Sufficient copies of the pipe manufacturer's instructions for installing the pipe and accessories shall be furnished the ENGINEER by the CONTRACTOR to permit the ENGINEER to retain 3 copies. A copy is to be available at the job site at all times.
- d. Concrete blocking of fittings, as hereinafter specified, shall be required for PVC pipe with slip joints and rubber gaskets.
- e. All dirt, dust and moisture shall be removed from the bell and spigot ends of pipes to be jointed. Insert gasket in bell. Apply the lubricant to spigot and gasket being careful to keep both ends free of dirt. The joint shall be homed to stop mark on spigot end of pipe. All jointing shall be done in accordance with pipe manufacturer's recommendations.
- f. All cutting of the pipe shall be done in a neat and workmanlike manner with the least amount of waste of pipe involved and without damage to existing or new lines. A fine tooth saw, tubing cutter or similar tool can be used to cut the pipe. Cut must be square and ragged edges removed with a cutting tool and/or file. A bevel or taper on the exterior of each spigot is required.

3. Installation of Polyethylene Pressure Pipe

- a. Polyethylene pipe for water lines or force mains shall be joined using tools and equipment specifically manufactured for use with polyethylene pipe. Heat fusion temperature, heating time and cooling time shall be per the pipe manufacturer's requirements. Pouring of water on completed joints to speed cooling will not be allowed.
- b. The pipe shall be snaked into the trench, employing the natural snaking tendency of the pipe. All short radius bends shall be made with fittings rather than bending the pipe. The pipe will be rejected if it contains kinks and gouges or gouges/cuts penetrating to a depth of 10 percent of the wall thickness.
- c. Sufficient copies of the pipe manufacturer's instructions for installing the pipe and accessories shall be furnished the ENGINEER by the CONTRACTOR to permit the ENGINEER to retain 3 copies. A copy is to be available at the job site at all time.
- d. Because of the high coefficient of expansion of polyethylene, the pipe shall not be attached to rigid structures at the ends until at least 48 hours have elapsed after backfilling and the pipe temperature has had an opportunity to stabilize.

4. Installing Polyethylene Pipe for Water Service

306-23-01 (06/2023)

- a. The pipe shall be bedded in 4 inches minimum of loose soil and the hand placed backfill lightly consolidated to a depth of 12 inches above the top of the pipe. "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign materials and frozen earth. The machine placed backfill may contain rock no larger than 8 inches in any dimension and to an extent no greater than half the volume of backfill materials used. The top 12 inches of backfill shall contain no rocks over 1-1/2 inches in diameter nor pockets of crushed rock.
- b. Polyethylene pipe for water services shall have the same outside diameter as copper tubing and shall be compatible for flared compression fittings. The joints to brass fittings shall be made by cutting the pipe with a tube cutter, keeping it clean and square, thence flaring the pipe and completing the joining in accordance with the manufacturer's instructions (a copy of the instructions shall be at the job site at all times). All joints shall be tested and all leakage stopped before backfilling the pipe trench.
- c. The pipe shall be snaked into the trench, employing the natural snaking tendency of the pipe. All short radius bends shall be made with fittings rather than with the pipe alone. The pipe shall be bent to a radius of not less than 12 inches.
- d. The pipe will be rejected if it contains kinks and gouges.

#### F. Installation of Water Service Accessories

##### 1. Water Service Meters

- a. Water service meters and accessories shall be installed as shown on the Drawings, with meter box centered over the meter.
- b. The location of water service connections will be determined in the field, as the work progresses, thereby necessitating the use of pipe saddles and the appropriate tapping equipment. Earth backfill shall be thoroughly tamped around meter boxes to prevent subsequent movement.

##### 2. Air Valves and Corporation Stops

- a. The location of air valve assemblies, while being noted on the Drawings, could possibly be shifted in actual construction. For this reason, the same statements relative to the methods of installation of meters and water service connections apply to the installation of air valve assemblies. Air valve assembly boxes shall be installed in the same manner as water meter boxes except that the box will be located slightly off center of the air valve, in order to give better access to the stopcock between the valve and water main.

306-23-01 (06/2023)

- b. Corporation stops, as shown on the Drawings, are required between the water main and the meter, and between the main and the air valve assembly.

#### G. Installation of Fire Hydrants

1. Fire hydrants shall be installed in the general location as shown on the Drawings. Exact location shall be determined in the field. Hydrants shall be set such that the lowest nozzle shall be high enough above the ground to allow the uninhibited 360 degree swing of a 15-inch hydrant wrench.
2. Hydrant drainage pits shall be excavated below the hydrant to the depth shown on the Drawings. Crushed stone drainage media shall be of the size shown on the Drawings. Hydrant shall be set vertical and anchored as hereinafter specified.
3. Hydrants installed on this project shall be anchored to prevent the hydrant from blowing off the feeder line when suddenly opened or closed. Likewise, the hydrant pilot valve shall be anchored to prevent blowoff when the hydrant is removed. The CONTRACTOR shall anchor the hydrant and pilot valve utilizing one of the following procedures:
  - a. Where the hydrant is located immediately adjacent to the water main, install all thread rods from the main line branch tee to the valve inlet and from the valve outlet to the mechanical joint of the hydrant inlet piece.
  - b. Provide locked mechanical joint and/or restrained joint piping from the main to the hydrant including the main line tee.
  - c. Use method a or b from the water main to the pilot valve and provide a concrete thrust block on the hydrant.
  - d. Method b may not be used when the hydrant feed line is PVC pipe.
4. The additional cost of providing all-thread rods, locked mechanical joint pipe and fittings, restrained joint pipe and fittings, and/or the concrete thrust block at the hydrant shall be included in the CONTRACTOR'S unit price bid for the hydrant.

#### H. Blocking of Pipe at Bends and Ends

1. Horizontal Bends
  - a. Concrete backing and/or blocking required at bends in the horizontal plane shall be accomplished per detail on the Drawings. The square footage of blocking area shall be obtained from Tables "A" and "B" through the following procedure:

Step No. 1 - From Table "A," select type soil and bearing area factor for particular fitting to be blocked.

306-23-01 (06/2023)

Step No. 2 - From Table "B," select multiplier to be used for the size pipe being blocked and its test pressure.

Step No. 3 - Calculate actual bearing area required by multiplying bearing area factor from Table "A" by multiplier from Table "B" (e.g. - 16 inch tee with 250 psi test pressure in sandy clay -  $9.42 \times 1.78 = 16.7$  S.F. of bearing area required). Bearing area shall in no case be less than the minimum shown in Table "B."

306-23-01 (06/2023)

TABLE "A"						
Type Soil	Soil Bearing Pressure (PSF)	Bearing Area Factor for Degree of Bend (Square Feet)				
		90°	Plug/Tee	45°	22 1/2°	11 1/4°
Sandy Clay	3,000	13.33	9.42	7.21	3.68	1.85
Hard Clay	6,000	6.66	4.71	3.61	1.84	0.92
Shale	12,000	3.33	2.36	1.80	0.92	0.46
Solid Rock	16,000	2.50	1.77	1.35	0.69	0.35

TABLE "B"								
Pipe Dia. (In.)	Min. Bearing Area (S.F.)	Multiplier for Pipe Test Pressure (TP)						
		(TP)	(TP)	(TP)	(TP)	(TP)	(TP)	(TP)
		350 psi	300 psi	250 psi	200 psi	150 psi	100 psi	50 psi
4	1.0	0.16	0.13	0.11	0.09	0.07	0.04	0.02
6	1.0	0.35	0.30	0.25	0.20	0.15	0.10	0.05
8	1.0	0.62	0.53	0.44	0.36	0.27	0.18	0.09
10	1.0	0.97	0.83	0.69	0.56	0.42	0.28	0.14
12	1.3	1.40	1.20	1.00	0.80	0.60	0.40	0.20
14	1.5	1.91	1.63	1.36	1.09	0.82	0.54	0.27
16	1.8	2.49	2.13	1.78	1.42	1.07	0.71	0.36
18	2.3	3.15	2.70	2.25	1.80	1.35	0.90	0.45
20	2.5	3.89	3.33	2.78	2.22	1.67	1.11	0.56
24	3.6	5.60	4.80	4.00	3.20	2.40	1.60	0.80
30	5.2	8.75	7.50	6.25	5.00	3.75	2.50	1.25
36	7.0	12.60	10.80	9.00	7.20	5.40	3.60	1.80
42	9.1	17.15	14.70	12.25	9.80	7.35	4.90	2.45
48	11.4	22.40	19.20	16.00	12.80	9.60	6.40	3.20
54	13.5	28.35	24.30	20.25	16.20	12.15	8.10	4.05
60	16.0	35.00	30.00	25.00	20.00	15.00	10.00	5.00

- b. Consideration will be given to the use of restrained type mechanical joint pipe and fittings in lieu of concrete blocking. Use of the restrained joint pipe and fittings is subject to review and acceptance by the ENGINEER of the locking-method and adequacy of design for pressures involved.
2. Vertical Bends

a. The use of vertical bends in lieu of extra depth trenching shall be subject to permission by the ENGINEER.

306-23-01 (06/2023)

- b. Where the CONTRACTOR elects to use vertical bends, or where vertical bends are called for on the Drawings, the CONTRACTOR shall submit the blocking design, including calculations, to the ENGINEER for review and acceptance. Anchorages shall be designed to resist thrusts caused by the internal test pressure in the pipe. Protection against corrosion shall be inherent in the design.

# I. Supplemental Backfilling Information

## 1. General

- a. Excavated materials from trenches, tunnels, and structure excavation in excess of quantity required for trench backfill or site regrade, shall be disposed of by the CONTRACTOR. It shall be the responsibility of the CONTRACTOR to obtain location or permits for its disposal. The price bid for trench excavation and backfill, or site excavation and regrade, shall include the cost of disposition of excess excavated materials, as set forth herein, with no additional compensation being allowed for hauling.
- b. For water line and sewage force main contracts where sod is destroyed in areas maintained equivalent to residence yards, it shall be replaced on slightly ridged backfill on trench, and where destroyed in areas adjacent to the trench, it shall be replaced by the CONTRACTOR with fresh sod, all of which will be paid for at a unit price bid per foot of pipeline. The timing of resodding shall be controlled by the ENGINEER. Ground shall be prepared and fertilized as herewith specified for seeded areas. In small patches, supplying of 3 inches of topsoil and raking may be substituted for disking.
- c. For plant or site based contracts, sodding shall be placed to the extent shown on the Drawings. Refer to Section 02930 of these Specifications for detailed instructions for the placement of sod. The cost for sodding of site based areas shall be included in the lump sum bid for the project.
- d. Where pastures, thin grass or cover crops are destroyed by trenching, laying, backfilling, or tunneling operations, surface shall be prepared by disking, fertilizing, and seeding, as specified in Section 02930. Seeding and fertilizing shall be included in the price for trenching and backfilling. The timing of this operation shall be controlled by the ENGINEER. Requirements of the Department of Highways for reseeding shall take precedence over these Specifications where they are involved.
- e. No extra charge shall be made for backfilling of any kind, except as specified. Backfilling shall be included as a part of the price for trenching. No extra charge shall be made for supplying outside materials for backfill except where fills above existing ground are



306-23-01 (06/2023)

necessary and payment is designated on Drawings or in Specifications. If backfilling of the trench or surface restoration is not properly completed, a proportionate part of the unit price for trenching shall be retained from payment estimates.

- f. Before completion of the Contract, all backfills shall be reshaped, holes filled, and surplus materials hauled away and all permanent walks, street, driveways, and highway paving and sod replacement (if such surface replacement items are included in the Contract) and reseeding performed.
- g. Backfill material must be uniformly ridged over trench, and excess hauled away. Ridged backfill shall be confined to the width of the trench and not allowed to overlap onto firm original earth, and its height shall not be in excess of needs for replacement of settlement of backfill.
- h. All rock, including crushed rock or gravel from construction, must be removed from yards and fields. Streets and walks shall be broomed to remove all earth and loose rock immediately following backfilling.

## 2. Special Requirements

- a. In case of street, highway, railroad, sidewalk and driveway crossings or within any roadway paving, or about manholes, valve and meter boxes located in such paving, the following backfill material and procedure is required.
- b. The pipe shall be bedded in 4 inches minimum depth (for pipe sizes through 16 inches) of crushed rock meeting the requirements of the Kentucky Department of Highways standard size No. 9. For pipe sizes greater than 16 inches in diameter, the pipe bedding shall be a minimum depth of 1/4 the pipe diameter and be of the material and gradation specified previously.
- c. Similar material shall be used for haunching up to the spring line of the pipe, and it shall be worked under the haunch of the pipe to provide adequate side support. The crushed rock shall then be hand placed to a point 12 inches above the top of the pipe.
- d. After the above bedding and selected backfill have been placed, fill trench to within 6 inches of the surface with Kentucky Department of Highways No. 57 crushed stone, uniformly distributed, or other gradation acceptable to the ENGINEER. In order to accommodate compacted temporary surfacing it may be necessary to bulkhead or otherwise confine the stone fill at the open end of the trench.
- e. Temporary surfacing of street, highway, railroad, sidewalk and driveway crossings, or within any roadway paving, or about manholes, valve and meter boxes located in such paving, shall

306-23-01 (06/2023)

consist of 6 inches compacted dense graded aggregate as specified under Section 02235 for temporary walkway or road surfacing, placed and compacted in the trench. Compaction shall be accomplished by methods which shall be sufficient to confine stone to the trench under normal traffic. Backfills shall be maintained easily passable to traffic at original paving level until acceptance of project or replacement of paving or sidewalks.

- f. Railroad Company and Department of Highways requirements in regard to backfilling will take precedence over the above general specifications where they are involved.

#### J. Cut-Ins, Tie-Ins, and Cutting and Plugging

1. The OWNER shall not be responsible for extra costs of cut-ins, tie-ins, cutting and plugging, due to water not being entirely cut off by the existing water main valves.
2. A cut-in is defined as the removal of one section of existing pipeline (2 cuts of pipe) and insertion of one or more new pipeline connections therein.
3. A tie-in is defined as the removal of an existing plug or cap and the connecting of the new pipeline into the existing pipeline or fitting or valve at the joint opened by such removal.
4. A cutting and plugging is defined as the cutting and installation of a plug in an existing line.

### 3.03 FIELD QUALITY CONTROL

#### A. Testing Polyvinyl Chloride (PVC) Pressure Pipe During Construction Period

1. Prior to pressure testing the pipe shall be center loaded with backfill to prevent arching and whipping under pressure. Center loading shall be done carefully so that joints will be completely exposed for examination during testing unless conditions warrant complete backfill before testing.
2. During the general construction period the following pressure testing procedure shall be followed (on sections that can be separately isolated):
  - a. After the PVC pipe is assembled in the trench a test of not more than 30 percent above the system's anticipated working pressure shall be applied with either air or water. After 2 consecutive tests have been performed without any failure, the CONTRACTOR at his option and with the ENGINEER'S permission may discontinue testing until the system is completed. Testing shall then be performed as outlined herein in this Section.

306-23-01 (06/2023)

B. Testing Water and Sewage Force Main Piping for Leakage

1. 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.
2. Prior to testing, the line shall be filled with water and any entrapped air in the line removed. This may be accomplished at a service tap for water service or air release valve. In any case, the CONTRACTOR shall be responsible for removal of air from the system at no additional cost to the OWNER.
3. 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, the ENGINEER, at his discretion, may accept the line or section as being tested, or he may require the test run the full 24 hours.
4. At the end of the 24 hour test period, the pressure shall be recorded. If there is a drop in pressure, the CONTRACTOR will be required to pump the section being tested up to initial test pressure and maintain that pressure for 24 hours, measuring the amount of water required to accomplish this. The line will not be accepted until the leakage shall prove to be less than 10 gallons per inch diameter per mile of pipe per 24 hours. The 24 hour test shall be charted by timed pressure recorder.
5. Should there be leakage over the allowable amount, the CONTRACTOR will be required to locate and repair the leaks and retest the section.
6. If the leakage of a section of pipeline being tested is below the allowable amount, but a leak is obvious, in the opinion of the ENGINEER, due to water at the surface of the ground, or any other means of determining a leak, the CONTRACTOR will be required to repair those leaks.
7. The CONTRACTOR shall furnish meter and 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.
8. Inspection of pipe laying shall in no way relieve the CONTRACTOR of the responsibility for passing tests or correcting poor workmanship.

C. Disinfection (Water Mains and Services)

1. Upon completion of the work and cleaning up, and prior to final acceptance, the CONTRACTOR shall disinfect all water lines constructed which are to carry treated water.

306-23-01 (06/2023)

2. Prior to starting disinfection, all water mains must be thoroughly flushed to remove mud, rocks, etc. Disinfection will then be accomplished by the adding of a 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.
3. The calcium hypochlorite granule or tablet method shall not be used. The placement of small amounts of disinfectant material in the main during construction will not be allowed.
4. 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. At the end of the 24 hour contact period, all the sterilized surfaces and areas shall be thoroughly flushed from the water system. 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, as given in AWWA C651, are sulfur dioxide, sodium bisulfate, sodium sulfite, and sodium thiosulfate.
5. For tie-ins to an existing system such as tapping valves or direct cut-in, disinfection shall, at the ENGINEER'S discretion, consist of thoroughly cleaning the new part(s) with a solution containing not less than 200 mg/l (ppm) chlorine.
6. After initial disinfection and flushing, the OWNER will collect water samples for bacteriological testing. A core zone, which includes up to the first 1/2 mile, shall be established. Two samples shall be taken from the core zone. Additionally, 1 sample taken from each mile of new distribution main shall be taken for analysis. 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.
7. The new water main(s) shall not be accepted by the OWNER for operation until the above sterilization procedures have been completed. The cost of sterilization/dechlorination procedures shall be incorporated into the CONTRACTOR'S unit price and/or lump sum bid, as the case may be.

306-23-01 (06/2023)

### 3.04 BASIS OF PAYMENT

#### A. Excavation and Backfilling

1. Trenching, Laying, and Backfilling Pipelines
  - a. Unit Price Contracts
    - (1) Payment for trenching and backfilling for pressure lines shall be included in the unit price bid for furnishing and installing the pipe, measured by the linear feet installed, including fittings and accessories length.
  - b. Lump Sum Contracts
    - (1) The CONTRACTOR'S lump sum bid shall include all costs for trenching, laying and backfilling pipelines.
2. Solid Rock Excavation
  - a. Classified Excavation
    - (1) Rock excavation shall be paid for at an extra unit price per cubic yard for extra cost of its excavation over that for excavating earth. Therefore, its quantity will not be subtracted from earth excavation quantities.
  - b. Unclassified Excavation
    - (1) Excavation shall be unclassified and the cost of all excavation of whatever nature and state, including solid rock, shall be included in the CONTRACTOR'S unit price bid for each item of construction requiring excavation or included in the lump sum bid for such type contracts.
3. Search and Extra Depth Trench Excavation
  - a. "Search" trench excavation shall be the actual measured excavation within limits as acceptable to the ENGINEER.
  - b. "Extra Depth" trench excavation shall be the calculated yardage below the lowest point of excavation which would normally have been required for construction.
  - c. Trench width limitations for either condition shall be as listed in the following table:

306-23-01 (06/2023)

For 6" Pipe 2'-6"	For 16" Pipe 2'-11"	For 36" Pipe 5'-6"
For 8" Pipe 2'-9"	For 18" Pipe 3'-2"	For 42" Pipe 6'-0"
For 10" Pipe 2'-9"	For 20" Pipe 3'-5"	For 48" Pipe 6'-6"
For 12" Pipe 2'-9"	For 24" Pipe 3'-8"	For 54" Pipe 7'-0"
For 14" Pipe 2'-9"	For 30" Pipe 4'-4"	

- d. The work of uncovering and backfilling required for locating existing sewers, water lines and other existing facilities for avoidance in location of proposed pipelines where such uncovering and backfilling is not within trench for improvements, shall be paid for at a price per cubic yard for such excavation actually removed and backfilled under item for "Search or Extra Depth Trench Excavation." Such payment does not include uncovering existing utility lines for their protection during or after trenching operations for the proposed pipeline.
- e. Where pipelines, force mains and sewers are laid in the same trench, the CONTRACTOR shall receive full trenching and backfill unit prices for each pipeline, force main and sewer so laid, the same as if laid in widely separated trenches.

#### 4. Mechanical Tamping

- a. Mechanical tamping is defined as backfill placed and compacted by power driven mechanical equipment to a greater density than can be achieved by natural settlement or hand tamping methods. Mechanical tamping will be required when ordered by the ENGINEER with payment by the cubic yard so compacted. Measurement, but not actual extent of the mechanical tamping, shall be limited by the numerical maximum allowable trench width (for each size pipe) as shown in the table listed under "Search and Extra Depth Trench." Payment for mechanical tamping shall not include the specified bedding, haunching, or initial backfill required above and below the top of pipe.

### B. Tunneling, Boring or Jacking

#### 1. Permanent Tunnels

- a. The payment for permanent tunnels shall be the length measured along its centerline from the entrance face on one side to the exit face on the other side of the tunnel. Payment per linear foot for each size tunnel shall include excavation, tunnel liner, pressure grouting, tunnel subgrade, closure plates and backfilling, complete.

306-23-01 (06/2023)

2. Temporary Tunnels

- a. Payment for temporary tunnels shall be made per linear foot based on the measured distance along the centerline of tunnel from the inlet face on one side to the outlet face on the other side of the tunnel. Payment shall include all excavation, backfilling and all sheeting and shoring of tunnel, regardless of whether removed.

3. Boring or Jacking

- a. In unit price Contracts, usable holes either bored or jacked shall be paid for per linear foot of hole actually bored or jacked, according to the diameter of the hole required, measured along the centerline from the point of entrance on one side to the point of exit on the other side. When cover pipe is installed inside the bore, boring or jacking and cover pipe shall be paid per linear foot based on the length of the cover pipe installed, according to the diameter of the cover pipe required.

C. Trench and Pipe Stabilization

1. Extra Excavation

- a. Extra excavation required for trench or pipe stabilization shall be paid by the cubic yard so excavated under the item "Search and/or Extra Depth Trench Excavation" based on the limitations for that item.

2. Crushed Stone for Trench Stabilization

- a. Crushed stone ordered by the ENGINEER for trench stabilization shall be as specified in Section 02235 of these Specifications and paid by the ton so placed.

3. Crushed Stone for Pipe Bedding

- a. Additional crushed stone bedding ordered by the ENGINEER for pipe stabilization shall be as specified in Section 02235 of these Specifications and paid by the ton so placed.

4. Plain or Reinforced Concrete Arch

- a. Plain or reinforced concrete arch called for on the Drawings and/or ordered by the ENGINEER shall be paid for by the linear foot of pipeline upon which it is placed. The Form of Proposal will indicate which method is to be used.

5. Plain or Reinforced Concrete Cradle

- a. Plain or reinforced concrete cradle called for on the Drawings and/or ordered by the ENGINEER shall be paid for by the linear foot so placed.

306-23-01 (06/2023)

D. Water Lines or Sewage Force Mains

1. Unit Price Contracts

a. Water Lines or Sewage Force Mains

- (1) Payment for furnishing, trenching, bedding, laying, and backfilling water lines or force mains shall be included in the unit price bid per linear foot of pipe laid, including length of fittings and valves, unless same are included in lump sum portions or assemblies noted on the Drawings. However, payments will not be made for branch lengths of fittings within 2.5 feet of edge of main trench. The extra cost of trenching in difficult locations, such as stream, railroad, and highway crossings, if not covered in other contract unit prices, shall be included in unit price for furnishing, trenching, bedding, laying, and backfilling the pipe.
- (2) All blowoff or vent branches will be measured as pipe from center of connecting tee to end of pipe.
- (3) In the case of unit price contracts, ductile iron fittings, laid outside lump sum assemblies, will be included in the unit price bid per linear foot of pipe laid, including the length of fittings and valves, for the pipe in which the fitting is installed. If stated otherwise in the Special Conditions, ductile iron fittings, laid outside lump sum assemblies, will be paid for by the pound of body castings, without joint accessories, at the weights listed in ANSI/AWWA C110/A21.10 or ANSI/AWWA C1534/A21.53 in the case of ductile iron compact fittings.

2. Lump Sum Contracts

- a. All work shall be included in the CONTRACTOR'S lump sum bid.

E. Gas Lines

1. Unit Price Contracts

a. Gas Lines

- (1) Payment for furnishing, trenching, bedding, laying, and backfilling gas lines shall be included in the unit price per linear foot of pipe laid, including length of fittings and valves. However, payments will not be made for branch lengths of fittings within 2.5 feet of edge of main trench. The extra cost of trenching in difficult locations, such as stream, railroad, and highway crossings, if not covered in other contract unit prices, shall be included in unit price for trenching, laying, and backfilling.



306-23-01 (06/2023)

2. Lump Sum Contracts

- a. All work shall be included in the CONTRACTOR'S lump sum bid.

F. Excess Materials

1. The unit prices for trench excavation, tunneling and backfill shall include the cost of disposition of excess excavated materials.

G. Valves

1. The unit price bid for the installation of valves shall include valve boxes, the cost of the concrete collar required around the valve boxes and extension stems if required.

H. Testing and Purging

1. The unit price bid for installing pressure lines shall include cleaning, purging, and testing the line.

I. Blocking of Bends and End of Pipe

1. The payment for blocking of bends and ends of pipes shall be included in the price bid for furnishing and laying the pipe.

J. Disinfection and Dechlorination

1. The required disinfection of pipelines followed by disposal of the chlorinated water used in the disinfection process shall be included in the price bid for furnishing and laying the pipe.

K. Tracing Wire or Tape

1. The cost of tracing wire or tape installed with nonmetallic pipe shall be included in the price bid for furnishing and installing the pipe.

**END OF SECTION**

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02610-41

306-23-01 (06/2023)

SECTION 03301  
CAST-IN PLACE CONCRETE  
(MINOR STRUCTURES)

PART 1 GENERAL

1.01 SUMMARY

- A. This specification delineates the requirements for cast-in place concrete for minor structures including concrete kickers for pipe blocking, sidewalks, collars, manholes, manhole bottoms, pipe cradles, piers and other areas where small quantities of concrete are required. It shall not be used for major structures such as floor slabs, structure or basin walls, roof slabs, or other structural components.

1.02 SCOPE OF WORK

- A. Provide all labor, material, equipment and services to complete all cast-in-place concrete work required by the Project as shown on the Drawings or specified herein.

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 185	Specification for Steel, Welded Wire, Fabric, Plain, for Concrete Reinforcement
ASTM A 497	Specification for Welded Deformed Steel Wire Fabric for Concrete Reinforcement
ASTM A 615/A615M	Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 616/A616M	Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A 617/A617M	Specification for Axle-Steel Deformed and Plain End Bars for Concrete Reinforcement
ASTM A 706/A706M	Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement
ASTM C 33	Specification for Concrete Aggregates
ASTM C 150	Specification for Portland Cement

306-23-01 (06/2023)

ASTM C 260      Specification for Air-Entraining Admixtures for Concrete

ASTM C 494      Specification for Chemical Admixtures for Concrete

#### 1.04 SUBMITTALS

- A. Copies of all materials required to establish compliance with these Specifications shall be submitted in accordance with the provisions of the General Conditions.

#### 1.05 QUALITY ASSURANCE

- A. All work shall be performed to secure for the entire job homogeneous concrete having required strength, durability and weathering resistance, without planes of weakness and other structural defects and free of pronounced honeycombs, air pockets, voids, projections, offsets of plane and other defacements on exposed surfaces.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver ready-mixed concrete to job site until ready for placement.
- B. All materials used for on-site mixed concrete shall be kept clean and free from all foreign matter during transportation and handling and kept separate until measured and placed in the mixer.
- C. Store concrete aggregates to prevent contamination or segregation. Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground to avoid excessive rusting.
- D. Protect from contaminants such as grease, oil and dirt. Provide for accurate identification after bundles have been broken and tags removed.

#### 1.07 PROJECT/SITE CONDITIONS

##### A. Cold Weather

- 1. Provide and maintain 50 degrees Fahrenheit minimum concrete temperature. Do not place concrete when ambient temperature is below 40 degrees Fahrenheit. Cover concrete and provide with a source of heat sufficient to maintain 50 degrees Fahrenheit minimum while curing.

##### B. Hot Weather

- 1. Concrete temperature from initial mixing through final cure shall not exceed 90 degrees Fahrenheit. Cool ingredients before mixing, or substitute chip ice for part of required mixing water or use other suitable means to control concrete temperature to prevent rapid drying of newly placed concrete. Shade the fresh concrete and start curing as soon as the surface is sufficiently hard to permit curing without damage.

306-23-01 (06/2023)

PART 2 PRODUCTS

2.01 CONCRETE

A. Mix Design

- 1. The concrete mix shall conform to the requirements of the following table according to the class of concrete required. The number in the "Class" column refers to the 28-day compressive strength of the concrete in pounds per square inch (psi).

Class	Minimum Cement Content (Lbs./Cu. Yd.)	*Maximum Slump (Inches)
3000	470	3 to 4
3500	520	3 to 4
4000	550	3 to 4

\* Maximum slump unless high range water reducing admixture is used.

B. Area of Application

- 1. Unless otherwise noted on the Drawings, concrete mixes shall be used as follows:  
  
Class 3000 - kickers for pipe, fittings  
Class 3500 - non-reinforced portions of manholes, pipe cradles  
Class 4000 - reinforced portions of manholes, sidewalks, piers

2.02 MATERIALS

A. Cement

- 1. Portland cement for concrete and mortar shall conform to ASTM C 150, Type I or II.

B. Water

- 1. Water shall be potable.

C. Aggregates

- 1. Aggregates shall conform to ASTM C 33. Obtain aggregates from one source. Aggregates shall not contain any substance which may be deleteriously reactive with the alkalis in the cement.

D. Admixtures

- 1. Admixtures for air-entrained concrete shall conform to ASTM C 260, for water reducing (Type A, D or E) accelerating (Type C) and retarding (Type B or D) ASTM C 494. Calcium chloride shall not be used as an admixture.

306-23-01 (06/2023)

Admixtures shall not be used without prior written approval of the ENGINEER.

E. Reinforcement

1. Reinforcing Bars

- a. Reinforcing bars shall conform to ASTM A 615/A615M Grade 60, ASTM A 616/A616M Grade 60, ASTM A 617/A617M Grade 60 or ASTM A 706/A706M Grade 60 as applicable.

2. Welded Wire Fabric

- a. Welded wire fabric shall conform to ASTM A 497 or ASTM A 185.

**PART 3 EXECUTION**

3.01 FORMS

- A. Forms shall be used to confine concrete and shape it to the required dimensions. Set forms true to line and grade and make mortar tight. Chamfer above grade exposed joints, edges and external corners 3/4-inch, unless otherwise indicated. Earth cuts may be used as forms for footing vertical surfaces, if sides are sharp and true, and not exposed in finished structure.

3.02 PLACING REINFORCEMENT AND MISCELLANEOUS MATERIALS

- A. Provide bars, wire fabric and other reinforcing materials, including wire ties, supports and other devices necessary to install and secure the reinforcement.

3.03 CONTROL AND CONSTRUCTION JOINTS

- A. For sidewalks, provide control joints spaced at an interval equal to the width of the sidewalk, the minimum spacing of 5 feet. Cut joints 1 inch deep with a jointing tool after the surface has been finished. Provide 0.5-inch thick transverse expansion joints at changes in direction, where sidewalk abuts curb, steps, rigid pavement or other similar structures; space joints not more than 40 feet apart. Limit variation in cross section to 1/4-inch in 5 feet.

3.04 CURING AND PROTECTION

- A. Protect concrete from injurious action by sun, wind, rain, flowing water or mechanical injury. Do not allow concrete to dry out from time of placement until the expiration of the curing period. Forms may be removed 48 hours after concrete placement.

**END OF SECTION**

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306-23-01 (06/2023)

## **SECTION 03480**

### **PRECAST CONCRETE SPECIALTIES**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. All items supplied for use on this project shall be as specified herein.

##### **1.02 RELATED WORK**

- A. Concrete specifications are included in Section 03300.
- B. Castings are specified in Section 05540.
- C. Connecting piping is specified in Section 02610 and Section 02700.

##### **1.03 REFERENCES**

- A. Where referenced specifications (ASTM, ACI, PCI, etc.), are mentioned, these standards are deemed to be the minimum standard of quality of materials or methods to apply to this project.

##### **1.04 SUBMITTALS**

- A. Shop drawings shall be submitted in accordance with Section 00700.

##### **1.05 QUALITY ASSURANCE**

- A. The precast fabricator shall be qualified in accordance with PCI MNL-116 - Manual for Quality Control for plants and production of precast concrete products.

##### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Handle precast members in position consistent with their shape and design. Lift and support members only at such designated points.
- B. Provide temporary lateral support during storage as necessary to prevent bowing and warping. Temporary lateral devices shall be clean, non-staining and shall not inhibit uniform curing of exposed surfaces.
- C. Protect edges of members from chipping or spalling.
- D. Mark units with date of production and final position in structure.

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Concrete materials including cement, water, sand and coarse aggregate shall conform to ACI 301-84 (Revised 1988).

306-23-01 (06/2023)

- B. Reinforcing steel and prestressing wire and strand shall conform to ACI 301-84 (Revised 1988).
- C. Initial Drawings shall be sent through the general CONTRACTOR to the ENGINEER in 3 copies for checking and return to the general CONTRACTOR in 2 copies.
- D. Final Drawings shall be sent to the ENGINEER through the general CONTRACTOR in 5 copies for conformance and return in 3 copies.

## 2.02 PRECAST MANHOLES AND ACCESSORIES

### A. Precast Reinforced Concrete Manhole Walls and Slabs

- 1. Precast reinforced concrete manhole walls and cone tops shall be of tongue-and-groove type conforming to ASTM C 478-80. Cone tops may be of concentric or eccentric configuration. Top slabs for manholes shall conform to details on the Drawings and to ASTM Designation C 478-80. All precast slabs shall be clearly marked "TRAFFIC" or "NONTRAFFIC" and "TOP" or "BOTTOM." Prior to use of precast reinforced concrete wall sections and top and bottom slabs, shop drawings covering details of construction including accessories shall be submitted to the ENGINEER for review.
- 2. Precast manholes with "knock-out panels" **for pipe entry are not acceptable.**

### B. Manhole Adjustment Rings

- 1. Manhole frame adjustment rings shall be precast concrete rings for use between the top slab or top of cone and the manhole frame. Maximum allowable adjustment shall be 6 inches.

### C. Mortar Materials

- 1. Portland Cement
  - a. Any standard brand, conforming to ASTM Specification C 150-81, Type 1, same as specified for concrete.
- 2. Sand
  - a. First quality, clean, natural Kentucky River or Ohio River sand. When dry, 100 percent shall pass a No. 8 sieve and not more than 35 percent shall pass a No. 50 sieve, and conforming to ASTM Standard Specification C 144-81.

### D. Preformed Elastic Rope Joint Fillers

- 1. Gasket-type sealant to fill tongue-and-groove joints at top of precast manhole bases and between barrel sections shall be preformed, flexible, watertight, designed for specific joint requirements and meet Federal Specification SS-S-00210 and AASHTO M-198. Sealant shall be Con-Seal manufactured by Concrete Sealants, Inc., New Carlisle, Ohio or Ram-Nek

306-23-01 (06/2023)

manufactured by K.T. Snyder Co., Inc., Houston, Texas, or equal. Primers, if required by manufacturer, shall be supplied by the sealant manufacturer.

**E. Pipe Entry Seal**

1. Pipes entering manholes shall be attached by a rubberized entry seal. The seal shall encircle the pipe snugly for the prevention of groundwater leakage into or sewage leakage out of the manhole. The seal shall be of the boot type with stainless steel clamps. The manufacturer of the seal shall certify that the seal material is compatible with the pipe material used on the project.
2. Boot seal shall be flexible of premolded EPDM (ASTM C 923) with stainless steel expanding snap-ring inserted into cored hole of manhole barrel and exterior stainless steel ring to clamp boot around pipe, Kor-N-Seal as manufactured by Trelleborg Engineered Systems, Milford, New Hampshire, or equal.
3. Where manhole is located in soils subject to petroleum or carbon materials, the pipe entry seal shall be of "nitrile" rubber material.

**F. Steps**

1. Manhole steps shall be cast into the manhole wall at intervals of not more than 15 inches where depths of manholes are greater than 4 feet unless otherwise shown on the Drawings.

**G. Waterproofing Admixture**

1. A waterproofing admixture such as Xypex Admix C-1000, Kryton KIM HS, or equal, shall be added to the concrete for manholes and wetwells during batching operations to provide waterproofing and improved chemical resistance. The Xypex Admix C-1000 or equal shall be added at 3.5 percent including dye to the required weight of Portland cement or as recommended by the admixture manufacturer. The amount of cement shall remain the same and shall not be reduced on account of the addition of the waterproofing admixture. The colorant shall be added at the waterproofing manufacturing plant.

**PART 3 EXECUTION**

**3.01 PRECAST MANHOLE CONSTRUCTION**

**A. General**

1. Manhole construction will not be permitted under conditions where there is danger of freezing or when materials are frozen. Manholes shall be protected from freezing weather for a period of at least 48 hours after construction.

**B. Excavation**



306-23-01 (06/2023)

1. Excavation for manholes, control chambers and interceptor structures shall be made of sufficient width to adequately accommodate all work and proper centering. Depth of excavation shall extend sufficiently to accommodate the type of manhole provided. Where a poured concrete base is used, the excavation must be of sufficient depth to allow for a minimum of 3 inches between the bottom of the lower pipe opening and bottom of manhole barrel and an 8 inch thickness for the poured concrete base. Where a precast concrete base is used, whether as a separate unit or integral with the bottom barrel section, the excavation shall be such to allow for a 12 inch depth crushed stone sub-base when in earth or a 9 inch depth crushed stone sub-base when in rock, below the bottom of the precast concrete base.
2. The cost for excavation of these structures is to be included in the linear foot price bid for trenching, backfill and structure unit price. Where the manhole subgrade is located in unstable material, the ENGINEER may order various methods of stabilization such as extra depths of crushed stone, concrete or other means as will prove effective. The CONTRACTOR will be paid for the extra work involved to stabilize the subgrade based on unit prices set up in the Contract unless instability is caused by the CONTRACTOR'S negligence. The limits for extra payment shall be from the elevation the CONTRACTOR would have had to complete based on the type of manhole base provided.

#### C. Manhole Installation

1. Manhole Base
  - a. Poured floor slabs of manholes shall be of Class 3,500 concrete according to Section 03300, and shall be placed ahead of sewer laying to avoid displacement of sewer ends while placing concrete. The part of the concrete slab under the manhole walls shall have a smooth trowel finish. Top of slab shall be 3 inches (or as shown on manhole details) below the lowest sewer invert grade. In sandy soils, a 6 mil polyethylene film shall be used under manhole slabs to prevent loss of moisture in concrete during placement.
  - b. Precast concrete base slabs will **be allowed based upon the ENGINEER'S** acceptance of the particular base slab provided. The general requirements for poured slabs shall also apply to precast slabs. Precast base slabs shall be placed on a crushed stone subgrade which has been leveled and compacted to the proper elevation. Crushed stone shall be DGA or Kentucky Department of Highways size 57 and shall be 12 inches in depth when on earth and 9 inches in depth when on solid rock.
  - c. Precast concrete manhole bottoms with accurately formed channels will be allowed as alternate to standard design, provided smooth surfaces and accurate levels, widths and slopes are obtained. The forms shall be constructed according to the angles and invert elevations obtained from the "stakeout" operation, and variation of forms more than  $\pm 2^{\circ}00'$  horizontally shall be cause for

306-23-01 (06/2023)

rejection. Changes in angles or elevations of manhole inverts, caused by relocation of a manhole after the original stakeout, shall be the responsibility of the CONTRACTOR if such relocation is necessitated by conflict with water, gas, drain or other utility lines or obstructions. Placement shall be as detailed for precast slabs above.

2. Manhole Barrel

- a. Manhole structure walls shall be constructed of precast concrete as shown on standard detail Drawings and as specified in this Section 03480. Barrels shall be accurately centered on the base slab as staked in the field.
- b. When poured or precast concrete base slabs are used, the first barrel section shall be seated in and sealed with cement mortar. Intermediate barrel sections may be seated in and sealed with cement mortar or rope joint filler both as specified in this Section. Where rope joint filler is used, it shall be placed on the outside lip of the tongue and groove barrel section. Where a primer or adhesive is to be used with the rope joint filler, it shall be that specified by the joint filler manufacturer. Precast concrete frame adjustment rings and cast iron frame shall set in a full bed of cement mortar.
- c. Precast barrel sections shall have steps cast in place or slots for steps left in place with steps to be located over the manhole outlet sewer pipe. Pipe openings shall be positioned to this arrangement. Likewise, eccentric corbel sections and precast top slabs with offset entrance shall be positioned on center with the manhole steps over the outlet sewer pipe.
- d. CONTRACTOR shall apply grout at all joints, to include joints between the manhole frame and the top of the manhole, in order to provide a smooth finished surface. Grout shall consist of 3 parts sand, 1 part Portland Cement, and sufficient water for hydration and placing, all meeting Section 03400 requirements for concrete materials.

3. Manhole Inverts

- a. Channels through manholes shall be formed of either split tiles, prefabricated forms, or hand finished of the same size as the sewer pipes connected.
- b. After the first barrel section has been set, the floor shall be brought up within 1 inch of the top of the sewer channels with crushed stone or broken brick ballast which shall be shaped to provide a slope of at least 3 inches from manhole sides to main sewer channels. One and one-half inches thickness of mortar proportioned by volume, 1 part Portland cement and 2 parts concrete sand in a damp, loose condition (80 pounds per cubic foot dry basis), shall be placed over the ballast. This shall be wood

306-23-01 (06/2023)

float finished to provide a smooth and well drained floor to the manhole channels.

- c. The completed channels shall provide a smooth, steady transition between manhole inlet and outlet pipes. Any roughness or ragged edges within the completed channel shall be corrected prior to acceptance of the manhole.
- d. CONTRACTOR shall apply grout around pipe inverts to provide a smooth finished interior surface in the manhole.

4. Manhole Drops

- a. For joining sewer lines at different levels, drop manholes shall be provided. The drop inlets shall be as shown on the standard details of the Drawings.

D. Backfill

- 1. Backfill shall be accomplished per the requirements for sewer backfill as specified in Section 02700.

E. Vacuum Testing

1. General

- a. All new manholes installed on this project shall be subjected to a vacuum test to determine the seal of all joints within the manhole. The vacuum test will not be required for existing manholes that are adjusted or partially reconstructed. The following test procedure is required for all new manholes:
  - (1) Lift holes shall be plugged with an approved nonshrinkable grout prior to testing.
  - (2) Drop connections shall be installed prior to testing.
  - (3) The manhole shall be finished and backfilled to design elevation prior to testing.
  - (4) The vacuum test shall include testing of the seal between the cast iron frame and top slab or cone section, slab, barrel sections, and/or grade rings.

2. Testing Procedure

- a. Temporarily plug (and brace) all pipes entering the manhole at least 8 inches into the sewer pipe. The plug shall be inflated at a location beyond the manhole/pipe gasket.
- b. The pressure gauge for the test hood shall be liquid filled, having a 3-1/2 inch face with scale reading from 0 to 30 inches of mercury.

306-23-01 (06/2023)

- c. The test head shall be placed inside the manhole frame and inflated according to the testing equipment manufacturer’s recommendations.
- d. A vacuum of 10 inches of mercury shall be drawn on the manhole. Upon reaching 10 inches of vacuum, close the valve on the vacuum line to the manhole and disconnect the vacuum line.
- e. For the manhole to be considered as having passed the vacuum test, the time for the vacuum reading to drop from 10 inches of mercury to 9 inches of mercury must be equal to or greater than the following values, as referenced in ASTM C 1244:

Minimum Test Times for Various Manhole Diameters

Depth	Diameter, in.								
(ft)	30	33	36	42	48	54	60	66	72
Time, s									
8	11	12	14	17	20	23	26	29	33
10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	46	51	57
16	22	24	39	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81
22	31	33	39	46	55	64	72	79	89
24	33	36	42	51	59	64	78	87	97
26	36	39	46	55	64	75	85	94	105
28	39	42	49	59	69	81	91	101	113
30	42	45	53	63	74	87	98	108	121

- f. Manholes failing the vacuum test shall be repaired with nonshrink grout or other suitable material and retested per the procedure shown previously.
- g. All temporary plugs and braces shall be removed after each test.
- h. The CONTRACTOR shall provide all equipment and labor required for vacuum testing of new manholes. The cost for this procedure shall be incorporated into the price bid for the manhole.

306-23-01 (06/2023)

F. Basis of Payment

1. Standard Manholes

- a. Payment for manholes shall be made by the unit price each bid for manholes 1.1 foot through 6.00 feet in height, measured from the lower invert of the manhole to the lowest side of top of the ring, with any height over 6.00 feet paid for at unit price bid per vertical foot measured and payment totaled to the nearest one-hundredth foot. Payment for manholes will include excavation, floor, barrel, top slap, all castings, sloped floor, pipe channels, weirs, orifices, and other accessories such as supports to connecting pipe, future connections and their channels (up to a maximum of 2 per manhole where not shown) and vacuum testing.

2. Drop Manholes

- a. Drops, where required, shall be paid for at a unit price each. The unit price shall include concrete beam from drop to original ground and all other items of cost.

**END OF SECTION**

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03480-8

306-23-01 (06/2023)

## SECTION 05540

### CASTINGS

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

- A. Provide all labor, materials, and equipment required to install castings as shown on the Drawings and specified herein. Included in this section are manhole covers, steps, valve boxes, hatch covers, and commemorative plaques.

##### 1.02 RELATED WORK NOT INCLUDED

- A. Concrete work is included in Division 3.
- B. Masonry work is included in Division 4.
- C. Surface preparation and finishing of castings is included in Division 9, Section 09900.
- D. Floor drains and roof drains are included in Division 15, Section 15400.
- E. Special cast valves are included in Division 15, Section 15101.

##### 1.03 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER, in accordance with Division 1, Section 00700, copies of construction details of castings proposed for use.

#### PART 2 MATERIALS

##### 2.01 GENERAL

- A. All castings shall be gray iron, conforming to the requirements of the ASTM Standards, Designation A 48-83, Class 35-B for manhole casting and class 20 for valve boxes.

##### 2.02 MANHOLE CASTINGS

###### A. Frames and Covers

- 1. Manhole castings shall consist of cast iron frames and 22-3/4 inch diameter covers. All manhole castings shall be designed for H-20 traffic loading. The frame shall be at least 7 inches high overall. Manhole covers must set neatly in the frame, with contact surfaces machined smooth for even bearing. The top of the cover shall be flush with the frame edge. The top of the cover shall have sufficient corrugations to prevent slipperiness and be marked in large letters "SANITARY SEWER" or "STORM SEWER" as applies. Covers shall have one or 2 pick holes only, about 1-1/2 inches wide and 1/2-inch deep with 3/8-inch square undercut at rear and 3/4-inch square undercut on sides. Covers on sanitary sewer manholes must not be perforated.

306-23-01 (06/2023)

**B. Steps**

1. Polypropylene plastic encapsulated steel manhole steps shall be of patterns shown on the detail Drawings, and have corrugated treads. In case of need for nonprotruding steps, shop drawings of special inset cast iron steps shall be reviewed by and be acceptable to the ENGINEER prior to use.
2. It is intended that the polypropylene plastic encapsulated steel step be M.A. Industries PS-1, PS-1 PF or equal.

**2.03 VALVE BOXES**

**A. Slide Type for Iron Body Gate Valves**

1. Valve boxes for sizes through 12-inch valves shall be the cast iron slide type, without screw, of sufficient length to allow for 30 inches of cover over the top of the pipe. The inner section shall have a minimum inside diameter of 5-1/4 inches with a hood type base that will cover the packing gland on valves through 12 inches in size (minimum of 8 inches inside diameter). The base of the top section shall be flanged at least 1-1/4 inches. The caps shall be circular with a corrugated surface and have pick holes in the periphery and be marked "Water," "Gas," "Sewer," or "Air" according to use. The valve boxes shall be Tyler Pipe/Utilities Division, 6855 Series, or equal.
2. For vertical valves larger than 12-inch size, provide Tyler Pipe/Utilities Division Series 6865 with No. 8 base, or equal.
3. Valve boxes for valves in the horizontal position shall be cast iron Tyler Pipe/Series 6855 or equal, with a base that is sized to allow covering of the bevel gear case and centering of the operating nut in the valve box.

**PART 3 EXECUTION**

**3.01 INSTALLATION OF CASTINGS**

**A. Installation In or On Structures**

1. The installation of castings is generally covered under specifications for pipe work and manholes. Castings shall be leveled, plumbed and secured before pouring concrete or attaching to masonry with solid, watertight, cement mortar joints.

**B. Installation on Buried Valves**

1. Valve box construction shall consist of the approved manufactured box and accessories. Line pipe shall not be accepted for use as valve boxes.
2. Mechanically tamp backfill, or backfill with crushed rock (per requirements of location - see Section 02610 of these Specifications) to

306-23-01 (06/2023)

the bottom of the packing gland of the operating nut. Install valve box base centered over operating nut.

3. Install valve box shafts, of the required height, and top section to proposed top elevation. Mechanically tamp backfill around box or backfill with crushed rock.
4. Place reinforced concrete collar around top section when shown on the Drawings.
5. Furnishing and installation of the valve box and accessories, including the concrete valve box collar, shall be included in the price bid for furnishing and installation of the valve.

**END OF SECTION**

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05540-3



306-23-01 (06/2023)

## **SECTION 15107**

### **WATER METERS, SERVICE VALVES, STOPS AND MISCELLANEOUS APPURTENANCES FOR WATER LINE PROJECTS**

#### **PART 1 GENERAL**

##### **1.01 WORK INCLUDED**

- A. Furnish all labor, materials, and accessories to install equipment required by the Project, shown on the Drawings or specified herein, including the following:
  - 1. Water service meters and accessories
  - 2. Backflow preventers
  - 3. Pressure regulating and relief valves for water services
  - 4. Blow-off hydrants
  - 5. Miscellaneous cocks and stops for water service

##### **1.02 RELATED WORK**

- A. Excavation, backfill, and grading are included in Division 2.
- B. Piping is included in the respective sections of Divisions 2 and 15.

##### **1.03 QUALITY ASSURANCE**

- A. All equipment and appurtenances shall be products of well established firms who are fully experienced, reputable, and qualified in the manufacture of the particular equipment to be furnished. All materials of construction shall be of an acceptable type and shall be designated for the pressure and temperatures at which they are to be operated, for the materials they are to handle and for the use for which they are intended. The materials shall meet established technical standards of quality and strength necessary to assure safe installations and conform to applicable standards. The equipment shall be designed, constructed, and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

##### **1.04 SUBMITTALS**

- A. Copies of all materials required to establish compliance with these Specifications shall be submitted in accordance with the provisions of Division 1, Section 00700 (00710).

306-23-01 (06/2023)

## **PART 2 PRODUCTS**

### **2.01 GENERAL**

- A. All meters, valves, stops, and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.

### **2.02 MISCELLANEOUS COCKS**

#### **A. Air Release Cocks**

- 1. Air release cocks shall be for 125 pound pressure, 1/2-inch, bronze plug and body, with handle operator. Air cocks shall be Crane No. 256 Tee Head, Lunkenheimer No. 1571, or equal.

### **2.03 MISCELLANEOUS STOPS**

#### **A. Corporation Stops and Accessories**

- 1. Corporation stops to be used with threaded pipe where connected into cast iron pipe, shall be brass ground joint type with AWWA CC or CS taper thread inlets and iron pipe thread outlets for threaded iron pipe. Stops shall be Mueller H-10045, H-9996, H-9966, Ford Type F-1600, or equal.
- 2. Corporation stops to be used with flared copper tubing where connected into ductile iron pipe, shall be brass ground joint type with AWWA CC or CS taper thread inlets and flared copper outlets and shall be Mueller 15050, Ford Type F-600, or equal.
- 3. Corporation stops to be used with plastic tubing where connected into ductile iron pipe shall be brass ground joint type with AWWA CC or CS taper thread inlets and compression connection outlets shall be Mueller H-15008, H-15009, H-15013, Ford F-1000, or equal.
- 4. Corporation stops installed in plastic (PVC or Pe) mains shall be attached and installed using a tapping saddle. For ASTM specification PVC pipe, the tapping saddle shall be a bronze, 2 section saddle for 2-inch through 8-inch size mains or a bronze, 3 section saddle for 10-inch and 12-inch mains, double strap, Mueller H-13420 through H-13435, Ford "Saddlestop," S-70, or equal. For AWWA specification PVC pipe (C-900) use Mueller H-16123 through H-16137, Ford S-90, or equal.
- 5. Corporation stops shall be factory tested to 250 psi to be compatible with the pipes in which they are installed.

#### **B. Curb Stops and Accessories**

- 1. Curb stops to be used with threaded pipe shall be brass inverted key round way with female threaded iron pipe connections for threaded iron pipe. Curb stops shall be Mueller H-10201, Ford, or equal.

306-23-01 (06/2023)

2. Curb stops to be used with copper pipe, with flared type connections, shall be Mueller H-15200, Ford, or equal.
3. Curb stops to be used with plastic pipe shall be brass inverted key round way with compression type connections. Curb stops shall be Mueller H-15207, Ford, or equal.
4. Furnish and install with each curb stop, a cast iron curb valve box, cast iron extension type with arch pattern base, with lid marked "WATER." Also furnish 2 tee wrenches, 4 feet in length, for operation of curb stops.

## 2.04 PRESSURE REGULATING AND PRESSURE RELIEF VALVES

### A. Water Pressure Reducing Valves

1. Pressure reducing valves for water service 3 inches and smaller shall be of the bronze body, renewable stainless steel seat type with threaded end connections. The device shall be rated for initial pressure up to 300 psi with an adjustable pressure range of 25 to 75 psi. The pressure reducing vales shall be Watts Regulator Series 22323 or equal.

### B. Pressure Relief Valves for Water Service

1. Pressure relief valves for water service shall be for sizes 1/2-inc h through 2-1/2 inches and shall have bronze bodies, stainless steel spindle, and shall be rated for 1 to 250 psi maximum pressure. The valves shall be Keckly No. 42, Lunkenheimer No. 658, or equal.

## 2.05 SPECIALTIES AND ACCESSORIES

### A. Strainers

1. Strainers for Water Service
  - a. Strainers shall be "Y" type with a body made of ASTM A 126-73 Class B steel, sizes 1/4 inch through 3 inches, rated at 250 psi steam pressure, with stainless steel screen and screwed ends. Strainers shall be Keckley style "B," Hoffman Series 410, or equal.

### B. Vacuum Breakers

1. Vacuum Breakers for Water Service
  - a. Vacuum breakers shall be designed to prevent back-siphonage of water lines. Valve types shall be either bottom inlet and side outlet, or top inlet and bottom outlet as required. Internal discs or floats shall be either plastic or silicone. Piping systems with solenoid-operated valves shall require a vacuum breaker with an "O" ring seal. Breakers shall be Sloan No. V-350-A, V-370-A, V-188-A, Wilkins, or equal.

306-23-01 (06/2023)

### C. Water Service Accessories

1. Reduced Pressure Principle Backflow Preventers
  - a. The reduced pressure principle backflow preventer shall be a complete assembly consisting of 2 independently acting springloaded toggle lever or poppet type check valves together with an automatically operating pressure differential relief valve located between the 2 check valves. The first check valve shall reduce the supply pressure a predetermined amount so that during normal flow and the cessation of normal flow, the pressure between the checks is less than the supply pressure. In the case of leakage of either check valve, the differential relief valve shall discharge to atmosphere to maintain the pressure between the checks at a level less than the supply pressure.
  - b. The unit shall include tightly closing ball type shutoff valves located at each end of the device, and shall be fitted with 4 properly located test cocks. Operation shall be completely automatic. All parts must be removable or replaceable without removal of the unit from the line. The total head loss through the complete backflow assembly shall not exceed 11 psi at rated flow.
  - c. The reduced pressure principle backflow preventer shall be in accordance with AWWA C506, ASSE 1013 and shall have prior approval of the Kentucky Natural Resources and Environmental Protection Cabinet. The assembly shall be Watts 909S or equal.
  - d. The reduced pressure principle backflow preventer on the fire protection line shall be as noted above except without a strainer, and the shutoff valves shall be OS & Y gate valves. The device shall have UL and Factory Mutual System approval for use on fire protection systems in addition to the above mentioned approvals. The assembly shall be Watts 909 or equal.
  - e. The reduced pressure principle backflow preventer shall be tested by a certified tester in accordance with the test procedure outlined in the Manual of Cross-Connection Control published by the Foundation for Cross-Connection Control and Hydraulic Research of U.S.C. in the presence of the ENGINEER'S representative. A report of the test results shall be furnished the OWNER and the ENGINEER.
  - f. An acceptable device installation must meet the requirements of this test.

306-23-01 (06/2023)

2. Double Check Valve Assembly

- a. The double check valve assembly shall be a complete assembly consisting of 2 independently acting spring loaded toggle lever or poppet type check valves mounted between 2 tightly closing ball type shutoff valves and 4 properly located test cocks.
- b. Each check valve shall be internally loaded and shall at all times be drip-tight in the normal direction of flow with the inlet pressure at 1 psi and the outlet under atmospheric pressure. Each check valve shall permit no leakage in a direction reverse to the normal flow under all conditions of pressure differential.
- c. Operation shall be completely automatic. All parts must be removable or replaceable without removal of the unit from the line.
- d. The double check valve assembly shall be in accordance with AWWA C506, ASSE 1015, and shall have prior approval of the Kentucky Environmental Protection Agency. The assembly shall be Watts 709 or equal.
- e. The double detector check valve assembly on the fire protection line shall be as noted above except without a strainer, and the shutoff valves shall be O, S, and Y gate valves. In addition, the device shall include a meter for the purpose of detecting leaks and/or unauthorized water usage. The device shall be UL listed and FM approved for use on fire protection lines in addition to the above mentioned approvals. The assembly shall be the Watts 709 DDC or equal.
- f. An acceptable device installation must meet the requirements of the test procedure for a double check valve assembly outlined in the Manual of Cross-Connection Control published by the Foundation for Cross-Connection Control and Hydraulic Research of U.S.C. The device shall be tested by the above mentioned procedure in the presence of the ENGINEER'S representative.
- g. A report of the test results shall be furnished the OWNER and the ENGINEER.

3. Pressure Vacuum Breaker

- a. The pressure vacuum breaker assembly shall be designed to prevent backsiphonage at a maximum working pressure of 150 psi. The assembly shall include an independently operating spring loaded check valve and independently operating spring loaded air inlet valve, and 2 quarter turn, full port, resilient seated bronze ball shut off valves. The assembly shall also include 2 properly located test cocks.

306-23-01 (06/2023)

- b. The body, valve seat, and bonnet shall be bronze. The hood shall be stainless steel and the vent and check valve discs shall be silicone rubber.
  - c. The pressure vacuum breaker assembly shall conform to ASSE 1020, and shall be Watts 800, or equal.
- 4. Atmospheric Vacuum Breaker
  - a. The atmospheric vacuum breaker shall be designed to prevent backsiphonage at a maximum working pressure of 125 psi. The device shall include a bronze body and silicone disc.
  - b. Atmospheric vacuum breaker shall conform to ASSE 1001, and shall be Watts 288 or equal.
- 5. Hose Connections Vacuum Breaker
  - a. Hose connection vacuum breaker shall be brass body with soft rubber disc suitable for interior or exterior use. Where used in areas subject to freezing a manual drainage feature is required.
  - b. The device shall conform to ASSE 1011, and shall be Watts Series 8, or equal.
- 6. Blow-Off Hydrant
  - a. For On-Site Installations
    - (1) Blow-off hydrant shall be a preassembled unit consisting of a cast iron, lockable box at ground level, housing the valve operating nut, and 2 inch NST outlet for hose connection. Hydrant shall be fitted with 3 inch ductile iron barrel of sufficient length to allow 30 inch bury. Inlet shall be 3 inch as shown on plans.
    - (2) Blow-off hydrant assembly shall be Eclipse No. 85 by the John C. Kupferle Foundry Co., or equal.
  - b. For Rural Locations
    - (1) The blow-off hydrant assembly shall consist of the blow-off tube with nozzle and cap, brass plunger and valve assembly with side inlet, traffic break-away coupling and ground level operating nut with locking cover.
    - (1) The blow-off hydrant assembly shall be No. 77 Mainguard Hydrant as manufactured by the John C. Kupferle Foundry Co., or equal.

D. Water Meters

306-23-01 (06/2023)

1. General

- a. Where OWNER has standardized on one particular make and model meter, and desires that they be furnished on this project, then such standard, make and model, namely Badger will govern.

2. Direct Drive Propeller Meter

- a. The direct drive propeller meter shall be designed to operate continuously at any flow rate within the rated range. Meter accuracy shall be  $\pm 2$  percent of rate at any flow from the minimum rating of 150 percent of maximum rating. The meter shall be wet flow calibrated against a primary standard, accurate to  $\pm 0.25$  percent or better traceable to the U.S. National Bureau of Standards. Two certified copies of the calibration taken at or near minimum flow rating, at mid-range and at the highest flow rate within the range attainable by the best facility, shall be furnished to the ENGINEER.
- b. The meterhead shall be mounted on a flange connection for ease of removal from the pipe for inspection or service. The meterhead shall consist of a steel overplate, bronze gear box, stainless steel, wetted working parts, and polyethylene propeller. The drive mechanism shall be by means of stainless steel gears and shafting. Meterheads that utilize flexible cable drives between the propeller and the readout device will not be accepted. The meterhead shall be equipped with a 6-digit straight-reading totalizer protected by an all metal register box and cover with locking hasp, as specified elsewhere herein.
- c. The meterhead shall be furnished with a flanged meter tube with integral straightening vanes. The tube and straightening vanes shall be fabricated of carbon steel with ANSI flanges. The tube and straightening vanes shall be lined with a 10 mil minimum coating of neoprene with the outside of the tube protected by the manufacturer's standard protective coating.
- d. The totalizer shall be furnished with all necessary mounting hardware for operation from the propeller meter. The instrument shall be housed in a NEMA 4 enclosure with glass viewing window and protective cover with locking hasp. The gears and shafting shall be manufactured of corrosion resistant metal. The input shaft speed shall not exceed 80 rpm. Change gears shall be replaceable without disassembly of the totalizer. Indication shall be displayed on a 3-1/4 inch diameter dial over a minimum arc of 220°. Indication shall be in engineering units of gallons per minute (gpm).
- e. Totalizer - The totalizer shall be 6 digit straight-reading with test sweep hand, one rotation of which shall be equal to the least significant digit of the totalizer.

306-23-01 (06/2023)

3. Turbine Meter

- a. The turbine meter shall have a bronze maincase and hermetically sealed register, with inlet and outlet flanges. The rotor shall be equipped with dual outboard bearing supports, providing equalized rotor loading for accuracy over a broad flow range. The rotor shall be direct coupled to the gear train to prevent slippage during fast starts and line surges, assuring accurate registration. It shall be suitable for cold water measurement up to 80 degrees Fahrenheit with flow in one direction. A strainer shall be furnished and installed ahead of the meter.
- b. The turbine meter shall be the "Trident" series as manufactured by NEPTUNE, Hersey, Fischer & Porter, or equal.

4. Compound Meter

- a. Compound meter shall consist of a combination of a current mainline turbine meter for measuring high rates of flow and a positive displacement bypass meter for measuring low rates of flow. An automatic valve shall direct the flow from the bypass meter to the mainline meter as the flow rate increases, and back to the bypass meter as the flow decreases. Registers shall be graduated in U.S. gallons.
- b. Compound meters shall be Hersey Model MCT Magnetic Drive or equal.

5. Positive Displacement Meter

- a. Meter shall be disc or piston type positive displacement with a straight reading dial graduated in U.S. gallons, oil enclosed or hermetically sealed gear train, hard rubber bushing, copper or stainless steel strainers, bronze disc socket or measuring chamber and main case. Hard rubber disc/ball or piston, and brass hermetically sealed register, change gears and diaphragm. Meters shall be capable of withstanding 150 psi water working pressure.
- b. The meters shall be Hersey Nutating Disc, Census, Badger, Neptune Meter Company, or equal.

6. Meter Settings (Residential)

- a. Meter setters shall be copper, riser type with stabilizing rod, vertical inlet and outlet with angle stop on the inlet. The outlet shall be provided with end connection designed for applicable service pipe.

7. Meter Box (Residential)

- a. The meter and valve box shall be a precast concrete or a high density polyethylene box 24 inches deep. The box shall be able to



306-23-01 (06/2023)

withstand 1,200 pounds compression. The cover shall be equipped with a reader lid.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. All water meters, miscellaneous water service valves, stops, and appurtenances shall be installed in locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the ENGINEER before they are installed.
- B. All meters in boxes or vaults shall be located so that they may be easily read and serviced.
- C. After installation, all valves and appurtenances shall be tested at least 1 hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the ENGINEER.
- D. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Equipment which does not operate easily, or is otherwise defective, shall be repaired or replaced at no additional cost to the OWNER.
- E. Blow-off hydrants shall be set at the locations as shown on the Drawings and bedded on a firm foundation.
- F. If directed, the hydrant shall be tied to the pipe with suitable rods or clamps, galvanized, painted, or otherwise rustproof treated. Concrete used for backing shall be no leaner than 1 part cement, 2-1/2 parts sand, and 5-1/2 parts stone.

#### **3.02 INSPECTION AND TESTING**

- A. The various pipelines in which the specified equipment is to be installed is specified to be field tested. During these tests any defective equipment shall be adjusted, removed and replaced, or otherwise made acceptable to the ENGINEER.
- B. Various meters regulating valves, strainers, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.

**END OF SECTION**

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*N O T I C E*

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS 404  
NATIONWIDE 14 PERMIT AUTHORIZATION  
KENTUCKY DIVISION OF WATER 401 WQC

4-10-2023

PROJECT: Washington County, Item No. 4-396.2  
US-150 Safety Improvements

The Section 404 & 401 activities for this project have been previously permitted under the authority of the Department of the Army Nationwide Permit No. 14 “Linear Transportation Projects” & Division of Water General Water Quality Certification. In order for these authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of this Nationwide Permit & General WQC in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

Station 31+50.00	Extend a 24” culvert on an U.T. of Cartwright Creek. The <b>ephemeral</b> stream will have impacts below the normal high-water mark. The estimated area of impact is <b>20 linear feet</b> and <b>0.0001</b> acres.
Station 36+75.00	Extend an 8’X5’ reinforced concrete box culvert on an U.T. of Cartwright Creek. The <b>intermittent</b> stream will have impacts below the normal high-water mark. The estimated area of impact is <b>50 linear feet</b> and <b>0.01</b> acres.
Station 83+75.00	Extend a triple 12’X11’ reinforced concrete box culvert on Parker Run. The <b>intermittent</b> stream will have impacts below the normal high-water mark. The estimated area of impact is <b>80 linear feet</b> and <b>0.02</b> acres.
Station 119+70.00	Extend an 8’x5’ reinforced concrete box culvert on an U.T. of Parker Run. The <b>intermittent</b> stream will have impacts below the normal high-water mark. The estimated area of impact is <b>100 linear feet</b> and <b>0.02</b> acres.

This project involves work near and/or within Jurisdictional Waters of the United States as defined by the United States Army Corps of Engineers and therefore requires a Nationwide 14 General 404 Permit. The Division of Water certified this General Permit with several conditions (See attached). One that should be brought to your attention is regarding the use of heavy equipment in the stream channel. If there is need to cross the stream channel with heavy

equipment or conduct work from within the stream channel a working platform or temporary crossing is authorized. This should be constructed with clean rock and sufficient pipe to allow stream flow to continue unimpeded (see attached typical drawing).

In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Nationwide Approval in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Division of Environmental Analysis. If such changes necessitate further permitting, then the contractor will be responsible for applying to the Army Corps of Engineers and the Kentucky Division of Water (KDOW). A copy of any request to the Corps of Engineers or the KDOW to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.



ANDY BESHEAR  
GOVERNOR

REBECCA W. GOODMAN  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

ANTHONY R. HATTON  
COMMISSIONER

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601

## **General Certification--Nationwide Permit # 14 Linear Transportation Projects**

This General Certification is issued **December 18, 2020**, in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33 U.S.C. §1341), as well as Kentucky Statute KRS 224.16-050.

For this General Certification and all General Certifications of Nationwide Permits (NWP), the term 'surface water' is defined pursuant to 401 KAR Chapter 10, Section 1(72): Surface Waters means those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered to be surface waters of the Commonwealth.

As required by 40 CFR Part 121 – State Certification of Activities Requiring a Federal License or Permit, all conditions include a statement explaining why the condition is necessary to assure that any discharge authorized under the general permit will comply with water quality requirements and a citation to federal, state, or tribal law that authorizes the condition. The statements and citations are included with each condition. The statements are written entirely at the end of the certification under the section *Statements of Necessity*.

Agricultural operations, as defined by KRS 224.71-100(1) conducting activities pursuant to KRS 224.71-100 (3), (4), (5), (6), or 10 are deemed to have certification if they are implementing an Agriculture Water Quality Plan pursuant to KRS 224.71-145.

For all other operations, the Commonwealth of Kentucky hereby certifies under Section 401 of the Clean Water Act (CWA) that it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 306 and 307 of the CWA, will not be violated for the activity covered under NATIONWIDE PERMIT 14, namely Linear Transportation Projects, provided that the conditions in this certification are met. Activities that do not meet the conditions of this General Certification require an Individual Section 401 Water Quality Certification.

**General Certification--Nationwide Permit # 14**  
**Linear Transportation Projects**  
**Page 2**

1. Activities occurring within surface waters assessed by the Kentucky Division of Water as designated Outstanding State Resource Waters, National Resource Waters, Cold Water Aquatic Habitat, Exceptional Waters, or identified as candidate Outstanding State Resource Waters or candidate Exceptional Waters are not authorized under this General Certification and require an Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(1), Section 1(2), & Section 1(3); and 401 KAR 10:031, Section 4(2) & Section 8]
2. Activities impacting surface waters assessed by the Kentucky Division of Water as impaired for warm water or cold water aquatic habitat where the parameter or source is related to habitat\* are not authorized under this General Certification and require an Individual Certification. [Statement B and citations KRS 224.70-110 and 401 KAR 10:031, Section 2 & Section 4]  
  
\*These include waters impaired by the parameter 'habitat assessment', 'combined biota/habitat bioassessment' or any parameter from the parameter group 'habitat alterations, and/or waters where the parameter identified as a cause of impairment has a source from the source group 'habitat impacts'.
3. Activities impacting surface waters assessed by the Kentucky Division of Water as full support for warm water or cold water aquatic habitat are not authorized under this General Certification and require an Individual Certification. [Statements A and B and citations KRS 224.70-110 and 401 KAR 10:031, Section 2 & Section 4]
4. The activity will not occur within surface waters identified as perpetually-protected mitigation sites (e.g., deed restriction or conservation easement). [Statement C and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3); and 40 C.F.R. 230.97]
5. Activities with cumulative temporary and permanent impacts greater than 1/2 acre of wetland or 300 linear feet of surface waters are not authorized under this General Certification and require an Individual Certification. This General Certification shall not apply to projects where multiple Nationwide Permits are issued for individual crossings which are part of a single, larger transportation projects. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
6. For complete linear transportation projects, all impacts shall not exceed a cumulative length of 500 linear feet within each Hydrologic Unit Code (HUC) 14. [401 KAR 10:030 and 401 KAR 10:031]
7. Stream realignment greater than 100 feet is not authorized under this General Certification and require and Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

**General Certification--Nationwide Permit # 14**  
**Linear Transportation Projects**  
**Page 3**

8. Surface water impacts covered under this General Certification and undertaken by those persons defined as an agricultural operation under the Agricultural Water Quality Act must be completed in compliance with the Kentucky Agricultural Water Quality Plan (KAWQP). [Statements A and F and citations KRS 224.71-145(1), 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
9. Any crossings must be constructed in a manner that does not impede natural water flow. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
10. The use of creek rock for bank stabilization; grouted rip-rap; unformed, poured grout; unformed, poured concrete; poured asphalt; or asphalt pieces is not authorized under this General Certification and requires an Individual Certification. Poured concrete or grout will be authorized under this General Certification when contained by tightly sealed forms or cells. Equipment shall not discharge waste washwater into surface waters at any time without adequate wastewater treatments. [Statement A and citations 401 KAR 10:030, Section 1(3)(b) & 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
11. New stormwater detention/ retention basins constructed in surface waters or modifications to stormwater detention/ retention basins resulting in the reduction in reach or that cause impairment of flow of surface waters are not authorized under this General Certification and require an Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
12. Erosion and sedimentation pollution control plans and Best Management Practices (BMPs) must be designed, installed, and maintained in effective operating condition at all times during construction activities so that violations of state water quality standards do not occur. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
13. Sediment and erosion control measures, such as check-dams constructed of any material, silt fencing, hay bales, etc., shall not be placed within surface waters, either temporarily or permanently, without prior approval by the Kentucky Division of Water's Water Quality Certification Section. If placement of sediment and erosion control measures in surface waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in such a manner that may result in instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control devices shall be removed and the natural grade restored within the completion timeline of the activities. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]



**General Certification--Nationwide Permit # 14**  
**Linear Transportation Projects**  
**Page 4**

14. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering surface waters. [Statements A and D and citations. [KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
15. Removal of riparian vegetation shall be limited to that necessary for equipment access. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
16. To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
17. Heavy equipment (e.g., bulldozers, backhoes, and draglines), if required for this project, should not be used or operated within the stream channel. In those instances in which such in-stream work is unavoidable, then it shall be performed in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
18. Any fill shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If rip-rap is utilized, it should be of such weight and size that bank stress or slump conditions will not be created because of its placement. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
19. If domestic water supply intakes are located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when such work will be done prior to construction. [Statement E and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
20. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling (800) 928-2380. [Statement A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
21. The Kentucky Division of Water requires submission of a formal application for any federal applicant that is not required to submit a Preconstruction Notification that would typically be required of any non-federal applicant. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

**General Certification--Nationwide Permit # 14**  
**Linear Transportation Projects**  
**Page 5**

22. The Kentucky Division of Water may require submission of a formal application for an Individual Certification for any project that has been determined to likely have a significant adverse effect upon water quality or degrade surface waters so that existing uses of the water body or downstream waters are precluded. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
23. If the final issued General Permit for Nationwide Permit 14 Linear Transportation Projects changes significantly, the Division of Water may opt to deny certification for this permit. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

Statements of Necessity:

- A. This condition is necessary to protect waters categorized under the anti-degradation policy to protect the designated and existing uses and to maintain the associated water quality criteria necessary to protect these water resources.
- B. This condition is necessary to protect existing uses and the level of water quality necessary to protect those existing uses shall be assured in impaired water.
- C. This condition is necessary for long-term protection of compensatory mitigation sites.
- D. This condition is necessary to provide for the prevention, abatement, and control of all water pollution and to conserve water resources for legitimate uses, safeguard from pollution the uncontaminated waters, prevent the creation of any new pollution, and abate any existing pollution.
- E. This condition is necessary to protect domestic water supply use.
- F. This condition is necessary to evaluate, develop, and improve best-management practices in conservation plans, compliance plans, and forest stewardship management plans; establish statewide and regional agriculture water quality plans; and otherwise promote soil and water conservation activities that protect surface waters from the adverse impacts of agriculture operations within the Commonwealth.

**Violation of Kentucky state water quality standards may result in civil penalties and remediation actions.**

For assistance contact the Kentucky Division of Water, Water Quality Certification Section by email ([401WQC@ky.gov](mailto:401WQC@ky.gov)) or by phone (502)-564-3410.





# 2021 Nationwide Permit Summary

US Army Corps  
of Engineers  
Louisville District ®

Issued: February 25, 2022  
Expires: March 14, 2026

## No. 14. Linear Transportation Projects

(NWP Final Rule, 86 FR 73522)

Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, driveways, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge of dredged or fill material cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge of dredged or fill material cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize

non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge of dredged or fill material in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404).

**Note 1:** For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

**Note 2:** Some discharges of dredged or fill material for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

**Note 3:** For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The

district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

### Nationwide Permit General Conditions

**Note:** To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United

States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other

fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct

management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate

documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7

consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district

engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The

district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential

to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must



include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands

adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more

than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district

engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWP, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure

timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in

the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not

authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

\_\_\_\_\_  
(Transferee)

\_\_\_\_\_  
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an

NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

**32. Pre-Construction Notification.** (a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the

permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed activity;
- (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
- (4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any

other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many



wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

#### **D. District Engineer's Decision**

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the

NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not

practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no

work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

#### **E. Further Information**

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

#### **F. Nationwide Permit Definitions**

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of

water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not

a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWP, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For

the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of

the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal

interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a “water of the United States.” If a wetland is adjacent to a waterbody determined to be a water of the United

States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).



## **2021 KENTUCKY REGIONAL GENERAL CONDITIONS**

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

Notifications for all Nationwide Permits (NWP) shall be in accordance with General Condition No. 32.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWPs listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs for impacts to these waters.

NWP 3 (Maintenance)

NWP 4 (Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities)

NWP 5 (Scientific Measurement Devices)

NWP 6 (Survey Activities)

NWP 12 (Oil or Natural Gas Pipeline Activities)

NWP 13 (Bank Stabilization)

NWP 14 (Linear Transportation Projects)

NWP 15 (U.S. Coast Guard Approved Bridges)

NWP 16 (Return Water from Upland Contained Disposal Areas)

NWP 17 (Hydropower Projects)

NWP 18 (Minor Discharges)

NWP 19 (Minor Dredging)

NWP 20 (Response Operations for Oil or Hazardous Substances)

NWP 22 (Removal of Vessels)

NWP 23 (Approved Categorical Exclusions)

NWP 25 (Structural Discharges)

NWP 30 (Moist Soil Management for Wildlife)

NWP 32 (Completed Enforcement Actions)

NWP 33 (Temporary Construction, Access, and Dewatering)

NWP 36 (Boat Ramps)

NWP 41 (Reshaping Existing Drainage Ditches)

NWP 51 (Land-Based Renewable Energy Generation Facilities)

NWP 57 (Electric Utility Line and Telecommunications Activities)

NWP 58 (Utility Line Activities for Water and Other Substances)

2. In addition to the notification and agency coordination requirements in the NWPs, for impacts greater than 0.25 acres in all “waters of the U.S.” for the NWPs listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWPs:

NWP 3 (Maintenance)  
NWP 14 (Linear Transportation Projects)

3. Nationwide Permit No. 14 – Linear Transportation Projects.

- (a) New road alignments or realignments are limited to a permanent loss of 500 linear feet of intermittent or perennial stream length or the stream bed acreages listed in the table below at each crossing. Road crossings with permanent losses greater than 500 linear feet of intermittent or perennial stream or the stream bed acreages listed in the table below associated with new alignments or realignments will be evaluated as an individual permit (i.e., a Letter of Permission or Standard Permit).

Table of Acreages at Varying Stream Widths for 500 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 500 Linear Feet of Stream
1	0.011
2	0.023
3	0.034
4	0.046
5	0.057
6	0.069
7	0.080
8	0.092
9	0.103
10	0.115

- (b) In addition to the notification requirements contained in NWP 14, the permittee must submit a PCN to the district engineer prior to commencing the activity for the permanent loss of greater than 300 linear feet of stream bed or the stream bed acreages listed in the table below. (See General Condition 32 and the definition of "loss of waters of the United States" in the Nationwide Permits for further information.)

Table of Acreages at Varying Stream Widths for 300 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 300 Linear Feet of Stream
1	0.007
2	0.014
3	0.021
4	0.028
5	0.034
6	0.041
7	0.048
8	0.055
9	0.062
10	0.069

4. Notification in accordance with General Condition 32 is required to the Corps for all activities located in the following Section 10 waterways, to include the portion of their tributaries below the Ordinary High Water Mark or navigation pool, or otherwise subject to inundation, by the Section 10 waterway:
  - Mississippi River
  - Ohio River
  - Licking River
  - Kentucky River
  - Salt River
  - Green River
  - Cumberland River
  - Tennessee River
  - Big Sandy River (from mouth to Louisa, KY)
5. All applications and requests should be submitted electronically. To submit applications or other requests electronically, all documents should be saved as a PDF document, and then submitted as an attachment in an email to the following email address:

[CELRL.Door.To.The.Corps@usace.army.mil](mailto:CELRL.Door.To.The.Corps@usace.army.mil)

Your email should include the following:

- a) Subject Line with the name of the applicant, type of request, and location (County and State). Example: RE: Doe, John, DA Permit Application, Jefferson County, KY
- b) Brief description of the request and contact information (phone number, mailing address, and email address) for the applicant and/or their agent.



c) Project Location: Address and Latitude/Longitude in decimal degrees (e.g. 42.927883, -88.362576).

All forms that require signature must be digitally signed or signed manually, scanned and then sent electronically.

Electronic documents must have sufficient resolution to show project details. In order to have the highest quality documents, the original digital documents should be converted to PDF rather than providing scanned copies of original documents.

The electronic application and attached documents must not exceed 10 megabytes (10MB).

6. For all activities, the applicant shall review the U.S. Fish and Wildlife Service's IPaC website: <http://ecos.fws.gov/ipac> to determine if the activity might affect threatened and/or endangered species or designated critical habitat. If federally-listed species or designated critical habitat are identified, a PCN in accordance with General Condition 18 and 32 would be triggered and the official species list generated from the IPaC website must be submitted with the PCN.

Further information:

Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: <http://eppcapp.ky.gov/spwaters/>

Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky's Threatened, Endangered, and Federal Candidate Species can be found at the following link: <http://www.fws.gov/frankfort/EndangeredSpecies.html>

Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 32 in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

**COORDINATING RESOURCE AGENCIES**

Chief, Wetlands Regulatory Section  
U.S. Environmental Protection Agency  
Region IV  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303

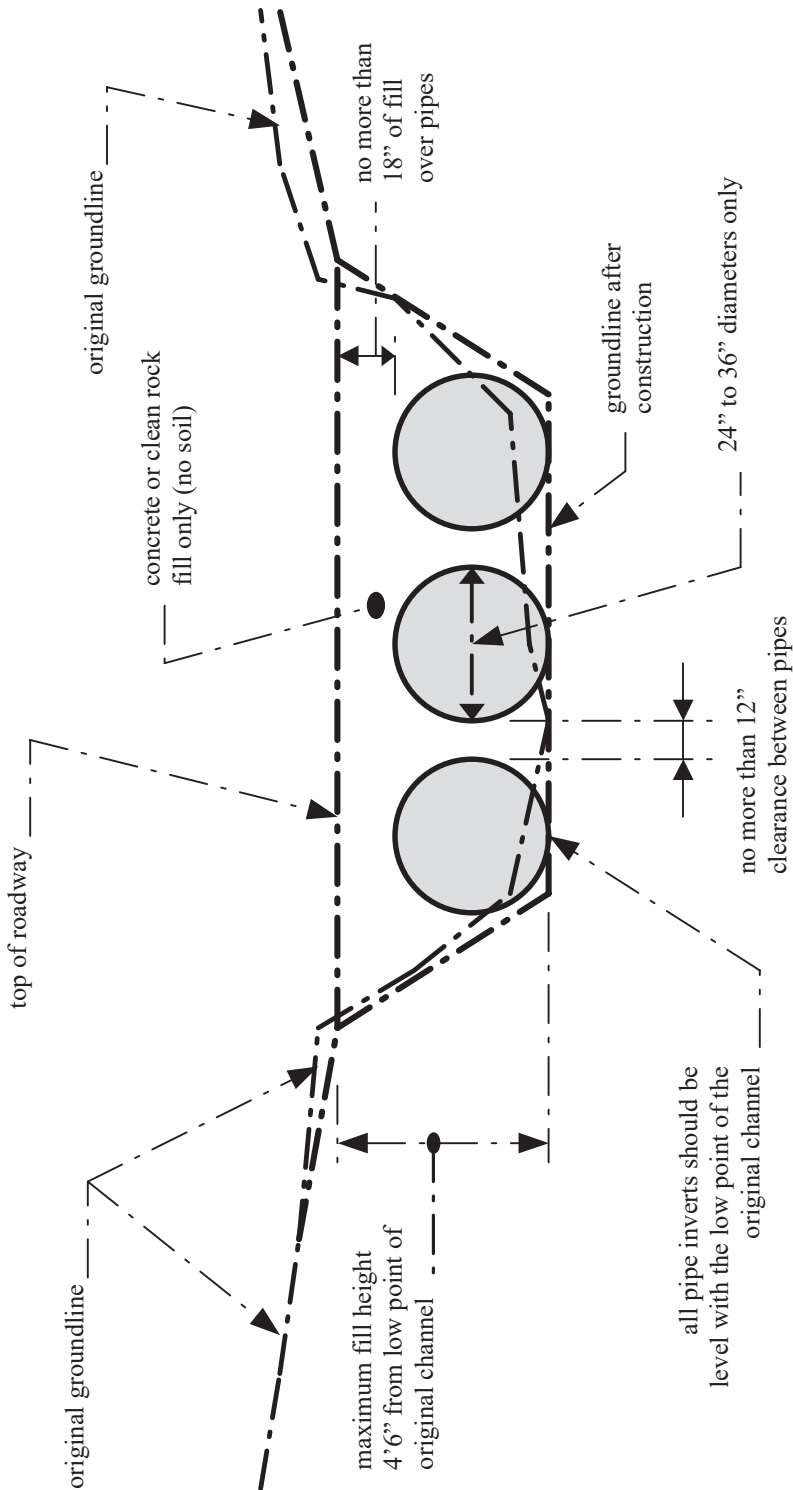
Supervisor  
U.S. Fish & Wildlife Service  
JC Watts Federal Building, Room 265  
330 West Broadway  
Frankfort, Kentucky 40601

Supervisor  
401 Water Quality Certification  
Kentucky Division of Water  
300 Sower Boulevard, 3<sup>rd</sup> Floor  
Frankfort, KY 40601

Commissioner  
Department of Fish and Wildlife Resources  
#1 Sportsman's Lane  
Frankfort, KY 40601

Executive Director and State Historic Preservation Officer  
Kentucky Heritage Council  
410 High Street  
Frankfort, KY 40601

ATTACHMENT 1



NOTES:

1. This is a conceptual drawing. The number and size of pipes and other details will vary depending on specific site conditions.
2. The pipes and backfill must be contained within the stream channel as shown above. During the construction of the approaches and access roadway across the floodplain, unstable and unconsolidated materials unsuitable for roadways may be excavated and replaced with riprap, crushed stone, or other stable road construction materials. This may only be done, however, with the following provisions: (1) the disposal of excess, unconsolidated materials thus excavated must be outside of the floodplain and (2) the finished surface of the completed road may be no more than three inches (3") above the pre-construction surface of the floodplain at any point beyond the top of banks.

LOW-WATER CROSSING

STANDARD DRAWING  
Not to Scale

KyTC BMP Plan for Project CID ## - #####



**Kentucky Transportation Cabinet**

**Highway District 4**

**And**

**\_\_\_\_\_ (2), Construction**

**Kentucky Pollutant Discharge Elimination System**

**Permit KYR10**

**Best Management Practices (BMP) plan**

**Groundwater protection plan**

**For Highway Construction Activities**

**For**

**IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM  
WEST OF OLD FREDERICKTOWN-BARDSTOWN ROAD (KY-1872)  
THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336).**

**Project: CID ## - #####**

## KyTC BMP Plan for Project CID ## - #####

### Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, District \_\_ (1)
2. Resident Engineer: (2)
3. Contractor name: (2)  
Address: (2)  
  
Phone number: (2)  
Contact: (2)  
Contractors agent responsible for compliance with the KPDES permit requirements (3):
4. Project Control Number (2)
5. Route (Address)  
US 150
6. Latitude/Longitude (project mid-point) dd/mm/ss, dd/mm/ss  
37.759722  
-85.316389
7. County (project mid-point)  
Washington
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

## KyTC BMP Plan for Project CID ## - #####

### A. Site description:

1. Nature of Construction Activity (from letting project description)

IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN-BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336). Order of major soil disturbing activities (2) and (3)

2. Projected volume of material to be moved

449,332 CU YD

3. Estimate of total project area (acres)

46.85

4. Estimate of area to be disturbed (acres)

46.85

5. Post construction runoff coefficient will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information. (1)

6. Data describing existing soil condition

Existing soil to be excavated is roadway embankment or rock cut

7. Data describing existing discharge water quality (if any) (2)

No existing Water quality data exist

8. Receiving water name (1)

Cartwright Creek and Parker Run

9. TMDLs and Pollutants of Concern in Receiving Waters:

No TMDL Streams

10. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and

## KyTC BMP Plan for Project CID ## - ####

resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

### 11. Potential sources of pollutants:

The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

## B. Sediment and Erosion Control Measures:

1. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.

Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as "Do Not Disturb" until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP's shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA's as the work progresses. All DDA's will have adequate BMP's in place before being disturbed.
3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

## KyTC BMP Plan for Project CID ## - #####

- Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
- At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.
- Clearing and Grubbing – The following BMP's will be considered and used where appropriate.
  - Leaving areas undisturbed when possible.
  - Silt basins to provide silt volume for large areas.
  - Silt Traps Type A for small areas.
  - Silt Traps Type C in front of existing and drop inlets which are to be saved
  - Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
  - Brush and/or other barriers to slow and/or divert runoff.
  - Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
  - Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
  - Non-standard or innovative methods.
- Cut & Fill and placement of drainage structures - The BMP Plan will be modified to show additional BMP's such as:
  - Silt Traps Type B in ditches and/or drainways as they are completed
  - Silt Traps Type C in front of pipes after they are placed
  - Channel Lining
  - Erosion Control Blanket
  - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
  - Non-standard or innovative methods
- Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
  - Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
  - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
  - Additional Channel Lining and/or Erosion Control Blanket.



## KyTC BMP Plan for Project CID ## - #####

- Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
- Special BMP's such as Karst Policy
- Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
  - Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
  - Permanent Seeding and Protection
  - Placing Sod
  - Planting trees and/or shrubs where they are included in the project
- BMP's including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are : No permanent BMPs are being proposed.

## C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

### 2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

### 3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Section Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when

## KyTC BMP Plan for Project CID ## - #####

appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

### 4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

#### ➤ **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

#### ➤ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

**The following product-specific practices will be followed onsite:**

#### ➤ **Petroleum Products:**

## KyTC BMP Plan for Project CID ## - ####

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

### ➤ **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

### ➤ **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

### ➤ **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

### ➤ **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

## KyTC BMP Plan for Project CID ## - #####

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

### **D. Other State and Local Plans**

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

### **E. Maintenance**

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.
- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.
  - Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post

## KyTC BMP Plan for Project CID ## - #####

construction storm water management with specific guidance for any non-routine maintenance. (1)

### F. Inspections

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have successfully completed the KEPSC-RI course as required by Section 213.02.02 of the Standard Specifications for Road and Bridge Construction, current edition.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 50 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

## KyTC BMP Plan for Project CID ## - ####

### G. Non – Storm Water discharges

It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

- Water from water line flushings.
- Water form cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

### H. Groundwater Protection Plan (3)

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

\_\_\_\_\_ 2. (e) land treatment or land disposal of a pollutant;

\_\_\_\_\_ 2. (f) Storing, ..., or related handling of hazardous waste, solid waste or special waste, ..., in tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

\_\_\_\_\_ 2. (g) .... Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

\_\_\_\_\_ 2. (j) Storing or related handling of road oils, dust suppressants, ....., at a central location;

KyTC BMP Plan for Project CID ## - #####

\_\_\_\_\_ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

\_\_\_\_\_ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

\_\_\_\_\_ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

- (a) General information about this project is covered in the Project information;
- (b) Activities that require a groundwater protection plan have been identified above;
- (c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
- (d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
- (e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
- (f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections
- (g) Certification (see signature page.)



## Contractor and Resident Engineer Plan certification

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

## Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed \_\_\_\_\_ title \_\_\_\_\_  
 Typed or printed name<sup>2</sup> signature

(3) Signed \_\_\_\_\_ title \_\_\_\_\_,  
 Typed or printed name<sup>1</sup> \_\_\_\_\_ signature \_\_\_\_\_

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.



KyTC BMP Plan for Project CID ## - #####

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:  
Address:  
Address:

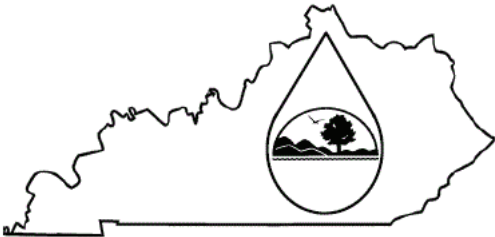
Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed \_\_\_\_\_title\_\_\_\_\_, \_\_\_\_\_  
Typed or printed name<sup>1</sup>signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.



KENTUCKY POLLUTION DISCHARGE  
ELIMINATION SYSTEM (KPDES)



Notice of Intent (NOI) for coverage of Storm Water Discharge  
Associated with Construction Activities Under the KPDES Storm  
Water General Permit KYR100000

Click here for Instructions  
(Controls/KPDES\_FormKYR10\_Instructions.htm)

Click here to obtain information and a copy of the KPDES General Permit.  
(<http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf>)

(\*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field

Reason for Submittal:(*) Application for New Permit Coverage	Agency Interest ID: Agency Interest ID	Permit Number:(✓) KPDES Permit Number
If change to existing permit coverage is requested, describe the changes for which modification of coverage is being sought:(✓) 		
ELIGIBILITY: Stormwater discharges associated with construction activities disturbing individually one (1) acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one (1) acre or more of disturbance.		
EXCLUSIONS: The following are excluded from coverage under this general permit: 1) Are conducted at or on properties that have obtained an individual KPDES permit for the discharge of other wastewaters which requires the development and implementation of a Best Management Practices (BMP) plan; 2) Any operation that the DOW determines an individual permit would better address the discharges from that operation; 3) Any project that discharges to an Impaired Water listed in the most recent Integrated Report, §305(b) as impaired for sediment and for which an approved TMDL has been developed.		
SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE)		
Company Name:(✓) KYTC District 4	First Name:(✓) Bradley	M.I.: MI
Last Name:(✓) Bottoms		
Mailing Address:(*) 634 East Dixie Ave	City:(*) Elizabethtown	State:(*) Kentucky
Zip:(*) 42701		
eMail Address:(*) bradley.bottoms@ky.gov	Business Phone:(*) 2707665066	Alternate Phone: Phone
SECTION II -- GENERAL SITE LOCATION INFORMATION		
Project Name:(*) 24-XXXX - US 150 Improvements	Status of Owner/Operator(*) State Government	SIC Code(*) 1611 Highway and Street Consti
Company Name:(✓) KTYC District 4	First Name:(✓) Bradley	M.I.: MI
Last Name:(✓) Bottoms		
Site Physical Address:(*) KY 555		
City:(*) Springfield	State:(*) Kentucky	Zip:(*) 40069
County:(*) Washington	Latitude(decimal degrees)(*)DMS to DD Converter ( <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> ) 37.759722	Longitude(decimal degrees)(*) -85.316389
SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION		
Project Description:(*) IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN-BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY I		
a. For single projects provide the following information		

SECTION VI -- WILL THE PROJECT REQUIRE CONSTRUCTION ACTIVITIES IN A WATER BODY OR THE RIPARIAN ZONE?	
Will the project require construction activities in a water body or the riparian zone?: (*)	Yes 
If Yes, describe scope of activity: (✓)	Linear crossings of streams
Is a Clean Water Act 404 permit required?:(*)	Yes 

Is a Clean Water Act 401 Water Quality Certification required?:(*)			Yes		
SECTION VII -- NOI PREPARER INFORMATION					
First Name:(*) Joseph		M.I.: MI	Last Name:(*) Ferguson		Company Name:(*) KYTC District 4
Mailing Address:(*) 634 East Dixie Ave		City:(*) Elizabethtown		State:(*) Kentucky	Zip:(*) 42701
eMail Address:(*) joseph.ferguson@ky.gov			Business Phone:(*) 2707665066		Alternate Phone: Phone
SECTION VIII -- ATTACHMENTS					
Facility Location Map:(*)			Upload file		
Supplemental Information:			Upload file		
SECTION IX -- CERTIFICATION					
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.					
Signature:(*) Bradley Bottoms			Title:(*) Chief District Engineer		
First Name:(*) Bradley		M.I.: MI	Last Name:(*) Bottoms		
eMail Address:(*) bradley.bottoms@ky.gov		Business Phone:(*) 2707665066		Alternate Phone: Phone	Signature Date:(*) Date
<div>Click to Save Values for Future Retrieval</div> <div>Click to Submit to EEC</div>					

## ***SPECIAL NOTE***

### **Filing of eNOI for KPDES Construction Stormwater Permit**

**County: Washington**  
**Item No.: 4-396.2**

**Route: US 150**  
**KDOW Submittal ID: 409372**  
14ff7ff2-c61c-4717-9445-e22c3d892f81

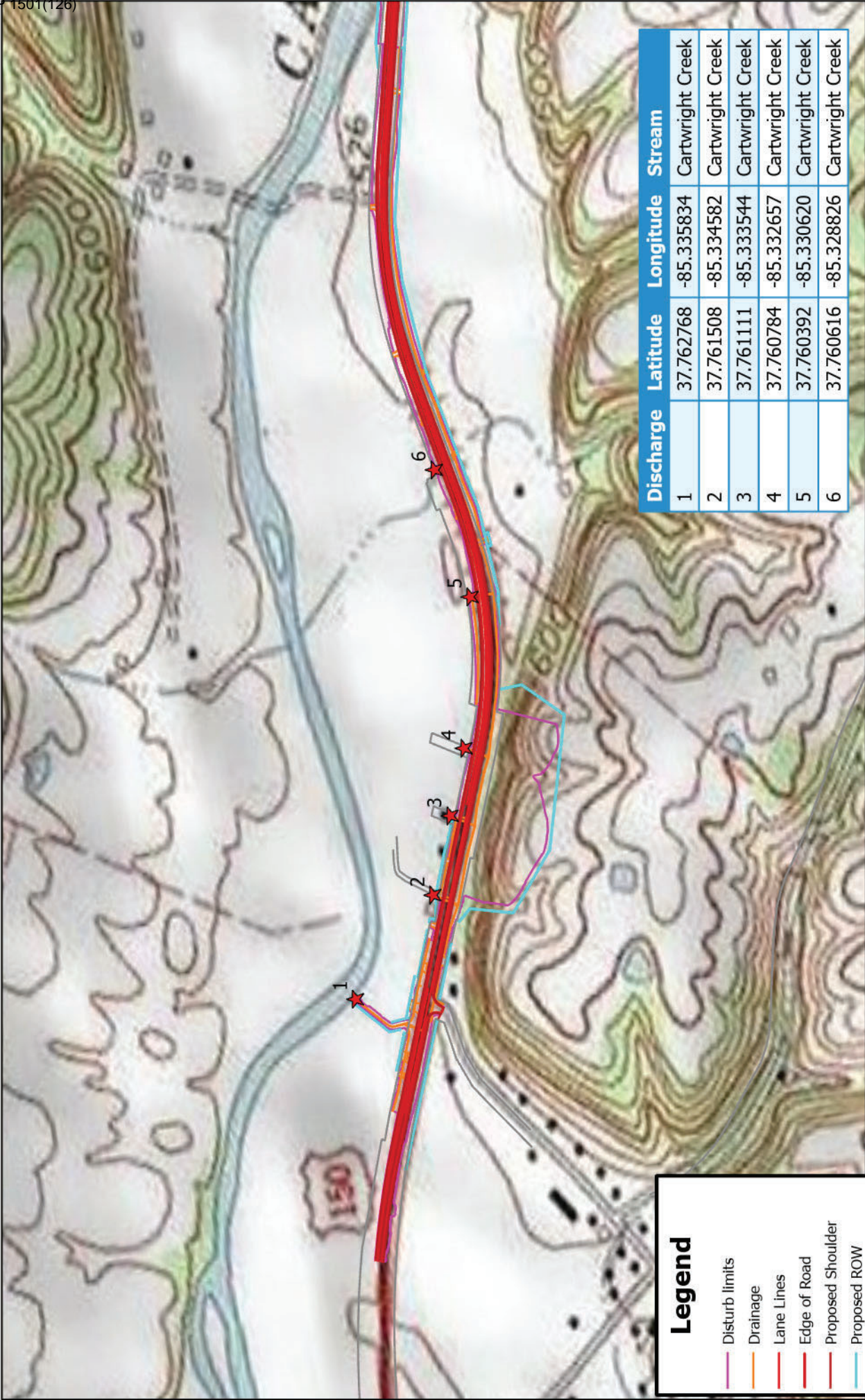
### **Project Description:**

**IMPROVE SAFETY, MOBILITY, AND GEOMETRICS ALONG US-150 FROM WEST OF OLD FREDERICKTOWN-BARDSTOWN ROAD (KY-1872) THROUGH GRUNDY HOME CURVE TO MAYFIELD LN (CR-1336).**

A Notice of Intent for obtaining coverage under the Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Stormwater Discharges Associated with Construction Activities (KYR10) has been drafted, copy of which is attached. Upon award, the Contractor will be identified in Section III of the form as the “Building Contractor” and it will be submitted for approval to the Kentucky Division of Water. The Contractor shall be responsible for advancing the work in a manner that is compliant with all applicable and appropriate KYTC specifications for sediment and erosion control as well as meeting the requirements of the KYR10 permit and the KDOW.

If there are any questions regarding this note, please contact David Waldner, Director, Division of Environmental Analysis, TCOB, 200 Mero Street, Frankfort, KY 40622, Phone: (502) 564-7250.





Discharge	Latitude	Longitude	Stream
1	37.762768	-85.335834	Cartwright Creek
2	37.761508	-85.334582	Cartwright Creek
3	37.761111	-85.333544	Cartwright Creek
4	37.760784	-85.332657	Cartwright Creek
5	37.760392	-85.330620	Cartwright Creek
6	37.760616	-85.328826	Cartwright Creek

**Legend**

Disturb limits

Drainage

Lane Lines

Edge of Road

Proposed Shoulder

Proposed ROW

Existing ROW

★

Discharge Points



# 4-396.2 - US 150 Improvements KPDES Map

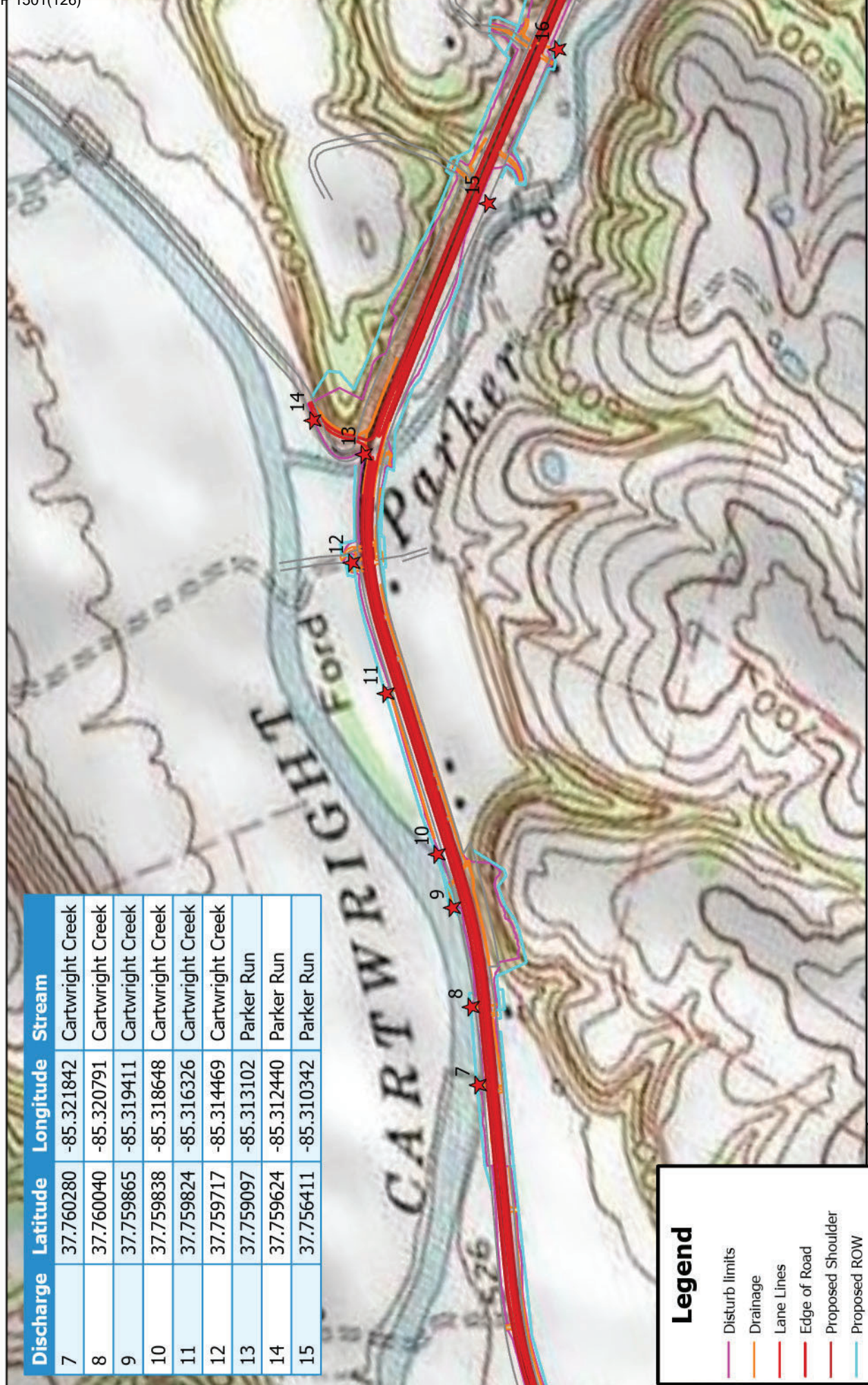
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2024



Discharge	Latitude	Longitude	Stream
7	37.760280	-85.321842	Cartwright Creek
8	37.760040	-85.320791	Cartwright Creek
9	37.759865	-85.319411	Cartwright Creek
10	37.759838	-85.318648	Cartwright Creek
11	37.759824	-85.316326	Cartwright Creek
12	37.759717	-85.314469	Cartwright Creek
13	37.759097	-85.313102	Parker Run
14	37.759624	-85.312440	Parker Run
15	37.756411	-85.310342	Parker Run



Legend

Disturb limits

Drainage

Lane Lines

Edge of Road

Proposed Shoulder

Proposed ROW

Existing ROW

Discharge Points



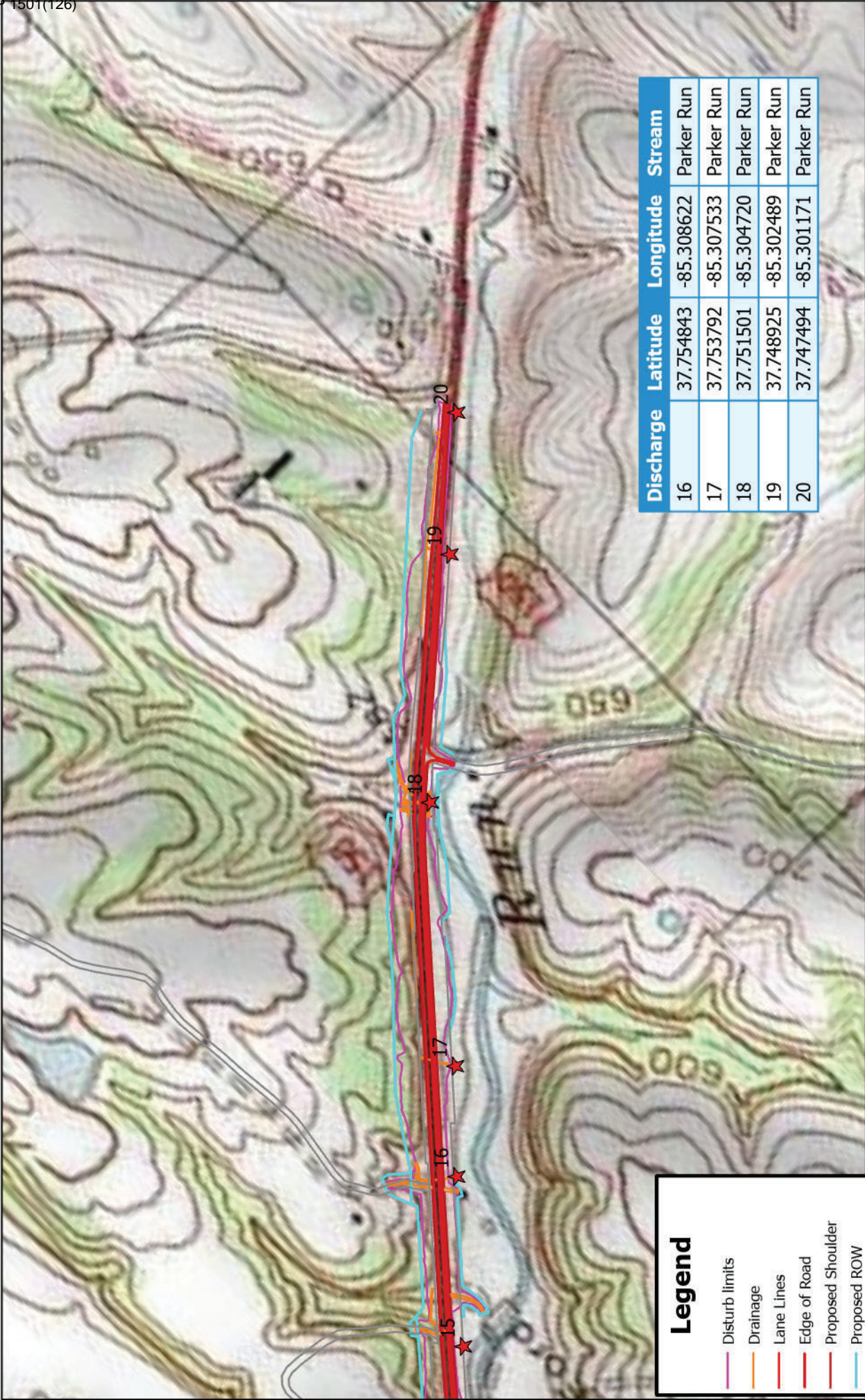
4-396.2 - US 150 Improvements KPDES Map

2024

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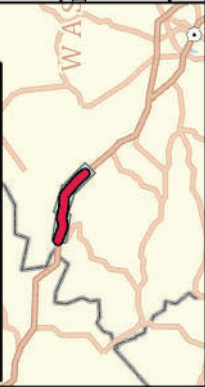
# 4-396.2 - US 150 Improvements KPDES Map

2024

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## Legend

- Disturb limits
- Drainage
- Lane Lines
- Edge of Road
- Proposed Shoulder
- Proposed ROW
- Existing ROW
- Discharge Points





**PART II**

**SPECIFICATIONS AND STANDARD DRAWINGS**

### **STANDARD SPECIFICATIONS**

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2019* and *Standard Drawings, Edition of 2020*.

### **SUPPLEMENTAL SPECIFICATIONS**

The contractor shall use the Supplemental Specifications that are effective at the time of letting. The Supplemental Specifications can be found at the following link:  
<http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx>

## **SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS**

This Special Note will apply when indicated on the plans or in the proposal.

**1.0 DESCRIPTION.** Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

## **2.0 MATERIALS.**

**2.1 General.** Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

### **2.2 Sign and Controls.** All signs must:

- 1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
- 2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
- 3) Provide a controller consisting of:
  - a) Keyboard or keypad.
  - b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
  - c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
  - d) Logic circuitry to control the sequence of messages and flash rate.
- 4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
- 5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
- 6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
- 7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
- 8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
- 9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
- 10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
- 11) Provide a photocell control to provide automatic dimming.

- 12) Allow an on-off flashing sequence at an adjustable rate.
- 13) Provide a sight to aim the message.
- 14) Provide a LED display color of approximately 590 nm amber.
- 15) Provide a controller that is password protected.
- 16) Provide a security device that prevents unauthorized individuals from accessing the controller.
- 17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/⇒⇒⇒/	/MIN/SPEED/**MPH/
/KEEP/LEFT/⇐⇐⇐/	/ICY/BRIDGE/AHEAD/ /ONE
/LOOSE/GRAVEL/AHEAD/	LANE/BRIDGE/AHEAD/
/RD WORK/NEXT/**MILES/	/ROUGH/ROAD/AHEAD/
/TWO WAY/TRAFFIC/AHEAD/	/MERGING/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/	/NEXT/***/MILES/
/REDUCE/SPEED/**MPH/	/HEAVY/TRAFFIC/AHEAD/
/BRIDGE/WORK/***() FT/	/SPEED/LIMIT/**MPH/
/MAX/SPEED/**MPH/	/BUMP/AHEAD/
/SURVEY/PARTY/AHEAD/	/TWO/WAY/TRAFFIC/

\*Insert numerals as directed by the Engineer.  
Add other messages during the project when required by the Engineer.

2.3 Power.

- 1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

**3.0 CONSTRUCTION.** Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

**4.0 MEASUREMENT.** The final quantity of Variable Message Sign will be

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the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

**5.0 PAYMENT.** The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

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**SPECIAL NOTE FOR NON-EPOXY ADHESIVES**

This Special Note will apply where indicated on the plans or in the proposal. Section references herein are to the Department’s Standard Specifications for Road and Bridge Construction, current edition.

**1.0 DESCRIPTION.** As an alternate to Type IV epoxy, as specified in Subsection 826.01.02, the Department may allow other structural adhesives for doweling deformed reinforcing bars into hardened concrete providing the requirements herein are met.

**2.0 MATERIALS.** Furnish an adhesive material from the Department's List of Approved Materials. Submit one cartridge of each component per project to the Engineer for infrared analysis.

**3.0 CONSTRUCTION.** Do not use the material until the Engineer verifies, by visual inspection, that the material is from the List of Approved Materials.

**3.1 Field Installation.** Follow the following installation criteria:

- 1) Drill a dowel hole that is no more than 1/8 inch larger in diameter than the bar.
- 2) Ensure the dowel hole is dry and free of all drill and coring dust.
- 3) Place the adhesive in the dowel hole according to the manufacturer's instructions.
- 4) Insert the bar to the bottom of the hole and twist 1/4 turn. An excess amount of adhesive must be clearly visible as an extruded ring of material surrounding the reinforcing bar at the surface of the concrete.

**3.2 Job Site Testing.** Contact the Division of Materials in advance of the installation date to set up a testing schedule. After installation of the first 50 reinforcing bars, the Department will randomly select 5 and proof load according to the following table with zero slippage.

REBAR SIZE (#)	10	13	16	19	22
PROOF LOAD (lbs)	7,000	12,000	19,000	27,000	36,000

If any of the bars fail in bond, either revise the installation procedure, if applicable, or provide another adhesive that is capable of passing this test. The Engineer may require additional job site testing.

**4.0 MEASUREMENT AND PAYMENT.** The Department will not measure the adhesive or its application for payment and will consider it incidental to the reinforcing bars.

December 16, 2013

## **SPECIAL NOTE FOR ROCK BLASTING**

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Current Standard Specifications for Road and Bridge Construction.

**1.0 DESCRIPTION.** This work consists of fracturing rock and constructing stable final rock cut faces using presplit blasting and production blasting techniques.

**2.0 MATERIALS.** Deliver, store, and use explosives according to the manufacturer's recommendations and applicable laws. Do not use explosives outside their recommended use date. Verify date of manufacture and provide copies of the technical data sheets (TDS) and material safety data sheets (MSDS) to the Engineer. Explosives and initiating devices include, but are not necessarily limited to, dynamite and other high explosives, slurries, water gels, emulsions, blasting agents, initiating explosives, detonators, blasting caps, and detonating cord.

**3.0 CONSTRUCTION.** Furnish copies or other proof of all-applicable permits and licenses. Comply with Federal, State, and local regulations on the purchase, transportation, storage, and use of explosive material. Regulations include but are not limited to the following:

- 1) KRS 351.310 through 351.9901.
- 2) 805 KAR 4:005 through 4:165
- 3) Applicable rules and regulations issued by the Office of Mine Safety and Licensing.
- 4) Safety and health. OSHA, 29 CFR Part 1926, Subpart U.
- 5) Storage, security, and accountability. Bureau of Alcohol, Tobacco, and Firearms (BATF), 27 CFR Part 181.
- 6) Shipment. DOT, 49 CFR Parts 171-179, 390-397.

**3.1 Blaster-in-Charge.** Designate in writing a blaster-in-charge and any proposed alternates for the position. Submit documentation showing the blaster-in-charge, and alternates, have a valid Kentucky blaster's license. Ensure the blaster-in-charge or approved alternate is present at all times during blasting operations.

**3.2 Blasting Plans.** Blasting plans and reports are for quality control and record keeping purposes. Blasting reports are to be signed by the blaster-in-charge or the alternate blaster-in-charge. The general review and acceptance of blasting plans does not relieve the Contractor of the responsibility whatsoever for conformance to regulations or for obtaining the required results. All blasting plans shall be submitted to the Engineer. The Engineer will be responsible for submitting the plan to the Central Office Division of Construction and the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at the following address: 2 Hudson Hollow, Frankfort, Kentucky, 40601.

**A) General Blasting Plan.** Submit a general blasting plan for acceptance at least 15 working days before drilling operations begin. Include, as a minimum, the following safety and procedural details:

- 1) Working procedures and safety precautions for storing, transporting, handling, detonating explosives. Include direction on pre and post blast audible procedures, methods of addressing misfires, and methods of addressing inclement weather, including lightning.
- 2) Proposed product selection for both dry and wet holes. Furnish Manufacturer's TDS and MSDS for all explosives, primers, initiators, and other blasting devices.
- 3) Proposed initiation and delay methods.
- 4) Proposed format for providing all the required information for the site specific blasting shot reports.

**B) Preblast Meeting.** Prior to drilling operations, conduct a preblast meeting to discuss safety and traffic control issues and any site specific conditions that will need to be addressed. Ensure, at a minimum, that the Engineer or lead inspector, Superintendent, blaster-in-charge, and all personnel involved in the blasting operation are present. Site specific conditions include blast techniques; communication procedures; contingency plans and equipment for dealing with errant blast material. The conditions of the General Blasting plan will be discussed at this meeting. Record all revisions and additions made to the blasting plan and obtain written concurrence by the blaster-in-charge. Provide a copy of the signed blast plan to the Engineer along with the sign in sheet from the preblast meeting.

**3.3 Preblast Condition Survey and Vibration Monitoring and Control.** Before blasting, arrange for a preblast condition survey of nearby buildings, structures, or utilities, within 500 feet of the blast or that could be at risk from blasting damage. Provide the Engineer a listing of all properties surveyed and any owners denying entry or failing to respond. Notify the Engineer and occupants of buildings at risk at least 24 hours before blasting.

Limit ground vibrations and airblast to levels that will not exceed limits of 805 KAR 4:005 through 4:165. More restrictive levels may be specified in the Contract.

Size all blast designs based on vibration, distance to nearest building or utility, blast site geometry, atmospheric conditions and other factors. Ground vibrations are to be controlled according to the blasting standards and scaled distance formulas in 805 KAR 4:020 or by the use of seismographs as allowed in 805 KAR 4:030. The Department will require seismographs at the nearest allowable location to the protected site when blasting occurs within 500 feet of buildings, structures, or utilities.

**3.4 Blasting.** Drill and blast at the designated slope lines according to the blasting plan. Perform presplitting to obtain smooth faces in the rock and shale formations. Perform the presplitting before blasting and excavating the interior portion of the specified cross section at any location. The Department may allow blasting for fall benches and haul roads prior to presplitting when blasting is a sufficient distance from the final slope and results are satisfactory to the Engineer. Use the types of explosives and blasting accessories necessary to obtain the required results.

Free blast holes of obstructions for their entire depth. Place charges without caving the blast hole walls. Stem the upper portion of all blast holes with dry sand or other granular material passing the 3/8-inch sieve. Dry drill cuttings are acceptable for stemming when blasts are more than 800 feet from the nearest dwelling.



11D

Stop traffic during blasting operations when blasting near any road and ensure traffic does not pass through the Danger Zone. The blaster-in-charge will define the Danger Zone prior to each blast. Ensure traffic is stopped outside the Danger Zone, and in no case within 800 feet of the blast location.

Following a blast, stop work in the entire blast area, and check for misfires before allowing worker to return to excavate the rock.

Remove or stabilize all cut face rock that is loose, hanging, or potentially dangerous. Leave minor irregularities or surface variations in place if they do not create a hazard. Drill the next lift only after the cleanup work and stabilization work is complete.

When blasting operations cause fracturing of the final rock face, repair or stabilize it in an approved manner at no cost to the Department.

Halt blasting operations in areas where any of the following occur:

- 1) Slopes are unstable;
- 2) Slopes exceed tolerances or overhangs are created;
- 3) Backslope damage occurs;
- 4) Safety of the public is jeopardized;
- 5) Property or natural features are endangered;
- 6) Fly rock is generated; or
- 7) Excessive ground or airblast vibrations occur in an area where damage to buildings, structures, or utilities is possible.
- 8) The Engineer determines that materials have become unsuitable for blasting

Blasting operations may continue at a reasonable distance from the problem area or in areas where the problems do not exist. Make the necessary modifications to the blasting operations and perform a test blast to demonstrate resolution of the problem.

**A) Drill Logs.** Maintain a layout drawing designating hole numbers with corresponding drill logs and provide a copy of this information to the blaster prior to loading the hole. Ensure the individual hole logs completed by the driller(s) show their name; date drilled; total depth drilled; and depths and descriptions of significant conditions encountered during drilling that may affect loading such as water, voids, changes in rock type.

**B) Presplitting.** Conduct presplitting operations in conformance with Subsection 204.03.04 of the Standard Specifications for Road and Bridge Construction.

**3.5 Shot Report.** Maintain all shot reports on site for review by the Department. Within one day after a blast, complete a shot report according to the record keeping requirements of 805 KAR 4:050. Include all results from airblast and seismograph monitoring.

**3.6 Unacceptable Blasting.** When unacceptable blasting occurs, the Department will halt all blasting operations. Blasting will not resume until the Department completes its investigation and all concerns are addressed. A blast is unacceptable when it results in fragmentation beyond the final rock face, fly rock, excessive vibration or airblast, overbreak, damage to the final rock face or overhang. Assume the cost for all resulting damages to private and public property and hold the Department harmless.

11D

When an errant blast or fly rock causes damage to or blocks a road or conveyance adjacent to the roadway, remove all debris from the roadway as quickly as practicable and perform any necessary repairs. Additionally, when specified in the Contract, the Department will apply a penalty.

Report all blasting accidents to the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at 502-564-2340.

**4.0 MEASUREMENT AND PAYMENT.** The Department will not measure this work for payment and will consider all items contained in this note to be incidental to either Roadway Excavation or Embankment-in-Place, as applicable. However, if the Engineer directs in writing slope changes, then the Department will pay for the second presplitting operation as Extra Work.

The Department will measure for payment material lying outside the typical section due to seams, broken formations, or earth pockets, including any earth overburden removed with this material, only when the work is performed under authorized adjustments.

The Department will not measure for payment any extra material excavated because of the drill holes being offset outside the designated slope lines.

The Department will not measure for payment any material necessary to be removed due to the inefficient or faulty blasting practices.

July 1, 2022

SPECIAL NOTE FOR TURF REINFORCING MAT

**1.0 DESCRIPTION.** Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department’s Current Standard Specifications for Road and Bridge Construction.

**2.0 MATERIALS.**

**2.1 Turf Reinforcement Mat (TRM).** Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department’s List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

**2.2 Classifications**

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, channels with high shear stresses, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Properties	Type 1	Type 2	Type 3	Type 4
Maximum Slope (H:V)	1:1	1:1	0.5:1	0.5:1
Un-vegetated Shear	≥ 2.0 lbs/ft <sup>2</sup> (≥ 96 Pa)	≥ 2.0 lb/ft2 (≥ 96 Pa)"	≥ 2.0 lb/ft2 (≥ 96 Pa)	≥ 2.0 lb/ft2 (≥ 96 Pa)

Stress <sup>b, c, d</sup> ASTM D6460				
Vegetated Shear Stress <sup>c, d, e, f</sup> ASTM D6460	≥ 6.0 lbs/ft <sup>2</sup> (≥ 287 Pa)	≥ 8.0 lb/ft <sup>2</sup> (≥ 383 Pa)	≥ 10.0 lb/ft <sup>2</sup> (≥ 479 Pa)	≥ 12.0 lb/ft <sup>2</sup> (≥ 575 Pa)
Seedling Emergence <sup>d</sup> ASTM D7322	≥ 250%	≥ 250%	≥ 250%	≥ 250%
MD Material Tensile Strength <sup>d, f</sup> ASTM D6818	≥ 150 lbs/ft (≥ 2.2 kN/m)	≥ 175 lbs/ft (≥ 2.6 kN/m)	≥ 200 lbs/ft (≥ 2.9 kN/m)	≥ 1,500 lbs/ft (≥ 21.9 kN/m)
TD Material Tensile Strength <sup>d, f</sup> ASTM D6818	≥ 150 lbs/ft (≥ 2.2 kN/m)	≥ 175 lbs/ft (≥ 2.6 kN/m)	≥ 200 lbs/ft (≥ 2.9 kN/m)	≥ 1,500 lbs/ft (≥ 21.9 kN/m)
Mass Per Unit Area <sup>d</sup> ASTM D6566	≥ 8.0 oz/yd <sup>2</sup> (≥ 271 g/m <sup>2</sup> ))	≥ 8.0 oz/yd <sup>2</sup> (≥ 271 g/m <sup>2</sup> )	≥ 8.0 oz/yd <sup>2</sup> (≥ 271 g/m <sup>2</sup> )	≥ 8.0 oz/yd <sup>2</sup> (≥ 271 g/m <sup>2</sup> )
Material Thickness <sup>d</sup> ASTM D6525	≥ 0.25 in (≥ 6.35 mm)	≥ 0.25 in (≥ 6.35 mm)	≥ 0.25 in (≥ 6.35 mm)	≥ 0.25 in (≥ 6.35 mm)
UV Stability <sup>c, e</sup> ASTM D4355	≥ 80% @ 500 hrs	≥ 80% @ 500 hrs	≥ 80% @ 1,000 hrs	≥ 90% @ 1,000 hrs

- a. For Type 4 mats, property values tested per ASTM D6818 and D6525 are reported as minimum average roll values (MARVs). MARVs are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
- b. Required minimum shear stress TRM (un-vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss during successive, minimum 30 minute flow events in large scale testing.
- c. Acceptable large-scale testing protocol may include ASTM D6460, or other independent testing deemed acceptable by the engineer. Large-scale performance testing typically involves limited soil types and vegetative stands, therefore it is recommended that an appropriate factor of safety be used in design and product selection (see Guidance Document for further information).
- d. Typical values are calculated as the average value, it yields a 50% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
- e. Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss during successive, minimum 30 minute flow events in large scale testing.
- f. For TRMs containing degradable components, property values must be obtained on the non-degradable portion of the matting alone.

NOTE: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forcers may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

2.3 Quality Assurance Sampling, Testing, and Acceptance

- A) Performance Testing: The Department will require AASHTO’s NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure

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97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

- B) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.
- C) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.
- D) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department's List of Approved Materials. Mats that exceed the criteria for KYTC Types 1-4 are available. Contact an erosion control material supplier for more information.

**2.4 Fasteners.** When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer's Representative. Provide staples with colored tops when requested by the Engineer.

**3.0 CONSTRUCTION.** Provide a Manufacturer's Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department's criteria and the Manufacturer's criteria, construct using the more restrictive. The Engineer and Manufacturer's Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer's recommendations and the following as minimum installation technique:

**3.1 Site Preparation.** Smoothly grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

**3.2 Installation.** Install mats according to Standard Drawing Sepias "Turf Mat Channel Installation" and "Turf Mat Slope Installation." Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer's Representative. The mat should be in direct contact with the soil surface. Infill and overfill the mat with a minimum of ½" of soil as directed by the Manufacturer.

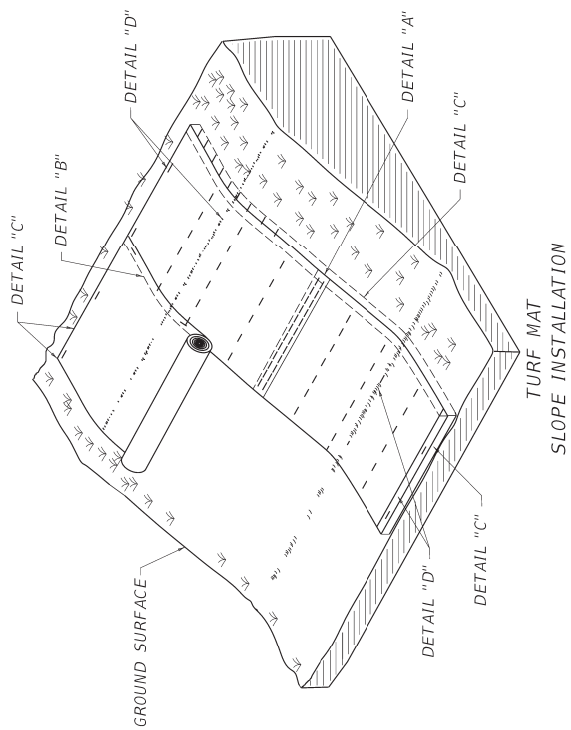
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**4.0 MEASUREMENT.** The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer’s Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

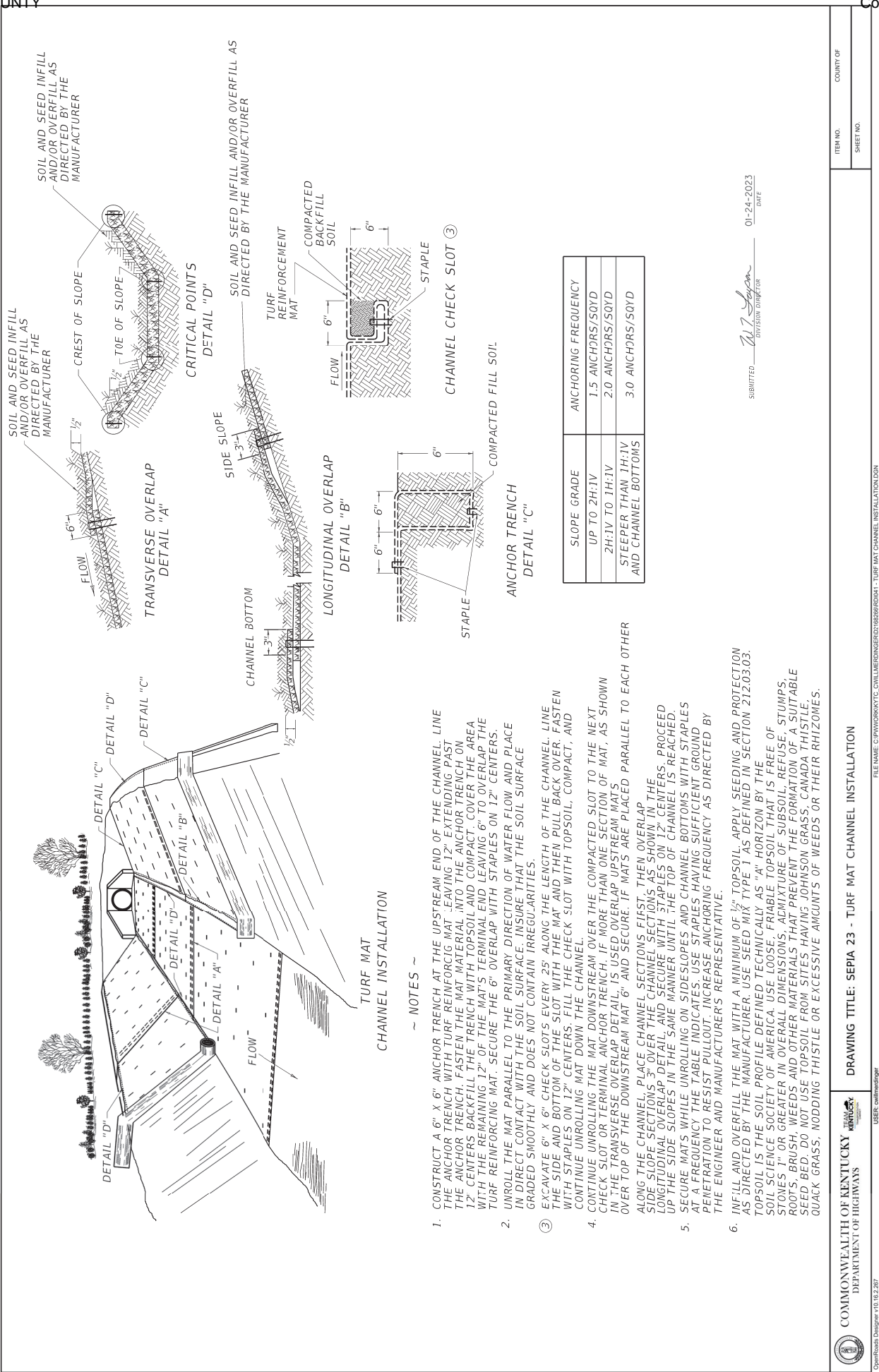
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard

June 29, 2023



1. CONSTRUCT A 6" X 6" ANCHOR TRENCH AT THE BEGINNING OF THE SLOPE. LINE THE ANCHOR TRENCH WITH TURF REINFORCING MAT LEAVING 12" EXTENDING PAST THE ANCHOR TRENCH. FASTEN THE MAT MATERIAL INTO THE ANCHOR TRENCH ON 12" CENTERS BACKFILL THE TRENCH WITH TOPSOIL AND COMPACT. COVER THE AREA WITH THE REMAINING 12" OF THE MAT'S TERMINAL END LEAVING 6" TO OVERLAP THE TURF REINFORCING MAT. SECURE THE 6" OVERLAP WITH STAPLES ON 12" CENTERS.
2. UNROLL THE MAT DOWN THE SLOPE AND PLACE IN DIRECT CONTACT WITH THE SOIL SURFACE. INSURE THAT THE SOIL SURFACE IS GRADED SMOOTHLY AND DOES NOT CONTAIN IRREGULARITIES.
3. SECURELY FASTEN THE MAT TO THE SOIL BY INSTALLING STAPLES AT A MINIMUM RATE OF 1.5 PER SQ. YD. ANCHORS SHALL BE SELECTED SO THAT THEY HAVE SUFFICIENT GROUND PENETRATION TO RESIST PULLOUT. INCREASE ANCHORING FREQUENCY FOR SITE CONDITIONS (LOOSE, SANDY, OR WET SOILS) AS DIRECTED BY THE ENGINEER AND MANUFACTURER'S REPRESENTATIVE.
4. OVERLAP EDGES OF MATS ACCORDING TO THE LONGITUDINAL AND TRANSVERSE OVERLAP DETAILS. STAPLE LONGITUDINAL OVERLAPS WITH 2 ROWS OF STAPLES STAGGERED AT 4". STAPLE TRANSVERSE OVERLAPS WITH 1 ROW OF STAPLES SPACED AT 12".
5. CONSTRUCT A 6" X 12" ANCHOR TRENCH AT THE TOE OF THE SLOPE FOLLOWING SIMILAR PROCEDURES DENOTED FOR THE TOP OF THE SLOPE ANCHOR TRENCH.
6. ENSURE THAT THE MAT IS IN DIRECT CONTACT WITH THE SOIL SURFACE WITH NO PROJECTIONS OR PROTRUSIONS.
7. INFILL AND OVERFILL THE MAT WITH A MINIMUM OF 1 1/2" TOPSOIL. APPLY SEEDING AND PROTECTION AS DIRECTED BY THE MANUFACTURER. USE SEED MIX TYPE 1 AS DEFINED IN SECTION 212.03.03. TOPSOIL IS THE SOIL PROFILE DEFINED TECHNICALLY AS "A" HORIZON BY THE SOIL SCIENCE SOCIETY OF AMERICA. USE LOOSE, FRIABLE TOPSOIL THAT IS FREE OF STONES 1" OR GREATER IN OVERALL DIMENSIONS. ADMIXTURE OF SUBSOIL, REFUSE, STUMPS, ROOTS, BRUSH, WEEDS AND OTHER MATERIALS THAT PREVENT THE FORMATION OF A SUITABLE SEED BED. DO NOT USE TOPSOIL FROM SITES HAVING JOHNSON GRASS, CANADA THISTLE, QUACK GRASS, NODDING THISTLE OR EXCESSIVE MOUNTS OF WEEDS OR THEIR RHIZOMES.

SUBMITTED W. T. Lujan 01-24-2023  
DIVISION DIRECTOR DATE





SPECIAL NOTE FOR BARCODE LABEL ON PERMANENT SIGNS

**1.0 DESCRIPTION.** Install barcode label on sheeting signs. Section references herein are to the Department’s Standard Specifications for Road and Bridge Construction, current edition.

**2.0 MATERIALS.** The Department will provide the Contractor with a 2 inch x 1 inch foil barcode label for each permanent sheeting sign. A unique number will be assigned to each barcode label.

The Contractor shall contact the Operations and Pavement Management Branch in the Division of Maintenance at (502) 564-4556 to obtain the barcode labels.

**3.0 CONSTRUCTION.** Apply foil barcode label in the lower right quadrant of the sign back. Signs where the bottom edge is not parallel to the ground, the lowest corner of the sign shall serve as the location to place the barcode label. The barcode label shall be placed no less than one-inch and no more than three inches from any edge of the sign. The barcode must be placed so that the sign post does not cover the barcode label.

Barcodes shall be applied in an indoor setting with a minimum air temperature of 50°F or higher. Prior to application of the barcode label, the back of the sign must be clean and free of dust, oil, etc. If the sign is not clean, an alcohol swab shall be used to clean the area. The area must be allowed to dry prior to placement of the barcode label.

Data for each sign shall include the barcode number, MUTCD reference number, sheeting manufacturer, sheeting type, manufacture date, color of primary reflective surface, installation date, latitude and longitude using the North American Datum of 1983 (NAD83) or the State Plane Coordinates using an x and y ordinate of the installed location.

Data should be provided electronically on the TC 71-229 Sign Details Information and TC 71-230 Sign Assembly Information forms. The Contractor may choose to present the data in a different format provided that the information submitted to the Department is equivalent to the information required on the Department TC forms. The forms must be submitted in electronic format regardless of which type of form is used. The Department will not accept PDF or handwritten forms. These completed forms must be submitted to the Department prior to final inspection of the signs. The Department will not issue formal acceptance for the project until the TC 71-229 and TC-230 electronic forms are completed for all signs and sign assemblies on the project.

**4.0 MEASUREMENT.** The Department will measure all work required for the installation of the barcode label and all work associated with completion and submission of the sign inventory data (TC 71-229 and TC 71-230).

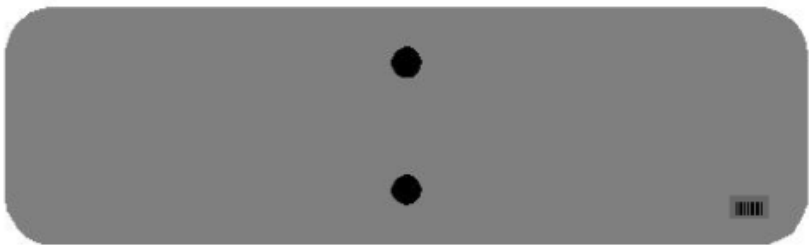
The installation of the permanent sign will be measured in accordance to Section 715.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

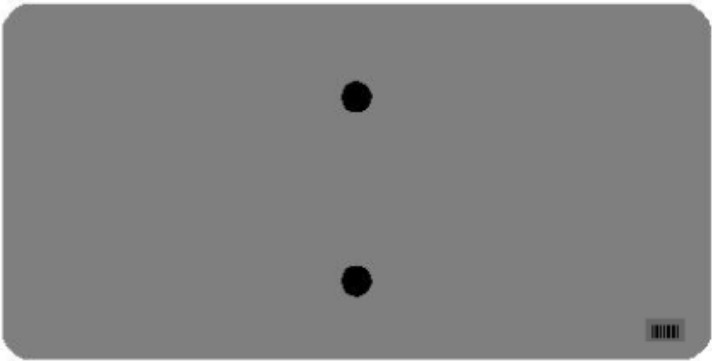
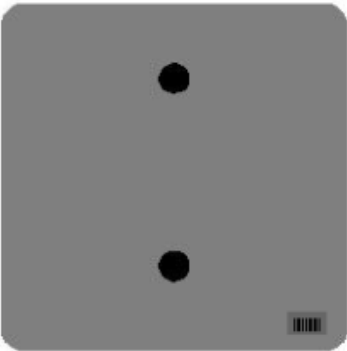
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24631EC	Barcode Sign Inventory	Each

The Department will not make payment for this item until all barcodes are installed and sign inventory is complete on every permanent sign installed on the project. The Department will make payment for installation of the permanent sign in accordance to Section 715. The Department will consider payment as full compensation for all work required under this special note.

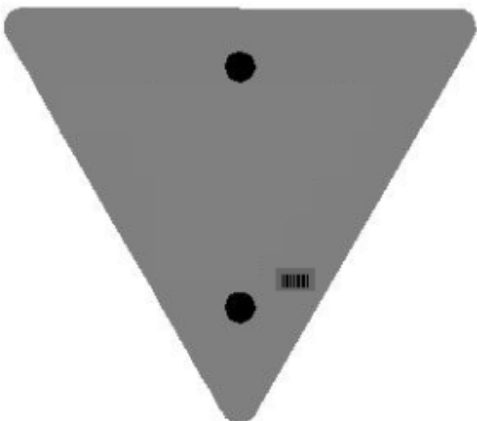
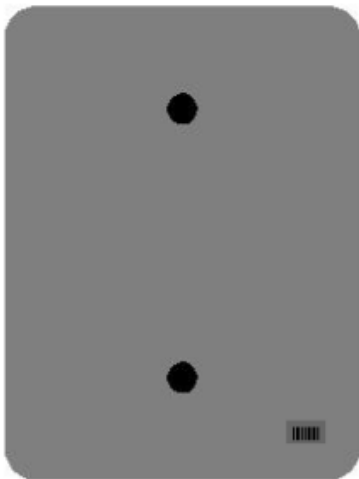
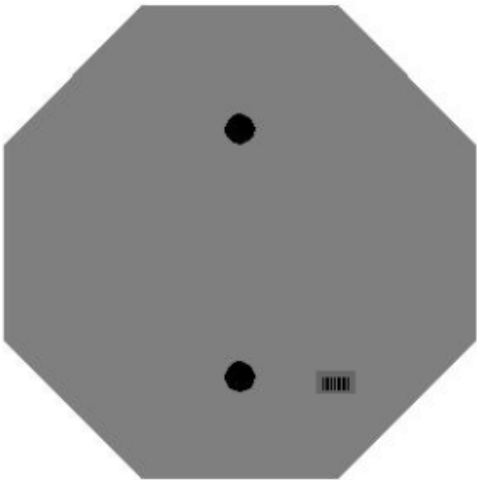
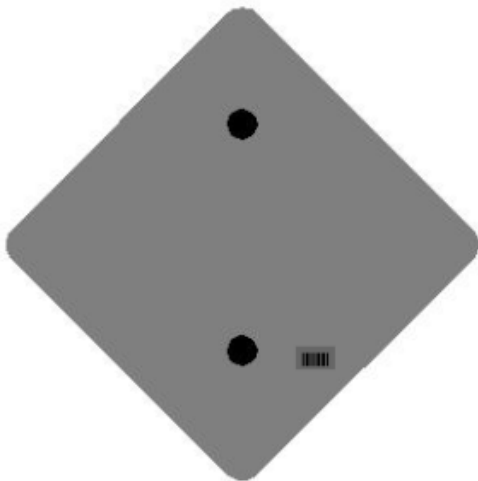
One Sign Post



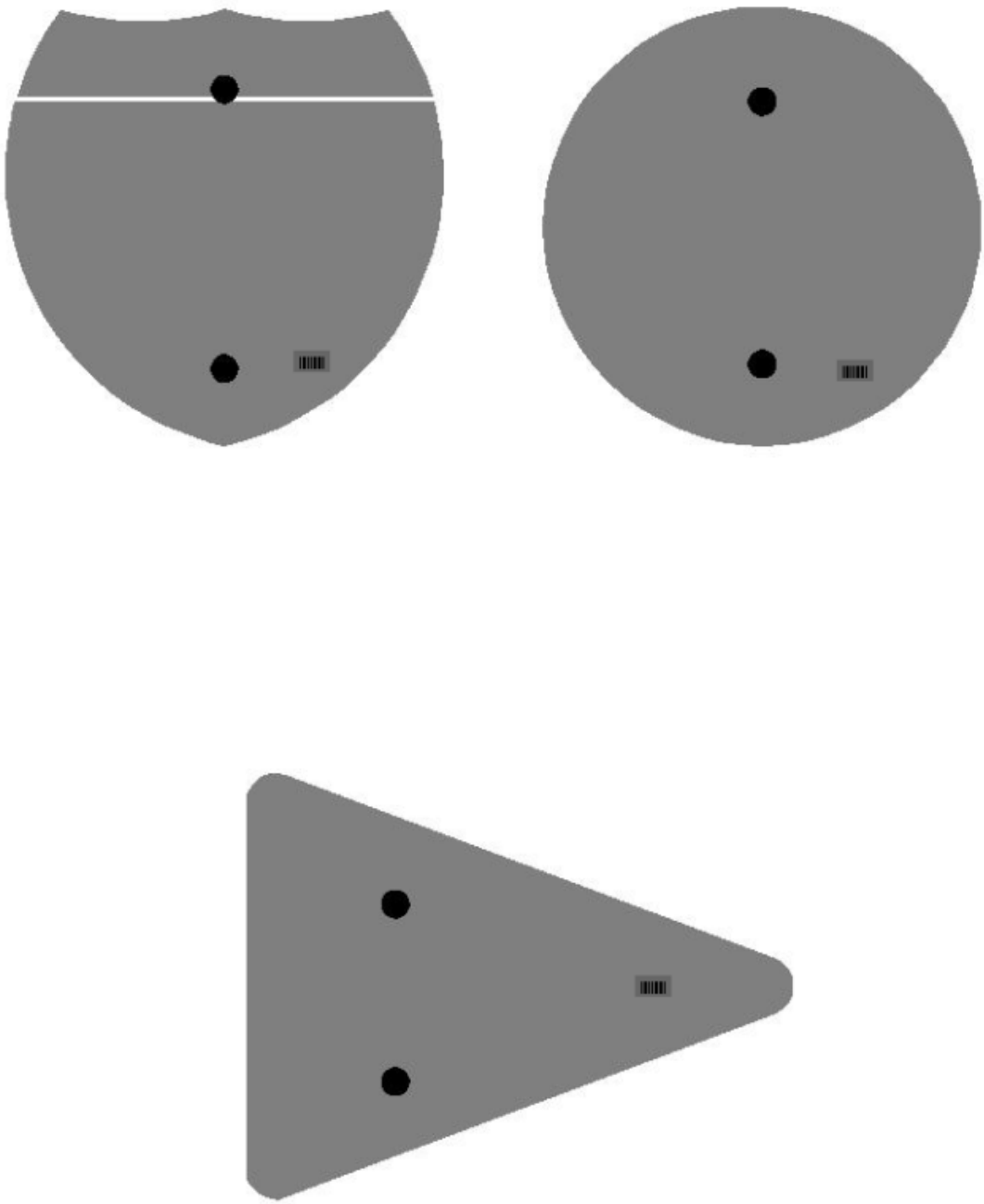
↑  
2" Wide Post



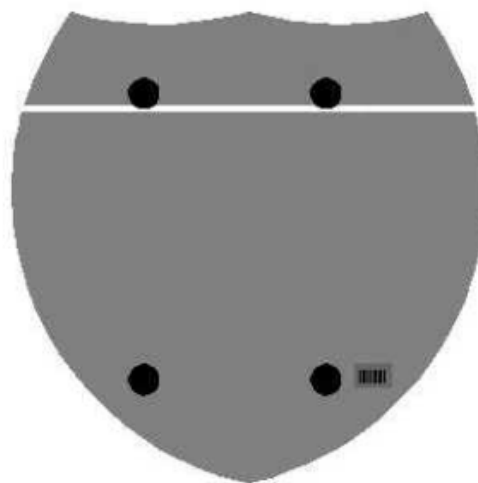
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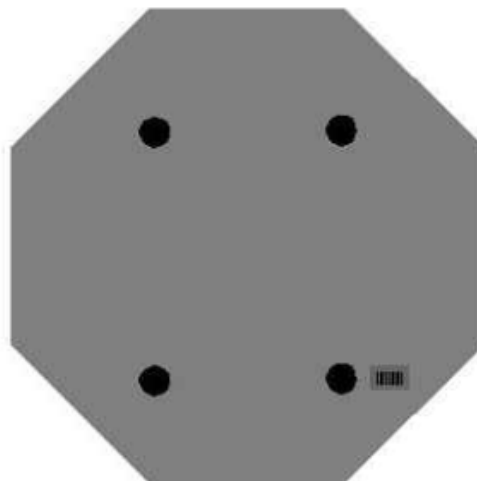
One Sign Post



## Double Sign Post

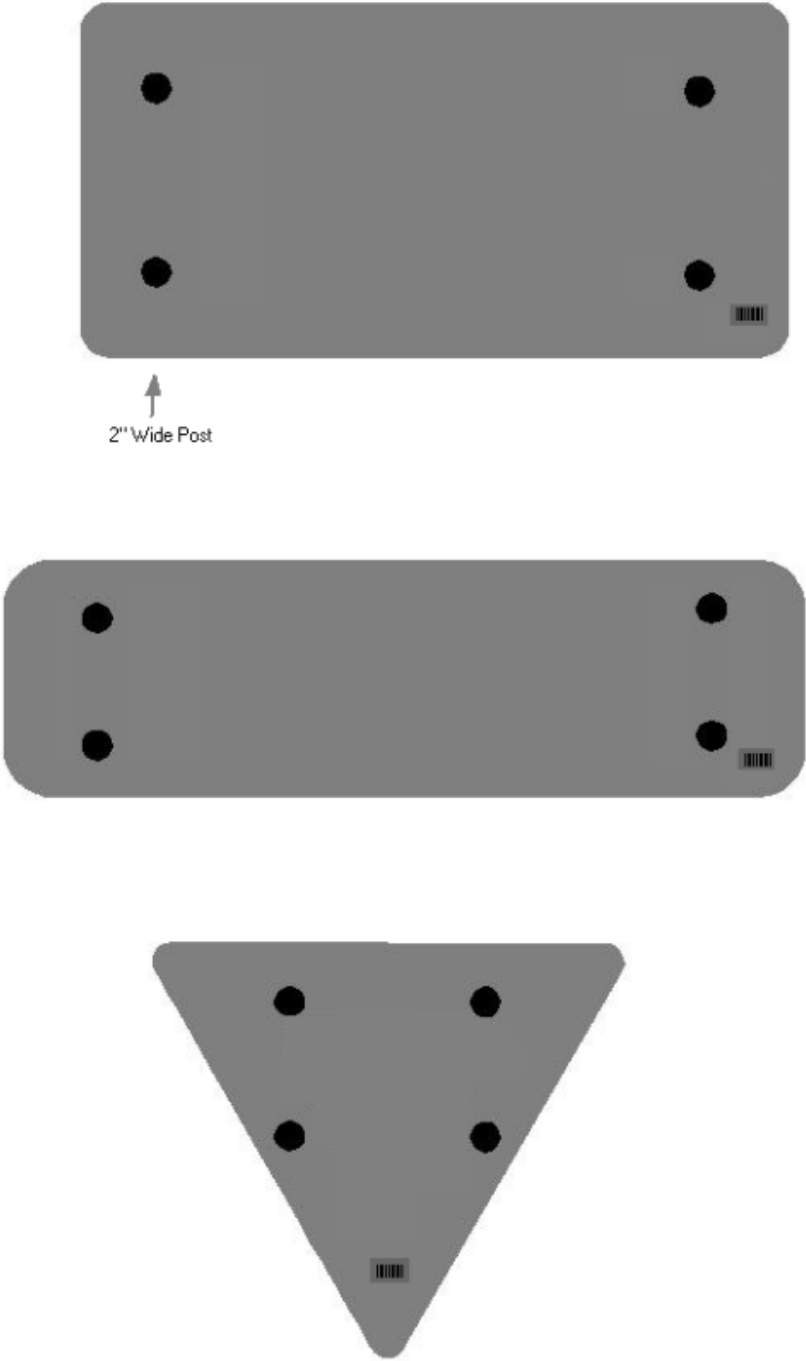


Interstate  
Shield



48" Stop

2 Post Signs



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## **SPECIAL NOTE FOR LONGITUDINAL PAVEMENT JOINT ADHESIVE**

1. **DESCRIPTION.** This specification covers the requirements and practices for applying an asphalt adhesive material to the longitudinal joint of the surface course of an asphalt pavement. Apply the adhesive to the face of longitudinal joint between driving lanes for the first lane paved. Then, place and compact the adjacent lane against the treated face to produce a strong, durable, waterproof longitudinal joint.
2. **MATERIALS, EQUIPMENT, AND PERSONNEL.**

2.1 Joint Adhesive. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide an adhesive conforming to the following requirements:

Property	Specification	Test Procedure
Viscosity, 400 ° F (Pa·s)	4.0 – 10.0	ASTM D 4402
Cone Penetration, 77 ° F	60 – 100	ASTM D 5329
Flow, 140 ° F (mm)	5.0 max.	ASTM D 5329
Resilience, 77 ° F (%)	30 min.	ASTM D 5329
Ductility, 77 ° F (cm)	30.0 min.	ASTM D 113
Ductility, 39 ° F (cm)	30.0 min.	ASTM D 113
Tensile Adhesion, 77 ° F (%)	500 min.	ASTM D 5329, Type II
Softening Point, ° F	171 min.	AASHTO T 53
Asphalt Compatibility	Pass	ASTM D 5329

Ensure the temperature of the pavement joint adhesive is between 380 and 410 °F when the material is extruded in a 0.125-inch-thick band over the entire face of the longitudinal joint.

2.2. Equipment.

2.2.1 Melter Kettle. Provide an oil-jacketed, double-boiler, melter kettle equipped with any needed agitation and recirculating systems.

2.2.2 Applicator System. Provide a pressure-feed-wand applicator system with an applicator shoe attached.

2.3 Personnel. Ensure a technical representative from the manufacturer of the pavement joint adhesive is present during the initial construction activities and available upon the request of the Engineer.

3. **CONSTRUCTION.**

3.1 Surface Preparation. Prior to the application of the pavement joint adhesive, ensure the face of the longitudinal joint is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the joint face by the use of compressed air.

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Ensure this preparation process occurs shortly before application to prevent the return of debris on the joint face.

3.2 Pavement Joint Adhesive Application. Ensure the ambient temperature is a minimum of 40 ° F during the application of the pavement joint adhesive. Prior to applying the adhesive, demonstrate competence in applying the adhesive according to this note to the satisfaction of the Engineer. Heat the adhesive in the melter kettle to the specified temperature range. Pump the adhesive from the melter kettle through the wand onto the vertical face of the cold joint. Apply the adhesive in a continuous band over the entire face of the longitudinal joint. Do not use excessive material in either thickness or location. Ensure the edge of the extruded adhesive material is flush with the surface of the pavement. Then, place and compact the adjacent lane against the joint face. Remove any excessive material extruded from the joint after compaction (a small line of material may remain).

3.3 Pavement Joint Adhesive Certification. Furnish the joint adhesive's certification to the Engineer stating the material conforms to all requirements herein prior to use.

3.4 Sampling and Testing. The Department will require a random sample of pavement joint adhesive from each manufacturer's lot of material. Extrude two 5 lb. samples of the heated material and forward the sample to the Division of Materials for testing. Reynolds oven bags, turkey size, placed inside small cardboard boxes or cement cylinder molds have been found suitable. Ensure the product temperature is 400°F or below at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of Pavement Joint Adhesive in linear feet. The Department will not measure for payment any extra materials, labor, methods, equipment, or construction techniques used to satisfy the requirements of this note. The Department will not measure for payment any trial applications of Pavement Joint Adhesive, the cleaning of the joint face, or furnishing and placing the adhesive. The Department will consider all such items incidental to the Pavement Joint Adhesive.
5. PAYMENT. The Department will pay for the Pavement Joint Adhesive at the Contract unit bid price and apply an adjustment for each manufacturer's lot of material based on the degree of compliance as defined in the following schedule. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.



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Pavement Joint Adhesive Price Adjustment Schedule						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
Joint Adhesive Referenced in Subsection 2.1.1						
Viscosity, 400 ° F (Pa•s)			3.0-3.4	2.5-2.9	2.0-2.4	≤1.9
ASTM D 3236	4.0-10.0	3.5-10.5	10.6-11.0	11.1-11.5	11.6-12.0	≥ 12.1
Cone Penetration, 77 ° F			54-56	51-53	48-50	≤ 47
ASTM D 5329	60-100	57-103	104-106	107-109	110-112	≥ 113
Flow, 140 ° F (mm) ASTM D 5329	≤ 5.0	≤ 5.5	5.6-6.0	6.1-6.5	6.6-7.0	≥ 7.1
Resilience, 77 ° F (%) ASTM D 5329	≥ 30	≥ 28	26-27	24-25	22-23	≤ 21
Tensile Adhesion, 77 ° F (%) ASTM D 5329	≥ 500	≥ 490	480-489	470-479	460-469	≤ 459
Softening Point, ° F AASHTO T 53	≥ 171	≥ 169	166-168	163-165	160-162	≤ 159
Ductility, 77 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9
Ductility, 39 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9

Code  
20071EC

Pay Item  
Joint Adhesive

Pay Unit  
Linear Foot

May 7, 2014

## **PART III**

### **EMPLOYMENT, WAGE AND RECORD REQUIREMENTS**

FHWA-1273 – Revised October 23, 2023

## REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

### ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

### I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

### II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

#### **6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

#### **8. Reasonable Accommodation for Applicants /**

**Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

#### **9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:**

The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

#### **10. Assurances Required:**

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov). The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov), refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.*

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

## 2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph



2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

### 3. Records and certified payrolls (29 CFR 5.5)

*a. Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

*(2) Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

*(3) Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

*(4) Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

*b. Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

*(2) Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker ( e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDL/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

*(3) Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

*(4) Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.



(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

#### **4. Apprentices and equal employment opportunity (29 CFR 5.5)**

a. *Apprentices (1) Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

**6. Subcontracts.** The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

**9. Disputes concerning labor standards.** As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.** a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

**11. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

**V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)\* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

\* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

### 3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

**4. Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

**5. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

**VII. SAFETY: ACCIDENT PREVENTION**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

- 1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.
- 2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

**VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

**IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)**

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

**X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

**1. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

\* \* \* \* \*



## **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

\*\*\*\*\*

## **3. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

\*\*\*\*\*

**4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

\*\*\*\*\*

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

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

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

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

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**XII. USE OF UNITED STATES-FLAG VESSELS:**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS  
PREFERENCE FOR APPALACHIAN DEVELOPMENT  
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS  
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.



**KENTUCKY TRANSPORTATION CABINET  
DEPARTMENT OF HIGHWAYS**

**EMPLOYMENT REQUIREMENTS  
RELATING TO  
NONDISCRIMINATION OF EMPLOYEES  
(APPLICABLE TO FEDERAL-AID SYSTEM CONTRACTS)**

**AN ACT OF THE KENTUCKY GENERAL ASSEMBLY  
TO PREVENT DISCRIMINATION IN EMPLOYMENT**

**KRS CHAPTER 344  
EFFECTIVE JUNE 16, 1972**

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

### Standard Title VI/Non-Discrimination Assurances

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, **Federal Highway Administration**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the **Federal Highway Administration** to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the **Federal Highway Administration**, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the **Federal Highway Administration** may determine to be appropriate, including, but not limited to:
  - a. withholding payments to the contractor under the contract until the contractor complies; and/or
  - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the **Federal Highway Administration** may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

### **Standard Title VI/Non-Discrimination Statutes and Authorities**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 -- 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).

## EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (7) provides:

No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

- a) The date of leaving office or termination of employment; or
- b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 1025 Capital Center Drive, Suite 104, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: May 23, 2022

"General Decision Number: KY20240038 03/22/2024

Superseded General Decision Number: KY20230038

State: Kentucky

Construction Type: Highway

Counties: Anderson, Bath, Bourbon, Boyd, Boyle, Bracken, Breckinridge, Bullitt, Carroll, Carter, Clark, Elliott, Fayette, Fleming, Franklin, Gallatin, Grant, Grayson, Greenup, Hardin, Harrison, Henry, Jefferson, Jessamine, Larue, Lewis, Madison, Marion, Mason, Meade, Mercer, Montgomery, Nelson, Nicholas, Oldham, Owen, Robertson, Rowan, Scott, Shelby, Spencer, Trimble, Washington and Woodford Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none"><li>. Executive Order 14026 generally applies to the contract.</li><li>. The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.</li></ul>
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none"><li>. Executive Order 13658 generally applies to the contract.</li><li>. The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.</li></ul>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a

conformance request.

Additional information on contractor requirements and worker  
protections under the Executive Orders is available at  
<http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	02/09/2024
2	03/01/2024
3	03/15/2024
4	03/22/2024

BRIN0004-003 06/01/2023

BRECKENRIDGE COUNTY

	Rates	Fringes
BRICKLAYER.....	\$ 34.17	19.60
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BRKY0001-005 06/01/2023		

BULLITT, CARROLL, GRAYSON, HARDIN, HENRY, JEFFERSON, LARUE,  
MARION, MEADE, NELSON, OLDHAM, SHELBY, SPENCER, & TRIMBLE  
COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 33.48	15.92
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BRKY0002-006 06/01/2023		

BRACKEN, GALLATIN, GRANT, MASON & ROBERTSON COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 33.48	15.92
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BRKY0007-004 06/01/2023		

BOYD, CARTER, ELLIOT, FLEMING, GREENUP, LEWIS & ROWAN COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 39.46	20.14
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BRKY0017-004 06/01/2023		

ANDERSON, BATH, BOURBON, BOYLE, CLARK, FAYETTE, FRANKLIN,  
HARRISON, JESSAMINE, MADISON, MERCER, MONTGOMERY, NICHOLAS,  
OWEN, SCOTT, WASHINGTON & WOODFORD COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 33.48	15.92
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CARP0064-001 04/01/2023		

	Rates	Fringes
CARPENTER.....	\$ 31.81	22.86

Diver.....	\$ 48.09	22.86
PILEDRIVERMAN.....	\$ 32.06	22.86

\* ELEC0212-008 06/05/2023

BRACKEN, GALLATIN and GRANT COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 34.41	21.55

\* ELEC0212-014 11/27/2023

BRACKEN, GALLATIN & GRANT COUNTIES:

	Rates	Fringes
Sound & Communication Technician.....	\$ 27.20	14.54

ELEC0317-012 05/29/2023

BOYD, CARTER, ELLIOT & ROWAN COUNTIES:

	Rates	Fringes
ELECTRICIAN (Wiremen).....	\$ 37.15	22.73

ELEC0369-007 05/28/2023

ANDERSON, BATH, BOURBON, BOYLE, BRECKINRIDGE, BULLITT, CARROLL,  
CLARK, FAYETTE, FRAONKLIN, GRAYSON, HARDIN, HARRISON, HENRY,  
JEFFERSON, JESSAMINE, LARUE, MADISON, MARION, MEADE, MERCER,  
MONTGOMERY, NELSON, NICHOLAS, OLDHAM, OWEN, ROBERTSON, SCOTT,  
SHELBY, SPENCER, TRIMBLE, WASHINGTON, & WOODFORD COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 35.39	20.45

ELEC0575-002 05/29/2023

FLEMING, GREENUP, LEWIS & MASON COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 37.00	22.26

ENGI0181-018 07/01/2023

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 38.55	18.60
GROUP 2.....	\$ 35.69	18.60
GROUP 3.....	\$ 36.14	18.60
GROUP 4.....	\$ 35.37	18.60

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - A-Frame Winch Truck; Auto Patrol; Backfiller;  
Batcher Plant; Bituminous Paver; Bituminous Transfer  
Machine; Boom Cat; Bulldozer; Mechanic; Cableway; Carry-All  
Scoop; Carry Deck Crane; Central Compressor Plant; Cherry

Picker; Clamshell; Concrete Mixer (21 cu. ft. or Over); Concrete Paver; Truck-Mounted Concrete Pump; Core Drill; Crane; Crusher Plant; Derrick; Derrick Boat; Ditching & Trenching Machine; Dragline; Dredge Operator; Dredge Engineer; Elevating Grader & Loaders; Grade-All; Gurries; Heavy Equipment Robotics Operator/Mechanic; High Lift; Hoe-Type Machine; Hoist (Two or More Drums); Hoisting Engine (Two or More Drums); Horizontal Directional Drill Operator; Hydrocrane; Hyster; KeCal Loader; LeTourneau; Locomotive; Mechanic; Mechanically Operated Laser Screed; Mechanic Welder; Mucking Machine; Motor Scraper; Orangepeel Bucket; Overhead Crane; Piledriver; Power Blade; Pumpcrete; Push Dozer; Rock Spreader, attached to equipment; Rotary Drill; Roller (Bituminous); Rough Terrain Crane; Scarifier; Scoopmobile; Shovel; Side Boom; Subgrader; Tailboom; Telescoping Type Forklift; Tow or Push Boat; Tower Crane (French, German & other types); Tractor Shovel; Truck Crane; Tunnel Mining Machines, including Moles, Shields or similar types of Tunnel Mining Equipment

GROUP 2 - Air Compressor (Over 900 cu. ft. per min.); Bituminous Mixer; Boom Type Tamping Machine; Bull Float; Concrete Mixer (Under 21 cu. ft.); Dredge Engineer; Electric Vibrator; Compactor/Self-Propelled Compactor; Elevator (One Drum or Buck Hoist); Elevator (When used to Hoist Building Material); Finish Machine; Firemen & Hoist (One Drum); Flexplane; Forklift (Regardless of Lift Height); Form Grader; Joint Sealing Machine; Outboard Motor Boat; Power Sweeper (Riding Type); Roller (Rock); Ross Carrier; Skid Mounted or Trailer Mounted Concrete Pump; Skid Steer Machine with all Attachments; Switchman or Brakeman; Throttle Valve Person; Tractair & Road Widening Trencher; Tractor (50 H.P. or Over); Truck Crane Oiler; Tugger; Welding Machine; Well Points; & Whirley Oiler

GROUP 3 - All Off Road Material Handling Equipment, including Articulating Dump Trucks; Greaser on Grease Facilities servicing Heavy Equipment

GROUP 4 - Bituminous Distributor; Burlap & Curing Machine; Cement Gun; Concrete Saw; Conveyor; Deckhand Oiler; Grout Pump; Hydraulic Post Driver; Hydro Seeder; Mud Jack; Oiler; Paving Joint Machine; Power Form Handling Equipment; Pump; Roller (Earth); Steerman; Tamping Machine; Tractor (Under 50 H.P.); & Vibrator

CRANES - with booms 150 ft. & Over (Including JIB), and where the length of the boom in combination with the length of the piling leads equals or exceeds 150 ft. - \$1.00 over Group 1 rate

EMPLOYEES ASSIGNED TO WORK BELOW GROUND LEVEL ARE TO BE PAID 10%

ABOVE BASIC WAGE RATE. THIS DOES NOT APPLY TO OPEN CUT WORK.

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IRON0044-009 06/01/2023

BRACKEN, GALLATIN, GRANT, HARRISON, ROBERTSON,  
BOURBON (Northern third, including Townships of Jackson, Millersburg, Ruddel Mills & Shawhan);  
CARROLL (Eastern third, including the Township of Ghent);  
FLEMING (Western part, excluding Townships of Beechburg, Colfax, Elizaville, Flemingsburg, Flemingsburg Junction, Foxport, Grange City, Hillsboro, Hilltop, Mount Carmel, Muses Mills,



Nepton, Pecksridge, Plummers Landing, Plummers Mill, Poplar Plains, Ringos Mills, Tilton & Wallingford);  
MASON (Western two-thirds, including Townships of Dover, Lewisburg, Mays Lick, Maysville, Minerva, Moranburg, Murphysville, Ripley, Sardis, Shannon, South Ripley & Washington);  
NICHOLAS (Townships of Barefoot, Barterville, Carlisle, Ellisville, Headquarters, Henryville, Morningglory, Myers & Oakland Mills);  
OWEN (Townships of Beechwood, Bromley, Fairbanks, Holbrook, Jonesville, Long Ridge, Lusby's Mill, New, New Columbus, New Liberty, Owenton, Poplar Grove, Rockdale, Sanders, Teresita & Wheatley);  
SCOTT (Northern two-thirds, including Townships of Biddle, Davis, Delaplain, Elmville, Longlick, Muddy Ford, Oxford, Rogers Gap, Sadieville, Skinnersburg & Stonewall)

	Rates	Fringes
IRONWORKER		
Fence Erector.....	\$ 30.75	22.70
Structural.....	\$ 32.37	22.70

IRON0070-006 06/01/2023

ANDERSON, BOYLE, BRECKINRIDGE, BULLITT, FAYETTE, FRANKLIN, GRAYSON, HARDIN, HENRY, JEFFERSON, JESSAMINE, LARUE, MADISON, MARION, MEADE, MERCER, NELSON, OLDHAM, SHELBY, SPENCER, TRIMBLE, WASHINGTON & WOODFORD  
BOURBON (Southern two-thirds, including Townships of Austerlity, Centerville, Clintonville, Elizabeth, Hutchison, Littlerock, North Middletown & Paris);  
CARROLL (Western two-thirds, including Townships of Carrollton, Easterday, English, Locust, Louis, Prestonville & Worthville);  
CLARK (Western two-thirds, including Townships of Becknerville, Flanagan, Ford, Pine Grove, Winchester & Wyandotte);  
OWEN (Eastern eighth, including Townships of Glenmary, Gratz, Monterey, Perry Park & Tacketts Mill);  
SCOTT (Southern third, including Townships of Georgetown, Great Crossing, Newtown, Stampling Ground & Woodlake);

	Rates	Fringes
IRONWORKER.....	\$ 32.59	24.50

IRON0769-007 06/01/2023

BATH, BOYD, CARTER, ELLIOTT, GREENUP, LEWIS, MONTGOMERY & ROWAN  
CLARK (Eastern third, including townships of Bloomingdale, Hunt, Indian Fields, Kiddville, Loglick, Rightangele & Thomson);  
FLEMING (Townships of Beechburg, Colfax, Elizaville, Flemingsburg, Flemingsburg Junction, Foxport, Grange City, Hillsboro, Hilltop, Mount Carmel, Muses Mills, Nepton, Pecksridge, Plummers Landing, Plummers Mill, Poplar Plains, Ringos Mills, Tilton & Wallingford);  
MASON (Eastern third, including Townships of Helena, Marshall, Orangeburg, Plumville & Springdale);  
NICHOLAS (Eastern eighth, including the Township of Moorefield Sprout)

Rates	Fringes
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IRONWORKER

ZONE 1.....	\$ 36.16	28.34
ZONE 2.....	\$ 36.56	28.34
ZONE 3.....	\$ 38.16	28.34

ZONE 1 - (no base rate increase) Up to 10 mile radius of Union Hall, 1643 Greenup Ave, Ashland, KY.

ZONE 2 - (add \$0.40 per hour to base rate) 10 to 50 mile radius of Union Hall, 1643 Greenup Ave, Ashland, KY.

ZONE 3 - (add \$2.00 per hour to base rate) 50 mile radius & over of Union Hall, 1643 Greenup Ave, Ashland, KY.

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LAB00189-003 07/01/2023

BATH, BOURBON, BOYD, BOYLE, BRACKEN, CARTER, CLARK, ELLIOTT, FAYETTE, FLEMING, FRANKLIN, GALLATIN, GRANT, GREENUP, HARRISON, JESSAMINE, LEWIS, MADISON, MASON, MERCER, MONTGOMERY, NICHOLAS, OWEN, ROBERTSON, ROWAN, SCOTT, & WOOLFORD COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.96	17.57
GROUP 2.....	\$ 24.21	17.57
GROUP 3.....	\$ 24.26	17.57
GROUP 4.....	\$ 24.86	17.57

LABORERS CLASSIFICATIONS

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

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

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

GROUP 4 - Caisson Worker (Free Air); Cement Finisher;

Environmental - Nuclear, Radiation, Toxic & Hazardous Waste  
- Levels A & B; Miner & Driller (Free Air); Tunnel Blaster;  
& Tunnel Mucker (Free Air); Directional & Horizontal  
Boring; Air Track Drillers (All Types); Powdermen &  
Blasters; Troxler & Concrete Tester if Laborer is Utilized

LABO0189-008 07/01/2023

ANDERSON, BULLITT, CARROLL, HARDIN, HENRY, JEFFERSON, LARUE,  
MARION, MEADE, NELSON, OLDHAM, SHELBY, SPENCER, TRIMBLE &  
WASHINGTON COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.96	17.57
GROUP 2.....	\$ 24.21	17.57
GROUP 3.....	\$ 24.26	17.57
GROUP 4.....	\$ 24.86	17.57

LABORERS CLASSIFICATIONS

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

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

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

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

LABO0189-009 07/01/2023

BRECKINRIDGE & GRAYSON COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.96	17.57
GROUP 2.....	\$ 24.21	17.57
GROUP 3.....	\$ 24.26	17.57
GROUP 4.....	\$ 24.86	17.57

LABORERS CLASSIFICATIONS

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

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

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

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

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PAIN0012-005 06/11/2005

BATH, BOURBON, BOYLE, CLARK, FAYETTE, FLEMING, FRANKLIN, HARRISON, JESSAMINE, MADISON, MERCER, MONTGOMERY, NICHOLAS, ROBERTSON, SCOTT & WOODFORD COUNTIES:

	Rates	Fringes
PAINTER		
Bridge/Equipment Tender		
and/or Containment Builder..	\$ 18.90	5.90
Brush & Roller.....	\$ 21.30	5.90
Elevated Tanks;		

Steeplejack Work; Bridge & Lead Abatement.....	\$ 22.30	5.90
Sandblasting & Waterblasting.....	\$ 22.05	5.90
Spray.....	\$ 21.80	5.90

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PAIN0012-017 05/01/2015

BRACKEN, GALLATIN, GRANT, MASON & OWEN COUNTIES:

	Rates	Fringes
PAINTER (Heavy & Highway Bridges - Guardrails - Lightpoles - Striping)		
Bridge Equipment Tender and Containment Builder.....	\$ 20.73	9.06
Brush & Roller.....	\$ 23.39	9.06
Elevated Tanks; Steeplejack Work; Bridge & Lead Abatement.....	\$ 24.39	9.06
Sandblasting & Water Blasting.....	\$ 24.14	9.06
Spray.....	\$ 23.89	9.06

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PAIN0118-004 06/01/2018

ANDERSON, BRECKINRIDGE, BULLITT, CARROLL, GRAYSON, HARDIN, HENRY, JEFFERSON, LARUE, MARION, MEADE, NELSON, OLDHAM, SHELBY, SPENCER, TRIMBLE & WASHINGTON COUNTIES:

	Rates	Fringes
PAINTER		
Brush & Roller.....	\$ 22.00	12.52
Spray, Sandblast, Power Tools, Waterblast & Steam Cleaning.....	\$ 23.00	12.52

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PAIN1072-003 12/01/2023

BOYD, CARTER, ELLIOTT, GREENUP, LEWIS and ROWAN COUNTIES

	Rates	Fringes
Painters:		
Bridges; Locks; Dams; Tension Towers & Energized Substations.....	\$ 35.64	23.69
Power Generating Facilities.....	\$ 32.40	23.69

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PLUM0248-003 06/01/2023

BOYD, CARTER, ELLIOTT, GREENUP, LEWIS & ROWAN COUNTIES:

	Rates	Fringes
Plumber and Steamfitter.....	\$ 41.00	22.95

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PLUM0392-007 06/01/2023

BRACKEN, CARROLL (Eastern Half), GALLATIN, GRANT, MASON, OWEN & ROBERTSON COUNTIES:

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 38.62	25.73
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PLUM0502-003 08/01/2021		

BRECKINRIDGE, BULLITT, CARROLL (Western Half), FRANKLIN  
(Western three-fourths), GRAYSON, HARDIN, HENRY, JEFFERSON,  
LARUE, MARION, MEADE, NELSON, OLDHAM, SHELBY, SPENCER, TRIMBLE &  
WASHINGTON COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 38.07	20.78
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* SUKY2010-160 10/08/2001		

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 16.57 **	7.34
GROUP 2.....	\$ 16.68 **	7.34
GROUP 3.....	\$ 16.86 **	7.34
GROUP 4.....	\$ 16.96 **	7.34

TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Mobile Batch Truck Tender

GROUP 2 - Greaser; Tire Changer; & Mechanic Tender

GROUP 3 - Single Axle Dump; Flatbed; Semi-trailer or Pole  
Trailer when used to pull building materials and equipment;  
Tandem Axle Dump; Distributor; Mixer; & Truck Mechanic

GROUP 4 - Euclid & Other Heavy Earthmoving Equipment &  
Lowboy; Articulator Cat; 5-Axle Vehicle; Winch & A-Frame  
when used in transporting materials; Ross Carrier; Forklift  
when used to transport building materials; & Pavement  
Breaker

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

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\*\* Workers in this classification may be entitled to a higher  
minimum wage under Executive Order 14026 (\$17.20) or 13658  
(\$12.90). Please see the Note at the top of the wage  
determination for more information. Please also note that the  
minimum wage requirements of Executive Order 14026 are not  
currently being enforced as to any contract or subcontract to  
which the states of Texas, Louisiana, or Mississippi, including  
their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave  
for Federal Contractors applies to all contracts subject to the  
Davis-Bacon Act for which the contract is awarded (and any  
solicitation was issued) on or after January 1, 2017. If this  
contract is covered by the EO, the contractor must provide  
employees with 1 hour of paid sick leave for every 30 hours

they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the

wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210



The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

No laborer, workman or mechanic shall be paid at a rate less than that of a Journeyman except those classified as bona fide apprentices.

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

**TO: EMPLOYERS/EMPLOYEES**

**PREVAILING WAGE SCHEDULE:**

**The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.**

**OVERTIME:**

**Overtime is to be paid to an employee at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek. Wage violations or questions should be directed to the designated Engineer or the undersigned.**

Director  
Division of Construction Procurement  
Frankfort, Kentucky 40622  
502-564-3500

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION  
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY  
(Executive Order 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
9.6%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Notification of Construction Contract Award Portal (NCAP) is OFCCP’s preferred method for receiving construction contract award notifications. The NCAP can be found on OFCCP’s website at <https://www.dol.gov/agencies/ofccp/ncap>. Users who prefer not to use the portal maintain the option to send their notifications via mail, email and facsimile to the OFCCP Regional office in which the work will be performed. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification must include: Prime Contract Number (issued by the federal agency or applicant); Name of Awarding Federal Agency, Applicant or Contractor; Contracting Officer, Applicant Representative or Contractor Representative Submitting Notification with name, phone number, email address; Contractor Awarded Contract or Subcontract with name, address, phone number, email address, EIN, dollar amount of the contract, estimated start date of the contract, estimated completion date of the contract, geographical area in which the contract is to be performed (state, county’s city (if applicable)).
- The notification shall be mailed to:

**Regional Director  
Office of Federal Contract Compliance Programs  
61 Forsyth Street, SW, Suite 7B75  
Atlanta, Georgia 30303-8931  
Main Number: 404-893-4545 Fax: 404-893-4546  
Regional Director Contact: [OFCCP-SE@dol.gov](mailto:OFCCP-SE@dol.gov)  
Construction Award Email: [OFCCP-SE-ConstructionAward@dol.gov](mailto:OFCCP-SE-ConstructionAward@dol.gov)**

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is Washington County.

# **PART IV**

## **INSURANCE**

Refer to  
*Kentucky Standard Specifications for Road and Bridge Construction,*  
current edition

**PART V**

**BID ITEMS**

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	38,720.00	TON		\$	
0020	00078		CRUSHED AGGREGATE SIZE NO 2	58,466.00	TON		\$	
0030	00100		ASPHALT SEAL AGGREGATE	268.90	TON		\$	
0040	00103		ASPHALT SEAL COAT	32.26	TON		\$	
0050	00190		LEVELING & WEDGING PG64-22	4,481.00	TON		\$	
0060	00212		CL2 ASPH BASE 1.00D PG64-22	11,589.00	TON		\$	
0070	00214		CL3 ASPH BASE 1.00D PG64-22	17,988.00	TON		\$	
0080	00296		ASPHALT PRIME COAT	53.07	TON		\$	
0090	00301		CL2 ASPH SURF 0.38D PG64-22	2,589.00	TON		\$	
0100	00388		CL3 ASPH SURF 0.38B PG64-22	4,526.00	TON		\$	
0110	02602		FABRIC-GEOTEXTILE CLASS 1	164,509.00	SQYD		\$	
0120	24785EC		FIBER REINFORCEMENT FOR HMA	15,283.00	TON		\$	
0130	24970EC		ASPHALT MATERIAL FOR TACK NON-TRACKING	57.41	TON		\$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0140	01000		PERFORATED PIPE-4 IN	1,705.00	LF		\$	
0150	01001		PERFORATED PIPE-6 IN	840.00	LF		\$	
0160	01010		NON-PERFORATED PIPE-4 IN	88.00	LF		\$	
0170	01011		NON-PERFORATED PIPE-6 IN	16.00	LF		\$	
0180	01028		PERF PIPE HEADWALL TY 3-4 IN	6.00	EACH		\$	
0190	01029		PERF PIPE HEADWALL TY 3-6 IN	4.00	EACH		\$	
0200	01032		PERF PIPE HEADWALL TY 4-4 IN	2.00	EACH		\$	
0210	01314		PLUG PIPE	8.00	EACH		\$	
0220	01740		CORED HOLE DRAINAGE BOX CON-4 IN	1.00	EACH		\$	
0230	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	75.00	EACH		\$	
0240	02003		RELOCATE TEMP CONC BARRIER	4,645.00	LF		\$	
0250	02159		TEMP DITCH	6,700.00	LF		\$	
0260	02160		CLEAN TEMP DITCH	3,350.00	LF		\$	
0270	02200		ROADWAY EXCAVATION	461,422.00	CUYD		\$	
0280	02231		STRUCTURE GRANULAR BACKFILL	333.00	CUYD		\$	
0290	02242		WATER	600.00	MGAL		\$	
0300	02360		GUARDRAIL TERMINAL SECTION NO 1	6.00	EACH		\$	
0310	02367		GUARDRAIL END TREATMENT TYPE 1	7.00	EACH		\$	
0320	02371		GUARDRAIL END TREATMENT TYPE 7	3.00	EACH		\$	
0330	02381		REMOVE GUARDRAIL	594.00	LF		\$	
0340	02391		GUARDRAIL END TREATMENT TYPE 4A	5.00	EACH		\$	
0350	02397		TEMP GUARDRAIL	5,280.00	LF		\$	
0360	02429		RIGHT-OF-WAY MONUMENT TYPE 1	78.00	EACH		\$	
0370	02432		WITNESS POST	3.00	EACH		\$	
0380	02483		CHANNEL LINING CLASS II	1,884.00	TON		\$	
0390	02484		CHANNEL LINING CLASS III	883.00	TON		\$	
0400	02545		CLEARING AND GRUBBING APPROXIMATELY 46.85 ACRES	1.00	LS		\$	

Report Date 5/22/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0410	02562		TEMPORARY SIGNS	2,500.00	SQFT		\$	
0420	02585		EDGE KEY	121.00	LF		\$	
0430	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0440	02671		PORTABLE CHANGEABLE MESSAGE SIGN	4.00	EACH		\$	
0450	02690		SAFELOADING	22.26	CUYD		\$	
0460	02701		TEMP SILT FENCE	6,700.00	LF		\$	
0470	02703		SILT TRAP TYPE A	63.00	EACH		\$	
0480	02704		SILT TRAP TYPE B	63.00	EACH		\$	
0490	02705		SILT TRAP TYPE C	63.00	EACH		\$	
0500	02706		CLEAN SILT TRAP TYPE A	63.00	EACH		\$	
0510	02707		CLEAN SILT TRAP TYPE B	63.00	EACH		\$	
0520	02708		CLEAN SILT TRAP TYPE C	63.00	EACH		\$	
0530	02726		STAKING	1.00	LS		\$	
0540	02731		REMOVE STRUCTURE STA. 119+72 - 8'X5' RCBC	1.00	LS		\$	
0550	02731		REMOVE STRUCTURE STA. 66+05 - 5'X5' RCBC	1.00	LS		\$	
0560	02731		REMOVE STRUCTURE STA. 78+97 - 4'X3' RCBC	1.00	LS		\$	
0570	02775		ARROW PANEL	2.00	EACH		\$	
0580	02898		RELOCATE CRASH CUSHION	2.00	EACH		\$	
0590	03171		CONCRETE BARRIER WALL TYPE 9T	7,335.00	LF		\$	
0600	03262		CLEAN PIPE STRUCTURE	2.00	EACH		\$	
0610	05950		EROSION CONTROL BLANKET	7,760.00	SQYD		\$	
0620	05952		TEMP MULCH	203,326.00	SQYD		\$	
0630	05953		TEMP SEEDING AND PROTECTION	151,736.00	SQYD		\$	
0640	05963		INITIAL FERTILIZER	11.20	TON		\$	
0650	05964		MAINTENANCE FERTILIZER	6.70	TON		\$	
0660	05985		SEEDING AND PROTECTION	132,449.00	SQYD		\$	
0670	05989		SPECIAL SEEDING CROWN VETCH	76,445.00	SQYD		\$	
0680	05992		AGRICULTURAL LIMESTONE	134.60	TON		\$	
0690	06410		STEEL POST TYPE 1	260.00	LF		\$	
0700	06510		PAVE STRIPING-TEMP PAINT-4 IN	108,000.00	LF		\$	
0710	06542		PAVE STRIPING-THERMO-6 IN W	29,451.00	LF		\$	
0720	06543		PAVE STRIPING-THERMO-6 IN Y	25,705.00	LF		\$	
0730	06568		PAVE MARKING-THERMO STOP BAR-24IN	29.00	LF		\$	
0740	06569		PAVE MARKING-THERMO CROSS-HATCH	2,482.00	SQFT		\$	
0750	06574		PAVE MARKING-THERMO CURV ARROW	8.00	EACH		\$	
0760	06610		INLAID PAVEMENT MARKER-MW	110.00	EACH		\$	
0770	06612		INLAID PAVEMENT MARKER-BY	262.00	EACH		\$	
0780	07535		J-HOOK VANE	1.00	EACH		\$	
0790	08001		STRUCTURE EXCAVATION-COMMON	275.00	CUYD		\$	
0800	08018		RETAINING WALL	1,345.00	SQFT		\$	
0810	08903		CRASH CUSHION TY VI CLASS BT TL3	2.00	EACH		\$	
0820	10020NS		FUEL ADJUSTMENT	179,493.00	DOLL	\$1.00	\$	\$179,493.00
0830	10030NS		ASPHALT ADJUSTMENT	162,581.00	DOLL	\$1.00	\$	\$162,581.00
0840	20071EC		JOINT ADHESIVE	77,200.00	LF		\$	
0850	20191ED		OBJECT MARKER TY 3	12.00	EACH		\$	
0860	20550ND		SAWCUT PAVEMENT	15,262.00	LF		\$	
0870	21289ED		LONGITUDINAL EDGE KEY	14,534.00	LF		\$	

Report Date 5/22/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0880	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	5,650.00	LF		\$	
0890	23274EN11F		TURF REINFORCEMENT MAT 1	573.00	SQYD		\$	
0900	24814EC		PIPELINE INSPECTION	1,204.00	LF		\$	
0910	24891EC		PAVE MOUNT INFRARED TEMP EQUIPMENT	2,111,571.00	SF		\$	
0920	25090EC		SINUSOIDAL RUMBLE STRIPS	52,917.00	LF		\$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0930	00440		ENTRANCE PIPE-15 IN	425.00	LF		\$	
0940	00441		ENTRANCE PIPE-18 IN	111.00	LF		\$	
0950	00443		ENTRANCE PIPE-24 IN	76.00	LF		\$	
0960	00462		CULVERT PIPE-18 IN	117.00	LF		\$	
0970	00464		CULVERT PIPE-24 IN	535.00	LF		\$	
0980	00466		CULVERT PIPE-30 IN	253.00	LF		\$	
0990	00468		CULVERT PIPE-36 IN	16.00	LF		\$	
1000	00474		CULVERT PIPE-72 IN	114.00	LF		\$	
1010	00499		CULVERT PIPE-48 IN EQUIV	90.00	LF		\$	
1020	00524		STORM SEWER PIPE-24 IN	249.00	LF		\$	
1030	01208		PIPE CULVERT HEADWALL-24 IN	3.00	EACH		\$	
1040	01210		PIPE CULVERT HEADWALL-30 IN	7.00	EACH		\$	
1050	01217		PIPE CULVERT HEADWALL-48 IN EQUIV	2.00	EACH		\$	
1060	01376		METAL END SECTION TY 1-42 IN	2.00	EACH		\$	
1070	01434		SLOPED BOX OUTLET TYPE 1-24 IN	2.00	EACH		\$	
1080	01450		S & F BOX INLET-OUTLET-18 IN	4.00	EACH		\$	
1090	01451		S & F BOX INLET-OUTLET-24 IN	8.00	EACH		\$	
1100	01452		S & F BOX INLET-OUTLET-30 IN	1.00	EACH		\$	
1110	01453		S & F BOX INLET-OUTLET-36 IN	1.00	EACH		\$	
1120	01490		DROP BOX INLET TYPE 1	1.00	EACH		\$	
1130	01756		MANHOLE TYPE A	1.00	EACH		\$	
1140	02607		FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	5,410.00	SQYD	\$2.00	\$	\$10,820.00
1150	08100		CONCRETE-CLASS A	.57	CUYD		\$	
1160	24025EC		PIPE CULVERT HEADWALL-72 IN	2.00	EACH		\$	
1170	24561EN		ENTRANCE PIPE-42 IN	36.00	FT		\$	

Section: 0004 - BRIDGE-28874 8'X5' RCBC EXTENSION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1180	02403		REMOVE CONCRETE MASONRY	9.00	CUYD		\$	
1190	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1200	08100		CONCRETE-CLASS A	49.00	CUYD		\$	
1210	08150		STEEL REINFORCEMENT	4,917.00	LB		\$	

Section: 0005 - BRIDGE-28875-TRIPLE 12X11' RCBC EXTENSION AT PARKER RUN

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
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Report Date 5/22/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1220	00003		CRUSHED STONE BASE	42.00	TON		\$	
1230	00078		CRUSHED AGGREGATE SIZE NO 2	46.00	TON		\$	
1240	02403		REMOVE CONCRETE MASONRY	27.00	CUYD		\$	
1250	02998		MASONRY COATING	102.00	SQYD		\$	
1260	08002		STRUCTURE EXCAV-SOLID ROCK	30.00	CUYD		\$	
1270	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1280	08019		CYCLOPEAN STONE RIP RAP	77.00	TON		\$	
1290	08100		CONCRETE-CLASS A	185.00	CUYD		\$	
1300	08150		STEEL REINFORCEMENT	17,982.00	LB		\$	
1310	08410		LOW FLOW DIVERSION CURB	1.00	LS		\$	
1320	20263ED		GEOGRID REINFORCEMENT	115.00	SQYD		\$	
1330	22146EN		CONCRETE PATCHING REPAIR	4.00	SQFT		\$	
1340	24896ED		RAIL SYSTEM TYPE T631	85.00	LF		\$	

Section: 0006 - BRIDGE-28876-4'X3' RCBC UNDER US150

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1350	08002		STRUCTURE EXCAV-SOLID ROCK	5.00	CUYD		\$	
1360	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1370	08100		CONCRETE-CLASS A	34.50	CUYD		\$	
1380	08150		STEEL REINFORCEMENT	3,368.00	LB		\$	

Section: 0007 - BRIDGE-28877-8'X5' RCBC UNDER US 150

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1390	08002		STRUCTURE EXCAV-SOLID ROCK	36.00	CUYD		\$	
1400	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1410	08100		CONCRETE-CLASS A	101.70	CUYD		\$	
1420	08150		STEEL REINFORCEMENT	7,683.00	LB		\$	

Section: 0008 - WATERLINE - CITY OF BARDSTOWN

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1430	14006		W ENCASEMENT STEEL BORED RANGE 1	114.00	LF		\$	
1440	14022		W FLUSH HYDRANT ASSEMBLY	1.00	EACH		\$	
1450	14057		W PIPE PVC 03 INCH	2,046.00	LF		\$	
1460	14074		W PLUG EXISTING MAIN	1.00	EACH		\$	
1470	14092		W TIE-IN 03 INCH	1.00	EACH		\$	
1480	14103		W VALVE 03 INCH	1.00	EACH		\$	
1490	14148		W SERV COPPER LONG SIDE 3/4 IN	1.00	EACH		\$	
1500	14152		W SERV COPPER SHORT SIDE 3/4 IN	5.00	EACH		\$	

Section: 0009 - WATERLINE - SPRINGFIELD WATER & SEWER

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
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Report Date 5/22/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1510	14000		W AIR RELEASE VALVE 1 INCH	1.00	EACH		\$	
1520	14004		W DIRECTIONAL BORE	200.00	LF		\$	
1530	14007		W ENCASEMENT STEEL BORED RANGE 2	100.00	LF		\$	
1540	14021		W FIRE HYDRANT REMOVE	1.00	EACH		\$	
1550	14022		W FLUSH HYDRANT ASSEMBLY	2.00	EACH		\$	
1560	14028		W METER 3/4 INCH	16.00	EACH		\$	
1570	14058		W PIPE PVC 04 INCH	800.00	LF		\$	
1580	14059		W PIPE PVC 06 INCH	7,100.00	LF		\$	
1590	14077		W SERV PE/PLST LONG SIDE 1 IN	3.00	EACH		\$	
1600	14085		W SERV PE/PLST SHORT SIDE 3/4 IN	13.00	EACH		\$	
1610	14093		W TIE-IN 04 INCH	2.00	EACH		\$	
1620	14094		W TIE-IN 06 INCH	1.00	EACH		\$	
1630	14104		W VALVE 04 INCH	3.00	EACH		\$	
1640	14105		W VALVE 06 INCH	8.00	EACH		\$	
1650	14133		W PRESSURE REDUCING VALVE 03 INCH	1.00	EACH		\$	
1660	14181		W PRESSURE RELIEF VALVE SPECIAL	1.00	EACH		\$	
1670	14635		W LEAK DETECTION METER INST	1.00	EACH		\$	
1680	24793NN		TEST METER ASSEMBLY	1.00	EACH		\$	

Section: 0010 - DEMOBILIZATION&/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1690	02568		MOBILIZATION	1.00	LS		\$	
1700	02569		DEMOBILIZATION	1.00	LS		\$	