



CALL NO. 108

CONTRACT ID. 211056

BOYD COUNTY

FED/STATE PROJECT NUMBER STP 5211(123)

DESCRIPTION US-60

WORK TYPE WIDENING

PRIMARY COMPLETION DATE 400 WORKING DAYS

LETTING DATE: December 10,2021

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 am EASTERN STANDARD TIME December 10,2021. Bids will be publicly announced at 10:00 am EASTERN STANDARD TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 8%

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

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PART I
SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 09

CONTRACT ID - 211056
STP 5211(123)
COUNTY - BOYD
PCN - DE01000602156
STP 5211(123)

US-60 (MP 0.22) IMPROVE US-60 FROM I-64 AT INTERCHANGE 181 TO THE KY-180 INTERSECTION AT CANNONSBURG. (MP 4.11), A DISTANCE OF 04.34 MILES.WIDENING SYP NO. 09-08400.00.
GEOGRAPHIC COORDINATES LATITUDE 38:22:40.00 LONGITUDE 82:45:20.00

COMPLETION DATE(S):
400 WORKING Days APPLIES TO ENTIRE 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) 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 fax (502) 564-7299 or email to 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/contract). 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.

April 30, 2018

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 Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Federal Department of Transportation (49 C.F.R., Part 21), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin.

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. There are special rules to DBE subcontractors satisfying DBE goals on federal-aid projects. 1st-Tier DBE Subcontractors may only enter into a 2nd-Tier subcontract with another DBE contractor.

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.

UPON AWARD AND BEFORE A WORK ORDER WILL BE ISSUED

Contractors must submit the signed subcontract between the contractor and the DBE contractor, along with the DBE's certificate of insurance. If the DBE is a supplier of materials for the project, a signed purchase order must be submitted to the Division of Construction Procurement.

Changes to 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 of 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 of Civil Rights and Small Business Development
6th Floor West 200 Mero Street
Frankfort, KY 40622

The prime contractor should notify the KYTC Office of 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. Melvin Bynes. Mr. Bynes' current contact information is email address – melvin.bynes2@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.

TRAINEES

In Compliance with the "TRAINING SPECIAL PROVISION" included in Part III of the Proposal, the Contractor will be required to employ a trainee(s) for this contract.

ASPHALT MIXTURE

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

DGA BASE

Unless otherwise noted, the Department estimates the rate of application for DGA Base to be 115 lbs/sy per inch of depth.

DGA BASE FOR SHOULDERS

Unless otherwise noted, the Department estimates the rate of application for DGA Base for Shoulders to be 115 lbs/sy per inch of depth. The Department will not measure necessary grading and/or shaping of existing shoulders prior to placing of DGA Base, but shall be incidental to the Contract unit price per ton for DGA Base.

Accept payment at the Contract unit price per ton as full compensation for all labor, materials, equipment, and incidentals for grading and/or shaping of existing shoulders and furnishing, placing, and compacting the DGA Base.

INCIDENTAL SURFACING

The Department has included in the quantities of asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for the asphalt mixtures.

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 Contaminated Soil Disposal

Boyd County

IMPROVE US 60 FROM I-64 INTERCHANGE #181 TO THE KY 180 INTERSECTION AT CANNONBURG

Item No. 9-8400

Parcel 10 – Simons, Bowen, Chapman: Excavated soils removed from this parcel shall be disposed at an off-site, approved and contained landfill. The contractor shall be HazMat certified or shall have a certified HazMat subcontractor perform this excavation and disposal. The contractor shall provide the disposal manifest to the engineer. Payment shall be incidental to roadway excavation.

Parcel 36 - Conn: Excavated soils removed from this parcel shall be disposed at an off-site, approved and contained landfill. The contractor shall be HazMat certified or shall have a certified HazMat subcontractor perform this excavation and disposal. The contractor shall provide the disposal manifest to the engineer. Payment shall be incidental to roadway excavation.

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.

PROJECT MATERIALS RELEASE FORM
FOR SIGNAL AND LIGHTING

Note: Email form with signatures to KYTC's warehouse (kim.stamper@ky.gov) at least two (2) days prior to arrival for pickup. Ensure Contractor's delivery driver has a copy of form with signatures. Failure to do either may result in long delays or refusal to distribute materials upon arrival.

Item Number: 9-8400.00
County: Boyd
Description: US 60 @ KY 180

BOYD COUNTY
STP 5211(123)

Cabinets	Master code		
	1	T-01-0020	Base Mounted 332 Cabinet
UNTY	1	T-01-0105	ATC Controller
123)	1	T-01-0106	1C w/Maxtime (this should go with item ATC controller)
	1	T-01-0510	Isolator, Model 242 (1 for 2070, plus for ped detector and railroad)
	8	T-01-0700	Load Switches

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Signals			
	13	T-02-0009	Siemens 3 Section Signal
	13	T-02-0032	Siemen 3 section backplate
	5	T-02-0300	LED Module 12" red arrow
	5	T-02-0310	LED Module 12" yellow arrow
	5	T-02-0320	LED Module 12" green arrow
	8	T-02-0330	LED Module 12" red ball
	8	T-02-0340	LED Module 12" yellow ball
	8	T-02-0350	LED Module 12" green ball

Special items			
	1	T-02-0504	Router (this includes power supply/antenna/cabling)
	1		Radar Presence Detector type A & B

Poles			
	1	T-04-0040	Steel Strain Pole 34 foot
	2	T-04-0051	Steel Strain Pole 36 foot
	1	T-04-0054	Steel Strain Pole 38 foot

REQUIRED

Electrical Contractor Name _____
Electrical Contractor Supervisor _____ Contact number for Supervisor _____
Project Engineer _____ Contact number for Project Engineer _____
Project Engineer attests that the mentioned contractor is the actual electrical contractor on this project
Signature of Project Engineer or Designee _____

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 informational verification.

3.2.1 KYCT Frequency. Obtain an adequate sample of hot mix asphalt to insure 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, fabricate a minimum of 3 and up to 6 test specimens. The specimens shall be compacted at the temperature in accordance to KM 64-411. KYCT mix design specimens shall be short-term conditioned for four hours at compaction temperature in accordance to KM 64-411. Contrary to the Kentucky Method, plant produced bituminous material shall be short-term conditioned immediately after sampling for two hours at compaction temperature in accordance to 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 insure 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 to 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 to 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 KYCT Video Demonstration

<https://www.youtube.com/watch?v=84j0bM45-hg&feature=youtu.be>

6.0 Payment

Any additional labor and testing equipment that is required to fabricate and test the KYCT and Hamburg specimens shall be considered to be 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 3, 2019

SPECIAL NOTE FOR CONCRETE SLURRY

If diamond grinding, grooving or any other process which produces slurry is required on roadways or bridges, the contractor shall ensure that all concrete slurry associated with these processes is collected, managed, and disposed of appropriately. The waste material shall be disposed of at a permitted disposal facility, in accordance with the Kentucky Standard Specifications for Road and Bridge Construction and the Environmental Performance Standards outlined in 401 KAR 47:030, or managed as a material for beneficial reuse. Any fines or remediation related to improper disposal shall be the sole responsibility of the contractor.

Disposal of concrete slurry will not be paid separately and shall be considered incidental to other bid items.

8/20/2019

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 ⁽¹⁾
10 or greater	Remove and Replace ⁽²⁾

⁽¹⁾ 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. ⁽²⁾ 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 ⁽¹⁾

(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

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.

SPECIAL NOTE

KY Division of Air Quality Bridge Demolition Notification

**Boyd County
US 60 from I-64 at Interchange 181 (MP 0.2) Extending
Northerly to the KY 180 (MP 4.02) Intersection at
Cannonsburg
Item No. 9-8400.00**

Please be advised that it will be the responsibility of the selected roadway contractor to submit the 10-Day Notice of Intent for Demolition to the Kentucky Division of Air Quality for each bridge to be demolished. The attached Asbestos Inspection Reports should accompany the submittals.

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.



TRANSPORTATION CABINET

Frankfort, Kentucky 40622
www.transportation.ky.gov

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Karen Mynhier
CC: Tony Vinegar
From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis
Date: 7/28/2014
Re: Asbestos Inspection Report for Boyd 09-8400

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # 09-8400

Bridge # 010B00017N

Description: The concrete samples collected were negative for asbestos. Samples of Joint Compound, Concrete Sealant, Reflector Glue and Guard Rail Mastic required a point count. None of these samples were positive for asbestos. No abatement necessary.

Inspection Date: July 17th, 2014

Results

The results show no ACM abatement is required.





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

Analysis N #	2107266A	Address:	Boyd County
Client Name:	KYTC		Bridge # 010 B00017N
Sampled By:	O'Dail Lawson		

[illegible]

Date Analyzed : 26-Jul-14
Analyst : Winterford Mensah

Wintour Mercap
Signature


AJHA #1 02459

<i>MRS, INC.</i>	<i>MRS, Inc. Analytical Laboratory Division</i>
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332 West Broadway, Suite 613
Louisville, Kentucky 40202

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

Client: <u>KY Transportation Cabinet</u>	Project No: <u>2107266B</u>
Address: <u>200 Mero Street</u>	Sample ID: <u>B17-3</u>
<u>Frankfort, KY</u>	Sampled: <u>17-Jul-14</u>
<u>40601</u>	Received: <u>17-Jul-14</u>
Attention O'Dail Lawson	Analyzed: <u>26-Jul-14 - Point Count -</u>

Bulk Sample Analysis					
Sampled by:	<u>O'Dail Lawson</u>				
Facility/Location:	<u>Boyd County - Bridge # 010 B00017N</u>				
Field Description:	<u>Concrete Sealant</u>				
Laboratory Description:	<u>Gray Material</u>				
Asbestos Materials:	<u>Chrysotile = 1/400 = 0.25 % (< 1 %) Sample Is Negative</u>				
Non-asbestos Fibrous Materials & Matrix Materials:	<table style="width: 100%;"> <tr> <td style="width: 60%;">Cellulose</td> <td style="text-align: right;">0.25 %</td> </tr> <tr> <td>Binders</td> <td style="text-align: right;">99.50 %</td> </tr> </table>	Cellulose	0.25 %	Binders	99.50 %
Cellulose	0.25 %				
Binders	99.50 %				
Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.					
Analyst: <u>Winterford Mensah</u>	Reviewed By: <u></u> <small>Signature</small>				

AIHA #102459

/

AIHA #102459

/

AIHA #102459



Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

Client Information **KY TRANSPORTATION CABINET**

Results Code:

Address: 200 Mero Street
Frankfort

ND - None Detected

FTD = Filter Tampering or Damaged

N/A = Not Applicable

PO#:

Project or Subject Reference

304D
t or Subject Reference
B00017N

09-2400

Samplers (signature):

[illegible]

Relinquished By:

Date/Time:

Received By:

Date/Time:

Relinquished By:

Date/Time:

Received at Lab By:

Date/Time:

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011

Certificate Number

7910

Social Security Number

August 23, 2013

Course Dates

August 23, 2013

Exam Date

August 23, 2014

Expiration Date



Louisville, KY

Location

Barry A. Maxwell
Barry Maxwell, Training Manager

Kerri Boddy
Kerri Boddy, Principal Instructor

Kerri Boddy
Kerri Boddy, Exam Administrator

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management



TRANSPORTATION CABINET

Frankfort, Kentucky 40622
www.transportation.ky.gov

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Karen Mynhier
CC: Tony Vinegar
From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis
Date: 7/28/2014
Re: Asbestos Inspection Report for Boyd 09-8400

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # 09-8400

Bridge # 010B00018N

Description: The concrete and paint samples collected were negative for asbestos. The Joint Paper, Joint Compound, and Decking Compound samples were point counted below 1%. No abatement necessary.

Inspection Date: July 17th, 2014

Results

The results show no ACM abatement is required.





Fax: (502) 491-7111

Analysis N #	2107267A	Address:	Boyd County
Client Name:	KYTC		Bridge # 010 B00018N
Sampled By:	O'Dail Lawson		


[illegible]

Date Analyzed : 26-Jul-14
Analyst : Winterford Mensah


Reviewed By: *Vintages Mercap*
Signature

AJHA #1 02459


<i>MRS, INC.</i>		<u>MRS, Inc. Analytical Laboratory Division</u>	
332 West Broadway, Suite 613		(502) 495-1212	
Louisville, Kentucky 40202		Fax: (502) 491-7111	
Client:	<u>KY Transportation Cabinet</u>	Project No:	<u>2107267B</u>
Address:	<u>200 Mero Street</u>	Sample ID:	<u>B18 - 4</u>
	<u>Frankfort, KY</u>	Sampled:	<u>17-Jul-14</u>
	<u>40601</u>	Received:	<u>17-Jul-14</u>
		Analyzed:	<u>26-Jul-14 - Point Count -</u>
	<u>Attention O'Dail Lawson</u>		

Bulk Sample Analysis	
Sampled by:	<u>O'Dail Lawson</u>
Facility/Location:	<u>Boyd County / Bridge # 010 B00018N</u>
Field Description:	<u>Joint Paper</u>
Laboratory Description:	<u>Gray Material With Black Interior</u>
Asbestos Materials:	<u>Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative</u>
Non-asbestos Fibrous Materials & Matrix Materials:	
	<u>Cellulose 3.25 %</u>
	<u>Binders 96.25 %</u>
<p>Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.</p>	
Analyst:	<u>Winterford Mensah</u>
Reviewed By:	<u></u> <small>Signature</small>

<i>MRS, INC.</i>		<i>MRS, Inc. Analytical Laboratory Division</i>	
332 West Broadway, Suite 613		(502) 495-1212	
Louisville, Kentucky 40202		Fax: (502) 491-7111	
Client:	KY Transportation Cabinet	Project No:	2107267B
Address:	200 Mero Street	Sample ID:	B18 - 4
	Frankfort, KY	Sampled:	17-Jul-14
	40601	Received:	17-Jul-14
		Analyzed:	26-Jul-14 - Point Count -
	Attention O'Dail Lawson		

Bulk Sample Analysis					
Sampled by:	O'Dail Lawson				
Facility/Location:	Boyd County / Bridge # 010 B00018N				
Field Description:	Joint Compound - East Side Of The Structure -				
Laboratory Description:	Black Material				
Asbestos Materials:	Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative				
Non-asbestos Fibrous Materials & Matrix Materials:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Cellulose</td> <td style="text-align: right;">0.25 %</td> </tr> <tr> <td>Binders</td> <td style="text-align: right;">99.25 %</td> </tr> </table>	Cellulose	0.25 %	Binders	99.25 %
Cellulose	0.25 %				
Binders	99.25 %				
<p>Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.</p>					
Analyst:	<div style="display: flex; justify-content: space-between;"> Winterford Mensah Reviewed By:  </div> <div style="display: flex; justify-content: space-between; font-size: small;"> Signature </div>				

<i>MRS, INC.</i>		<i>MRS, Inc. Analytical Laboratory Division</i>	
332 West Broadway, Suite 613		(502) 495-1212	
Louisville, Kentucky 40202		Fax: (502) 491-7111	
Client:	KY Transportation Cabinet	Project No:	2107267B
Address:	200 Mero Street	Sample ID:	B18 - 8
	Frankfort, KY	Sampled:	17-Jul-14
	40601	Received:	17-Jul-14
		Analyzed:	26-Jul-14 - Point Count -
	Attention O'Dail Lawson		

Bulk Sample Analysis	
Sampled by:	O'Dail Lawson
Facility/Location:	Boyd County / Bridge # 010 B00018N
Field Description:	Decking Compound - East Side Of The Structure
Laboratory Description:	Thick Black Material
Asbestos Materials:	Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative
Non-asbestos Fibrous Materials & Matrix Materials:	
	Cellulose 0.25 %
	Binders 99.25 %
<p>Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.</p>	
Analyst:	Winterford Mensah
Reviewed By:	 <small>Signature</small>



Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

O'Dail Lawson o'dail.lawson@kv.gov KYTC		Client Information KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable		Project or Subject Reference B00018N		Samplers (signature) 			
Address: 200 Mero Street Frankfort KY		Phone: 502-782-5020 Fax: 502-564-5655		PO#:		07-2400			
Sample ID	Sample Description	Collected	Date	Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
B18-1	Pier Concrete		7/17/14	12:30pm	Asbestos	Concrete	Grey		N/A
B18-2	Concrete Abutment					Concrete	Grey		
B18-3	Slope Stability Concrete					Concrete	Grey		
B18-4	Joint Pepper					Paper	Grey		
B18-5	Concrete Deck					Concrete	Grey		
B18-6	Concrete Rail					Concrete	Grey		
B18-7	Joint Compound					Compound	Black		
B18-8	Joint Compound					Compound	Black		
B18-9	Paint Chip					Paint	Black		
Relinquished By:		Date/Time:							
Received By:		Date/Time: 7/21/14							
Relinquished By:		Date/Time:							
Received at Lab By:		Date/Time:							

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011

Certificate Number

7910

Social Security Number

August 23, 2013

Course Dates

August 23, 2013

Exam Date

August 23, 2014

Expiration Date



Louisville, KY

Location

Berry A. Maxwell
Berry Maxwell, Training Manager

Kerri Boddy
Kerri Boddy, Principal Instructor

Kerri Boddy
Kerri Boddy, Exam Administrator

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management



TRANSPORTATION CABINET

Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Karen Mynhier
CC: Tony Vinegar
From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis
Date: 7/28/2014
Re: Asbestos Inspection Report for Boyd 09-8400

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # 09-8400

Bridge # 010B00019N

Description: The concrete and Joint Rubber samples collected were negative for asbestos. The Concrete Sealant sample was point counted below 1%. No abatement necessary.

Inspection Date: July 17th, 2014

Results

The results show no ACM abatement is required.





Fax: (502) 491-7111

Analysis N #	2107267A	Address:	Boyd County
Client Name:	KYTC		Bridge # 010 B00019N
Sampled By:	O'Dail Lawson		


[illegible]

Date Analyzed : 26-Jul-14
Analyst : Winterford Mensah

Reviewed By: Hindoo Menon
Signature

AJHA #1 02459

<i>MRS, INC.</i>		<u>MRS, Inc. Analytical Laboratory Division</u>	
332 West Broadway, Suite 613		(502) 495-1212	
Louisville, Kentucky 40202		Fax: (502) 491-7111	
Client:	<u>KY Transportation Cabinet</u>	Project No:	<u>2107268B</u>
Address:	<u>200 Mero Street</u>	Sample ID:	<u>B19 - 5</u>
	<u>Frankfort, KY</u>	Sampled:	<u>17-Jul-14</u>
	<u>40601</u>	Received:	<u>17-Jul-14</u>
		Analyzed:	<u>26-Jul-14 - Point Count -</u>
	<u>Attention O'Dail Lawson</u>		

Bulk Sample Analysis	
Sampled by:	<u>O'Dail Lawson</u>
Facility/Location:	<u>Boyd County - Bridge # 010 B00019N</u>
Field Description:	<u>Concreta Sealant - Northeast Side Of The Structure -</u>
Laboratory Description:	<u>Gray Material</u>
Asbestos Materials:	<u>Chrysotile = 1/400 = 0.25 % (< 1 %) Sample Is Negative</u>
Non-asbestos Fibrous Materials & Matrix Materials:	
	<u>Cellulose 0.25 %</u>
	<u>Binders 99.50 %</u>
Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.	
Analyst:	<u>Winterford Mensah</u>
Reviewed By:	<u></u> <small>Signature</small>

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655



O'Dail Lawson KYTC 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655		Client Information KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable		Project or Subject Reference BOYD Project 010 B00019N 09-8400		Samplers (signature): <i>[Signature]</i>		
Sample ID	Sample Description	Collected Date	Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
B19-1	Pier Concrete	7/17/14	11:55am	North East Side of Structure	Concrete	Grey		N/A
B19-2	Abutment				Concrete	Grey		
B19-3	Patch Concrete under Span				Concrete	Grey		
B19-4	Span Concrete				Concrete	Grey		
B19-5	Concrete Sealant				Concrete	Grey		
B19-6	Concrete Rail				Concrete	Grey		
B19-7	Joint Rubber				Rubber	Dark Grey		
Relinquished By:		Date/Time:						
Received By: <i>[Signature]</i>		Date/Time: 7/21/14						
Relinquished By:		Date/Time:						
Received at Lab By:		Date/Time:						

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011

Certificate Number

7910

Social Security Number

August 23, 2013

Course Dates

August 23, 2013

Exam Date

August 23, 2014

Expiration Date



Louisville,, KY

Location

Barry E. Maxwell
Barry Maxwell, Training Manager

Kerri Boddy
Kerri Boddy, Principal Instructor

Kerri Boddy
Kerri Boddy, Exam Administrator

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management



KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF RIGHT OF WAY & UTILITIES
RIGHT OF WAY CERTIFICATION

TC 62-226
Rev. 01/2016
Page 1 of 1

<input checked="" type="checkbox"/> Original	<input type="checkbox"/> Re-Certification	RIGHT OF WAY CERTIFICATION	
ITEM #	COUNTY	PROJECT # (STATE)	PROJECT # (FEDERAL)
09-8400.00	Boyd	1381 JL04 010 8292801R	
PROJECT DESCRIPTION			
IMPROVE US-60 FROM I-64 AT INTERCHANGE 181 TO THE KY-180 INTERSECTION AT CANNONBURG. (08CCN) (10CCR)(12CCR)			
<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 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 checked="" 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	72	EXCEPTION (S) Parcel #	ANTICIPATED DATE OF POSSESSION WITH EXPLANATION
Number of Parcels That Have Been Acquired		9	Acquisition of Parcel 9, CSX Railroad, has been delayed due to plan revisions of the bridge structure spanning the railroad, area types requested by CSX, etc. Anticipated possession date is 12/07/2021. All documents/deed prepared and sent to CSX to execute.
Signed Deed	65		
Condemnation	6		
Signed ROE	6		
Notes/ Comments (Use Additional Sheet if necessary)			
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 prior to or after bid letting and prior to AWARD of the construction contract or force account construction.			
The award of the construction contract will be held until a re-certification (Condition # 1) is submitted.			
LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	James R. Mason
Signature		Signature	Digitally signed by James Mason
Date		Date	Date: 2021.11.10 14:39:00 -05'00"
Right of Way Director		FHWA	
Printed Name	2021.11.10	Printed Name	
Signature	14:44:16 -05'00"	Signature	

UTILITIES AND RAIL CERTIFICATION NOTE

**Boyd County
STP 5211(123)
JL04 010 8292801U
Mile point: 0.200 TO 4.020
IMPROVE US-60 FROM I-64 AT INTERCHANGE 181 TO THE KY-180 INTERSECTION AT CANNONBURG.
(08CCN) (10CCR)(12CCR)
ITEM NUMBER: 09-8400.00**

PROJECT NOTES ON UTILITIES

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 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.

UTILITIES AND RAIL CERTIFICATION NOTE

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STP 5211(123)
JL04 010 8292801U
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NOTE: DO NOT DISTURB THE FOLLOWING FACILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

Not Applicable

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

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

Windstream Communications LLC - Telephone, Completion date: 10/31/2021

AT&T Corporation - Communication, Completion date: 10/31/2021

Natural Energy Utility Corporation - Natural Gas, Completion date: 11/30/2021

Armstrong Telecommunications, Inc. – Telephone, Completion date: 10/31/2021

Kentucky Wired – Communication, Completion date: 10/31/2021

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

Not Applicable

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

Cannonsburg Water District - Water

Sanitation District #4 – Sewer

RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

☐ No Rail Involvement ☒ Rail Involved ☐ Rail Adjacent

UTILITIES AND RAIL CERTIFICATION NOTE

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ITEM NUMBER: 09-8400.00

AREA FACILITY OWNER CONTACT LIST

Facility Owner	Address	Contact Name	Phone	Email
Columbia Gas of Kentucky - Natural Gas	PO Box 14241 Lexington KY 40512	David Lemons	8592880249	DNLemons@nisource.com
Armstrong Telecommunicatons, Inc. - Telephone	9651 County Road 1 South Point OH 45680	Leonard Harvey	7408943886	lharvey@agoc.com
AT&T Corporation - Communication	7555 East Pleasant Valley Road Independence OH 44131	Mike Diederich	2167500135	md4145@att.com
Cannonsburg Water District - Water	1606 Cannonsburg Rd. Ashland KY 41102	Tim Webb	6069289808	tim@cannonsburgwater.com
Charter DBA Spectrum - CATV	1617 Foxhaven Dr Richmond KY 40475	R. Steven Smith	8596264809	rsteven.smith@charter.com
CSX Transportation, Inc. - Railroad	4900 Old Osborne Tnpke Richmond VA 23231	Troy Creasy	8042267718	Troy_Creasy@CSX.com
Kentucky Power Company - Electric	855 Central Avenue Suite 20 Ashland KY 41102	Patrick Thovson	6068312307	pathovson@aep.com
Kentucky Wired - Communication	200 Mercer Rd. 2nd Floor Lexington KY 40511	Gary Lady	8596199166	gary.lady@ledcor.com
Natural Energy Utility Corporation - Natural Gas	2560 Hoods Creek Pike Ashland KY 41102	Matt Oaks	6063243920	Matt.Oaks@kyneuc.com

UTILITIES AND RAIL CERTIFICATION NOTE

Boyd County
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Sanitation District #4 - Sewer	239 W. Little Garner Rd. Ashland KY 41102	Gary Helton	6062320610	ghelton@bcsd4.com
Windstream Communications LLC - Telephone	130 West New Circle Road Lexington KY 40505	Steve Johnson	8593576209	Steve.Johnson@windstream.com



SPECIAL NOTES FOR PROTECTION OF RAILROAD INTEREST

CSX TRANSPORTATION, INC.

I. AUTHORITY OF RAILROAD ENGINEER AND STATE ENGINEER:

- A. *The authorized representative of the Railroad Company, hereinafter referred to as Railroad Engineer, shall have final authority in all matters affecting the safe maintenance of Railroad operations and property.*
- B. *The authorized representative of the State, hereinafter referred to as the Engineer, shall have authority over all other matters as prescribed herein and in the Project Specifications.*

II. NOTICE OF STARTING WORK:

- A. *The Contractor shall not commence any work on Railroad rights of way until he has complied with the following conditions:*
 - 1. Given the Railroad written notice, with copy to the Engineer who has been designated to be in charge of the work, **at least ten (10) days in advance** of the date he proposes to begin work on Railroad rights of way. The notice must refer to Railroad Agreement with the State by the date of the Agreement. **If flagging service is required, such notice shall be submitted at least thirty (30) days in advance** of the date scheduled to commence work. The Railroad's Contact information is on the Summary Sheet.
 - 2. Obtain written authorization from the Railroad to begin work on Railroad rights of way, such authorization to include an outline of specific conditions with which he must comply.
 - 3. Obtain written approval from the Railroad of Railroad Protective Insurance Liability coverage as required by paragraph 14 herein.
 - 4. Furnish a schedule for all work within the Railroad rights of way as required by paragraph 7, B, 1.
- B. *The Railroad's written authorization to proceed with the work shall include the names, addresses, and telephone numbers of the Railroad's representatives who are to be notified as hereinafter required. Where more than one representative is designated, the area of responsibility of each representative shall be specified.*

III. INTERFERENCE WITH RAILROAD OPERATIONS:

- A. *The Contractor shall so arrange and conduct his work that there will be no interference with Railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad Company or to poles, wires, and other facilities of tenants on the rights of way of the Railroad Company. The Contractor shall store materials so as to prevent trespassers from causing damage to trains or Railroad property and shall not use Railroad property without written permission from the Railroad. Whenever work is to affect the operations or safety of trains, the method of doing such work shall first be submitted to the Railroad Engineer for approval, but such approval shall not relieve the Contractor from liability. Any work to be performed by the Contractor which requires flagging service or inspection service (watchman) shall be deferred by the Contractor until the flagging protection required by the Railroad is available at the job site.*
- B. *Should conditions arising from, or in connection with the work, require that immediate and unusual provisions be made to protect train operations and property of the Railroad, the Contractor shall make such provisions. If in the judgment of the Railroad Engineer, or his representative, such provisions are insufficient, the Railroad Engineer may require or provide such provisions, as he deems necessary at Contractor's cost and expense. In any event, such unusual provisions shall be at the Contractor's expense and without cost and/or time to the Railroad or the State.*

IV. TRACK CLEARANCES

- A. *The minimum track clearances to be maintained by the Contractor during construction are shown on the Project Plans. However, before undertaking any work within Railroad rights of way, or before placing any obstruction over any track, the Contractor shall:*
1. Notify the Railroad's representative **at least 72 hours in advance** of the work.
 2. Receive assurance from the Railroad's representative that arrangements have been made for flagging service as necessary.
 3. Receive permission from the Railroad's representative to proceed with the work.
 4. Ascertain that the State Engineer has received copies of notice to the Railroad and of the Railroad's response thereto, and has approved the contractor's methods.

V. CONSTRUCTION PROCEDURES

A. General:

1. Construction work on Railroad property shall be:
 - a) Subject to the inspection and approval of the Railroad.
 - b) In accord with the Railroad's written outline of specific conditions.
 - c) In accord with the Railroad's general rules, regulations and requirements including those relating to safety, fall protection and personal protective equipment, which the Contractor shall obtain from the Railroad.
 - d) In accord with all Special Notes, Summaries, and Addendums.
2. The Railroad requires a submission of construction procedure that meets the requirements of these Special Notes and attachments. The Railroad's **submittal review period is thirty (30) days. Resubmissions will be reviewed within (30) days.**
3. All requirements of the *Construction Submission Criteria* shall be met. Requirements in addition to those in the *Construction Submission Criteria* are listed below in this document:

B. Excavation:

1. The sub grade of an operated track shall be **maintained with edge of berm at least 15'0" from centerline of track and not more than 24 inches below top of rail.** Contractor will not be required to make existing section meet this specification if substandard, in which case the existing section will be maintained.
2. Additionally, the Railroad Engineer may require installation of orange construction fencing for protection of the work area located on Railroad right of way.

C. Excavation of Structures:

1. The Contractor will be required to take special precaution and care in connection with excavating and shoring pits, and in driving piles, or sheeting for footings adjacent to tracks to provide adequate lateral support for the tracks and the loads which they carry, without disturbance of track alignment and surface, and to avoid obstructing track clearances with working equipment, tools or other material. The procedure for doing such work, including need of and plans for shoring, shall first be submitted, with the stamp of an Engineer in the State of Kentucky, and approved by

the Engineer and the Railroad Engineer, but such approval shall not relieve the Contractor from liability.

2. Additionally, a walkway with handrail protection may be required as noted in Section XI herein.

D. Demolition, Erection, Hoisting

1. Railroad tracks and other railroad property must be protected from damage during the procedure. No crane or equipment may be set on the rails or track structure and no material may be dropped on Railroad property.
2. Loads shall not be supported while any trains are passing if that piece of equipment has the capacity to **foul a 50' envelope**.
3. The Railroad may require the Contractor to install filter fabric over the track and ballast to prevent any concrete dust or other construction debris from fouling the ballast. This will be determined during actual construction activities by the Railroad or its representatives. Fabric should extend at least 25 feet beyond the outside edges of the bridge. Fabric will remain in place until all construction activities are complete.
4. Temporary construction clearance: Ensure all falsework, bracing, or forms have a minimum vertical clearance of 23 feet above the top of the highest rail and a minimum horizontal clearance of 12 feet measured perpendicular to the centerline of the nearest track.

E. Blasting:

1. The Contractor shall obtain advance written approval of the Railroad Engineer and the Engineer for use of explosive on or adjacent to Railroad property. The request for permission to use explosives shall include a detailed blasting plan. If permission for use of explosives is granted, the Contractor will be required to comply with the following:
 - a) No blasting shall be done without the presence of an authorized representative of the Railroad. **At least 10 days advance notice** to the person designated in the Railroad's notice of authorization to proceed (see Section II.B above) will be required to arrange for the presence of an authorized Railroad representative and such flagging as the Railroad may require.

2. The Railroad representative will:
 - a) Determine the approximate location of trains and advise the Contractor the approximate amount of time available for the blasting operation and clean-up.
 - b) Have the authority to order discontinuance of blasting if, in his opinion, blasting is too hazardous or is not in accord with these Special Notes.

F. Maintenance of Railroad Facilities:

1. The Contractor will be required to maintain all ditches and drainage structures free of silt or other obstructions which may result from his operations and provide and maintain any erosion control measures as required. The Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either (1) silt fence; (2) berm or temporary ditches; (3) sediment basin; (4) aggregate checks; and (5) channel lining. The Contractor will promptly repair eroded areas with Railroad rights of way and to repair any other damage to the property of the Railroad or its tenants at the Contractor's expense.
2. All maintenance and repair of damages due to the Contractor's operations shall be done at the Contractor's expense.

G. Storage of Materials and Equipment:

1. Materials and equipment shall not be stored where they will interfere with Railroad operations, nor on the rights of way of the Railroad Company without first having obtained permission from the Railroad Engineer, and such permission will be with the understanding that the Railroad Company will not be liable for damage to such material and equipment from any cause and that the Railroad Engineer may move or require the Contractor to move, at the Contractor's expense, such material and equipment.
2. All grading or construction machinery that is left parked near the track unattended by a watchman shall be effectively immobilized so that it cannot be moved by unauthorized persons. The Contractor shall protect, defend, indemnify and save Railroad, and any associated, controlled or affiliated corporation, harmless from and against all losses, costs, expenses, claim or liability for loss or damage to property or the loss of life or personal injury, arising out of or incident to the Contractor's failure to immobilize grading or construction machinery.

H. Cleanup:

1. Upon completion of the work, the Contractor shall remove from within the limits of the Railroad rights of way, all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the Contractor, and leave said rights of way in a neat condition satisfactory to the Railroad Engineer or his authorized representative.

VI. DAMAGES:

- A. The Contractor shall assume all liability for any and all damages to his/her work, employees, equipment and materials caused by Railroad traffic.*
- B. Any cost incurred by the Railroad for repairing damages to its property or to property of its tenants, caused by or resulting from the operations of the Contractor, shall be paid directly to the Railroad by the Contractor.*

VII. FLAGGING SERVICES:

A. When Required:

1. Flagging services will not be provided until the contractor's insurance has been reviewed & approved by the Railroad.
2. Under the terms of the agreement between the Department and the Railroad, the **Railroad has sole authority to determine the need for flagging** required to protect its operations. In general, the requirements of such services will be whenever the Contractor's personnel or equipment are likely to be, working on the Railroad's rights of way, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging. If any element (workers, equipment, tools, scaffolding, etc.) may exist or fall within 50 -feet of the edge of track, a flagman is necessary.
3. Normally, the Railroad will assign one flagman to a project; but in some cases, more than one may be necessary, such as yard limits where three-(3) flagmen may be required. However, if the Contractor works within distances that violate instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required until the project has been completed.

B. Scheduling and Notification:

1. Not later than the time that approval is initially requested to begin work on Railroad rights of way, Contractor shall furnish to the Railroad and the Department a schedule for all work required to complete the portion of the project within Railroad rights of way and arrange for a job site meeting between the Contractor, the Department, and the Railroad's authorized representative. Flagman or Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.
2. The Contractor will be required to give the Railroad representative **at least 10 working days of advance written notice** of intent to begin work within Railroad rights of way. If it is necessary for the Railroad to advertise a flagging job for bid, it **may take up to 30-days to obtain service**. Once begun, when work is suspended at any time for any reason, the Contractor will be required to give the Railroad representative **at least 72 hours in advance** before resuming work on Railroad rights of way. Such notice shall include sufficient details of the proposed work to enable the Railroad representative to determine if flagging will be required. If such notice is in writing, the Contractor shall furnish the Engineer a copy; if notice is given verbally it shall be confirmed in writing with copy to the Engineer. If flagging is required, no work shall be undertaken until the flagman, or flagmen is present at the job site. It **may take up to 30 days to obtain flagging initially** from the Railroad. When flagging begins the flagman is usually assigned by the Railroad to work at the project site on a continual basis until no longer needed and may be unable to be called for on a spot basis. If flagging becomes unnecessary and is suspended, it **may take up to 30 days to again obtain flagging services** from the Railroad. Due to labor agreements, it is necessary to give **5 working days notice before flagging service may be discontinued** and responsibility for payment stopped.
3. If, after the flagman is assigned to the project site, emergencies arise which require the flagman's presence elsewhere, and then the Contractor shall delay work on Railroad rights of way until such time as the flagman is again available. Any additional costs resulting from such delay shall be borne by the Contractor and not the Department or Railroad.
4. When demobilizing, the Contractor shall contact the flagman to avoid unnecessary flagging charges. This communication shall be documented.

C. *Payment:*

1. **The Cabinet will be responsible for paying the Railroad directly for any and all costs of flagging,** which may be required to accomplish the construction. **The Contractor shall adhere to the Special Note for Railroad Flagging, if applicable, and may be charged for flagging in excess of the allowable days, per said Special Note.**
2. The estimated cost of flagging is listed on the Summary Sheet. The charge to the Cabinet by the Railroad will be the actual cost based on the rate of pay for the Railroad's employees who are available for flagging service at the time the service is required.
3. Work by a flagman (M/W) in excess of 8 hours per day or 40 hours per week or on rest days, but not more than 16 hours a day will result in overtime pay at 1 ½ times the appropriate rate. Work by a flagman (M/W) in excess of 16 hours per day will result in overtime pay at 2 times the appropriate rate. Flagman (M/W) working in excess of 16 hours must receive a minimum of 5 hours of rest between shifts or their next shift of work is paid at the overtime rate of 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 ½ times the normal rate.

Work by a flagman (T&E) in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 ½ times the appropriate rate. After a 12 hour work day the flagman (T&E) must be provided with 12 hours of rest. Flagman (T&E) who work six days consecutive days must receive two days off.

Flagman's work day begins and ends at his reporting location.
4. Railroad work involved in preparing and handling bills will also be charged to the Contractor. Charges to the Department by the Railroad shall be in accordance with applicable provisions of Subchapter B, Part 140, Subpart I and Subchapter G, Part 646, Subpart B of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments. Flagging costs are subject to change. The above estimates of flagging cost are provided for information only and are not binding in any way.

D. Verification:

1. The Contractor and Project Engineer will review and sign the Railroad flagman's time sheet, attesting that the flagman was present during the time recorded. Flagman may be removed by Railroad if form is not signed. If flagman is removed, the Contractor will not be allowed to re-enter the Railroad rights of way until the issue is resolved. Any complaints concerning flagman or flagmen must be resolved in a timely manner. If need for flagman or flagmen is questioned, please contact the Railroad's Representative listed on the Project Summary Sheet. All verbal complaints must be confirmed in writing by the Contractor within 5 working days with copy to the Highway Engineer. All written correspondence should be addressed to the Railroad's Representative listed on the Project Summary Sheet.
2. The Railroad flagman assigned to the project will be responsible for notifying the Project Engineer upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The Project Engineer will document such notification in the project records. When requested, the Project Engineer will also sign the flagman's diary showing daily time spent and activity at the project site.

VIII. HAUL ACROSS RAILROAD:

- A. Where the plans show or imply that materials of any nature must be hauled across a Railroad, unless the plans clearly show that the State has included arrangements for such haul in its agreement with the Railroad, the Contractor will be required to make all necessary arrangements with the Railroad regarding means of transporting such materials across the Railroad. The Contractor will be required to bear all costs incidental, including flagging, to such crossings whether services are performed by his own forces or by Railroad personnel.*
- B. No crossing may be established for use of the Contractor for transporting materials or equipment across the tracks of the Railroad Company unless a license agreement or right of entry is granted and executed for its installation, maintenance, necessary watching and flagging thereof and removal, all at the expense of the Contractor. **The approval process for an agreement normally takes 90-days.***

IX. WORK FOR THE BENEFIT OF THE CONTRACTOR:

- A. All temporary or permanent changes in wire lines on the Railroad or other facilities which are considered necessary to the project are shown on the plans; included in the force account agreement between the State and the Railroad or will be covered by appropriate revisions to same which will be initiated and approved by the State and/or the Railroad.*
- B. Should the Contractor desire any changes in addition to the above, then he shall make separate arrangements with the Railroad for same to be accomplished at the Contractor's expense.*

X. COOPERATION AND DELAYS:

- A. It shall be the Contractor's responsibility to arrange a schedule with the Railroad for accomplishing stage construction involving work by the Railroad or tenants of the Railroad. In arranging his schedule he shall ascertain, from the Railroad, the lead time required for assembling crews and materials and shall make due allowance therefore.*
- B. Train schedules cannot be provided to the Contractor. It is the Contractor's responsibility to contact the Railroad in order to arrange "Track Time." This "Track Time" will be an agreed upon prearranged time period (duration) that the Railroad will, without undue burden, schedule no train traffic to facilitate the Contractor's work on or near Railroad right-of-way. This track time must be arranged during the submission review process.*
- C. No charge or claims of the Contractor against either the Department or the Railroad will be allowed for hindrance or delay on account of railroad traffic; any work done by the Railroad or other delay incident to or necessary for safe maintenance of Railroad traffic or for any delays due to compliance with these Special Notes.*
- D. The Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.*
- E. The Railroad does not assume any responsibility for work performed by others in connection with the Project. No claims of the Contractor against the Railroad for any inconvenience, delay, or additional cost incurred by the Contractor on account of operations by others shall be filed.*

XI. TRAINMAN'S WALKWAYS:

- A. *Along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than ~~12-40~~ feet from centerline of track, shall be maintained. Any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours while Railroad's protective service is provided shall be removed before the close of each day. If there is any excavation near the walkway, a handrail, with 12'-0" minimum clearance from centerline of track, shall be placed.*

XII. GUIDELINES FOR PERSONNEL ON RAILROAD RIGHTS OF WAY:

- A. *All persons shall wear hard hats and reflective vest. Appropriate eye and hearing protection must be used. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip on type boots is prohibited. High top (6-inch or more) safety-toe shoes with laces, oil-resistant soles, and a distinct separation between heel and sole are required.*
- B. *No one is allowed within 25' of the centerline of the track without specific authorization from the flagman.*
- C. *All persons working near track when train is passing are to look out for dragging bands, chains and protruding or shifting cargo.*
- D. *No one is allowed to cross tracks without specific authorization from the flagman.*
- E. *All work within 25' of track must stop when train is passing.*
- F. *No steel tape or chain will be allowed to cross or touch rails without permission.*

XIII. GUIDELINES FOR EQUIPMENT ON RAILROAD RIGHTS OF WAY:

- A. *No crane or boom equipment will be allowed to set up to work or park within boom distance plus 15' of centerline of track without specific permission from Railroad Engineer.*
- B. *No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.*
- C. *All employees will stay with their machines when crane or boom equipment is pointed toward track.*
- D. *All cranes and boom equipment under load will stop work while a train is passing (including pile driving).*

- E. Swinging loads must be secured to prevent movement while train is passing.*
- F. No loads will be suspended above a moving train.*
- G. No equipment will be allowed within **50' of centerline of track** without specific authorization of the flagman.*
- H. Trucks, tractors or any equipment will not touch ballast line without specific permission from railroad official and flagman.*
- I. No equipment or load movement **within 50' or above a standing train or other equipment** without specific authorization of the flagman.*
- J. All operating equipment within **50' of track must halt operations when a train is passing**. All other operating equipment may be halted by the flagman if the flagman views the operation to be dangerous to the passing train.*
- K. All equipment, loads and cables are prohibited from touching rails.*
- L. While clearing and grubbing, no vegetation will be removed from railroad embankment with heavy equipment without specific permission from the Railroad Engineer and flagman.*
- M. No equipment or materials will be parked or stored on Railroad's property unless specific permission is granted from the Railroad Engineer.*
- N. All unattended equipment that is left parked on Railroad property shall be effectively immobilized so that it cannot be moved by unauthorized persons.*
- O. All cranes and boom equipment will be turned away from track after each work day or whenever unattended by an operator.*

XIV. INSURANCE:

- A. In addition to any other forms of insurance or bonds required under the terms of the contract and specifications, the Contractor will be required to carry insurance of the following kinds:*
 - 1. Commercial General Liability coverage at their sole cost and expense with limits of not less than **\$5,000,000** in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name the Railroad as an additional insured.*
 - 2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than **\$1,000,000**, which insurance must contain a waiver of subrogation against the Railroad and its affiliates.*

3. Commercial automobile liability insurance with limits of not less than **\$1,000,000** combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name the Railroad as an additional insured.
4. Railroad Protective Liability (RPL) insurance with limits of not less than **\$5,000,000** combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of **\$10,000,000**, which insurance shall satisfy the following additional requirements:
 - a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance – Insurance Services Office (ISO) Form CG 00 35.
 - b. The Railroad must be the named insured on the Railroad Protective Insurance Policy
 - c. Name and Address of the Contractor must be shown on the Declarations page.
 - d. Description of operations must appear on the Declarations page and must match the Project description, including project or contract identification numbers.
 - e. Terrorism Risk Insurance Act (TRIA) coverage must be included.
 - f. Authorized endorsements must include:
 - (i). Pollution Exclusion Amendment – CG 28 31, unless using form CG 00 35 version 96 and later.
 - g. Authorized endorsements may include:
 - (i). Broad form Nuclear Exclusion – IL 00 21
 - (ii). 30-day Advance Notices of Non-renewal or cancellation
 - (iii). Required State Cancellation Endorsement
 - (iv). Quick Reference or Index – CL/IL 240
 - h. Authorized endorsements may not include:
 - (i). A Pollution Exclusion Endorsement except CG 28 31
 - (ii). An Endorsement that excludes TRIA coverage
 - (iii). An Endorsement that limits or excludes Professional Liability coverage
 - (iv). A Non-Cumulation of Liability or Pyramiding of Limits Endorsement

- (v). A Known Injury Endorsement
- (vi). A Sole Agent Endorsement
- (vii). A Punitive or Exemplary Damages Exclusion
- (viii). A 'Common Policy Conditions' Endorsement
- (ix). Policies that contain any type of deductible
- (x). Any endorsement that is not named in Section 4 (f) or (g) above that the Railroad deems unacceptable

- 5. All insurance companies must be A. M. Best rated A- and Class VII or better.
- 6. Such additional or different insurance as the Railroad may require.

B. Additional Terms:

- 1. Contractor must submit the original Railroad Protective Liability policy, Certificates of Insurance, and all notices and correspondence regarding the insurance policy to the contact listed on the Project Summary Sheet.
- 2. The Contractor may not begin work on the Project until it has received the Railroad's written approval or the required insurance.

C. Insurance policies shall follow the requirements of Subchapter G, Part 646, Subpart A of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments.

D. If any part of the work is sublet, similar insurance and evidence thereof in the same amounts as required of the Prime Contractor shall be provided by or in behalf of the subcontractor to cover his operations. Endorsements to the Prime Contractor's policies specifically naming subcontractors and describing their operations will be acceptable for this purpose.

E. All insurance herein before specified shall be carried until all work required to be performed under the terms of the contract has been satisfactorily completed within the limits of the rights of way of the Railroad as evidenced by the formal acceptance by the Department. Insuring Companies may cancel insurance by permission of the Department and Railroad or on thirty (30) days written notice to the Department and Railroad Insurance Contacts as listed on the Project Summary Sheet.

XV. FAILURE TO COMPLY:

- A. These Special Notes are supplemental and amendatory to the current version of the Kentucky Department of Highways' Standard Specifications for Road and Bridge Construction and amendments thereof, and where in conflict therewith, these Special Notes shall govern.*
- B. In the event the Contractor violates or fails to comply with any of the requirements of these Special Notes:*
 - 1. The Railroad Engineer may require that the Contractor vacate Railroad property.
 - 2. The Engineer may withhold any and all monies due the Contractor on pay estimates.
 - 3. Any such orders shall remain in effect until the Contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

XVI. PAYMENT FOR COST OF COMPLIANCE:

- A. No separate payment will be made for any extra cost incurred on account of compliance with these Special Notes. All such cost shall be included in prices bid for other items of the work as specified in the payment items.*



Kentucky Transportation Cabinet
Division of Right of Way & Utilities

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SUMMARY FOR KYTC PROJECTS THAT INVOLVE A RAILROAD

Date: 11/9/2021 (enter using mm/dd/yyyy format)

This project actively involves the below listed railroad company. This Project Summary provides an abbreviated listing of project specific railroad data. The detailed needs of the specified railroad company are included in the Special Notes for Protection of Railroad Interest in the proposal package. By submitting a bid, the contractor attests that they have dutifully considered and accepted the provisions as defined in both documents.

GENERAL ROAD PROJECT INFORMATION (This section must be provided by KYTC)

County: Boyd
Federal Number:
State Number: JL04 010 8292801U
Route: US 60
Project Description: IMPROVE US-60 FROM I-64 AT INTERCHANGE 181 TO THE KY-180 INTERSECTION AT CANNONBURG
Item Number: 9 - 8400.00 **Highway Milepost:** 0.200-4.020

GENERAL RAIL INFORMATION (The below sections must be provided by Railroad Company)

Rail Company Name: CSX Transportation, Inc.
DOT# (if applicable): # 227 358C **Railroad Milepost:** COS-9.59 to 11.42
Freight: Train Count (6am to 6pm): 1 **Train Count (6pm to 6am):** 1 **Train Count (24 hr total):** 2 **Max Speed:** 10mph
Passenger: Train Cnt. (6am to 6pm): 0 **Train Cnt. (6pm to 6am):** 0 **Train Cnt. (24 hr total):** 0 **Max Speed:** 0mph
(This information is necessary to acquire the necessary insurances when working with Railroad Right of Way)

INSURANCE REQUIREMENTS

The named insured, description of the work and designation of the job site to be shown on the Policy are as follows:

- (a) Named Insured: CSX Transportation, Inc.
- (b) The project description should be as indicated in the General Road Project Information section.
- (c) The designation of the jobsite is the route, Milepost, and AAR-DOT# listed above.

FLAGGING INFORMATION

Flagging Estimate:

Flagging will be paid to the RR by KYTC. Contractor shall adhere to the Special Note for Railroad Flagging, if applicable.

Hourly Rate:

\$1360.80 per Day based on a 8 hour day effective as of the date of this document.

Work by a flagman in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 1/2 times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime pay at 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 1/2 times the normal rate.

Forecasted Rate Increases:

Rates will increase to \$ per based on a hour day effective (enter using M/d/yyyy format).

RAILROAD CONTACTS

(to be provided by Railroad Company)

General Railroad Contact:

Amanda DeCesare, Project Manager - Public Projects
4802 Decoursey Pike
Taylor Mill, KY 41015
(Phone) (513) 853-1221
(Email) Amanda_DeCesare@CSX.com

Regional Representative (Roadmaster):

Nate Goble
Track Supervisor
412 Depot Road
Paintsville, KY 41240
(Phone) (859) 227-5665
(Email) Nate_Goble@CSX.com

Insurance contact:

(Phone)
(Email) insurancedocuments@CSX.com

Railroad Designer Contact:

Contractor ☐

Larry Shaw, Project Manager - Rail Division
Alfred Benesch & Company 201 N. Illinois St., 16th Floor South Tower Indianapolis, IN 46204
(Phone) (317) 417 1902
(Email) LShaw@benesch.com

Railroad Construction Contact:

Contractor ☒

Wayne Bolen, Project Manager, Rails Division
Alfred Benesch & Company 201 E Fifth Street, Suite 1900 Cincinnati, OH 45202
(Phone) (859) 250 5483
(Email) WBolen@benesch.com

KENTUCKY TRANSPORTATION

CABINET CONTACTS *(to be provided by KYTC)*

KYTC Railroad Coordinator:

Allen Rust, PE
Div. of Right of Way & Utilities
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor East
Frankfort, Kentucky 40622
(Phone) 502-782-4950
(Email) allen.rust@ky.gov

KYTC Construction Procurement Director:

Rachel Mills, Director
Div. of Construction Procurement
Kentucky Transportation Cabinet
200 Mero Street, 3rd Floor West
Frankfort, Kentucky 40622
(Phone) 502-782-5152
(Email) Rachel.Mills@ky.gov

KYTC Construction Director:

Matt Simpson, Director
Div. of Construction
Kentucky Transportation Cabinet
200 Mero Street, 3rd Floor West
Frankfort, Kentucky 40622
(Phone) 502-564-4780
(Email) Matt.Simpson@ky.gov



The project specific information provided herein is valid as of the date indicated. However, the specific information may be subject to change due to the normal business operations of all parties. The terms and conditions defined here, and in the bid proposal in its entirety, are inclusive and constant.

APPENDIX

CSX TRANSPORTATION

CONSTRUCTION SUBMISSION CRITERIA

INTRODUCTION

SECTION I: Definitions

SECTION II: Construction Submissions

SECTION III: Hoisting Operations

SECTION IV: Demolition Procedure

SECTION V: Erection Procedure

SECTION VI: Temporary Excavation and Shoring

SECTION VII: Track Monitoring

INTRODUCTION

The intent of this document is to guide outside agencies and their Contractors when performing work on, over, or with potential to impact CSX property (ROW). Work plans shall be submitted for review to the designated CSX Engineering Representative for all work which presents the potential to affect CSX property or operations; this document shall serve as a guide in preparing these work plans. All work shall be performed in a manner that does not adversely impact CSX operations or safety; as such, the requirements of this document shall be strictly adhered to, in addition to all other applicable standards associated with the construction. Applicable standards include, but are not limited to, CSX Standards and Special Provisions, CSX Insurance Requirements, CSX Pipeline Occupancy Criteria, as well as the governing local, county, state and federal requirements. It shall be noted that this document and all other CSX standards are subject to change without notice, and future revisions will be made available at the CSX website: www.csx.com.

I. DEFINITIONS

1. Agency – The project sponsor (i.e., State DOT, Local Agencies, Private Developer, etc.)
2. AREMA – American Railway Engineering and Maintenance-of-Way Association – the North American railroad industry standards group. The use of this term shall be in specific reference to the AREMA Manual for Railway Engineering.
3. Construction Submission – The Agency or its representative shall submit six (6) sets of plans, supporting calculations, and detailed means and methods procedures for the specific proposed activity. All plans, specifications, and supporting calculations shall be signed/sealed by a Professional Engineer as defined below.
4. Controlled Demolition – Removal of an existing structure or subcomponents in a manner that positively prevents any debris or material from falling, impacting, or otherwise affecting CSX employees, equipment or property. Provisions shall be made to ensure that there is no impairment of railroad operations or CSX's ability to access its property at all times.
5. Contractor – The Agency's representative retained to perform the project work.
6. Engineer – CSX Engineering Representative or a GEC authorized to act on the behalf of CSX.
7. Flagman – A qualified CSX employee with the sole responsibility to direct or restrict movement of trains, at or through a specific location, to provide protection for workers.
8. GEC – General Engineering Consultant who has been authorized to act on the behalf of CSX.
9. Horizontal Clearance – Distance measured perpendicularly from centerline of any track to the nearest obstruction at any elevation between TOR and the maximum vertical clearance of the track.
10. Professional Engineer – An engineer who is licensed in State or Commonwealth in which the project is to occur. All plans, specifications, and supporting calculations shall be prepared by the Licensed Professional Engineer and shall bear his/her seal and signature.
11. Potential to Foul – Work having the possibility of impacting CSX property or operations; defined as one or more of the following:
 - a. Any activity where access onto CSX property is required.

b. Any activity where work is being performed on CSX ROW.

c. Any excavation work adjacent to CSX tracks or facilities, within the Theoretical Railroad Live Load Influence Zone, or where the active earth pressure zone extends within the CSX property limits.

d. The use of any equipment where, if tipped and laid flat in any direction (360 degrees) about its center pin, can encroach within twenty five feet (25'-0") of the nearest track centerline. This is based upon the proposed location of the equipment during use, and may be a function of the equipment boom length. Note that hoisting equipment with the potential to foul must satisfy the 150% factor of safety requirement for lifting capacities.

e. Any work where the scatter of debris, or other materials has the potential to encroach within twenty five feet (25'-0") of the nearest track centerline.

f. Any work where significant vibration forces may be induced upon the track structure or existing structures located under, over, or adjacent to the track structure.

g. Any other work which poses the potential to disrupt rail operations, threaten the safety of railroad employees, or otherwise negatively impact railroad property, as determined by CSX.

12. ROW – Right of Way; Refers to CSX Right-of-Way as well as all CSX property and facilities. This includes all aerial space within the property limits, and any underground facilities.

13. Submission Review Period - a minimum of thirty (30) days in advance of start of work. Up to thirty (30) days will be required for the initial review response. Up to an additional thirty (30) days may be required to review any/all subsequent submissions or resubmission.

14. Theoretical Railroad Live Load Influence Zone – A 1 horizontal to 1 vertical theoretical slope line starting at bottom corner of tie.

15. TOR – Top of Rail. This is the base point for clearance measurements. It refers to the crown (top) of the steel rail; the point where train wheels bear on the steel rails.

16. Track Structure – All load bearing elements which support the train. This includes, but is not limited to, the rail, ties, appurtenances, ballast, sub-ballast, embankment, retaining walls, and bridge structures.

17. Vertical Clearance – Distance measured from TOR to the lowest obstruction within six feet (6'-0") of the track centerline, in either direction.

II. GENERAL SUBMISSION REQUIREMENTS

A. A construction work plan is required to be submitted by the Agency or its Contractor, for review and acceptance, prior to accessing or performing any work with Potential to Foul.

B. The Agency or its representative shall submit six (6) sets of plans, specifications, supporting calculations, and detailed means and methods procedures for the specific proposed work activity.

C. Construction submissions shall include all information relevant to the work activity, and shall clearly and concisely explain the nature of the work, how it is being performed, and what measures are being taken to ensure that railroad property and operations are continuously maintained.

D. All construction plans shall include a map of the work site, depicting the CSX tracks, the CSX right of way, proposed means of access, proposed locations for equipment and material staging (dimensioned from nearest track centerline), as well as all other relevant project information. An elevation drawing may also be necessary in order to depict clearances or other components of the work.

E. Please note that CSX will not provide pricing to individual contractors involved in bidding projects. Bidding contractors shall request information from the agency and not CSX.

F. The Contractor shall install a geotextile fabric ballast protection system to prevent construction or demolition debris and fines from fouling ballast. The geotextile ballast protection system shall be installed and maintained by the Contractor to the satisfaction of the Engineer.

G. The Engineer shall be kept aware of the construction schedule. The Contractor shall provide timely communication to the Engineer when scheduling the work such that the Engineer may be present during the work. The Contractor's schedule shall not dictate the work plan review schedule, and flagging shall not be scheduled prior to receipt of an accepted work plan.

H. At any time during construction activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSX facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSX and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

I. Blasting will not be permitted to demolish a structure over or within CSX's right-of-way. When blasting off of CSX property but with Potential to Foul, vibration monitoring, track settlement surveying, and/or other protective measures may be required as determined by the Engineer.

J. Blasting is not permitted adjacent to CSX right-of-way without written approval from the Chief Engineer, CSX.

K. Mechanical and chemical means of rock removal must be explored before blasting is considered. If written permission for the use of explosives is granted, the Agency or Contractor must submit a work plan satisfying the following requirements:

1. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the Agency or Contractor.
2. Electronic detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.
3. No blasting shall be done without the presence of an authorized representative of CSX. Advance notice to the Engineer is required to arrange for the presence of an authorized CSX representative and any flagging that CSX may require.

4. Agency or Contractor must have at the project site adequate equipment, labor and materials, and allow sufficient time, to clean up debris resulting from the blasting and correct any misalignment of tracks or other damage to CSX property resulting from the blasting. Any corrective measures required must be performed as directed by the Engineer at the Agency's or Contractor's expense without any delay to trains. If Agency's or Contractor's actions result in the delay of any trains including passenger trains, the Agency or Contractor shall bear the entire cost thereof.

5. The Agency or Contractor may not store explosives on CSX property.

6. At any time during blasting activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSX facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSX and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

III. HOISTING OPERATIONS

A. All proposed hoisting operations with Potential to Foul shall be submitted in accordance with the following:

1. A plan view drawing shall depict the work site, the CSX track(s), the proposed location(s) of the lifting equipment, as well as the proposed locations for picking, any intermediate staging, and setting the load(s). All locations shall be dimensioned from centerline of the nearest track. Crane locations shall also be dimensioned from a stationary point at the work site for field confirmation.

2. Computations showing the anticipated weight of all picks. Computations shall be made based upon the field-verified plans of the existing structure. Pick weights shall account for the weight of concrete rubble or other materials attached to the component being removed; this includes the weight of subsequent rigging devices/components. Rigging components shall be sized for the subsequent pick weight.

3. All lifting equipment, rigging devices, and other load bearing elements shall have a rated (safe lifting) capacity that is greater than or equal to 150% of the load it is carrying, as a factor of safety. Supporting calculations shall be furnished to verify the minimum capacity requirement is maintained for the duration of the hoisting operation.

4. Dynamic hoisting operations are prohibited when carrying a load with the Potential to Foul. Cranes or other lifting equipment shall remain stationary during lifting. (i.e., no moving picks).

5. For lifting equipment, the manufacturer's capacity charts, including crane, counterweight, maximum boom angle, and boom nomenclature is to be submitted.

6. A schematic rigging diagram must be provided to clearly call out each rigging component from crane hook to the material being hoisted. Copies of catalog or information sheets shall be provided to verify rigging weights and capacities.

7. For built-up rigging devices, the contractor shall submit the following:

- i. Details of the device, calling out material types, sizes, connections and other properties.
- ii. Load test certification documents and/or design computations bearing the seal and signature of a Professional Engineer. Load test shall be performed in the configuration of its intended use as part of the subject demolition procedure.

iii. Copies of the latest inspection reports of the rigging device. The device shall be inspected within one (1) calendar year of the proposed date for use.

8. A detail shall be provided showing the crane outrigger setup, including dimensions from adjacent slopes or facilities. The detail shall indicate requirements for bearing surface preparation, including material requirements and compaction efforts. As a minimum, outriggers and/or tracks shall bear on mats, positioned on level material with adequate bearing capacity.

9. A complete written narrative that describes the sequence of events, indicating the order of lifts and any repositioning or re-hitching of the crane(s).

IV. DEMOLITION PROCEDURE

A. The Agency or its Contractor shall submit a detailed procedure for a controlled demolition of any structure on, over, or adjacent to the ROW. The controlled demolition procedure must be approved by the Engineer prior to beginning work on the project.

B. Existing Condition of structure being demolished:

1. The Contractor shall submit as-built plans for the structure(s) being demolished
2. If as-built plans are unavailable, the Contractor shall perform an investigation of the structure, including any foundations, substructures, etc. The field measurements are to be made under the supervision of the Professional Engineer submitting the demolition procedure. Findings shall be submitted as part of the demolition means and methods submittal for review by the Engineer.
3. Any proposed method for temporary stabilization of the structure during the demolition shall be based on the existing plans or investigative findings, and submitted as part of the demolition means and methods for review by the Engineer.

C. Demolition work plans shall include a schematic plan depicting the proposed locations of the following, at various stages of the demolition:

1. All cranes and equipment, calling out the operating radii.
2. All proposed access and staging locations with all dimensions referenced from the center line of the nearest track
3. Proposed locations for stockpiling material or locations for truck loading
4. The location, with relevant dimensions, of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions.
5. Note that no crane or equipment may be set on the CSX rails or track structure and no material may be dropped on CSX property.

D. Demolition submittal shall also include the following information:

1. All hoisting details, as dictated by Section III of this document.
2. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical subtasks (i.e., torch/saw cutting various portions of the superstructure or substructure, dismantling splices, installing temporary bracing, etc.) shall be furnished so that the potential impact(s) to CSX operations may be assessed and eliminated or minimized.
3. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.
4. Design and supporting calculations shall be prepared, signed, and sealed by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review. A guardrail will be required to be installed in a track in the proximity of temporary bents or shoring towers, when located within twelve feet (12'-0") from the centerline of the track. The guardrail will be installed by CSX forces, at the expense of the Agency or its contractor.

E. Girders or girder systems shall be stable at all times during demolition. Temporary bracing shall be provided at the piers, abutments, or other locations to resist overturning and/or buckling of the member(s). The agency shall submit a design and details of the proposed temporary bracing system, for review by the Engineer. Lateral wind forces for the temporary conditions shall be considered in accordance with AREMA, Chapter 8, Section 28.6.2. The minimum lateral wind pressure shall be fifteen pounds per square foot (15 psf).

F. Existing, obsolete, bridge piers shall be removed to a minimum of three feet (3'-0") below the finished grade, final ditch line invert, or as directed by the Engineer.

G. A minimum quantity of twenty five (25) tons of CSX approved granite track ballast may be required to be furnished and stockpiled on site by the Contractor, or as directed by the Engineer.

H. The use of acetylene gas is prohibited for use on or over CSX property. Torch cutting shall be performed utilizing other materials such as propane.

I. CSX's tracks, signals, structures, and other facilities shall be protected from damage during demolition of existing structure or replacement of deck slab.

J. Demolition Debris Shield

1. On-track or ground-level debris shields (such as crane mats) are prohibited for use by CSX.
2. Demolition Debris Shield shall be installed prior to the demolition of the bridge deck or other relevant portions of the structure. The demolition debris shield shall be erected from the underside of the bridge over the track area to catch all falling debris. The debris shield shall not be the primary means of debris containment.
 - i. The demolition debris shield design and supporting calculations, all signed/sealed by a Professional Engineer, shall be submitted for review and acceptance.
 - ii. The demolition debris shield shall have a minimum design load of 50 pounds per square foot (50 psf) plus the weight of the equipment, debris, personnel, and all other loads.

- iii. The Contractor shall verify the maximum particle size and quantity of the demolition debris generated during the procedure does not exceed the shield design loads. Shield design shall account for loads induced by particle impact; however the demolition procedure shall be such that impact forces are minimized. The debris shield shall not be the primary means of debris containment.
- iv. The Contractor shall include installation/removal means and methods for the demolition debris shield as part of the proposed Controlled Demolition procedure submission.
- v. The demolition debris shield shall provide twenty three feet (23'-0") minimum vertical clearance, or maintain the existing vertical clearance if the existing clearance is less than twenty three feet (23'-0").
- vi. Horizontal clearance to the centerline of the track should not be reduced unless approved by the Engineer.
- vii. The Contractor shall clean the demolition debris shield daily or more frequently as dictated either by the approved design parameters or as directed by the Engineer.

K. Vertical Demolition Debris Shield

- 1. This type of shield may be required for substructure removals in close proximity to CSX track and other facilities, as determined by the Engineer.
- 2. The Agency or its Contractor shall submit detailed plans with detailed calculations, prepared, signed, and sealed by a Professional Engineer, of the protection shield.

V. ERECTION PROCEDURE

- A. The Agency or its Contractor shall submit a detailed procedure for erection of a structure with Potential to Foul. The erection procedure must be approved by the Engineer prior to beginning work on the project.
- B. Erection work plans shall include a schematic plan depicting the following, at all stages of the construction:
 - 1. All proposed locations of all cranes and equipment, calling out the operating radii.
 - 2. All proposed access and staging locations with all dimensions referenced from the center line of the nearest track.
 - 3. All proposed locations for stockpiling material or locations for truck loading.
 - 4. The location, with relevant dimensions, of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions.
- C. No crane or equipment may be set on the CSX rails or track structure and no material may be dropped on CSX property.
- D. For erection of a structure over the tracks, the following information shall be submitted for review and acceptance by the Engineer, at least thirty (30) days prior to erection:
 - 1. As-built beam seat elevations – field surveyed upon completion of pier/abutment construction.
 - 2. Current Top of Rail (TOR) elevations – field measured at the time of as-built elevation collection.
 - 3. Computations verifying the anticipated minimum vertical clearance in the final condition which accounts for all deflection and camber, based upon the current TOR and as-built beam seat elevations. The anticipated minimum

vertical clearance shall be greater than or equal to that which is indicated by the approved plans. Vertical clearance (see definitions) is measured from TOR to the lowest point on the overhead structure at any point within six feet (6'-0") from centerline of the track. Calculations shall be signed and sealed by a Professional Engineer.

E. Girders or girder systems shall be stable at all times during erection. No crane may unhook prior to stabilizing the beam or girder.

1. Lateral wind forces for the temporary conditions shall be considered in accordance with AREMA, Chapter 8, Section 28.6.2. The minimum lateral wind pressure shall be fifteen pounds per square foot (15 psf).
2. Temporary bracing shall be provided at the piers, abutments, or other locations to resist overturning and/or buckling of the member(s). The agency shall submit a design and details of the proposed temporary bracing system, for review by the Engineer.
3. Temporary bracing shall not be removed until sufficient lateral bracing or diaphragm members have been installed to establish a stable condition. Supporting calculations, furnished by the Professional Engineer, shall confirm the stable condition.

F. Erection procedure submissions shall also include the following information:

1. All hoisting details, as dictated by Section III of this document.
2. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical subtasks (i.e., performing aerial splices, installing temporary bracing, installation of diaphragm members, etc.) shall be furnished so that the potential impact(s) to CSX operations may be assessed and eliminated or minimized.
3. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.
4. A guardrail will be required to be installed in a track in the proximity of temporary bents or shoring towers, when located within twelve feet (12'-0") from the centerline of the track. The guardrail will be installed by CSX forces, at the expense of the Agency or its Contractor.
5. Design and supporting calculations prepared by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review.

VI. TEMPORARY EXCAVATION AND SHORING

A. The Agency or its Contractor shall submit a detailed design and procedure for the installation of a sheeting/shoring system adjacent to the tracks. Shoring protection shall be provided when excavating with Potential to Foul, or as otherwise determined by CSX. Shoring shall be provided in accordance with the AREMA, except as noted below.

B. Shoring may not be required if all of the following conditions are satisfied:

1. The excavation does not encroach within the Theoretical Live Load Influence Zone. Please refer to Figure 1.
2. The track structure is situated on level ground, or in a cut section, and on stable soil.
3. The excavation does not adversely impact the stability of a CSX facility (i.e., signal bungalow, drainage facility, undergrade bridge, building, etc), or the stability of any structure on, over, or adjacent to CSX property with potential to foul.
4. Shoring is not required by any governing federal, state, local or other construction code.

C. Shoring is required when excavating the toe of an embankment. Excavation of any embankment which supports an active CSX track structure without shoring will not be permitted.

D. Trench boxes are not an acceptable means of shoring. Trench boxes are prohibited for use on CSX property or within the Theoretical Railroad Live Load Influence Zone.

E. Shoring shall be a cofferdam-type, which completely encloses the excavation. However, where justified by site or work conditions, partial cofferdams with open sides away from the track may be permissible, as determined by the Engineer.

F. Cofferdams shall be constructed using interlocking steel sheet piles, or when approved by the Engineer, steel soldier piles with timber lagging. Wales and struts shall be included when dictated by the design.

G. The use of tiebacks can be permissible for temporary shoring systems, when conditions warrant. Tiebacks shall have a minimum clear cover of 6'-0", measured from the bottom of the rail. Upon completion of the work, tiebacks shall be grouted, cut off, and remain in place.

H. All shoring systems on, or adjacent to CSX right-of-way, shall be equipped with railings or other fall protection, compliant with the governing federal, state or local requirements. Area around pits shall be graded to eliminate all potential tripping hazards.

I. Interlocking steel sheet piles shall be used for shoring systems qualifying one or more of the following conditions:

1. Within 18'-0" of the nearest track centerline
2. Within the live load influence zone
3. Within slopes supporting the track structure
4. As otherwise deemed necessary by the Engineer.

J. Sheet piles qualifying for one or more of the requirements listed in Section VI.I (above) of this document shall not be removed. Sheet piles shall be left in place and cut off a minimum of 3'-0" below the finished grade, the ditch line invert, or as otherwise directed by the Engineer. The ground shall be backfilled and compacted immediately after sheet pile is cut off.

K. The following design considerations shall be considered when preparing the shoring design package:

1. Shoring shall be designed to resist a vertical live load surcharge of 1,880 lbs. per square foot, in addition to active earth pressure. The surcharge shall be assumed to act on a continuous strip, eight feet six inches (8'-6") wide. Lateral pressures due to surcharge shall be computed using the strip load formula shown in AREMA Manual for Railway Engineering, Chapter 8, Part 20.
2. Allowable stresses in materials shall be in accordance with AREMA Chapter 7, 8, and 15.3.
3. A minimum horizontal clearance of ten feet (10'-0") from centerline of the track to face of nearest point of shoring shall be maintained, provided a twelve feet (12'-0") roadbed is maintained with a temporary walkway and handrail system.

4. For temporary shoring systems with Potential to Foul, piles shall be plumb under full dead load. Maximum deflection at the top of wall, under full live load, shall be as follows:

- i. One-half (1/2) inch for walls within twelve feet (12'-0") of track centerline (Measured from centerline of the nearest track to the nearest point of the supporting structure).
- ii. One (1) inch for walls located greater than twelve feet (12'-0") from track centerline

L. Shoring work plans shall be submitted in accordance with Section II of this document, as well as the following additional requirements:

1. The work plan shall include detailed drawings of the shoring systems calling out the sizes of all structural members, details of all connections. Both plan and elevation drawings shall be provided, calling out dimensions from the face of shoring relative to the nearest track centerline. The elevation drawing shall also show the height of shoring, and track elevation in relation to bottom of excavation.
2. Full design calculations for the shoring system shall be furnished.
3. A procedure for cutting off the sheet pile, backfilling and restoring the embankment.

VII. TRACK MONITORING

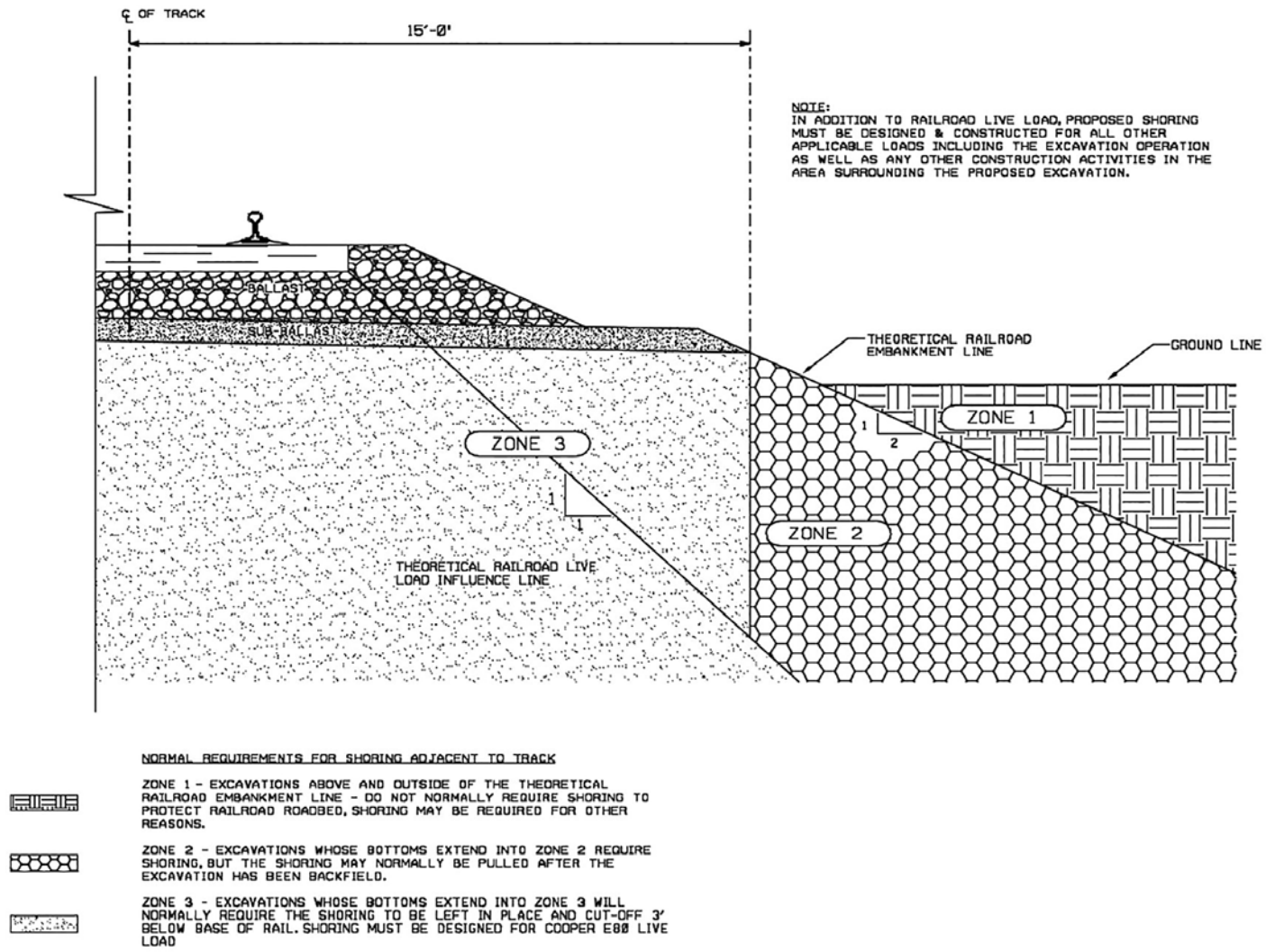
A. When work being performed has the potential to disrupt the track structure, a work plan must be submitted detailing a track monitoring program which will serve to monitor and detect both horizontal and vertical movement of the CSX track and roadbed.

B. The program shall specify the survey locations, the distance between the location points, and frequency of monitoring before, during, and after construction. CSX reserves to the right to modify the survey locations and monitoring frequency as necessary during the project.

C. The survey data shall be collected in accordance with the approved frequency and immediately furnished to the Engineer for analysis.

D. If any movement has occurred as determined by the Engineer, CSX will be immediately notified. CSX, at its sole discretion, shall have the right to immediately require all contractor operations to be ceased, have the excavated area immediately backfilled and/or determine what corrective action is required. Any corrective action required by CSX or performed by CSX including the monitoring of corrective action of the contractor will be at project expense.

FIGURE 1: Theoretical Live Load Influence Zone



Ashland, Boyd County, KY
KYTC Project No. JL04 010 82928 01U
CSXT Milepost: COS-9.59 to 11.42
CSXT OP No.: KY0474

EXHIBIT D

CONTRACTOR’S ACCEPTANCE

To and for the benefit of the *Company*, (“*Company*”) and to induce the *Company* to permit Contractor on or about *Company’s* property for the purposes of performing work in accordance with the Agreement dated _____, 20__, between the Commonwealth of Kentucky Transportation Cabinet, Department of Highways and the *Company*, Contractor hereby agrees to abide by and perform all applicable terms of the Agreement, including, particularly Exhibits B and C as included herein.

Contractor: _____
By: _____
Name: _____
Title: _____
Date: _____

SPECIAL NOTE FOR RAILROAD FLAGGING

Unless otherwise noted, Section references herein are to the Department's Standard Specifications for Road and Bridge Construction. All applicable portions of the Department's Standard Specifications apply unless specifically modified herein.

1. DESCRIPTION. It is estimated this project will require 300 days of railroad flagging. Guidelines for determining when flagging protection will be needed are included in the Special Provisions for Protection of Railroad Interest. The Daily Rate for this project will be \$1,500.00

2. DEFINITION OF FLAGGING. The particular Railroad(s) involved in this project will define when flagging is required (see Summary for KYTC Projects That Involve a Railroad and Special Provisions for Protection of Railroad Interest) and the number of flaggers needed. At least 2 weeks notice is required before flagging will be provided, but it could take up to 30 days. It will remain the Contractor's responsibility to schedule work including any down time (such as winter) so as to minimize the use of flagging services. The Department retains no responsibility for coordinating flagging services between the Railroad and the Contractor.

3. REDUCTION AND EXTENSION OF RAILROAD FLAGGING TIME. Based upon the Kentucky Standard Specifications, any changes in contract time for this project will be by change order. If the nature of the work in the change order necessitates additional use of railroad flagging services, then that shall be identified in that change order and the number of calendar days for railroad flagging services shall be increased. By signing the change order, the contractor waives all rights to any future request to change the number of days of railroad flagging associated with the work in that change order. Since the number of days involves the cost to the Department and not the Contractor, the number of days of railroad flagging shall not be reduced.

4. MEASUREMENT. The Department will keep track of calendar days that railroad flagging is performed. This will include any day that any railroad flagger charges a minimum of 5 hours of onsite flagging. Except that from April 1st thru November 30th this will not include days where the Contractor cannot perform at least 5 hours of the work that necessitates railroad flagging due to weather, seasonal, or temperature limitations of the Specifications, or other conditions beyond the control of the Contractor as judged by the Engineer. From Dec 1st thru March 30th any day that any railroad flagger charges a minimum of 5 hours of onsite flagging then a calendar day of railroad flagging will be counted; without regard to weather, seasonal or temperature limitations of the Specifications. The Engineer will furnish the Contractor bi-weekly statements showing the number of railroad flagging days charged for the period. The Contractor acknowledges acceptance of, and agreement with, all bi-weekly statements unless the Contractor submits a written protest containing supporting evidence for a change within 14 calendar days of receiving the bi-weekly statement.

If the number of calendar days of railroad flagging has exceeded 300 days, then the Contractor will be charged for each day that additional flagging is needed multiplied by the Daily Rate. This will be in addition to any liquidated damages or other reimbursements that the contract or the Kentucky Standard Specifications may require. This charge will continue, based upon actual flagging use, until Formal Acceptance.

If upon Formal Acceptance the total number of calendar days that railroad flagging is performed is less than 300 days no additional monies will be given to the Contractor.

GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO ALL UTILITY WORK MADE A PART OF THE ROAD CONSTRUCTION CONTRACT

The contractor should be aware the following utility notes and KYTC Utility Bid Item Descriptions shall supersede, replace and take precedence over any and all conflicting information that may be contained in utility owner supplied specifications contained in the contract, on plans supplied by the utility owner, or any utility owner specifications or information externally referenced in this contract.

Where information may have been omitted from these notes, bid item descriptions, utility owner supplied specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

PROTECTION OF EXISTING UTILITIES

The existing utilities shown on the plans are shown as best known at the time the plans were developed and are to be used as a guide only by the Contractor. The Contractor shall use all means at his disposal to accurately locate all existing utilities, whether shown on the plans or not, prior to excavation. The contractor shall protect these utilities during construction. Any damage to existing utilities during construction that are shown or not shown on the plans shall be repaired at the Contractor's expense.

PREQUALIFIED UTILITY CONTRACTORS

Some utility owners may require contractors that perform relocation work on their respective facilities as a part of the road contract be prequalified or preapproved by the utility owner. Those utility owners with a prequalification or preapproval requirement are as follows:

Cannonsburg Water

***The Walker Company
200 Apperson Heights
Suite 200
Mount Sterling, KY 40353
859-498-0092***

***C. J. Hughes Construction Co., Inc.
David Combs, Vice President
P. O. Box 7305
Huntington, WV 25776***

Phone (Switchboard); 304-522-3868
Phone (Direct); 304-399-2303
Fax; 304-522-2729
Email; dcombs@cjhughes.com

Triple B Construction
Mitch Ball, Owner
2405 South Big Run Road
Ashland, KY 41102
304-633-4011

Opell Excavating
Steve Opell, Owner
12084 Virginia Blvd
Ashland, KY 41102
606-928-3799

Southern Ohio Trenching and Excavating
Mark Bammer, Owner
3228 County Road 103
Ironton, OH 45638
740-533-0030

Sanitation District #4

Southern Ohio Construction
B J
740-352-8930
3228 County Rd 103
Ironton, OH 45638

C. J. Hughes
Mark Distel
304-522-3868
740-352-8930
75 3rd Ave
Huntington, WV 25701

Triple B Construction
606-585-4733
2405 South Big Run Rd
Ashland, KY 41102

The bidding contractor needs to review the above list and choose from the list of approved subcontractors at the end of these general notes as identified above before bidding. When the list of approved

subcontractors is provided, only subcontractors shown on the following list(s) will be allowed to work on that utility as a part of this contract.

When the list of approved subcontractors for the utility work is not provided in these general notes, the utility work can be completed by the prime contractor. If the prime contractor chooses to subcontract the work, the subcontractor shall be prequalified with the KYTC Division of Construction Procurement in the work type of "Utilities" (I33). Those who would like to become prequalified may contact the Division of Construction Procurement at (502) 564-3500. Please note: it could take up to 30 calendar days for prequalification to be approved. The prequalification does not have to be approved prior to the bid, but must be approved before the subcontract will be approved by KYTC and the work can be performed.

CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

ENGINEER

Where the word "Engineer" appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word “Inspector” or “Resident Project Representative” appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the “Inspector” or “Resident Project Representative” is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

UTILITY SHUTDOWNS

The Contractor shall not shut down any active and in-service mains, utility lines or services for any reason unless specifically given permission to do so by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the owner to make shutdowns. If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact, or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner’s shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

CUSTOMER SERVICE AND LATERAL ABANDONMENTS When temporary or permanent abandonment of customer water, gas, or sewer services or laterals are necessary during relocation of utilities included in the contract, the utility contractor shall perform these abandonments as part of the contract as incidental work. No separate payment will be made for service line and lateral abandonments. The contractor shall provide all labor, equipment and materials to accomplish the temporary or permanent abandonment in accordance with the plans, specifications and/or as directed by the engineer. Abandonment may include, but is not limited to, digging down on a water or gas main at the tap to turn off the tap valve

or corporation stop and/or capping or plugging the tap, digging down on a sewer tap at the main and plugging or capping the tap, digging down on a service line or lateral at a location shown on the plans or agreeable to the engineer and capping or plugging, or performing any other work necessary to abandon the service or lateral to satisfactorily accomplish the final utility relocation.

STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be “in-kind” as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

BELOW ARE NOTES FOR WHEN “INST” ITEMS ARE IN THE CONTRACT MEANING THE UTILITY COMPANY IS PROVIDING CERTAIN MATERIALS FOR UTILITY RELOCATION

MATERIAL

Contrary to Utility Bid Item Descriptions, those bid items that have the text “**Inst**” at the end of the bid item will have the major components of the bid item provided by the utility owner. No direct payment will be made for the major material component(s) supplied by the utility company. All remaining materials required to construct the bid item as detailed in utility bid item descriptions, in utility specifications and utility plans that are made a part of this contract will be supplied by the contractor. The contractor’s bid price should reflect the difference in cost due to the provided materials.

The following utility owners have elected to provide the following materials for work under this contract:

“No materials are being supplied by the utility owner(s). All materials are to be supplied by the contractor per bid item descriptions, utility specifications and utility plans.”

SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility

contractor shall coordinate directly with the utility owner and their suppliers for delivery and security of the supplied materials. Any materials supplied by the utility owner and delivered to the construction site that are subsequently stolen, damaged or vandalized and deemed unusable shall be replaced with like materials at the contractor's expense.

Standard Water Bid Item Descriptions

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. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release valve would a separate bid item be established. 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 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 21341ND

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 at the location shown on the plans or as directed in accordance with the specifications. This item is not to be paid on new main installations. This pay item is only to be paid to cap existing mains. Caps on new mains are incidental to the new main. Any and all caps on existing mains 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.

W DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of water main under streets, creeks, and 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 Includes all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, and 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 encasement 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 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 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 on 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 reinstalling 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 on 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 bid 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 where 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. Any and 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 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 locations 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 specification 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 ID or less as specified on the plans. This item shall include all labor, equipment, meter, meter box, 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. 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, and 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, and etc., to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, and 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 short side or long side service bid items. 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 ID 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 larger 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 ID or less as specified on the plans. This item shall include all labor, equipment, meter, PRV, meter box, casting, yoke, and any other associated material 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 description shall apply to all PVC, ductile iron, and polyethylene/plastic pipe bid items of every size and type 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 specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, sanitizing, backfill, and 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 and 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. 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 anchoring, labor, equipment, excavation, backfill, and restoration required to install the plug in an existing in-service main that is to remain at the location shown on the plans or as directed in accordance with the specifications. Any and all plugs on all existing in-service mains 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.

NOTE: This utility bid item is not to be paid on new main installations or abandoned mains. This pay item is to plug existing in-service mains only. Plugs on new mains are incidental to the new main just like all other fittings.

NOTE: Plugging of existing abandon mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications For Road And Bridge Construction and paid using Bid Code 01314 Plug Pipe.

W PRESSURE REDUCING VALVE This description 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, and 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 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 bid item description 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), and 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 plan or specification), 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 bid item description 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 plan or specification), 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. Payment shall be made under this item even if the service crosses a private residential or commercial entrance; but, not a public roadway. 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 variation. 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, and 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 restoration complete. 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, and 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 restoration complete. 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 bid description 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.

W VALVE This description 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 specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, disinfection, and 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 bid 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 is 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 Includes 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, and 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 CUT-IN This bid description 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 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 drawing, 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.

**TECHNICAL SPECIFICATIONS
FOR THE
CANNONBURG WATER DISTRICT**

**U.S. 60 WIDENING
EX. WATERLINE RELOCATION
ITEM NO. 9-8400.00**

BOYD COUNTY, KENTUCKY

MARCH 2021

PREPARED BY:

E.L. ROBINSON ENGINEERING

**3145 GREENUP AVENUE
ASHLAND, KY 41101**



A handwritten signature in blue ink, appearing to read "MKW", written over a horizontal line.

MICHAEL K. WILLIAMS, P.E.

CANNONBURG WATER DISTRICT
ITEM NO. 9 – 8400.00 TECHNICAL
TECHNICAL SPECIFICATIONS
MARCH 2021
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STANDARD SPECIFICATIONS

1. The “Standard Specifications for Road and Bridge Construction” of the Kentucky Transportation Cabinet / Department of Highways 2019 edition shall govern work and materials which are not specified or modified herein or on the project Contract Drawings. The project Contract Drawings and Specifications, in the event of a discrepancy, shall supersede the Kentucky Transportation Cabinet Specifications.

GENERAL

Section 01000

Standards

Section 1. All material furnished by the Contractor to be installed on the Project shall conform to the minimum requirements of the latest revisions in effect on the date of the standard specification published by the described organizations, unless other requirements are stated in these specifications. The standard specifications are combined under a single caption, for the sake of brevity, whenever referred to in the specifications as follows:

American Society of Testing Materials	ASTM
American Standards Association	ASA
American Water Works Association	AWWA
American Concrete Institute	ACI
American Association of the State Highway Officials	AASHO
Standard Specifications for Road and Bridge Construction, Kentucky Department of Highways	KDOH
Federal Specifications	FED
American Railway Engineering Association	AREA
Occupational Safety and Health Administration	OSHA
National Electric Code	NECK
Steel Structures Painting Council	SSPC
Fiberglass Reinforced Pipe Institute	FRPI
Kentucky Basic Building Code	KBBC

The standards referred to, except as modified in these specifications, shall have the same force and effect as though printed herein. These standards are not furnished to bidders because contractors, manufacturers, and trades involved are generally assumed to be familiar with their requirements. The Consulting Engineer will furnish, upon request, information as to how copies of and standards, included by reference only, may be obtained.

Inspection and Testing

Section 2. The manufacturer of the specific materials shall establish the necessary quality control and inspection practice to assure compliance with the individual specification outlined above for the particular material.

Construction Site

Section 3. The construction area shall be confined to the limits of the public right-of-way in streets, the limits of the construction easements on private property as set forth by the Owner or to the property belonging to the Owner. The limits for the construction area are shown on the detailed construction drawings.

Samples

Section 4. Samples of materials or equipment submitted for review and contract compliance shall have a label indicating the material represented, its place of origin, and the name of the producer, the Contractor expecting to use the equipment, and the work for which the material will be used. Samples of finished materials shall be marked to indicate where they are required by the drawings and specifications.

Each delivery of samples shall be accompanied under separate cover by letter in duplicate from the Contractor containing a list of the samples, as indication of where the materials are intended to be used and the brands of materials and names of the manufacturers.

Acceptance of any samples shall not be taken in itself to change or modify any contract requirements, for acceptance shall be only for the characteristics or for the use of the material. The Project Manager, whenever he may deem it necessary, may take test samples from the various materials or equipment delivered to the site of the work by the Contractor. If any such test samples fails to meet the specification requirements, any previous approvals will be withdrawn and such material or equipment shall be subject to removal and replacement by the Contractor with material or equipment meeting the specification requirements; or, at the discretion of the Project Manager, the defective materials and equipment may be permitted to remain in place subject to a satisfactory adjustment of the contract.

Climatic Conditions

Section 5. All work which will be affected by climatic conditions, (wind, rain, frost, freezing or any other environmental conditions) shall be suspended unless permission is given by the Project Manager to proceed. Whenever work proceeds under any such conditions, the Contractor shall provide approved facilities for protecting all the materials and the finished work. This will include heating of materials if required for their proper installation.

END OF SECTION

SECTION 01301

SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submittal Procedures.
- B. Construction Progress Schedules.
- C. Proposed products List.
- D. Shop Drawings.
- E. Product Data.
- F. Samples.
- G. Manufacturers' Instruction.
- H. Manufacturers' Certificates.
- I. Resubmittals.

1.02 RELATED SECTIONS

- A. Section 01400, Quality Control: Manufacturers' Field Services and Reports.
- B. Section 01700, Contract Closeout: Contract Warranty and Manufacturer's Certificates Closeout Submittals.

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with AIA Form G810 or Engineer accepted form.
- B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or Supplier; pertinent Drawing sheet and detail number(s), and Specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialled certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Make all submittals far enough in advance of Schedule dates of installation to provide all required time for review, for securing necessary reviews by others, for possible revision and resubmittal, for placing orders and securing delivery. Deliver, postage prepaid. Schedule submittals to expedite the Project, and deliver to the Engineer at business address. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Engineer review stamps.

- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- J. In scheduling, allow at least ten (10) full working days (Monday through Friday, less legal holidays) for the Engineer's review and approval. Following his receipt of the submittal the Engineer will return via first class mail. The Engineer is required by the Owner to provide prompt disposition of all submittals, and will transmit the submittal, request for additional information, or a notification that additional time will be required for review and approval due to the complexity of the submittal, within the ten (10) working day period. Regardless of the size and complexity of the submittal, review and approval shall be complete within thirty (30) working days.

1.04 PROPOSED PRODUCTS LIST

- A. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.05 SHOP DRAWINGS

- A. Submit in the form of one reproducible transparency and one opaque reproduction, or, submit the number of copies which the Contractor requires, plus three (3) copies which will be retained by the Engineer.

1.06 PRODUCT DATA

- A. Submit the number of copies which the Contractor requires, plus three (3) copies which will be retained by the Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Mark out inapplicable areas. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.07 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Engineer's selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number of samples specified in individual Specification Sections; one of which will be retained by the Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual Specification Sections.

1.08 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual Specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.09 MANUFACTURER'S CERTIFICATES

- A. When specified in individual Specification Sections, submit manufacturers' certificate to the Engineer for review, in quantities specified for Project Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to the Engineer.

1.10 RESUBMITTALS

- A. The Owner may request a fee to be paid by the Contractor for submittals which are being reviewed by the Engineer for the third time or more. Each claim by the Owner will be substantiated on a time and material basis.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Field samples.
- D. Mock-up.
- E. Inspection and testing laboratory services.
- F. Manufacturers' field services and reports.

1.02 RELATED SECTIONS

- A. Section 01060, Applicable Codes.
- B. Section 01090, Reference Standards.
- C. Part 3, General Conditions, Section 41: Shop Drawings and Samples.
- D. Section 01600, Material and Equipment: Requirements for Material and Product Quality.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.04 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.

1.05 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications Sections for review.

- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by the Engineer.

1.06 MOCK-UP

- A. Tests will be performed under provisions identified in this Section.
- B. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by the Engineer.

1.07 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual Specification Sections, require material or product suppliers, or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment and lubrication as applicable, and to initiate instructions when necessary.
- B. Manufacturer's personnel are to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report in duplicate within 10 days of observation to the Engineer for review.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Section and payment.
- B. Contractor submittals.
- C. Laboratory responsibilities.
- D. Laboratory reports.
- E. Limits on testing laboratory authority.
- F. Contractor responsibilities.
- G. Schedule of inspections and tests.

1.02 RELATED SECTIONS

- A. Part 3, General Conditions.
- B. Section 01650, Starting of Systems: Testing, Adjusting, and Balancing of Systems.
- C. Section 01700, Contract Closeout: Project Record Documents.
- D. Individual Specification Sections: Inspections and Tests Required, and Standards for Testing.

1.03 REFERENCES

- A. ANSI/ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.04 SELECTION AND PAYMENT

- A. Contractor shall employ and pay for services of an independent testing laboratory to perform specified inspection and testing.
- B. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.05 QUALITY ASSURANCE

- A. Comply with requirements of ANSI/ASTM E329 and ANSI/ASTM D3740.
- B. Laboratory: Authorized to operate in State in which Project is located.
- C. Laboratory Staff: Maintain a full time State registered Engineer on staff to review services.

- D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

1.06 CONTRACTOR SUBMITTALS.

- A. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer and responsible officer.
- B. Submit copy of report of Laboratory Facilities Inspection made by Materials Reference Laboratory of National Bureau of Standards (NBS) during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.07 LABORATORY RESPONSIBILITIES

- A. Test samples of mixes submitted by Contractor.
- B. Provide qualified personnel at site. Cooperate with the Engineer and Contractor in performance of services.
- C. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.
- D. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- E. Promptly notify the Engineer and Contractor of observed irregularities or non-conformance of work or products.
- F. Perform additional inspections and tests required by the Engineer.

1.08 LABORATORY REPORTS

- A. After each inspection and tests, promptly submit two copies of laboratory report to the Engineer, and to Contractor.
- B. Include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and Specifications section.
 - 6. Location in the Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- C. When requested by the Engineer, provide interpretation of test results.

1.09 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of the Work.
- C. Laboratory may not assume any duties of Contractor.
- D. Laboratory has no authority to stop the Work.

1.10 CONTRACTOR RESPONSIBILITIES

- A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to the Work.
- C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of Products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. Notify the Engineer and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.
- E. Where excavated material available for compacting proves to be unsuitable or the Contractor finds it impractical to use the excavated material to meet the requirements, the Contractor shall, at not extra cost compensation, procure suitable backfill material elsewhere and dispose of the unsuitable material.

1.11 SCHEDULE OF INSPECTIONS AND TESTS

- A. Inspection and tests for soil and rock shall be in accordance with Division 2 and ASTM D3470.
- B. Inspections and tests for concrete shall be in accordance with Division 3.
- C. Owner will provide testing lab services for soil to determine acceptability of the fill or material solely for the Owner's own benefit. Additional tests and inspections desired by the Contractor to meet compaction limits shall be provided by the Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SITEWORK

Section 02200

Excavation and Backfill

General

Section 1. The work covered under this section consists of furnishing all labor, materials, and equipment for excavation, backfilling, compacting, rough and final grading, required to complete the construction as shown and specified in the Contract Documents.

Sheeting and Shoring

Section 2. The Contractor shall furnish, put in place, and maintain such piling, sheeting, bracing, etc., as is required by OSHA regulations and the "Safety & Health Regulations for Construction", Title 29, Chapter XVII, CFR, Part 1926, formerly Title 29, Chapter XIII, CFR, Part 1518.

Such piling, sheeting, bracing, etc., shall be furnished, put in place, and maintained as may be required to support the sides of all excavation to prevent any movement which could cause injury to persons, structures, utilities or property, either public or private or any portion of the work being performed under this Contract.

Sheeting, if required, shall remain in place until the pipe or structure has been laid or constructed, tested for defects and repaired if necessary, and the backfill placed and compacted. Sheeting may be pulled concurrently with the placing of backfill if directed by the Project Manager.

The Contractor shall leave in place any and all sheeting, bracing, etc., which the Project Manager may direct him, in writing, to leave in place at any time during the progress of the work for the purpose of preventing injury to structures, utilities or property, either public or private.

Removal of Water

Section 3. The Contractor shall provide at all times during the construction, proper and approved equipment including pumps and well points of sufficient capacity to meet the maximum requirements for the removal of water and like wastes from all excavations. The disposal of the water and wastes shall be in such a manner as not to interfere with the proper construction of pipe lines or masonry. This disposal shall not withdraw sand or cement from concrete work or affect the prosecution of work under his own or adjacent contracts.

The Contractor shall not dispose of ground and/or surface water into newly constructed sanitary sewers or existing sanitary sewers.

Pumping sumps shall be excavated outside the trench or structure excavation lines and be of sufficient size to meet the requirements of the location. The Contractor shall pump out or otherwise remove and dispose of, as fast as it may collect, any water or like wastes which may be found or may accumulate in the excavations. Underdrains, if required to keep the excavations dry, shall lead to pumping sumps.

All excavations must be kept dry as specified for laying pipe or for placing concrete.

Rock Excavation

Section 4. All costs incurred for rock excavation shall be included in the lump sum bid for this project. There shall not be a separate pay item for rock excavations. No excavated rock shall be used for backfill.

Rock excavation is defined as material which is either solid or stratified and which cannot be removed by recognized standard excavating methods. This material will require drilling, blasting, or some other mechanical means of shattering. Boulders one (1) cubic yard and over in volume required to be removed are classified as rock excavation even though portions of it may be stratified or laminated, or may be as hard as portions of sandstone or limestone.

The Contractor shall exercise all possible care in any blasting to avoid injury to persons and adjacent property. The rock shall be well covered and sufficient warning shall be given to all persons in the vicinity of the work before blasting. Proper care shall be exercised to avoid injury to water pipes or other structures either below or above ground. Caps or other exploders shall not be kept in the same place in which dynamite or other explosives are stored. All Federal, State or local regulations covering the use of explosives shall be strictly observed; and in addition, the Contractor shall conform to any further regulations which the Project Manager may deem necessary in this respect.

The Contractor shall remove all rock that is shattered below grade due to a too deep drill hole, a too heavy charge of explosives or for any other reason, and refill the excavation to the required grade with compacted gravel or other suitable material at his expense.

All structures, pipelines, water mains, conduits, etc., below and above ground that are damaged due to blasting of rock are to be replaced or repaired by the Contractor at his expense and to the satisfaction of the Project Manager.

Rock excavation shall be to the depth required to provide a minimum of four (4) inches of clearance below all parts of pipes, valves, or fittings.

The Contractor shall provide crushed aggregate pipe bedding to the specified grade. Trench widths in rock excavations shall be eight (8) inches wider than the outside diameter of the bell of the pipe. Any excavations and backfill beyond these limits will be at the expense of the Contractor.

Buried Pipe Lines

Section 5. Pipe line trenches shall be excavated so that the pipes and appurtenances can be installed to the alignments and grades required. Pipe line trenches in all types of traveled streets, roadways, drives and parking areas to a distance of five (5) feet behind curbs and all road shoulders shall be backfilled with granular material.

If, in the opinion of the Project Manager, the material at or below the normal grade of the bottom of the trench, or other excavation is unsuitable for foundation, it shall be removed to such depths and widths as he may direct and be replaced by the Contractor with gravel, crushed stone or other acceptable materials. Payment for this work will be made as provided in "Changes in Work" in the General Provisions.

If the bottom of any excavation is removed beyond the limits shown on the drawings or described in these specifications without authorization of the Project Manager, it shall be refilled at the Contractor's expense with gravel, crushed stone, or other acceptable material.

Mechanized equipment, such as bulldozers, front end loaders, etc., shall under no conditions, be used to push excavated material directly into the open trench as backfill between the bottom of the trench and one (1) foot above the pipe.

Where gravel backfill is specified, the backfill material from one (1) foot above the pipe to the street or shoulder grade (or subgrade of pavement), shall consist of approved gravel that shall be puddled with hoe and pipe nozzle after the trench is backfilled. The Contractor shall furnish the necessary tank trucks, water, pumps, and all equipment required to settle the gravel backfill by the puddling method.

When the type of trench backfill material is not indicated on the drawings or specified, the Contractor may backfill the trench from one (1) foot above the top of the pipe to the top of the trench with excavated material provided that such material consists of loam, clay, sand, gravel, or other materials that, in the opinion of the Project Manager, are suitable for backfilling. Care shall be taken to carry the backfill up evenly in the trench.

The Project Manager reserves the right to condemn any portion of the work during the term of this Contract, should any gravel backfilled trench settle or there is any other evidence to indicate that the backfill has been improperly placed. The Contractor will be ordered to reopen the trench at those locations and replace the backfill in the proper manner without additional compensation.

Gravel Backfill

Section 6. Gravel used for backfill shall consist of natural bank gravel having durable particles graded from fine to coarse in a reasonably uniform combination with no boulders or stones larger than two (2) inches in size. It shall be free from slag, cinders, ashes, refuse, or other deleterious or objectionable materials. It shall not contain excessive amounts of loam and clay and shall not be lumpy or frozen. No more than fifteen percent (15%) shall pass a No. 200 sieve. All such materials shall be approved by the Project Manager.

Subsurface Conditions

Section 7. The Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or sub-surface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

Site Preparation

Section 8. All trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed.

All cut and fill areas shall be properly stripped. Topsoil shall be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material, shall be disposed of off the site, or as directed by the Project Manager if on-site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing by the Project Manager.

Prior to the addition of fill, the original ground shall be compacted to meet the requirements of the specification. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or ground water seepage is found, corrective measures must be taken before the placement of fill.

Demolition

Section 9. The Contractor shall submit a schedule for the demolition of the structures.

The Contractor shall provide all materials and equipment required to meet the goals of demolition as set forth on the construction drawings.

The Contractor shall notify the Project Manager 30 days prior to the demolition of any structure.

END OF SECTION

SITEWORK

Section 02202

Excavation and Backfill - Pressure Pipelines

Trench Excavation

Section 1. Trenches for buried pressure pipelines shall be so excavated that the pipes and appurtenances may be installed to the alignments and grades specified or required.

Trenches shall be excavated to a depth that will provide for a minimum of three feet (3'-6") of cover over the pipe as measured from the proposed or final grade to the extreme outside limits of the pipe. Greater depths may be required by the plans or job conditions.

Rock, if encountered in the bottom of the trench, shall be excavated to a depth to provide a minimum of four (4) inches clearance below the extreme outermost limits of the pipe. Backfill shall be coarse aggregate, or bank run sand. Shattered materials below the above limits shall be removed and similarly backfilled.

When soft or otherwise unsuitable material is encountered, it shall be removed to such depths and widths as determined by the Project Manager and backfilled with crushed stone or gravel as approved by him.

Except as noted above, trenches shall be so excavated that they will provide a uniform and continuous bearing and support for the barrel of the pipe on solid and undisturbed ground at every point between bellholes except for that area near the mid-section of the pipe disturbed by the withdrawal of pipe slings or other lifting tackle. Bellholes shall be provided at each and every joint.

Pipe Bedding

Section 2. Pipes shall be placed on a minimum depth of four (4) inches of bedding, as measured from the extreme outermost dimension of the pipe. The bedding material shall extend laterally to the outermost limits of the trench.

Bedding material shall be coarse aggregate or bank run sand.

The bedding material shall be placed to grade and in such a manner as to completely support the pipe for its entire length and shall be thoroughly compacted by hand tamping.

Immediately after the joint has been made, the balance of the bedding material shall be brought up to the spring line of the pipe. The material shall be placed in uniform lifts of three (3) inch layers on each side of the pipe, and thoroughly compacted by hand spading and tamping. Care shall be taken to ensure that the material is thoroughly consolidated under the haunches of the pipe.

Initial Backfilling

Section 3. Backfill material as hereinafter specified shall be placed by hand from the bottom of the trench to the springline of the pipe in three (3) inch layers. The material shall be sliced and rammed under the haunches of the pipe and thoroughly compacted by tamping and in a manner that will not disturb the alignment of the pipe or fittings. Each individual length of installed pipe shall be bedded in this manner prior to the connection thereto of an additional length of pipe.

Specified backfill material shall be placed from the springline of the pipe to a plane twelve (12) inches above the extreme outermost limits of the pipe by hand or approved mechanical methods. Under no circumstances shall material be shoveled, dumped or pushed from the top of the trench onto the pipe. Special care shall be exercised with this portion of the backfill so as to avoid injuring or displacing the pipeline.

Initial backfill material shall be as follows:

- A. When gravel trench backfill is specified or required, initial backfill shall be of the same material except that all stones larger than two (2) inches in diameter shall be removed from the immediate vicinity of the pipe.
- B. When gravel trench backfill is not specified, initial backfill material may be of finely divided selected excavated material free from stones, lumps and clumps of clay, organic material and similar undesirable materials.

Balance of Backfill

Section 4. The balance of the backfill from a plane twelve (12) inches above the top of the pipe shall be as follows:

- A. Trenches within roadways and parking areas or immediately adjacent thereto shall be backfilled with coarse aggregate or bank run sand.
- B. Trenches in other areas may be backfilled with excavated material provided such material is free from rock, boulders, large stones, sticks, clumps and lumps of clay, organic material and other similar undesirable materials.

Trenches backfilled with gravel shall be brought up evenly in the trench to the elevation of the subgrade and thoroughly compacted or consolidated by suitable equipment and means approved by the Project Manager.

Trenches backfilled with excavated material shall be brought up evenly in the trench to grade as required by conditions. When the top of the trench is at a proposed grade the material shall be neatly rounded over the top of the trench to allow for settlement. In areas of sodding or seeding, the last six (6) inches of backfill material shall be topsoil.

END OF SECTION

SECTION 02250

HDPE SEWER PIPE (For Directional Drilling)

1.0 GENERAL

1.1 DESCRIPTION

- A. This section shall consist of furnishing and installing high density polyethylene (HDPE) pipe and/or P.V.C. pipe in accordance with these specifications and conforming to the lines and grades, sizes and dimensions as shown on the Plans or directed by the Engineer. This section includes the furnishing and construction of such joints and thrust blocking as are required to complete the pipe system, and also includes testing as required by the Engineer.

2.0 PRODUCTS

2.1 MATERIALS

- A. Not used.
- B. High Density Polyethylene Pipe - May be used wherever polyethylene (PE) or (HDPE) pipe is called for on the Plans or for directional drilling. All polyethylene pipe shall conform to the latest revision of the following specifications:

Pipe Dimensions	ASTM F714-05 DIPS Pipe Size OD
Cell Classification	ASTM D3350 Plastic Pipe Institute Designation PE 4710
Butt-Fused Joints	ASTM D-2657 Technique II

- a. Standard thermoplastic pipe dimension ratio (DR) shall be DR11, sustained pressure rating shall be a minimum of 200 PSI with a safety factor of at least 2.5. Pipe shall be supplied with DIPS outside diameter.
- b. All straight run joints shall be made by the butt-fusion method.
- c. Construction of butt-fused joints shall at all times conform with the recommendations of the pipe manufacturer, and trained personnel experienced in the butt-fusion method shall assist in, or supervise, joint fabrication. Joints shall be at least as strong as the pipe itself.

- d. Minimum radius bending allowed for polyethylene pipe during handling, storage and installation shall be twenty-five (25) times the nominal diameter of the pipe, or that recommended by the manufacturer, whichever is larger.

3.0 EXECUTION

- A. Pipe installation shall conform at all times to the recommendations of the pipe manufacturer's installation guide. Trenching, bedding, and backfilling for the pipe shall conform to the methods outlined in these specifications under the appropriate items.
 - a. Handling and Storing Materials - The Contractor shall be responsible for the unloading, storing, hauling, distribution of all materials, and shall replace at his own expense all such material that is damaged, destroyed, or lost during or after unloading. All pipe, pipe fittings, valves, and accessories shall be handled in a manner to avoid shock and to protect the materials. Material not needed for immediate construction shall be stored in a safe manner at place provided by the Contractor and approved by the Engineer.
 - b. Pipe Laying - All pipe, fittings, valves, and accessories shall be carefully lowered into the trench by means of derrick, ropes, or other suitable tools or equipment in such manner as to prevent damage to pipe and/or pipe coating. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.
 - 1. Before lowering and while suspended, the pipe shall be inspected for defects. Any defective, damaged, or unsound pipe shall be rejected. All foreign matter or dirt shall be removed from inside the pipe before it is lowered into the trench.
 - 2. Excavation shall be made sufficiently in advance of the pipe laying to expose any obstructions that might alter the alignment or grade, but excessive lengths of open trench will not be permitted, and the Engineer may designate the maximum open trench permitted in advance of laying. Trench bottom shall be completed sufficiently in advance of pipe laying to permit accurate checking and the pipe laying operations conducted so as to not disturb the prepared trench.
 - 3. When it becomes necessary to divert the pipeline from a straight line when following the curvature of streets, roads, etc., the deflection per joint shall not exceed the manufacturer's recommendations for the size and type of pipe being installed.

4.0 TESTING

- A. Refer to Pressure Mains Testing.

END OF SECTION

SECTION 02250-3

SITEWORK

Section 02500

Entrance Roads, Drives and Parking Areas

Work Included

Section 1. This work shall include the construction of the entrance road, drives and/or parking areas where shown and as installed on the construction drawings.

Roadways

Section 2. Scope of the work. This contract shall include the furnishing of all the labor, materials and equipment required to construct the roadways, curbs and miscellaneous improvements as shown on the drawings and as provided in these specifications.

The work includes the following principal items:

- a. Excavations and preparation of the subgrade.
- b. Construction of aggregate wearing surface.

Equipment

Section 3. Vibratory compactors used for compacting subgrade and paving shall weigh not less than ten (10) tons.

Excavations and Subgrade Preparations

Section 4. This work shall consist of excavation for the roadways, including furnishing and incorporating all water required for compacting the subgrade, disposing of unsuitable and surplus material, preparing the subgrade, finishing shoulders, slopes, and ditches, all in accordance and in reasonably close conformity with the lines, grades, thicknesses and cross sections shown on the plans, or as directed by the Engineer and/or Owner.

Access Road and Parking Area Construction

Section 5. This work shall consist of furnishing and placing an aggregate wearing course on the completed and accepted subgrade, all in accordance with and in reasonably close conformity with the lines, grades, and typical cross section specified.

END OF SECTION

SITEWORK

Section 02512

Restoration of Pavement and Curbs

Work Included

Section 1. This work shall include the construction of roadway and curbs where such items have been removed in the course of the work of this project.

Roadways

Section 2. Scope of the work. This contract shall include the furnishing of all the labor, materials and equipment required to construct the roadways and curbs as provided in these specifications.

The work includes the following principal items:

- a. Preparation of the subgrade; placing and rolling the sub-base.
- b. Construction of base course pavement.
- c. Construction of curbs (N/A Grayson).
- d. Asphalt concrete pavement.
- e. Concrete pavement (N/A Grayson).

Equipment

Section 3. Vibratory compactors used for compacting subgrade and paving shall weigh not less than ten (10) tons.

Excavations and Subgrade Preparations

Section 4. Excavations for the paving shall be made to lines and grades required to accommodate the specified paving after which the areas shall be compacted to a firm foundation with a compactor. The subgrade may be brought up to final elevation by the use of suitable excavated materials; however, should soft spots develop in the compacting operations, the soft materials shall be removed and backfilled with the material specified for use as sub- base. Compaction operations shall be continued until the fill is compacted to not less than 95% of the maximum density as determined in accordance with ASTM-D 1557-70 (Modified).

The subgrade preparation shall be limited to the May through October construction season.

Base Course

Section 5. All areas to be paved shall have a minimum of six (6) inches of No. 57 aggregate. All compacting operations shall include berms to a minimum width of two (2) feet on each side of the paved area. The base materials shall be evenly spread on the subgrade and shall be thoroughly compacted with equipment the compacted thickness specified.

Asphalt Concrete Pavement

Section 6. The asphalt concrete pavement shall consist of one (1) course of asphalt concrete, 2 inches thick, conforming to materials and construction methods of Item 402 of the "Standard Specifications for Road and Bridge Construction" of the State of Kentucky, Department of Highways. If required by the Project

Director Item 407, tack coat, shall be applied at 0.10 gallons per square yard over either the base course, or over the first lift of asphalt concrete, or both. Tack coat materials and construction methods shall conform to Item 407 of the “Standard Specifications for Road and Bridge Construction” of the State of Kentucky, Department of Highways.

Variation to the surface tolerances shall be corrected in a manner satisfactory to the Project Manager.

All old to new asphalt concrete joints shall be sealed with a joint sealer conforming to Item 807.02.

Concrete Pavement (N/A Grayson)

Section 7. The concrete pavement shall consist of a single course of concrete to the depth required to match existing pavement and shall have a minimum twenty-eight (28) day compressive strength of 3500 psi. Forms shall be used on open sides so that the completed pavement has its original shape.

Concrete Curbs (N/A Grayson)

Section 8. Concrete curbs shall be constructed of Class "A" concrete in accordance with Section 601 of the KDOH specifications. Curb cross section shall match that of existing curb.

One-half inch KDOH 807.03 preformed joint filler shall be placed at all curb returns, to either side of inlets and catch basins, where new curb abuts existing concrete and at such other locations as directed by the Project Manager.

Measurement & Payment

Section 9. All costs for restoration of asphalt or concrete pavement, or concrete/asphalt curbs disturbed as part of new construction shall be included with the appropriate unit price bid.

END OF SECTION

SITEWORK

Section 02701

Polyvinyl Chloride Pipe

General

Section 1. Polyvinyl chloride (PVC) pressure pipe two inches through twelve inch shall conform to the American Society for Testing and Materials (ASTM) Standard ASTM D-2241.

Note: The Engineer retains the sole authority to approve or disapprove of PVC pressure pipe based the manufacturer's prior performance history and project references. If requested by the Engineer, the pipe manufacturer shall submit a reference listing of similar projects completed within the last 5 years in Kentucky, Ohio, or West Virginia complete with Owners Name, Address, Phone Number, and Contact Person.

Pressure class shall be 200 psi with a standard dimension ration (SDR) of 21 or 250 psi with a SDR of 17, as noted on the Plans.

Joints

Section 2. All joints on polyvinyl chloride (PVC) pressure pipe shall be made of elastomeric-gaskets. Provisions must be made for expansion and contraction at each joint with an elastomeric ring. The bell shall consist of an integral wall section with an elastomeric ring which meets the requirements of ASTM F-477 standard specifications for elastomeric seal for jointing plastic pipe. The wall thickness in the bell section shall conform to the requirements of ASTM D-3139.

All PVC Pressure Pipe shall be with twenty (20) foot laying lengths. As noted above, pipe shall be supplied with integral bells, coupling pipe is not permitted.

Anchoring Assemblies

Section 3. Anchoring assemblies will be required for all fire hydrants and hydrant valves. Anchoring assemblies will be required for setting other valves and bends, as shown on the construction drawings.

Special anchoring will be required at other places along the pipelines. Where the construction drawings call for special anchoring, it shall include ductile iron pipe with mechanical joint anchoring fittings, locked mechanical joints, pipe or positively restrained push-on joint type ductile iron pipe and fittings which allow for the deflection at the joint after assembly the equal of "Super-Lock" manufactured by the Clow Corporation.

Installation

Section 4. The installation of PVC pipelines are intended to conform with AWWA Specifications C900-75 and Appendix A as if they were totally incorporated herein, except where these specifications direct otherwise.

Fittings

Section 5. All fittings for PVC pipe shall be cast iron mechanical joints Class 250 tar coated outside, cement lined inside in accordance with ANSI/AWWA Specifications C110/A21.10, C111/A21.11.

END OF SECTION

SITWORK

Section 02720

Pressure Pipelines

Work Included

Section 1. The Contractor shall complete all excavations; shall protect all existing structures, utilities, and services; shall furnish all suitable tools and appliances for the safe and convenient handling of all materials to be used on the work; shall lay the pipelines, including valves, valve boxes, fire hydrants, and all other appurtenances thereto; shall install or replace any or all house service connections if specified; shall test the lines; shall disinfect water lines; shall replace all walks, driveways, grass plots, or paving; shall remove all surplus materials of every kind; and leave the entire site of the work in a presentable and satisfactory condition; all as specified herein under the various sections.

Handling and Storage of Materials

Section 2. Pressure main pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

Pipe shall be so handled that the coating and lining will not be damaged. If however, any part of the coating or lining is damaged the repair shall be made by the Contractor at his expense in a manner satisfactory to the Project Manager.

The Contractor shall be responsible for the safe storage of material furnished by or to him, and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.

Inspection and Responsibility for Material

Section 3. All pipeline materials shall be carefully inspected for cracks and other defects prior to installation. All material found during the progress of the work to have cracks, flaws, or other defects, shall be rejected by the Project Manager. All defective materials furnished by the Contractor shall be promptly removed by him from the site of the project.

The Contractor shall be responsible for all materials furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

Installation of Pressure Pipelines

Section 4. Pressure mains shall be laid and maintained to the required lines and grades with fittings, valves, and hydrants at the required locations; spigots centered in bells; and all valve and hydrant stems plumb.

Proper implements, tools, and facilities shall be provided and used by the Contractor for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, or other suitable tools or equipment in such a manner as to

prevent damage to pipe main materials and protective coatings and linings. Under no circumstances shall pipe main materials be dropped or dumped into the trench.

All pipe and fittings shall be carefully examined for cracks and other defects while suspended above the trench immediately before installation in final position. Spigot ends shall be examined with particular care. Defective pipe or fittings shall be laid aside as previously specified.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe laying crew cannot put the pipe into the trench and in place without getting earth into it, the Project Manager may require that before lowering the pipe into the trench, a heavy, tightly woven canvas bag of suitable size shall be placed over each end and left there until the connection is to be made to the adjacent pipe. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Precautions shall be taken to prevent dirt from entering the joint space.

At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Project Manager. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.

The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or lining so as to leave a smooth end at right angles to the axis of the pipe.

Pipe shall be laid with bell ends facing in the direction of laying, unless directed otherwise by the Project Manager. Where pipe is laid on a grade of ten (10) percent or greater, the laying shall start at the bottom and shall proceed upward with the ball ends of the pipe upgrade.

Placing Pipeline Fittings

Section 5. Pipeline fittings, plugs and caps shall be furnished and installed of the type indicated and at the location shown on the construction drawings or as directed by the Project Manager. It will be the responsibility of the Contractor to furnish and install all proper size pipe bends for both horizontal and vertical deflections that are required to construct the pressure main to the line and grade as shown on the construction drawings or as set by the Project Manager. The fittings, plugs, and caps shall be set and joined to the pipe in the manner heretofore specified for installation.

Anchorage

Section 6. The Contractor shall provide pipeline restraint at all locations shown on the construction drawings. Anchorage shall be in the form of harnessed or restrained joints for the lengths of pipe and fittings shown.

Testing Pressure Mains

Section 7. The Contractor shall subject the completed pressure pipelines to a leakage test. The test

shall be performed on all newly laid pipe in lengths not to exceed 2,000 feet or any valved section thereof. The length of the test section shall exceed the specified maximum limit only with the explicit approval of the Project Manager. The test may be conducted after the trench has been backfilled but must be completed before replacement of pavements and final restoration. All testing shall be done in the presence of the Project Manager.

The Contractor shall furnish the pump, pipe connection, temporary testing plugs and caps, if required, all necessary apparatus including the pressure gauges and meters and a supply of approved water. The Contractor shall make all necessary taps into the lines. The Contractor shall be responsible for all labor and equipment necessary to conduct the tests, including excavating and backfilling the test pit at the locations selected by the Project Manager.

The pipe shall first be completely flushed out. Then each valved section shall be slowly filled with water. All air shall be expelled from the pipe at high points by means of test plugs in valve bonnets, fire hydrants or through corporation stops installed by the Contractor for this purpose. After all the air has been expelled, the openings shall be closed and the test pressure applied by means of the test pump connected to the pipe in a manner satisfactory to the Project Manager.

The test pressure for the leakage test shall be fifty (50) percent above the normal operating pressure of the lowest point in the section of line under the test and corrected to the elevation of the test gauge. The duration of each leakage test shall be two (2) hours.

The exposed piping and/or the top of the trench shall be carefully inspected during the leakage test for any signs of leakage. Any cracked or defective pipe, fittings, valves or hydrants discovered in consequence of the leakage test shall be removed and replaced by the Contractor with sound material and the test shall be replaced until satisfactory results are obtained. The Contractor is responsible for locating, excavating and backfilling the pressure pipeline trench at no cost to the Owner, in addition to replacing the defective material if the leakage test is conducted on a backfilled pressure pipeline. The Contractor shall maintain the hydrostatic pressure at all times during the leakage test through his test pump.

Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain the specified leakage test pressure after the air has been expelled, the pipe has been filled with water, and the pressure initially applied.

No pipe installation will be accepted if the amount of leakage is greater than specified by the following equation:

$$L = \frac{ND}{7400} \sqrt{P}$$

Where

L = allowable leakage, gallons per hour.

N = Number of pipe joints being tested.

D = Nominal diameter of pipe, in.

P = Average test pressure, psig.

Disinfection of Water Mains

process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline is filled with the chlorinating agent.

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipeline at its extremities until the replacement water throughout its length shall, upon test, be proved comparable in quality to the water serving the public from the existing water supply system and approved by the public health authority having jurisdiction. This satisfactory quality of water delivered by the new main should continue for a period of at least two (2) full days as demonstrated by laboratory examination of samples taken from a tap located installed in such a way as to prevent outside contamination. Samples shall not be taken from an unsterilized hose or from a fire hydrant, because such samples will seldom meet bacteriological standards.

Should the initial treatment fail to result in the conditions specified, the original chlorination procedure shall be repeated until satisfactory results are obtained.

Pressure Pipelines Not Installed in Trench

Section 9. All applicable provisions of this item of work shall apply to the furnishing of materials and installation procedures for constructing pressure pipelines not installed in a trench condition.

END OF SECTION

SITWORK

Section 02722

Ductile Iron Pipe

Pipe

Section 1. Ductile cast iron pipe shall conform to the American Standard for "Ductile Iron Pipe Centrifugally Cast in Metal Molds for Water or Other Liquids", AWWA C151.

The pipe shall be Pressure Class 350, unless otherwise noted.

Joints

Section 2. Mechanical joints, bell and spigot joints and flange joints for ductile iron pipe in sizes from 2-inches through 48-inches in diameter shall conform to all of the dimensions, shapes and requirements of AWWA C110, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids". The mechanical joint shall also conform in all respects to AWWA C111, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings".

Push-on joints shall be a single rubber gasket joint designed to be assembled by the positioning of a continuous, molded, rubber ring gasket in an annular recess in the pipe and forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and the annular recess shall be so designed and shaped that the gasket is locked in place against displacement as the joint is assembled. The push-on type joint shall conform to the requirements of AWWA C110 and AWWA C111 where applicable.

Where ductile iron pipe with ball and socket type joints are specified, they shall be of the mechanical gland type. Provisions shall be made for longitudinal expansion and contraction with a positive stop against disengagement of the joint. Up to fifteen (15) degrees angular deflection shall be accommodated without leakage and without decrease in full diameter of pipe.

Fittings

Section 3. Cast iron or ductile iron fittings in sizes 2-inches through 48-inches for mechanical joints, bell and spigot joints and flange joints shall conform to all the requirements of AWWA C110, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids", and to the requirements of AWWA C111, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings", for mechanical joints and push-on type joints. Push-on joints for cast iron fittings shall be as described in Section 2 of this item.

The cast iron or ductile iron fittings in sizes larger than 12-inch shall have a pressure rating of 150 psi unless the proposal sheets and/or the construction drawings stipulate that 250 psi cast iron fittings are required.

Unless specifically described on the proposal sheets and/or construction drawings, the cast iron fittings may be supplied in gray iron or ductile iron.

Ductile iron, compact body fittings are also acceptable.

Fittings shall be supplied with grip rings where called for,

Sitework

02722-1

Coatings for Ductile Iron Pipe & Fittings

Section 4. The ductile iron pipe and cast iron or ductile iron fittings for water service shall be furnished with cement mortar lining in accordance with AWWA C104, "Cement Mortar Lining for Cast Iron Pipe and Fittings". The lining will be 1/16-inch thick for pipe sizes 4-inches through 12-inches in diameter and 3/32-inch thick for sizes 14-inch through 24-inches in diameter. A bituminous seal coat shall be applied to the lining surface immediately following the lining operation to prevent loss of moisture and insure proper curing of the cement mortar. The outside of the iron pipe shall be furnished with a protective coating as outlined in Section 09900, "Protective Coatings and Painting".

All cast iron or ductile iron fittings and ductile iron pipe which will carry sewage shall be completely coated inside and outside with a hot coal-tar varnish, to which sufficient oil has been added to make a smooth coating, tough and tenacious, when cold. The coating process shall consist of preheating and then dipping the fitting or pipe into the hot coating material.

All ductile iron pipe and fittings not installed in a trench condition shall not be coated with a coal-tar pitch on the outside. The pipe and fitting shall be coated in accordance with the Section 09900, "Protective Coatings and Painting".

Miscellaneous Jointing Material

Section 5.

a. Victaulic couplings for ductile iron pipe shall consist of malleable iron housing-clamps in two (2) or more parts, a single C-shaped rubber gasket and two (2) or more track-head steel bolts as required to assemble the housing clamps. The coupling shall be of the proper type to encircle the outside diameter of the ductile iron pipe as specified. The malleable iron in the segmental casting shall conform to ASTM A47. The track-type oval neck bolts shall conform to ASTM A183. The rubber gasket shall be Grade "R" natural rubber.

Ductile iron pipe and fittings to be joined with victaulic couplings shall be furnished with shoulders to engage the entire inner circumference of the housing-clamp. The outside surface of the pipe between the shoulder and the pipe end must be smooth and free from deep pits or swells to provide a leaktight seal for the victaulic gasket.

b. Compression sleeve couplings for plain end ductile iron pipe shall consist of one cylindrical steel middle ring with a pipe stop, two (2) resilient wedge-shaped gaskets, two (2) steel follower rings and a set of high strength steel track-head bolts. The number of bolts furnished will depend on the diameter of the couplings.

Anchoring Assemblies

Section 6. Anchoring assemblies for setting valves, fire hydrants, and special bends shall consist of two (2) mechanical joint cast iron or ductile iron gland fittings cast integrally with the pipe nipple. The anchor assembly fittings shall have a laying length of fourteen (14) inches. Anchoring pipe shall be used where long lengths of pipe are required to anchor fire hydrants. Anchoring pipe may be furnished with regular anchoring glands cast with the pipe or with a ring gland which will allow free movement of the standard mechanical joint follower gland. A mechanical joint anchoring tee may be substituted for the mechanical joint tee and anchoring piece for fire hydrant installations where applicable.

Jointing Pipe

Section 7. Joints for buried cast iron or ductile iron pressure main shall be mechanical joint, rubber compression type (push-on joint), poured bell and spigot or victaulic. Cast iron or ductile iron joints within structures may also be flange type or compression sleeve type as shown on the construction drawings. The joints shall be made in the following manner.

Mechanical Joint - The mechanical joint shall conform to the requirements of AWWA A21.11, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings". All surfaces that come in contact with the rubber gasket shall be brushed thoroughly with a wire brush just prior to assembly to remove all rust or foreign material. The clean surface and the rubber gasket shall then be brushed with soapy water. The iron gland shall then be placed on the spigot end with the lip extension facing the joint. The rubber gasket shall then be slipped on the pipe with the thick end toward the gland. The spigot end of the pipe shall then be pushed into the bell seat after which the rubber gasket shall be forced into its retaining space in the bell. Care shall be taken to assure an even seat all around the inner surface of the bell. The gland shall be moved into place for bolting; the bolts shall be inserted and the nuts made up tightly with the fingers only.

The normal range of bolt torques to be applied and length of wrench to produce that torque to the standard cost iron bolts in a joint are as follows:

<u>Size of Bolt</u> <u>Inches</u>	<u>Range of Torque</u> <u>Ft.-Lbs.</u>	<u>Length of Wrench</u> <u>Inches</u>
3/4	60 - 90	10
1	70 - 100	12
1-1/4	90 - 120	14

The gland shall be brought up toward the pipe flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket when tightening bolts. It shall be done by partially tightening the bottom bolt first, then the top bolt, next the bolts at either side, and last the remaining bolts. This process shall be repeated until all bolts are within the specified range of torque. If effective sealing is not attained at the maximum torque, the joint shall be disassembled and reassembled after thorough cleaning. The bolts shall not be overstressed to compensate for poor assembly.

Rubber Seal Type Joint (Push-On Joint) - The push-on type joint shall conform to the requirements of AWWA A21.11, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings". Before assembly of the rubber seal type joint, the inside of the bell and the rubber gasket shall be wiped clean with a cloth. The gasket should then be placed in the groove of the bell in the manner that forms to the contour of the bell. A thin film of special lubricant, of the type recommended by the manufacturer of the pipe, is then applied to the inside of the gasket by brush or hand.

The plain end of the pipe shall be wiped clean and placed in approximate alignment with the bell of the pipe. The joint is then made up by exerting sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket. Pipe eight (8) inches in diameter and larger shall be socketed by fork tools or jacks.

The spigot ends of field cut pipe shall be tapered back one-eighth (1/8) inch at an angle of about thirty

(30) degrees to the barrel of the pipe with a coarse file or portable grinder. All sharp or rough edges that may injure the rubber gasket shall be removed in this operation.

Flanged Joints - The flanged joints shall conform to the requirements of AWWA A21.10, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids". Flanged joints shall be assembled with bolts and flat ring gaskets of the size and number as specified for "Cast Iron Pipe Flanges and Flanged Fittings". Stud or tap bolts shall be furnished when shown on the construction drawings, and when required to complete special assemblies. All exposed bolts, heads, and nuts shall be coated with two (2) coats of asphaltum or other approved metal coating after the joint has been completed.

Restrained Joints - Special anchorage shall include the use of mechanical joint anchoring fittings, couplings and pipe or positively restrained push-on type pipe and fittings which allow for deflection at the joint after assembly, the equal of "Super-Lock" manufactured by the Clow Corporation. No reduction in pipe wall thickness from that specified shall be permitted in connection with a restrained joint.

Deflection of Ductile Iron Pipe

Section 8. Whenever it is desirable to deflect mechanical-joint or push-on joint pipe in order to form a long radius curve, the amount of the deflection shall not exceed the maximum limits shown for the respective type pipe.

Table 1

Maximum Permissible Deflection in Laying Mechanical-Joint Pipe

Size Of Pipe In Inches	<u>Maximum Permissible Deflection Per Length - Inches</u>			
	<u>12-Ft. Length</u>	<u>16-Ft. Length</u>	<u>18-Ft. Length</u>	<u>20-Ft. Length</u>
6	18	24	27	30
8	13	18	20	22
10	13	18	20	22
12	13	18	20	22
16	9	12	13-1/2	15
20	7-1/2	10	11	12
24	6	8	9	10

Table 2

Maximum Permissible Deflection in Laying Mechanical-Joint Pipe

Size Of Pipe In Inches	<u>Maximum Permissible Deflection Per Length - Inches</u>			
	<u>12-Ft. Length</u>	<u>16-Ft. Length</u>	<u>18-Ft. Length</u>	<u>20-Ft. Length</u>
6	12	17	19	21
8	12	17	19	21
10	12	17	19	21
12	12	17	19	21
16	7-1/2	10	11	12

20	7-1/2	10	11	12
24	7-1/2	10	11	12

Section 9. The following section is applicable to ductile iron diffused air distribution piping. All buried air distribution piping shall be Class 50 or 51 unlined DIP, Mechanical or Bell Joint with gaskets capable of withstanding a continuous temperature of 225°F. All DIP air lines shall be exterior coated in conformance with Specification Section 02722 - paragraph Section 4.

Above ground air distribution piping shall meet the same conditions except same shall be furnished with flanged conditions and temperature resistant gaskets.

END OF SECTION

SITework

Section 02940

Temporary Silt and Erosion Control

Scope

Section 1. This work shall consist of furnishing all labor, material, and equipment, and incidentals for the construction of silt control structures to reduce the amount of sediment delivered to waterways. Silt control structures shall be constructed as required to control silt runoff into streams at the locations directed by the Engineer or his designated Representative.

During the life of the contract, the silt control structures shall be maintained by the Contractor, and silt accumulations which threaten to damage the structures, or preclude their effective operation as determined by the Engineer, shall be removed.

Straw or Hay Bale Silt Check

Section 2. This silt check shall be constructed with straw or hay bales, staked to remain in place, as shown on the Standard Details.

The location of straw or hay bale silt checks shall be as shown on the Plan drawings, or as directed by the Engineer at the time of construction. When the usefulness of the silt checks has ended, they shall be removed, and surplus materials be disposed of.

Measurement and Payment

Section 3. Payment for installation and maintenance of the temporary silt and erosion control structures shall be considered an incidental expense to the construction. All costs for same shall be included in the unit prices bid for the several other items included with the project.

END OF SECTION

SITEWORK

Section 02950

General Cleanup

General

Section 1. The Contractor shall be responsible for maintaining the site in a neat and safe manner during the period of construction. All trash and debris shall be removed or disposed.

Final Cleanup

Section 2. Upon completion of the construction, but prior to the final estimate, the Contractor shall check the entire site affected during construction and remove or dispose of all trash, debris, used building materials, etc. He shall also remove all construction equipment used for the project.

Finish Grading

Section 3. Upon removal of all debris and completion of rough grading operations all areas disturbed during construction shall be finish graded to provide for a smooth surface free of ruts, gullies or ponding areas. Large stones greater than 2 inches in size shall be removed from the site. The areas to be seeded shall then be fine raked to a smooth surface and the top 2-inches of soil loosened to form a seed bed.

Seeding

Section 4. Upon completion of finish grading operations the entire area shall be fertilized uniformly at a rate 20 pounds per 1,000 square feet with 12-12-12 composition fertilizer. The area shall then be seeded at a rate of 3 pounds per 1,000 square feet with a mix consisting of 40 percent Kentucky Bluegrass, 40 percent Creeping Red Fescue and 20 percent Annual Rye Grass, then lightly raked. Immediately after seeding the area shall be covered with straw evenly spread at a rate of 4 bales per 1,000 square feet. The seeded areas shall then be watered immediately and then watered on a daily basis until grass is established. Areas in which grass has not been established shall be re-fertilized, re-seeded and watered until grass has been established.

END OF SECTION

CONCRETE

Section 03419

Concrete Encasement and Concrete Cradle

Concrete Encasement

Section 1. Buried pipelines shall be encased in 2,500psi concrete where shown on the construction drawings or to the extent and/or at other locations as determined by the Project Director.

Concrete encasement shall provide a minimum cover of six (6) inches beneath and above the pipe O.D. and shall extend laterally to the undisturbed wall of the pipeline trench. Additional thickness of concrete encasement, if required, shall be shown on the construction drawings. Each pour shall start and stop at a pipe joint.

Concrete Cradle

Section 2. Concrete cradle shall be 2,500 psi concrete where shown on the construction drawing or as directed by the Project Director.

Concrete cradle shall provide a minimum of six (6) inches beneath the pipe and extend to the spring line of the pipe unless otherwise shown on the construction drawings. Each pour shall start and stop at a pipe joint.

Measurement and Payment

Section 3. The payment for concrete encasement shall include furnishing and placing the concrete encasement. The Contractor shall be paid for the number of lineal feet of encasement constructed at the unit price quoted on the Proposal Sheets. (Unit Price Contracts Only.)

The payment for concrete cradle shall include furnishing and placing the concrete encasement. The Contractor shall be paid for the number of lineal feet of cradle at the unit price quoted on the Proposal Sheets. The concrete foundation under tee-based manholes is not considered cradle.

END OF SECTION

METALS

Section 05510

Cast Iron Work

Work Included

Section 1. The Contractor shall, under this Section, furnish all the materials for and shall properly install, at the locations shown on the drawing or as directed, all miscellaneous iron castings as specified or as shown, which are necessary for the proper completion of the work.

In general, this work shall include pipe sleeves, floor boxes, manhole steps, manhole rims and covers, adjustable valve boxes, sludge shoes, and such other miscellaneous cast iron work as is shown or required.

Quality

Section 2. All castings shall be true and fit properly together; must be smooth and free from blow holes and other defects; must conform to the dimensions given on the drawings; and to the "Standard Specifications for Gray Iron Castings" of the American Society for Testing Materials, Serial Designation A-48-36, and any subsequent amendments thereto, and to the proposed American Standard Specifications for Coal-Tar Dip Coating for Cast Iron Pipe and Fittings.

Erection

Section 3. All castings shall be set to the proper line and grade, and shall be carefully blocked and braced independently of the form and held in correct position until the concrete has been placed and has set.

Pipe Sleeves

Section 4. Pipe sleeves, of the dimensions shown on the drawings, shall be placed in the concrete masonry wherever indicated.

END OF SECTION

METALS

Section 05800

Cover Pipe

General

Section 1. The construction drawings show the details of the cover pipe material.

Steel Pipe

Section 2. Where designated on the construction drawings, the steel pipe shall be fusion welded steel pipe, Grade "B" with no coating. It shall conform to the requirements of ASTM 139. The wall thickness shall be Schedule 40 for pipe up to 4-inches in diameter and 0.250 inch wall thickness for larger sizes, unless railroad specification require a greater thickness.

Nestable Corrugated Metal Pipe

Section 3. Where corrugated metal pipe is designated in the construction drawings beneath a highway, it shall be nestable and conform to KDOT, Section 810. The gauge shall be as shown on the construction drawings.

Where corrugated metal pipe is designated in the construction drawings beneath the tracks of a railroad, it shall be AREA Specification 146; with bituminous coating, in accordance with AREA Specifications 1413. The gauge shall be as shown on the construction drawings.

Tunnel Liner Plates

Section 4. Tunnel liner plates where shown on the construction drawings shall be hotdripped galvanized steel of the thickness (gage) and section modulus shown on the construction drawings. The plates shall be formed from steel meeting the requirements of ASTM 139, Grade "B". Individual liner plates shall be made of one piece of metal, provided with flanges from both longitudinal and circumferential joints. The joints shall have sufficient bolt holes to fully develop the strength of the individual liner plate and so spaced in each liner plate that liner plates of curvature will be interchangeable and readily handled in the tunnel. Liner plates shall be of a design that when bolted together no opening shall exist large enough to permit inflow of granular material. Liner plates will be accurately curved to suit the tunnel cross section and when bolted together, the finished casing pipe shall be full round with the nominal diameter to the neutral axis as specified on the proposal sheets and/or construction drawings. Grouting plugs shall consist of a 2-inch standard half-pipe couplings welded or tapped into a hole in the liner plate and furnished with a cast iron plug for closure. They will be of the same material as the liner plate and furnished with a cast iron plug for closure. The spacing of the grouting plugs will be as specified on construction drawings. Bolts, heads, and nuts shall be square and of the same size.

Installing Cover Pipe

Section 5. Cover Pipe shall be installed by the boring method, the jacking method, by trenching or by tunneling as shown on the construction drawings. The Owner will obtain permits for any railroad, State or Federal Highway crossings. The Owner shall coordinate scheduling of construction of crossings with railroads and highway departments and shall pay any charges established therefore the work accomplished by these outside agencies. Special construction requirements defined by railroads or highway departments will be shown on the construction drawings and shall be adhered to by the Contractor. Installation of cover pipe shall not commence without the express permission of the Project Director.

Installation by Boring

Section 6. Steel pipe shall be installed by the boring method utilizing an auger type boring machine or a machine of such design meeting the individual requirements of the railroad, State or Federal Highway System being crossed. The Contractor shall provide an approach pit, completely sheeted and of sufficient size to operate the boring equipment. The operation of the boring equipment shall be subject to continuous checking by the Contractor to insure proper alignment of the cover pipe as installed.

Installation by Jacking

Section 7. The Contractor will provide an approach pit for the jacking operation, excavated so the jacking face is a minimum of three (3) feet above the pipe. This open face should be shored securely to prevent displacement of the embankment. The pit shall include a backstop of sufficient size to take the thrust of the jack. The guide rails that support the pipe as it enters the bore shall be accurately placed to line and grade. The entire approach pit shall be sheeted.

Hydraulic or mechanical jacks may be used in this operation. The number of jacks and the capacity of the jacks shall be adequate to complete the operation. A jacking head shall be used to transfer the pressure from the jack and the jacking frame to the pipe. If an auger is used, the pipe shall be jacked simultaneously with the augering. The construction work shall be checked by the Contractor at frequent intervals to insure proper line and grade of the installation.

Installation by Tunneling

Section 8. Care shall be exercised in trimming the surface of the excavated section to a true line and grade with the excavation conforming to the outside of the tunnel as nearly as possible. In the installation of tunnel or shaft liner plates, the amount of unsupported tunnel or shaft wall shall be at a minimum at all times. Excavation ahead of the liner plates will not be permitted. Liner plates shall be placed promptly as excavation permits. Upon completion of any ring of liner plates, bolts shall be retightened in the two (2) rings previously completed. The Project Director may direct that the top half of the tunnel excavation be supported by a cutting shield and excavation shall not advance ahead of such support.

The vertical face of the excavation shall be supported, as necessary, to prevent sloughing and at any interruption of the tunneling operation, the heading shall be completely bulkheaded.

Grouting shall follow the excavation and lining of the tunnel or shaft as required to fill all voids outside the tunnel liner plates. Grouting shall be performed prior to or upon completion of the installation of a maximum of four (4) rings, unless otherwise directed by the Project Director. Grouting shall start at the lowest hole in each grout panel and proceed upwards progressively and simultaneously, when possible, on both sides of the tunnel. The machine used for grouting shall be capable of forcing grout, under pressure, into all voids.

Measurement and Payment

Section 9. The payment for installation of cover pipe shall be made on the actual number of lineal feet of the various types and sizes of pipes installed. The unit price per foot for cover pipe shall include furnishing the material and installing the pipe by jacking, boring or tunneling, whichever is required, the construction of the approach pits with all necessary sheeting and all other incidentals required to complete the installation as shown on the construction drawings and herein specified. The cost for cover pipe shall include the installation of the carrier pipe inside cover pipe where noted in the bid proposal.

Incidental Boring

Section 10. Where called for on the plans, the Contractor shall bore and push water mains above 2-inch size under private asphalt and concrete driveways. Payment for this item shall be made at the unit prices bid for light duty asphalt and concrete surface replacement.

END OF SECTION

MECHANICAL

Section 15000

Valves and Gates

General

Section 1. Valves and gates of the sizes and types specified or shown on the construction drawings shall be provided for the proper completion of the work included under the project.

Operating nuts, handwheels, gaskets, bolts and nuts and all necessary appurtenances for a complete installation of the valves and gates shall be furnished with the valves.

All valves, not installed in the ground, shall be cleaned after installation and painted as specified under the Section 09900 - "Protective Coatings and Painting."

Complete details of all valves to be used on the project shall be submitted to the Consulting Engineer for review and contract compliance.

Type of Valve

Section 2. The construction drawings will state which type of valve is to be used.

Valve Boxes

Section 3. A valve box shall be provided for every operating nut of a buried valve with the operating mechanism fully protected with a cast iron grease case.

The valve box shall not transmit shock or stress to the valve. It shall be centered and plumb over the wrench nut of the valve. The box cover shall be flush with the finished pavement or at such other level as may be directed by the Project Manager.

The assembly shall consist of three (3) pieces and a cover. The valve box shall be screw type, cast iron with 5-1/4 inch shaft. A round base which will enclose the valve bonnet shall be furnished with six (6) inch and eight (8) inch valves. An oval base shall be supplied with valves larger than eight (8) inches.

The valve boxes for all buried valves shall be encased in concrete at least six (6) inches outside the diameter of the box at grade. The following information shall be carved into the concrete:

1. Type of service (water, sewage, etc.)
2. Number of turns to open the valve completely
3. The direction of opening the valve

A masonry valve pit shall be provided for every valve which has exposed gearing or operating mechanisms, if that type valve is specified. The details of such an enclosure is shown on the construction drawings.

Operating Nut Location

Section 4. All operating nuts for buried valves covered by valve boxes shall be located within eight (8) inches of the top of the box, and valve wrenches shall be four (4) feet long, sized for two (2) inch square nuts. Four (4) valve wrenches shall be furnished to the Owner by the Contractor.

Extension Stems

Section 5. Wherever extension stems are required for valve operation, the connection between the valve stem and extension stem shall be a pinned coupling to avoid possible disconnection.

Operating Nuts

Section 6. Valves for buried pipe lines shall be furnished with two (2) inch square wrench nuts. Nuts shall have a flanged base upon which shall be cast an arrow two (2) inches long showing the direction of opening, and the word, "OPEN" in one-half (1/2) inch or larger letters, shall be cast on the nut to indicate clearly the direction to turn the wrench when opening the valve.

Handwheels

Section 7. Handwheels may be specified for operating valves in exposed piping on the construction drawings. The handwheels shall have an arrow and the word "OPEN", cast thereon, to clearly indicate the direction the handwheel is to be turned to open the valve. The diameter of the handwheel shall conform to the following dimensions for the various size gate valves.

Size of Valve	Diameter of Handwheel
4"	10"
6"	12"
8"	14"
10" and 12"	18"
16" and 18"	22"
18" and 20"	24"
24" and 30"	30"

Direction of Opening

Section 8. All sewage valves shall open by turning the operator to the RIGHT (clockwise). All water valves shall open by turning the operator to the LEFT (counterclockwise), or as marked on the design plans.

Special Details

Section 9. The details of other valve requirements and valve appurtenances such as special ends and materials, position indicators, floor stands, cylinders, chain operators, and extension stems and guides are described on the construction drawings.

Chain Operators

Section 10. All valves six (6) feet or more above the floor surface shall be equipped with a stainless steel chain operator unless otherwise indicated on the construction drawings.

Valve Stem Packing

Section 11. All valve stem packing shall be die-cut to fit the valve. The material to be used shall be Chesterton Style 324 Super-Lon.

Start-Up Services

Section 12. All butterfly valves, control valves and plug valves, operators and appurtenances installed shall include a thorough two (2) day training program conducted by a factory service representative. This training shall include start-up, operation and maintenance of the valves prior to start-up of the plant.

END OF SECTION

MECHANICAL

Section 15020

Gate Valves

General

Section 1. Gate valves for buried pipelines shall be iron body, bronze mounted, resilient wedge gate valves with non-rising stems having either parallel or inclined seats in accordance with AWWA C509, "Resilient Wedge Gate Valves".

Mechanical joint bell ends will be used in buried pipelines of mechanical joint and rubber seal type joint cast iron. Bell and flange ends will be used in exposed cast iron piping at the locations shown on the construction drawings.

Operating Nuts

Section 2. Gate valves for buried pipelines shall be furnished with two (2) inch square wrench nuts. Nuts shall have a flanged base upon which shall be cast an arrow two (2) inches long showing the direction of opening, and the word "OPEN" in one-half (1/2) inch or larger letters, shall be cast on the nut to indicate clearly the direction to turn the wrench when opening the valve.

Handwheels

Section 3. Handwheels may be specified for operating valves in exposed piping on the construction drawings. The handwheels shall have an arrow and the word "OPEN", cast thereon, to clearly indicate the direction the handwheel is to be turned to open the valve. The diameter of the handwheel shall conform to the following dimensions for the various size gate valves.

Size of Valve	Dia. of Handwheel
4"	10"
6"	12"
8"	14"
10" and 12"	18"
16" and 18"	22"
24" and 30"	30"

Horizontal Mounting

Section 4. Gate valves in size sixteen (16) inches and larger may be installed in the horizontal position. Bronze tracks, rollers, and scrapers will be provided for valves to be installed in the horizontal position. Horizontal valves for pressure lines shall be furnished with beveled gear operators. The gear cases for buried service shall be totally enclosed, and the gear cases for exposed piping in a vault shall be of the extended type.

Bypass Valves

Section 5. Bypasses shall be furnished on valves when so specified on the proposal sheets or shown on the construction drawings. The bypass valve shall be furnished on the same type as the main line valve to which it is fitted. The size requirements of the bypass shall be as follows:

Valve Dia. - Inches	Bypass Dia. - Inches
16-20	3
24-30	4
26-42	6
48	8

Rising Stem Valves

Section 6. Outside screw and yoke rising stem valves shall conform to all of the requirements of AWWA C500 except for the rising stem mechanism. The OS and Y valves shall have a rugged cast iron yoke machined to provide accurate stem alignment. The OS and Y valves shall be furnished with handwheels. OS and Y valves shall only be installed where shown on the drawings.

Low and Medium Pressure valves

Section 7. Low pressure and medium pressure valves, if specified in the "Attention All Bidders" shall be the same design, workmanship, and materials as AWWA C500 valves except that they can be lighter in weight. Medium pressure and low pressure valves shall be tested for performance in operation, watertightness, and resistance to distortion under internal pressure in the manner described in AWWA C500, except that the minimum rated pressure and hydrostatic pressure shall be as follows:

Medium Pressure Valves

Valve Size	Hydrostatic Test	
	<u>Rated Pressure (p.s.i.)</u>	<u>Pressure (p.s.i.)</u>
4 through 24	100	200
30 through 36	80	150
42 through 54	60	120

Low Pressure Valves

Valve Size	Hydrostatic Test	
	<u>Rated Pressure (p.s.i.)</u>	<u>Pressure (p.s.i.)</u>
16 through 24	50	75
20 through 36	43	75
42 through 48	35	50

Underwriters Valves

Section 8. Gate valves for fire protection systems shall be manufactured in conformance to the requirements of the Underwriters Laboratories, Inc., and the Associated Factory Mutuals Laboratories. Gate valves which support an indicator post shall contain a flange of the indicator post base. Such valves are specified on the construction drawings and shall bear the inspection label of the Underwriters Laboratories, Inc.

Special Details

Section 9. The details of other valve requirements and valve appurtenances such as special ends and materials, position indicators, floor stands, cylinders, chain operators, and extension stems and guides are described on the construction drawings.

Setting Gate Valves

Section 10. Gate valves shall be installed of the size and at the location as shown on the construction drawings. Vertical valves shall be set plumb and horizontal valves installed so that the valve body is level. The valves shall be set to the new pipe in the manner specified for cleaning, laying, and jointing pipe. Mechanical joint, rubber compression seal, or bell and spigot shall be used for buried pipelines. Other types of joints for pipelines within structures will be shown on the construction drawings.

Chain Operators

Section 11. All gate valves six (6) feet or more above the floor surface shall be equipped with a chain operator unless otherwise indicated on the construction drawings.

END OF SECTION

MECHANICAL

Section 15080

Standard Services Re-Connections

General

Section 1. The work to be performed under this section shall include all labor, materials, equipment, excavation, backfill and testing necessary for the proper installation of all service re-connections. Details of the service installation as shown in the Standard Details Section of these specifications.

No attempt was made to show precise meter setting locations on the plans and the Contractor shall not place any service connection without approval of the location and type by the Engineer. However, in general the meter setting shall be set inside the customer property line and off of State, County Right of Way.

The service shall include: A service clamp, corporation stop, service pipe. These are to be connected to the existing meter setting equipment, meter box and cover.

Service Clamp

Section 2. All service clamps shall be double-strap type for DIP, single strap for PVC, furnished with neoprene gaskets cemented in place. Clamps shall be of the proper size for the pipe with which they are to be used. Clamps shall have a Mueller Corporation stop thread, and shall be suitable for a minimum working water pressure of 200 PSIG. Clamps shall be as manufactured by the Mueller Company or equal as approved by the Engineer.

Corporation Stop

Section 3. All taps for service connections shall be made in the upper half of the main with equipment designed for this purpose. No tap shall be closer than one foot from any joint in the main. Corporation stops shall be of the appropriate size for the service for which they are to become a part. Unless noted otherwise, all services shall be 3/4 inch. Corporation stops shall have a male Mueller thread inlet, and an outlet suitable for connection to the service pipe. Corporation stops shall be Ford Catalog No. F600-3 Flared Joint or equal, if Polyethylene Service Pipe is specified. Insert stiffeners shall be provided with corporation stop if plastic pipe is used.

Service Pipe

Section 4. Service pipe shall be Class 200, polyethylene N.S.F. approved. Service pipe shall run from the corporation stop to the inlet of the meter setting equipment. Service pipe for standard services shall be jacked or drove under paved roads without benefit of steel casing. Open trenches will not be permitted. Should the Contractor chose to use steel casing, it shall be done at no additional cost to the Owner. The jacking, boring, or pushing of service lines under state, county, or private roads or driveways is not a pay item. The unit price bid for service pipe shall include costs for jacking, pushing or boring service pipe as an incidental expense.

END OF SECTION

SECTION 15200

WATER METER SPECIFICATIONS FOR AUTOMATIC METER READING SYSTEM METER TRANSCEIVER UNIT (MXU)

General

The following specification describes the requirements for a radio based automatic meter reading system. The specification will cover the meter transceiver unit (MXU). If meters and other supporting equipment are included in this proposal or bid, they will be covered under separate specifications.

Radio System Description

The radio AMR system will have the ability to read meters equipped with absolute encoder registers using either a hand-held interrogation unit or a mobile interrogation unit. The encoder registers will be connected to a MXU that will provide the radio link from the meter to the interrogation unit. The radio AMR system must utilize a true two-way (interrogate and respond) communication protocol that enhances system integrity and reliability. Upon completion of the meter reading route, the meter reading data is downloaded from the interrogation unit, using the radio AMR software. The radio AMR software will prepare and format the meter reading data for the printing of selected management reports and the transfer of the meter reading data to the billing software for customer invoicing.

Function

The MXU will be the interface between the encoded register and the radio interrogation unit. The MXU will power up when a valid alert signal is received from the reading interrogation unit. The interrogation unit will be either a hand-held or vehicle mounted device. The MXU and interrogation device will utilize a two-way communication protocol. Following the alert signal from the interrogation unit and transmission of meter reading data, the interrogation unit will signal to the MXU that valid reading parameters were met and will instruct the MXU to power down. The MXU must have the capability of utilizing a reading cycle code which is an element of the transmission protocol. The reading cycle code is utility controlled and changes with each reading cycle. Once an MXU has been successfully interrogated and powered down using a specific reading cycle code, the MXU will not alert again until the cycle code is changed. The MXU will have a fixed factory set non-programmable identification number to insure absolute identity of the MXU within the radio AMR system. In addition, the MXU will have the capability of storing a utility defined programmable class code. The class code will be used to separate different classes of meters and differentiate the MXU in multi-utility installations. The MXU must have the capability of offering leak detection / continuous consumption monitoring. The MXU must be able to indicate that there has been an occurrence of continuous flow for a field programmable period of time (minimum 24 of hours). Once communicated to the interrogation device, the leak detection indicator in the MXU must either reset if there is no leak / continuous flow currently or continue to stay set if a leak / continuous flow is still present. The MXU must offer hourly readings stored internally for a rolling 45 days. This data must be able to be extracted via a TouchRead

device and handheld or laptop as well as wirelessly. This wireless extraction can be done via a radio equipped handheld or vehiclebase system. The software that downloads the data from the interrogation device (handheld or vehicle-base) to must provide views and graphical presentations of the data that was extracted.

FCC Regulations

All equipment must comply with current Federal Communications Commission (FCC) requirements which include proper labeling of the MXU. The bidder must have supporting documentation available upon request to verify compliance.

Modulation

The radio frequency transmission from the MXU to the interrogation unit must utilize direct sequencing spread spectrum, operating in the non-licensed 902-928 MHz band. It shall be alerted utilizing a message broadcast on a licensed 956 or 952 MHz channel from the interrogation unit.

Hardware

The bidder must be able to supply separate units that accommodate pit and non-pit environments to complement the various installations within the utility. These various enclosures must house the complete single or two-port MXU units which include electronics, battery compartment, and wire connections. When Necessary, the port inputs should support multi-meter attachments (port expanders). The MXU will also have an internal antenna as a standard. The pit style units should have the radio and original battery encased in high density polyethylene (HDPE) to provide protection for the electronic components and be capable of being submersed in a water filled meter box without damage. The pit style unit must be able to be installed through a meter pit lid utilizing a 1-3/4" diameter hole or under the meter pit lid if necessary. When installing the radio through the meter pit lid, the radio must be secured to the meter pit lid by use of a threaded nut. Holes in the housing should be available to allow the utility the ability to secure seal wires to indicate tampering. The non-pit style units should have the radio and battery potted in material to protect the components from corrosion due to high humidity environments. It must have a tamper-resistant locking screw so that the enclosure cannot be opened by non-utility personnel.

The internal parts of the MXU can only be accessed by utility personnel using a manufacturer supplied field tool. The field tool **must not** be commercially available. Seal wiring or a frangible head seal screw is not acceptable. Both the pit and non-pit style units must be able to connect to Sensus Metering Systems' encoders utilizing the 2-wire inductive coupling TouchRead® system components (TouchPads or TouchRead® Pit Lid TP/PL sensors) which eliminates the use of additional connectors such as gel caps. The MXU must be also supplied with the capability of connecting via a 3-wire connection to an encoder if needed. The MXU must have a field attachable battery cartridge option available. The battery will be used in conjunction with a hybrid layer capacitor to insure longevity. The battery cartridge must be date stamped for ease of age identification for warranty purposes. The MXU must contain wiring diagram labels within the unit to aid in and simplify installation. All wires must be color coded and easily identifiable.

All exposed plastic must be UV stable to prevent discoloration.

Installation and Training

Complete installation and operating instructions must be included for all of the supplied hardware and software equipment. Proposal must include any additional costs for training and assistance to install and begin operation of the MXUs. The vendor will also inform the customer what pre-installation activities are to be completed and what support materials will be needed for the initial installation.

Performance Warranties

In evaluating bid submittals, warranty coverage will be considered. The vendor shall be required to state its warranty and/or guarantee policy with respect to each item of proposed equipment. The procedure for submitting warranty claims must also be provided. As a minimum, the electronics shall be warranted for twenty (20) years from date of shipment for defects in materials and workmanship. Battery warranty shall be twenty (20) years from date of factory shipment. For additional information on warranties refer to Sensus G-500 literature.

System Maintenance and Support

In addition to warranty periods, vendors are required to supply information on required or optional maintenance programs beyond the warranty period for both hardware and software. Features of those programs shall also be included with any additional charges such as hourly rate for on-site and/or remote support. The location of and procedures for obtaining such support shall be stated.

END OF SECTION

MECHANICAL

Section 15510

Flush Hydrants

General

Section 1. Flush hydrants shall conform to the applicable requirements of AWWA C502, "Dry-Barrel Fire Hydrants". The hydrants shall have a main valve opening, size as designated herein, one pumper connection and two (2) hose connections. All connections shall be furnished with chained caps. The type of tread and sizes of openings shall be as listed in Table No. 1, "Flush Hydrants Details". All bearing points on the hydrants shall be bronze mounted. The size and shape of the caps and operating nuts together with the direction of opening are listed in Table No. 1.

The hydrants shall be supplied with six (6) inch mechanical joint hub inlet normally for four (4) feet burial of the water main. Barrel extension sections complete with stem extensions shall be furnished for flush hydrants which are set with more than four (4) feet cover.

The hydrants shall incorporate a breakable component at the standpipe flange and a breakaway stem coupling so designed that when the hydrant is subject to severe impact, the special component will shear off at the flange without damage to the hydrant barrel. The main valve shall remain closed if the barrel section and upper stem is separated from the remainder of the hydrants.

The flush hydrants shall be furnished with drain valves which will open when the main valve is closed and shall drain the standpipe completely. The drain valves shall close when the hydrant main valve is opened in such a manner that there will be no leakage through the waste outlets.

The manufacturer shall furnish the Project Director with two (2) copies of a certification that the required tests on the various materials and on the completed hydrant have been made and that the results conform to the requirements of AWWA Specifications C502.

The design information on the flush hydrant shall be furnished to the Consulting Engineer for approval prior to shipment of material to the project.

Installing Flush Hydrants

Section 2. Flush hydrants shall be set at the locations shown on the construction drawings or as directed by the Project Manager. They shall be installed in such a manner as to provide complete accessibility and also in such a manner that the possibility of damage from vehicles or injury to pedestrians will be minimized.

The hydrant barrel shall be set so that the horizontal centerline of the streamer nozzle is eighteen (18) inches above the top of the curb on the streets with curb, and eighteen (18) inches above the ground in unpaved areas, unless directed otherwise by the Project Manager.

When placed behind the curb, the hydrant barrel shall be set so that the outer end of the streamer nozzle cap shall be from six (6) inches to twelve (12) inches behind the back of the curb.

All hydrants shall stand plumb with the streamer nozzle facing the curb or street. The hydrant shall be placed on a flat stone or concrete slab four (4) inches thick and eighteen (18) inches square.

Hydrants shall be set in relation to the established grade shown on the construction drawings or as directed by the Project Manager. All hydrants, regardless of the depth of cover of the water supply branch, shall be furnished with the basic barrel of four (4) foot of cover over the water supply branch and the balance of the hydrant height, as required, shall be made up of a standard hydrant extension. Stem extensions and drip rod extensions, if necessary, shall be included in the extra length hydrants.

The excavations around each hydrant shall be connected to the main line with anchoring piece or anchoring tee and the hydrant shall be anchored to the valve with anchoring pieces or anchoring pipe.

Measurement and Payment

Section 3. The Contractor shall be paid for the actual number of flush hydrants installed on the project at the unit price quoted on the Proposal Sheets.

The unit price bid for a flush hydrant shall include the cost of furnishing and installing the flush hydrant in accordance with these specifications.

Whenever flush hydrants are a part of a lump sum type item, the price quoted shall include all labor and materials to install the hydrants in accordance with these specifications and no separate payment will be made for hydrants.

END OF SECTION

Table No. 1 - Flush Hydrant Details

1.	Diameter - Main Valve Opening	5-1/4 Inches
2.	Diameter - Pumper Connection	4 Inches
3.	Diameter - Hose Connections	2 - 2-1/2 Inches
4.	Thread Type	National Standard
5.	Shape - Caps and Operating Nut	Pentagon
6.	Dimensions - Operating Nut Top Bottom	1-inch 1-inch
7.	Direction of Opening	Left (Counterclockwise)
8.	Color to be Painted	Red
9.	Specific Model or Models Required	M & H, Mueller, Eddy, etc.

Standard Sanitary Sewer Bid Item Descriptions

S BYPASS PUMPING This item shall include all labor, equipment, and materials needed to complete a bypass pumping and/or hauling operation for diversion of sewage during sanitary sewer construction. Examples of such operations when bypass pumping and/or hauling may be necessary is during force main tie-ins, manhole invert reconstruction, insertion of new manholes into existing mains, or other similar construction. There may be more than one bypass pumping/hauling operation on a project. This item shall be paid for each separate bypass pumping/hauling operation occurrence as called out on the plans or directed by the engineer and actually performed. There will be no separate bid items defined for length, duration, or volume of sewage pumped or hauled in each occurrence. If a bypass pumping/hauling operation is called out on the plans; but, conditions are such that the bypass pumping/hauling operation is not needed or utilized, no payment will be made under this item. The contractor shall draw his own conclusions as to what labor, equipment, and materials may be needed for each bypass pumping/hauling occurrence. The contractor should be prepared to handle the maximum volume of the sewer being bypassed, even during a storm event. This item shall not be paid separately, but shall be considered incidental, when bypass pumping and/or hauling is needed during cast-in-place-pipe (CIPP) and/or point repair operations. 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).

S CIPP LATERAL SERVICE INVESTIGATION This item shall include all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements and perform the identification, assessment and pre-measurement of all existing and abandoned laterals for the placement of Cured-In-Place-Pipe lining. This item shall be in payment for all lateral service investigation for all sewer segments to be lined as a part of this contract. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be LUMP SUM (LS).

S CIPP LATERAL REINSTATEMENT This item is to pay for installing a Cured-In-Place-Pipe liner in service laterals and service/mainline connections to stabilize structural defects and construction inadequacies. This bid item shall include all labor, equipment, materials and incidentals necessary to perform the service lateral reinstatement in accordance with the plans and specifications. Work under this item shall include bypass pumping, sewer flow control, pre-installation cleaning, sealing connections to existing sewer main, pre- and post- construction CCTV inspection and final testing of the CIPP system. This item shall also include the "top hat" required by the specifications. All CIPP lateral reinstatements shall be paid under this item regardless of the size or length of reinstatement. No separate bid items of varying sizes or length of CIPP lateral reinstatement will be provided in the contract. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each CIPP lateral reinstatement complete and ready for use.

S CIPP LINER This bid Item is to pay for rehabilitation of existing sanitary sewers using the Cured-In-Place-Pipe method. This bid item description applies to all CIPP sizes included in the contract.

All CIPP Liner items of all varying sizes shall include all labor, materials, customer notification, testing, necessary permits, ingress and egress procedures, bypass pumping, pre-construction video, sediment and root removal, dewatering, traffic control, erosion and sediment control, excavation pits, removal and replacement of manhole frames and covers as necessary to facilitate the lining work, sealing at manholes and service connections, clearing and grubbing, pipeline cleaning, re-cleaning and video inspection as many times as necessary, debris collection and disposal, root removal, pre- and post-construction video inspection, all digital inspection footage, final report preparation and approval, the cost of potable water from the Owner, required compliance tests, site restoration, site cleanup, sealing of liner at manholes, acceptance testing and all other rehabilitation work and incidentals not included under other pay items necessary to complete the rehabilitation per the plans and specifications. There will be no separate payment for acceptance testing of the lined pipe; but shall be considered incidental to this item. Pay under this item shall be by each size bid in the contract. Pay measurement shall be from center of manhole to center of manhole. 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).

S CIPP PROTRUDING LATERAL REMOVAL This item includes all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements, remove a sufficient amount of the protruding tap to insure a proper and safe Cured-In-Place-Pipe lining insertion and perform pre-installation CCTV. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each protruding lateral removed.

S CONCRETE PIPE ANCHOR This item shall be constructed on the sewer pipe at the locations shown on the plans in accordance with sanitary sewer specifications and standard drawings. Payment for concrete anchors will be made at the contract unit price each in place complete and ready for use. Each concrete anchor of sewer pipe or force main shall be paid under one bid item per contract regardless of the sizes of carrier pipe being anchored in the contract. 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.

S DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of force main or gravity sewer under streets, creeks, and 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).

S ENCASEMENT CONCRETE Includes all labor, equipment, excavation, concrete, reinforcing

steel, backfill, restoration, and etc., to construct the concrete encasement of the sewer or force 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 encasement 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.

S 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).

S 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 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).

S FORCE MAIN This description shall apply to all PVC and ductile iron and polyethylene/plastic pipe bid items of every size and type, 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 specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, backfill, and 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 also include pipe anchors on polyethylene pipe runs as shown on the plans or required by the specifications to prevent the creep or contraction of the pipe. 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). No separate payment will be made under pipe items when the directional bore pipe is the carrier 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. 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).

S FORCE MAIN AIR RLS/VAC VLV This bid item description shall apply to all force main air release/vacuum valve installations of every size except those defined as “Special”. This item shall include the air release/vacuum 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/vacuum valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release/vacuum valve would a separate bid item be established. 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.

S FORCE MAIN DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of sewer or force main under streets, buildings, creeks, and 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).

S FORCE 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 locations shown on the plans. This bid item is to be used to relocate an existing force 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 specification 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. Force 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.

S FORCE MAIN TAP SLEVE/VALVE RANGE 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:

- Range 1 = All live tapped main sizes up to and including 8 inches
- Range 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.

S FORCE MAIN TIE-IN This bid description shall be used for all force 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, testing and backfill required to make the force main tie-in as shown on the plans and in accordance with the specifications complete and ready for use. This bid item shall include purge and sanitary disposal of any sewage from any abandoned segments of force main. Pipe for tie-ins shall be paid under separate bid items. 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.

S FORCE MAIN VALVE This description shall apply to all force main 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 force main valves being installed with new force main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, and 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, force main valves shall be restrained. Force main valve restraint shall be considered incidental to the force main valve 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.

S FORCE MAIN VALVE BOX ADJUST Includes 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, and etc., to adjust the top of the force main valve 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.

S LATERAL CLEANOUT This item shall be for payment for installation of a cleanout in a service lateral line. This item shall include furnishing and installation of a tee, vertical pipe of whatever length required, and threaded cap. The cleanout shall extend from the lateral to final grade elevation. The size of the cleanout shall be equivalent to the size of the lateral. The cleanout materials shall meet the same specification as those for the lateral. The cleanout shall be installed at the locations shown on the plans or as directed by the engineer. Only one pay item shall be established for cleanout installation. No separate pay items shall be established for size or height variances. 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.

S LATERAL LOCATE This bid item is to pay for all labor, equipment, and materials needed in locating an existing sanitary sewer service lateral for tie-in of the lateral to new mainline sewers and/or for the relocation of a lateral. This bid item shall be inclusive of any and all methods and efforts required to locate the lateral for tie-in or relocation of the lateral. Locating methods to be included under this items shall include, but are not limited to, those efforts employing the use of video cameras from within an existing sanitary sewer main or lateral, electronic locating beacons and/or tracers inserted into the sanitary sewer main or lateral, careful excavation as a separate operation from mainline sewer or lateral excavation, the use of dyes to trace the flow of a lateral, or any combination of methods required to accurately locate the lateral. 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).

S LATERAL LONG SIDE This bid item description shall apply to all service lateral installations of every size up to and including 6 inch internal diameter, except those lateral bid items defined as "Special". This item includes the specified piping material, main tap, bends, clean outs, labor, equipment, excavation, backfill, testing, 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 lateral installations where the ends of the lateral connection are on opposite sides of the public roadway. The new lateral must cross the centerline of the public roadway to qualify for payment as a long side lateral. The length of the service lateral 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 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. 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.

S LATERAL SHORT SIDE This bid item description shall apply to all service lateral installations of every size up to and including 6 inch, except those lateral bid items defined as “Special”. This item includes the specified piping material, main tap tee, bends, clean outs, labor, equipment, excavation, backfill, testing, 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 lateral installations where both ends of the lateral connection are on the same side of the public roadway, or when an existing lateral 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 lateral is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the lateral crosses a private residential or commercial entrance; but, not a public roadway. 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. 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.

S LINE MARKER This item is for payment for furnishing and installing a sewer 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.

S MANHOLE Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup in accordance with the specifications and standard drawings. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S MANHOLE ABANDON/REMOVE Payment under this item is for the partial removal and/or filling of any sanitary sewer manhole regardless of size or depth that no longer serves any purpose. Payment shall be made regardless of whether the manhole is or is not in conflict with other work. Any manhole requiring partial removal, but not total removal, in order to clear a conflict with other work shall be paid under this item. All manholes partially removed shall be removed to a point at least one foot below final grade, one foot below roadway subgrade, or one foot clear of any other underground infrastructure, whichever is lowest. If partial removal of an abandoned manhole is elected by the contractor, the remaining manhole structure shall be refilled with flowable fill. Payment for disposal of a sanitary sewer manhole will be made under this item only. 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.

S MANHOLE ADJUST TO GRADE Payment under this item is for the adjustment of sanitary sewer casting elevation on all sizes of existing sanitary manholes. This work shall be performed in accordance with the sanitary sewer specifications. Payment shall be made under this bid item regardless of the amount of adjustment necessary to a sanitary sewer manhole casting or diameter of the manhole. Work under this pay item may be as simple as placing a bed of mortar under a casting; but, shall also be inclusive of installation of adjusting rings, and /or addition, removal, or replacement of barrel sections. The existing casting is to be reused unless a new casting is specified on the plans. New casting, when specified, shall be paid as a separate bid item. Anchoring of the casting shall be incidental to this 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.

S MANHOLE CASTING STANDARD Payment under this bid items is for furnishing of a new standard traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. 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 installed.

S MANHOLE CASTING WATERTIGHT Payment under this bid item is for furnishing of a new watertight traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. 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 installed.

S MANHOLE RECONSTRUCT INVERT This bid item is to pay for all labor, equipment, and material for rework of the manhole bench to redirect or eliminate flow, such as when the flow of a pipe or pipes are being removed or redirected. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in elimination or redirect of flow. This item shall also include providing and placement of a rubber seal or boot as required by utility specification, standard drawing or plan. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. No payment shall be made under this bid when MANHOLE TAP EXISTING, or MANHOLE TAP EXISTING ADD DROP are being paid at the same location, as this type of work is included in those items. 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.

S MANHOLE TAP EXISTING This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each core opening added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the

specifications, standard drawings, and plans. 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.

S MANHOLE TAP EXISTING ADD DROP This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, addition of a vertical drop pipe to the outside of the manhole, placement of reinforcing steel and concrete to encase vertical pipe, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each drop added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. 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.

S MANHOLE WITH DROP Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with drop. Payment for drop manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Drop manholes shall include concrete base, barrel sections, drop materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S MANHOLE WITH LINING Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with corrosion resistant lining. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, lining, excavation, backfilling, air testing, restoration, and cleanup in accordance with the standard drawings. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S MANHOLE WITH TRAP Payment under this item is for the installation of a new manhole with

trap. Payment for trap manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Trap manholes shall include concrete base, manhole structure and trap materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. All materials, except casting, shall be new and unused. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S PIPE This description shall apply to all PVC and ductile iron gravity sewer pipe bid items of every size and type 8 inches internal diameter and larger, 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, tap tees and couplings for joining to existing similar or dissimilar pipes), polyethylene wrap (if required by specification), labor, equipment, excavation, bedding, restoration, pressure or vacuum testing, temporary testing materials, video inspection, backfill, and 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. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and wherever specified on the plans or in the specifications. No additional payment will be made for rock excavation. Measurement of quantities under this item shall be through fittings and encasements to a point at the outside face of manhole barrels, or to the point of main termination at dead ends or lamp holes. Carrier pipe placed within an encasement shall be paid under this item and shall include casing spacers and end seals. 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).

S PIPE POINT REPAIR This item is to be used to pay for repair of short lengths of existing sanitary sewer pipe that, through prior video inspection or other means, are known to have pre-existing failure. Pipe Point Repair may be needed in preparation for installation of cured-in-place-pipe (CIPP) lining or other instances where failure is known and repair is prudent. The size of pipe shall not be defined in separate bid items. All diameter sizes of point repair shall be paid under this one item. The materials to be used to make the repair shall be as defined on the plans or in the specifications. This bid item shall include all excavation, pipe materials, joining materials to connect old and new pipe, bedding, and backfill to complete the repair at the locations shown on the plans or as directed by the engineer, complete and ready for use. This bid item shall include bypass pumping when required. Measurement shall be from contact point to contact point of old and new 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).

S PUMP STATION This item is for payment for installation of sanitary pump stations including 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) for each when complete.

S STRUCTURE ABANDON This item is to be used to pay for abandonment of larger above or below ground sewer structures such as air release/vacuum valve vaults, pump stations, tanks, etc. Payment under this time 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 sewer construction, (i.e., abandonment of standard air release/vacuum valves 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 restoration complete. 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.

S STRUCTURE REMOVAL This item is to be used to pay for removal of larger above or below ground sewer structures such as air release/vacuum valve vaults, pump stations, tanks, and etc. Payment under this time 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 sewer construction, (i.e., removal of standard air release/vacuum valves and their structure 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 restoration complete. 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.

**TECHNICAL SPECIFICATIONS
FOR THE
SANITATION DISTRICT 4 OF BOYD COUNTY**

**U.S. 60 WIDENING
EX. SANITARY SEWER RELOCATION
ITEM NO. 9-8400.00**

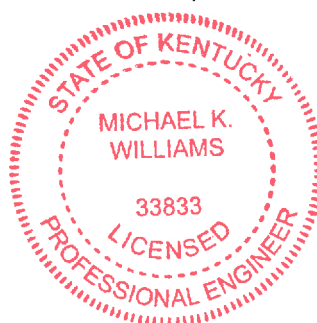
BOYD COUNTY, KENTUCKY

MARCH 2021

PREPARED BY:

E.L. ROBINSON ENGINEERING

**3145 GREENUP AVENUE
ASHLAND, KY 41101**



A handwritten signature in blue ink, appearing to read "MKW", written over a horizontal line.

MICHAEL K. WILLIAMS, P.E.

SANITATION DISTRICT 4 OF BOYD COUNTY
Item No. 9-8400.00
U.S. 60 Widening
TECHNICAL SPECIFICATIONS
MARCH 2021
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STANDARD SPECIFICATIONS

1. The “Standard Specifications for Road and Bridge Construction” of the Kentucky Transportation Cabinet / Department of Highways 2019 edition shall govern work and materials which are not specified or modified herein or on the project Contract Drawings. The project Contract Drawings and Specifications, in the event of a discrepancy, shall supersede the Kentucky Transportation Cabinet Specifications.

GENERAL

Section 01000

Standards

Section 1. All material furnished by the Contractor to be installed on the Project shall conform to the minimum requirements of the latest revisions in effect on the date of the standard specification published by the described organizations, unless other requirements are stated in these specifications. The standard specifications are combined under a single caption, for the sake of brevity, whenever referred to in the specifications as follows:

American Society of Testing Materials	ASTM
American Standards Association	ASA
American Water Works Association	AWWA
American Concrete Institute	ACI
American Association of the State Highway Officials	AASHTO
Standard Specifications for Road and Bridge Construction, Kentucky Department of Highways	KDOH
Federal Specifications	FED
American Railway Engineering Association	AREA
Occupational Safety and Health Administration	OSHA
National Electric Code	NECK
Steel Structures Painting Council	SSPC
Fiberglass Reinforced Pipe Institute	FRPI
Kentucky Basic Building Code	KBBC

The standards referred to, except as modified in these specifications, shall have the same force and effect as though printed herein. These standards are not furnished to bidders because contractors, manufacturers, and trades involved are generally assumed to be familiar with their requirements. The Consulting Engineer will furnish, upon request, information as to how copies of and standards, included by reference only, may be obtained.

Inspection and Testing

Section 2. The manufacturer of the specific materials shall establish the necessary quality control and inspection practice to assure compliance with the individual specification outlined above for the particular material.

Construction Site

Section 3. The construction area shall be confined to the limits of the public right-of-way in streets, the limits of the construction easements on private property as set forth by the Owner or to the property belonging to the Owner. The limits for the construction area are shown on the detailed construction drawings.

Samples

Section 4. Samples of materials or equipment submitted for review and contract compliance shall have a label indicating the material represented, its place of origin, and the name of the producer, the Contractor expecting to use the equipment, and the work for which the material will be used. Samples of finished materials shall be marked to indicate where they are required by the drawings and specifications.

Each delivery of samples shall be accompanied under separate cover by letter in duplicate from the Contractor containing a list of the samples, as indication of where the materials are intended to be used and the brands of materials and names of the manufacturers.

Acceptance of any samples shall not be taken in itself to change or modify any contract requirements, for acceptance shall be only for the characteristics or for the use of the material. The Project Manager, whenever he may deem it necessary, may take test samples from the various materials or equipment delivered to the site of the work by the Contractor. If any such test samples fails to meet the specification requirements, any previous approvals will be withdrawn and such material or equipment shall be subject to removal and replacement by the Contractor with material or equipment meeting the specification requirements; or, at the discretion of the Project Manager, the defective materials and equipment may be permitted to remain in place subject to a satisfactory adjustment of the contract.

Climatic Conditions

Section 5. All work which will be affected by climatic conditions, (wind, rain, frost, freezing or any other environmental conditions) shall be suspended unless permission is given by the Project Manager to proceed. Whenever work proceeds under any such conditions, the Contractor shall provide approved facilities for protecting all the materials and the finished work. This will include heating of materials if required for their proper installation.

END OF SECTION

SECTION 01301

SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Submittal Procedures.
- B. Construction Progress Schedules.
- C. Proposed products List.
- D. Shop Drawings.
- E. Product Data.
- F. Samples.
- G. Manufacturers' Instruction.
- H. Manufacturers' Certificates.
- I. Resubmittals.

1.02 RELATED SECTIONS

- A. Section 01400, Quality Control: Manufacturers' Field Services and Reports.
- B. Section 01700, Contract Closeout: Contract Warranty and Manufacturer's Certificates Closeout Submittals.

1.03 SUBMITTAL PROCEDURES

- A. Transmit each submittal with AIA Form G810 or Engineer accepted form.
- B. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or Supplier; pertinent Drawing sheet and detail number(s), and Specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialled certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Make all submittals far enough in advance of Schedule dates of installation to provide all required time for review, for securing necessary reviews by others, for possible revision and resubmittal, for placing orders and securing delivery. Deliver, postage prepaid. Schedule submittals to expedite the Project, and deliver to the Engineer at business address. Coordinate submission of related items.
- F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Engineer review stamps.

- H. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
- J. In scheduling, allow at least ten (10) full working days (Monday through Friday, less legal holidays) for the Engineer's review and approval. Following his receipt of the submittal the Engineer will return via first class mail. The Engineer is required by the Owner to provide prompt disposition of all submittals, and will transmit the submittal, request for additional information, or a notification that additional time will be required for review and approval due to the complexity of the submittal, within the ten (10) working day period. Regardless of the size and complexity of the submittal, review and approval shall be complete within thirty (30) working days.

1.04 PROPOSED PRODUCTS LIST

- A. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.05 SHOP DRAWINGS

- A. Submit in the form of one reproducible transparency and one opaque reproduction, or, submit the number of copies which the Contractor requires, plus three (3) copies which will be retained by the Engineer.

1.06 PRODUCT DATA

- A. Submit the number of copies which the Contractor requires, plus three (3) copies which will be retained by the Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Mark out inapplicable areas. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.07 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Engineer's selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number of samples specified in individual Specification Sections; one of which will be retained by the Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual Specification Sections.

1.08 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual Specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.09 MANUFACTURER'S CERTIFICATES

- A. When specified in individual Specification Sections, submit manufacturers' certificate to the Engineer for review, in quantities specified for Project Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product, but must be acceptable to the Engineer.

1.10 RESUBMITTALS

- A. The Owner may request a fee to be paid by the Contractor for submittals which are being reviewed by the Engineer for the third time or more. Each claim by the Owner will be substantiated on a time and material basis.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Field samples.
- D. Mock-up.
- E. Inspection and testing laboratory services.
- F. Manufacturers' field services and reports.

1.02 RELATED SECTIONS

- A. Section 01060, Applicable Codes.
- B. Section 01090, Reference Standards.
- C. Part 3, General Conditions, Section 41: Shop Drawings and Samples.
- D. Section 01600, Material and Equipment: Requirements for Material and Product Quality.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.04 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.

1.05 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications Sections for review.

- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by the Engineer.

1.06 MOCK-UP

- A. Tests will be performed under provisions identified in this Section.
- B. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by the Engineer.

1.07 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual Specification Sections, require material or product suppliers, or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment and lubrication as applicable, and to initiate instructions when necessary.
- B. Manufacturer's personnel are to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report in duplicate within 10 days of observation to the Engineer for review.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Section and payment.
- B. Contractor submittals.
- C. Laboratory responsibilities.
- D. Laboratory reports.
- E. Limits on testing laboratory authority.
- F. Contractor responsibilities.
- G. Schedule of inspections and tests.

1.02 RELATED SECTIONS

- A. Part 3, General Conditions.
- B. Section 01650, Starting of Systems: Testing, Adjusting, and Balancing of Systems.
- C. Section 01700, Contract Closeout: Project Record Documents.
- D. Individual Specification Sections: Inspections and Tests Required, and Standards for Testing.

1.03 REFERENCES

- A. ANSI/ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.04 SELECTION AND PAYMENT

- A. Contractor shall employ and pay for services of an independent testing laboratory to perform specified inspection and testing.
- B. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.05 QUALITY ASSURANCE

- A. Comply with requirements of ANSI/ASTM E329 and ANSI/ASTM D3740.
- B. Laboratory: Authorized to operate in State in which Project is located.
- C. Laboratory Staff: Maintain a full time State registered Engineer on staff to review services.

- D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

1.06 CONTRACTOR SUBMITTALS.

- A. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer and responsible officer.
- B. Submit copy of report of Laboratory Facilities Inspection made by Materials Reference Laboratory of National Bureau of Standards (NBS) during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.07 LABORATORY RESPONSIBILITIES

- A. Test samples of mixes submitted by Contractor.
- B. Provide qualified personnel at site. Cooperate with the Engineer and Contractor in performance of services.
- C. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.
- D. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- E. Promptly notify the Engineer and Contractor of observed irregularities or non-conformance of work or products.
- F. Perform additional inspections and tests required by the Engineer.

1.08 LABORATORY REPORTS

- A. After each inspection and tests, promptly submit two copies of laboratory report to the Engineer, and to Contractor.
- B. Include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and Specifications section.
 - 6. Location in the Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- C. When requested by the Engineer, provide interpretation of test results.

1.09 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of the Work.
- C. Laboratory may not assume any duties of Contractor.
- D. Laboratory has no authority to stop the Work.

1.10 CONTRACTOR RESPONSIBILITIES

- A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to the Work.
- C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of Products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. Notify the Engineer and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.
- E. Where excavated material available for compacting proves to be unsuitable or the Contractor finds it impractical to use the excavated material to meet the requirements, the Contractor shall, at not extra cost compensation, procure suitable backfill material elsewhere and dispose of the unsuitable material.

1.11 SCHEDULE OF INSPECTIONS AND TESTS

- A. Inspection and tests for soil and rock shall be in accordance with Division 2 and ASTM D3470.
- B. Inspections and tests for concrete shall be in accordance with Division 3.
- C. Owner will provide testing lab services for soil to determine acceptability of the fill or material solely for the Owner's own benefit. Additional tests and inspections desired by the Contractor to meet compaction limits shall be provided by the Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SITEWORK

Section 02200

Excavation and Backfill

General

Section 1. The work covered under this section consists of furnishing all labor, materials, and equipment for excavation, backfilling, compacting, rough and final grading, required to complete the construction as shown and specified in the Contract Documents.

Sheeting and Shoring

Section 2. The Contractor shall furnish, put in place, and maintain such piling, sheeting, bracing, etc., as is required by OSHA regulations and the "Safety & Health Regulations for Construction", Title 29, Chapter XVII, CFR, Part 1926, formerly Title 29, Chapter XIII, CFR, Part 1518.

Such piling, sheeting, bracing, etc., shall be furnished, put in place, and maintained as may be required to support the sides of all excavation to prevent any movement which could cause injury to persons, structures, utilities or property, either public or private or any portion of the work being performed under this Contract.

Sheeting, if required, shall remain in place until the pipe or structure has been laid or constructed, tested for defects and repaired if necessary, and the backfill placed and compacted. Sheeting may be pulled concurrently with the placing of backfill if directed by the Project Manager.

The Contractor shall leave in place any and all sheeting, bracing, etc., which the Project Manager may direct him, in writing, to leave in place at any time during the progress of the work for the purpose of preventing injury to structures, utilities or property, either public or private.

Removal of Water

Section 3. The Contractor shall provide at all times during the construction, proper and approved equipment including pumps and well points of sufficient capacity to meet the maximum requirements for the removal of water and like wastes from all excavations. The disposal of the water and wastes shall be in such a manner as not to interfere with the proper construction of pipe lines or masonry. This disposal shall not withdraw sand or cement from concrete work or affect the prosecution of work under his own or adjacent contracts.

The Contractor shall not dispose of ground and/or surface water into newly constructed sanitary sewers or existing sanitary sewers.

Pumping sumps shall be excavated outside the trench or structure excavation lines and be of sufficient size to meet the requirements of the location. The Contractor shall pump out or otherwise remove and dispose of, as fast as it may collect, any water or like wastes which may be found or may accumulate in the excavations. Underdrains, if required to keep the excavations dry, shall lead to pumping sumps.

All excavations must be kept dry as specified for laying pipe or for placing concrete.

Rock Excavation

Section 4. All costs incurred for rock excavation shall be included in the lump sum bid for this project. There shall not be a separate pay item for rock excavations. No excavated rock shall be used for backfill.

Rock excavation is defined as material which is either solid or stratified and which cannot be removed by recognized standard excavating methods. This material will require drilling, blasting, or some other mechanical means of shattering. Boulders one (1) cubic yard and over in volume required to be removed are classified as rock excavation even though portions of it may be stratified or laminated, or may be as hard as portions of sandstone or limestone.

The Contractor shall exercise all possible care in any blasting to avoid injury to persons and adjacent property. The rock shall be well covered and sufficient warning shall be given to all persons in the vicinity of the work before blasting. Proper care shall be exercised to avoid injury to water pipes or other structures either below or above ground. Caps or other exploders shall not be kept in the same place in which dynamite or other explosives are stored. All Federal, State or local regulations covering the use of explosives shall be strictly observed; and in addition, the Contractor shall conform to any further regulations which the Project Manager may deem necessary in this respect.

The Contractor shall remove all rock that is shattered below grade due to a too deep drill hole, a too heavy charge of explosives or for any other reason, and refill the excavation to the required grade with compacted gravel or other suitable material at his expense.

All structures, pipelines, water mains, conduits, etc., below and above ground that are damaged due to blasting of rock are to be replaced or repaired by the Contractor at his expense and to the satisfaction of the Project Manager.

Rock excavation shall be to the depth required to provide a minimum of four (4) inches of clearance below all parts of pipes, valves, or fittings.

The Contractor shall provide crushed aggregate pipe bedding to the specified grade. Trench widths in rock excavations shall be eight (8) inches wider than the outside diameter of the bell of the pipe. Any excavations and backfill beyond these limits will be at the expense of the Contractor.

Buried Pipe Lines

Section 5. Pipe line trenches shall be excavated so that the pipes and appurtenances can be installed to the alignments and grades required. Pipe line trenches in all types of traveled streets, roadways, drives and parking areas to a distance of five (5) feet behind curbs and all road shoulders shall be backfilled with granular material.

If, in the opinion of the Project Manager, the material at or below the normal grade of the bottom of the trench, or other excavation is unsuitable for foundation, it shall be removed to such depths and widths as he may direct and be replaced by the Contractor with gravel, crushed stone or other acceptable materials. Payment for this work will be made as provided in "Changes in Work" in the General Provisions.

If the bottom of any excavation is removed beyond the limits shown on the drawings or described in these specifications without authorization of the Project Manager, it shall be refilled at the Contractor's expense with gravel, crushed stone, or other acceptable material.

Mechanized equipment, such as bulldozers, front end loaders, etc., shall under no conditions, be used to push excavated material directly into the open trench as backfill between the bottom of the trench and one (1) foot above the pipe.

Where gravel backfill is specified, the backfill material from one (1) foot above the pipe to the street or shoulder grade (or subgrade of pavement), shall consist of approved gravel that shall be puddled with hoe and pipe nozzle after the trench is backfilled. The Contractor shall furnish the necessary tank trucks, water, pumps, and all equipment required to settle the gravel backfill by the puddling method.

When the type of trench backfill material is not indicated on the drawings or specified, the Contractor may backfill the trench from one (1) foot above the top of the pipe to the top of the trench with excavated material provided that such material consists of loam, clay, sand, gravel, or other materials that, in the opinion of the Project Manager, are suitable for backfilling. Care shall be taken to carry the backfill up evenly in the trench.

The Project Manager reserves the right to condemn any portion of the work during the term of this Contract, should any gravel backfilled trench settle or there is any other evidence to indicate that the backfill has been improperly placed. The Contractor will be ordered to reopen the trench at those locations and replace the backfill in the proper manner without additional compensation.

Gravel Backfill

Section 6. Gravel used for backfill shall consist of natural bank gravel having durable particles graded from fine to coarse in a reasonably uniform combination with no boulders or stones larger than two (2) inches in size. It shall be free from slag, cinders, ashes, refuse, or other deleterious or objectionable materials. It shall not contain excessive amounts of loam and clay and shall not be lumpy or frozen. No more than fifteen percent (15%) shall pass a No. 200 sieve. All such materials shall be approved by the Project Manager.

Subsurface Conditions

Section 7. The Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or sub-surface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

Site Preparation

Section 8. All trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed.

All cut and fill areas shall be properly stripped. Topsoil shall be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material, shall be disposed of off the site, or as directed by the Project Manager if on-site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing by the Project Manager.

Prior to the addition of fill, the original ground shall be compacted to meet the requirements of the specification. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or ground water seepage is found, corrective measures must be taken before the placement of fill.

Demolition

Section 9. The Contractor shall submit a schedule for the demolition of the structures.

The Contractor shall provide all materials and equipment required to meet the goals of demolition as set forth on the construction drawings.

The Contractor shall notify the Project Manager 30 days prior to the demolition of any structure.

END OF SECTION

SITework

Section 02201

Excavation and Backfill - Structures

General

Section 1. Excavations shall be made for sufficient size to accommodate the dimensions and depth of structures shown on the drawings. The top soil shall be removed from the sites excavated and stock piled for use after the subsoil backfill has been completed.

Backfilling

Section 2. Fill shall be formed of satisfactory materials placed in successive horizontal layers of not more than twelve (12) inches in loose depth for the full width of the cross section. The depth of lift may be increased if the Contractor can demonstrate his ability to compact a larger lift.

All material entering the fill shall be free of organic matter such as leaves, grass, roots and other objectionable material.

The operations on earth work shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions. The Contractor shall keep the work areas graded to provide drainage at all times.

The fill material shall be of the proper moisture content before compaction efforts are started. Wetting or drying of the material and manipulation to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work on all portions of the embankment thus affected shall be delayed until the material has dried to the required moisture content. The moisture content of the fill material should be no more than two (2) percentage points higher or lower than optimum unless otherwise authorized. Sprinkling shall be done with equipment that will satisfactorily distribute the water over the area being backfilled. The Contractor shall use vibratory rollers for compaction, except within five (5) feet of structures where hand operated vibratory compactors shall be used.

Compaction operations shall be continued until the fill is compacted to not less than 90% above foundation elevation and 95% below foundation elevation of the maximum density as determined in accordance with ASTM-D1557-70 (Modified). Any areas inaccessible to a vibratory roller shall be consolidated and compacted by mechanical tampers. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of filled areas, starting layers shall be placed in the deepest portion of the fill, and as placement progresses, additional layers shall be constructed in horizontal planes. If directed, original slopes shall be continuously, vertically benched to provide horizontal fill planes. The size of the benches shall be formed so that the base of the bench is horizontal and the back of the bench is vertical. As many benches as are necessary to bring the site to final grade shall be constructed. Filling operations shall begin on the lowest bench, with the fill being placed in horizontal twelve (12) inch loose lifts unless otherwise authorized. The filling shall progress in this manner until the entire first bench has been filled, before any fill is placed on the succeeding benches. Proper drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the areas. Stones or fragmentary rock larger than four (4) inches in their greatest dimensions will not be allowed in the fill unless specifically authorized in writing. Rock fill

shall be brought up in layers as specified or as directed, and every effort shall be exerted to fill the voids with the finer material to form a dense, compact mass. Rock or boulders shall be disposed of as deleterious material.

Frozen material shall not be placed in the fill nor shall the fill be placed upon frozen material.

The Contractor shall be responsible for the stability of all fills and shall replace any portion, which in the opinion of the Project Manager has become displaced due to carelessness or negligence on the part of the Contractor. Fill damaged by inclement weather shall be repaired at the Contractor's expense.

Slope Ratio and Storm Water Runoff

Section 3. Slopes shall not be greater than two (2) horizontal to one (1) vertical in both cut and fill, and storm water shall not be drained over the slopes.

Grading

Section 4. The Contractor shall furnish, operate and maintain such equipment as is necessary to construct uniform layers, and control smoothness of grade for maximum compaction and drainage.

Compacting

Section 5. The compaction equipment shall be approved equipment of such design, weight and quantity to obtain the required density in accordance with these specifications.

Testing and Inspection Services

Section 6. Testing services will be provided by the Contractor.

Unauthorized Excavation

Section 7. Any excavation not authorized by the Project Manager beyond the limits of the proper construction shall be backfilled at the Contractor's expense with materials approved by the Project Manager.

END OF SECTION

SITEWORK

Section 02202

Excavation and Backfill - Pressure Pipelines

Trench Excavation

Section 1. Trenches for buried pressure pipelines shall be so excavated that the pipes and appurtenances may be installed to the alignments and grades specified or required.

Trenches shall be excavated to a depth that will provide for a minimum of three feet (3'-6") of cover over the pipe as measured from the proposed or final grade to the extreme outside limits of the pipe. Greater depths may be required by the plans or job conditions.

Rock, if encountered in the bottom of the trench, shall be excavated to a depth to provide a minimum of four (4) inches clearance below the extreme outermost limits of the pipe. Backfill shall be coarse aggregate, or bank run sand. Shattered materials below the above limits shall be removed and similarly backfilled.

When soft or otherwise unsuitable material is encountered, it shall be removed to such depths and widths as determined by the Project Manager and backfilled with crushed stone or gravel as approved by him.

Except as noted above, trenches shall be so excavated that they will provide a uniform and continuous bearing and support for the barrel of the pipe on solid and undisturbed ground at every point between bellholes except for that area near the mid-section of the pipe disturbed by the withdrawal of pipe slings or other lifting tackle. Bellholes shall be provided at each and every joint.

Pipe Bedding

Section 2. Pipes shall be placed on a minimum depth of four (4) inches of bedding, as measured from the extreme outermost dimension of the pipe. The bedding material shall extend laterally to the outermost limits of the trench.

Bedding material shall be coarse aggregate or bank run sand.

The bedding material shall be placed to grade and in such a manner as to completely support the pipe for its entire length and shall be thoroughly compacted by hand tamping.

Immediately after the joint has been made, the balance of the bedding material shall be brought up to the spring line of the pipe. The material shall be placed in uniform lifts of three (3) inch layers on each side of the pipe, and thoroughly compacted by hand spading and tamping. Care shall be taken to ensure that the material is thoroughly consolidated under the haunches of the pipe.

Initial Backfilling

Section 3. Backfill material as hereinafter specified shall be placed by hand from the bottom of the trench to the springline of the pipe in three (3) inch layers. The material shall be sliced and rammed under the haunches of the pipe and thoroughly compacted by tamping and in a manner that will not disturb the alignment of the pipe or fittings. Each individual length of installed pipe shall be bedded in this manner prior to the connection thereto of an additional length of pipe.

Specified backfill material shall be placed from the springline of the pipe to a plane twelve (12) inches above the extreme outermost limits of the pipe by hand or approved mechanical methods. Under no circumstances shall material be shoveled, dumped or pushed from the top of the trench onto the pipe. Special care shall be exercised with this portion of the backfill so as to avoid injuring or displacing the pipeline.

Initial backfill material shall be as follows:

- A. When gravel trench backfill is specified or required, initial backfill shall be of the same material except that all stones larger than two (2) inches in diameter shall be removed from the immediate vicinity of the pipe.
- B. When gravel trench backfill is not specified, initial backfill material may be of finely divided selected excavated material free from stones, lumps and clumps of clay, organic material and similar undesirable materials.

Balance of Backfill

Section 4. The balance of the backfill from a plane twelve (12) inches above the top of the pipe shall be as follows:

- A. Trenches within roadways and parking areas or immediately adjacent thereto shall be backfilled with coarse aggregate or bank run sand.
- B. Trenches in other areas may be backfilled with excavated material provided such material is free from rock, boulders, large stones, sticks, clumps and lumps of clay, organic material and other similar undesirable materials.

Trenches backfilled with gravel shall be brought up evenly in the trench to the elevation of the subgrade and thoroughly compacted or consolidated by suitable equipment and means approved by the Project Manager.

Trenches backfilled with excavated material shall be brought up evenly in the trench to grade as required by conditions. When the top of the trench is at a proposed grade the material shall be neatly rounded over the top of the trench to allow for settlement. In areas of sodding or seeding, the last six (6) inches of backfill material shall be topsoil.

END OF SECTION

SITEWORK

Section 02203

Excavation and Backfill - Gravity Pipelines

Trench Excavation

Section 1. Trenches for buried gravity pipelines shall be excavated so that the pipes and appurtenances can be installed to the alignments and grades specified.

Trenches shall be excavated to a minimum depth of four (4) inches below the extreme outermost dimension of the pipe. When soft or otherwise unsuitable material is encountered, it shall be removed to such depths and widths as determined by the Project Manager and backfilled with crushed stone or gravel as approved by the Project Manager.

Pipe Bedding

Section 2. Pipes shall be placed on a minimum depth of four (4) inches of bedding, as measured from the extreme outermost dimension of the pipe. The bedding material shall extend laterally to the outermost limits of the trench.

Bedding material shall be KDOT No.9-M coarse aggregate.

The bedding material shall be placed to grade and in such a manner as to completely support the pipe for its entire length and shall be thoroughly compacted by hand tamping.

Immediately after the joint has been made, the balance of the bedding material shall be brought up to the spring line of the pipe. The material shall be placed in uniform lifts of three (3) inch layers on each side of the pipe, and thoroughly compacted by hand spading and tamping. Care shall be taken to ensure that the material is thoroughly consolidated under the haunches of the pipe.

Initial Backfill

Section 3. From the spring line of the pipe to plane twelve (12) inches above the extreme outermost limits of the pipe bedding material shall be placed by hand or approved mechanical methods. The material shall be placed in maximum of four (4) inch lifts to the extreme outer limits of the trench and thoroughly compacted by hand tamping and spading. Special care shall be used so that the pipeline is neither injured nor displaced during this operation. Material shall not be shoveled, dumped or pushed from the top of the trench onto the pipe.

Balance of Backfill

Section 4. The balance of the backfill from a plane twelve (12) inches above the top of the pipe shall be as follows:

- A. Trenches within roadways and parking areas or immediately adjacent thereto shall be backfilled with KDOT No.9-M coarse aggregate.
- B. Trenches in other areas may be backfilled with excavated material provided such material is free from rock, boulders, large stones, sticks, organic material and other similar undesirable materials.

Trenches backfilled with gravel shall be brought up evenly in the trench to the elevation of the subgrade and thoroughly compacted or consolidated by suitable equipment and means approved by the Project Manager.

Trenches backfilled with excavated material shall be brought up evenly in the trench to grade as required by conditions. When the top of the trench is at a proposed grade the material shall be neatly rounded over the top of the trench to allow for settlement. In areas of sodding or seeding the last six (6) inches of backfill material shall be topsoil.

END OF SECTION

SECTION 02250

HDPE SEWER PIPE (For Directional Drilling)

1.0 GENERAL

1.1 DESCRIPTION

- A. This section shall consist of furnishing and installing high density polyethylene (HDPE) pipe and/or P.V.C. pipe in accordance with these specifications and conforming to the lines and grades, sizes and dimensions as shown on the Plans or directed by the Engineer. This section includes the furnishing and construction of such joints and thrust blocking as are required to complete the pipe system, and also includes testing as required by the Engineer.

2.0 PRODUCTS

2.1 MATERIALS

- A. Not used.
- B. High Density Polyethylene Pipe - May be used wherever polyethylene (PE) or (HDPE) pipe is called for on the Plans or for directional drilling. All polyethylene pipe shall conform to the latest revision of the following specifications:

Pipe Dimensions	ASTM F714-05 DIPS Pipe Size OD
Cell Classification	ASTM D3350 Plastic Pipe Institute Designation PE 4710
Butt-Fused Joints	ASTM D-2657 Technique II

- a. Standard thermoplastic pipe dimension ratio (DR) shall be DR11, sustained pressure rating shall be a minimum of 200 PSI with a safety factor of at least 2.5. Pipe shall be supplied with DIPS outside diameter.
- b. All straight run joints shall be made by the butt-fusion method.
- c. Construction of butt-fused joints shall at all times conform with the recommendations of the pipe manufacturer, and trained personnel experienced in the butt-fusion method shall assist in, or supervise, joint fabrication. Joints shall be at least as strong as the pipe itself.

- d. Minimum radius bending allowed for polyethylene pipe during handling, storage and installation shall be twenty-five (25) times the nominal diameter of the pipe, or that recommended by the manufacturer, whichever is larger.

3.0 EXECUTION

- A. Pipe installation shall conform at all times to the recommendations of the pipe manufacturer's installation guide. Trenching, bedding, and backfilling for the pipe shall conform to the methods outlined in these specifications under the appropriate items.
 - a. Handling and Storing Materials - The Contractor shall be responsible for the unloading, storing, hauling, distribution of all materials, and shall replace at his own expense all such material that is damaged, destroyed, or lost during or after unloading. All pipe, pipe fittings, valves, and accessories shall be handled in a manner to avoid shock and to protect the materials. Material not needed for immediate construction shall be stored in a safe manner at place provided by the Contractor and approved by the Engineer.
 - b. Pipe Laying - All pipe, fittings, valves, and accessories shall be carefully lowered into the trench by means of derrick, ropes, or other suitable tools or equipment in such manner as to prevent damage to pipe and/or pipe coating. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.
 - 1. Before lowering and while suspended, the pipe shall be inspected for defects. Any defective, damaged, or unsound pipe shall be rejected. All foreign matter or dirt shall be removed from inside the pipe before it is lowered into the trench.
 - 2. Excavation shall be made sufficiently in advance of the pipe laying to expose any obstructions that might alter the alignment or grade, but excessive lengths of open trench will not be permitted, and the Engineer may designate the maximum open trench permitted in advance of laying. Trench bottom shall be completed sufficiently in advance of pipe laying to permit accurate checking and the pipe laying operations conducted so as to not disturb the prepared trench.
 - 3. When it becomes necessary to divert the pipeline from a straight line when following the curvature of streets, roads, etc., the deflection per joint shall not exceed the manufacturer's recommendations for the size and type of pipe being installed.

4.0 TESTING

- A. Refer to Pressure Mains Testing.

END OF SECTION

SECTION 02250-3

SECTION 02300

GRAVITY SEWER PIPE

1.0 GENERAL

1.1 DESCRIPTION

A. This section covers furnishing and installing Poly-Vinyl chloride (P.V.C.) pipe in accordance with these specifications and conforming to the lines and grades, sizes and dimensions as shown on the Plans or directed by the Engineer.

2.0 PRODUCTS

A. P.V.C. Pipe

- a. Shall be used wherever P.V.C. pipe is called for on the Plans. All P.V.C. pipe, fittings, appurtenances and installation shall conform to the latest revision of the following Specifications:

Gravity Sewer Pipe	ASTM D-3034, SDR 35 and Fittings
Elastomeric (Rubber) Gasketed Joints	ASTM D-3212
Installation	ASTM D-2321

- b. Laying lengths of P.V.C. pipe shall be twelve (12) feet minimum. P.V.C. pipe joints shall be elastomeric (rubber) gasketed, push-on joints as defined above. Push-on joints shall be prepared by removing all dirt or foreign material from the bell end of the pipe, and inserting the gasket, if necessary. The spigot end of the pipe shall be prepared by cleaning and applying a thin coat of lubricant after which the spigot end is centered in the bell and jacked home by use of a bar and block until the stop mark is aligned with the face of the bell. Exceeding the stop mark could cause damage to the pipe, and possibly cause leakage, due to thermal expansion of the pipe. When P.V.C. pipe is cut for laying lengths shorter than nominal, an adequate marking device shall be used to apply a stop mark at the correct distance from the spigot end of the pipe. Any cut ends shall also be beveled before inserting into the bell to make up a joint.
- c. All P.V.C. pipe during storage shall be covered by an opaque material to shield it from sunlight, but adequate air circulation shall be provided to prevent excessive pipe temperatures.
- d. Lateral service connections to P.V.C. pipe shall be by use of a forty-five (45) degree wye or tee fitting conforming to ASTM D-3034, SDR 35, with an elastomeric (rubber) gasketed hub on the 4" branch suitable for

accepting the pipe of which the branch or lateral line is constructed or is to be constructed.

- e. In general, fittings shall be equipped with the same joint as the pipe.

3.0 EXECUTION

- A. Pipe installation shall conform at all times to the recommendations of the pipe manufacturer's installation guide. Trenching, bedding, and backfilling for the pipe shall conform to the methods outlined in these specifications under the appropriate items.
- B. When unsatisfactory foundation material is encountered at the bottom of the trench, it shall be removed and shall be replaced with suitable material. There will be no additional compensation for such excavation and backfill unless the required excavation and replacement exceeds two (2) feet in depth. Excavation and replacement material in excess to two (2) feet, and any special foundation not called for on the Plans, will be paid for in accordance with the Sections for Special Fill Material.
 - a. Handling and Storing Materials - The Contractor shall be responsible for the unloading, storing, hauling, distribution of all materials, and shall replace at his own expense all such material that is damaged, destroyed, or lost during or after unloading. All pipe, pipe fittings, and accessories shall be handled in a manner to avoid shock and to protect the materials. Material not needed for immediate construction shall be stored in a safe manner at places provided by the Contractor and approved by the Engineer.
 - b. Pipe Laying - All pipe, fittings, and accessories shall be carefully lowered into the trench by means of derrick, ropes, or other suitable tools or equipment in such manner as to prevent damage to pipe and/or pipe coating. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.
 - 1. Before lowering and while suspended, the pipe shall be inspected for defects. Any defective, damaged or unsound pipe shall be rejected. All foreign matter or dirt shall be removed from inside the pipe before it is lowered into the trench.
 - 2. Changes in pipe material may be permitted only where shown on the plans or approved by the engineer.
 - 3. All gravity flow conduits shall be laid true to line and grade with ends abutting and bells up grade. The sections of pipe shall be fitted and matched so they will form a conduit with smooth and uniform invert.

4. Excavation shall be made sufficiently in advance of the pipe laying to expose any obstructions that might alter the alignment or grade, but excessive lengths of open trench exceeding three hundred (300) feet will not be permitted. Trench bottom shall be completed sufficiently in advance of pipe laying to permit accurate checking and the pipe laying operations conducted so as not to disturb the prepared trench.
 5. A laser shall be used to establish pipe grade and alignment. The laser shall be positioned such that the beam shines through the center inside the barrel of the pipe. Positioning of the laser in any other location will not be acceptable.
 6. After the backfill is completed to a point not less than one (1) foot above the top of the pipe, the alignment of the sewer will be checked between manhole locations by inspection with a strong light. If any section of pipe is out of alignment through improper laying or subsequent movement caused by the backfill operation, the Contractor, at his own expense, shall remove the section or sections and place them in true alignment.
 7. Immediately after backfilling operations are completed, all pipe shall be inspected by a strong light. If any section of pipe is deflected, the Contractor, at his own expense, shall remove the section or sections and replace with properly installed new pipe. Inspection of the alignment and deflection at this stage of construction will not relieve the Contractor of the responsibility of maintaining the true alignment and acceptable deflection until the work is completed and accepted by the Engineer.
- c. Wye Markers - The location of each wye or the end of a house service sewer extending from a wye which is not connected at the time of sewer construction, shall be marked with a 2"x2"x4' wood stake driven flush to the normal ground level. Further, the metal locating tape shall be brought to the surface and a 2' pigtail shall be left exposed. The purpose of these markers and "wye poles" is to expedite the recovery of the sewer terminal when a connection is necessary at a later date.
1. The Contractor shall also maintain an accurate record, in writing, of the locations of all wyes and special fittings in the sewer line. He shall measure to the nearest inch the center of the fittings from the center of the nearest manhole. This record shall be furnished to the Engineer.
- d. Lateral Service Lines and Connections - The Contractor shall furnish and install lateral service conduits of the various sizes, classes and types of conduit as indicated on the Plans and/or determined in the field.

1. The Contractor shall install lateral service conduits as the work along the collection mains or interceptor conduits progresses. Lateral service conduits shall be adequately sealed with approved stoppers and marked, as outlined above, until testing of the conduit system is completed.
2. Lateral service conduits are subject to the allowable infiltration rates specified herein. Testing of the main and interceptor conduits in no way relieves the Contractor of meeting the testing and infiltration requirements on the contributing lateral service conduits.
3. Lateral service connections (the connection of a house sewer to the sewer lateral) will not be permitted until after completion of the required conduit testing. The Contractor shall be responsible for locating the house connection.
4. The location of Tee, Wye or Saddle connections for lateral service connections to the main or interceptor conduit shall be determined by field locations. The project inspector shall act as liaison between the property owner, Engineer, and Contractor, in determining the most suitable location of Wye, Tee or Saddle connections and lateral service conduits for each of the properties to be provided with service.
5. The Contractor shall provide appropriate adaptor fittings for a smooth transition between wye, tee or saddle fittings and other conduit types specified herein for use as service lateral conduits. Adapters shall be as manufactured by Cantex, Fernco, or equal, for the appropriate size conduit. Reimbursement for labor and material costs associated with any special adaptor or other fittings required to make the transition between pipe materials shall be included in the unit bid price for lateral gravity sewer pipe, complete in place, or as otherwise provided for herein.
6. The Contractor shall connect house sewers to the lateral sewer conduit for those house sewers existing.

END OF SECTION

SITework

Section 02700

Gravity Pipe Lines

Work Included

Section 1. The Contractor shall furnish all labor, equipment, and materials necessary to properly construct and test the gravity pipe lines, manholes, and all other pipe line appurtenances and connections. The location and size of the gravity pipe lines, manholes, and other structures are shown on the construction drawings.

Handling Pipe

Section 2. Pipe for gravity pipe lines shall be protected during shipping, unloading, and lowering into the trench against impact, shocks, and free fall. No lifting hook or other device shall be used over the end of a section of pipe to unload or lower the pipe into the trench which may damage the pipe ends or barrel.

Installation Gravity Pipe Lines

Section 3. The Contractor shall visually check each pipe for damage and defects before the pipe is lowered into the trench. Defective or damaged pipe or jointing material shall be rejected and removed from the site of construction.

All gravity pipe lines shall be laid in a finished trench commencing at the low point with the spigot ends pointing in the direction of flow. The pipe shall be placed on a dry, stable bedding material shaped to receive the barrel and bell of the pipe. The pipe embedment or the trench bottom shall be properly graded to provide a continuous barrel support for the full length of the pipe, and form a straight gravity pipe line with a uniform grade true to the established line and grade. If the open end of the pipe section is low, the individual pipe must be removed and the bed prepared to the proper grade.

Sections of pipe shall be jointed together by mechanical means to assure a tightly closed joint when so recommended by the manufacturer of the pipe.

As soon as possible after the joint is made, the balance of the bedding material shall be placed up to the spring line of the pipe to offset conditions that might tend to move the pipe off from line or grade. Disturbing the pipe in any manner, after the joints have been made, shall not be permitted.

Non-reinforced pipes connecting to manholes or other rigid structures shall not extend beyond the wall of the manhole or structure more than one (1) foot. Short sections of pipe shall be used at these locations.

Line and grade for the gravity pipe line shall be established by the Contractor using lazer

alignment equipment, batter boards, grade strings, plumb lines, and grade rods. The batter boards, when used, shall be placed at each grade stake. Three (3) consecutive batter boards shall be in place at all times.

Concrete Encasement

Section 4. Concrete encasement shall be in accordance with Section 03419, "Concrete Encasement and Concrete Cradle".

Flushing, Cleaning and Alignment Check

Section 5. The Contractor shall clean out the completed gravity pipe line of all sand, gravel, stones, or other debris by pulling proper size buckets through the sewer by means of wire rope and winch. The flushing method may be used for cleaning the pipe line if water is available with sufficient velocity to transport the materials between manholes. If flushing is used, only one span of pipe line shall be cleaned at a time with adequate screens placed in the downstream manhole to prevent any solids from entering the pipe line downstream from the section being cleaned. Particular care shall be taken at the location where a connection is made to an existing system to prevent any foreign material from entering an operating pipe line. The outlet for a new gravity pipe line shall be plugged at the time the connection is made into the existing pipe line and shall be securely maintained until the new pipe line has been cleared, tested and accepted by Owner.

The Contractor and the Project Manager will then check the pipe line between manholes for alignment by means of lamps and/or mirrors. If the illuminated interior of the pipe shows any misalignment, displaced pipe, or any other defects, the defects, designated by the Project Manager, shall be remedied by the Contractor.

Low Pressure Air Test

Section 6. See Technical Specifications Section 02718.

Infiltration Test

Section 7. The infiltration test shall be made by installing a weir or other measuring device approved by the Project Manager in the lower end of the pipeline section to be tested. The incoming pipe or pipes in the upper end of the test section shall be securely sealed. The quantity of ground water infiltrating into the test section shall be measured. The allowable leakage for gravity pipelines shall not exceed two hundred (200) gallons per day per mile of pipe per inch of pipe diameter.

The infiltration test will be conducted on that portion of the pipeline which is below the elevation of the ground water table and a minimum of two (2) feet of water exists above the top of the crown of the pipeline.

Gravity Pipelines Not Installed in Trench

Section 9. All applicable provisions of this item of work shall apply to the furnishing of materials and installation procedures for constructing gravity pipelines not installed in a trench condition.

Deflection Test

Section 10. When flexible pipe is used, a deflection test shall be made on the entire length of the installed pipeline on completion of all work, including the leakage test, backfill, and placement of any fill, grading, paving, concrete, or superimposed loads, but no sooner than 30 day following initial backfilling. Deflection shall be determined by use of a deflection device or by use of a spherical, spheroidal, or elliptical ball, a cylinder, or circular sections fused to a common shaft. The ball, cylinder, or circular sections shall have a diameter, or minor diameter as applicable, of 95 percent of the normal inside diameter of the pipe. A tolerance of plus 0.5 percent will be permitted. The ball, cylinder, or circular section shall be of a homogeneous material throughout, shall have density greater than 1.0 as related to water at 39.2 degrees F., and shall have a surface brinell hardness of not less than 150. It shall be center bored and through bolted with a 1/4-inch minimum diameter steel shaft having a yield strength of 70,000 psi or more, with eyes at each end for attaching pulling cables. The eye shall be suitably backed with flange or heavy washer such that a pull exerted on the opposite end of the shaft shall produce compression throughout the remote end of the ball, cylinder or circular sections. Circular sections shall be so spaced that the distance from the external faces of the front and back sections shall equal or exceed the diameter of the circular section. Failure of the ball, cylinder, or circular sections to pass freely through a pipe run, either by being pulled through or by being flushed through with water, shall be cause for rejection of that run. When a deflection device is used for the test in lieu of the ball, cylinder, or circular sections described hereinbefore, such device shall be approved by the Engineer prior to use. The device shall be sensitive to 1.0 percent of the diameter of the pipe being measured and shall be accurate to 1.0 percent of the indicated dimension. Installed pipe showing deflections of 4 percent of the normal diameter of the pipe shall be retested by a run from the opposite direction. If the retest indicates a deflection in excess of the 5 percent, the suspect pipe shall be replaced. Any pipe showing deflections in excess of 5 percent at the end of 1 year following installation and acceptance will be replaced at no cost to the Owner.

END OF SECTION

SITWORK

Section 02701

Polyvinyl Chloride Pipe

General

Section 1. Polyvinyl chloride (PVC) pressure pipe two inches through twelve inch shall conform to the American Society for Testing and Materials (ASTM) Standard ASTM D-2241.

Note: The Engineer retains the sole authority to approve or disapprove of PVC pressure pipe based the manufacturer's prior performance history and project references. If requested by the Engineer, the pipe manufacturer shall submit a reference listing of similar projects completed within the last 5 years in Kentucky, Ohio, or West Virginia complete with Owners Name, Address, Phone Number, and Contact Person.

Pressure class shall be 200 psi with a standard dimension ration (SDR) of 21 or 250 psi with a SDR of 17, as noted on the Plans.

Joints

Section 2. All joints on polyvinyl chloride (PVC) pressure pipe shall be made of elastomeric-gaskets. Provisions must be made for expansion and contraction at each joint with an elastomeric ring. The bell shall consist of an integral wall section with an elastomeric ring which meets the requirements of ASTM F-477 standard specifications for elastomeric seal for jointing plastic pipe. The wall thickness in the bell section shall conform to the requirements of ASTM D-3139.

All PVC Pressure Pipe shall be with twenty (20) foot laying lengths. As noted above, pipe shall be supplied with integral bells, coupling pipe is not permitted.

Anchoring Assemblies

Section 3. Anchoring assemblies will be required for all fire hydrants and hydrant valves. Anchoring assemblies will be required for setting other valves and bends, as shown on the construction drawings.

Special anchoring will be required at other places along the pipelines. Where the construction drawings call for special anchoring, it shall include ductile iron pipe with mechanical joint anchoring fittings, locked mechanical joints, pipe or positively restrained push-on joint type ductile iron pipe and fittings which allow for the deflection at the joint after assembly the equal of "Super-Lock" manufactured by the Clow Corporation.

Installation

Section 4. The installation of PVC pipelines are intended to conform with AWWA Specifications C900-75 and Appendix A as if they were totally incorporated herein, except where these specifications direct otherwise.

Fittings

Section 5. All fittings for PVC pipe shall be cast iron mechanical joints Class 250 tar coated outside, cement lined inside in accordance with ANSI/AWWA Specifications C110/A21.10, C111/A21.11.

END OF SECTION

SITEWORK

Section 02718

Air Test

Method of Test

Section 1. During sewer construction all service laterals, stubs, and fittings into the sewer test section shall be properly capped or plugged so as not to allow for air loss that could cause an erroneous air test result.

Air may pass through some porous materials. If such materials are used, the pipe walls may be wetted to temporarily reduce the porosity of the material. Non-porous pipe materials need not be wetted.

After a complete span of pipe has been installed and backfilled, the plugs shall be placed in the line at each manhole and secured.

When the plugs are being placed, the pipe adjacent to the manhole shall be visually inspected to detect any evidence of shear in the pipe due to differential settlement between the pipe and the manhole.

Low pressure air shall be slowly introduced into the sealed line until the internal air pressure reaches 4 psig or 4 psig greater than the average back pressure of any groundwater above the pipe, but not greater than 9.0 psig. After a constant pressure of 4.0 psig is reached, the air supply shall be throttled to maintain the internal pressure for at least 2 minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall.

When temperatures have been equalized and the pressure stabilized at 4.0 psig the air hose from the control panel to the air supply shall be cut off or while the pressure is decreased to no less than 3.5 psig. At a reading of 3.5 psig, or any convenient observed pressure reading between 3.5 psig and 4.0 psig, timing shall commence using an accurate timing device.

A predetermined required time for a specified pressure drop, traditionally, a pressure drop of 1.0 psig has been specified, shall be used to determine the lines acceptability.

If the time shown in the accompanying table for the designated pipe size and length, elapses before the air pressure drops 1.0 psig, the section undergoing test shall have passed and shall be presumed to be free of defects.

If the pressure drops 1.0 psig before the appropriate time shown in the accompanying table has elapsed, the air loss rate shall be considered excessive and the section of pipe has failed the test.

If the section fails to meet the above requirements, the Contractor shall determine, at his own expense, the source of leakage and shall repair or replace all the defective materials and/or workmanship to the satisfaction of the Engineer. The extent and type of repair which may be allowed as well as results, shall be subject to the approval of the Engineer. The completed pipe installation shall then be retested and required to meet the requirements of this test.

$$T = 3.56 \times 10^{-5} \frac{D^2 L}{Q}$$

Where

- T = Minimum Time allowed for the air pressure to drop 1 psig, seconds
- D = Nominal pipe diameter, inches
- L = Length of test section
- Q = Allowable air leakage rate, 0.002 cubic feet/minute/square feet surface Area

Table 1
Specification Time Required for a 1.0 psig Pressure Drop for Size and Length of Pipe Indicated

Pipe Dia. (In.)	Minimum Required Test Time in Minutes: Seconds for Pressure drop of 1.0 psig for Pipe Length L							
	L = 100	150	200	250	300	350	400	450
4	0:29	0:42	0:56	1:11	1:25	1:40	1:54	2:08
6	1:04	1:36	2:08	2:40	3:12	3:44	4:16	4:48
8	1:54	2:51	3:48	4:45	5:42	6:39	7:36	8:33
10	2:58	4:27	5:56	7:25	8:54	10:23	11:52	13:21
12	4:16	6:25	8:33	10:41	12:49	14:57	17:06	19:14
15	6:41	10:01	13:21	16:42	20:02	23:22	26:43	30:03
18	9:37	14:25	19:14	24:02	28:51	33:39	38:28	43:16
21	13:05	19:38	26:11	32:43	39:16	45:49	52:21	58:54
24	17:06	25:39	34:11	42:44	51:17	59:50	68:23	76:56

Manholes will be tested in accordance with the hydrostatic test section in Section 02700, "Gravity Pipelines".

END OF SECTION

SITEWORK

Section 02719

Manholes

General

Section 1. Manholes shall be installed at the locations and elevations as shown on the construction drawings, unless otherwise required by the Project Manager. Special junction structures, if required, are described on the construction drawings.

Manholes shall be watertight structures of precast or cast in place construction. If case in place manholes are considered, they must have a watertight flexible rubber type gasket joint at the barrel connections and all of the materials and details must meet the approval of the Project Manager prior to use on the project.

Precast Manhole Bases

Section 2. All precast manhole bases shall meet the material and test requirements of ASTM Specifications C478, "Precast Reinforced Concrete Manhole Section".

The bottom of all pipe entering a precast base shall be at least three (3) inches above the base so the final channel may be installed and shaped in the field. The top of the precast base shall extend above the top of the main line sewer pipe unless otherwise shown on the plans.

Where pipes 24-inch diameter and smaller enter manholes, the connection shall be made through a flexible joint. The manhole connection shall be "Z. Lok" double band boot type connectors as manufactured by A-Lok Products, or equal. The pipe connections at the manholes shall permit a movement of nine (9) degrees from the centerline after completion of the joint and still remain watertight. Manhole bases for sewer pipe up to and including 18-inch diameter shall have an inside diameter of 5 feet or as shown on the plans.

Precast manhole bases for sewer pipes 27-inch through 33-inch shall have an inside diameter of 5 feet and shall have precast holes in the base of sufficient size to allow installation of the pipe sewer with proper grouting of pipes with non-shrink grout.

Precast manhole bases for 36-inch through 48-inch sewer pipe shall be 48-inch t-Sections. Changes in pipe size shall be made by installation of an eccentric reducer or reducers, keeping flow lines matched. Change in alignment shall be made by installation of a bend of 48-inch diameter installed on the high side and immediately adjacent to the manhole T-section.

Precast manholes bases for 54-inch through 60-inch sewer pipe shall be T-Sections with main line being largest size pipe and "T" being a 48-inch offset stub in line with the outside of main line pipe. Changes in pipe size and/or alignment shall be made by installation of an eccentric reducer, keeping flow lines matched, and a bend to the same diameter as main line pipe installed on the high side and immediately adjacent to the manhole T-Sections.

All T-Sections manhole bases shall have a minimum of eight (8) inches of 4200 psi concrete reinforced with No. 5 bars, eight (8) inches on centers, both ways as a base. Concrete base shall extend to within one (1) foot of each end of the T-section, also the width shall be the outside diameter of the main line pipe. Concrete shall be placed so that T-section has a minimum bearing on the concrete of at least one-fourth (1/4) of the circumference of the main line pipe.

Precast Manhole Riser (Barrel Section)

Section 3. Precast manhole riser sections, cones the flat slab tops shall conform to the requirements of ASTM C478, "Precast Reinforced Concrete Manhole Section".

Joints for precast manhole sections shall conform to the requirements of ASTM Specifications C990, modified butyl resin or bitumastic joint sealant.

Where base section of manhole is larger than 48-inch diameter, an eccentric reducer from base size to 48-inch shall be furnished and installed directly above the base section.

Precast riser sections shall be 48 inch in diameter and be in increments of sixteen (16) inches of height and the completed barrel shall contain a minimum number of sections.

Precast Cones

Section 4. The conical top section shall be a minimum of thirty-two (32) inches in height and coverage from a 48-inch diameter opening to a minimum opening of 24 inches. The wall thickness shall be five (5) inches at the 48 inch section and eight (8) inches at the top of the cone. If not specified, concentric or eccentric cones may be used; however, only one style of cone shall be used for a project.

Pressure top manholes shall be installed where shown on the construction drawings. The cones for pressure top manholes shall have four (4) one-half (1/2) inch diameter anchor bolts and sleeves cast within when fabricated.

Flat Slab Manhole Tops

Section 5. When a manhole is too shallow to permit a cone, a flat slab top shall be furnished. The flat top shall be six (6) inch high, forty-eight (48) inches diameter manhole section with a twenty-four (24) inch hole cast to accept the manhole frame/lid.

Manhole Frames and Covers

Section 6. Unless otherwise shown on the construction drawings the manhole frame cover shall be of the self-sealing type Neenah Catalog No. R-1642, East Jordan Iron Works No. 1600 or equal. If the construction drawings call for a watertight manhole, it shall be Neenah Catalog No. R1916-F, East Jordan Iron Works No. 1600 PT with 4-1" anchor bolt holes in flange, or equal.

The manhole frames and covers shall be constructed of first quality gray iron or high strength, semi-steel in accordance with ASTM A48, Class 30. The compound materials shall produce a tough, gray metal, close and even grained, soft enough to permit drilling and machining, and capable of showing indentations from a sharp blow of a hammer, without flaking.

All manhole covers, seating frames, and adapter rings shall be machined to a firm and even bearing and fit truly into the frames. Frames shall be set in a full bed of bitumastic joint sealer to the required grade or cast into the top slab of the structure.

The manufacturer's name shall be cast upon the manhole covers and frames in one (1) inch letters, one-eighth (1/8) inch in relief.

Drop Assemblies

Section 7. Drop assemblies shall be installed where shown on the construction drawings. Drop manhole assemblies shall consist of a standard tee of the main line pipe line diameter with the spur diameter as specified on the standard drawing. The riser pipe, the standard short elbow, and the short hub section shall be of the same pipe type and thickness rating as sewer pipe. The riser pipe shall be eight (8) inches in diameter for 8-inch, 10-inch and 12-inch incoming lines. It shall be ten (10) inches in diameter for 15-inch and 18-inch diameter pipe lines and twelve (12) inches for 21-inch and 24-inch incoming lines. The entire assembly shall be encased in concrete (outside drop assemblies only).

Venting Assemblies

Section 8. Venting assemblies shall be installed where shown on the construction drawings. Manhole venting assemblies shall be constructed of four (4) inch cast iron pipe and fittings as shown on the standard drawing. The bottom one-quarter (1/4) bend shall be blocked with concrete. The pipe section in the manhole wall shall be constructed so that exterior water cannot enter the manhole. The locations of venting assemblies with the individual length of run and height of rise are shown on the construction drawings.

Manhole Adjusting Rings

Section 9. Where the top of the manhole plan elevation does not reach the ground surface sufficiently, Contractor shall provide adjusting pre-cast concrete "do-nut" risers up to 6-inches high. Using brick is unacceptable. The furnishing of pre-cast concrete risers where field conditions require is an incidental expense and is to be included with the cost of the unit price bid for the manhole.

Measurement and Payment

Section 10. The unit price for a standard manhole shall include the cost of all labor and material required to complete the standard manhole as specified and shown on the drawings. The Contractor shall be paid for the actual number of standard manholes installed at the unit price quoted in the proposal. (Unit Price Contracts Only).

Classification of Manholes

Section 11. Type "A"/Shallow Manholes - These manholes shall consist of all manholes measuring 6' or less from the lowest invert in the manhole through the top of the adjusting collar; in accordance with the drawings.

Type "B"/Standard Manhole - Standard manhole shall consist of those manholes measuring greater

than 6' from the lowest invert to the top of the leveling collar, as shown on the drawings.

Type "C"/Drop Manhole - Drop Manholes shall consist of those manholes having one or more drop inlets into same, as shown on the drawings.

Type "A"/WPC - Shallow manhole with waterproof cover - These manholes shall consist of all manholes measuring 6' or less from the lowest invert in the manhole through the top of the adjusting collar as shown on the drawings. Waterproof cover will be required on all manholes located in streets or where the tops cannot be raised to keep out surface water, or any manholes located within the 25 year flood plain.

Type "B"/WPC - Standard manhole with waterproof cover - These manhole shall consist of all manholes measuring greater than 6' from the lowest invert to the top of the leveling collar as shown on the drawings. Waterproof covers will be required on all manholes located in streets or where the tops cannot be raised to keep out surface water, or any manholes located within the 25 year flood plain.

Type "C"/WPC - Drop manhole with waterproof cover - These manholes shall consist of those manholes having one or more drop inlets, regardless of depth, as shown on the drawings. Waterproof covers will be required on all manholes located in streets or where the tops cannot be raised to keep out surface water, or any manholes located within the 25 year flood plain.

Air Testing of Manholes

Section 11. In conjunction with gravity sewer line pressure air testing; low pressure air vacuum testing shall also be performed on all completed manholes.

All incoming/outgoing gravity sewer lines shall be plugged for the test. Tests shall be performed following installation of the manhole frame and shall include testing of the manhole frame seal. Testing equipment and methods shall be as recommended by the precast concrete manhole.

Leaks observed as a result of the testing shall be repaired and the test continued until the manhole structure is within precast manhole manufacturer's tolerance limits.

END OF SECTION

SITEWORK

Section 02720

Pressure Pipelines

Work Included

Section 1. The Contractor shall complete all excavations; shall protect all existing structures, utilities, and services; shall furnish all suitable tools and appliances for the safe and convenient handling of all materials to be used on the work; shall lay the pipelines, including valves, valve boxes, fire hydrants, and all other appurtenances thereto; shall install or replace any or all house service connections if specified; shall test the lines; shall disinfect water lines; shall replace all walks, driveways, grass plots, or paving; shall remove all surplus materials of every kind; and leave the entire site of the work in a presentable and satisfactory condition; all as specified herein under the various sections.

Handling and Storage of Materials

Section 2. Pressure main pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground.

Pipe shall be so handled that the coating and lining will not be damaged. If however, any part of the coating or lining is damaged the repair shall be made by the Contractor at his expense in a manner satisfactory to the Project Manager.

The Contractor shall be responsible for the safe storage of material furnished by or to him, and accepted by him, and intended for the work, until it has been incorporated in the completed project. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.

Inspection and Responsibility for Material

Section 3. All pipeline materials shall be carefully inspected for cracks and other defects prior to installation. All material found during the progress of the work to have cracks, flaws, or other defects, shall be rejected by the Project Manager. All defective materials furnished by the Contractor shall be promptly removed by him from the site of the project.

The Contractor shall be responsible for all materials furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

Installation of Pressure Pipelines

Section 4. Pressure mains shall be laid and maintained to the required lines and grades with fittings, valves, and hydrants at the required locations; spigots centered in bells; and all valve and hydrant stems plumb.

Proper implements, tools, and facilities shall be provided and used by the Contractor for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, or other suitable tools or equipment in such a manner as to

prevent damage to pipe main materials and protective coatings and linings. Under no circumstances shall pipe main materials be dropped or dumped into the trench.

All pipe and fittings shall be carefully examined for cracks and other defects while suspended above the trench immediately before installation in final position. Spigot ends shall be examined with particular care. Defective pipe or fittings shall be laid aside as previously specified.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe laying crew cannot put the pipe into the trench and in place without getting earth into it, the Project Manager may require that before lowering the pipe into the trench, a heavy, tightly woven canvas bag of suitable size shall be placed over each end and left there until the connection is to be made to the adjacent pipe. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Precautions shall be taken to prevent dirt from entering the joint space.

At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Project Manager. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.

The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or lining so as to leave a smooth end at right angles to the axis of the pipe.

Pipe shall be laid with bell ends facing in the direction of laying, unless directed otherwise by the Project Manager. Where pipe is laid on a grade of ten (10) percent or greater, the laying shall start at the bottom and shall proceed upward with the bell ends of the pipe upgrade.

Placing Pipeline Fittings

Section 5. Pipeline fittings, plugs and caps shall be furnished and installed of the type indicated and at the location shown on the construction drawings or as directed by the Project Manager. It will be the responsibility of the Contractor to furnish and install all proper size pipe bends for both horizontal and vertical deflections that are required to construct the pressure main to the line and grade as shown on the construction drawings or as set by the Project Manager. The fittings, plugs, and caps shall be set and joined to the pipe in the manner heretofore specified for installation.

Anchorage

Section 6. The Contractor shall provide pipeline restraint at all locations shown on the construction drawings. Anchorage shall be in the form of harnessed or restrained joints for the lengths of pipe and fittings shown.

Testing Pressure Mains

Section 7. The Contractor shall subject the completed pressure pipelines to a leakage test. The test

shall be performed on all newly laid pipe in lengths not to exceed 2,000 feet or any valved section thereof. The length of the test section shall exceed the specified maximum limit only with the explicit approval of the Project Manager. The test may be conducted after the trench has been backfilled but must be completed before replacement of pavements and final restoration. All testing shall be done in the presence of the Project Manager.

The Contractor shall furnish the pump, pipe connection, temporary testing plugs and caps, if required, all necessary apparatus including the pressure gauges and meters and a supply of approved water. The Contractor shall make all necessary taps into the lines. The Contractor shall be responsible for all labor and equipment necessary to conduct the tests, including excavating and backfilling the test pit at the locations selected by the Project Manager.

The pipe shall first be completely flushed out. Then each valved section shall be slowly filled with water. All air shall be expelled from the pipe at high points by means of test plugs in valve bonnets, fire hydrants or through corporation stops installed by the Contractor for this purpose. After all the air has been expelled, the openings shall be closed and the test pressure applied by means of the test pump connected to the pipe in a manner satisfactory to the Project Manager.

The test pressure for the leakage test shall be fifty (50) percent above the normal operating pressure of the lowest point in the section of line under the test and corrected to the elevation of the test gauge. The duration of each leakage test shall be two (2) hours.

The exposed piping and/or the top of the trench shall be carefully inspected during the leakage test for any signs of leakage. Any cracked or defective pipe, fittings, valves or hydrants discovered in consequence of the leakage test shall be removed and replaced by the Contractor with sound material and the test shall be replaced until satisfactory results are obtained. The Contractor is responsible for locating, excavating and backfilling the pressure pipeline trench at no cost to the Owner, in addition to replacing the defective material if the leakage test is conducted on a backfilled pressure pipeline. The Contractor shall maintain the hydrostatic pressure at all times during the leakage test through his test pump.

Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain the specified leakage test pressure after the air has been expelled, the pipe has been filled with water, and the pressure initially applied.

No pipe installation will be accepted if the amount of leakage is greater than specified by the following equation:

$$L = \frac{ND}{7400} \sqrt{P}$$

Where

- L = allowable leakage, gallons per hour.
- N = Number of pipe joints being tested.
- D = Nominal diameter of pipe, in.
- P = Average test pressure, psig.

Disinfection of Water Mains

chlorinated before being placed in service so that a chlorine residual of not less than ten (10) ppm remains in the water in the test section after twenty-four (24) hours standing in the pipe. The procedures for disinfecting the water mains and the chemicals to be used shall be in accordance with the requirements of AWWA C601.

If liquid chlorine is used, a chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device; or, if approved by the Project Manager, the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solutions of the chlorine gas or the gas itself must provide means for preventing the backflow of water into the chlorine cylinder.

A mixture of water and a chlorine-bearing compound of known chlorine content may be substituted for liquid chlorine. Approved types are calcium hypochlorite or sodium hypochlorite. Commercial types of calcium hypochlorite are known as HTH, Perchloron and Pittchlor. Sodium hypochlorite is known commercially as liquid laundry bleach.

High-test calcium hypochlorite or bleaching powder must be prepared as a water mixture for introduction into the water mains. The powder should first be made into a paste and then tinned to approximately a one (1) percent chlorine solution (10,000 ppm). The preparation of a one (1) percent chlorine solution requires the following proportions of powder to water:

<u>Product</u>	<u>Amount of ompound</u>	<u>Quantity of Water Gallon</u>
High-test calcium hypochlorite (65-70% Cl)	lb.	7.50
Liquid laundry bleach (5.25%)	1 gal.	4.25

The chlorinating agent shall be injected into the beginning of the new pipeline extension or any valved section of it through a corporation stop inserted by the Contractor. The Contractor shall supply the proper type chemical pump, piping and make up water to inject the solution into the main. The application shall be the amount necessary to apply 25 ppm of chlorine to the test section. The amount of one (1) percent chlorine water solution required to give 25 ppm chlorine in 1,000 feet of various size water mains is as follows:

6" Diameter	4 Gallons
8"	8
10"	10
12"	15
16"	26
20"	40
24"	60
30"	90

Water from the existing distribution system shall be controlled so as to flow slowly into the newly laid pipeline during the application of chlorine. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the newly laid pipe shall produce at least ten (10) ppm, after twenty-four (24) hours standing. This may be expected with an application of twenty-five (25) ppm, although some conditions may require that more valves be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline

process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipeline is filled with the chlorinating agent.

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipeline at its extremities until the replacement water throughout its length shall, upon test, be proved comparable in quality to the water serving the public from the existing water supply system and approved by the public health authority having jurisdiction. This satisfactory quality of water delivered by the new main should continue for a period of at least two (2) full days as demonstrated by laboratory examination of samples taken from a tap located installed in such a way as to prevent outside contamination. Samples shall not be taken from an unsterilized hose or from a fire hydrant, because such samples will seldom meet bacteriological standards.

Should the initial treatment fail to result in the conditions specified, the original chlorination procedure shall be repeated until satisfactory results are obtained.

Pressure Pipelines Not Installed in Trench

Section 9. All applicable provisions of this item of work shall apply to the furnishing of materials and installation procedures for constructing pressure pipelines not installed in a trench condition.

END OF SECTION

SITework

Section 02722

Ductile Iron Pipe

Pipe

Section 1. Ductile cast iron pipe shall conform to the American Standard for "Ductile Iron Pipe Centrifugally Cast in Metal Molds for Water or Other Liquids", AWWA C151.

The pipe shall be Pressure Class 350, unless otherwise noted.

Joints

Section 2. Mechanical joints, bell and spigot joints and flange joints for ductile iron pipe in sizes from 2-inches through 48-inches in diameter shall conform to all of the dimensions, shapes and requirements of AWWA C110, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids". The mechanical joint shall also conform in all respects to AWWA C111, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings".

Push-on joints shall be a single rubber gasket joint designed to be assembled by the positioning of a continuous, molded, rubber ring gasket in an annular recess in the pipe and forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and the annular recess shall be so designed and shaped that the gasket is locked in place against displacement as the joint is assembled. The push-on type joint shall conform to the requirements of AWWA C110 and AWWA C111 where applicable.

Where ductile iron pipe with ball and socket type joints are specified, they shall be of the mechanical gland type. Provisions shall be made for longitudinal expansion and contraction with a positive stop against disengagement of the joint. Up to fifteen (15) degrees angular deflection shall be accommodated without leakage and without decrease in full diameter of pipe.

Fittings

Section 3. Cast iron or ductile iron fittings in sizes 2-inches through 48-inches for mechanical joints, bell and spigot joints and flange joints shall conform to all the requirements of AWWA C110, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids", and to the requirements of AWWA C111, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings", for mechanical joints and push-on type joints. Push-on joints for cast iron fittings shall be as described in Section 2 of this item.

Ductile iron compact body mechanical joint fittings are also acceptable.

The cast iron or ductile iron fittings in sizes larger than 12-inch shall have a pressure rating of 150 psi unless the proposal sheets and/or the construction drawings stipulate that 250 psi cast iron fittings are required.

Unless specifically described on the proposal sheets and/or construction drawings, the cast iron fittings may be supplied in gray iron or ductile iron.

Coatings for Ductile Iron Pipe & Fittings

Section 4. The ductile iron pipe and cast iron or ductile iron fittings for water service shall be furnished with cement mortar lining in accordance with AWWA C104, "Cement Mortar Lining for Cast Iron Pipe and Fittings". The lining will be 1/16-inch thick for pipe sizes 4-inches through 12-inches in diameter and 3/32-inch thick for sizes 14-inch through 24-inches in diameter. A bituminous seal coat shall be applied to the lining surface immediately following the lining operation to prevent loss of moisture and insure proper curing of the cement mortar. The outside of the iron pipe shall be furnished with a protective coating as outlined in Section 09900, "Protective Coatings and Painting".

All cast iron or ductile iron fittings and ductile iron pipe which will carry sewage shall be completely coated inside and outside with a hot coal-tar varnish, to which sufficient oil has been added to make a smooth coating, tough and tenacious, when cold. The coating process shall consist of preheating and then dipping the fitting or pipe into the hot coating material.

All ductile iron pipe and fittings not installed in a trench condition shall not be coated with a coal-tar pitch on the outside. The pipe and fitting shall be coated in accordance with the Section 09900, "Protective Coatings and Painting".

Miscellaneous Jointing Material

Section 5.

a. Victaulic couplings for ductile iron pipe shall consist of malleable iron housing-clamps in two (2) or more parts, a single C-shaped rubber gasket and two (2) or more track-head steel bolts as required to assemble the housing clamps. The coupling shall be of the proper type to encircle the outside diameter of the ductile iron pipe as specified. The malleable iron in the segmental casting shall conform to ASTM A47. The track-type oval neck bolts shall conform to ASTM A183. The rubber gasket shall be Grade "R" natural rubber.

Ductile iron pipe and fittings to be joined with victaulic couplings shall be furnished with shoulders to engage the entire inner circumference of the housing-clamp. The outside surface of the pipe between the shoulder and the pipe end must be smooth and free from deep pits or swells to provide a leaktight seal for the victaulic gasket.

b. Compression sleeve couplings for plain end ductile iron pipe shall consist of one cylindrical steel middle ring with a pipe stop, two (2) resilient wedge-shaped gaskets, two (2) steel follower rings and a set of high strength steel track-head bolts. The number of bolts furnished will depend on the diameter of the couplings.

Anchoring Assemblies

Section 6. Anchoring assemblies for setting valves, fire hydrants, and special bends shall consist of two (2) mechanical joint cast iron or ductile iron gland fittings cast integrally with the pipe nipple. The anchor assembly fittings shall have a laying length of fourteen (14) inches. Anchoring pipe shall be used where long lengths of pipe are required to anchor fire hydrants. Anchoring pipe may be furnished with regular anchoring glands cast with the pipe or with a ring gland which will allow free movement of the standard mechanical joint follower gland. A mechanical joint anchoring tee may be substituted for the mechanical joint tee and anchoring piece for fire hydrant installations where applicable.

Jointing Pipe

Section 7. Joints for buried cast iron or ductile iron pressure main shall be mechanical joint, rubber compression type (push-on joint), poured bell and spigot or victaulic. Cast iron or ductile iron joints within structures may also be flange type or compression sleeve type as shown on the construction drawings. The joints shall be made in the following manner.

Mechanical Joint - The mechanical joint shall conform to the requirements of AWWA A21.11, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings". All surfaces that come in contact with the rubber gasket shall be brushed thoroughly with a wire brush just prior to assembly to remove all rust or foreign material. The clean surface and the rubber gasket shall then be brushed with soapy water. The iron gland shall then be placed on the spigot end with the lip extension facing the joint. The rubber gasket shall then be slipped on the pipe with the thick end toward the gland. The spigot end of the pipe shall then be pushed into the bell seat after which the rubber gasket shall be forced into its retaining space in the bell. Care shall be taken to assure an even seat all around the inner surface of the bell. The gland shall be moved into place for bolting; the bolts shall be inserted and the nuts made up tightly with the fingers only.

The normal range of bolt torques to be applied and length of wrench to produce that torque to the standard cast iron bolts in a joint are as follows:

<u>Size of Bolt</u> <u>Inches</u>	<u>Range of Torque</u> <u>Ft.-Lbs.</u>	<u>Length of Wrench</u> <u>Inches</u>
3/4	60 - 90	10
1	70 - 100	12
1-1/4	90 - 120	14

The gland shall be brought up toward the pipe flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket when tightening bolts. It shall be done by partially tightening the bottom bolt first, then the top bolt, next the bolts at either side, and last the remaining bolts. This process shall be repeated until all bolts are within the specified range of torque. If effective sealing is not attained at the maximum torque, the joint shall be disassembled and reassembled after thorough cleaning. The bolts shall not be overstressed to compensate for poor assembly.

Rubber Seal Type Joint (Push-On Joint) - The push-on type joint shall conform to the requirements of AWWA A21.11, "Rubber Gasket Joints for Cast Iron Pressure Pipe and Fittings". Before assembly of the rubber seal type joint, the inside of the bell and the rubber gasket shall be wiped clean with a cloth. The gasket should then be placed in the groove of the bell in the manner that forms to the contour of the bell. A thin film of special lubricant, of the type recommended by the manufacturer of the pipe, is then applied to the inside of the gasket by brush or hand.

The plain end of the pipe shall be wiped clean and placed in approximate alignment with the bell of the pipe. The joint is then made up by exerting sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket. Pipe eight (8) inches in diameter and larger shall be socketed by fork tools or jacks.

The spigot ends of field cut pipe shall be tapered back one-eighth (1/8) inch at an angle of about thirty (30) degrees to the barrel of the pipe with a coarse file or portable grinder. All sharp or rough edges that may

injure the rubber gasket shall be removed in this operation.

Flanged Joints - The flanged joints shall conform to the requirements of AWWA A21.10, "Cast Iron Fittings, 2-Inches through 48-Inches, for Water and Other Liquids". Flanged joints shall be assembled with bolts and flat ring gaskets of the size and number as specified for "Cast Iron Pipe Flanges and Flanged Fittings". Stud or tap bolts shall be furnished when shown on the construction drawings, and when required to complete special assemblies. All exposed bolts, heads, and nuts shall be coated with two (2) coats of asphaltum or other approved metal coating after the joint has been completed.

Restrained Joints - Special anchorage shall include the use of mechanical joint anchoring fittings, couplings and pipe or positively restrained push-on type pipe and fittings which allow for deflection at the joint after assembly, the equal of "Super-Lock" manufactured by the Clow Corporation. No reduction in pipe wall thickness from that specified shall be permitted in connection with a restrained joint.

Deflection of Ductile Iron Pipe

Section 8. Whenever it is desirable to deflect mechanical-joint or push-on joint pipe in order to form a long radius curve, the amount of the deflection shall not exceed the maximum limits shown for the respective type pipe.

Table 1

Maximum Permissible Deflection in Laying Mechanical-Joint Pipe

Size Of Pipe In Inches	Maximum Permissible Deflection Per Length - Inches			
	12-Ft. Length	16-Ft. Length	18-Ft. Length	20-Ft. Length
6	18	24	27	30
8	13	18	20	22
10	13	18	20	22
12	13	18	20	22
16	9	12	13-1/2	15
20	7-1/2	10	11	12
24	6	8	9	10

Table 2

Maximum Permissible Deflection in Laying Mechanical-Joint Pipe

Size Of Pipe In Inches	Maximum Permissible Deflection Per Length - Inches			
	12-Ft. Length	16-Ft. Length	18-Ft. Length	20-Ft. Length
6	12	17	19	21
8	12	17	19	21
10	12	17	19	21
12	12	17	19	21
16	7-1/2	10	11	12
20	7-1/2	10	11	12

24 7-1/2 10 11 12

Section 9. The following section is applicable to ductile iron diffused air distribution piping. All buried air distribution piping shall be Class 50 or 51 unlined DIP, Mechanical or Bell Joint with gaskets capable of withstanding a continuous temperature of 225°F. All DIP air lines shall be exterior coated in conformance with Specification Section 02722 - paragraph Section 4.

Above ground air distribution piping shall meet the same conditions except same shall be furnished with flanged conditions and temperature resistant gaskets.

END OF SECTION

SITEWORK

Section 02999

Maintenance of Existing Sanitary Systems

General

Section 1. The area of construction contains residencies and businesses which currently use septic tank with leach fields or on-site package treatment plants for disposal of existing sanitary wastes. These existing facilities are to remain in operation during construction and until such time as the Sanitation District may accept sanitary sewage into the system being constructed. The Contractor shall be responsible for repair of any existing waste disposal system damaged during construction, in so far as the existing system may remain in satisfactory operation until such time as the Sanitary District may accept sanitary sewage into the system being constructed. The Contractor shall report any damage to any facility immediately to the Engineer and shall take prompt corrective action.

Repairs

Section 2. The Contractor shall be solely responsible for the methods, labor, materials and equipment required to repair any damage to existing facilities which is caused by construction. The Contractor shall act immediately and promptly to make repairs to any system damaged during construction to provide for continued service of the existing facility.

Measurement and Payment

Section 3. The repair of any damage to any facility shall be the sole responsibility of the Contractor. No separate payment shall be made for repair of any damaged system and the cost shall be considered as incidental to other items of work.

END OF SECTION

CONCRETE

Section 03300

Concrete Masonry

General

Section 1. This item delineates the general requirements pertaining to all concrete to be used on the project and the specific requirements for structural concrete work.

Concrete masonry work includes furnishing all materials and equipment for mixing, placing and finishing of all concrete, curing and damp-proofing, the erection and removal of falsework and forms and all other work and materials incidental to the completion of concrete masonry as herein specified.

Concrete shall be of two classes:

Class "AA" concrete shall be used in the bottom and sides of tanks, walls, footings, reinforced concrete slabs whether self-supporting or placed on grade, beams, columns, girders and in all other structural applications.

Class "A" concrete shall be used in the construction of sidewalks, curbs, drives; Class "B" concrete shall be used as encasement and cradles for pipelines, and in such other construction as specified elsewhere in these specifications or as directed by the Project Manager.

Cement

Section 2. The cement to be used shall be:

Class "AA" concrete; ASTM C-150, Portland Cement, Type I or Type IA;
Class "A" concrete; ASTM C-150, Portland Cement, Type I or Type IA;
Class "B" concrete, ASTM C-150, Portland Cement, Type I or Type IA.

Water

Section 3. Water proposed for use in concrete shall be clean and free of oil, acid, alkali, organic matter or other deleterious substances.

The test for suitability of water shall be a mortar strength test (ASTM C109) wherein the strength at twenty-eight (28) days of mortar specimens made with the water under examination and normal Portland Cement shall be at least ninety (90) percent of the strength of similar specimens made with the same cement and with water of known satisfactory quality. The test may be waived in cases where the water to be used is of known satisfactory quality.

Fine Aggregate

Section 4. Fine aggregate shall consist of natural sand, sand manufactured by crushing stone or gravel; or, subject to the approval of the Project Manager, other inert materials having similar characteristics. The particular type or types to be furnished shall be approved by the Project Manager.

Fine aggregates shall meet the grading and other requirements of ASTM C33.

Coarse Aggregate

Section 5. Coarse aggregate shall consist of crushed stone or gravel; or, subject to the approval of the Project Manager, other inert materials having similar characteristics. The particular type or types to be furnished shall be approved by the Project Manager.

Coarse aggregates shall conform to ASTM C33. Grading shall be size No. 57.

Proportioning

Section 6. It is anticipated that Ready-Mixed concrete will be used on this project. Ready-Mixed concrete shall conform to ASTM C-94. Should the Contractor elect to use job or site-mixed concrete, all plant, equipment and work shall conform to specifications provided by the Project Manager.

Concrete shall meet the following requirements:

<u>Class</u>	<u>Minimum 28-Day Compressive Strength, psi</u>	<u>Entrained Air percent</u>	<u>Minimum Cement Content sks/cy</u>	<u>Slump Inches</u>
"AA"	4000	5.5 +- 1.5	6.6	2-3
"A"	3500	5.5 +- 1.5	7	4-7
"B"	2500	5.5 +- 1.5	4.8	2-5

Air-entraining admixtures conforming to ASTM C-260 may be added to Class "AA", "A" and "B" concrete.

Other admixtures conforming to ASTM C-494 may be added to concrete only upon the express, specific approval of the Project Manager. Calcium chloride or admixtures containing calcium chloride are prohibited.

The design of the concrete mix, using materials as specified, quality control and the attainment of the specified strengths and other characteristics are the sole responsibility of the Contractor.

The Contractor shall furnish to the Project Manager, for his review, mix designs for each specific class of concrete to be used on the project. The mix designs shall be based on the saturated, surface-dry weights of the aggregates and shall contain information on the specific gravities and absorption characteristics of the aggregates and the type and make of air entraining agent, if any, to be used. Other data and test results supporting the mix design shall be supplied by the Contractor to the Project Manager on request.

Quality Assurance

Section 7. The cost of quality assurance testing shall be borne by the Contractor. Quality control and the attainment of the specified strengths and other characteristics remain the sole responsibility of the Contractor.

Concrete will be tested during the course of the work as follows:

Slump shall be measured in accordance with ASTM C-143; the amount of entrained air shall be determined in accordance with ASTM C-231; yield tests to determine the cement content will be made in accordance with ASTM C-138; Compression test cylinders to determine whether the concrete is meeting the specified strength will be made and tested in accordance with ASTM C-31 and ASTM C-39 and the following requirements:

Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day. When concrete placement exceeds five (5) cubic yards, test cylinders will be made for each 150 cubic yards, or fraction thereof, and/or for each 5000 square foot of surface area, or fraction thereof, of concrete placed in the work. Four cylinders shall be made for each test. Two cylinders shall be tested at 28 days and two cylinders at 56 days.

The strength level of an individual class of concrete shall be considered satisfactory if the average of all sets of three (3) consecutive strength tests equal or exceed the specified compressive strength and no individual strength test (average of two (2) cylinders) falls below the specified compressive strength by more than 500 psi.

Should strength levels not meet the above standards or if tests of fieldcured specimens indicate deficiencies in protection and curing, steps shall be taken to assure the structural integrity and load-carrying performance of the reinforced concrete member or members. The Contractor shall be required to drill cores from the area in question in accordance with ASTM C42. Three (3) cores shall be removed for each strength test more than 500 psi below specified minimum compressive strength. If concrete in the structures will be dry under service conditions, cores shall be air-dried for seven (7) days under temperatures varying from 60 to 70 degrees F. with relative humidity under 60 percent prior to load testing. Such cores shall be tested dry. If concrete in the structure will be more than superficially wet under service conditions, cores shall be immersed in water for at least 48 hours and tested wet.

Concrete in an area represented by the core tests shall be considered structurally adequate if the average of the strengths of three (3) cores is equal to at least 85 percent of the specified minimum compression strength and if no single core is less than 75 percent thereof.

If as the result of core testing structural adequacy remains in doubt, load testing may be ordered by the Project Manager. Load tests shall be in strict accord with the applicable provisions of Chapter 20, ACI 318-77.

The Project Manager may permit the substitution of load testing for a core drilling and testing program at his discretion. All costs of core drilling and testing and/or load testing shall be paid for by the Contractor.

Failed areas, as designated by the Project Manager, shall be removed and replaced at the Contractor's expense, or such other disposition shall be made as determined by the Project Manager.

The Owner may, from time to time, make such other tests and inspections as will satisfy himself as to the quality of concrete being produced. The cost of these tests and inspections will be borne by the Owner except that the Contractor or his supplier, shall supply all required materials and such assistance as may be necessary free of charge. Tests and inspections may include:

1. Inspection of batch plant equipment and methods of storage and handling for aggregate and cement; checking of measuring devices and scales; condition and capacity of mixers and agitators;
2. Testing of cement, aggregates and admixtures for specifications compliance, and tests at the plant for slump, yield and air content;
3. Field and plant inspection of the hauling and handling and placing of concrete;
4. Slump and/or air test on every load of ready mix concrete delivered to the job site.
5. Such other tests and inspection as may be required or deemed advisable by the Project Manager.

Field-Cured Tests Cylinders. The Contractor may wish to provide field-cured test cylinders as a means of producing strength data for the early removal of formwork. The making, curing and testing of such cylinders shall be at the Contractor's expense. Molding and curing of test cylinders shall be according to the provisions of ASTM C31, "Method of Making and Curing Concrete Specimens in the Field." Curing shall be in accord with Section 7.4 of the cited standard.

Mixing and Delivery

Section 8. Mixing and delivery shall be in accordance with ASTM C-94 except that all concrete shall be delivered to the site of the work and discharge shall be completed within sixty (60) minutes for Class "AA" concrete and ninety (90) minutes after the introduction of the cement to the mix for Class "A" and Class "B" concrete. The time of introduction shall be stamped on the delivery ticket for the load by means of an automatic time clock device or by such other means as may be acceptable to the Project Manager.

Delivery tickets shall contain, in addition to the time as noted above, the project name, the class of concrete being delivered and the amount.

The temperature of the concrete shall not exceed 90NF (ninety). Loads with temperatures in excess of 90NF (ninety) shall be rejected and removed from the site of the work.

Formwork

Section 9. The Contractor shall provide forms, form ties, bracing and supports, molds and templates for the construction of the project. The purpose of the formwork is to mold the wet concrete into the final structure which conforms to shapes, lines and dimensions as required by the construction drawings. That portion of the formwork in contact with the wet concrete shall be smooth and even to provide a smooth finished surface of the concrete masonry.

Formwork shall be substantial in construction and bracing to prevent movement or deflection due to the hydrostatic loading of the wet concrete. Joints in formwork shall be tight to prevent leakage of concrete or mortar. Forms shall be braced and tied together to maintain position and shape during the pouring and compacting operations. Formwork and its supporting structure shall be designed to avoid damage or undue loading to previously placed structures or structural components. The design of formwork shall include consideration of the rate and method of concrete placement and to provide ample support for all expected loadings, weight of wet concrete, horizontal or vertical construction loads and impact loads.

Formwork shall be cleaned of cement, mortar or dirt prior to use. Formwork shall be designed to be readily removed without damage to the contained concrete masonry. Deformed, broken or otherwise defective forms or moldings may not be stored on the project site by the Contractor. Deleterious substances which may injure or discolor the finished concrete shall not be permitted on that portion of formwork to be in contact with the wet concrete.

Formwork shall comply with the provisions of ACI 347-68, "Recommended Practice for Concrete Formwork" and the handbook, "Formwork for Concrete" produced by ACI Committee 347.

Moldings and Chamfers. Unless shown otherwise on the plans or directed, suitable moldings or chamfer strips shall be placed in the angles of all forms of round or bevel the edges of the concrete. The top edges of all walls shall be chamfered three-quarter (3/4) inches unless otherwise directed.

Oiling. The inside of forms shall be coated with non-staining mineral oil or other approved material prior to placing the reinforcing steel.

Inspection. Temporary openings shall be provided at the base of column and wall forms and at other points where necessary to facilitate cleaning and inspections.

Form Ties. Snap ties, bolts, or other approved methods for holding forms in place shall be made and placed so that they will leave no metal within one (1) inch of the surface of the finished surface of concrete walls. The cutting off of such ties and bolts below the surface and repointing with mortar in said location will not be permitted. All openings left in the surface by removal of the manufactured form ties or bolts shall be properly and completely filled with mortar. Ties made of twisted wire will be permitted only in light or unimportant work and then only by permission of the Project Manager. The type of form ties proposed for use on the work shall be submitted to the Project Manager for approval before purchase and delivery to the job site. All form ties shall be removed as specified by their manufacturer.

Form Removal. The side forms of beams, girders, columns, walls and similar vertical forms may be removed after 7-days of cumulative curing time providing the side forms support no loads other than the lateral pressure of the plastic concrete and further provided that the structure is adequately supported from beneath.

Formwork supporting the underside of structural members, slabs, beams and girders, shall not be removed until the members have attained sufficient strength to safely support their own weight plus superimposed construction loads. Sufficient strength may be demonstrated by field-cured test cylinders together with a structural analysis which considers proposed loads in relation to the field cured cylinder strengths. Such analysis shall be furnished by the Contractor to the satisfaction of the Consulting Engineer.

Construction loads exceeding the combined design deadload plus liveload shall not be supported by any unshored structural member unless analysis indicates sufficient strength to support such additional loads.

Analysis prior to the removal of shoring shall not be required if proposed construction loadings will not exceed design loads and 28-day cylinder strengths meet or exceed design requirements. Analysis must consider both supporting strength and deflection of the structural member in question. Computed deflections using field-cured cylinder modulus of elasticity and proposed construction loadings shall not exceed the limits given by Table 9.5(b), "Maximum Permissible Computed Deflections," A.C.I. 318-77.

Walls designed to support lateral loads, hydrostatic pressures or equivalent fluid pressures of earth backfill and surcharge loads, shall not be subjected to such loads until such time as the 28-day cylinder tests indicate design strength has been attained. Subjection of lateral loading prior to the 28-day test may be done if a structural analysis based on field-cured cylinder tests indicate that such loading may be safely applied.

Placing Concrete

Section 10. Concrete shall be mixed, transported or conveyed only in equipment that is thoroughly cleaned and from which all hardened concrete and other foreign material has been removed.

Before depositing the concrete, all forms shall be thoroughly cleaned and the area to be occupied by the concrete shall be free from all laitance, silt, dirt, shavings, sawdust and other debris; the forms shall have been oiled and the reinforcement securely fastened in its proper position.

All concrete shall be placed on clean damp surfaces, free from standing water or upon properly consolidated fills. Concrete shall be deposited in approximately horizontal layers not to exceed 18 inches in thickness. Concreting shall not be commenced without the express approval of the Project Manager.

Class "AA" concrete shall be placed, finished and cured with special attention paid to the particular requirements and precautions to be observed for this type of concrete.

Removal of Water. Any water shall be removed from the space to be occupied by the concrete before concrete is deposited, unless otherwise directed by the Project Manager. Any flow of water into an

excavation shall be diverted through proper side drains to a sump, or be removed by other approved methods which will avoid washing the freshly deposited concrete. If directed by the Project Manager, water vent pipes and drains shall be filled by grouting or otherwise after the concrete has thoroughly hardened.

Handling. Concrete shall be handled from the mixer, or in case of ready-mixed concrete, from the transporting vehicle, to the place of final deposit as rapidly as practicable by methods which will prevent the separation or loss of the ingredients. Under no circumstances shall concrete that has partially hardened be deposited in the work. Concrete shall be deposited in the forms as nearly as practicable in its final position to avoid rehandling. It shall be so deposited as to maintain, until the completion of the unit, a plastic surface approximately horizontal. Forms for walls or thin sections of considerable height shall be provided with openings or other devices that will permit the concrete to be placed in a manner that will prevent segregation and accumulation of hardened concrete on the forms or metal reinforcement above the level of the concrete being deposited.

Concrete, regardless of the type of transporting vehicle, shall have the required quality when deposited in the forms.

Chuting. Whenever concrete is conveyed by chutes, the equipment shall be of such size and design as to insure a continuous flow in the chute. The chutes shall be of metal or metal lined, and the different portions shall have approximately the same slope. The slope shall be not less than one vertical to two horizontal and shall be such as to prevent the segregation of the ingredients. The discharge end of the chute shall be provided with a baffle plate to prevent segregation. If the distance of the discharge end of the chute above the surface of the concrete is more than four (4) feet above the surface of the concrete, a spout shall be used and the lower end maintained as near the surface of deposit as practicable. When the operation is intermittent, the chute shall discharge into a hopper. The chute shall be thoroughly cleaned before and after each run and the debris and any water used shall be discharged outside the forms.

Pneumatic Placing. Where concrete is conveyed and placed by pneumatic means, the equipment shall be suitable in kind and adequate in capacity for the work. The machine shall be located as close as practicable to the place of deposit. The discharge lines shall be horizontal or inclined upwards from the machine. At the conclusion of placement, the entire equipment shall be thoroughly cleaned.

Pumping. Where concrete is conveyed and placed by mechanically applied pressure, the equipment shall be suitable in kind and adequate in capacity for the work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced. When pumping is completed, the concrete remaining in the pipeline, if it is to be used shall be ejected in such a manner that there will be no contamination of the concrete or separation of the ingredients. After this operation, the entire equipment shall be thoroughly cleaned.

Compacting. Concrete shall be compacted by mechanical vibration. The Contractor shall furnish and have in use sufficient vibration equipment of an approved type and size to properly compact each batch immediately after it is placed in the forms.

The Contractor shall provide at least one standby vibrator for each separate area of concrete being placed. The standby vibrator or vibrators shall be on hand at all times when concrete is being poured.

The vibrators shall generally be of a type that are applied directly to the concrete and that have a frequency of at least 7000 impulses per minute, except that external vibration may be used in inaccessible areas.

The concrete shall be deposited as near its final position as possible. Vibrators shall not be used for flowing the concrete or spreading it into place. Vibration shall be applied at the point of deposit and in the area of freshly deposited concrete. The vibrators shall be pushed into and pulled out of the concrete slowly. Vibration shall be of sufficient duration and intensity to thoroughly compact the concrete, but not continued

so long as to cause segregation or formation of laitance on the surface. Care must be used not to disturb partially hardened concrete.

The concrete shall be thoroughly worked around all reinforcement and embedded fixtures and into the corners of the forms.

Such spading as is necessary to insure smooth surfaces and dense concrete shall be done along form surfaces and in corners and locations impossible to reach with the vibrators.

Concrete, in items of work that do not lend themselves to mechanical vibration, may be consolidated by puddling, spading, jiggling or other methods acceptable to the Project Manager.

Protection of Newly-Placed Concrete. No concrete shall be laid in water, nor shall the water be permitted to rise on it within twenty-four (24) hours after it is placed, nor shall water be allowed to run over completed masonry in less than four (4) days. The Contractor shall not permit walking over the concrete until it shall have set for a sufficient time as determined by the Project Manager and shall protect the work at all times from trespass and from damage due to rain or frost.

Depositing Continuously. Concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness with the section. Layers of new concrete shall be thoroughly vibrated into the layers below it. The expansion joints of the type shown upon the drawings shall be constructed only at indicated places or as directed and approved in writing by the Project Manager. The work shall, unless otherwise permitted, be so arranged that a section begun on any day shall be finished during daylight of the same day. For the proper bonding of new and old concrete, such provisions shall be made for steps, keyways, or other devices, as shown on the drawings or as prescribed by the Project Manager.

Bonding. When the placing of concrete is suspended for any cause whatsoever, all necessary grooves for jointing future work shall be made before the concrete has had time to set. When work is resumed, concrete previously placed shall be thoroughly cleaned of foreign materials and laitance using wire brushes and brooms and a high-pressure water jet, if necessary. Immediately prior to the placing of new concrete the old surface shall be thinly coated with mortar consisting of one (1) part portland cement and two (2) parts sand.

Curing. All concrete shall be protected from loss of moisture from its surface by keeping its surface continuously wet for a period of seven (7) days during which time the air temperature immediately surrounding the concrete remains above 50 degrees F.

Surface areas of Class "AA" concrete shall be cured by one of the following methods:

1. Ponding
2. Wet coverings of burlap or cotton mats
3. Continuous sprinkling

Architectural and structural concrete shall be cured by leaving the forms in place provided that exposed surfaces are cured as specified above and that, in hot weather, soaker hoses or water sprays are used to supplement the protection afforded by the forms.

Class "A" and "B" concrete may be cured as above or by the use of "Kraft" or equivalent paper, plastic sheeting or liquid curing compound. Details of the proposed curing treatment shall be subject to the approval of the Project Manager.

Cold Weather Concreting. Except by specific written authorization of the Project Manager, concrete shall not be placed when the atmospheric temperature is below 40NF or whenever the predicted temperature will fall below 40NF during the curing period.

When such authorization is given, the water, aggregates or both shall be heated and suitable enclosures and heating devices and/or insulated forms shall be provided. The concrete shall be placed at a temperature between 50NF and 70NF and the surface temperature of the deposited concrete shall be maintained between 50NF and 100NF for a period of not less than seven days. The enclosures and heating devices and/or insulated forms shall not be removed at the end of this period until the temperature of the concrete has been permitted to drop, at a rate not to exceed 20NF per 24 hours to within 20NF of the existing atmospheric temperature.

Mixing water shall be heated under such control and in sufficient quantity to avoid appreciable fluctuations in temperature from batch to batch. Aggregates shall be uniformly heated to eliminate all frozen lumps, ice and snow.

Concrete shall not be placed in contact with materials having a temperature of less than 32NF. If necessary, the forms, reinforcing steel and foundation materials shall be enclosed and heated before the concrete is placed.

The details of the proposed method of meeting the above specifications shall be subject to the approval of the Project Manager.

The authorization of the Project Manager shall, in no way, relieve the Contractor of his responsibility to protect the concrete from damage due to freezing or inadequate curing. Any concrete so damaged will be removed and replaced by the Contractor at his expense.

Notwithstanding the above, the Project Manager may, at any time, prohibit the placing of concrete masonry when, in his judgment, the conditions are unsuitable or proper precautions are not being observed, regardless of the weather or season of the year.

Finishing Concrete

Section 11. Point Up. Immediately after the removal of forms, all cavities produced by form ties and all other holes, honeycomb spots, broken corners or edges and other defects except air bubble holes shall be cleaned, saturated thoroughly with water and completely filled, pointed and trued with a mortar of the same proportions as used in the concrete being finished. On all exposed surfaces all fins and irregular projections shall be removed with a stone or power grinder, care being taken to avoid contrasting surface textures. Sufficient white cement shall be substituted for the regular cement in the filling of holes and other corrective work to produce finished patches of the same color as the surrounding concrete.

Finishes. All exposed surfaces, defined as the surface of any concrete exposed to view upon completion of the work, and including the inside of tanks, down to 18 inches below maximum water level shall be given a rubbed finish as specified below.

The upper surfaces of footings shall be floated smooth but not troweled except that roughened areas for bonding purposes shall be required for those sections underlying future concrete or other masonry construction.

The top (horizontal) surface of walls shall be given a troweled finish.

Exposed surfaces of floors shall be accurately screeded, floated and then troweled to a smooth, hard and dense surface.

Where asphaltic expansion joints are called for, particular care shall be taken to form smooth, even surfaces free from depressions or shoulders.

Rubbed Finish. Immediately upon removal of the forms, the surfaces to be rubbed shall be pointed up, thoroughly wetted and then rubbed with a No. 20 carborundum brick and water so as to produce a true, even, and smooth surface. When necessary to fill pinholes, and upon areas which have been reconstructed, rubbing shall be done by carborundum brick and a thin cement grout composed of one (1) part of cement and two (2) parts of fine washed silicone sand, all of which shall pass a No. 20 sieve. The surfaces finished with grout shall be carefully scraped with a steel edge so as to remove all surplus grout, after which it shall be given a final rub with a wood float until all skin and form marks shall be removed. No "wash" composed of cement and water, or cement, sand and water shall be used in this process.

Architectural Concrete. All concrete surfaces designated on the drawings as "textured concrete" shall be formed using standard form liners similar to Symons Form Liner No. P/C 30918-3 (Sandblast #3) pattern in conjunction with Symons Majic Kote Form Coating in strict accordance with printed instructions from the manufacturer. Refer to drawings for location, size and details of form liner panels. Verify location of all joints with Project Manager prior to the placing of any concrete.

Watertightness

Section 12. Watertight concrete structures are required. Cracks and other imperfections developing at any point in the work shall be repaired in a manner satisfactory to the Project Manager. When concrete work has attained sufficient strength, the Contractor shall fill each basin or tank, or each compartment, with water and shall repair any imperfections which cause the surface of the water to drop more than one-half (1/2) inch in twenty-four (24) hours. All visible leaks shall be made watertight.

All structures such as pits, sumps, building basements, etc., shall be absolutely watertight against ground water.

All vertical joints between new concrete and existing concrete shall be made watertight.

Any work or treatment necessary to fulfill the specifications for watertightness shall be done at the Contractor's own and proper expense.

The Contractor shall use adequate and sufficient water stops to meet the above specification whether shown on the construction drawings or not. Water stops shall be the nine (1) inch rubber dumbbell type. The cost of all water stops used shall be included in the lump sum price for the General Contract.

Miscellaneous Work in Concrete

Section 13. All castings, grating frames, or other metal work, including pipe supports and cast iron pipe sleeves, all electrical conduits and water stops, shall be built into or encased in the masonry by the Contractor as shown on the drawings or directed. All necessary precautions shall be taken to prevent them from being displaced or deformed.

Steps

Section 14. The treads of all concrete, or concrete filled, steps not receiving additional finishes shall be made skid resistant by an application of fine abrasive aggregate. The aggregate shall be approved by the Project Manager.

After screeding and when the concrete has attained sufficient rigidity to support the weight of a workman on boards, the fine abrasive aggregate shall be uniformly distributed by hand over the tread at a rate

of one-quarter (1/4) pound per square foot of surface area (or such other rate as may be applicable) and immediately wood floated into the finished surface.

Epoxy Bond Coat

Section 15. Any epoxy bond coat, where designated on the construction drawings or noted in the specifications, shall be applied to the old concrete surface prior to the placing of new concrete adjacent to this surface. The epoxy bond coat shall be applied in accordance with the manufacturer's specifications. The epoxy bond coat shall be submitted to the Project Manager for review prior to applying.

Grout

Section 16. Grout shall be used to level bed plates for all machinery, plug holes in existing concrete walls, etc., as designated on the construction drawings or noted in the specifications. The grout shall be ASTM C150 Type I or ASTM C91.

Concrete Sealer

Section 17. Exterior concrete slab surfaces, including sidewalks, shall be finished with "Intersect Deep Penetrating Sealer" as manufactured by Internation Thermoset, Inc., or equal. The sealer shall be applied in full conformance with the manufacturer's detailed application instructions.

The sealer shall be capable of penetrating the pore structure of the concrete to provide an effective sub-surface barrier to inhibit moisture migration, corrosive chemical penetration, and to protect the new concrete from the effects of de-icing chemicals, seals, freezing and thawing, efflorescence and petroleum products. The formulation shall not contain plasticizers, flexibilizers, oils, or diluents that remain unreactive in the resin or curing agent. The sealer shall not build up a layer or membranes on the concrete surface that reduces the skid resistance from that of the unsealed concrete surface.

The epoxy penetrating sealer shall be furnished in two (2) components for blending in strict compliance with manufacturers' recommendations. The ingredients shall have the specified mixing ratio by volume of 50% Component "A" (epoxy resin) and 50% Component "B" (curing agent). The color of the blended material shall be clear to amber, and shall not cause uneven discoloration or shading of the finished concrete surface.

Concrete floors shall be cured at least 28 days prior to application of the epoxy sealer. The contractor shall take extreme care to protect the curing concrete from oil or grease stains or other surface damage. Concrete shall not be wet or damp, coated with a curing membrane or sealer, or mixed with a hardener (such as silicate).

Inserts and Fastening Devices For Other Work

Section 18. Accurately install and secure in place all inserts or other fastening devices required for attachment of other work.

Provide dovetail anchor slots in concrete for securing masonry partitions butting to concrete and where concrete surfaces are to be faced with masonry. Slots shall be 16 gauge galvanized steel similar to Type 100 slots as made by Heckman Building Products. The slots shall be placed vertically the full height of concrete space 24" o.c. horizontally, except where otherwise shown.

Flashing reglets shall be provided where shown on the drawings. Reglets shall be 26 gauge galvanized steel similar to Type 230 as made by Heckman Building Products. Reglets shall be placed in a continuous fashion and extend 4" beyond each end of steel lintel where shown on drawings.

CONCRETE

Section 03400

Precast Concrete

1.0 GENERAL

1.1 DESCRIPTION

A. Section consists of the construction of new precast manholes, vaults and catch basins.

2.0 PRODUCTS

2.1 MATERIALS

A. Materials shall conform to the latest edition of the following specifications:

- X Brick - A.S.T.M. C-32 Grade MS
- X Mortar Sand - A.S.T.M. C144
- X Precast Manholes and Inlets - A.S.T.M. C478 and A.S.T.M. C139
- X Culvert Pipe - A.S.T.M. C76
- X Castings - A.S.T.M. A48-64
- X Cement - A.S.T.M. C150, Type III
- X Concrete (Ready Mix) - A.S.T.M. C94
- X Steel Reinforcement
 - (a) Reinforcing bars shall be billet steel, intermediate or hard grade - A.S.T.M. A-185
 - (b) Welded wire fabric - A.S.T.M. A-185
 - (c) Cold-drawn wire - A.S.T.M. A-82
- X Federal Specification - SS-C-153
- X O-ring Joint - A.S.T.M. C443
- X Aggregate - A.S.T.M. C33
- X Plastic, Reinforced Manhole Steps - Plastic A.S.T.M. 21-46-68, Type II,
- X Grade 49108; Reinforcement Steel A.S.T.M. A165, Grade 60

B. If concrete is mixed on the job, it shall be designed and proportioned in accordance with the recommendations for controlled concrete in the latest edition of the Portland Cement Association's "Design and Control of Concrete Mixtures". Job Mix or Ready Mix concrete shall be subject to the provisions of the item for Concrete In Place, and the following limitations:

Compressive Strength at 28 Days	3500 Pounds Min.
Cement Per Cubic Yard	6 Bags Min.
Water Cement Ratio	6 Gal/Bag Max.
Aggregate Size	1-1/2 Inch Max.

- C. Cast iron manhole frames and covers shall be of the heavy duty self-sealing type R-1592 with 4-1" anchor bolt holes in flange as manufactured by Neenah Foundry, Neenah Wisconsin, or equal, having a total weight of approximately 300 to 450 pounds. Bearing surfaces between frame and cover shall be accurately cast (or machined) and fitted together to prevent rocking. Water tight manhole frames and covers shall be of the heavy duty, bolted lid type, R-1915 G with 4-1" anchor bolt holes in flange as manufactured by Neenah Foundry, Neenah, Wisconsin, or equal, having a total weight of approximately 375 to 410 pounds.
- D. Submit foundry drawings of frames and covers for approval.
- E. The precast concrete manhole, inlet, or other structure sections shall be fabricated in forms in which horizontal alignment is maintained and which provides a variation of plus or minus 1/4 inch in the diameter of any member.
- F. The concrete shall be internally vibrated and shall have a consistency such that complete bond to the reinforcement is obtained.
- G. Opening locations shall be as generally shown on the Plans.
- H. All conduits six (6) inches and larger shall be connected to the precast manholes through a Flexible Manhole Sleeve as manufactured by the Interpace Corporation or Manhole Pipe Seal by A-Lock Corporation, or equal, cast integrally into the manhole section. All conduit connections to manholes shall be grouted with a non-shrink grout.
- I. Sewer connections to the manholes shall be made where indicated on the Plans or as otherwise directed by the Engineer.
- J. The precast concrete manhole, inlet, or other structure sections shall be handled by inserts or other means which will permit them to be lifted and transported without incurring cracking and spalling.
- K. After final placement but before backfilling is accomplished, all lifting holes extending through the manhole walls shall be sealed with hydraulic cement grout, Axpandcrete non-shrink grout by Anti-Hydro Waterproofing Co., or other non-shrink grouts approved by the Engineer.

3.0 EXECUTION

- A. All concrete shall be placed in accordance with Portland Cement Association's specifications as contained in the latest edition of their "Design and Control of Concrete Mixtures".
- B. Structure bottoms shall be placed on a six inch (6") subgrade of granular material. The invert channels shall be uniform, smooth, and accurately shaped, as shown on the Plans, or as directed by the Engineer. Concrete bottoms shall be formed to fit the ends of the pipe. For manholes on straight runs, the invert of the manhole may consist of the pipe material used on the adjacent run of pipe, with the top 1/2 of the pipe sawed or otherwise carefully removed. For manholes at angle point in the pipe alignment, the pipe shall be

cut off flush with the wall of the structure. Branch lines entering above the main lines shall likewise be cut off flush with the structure wall.

- C. Rubber o-ring gasket joints shall conform to ASTM Specification C433; both the tongue and groove of the wall section shall be thoroughly cleaned before placing the o-ring in place. Before placing wall sections above the first, both tongue and groove shall be adequately lubricated with the lubricant compatible with the type o-ring being used. Mastic joint sealant shall be acceptable.
- D. Proper lubrication of the joints is necessary to insure that excessive external force is not necessary to make up the joint. Any wall sections cracked or damaged during installation shall be removed from the project immediately and replaced with undamaged materials.
- E. A short section of precast extension rings, 12" or less, may be required to bring the structure casting to required grade. If additional height is required, a precast concrete section will be used. Manhole steps are to be installed as set forth in □ Specifications for Precast Concrete Manhole Sections □ (ASTM C-478).
- F. Frames shall be set in a full bed of bitumastic joint sealer to the required grade or cast into the top slab of the structure. The frame will then be bolted to the concrete with a minimum of four (4) 1/2 x 6 inch stainless steel expansion anchors. Steps will be required in manholes, inlets and junction chambers exceeding four (4) feet in depth.
- G. When grade adjustment of existing structures is specified, the frames, covers, and gratings shall be removed and the walls reconstructed as required. The cleaned frames shall be reset and made firm in place at the required elevation.
- H. Upon completion, each structure shall be cleaned of any accumulations of silt, debris, or foreign matter of any kind and shall be kept clear of such accumulation until final acceptance of the work.
- I. Excavation and backfill shall be done in accordance with the provisions for Division 2.
- J. Manhole Testing
 - 1. See Section 3400-3, paragraph L, 1 & 2.

END OF SECTION

CONCRETE

Section 03419

Concrete Encasement and Concrete Cradle

Concrete Encasement

Section 1. Buried pipelines shall be encased in 2,500psi concrete where shown on the construction drawings or to the extent and/or at other locations as determined by the Project Director.

Concrete encasement shall provide a minimum cover of six (6) inches beneath and above the pipe O.D. and shall extend laterally to the undisturbed wall of the pipeline trench. Additional thickness of concrete encasement, if required, shall be shown on the construction drawings. Each pour shall start and stop at a pipe joint.

Concrete Cradle

Section 2. Concrete cradle shall be 2,500 psi concrete where shown on the construction drawing or as directed by the Project Director.

Concrete cradle shall provide a minimum of six (6) inches beneath the pipe and extend to the spring line of the pipe unless otherwise shown on the construction drawings. Each pour shall start and stop at a pipe joint.

Measurement and Payment

Section 3. The payment for concrete encasement shall include furnishing and placing the concrete encasement. The Contractor shall be paid for the number of lineal feet of encasement constructed at the unit price quoted on the Proposal Sheets. (Unit Price Contracts Only.)

The payment for concrete cradle shall include furnishing and placing the concrete encasement. The Contractor shall be paid for the number of lineal feet of cradle at the unit price quoted on the Proposal Sheets. The concrete foundation under tee-based manholes is not considered cradle.

END OF SECTION

METALS

Section 05510

Cast Iron Work

Work Included

Section 1. The Contractor shall, under this Section, furnish all the materials for and shall properly install, at the locations shown on the drawing or as directed, all miscellaneous iron castings as specified or as shown, which are necessary for the proper completion of the work.

In general, this work shall include pipe sleeves, floor boxes, manhole steps, manhole rims and covers, adjustable valve boxes, sludge shoes, and such other miscellaneous cast iron work as is shown or required.

Quality

Section 2. All castings shall be true and fit properly together; must be smooth and free from blow holes and other defects; must conform to the dimensions given on the drawings; and to the "Standard Specifications for Gray Iron Castings" of the American Society for Testing Materials, Serial Designation A-48-36, and any subsequent amendments thereto, and to the proposed American Standard Specifications for Coal-Tar Dip Coating for Cast Iron Pipe and Fittings.

Erection

Section 3. All castings shall be set to the proper line and grade, and shall be carefully blocked and braced independently of the form and held in correct position until the concrete has been placed and has set.

Pipe Sleeves

Section 4. Pipe sleeves, of the dimensions shown on the drawings, shall be placed in the concrete masonry wherever indicated.

END OF SECTION

METALS

Section 05515

Iron, Steel and Aluminum Work

Work Included

Section 1. In general, this work shall include all structural steel and aluminum required for stairways and stairway supports, stair treads, all lintels, troughs, pipe supports or plates, floor plates, aluminum ladder and supports, valve keys or valve wrenches, lifting hooks, bolts, nuts and washers of wrought iron or steel not included under other items, and such other work of this character shown or required for the proper completion of the contract; together with any structural steel, structural aluminum, and iron pipe which are not included under any other items.

Materials

Section 2. The structural steel shall meet the requirements of ASTM A-36. Structural steel tubing shall meet ASTM A-500. High strength bolts shall meet ASTM A325 or A490. Standard strength bolts shall meet ASTM A307, Grade A.

All wrought iron shall be tough fibrous and uniform in character. It shall be thoroughly welded in rolling and be free from surface defects, conforming to the requirements of the "Standard Specifications for Refined Wrought Iron Bars and Wrought Iron Plats", Serial Designations A-41-18 and A-42-18 ASTM or subsequent revisions thereto.

Toncan iron, wherever specified, shall be equal to that manufactured by the Republic Steel Corporation.

The aluminum shall meet the requirements of the "Specifications for Structures of Moderate Strength Aluminum Alloy of High Resistance to Corrosion" as by the ASCE. These specifications cover allowable stresses, design rules, and fabrication procedures for structures built of aluminum alloy known commercially as 6061-T6 and the "Specification for Heavy-Duty Structures of High Strength Aluminum Alloy" as published in the proceedings of ASCE. These specifications cover allowable stresses, design rules and fabrication procedures for riveted, heavy-duty structures built of the high strength aluminum alloy known commercially as 2014-T6.

Where iron or steel is shown galvanized, or is so ordered, no additional allowance will be made for such galvanizing. After the metal to be galvanized has been thoroughly cleaned by immersion in the pickling liquors, it shall be dipped in a hot zinc bath and shall remain in this bath until the temperature of the metal has attained the same temperature as the bath. Galvanizing shall follow the procedures listed in ASTM A385, ASTM A153 for hardware, and ASTM A123 for steel fabricated products.

Miscellaneous work included under this item shall be constructed of the materials shown on the drawings unless otherwise specified or approved by the Project Manager..

Fabrication and Erection

Section 3. The intent of this specification is to obtain insofar as possible structural steel work ready to

be fitted and erected. Shop and field connections shall be as shown on the Construction Drawings. Procedures for fabricating and erecting the steel shall be as outlined in applicable sections of:

AISC (American Institute of Steel Construction) "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings," most current edition.

AISC "Code of Standard Practice for Steel Buildings and Bridges," most current edition.

AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts," most current edition.

AWS "Code for Welding in Building Construction," AWS D1.0-69.

Pipe Hangers and Supports

Section 4. Pipe hangers, brackets, and supports to be used in the work shall be the equal of the standard pipe hangers, brackets and supports as manufactured by Grinnell, Crane, Elcen, Michigan, Fee and Mason or approved equal.

Lintels and Miscellaneous Steel

Section 5. Lintels and miscellaneous steel shall be of the size and dimension shown on the drawings.

Steel Stairs

Section 6. Any steel stairs shown on the drawings shall be constructed of the structural steel materials shown.

The treads shall be filled with concrete. Those treads not receiving a finish material shall be made non-slippery by using one-fourth (1/4) pound of fine abrasive aggregate, the equal of fin Alundum (C.F.) Aggregate, (Size 1/32 to 1/4 inch) as made by the Norton Company, Worchester, Massachusetts, for each square foot of tread area. The Alundum Aggregate shall be soaked in clear water for ten (10) minutes, then uniformly distributed by hand over the mortar and immediately wood floated into the cement finish.

Ladders

Section 7. Aluminum ladders shall be furnished and erected as shown on the drawings. Unless otherwise shown, side bars shall be two and one-half inches (2-1/2") by one-half inch (1/2") flat bars eighteen inches (18") apart on centers, except that the section above the floor which shall be thirty inches (30") apart, with one inch (1") diameter rods for rungs spaces twelve inches (12") apart on centers, set in holes drilled in the side bars and then welded over. Unless otherwise shown on the drawings, the side bars shall be carried three feet six inches (3'6") above the upper walkway, and fastened to the wall or floor as required to provide grab rails for persons using the ladder.

Roof Access Doors

Section 8. Doors shall be as manufactured by Babcock-Davis Hatchways, Inc., the Bilco Company,

Dur-Red Products, or approved equal, and locks shall be as manufactured by Sargent and Company, Schlage Company, or approved equal.

Doors shall have a four (4) foot square clear opening and be single-leaf operating. Curb and cover shall be aluminum with a minimum thickness of eleven (11) gauge and capable of withstanding a live load of 100 pounds per square foot. Curb shall be twelve (12) inches in height and be formed with a 3-1/2 inch flange with holes provided for securing to the concrete roof curbs. Curb shall be equipped with an integral metal capflashing of the same gauge and material as the curb, fully welded at the corners for weathertightness. Door shall be completely assembled with heavy duty pin, hinges, compression spring operators enclosed in telescopic tubes, positive snap latch with turn handles and padlock hasps outside only, and neoprene draft seal. Cover shall be equipped with an automatic hold open arm complete with red vinyl grip handle. All hardware shall be cadmium plated.

Two padlocks shall be supplied, one per door, with keysets alike.

Anchor bolts shall be stainless expansion bolts. Size of bolt shall be as recommended by access door supplier.

Manhole Steps

Section 9. Manhole steps shall be made of aluminum with non-skid treads. They shall be supplied by Price Brothers, or equal. The steps selected will be compatible with the selected precast manholes.

Eyebolts

Section 10. Eyebolts shall be stainless steel, threaded, and meet all of the requirements of ASTM F541. Use shall be as directed on the design plans.

Dissimilar Materials

Section 11. When bronze and aluminum materials come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting in accordance with Section 09900, "Protective Coatings and Painting".

When aluminum materials come in contact with concrete or lime mortar, exposed aluminum surfaces shall be painted with alkaline-resistant coatings such as heavy-bodied bituminous paint or water-white methacrylate lacquer.

END OF SECTION

METALS

Section 05800

Cover Pipe

General

Section 1. The construction drawings show the details of the cover pipe material.

Steel Pipe

Section 2. Where designated on the construction drawings, the steel pipe shall be fusion welded steel pipe, Grade "B" with no coating. It shall conform to the requirements of ASTM 139. The wall thickness shall be Schedule 40 for pipe up to 4-inches in diameter and 0.250 inch wall thickness for larger sizes, unless railroad specification require a greater thickness.

Nestable Corrugated Metal Pipe

Section 3. Where corrugated metal pipe is designated in the construction drawings beneath a highway, it shall be nestable. The gauge shall be as shown on the construction drawings.

Where corrugated metal pipe is designated in the construction drawings beneath the tracks of a railroad, it shall be AREA Specification 146; with bituminous coating, in accordance with AREA Specifications 1413. The gauge shall be as shown on the construction drawings.

Tunnel Liner Plates

Section 4. Tunnel liner plates where shown on the construction drawings shall be hotdripped galvanized steel of the thickness (gage) and section modulus shown on the construction drawings. The plates shall be formed from steel meeting the requirements of ASTM 139, Grade "B". Individual liner plates shall be made of one piece of metal, provided with flanges from both longitudinal and circumferential joints. The joints shall have sufficient bolt holes to fully develop the strength of the individual liner plate and so spaced in each liner plate that liner plates of curvature will be interchangeable and readily handled in the tunnel. Liner plates shall be of a design that when bolted together no opening shall exist large enough to permit inflow of granular material. Liner plates will be accurately curved to suit the tunnel cross section and when bolted together, the finished casing pipe shall be full round with the nominal diameter to the neutral axis as specified on the proposal sheets and/or construction drawings. Grouting plugs shall consist of a 2-inch standard half-pipe couplings welded or tapped into a hole in the liner plate and furnished with a cast iron plug for closure. The will be as the liner plate and furnished with a cast iron plug for closure. The spacing of the grouting plugs will be as specified on construction drawings. Bolts, heads, and nuts shall be square and of the same size.

Installing Cover Pipe

Section 5.

General

Cover Pipe shall be installed by the boring method, the jacking method, by trenching or by tunneling as shown on the construction drawings. The Owner will obtain permits for any railroad, State or Federal Highway crossings. The Owner shall coordinate scheduling of construction of crossings with railroads and highway departments and shall pay any charges established therefore the work accomplished by these outside agencies. Special construction requirements defined by railroads or highway departments will be shown on the construction drawings and shall be adhered to by the Contractor. Installation of cover pipe shall not commence without the express permission of the Project Director.

The annular space between the cover pipe and the contained carrier pipe shall be filled with grout or with granular materials unless otherwise specified on the construction drawings.

Installation by Boring

Steel pipe shall be installed by the boring method utilizing an auger type boring machine or a machine of such design meeting the individual requirements of the railroad, State or Federal Highway System being crossed. The Contractor shall provide an approach pit, completely sheeted and of sufficient size to operate the boring equipment. The operation of the boring equipment shall be subject to continuous checking by the Contractor to insure proper alignment of the cover pipe as installed.

Installation by Jacking

The Contractor will provide an approach pit for the jacking operation, excavated so the jacking face is a minimum of three (3) feet above the pipe. This open face should be shored securely to prevent displacement of the embankment. The pit shall include a backstop of sufficient size to take the thrust of the jack. The guide rails that support the pipe as it enters the bore shall be accurately placed to line and grade. The entire approach pit shall be sheeted.

Hydraulic or mechanical jacks may be used in this operation. The number of jacks and the capacity of the jacks shall be adequate to complete the operation. A jacking head shall be used to transfer the pressure from the jack and the jacking frame to the pipe. If an auger is used, the pipe shall be jacked simultaneously with the augering. The construction work shall be checked by the Contractor at frequent intervals to insure proper line and grade of the installation.

Installation by Tunneling

Care shall be exercised in trimming the surface of the excavated section to a true line and grade with the excavation conforming to the outside of the tunnel as nearly as possible. In the installation of tunnel or shaft liner plates, the amount of unsupported tunnel or shaft wall shall be at a minimum at all times. Excavation ahead of the liner plates will not be permitted. Liner plates shall be placed promptly as excavation permits. Upon completion of any ring of liner plates, bolts shall be retightened in the two (2) rings previously completed. The Project Director may direct that the top half of the tunnel excavation be supported by a cutting

shield and excavation shall not advance ahead of such support.

The vertical face of the excavation shall be supported, as necessary, to prevent sloughing and at any interruption of the tunneling operation, the heading shall be completely bulkheaded.

Grouting shall follow the excavation and lining of the tunnel or shaft as required to fill all voids outside the tunnel liner plates. Grouting shall be performed prior to or upon completion of the installation of a maximum of four (4) rings, unless otherwise directed by the Project Director. Grouting shall start at the lowest hole in each grout panel and proceed upwards progressively and simultaneously, when possible, on both sides of the tunnel. The machine used for grouting shall be capable of forcing grout, under pressure, into all voids.

Measurement and Payment

Section 6. The payment for installation of cover pipe shall be made on the actual number of lineal feet of the various types and sizes of pipes installed. The unit price per foot for cover pipe shall include furnishing the material and installing the pipe by jacking, boring or tunneling, whichever is required, the construction of the approach pits with all necessary sheeting and all other incidentals required to complete the installation as shown on the construction drawings and herein specified. (Unit Price Contracts Only).

END OF SECTION

SECTION 11010

SUBMERSIBLE SEWAGE PUMP STATIONS

1.0 GENERAL

1.1 SCOPE OF WORK

- A. This Section covers the construction of submersible sewage pump stations.
- B. Work Included:
 - a. Scope
 - b. General
 - c. Wet Wells and Valve Vaults
 - d. Pumps
 - e. Controls
- C. The Contractor shall furnish and install a complete pumping station containing pumps and all necessary parts and equipment. The station shall include the following items:
 - a. Concrete Wet Well
 - b. Concrete Valve Vault
 - c. Constant Speed Submersible Pumps
 - d. Quick Disconnect Rail System
 - e. Piping
 - f. Valves
 - g. Liquid Level Sensors
 - h. Electrical and Control Systems
 - i. Site Security Fencing and Gates
 - j. All Site Improvements
- D. The intent of the Plans and Specifications for the pump station is to establish the operating conditions, the functions to be performed, the major equipment necessary, and the quality of the materials to be used. The Contractor is responsible for providing the necessary details and shop drawings for the station, to be furnished for review and approval.

1.2 QUALITY ASSURANCE

- A. Erection Qualifications: Install pump station units, valves, piping and equipment with skilled erection labor in accordance with manufacturer's written instructions. Consult manufacturer's representative during installation.
- B. Requirements of Regulatory Agencies: The construction code requirements of State, County or other political subdivision which exceed the requirements of national codes, standards and approving bodies shall be complied with and met.

1.3 RELATED WORK

- A. Division 1 - General Requirements
- B. Division 2 - Site Work
- C. Division 4 - Concrete
- D. Division 15 - Mechanical
- E. Division 16 - Electrical

1.4 DELIVERY, STORAGE AND HANDLING

- A. Unload equipment with care and in the event of damage, make repairs or replacements at no increase in the contract price. Follow manufacturer's instructions for unloading the equipment.
- B. Store and protect the equipment in strict accordance with manufacturer's written instructions.

2.0 MATERIALS

A. Wet Well

- a. The wet well shall consist of reinforced concrete walls, roof, and bottom. When furnished precast, the bottom and sides shall be a monolithic casting conforming to the ASTM-C478. The sections shall be joined with rubber "O" ring gaskets conforming to ASTM-C433. Mastic joint sealant shall be acceptable.
- b. All precast wet wells shall have a 6-inch crushed stone base course placed and compacted and leveled before setting the vault. The interior of the wet well and sump shall be coated with coal tar-epoxy such as Hi-Build Tnemac-Tar 46-31, PPG No. UC-40101 (Polyamide Coal Tar Epoxy, Resinous Cured), or equal. The wet well shall have rubber-sealing gaskets to insure watertight integrity for inlet and discharge piping.

B. Access Frames and Covers:

- a. Access frames shall be constructed of aluminum and shall be complete with Neoprene seals for water tightness, hinges, hasp-equipped covers, and padlocks for the wet wells and valve vaults, as dimensioned on the Plans. Covers shall be capable of withstanding a live load of 150 lbs. per square foot. Door leaves shall be held open automatically when opened to the full open position, 90°, with hand release.
- b. The wet well access frame shall be equipped with upper guide bar holders mounted securely above the pumps. The lower guide bar holders shall be integral with the discharge connection; the guide bars shall be of

Sch. 105, 304 stainless steel pipe, of the size recommended by the pump manufacturer for the model of pump to be installed in the basin.

C. Vent Pipe:

- a. The Contractor shall furnish and install a PVC vent pipe with stainless steel screen at each pump station wet well, as shown on the Plans.

D. Valve Vault:

- a. Precast valve vaults shall have reinforced concrete walls, roof, and bottom. The bottom and side shall be a monolithic casting conforming to ASTM-C478. The sections shall be jointed with Mastic, or rubber "O" ring gaskets conforming to ASTM-C443. The interior of the vault shall be coated with coal tar-epoxy such as Hi-Build Tnemac-Tar 46-31, PPG No. UC-40101 (Polyamide Coat Tar Epoxy, Resinous-Cured), or equal. The vault walls shall have rubber-sealing gaskets to insure watertight integrity for inlet and discharge piping.
- b. The vault shall have a 6-inch crushed stone base course placed and compacted before setting the vault.
- c. The vault shall be constructed as shown on the plans.

E. Piping and Fittings:

- a. All internal piping and fittings shall be flanged ductile iron, Class 52, with a minimum working pressure of 350 psi. All buried piping shall be mechanical joint ductile iron, Class 52, with a minimum working pressure of 350 psi. The piping and fittings shall be sized as shown on the Plans.

F. Valves:

Shall be as shown on the Plans and as specified in Division 15, herein.

G. Liquid Level Sensors:

- a. The pump station shall be equipped with liquid level sensors as shown on the Plans. The level sensors shall be floating displacement type. The length of electrical cable with each sensor shall be five feet (5') longer than the depth of pump station.

H. Sewage Pumps

- a. The pump(s) shall be capable of handling raw, unscreened wastewater. The discharge connection elbow shall be permanently installed in the wet well along with the discharge piping. The pump(s) shall be automatically connected to the discharge connection elbow when lowered into place, and shall be easily removed for inspection or service. There shall be no need for personnel to enter pump well. Sealing of the pumping unit to the discharge connection elbow shall be accomplished by a simple linear downward motion of the pump. A sliding guide bracket shall be an integral part of the pump. The entire weight of the pumping unit shall be

guided by no less than two (2) guide bars constructed of AISI Type 304, Schedule 105 stainless steel pipe and shall press tightly against the discharge connection elbow with metal-to-metal contact. Sealing of the discharge interface by means of a diaphragm, O-Ring, or other device, will not be acceptable. No portion of the pump shall bear directly on the floor of the sump. The pump, with its appurtenances and cable, shall be capable of continuous submergence under water without loss of watertight integrity to a depth of 65 feet. All pumps specified herein shall be manufactured by Ebarra International or equal.

- b. Major pump components shall be of gray cast iron, Class 30B, with smooth surfaces devoid of blowholes and other irregularities. Where watertight sealing is required, O-rings made of nitrile rubber shall be used. All exposed nuts and bolts shall be of AISI, Type 304, stainless steel or brass construction. All surfaces, other than stainless steel or brass, coming into contact with wastewater, shall be protected by an approved wastewater resistant coating. Impeller shall be coated with epoxy. Pump exterior shall be sprayed with PVC epoxy primer, with chloric rubber paint finish.
- c. All mating surfaces where watertight sealing is required, shall be matched and fitted with nitrile rubber O-rings. Fitting shall be such that sealing is accomplished by metal-to-metal contact between machined surface. This will result in controlled compression of nitrile rubber O-rings without the requirement of a specific torque limit. No secondary sealing compounds, rectangular gaskets, elliptical O-rings, grease, or other devices shall be used.
- d. The cable entry water seal design shall preclude specific torque requirements to insure a water tight and submersible seal. The cable entry shall be comprised of a single cylindrical elastomer grommet, flanked by stainless steel washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compress by the entry body containing a strain relief function, separate from the function of sealing the cable. The assembly shall bear against a shoulder in the pump top. The cable entry junction chamber and motor shall be separated by a starter lead sealing gland or terminal board, which shall isolate the motor interior from foreign material gaining access through the pump top. Epoxy, silicones, or other secondary sealing systems shall not be acceptable.
- e. The pump motor shall be a squirrel-cage, induction shell type design, housed in an air filled, water tight chamber. The stator winding shall be insulated with moisture resistant Class F insulation which will resist a temperature of 1,550 degree C. The stator shall be dipped and baked three (3) times in Class F varnish, and shall be heat-shrink fitted into the stator housing. The use of bolts, pins or other fastening devices requiring penetration of the stator housing shall be rejected. The motor shall be designed for continuous duty, capable of sustaining a minimum of ten (10) starts per hour. The rotor bars and short circuit rings shall be of aluminum. A minimum of two (2) thermal sensors shall be imbedded in

the stator winding coils. These sensors shall be wired to the control panel for use in conjunction with the external motor overload protection.

- f. The pump motor cable shall be suitable for submersible pump application with P122-MSHA approval, and this shall be indicated by a code or legend permanently embossed on the cable. Cable sizing shall conform to NEC specifications. A ground check conductor shall be provided.
- g. The junction chamber, containing the terminal board, shall be sealed from the motor by an elastomer compression seal (grommet).
- h. At the minimum rated power, thermal radiators (cooling fans) integral to the stator housing, shall be adequate to provide the cooling required by the motor. Water jacket or other device shall not be necessary for continuous pumping at sump liquid levels down to the mid-point of stator housing.
- i. The pump shaft shall be of AISI, Type 420, stainless steel. This is a nickel bearing chromium steel designed for heat treatment to high mechanical properties providing superior corrosion resistant characteristics.
- j. Each pump shall be provided with a tandem mechanical shaft seal system. The upper of the tandem set of seals shall operate in an oil chamber located just below the stator housing. This set shall contain one stationary tungsten carbide ring and one positively driven rotating carbon ring and shall function as an independent secondary barrier between the pumped liquid and the stator housing. The lower of the tandem set of seals functions as the primary barrier between the pumped liquid and the stator housing. This set shall consist of a stationary ring and a positively driven rotation ring, both of which shall be tungsten carbide.
- k. Each seal interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment, but shall be easily replaceable. The following seal types shall not be considered acceptable nor equal to the dual independent seal specified: shaft seals without positively driven rotating members, or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower units.
- l. Each pump shall be provided with an oil chamber for the shaft sealing system. The drain and inspection plug, with positive anti-leak seal, shall be easily accessible from the outside. The oil chamber shall include an air pressure reservoir for oil pressure compensation.
- m. The pump shaft shall rotate on two (2) permanently lubricated bearings. The upper bearing shall be a single row ball bearing and the lower bearing a two row angular contact ball bearing.
- n. The impeller shall be of gray cast iron, Class 30, dynamically balanced, double shrouded non-clogging design having a long throughlet without acute turns. The impeller shall be capable of handling solids, fibrous

materials, heavy sludge, and other matter found in normal wastewater applications. The pump manufacturer shall, upon request, furnish mass moment of inertia data for the proposed impeller. The impeller shall be capable of passing a minimum 3.5" solid sphere. The shaft torque is transmitted to the impeller by a conical sleeve. The impeller fastening is accomplished by means of an allen head bolt.

- o. The volute shall be of a single piece, nonconcentric design, and shall have smooth fluid passages large enough to pass any size solids, which can pass through the impeller.
- p. A wear ring system shall be installed to provide efficient sealing between the volute and impeller. The wear ring shall consist of a stationary ring made of nitrile rubber molded over a steel ring insert which is drive-fitted to the volute inlet, or a brass AISI B584 wear ring may be used as an alternate to the rubber wear ring.
- q. Operating conditions for each pump station shall be as shown on the Plans.

3.0 ELECTRICAL

- A. The electrical equipment for this project shall consist of CT transformer cabinet, main disconnect (thermal-magnetic breaker), manual transfer switch, 240-volt 3-phase, control panel, outdoor lighting controller, and all other controls required for an operating pump station.
- B. Wiring shall be suitable for carrying the ampere load necessary and shall conform to the latest National Electric Code. All manufactured products and components of the control panel shall be U.L. listed. All major components of the panel to include relays, contractors, starters and coils shall be available from a stocking distributor within a 100-mile radius of the job site.
- C. All connections on all controls shall be made on clearly marked terminal boards or lugs.
- D. The 240-volt 3-phase pump control panel shall contain at least the following:
 - One circuit breaker for each pump, rated as recommended by the pump manufacturer.
 - 3 phase x single phase transformer, sized for single phase loads
 - One circuit for outside lighting
 - One circuit for receptacles
 - One circuit for alarm light
 - Two spare circuits with breaker rated equal to the largest branch breaker required above
 - Four 1-pole spaces with blank cover
- E. The following items shall be included for each pump:

- a. One (1) circuit breaker unit providing disconnecting means and short circuit protection. The circuit breaker unit shall consist of a circuit breaker frame with magnetic-hydraulic operating elements. One (1) sensing and tripping pole per phase-line shall be provided.
 - b. A pump sequence selector shall be provided to override the automatic alternator. Switch shall permit either pump to be selected as lead pump or permit pumps to alternate automatically.
 - c. Three phase power monitor - stops pump(s) for low voltage, single phasing, and phase reversal.
 - d. A power failure alarm relay shall be provided.
- F. The necessary displacement type liquid level sensors shall be provided for each pump station at the elevations shown on the plans. The level sensors shall be the suspended type, which shall hang from the junction box case in the top of the pump stations. The level sensors shall be adjustable with pump station depth + 5 feet of cable. The level sensors shall be operated through an intrinsically safe relay system, such systems shall be listed by Underwriters Laboratories and bear the UL label.
- G. All time delays shall be of solid state design and easily adjustable from 0-10 seconds to 0-10 minutes.
- H. All relays shall be of the plug-in-type for ease of servicing. All liquid level sensors shall be operated by an intrinsically safe control module. A terminal board for connection of the power supply, pumps and liquid level sensors shall be provided.
- I. The control panel shall be in a NEMA 4X dead front enclosure, with locking hasp, padlock and an inner door supporting control circuits, lights, and switches. The enclosure shall be fabricated of heavy, 14-gauge steel. All components shall be clearly identified by suitable labels. The enclosure surface shall be phosphatized and painted with a pre-enameling primer. A heavy coat of enamel shall be baked on to give a good scratch/abrasion resistant surface. The enamel shall be formulated for low chalking and excellent corrosion resistance to gases proximate to sewage-laden environments. Interior of cabinet shall be white.
- J. All wiring outside panels shall be in rigid hot dipped galvanized conduit with threaded fittings. PVC conduit may be used below grade if shown on the plans. Wiring shall be copper. Certificate of inspection in accordance with NEC shall be obtained by the Contractor, and forwarded to the Owner through the Engineer.
- K. The control panel manufacturer shall provide written installation instructions for all equipment furnished, and shall provide a color-coded wiring diagram for all equipment in the panel. This information shall be supplied in an operation and maintenance manual, complete with general operating procedures, maintenance, and servicing procedures, appropriate warning, and a trouble-shooting guide. Six (6) copies of the manual shall be provided to the Engineer prior to payment of fifty percent (50%) of the contract amount to the Contractor.

- L. Outdoor lighting control panel shall consist of a housing, relay (if required), and test-off-automatic switch. Control shall be wired to a remote photocell on twist-lock bracket base, mounted on the north side of the building exterior. Control shall be sized to accommodate two additional lighting fixtures.

4.0 DRAWINGS FOR APPROVAL

- A. Seven (7) copies of shop drawings showing the dimensions and essential details required to locate and install all items associated with the pump stations, as shown on the Plans and described in the Specifications, shall be supplied by the Contractor. Any deviation from the Plans and Specifications shall be described in detail, with justifications, and supplied with the shop drawings. The Contractor shall stamp all shop drawings certifying his review and compliance of the shop drawings with the Plans and Specifications. Shop drawings shall be submitted by the Contractor to the Engineer for review at least four weeks prior to the anticipated fabrication date.
- B. As part of the drawing submittal, the Contractor shall submit a wall elevation to scale showing the layout of all control equipment. Relocation of some equipment to allow adequate mounting space may be required and shall be the Contractor's responsibility. Adequate clearance for the addition of future circuits and for the replacement of control equipment with items of different configuration shall be provided. Panelboard layouts including breaker sizes shall be submitted.

4.1 EXECUTION AND OPERATING INSTRUCTIONS

- A. Installation shall be done in accordance with written instructions provided by the manufacturer.
- B. A convenient Maintenance and Operating Instructions Chart and Daily Maintenance and Inspection Record Chart, with ample room for recording daily inspections of the pump stations, shall be securely mounted on the interior face of the control panel door of each station.
- C. In addition to the Maintenance and Operating Chart, the manufacturer shall further provide complete and detailed Operating and Maintenance Manuals for all major items and for all equipment. The manual shall cover, in addition to general operating procedures, the operation, maintenance and servicing procedures of the major individual components provided with the pump station.

Six (6) copies of the manuals shall be provided to the Engineer prior to payment of fifty percent (50%) of the contract amount to the Contractor. The manual shall be revised, as to any field changes, with six (6) copies submitted to the Engineer prior to payment of the final ten percent (10%) of the contract amount to the Contractor.

- D. The manufacturer shall further provide services of factory trained representatives for a period of one (1) day per station, to perform initial start-up of the pump stations and to instruct the Owner's operating personnel in the operation and maintenance of the equipment provided by them. The (10) day written notification of start-up of the pump stations shall be forwarded to the Owner through the Engineer.

MECHANICAL

Section 15000

Valves and Gates

General

Section 1. Valves and gates of the sizes and types specified or shown on the construction drawings shall be provided for the proper completion of the work included under the project.

Operating nuts, handwheels, gaskets, bolts and nuts and all necessary appurtenances for a complete installation of the valves and gates shall be furnished with the valves.

All valves, not installed in the ground, shall be cleaned after installation and painted as specified under the Section 09900 - "Protective Coatings and Painting."

Complete details of all valves to be used on the project shall be submitted to the Consulting Engineer for review and contract compliance.

Type of Valve

Section 2. The construction drawings will state which type of valve is to be used.

Valve Boxes

Section 3. A valve box shall be provided for every operating nut of a buried valve with the operating mechanism fully protected with a cast iron grease case.

The valve box shall not transmit shock or stress to the valve. It shall be centered and plumb over the wrench nut of the valve. The box cover shall be flush with the finished pavement or at such other level as may be directed by the Project Manager.

The assembly shall consist of three (3) pieces and a cover. The valve box shall be screw type, cast iron with 5-1/4 inch shaft. A round base which will enclose the valve bonnet shall be furnished with six (6) inch and eight (8) inch valves. An oval base shall be supplied with valves larger than eight (8) inches.

The valve boxes for all buried valves shall be encased in concrete at least six (6) inches outside the diameter of the box at grade. The following information shall be carved into the concrete:

1. Type of service (water, sewage, etc.)
2. Number of turns to open the valve completely
3. The direction of opening the valve

A masonry valve pit shall be provided for every valve which has exposed gearing or operating mechanisms, if that type valve is specified. The details of such an enclosure is shown on the construction drawings.

Operating Nut Location

Section 4. All operating nuts for buried valves covered by valve boxes shall be located within eight (8) inches of the top of the box, and valve wrenches shall be four (4) feet long, sized for two (2) inch square nuts. Four (4) valve wrenches shall be furnished to the Owner by the Contractor.

Extension Stems

Section 5. Wherever extension stems are required for valve operation, the connection between the valve stem and extension stem shall be a pinned coupling to avoid possible disconnection.

Operating Nuts

Section 6. Valves for buried pipe lines shall be furnished with two (2) inch square wrench nuts. Nuts shall have a flanged base upon which shall be cast an arrow two (2) inches long showing the direction of opening, and the word, "OPEN" in one-half (1/2) inch or larger letters, shall be cast on the nut to indicate clearly the direction to turn the wrench when opening the valve.

Handwheels

Section 7. Handwheels may be specified for operating valves in exposed piping on the construction drawings. The handwheels shall have an arrow and the word "OPEN", cast thereon, to clearly indicate the direction the handwheel is to be turned to open the valve. The diameter of the handwheel shall conform to the following dimensions for the various size gate valves.

Size of Valve	Diameter of Handwheel
4"	10"
6"	12"
8"	14"
10" and 12"	18"
16" and 18"	22"
18" and 20"	24"
24" and 30"	30"

Direction of Opening

Section 8. All sewage valves shall open by turning the operator to the RIGHT (clockwise). All water valves shall open by turning the operator to the LEFT (counterclockwise), or as marked on the design plans.

Special Details

Section 9. The details of other valve requirements and valve appurtenances such as special ends and materials, position indicators, floor stands, cylinders, chain operators, and extension stems and guides are described on the construction drawings.

Chain Operators

Section 10. All valves six (6) feet or more above the floor surface shall be equipped with a stainless steel chain operator unless otherwise indicated on the construction drawings.

Valve Stem Packing

Section 11. All valve stem packing shall be die-cut to fit the valve. The material to be used shall be Chesterton Style 324 Super-Lon.

Start-Up Services

Section 12. All butterfly valves, control valves and plug valves, operators and appurtenances installed shall include a thorough two (2) day training program conducted by a factory service representative. This training shall include start-up, operation and maintenance of the valves prior to start-up of the plant.

END OF SECTION

MECHANICAL

Section 15030

Plug Valves

Section 1. Valves shall be of the non-lubricated, eccentric type with resilient faced plugs, with screwed, flanged, or mechanical joint ends as shown on the plans. Port areas shall be at least 80% of full pipe area. Bodies shall be semi-steel. Seats in three (3) inches and larger valves shall have a welded-in overlay of not less than 90% pure nickel on all surfaces contacting the plug face. Valves shall have stainless steel permanently lubricated upper and lower plug stem bushings. All four (4) inches and larger shall be of the bolted bonnet design. Sludge valves shall be designed so that they can be repacked without removing bonnet from valve. All nuts, bolts, springs and washers shall be cadmium plated. Means of actuation shall be by means of lever, tee wrench, extension stem, floor stand, etc., as indicated on the plans. Flanged valves shall be faced and drilled to ASA 125# Standard. Flanges through twelve (12) inch size shall have face to face dimensions of standard gate valves.

Valves shall be manufactured by Clow, Val-Matic, DeZurik, Apco, or engineer approved equal.

Operators

Section 2. The operators, unless shown otherwise on the construction drawings, shall be lever type for all plug valves six (6) inches and smaller.

All valves eight (8) inches and larger unless shown otherwise on the construction drawings, shall be equipped with gear actuators. All gearing shall be enclosed suitable for running in oil, and the actuators. All gearing shall be enclosed suitable for running in oil, and the actuator shall be submersible with seals provided on all shafts to prevent entry of water into the actuator. All shaft bearings shall be furnished with permanently lubricated bronze bearing bushings. Actuator shall clearly indicate valve position and an adjustable stop shall be provided to set closing torque. Valve packing adjustment shall be accessible without disassembly of the actuator. A standard 2 (two) operator during emergency or no power conditions.

Pneumatic Actuator

Section 3. Double acting pneumatic cylinder actuators shall be capable of operating with air pressure between 50 and 100 PST. The body of the actuator shall be cast iron and totally enclosed to prevent any intrusion by the outside environment. Bearings shall be corrosion resistant. The cylinder will be fitted with PTFE piston guides. A piston indicating/limit switch shall be factory mounted on the valve body and capable of indicating when the valve is open or closed. A 4-way 120 V solenoid valve and a local pushbutton for manual override of the pneumatic cylinder shall be factory mounted and wired to the valve. Upon pneumatic supply failure, the valve shall return or remain in the closed position. The actuator shall be manufactured by the valve manufacturer to

assure system compatibility.

Electric Actuators

Section 4. Electric motor actuators shall be sized for the valve they will close. Each actuator shall have a double torque limiting feature to prevent valve or actuator damage in the case of blockage. The motor shall be protected by a NEMA 4X enclosure. The gears shall be enclosed and sealed to protect all working parts. The manufacturer shall supply all motor starters, contract closures and other appurtenances required for operation of the valve. A declutchable handwheel shall be provided in case of power failure. A position indicating/limit switch shall be factory mounted on the valve body and capable of indicating when the valve is open or closed. The motors shall be capable of running off 480V, 30 ph, 60 H alternating current.

END OF SECTION

MECHANICAL

Section 15040

Check Valves

Section 1. The check valves shall be cast iron with a bronze gate and replaceable seat rings machined to a watertight surface. The gate shall be hung from stainless steel hinge pins with heavy solid bronze hinges and balanced to assure tight closing and positive response to the slightest flow in opening. These valves shall be the sizes shown on the construction drawings.

Check valves three (3) inches and larger shall be horizontal, swing check valve with an external lever and spring or counterweight. They shall be designed with removable covers, handhole plates or other devices for inspection maintenance or cleaning without removing the valve body from the line.

The check valves shall be Class 125 and tested hydrostatically by the manufacturer to 200 p.s.i. and finished in the same manner as AWWA C500 gate valves.

Section 2. Check valves for installation in pump stations shall be furnished with flanged end connections. Valves shall be as manufactured by Val-Matic, Clow, Mueller, or engineer approved equal.

END OF SECTION

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Raceways.
 - 2. Building wire and connectors.
 - 3. Supporting devices for electrical components.
 - 4. Electrical identification.
 - 5. Concrete equipment bases.
 - 6. Electrical demolition.
 - 7. Cutting and patching for electrical construction.

1.2 SUBMITTALS

- A. Shop Drawings: Equipment specific to this Project.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.4 COORDINATION

- A. Coordinate chases, slots, inserts, sleeves, and openings for electrical supports, raceways, and cable with general construction work.
- B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment that requires positioning before closing in the building.
- C. Coordinate electrical service connections to components furnished by utility companies.
 - 1. Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for service entrances and electricity-metering components.

PART 2 - PRODUCTS

2.1 RACEWAYS

- A. EMT: Electrical metallic tubing; ANSI C80.3, zinc-coated steel, with compression fittings.
- B. FMC: Flexible metal conduit; zinc-coated steel.
- C. IMC: Intermediate metal conduit; ANSI C80.6, zinc-coated steel, with threaded fittings.
- D. LFMC: Liquidtight flexible metal conduit; zinc-coated steel with sunlight-resistant and mineral-oil-resistant plastic jacket.
- E. RMC: Rigid metal conduit; galvanized rigid steel; ANSI C80.1.
- F. RNC: Rigid nonmetallic conduit; NEMA TC 2, Schedule 40 PVC, with NEMA TC3 fittings.
- G. Raceway Fittings: Specifically designed for raceway type with which used.

2.2 WIRES, CABLES, AND CONNECTIONS

- A. Conductors, No. 10 AWG and Smaller: Solid or stranded copper.
- B. Conductors, Larger Than No. 10 AWG: Stranded copper.
- C. Insulation: Thermoplastic, rated 600 V, 75 deg C minimum, Type THW, THHN-THWN, or USE depending on application..
- D. Cable: Type MC with ground wire.
- E. Wire Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.

2.3 SUPPORTING DEVICES

- A. Material: Cold-formed steel, with corrosion-resistant coating.
- B. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.
- C. Slotted-Steel Channel: Flange edges turned toward web, and 9/16-inch- (14-mm-) diameter slotted holes at a maximum of 2 inches (50 mm) o.c., in webs. Strength rating to suit structural loading.
- D. Nonmetallic Slotted Channel and Angle: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch- (14-mm-) diameter holes at a maximum of 8 inches (203 mm) o.c., in at least one surface. Strength rating to suit structural loading.
- E. Slotted Channel Fittings and Accessories: Recommended by the manufacturer for use with the type and size of channel with which used.

1. Materials: Same as channels and angles, except metal items may be stainless steel.
- F. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.
- G. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.
- H. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.
- I. Expansion Anchors: Carbon-steel wedge or sleeve type.
- J. Toggle Bolts: All-steel springhead type.
- K. Powder-Driven Threaded Studs: Heat-treated steel.

2.4 ELECTRICAL IDENTIFICATION

- A. Identification Device Colors: Use those prescribed by ANSI A13.1, NFPA 70, and these Specifications.
- B. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick (25 mm wide by 0.08 mm thick).
- C. Tape Markers for Conductors: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- D. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.
- E. Underground Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape compounded for permanent direct-burial service, and with the following features:
 1. Not less than 6 inches wide by 4 mils thick (150 mm wide by 0.102 mm thick).
 2. Embedded continuous metallic strip or core.
 3. Printed legend that indicates type of underground line.
- F. Engraved-Plastic Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch (1.6-mm) minimum thickness for signs up to 20 sq. in. (129 sq. cm) and 1/8-inch (3.2-mm) minimum thickness for larger sizes. Engraved legend in black letters on white background.
- G. Warning and Caution Signs: Preprinted; comply with 29 CFR 1910.145, Chapter XVII. Colors, legend, and size appropriate to each application.
 1. Interior Units: Aluminum, baked-enamel-finish, punched or drilled for mechanical fasteners.

- 2. Exterior Units: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate with 0.0396-inch (1-mm), galvanized-steel backing. 1/4-inch (6-mm) grommets in corners for mounting.
- H. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.5 EQUIPMENT FOR UTILITY COMPANY'S ELECTRICITY METERING

- A. Comply with requirements of electrical power utility company for current transformer cabinets.

2.6 CONCRETE BASES

- A. Concrete Forms and Reinforcement Materials: As specified in Division 3 Section "Cast-in-Place Concrete."
- B. Concrete: 3000-psi (20.7-MPa), 28-day compressive strength.

PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

- A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom.
- B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.
- C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
- D. Right of Way: Give to raceways and piping systems installed at a required slope.

3.2 RACEWAY APPLICATION

- A. Outdoor Installations:
 - 1. Exposed: Aluminum.
 - 2. Concealed: RMC.
 - 3. Underground, Single Run: RNC.
 - 4. Underground, Grouped: RNC.
 - 5. Connection to Vibrating Equipment: LFMC.
 - 6. Boxes and Enclosures: NEMA 250, Type 3R or Type 4, unless otherwise indicated.

B. Indoor Installations:

1. Exposed: EMT except in wet or damp locations, use IMC.
2. Concealed in Walls or Ceilings: EMT.
3. In Concrete Slab: RMC.
4. Below Slab on Grade or in Crawlspace: RMC.
5. Connection to Vibrating Equipment: FMC; except in wet or damp locations: LFMC.
6. Boxes and Enclosures: NEMA 250, Type 1, unless otherwise indicated.

3.3 RACEWAY AND CABLE INSTALLATION

- A. Conceal raceways and cables, unless otherwise indicated, within finished walls, ceilings, and floors.
- B. Keep legs of raceway bends in the same plane and keep straight legs of offsets parallel.
- C. Use RMC elbows where RNC turns out of slab.
- D. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or woven polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wires.
- E. Install telephone and signal system raceways, 2-inch trade size (DN 53) and smaller, in maximum lengths of 150 feet (45 m) and with a maximum of two 90-degree bends or equivalent. Add pull boxes where necessary to accomplish this.
- F. Connect motors and equipment subject to vibration, noise transmission, or movement with a maximum of 72-inches (1830-mm) flexible conduit. Install LFMC in wet or damp locations. Install separate ground conductor across flexible connections.
- G. Set floor boxes level and trim after installation to fit flush to finished floor surface.

3.4 WIRING METHODS FOR POWER, LIGHTING, AND CONTROL CIRCUITS

- A. Application: Use wiring methods specified below to the extent permitted by applicable codes as interpreted by authorities having jurisdiction.
- B. Exposed Feeders: Insulated single conductors in raceway.
- C. Concealed Feeders in Ceilings Walls: Insulated single conductors in raceway.
- D. Concealed Feeders: Insulated single conductors in raceway.
- E. Exposed Branch Circuits: Insulated single conductors in raceway.
- F. Concealed Branch Circuits in Ceilings: Insulated single conductors in raceway.
- G. Concealed Branch Circuits: Insulated single conductors in raceway.

- H. Underground Feeders and Branch Circuits: Insulated single conductors in raceway.
- I. Remote-Control Signaling and Power-Limited Circuits, Classes 1, 2, and 3: Insulated conductors in raceway unless otherwise indicated.

3.5 WIRING INSTALLATION

- A. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

3.6 ELECTRICAL SUPPORTING DEVICE APPLICATION

- A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, slotted channel system components.
- B. Dry Locations: Steel materials.
- C. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four with, 200-lb (90-kg) minimum design load for each support element.

3.7 SUPPORT INSTALLATION

- A. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.
- B. Size supports for multiple raceway or cable runs so capacity can be increased by a 25 percent minimum in the future.
- C. Support individual horizontal single raceways with separate, malleable-iron pipe hangers or clamps.
- D. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.
- E. Secure electrical items and their supports to building structure, using the following methods unless other fastening methods are indicated:
 - 1. Wood: Wood screws or screw-type nails.
 - 2. Gypsum Board: Toggle bolts. Seal around sleeves with joint compound, both sides of wall.
 - 3. Masonry: Toggle bolts on hollow block and expansion bolts on solid block. Seal around sleeves with mortar, both sides of wall.
 - 4. New Concrete: Concrete inserts with machine screws and bolts.
 - 5. Existing Concrete: Expansion bolts.
 - 6. Structural Steel: Welded threaded studs.
 - a. Comply with AWS D1.1 for field welding.
 - 7. Light Steel Framing: Sheet metal screws.
 - 8. Fasteners for Damp, Wet, or Weather-Exposed Locations: Stainless steel.
 - 9. Light Steel: Sheet-metal screws.

10. Fasteners: Select so load applied to each fastener does not exceed 25 percent of its proof-test load.

3.8 IDENTIFICATION MATERIALS AND DEVICES

- A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.
- C. Self-Adhesive Identification Products: Clean surfaces before applying.
- D. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box. Color-coding may be used for voltage and phase identification.
- E. Install continuous underground plastic markers during trench backfilling, for exterior underground power, control, signal, and communication lines located directly above power and communication lines. Locate 6 to 8 inches (150 to 200 mm) below finished grade. If width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches (400 mm), overall, use a single line marker.
- F. Install warning, caution, and instruction signs where required to comply with 29 CFR 1910.145, Chapter XVII, and where needed to ensure safe operation and maintenance of electrical systems and of items to which they connect. Indoors install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.
- G. Install engraved-laminated emergency-operating signs with white letters on red background with minimum 3/8-inch- (9-mm-) high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

3.9 ELECTRICITY-METERING EQUIPMENT

- A. Install utility company metering equipment according to utility company's written requirements. Provide grounding and empty conduits as required by utility company.

3.10 FIRESTOPPING

- A. Apply firestopping to cable and raceway sleeves and other penetrations of fire-rated floor and wall assemblies to restore original undisturbed fire-resistance ratings of assemblies. Firestopping installation is specified in Division 7 Section "Through-Penetration Firestop Systems."

3.11 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger, in both directions, than supported unit. Follow supported equipment manufacturer's anchorage recommendations and setting templates for anchor-bolt and tie locations, unless otherwise indicated.

3.12 DEMOLITION

- A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.
- B. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.
- C. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches (50 mm) below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.
- D. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

3.13 CUTTING AND PATCHING

- A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.
- B. Repair, refinish and touch up disturbed finish materials and other surfaces to match adjacent undisturbed surfaces.

END OF SECTION 16050



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
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<http://www.lrl.usace.army.mil/>

September 16, 2016

Operations Division
Regulatory Branch (South)
ID No. LRL-2015-557-mdh

Mr. Adam Michels
Kentucky Transportation Cabinet (KYTC)
Division of Environmental Analysis
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Michels:

This is in regard to your application for a Department of the Army (DA) permit, concerning a proposal to widen U.S. 60 from I-64 to KY 180, a distance of approximately four (4) miles, near the city of Cannonsburg in Boyd County, Kentucky (Item No. 9-8400). We have reviewed your application and have made the following determinations: the work is minor in nature, will not have a significant impact on the environment, and should encounter no opposition.

Based on these determinations, your proposed work satisfies the Letter of Permission (LOP) criteria, as specified in our regulations and the procedures outlined in the LOP No. 200600259-pgj, issued on October 3, 2007. Therefore, you are authorized, in accordance with 33 U.S.C. § 403, for the following impacts:

- 573 linear feet of five (5) ephemeral stream channels;
- 5,585 linear feet of eleven (11) intermittent stream channels;
- 432 linear feet of two (2) perennial stream channels; and
- 1.35 acres of wetlands.

The work that is authorized by this LOP is subject to the attached General Conditions and the following Special Conditions:

- 1) The project shall be constructed in accordance with the plans dated June 11, 2015, as included with the Department of the Army (DA) Permit application submitted by the Kentucky Transportation Cabinet (KYTC), Item No. 9-8400.
- 2) The permittee shall install erosion control fencing (commercial fiber silt curtains) to prevent disturbed sediments from impacting areas downstream. These fences shall be installed in all areas of construction susceptible to erosion and be maintained throughout construction.

- 3) The permittee shall re-vegetate all cleared areas with suitable native ground cover-type grasses (such as wheat, rye, etc.) to reduce the effects of erosion and accretion on-site and downstream of the site.
- 4) The purchase of **1.88** wetland Ecological Integrity Units (EIUs) from the KYTC South Shore Wetland Bank. These EIUs must be purchased **prior to the discharge of fill into "waters of the United States"**.
- 5) The permittee shall provide receipt of purchase from the Big Sandy Mitigation Bank for the purchase of **610.80** stream Ecological Integrity Units (EIUs). These EIUs must be purchased **prior to the discharge of fill into "waters of the United States"**.
- 6) The time limit for completing the work authorized ends on **August 31, 2021**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.
- 7) Upon completion of construction you are to notify the District Engineer. The enclosed Completion Report form must be completed and returned to this office.

This authorization will be effective as soon as we receive your signed acceptance of these conditions. Please sign and date the duplicate copy of this letter in the space provided and return the signed copy in the enclosed envelope. Please note that we also perform periodic inspections to ensure compliance with our permit conditions and appropriate Federal laws.

This letter contains a proffered permit for your proposed project. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 C.F.R. § 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form.

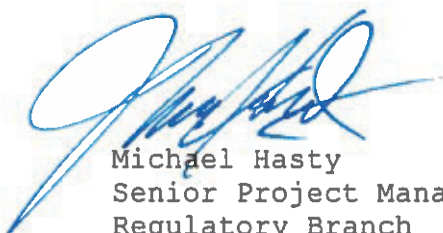
In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. § 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **October 30, 2016**.

It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

Also enclosed with this proffered permit is a preliminary jurisdictional determination, a Notification of Appeal Process (NAP) fact sheet, and Request for Appeal (RFA) form. However, a preliminary JD is not appealable and impacting "waters of the United States" identified in the preliminary JD will result in you waiving the right to request an approved JD at a later date. An approved JD may be requested (which may be appealed), by contacting me for further instruction.

Copies of this letter will be sent to the appropriate coordinating agencies (see enclosure for addresses).

FOR THE DISTRICT ENGINEER:



Michael Hasty
Senior Project Manager, North Section
Regulatory Branch

Enclosures

(I accept the conditions of this authorization):


Kentucky Transportation Cabinet

9-23-16
Date

GENERAL CONDITIONS:

1. Discharges of dredged or fill material into "waters of the U.S." must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site). In determining the minimal impact threshold, the Districts will consider the direct, secondary, and cumulative impacts of the fill or work and any mitigation measures.
2. The permittee shall provide a mitigation/monitoring plan for impacts resulting from the placement of fill into "waters of the U.S." in excess of 300 linear feet of intermittent or perennial stream; the filling of greater than 0.10 acre (4,356 sq. feet) of waters of the U.S; or work causing more than minimal effects, to compensate for impacts to the "waters of the U.S." These impact thresholds are applied for each crossing. When mitigation is required, the permittee will develop the mitigation site concurrently with, or in advance of, the site construction unless the Corps determines on a project specific basis that it is not practical to do so. This will ensure that aquatic functions are not lost for long periods of time (e.g. temporal loss) which could adversely affect water quality and wildlife. The requirement for conservation easements or deed restrictions will be determined on a project specific basis.
3. The permittee shall ensure that sedimentation and soil erosion control measures are in place prior to commencement of construction activities. These measures will remain in place and be properly maintained throughout construction. Sedimentation and soil control measures shall include the installation of straw bale barriers, silt fencing and/or other approved methods to control sedimentation and erosion. Sedimentation and erosion controls will not be placed in "waters of the U.S." except if specifically approved by the District.
4. The permittee shall ensure that areas disturbed by any construction activity, including channel and stream banks, are immediately stabilized and revegetated with a combination of non-invasive plants (grasses, legumes and shrubs) which are compatible with the affected area and will not compete with native vegetation.
5. The permittee shall ensure that no in-stream construction activity is performed during periods of high stream flow or during the fish spawning season (April 1 through June 30) without first contacting the Kentucky Department of Fish and Wildlife Resources (KDFWR) for their expertise on impacts to the fishery resource. Additionally, the discharge of dredged and/or fill material in known waterfowl breeding and wintering areas must be avoided to the maximum extent practicable.
6. The permittee will ensure that the activity authorized will not disrupt movement of those aquatic species indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's specific purpose is to impound water.
7. The permittee shall ensure that all construction equipment is refueled and maintained on an upland site away from existing streams, drainageways and wetland areas. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

8. The permittee must comply with any case specific special conditions added by the Corps or by the State Section 401 Water Quality Certification (WQC). The conditions imposed in the State Section 401 WQC are also conditions of this LOP.

9. The permittee shall ensure that no activity authorized by the LOP may cause more than a minimal adverse effect on navigation.

10. The permittee shall ensure proper maintenance of any structure or fill authorized by the LOP, in good condition and in conformance with the terms and conditions of the LOP, including maintenance to ensure public safety. The permittee is not relieved of this requirement if the permitted activity is abandoned, although the permittee may make a good faith transfer to a third party. Should the permittee wish to cease to maintain the authorized activity or desire to abandon it without a good faith transfer, the permittee must obtain a modification to the LOP from the Corps, which may require restoration of the area.

11. The permittee shall not perform any work within any Wild and Scenic Rivers or in any river officially designated as a "study river" for possible inclusion in the system, unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity authorized by the LOP will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal Land Management agency in the area (e.g. U.S. Forest Service, Bureau of Land Management, the National Parks Service, or the U.S. Fish and Wildlife Service).

12. The permittee shall not perform any work under the LOP which is likely to 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, or which is likely to destroy or adversely modify the critical habitat of such species. The permittee shall notify the Corps and coordinate the proposed action with the USFWS to determine if any listed species or critical habitat might be affected and/or adversely modified by the proposed work. No activity is authorized under the LOP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. At the direction of the Corps, the permittee shall complete the necessary consultation with the USFWS, satisfying the requirements of Section 7(a)(2) of the Endangered Species Act. The permittee shall not begin work until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Authorization of an activity under the LOP does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act.

Obligations under Section 7 of the Act must be reconsidered by the Corps Districts if (1) new information reveals impacts of the proposed action may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during consultation, or (3) new species are listed or critical habitat designated that might be affected

by the proposed action.

13. The permittee shall not perform any activity under the LOP which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The permittee must notify the District Engineer if the activity authorized by the LOP may affect any historic properties listed, determined to be eligible or which the permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin construction until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the Kentucky Heritage Council.

If the permittee discovers any previously unknown historic or archaeological remains while accomplishing the activity authorized by the LOP, work must be immediately stopped and this office immediately notified regarding the discovery. The District will initiate the Federal, Tribal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

14. The permittee shall not perform any work under the LOP where the discharge of dredged and/or fill material will occur in the proximity of a public water supply intake.

15. No activity, including structures or work in "waters of the U.S." or discharges of dredged or fill material may consist of unsuitable materials (e.g. trash, debris, car bodies, asphalt, etc.) and that materials used for construction or discharge must be free from toxic pollutants in toxic amounts.

16. The permittee shall, to the maximum extent practicable, design the project to maintain pre-construction downstream flow conditions. Furthermore, the work must not permanently restrict or impede the passage of normal or expected high flows and the structure or discharge of fill must withstand expected high flows. The project must provide, to the maximum extent practicable, for retaining excess flows from the site and for establishing flow rates from the site similar to pre-construction conditions.

17. The permittee shall ensure that all temporary fills, authorized under the LOP, be removed in their entirety and the affected areas returned to pre-construction elevation.

18. Representatives from the Corps of Engineers and/or the State of Kentucky may inspect any authorized activity or mitigation site at any time deemed necessary to ensure compliance with the terms and conditions of the LOP, Section 401 WQC, and applicable laws.

19. All work authorized by this LOP must be completed within five years after the date of the Corps authorization letter. If you find you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least three months before the expiration date.

20. The permittee, after completion of work under the LOP, shall submit a signed certification letter regarding the completed work and required mitigation, if applicable. The certification letter will include a statement that the work was done in accordance with the LOP authorization including compliance with all general and special conditions and completion of mitigation work.

21. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of the LOP.

22. For Section 10 waters, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work authorized, or if, in the opinion of the Secretary of the Army or his 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.

COMPLETION REPORT

COE ID No.	LRL-2015-557-mdh	Date.
Permittee Name:		
Corporate Name:		
Address:		
Telephone No.	City	State Zip Code
Agent Name:		
Corporate Name:		
Address:		
Telephone No.	City	State Zip Code
Location Description:		
County		
State		
Linear Feet of Stream Impact:		
Acres of Wetland Impact:		
Has all the work on this project been completed according to plans, specifications, and conditions of the permit? Yes _____ No _____		
If not, explain:		
Permittee Signature		

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Kentucky Transportation Cabinet (KYTC)		File Number: LRL-2015-557	Date: 09/16/2016
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
X	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
	PERMIT DENIAL	C	
	APPROVED JURISDICTIONAL DETERMINATION	D	
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at

http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Mr. Michael Hasty, Senior Project Manager
US Army Engineer District Louisville
Attn: CELRL-OPF-N
PO Box 59
Louisville, KY 40201-0059
TEL (502) 315-6676; FAX (502) 315-6677
michael.d.hasty@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Mr. Jacob Siegrist, Appeal Review Officer
US Army Corps of Engineers
ATTN: Appeal Review Officer CELRD-PD-REG
550 Main Street RM 10524
Cincinnati, OH 45202-3222
TEL (513) 684-2699; FAX (513) 684-2460
jacob.a.siegrist@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

<hr/> Signature of appellant or agent.	Date:	Telephone number:
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MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

January 18, 2018

Kentucky Transportation Cabinet (KYTC)
200 Mero St
Frankfort, KY 40622

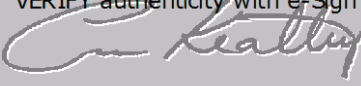
Re: Water Quality Certification # 2015-097-7R
US 60 - Boyd County
AI No.: 126366; Activity ID: APE20180001
USACE ID No.: LRL-2015-557
UT to Williams Cr, UT to EF Little Sandy
River, Williams Cr, EF Little Sandy River, and
adjacent wetlands
Boyd County, Kentucky

Dear Kentucky Transportation Cabinet (KYTC):

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 126366**. **The attached document is your official Water Quality Certification; please read it carefully.** If you should have any questions concerning the conditions of this water quality certification, please contact Samantha Vogeler at Samantha.Vogeler@ky.gov or 502-782-6995.

Sincerely,

E-Signed by Andrea Keatley
VERIFY authenticity with e-Sign


Andrea Keatley, Manager
Water Quality Branch
Kentucky Division of Water

Attachment

cc: Mike Hasty, USACE: Louisville (via email: Michael.D.Hasty@usace.army.mil)
Adam Michels, KYTC: Frankfort (via email: Adam.Michels@ky.gov)
Lee Andrews, USFWS: Frankfort (via email: Teresa_Hyatt@fws.gov)
Chad Von Gruenigen, Big Sandy River Basin Coordinator (via email: Chad.VonGruenigen@ky.gov)
Danny Peake, KYTC: Frankfort (via email: Danny.Peake@ky.gov)



Dave Harmon, KYTC: Frankfort (via email: Dave.Harmon@ky.gov)

KTC Water Quality Certification

US 60 - Boyd County

Facility Requirements

Permit Number: WQC 2015-097-7R

Activity ID No.:APE20180001

ACTV0000000001 (AI#126366) Widening of US 60 (KYTC#9-8400):

Submittal/Action Requirements:

Condition No.	Condition
S-1	The Kentucky Transportation Cabinet shall submit notification : Due prior to any construction activity to the Kentucky Division of Water, 401 Water Quality Certification Section Project Manager. [Clean Water Act]
S-2	The Kentucky Transportation Cabinet shall submit notification: Due when construction is complete to the Kentucky Division of Water, 401 Water Quality Certification Section Project Manager no later than two weeks post-construction. [Clean Water Act]
S-3	All mitigation required by the United States Army Corps of Engineers should be paid before the beginning of project activities. A receipt of wetland credits purchased from the KYTC South Shore Wetland Bank and stream credits from the Big Sandy Mitigation Bank should be submitted to the Kentucky Division of Water, 401 Water Quality Certification Section Project Manager. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	<div>The work approved by this certification shall be limited to the proposed Kentucky Transportation Cabinet project (KYTC Item No.: 9-8400) Widening of US 60 from I-64 to KY 180 near Cannonsburg, Kentucky in Boyd County (Latitude: 38.380978 N; Longitude: 82.750401 W). Proposed impacts to streams and wetlands include:</div> <div><div>- 573 linear feet of ephemeral streams, Unnamed Tributaries (UT) to Williams Creek and East Fork Little Sandy River</div><div>- 5,585 linear feet of intermittent streams, UTs to Williams Creek and East Fork Little Sandy River</div><div>- 432 linear feet perennial streams, Williams Creek and East Fork Little Sandy River</div><div>- 0.79 acre of Palustrine Emergent Wetland</div><div>- 0.59 acre of Palustrine Scrub-Shrub Wetland. [Clean Water Act]</div></div>
T-2	<div>All work performed under this certification shall adhere to the design and specifications set forth in the following documents:</div> <div><div>- Application for permit to construct across or along a stream and/or water quality certification received June 17, 2015.</div><div>- Updated Impact Summary Table and Mitigation Language received September 14, 2015. [Clean Water Act]</div></div>

KTC Water Quality Certification

US 60 - Boyd County
Facility Requirements

Permit Number: WQC 2015-097-7R

Activity ID No.:APE20180001

ACTV0000000001 (AI#126366) Widening of US 60 (KYTC#9-8400):

Narrative Requirements:

Condition No.	Condition
T-3	The Kentucky Transportation Cabinet is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]
T-4	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-5	If construction does not commence within two years of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-6	Other permits from the Division of Water may be required for this activity. If this activity occurs within a floodplain, a Permit to Construct Across or Along a Stream may be required. Please contact the Floodplain Section Supervisor (502-564-3410) for more information. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) stormwater permit shall be required from the Surface Water Permits Branch. This permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include erosion prevention and sediment control measures. Contact: Surface Water Permits Branch (SWPB) Support (502-564-3410 or SWPBsupport@ky.gov)
T-7	Dredging work shall not be conducted during the fish spawning season, April 15th through June 15th. [Clean Water Act]
T-8	Mitigation for impacts shall begin prior to or concurrently with impacts. [Clean Water Act]
T-9	Check dams are not allowed within the stream channel. [Clean Water Act]
T-10	Remove all sediment and erosion control measures after re-vegetation has become well-established. [Clean Water Act]

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. The Kentucky Division of Water may require submission of a formal application for an Individual Certification for any project if the project has been determined to likely have a significant adverse effect upon water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.
2. Nationwide permits issued by the U.S. Army Corps of Engineers for projects in Outstanding State Resource Waters, Cold Water Aquatic Habitats, and Exceptional Waters as defined by 401 KAR 10:026 shall require individual water quality certifications.
3. Projects requiring in-stream stormwater detention/retention basins shall require individual water quality certifications.
4. Erosion and sedimentation pollution control plans and Best Management Practices 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.
5. Sediment and erosion control measures (e.g., check-dams, silt fencing, or hay bales) shall not be placed within surface waters of the Commonwealth, 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, placement shall not be conducted in such a manner that may cause instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control measures shall be removed and the natural grade restored prior to withdrawal from the site.
6. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.
7. To the maximum extent practicable, all in-stream work under this certification shall be performed during low flow.
8. Heavy equipment (e.g. bulldozers, backhoes, draglines, etc.), if required for this project, should not be used or operated within the stream channel. In those instances where such in-stream work is unavoidable, then it shall be performed in such a manner and duration as to minimize re-suspension of sediments and disturbance to the channel, banks, or riparian vegetation.
9. If there are water supply intakes located downstream that may be affected by increased turbidity, the permittee shall notify the operator when work will be performed.
10. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

11. Should stream pollution, 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 800/564-2380.

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400



Kentucky Transportation Cabinet

Highway District _9_

And

_____ (2), Construction

Kentucky Pollutant Discharge Elimination System

Permit KYR10

Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

Boyd County; US 60

***Improve US 60 from I-64 at Interchange 181 to the
KY 180 Intersection at Cannonsburg***

Project: CID ## - #####; Item No. 9-8400

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, District **_9_**
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 60**
6. Latitude/Longitude (project mid-point) - **38.384589°/ -82.746953°**
7. County (project mid-point) - **Boyd**
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

A. Site description:

1. Nature of Construction Activity (from letting project description) – ***Improve US 60 from I-64 at Interchange 181 to the KY 180 Intersection at Cannonsburg.***
2. Order of major soil disturbing activities (2) and (3)
3. Projected volume of material to be moved – ***717,000 cubic yards***
4. Estimate of total project area (acres) – ***42 acres***
5. Estimate of area to be disturbed (acres) – ***42 acres***
6. 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.
7. Data describing existing soil condition - ***The Geotech Report states that the existing native soils range from medium stiff to very stiff with a few regions that were soft to medium stiff, depending on location of borings. The soils encountered were visually classified as silts and sandy to silty lean clays that were typically gray to brown in color. & (2)***
8. Data describing existing discharge water quality (if any) – ***None known.& (2)***
9. Receiving water name – ***Williams Creek & East Fk Little Sandy River***
10. TMDLs and Pollutants of Concern in Receiving Waters: ***A TMDL for East Fk Little Sandy River in the vicinity of the US 60 roadway project was established in 1995 due to organic enrichment caused by a large number of wastewater treatment plants found along this stretch of stream. Williams Creek does not have an established TMDL. Since roadway construction is not a source of organic enrichment, which is the pollutant of concern for East Fk Little Sandy River, it is expected that activities associated with the US 60 project will not have an effect on the TMDL.***
11. 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

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

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 resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

12. 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.

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:
- 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.

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

- 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.
 - 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 : **None.**

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

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

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 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

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

The following product-specific practices will be followed onsite:

➤ **Petroleum Products:**

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**

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

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:

- 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. ***Boyd County Fiscal Court is designated as a MS4 area. A copy of the KPDES eNOI will be provided to Boyd County Fiscal Court at the time that it is submitted to KDOW. Contacts for Boyd County are: Eric Chaney, Judge-Executive, phone: (606) 739-4134 & Lisha Branham, Stormwater Management, phone: (606) 928-1285 or email: lisha.branham@boycountyky.gov.***

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

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 construction storm water management with specific guidance for any non-routine maintenance. **None.**

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.

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- 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.

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 from 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;

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

_____ 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;

_____ 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

KYTC BMP Plan for Project CID ## - #####; Item No. 9-8400

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 name² _____ signature _____

(3) Signed _____ title _____,
 Typed or printed name¹ _____ 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, Surface Water Permits Branch, Division of Water, 300 Sower Blvd, Frankfort, Kentucky 40601. Reference the Contract ID Number (CID), Item No., 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, Surface Water Permits Branch, Division of Water, 300 Sower Blvd, Frankfort, Kentucky 40601. Reference the Contract ID Number (CID), Item No., and KPDES number when one has been issued.

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 name¹signature

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, Surface Water Permits Branch, Division of Water, 300 Sower Blvd, Frankfort, Kentucky 40601. Reference the Contract ID Number (CID), Item No. and KPDES number when one has been issued.

SPECIAL NOTE

Filing of eNOI for KPDES Construction Stormwater Permit

County: Boyd

Route: US 60

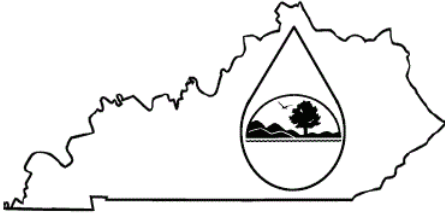
Item No.: 9-8400.00

KDOW Submittal ID: 164090

Project Description: Improve US 60 from I-64 at Interchange 181 to the KY 180 Intersection at Cannonsburg

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 Director, Division of Environmental Analysis, TCOB, 200 Mero Street, Frankfort, KY 40622, Phone: (502) 564-7250.

	<p>KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM (KPDES)</p> <p>Notice of Intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000</p> <p>Click here for Instructions (Controls/KPDES_FormKYR10_Instructions.htm)</p> <p>Click here to obtain information and a copy of the KPDES General Permit. (http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf)</p> <p>(*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field</p>
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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:(✓) <input type="text"/>		
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:(✓) Kentucky Transportation Cabinet - D9 Flemingsburg	First Name:(✓) Steve	M.I.: MI
Last Name:(✓) Gunnell		
Mailing Address:(*) 822 Elizaville Ave	City:(*) Flemingsburg	State:(*) Kentucky ▼
Zip:(*) 41041		
eMail Address:(*) steve.gunnell@ky.gov	Business Phone:(*) 606-845-2551	Alternate Phone: Phone
SECTION II -- GENERAL SITE LOCATION INFORMATION		
Project Name:(*) US 60 Widening; Item No. 9-8400	Status of Owner/Operator(*) State Government ▼	SIC Code(*) 1611 Highway and Street (▼
Company Name:(✓) Kentucky Transportation Cabinet - D9 Flemingsburg	First Name:(✓) Steve	M.I.: MI
Last Name:(✓) Gunnell		
Site Physical Address:(*) US 60		
City:(*) Ashland	State:(*) Kentucky ▼	Zip:(*) 41102
County:(*) Boyd ▼	Latitude(decimal degrees)(*)DMS to DD Converter (https://www.fcc.gov/media/radio/dms-decimal) 38.384589	Longitude(decimal degrees)(*) -82.746953
SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION ?		
Project Description:(*) Improve US 60 from I-64 at Interchange 181 to the KY 180 Intersection at Cannonsburg.		
a. For single projects provide the following information		
Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)	

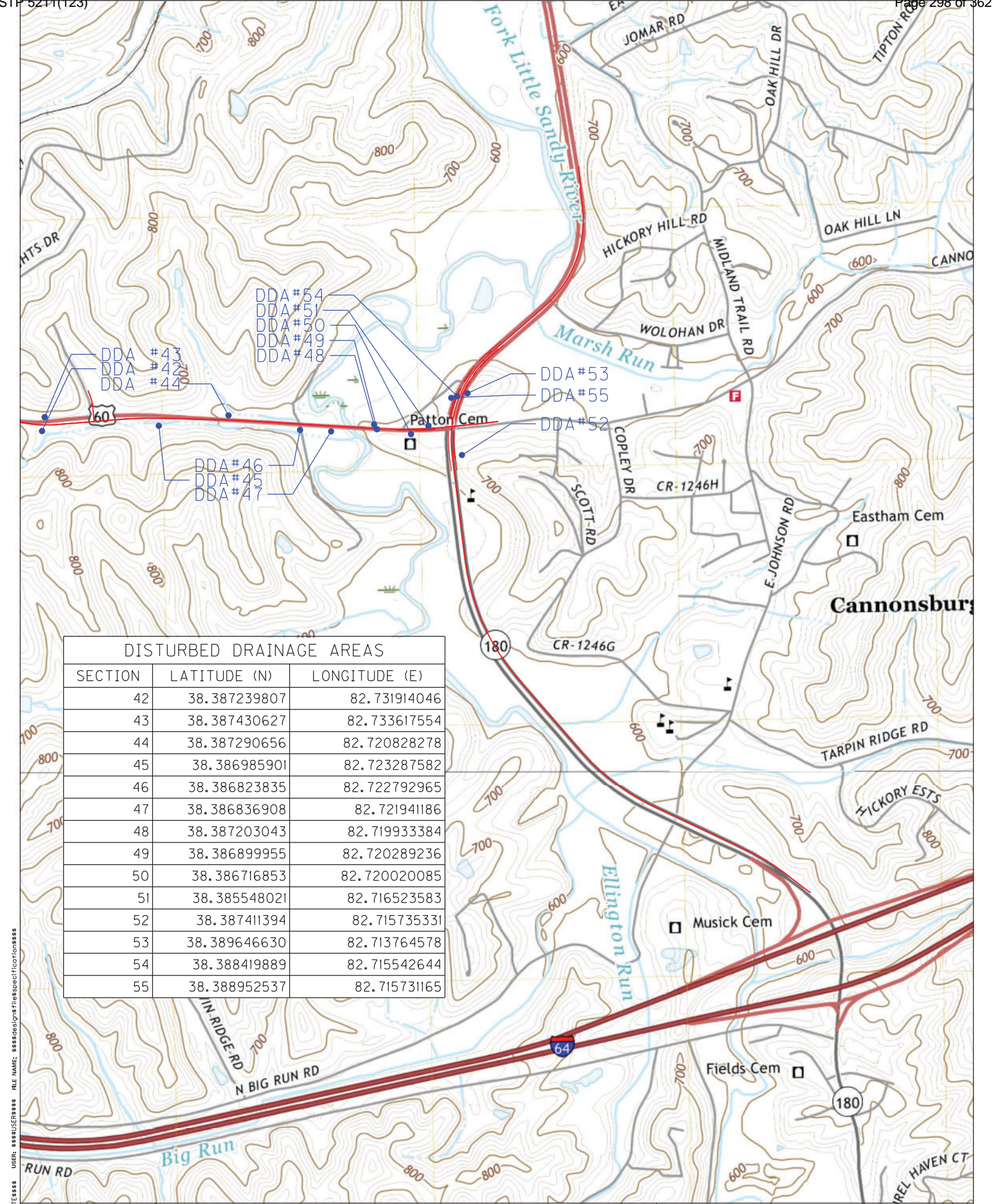
42	42																																																																		
Anticipated Start Date:(✓) <div></div>	Anticipated Completion Date:(✓) <div></div>																																																																		
b. For common plans of development provide the following information																																																																			
Total Number of Acres in Project:(✓) # Acre(s) <div></div>	Total Number of Acres Disturbed:(✓) # Acre(s) <div></div>																																																																		
Number of individual lots in development, if applicable:(✓) # lot(s) <div></div>	Number of lots in development:(✓) # lot(s) <div></div>																																																																		
Total acreage of lots intended to be developed:(✓) Project Acres <div></div>	Number of acres intended to be disturbed at any one time:(✓) Disturbed Acres <div></div>																																																																		
Anticipated Start Date:(✓) <div></div>	Anticipated Completion Date:(✓) <div></div>																																																																		
List Building Contractor(s) at the time of Application:(*)																																																																			
<div> <div>Company Name</div> <div>+</div> <div></div> </div> <div></div> <div></div>																																																																			
SECTION IV -- IF THE PERMITTED SITE DISCHARGES TO A WATER BODY THE FOLLOWING INFORMATION IS REQUIRED ?																																																																			
Discharge Point(s):																																																																			
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Unnamed Tributary?</th> <th>Latitude</th> <th>Longitude</th> <th>Receiving Water Name</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>Yes</td><td>38.385548</td><td>-82.716524</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>2</td><td>Yes</td><td>38.386717</td><td>-82.720020</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>3</td><td>Yes</td><td>38.386824</td><td>-82.722793</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>4</td><td>Yes</td><td>38.386837</td><td>-82.721941</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>5</td><td>Yes</td><td>38.386900</td><td>-82.720289</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>6</td><td>Yes</td><td>38.386986</td><td>-82.723288</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>7</td><td>Yes</td><td>38.387203</td><td>-82.719933</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>8</td><td>Yes</td><td>38.387240</td><td>-82.731914</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>9</td><td>Yes</td><td>38.387291</td><td>-82.720828</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> <tr><td>10</td><td>Yes</td><td>38.387411</td><td>-82.715735</td><td>East Fork Little Sandy River</td><td>Delete</td></tr> </tbody> </table>			Unnamed Tributary?	Latitude	Longitude	Receiving Water Name		1	Yes	38.385548	-82.716524	East Fork Little Sandy River	Delete	2	Yes	38.386717	-82.720020	East Fork Little Sandy River	Delete	3	Yes	38.386824	-82.722793	East Fork Little Sandy River	Delete	4	Yes	38.386837	-82.721941	East Fork Little Sandy River	Delete	5	Yes	38.386900	-82.720289	East Fork Little Sandy River	Delete	6	Yes	38.386986	-82.723288	East Fork Little Sandy River	Delete	7	Yes	38.387203	-82.719933	East Fork Little Sandy River	Delete	8	Yes	38.387240	-82.731914	East Fork Little Sandy River	Delete	9	Yes	38.387291	-82.720828	East Fork Little Sandy River	Delete	10	Yes	38.387411	-82.715735	East Fork Little Sandy River	Delete
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SECTION V -- IF THE PERMITTED SITE DISCHARGES TO A MS4 THE FOLLOWING INFORMATION IS REQUIRED ?																																																																			
Name of MS4: <div></div>																																																																			
Date of application/notification to the MS4 for construction site permit coverage: Date <div></div>	Discharge Point(s):(*) <div> <div>Latitude</div> <div>Longitude</div> <div></div> </div> <div>+</div> <div></div> <div></div>																																																																		
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: (✓)	2 bridges over Williams Ck replaced, 1 bridge over East Fk Little San																																																																		
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:(*) Karen	M.I.: MI	Last Name:(*) Mynhier	Company Name:(*) Kentucky Transportation Cabinet - D9 Flemingsburg	
Mailing Address:(*) 822 Elizaville Ave		City:(*) Flemingsburg	State:(*) Kentucky ▼	Zip:(*) 41041
eMail Address:(*) karen.mynhier@ky.gov		Business Phone:(*) 606-845-2551	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:(*) Signature		Title:(*) Title		
First Name:(*) First Name	M.I.: MI	Last Name:(*) Last Name		
eMail Address:(*) eMail Address	Business Phone:(*) Phone	Alternate Phone: Phone	Signature Date:(*) Date	
<div> Click to Save Values for Future Retrieval Click to Submit to EEC </div>				

DISTURBED DRAINAGE AREAS		
SECTION	LATITUDE (N)	LONGITUDE (E)
1	38.366100828	82.771578024
2	38.366311037	82.771453538
3	38.366907916	82.770987993
4	38.367408993	82.770428579
5	38.367557898	82.770368239
7	38.367424981	82.770562527
8	38.369353631	82.768511960
9	38.368773000	82.768364950
10	38.369346552	82.768230705
11	38.369277804	82.767311226
12	38.369616106	82.766452679
13	38.370091373	82.765272931
14	38.370182024	82.765142566
15	38.370200828	82.765001245
16	38.371037944	82.762734623
17	38.371407752	82.761849932
18	38.373212332	82.758793541
19	38.375330687	82.756680559
20	38.374991776	82.758253218
21	38.375607423	82.757241521

DISTURBED DRAINAGE AREAS		
SECTION	LATITUDE (N)	LONGITUDE (E)
22	38.378579268	82.753311071
23	38.379844141	82.750863351
24	38.380137913	82.750645772
25	38.381909868	82.748914609
26	38.382828958	82.748335379
27	38.385402895	82.748123613
29	38.384607148	82.747340816
30	38.384301209	82.747190093
31	38.384987293	82.747465244
32	38.385374294	82.747187159
33	38.386166250	82.747969023
35	38.386597071	82.746144043
36	38.387913323	82.746257728
37	38.388421804	82.746548982
38	38.387378593	82.746081282
39	38.389155551	82.741745934
40	38.389854207	82.740872918
41	38.387511215	82.735239724
42	38.387239807	82.731914046

DATE: ssssdattesss USER: sssssuseresss FILE NAME: ssssdessignstilespecificationsesss



DISTURBED DRAINAGE AREAS		
SECTION	LATITUDE (N)	LONGITUDE (E)
42	38.387239807	82.731914046
43	38.387430627	82.733617554
44	38.387290656	82.720828278
45	38.386985901	82.723287582
46	38.386823835	82.722792965
47	38.386836908	82.721941186
48	38.387203043	82.719933384
49	38.386899955	82.720289236
50	38.386716853	82.720020085
51	38.385548021	82.716523583
52	38.387411394	82.715735331
53	38.389646630	82.713764578
54	38.388419889	82.715542644
55	38.388952537	82.715731165

DATE: ssssdattesss USER: sssssuseresss FILE NAME: ssssdessignfilespecificatnasss

Contract Id: _____ Contractor: _____

Section Engineer: _____ District & County: _____

DESCRIPTION	UNIT	QTY LEAVING PROJECT	QTY RECEIVED@BB YARD
GUARDRAIL (Includes End treatments & crash cushions)	LF	_____	_____
STEEL POSTS	EACH	_____	_____
STEEL BLOCKS	EACH	_____	_____
WOOD OFFSET BLOCKS	EACH	_____	_____
BACK UP PLATES	EACH	_____	_____
CRASH CUSHION	EACH	_____	_____
NUTS, BOLTS, WASHERS	BAG/BCKT	_____	_____
DAMAGED RAIL TO MAINT. FACILITY	LF	_____	_____
DAMAGED POSTS TO MAINT. FACILITY	EACH	_____	_____

***Required Signatures before Leaving Project Site**

Printed Section Engineer’s Representative_____ & Date_____

Signature Section Engineer’s Representative_____ & Date_____

Printed Contractor’s Representative_____ & Date_____

Signature Contractor’s Representative_____ & Date_____

***Required Signatures after Arrival at Bailey Bridge Yard (All material on truck must be counted & the quantity received column completed before signatures)**

Printed Bailey Bridge Yard Representative_____ & Date_____

Signature Bailey Bridge Yard Representative_____ & Date_____

Printed Contractor’s Representative_____ & Date_____

Signature Contractor’s Representative_____ & Date_____

**Payment for the bid item remove guardrail will be based upon the quantities shown in the Bailey Bridge Yard received column. Payment will not be made for guardrail removal until the guardrail verification sheets are electronically submitted to the Section Engineer by the Bailey Bridge Yard Representative.

Item 9-8400.00

Boyd County

US 60

Road Widening

SPECIAL NOTE FOR PRE-BID CONFERENCE

The Department will conduct a **Mandatory** Pre-Bid Conference of the subject project on **Friday, December 3rd, 2021 at 10:00 AM EST** by either video conference call or in person at:

**Boyd County Road Department
12327 Anthony Dr.
Ashland, KY 41102**

Any company that is interested in bidding on the subject project or being part of a joint venture must be represented at the conference. No individual can represent more than one company. A limit of **one individual** per contractor attending in person (due to COVID restrictions) will apply. There is no limit of on the number of virtual attendees. At the video conference a roster will be taken of the representatives present. In addition, following the video conference each company shall submit a signed affidavit listing the company members attending the video conference. **Only companies represented in person or at the video conference and have submitted the affidavit by the due date will be eligible to have their bids opened at the date of the letting.**

The purpose of the conference is to familiarize all prospective bidders with the contract requirements and the location and condition of all structure within the scope of the contract.

Department of Highways officials present at the conference will answer questions concerning the projects.

Companies interested in bidding on the subject project should contact Darrin Eldridge at Darrin.Eldridge@ky.gov before 4:30 p.m. Thursday, December 2, 2021 to obtain a link to the video conference and a copy of the affidavit. This link and affidavit must be requested through the Kentucky Transportation Cabinet using this contact ONLY to be eligible to bid.

Those who attend in-person will be required to wear a face covering and shall practice social distancing while inside the facility.

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

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.

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- 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

11E

**SPECIAL NOTE FOR BORING AND JACKING STEEL PIPE
WITHOUT CARRIER PIPE**

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. Bore and jack steel pipe. Use this note when no carrier pipe will be encased.

2.0 MATERIALS.

2.1 Pipe. Provide plain end steel pipe with a specific minimum yield strength, SMYS, of at least 35,000 psi and tensile strength of 60,000 psi per API-5L grade B material. The steel pipe supplied shall be manufactured by the seamless, electric-weld, submerged-arc weld or gas metal-arc well process as specified in API –5L. Certification of 35,000 psi SMYS shall be furnished by the supplier through the Contractor to the Engineer to retain 3 copies.

MINIMUM WALL THICKNESS FOR STEEL PIPE	
Nominal Diameter (Inches)	Wall Thickness (Inches)
18 or less	0.375
24	0.500
30	0.500
36	0.532
42	0.625

2.2 Grout. Conform to Subsection 601.03.03.

2.3 High Grade Bentonite. Conform to the following:

API 13A Section 4		
Requirement	Specification	Result
Viscometer Dial Reading at 600 rpm	30, minimum	40
Yield Point/Plastic Viscosity Ratio	3, maximum	3.00 maximum
Filtrate Volume	15 cm3, maximum	14.50 maximum
Residue greater than 75 micrometers	4.0 wt percent maximum	1.0-1.5 %
Moisture	10.0 wt percent maximum	9.0-9.5%

3.0 CONSTRUCTION. Perform the following:

1. Locate a suitable pit and obtain the Engineer’s approval.
2. Excavate the pit or trenches for the BORE AND JACK operation and for placing the end joints of pipe, when required. Securely sheet and brace the pits or trenches to prevent caving, where necessary.

11E

3. When installing pipe under railroads, highways, streets, or other facilities by Bore and Jack, perform construction without interfering with the facility operation or weakening the roadbed or structure.
4. Place excavated material near the top of the working pit and dispose of it as required. Use water or other fluids with the boring operation to lubricate the cuttings. Do not perform jetting.
5. In unconsolidated soil formations, use a gel-forming colloidal drilling fluid with at least 10 percent of high grade bentonite to consolidate excavated material, seal the walls of the hole, and lubricate subsequent removal of material and immediate pipe installation.
6. Ensure that the diameter of the excavation conforms to the outside diameter of the pipe as closely as possible.
7. Pressure grout voids that develop during the installation operation and that the Engineer determines are detrimental to the Work.
8. To force the pipe through the roadbed into the bored space, use a jack with a head constructed to apply uniform pressure around the ring of the pipe, which shall be square cut.
9. Set the pipe to be jacked on guides, braced together to properly support the pipe section and to direct it to the proper line and grade.
10. When the installation is made by concurrent boring and jacking, solidly weld all joints. Ensure the weld is strong enough to withstand the forces exerted from the boring and jacking operations as well as the vertical loading imposed on the pipe after installation and that it provides a smooth, non-obstructing joint in the interior of the pipe.
11. When the pipe is installed in open trench, bed and backfill according to Section 701.
12. The line and grade from the pipe's final position, as shown on plans, may vary no more than 2 percent in lateral alignment and one percent in vertical grade. Ensure that the final grade of the flow line is in the direction indicated on the Plans.
13. Use a cutting edge around the head end. Extend it a short distance beyond the pipe end with inside angles or lugs to keep the cutting edge from slipping back into the pipe.
14. Once the pipe installation begins, proceed with the operation without interruption to prevent the pipe from becoming firmly set in the embankment.
15. Remove and replace pipe damaged in jacking operations.
16. After completing the installation, backfill the excavated pits and trenches with flowable fill according to Section 601.03.03 B) 5 a) if the pit is in median area where it will have pavement over it.

4.0 MEASUREMENT. The Department will measure the completed length of Bore and Jacked pipe through the flowline from end to end in linear feet. The Department will not measure pressure grouting voids or removal and replacement of pipe damaged in jacking operations for payment and will consider it incidental to Bore and Jack. When abandoning a bore hole due to mechanical malfunction, improper alignment, or other problems due to construction operations, the Department will not measure the backfill and relocation for payment and will consider it incidental to this item of work. When abandoning a bore hole due to an unforeseen physical obstruction or situation, the Department will measure the work according to a negotiated supplemental agreement.

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

11E

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
----	Bore and Jack, Size Pipe	Linear Foot

The Department will consider payment as full compensation for all materials, earthwork, shoring, pipe and work required under this section.

June 15, 2012

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).

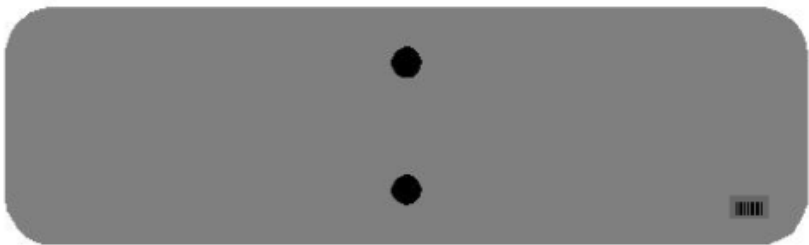
The installation of the permanent sign will be measured in accordance to Section 715.

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

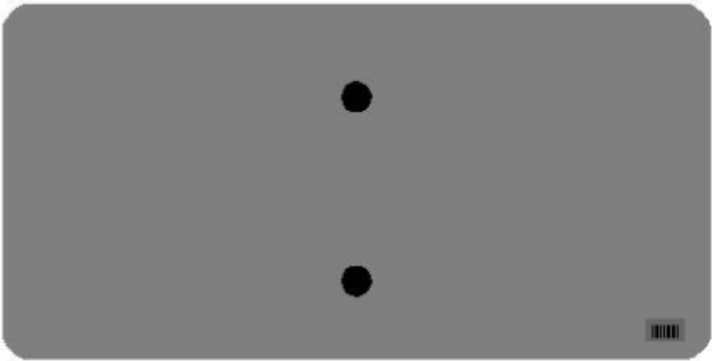
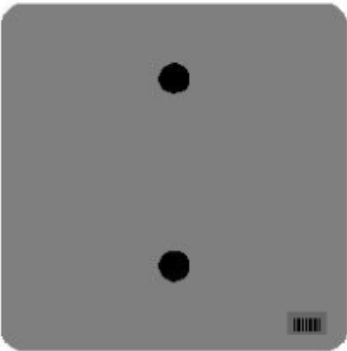
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24631EC	Barcode Sign Inventory	Each

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.

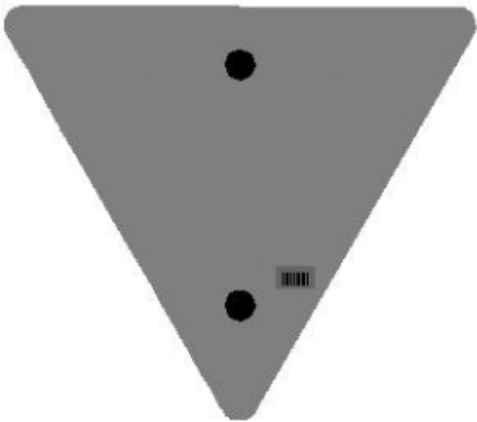
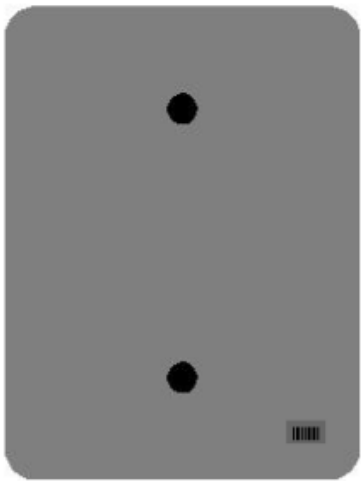
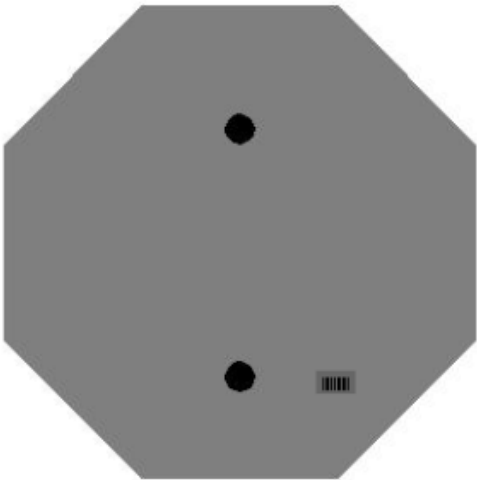
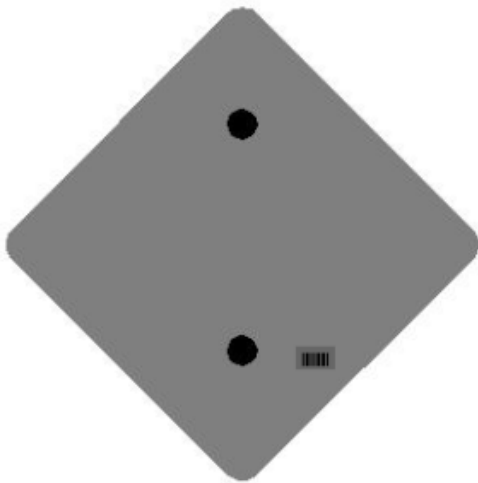
One Sign Post



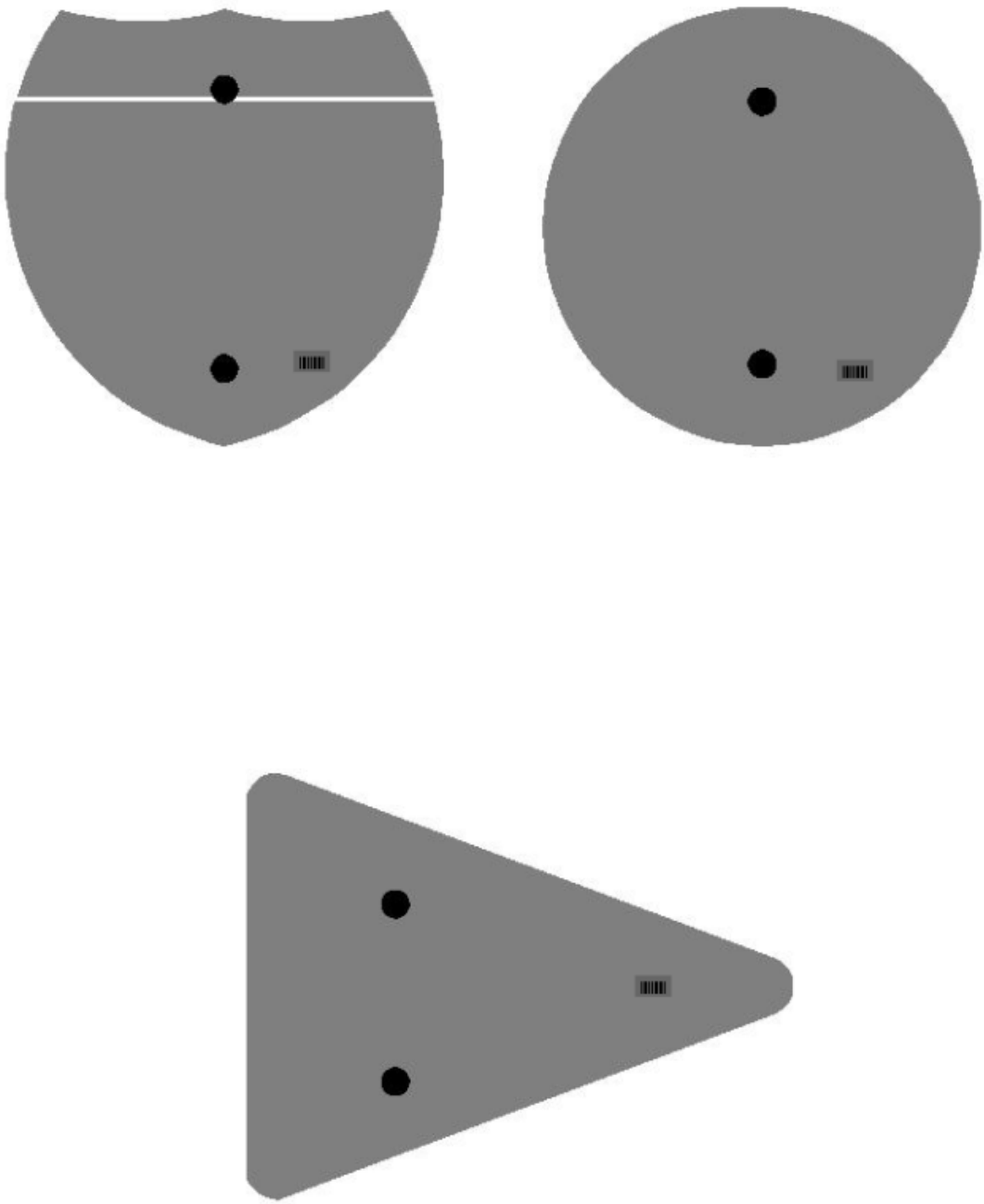
↑
2" Wide Post



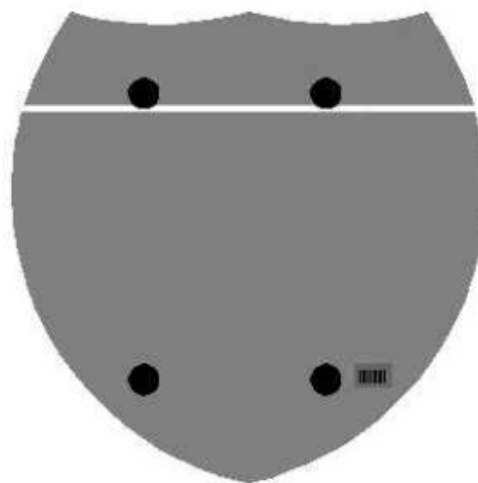
One Sign Post



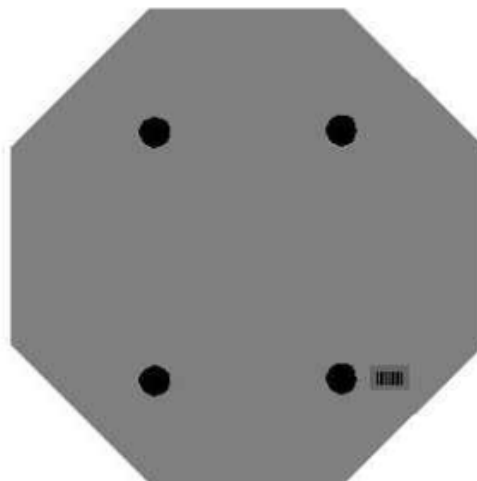
One Sign Post



Double Sign Post

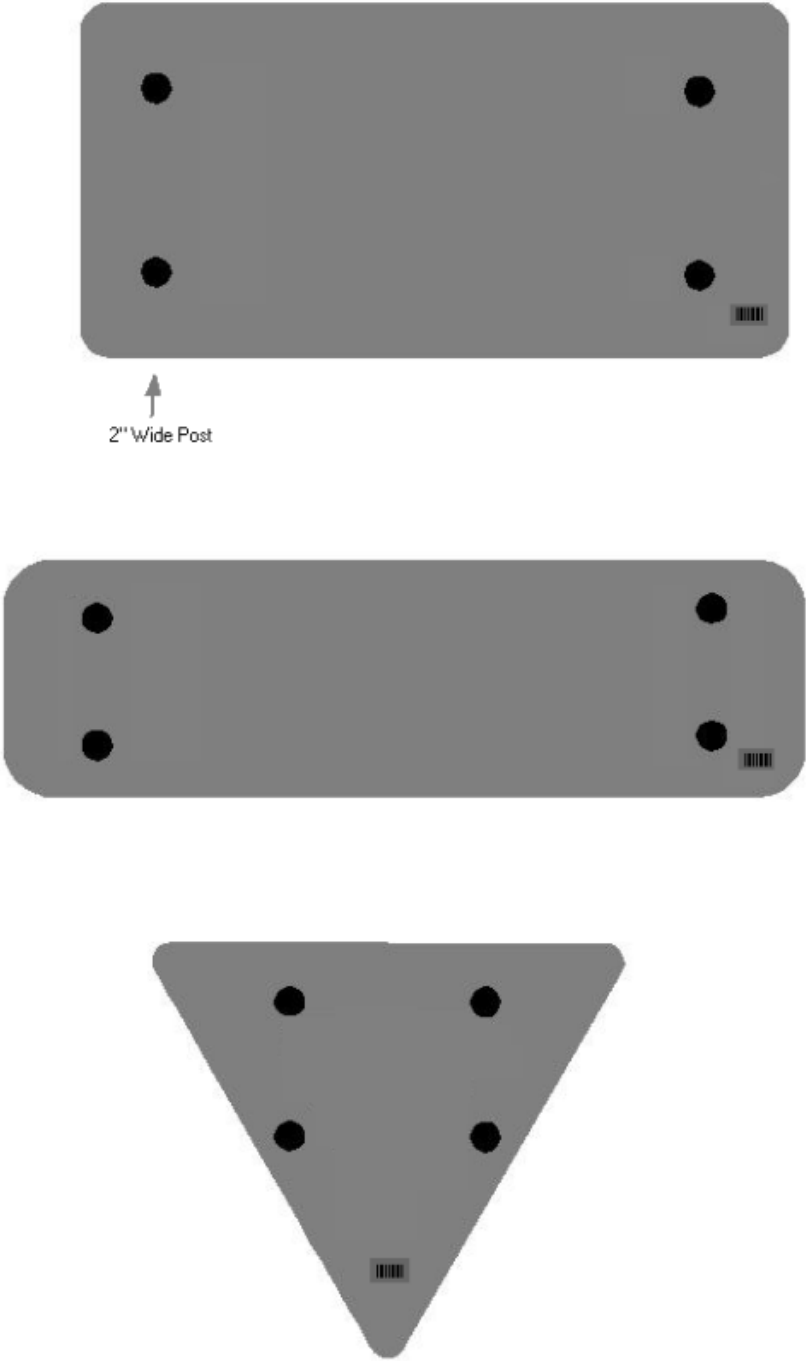


Interstate
Shield



48" Stop

2 Post Signs



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.

11N

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.

11N

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 May 1, 2012

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated 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. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

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 (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).

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.

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). 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 bid proposal or request for proposal 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).

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.

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. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 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 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, 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 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, 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 230, 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 (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 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 35 and 29 CFR 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.

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, 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 who 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.

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, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure 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. 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, 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, 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 there under. 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, 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 and 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. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor 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 contracting agency deems appropriate.

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 \$10,000 or more.

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, 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). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

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

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore 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 utilized 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) 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 shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. 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.

(3) 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 shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour 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.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, 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.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(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 of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. 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. 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 journeymen 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.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and 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 he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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 watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

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" 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:

- (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.

2. 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. 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.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

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 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.

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 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).

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 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 1, 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

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

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.

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.

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.

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.

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 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee 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 grantee or subgrantee 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.

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.

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. 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 Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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. 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) 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;

(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; 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.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. 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)

a. By signing and submitting this proposal, the prospective lower tier 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.

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 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 grantee or subgrantee 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 grantee or subgrantee 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.

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.

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 Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

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

* * * * *

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 20).

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.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS**

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, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainees to be trained under these special provisions and in this contract is shown in "Special Notes Applicable to Project" in the bid proposal.

In the event that a contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction the contractor shall submit to the Kentucky Transportation Cabinet, Department of Highways for its approval, an acceptable training program on forms provided by the Cabinet indicating the number of trainees to be trained in each selected classification. Failure to provide the Cabinet with the proper documentation evidencing an acceptable training program prior to commencing construction shall cause the Cabinet to suspend the operations of the contractor with (if applicable) working days being charged as usual against the contract time or (if applicable), no additional contract time being granted for the suspension period. The Cabinet will not be liable for the payment of any work performed during the suspension period due to the failure of the contractor to provide an acceptable training program. Said suspension period shall be terminated when an acceptable training program is received by the Cabinet. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case. The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Kentucky Transportation Cabinet, Department of Highways and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs

registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed for each hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

"General Decision Number: KY20210038 11/05/2021

Superseded General Decision Number: KY20200038

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: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021
1	03/05/2021
2	10/29/2021
3	11/05/2021

BRIN0004-003 06/01/2021

BRECKENRIDGE COUNTY

	Rates	Fringes
BRICKLAYER.....	\$ 29.57	15.10

BRKY0001-005	06/01/2021	

BULLITT, CARROLL, GRAYSON, HARDIN, HENRY, JEFFERSON, LARUE,
MARION, MEADE, NELSON, OLDHAM, SHELBY, SPENCER, & TRIMBLE
COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 29.57	15.10

BRKY0002-006 06/01/2021		

BRACKEN, GALLATIN, GRANT, MASON & ROBERTSON COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 30.87	15.87

BRKY0007-004 06/01/2021		

BOYD, CARTER, ELLIOT, FLEMING, GREENUP, LEWIS & ROWAN COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 32.03	20.05

BRKY0017-004 06/01/2021		

ANDERSON, BATH, BOURBON, BOYLE, CLARK, FAYETTE, FRANKLIN,
HARRISON, JESSAMINE, MADISON, MERCER, MONTGOMERY, NICHOLAS,
OWEN, SCOTT, WASHINGTON & WOODFORD COUNTIES:

	Rates	Fringes
BRICKLAYER.....	\$ 30.87	15.87

CARP0064-001 04/01/2020		

	Rates	Fringes
CARPENTER.....	\$ 29.81	19.96
Diver.....	\$ 45.09	19.96
PILEDRIVERMAN.....	\$ 30.06	19.96

* ELEC0212-008 06/07/2021

BRACKEN, GALLATIN and GRANT COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 32.32	19.85

ELEC0212-014 11/25/2019		

BRACKEN, GALLATIN & GRANT COUNTIES:

	Rates	Fringes
Sound & Communication Technician.....	\$ 24.35	12.09

* ELEC0317-012 06/01/2021		

BOYD, CARTER, ELLIOT & ROWAN COUNTIES:

	Rates	Fringes
ELECTRICIAN (Wiremen).....	\$ 35.10	27.47

* ELEC0369-007 05/31/2021		

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.....	\$ 33.85	18.72

* ELEC0575-002 05/31/2021		

FLEMING, GREENUP, LEWIS & MASON COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 34.25	19.74

ENGI0181-018 07/01/2021		

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 34.80	17.85
GROUP 2.....	\$ 31.94	17.85
GROUP 3.....	\$ 32.39	17.85
GROUP 4.....	\$ 31.62	17.85

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - 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.

IRON0044-009 06/01/2021

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, Pecksville, 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.....	\$ 29.75	21.60
Structural.....	\$ 31.32	21.60

IRON0070-006 06/01/2021

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, Stampaling Ground & Woodlake);

	Rates	Fringes
IRONWORKER.....	\$ 31.09	23.75

IRON0769-007 06/01/2021

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, Plummerts Landing, Plummerts 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
IRONWORKER		
ZONE 1.....	\$ 33.00	27.29
ZONE 2.....	\$ 33.40	27.29
ZONE 3.....	\$ 35.00	27.29

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.

LAB00189-003 07/01/2021

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.....	\$ 23.51	16.22
GROUP 2.....	\$ 23.76	16.22
GROUP 3.....	\$ 23.81	16.22
GROUP 4.....	\$ 24.41	16.22

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

LAB00189-008 07/01/2021

ANDERSON, BULLITT, CARROLL, HARDIN, HENRY, JEFFERSON, LARUE,
MARION, MEADE, NELSON, OLDHAM, SHELBY, SPENCER, TRIMBLE &
WASHINGTON COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.51	16.22
GROUP 2.....	\$ 23.76	16.22
GROUP 3.....	\$ 23.81	16.22
GROUP 4.....	\$ 24.41	16.22

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

LAB00189-009 07/01/2021

BRECKINRIDGE & GRAYSON COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.51	16.22
GROUP 2.....	\$ 23.76	16.22
GROUP 3.....	\$ 23.81	16.22
GROUP 4.....	\$ 24.41	16.22

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

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

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

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

PAIN1072-003 12/01/2018		

BOYD, CARTER, ELLIOTT, GREENUP, LEWIS and ROWAN COUNTIES

	Rates	Fringes
Painters:		
Bridges; Locks; Dams; Tension Towers & Energized Substations.....	\$ 33.33	18.50
Power Generating Facilities.	\$ 30.09	18.50

* PLUM0248-003 06/01/2021		

BOYD, CARTER, ELLIOTT, GREENUP, LEWIS & ROWAN COUNTIES:

	Rates	Fringes
Plumber and Steamfitter.....	\$ 38.00	21.60

PLUM0392-007 06/01/2018		

BRACKEN, CARROLL (Eastern Half), GALLATIN, GRANT, MASON, OWEN &
ROBERTSON COUNTIES:

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 32.01	19.67

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

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

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

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

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination

- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

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
2.9%	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 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 shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

**Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609**

4. As used in this Notice, and in the contract resulting from this solicitation, the "**covered area**" is Boyd 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	00001		DGA BASE	121,028.00	TON		\$	
0020	00008		CEMENT STABILIZED ROADBED	141,173.00	SQYD		\$	
0030	00078		CRUSHED AGGREGATE SIZE NO 2	11,268.00	TON		\$	
0040	00100		ASPHALT SEAL AGGREGATE	639.00	TON		\$	
0050	00103		ASPHALT SEAL COAT	77.00	TON		\$	
0060	00212		CL2 ASPH BASE 1.00D PG64-22	11,071.00	TON		\$	
0070	00214		CL3 ASPH BASE 1.00D PG64-22	62,475.00	TON		\$	
0080	00301		CL2 ASPH SURF 0.38D PG64-22	4,115.00	TON		\$	
0090	00356		ASPHALT MATERIAL FOR TACK	116.00	TON		\$	
0100	00358		ASPHALT CURING SEAL	142.00	TON		\$	
0110	00388		CL3 ASPH SURF 0.38B PG64-22	12,722.00	TON		\$	
0120	02069		JPC PAVEMENT-10 IN	2,348.00	SQYD		\$	
0130	02081		JPC PAVEMENT-8 IN SHLD	85.00	SQYD		\$	
0140	02083		JPC PAVEMENT-10 IN SHLD	700.00	SQYD		\$	
0150	02084		JPC PAVEMENT-8 IN	3,564.00	SQYD		\$	
0160	02542		CEMENT	3,106.00	TON		\$	
0170	02602		FABRIC-GEOTEXTILE CLASS 1	32,330.00	SQYD		\$	
0180	02702		SAND FOR BLOTTER	353.00	TON		\$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0190	00071		CRUSHED AGGREGATE SIZE NO 57	1.00	TON		\$	
0200	00078		CRUSHED AGGREGATE SIZE NO 2	90.00	TON		\$	
0210	00440		ENTRANCE PIPE-15 IN	288.00	LF		\$	
0220	00441		ENTRANCE PIPE-18 IN	467.00	LF		\$	
0230	00443		ENTRANCE PIPE-24 IN	213.00	LF		\$	
0240	00445		ENTRANCE PIPE-30 IN	49.00	LF		\$	
0250	00462		CULVERT PIPE-18 IN	621.00	LF		\$	
0260	00464		CULVERT PIPE-24 IN	1,788.00	LF		\$	
0270	00466		CULVERT PIPE-30 IN	72.00	LF		\$	
0280	00468		CULVERT PIPE-36 IN	139.00	LF		\$	
0290	00469		CULVERT PIPE-42 IN	209.00	LF		\$	
0300	00470		CULVERT PIPE-48 IN	585.00	LF		\$	
0310	00471		CULVERT PIPE-54 IN	237.00	LF		\$	
0320	00521		STORM SEWER PIPE-15 IN	152.00	LF		\$	
0330	00522		STORM SEWER PIPE-18 IN	648.00	LF		\$	
0340	00526		STORM SEWER PIPE-30 IN	188.00	LF		\$	
0350	00528		STORM SEWER PIPE-36 IN	56.00	LF		\$	
0360	01000		PERFORATED PIPE-4 IN	30.00	LF		\$	
0370	01002		PERFORATED PIPE-8 IN	30.00	LF		\$	
0380	01204		PIPE CULVERT HEADWALL-18 IN	16.00	EACH		\$	
0390	01208		PIPE CULVERT HEADWALL-24 IN	10.00	EACH		\$	
0400	01210		PIPE CULVERT HEADWALL-30 IN	4.00	EACH		\$	
0410	01212		PIPE CULVERT HEADWALL-36 IN	5.00	EACH		\$	
0420	01214		PIPE CULVERT HEADWALL-42 IN	4.00	EACH		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0430	01216		PIPE CULVERT HEADWALL-48 IN	1.00	EACH		\$	
0440	01219		PIPE CULVERT HEADWALL-54 IN EQUIV	2.00	EACH		\$	
0450	01310		REMOVE PIPE	1,935.00	LF		\$	
0460	01433		SLOPED BOX OUTLET TYPE 1-18 IN	1.00	EACH		\$	
0470	01434		SLOPED BOX OUTLET TYPE 1-24 IN	1.00	EACH		\$	
0480	01450		S & F BOX INLET-OUTLET-18 IN	2.00	EACH		\$	
0490	01451		S & F BOX INLET-OUTLET-24 IN	4.00	EACH		\$	
0500	01456		CURB BOX INLET TYPE A	4.00	EACH		\$	
0510	01480		CURB BOX INLET TYPE B	6.00	EACH		\$	
0520	01490		DROP BOX INLET TYPE 1	4.00	EACH		\$	
0530	01511		DROP BOX INLET TYPE 5D	1.00	EACH		\$	
0540	01517		DROP BOX INLET TYPE 5F	2.00	EACH		\$	
0550	01538		DROP BOX INLET TYPE 7	1.00	EACH		\$	
0560	01544		DROP BOX INLET TYPE 11	1.00	EACH		\$	
0570	01691		FLUME INLET TYPE 2	2.00	EACH		\$	
0580	01761		MANHOLE TYPE B	2.00	EACH		\$	
0590	01767		MANHOLE TYPE C	1.00	EACH		\$	
0600	01786		FILL AND CAP MANHOLE	1.00	EACH		\$	
0610	01810		STANDARD CURB AND GUTTER	2,226.00	LF		\$	
0620	01875		STANDARD HEADER CURB	275.00	LF		\$	
0630	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	316.00	EACH		\$	
0640	01984		DELINEATOR FOR BARRIER - WHITE	50.00	EACH		\$	
0650	02010		ADJUST MEDIAN BOX	1.00	EACH		\$	
0660	02014		BARRICADE-TYPE III	60.00	EACH		\$	
0670	02091		REMOVE PAVEMENT	6,179.00	SQYD		\$	
0680	02157		PAVED DITCH TYPE 1	2,986.00	SQYD		\$	
0690	02159		TEMP DITCH	11,140.00	LF		\$	
0700	02160		CLEAN TEMP DITCH	5,570.00	LF		\$	
0710	02200		ROADWAY EXCAVATION	739,299.00	CUYD		\$	
0720	02203		STRUCTURE EXCAV-UNCLASSIFIED	51.00	CUYD		\$	
0730	02242		WATER	901.00	MGAL		\$	
0740	02259		FENCE-TEMP	550.00	LF		\$	
0750	02273		FENCE-4 FT CHAIN LINK	550.00	LF		\$	
0760	02360		GUARDRAIL TERMINAL SECTION NO 1	23.00	EACH		\$	
0770	02367		GUARDRAIL END TREATMENT TYPE 1	9.00	EACH		\$	
0780	02371		GUARDRAIL END TREATMENT TYPE 7	3.00	EACH		\$	
0790	02381		REMOVE GUARDRAIL	12,756.00	LF		\$	
0800	02391		GUARDRAIL END TREATMENT TYPE 4A	22.00	EACH		\$	
0810	02397		TEMP GUARDRAIL	5,913.00	LF		\$	
0820	02404		SEPTIC TANK TREATMENT	1.00	EACH		\$	
0830	02429		RIGHT-OF-WAY MONUMENT TYPE 1	100.00	EACH		\$	
0840	02430		RIGHT-OF-WAY MONUMENT TYPE 1A	5.00	EACH		\$	
0850	02432		WITNESS POST	131.00	EACH		\$	
0860	02479		CAP MANHOLE	5.00	SQYD		\$	
0870	02483		CHANNEL LINING CLASS II	5,114.00	TON		\$	
0880	02484		CHANNEL LINING CLASS III	4,808.00	TON		\$	
0890	02542		CEMENT	1.00	TON		\$	
0900	02545		CLEARING AND GRUBBING 113 ACRES	1.00	LS		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0910	02555		CONCRETE-CLASS B	51.00	CUYD		\$	
0920	02562		TEMPORARY SIGNS	1,036.00	SQFT		\$	
0930	02585		EDGE KEY	668.00	LF		\$	
0940	02602		FABRIC-GEOTEXTILE CLASS 1	2,495.00	SQYD		\$	
0950	02603		FABRIC-GEOTEXTILE CLASS 2	4,790.00	SQYD		\$	
0960	02607		FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	20,643.00	SQYD	\$2.00	\$	\$41,286.00
0970	02625		REMOVE HEADWALL	6.00	EACH		\$	
0980	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0990	02651		DIVERSIONS (BY-PASS DETOURS) #1- STA. 554+76 TO STA. 586+68	1.00	LS		\$	
1000	02651		DIVERSIONS (BY-PASS DETOURS) #2- STA. 630+06 TO STA. 635+87	1.00	LS		\$	
1010	02651		DIVERSIONS (BY-PASS DETOURS) #3- STA. 100+12 TO STA. 111+00	1.00	LS		\$	
1020	02655		CROSSOVER #1	1.00	LS		\$	
1030	02655		CROSSOVER #2	1.00	LS		\$	
1040	02655		CROSSOVER #3	1.00	LS		\$	
1050	02655		CROSSOVER #4	1.00	LS		\$	
1060	02671		PORTABLE CHANGEABLE MESSAGE SIGN	4.00	EACH		\$	
1070	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	
1080	02677		ASPHALT PAVE MILLING & TEXTURING	150.00	TON		\$	
1090	02679		POROUS UNDERDRAIN	19,483.00	LF		\$	
1100	02690		SAFELOADING	258.00	CUYD		\$	
1110	02692		SETTLEMENT PLATFORM	2.00	EACH		\$	
1120	02696		SHOULDER RUMBLE STRIPS	44,560.00	LF		\$	
1130	02701		TEMP SILT FENCE	11,140.00	LF		\$	
1140	02703		SILT TRAP TYPE A	102.00	EACH		\$	
1150	02704		SILT TRAP TYPE B	102.00	EACH		\$	
1160	02705		SILT TRAP TYPE C	102.00	EACH		\$	
1170	02706		CLEAN SILT TRAP TYPE A	102.00	EACH		\$	
1180	02707		CLEAN SILT TRAP TYPE B	102.00	EACH		\$	
1190	02708		CLEAN SILT TRAP TYPE C	102.00	EACH		\$	
1200	02711		SEDIMENTATION BASIN	562.00	CUYD		\$	
1210	02712		CLEAN SEDIMENTATION BASIN	562.00	CUYD		\$	
1220	02726		STAKING	1.00	LS		\$	
1230	02731		REMOVE STRUCTURE STA. 572+40	1.00	LS		\$	
1240	02731		REMOVE STRUCTURE STA. 615+95	1.00	LS		\$	
1250	02731		REMOVE STRUCTURE STA. 704+20	1.00	LS		\$	
1260	02731		REMOVE STRUCTURE STA. 561+70	1.00	LS		\$	
1270	02731		REMOVE STRUCTURE STA. 643+00	1.00	LS		\$	
1280	02775		ARROW PANEL	4.00	EACH		\$	
1290	03171		CONCRETE BARRIER WALL TYPE 9T	2,480.00	LF		\$	
1300	05950		EROSION CONTROL BLANKET	31,510.00	SQYD		\$	
1310	05952		TEMP MULCH	364,610.00	SQYD		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1320	05953		TEMP SEEDING AND PROTECTION	273,460.00	SQYD		\$	
1330	05963		INITIAL FERTILIZER	9.00	TON		\$	
1340	05964		MAINTENANCE FERTILIZER	15.00	TON		\$	
1350	05985		SEEDING AND PROTECTION	377,520.00	SQYD		\$	
1360	05992		AGRICULTURAL LIMESTONE	234.00	TON		\$	
1370	06401		FLEXIBLE DELINEATOR POST-M/W	375.00	EACH		\$	
1380	06404		FLEXIBLE DELINEATOR POST-M/Y	17.00	EACH		\$	
1390	06510		PAVE STRIPING-TEMP PAINT-4 IN	442,616.00	LF		\$	
1400	06542		PAVE STRIPING-THERMO-6 IN W	56,026.00	LF		\$	
1410	06543		PAVE STRIPING-THERMO-6 IN Y	61,918.00	LF		\$	
1420	06544		PAVE STRIPING-THERMO-8 IN W	896.00	LF		\$	
1430	06568		PAVE MARKING-THERMO STOP BAR-24IN	635.00	LF		\$	
1440	06569		PAVE MARKING-THERMO CROSS-HATCH	1,206.00	SQFT		\$	
1450	06574		PAVE MARKING-THERMO CURV ARROW	39.00	EACH		\$	
1460	06576		PAVE MARKING-THERMO ONLY	2.00	EACH		\$	
1470	06600		REMOVE PAVEMENT MARKER TYPE V	17.00	EACH		\$	
1480	06610		INLAID PAVEMENT MARKER-MW	194.00	EACH		\$	
1490	06612		INLAID PAVEMENT MARKER-BY	603.00	EACH		\$	
1500	06613		INLAID PAVEMENT MARKER-B W/R	52.00	EACH		\$	
1510	08100		CONCRETE-CLASS A	141.00	CUYD		\$	
1520	08150		STEEL REINFORCEMENT	436.00	LB		\$	
1530	08903		CRASH CUSHION TY VI CLASS BT TL3	2.00	EACH		\$	
1540	10020NS		FUEL ADJUSTMENT	365,553.00	DOLL	\$1.00	\$	\$365,553.00
1550	10030NS		ASPHALT ADJUSTMENT	217,745.00	DOLL	\$1.00	\$	\$217,745.00
1560	20191ED		OBJECT MARKER TY 3	31.00	EACH		\$	
1570	20411ED		LAW ENFORCEMENT OFFICER	1,000.00	HOURL		\$	
1580	20465EC		CLEAN CULVERT	1.00	LS		\$	
1590	20597EC		DITCH EXCAVATION	359.00	CUYD		\$	
1600	20667ED		PNEUMATIC BACKSTOWING	120.00	TON		\$	
1610	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	16,625.00	LF		\$	
1620	22581EN		ENTRANCE PIPE-36 IN	55.00	LF		\$	
1630	22664EN		WATER BLASTING EXISTING STRIPE	331,962.00	LF		\$	
1640	22883EN		CONCRETE WEDGE CURB	290.00	LF		\$	
1650	23124EN		BORE AND JACK PIPE-48 IN	150.00	LF		\$	
1660	24540		R/W MONUMENT TYPE 3	29.00	EACH		\$	
1670	24561EN		ENTRANCE PIPE-42 IN	82.00	FT		\$	
1680	24631EC		BARCODE SIGN INVENTORY	5.00	EACH		\$	
1690	24663ED		WITNESS R/W MONUMENT TYPE 4	2.00	EACH		\$	
1700	24683ED		PAVE MARKING-THERMO DOTTED LANE EXTEN	853.00	LF		\$	
1710	24805ED		OBJECT MARKER TYPE 4	6.00	EACH		\$	
1720	24814EC		PIPELINE INSPECTION	4,299.00	LF		\$	
1730	25078ED		THRIE BEAM GUARDRAIL TRANSITION TL-3	300.00	EACH		\$	
1740	25118EC		REMOVE AND REPLACE BRICK SIGN	3.00	EACH		\$	

Section: 0003 - BRIDGE-(US 60 OVER WILLIAMSC)

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1750	02231		STRUCTURE GRANULAR BACKFILL	271.00	CUYD		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1760	02692		SETTLEMENT PLATFORM	1.00	EACH		\$	
1770	03299		ARMORED EDGE FOR CONCRETE	116.00	LF		\$	
1780	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1790	08019		CYCLOPEAN STONE RIP RAP	317.00	TON		\$	
1800	08020		CRUSHED AGGREGATE SLOPE PROT	82.00	TON		\$	
1810	08033		TEST PILES	136.00	LF		\$	
1820	08039		PRE-DRILLING FOR PILES	220.00	LF		\$	
1830	08051		PILES-STEEL HP14X89	1,909.00	LF		\$	
1840	08095		PILE POINTS-14 IN	84.00	EACH		\$	
1850	08100		CONCRETE-CLASS A	313.30	CUYD		\$	
1860	08104		CONCRETE-CLASS AA	323.30	CUYD		\$	
1870	08150		STEEL REINFORCEMENT	49,076.00	LB		\$	
1880	08151		STEEL REINFORCEMENT-EPOXY COATED	95,093.00	LB		\$	
1890	08633		PRECAST PC I BEAM TYPE 3	1,049.00	LF		\$	
1900	23378EC		CONCRETE SEALING	19,662.00	SQFT		\$	
1910	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	358.00	LF		\$	

Section: 0004 - BRIDGE-(US 60 OVER LITTLE SANDY)

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1920	02231		STRUCTURE GRANULAR BACKFILL	248.00	CUYD		\$	
1930	03299		ARMORED EDGE FOR CONCRETE	110.00	LF		\$	
1940	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1950	08019		CYCLOPEAN STONE RIP RAP	834.00	TON		\$	
1960	08020		CRUSHED AGGREGATE SLOPE PROT	54.00	TON		\$	
1970	08033		TEST PILES	111.00	LF		\$	
1980	08039		PRE-DRILLING FOR PILES	270.00	LF		\$	
1990	08051		PILES-STEEL HP14X89	1,172.00	LF		\$	
2000	08095		PILE POINTS-14 IN	84.00	EACH		\$	
2010	08100		CONCRETE-CLASS A	300.80	CUYD		\$	
2020	08104		CONCRETE-CLASS AA	324.10	CUYD		\$	
2030	08150		STEEL REINFORCEMENT	46,925.00	LB		\$	
2040	08151		STEEL REINFORCEMENT-EPOXY COATED	100,766.00	LB		\$	
2050	08633		PRECAST PC I BEAM TYPE 3	1,079.00	LF		\$	
2060	23378EC		CONCRETE SEALING	19,838.00	SQFT		\$	
2070	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	368.00	LF		\$	

Section: 0005 - BRIDGE-PRINCESS DR OVER WILLIAMS)

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2080	02231		STRUCTURE GRANULAR BACKFILL	345.00	CUYD		\$	
2090	03299		ARMORED EDGE FOR CONCRETE	64.00	LF		\$	
2100	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2110	08019		CYCLOPEAN STONE RIP RAP	235.00	TON		\$	
2120	08033		TEST PILES	95.00	LF		\$	
2130	08039		PRE-DRILLING FOR PILES	48.00	LF		\$	
2140	08051		PILES-STEEL HP14X89	764.00	LF		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2150	08095		PILE POINTS-14 IN	20.00	EACH		\$	
2160	08100		CONCRETE-CLASS A	125.10	CUYD		\$	
2170	08104		CONCRETE-CLASS AA	125.30	CUYD		\$	
2180	08150		STEEL REINFORCEMENT	5,918.00	LB		\$	
2190	08151		STEEL REINFORCEMENT-EPOXY COATED	29,708.00	LB		\$	
2200	08633		PRECAST PC I BEAM TYPE 3	304.00	LF		\$	
2210	23378EC		CONCRETE SEALING	6,330.00	SQFT		\$	
2220	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	156.00	LF		\$	

Section: 0006 - BRIDGE- (US 60 OVER CSX RR)

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2230	02231		STRUCTURE GRANULAR BACKFILL	349.00	CUYD		\$	
2240	02692		SETTLEMENT PLATFORM	1.00	EACH		\$	
2250	03299		ARMORED EDGE FOR CONCRETE	119.00	LF		\$	
2260	08002		STRUCTURE EXCAV-SOLID ROCK	199.00	CUYD		\$	
2270	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2280	08020		CRUSHED AGGREGATE SLOPE PROT	419.00	TON		\$	
2290	08033		TEST PILES	139.00	LF		\$	
2300	08039		PRE-DRILLING FOR PILES	1,883.00	LF		\$	
2310	08051		PILES-STEEL HP14X89	2,581.00	LF		\$	
2320	08095		PILE POINTS-14 IN	102.00	EACH		\$	
2330	08100		CONCRETE-CLASS A	565.50	CUYD		\$	
2340	08104		CONCRETE-CLASS AA	802.70	CUYD		\$	
2350	08150		STEEL REINFORCEMENT	100,531.00	LB		\$	
2360	08151		STEEL REINFORCEMENT-EPOXY COATED	220,755.00	LB		\$	
2370	08635		PRECAST PC I BEAM TYPE 6	2,413.90	LF		\$	
2380	23378EC		CONCRETE SEALING	44,114.00	SQFT		\$	
2390	23964EC		PROTECTIVE FENCE	788.00	LF		\$	
2400	25028ED		RAIL SYSTEM SINGLE SLOPE - 40 IN	816.00	LF		\$	

Section: 0007 - BRIDGE- CULVERT STA. 537+63.75

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2410	02403		REMOVE CONCRETE MASONRY	19.00	CUYD		\$	
2420	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2430	08100		CONCRETE-CLASS A	41.70	CUYD		\$	
2440	08150		STEEL REINFORCEMENT	3,664.00	LB		\$	

Section: 0008 - BRIDGE-CULVERT STA.561+70.00

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2450	02483		CHANNEL LINING CLASS II	11.00	TON		\$	
2460	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2470	08100		CONCRETE-CLASS A	80.60	CUYD		\$	
2480	08150		STEEL REINFORCEMENT	7,010.00	LB		\$	

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Section: 0009 - BRIDGE- CULVERT STA. 588+71

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2490	02483		CHANNEL LINING CLASS II	27.00	TON		\$	
2500	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2510	08100		CONCRETE-CLASS A	70.80	CUYD		\$	
2520	08150		STEEL REINFORCEMENT	6,483.00	LB		\$	

Section: 0010 - BRIDGE- CULVERT STA.596+27

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2530	02403		REMOVE CONCRETE MASONRY	28.00	CUYD		\$	
2540	02483		CHANNEL LINING CLASS II	32.00	TON		\$	
2550	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2560	08100		CONCRETE-CLASS A	65.00	CUYD		\$	
2570	08150		STEEL REINFORCEMENT	5,426.00	LB		\$	

Section: 0011 - BRIDGE- CULVERT STA. 631+86

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2580	02403		REMOVE CONCRETE MASONRY	8.00	CUYD		\$	
2590	02483		CHANNEL LINING CLASS II	16.00	TON		\$	
2600	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2610	08100		CONCRETE-CLASS A	44.00	CUYD		\$	
2620	08150		STEEL REINFORCEMENT	3,239.00	LB		\$	

Section: 0012 - BRIDGE- CULVERT STA. 48+78

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2630	02483		CHANNEL LINING CLASS II	21.00	TON		\$	
2640	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2650	08100		CONCRETE-CLASS A	126.20	CUYD		\$	
2660	08150		STEEL REINFORCEMENT	13,055.00	LB		\$	

Section: 0013 - SEWER

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2670	15000		S BYPASS PUMPING	2.00	EACH		\$	
2680	15011		S DIRECTIONAL BORE	962.00	LF		\$	
2690	15014		S ENCASEMENT STEEL BORED RANGE 1	84.00	LF		\$	
2700	15016		S ENCASEMENT STEEL BORED RANGE 3	660.00	LF		\$	
2710	15017		S ENCASEMENT STEEL BORED RANGE 4	285.00	LF		\$	
2720	15023		S ENCASEMENT STEEL OPEN CUT RANGE 4	328.00	LF		\$	
2730	15029		S FORCE MAIN AIR RLS/VAC VLV SPCL	3.00	EACH		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2740	15030		S FORCE MAIN DIRECTIONAL BORE	1,516.00	LF		\$	
2750	15057		S FORCE MAIN PVC 02 INCH	174.00	LF		\$	
2760	15059		S FORCE MAIN PVC 04 INCH	893.00	LF		\$	
2770	15060		S FORCE MAIN PVC 06 INCH	4,222.00	LF		\$	
2780	15074		S FORCE MAIN TIE-IN 06 INCH	6.00	EACH		\$	
2790	15084		S FORCE MAIN VALVE GATE	2.00	EACH		\$	
2800	15090		S LATERAL SHORT SIDE 06 INCH	40.00	EACH		\$	
2810	15092		S MANHOLE	14.00	EACH		\$	
2820	15093		S MANHOLE ABANDON/REMOVE	18.00	EACH		\$	
2830	15094		S MANHOLE ADJUST TO GRADE	2.00	EACH		\$	
2840	15096		S MANHOLE CASTING WATERTIGHT	1.00	EACH		\$	
2850	15101		S MANHOLE WITH DROP	6.00	EACH		\$	
2860	15112		S PIPE PVC 08 INCH	2,033.00	LF		\$	
2870	15119		S PUMP STATION	1.00	EACH		\$	
2880	15120		S SPECIAL ITEM	1.00	EACH		\$	
2890	15122		S STRUCTURE REMOVAL	3.00	EACH		\$	
2900	15136		S LATERAL LOCATE	2.00	EACH		\$	

Section: 0014 - SIGNALIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2910	04820		TRENCHING AND BACKFILLING	80.00	LF		\$	
2920	04844		CABLE-NO. 14/5C	2,000.00	LF		\$	
2930	04886		MESSENGER-15400 LB	750.00	LF		\$	
2940	04932		INSTALL STEEL STRAIN POLE	4.00	EACH		\$	
2950	04953		TEMP RELOCATION OF SIGNAL HEAD	26.00	EACH		\$	
2960	20188NS835		INSTALL LED SIGNAL-3 SECTION	13.00	EACH		\$	
2970	20390NS835		INSTALL COORDINATING UNIT	1.00	EACH		\$	
2980	23157EN		TRAFFIC SIGNAL POLE BASE	20.00	CUYD		\$	
2990	24901EC		PVC CONDUIT-2 IN-SCHEDULE 80	80.00	LF		\$	
3000	24908EC		INSTALL SIGNAL CONTROLLER-TY ATC	1.00	EACH		\$	
3010	24955ED		REMOVE SIGNAL EQUIPMENT	1.00	EACH		\$	
3020	26119EC		INSTALL RADAR PRESENCE DETECTOR TYPE A	4.00	EACH		\$	
3030	26120EC		INSTALL RADAR ADVANCE DETECTOR TYPE B	2.00	EACH		\$	

Section: 0015 - LIGHTING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3040	04701		POLE 40 FT MTG HT	4.00	EACH		\$	
3050	04724		BRACKET 12 FT	1.00	EACH		\$	
3060	04725		BRACKET 15 FT	3.00	EACH		\$	
3070	04740		POLE BASE	4.00	EACH		\$	
3080	04750		TRANSFORMER BASE	4.00	EACH		\$	
3090	04761		LIGHTING CONTROL EQUIPMENT	1.00	EACH		\$	
3100	04780		FUSED CONNECTOR KIT	8.00	EACH		\$	
3110	04795		CONDUIT-2 IN	500.00	LF		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3120	04820		TRENCHING AND BACKFILLING	200.00	LF		\$	
3130	04832		WIRE-NO. 12	850.00	LF		\$	
3140	20391NS835		ELECTRICAL JUNCTION BOX TYPE A	6.00	EACH		\$	
3150	21543EN		BORE AND JACK CONDUIT	500.00	LF		\$	
3160	23778EC		WIRE-NO. 10	2,500.00	LF		\$	
3170	24589ED		LED LUMINAIRE	4.00	EACH		\$	
3180	24900EC		PVC CONDUIT-1 1/4 IN-SCHEDULE 80	200.00	LF		\$	

Section: 0016 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3190	14000		W AIR RELEASE VALVE 1 INCH	6.00	EACH		\$	
3200	14004		W DIRECTIONAL BORE	2,954.00	LF		\$	
3210	14006		W ENCASEMENT STEEL BORED RANGE 1	388.00	LF		\$	
3220	14008		W ENCASEMENT STEEL BORED RANGE 3	1,005.00	LF		\$	
3230	14009		W ENCASEMENT STEEL BORED RANGE 4	297.00	LF		\$	
3240	14010		W ENCASEMENT STEEL BORED RANGE 5	1,226.00	LF		\$	
3250	14012		W ENCASEMENT STEEL OPEN CUT RANGE 1	188.00	LF		\$	
3260	14014		W ENCASEMENT STEEL OPEN CUT RANGE 3	78.00	LF		\$	
3270	14016		W ENCASEMENT STEEL OPEN CUT RANGE 5	564.00	LF		\$	
3280	14019		W FIRE HYDRANT ASSEMBLY	13.00	EACH		\$	
3290	14021		W FIRE HYDRANT REMOVE	8.00	EACH		\$	
3300	14022		W FLUSH HYDRANT ASSEMBLY	3.00	EACH		\$	
3310	14028		W METER 3/4 INCH	2.00	EACH		\$	
3320	14030		W METER RELOCATE	17.00	EACH		\$	
3330	14031		W METER VAULT	1.00	EACH		\$	
3340	14034		W PIPE DUCTILE IRON 03 INCH	596.00	LF		\$	
3350	14036		W PIPE DUCTILE IRON 06 INCH	746.00	LF		\$	
3360	14039		W PIPE DUCTILE IRON 12 INCH	1,742.00	LF		\$	
3370	14056		W PIPE PVC 02 INCH	1,483.00	LF		\$	
3380	14057		W PIPE PVC 03 INCH	2,097.00	LF		\$	
3390	14059		W PIPE PVC 06 INCH	3,274.00	LF		\$	
3400	14060		W PIPE PVC 08 INCH	1,175.00	LF		\$	
3410	14062		W PIPE PVC 12 INCH	25,454.00	LF		\$	
3420	14080		W SERV PE/PLST LONG SIDE 3/4 IN	5.00	EACH		\$	
3430	14084		W SERV PE/PLST SHORT SIDE 2 IN	4.00	EACH		\$	
3440	14085		W SERV PE/PLST SHORT SIDE 3/4 IN	23.00	EACH		\$	
3450	14088		W STRUCTURE REMOVAL	2.00	EACH		\$	
3460	14089		W TAPPING SLEEVE AND VALVE SIZE 1	12.00	EACH		\$	
3470	14090		W TAPPING SLEEVE AND VALVE SIZE 2	10.00	EACH		\$	
3480	14092		W TIE-IN 03 INCH	4.00	EACH		\$	
3490	14094		W TIE-IN 06 INCH	2.00	EACH		\$	
3500	14095		W TIE-IN 08 INCH	1.00	EACH		\$	
3510	14096		W TIE-IN 10 INCH	1.00	EACH		\$	
3520	14097		W TIE-IN 12 INCH	2.00	EACH		\$	
3530	14105		W VALVE 06 INCH	6.00	EACH		\$	
3540	14106		W VALVE 08 INCH	1.00	EACH		\$	
3550	14108		W VALVE 12 INCH	25.00	EACH		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3560	14115		W VALVE CUT-IN 03 INCH	8.00	EACH		\$	
3570	14117		W VALVE CUT-IN 06 INCH	7.00	EACH		\$	
3580	14118		W VALVE CUT-IN 08 INCH	2.00	EACH		\$	
3590	14119		W VALVE CUT-IN 10 INCH	1.00	EACH		\$	
3600	14120		W VALVE CUT-IN 12 INCH	9.00	EACH		\$	
3610	14126		W ENCASEMENT SPECIAL OPEN CUT 12" POLY ENCASEMENT	191.00	LF		\$	
3620	14126		W ENCASEMENT SPECIAL 18 IN	44.00	LF		\$	
3630	14130		W METER WITH PRV 3/4 INCH	6.00	EACH		\$	
3640	14132		W PRESSURE REDUCING VALVE 02 INCH	12.00	EACH		\$	
3650	14133		W PRESSURE REDUCING VALVE 03 INCH	4.00	EACH		\$	
3660	14135		W PRESSURE REDUCING VALVE 06 INCH	1.00	EACH		\$	
3670	14143		W PRESSURE REDUCING VALVE SPECIAL	19.00	EACH		\$	
3680	14147		W SERV COPPER LONG SIDE 2 IN	1.00	EACH		\$	
3690	14152		W SERV COPPER SHORT SIDE 3/4 IN	13.00	EACH		\$	
3700	14156		W METER REMOVE	17.00	EACH		\$	
3710	23565EC		ARTICULATED CONCRETE BLOCK SYSTEM	437.00	SQFT		\$	

Section: 0017 - TRAINEES

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3720	02742		TRAINEE PAYMENT REIMBURSEMENT CEMENT MASON	1,200.00	HOUR		\$	
3730	02742		TRAINEE PAYMENT REIMBURSEMENT GROUP 2, 3, 4 OPERATORS	1,400.00	HOUR		\$	

Section: 0018 - MOBILIZATION AND/OR DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3740	02568		MOBILIZATION	1.00	LS		\$	
3750	02569		DEMOBILIZATION	1.00	LS		\$	