CALL NO. 100

CONTRACT ID. 161033

MAGOFFIN COUNTY

FED/STATE PROJECT NUMBER TGR 0061(064)

DESCRIPTION MOUNTAIN PARKWAY(US-460)

WORK TYPE ASPHALT SURFACE WITH GRADE & DRAIN

PRIMARY COMPLETION DATE 8/31/2019

LETTING DATE: June 24,2016

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME June 24,2016. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 5%

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

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SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 10

CONTRACT ID - 161033

NHPP TGR 0061(063)

COUNTY - MAGOFFIN

PCN - DE07704601633
NHPP TGR 0061(063)

MOUNTAIN PARKWAY(US-460) WIDEN THE MOUNTAIN PARKWAY EXTENSION(KY-114/US-460) THROUGH THE CONGESTED AREA AT SALYERSVILLE FROM BURNING FORK BRIDGE TO KY-114.ASPHALT SURFACE WITH GRADE & DRAIN SYP NO. 10-00166.00.

GEOGRAPHIC COORDINATES LATITUDE 37:44:10.00 LONGITUDE 83:01:58.00

COMPLETION DATE(S):

COMPLETED BY 08/31/2019 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 Expedite Bidding Program available on the Internet web site of the Department of Highways, Division of Construction Procurement. (www.transportation.ky.gov/construction-procurement)

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.

SPECIAL NOTE FOR COMPOSITE OFFSET BLOCKS

Contrary to the Standard Drawings (2016 edition) the Cabinet will allow 6" composite offset blocks in lieu of wooden offset blocks, except as specified on proprietary end treatments and crash cushions. The composite blocks shall be selected from the Cabinet's List of Approved Materials.

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.

06/01/16

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 Capacity Rating 102.10 Delivery of Proposals
102.8 Irregular Proposals 102.14 Disqualification of Bidders
102.9 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 on federally assisted projects shall be permitted. However, in the case of DBE’s, second tier subcontracts will only be permitted where the other subcontractor is also a DBE. All second tier subcontracts shall have the consent of both the Contractor and the Engineer.

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 7 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 Project Code Number (PCN), 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, the DBE's certificate of insurance, and an affidavit for bidders, offerors, and contractors from the DBE to the Division of Construction Procurement. The affidavit can be found on the Construction Procurement website. If the DBE is a supplier of materials for the project, a signed purchase order and an affidavit for bidders, offerors, and contractors 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 and nine (9) copies of this information must be received in the office of 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 certainly 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 DBE Liaison in the Office of Minority Affairs 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 our 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:

- 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 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 (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 submitted within 10 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.

The Prime Contractor should supply the payment information at the time the DBE is compensated for their work. Form to use is located at:
http://transportation.ky.gov/Construction/Pages/Subcontracts.aspx

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 is Melvin Bynes and the telephone number is (502) 564-3601.

Photocopied payments and completed, signed and notarized affidavit must be submitted by the Prime Contractor to: Office of Civil Rights and Small Business Development
6th Floor West 200 Mero Street
Frankfort, KY 40622

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.

3/24/2016

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.

NATIONAL HIGHWAY

Be advised this project is on the NATIONAL HIGHWAY SYSTEM.

PROJECT TRAFFIC COORDINATOR (PTC)

Be advised this project is a significant project pursuant to section 112.03.12.

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.

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.

MATERIAL TRANSFER VEHICLE (MTV)

Provide and use a MTV in accordance with Sections 403.02.10 and 403.03.05.

Jeff Wolfe - Director
Phone (502) 564-3020
FAX (502) 564-7759

DIVISION OF TRAFFIC OPERATIONS

ITEMS FOR INSTALL

Item Number: **10.166**
County: **Magoffin**
Description: **Mountain Parkway Salyersville**

Project No.
Project Manager:
Office Charge No.

Fund:
Function:
Department: **625**
Activity: **4260**
District:
Object Code: **E389**
County:
Program:

Kerry need Sp

1	2	3	4	Flasher	Cabinets	Master code		
				1	1	T-01-0000	Aluminum Cabinet (Beacon)	
				1	1	T-01-0300	Nema Flasher	
					0	T-01-0010	Pole Mounted 336 Cabinet	
1	1	1	1		4	T-01-0020	Base Mounted 332 Cabinet	
1	1	1	1		4	T-01-0100	170 Controller	
					0	T-01-0200	School Clock	
	1	1	1		3	T-01-0501	Conflict Monitor, Model 2018	Special Order
2	2	2	1		7	T-01-0510	Isolator, Model 242 (for ped detector and railroad)	
6	6	6	7		25	T-01-0600	Loop Detector, Model 222	
8	9	9	7		33	T-01-0700	Load Switches	
					Signals			
4				6	10	T-02-0001	1-section beacon backplate	
4	8	8	9		29	T-02-0009	Siemens 3 Section Signal	
1	4	4	4		13	T-02-0032	Siemen 3 section backplate	
2	2	2	2		8	T-02-0033	Siemen 4 secton 12" signal (poly)	
1					1	T-02-0034	Siemen 4 section 12" signal double red	
2					2	T-02-0040	Siemen 5 section, 12 inch signal (poly)	
2					2	T-02-0041	Siemen 5 section backplate	
1					1	T-02-0042	4-sec dbl red backplate only	
	2	2	2		6	T-02-0043	Siemen 4-sec. straight signal backplate	
					0	T-02-0045	Siemen 5 section 12" signal w/backplate (aluminum)	
					0	T02-0046	Siemen 5 section 12" w/backplate and tape (aluminum)	Special Order
91	88	88	88	48	450	T-02-0051	2" wide fluorescent yellow reflective tape	Special Order
4				6	10	T-02-0080	12 inch red/yellowbeacon	
4	6	6	2		18	T-02-0090	Pedestrian signal housing	
					0	T-02-0099	Audible pedestrian detector	
	2	2	2		6	T-02-0300	LED Module 12" red arrow	
2	4	4	4		14	T-02-0310	LED Module 12" yellow arrow	
4	2	2	2		10	T-02-0320	LED Module 12" green arrow	
10	8	8	9	2	37	T-02-0330	LED Module 12" red ball	
13	8	8	9	4	42	T-02-0340	LED Module 12" yellow ball	
9	8	8	9		34	T-02-0350	LED Module 12" green ball	
4	6	6	2		18	T-02-0365	LED Countdown Pedestrian Module	
					Special items			
					0	T-02-0400	Video Detection System Camera Detector, SP	# of left turns put here
					0	T-02-0401	Camera Mounting System	
					0	T-02-0500	MDS Radios 9810	
					0	T-02-507	Ethernet/Serial Data Radio	
					0	T-02-0510	Antenna 6 db omni	
1	1	1	1		4	T-02-0520	Antenna 10 db yagi	
					0	T-02-0530	Antenna 9 db omni	
					0	T-03-0230	Jumper 3' N-N RG-58	
1	1	1	1		4	T-03-0240	Jumper 60' N-N RG-213	
					0	T-06-0800	Surge Protector for Radio	
					0	T-09-0410	Sign Hanger for 48" signs	
3	2	3	2		10	T-09-0415	30 X 36 through 36 X 36 sign hanger (New)	
3		1			4	T-02-0650	Pedstl.top mntg.bkt One-way	
					0	T-02-0660	Pedstl.top mntg.bkt Two-way	
					0	T-02-0661	Post Top for Pedestal (each)	
3		1			4	T-02-0670	Pedestal	
4	6	6	2		18	T-06-0710	Ped Detector Pole Mount FSA Box	
4	6	6	2		18	T-06-0730	Ped Button w/o Plunger	
4	6	6	2		18	T-17-0015	9 X 15 Countdown Ped Sign DBL Sided	
					0	T-01-0609	Epoxy Applicator	Special Order
					0	T-01-0611	Access Point Controller Card	Special Order
					0	T-01-0612	Access Point Expansion Card	Special Order
					0	T-01-0613	Access Point Remote Radio	Special Order
					0	T-01-0614	Access Point Accessory Isolator	Special Order
					0	T-01-0615	Repeater	Special Order
					0	T-01-0616	Type T Sensor	Special Order
					0	T-01-0618	Sensor Clamshell Enclosure	Special Order
					0	T-01-0619	Sensor Installation Kit	Special Order
					0	T-04-0150	Lighting Pole 30' w/no arm mongoose luminaire	Special Order
					0	T-06-0600	Transformer Base for Luminaire Poles w/o anchor bolts (See T-06-0601 for anchor bolts)	
					0	T-06-0601	Anchor Bolts for Luminaire Poles	
					0	T-06-0650	Transformer Base Door 9 1/8" Top 9 1/2" Bottom 11 1/4" Top to Bottom	
1			1		2	T-02-0640	Mast Arm Mount Signal Bracket (3-section)	
					Poles			
1				1	2	T-04-0010	Steel Strain Pole 28 foot	
2				1	3	T-04-0020	Steel Strain Pole 30 foot	
2	4	4			10	T-04-0030	Steel Strain Pole 32 foot	
1			2	1	4	T-04-0040	Steel Strain Pole 34 foot	
			2	1	3	T-04-0051	Steel Strain Pole 36 foot	
					0	T-04-0054	Steel Strain Pole 38 foot	
					0	T-04-0055	Steel Strain Pole 40 foot	

FINAL TOTAL

Send copies to:
Ted.Swansegar@ky.gov
Adam.proctor@ky.gov

All districts

Jeff Wolfe - Director

DIVISION OF TRAFFIC OPERATIONS

Phone (502) 564-3020
FAX (502) 564-7759

s to be notified of any
pecial Orders

Unit Cost	Cost
$308.41	$308.41
$15.41	$15.41
$3,632.36	$0.00
$4,497.97	$17,991.88
$1,179.38	$4,717.52
$225.65	$0.00
$591.85	$1,775.55
$20.92	$146.44
$142.00	$3,550.00
$15.40	$508.20
Total	**$29,013.41**

$49.00	$490.00
$162.00	$4,698.00
$48.98	$636.74
$189.00	$1,512.00
$520.21	$520.21
$256.34	$512.68
$224.00	$448.00
$129.00	$129.00
$65.00	$390.00
$347.30	$0.00
$337.00	$0.00
$1.26	$567.00
$117.92	$1,179.20
$147.02	$2,646.36
$564.00	$0.00
$45.28	$271.67
$27.71	$387.95
$35.31	$353.12
$21.46	$794.02
$24.72	$1,038.09
$23.00	$782.00
$97.19	$1,749.48
Total	**$19,105.52**

$2,505.00	$0.00
$128.93	$0.00
$1,122.74	$0.00
$813.50	$0.00
$498.15	$0.00
$127.49	$509.97
$698.93	$0.00
$12.60	$0.00
$64.73	$258.92
$33.37	$0.00
$122.17	$0.00
$85.36	$853.60
$60.74	$242.96
$133.28	$0.00
$15.00	$0.00
$287.77	$1,151.09
$23.35	$420.30
$61.84	$1,113.12
$4.88	$87.84
$148.00	$0.00
$1,985.00	$0.00
$337.00	$0.00
$698.00	$0.00
$296.00	$0.00
$1,343.00	$0.00
$365.00	$0.00
$7.50	$0.00
$65.00	$0.00
$789.00	$0.00
$177.00	$0.00
$52.00	$0.00
$9.60	$0.00
$129.00	$258.00
Total	**$4,895.80**

$1,778.54	$3,557.07
$2,426.96	$7,280.87
$2,625.90	$26,259.01
$3,195.17	$12,780.69
$3,426.76	$10,280.27
$3,894.60	$0.00
$3,502.20	$0.00
Total	**$60,157.92**
	$113,172.64

Jeff Wolfe - Director
Phone (502) 564-3020
FAX (502) 564-7759

DIVISION OF TRAFFIC OPERATIONS

RECOMMENDATION FOR PICKUP OF ITEMS TO BE INSTALLED ON TRAFFIC SIGNALS/LIGHTING

Item Number: **10-166.00**

County: **Magoffin**

Description: **Salyersville signal equipment**

Cabinets	Master code	Description of Item	
1	T-01-0000	Aluminum Cabinet (Beacon)	
1	T-01-0300	Nema Flasher	
4	T-01-0020	Base Mounted 332 Cabinet	
4	T-01-0100	170 Controller	
3	T-01-0501	Conflict Monitor, Model 2018	Special Order
7	T-01-0510	Isolator, Model 242 (for ped detector and railroad)	
25	T-01-0600	Loop Detector, Model 222	
33	T-01-0700	Load Switches	

Signals			
10	T-02-0001	1-section beacon backplate	
30	T-02-0009	Siemens 3 Section Signal	
13	T-02-0032	Siemen 3 section backplate	
8	T-02-0033	Siemen 4 secton 12" signal (poly)	
1	T-02-0034	Siemen 4 section 12" signal double red	
2	T-02-0040	Siemen 5 section, 12 inch signal (poly)	
2	T-02-0041	Siemen 5 section backplate	
1	T-02-0042	4-sec dbl red backplate only	
6	T-02-0043	Siemen 4-sec. straight signal backplate	
450	T-02-0051	2" wide fluorescent yellow reflective tape	Special Order
10	T-02-0080	12 inch red/yellowbeacon	
18	T-02-0090	Pedestrian signal housing	
7	T-02-0300	LED Module 12" red arrow	
15	T-02-0310	LED Module 12" yellow arrow	
11	T-02-0320	LED Module 12" green arrow	
37	T-02-0330	LED Module 12" red ball	
42	T-02-0340	LED Module 12" yellow ball	
34	T-02-0350	LED Module 12" green ball	
18	T-02-0365	LED Countdown Pedestrian Module	

Special items			
4	T-02-0520	Antenna 10 db yagi	
4	T-03-0240	Jumper 60' N-N RG-213	
10	T-09-0415	30 X 36 through 36 X 36 sign hanger (New)	
4	T-02-0650	Pedstl.top mntg.bkt One-way	
4	T-02-0670	Pedestal	
18	T-06-0710	Ped Detector Pole Mount FSA Box	
18	T-06-0730	Ped Button w/o Plunger	
18	T-17-0015	9 X 15 Countdown Ped Sign DBL Sided	
2	T-02-0640	Mast Arm Mount Signal Bracket (3-section)	

Poles		
2	T-04-0010	Steel Strain Pole 28 foot
2	T-04-0020	Steel Strain Pole 30 foot
11	T-04-0030	Steel Strain Pole 32 foot
4	T-04-0040	Steel Strain Pole 34 foot
3	T-04-0051	Steel Strain Pole 36 foot

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 ARCHITECTURAL TREATMENT

1.0 DESCRIPTION. This work consists of constructing textured surfaces simulating natural cut stone masonry as designated in the Plans or Contract Documents to receive Architectural Treatment. The work shall be performed in accordance with the applicable provisions of the Standard Specifications, the Plans, and as described herein.

2.0 FORMED TEXTURED SURFACES. Where Architectural Treatment is designated, concrete surfaces shall be formed using a form lining system made of high-strength urethane elastomer, or thermoformed rigid polymer materials capable of withstanding anticipated concrete pore pressures without leakage or causing physical defects. Formliners shall attach easily to forms and be removable without causing concrete surface damage. The liners shall be designed to form surfaces conforming to the design intent including the shape, lines and dimensions described herein and in the Plans.

Formliners shall be a Rustic Ashlar Pattern with simulated stone sizes shown in the Plans and shall produce the textured effect of a realistic, cut stone masonry surface. Simulated stone surfaces should exhibit the rough, natural finish of real stone laid in place and have a maximum surface relief of no more than 2 inches. Stone surfaces will be set in different surface elevations as detailed in the drawings. Simulated stone surfaces having a smooth, slick or shiny surface will be rejected. Individual stones shall be formed with crisp, sharp edges and have a rough natural relief to the shape and dimensions described herein and shown on approved shop drawings.

4.0 SUBMITTALS. The Contractor shall submit the following to the Engineer for approval:

1. Product data including manufacturer's technical information and use instructions for formliner placement and release.
2. Actual samples of form ties that will be used with work requiring architectural treatment.
3. Qualification data for firms and person specified below under Quality Assurance to demonstrate their capabilities and experience. Include a list of completed projects with project names, addresses, and names of architects, engineers and owners, plus any other pertinent information.
4. Shop drawings indicating formliner layout and termination details. Indicate backup, rustication, reveal, and chamfer strip locations. Include jointing, form tie location, pattern placement, pattern match details, and end, edge and other special conditions. Indicate tolerances and procedure of installation and separation.

After approval of shop drawings by the Engineer and prior to commencement of production, the Contractor shall submit the following to the Engineer for approval:

1. Test Panel Mock-ups as specified below under Quality Assurance.

5.0 QUALITY ASSURANCE.

1. Manufacturer's Qualifications: The formliner manufacturer must have a minimum of five year's experience making liners used to create formed concrete surfaces matching natural stone shapes and textures.
2. Installer Qualifications: The formliner installer shall have had a minimum of three consecutive years of experience in textured formed concrete construction.
3. Test Panel Mock-up: Provide a full-scale mock-up (5'x5' minimum panel size) using actual job specific materials, methods and workmanship. These include concrete mix [cement type, aggregate gradation, slump, water/cement ratios, plasticizers, and additives], forming system [ties, liner, and formwork], form release agents, placement rate, form pressures, joint sealing, vibrating and stripping practices. In addition, demonstrate patching and repair procedures for spalled concrete, and voids caused by honeycombing or bugholes. Incorporate formwork accessories, a minimum one vertical and one horizontal form liner joint, form liner corner matching technique, and coping details. Accepted mock-up will be the standard by which remaining work will be evaluated for technical and aesthetic merit. Accepted mock-up is a prerequisite to beginning job formwork. Submit variations from mock-up materials or techniques for approval prior to use.
4. Coordination: Coordinate and combine mock-up with related technique mock-up requirements insofar as practical.

Following completion of the structure, remove and dispose of the test panels in accordance with the Specifications.

Test panels shall be considered incidental to the work and no direct compensation will be made theretofore.

6.0 CONSTRUCTION REQUIREMENTS. Match pattern features at formliner joints to make the formed concrete surface appear uniform and continuous without grout leakage at the joints. When concrete vertical and horizontal construction joints are required, place formliner joints in the valley of the grooves, or as approved by the Engineer. Pour concrete at a rate and lift depth such that the pressure exerted by the wet concrete on the formwork, as determined using ACI 347R-14 "Guide to Formwork for Concrete", does not exceed formliner manufacturer's recommendations and in no case exceeds 1000 psi. Following removal of forms, finish improperly formed joints to achieve a smooth and uniform cast concrete surface. No visible vertical and horizontal seams or conspicuous form marks created by butt-joining formliners will be allowed. Where it is not possible to locate a vertical or horizontal groove at a construction joint, the concrete surface shall be finished to reduce visibility of the construction joints.

Strip formwork in accordance with the formliner manufacturer's recommendations to avoid concrete surface deterioration or weakness planes in the substrate. Finish form tie holes in accordance with the Specifications using approved patching materials.

Clean and repair surfaces of formliners to be re-used. Split, frayed, delaminated or otherwise damaged formliner material will not be acceptable for exposed surfaces. Formliners

shall be cleaned and free of concrete buildup prior to each pour. Do not use "patched" forms for exposed concrete surfaces unless they are acceptable to the Engineer.

6.0 MEASUREMENT. The Department will measure the quantity of Architectural Treatment by the square yard of surface in the plane of the nominal dimensions shown on the Plans and within the limits shown in the Contract Documents for areas receiving Architectural Treatment.

7.0 PAYMENT. Payment at the contract unit price per square yard is full compensation for furnishing all labor, equipment, materials, and incidental items necessary to construct the Architectural Treatment in accordance with the Plans, Specifications, other Contract Documents, and this Special Note.

Code	Pay Item	Pay Unit
23026ED	Architectural Treatment	Square Yard

HMB Professional Engineers, Inc.
JAN 15 2016

CONSENT AND RELEASE FORM
TEMPORARY CONSTRUCTION EASEMENT

PROPERTY OWNER	HOMETOWN CONVENIENCE, LLC BESIDE Kentucky Mtn. Holiness Association
STREET ADDRESS	P.O. Box 2, Hwy 541 Vancleve KY 41385

Whereas, the Kentucky Transportation Cabinet, in conjunction with the planned improvements, finds it necessary to enter the above property to work in relation to the project, outside of the existing right-of-way.

Now, therefore, in consideration of the work and the incidental benefits accruing to the property, I hereby consent and agree that the Kentucky Transportation Cabinet, its successors and assigns, may come upon the above listed property and do the work required for the project using a reasonable area allowing completion of the work. This work consists of cleaning out the stream bed from Old Burning Fork Road to the Mountain Parkway.

The Kentucky Transportation Cabinet, in turn, agrees to ensure that all disturbed land is restored to as good or better condition as the original.

This temporary construction easement will expire upon completion of the improvement project.

NAME(S) HOMETOWN CONVENIENCE LLC
INA M. MATTHEWS, MANAGING MEMBER
P.O. BOX 430, WHITESBURG, KY 41858

DATE 1-6-16
SIGN DATE

SALYERSVILLE DOUBLE KWIK
114 E. SALYERSVILLE
SALYERSVILLE KY 41465

HMB Professional
Engineers, Inc
JAN 2 2015

CONSENT AND RELEASE FORM
TEMPORARY CONSTRUCTION EASEMENT

PROPERTY OWNER	**Kentucky Mountain Holiness Association**
STREET ADDRESS	**Property between Old Burning Road and Mountain Parkway in Salyersville, KY.**

Whereas, the Kentucky Transportation Cabinet, in conjunction with the planned improvements, finds it necessary to enter the above property to work in relation to the project, outside of the existing right-of-way.

Now, therefore, in consideration of the work and the incidental benefits accruing to the property, I hereby consent and agree that the Kentucky Transportation Cabinet, its successors and assigns, may come upon the above listed property and do the work required for the project using a reasonable area allowing completion of the work. This work consists of cleaning out the stream bed from Old Burning Fork Road to the Mountain Parkway.

The Kentucky Transportation Cabinet, in turn, agrees to ensure that all disturbed land is restored to as good or better condition as the original.

This temporary construction easement will expire upon completion of the improvement project.

NAME(S) Philip Spears
Sign

Philip Spears
Print Signature

DATE 1/18/16

SPECIAL NOTE

Public Information Requirements

Magoffin County
US 460 / Mountain Parkway Reconstruction
Item No. 10-166.00

This project is designated as a Significant Project. In addition to the duties as detailed in Standard Specifications Section 112.3.12, the Project Traffic Coordinator (PTC) shall be required to participate in the public information meetings conducted by KYTC. The PTC shall be responsible for providing detailed information, including but not limited to proposed schedule of operations (in a narrative and graphically), as proposed in the attached Public Information Plan.

All duties performed by the PTC shall be incidental to the Maintenance and Control of Traffic bid item.

April 22, 2016

Public Information Plan

As part of the Traffic Management Plan

Salyersville Restaurant Row Segment

Mountain Parkway Expansion

Item No. 10-166

This Public Information Plan is a component of the Traffic Management Plan and is intended to outline communications strategies that supplement ongoing efforts by the Kentucky Transportation Cabinet (KYTC), the General Engineering Consultant (GEC) and the General Contractor (TBD). It serves as an addendum to the Mountain Parkway Expansion Community Outreach and Communications Plan (Attachment A).

Audience and Goal

The Salyersville Restaurant Row Segment is in the most visible and highly traveled section of the Mountain Parkway. The project to extend the Mountain Parkway by widening and improving the existing roadway is expected to impact motorists, property owners, business operators, schools, churches, nonprofits, and others in the community who interact with these groups, such as customers, clients, vendors or students/parents.

These affected groups are considered the "Primary Audience" for this plan, which is intended to raise public awareness of the Mountain Parkway Expansion and to mitigate the expected impacts to commerce and mobility in the 2.4-mile segment.

Specifically, this Plan outlines efforts and processes that will inform the Primary Audience, the general public and other stakeholders in Eastern Kentucky about the progress and impact of the project.

Communications Team

Under the direction of KYTC, the GEC will coordinate and monitor communications activities with the public and community stakeholders. The Communications Team will consist of KYTC representatives, including members from Highway Districts 10 and 12, the GEC, the General Contractor and others that might be needed (TBD). The Contractor's representative shall be the Superintendent or the designated Project Traffic Coordinator as defined by the Standard Specifications.

April 22, 2016

Key Messages

The following are the ongoing key messages that will be conveyed by the Communications Team:

- The Restaurant Row improvements are designed to extend the Mountain Parkway with four-lane access that improves mobility and safety.
- The project design includes a system of frontage and backage roads that will change the flow of traffic through Restaurant Row but ensure access to businesses, residences and other facilities.
- KYTC and the project team will work to reduce impacts to businesses, but some periodic disruptions to traffic and access are expected during the construction phase.
- KYTC and the project team will communicate regularly to inform residents, businesses and travelers of coming changes so they can better prepare.
- Construction in this area will last 2 to 3 years.

Team Communications

Offering accurate, consistent and timely messages is critical to the success of the project, particularly in maintaining public support and setting appropriate expectations for the public and local stakeholders. Achieving this goal will require a coordinated approach involving members of the project team.

This coordinated approach will include:

- **Progress update calls/meetings** among representatives of the Contractor, KYTC's Project Manager and the GEC to discuss construction, impending traffic changes and potential impacts to businesses and traffic;
- **Development of a process for the Contractor to send timely notifications** to KYTC and members of the Communications Team of unexpected occurrences that might warrant public notification, including but not limited to planned or unexpected traffic disruptions, incidents/injuries occurring within the work zone, changes in the project schedule, etc.;

External Communications

The Communications Team will use a broad array of communications tools to inform the public and other stakeholders about the Restaurant Row project, in line with the existing Community Outreach and Public Communications Plan for the Mountain Parkway Expansion. External Communications will include the following:

April 22, 2016

Electronic Communications

Website

The project website, http://mtnparkway.com/, provides updated construction news, traffic alerts, photographs and maps that are an important part of informing the public about the Mountain Parkway Expansion. Each segment of the project, including Restaurant Row, has a dedicated page on the site. The website also includes project history and contact information that includes a newsletter signup, along with the hours and phone number for the project office.

Before and during the construction phase, the website will be updated with information about the Restaurant Row project, including construction updates, impending changes in traffic patterns and project milestones.

The website address will be incorporated into all communications materials.

Social media

Social media (Facebook and Twitter) has been instrumental in communicating directly and cost-effectively with a diffuse population where traditional media outlets have limited reach. Social media drives citizens to the project's website and engages the public to ask questions or share news with friends, neighbors and relatives. The Facebook page also includes a feature that allows users to sign up for the Mountain Parkway e-newsletter.

The current social media accounts will be used to provide information on the Restaurant Row Segment, particularly during construction, and inform citizens and motorists about construction, traffic impacts, public meetings and project news. The feedback provided on these sites also will be monitored to inform the Project Manager, Contractor and project team of public sentiment.

Email

As with social media, email lists for targeted groups allow the communications team to keep the public and other stakeholders informed about the project. These also drive traffic to the project website through links to more information.

Currently, the GEC sends news and updates via email to the general public and to the Mountain Parkway Awareness Council. The current email list will be expanded to include the businesses and individuals along Restaurant Row to better inform those most affected by the project of construction news and impacts.

Enhanced Media Relations

Because of the visibility and potential impact of this segment of the project, the Communications Team will employ these additional strategies to promote and guide media coverage:

April 22, 2016

- Project updates aimed primarily at radio stations in area
- News releases to print and online news outlets serving Magoffin County
- Periodic on-camera interviews with the KYTC Project Manager for WYMT and EKB-TV

Direct Communications

Being certain project information reaches the Primary Audience – those who will be most affected – is critical to the success of this Plan. The Communications Team will develop targeted, timely information for the affected business operators, schools, churches, nonprofits, and those in the community who interact with these groups. This strategy will include:

- Creating and maintaining a database of directly affected businesses and organizations, including contact information (Attachment B);
- Developing a communications and/or advertising strategy focused on providing routine communications to businesses and their customers;
- Using the businesses and their communications networks to share project information.

Members of the Communications Team, including a representative of the contractor, will meet prior to the start of construction to discuss the messages, strategies, timeline and processes for communicating directly with affected businesses and organizations as well as the general public.

Once construction starts, members of the Communications Team will participate in routine calls to discuss progress and impacts on local businesses and organizations.

Meetings & Presentations

The Communications Team will take a proactive approach to sharing information, answering questions, and responding to suggestions from affected individuals and groups. This will include presentations to interested groups and organizations as well as general public meetings. An information meeting will be held before the beginning of major construction work, and other informational meetings may be held at key points during the project. The Communications Team, in coordination with the Contractor's Superintendent or the designated Project Traffic Coordinator, will be responsible for meeting preparations, logistics and attendance.

Leadership briefings

Local leaders and elected officials are important for sharing information and maintaining public support for improvements in the Restaurant Row Segment and the Mountain Parkway Expansion as a whole.

April 22, 2016

Community leaders are routinely updated through Mountain Parkway Awareness Council (MPAC) emails. A contact list of these officials, as well as state and federal legislators, is maintained by the GEC. These emails will continue to be used to share information about the Restaurant Row project with area leaders.

Project Hotline

A project phone number currently allows citizens to call for information about the Mountain Parkway Expansion and ask questions about the project. This system includes a general message about progress and activities.

An option will be added to the phone menu to provide information about activities specifically in the Restaurant Row Segment and to accept messages with questions and feedback. The GEC will monitor the hotline and coordinate responses to public inquiries.

The hotline number – (606) 349-8160 – will be incorporated into all communications materials and promoted on the project website and project signs in the construction area.

Project Office

A Project Office at 447 Parkway Drive (U.S. 460), Salyersville, Ky. has been established. This office serves as a local communications outlet to share project information such as maps and plans of the project area and collect feedback from residents affected by the project.

The Communications Team will continue to provide timely information to the staff at the Project Office. The staff of the Project Office will work on an ongoing basis with the Communications Team to identify common questions and concerns from the public.

ATTACHMENT A

Community Outreach and Communications Plan

Mountain Parkway Expansion

Introduction

The Mountain Parkway Expansion project is more than a transportation project; it's a transformation project. The widening and improvement of this 46-mile segment, announced by Gov. Steve Beshear as part of the SOAR initiative, will enhance the connection between the Eastern and Central Kentucky regions to improve regional mobility of people, goods and services.

This Communications Plan outlines the Kentucky Transportation Cabinet's commitment to inform and involve stakeholders in the region throughout the pre-construction and multi-year construction process (2014-2022). KYTC and the General Engineering Consultant (Parkway Partners) will provide information that helps motorists, residents, businesses and others understand the construction schedule for the project, stay informed of traffic impacts, cope with the necessary travel restrictions and know the long-term benefits the improved roadway will provide to the region.

Communications Goal

To inform stakeholders about the Mountain Parkway Expansion before and during construction to help reduce impacts on residents, motorists, businesses and others

Communications Objectives

- Provide information about the project's scope, timeline, travel impacts and benefits to quality of life
- Involve stakeholders during the pre-construction phase and in advance of construction work to maximize awareness
- Seek media coverage to help inform and educate stakeholders

Target Audiences

- Motorists
- Residents
- Affected property owners
- Business owners
- Elected officials and local governments
- Community leaders
- Emergency responders
- School officials
- News media

Elements of Scope

Project team and DBT communications
The project team will communicate regularly throughout the project with KYTC, design consultants and contractors selected for each segment of the project. These communications will include conference calls, emails and in-person meetings. A project team office is planned for Salyersville. On-going communications are essential to keeping the public well informed about the project and its impacts.

Briefings and updates for community leaders
During the design phase and in advance of construction, the project team will meet with identified community leaders to share information and seek feedback. In addition, the project team will communicate with leaders periodically throughout construction, both through email and in person.

Project website
A project website will be developed to provide consistent, up-to-date information through all phases of design, pre-construction and construction. The website will be designed with an identifiable project logo and will include maps, photos, news updates, construction information, contacts and other relevant information about the project. The website will also include a historical section on the Mountain Parkway and include links to other related initiatives, such as the SOAR initiative spearheaded by Gov. Beshear and U.S. Rep. Rogers.

Social media (Facebook and Twitter)
To meet the up-to-the-minute need for information, particularly during construction, the project team will use leading social media tools, including Facebook and Twitter, to update citizens and motorists about public meetings, construction, traffic impacts and project news. These updates will periodically include photos of progress and solicit photos from citizens to encourage public involvement and discourse.

Email communications and e-newsletter

The project team will also use email communications to reach people interested in keeping up-to-date on construction plans and traffic impacts. Citizens can sign up to receive emails through the project website or by registering at public meetings. In addition, a periodic e-newsletter will provide progress updates throughout construction and drive readers to the project website for more information.

Mountain Parkway Awareness Council (MPAC)

The project team will identify a group of elected leaders (county judges, mayors, state legislators, etc.) and community leaders to form the Mountain Parkway Awareness Council (MPAC). This group will receive email updates at the start of each construction season, in advance of significant traffic changes and at other critical points throughout the process. These “community connectors” will be a critical resource for spreading information about the project.

Public information and media relations

To keep citizens throughout Central and Eastern Kentucky informed, the project team will provide regular, ongoing updates through media outlets (newspapers, television stations, radio stations, etc.). This will include news releases, news conferences and media availabilities. The project team will coordinate all media relations contacts with KYTC’s Office of Public Affairs and the Project Manager, and team members may serve as project spokespersons as directed by KYTC. The communications team will develop and maintain a comprehensive database of media outlets throughout the region and foster positive working relationships with both news and editorial staff.

Open house meetings

Several meetings in communities within the corridor will be held during the design phase and at least annually throughout the construction phase of the project. Meetings will allow residents, businesses and local leaders to gain information, provide feedback and talk directly with project leaders. The communications team will promote meetings in advance, compile feedback and share information with the project team and KYTC.

Milestone events

To ensure awareness of the project and its impacts, the project team will mark key milestones including groundbreakings and phase completions. We will also look for opportunities to showcase support from federal and state partners, including tours with officials, grant announcements and/or coordinated events with the SOAR initiative.

ATTACHMENT B
(As of March 23, 2016)

Business	Parcel	Business Owner/ Manager	Address	Phone	Cell Phone	Email
St. Luke Roman Catholic Church	104	Sister Jan Barthel; Father Bob Damron	1221 Parkway Drive	(606) 349-5320; (606) 874-9526		stluke41465@hotmail.com
Magoffin Co. Health Dept.	113	Sherry Helton	132 Mountain Parkway	(606) 349-6212	(606) 367-5022	
Summit Motors	119					
McDonald's	122		222 Mountain Parkway	(606) 349-1611		
Marathon	123	Christy Holbrook, Manager; Michael Moore, Owner	269 E. Mountain Parkway Rt. 114	(606) 349-3133; (304) 784-2338	(304) 784-2338	michael@vipfuels.com
First Commonwealth Bank	124	Patty Howard	111 S. Church St.	(606) 349-7520	(606) 496-6385	patty.howard@myfcbank.com
Buddie's Produce	126					
Shell	129	Sunny Singh	300 Mountain Parkway	(606) 349-3663	(859) 777-2516	jashanBP@aol.com
Nordin Eye Center	131	Alisha Hackney	120 Amanda Ave. Ste. 100	(606) 349-2020	(606) 793-0274	nordineyecenter@bellsouth.net
Appalachian Wireless	131	Deloris Priode	120 Amanda Ave., Ste. 500	(606) 349-4662	(606) 793-1809	dpriode@ekn.com
World Finance Loans and Tax Services	131	Elizabeth Hollon	120 Amanda Ave.	(606) 349-4111	(606) 495-5213	elizabethhollon10@yahoo.com
Wendy's	132	Billy King, Vice President of Operations	325 E. Mountain Parkway	(606) 349-3900	(606) 438-2732 (Billy King)	billy.king@neighborhoodrestaurants.biz
Dairy	133	Josie	509 E.	(606) 349-1616	(606) 662-4002	jtolson40@hot

Queen		Whisman (Area Mgr.); Steve Caudill	Mountain Parkway		(Josie home); (606) 495-0822 (mobile)	mail.com
Lee's Famous Recipe	134	Doug Mortimer	114 Mountain Parkway	(606) 349-3626		
Subway	136	Ginger Oney	342 Mountain Parkway	(606) 349-8899	(606) 367-7643	danny225@foothills.net
Lumber Logistics	137		9 Lick Branch Rd.	(606) 349-9663		
Advance Auto	138	Floyd Arnett, manager	400 E. Mountain Parkway	(606) 349-6603	(606) 205-3391 (Floyd Arnett)	floyd.arnett@advance-auto.com
Universal Toxicology	139	Paul Lyon	309 Parkway Drive	(606) 349-5974	(606) 210-0446	
Classic Donuts	141	Debbie Meade	411 Mountain Parkway	(606) 349-7555	(606) 305-5463	dferguson1765@gmail.com
China Express	142	Ellen Liu, Manager	422 E. Mountain Parkway	(606) 349-6888	(304) 266-8970	hrmnli1391@gmail.com
L&H Alignment and car wash	148			(606) 349-5103		
Magoffin County Conservation District	149	Doug Collinsworth, Office Manager	465 E. Mountain Parkway	(606) 349-1919	(606) 791-2236 (Board Chairman Sanford Holbrook)	magoffincd@yahoo.com
Shawn's Gun & Pawn	152	Shawn Blanton	467 Mountain Parkway	(606) 349-7400	(606) 792-6383	melissa41256@gmail.com
Merle Norman	152	Jane Daniels	467 E. Mountain Parkway	(606) 349-8101	(606) 471-4148	
Cash Express	152	Brittany Minix (mgr.)	465 E. Mountain Parkway	(606) 349-7745	(859) 553-1884 (Janice Kidd, District Mgr.)	arlannaminix@cashtn.com
Citizens National Bank	154	Cody Prater	615 Mountain Parkway	(606) 349-8800	(606) 548-1993	codyp@wercitizens.bank
Magoffin Co. Farm Bureau	154		632 Mountain Parkway	(606) 349-2416		
Car Quest	154	Millie Bailey	630 E. Mountain Parkway	(606) 349-6141	(606) 496-5528	carquest@foothills.net

Mi Hacienda	156	Araceli Garcia, Manager; Ernesto Jordan, Owner;	680 Mountain Parkway (old address); Moving to 120 Amanda Ave.	(606) 349-6800; Tony Patrick (214) 351-6647	(606) 264-1503 (Ernesto)	
Country Cuts Barber Shop	157	Wanda Felber, Owner; Tracy Blanton, runs shop	E. Mountain Parkway	(606) 349-1428	(606) 793-0350 (Tracy)	
Fast Lane tobacco	157	Dorene Pace	683 Mountain Parkway	(606) 349-8017	(606) 226-2693	
Vision Quest videos and tanning	158	Jodie Miller, Owner	600 Mountain Parkway; P.O. Box 347	(606) 349-2412	(606) 496-6150	bodyshop89@yahoo.com
Family Dollar	159	Lance Stephens, Manager	730 E. Mountain Parkway	(606) 887-3051	(606) 367-1772	lance.stephens@icloud.com
Save A Lot	162	Kimberly Bolen, Night Manager	735 Mountain Parkway	(606) 349-8616	(606) 792-2101 (Diane Grimm, General Manager)	
Former Boot Barn/Future East Ky PT	164		759 E. Mountain Parkway			
Action Storage	166		802 Mountain Parkway	(606) 349-4300		
Tender Care Pediatrics	168	Diana Craft, Office Manager; Dr. Antoin Hana, Owner	906 E. Mountain Parkway	(606) 349-8400 (pediatrics); (606) 349-7474 (family health)	(606) 791-2800	dcraft@frontiermedical.org
Frontier Medical Associates Family Health	168	Diana Craft, Office Manager; Dr. Antoin Hana, Owner	906 E. Mountain Parkway	(606) 349-8400 (pediatrics); (606) 349-7474 (family health)	(606) 791-2800	dcraft@frontiermedical.org
Burning Fork Community Church	169	Kenneth Conley; Pastor Doug Dunn	521 Old Burning Fork Rd. NOTE: Emergency services/911 has	(606) 349-6400	(606) 349-3156	

			apparently changed their address, but guy did not have new address at hand			
BP	171	Ron Prewitt, Director of Business Development; Heather Burton, PR and Advertising	114 E. Main St.	(606) 349-7994	(606791-2800; (606) 634-5125 (Ron); (606) 634-1727 (Heather)	rprewitt@doublekwik.com; hburton@doublekwik.com
Trans-Star Ambulance Service	178	Lindsey Gibson, Manager; Russell Parsons, Property Owner	1100 E. Mountain Parkway	(606) 349-7827	(606) 477-2966 (Russell Parsons); (606) 369-5865	lgibson@transstarambulance.com
Magoffin County High School/Board of Education	181	Tony Skaggs, Principal; Chris Meadows, Assistant Principal	11XX E. Mountain Parkway	(606) 349-2011	(606) 367-9688 (Tony Skaggs); (606) 477-2213 (Chris Meadows)	tony.skaggs@magoffin.kyschools.us; chris.meadows@magoffin.kyschools.us
Puckett's Truck Stop	182		114 E. Mountain Parkway	(606) 349-2508; Miles Puckett 794-6707	(606791-2800	
Eastern Kentucky Physical Therapy	184	Kim Trusty, Office Manager; Philip Bentley, Owner	1250 E. Mountain Parkway; planning to move to 757 E. Mountain Parkway	(606) 349-8284; Mike Patrick (606) 349-5920	(606) 634-8800 (Philip Bentley)	
Faith Freewill Baptist Church	194		438 E. Mountain Parkway	(606) 349-3636	(606791-2800	
Magoffin Co. Cooperative Extension Board	198	Lacy May, 4-H Agent	15 Rockhouse Fork Rd.	(606) 349-3216	(606) 548-2363	lacy.may@uky.edu

Wyn Industries	202		1485 Old Burning Fork Rd.	(606) 349-3261	(606791-2800	
Storage Rentals of America	203	Chris Collins, Manager	1800 E. Mountain Parkway	(800) 457-5678; (606) 349-1366	(606) 231-6225	chris15collins@gmail.com
Hinkle Block & Masonry	204		66 New Paintsville Rd.	(606) 349-7625	(606) 477-0189 (Pat Wills)	paul.collins@hinkleblock.com; pat.wills@hinkleblock.com; jim.saylor@hinkleblock.com
Hinkle Block & Masonry	205	Paul Collins	66 New Paintsville Rd.	(606) 349-7625	(606) 477-0189 (Pat Wills)	paul.collins@hinkleblock.com; pat.wills@hinkleblock.com; jim.saylor@hinkleblock.com
Poor Boy's Flowers and Gifts	102 or 103	Corrine Williams	111 Gullett Dr.	(606) 349-1224	(606) 477-2311	poorboyproduce@foothills.net
Tomahawk Transport	161 and 163	Eddie Meece (Manager); Ryan Risner (Owner)	255 Rockhouse Fork Rd.	(606) 349-7473	(606) 791-5846 (Eddie); (606) 496-6776 (Ryan)	
Don's Super Lube and Tire	179 and 213		1120 Mountain Parkway	(606) 349-3020	(606791-2800	
Hylton's Garage			601 Old Burning Fork Rd.	(606) 349-6898	(606791-2800	
Collins Electric & Plumbing			231 Rockhouse Fork Rd.	(606) 349-7709	(606791-2800	
Parkway Pharmacy		Jesse Rudd II, Pharmacist and Owner	100 Brenna Blvd. Ste. 200	(606) 349-4400	(606) 226-4444	parkwaypharmacy1@gmail.com
Highlands Primary Care/Dr. Arnett and After Hours Care		Rebecca Helton	100 Brenna Blvd., Ste. 100	(606) 349-6500; (606) 349-7200 (After Hours Care)	(606) 422-9924	rhelton@hrmc.org
TLC Pediatrics		Jill Whitaker	100 Brianna Blvd.	(606) 349-3800	(606) 367-9125 (Jill W. cell)	rwhitaker@hrmc.org
Pine Point Apartment			201 Pine Point Rd.	(606) 349-5199	(606791-2800	

s (behind parcel 138)						
Masters in Hair		Adis Williams	300 Old Burning Fork Rd.	(606) 349-1242	(606791-2800	
L&L Excavation/ U.S. Contracting		Kristy Cole, Office Manager	436 Brad Drive	(606) 349-1933	(606) 349-3068; (859) 940-3716, Brad Lyon-mobile	kristy.landlexcavation@gmail.com
Eagle Well Service		Russell Parsons, Owner	1080 E. Mountain Parkway	(606) 349-4141	(606791-2800	eaglewell@foothills.net
Classic Auto Sales		Chris Isaac, Owner	413 E. Mountain Parkway	(606) 496-5095 (cell); (606) 496-7024 (Caroline Isaac)	(606) 791-2800	
Kentucky Farm Bureau		Doug Greene, Agency Manager	632 E. Mountain Parkway	(606) 349-2416	(606) 369-3934; (606) 349-4242 (home)	doug.greene@kyfb.com
Ranger Contracting			436 Mountain Parkway	(606) 349-7150	(606) 791-2800	
Smith Patrick Trucking			738 E. Mountain Parkway	(606) 349-3315	(606) 791-2800	

SPECIAL NOTE

DEMOLITION OF IMPROVEMENTS

Magoffin County
Mountain Parkway Reconstruction
Item No. 10-166

There are four parcels that have improvements and seven other parcels that have billboards that need to be removed per Standard Specification Section 203. The contractor shall follow 40 CFR 61 Subpart M demolition regulations (NESHAP) and KYTC -Division of Right of Way & Utilities Specification for Removal of Improvements (TC 62-16). The contractor shall contact the Division of Air Quality Hazard Regional Office located at 223 Birch Street, Suite 2, Hazard, Kentucky 41701 Phone No. 606-435-6022 for proper notification requirements prior to demolition.

The Pre-demolition Asbestos, Lead Based Paint, and Hazardous Materials Survey Report for each parcel is attached. The asbestos-containing materials (ACM) has been remediated by KYTC. Other hazardous materials will need to handled and disposed of in accordance with applicable EPA regulations (40 CFR 273.9 and 40 CFR 260.10).

The following parcels have improvements that need to be demolished:

P174 – 1 commercial building & 1 commercial sign	Sheet R77
P179 – 1 commercial building & 1 apartment	Sheet R29, R31
P182 – 1 commercial building, 1 canopy, storage trailer and 2 commercial signs	Sheet R79
P200 – 1 mobile home & 2 storage buildings	Sheet R51

The following parcels have billboards that need to be removed:

P147 - 2 billboards	Sheet R19, R21
P176 - 2 billboards	Sheet R27, R29
P178 - 1 billboard	Sheet R29
P181 - 1 billboard	Sheet R79
P186 - 1 billboard	Sheet R81
P197 - 1 billboard	Sheet R37
P205 - 2 billboards	Sheet R47

Stantec Consulting Services Inc.
10509 Timberwood Circle, Suite 100, Louisville KY 40223-5301

March 2, 2016
File: 178564013.200.006

Mr. Tom Springer
Qk4, Inc.
1046 East Chestnut Street
Louisville, Kentucky 40204

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, Parcel 174
992 E Mountain Parkway, Salyersville, Kentucky

Dear Mr. Springer:

Stantec Consulting Services Inc. (Stantec) appreciates the opportunity to provide you with the following asbestos-containing materials (ACM), lead-based paint (LBP), and hazardous materials survey report. The survey was performed at the property referenced above on February 10, 2016. The location is an operating Dollar General (herein referred to as the Subject Property).

The purpose of this survey is to evaluate for the presence of ACMs, LBP, and hazardous materials that would require special handling and/or disposal in accordance with applicable federal, state, and local regulations.

BACKGROUND

At the request of the Kentucky Transportation Cabinet (KYTC), Stantec performed a pre-demolition ACM, LBP, and hazardous materials survey of accessible materials in support of the planned demolition of the Subject Property.

Stantec understands that the Subject Property is scheduled for a complete demolition and removal of all buildings and pumping facilities. Stantec observed the following structures at the Subject Property:

- Dollar General – Constructed of anodized metal exterior walls and painted concrete masonry units (CMUs); the roof consists of anodized metal with penetration mastic around roof penetrations; the exterior doors and windows consist of metal and all other doors are made of wood; the existing interior finishes generally consist of gypsum board/joint compound walls with ceiling tile, vinyl tile flooring, and unfinished concrete flooring throughout the stock room.

  The building has one office, two bathrooms, a break room, the sales floor, and a stock room.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PROJECT PERSONNEL

The survey was performed on February 10, 2016, by Mr. Shane Kelley, Stantec Environmental Scientist and Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Accredited Building Inspector (#I16-01-0174). A survey of LBP and inventory of other hazardous materials was conducted by Ms. Lindsay Conley, Stantec Biologist, and Mr. Shane Kelley.

SUSPECT ASBESTOS-CONTAINING MATERIALS

Asbestos is a potential health hazard capable of causing respiratory system fibrosis and various forms of systemic cancers. Its condition, handling, and disposal are regulated by federal, state, and local agencies. Materials that contain asbestos generally do not pose a health threat unless the asbestos fibers are disturbed by renovation, construction, or demolition, and may then become airborne and inhaled.

The EPA defines a homogeneous area as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture. The use or application of the homogeneous area is also used to identify suspect ACMs. The EPA and OSHA define ACM as any material that contains more than one percent (by weight) of asbestos (>1%). Only one sample from a homogeneous area with an asbestos concentration >1% is required to collectively identify that material as an ACM. The EPA additionally categorizes ACM as follows:

- Category I non-friable ACM – asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1% asbestos as determined using the PLM method.
- Category II non-friable ACM – any material, excluding Category I non-friable ACM, containing more than 1% asbestos as determined using the PLM method that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Regulated asbestos-containing material (RACM) – (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Potential asbestos exposure in construction is regulated when construction, alteration, repair, maintenance, renovation, or demolition of structures, substrates, or portions thereof contain asbestos [29 CFR 1926.1101 (a)(3)].

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Sampling and Analysis

Stantec conducted a pre-demolition survey of materials at the Subject Property in order to identify suspect ACMs in general accordance with the Asbestos Hazard Emergency Response Act (AHERA) sampling guidelines as outlined in 40 CFR Part 763. The location, condition, friability, and the potential for suspect ACMs to be impacted (i.e. disturbed) was assessed and documented. Bulk samples of readily accessible suspect ACMs were collected. Consistent with building demolition and renovation regulatory requirements, building material sampling was conducted regardless of the age and/or condition of the structure.

A total of 58 bulk samples were collected from 13 homogeneous areas at the Subject Property. The samples were analyzed by Polarized Light Microscopy in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" (EPA/600/R93/116, July 1993). In accordance with the methods described in 40 CFR 61, subpart E, Appendix E, all PLM sample results identified to be positive for asbestos <10% were point counted using gravimetric preparation methods at 400 points. The non-friable organically bound (NOB) samples were also analyzed using Transmission Electron Microscopy (TEM). Analysis was performed by EMSL Analytical, Inc. (EMSL) located in Cinnaminson, New Jersey. This laboratory is a participant in the Environmental Laboratory Accreditation Program (ELAP No. 1877) and the National Institute of Standards and Testing, National Voluntary Laboratory Accreditation Program. The laboratory is also accredited by the American Industrial Hygiene Association.

A summary of the laboratory analytical results are included in Table 1 below.

Findings

Table 1 provides a summary of the suspect materials identified and sampled during this survey. The table includes the OSHA definition and the EPA category, as applicable.

Table 1 – Asbestos Bulk Sample Results

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
1A 1B 1C	Roof Mastic, Black	Roof (at penetrations)	ND	Good	4 SF	NA	NA
2A 2B 2C	Roof Sealant, Clear	Roof (at penetrations)	ND	Good	4 SF	NA	NA
3A 3B 3C 3D 3E 3F 3G	Vinyl Floor Tile, Tan	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	7,600 SF	NA	NA

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
4A 4B 4C 4D 4E 4F 4G	Vinyl Floor Tile Mastic, Yellow	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	7,600 SF	NA	NA
5A 5B 5C 5D 5E	Gypsum Board, White	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	3,400 SF	NA	NA
6A 6B 6C 6D 6E	Joint Compound, White	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	3,400 SF	NA	NA
7A 7B 7C	Gypsum Board, White	Stock Room	ND	Good	700 SF	NA	NA
8A 8B 8C	Joint Compound, White	Stock Room	ND	Good	700 SF	NA	NA
9A 9B 9C 9D 9E 9F 9G	Ceiling Tile, White w/ Grey Fleck	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	7,600 SF	NA	NA
10A 10B 10C	Wall Baseboard Mastic, Yellow	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	350 SF	NA	NA
11A 11B	Wash Tub Mastic, Yellow	Stock Room	ND	Good	15 SF	NA	NA
12A 12B 12C	Caulk, White	Building Exterior, Foot of Building Wall	ND	Good	10 SF	NA	NA
13A 13B 13C	Caulk, Black	Building Exterior (Front Door and Windows)	ND	Good	4 SF	NA	NA

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
14A	Vinyl Floor Tile	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	7,600 SF	NA	NA
14A	Vinyl Floor Tile Mastic, Yellow	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	7,600 SF	NA	NA
15A	Ceiling Tile, White w/ Grey Fleck	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	7,600 SF	NA	NA
16A	Joint Compound, White	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	3,400 SF	NA	NA
17A	Gypsum Board, White	Sales Floor, Office, Break Room, Restroom 1, Restroom 2	ND	Good	3,400 SF	NA	NA

Notes and Abbreviations:
SF = Square Feet
EA = Each
ND = Non-Detect
NA = Not Applicable

Bulk sample logs and laboratory analytical results are provided in Attachment A; a sample location diagram is provided in Attachment B; and a photographic log is provided in Attachment C.

SUSPECT LEAD-BASED PAINTS

Lead is a potential health hazard. Its condition, handling, and disposal are regulated by federal, state, and local agencies. Lead in paint generally does not pose a health threat unless the material is disturbed or sufficiently deteriorated to produce dust, which may become airborne and inhaled or ingested. Contractors working in the facility should be informed of the type and the location of lead-containing materials. Applicable Federal regulations may apply depending on the work being performed.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Pursuant to EPA regulations, LBP is defined as paint or other surface coatings containing an amount of lead equal to or greater than one milligram per square centimeter (1.0 mg/cm^2) or more than half of one percent [>0.5% or 5,000 parts per million(ppm)] by weight. Additionally, worker exposure to materials containing lead during construction work is regulated by the Federal OSHA [29 CFR 1926.62(a)]. This regulation requires worker protection during construction "…where lead or materials containing lead are present."

Sampling and Analysis

The definitions of paint condition are dependent on the location of the paint and component involved. Table 2 illustrates how Housing and Urban Development (HUD) categorizes paint condition under various circumstances.

Table 2 – HUD Categories of Paint Film Quality

	Total Area of Deteriorated Paint		
Type of Building Component	**Intact**	**Fair**	**Poor**
Exterior components with large surface areas	Entire Surface is Intact	Less than or equal to 10 square feet	More than 10 square feet
Interior components with large surface areas (walls, ceilings, floors, doors)	Entire Surface is Intact	Less than or equal to 2 square feet	More than 2 square feet
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim)	Entire Surface is Intact	Less than or equal to 10 percent of the total surface area of the component	More than 10 percent of the total surface area of the component

Stantec assessed the condition of painted surfaces of the Subject Property to collect paint chip samples of painted surfaces observed to be in fair and/or poor condition as defined within Chapter 5 of the United States, HUD guidelines. Collected samples would be analyzed using Flame Atomic Absorption Spectrometry following the EPA SW 846-7000B/7420 analytical protocol.

Findings

The exterior of the buildings consisted of anodized metal and painted CMU's. There were no observed painted surfaces within the buildings nor on the Subject Property observed to be in fair or poor condition; therefore, no bulk paint-chip samples were collected and analyzed.

OTHER HAZARDOUS MATERIALS

Stantec performed a visual inspection of existing building equipment for the presence of other hazardous materials and Universal Wastes [pursuant to 40 CFR 273.9, and 40 CFR 260.10]. The survey was limited to above grade only, and did not include a soil or subsurface investigation. Materials evaluated as part of this inspection included: Polychlorinated Biphenyl (PCB)-containing

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
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units such as lighting ballasts and PCB-containing electrical units (i.e., electrical transformers); lead-containing units such as car batteries or emergency exit sign batteries; fluorescent lighting tubes; mercury-containing units such as light switches and thermostats; refrigerants, halon, and other Chlorofluorocarbons (CFCs) such as fire extinguishing systems and Freon® used in association with building drinking fountains; heavy metals as may be found in cooling tower water treatment systems; solvents, paints, fuel (storage tanks), lubricants, and other associated maintenance and cleaning products; radioactive materials that may be contained in units such as smoke detectors, emergency exit signs, or medical equipment; office materials, supplies, and equipment such as computer monitors and printing supplies, and miscellaneous materials such as unlabeled materials or substances of concern.

Stantec's visual inspection was limited to fixtures and equipment in the Subject Property that were readily accessible. Assessment of these hazardous materials was based solely on the identification placards on the equipment or general knowledge of historical use. If the presence and/or absence of a particular material was not clearly marked, then that piece of equipment was assumed to contain a concentration of the material in question. No sample collection was performed in the process of identifying other hazardous materials or Universal Wastes.

The following is a partial summary of current federal and state regulations that contain requirements related to hazardous materials. These summaries are not intended to be all-inclusive and do not contain every aspect of the regulations discussed.

EPA Regulations (40 CFR 273.9 and 40 CFR 260.10)
The EPA regulations (40 CFR 273.9 and 40 CFR 260.10) provide standards for universal waste management and hazardous waste management systems. The EPA regulations specify requirements for managing the following hazardous materials: batteries; pesticides; mercury-containing equipment; lamps; and household and conditionally exempt small quantity generator waste. In addition to the EPA universal waste regulations, the following federal regulations may also include, but not be limited to the following:

- Applicable Federal Occupational Safety and Health regulations,
- Title 40, Code of Federal Regulations, Part 261 – Identification and Listing of Hazardous Waste,
- Title 40, Code of Federal Regulations, Part 262 – Standards Applicable to Generators of Hazardous Waste,
- Title 40, Code of Federal Regulations, Part 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities,
- Title 40, Code of Federal Regulations, Part 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities,
- Title 49, Code of Federal Regulations, Parts 100-199 – Transportation of Hazardous Materials,

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

- Title 40, Code of Federal Regulations, Part 268 – Land Disposal Restrictions,
- Title 40, Code of Federal Regulations, Part 761 – Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, and
- National Emissions Standards for Hazardous Air Pollutants (NESHAPS).

PCBs
Approximately 247 fluorescent light fixtures were observed throughout the buildings on the Subject Property. At least one style of each type of accessible light fixture was disassembled to make observations of the light ballast. All fluorescent light fixtures were labeled as PCB free.

There were 15 HID light ballasts observed on the exterior of the Subject Property. These ballasts are not labeled "No-PCBs" and are assumed to contain PCBs.

Mercury
Many of the interior light fixtures are equipped with fluorescent light tubes. According to the EPA, fluorescent light bulbs contain varying amounts of mercury and can be hazardous to the environment if they are disposed of improperly. Because of this, the EPA encourages the recycling of mercury-containing light bulbs, regardless of the mercury content. A total of approximately 247 fluorescent light fixtures of varying size, shape, and wattage, were observed throughout the Subject Property. Each of the fixtures observed are equipped with one fluorescent light tube for an approximate total of 249 (2 loose tubes found in break room) light tubes that may contain mercury (Hg) present at the Subject Property. 15 HID bulbs were also observed on the exterior of the property and are assumed to be mercury-containing.

Older style "silent" light switches and analog thermostat boxes are also known to contain varying amounts of mercury contained in ampules that act as an electronic switch. During our field work, no evidence of mercury-containing light switches was observed. No mercury-containing thermostats were observed on the Subject Property.

No other mercury-containing equipment was observed. While it is not expected that other mercury-containing light switches or thermostats will be encountered; care should be taken when removing potential mercury-containing equipment to ensure no mercury ampules are present.

Ozone-Depleting Substances
There are several air conditioning units on the south side of the subject property. Labels indicating the type of refrigerant used in this equipment were not observed. Therefore, the units are assumed to contain ozone depleting refrigerant (i.e. Freon®).

Radioactive Materials
Smoke detectors typically utilize a small radioactive source as a key component in detecting smoke particles. EPA regulations require smoke detectors to be disposed of at a nuclear waste facility or returned directly to the manufacturer. One smoke detector was observed within

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

accessible areas of the Subject Property, the labeling on the units indicated that radioactive material was present.

Exit signs that glow in the dark often contain a radioactive gas called tritium. These signs do not require electricity or batteries and can be used where it is hard to install electric signs, such as above doors. They serve an important safety function by marking exits to be used during power outages and emergencies. The signs pose little or no threat to public health and safety or security. *Tritium exit signs must NOT be disposed of as normal trash.* To dispose of a sign properly, a general licensee must transfer the sign to a specific licensee, such as a manufacturer, distributor, licensed radioactive waste broker, or licensed low-level radioactive waste disposal facility. Three radioactive signs were observed on the Subject Property.

Batteries
Batteries are required to be recycled and/or disposed of in accordance with applicable hazardous waste regulations.

No batteries or battery-operated equipment was observed at the Subject Property.

RECOMMENDATIONS

Asbestos-Containing Materials
Based on the findings of this survey, asbestos-containing materials were not identified on the Subject Property. No additional assessment/survey appears warranted at this time.

It should be noted however, that the asbestos survey was limited to accessible materials only and did not include underground utilities operating conveyance equipment or inaccessible areas. Historically, some underground utility piping has been known to contain asbestos (e.g. Transite pipe). If renovation/demolition of portions of the Subject Property includes removal of on-site portions of underground utilities (storm drains, sewer, domestic water laterals, etc.), evaluation of the asbestos content of these components must be performed prior to the removal process. Suspect materials identified in these locations are assumed positive for asbestos until sampling and analysis indicates otherwise. If during the course of a renovation/demolition project suspect ACMs are discovered that are not included within this report, those materials are to be assumed positive for asbestos unless additional sampling, analysis, and/or assessment indicates otherwise.

Lead-Based Paint
No paint samples were taken as there were no observed painted surfaces observed to be in fair or poor condition on the property. If during the course of a renovation/demolition project, suspect LBPs are discovered that are not included within this report, those materials are to be assumed positive for lead unless additional sampling, analysis, and/or assessment indicates otherwise.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Other Hazardous Materials

As described above, there are a several items within the Subject Property that contain mercury, PCBs, and radioactive materials. It is recommended that these materials be handled and disposed of in accordance with applicable EPA regulations (40 CFR 273.9 and 40 CFR 260.10).

LIMITATIONS

Reasonable efforts have been made by Stantec personnel to locate, sample, and/or identify suspect ACMs, LBPs, and hazardous materials associated with the Subject Property. For any facility, the existence of unique or concealed materials and debris is a possibility. In addition, sampling and laboratory analysis constraints typically hinder the investigation. Stantec does not warrant, guarantee, or profess to have the ability to locate or identify all hazardous materials in a facility. The survey is limited in nature, as only full demolition of the Subject Property will reveal all concealed conditions. Stantec cannot warrant the effectiveness or damage thereof, at any of the patches or temporary repairs performed at sampling locations. This report is intended for use in planning based on the agreed upon scope of work. This report is not intended to be a bidding document. Quantities of materials identified are estimates only and would need to be verified. If during the course of a renovation/demolition project suspect ACMs, LBPs, and/or hazardous materials are discovered that are not included within this report, those materials should be treated accordingly until additional sampling, analysis, and/or assessment can be performed.

Additionally, the passage of time may result in a change in the environmental characteristics at the Subject Property. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during Stantec's survey of the Subject Property and test results provided by EMSL Analytical, Inc. These observations are time dependent, are subject to changing site conditions, and revisions to federal, state, and local regulations. Reliance on this letter report by Third Parties (i.e., other than KYTC) shall be at the Third Party's sole risk.

When we conclude that a material is or is not ACM, based on laboratory analyses of samples, we are stating that there is likelihood that constituents of suspect material are accurately characterized by samples procured. We cannot conclude categorically that sampled material is represented by analyzed samples. If one sample of material from a homogenous area is found to be ACM, the material is judged to be ACM. However, if sampling and laboratory analysis indicate that no asbestos was detected, we cannot guarantee that this material is asbestos-free.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

If you have any questions regarding this report or require further clarification, please do not hesitate to contact the Stantec personnel identified below.

Regards,

STANTEC CONSULTING SERVICES INC.

Prepared by:

Shane Kelley
Environmental Scientist
KY Asbestos Inspector # 116-01-0174
Phone: (502) 212-5021
Shane.kelley@stantec.com

Technical Peer Review by:

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Senior Scientist
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Approved by:

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Senior Environmental Scientist
KY Asbestos Inspector # 115-11-2963
Phone: (502) 212-5014
John.watrous@stantec.com

Attachments:
A: Laboratory Analytical Results and Bulk Sample Logs
B: Sample Location Diagram
C: Photographic Log
D: Personnel Certifications

Attachment A
Laboratory Analytical Results and Bulk Sample Logs

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
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http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041603627
Customer ID: STKY42
Customer PO:
Project ID:

Attention: Shane Kelley
Stantec
10509 Timberwood Circle
Louisville, KY 40223

Phone: (502) 212-5021
Fax:
Received Date: 02/16/2016 9:10 AM
Analysis Date: 02/23/2016
Collected Date: 02/10/2016

Project: 178564013 / Mountain Parkway Expansion / 200.006 / Parcel 174 / 992 E Mtn Pkwy, Salyersville, KY

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1A *041603627-0001*	Roof - Roof Mastic Black @ Roof Penetrations	Black Non-Fibrous Homogeneous	20% Cellulose HA: 1	80% Non-fibrous (Other)	None Detected
1B *041603627-0002*	Roof - Roof Mastic Black @ Roof Penetrations	Black Non-Fibrous Homogeneous	20% Cellulose HA: 1	80% Non-fibrous (Other)	None Detected
1C *041603627-0003*	Roof - Roof Mastic Black @ Roof Penetrations	Black Non-Fibrous Homogeneous	10% Cellulose HA: 1	90% Non-fibrous (Other)	None Detected
2A *041603627-0004*	Roof - Sealant Clear Roof @ Penetrations	Clear Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2B *041603627-0005*	Roof - Sealant Clear Roof @ Penetrations	Clear Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2C *041603627-0006*	Roof - Sealant Clear Roof @ Penetrations	Clear Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
3A *041603627-0007*	Sales Floor - Tile Floor Tan/ White Design	Tan Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3B *041603627-0008*	Sales Floor - Tile Floor Tan/ White Design	Tan Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3C *041603627-0009*	Sales Floor - Tile Floor Tan/ White Design	Tan Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3D *041603627-0010*	Sales Floor - Tile Floor Tan/ White Design	Tan Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3E *041603627-0011*	Sales Floor - Tile Floor Tan/ White Design	Tan Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3F *041603627-0012*	Sales Floor - Tile Floor Tan/ White Design	Tan Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3G *041603627-0013*	Sales Floor - Tile Floor Tan/ White Design	Tan Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected

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EMSL Order: 041603627
Customer ID: STKY42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
4A *041603627-0014*	Sales Floor - Tile Mastic Yellow a/w HA #3	Yellow Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4B *041603627-0015*	Sales Floor - Tile Mastic Yellow a/w HA #3	Yellow Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4C *041603627-0016*	Sales Floor - Tile Mastic Yellow a/w HA #3	Yellow Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4D *041603627-0017*	Sales Floor - Tile Mastic Yellow a/w HA #3	Yellow Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4E *041603627-0018*	Sales Floor - Tile Mastic Yellow a/w HA #3	Yellow Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4F *041603627-0019*	Sales Floor - Tile Mastic Yellow a/w HA #3	Yellow Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4G *041603627-0020*	Sales Floor - Tile Mastic Yellow a/w HA #3	Yellow Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
5A *041603627-0021*	Sales Floor - Gypsum Board White	White Fibrous Homogeneous	15% Cellulose 4% Glass HA: 5	81% Non-fibrous (Other)	None Detected
5B *041603627-0022*	Sales Floor - Gypsum Board White	White Non-Fibrous Homogeneous	15% Cellulose 3% Glass HA: 5	82% Non-fibrous (Other)	None Detected
5C *041603627-0023*	Break Room - Gypsum Board White	White Fibrous Homogeneous	15% Cellulose 4% Glass HA: 5	81% Non-fibrous (Other)	None Detected
5D *041603627-0024*	Sales - Gypsum Board White	White Fibrous Homogeneous	15% Cellulose 3% Glass HA: 5	82% Non-fibrous (Other)	None Detected
5E *041603627-0025*	Sales - Gypsum Board White	White Fibrous Homogeneous	15% Cellulose 3% Glass HA: 5	82% Non-fibrous (Other)	None Detected
6A *041603627-0026*	Sales Floor - Joint Compound White a/w HA #5	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected
6B *041603627-0027*	Sales Floor - Joint Compound White a/w HA #5	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected
6C *041603627-0028*	Break Room - Joint Compound White a/w HA #5	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected

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EMSL Order: 041603627
Customer ID: STKY42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
6D *041603627-0029*	Sales - Joint Compound White a/w HA #5	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected
6E *041603627-0030*	Sales - Joint Compound White a/w HA #5	White Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	None Detected
7A *041603627-0031*	Stock Room - Gypsum Board Grey/ White	White Fibrous Homogeneous	15% Cellulose 4% Glass HA: 7	81% Non-fibrous (Other)	None Detected
7B *041603627-0032*	Stock Room - Gypsum Board Grey/ White	White Fibrous Homogeneous	15% Cellulose 3% Glass HA: 7	82% Non-fibrous (Other)	None Detected
7C *041603627-0033*	Stock Room - Gypsum Board Grey/ White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 7	85% Non-fibrous (Other)	None Detected
8A *041603627-0034*	Stock Room - Joint Compound White a/w HA #7	White Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	None Detected
8B *041603627-0035*	Stock Room - Joint Compound White a/w HA #7	White Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	None Detected
8C *041603627-0036*	Stock Room - Joint Compound White a/w HA #7	White Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	None Detected
9A *041603627-0037*	Sales Floor - Drop Ceiling Tile White	White Fibrous Homogeneous	70% Cellulose 10% Min. Wool HA: 9	20% Non-fibrous (Other)	None Detected
9B *041603627-0038*	Sales Floor - Drop Ceiling Tile White	White Fibrous Homogeneous	70% Cellulose 10% Min. Wool HA: 9	20% Non-fibrous (Other)	None Detected
9C *041603627-0039*	Sales Floor - Drop Ceiling Tile White	White Fibrous Homogeneous	70% Cellulose 10% Min. Wool HA: 9	20% Non-fibrous (Other)	None Detected
9D *041603627-0040*	Sales Floor - Drop Ceiling Tile White	White Fibrous Homogeneous	70% Cellulose 10% Min. Wool HA: 9	20% Non-fibrous (Other)	None Detected
9E *041603627-0041*	Sales Floor - Drop Ceiling Tile White	White Fibrous Homogeneous	70% Cellulose 10% Min. Wool HA: 9	20% Non-fibrous (Other)	None Detected
9F *041603627-0042*	Sales Floor - Drop Ceiling Tile White	Gray/White Fibrous Homogeneous	60% Cellulose 30% Min. Wool HA: 9	10% Non-fibrous (Other)	None Detected
9G *041603627-0043*	Break Room - Drop Ceiling Tile White	Gray/White Fibrous Homogeneous	70% Cellulose 20% Min. Wool HA: 9	10% Non-fibrous (Other)	None Detected

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EMSL Order: 041603627
Customer ID: STKY42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
10A *041603627-0044*	Break Room - Wall Mastic Yellow	Tan Non-Fibrous Homogeneous	HA: 10	100% Non-fibrous (Other)	None Detected
10B *041603627-0045*	Sales Floor - Wall Mastic Yellow	Tan Non-Fibrous Homogeneous	HA: 10	100% Non-fibrous (Other)	None Detected
10C *041603627-0046*	Sales Floor - Wall Mastic Yellow	Tan Non-Fibrous Homogeneous	HA: 10	100% Non-fibrous (Other)	None Detected
11A *041603627-0047*	Stock Room - Mastic Yellow	Yellow Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11B *041603627-0048*	Stock Room - Mastic Yellow	Yellow Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
12A *041603627-0049*	Front of Exterior Bldg - Caulk Outside White	White Non-Fibrous Homogeneous	HA: 12	100% Non-fibrous (Other)	None Detected
12B *041603627-0050*	Front of Exterior Bldg - Caulk Outside White	White Non-Fibrous Homogeneous	HA: 12	100% Non-fibrous (Other)	None Detected
12C *041603627-0051*	Front of Exterior Bldg - Caulk Outside White	Tan/White Non-Fibrous Homogeneous	HA: 12	100% Non-fibrous (Other)	None Detected
13A *041603627-0052*	Exterior Front Door - Caulk Black	Black Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13B *041603627-0053*	Exterior Front Door - Caulk Black	Black Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13C *041603627-0054*	Exterior Front Door - Caulk Black	Black Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
14A-Floor Tile *041603627-0055*	Sales Floor - Tile Tan	Tan Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
14A-Mastic *041603627-0055A*	Sales Floor - Mastic	Yellow Non-Fibrous Homogeneous	HA: 14	100% Non-fibrous (Other)	None Detected
15A *041603627-0056*	Sales Floor - DCT Ceiling Tile White	Gray/White Fibrous Homogeneous	50% Cellulose 40% Min. Wool HA: 15	10% Non-fibrous (Other)	None Detected
16A *041603627-0057*	Restroom 2 - Joint Compound White a/w HA #17	White Non-Fibrous Homogeneous	HA: 16	100% Non-fibrous (Other)	None Detected

Initial Report From: 02/23/2016 15:32:01

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
17A *041603627-0058*	Restroom 2 - Gypsum Board White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 17	85% Non-fibrous (Other)	None Detected

Analyst(s)

Adam Gart (23)
William Bradford (36)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government . Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial Report From: 02/23/2016 15:32:01

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*: 041603627

PHONE:
FAX:

Company Name: Stantec Consulting		**EMSL Customer ID:**	
Street: 10509 Timberwood Circle		**City:** Louisville	**State/Province:** Kentucky
Zip/Postal Code: 40223	**Country:** USA	**Telephone #:** 502-212-5000	**Fax #:** 502-212-5055
Report To (Name): Shane Kelley		**Please Provide Results:** ☐ Fax ☑ Email	
Email Address: shane kelley@stantec.com		**Purchase Order:**	
Project Name/Number: 178564013		**EMSL Project ID** *(Internal Use Only)*:	
U.S. State Samples Taken: Kentucky		**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt	

EMSL-Bill to: ☑ Same ☐ Different - If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide*

PCM - Air ☐ Check if samples are from NY
☐ NIOSH 7400
☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
☑ PLM EPA 600/R-93/116 (<1%)
☐ PLM EPA NOB (<1%)
Point Count
☐ 400 (<0 25%) ☐ 1000 (<0 1%)
Point Count w/Gravimetric
☐ 400 (<0.25%) ☐ 1000 (<0.1%)
☐ NYS 198.1 (friable in NY)
☐ NYS 198 6 NOB (non-friable-NY)
☐ NYS 198.8 SOF-V
☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
☐ AHERA 40 CFR, Part 763
☐ NIOSH 7402
☐ EPA Level II
☐ ISO 10312

TEM - Bulk
☐ TEM EPA NOB
☐ NYS NOB 198 4 (non-friable-NY)
☐ Chatfield SOP
☐ TEM Mass Analysis-EPA 600 sec 2 5

TEM – Water: EPA 100.2
Fibers >10µm ☐ Waste ☐ Drinking
All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
☐ Microvac - ASTM D 5755
☐ Wipe - ASTM D6480
☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite*
☐ PLM CARB 435 - A (0.25% sensitivity)
☐ PLM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - C (0.01% sensitivity)
☐ TEM Qual via Filtration Technique
☐ TEM Qual via Drop-Mount Technique
*Can not accept New York State Loose Fill Vermiculite Samples

Other:
☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Filter Pore Size (Air Samples): ☐ 0.8µm ☐ 0.45µm

Samplers Name: Shane Kelley **Samplers Signature:** Shane Kelley

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	See Attached Logs		

Client Sample # (s): 1A - 17A **Total # of Samples:** ~~56~~ 58

Relinquished (Client): Shane Kelley **Date:** 2/12/16 **Time:** 5:30

Received (Lab): Beatty FHG **Date:** 2/16/16 **Time:** 910

Comments/Special Instructions:

Controlled Document – Asbestos COC – R9 – 10/30/2014

Page 1 of 1 pages

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2-10-16
Inspector: S. Kelley

MATERIAL

HA#	1
Material Type:	Roof mastic
Color:	BLACK
Description:	@ roof penetrations
Estimated Total Qty.:	4 sq Ft

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Roof (@ penetrations)		

SAMPLES

Sample #	Sample Location
1 A	roof
1 B	roof
1 C	roof
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 1 of 17

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Site Name: Parcel 174
Date: 2-10-16
Project #: 178564013 Task #: 200.006
Site Address: 992 E MTN PKWY
Sulyersville, KY
Inspector: S. Kelley

MATERIAL

HA#	2
Material Type:	Sealant
Color:	Clear
Description:	Roof @ penetrations
Estimated Total Qty.:	4 SQ FT

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Roof (@ penetrations)		

SAMPLES

Sample #	Sample Location
2 A	roof
2 B	roof
2 C	roof
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 2 of 17

MAGOFFIN COUNTY
TGR 0061(064) 041603627

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2-10-16
Inspector: S. Kelley

MATERIAL

HA#	3
Material Type:	Tile floor
Color:	tan
Description:	tan/white design
Estimated Total Qty.:	7,600 SQFT

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Sales Floor		G
↓	Office		↓
	Break Room		
	Restroom 1		
	Restroom 2		

SAMPLES

Sample #	Sample Location
3 A	Sales floor
3 B	Sales floor
3 C	Sales floor
3 D	Break room
3 E	Sales floor
3 F	Sales floor
3 G	Sales floor

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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MAGOFFIN COUNTY
TGR-001(004) 041603627

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Site Name: Parcel 174
Date: 2-10-16
Project #: 178564013 Task #: 200.006
Site Address: 992 E MTN PKWY Salyersville, KY
Inspector: S. Kelley

MATERIAL

HA#	4
Material Type:	tile mastic
Color:	yellow -
Description:	associated w/ HA #3
Estimated Total Qty.:	7,600 sq Ft

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Sales Floor		G
↓	Office		↓
	Breakroom		
	Restroom 1		
	Restroom 1		

SAMPLES

Sample #	Sample Location
4 A	Sales Floor
4 B	Sales Floor
4 C	Sales Floor
4 D	Breakroom
4 E	Sales Floor
4 F	Sales Floor
4 G	Sales Floor

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

MAGOFFIN COUNTY
TCR 0081(064) 041603627

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2/10/16
Inspector: S. Kelley

MATERIAL

HA#	5
Material Type:	Gypsum Board
Color:	white
Description:	
Estimated Total Qty.:	3,400 sq ft

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Sales Floor		G
↓	Office		↓
	Break room		
	Restroom 1		
	Restroom 2		

SAMPLES

Sample #	Sample Location
5 A	Sales floor
5 B	Sales floor
5 C	Break room
5 D	Sales
5 E	Sales.
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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MAGOFFIN COUNTY
TOP 0061(064) 041603627

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2/10/16
Inspector: S. Kelley

MATERIAL	
HA#	6
Material Type:	Joint Compound.
Color:	White
Description:	associated w/ HA#5
Estimated Total Qty.:	3,400 SQFT

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
1	Sales Floor		G
↓	Office		↓
	Breakroom		
	Restroom 1		
	Restroom 2		

SAMPLES	
Sample #	Sample Location
6 A	Sales floor
6 B	Sales floor
6 C	Break room
6 D	Sales
6 E	Sales
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 12/10/16
Inspector: S. Kelley

MATERIAL

HA#	7
Material Type:	Gypsum Board
Color:	Gray/white
Description:	
Estimated Total Qty.:	700 sq Ft

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Stock Room	700 sq Ft	G

SAMPLES

Sample #	Sample Location
7A	Stock room
7B	
7C	
D	
E	
F	
G	

Notes:

Relinquished By: Date: Received By: Date:

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MAGOFFIN COUNTY
TGP 041603627

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 ... PM 10:21

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 12/10/16
Inspector: S. Kelley

MATERIAL

HA#	8
Material Type:	Joint Compound
Color:	White
Description:	Associated w/ HA#7
Estimated Total Qty.:	700 sq Ft

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Stock Room	700 sq ft	G

SAMPLES

Sample #	Sample Location
8 A	Stock room
8 B	Stock room
8 C	Stock room
D	
E	
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 F 15 PM 10: 21

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2-11-16
Inspector: S. Kelley

MATERIAL

HA#	9
Material Type:	Drop ceiling tile
Color:	White
Description:	
Estimated Total Qty.:	7,600 sq ft

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Sales Floor		G
↓	Office		↓
	Breakroom		
	Restroom 1		
	Restroom 2		

SAMPLES

Sample #	Sample Location
9 A	Sales Floor
9 B	↓
9 C	
9 D	
9 E	
9 F	
9 G	Breakroom

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174 16 PM 10: Date: 2-11-16
Site Address: 992 E MTN PKWY
Salyersville, KY
Inspector: S. Kelley

MATERIAL	
HA#	10
Material Type:	Wall fouler mastic
Color:	Yellow
Description:	
Estimated Total Qty.:	350 sq ft

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
1	Sales Floor		G
↓	Office		↓
	Breakroom		
	Restroom 1		
	Restroom 2		

SAMPLES	
Sample #	Sample Location
10 A	Breakroom
10 B	Sales Floor
10 C	Sales Floor
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 10 of 17

MAGOFFIN COUNTY
TO 1 (04) 041603627
CR 0061(064)

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 PM 10:21

Project Name: Mountain Parkway Expansion
Site Name: Parcel 174
Date: 2-11-16
Project #: 178564013 Task #: 200.006
Site Address:
Inspector: S. Kelley

MATERIAL

HA#	11
Material Type:	wash tub mastic
Color:	Yellow
Description:	
Estimated Total Qty.:	15 sq FT

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Stock Room	15 sqft	G

SAMPLES

Sample #	Sample Location
11 A	Stockroom
11 B	
~~11 C~~	
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: Date: Received By: Date:

Page 11 of 17

MAGOFFIN COUNTY
TGP 041603627

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174 16 PM 10:21 Date: 2-11-16
Site Address: 992 E MTN PKWY
Salyersville, KY
Inspector: S. Kelley

MATERIAL	
HA#	12
Material Type:	Caulk outside
Color:	white
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Exterior (Foot of wall)		

SAMPLES	
Sample #	Sample Location
12 A	~~Outside~~. Four of exterior building
12 B	
12 C	
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174 16 PM 10: 31 Date: 2-11-16
Site Address: 992 E MTN PKWY
Salyersville, KY
Inspector: S. Kelley

MATERIAL

HA#	13
Material Type:	Caulk
Color:	Black
Description:	
Estimated Total Qty.:	4 SQ FT

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Exterior (Around Front door & windows)		G

SAMPLES

Sample #	Sample Location
13 A	exterior front door
13 B	|
13 C	|
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 PM 10:21

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Panel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2-11-16
Inspector: S. Kelley

MATERIAL

HA#	14
Material Type:	tile
Color:	tan
Description:	
Estimated Total Qty.:	7,600 SQFT

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
14 A	Sales Floor
B	
C	
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 FM 10:21

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2-11-16
Inspector: S. Kelley

MATERIAL

HA#	15
Material Type:	DCT Ceiling Tile
Color:	White
Description:	
Estimated Total Qty.:	7,600 SQFT

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
15 A	Sales floor
B	
C	
D	
E	
F	
G	

Notes:

Relinquished By: Date: Received By: Date:

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MAGOFFIN COUNTY
TGP 041603627

041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 174 16 PM 10:21 Date: 2-11-16
Site Address: 992 E MTN PKWY
Salyersville, KY
Inspector: S. Kelley

MATERIAL

HA#	16
Material Type:	Joint Compound
Color:	White
Description:	Associated w/ HA#17
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
16 A	Restroom 2
B	
C	
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041603627

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 1754
Site Address: 992 E MTN PKWY
Salyersville, KY

Date: 2-11-16
Inspector: S. Kelley

MATERIAL

HA#	17
Material Type:	Gypsum Board
Color:	white
Description:	
Estimated Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
17 A	Restroom 2
B	
C	
D	
E	
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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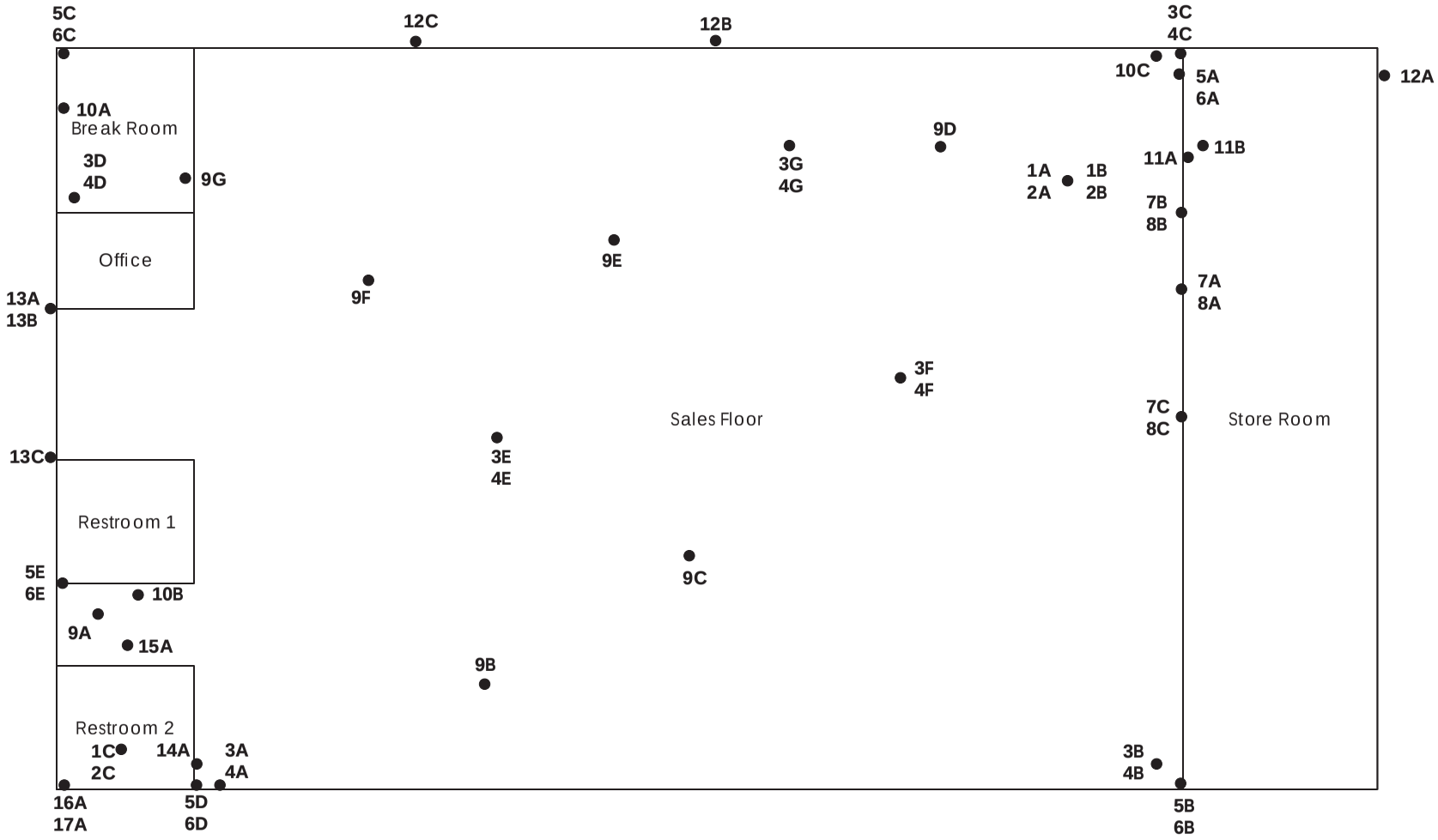
MAGOFFIN COUNTY
TGP 041603627

Attachment B
Sample Location Diagram



LEGEND:

- NON-ACM SAMPLE LOCATION

NOT TO SCALE

Stantec	FOR: Pre-Demolition Hazardous Materials Survey Mountain Parkway Expansion Parcel 174 – 992 E. Mountain Parkway Salyersville, Kentucky		ASBESTOS AND LEAD-BASED PAINT SAMPLE LOCATION MAP		FIGURE: 1
	PROJECT NUMBER: 178564013	DRAWN BY: SK	CHECKED BY: JS	APPROVED BY: JW	DATE: 2/25/2016

Attachment C
Photographic Log

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 1, February 10, 2016

Exterior of Subject Property.

PHOTO No. 2, February 10, 2016

External HDMI Lights on building exterior.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 3, February 10, 2016

Front entrance.

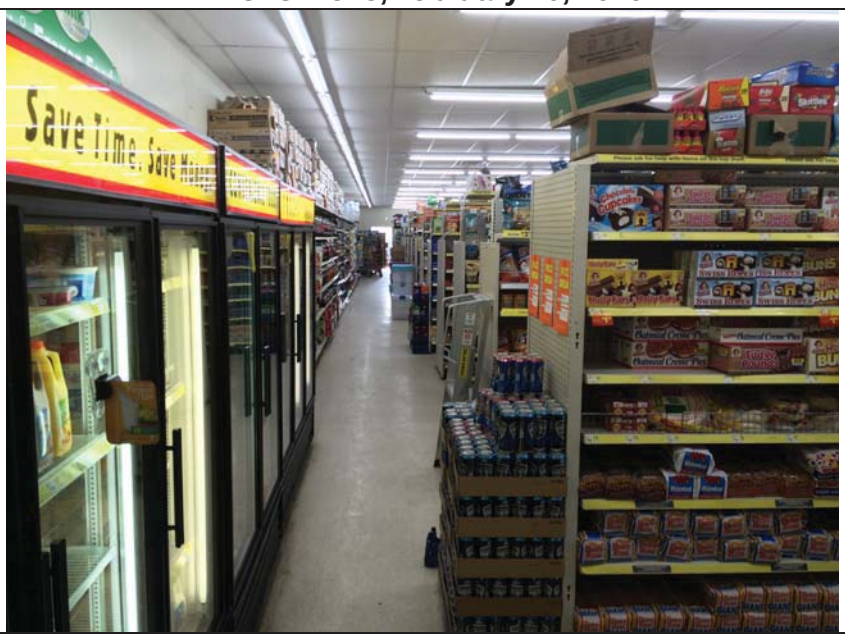
PHOTO No. 4, February 10, 2016

Caulk used around entrance.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 5, February 10, 2016



Typical view of sales floor.

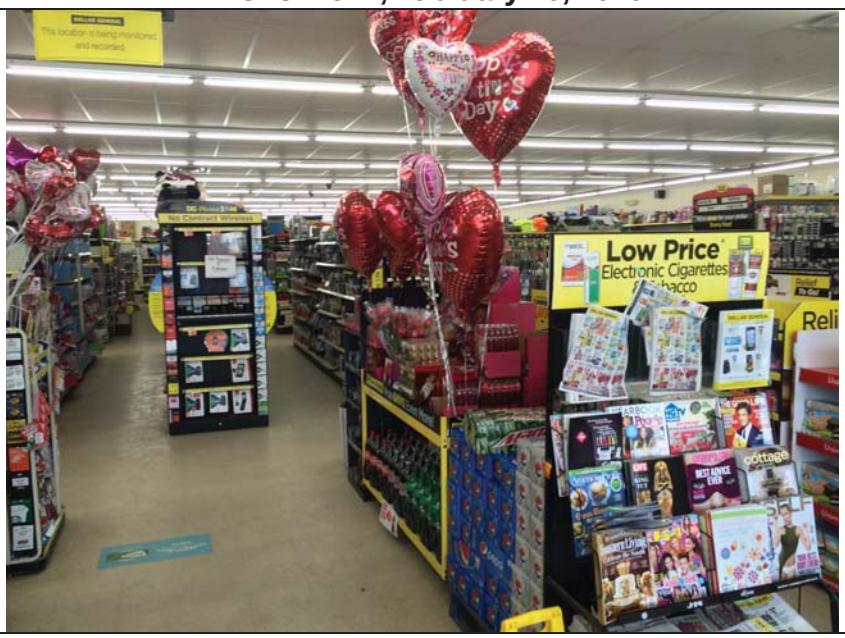
PHOTO No. 6, February 10, 2016

Check out area on sales floor.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 7, February 10, 2016



Typical view of sales floor.

PHOTO No. 8, February 10, 2016

Hallway leading to Restroom 1 and 2.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 9, February 10, 2016

Drinking fountains in hallway between Restroom 1 and 2.

PHOTO No. 10, February 10, 2016

Typical view of restroom interior.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 11, February 10, 2016

Typical view of restroom interior.

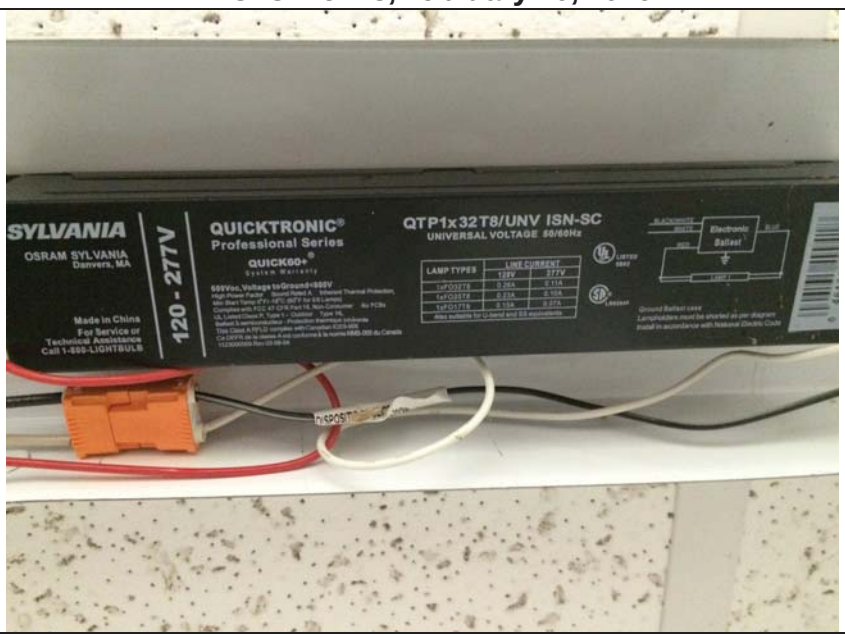
PHOTO No. 12, February 10, 2016

Fluorescent lightbulbs and fixtures found throughout interior.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 13, February 10, 2016



Non-PCB containing light ballast.

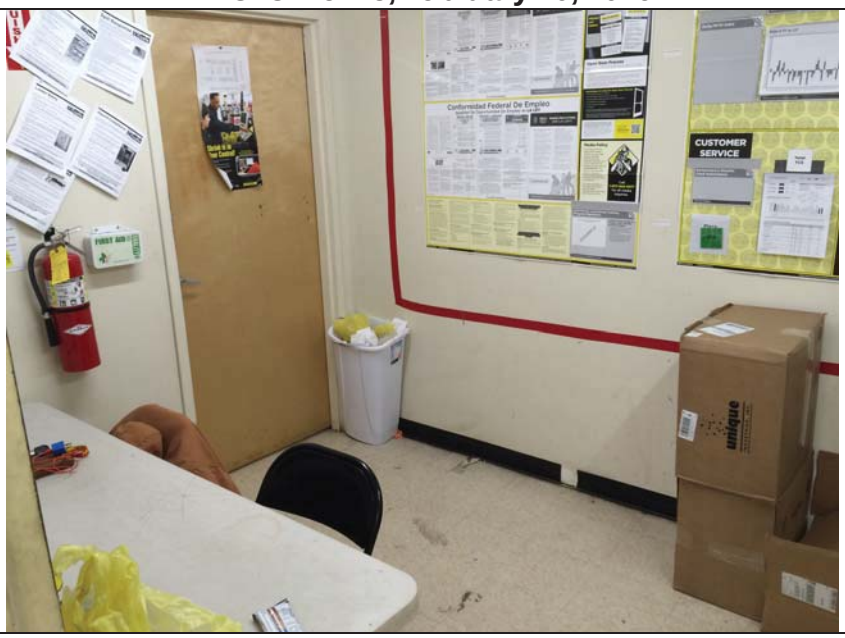
PHOTO No. 14, February 10, 2016

Floor tile used throughout interior of Subject Property. (except stock room)

March 2, 2016
Mr. Tom Springer

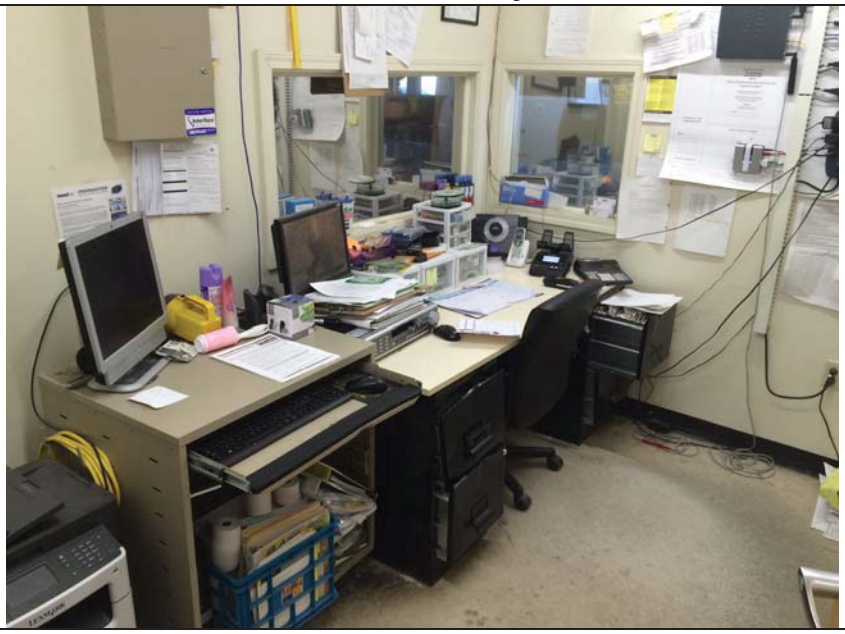
Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 15, February 10, 2016



Interior of break room.

PHOTO No. 16, February 10, 2016

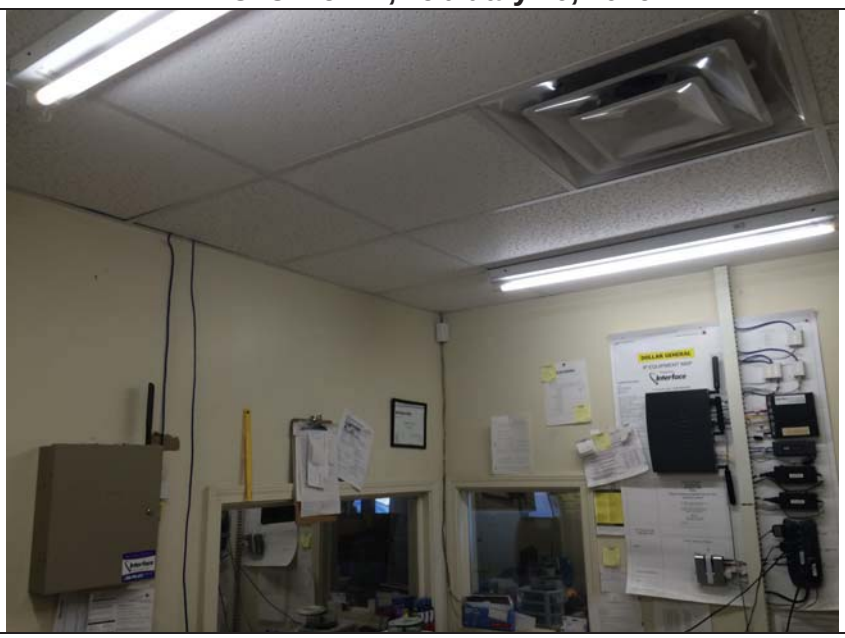


Interior of office.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 17, February 10, 2016



Ceiling tile used throughout interior. (except stock room)

PHOTO No. 18, February 10, 2016

Baseboard running along foot of walls of interior of Subject Property.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 19, February 10, 2016

Mastic found on backside of baseboard.

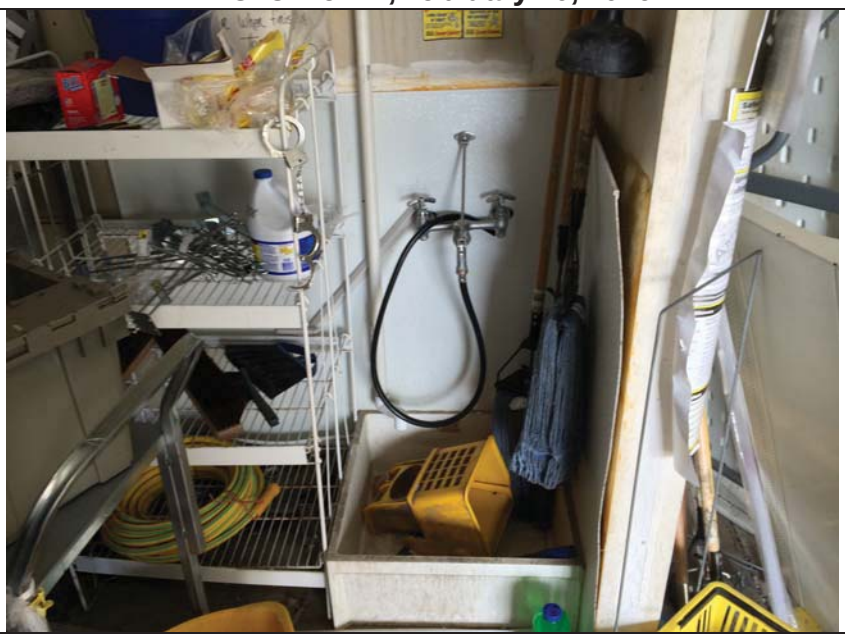
PHOTO No. 20, February 10, 2016

Interior of stock room.

March 2, 2016
Mr. Tom Springer

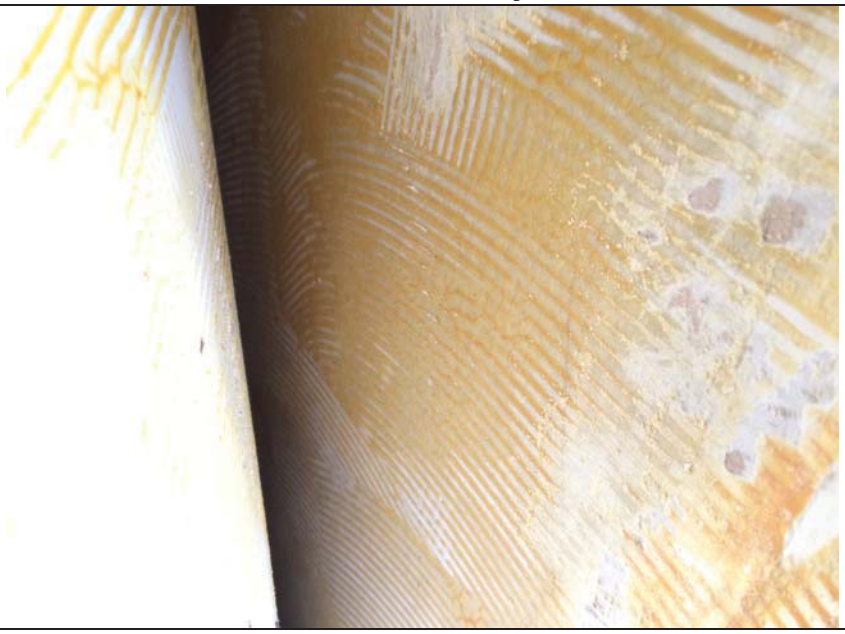
Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 21, February 10, 2016



Wash tub located in the stock room.

PHOTO No. 22, February 10, 2016



Mastic used on backside of washtub wall.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 23, February 10, 2016

Gypsum board and Joint compound walls within stock room.

PHOTO No. 24, February 10, 2016

Ceiling of stock room. Fiberglass insulation.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 25, February 10, 2016

Caulk running along foot of exterior wall along corrugated metal and concrete.

PHOTO No. 26, February 10, 2016

Roof penetration. (Two total)

March 2, 2016
Mr. Tom Springer

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Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 27, February 10, 2016

Mastic and sealant used around roof penetrations.

PHOTO No. 28, February 10, 2016

View of corrugated metal roof facing west.

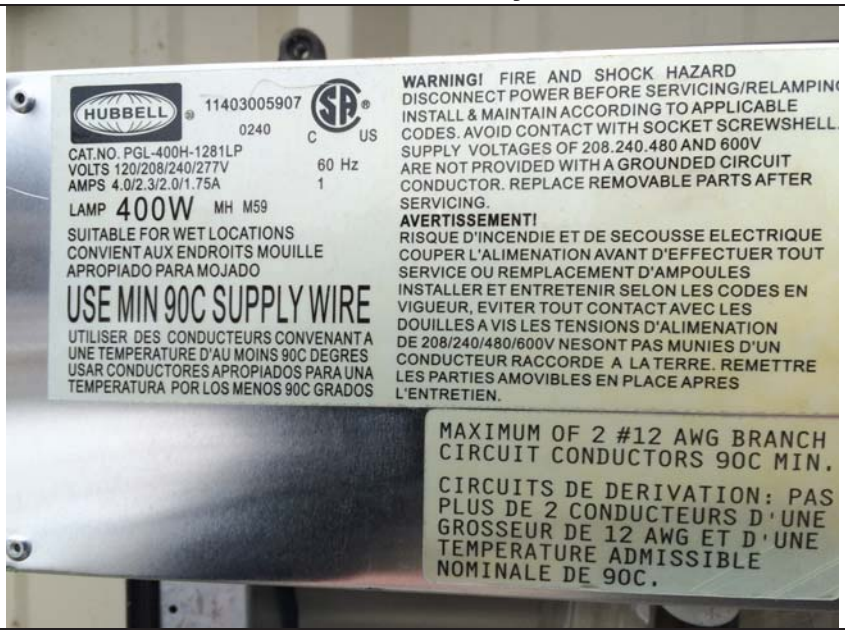
March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Dollar General, 992 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 29, February 10, 2016

HID light ballast and bulb.

PHOTO No. 30, February 10, 2016



Label on exterior of HID light ballast. Assumed to contain PCBs.

Attachment D
Personnel Certifications

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.

Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-06-02 through 2016-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
Mr. Ben Ellis
Phone: 800-220-3675 Fax: 856-786-5973
Email: bellis@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

TSI Training Services International

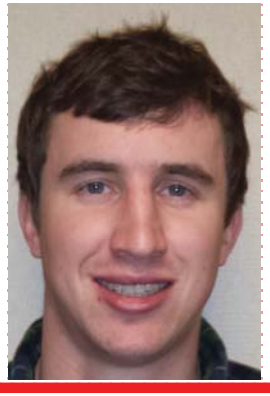
Asbestos Building Inspector Refresher

Certificate

This is to certify

Shane Kelley

XXX-XX-6624



has attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory course for the Asbestos Building Inspector Refresher and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2 and Chapter 3701-34 Ohio Administrative Code.

Training Manager	Expiration Date	Date(s) of Course	Examination Date	Course Location
	1/20/17	1/20/16	1/20/16	Cincinnati, OH

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
1-866-666-8438

16 TSI 61997 ir

Commonwealth of Kentucky
Department for Environmental Protection
Division for Air Quality

Shane Patrick Kelley

Has met the requirements of 401 KAR 58:005 and is accredited as an:

Asbestos Inspector

Accreditation Number: **I16-01-0174**

Issue Date: **1/25/2016**

Expiration Date: 1/20/2017

KENTUCKY DIVISION FOR AIR QUALITY

Commonwealth of Kentucky
Department for Environmental Protection
Division for Air Quality

John D. Watrous

Has met the requirements of 401 KAR 58:005 and is accredited as an:

Asbestos Inspector

Accreditation Number: **I15-11-2963**
Issue Date: **11/30/2015**
Expiration Date: 8/25/2016

KENTUCKY DIVISION FOR AIR QUALITY

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Jason Stagno

ABIR1214150008N8308

Alan Dages

Principal Instructor

Michael W. Horner

Michael W. Horner
Training Director

12/14/2015	12/14/2015	12/14/2015	12/14/2016
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.

National Association of Training and Environmental Consulting

1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.

National Association of Training and Environmental Consulting

Anaheim, CA | Oakland, CA | Marianas & Guam

Asbestos • Lead • Mold • HAZWOPER

P.O. Box 25205 Anaheim, CA 92825-5205

(714) 678-2750, (800) 969-3228, Fax (714) 678-2757

www.natecintl.com

NATEC International, Inc.

National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Jason Stagno

Holds Training Certification For
Asbestos Building Inspector Refresher Course

(Valid for 12 months)

Training Date 12/14/2015
Certificate No. ABIR1214150008N8308

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Jason Stagno

AMPR1214150010N8309

Alan Dages
Principal Instructor

Michael W. Horner
Training Director

12/14/2015	12/14/2015	12/14/2015	12/14/2016
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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This Card Acknowledges That
Jason Stagno

Holds Training Certification For
Asbestos Management Planner Refresher Course

(Valid for 12 months)

Training Date 12/14/2015
Certificate No. AMPR1214150010N8309

Michael W. Horner
Training Director

Stantec Consulting Services Inc.
10509 Timberwood Circle, Suite 100, Louisville KY 40223-5301

March 2, 2016
File: 178564013.200.006

Mr. Tom Springer
Qk4, Inc.
1046 East Chestnut Street
Louisville, Kentucky 40204

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179
1120 E Mountain Parkway, Salyersville Kentucky

Dear Mr. Springer:

Stantec Consulting Services Inc. (Stantec) appreciates the opportunity to provide you with the following asbestos-containing materials (ACM), lead-based paint (LBP), and hazardous materials survey report. The survey was performed at the property referenced above on January 27, 2016. The location is an operating automotive repair facility, and is comprised of a sales/parts storage building, a service garage, and rear apartment building (herein referred to as the Subject Property).

The purpose of this survey is to evaluate for the presence of ACMs, LBP, and hazardous materials that would require special handling and/or disposal in accordance with applicable federal, state, and local regulations.

BACKGROUND

At the request of the Kentucky Transportation Cabinet (KYTC), Stantec performed a pre-demolition ACM, LBP, and hazardous materials survey of accessible materials in support of the planned demolition of the Subject Property.

Stantec understands that the Subject Property is scheduled for a complete demolition and removal of all buildings and pumping facilities. Stantec observed the following structures at the Subject Property:

- Sales and Parts Storage Building – Constructed of concrete masonry units (CMU) and anodized metal on a concrete foundation; the roof consists of anodized metal with penetration mastic around roof penetrations; all three exterior doors and window frames consist of metal; in additions there are eight (8) roll up doors composed of metal and glass (five (5) on the front of the building, three (3) on the back); and the existing interior finishes generally consist of wood walls, gypsum board/joint compound walls, ceramic tile flooring, drop down ceiling tile, and unfinished concrete flooring.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

- Apartment Building– These areas are located primarily above Tire Storage 2; this structure is constructed of vinyl siding and CMU's with anodized metal roofing and wooden framing; and interior improvements consist of vinyl floor tile, wood and carpet flooring, gypsum board/joint compound walls and ceilings with texture.

PROJECT PERSONNEL

The survey was performed on January 27, 2016, by Mr. Shane Kelley, Stantec Environmental Scientist and Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Accredited Building Inspector (#I16-01-0174). A survey of LBP and inventory of other hazardous materials was conducted by Ms. Lindsay Conley, Stantec Biologist, and Mr. Shane Kelley.

SUSPECT ASBESTOS-CONTAINING MATERIALS

Asbestos is a potential health hazard capable of causing respiratory system fibrosis and various forms of systemic cancers. Its condition, handling, and disposal are regulated by federal, state, and local agencies. Materials that contain asbestos generally do not pose a health threat unless the asbestos fibers are disturbed by renovation, construction, or demolition, and may then become airborne and inhaled.

The EPA defines a homogeneous area as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture. The use or application of the homogeneous area is also used to identify suspect ACMs. The EPA and OSHA define ACM as any material that contains more than one percent (by weight) of asbestos (>1%). Only one sample from a homogeneous area with an asbestos concentration >1% is required to collectively identify that material as an ACM. The EPA additionally categorizes ACM as follows:

- Category I non-friable ACM – asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1% asbestos as determined using the PLM method.
- Category II non-friable ACM – any material, excluding Category I non-friable ACM, containing more than 1% asbestos as determined using the PLM method that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Regulated asbestos-containing material (RACM) – (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Potential asbestos exposure in construction is regulated when construction, alteration, repair, maintenance, renovation or demolition of structures, substrates, or portions thereof contain asbestos [29 CFR 1926.1101 (a)(3)].

Sampling and Analysis

Stantec conducted a pre-demolition survey of materials at the Subject Property in order to identify suspect ACMs in general accordance with the Asbestos Hazard Emergency Response Act (AHERA) sampling guidelines as outlined in 40 CFR Part 763. The location, condition, friability, and the potential for suspect ACMs to be impacted (i.e. disturbed) was assessed and documented. Bulk samples of readily accessible suspect ACMs were collected. Consistent with building demolition and renovation regulatory requirements, building material sampling was conducted regardless of the age and/or condition of the structure.

A total of 76 bulk samples were collected from 29 homogeneous areas at the Subject Property. Quality control samples were procured at a rate of one per ten bulk samples to ensure lab results were accurate. The samples were analyzed by Polarized Light Microscopy in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" (EPA/600/R93/116, July 1993). In accordance with the methods described in 40 CFR 61, subpart E, Appendix E, all PLM sample results identified to be positive for asbestos <10% were point counted using gravimetric preparation methods at 400 points. The non-friable organically bound (NOB) samples were also analyzed using Transmission Electron Microscopy (TEM). Analysis was performed by EMSL Analytical, Inc. (EMSL) located in Cinnaminson, New Jersey. This laboratory is a participant in the Environmental Laboratory Accreditation Program (ELAP No. 1877) and the National Institute of Standards and Testing, National Voluntary Laboratory Accreditation Program. The laboratory is also accredited by the American Industrial Hygiene Association.

A summary of the laboratory analytical results are included in Table 1.

Findings

Table 1 provides a summary of the suspect materials identified and sampled during this survey. The table includes the OSHA definition and the EPA category, as applicable.

Table 1 – Asbestos Bulk Sample Results

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
1A 1B 1C 1D 1E	Gypsum Board, White	Tire Storage 2 (Ceiling)	ND	Good	1,800 SF	NA	NA
2A 2B 2C	Spray Foam, White/Orange	Bay 1, Bay 2	ND	Good	10 SF	NA	NA

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
3A 3B 3C 3D 3E	Drop Ceiling Tile, White	Tire Storage 1, Restroom 1, Restroom 2, Office, Closet	ND	Good	1,600 SF	NA	NA
4A 4B 4C	Ceramic Tile Mastic, White	Restroom 1, Restroom 2	ND	Good	200 SF	NA	NA
5A 5B 5C	Ceramic Tile, Tan	Restroom 1, Restroom 2	ND	Good	200 SF	NA	NA
6A 6B 6C	Drywall, White	Tire Storage 1, Restroom 1, Restroom 2, Office, Closet	ND	Good	900 SF	NA	NA
7A 7B 7C	Joint Compound, White	Tire Storage 1, Restroom 1, Restroom 2, Office, Closet	ND	Good	900 SF	NA	NA
8A 8B 8C	Caulk, Grey	Tire Storage 1 (Window Sills)	ND	Good	5 SF	NA	NA
9A 9B	Thermal Lining (Black)	Bay 3	ND	Good	5 SF	NA	NA
10A 10B 10C	Caulk (Grey)	Bay 1 (Hydraulic Lifts)	ND	Good	3 SF	NA	NA
11A 11B 11C	Carpet Mastic (Yellow)	Office	ND	Good	300 SF	NA	NA
12A	Drywall (White)	Tire Storage 2	ND	Good	1,800 SF	NA	NA
13A 13B 13C	Caulk (Grey)	Bay 3, Bay 4	ND	Good	10 SF	NA	NA
14A	Drop Ceiling Tile (White)	Tire Storage 1, Restroom 1, Restroom 2, Office, Closet	ND	Good	1,600 SF	NA	NA
15A	Caulk (Grey)	Bay 3, Bay 4	ND	Good	10 SF	NA	NA

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
16A 16B 16C	Joint Compound (White)	Apartment 1 & 2	ND	Good	800 SF	NA	NA
17A 17B 17C 17D 17E	Gypsum Board (White)	Hallway 1, Bedroom 1, Restroom 2, Bedroom Closet 1, Bedroom Closet 2	ND	Good	2,500 SF	NA	NA
17D	Joint Compound (White)	Hallway 1, Bedroom 1, Restroom 2, Bedroom Closet 1, Bedroom Closet 2	ND	Good	800 SF	NA	NA
18A 18B 18C	Vinyl Floor Tile (Tan/Grey/ Sand)	Apartment 1 (Restroom 1)	ND	Good	100 SF	NA	NA
19A 19B 19C	Floor Mastic (Yellow)	Apartment 1 (Restroom 1)	ND	Good	100 SF	NA	NA
20A 20B 20C	Sink Coating (Black)	Kitchen 1, Kitchen 2 (Under Sinks)	ND	Good	12 SF	NA	NA
21A 21B 21C	Carpet Mastic (White/Yellow)	Bedroom 1, Bedroom 2	ND	Good	10 SF	NA	NA
22A 22B 22C 22D 22E	Ceiling Texture (White)	Apartment 1, Apartment 2	ND	Good	1,800 SF	NA	NA
23A	Ceiling Texture (White)	Living Room 1	ND	Good	1,800 SF	NA	NA
24A	Sink Coating (Black)	Kitchen 1, Kitchen 2 (Under Sinks)	ND	Good	4 SF	NA	NA
25A 25B 25C	**Roofing Tar, Black**	**Roof of Service Station**	**2.0% Chrysotile (by Point Count)**	**Good**	**10 SF**	**ACM**	**Cat. I**

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
26A 26B	**Roof Mastic, Silver**	**Roof of Service Station**	**1.2% Chrysotile (by Point Count)**	**Good**	**10 SF**	**ACM**	**Cat. I**
27A 27B	Caulk, Blue/Grey	Roof of Service Station	ND	Good	5 SF	NA	NA
28A 28B	Caulk, White	Roof of Service Station	ND	Good	5 SF	NA	NA
29A 29B	Caulk, Grey	Roof of Service Station	ND	Good	5 SF	NA	NA

Notes and Abbreviations:
SF = Square Feet
EA = Each
ND = Non-Detect
NA = Not Applicable
ACM = Asbestos-Containing Material
Cat. I = Category I, Non-friable Asbestos-Containing Material
Items in **bold** are identified as having asbestos concentrations that exceed regulatory thresholds.

Bulk sample logs and laboratory analytical results are provided in Attachment A; a sample location diagram is provided in Attachment B; and a photographic log is provided in Attachment C.

SUSPECT LEAD-BASED PAINTS

Lead is a potential health hazard. Its condition, handling, and disposal are regulated by federal, state, and local agencies. Lead in paint generally does not pose a health threat unless the material is disturbed or sufficiently deteriorated to produce dust, which may become airborne and inhaled or ingested. Contractors working in the facility should be informed of the type and the location of lead-containing materials. Applicable Federal regulations may apply depending on the work being performed.

Pursuant to EPA regulations, LBP is defined as paint or other surface coatings containing an amount of lead equal to or greater than one milligram per square centimeter (1.0 mg/cm^2) or more than half of one percent [>0.5% or 5,000 parts per million(ppm)] by weight. Additionally, worker exposure to materials containing lead during construction work is regulated by the Federal OSHA [29 CFR 1926.62(a)]. This regulation requires worker protection during construction "…where lead or materials containing lead are present."

Sampling and Analysis

The definitions of paint condition are dependent on the location of the paint and component involved. Table 2 illustrates how Housing and Urban Development (HUD) categorizes paint condition under various circumstances.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Table 2 – HUD Categories of Paint Film Quality

	Total Area of Deteriorated Paint		
Type of Building Component	**Intact**	**Fair**	**Poor**
Exterior components with large surface areas	Entire Surface is Intact	Less than or equal to 10 square feet	More than 10 square feet
Interior components with large surface areas (walls, ceilings, floors, doors)	Entire Surface is Intact	Less than or equal to 2 square feet	More than 2 square feet
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim)	Entire Surface is Intact	Less than or equal to 10 percent of the total surface area of the component	More than 10 percent of the total surface area of the component

Stantec assessed the condition of painted surfaces of the Subject Property to collect paint chip samples of painted surfaces observed to be in fair and/or poor condition as defined within Chapter 5 of the United States HUD guidelines. Collected samples were analyzed using Flame Atomic Absorption Spectrometry, following the EPA SW 846-7000B/7420 analytical protocol.

The exterior of the buildings consisted of anodized metal, vinyl siding, and unpainted CMU. There were three painted surfaces observed in poor condition (two (2) door frames and one (1) exterior door) and three bulk paint-chip samples were collected and sent to the lab for analysis.

Findings

Table 3 below provides a summary of the suspect materials identified and sampled during this survey.

Table 3 – LBP Sample Results

Sample No.	Sample Location	Paint Color	Material	Paint Condition	Estimated Quantity	Lead Content	Regulatory Standard
LBP-01	Door Frame Between Tire Storage and Bay 3	Green, Brown, Tan	Metal	Poor	12 SF	0.16 %	>0.5 %
LBP-02	Exterior Door to Bay 3	Tan, Green, Pink	Metal	Poor	56 SF	0.096 %	>0.5 %
LBP-03	**Exterior Door Frame**	**Black, Brown, Tan, Red**	**Metal**	**Poor**	**10 SF**	**0.76 %**	**>0.5 %**

Notes and Abbreviations:
SF = Square Feet
Items in **bold** are identified as having lead concentrations that exceed regulatory thresholds.

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Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Bulk sample logs and laboratory analytical results are provided in Attachment A; a sample location diagram is provided in Attachment B; and a photographic log is provided in Attachment C.

OTHER HAZARDOUS MATERIALS

Stantec performed a visual inspection of existing building equipment for the presence of other hazardous materials and Universal Wastes [pursuant to 40 CFR 273.9, and 40 CFR 260.10]. The survey was limited to above grade only, and did not include a soil or subsurface investigation. Materials evaluated as part of this inspection included: Polychlorinated Biphenyl (PCB)-containing units such as lighting ballasts and PCB-containing electrical units (i.e., electrical transformers); lead-containing units such as car batteries or emergency exit sign batteries; fluorescent lighting tubes; mercury-containing units such as light switches and thermostats; refrigerants, halon, and other Chlorofluorocarbons (CFCs) such as fire extinguishing systems and Freon® used in association with building drinking fountains; heavy metals as may be found in cooling tower water treatment systems; solvents, paints, fuel (storage tanks), lubricants, and other associated maintenance and cleaning products; radioactive materials that may be contained in units such as smoke detectors, emergency exit signs, or medical equipment; office materials, supplies, and equipment such as computer monitors and printing supplies, and miscellaneous materials such as unlabeled materials or substances of concern.

Stantec's visual inspection was limited to fixtures and equipment in the Subject Property that were readily accessible. Assessment of these hazardous materials was based solely on the identification placards on the equipment or general knowledge of historical use. If the presence and/or absence of a particular material was not clearly marked, then that piece of equipment was assumed to contain a concentration of the material in question. No sample collection was performed in the process of identifying other hazardous materials or Universal Wastes.

The following is a partial summary of current federal and state regulations that contain requirements related to hazardous materials. These summaries are not intended to be all-inclusive and do not contain every aspect of the regulations discussed.

EPA Regulations (40 CFR 273.9 and 40 CFR 260.10)

The EPA regulations (40 CFR 273.9 and 40 CFR 260.10) provide standards for universal waste management and hazardous waste management systems. The EPA regulations specify requirements for managing the following hazardous materials: batteries; pesticides; mercury-containing equipment; lamps; and household and conditionally exempt small quantity generator waste. In addition to the EPA universal waste regulations, the following federal regulations may also include, but not be limited to the following:

- Applicable Federal Occupational Safety and Health regulations,
- Title 40, Code of Federal Regulations, Part 261 – Identification and Listing of Hazardous Waste,

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

- Title 40, Code of Federal Regulations, Part 262 – Standards Applicable to Generators of Hazardous Waste,
- Title 40, Code of Federal Regulations, Part 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities,
- Title 40, Code of Federal Regulations, Part 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities,
- Title 49, Code of Federal Regulations, Parts 100-199 – Transportation of Hazardous Materials,
- Title 40, Code of Federal Regulations, Part 268 – Land Disposal Restrictions,
- Title 40, Code of Federal Regulations, Part 761 – Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, and
- National Emissions Standards for Hazardous Air Pollutants (NESHAPS).

PCBs
Forty-six fluorescent light fixtures were observed throughout the buildings on the Subject Property. At least representative type of each light fixture was disassembled to make observations of the light ballast. All fluorescent light fixtures observed were labeled as PCB free. Any light ballasts not labeled as PCB free are assumed to contain PCBs. No fluorescent light fixtures were observed in the apartments above the service station.

Mercury
Many of the interior light fixtures are equipped with fluorescent light tubes. According to the EPA, fluorescent light bulbs contain varying amounts of mercury and can be hazardous to the environment if they are disposed of improperly. Because of this, the EPA encourages the recycling of mercury-containing light bulbs, regardless of the mercury content. A total of 46 fluorescent light fixtures of varying size, shape, and wattage, were observed throughout the Subject Property. Each of the fixtures observed are equipped with between one and two fluorescent light tubes for a total of 114 light tubes that may contain mercury (Hg) at the Subject Property. All of the fluorescent light tubes were located within the service station portion of the Subject Property.

Older style "silent" light switches and analog thermostat boxes are also known to contain varying amounts of mercury contained in ampules that act as an electronic switch. During our field work, no evidence of mercury-containing light switches was observed. Two mercury-containing thermostats were found within the service station (Office and Bay 4) and two digital thermostats were observed in the apartments above the service station.

No other mercury-containing equipment was observed. While it is not expected that other mercury-containing light switches or thermostats will be encountered; care should be taken when removing potential mercury-containing equipment to ensure no mercury ampules are present.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Ozone-Depleting Substances
One fire extinguishing system was identified in Tire Storage 2 of the service station portion of the Subject Property.

Radioactive Materials
Smoke detectors typically utilize a small radioactive source as a key component in detecting smoke particles. EPA regulations require smoke detectors to be disposed of at a nuclear waste facility or returned directly to the manufacturer. A total of three smoke detectors were observed within accessible areas of the Subject Property and the labeling on the units indicated that radioactive material was present.

Exit signs that glow in the dark often contain a radioactive gas called tritium. These signs do not require electricity or batteries and can be used where it is hard to install electric signs, such as above doors. They serve an important safety function by marking exits to be used during power outages and emergencies. The signs pose little or no threat to public health and safety or security. *Tritium exit signs must NOT be disposed of as normal trash.* To dispose of a sign properly, a general licensee must transfer the sign to a specific licensee, such as a manufacturer, distributor, licensed radioactive waste broker, or licensed low-level radioactive waste disposal facility. No radioactive signs were observed on the Subject Property.

Batteries
Batteries are required to be recycled and/or disposed of in accordance with applicable hazardous waste regulations.

Any batteries or battery-operated equipment left on the property will need to be managed/disposed of in accordance with applicable federal and state laws.

Petroleum Products
Stantec observed various operating equipment that is presumed to contain oil, hydraulic fluids, and/or other petroleum products.

Stantec observed approximately 25 unlabeled 55-gallon drums located on the Subject Property. The contents of these drums were not identified. It is assumed that they contain product or waste associated with operations at the Subject Property. Examples of products may be antifreeze/used antifreeze, fuel, oil filters, and other petroleum-based products. These drums will need to be managed /disposed of in accordance with applicable federal and state laws.

RECOMMENDATIONS

Asbestos-Containing Materials
Based on the findings of this survey, ACM was identified in two types of roofing mastic on the Subject Property. No additional assessment/survey appears warranted at this time.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

It should be noted however, that the asbestos survey was limited to accessible materials only and did not include underground utilities operating conveyance equipment or inaccessible areas. Historically, some underground utility piping has been known to contain asbestos (e.g. Transite pipe). If renovation/demolition of portions of the Subject Property includes removal of on-site portions of underground utilities (storm drains, sewer, domestic water laterals, etc.), evaluation of the asbestos content of these components must be performed prior to the removal process. Suspect materials identified in these locations are assumed positive for asbestos until sampling and analysis indicates otherwise. If during the course of a renovation/demolition project suspect ACMs are discovered that are not included within this report, those materials are to be assumed positive for asbestos unless additional sampling, analysis, and/or assessment indicates otherwise.

Lead-Based Paint

Three bulk paint chip samples were taken. One sample came back above regulatory standards and is considered LBP. If during the course of a renovation/demolition project, suspect LBPs are discovered that are not included within this report, those materials are to be assumed positive for lead unless additional sampling, analysis, and/or assessment indicates otherwise.

Other Hazardous Materials

As described above, there are a several items within the Subject Property that contain mercury, radioactive materials, and petroleum products. It is recommended that these materials be handled and disposed of in accordance with applicable EPA regulations (40 CFR 273.9 and 40 CFR 260.10).

LIMITATIONS

Reasonable efforts have been made by Stantec personnel to locate, sample, and/or identify suspect ACMs, LBPs, and hazardous materials associated with the Subject Property. For any facility the existence of unique or concealed materials and debris is a possibility. In addition, sampling and laboratory analysis constraints typically hinder the investigation. Stantec does not warrant, guarantee, or profess to have the ability to locate or identify all hazardous materials in a facility. The survey is limited in nature, as only full demolition of the Subject Property will reveal all concealed conditions. Stantec cannot warrant the effectiveness or damage thereof, at any of the patches or temporary repairs performed at sampling locations. This report is intended for use in planning based on the agreed upon scope of work. This report is not intended to be a bidding document. Quantities of materials identified are estimates only and would need to be verified. If during the course of a renovation/demolition project, suspect ACMs, LBPs, and/or hazardous materials are discovered that are not included within this report, those materials should be treated accordingly until additional sampling, analysis, and/or assessment can be performed.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

Additionally, the passage of time may result in a change in the environmental characteristics at the Subject Property. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during Stantec's survey of the Subject Property and test results provided by EMSL Analytical, Inc. These observations are time dependent, are subject to changing site conditions, and revisions to federal, state, and local regulations. Reliance on this letter report by Third Parties (i.e., other than KYTC) shall be at the Third Party's sole risk.

When we conclude that a material is or is not ACM, based on laboratory analyses of samples, we are stating that there is likelihood that constituents of suspect material are accurately characterized by samples procured. We cannot conclude categorically that sampled material is represented by analyzed samples. If one sample of material from a homogenous area is found to be ACM, the material is judged to be ACM. However, if sampling and laboratory analysis indicate that no asbestos was detected, we cannot guarantee that this material is asbestos-free.

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

If you have any questions regarding this report or require further clarification, please do not hesitate to contact the Stantec personnel identified below.

Regards,

STANTEC CONSULTING SERVICES INC.

Prepared by:

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Attachments:
- A: Laboratory Analytical Results and Bulk Sample Logs
- B: Sample Location Diagram
- C: Photographic Log
- D: Personnel Certifications

Attachment A
Laboratory Analytical Results and Bulk Sample Logs

EMSL Analytical, Inc.
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EMSL Order: 041602548
Customer ID: STKY42
Customer PO:
Project ID:

Attention: Shane Kelley
Stantec
10509 Timberwood Circle
Louisville, KY 40223

Phone: (502) 212-5021
Fax:
Received Date: 02/03/2016 9:30 AM
Analysis Date: 02/09/2016
Collected Date: 01/27/2016

Project: 178564013 / MTN PKWY Expansion / Task:200.006 / Parcel 179, 1120 EMTN PKWY, Salyersville, KY

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1A *041602548-0001*	Tire Storage 2 - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose 5% Glass HA: 1	80% Non-fibrous (Other)	None Detected
1B *041602548-0002*	Tire Storage 2 - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose 5% Glass HA: 1	80% Non-fibrous (Other)	None Detected
1C *041602548-0003*	Tire Storage 2 - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose 5% Glass HA: 1	80% Non-fibrous (Other)	None Detected
1D *041602548-0004*	Tire Storage 2 - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose 5% Glass HA: 1	80% Non-fibrous (Other)	None Detected
1E *041602548-0005*	Tire Storage 2 - Gypsum Board, White	White Fibrous Homogeneous	10% Cellulose 15% Glass HA: 1	75% Non-fibrous (Other)	None Detected
2A *041602548-0006*	Bay 2 - Spray Foam, White/ Orange	White/Orange Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2B *041602548-0007*	Bay 2 - Spray Foam, White/ Orange	White/Orange Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2C *041602548-0008*	Bay 2 - Spray Foam, White/ Orange	Orange Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
3A *041602548-0009*	Tire Storage 1 - Drop Ceiling Tile, Off-White	Gray/White Fibrous Homogeneous	50% Cellulose 30% Min. Wool HA: 3	20% Non-fibrous (Other)	None Detected
3B *041602548-0010*	Tire Storage 1 - Drop Ceiling Tile, Off-White	Gray/White Fibrous Homogeneous	50% Cellulose 5% Glass HA: 3	45% Non-fibrous (Other)	None Detected
3C *041602548-0011*	Tire Storage 1 - Drop Ceiling Tile, Off-White	Gray/White Fibrous Homogeneous	50% Cellulose 30% Min. Wool HA: 3	20% Non-fibrous (Other)	None Detected
3D *041602548-0012*	Restroom 2 - Drop Ceiling Tile, Off-White	Gray/White Fibrous Homogeneous	50% Cellulose 30% Min. Wool HA: 3	20% Non-fibrous (Other)	None Detected
3E *041602548-0013*	Closet - Drop Ceiling Tile, Off-White	Gray Fibrous Homogeneous	60% Cellulose 30% Min. Wool HA: 3	10% Non-fibrous (Other)	None Detected

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EMSL Order: 041602548
Customer ID: STKY42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
4A *041602548-0014*	Restroom 2 - Ceramic Tile Mortar, White	White Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4B *041602548-0015*	Restroom 2 - Ceramic Tile Mortar, White	White Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4C *041602548-0016*	Restroom 1 - Ceramic Tile Mortar, White	White Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
5A *041602548-0017*	Restroom 2 - Ceramic Tile, Tan	Tan/Red Non-Fibrous Homogeneous	HA: 5	100% Non-fibrous (Other)	None Detected
5B *041602548-0018*	Restroom 2 - Ceramic Tile, Tan	Tan/Red Non-Fibrous Homogeneous	HA: 5	100% Non-fibrous (Other)	None Detected
5C *041602548-0019*	Restroom 1 - Ceramic Tile, Tan	Tan/Red Non-Fibrous Homogeneous	HA: 5	100% Non-fibrous (Other)	None Detected
6A *041602548-0020*	Restroom 2 - Drywall, White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 6	85% Non-fibrous (Other)	None Detected
6B *041602548-0021*	Closet - Drywall, White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 6	85% Non-fibrous (Other)	None Detected
6C *041602548-0022*	Restroom 1 - Drywall, White	White Non-Fibrous Homogeneous	20% Cellulose HA: 6	80% Non-fibrous (Other)	None Detected
7A *041602548-0023*	Restroom 2 - Joint Compound, White	White Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
7B *041602548-0024*	Closet - Joint Compound, White	White Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
7C *041602548-0025*	Restroom 1 - Joint Compound, White	White Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
8A *041602548-0026*	Tire Storage 1 - Caulk, Grey, around Window Units	Gray Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	None Detected
8B *041602548-0027*	Tire Storage 1 - Caulk, Grey, around Window Units	Gray Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	None Detected
8C *041602548-0028*	Tire Storage 1 - Caulk, Grey, around Window Units	Gray Non-Fibrous Homogeneous	HA: 8	100% Non-fibrous (Other)	None Detected

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EMSL Order: 041602548
Customer ID: STKY42
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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
9A *041602548-0029*	Bay 3 - Thermal Lining, Black, Material around Heating Pipe	Black Non-Fibrous Homogeneous	HA: 9	100% Non-fibrous (Other)	None Detected
9B *041602548-0030*	Bay 3 - Thermal Lining, Black, Material around Heating Pipe	Black Non-Fibrous Homogeneous	HA: 9	100% Non-fibrous (Other)	None Detected
10A *041602548-0031*	Bay 1 - Caulk, Grey, b/w Metal & Concrete near Hydraulic Lifts	Gray Non-Fibrous Homogeneous	HA: 10	100% Non-fibrous (Other)	None Detected
10B *041602548-0032*	Bay 1 - Caulk, Grey, b/w Metal & Concrete near Hydraulic Lifts	Gray Non-Fibrous Homogeneous	HA: 10	100% Non-fibrous (Other)	None Detected
10C *041602548-0033*	Bay 1 - Caulk, Grey, b/w Metal & Concrete near Hydraulic Lifts	Gray Non-Fibrous Homogeneous	HA: 10	100% Non-fibrous (Other)	None Detected
11A *041602548-0034*	Office - Carpet Mastic, Yellow	Yellow Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11B *041602548-0035*	Office - Carpet Mastic, Yellow	Yellow Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
11C *041602548-0036*	Office - Carpet Mastic, Yellow	Yellow Non-Fibrous Homogeneous	HA: 11	100% Non-fibrous (Other)	None Detected
12A *041602548-0037*	Tire Stoarage 2 - Drywall, White	Brown/White Fibrous Homogeneous	20% Cellulose HA: 12	80% Non-fibrous (Other)	None Detected
13A *041602548-0038*	Bay 3 - Caulk, Grey, Caulk b/w Concrete in Bay 3	Brown/Tan Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13B *041602548-0039*	Bay 3 - Caulk, Grey, Caulk b/w Concrete in Bay 3	Brown/Tan Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
13C *041602548-0040*	Bay 3 - Caulk, Grey, Caulk b/w Concrete in Bay 3	Brown/Tan Non-Fibrous Homogeneous	HA: 13	100% Non-fibrous (Other)	None Detected
14A *041602548-0041*	Tire Storage 1 - Ceiling Tile, White	Gray/White Fibrous Homogeneous	50% Cellulose 30% Min. Wool HA: 14	20% Non-fibrous (Other)	None Detected
15A *041602548-0042*	Bay 3 - Caulk, Grey, Caulk b/w Concrete Slabs	Brown/Tan Non-Fibrous Homogeneous	HA: 15	100% Non-fibrous (Other)	None Detected
16A *041602548-0043*	Hallway 1 - Joint Compound, White	White Non-Fibrous Homogeneous	HA: 16	100% Non-fibrous (Other)	None Detected

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EMSL Order: 041602548
Customer ID: STKY42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
16B *041602548-0044*	Bedroom 1 - Joint Compound, White	White Non-Fibrous Homogeneous	HA: 16	100% Non-fibrous (Other)	None Detected
16C *041602548-0045*	Restroom 2 - Joint Compound, White	White Non-Fibrous Homogeneous	HA: 16	100% Non-fibrous (Other)	None Detected
17A *041602548-0046*	Hallway 1 - Gypsum Board, White	Brown/White Fibrous Homogeneous	20% Cellulose 5% Glass HA: 17	75% Non-fibrous (Other)	None Detected
17B *041602548-0047*	Bedroom 1 - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 17	85% Non-fibrous (Other)	None Detected
17C *041602548-0048*	Restroom 2 - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 17	85% Non-fibrous (Other)	None Detected
17D-Gypsum Board *041602548-0049*	Bedroom Closet 1 - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 17	85% Non-fibrous (Other)	None Detected
17D-Joint Compound *041602548-0049A*	Bedroom Closet 1 - Joint Compound	White Non-Fibrous Homogeneous	HA: 17	100% Non-fibrous (Other)	None Detected
17E *041602548-0050*	Bedroom Closet 2 - Gypsum Board, White	White Fibrous Homogeneous	20% Cellulose HA: 17	80% Non-fibrous (Other)	None Detected
18A *041602548-0051*	Restroom 1 - Vinyl Floor Tile, Tan/ Grey/ Sand	Gray/Tan Fibrous Homogeneous	10% Glass HA: 18	90% Non-fibrous (Other)	None Detected
18B *041602548-0052*	Restroom 1 - Vinyl Floor Tile, Tan/ Grey/ Sand	Gray/Tan Fibrous Homogeneous	10% Glass HA: 18	90% Non-fibrous (Other)	None Detected
18C *041602548-0053*	Restroom 1 - Vinyl Floor Tile, Tan/ Grey/ Sand	Gray/White Non-Fibrous Homogeneous	10% Glass HA: 18	90% Non-fibrous (Other)	None Detected
19A *041602548-0054*	Restroom 1 - Floor Mastic, Yellow, a/w HA #18	Yellow Non-Fibrous Homogeneous	HA: 19	100% Non-fibrous (Other)	None Detected
19B *041602548-0055*	Restroom 1 - Floor Mastic, Yellow, a/w HA #18	Yellow Non-Fibrous Homogeneous	HA: 19	100% Non-fibrous (Other)	None Detected
19C *041602548-0056*	Restroom 1 - Floor Mastic, Yellow, a/w HA #18	Yellow Non-Fibrous Homogeneous	HA: 19	100% Non-fibrous (Other)	None Detected
20A *041602548-0057*	Kitchen 1 - Sink Coating, Black	Black Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected

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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
20B *041602548-0058*	Kitchen 1 - Sink Coating, Black	Black Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected
20C *041602548-0059*	Kitchen 2 - Sink Coating, Black	Black Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected
21A *041602548-0060*	Bedroom 1 - Carpet Mastic, White/ Yellow	White/Yellow Non-Fibrous Homogeneous	HA: 21	100% Non-fibrous (Other)	None Detected
21B *041602548-0061*	Bedroom 1 - Carpet Mastic, White/ Yellow	White/Yellow Non-Fibrous Homogeneous	HA: 21	100% Non-fibrous (Other)	None Detected
21C *041602548-0062*	Bedroom 2 - Carpet Mastic, White/ Yellow	White/Yellow Non-Fibrous Homogeneous	HA: 21	100% Non-fibrous (Other)	None Detected
22A *041602548-0063*	Bedroom 1 - Ceiling Texture, White	White Non-Fibrous Homogeneous	HA: 22	100% Non-fibrous (Other)	None Detected
22B *041602548-0064*	Living Room 1 - Ceiling Texture, White	White Non-Fibrous Homogeneous	HA: 22	100% Non-fibrous (Other)	None Detected
22C *041602548-0065*	Living Room 1 - Ceiling Texture, White	White Non-Fibrous Homogeneous	HA: 22	100% Non-fibrous (Other)	None Detected
22D *041602548-0066*	Restroom 2 - Ceiling Texture, White	White Non-Fibrous Homogeneous	HA: 22	100% Non-fibrous (Other)	None Detected
22E *041602548-0067*	Bedroom 2 - Ceiling Texture, White	White Non-Fibrous Homogeneous	HA: 22	100% Non-fibrous (Other)	None Detected
23A *041602548-0068*	Living Room 1 - Ceiling Texture, White	White Non-Fibrous Homogeneous	HA: 23	100% Non-fibrous (Other)	None Detected
24A *041602548-0069*	Kitchen 2 - Sink Coating, Black	Black Non-Fibrous Homogeneous	HA: 24	100% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**

Analyst(s)

Andrew Coward (19)
Amy Johnson (1)
Quynh Vu (50)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/10/2016 07:12:32

Parcel 179

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*: 041602548

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

PHONE:
FAX:

Company Name: Stantec Consulting		**EMSL Customer ID:**	
Street: 10509 Timberwood Circle		**City:** Louisville	**State/Province:** Kentucky
Zip/Postal Code: 40223	**Country:** USA	**Telephone #:** 502-212-5000	**Fax #:** 502-212-5055
Report To (Name): Shane Kelley		**Please Provide Results:** ☐ Fax ☑ Email	
Email Address: shane kelley@stantec.com		**Purchase Order:**	
Project Name/Number: 178564013		**EMSL Project ID** *(Internal Use Only)*:	
U.S. State Samples Taken: Kentucky		**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt	

EMSL-Bill to: ☑ Same ☐ Different - If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PCM - Air ☐ Check if samples are from NY
☐ NIOSH 7400
☐ w/ OSHA 8hr TWA

PLM - Bulk (reporting limit)
☑ PLM EPA 600/R-93/116 (<1%)
☐ PLM EPA NOB (<1%)
Point Count
☐ 400 (<0.25%) ☐ 1000 (<0.1%)
Point Count w/Gravimetric
☐ 400 (<0 25%) ☐ 1000 (<0 1%)
☐ NYS 198 1 (friable in NY)
☐ NYS 198 6 NOB (non-friable-NY)
☐ NYS 198 8 SOF-V
☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
☐ AHERA 40 CFR, Part 763
☐ NIOSH 7402
☐ EPA Level II
☐ ISO 10312

TEM - Bulk
☐ TEM EPA NOB
☐ NYS NOB 198 4 (non-friable-NY)
☐ Chatfield SOP
☐ TEM Mass Analysis-EPA 600 sec 2 5

TEM – Water: EPA 100 2
Fibers >10µm ☐ Waste ☐ Drinking
All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
☐ Microvac - ASTM D 5755
☐ Wipe - ASTM D6480
☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite*
☐ PLM CARB 435 - A (0.25% sensitivity)
☐ PLM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - C (0.01% sensitivity)
☐ TEM Qual. via Filtration Technique
☐ TEM Qual. via Drop-Mount Technique
*Can not accept New York State Loose Fill Vermiculite Samples

Other:
☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Filter Pore Size (Air Samples): ☐ 0.8µm ☐ 0.45µm

Samplers Name: Shane Kelley

Samplers Signature: Shane Kelley

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	See Attached logs		

Client Sample # (s): 1A - 24A **Total # of Samples:** 69

Relinquished (Client): Shane Kelley **Date:** 2/1/16 **Time:** 5:30 pm

Received (Lab): B Beatty FXG **Date:** 2/3/16 **Time:** 930

Comments/Special Instructions:

2016 FEB 4 A 10:50

Controlled Document – Asbestos COC – R9 – 10/30/2014

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041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S Kelley

MATERIAL

HA#	1
Material Type:	~~[illegible]~~ Gypsum Board
Color:	White
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Tire Storage 2 Ceiling		G
	~~[illegible]~~		↓
	~~[illegible]~~		↓
	~~[illegible]~~		↓

SAMPLES

Sample #	Sample Location
1 A	tire Storage 2
1 B	tire Storage 2
1 C	tire Storage 2
1 D	tire Storage 2
1 E	tire Storage 2
F	
G	

2016 FEB -3 A 10:50

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 1 of 24

MAGOFFIN COUNTY
TOP 0061(004) 041602548

041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
Salyersville, Kentucky

Date: 1/28/16
Inspector: S Kelley

MATERIAL	
HA#	2
Material Type:	Spray Foam
Color:	white / orange
Description:	
Estimated Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Bay 1		
	Bay 2		

SAMPLES	
Sample #	Sample Location
2 A	Bay 2
2 B	Bay 2
2 C	Bay 2
D	
E	
F	
G	

Notes:

2016 FEB -3 A 10:50

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel #179
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	3
Material Type:	Drop Ceiling tile
Color:	off white
Description:	
Estimated Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	tire storage		

SAMPLES

Sample #	Sample Location
3 A	tire Storage 1
3 B	tire Storage 1
3 C	tire Storage 1
3 D	rest room 2
3 E	Closet
F	
G	

2016 FEB -3 A 10:50

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Contract ID: 161033
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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	4
Material Type:	Ceramic tile mastic
Color:	White
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Restroom 1		
	Restroom 2		

SAMPLES

Sample #	Sample Location
4 A	rest room 2
4 B	rest room 2
4 C	rest room 1
D	
E	
F	
G	

2016 FEB -3 A 10:50

RECEIVED ENSL CINKANINSON

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	5
Material Type:	Ceramic tile
Color:	tan
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Restroom 1		
1	Restroom 2		

SAMPLES

Sample #	Sample Location
5 A	rest room 2
5 B	Rest room 2
5 C	Rest room 1
D	
E	
F	
G	

2016 FEB -3 A 10:50

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mountain Parkway
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	6
Material Type:	Drywall
Color:	white
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Tire storage 1		G
↓	Office		G
	Restroom 1		G
	Restroom 2		G
	Closet		G

SAMPLES

Sample #	Sample Location
6 A	restroom 2
6 B	Closet
6 C	restroom 1
D	
E	
F	
G	

2016 FEB -3 A 10:50
ERIC... CINNAMINSON, N...

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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MAGOFFIN COUNTY
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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Site Name: Parcel 179
Date: 1/27/16
Project #: 178564013
Task #: 200.006
Site Address: 1120 E MTN PKWY
Inspector: S. Kelley
Salyersville, KY

MATERIAL

HA#	7
Material Type:	Joint Compound
Color:	white
Description:	
Estimated Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
7A	restroom 2
7B	Closet
7C	restroom 1
D	
E	
F	
G	

2016 FEB -3 A 10:50

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	8
Material Type:	Caulk
Color:	~~[illegible]~~ grey
Description:	Around window units
Estimated Total Qty.:	5 sq ft

HAZARD ASSESSMENT

Friable:	Yes		(No)
Contact by Maintenance:	(Low)	Med	High
Vibration:	(Low)	Med	High
Air Movement:	(Low)	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	window sills	5 sq ft	G

SAMPLES

Sample #	Sample Location
8 A	tire Storage 1
8 B	tire Storage 1
8 C	tire Storage 1
D	
E	
F	
G	

Notes:

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Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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MAGOFFIN COUNTY
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Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	9
Material Type:	Thermal lining
Color:	Black
Description:	material around heating pipe
Estimated Total Qty.:	2 sq ft

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1			

SAMPLES

Sample #	Sample Location
9 A	Bay 3
9 B	Bay 3
C	
D	
E	
F	
G	

Notes:

2016 FEB -3 A 10:50

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Site Name: Parcel 179
Date: 1/27/16
Project #: 178564013
Task #: 200.006
Site Address: 1120 E MTN PKWY
Inspector: S. Kelley
Salyersville, KY

MATERIAL

HA#	10
Material Type:	CAULK
Color:	gray
Description:	Between metal & Concrete near Hydraulic lifts
Estimated Total Qty.:	3 sq ft

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bay 1: Around Hydraulic lifts	3 sq ft	G

SAMPLES

Sample #		Sample Location
10	A	Bay 1
10	B	Bay 1
10	C	Bay 1
	D	
	E	
	F	
	G	

Notes:

2016 FEB -3 A 10:50

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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MAGOFFIN COUNTY
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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	11
Material Type:	Carpet mastic
Color:	yellow
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Office		

SAMPLES

Sample #	Sample Location
11 A	Office
11 B	Office
11 C	Office
D	
E	
F	
G	

2016 FEB -3 A 0:50

RECEIVED EMSL CINNAMINSON

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 EMTN PKWY
Sadyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	12
Material Type:	Drywall
Color:	White
Description:	/
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1			

SAMPLES

Sample #	Sample Location
12 A	tire storage 2
B	
C	
D	
E	
F	
G	

2016 FEB -3 A 10:50

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Contract ID: 161033
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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200,006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley

MATERIAL

HA#	13
Material Type:	Caulk
Color:	grey
Description:	Caulk between concrete in Bay 3
Estimated Total Qty.:	4 sq ft

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bay 3	4 sq ft	G

SAMPLES

Sample #	Sample Location
13 A	Bay 3
13 B	Bay 3
13 C	Bay 3
D	
E	
F	
G	

2016 FEB -3 A 10:50

RECEIVED EMSL CINNAMINSON

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy
Safyersville, KY

Date: 1-27-16
Inspector: S Kelley

MATERIAL	
HA#	14
Material Type:	Ceiling tile
Color:	White
Description:	
Estimated Total Qty.:	

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
1	tire Storage 1		

SAMPLES	
Sample #	Sample Location
14 A	tire storage 1
B	
C	
D	
E	
F	
G	

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Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy

Date: 1-27-16
Inspector: S. Kelley

MATERIAL	
HA#	15
Material Type:	Caulk
Color:	Grey
Description:	Caulk between concrete slabs
Estimated Total Qty.:	

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
1	Bay 3		

SAMPLES	
Sample #	Sample Location
15 A	Bay 3
B	
C	
D	
E	
F	
G	

2016 FEB -3 A 10:50

CINNAMINSON, NJ

Notes:

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.06
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy
Salyersville, KY

Date: 1-27-16
Inspector: S. Kelley

MATERIAL

HA#	16
Material Type:	Joint Compound
Color:	White
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	hallway 1		
1	bedroom 1		
1	restroom 2		

SAMPLES

Sample #	Sample Location
16 A	hallway 1
16 B	bedroom 1
16 C	restroom 2
D	
E	
F	
G	

2016 FEB -3 A 10:50

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy
Salyersville, KY

Date: 1-27-16
Inspector: S. Kelley

MATERIAL

HA#	17
Material Type:	Gypsum board
Color:	white
Description:	/
Estimated Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1			

SAMPLES

Sample #	Sample Location
17 A	hallway 1
17 B	bedroom 1
17 C	restroom 2
17 D	bedroom closet 1
17 E	bedroom closet 2
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy. Salyersville, KY

Date: 1-27-2016
Inspector: S. Kelley

MATERIAL

HA#	18
Material Type:	Vinyl floor tile
Color:	tan/gray/sand
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bathroom of Apt 1		

SAMPLES

Sample #	Sample Location
18 A	restroom 1
18 B	restroom 1
18 C	restroom 1
D	
E	
F	
G	

2016 FEB -3 A 10:50

RECEIVED ENSR CINNAMINSON, NJ

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy

Date: 1-27-16
Inspector: S. Kelley

MATERIAL

HA#	19
Material Type:	Floor mastic
Color:	yellow
Description:	Associated w/ HA#18
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bathroom of APT #1		G

SAMPLES

Sample #	Sample Location
19 A	restroom 1
19 B	restroom 1
19 C	restroom 1
D	
E	
F	
G	

2016 FEB -3 A 10:50

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy
Salyersville, KY

Date: 1-27-16
Inspector: S. Kelley

MATERIAL

HA#	20
Material Type:	Sink Coating
Color:	black
Description:	
Estimated Total Qty.:	

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Under sinks In both Apts		

SAMPLES

Sample #	Sample Location
20 A	Kitchen 1
20 B	Kitchen 1
20 C	Kitchen 2
D	
E	
F	
G	

Notes:

2016 FEB -3 A 10:50

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy
Salyersville, KY

Date: 1-27-16
Inspector: S. Kelley

MATERIAL	
HA#	21
Material Type:	Carpet mastic
Color:	White/yellow
Description:	
Estimated Total Qty.:	10 sq ft

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
1	Bedroom of Apt 1 & 2	10 sq ft	

SAMPLES	
Sample #	Sample Location
21 A	bedroom 1
21 B	bedroom 1
21 C	bedroom 2
D	
E	
F	
G	

Notes:

2016 FEB -3 A 10:50

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

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Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy
Salyersville KY

Date: 1-27-16
Inspector: S. Kelley

MATERIAL	
HA#	22
Material Type:	Ceiling texture
Color:	White
Description:	
Estimated Total Qty.:	1,800 sq ft

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
1	Ceiling of Apt 1 & 2	1800 sq ft	G

SAMPLES	
Sample #	Sample Location
22 A	bedroom 1
22 B	Livingroom 1
22 C	Livingroom 1
22 D	restroom 2
22 E	bedroom 2
F	
G	

2016 FEB -3 A 10:50

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 22 of 24

041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E. Mtn. Pkwy
Salyersville, KY

Date: 1-27-16
Inspector: S. Kelley

MATERIAL

HA#	23
Material Type:	Ceiling texture
Color:	White
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1			

SAMPLES

Sample #	Sample Location
23 A	Living room 1
B	
C	
D	
E	
F	
G	

Notes:

2016 FEB -3 A 10:50

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 23 of 24

041602548

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Site Name: Parcel 179
Date: 1-27-16
Project #: 178564013
Task #: 200.006
Site Address: 1120 E. Mtn. Pkwy. Salyersville, KY
Inspector: S. Kelley

MATERIAL	
HA#	24
Material Type:	Sink Coating
Color:	Black
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
1	Under Sink In Apt 1 & 2	4 sq ft	G

SAMPLES	
Sample #	Sample Location
24 A	Kitchen 2
B	
C	
D	
E	
F	
G	

Notes:

2016 FEB -3 A 10:50

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 24 of 24

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041603615
Customer ID: STKY42
Customer PO:
Project ID:

Attention: Shane Kelley
Stantec
10509 Timberwood Circle
Louisville, KY 40223

Phone: (502) 212-5021
Fax:
Received Date: 02/16/2016 9:25 AM
Analysis Date: 02/23/2016
Collected Date: 02/10/2016

Project: 178564013 / Mountain Parkway Expansion / 200.006 / Parcel #179 / Don's Auto Lube / 1120 E Mtn Pkwy, Salyersville, KY

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
25A *041603615-0001*	Roof - Roofing Tar Black	Black Non-Fibrous Homogeneous	HA: 25	97% Non-fibrous (Other)	3% Chrysotile
25B *041603615-0002*	Roof - Roofing Tar Black	Black Non-Fibrous Homogeneous	HA: 25	97% Non-fibrous (Other)	3% Chrysotile
25C *041603615-0003*	Roof - Roofing Tar Black	Black Non-Fibrous Homogeneous	HA: 25	97% Non-fibrous (Other)	3% Chrysotile
26A *041603615-0004*	Roof - Roof Mastic Silver	Silver Non-Fibrous Homogeneous	HA: 26	96% Non-fibrous (Other)	4% Chrysotile
26B *041603615-0005*	Roof - Roof Mastic Silver	Black/Silver Non-Fibrous Homogeneous	HA: 26	96% Non-fibrous (Other)	4% Chrysotile
27A *041603615-0006*	Roof - Caulk Blue/ Grey	Gray/Blue Non-Fibrous Homogeneous	HA: 27	100% Non-fibrous (Other)	None Detected
27B *041603615-0007*	Roof - Caulk Blue/ Grey	Gray/Blue Non-Fibrous Homogeneous	HA: 27	100% Non-fibrous (Other)	None Detected
28A *041603615-0008*	Roof - Caulk White	White Non-Fibrous Homogeneous	HA: 28	100% Non-fibrous (Other)	None Detected
28B *041603615-0009*	Roof - Caulk White	Gray/White Non-Fibrous Homogeneous	HA: 28	100% Non-fibrous (Other)	None Detected
29A *041603615-0010*	Roof - Caulk Grey	Gray Non-Fibrous Homogeneous	HA: 29	100% Non-fibrous (Other)	None Detected
29B *041603615-0011*	Roof - Caulk Grey	Gray Non-Fibrous Homogeneous	HA: 29	100% Non-fibrous (Other)	None Detected

Report amended: 02/29/2016 13:45:54 Replaces initial report from: 02/23/2016 21:20:04 Reason Code: Client-Additional Analysis

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041603615
Customer ID: STKY42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**

Analyst(s)

Ariel Dickens (5)
Keishla Vazquez Caraballo (6)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Report amended: 02/29/2016 13:45:54 Replaces initial report from: 02/23/2016 21:20:04 Reason Code: Client-Additional Analysis

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com cinnasblab@EMSL.com

EMSL Order:	041603615
CustomerID:	STKY42
CustomerPO:	
ProjectID:	

Attn: **Shane Kelley**
Stantec
10509 Timberwood Circle
Louisville, KY 40223

Phone:	(502) 212-5021
Fax:	
Received:	02/16/16 9:25 AM
Analysis Date:	2/29/2016
Collected:	2/10/2016

Project: **178564013 / Mountain Parkway Expansion / 200.006 / Parcel #179 / Don's Auto Lube / 1120 E Mtn Pkwy, Salyersville, KY**

Test Report: Polarized Light Microscopy (PLM) - Point Count Performed by EPA 600/R-93/116 Method with Gravimetric Reduction and 400 Point Count

SAMPLE ID	DESCRIPTIO	APPEARANCE	(%) Matrix Organic	Acid	NON- ASBESTOS % Fibrous	NON- ASBESTOS % NON-FIBROUS	ASBESTOS % TYPES
25A *041603615-0001* HA: 25	Roof - Roofing Tar Black	Black Non-Fibrous Homogeneous	49.6	37.4		11.4 Non-fibrous (other)	1.5 Chrysotile
25B *041603615-0002* HA: 25	Roof - Roofing Tar Black	Black Non-Fibrous Homogeneous	41.7	41.1		15.3 Non-fibrous (other)	1.9 Chrysotile
25C *041603615-0003* HA: 25	Roof - Roofing Tar Black	Black Non-Fibrous Homogeneous	49.5	28.9		19.6 Non-fibrous (other)	2.0 Chrysotile
26A *041603615-0004* HA: 26	Roof - Roof Mastic Silver	Silver Non-Fibrous Homogeneous	61.6	21.4		15.8 Non-fibrous (other)	1.2 Chrysotile
26B *041603615-0005* HA: 26	Roof - Roof Mastic Silver	Black/Silver Non-Fibrous Homogeneous	26.6	60.9		11.4 Non-fibrous (other)	1.1 Chrysotile

Analyst(s)
Christina Walker (5)

Benjamin Ellis, Laboratory Manager
or other approved signatory

Disclaimers: Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. The limit of detection as stated in the method is 0.25%. EMSL Analytical Inc. suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical Inc.. This report must not be used to claim product endorsement by NVLAP or any agency of the United States Government. EMSL Analytical Inc. bears no responsibility for sample collection activities, analytical method limitations, or the accuracy of results whin requested to separate layer samples. EMSL Analytical Inc. liability is limited to the cost of sample analysis. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from 02/23/2016 21:20:04

THIS IS THE LAST PAGE OF THE REPORT.

Parcel 179

Asbestos Chain of Custody

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL Order Number (*Lab Use Only*): 041603615

PHONE:
FAX:

Company Name: Stantec Consulting	**EMSL Customer ID:**
Street: 10509 Timberwood Circle	**City:** Louisville — **State/Province:** Kentucky
Zip/Postal Code: 40223 — **Country:** USA	**Telephone #:** 502-212-5000 — **Fax #:** 502-212-5055
Report To (Name): Shane Kelley	**Please Provide Results:** ☐ Fax ☑ Email
Email Address: shane kelley@stantec.com	**Purchase Order:**
Project Name/Number: 178564013	**EMSL Project ID** (*Internal Use Only*):
U.S. State Samples Taken: Kentucky	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

EMSL-Bill to: ☑ Same ☐ Different - If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT You will be asked to sign an authorization form for this service Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PCM - Air ☐ Check if samples are from NY
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☑ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0 1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NYS 198.8 SOF-V
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec 2.5

TEM – Water: EPA 100 2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite*
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ TEM Qual. via Filtration Technique
- ☐ TEM Qual via Drop-Mount Technique

*Can not accept New York State Loose Fill Vermiculite Samples

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group** — **Filter Pore Size (Air Samples):** ☐ 0.8µm ☐ 0.45µm

Samplers Name: Shane Kelley — **Samplers Signature:** Shane Kelley

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	See Attached logs		

Client Sample # (s): 25A - 29B — **Total # of Samples:** 11 (11)

Relinquished (Client): Shane Kelley — **Date:** 2/12/16 — **Time:** 5:30

Received (Lab): B Beatty RG — **Date:** 2/16/16 — **Time:** 925

Comments/Special Instructions:

Controlled Document – Asbestos COC – R9 – 10/30/2014

Page 1 of 1 pages

041603615

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcels 1796 PM 10: 26
Site Address: Don's Autolube 1120 E MTN Pkwy Salyersville, KY

Date: 2-10-16
Inspector: S. Kelley

MATERIAL	
HA#	25
Material Type:	roofing tar
Color:	black
Description:	
Estimated Total Qty.:	10 sq ft

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Roof (3 locations)		

SAMPLES	
Sample #	Sample Location
25 A	roof
25 B	roof
25 C	roof
D	
E	
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 1 of 5

Page 2 Of 6

041603615

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179 16 F 16 PM 10: 26
Site Address: 1126 E MTN PKWY
Salyersville, KY

Date: 2-10-16
Inspector: S. Kelley

MATERIAL	
HA#	26
Material Type:	roof mastic
Color:	Silver
Description:	
Estimated Total Qty.:	10 SQ FT

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.

SAMPLES	
Sample #	Sample Location
26 A	roof
26 B	roof
C	
D	
E	
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 2 of 5

041603615

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179 16 F 16 PM 10: 26
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 2/10/16
Inspector: S. Kelley

MATERIAL	
HA#	27
Material Type:	CAULK
Color:	Blue/grey
Description:	
Estimated Total Qty.:	5 SQ FT

HAZARD ASSESSMENT			
Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Roof		

SAMPLES	
Sample #	Sample Location
27 A	roof
27 B	roof
C	
D	
E	
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 3 of 5

041603615

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179 16 F 16 PM 10: 26 Date: 2/10/16
Site Address: 1120 E MTN PKWY Salyersville, KY
Inspector: S. Kelley

MATERIAL	
HA#	28
Material Type:	Caulk
Color:	White
Description:	
Estimated Total Qty.:	5 SQ FT

HAZARD ASSESSMENT			
Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS			
Floor #	Location	Quantity Estimate	Cond.
	Roof		

SAMPLES	
Sample #	Sample Location
28 A	roof
28 B	roof
C	
D	
E	
F	
G	

Notes:

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 4 of 5

04.603615

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: Mountain Parkway Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179 15 PM 10: 26
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 2/10/16
Inspector: S. Kelley

MATERIAL

HA#	29
Material Type:	CAULK
Color:	Grey
Description:	
Estimated Total Qty.:	5 SQ FT

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
29 A	roof
29 B	roof
C	
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 5 of 5

MAGOFFIN COUNTY
TGR 0081(064) 041603615

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 786-5974
http://www.EMSL.com cinnaminsonleadlab@emsl.com

EMSL Order:	201601193
CustomerID:	STKY42
CustomerPO:	
ProjectID:	

Attn: **Shane Kelley**
Stantec
10509 Timberwood Circle
Louisville, KY 40223

Phone:	(502) 212-5021
Fax:	
Received:	02/03/16 10:00 AM
Collected:	1/27/2016

Project: **178564013 / MTN PKWY Expansion**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
LBP-01	*201601193-0001*	1/27/2016	2/9/2016	0.16 % wt
	Site: Between Tire Storage & Bay 3 Desc: Green/Brown/Tan			
LBP-02	*201601193-0002*	1/27/2016	2/9/2016	0.096 % wt
	Site: Exterior Door to Bay 3 Desc: Tan/Green/Pink			
LBP-03	*201601193-0003*	1/27/2016	2/9/2016	0.76 % wt
	Site: Exterior Door Frame to Bay 3 Desc: Black/Brown/Tan/Red			

Bill Chamberlin, Laboratory Director
or other approved signatory
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA-LAP, LLC, unless specifically indicated otherwise.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Initial report from 02/10/2016 12:21:42

Parcel 179

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 201601193

PHONE:
FAX:

Company: Stantec Consulting	**EMSL-Bill to:** ☐ Different ☒ Same If Bill to is Different note instructions in Comments**
Street: 10509 Timberwood Circle	*Third Party Billing requires written authorization from third party*
City: Louisville **State/Province:** KY	**Zip/Postal Code:** 40223 **Country:** USA
Report To (Name): Shane Kelley	**Telephone #:** 502-212-5000
Email Address: shane.kelley@stantec.com	**Fax #:** 502-212-5055 **Purchase Order:**
Project Name/Number: 178564013	**Please Provide Results:** ☐ FAX ☒ E-mail ☐ Mail
U.S. State Samples Taken: Kentucky	**CT Samples:** ☒ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ■ 1 Week ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ■ % by wt. ☐ mg/cm² ☐ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	x
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Shane Kelley **Signature of Sampler:** Shane Kelley

Sample #	Location	Volume/Area	Date/Time Sampled
	See Attached	Logs	

Client Sample #'s - **Total # of Samples:** 3

Relinquished (Client):	Shane Kelley	**Date:**	2/1/16	**Time:**	5:30 PM
Received (Lab):	Chris MK	**Date:**	2/3/16	**Time:**	10 am Fedex

Comments:

Page 1 of 1 pages

Stantec

Paint Chip Sample Log

201601193

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

Project Name: MTN PKWY Expansion
Project #: 178564013 Task #: 200.006
:

Site Name: Parcel 179
Site Address: 1120 E MTN PKWY
Salyersville, KY

Date: 1/27/16
Inspector: S. Kelley
L. Conley

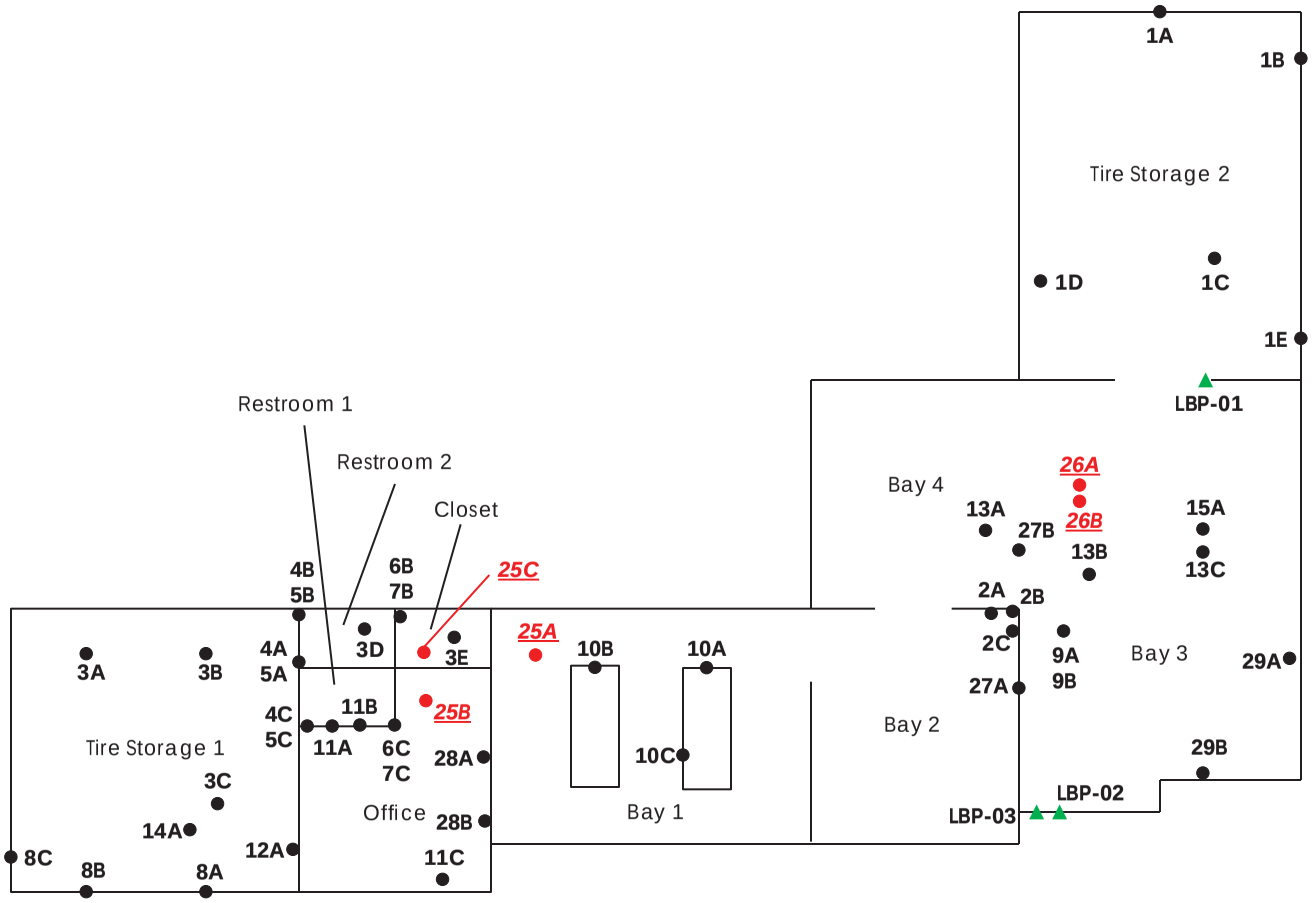
	Sample Number	Room	Component	Substrate	Sample Location*	Quantity Estimate	Notes/Condition/ Paint Color
1	LBP-01	Door to Tire Storage 2	Door frame		Between Tire storage & Bay 3	10 sq ft	green/Brown/tan
2	LBP-02	Door to Bay 3	Door ~~Frame~~		Exterior door to bay 3.	56 sq ft	tan/green/pink
3	LBP-03	Door to Bay 3	Frame		Exterior door frame to bay 3	10 sq ft	Black/Brown/tan/red

* - Include sample dimensions if trying to achieve mg/cm².

Relinquished By: _____ Date: _____ Received By: Clint MK Fedex Date: 2/3/16
Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 1 of 1

Attachment B
Sample Location Diagram



LEGEND:

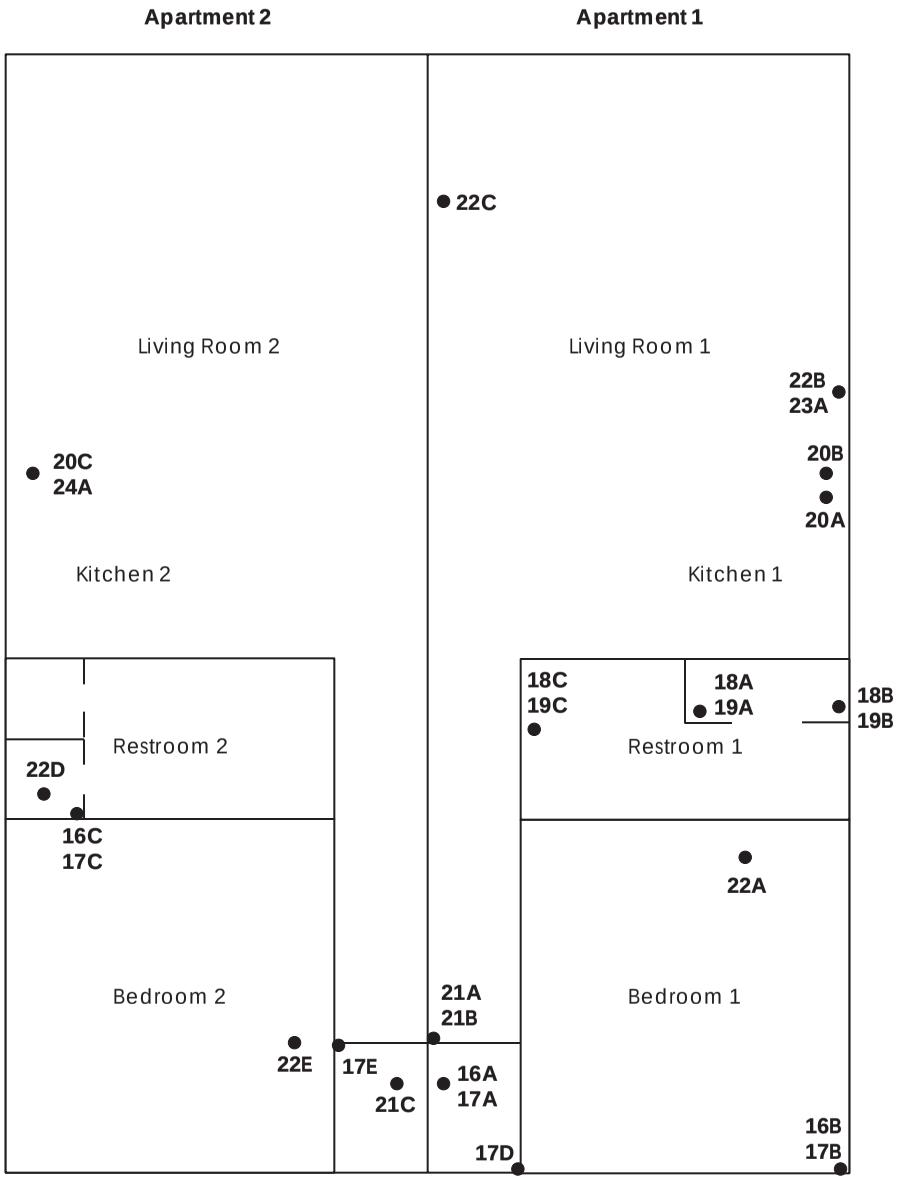
- ● NON-ACM SAMPLE LOCATION
- ● *ACM SAMPLE LOCATION*
- ▲ LBP SAMPLE

N

NOT TO SCALE

Stantec

FOR:		ASBESTOS AND LEAD-BASED PAINT SAMPLE LOCATION MAP		FIGURE:
Pre-Demolition Hazardous Materials Survey Mountain Parkway Expansion Parcel 179 – 1120 E. Mountain Parkway Salyersville, Kentucky				1
PROJECT NUMBER: 178564013	DRAWN BY: SK	CHECKED BY: JS	APPROVED BY: JW	DATE: 2/25/2016



LEGEND:

● NON-ACM SAMPLE LOCATION

NOT TO SCALE

Stantec

FOR:		ASBESTOS AND LEAD-BASED PAINT SAMPLE LOCATION MAP		FIGURE:
Pre-Demolition Hazardous Materials Survey Mountain Parkway Expansion Parcel 179 – 1120 E. Mountain Parkway Salyersville, Kentucky				1
PROJECT NUMBER: 178564013	DRAWN BY: SK	CHECKED BY: JS	APPROVED BY: JW	DATE: 2/25/2016

Attachment C
Photographic Log

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 1, January 27, 2016

Exterior of Office, Tire Storage 1, Restroom 1, and Restroom 2.

PHOTO No. 2, January 27, 2016

Exterior of Bay 1, 2, and 3. Facing North.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 3, January 27, 2016

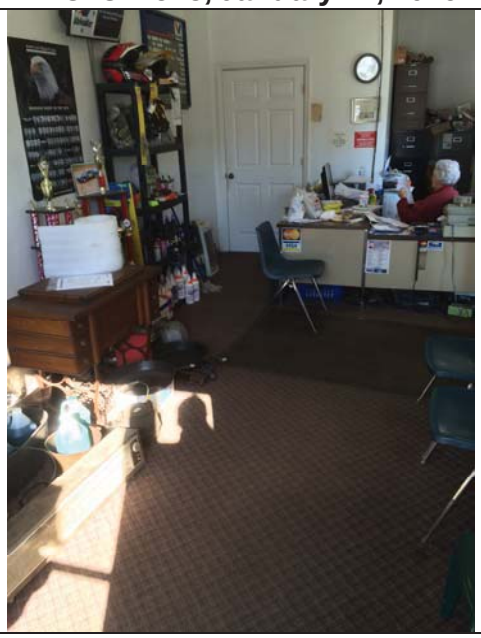
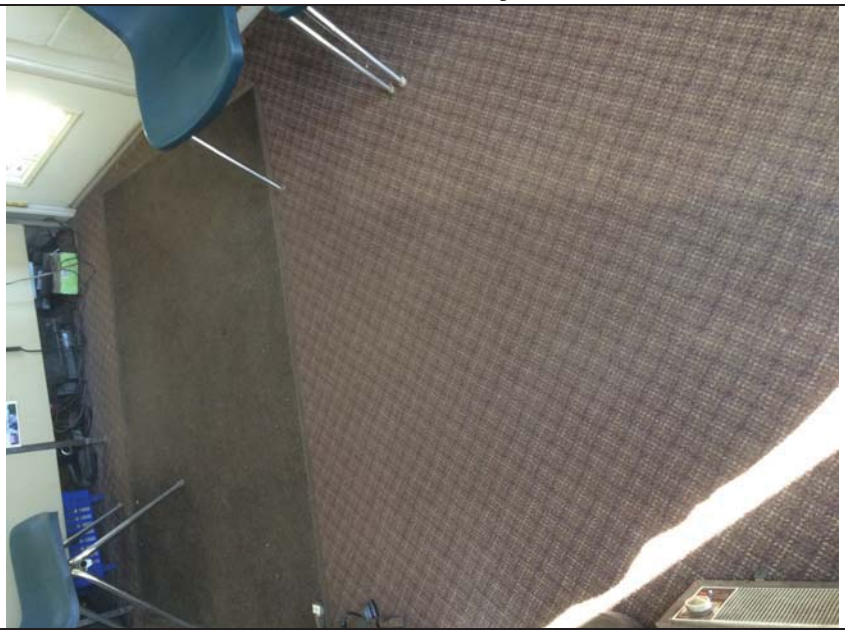
Exterior of Bay 3 and Apartments 1 & 2.

PHOTO No. 4, January 27, 2016

Rear of Service Station, door to Bay 4 and Bay 1. 55-gallon drums on the left.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 5, January 27, 2016

Interior of Office.
PHOTO No. 6, January 27, 2016

Carpet on interior of Office.

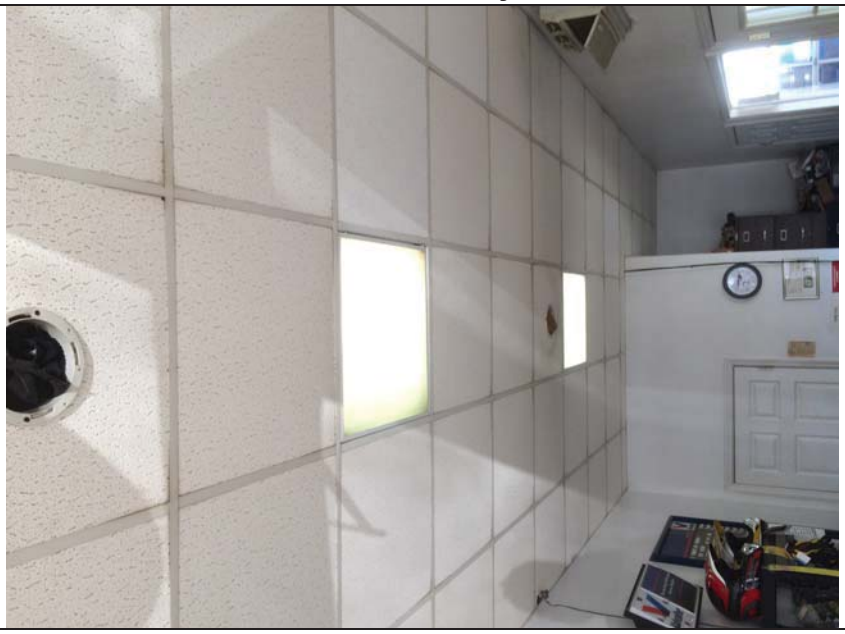
March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 7, January 27, 2016

Mastic underneath carpet in Office.

PHOTO No. 8, January 27, 2016

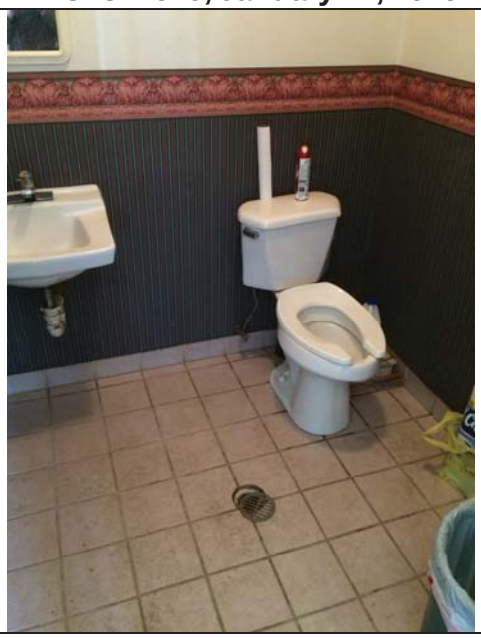


Ceiling tile within Office, Restroom 1, Restroom 2, Closet, and Tire Storage 1.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 9, January 27, 2016



Interior of Restroom 1.

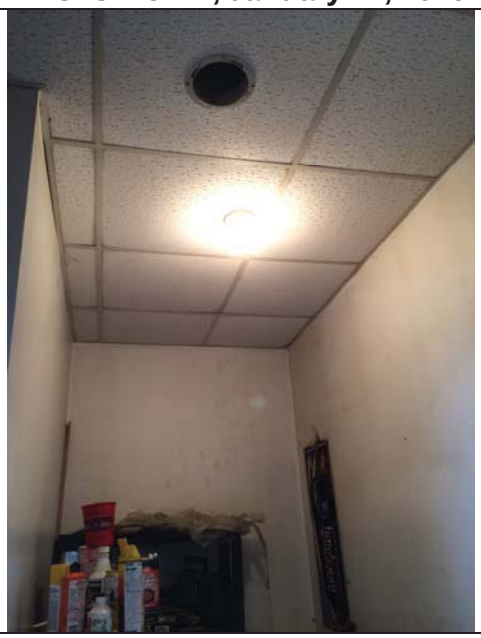
PHOTO No. 10, January 27, 2016

Interior of Closet.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 11, January 27, 2016



Ceiling tile in Closet.

PHOTO No. 12, January 27, 2016

Sample location of gypsum board/joint compound.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 13, January 27, 2016

Interior of closet.

PHOTO No. 14, January 27, 2016

Interior of Bay 1. Two oil change pits pictured.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 15, January 27, 2016

Interior of Bay 1. Wooden ceiling, gypsum board wall.

PHOTO No. 16, January 27, 2016

Caulk used around oil change pit.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 17, January 27, 2016

Basement storage area w/ hydraulic lifts.

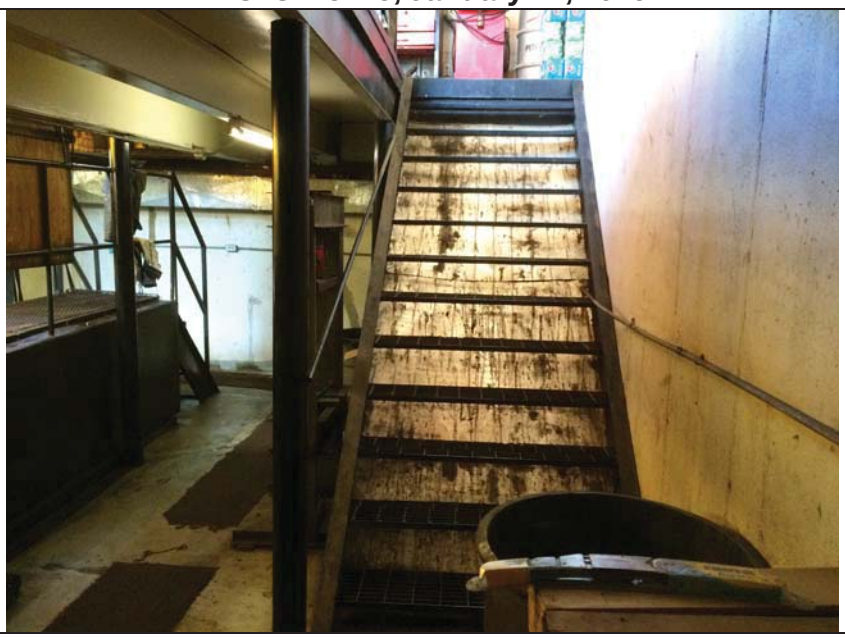
PHOTO No. 18, January 27, 2016

Basement storage area w/ hydraulic lifts.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 19, January 27, 2016



Stairs to basement storage area.

PHOTO No. 20, January 27, 2016

Sub-pump located in basement storage area.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 21, January 27, 2016

Interior of Bay 2.

PHOTO No. 22, January 27, 2016

Interior of Bay 3. Picture taken from Bay 4.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 23, January 27, 2016

Interior of Bay 4.

PHOTO No. 24, January 27, 2016

Interior of Tire Storage 2.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 25, January 27, 2016

Gypsum board ceiling in Tire Storage 2.

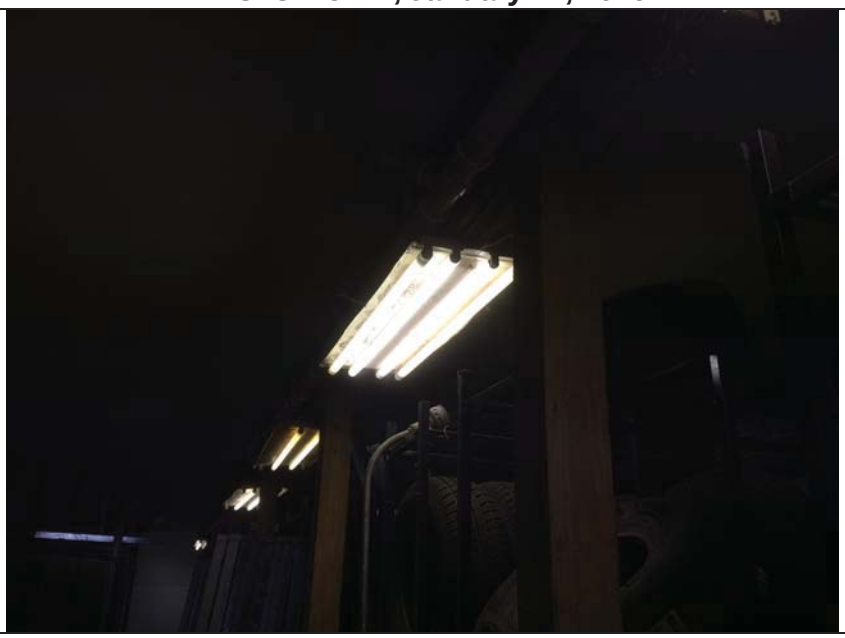
PHOTO No. 26, January 27, 2016

View of Non-PCB containing light ballast in Tire Storage 2.

March 2, 2016
Mr. Tom Springer

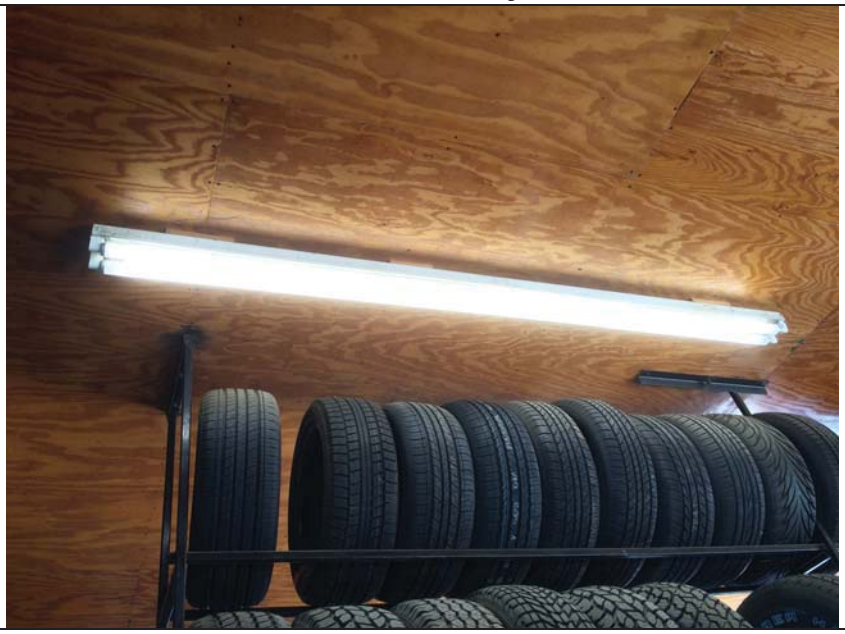
Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 27, January 27, 2016



Typical fluorescent light fixture located in Tire Storage 2.

PHOTO No. 28, January 27, 2016



Typical fluorescent light fixture located on interior of Bay 1-4 and exterior.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 29, January 27, 2016

Example of Non-PCB containing light ballast located in Tire Storage 1.

PHOTO No. 30, January 27, 2016

Spray Foam located in Bay 1& 2.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 31, January 27, 2016

Typical mercury-containing thermostat. Located in Bay 4.

PHOTO No. 32, January 27, 2016

Living room and kitchen of Apartment 1.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 33, January 27, 2016

Textured ceiling used in Apartments 1 & 2.

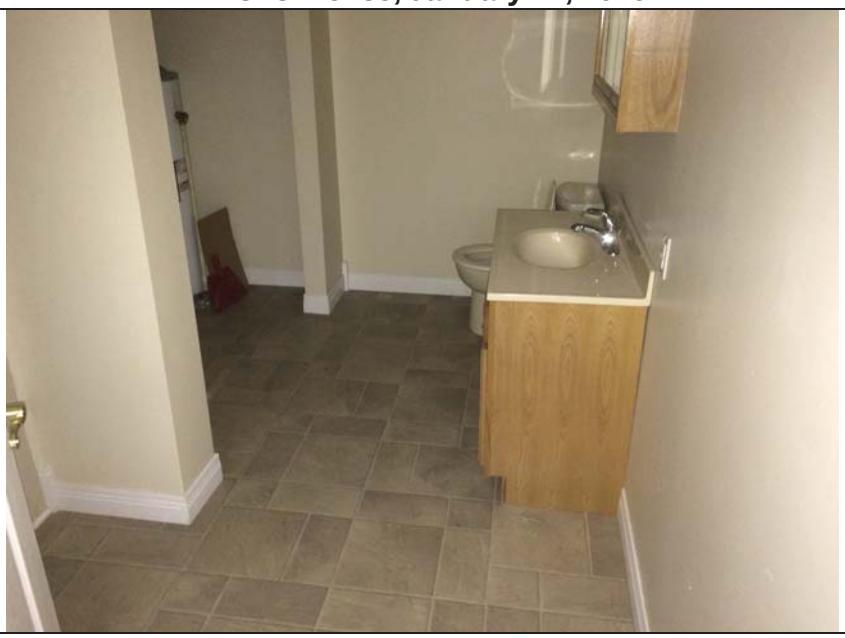
PHOTO No. 34, January 27, 2016

Coating underneath sinks in Apartments 1 & 2.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 35, January 27, 2016



Bathroom located in Apartment 1.

PHOTO No. 36, January 27, 2016

Close-up of vinyl tile located in Bathroom 1 of Apartment 1.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 37, January 27, 2016

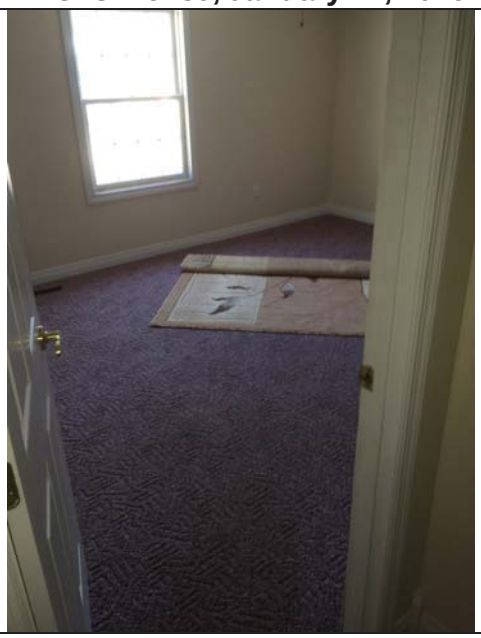
PHOTO No. 38, January 27, 2016

Shower located in Apartment 1.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 39, January 27, 2016



Interior of Bedroom 1.

PHOTO No. 40, January 27, 2016

Closet 1 located within Apartment 1.

March 2, 2016
Mr. Tom Springer

Reference: Pre-Demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Don's Super Lube, Parcel 179, 1120 E Mountain Parkway, Salyersville Kentucky
Stantec Project #: 178564013.200.006

PHOTO No. 41, January 27, 2016
Interior of Closet 1.

Attachment D
Personnel Certifications

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.

Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-06-02 through 2016-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
Mr. Ben Ellis
Phone: 800-220-3675 Fax: 856-786-5973
Email: bellis@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

TSI Training Services International

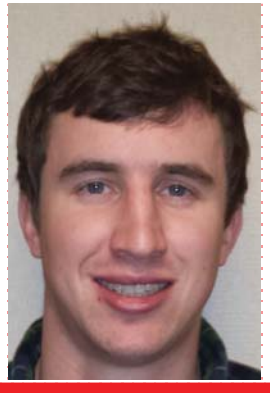
Asbestos Building Inspector Refresher

Certificate

This is to certify

Shane Kelley

XXX-XX-6624



has attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory course for the Asbestos Building Inspector Refresher and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2 and Chapter 3701-34 Ohio Administrative Code.

Training Manager	Expiration Date	Date(s) of Course	Examination Date	Course Location
	1/20/17	1/20/16	1/20/16	Cincinnati, OH

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
1-866-666-8438

16 TSI 61997 ir

Commonwealth of Kentucky
Department for Environmental Protection
Division for Air Quality

Shane Patrick Kelley

Has met the requirements of 401 KAR 58:005 and is accredited as an:

Asbestos Inspector

Accreditation Number: **I16-01-0174**

Issue Date: **1/25/2016**

Expiration Date: 1/20/2017

KENTUCKY DIVISION FOR AIR QUALITY

Commonwealth of Kentucky
Department for Environmental Protection
Division for Air Quality

John D. Watrous

Has met the requirements of 401 KAR 58:005 and is accredited as an:

Asbestos Inspector

Accreditation Number: **I15-11-2963**
Issue Date: **11/30/2015**
Expiration Date: 8/25/2016

KENTUCKY DIVISION FOR AIR QUALITY

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Jason Stagno

ABIR1214150008N8308

Alan Dages

Principal Instructor

Michael W. Horner

Michael W. Horner
Training Director

12/14/2015	12/14/2015	12/14/2015	12/14/2016
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.

National Association of Training and Environmental Consulting

1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.

National Association of Training and Environmental Consulting

Anaheim, CA | Oakland, CA | Marianas & Guam

Asbestos • Lead • Mold • HAZWOPER

P.O. Box 25205 Anaheim, CA 92825-5205

(714) 678-2750, (800) 969-3228, Fax (714) 678-2757

www.natecintl.com

NATEC International, Inc.

National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Jason Stagno

Holds Training Certification For
Asbestos Building Inspector Refresher Course

(Valid for 12 months)

Training Date 12/14/2015
Certificate No. ABIR1214150008N8308

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Jason Stagno

AMPR1214150010N8309

Alan Dages
Principal Instructor

Michael W. Horner
Michael W. Horner
Training Director

12/14/2015	12/14/2015	12/14/2015	12/14/2016
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

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SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
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P.O. Box 25205 Anaheim, CA 92825-5205
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Jason Stagno

Holds Training Certification For
Asbestos Management Planner Refresher Course

(Valid for 12 months)

Training Date 12/14/2015
Certificate No. AMPR1214150010N8309

Michael W. Horner
Training Director

Stantec Consulting Services Inc.
10509 Timberwood Circle, Suite 100, Louisville KY 40223-5301

April 26, 2016
File: 178564013

Mr. Tom Springer
Qk4, Inc.
1046 East Chestnut Street
Louisville, Kentucky 40204

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Mobile home and Sheds, Parcel 200
East Mountain Parkway, Salyersville, Kentucky

Dear Mr. Springer:

Stantec Consulting Services Inc. (Stantec) appreciates the opportunity to provide you with the following asbestos-containing materials (ACM), lead-based paint (LBP), and hazardous materials survey report. The survey was performed at the property referenced above on March 28, 2016. The location is a mobile home and two storage sheds (herein referred to as the Subject Property).

The purpose of this survey is to evaluate for the presence of ACMs, LBP, and hazardous materials that would require special handling and/or disposal in accordance with applicable federal, state, and local regulations.

BACKGROUND

At the request of the Kentucky Transportation Cabinet (KYTC), Stantec performed a pre-demolition ACM, LBP, and hazardous materials survey of accessible materials in support of the planned demolition of the Subject Property.

Stantec understands that the Subject Property is scheduled for a complete demolition and removal of all buildings. Stantec observed the following structures at the Subject Property:

- Mobile home – The structure is made of sheet metal exterior with metal and glass on the windows and doors. There is a wooden deck attached to the front door and rear of the trailer. Typical interior improvements include gypsum board and joint compound walls, tile and carpet flooring, plastic ceiling and fiberglass insulation. Several types of caulk are used to seal the exterior.

- Shed 1 – The structure is a shed, made of concrete masonry units (CMU) and anodized metal roof. The structure sits on a concrete base. The interior consists of CMUs and a wooden frame.

- Shed 2 – The structure is a raised wooden shed sitting on CMUs and a wooden ramp leading up to the door. Exterior doors and windows are made of metal and glass. The roofing is comprised of anodized metal. Interior is comprised of wooden panels and doors. No suspect ACMs were observed. Therefore no samples were collected at this structure.

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

PROJECT PERSONNEL

The survey was performed on March 28, 2016 by Mr. Shane Kelley, Stantec Environmental Scientist and Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) Accredited Building Inspector (#I16-01-0174). A survey of LBP and inventory of other hazardous materials was conducted by Ms. Caitlin Johnson, Stantec Engineer, and Mr. Shane Kelley.

SUSPECT ASBESTOS-CONTAINING MATERIALS

Asbestos is a potential health hazard capable of causing respiratory system fibrosis and various forms of systemic cancers. Its condition, handling, and disposal are regulated by federal, state, and local agencies. Materials that contain asbestos generally do not pose a health threat unless the asbestos fibers are disturbed by renovation, construction, or demolition, and may then become airborne and inhaled.

The EPA defines a homogeneous area as a surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture. The use or application of the homogeneous area is also used to identify suspect ACMs. The EPA and OSHA define ACM as any material that contains more than one percent (by weight) of asbestos (>1%). Only one sample from a homogeneous area with an asbestos concentration >1% is required to collectively identify that material as an ACM. The EPA additionally categorizes ACM as follows:

- Category I non-friable ACM – asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1% asbestos as determined using the PLM method.
- Category II non-friable ACM – any material, excluding Category I non-friable ACM, containing more than 1% asbestos as determined using the PLM method that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Regulated asbestos-containing material (RACM) – (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Potential asbestos exposure in construction is regulated when construction, alteration, repair, maintenance, renovation, or demolition of structures, substrates, or portions thereof contain asbestos [29 CFR 1926.1101 (a)(3)].

Sampling and Analysis

Stantec conducted a pre-demolition survey of materials at the Subject Property in order to identify suspect ACMs in general accordance with the Asbestos Hazard Emergency Response Act sampling guidelines as outlined in 40 CFR Part 763. The location, condition, friability, and the potential for suspect ACMs to be impacted (i.e. disturbed) was assessed and documented. Bulk samples of readily accessible suspect ACMs were collected. Consistent with building demolition and renovation regulatory requirements, building material sampling was conducted regardless of the age and/or condition of the structure.

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

A total of 22 bulk samples were collected from eight homogeneous areas at the Subject Property. The samples were analyzed by Polarized Light Microscopy (PLM) in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials" (EPA/600/R93/116, July 1993). In accordance with the methods described in 40 CFR 61, subpart E, Appendix E, all PLM sample results identified to be positive for asbestos <10% were point counted using gravimetric preparation methods at 400 points. The non-friable organically bound (NOB) samples were also analyzed using Transmission Electron Microscopy (TEM). Analysis was performed by EMSL Analytical, Inc. (EMSL) located in Cinnaminson, New Jersey. This laboratory is a participant in the Environmental Laboratory Accreditation Program (ELAP No. 1877) and the National Institute of Standards and Testing, National Voluntary Laboratory Accreditation Program. The laboratory is also accredited by the American Industrial Hygiene Association.

Findings

Table 1 provides a summary of the suspect materials identified and sampled during this survey. The table includes the OSHA definition and the EPA category, as applicable.

Table 1 – Asbestos Bulk Sample Results

Sample No.	Homogeneous Area	Location of Material	Asbestos Content	Condition	Quantity Estimate	OSHA Definition	EPA Category
1A 1B 1C	Linoleum floor tile	Bathroom Kitchen Living room	ND	Fair	300 SF	NA	NA
2A 2B 2C	Floor tile mastic	Bathroom Kitchen Living room	ND	Fair	300 SF	NA	NA
3A 3B 3C	Gypsum board	Bathroom HVAC Kitchen	ND	Good	75 SF	NA	NA
4A 4B	Caulk	Bathroom	ND	Good	2 SF	NA	NA
5A 5B 5C	Caulk	Exterior Door/Shed 2	ND	Good	5 SF	NA	NA
6A 6B 6C	**Roof Coating**	**Roof**	**8.2% (by TEM)**	**Poor**	**900 SF**	**ACM**	**Cat. I**
7A 7B 7C	Caulk	Roof	ND	Good	10 SF	NA	NA
8A 8B 8C	**Caulk**	**Exterior Wall**	**18.8% (by point count)**	**Good**	**10 SF**	**ACM**	**Cat. I**

Notes and Abbreviations:
SF = Square Feet
EA = Each]
ND = Non-Detect
NA = Not Applicable

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

ACM = Asbestos Containing Material
Cat. I = Category I, Non-friable Asbestos Containing Material
Items in **bold** are identified as having asbestos concentrations that exceed regulatory thresholds

Bulk sample logs and laboratory analytical results are provided in Attachment A; a sample location diagram is provided in Attachment B; and a photographic log is provided in Attachment C.

SUSPECT LEAD-BASED PAINTS

Lead is a potential health hazard. Its condition, handling, and disposal are regulated by federal, state, and local agencies. Lead in paint generally does not pose a health threat unless the material is disturbed or sufficiently deteriorated to produce dust, which may become airborne and inhaled or ingested. Contractors working in the facility should be informed of the type and the location of lead-containing materials. Applicable Federal regulations may apply depending on the work being performed.

Pursuant to EPA regulations, LBP is defined as paint or other surface coatings containing an amount of lead equal to or greater than one milligram per square centimeter (1.0 mg/cm^2) or more than half of one percent [>0.5% or 5,000 parts per million(ppm)] by weight. Additionally, worker exposure to materials containing lead during construction work is regulated by the Federal OSHA [29 CFR 1926.62(a)]. This regulation requires worker protection during construction "…where lead or materials containing lead are present."

Sampling and Analysis

The definitions of paint condition are dependent on the location of the paint and component involved. Table 2 illustrates how Housing and Urban Development (HUD) categorizes paint condition under various circumstances.

Table 2 – HUD Categories of Paint Film Quality

Type of Building Component	Total Area of Deteriorated Paint		
	Intact	Fair	Poor
Exterior components with large surface areas	Entire Surface is Intact	Less than or equal to 10 square feet	More than 10 square feet
Interior components with large surface areas (walls, ceilings, floors, doors)	Entire Surface is Intact	Less than or equal to 2 square feet	More than 2 square feet
Interior and exterior components with small surface areas (window sills, baseboards, soffits, trim)	Entire Surface is Intact	Less than or equal to 10 percent of the total surface area of the component	More than 10 percent of the total surface area of the component

Stantec assessed the condition of painted surfaces of the Subject Property to collect paint chip samples of painted surfaces observed to be in fair and/or poor condition as defined within Chapter 5 of the United States, HUD guidelines. Collected samples would be analyzed using Flame Atomic Absorption Spectrometry following the EPA SW 846-7000B/7420 analytical protocol.

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

Findings

There were no observed painted surfaces within the building nor on the Subject Property; therefore, no bulk paint chip samples were collected or analyzed.

OTHER HAZARDOUS MATERIALS

Stantec performed a visual inspection of existing building equipment for the presence of other hazardous materials and Universal Wastes [pursuant to 40 CFR 273.9, and 40 CFR 260.10]. The survey was limited to above grade only, and did not include a soil or subsurface investigation. Materials evaluated as part of this inspection included: Polychlorinated Biphenyl (PCB)-containing units such as lighting ballasts and PCB-containing electrical units (i.e., electrical transformers); lead-containing units such as car batteries or emergency exit sign batteries; fluorescent lighting tubes; mercury-containing units such as light switches and thermostats; refrigerants, halon, and other Chlorofluorocarbons (CFCs) such as fire extinguishing systems and Freon® used in association with building drinking fountains; heavy metals as may be found in cooling tower water treatment systems; solvents, paints, fuel (storage tanks), lubricants, and other associated maintenance and cleaning products; radioactive materials that may be contained in units such as smoke detectors, emergency exit signs, or medical equipment; office materials, supplies, and equipment such as computer monitors and printing supplies, and miscellaneous materials such as unlabeled materials or substances of concern.

Stantec's visual inspection was limited to fixtures and equipment in the Subject Property that were readily accessible. Assessment of these hazardous materials was based solely on the identification placards on the equipment or general knowledge of historical use. If the presence and/or absence of a particular material was not clearly marked, then that piece of equipment was assumed to contain a concentration of the material in question. No sample collection was performed in the process of identifying other hazardous materials or Universal Wastes.

The following is a partial summary of current federal and state regulations that contain requirements related to hazardous materials. These summaries are not intended to be all-inclusive and do not contain every aspect of the regulations discussed.

EPA Regulations (40 CFR 273.9 and 40 CFR 260.10)

The EPA regulations (40 CFR 273.9 and 40 CFR 260.10) provide standards for universal waste management and hazardous waste management systems. The EPA regulations specify requirements for managing the following hazardous materials: batteries, pesticides, mercury-containing equipment, lamps, and household and conditionally exempt small quantity generator waste. In addition to the EPA universal waste regulations, the following federal regulations may also include, but not be limited to the following:

- Applicable Federal Occupational Safety and Health regulations
- Title 40, Code of Federal Regulations, Part 261 – Identification and Listing of Hazardous Waste
- Title 40, Code of Federal Regulations, Part 262 – Standards Applicable to Generators of Hazardous Waste

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

- Title 40, Code of Federal Regulations, Part 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- Title 40, Code of Federal Regulations, Part 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- Title 49, Code of Federal Regulations, Parts 100-199 – Transportation of Hazardous Materials
- Title 40, Code of Federal Regulations, Part 268 – Land Disposal Restrictions
- Title 40, Code of Federal Regulations, Part 761 – Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
- National Emissions Standards for Hazardous Air Pollutants

PCBs
One PCB-containing light ballast was observed in the mobile home on the Subject Property.

Mercury
Two four-foot light tubes, and one mercury-containing thermostat were present in the mobile home on the Subject Property.

Ozone-Depleting Substances
No air conditioning units or similar equipment were observed on the Subject Property. Therefore, the Subject Property is assumed to not contain any ozone depleting refrigerant (i.e. Freon®).

Radioactive Materials
Smoke detectors typically utilize a small radioactive source as a key component in detecting smoke particles. EPA regulations require smoke detectors to be disposed of at a nuclear waste facility or returned directly to the manufacturer. No smoke detectors were observed within accessible areas of the Subject Property.

Exit signs that glow in the dark often contain a radioactive gas called tritium. These signs do not require electricity or batteries and can be used where it is hard to install electric signs, such as above doors. They serve an important safety function by marking exits to be used during power outages and emergencies. The signs pose little or no threat to public health and safety or security. *Tritium exit signs must NOT be disposed of as normal trash.* To dispose of a sign properly, a general licensee must transfer the sign to a specific licensee, such as a manufacturer, distributor, licensed radioactive waste broker, or licensed low-level radioactive waste disposal facility. There were no exit signs observed on the Subject Property.

Batteries
Batteries are required to be recycled and/or disposed of in accordance with applicable hazardous waste regulations. No batteries or battery-operated equipment was observed at the Subject Property.

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

RECOMMENDATIONS

Asbestos-Containing Materials

Based on the findings of this survey, asbestos-containing materials were identified in two materials on the Subject Property. OSHA requires employers to implement specific work practices, which protect workers from airborne asbestos exposure, when materials are found to contain detectable concentrations of asbestos. Building materials, which contain even low levels of asbestos (trace amounts), can potentially generate concentrations of airborne asbestos fibers when disturbed. Therefore, control measures should be instituted by those disturbing ACMs which adequately address worker health and safety during planned renovation or demolition activities involving these materials.

It is recommended that asbestos-containing materials be removed by a licensed abatement contractor prior to renovation, refurbishing, or demolition activities. If the entire area of asbestos containing material is not affected by renovation, refurbishing, or demolition activities, spot abatement of the material could be completed. This would entail only abating the affected areas.

It should be noted, however, that the asbestos survey was limited to accessible materials only and did not include underground utilities operating conveyance equipment or inaccessible areas. Historically, some underground utility piping has been known to contain asbestos (e.g. Transite pipe). If renovation/demolition of portions of the Subject Property includes removal of on-site portions of underground utilities (storm drains, sewer, domestic water laterals, etc.), evaluation of the asbestos content of these components must be performed prior to the removal process. Suspect materials identified in these locations are assumed positive for asbestos until sampling and analysis indicates otherwise. If during the course of a renovation/demolition project suspect ACMs are discovered that are not included within this report, those materials are to be assumed positive for asbestos unless additional sampling, analysis, and/or assessment indicates otherwise.

Lead-Based Paint

No paint samples were taken as there were no painted surfaces observed to be in fair or poor condition on the Subject Property. If during the course of a renovation/demolition project, suspect LBPs are discovered that are not included within this report, those materials are to be assumed positive for lead unless additional sampling, analysis, and/or assessment indicates otherwise.

Other Hazardous Materials

One PCB-containing light ballast, one mercury-containing thermostat, and two four-foot light tubes were observed on the Subject Property.

LIMITATIONS

Reasonable efforts have been made by Stantec personnel to locate, sample, and/or identify suspect ACMs, LBPs, and hazardous materials associated with the Subject Property. For any facility, the existence of unique or concealed materials and debris is a possibility. In addition, sampling and laboratory analysis constraints typically hinder the investigation. Stantec does not warrant, guarantee, or profess to have the ability to locate or identify all hazardous materials in a facility. The survey is limited in nature, as only full demolition of the Subject Property will reveal all concealed

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

conditions. Stantec cannot warrant the effectiveness or damage thereof, at any of the patches or temporary repairs performed at sampling locations. This report is intended for use in planning based on the agreed upon scope of work. This report is not intended to be a bidding document. Quantities of materials identified are estimates only and would need to be verified. If during the course of a renovation/demolition project suspect ACMs, LBPs, and/or hazardous materials are discovered that are not included within this report, those materials should be treated accordingly until additional sampling, analysis, and/or assessment can be performed.

Additionally, the passage of time may result in a change in the environmental characteristics at the Subject Property. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during Stantec's survey of the Subject Property and test results provided by EMSL Analytical, Inc. These observations are time dependent, are subject to changing site conditions, and revisions to federal, state, and local regulations. Reliance on this letter report by Third Parties (i.e., other than KYTC) shall be at the Third Party's sole risk.

When we conclude that a material is or is not ACM, based on laboratory analyses of samples, we are stating that there is likelihood that constituents of suspect material are accurately characterized by samples procured. We cannot conclude categorically that sampled material is represented by analyzed samples. If one sample of material from a homogenous area is found to be ACM, the material is judged to be ACM. However, if sampling and laboratory analysis indicate that no asbestos was detected, we cannot guarantee that this material is asbestos-free. If you have any questions regarding this report or require further clarification, please do not hesitate to contact the Stantec personnel identified below.

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200, Mobile Home and Sheds
Stantec Project #: 178564013.200.006

Regards,

STANTEC CONSULTING SERVICES INC.

Prepared by:

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Environmental Scientist
KY Asbestos Inspector # 116-01-0174
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Shane.kelley@stantec.com

Technical Peer Review by:

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John Watrous
Senior Environmental Scientist
KY Asbestos Inspector # 115-11-2963
Phone: (502) 212-5014
John.watrous@stantec.com

/cl

Attachments:
A: Laboratory Analytical Results and Bulk Sample Logs
B: Sample Location Diagram
C: Photographic Log
D: Personnel Certifications

Attachment A
Laboratory Analytical Results and Bulk Sample Logs

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041608039
Customer ID: STKY42
Customer PO:
Project ID:

Attention: Shane Kelley
Stantec
10509 Timberwood Circle
Louisville, KY 40223

Phone: (502) 212-5021
Fax:
Received Date: 03/31/2016 9:50 AM
Analysis Date: 03/31/2016
Collected Date: 03/28/2016

Project: Mountain Parkway Expansion / 178564013 / 200.006 / Parcel 200- Mobile Home

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1A *041608039-0001*	Bathroom/ LR - Linoleum Floor Tile, Tan	Tan Fibrous Homogeneous	20% Cellulose 3% Glass HA: 1	77% Non-fibrous (Other)	None Detected
1B *041608039-0002*	Living Room - Linoleum Floor Tile, Tan	Tan Fibrous Homogeneous	20% Cellulose 5% Glass HA: 1	75% Non-fibrous (Other)	None Detected
1C *041608039-0003*	Kitchen - Linoleum Floor Tile, Tan	Tan Fibrous Homogeneous	20% Cellulose 10% Glass HA: 1	70% Non-fibrous (Other)	None Detected
2A *041608039-0004*	Bathroom/ LR - Floor Tile Mastic, White	White/Yellow Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2B *041608039-0005*	Living Room - Floor Tile Mastic, White	White/Yellow Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
2C *041608039-0006*	Kitchen - Floor Tile Mastic, White	Yellow Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
3A *041608039-0007*	Bathroom/ LR - Gypsum Board, White	Brown/White Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
3B *041608039-0008*	HVAC - Gypsum Board, White	Brown/White Fibrous Homogeneous	15% Cellulose HA: 3	85% Non-fibrous (Other)	None Detected
3C *041608039-0009*	Bathroom/ LR - Gypsum Board, White	Brown/White Fibrous Homogeneous	20% Cellulose HA: 3	80% Non-fibrous (Other)	None Detected
4A *041608039-0010*	Bathroom/ LR - Caulk, White	White Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
4B *041608039-0011*	Bathroom/ LR - Caulk, White	White Non-Fibrous Homogeneous	HA: 4	100% Non-fibrous (Other)	None Detected
5A *041608039-0012*	Exterior Door - Caulk, Grey	Gray Non-Fibrous Homogeneous	HA: 5	100% Non-fibrous (Other)	None Detected
5B *041608039-0013*	Exterior Door - Caulk, Grey	Gray Non-Fibrous Homogeneous	HA: 5	100% Non-fibrous (Other)	None Detected

Initial Report From: 03/31/2016 17:03:27

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041608039
Customer ID: STKY42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
6A *041608039-0014* *Inseparable paint / coating layer included in analysis* *Recommend TEM*	Roof - Roof Coating, White/ Grey	Gray/White/Silver Non-Fibrous Homogeneous	HA: 6	100% Non-fibrous (Other)	<1% Chrysotile
6B *041608039-0015* *Inseparable paint / coating layer included in analysis*	Roof - Roof Coating, White/ Grey	Gray/White/Silver Fibrous Homogeneous	HA: 6	98% Non-fibrous (Other)	2% Chrysotile
6C *041608039-0016* *Inseparable paint / coating layer included in analysis*	Roof - Roof Coating, White/ Grey	Gray/White/Black Non-Fibrous Homogeneous	HA: 6	98% Non-fibrous (Other)	2% Chrysotile
7A *041608039-0017*	Roof - Caulk, White	Clear Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
7B *041608039-0018*	Roof - Caulk, White	White/Clear Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
7C *041608039-0019*	Roof - Caulk, White	Clear Non-Fibrous Homogeneous	HA: 7	100% Non-fibrous (Other)	None Detected
8A *041608039-0020*	Exterior Wall - Caulk, White	White Non-Fibrous Homogeneous	HA: 8	96% Non-fibrous (Other)	4% Chrysotile
8B *041608039-0021*	Exterior Wall - Caulk, White	White Fibrous Homogeneous	HA: 8	95% Non-fibrous (Other)	5% Chrysotile
8C *041608039-0022*	Exterior Wall - Caulk, White	White Non-Fibrous Homogeneous	HA: 8	93% Non-fibrous (Other)	7% Chrysotile

Analyst(s)
Ariel Dickens (8)
Adam Gart (14)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government . Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial Report From: 03/31/2016 17:03:27

Parcel 200

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*): 041608039

PHONE
FAX

Company Name: Stantec Consulting	**EMSL Customer ID:**
Street: 10509 Timberwood Circle	**City:** Louisville **State/Province:** Kentucky
Zip/Postal Code: 40223 **Country:** USA	**Telephone #:** 502-212-5021 **Fax #:** 502-212-5055
Report To (Name): Shane Kelley	**Please Provide Results:** ☐ Fax ☑ Email
Email Address: shane kelley@stantec.com	**Purchase Order:**
Project Name/Number: Mountain Parkway Expansion/178564013	**EMSL Project ID** (*Internal Use Only*)
U.S. State Samples Taken: Kentucky	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

EMSL-Bill to: ☑ Same ☐ Different - If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide

PCM - Air ☐ Check if samples are from NY
☐ NIOSH 7400
☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
☑ PLM EPA 600/R-93/116 (<1%)
☐ PLM EPA NOB (<1%)
Point Count
☐ 400 (<0.25%) ☐ 1000 (<0.1%)
Point Count w/Gravimetric
☐ 400 (<0.25%) ☐ 1000 (<0.1%)
☐ NYS 198.1 (friable in NY)
☐ NYS 198.6 NOB (non-friable-NY)
☐ NYS 198 8 SOF-V
☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
☐ AHERA 40 CFR, Part 763
☐ NIOSH 7402
☐ EPA Level II
☐ ISO 10312

TEM - Bulk
☐ TEM EPA NOB
☐ NYS NOB 198.4 (non-friable-NY)
☐ Chatfield SOP
☐ TEM Mass Analysis-EPA 600 sec. 2 5

TEM – Water: EPA 100.2
Fibers >10µm ☐ Waste ☐ Drinking
All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
☐ Microvac - ASTM D 5755
☐ Wipe - ASTM D6480
☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite*
☐ PLM CARB 435 - A (0 25% sensitivity)
☐ PLM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - C (0.01% sensitivity)
☐ TEM Qual via Filtration Technique
☐ TEM Qual. via Drop-Mount Technique
*Can not accept New York State Loose Fill Vermiculite Samples

Other:
☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group** | **Filter Pore Size (Air Samples):** ☐ 0.8µm ☐ 0.45µm

Samplers Name: Shane Kelley **Samplers Signature:** Shane Kelley

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	See Attached Logs		

Client Sample # (s): 1A - 8C **Total # of Samples:** 22
Relinquished (Client): Shane Kelley **Date:** 3/29/16 **Time:** 9:15 pm
Received (Lab): [illegible] **Date:** 3/31/16 **Time:** 950
Comments/Special Instructions:

MAR 31 AM 10: 25

Controlled Document – Asbestos COC - R9 – 10/30/2014

Page 1 of 1 pages

(22)

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 MAR 31 AM 10: 25

Project Name: Mountain Parkway Expansion
Site Name: Parcel 200 - Mobile Home
Date: 3/28/16
Project #: 178564013
Task #: 200.006
Site Address:
Inspector: S. Kelley

MATERIAL

HA#	1
Material Type:	Linoleum Floor Tile
Color:	[illegible]
Description:	
Estimated Total Qty.:	300 sq ft

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bathroom	80 SF	
1	Kitchen	200 SF	
1	Living Room	20 SF	

SAMPLES

Sample #	Sample Location
1 A	Bathroom/LR
1 B	Living Room
1 C	Kitchen
D	
E	
F	
G	

Notes:

Relinquished By: Date: Received By: Date:

Page 1 of 8

MAGOFFIN COUNTY
TGR 0081(064) 041608039

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 MAR 31 AM 10: 25

Project Name: Mountain Parkway Expansion
Site Name: Parcel 200 - mobile home
Date: 3/28/16
Project #: 178564013 Task #: 200.006
Site Address:
Inspector: S. Kelley

MATERIAL

HA#	2
Material Type:	Floor Tile Plastic
Color:	White
Description:	
Estimated Total Qty.:	300 sqft

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bathroom	80 sqft	
1	Kitchen	200 sqft	
1	Living Room	20 sqft	

SAMPLES

Sample #	Sample Location
2 A	[illegible]
2 B	Living Room
2 C	Kitchen
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: Date: Received By: Date:

Page 2 of 8

MAGOFFIN COUNTY
TCR 0081(064) 041608039

Contract ID: 161033
Page 208 of 726

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 MAR 31 AM 10:25

Project Name: Mountain Parkway Expansion
Site Name: Parcel 200 - Middle Fork
Date: 3/28/16
Project #: 178564013 Task #: 200.006
Site Address:
Inspector: S. Kelley

MATERIAL

HA#	3
Material Type:	Gypsum Board
Color:	White
Description:	
Estimated Total Qty.:	75 SF

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bathroom	10 SF	
1	HVAC	50 SF	
1	Kitchen	15 SF	

SAMPLES

Sample #	Sample Location
3 A	Bathroom/LR
3 B	HVAC
3 C	Bathroom/LR
D	
E	
F	
G	

Notes:

Relinquished By: Date: Received By: Date:

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MAGOFFIN COUNTY
TGP 041608039

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 MAR 31 AM 10:25

Project Name: Mountain Parkway Expansion
Site Name: Parcel 200 - Mobile Home
Date: 3/28/16
Project #: 178564013
Task #: 200.006
Site Address:
Inspector: S. Kelley

MATERIAL

HA#	4
Material Type:	Caulk.
Color:	White
Description:	
Estimated Total Qty.:	2 SF

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
1	Bathroom		

SAMPLES

Sample #	Sample Location
4 A	Bathroom/LR
4 B	Bathroom/LR
C	
D	
E	
F	
G	

Notes:

Relinquished By: Date: Received By: Date:

Page 4 of 9

MAGOFFIN COUNTY
TGR 0081(064) 041608039

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 MAR 31 AM 10: 25

Project Name: Mountain Parkway Extension
Site Name: Parcel 200 - Shed 2
Date: 3/28/16
Project #: 178564013
Task #: 200.006
Site Address:
Inspector: S. Kelley

MATERIAL

HA#	5
Material Type:	Caulk
Color:	Grey
Description:	
Estimated Total Qty.:	5 SF

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Exterior		

SAMPLES

Sample #	Sample Location
5 A	Exterior Door
5 B	Exterior Door
C	
D	
E	
F	
G	

Notes:

Relinquished By: Date: Received By: Date:

Page 5 of 8

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 MAR 31 AM 10: 25

Project Name: Mountain Parkway Expansion
Site Name: Parcel 200 - Mobile Home
Date: 3/28/16
Project #: 178564013
Task #: 200.006
Site Address:
Inspector: S. Kelley

MATERIAL

HA#	6
Material Type:	Roof Coating
Color:	White/Grey
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
6 A	Roof
6 B	Roof
6 C	Roof
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes	No	
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 6 of 8

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

16 MAR 31 AM 10: 25

Project Name: Mountain Parkway Expansion
Site Name: Parcel 200 - Mobile Home
Date: 3/28/16
Project #: 173564013
Task #: 200.006
Site Address:
Inspector: S Kelley

MATERIAL

HA#	7
Material Type:	Caulk
Color:	White
Description:	
Estimated Total Qty.:	

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.

SAMPLES

Sample #	Sample Location
7 A	Roof
7 B	Roof
7 C	Roof
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: _____ Date: _____ Received By: _____ Date: _____

Page 7 of 8

MAGOFFIN COUNTY
TGR 0081(064) 041608039

041608039

Stantec

Asbestos Bulk Sample Log

10509 Timberwood Circle, Suite 100
Louisville, KY 40223
Tel: (502) 212-5000
Fax: (502) 212-5055

JOHNSON, NJ
16 MAR 31 AM 10: 25

Project Name: Mountain Parkway Exterior
Project #: 178564013 Task #: [illegible]
:

Site Name: Parcel 200 [illegible]
Site Address:

Date: 3/28/16
Inspector: S. Kelley

MATERIAL

HA#	8
Material Type:	Caulk
Color:	White
Description:	
Estimated Total Qty.:	10 SF

MATERIAL LOCATIONS

Floor #	Location	Quantity Estimate	Cond.
	Exterior		

SAMPLES

Sample #	Sample Location
8 A	Exterior Wall
8 B	Exterior Wall
8 C	Exterior Wall
D	
E	
F	
G	

Notes:

HAZARD ASSESSMENT

Friable:	Yes		No
Contact by Maintenance:	Low	Med	High
Vibration:	Low	Med	High
Air Movement:	Low	Med	High

Relinquished By: Date: Received By: Date:

Page 8 of 8

MAGOFFIN COUNTY
TGR 0081(064) 041608039

Attachment B
Sample Location Diagram

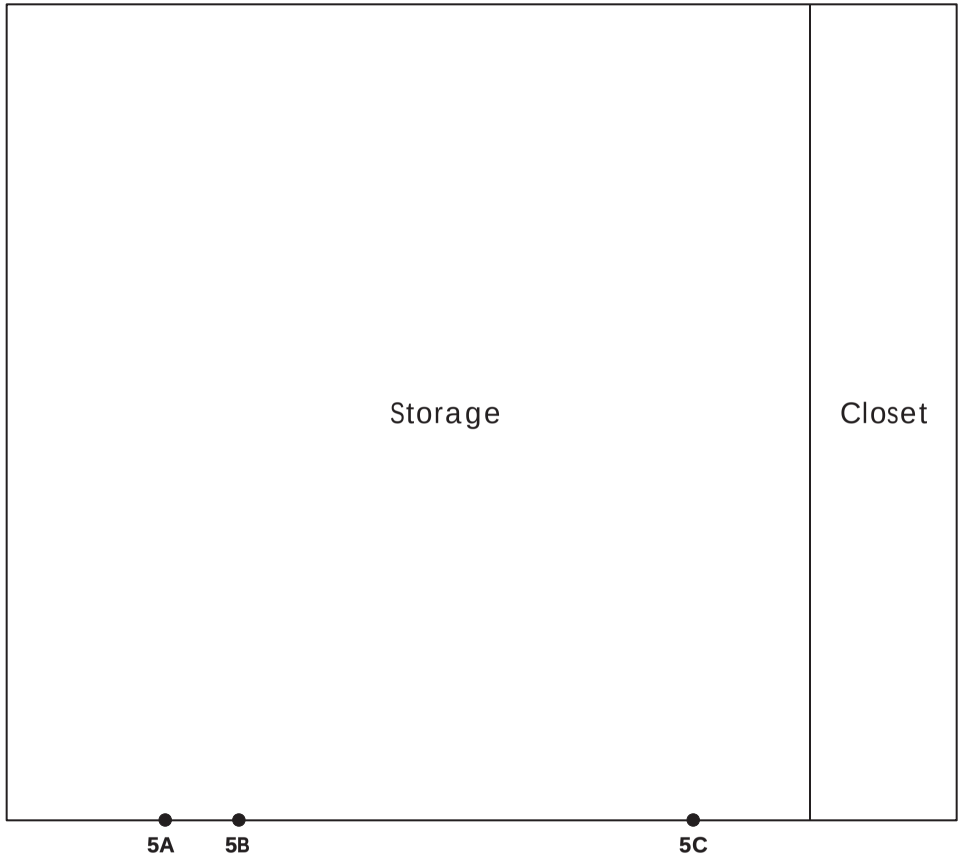
LEGEND:

- ● NON-ACM SAMPLE LOCATION
- ● *ACM SAMPLE LOCATION*

NOT TO SCALE

Stantec

FOR: Pre-Demolition Hazardous Materials Survey, Mountain Parkway Expansion, Parcel 200 – E. Mountain Parkway, Salyersville, Kentucky		ASBESTOS SAMPLE LOCATION MAP		FIGURE: 1
PROJECT NUMBER: 178564013	DRAWN BY: SK	CHECKED BY: JS	APPROVED BY: JW	DATE: 4/21/2016



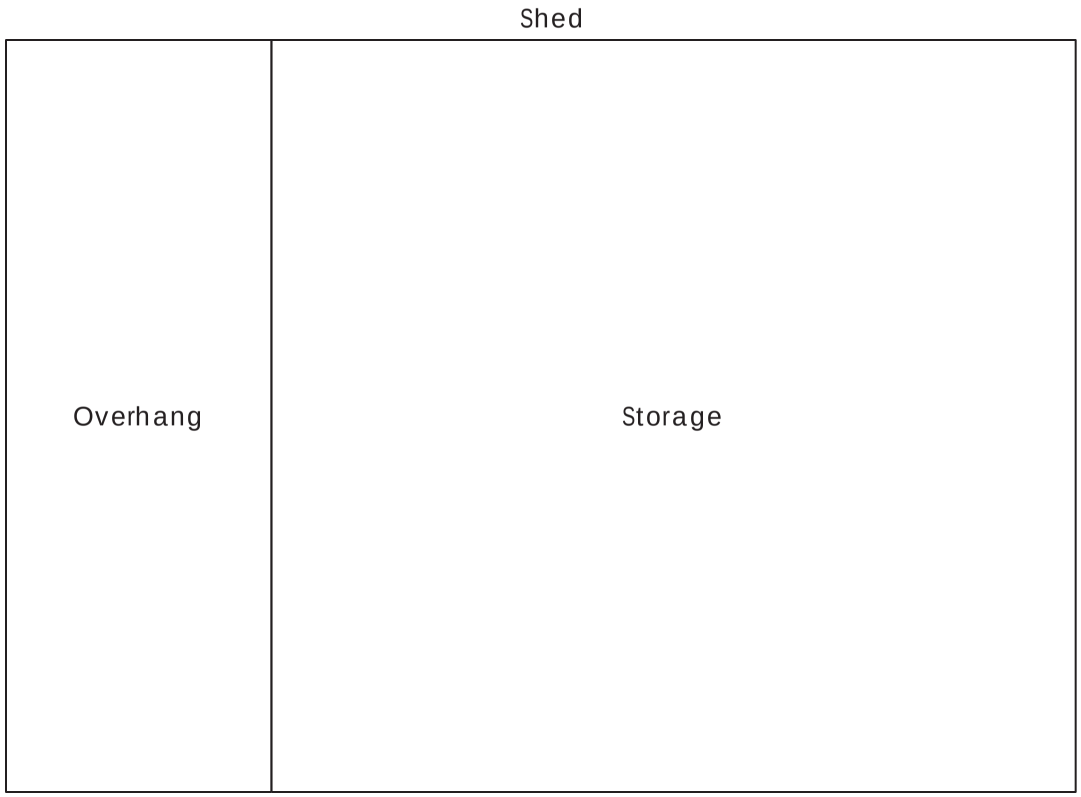
LEGEND:

- **NON-ACM SAMPLE LOCATION**

NOT TO SCALE

Stantec

FOR:		ASBESTOS SAMPLE LOCATION MAP Shed 1		FIGURE:
Pre-Demolition Hazardous Materials Survey Mountain Parkway Expansion Parcel 200 – E. Mountain Parkway Salyersville, Kentucky				2
PROJECT NUMBER: 178564013	DRAWN BY: SK	CHECKED BY: JS	APPROVED BY: JW	DATE: 4/21/2016



No Samples Taken

NOT TO SCALE

Stantec

FOR: Pre-Demolition Hazardous Materials Survey Mountain Parkway Expansion Parcel 200 – E. Mountain Parkway Salyersville, Kentucky		ASBESTOS SAMPLE LOCATION MAP Shed 2		FIGURE: 3
PROJECT NUMBER: 178564013	DRAWN BY: SK	CHECKED BY: JS	APPROVED BY: JW	DATE: 4/21/2016

Attachment C
Photographic Log

April 26, 2016
KYTC

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200: Mobile home and Sheds
Stantec Project #: 178564013.200.006

Photo 1- March 28, 2016

Exterior of Subject Property.

Photo 2- March 28, 2016

External rear view of Subject Property.

April 26, 2016
KYTC

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200: Mobile home and Sheds
Stantec Project #: 178564013.200.006

Photo 3- March 28, 2016

View of roofing surface on mobile home. (ACM)

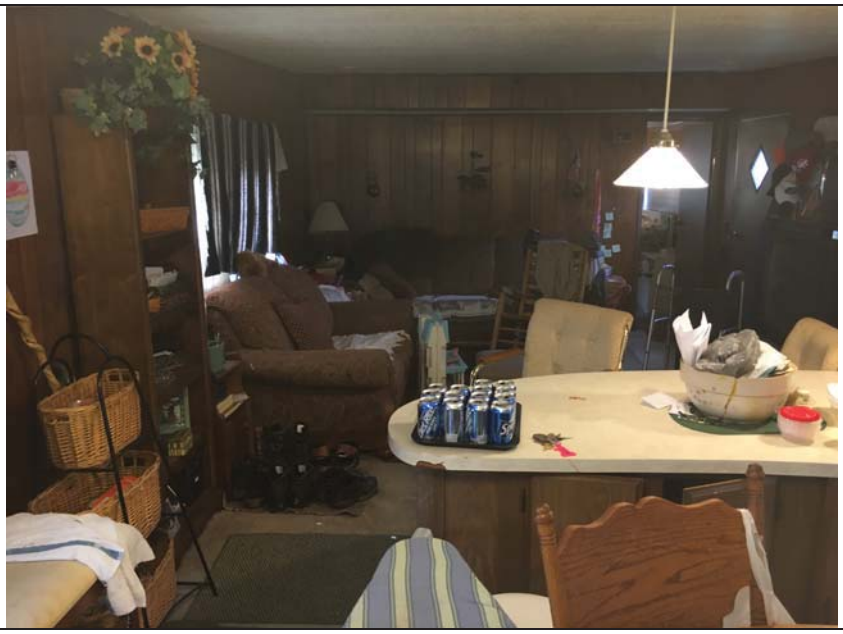
Photo 4- March 28, 2016

View of exterior wall caulk. (ACM)

April 26, 2016
KYTC

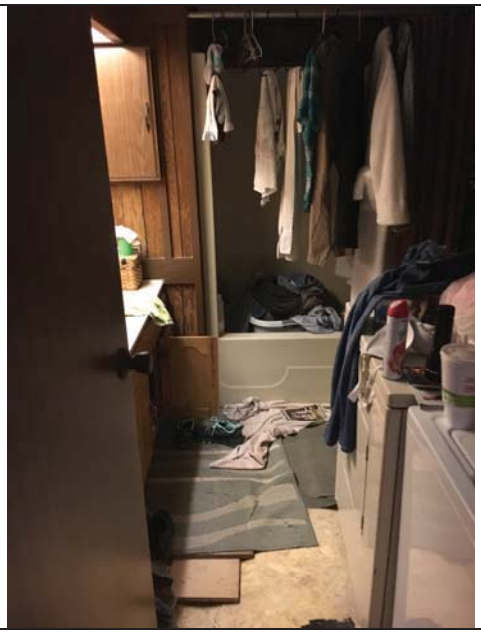
Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200: Mobile home and Sheds
Stantec Project #: 178564013.200.006

Photo 5- March 28, 2016



Interior view of kitchen and living room.

Photo 6- March 28, 2016



Interior view of bathroom.

April 26, 2016
KYTC

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200: Mobile home and Sheds
Stantec Project #: 178564013.200.006

Photo 7- March 28, 2016

PCB-containing light ballast.

Photo 8- March 28, 2016

Mercury-containing thermostat.

April 26, 2016
KYTC

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200: Mobile home and Sheds
Stantec Project #: 178564013.200.006

Photo 9- March 28, 2016
Exterior view of shed 1.
Photo 10- March 28, 2016
Interior view of shed 1.

April 26, 2016
KYTC

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200: Mobile home and Sheds
Stantec Project #: 178564013.200.006

Photo 11- March 28, 2016

Exterior view of shed 2.

Photo 12- March 28, 2016

Interior view of shed 2.

April 26, 2016
KYTC

Reference: Pre-demolition Asbestos, Lead-Based Paint, and Hazardous Materials Survey Report
Parcel 200: Mobile home and Sheds
Stantec Project #: 178564013.200.006

Photo 13- March 28, 2016

Exterior view of caulk around shed 2 door.

Photo 14- March 28, 2016

Exterior view of roof penetration and caulk.

Attachment D
Personnel Certifications

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.

Cinnaminson, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-06-02 through 2016-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
Mr. Ben Ellis
Phone: 800-220-3675 Fax: 856-786-5973
Email: bellis@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

TSI Training Services International

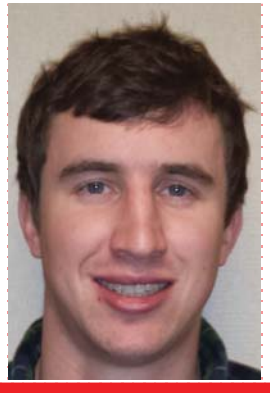
Asbestos Building Inspector Refresher

Certificate

This is to certify

Shane Kelley

XXX-XX-6624



has attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory course for the Asbestos Building Inspector Refresher and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2 and Chapter 3701-34 Ohio Administrative Code.

Training Manager	Expiration Date	Date(s) of Course	Examination Date	Course Location
	1/20/17	1/20/16	1/20/16	Cincinnati, OH

TSI
33150 Lakeland Blvd.
Cleveland, OH 44095
1-866-666-8438

16 TSI 61997 ir

Commonwealth of Kentucky
Department for Environmental Protection
Division for Air Quality

Shane Patrick Kelley

Has met the requirements of 401 KAR 58:005 and is accredited as an:

Asbestos Inspector

Accreditation Number: **I16-01-0174**

Issue Date: **1/25/2016**

Expiration Date: 1/20/2017

KENTUCKY DIVISION FOR AIR QUALITY

Commonwealth of Kentucky
Department for Environmental Protection
Division for Air Quality

John D. Watrous

Has met the requirements of 401 KAR 58:005 and is accredited as an:

Asbestos Inspector

Accreditation Number: **I15-11-2963**
Issue Date: **11/30/2015**
Expiration Date: 8/25/2016

KENTUCKY DIVISION FOR AIR QUALITY

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Jason Stagno

ABIR1214150008N8308

Alan Dages

Principal Instructor

Michael W. Horner

Michael W. Horner
Training Director

12/14/2015	12/14/2015	12/14/2015	12/14/2016
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.

National Association of Training and Environmental Consulting

1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.

National Association of Training and Environmental Consulting

Anaheim, CA | Oakland, CA | Marianas & Guam

Asbestos • Lead • Mold • HAZWOPER

P.O. Box 25205 Anaheim, CA 92825-5205

(714) 678-2750, (800) 969-3228, Fax (714) 678-2757

www.natecintl.com

NATEC International, Inc.

National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Jason Stagno

Holds Training Certification For
Asbestos Building Inspector Refresher Course

(Valid for 12 months)

Training Date 12/14/2015
Certificate No. ABIR1214150008N8308

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Jason Stagno

AMPR1214150010N8309

Alan Dages
Principal Instructor

Michael W. Horner
Michael W. Horner
Training Director

12/14/2015	12/14/2015	12/14/2015	12/14/2016
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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National Association of Training and Environmental Consulting
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(916) 483-0572 Fax Notification
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CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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National Association of Training and Environmental Consulting
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Asbestos • Lead • Mold • HAZWOPER

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www.natecintl.com

NATEC International, Inc.
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*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Jason Stagno

Holds Training Certification For
Asbestos Management Planner Refresher Course

(Valid for 12 months)

Training Date 12/14/2015
Certificate No. AMPR1214150010N8309

Michael W. Horner
Training Director

SPECIAL NOTE

Specification for Contaminated Soils Removal

Magoffin County
US 460 / Mountain Parkway Reconstruction
Item No. 10-166.00

Background. Environmental professionals working for KYTC have undertaken limited soil sampling and site reconnaissance to identify known or potential contaminated materials. Where site reconnaissance identified areas of obvious contamination—areas with stained soils or stressed vegetation—that will warrant removal of soil, soil samples were not taken. Where results of visual inspection were uncertain but the areas appeared suspect, samples were taken. Both efforts identified soils that will need to be removed and disposed of in a landfill certified to accept contaminated soils.

Available Documents. There are four documents attached:

A. A summary of assumed quantities based on both the limited soil samples and the visual inspection.

B. A PDF of a PowerPoint presentation summarizing results of Limited Phase II work.

C. The location and results of the soil samples are documented in a report titled "Limited Phase II Site Investigation Report," May 26, 2015. Appendices are not included in proposal but will be available at contractor's request.

D. NFA (No Further Action) closure letter from the Kentucky Division of Waste Management's UST Branch for Parcel 117.

Contractor responsibilities. The contractor will be responsible for removing, transporting, and disposing of contaminated soils, backfill the sites as needed, and abiding by all applicable environmental laws.

Specifically, the contractor shall have an Environmental Professional[1] identify (1) where, based on the above reports and on-site professional judgement, the limits of the contaminated soil are, and (2) differentiate that which needs to be disposed of into a certified landfill and that which does not require such disposal. Professional judgement is anticipated to suffice, and confirmation soil samples are not anticipated. For each site, the contractor will, with the

[1] For the purposes of this task, "environmental professional" means either (A) the ASTM 1527 definition as described in 40 CFR 312.10. https://www.law.cornell.edu/cfr/text/40/312.10 or (B) being pre-qualified by KYTC for Hazmat Remediation Services http://transportation.ky.gov/Professional-Services/Prequalified%20Firms/Environmental%20and%20UST%20Services.pdf

assistance of the Environmental Professional, document the contaminated soil removal through photographs, site diagrams, a signed manifest from the receiving facility, and a summary letter to the KYTC that describes the methodology and actions taken and completed.

Underground Storage Tanks (USTs). KYTC has removed from the project impact limits three sets of USTs —Parcels 117, 127 and 182. KYTC has received a NFA (No Further Action) closure letter from the Kentucky Division of Waste Management's UST Branch for Parcel 117. The closure letters for the other two sites has not yet been received, therefore, potential exists the UST Branch will require additional sampling. If additional sampling is required, KYTC will perform the sampling. If the results of the sampling requires disposal of contaminated materials, the contractor will be instructed to remove, and any additional quantity will be paid for by contaminated soil disposal bid item.

Measurement:

The Department will measure the removal of contaminated soil by cubic yard. The use of an Environmental Professional is incidental to the removal.

Payment:

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

Code	Pay Item	Pay Unit
2183	Contaminated Soil Disposal	Cubic Yard

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

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
UNDERGROUND STORAGE TANK BRANCH
200 FAIR OAKS LANE, 2ND FLOOR
FRANKFORT, KENTUCKY 40601
http://waste.ky.gov/ust

March 29, 2016

KYTC
C/O CHRIS CUMMINS
200 MERO STREET 5th FLOOR
FRANKFORT KY 40622

P-117

Re: UST No Further Action Letter
Agency Interest Number (AI #): 59553 UST ID #: 490007
Parkway One Stop Inc
96 E Mountain Pkwy
Salyersville, KY 41465
Magoffin County
Applicable Regulation(s): 2011 Regulations
UST System(s): Removal Date: November 9, 2015
Incident #: N/A
Tank Number: 8 – 10,000 gallon Gasoline (STOR03)
9 – 10,000 gallon Gasoline (STOR04)
10 – 10,000 gallon Gasoline (STOR12)
11 – 10,000 gallon Diesel (STOR05)

Dear Mr. Cummins:

The Underground Storage Tank (UST) Branch has reviewed the site-specific information received to date for the referenced UST facility. The historical data and analyses reviewed by the UST Branch sufficiently demonstrate that the requirements of Kentucky Revised Statutes Chapter 224, Subchapter 60 and 401 Kentucky Administrative Regulations Chapter 42 applicable to closure have been satisfied. Therefore, no further action is required, at this time.

The UST Branch has based this determination on information submitted by Lee Engineering LLC and reserves all rights to require additional monitoring, testing or other actions necessary to protect public health and the environment if the UST Branch determines there is need for further investigation.

It is the responsibility of the owner/operator or representative to notify the current on-site property owner and all off-site property owners, where access was granted as part of the investigation, of the issuance of the no further action letter.

All monitoring wells shall be properly decommissioned in accordance with 401 KAR 6:350 within thirty (30) days from the date of determination that the monitoring well(s) are unsuitable for use as monitoring wells or within thirty (30) days of receiving a no further action letter from the cabinet. If you have monitoring wells that are required for another investigation that is ongoing, then you may contact the UST Branch to apply for a variance to this monitoring well decommissioning requirement.

This letter serves as authorization for eligible applicants to submit a cost estimate on the appropriate worksheet in order to acquire pre-approval of site restoration and well decommissioning costs in accordance with Section 10 of 401 KAR 42:250. If seeking reimbursement, all claims shall be submitted within two (2) years after the date of this letter.

More information, including the UST Branch regulations, outlines, forms and updates, can be found online at http://waste.ky.gov/ust. If you have any questions regarding this letter, please contact Kathy Takacs at 502-564-5981, ext. 4069 or at Kathy.Takacs@ky.gov.

Sincerely,

Todd Mullins, P.G.
UST Branch, AEII Section Supervisor

Cc:

LEE ENGINEERING LLC
PO BOX 500
LAWRENCBURG KY 40342

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
UNDERGROUND STORAGE TANK BRANCH
200 FAIR OAKS LANE, 2ND FLOOR
FRANKFORT, KENTUCKY 40601
http://waste.ky.gov/ust

March 29, 2016

KYTC
C/O CHRIS CUMMINS
200 MERO STREET 5th FLOOR
FRANKFORT KY 40622

P-117

Re: UST No Further Action Letter
Agency Interest Number (AI #): 59553 UST ID #: 490007
Parkway One Stop Inc
96 E Mountain Pkwy
Salyersville, KY 41465
Magoffin County
Applicable Regulation(s): Backlog Regulations
UST System(s): Removal Date: August 1, 1987
Incident #: N/A
Tank Number: 1 – 5,000 gallon Gasoline (STOR07)
2 – 10,000 gallon Gasoline (STOR08)
3 – 10,000 gallon Gasoline (STOR09)
4 – 10,000 gallon Diesel (STOR10)
5 – 1,000 gallon Kerosene (STOR11)

Dear Mr. Cummins:

The Underground Storage Tank (UST) Branch has reviewed the site-specific information received to date for the referenced UST facility. The historical data and analyses reviewed by the UST Branch sufficiently demonstrate that the requirements of Kentucky Revised Statutes Chapter 224, Subchapter 60 and 401 Kentucky Administrative Regulations Chapter 42 applicable to closure have been satisfied. Therefore, no further action is required, at this time.

The UST Branch has based this determination on information submitted by Lee Engineering LLC and reserves all rights to require additional monitoring, testing or other actions necessary to protect public health and the environment if the UST Branch determines there is need for further investigation.

It is the responsibility of the owner/operator or representative to notify the current on-site property owner and all off-site property owners, where access was granted as part of the investigation, of the issuance of the no further action letter.

All monitoring wells shall be properly decommissioned in accordance with 401 KAR 6:350 within thirty (30) days from the date of determination that the monitoring well(s) are unsuitable for use as monitoring wells or within thirty (30) days of receiving a no further action letter from the cabinet. If you have monitoring wells that are required for another investigation that is ongoing, then you may contact the UST Branch to apply for a variance to this monitoring well decommissioning requirement.

This letter serves as authorization for eligible applicants to submit a cost estimate on the appropriate worksheet in order to acquire pre-approval of site restoration and well decommissioning costs in accordance with Section 10 of 401 KAR 42:250. If seeking reimbursement, all claims shall be submitted within two (2) years after the date of this letter.

More information, including the UST Branch regulations, outlines, forms and updates, can be found online at http://waste.ky.gov/ust. If you have any questions regarding this letter, please contact Kathy Takacs at 502-564-5981, ext. 4069 or at Kathy.Takacs@ky.gov.

Sincerely,

Todd Mullins, P.G.
UST Branch, AEII Section Supervisor

Cc:

LEE ENGINEERING LLC
PO BOX 500
LAWRENCBURG KY 40342

Mountain Parkway 10-166.00

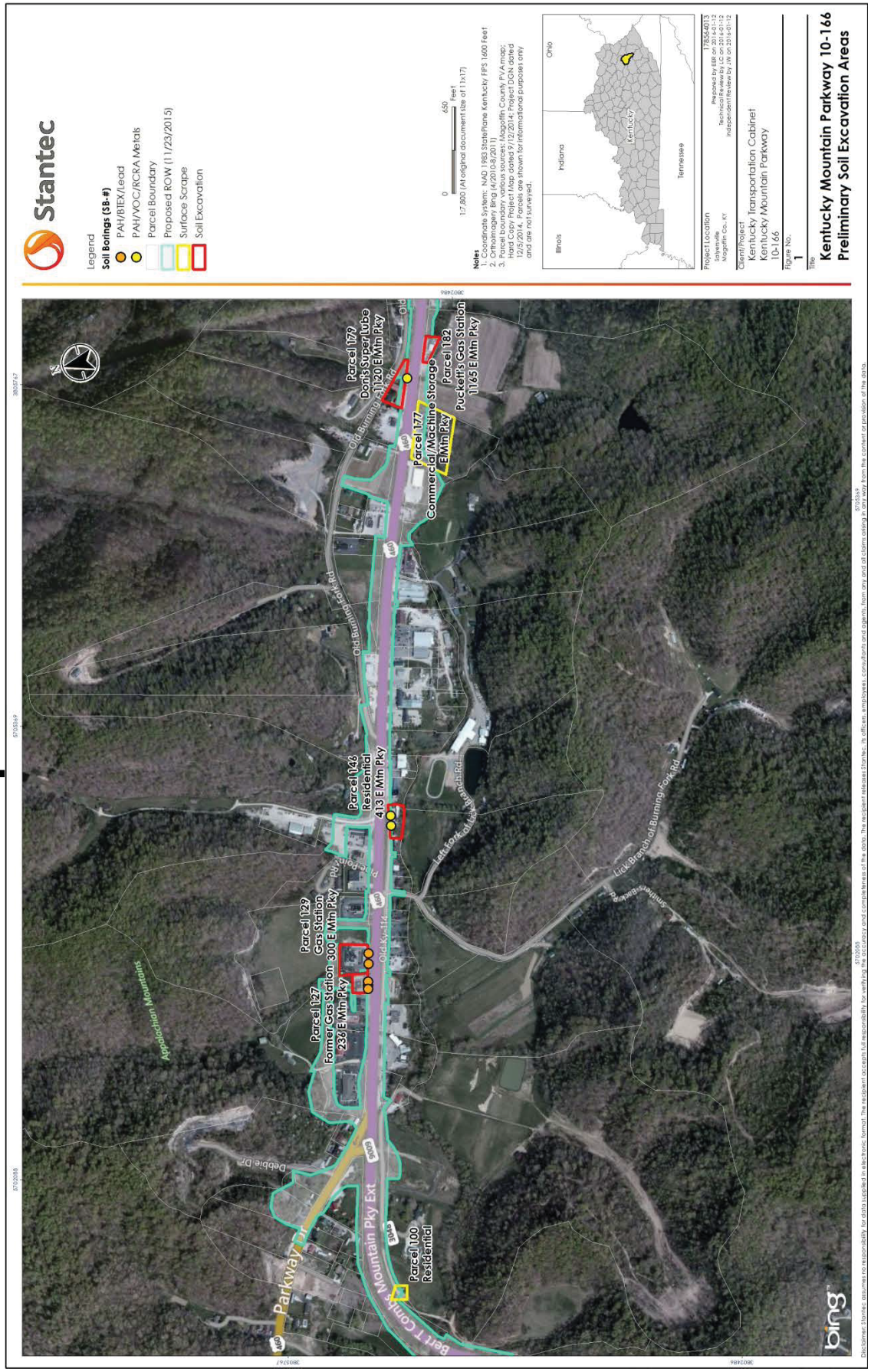
Preliminary Soil Excavation and Removal Plan

Kentucky Transportation Cabinet

Kentucky Mountain Parkway Expansion

January 13, 2016

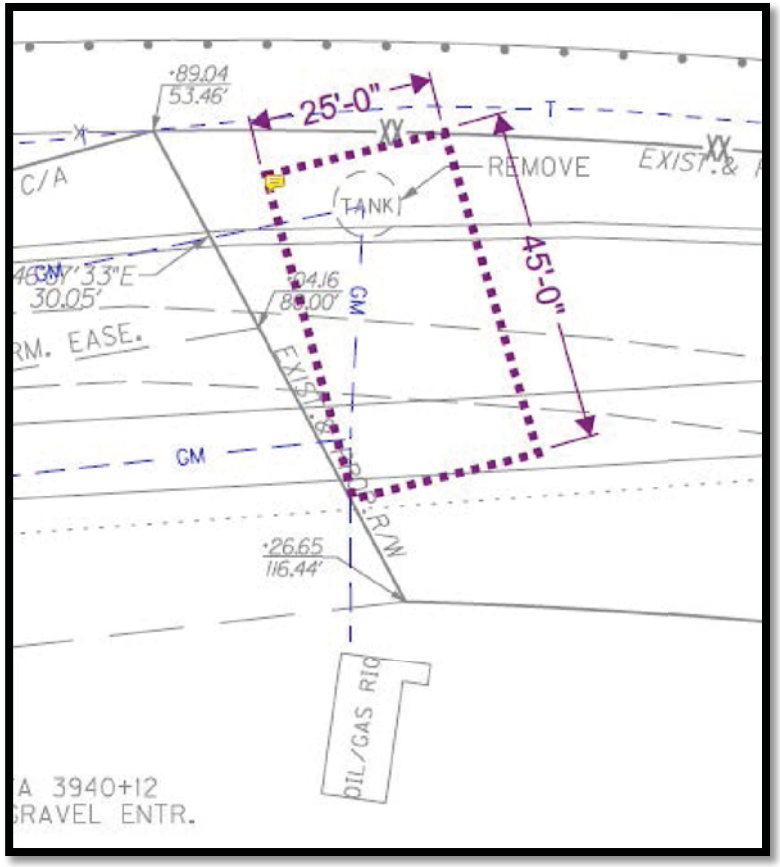
Overview Map



Parcel 100 (scrape)

Approx. 1,260 ft²

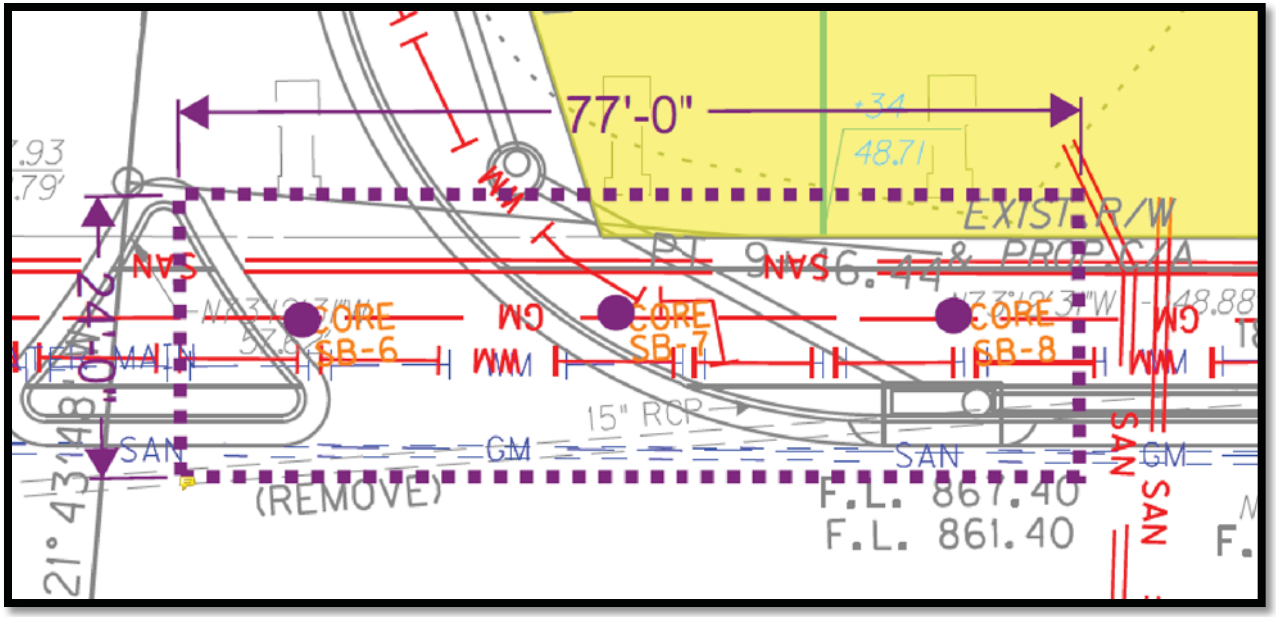
2' deep= 2,520 ft³ of soil to be removed

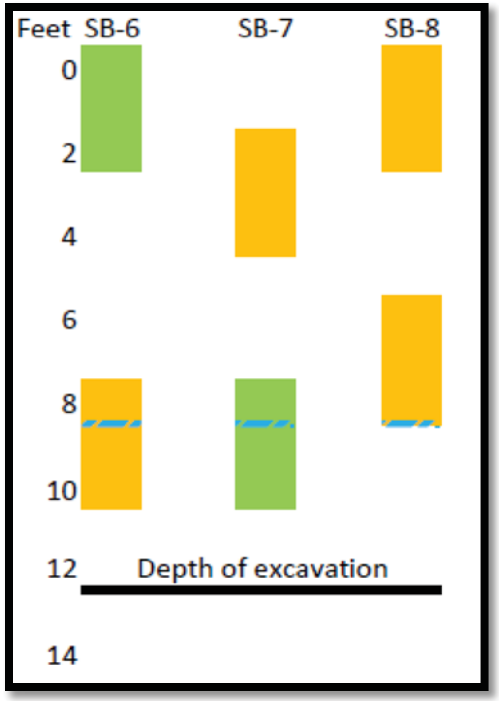


- **Historical use; AST for well**
- **No proposed utilities**

- **Will soil be taken offsite?**
- **No analytical data on soil**
- **2' scrape**

Parcel 127

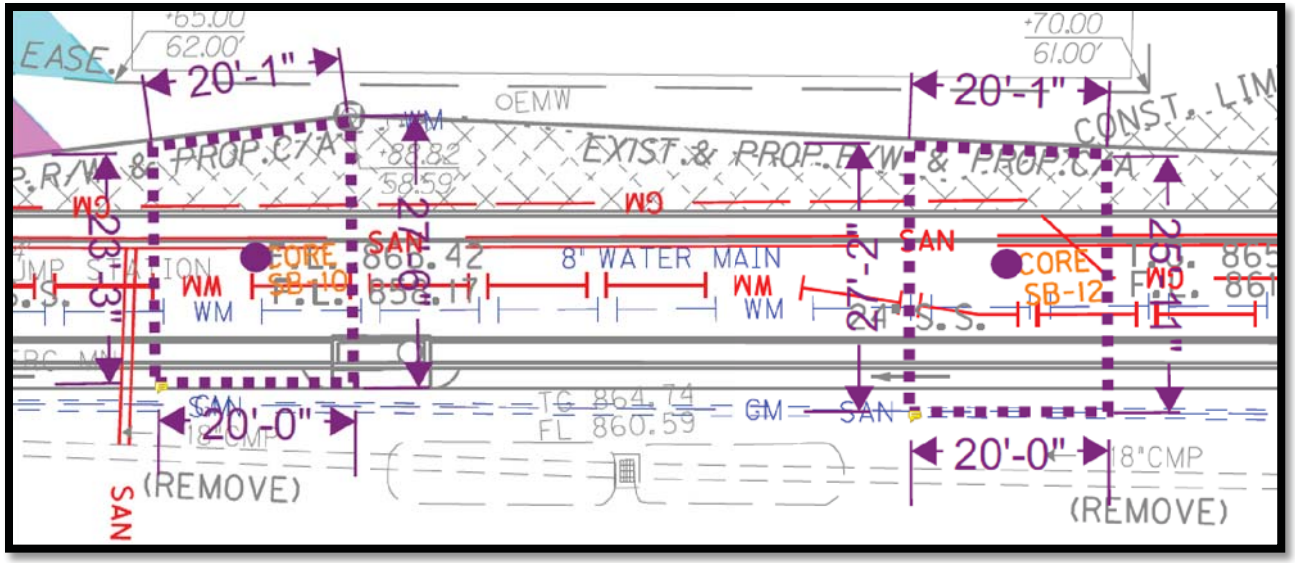


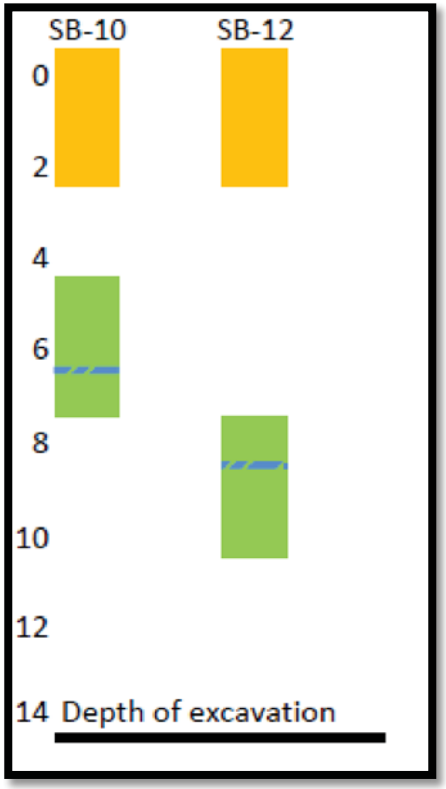


Approx. area= 1,848 ft²

12'deep= 22,176 ft³ to be removed

Parcel 129

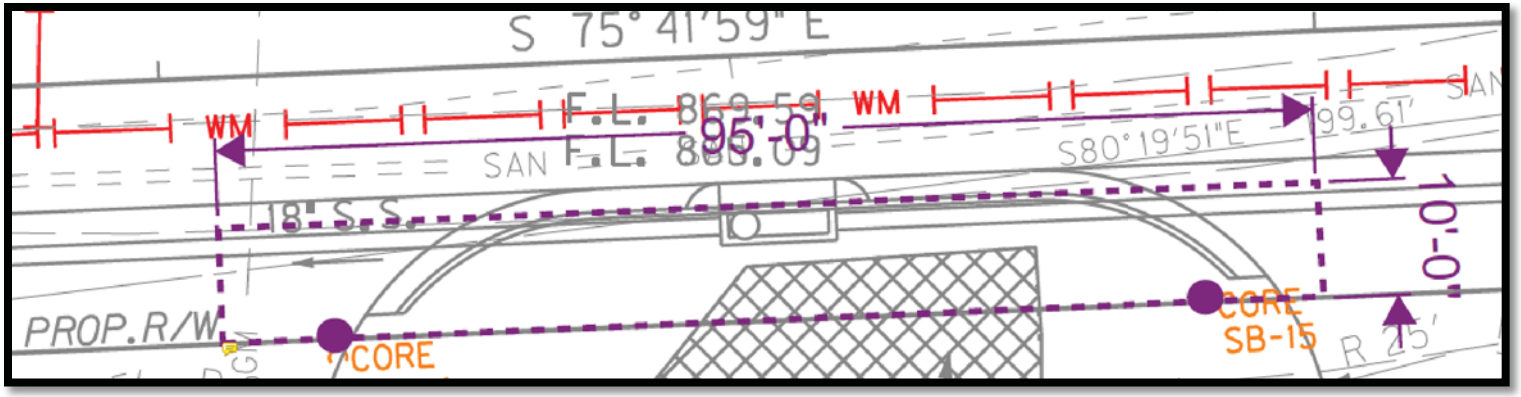


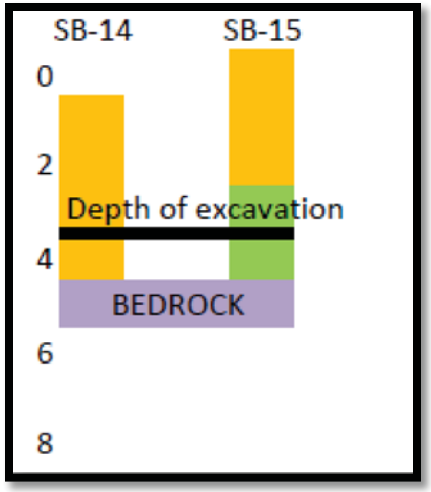


Approx. area: 540 ft² each box

14' deep = 7,560 ft³ each (15,120 ft³ soil total at parcel)

Parcel 146

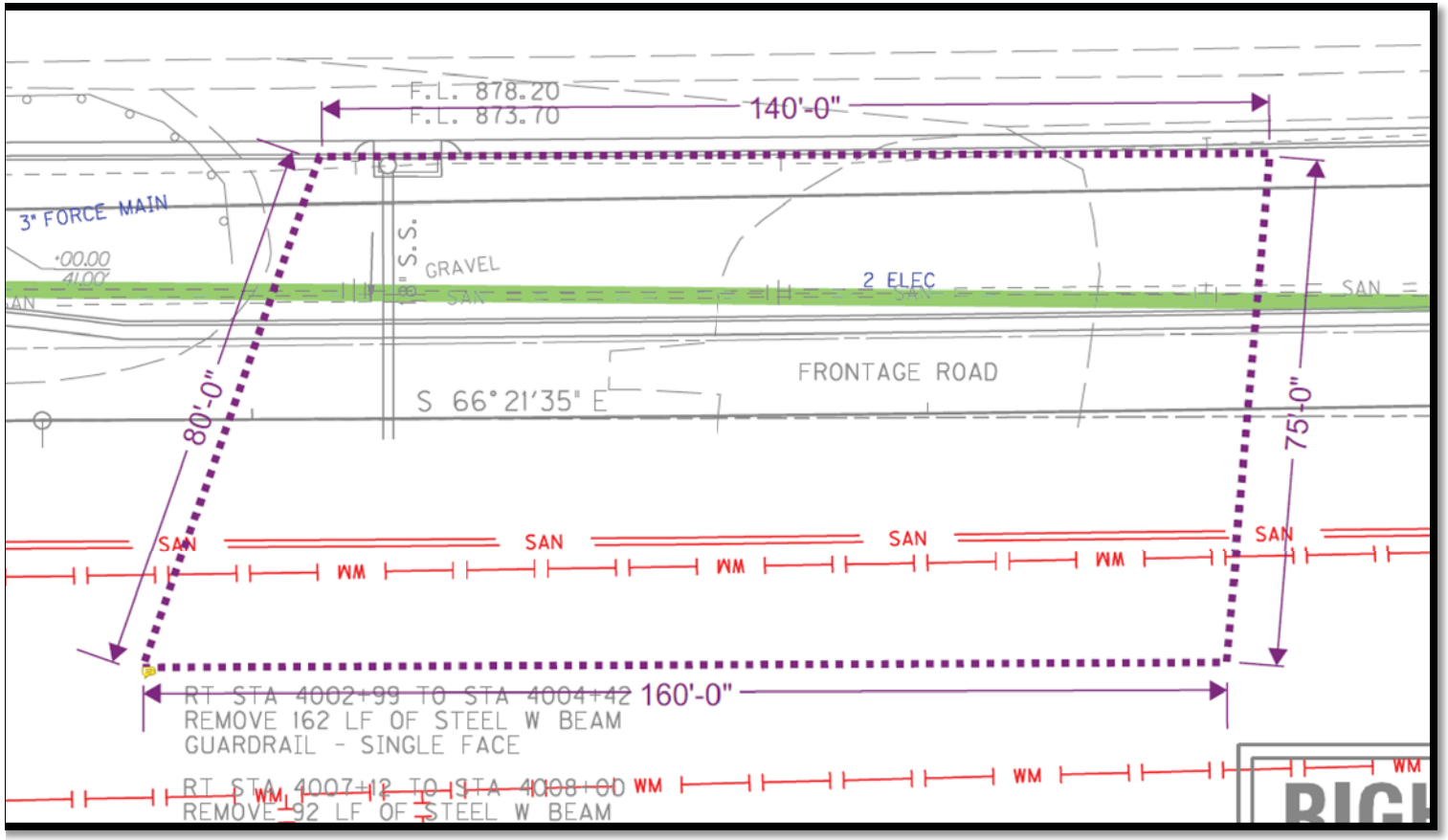




Approx. area: 950 ft²

3.5' deep = 3,325 ft³ of soil to be removed

Parcel 177 (scrape)



Approx. area: 11,300 ft²
2'deep= 22,600 ft³ soil to be removed

- **Historical use; machine storage and oil stains**
- **No analytical data on soil**
- **2' scrape**

Limited Phase II Site Investigation Report

10-166 of the Mountain Parkway Extension

Salyersville, Magoffin County, Kentucky

Prepared for:
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Prepared by:
Stantec Consulting Services Inc.
10509 Timberwood Circle
Louisville, Kentucky 40223-5301

May 26, 2015

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Appendix A Soil Boring Logs
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Mountain Parkway 10-166
Limited Phase II Site Investigation Report

1 Introduction

This report summarizes the results of the Limited Phase II Environmental Site Assessment (Phase II) completed by Stantec Consulting Services Inc. (Stantec) of the properties located at the highway Right-of-way (ROW) area associated with Item 10-166 of the Mountain Parkway Extension Project (the "Project"), on behalf of the Kentucky Transportation Cabinet (KYTC) (the "Client").

The scope of work and the results of the investigation are described in the subsequent sections.

1.1 Background Information

A Phase I ESA (Stantec 2015) was completed to identify recognized environmental conditions (RECs), including historical recognized environmental conditions (HRECs), and controlled recognized environmental conditions (CRECs) that may exist at a property. The term "recognized environmental conditions" means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property:

(1) Due to any release to the environment;

(2) Under conditions indicative of a release to the environment; or

(3) Under conditions that pose a material threat of a future release to the environment.

De minimis conditions are not RECs. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. As indicated, the term REC does not include de minimis conditions, which generally do not present a material risk to human health and would not likely be subject to enforcement action if brought to the attention of governmental agencies.

Stantec identified thirteen RECs and one HREC during the Phase I investigation; no CRECs were observed. Of the 13 RECs that were identified, 8 were investigated. The following table summarizes the parcels identified as RECs that were investigated.

Parcel	Property Use	Summary of Evidence Indicating RECs
118 Removed by DEA	Former Gas Station	Available information indicates tanks were removed; however, evidence of benzene contamination above critical levels was reported in previous State records. In addition, an unknown amount of petroleum was released in 2004.
127 Removed by DEA	Former Gas Station	Site has historic use as a gas station, and received multiple violations during operations. Facility was also damaged during the 2012 tornado. There are four USTs temporarily closed in place. The tanks and remaining pump island structure were observed during the site visit. Due to property use and unknown impacts of tornado damage to the tank system and dispensers, the site is considered a REC.

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Mountain Parkway 10-166
Limited Phase II Site Investigation Report

Parcel	Property Use	Summary of Evidence Indicating RECs
129	Gas Station	Active use as gas station. Previous environmental work indicated the site was listed on a leaking underground storage tank (LUST) database for an unknown release, but State records and EDR report did not confirm this or provide any additional information. The site is considered a REC due to the history of land use and possible LUST record.
146	Auto/Machinery Storage	Site contains a structure and the property is being used to store of heavy machinery and vehicles. Trash and debris, including old tires and propane tanks, were also observed on the property. Due to visible leaks and potential for petroleum contamination the site is considered a REC.
148	Auto Repair Shop	Lack of State data records and information about historic use. Not enough information to rule out contaminated soils or unknown USTs. Two potential PCB-containing hydraulic lifts are present on the property.
171	Gas Station	Active use as gas station. Several tanks were installed in 1996. Due to the property use and presence of USTs or piping potentially within the ROW, the site is considered a REC.
178	Eagle Well Services	Historical AST site and potential surface staining from drilling equipment.
179	Don's Superlube	Structure on property is located within the ROW, and ASTs are located within the property. The site contains potential PCB-containing hydraulic lifts. However, they are not buried underground due to the presence of a basement. Due to past and present land use, the site is considered a REC.

Arsenic removed by DEA

Parcels 100, 117, 123, 177 and 182 were identified as RECs in the Phase I ESA report; however, based on KYTC decisions made during a technical review/planning meeting held on March 3, 2015, these parcels were not investigated. These decisions are summarized as follows:

- Parcels 117, 123 and 182 are UST facilities identified by the KYTC as needing full or partial UST tank system removal; therefore, the KYTC decided potentially impacted soil at these sites will be addressed at time of UST removal.
- Parcels 100 and 177 displayed evidence of surface soil staining associated with current uses; therefore, the KYTC decided potentially impacted soil at these sites will be removed and properly disposed of at a later date.
- Groundwater will not be collected or sampled during this Limited Phase II investigation.
- This Limited Phase II investigation was bound by the vertical extent of disturbance associated with construction of the Project, as defined by preliminary plans available at the time.

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2 Project Description

The Project will be widening and reconstructing a portion of US-460/KY-114 in Salyersville, Kentucky, near the terminus of the Bert T. Combs Mountain Parkway and extending approximately 2.7 miles east. For the purposes of this report, adjacent properties constitute the remaining unacquired parcels and portions of acquired parcels adjacent to the Project ROW. A Project topographic map is illustrated in Figure 1. A Project vicinity and soil boring layout map, is provided as Figure 2. Adjacent properties along the majority of the Project ROW consist of commercially developed properties. The Project ROW consists of approximately 95 acres and contains a mix of single family residential, undeveloped, commercial, and agriculturally developed parcels.

2.1 Site Location and Vicinity Characteristics

The Project ROW is situated among the foothills of the Appalachian Mountains in eastern Kentucky and generally follows the Burning Fork River valley. The elevation ranges from approximately 900 feet above mean sea level (ft msl) at the east end of the Project ROW to 870 ft msl at the west end of the Project ROW. With the Burning Fork River to its south and topographic highpoints to its north, the Project also generally slopes from north to south. Based on information gathered from the web soil survey and Environmental Database Resources, Inc. (EDR) report, the depth to the water table/groundwater is approximately 6-12 feet below ground surface (ft bgs). The overall surrounding area is set in mountainous terrain and is situated within a valley, adjacent to the north of Burning Fork River.

2.2 Project Area Topography and Surface Water Flow

The Project area sits approximately 870-900 ft msl and has a general topographic gradient to the southwest draining toward Burning Fork River. Burning Fork River flows west along the majority of the Project ROW and drains into the Licking River. Short Fork and Rockhouse Fork waterways drain the area at the east end of the Project ROW before flowing into the Burning Fork River near the intersection of Mountain Parkway and Burning Fork Road. The Burning Fork valley is confined to the north and south of Mountain Parkway by ridges reaching over 1200 ft msl. There are several small road cuts along this section of the Mountain Parkway where the road abuts the ridges; however, most of the road and current ROW appears to be confined to the natural topographic valley. The ridges surrounding the Project area are highly dissected, and several other tributaries drain portions of the project area and flow into the Burning Fork River in the vicinity of the project.

2.3 Regional and Project Area Hydrogeology

Based on information gathered from the web soil survey and EDR report, the depth to the water table/groundwater ranges from approximately 6-12 ft bgs in the vicinity of the property. This depth depends on the location of the road in the floodplain and the elevation of parts of the current ROW above the surrounding grade. Based on the general surface topography of the site, it is assumed that groundwater flows in a west-southwest direction toward the Burning Fork River, and eventually toward the Licking River.

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3 Field Investigation Methods

3.1 General

The purpose of this Limited Phase II investigation was to investigate the potential presence of impacted soil within the Project ROW to which construction workers may be exposed. The vertical extent of the Phase II investigation was limited to approximately 12 feet which, based on review of preliminary plans, was identified as the vertical extent of soil disturbance associated with the Project.

Prior to commencing sampling activities, utility and service providers were contacted by Kentucky 811 (Call before you dig) to obtain utility location information. Utility line locations were marked along the Mountain Parkway adjacent to the Subject Property. The utility location request was assigned the following confirmation numbers: 1503091144, 1503091149, 1503091150, 1503091156, 1503091158, 1503091163, and 1503091169. The utility companies that were contacted included: gas, local water and sewer, telephone, electric and cable providers.

Stantec retained Bloodhound Underground Utility Locators to complete a ground penetrating radar (GPR) survey at all boring locations. GPR was used to verify that no underground utilities would obstruct drilling activities.

3.2 Soil Borings and Sample Collection

Stantec mobilized to the Project area on March 24, 2015, and began drilling on March 25, 2015. The borings are identified as SB-01 through SB-27. Stantec retained GeoLogic Inc. to advance soil borings, using a Geoprobe direct-push drill rig. Drilling was advanced, on average, to 12 ft bgs. On March 25, 2015, Stantec completed soil borings located on Parcel 118 (SB-1 through SB-4), Parcel 126 (SB-5), Parcel 146 (SB-14 and SB-15), Parcel 148 (SB-16 and SB-17), Parcel 171 (SB-18 through SB-21), Parcel 178 (SB-22 through SB-24), and Parcel 179 (SB-25 through SB-27). On March 26, 2015, Stantec completed borings located on Parcel 127 (SB-6 through SB-9) and Parcel 129 (SB-10 through SB-13). Stantec advanced a total of 27 soil borings on March 25th and March 26th. Figure 2 shows the locations of the soil borings.

Upon extracting the sampler at each depth interval, the soils contained therein were visually examined by a Stantec geologist who then classified the soils in accordance with the Unified Soil Classification System (USCS). Boring logs are provided in Appendix A. A portion of each two-foot sample increment within the four-foot soil core was placed in a sealable plastic bag to allow soil screening with a Photo Ionization Detector (PID) for the presence of volatile and semi-volatile organic compounds. The samples were allowed to warm in the field and volatilize. A small portion of the bag was opened, the PID meter inserted, and the reading recorded. The PID readings in the soil samples ranged from 0.0 to 973.0 parts per million (ppm) as measured in the sealable plastic bags collected from the soil borings. PID readings are shown on the borings logs in Appendix A.

Depths of soil samples submitted for laboratory analysis ranged from 0-2 ft bgs to 10-12 ft bgs. Samples were collected at depths that were identified as being most potentially impacted based on field observations (PID readings, odor, sheen, etc.). The sample depths for each boring are presented in Tables 1-5 and in the boring logs included in Appendix A.

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3.3 Sampling and Laboratory Analysis

Two soil samples were collected for each soil boring. Soil samples were collected using 4-foot PVC liners. These samples were submitted to ESC Lab Sciences for laboratory analysis of the following parameters:

- RCRA Metals using EPA Method 6010B/7471A*;
- Polynuclear Aromatic Hydrocarbons (PAHs) using EPA Method 8270C;
- Benzene, toluene, ethylbenzene and xylene (BTEX) using EPA Method 8260B;
- Volatile Organic Compounds (VOCs) Using EPA Method 8260B.

*Analyzed metals included arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver. Metals were analyzed using EPA Method 6010B with the exception of mercury, which was analyzed using EPA Method 7471A.

Samples were collected in laboratory provided sample containers and stored on ice. The soil samples were transported to ESC Lab Sciences in Mt. Juliet, Tennessee on March 27, 2015, and received March 28, 2015. Soil samples were analyzed between March 31, 2015 and April 9, 2015.

4 Results

The Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) were used as the appropriate cleanup standard for analysis of the detected constituents. The EPA RSLs provide acceptable values for residential and commercial/industrial exposures to soil, air and water. Residential screening levels are typically more conservative than commercial or industrial standards.

RCRA metal detected constituent concentrations were also analyzed using the Kentucky Ambient Background Levels, 95% upper confidence limit of mean.

These combined cleanup values are identified as the Project Action Levels (PALs).

Stantec reported constituent concentration results detected above the laboratory's constituent-specific method detection limit and compared the soil sample results to residential and industrial regional screening levels.

For detected RCRA metal constituents if the Kentucky ambient background level was higher than the EPA RSL, the local ambient background level was used to determine soil sample constituent exceedances. If the EPA RSL level was greater than the ambient background level, then the more conservative EPA RSL number was used to determine exceedances.

4.1 Geology/Depths to Groundwater

The soils encountered during the advancement of the soil borings primarily consisted of silty clay to silty clay with sand. Non-native backfill materials such as gravel were also encountered in some of the borings. No groundwater or saturation was encountered in SB-10, 14-16, 18-21, and 23. Saturation was encountered in all other soil borings ranging from 4.5 ft bgs to 12 ft bgs. Groundwater was not encountered or sampled in any of the soil borings. Depth of saturation at each boring is indicated on boring logs in Appendix A.

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Mountain Parkway 10-166
Limited Phase II Site Investigation Report

4.2 Soil Analytical Results

Laboratory test results are summarized in Tables 1 through 4 and Figure 3. The complete laboratory analytical test results are provided on the laboratory data sheets attached in Appendix B.

A total of 54 soil samples were collected from the 27 soil borings within the Project ROW. Ten soil samples had exceedances of various PAHs, arsenic, benzene and ethylbenzene. Soil Boring 14-A had the most constituent exceedances above EPA values (seven). The following table provides a summary of soil borings that were above recognized PALs:

PAL Exceedance Summary Table

	Sample ID	Depth (ft)	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Dibenz(a,h)anthracene (mg/kg)	Indeno(1,2,3-cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Arsenic (mg/kg)
	EPA Residential Regional Screening Level Values		1.2	5.8	0.15	0.015	0.41	0.015	0.15	3.8	0.67
	EPA Industrial Regional Screening Level Values		5.1	25	2.9	0.29	1.8	0.29	2.9	17	3
	Kentucky UST Branch Class A Screening Levels		2	30	-	-	-	-	-	-	9.4*
127	SB-6B	8-10	**1.7**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**NA**
	SB-7A	2-4	**6.2**	**94**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**12**	**NA**
	SB-8A	0-2	**3.2**	**27**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**NA**
	SB-8B	6-8	**3**	**21**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**NA**
129	SB-10A	0-2	**<RSL**	**<RSL**	**<RSL**	**0.19**	**<RSL**	**<RSL**	**0.15**	**<RSL**	**NA**
	SB-12A	0-2	**<RSL**	**<RSL**	**0.15**	**0.21**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**NA**
	SB-14A	1-3	**<RSL**	**<RSL**	**2.7**	**2.2**	**2.1**	**0.26**	**0.82**	**4.3**	**10**
146	SB-14B	3-4	**<RSL**	**<RSL**	**0.15**	**0.11**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**14**
	SB-15A	0-2	**<RSL**	**<RSL**	**<RSL**	**0.064**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**11**
179	SB-26A	0-2	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**<RSL**	**14**

NA-Boring not analyzed for constituent
*- Kentucky Ambient Background Levels 95% Upper Confidence Limit of Mean (mg/kg)

4.3 Quality Assurance Review

Stantec conducted a data quality evaluation of the laboratory reports provided by ESC. Based on Stantec's review of the reports, all data is considered acceptable for use.

5 Conclusions

In total, 54 soil samples were analyzed for constituents of potential concern; 10 samples had exceedances of one or more constituents above PALs. The following identified Parcel IDs contained soil borings at which constituents of concern exceedances were detected:

Parcel 127: Four soil samples from this parcel (SB-6B, SB-7A, SB-8A, and SB-8B) were above RSLs for benzene, ethylbenzene or naphthalene. SB-7A had exceedances above industrial screening levels for benzene and ethylbenzene, and SB-8A was above industrial screening levels for ethylbenzene. All other values were above residential, but below industrial screening levels.

Parcel 129: Two soil samples from this parcel (SB-10A and SB-12A) were equal to or greater than residential screening levels. SB-10A had residential exceedances of benzo(a)pyrene and indeno(1,2,3-cd)pyrene. SB-12A had residential exceedances of benzo(a)anthracene and benzo(a)pyrene. No analyzed soil samples constituents were detected above industrial screening levels.

Parcel 146: Three soil samples from this parcel (SB-14A, SB-14B, and SB-15A) were equal to or greater than EPA RSLs and/or KY ambient background levels. SB-14A contained the most constituents above the screening levels. Benzo(a)pyrene and benzo(b)fluoranthene were above industrial screening levels, while benzo(a)anthracene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene and naphthalene above residential screening levels. SB-14B had elevated residential screening levels for benzo(a)pyrene and benzo(a)anthracene. SB-15A residential screening level exceedances for benzo(a)pyrene. All three of the soil samples contained levels of arsenic above the Kentucky ambient background levels.

Parcel 179: One soil sample from this parcel (SB-26A) was above the Kentucky ambient background levels of arsenic.

In summary, the constituent exceedances identified above are consistent with impacts due to property use at the individual parcels. Parcel 127, 129, 146 and 179 have not been vertically or horizontally delineated to determine the extent of contamination.

6 Recommendations

Project needs and construction considerations should be evaluated to determine if further investigation is warranted. The Limited Phase II recommendations based on the findings of this investigation are provided to the KYTC under separate cover.

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7 References

EPA. Regional Screening Level Table. January 2015.

Kentucky Transportation Cabinet. Draft Final ROW Plans. December 2014

Natural Resources and Environmental Protection Cabinet. Kentucky Guidance for Ambient Background Assessment. January 8, 2004.

Stantec Consulting Services, Inc. Mountain Parkway Item 10-166 Phase I Environmental Site Assessment. May 2015.

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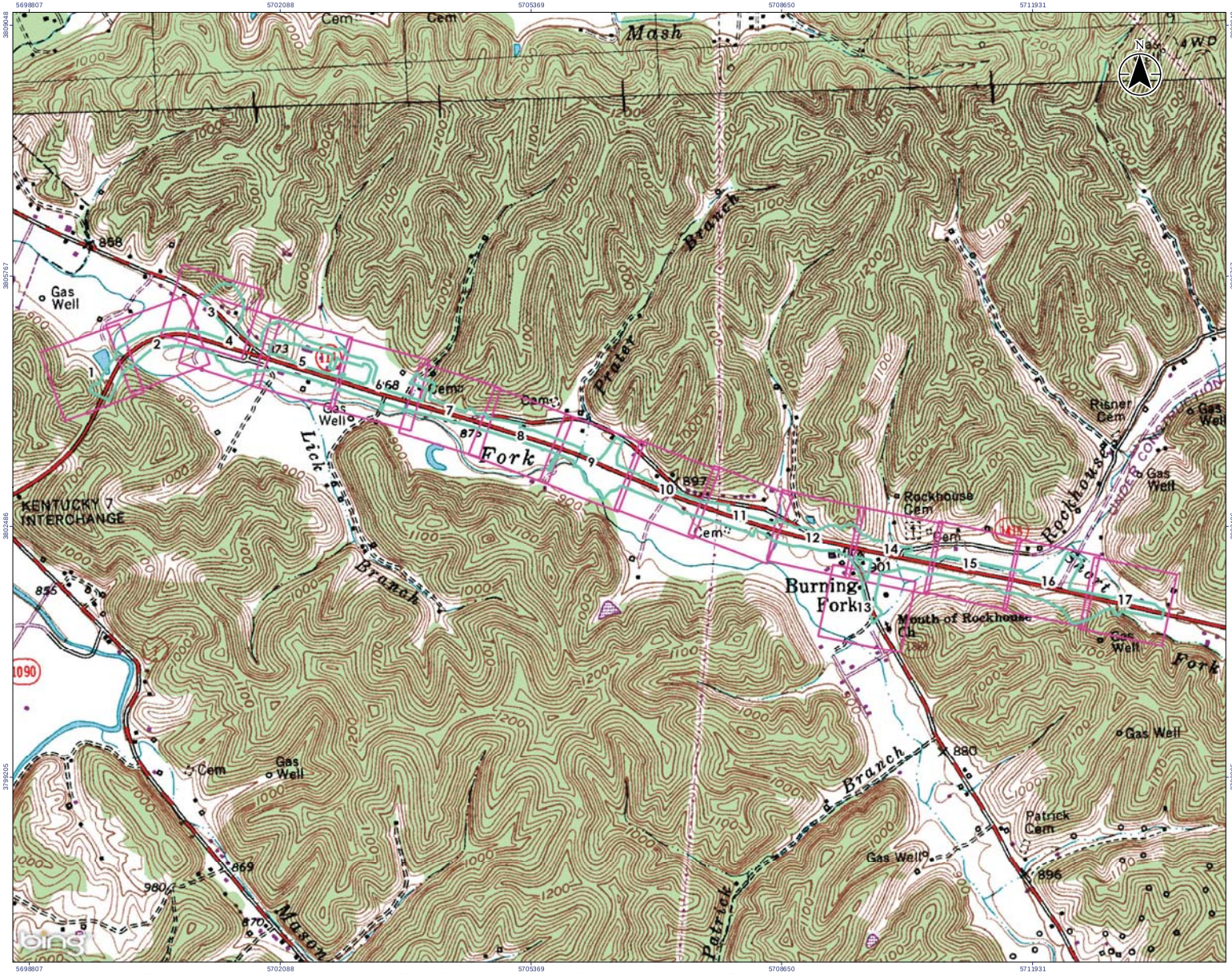
FIGURES

Figure 1- Project Topographic Map



Stantec

Legend

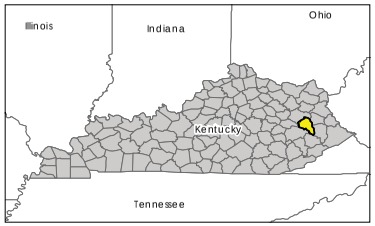
- Panel Layout
- Proposed ROW (12/10/2014)

0 1,300 Feet

1:15,600 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Orthoimagery Bing (4/2010-8/2011)



Project Location

Salyersville
Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-19
Technical Review by JW on 2015-05-19
Independent Review by JW on 2015-05-19

Client/Project

Client - Kentucky Transportation Cabinet
Title - Kentucky Mountain Parkway
Project - 10-166

Figure No.

1

Title

Kentucky Mountain Parkway 10-166
ESA Topographic Map

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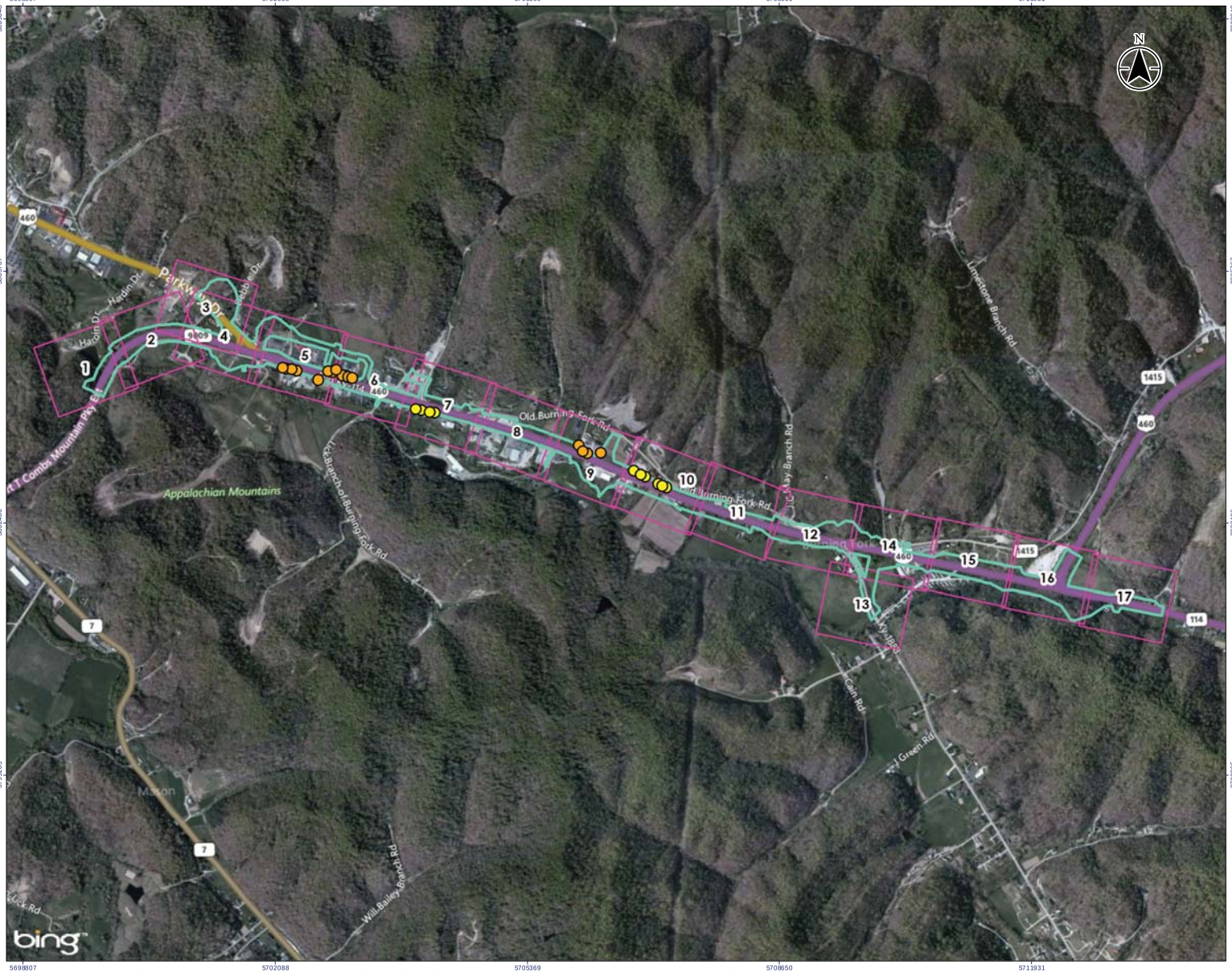
FIGURES

Figure 2- Vicinity and Soil Boring Layout



Stantec

Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Panel Layout
- Proposed ROW (12/10/2014)

0 1,300 Feet
1:15,600 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Orthoimagery Bing (4/2010-8/2011)

Project Location
Salyersville
Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-22
Technical Review by JW on 2015-05-22
Independent Review by JW on 2015-05-22

Client/Project
Client - Kentucky Transportation Cabinet
Title - Kentucky Mountain Parkway
Project - 10-166

Figure No.
2

Title
Kentucky Mountain Parkway
10-166 Vicinity & Soil Boring Layout

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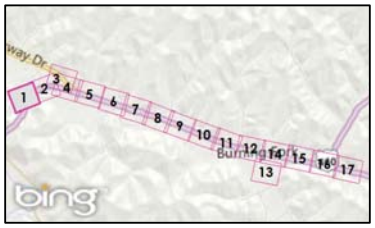
Stantec

Legend

Soil Borings (SB-#)

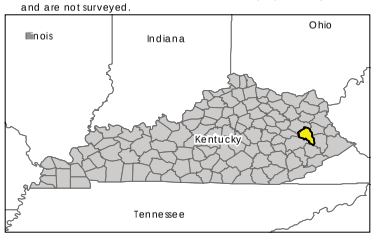
- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



0 100 Feet
1:1,200 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Orthoimagery Bing (4/2010-8/2011)
3. Parcel boundary various sources: Magoffin County PVA map; Hard Copy Project Map dated 9/12/2014; Project DGN dated 12/5/2014. Parcels are shown for informational purposes only and are not surveyed.



Project Location
Salyersville
Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-22
Technical Review by JW on 2015-05-22
Independent Review by JW on 2015-05-22

Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

Figure No.
2

Title
Kentucky Mountain Parkway
10-166 Vicinity & Soil Boring Layout

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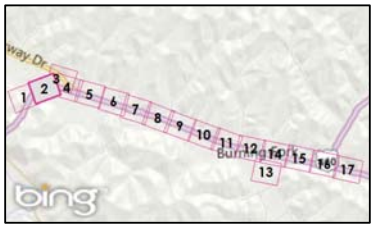
Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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Notes

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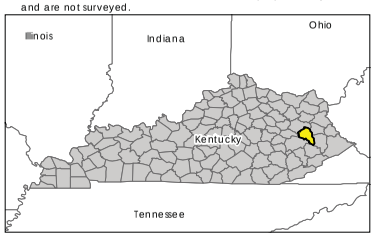

Project Location
Salyersville
Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-22
Technical Review by JW on 2015-05-22
Independent Review by JW on 2015-05-22

Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

Figure No.
2

Title
Kentucky Mountain Parkway
10-166 Vicinity & Soil Boring Layout

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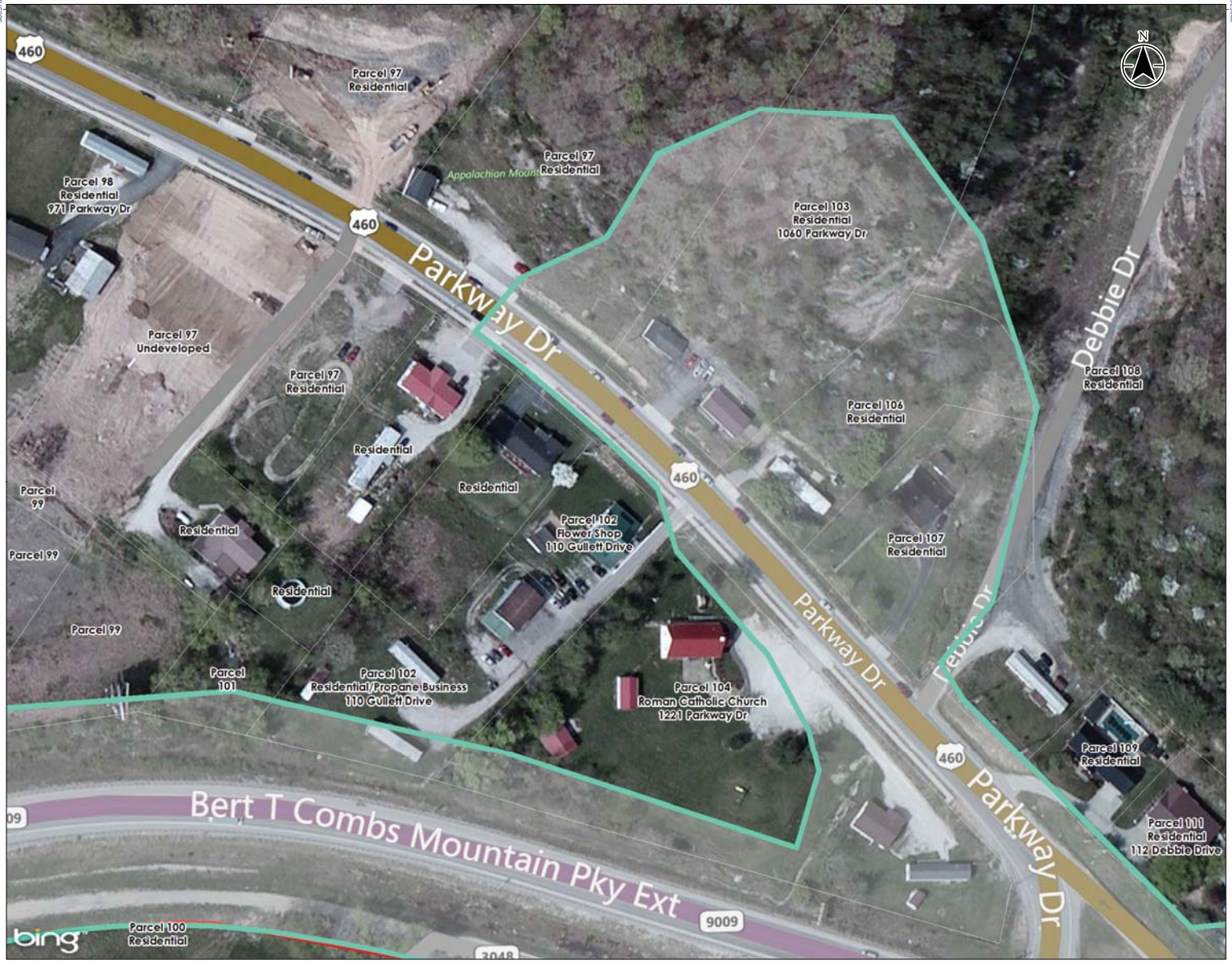

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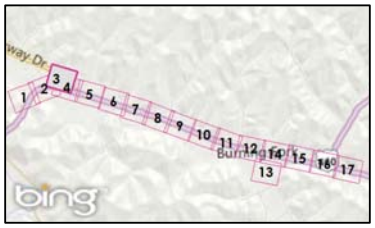

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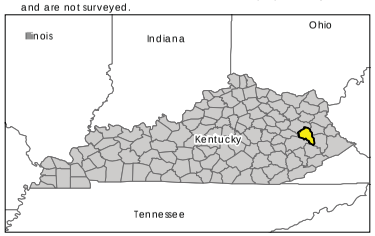

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Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

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10-166 Vicinity & Soil Boring Layout

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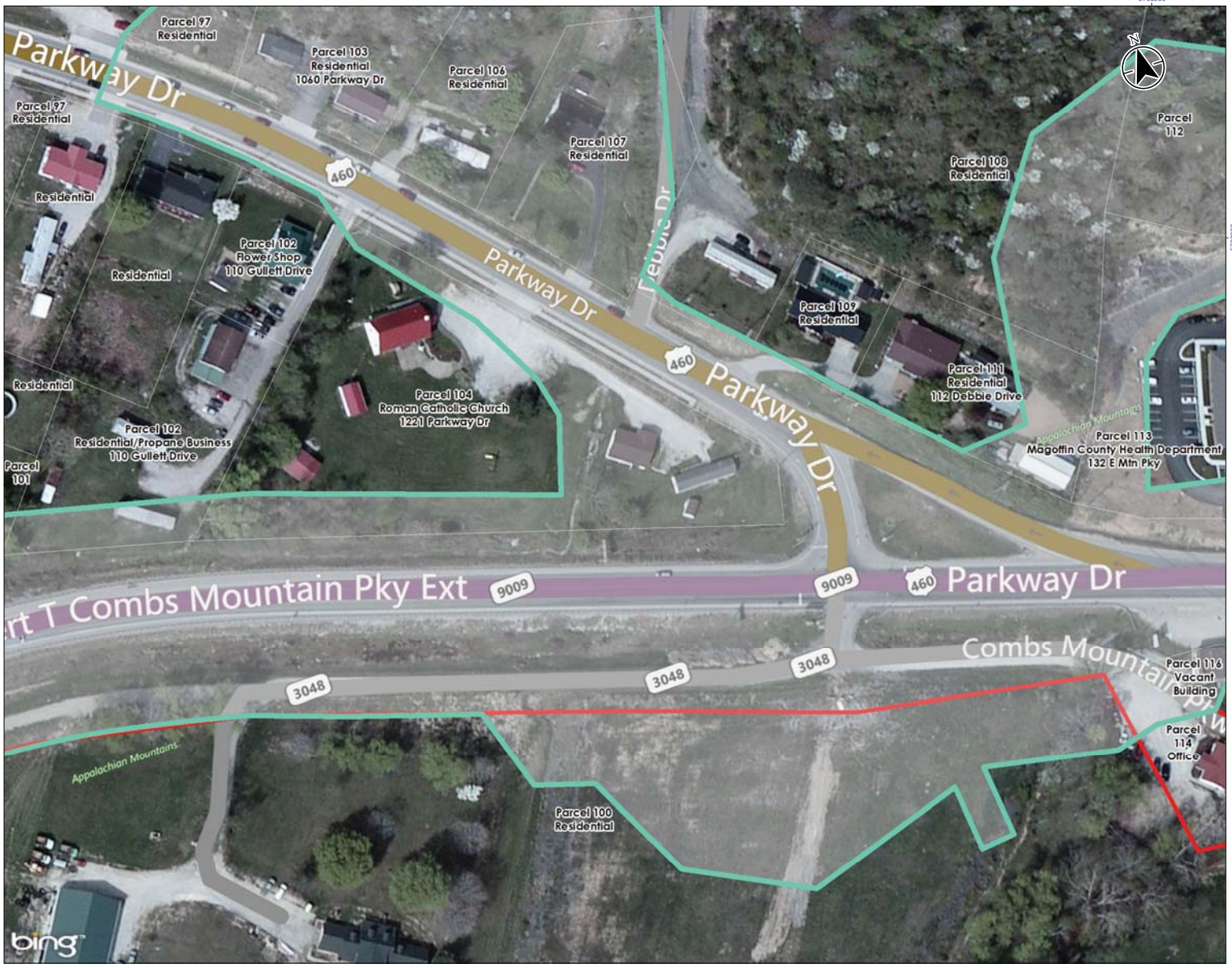

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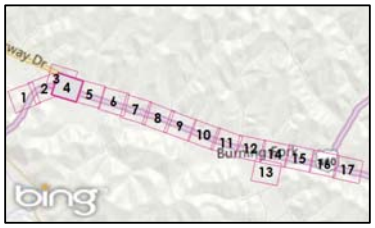

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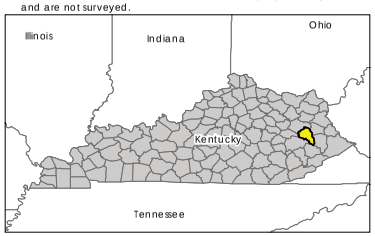

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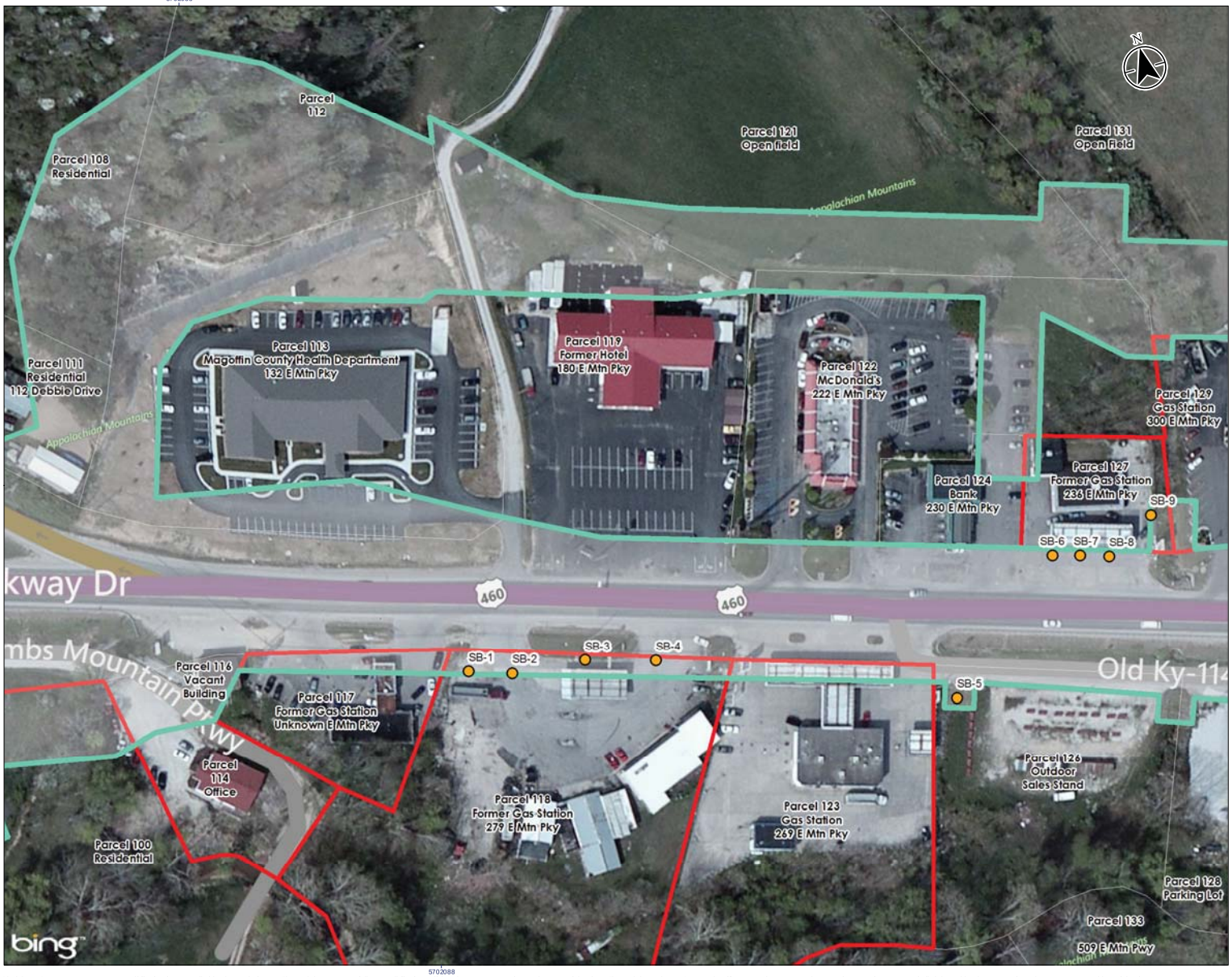

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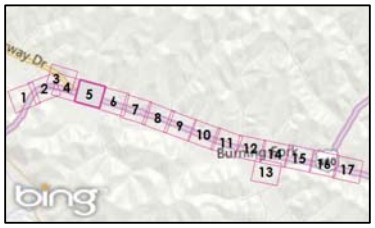

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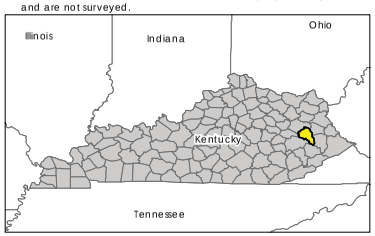

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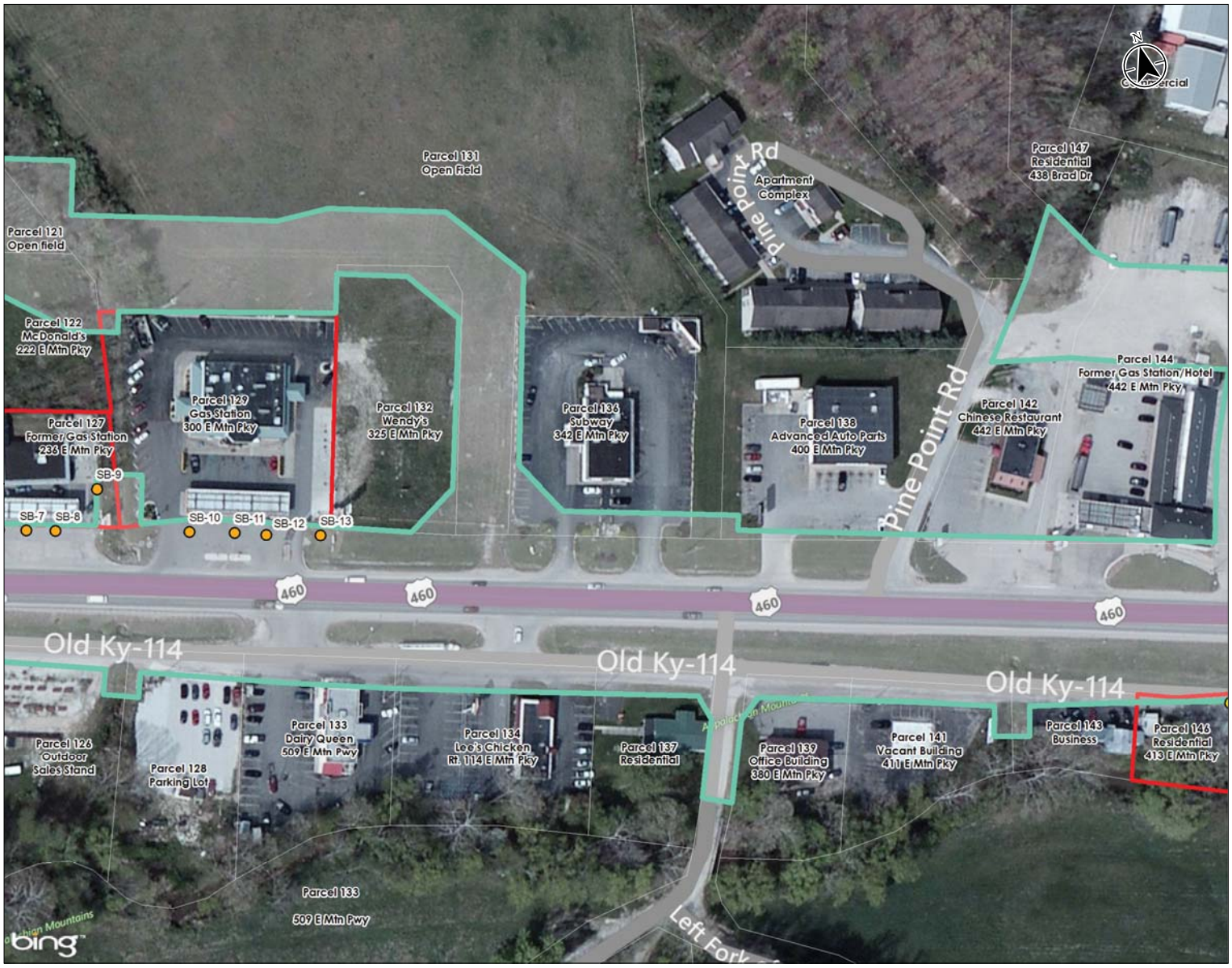

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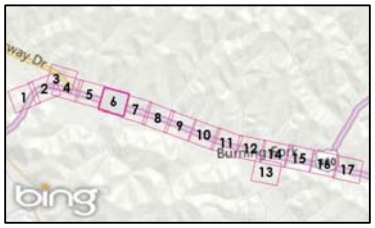

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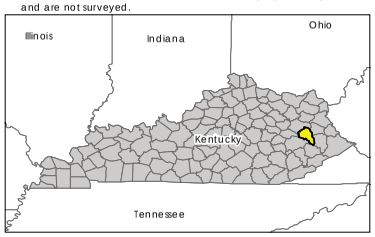

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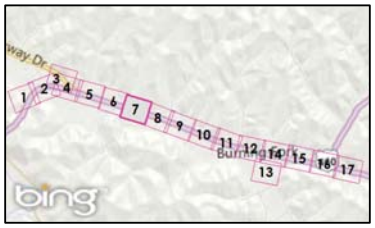

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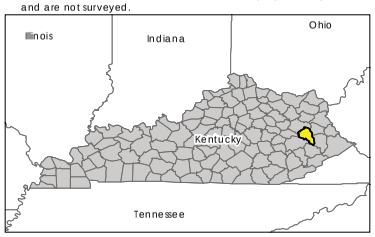

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10-166 Vicinity & Soil Boring Layout

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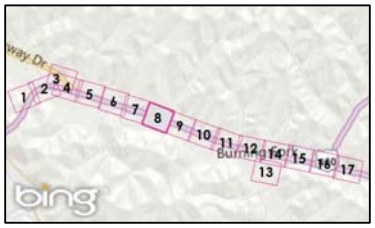

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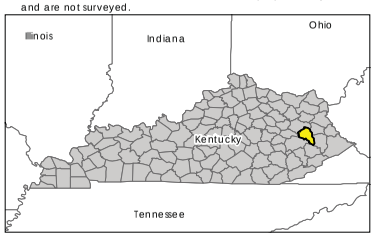

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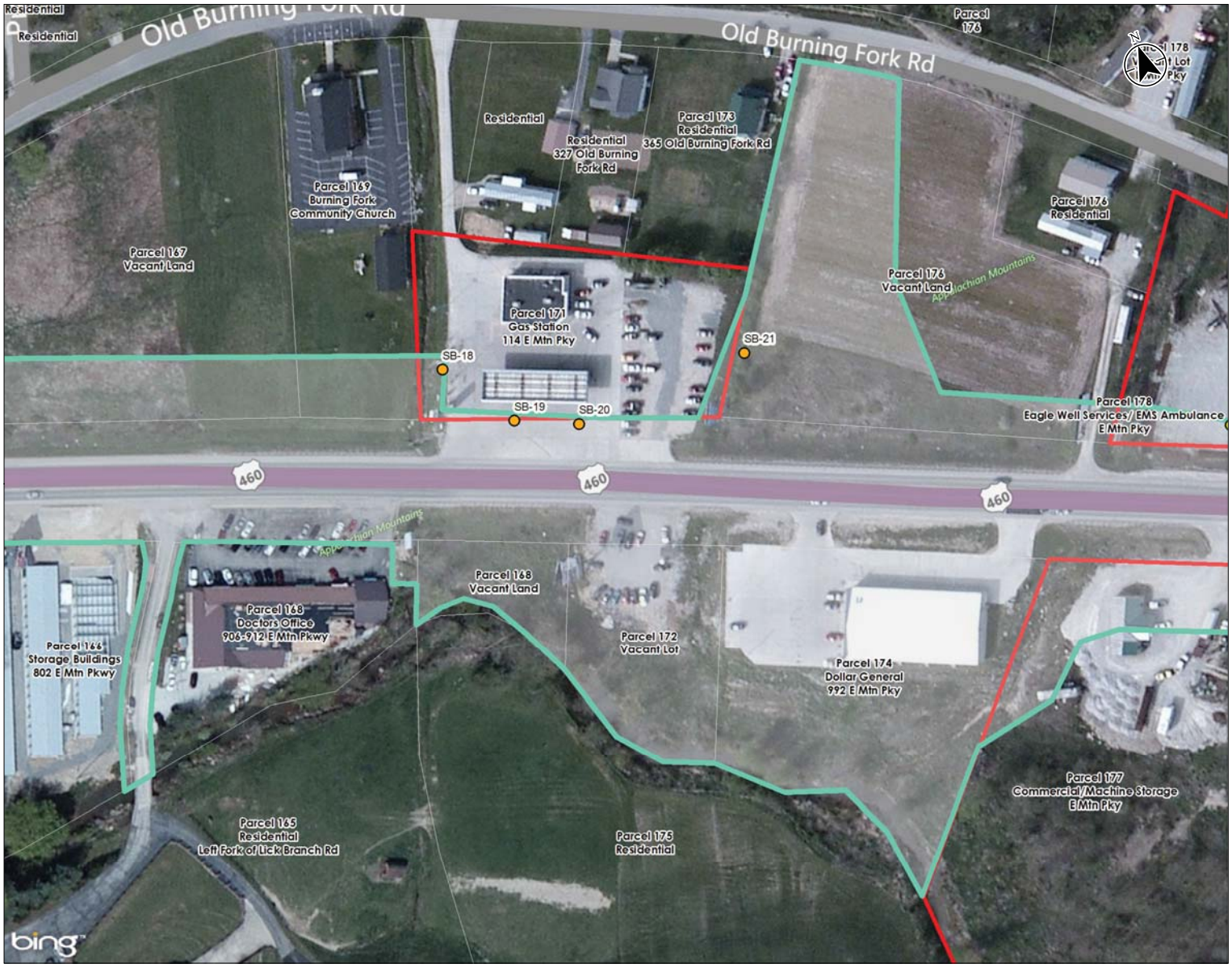

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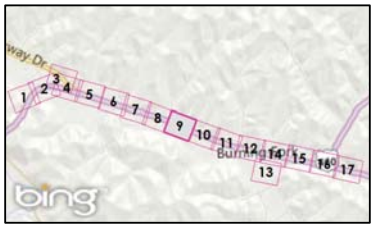

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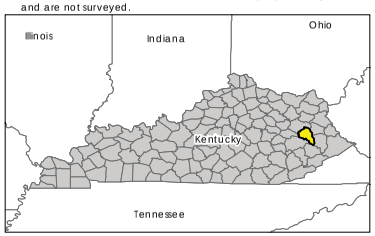

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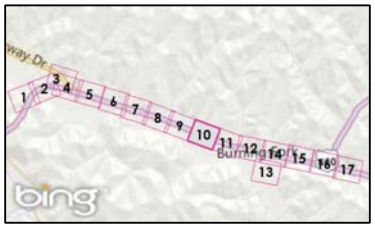

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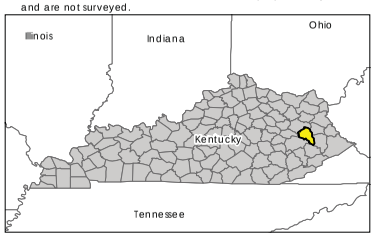

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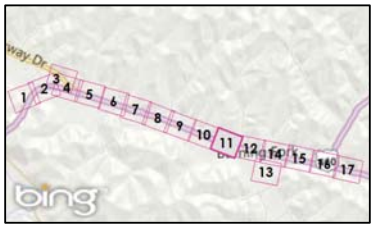

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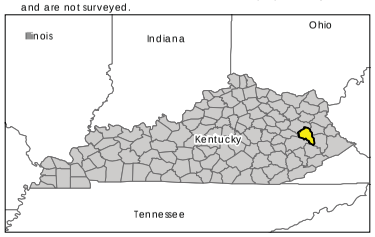

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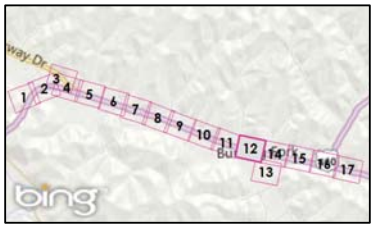

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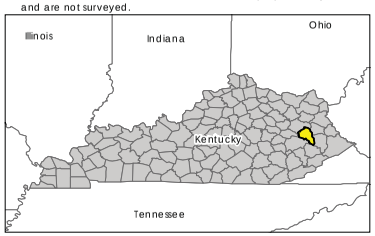

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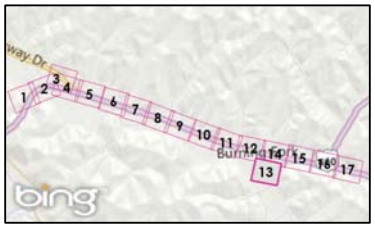

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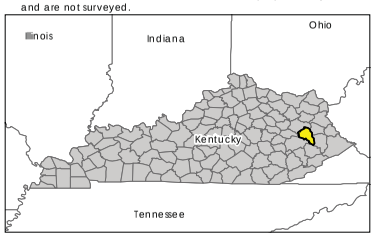

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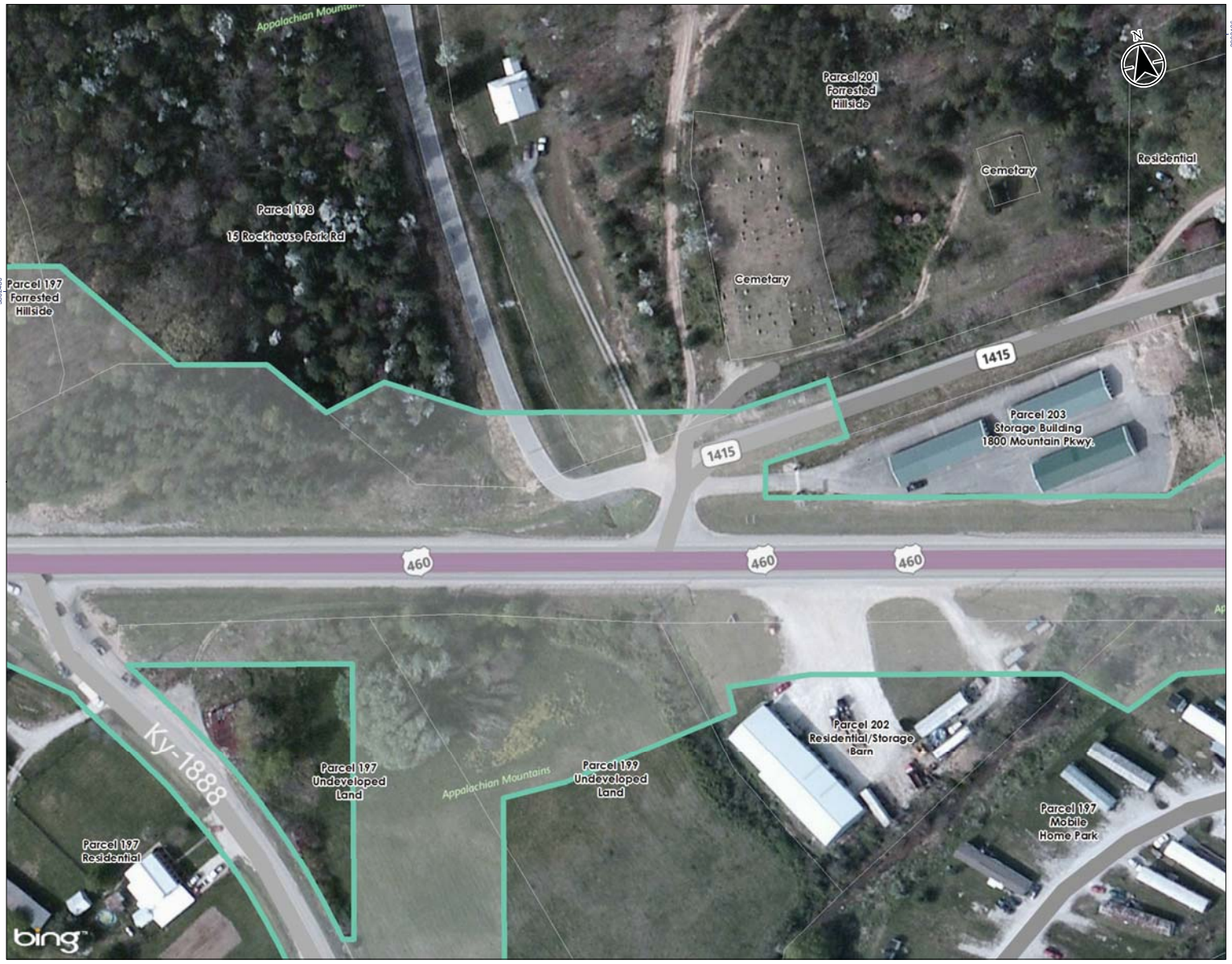
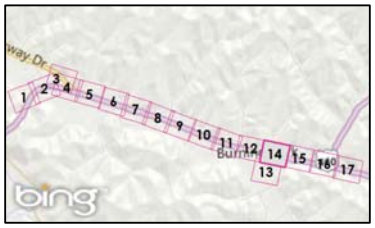


Stantec

Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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Notes

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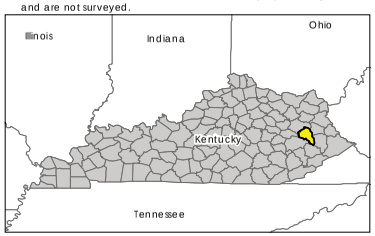

Project Location
Salyersville
Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-22
Technical Review by JW on 2015-05-22
Independent Review by JW on 2015-05-22

Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

Figure No.
2

Title
Kentucky Mountain Parkway
10-166 Vicinity & Soil Boring Layout

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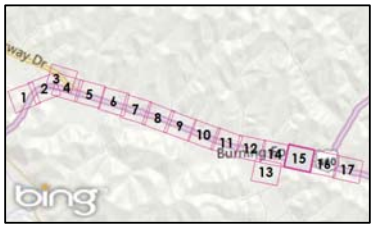
Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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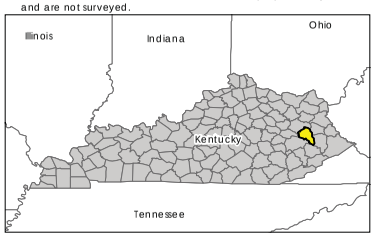

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Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

Figure No.
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Kentucky Mountain Parkway
10-166 Vicinity & Soil Boring Layout

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Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
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- Proposed ROW (12/10/2014)
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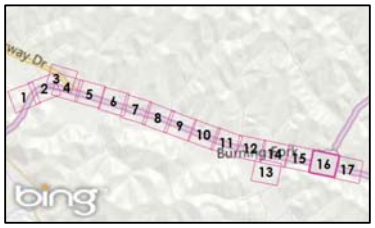

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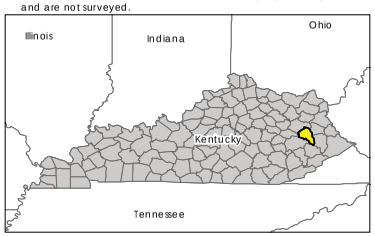

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Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

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10-166 Vicinity & Soil Boring Layout

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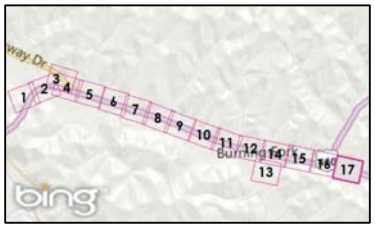
Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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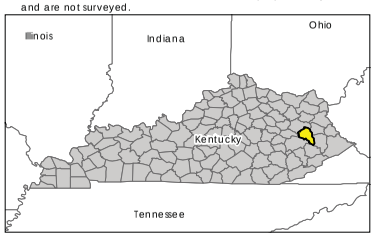

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Figure No.
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FIGURES

Figure 3- Soil Analytical Results

Soil Boring #	Sample # A (4'-6')	Sample # B (8'-10')
SB-2		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (6'-8')
SB-4		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (10'-12')
SB-1		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

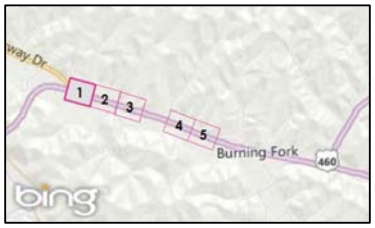
Soil Boring #	Sample # A (4'-6')	Sample # B (10'-12')
SB-3		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Stantec

Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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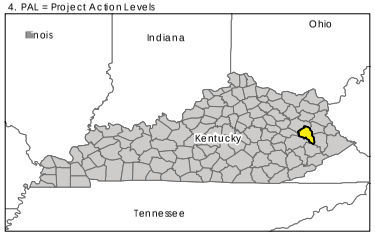

Project Location
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Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-22
Technical Review by JW on 2015-05-22
Independent Review by JW on 2015-05-22

Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

Figure No.
3

Title
Kentucky Mountain Parkway 10-166 Soil Analytical Results

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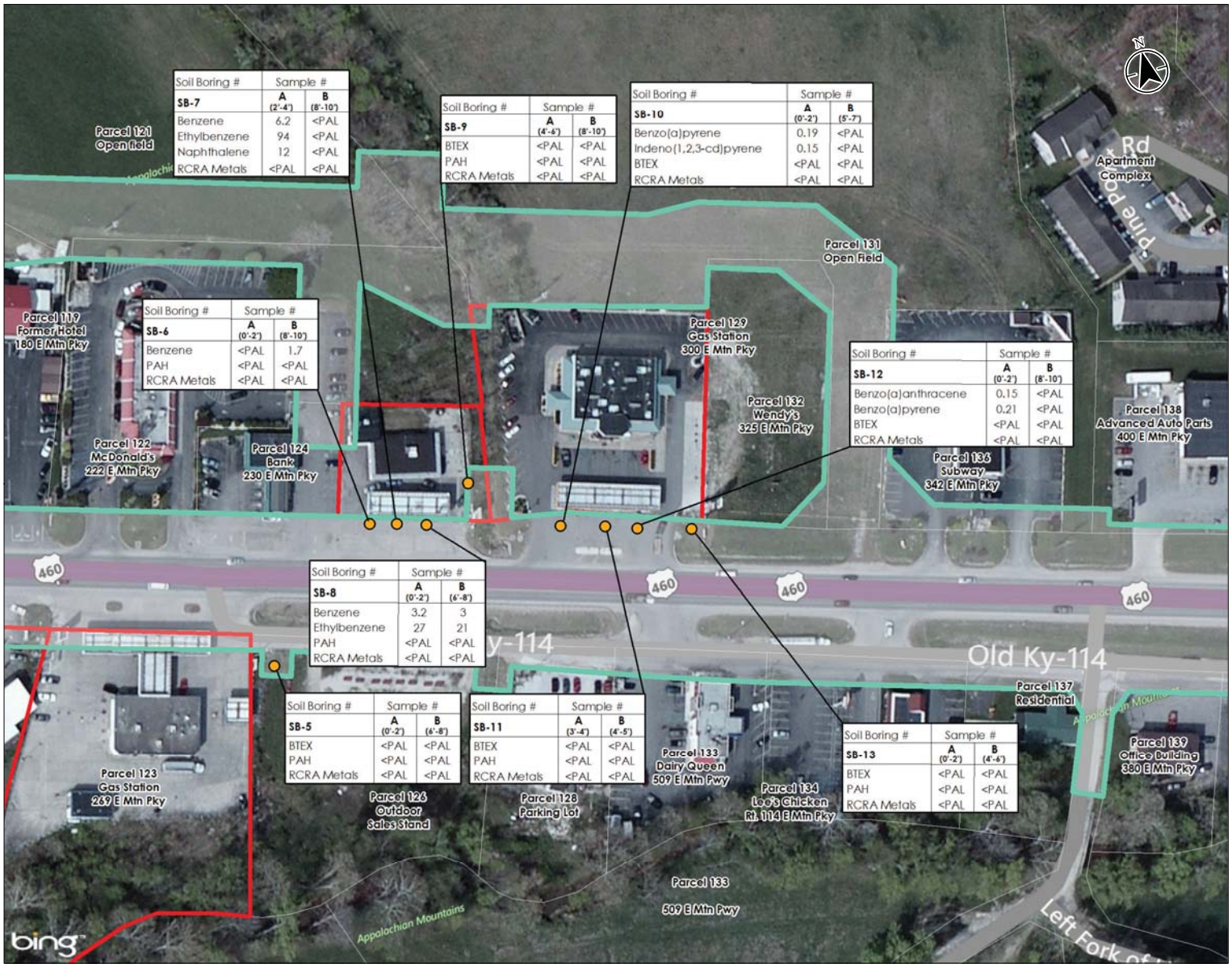

Soil Boring #	Sample # A (2'-4')	Sample # B (8'-10')
SB-7		
Benzene	6.2	<PAL
Ethylbenzene	94	<PAL
Naphthalene	12	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (4'-6')	Sample # B (8'-10')
SB-9		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (5'-7')
SB-10		
Benzo(a)pyrene	0.19	<PAL
Indeno(1,2,3-cd)pyrene	0.15	<PAL
BTEX	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (8'-10')
SB-6		
Benzene	<PAL	1.7
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (8'-10')
SB-12		
Benzo(a)anthracene	0.15	<PAL
Benzo(a)pyrene	0.21	<PAL
BTEX	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (6'-8')
SB-8		
Benzene	3.2	3
Ethylbenzene	27	21
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (6'-8')
SB-5		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (3'-4')	Sample # B (4'-5')
SB-11		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (4'-6')
SB-13		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

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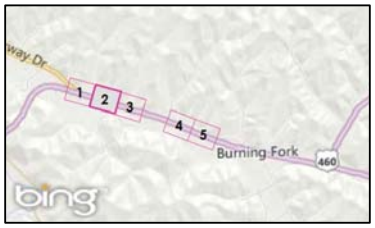
Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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Notes

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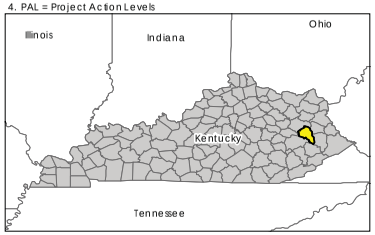

Project Location
Salyersville
Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-22
Technical Review by JW on 2015-05-22
Independent Review by JW on 2015-05-22

Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

Figure No.
3

Title
Kentucky Mountain Parkway
10-166 Soil Analytical Results

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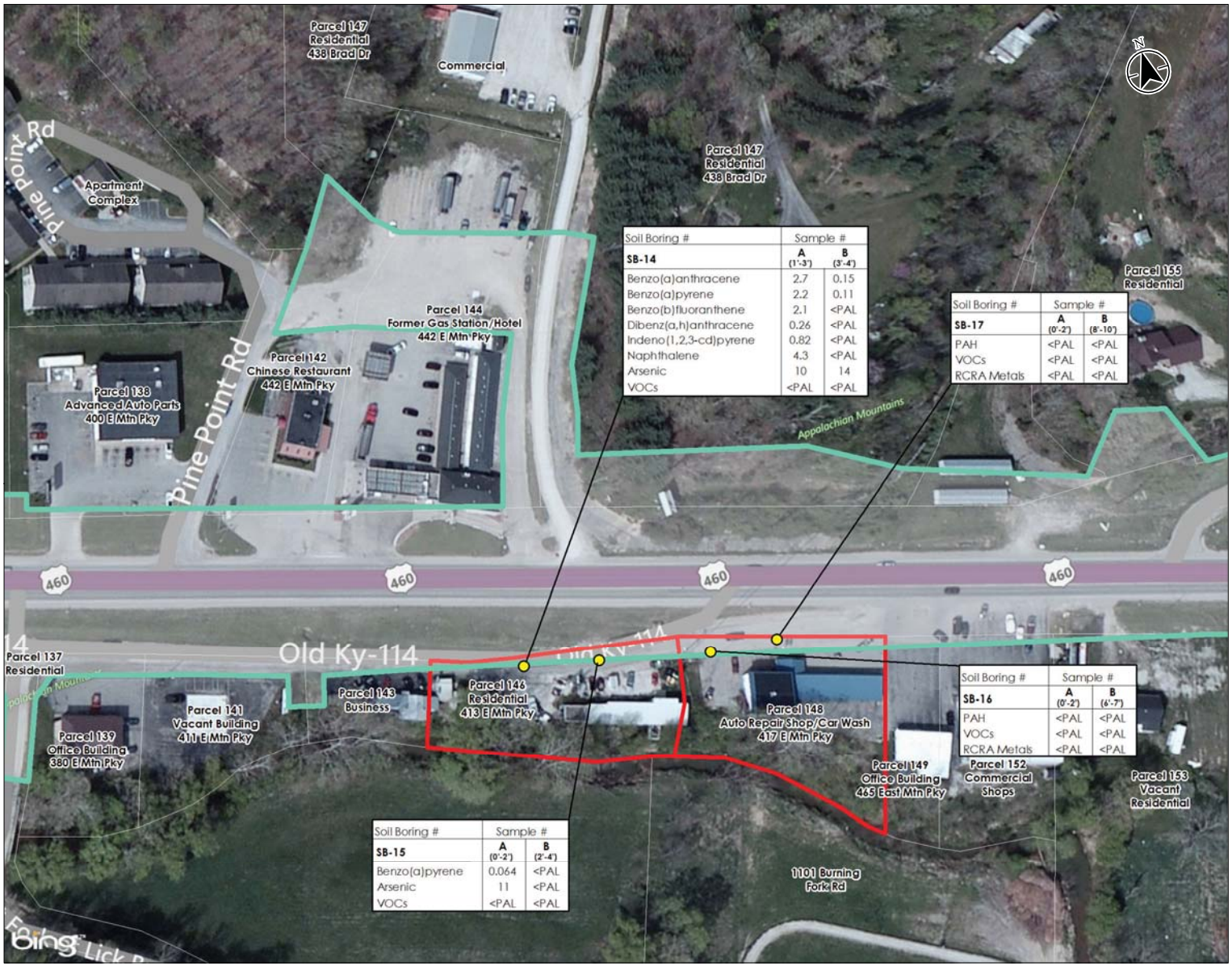


Soil Boring #	Sample # A (1'-3')	Sample # B (3'-4')
SB-14		
Benzo(a)anthracene	2.7	0.15
Benzo(a)pyrene	2.2	0.11
Benzo(b)fluoranthene	2.1	<PAL
Dibenz(a,h)anthracene	0.26	<PAL
Indeno(1,2,3-cd)pyrene	0.82	<PAL
Naphthalene	4.3	<PAL
Arsenic	10	14
VOCs	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (8'-10')
SB-17		
PAH	<PAL	<PAL
VOCs	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (6'-7')
SB-16		
PAH	<PAL	<PAL
VOCs	<PAL	<PAL
RCRA Metals	<PAL	<PAL

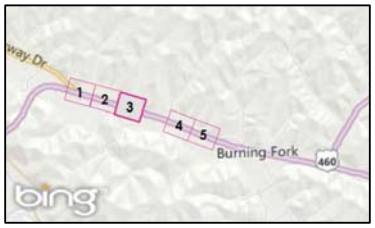
Soil Boring #	Sample # A (0'-2')	Sample # B (2'-4')
SB-15		
Benzo(a)pyrene	0.064	<PAL
Arsenic	11	<PAL
VOCs	<PAL	<PAL

Stantec

Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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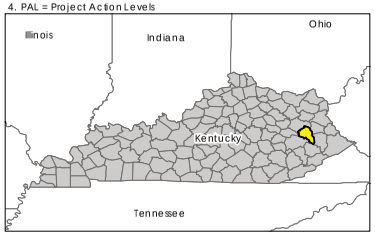

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10-166 Soil Analytical Results

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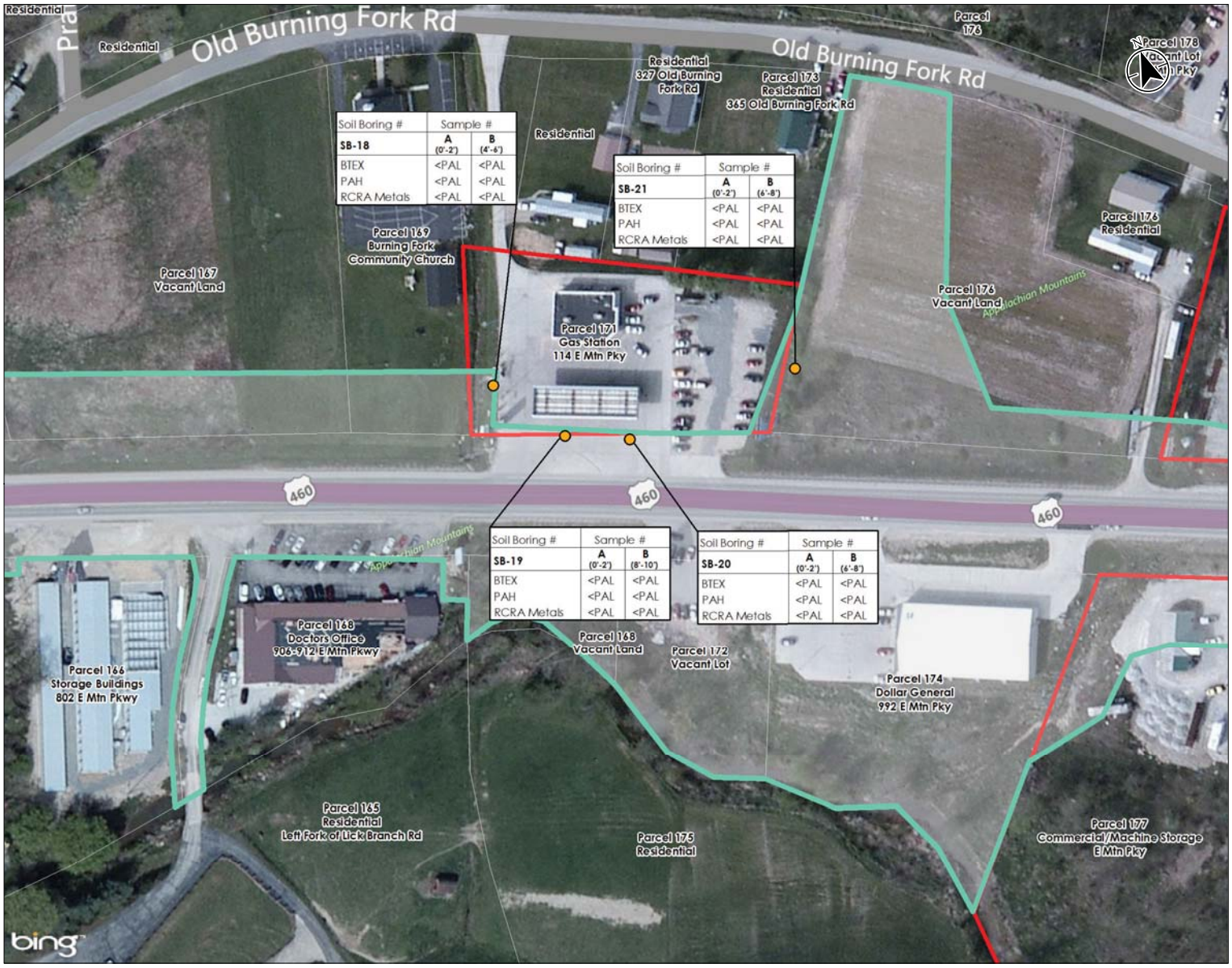


Soil Boring #	Sample # A (0'-2')	Sample # B (4'-6')
SB-18		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (6'-8')
SB-21		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (8'-10')
SB-19		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

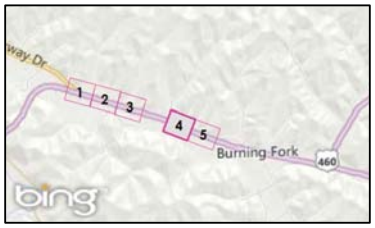
Soil Boring #	Sample # A (0'-2')	Sample # B (6'-8')
SB-20		
BTEX	<PAL	<PAL
PAH	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Stantec

Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
- PAH/VOC/RCRA Metals
- Parcel Boundary
- Proposed ROW (12/10/2014)
- REC



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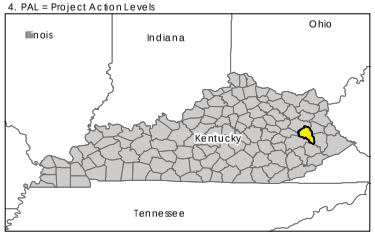

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Kentucky Mountain Parkway
10-166

Figure No.
3

Title
Kentucky Mountain Parkway
10-166 Soil Analytical Results

Page 4 of 5

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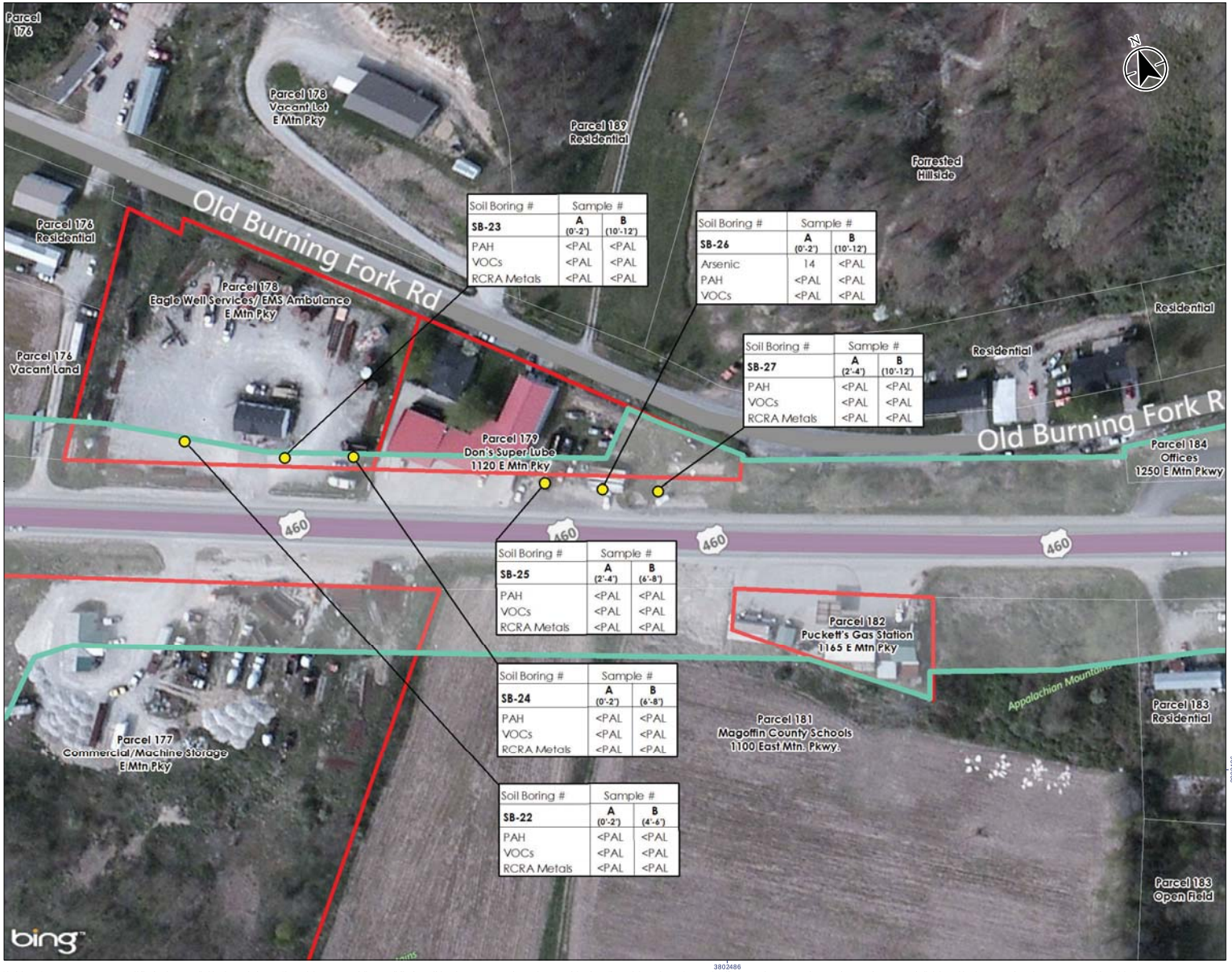

Soil Boring #	Sample # A (0'-2')	Sample # B (10'-12')
SB-23		
PAH	<PAL	<PAL
VOCs	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (10'-12')
SB-26		
Arsenic	14	<PAL
PAH	<PAL	<PAL
VOCs	<PAL	<PAL

Soil Boring #	Sample # A (2'-4')	Sample # B (10'-12')
SB-27		
PAH	<PAL	<PAL
VOCs	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (2'-4')	Sample # B (6'-8')
SB-25		
PAH	<PAL	<PAL
VOCs	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (6'-8')
SB-24		
PAH	<PAL	<PAL
VOCs	<PAL	<PAL
RCRA Metals	<PAL	<PAL

Soil Boring #	Sample # A (0'-2')	Sample # B (4'-6')
SB-22		
PAH	<PAL	<PAL
VOCs	<PAL	<PAL
RCRA Metals	<PAL	<PAL

3802486

Stantec

Legend

Soil Borings (SB-#)

- PAH/BTEX/Lead
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- Parcel Boundary
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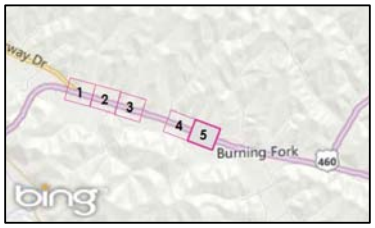

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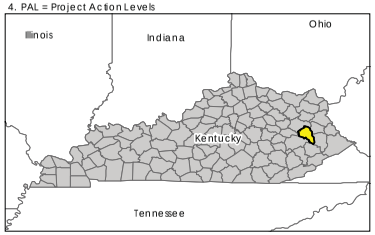
3. Parcel boundary various sources: Magoffin County PVA map; Hard Copy Project Map dated 9/12/2014; Project DGN dated 12/5/2014. Parcels are shown for informational purposes only and are not surveyed.
4. PAL = Project Action Levels



Project Location
Salyersville
Magoffin Co., KY

178564013
Prepared by DMB on 2015-05-22
Technical Review by JW on 2015-05-22
Independent Review by JW on 2015-05-22

Client/Project
Kentucky Transportation Cabinet
Kentucky Mountain Parkway
10-166

Figure No.
3

Title
Kentucky Mountain Parkway 10-166 Soil Analytical Results

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

SPECIAL NOTE FOR AWARD OF CONTRACT

Contrary to section 103.02 of the Standard Specifications for Road and Bridge Construction, the Department may hold and not award the contract for a period not to exceed (90) calendar days from the date of letting.

SPECIAL NOTE FOR HANDRAIL-PEDESTRIAN ALUMINUM

1.0 DESCRIPTION. This work consists of constructing an aluminum handrail within the limits designated in the Plans or Contract Documents to receive Handrail-Pedestrian Aluminum. The work shall be performed in accordance with the attached Aluminum Pedestrian/Bicycle Picket Railing detail drawings, the Plans, and as described herein.

2.0 MATERIALS. Use all materials as specified in the included Aluminum Pedestrian/Bicycle Picket Railing detail drawings on Sheet 1 of 5.

3.0 CONSTRUCTION. The Contractor shall prepare shop drawings, fabricate, and construct the Handrail-Pedestrian Aluminum in accordance with the included Aluminum Pedestrian/Bicycle Picket Railing detail drawings. The Contractor shall bear full responsibility and expense for any and all damage to the handrail and retaining wall, should such damage result from the Contractor's actions.

4.0 MEASUREMENT. The Department will measure the quantity of Handrail-Pedestrian Aluminum per linear foot (measured horizontally) along the top of the rail from center to center of end posts. The Department will not measure rails, pickets, posts, fittings, or coatings for payment and will consider them incidental to this item of work.

5.0 PAYMENT. Payment at the contract unit price per linear foot is full compensation for furnishing all labor, equipment, materials, and incidental items necessary to construct the Handrail-Pedestrian Aluminum in accordance with the Plans, Specifications, other Contract Documents, and this Special Note.

Code	Pay Item	Pay Unit
08257	Handrail-Pedestrian Aluminum	Linear Foot

NOTES

DESIGN SPECIFICATIONS:

American Association of State Highway and Transportation Officials (AASHTO) "LRFD Bridge Design Specifications", Third Edition, 2004, including 75 year Design Life

~~Florida Department of Transportation (FDOT) "Structures Design Guidelines for Load and Resistance Factor Design", January 2009.~~

~~Florida Building Commission "Florida Building Code", 2004 Edition, except for Handrail diameter.~~

U.S. Access Board "ADA Accessibility Guidelines", July 2004 as adopted with amendments by the USDOT under 49CFR Part 37.

National Fire Protection Association (NFPA) 101, "Life Safety Code", 2003 Edition.

DESIGN LIVE LOADS:

Post and Base Plate: Equivalent point load = 200 lb. load + (50 lb./ft. x Post Spacing (ft.)) applied transversely at top rail connection.

Top & Bottom Rails: 50 lb./ft. uniform load applied simultaneously vertically and transversely + 200 lb. concentrated point load applied at midspan in the directions for both maximum stress and deflection.

Handrails: Maximum of either 50 lb./ft. uniform load applied in any direction or 250 lb. concentrated load applied in any direction at any point along the top.

Pickets: Concentrated 200 lb. load applied transversely over an area of 1.0 square foot.

GEOMETRY:

Clear Opening between Pickets: Shall reject the passage of a 4" diameter sphere below 42" height, and a 8" diameter sphere above 42" height.

Clear Opening under Bottom Rail: Shall reject the passage of a 2" diameter sphere.

ADA Handrail Height: 34"

Standard Pedestrian/Bicycle Railing Height: 42" minimum.

Special Height Bicycle Railing Height: 54" minimum.

DEFLECTION:

Total combined deflection of the railing system including the resilient or neoprene pads, due to the top rail design live loads, shall not exceed 1½" when measured at midspan of the top rail.

APPLICABILITY NOTE TO DESIGNER:

This railing is not applicable for shielding drop-off hazards for vehicular traffic. This railing is applicable for all cases where a pedestrian or bicyclist drop-off hazard exceeds 2'-6" or when a drop-off hazard is less than 2'-6" and is required by design. ~~See Index No. 861 for special requirements and modifications for use on bridges.~~ Adequate foundation support shall be provided for anchorage and stability against overturning. For unusual site conditions a site specific railing is to be designed by the responsible engineer. The railing shown on these drawings requires a handrail for ramps steeper than a 5% grade to conform with the requirements of the Americans with Disabilities Act (ADA). ~~Refer to FDOT Plans Preparation Manual Volume 1, Chapters 4 & 8, for the definition of vehicular, pedestrian and bicyclist "drop-off hazards".~~

~~ALTERNATE DESIGN:~~

~~Manufacturers seeking approval of proprietary railing systems for inclusion on the Qualified Products List as pre-approved alternate designs must submit application along with design documentation showing the proprietary railing system is designed to meet the design life, live loads, geometry and deflection requirements specified herein. All fixed joints are to be either welded or commercially designed fixed joint systems. Each field section of railing must be identified with a permanently affixed label with the manufacturer's name and the FDOT QPL approval number. Labels must be a maximum of 1½" by 3" and located at the base of a post within the field section. Project specific shop drawings are required for QPL approved railings, see Shop Drawings note.~~

~~In lieu of design calculations, submit certified test reports from an approved independent testing agency. Test railing systems in accordance with ASTM E935 (Test Method A & C) using test loads at least 175% of the design load. Test proprietary or nonstandard anchorage systems in accordance with ASTM E894 (Flexural Test). Anchorage systems must resist the minimum of 175% of the design load for failure of the steel anchors or 220% of the design load for failure in the concrete foundation.~~

RAILS, PICKETS & POSTS:

Structural Tube, Pipe and Bar shall be in accordance with ASTM B221 or ASTM B429, Alloy 6061-T6. End Rail 90° bends and corner bends with maximum 4'-0" post spacing, may be Alloy 6063-T6. Posts and End Rails shall be fabricated and installed plumb, ± 1" tolerance when measured at 3'-6" above the foundation. Pickets shall be fabricated parallel to the posts. Corners and changes in tangential longitudinal alignment shall be made continuous with a 9" bend radius or terminate at adjoining sections with mitered end sections when handrails are not required. For changes in tangential longitudinal alignment greater than 45°, posts shall be positioned at a maximum distance of 2'-0" each side of the corner and shall not be located at the corner apex. For curved longitudinal alignments the top and bottom rails and handrails shall be shop bent to match the alignment radius.

RAILING MEMBER DIMENSIONS TABLE

MEMBER	DESIGNATION	OUTSIDE DIMENSION	WALL THICKNESS
Posts	2" x 4" Rectangular Tube	2.00" x 4.00"	0.250"
Rails	2" NPS (Sch. 40)	2.375"	0.154"
Rail Joint/Splice Sleeves	1½" NPS (Sch. 40)	1.900"	0.145"
Handrail Joint/Splice Sleeves	1" NPS (Sch. 40)	1.315"	0.133"
Handrails	1½" NPS (Sch. 40)	1.900"	0.145"
Handrail Support Bar	1" Ø Round Bar	1.000"	N/A
Pickets	¾" NPS (Sch. 40)	1.050"	0.113"

BASE PLATES & POST CAPS:

Base Plates and Post Cap plates shall be in accordance with ASTM B209, Alloy 6061-T6.

SHIM PLATES:

Shim Plates shall be aluminum in accordance with ASTM B209, Alloy 6061 or 6063. Shim plates shall be used for foundation height adjustments greater than ¼" and localized irregularities greater than ⅛". Field trim shim plates when necessary to match the contours of the foundation. Beveled shim plates may be used in lieu of trimmed flat shim plates shown. Stacked shim plates must be bonded together with adhesive bonding material and limited to a maximum total thickness of ½", unless longer anchor bolts are provided for the exposed thread length.

COATINGS:

The aluminum railing shall be mill finish unless otherwise noted in the Contract Documents. All nuts, bolts and washers shall be hot-dip galvanized ~~in accordance with Section 962 of the Specifications.~~

ANCHOR BOLTS:

Anchor bolts shall be in accordance with ASTM F1554 Grade 36. Headless anchor bolts for Adhesive Anchors shall be threaded full length. Cutting of reinforcing steel is permitted for drilled hole installation. Expansion Anchors are not permitted. All anchor bolts shall have single self-locking hex nuts. Tack welding of the nut to the anchor bolt may be used in lieu of self-locking nuts. All nuts shall be in accordance with ASTM A563 or ASTM A194. Flat Washers shall be in accordance with ASTM F436 and Plate Washers (for long slotted holes only), shall be in accordance with ASTM A36 or ASTM A709 Grade 36. After the nuts have been snug tightened, the anchor bolt threads shall be distorted to prevent removal of the nuts. Distorted threads and tack welds shall be coated with a galvanizing compound in accordance with the Specifications.

RESILIENT AND NEOPRENE PADS:

Resilient and Neoprene pads shall be in accordance with Specification Section ~~932~~ 822 except that testing of the finished pads shall not be required. Neoprene pads shall be durometer hardness 60 or 70.

JOINTS:

All fixed joints are to be welded all around and ground smooth. Expansion joints shall be spaced at a maximum 35'-0". Field splices similar to the expansion joint detail may be approved by the Engineer to facilitate handling, but railing must be continuous across a minimum of two posts. Only use the Continuity Field Splice (Detail "E") to make the railing continuous for unforeseen field adjustments.

WELDING:

All welding shall be in accordance with the American Welding Society Structural Welding Code (Aluminum) ANSI/AWS D1.2 (current edition). Filler metal shall be either ER5183, ER5356 or ER5556. Nondestructive testing of welds is not required. Filler metal for picket welds may be ER4043.

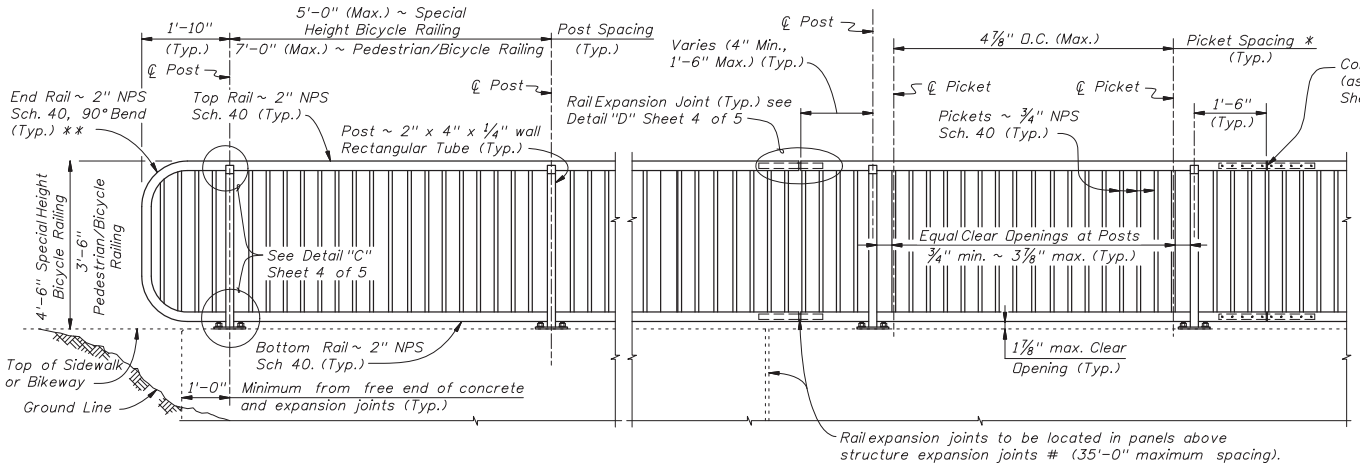
SHOP DRAWINGS:

Complete details addressing project specific geometry (line & grade) showing post and expansion joint locations, anchor bolt installation "Case" or lengths, must be submitted by the Contractor for the Engineer's approval prior to fabrication of the railing. Shop drawings shall be in accordance with the Specifications.

~~PAYMENT:~~

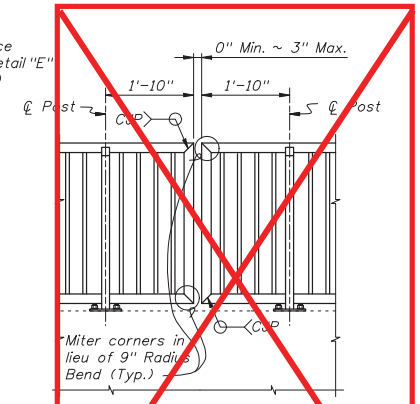
~~Railing shall be paid for per linear foot (Item No. 515-2-abb). Payment will be per quantity measured as the length along the center line of the top rail and includes rails, posts, pickets, rail splice assembly, base plates, anchor bolts, nuts, washers, resilient or neoprene pads and all incidental materials and labor required to complete installation of the railing.~~

ALUMINUM PEDESTRIAN/BICYCLE PICKET RAILING	Last Revision 07/01/08	Sheet No. 1 of 5
	Index No. 860	



ELEVATION
(Showing Outside Face of Railing)

TYPICAL RAILING DETAILS ~~& RAILINGS ON GRADES 0% TO 5%~~



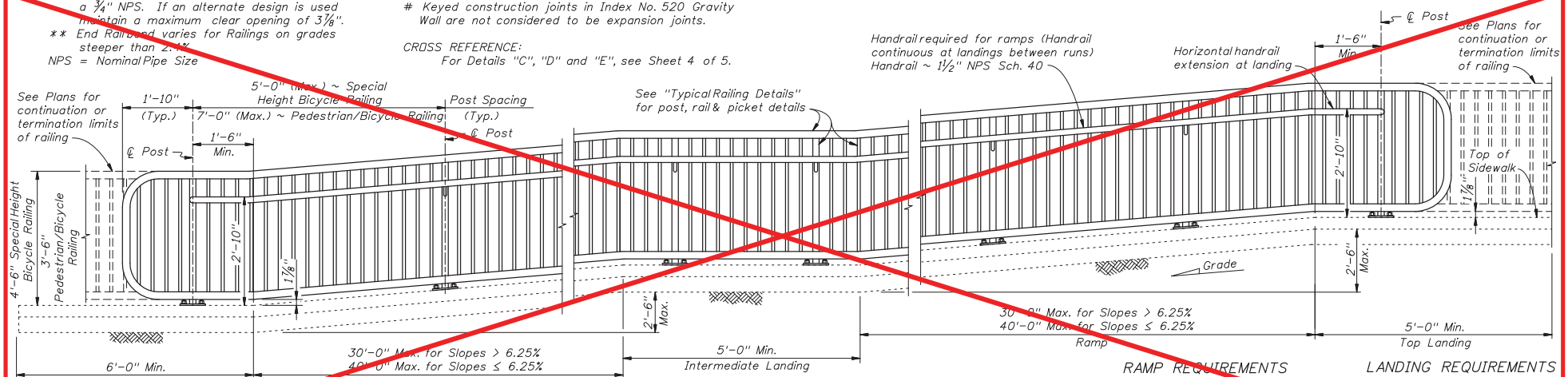
EXPANDED ELEVATION AT CORNERS

DETAIL FOR NON-CONTINUOUS RAILING AT CORNERS

NOTES:
* Picket Spacing of 4 7/8" centers is based on a 3/4" NPS. If an alternate design is used maintain a maximum clear opening of 3 7/8".
** End Rail bend varies for Railings on grades steeper than 2.1%
NPS = Nominal Pipe Size

STRUCTURES EXPANSION JOINTS NOTE:
\# Keyed construction joints in Index No. 520 Gravity Wall are not considered to be expansion joints.

CROSS REFERENCE:
For Details "C", "D" and "E", see Sheet 4 of 5.



ELEVATION
(Showing Inside Face of Railing)

RAMP REQUIREMENTS

For slopes greater than 5%
Max. ramp slope = 8.33%
Max. ramp cross-slope = 2.0%

LANDING REQUIREMENTS

Max. landing slope = 2%
Max. landing cross-slope = 2%

RAILINGS ON GRADES STEEPER THAN 5% TO 8.33%

ALUMINUM PEDESTRIAN/BICYCLE PICKET RAILING	Last Revision 07/01/08	Sheet No. 2 of 5
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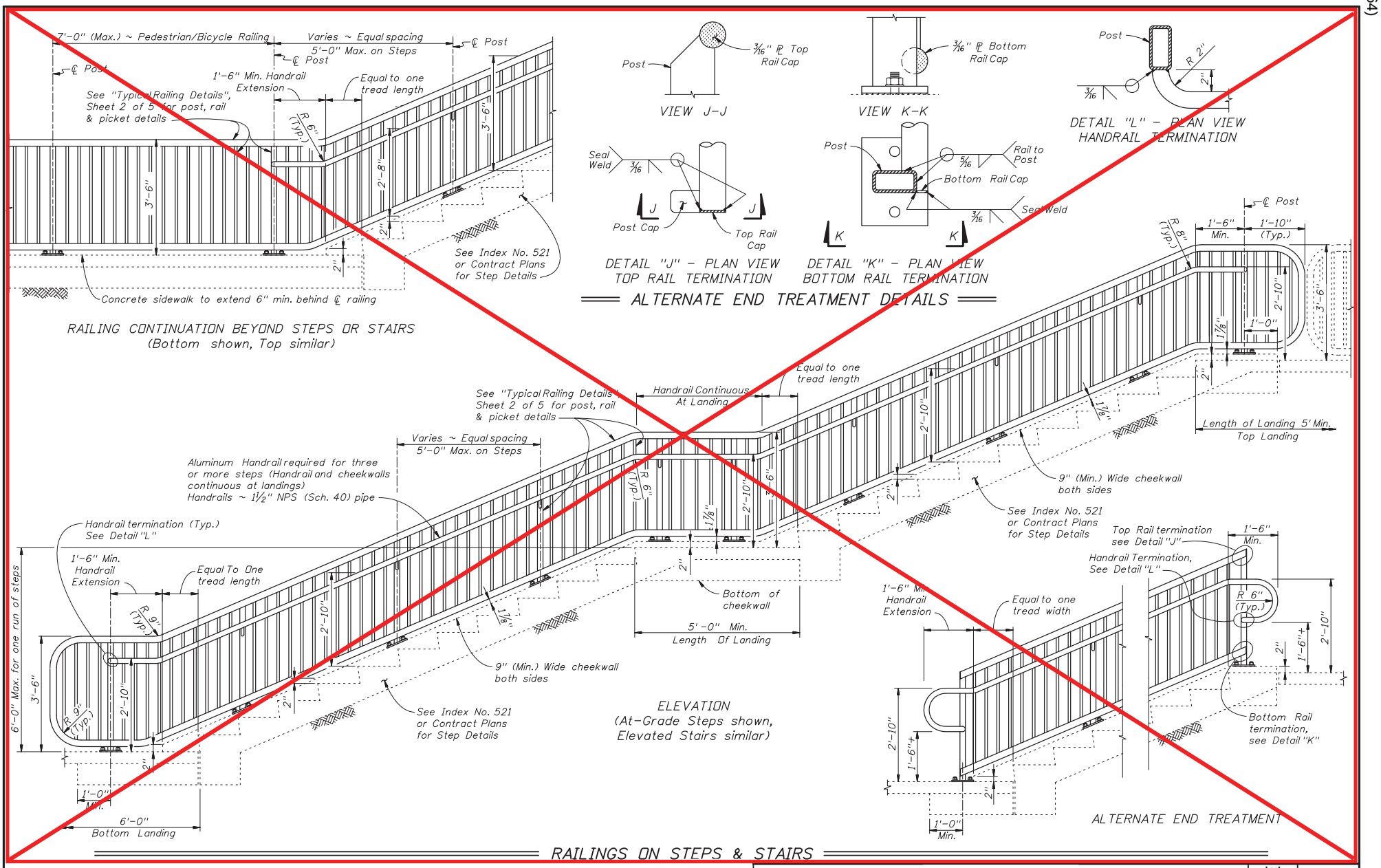

ALUMINUM PEDESTRIAN/BICYCLE PICKET RAILING	Last Revision 01/01/08	Sheet No. 3 of 5
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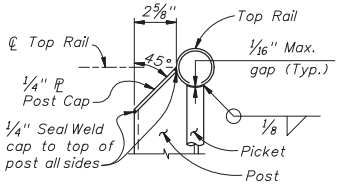
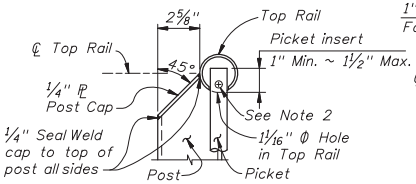
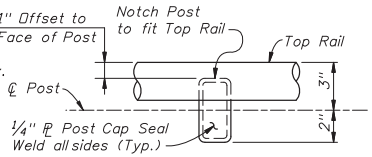


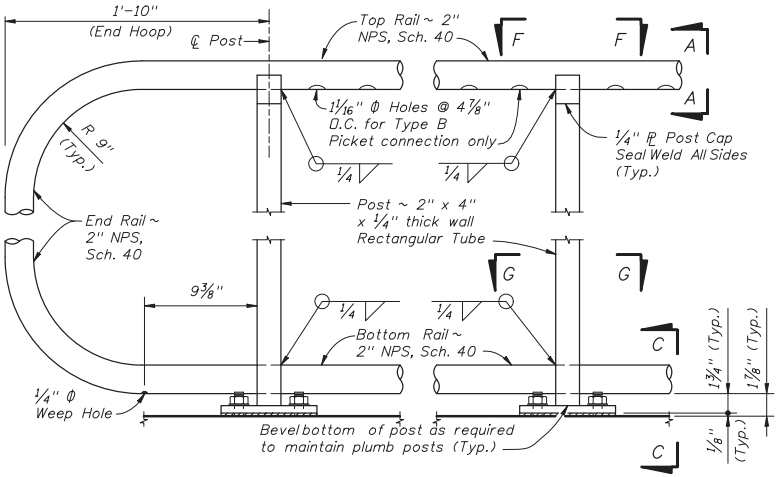
TYPE A (WELDED)



TYPE B (NONWELDED)



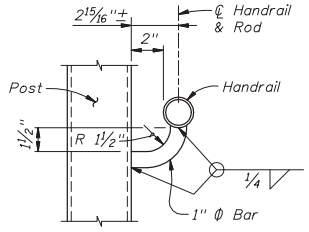
VIEW F-F
TOP RAIL CONNECTION
(Base Plate Not Shown for Clarity)



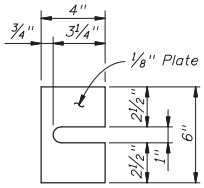
DETAIL "C" - RAIL CONNECTIONS
(Showing Outside Face of Structure and Railing, Pickets and Handrail Not Shown for Clarity)

SECTION A-A
(Top of Picket Connection)

Notes:
1. Type B connection is required for use with Index No. 861 on bridges, except End Hoops may use Type A connections. Optional for other installations and for connection to bottom rail.
2. Provide #10 x 1/2" Pan Head Stainless Steel (316 or 18-8 Alloy) Screw in the last picket at each expansion or field splice joint to secure the end of the top rail.



SECTION B-B
(Handrail Connection)



SHIM PLATE
DETAIL

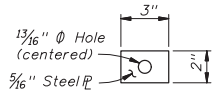
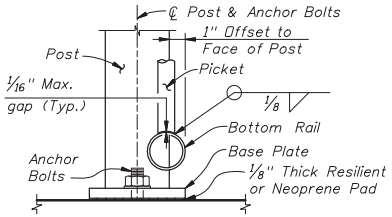
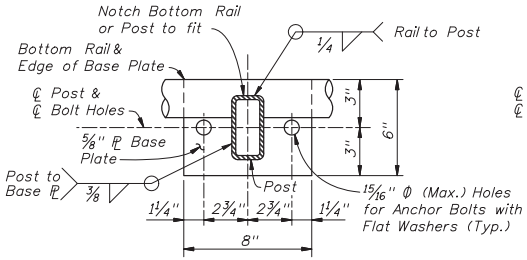


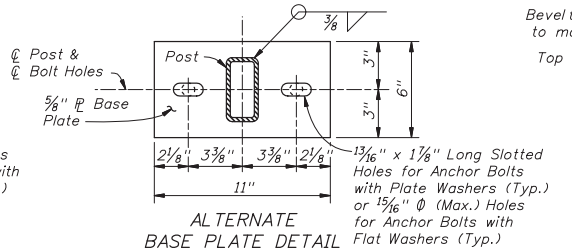
PLATE WASHER
DETAIL



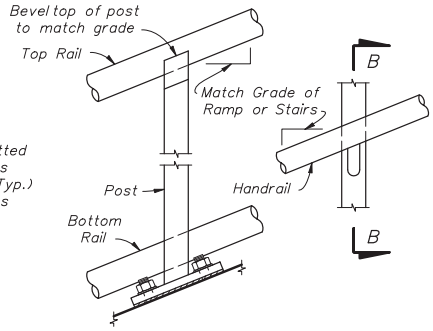
SECTION C-C
(Bottom of Picket connection)



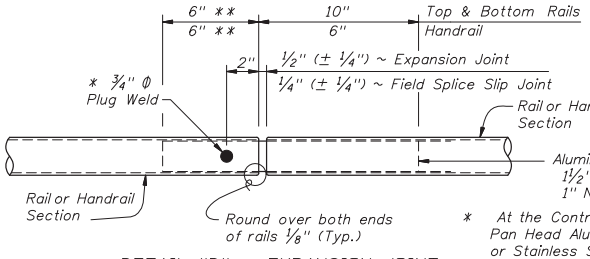
SECTION G-G
BASE PLATE & BOTTOM RAIL CONNECTION



ALTERNATE
BASE PLATE DETAIL
(Recommended for Top of Step Cheekwalls)



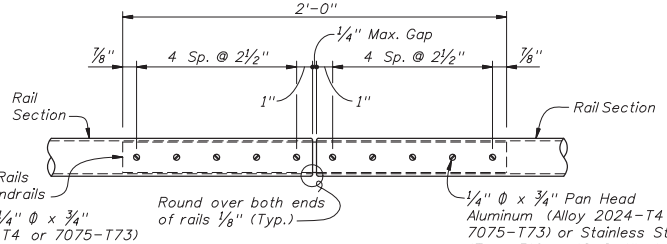
DETAIL "B" - RAIL AND HANDRAIL
(Showing Sloped Condition for Stairs or Ramp)



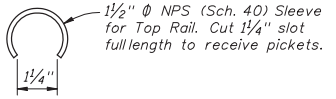
DETAIL "D" - EXPANSION JOINT
(FIELD SPLICE SLIP JOINT SIMILAR)

* At the Contractor's option 2 ~ 1/4" Ø x 3/4" Pan Head Aluminum (Alloy 2024-T4 or 7075-T73) or Stainless Steel (Type 316 or 18-8 Alloy) Set Screws at 2" spacing may be substituted for the 3/4" Ø plug weld. Set screws must be set flush against the outside face of rails and underside of handrails.

** Embedded length may be 4" for plug welded connection.



DETAIL "E" - CONTINUITY
FIELD SPLICE



SLEEVE MODIFICATION FOR
TOP RAIL TYPE B CONNECTION

CROSS REFERENCE:
For locations of Details "C", "D" and "E", see Sheet 2 of 5.

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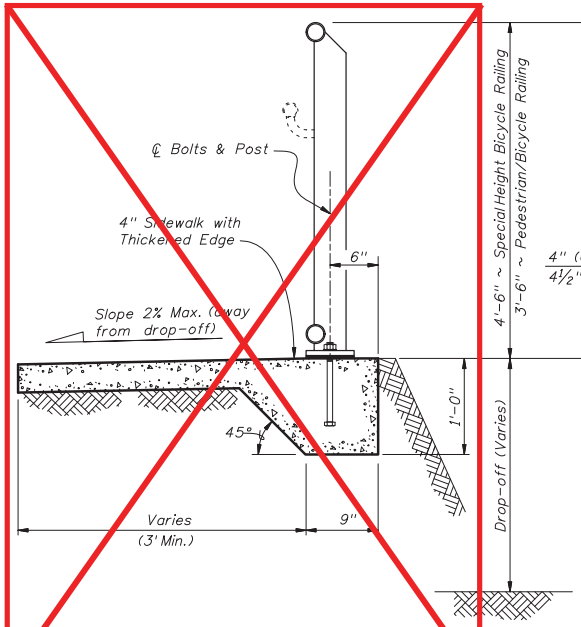
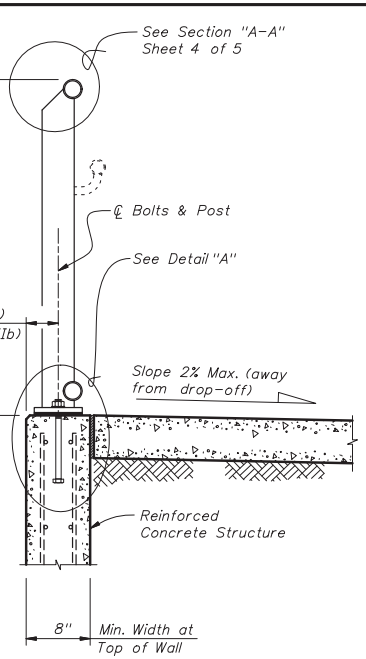
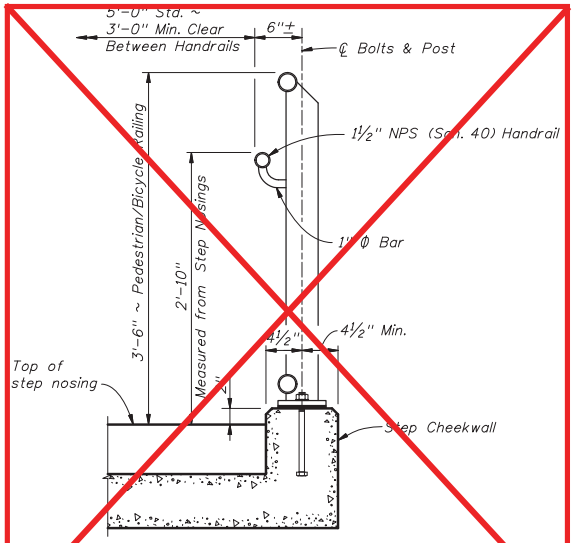


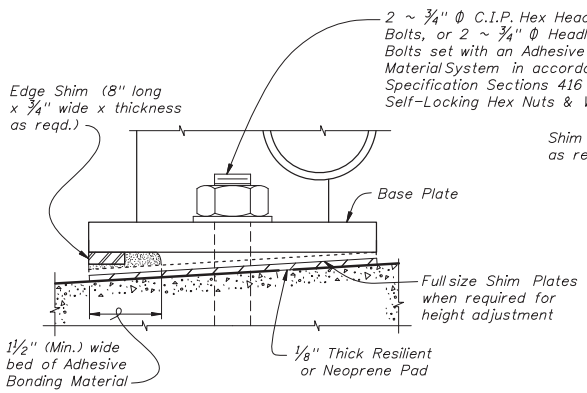
TYPICAL SECTION ON CONCRETE SIDEWALK
(Case I)



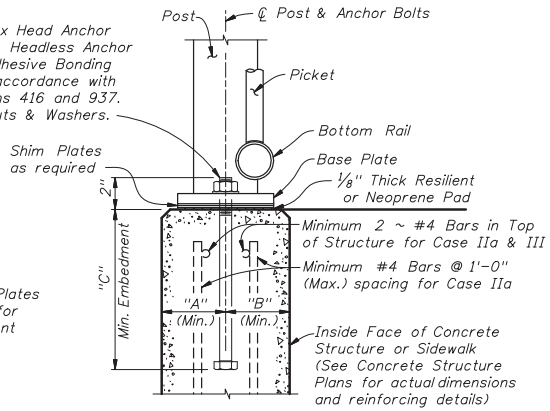
TYPICAL SECTION ON RETAINING WALL
(Case II)



TYPICAL SECTION ON STEPS & STAIRS
(Case III)



DETAIL "F" (OPTIONAL SHIMMING DETAIL
FOR CROSS SLOPE CORRECTION)
(Used in lieu of Beveled Shim Plates)



DETAIL "A"
(Cast-In-Place Anchor Bolts shown,
Adhesive Anchors similar)

ANCHOR BOLT TABLE

CASE	STRUCTURE TYPE	DIMENSIONS "A" Edge Dist.	DIMENSIONS "B" Edge Dist.	DIMENSIONS "C" Embedment	ANCHOR LENGTH C.I.P Hex Head Bolt	ANCHOR LENGTH Adhesive Anchor	ANCHOR SIZE
~~I~~	~~Unreinforced Concrete~~	~~6"~~	~~1'-2"~~	~~9"~~	~~10½"~~	~~11"~~	~~¾" Ø~~
IIa	Reinforced Concrete	4"	4"	9"	10½"	11"	¾" Ø
~~IIb~~	~~Gravity Wall Index No. 520~~	~~1½"~~	~~3½" @ top~~	~~1'-9"~~ *	~~1'-1½"~~	~~1'-2"~~	~~¾" Ø~~
~~III~~	~~Step Cheekwall~~	~~1½"~~	~~1½"~~	~~9"~~	~~10½"~~	~~11"~~	~~¾" Ø~~

* Embedment length "C" may be reduced to 9" for the 3'-6" height railings for Case IIb, when the post spacing does not exceed 5'-0".

ALUMINUM PEDESTRIAN/BICYCLE PICKET RAILING

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Index No. 860

SPECIAL NOTE FOR EXCESS MATERIAL SITES

MAGOFFIN COUNTY
KY 9009 – MOUNTAIN PARKWAY WIDENING
ITEM NO. 10-166

The construction activities of this project may result in a considerable amount of excess material. It is the contractor's responsibility to dispose of material in compliance with the United States Army Corps of Engineers (USACE) and the Kentucky Division of Water (DOW) rules and regulations pertaining to discharges into U.S. Waters. The Kentucky Transportation Cabinet (KYTC) has Section 404 & 401 permits for two excess material sites along the project corridor. The location of the excess material site is identified in the accompanying map.

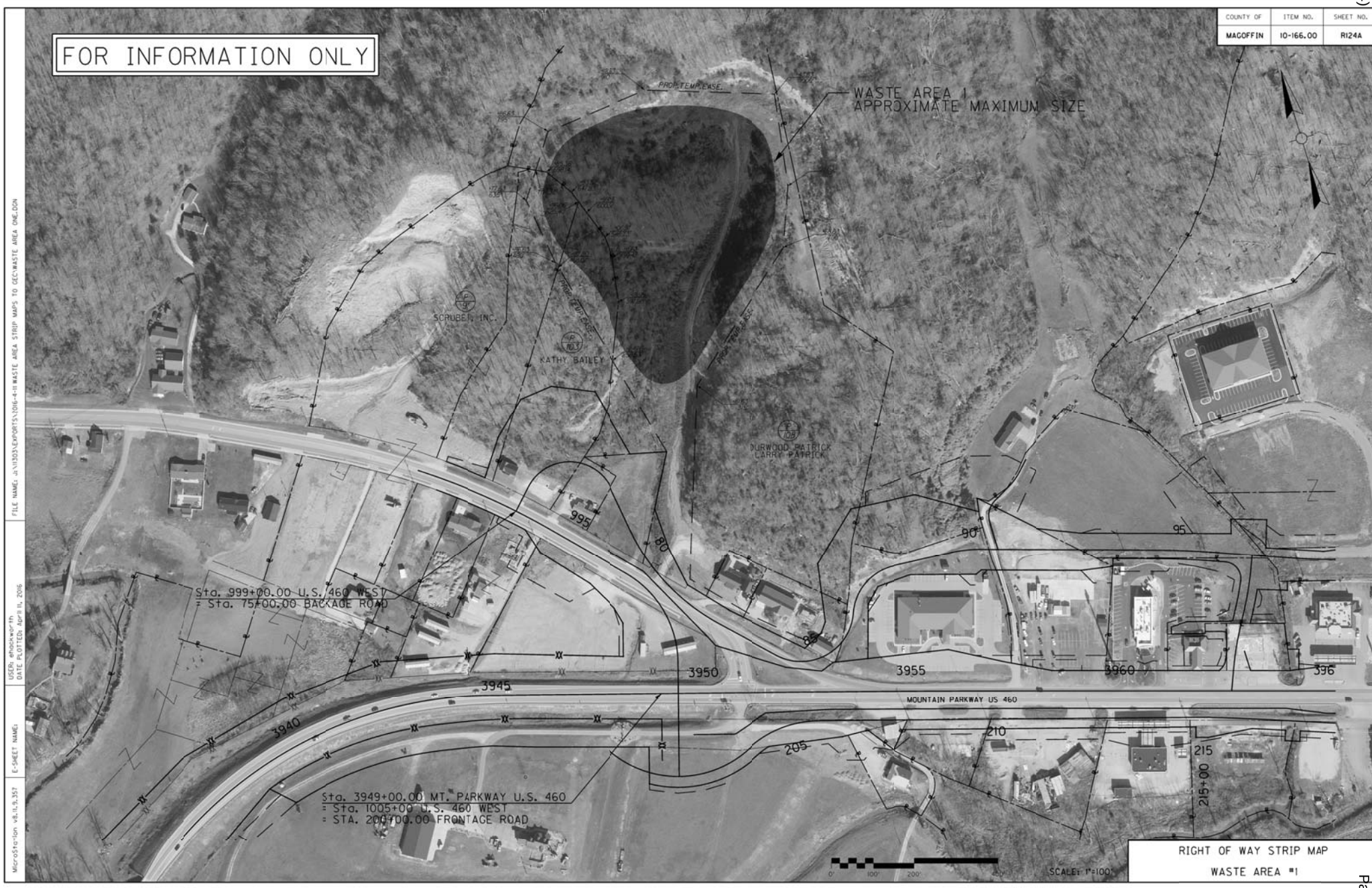
The contractor shall plan work in a manner that maximizes, to the most practical extent, the secured sites first. Mitigation requirements resulting from the use of this excess material site will be in the form of in-lieu fees and will be paid by the KYTC prior to stream impacts occurring in the excess material site.

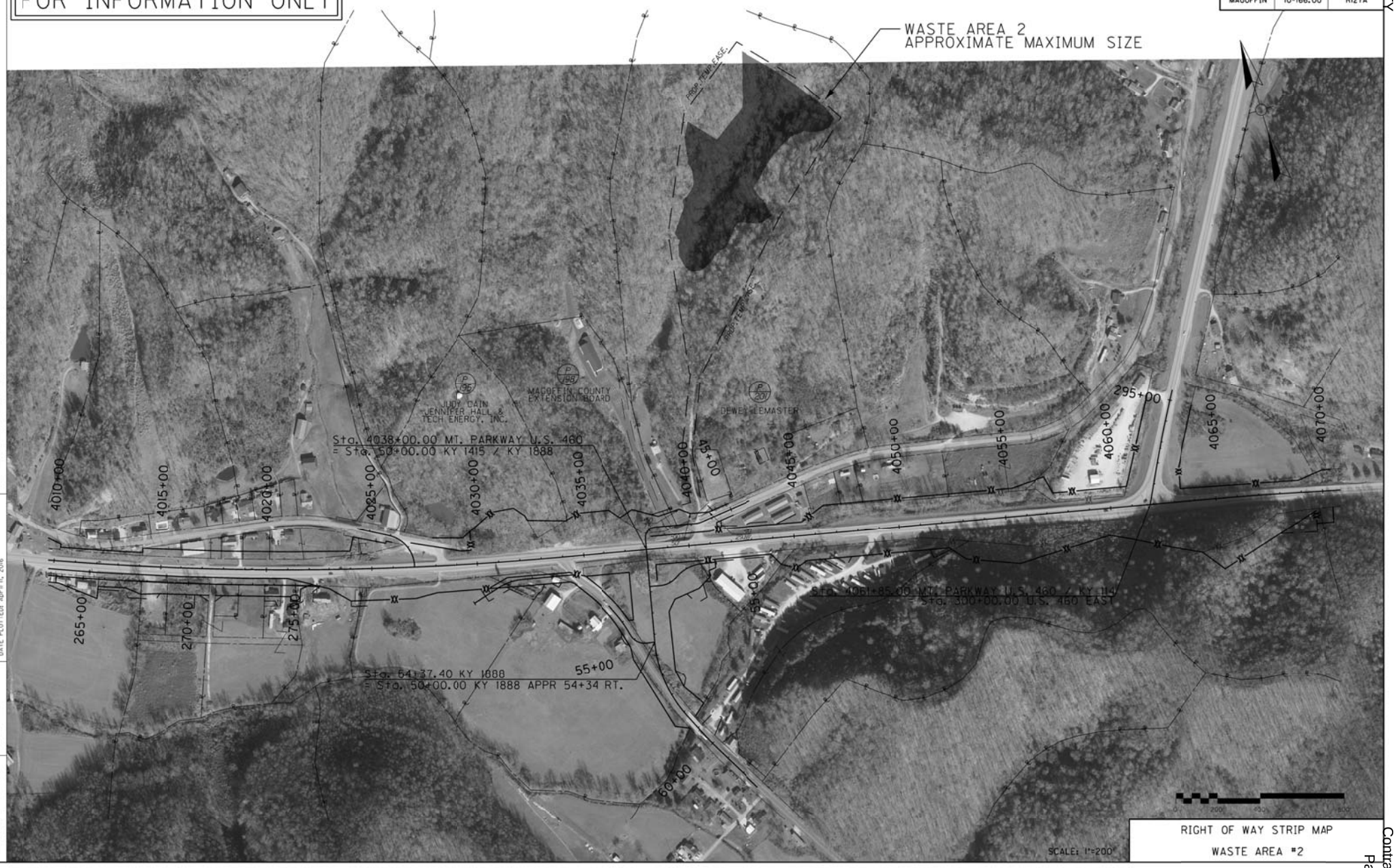
Any work associated with the excess material site will be incidental to the excavation cost including but not limited to the following items: Erosion Control Devices, Clearing and Grubbing, Seeding and Protection, Temporary and Permanent Drainage Ditches and Structures.

It is the contractor's responsibility to review the Sections 401 & 404 permits and maintain compliance with the 401 & 404 permits throughout the duration of the project.

If the contractor chooses to use other excess material site(s) (rather than or in addition to) the KYTC's designated excess material site, or modify the designated excess material site, it will be the responsibility of the contractor to acquire the necessary permits and certifications. When applying for new or modified permits obtain approval from the KYTC and obtain the new permit in the Contractor's name from the USACE. No additional contract time will be allowed for this process.

Questions concerning any potential impacts to "Waters of the United States" should be brought to the attention of the appropriate District Office for the Corps of Engineers for determination, prior to disturbance. Any fees associated with obtaining new or modified permit approvals for the disposal of excess material from the USACE or other appropriate regulatory agencies are the responsibility of the contractor.


FOR INFORMATION ONLY
COUNTY OF
MAGOFFIN
ITEM NO.
10-166.00
SHEET NO.
R124A
WASTE AREA 1
APPROXIMATE MAXIMUM SIZE
PROP. TEMP. EASE.
SCRUBER, INC.
KATHY BAILEY
DURWOOD PATRICK
LARRY PATRICK
Sta. 999+00.00 U.S. 460 WEST
= Sta. 75+00.00 BACKAGE ROAD
Sta. 3949+00.00 MT. PARKWAY U.S. 460
= Sta. 1005+00 U.S. 460 WEST
= STA. 200+00.00 FRONTAGE ROAD
MOUNTAIN PARKWAY US 460
3940
3945
3950
3955
3960
3965
995
80
85
90
95
205
210
215
215+00
0'
100'
200'
400'
SCALE: 1"=100'
RIGHT OF WAY STRIP MAP
WASTE AREA #1
FILE NAME: J:\11303\EXPORTS\2016-4-11 WASTE AREA STRIP MAPS TO GEC\WASTE AREA ONE.DGN
USER: ehackworth
DATE PLOTTED: April 11, 2016
E-SHEET NAME:
MicroStation v8.11.9.357


FOR INFORMATION ONLY
COUNTY OF
MAGOFFIN
ITEM NO.
10-166.00
SHEET NO.
R127A
WASTE AREA 2
APPROXIMATE MAXIMUM SIZE
PROP. TEMP. EASE.
JUDY CAIN
JENNIFER HALL &
TECH ENERGY, INC.
MAGOFFIN COUNTY
EXTENSION BOARD
DEWEY LEMASTER
Sta. 4038+00.00 MT. PARKWAY U.S. 460
= Sta. 50+00.00 KY 1415 / KY 1888
Sta. 4061+85.00 MT. PARKWAY U.S. 460 / KY 114
= Sta. 300+00.00 U.S. 460 EAST
Sta. 54+37.40 KY 1888
= Sta. 50+00.00 KY 1888 APPR 54+34 RT.
4010+00
4015+00
4020+00
4025+00
4030+00
4035+00
4040+00
4045+00
4050+00
4055+00
4060+00
4065+00
4070+00
265+00
270+00
275+00
295+00
55+00
60+00
SCALE: 1"=200'
RIGHT OF WAY STRIP MAP
WASTE AREA #2
FILE NAME: J:\11303\EXPORTS\2016-4-11 WASTE AREA STRIP MAPS TO GEC\WASTE AREA TWO.DGN
USER: ehackworth
DATE PLOTTED: April 11, 2016
E-SHEET NAME:
MicroStation v8.11.9.357

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 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.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
TRAFFIC MANAGEMENT PLAN

County: Magoffin Item No.: 10-166.00

Federal Project No.: NH 0061(053)

Project Description:

Mountain Parkway Corridor-Widen the Mountain Parkway Extension (KY 114/US 460) through the congested area of Salyersville. From Burning Fork Bridge to KY 114 (14 CCR) MP 12.486 to MP 14.566

Roadway Classification: ☒ Urban ☐ Rural

☐ Local ☐ Collector ☒ Arterial ☐ Interstate

ADT (current) 11,910 AM Peak Current 390 PM Peak Current 580 % Trucks 13

Project Designation: ☐ Significant ☒ Other: unclassified

Traffic Control Plan Design:

Taper and Diversion Design Speeds 35

Minimum Lane Width 11 Minimum Shoulder Width 2

Minimum Bridge Width 24

Minimum Radius 420 Maximum Grade 5%

Minimum Taper Length 35:1 Minimum Intersection Level of Service exist

Existing Traffic Queue Lengths none Projected Traffic Queue Lengths no change

Comments:

No lane closures are to be allowed during peak hours. Left turn lanes will be maintained at signalized intersections.LOS and queue lengths would not change from what is existing.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
TRAFFIC MANAGEMENT PLAN

Item No. 10-166.00

Discussion:

1) Public Information Plan			
a) Prepare with assistance from ☐ KYTC or ☒ Consultant			
b) Identify Trip Generators	Referenced	f) Railroad Involvement	N/A
c) Identify Types of Road Users	Referenced	g) Address Pedestrians, Bikes Mass Transit	Referenced
d) Public Information Message	Referenced	h) Address Timing, Frequency, Updates, Effectiveness of Plan	Referenced
e) Public Information Strategies to be used	Referenced	i) Police & Other Emergency Services	Referenced

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
TRAFFIC MANAGEMENT PLAN

Item No. 10-166.00

2) Temporary Traffic Control Plan (For Each Phase of Construction)
Phase I

Exposure Control Measures		**Positive Protection Measures**	
a) Is Road Closure Allowed Type:	N/A	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	Referenced	c) Evaluation of Existing Guardrail Conditions	N/A
d) Holiday or Special Event Work Restrictions	Referenced	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	**Uniformed Law Enforcement Officers**	N/A
f) Evaluation of Queue Lengths	N/A	**Payment for Traffic Control***	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	Referenced
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	Referenced
Work Vehicles and Equipment	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	

Comments:

Phase 1 is to construct the south side of the project west of the US 460 intersection, while maintaining traffic on the north side, and parts of the frontage and backage roads on the rest of the project.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
TRAFFIC MANAGEMENT PLAN

Item No. 10-166.00

2) Temporary Traffic Control Plan (For Each Phase of Construction) Phase 2 & 3

Exposure Control Measures		Positive Protection Measures	
a) Is Road Closure Allowed Type:	N/A	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	Referenced	c) Evaluation of Existing Guardrail Conditions	Referenced
d) Holiday or Special Event Work Restrictions	Referenced	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	**Uniformed Law Enforcement Officers**	N/A
f) Evaluation of Queue Lengths	N/A	**Payment for Traffic Control***	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	Referenced
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	Referenced
Work Vehicles and Equipment	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	

Comments:

Phase 2 is to construct the north side of the project west of the US 460 intersection, while maintaining traffic on the south side, and parts of the frontage and backage roads on the rest of the project.
Phase 3 completes the frontage and backage roads.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
TRAFFIC MANAGEMENT PLAN

Item No. 10-166.00

2) Temporary Traffic Control Plan (For Each Phase of Construction)
Phase 4,5,&6

Exposure Control Measures		**Positive Protection Measures**	
a) Is Road Closure Allowed Type:	N/A	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	Referenced	c) Evaluation of Existing Guardrail Conditions	N/A
d) Holiday or Special Event Work Restrictions	Referenced	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	**Uniformed Law Enforcement Officers**	N/A
f) Evaluation of Queue Lengths	N/A	**Payment for Traffic Control***	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	Referenced
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	Referenced
Work Vehicles and Equipment	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	

Comments:

Phase 4 is to construct the north side of the mainline east of the US 460 intersection while maintaining traffic on the existing road.
Phase 5 is to construct the south side of the mainline east of the US 460 intersection while maintaining traffic on the new lanes on the north side.
Phase 6 is to cnstruct the median area of the mainline east of the US460 intersection while maintaining one lane in each direction on the new EB and WB lanes.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS
TRAFFIC MANAGEMENT PLAN

Item No. 10-166.00

APPROVAL:

Project Manager Date

Project Delivery and Preservation Manager Date

Engineering Support Manager Date

FHWA Representative Date

Revisions to the TMP require review/approval by the signatories.

SPECIAL NOTE

For Tree Removal

Magoffin County
Mountain Parkway Reconstruction
Item No. 10-166

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

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

SPECIAL NOTE

PRIVATE GAS LINE RELOCATION

The lump sum bid time for the relocation of the private gas line includes all materials, equipment, and labor necessary to install, test, and any other requirements to restore service.

WATER LINE RELOCATION PROJECT

SALYERSVILLE WATER WORKS
SALYERSVILLE, KY
MOUNTAIN PARKWAY (KY 9009)

Item No. 10-166.00
NHPP 0061 060
FD52 077 86966 03U

MARCH 2016

7516.001 14-442

TECHNICAL SPECIFICATIONS

STATE OF KENTUCKY
R. DEREK MOTSCH
28439
LICENSED PROFESSIONAL ENGINEER
3/7/16

PREPARED BY
SUMMIT ENGINEERING, INC.

SECTION 9

TECHNICAL SPECIFICATIONS

CONTENTS

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II	GENERAL PROVISIONS	TS-II-1 through TS-II-2
III	SUBMITTALS	TS-III-1 through TS-III-3
IV	QUALITY CONTROL	TS-IV-1
V	TEMPORARY FACILITIES	TS-V-1
VI	CONNECTION OF EXISTING WATER LINES	TS-VI-1 through TS-VI-2
VII	WATER LINES AND FITTINGS	TS- VII -1 through TS- VII -9
VIII	GATE VALVES	TS- VIII -1 through TS- VIII -2
IX	FIRE HYDRANTS AND BLOW-OFF VALVES	TS- IX -1 through TS- IX -2
X	BORE AND/OR ENCASE	TS-X-1 through TS-X-2
XI	MASTER METER STATION	TS- XI -1 through TS- XI -2
XII	WATER SERVICE CONNECTIONS	TS- XII -1 through TS- XII -2

SECTION I

TECHNICAL SPECIFICATIONS

SPECIAL PROVISIONS

1.1 SCOPE

This specification sets forth OWNER'S special project requirements which are UNIQUE to this project. All requirements of this section shall be considered as integral parts of the successful completion of the Project. All items discussed herein are considered incidental to the overall accomplishment of the Project and no separate payment shall be made for these items.

1.2 CONFLICTING ELEMENTS

In the event of a conflict between the elements of the Contract Documents, the MORE STRINGENT REQUIREMENT ON THE CONTRACTOR SHALL GOVERN.

1.3 COMMUNICATIONS

1.3.1 The CONTRACTOR shall coordinate all work through the ENGINEER.

1.3.2 The CONTRACTOR shall notify the OWNER and ENGINEER at least 10 calendar days prior to any construction activity at the site.

1.4 WORKING HOURS

Working hours shall be defined by KYTC.

- THE END -

SECTION II

TECHNICAL SPECIFICATIONS

GENERAL PROVISIONS

2.1 SCOPE

This section of the technical specifications is prepared to establish general requirements applicable to the entire Project. All items discussed herein are considered incidental to the overall accomplishment of the Project and no separate payment shall be made for these items.

2.2 IDENTIFICATION OF PARTIES

OWNER - **Salyersville Water Works**. The OWNER owns and is responsible for the completed water facilities.

ENGINEER - Registered professional engineer designated by OWNER to provide design, construction inspection, and certification services.

CONTRACTOR- The OWNER approved contractor is responsible under contract to KYTC to furnish labor, equipment, etc. to complete the work specified herein.

KYTC- Entity regulating the roadway project and funding the Utility Relocation.

2.3 RECORD DRAWINGS

The CONTRACTOR shall furnish record drawings in accordance with the requirements of the 'Submittals' section of these specifications.

2.4 EXISTING UTILITIES AND UNDERGROUND FACILITIES

Attention is called to the presence of existing utilities and underground facilities. The CONTRACTOR is solely responsible to accurately locate, and avoid damage to, all existing utilities and underground facilities.

2.5 CONSTRUCTION PHOTOGRAPHS

2.5.1 The term "photograph" as used herein refers to a photographic view, including similar exposures taken to assure the usefulness of the photographic record. All photographs shall be taken in color, not black and white.

2.5.2 The CONTRACTOR shall photograph the project limits prior to construction. The same views shall be re-photographed upon completion of all construction activities. In lieu of photography, CONTRACTOR may opt to video the project limits. The CONTRACTOR shall furnish the ENGINEER two copies of the video cassettes for a completeness review. NO WORK CAN BE PERFORMED UNTIL THE ENGINEER HAS BEEN FURNISHED THE PRE-CONSTRUCTION PHOTOGRAPHS AND/OR VIDEOS.

2.6 TESTING

The cost of all testing shall be borne by the CONTRACTOR unless directed otherwise.

2.7 INSTALLATION REQUIREMENTS

Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as suggested by the respective manufacturers, unless otherwise specified herein.

2.8 PROOF OF COMPLIANCE

See Quality Control - Section IV

2.9 REPAIR OF DAMAGE

Any damage done to structures, fills, roadways, or other areas shall be repaired at the CONTRACTOR'S expense before final payment is made.

2.10 PROJECT LIMTS

The CONTRACTOR shall be responsible for satisfying himself as to the construction limits for the project. The CONTRACTOR shall not establish work, storage, or staging areas outside the project limits, unless otherwise directed or approved by the ENGINEER.

- THE END -

SECTION III

TECHNICAL SPECIFICATIONS

SUBMITTALS

3.1 SCOPE

This specification sets forth the procedure to be employed in submitting and processing all CONTRACTOR submittals.

3.2 SHOP DRAWINGS

3.2.1 The CONTRACTOR shall submit for the review of the ENGINEER Shop Drawings for all fabricated work and for all manufactured items required to be furnished in the Contract in accordance with the General Conditions and as specified herein. Shop Drawings shall be submitted in sufficient time to allow at least twenty-one (21) calendar days after receipt of the Shop Drawings from the CONTRACTOR for checking and processing by the ENGINEER.

3.2.2 ENGINEER's review of the CONTRACTOR's drawings shall be considered as a gratuitous service, given as assistance to the CONTRACTOR in interpreting the requirements of the Contract, and in no way shall it relieve the CONTRACTOR of any of his responsibilities under the Contract. Any fabrication, erection, setting or other Work done in advance of the receipt of Shop Drawings returned by the ENGINEER and noted as "No Exception Taken" or "Make Corrections as Noted" shall be entirely at the CONTRACTOR's risk. The ENGINEER's review will be confined to general arrangement and compliance with the design concept and Specifications only, and will not be for the purpose of checking dimensions, weights, clearances, fitting, tolerances, interferences, coordination of trades, etc.

3.2.3 Unless otherwise stated elsewhere in the Contract Drawings, a total of six 6) copies of all reviewed Shop Drawings shall be furnished to the ENGINEER for his use in accordance with the following sequence of operations:

A) Initially six copies and one (1) reproducible copy shall be submitted to the Engineer for review. The ENGINEER will return one (1) copy and the reproducible copy to the CONTRACTOR after review.

B) When Shop Drawings are returned for correction, they shall be immediately corrected and resubmitted for review as described above, and such procedures will not be considered as grounds for delay in completing the Work.

C) Shop Drawings submitted by subcontractors shall be sent directly to the CONTRACTOR for preliminary checking. The CONTRACTOR shall be responsible for their submission to the ENGINEER at the proper time so as to prevent delays in delivery of materials.

D) The CONTRACTOR shall thoroughly check all subcontractor’s Shop Drawings as regards to measurements, sizes of members, materials and details to satisfy himself that they conform to the intent of the Specifications. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors by the CONTRACTOR for correction before submitting them to the ENGINEER. Before submission, the CONTRACTOR shall mark (stamp) the drawings as being checked and approved by him, dated and signed. The CONTRACTOR's approval (stamp) shall constitute a representation that all quantities, dimensions, field construction

criteria, materials, catalog numbers, performance criteria and similar data have been verified and that, in his opinion, the submittal fully meets the requirements of the Contract Documents and the scope of work involved. Shop Drawings that are not stamped will not be reviewed.

E) All details on Shop Drawings submitted for review shall clearly show the relation of the various parts and where the Work depends upon field measurements, such measurements shall be obtained by the CONTRACTOR and noted on the Shop Drawings before being submitted to the ENGINEER for review.

F) All submissions shall be properly referenced to indicate clearly the specification section, location, service and function of each particular item. All submissions for one item or group of related items shall be complete. The ENGINEER reserves the right to reject manufacturer's publications in the form of catalogues, pamphlets, or other data sheets when they are submitted in lieu of prepared Shop Drawings. Such submissions shall specifically indicate the item for which approval is requested. Identification of items shall be made in ink, and submissions showing only general information are not acceptable.

G) If the Shop Drawings contain any departures from the Contract requirements, specific mention thereof shall be made in the CONTRACTOR's letter of transmittal. Where such departures require revisions to layouts or structural changes to the Work, the CONTRACTOR shall, at his own expense, prepare and submit for approval revised layout and structural drawings. Such drawings shall be of the size approved by the ENGINEER.

H) All shop drawings shall be in English.

3.3 RECORD DRAWINGS

3.3.1 The Record Drawings shall consist of the Contract Drawings (3 mil mylar, updated to 'As Built' conditions) and the approved Shop Drawings in reproducible form (3 mil mylar) and shall be submitted to the ENGINEER at any time upon request during construction, but no later than the Final Inspection.

3.3.2 Contract Drawings shall be legibly marked to record actual construction including:

A) All deviations in location or elevation of any underground installation from that shown on the Contract Drawings.

B) Any significant changes in above ground installation from approved Shop Drawings or Contract Drawings.

C) No such deviations from the Contract Drawings or approved Shop Drawings shall be made without approval by the ENGINEER.

3.3.3 Specifications and addenda shall be legibly marked up to record:

A) Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.

B) Changes made by Change Order or Field Order.

C) Other matters not originally specified.

3.3.4 Shop Drawings shall be legibly annotated to record changes made after review.

3.3.5 Reproducible Record Drawings shall be submitted in accordance with the General Conditions, Supplementary Conditions, and General Requirements.

- THE END -

SECTION IV

TECHNICAL SPECIFICATIONS

QUALITY CONTROL

4.1 CODES, STANDARDS AND INDUSTRY SPECIFICATIONS

A) Material or operations specified by reference to published specifications of a manufacturer, testing agency, society, association or other published standards shall comply with requirements in latest revisions thereof and amendments or supplements thereto in effect on date of Advertisement for Bidders.

B) Discrepancies between referenced codes, standards, specifications and Contract Documents shall be governed by the latter unless written interpretation is obtained from ENGINEER.

C) Material or work specified by reference to conform to a standard, code, law, or regulation shall be governed by Contract Document when they exceed requirements of such references; referenced standards shall govern when they exceed Contract Documents.

D) Proof of Compliance:

Whenever Contract Documents require that a product be in accordance with Federal Specification, ASTM designation, ANSI specification, or other association standard, at ENGINEER'S request, CONTRACTOR shall present an affidavit from manufacturer certifying that product complies therewith. Where requested or specified, submit supporting test data to substantiate.

4.2 MANUFACTURER'S DIRECTIONS

Utilize manufactured articles, materials and equipment as directed by manufacturers unless herein specified to contrary. Discrepancy between an installation required by Contract Documents and manufacturer's instructions and recommendations shall be resolved by ENGINEER before work may proceed. In all cases, the more stringent requirements shall govern.

4.3 TESTING

A) All testing (when required) will be in accordance with the pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

B) The OWNER will select the testing laboratories.

C) The CONTRACTOR will bear the cost of all testing unless directed otherwise.

- THE END -

SECTION V

TECHNICAL SPECIFICATIONS

TEMPORARY FACILITIES

5.1 MATERIAL STORAGE

All CONTRACTORS must make arrangements for his/her staging areas and areas of material storage.

5.2 SANITARY FACILITIES

ALL CONTRACTORS shall provide and maintain all necessary sanitary facilities at the site, in accordance with all applicable regulations, and shall properly remove same at completion of the project.

5.3 UTILITIES

The CONTRACTOR is responsible for obtaining any temporary utility services required for construction, ie: electric.

- THE END -

SECTION VI

TECHNICAL SPECIFICATIONS

CONNECTIONS OF EXISTING WATER LINES

6.1 SCOPE

This work shall consist of furnishing and installing all necessary materials to connect existing water mains to new water mains. The connections will be both "cold" (valve off existing service) and "hot" (maintain existing service). In general, it is expected that most connections will be cold as the objective is to leave a good system in good working order with a minimum of "saddles".

Connection of new water mains to existing water lines that are properly stubbed for connection will **NOT** be considered for payment under this section.

6.2 SUBMITTALS

6.2.1 Submit five copies of documentation substantiating manufacturer's compliance with these specifications.

6.3 MATERIALS

6.3.1 Tapping Sleeves: The tapping sleeve shall be of full circle clamp type construction of the appropriate diameter and approved by the manufacturer for use with the existing pipe encountered. The tapping branch of the sleeve shall be mechanical joint. The CONTRACTOR shall verify that the rated pressure class of the tapping sleeve exceeds the working pressure of the water line. Valves used in tapping operations shall be as specified in the valve section of these specifications except that the seat rings shall be of large diameter to permit entry of the tapping machine cutters.

6.3.2 Bends and Fittings: Bends and fittings shall be ductile iron, mechanical joint conforming to the requirements of Section IX of these specifications.

6.4 INSTALLATION

Installation shall be made as directed in the Design Drawings or as indicated in the manufacturer's literature. The CONTRACTOR shall make every possible effort to minimize any interruption in water service for existing customers. The CONTRACTOR must satisfy the following conditions prior to proceeding with the connection:

a. The ENGINEER shall have accepted the new pipe line as in-place, suitably pressure tested, suitably disinfected, and ready for service.

b. All water outages must be approved by the OWNER. The CONTRACTOR shall have provided both the OWNER and the ENGINEER at least 72 hours advance written notice of the scheduled date for the water outage and connection. This notice should advise the OWNER to schedule personnel to terminate service in the affected pipe reach and to notify customers of the pending outage.

c. The CONTRACTOR shall have all necessary bends, fittings, glands, adapters, etc. on-site on the date notice of the impending connections is forwarded to the ENGINEER.

d. Connections to existing water lines may only be made on Monday, Tuesday, and Wednesday. No connections to existing water lines shall be scheduled for Thursday, Friday, Saturday, or Sunday.

All pipe bends and fittings shall be restrained using a steel tiebolt joint restraint system (Star SuperStar system, or equal). The number of restraints employed per mechanical joint shall be based on the manufacturer’s load tables for the ambient system pressure. Installation shall be made as directed in the Design Drawings or as indicated in manufacturer's literature.

- THE END -

SECTION VII

TECHNICAL SPECIFICATIONS

WATER LINES AND FITTINGS

7.1 SCOPE

This work shall consist of furnishing, installing, testing, and disinfecting potable water line pipes of various diameters.

7.1.1. Quality Assurance/Submittals

7.1.1.1 Submit five copies of documentation to substantiate pipe material's compliance with these specifications.

7.1.1.2 Submit five copies of CONTRACTOR'S Bedding and Backfilling Plan. At a minimum the plan shall:

a. Identify/acknowledge the segments of pipe line to be backfilled using "open", "gravel", and "paved" criteria,

b. Include a representative Proctor Curve for the backfill material for all significant sections of pipe line to be backfilled using "paved" criteria (curve to be prepared and sealed by a geotechnical engineer registered in the State of Kentucky - curve not required if CONTRACTOR backfills entire trench with fine crushed stone),

c. Include quarry's material certification for all aggregates utilized for bedding, haunching, and initial protective backfill, and

d. Include name and qualifications of CONTRACTOR'S nuclear density technician (technician must be a full time employee of CONTRACTOR, spot checks by a sub-contracting testing firm are not acceptable).

7.1.1.3 Submit five copies of each pressure test performed within 48 hours of test completion. Documentation to include quantity of water used and pressure charts from recording pressure gage.

7.1.1.4 Submit five copies of documentation for each disinfection of each pipe reach within 7 days of collection of samples. Documentation to include form of chlorine applied, method of application, quantity of make-up water used, quantity of residual chlorine concentration one hour after dosing, residual chlorine concentration 24 hours after dosing, point of disposal of waters of chlorination, method of de-chlorination, quantity of flushing water supplied, and results of bacteriological examination of water samples.

7.2 MATERIALS

7.2.1 General: The contractor shall use materials that are compatible with the existing system and conform with the plans and specifications.

7.2.2 Ductile Iron Pipe, Fittings and Joints: Ductile iron pipe shall conform to the latest AWWA Specifications C151 (ANSI A21-51) with standard thickness as designated in AWWA C150. Thickness class shall be 350 unless noted otherwise on the plans by the ENGINEER.

The interior of the pipe shall be cement-mortar lined with bituminous seal coat in accordance with AWWA C104 (ANSI A21.4). Thickness of the lining shall be as set forth in Sec. 4-10-1 of the aforementioned specifications unless otherwise directed by the OWNER. The exterior of all pipe, unless otherwise specified, shall receive either a coal tar or asphalt base coating a minimum of one mil thick.

Where ductile iron pipe is to be installed in corrosive soil conditions, the pipe shall be protected by an eight mil thick polyethylene encasement meeting the requirements of ANSI A21.5. Such corrosive soils include but are not limited to salt marshes, saturated alkaline soils, cinder fills, areas of decaying vegetation, and waste dumps.

Bends and fittings shall be Mechanical Joint Compact Ductile Iron fittings, conforming to AWWA Specifications C153 for short body iron fittings. Fittings shall be tar-coated outside and shall receive the standard cement lining with bituminous seal coat on the inside as specified for the ductile iron pipe.

Joints shall be of the push-on (AWWA C111), mechanical joint (AWWA C111), restrained mechanical joint, or ball and socket type as called for in the Plans. Bells for push-on type joints shall have an annular recess in the pipe socket to accommodate a single rubber gasket. Plain ends shall be suitably beveled to permit easy entry into the bell. The gasket is locked in place against displacement as the joint is assembled.

Mechanical joints shall be bolted and of the stuffing box type and shall consist of a bell with exterior flange and interior recess for the sealing gasket, a pipe or fitting plain end, a sealing gasket, a follower gland, tee-head bolts and hexagon nuts. A restrained mechanical joint is a mechanical joint with a ductile iron retainer gland equal to a Clow F-1058 retainer gland or the Megalug Series 1100 joint restraint.

Joints for all bends and fittings for buried service shall be restrained mechanical joint type only (AWWA C111). Flanged joint pipe shall be used in vaults, pits and above ground service installation. Flanged joint pipe may not be used for buried service.

7.2.3 Polyvinyl Chloride Pipe, Fittings and Joints: PVC water pipe shall conform, at a minimum, to ASTM Specifications D-2241, and shall be pressure class 250. The pipe furnished under ASTM A-2241 shall have a standard dimension ratio not to exceed SDR 17, and shall be rated to a working pressure of at least 250 psi at 73.4ºF.

Fittings shall be cast iron Mechanical Joint Class 250 conforming to AWWA Specifications C110 for short body cast iron fittings. Fittings shall be tar-coated outside, and shall receive the standard cement lining with bituminous seal coal on the inside as specified for the ductile iron pipe.

Joints shall be of the push-on type conforming to ASTM D3139 and F477 requirements for elastometric-gasket joints. All jointing material and lubricants shall be non-toxic.

(SEE SECTION 7.2.1 IN REGARDS TO PIPE MATERIAL)

7.2.4 Pipe Bedding: Pipe bedding stone shall be durable crushed limestone meeting the

requirements of Section 805 of the Current Edition of the Kentucky Department of Highways publication "Standard Specifications for Road and Bridge Construction."

7.2.5 Geotextile Type III: Geotextiles shall be woven or non-woven geotextile fabrics meeting the material and strength requirements for Type III fabrics as set forth in Section 215 of the Current Edition of the Kentucky Department of Highways publication "Standard Specifications for Road and Bridge Construction."

7.3 INSTALLATION

7.3.1 Trench Excavation: Unless specifically directed otherwise by the ENGINEER, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any crew and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew.

All backfilled ditches shall be maintained in such a manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and property owners abutting shall be taken into consideration. All public or private drives shall be taken into consideration and shall be promptly backfilled or bridged. Excavated materials shall be disposed of so as to cause the least interference.

Trenches in which pipes are to be laid shall be excavated in open cut to the depths shown on the approved plans. The minimum allowable trench width shall not be less than the outside diameter of the pipe plus eight inches. Where rock is encountered, it shall be removed to a minimum depth of six inches below the pipe bells.

Unless specifically authorized by the ENGINEER, trenches shall in no case be excavated or permitted to become wider than two feet six inches plus the nominal diameter of the pipe at the level of or below the top of the pipe. If the trench does become wider than two feet six inches at the level of or below the top of the pipe, special precautions may be necessary, such as providing compacted granular fill up to the top of the pipe or providing pipe with additional crushing strength as determined by the ENGINEER. This determination shall take into account the actual trench loads that may result and the strength of the pipe being used.

All excavated materials shall be placed a minimum of two feet back from the edge of the trench.

Where conditions exist that may be conducive to slides or cave-ins, proper and adequate sheeting, shoring and bracing shall be installed (See Section 9.3.1.2) to provide safe working conditions and to prevent damage of work.

Trenches shall be kept free of water during the laying of pipe and until the pipeline has been backfilled.

7.3.1.1 Obstructions: In cases where storm sewers, gas lines, water lines, telephone lines, and other utilities, or other underground structures are encountered, they shall not be displaced or molested unless necessary, in which case they shall be replaced in as good condition as found as quickly as possible.

The CONTRACTOR shall notify the utility companies 48 hours prior to excavation adjacent to their facilities.

7.3.1.2 Shoring, Sheeting and Bracing: Where unstable material is encountered or where

the depth of excavation in earth exceeds six feet, the sides of the trench or excavation shall be supported by substantial sheeting, bracing and shoring, or the sides sloped to the angle of repose. Sloping the sides of the ditch to the angle of repose will not be permitted in streets, roads, narrow rights-of-way or other constructed areas unless otherwise specified. The design and installation of all sheetings, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained under construction conditions. Adequate and proper shoring of all excavations shall be the entire responsibility of the CONTRACTOR; however, the ENGINEER may require the submission of shoring plans (accompanied by the supporting computations) for review prior to the CONTRACTOR undertaking any portion of the work.

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

Solid sheeting will be required for wet or unstable material. It shall consist of continuous vertical sheet piling of timber or steel with suitable walls and braces.

Care shall be taken to avoid excessive backfill loads on the completed pipelines, and the requirements that the width of the ditch at the level of the crown of the pipe be not more than two feet six inches plus the nominal diameters of the pipe shall, as set out in Section 9.3 hereinbefore, be strictly observed.

Trench sheeting shall not be removed until sufficient backfill has been placed to protect the pipe.

All sheeting, planking, timbering, bracing and bridging shall be placed, renewed and maintained as long as necessary.

7.3.1.3 Blasting: Blasting operations on this project are prohibited.

7.3.2 Pipe Bedding: In all cases the foundation for pipes shall be prepared so that the entire load of the backfill on top of the pipe will be carried on the barrel of the pipe and insofar as possible where bell and spigot pipe are involved so that none of the load will be carried on the bells.

Where undercutting and granular bedding are involved, the depth at the bottom of the bells of the pipe will be at least four inches above the bottom of the trench as excavated.

Supporting of pipe shall be as set out hereinbefore, and in no case shall the supporting of pipe on blocks be permitted. The Design Drawings present typical approved bedding methods.

7.3.2.1 Earth Foundation: All pipe shall be laid on a six inch bed of granular material to provide continuous support for the lower section of the pipe. Granular bedding shall be #9 crushed stone. Granular bedding shall be mechanically compacted prior to pipe placement.

7.3.2.2 Rock Foundation: If the trench bottom is in rock the excavation shall be undercut to a minimum depth of six inches below the bottom of the pipe. The pipe shall be laid on a bed of granular material to provide continuous support for the lower section of the pipe. Granular bedding shall be #9 crushed stone. Granular bedding shall be mechanically

compacted prior to pipe placement.

7.3.2.3 Special Bedding: In wet, yielding mucky locations where pipe is in danger of sinking below grade or floating out of line or grade, or where backfill materials are of such a fluid nature that such movements of the pipe might take place during the placing of the backfill, the ENGINEER may order “Special Pipe Bedding.” When the ENGINEER orders “Special Pipe Bedding” (in writing), the CONTRACTOR shall:

a. overexcavate the mucky subgrade to the depth directed,

b. install a Type III geotextile as illustrated in the detail drawings,

c. backfill the geotextile with bedding stone, and

d. overlap the geotextile envelope in accordance with the detail drawings.

It is to be expressly understood that “Special Pipe Bedding” may only be employed upon written order of the ENGINEER.

7.3.3 Laying Pipe: All pipe shall be laid with ends abutting and true to line and grade as shown on the plans. Supporting of pipe shall be as specified under "Pipe Bedding" hereinbefore and in no case will the supporting of pipes on blocks be permitted.

Fittings for the water mains shall be provided and placed as and where directed by the ENGINEER or shown on the plans. All open ends of pipes and of branches shall be sealed or plugged.

Before each piece of pipe is lowered into the trench, it shall be thoroughly inspected to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. Any defective pipe or fitting discovered after the pipe is laid shall be removed and replaced with a satisfactory pipe or fitting. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe.

Granular bedding material as specified hereinbefore, shall be used to correct irregularities in the earth trench subgrade.

The interior of the pipe, as the work progresses, shall be clean. When laying of any pipe is stopped for any reason, the exposed end of such pipe shall be closed with a watertight plug fitted into the pipe bell, so as to exclude earth or other material.

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

7.3.4 Jointing Pipe: The pipe joints described shall be installed in accordance with the manufacturer's recommendations.

7.3.5 Backfilling Pipeline Trenches: All backfilling shall be accomplished in accordance with the details of this section and the project plans. Any variances must be approved in writing by the ENGINEER.

Before final acceptance, the CONTRACTOR will be required to level off all trenches or to bring the trench up to the level of the surrounding terrain. The CONTRACTOR shall also remove from roadways, rights-of-way and/or private property all excess earth or other materials resulting from construction.

When the pipe trench crosses a street or roadway, the CONTRACTOR shall be responsible for maintaining the trench surface in a level condition at proper pavement grade at all times.

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

In all cases the pipe bedding and haunching shall be #9 crushed stone. The pipe bedding shall be mechanically tamped prior to placement of the pipe. The pipe bedding shall be thoroughly compacted taking care not to damage the pipe.

7.3.5.1 Method "A" Backfilling in Open Terrain: Backfilling of pipeline trenches in open terrain shall be accomplished in the following manner:

In all cases the lower portion of the trench, from the pipe bedding to the springline (centerline) of the pipe shall be backfilled with #9 crushed stone. This stone shall be carefully and thoroughly compacted.

The portion of the trench from the springline of the pipe to a point 6 inches above the pipe shall be backfilled in six inch lifts with #9 crushed stone. Each lift shall be hand tamped taking care not to damage the pipe.

The portion of the trench from a point 6 inches above the top of the pipe to the ground surface shall be backfilled in six (6) inch lifts with material which is free from ¾” or larger rock. Incorporation of rock having a volume exceeding one-half cubic foot is prohibited. The backfill shall be mechanically tamped in six inch lifts to 95 percent of standard Proctor Density (ASTM D-698).

7.3.5.2 Method "B" Backfilling Under Graveled Areas: Backfilling of pipeline trenches under existing and proposed graveled parking lots, driveways, etc. shall be accomplished in the following manner:

The pipe bedding and haunching shall be placed and compacted as described in Paragraph 7.3.5.1. The lower portion of the trench from the pipe springline to a point 6 inches above the pipe, shall be backfilled and lightly tamped with #9 crushed stone as described in Paragraph 7.3.5.1. The portion of the trench from a point 6 inches above the pipe to a point 6 inches below the ground surface shall then be backfilled with available material in six (6) inch lifts. Each lift shall be compacted to 100 percent of Standard Proctor Density (ASTM D-698) at a moisture content within two percent of optimum. The final 6 inches of the trench backfill shall be thoroughly compacted dense graded aggregate.

7.3.5.3 Method "C" Backfilling Under Paved Areas: Backfilling of pipeline trenches under existing and proposed sidewalks, streets, proposed streets, and driveways shall be accomplished in the following manner:

The pipe bedding and haunching shall be placed and compacted as described in Paragraph 7.3.5.1. The lower portion of the trench from the pipe springline to a point 6 inches above the pipe, shall be backfilled and lightly tamped with #9 crushed stone as described in Paragraph 7.3.5.1. The portion of the trench from a point 6 inches above the pipe to a point 6 inches below the ground surface shall then be backfilled with #9 crushed stone in six inch (6) lifts. Each lift shall be compacted to 100 percent of Standard Proctor Density (ASTM D-698) at a moisture content within two percent of optimum.

The upper portion of the trench from a point six inches below the bottom of the existing or proposed pavement or concrete sub-slab may be backfilled with a base course of dense graded aggregate which shall be maintained flush with the pavement surface for at least 30 days prior to placement of the final surface. The excess dense graded aggregate shall be removed concurrently with the placement of the final pavement surface.

7.3.5.4 Settlement of Trenches: Wherever pipe lines are in, or across, driveways and streets, the CONTRACTOR shall be responsible for any trench settlement which occurs within these rights-of-way within one year from the time of final acceptance of the work. If paving shall require replacement because of trench settlement within this time, it shall be replaced by the CONTRACTOR. Repair of settlement damage shall meet the approval of the appropriate governing body.

7.3.5.5 Pavement Replacement: Pavement replacement shall be performed in accordance with the applicable section of these Technical Specifications.

7.4 TESTING OF LINES

On all projects involving the installation of water pipeline, the finished work shall comply with the provisions listed below, or similar requirements which will ensure equal or better results:

a) All water mains shall be given a hydrostatic test. Test pressure shall be a minimum of 150 psi, 50 psi above the standard operating pressure (to be supplied by the ENGINEER), or 67% of the pipe rating, whichever is greater. Test pressure shall not vary by more than ±10 psi for the duration of the test. Leakage shall not be greater than that determined by the following formula: 1 gallon per inch of pipe diameter per mile per 24 hours.

b) All test waters shall be potable water obtained from the “Public Utility” chosen by the OWNER. Withdrawals of water from the “Public Utility” system must be both authorized and metered. The “Public Utility” will bill the CONTRACTOR for all waters used in accordance with its current leak adjustment rate.

c) Where practicable, pipelines shall be tested between line valves or plugs in

lengths of not more one mile. The OWNER may allow testing in longer sections on a case by case basis.

d) Duration of test shall be no less than two (2) hours.

e) Where leaks are evident on the surface where joints are covered, the joints shall be recaulked, repoured, bolts retightened or relaid, and leakage minimized regardless of total leakage as shown by test.

f) All pipe fittings and other materials found to be defective under test shall be removed, repaired or replaced at the discretion of the OWNER.

g) Lines which fail to meet test requirements shall be repaired and retested as necessary until test requirements are complied with.

h) The CONTRACTOR shall furnish a recording pressure gauge for the pressure and leakage test. The gauge shall be a Bristol Babcock Model No. 5311110A-143-002-310-610-000. Charts shall become the property of the OWNER at conclusion of test.

7.5 DISINFECTION OF WATER LINES

The new potable water lines shall not be placed in service, either temporarily or permanently, until they have been thoroughly disinfected by the Continuous Feed Method as set forth in the latest edition of AWWA Specification C-651. Specification C-651 is reproduced in the Reference Section of this Contract Document in its entirety.

The following requirements apply to the disinfection activity:

a) All flushing and test waters shall be potable water obtained from the "Public Utility" that is chosen by the OWNER. Withdrawals of water from the "Public Utility" system must be both authorized and metered. The "Public Utility" will bill the CONTRACTOR for all waters used in accordance with its current leak adjustment rate.

b) The Tablet and Slug Method of disinfection may not be used.

c) The water lines shall be flushed prior to disinfection. Flush waters may be discharged to the nearest storm drain or surface water way in a controlled manner which will not result in environmental damage.

d) The CONTRACTOR shall have a chlorine test kit in his possession for purposes of monitoring the disinfection dose.

e) The free chlorine residual immediately after chlorine dosing shall be 50 mg/l. The free chlorine residual 24 hours after chlorine dosing shall not be less than 25 mg/l.

f) The heavily chlorinated waters of disinfection shall be neutralized with an approved neutralizing agent prior to discharge.

g) After disinfection and flushing, and before the water main is placed in service, bacteriological samples shall be collected and analyzed in accordance with the requirements

of the Kentucky Department for Natural Resources and Environmental Protection. The new line may not be connected to the system until the samples have been approved.

-- THE END --

SECTION VIII

TECHNICAL SPECIFICATIONS

GATE VALVES

8.1 SCOPE

This work shall consist of furnishing and installing gate valves of various diameters for potable water lines.

8.1.A QUALITY ASSURANCE/SUBMITTALS

8.1.A.1 Submit five copies of manufacturer's certification of compliance with applicable AWWA specifications. Certificate to be signed by corporate officer having authority to legally bind the company.

8.2 MATERIALS

8.2.1 Gate Valves: All gate valves shall be iron body, nonrising stem, fully bronze mounted (Mueller or approved equal). VALVES INSTALLED IN PVC WATER LINES SHALL BE RATED FOR WORKING WATER PRESSURES OF 250 PSI. VALVES INSTALLED IN DUCTILE IRON WATER LINES SHALL BE RATED FOR WORKING WATER PRESSURES OF 250 PSI UNLESS OTHERWISE NOTED ON PLANS. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship.

Gate valves larger than 12" shall be of resilient, parallel seat construction conforming to AWWA C500-80. Gate valves 12" and smaller shall be of resilient seat construction conforming to AWWA C509-80.

All gate valves for "below ground" service shall be furnished with mechanical joint end connections. Gate valves for "above ground" (or pit) installations shall be furnished with flanged end connections.

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

Each gate valve for "below ground" service shall be installed in a vertical position with a valve box, as shown in the Design Drawings. Gate valves set with boxes shall be provided with a two inch square operating nut and shall be opened by turning to the left (counterclockwise). Each gate valve for "above ground" (or pit) installations shall be furnished with a hand wheel operator.

8.2.2 Valve Box and Cover: The valve box and cover shall be of cast iron construction and shall be engraved with the word “water”.

8.2.3 Valve Marker: Each valve assembly shall be delineated by a valve marker as detailed in the Drawings. The marker shall consist of a 3” yellow PE pipe embedded vertically adjacent to the valve. The marker shall include a weatherproof label identifying the valve owner and provide an emergency phone number for the owner.

8.2.4 Plug: If the gate valve is to be installed at the end of a line the CONTRACTOR shall provide one full joint of ductile iron pipe with cap beyond the valve.

8.3 INSTALLATION

Trenching, bedding, and backfilling requirements for gate valves shall conform to the installation requirements for water lines and fittings. The base of the valve shall be anchored in concrete as shown in the Design Drawings. The valve box shall be installed vertically, centered over the stem of the operating nut. The valve box base shall be placed at least two inches above the flanged joint of the valve cover. The top of the operating nut should be no higher than the hub or upper part of the valve box base where it connects to the center section.

-- THE END --

SECTION IX

TECHNICAL SPECIFICATIONS

FLUSH HYDRANTS AND BLOW-OFF VALVES

9.1 SCOPE

Provide all labor, tools, materials, and equipment to furnish and install new flush hydrants and blow-off valves as shown on the plans.

9.2 QUALITY ASSURANCE/SUBMITTALS

9.2.1 All hydrants shall be approved by the Salyersville Fire Department. The Salyersville Fire Department prefers Mueller A423 hydrants to minimize handling of spare parts. Equal hydrants will be considered/evaluated by the Fire Department (especially if repair parts are interchangeable).

9.3 MATERIALS

9.3.1 Hydrant: Hydrants shall conform in all respects to the latest edition of AWWA C502. Hydrant barrel shall have a safety breakage feature above the ground line. All hydrants shall have 6 inch mechanical joint shoe connections, two 2-1/2 inch discharge nozzles and one 4-1/2 inch pumper nozzle with caps fitted with cap chains. Connection threads and operating nuts shall conform to National Standard specifications as adopted by National Board of Fire Underwriters.

Operating nut shall be 1-1/2 inches, and shall open left (counterclockwise). Main valve shall have 5-1/4 inch full opening and be of the compression type opening against water pressure so that the valve remains closed should the barrel be broken off.

Hydrant shall be fully bronze mounted. Main valve shall have a threaded bronze seat ring assembly of such design that it is easily removable by unscrewing from a threaded bronze drain ring. Bronze drain ring shall have multiple ports providing positive automatic drainage as the main valve is opened or closed.

Drainage waterways shall be completely bronze to prevent rust or corrosion.

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

Hydrants shall be designed for 300 psi working pressure and shop tested to 350 psi pressure with main valve both opened and closed. Under test the valve shall not leak, the automatic drains shall function and there shall be no leakage into the bonnet.

9.3.2 Blow-off: The blow off hydrant shall be equal to an Eclipse No. 2 post hydrant. A 4” resilient wedge gate valve conforming to the requirements of the valving section of these Specifications shall be installed upstream of each post hydrant as illustrated in the detail drawings.

9.4 INSTALLATION

9.4.1 Hydrants shall have the interior cleaned of all foreign matter prior to installation.

9.4.2 Hydrants shall be set plumb with not less than three cubic feet of crushed stone and backed with at least one cubic foot of Class "C" concrete or equivalent. Additionally, ¾” diameter stainless bridle rod collars or megalug restrained joint gland shall be employed for restraint. The hydrant drain holes shall be thoroughly inspected prior to placement of the crushed stone.

9.4.3 A gate valve must be installed in the service lateral of all hydrants and blowoffs.

9.4.4 The hydrants shall be installed with the pumper nozzle facing the main route of access. The vertical distance from the pumper nozzle to the ground shall be 18 inches.

9.4.5 All hydrant parts shall be inspected in open and closed position to verify working conditions prior to backfilling.

9.4.6 Hydrants and blow-offs shall not be set in the flow line of a ditch or drainage way.

9.4.7 Blow-offs shall be installed in accordance with the details presented in the Design Drawings.

- THE END -

SECTION X

TECHNICAL SPECIFICATIONS

BORE AND/OR ENCASE

10.1 SCOPE

This work shall consist of furnishing and installing steel encasement pipes for potable water and sanitary sewer lines by boring, jacking, or open cut methods.

10.1.A Quality Assurance/Submittals

10.1.A.1 Submit five copies of certified mill test report on steel encasement pipe.

10.2 GENERAL

The CONTRACTOR shall comply with the previously obtained permits and approvals for completion of this work. Copies of the permits and/or approvals are reproduced in the Permits section of this document.

10.3 MATERIALS

10.3.1 Encasement Pipe: Encasement pipe shall be steel, plain end, uncoated, unwrapped, have continuously welded joints and have a yield point strength of 35,000 psi and conform to AWWA Specifications C200. The minimum wall thickness of the pipe shall be as indicated in the Detail Drawings.

In general, the inside diameter of the encasement pipe shall be 4 inches greater than the largest outside diameter of the carrier pipe. The Detail Drawings provide a table from which required encasement pipe diameters may be derived.

Field welding of encasement pipe shall be performed by a certified welder in accordance with the requirements of AWWA Specification C206-82.

10.3.2 Grout: Grout used to seal the annulus between the excavation and the encasement pipe shall be a 1 to 2 Portland Cement Grout meeting the requirements of Section 601 of the publication Standard Specifications for Road and Bridge Construction (1983 Edition, Kentucky Transportation Cabinet, Department of Highways.

10.3.3 Casing Skids: Casing skids shall be equal to stainless steel casing spacers. Spacer shall consist of a bolt on T-304 stainless steel shell with runners of ultra high molecular weight polymer.

10.4 INSTALLATION - BORE AND JACK

No distinction shall be made between boring through earth or boring through rock. The CONTRACTOR shall conduct his own investigation of subsurface conditions and shall base his bid on his own findings.

The jacking will be allowed in one direction only. The installation procedure must provide for the placement of the encasement pipe concurrently with the removal of the soil.

Grouting between the excavation and the encasement pipe will be required if ordered by the

ENGINEER or if, for any reason, the excavation exceeds one (1) inch larger than the outside diameter of the liner. Grout holes shall be provided in the tunnel lining with a spacing not to exceed four and one-half (4.5) feet measured longitudinally. The location of the holes shall be varied around the periphery of the encasement pipe to suit field conditions which will permit the proper grouting sequence to insure complete filling of void spaces outside the encasement pipe. The CONTRACTOR shall fill all the void space outside the encasement pipe with Portland Cement grout. The machine used for grouting shall permit the application of a pressure up to seventy-five (75) pounds per square inch in excess of any external water pressure. A gage shall be provided which will accurately indicate working pressure and this gage shall be carefully watched during grouting operations. The pressure shall at no time be allowed to exceed that considered safe or which would distort the encasement pipe. Grout pipes shall be one and one-half (1½) inches inside diameter.

The carrier pipe shall be installed after the encasement pipe is in place. The installation of the carrier pipe shall be in accordance with the manufacturer's specifications using casing skids as shown in the Detail Sheets of the Design Drawings. After the carrier pipe has been installed, inspected, and tested as specified, both ends of the encasement pipe shall be closed with a removable, water-tight "boot" in a manner acceptable to the OWNER.

10.5 INSTALLATION - OPEN CUT

Where the encasement pipe is placed in open cut, the encasement pipe trenching, bedding, laying, and backfilling shall conform to the requirements of the applicable sections of these Specifications. The carrier pipe shall be installed after the encasement pipe is in place. The installation of the carrier pipe shall be in accordance with the manufacturer's specification using casing skids as shown in the Detail Sheets of the Design Drawings. After the carrier pipe has been installed, inspected, and tested as specified, both ends of the cover pipe shall be closed with a removable, watertight "boot" in a manner acceptable to the OWNER.

- THE END -

SECTION XI

TECHNICAL SPECIFICATIONS

MASTER METER STATIONS

11.1 – GENERAL

11.1.1 Scope This work shall consist of furnishing and installing all materials and equipment necessary to place a master meter station in service. The work includes site preparation; excavation; installation of vault; furnishing and installing master meter, strainers and associated pipe and fittings as shown in the drawings; and backfilling and grading.

11.1.2 Quality Assurance / Submittals Submit five copies of itemized summary of source of manufacture of each item in the master meter station. Provide manufacturer's certification of compliance with specification for each item. Contractor shall be responsible for proper sizing of the concrete pit and shall submit shop drawings showing all proposed piping layout.

11.2 – PRODUCTS

11.2.1 Pre-Cast Concrete Pit: The valve pit shall consist of a pre-cast utility manhole as shown on the Drawings. The pre-cast pit shall be furnished with a removable aluminum access panel. Manhole steps shall be cast integrally with the pit to permit entry via the access door. The floor of the pit shall be sloped to a 12" square sump.

11.2.2 Pipe: Pipe three inches in diameter, and larger, shall be Class 350, flanged joint ductile iron pipe meeting the materials requirements of Section IX. Pipe less than 3" in diameter shall be SCH 40 steel or approved equal.

11.2.5 Meter: 4" (Mueller) Hersey-Meter with Hot Rod radio read.

11.3 – EXECUTION

11.3.1 Pre-Cast Pit: The excavation for the valve pit shall permit placement of the pit floor slab with a full horizontal bed. A 6" (loose depth) bed of crushed stone shall be provided to insure uniform foundation support.

Before backfilling is started, the excavated pit shall be cleared of all rubbish and debris and shall be de-watered. The backfill shall be free of frozen lumps, vegetation, and debris. Backfill material shall be placed in uniform horizontal layers not exceeding 12 inches in thickness by loose measurement. Each layer shall be compacted by means of an approved tamper. As a precaution against the development of unbalanced stress, the

backfill shall be compacted to the same elevation all the way around the excavation before the next layer may be placed.

The completed backfill surface shall be graded smooth and all areas disturbed by the pit installation shall be seeded in accordance with the applicable sections herein.

11.3.2 Valves And Piping: The pipe shall be handled and joints connected per these specifications. Pipe shall be provided with appropriate supports.

All valves must be installed in an upright position, plumb and true.

END OF SECTION

SECTION XII

TECHNICAL SPECIFICATIONS

WATER SERVICE CONNECTIONS

12.1 SCOPE

This specification governs the provision of new water services.

12.2 GENERAL

The CONTRACTOR shall provide ½" through 2" water service connections in accordance with this specification.

12.3 QUALITY ASSURANCE/SUBMITTALS

12.3.1 Submit five copies of itemized summary of source of manufacture of each item in water service connection. Provide manufacturer's certification of compliance with specification for each item.

12.4 MATERIALS

12.4.1 Tapping Saddle: Tapping saddle shall be equal to Ford 202B, brass band type saddles threaded to receive the appropriate diameter AWWA corporation stop.

12.4.2 Corporation Stop: Corporation Stops shall provide for flared copper connections AWWA C800-84. The stop flared connections shall be appropriate for the service pipe diameter employed.

12.4.3 Meter Setter: The meter setter shall be equal to the Ford 70 Series coppersetter V27-7 with 7 inch rise. If a pressure reducing valve is specified, a tandem coppersetter shall be employed.

12.4.4 Meter Box and Lid: The meter box for coppersetters shall be 18" internal diameter High Density Polyethylene Pipe. The meter box and lid shall be equal to the Ford C32 cast iron lid. The meter box for tandem coppersetters shall be 20" internal diameter High Density Polyethylene Pipe. The meter box and lid shall be equal to the Ford C3 cast iron lid. If the meter is placed in a paved area the contractor shall supply a traffic rated meter box and lid.

12.4.5 Meter: The meters shall be Hersey-Meters type 400 Series IIS, Hersey-Meters 500 Series IIS, They shall be equipped with radio read, Hersey-Meters Hot Rod Units and shall be integrates into the Salyersville system.

12.4.6 Pressure Regulating Valve: The pressure reducing valve shall be ¾" or 1" regulator equal to Wilkins Model 600 L.U.S.C.

12.4.7 Curb Stop: Curb stops shall be equal to a Mueller 110, compression couplingboth ends. Curb stop shall be suitable for diameter of service pipe employed.

12.5 INSTALLATION

12.5.1 Taps: If required, the taps shall be made in accordance with the manufacturer's directions. Service line shall be protected by 6" of fine sand or gravel as indicated in the detail drawings.

12.5.2 Meter Setting: The meter settings shall be accomplished in a neat and workmanlike manner. The lid of the meter box shall be set:

1) flush with paved surfaces.

2) 0.5" above grade in improved lawns, and

3) 2" above grade in unimproved areas.

12.5.3 Meter Sets: The Contractor may install the meter as the meter sets are existing.

12.5.4 Pressure Regulatory Valve: All meter sets for the Project shall incorporate a tandem setter and a pressure regulating valve, at Owner's discretion.

-- THE END --

SEWER LINE RELOCATION PROJECT

SALYERSVILLE WATER WORKS
SALYERSVILLE, KY
MOUNTAIN PARKWAY (KY 9009)

Item No. 10-166.00
NHPP 0061 060
FD52 077 86966 03U

MAY 2016

7516.001 14-442

TECHNICAL SPECIFICATIONS

STATE OF KENTUCKY
R. DEREK MOTSCH
28439
LICENSED
PROFESSIONAL ENGINEER
5-27-16

PREPARED BY
SUMMIT ENGINEERING, INC.

TECHNICAL SPECIFICATIONS

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SECTION I

TECHNICAL SPECIFICATIONS

SPECIAL PROVISIONS

1.1 SCOPE

This specification sets forth OWNER'S special project requirements which are UNIQUE to this project. All requirements of this section shall be considered as integral parts of the successful completion of the Project. All items discussed herein are considered incidental to the overall accomplishment of the Project and no separate payment shall be made for these items.

1.1 EXISTING OPERATIONS / SEQUENCE OF WORK

1.1.1 The CONTRACTOR shall coordinate all work through the ENGINEER. The CONTRACTOR shall notify OWNER and ENGINEER at least fourteen calendar days in advance of any shutdown of any wastewater process necessary to perform the work required by the Contract. In no event, shall the CONTRACTOR cause a discharge of raw wastewater into the waters of the Commonwealth.

1.1.2 The CONTRACTOR shall notify the OWNER and ENGINEER at least 10 calendar days prior to any construction activity at the site.

1.2 WORKING HOURS

Working hours shall be as dictated by KYTC.

1.3 CONFLICTING ELEMENTS

In the event of a conflict between the elements of the Contract Documents, the MORE STRINGENT REQUIREMENT ON THE CONTRACTOR SHALL GOVERN.

-- THE END --

SECTION II

TECHNICAL SPECIFICATIONS

GENERAL PROVISIONS

2.1 SCOPE

This section of the technical specifications is prepared to establish general requirements applicable to the entire Contract. All items discussed herein are considered incidental to the overall accomplishment of the Contract and no separate payment shall be made for these items.

2.2 IDENTIFICATION OF PARTIES

OWNER -	**Salyersville Water Works**. The OWNER owns and is responsible for the completed water facilities.
ENGINEER -	Registered professional engineer designated by OWNER to provide design, construction inspection, and certification services.
CONTRACTOR-	The OWNER approved contractor is responsible under contract to KYTC to furnish labor, equipment, etc. to complete the work specified herein.
KYTC-	Entity regulating the roadway project and funding the Utility Relocation.

2.3 RECORD DRAWINGS

The CONTRACTOR shall furnish field marked up record drawings in accordance with the requirements of the 'Submittals' section of these specifications.

2.4 EXISTING UTILITIES AND UNDERGROUND FACILITIES

Attention is called to the presence of existing utilities and underground facilities. The CONTRACTOR is solely responsible to accurately locate, and avoid damage to, all existing utilities and underground facilities. See “Existing Utilities” Section herein.

2.5 STAKING AND MARKING

The ENGINEER will be responsible for providing the survey reference monuments and benchmarks. Construction stakeout and "as built" surveys shall be the responsibility of the CONTRACTOR.

2.6 CONSTRUCTION PHOTOGRAPHS

2.6.1 The term "photograph" as used herein refers to a photographic view, including similar exposures taken to assure the usefulness of the photographic record. All photographs shall

be taken in color, not black and white.

2.6.2 The CONTRACTOR shall digitally photograph the project limits prior to construction. The same views shall be re-photographed upon completion of all construction activities. In lieu of photography, CONTRACTOR may opt to video the project limits. The CONTRACTOR shall furnish the ENGINEER two copies of this video cassette for a completeness review. NO WORK CAN BE PERFORMED UNTIL THE ENGINEER HAS REVIEWED, AND ACCEPTED, THE PRE-CONSTRUCTION PHOTOGRAPHS AND/OR VIDEOS.

2.6.3 The CONTRACTOR shall have an average of 100 photographs per month made of the work during its progress and twenty (20) photographs of the completed facilities, in addition to those required above in paragraph 2.7.2.

2.6.4 All photographic work shall be done by a qualified, established photographer acceptable to the ENGINEER. A CD containing all construction photographs shall be provided to both the OWNER and ENGINEER upon project completion.

2.6.5 The photographer shall release all copyrights, or other restrictions, on the use of the photographic prints and/or film negatives and/or digital copies.

2.6.6 Each photograph shall have an identification label which provides:

1. Contractor's name
2. Short Description of View
3. Photo No. and Date Taken
4. Photographer's Firm Name

2.7 TESTING

The cost of all testing shall be borne by the CONTRACTOR unless directed otherwise. CONTRACTOR will not be paid for work performed each period until all necessary testing results have been provided to the ENGINEER in hard copy form.

2.8 INSTALLATION REQUIREMENTS

Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as suggested by the respective manufacturers, unless otherwise specified herein.

2.9 PROOF OF COMPLIANCE

See Quality Control - Section IV

2.10 REPAIR OF DAMAGE

Any damage done to structures, fills, roadways, or other areas shall be repaired at the CONTRACTOR'S expense before final payment is made.

Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing. All repairs or replacements of vegetation will be at the Contractor's expense before final payment is made.

2.11 PROJECT LIMITS

The CONTRACTOR shall be responsible for satisfying himself as to the construction limits for the project. The CONTRACTOR shall not establish work, storage, or staging areas outside the project limits, unless otherwise directed or approved by the ENGINEER.

-- THE END --

SECTION III

TECHNICAL SPECIFICATIONS

SUBMITTALS

3.1 SCOPE

This specification sets forth the procedure to be employed in submitting and processing all CONTRACTOR submittals.

3.2 SHOP DRAWINGS

3.2.1 The CONTRACTOR shall submit for the review of the ENGINEER Shop Drawings for all fabricated work and for all manufactured items required to be furnished in the Contract in accordance with the General Conditions and as specified herein. Shop Drawings shall be submitted in sufficient time to allow at least twenty-one (21) calendar days after receipt of the Shop Drawings from the CONTRACTOR for checking and processing by the ENGINEER.

3.2.2 ENGINEER's review of the CONTRACTOR's drawings shall be considered as a gratuitous service, given as assistance to the CONTRACTOR in interpreting the requirements of the Contract, and in no way shall it relieve the CONTRACTOR of any of his responsibilities under the Contract. Any fabrication, erection, setting or other Work done in advance of the receipt of Shop Drawings returned by the ENGINEER and noted as "Approved" or "Approved as Noted" shall be entirely at the CONTRACTOR's risk. The ENGINEER's review will be confined to general arrangement and compliance with the design concept and Specifications only, and will not be for the purpose of checking dimensions, weights, clearances, fitting, tolerances, interferences, coordination of trades, etc.

3.2.3 Unless otherwise stated elsewhere in the Contract Drawings, a total of six (6) copies of all reviewed Shop Drawings shall be furnished to the ENGINEER for his use in accordance with the following sequence of operations:

A) Initially six copies and one (1) reproducible copy shall be submitted to the Engineer for review. The ENGINEER will return one (1) copy and the reproducible copy to the CONTRACTOR after review.

B) When Shop Drawings are returned for correction, they shall be immediately corrected and resubmitted for review as described above, and such procedures will not be considered as grounds for delay in completing the Work.

C) Shop Drawings submitted by subcontractors shall be sent directly to the CONTRACTOR for preliminary checking. The CONTRACTOR shall be

responsible for their submission to the ENGINEER at the proper time so as to prevent delays in delivery of materials.

D) The CONTRACTOR shall thoroughly check all subcontractors Shop Drawings as regards to measurements, sizes of members, materials and details to satisfy himself that they conform to the intent of the Specifications. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors by the CONTRACTOR for correction before submitting them to the ENGINEER. Before submission, the CONTRACTOR shall mark (stamp) the drawings as being checked and approved by him, dated and signed. The CONTRACTOR's approval (stamp) shall constitute a representation that all quantities, dimensions, field construction criteria, materials, catalog numbers, performance criteria and similar data have been verified and that, in his opinion, the submittal fully meets the requirements of the Contract Documents and the scope of work involved. Shop Drawings that are not stamped will not be reviewed.

E) All details on Shop Drawings submitted for review shall clearly show the relation of the various parts and where the Work depends upon field measurements, such measurements shall be obtained by the CONTRACTOR and noted on the Shop Drawings before being submitted to the ENGINEER for review.

F) All submissions shall be properly referenced to indicate clearly the specification section, location, service and function of each particular item. All submissions for one item or group of related items shall be complete. The ENGINEER reserves the right to reject manufacturer's publications in the form of catalogues, pamphlets, or other data sheets when they are submitted in lieu of prepared Shop Drawings. Such submissions shall specifically indicate the item for which approval is requested. Identification of items shall be made in ink, and submissions showing only general information are not acceptable.

G) If the Shop Drawings contain any departures from the Contract requirements, specific mention thereof shall be made in the CONTRACTOR's letter of transmittal. Where such departures require revisions to layouts or structural changes to the Work, the CONTRACTOR shall, at his own expense, prepare and submit for approval revised layout and structural drawings. Such drawings shall be of the size approved by the ENGINEER.

H) All shop drawings shall be in English.

3.3 RECORD DRAWINGS

3.3.1 The Record Drawings shall consist of the Contract Drawings (updated to 'As Built' conditions) and the approved Shop Drawings in reproducible form and shall be submitted to the ENGINEER at any time upon request during construction, but no later than the Final Inspection.

3.3.2 Contract Drawings shall be legibly marked to record actual construction including:

A) All deviations in location or elevation of any underground installation from that shown on the Contract Drawings.

B) Any significant changes in above ground installation from approved Shop Drawings or Contract Drawings.

C) No such deviations from the Contract Drawings or approved Shop Drawings shall be made without approval by the ENGINEER.

3.3.3 Specifications and addenda shall be legibly marked up to record:

A) Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.

B) Changes made by Change Order or Field Order.

C) Other matters not originally specified.

3.3.4 Shop Drawings shall be legibly annotated to record changes made after review.

3.3.5 Reproducible Record Drawings shall be submitted in accordance with the General Conditions, Supplementary Conditions, and General Requirements.

-- THE END --

SECTION IV

TECHNICAL SPECIFICATIONS

QUALITY CONTROL

4.1 CODES, STANDARDS AND INDUSTRY SPECIFICATIONS

A) Material or operations specified by reference to published specifications of a manufacturer, testing agency, society, association or other published standards shall comply with requirements in latest revisions thereof and amendments or supplements thereto in effect on date of Advertisement for Bidders.

B) Discrepancies between referenced codes, standards, specifications and Contract Documents shall be governed by the latter unless written interpretation is obtained from ENGINEER.

C) Material or work specified by reference to conform to a standard, code, law, or regulation shall be governed by Contract Document when they exceed requirements of such references; referenced standards shall govern when they exceed Contract Documents.

D) Proof of Compliance:

Whenever Contract Documents require that a product be in accordance with Federal Specification, ASTM designation, ANSI specification, or other association standard, at ENGINEER'S request, CONTRACTOR shall present an affidavit from manufacturer certifying that product complies therewith. Where requested or specified, submit supporting test data to substantiate.

4.2 MANUFACTURER'S DIRECTIONS

Utilize manufactured articles, materials and equipment as directed by manufacturers unless herein specified to contrary. Discrepancy between an installation required by Contract Documents and manufacturer's instructions and recommendations shall be resolved by ENGINEER before work may proceed. In all cases, the more stringent requirements shall govern.

-- THE END --

SECTION V

TECHNICAL SPECIFICATIONS

TEMPORARY FACILITIES

5.1 MATERIAL STORAGE

All CONTRACTORS must make arrangements for his/her staging areas and areas of material storage.

5.2 SANITARY FACILITIES

ALL CONTRACTORS shall provide and maintain all necessary sanitary facilities at the site, in accordance with all applicable regulations, and shall properly remove same at completion of the project.

5.3 UTILITIES

The obtaining of all utilities which may be required for the construction shall be the responsibility of each CONTRACTOR.

END SECTION

SECTION VI

TECHNICAL SPECIFICATIONS

EXISTING UTILITIES

6.1 SCOPE

It shall be the CONTRACTOR's sole responsibility to locate existing utilities, make appropriate arrangements regarding relocation of existing utilities, either temporary or permanent, maintain the utility service throughout the construction period, and have final relocations performed at the end of the construction period. The CONTRACTOR shall notify affected utility owners, record locations of utilities on record drawings, hire specialty contractors, etc. as necessary.

All utility relocation work shall be conducted with the full knowledge and written consent of the ENGINEER and the utility owners involved. The CONTRACTOR shall comply with all applicable Federal, State and Local utility ordinances.

The CONTRACTOR shall bear sole, and full, responsibility for loss of project time arising from poor relocation coordination and from claims of damage relating to disruption of utility service.

6.2 AGREEMENTS

In general, when relocation of a utility is required, the relocation must be performed by the Utility Company or licensed agent of the utility company. Contractor shall secure written relocation agreements with each utility documenting the scope of the relocation activities and the responsibilities of the Utility Company and the Contractor with respect to the work and payment therefore.

6.3 SPECIAL REQUIREMENTS

The relocation agreements are subject to special requirements. These include:

-- NONE --

-- THE END --

SECTION VII

TECHNICAL SPECIFICATIONS

SANITARY SEWER FORCE MAINS

7.1 PURPOSE

The purpose of this section is to outline the requirements for the proper construction of sanitary sewer force mains. A force main is defined as any wastewater pipeline conveying wastewater under pressure.

7.2 GENERAL REQUIREMENTS

The sanitary sewer force mains shall be laid in reasonable conformance to the lines and grades shown on the Design Drawings. In no event shall any section of force main be constructed at an elevation higher than that specified for the air release valve. No reach of force main shall be laid on a 0% slope. A #8 copper trace wire shall be laid on top of all non-metallic force mains and siphons. **This includes ALL 1.25" sanitary sewer service lines.**

7.3 QUALITY CONTROL

Submit five copies of the following:

A) Documentation to substantiate pipe material's compliance with these specifications.

B) Documentation to substantiate that pipe bedding materials will conform to requirements of these specifications.

C) Documentation of pressure and leak testing.

7.4 PIPE MATERIALS

PIPE:
12.4.1 HIGH DENSITY POLYETHYLENE PIPE: **The pipe shall be Green Stripe Pipe.** The Pipe shall be equal to Chevron Phillips Performance Pipe 4200 Series, or ISCO Industries and shall be supplied in the following classes:

Nominal Size	Outside Dimension	Approximate ID
1.25” DR 11	**1.64**	**1.34**
2” DR 11	**2.349**	**1.917**
3” DR 11	**3.462**	**2.826**
4” DR 11	**4.431**	**3.633**
6” DR 11	**7.553**	**5.349**
8” DR 11	**8.531**	**7.963**
10” DR 11	**10.633**	**8.679**
12” DR 11	**12.611**	**10.293**
14” DR 11	**13.847**	**11.301**

Sizes are in inches

Pipe shall be manufactured from a PE 3408 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material shall meet the specifications of ASTM D3350-99 with a minimum cell classification of PE345464C. Pipe shall have a manufacturing standard of ASTM D3035 and be manufactured by an ISO 9001 certified manufacturer. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids, or other injurious defects.

7.4.2 ASTM 2241 POLYVINYL CHLORIDE PRESSURE PIPE, FITTINGS AND JOINTS – **ASTM 2241 PVC shall not be used on this project for force main construction**

FITTINGS:

7.4.3 BUTT FUSION FITTINGS: Butt fusion fittings shall be in accordance with ASTM D3261 and shall be manufactured by injection molding, a combination of extrusion and machining, or fabricated from HDPE pipe conforming to this specification. All fittings shall be pressure rated to provide a working pressure rating no less than that of the pipe. Fabricated fittings shall be manufactured using a McElroy Datalogger to record fusion pressure and temperature. A graphic representation of the temperature and pressure data for all fusion joints made producing fittings shall be maintained as part of the quality control. The fitting shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids, or other injurious defects.

7.4.4 ELECTROFUSION FITTINGS: Electrofusion Fittings shall be PE3408 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99 and be the same base resin as the pipe. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055.

7.4.5 FLANGED AND MECHANICAL JOINT ADAPTERS: Flanged and Mechanical Joint Adapters shall be PE 3408 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99 and be the same base resin as the pipe. Flanged and mechanical joint adapters shall have a manufacturing standard of ASTM D3217. All adapters shall be pressure rated to provide a working pressure rating no less than that of the pipe.

7.4.6 MECHANICAL RESTRAINT: Mechanical restraint for HDPE may be provided by mechanical means separate from the mechanical joint gasket sealing gland. The restrainer shall provide wide, supportive contact around the full circumference of the pipe and be equal to the listed widths. Means of restraint shall be machined serrations on the inside surface of the restrainer equal to or greater than the listed serrations per inch and width. Loading of the restrainer shall be by a ductile iron follower that provides even circumferential loading over the entire restrainer. Design shall be such that restraint shall be increased with increases in line pressure.

Serrated restrainer shall be ductile iron ASTM A536-80 with a ductile iron follower; bolts and nuts shall be corrosive resistant, high strength alloy steel.

The restrainer shall have a pressure rating of, or equal to that of the pipe on which it is used or 150 PSI which ever is lesser. Restrainers shall be JCM Industries, Sur-Grip or pre-approved equal.

Nominal Size	Restraint Width	Serrations per inch
4”, 6”	1-1/2”	8
8”, 10” & 12”	1-3/4”	8

Pipe stiffeners shall be used in conjunction with restrainers. The pipe stiffeners shall be designed to support the interior wall of the HDPE. The stiffeners shall support the pipe’s end and control the “necking down” reaction to the pressure applied during normal installation. The pipe stiffeners shall be formed of 304 or 316 stainless steel to the HDPE manufacturers published average inside diameter of the specific size and DR of the HDPE.

7.5 INSTALLATION

GENERAL:

7.5.1 PIPE & FITTINGS: Size as indicated on the plans. Install as shown in accordance with manufacturer’s recommendations.

JOINING:

7.5.2 BUTT FUSION: Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400 degrees Fahrenheit, alignment, and an interfacial fusion pressure of 75 PSI. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself.

7.5.3 SIDEWALL FUSION: Sidewall fusions for connections to outlet piping shall be performed in accordance with HDPE pipe and fitting manufacturer's specifications. The heating irons used for sidewall fusion shall have an inside diameter equal to the outside diameter of the HDPE pipe being fused. The size of the heating iron shall be ¼ inch larger than the size of the outlet branch being fused.

7.5.4 MECHANICAL: Bolted joining may be used where the butt fusion method cannot be used. Flange joining will be accomplished by using an HDPE flange adapter with a ductile iron back-up ring. Mechanical joint joining will be accomplished using a molded mechanical joint adapter. The mechanical joint joining method will have a ductile iron mechanical joint gland.

7.5.5 OTHER: Socket fusion, hot gas fusion, threading, solvents, and epoxies may not be used to join HDPE pipe.

7.5.6 QUALITY AND WORKMANSHIP: The pipe and/or fitting manufacturer's production facility shall be open for inspection by the owner or his designated agents with a reasonable advance notice. During inspection, the manufacturer shall demonstrate that it has facilities capable of manufacturing and testing the pipe and/or fittings to the standards required by this specification.

7.5.7 PACKAGING, HANDLING & STORAGE: The manufacturer shall package the pipe in a manner designed to deliver the pipe to the project neatly, intact and without physical damage. The transportation carriers shall use appropriate methods and intermittent checks to insure the pipe is properly supported, stacked and restrained during transportation such that the pipe is not nicked, gouged, or physically damaged.

Pipe shall be stored on clean, level ground to prevent undue scratching or gouging. If the pipe must be stacked for storage, such stacking shall be done in accordance with the pipe manufacturer's recommendations. The pipe shall be handled in such a manner that it is not pulled over sharp objects or cut by chokers or lifting equipment.
Sections of pipe having been discovered with cuts or gouges in excess of 10% of the pipe wall thickness shall be cut out and removed. The undamaged portions of the pipe shall be rejoined using the heat fusion joining method.

Fused segments of the pipe shall be handled so as to avoid damage to the pipe. Chains or cable type chokers must be avoided when lifting fused sections of pipe. Nylon slings are preferred. Spreader bars are recommended when lifting long fused sections.

7.6 INSTALLATION

12.7.1 Installation of force main pipe shall conform to the installation requirements set forth in the Gravity Sewer Section of these specifications and the standard bedding and backfilling details of the Drawings.

7.7 TESTING

The completed force main and siphon shall be subjected to a combined pressure and leakage test as described in Section 4 of AWWA C600. The testing shall be subject to the following:

A) All tests shall be conducted in the presence of the ENGINEER.

B) The OWNER shall furnish a recording pressure gauge to be used for the pressure and leak test. The pressure charts from the test shall be retained by the OWNER as evidence of the testing.

C) Test waters can be potable water from the OWNER's water distribution system or raw water from a local reservoir. Withdrawals of water from the OWNER's system must be both authorized by the Public Works superintendent and metered. The OWNER will bill the CONTRACTOR for all waters used in accordance with its current rate schedule.

D) The test pressure shall be 100 psi or the maximum operating pressure of the lift station, <u>whichever is greater</u>.

E) Duration of test shall be no less than two hours.

F) Where leaks are evident on the surface where joints are covered, the joints shall be recaulked, repoured, bolts retightened or relaid, and leakage minimized regardless of total leakage as shown by test.

G) All pipe fittings and other materials found to be defective under test shall be removed and replaced.

H) Lines which fail to meet test requirements shall be repaired and retested as necessary until test requirements are complied with at no additional cost to OWNER.

7.8 CONNECTING FORCE MAIN TO MANHOLE

All sanitary sewer force mains to be connected to manholes must connect at the elevation indicated on the design drawings. If no connection elevation is listed, it shall be assumed that the force main shall penetrate at the invert elevation of the manhole that the connection is being made.

7.9 CONCRETE THRUST BLOCKS

Concrete thrust blocks shall be provided at all bends in the force main as shown on the Detail Sheets of the Design Drawings.

7.10 MARKING PIPE

7.10.1 The force main pipe shall be clearly labeled as a SANITARY SEWER at regular intervals so that the pipe cannot be confused with a potable water line. Marking tape is one alternate for complying with this specification. Fabricating the pipe with a resin color different from water line pipe is another alternate. Green Stripe Pipe is required.

7.10.2 Tracer Wire: A #8 copper trace wire shall be laid on top of all non-metallic force mains and siphons. Trace wires shall be installed along ALL 1.25-inch sanitary sewer service force mains and ALL trunk force mains 2-inch and larger.

Trace wire shall be pigtailed up for easy access by OWNER at the following locations:

1. Residential grinder pump stations' wet well lids or control panel
2. Pressure sewer lateral assembly meter pits
3. Valve cans
4. Air release meter pits
5. Major lift stations' valve pits.
7. Pipe Line Markers

-- THE END --

SECTION VIIIa

TECHNICAL SPECIFICATIONS

GRAVITY SANITARY SEWER LATERALS AND CLEANOUT BUILDING CONNECTIONSPARTIAL & FULL SERVICE

8a.1 SCOPE

Furnish all labor, material, equipment and incidentals required to install, complete and ready for operation, a sanitary sewer service lateral (or stub out) and cleanout at each grinder pump station as shown on the Drawings and as specified herein. See "Simplex and Duplex Residential Grinder Pump Station(s) - Partial & Full Service" specifications for measurement and payment items for grinder pumps and appurtenances.

8a.2 SPECIAL REQUIREMENTS

CONTRACTOR shall field locate actual existing sewer lateral location on each building prior to setting grinder pump station. CONTRACTOR shall set the pump station in such a location as to allow the sewer lateral to flow by gravity into the station and minimize the length of sewer lateral pipe required to make the final lateral connection. **(See residential grinder pump specifications for additional location requirements for grinder pump stations).** The CONTRACTOR shall coordinate with the OWNER (utility) and the land owner (customer) prior to any construction outside of right of way.

The CONTRACTOR must obtain all necessary permits, schedule the required inspections, pay all fees, and have a licensed plumber as a member of his construction field personnel. The provision of these services shall be considered incidental to the unit price bid for "Full Service – Simplex/Duplex Residential Grinder Pump Station, Complete In-Place Tested and In Service".

CONTRACTOR shall field locate actual existing sewer lateral location on each building prior to setting grinder pump station. CONTRACTOR shall set the pump station in such a location as to allow the sewer lateral to flow by gravity into the station and minimize the length of sewer lateral pipe required to make the final lateral connection. **(See residential grinder pump specifications for additional location requirements for grinder pump stations).** The CONTRACTOR shall coordinate with the OWNER (utility) and the land owner (customer) prior to any construction outside of right of way.

8a.3 MATERIALS

The pipe and fittings used for gravity sanitary laterals shall be PVC SDR 35 gravity sewer pipe or SCH 40 PVC sewer pipe.

8a.4 INSTALLATION

The OWNER and CONTRACTOR shall meet with the landowner to determine a mutually agreeable location for each lateral (or stub out) and cleanout prior to installation.

All open pipe ends shall be sealed with standard plugs to the satisfaction of the OWNER. To protect the sealed end from trenching equipment, a #4 bar four feet long shall be placed in the trench at a 45° degree angle six to twelve inches from the sealed end.

Under normal conditions, where elevations are not critical, house connection pipe shall be laid on a slope of not less than one foot per 100 feet (approximately 1/8 inch per foot). Where elevations are critical, minimum grade may be 0.5 foot per 100 feet laid with batter boards and grade line string, same as specified for main sewers.

The installation of house laterals (or stub outs) shall follow immediately or be concurrent with the construction of the grinder pumping station. This method of construction will permit more advantageous handling of backfilling and will also avoid possible damage by subsequent excavation.

The existing septic tank is to be abandoned in place unless CONTRACTOR "unavoidably" damages it with his construction activities. See "Removal and Disposal of Existing Septic Tanks" specification for more information.

All existing sewer laterals must be smoke tested by CONTRACTOR prior to connecting lateral to new grinder pump station. Smoke test is to verify existing structure plumbing is constructed correctly and all proper vents and water seal traps are in place. Also, to determine if any sources of inflow or infiltration are connected to home plumbing such as roof leaders, floor drains, etc. Contractor shall itemize sources.

-- THE END --

SECTION VIIIb

TECHNICAL SPECIFICATIONS

GRAVITY SANITARY SEWER LATERAL STUB AND CLEANOUT ASSEMBLY ON GRAVITY SEWER MAINS

8b.1 SCOPE

Furnish all labor, material, equipment and incidentals required to install, all sanitary sewer service lateral stub outs as shown on the Drawings and as specified herein.

8b.2 MATERIALS

The pipe and fittings used for gravity sanitary laterals shall be of the same material as the mainline. For example, laterals on PVC pipe mains shall be PVC and laterals on ductile iron pipe mains shall be ductile iron.

8b.3 INSTALLATION

The OWNER and CONTRACTOR shall meet with the landowner to determine a mutually agreeable location for each lateral stub out and cleanout assembly prior to installation to verify that the connection from the existing building lateral to the capped sewer stub out is possible at the minimum grades discussed below. It is the CONTRACTOR's responsibility to determine grade between the existing lateral(s) and new lateral stub for each structure receiving a gravity sewer stub and cleanout assembly.

All laterals, unless otherwise specified or directed, shall be of the pipe specified herein before and as indicated on the Drawings. Trenching, pipe laying, joints and backfilling shall conform to the requirements set forth herein in the gravity sewer lines section of these specifications.

The plumbing code requires a double sweep tee cleanout at each lateral.

The lateral shall be laid on a uniform grade from the main sewer to meet the building sewer grade so that no bends will be needed for the final connection.

Under normal conditions, where elevations are not critical, lateral pipe shall be laid on a slope of not less than one foot per 100 feet (approximately 1/8 inch per foot). Where elevations are critical, minimum grade may be 0.5 foot per 100 feet.

The installation of "Sanitary Sewer Lateral Stub and Cleanout Assemblies" shall follow immediately or be concurrent with the construction of the main sewer. This method of construction will permit more advantageous handling of backfilling and will also avoid possible damage to the main sewer by subsequent exposure for connection of the service lines.

-- THE END --

SECTION IX

TECHNICAL SPECIFICATIONS

PRESSURE SEWER LATERAL ASSEMBLY

9.1 SCOPE

Furnish all labor, material, equipment and incidentals required to install, complete and ready for operation, a connection of a 1.25" force main from a simplex or duplex residential grinder station or a connection of a 2" force main from a triplex or quadplex residential grinder pump station to a force main or gravity sewer main as shown on the Drawings and as specified herein.

9.2 QUALITY ASSURANCE/SUBMITTALS

9.2.1 Submit five copies of itemized summary of source of manufacture of each item in pressure connection. Provide manufacturer's certification of compliance with specification for each item.

9.3 MATERIALS

9.3.1 Pressure Pipe: The HDPE 1.25" and 2" service force main is covered under the force main section of these specifications.

9.3.2 High Density Polyethylene Lateral Assembly. The pressure sewer lateral assembly shall consist of two (2) HDPE to stainless steel threaded adapters, one (1) red brass ball valve, one (1) red brass nipple, and one (1) red brass swing check assembly. All parts shall be of the diameter equal to the HDPE service line on which they are to be installed. All parts shall be suitable for wastewater applications.

All valves shall be rated for 200 psi service. The swing check valve shall be rated for 125 psi service. The entire assembly shall be shipped as a single unit suitable for housing in an 18" x 24" meter box.

9.3.3 Meter Box and Lid: The pressure sewer lateral assembly shall be housed in a high density polyethylene meter box of a size as required by the size of the assembly. The meter box shall be equipped with a **GREEN** polyethylene lid with the cast in place lettering of "SEWER" on top.

9.3.4 HDPE Tee: If the HDPE force main is to be connected to another polyethylene force main, the CONTRACTOR shall butt fuse an HDPE tee with an appropriate diameter branch into the main. The branch length shall be suitable for connection to the HDPE to stainless steel adapter of the pressure sewer lateral assembly.

9.3.5 Tapping Saddle: If the 1.25" or 2" HDPE force main is to be connected to a PVC gravity main, a tapping saddle will be required. Tapping saddles shall be Smith Blair 313-872-10 suitable for connection to PVC pipe with an OD equal to that of the PVC pipe being connected to. Each saddle shall be furnished with a C8655 "compression couple by male" fitting to allow compression connection to the HDPE force main as required.

9.4 INSTALLATION

9.4.1. Taps: Taps (where required) shall be made in accordance with the manufacturer's directions. The tap shall be protected by 6" of fine sand or gravel as indicated in the detail drawings.

9.4.2. Meter Box Setting: The meter boxes shall be set in a neat and workmanlike manner. The lid of the meter box shall be set:

1) flush with paved surfaces.
2) 0.5" above grade in improved lawns, and
3) 2" above grade in unimproved areas.

- THE END -

SECTION X

TECHNICAL SPECIFICATIONS

VALVES

10.1 SCOPE

This work shall consist of furnishing and installing valves on 1.25-inch diameter and greater High Density Polyethylene Pipe.

10.1.A QUALITY ASSURANCE/SUBMITTALS

10.1.A.1 Submit five copies of manufacturer's certification of compliance with applicable AWWA specifications. Certificate to be signed by corporate officer having authority to legally bind the company.

10.2 MATERIALS

10.2.1 General: Valves 2” and larger shall be resilient wedge gate valves. Valves less than 2” shall be thermoplastic ball valves (Nordstrom or equal) unless otherwise stated.

10.2.2 Gate Valves: All gate valves shall be of the **AWWA C515 RESILIENT WEDGE GATE VALVE TYPE** suitable for wastewater applications with iron body, nonrising stem, fully bronze mounted (Mueller or approved equal). GATE VALVES SHALL BE RATED FOR WORKING WATER PRESSURES OF 150 PSI. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship.

All gate valves for "below ground" service shall be furnished with mechanical joint end connections. Gate valves for "above ground" (or pit) installations shall be furnished with flanged end connections.

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

Each gate valve for "below ground" service shall be installed in a vertical position with a valve box, as shown in the Design Drawings. Gate valves set with boxes shall be provided with a two inch square operating nut and shall be opened by turning to the left (counterclockwise). Each gate valve for "above ground" (or pit) installations shall be furnished with a hand wheel operator.

10.2.3 Ball Valves: Shall be suitable for wastewater applications. Valves shall be manufactured from materials of equal or better quality to those as specified in the table below and be rated for working pressures of 160 psi or greater.

Valve Part	Material
Body	Polyethylene
Ball	Polypropylene
Seat	EPDM
Seat Retainer	Polypropylene
Stem	Modified Phenylene Oxide
Stem Seal	EPDM
Ground Water Seal	Neoprene
Adapter	Polypropylene

10.2.4 Eccentric Plug Valves: Valves shall be of the non-lubricated eccentric type with resilient faced plugs and shall be furnished with end connections as those shown on the plans. Flanged valves shall be drilled to the ANSI 125/150-lb. Standard.

Valve bodies shall be of the ASTM A126 Class B Cast Iron. Bodies in 4” and larger shall be furnished with 1/8” welded overlay seam of not less than 90% pure nickel. Seat area shall be raised with raised surface completely covered with weld to insure that the plug face only contacts the nickel. Screwed in seats shall not be acceptable.

Port areas shall be unobstructed when open. Port area shall be rectangular and not less than 80% of full pipe area.

Plugs shall be of the ASTM A126 class B cast iron. The plug shall have a cylindrical seating surface eccentrically offset from the center of the plug shaft. The interference between the plug face and the body seat, with the plug in the close position, shall be externally adjustable in the field with the valve in the line under pressure.

Bearings shall be sleeve type metal bearings and shall be sintered, oil impregnated permanently lubricated type 316 ASTM A743 Grade CD-8M.

Valve shaft seals shall be of the multiple V-ring type and shall be externally adjustable and repackable without removing the bonnet or actuator from the valve. Valve utilizing O-ring seals, non-adjustable packing, or so-called grit-excluders shall not be acceptable.

Pressure rating shall be 175 psi for valve through 12” and 150 psi for valves 14” through 72”. Each valve shall be given a hydrostatic and seat test results being certified when the required by the specifications.

Valves shall be furnished with actuators as shown on the plans.

All valves shall be as manufactured by DeZurik, model PEC or pre-approved equal.

10.2.5 Valve Box and Cover: The valve box and cover shall be of cast iron construction (Clow F-2450, or equal) and shall be engraved with the word **"SEWER".** Valve Box (can) shall be vertically adjustable.

10.2.6 Valve Markers: Each valve assembly shall be delineated by a valve marker as detailed in the Drawings. The marker shall consist of a 3" green PE pipe embedded vertically adjacent to the valve. The marker shall include a weatherproof label identifying the valve owner and provide an emergency phone number for the owner.

10.2.7 Line Plug: If the valve is to be installed at the end of a line the CONTRACTOR shall provide a thrust backed plug.

10.3 INSTALLATION

Trenching, bedding, and backfilling requirements for gate valves shall conform to the installation requirements for water lines and fittings. The base of the valve shall be anchored in concrete as shown in the Design Drawings. The valve box shall be installed vertically, centered over the stem of the operating nut. The valve box base shall be placed at least two inches above the flanged joint of the valve cover. The top of the operating nut should be no higher than the hub or upper part of the valve box base where it connects to the center section.

-- THE END --

SECTION XI

TECHNICAL SPECIFICATIONS

SIMPLEX & DUPLEX RESIDENTIAL GRINDER PUMP STATIONS

PARTIAL & FULL SERVICE INSTALLATIONS

11.1 SCOPE

Provide all labor, materials, and equipment necessary for furnishing and installing underground residential submersible sewage pumping station(s) complete and in proper operating condition. The work includes all work shown or implied on the Drawings. A 'partial' service leaves a working unit ready for the resident's connection. A 'full' service fully connects the resident's service to the new sewer system. The work includes (but is not limited to):

1. Coordination of final station location and controls location with resident and OWNER. **Station must be located within 20 linear feet of the foundation line where the sanitary sewer lateral passes through the foundation wall. Station must be located to allow resident's sewer to drain to station by gravity. IF STATION VENT WILL NOT BE LOCATED BELOW LEVEL OF LOWEST OCCUPIED FLOOR – CONTRACTOR SHALL OBTAIN ENGINEER'S WRITTEN INSTRUCTIONS BEFORE INSTALLING UNIT.**

2. Furnishing, installation, and start-up testing of factory built simplex or duplex submersible grinder pump station complete with enclosure, plumbing, and controls.

3. ~~**PARTIAL SERVICE** - All related electrical work required to place the pumping unit in service including mounting the station's disconnect/control panel on the resident's home. **Resident is required to make the final connection of the contractor installed disconnect to their breaker box. Resident must hire licensed electrician and secure necessary electrical permit.**~~

   FULL SERVICE – All related electrical work required to place the pumping unit in service including connection of the station disconnect/control panel to the resident's power supply is provided by the CONTRACTOR. CONTRACTOR must employ a licensed electrician for this service and secure all necessary electrical permits.

4. ~~**PARTIAL SERVICE** - Suitably stubbing out 10 LF of gravity sewer pipe complete with a cleanout and removable plug for the resident. **Resident is required to make the final connection of the contractor installed stub out to the existing gravity sewer lateral of the residence. Resident must hire licensed plumber and secure plumbing permit for connection.**~~

FULL SERVICE – CONTRACTOR shall connect resident's building sewer (also known as lateral) to the newly installed, operational grinder pumping unit. CONTRACTOR shall provide a 'clean out' in the lateral. CONTRACTOR must secure the necessary plumbing permit and employ a licensed plumber to make the final connection.

5. All related site work including clearing, grading, trenching, backfilling, surface restoration, clean-up, etc.

PLEASE NOTE - Installation of the Pumping Station 1-1/4" service main between the pump station and the main force main is covered under a separate section of these specifications and is not a part of this specification.

11.2 QUALITY CONTROL

11.2.1 Base Bidding: These specifications and the Drawings are based on the provision of an Keen centrifugal sealed grinder type model KH62-21C. To simplify repairs and inventory of spare parts, the OWNER has mandated that the SUCCESSFUL BIDDER (CONTRACTOR) provide a single pump unit for use throughout the system.

11.2.2 Guarantee: The manufacturer of the submersible pumping station shall guarantee all equipment supplied against defects in workmanship and material for a period of sixty (60) months after notice of OWNER's acceptance, but no greater than sixty-five (65) months after receipt of shipment. The OWNER will report any defects found during the warranty period to the MANUFACTURER. ALL replacement pumps and controls installed during as well as after the warranty period expires shall be warranted for sixty (60) months starting 3 months from date of shipment.

In the event a component fails to perform as specified or is proven defective in service during the warranty period, the Manufacturer shall repair or replace, at his discretion, such defective part without cost to the OWNER. He shall further provide, without cost, such labor as may be required to replace, repair, or modify major equipment components.

11.2.3 Start-Up: The manufacturer shall provide the services of a factory-trained representative for a minimum period of two weeks on-site to perform initial start-up of the pumping units and to instruct the OWNER's operating personnel in the operation and maintenance of the equipment.

11.3 SUBMITTALS

Each pump manufacturer must provide to the ENGINEER submittals as per the general conditions.

11.4 MATERIALS - WET WELL

Fiberglass Construction**.** The tank shall consist of a single wall, laminated fiberglass construction. The resin used shall be of a commercial grade suitable for the environment. The reinforcing material shall be a commercial grade of glass fiber capable of bonding with the selected resin. The inner surface shall have a smooth finish and be free of cracks and crazing. The exterior tank surface shall be relatively smooth with no exposed fiber or sharp projections present.

The tank wall and bottom shall be of sufficient thickness and construction to withstand the imposed loading due to saturated soil at the specified burial depth for each available tank height. All station components must function normally when exposed to the external soil and hydrostatic pressures developed at the specified burial depth. The tank bottom shall be reinforced with a fiberglass plate extending beyond the tank walls to support concrete anchoring, as required, to prevent flotation. The tank shall include a solid fiberglass cover, secured with threaded stainless steel fasteners, providing low profile mounting.

The pump discharge piping components shall be 1-1/4” IPS and consist of PVC pipe fittings, a PVC ball valve, rated at 200 psi WOG, with integral union to facilitate piping disconnect. A 1’1/4” anti-siphon valve shall be integral to the piping inside the basin. Installation of the pump discharge piping shall require field assembly by the installing party. The tank shall have a discharge bulkhead, which terminates outside the tank wall with a 1-1/4” female pipe thread. The discharge bulkhead shall be factory installed and warranted by the manufacturer to be watertight. The tank shall be furnished with an EPDM grommet to accept a 4.50” OD (4” DWV or SCHD 40) inlet pipe.

The power and control cable shall be 32’ in length standard and shall connect to the pump by means of the provided NEMA 6P electrical quick disconnect (EQD) and shall enter the tank through a watertight strain relief connector supplied by the manufacturer. Junction boxes will not be acceptable. Installation of the inlet grommet and cable strain relief shall require field penetration of the tank wall by the installing party. Provision shall be made for tank venting in the 4” inlet line in accordance with national and local plumbing code requirements.

See design drawings for tank sizes and details.

11.5 MATERIALS – PUMPS

Pump(s) shall be of the progressive cavity or centrifugal design. The pumps must be capable of operating at negative total dynamic head without overloading the motor. Under no conditions shall in-line piping or valving be allowed to create a false apparent head.

The pump(s) operations curve shall be as follows:

Ops Point 1	6.0 GPM	@ 230Ft
Ops Point 2	7.8 GPM	@ 185 Ft
Ops Point 3	10 GPM	@ 120 Ft
Ops Point 4	12 GPM	@ 70 Ft
Ops Point 5	15 GPM	@ 0 Ft

The pump(s) must be capable of delivering cleansing velocities as dictated by Division of Water of 2 feet/second against a continuous total dynamic head of up to 230 feet.

11.5.1 PROGRESSIVE CAVITY PUMP: Each pump shall be a custom designed, integral, vertical rotor, motor driven, solids handling pump of the progressing cavity type with mechanical seal. The rotor shall be constructed of stainless steel. The stator shall be of a specifically compounded ethylene propylene synthetic elastomer. Buna-N is not acceptable as a stator material. The material shall be suited for domestic wastewater service. Its physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, good aging properties, and outstanding wear resistance.

11.5.2 MECHANICAL SEAL: Each pump shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.

11.5.3 GRINDER: Each grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece stainless steel motor shaft. The grinder impeller assembly shall be securely fastened to the pump motor shaft. The grinder will be of the rotating type with a stamped, stainless steel shredder ring assembly spaced in accurate, close annular alignment with the driven impeller assembly, which shall carry hardened, stainless steel cutter bars.

This assembly shall be dynamically balanced and operate without vibration over the entire range of specified operating pressures. The grinder shall be constructed so as to eliminate clogging and jamming under all normal operating conditions including pump starting. Sufficient vortex action shall be created by the grinder pump, to scour the tank free of deposits or sludge banks, which would impair the operation of the pump. These requirements shall be accomplished by the following, in conjunction with the pump:

1. The grinder shall be positioned in such a way that solids are fed in an upward flow direction.

2. The grinder inlet shroud shall have a diameter no less than 5 inches.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of "foreign objects," such as paper, wood, plastic, glass, rubber and the like, to finely divided particles that will pass freely through the passages of the pump and the 1-1/4" diameter discharge piping.

11.6 MATERIALS - PUMP MOTORS

Each motor shall be a 240 Volt 60 Hertz, 1 Phase, capacitor start, ball bearing, squirrel cage induction type with a low starting current. Inherent protection against running overloads or locked rotor conditions for the pump motor shall be provided by the use of an automatic-reset, integral thermal overload protector incorporated into the motor.

11.7 MATERIALS – CHECK & ISOLATION VALVES

A check valve and isolation valve for each pump shall be provided within the fiberglass wet well as depicted in the design drawings. Each pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve secured to the stainless steel pump discharge elbow. Each check valve will provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow. Working parts will be made of a 300 series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A non-metallic hinge shall be an integral part of the flapper assembly providing a maximum degree of freedom to assure seating even at a very low backpressure. The valve body shall be injection-molded parts made of glass filled thermoplastic.

A pump isolation valve and check valve shall also be provided in a standard meter box enclosure at the point of connection of the service main to the main pressure sewer header. See the “Pressure Sewer Lateral Assembly” section of these specifications for “Measurement & Payment” details.

11.8 MATERIALS - CONTROLS

CONTROLS: All necessary controls shall be located in the control cover of the core unit. The control cover will be attached with stainless steel fasteners. The grinder pump will be furnished with a length of 6 conductor 14 gauge, type SJOW cable, pre-wired and watertight to meet UL requirements. Non-fouling waste water level detection for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral air-bell level sensor connected to a pressure switch. The level detection device shall have no moving parts in direct contact with the wastewater. High-level sensing will be accomplished in the manner detailed above by a second, independent, air-bell sensor and pressure switch of the same type. Float switches will not be acceptable.

To assure reliable operation of the pressure sensitive switches, each core shall be equipped with a breather assembly, complete with a suitable means to prevent entry of water into the motor compartment.

ALARM/DISCONNECT PANEL - SIMPLEX: Each Simplex Residential Grinder Pump Station shall include a NEMA 4X, Simplex Alarm/Disconnect Panel suitable for wall or pole mounting. The NEMA 4X enclosure shall be manufactured of corrosion resistant thermoplastic and be furnished with a hinged cover and pad lock.

The simplex panel shall contain one (1), 15 amp, double pole circuit breaker for the power circuit and one (1) 15 amp, single pole circuit breaker for the alarm circuit.

ALARM/DISCONNECT PANEL - DUPLEX: Each Duplex Residential Grinder Pump Station shall include a NEMA 4X, UL listed Duplex Alternating Alarm/Disconnect Panel suitable for wall or pole mounting by the CONTRACTOR. The NEMA enclosure shall be manufactured of corrosion resistant thermoplastic and be furnished with a hinged cover and pad lock.

The duplex panel shall contain two (2), 15 amp, double pole circuit breakers for the power circuit and two (2) 15 amp, single pole circuit breakers for the alarm circuits.

THE ALARM/DISCONNECT PANEL(S) shall include a visual high-level alarm indicator. The visual alarm lamp shall be inside a red fluted lens mounted to the top of the enclosure in such a manner as to maintain NEMA 4 rating. The alarm sequence is to be as follows:

1. When liquid level in the tank rises above the alarm level, the contacts on the alarm pressure switch will close and the visual alarm will illuminate on the control panel.

2. The visual alarm will remain illuminated until the sewage level in the tank drops below the "off" setting of the alarm pressure switch.

11.9 MATERIALS – CORE UNIT

Pump units with slide away couplings shall be provided. The slide away coupling shall allow the pump to be installed or removed without requiring personnel to enter the wet well. The Grinder Pump Station(s) shall have easily removable core assemblies consisting of the pump, motor, grinder, all motor controls, check valve, anti-siphon valve, EQD and wiring. Each grinder pump core unit shall be furnished with a polypropylene lifting harness or stainless steel chain. In the event that guide rails are used to facilitate easy removal, guide rail material must be stainless steel. All mechanical and electrical connections must provide easy disconnect accessibility for core unit removal and installation.

11.10 MATERIALS - ACCESSORIES

A. All materials exposed to wastewater shall have inherent corrosion protection. Acceptable corrosion protection includes epoxy powder-coated cast iron, fiberglass, stainless steel, polyethylene, nylon, and PVC.

B. Electrical Systems & Components - All electrical systems and components shall be in full accordance with the current edition of the National Electrical Code. All power supply lines and control lines to the pump station shall be fully encased in rigid conduit meeting NEC requirements. All electrical systems and components in wet wells and enclosed spaces shall comply with National Electrical Code requirements. All conduits extending from the wet well to the control panel shall be sealed at the entrance to the control panel to prevent the intrusion of corrosive gases! The control circuitry shall be provided with "Ground Fault" interruption protection, which will de-energize the circuit in the event of any failure in the electrical integrity of the pump power cable.

11.11 INSTALLATION

11.11.1 Maintenance of Service: Wastewater service shall be maintained throughout the construction activity. No discharge to surface waters shall be allowed.

11.11.2 Installation shall be in accordance with the Manufacturer's requirements and the referenced codes and specifications.

11.11.3 Excavation: CONTRACTOR shall select means, methods, sequences and techniques of construction to both protect adjacent properties and to provide a stable, safe working environment. Decision as to whether to use sheet piles with wales and struts, manhole trench box, piles and lagging, or other methods of excavation support shall be the CONTRACTOR'S.

11.11.4 Backfilling: Before backfilling is started, the excavated pit shall be cleared of all rubbish and debris and shall be de-watered. The backfill material shall be free of frozen lumps, vegetation and debris. Backfill material shall be placed in uniform horizontal layers not exceeding 6 inches in thickness (loose measure). As a precaution against the development of unbalanced stresses, the backfill shall be placed and compacted symmetrically about the excavation to 95% of Standard Proctor Density.

The grading shall be brought to the level of the existing topography or to the elevations established by the ENGINEER. Final dressing shall be accomplished by such methods as may be necessary to produce a uniform and smooth finish to all parts of the regrade. The surface shall be free from clods greater than two inches in diameter.

11.12 TESTING

11.12.1 Electrical: All electrical work shall be inspected and approved by an electrical inspector. Two copies of the Certificate of Approval shall be provided to the ENGINEER before final acceptance.

11.12.2 Pump Test: The completed installation shall be given a running test of all equipment. While the pump(s) is/are running, all piping and seals shall be checked to insure that no leaks occur. All controls and warning indicators shall be checked for proper operation.

11.12.3 Repair: Any defects or failure to meet the requirements of these specifications shall be promptly corrected by the CONTRACTOR by replacement. The decision of the OWNER as to whether or not the CONTRACTOR has fulfilled his obligation shall be final and binding on all parties.

11.12.4 Factory Testing: Each grinder pump shall be submerged and operated for a minimum of 5 minutes. Included in this procedure will be the testing of all ancillary components such as, the anti-siphon valve, check valve, discharge line, level sensors and each unit's dedicated controls. All factory tests shall incorporate each of the above listed items. Actual appurtenances and controls which will be installed in the field, shall be particular to the tested pump only. A common set of appurtenances and controls for all pumps will not be acceptable. Certified test results shall be available upon request showing the operation of each grinder pump at two (2) different points on its curve, with the maximum pressure no less than 60 psi. The ENGINEER reserves the right to inspect such testing procedures with representatives of the OWNER, at the grinder pump manufacturer's facility.

-- THE END --

SECTION XII

TECHNICAL SPECIFICATIONS

SUBMERSIBLE WASTEWATER PUMPING STATION – SALYERSVILLE PARKWAY LIFT STATION

12.1 SCOPE

Provide all labor, and equipment necessary for installing underground submersible sewage pumping station(s) complete and in proper operating condition. Contractor shall inventory materials stored at Salyersville Wastewater Treatment Plant. The Contractor shall be responsible for any materials not provided that are necessary for completion of the project. Contractor is responsible for transporting materials to the construction site. The work includes all work shown or implied on the Drawings. The work includes (but is not limited to):

1. A motor control center complete with control panel, service entrance, disconnects as required by AEP, and meter base;

2. Installation of one (1) precast concrete wet wells and one (1) valve pit complete with aluminum access hatches with duraplate or approved equal corrosion resistant lining.

3. Installation of two (2) new submersible pumping units complete with guide rails;

4. Installation of miscellaneous pipe, valving, etc.;

5. Associated electrical work, including power service drop in the City's name;

6. Generator with automatic transfer switch;

7. All related site work including clearing, grading, trenching, backfilling, surface restoration, clean-up, materials and installation of chain link fencing, site access, water service and hose bib, security lighting, etc.

12.2 QUALITY CONTROL

12.2.1 Base Bidding: These specifications and the Drawings are based on provision of **Model Number K4RN 4" submersible sewage pump 7 ½ HP 7.5" diameter impeller as manufactured by Keen Pump**, Myers model 4R or Equal.

12.2.3 Start-Up: The manufacturer shall provide services of a factory-trained representative for a maximum period of one day on-site to perform initial start-up of the pumping units and to instruct the OWNER's operating personnel in the operation and maintenance of the equipment. The installing contractor shall be responsible for all costs

associated with performing the start-up.

12.3 SUBMITTALS

12.3.1 Submit six (6) bound copies of the following:

To be provided for any materials purchased for completion of the project.

12.4 MATERIALS - WET WELL & VALVE PIT

12.4.1 Pit: The wet well(s) and valve pit shall be constructed of pre-cast concrete manhole rings (of the diameters indicated on the Drawings) meeting the requirements of the manhole specifications provided herein and using a duraplate, or approved equal, corrosion resistant lining..

12.4.2 Access Hatch: Aluminum access hatches with clear openings of the size specified in the Drawings shall be cast integral with the flat slab top for the wet well and valve pit. All access hatches shall be rated for a live load of 150 psf. All access hatches shall be equipped with fall safety nets.

12.5 MATERIALS - PUMPS

12.5.1 Quality Control & Performance: See Pump Performance Table on the applicable sheet of the Drawings.

12.5.2 Construction:

1. Type – Submersible Non-Clog.

2. Volute/Shell - High strength grey cast iron, ASTM A-48, Class 35. All exposed nuts and bolts shall be type 304 stainless steel or brass construction. All surfaces, coming into contact with sewage, other than stainless steel or brass, shall be protected by an approved sewage resistant coating.

   The pump casing shall be of the volute design, of one piece construction, gray cast iron, ASTM A-48, Class 35B, having centerline discharge to minimize clogging or flow interference, and to provide the proper weight distribution for use with the Easy-Lift disconnect system.

3. Impeller - ASTM A-48, Class 35B gray iron (or ASTM A-532 (Alloy III A) 25% chrome cast iron). The impeller shall be of a 2-vane, fully shrouded enclosed design and shall have large passages to provide smooth flow transition and unimpeded passage of large spherical solids. All impellers shall be statically and dynamically balanced to ISO 1940, G.6.3. Solids passing capability of the impeller offered shall be clearly indicated on the

manufacturer's performance curve.

4. Seals - Tandem mechanical shaft seal system. Upper seal-tungsten carbide ring against carbon ring. Lower seal - two tungsten carbide rings.

5. Shaft - The shaft shall be stainless steel – ASTM A479 S43100-T. Shaft sleeves will not be acceptable.

6. Junction Chamber - Electric cable shall enter motor through watertight elastomer grommets. Water sealing to be functionally separated from strain relief.

12.6 MATERIALS - SUBMERSIBLE PUMP MOTORS

1. Class – Submersible

2. Construction - NEMA B design, squirrel cage, induction, shell type design, housed in an air-filled water tight chamber.

3. Power Service- See Pump Performance Table on the applicable sheet of the Drawings.

4. Speed - See Pump Performance Table on the applicable sheet of the Drawings.

5. Insulation - Class 'H' Suitable to 180 Deg. C

6. Electrical – As required by pump manufacturer

7. Motor horsepower shall be sufficient so that the pump is non-overloading throughout its entire performance curve, from shut-off to run-out. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet or greater.

12.7 MATERIALS - CONTROLS

A. General: The motor control centers shall be completely self contained. Each center shall provide:

1. Combination circuit breaker/overload unit providing overload protection, short circuit protection, reset and disconnect for all phases.

2. Variable Frequency Drives (See the VFD Section of the technical

specifications)

3. Hand/Off automatic pump operations selector switch.

4. 120 volt control panel pilot circuitry.

5. Automatic alternator.

6. The pumps shall be controlled by mercury float displacement switches. Three floats shall be provided for each wet well, and each with an appropriate length of cord: (See 12.9 for additional information)

   a) Float One - Lead pump on
   b) Float Two - Two pumps on
   c) Float Three - High water alarm

B. Construction: Panel to be NEMA 4 of aluminum or fiberglass construction.

C. Accessories: The panel shall include the following accessories:

1) Alarms

a) Pilot Lights. All alarm conditions shall trigger a front of control panel pilot light indicating the nature of the failure. In the absence of an alarm condition the pilot light shall glow half bright to indicate bulb integrity. In an alarm condition the pilot light shall glow full strength and flash.

b) Common Annunciation. All alarm conditions shall trigger an external 60W light and audible horn to alert the operator of an alarm condition.

c) Alarms. The following alarms shall be provided:

1) Power Failure (provide auto restart)

2) Power Monitor. Loss of phase, low voltage, phase reversal (shutdown, manual restart)

3) Power Failure: Standby Generator in Operation

4) PLC Failure (Floats in Operation)

5) Pressure Transducer Failure (Floats in Operation)

6) High wet well level.

7) Condensation Heater

8) Elapsed Time Meters

9) Pump Run Lights

10) Lightning Arrestor

11) Three-phase power monitor (phase loss, low voltage, phase reversal). Any of these conditions shall trigger external alarm light and alarm horn.

12) Pole Mounting Bracket

d) Other Accessories:

1) 2 - 110 Volt GFCI, Waterproof, Convenience Outlets Mounted on the exterior of the main pumps control panel for operator use.

12.8 MATERIALS - SLIDE AWAY COUPLING

Pump units with slide away couplings shall be provided. The slide away coupling shall allow the pump to be installed or removed without requiring personnel to enter the wet well.

A galvanized lifting chain of the appropriate weight and length shall be provided for each pump supplied.

12.9 MATERIALS - VALVE PIT

12.9.1 Plumbing: All pipe, fittings, and joints in the valve pit 3” in diameter and larger shall be ductile iron pipe of the size indicated in the Drawings conforming to the latest AWWA specifications C151 with a pressure class of 350 as designated in AWWA C150.

The interior of the pipe shall be protected from corrosion by a cement mortar lining overlain with a bituminous seal coat meeting AWWA C104 (ANSI A21.4). The thickness of the lining shall be as set forth in Section 4-10-1 of AWWA C104. The exterior of the pipe shall receive either a coal tar or asphalt base coating a minimum of 1 mil thick.

All pipe, fittings, and joints in the valve pit smaller than 3” in diameter shall be SCH 80

PVC pipe.

12.9.2 Check Valve: Check valves shall be horizontal swing checks with outside spring and lever -- flanged joint. The valve body shall be cast iron and the trim shall be bronze. Clow F 5381 or equal.

12.9.3 Plug Valve: Valves shall be of the non-lubricated eccentric type with resilient faced plugs and shall be furnished with end connections as those shown on the plans. Flanged valves shall be drilled to the ANSI 125/150-lb. Standard.

Valve bodies shall be of the ASTM A126 Class B Cast Iron. Bodies in 4” and larger shall be furnished with 1/8” welded overlay seam of not less than 90% pure nickel. Seat area shall be raised with raised surface completely covered with weld to insure that the plug face only contacts the nickel. Screwed in seats shall not be acceptable.

Port areas shall be full flow and unobstructed when open. Port area shall be rectangular and not less than 80% of full pipe area.

Plugs shall be of the ASTM A126 class B cast iron. The plug shall have a cylindrical seating surface eccentrically offset from the center of the plug shaft. The interference between the plug face and the body seat, with the plug in the close position, shall be externally adjustable in the field with the valve in the line under pressure.

Bearings shall be sleeve type metal bearings and shall be sintered, oil impregnated permanently lubricated type 316 ASTM A743 Grade CD-8M.

Valve shaft seals shall be of the multiple V-ring type and shall be externally adjustable and repackable without removing the bonnet or actuator from the valve. Valve utilizing O-ring seals, non-adjustable packing, or so-called grit-excluders shall not be acceptable.

Pressure rating shall be 175 psi for valves through 12” and 150 psi for valves 14” through 72”. Each valve shall be given a hydrostatic and seat test results being certified when the required by the specifications.

Valves shall be furnished with actuators as shown on the plans.

12.9.4 Pressure Gage: A pressure gage shall be installed on the discharge header. The pressure gage shall have a minimum face diameter of 4.5 inches, read 0 to 100 FEET HEAD and be accurate to 1/2 percent of scale. The pressure gage shall be equipped with an isolation valve, snubber and protective diaphragm suitable for use with wastewater.

12.9.5 Ball Valve: Ball valves shall be bronze valves.

12.9.6 Emergency Quick Disconnect: Provide an emergency quick disconnect with valve and fittings as shown on the Plans.

12.9.7 Air Release: Furnish and install a combination air/vacuum release valve equal to A.R.I D-025.

12.9.8 Paint: All plumbing in valve pit shall be painted as per AWWA specifications color scheme.

12.10 MATERIALS - ACCESSORIES

A. Wet Well Piping - All interior wet well piping 3" in diameter and larger shall be SDR11 HDPE. All interior wet well piping less than 3" in diameter shall be ductile iron pipe of the size indicated in the drawings.

B. Spare Parts - A complete replacement pump shaft seal assembly shall be provided for each pump station. The replacement seal assembly shall be packed in a suitable container along with complete installation instructions. A spare impeller shall also be provided for each pump station.

C. Electrical Systems & Components - All electrical systems and components shall be in full accordance with the current edition of the National Electrical Code. All electrical systems and components in wet wells and enclosed spaces shall comply with National Electrical Code requirements for Class I, Group D, Division 1 locations and shall be suitable for use in corrosive environments. All conduits extending from the wet well to the control panel shall be sealed at the entrance to the control panel to prevent the intrusion of corrosive gases! The control circuitry shall be provided with "Ground Fault" interruption protection that will de-energize the circuit in the event of any failure in the electrical integrity of the pump power cable. Further, all convenience outlets shall be ground fault protected.

D. Contractor shall install one NEMA 4X electrical junction box on top slab of wet well to facilitate ease of pump disconnection and removal during maintenance.

12.11 GENERATOR

A diesel driven generator shall be supplied for standby power. The generator shall be sized to run station background loads and both pumps. Generator shall be capable of continuous operation at 35 KW at 50°C. The output shall be 120/240 volts, 3 phase, and 60 Hz. Engine shall be a turbocharged/after cooled, 4 cylinder, 3.4L engine. Generator shall include the following: dual wall sub base fuel tank with 42-hour capacity; low fuel level switch; coolant heater. A 200 amp automatic transfer switch shall be included with the generator.

12.12 INSTALLATION

12.12.1 Maintenance of Service: Wastewater service shall be maintained throughout the construction activity. No discharge to surface waters shall be allowed.

12.12.2 Installation shall be in accordance with the Manufacturer's requirements and the referenced codes and specifications.

12.12.3 Excavation: CONTRACTOR shall select means, methods, sequences and techniques of construction to both protect adjacent properties and provide a stable, safe working environment. Decision as to whether to use sheet piles with wales and struts, manhole trench box, piles and lagging, or other methods of excavation support shall be the CONTRACTOR'S.

12.12.4 Backfilling: Before backfilling is started, the excavated pit shall be cleared of all rubbish and debris and shall be de-watered. The backfill material shall be free of frozen lumps, vegetation and debris. Backfill material shall be placed in uniform horizontal layers not exceeding 6 inches in thickness (loose measure). As a precaution against the development of unbalanced stresses, the backfill shall be placed and compacted symmetrically about the excavation to 95% of Standard Proctor Density.

The grading shall be brought to the level of the existing topography or to the elevations established by the ENGINEER. Final dressing shall be accomplished by such methods as may be necessary to produce a uniform and smooth finish to all parts of the regrade. The surface shall be free from clods greater than two inches in diameter.

12.12.5 Paving: Provide bituminous, or gravel, paving as indicated by the Drawings. Restore all damaged curbs.

12.12.6 Fence: The chain link fence enclosure shall be erected in accordance with Kentucky Department of Highways Standard Drawings RFC-002-01 and RFG-005-02 and Section 722 of Standard Specifications for Road and Bridge Construction.

12.12.7 Sewer Line Relocations: Relocate all existing influent force mains and gravity sewers from the existing wet well to the newly constructed flow diversion manhole as depicted on the plans.

12.13 TESTING

12.13.1 Electrical: All electrical work shall be inspected and approved by an electrical inspector. Two copies of the Certificate of Approval shall be provided to the ENGINEER before final acceptance.

12.13.2 Pump Test: The completed installation shall be given a running test of all equipment. While the pump(s) is/are running, all piping and seals shall be checked to insure that no leaks occur. The pressure gages installed in the valve pit shall be used to

monitor static, operating, and shut off head conditions for each pumping unit. All controls and warning indicators shall be checked for proper operation.

12.13.3 Generator Test: Generator and ATS shall be tested to ensure proper function during a power outage. Contractor and supplier shall provide the owner with a startup report.

12.13.4 Repair: Any defects or failure to meet the requirements of these specifications shall be promptly corrected by the CONTRACTOR by replacement. The decision of the OWNER as to whether or not the CONTRACTOR has fulfilled his obligation shall be final and binding on all parties.

THE END

SECTION XIII

TECHNICAL SPECIFICATIONS

SANITARY SEWER MANHOLES

13.1 SCOPE

Furnish all labor, material, equipment and incidentals required to install complete and ready for operation all manholes and appurtenances as shown on the Drawings and as specified herein.

13.2 QUALITY CONTROL

Submit five copies of the following:

A) Documentation of pre-cast components to be incorporated in manholes including bases, rings, tops, gaskets, exterior water-proofing coatings and frame with lid.

13.3 MATERIALS AND INSTALLATION

Manholes shall be installed at the end of each line, at all changes in grade, size, or alignment and at all intersections. Manholes of the form and dimensions shown on the approved plans shall be built as directed. The manhole proper shall be constructed of precast concrete rings. Manholes shall be constructed on 3500 psi concrete foundations. **All manholes shall be waterproofed on the exterior.**

13.3.1 Type "A" Manholes: The Type "A" manhole shall be a four foot diameter manhole five feet or more in depth, measured from the base of the cover frame to the lowest flowline elevation and shall be of eccentric cone top construction.

13.3.2 Type "AA" Manholes: The Type "AA" manhole shall be a five foot diameter manhole five feet or more in depth, measured from the base of the cover frame to the lowest flowline elevation and shall be of eccentric cone top construction.

13.3.3 Type "AAA" Manholes: The Type "AAA" manhole shall be a six foot diameter manhole five feet or more in depth, measured from the base of the cover frame to the lowest flowline elevation and shall be of eccentric cone top construction.

13.3.4 Type "B" Manholes: Type "B" manholes shall be a four foot diameter manhole five feet or less in depth, measured from the base of the cover frame to the lowest flowline elevation and shall be of flat slab top construction.

13.3.5 Type "D" Manholes: A drop pipe shall be provided for a sewer entering a manhole at an elevation of 25 inches or more above the manhole invert and shall be built as a part of the standard manhole. The pipe shall be laid as shown on the Drawings and encased with 3500 psi concrete from the drop stack to the reinforced base of the manhole.

13.3.6 Precast Concrete Rings: Precast concrete rings for manholes shall conform to ASTM C478, Class II, Wall B, with a minimum concrete strength of 4,000 psi, except that rings for manholes over 12 feet deep shall be Class III. O-ring gaskets shall be installed between connected ring sections.

13.3.7 Manhole Inverts: Manhole inverts shall be formed from 3500 psi concrete. Inverts for a "straight-through" manhole shall be formed by laying the pipe straight through the manhole, pouring the concrete invert, and then cutting out the top half of the pipe. Curved inverts shall be constructed of concrete, as shown, and shall form a smooth, even half-pipe section as shown on the Design Drawings. The inverts shall be constructed when the manhole is being built using prefabricated forms.

13.3.8 Manhole Steps: Manhole steps shall be made of steel reinforced polypropylene or any steel reinforced plastic step which produces equal or better performance.

13.3.9 Manhole Frames and Covers: Standard manhole castings shall consist of J.R. Hoe & Sons MC 385 frame and lid, Neenah Foundry R-1683 frame and lid or approved equal.

Watertight manhole castings shall consist of cast iron frames with machined bearing surfaces, gasket seal, and bolted lids. They shall be J.R. Hoe & Sons M-375 watertight, Neenah Foundry R-1916 watertight or approved equal.

Manhole covers must sit neatly in the rings, with contact edges machined for even bearing and tops flush with ring edge. They shall have sufficient corrugations to prevent a slipperiness. The lids shall have two pick holes about 1-1/4 inches wide and 1/2 inch deep with 3/8 inch undercut all around. Lids on sanitary sewer manholes must not be perforated.

13.3.10 Manhole Inserts: All manhole lids shall be equipped with a stainless steel insert to control storm water inflow through the pick holes. The lid shall be equal to the 304 stainless steel “sewer shield” as manufactured by Inflow Systems, Inc., Largo, Florida.

13.3.11 Backfilling: Manhole backfilling shall not commence until the ENGINEER has inspected the structure. The manhole backfilling methodology shall conform to the methodology employed for the gravity lines adjacent the structure. Backfilling

shall occur in uniform horizontal lifts around the full circumference of the structure to avoid displacement by unbalanced loadings.

13.4 TESTING OF MANHOLES

The testing of sewer manholes shall be accomplished by the CONTRACTOR as described herein. All manholes shall be subjected to the following tests:

a. Visual Inspection/Test.
b. Leakage (when requested by ENGINEER, Exfiltration).

13.4.1 Test Methodologies - PVC & Ductile Iron Sewers

a. **Preparation.** Upon completion of backfilling and grading of the manhole, and immediately prior to testing activities, the CONTRACTOR shall clean the manhole of all debris and trash.

b. **Visual Inspection/Test.** The ENGINEER shall visually inspect the manhole barrel, in the presence of the CONTRACTOR, after CONTRACTOR completes the preparatory cleaning activities. If the Engineer's visual inspection reveals obvious defects such as a poorly formed invert, misaligned frame and lid, cracks, leakage, or if the inspection reveals that the CONTRACTOR has not constructed the manhole plumb, the ENGINEER shall notify the CONTRACTOR and OWNER in writing of the manhole's failing the visual inspection. The CONTRACTOR shall subsequently repair or replace all defective materials and/or workmanship, necessary to meet the visual test requirements, at no additional cost to the OWNER.

c. **Leakage.** The ENGINEER will direct the CONTRACTOR to conduct leakage tests if the manhole is located in an area of unusually high ground water, if the manhole is located within the limits of a stream course, or if, in the ENGINEER's opinion the manhole has not been constructed well. The CONTRACTOR shall subsequently conduct a leakage test in the presence of the ENGINEER. The leakage test shall be an exfiltration test conducted in accordance with ASTM C 969, Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines. The maximum allowable exfiltration rate shall be 0.1 gallon per foot of diameter, per foot of head, per hour. If the exfiltration rate exceeds this value, the CONTRACTOR shall make the necessary repairs, at no additional cost to the OWNER.

-- THE END --

SECTION XIV

TECHNICAL SPECIFICATIONS

GRAVITY SANITARY SEWER LINES

14.1 SCOPE

The purpose of this section is to outline the requirements for the proper construction of gravity sanitary sewer lines and facilities appurtenant thereto.

14.1.1 Construction Tolerances: Contractor shall provide necessary leveling equipment to check the elevation of the flow line of the pipe as follows:

GRADE	FLOW LINE ELEVATION CHECK	ALLOWABLE ERROR
.004 - .008	Every 100 feet	± .03
.008 - .012	Every 150 feet	± .05
Above .012	Every 190 feet	± .07

14.1.2 Quality Assurance/Submittals

Submit five copies of the following:

A) Documentation to substantiate pipe material's compliance with these specifications.

B) Submit five copies of CONTRACTOR'S Bedding and Backfilling Plan. At a minimum the plan shall:

1. Identify/acknowledge the segments of pipe line to be backfilled using "open", "gravel", and "paved" criteria,

2. Include a Proctor Curve for the backfill material for every 1900 LF of pipe trench (curve to be prepared and sealed by a geotechnical engineer licensed in the State of Kentucky),

3. Include quarry's material certification for all aggregates utilized for bedding, haunching, and initial protective backfill, and

4. Include name and qualifications of CONTRACTOR'S nuclear density technician (technician must be a full time employee of CONTRACTOR, spot checks by a sub-contracting testing firm are not acceptable).

C) Documentation of low pressure air testing, mandrel testing, and infiltration checks.

14.2 MATERIALS

All pipe, joint, and fittings for the sanitary sewer shall be constructed of the materials as indicated on the Design Drawings.

14.2.1 Polyvinyl Chloride Pipe and Fittings (PVC) - PVC pipe and fittings shall be extruded from Type I, Grade 1, polyvinyl chloride material designated as PVC 1119, meeting ASTM Specifications D 3034, Type PSM, and a standard dimension ratio of SDR 35.

The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform as commercially practical in color. The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures, marking and all other requirements of the Commercial Standards CS 256-63 shall be conformed within all respects.

Pipe shall be furnished in 10 foot lengths. The pipe shall have a bell on one end. Male ends of pipe must be beveled on the outside. Pipe shall have a ring painted around the male end or ends in such a manner as to allow field checking of setting depth of pipe in the socket. This requirement is made to assist construction superintendents and inspectors in visual inspection of pipe installation.

Pipe must be delivered to job site by means which will adequately support it and not subject it to undue stress. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical. Pipe must not be exposed to the direct rays of the sun for an extended period of time as per manufacturer recommendations. If pipe is not to be installed shortly after delivery to the job site, it must be stored in a shaded location and strung as needed.

14.2.2 Ductile Iron Pipe, Fittings and Joints: Ductile iron pipe shall conform to the latest AWWA Specifications C151 (ANSI A21-51) with standard thickness as designated in AWWA C150. Thickness class shall be as follows:

DIAMETER	PRESSURE CLASS
8" - 12"	350
14" - 30"	250

The interior of the pipe shall be cement-mortar lined with bituminous seal coat in accordance with AWWA C104 (ANSI A21.4). Thickness of the lining shall be as set forth in Section 4-10-1 of the aforementioned specifications unless otherwise directed by the OWNER. The exterior of all pipe, unless otherwise specified, shall receive either a coal tar or asphalt base coating a minimum of one mil thick.

Where ductile iron pipe is to be installed in corrosive soil conditions, the pipe shall be protected by an eight mil thick polyethylene encasement meeting the requirements of ANSI 22.14. Such corrosive soils include but are not limited to salt marshes, saturated alkaline soils, cinder fills, areas of decaying vegetation, and waste dumps.

Bends and fittings shall be Mechanical Joint Compact Ductile Iron fittings, conforming to AWWA Specifications C153 for short body iron fittings. Fittings shall be tar-coated outside and shall receive the standard cement lining with bituminous seal coat on the inside as specified for the ductile iron pipe.

Joints shall be of the push-on (AWWA C111), mechanical joint (AWWA C111), flanged (AWWA C115) or ball and socket type as called for in the Plans. Bells for push-on type joints shall have an annular recess in the pipe socket to accommodate a single rubber gasket. Plain ends shall be suitably beveled to permit easy entry into the bell. The gasket is locked in place against displacement as the joint is assembled.

Mechanical joints shall be bolted and of the stuffing box type and shall consist of a bell with exterior flange and interior recess for the sealing gasket, a pipe or fitting plain end, a sealing gasket, a follower gland, tee-head bolts and hexagon nuts.

Joints for all bends and fittings for buried service shall be mechanical joint type only (AWWA C111). Flanged joint pipe shall be used in vaults, pits and above ground service installation. Flanged joint pipe may not be used for buried service.

14.2.3 Geotextile Type III - Geotextiles shall be woven or non-woven geotextile fabrics meeting the material and strength requirements for Type III fabrics as set forth in Section 215 of the Kentucky Department of Highways publication “Standard Specifications for Road and Bridge Construction.”

14.2.4 Bedding Stone - Bedding stone shall be durable crushed limestone meeting the requirements of Section 805 of the Current Edition of the Kentucky Department of Highways publication "Standard Specifications for Road and Bridge Construction."

14.3 INSTALLATION

14.3.1 Trench Excavation - Unless specifically directed otherwise by the ENGINEER, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any crew and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew.

All backfilled ditches shall be maintained in such a manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and property owners abutting shall be taken into consideration. All public or private drives shall be taken into consideration and shall be promptly backfilled or bridged. Excavated materials shall be disposed of so as to cause the least interference.

Trenches in which pipes are to be laid shall be excavated in open cut to the depths shown on the approved plans. The minimum allowable trench width shall not be less than the outside diameter of the pipe plus eight inches. Where rock is encountered, it shall be removed to a minimum depth of four inches below the pipe bells.

Unless specifically authorized by the ENGINEER, trenches shall in no case be excavated or permitted to become wider than two feet six inches plus the nominal diameter of the pipe at the level of or below the top of the pipe. If the trench does become wider than two feet six inches at the level of or below the top of the pipe, special precautions may be necessary, such as providing compacted granular fill up to the top of the pipe or providing pipe with additional crushing strength as determined by the ENGINEER. This determination shall take into account the actual trench loads that may result and the strength of the pipe being used.

All excavated materials shall be placed a minimum of two feet back from the edge of the trench. Where conditions exist that may be conducive to slides or cave-ins, proper and adequate sheeting, shoring and bracing shall be installed (as described hereafter) to provide safe working conditions and to prevent damage of work.

14.3.1.1 Trench Rock: "Sanitary sewer trench rock" is defined as any material which cannot be excavated from the pipe trench with an excavator (Caterpillar 320) having a break out force rated at not less than 35,750 lbs. and occupying an original volume of at least one (1.0) cubic yard.

"Sanitary sewer trench rock" will **NOT** be measured on this project for separate payment. **All excavation shall be unclassified.** THE CONTRACTOR IS EXPECTED TO EMPLOY A ROCK TRENCHER OR HOE RAM AS NECESSARY AND PREPARE HIS BID ACCORDINGLY.

14.3.1.2 Trench Drainage: The CONTRACTOR shall maintain all excavations free of water. He shall provide all dams, flumes, channels, sumps, or other works necessary to keep the excavation entirely clear of water and shall provide and operate pumps or other suitable equipment of adequate capacity for dewatering the excavation. He shall avoid producing mud in the trench or channel bottoms by his operations. If necessary, or so directed by the ENGINEER, the CONTRACTOR shall place crushed stone at his own expense to maintain a firm, dry excavation bottom and base. Pipe bedding, laying, jointing, and the placing of concrete shall be done in a water-free trench or excavation. The water shall be disposed of at the CONTRACTOR's expense. Waters removed from excavations shall not be disposed of in the sanitary sewer system.

Where the excavation extends below the water table, and lowering of the water table is necessary to prevent excessive inflows and maintain stability within the excavation, dewatering shall be performed. The CONTRACTOR shall use well points, sump pumps, or any other method of dewatering as required to lower the water table below the bottom of the excavations in a manner that will prevent the loss of fine soil particles. He shall obtain the ENGINEER's approval prior to the use of special dewatering equipment other than well points or sump pumps. Dewatering operations are considered incidental to the work and no additional compensations shall be made to the CONTRACTOR. Prior to beginning the work, the CONTRACTOR shall obtain, at his expense, the necessary dewatering permits from the Commonwealth of Kentucky, Department of Natural Resources and Environmental Protection Cabinet (KNREPC).

14.3.1.3 Obstructions: In cases where storm sewers, gas lines, water lines, telephone lines, and other utilities, or other underground structures are encountered, they shall not be displaced or molested unless necessary, in which case they shall be replaced in as good condition as found as quickly as possible.

The CONTRACTOR shall notify the utility companies 48 hours prior to excavation adjacent to their facilities.

14.3.1.4 Shoring, Sheeting and Bracing: Where unstable material is encountered or where the depth of excavation in earth exceeds six feet, the sides of the trench or excavation shall be supported by substantial sheeting, bracing and shoring, or the sides sloped to an angle of repose. Sloping the sides of the ditch to the angle of repose will not be permitted in streets, roads, narrow rights-of-way or other constructed areas unless otherwise specified. The design and installation of all sheetings, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained under construction conditions. Adequate and proper shoring of all excavations shall be the entire responsibility of the CONTRACTOR; however, the ENGINEER may require the submission of shoring plans (accompanied by the supporting computations) for review prior to the CONTRACTOR undertaking any portion of the work.

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

Solid sheeting will be required for wet or unstable material. It shall consist of continuous vertical sheet piling of timber or steel with suitable walls and braces.

Care shall be taken to avoid excessive backfill loads on the completed pipelines, and the requirements that the width of the ditch at the level of the crown of the pipe be not more than two feet six inches plus the nominal diameters of the pipe shall, as set out hereinbefore, be strictly observed.

Trench sheeting shall not be removed until sufficient backfill has been placed to protect the pipe.

All sheeting, planking, timbering, bracing and bridging shall be placed, renewed and maintained as long as necessary.

14.3.1.5 Blasting: Blasting is not permitted on this project. In the event a situation arises where blasting cannot be avoided, the following shall apply. All blasting operations shall be conducted in accordance with the municipal ordinances, State laws, and Section 9 of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, Inc. All explosives shall be stored in conformity with said ordinances, laws and safety regulations. Any damage done by blasting is the responsibility of the Contractor and shall be promptly and satisfactorily repaired by him.

All shots shall be covered with heavy timber or steel blasting mats to prevent flying material. Unless otherwise specified or directed, delay caps shall be used to reduce earth vibrations and noise.

All blasting operations shall be covered by public liability insurance, or if said public liability insurance does not cover blasting, the CONTRACTOR shall have separate public liability insurance to cover his blasting operations.

All basting operations shall be supervised and performed by qualified personnel.

14.3.2 Pipe Bedding: In all cases the foundation for pipes shall be prepared so that the entire load of the backfill on top of the pipe will be carried on the barrel of the pipe and insofar as possible where bell and spigot pipe are involved so that none of the load will be carried on the bells.

Where undercutting and granular bedding are involved, the depth at the bottom of the bells of the pipe will be at least four inches above the bottom of the trench as excavated.

Supporting of pipe shall be as set out hereinbefore, and in no case shall the supporting of pipe on blocks be permitted. The Design Drawings present typical approved bedding methods.

14.3.2.1 Earth Foundation: All pipe shall be laid on a six inch bed of granular material to provide continuous support for the lower section of the pipe. Granular bedding shall be #9 crushed stone. Granular bedding shall be mechanically compacted prior to pipe placement.

14.3.2.2 Rock Foundation: If the trench bottom is in rock the excavation shall be undercut to a minimum depth of six inches below the bottom of the pipe. The pipe shall be laid on a bed of granular material to provide continuous support for the lower section of the pipe. Granular bedding shall be #9 crushed stone. Granular bedding shall be mechanically compacted prior to pipe placement.

14.3.2.3 Special Bedding: In wet, yielding mucky locations where pipe is in danger of sinking below grade or floating out of line or grade, or where backfill materials are of such a fluid nature that such movements of the pipe might take place during the placing of the backfill, the ENGINEER may order “Special Pipe Bedding.” When the ENGINEER orders “Special Pipe Bedding” (in writing), the CONTRACTOR shall:

a. overexcavate the mucky subgrade to the depth directed,

b. install a Type III geotextile as illustrated in the detail drawings,

c. backfill the geotextile with bedding stone, and

d. overlap the geotextile envelope in accordance with the detail drawings.

It is to be expressly understood that “Special Pipe Bedding” may only be employed upon written order of the ENGINEER.

14.3.3 Laying Pipe: The laying of sewer pipe in finished trenches shall be commenced at the lowest point so that the spigot or tongue ends point in the direction of flow.

If the CONTRACTOR desires, he may use a laser beam instrument to set the grades on sewer lines in lieu of using a grade
string and batter boards set from grade stakes. In using such an instrument, the CONTRACTOR shall be responsible for maintaining grades and elevations as called for on drawing profiles, and any variances found shall be corrected by the CONTRACTOR.

All pipe lengths shall be laid with ends abutting and true to line and grade as given by the ENGINEER. They shall be fitted and matched so that when laid they will form a sewer with a smooth and uniform invert. Supporting of pipe shall be as set out hereinbefore under "Pipe Bedding" and in no case shall the supporting of pipe on blocks be permitted.

Branches, fittings and specials for sewer lines shall be provided and laid as and where directed by the ENGINEER or shown on the plans.

Before each piece of pipe is lowered into the trench, it shall be thoroughly inspected to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. Any defective pipe or fitting discovered after the pipe is laid shall be removed and replaced with a satisfactory pipe or fitting. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe.

Granular bedding material as specified hereinbefore, shall be used to correct irregularities in the earth trench subgrade.

The interior of the pipe, as the work progresses, shall be clean. When laying of any pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted into the pipe bell, so as to exclude earth or other material.

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

14.3.4 Concrete Cradle, Anchors or Encasement: Concrete cradle or encasement of sewer lines and/or fittings shall be placed where shown on the plans. Sewers on 19 percent slopes or greater shall be anchored securely with concrete anchors, spaced as follows:

A) Not over 36 feet center to center on grades 19 percent and up to 35 percent.

B) Not over 24 feet center to center on grades 35 percent and up to 50 percent

C) Not over 16 feet center to center on grades 50 percent and over

Concrete shall be KYDOH Class "B" and shall be mixed sufficiently wet to permit it to flow under the pipe to form a continuous bed. In tamping concrete, care shall be taken not to disturb the grade or line of pipe or injure the joints.

For this contract, concrete for pipe encasement and anchors is considered an incidental item included in the linear foot price of pipe.

14.3.5 Jointing Pipe: The pipe joints described shall be installed in accordance with the manufacturer's recommendations.

14.3.6 Backfilling Pipeline Trenches: All backfilling shall be accomplished in accordance with the bedding and backfilling detail provided in the Design Drawings. Any variances must be approved in writing by the ENGINEER.

When directed by the ENGINEER, the CONTRACTOR shall add water to the backfill material or dry out the material when needed to attain a condition near optimum moisture content for a maximum density of the material when it is tamped. The CONTRACTOR shall obtain a compaction of the backfill as indicated in the detail drawings at a moisture content within two percent of optimum.

Before final acceptance, the CONTRACTOR will be required to level off all trenches or to bring the trench up to the level of the surrounding terrain. The CONTRACTOR shall also remove from roadways, rights-of-way and/or private property all excess earth or other materials resulting from construction.

When the pipe trench crosses a street or roadway, the CONTRACTOR shall be responsible for maintaining the trench surface in a level condition at proper pavement grade at all times.

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

In all cases the pipe bedding, haunching and trench backfilling shall be done strictly according to the details in the plan set.

14.4 TESTING OF GRAVITY SEWER LINES

The testing of gravity sewers shall be accomplished by the CONTRACTOR as described herein. All gravity sewer lines shall be subjected to the following tests:

a. Visual Inspection/Test.

b. Leakage (Infiltration/Exfiltration).

c. Low pressure Air Test.

d. Deflection Test.

14.4.1 Test Methodologies

a. **Preparation.** Upon completion of backfilling and grading for the pipe reach to be tested, and immediately prior to testing activities, the CONTRACTOR shall clean the sewer of all debris and trash by rodding with appropriate tools. All proposed sewer laterals for the pipe reach to be tested must be in-place, temporarily plugged, and backfilled in the reach to be tested. THE CONTRACTOR SHALL PROVIDE BY-PASS PUMPING OF INTERRUPTED SEWER SERVICES AT NO ADDITIONAL COST TO THE OWNER FOR THE DURATION OF THE TESTING ACTIVITY

b. **Visual Inspection/Test.** The ENGINEER shall visually inspect the pipe reach to be tested, in the presence of the CONTRACTOR, after CONTRACTOR completes the preparatory cleaning activities. If the ENGINEER's visual inspection reveals obvious defects such as obstructions or leakage, or if the inspection reveals that the CONTRACTOR has not maintained the pipe on a 'gun barrel straight' line and grade from manhole to manhole, the ENGINEER shall notify the CONTRACTOR and OWNER in writing of the pipe sections failing the visual inspection. The CONTRACTOR shall subsequently repair or replace all defective materials and/or workmanship, necessary to meet the visual test requirements, at no additional cost to the OWNER.

c. **Leakage.** The CONTRACTOR shall conduct a leakage test in the presence of the ENGINEER. If the groundwater table is more than two feet above the invert of the pipe, an infiltration test shall be conducted. If the groundwater table is less than two feet above the invert of the pipe, the CONTRACTOR shall conduct an exfiltration test. To test for leakage, the pipe reach shall be isolated with removable plugs. For an infiltration test, the volume of water which enters the sewer in a 24 hour period is to be determined. For an exfiltration test the sewer is to be filled with water to a point two feet above the upstream invert, and the volume of water lost over a 24 hour period is to be determined. Leakage shall not exceed 190 gallons per mile of pipe per inch of pipe diameter. All leaks detected by this testing procedure shall be

repaired even though leakage is within limits. If leakage is not within limits, the CONTRACTOR shall repair or replace all defective materials and/or workmanship, and retest, as necessary to demonstrate that the repaired section meets the leakage requirements, at no additional cost to the OWNER.

d. **Low Pressure Air Test.** The CONTRACTOR shall conduct low pressure air testing in the presence of the ENGINEER. The air tests shall be conducted in accordance with the latest edition of the UNI-BELL Plastic Pipe Association Standard UNI-B-6-82 "Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe."

All ties and ends of sewer services shall be plugged with flexible joints, plugs or caps securely fastened to withstand the internal test pressures. Such plugs or caps shall be readily removable, and their removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.

The pipe must be clean prior to testing (See **Preparation**).

Air shall be slowly supplied to the plugged pipe installation until the internal air pressure is 4.0 pounds per square inch greater than the average back pressure of any ground water that may submerge the pipe. At least two minutes shall be allowed for temperature stabilization.

The air test requirements shall be satisfied if the time required (in seconds) for the pressure to decrease from 3.5 to 3.0 pounds per square inch (greater than groundwater backpressure) is not less than that shown in the "Specification Time Table" (Table A). The ENGINEER shall determine the test time for pipe test lengths not provided in Table A. If the time for the indicated 0.5 psi pressure loss is less than the stated limits, the CONTRACTOR shall repair or replace all defective materials and/or workmanship, and retest, as necessary to demonstrate that the repaired section meets the air test requirements, at no additional cost to the OWNER.

e. **Deflection Test (PVC and HDPE Pipe).** No less than 30 days after the completion of backfilling, the CONTRACTOR shall pass a calibrated mandrel, or other approved device, through the sewer pipe to demonstrate that no pipe deflection greater than 5 percent of the inside diameter of the pipe has occurred. The CONTRACTOR shall repair or replace all pipes exhibiting greater than 5 percent deflection, and retest, as necessary to demonstrate compliance with deflection criteria, at no additional cost to the OWNER.

TABLE "A"

SPECIFICATION TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

1 PIPE DIAMETER (in.)	2 MINIMUM TIME (min: sec)	3 LENGTH for MINIMUM TIME (ft)	4 TIME FOR LONGER LENGTH (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 (ft)	150 (ft)	190 (ft)	250 (ft)	300 (ft)	350 (ft)	400 (ft)	450 (ft)
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	19:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:19	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926 L	21:33	32:19	43:56	53:42	64:38	75:24	86:10	96:57
36	17:00	66	20.384 L	25:39	38:28	51:17	64:06	76:55	102:34	89:44	115:23

THE END

TS-XV-1

SECTION XV

TECHNICAL SPECIFICATIONS

BORE AND/OR ENCASE

15.1 SCOPE

This work shall consist of furnishing and installing steel encasement pipes for sanitary sewer lines and force mains by boring, jacking, or open cut methods.

15.1.A Quality Assurance/Submittals

15.1.A.1 Submit five copies of certified mill test report on steel encasement pipe.

15.2 GENERAL

The CONTRACTOR shall comply with the previously obtained permits and approvals for completion of this work. Copies of the permits and/or approvals are reproduced in the Permits section of this document.

15.3 MATERIALS

15.3.1 Encasement Pipe: Encasement pipe shall be steel, plain end, uncoated, unwrapped, have continuously welded joints and have a yield point strength of 35,000 psi and conform to AWWA Specifications C200. The minimum wall thickness of the pipe shall be as indicated in the Detail Drawings.

In general, the inside diameter of the encasement pipe shall be 4 inches greater than the largest outside diameter of the carrier pipe. The Detail Drawings provide a table from which required encasement pipe diameters may be derived.

Field welding of encasement pipe shall be performed by a certified welder in accordance with the requirements of AWWA Specification C206-82.

15.3.2 Seals: A removable watertight rubber seal shall be used to seal the annulus between the excavation and the encasement pipe.

15.4 INSTALLATION - BORE AND JACK

No distinction shall be made between boring through earth or boring through rock. The CONTRACTOR shall conduct his own investigation of subsurface conditions and shall base his bid on his own findings.

The jacking will be allowed in one direction only. The installation procedure must provide for the placement of the encasement pipe concurrently with the removal of the soil.

Grouting between the excavation and the encasement pipe will be required if ordered by the ENGINEER or if, for any reason, the excavation exceeds one (1) inch larger than the outside diameter of the liner. Grout holes shall be provided in the tunnel lining with a spacing not to exceed four and one-half (4.5) feet measured longitudinally. The location of the holes shall be varied around the periphery of the encasement pipe to suit field conditions which will permit the proper grouting sequence to insure complete filling of void spaces outside the encasement pipe. The CONTRACTOR shall fill all the void space outside the encasement pipe with Portland Cement grout. The machine used for grouting shall permit the application of a pressure up to seventy-five (75) pounds per square inch in excess of any external water pressure. A gage shall be provided which will accurately indicate working pressure and this gage shall be carefully watched during grouting operations. The pressure shall at no time be allowed to exceed that considered safe or which would distort the encasement pipe. Grout pipes shall be one and one-half (1½) inches inside diameter.

The carrier pipe shall be installed after the encasement pipe is in place. The installation of the carrier pipe shall be in accordance with the manufacturer's specifications using casing skids as shown in the Detail Sheets of the Design Drawings. After the carrier pipe has been installed, inspected, and tested as specified, both ends of the encasement pipe shall be closed with a removable, water-tight "boot" in a manner acceptable to the OWNER.

15.5 INSTALLATION - OPEN CUT

Where the encasement pipe is placed in open cut, the encasement pipe trenching, bedding, laying, and backfilling shall conform to the requirements of the applicable sections of these Specifications. The carrier pipe shall be installed after the encasement pipe is in place. The installation of the carrier pipe shall be in accordance with the manufacturer's specification using casing skids as shown in the Detail Sheets of the Design Drawings. After the carrier pipe has been installed, inspected, and tested as specified, both ends of the cover pipe shall be closed with a removable, watertight "boot" in a manner acceptable to the OWNER.

-- THE END --

SECTION XV

TECHNICAL SPECIFICATIONS

BORE AND/OR ENCASE

15.1 SCOPE

This work shall consist of furnishing and installing steel encasement pipes for sanitary sewer lines and force mains by boring, jacking, or open cut methods.

15.1.A Quality Assurance/Submittals

15.1.A.1 Submit five copies of certified mill test report on steel encasement pipe.

15.2 GENERAL

The CONTRACTOR shall comply with the previously obtained permits and approvals for completion of this work. Copies of the permits and/or approvals are reproduced in the Permits section of this document.

15.3 MATERIALS

15.3.1 Encasement Pipe: Encasement pipe shall be steel, plain end, uncoated, unwrapped, have continuously welded joints and have a yield point strength of 35,000 psi and conform to AWWA Specifications C200. The minimum wall thickness of the pipe shall be as indicated in the Detail Drawings.

In general, the inside diameter of the encasement pipe shall be 4 inches greater than the largest outside diameter of the carrier pipe. The Detail Drawings provide a table from which required encasement pipe diameters may be derived.

Field welding of encasement pipe shall be performed by a certified welder in accordance with the requirements of AWWA Specification C206-82.

15.3.2 Seals: A removable watertight rubber seal shall be used to seal the annulus between the excavation and the encasement pipe.

15.4 INSTALLATION - BORE AND JACK

No distinction shall be made between boring through earth or boring through rock. The CONTRACTOR shall conduct his own investigation of subsurface conditions and shall base his bid on his own findings.

The jacking will be allowed in one direction only. The installation procedure must provide for the placement of the encasement pipe concurrently with the removal of the soil.

Grouting between the excavation and the encasement pipe will be required if ordered by the ENGINEER or if, for any reason, the excavation exceeds one (1) inch larger than the outside diameter of the liner. Grout holes shall be provided in the tunnel lining with a spacing not to exceed four and one-half (4.5) feet measured longitudinally. The location of the holes shall be varied around the periphery of the encasement pipe to suit field conditions which will permit the proper grouting sequence to insure complete filling of void spaces outside the encasement pipe. The CONTRACTOR shall fill all the void space outside the encasement pipe with Portland Cement grout. The machine used for grouting shall permit the application of a pressure up to seventy-five (75) pounds per square inch in excess of any external water pressure. A gage shall be provided which will accurately indicate working pressure and this gage shall be carefully watched during grouting operations. The pressure shall at no time be allowed to exceed that considered safe or which would distort the encasement pipe. Grout pipes shall be one and one-half (1½) inches inside diameter.

The carrier pipe shall be installed after the encasement pipe is in place. The installation of the carrier pipe shall be in accordance with the manufacturer's specifications using casing skids as shown in the Detail Sheets of the Design Drawings. After the carrier pipe has been installed, inspected, and tested as specified, both ends of the encasement pipe shall be closed with a removable, water-tight "boot" in a manner acceptable to the OWNER.

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-- THE END --

TECHNICAL SPECIFICATIONS

MAGOFFIN COUNTY WATER DISTRICT

MOUNTAIN PARKWAY - BURNING FORK TO US 60
RELOCATION ITEM NO. 10-166.00

Prepared By:

Kenvirons, Inc.
452 VERSAILLES ROAD
FRANKFORT, KENTUCKY 40601

PROJECT NO. 2014156

MAY 2016

Magoffin County Water District

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SECTION 02820

WOVEN WIRE FENCES AND GATES

1.0 DESCRIPTION

Furnish and erect fence and gates of the height and type specified in the Plans, supported by steel, concrete, or timber posts along the inside limits of the right-of-way or at other locations shown or otherwise designated and at grades designated during construction.

2.0 MATERIALS

2.1 GENERAL

Galvanize all ferrous materials used in a complete installation of fence, except aluminum coated fabric, aluminum coated posts and braces, or aluminum coated barbed wire. Galvanize all iron and steel hardware according to AASHTO M 232. Galvanize other components as designated. Where it is not practical to secure a specimen of measurable area or uniform thickness for determining the weight of zinc coating, ensure that all such galvanizing withstands 4 dips of the Preece Test as set out in ASTM A 239. Ensure that post caps and socket type brace connections are galvanized malleable iron, or other approved type, and designed to exclude moisture from inside posts or rails.

2.2 WOVEN WIRE FABRIC

Ensure that the woven wire fabric is either zinc-coated steel or aluminum-coated steel. Provide the size and style of fabric specified in the Contract. Use zinc-coated steel fabric that conforms to ASTM A 116 and that has a Class 3 coating. Use aluminum-coated steel fabric that conforms to ASTM A 116.

2.3 BARBED WIRE

Use either zinc-coated steel, aluminum-coated steel, or aluminum alloy. Use barbs of 4-point pattern spaced at intervals of 5 inches. The wire for barbs may be either round or half-round.

2.3.1 Zinc-Coated Steel: Conform to ASTM A 121. Use size 0.099-inch diameter or heavier with Class 3 coating. The Department will allow high tensile strength barbed wire provided it conforms to ASTM A 121, and the following exceptions: (1) nominal diameter of 0.067 inch for the coated line wires and 0.057 inch for the coated barbs;

(2) minimum weight of zinc coating of 0.75 ounces per square foot for line wires and 0.70 ounces per square foot for barbs; and (3) minimum tensile strength of 475 pounds for each individual strand of the line wire.

2.3.2 Aluminum-Coated Steel: Use either Type I or Type II conforming to ASTM A 121. Use size 0.099 inch diameter or heavier.

2.3.3 Aluminum Alloy: Use 2 strands of 0.110 inch nominal diameter or heavier wire strands having minimum tensile strength of 42,000 psi, minimum yield strength of 35,000 psi and minimum elongation of 10 percent.

2.4 BRACE WIRE

Conform to ASTM A 824 except provide a minimum weight of coating of 0.6 ounce per square foot. Use size 0.148-inch nominal diameter or larger.

2.5 FABRIC TIES

Use either a minimum 0.109-inch nominal diameter galvanized steel conforming to ASTM F 626, except ensure that the minimum weight of coating is 0.6 ounces per square foot, or 0.148-inch nominal diameter aluminum alloy.

2.6 FENCE POSTS AND BRACES

2.6.1 Steel Posts and Braces: Conform to ASTM F 1043, ASTM F 1083, and the Standard Drawings. When the Contract specifies a thermoplastic acrylic coating, apply a chromate conversion coating at the manufacturer's recommended rate. Ensure that the coating is designed for pretreatment of galvanized coatings. After pretreating, electrostatically apply the thermoplastic acrylic coating with a minimum dry film thickness of 0.3 mils.

2.6.2 Wood Posts and Braces: Treat wood fence posts and braces with preservative and ensure that they are made of timber cut from live, sound, standing trees. Ensure that round or half-round posts and braces are preservative treated according to and are of the species covered by AWPA C 5. Ensure that sawed posts and braces are preservative treated according to and are of the species covered by AWPA C 2 for "Soil or Fresh Water Exposure". Use posts that are round, half-round, or square-sawed.

Ensure that wood for fence posts is sound and free from decay, excessive knots, seasoning checks, and end splits that will affect serviceability. The Department will allow sound knots,

provided the width of the knot does not exceed one-third the diameter of a round post at the point where it occurs, or one-third the width of any face of a sawed post, or a maximum of 2 1/2 inches. The Department will reject wood with season checks that penetrate more than one-third of the diameter of the piece or which have a width of more than 1/4 inch.

Use round posts and half-round posts that are free of multiple crooks. The Department will allow crooks in one plane only, provided that a straight line between the centers of the butt and tip does not deviate more than 2 inches from the center of the post at any point. Ensure that crooks in square-sawed posts do not exceed one inch in 5 feet.

Cleanly peel round posts and remove all bark. Strips of inner bark that are less than 1/2 inch wide and 3 inches long may remain on the peeled post. Trim all protruding knots flush with the sides and remove all spurs and splinters. In machine peeling operations, follow the natural taper of round posts. Manufacture half-round posts by sawing in half the round posts complying with the above manufacturing methods.

Square cut the ends of all posts unless the Engineer allows driving. When driving is specified or allowed, point the butt end before receiving preservative treatment. Do not allow the length of the point to exceed 1.5 times the diameter or width of face, as applicable.

A) Line Posts. Use line posts with a length of 7 feet and a minus one-inch tolerance. Use line posts that are either round, half-round, or square-sawed; however, furnish the same type section for all line posts throughout the project. Ensure that round posts have a minimum diameter of 4 inches. Ensure that half-round posts have a minimum face of 6 inches and a minimum radius of 2 3/4 inches. Cut square-sawed posts to 4-inch by 4-inch, ± 1/8 inch.

B) End, Corner, Gate, Brace, and Pull Posts. Do not use lengths less than 8 feet. Use either round or square-sawed posts; however, furnish the same type section for all of these types throughout the project. Ensure that round posts have a minimum diameter of 8 inches. Cut square-sawed posts to 8-inch by 8-inch, ± 1/8 inch.

C) Braces. Conform to all requirements for line posts, except use braces that are either round or square-sawed and furnish them in the lengths specified in the Plans.

2.6.3 Untreated Wood Posts: Furnish untreated wood posts of Osage-Orange, Black Locust, Red Cedar, White Oak, or of other approved species. Use untreated wood posts only when specified in the Contract.

2.7 GATES

Fabricate gate frames to the size and dimensions specified in the Contract. Ensure that pipe used in frames conforms to Subsection 2.6.1. Weld or otherwise construct all joints to form a rigid and water-tight frame. Furnish all gates complete with approved hinges, latches, and auxiliary braces as required. Fit gate frames with a fabric that conforms to the same requirements as the corresponding fence. The Department may approve the use of gates fabricated of other materials.

3.0 CONSTRUCTION

Before starting fencing operations, remove all brush, stumps, logs, and debris that will interfere with the proper construction of the fence. Remove or trim sound standing trees in the fence line as directed.

Construct fence with new materials according to the Standard Drawings and as specified in this section. Install fence as one of the first construction operations. Where it is impractical to install fence initially in its final form or location, obtain written permission from adjacent property owners either to permit construction of a suitable temporary fence or to delay fence erection until such time as the permanent fence may be erected. Where tying fence to a new structure, erect a temporary fence until such time as the structure is complete and the permanent fence can be anchored to the structure in the manner specified in the Plans. Install fence 18 inches inside the right-of-way line or in other locations specifically indicated.

Install fence facing the property owner except on horizontal curves. On horizontal curves install the fence to pull against all posts. Apply sufficient tension between pull posts to make the fence stock tight. Install pull posts at all breaks in horizontal alignment of the fence, and at sharp breaks in vertical alignment. For tangents and curves up to one degree, space pull posts a maximum of 500 feet on centers; ensure that curves over one degree to 4 degrees have pull posts spaced a maximum of 250 feet on centers; and curves over 4 degrees have pull posts installed each time the angle of deflection increases 5 degrees.

3.1 SETTING POSTS

Set all posts at the required depths and intervals designated in the Contract. Set posts plumb and in true alignment on the side where the wire is attached. Dig holes for posts to full depth and with sufficient diameter to allow proper tamping and compaction of the backfill. Use sound earth for the backfill and tamp it in place until the post is firm and rigid in its position. Set wood posts with the butt end down.

When encountering solid rock at grade or below, drill a hole one foot deep and slightly larger than the outside dimensions of the post or brace in the rock, and grout in the post. At line posts where top of rock is 8

inches or less below grade, remove the anchor plate. Backfill all excavation above rock, below grade, in 4 to 6-inch layers and tamp each layer thoroughly in place. Field cut posts and braces to fit maximum depth whenever encountering solid rock. Set all end, gate, corner, and pull posts, and anchor them in concrete placed to the top of the ground, finished smooth, and sloped to drain.

Brace all end, gate, and corner posts. Brace pull posts in 2 directions. Brace corner posts in the direction of each line of the fence. Anchor the metal braces from the metal posts in concrete that is crowned at the top to shed water. Brace wood or concrete posts with a pole or bar of the same type of material as the post. When using wood posts, notch the braced post and adjacent line posts one inch deep at one foot from the top of the finished post to receive the brace pole. Secure the brace pole to the posts by spiking or other means. Loop galvanized smooth wire having a minimum diameter of 0.148 inch around the braced post near the ground, and then loop it around the line post at 12 inches below its top continuing between the posts until 4 strands of wire are in place and the ends of the wire are securely fastened together. Then twist the strands of wire together until the brace pole is in compression. Do not allow the compression to be great enough to cause lateral springing in the brace pole. Allow concrete anchors to cure for at least 5 days before erecting the fence.

3.1 FENCING

Tie any intersecting fence to an independent pull post. Stretch woven wire fabric taut and securely fasten it to each post. Accomplish stretching with a stretcher that will produce equal tension in each line wire. Stretch fabric until the tension is just below the point of producing displacement in the tension crimps. At each end, corner, or gate post, cut and turn each strand of line wire around the post and tie it back to itself with no less than 3 turns.

When it is necessary to splice 2 sections of fence, make the splice by placing together the end stay wires of each section, and twist the end of each line wire around the stay wires and back onto itself with no less than 3 turns; or splice the fence by using Engineer approved splicing sleeves designed for that purpose.

Attach the fence to each wood post with a staple for each line wire and as many additional staples as necessary to firmly secure the wire. Furnish galvanized staples having a nominal diameter of 0.148 inch and a length of no less than one inch in length, for hardwood posts. When using treated softwood posts, furnish staples that are 1 1/2 inches long. Securely attach the woven wire fabric as shown on the Standard Drawings.

Use tension wires and rails in erection of chain link fences as shown on the Standard Drawings. When shown on the Standard

Drawings, place, stretch taut, and secure at ends the top or bottom tension wires to all posts in a manner before placing fabric. When a top rail is required, secure the bar at each end before stretching and tying the fabric. Secure ends of the fabric with stretcher bars threaded through the loops of the fabric and secured to the posts by means of clamps with bolts and nuts. Use the number of clamps as indicated.

Place the fabric by securing one end and applying sufficient tension to remove all slack before making attachments elsewhere. Fasten the fabric to the line posts and to the top tension wire or to the top rail, with tie wires or bands as the Contract designates.

Determine the number of tension bands required per post of chain link fence by taking the height of the fence in feet and subtracting one. Space tie wires for attaching chain link fence to the top tension wire or top rail on 24-inch centers. Space tie wires for attaching chain link fence to intermediate or line posts on 14-inch centers. Space tie wires on chain link gates on 24-inch centers. Install the chain link fence around utility installations facing the highway with the barbed wire arms at a 45 degree angle extending toward the highway. Design and install post caps for all tubular posts so as to exclude moisture from inside the posts, and install socket type brace end connections so as to exclude moisture from inside the rails.

3.3 GATES

Erect gates at locations specified in the Plans or as the Engineer directs. Erect the gate plumb with its hinges firmly attached to the post and to the gate. Allow the gate to swing freely when opened. Install the latch so it works easily and secures the gate when closed. Furnish water gates of the specified type that conform to the Plans and Standard Drawings.

3.4 FINISHING

Ensure that the tops of all posts are at a uniform height above the ground or at a uniform distance above the top of the woven wire fabric. After erecting the fence, saw the tops of wood posts uniformly at least 2 inches above the strand of barbed wire. Make the cut at an angle of 60 degrees to the vertical on the side of the post away from the wire. Ensure that the finished fence is true to line, taut, and solid at all points. Dispose of all surplus excavated material and other debris resulting from construction and leave the fence line with a neat and orderly appearance.

4.0 MEASUREMENT

4.1 FENCE

The Department will measure the quantity of each type and height in linear feet along the top of the fence from outside to outside of end posts of fence installed, with deductions for all gates. The Department will not measure material removal and disposal, drilling, excavating, or backfilling, installation or removal of temporary fences, or for connections to abutments or other structures for payment and will consider it incidental to this item of work.

4.2 GATES

The Department will measure the quantity by each individual unit. The Department will not measure excavation or concrete for water gates for payment and will consider it incidental to this item of work.

5.0 PAYMENT

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

Code	Pay Item	Pay Unit
02259, 02261-02263, 02273-02275, 08709-08716	Fence, Type and Height	Linear Foot
02281, 02282, 02286-02289	Gate, Type	Each

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

SECTION 15100

WATERLINES

1.0 GENERAL

The Contractor shall furnish all labor, materials and equipment to install the water lines as shown on the plans and as specified herein.

The water lines may either be pressure-rated plastic pipe (PVC), municipal plastic pipe (MPVC) or ductile iron (DI), all as specified hereinafter. The bid documents and plans shall show the amounts of each type and class of pipe to be provided by the Contractor.

The Owner will obtain all rights-of-way for operations through private property. It will also secure building permits and the permits for all pipe laid in highway rights- of-way. Any charges for inspections or other fees required will be the responsibility of the Contractor since the amounts of these are dependent upon the operation of the Contractor.

1.1 TRANSPORTATION CABINET BONDING - NOT APPLICABLE

The Kentucky Transportation Cabinet will require that the Owner post a bond for all work accomplished on their right-of-way. Each contract on which work is to be performed will be a separate application and will require a separate bond. Each permit will have conditions attached and these conditions will vary depending on the area where work is to be performed. In areas where traffic control may pose a problem, working hours may be limited. A copy of the encroachment permit will be provided to the Contractor. The Contractor will be responsible for knowledge of the permit's content and conditions in order that the construction may be accomplished in accordance with the specified requirements.

Should any additional bonds or requirements be imposed by the Kentucky Transportation Cabinet, the Owner shall also be responsible for the bonding of the additional requirements.

2.0 PIPE AND FITTINGS

2.1 POLYVINYL CHLORIDE RIGID PIPE AND FITTINGS

This specification covers rigid, pressure-rated, polyvinyl chloride pipe and fittings, hereinafter called PVC pipe and PVC fittings, for sizes 1/2 inch through 12-inch.

Pipe shall be as manufactured by North American, Diamond, J-M or approved equal.

2.1.1 PVC Pipe. PVC pipe shall be extruded from Type 1, Grade 1, polyvinyl chloride material with a hydrostatic design stress of 2,000 psi for water at 73.4°F, designated as PVC 1120, meeting ASTM Specifications D-1784 for material and D- 2241 for pipe, latest revisions. Pipe shall also meet all applicable provisions of the Product Standards and shall bear the National Sanitation Foundation (NSF) seal of approval in compliance with NSF Standard No. 14. PVC pipe having a maximum hydrostatic working pressure of 160 psi (SDR26), 200 psi (SDR21), 250 psi (SDR17), or 315 psi (SDR13.5) shall be used as shown in the Bid Documents and Plans.

Samples of pipe and physical and chemical data sheets shall be submitted to the Engineer for review and determination of compliance with these specifications before pipe is delivered to job. The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects.

The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures (ASTM D-1598), burst pressures (ASTM D-1599), flattening, extrusion quality (ASTM D-2152), marking and all other requirements of the Product Standard PS 22-70 shall be with in all respects. No pipe, 2 inches in diameter or larger, with a wall thickness less than 0.090 inches may be used.

Pipe shall be furnished in 20 feet or 40 feet lengths. The pipe shall be bell on one end. Male ends of pipe must be beveled on the outside. Pipe shall have a ring painted around the male end or ends in such a manner as to allow field checking of setting depth of pipe in the socket. This requirement is made to assist construction superintendents and inspectors in visual inspection of pipe installation.

Pipe must be delivered to job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical. Pipe must not be exposed to the direct rays of the sun for an extended period of time. If pipe is not to be installed shortly after delivery to the job site, it must be stored in a shaded location and strung as needed.

2.1.2 PVC Pipe Jointing. Pipe shall be joined with slip-type joints with rubber gaskets. Pipes with bells shall have all parts of the bell, including the gasket groove, made from the same extruded piece, integral with the pipe, and shall be thickened to meet standard dimension ratios of wall thickness to outside diameter. This manufacturing procedure shall be the normal practice of the pipe manufacturer and proven by past performance of pipe in service. The gasket

groove shall be constructed such that gasket rollout will not occur. Rubber gasketing shall conform to ASTM 3139.

Joint lubricant shall be of a type recommended by the manufacturer for their pipe subject to the Engineer's approval. Lubricant shall be water soluble, non-toxic and have no objectionable properties.

2.1.3 PVC Couplings. Where PVC couplings are used, they shall be of the same material as the pipe and may be of the molded, or extruded type. PVC couplings shall have a minimum rating of 200 psi for continuous operation at 73.4 degrees F.

2.1.4 Fittings. Ductile iron mechanical joint type fittings with appropriate adaptors as manufactured by Romac, Ebaa Iron, or approved equal, shall be used with PVC pipe. All such fittings shall be approved by the pipe manufacturer, and complete data sent to the Engineer, including the manufacturer's approval, for review. Fittings shall comply with AWWA C-110 or C-153 and shall be manufactured for the size and pressure class of the line on which they are used. Use of transition gaskets will not be allowed unless specifically approved by the pipe manufacturer. Coatings and lining shall be in accordance with 2.3.7.F of this section of the Specifications.

2.1.5 Underground Marking for PVC Pipe. Underground marking for PVC pipe shall be both of the following types. The type required for this project is specified in the notes on the Drawings.

2.1.5.1 Underground Marking Wire. At all locations where PVC pipe is utilized, a detectable underground marking wire shall be placed in the trench as shown on the miscellaneous drawings. The wire used shall be No. 12 insulated copper wire. Copper split bolt screw connectors shall be used for splice connections, see miscellaneous drawings. Extreme care shall be exercised in connecting and taping splices and joints to assure continuity. At each valve box the wire shall be looped to the surface extending 12-inches above the concrete valve box pad (see Std. Dwg. for valve). When the entire project or pipeline segment is complete, including meter installation and leak repairs, the locating wire system shall be checked for continuity.

2.1.5.2 Underground Marking Tape. At all locations where PVC pipe is utilized, a detectable underground marking tape shall be placed in the trench approximately twelve inches below the finished grade. The tape used shall be mylar encased aluminum foil with the printing "CAUTION - Buried Water Line Below". Printing shall be readable through the clear mylar and surface printing is not acceptable. Tape size shall be 2 inch width as provided by Lifeguard, Inc., Brady, or approved equal. Color of the tape shall be blue.

2.2 MUNICIPAL POLYVINYL CHLORIDE (MPVC) PRESSURE PIPE

This specification covers the requirements for AWWA approved Polyvinyl Chloride Pressure Pipe for water supply and distribution systems.

2.2.1 MPVC Pipe. MPVC pipe shall meet the requirements of AWWA C900, latest revision, "Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4" through 12" for water" and shall be furnished in cast-iron pipe equivalent outside diameters with rubber-gasketed separate couplings. Pipe shall be as manufactured by Certainteed, JM Eaagle, or approved equal.

MPVC pipe and couplings shall be made from Class 12454-A or Class 12454-B virgin compounds as defined in ASTM D-1784. The standard code designation shall be PVC 1120. The PVC compounds shall be tested and certified as suitable for potable water products by the NSF Testing Laboratory and shall carry the NSF approval marking.

Solvent-cement couplings or joints shall not be used. PVC joints using elastomeric gaskets shall be tested as assembled joints and shall meet the laboratory performance requirements specified in ASTM D-3139.

Pipe and couplings shall be pressure Class 100, DR 25 (Dimension Ratio), pressure Class 150, DR 18, or pressure Class 200, DR 14 as shown on the plans or the bid form.

Pipe and couplings shall be marked as follows:

a. Nominal size and OD base.
b. Material code designation (PVC 1120).
c. Dimension ratio number.
d. AWWA pressure class.
e. AWWA designation number (AWWA C900).
f. Manufacturers name or trade-mark and production record code.
g. Seal of the NSF Laboratory.

Pipe and couplings shall meet or exceed the following test requirements:

Sustained Pressure - ASTM D-1598 (1000 Hrs.)	
DR	Sustained Pressure
14	650 psi
18	500
25	350

Burst Pressure DR	-	ASTM D-1599 (60-70 seconds) Minimum Burst Pressure
14		985
18		755
25		535

Hydrostatic Integrity - Each standard and random length of pipe shall be proof-tested at four times its rated class pressure for a minimum of 5 seconds. Bells or couplings shall be tested with pipe.

Flattening - The pipe shall not split, crack, or break when tested by the parallel-plato method as specified by ASTM D- 2241.

Extrusion quality - The pipe shall not flake or disintegrate when tested by the acetone-immersion method as specified in ASTM D-2241.

Standard length - Pipe shall be furnished in standard laying lengths of 20 ft. ± 1 in. A maximum of 15 percent of each pipe size may be furnished in random lengths of not less than 10 ft. each.

2.2.2 MPVC Pipe Jointing. Pipe shall be joined with slip-type joints with rubber gaskets. Manufacturing and installation procedures shall be as recommended by the manufacturer and as described for PVC pipe in Section 2.1.2 of this specification.

2.2.3 Fittings. Fittings for municipal PVC shall be ductile iron only. Fittings shall be mechanical joint. Fittings shall be manufactured for the size and pressure class of the line on which they are used and shall comply with AWWA C-110 or C-153. Coatings and lining shall be in accordance with subsection 2.3.7.F of this section of the Specifications. Fittings shall be as manufactured by Tyler, Clow, U.S. Pipe, Union Foundry or approved equal.

2.2.4 Underground Marking for MPVC Pipe. Underground marking for MPVC pipe shall be both of the following types. The type required for this project is specified in the notes on the Drawings.

2.2.4.1 Underground Marking Wire. At all locations where MPVC pipe is utilized, a detectable underground marking wire shall be placed in the trench as shown on the miscellaneous drawings. The wire used shall be No. 12 insulated copper wire. Copper split bolt screw connectors shall be used for splice connections, see miscellaneous drawings. Extreme care shall be exercised in connecting and taping splices and joints to assure continuity. At each valve box the wire shall be looped to the surface extending 12-inches above the concrete valve box pad (see Std. Dwg. for valve). When the entire project or pipeline segment is complete, including meter installation and leak repairs, the locating wire system shall be checked for continuity.

2.2.4.2 Underground Marking Tape. At all locations where PVC pipe is utilized, a detectable underground marking tape shall be placed in the trench approximately twelve inches below the finished grade. The tape used shall be mylar encased aluminum foil with the printing "CAUTION - Buried Water Line Below". Printing shall be readable through the clear mylar and surface printing is not acceptable. Tape size shall be 2 inch width as provided by Lifeguard, Inc., Brady, or approved equal. Color of the tape shall be blue.

2.3 DUCTILE IRON PIPE

These specifications cover ductile iron pipe (3-inch diameter and greater) to be used in water transmission systems with mechanical joints, rubber ring slip type joints or flanged joints.

2.3.1 General. Ductile iron pipe shall be designed in accordance with AWWA H3 (ASA A21.50) and for pressures and conditions as stated in these specifications or called for on the plans. Ductile iron pipe shall conform to AWWA C-151 (ASA A21.51.).

2.3.2 Minimum Nominal Thickness. The specified thickness will be determined for the given internal and external loading requirements in accordance with ASA A21.50. The class of pipe, wall thickness, and coatings required will be shown on the plans or the bid form for all ductile iron pipe installation.

2.3.3 River Crossing Pipe. River crossing pipe shall be ductile iron, "Flex-Lok" as manufactured by the American Cast Iron Pipe, "Flex-tend" as manufactured by Ebaa Iron, or equal conforming to the appropriate requirements of ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.5 with a thickness class of 54.

2.3.4 Lengths. Pipe may be furnished in 12, 16, 16 1/2, 18 or 20 feet nominal laying lengths.

2.3.5 Tests. Hydrostatic and acceptance tests shall be in accordance with AWWA Specification C-106 for "Cast Iron Pipe Centrifugally Cast In Metal Molds" or C-108 for sand molds. The Engineer shall be provided with five (5) copies of each of the following tests for each contract involved:

a. Talbot strip test.
b. Ring and full length bursting tests.
c. Chemical analysis of pipe.
d. Certification that pipe was hydrostatically tested.

Any pipe not meeting the AWWA Specifications quoted above shall be rejected in accordance with the procedure outlined in the particular specifications.

2.3.6 Marking. The net weight, class or nominal thickness and sampling period shall be marked on each pipe.

2.3.7 Pipe Joints for Ductile Iron Pipe. Pipe joints shall be mechanical joint, rubber ring slip joint, flanged, or locked mechanical joint as shown on the plans.

A. Mechanical Joint

Mechanical joints are to be furnished according to AWWA Specifications C-111. All pipe joints must be furnished complete with all accessories. Mechanical joint bolts and nuts shall be of alloy cast iron or alloy steel (Corten type) or approved equal. Rubber gaskets shall be made of plain first grade rubber, free of imperfections and porosity. Hardness shall be 70 to 75 durometer.

B. Rubber Ring Slip Joint

Rubber ring slip joint shall be equal to AWWA C-111 or latest revision. The joints shall be of the following materials:

a. Rubber ring gasket compressed in groove in bell of pipe.

b. Beveled spigot end of pipe for initial centering into rubber gasket in bell.

C. Locked Mechanical Joint

Locked mechanical joints shall be equal to Clow Corporation's "Locked Mechanical Joint" or "Lok-ring" as manufactured by American-USA.

D. Ductile Iron Flanged Pipe and Special Coupling

a. Flanged Pipe. All ductile iron flanged pipe shall have flanges faced and drilled, 125 pound in accordance with ASA A21.10 (AWWA C-110) unless otherwise specified on the Drawings. Flanges may be cast integrally with the pipe or they may be screwed on specially designed long hub flanges, refaced across both face of flange and end of pipe. Flanged pipe shall be in accordance with ASA A21.6 (AWWA C-106) Specifications, latest revision, and be the class called for on the plans or bid forms. Where plain ends of flanged and plain end pipe fit into mechanical joint bells, centrifugally cast pipe shall be used. Flanged pipe for water service shall be cement lined and bituminous coated the same as written herein for bell-joint pipe.

b. Special Coupling. Flexible couplings for flanged pipe shall be a mechanical joint cast to a special flanged joint using a neoprene O-ring in place of the usual 1/16 inch rubber ring gasket. The mechanical bell and special flanged joint piece shall be of high grade gray cast iron

(ASTM A48-56, AWWA C-100) with bolt circle, bolt size and spacing according to ASA Specifications. Mechanical joint follower flange shall be of ductile iron ASTM A399 or malleable iron ASTM A47, Grade 35018 or 32510, latest revision with high strength/weight ratio design.

Bolts shall be fine grained high tensile malleable iron with malleable iron hexagon nut. Stainless steel nuts shall be used in vaults and wet wells. Where pressures may exceed 20 pounds, anchor studs shall be included with spigots of pipes connected drilled to receive ends of studs.

E. All items used for jointing pipe shall be furnished with the pipe and tested before shipment. The joints shall be made with tools and lubricant in strict conformity with the manufacturer's instructions. Three (3) copies of such instruction shall be delivered to the Engineer at start of construction.

F. Coatings and Lining. All buried ductile iron pipe shall have manufacturers outside coal tar or asphaltic base coating and a cement lining and bituminous seal coat on the inside. Cement mortar lining and a bituminous seal coat inside shall conform to ANSI A21.4 (AWWA C-104) latest revision.

All pipe and fittings housed and in vaults shall be lined and coated on the inside as specified herein for buried ductile iron pipe and fittings, but shall be left uncoated on the outside so that it may be painted without the use of tar stop.

G. Fittings for Ductile Iron Pipe. Ductile iron mechanical, rubber ring slip and flanged joints shall conform to ASA Specifications A21.10 (AWWA C-110) for centrifugally cast iron water pipe. Mechanical joints shall also conform in all respects to ASA 21.11 (AWWA C-111). All fittings shall be manufactured for the size and pressure class of the pipeline in which they are to be used. Mechanical joint type fittings with appropriate adaptors as manufactured by Ebaa Iron, Inc., American-USA, or approved equal, shall be used. All fittings shall be furnished complete with all joint accessories. All ductile iron pipe fittings for water, sewer, air, gas and force main service shall be bituminous coated outside and lined on the inside same as the line on which they are installed.

H. Underground Marking Tape. At all locations where Ductile Iron pipe is utilized, a detectable underground marking tape shall be placed in the trench approximately twelve inches below the finished grade. The tape used shall be mylar encased aluminum foil with the printing "CAUTION - Buried Water Line Below". Printing shall be readable through the clear mylar and surface printing is not acceptable. Tape

size shall be 2 inch width as provided by Lifeguard, Inc., Brady, or approved equal. Color of the tape shall be blue.

2.4 POLYETHYLENE PIPE

This pipe is used primarily for stream crossings and other special applications in locations indicated on the Drawings. The required pressure class shall be as shown on the Drawings.

The pipe shall be PE 3408 high density, high molecular weight polyethylene pipe as manufactured by Phillips Driscopipe, Inc., JM Eagle, or approved equal. The pipe shall meet or exceed the following specifications:

a. ASTM 3350 having a cell classification of PE34534C
b. ASTM F714 - Dimensions and Workmanship
c. AWWA C901 - Potable Water Pipe
d. ASTM D1248 - Type III, Class C, Category 5, Grade P34
e. ASTM D3261 - Fittings Standard
f. NSF - Listed, Standard #14

The pipe shall be joined by the butt fusion technique utilizing controlled temperatures and pressures to produce a fused, leak-free joint that has equal or greater strength than the pipe itself in both tension and hydrostatic loading. The joining system shall be equal to Phillips butt fusion joint system.

Transitions to the continuing pipeline shall be made with the appropriate fittings to maintain the integrity of the piping system as recommended by the pipe manufacturer.

Drawings showing details of the installation shall be submitted to the Engineer for approval prior to installation.

3.0 HAULING AND STORAGE

The Contractor shall notify the Engineer when pipe will be received on the job so that proper arrangements may be made for inspecting the unloading and stringing, as well as inspecting and examining the pipe materials.

All pipes shall be covered with tarpaulin during hauling from the manufacturer to the job site. It is acceptable for the front end only to covered. The intent is to prevent diesel exhaust residue from coating the pipe and/or contaminating the gaskets.

The Contractor will be required to deliver all equipment and other materials and place same as and where required for installation. Care must be exercised in the handling of all materials and equipment and the Contractor will be held responsible for all breakage or damage to same caused by his workmen, agents,

or appliances for handling or moving. Pipes and other castings shall in no case be thrown or dropped from cars, trucks, or wagons to the ground, but same shall be lowered gently and not allowed to roll against or strike other castings and unyielding objects violently. Pipe and other castings may be distributed at places that will not interfere with other building operations and unloaded, or yarded and distributed as required, as the Contractor may elect.

Valves, castings, fabricated metal, reinforcing steel, etc. shall be yarded or housed in some convenient location by the Contractor and delivered on the ground as required. All equipment and materials subject to damage from the weather, dampness, changes in temperature, or exposure shall be protected by a dry, weatherproof enclosure until ready for installation or use. The cost of all hauling, handling, and storage shall be included in the prices bid for equipment and materials in place. The Owner takes no risk or responsibility for fire, flood, theft, or damage until after the final acceptance of the work.

4.0 LINES AND GRADES

The Contractor will be required to accomplish any detailed layout, including that required for establishing the grade of the pipe line.

5.0 TRENCH EXCAVATION

5.1 GENERAL

This section describes the acceptable methods of trenching for the installation of pressure pipe and casing pipe in an open trench.

Trenching may be accomplished by means of a backhoe, trenching machine or by hand depending on the construction area.

At the Contractor's option, trenching, by a trenching machine or by backhoe is acceptable except as noted below:

Where the pipe line is being constructed close to other utilities, structures, building, or large trees, and it is reasonable to anticipate possible damage from the use of a backhoe, then trenching shall be made by hand methods.

The Contractor shall include in his unit price bid, all trenching necessary for installation of all pipelines as planned and specified. Trenching shall include all clearing and grubbing, including all weeds, briars, small trees, stumps, etc. encountered in the trenching. The Contractor shall dispose of any such material by burning, burial, or hauling away (or as noted on the drawings), at no extra cost to the Owner. It shall be the Contractor's responsibility to notify the appropriate State and local Air Pollution Control agencies when he conducts open burning of refuse. Ornamental shrubs shall be removed, protected, and replanted.

Trenching also includes such items as minor street, road, sidewalk, pipe and small creek crossings; cutting, moving or repairing damage to fences, poles, or gates and other surface structures regardless of whether shown on the plans.
The Contractor shall protect existing facilities against danger or damage while pipeline is being constructed and backfilled, or from damage due to settlement of this backfill. In case of damage to any existing structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structures will be in as good condition and serve its purpose as completely as before and such restoration and repair shall be done without extra cost to the Owner. The use of trench- digging machinery will be permitted except where its operations will cause damage to trees, buildings or existing structures above or below the ground. At such locations hand methods shall be employed to avoid such damage. All excavated material shall be piled in a manner that will not endanger the work and will avoid obstructing sidewalks and driveways. Gutters shall be kept clear or other satisfactory provisions made for street drainage.
All excavation shall be open trenches, except where the drawings call for tunneling, boring, or jacking under structures, railroads, sidewalks and roads. The construction procedure for these types of excavation is described elsewhere in these specifications.

All trench excavation shall be termed unclassified and costs shall be included in the unit price bid for the pipe.

5.2 CLEARING

The Contractor shall accomplish all clearing and/or grubbing as required for the construction under this contract. Clearing and grubbing shall include the cutting and removal of threes, stumps, brush, roots, logs, fences and other loose or projecting material and natural obstructions which, in the opinion of the Engineer, must be removed to properly prosecute the construction and operate the facilities upon completion of construction. Trees, unless designated otherwise on the plans, shall remain and be properly protected. Ornamental shrubs, plantings, fences, walls, etc. shall be removed and replanted or replaced or protected from the construction activity. Clearing and/or grubbing shall be incidental to the various bid items and no additional compensation will be paid for same.

5.3 TRENCH DEPTH

Trenches shall be excavated to the line and grade required for the installation of pipe at the elevations indicated on the plans. The minimum depth of cover shall be 30 inches above the top of the pipe, unless shown otherwise on the plans or on the Standard Details. When the pipe is laying in or on solid rock, the minimum depth of cover shall also be 30 inches above the top of the pipe. No additional compensation will be made for extra depth where required by the plans or due to Contractor error. Excavation, except as required for exploration,

shall not begin until the proposed work has been staked out. Materials which are not required for backfill and site grading shall be removed and disposed of as directed by the Engineer. Hauling, bedding, and backfilling shall be considered incidental to the various bid items and will not be paid for directly. Excavation shall be of sufficient depth to allow the piping to be laid on the standard pipe bedding in accordance with the Section 6 of this section. The trenches shall be excavated to a minimum of six inches (6") below the bottom of the pipe barrel in rock. In all cases where lines are under traffic a minimum cover of forty-two (42") inches shall be provided. Should it be necessary to avoid existing utilities, culverts, outlets, or other structures, the water line shall be carried deeper at no additional expense to the Owner.

Where the plans call for extra trench depth, this extra depth shall be provided at no extra cost.

5.4 TRENCH WIDTH

Trench widths shall exceed the minimum width that will provide free working space on each side of the pipe and to permit proper backfilling around the pipe as shown in the accompanying table and unless specifically authorized by the Engineer, shall not be excavated to wider than two feet (2') plus the nominal diameter of the pipe at the top of the trench. Before laying the pipe, the trench shall be opened far enough ahead to reveal any obstruction that may necessitate changing the line and grade of the pipe. Should the Contractor fail to accomplish this, and changes are required, they shall be at his sole expense. In rock, all ledge rocks, boulders and large stones shall be removed to provide six inches (6") of clearance on each side and below all pipe and fittings.

MINIMUM TRENCH WIDTH

Size	Width	Size	Width
Up to 4" Pipe	2'-0"	15" Pipe	2'-8"
6" Pipe	2'-0"	16" Pipe	2'-8"
8" Pipe	2'-0"	18" Pipe	3'-0"
10" Pipe	2'-4"	20" Pipe	3'-2"
12" Pipe	2'-6"	21" Pipe	3'-4"
14" Pipe	2'-6"	24" Pipe	3'-8"

5.5 SHORING, SHEETING AND BRACING OF EXCAVATION

Where unstable material is encountered, or where the depth of the excavation in earth exceeds five feet (5'), the sides of the trench or excavation shall be supported by substantial sheeting, bracing, or shoring. The design and installation of all sheeting, sheet piling, bracing or shoring shall be based on computations of pressure exerted by the materials to be retained under retaining conditions. Adequate and proper shoring of all excavations will be the entire

responsibility of the Contractor. The Standards of the Federal Occupational Safety and Health Act and the Kentucky Department of Labor shall be followed.

The Engineer will not be responsible for determining requirements for bracing or sheeting.

5.6 REMOVAL OF WATER

The Contractor shall provide for adequate removal of all water and the prevention of surface water from entering the excavation. The Contractor shall maintain dry conditions within the excavations until the backfill is placed. No additional compensation will be paid for replacement and/or stabilization of prepared excavations due to flooding and/or deterioration from extended exposure. All water pumped or drained from the excavation shall be disposed of in a suitable manner without damage to adjacent property or to other work under construction.

5.7 PAVEMENT REMOVAL

Pavement removal shall be as indicated on the plans or directed by the Engineer. When so required, or when directed by the Engineer, only one-half (1/2) of the street crossings or road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such a manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property Owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer. Pavement replacement shall be in accordance with Section 15102 of these specifications. Excavated materials shall be disposed of so as to cause the least interference and in every case the disposition of excavated materials shall be satisfactory to the Engineer.

5.8 TRAFFIC MAINTENANCE

The Contractor must "red light" and guard all open trenches or obstructions placed on the streets or sidewalks. The lights must be burning from sunset to sunrise in order to effectually warn and safeguard the public against dangers connected with open trenches, excavations and other obstructions. The Contractor shall be held responsible for any damage that may occur to persons or property by reason of the failure of the Contractor to properly "red light" and guard all open trenches or obstructions along the routes of the water lines. This Contractor at his own expense shall also maintain warning signs, barricades and a watchmen or flagmen to control traffic at such times as his work would interfere with the flow of traffic. No excavation shall begin that may present a safety hazard unless the signs, barricades, lights, etc. are available to protect the open excavation at the conclusion of the day. The Contractor will comply with all Federal and State Occupational Safety and Health requirements for this type of

construction. The Contractor shall also comply with all local and Kentucky Department of Highways requirements for signing and traffic control.

5.9 LINE LOCATION

The location of pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present themselves before construction on any line is started that would indicate desirable changes in location. In such cases, the Owner reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by extra units of materials and construction actually involved. The Owner is under no obligation to locate pipelines so they can be excavated by machine.

6.0 BEDDING OF PIPELINE

In all cases the foundation for pipe shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. The bells of the pipe shall not carry any of the loads of the backfill. The Contractor should refer to the Standard Details for pipe bedding shown in the plans. The bedding specifications shall govern the backfill from the bottom of the trench up to the centerline or spring line of the pipe.

6.1 STABLE EARTH FOUNDATION

On all PVC pipelines, the trench bottoms shall be smooth and free of frozen material, clodded dirt and stones over 1/2" diameter. Bottom dirt left by trenching equipment will usually provide adequate material to level the trench bottom and provide bedding support for the pipe barrel. If the trench bottom is free of dirt, soft material may be shoveled off the side walls or shoveled under the pipe to insure proper pipe barrel bedding. In areas where the trench bottom is hard, a layer of soft backfill must be provided to insure the pipe barrel is properly cushioned. See the plans for proper bedding material depth.

If the foundation is good firm earth the pipe may be laid directly on the undisturbed earth provided the pipe barrel is supported for its full length.

Bedding of No. 9 stone, fine gravel, sand or compacted finely graded select earth shall be used to correct irregularities in the subgrade. Where bell and spigot is involved, bell holes shall be excavated to prevent the bells from being supported on undisturbed earth.

As an alternative to the above method, excavation in earth may be undercut to a depth below the required invert elevation that will permit laying the pipe on a bed of granular material or finely graded select earth to provide continuous support for the pipe barrel. Bedding depth shall be as shown on the plans.

The bedding is not a separate pay item and shall be included as incidental expense in the unit price for the pipe bid per foot of pipe.

6.2 TRENCHES IN ROCK

All installation in rock will utilize the undercutting method. Bedding will be with 6 inches crushed stone as shown in the Standard Details.

6.3 UNSTABLE TRENCHES

If unstable material is encountered which may not provide a suitable foundation for the pipe, the unstable material will be removed and an adequate layer of encasement concrete or other special bedding shall be placed for the pipe foundation in accordance with the Standard Details in the plans. Such "special pipe foundation" shall only be installed if directed by the Engineer in writing or on the plans.

All ductile iron pipes shall be installed in accordance with Standard ANSI/AWWA C150/A21.50 Laying Condition Type 3 unless otherwise noted.

7.0 PIPE LAYING

7.1 GENERAL

Proper instruments, tools and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and convenient prosecution of the work. Each pipe manufacturer shall have an experienced representative on the job for at least one day at the commencement of jointing and laying operations.

Before any length of pipe is placed in the trench, a careful inspection shall be made of the interior of the pipe to see that no foreign material is in the pipe. In order to properly remove any foreign materials, a swab of necessary length is to be available at all times.

All pipes shall be lowered carefully into the trench, properly aligned and properly jointed by use of suitable tools and equipment, in such a manner as to prevent damage to water line materials and protective coatings and linings. Excessive scratching of the exterior surface of the pipe will be cause for rejection of the pipe.

Under no circumstances shall pipeline materials be dropped or dumped into the trench. The pipe and fittings shall also be inspected for the purpose of determining if they are sound and free from cracks. Laying of pipe shall be commenced immediately after excavation is started. Pipe shall be laid with bell ends facing in the direction of laying.

When pipe laying is not in progress, the open ends of pipe shall be closed by approved means to prevent entrance of trench water into the line. Whenever water is excluded from the interior of the pipe, adequate backfill shall be deposited on the pipe to prevent floating. Any pipe which has floated shall be removed from the trench and relaid as directed by the Engineer. No pipe shall be laid in water or on frozen trench bottom, or whenever the trench conditions or the weather are unsuitable for such work.

If any defective pipe and fittings shall be discovered after the pipeline is laid, they shall be removed and replaced with a satisfactory pipe or fitting without additional charge to the Owner. Open ends of unfinished pipe lines shall be securely plugged or closed at the end of each day's work or when the line is left temporarily at any other time.

7.2 LAYING DUCTILE IRON PIPE

Ductile iron bolted joint, rubber ring slip joint, and ball and socket river crossing pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer. Three (3) copies of instructions shall be furnished the Engineer and one (1) copy shall be available at all times at the site of the work. The lining inside ductile iron pipe must not be damaged by handling.

All pipes must be forced and held together, or "homed" at the joints, before sealing or bolting. Pipe must be aligned as each joint is placed, so as to present as nearly true, straight lines and grades as is practical, and all curves and changes in grades must be laid in such a manner that the manufacturer's recommended maximum deflection is not exceeded at any joint.

Cutting of pipe may be done by wheeled pipe cutters or saws, or by hammer and chisel, as the Contractor may elect, but the Contractor will be held responsible for breakage or damage caused by careless cutting or handling.

All ductile iron pipes shall be installed with Standard ANSI/AWWA C150/A21.50 Laying Condition Type 3 unless otherwise noted, six inches (6") crushed stone bedding shall be used in rock. Sufficient space (limited to 2 feet longitudinally) shall be left out of 4 or 6 inch cushion for tightening of bolts where bolted joints are used. No pipe shall be laid resting on rock, blocking, or other unyielding objects. Jointing before placing in trench, and subsequent lowering of more than one section jointed together may be allowed, subject to the Engineer's approval and direction.

When using pipe with push-on joints care must be exercised to make certain that the correct gasket is being used for the type of joint installed and that the gasket faces the proper direction. Before inserting the gasket, the groove and bell socket should be carefully cleaned of all dirt. If sand or dirt is permitted to remain in the groove, leaks may occur. Lubricant must be applied to bell socket,

gasket and plain- end of pipe as required by manufacturer. Plain-end must be beveled before joint is made. Deflection required at the joint shall be obtained after the joint is made.

Cut pieces of ductile iron pipe 18 inches or more in length, shall be used in fitting to special conditions, and valves and fitting changes in grade and alignment, provided cutting is even enough to make first class joints and no cracks are evident.

7.3 LAYING PLASTIC PIPE

The trench bottom must be smooth and uniform and the alignment must conform to the plans. Bedding and cover as specified herein and shown in the Standard Details is required.
To make a clean and unobstructed joint, it is necessary to wipe the ring, groove and pipe spigot free from all foreign materials at the time of assembly (welded joints will be allowed only in special cases and will be required as shown on the plans). The ring must be positioned properly in the fitting to receive the pipe by a worker who is not in contact with the lubricant. In general, the lubricant is applied to the spigot (not the ring or groove). However, the manufacturer's instructions are to be followed in all cases. Only an approved lubricant may be used in accordance with the manufacturer's recommendations. All plastic pipes shall be joined by hand.

Where good bedding conditions are attained PVC pipe smaller than 4 inches may be assembled outside the trench in longer sections (as conditions allow) and then lowered into the trench. At any time when improper bedding is discovered or the pipe is severely deflected the pipe will be removed from the trench and the condition corrected. Pipe in sizes 4 inch and above may be assembled outside the trench but must be lowered into the trench as each joint is assembled. Regardless of installation methods all couplings must be inspected after laying in trench for proper insertion and alignment. Field cuts and bevels will be allowed in accordance with the manufacturer's recommendations for these operations. A new reference mark shall be installed before joining any field cut pipe. The same requirements for clearance from rock or other objects, thrust blocking and deflections shall apply to PVC pipe as for other pipe materials.

Municipal PVC pipe of all sizes must be assembled in the trench in strict accordance with the manufacturer's requirements.

7.4 INSTALLATION OF RIVER CROSSING PIPE

The ball joint pipe shall be assembled and installed in accordance with manufacturer's recommendations. Installation shall be made at time of low flow, using cofferdams as necessary to divert stream flow. The ball joint pipe shall be laid and allowed to settle before joining to the pipe on each side of the stream.

The ball and joint pipes shall be tested separately once in place to detect any leaks or bad joints. After connecting to the land pipe, it shall be tested the same as specified for the other water mains. See the Drawings for additional installation requirements.

8.0 BACKFILLING

Backfilling must be started as soon as practicable after pipe has been laid and joints hardened sufficiently, and jointing and alignment approved. Spading of crushed rock, sand, or mechanical tamping of earth, around pipe (as specifically required) between joints shall be the usual procedure as the laying progresses. This is in order to avoid danger or misalignment from slides, flooding or other causes. The Engineer shall be given a minimum of 24 hours for inspection before backfilling. The backfill shall be crushed rock, sand, or finely divided earth free from debris, organic material and stones, places simultaneously on both sides of pipe to the same level by hand.

In backfilling of the lower part of the trench beginning at the top of the bedding, the backfill material shall be carefully and solidly tamped by hand or approved mechanical methods in 6" layers around the pipe and up to a point 8 inches higher than the top of the pipe. For PVC only the backfill shall be select material and may be walked-in. Walking or working on the completed pipe line, except as necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a point one diameter higher than the top of the pipe. The filling of the trench and the tamping of the backfill shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipe line will not be disturbed and injurious side pressures do not occur.

After the above specified backfill is hand placed, rock may be used in the backfill in pieces no larger than 18 inches in any dimension and to an extent not greater than one-half (1/2) the backfill materials used. If additional earth is required, it must be obtained and placed by the Contractor. Filling with rock and earth shall proceed simultaneously, in order that all voids between rocks may be filled with earth. Above the hand placed backfill, machine backfilling may be employed without tamping, (if not contrary to specified conditions for the location) provided caution is used in quantity per dump and uniformity of level of backfilling. Backfill material must be uniformly ridged over trench and excess hauled away, with no excavated rock over 1-1/2 inch in diameter or pockets of crushed rock or gravel in top 6 inches of backfill. Ridged backfill shall be confined to the width of the trench and not allowed to overlap onto firm original earth and its height shall not be in excess of needs for replacement of settlement of backfill. All rock, including crushed rock or gravel from construction, must be removed from yards and fields. Streets, roadways and walks shall be swept to remove all earth and loose rock immediately following backfilling.

In the case of street, highway, railroad, sidewalk and driveway crossings or within any roadway paving or about manholes, valve and meter boxes, the backfill must

be machine tamped in not over 4-inch layers, measured loose in accordance with the standard details. Where backfill is under paved driveways, streets, highways, railroads, sidewalks, paved parking areas and other areas where settlement is not allowed, crushed stone or coarse sand backfill only shall be used up to the paving surface. Crushed stone shall be Kentucky Department of Highways Standard Specification No. 78 or finer. Coarse sand backfill shall be spread in layers not over 4 inches thick and thoroughly compacted. Sand may be moistened to aide compaction. Tunnels shall be backfilled in not over 3-inch layers, measured loose, with selected material suitable for mechanically tamping. If material suitable for tamping cannot be obtained, sand, gravel or crushed rock (No. 78) shall be blown, packed or sluiced to complete fill all void spaces.

Where local conditions permit, pavement shall not be placed until 30 days have passed since placing backfill. Crushed stone is specified for roads and parking areas and sidewalks or their bases, shall be placed and compacted to the top of trench. Backfills shall be maintained easily passable to traffic at original ground level, until acceptance of project or replacement of paving or sidewalks.

Where the final surfacing is to be crushed stone, compacted earth backfill may be used in the trench to within 6 inches of the top as shown in the Standard Details.

Railroad Company and Highway Department requirements in regard to backfilling will take precedence over the above general specification where they are involved.

Excavated materials from trenches and tunnels in excess of quantity required for trench backfill shall be disposed as shown on the plans or as directed by the Engineer.

The Contractor shall protect all sewer, gas, electric, telephone, water and drain pipes or conduits, power and telephone poles and guy wires from danger of damage while pipelines are being constructed and backfilled, or from danger due to settlement of his backfill.

In case of damage to any such existing structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structure will be in as good condition and serve its purpose as completely as before uncovering and such restoration and repair shall be done without extra charge.

No extra charge shall be made for backfilling of any kind, except as provided in the Bid. Backfilling shall be included as a part of the unit price bid for which it is subsidiary. No extra charge shall be made for supplying outside materials for backfill.

Before completion of contract, all backfills shall be reshaped, holes filled and surplus material hauled away, and all permanent walks, street, driveway and highway paving, and sod, replaced (if such surface replacement items are included in the contract) and reseeding performed.

The line Contractor shall be responsible for clean-up, grading, seeding, sodding or otherwise restoring all areas that he disturbs within the work limits of other Contractors on this project.

Any deficiency in the quantity of material for backfilling the trenches or for filling depressions caused by settlement, shall be supplied by the Contractor.

9.0 TIE-INS TO EXISTING PIPELINES

This work shall consist of connecting new water pipes to the existing system where shown on the plans and shall include the necessary fittings, tapping sleeves, valves and necessary equipment and material required to complete the connection.

Knowledge of pipe sizes in the existing system may not be accurate; therefore, it is recommended that the Contractor check outside diameters of existing pipe and types of pipe prior to ordering the required accessories. No additional payment will be allowed for matching pipe and/or accessories when the proper size is not ordered.

Neither the Owner nor the Engineer can guarantee the location of the existing lines. The Contractor shall verify the location of all existing water mains and valves pertaining to the proposed improvements before excavation is started.

The necessary regulation or operation of the valves on existing mains, to allow for the connections being made, shall be supervised by the Engineer. Before shutting down an existing water main or branch main for a proposed connection, prior approval for a specific time interval shall be obtained from a representative of the Owner. At no time shall an existing main be shut down without the Owner's knowledge and permission.

Excavation to existing water mains shall be carefully made, care being exercised not to damage the pipe. The excavation shall not be of excessive size or depth beneath the pipe. The sides of the excavation shall be as nearly vertical as possible.

The Contractor shall be responsible for any damage to the existing system and any such damage shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

The Contractor shall verify, by field inspection, the necessary sizes, lengths and the types of fittings needed for each inter-connection. Typical connections are

shown on the plans and any modifications or changes shall be subject to the approval of the Engineer. The exact length of the proposed water main needed for this work shall also be determined by field measurement as required.

The probing required to locate existing mains is not a separate pay item.

10.0 PIPE ENTERING STRUCTURES

Ductile iron, steel or PVC pressure pipe, 4-inch diameter or larger, entering structure below original earth level, unsupported by original earth for a distance of more than six feet (6'), shall be supported by Class B concrete, where depth of such support does not exceed three feet (3'), and by Class B Concrete piers where depth exceeds three feet (3') in accordance with the Standard Details. All other pressure pipe entering buildings or basins below original earth level, which have more than 3 feet span between wall and original earth and having a cover of more than 24 inches of earth, or under roadway, shall be supported as shown on Standard Detail drawings, in order to prevent breakage from settlement of backfill about the structure. Concrete and reinforcing steel for such supports are to be included in the unit price of work to which it is subsidiary, and not as extra concrete, in order to discourage excessive excavation outside the limits of structures. Pipe entering structures shall have flexible joint within 16 inches of exterior of structure.

11.0 OWNERSHIP OF OLD MATERIALS

Pipe - Unless otherwise indicated, all existing pipe that is to be abandoned that interferes with construction or is easily removed shall become the property of the Contractor. All pipe that is not easily removed or not required to be removed as a result of the new construction, shall be abandoned in place by this Contractor.

Pipe Line Fittings and Appurtenances - All pipe line fittings, valves, hydrants and other like appurtenances that are removed as a result of new construction shall be removed by this Contractor but shall become the property of the Owner. All such fittings and appurtenances shall be delivered to a point by the Contractor. Said point shall be on the Owner's property and shall be designated by the Engineer.

Other Materials - All other materials or items that are to be removed, demolished, or abandoned as a part of this contract shall become the property of the Contractor and shall be disposed of by him.

12.0 THRUST BLOCKS AND ANCHORAGE

Thrust blocks shall be installed whenever the pipe line changes direction, as at tees, bends, crosses, stops, as at a dead end; or at valves. The locations of thrust blocks depend on the direction of thrust and type of fitting. Their size and

type depends on pressure, pipe size, kind of soil, and the type of fitting. Where thrusts act upward (as at vertical curves) the weight of the pipe, the water in the pipe and the weight of the soil over the pipe should be determined to make certain that the total weight is sufficient to resist upward movement. If there is not enough soil or if it will not compact over the pipe or it is too soft and mushy to resist movement, then ballast or concrete may be placed around the pipe in sufficient weight and volume to counteract the thrust. Where a fitting is used to make a vertical bend, the fitting may be anchored to a concrete thrust block designed to key in to undisturbed soil and to have enough weight to resist upward and outward thrust, since the newplaced backfill may not have sufficient holding power.

Thrust blocks shall be constructed of not less than Class B concrete conforming to KTC Specification 601 and placed between the fitting and the trench wall. It is important to place the concrete so it extends to undisturbed (freshly cut) trench wall.

13.0 MAINTENANCE OF FLOW OF DRAINS AND SEWERS

Adequate provision shall be made for the flow of sewers, drains and water courses encountered during construction. Any structures which are disturbed shall be satisfactorily restored by the Contractor.

14.0 INTERRUPTION OF UTILITY SERVICES

No valve, switch or other control on any existing utility system shall be operated for any purpose by the Contractor without approval of the Engineer and the Utility. All consumers affected by such operations shall be notified by the Contractor as directed by the Engineer and utility before the operation and advised of the probable time when service will be restored.

15.0 FENCING

Where water supply line is being constructed in fields where stock is being grazed, Contractor shall provide temporary fence as approved by the Engineer around open trenches to prevent stock from falling in trenches. Where trenching operations should isolate grazing stock from their source of water, Contractor will either provide temporary bridging over trench or else provide water for such stock.

Where trench crosses near sound existing corner posts and existing fence is in good condition, fence may be taken loose, rolled back and stored until pipe line is completed at this point, then replaced by stretching tightly and thoroughly stapling. Additional posts will be provided and additional new fence shall be provided when it is necessary to place the fence crossed by the water line in a condition equal to existing fence before water line was constructed.

Where it is necessary to cut existing fence, new end posts shall be installed on each side of the water line and the old fence thoroughly stapled to these new posts before cutting. After pipe line is completed at this point, a new fence of galvanized wire (No. 9 gauge with No. 11 filler wires) shall be stretched between these new end posts and thoroughly stapled to existing posts and any new intermediate posts necessary to provide a good fence. Replacement of fences shall be on a replacement in-kind basis, and shall be considered incidental to laying of the lines and any additional cost shall be included in the unit price bid per lineal foot of pipe. Contractor shall notify property Owner prior to cutting fence.

16.0 PROTECTION OF ADJACENT LANDSCAPE

Reasonable care shall be taken during construction of the water lines to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

In the course of construction, the Contractor may deflect horizontal alignment of the water line to avoid trees and to keep from damaging their roots. The Contractor shall be fully responsible for settling all claims by private property Owners concerning damage to trees and shrubs.

17.0 COORDINATION WITH UTILITIES

The Plans show the general location of existing utilities, such information having been determined from the utilities. However, such information shall be considered general and is not guaranteed by Owner, Engineer or the Utility.

Prior to construction, the Contractor shall arrange to meet with representatives of all utilities, and provide them with his anticipated work schedule. The Contractor shall have the utilities make their best determination of utility locations in the areas in which he is working. Throughout the progress of the work, such field markings of utilities shall be kept current.

Repairs to any utilities damaged by the Contractor shall normally be performed by the utility at the Contractor's expense, unless the Contractor and the utility negotiate other understandings and/or procedures.

18.0 BLASTING AND ROCK EXCAVATION

The Contractor shall make his own investigation as he deems necessary to ascertain the sub-surface conditions to be encountered in the work.

All blasting operations shall be conducted in accordance with municipal ordinances, state and federal laws and Section 9, Explosives, of the "Manual of Accident Prevention in Construction", published by the Associated General Contractors of America, Inc. Soil particle velocity shall not exceed limit set by Kentucky law. All explosives shall be stored in conformity with said ordinances, laws and safety regulations. No blasting shall be done within five feet of any water mains, sewer lines, natural or manufactured gas lines, liquid petroleum product lines or other utilities. Any damage done by blasting is the responsibility of the Contractor and shall be promptly and satisfactorily repaired by him.

The Contractor shall use delay caps or other approved methods to reduce earth vibrations and noise. Mud capping, as defined in the above manual, will not be permitted as a method of breaking boulders. No blasting shall be permitted on Sundays or after dark.

Prior to commencing with the work, the Contractor shall, during a preconstruction conference with the Owner and Engineer, state clearly his approach to performing the excavations on the project. He shall be familiar with the laws and ordinances covering blasting and shall also give consideration to the use of hydraulically operated rock breaking devices in lieu of blasting where considered necessary. If blasting is not handled in an expert manner at all times, the Engineer reserves the right to suspend blasting and require the work to proceed without it.

Prior to blasting, the Contractor shall make his own detailed preblast survey of adjacent walks, curbs, retaining walls, house foundations, etc. to determine conditions prior to the work. Such a file of information, including photographs, may be certified in such a manner as the Contractor believes necessary since this information that may stand in his defense.

19.0 MEASUREMENT AND PAYMENT

Payment for supplying, transporting and storing pipe, trenching, standard bedding, pipe installation, fittings, thrust- blocking, pipe locating wire and/or tape, testing, backfilling, disinfection, seeding, crop damage, regular stream crossings, tie-ins to other structures and other incidental items in this section shall be made on the basis of the unit price per lineal foot for the type and size of pipe installed. Payment will include all those items not specifically covered by another proposal. Pipe will be measured along the centerline of the pipe as installed with no deduction for valves and fittings.

SECTION 15101

WATERLINE ACCESSORIES

1.0 GENERAL

The Contractor is to supply and install all valves, hydrants, blow-offs and other equipment at the locations shown on the plans in complete accordance with these specifications.

1.1 BUY AMERICAN

All iron and steel products and their coatings that are to be permanently incorporated into the project must meet the Buy American requirements as specified in federal laws and regulations (23 U.S.C. 313 and 23 CFR 635.410).

2.0 GATE VALVES

All gate valves shall be the resilient seat-type, iron body, non-rising steam, fully bronze mounted, and suitable for working water pressures of not less than 200 psi for installations on PVC pipe and not less than 250 psi for installations on DI pipe. Valves shall be of standard manufacture and of the highest quality both of materials and workmanship and shall conform to the latest revision of AWWA C-509 Standard. Valves shall be furnished with flanged connections for exposed piping and push-on or mechanical joint connections for buried service. Gate valves shall have a clear water way equal to the nominal diameter, and shall be opened by turning counter-clockwise. The operating nut or wheel shall have an arrow cast in the middle, indicating the direction of opening. Each valve shall have the maker's initials, pressure rating and the year in which manufactured, cast on the body. Prior to shipment from the factory each valve shall be tested by hydraulic pressure of at least 300 pounds per square inch.

Underground valves shall be nut operated, unless otherwise shown on the plans. Valve supplier shall furnish two standard stem iron wrenches for turning nut operated valves. All underground valves which have nuts deeper than thirty inches (30") below the top of valve box shall have extended stems with nuts located within two feet (2') of valve box cap. Buried service valves shall have either epoxy-coated or tar-coated exteriors.

The valve maker is to supply the Engineer, through the bidder, within one week after award is made, complete catalogs or other material giving complete details and dimensions of valves and accessories.

Gate valves installed in underground piping systems may be installed in the vertical position for sizes to 12-inch. Gate valves 14-inch and larger shall be

installed in the horizontal position with bevel gear operators unless otherwise noted on the drawings. Gear operators shall be the totally enclosed type, oil filled and designed for buried and submerged service. Gear housing shall be ductile iron. Gears shall be steel. Pinion shafts shall be stainless steel. Shaft bearings shall be Teflon with "O"-Ring bearings.

3.0 FIRE HYDRANTS

3.1 WORK INCLUDED

Under this Item, the Contractor shall provide all labor, tools, equipment and materials to furnish and install hydrants with gate valves as shown on the drawing and as directed by the Engineer.

3.2 MATERIALS

All fire hydrants shall have a six inch bell connection, shall have two hose outlets and one pumper connection, shall be designed for 250 pounds working pressure or 300 pounds hydrostatic pressure and shall conform to the latest specifications of the AWWA C502. All working parts shall be bronze. Both hose outlets shall be 2 1/2 inch with NST threads and the pumper outlet shall be 4 1/2 inch with NST thread. Hydrants shall be designed so that no water will be lost when they are broken off and so they can be repaired with a repair kit. Design, materials, and workmanship shall be similar and equal to the latest stock pattern ordinarily produced by the manufacturer. Length of barrel shall be such to provide a 3 1/2 foot bury depth. Working drawings and full description of hydrants shall be submitted to the Engineer before ordering. All hydrants shall have a 5 1/4 inch valve opening against pressure. The hydrants shall be Mueller or Kennedy brand or approved equal. All hydrant extensions will be the responsibility of the Contractor.

3.3 PAINT

Hydrants shall be painted one coat of red paint and two finish coats of approved paint of color directed by the Engineer. All hydrants are to receive the final coat of paint after field installation.

3.4 INSTALLATION

Hydrants shall be set at such elevations that the connecting pipe will have the same depth of cover as the distribution main. The back of the hydrant opposite the pipe connection shall be firmly wedged against one and one-half square feet or enough of the vertical face of the trench with concrete to prevent the hydrants from blowing off the line. In addition, all fittings, valves and hydrants shall be joined by the use of all-thread rods, nuts and "DUC-LUG" offsets as shown on the standard drawing to prevent movement of the hydrant. If the character of the

soil is such, in the opinion of the Engineer, that the hydrant cannot be securely wedged, bridle rod collars shall be used which shall be not less than three-fourths inch stock and shall be protected by a coat of acid resistant paint.

Not less than seven cubic feet of No. 9 stone shall be placed around the base of the hydrant to insure drainage. Before the No. 9 stone is placed and before it is backfilled the drain hole shall be inspected and thoroughly cleaned if necessary. The backfill around the hydrant shall be thoroughly compacted to the grade line in a manner satisfactory to the Engineer. Hydrants shall have the interior cleaned of all foreign matter before installation.

All hydrants will be installed with the pumper connection facing the main access road or as directed by the Engineer.

Stuffing boxes shall be tightened and the hydrants shall be inspected in open and closed position to see that all parts are in working condition.

4.0 AIR VALVES

4.1 AIR RELEASE VALVES

A valve designed to allow exhaust of small pockets of air from the water main while in use shall be installed where shown on the plans or where directed by the Engineer. The air release valve shall have a 3/4" iron pipe thread inlet, cast iron body construction, bronze trim, with all internal parts of stainless steel. The valve shall have a minimum orifice size of 3/32". Valves shall be suitable for a working water pressure of 150 PSIG. The air release valve shall be mounted on 3/4" bronze riser pipe. The riser pipe shall be connected to the water main by use of a service clamp and a corporation stop. The riser shall also have a 3/4" bronze ball valve with stainless steel handle and be suitable for a 150 PSIG working water pressure. Air release valves shall be as manufactured by APCO Models 65 or 50, Cla-Val, or approved equal.

Air release valves will be installed in the same type of box used for meter installation. The box must allow for adequate cover over the pipe at the installation.

In locations where the air release valve can not be placed directly above the water main, such as roadway drainage ditches, then a section of service tubing shall be used to locate the valve as directed by the Engineer. The service tubing shall be installed with a continuous upward slope to eliminate air pockets. Additional payment for the tubing shall be made based on the linear foot bid for service tubing. Tubing shall also be rodded through the box to support the valve. No additional payment will be made for the tubing supports.

5.0 VALVE BOXES

All valves (gate, air release, check, etc.) installed underground shall be installed in an approved valve box. Each gate valve shall be installed in a vertical position with a valve box. Valve boxes shall be of a cast iron, two or three-piece, slip-type consisting of a base, a center section and a top section with a cover marked "water". Where valve box is constructed in a paved area the box shall be a screw type box. The entire assembly shall be adjustable for elevation and shall be set vertically and be properly adjusted so that the cover will be in the same plane as the finished street surface (no more than 1/2" above ground in yards or pastures or 2" in unsodded areas). The assembly must provide for the required cover over the pipe at the installation site and shall rest on concrete pads as shown in the Standard Details. The Contractor shall furnish two valve wrenches for the project.

6.0 BLOW-OFF ASSEMBLY

Blow-off assembly shall be installed in accordance with the details and the specifications at locations shown on the plans and in other locations as directed by the Engineer. The gate valve is included in the unit bid price for blow-off assembly. The Contractor should refer to the Standard Details for blow-off installation.

The blow-off pipe from the main to the flush valve shall be connected to the main by means of a tee. Do not use a corporation stop for this connection. The gate valve included in the blow-off connection shall be a resilient seat gate valves in conformance with AWWA C509.

7.0 TAPPING SLEEVE AND VALVE

Tapping sleeves shall be as manufactured by Mueller, American-USA, or approved equal, and shall be rated for a minimum working water pressure of 150 psi. Contractor shall ascertain the type and size of pipe to which the connection is to be made prior to selection. The valve shall be as specified under section 2.0 of this specification.

8.0 TIE IN CONNECTIONS

All tie in connections shall include any fittings suitable to make the required connection. The fittings shall be mechanical joint, ductile iron type as specified in other sections.

9.0 STUB-OUT

A stub-out shall consist of a gate valve restrained with all-thread to the main line. The valve shall be the same size as the main line and be as close to the main line as practical. The valve shall be as specified under section 2.0 of this

specification. A minimum of one joint of pipe shall be laid past the valve with the bell end away from the valve. A cap matching the material and size of the pipe shall be placed at the end of the line.

10.0 END CAPS

All end caps installed to deaden existing lines shall be installed in accordance with the details shown on the plans as appropriate.

11.0 MEASUREMENT AND PAYMENT

Payment for gate valves, check valves and other special valves installed underground shall include all work necessary for a complete installation and shall include all valve stem boxes or other valve boxes and box covers. Payment will be made at the unit price bid for the type and size of valve installation. The unit price bid for blow-off assemblies shall constitute full compensation for the furnishing and installation of the complete blow-off assembly which includes the gate valve. Tapping sleeve and valve tie-in connections shall be paid as indicated in the bid schedule. Stub-outs shall be paid as indicated in the bid schedule. End Caps shall be paid as indicated in the bid schedule.

SECTION 15102

SPECIAL ITEMS OF CONSTRUCTION

1.0 GENERAL

These specifications govern special crossings, installations and construction procedures required to deal with unusual construction items or special requirements of governing agencies.

1.1 BUY AMERICA

All iron and steel products and their coatings that are to be permanently incorporated into the project must meet the Buy America requirements as specified in federal laws and regulations (23 U.S.C. 313 and 23 CFR 635.410).

2.0 STATE HIGHWAY CROSSINGS

In all cases, these crossings will be made in compliance with the requirements of the State Highway Department. Such requirements will normally be described by the appropriate District Highway Office. In general, unless otherwise shown on the plans or directed otherwise by the ENGINEER, the crossing of all State Highways shall be accomplished by boring under the roadway. In addition, the crossing of service lines 1-1/2 inches and greater under rigid and flexible surfaced paved roads shall be accomplished by boring and jacking a casing pipe under said roadway. In certain cases, as shown on the plans, service lines of all sizes will require casing pipe installed with the crossing.

2.1 OPEN TRENCH CROSSINGS

The trench shall be excavated to a minimum width that will allow the pipe installation. The trench walls shall be kept as nearly vertical as possible. The minimum specified cover above the pipe shall be maintained. The Miscellaneous Detail Drawings show the requirements for open trench crossings.

The backfill in the trench under any roads, driveways, or parking areas where the open trench method is used shall be of the type shown in the Miscellaneous Details and shall be deposited and compacted in uniform layers not to exceed the depth shown in the Miscellaneous Details.

The surface of the road, driveway, or parking area shall be replaced with the same type of material as specified under pavement replacement.

2.2 BORING AND JACKING

The work is herein defined as the operations in which both the boring by auger and the jacking of the casing pipe are done mechanically and in which the diameter of the casing pipe is too small to permit hand working at the heading of the casing pipe. Two basic methods are; (1) pushing the casing pipe into the fill or earth simultaneously as the boring auger drills out the ground; and (2) drilling the hole through the fill or earth and pushing the casing or carrying pipe into the hole after the drill auger has completed the bore.

A suitable approach trench shall be opened adjacent to the slope of the embankment, or adjacent to point of bored and jacked section as shown on the plans. The approach trench shall be long enough to accommodate the selected working room. Guide timbers or rails for keeping the casing pipe on line and grade shall be accurately set and maintained in the bottom of the approach trench and with heavy timber back-stop supports installed at the rear of the approach trench to adequately take thrust of the jacks without any movement or distortion. It is paramount to the securing of acceptable tolerance limits of workmanship in the boring and jacking operation that extreme care be taken in the setting of all guides, rails and jacks to the end that the casing pipe in final position be within the limits of acceptability for the placing and laying of the carrier pipe. The minimum cover of forty-two inches (42") under the roadway must be maintained. Additional depth may be required as shown on the plans.

In general, the diameter, thickness, style, joints and materials selected for casing pipe shall be as shown on the plans and shall be considered as "minimum" requirements, all subject to prior approval of the Engineer. In all cases, the approval for construction by agreement with the private company and/or construction permit issued by the State, County, or Municipal agency will be required before construction starts.

Steel casing pipe for road and railroad crossings using the boring and jacking method shall be steel, plain end, uncoated and unwrapped, and shall be furnished in at least 18-foot lengths. Steel pipe shall meet the requirements of ASTM Specification A-120 and AWWA C200. Pipes up to and including 4 inches in diameter shall be Schedule 40. Pipe larger than 4 inches shall have a wall thickness equal to or greater than 0.312 inches under railroads and 0.250 for all other uses. The inside diameter of all casing pipes shall be a minimum of four (4") inches greater than the largest outside diameter of the carrier pipe, joint or coupling.

The steel casing pipe shall be bored and/or jacked in place at the locations as shown on the plans or as directed by the Engineer. All joints between lengths shall be solidly welded with a smooth non-obstructing joint inside. Any field welding shall be performed by a certified welder and shall be in accordance with AWWA C206. The casing pipe may be extended beyond the boring limits by

open trenching as shown in the Standard Details. This would apply when the casing is required from right-of-way to right-of-way or ditch line to ditch line. Open trenching at jacked or bored locations will be allowed no closer than 3 feet from edge of pavement.

Positioning guides (insulators) shall be utilized on all carrier pipe which is within the casing pipe. Positioning shall be accomplished by the use of prebuilt spacers such as those manufactured by Calpico, Advanced Products and Systems, Inc. (APS), or an approved equal. The Contractor shall submit the type of position guide proposed for use for the approval of the Engineer. Spacing of the positioning guides shall be in accordance with the Standard Drawings.

The ends of the casing pipe shall be plugged and made watertight in a manner acceptable to the Engineer prior to backfilling. Casing seals as manufactured by Pipeline Seal & Insulator, Inc. (PSI), Advance Products & Systems, Inc. (APS) or equal shall be used.

Where road crossings are made using plastic pipe or copper, the location of joints under the roadway should be avoided by using lengths of adequate dimension for the crossing. This principle also applies to other types of pipe where sufficiently long lengths are available.

3.0 RAILROAD CROSSINGS

At all railroad crossings, cover pipe (casing) for water lines (carrier pipe) shall be jacked or pushed beneath tracks and the carrier pipe jointed and pushed through the cover pipe. Detailed drawings of railroad crossings including the length of casing and depth below track are shown in the plans. Contractor shall obtain and pay for services of a representative of the railroad to direct the Contractor's operations while on the railroad property when required by the railroad.

4.0 STREAM CROSSINGS

4.1 NO-FLOW CONDITION

Where required on the plans or instructed by the Engineer, the Contractor shall construct a special creek crossing as shown in the Miscellaneous Detail Drawings. Crossings shall be scheduled for construction in times of no flow or very low flow, if practicable, otherwise the stream shall be directional bored. Concrete shall not be placed under water and Contractor shall provide suitable pumps to keep water out of trench excavation during stream crossing construction. Special creek crossings shall be designated as Type A or Type B as contained in the Miscellaneous Detail Drawings.

4.2 NORMAL EARTHEN STREAM CROSSING

Where the stream crossing is made in earth or other beds which are stable (no casing or anchorage required), then the pipe will be laid in a narrow trench at the depth specified in the Miscellaneous Details to maintain the required cover between pipe and stream bed. Initial backfill will be mechanically compacted. Trench backfill in any stream crossing area from one foot (1') above the top of the pipe shall consist of trench excavated rock, if available. No extra payment will be made above normal construction for this type of creek crossing.

4.3 BLUE LINE STREAM CROSSINGS

All crossing of streams that appear as a blue line on a USGS 7.5 minute topographical map shall be accomplished in accordance with:

GENERAL CERTIFICATION
NATIONWIDE PERMIT #12
UTILITY LINE BACKFILL AND BEDDING

This document is bound in front of the specifications. The Contractor shall read, understand and comply with the requirements and procedures.

Stream size, for purposes of this specification, is differentiated as large or small. A stream is classified as small when the distance across the stream channel at top of banks is 15 L.F. or less. A stream is classified as large when this measurement is greater than 15 L.F.

It is the intent of the plans to identify a stream crossing at each blue line stream. Small stream crossings may frequently be accomplished by trenching when the stream is in a no-flow condition. If the stream is in a flow condition, irregardless of the size classification, the crossing shall be accomplished by directional boring or other method that complies with the General Certification and is approved by the Engineer. Specific details for stream crossings are contained in the Miscellaneous Detail Drawings.

See Section 15 for Basis of Payment.

4.4 BYPASS TEST METER

At locations as indicated on the plans, where a new creek crossing is installed, a bypass test meter shall be installed. The meter shall be installed as a normal water meter with taps on each side of a valve, as shown in the Miscellaneous Detail Drawings.

5.0 RIVER OR LAKE CROSSINGS

Crossings in rivers or lakes where the pipe cannot be laid in a trench shall normally be made with ductile iron pipe having ball and socket joints or polyethylene pipe or directional bored as indicated on the Drawings. Details for any required installations of this type including pipe required; number, size and location of anchors; and, installation technique are shown in the plans and Miscellaneous Detail Drawings. See Section 15100 for installation requirements.

6.0 BRIDGE CROSSINGS

Wherever possible bridges will not be utilized for stream crossings. However, where it is necessary for the water line to be attached to bridges, the pipe shall be securely fastened to bridge stringers or beams using supports as dimensioned and located in the plans. The carrier pipe shall be insulated with Vermiculite or other approved material to prevent freezing. Expansion joints to allow for movement of the bridge will be required as shown on the plans.

7.0 FREE BORE

7.1 WORK INCLUDED

Under this item, the Contractor shall provide all labor, tools, equipment and materials to install the free bore at all bituminous and concrete driveways and/or county road unless otherwise directed by the Engineer.

7.2 INSTALLATION

The Contractor shall provide a jacking pit and bore through the earth at the proper line and grade. The augured hole shall be as small as practical to allow the carrier pipe to pass through.

This bid item does not apply to service tubing.

7.3 MEASUREMENT AND PAYMENT

The unit price bid per linear foot for free boring, as measured from edge of pavement to edge of pavement, regardless of size of bore, shall constitute full compensation for the work specified.

8.0 WATER LINE AND SEWER LINE SEPARATION

8.1 GENERAL

Wherever sewer lines cross, or are adjacent to, each other, special precautions shall be taken.

8.2 PARALLEL WATER AND SEWER LINES

Water lines must, if possible, be located a minimum lateral distance of 10 feet from any existing or future sewer lines measured from outside diameters. Where water lines and sewer lines must be placed in the same trench, the water line must be located on a shelf, 2 feet above and 2 feet to the side of the sewer line. Whenever this condition cannot be met, and upon direction from the Engineer, the water line shall be uncovered and encased with concrete per the standard encasement detail.

8.3 CROSSING WATER AND SEWER LINES

Wherever sewer lines and water lines cross, it is desirable, if practical, that the sewer line be at least 24 inches below the water line.

Where it is not practical to provide such a separation, care shall be taken to ascertain that the existing water line or existing sewer line is in good sound condition and that no evidence of joint leakage is known in that vicinity. If any such evidence does exist, the existing line shall be exposed by the Contractor at least 10 feet each side of the new pipe crossing, carefully examined and any defects positively corrected. The Owner will arrange for examining and correcting any defects in the existing lines, but the Contractor shall cooperate in every way possible.

When the water line must be below or less than 2 feet above the sewer line, the Contractor shall encase the water line 5 feet in each direction from the crossing as directed by the Engineer. This encasement should only be accomplished when directed by the Engineer and shall be accomplished in accordance with the details shown on the drawings. The encasement is a separate pay item.

9.0 CLEANUP, SEEDING AND SODDING

9.1 GENERAL

Upon completion of the installation of the work, the Contractor shall remove all debris and surplus construction materials resulting from the work. The Contractor shall fine grade all the disturbed surfaces around the area of the work in a uniform and neat manner leaving the construction area in a condition as near as possible to the original ground line or to the lines as directed by the Engineer. The Contractor shall provide effective cleanup of the work as it progresses. Procrastination of cleanup will not be tolerated.

9.2 ROUGH GRADE WORK AND CLEANUP

Rough Grade Work and Cleanup (Rough Cleanup) shall be defined to include the final backfill and windrowing of the ditch line, disposal of excess excavated

material, level grading of the disturbed areas adjacent to the ditch line, filling and leveling street and driveway cuts, cleaning up and removal of rubbish, repair of fences and structures, and any other such work that may be required to result in a neat, orderly project area. Rough Cleanup shall be performed as other construction progresses and must be completed within **one week** of the adjacent pipeline construction.

Rough Cleanup is not a separate pay item. The cost for this work shall be included in the unit bid price for water lines. If Rough Cleanup is not performed as specified, the Owner, after notification to the Contractor, will refuse payment for additional pipeline installation until the Rough Cleanup is accomplished.

9.3 FINAL CLEANUP

Final cleanup, grade work and seeding shall be performed on each line when backfilled trenches have had adequate time to settle, but at least within **30 days** from the date each line is constructed. Final grade work and seeding on Kentucky Transportation Cabinet rights-of-way shall be done in accordance with said Cabinet's specifications and the permit granted to the Owner specifically for this project.

Where work was performed on private property in lawns, earth of good quality, free from rock shall be spread over the disturbed area and graded and compacted to match adjacent ground contours. The graded and seed bed area shall be prepared with a power landscape rake and further hand raked if necessary, until smooth and free from rock, potholes, and bumps. The disturbed area shall then be seeded with the seed variety used on the original lawn (e.g., a bluegrass lawn shall be reseeded with bluegrass seed). In the case of no preference by the Owner, the mixture of grasses shall consist of one-third (1/3) Rye grass, one-third (1/3) Kentucky Fescue and one-third (1/3) Kentucky Bluegrass by weight and shall be applied in accordance with the supplier's recommendations. The area shall be fertilized with 12-12-12 fertilizer applied at a rate of 6 pounds per 1,000 square feet of area. After the seed and fertilizer have been applied, the Contractor shall then lightly cover the seed by use of a drag or other approved device. The seeded area shall then be covered with clean straw to a depth of approximately one (1) inch.

Where work was performed on private property and not in lawns the trench line shall be graded and filled if necessary to match adjacent contours. All rock larger than 1-1/2" in diameter shall be removed from the disturbed area. In general, pasture and fallow land shall be fertilized and seeded with Kentucky 31 Fescue and plowed fields shall be left unseeded, however, the desire of each property owner shall govern regarding seeding. The entire pipeline length that is seeded shall be strawed.

In all cases on private property the rate of seed and fertilizer application shall be that recommended by the material supplier or the University of Kentucky Cooperative Extension Service for new plantings of the variety of grass seed used.

If the trench line settles following final grade work or if grass seed fails to germinate within a reasonable time, the Contractor shall regrade or reseed the area in question as specified above and as directed by the Engineer.

Final cleanup will not constitute a separate pay item and shall be included in the unit bid price for pipe.

10.0 PAVEMENT AND OTHER STRUCTURE REPLACEMENT

The Contractor shall replace all pavement cut or disturbed, with pavement similar in all respects to existing pavement in accordance with the Standard Details and at those locations approved by the Engineer. Every effort shall be made to avoid cutting the pavement. In restoring pavement, new pavement is required, except that granite paving blocks, sound brick or sound asphalt paving blocks may be reused. No permanent paving shall be placed within thirty (30) days after the backfilling has been completed. All concrete and asphalt paving materials shall be in conformance with the Miscellaneous Details shown in the plans. The pipeline trench through all paved areas (parking lots, driveways, roads, etc.) shall be fully backfilled with crushed stone.

10.1 CLASSIFICATIONS OF PAYMENTS

A. Concrete Pavement Replacement - This pavement replacement shall be Portland cement concrete construction in accordance with the requirements shown in the Standard Details. It shall include all pavement replacement on concrete surfaced roads, concrete driveways, concrete sidewalks and concrete parking areas, both public and private.

B. Heavy-Duty Bituminous Pavement Replacement - This type of asphalt pavement replacement shall be bituminous concrete surface over concrete base in accordance with the details. This type of pavement replacement shall be used on all heavily trafficked roads having an existing pavement greater than 2", whether public or private, or in other locations as directed by the Engineer.

C. Light-Duty Bituminous Pavement Replacement - This type of pavement replacement shall be bituminous concrete constructed in accordance with the details. This item shall include all light-duty bituminous concrete roadways, bituminous driveways and bituminous parking lots, both public and private.

D. Crushed Stone Surface Replacement - This type of surface replacement shall include all graveled roadways, driveways, parking areas, or other gravel surfaced areas, both private and public. This type of surfacing may also be required as a base course for other pavement replacement.

10.2 MATERIALS

The crushed stone backfill as noted on the drawings shall be dense graded aggregate per Kentucky Department of Highways Specifications or as noted on the Drawings. The Contractor shall continuously be responsible for the maintenance of the aggregate and the surface of the trenches until the pavement replacement is completed.

Portland cement concrete for pavement replacement shall contain a minimum of 6 sacks of cement per cubic yard, the maximum free water content shall be 6 gallons per sack of cement, the slump shall be between 2 and 4 inches, and the concrete shall have minimum 28-day compression strength of at least 3,500 PSI. Cement, aggregate and water shall be described in these specifications for Class "A" concrete. A set of cylinders shall be made and tested for each 25 cubic yards of concrete placed, or fraction thereof, to supply representative sampling and testing of the concrete, upon the direction of the Engineer. The Contractor shall produce a broomed, or burlaped uniformly smooth and nonskid surface, consistent with the existing pavement.

Bituminous materials and mixes shall be consistent with the recommended practice of the asphalt institute and it shall conform to the requirements of the Kentucky Department of Highways for prime coat and Class 1 bituminous concrete. The bituminous concrete shall consist of a binder or base course and a surface course.

10.3 INSTALLATION OF PAVEMENT REPLACEMENT

The Contractor shall cut back the surfacing adjacent to the trench for 12 inches on both sides of the trench and shall cut down the dense graded aggregate he has placed to a depth required for either type of pavement replacement. The resulting surface shall be rolled to yield a smooth, dense surface and a uniform depth.

The concrete shall be placed in accordance with standard practice, with the welded wire mesh if required in proper position and thoroughly vibrated into place. The Contractor shall produce a surface consistent with the existing pavement. The Contractor shall apply a liquid curing component, sprayed on the surface of the concrete, and shall provide adequate protection to the pavement until it has set.

For bituminous concrete, the Contractor shall clean and broom the prepared surface, then apply the prime coat at the rate of 0.20 to 0.25 gallons per square yard, with a pressure distributor or approved pressure spray method. When the prime coat has become tacky but not dry and hard, the bituminous binder course, or base course, whichever applies, shall be placed and compacted. The Contractor shall then apply the surface course. It is recommended, but not required, that the base course remain in place for approximately one week before placing the surface course. The finished course shall be compacted and the completed surface shall match the grades and slopes of the adjacent existing surfacing and be free of offsets, depressions, raised places and all other irregular surfaces.

10.4 SEASONAL AND WEATHER LIMITATIONS FOR PAVEMENT REPLACEMENT

In the event the progress and scheduling of the work is such that the bituminous pavement replacement would occur in the winter months, during adverse cold weather and/or during such times the asphalt plants are not in operation, then the final pavement replacement shall be postponed until favorable weather occurs in the spring and the asphalt plants resume normal operations. No bituminous concrete shall be laid when the temperature is below 40°F. except by written permission of the Engineer.

Concrete pavement shall not be placed when the temperature is such that the pavement placed will freeze before it has had adequate time to set and shall be placed in conformance with the temperature conditions approved by the Engineer.

The Contractor shall be responsible for replacement of pavement which he has placed which has been damaged by cold weather or freezing without additional compensation.

In the meantime, the Contractor will be required to maintain the temporary surfacing until the permanent pavement is placed. Such labor, materials and equipment as is required for temporary maintenance of the streets, roadways and driveways shall be provided at the Contractor's expense and is not a pay item. The Contractor will be required to use a cold mix asphaltic concrete as a temporary surface for trenches under heavy traffic use.

10.5 GUARANTEE

The one year guarantee as specified in the contract documents is also applicable to trench settlement and pavement replacement.

11.0 SIDEWALK AND DRIVEWAY REPLACEMENT

Sidewalks and driveways will be replaced if damaged by the Contractor in any way. Payment will be made for those pavements necessarily damaged by the line installation in accordance with the Standard Details. No pavements are to be replaced over a backfilled trench for at least 30 days after filling. Pavements damaged otherwise are to be replaced immediately at the Contractor's expense.

Materials and dimensions are to be at least equal to existing pavement and are to conform with the Standard Details.

12.0 PAYMENT FOR WATER

All water used from the Utility shall be metered with meters supplied by the Contractor. The Contractor shall pay for such water monthly at the rates published by the water utility. Unmetered water lost through water line breakage shall also be paid at the rates published by the water utility. The quantity lost shall be computed on the basis of a discharge velocity of 7 feet/second, the diameter of the line, and the estimate duration of free uncontrolled discharge.

13.0 FINAL CLEAN-UP

The Contractor shall provide effective cleanup of the work as it progresses. Procrastination of cleanup will not be tolerated. At the time of final inspection, no trenches shall show any undue evidence of the previous construction. All areas shall be left free of ruts due to construction equipment and shall have a clean and neat appearance without rubble or debris. The areas shall not be mounded up and shall be completely restored, and all yards and fields shall be reseeded so land may be cultivated, mowed, etc. Straw and fertilizing shall accompany the seeding in accordance with Item 9 - Cleanup, Seeding and Sodding of this section. If necessary to hasten proper restoration of terraces, principally along ditch lines, the Contractor shall sod such areas at the Engineer's direction. For all line segments, final cleanup shall be performed within 30 days from day of installation.

14.0 PROTECTION OF ADJACENT LANDSCAPE

Reasonable care shall be taken during construction of the water lines to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

In the course of construction, the Contractor may deflect horizontal alignment of the water line to avoid trees and to keep from damaging their roots. The

Contractor shall be fully responsible for settling all claims by private property owners concerning damage to trees and shrubs.

15.0 MEASUREMENT AND PAYMENT

15.1 Payment for crushed stone, black top and concrete pavement replacement will not be based on the quantities purchased by the Contractor. Payment for surfacing will be paid on the basis of linear feet installed in accordance with the Standard Drawings with a maximum width of pipe diameter plus 24 inches. Crushed stone or concrete sub-grade under paving and crushed stone trench backfill shall be included in paving price and not paid for separately. Any additional cost estimated by the Contractor must be included in the cost of pipe in place.

15.2 STREAM CROSSINGS

15.2.1 No-Flow Crossings. Payment for no-flow stream crossings delineated on the plans (excluding directional bores) will be at the unit price bid per lineal foot for that item and shall include encasement pipe, crushed stone, concrete, solid rock excavation and all other work necessary for a satisfactory installation. The carrier pipe installed in the casing shall be paid separately under the unit price bid for pipe installed.

15.2.2 Directional Bores. Payment shall be "Lump Sum" for specific individual Bid Items for Directional Bores of large stream crossings and/or some streams classified as small where the physical crossing characteristics differ significantly from the other small streams in the project. Determination of the required length to accomplish the bore is the responsibility of the Contractor.

Payment shall be "Each" for directional bores of small stream crossings with the exception of individual small streams covered in a specific bid item. All small stream crossings in the project shall be considered the same for payment regardless of width (up to 15 L.F.) or depth. It is the responsibility of the Contractor to determine an average unit price that will be used for payment in each instance a blue line stream is crossed. Small stream crossings may be added, for extended lines beyond those shown on the plans, at the same unit price providing the crossings are reasonably similar to those in the initial project. Stream crossings may be deleted, without affecting the unit price, if a line is deleted or shortened.

Payment shall include the directional bore, encasement pipe if specified on the plans, the carrier pipe as specified on the plans and the transition fittings. Payment limits are shown on the Miscellaneous Drawing for Directional Bore for Stream Crossings.

Payment for Bypass Test Meter or Leak Detection Test Meter shall include a meter setting (5/8" x ¾") and taps on both sides of a gate valve. The gate valve, sized for the line, is a separate pay item, covered in Section 15101.

15.3 Additional costs for normal earth creek crossings shall be included in the unit price bid for pipe installation and no special payment will be made for these crossings.

15.4 Casing pipe unit price bids shall include the cost of boring or jacking under railroads and highways and shall include the cost of steel casing pipe. Carrier pipe will be paid for under the unit price bid for installing lines as described in Article 2.2 of this section.

15.5 Sidewalk /driveway crossings when included as a bid item shall include the extra cost of free-boring or the removal and disposal of existing pavement and replacement with new construction. Payment for pavement replacement will be on the basis of linear feet installed. Width for payment for a standard trench crossing is shown in the Standard Details. When sidewalk/driveway crossings or replacement are not included as a bid item, their costs shall be considered subsidiary to the bid for pipe installation.

SECTION 15103

PRESSURE TESTING AND STERILIZATION

1.0 TESTING

1.1 After the pipe has been laid, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure test of at least 1.5 times the working pressure at the point of testing, but in no case less than that required by other sections herein. In addition, a leakage test shall be conducted concurrently with the pressure test.

1.2 PRESSURE TEST

1.2.1 Test pressure shall:

1.2.1.1 Not be less than 1.25 times the working pressure at the highest point along the test section.

1.2.1.2 Not exceed pipe or thrust restraint design pressures at the lowest point along the test section.

1.2.1.3 Be of at least six (6) hour duration unless otherwise stipulated by owner.

1.2.1.4 Not vary by more than plus or minus 5 psi.

1.2.1.5 Not exceed twice the rated pressure of the valves or hydrants when the pressure of the test section includes closed gate valves or hydrants.

1.2.1.6 Not exceed the rated pressure of resilient seat butterfly valves when used.

1.2.2 Each valved section of pipe shall be filled with water slowly and the specified test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer.

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

pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and plugged, or left in place at the discretion of the Engineer.

1.2.4. All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damage or defective pipe, fittings, valves or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory to the Engineer.

1.3 LEAKAGE TESTING

1.3.1 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 pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.

1.3.2 No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$L = ND(P \text{ exp } 1/2)/7400$$

in which L is the allowable leakage, in gallons per hour; N is the number of joints in the length of pipeline tested; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch gauge.

1.3.2.1 Allowable leakage at various pressures is shown in TABLE K-1.

1.3.2.2 When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/hr/in of nominal valve size shall be allowed.

1.3.2.3 When hydrants are in the test section, the test shall be made against the closed hydrant.

1.3.3 Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid discloses leakage greater than that specified in Section 2.3.2 the contractor shall, at his own expense, locate and repair the defective material until the leakage is within the specified allowance.

1.3.3.1 All visible leaks are to be repaired regardless of the amount of leakage.

TABLE K-1
ALLOWABLE LEAKAGE PER 1,000 FT. OF PIPELINE (gph)

Avg. Test Pressure psi	Nominal Pipe Diameter (Inches) 2	3	4	6	8	10	12	14	16
450	0.32	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55
400	0.30	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40
350	0.28	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25
300	0.26	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08
275	0.25	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99
250	0.24	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90
225	0.23	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80
200	0.21	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70
175	0.20	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59
150	0.19	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47
125	0.17	0.25	0.34	0.50	0.67	0.84	0.01	1.18	1.34
100	0.15	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20

Avg. Test Pres-sure psi	Nominal Pipe Diameter (Inches) 18	20	24	30	36	42	48	54
450	2.87	3.18	3.82	4.78	5.73	6.69	7.64	8.60
400	2.70	3.00	3.60	4.50	5.41	6.31	7.21	8.11
350	2.53	2.81	3.37	4.21	5.06	5.90	6.74	7.58
300	2.34	2.60	3.12	3.90	4.68	5.46	6.24	7.02
275	2.24	2.49	2.99	3.73	4.48	5.23	5.98	6.72
250	2.14	2.37	2.85	3.56	4.27	4.99	5.70	6.41
225	2.03	2.35	2.70	3.38	4.05	4.73	5.41	6.03
200	1.91	2.12	2.55	3.19	3.82	4.46	5.09	5.73
175	1.79	1.98	2.38	2.98	3.58	4.17	4.77	5.36
150	1.66	1.84	2.21	2.76	3.31	3.86	4.41	4.97
125	1.51	1.68	2.01	2.52	3.02	3.53	4.03	4.53
100	1.35	1.50	1.80	2.25	2.70	3.15	3.60	4.05

2.0 STERILIZATION

2.1 GENERAL

It is the intent of this section to present essential procedures for disinfecting new and repaired water mains. The section is patterned after AWWA C651. The basic procedure comprises:

2.1.1 Preventing contaminating materials from entering the water mains during construction or repair and removing by flushing materials that may have entered the water main.

2.1.2 Disinfecting any residual contamination that may remain.

2.1.3 Determining the bacteriologic quality by laboratory test after disinfection.

2.2 PREVENTIVE MEASURES DURING CONSTRUCTION

2.2.1 Precautions shall be taken to protect pipe interiors, fittings, and valves against contamination. Pipe delivered for construction shall be strung so as to minimize entrance of foreign material. When pipe laying is not in progress, as, for example, at the close of the day's work, all openings in the pipe line shall be closed by water tight plugs. Joints of all pipe in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the trench is dry.

If dirt, that, in the opinion of the Engineer, will not be removed by the flushing operation (Article 3.3) enters the pipe, the interior of the pipe shall be cleaned and swabbed as necessary, with a five (5%) percent hypochlorite disinfecting solution.

2.2.2 Gaskets and Joints - No contaminated material or any material capable of supporting prolific growth of micro-organisms shall be used for sealing joints. Gaskets shall be handled in such a manner as to avoid contamination. Gasket packing materials must conform to AWWA standards. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water. It shall be delivered to the job in enclosed containers and shall be kept clean.

2.3 PRELIMINARY FLUSHING

The main shall be flushed prior to disinfection. It is recommended that the flushing velocity be not less than 2.5 ft/sec. The rate of flow required to produce this velocity in various diameters is shown in Table K-2. No site for flushing should be chosen unless it has been determined that drainage is adequate at the site.

TABLE K-2
REQUIRED OPENINGS TO FLUSH PIPELINES
(40-psi Residual Pressure)

Pipe Size (in)	Flow Required to Produce 2.5 fps Velocity (gpm)	Orifice Size (in)	Hydrant Outlet Nozzles Number	Hydrant Outlet Nozzles Size (in)
4	100	15/16	1	2 1/2
6	220	1 3/8	1	2 1/2
8	390	1 7/8	1	2 1/2
10	610	2 5/16	1	2 1/2
12	880	2 13/16	1	2 1/2
14	1,200	3 1/4	2	2 1/2
16	1,565	3 5/8	2	2 1/2
18	1,980	4 3/16	2	2 1/2

2.4 FORM OF CHLORINE FOR DISINFECTION

The most common forms of chlorine used in the disinfecting solutions are liquid chlorine (gas at atmospheric pressure), calcium hypochlorite granules, sodium hypochlorite solutions.

2.4.1 Liquid Chlorine

2.4.1.1 Use: Liquid chlorine shall be used only when suitable equipment is available and only under the direct supervision of a person familiar with the physiological, chemical, and physical properties of this element and who is properly trained and equipped to handle any emergency that may arise. Introduction of chlorine-gas directly from the supply cylinder is unsafe and shall not be permitted.

NOTE: The preferred equipment consists of a solution fed chlorinator in combination with a booster pump for injecting the chlorine-gas water mixture into the main to be disinfected. Direct feed chlorinators are not recommended because their use is limited to situations where the water pressure is lower than the chlorine cylinder pressure.

2.4.2 Hypochlorites

2.4.2.1 Calcium Hypochlorite: Calcium hypochlorite contains seventy (70%) percent available chlorine by weight. It is either granular or tabular in form. The tablets, 6-8 to the ounce, are designed to dissolve slowly in water. Calcium

hypochlorite is packaged in containers of various types and sizes ranging from small plastic bottles to one hundred (100) pound drums.

A chlorine-water solution is prepared by dissolving the granules in water in the proportion requisite for the desired concentration.

2.4.2.2 Sodium Hypochlorite: Sodium hypochlorite is supplied in strengths from five and one-quarter (5.25%) to sixteen (16%) percent available chlorine. It is packaged in liquid form in glass, rubber, or plastic containers ranging in size from one (1) quart bottles to five (5) gallon carboys. It may also be purchased in bulk for delivery by tank truck.

The chlorine-water solution is prepared by adding hypochlorite to water. Product deterioration must be reckoned with in computing the quantity of sodium hypochlorite required for the desired concentration.

2.4.2.3 Application: The hypochlorite solutions shall be applied to the water main with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions. For small applications, the solutions may be fed with a hand pump, for example, a hydraulic test pump. Feed lines shall be of such material and strength as to withstand safely the maximum pressures that may be created by the pumps. All connections shall be checked for tightness before the hypochlorite solution is applied to the main.

2.5 METHODS OF CHLORINE APPLICATION

2.5.1 Continuous Feed Method: This method is suitable for general application.

2.5.1.1 Water from the existing distribution system or other approved sources of supply shall be made to flow at a constant, measured rate into the newly-laid pipe line. The water shall receive a dose of chlorine, also fed at a constant, measured rate. The two rates shall be proportioned so that the chlorine concentration in the water in the pipe is maintained at a minimum of 50 mg/l available chlorine. To assure that this concentration is maintained, the chlorine residual should be measured at regular intervals in accordance with the procedures described in the current edition of Standard Methods and AWWA M12--Simplified Procedures for Water Examination.

NOTE: In the absence of a meter, the rate may be determined either by placing a pitot gauge at the discharge or by measuring the time to fill a container of known volume.

TABLE K-3 gives the amount of chlorine residual required for each one hundred (100) feet of pipe of various diameters. Solutions of one (1%) percent chlorine may be prepared with sodium hypochlorite or calcium hypochlorite. The latter

solution requires approximately one (1) pound of calcium hypochlorite in eight and five tenths (8.5) gallons of water.

TABLE K-3
CHLORINE REQUIRED TO PRODUCT 50 Mg/l CONCENTRATION IN 100 FT. OF PIPE (BY DIAMETER)

Pipe Size (in)	100 Percent Chlorine (lb)	1 Percent Chlorine Solutions (gal)
4	0.027	0.33
6	0.061	0.73
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88

2.5.1.2 During the application of the chlorine, valves shall be manipulated to prevent the treatment dosage from flowing back into the line supplying the water. Chlorine application shall not cease until the entire main is filled with the chlorine solution. The chlorinated water shall be retained in the main for at least twenty-four (24) hours during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. At the end of this twenty-four (24) hour period, the treated water shall contain no less than 25 mg/l chlorine throughout the length of the main.

2.5.2 Slug Method: This method is suitable for use with mains of large diameter for which, because of the volumes of water involved, the continuous feed method is not practical.

2.5.2.1 Water from the existing distribution system or other approved source of supply shall be made to flow at a constant, measured rate (see Article 2.5.1.1) into the newly laid pipe line. The water shall receive a dose of chlorine also fed at a constant, measured rate. The two rates shall be proportioned so that the concentration in the water entering the pipe line is maintained at no less than 300 mg/l. The chlorine shall be applied continuously and for a sufficient period to develop a solid column or "slug" of chlorinated water that will, as it passes along the line, expose all interior surfaces to a concentration of at least 300 mg/l for at least three (3) hours. The application shall be checked at a tap near the upstream end of the line by chlorine residual measurements.

2.5.2.2 As the chlorinated water flows past tees and crosses, related valves and hydrants shall be operated as to disinfect appurtenances.

2.6 FINAL FLUSHING

2.6.1 Clearing the Main of Heavily Chlorinated Water. After the applicable retention period, the heavily chlorinated water shall not remain in prolonged contact with the pipe. This water shall be flushed from the main until the chlorine concentration in the water leaving the main is no higher than that generally prevailing in the system, or less than 1 mg/l. Chlorine residual determination shall be made to ascertain that the heavily chlorinated water has been removed from the pipe line.

2.6.2 Disposing of Heavily Chlorinated Water. The environment into which the chlorinated water is to be discharged shall be inspected. If there is any possibility that the chlorinated discharge will cause damage to the environment, then a neutralizing chemical shall be applied to the water to be wasted to neutralize thoroughly the chlorine residual remaining in the water. (See Appendix B of ANSI/AWWA C651 for neutralizing chemicals.) Federal, state, provincial, and local regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

2.7 BACTERIOLOGIC TESTS

2.7.1 After final flushing, and before the water main is placed in service, a sample or samples shall be collected from the end of the line and tested for bacteriologic quality and shall show the absence of coliform organisms. If the number and frequency of samples is not prescribed by the public health authority having jurisdiction, at least one sample shall be collected from chlorinated supplies where a chlorine residual is maintained throughout the new main. From unchlorinated supplies at least two samples shall be collected at least twenty-four (24) hours apart.

2.7.2 Samples for bacteriologic analysis shall be collected in sterile bottles treated with sodium thiosulphate. No hose or fire hydrant shall be used in collection of samples. A suggested sampling tap consists of a standard corporation cock installed in the main with a copper tube gooseneck assembly. After samples have been collected, the gooseneck assembly may be removed, and retained for future use.

2.8 REPETITION OF PROCEDURE

If the initial disinfection fails to produce satisfactory samples, disinfection shall be repeated until satisfactory samples have been obtained. The tablet method cannot be used in these subsequent disinfections. When the sample tests indicate that disinfection has been effective, the main may be placed in service.

2.9 PROCEDURE AFTER CUTTING INTO OR REPAIRING EXISTING MAINS

The procedures outlined in this Article apply primarily when mains are wholly or partially dewatered. Leaks or breaks that are repaired with clamping devices while the mains remain full of water under pressure present little danger of contamination and require no disinfection.

2.9.1 Trench "Treatment": When an old line is opened, either by accident or by design, the excavation will likely be wet and may be badly contaminated from nearby sewers. Liberal quantities of hypochlorite applied to open trench areas will lessen the danger from such pollution. Tablets have the advantage in such a situation because they dissolve slowly and continue to release hypochlorite as water is pumped from the excavation.

2.9.2 Main Disinfection: The following procedure is considered as a minimum that may be used.

2.9.2.1 Swabbing With Hypochlorite Solution: The interior of all pipe and fittings used in making the repair (particularly couplings and tapping sleeves) shall be swabbed with a five (5%) percent hypochlorite solution before they are installed.

2.9.2.2 Flushing: Thorough flushing is the most practical means of removing contamination introduced during repairs. If valving and hydrant locations permit, flushing from both directions is recommended. Flushing shall be started as soon as the repairs are completed and continued until discolored water is eliminated.

2.9.2.3 Slug Method: Where practicable, in addition to the procedures of Article 3.9.2.1, a section of main in which the break is located shall be isolated, all service connections shut off, and the section flushed and chlorinated as described in Article 3.5.2, except that the dose may be increased to as much as 500 mg/l, and the contact time reduced to as little as one-half (1/2) hour. After chlorination, flushing shall be resumed and continued until discolored water is eliminated.

2.9.3 Sampling: Bacteriologic samples shall be taken after repairs to provide a record by which the effectiveness of the procedures used can be determined. If the direction of flow is unknown, samples shall be taken on each side of the main break.

3.0 PAYMENT

Payment for pressure testing and sterilization of pipelines shall be included in the unit price for pipeline installation unless otherwise itemized on the Bid Schedule.

SECTION 15104

METERS AND SERVICES

1.0 GENERAL

The CONTRACTOR shall furnish all labor, tools, equipment, and materials necessary for installing meter services as shown on the plans and as directed.

2.0 MATERIALS

2.1 METERS

The meters shall be AMR Hersey "Hot Rod" Series IIS magnetic drive positive displacement disc meters. This meter is a proprietary item for synchronization with the existing water system.

2.2 CORPORATION STOPS, SETTERS AND SADDLES

The corporation stops, setters and saddles shall be manufactured by The Ford Meter Box Company, Mueller Water Products or approved equal.

2.3 METER SETTINGS

The existing Meter settings (preferred) for 5/8" x 3/4" meters consist of a pre fab meter pit supplied by Consolidated Pipe and Supply Co., Inc. including the following: 18" x 24" white corrugated box, Vestal WM-18 18" cast iron flat lid, Ford VB HH142-7W resetter, Ford C38-2-8.5 meter coupling; Ford C14-33-G ¾" FPT x coupling; ½" sch. 40 cap and ½" x 2' sch. 40 brace pipe. Alternate manufacturers include Mueller Water Products and J.R. Hoe and Sons.

2.4 INDIVIDUAL PRESSURE REGULATING VALVE

Individual pressure regulating valves will not be required on this project.

2.5 SERVICE LINES

Unless indicated otherwise on the plans, all Service Lines shall be 3/4" polyethylene plastic tubing using a corporation stop in accordance with the Standard Details. Service pipe shall meet all AWWA Specifications with a minimum pressure rating of 200 psi. Polyethylene service tubing shall be ultra high density type equal to DRISCOPIPE Series 5100, CTS, JM Eagle "Pure-core" series or approved equal. Stainless steel stiffeners will be used with the tubing at all corp. stops, meter tie-ins, etc. Tracer wire as specified in Section 15100 shall be laid with all service tubing.

3.0 EXECUTION

3.1 RECONNECT METER SERVICE

This item covers meter settings, which can remain in place, but need to be connected to a new water line. The Contractor shall supply all items to connect the meter to the new line. The Contractor shall locate and close the corporation stop at the existing line if the existing line is not abandoned.

3.2 RELOCATE METER SERVICE

Meter settings shall be made in a workmanlike manner with backfill neatly compacted in place. In yards, pastures and other grassed areas, top of meter box may be placed no higher than 1/2 inch above original ground and no lower than flush with original ground. Boxes in sidewalks or other concrete areas shall be flush with surface. In areas which have not been sodded top of box shall be two inches (2") above grade. The service line must meet the same cover requirements as the main line as described in these specifications except that the service line may be brought up to a depth of approximately twenty-four inches (24") within five feet (5') of each side of the meter installation when a twenty-four inch (24") deep meter box is used. In all other cases the service pipe will be brought up to a depth which accommodates installation at the bottom of the meter box in accordance with the Standard Details. As shown in the Details, after five feet (5') from box, service pipe must return to thirty inch (30") cover (forty-two inches (42") in traffic). If meter box area is subject to traffic a deeper box will be required to maintain forty-two (42") inches of cover over the service pipe.

3.2.1 Existing Line Connection. If the meter installation is a replacement for an existing meter, the Contractor shall locate and close the corporation stop at the existing line if the existing line is not abandoned.

3.3 SERVICE LINES

Service lines shall be installed from the water main to the reconnection with existing service line. Any service tubing installed on the customer's side of the meter shall be performed by a licensed plumber with appropriate permit.

3.3.1 Service Lines Crossing a Road. Services on the opposite side of the road shall be provided as stated above. In general, all pipe shall be jacked beneath paved or blacktopped city streets or county roads, unless solid rock prevents using this method, in which case the open trench method may be used. The open trench method generally will be used on all unpaved city streets, county roads and private driveways. In general, blacktopped and concrete private

driveways shall also be jacked under. In all cases where lines are under traffic, a minimum cover of forty-two inches (42") shall be provided. All backfill shall be compacted in layers no greater than six inches (6") deep. In cases of open trench construction, crushed stone, blacktop and concrete paving shall be replaced according to the Standard Drawings. All service lines crossing a road shall be cased with PVC casing pipe. Open trench construction will not be permitted through state or federal highways.

4.0 PAYMENT

Service Tubing shall be paid at the Unit Price Bid for each foot of service tubing installed and shall include all labor, materials, tracer wire, equipment incidentals, etc. No extra shall be paid for service tubing bored, jacked and/or encased.

The Unit Price Bid for Reconnect Existing Meter Service shall constitute full compensation for all labor, materials, equipment, etc. required in reconnecting the existing meter setting, to the new water line including locating and shutting off corporation stops for any existing meter services when necessary.

The Unit Price Bid for Relocate Existing Meter Service shall constitute full compensation for furnishing and installing the saddle, corporation stop, meter pit, etc. as shown and specified. This shall include locating and shutting off corporation stops for any existing meter services when necessary and appropriate permitting.

All new materials will be used for all items under this specification.

GAS MAIN RELOCATION PROJECT

KENTUCKY FRONTIER GAS
SALYERSVILLE, KY
MOUNTAIN PARKWAY (KY 9009)

Item No. 10-166.00
NHPP 0061 060
FD52 077 86966 03U

MARCH 2016

7516.001 14-442

TECHNICAL SPECIFICATIONS

STATE OF KENTUCKY
R. DEREK MOTSCH
26439
LICENSED PROFESSIONAL ENGINEER

10-31-15

PREPARED BY
SUMMIT ENGINEERING, INC.

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Definition of Terms

Owner: The organization or its representative authorizing and administering the construction project.

Contractor: The organization or its representative performing the construction.

Operating Utility: The organization or its representative operating the gas utility affected by the construction.

Roadway Authority: The authority or agency with jurisdiction over the roadway.

Approved Equal: A substitute in materials that is considered by the **Operating Utility** to be equal to the item listed in the specifications or standards.

TECHNICAL PROVISIONS

TP 1.0 EXCAVATION, TRENCHING, AND BACKFILLING FOR NATURAL GAS FACILITIES

1.01 Scope of Work

All work to comply with US Department of Transportation Pipeline Safety Regulations, Title 49 Code of Federal Regulations, Part 192. The work covered by this section includes the furnishing of all plant, labor, tools, equipment, and material, and performing all operations in connection with excavating, trenching and backfilling, for installations of all natural gas utility pipelines, related structures and accessories. This includes the necessary clearing and grubbing, pavement cutting, compaction, pavement restoration, grading, and cleanup, all in accordance with these Technical Provisions and applicable drawings.

If there is a conflict between these Technical Provisions and any other section of the specifications and/or drawings, then the most stringent, as determined by the Owner shall apply.

1.02 Layout and Staking

All layout and staking for site work shall be performed by a licensed engineer or land surveyor, approved by the Owner, who is to be paid by the Contractor, unless other arrangements are negotiated. Copies of survey notes shall be submitted to the Owner, with one or more copies to remain on the job site at all times.

1.02.01 Right-of -Way Clearing And Preparation for Steel Pipe

Right-of-Way to be established and cleared by KYTC's general roadway contractor.

1.02.02 Protection Of Rights And Property Of Others

Where the pipeline crosses fenced enclosures, the Contractor shall open the fences and install temporary gates prior to stringing any pipe. The contractor shall notify the land users and obtain consent prior to the installation of gates and where practical, comply with land user's wishes in connection therewith. The Contractor shall be responsible for any loss or inconvenience caused to the land user resulting from negligence on the part of the Contractor or his employees by virtue of the fence having been opened or gates not being closed. Upon completion of construction, all fences shall be restored in a satisfactory manner and to conditions equivalent to those prior to construction.

1.03 Safety Precautions

Contractor is required to comply with MUTCO (Manual for Uniform Traffic Control) for signing and barricades.

~~Where conditions at road crossings are altered in such a manner as to make such locations dangerous to traffic, the Contractor shall comply with local or state regulations relative to placing appropriate warning signals and flares at such locations; or in the absence of such regulations, contractor shall place such traffic signs which shall be visible during the day and appropriate flares visible at night at a safe distance from excavation areas in both directions. In addition, when in the opinion of the inspector, barricades or guardrails are necessary; the contractor shall provide the same at no additional cost to the Owner.~~

~~The Contractor shall take due precaution to avoid damage to existing pipeline, water mains or any other underground or overhead facilities. The contractor shall solely be responsible for damages to such facilities and shall hold and save the Owner harmless against any actions or claims arising in connection therewith. The waterlines and any other existing underground utilities shall be marked by the Contractor prior to digging in these designated areas. The Contractor shall notify the owner twenty-four (24) hours prior to digging near water lines or other existing underground utilities.~~

1.03.01 EXCAVATION SAFETY

Good judgment and decision making are crucial when planning an excavation. Follow appropriate procedures when working in an excavation where soil is instable or escaping gas could be present. Prior to any excavation, consider alternatives that would reduce or eliminate the exposure to cave-ins or escaping gas.

When determining if a gas or fire hazard exists, consider the amount of gas escaping, the pipeline's operating pressure and condition, the depth and size of excavation, the wind speed and direction, the relative humidity and air temperature, and the combustible materials and degree of confinement of the area around the leak. These factors determine the scope of a potential gas leak or fire, and must be evaluated against proximity to houses, buildings, woods and grasslands which could easily ignite.

BEFORE Excavating:

1) Park all vehicles upwind of the proposed excavation site. If there is no wind, check the atmosphere around the vehicles for gas buildup before starting any engines. Periodically check the area for gas buildup while the work is proceeding.

2) Allow only authorized personnel near the excavation site.

3) Make ready all materials for shoring.
4) Remove the fire extinguisher from the service vehicle and place it within 15 feet upwind of the excavation site.
5) Place traffic warning signs around the work site when appropriate.
6) Keep all sources of ignition away from the proposed work area.
7) When necessary, reduce pressure as much as practical on lines where gas is or could be escaping.

WHILE Excavating:

1) Use vent pipe or other equipment to redirect escaping gas away from the gas leak.
2) Where there is escaping gas, wear gloves and goggles and any personal protective equipment appropriate for the situation. Wear a respirator along with a rescue harness and life line if there is apparent hazard due to escaping gas. If there is any doubt whether a hazardous condition exists, wear a breathing apparatus and a rescue harness and line. Also wear flame retardant coveralls and gloves.
3) For each employee wearing a breathing apparatus and rescue harness, another employee will assist at grade level and attend the life line, also wearing a respirator.
4) Install shoring as required.
5) No employee shall be in the trench within 8 feet of a trenching chain, backhoe bucket or digging wheel while in operation.
6) No employee shall approach a trench bank where a slip or a cave-in might carry them into the digging machine.

1.03.02 ENTERING AND EXITING EXCAVATIONS

Employees may not jump into the excavation or use the pipe to climb out of an excavation.

When workers are in excavations 4 feet deep or more, provide ladders extending from the floor of the excavation to at least 3 feet above grade, OR ensure the banks are sloped or stepped so the workers may walk out.

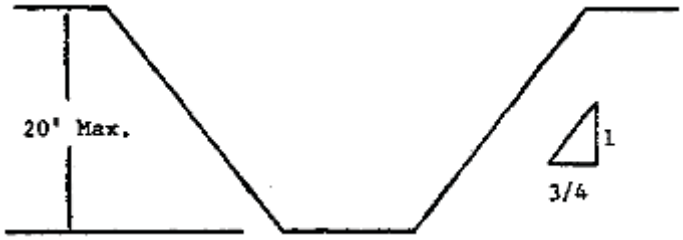
The maximum travel distance to an exit or ladder cannot exceed 25 feet.

1.03.03 SLOPING - TRENCHES 5 FEET OR DEEPER

In any trench or excavation, 5 feet deep or deeper where personnel work, slope as directed in figures below. Excavated material shall be placed no closer

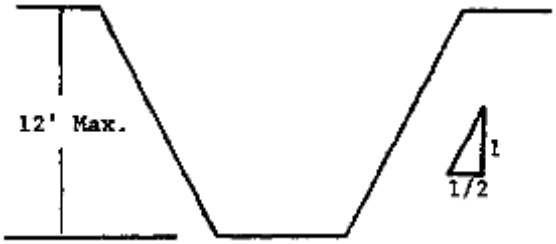
than 2 feet to the edge of the excavation.

All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of ¾-to-1.



SIMPLE SLOPE - General

Short Term exception: Simple slope excavations which are open 24 hours or less and which are 12 feet or less in depth may have a maximum allowable slope of ½-to-1.



SIMPLE SLOPE – Short Term

1.03.04 TRENCH SHORING

In trenches or excavations deeper than 5ft, provide shoring protection as shown in the OSHA table:

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE A P_a = 25 X H + 72 psf (2 ft Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS **													
	CROSS BRACES							WALES		UPRIGHTS				
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	4	5	6	8
5 TO 10	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---				2X6	
	UP TO 8	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---					2X8
	UP TO 10	4X6	4X6	4X6	6X6	6X6	4	8X8	4			2X6		
	UP TO 12	4X6	4X6	6X6	6X6	6X6	4	8X8	4				2X6	
10 TO 15	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---				3X8	
	UP TO 8	4X6	4X6	6X6	6X6	6X6	4	8X8	4		2X6			
	UP TO 10	6X6	6X5	6X6	6X8	6X8	4	8X10	4			2X6		
	UP TO 12	6X6	6X6	6X6	6X8	6X8	4	10X10	4				3X8	
15 TO 20	UP TO 6	6X6	6X6	6X6	6X8	6X8	4	6X8	4	3X6				
	UP TO 8	6X6	6X6	6X6	6X8	6X8	4	8X8	4	3X6				
	UP TO 10	8X8	8X8	8X8	8X8	8X10	4	8X10	4	3X6				
	UP TO 12	8X8	8X8	8X8	8X8	8X10	4	10X10	4	3X6				
OVER 20	SEE NOTE 1													

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may by substituted for wood.

1.03.05 TRENCH EXITS

In trenches or excavations 4ft or deeper, provide exit steps or ladders within 25ft of working personnel.

1.04 Temporary Bridges And Backfilling

Road Crossings. Where the pipeline ditches crosses public road or private roads or drives, the Contractor shall install adequate, temporary bridges the full width of the road to ensure safety of traffic over the ditch until the pipe can be installed and properly backfilled. Where necessary, the Contractor shall provide stock crossing for property owners or tenants or for moving equipment from one location to another.

1.05 Operations During Inclement Weather

In order to protect the owners rights-of-way and the interest of other adjacent to said rights-of-way against undue damage, work shall not be carried on during inclement weather or other conditions which in the opinion of the inspector would damage said rights-of-way or property of others. When so advised or requested by the inspector, the Contractor shall cease operations until the inclement conditions have ceased or improve.

1.06 Unloading, Storing, Hauling And Stringing Steel Pipe

~~The Contractor shall deliver the pipe to a predetermined location. The Contractor shall notify the Owner of the expected delivery date of the pipe and the approximate rate of delivery. The Contractor shall be responsible for loading and delivering the pipe to the jobsite and stringing all pipes. In the event for any reason the pipe cannot be strung along the alignment when delivered to the site the Contractor, at his own expense, shall be responsible for unloading the pipe and stockpiling the pipe until such time that he may be able to string it along the alignment. The temporary storage of any pipe shall be at or near the job site. Any easement required for storage space shall be the responsibility of the Contractor.~~

~~The Contractor shall be responsible for the pipe after receipt and shall repair any damages to the pipe resulting from loading, unloading and hauling to the site of work. The unloading, hauling, stringing or storing shall be done in such a manner that the pipe will not be damaged. In no event shall the pipe be rolled or dropped from stringing trucks and care shall be taken not to damage the pipe insulation or distort the circular ends of the pipe.~~

1.06.01 POLYETHYLENE PIPE

Polyethylene (PE) pipe is a product which is able to withstand normal installation handling. However, rough handling can damage the pipe wall. Take care to avoid pushing or pulling the pipe over or around sharp projections. The pipe can be damaged by dropping it from excessive heights or dropping heavy objects upon it, particularly, during cold weather. Avoid kinking, scratching or buckling. Cut out any section of pipe which has been damaged in this manner (scratches over a depth of 10% of pipe wall thickness).

1.06.02 TRANSPORTING POLYETHYLENE PIPE

Shipping - Fork lift operators are to use caution when unloading or loading PE pipe to prevent damage of the pipe with the forks or tines of the lift truck. Coils of pipe are strapped or palletized for easy unloading or loading. When unloading or loading straight sections of pipe, allow for some bending in the middle of the lift. Position fork lift tines as far apart as possible to reduce the amount of bending. Roll pipe down inclined planks when unloading from a truck bed, to keep damage to a minimum. Do not drop pipe to the ground. Never drop the pipe onto hard pavements or rock terrain from truck beds. This is particularly important when unloading pipe at temperatures below 40°F. Under these conditions, the pipe is stiffer and easily damaged from impact.

When breaking down bulk backs or mini-bundles, take care to stand clear of the pipe while strapping is being cut.

1.06.03 STRINGING POLYETHYLENE PIPE

Reel trailers can be helpful when stringing coiled pipe out for direct burial, plant-in, or insertion renewal. When trenching, string coiled pipe out on the ground upon arrival at the job site. This allows time for the coil set to relax and will simplify handling and emplacement of the pipe.

When uncoiling pipe by hand, cut only those straps on the coil which are necessary to unroll outer coils. Cut internal bands whenever necessary as the coil is unrolled.

If silo packs are not to be re-handled and individual coils are used, cut the large steel bands which tie the silo pack to the pallet. If the pallet strapping has caused any deformation of pipe, removing the straps will allow deformed areas to return to normal shape. Any damaged sections of pipe 10% of wall thickness, must be cut out.

Inspect the pipe as it is being uncoiled and during installation to make sure no damage to the pipe during shipment and handling to the job site has occurred.

1.06.04 COLD WEATHER HANDLING

When handling polyethylene pipe at temperatures below 40°F, use extra caution to prevent impact to pipe. Always be careful when cutting the straps on coils of pipe because the outside end of a coil may spring out when the strapping is removed. Uncoil the pipe that is to be installed and let it straighten out prior to installation. This can be done by gradually uncoiling the pipe and covering it with dirt at intervals to keep it from coiling again.

1.06.05 MATERIAL STORAGE

Store all material in a manner that will prevent damage or deterioration. Store material with machined surfaces, valves, fittings and coating materials off the ground and out of the weather.

Store all plastic pipe and tubing in a manner to minimize damage from crushing, piercing or cutting. Protect all stored plastic pipe from direct sunlight.

Other precautions - When moving the pipe, continually support it in a way so as to minimize movement of the pipe on its supports. Do not carry supplies or equipment on top of plastic pipe. Avoid damage from sharp edges and other

projections. Protect the pipe from excessive heat. Be particularly careful of open flames. Do not place an open flame or torch across pipe surfaces.

1.07 Protection of Existing Utilities

It shall be the Contractor's responsibility to determine the locations of all known existing underground utilities not shown on the drawings and to confirm the exact locations of those existing utilities shown on the drawings. All existing utilities shall be protected from damages during excavation and backfilling of trenches and if damaged, shall be repaired at the expense of the Contractor.

1.08 Excavation

1.08.01 General

It is expected that all excavation required for the performance of the work shall be made by open cut methods unless otherwise shown on the drawings or as required by applicable encroachment permits.

1.08.02 Grading

All grading in the vicinity of the construction shall be controlled to prevent surface water from flowing into the excavation. Any water accumulated in the excavation shall be removed by pumping or other approved methods at the contractor’s expense. During excavation, material suitable for embedment and backfilling shall be piled in an orderly manner a sufficient distance back from the edges of the bank to avoid overloading and to prevent slides or cave-ins. Material unsuitable for backfilling shall be hauled from the job site and disposed of by the Contractor at approved disposal sites.

1.08.03 Pavement Cutting

Where it is necessary to remove sections of asphalt pavement, the asphalt shall be clean-cut with approved equipment in a neat line 6-inches back from the outside edge of the excavation in order to provide a key when restored.

Where it is necessary to remove sections of concrete pavement, the concrete shall be saw-cut to a depth of not less than 1-1/2-inches with neat vertical lines in such a manner that the adjoining surfaces will not be damaged.

Whenever it is necessary to remove concrete or pavement, the broken surface materials shall be hauled away for disposal. Asphalt and concrete chunks cannot be placed in the ditch as backfill.

1.08.04 Excavation For Steel Pipe

~~Alignment of the pipeline shall be staked by the Owner, unless other arrangements are specified. The Contractor shall clear the rights-of-way and dig the ditch along the staked alignment. Ditching operations shall be kept ahead of welding and laying operations.~~

~~The ditch shall be finished to a minimum width of eighteen inches (18") and to sufficient depth to provide a minimum cover of forty-two inches (42") over the pipe (to top of pipe) or to the covers as indicated on the drawings. At locations where the ditch crosses roads, streets, highways, ditches, arroyos or other drainage depressions and at points where the contour of the earth may require greater depths to eliminate unnecessary bending of the pipe, the Contractor shall excavate to allow for a minimum cover of five feet (5'). In following the contour of the ground along the alignment, bends in the pipe will be kept to minimum by cutting the ditch deeper at the crest of hills and approaches to road crossing and arroyos. Unnecessary bending of the pipe shall be eliminated by operating the ditching machine at various depths at such locations in lieu of finish grading the ditch bottom where practicable.The finished ditch shall be free of loose rock or hard clods of earth, which could injure or damage the pipe coating when lowering the pipe into the ditch.~~

~~All road and highway crossings shall be made in accordance with the requirements of the respective public authority having jurisdiction over the same and also to the satisfaction of the inspector. Crossings that are paved or have hard surfaced highways generally shall be bored.~~
~~The Contractor shall be responsible for keeping the ditch in good condition until final in-place bedding of the pipe. No claims shall be made against the owner for cribbing, bracing or the use of other materials required to prevent caving of ditch banks. If bank caving occurs while lowering the pipe into the ditch in such a manner as to result in improper bedding of the pipe, or reduce the cover to minimum of less than forty-two inches (42"), the Contractor shall re-excavate the ditch and clean around the pipe until the desired condition is obtained to the satisfaction of the inspector.~~

1.08.05 Protection of Excavations

The Contractor shall provide suitable sheathing, shoring and bracing to protect all excavations as required, and provide safe working conditions, as directed by the Owner and in conformance with applicable OSHA, and all other safety regulations. Damages resulting from settlements, slides, cave-ins, flooding, pipeline breaks, and other causes shall be repaired by the Contractor at his expense. Suitable signs shall be so placed as to show in advance where construction, barricades, or detours exists.

The Contractor shall at all times perform his work so as to insure the least possible

obstruction to traffic, inconveniences to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property in a manner satisfactory to the Owner. No road or street shall be closed to the public except with the permission of the proper authority. Fire hydrants on or adjacent to the work site shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks, and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches.

1.08.06 Rock Excavation

~~If given special consideration, rock is considered to exist when excavation cannot be accomplished using a 790E John Deere Class track hoe with a rock bucket without stressing the machine. The Owner shall be the sole party in determining the existence of rock and the appropriate means of removal. The quantity of rock shall be determined in cubic yards of material removed. All other trenching and excavations, regardless of materials encountered, equipment used, or methods required for excavation, will be unclassified.~~

1.08.07 Excavation for Structures

~~Excavation for items such as sewer lines, valves, waterlines, steam tunnels, culverts, subterranean form work, and other structures shall be to the necessary depth and sufficient width to leave at least 12 inches of space between the structure's outer surface and the embankment or shoring used to stabilize the banks.~~

1.08.08 Over-Excavation

Whenever solid or loose rock, rocky soil with rocks larger than three inches in their largest dimension, or otherwise unsuitable soils which are incapable of properly supporting the pipe or structure are encountered in the trench bottom, all unsuitable material, as determined by the Owner, shall be over-excavated to a minimum depth of 6-inches below the pipe or structure and removed.

Except at locations where over-excavation is required, care shall be taken not to excavate below the depths indicated. In the event of accidental over-excavation, the trench bottom grade will be restored in the same manner as areas intentionally over-excavated.

1.08.09 Trench Excavation

Make the trench wide enough so that the pipe coating will not be damaged, pipe will not be bent, and there is room for backfill around the pipe. Make the trench uniform in grade with the bottom corners crumbed-out. This provides the full

ditch width for slack in the pipeline. Be sure that the trench bottom is free of rock, cinders, aggregate, welding rod, wood blocks and other debris. Remove and pile spoil from the trench in a manner that will minimize land owner or public inconvenience and complaints. Avoid covering manhole covers, fire hydrants, mail boxes, etc., with trench spoil. Cut and store sod from established grass so it may be re-laid after construction area is restored to final grade.

For lines larger than 2-inch, or for special conditions, the trenching width shall be as stated on the plans. The trench width above the level of the top of the pipe may be as wide as necessary for shoring or sheathing and for proper installation of the work.

The depth of all trenches shall be as indicated on the drawings. If not otherwise specified, the depth of all trenches shall be in accordance with the specifications for the installation of natural gas line.

Unless otherwise required by applicable permits to be less, the maximum length of trench that may be left open at any one time shall not exceed 100 feet.

In distribution systems where trenching across streets, lay temporary bridging across the trench to accommodate vehicles.

Excavate by hand those locations where trees, shrubbery or valuable plants are encountered or where the use of trenching equipment will result in unnecessary damage to the property crossed.

TRENCH DIMENSIONS

Trench dimensions shall be as noted on Plans.

~~Unless otherwise specified by a controlling road authority or construction specifications, dig the trench for pipelines, mains and service lines to the depth and width specified in the following tables. Minimum cover dimensions are from the top of the pipe to the top of the finished grade.~~

~~TRANSMISSION PIPELINES~~

~~Class Location~~	~~Normal~~	~~Rock~~
~~Class 1~~	~~30"~~	~~18"~~
~~Class 2-3-4~~	~~36"~~	~~24"~~
~~Roads, RR, ROW ditches~~	~~36"~~	~~24"~~

~~DISTRIBUTION MAINS~~

~~O.D. Pipe~~	~~Min Width~~	~~Normal Cover*~~	~~Rock~~
~~< 2-inch~~	~~3”~~	~~30”~~	~~24”~~
~~2 to 4-inch~~	~~8”~~	~~30”~~	~~24"~~
~~6-inch~~	~~12”~~	~~30”~~	~~24”~~
~~8-inch~~	~~18”~~	~~30”~~	~~24”~~

~~* DOT requires mains to have a minimum of 24" cover in normal conditions, and 18” in rock. These utility specs allow for 6” additional clearance for top-mounted tapping tees and service lines, and can be relaxed if necessary where no service lines exist.~~

~~SERVICE LINES~~

O.D. Pipe	Min Width	Normal	Rock
4"	8"	24" *	18"
2 to 3"	8"	18-24" *	18"
< 2"	3"	18-24" *	18"

~~* DOT requires service lines within the boundaries of public right-of-way such as a street or alley, whether paralleled or under-crossed, to have a minimum of 18" cover. The preferred depth is 30” if feasible.~~

~~Service lines in private property must be 12” deep per DOT, but the Utility prefers at least 18” of cover.~~

1.09 Placement and Compaction of Pipe Embedment and Backfill Material

1.09.01 Pipe Embedment

Pipe embedment is defined as that material required to bring the trench bottom up to grade and that material placed alongside and above the pipe to a level of at least 6-inches over the top of the pipe. Pipe embedment shall be selected earth or sand, which contains no stones, dry or frozen lumps greater than 3/4-inch in diameter, or other unsuitable material as defined by the Owner. Embedment and the first 6-inches of backfill above the top of the pipe in rock excavation shall be done in the presence of the Owner. Any backfilling, done in violation of this provision shall be cause for removal and replacement at the expense of the Contractor even though the work is found to be in accordance with these specifications.

Bedding: Bedding is that portion of pipe embedment zone beneath the pipe. If the native soil is suitable for bedding, the bottom of the trench shall be accurately shaped to provide uniform bearing and support for the entire length of the pipe.

Imported bedding material shall likewise be placed to provide uniform and adequate longitudinal support under the pipe. Bedding material shall be placed and compacted in lifts not to exceed 6-inches in loose measure.

Haunching: Haunching is that portion of the pipe embedment zone from the bottom of the pipe to the springline of the pipe. Haunching material shall be placed and hand tamped to provide adequate side support to the pipe while avoiding both vertical and lateral displacement of the pipe from proper alignment.

Initial Backfill: Initial backfill is that portion of the pipe embedment zone from the springline of the pipe to a minimum level of 6-inches above the top of the pipe. Initial backfill material shall be placed and compacted in lifts not to exceed 6-inches in loose measure. Compaction shall be performed in such a manner so as to avoid damage and disturbance of the embedded pipe.

Final Backfill: Final backfill is defined as that material used in the area between the Initial Backfill and the existing ground surface. Material shall be placed and compacted in lifts not to exceed 6-inches in loose measure except as otherwise specified.

1.09.02 COVER

~~Install all buried piping with a minimum cover of 30" for pipeline or mains (24" in trenched rock) and 18" for service lines in customer yards or lawns. (See Excavation section.)~~

Where an underground structure prevents the installation of pipe with minimum cover, provide a casing, bridge or shield to prevent damage to the pipe.

1.09.03 BACKFILLING

After the pipe has been lowered in the trench but prior to backfilling, inspect and remove all welding rod, skids, brush, rocks or any other debris in the trench.

After the lowered pipe in the trench has been inspected and after all coating damage has been repaired and tested, backfill the trench to prevent floating of the pipe, in the event water enters the trench. Conduct the backfill operation so that a minimum amount of trench remains open at any one time.

Backfill material adjacent to the pipe and up to six inches above the pipe shall be of suitable dirt free from rocks, hard clods, cinders and other types of debris. Take precaution in placing and packing the initial backfill so the pipe coating and fittings beneath will not be damaged. If the soil removed from the trench is not suitable for backfill, sand shall be used to bed the pipe up to six inches above

the top of the pipe. Rockshield 3/16" minimum thickness may be substituted when suitable backfill is not available.

1.09.04 TAMPING

Machine tamp backfill at all locations required by ordinances, permit specifications or at locations determined by the inspector. Exercise care near the pipe so that the coating and fittings will not be damaged by the tamping operation.

1.09.05 SETTLEMENT PRECAUTIONS

Where the pipe is trenched across roads, backfill the part which crosses the road as soon as possible after the pipe is laid. Backfill these crossing in six inch layers and machine tamp each layer to the equivalent compaction of the adjacent undisturbed soil, or to the specifications by the permit.

1.09.06 CROWN

Scrape and crown all loose dirt in the construction area up over the trench in a straight line as far as practical.

1.09.07 PLASTIC PIPE BACKFILLING PRECAUTIONS

Earth loading, except where settling causes bending stress, should not excessively stress PE or PVC pipe in normal installations. Ways to prevent stress are:

1) Join pipe to fittings in straight lines to prevent excessive bending.

2) Grade and backfill evenly to prevent uneven settlement.

3) The use of protective sleeves and proper compaction techniques for service branches and transition fittings. Material six inches around the top and bottom of the pipe shall be free of all biodegradable items, rocks cinders, ½" in diameter or larger dirt clods. Tamp backfill material beneath and around all service connections, fusions or fittings. Complete backfill in connections, fusions, or fittings. Complete backfill in successive layers to uniformly fill the trench without voids.

1.09.08 Compaction Requirements

Unless otherwise specified by permit issued by the roadway authority or by special arrangement between the Operating Utility and the Owner, bedding, haunching, initial backfill, final backfill, and gravel resurfacing shall be compacted to the following percentages of maximum density as determined by ASTM D 1557 (If using Standard Proctor ASTM D 698, add 5% to all compaction

requirements listed in the table below). In-place densities of materials shall be determined by the sand-cone method, ASTM D 1557 or by nuclear method, ASTM D 2922.

Percent of Maximum Density – D1557

Backfill Location	Bedding Backfill	Haunching Backfill	Initial Backfill	Final Backfill
Roadway Rights-of-Way Within Roadway Prism	95% *	95%	95%	95%
Roadway Rights-of-Way Outside of Roadway Prism	90% *	90%	90%	95%
All Other Conditions	85%	85%	85%	85%

*or the existing conditions within the undisturbed bottom of the trench.

1.10 Imported Backfill

1.10.01 Imported Pipe Embedment

If the native soil is unsuitable, the Contractor shall import suitable pipe embedment material. Pipe embedment shall be select earth or sand which contains no stones, dry lumps, or frozen lumps greater than 3/4-inches in diameter and shall be defined as 100% passing 3/4-inches, 40-99% passing # 4 sieve and 30% or less passing #200 sieve. Unsuitable material is defined as solid or loose rock, soils with rocks larger than 3/4-inches in their largest dimension, or other unsuitable soils which are, as determined by the Owner, incapable of properly supporting the pipe

1.10.02 Imported Final Backfill

If the native soil is unsuitable for use as final backfill, the Contractor shall import suitable final backfill. Imported final backfill may be any material, which is locally available and is capable of being compacted to the required density. This material shall be free of boulders and rocks larger than 6-inches in their smallest dimension, frozen clumps of dirt, organic material, or rubble, which could damage the pipe.

1.11 Bedding and Backfill for Structures

1.11.01 Bedding

~~Bedding material for structures is defined as that material beneath the structure. This material shall be as specified in the standard detail for each structure.~~

1.11.02 Backfill

~~All backfill must meet compaction requirements. The material and the required compaction of such shall be the same as that specified for in the final backfill on pipelines, or as specified in the drawings.~~

1.12 Settlement of Adjacent Structures

Throughout the warranty period of the contract, the Contractor shall be required to fill and compact any areas where settlement has taken place and shall also be responsible for the settlement of any adjacent structure or object caused by any excavation performed under his contract.

1.13 Surface Restoration and Resurfacing

1.13.01 Surface Restoration

Replace the cut or damaged areas of all paved or asphalt surfaced areas in a manner approved or specified by the authority having jurisdictional; included are streets, highways, alleys, driveways, sidewalks and any other hard surface under-crossings.

Resurface graded dirt, gravel or crushed rock road crossings to their original condition and in an approved or specified manner by the authority having jurisdiction.

Where the pipeline crosses farming or ranching areas, level out the backfill so the difference in surface elevation between the top of the backfill and the normal surface of the ground does not exceed 12 inches. Make an opening in the crowned backfill to permit drainage and prevent the damming water.

After construction, restore all roads, hillsides, creek banks, levees and other areas to the original condition or profile, unless other arrangements are agreed to by both the land owner or the authority having jurisdiction and the company.

Protect backfill area from erosion. Where erosion is possible, construct dams or dikes with earth-filled sacks and seed construction area with rye grass or other quick growing grasses.

Restore surface drainage into the original channels it followed prior to construction.

1.13.02 Clean Up

Keep the right-of-way skids, defective materials, and all other construction debris immediately behind the operation.

Scrape and crown up all loose dirt on the right-of-way over the ditch in a straight line as far as practical rust.

1.13.03 Roadway Patching

Whenever existing roadways are disturbed during the course of construction, the
Contractor shall restore the roads to their original condition.

For ease of compaction, the Contractor may use well graded gravel, crushed stone, or flow-able fill from a Ready Mix plant as backfill as approved by the roadway agency. For final backfill, the material shall be clean, vary in size from 3/8-inches to 1-1/4-inches with not more than 10 percent of the material less than 3/8-inches in size and shall be compacted in 6-inch layers or as directed by the Owner. Flowable fill is defined as one bag concrete, with gradations of 100% passing the 3/8 sieve, and less than 25% passing the #200 sieve. The slump should be between 5” and 8”, and the 28 day strength should be between 50 psi and 150 psi.

Surfacing shall be replaced where the roadway has gravel, crushed stone, asphalted, or concrete surfacing. Gravel or crushed stone shall be replaced in quantities and locations as directed by the Owner, or as required by the roadway permitting authority. Asphalt mix or concrete surfacing shall be replaced, and in the case of asphalt, appropriately compacted (e.g., tamped) in the roadway to a depth equal to existing roadway surface but not less than 2-inches in asphalt or 6-inches in concrete. A compacted stabilized gravel or crushed stone base 6-inches in depth shall be placed in the roadway at all locations where surfacing is required prior to placement of the bituminous or concrete wear course, unless other requirements are stipulated by the roadway authority.

The Contractor shall obtain any and all necessary written permissions, easements, and permits from federal, state, and county agencies prior to beginning any roadway excavation.

TECHNICAL PROVISIONS

TP 2.0 NATURAL GAS LINE SEPARATION REQUIREMENTS

2.01 General

The requirements are to be followed to provide safety by separation of utilities and use of special piping materials. All measurements shall be the clearance between pipes (pipe O.D. to pipe O.D.).

2.02 CROSSING UTILITIES OR UNDERGROUND STRUCTURES

These guidelines apply to new crossings, whether installed by the gas Utility or another entity across gas utility structures.

In most cases, the new line will cross *under* the existing facility, unless the existing structure is known to be deep enough to allow adequate clearance and depth of cover for the new line. Close coordination with the other entity is usually required.

Wherever practical, the existing pipeline, electric or phone cable, water-sewer line, culvert or other structure should be exposed before the new crossing is made. Exposure should be done by hand digging the last 18-24" near utility locate marks, or vacuum-based daylighting or similar equipment.

A gas utility representative *must* be present when directional drilling to cross gas facilities, and the targeted crossing is within 36" of the estimated location of the gas facility. Post-construction leak survey may be required.

Minimum clearance of 12 inches *or one pipe diameter*, whichever is greater, is required between the pipe being installed and the facilities being crossed. If this separation is not possible due to crowded conditions, then a permanent separator shall be inserted between the structures to prevent contact from settling or ground movement. Such separator shall be designed to avoid damage or undue stress to PE pipe or pipe coating, and shall be made of plastic or treated wood to ensure long life.

2.03 Vertical Separation of Natural Gas Lines and Other Utilities

2.03.01 Gas Above All Utilities

When gas lines cross other utilities, the gas line shall cross above all utilities, with a minimum vertical separation of 12 inches. If necessary, the depth of the gas line may be reduce to meet a 12 inch vertical separation, but must not be less than

24 inches for mains or 18 inches for services, measured from top of pipe to grade. When a minimum of 24 inches for the mains and 18 inches for the services cannot be met, then the gas line must cross below the utility in question. This will be permitted only at the concurrence of Frontier Gas or its Representative. When the 12 inch vertical separation cannot be met, a compacted soil or concrete barrier will be used or other methods approved by Frontier Gas or its Representative. **NOTE: For electric and gas line crossings, if the vertical separation is less than 18 inches, the contractor shall place a 4-inch thick by 3-foot square concrete slab between the centerlines of the crossing utilities.**

2.04 Gas Line Separation from Manholes

No gas pipe shall pass through, under, or come into contact with any part of a sewer manhole.

2.05 Gas Line Separation Within 5 feet of a Structure

This section shall apply to that portion of gas service lines located within five feet of the house. For new construction, all service lines shall have a 5 feet minimum horizontal separation. The service lines can be laid closer than 5 feet, if the bottom of the gas service line is at least 12-inches above the top of the sewer or water service line with no joints until the separation requirement is met**. Gas service lines and meter risers shall not be placed under or within 3 horizontal feet of doors or windows that may be opened, and any vents or other opening into the building, and shall meet the National Plumbing Code, and National Electric Code.**

2.06 Separations Between Gas Lines and Components of the Sewage Disposal System

Gas lines shall not be installed within 10 feet of a septic tank, within 25 feet of a drain field, or 20 feet from an outhouse. Also, gas lines shall not be installed within 50 feet of the perimeter fence of an **individual** lagoon, or within 100 feet of the perimeter fence of a **community** lagoon.

TECHNICAL PROVISIONS

TP 3.0 GAS MAINS, GAS SERVICE LINES, AND APPURTENANCES

3.01 Scope of Work

The work covered by this section includes the furnishing of all plant, labor, tools, equipment, and material; performing all operations in connection with the construction of gas mains, including the placing of all necessary valves, fittings, and appurtenances, and the construction of gas service lines, including saddles tap tees, valves, risers, gas stops, gas meters, and appurtenances, in accordance with these technical provisions and applicable drawings.

3.02 Gas Mains

3.02.01 General

This section covers the requirements for polyethylene and steel pipes and fittings for underground gas distribution systems. The piping construction shall be performed in accordance with engineered construction plans provided by the Owner. Pipe, fittings and the installation shall meet the applicable requirements of the U.S. Department of Transportation, Pipeline Safety Regulations, Title 49, Code of Federal Regulations, Part 192.

All work shall be inspected by an Authorized Representative of the Owner who shall have the authority to halt construction if, in his opinion, these specification of standard construction practices are not being followed. Whenever any portion of this technical provision is violated, the Owner shall by written notice order further construction to cease until all deficiencies are corrected.

3.02.02 Polyethylene (PE) Pipe and Fittings

Materials used for the manufacture of polyethylene pipe and fusible fittings shall be ASTM D 2513 Gas PE 2406/2708 Yellow IPS medium-density polyethylene compound, meeting cell classification numbers 345464C for black and 345464E for stripes, and 345564C for yellow pipe per ASTM D 3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

The polyethylene pipe shall be manufactured and tested in accordance with the latest published edition of ASTM D 2513, specification "Thermoplastic Gas Pressure Pipe, Tubing and Fittings, ASTM D 2683 specification, "Socket-type Polyethylene Fittings for outside Diameter-Controlled Polyethylene Pipe", ASTM D 3261, "Butt Fusion Polyethylene

(PE) Plastic Fittings for Polyethylene", Plastic Pipe and Fittings, and to the U.S. Department of Transportation Title 49, Part 192, "Transportation of Natural and or Other Gas by Pipeline - Minimum Safety Regulations". The same manufacturer shall supply polyethylene pipe and heat fusion fittings. Pipe and fittings from different manufacturers shall not be interchanged.

The pipe shall be the four equally spaced longitudinal yellow stripes extruded into the pipe OD or the yellow pipe highly visible identification of gas service and in compliance with APWA/ULCC standards for color-coding of gas distribution lines. The pipe shall be equal to Performance Yellowstripe® 8300, SDR 11. The designation PE 3408 and indication of pipe size, material, manufacture, pressure rating, and temperature rating, and as appropriate, type and grade shall be stamped or die-marked on the pipe. The die stamp must have a blunt or rounded edge that will minimize stress concentration.

All fittings for 4 inch and above Polyethylene shall be butt-fusion; no mechanical fittings will be accepted.

The polyethylene pipe maximum allowable operating pressure (MAOP) may not exceed 100 psig for plastic pipe used in distribution systems. The following table shows the typical data represented by Performance pipes. All dimensions are Iron Pipe Size (IPS) with the Standard Dimensions Ratio (SDR) equal to 11.

Nominal Size (in.)	**Outside Diameter** (in.)	**Minimum Wall** (in.)	**Inside Diameter** (in.)	**MAOP** (psig per CFR Part 192 @ 100 F or less)
1	1.315	0.120	1.075	100
2	2.375	0.216	1.943	100
3	3.5	0.318	2.825	100
4	4.5	0.409	3.682	100

All joints are to be mechanically joined, socket fusion, and or butt fusion as specified by the manufactures' procedures in accordance with ASTM D 2513, Category 1, Joining, and the requirements of the Owner.

The installation of all polyethylene pipes must provide enough flexibility to allow for expansion and contraction of the material with temperature changes. It is desirable to slightly snake the pipe in the trench prior to trimming and joining adjacent sections.

Plastic pipe with scratches, gouges, or grooves deeper than one-tenth (0.10) the wall thickness on the OD of the pipe shall be rejected. Localized pipe

damage may be cut out and the undamaged portion of the pipe may be used with the approval of the Owner. The damaged sections of pipe shall be completely destroyed or immediately removed from the job site.

3.02.03 PLASTIC PIPE INSTALLATION - (POLYETHYLENE)

Join PE pipe above grade or in the ditch as the situation dictates. Plan joining in the ditch to insure that you have enough space for proper alignment. Avoid bucking, gouging, and other damage when lowering into the ditch. Lay the pipe so that there are no bends with a radius less than 20 times the pipe diameter and no fusions within 3 feet of any bend.

Align all pipe and fitting fusions straight and flat. Install and tape protective sleeves at all service branches and transition fittings to protect against bending and shear forces. Extremely cold weather makes polyethylene pipe more stiff and increases the likelihood of impact failure. Federal standards require that the installation of polyethylene be far enough away from steam lines, hot water lines, power lines and other sources of heat to avoid temperatures in excess of 140°F. Generally, a 12 inch separation is enough.

Because PE pipe contracts as it cools, snake the pipe in the bottom of the trench. This provides "slack" for the pipeline to cool and contract in the ditch prior to backfilling.

Note: Make final tie-ins or branch connections in the early morning, if possible. At this time, the pipe is cool and has contracted due to the cooler night temperatures. Early morning connections will help minimize stress due to contraction.

3.02.04 CONTROL OF STATIC ELECTRICITY ON PLASTIC PIPE

Static electrical charges develop by friction on the surface of plastic pipe in two ways:

- By physical handling of the pipe in storage, shipping and installation.
- By the flow of gas containing dust, rust, scale or dirt particles. Static charges present a serious hazard during hot-tapping, purging, tie-in operations and leak repair on plastic pipe because they are proven sources of ignition. The voltage generated by this friction can reach levels in excess of 10,000 volts. This is more than enough current to cause gas to ignite.

Before attempting repair on plastic pipe, remove the static charge "voltage" and shut off the blowing gas. Do this in the following manner.

1) Dig a safe work area 5-15 feet upstream of the blowing gas. If the system is fed from both directions, dig a safe work area 5-15 feet on both sides of the leak.

2) Shut off the flow of gas by placing squeeze off tools on the pipe in the work area(s).

3) When the gas has stopped blowing, determine if the area is safe to work in by taking a CGI reading. If the area is not safe to enter, ventilate to a safe working atmosphere.

4) Wet down the pipe in the leak area with a mixture of water and biodegradable soap (mix one ounce soap to one gallon of water).

5) After wetting down the pipe, wet down the work area (ground). When wetting down the pipe and ground area, start at the outside edges of the leak area and move toward the leak.

6) Wrap one end of a cotton rag, burlap cloth or a ground kit (see Purchasing) around the pipe (on both sides of the leak) and allow the other end to contact the ground. During the repair, keep the material wet and in contact with both the pipe and the ground at all times.

7) When the repair is complete, wash off the soapy water with clean water.
Soap can have a bad, long term effect if left on the plastic pipe.

During cold weather, add an ethylene glycol antifreeze to the soap mixture to keep it from freezing. Be sure you wash this off of the plastic pipe when you are through. For additional information, see Section 2: Safety.

3.02.05 INSTALLATION OF LOCATING WIRE

To locate plastic pipe with the use of electronic pipe locator, install no smaller than
#12AWG copper wire with direct-bury insulation along the pipe. Locating wire should be 6" above top of pipe. The separation is necessary to avoid damage to the pipe in the event that the wire is heated by contact with an electrical circuit or struck by lightning.

When pulling a pipe under a bored crossing, tie and tape the wire to the end of the main so it will follow the pipe. This is the only time the wire is permitted to be in direct contact with the main.

Outside the bore, maintain 6" separation of the locating wire and pipe. Make all locator wire splices with splice capsules, bolt- or crimp-type connectors, or resin core solder. Coat the connection with a dielectric sealant, cold-seal butyl tape or equivalent. These connections prevent the loss of continuity due to corrosion on the surface of the wire.

Extend the locator wire above ground at each meter riser or at specially located junction boxes to provide connection for pipe locating instruments. Where location wire is extended above ground level at meter sets, place the wire in back of the meter bar post and tape it in place. (An alternative would be to tape the end of the wire in back of the service valve.)

When renewing steel mains and services by insertion, cadweld No. 12 insulated locating wire to steel pipe on both sides of a void, then to old steel service and from old steel service bring wire above ground at the meter riser.

A 1 lb. bare magnesium anode can be attached at the end of the locator wire at each main stub end to facilitate pipe locator operation.

3.02.06 CHANGES IN DIRECTION of PE PIPE

Avoid excessive bending in polyethylene piping systems, particularly at joints. Poor pipe laying and backfilling procedures increase the potential for failure and can result in bending stresses which exceed the material strength. Where pipe end section includes a butt fusion joint, the radius (R) is not to be less than 125 times the pipe diameter. Where pipe bend section does not include a fusion joint, the bend radius (R) may be a minimum of 20 times the pipe diameter.

Pipe Size	Min. 90° Radius 'A' with joint	Min. 90° Radius 'B' no joint
3/4" NPS	10.9 ft	1.8 ft
1" NPS	13.8 ft	2.2 ft
1.25" NPS	17.5 ft	2.8 ft
2" NPS	26.2 ft	4.2 ft
3" NPS	36.2 ft	5.8 ft
4" NPS	46.9 ft	7.5 ft
6" NPS	67.5 ft	11 ft

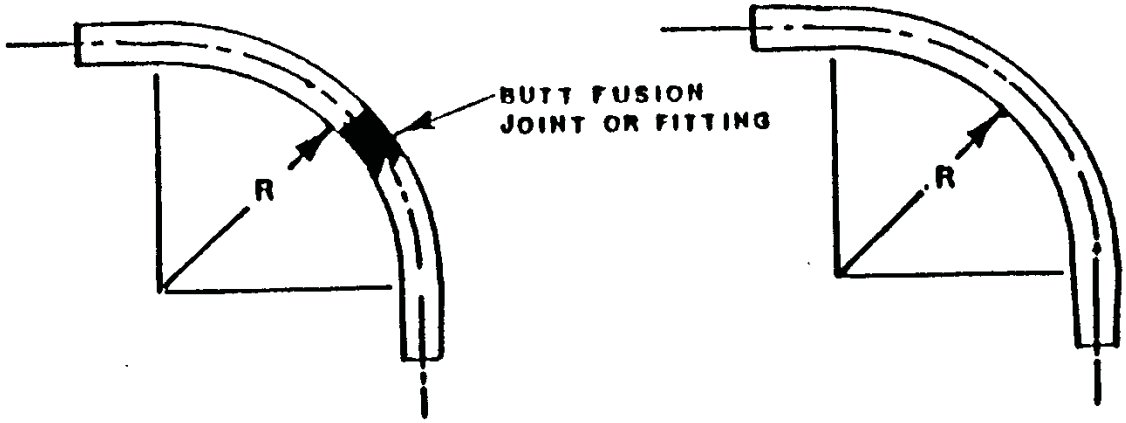


Figure A

Figure B

Fittings for tight spaces – where changes of direction are needed in shorter distances than allowed above, use butt fused fittings available in 45° or 90° angle bends.

3.02.07 Joining of polyethylene pipes

To produce strong gastight joints, written procedures for butt fusion, socket fusion, and Permanent mechanical joining of polyethylene pipe and fittings for underground gas distribution systems shall be observed by following the manufacturer's instructions for installation. All joining shall be made according to procedures that have been qualified and approved by the Utility and in accordance with Title 49, CFR, Part 192, §192.273 (b), §192.283 (a) and §192.285 (a) **also 192.281 and 192.287**.

All persons making heat fusion joints or making inspections shall be qualified to make joints in reference to an approved qualified fusion procedures, by means of an Operator Qualification process through the state of Kentucky. Each operator must be annually qualified by taking the written tests and with hands- on training required by Operator's Qualification. Records of qualified personnel and certification of qualification training received not more than 12 months shall be maintained before commencing construction. The Contractor shall ensure that all persons making heat fusion are qualified in accordance with this section.

This section provides the Utility's qualified procedures for making heat fusion joints on plastic polyethylene (PE) pipe.

Butt fusion is the preferred method to join 2-inch and larger pipe. Electrofusion (EF) is the preferred method for joining pipe or tubing smaller than 2-inch, and for installing tapping and high-volume tees.

Socket and side-saddle tee fusions made with a heating iron are not approved under *any* conditions.

3.02.07.01 QUALIFIED JOINING PROCEDURES

The utility has adopted the Qualified Pipe Joining Procedures and Procedures for Qualification of Pipe Joiners of the Plastics Pipe Institute (*www.plasticpipe.org*). Manufacturer bulletins describing these procedures are available online. A procedures bulletin for one of the largest PE pipe manufacturers is included as a part of this Section.

3.02.07.02 QUALIFICATION OF PIPE JOINERS – BUTT FUSION

Individuals involved with installing PE pipe shall be trained and qualified to use the approved equipment and installation procedures for butt fusion of PE pipe. The candidate for PE pipe joiner qualification shall complete adequate training, and under the guidance of a qualified inspector shall fabricate test assemblies for each type of PE pipe in use by the Utility. The assemblies shall be fabricated and tested in accordance with the pipe manufacturer's procedures.

The proficiency of qualified personnel shall be reviewed annually. A person must be re- qualified, if during any 12 month period that person does not make any joints under that procedure or has 3 joints or 3% of the joints made, whichever is greater, found to be unacceptable by testing under 49 CFR Part 192.513. A person shall remain qualified provided satisfactory field joints for each fusion method made by that person have been evaluated by qualified inspectors at intervals of not more than twelve months.

3.02.07.03 RE-TEST

If a person fails to qualify, in the inspector’s opinion, due to conditions outside the control of the person, the inspector may correct the faulty conditions and give the person a second opportunity to qualify.

3.02.07.04 JOINER QUALIFICATION DOCUMENTATION

A record shall be kept of each person's qualification test and shall include the name, date, test results and record of qualification.

3.02.07.05 CONTRACTOR QUALIFICATIONS

When a contractor is installing or making repairs on PE pipe, each prospective PE joiner shall be qualified to make PE joints under the Utility procedures. Qualification can be done under the inspection of a utility inspector who has been qualified by appropriate training to evaluate the acceptability of PE pipe joints; or by another gas utility or authority acceptable to the Utility.

3.02.07.06 PE BUTT FUSION PROCEDURES

PE pipe butt fusion joints shall be made in accordance with the pipe manufacturer's qualified procedures.

PE butt fusion joints shall be made with equipment designed and manufactured for this purpose. Equipment includes a clamping device, a motorized pipe facing machine, and an electric heating iron.

Heating Irons are the critical link in butt fusion. General information for heating irons:

- Use only Frontier Gas-approved heating irons and heating iron faces.

- Heating irons are thermostatically controlled, electrically heated tools powered by 110 V AC power, used for making butt fusion connections.

- The coated heating iron faces must be kept clean to ensure sound connections. Use a soft wooden stick and a non-synthetic cloth to clean the heater faces. Do not use metal instruments such as knives, wire brushes, etc., because they will damage the Teflon-type coating. Carefully clean the heater faces after each use, including the vent holes. Use 99% isopropyl alcohol to clean all soiled surfaces.

- If the faces are damaged or their Teflon coating becomes contaminated with charred material, they may not be used to make fusions and must be cleaned, recoated, or replaced. Recoating of faces by unauthorized methods or using foreign substances on the faces is prohibited. To prevent damage, store the heating iron assemblies in bags or other appropriate containers.

- Heating iron repairs, other than temperature adjustments, may only be made by an authorized repair facility.

- A single heating iron will accommodate a variety of heating iron face sizes. Do not unbolt and change the faces while the iron is hot, do not over-tighten bolts.

- The heating iron face temperature for all butt fusions shall be 500°F ± 10°F. Use a pyrometer or suitably accurate device to check the heating tool *surface* temperature before each use. Do not use temperature crayons or sticks. The heater gauge indicates *internal* temperature, not the external heater *surface* temperature.

- Allow the heater and faces to stabilize at the proper temperature for at least 5 minutes before using.

- To change the temperature setting of the heating iron: some have a simple adjustment knob to set the correct temperature. For others with an adjustment screw: unplug the heating iron while adjusting the temperature; turn the adjustment screw in the base of the heating head, clockwise to lower the temperature or counterclockwise to raise the temperature. Turning the adjustment screw 1/8 of a turn adjusts the setting approximately 10°F. (This estimate is only a guide - actual adjustment will vary.)

General procedure for butt fusion (may vary slightly by pipe manufacturer):

1) Cut the pipe so that the ends are square. Remove any burrs or shavings. Clamp the pipe into the butt fusion machine and adjust the pipe supports.

2) Open the butt fusion machine carriage and lock the facer into the machine. Ensure that the pipe is in contact with the facer and the carriage is in the open position before the jaws are closed and secured. Be sure the jaws are tight before proceeding.

3) Start the facing tool and, using light force on the carriage lever, advance the pipe ends into the facing blades. Continue advancing the pipe until the carriage travel stops and the facer motor speeds up. This indicates the carriage feed has stopped and the last cut has tapered off.

4) Stop the motor, retract the carriage, and remove the facing

tool. Remove the shavings with a clean rag or brush. Do not contaminate the ends of the pipe with dirt or oil from the hands or dirty gloves.

5) Close the carriage and check that the pipe ends are properly aligned. If the ends are not properly aligned or there are gaps large enough to slide writing paper into, reposition the pipe and repeat the facing procedure.

6) Ensure the heating iron temperature is correct and, with the carriage open, hang the iron in the machine between the pipe ends.

7) Close the carriage and, using light force, hold the pipe ends against the heating iron.

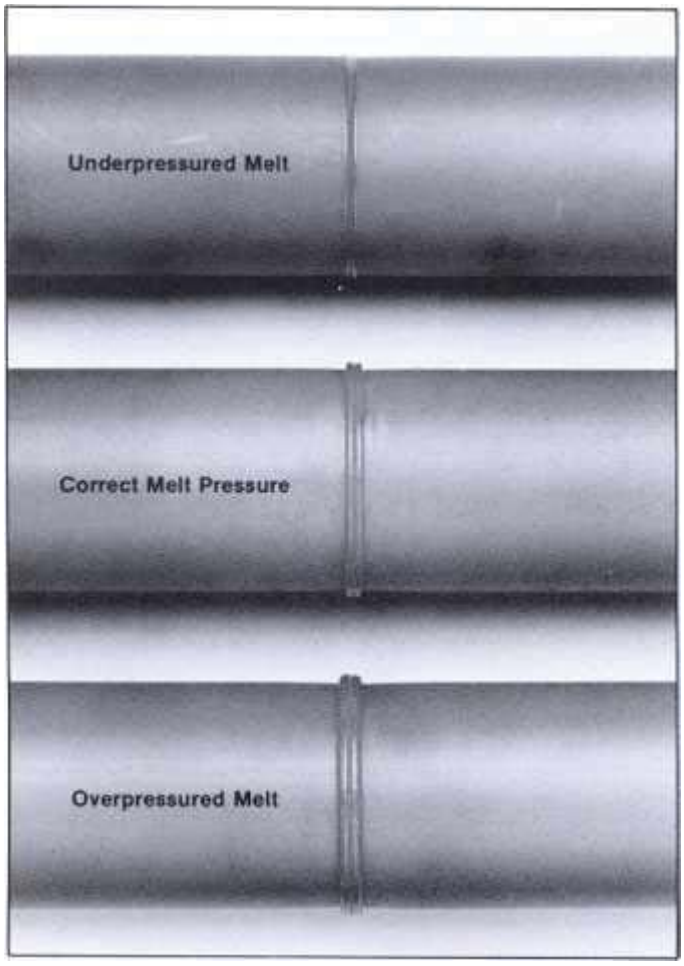
8) When a small melt bead develops around both pipe ends, relax the force on the carriage handle but maintain contact between the pipe and the heating iron. Begin the required heating time.

9) Open the fusion machine carriage back and remove the heating iron quickly and carefully. Do not drag or strike the iron against the melted pipe ends.

10) Bring the pipe ends together quickly, but do not slam them together. Use sufficient force to cause the fusion bead to roll over and roughly double its size. Continue to hold with the same force for the required minimum *holding* time.

11) Open the jaws, retract the carriage, and carefully remove the pipe. Do not air test, pressurize, or handle roughly until the total *cooling* time has passed.

12) Visually inspect the butt fusion along the entire fusion area for the proper bead appearance. If the appearance is unacceptable, determine the cause. Cut out the fusion bead and make corrections. Repeat the procedure.



Butt fusion - melt bead results vary with hand pressure on the carriage handle.

3.02.07.07 REPAIR OF PE PIPE

Successful repair of PE pipe depends on the type of damage or pipe flaw:

- Bad fusions – Using the inspection procedures as a guide, unacceptable PE fusions shall be cut out as a cylinder and replaced.

- Cylinder - All manufacturing imperfections and significantly damaged portions of PE pipe shall be cut out as a cylinder and replaced.

- EF Saddles - On certain types of cuts, scrapes, punctures and other external pipe damage of limited size, an electrofusion EF saddle tee can be electro-fused over the damaged area as a permanent repair. The fusion cannot be performed around leaking gas. This method CANNOT be

used to cover apparent manufacturing defects in new pipe, nor can several saddles be daisy-chained together to cover a larger area. On such a repair, cut off the outlet neck of the saddle tee so it cannot be tapped and used for a service tee.

- Repair Clamp - The use of a repair clamp is sometimes necessary to temporarily stanch a gas leak, but a repair clamp is not allowed as a permanent repair.

3.02.07.08 DISSIMILAR FUSION PROCEDURES

The indiscriminate mixing of types and wall thicknesses of PE pipe is discouraged. However, mixed PE joining may be unavoidable as pipe technology evolves.

Dissimilar PE pipe types may be butt-fused, but only if special procedures are developed and fully qualified under DOT regulation, and joiners are trained and qualified before any work is started. This is time-consuming and expensive, and every combination of PE resin and wall thickness have to be qualified.

For this utility the *only* approved method of joining dissimilar PE pipe is to use electrofusion or EF couplings under the procedures in this manual.

3.02.08 PE PIPE ELECTROFUSION PROCEDURES GENERAL

This procedure describes fusing polyethylene (PE) pipe with Electrofusion (EF) fittings. Electrofusion is a heat fusion process that joins a fitting to pipe by heating an internal electrical coil in the fitting. This coil is energized by an Electrofusion processor.

Electrofusion is the approved method for installing saddle tap tees and joining service lines. Electrofusion is approved for joining 2-inch and larger pipe, in situations where butt fusion is preferred but considered impractical. Applicable DOT codes and many generic procedures are the same as for PE butt fusion.

3.02.08.01 ELECTROFUSION SYSTEMS

Universal EF mode processors and fittings are approved for use in this joining procedure. Other EF systems and fittings may be approved for use according to the manufacturers recommendations.

Universal EF mode processors use “bar code” technology. A bar code label attached to each fitting contains all the fusion parameters. When

the bar code reader is moved over the bar code, the EF processor identifies the manufacturer, size and type of fitting, and automatically adjusts the fusion time and amperage for the specific fitting and ambient temperature.

EF processors are not explosion proof and may not be used in an explosive atmosphere. Escaping gas must be stopped or vented away from the processor and from any fitting connections.

EF processors require a 110V AC power supply capable of supplying adequate power to the largest anticipated EF fitting. For most utility operations a 5000 watt generator is the minimum size recommended. If so equipped, the auto-throttle switch should be turned off. If an extension cord is used, it shall be constructed of #10 AWG or larger, 3-wire cord and shall not exceed 100ft length.

3.02.08.02 QUALIFICATION OF PE JOINERS - ELECTROFUSION

Individuals involved with installing PE pipe shall be trained and qualified to use the approved equipment and installation procedures for EF joining of PE pipe.

The candidate for EF joiner qualification shall complete adequate training and under the guidance of a qualified inspector shall make a 2-inch EF coupling fusion. If EF saddle taps are used, the test shall include a 2-inch EF saddle tee.

The fused coupling shall be visually examined and cut into three longitudinal straps. The straps shall be inspected for adequate fusion. The saddle fusion shall be cut across the pipe into three sections and inspected for adequate fusion. Persons inspecting joints in PE pipe must be qualified by training or experience in the procedure to evaluate the acceptability of the joints.

The proficiency of qualified personnel shall be reviewed annually. A person must be re- qualified, if during any 12 month period that person does not make any joints under that procedure or has 3 joints or 3% of the joints made, whichever is greater, found to be unacceptable by testing under Part 192.513. A person shall remain qualified provided satisfactory field joints made by that person have been evaluated by qualified examiners at intervals of not more than twelve months.

3.02.08.03 RE-TEST

If a person fails to qualify, in the instructor's considered opinion, due to conditions outside the control of the person, the instructor may

correct the faulty conditions and give the person a second opportunity to qualify.

3.02.08.04 JOINER QUALIFICATION DOCUMENTATION

A record shall be kept of each person's qualification test and shall include the name, date, test results and record of qualification.

3.02.08.05 ELECTROFUSION PROCEDURE – COUPLING

EF Couplings are the most common EF fittings. These are used to join pipe together, and coupling ends are often incorporated into tees, ells and other common pipe fittings. The EF fitting should be left in its protective bag until ready for use. General EF procedure:

1) Cut the pipe ends to make a square, even surface. Remove any burrs or shavings.

2) Clean pipe ends inside and out with a clean, dry cloth to remove any dirt or contaminants. Pipe preparation and contamination removal are critical to EF.

3) To determine insertion or stab depth on couplings, measure half the length of the coupling and mark the depth with a wavy line. For ease of installation, a stab depth indicator and internal fitting stops are a molded part of most EF couplings.

4) Scrape pipe ends to remove any oxidation or surface contamination in the entire area to be covered by the coupling. DO NOT use any tool but the specific PE pipe scraping tool made for the specific pipe size. For best results, secure scraping tool on pipe and make no more than two passes on any spot. As PE scrapings build up, remove the scraping tool and clean blade area with a clean, dry cloth.

5) Continue scraping until the wavy stab depth marks are mostly removed and the fusion area is completely presented with un-oxidized, virgin material. In the event of out-of-round pipe, it is important to assure an even scrape is achieved around the entire circumference of the pipe. A rubber pipe stopper or internal stiffener can be placed in the end of the pipe to aid rounding.

6) Remove the EF fitting from the bag. Inspect the fitting for obvious defects in the molding and electrical pins and coils.

If necessary, clean the coil side of the fitting with cotton cloth and 99% isopropyl alcohol.

7) Place pipe ends and coupling together by using the internal fitting stops. The maximum gap between pipe ends should not exceed ¼" for 2-inch pipe and ½" for 3 to 8-inch pipe.

8) Maintaining stab depth, place all pipe junctions into proper clamping tools to secure pipe from movement during the fusion cycle. For best results, alignment clamps should be placed as close to the fitting as possible. The fitting should still slide freely.

9) Connect the processor to an adequate AC power source with the proper extension cord. (DC current can damage the processor). If a generator is used it should be up to speed before plugging in the processor.

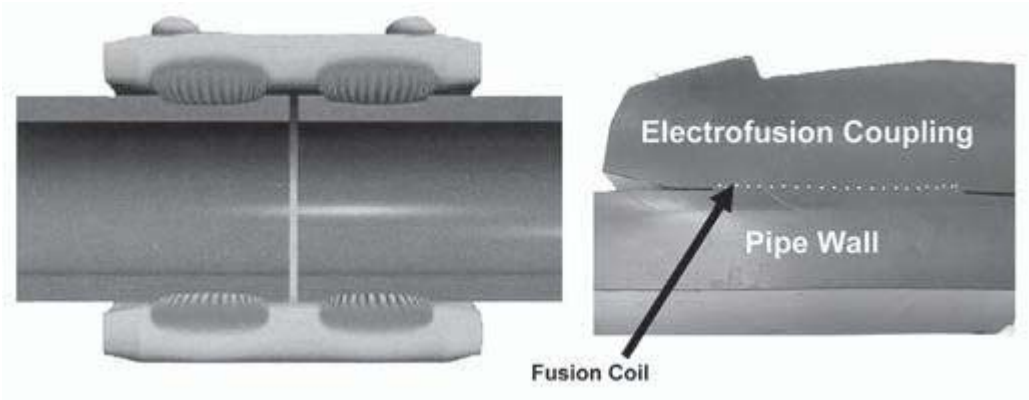
10) Perform the EF operation by following the appropriate EF processor procedure. Read the barcode on the fitting, attach the processor leads to the terminals on the fitting, and prepare for fusion as directed.

11) Press START button to begin fusion cycle. Fusion cycle time will count down on the visual display, and some processors display output volts or amps. When fusion cycle is complete, the processor should indicate a successful fusion.

12) If any diagnostic fault, shutdown or other fusion message appears during the process, refer to the manual for fault messages.

13) Disconnect the processor leads from the fitting.

14) Clamping device should remain in place to secure pipe and fitting during the recommended cooling time. After removing clamps, inspect the joint and cut out if necessary. Additional cooling time should be allowed before subjecting the joint to bending, burial, pressure testing, or similar handling and backfill stress.



Cross section of a typical EF coupling with internal electric heating coils.

3.02.08.06 ELECTROFUSION PROCEDURE - SADDLE

EF Saddle fittings are used for tapping tees and high-volume tees suitable for hot taps on active lines. Generally, most of the preparation and fusion steps of the EF Coupling procedure apply to the EF Saddle, with a few additional steps:

1) For saddle fusion clean the joining area with a clean dry cloth.

2) Center fitting on pipe and mark length of fusion area. Scrape entire pipe surface covered by the fitting.

3) Position saddle on scraped surface and position saddle clamp on it. Slide clamping tool onto edges of saddle fitting until clamp is squarely aligned beneath the fitting. Tighten clamp to secure fitting in place.

4) Visually inspect the saddle tee. If the connection is not acceptable, abandon the saddle fitting in place. Cut off the neck of the fitting so it cannot be used. Move to another location along the pipe and repeat the procedure.

Outlet pipe can be fused to the saddle tee outlet with EF coupling or butt fusion.

DO NOT perform EF saddle fusion or hot tapping on live PE Mains with more than 60 psig internal pressure.

EF Saddle tees can be used for certain types of surface damage repair, see section on Repair of PE Pipe.

3.02.09 Steel Pipe (X-tru Coated & Black) and Fittings for Gas Mains

3.02.09.01 STEEL PIPE INSTALLATION

~~Support pipe in trench on undisturbed earth, well compacted soil or sand in ditch bottom. Avoid sand pads placed at intervals for support under the pipe, as they impede compaction under the pipe. Install all overbends so that the pipe at the point of the bend clears the high point of the ditch bottom by at least six inches. At side bends, bend and lower the pipe so it lays against the outside wall at the bottom of the trench. At sag bends, rest the pipe evenly and firmly on the ditch bottom.~~

3.02.09.02 CHANGES IN DIRECTION of STEEL PIPE

~~On long pipelines, directional changes must be designed to accommodate pigging. Most pipeline bends are low-angle and can be made with a bending machine, or bending shoe for smaller pipe. Use five radius (5R) welded sweep elbows for abrupt changes in pipeline direction. If sweeps are not available, 3R elbows may be trimmed for some short bends <30° for pipe larger than 2-inch, if the arc length as measured along the crotch is a minimum of one inch.~~

~~Distribution mains will usually change direction with 3R welded elbows. DO NOT use wrinkle bend or miter bend.~~

3.02.09.03 FIELD COATING of WELD JOINTS & FITTINGS

~~Coat all weld joints, ends, sweeps, elbows and other fittings and any coating voids with standard materials compatible with the steel pipe coating.~~

3.02.09.04 INSPECTION & REPAIR OF COATING

~~For long sections of steel pipelines, all pipe coating shall undergo a high voltage electrical inspection in accordance with NACE Standard for "jeeping" or holiday detection. All holidays and defects disclosed by this inspection shall be repaired before the pipe is lowered into the ditch.~~

3.02.09.05 LOWERING IN OPERATION

~~Use belt slings, padded calipers, or rubber tired cradles to handle the pipe. DO NOT use chain, wire rope or steel reinforced belting. Do not assemble more pipe than can be handled and positioned in the trench safely.~~

~~Take care to prevent damage to the coating. Prevent electrical contacts between the carrier pipe and casing, intersections with other utilities, etc.~~

3.02.09.06 CORROSION CONTROL

~~After pipe is placed in the trench and prior to backfill, install corrosion control devices such as magnesium anodes, test leads, insulators. Reference Handling & Installing Magnesium Anode Section and the drawings for detailed installation instructions.~~

3.02.09.07 NIGHT CAPS

(For steel or PE pipe.) At the end of each day's construction or whenever work is delayed for an extended period of time, plug or cap all open ends of any installed pipe with a suitable cap that will prevent the entry of water, mud, etc. Compression fittings or wooden tapered plugs may be used for this purpose. Do not use rags, tape, etc.

Where the line is joined into long sections for pulling across highways, railways, streets and other crossings, cap the inactive end of the pipe while fusing.

3.02.09.08 ADDITIONAL PROTECTION

Protect each pipe line from washouts, unstable soil, floods, landslides or other hazards that may cause the pipeline or above grade facilities to move or be subject to abnormal loads.

~~The pipes and fittings to be used shall be for high pressure (60psi-400psi) natural gas distribution. The pipes furnished by Contractor shall consist typically of 4" steel pipe coated with Performance polyethylene extruded coating; .035" minimum coating thickness, .010" adhesive thickness, 4.5" coating cutback, 4" adhesive cutback and with plastic end caps on each end, in accordance with American Society for Testing and Materials (ASTM) D-1238. Steel pipe: Standard 4" diameter by 40-45 foot double random lengths with plain beveled ends, .237" specified wall thickness, 4.50" outside diameter, 4.026" inside diameter shall be provided through a manufacturer and in accordance with the American Petroleum Institute (API) specification 5L, Grade B, Product Specification Level (PSL) 2, Electric Resistant Weld (ERW).~~

~~Thinner wall 4-inch .188/8.66#/ft. ERW pipe with the same extruded~~

~~coating as above is permissible as approved by the owner for buried installations **only**.~~

~~The 6" pipes shall consist of 6.625" O.D, .280" wall thickness, 6.065" I.D. with plain beveled ends and double random lengths. Complete with .010" adhesive coating and a .035" Yellow Performance Polyethylene extrude coating, 4" adhesive coating cutback and 4 ½" polyethylene coating cutback, with end caps, in accordance with API 5L Grade B, ERW steel pipes and ASTM D-1238. The pressure, which pushes a pipeline to transmission status, differs from pipe to pipe. The specified minimum yield strength (SMYS) of pipe differs from brand to brand. NTUA uses API 5L, Grade B pipe, which has specified minimum yield strength of 35,000 psi. The Hoop stress in a steel pipe is determined by its pressure, diameter, and thickness by the formula:~~

~~**S** = Hoop Stress~~
~~**P** = Operating Pressure~~

~~S = P x D 2 x T~~
~~**D** = Outside Diameter, inches~~
~~**T** = Wall Thickness, inches~~

~~Example: 4-inch pipe operating at 200 psi has an outside diameter of 4.5 and a wall thickness of 0.237 and a Hoop stress of 1898.7 psi.~~

~~The following table shows the different pressures produced, for a particular size pipe, given a Hoop stress that is at 20% SMYS.~~

~~**Pipe Size** (in.)~~	~~**Outside Diameter** (in.)~~	~~**Wall Thickness** (in.)~~	~~**20% SMYS** (psi)~~	~~**Max. Pressure** (psi)~~
~~2~~	~~2.375~~	~~0.154~~	~~7000~~	~~908~~
~~4~~	~~4.5~~	~~0.237~~	~~7000~~	~~738~~
~~6~~	~~6.625~~	~~0.280~~	~~7000~~	~~592~~
~~8~~	~~8.625~~	~~0.322~~	~~7000~~	~~523~~

~~The following table is a list of the dimensions for standard API 5, Grade B plain-end pipes:~~

~~**Nominal Size** (in)~~	~~**Outside Diameter** (in)~~	~~**Wall Thickness** (in)~~	~~**Weight Per Foot** (lb/ft.)~~	~~**Inside Diameter** (in)~~
~~1~~	~~1.315~~	~~0.133~~	~~1.68~~	~~1.049~~
~~2~~	~~2.375~~	~~0.154~~	~~3.75~~	~~2.076~~
~~4~~	~~4.5~~	~~0.237~~	~~11.00~~	~~4.026~~
~~6~~	~~6.625~~	~~0.280~~	~~19.45~~	~~6.065~~

~~The following table lists the dimensions for various other schedule type pipes called out for and utilized at different applications throughout the distributions system of natural gas.~~

		~~**NOMINAL WALL THICKNESS (in.)**~~	
~~Nominal Pipe size (in.)~~	~~**Outside Diameter** (in.)~~	~~**Schedule 40**~~	~~**Schedule 80**~~
~~1~~	~~1.315~~	~~0.133~~	~~0.179~~
~~2~~	~~2.375~~	~~0.154~~	~~0.218~~
~~4~~	~~4.5~~	~~0.237~~	~~0.337~~
~~6~~	~~6.625~~	~~0.280~~	~~0.432~~
~~8~~	~~8.625~~	~~0.322~~	~~0.500~~

~~Weld elbows and tees are to be standard black schedule 40, nominal pipe size, long radius butt weld fittings, preferred vendors, Vincent Supply, Red Man, or equal to as approved by Owner.~~

3.02.10 Welding of Steel Pipe

~~*Swabbing:* Each joint of pipe shall be swabbed with an appropriate disc of proper diameter to remove dirt, mill scale, and other foreign substances before placing the joint in alignment for welding.~~

~~*Welding equipment and supplies*: All welding machines, line up clamps, beveling machines and other equipment and supplies used in connection with welding work shall be furnished by the contractor. Said welding equipment shall be satisfactory to the owner and shall be kept in good mechanical condition so as to produce sound, high quality welds. Any equipment not satisfactory to the owner or his representative must be replaced with satisfactory equipment.~~

~~*Type and Method of Welding*: All welding shall be electric "shielded arc" process. Three or more beads shall be required and the size of rods used shall be according to the thickness of the pipe and as specified by the Inspector. Stubs of welding rods shall not be disposed of in the ditch; instead, stubs and rejected welding rods shall be collected in containers and disposed of at the end of the day as directed by the inspector. As an example, for 2-inch through 4-inch pipe, the first bead shall be weld E6010, 1/8" or 5P+ welding rods. The third bead shall be capped with a Shield Arc 85, 5/32" or 3/16" welding rods.~~

~~*Qualification of Welders*: The contractor shall only use skilled workman certified for welding. Each welder employed by the Contractor shall be required to pass Pipeline (Fixed) Bellhole Welding Tests. For making such tests specimens one inch (1") in width shall be cut from the nipples at right angles to the weld. The strip specimen shall be subject to tensile, root bend and face bend tests. The manner of performing the tests and the tests result shall be in accordance with API 104, *Standards for Welding Pipelines and Related Facilities*. The cost of all welding tests shall be borne by the contractor. In the event that neither the owner nor the Contractor is satisfied with the test results, the welder shall not be employed.~~

~~*Further Test of Welders*: As a further test on the quality of the welding, the owner may request that a weld line be cut at the concurrence of the inspector. The cut-out and subsequent tie-in cost of the test specimen shall be at the expense of the contractor.~~

~~*Tests of Welds in the Line*: The owner may employ tests or other means considered desirable to test the work of welders by inspection of welds in the line. If the cut- out methods of welds is employed, the owner may, with the concurrence of the Inspector, cut out and test any section designated by him. Any test that fails shall disqualify the welder from doing any welding on the said project and shall prompt another cut-out test at a random location selected by the Owner. If this second test fails, the contractor shall x-ray the entire exposed section of line at his expense. If problems exist in the x-ray process, at the Owner's discretion, the contractor may be required to pressure test the entire section(s) of line already installed at the contractor's expense.~~

~~*Replacement of Line at Tests Welds*: When welding the line together after test welds have been cut out, one replacement weld shall be used if it is practicable to pull the line back into position: otherwise, two welds shall be made by fitting a "pup joint" which shall have a minimum length of forty-eight inches (48").~~

~~*Cleaning and Beveling*: Prior for aligning for welding, beveled ends of each pipe joint shall be thoroughly cleaned of all paint, rust, mill scale, dirt or other foreign matter to avoid defects in welds. Any satisfactory method of cleaning, subject to approval of the Inspector, may be used for cleaning~~

~~operations. When necessary to maintain correct alignment and spacing of pipe, the contractor shall cut and bevel all pipe ends as required. Such precutting and beveling shall be preformed at the Contractor's expense using a beveling machine approved by the owner.~~

~~*Aligning and Welding*: Aligning and welding the pipe shall conform to the following conditions and requirements:~~

~~a. The root opening (space between abutting ends) shall not be less than sixteenth of an inch (1/16") and no more than one eighth of an inch (1/8"). The alignment of abutting pipe ends shall be such as to minimize the offset in pipe surfaces. The offset shall not exceed one sixteenth of an inch (1/16").~~

~~b. When the pipe is welded together above the ground, the working clearance around the pipe at the weld shall not be less than sixteen inches (16"). When the pipe is welded in the trench, the bell hole shall be sufficient to provide the welder ready access to the joint. All position welds shall be made with the pipe resting on skids at the specified height over or at the side of the ditch.~~

~~c. When performing Manual Arc Welding, the entire root bead shall be deposited with the pipe held in a stationary position.~~

~~d. Welded pipe joints are to be made with a minimum of three beads. The proper amperage for the size and type of rod shall be maintained at all times to assure proper fusion and maximum penetration. The first bead shall be applied completely around the pipe. Prior to applying additional beads, each preceding bead shall be cleaned of all scale, coating and slag. After completing the welded joint, it shall be cleaned free of scale and oxide.~~

~~e. When aligning the pipe over the ditch for positioning welding, no tack welds shall be permitted. Instead, each joint shall be held in alignment by means of a line-up clamp while the stringer bead is applied. The first bead shall be applied around the pipe from top center to bottom center. The line-up clamp shall be left in position until a continuous seal has been applied on each side of the pipe joint. After the line-up clamp has been removed, the hot pass bead shall be applied immediately before the stringer bead cools. Each bead shall be cleaned of scale, slag, dirt, etc. satisfactory to the inspector prior to application of a succeeding bead.~~

~~f. The filler and finish beads shall be such that the completed weld shall have a substantially uniform cross-section around the entire circumference of the pipe. At no point shall the crown be below the outside surface of the pipe and preferably shall be crowned slightly above the same, but, it shall not be raised above the metal of the pipe more than one sixteenth of an inch (1/16"). The face of the completed weld should be approximately one eighth of an inch (1/8") wider that the width of the original groove. No miter welds shall be permitted. The completed weld shall be free of pin holes, air pockets, non-metallic inclusions, oxides or any other defects.~~

~~g. Welding shall not be permitted when weather conditions are unsatisfactory which, in the opinion of the Inspector, would impair the quality of the welds. The Contractor shall provide wind breaks which will give adequate protection to the welder and welding operations when in the opinion of the Inspector such equipment is necessary.~~

~~h. It shall be the responsibility of the Contractor to protect all welding rod from moisture. Welding rod found damaged in any manner as a result of negligence of the Contractor shall be replaced at the expense of the Contractor. Any welding rod found to be defective should be discarded.~~

3.02.11 Laying of Steel Pipe

~~*Bending and Slack*: The pipe shall be laid to conform to the bottom of the ditch. Bending shall be required only when changes in grade are such that the pipe will not lie naturally in the bottom to provide proper cover unless bent. All bends shall be made cold by the use of sectional bending shoe, which will not flatten or reduce the wall thickness of the pipe or produce wrinkles. Care shall be taken to avoid buckling of the pipe or weakening of welds. The curvature of all bends is to be distributed throughout as great a length of pipe possible. No heated or fire bends shall be allowed. The coating of the pipe shall be protected in all instances, including any bending process.~~

~~*Slack*: The necessary amount of slack is to be obtained by laying the line alternately over to the side of the ditch.~~

~~*Under Lines and Conduit Crossing*: Where the pipeline crosses existing water gas, oil, or sewer lines, the pipeline shall be laid under the existing a minimum of twelve inches (12”), or as may be directed by the Inspector.~~

~~*Night Capping*: The open end of the pipe shall be securely closed at the end of each day’s work by tack welding a suitable metal cover over the ends of the pipe or installing patented nightcaps to prevent the entrance of water, trash, small animals or other obstructions. Caps shall not be removed until work is again resumed. Where the lines are left apart at intervals for pigging or to be later tied-in under roads, highways, etc., both ends shall be fully capped.~~

~~*Spacing of Stringer Beads*: The first bead welding operations shall not be advanced ahead of finished welding operations to the extent that the section of line having unfinished welds might be damaged as a result of expansion or contraction of the pipe from temperature changes. Should a section of line or joints with unfinished welds be damaged as a result of falling from skids, or for any other reason, it shall be repaired by the Contractor at no cost to the Owner.~~

3.02.12 Coating And Wrapping Joints

~~If coated and wrapped pipe is to be installed, the coating shall be carefully protected and preserved during hauling and installing in the ditch. Prior to placing in the ditch, all pipe shall be carefully inspected, all holidays and other defects or damages shall be repaired to the satisfaction of the Inspector.~~

~~Prior to welding, the pipe covering shall be removed from the surface where heat from the welding operations will damage the coating, Wet burlap sacks or similar material shall be placed around the pipe to protect the pipe area subject to heat damage. After installation of accessories, all bare piping, connections, fitting and other parts of the piping work subject to galvanic corrosion shall be protected prior to backfilling.~~
~~Protective covering to be field-applied shall consist of initial coating of Polyken primer No. 1027 Series and a final wrap tape No. 900 Series furnished by the Contractor. Strict adherence shall be made to the manufacture's instructions and recommendations in the application of the covering material.~~

~~Prior to application of the tape, the existing coating shall be trimmed back to remove any damaged section of coating to a point where the existing coating is tightly bonded to the pipe. All surfaces shall be repaired by wire brush and wiped clean and dry. A coating of primer shall first be applied prior to the pipe on half-lap and shall be neatly formed around corners and irregular surfaces. The application shall be performed in such a manner that the tape shall tightly adhere and be securely bonded to the pipe or fittings and to preceding layers to form protective covering which will prevent air and moisture from coming in contact with metal surfaces. The applied tape shall overlap shop-applied pipe covering by not less than four inches (4") at pipe ends and by not less than two inches (2") on both sides of holidays or damaged areas of existing coatings and at pipe taps. The tape shall be applied in a neat and workman like manner without loose ends, unnecessary wrinkles, bulges, changes in wrapping direction, etc.~~

~~The Contractor shall properly store to prevent damage, theft, deterioration or waste of coating and wrapping materials consigned to the job. Primer paint shall be stored in the Contractor's warehouse or storage bin at all times and only hauled to the site for one day's requirements. Only enough coating materials for one day's supply are to be hauled directly to the site of the project where they are to be used. They shall not be strung or dumped along the rights-of-way.~~

~~The Contractor, at his own expense, shall run a holiday detector over the complete pipeline in the presence of the Inspector immediately prior to placing the pipe into the ditch. Any holiday or pinholes detected by the holiday detector shall be immediately repaired by removing a portion of the coating and applying a coat of primer and wrapping the detected area with at~~

~~least two complete turns of wrapping tape. The repaired point of the pipe shall then be retested to determine if the repairs were effective. The holiday detector used shall be of the type recommended by the manufacture of the coating materials and shall in no case be operated at a higher voltage than that specified by the coating manufacture. The above described testing shall be done at all times in the presence of the Inspector.~~

3.02.13 Tracing Wire

All buried Polyethylene gas pipe lines will require No. 12 underground insulated Tracing Wire to be placed 12" maximum above the gas pipe. All Tracing Wire must have continuous contact throughout the gas system. Connections will need to be completed with underground rated wire connectors supplied by Contractor.

3.02.14 Warning Tape

Warning tape is to be supplied by NTUA. Warning tape is to be installed at a minimum of 10" below finish grade, and at a maximum of 24" above the top of the pipe.

3.02.15 Carsonite Signs

Yellow carsonite signs and decals are to be installed by the Contractor. Carsonite signs are to be installed at all elbows, bends, tees, valves and on continuous straight lines-of-sight at 500 foot increments, unless the terrain requires more frequent placement. Carsonite signs are to be offset approximately 1 foot from the centerline of the gas line installation.

3.03 Valves For Gas Mains

3.03.01 Key Valves

All key valves shall meet or exceed DOT, CFR 49 Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards" and ANSI B16.40; "1985 American National standard for Manually Operated Thermoplastic Gas Shut-off Valves in Gas Distribution Systems", ASTM D-2513, "Standard Specification for Thermo-plastic Gas Pressure Pipe, Tubing and Fittings".

Distribution or service 2-inch or 4-inch shut-off valves are to be polyethylene (PE) 3408, with 2-inch wrench head. The 2-inch size shall be joined using butt fusion, but 4-inch size shall be the butt fusion outlet ends only to accommodate SDR 11 pipe~~. Buried steel valves are to be full port, steel body, weld-by-weld, ball valves, with non-rising stem, and 2" wrench head~~. Valve working pressure rating shall be 100 psig for intermediate pressure (5 psig – 60 psig) and 740 psig for high pressure

mains (100psig – 400 psig) minimum or as specified by the Owner. All high pressure valves shall be self-lubricating and manufactured by Baylon. Other valves may be Permaserts, Rock Wells, Nordstorm, Baylon, or approved equal. No flange type valve shall be permitted for underground service, but shall be used on various above ground facilities.

3.03.02 Valve Box and Cover

The valve box and cover shall be of cast iron construction and shall be engraved with the word "gas".

3.03.03 Valve Installation

Before installing the valve, care shall be taken to see that all foreign material and objects are removed from the interior of the valve. All valves that are welded must be open during the welding process. The valve shall be opened and closed to see that all moving parts are in working order, and left open during pressure testing procedures.

All valves key stems shall be set at a 90 degrees vertical angle and joined to the pipe in the manner determined by the type of valve. Valve box bases shall be set over the valve in such a manner that the valve box does not touch or transfer stress to the valve. Old rubber mats or cut and shaped tires may be used under the fabricated valve box to provide a cushion between the body of the valve and pipe section of the valve box.

3.04 Gas Main Crossings

3.04.01 Road Crossings

The original surface pavement on all open cut roadways shall be either cut square or sawed straight. As with open cut, if boring is required the steel conduit shall be extended from right-of-way to right-of-way. The Contractor shall obtain written permission from the appropriate agency prior to beginning any roadway excavation. Backfill within the limits of a roadway prism may require special compaction in accordance with the requirements of the roadway crossing permits.

Surfacing shall be replaced where the roadway has gravel, concrete, or asphalted paving in the same thickness as were removed, or as specified by the Owner, and completed as soon as possible following backfilling.

Gas line road crossings shall be installed within specified wall thickness steel casing unless otherwise specified. The casing ends shall be supported with compacted soil to prevent sagging, and the ends shall be secured with approved rubber end boot in sizes 6" x 2", 8" x 4" or 10" x 6" size depending the size of the casing and the pipe. The insulator boots at the ends must be clamped with stainless steel straps to hold the boots in place.

Properly sized centralizers must be paced 10 feet apart on the entire pipe within the casing to keep the pipe and black steel pipe casing separated.

~~Within streets and roads that do not require casing, hole hogging under the road is an alternative construction technique. Steel or PE pipe can be installed through the bored hole, but the ground must be free of rocks and other debris to control depth and prevent PE pipe from damage.~~

3.04.02 STREAM OR DITCH CROSSINGS

For stream or river crossings, use a minimum cover of 60 inches measured from the lowest part of the existing or proposed channel to the top of, the pipe or river weight. Do not bend line sags within 15 feet either side of the top of the high banks. If sufficient pipe depth can be maintained approaching the banks, use a gentle upward curve rather than a sag bend. Reference Plan Details.

Use precast concrete river weights to counter pipe floatation in the water way and in the flood plain where frequent flooding occurs. Refer to the construction drawing for specific weight, size, quantity and spacing requirements.

3.04.03 BRIDGE CROSSINGS

When a pipe is attached at a bridge crossing it must meet the following conditions

1) Electrically isolate the pipe above grade at each end of the crossing.

2) Install fire valves at the upstream side of the bridge for single feed lines. Install fire valves at both ends of the bridge for looped feed lines. reference typical drawing for general details. Where permits are required, verify and meet specification requirements. for general information, refer to the Bridge Crossing diagram.

3) On longer crossings of more than 300 feet, where temperature differences can cause the pipe to expand and contract, use expansion joints or loops.

3.04.04 CROSSINGS

Do not case pipelines or steel mains which cross the ROW of highways and roads, railroads and other public thoroughfares except as follows:

- Cannot attain adequate minimum cover.
- If installed by the auger method, the carrier pipe is subject to damage

due to soil or rock conditions in the road bed.

- When casing is required by authorities responsible for the construction and maintenance of the highway, road, railroad or other public thoroughfares.
- When casing is needed for physical protection of the carrier pipe.

3.04.05 COVER

Use a minimum of 48 inches of cover over the pipe in the ditch line for highways, roads, and railroad crossings. However, if additional cover is required by jurisdictional authorities, meet that minimum.

At locations where open trench crossings are specified, backfill the trench with suitable material and pneumatically tamped back to the equivalent compaction of the adjacent undisturbed earth. If the material excavated from the trench is not suitable for backfill, obtain suitable material from another source. Restore the road surface to its original condition.

3.04.06 CASING INSULATION CHECK

Check at each step to see the carrier pipe is electrically insulated from the casing pipe:

- Immediately following installation of carrier pipe in the casing pipe.
- At completion of tie-in prior to backfill.
- After backfilling is completed.
- If a short is detected, correct before construction proceeds.

3.04.07 RAILROAD CROSSINGS

When required, install pipelines or mains crossing under railroads in steel casings. Construction of all railroad crossings including all details shall comply with the specifications required by the railroad or other authority having jurisdiction.

3.04.08 HIGHWAY CROSSINGS

Construct all highway crossings, including all details, to state highway specifications. Refer to Plan Details.

3.04.09 DRILLING, AUGERING & PUSHING

Directable boring tools are preferred for installation of pipe under paved highways, streets and driveways, high-traffic rural roads, ditches and streams, and other areas with high impacts to people and environment. Such tools include directional drills, road boring augers, pushing tools

and mechanical “moles”.

Driveways and sidewalks should be bored or pushed, and not excavated or tunneled with a chain trencher.

3.04.10 BORING

Reference specific permit requirements regarding boring methods. Fill all voids developed under hard surface (concrete and/or asphalt) using pressure grouting. Grout consists of sand-cement slurry, a minimum of two bags of cement per cubic yard of mix.

When voids develop under graded gravel, crushed rock or dirt surfaces, excavate and backfill with a suitable material. Pneumatically tamp to the equivalent compaction of the adjacent undisturbed earth. Replace surface material to original condition.

3.05 Gas Service Connections Materials

3.05.01 Polyethylene (PE) Pipe

ASTM D 2513 Gas PE 2406/2708 Yellow medium-density, SDR 11 pipe shall be 2, and 1 inch Iron Pipe Size (IPS), 100 psi operating pressure and in conformance with ASTM D 2513. The pipe shall be produced from a high density ultra-high molecular weight PE pipe compound. The designation PE 3408 and indication of pipe size, material, manufacture, pressure rating, and temperature rating, and as appropriate, type and grade shall be stamped or die-marked on the pipe. The die stamp must have a blunt or rounded edge that will minimize stress concentration. The pipe shall have yellow stripes indicating the national color code of natural gas, or can be yellow pipe.

3.05.02 Service Line Fittings and Connections

Fittings and connections for natural gas service line shall be ASTM D 2513 Gas PE 2406/2708 Yellow medium-density, SDR 11. Pipe shall be marked ASTM D 2513 to indicate size, material, manufacture, pressure and temperature rating, and as appropriate, type, grade, brand and model. Heat-fusion or socket-fusion joining must be completed following the manufacturer’s instructions. Mechanical joining of PE piping must contain a rigid and **not** a split tubular stiffener, and be compatible with the plastic being joined. **NO** electric fusion, adhesive joints, or compression fittings shall be permitted.

3.05.03 FIELD COATING of WELD JOINTS & FITTINGS

~~Coat all weld joints, ends, sweeps, elbows and other fittings and any coating voids with standard materials compatible with the steel pipe coating.~~

3.05.04 PROTECTIVE SLEEVES

Use protective sleeves for all saddle tee connections. Sleeves protect the joint between the service line and the saddle fitting from shearing off. Use electrical tape to secure sleeves to service tee. Sleeves can also be used for transition fittings and other applications where high shearing forces may damage a joint.

3/4-inch service	12” long sleeve
1 or 1.25-inch service	20” long sleeve

3.05.05 STEEL MAIN TO PE SERVICE LINES

~~When connecting a PE service line to a steel main, use an approved weld-on steel service tee. Weld the steel service tee to the main by the metal arc process (see Welding Procedures section).~~

~~After the PE service line length has been established and cut, connect the PE tubing to the service tee with a steel-PE transition. Steel connection can be welded or threaded; PE connection is butt weld or electrofusion coupling.~~

~~The PE tracer wire should be Cadwelded to the steel main. Pressure test service line (see Pressure Testing section).~~

3.05.06 PE SERVICE LINE RISER INSTALLATION

Use an approved service riser to connect PE service lines to a meter set.

1) Meter bracket must support meter, regulator, and service line riser.
2) Terminate service riser 12" above grade with a minimum of 24" below grade.
3) Install a meter stop valve with a locking device. Size to be as per riser outlet size.
4) Follow manufacturer's installation instruction to join the riser to service line.
5) Place service line in trench, keep the service line straight and flat to prevent kinking and pinch off.
6) Pressure test completed service line using testing procedures, Section 660.
7) Hand backfill and tamp around the houses' foundation and under service riser with enough force to prevent stress and sheering loads on

the riser and PE pipe and to prevent settling.

3.05.07 STEEL SERVICE LINE RISER INSTALLATION

~~Construct the service riser at the meter set as follows:~~

~~1) For service line pipe 3/4" to 1", cold-bend the riser to 90° using an 18" radius bending shoe.~~
~~2) For service line risers larger than 1", use a long radius weld elbow to make the 90° direction change.~~

~~Cold bend service line pipe, as follows:~~

~~1) For fusion bond epoxy coated pipe, inspect for damage in the bend area. Repair these areas with approved materials.~~
~~2) For coal tar coated pipe, remove coating from all bend areas and recoat with approved coating repair materials.~~

~~Pressure test the service line before tapping into the main (see Pressure Test section).~~

3.05.08 TAPPING THE MAIN & PURGING THE SERVICE LINE

After the installation has been tested, tap and purge the service line of all air (see Purging section).

If the service tee is a self-tapping punch-it, use the tee manufacturer's companion tools for tapping.

For a non-self-tapping tee on a steel line, use a tapping machine.

Before applying the completion cap on a steel service tee, pipe dope the threads to prevent leakage through the tee's cap or plug.

3.05.09 SHUT OFF & RESTORE SERVICES

Most services can be turned off and on using the punch tee as a valve. Service tees will likely not completely turn off the flow of gas enough to ensure gas-free work on the service line.

3.05.03 Saddles Tees (Electron Fusion Tap Tees Only)

Saddle tees shall be specific for the type, size, and pressure rating of the mainline as recommended by the saddle manufacturer. Each saddle tap tee used to make a hot tap must be designed for the minimum operating

pressure of 100 psig. Saddles shall be full-encirclement, mechanical tapping tees or fusion-type saddles constructed of medium-density ASTM D 2513 Gas PE 2406/2708 Yellow. Mechanical saddles must be designed to ensure a reliable, gas tight, connection, and must provide a body sleeve that threads and locks itself to the main. Saddles and saddle components must meet or exceed the requirements of ASTM D 2513, ISO 4437, CSA B137.4. The Preferred manufacturer is the Perfection Saddle Tees. Compression saddle tees are not acceptable.

3.05.04 Service Valves (for 2" and above service connections)

Service valves shall meet or exceed DOT, Pipeline Safety Regulations Title 49, CFR, Part 192, §192.145 and 192.191, ANSI B16.40, ASTM D-2513, ASTM A 126, ASTM 126 and API 6D. Valves are to be Polyvalve constructed of 3408 high density PE.

3.05.05 Excess Flow Valve (EFV)

Under CFR, Title 49, Part 192, §192.381, Service Lines: Excess flow valve performance standards: excess flow valves are installed on a service line that operate continuously throughout the year at not less than 10 psig. The valve shall close automatically at flows 50% above the customer's established flow rate, and allow pressures to equalize across the valve at 5 percent of the manufacturer's specified closure flow rate, up to a maximum of 20 cubic feet per hour. The EFV shall be marked and identified on the as-built drawings. All EFV shall be designed for a trip flow rate of 400 standard cubic feet per hour. The EFV shall be installed 12" downstream at the service tap connection and as shown on the detail drawing, two 1" high density 3408 PE couplings will be utilized as additional fittings to install Perfection Corporation Excess Flow Valve for 1" gas service lines. Fusible or Permasert EFVs as manufactured by Perfection are recommended.

3.05.06 Gas Anodeless Risers

Anodeless gas Risers shall meet ASTM D 2513, Category 1, ANSI B 1.20, ANSI B 31.8, US DOT 192, NFPA-58, and CSA B 137.4. The gas carrying steel pipe nipple shall meet the requirements of ASTM A53 pipe. All risers shall be factory leak tested to 150 psig. Polyethylene tubing shall be 1" or 2" IPS, medium density 2406 PE. The steel pipe coating shall be fusion bonded epoxy (FBE), and shall be 3 to 10 mils in thickness, with the epoxy coating continuing through half the threaded nipple. Risers shall be pre-bent, 36-inch horizontal length and 30-inch vertical rise, with a PE 2406 pig tail as manufactured by Perfection. The entire steel casing of the anodeless riser shall be primed with #1027 Polyken primer and taped with #900 Polyken tape. Tracing wire clamps shall be installed on the shield riser located 1-inch just below the gas stop.

Risers shall be compacted in place to provide a rigid and sturdy setting.

3.05.07 Gas Stop

Gas stop must meet ANSI B16.33, ANSI B1.20.1, shall be 1" FIPT Inlet /Outlet x 1" Insulated Union with Threaded Tailpiece, 100 psig. Black Iron Body-Brass Plug, Flat Head with Lockwings.. Larger size valves shall be a specified on the project drawings.

3.06 Gas Service Line Installation

Gas service lines and appurtenances shall be installed in accordance with TP 1.0, Excavation, Trenching, and Backfilling for Gas Utilities, and TP 2.0, Gas Line Separation Requirements. A minimum of 1.5 feet of cover is required for gas service lines.

Service lines shall be cut using tools specifically designed to leave a smooth, even, and square end on the pipe. The cut ends shall be reamed to the full inside diameter of the pipe. Pipe ends are to be connected using fittings that seal to the outside surface of the pipe, which shall be cleaned and smoothly finish before installation.

All 1 and 2-inch service connections to gas mains 2-inch and larger of PE pipe 3408 SDR11 shall be made using saddles tees depending on the anticipated load and distance from the point of tap to the metering point. Particular care shall be exercised to assure that the main is not damaged by the installation of the saddle. The saddle shall be aligned on the gas main so that it is at a 90-degree angle above the top of the pipe.

When making service connections to steel pipe, a sacrificial anode is to be placed on the existing steel main a minimum of 12" away from the steel service tap.

3.07 Pressure Test

Pressure tests shall be according to the DOT, Part 192, Subpart J, Test Requirements,
§192.513, each segment of plastic pipeline must be tested in accordance with this section.

3.07.01.01 SCOPE

This section covers the Utility standards for pressure testing of all distribution facilities. All distribution facilities shall be tested in accordance with these standards. This includes replacements and extensions to the system for services and mains. This also includes testing for reinstating service lines.

3.07.01.02 APPLICABLE CODES AND REGULATIONS

DOT 192 OPS Title 49 CFR Part 192.725 and Subpart J

3.07.01.03 TESTING SAFETY

Care shall be exercised when releasing the test pressure from a pipe segment under test. No work shall be performed on a segment under test pressure. No work shall be done on any connected service or fitting until the test pressure is released. During pressure tests, no person shall be allowed to stand in front of a cap secured by a compression coupling, or at the end of a pipe segment under test.

3.07.01.04 TESTING MAINS AND SERVICES

All steel or PE mains and services operating at 60 psig or less shall be tested at 100 psig. All mains and service lines operating at a pressure above 60 psig shall be tested at 1.5 times the maximum allowable operating pressure (MAOP).

3.07.01.05 DISTRIBUTION FACILITIES TEST DURATION

The test pressure must hold steady for 1 hour for each 100 cu. ft. of volume, unless a means of reading less than 1 psi increments of pressure is available. No main should be tested for less than 1 hour and no test should be more than 24 hours. Tests for up to 3 hours may be made using an indicating gauge. For longer tests, a pressure recorder should be used.

Pipe length for 100 cu ft of volume (1 hr test):

1¼-inch	10,000 feet
2-inch	4,340 feet
3-inch	1,960 feet
4-inch	1,135 feet
6-inch	498 feet
8-inch	288 feet

Individual service lines should be tested for a minimum of 15 minutes but no longer than one hour.

3.07.01.06 RECORDS

Test records should include a description of the facility tested, date test duration, pressure chart (if applicable), test medium used, and name of person who made or witnessed the test. Document with a Pressure Test Report

3.07.01.07 TESTING FOR REINSTATING SERVICE LINES

Disconnected service lines shall be tested in the same manner as new service lines. If the line is temporarily disconnected from the main, it should be tested from the point of disconnection to the service line valve. However, if provisions are made to maintain continuous service, such as installation of a bypass, any part of the original used to maintain continuous service need not be tested.

3.07.02 Steel Pipe

~~All test equipment, labor, appurtenances, and materials, and the performance of all operations in accordance with the specifications are the responsibility of the Contractor; however, the operating utility reserves the right to inspect all testing equipment and review all testing procedures.~~

~~*Testing Completed Line(General)*: Prior to the pipeline being completely installed and backfilled - or any portions thereof - the Contractor shall make arrangements to fill the line, or sections thereof, with compressed air to a pressure of 600 psig and test the completed line for leaks in accordance with the duration chart below. The maximum length for any line or segment thereof to be tested is one mile. All 24- hour tests shall have a chart recorder installed to record the variations in pressure. The inspector shall always be present during testing operations and will identify sections to be tested according to the inspector's best judgment. The Contractor shall furnish all equipment necessary for testing, at no cost to the Owner. Short sections of line to be installed under roads or highways shall be plugged and tested as above-described before cleaning and coating of the pipe.~~

~~When testing, the pressure should be elevated above the 600 psig test pressure until the gauges have stabilized and then the system may be bled down to 600 psig. Pressure gauges used in the test shall be graduated at a maximum of 10 psi increments. The duration of the test shall be accordance with the Duration Test Chart~~

~~**Nominal Pipe Size (Inches)**~~	~~**Minimum Test Time < 100 ft.**~~	~~**Minimum Test Time 100 – 500 ft.**~~	~~**Minimum Test Time 500–1000 ft.**~~	~~**Minimum Test Time > 1000 ft.**~~
~~**Above 2"**~~	~~**1 Hour**~~	~~**5 Hours**~~	~~**10 Hours**~~	~~**24 Hours**~~

~~*Pigging the Line*: To ensure that the completed line is free from water, dirt, small animals and other foreign objects, as well as defective workmanship such as flatten bends, the Contractor shall run a construction-type pig through the entire line, driven by compressed air. The pig shall be furnished and maintained by the Contractor, and it shall meet the approval of the Inspector.~~

~~*Method Of Pigging*: The pig must not be removed from any section of the line except in the presence of the Inspector. When a section of line has been~~

~~pigged, that portion of the line shall be immediately tied into other pigged and tested sections in the presence of the Inspector. If the pig section cannot be tied into prior-tested section immediately, it shall be night-capped in the presence of the inspector, and the nightcap shall not be removed for tie-in purposes except in the presence of the inspector.~~

~~*Care And Maintenance of the Pig*: The metal disc of the pig shall be maintained at a diameter of one-half inch (1/2") less than the inside diameter of the pipe. If the disc becomes worn, it shall be built up with welding to maintain the required diameter. When, in the opinion of the Inspector, the rubber cups have become excessively worn or out-of-round, the contractor shall replace them with new cups.~~

~~*Failed Test Of Completed Lines*: If loss in pressure indicates the need for repairs, the Contractor shall make such examination as may be necessary and perform such repairs at his own expense as may be required by the owner. Tests and repairs shall be repeated by the Contractor until the specified pressure has been maintained for a 24-hour period or to the satisfaction of the owner.~~

3.07.03 Observation of Tests

Prior to the performance of the pressure test, the contractor shall have all equipment set up and ready for operation, and shall have performed an abbreviated test on the line to determine if the section should pass. The Contractor shall notify both the Frontier and the Frontier Representative a minimum of three working days in advance of the date that the Contractor plans to perform the pressure tests.

The Frontier Representative shall observe the testing to verify that the testing was performed according to the specifications and that the test data were properly and accurately recorded. The Contractor will complete the required certification forms and submit them to Frontier Gas for approval. A letter of approval or disapproval of the test results and line installation will be sent from Frontier Gas to the Contractor.

The pipe inspections will follow all 49 CFR, Part 192.241, 192.235, 192.231, 192.225, 192.227, 192.243, and all other sections. Exhibit A shall be completed and filed with the utility

3.07.04 Purging of Newly Installed PE Service and Distribution Systems

After the new distribution system has been pressure tested, the system shall be purged with air at 100 psig to assure that all debris has been removed from the piping. Prior to purging, all gas stop plugs are to be removed, and each individual gas stop shall be operated quickly to assure that the connection at each of the saddle tees has been completely punched. Then

the gas stop plugs shall be reinstalled and the stop left closed.

The outlet purging location shall be at the furthest riser and stop at the end of the segment being purged. The gas stop, initially closed, shall be opened slowly at the start, until the full ¼ turn is reached. Leave the stop valve open until pressure subsides. Once all purging is completed, it is very important that the riser used to purge the system be completed resealed. During the purging process, a representative of the utility shall be present.

The purging practices will follow 49CFR, Part 192.629, Purging of Pipelines. A slug of inert gas - nitrogen gas - must be released into the line before the introduction of gas into the system. Each individual service lateral shall be purged and ready for meter services.

3.08 Drainage Control

~~*Erosion Checks*: Erosion checks as shown on the plans shall be bladed or dozed across the finish backfill by the Contractor, or as directed by the Engineer, to prevent runoff from ponding or flowing along the pipeline or rights-of-way.~~

~~*Ditching*: The Contractor shall construct drainage control ditches in accordance with details shown on the drawings at locations determined by the Inspector after installation and backfilling operations have been completed. The bid price for the ditches shall be included in the unit bid prices, and no separate additional payment will be made thereafter.~~

3.09 Blow Down Station

~~Blow Down Stations on High Pressure Gas Main are to be installed 3 to 4 Miles apart or as specified by owner. Blow Down Stations shall consist of one major above ground flange valve that can control the gas main flow. Two 2" screw type valves are to be install on the relief stack on each side if the valve so that the station can isolate the upstream or downstream of the section. The owner in all projects will specify the construction and design.~~

~~TECHNICAL PROVISIONS~~

~~TP 4.0 NATURAL GAS CATHODIC TEST STATION~~

~~4.01 Cathodic Test Station~~

~~4.01.01 General~~

~~This subpart prescribes minimum requirements for the protection of metallic pipelines from external, internal, and atmospheric corrosion. All metallic materials must have an external protection coating meeting the DOT, 49 CFR.~~

~~The Contractor shall install all cathodic test stations as indicated on design drawings and as recommended by the Owner and shall comply with the following design, construction, and material specification as follows:~~

~~All test station materials shall meet the minimum requirements of the National Association of Cathodic Engineer (NACE) approved specification to uniform with the CFR, DOT, Part 192, Sub Part I- Requirements for Corrosion Control, §192.769, External Corrosion Control; Test Station, and §192.471 External Control; Test Leads. The test station shall have an orange body with a red cap. The size of the test station shall be 3" nominal pipe size conduit and 6 feet in length. The test stations shall have five lead test terminals with "Warning – Gas Pipeline" (capitalized) and two NTUA logos imprinted on the orange body and shall be Big Fink Cathodic Protection Test Station, item # (501-385-OR), the product recommended is manufactured by COTT Manufacturing Co., 19755 Nordhoff Place, Chatsworth, CA. 91311-6606. Telephone number is 1-800-423-6387.~~

~~4.01.02 TEST WIRE ATTACHMENT~~

~~The following procedures for attaching test wires to steel pipe is the Owner's recommendation: file the point on the pipe to which the wires are to be attached to a rough bright surface to allow a good bond between the pipe and the weld metal; clean the surface to remove any metal filing debris. Cut the test wires to the required length, depending on the buried depth of steel pipe and length of test station. Sufficient slack should be provided to allow for backfilling and to insure there is enough wire above the ground for connections to the terminal.~~

~~NOTE: The test wire shall be the NACE standard white 12TW, with the plastic insulation. Other materials needed for wire attachment: Copper Adapter Sleeves, Cadweld Cartridges and Handicap.~~

~~Prepare the test wire by stripping approximately 1.5 inches of insulation from the wire end that is to be welded. Slip a copper sleeve over the wire end and crimp the sleeve tightly to the wire or bend the wire over the end of the sleeve. Place the tin disc in the Cadweld mold to hold the Thermit powder; pour the~~

~~contents of the cartridge (5 gram charge) into the mold.~~

~~NOTE: Be sure the "to open" end of the cartridge is opened and not the bottom end. This insures that the starting powder necessary to ignite the Thermit powder will be on top after the contents of the cartridge have been poured into the mold. It may be necessary to squeeze the cartridge with the thumb and forefinger to loosen the starting powder. Be very careful to keep the starting powder charge dry, as it takes only a small amount of moisture to prevent the charges from igniting.~~

~~Continue the wire and steel pipe set up by wrapping the wire around the pipe, then tie off the wire allowing at least 6" of wire from the end for Cadwelding. Place the mold over the prepared area of the pipe and insert the wire end into the small opening at the bottom of the mold. Clean the hinged top of the mold and ignite the charge with the flint gun through the opening of the mold. After the mold has cooled down, remove it from the pipe. File or brush any oxidized material from the weld. Be sure a good bond exists between the weld and the steel pipe, and that the wire is firmly attached. After all loose particles have been cleaned from around the weld, apply one coat of Polyken Primer #1027 and install the Handicap patch over the weld. Make sure the bulb containing the grease is placed over the welded area. Tape both ends of the Handicap patch with 2" #900 Polyken tape and squeeze the bulb containing the grease with thumb and forefinger to provide an airtight seal.~~

~~4.01.03 TEST POST INSTALLATION~~

~~For initial stability of the cathodic test station post, insert a one-foot length of ¾" PVC or steel through the 3 inch by 6 feet test station. The insert shall be at right angle to the post and approximately 6 inches from the lower end of the post.~~

~~Bring the attached test wires up through the post, allowing two feet slack in each lead. Place the test station in an upright position directly over the pipeline so that the lower end of the post is three feet below grade. Then backfill dirt around the post.~~

~~To attach the test wires to the test terminal, strip one inch of plastic insulation from the end of each of the test leads. With needle nosed pliers, round the stripped ends to fit on the test terminal. Attach the test leads to the test box as required. If the test station is at a foreign line crossing, indicate which lead is from the foreign line and which lead is from the NTUA line inside the terminal box.~~

TECHNICAL PROVISIONS

TP 5.0 NATURAL GAS METERS AND APPURTENANCES

5.01 Scope of Work

This subpart prescribes minimum requirements for installing customer meters and service regulators.

5.02 General

Each gas meter must be installed outside the building at a readily accessible location and protected from corrosion and other damages. All meter installations shall conform to DOT, Title 49, Part 192, §192.353, §192.355, §192.357, and §192.359 and the Owner's design and specifications requirements.

5.03 Materials

5.03.01 Residential Standard Gas Meters

The Owner shall supply the American AC-250 - temperature compensated, unless otherwise specified, and factory calibrated. Meter shall be diaphragm type natural gas meters, and have a maximum flow rate of 250 cubic feet/ hour (SCFH). The meter ferrule size shall be 20 Lt. (per ANSI B-109-1), swivel washers model no.001-61-154-02, and include the black iron swivel nut model no. 001-41-166-00. The index assembly type shall be the odometer type reading plastic with drains, clear polycarbonate index box and the kit part no. 001-63-656-50; consisting of Rockseal plug, seal cup, seal spacer and mounting screws. Meter is to be die-cast aluminum alloy to provide corrosion protection with minimum weight. All residential meter will be installed according to the Owner's design and specification; all meters must be soap tested at all fittings, and any leak detected will be immediately repaired.

5.03.02 Commercial Standard Gas Meters

The Owner shall provide (unless otherwise specified) and maintain commercial American Meters - intermediate and large capacity diaphragm gas meters numbers: 415, 750, 1000, 1600, 3000, 5000 or 10,000. The Invensys gas meter shall be temperature compensated for natural gas with specific gravity of .60. The maximum cubic feet/ hour (SCHF) demand shall be determined for each project. The meter ferrule size shall be 45 Lt. The pressure on the meter shall be limited to 67% of the manufacture's shell test pressure as published according the Pipeline Safety and Regulation. The indexes shall be standard direct reading plastic

for the smaller meters, or brass for the 750s through 10,000. The index cover box shall be clear lexan UV stabilized clear poly-carbon Rockseal.

The Contractor at his expense shall install the meter assembly as delineated by the Owner's specifications and designs. Upon completion of constructing the meter loop, all fittings must be soap-tested, and any leaks shall be immediately repaired.

5.03.03 Gas Service Regulators

All gas service regulators shall be supplied and maintained by the Owner, unless other arrangements are specified. Smaller service regulators are to be American 1800 B-2 1" x 1" pipe size, straight through body, diaphragm type assembly with internal relief valve (IRV). The blue spring ranges part No. 143-08-021-01 with 3/16" orifice size having a maximum inlet pressure of 100 psi and an outlet pressure range of 5" to 8 1/2" water column. The manufacture shall be Invensys, Equimeter, or equal as approved by Owner.

Each regulator must be installed so as to minimize anticipated stresses upon the connecting piping and regulator. All nipples shall be Schedule 40. Connections may not be made to, or used with easily damaged material when installing the meters or regulators.

Regulators must be rain and insect resistance, and be located at a place where gas from the vent can escape freely into the atmosphere and away from any opening into the building, and must be protected from damage.

For all meters assemblies sizes 3000 and above, overpressure protection shall be designed to protect the customer's piping system. This overpressure protection device may be a relief valve, monitor regulator, shut-off device, or any similar device approved by the owner.

5.04 Gas Meter Loop Requirements

Vents, windows that open, doors, or other openings into the building; or electric equipment and meters, or any heat generating device shall not be allowed either over or within 36" of the gas meter loop. Also the meter shall not be installed within 36" of the end of a building unless specifically exempted by the utility. There must be approximately 4" between ground level and the bottom of the meter.

All gas stub-outs are to be 1" NPT and extended 8" out from the exterior wall of the building and be at a minimum of 20" from finish grade ground level. Gas stub outs are to be capped or taped to protect threads.

5.04.01 Gas Meter Activation

Letter of Certification: The scheduling for activating the meter will be

initiated upon the receipt of "Letter of Certification". This certification must include a copy of the Plumber License Contract Number and a written affidavit showing the results of the house piping tests according to the National Plumbing Code identifying the house or houses that were tested, with dates, time duration, and testing pressure.

Load and Pressure: Load and inlet pressures must correspond with all planning documents. Any changes will need to be approved by Frontier Gas.

Activating Gas Meter: Once all required documents are received, the Owner will schedule the activation of the gas meter with the customer or Contractor. The customer must arrange to have a representative or plumber present when the gas is activated. The Utility will supply the required pressure as accurately as possible down stream of the gas meter under peak load. Once the deliverable pressure is set, for the 3000 and above meters, the relief valve also shall be set. The multiplier check sheet, any variation in delivery pressure (from a 7" WC), the safety inspection report sheet, and all other required customer information shall be forward to the respective District for billing purposes.

Gas Meter Fencing: All 3000 and above gas meter shall be fenced. If the customer constructs a retaining wall, the utility may wave the requirement for fencing. The six-foot chain link fence will be sized according to the Meter Loop length, and the fencing or retaining wall shall have a minimum four-foot clearance around the meter and appurtenances. As part of the fencing, the utility will require either one or two gates – or a double gate – depending on the size and location of the meter.

Gas Meter Guard Rail: Four-inch guardrails will be installed in heavily traffic areas as determined by the utility.

5.05 Gas Regulator Station

Owner shall supply the gas regulators, unless other arrangements are specified. Regulators for city gate and farm taps will be determined for each installation. Contractor shall install as specified by Gas Utility's specification and designs.

EXHIBIT A

GAS LINE PRESSURE TEST CERTIFICATION

PROJECT NAME AND NUMBER:_

GENERAL LOCATION OF LINE TESTED:_____
(Town/State)

DATE TEST WAS CONDUCTED:

TEST INSTRUMENT USED: (Serial number may be assigned by NTUA personnel)
(√ - type of instrument used and fill in information)

	Type	Manufacturer	Model/Serial number
	1. Gauges		
	2. Chart Recorder		
	3. Dead Weight		

PRESSURE TEST RESULTS

:Size of Pipe	Type of Pipe	Length of Pipe	Pounds Tested At	Duration Time	Results Pass /	Fail

REMARKS:

_____

_____

THE ABOVE TEST INFORMATION IS HEREBY CERTIFIED BY:

NAME (Print): TITLE:

SIGNATURE: DATE:

COMPANY:

ADDRESS:

WITNESS:

CERTIFICATION RECEIVED BY: _ON:

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 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.

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

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 7/14/2014

Re: Asbestos Inspection Report for Magoffin 10-166.00

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 # 10-166.00

Bridge # 077B00042N

Description: The concrete and paint samples collected were negative for asbestos. The Guardrail Mastic sample was pointed counted below 1%. No abatement necessary.

Inspection Date: July 1st, 2014

Results

The results show no ACM abatement is required.

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 (502) 495-1212
Louisville, Kentucky 40202 Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 2107126 A
Client Name: KYTC
Sampled By: O'Dail Lawson

Address: Magoffin County : Item # 10-166.00
Bridge # B00042N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
M42-1	Black	Yes	No								100%
M42-2	Black	Yes	No	3%	(To Be	Point Counted)		2%			95%
M42-3	Black	Yes	Yes								
M42-4	Yellow	Yes	No				None				100%
M42-5	Gray	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 12-Jul-14
Analyst : Winterford Mensah

Reviewed By: Winterford Mensah
Signature

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

AIHA # 102459 AJHA #1 02459

MRS, INC. MRS, Inc. Analytical Laboratory Division

332 West Broadway, Suite 613
Louisville, Kentucky 40202

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

Client:	KY Transportation Cabinet	**Project No:**	2107126 B
Address:	200 Mero Street	**Sample ID:**	M42-2
	Frankfort, KY	**Sampled:**	1-Jul-14
	40601	**Received:**	10-Jul-14
		Analyzed:	12-Jul-14 - Point Count -
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson

Facility/Location: Magoffin County / Bridge # B00042N

Field Description: Guard Rail Mastic - 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:

Cellulose	0.25 %
Binders	99.25 %

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: Winterford Mensah

Reviewed By: Winterford Mensah
Signature

AIHA #102459 / **AIHA #102459** / **AIHA #102459**

KENTUCKY TRANSPORTATION CABINET

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@ky.gov KYTC Address: 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655 PO#:	**Client Information** KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable Samplers (signature):
Project or Subject Reference Magoffin 10-140 B00042N	[signature]

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
M42-1	Paint Chip	7-1-14	3:20	East side of structure	Paint	Black		N/A
M42-2	Guard Rail Mastic	↓	↓	↓	Mastic	Black		
M42-3	Concrete Curb	↓	↓	↓	Concrete	Grey		
M42-4	Concrete Wing Wall	↓	↓	↓	Concrete	Grey		
M42-5	Concrete Span	↓	↓	↓	Concrete	Grey		

Relinquished By:	Date/Time:
Received By: [signature]	Date/Time: 07/12/14
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

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

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

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

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

RIGHT OF WAY CERTIFICATION

☒ Original	☐ Re-Certification	RIGHT OF WAY CERTIFICATION	
ITEM #	**COUNTY**	**PROJECT # (STATE)**	**PROJECT # (FEDERAL)**
10-166.01	Magoffin	12FO FD 52 077 8696603R	NHPP 0061 (059)
PROJECT DESCRIPTION			
Mountain Parkway, U.S. 460 Reconstruction			

☐ **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.

☒ **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.

☐ **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

☐ **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	96	**EXCEPTION (S) Parcel #**	**ANTICIPATED DATE OF POSSESSION WITH EXPLANATION**
Number of Parcels That Have Been Acquired			
Signed Deed	79		
Condemnation			
Signed ROE	17		

Notes/ Comments (Use Additional Sheet if necessary)
Parcels 147, 163, 174, 178, 179, 182, 186, 197, 200, and 205 will have structures demolished with the roadway contract.

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Mark C. Askin, P.E.
Signature		Signature	
Date		Date	
Right of Way Director		**FHWA**	
Printed Name	Dean M. Loy	Printed Name	
Signature		Signature	
Date		Date	

UTILITIES AND RAIL CERTIFICATION NOTE

Magoffin County
Widen the Mountain Parkway Extension
(KY 114/US 460) through the congested area at Salyersville
From Burning Fork Bridge to KY 114
Item No. 10-166.00

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Aerial utility relocations have begun on this project. It is anticipated that the highway contractor will have productive work available through the project; however, that is for the highway contractor to determine. The highway contractor should not anticipate that any utility relocation work will be completed prior to the letting or by the award of the contract; consequently, the highway contractor should prepare the construction schedule accordingly.

NOTE: DO NOT DISTURB THE FOLLOWING UTILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

AEP/KPC currently exists along KY 114/US 460.

AT&T currently exists along KY 114/US 460. They have fiber optics that run along the entire project length on the south side of the existing roadway – mostly underground.

Foothills Telephone Cooperative currently exists along KY 114/US 460.

Frank Howard Cable TV currently exists along KY 114/US 460.

This may not be a complete list of the utility companies/facilities in the project area; however, it is all that have been identified at this time.

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

THE FOLLOWING COMPANIES ARE RELOCATING/ADJUSTING THEIR UTILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

N/A

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE COMPANY OR THE COMPANY'S SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

AEP/KPC has provided a set of relocation plans. Relocation construction activities are anticipated to begin on May 1, 2016. The Company's relocation submittal has estimated approximately one hundred twenty (120) calendar days to complete the relocation of their facilities. The Company's estimated completion date is August 29, 2016.

UTILITIES AND RAIL CERTIFICATION NOTE

Magoffin County
Widen the Mountain Parkway Extension
(KY 114/US 460) through the congested area at Salyersville
From Burning Fork Bridge to KY 114
Item No. 10-166.00

AT&T has provided a set of relocation plans. The company will follow AEP/KPC's pole route for a portion of the project, consequently, they must coordinate their relocation activities with AEP/KPC, Foothills Rural Telephone Cooperative and Frank Howard Cable TV. Relocation construction activities are anticipated to begin on June 1, 2016. The Company's relocation submittal has estimated approximately three hundred and three (303) calendar days to complete the relocation of their facilities. The Company's estimated completion date is March 31, 2017.

Frank Howard Cable TV has provided a set of relocation plans. The company will follow AEP/KPC's pole route for a portion of the project, consequently they must coordinate their relocation activities with AEP/KPC, AT&T, and Foothills Rural Telephone Cooperative. Relocation construction activities are anticipated to begin on July 1, 2016. The Company's relocation submittal estimated approximately ninety (90) calendar days to complete the relocation of their facilities. The Company's estimated completion date is September 29, 2016.

Foothills Rural Telephone Cooperative has provided a set of relocation plans. The company will follow AEP/KPC's pole route for a portion of the project, consequently they must coordinate their relocation activities with AEP/KPC, AT&T, and Frank Howard Cable TV. Relocation construction activities are anticipated to begin on August 1, 2016. The Company's relocation submittal estimated approximately one hundred eighty (180) calendar days to complete the relocation of their facilities. The Company's estimated completion date is January 28, 2017.

The Department will consider submission of a bid as the Contractor's agreement to not make any claims for additional compensation due to delays or other conditions created by the operations of (AEP/KPC, AT&T, Foothills Rural Telephone Cooperative, and Frank Howard Cable TV). Should a difference of opinion arise as to the rights of the Contractor and others working within the limits of, or adjacent to the project, the KYTC Resident Engineer will decide as to the respective rights of the various parties involved in order to assure the completion of the Department's work in general harmony and in a satisfactory manner, and his decision shall be final and binding upon the Contractor.

UTILITIES AND RAIL CERTIFICATION NOTE

Magoffin County
Widen the Mountain Parkway Extension
(KY 114/US 460) through the congested area at Salyersville
From Burning Fork Bridge to KY 114
Item No. 10-166.00

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

Magoffin County Water District's relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

Salyersville Water Works' relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

Kentucky Frontier Gas' relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

THE FOLLOWING RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

◉ No Rail Involved ○ Minimal Rail Involved (See Below) ○ Rail Involved (See Below)

UTILITIES AND RAIL CERTIFICATION NOTE

Magoffin County
Widen the Mountain Parkway Extension
(KY 114/US 460) through the congested area at Salyersville
From Burning Fork Bridge to KY 114
Item No. 10-166.00

SPECIAL CAUTION NOTE – PROTECTION OF UTILITIES

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. 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.

BEFORE YOU DIG

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

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

UTILITIES AND RAIL CERTIFICATION NOTE

Magoffin County
Widen the Mountain Parkway Extension
(KY 114/US 460) through the congested area at Salyersville
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Item No. 10-166.00

AREA UTILITIES CONTACT LIST

Utility Company/Agency	Contact Name	Contact Information
AEP/KPC	Bill Johnson	(606) 794-7381
AT&T	Jack Salyer	(606) 424-9328
Foothills Rural Telephone Cooperative	John Blair	(606) 794-8965
Frank Howard Cable TV	Phillip Carter Howard	(734) 391-9287
Salyersville Water Works	Shawn Rowe	(606) 367-4716
Magoffin County Water District	Alan McCarty	(606) 367-9816
Kentucky Frontier Gas	Mike Harris	(606) 424-7099

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:

Salyersville Water Works
401 College St.
Salyersville, KY 41465
(606)349-3743

Magoffin County Water District
P.O. Box 490
Salyersville, KY 41465
(606)349-6812

Kentucky Frontier Gas
2963 KY-321
Prestonsburg, KY 41653
(606)886-2431

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 must be completed by either the prime contractor or a subcontractor that is 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:

> Salyersville Water Works
> SWW has obtained the proposed Submersible Wastewater Pumping Station-Salyersville Parkway Lift Station.
> This Lift Station will be stored at the Salyersville Wastewater Treatment Plant located at 1809 Highway 460 West, Salyersville, KY. The pickup of this station must be coordinated with Shawn Rowe, (606) 367-4716.

Magoffin County Water District and Kentucky Frontier Gas
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.

LIST OF APPROVED SUBCONTRACTORS

Salyersville Water Work's Water and Sewer
and
Magoffin County Water District

Martin Contracting, Inc.
2371 Irvine Rd.
Richmond, KY 40475
ATN: Shawn Martin
Cell: 606-305-6434
Email: shmartin1@bellsouth.net<mailto:shmartin1@bellsouth.net>

H2O Construction Company Inc.
470 Ziegler Drive
Pikeville, KY 41501
ATN: Steve Lockhart
Cell: 606-477-4392
Email: stevel_h2o@hotmail.com

DS Underground Utilities
PO Box 820
Salyersville, KY 41465
ATN: Danny Smith
Cell: 606-205-8315
Email: smtdann@aol.com

G & W Construction
6730 Flemingsburg Road
Morehead, KY 40351
ATN: Darrell Alderman
Phone: 606-784-2396
Email: Gandwconst@gandwconstructioncompany.com

L & L (Lyons and Lovely)
436 Brad Drive,
Salyersville, KY 41465
ATN: Kenney Lovely
Phone: 606-496-5305

Frontier Gas

Martin Contracting, Inc.
2371 Irvine Rd.
Richmond, KY 40475
ATN: Shawn Martin
Cell: 606-305-6434
Email: shmartin1@bellsouth.net<mailto:shmartin1@bellsouth.net>

BOCA Enterprises Inc.
7435 Ky RT 321
Hager Hill, KY 41222
ATN: Kirby Bowling
Cell: 606-454-1694
Email: kirbybowling@yahoo.com<mailto:kirbybowling@yahoo.com>

Drains Unlimited
PO Box 957
Prestonsburg, KY 41653
ATN: Michael Pennington
Cell: 606-434-8304
Email: mjpennington76@yahoo.com

Standard Gas Bid Item Descriptions

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.

G 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 gas main under streets, creeks, etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall be for all sizes and not be size specific. 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. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. 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.

G ELECTRONIC ID MARKER This bid item is to pay for labor, equipment, computer programing, and installation of an electronic ID marker at the locations shown on the plans or as directed by the engineer. The marker may be in the form of a ball, disk, cylinder, post, or other shape as required by specification and may be buried, at grade, or above grade as specified. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Paid EACH (EA) when complete.

NOTE: This bid item is not for payment of standard non-electronic markers or monuments. A separate "Line Marker" bid item is established for this purpose.

G 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, vents, 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.

G 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, vents, 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.

G FARM TAP AND REGULATOR This item is for the installation of gas service tap and regulator assembly on a gas transmission main. This item shall include excavation, labor, equipment, and all tapping, piping, fittings, and regulator materials to install the farm tap and regulator assembly in accordance with the plans, specifications, and standard drawings complete and ready for use. Only one pay item has been established for Farm Tap and Regulator installations. Payment shall be made under this item regardless of farm tap service and regulator size. No separate pay items will be established for size 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.

G LINE MARKER This item is for payment for furnishing and installing a gas 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.

NOTE: This bid item is not for payment of "Electronic ID Markers". Electronic ID Markers are paid under a separate bid item.

G MAIN ABANDON This bid item is in full payment for all efforts in abandonment of all gas mains and facilities shown to be abandoned on the plans, for removal of any sections of abandoned main that is in conflict with road construction, and for nitrogen purge and plug of any sections of main that are to remain. All work shall be done in accordance with the plans and specifications, and in accordance with

all pipeline safety regulations. This bid item is for all work to abandon and purge gas main in the total project regardless of size or length. No adjustment in the unit bid price will be allowed if the scope of work described in this item should increase in this contract for any reason. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item is to be paid LUMP SUM (LS) when complete.

G 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 gas main at point locations such as to clear a conflict at a proposed drainage structure, pipe or any other similar short relocation situation. All new materials are to be used. 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. 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. Main Point 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.

G METER AND REGULATOR This bid item description shall be used for all meter and regulator bid items of every size except those defined as "Special". These pay items are for all labor, equipment, and materials needed for the installation of a service meter and regulator assembly at the locations shown on the plans or as directed by the engineer in accordance with specifications and standard drawings complete and ready for use. Materials to be provided under this bid item shall include, but are not limited to, meter, regulator, piping, fittings, building anchoring brackets, and hardware needed to create and install the assembly. 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.

G PIPE This description shall apply to all polyethylene/plastic and steel pipe bid items of every size and type to be used as gas 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), corrosion protective coatings of steel pipe and fittings, labor, equipment, excavation, bedding, restoration, pressure testing, backfill, 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. For steel pipe, this bid item shall include all cathodic protection anodes, lead wire, test boxes or stations, and any accessories. No additional payment will be made for rock excavation. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. Measurement of quantities under this item shall be through valves (including horizontal measurements through above grade valves), 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.

G REGULATOR STATION Includes all labor, equipment, materials and restoration, to install a new gas regulator station as indicated on plans and on standard drawings compete and ready for use. Only one pay item has been established for regulator station installations. Payment shall be made under this item regardless of regulator station size. No separate pay items will be established for size 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.

> *NOTE: This item is to be used to pay for regulator stations to reduce the pressure of gas from a higher pressure main to feed a lower pressure main. This item is not to be used to pay for regulators used on individual customer service lines.*

G 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, 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, 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. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. 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.

G 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, coupling for connecting the new piping to the surviving existing piping, 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 installations were 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. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. 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.

G SERVICE RELOCATE This item is for the relocation of an existing gas 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.

G TIE-IN This bid description shall be used for all polyethylene/plastic or steel gas main tie-in bid items of every size except those that include a temporary bypass or are defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, restoration, testing and backfill required to make the gas 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. No additional payment will be made for rock excavation. This bid item shall also include material and placement of flowable fill backfill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. 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.

G TIE-IN W/BYPASS This bid description shall be used for all polyethylene/plastic or steel gas main tie-in bid items that include temporary bypass of every size except those defined as "Special". This item includes all labor, equipment (including tapping, stopple and/or squeeze equipment), excavation, permanent and temporary fittings (including, but not limited to, tees, split tees, bends, reducers, plugs, caps, and couplings), temporary bypass piping, restoration, testing and backfill required to make the gas main tie-in with temporary bypass as shown on the plans, and in accordance with the specifications complete and ready for use. Mainline pipe for tie-ins shall be paid under separate bid items. No additional payment will be made for rock excavation. This bid item shall also include material and placement of flowable fill backfill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. 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: The tie-in size reflected in the bid item reflects the nominal internal diameter size of the main gas line being tied-in, not the bypass pipe size.*

G VALVE This description shall apply to all buried valves of every size and type required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be

for gas valves being installed with new main. This item includes the valve as specified in the plans and specifications, protective coating and corrosion protection, labor, equipment, excavation, valve box and valve stem extensions, backfill, 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. 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.

G VALVE ABOVE GRADE This description shall apply to all above grade valve assemblies of every size and type required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be for above grade gas valves being installed with new main. This item includes the above grade valve, pipe, and fittings as specified in the plans, specifications and standard drawings. This bid items shall also include protective coating and corrosion protection, labor, equipment, excavation, backfill, restoration, testing, etc., required to install the specified above grade valve at the location shown on the plans 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.

G 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, 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.

G WELD X-RAY INSPECTION This description shall apply to all radiographic x-ray inspections of steel pipe joints of every size within the pipe size ranges given in the bid item text. This bid includes all labor, equipment, materials, to assess the acceptability of the weld to comply with specifications and to industry and regulatory standards. 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) for each pipe joint inspected.

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 compete 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 compete 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 were 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 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 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 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 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 SLEVE 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.

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 INVSTIGATION This item shall include all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confided 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, `1`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 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 f o r use. If required on plans and/or proposed adjoining DIP is restrained, force main valves s h a l l 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.

N O T I C E

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

LETTER OF PERMISSION (LOP)

Corps ID No. LRL-2015-252

PROJECT: Magoffin County, KYTC Item No. 10-0166.00
Mountain Parkway Widening from Burning Fork Bridge to KY 114

The Section 404 activities for this project have been permitted under the authority of the Department of the Army Letter of Permission Permit. In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this LOP Permit in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Corps of Engineers. A copy of any request to the Corps of Engineers to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
EASTERN KENTUCKY REGULATORY OFFICE
845 SASSAFRAS CREEK ROAD
SASSAFRAS, KY 41759-8806

February 5, 2016

Operations Division
Regulatory Branch (South)
ID No.LRL-2015-252

Mr. Ronald Rigney
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Rigney:

This is in regard to your application for a Department of the Army (DA) permit received March 09, 2015, concerning a proposal to widen approximately 0.3 miles of KY 9009 & 2.1 miles of US 460 in Magoffin County, Kentucky. Widening the Mountain Parkway (KY 9009) will improve system linkage and improve safety by providing a wider roadway and eliminating sharp curves. We have reviewed your application and submitted information 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 Section 404 of the Clean Water Act (CWA), to construct 5 culvert replacements, 1 stream relocation, and fill 9 stream reaches to construct the new road alignment. A total of 4,136 linear feet of stream would be impacted and 2.18 acres of wetlands filled. These impacts would occur on perennial, intermittent, and ephemeral streams within Burning Fork, Rockhouse Fork, Prater Branch and their tributaries. This permission is granted with the following conditions:

1) The project shall be constructed in accordance with plans included in the 19 March 2015, application and all subsequently obtained information for Kentucky Transportation Cabinet, Item No. 10-0166.00 for Department of the Army Permit.

2) The permittee shall provide to this office a receipt of purchase of 2300 AMUs from KYTC's Beaver Creek Mitigation Bank, and purchase of 3.5 AMUs for wetland impacts from KYTC's Ova Arnett wetland mitigation bank. Proof of payment must be received prior to the discharge of fill into "waters of the United States".

3) The permittee shall adhere to the 2012 Programmatic Agreement between KYTC, FHWA and USFWS to address potential impacts to Indiana bats and northern long-eared bats.

4) The time limit for completing the work authorized ends on 04 February 2021. If the permittee finds that more time is needed to complete the authorized activity, an application must be submitted for a time extension to this office for consideration at least 1 month before the above date is reached.

5) Upon completion of construction you are to notify the District Engineer. The enclosed Completion Report form must be completed and returned to this office.

6) The permittee must agree to comply with the enclosed General Conditions.

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. 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 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this decision, you must submit a completed RFA form to the Lakes and Rivers Division Office at the following address.

Regulatory Appeals Officer
U.S. Army Engineer Division
Great Lakes and Ohio River
550 Main Street - Room 10032
Cincinnati, Ohio 45202-3222
(513) 684-6212

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 CFR Part 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 **April 04, 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.

Copies of this letter will be sent to the appropriate coordinating agencies (see enclosure for addresses).

FOR THE DISTRICT ENGINEER:

Todd Williams
Project Manager
Regulatory Branch

Enclosures

(I accept the conditions of this authorization):

Kentucky Transportation Cabinet

Date 2/10/14

Addresses for Coordinating Agencies

Mr. Duncan Powell
USEPA, Region IV
WCOB c/o SESD (Room A100-13)
980 College Station Road
Athens, Georgia 30605-2720

Mr. Lee Andrews
U.S. Fish & Wildlife Service
J.C. Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601

Ms. Andrea Keatley
Kentucky Energy & Environment Cabinet
Division of Water
200 Fair Oaks, 4th Floor
Frankfort, KY 40601

Mr. Gregory Johnson, Commissioner
Kentucky Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601

Mr. Craig Potts
Executive Director
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

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.

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.

N O T I C E

KENTUCKY DIVISION OF WATER

WATER QUALITY CERTIFICATION

WQC #2015-062-7

PROJECT: Magoffin County, KYTC Item No. 10-0166.00
Mountain Parkway Widening from Burning Fork Bridge to KY 114

The Kentucky Division of Water has approved the Section 401 activities for this project by issuance of a Water Quality Certification. In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Water Quality Certification in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the appropriate permit agency. A copy of any request to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

September 11, 2015

Ronald Rigney, II
Kentucky Transportation Cabinet
Division of Environmental Analysis
200 Mero Street, 5th Floor
Frankfort, KY 40622

Re: Water Quality Certification #2015-062-7
Bert T Combs Mountain Parkway & US 460
AI No.: 123262; Activity ID: APE20150001
KYTC Item No.: 10-0166.00
USACE Public Notice No.: LRL-2015-252
UT to Burning Fork, UT to Rockhouse Fork,
Burning Fork, Rockhouse Fork, Short Fork,
Prater Branch, and adjacent wetlands.
Magoffin County, Kentucky

Dear Mr. Rigney:

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. 123262**. **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 Sarah Atherton of my staff at Sarah.Atherton@ky.gov or by calling (502) 564-3410.

Sincerely,

Andrea Keatley, Acting Supervisor
Water Quality Certification Section
Kentucky Division of Water

Attachment
cc: Todd Williams, USACE: Louisville (via email: Christopher.T.Williams@usace.army.mil)
Lee Andrews, USFWS: Frankfort (via email: Teresa_Hyatt@fws.gov)
Ronald Rigney, II, KYTC (via email: RonB.RigneyII@ky.gov)
Danny Peake, KYTC (via email: Danny.Peake@ky.gov)
Chad Von Gruenigen, Licking River Basin Coordinator (via email: Chad.VonGruenigen@ky.gov)

KTC Water Quality Certification

Bert T Combs Mountain Parkway - Magoffin Co
Facility Requirements
Permit Number:2015-062-7
Activity ID No.: APE20150001

ACTV0000000007 (Burning Fk, Rockhouse Fk, Prater Br, etc.) Mountain Parkway Reconstruction (KYTC Item No. 10-0166.00):

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 to the Kentucky Department of Fish & Wildlife Resources, Wetland and Streams In-Lieu Fee Mitigation Program and a receipt should be submitted to the Kentucky Division of Water, 401 Water Quality Certification Section Project Manager before the beginning of project activities. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to the proposed Kentucky Transportation Cabinet (KYTC Item Number: 10-0166.00) widening/ reconstruction project on Bert T. Combs Mountain Parkway and US 460 near Salyersville, Kentucky, in Magoffin County (Latitude: 37.736445 N; Longitude: 83.033769 W). Proposed impacts to streams and wetlands include: - 2,356.6 linear feet of ephemeral streams, Unnamed Tributaries (UTs) to Burning Fork and UTs to Rockhouse Fork. - 494.3 linear feet of intermittent streams, UTs to Burning Fork and a UT to Rockhouse Fork. -1,285.2 linear feet of perennial streams, Burning Fork, Rockhouse Fork, Short Fork, Prater Branch, and a UT to Burning Fork. - 2.0492 acres of Palustrine Emergent Wetland. - 0.1300 acre of Palustrine Scrub Shrub Wetland. [Clean Water Act]

KTC Water Quality Certification

Bert T Combs Mountain Parkway - Magoffin Co
Facility Requirements
Permit Number:2015-062-7
Activity ID No.: APE20150001

ACTV0000000007 (continued):

Narrative Requirements:

Condition No.	Condition
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the following documents: - Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification received March 17, 2015. - Revisions to the Impact Summary Table and the Summary of Impacts received July 1, 2015. - Rockhouse Fork Relocation Final Plans received July 10, 2015. . [Clean Water Act]
T-3	The new channel for Rockhouse Fork should be constructed and stabilized with erosion control materials sufficient to restrain erosion as shown in the submitted plans before any water is diverted from the old channel. [Clean Water Act]
T-4	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-5	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-6	If construction does not commence within one year of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-7	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-8	Dredging work shall not be conducted during the fish spawning season, April 15th through June 15th. [Clean Water Act]
T-9	Mitigation for impacts shall begin prior to or concurrently with impacts. [Clean Water Act]

KTC Water Quality Certification

Bert T Combs Mountain Parkway - Magoffin Co
Facility Requirements
Permit Number:2015-062-7
Activity ID No.: APE20150001

ACTV0000000007 (continued):

Narrative Requirements:

Condition No.	Condition
T-10	Check dams are not allowed within the stream channel. [Clean Water Act]
T-11	Remove all sediment and erosion control measures after re-vegetation has become well-established. [Clean Water Act]

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

April 19, 2016

Marshall Carrier
Kentucky Transportation Cabinet (KYTC)
200 Mero St
Frankfort, KY 40622

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10K376
10-166 Mountain Parkway Widening
Permit Type: Construction
AI ID: 123262
Magoffin County, Kentucky

Dear Marshall Carrier:

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Construction Activities (KYR100000)" master general permit. Your coverage becomes effective on the date of this letter, and will automatically terminate two years from the effective date of your coverage unless an extension is requested prior to the termination date, until the KYR100000 master general permit expires on November 30, 2019, or the Division of Water revokes coverage, whichever comes first. During this period of coverage all discharges shall comply with the conditions of the KYR100000 master general permit. This permit and links to the eNOI (and permit coverage extension) and eNOT forms can be found on our website:

http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf.

Any questions concerning the general permit and its requirements should be directed to me at (502) 564-3410.

Construction Site GPS Coordinates: 37.736001 , -83.034227
Receiving Water: Burning Fork

Sincerely,

Justina Riddick

Justina Riddick
Surface Water Permits Branch
Division of Water

Thank you for submitting your information via the Kentucky Department for Environmental Protection eForms website. Please save a copy of this submittal for your records. We recommend saving a copy as a .mht, .html, or .htm file.
The Submittal ID for this transaction is 82909 and was submitted on April 12, 2016 04:32 PM Eastern Time. If you need to contact DEP regarding your submission, please reference your Submittal ID.

Your eForm Transaction ID for this submittal is o59kz72s-n6g0-tmjo-iypc-gn4nvnmu7eyr. The eForm Transaction ID allows you to use the data from this submittal as a template and/or download a copy of your submittal.

Please click here (https://dep.gateway.ky.gov/eForms/AttachmentDownload.aspx?S_ID=o59kz72s-n6g0-tmjo-iypc-gn4nvnmu7eyr) for the Submittal and Attachment Download Page.

Please click here (https://dep.gateway.ky.gov/eForms/Default.aspx?FormID=48) to return to the eForms Home Page.

KENTUCKY POLLUTION DISCHARGE

ELIMINATION SYSTEM (KPDES)

Notice of Intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000

Click here for Instructions (Controls/KPDES_FormKYR10_Instructions.ht

Click here to obtain information and a copy of the KPDES General Permit. (http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf)

(*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field

General Comments:

Applicant Comment:

DEP Reviewer Comment:

Reason for Submittal:(*)	**Agency Interest ID:**	**Permit Number:(✓)**
Application for New Perm	Agency Interest ID	KPDES Permit Number

If change to existing permit coverage is requested, describe the changes for which modification of coverage is being sought:(✓)

ELIGIBILITY:
Stormwater discharges associated with construction activities disturbing individually one (1) acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one (1) acre or more of disturbance.

EXCLUSIONS:
The following are excluded from coverage under this general permit:
1) Are conducted at or on properties that have obtained an individual KPDES permit for the discharge of other wastewaters which requires the development and implementation of a Best Management Practices (BMP) plan;
2) Any operation that the DOW determines an individual permit would better address the discharges from that operation;
3) Any project that discharges to an Impaired Water listed in the most recent Integrated Report, §305(b) as impaired for sediment and for which an approved TMDL has been developed.

SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE)

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
KYTC	Marshall	M	Carrier

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
200 Mero Street	Frankfort	Kentucky	40622

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
Marshall.Carrier@ky.gov	502-564-4890	Phone

Section I Comments:

Applicant Comment:

DEP Reviewer Comment:

SECTION II -- GENERAL SITE LOCATION INFORMATION

Project Name:(*)	Status of Owner/Operator(*)	SIC Code(*)
10-166 Mountain Parkway Widening	State Governme	1611 Highway a

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
KYTC	Marshall	M	Carrier

Site Physical Address:(*)
KY 9009

City:(*)	State:(*)	Zip:(*)
Salyersville	Kentucky	41465

County:(*)	Latitude(decimal degrees)(*)DMS to DD Converter	Longitude(decimal degrees)(*)

Magoffin	to DD Converter (https://www.fcc.gov/media/radio/dms-decimal) 37.736001	-83.034227

Section II Comments:

Applicant Comment:

DEP Reviewer Comment:

SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION

Project Description:(*)

Widening of the Mountain Parkway

a. For single projects provide the following information

Total Number of Acres in Project:(✓) 70.7	**Total Number of Acres Disturbed:(✓)** 70.7
Anticipated Start Date:(✓) 8/1/2016	**Anticipated Completion Date:(✓)** 11/30/2018

b. For common plans of development provide the following information

Total Number of Acres in Project:(✓) # Acre(s)	**Total Number of Acres Disturbed:(✓)** # Acre(s)
Number of individual lots in development, if applicable: (✓) # lot(s)	**Number of lots in development:(✓)** # lot(s)
Total acreage of lots intended to be developed:(✓) Project Acres	**Number of acres intended to be disturbed at any one time:(✓)** Disturbed Acres
Anticipated Start Date:(✓)	**Anticipated Completion Date:(✓)**

List Building Contractor(s) at the time of Application:(*)

Company Name

Section III Comments:

Applicant Comment:

DEP Reviewer Comment:

SECTION IV -- IF THE PERMITTED SITE DISCHARGES TO A WATER BODY THE FOLLOWING INFORMATION IS REQUIRED

Discharge Point(s):

Unnamed Tributary?	Latitude	Longitude
Receiving Water Name		
No	37.73132	-83.02210
Burning Fork		
No	37.73263	-83.02034
Burning Fork		
Yes	37.732727	-83.05581
Burning Fork		
No	37.73273	-83.02152
Burning Fork		
Yes	37.73280	-83.01831
Burning Fork		
Yes	37.73384	-83.02708
Burning Fork		
Yes	37.73413	-83.02806
Burning Fork		
Yes	37.73452	-83.02973
Burning Fork		
No	37.73481	-83.03028

Burning Fork		
Yes	37.73597	-83.03453
Burning Fork		
No	37.73600	-83.03423
Burning Fork		
No	37.73610	-83.03498
Burning Fork		
No	37.73619	-83.03530
Burning Fork		
No	37.73683	-83.03599
Burning Fork		
No	37.73743	-83.03742
Burning Fork		
No	37.73808	-83.04147
Burning Fork		
Yes	37.73899	-83.04361
Burning Fork		
Yes	37.73980	-83.04653
Burning Fork		
Yes	37.74060	-83.04632
Burning Fork		
Yes	37.74077	-83.04620
Burning Fork		
No	37.74085	-83.05609
Rockhouse Fork		
No	37.74137	-83.05640

Burning Fork		
No	37.74308	-83.05214
Rockhouse Fork		

Section IV Comments:

Applicant Comment:

DEP Reviewer Comment:

SECTION V -- IF THE PERMITTED SITE DISCHARGES TO A MS4 THE FOLLOWING INFORMATION IS REQUIRED

Name of MS4:

Date of application/notification to the MS4 for construction site permit coverage:	**Discharge Point(s):(*)**
Date	Latitude
	Longitude

Section V Comments:

Applicant Comment:

DEP Reviewer Comment:

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: (✓)	Box culverts construction, pipe culvert installat

	Box culverts construction, pipe culvert installat
Is a Clean Water Act 404 permit required?:(*)	Yes
Is a Clean Water Act 401 Water Quality Certification required?:(*)	Yes

Section VI Comments:

Applicant Comment:

DEP Reviewer Comment:

SECTION VII -- NOI PREPARER INFORMATION

First Name:(*)	M.I.:	Last Name:(*)	Company Name:(*)
Michael	G	Leathers	HMB Professional Engineers, Inc.

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
3 HMB Circle	Frankfort	Kentucky	40601

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
mleathers@hmbpe.com	502-695-9800	Phone

Section VII Comments:

Applicant Comment:

DEP Reviewer Comment:

SECTION VIII -- ATTACHMENTS

Facility Location Map:(*)	Upload file
Supplemental Information:	Upload file

Section VIII Comments:

Applicant Comment:

DEP Reviewer Comment:

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:(*)	Title:(*)
Marshall Carrier	Project Manager, KYTC Mountain Parl

First Name:(*)	M.I.:	Last Name:(*)
Marshall	MI	Carrier

eMail Address:(*)	Business Phone:(*)	Alternate Phone:	Signature Date: (*)
Marshall.Carrier@ky.gov	502-782-4872	Phone	4/12/201

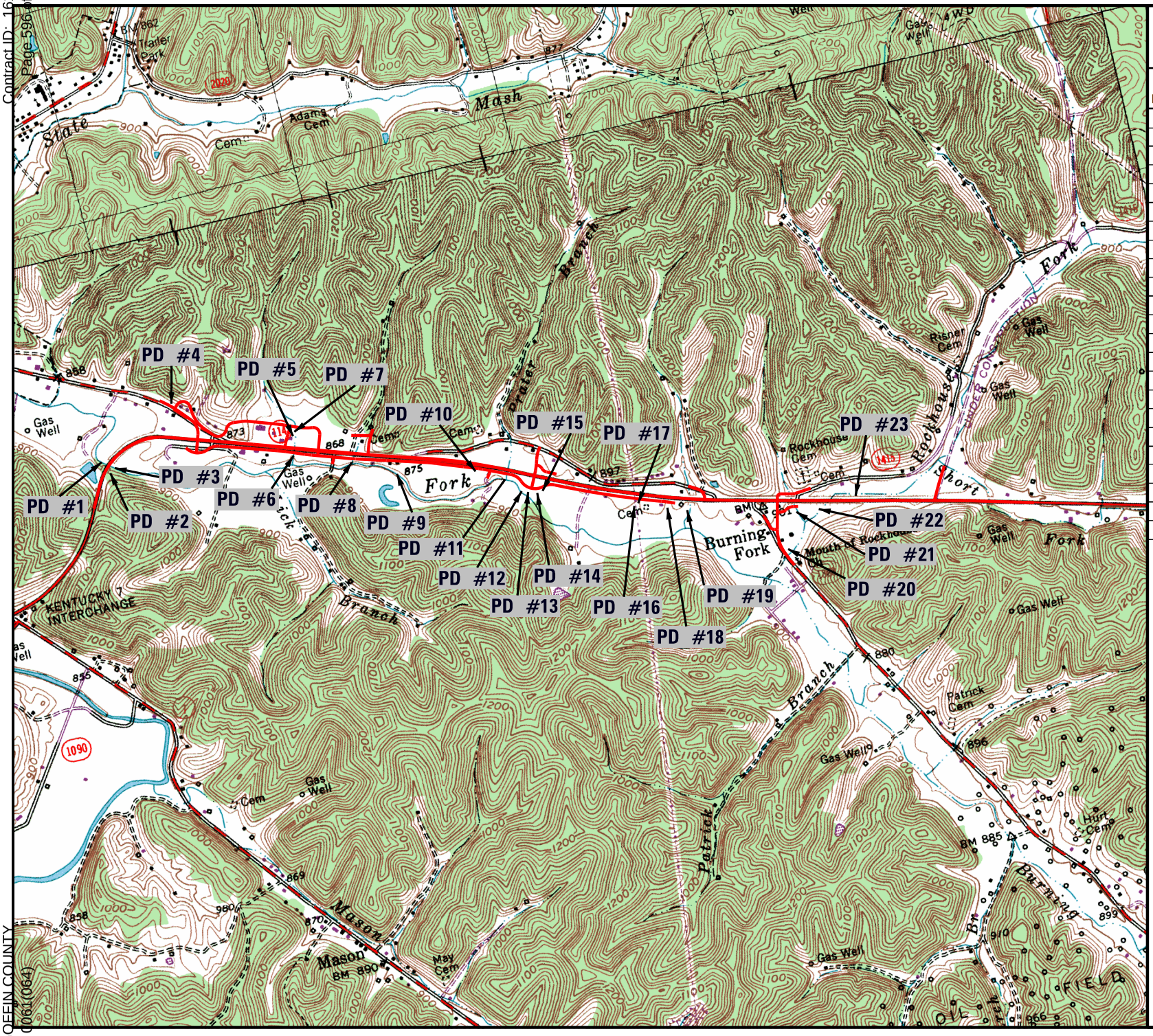
Section IX Comments:

Applicant Comment:

DEP Reviewer Comment:

The Person certifying the NOI in Section IX must be a responsible party with signatory authority for the entity listed as the Facility Operator in Section I. Please update Section I or Section IX as appropriate.

Click to Save Values for Future Retrieval | Click to Submit to DEP



NOI Point Discharges

Item No. 10-166

Magoffin County

Point Discharge	Latitude	Longitude
1	37.741373638	83.056401101
2	37.740848106	83.056092251
3	37.741012670	83.055811593
4	37.743080997	83.052142794
5	37.740604155	83.046321643
6	37.739803491	83.046525759
7	37.740770297	83.046200452
8	37.738990622	83.043606300
9	37.738084355	83.041468998
10	37.737432476	83.037424327
11	37.736834491	83.035994904
12	37.736188918	83.035303107
13	37.736102523	83.034976629
14	37.735965993	83.034525151
15	37.736001332	83.034226783
16	37.734813260	83.030282114
17	37.734516075	83.029726030
18	37.734131130	83.028057182
19	37.733844121	83.027078186
20	37.731324689	83.022103561
21	37.732727211	83.021519647
22	37.732625187	83.020343862
23	37.732803120	83.018309324

Kentucky Transportation Cabinet

Highway District 10

And

_____(2), Construction

Kentucky Pollutant Discharge Elimination System Permit KYR10 Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

[Widening of the Mountain Parkway]

Project 10-166.00

Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – **Kentucky Transportation Cabinet, District 10** (1)

2. Resident Engineer: (2)

3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):

4. Project Control Number (2)

5. Route (Address) **Mountain Parkway (KY 9009)** (1)

6. Latitude/Longitude (project mid-point) **37°44'9.3892", 83°01'56.7483"** (1)

7. County (project mid-point) **MAGOFFIN COUNTY** (1)

8. Project start date (date work will begin): (2)

9. Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity (from letting project description) (1)
   MAJOR WIDENING/RECONSTRUCTION

2. Order of major soil disturbing activities (2) and (3)

3. Projected volume of material to be moved (1)
   222,018 CU. YDS.

4. Estimate of total project area (acres) (1)
   105 ACRES

5. Estimate of area to be disturbed (acres) (1)
   70.7 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. (1)

7. Data describing existing soil condition (1) & (2)

8. Data describing existing discharge water quality (if any) (1) & (2)

9. Receiving water name (1)
   BURNING FORK AND ROCKHOUSE FORK

10. TMDLs and Pollutants of Concern in Receiving Waters: (1 DEA)

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 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. <u>All DDA's will have adequate BMP's in place before being disturbed.</u>

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.
  - 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: (1)

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 Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

- **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label

- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➢ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➢ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55-gallon capacity and larger.

➢ **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to

storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- 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 contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

F. Inspections

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have received KyTC Grade Level II training or other qualification as prescribed by the cabinet that includes instruction concerning sediment and erosion control.
- Inspection reports will be written, signed, dated, and kept on file.

- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 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 form cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

H. Groundwater Protection Plan (3)

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

_____ 2. (e) land treatment or land disposal of a pollutant;

_____ 2. (f) Storing, …, or related handling of hazardous waste, solid waste or special waste, …, in tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

_____ 2. (g) …. Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

_____ 2. (j) Storing or related handling of road oils, dust suppressants, …., at a central location;

_____ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

_____ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

_____ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

(a) General information about this project is covered in the Project information;

(b) Activities that require a groundwater protection plan have been identified above;
(c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
(d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
(e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
(f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections
(g) Certification (see signature page.)

Contractor and Resident Engineer Plan certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____title_____, _____
Typed or printed name[2] signature

(3) Signed _____title_____, _____
Typed or printed name[1] signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:
Address:
Address:

Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed _____title_____, _____
Typed or printed name[1] signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

KENTUCKY TRANSPORTATION CABINET
COMMUNICATION ALL PROMISES (CAP)

Item Number	County	Route	Project Manager
10-166	MAGOFFIN	KY 9009	KYTC/MARSHALL CARRIER
10-166	MAGOFFIN	US 460	KYTC/MARSHALL CARRIER

CAP #	Date of Promise	Requestor	Location of Promise	CAP Description
1		Property Owner	Parcel 98	KYTC agrees to relocate the portion of the existing private gas main serving the property that is impacted by the project and agrees to place the private natural gas main back in service after it is relocated at no cost to the property owners. (As shown on plans)
2		Property Owner	Parcel 122	KYTC agrees that it and its contractors will communicate with property owner regarding the commencement of construction and provision of ingress and egress to property during the construction of the project. The temporary easements are only to be utilized during the active construction of the entrances, curb, paving, drainage features, and other appurtenances located within the temporary easement. The contractor will provide the property owner a two week notice before construction will begin on the parcel, and at the time such notice is provided KYTC or its contractor will provide the property owner an estimated construction schedule for the project as affecting the property. KYTC and/or its contractor will not park any construction vehicles, equipment, or materials overnight on property. KYTC and/or its contractor will not move, remove, or demolish and of property owner's signs except as provided on the right of way plans. The contractor will confirm with the Engineer the widths and locations of the proposed entrances from the backage road before construction. Potential exists that widths and/or locations may be changed based on property owner request.

KENTUCKY TRANSPORTATION CABINET
COMMUNICATION ALL PROMISES (CAP)

Item Number	County	Route	Project Manager
10-166	MAGOFFIN	KY 9009	KYTC/MARSHALL CARRIER
10-166	MAGOFFIN	US 460	KYTC/MARSHALL CARRIER

CAP #	Date of Promise	Requestor	Location of Promise	CAP Description
3		Property Owner	Parcel 123	The temporary easements are to only be utilized during the active construction of the entrances, curb, paving, drainage features, and other appurtenances located within the temporary easement. The contractor will provide the property owner a two week notice before construction will begin on the parcel. Access will be maintained at all times. The contractor will confirm with the Engineer the widths and locations of the proposed entrances before construction. Potential exists that widths and/or locations may be change based on property owner request.
4		Property Owner	Parcel 132	KTYC agrees that it and its contractors will communicate with property owner regarding the commencement of construction and provision of ingress and egress to property during construction of the project. The temporary easement described above is only to be utilized during the active construction of the entrances, curb, paving, drainage features, and other appurtenances located within the temporary easement. The contractor will provide the property owner a two week notice before construction will begin on the parcel. The parties acknowledge that the Appalachian Land & Leasing Company, LLC, will continue to operate a Wendy's restaurant on its remaining property and the KYTC will cooperate in good faith to minimize disruption of such business, and access will be maintained at all times.

KENTUCKY TRANSPORTATION CABINET
COMMUNICATION ALL PROMISES (CAP)

Item Number	County	Route	Project Manager
10-166	MAGOFFIN	KY 9009	KYTC/MARSHALL CARRIER
10-166	MAGOFFIN	US 460	KYTC/MARSHALL CARRIER

CAP #	Date of Promise	Requestor	Location of Promise	CAP Description
5		Property Owner	Parcel 138	KYTC agrees that it and its contractors will communicate with Defendants regarding the commencement of construction and provision of ingress and egress to Defendants during construction of the project. The temporary easement is to only be utilized during the active construction of the entrances, curb, paving, drainage features, and other appurtenances located within the temporary easement. The contractor will provide the property owner a two week notice before construction will begin on the parcel. Access will be maintained at all times
6		Property Owner	Parcel 155	The customers water line is to be reconnected to the new water meter at no cost to the property owner per email dated May 20, 2015 from Summit Engineering (consultant for SWW).
7		Property Owner	Parcel 164	The temporary easement described above is to only be utilized during the active construction of the entrances, curb, paving, drainage features, and other appurtenances located within the temporary easement. The contractor will provide the property owner with notice before construction begins and access will be maintained at all times.
8		Property Owner	Parcel 168	The temporary easements described above are to only be utilized during the active construction of the entrances, curb, paving, drainage features, and other appurtenances located within the temporary easement. The contractor will provide the property owner with notice before construction begins and access will be maintained at all times.

KENTUCKY TRANSPORTATION CABINET
COMMUNICATION ALL PROMISES (CAP)

Item Number	County	Route	Project Manager
10-166	MAGOFFIN	KY 9009	KYTC/MARSHALL CARRIER
10-166	MAGOFFIN	US 460	KYTC/MARSHALL CARRIER

CAP #	Date of Promise	Requestor	Location of Promise	CAP Description
9		Property Owner	Parcel 171	KYTC agrees that it and its contractors will communicate with property owner regarding the commencement of construction and provision of ingress and egress to property.
10		Property Owner	Parcel 191	An encroachment of possible home foundation in the temporary construction easement south and west of the power pole located near the point 115 feet right of Frontage Road at Sta. 274+25 is allowed by the property owners as long as they do not encroach into the disturbed limits east of the pole.
11		Property Owner	Parcel 202	The temporary easement described above is to only be utilized during the active construction of the entrances, curb, paving, drainage features, and other appurtenances located within the temporary easement. The contractor will provide the property owner with notice before construction begins and access will be maintained at all times.
12		Environmental		Dredging work shall not be conducted during the fish spawning season, April 15th through June 15th [Clean Water Act].
13		Environmental		The new channel for Rockhouse Fork should be constructed and stabilized with erosion control materials sufficient to restrain erosion as shown in the submitted plans before any water is diverted from the old channel [Clean Water Act].
14		Environmental		No clearing of trees 5 inches or greater (diameter breast height) from June 1 - July 31

SPECIAL NOTE FOR PRE-BID CONFERENCE

MAGOFFIN COUNTY

MOUNTAIN PARKWAY EXPANSION (RESTAURANT ROW)

The Department will conduct a **Mandatory Pre-Bid Conference** for Mountain Parkway Item No. 10-166 "Restaurant Row" Wednesday, June 8, 2016 at 10:00 AM at:

Mountain Parkway Expansion Office
Magoffin Plaza
447 Parkway Drive (US 460)
Salyersville, KY 41465

Any company that is interested in bidding on the subject project or being part of a joint venture must be represented at the Pre-Bid Meeting by an Officer of the company. No individual can represent more than one company. At the meeting a roster will be taken of the representatives present.

ONLY COMPANIES REPRESENTED AT THE MEETING 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.

Department of Highways officials present at the conference will answer questions concerning the project.

Preliminary plans and proposal documents can be found at the Division of Construction Procurement website.

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 2012* and *Standard Drawings, Edition of 2016.*

Supplemental Specifications to the Standard Specifications for Road and Bridge Construction, 2012 Edition Effective with the April 29, 2016 Letting

Subsection: **Revision:**	101.03 DEFINITIONS Add the following Definitions to this section: **Superpave Mix Design Technologist (SMDT)** - An inspector qualified by the KYTC to submit, adjust, or approve asphalt mix designs. **Superpave Plant Technologist (SPT)** - An inspector qualified by the KYTC to perform routine inspection and process control, acceptance, or verification testing on asphalt mixtures.
Subsection: **Revision:**	102.15 Process Agent. Replace the 1st paragraph with the following: Every corporation doing business with the Department shall submit evidence of compliance with KRS Sections 14A.4-010, 271B.11-010, 271B.11-070, 271B.11-080, 271B.5-010 and 271B.16-220, and file with the Department the name and address of the process agent upon whom process may be served.
Subsection: **Revision:**	105.13 Claims Resolution Process. Delete all references to TC 63-34 and TC 63-44 from the subsection as these forms are no longer available through the forms library and are forms generated within the AASHTO SiteManager software.
Subsection: **Revision:**	108.01 Subcontracting of Contract. Replace the section with the following: Do not subcontract, sell, transfer, assign, or otherwise dispose of the Contract or any portion of the Contract or Contracts, or of the right, title, or interest therein, without the Engineer's written consent. If the Contractor chooses to subcontract any portion of the Contract, a written request to sublet work must be submitted on the Subcontract Request (TC 63-35) form for the Engineer's approval. When directed by the Engineer, submit a certified copy of the actual subcontract agreement executed between the parties. The Engineer will allow the Contractor to subcontract a portion, but the Contractor must perform with his own organization work amounting to no less than 30 percent of the total Contract cost. The Engineer will not allow any subcontractor to exceed the percentage to be performed by the Contractor and will require the Contractor to maintain a supervisory role over the entire project. Do not allow any subcontractor to further subcontract any portion of the work without obtaining written consent from the Engineer. When the Engineer gives such consent, the first tier subcontractor may further subcontract a portion of his work not to exceed 50 percent of the work originally subcontracted to him by the Contractor. Do not allow any second tier subcontractor to subcontract any portion of the work. Extra work performed by subcontractors in accordance with Section 109 will not be utilized in the computation of total dollar amount subcontracted. Subcontract percentages are based upon the original contract amount. Payment to subcontractors for satisfactory performance of their work or materials supplied must be made within 7 calendar days from receipt of payment from the Engineer. Upon request by the Engineer, provide proof that payment has been made to the subcontractor within the 7 calendar days. Progress payments may be withheld for failure to comply with this request

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	The Engineer's written consent to subcontract, assign, or otherwise dispose of any portion of the Contract does not, under any circumstances, relieve the Contractor or the surety of their respective liabilities and obligations under the Contract. The Engineer will make transactions only with the Contractor. The Engineer will recognize subcontractors only in the similar capacity of employees or workers of the Contractor who are subject to the same requirements as to character and competence as specified in Subsection 108.06. Lease agreements are acceptable on Department projects. No additional paperwork is needed when equipment is rented from a commercial rental company unless the leased equipment comes with an operator. In these circumstances, payroll records for the operator of the leased equipment must be maintained and submitted by the contractor in accordance with Department policy. Lease agreements between contractors that involve equipment only will require the submittal of a TC 63-71 Department Equipment Rental Form. If a Contractor is found to be in violation of these requirements, the Engineer reserves the right to withhold payment for the work which was performed in violation of these requirements. This provision does not include the lease or use of equipment from a corporation or company wholly owned by the Contractor. The Contractor shall not use equipment in the performance of the Contract to which title is not held by the Contractor or an approved subcontractor without a submitted lease agreement. If a public official has provided a documented Declaration of Emergency, then the Engineer may verbally waive the requirement of submitting a TC 63-71 Department Equipment Rental Form until the situation has ended. After the emergency situation ends, immediately remove the equipment from the project or submit a completed TC 63-71 Department Equipment Rental Form to the Engineer.
Subsection: **Revision:**	108.03 Preconstruction Conference. Replace 8) Staking with the following: 8) Staking (designated by a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	109.07.02 Fuel. Revise item Crushed Aggregate Used for Embankment Stabilization to the following: Crushed Aggregate Used for Stabilization of Unsuitable Materials Used for Embankment Stabilization
	Delete the following item from the table. ~~Crushed Sandstone Base (Cement Treated)~~
Subsection: **Revision:**	110.02 Demobilization. Replace the first part of the first sentence of the second paragraph with the following: Perform all work and operations necessary to accomplish final clean-up as specified in the first paragraph of Subsection 105.12;
Subsection: **Revision:**	112.03.12 Project Traffic Coordinator (PTC). Replace the last paragraph of this subsection with the following: Ensure the designated PTC has sufficient skill and experience to properly perform the task assigned and has successfully completed the qualification courses.

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Subsection: **Revision:**	112.04.18 Diversions (By-Pass Detours). Insert the following sentence after the 2nd sentence of this subsection. The Department will not measure temporary drainage structures for payment when the contract documents provide the required drainage opening that must be maintained with the diversion. The temporary drainage structures shall be incidental to the construction of the diversion. If the contract documents fail to provide the required drainage opening needed for the diversion, the cost of the temporary drainage structure will be handled as extra work in accordance with section 109.04.
Subsection: **Revision:**	201.03.01 Contractor Staking. Replace the first paragraph with the following: Perform all necessary surveying under the general supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	201.04.01 Contractor Staking. Replace the last sentence of the paragraph with the following: Complete the general layout of the project under the supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	206.04.01 Embankment-in-Place. Replace the fourth paragraph with the following: The Department will not measure **suitable** excavation included in the original plans that is disposed of for payment and will consider it incidental to Embankment-in-Place.
Subsection: **Revision:**	208.02.01 Cement. Replace paragraph with the following: Select Type I or Type II cement conforming to Section 801. Use the same type cement throughout the work.
Subsection: **Revision:**	208.03.06 Curing and Protection. Replace the fourth paragraph with the following: Do not allow traffic or equipment on the finished surface until the stabilized subgrade has cured for a total of 7-days with an ambient air temperature above 40 degrees Fahrenheit. A curing day consists of a continuous 24-hour period in which the ambient air temperature does not fall below 40 degrees Fahrenheit. Curing days will not be calculated consecutively, but must total seven (7) , 24-hour days with the ambient air temperature remaining at or above 40 degrees Fahrenheit before traffic or equipment will be allowed to traverse the stabilized subgrade. The Department may allow a shortened curing period when the Contractor requests. The Contractor shall give the Department at least 3 day notice of the request for a shortened curing period. The Department will require a minimum of 3 curing days after final compaction. The Contractor shall furnish cores to the treated depth of the roadbed at 500 feet intervals for each lane when a shortened curing time is requested. The Department will test cores using an unconfined compression test. Roadbed cores must achieve a minimum strength requirement of 80 psi.
Subsection: **Revision:**	208.03.06 Curing and Protection. Replace paragraph eight with the following: At no expense to the Department, repair any damage to the subgrade caused by freezing.

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Subsection: **Part:** **Revision:**	212.03.03 Permanent Seeding and Protection. A) Seed Mixtures for Permanent Seeding. Revise **Seed Mix Type I** to the mixture shown below: 50% Kentucky 31 Tall Fescue (Festuca arundinacea) 35% Hard Fescue (Festuca (Festuca longifolia) 10% Ryegrass, Perennial (Lolium perenne) 5% White Dutch Clover (Trifolium repens)
Subsection: **Part:** **Number:** **Revision:**	212.03.03 Permanent Seeding and Protection. A) Seed Mixtures for Permanent Seeding. 2) Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 4, 5, 6, and 7. Apply seed mix Type II at a minimum application rate of 100 pounds per acre. If adjacent to a golf course replace the crown vetch with Kentucky 31 Tall Fescue.
Subsection: **Part:** **Number:** **Revision:**	212.03.03 Permanent Seeding and Protection. A) Seed Mixtures for Permanent Seeding. 3) Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 1, 2, 3, 8, 9, 10, 11, and 12. Apply seed mix Type III at a minimum application rate of 100 pounds per acre. If adjacent to crop land or golf course, replace the Sericea Lespedeza with Kentucky 31 Fescue.
Subsection: **Part:** **Revision:**	212.03.03 Permanent Seeding and Protection. B) Procedures for Permanent Seeding. Delete the first sentence of the section.
Subsection: **Part:** **Revision:**	212.03.03 Permanent Seeding and Protection. B) Procedures for Permanent Seeding. Replace the second and third sentence of the section with the following: Prepare a seedbed and apply an initial fertilizer that contains a minimum of 100 pounds of nitrogen, 100 pounds of phosphate, and 100 pounds of potash per acre. Apply agricultural limestone to the seedbed when the Engineer determines it is needed. When required, place agricultural limestone at a rate of 3 tons per acre.
Subsection: **Part:** **Revision:**	212.03.03 Permanent Seeding and Protection. D) Top Dressing. Change the title of part to D) Fertilizer.
Subsection: **Part:** **Revision:**	212.03.03 Permanent Seeding and Protection. D) Fertilizer. Replace the first paragraph with the following: Apply fertilizer at the beginning of the seeding operation and after vegetation is established. Use fertilizer delivered to the project in bags or bulk. Apply initial fertilizer to all areas prior to the seeding or sodding operation at the application rate specified in 212.03.03 B). Apply 20-10-10 fertilizer to the areas after vegetation has been established at a rate of 11.5 pounds per 1,000 square feet. Obtain approval from the Engineer prior to the 2nd fertilizer application. Reapply fertilizer to any area that has a streaked appearance. The reapplication shall be at no additional cost to the Department. Re-establish any vegetation severely damaged or destroyed because of an excessive application of fertilizer at no cost to the Department.
Subsection: **Part:** **Revision:**	212.03.03 Permanent Seeding and Protection. D) Fertilizer. Delete the second paragraph.

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Subsection: **Revision:**	212.04.04 Agricultural Limestone. Replace the entire section with the following: The Department will measure the quantity of agricultural limestone in tons.
Subsection: **Revision:**	212.04.05 Fertilizer. Replace the entire section with the following: The Department will measure fertilizer used in the seeding or sodding operations for payment. The Department will measure the quantity by tons.
Subsection: **Revision:**	212.05 PAYMENT. Delete the following item code: Code — Pay Item — Pay Unit 05966 — Topdressing Fertilizer — Ton
Subsection: **Revision:**	212.05 PAYMENT. Add the following pay items: Code — Pay Item — Pay Unit 05963 — Initial Fertilizer — Ton 05964 — 20-10-10 Fertilizer — Ton 05992 — Agricultural Limestone — Ton
Subsection: **Revision:**	213.03.02 Progress Requirements. Replace the third paragraph with the following: After exposing areas of erodible material, make every effort to stabilize and protect the areas as quickly as possible. Permanently seed and mulch all areas at final grade within 14 days. Temporary stabilization practices on those portions of the project where construction activities have temporarily ceased shall be initiated within 14 days of the date of activity cessation. The Engineer will suspend grading operations for instances where the Contractor fails to sustain erosion control measures to effectively control erosion and to prevent water pollution in accordance with the KPDES Permit. In addition, the Engineer will withhold monies due on current estimates until corrective work has been initiated and is continuously progressing to remediate noted deficiencies. Additionally, should noted deficiencies not be adequately addressed to the satisfaction of the Engineer within 7 calendar days of receipt of written notification of deficiencies, the Department will apply a penalty equal to the daily liquidated damages rate until all aspects of the work have been completed.
Subsection: **Part:** **Revision:**	213.03.05 Temporary Control Measures. E) Temporary Seeding and Protection. Delete the second sentence of the first paragraph.
Subsection: **Table:** **Revision:**	304.02.01 Physical Properties. Required Geogrid Properties Replace all references to Test Method "GRI-GG2-87" with ASTM D 7737.
Subsection: **Part:** **Revision:**	402.03.02 Contractor Quality Control and Department Acceptance. B) Sampling. Replace the second sentence with the following: The Department will determine when to obtain the quality control samples using the random-number feature of the mix design submittal and approval spreadsheet. The Department will randomly determine when to obtain the verification samples required in Subsections 402.03.03 and 402.03.04 using the Asphalt Mixture Sample Random Tonnage Generator.

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Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	3) VMA.
Revision:	Add the following paragraph below Number 3) VMA: Retain the AV/VMA specimens and one additional corresponding G_{mm} sample for 5 working days for mixture verification testing by the Department. For Specialty Mixtures, retain a mixture sample for 5 working days for mixture verification testing by the Department. When the Department's test results do not verify that the Contractor's quality control test results are within the acceptable tolerances according to Subsection 402.03.03, retain the samples and specimens from the affected sublot(s) for the duration of the project.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	4) Density.
Revision:	Replace the second sentence of the Option A paragraph with the following: Perform coring by the end of the following work day.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	5) Gradation.
Revision:	Delete the second paragraph.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	H) Unsatisfactory Work.
Number:	1) Based on Lab Data.
Revision:	Replace the second paragraph with the following: When the Engineer determines that safety concerns or other considerations prohibit an immediate shutdown, continue work and the Department will make an evaluation of acceptability according to Subsection 402.03.05.
Subsection:	402.03.03 Verification.
Revision:	Replace the first paragraph with the following: **402.03.03 Mixture Verification.** For volumetric properties, the Department will perform a minimum of one verification test for AC, AV, and VMA according to the corresponding procedures as given in Subsection 402.03.02. The Department will randomly determine when to obtain the verification sample using the Asphalt Mixture Sample Random Tonnage Generator. For specialty mixtures, the Department will perform one AC and one gradation determination per lot according to the corresponding procedures as given in Subsection 402.03.02. However, Department personnel will not perform AC determinations according to KM 64-405. The Contractor will obtain a quality control sample at the same time the Department obtains the mixture verification sample and perform testing according to the procedures given in Subsection 402.03.02. If the Contractor's quality control sample is verified by the Department's test results within the tolerances provided below, the Contractor's sample will serve as the quality control sample for the affected sublot. The Department may perform the mixture verification test on the Contractor's equipment or on the Department's equipment.
Subsection:	402.03.03 Verification.
Part:	A) Evaluation of Sublot(s) Verified by Department.
Revision:	Replace the third sentence of the second paragraph with the following: When the paired *t* -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.

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Subsection: **Part:** **Revision:**	402.03.03 Verification. B) Evaluation of Sublots Not Verified by Department. Replace the third sentence of the first paragraph with the following: When differences between test results are not within the tolerances listed below, the Department will resolve the discrepancy according to Subsection 402.03.05.
Subsection: **Part:** **Revision:**	402.03.03 Verification. B) Evaluation of Sublots Not Verified by Department. Replace the third sentence of the second paragraph with the following: When the F-test or t-test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
Subsection: **Part:** **Revision:**	402.03.03 Verification. C) Test Data Patterns. Replace the second sentence with the following: When patterns indicate substantial differences between the verified and non-verified sublots, the Department will perform further comparative testing according to subsection 402.03.05.
Subsection: **Revision:**	402.03 CONSTRUCTION. Add the following subsection: **402.03.04 Testing Equipment and Technician Verification.** For mixtures with a minimum quantity of 20,000 tons and for every 20,000 tons thereafter, the Department will obtain an additional verification sample at random using the Asphalt Mixture Sample Random Tonnage Generator in order to verify the integrity of the Contractor's and Department's laboratory testing equipment and technicians. The Department will obtain a mixture sample of at least 150 lb at the asphalt mixing plant according to KM 64-425 and split it according to AASHTO R 47. The Department will retain one split portion of the sample and provide the other portion to the Contractor. At a later time convenient to both parties, the Department and Contractor will simultaneously reheat the sample to the specified compaction temperature and test the mixture for AV and VMA using separate laboratory equipment according to the corresponding procedures given in Subsection 402.03.02. The Department will evaluate the differences in test results between the two laboratories. When the difference between the results for AV or VMA is not within ± 2.0 percent, the Department will investigate and resolve the discrepancy according to Subsection 402.03.05.
Subsection: **Revision:**	402.03.04 Dispute Resolution. Change the subsection number to 402.03.05.
Subsection: **Part:** **Table:** **Revision:**	402.05 PAYMENT. Lot Pay Adjustment Schedule Compaction Option A Base and Binder Mixtures AC Replace the Deviation from JMF(%) that corresponds to a Pay Value of 0.95 to ±0.6.
Subsection: **Revision:**	403.01 Description. Replace the sentence three and four of the first paragraph with the following: Provide a Superpave Plant Technologist (SPT) or Superpave Mix Design Technician (SMDT) qualified by the Laboratories' Quality Acceptance program. Be available to address all Quality Control concerns arising during work performed under section 403.
Subsection: **Revision:**	403.02.10 Material Transfer Vehicle (MTV). Replace the first sentence with the following: In addition to the equipment specified above, provide a MTV with the following minimum characteristics:

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Subsection: **Part:** **Number:** **Revision:**	403.03.03 Preparation of Mixture C) Mix Design Criteria 2) Revise part 2) to read as follows: Selection of Optimum AC. Normally, the Department will approve the AC at an air-void content of 4.0 percent. The Engineer may assign an AC corresponding to other air-void levels as deemed appropriate. Ensure the optimum AC is a minimum of 5.2 percent by weight of the total mixture for all 0.5-inch nominal surface mixtures and 5.5 percent by weight of the total mixture for all 0.38-inch nominal surface mixtures.
Subsection: **Revision:**	412.02.09 Material Transfer Vehicle (MTV). Replace the paragraph with the following: Provide and utilize a MTV with the minimum characteristics outlined in section 403.02.10.
Subsection: **Revision:**	412.03.07 Placement and Compaction. Replace the first paragraph with the following: Use a MTV when placing SMA mixture in the driving lanes. The MTV is not required on ramps and/or shoulders unless specified in the contract. When the Engineer determines the use of the MTV is not practical for a portion of the project, the Engineer may waive its requirement for that portion of pavement by a letter documenting the waiver.
Subsection: **Revision:**	412.04 MEASUREMENT. Add the following subsection: 412.04.03. Material Transfer Vehicle (MTV). The Department will not measure the MTV for payment and will consider its use incidental to the asphalt mixture.
Subsection: **Part:** **Revision:**	501.03.19 Surface Tolerances and Testing Surface. B) Ride Quality. Add the following to the end of the first paragraph: The Department will specify if the ride quality requirements are Category A or Category B when ride quality is specified in the Contract. Category B ride quality requirements shall apply when the Department fails to classify which ride quality requirement will apply to the Contract.
Subsection: **Revision:**	501.03.05 Weather Limitations and Protection. Replace the reference to Subsection 501.03.19 in Paragraph 5, with Subsection 501.03.20.
Subsection: **Revision:**	601.02.02 Cement Replace the third sentence with the following: The Department will allow the use of Type IP(≤20), Type IS(≤30), Type IL, Type II, and Type III when the Engineer approves.
Subsection: **Revision:**	601.02.02 Cement Replace the fifth sentence with the following: If unsatisfactory test results are obtained using Type IP(≤20), Type IS(≤30), Type IL, Type II, or Type III cement complete the work using Type I cement.

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Subsection: 601.03.02 Concrete Producer Responsibilities.
Part: E) Trip Tickets.
Revision: Replace the section with the following:
Furnish a trip ticket containing the minimum information shown in the table below. Certify that the data on the ticket is correct and that the mixture conforms to the approved mix design. Ensure that the plant manager or a Level II concrete technician signs the ticket. The Department's jobsite inspector will complete all other necessary information on the back of the trip ticket.

Contract Id:	Proj. Number:	Date:	County:	
Truck No:	Producer Name:		SiteManager Sample Id:	
Qty(Yds^3):	Time Loaded (Non Agitated Concrete Only):			
Begin Mixing Time: _____ AM ____ PM ____ REV _____				
Set Retarder Used		Yes ___	Type____	No____
Water Reducer Used		Yes ___	Type____	No____
Water Underrun _____ Gal/Yd^3 _____ Total Gallons				
Design W/C:	Actual W/C:	Slump (inches)		
Batch Weight Information:				
Material:	Description:	Design Qty:	Required:	Batched:
Remarks:				

%Var:	%Moisture:	Actual:

The data on this ticket is correct for the approved concrete mix design.

Signature: _____ Date: _____
KRMCA Level II Technician or Plant Manager

Subsection: 601.03.03 Proportioning and Requirements
Part: A) Concrete
Revision: Revise Table for INGREDIENT PROPORTIONS AND REQUIREMENTS FOR VARIOUS CLASSES OF CONCRETE as follows: Replace "M1 w/ Type 1 cement" with "M1 w/ Type 1 or blended hydraulic cement"

Subsection: 601.03.03 Proportioning and Requirements
Part: C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures
Revision: Revise part C) header to read as follows: Mixtures Using Type IP(≤20), IS(≤30), and IL Cement and Mineral Admixtures.

Subsection: 601.03.03 Proportioning and Requirements
Part: C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures
Number: 1)
Revision: Revise first sentence to read as follows: Type IP(≤20), IS(≤30), IL Cement.

Subsection: 601.03.03 Proportioning and Requirements
Part: C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures
Number: 2)
Revision: Revise second sentence to read as follows: The use of fly ash, blast furnace slag cement, or micosilica in concrete is the Contractor's option.

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Subsection: **Part:** **Number:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) Revise the first sentence in the second paragraph to read as follows: When the ability to use blast furnace slag cement or microsilica has not been demonstrated have the concrete producer provide trial batches in accordance with Subsection 601.03.02 G) 1).
Subsection: **Part:** **Number:** **Part:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) b) Revise first sentence to read as follows: Blast Furnace Slag Cement
Subsection: **Part:** **Number:** **Part:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) b) Revise second sentence to read as follows: When added as a separate ingredient, use Grade 120 or Grade 100 slag to reduce the quantity of cement, except do not use blast furnace slag cement to reduce the quantity of Type IS(≤30) cement.
Subsection: **Part:** **Number:** **Part:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) b) In part b), replace all references to "GGBF slag" with "blast furnace slag cement".
Subsection: **Part:** **Revision:**	601.03.04 Classes and Primary Uses H) Class M1 Revise part H) to read as follows: High early strength for bridge joint repair and full or partial depth bridge deck patching. (Type 1 cement or blended hydraulic cement)
Subsection: **Revision:**	603.03.06 Cofferdams. Replace the seventh sentence of paragraph one with the following: Submit drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	605.03.04 Tack Welding. Insert the subsection and the following: 605.03.04 Tack Welding. The Department does not allow tack welding.
Subsection: **Part:** **Number:** **Revision:**	606.03.17 Special Requirements for Latex Concrete Overlays. A) Existing Bridges and New Structures. 1) Prewetting and Grout-Bond Coat. Add the following sentence to the last paragraph: Do not apply a grout-bond coat on bridge decks prepared by hydrodemolition.
Subsection: **Revision:**	609.03 Construction. Replace Subsection 609.03.01 with the following: 609.03.01 A) Swinging the Spans. Before placing concrete slabs on steel spans or precast concrete release the temporary erection supports under the bridge and swing the span free on its supports. 609.03.01 B) Lift Loops. Cut all lift loops flush with the top of the precast beam once the beam is placed in the final location and prior to placing steel reinforcement. At locations where lift loops are cut, paint the top of the beam with galvanized or epoxy paint.

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Subsection: **Revision:**	611.03.02 Precast Unit Construction. Replace the first sentence of the subsection with the following: Construct units according to ASTM C1577, **replacing Table 1 (Design Requirements for Precast Concrete Box Sections Under Earth, Dead and HL-93 Live Load Conditions) with KY Table 1 (Precast Culvert KYHL-93 Design Table)**, and Section 605 with the following exceptions and additions:
Subsection: **Number:** **Revision:**	613.03.01 Design. 2) Replace "AASHTO Standard Specifications for Highway Bridges" with "AASHTO LRFD Bridge Design Specifications"
Subsection: **Revision:**	615.06.02 Add the following sentence to the end of the subsection. The ends of units shall be normal to walls and centerline except exposed edges shall be beveled ¾ inch.
Subsection: **Revision:**	615.06.03 Placement of Reinforcement in Precast 3-Sided Units. Replace the reference of 6.6 in the section to 615.06.06.
Subsection: **Revision:**	615.06.04 Placement of Reinforcement for Precast Endwalls. Replace the reference of 6.7 in the section to 615.06.07.
Subsection: **Revision:**	615.06.06 Laps, Welds, and Spacing for Precast 3-Sided Units. Replace the subsection with the following: Tension splices in the circumferential reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be no less than 2 inches and no more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.
Subsection: **Revision:**	615.06.07 Laps, Welds, and Spacing for Precast Endwalls. Replace the subsection with the following: Splices in the reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. The spacing center-to-center of the wire fabric sheet shall not be less than 2 inches or more than 8 inches.

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Subsection: **Revision:**	615.08.01 Type of Test Specimen. Replace the subsection with the following: Start-up slump, air content, unit weight, and temperature tests will be performed each day on the first batch of concrete. Acceptable start-up results are required for production of the first unit. After the first unit has been established, random acceptance testing is performed daily for each 50 yd^3 (or fraction thereof). In addition to the slump, air content, unit weight, and temperature tests, a minimum of one set of cylinders shall be required each time plastic property testing is performed.
Subsection: **Revision:**	615.08.02 Compression Testing. Delete the second sentence.
Subsection: **Revision:**	615.08.04 Acceptability of Core Tests. Delete the entire subsection.
Subsection: **Revision:**	615.12 Inspection. Add the following sentences to the end of the subsection: Units will arrive at jobsite with the "Kentucky Oval" stamped on the unit which is an indication of acceptable inspection at the production facility. Units shall be inspected upon arrival for any evidence of damage resulting from transport to the jobsite.
Subsection: **Revision:**	701.04.16 Deduction for Pipe Deflection. Insert the following at the end of the paragraph: The section length is determined by the length of the pipe between joints where the failure occurred.
Subsection: **Revision:**	716.02.02 Paint. Replace sentence with the following: Conform to Section 821.
Subsection: **Revision:**	716.03 CONSTRUCTION. Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
Subsection: **Revision:**	716.03.02 Lighting Standard Installation. Replace the paragraph with the following: Locate poles to avoid trees, drainage, structures, etc. Regardless of the station & offset noted, locate all poles/bases behind guardrail a minimum of 4 feet behind the face of the guardrail. All poles shall be placed as close to stations and offsets as stated on Plans to provide proper illumination. If any pole needs to be relocated from stations indicated, the Division of Traffic Operations shall be contacted. When submitting brochures for suggested luminaires include iso lux curves, IES type distribution, lamp lumens, and typical ballast factor used for each type of luminaire. Submit the photometric data in a digital IES format to the Division of Traffic Operations. Include with the submittal a point of contact and phone number to answer technical questions about the luminaire.
Subsection: **Part:** **Revision:**	716.03.02 Lighting Standard Installation. A) Conventional Installation. Replace the third sentence with the following: Orient the transformer base so the door is positioned on the side away from on-coming traffic.
Subsection: **Part:** **Number:** **Revision:**	716.03.02 Lighting Standard Installation. A) Conventional Installation. 1) Breakaway Installation and Requirements. Replace the first sentence with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.

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Subsection: 716.03.02 Lighting Standard Installation.
Part: B) High Mast Installation
Revision: Replace the first three sentences of the first paragraph with the following: Install each high mast pole as noted on Plans. Install each high mast pole on a separate circuit and use luminaires with light patterns as indicated. Orient luminaires as shown in Plans.

Subsection: 716.03.02 Lighting Standard Installation.
Part: B) High Mast Installation
Number: 2) Concrete Base Installation
Revision: Modification of Chart and succeeding paragraphs within this section:

Drilled Shaft Depth Data							
Level Ground		3:1 Ground Slope		2:1 Ground Slope		1.5:1 Ground Slope (2)	
Soil	Rock	Soil	Rock	Soil	Rock	Soil	Rock
17 ft	7 ft	19 ft	7 ft	20 ft	7 ft	(1)	7 ft

Steel Requirements			
Vertical Bars		Ties or Spiral	
Size	Total	Size	Spacing or Pitch
#10	16	#4	12 inch

Note 1: Shaft length is 22 feet for cohesive soil only. For cohesionless soil, contact Geotechnical Branch for design.
Note 2: Do not construct high mast drilled shafts on ground slopes steeper than 1.5:1 without the approval of the Division of Traffic Operations.

If rock is encountered during drilling operations and confirmed by the Engineer to be of sound quality, the shaft is only required to be further advanced into the rock by the length of rock socket shown in the design table. The total length of the shaft need not be longer than that of soil alone. Both longitudinal rebar length and number of ties or spiral length shall be adjusted

If a shorter depth is desired for the drilled shaft, the Contractor shall provide, for the state's review and approval, a detailed column design with individual site specific soil and rock analysis performed and approved by a Professional Engineer licensed in the Commonwealth of Kentucky.

Spiral reinforcement may be substituted for ties. If spiral reinforcement is used, one and one-half closed coils shall be provided at the ends of each spiral unit. Subsurface conditions consisting of very soft clay or very loose saturated sand could result in soil parameters weaker than those assumed. Engineer shall consult with the Geotechnical Branch if such conditions

The bottom of the drilled hole shall be firm and thoroughly cleaned so no loose or compressible materials are present at the time of the concrete placement. If the drilled hole contains standing water, the concrete shall be placed using a tremie to displace water. Continuous concrete flow will be required to insure full displacement of any water.

The reinforcement and anchor bolts shall be adequately supported in the proper positions so no movement occurs during concrete placement. Welding of anchor bolts to the reinforcing cage is unacceptable, templates shall be used. Exposed portions of the foundation shall be formed to create a smooth finished surface. All forming shall be removed upon completion of foundation construction.

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Subsection: **Part:** **Revision:**	716.03.03 Trenching. A) Trenching of Conduit for Highmast Ducted Cables. Add the following after the first sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
Subsection: **Part:** **Revision:**	716.03.03 Trenching. B) Trenching of Conduit for Non-Highmast Cables. Add the following after the second sentence: If depths greater than 24 inches are necessary for either situation listed previously, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes.
Subsection: **Revision:**	716.03.04 Conduit Installation. Replace the first two sentences of the paragraph with the following: Provide rigid steel conduit encasement for all conductors except as specified in the Contract. Provide conduit that is listed on the Department's List of Approved Materials.
Subsection: **Part:** **Number:** **Revision:**	716.03.04 Conduit Installation. A) Conduit Requirements in Junction Boxes. 1) Highmast Ducted Cable. Replace the first two sentences with the following: Install conduit horizontally through the junction box. Conduit shall be 4 inches from the bottom and 4 inches from the side of the junction box.
Subsection: **Revision:**	716.03.04 Conduit Installation. Add the following to the Part to the Subsection: **G) Bore and Jack.** Construction methods shall be in accordance with Subsections 706.03.02, paragraphs 1, 2 and 4.
Subsection: **Revision:**	716.03.08 Splicing. Replace the last sentence of the paragraph with the following: Ensure the splices are of the correct size for the wire being used.
Subsection: **Revision:**	716.03.10 Junction Boxes. Replace subsection title with the following: Electrical Junction Box and replace the last sentence of the paragraph with the following: Any additional junction boxes shall be approved by the Engineer.
Subsection: **Revision:**	716.03.13 Temporary Lighting. Change subsection heading to the following: **716.03.13 Temporary/Maintain Lighting.**
Subsection: **Revision:**	716.03.13 Temporary /Maintain Lighting. Replace the entire section with the following: The Contractor shall furnish and install all materials necessary to temporarily light the proposed roadway to design standards in Subsection 716.03. The Contractor shall submit his proposed design of temporary lighting to the Division of Traffic Operations for approval at least 30 days before installation. Maintain all lighting elements impacted within or outside the project limits until new lighting elements are installed and a functional inspection has been performed on the new lighting elements. The Contractor shall submit a proposed design for maintaining lighting to the Division of Traffic Operations for approval at least 30 days before installation.

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Subsection:	716.03.14 Remove Lighting.
Revision:	Replace the section with the following: Remove all lighting equipment that is identified by the Engineer as no longer necessary including, but not limited to, the following: pole bases, poles, junction boxes, cabinets, and wood poles. Pole bases shall be removed a minimum of one foot below finished grade by chipping off or other method that is approved by the Engineer. Dispose of all removed concrete off right-of-way. Wood poles shall be removed a minimum of one foot below finished grade. Backfill holes with material approved by the Engineer. Conduit may be abandoned in the ground. All materials shall be removed from the project as directed by the Engineer. Transformers not owned by a utility shall be tested for PCB's and disposed of in accordance with state regulations.
Subsection:	716.03.15 Painting.
Revision:	Replace the first sentence with the following: Clean non-galvanized or damaged surfaces of exposed junction boxes, pull boxes, control panels, poles, and similar equipment, and apply one coat of an inhibiting paint and two coats of aluminum paint.
Subsection:	716.04.01. Poles.
Revision:	Change the subsection heading to 716.04.01 Pole and replace the last sentence of the subsection with the following: The Department will not measure anchor bolts, washers, nuts, anchor bolt covers, ground lugs, and any associated hardware for payment and will consider them incidental to this item of work.
Subsection:	716.04.02 High Mast Pole.
Revision:	Replace the second sentence with the following: The Department will not measure the lowering device, anchor bolts, head frame assembly, cables, winch unit, power cables, wiring, connectors, circuit breakers, grounding lugs, ground wire, ground rods, conduits, test plugs,, adjustment and calibration of the unit to provide the desired operation, and any associated hardware for payment and will consider them incidental to this item of work.
Subsection:	716.04.03 Bracket.
Revision:	Replace the second sentence with the following: The Department will not measure any associated hardware needed for attaching the bracket to the pole for payment and will consider them incidental to this item of work.
Subsection:	716.04.04 Pole Base.
Revision:	Change the subsection heading to 716.04.04 Pole Bases and delete the paragraph.
Subsection:	716.04.04 Pole Bases.
Revision:	Insert the following: **A. Pole Base**. The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure excavation, concrete, conduits, fittings, ground rods, ground wires, ground lugs, reinforcing steel, restoring disturbed areas to the satisfaction of the Engineer, and any associated hardware for payment and will consider them incidental to this item of work. **B. Pole Base High Mast**. The Department will measure the quantity in cubic yards furnished and installed. The Department will not measure excavation, concrete, conduits, fittings, ground rods, ground wires, ground lugs, reinforcing steel, restoring disturbed areas to the satisfaction of the Engineer, and any associated hardware for payment and will consider them incidental to this item of work.

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Subsection: **Revision:**	716.04.05 Pole Base in Median Wall. Replace the last sentence with the following: The Department will not measure conduits, fittings, junction boxes, additional reinforcing steel, ground rods, ground wire, ground lugs, and aluminum cover plates (if specified) for payment, and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.06 Transformer Base. Replace the last sentence with the following: The Department will not measure transformer door, ground lug, anchoring bolts, nuts, washers, and any associated hardware for payment and will consider them incidental to this item of work. The filling of any unused holes will also be considered incidental to this item of work.
Subsection: **Revision:**	716.04.07 Pole with Secondary Equipment. Replace the heading with the following: 716.04.07 Pole with Secondary Control Equipment.
Subsection: **Revision:**	716.04.07 Pole with Secondary Control Equipment. Replace the second and third sentence with the following: The Department will not measure mounting the cabinet to the pole, backfilling, restoration, any necessary hardware to anchor pole, electrical inspection fees, and required building fees involving utility secondary, and primary service for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breaker, contactor, manual switch, ground rods, ground lugs, and ground wires for payment and will consider them incidental to this item of work. The filling of unused holes will also be considered incidental to this item of work.
Subsection: **Revision:**	716.04.08 Lighting Control Equipment. Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure the concrete base, excavation, backfilling, restoration, any necessary anchors, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breakers, contactor, manual switch, ground rods, ground lugs, and ground wires for payment and will consider them incidental to this item of work. The Department will not measure the filling of any unused holes with and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.09 Luminaire. Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure lamps, starters, ballasts, drivers, surge protection, dimming modules, photo-control receptacle, specified shielding (if required), and any adjustments necessary to provide the desired lighting pattern for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.10 Fused Connector Kits. Replace the heading with the following: 716.04.10 Fuse Connector Kits.

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Subsection: **Revision:**	716.04.10 Fuse Connector Kits. Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure fuses/lugs for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.11 Conduit. Replace the second sentence with the following: The Department will not measure installation in ground or on structures, conduit fittings, test plugs, expansion joints with bonding straps, grounding lugs, drill anchors, clamps, and any additional hardware required for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.12 Markers. Replace the section with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection: **Revision:**	716.04.13 Junction Box. Replace the subsection title with the following: Electrical Junction Box Type Various.
Subsection: **Revision:**	716.04.13 Electrical Junction Box Type Various. Replace the section with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure additional junction boxes for greater depths than those identified in Plans, #57 aggregate, backfilling, restoration of disturbed areas to the satisfaction of the Engineer, geotextile filter fabric, concrete, hot dipped galvanized cover, stainless steel screws, rubber gasket, and any associated hardware for payment , and will consider them incidental to this item of work.
Subsection: **Part:** **Revision:**	716.04.13 Junction Box. A) Junction Electrical. Delete Part A.
Subsection: **Revision:**	716.04.14 Trenching and Backfilling. Replace the section with the following: The Department will measure the quantity in linear feet. The Department will not measure excavation, backfilling, underground utility warning tape (if required), and the restoration of disturbed areas to original condition for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.15 Wire or Cable. Replace the section with the following: The Department will measure the quantity in linear feet furnished and installed. The Department will not measure installation within conduit, splice boots, and any other hardware required for installing cable for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.16 Ducted Cable. Replace the second sentence of the paragraph with the following: The Department will not measure installation within trench or conduit and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.17 Temporary Lighting Rename the subsection as follows: 716.04.17 Temporary Lighting/Maintain Lighting.

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Subsection: **Revision:**	716.04.17 Temporary Lighting/Maintain Lighting. Delete the paragraph and add the following parts: A) Temporary Lighting. The Department will measure the quantity by lump sum. The Department will not measure poles, luminaires, wire, conduit, trenching and backfilling, control equipment, all relocations and removal, design (if required), and any other necessary hardware to make a complete installation for payment and will consider them incidental to this item of work. B) Maintain Lighting. The Department will measure the quantity by lump sum. The Department will not measure maintenance of lighting elements and design (if required) for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.18 Remove Lighting. Replace the paragraph with the following: The Department will measure the quantity by lump sum. The Department will not measure backfilling and the disposal or transportation of equipment and materials associated with any structural or electrical component of the lighting system including, but not limited to pole bases, poles, junction boxes, cabinets, and wood poles for payment and will consider them incidental to this item of work.
Subsection: **Revision:** **Subsection:** **Revision:**	716.04.19 Remove Pole Base. Delete Subsection. 716.04.20 Bore and Jack Conduit. Renumber Subsection to 716.04.19 Bore and Jack Conduit.
Subsection: **Revision:**	716.04.19 Bore and Jack Conduit. Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway.
Subsection: **Revision:**	716.05 PAYMENT. Revise the following under Code, Pay Item, and Pay Unit with the following: Code — Pay Item — Pay Unit 04700-04701 — Pole(Various)Mtg Ht — Each 04710-04714 — Pole(Various)Mtg Ht High Mast — Each 04810-04811 — Electrical Junction Box (Various) — Each 20391NS835 — Electrical Junction Box Type A — Each 20392NS835 — Electrical Junction Box Type C — Each 04770-04773 — Luminaire (Various) — Each 04780 — Fuse Connector Kit — Each 20410ED — Maintain Lighting — Lump Sum ~~04941 — Remove Pole Base — Each~~
Subsection: **Revision:**	723.02.02 Paint. Replace sentence with the following: Conform to Section 821.
Subsection: **Revision:**	723.03 CONSTRUCTION. Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
Subsection: **Revision:**	723.03.02 Poles and Bases Installation. Replace the title with the following: 723.03.02 Pole and Base Installation.

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Subsection: **Revision:**	723.03.02 Pole and Base Installation. Replace the first paragraph with the following: Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base. Orient the handhole door away from traffic travel path. If pole base is installed within a sidewalk the top of the pole base shall be the same grade as the sidewalk.
Subsection: **Part:** **Revision:**	723.03.02 Poles and Bases Installation. A) Steel Strain and Mastarm Poles Installation Replace the title of Part A) Steel Strain and Mast Arm Pole Installation.
Subsection: **Part:** **Revision:**	723.03.02 Pole and Base Installation. A) Steel Strain and Mast Arm Pole Installation. Insert the following sentence at the beginning of the first paragraph: Install pole bases 4 to 6 inches above grade.
Subsection: **Part:** **Revision:**	723.03.02 Pole and Base Installation. A) Steel Strain and Mast Arm Pole Installation. Replace the second paragraph with the following: For concrete base installation, see Subsection 716.03.02 B), 2), Paragraphs 2-6. Drilled shaft depth shall be based on the soil conditions encountered during drilling and slope condition at the site. Refer to the design chart below:
Subsection: **Part:** **Revision:**	723.03.02 Pole and Base Installation. B) Pedestal or Pedestal Post Installation. Replace the second sentence with the following: If over 12 feet high the base shall have the minimum depth and diameter as Subsection 716.03.02 (A), paragraph 2.
Subsection: **Part:** **Revision:**	723.03.02 Poles and Bases Installation. B) Pedestal or Pedestal Post Installation. Replace the fourth sentence of the paragraph with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Revision:**	723.03.03 Trenching. Replace the first sentence with the following: See Subsection 716.03.03 (B).
Subsection: **Part:** **Revision:**	723.03.03 Trenching. A) Under Roadway. Delete Part A) Under Roadway.
Subsection: **Revision:**	723.03.05 Conduit Requirements in Junction Boxes. Delete the Subsection and replace with the following: 723.03.05 Fuse Connector Kits. See Subsection 716.03.09.
Subsection: **Revision:**	723.03.06 Coupling Installation. Delete the Subsection and replace with the following: 723.03.06 Painting. See Subsection 716.03.15.
Subsection: **Revision:**	723.03.07 Bonding Requirements. Delete the Subsection and replace with the following: 723.03.07 Electrical Junction Boxes. See Subsection 716.03.10.

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Subsection:	723.03.08 Painting.
Revision:	Replace with 723.03.06 Painting. See Subsection 716.03.15.
Subsection:	723.03.09 Underground Warning Tape.
Revision:	Renumber Subsection to 723.03.08 Underground Warning Tape.
Subsection:	723.03.10 Backfilling and Disturbed Areas.
Revision:	Renumber Subsection to 723.03.09 Backfilling and Disturbed Areas.
Subsection:	723.03.11 Wiring Installation.
Revision:	Renumber Subsection to 723.03.10 Wiring Installation.
Subsection:	723.03.10 Wiring Installation.
Revision:	Add the following sentence between the fifth and sixth sentences: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection:	723.03.12 Loop Installation.
Revision:	Renumber Subsection to 723.03.11 Loop Installation.
Subsection:	723.03.11 Loop Installation.
Revision:	Replace the fourth sentence of the 2nd paragraph with the following: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection:	723.03.13 Grounding Installation.
Revision:	Renumber Subsection to 723.03.12 Grounding Installation.
Subsection:	723.03.12 Grounding Installation.
Revision:	Replace the reference to "Standard Detail Sheets" in the first sentence with "Plans".
Subsection:	723.03.14 Splicing.
Revision:	Renumber Subsection to 723.03.13 Splicing.
Subsection:	723.03.13 Splicing.
Revision:	Delete the reference to (IMSA 19-2) from the 5th sentence of the paragraph.
Subsection:	723.03.15 Painting.
Revision:	Delete Subsection.
Subsection:	723.03.14 Splicing.
Revision:	Replace with new Subsection 723.03.14 Remove Signal Equipment.
Subsection:	723.03.14 Remove Signal Equipment.
Revision:	Insert the following for the new subsection: Remove all traffic signal equipment that is identified by the Engineer as no longer necessary including, but not limited to, the following: pole bases, poles, junction boxes, cabinets, wood poles, and advance warning flashers. Pole bases shall be removed a minimum of one foot below finished grade by chipping off or other method that is approved by the Engineer. Dispose of all removed concrete off right-of-way. Wood poles shall be removed a minimum of one foot below finished grade. Backfill holes with material approved by the Engineer. Conduit may be abandoned in the ground. Contact the district traffic Engineer to determine if any removed signal equipment needs to be returned to the district and to determine the location/time for such deliveries.
Subsection:	723.05.16 Drawings.
Revision:	Renumber the Subsection to 723.03.15 Drawings.

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Subsection:	723.03.15 Drawings.
Revision:	Replace Subsection with the following: Before final inspection of the traffic control device, provide a complete set of reproducible as-built drawings that show the arrangement and locations of all equipment including: junction boxes, conduits, spare conduits, etc. Keep a daily record of all conduits placed in trenches, showing the distance from the pavement edge, the depth, and the length of runs, and indicate this information on the as-built drawings.
Subsection:	723.03.17 Acceptance and Inspection Requirements.
Revision:	Renumber Subsection to 723.03.16 Acceptance and Inspection Requirements.
Subsection:	723.03.16 Acceptance and Inspection Requirements.
Revision:	Replace the first paragraph of the section with the following: See Subsection 105.12. In coordination with the District Traffic Engineer, energize traffic control device as soon as it is fully functional and ready for inspection. After the work has been completed, conduct an operational test demonstrating that the system operates in accordance with the Plans in the presence of the Engineer. The Department will also conduct its own tests with its own equipment before final acceptance. Ensure that the traffic control device remains operational until the Division of Traffic Operations has provided written acceptance of the electrical work.
Subsection:	723.04.01 Conduit.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure conduit fittings, ground lugs, test plugs, expansion joints, and clamps for payment and will consider them incidental to this item of work.
Subsection:	723.04.02 Junction Box.
Revision:	Replace subsection title with the following: Electrical Junction Box Type Various.
Subsection:	723.04.02 Electrical Junction Box Type Various.
Revision:	Replace the subsection with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure additional junction boxes for greater depths than those identified in Plans, Aggregate (#57), backfilling, restoration of disturbed areas to the satisfaction of the Engineer, geotextile fabric, concrete, hot dipped galvanized cover, stainless steel screws, rubber gasket, and any associated hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.03 Trenching and Backfilling.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape, and the restoration of disturbed areas to original condition for payment and will consider them incidental to this item of work.
Subsection:	723.04.04 Open Cut Roadway.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure concrete, reinforcing steel, and asphalt for payment and will consider them incidental to this item of work.
Subsection:	723.04.05 Loop Wire.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure splice boots, cable rings, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.06 Cable.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure splice boots, cable rings, and any other hardware for payment and will consider them incidental to this item of work.

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Subsection: **Revision:**	723.04.07 Pole-Wooden. Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, and restoring disturbed areas for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.08 Steel Strain Pole. Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, and restoring disturbed areas for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.09 Mast Arm Pole. Replace the second sentence of the subsection with the following: The Department will not measure anchor bolts, arms, mounting brackets, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.10 Signal Pedestal. Replace the second sentence of the subsection with the following: The Department will not measure excavation, concrete, reinforcing steel, conduits, fittings, ground rods, ground wire, ground lugs, backfilling, restoring disturbed areas, and other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.11 Post. Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, and restoring disturbed areas for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.12 Anchor. Replace the second sentence of the subsection with the following: . The Department will not measure down-guy, messenger, clamps, guy guard, or insulators, and possible installation in various soil conditions for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.13 Messenger. Replace the second sentence of the subsection with the following: The Department will not measure strand vises, bolts, washers, and other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.14 Install Signal LED. Revise subsection title to 723.04.14 Install Beacon Controller - 2 Circuit.
Subsection: **Revision:**	723.04.14 Install Beacon Controller - 2 Circuit. Replace the subsection with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure the controller housing, mounting equipment, S5-1 school zone sign, time clock, nema flasher, ground rods, ground wires, ground lugs, metering disconnect hardware, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work.

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Subsection:	723.04.15 Loop Saw Slot and Fill.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure sawing, cleaning, filling induction loop saw slot, loop sealant, backer rod, drilling hole for conduit, and grout for payment and will consider them incidental to this item of work.
Subsection:	723.04.16 Pedestrian Detector.
Revision:	Replace the subsection with the following: The Department will measure the quantity as each individual unit furnished, installed and connected to pole/pedestal. The Department will not measure installing R10-3e signs, detector housing, and installing mounting hardware for sign for payment and will consider them incidental to this item of work.
Subsection:	723.04.17 Signal.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure furnishing and installing LED modules, retroreflective tape, back plates, and any other hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.18 Signal Controller- Type 170.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure the concrete base, mounting the cabinet, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, electrical inspection fees, and building fees involving secondary/primary service for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and connecting the induction of loop amplifiers, pedestrian isolators, load switches, model 400 modem card, electrical service conductors, conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires, and ground lugs for payment and will consider them incidental to this item of work.
Subsection:	723.04.19 Beacon Controller - 2 Circuit.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure the controller housing, mounting equipment, S5-1 school zone sign, time clock, nema flasher, ground rods, ground wires, ground lugs, metering disconnect hardware, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work.
Subsection:	723.04.20 Install Signal Controller - Type 170.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed. The Department will not measure the concrete base, mounting the cabinet, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work. The Department will also not measure connecting the induction loop amplifiers, pedestrian isolators, load switches, model 400 modem card for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, conduits, anchors, meter base, fused cutout, fuses, ground rods, ground lugs, and ground wires for payment and will consider them incidental to this item of work.
Subsection:	723.04.21 Install Steel Strain Pole.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure any necessary clamp assemblies for payment and will consider them incidental to this item of work.

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Subsection: **Revision:**	723.04.22 Remove Signal Equipment. Replace the paragraph with the following: The Department will measure the quantity by lump sum. The Department will not measure backfilling and the disposal or transportation of equipment and materials associated with any structural or electrical component of the signal system including, but not limited to pole bases, poles, junction boxes, cabinets, and wood poles for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.23 Install Span/Pole Mounted Sign. Replace the second sentence of the subsection with the following: The Department will not measure the hanger or any other hardware necessary to install the sign for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.24 Install Pedestrian Head LED. Insert the following sentence at the end of the paragraph: The Department will not measure the installation of LED modules and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.25 Install Signal LED. Insert the following sentence at the end of the paragraph: The Department will not measure the installation of LED modules, retroreflective tape, back plates, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.26 Install Coordinating Unit. Replace the subsection with the following: The Department will measure the quantity as each individual unit installed. The Department will not measure radio, modem, cable(s), antenna(s), router, repeater, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.27 Video Camera. Replace the second sentence of the subsection with the following: The Department will not measure video modules, mounting bracket, truss type arm, power cable, coaxial cable, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.28 Install Pedestrian Detector Audible. Replace the second sentence with the following: The Department will not measure installing R10-3e sign, detector housing, and installing mounting hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.29 Audible Pedestrian Detector. Replace the second sentence with the following: The Department will not measure furnishing and installing the R10-3e sign, detector housing, and installing mounting hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.30 Bore and Jack Conduit. Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway.

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Subsection: **Revision:**	723.04.31 Install Pedestrian Detector. Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed and connected to pole/pedestal. The Department will not measure installing R 10-3e sign, detector housing, and installing mounting hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.32 Install Mast Arm Pole. Replace the second sentence with the following: The Department will not measure installation of arms, signal mounting brackets, anchor bolts, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.33 Pedestal Post. Replace the second sentence with the following: The Department will not measure excavation, backfilling, restoration, furnishing and installing concrete, reinforcing steel, anchor bolts, conduit, fittings, ground rod, ground wire, ground lugs, or any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.34 Span Mounted Sign. Revise subsection title to 723.04.34 Span/Pole-Mounted Sign.
Subsection: **Revision:**	723.04.34 Span/Pole-Mounted Sign. Replace the second sentence of the subsection with the following: The Department will not measure the hanger, sign, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.35 Remove and Reinstall Coordinating Unit. Add the following sentence to the end of the subsection: The Department will not measure removing, storage, reinstalling, and connecting radio, modem, cable(s), antenna(s), router, repeater, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.36 Traffic Signal Pole Base. Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, restoration, furnishing and installing reinforcing steel, anchor bolts, conduits, ground rods, ground wires, and ground lugs for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.37 Install Signal Pedestal. Replace the second sentence of the subsection with the following: . The Department will not measure excavation, backfilling, restoration, furnishing and installing concrete, reinforcing steel, conduits, fittings, ground rod, ground wire, ground lugs, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.38 Install Pedestal Post. Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, restoration, furnishing and installing concrete, reinforcing steel, conduit, fittings, ground rod, ground wire, ground lugs, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.39 Install Antenna. Replace the second sentence of the subsection with the following: The Department will not measure any other materials necessary to complete the installation for payment and will consider them incidental to this item of work.

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Subsection: 723.05 PAYMENT.
Revision: Replace items 04810-04811, 20391NS835, 20392NS835,23052NN and add item number 24526ED under Code, Pay Item, and Pay Unit with the following:

Code	Pay Item	Pay Unit
04810	Electrical Junction Box	Each
04811	Electrical Junction Box Type B	Each
20391NS835	Electrical Junction Box Type A	Each
20392NS835	Electrical Junction Box Type C	Each
23052NN	Span/Pole-Mounted Sign	Each
24526ED	Install Beacon Controller 2 Cir	Each

Subsection: 801.01 REQUIREMENTS
Revision: Replace first sentence in paragraph one with the following: Provide Portland cement *or blended hydraulic cement* from approved mills listed in the Department's List of Approved Materials.

Subsection: 801.01 REQUIREMENTS
Number: 1)
Revision: Replace first sentence with the following: Type I, II, III, and IV *Portland cement* conforms to ASTM C 150.

Subsection: 801.01 REQUIREMENTS
Number: 3)
Revision: Replace the first sentence with the following: Type IP (≤20), Portland-pozzolan cement, conforms to ASTM C595, and the following additional requirements to Type IP (≤20).

Subsection: 801.01 REQUIREMENTS
Number: 3)
Part: b)
Revision: Delete part b)

Subsection: 801.01 REQUIREMENTS
Number: 3)
Part: c)
Revision: Rename Part c) to Part b) and replace the text with the following: The cement manufacturer shall furnish to the Engineer reports showing the results of tests performed on the fly ash used in the manufacture of the Type IP(≤20) cement shipped to the project.

Subsection 801.01 REQUIREMENTS
Number: 3)
Part: d)
Revision: Rename Part d) to Part c)

Subsection: 801.01 REQUIREMENTS
Number: 3)
Part: e)
Revision: Rename Part e) to Part d) and replace the text with the following: Use only one brand of Type IP(≤20) cement throughout the project, unless the Engineer approved a change in brand in writing.

Subsection: 801.01 REQUIREMENTS
Number: 4)
Revision: Replace first sentence with the following: Type IS(≤30), Portland blast furnace slag cement, conforms to ASTM C 595 and the following requirements:

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Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	a)
Revision:	Replace part a) with the following: Use Grade 100 or 120 blast furnace slag cement conforming to the requirements of ASTM C 989.
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	b)
Revision:	Delete part b)
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	c)
Revision:	Rename Part c) to Part b) and replace the text with the following: The cement manufacturer shall furnish to the Engineer reports showing the results of the tests performed on the blast furnace slag cement used in the manufacturing of the Type IS(≤30) shipped to the project.
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	d)
Revision:	Rename Part d) to Part c)
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	e)
Revision:	Rename Part e) to Part d) and replace the text with the following: Use only one brand of Type IS(≤30) cement throughout the project, unless the Engineer approves otherwise.
Subsection:	801.01 REQUIREMENTS
Number:	5)
Revision:	Insert part 5) as the following: Type IL(5-15), Portland-limestone cement, conforms to ASTM C 595 and the following additional requirements:
Subsection:	801.01 REQUIREMENTS
Number:	5)
Part:	a)
Revision:	Insert part a) as the following: The cement manufacturer shall furnish to the Engineer reports showing the results of test performed on the limestone used in the manufacture of the Type IL cement shipped to the project.
Subsection:	801.01 REQUIREMENTS
Number:	5)
Part:	b)
Revision:	Insert part b) as the following: Use only one brand of Type IL cement throughout the project, unless the Engineer approves a brand change in writing.
Subsection:	801.01 REQUIREMENTS
Number:	5)
Part:	c)
Revision:	Insert part c) as the following: The Type IL blended cement shall be an intimate and uniform blend produced by intergrinding of the Portland cement and limestone.
Subsection:	804.01.02 Crushed Sand.
Revision:	Delete last sentence of the section.

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Subsection: 804.01.06 Slag.
Revision: Add subsection and following sentence.
Provide blast furnace slag sand where permitted. The Department will allow steel slag sand only in asphalt surface applications.

Subsection: 804.04 Asphalt Mixtures.
Revision: Replace the subsection with the following:
Provide natural, crushed, conglomerate, or blast furnace slag sand, with the addition of filler as necessary, to meet gradation requirements. The Department will allow any combination of natural, crushed, conglomerate or blast furnace slag sand when the combination is achieved using cold feeds at the plant. The Engineer may allow other fine aggregates.

Subsection: 806.03.01 General Requirements.
Revision: Replace the second sentence of the paragraph with the following:
Additionally, the material must have a minimum solubility of 99.0 percent when tested according to AASHTO T 44 and PG 76-22 must exhibit a minimum recovery of 60 percent, with a J_{NR} (non-recoverable creep compliance) between 0.1 and 0.5, when tested according to AASHTO TP 70.

Subsection: 806.03.01 General Requirements.
Table: PG Binder Requirements and Price Adjustment Schedule
Revision: Replace the Elastic Recovery, % [3] (AASHTO T301) and all corresponding values in the table with the following:

Test	Specification	100% Pay	90% Pay	80% Pay	70% Pay	50%Pay[1]
MSCR recovery, % [3] (AASHTO TP 70)	60 Min.	≥58	56	55	54	<53

Subsection: 806.03.01 General Requirements.
Table: PG Binder Requirements and Price Adjustment Schedule
Superscript: (3)
Revision: Replace [3] with the following:
Perform testing at 64°C.

Subsection: 808.07 Polypropylene Waterproofing Membrane.
Revision: Replace the paragraph and table with the following: Furnish a layered waterproofing membrane. The layers will consist of an internal puncture resistant woven polypropylene fabric sandwiched between two rubberized mastic layers. The mastic will have a heavy polyethylene membrane attached on the top and the bottom mastic layer will be covered by a protective release film.

Subsection: 808.09 Acceptance.
Revision: Replace the reference to "KMIMS" in the second paragraph with SiteManager.

Subsection: 811.10.04 Properties of the Coated Bar.
Part: B) Flexibility of Coating.
Revision: Replace the second sentence of the paragraph with the following: Ensure that the coated bars are capable of being bent to 180 degrees (after rebound) over a mandrel, without any visible evidence of cracking the coating.

Subsection: 813.04 Gray Iron Castings.
Revision: Replace the reference to "AASHTO M105" with "ASTM A48".

Subsection: 813.09.02 High Strength Steel Bolts, Nuts, and Washers.
Number: A) Bolts.
Revision: Delete first paragraph and "Hardness Number" Table. Replace with the following:
A) Bolts. Conform to ASTM A325 (AASHTO M164) or ASTM A490 (AASHTO 253) as applicable.

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Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Third paragraph, replace the reference to "AWPA C14" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Replace the first sentence of the fourth paragraph with the following: Use any of the species of wood for round or square posts covered under AWPA U1.
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Fourth paragraph, replace the reference to "AWPA C2" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Delete the second sentence of the fourth paragraph.
Subsection: **Revision:**	814.05.02 Composite Plastic. 1) Add the following to the beginning of the first paragraph: Select composite offset blocks conforming to this section and assure blocks are from a manufacturer included on the Department's List of Approved Materials. 2) Delete the last paragraph of the subsection.
Subsection: **Revision:**	816.07.02 Wood Posts and Braces. First paragraph, replace the reference to "AWPA C5" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	816.07.02 Wood Posts and Braces. Delete the second sentence of the first paragraph.
Subsection: **Revision:**	818.07 Preservative Treatment. First paragraph, replace all references to "AWPA C14" with "AWPA U1, Section A".
Subsection: **Revision:**	833.01.02 Sheeting Signs. Replace the second sentence with the following: Provide a thickness of 125 mils if any single edge dimension of the sign exceeds 3 feet.
Subsection: **Revision:**	834.14 Lighting Poles. Replace the first sentence with the following: Lighting pole design shall be in accordance with loading and allowable stress requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims, with the exception of the following: The Cabinet will waive the requirement stated in the first sentence of Section 5.14.6.2 – Reinforced Holes and Cutouts for high mast poles (only). The minimum diameter at the base of the pole shall be 22 inches for high mast poles (only).
Subsection **Revision:**	834.14.03 High Mast Poles. Remove the second and fourth sentence from the first paragraph.
Subsection **Revision:**	834.14.03 High Mast Poles. Replace the third paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.

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Subsection: **Revision:**	834.14.03 High Mast Poles. Replace paragraph six with the following: Provide a pole section that conforms to ASTM A 595 grade A with a minimum yield strength of 55 KSI or ASTM A 572 with a minimum yield strength of 55 KSI. Use tubes that are round or 16 sided with a four inch corner radius, have a constant linear taper of .144 in/ft and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Provide pole sections that are telescopically slip fit assembled in the field to facilitate inspection of interior surface welds and the protective coating. The minimum length of the telescopic slip splices shall be 1.5 times the inside diameter of the exposed end of the female section. Use longitudinal seam welds as commended in Section 5.15 of the AASHTO 2013 Specifications. The thickness of the transverse base shall not be less than 2 inches. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration groove weld with backup bar. The handhole cover shall be removable from the handhole frame. One the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM A 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7-guage stainless steel to provide adjustability to insure weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube of the pole but needs to be at least 15 inches. Provide products that are hot-dip galvanized to the requirements of either ASTM A123 (fabricated products) or ASTM A 153 (hardware items).
Subsection: **Revision:**	834.16 ANCHOR BOLTS. Insert the following sentence at the beginning of the paragraph: The anchor bolt design shall follow the NCHRP Report 494 Section 2.4 and NCHRP 469 Appendix A Specifications.
Subsection: **Revision:**	834.17.01 Conventional. Add the following sentence after the second sentence: Provide a waterproof sticker mounted on the bottom of the housing that is legible from the ground and indicates the wattage of the fixture by providing the first two numbers of the wattage.
Subsection: **Revision:**	834.21.01 Waterproof Enclosures. Replace the last five sentences in the second paragraph with the following sentences: Provide a cabinet door with a louvered air vent, filter-retaining brackets and an easy to clean metal filter. Provide a cabinet door that is keyed with a factory installed standard no. 2 corbin traffic control key. Provide a light fixture with switch and bulb. Use a 120-volt fixture and utilize a L.E.D. bulb (equivalent to 60 watts minimum). Fixture shall be situated at or near the top of the cabinet and illuminate the contents of the cabinet. Provide a 120 VAC GFI duplex receptacle in the enclosure with a separate 20 amp breaker.

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Subsection: **Revision:**	835.07 Traffic Poles. Replace the first sentence of the first paragraph with the following: Pole diameter and wall thickness shall be calculated in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Revision:**	835.07 Traffic Poles. *Replace the first sentence of the fourth paragraph with the following: Ensure transverse plates have a thickness ≥ 2 inches. *Add the following sentence to the end of the fourth paragraph: The bottom pole diameter shall not be less than 16.25 inches.
Subsection: **Revision:**	835.07 Traffic Poles. Replace the third sentence of the fifth paragraph with the following: For anchor bolt design, pole forces shall be positioned in such a manner to maximize the force on any individual anchor bolt regardless of the actual anchor bolt orientation with the pole.
Subsection: **Revision:**	835.07 Traffic Poles. Replace the first and second sentence of the sixth paragraph with the following: The pole handhole shall be 25 inches by 6.5 inches. The handhole cover shall be removable from the handhole frame. On the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7 gauge stainless steel to provide adjustability to insure a weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube but needs to be at least 12 inches.
Subsection: **Revision:**	835.07 Traffic Poles. *Replace the first sentence of the last paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky. *Replace the third sentence of the last paragraph with the following: All tables referenced in 835.07 are found in the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Revision:**	835.07.01 Steel Strain Poles. Replace the second sentence of the second paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	835.07.01 Steel Strain Poles. Replace number 7. after the second paragraph with the following: 7. Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.
Subsection: **Revision:**	835.07.02 Mast Arm Poles. Replace the second sentence of the fourth paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.

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Subsection: 835.07.02 Mast Arm Poles.
Revision: Replace number 7) after the fourth paragraph with the following: 7) Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.

Subsection: 835.07.03 Anchor Bolts.
Revision: Add the following to the end of the paragraph: There shall be two steel templates (one can be used for the headed part of the anchor bolt when designed in this manner) provided per pole. Templates shall be contained within a 26.5 inch diameter. All templates shall be fully galvanized (ASTM A 153).

Subsection: 835.16.05 Optical Units.
Revision: Replace the 3rd paragraph with the following:
The list of certified products can be found on the following website: http://www.intertek.com.

Subsection: 835.19.01 Pedestrian Detector Body.
Revision: Replace the first sentence with the following: Provide a four holed pole mounted aluminum rectangular housing that is compatible with the pedestrian detector.

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE I FABRIC GEOTEXTILES FOR SLOPE PROTECTION AND CHANNEL LINING
Revision: Add the following to the chart:

Property	Minimum Value(1)	Test Method
CBR Puncture (lbs)	494	ASTM D6241
Permittivity (1/s)	0.7	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE II FABRIC GEOTEXTILES FOR UNDERDRAINS
Revision: Add the following to the chart:

Property	Minimum Value(1)	Test Method
CBR Puncture (lbs)	210	ASTM D6241
Permittivity (1/s)	0.5	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE III FABRIC GEOTEXTILES FOR SUBGRADE OR EMBANKMENT STABILIZATION
Revision: Add the following to the chart:

Property	Minimum Value(1)	Test Method
CBR Puncture (lbs)	370	ASTM D6241
Permittivity (1/s)	0.05	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE IV FABRIC GEOTEXTILES FOR EMBANKMENT DRAINAGE BLANKETS AND PAVEMENT EDGE DRAINS
Revision: Add the following to the chart:

Property	Minimum Value(1)	Test Method
CBR Puncture (lbs)	309	ASTM D6241
Permittivity (1/s)	0.5	ASTM D4491

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: 843.01.01 Geotextile Fabric.

Table: TYPE V HIGH STRENGTH GEOTEXTILE FABRIC

Revision: Make the following changes to the chart:

Property	Minimum Value[1]	Test Method
CBR Puncture (lbs)	618	ASTM D6241
Apparent Opening Size	U.S. #40[3]	ASTM D4751

[3] Maximum average roll value.

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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/⇒⇒⇒/
/KEEP/LEFT/⇐⇐⇐/
/LOOSE/GRAVEL/AHEAD/
/RD WORK/NEXT/**MILES/
/TWO WAY/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/
/REDUCE/SPEED/**MPH/
/BRIDGE/WORK/***0 FT/
/MAX/SPEED/**MPH/
/SURVEY/PARTY/AHEAD/
/MIN/SPEED/**MPH/
/ICY/BRIDGE/AHEAD/ /ONE LANE/BRIDGE/AHEAD/
/ROUGH/ROAD/AHEAD/
/MERGING/TRAFFIC/AHEAD/
/NEXT/***/MILES/
/HEAVY/TRAFFIC/AHEAD/
/SPEED/LIMIT/**MPH/
/BUMP/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:

Code	Pay Item	Pay Unit
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

2E

SPECIAL NOTE FOR ROADBED STABILIZATION AT BRIDGE ENDS

This Special Note will apply where indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Due to the wet and yielding embankments commonly encountered at bridge ends, undercut the existing roadbed within the limits the Contract specifies and backfill.

2.0 MATERIALS.

2.1 Geotextile Fabric. Furnish Type III fabric conforming to Section 843.

3.0 CONSTRUCTION. After removing the existing pavement and base, undercut the existing roadbed under the traffic lanes and shoulders as the Engineer directs. The minimum undercut shall be one foot, except undercut depth may be reduced where rock embankment constructed principally of limestone is encountered. Place geotextile fabric in the bottom and against the sides and ends of the undercut. The Department will not require a minimum lap between adjacent sheets of geotextile fabric for the longitudinal joint under the pavement centerline. Backfill the undercut with one or more of the following materials;

1) Crushed limestone size No. 1, 2, 23, or 57; or
2) Layered composition of several limestone sizes, with larger sizes on the bottom.

Use Dense Graded Aggregate (DGA), Crushed Stone Base (CSB), or Stabilized Aggregate Base (SAB) in the top 4 inches, and only in the top 4 inches, of the backfill.

Place geotextile fabric between the coarse backfill material and the 4-inch upper layer.

Compact the backfill material by "walking down" with equipment, or other methods the Engineer approves. See attached drawing for details of backfill placement and drainage.

Waste all removed materials, not used for purposes the Contract or Engineer specifies or permits, off the right-of-way at no expense to the Department.

4.0 MEASUREMENT.

4.1 Removing Pavement. The Department will measure the quantity in square yards. The Department will consider the pavement to include existing pavement, existing asphalt patching, and existing DGA base.

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4.2 Roadway Excavation. The Department will measure the quantity in cubic yards.

4.3 Backfilling Undercut. The Department will measure the quantity in cubic yards. The Department will not measure coarse aggregate for payment and will consider it incidental to this item of work.

4.4 Perforated Pipe. The Department will measure the quantity in linear feet.

4.5 Non-Perforated Pipe. The Department will measure the quantity in linear feet.

4.6 Geotextile Fabric, Type III. The Department will measure the quantity in square yards.

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

Code	Pay Item	Pay Unit
02091	Removing Pavement	Square Yard
01000	Perforated Pipe - 4 inches	Linear Foot
01010	Non-Perforated Pipe, 4 inches	Linear Foot
02235	Backfilling Undercut	Cubic Yard
02598	Fabric - Geotextile Type III	Square Yard

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

June 15, 2012

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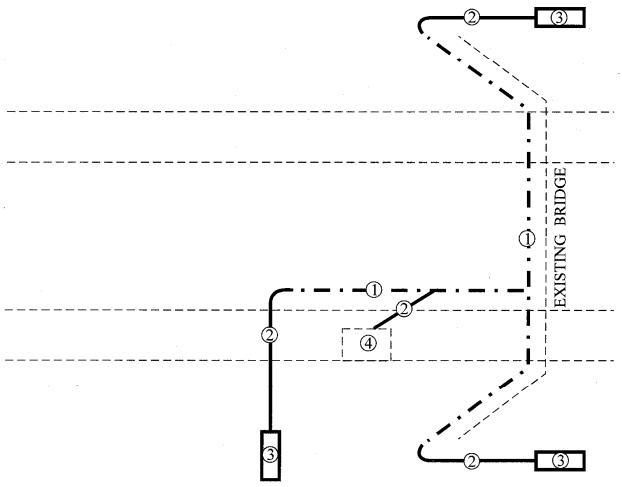
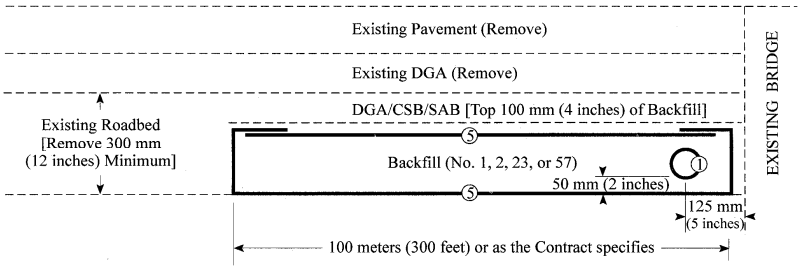
BRIDGE END DRAINAGE AND STABILIZATION
(DETAILS)





NOTES

Contrary to Section 705 of the Standard Specifications, use only coarse aggregate for trench backfill.

Slope all pipe to drain to the outside. Provide a 1:24 (1/2":1') or greater slope for the outlet pipe.

The Department may require additional transverse drains within the stabilization area.

LEGEND

① 100-mm (4-inch) Perforated Pipe
② 100-mm (4-inch) Non-perforated Pipe
③ Perforated Pipe Headwall
④ Existing Box Inlet
⑤ Geotextile Fabric, Type III

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SPECIAL NOTE FOR CHANNEL CHANGE
EROSION CONTROL BLANKET

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. This specification covers erosion control blankets used for channel changes.

2.0 MATERIALS.

2.1 Erosion Control Blanket. Use a woven blanket made of 100 percent machine spun bristle coir fiber. Ensure the nominal thickness is at least 0.30 inches. Ensure the blanket's nominal weight is at least 11.8 ounces per square yard. Ensure the nominal open area of the blanket does not exceed 65 percent.

2.2 Staples. Use steel wire U-shaped staples with a minimum diameter of 0.148 inches (9 gauge), a minimum width of one inch, and a minimum length of 6 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils.

3.0 CONSTRUCTION. Prepare the bed by loosening the soil to a depth of 2 to 3 inches. Apply fertilizer, limestone, and seed at the permanent seeding rate. Cover with the erosion control blanket. Roll out the blanket in the direction of the anticipated channel flow. Anchor the blanket at the top, toe, and edges of channels on a one-foot spacing as the "Anchoring Edges and Ends" figure shows. Secure the blanket by stapling as the "Stapling Pattern" figure shows. At seams, overlap the blanket as the "Seam Overlaps" figure shows. Ensure staples are fully driven and snug against the blanket. If staples are bending, use a heavier gauge staple. Rework areas that become unstable or do not establish vegetation.

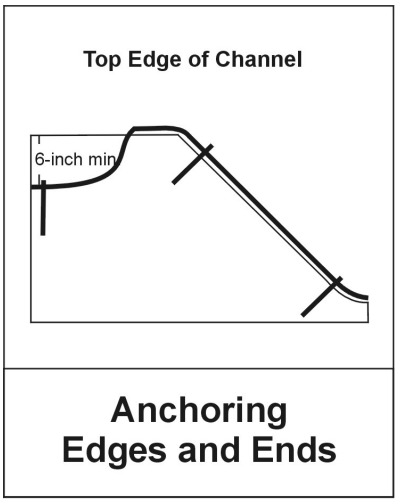
4.0 MEASUREMENT. The Department will measure the quantity of Erosion Control Blanket by the square yard of surface covered. The Department will not measure preparation of the bed or seeding for payment and will consider them incidental to the Erosion Control Blanket. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Erosion Control Blanket.

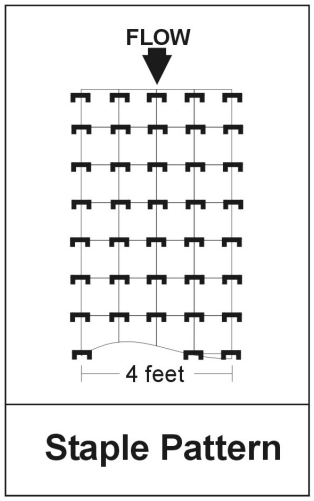
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

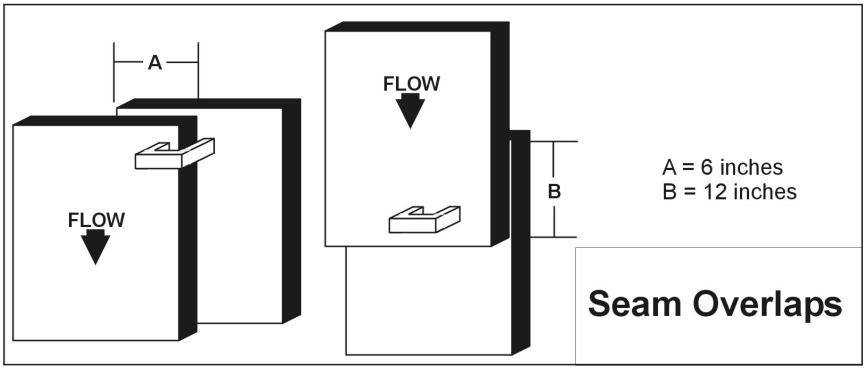
Code	Pay Item	Pay Unit
----	Channel Change Erosion Control Blanket	Square Yard

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

10L







January 1, 2008

11D

SPECIAL NOTE FOR ROCK BLASTING

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. This work consists of fracturing rock and constructing stable final rock cut faces using presplit blasting and production blasting techniques.

2.0 MATERIALS. Deliver, store, and use explosives according to the manufacturer's recommendations and applicable laws. Do not use explosives outside their recommended use date. Verify date of manufacture and provide copies of the technical data sheets (TDS) and material safety data sheets (MSDS) to the Engineer. Explosives and initiating devices include, but are not necessarily limited to, dynamite and other high explosives, slurries, water gels, emulsions, blasting agents, initiating explosives, detonators, blasting caps, and detonating cord.

3.0 CONSTRUCTION. Furnish copies or other proof of all-applicable permits and licenses. Comply with Federal, State, and local regulations on the purchase, transportation, storage, and use of explosive material. Regulations include but are not limited to the following:

1) KRS 351.310 through 351.9901.
2) 805 KAR 4:005 through 4:165
3) Applicable rules and regulations issued by the Office of Mine Safety and Licensing.
4) Safety and health. OSHA, 29 CFR Part 1926, Subpart U.
5) Storage, security, and accountability. Bureau of Alcohol, Tobacco, and Firearms (BATF), 27 CFR Part 181.
6) Shipment. DOT, 49 CFR Parts 171-179, 390-397.

3.1 Blaster-in-Charge. Designate in writing a blaster-in-charge and any proposed alternates for the position. Submit documentation showing the blaster-in-charge, and alternates, have a valid Kentucky blaster's license. Ensure the blaster-in-charge or approved alternate is present at all times during blasting operations.

3.2 **Blasting Plans.** Blasting plans and reports are for quality control and record keeping purposes. Blasting reports are to be signed by the blaster-in-charge or the alternate blaster-in-charge. The general review and acceptance of blasting plans does not relieve the Contractor of the responsibility whatsoever for conformance to regulations or for obtaining the required results. All blasting plans shall be submitted to the Engineer. The Engineer will be responsible for submitting the plan to the Central Office Division of Construction and the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at the following address: 2 Hudson Hollow, Frankfort, Kentucky, 40601.

A) General Blasting Plan. Submit a general blasting plan for acceptance at least 15 working days before drilling operations begin. Include, as a minimum, the following safety and procedural details:

1) Working procedures and safety precautions for storing, transporting, handling, detonating explosives. Include direction on pre and post blast audible procedures, methods of addressing misfires, and methods of addressing inclement weather, including lightning.
2) Proposed product selection for both dry and wet holes. Furnish Manufacturer's TDS and MSDS for all explosives, primers, initiators, and other blasting devices.
3) Proposed initiation and delay methods.
4) Proposed format for providing all the required information for the site specific blasting shot reports.

B) Preblast Meeting. Prior to drilling operations, conduct a preblast meeting to discuss safety and traffic control issues and any site specific conditions that will need to be addressed. Ensure, at a minimum, that the Engineer or lead inspector, Superintendent, blaster-in-charge, and all personnel involved in the blasting operation are present. Site specific conditions include blast techniques; communication procedures; contingency plans and equipment for dealing with errant blast material. The conditions of the General Blasting plan will be discussed at this meeting. Record all revisions and additions made to the blasting plan and obtain written concurrence by the blaster-in-charge. Provide a copy of the signed blast plan to the Engineer along with the sign in sheet from the preblast meeting.

3.3 Preblast Condition Survey and Vibration Monitoring and Control. Before blasting, arrange for a preblast condition survey of nearby buildings, structures, or utilities, within 500 feet of the blast or that could be at risk from blasting damage. Provide the Engineer a listing of all properties surveyed and any owners denying entry or failing to respond. Notify the Engineer and occupants of buildings at risk at least 24 hours before blasting.

Limit ground vibrations and airblast to levels that will not exceed limits of 805 KAR 4:005 through 4:165. More restrictive levels may be specified in the Contract.

Size all blast designs based on vibration, distance to nearest building or utility, blast site geometry, atmospheric conditions and other factors. Ground vibrations are to be controlled according to the blasting standards and scaled distance formulas in 805 KAR 4:020 or by the use of seismographs as allowed in 805 KAR 4:030. The Department will require seismographs at the nearest allowable location to the protected site when blasting occurs within 500 feet of buildings, structures, or utilities.

3.4 Blasting. Drill and blast at the designated slope lines according to the blasting plan. Perform presplitting to obtain smooth faces in the rock and shale formations. Perform the presplitting before blasting and excavating the interior portion of the specified cross section at any location. The Department may allow blasting for fall benches and haul roads prior to presplitting when blasting is a sufficient distance from the final slope and results are satisfactory to the Engineer. Use the types of explosives and blasting accessories necessary to obtain the required results.

Free blast holes of obstructions for their entire depth. Place charges without caving the blast hole walls. Stem the upper portion of all blast holes with dry sand or other granular material passing the 3/8-inch sieve. Dry drill cuttings are acceptable for stemming when blasts are more than 800 feet from the nearest dwelling.

Stop traffic during blasting operations when blasting near any road and ensure traffic does not pass through the Danger Zone. The blaster-in-charge will define the Danger Zone prior to each blast. Ensure traffic is stopped outside the Danger Zone, and in no case within 800 feet of the blast location.

Following a blast, stop work in the entire blast area, and check for misfires before allowing worker to return to excavate the rock.

Remove or stabilize all cut face rock that is loose, hanging, or potentially dangerous. Leave minor irregularities or surface variations in place if they do not create a hazard. Drill the next lift only after the cleanup work and stabilization work is complete.

When blasting operations cause fracturing of the final rock face, repair or stabilize it in an approved manner at no cost to the Department.

Halt blasting operations in areas where any of the following occur:

1) Slopes are unstable;
2) Slopes exceed tolerances or overhangs are created;
3) Backslope damage occurs;
4) Safety of the public is jeopardized;
5) Property or natural features are endangered;
6) Fly rock is generated; or
7) Excessive ground or airblast vibrations occur in an area where damage to buildings, structures, or utilities is possible.
8) The Engineer determines that materials have become unsuitable for blasting

Blasting operations may continue at a reasonable distance from the problem area or in areas where the problems do not exist. Make the necessary modifications to the blasting operations and perform a test blast to demonstrate resolution of the problem.

A) Drill Logs. Maintain a layout drawing designating hole numbers with corresponding drill logs and provide a copy of this information to the blaster prior to loading the hole. Ensure the individual hole logs completed by the driller(s) show their name; date drilled; total depth drilled; and depths and descriptions of significant conditions encountered during drilling that may affect loading such as water, voids, changes in rock type.

B) Presplitting. Conduct presplitting operations in conformance with Subsection 204.03.04 of the Standard Specifications for Road and Bridge Construction.

3.5 Shot Report. Maintain all shot reports on site for review by the Department. Within one day after a blast, complete a shot report according to the record keeping requirements of 805 KAR 4:050. Include all results from airblast and seismograph monitoring.

3.6 Unacceptable Blasting. When unacceptable blasting occurs, the Department will halt all blasting operations. Blasting will not resume until the Department completes its investigation and all concerns are addressed. A blast is unacceptable when it results in fragmentation beyond the final rock face, fly rock, excessive vibration or airblast, overbreak, damage to the final rock face or overhang. Assume the cost for all resulting damages to private and public property and hold the Department harmless.

When an errant blast or fly rock causes damage to or blocks a road or conveyance adjacent to the roadway, remove all debris from the roadway as quickly as practicable and perform any necessary repairs. Additionally, when specified in the Contract, the Department will apply a penalty.

Report all blasting accidents to the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at 502-564-2340.

4.0 MEASUREMENT AND PAYMENT. The Department will not measure this work for payment and will consider all items contained in this note to be incidental to either Roadway Excavation or Embankment-in-Place, as applicable. However, if the Engineer directs in writing slope changes, then the Department will pay for the second presplitting operation as Extra Work.

The Department will measure for payment material lying outside the typical section due to seams, broken formations, or earth pockets, including any earth overburden removed with this material, only when the work is performed under authorized adjustments.

The Department will not measure for payment any extra material excavated because of the drill holes being offset outside the designated slope lines.

The Department will not measure for payment any material necessary to be removed due to the inefficient or faulty blasting practices.

June 15, 2012

11F

SPECIAL NOTE FOR TURF REINFORCING MAT

1.0 DESCRIPTION. Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

2.0 MATERIALS.

2.1 Turf Reinforcement Mat (TRM). Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department's List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

A) Dimensions. Ensure TRMs are furnished in strips with a minimum width of 4 feet and length of 50 feet.
B) Weight. Ensure that all mat types have a minimum mass per unit area of 7 ounces per square yard according to ASTM D 6566.
C) Performance Testing: The Department will require AASHTO's NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure 97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

2.2 Classifications

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical

structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Turf Reinforcement Matting					
Properties[1]	Type 1	Type 2	Type 3	Type 4	Test Method
Minimum tensile Strength lbs/ft	125	150	175	3000 by 1500	ASTM D6818[2]
UV stability (minimum % tensile retention)	80	80	80	90	ASTM D4355[3] (1000-hr exposure)
Minimum thickness (inches)	0.25	0.25	0.25	0.40	ASTM D6525
Slopes applications	2H:1V or flatter	1.5H:1V or flatter	1H:1V or flatter	1 H: 1V or greater	
Shear stress lbs/ft^2 Channel applications	6.0[4]	8.0[4]	10.0[4]	12.0[4]	ASTM D6459 ASTM D6460-07

[1] For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting alone.
[2]Minimum Average Roll Values for tensile strength of sample material machine direction.
[3]Tensile Strength percentage retained after stated 1000 hr duration of exposure under ASTM D4355 testing. Based on nondegradable components exclusively.
[4]Maximum permissible shear design values based on short-term (0.5 hr) vegetated data obtained by full scale flume testing ASTM D6459, D6460-07. Based on nondegradable components exclusively. Testing will be done at Independent Hydraulics Facility such as Colorado State University hydraulics laboratory, Utah State University hydraulics laboratory, Texas Transportation Institute (TTI) hydraulics and erosion control laboratory.

2.3 Quality Assurance Sampling, Testing, and Acceptance

A) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.

B) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.

C) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department's List of Approved Materials.

2.4 Fasteners. When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer's Representative. Provide staples with colored tops when requested by the Engineer.

3.0 CONSTRUCTION. When requested by the Engineer, provide a Manufacturer's Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department's criteria and the Manufacturer's criteria, construct using the more restrictive. The Engineer and Manufacturer's Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer's recommendations and the following as minimum installation technique:

3.1 Site Preparation. Grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

3.2 Installation. Install mats according to Standard Drawing Sepias "Turf Mat Channel Installation" and "Turf Mat Slope Installation." Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer's Representative. The mat should be in direct contact with the soil surface.

4.0 MEASUREMENT. The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer's Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

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

Code	Pay Item	Pay Unit
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard

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 2012 Standard Specifications for Road and Bridge Construction.

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).

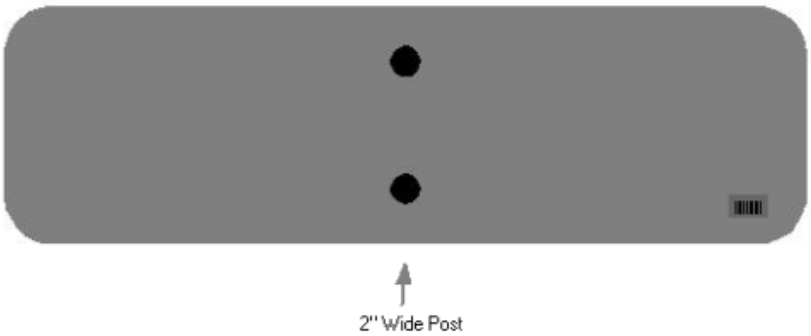
The installation of the permanent sign will be measured in accordance to Section 715.

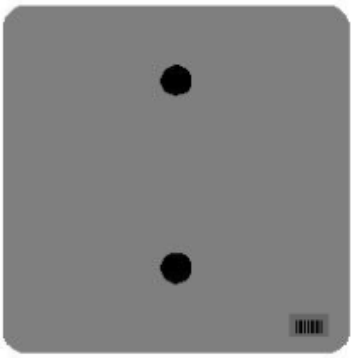
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24631EC	Barcode Sign Inventory	Each

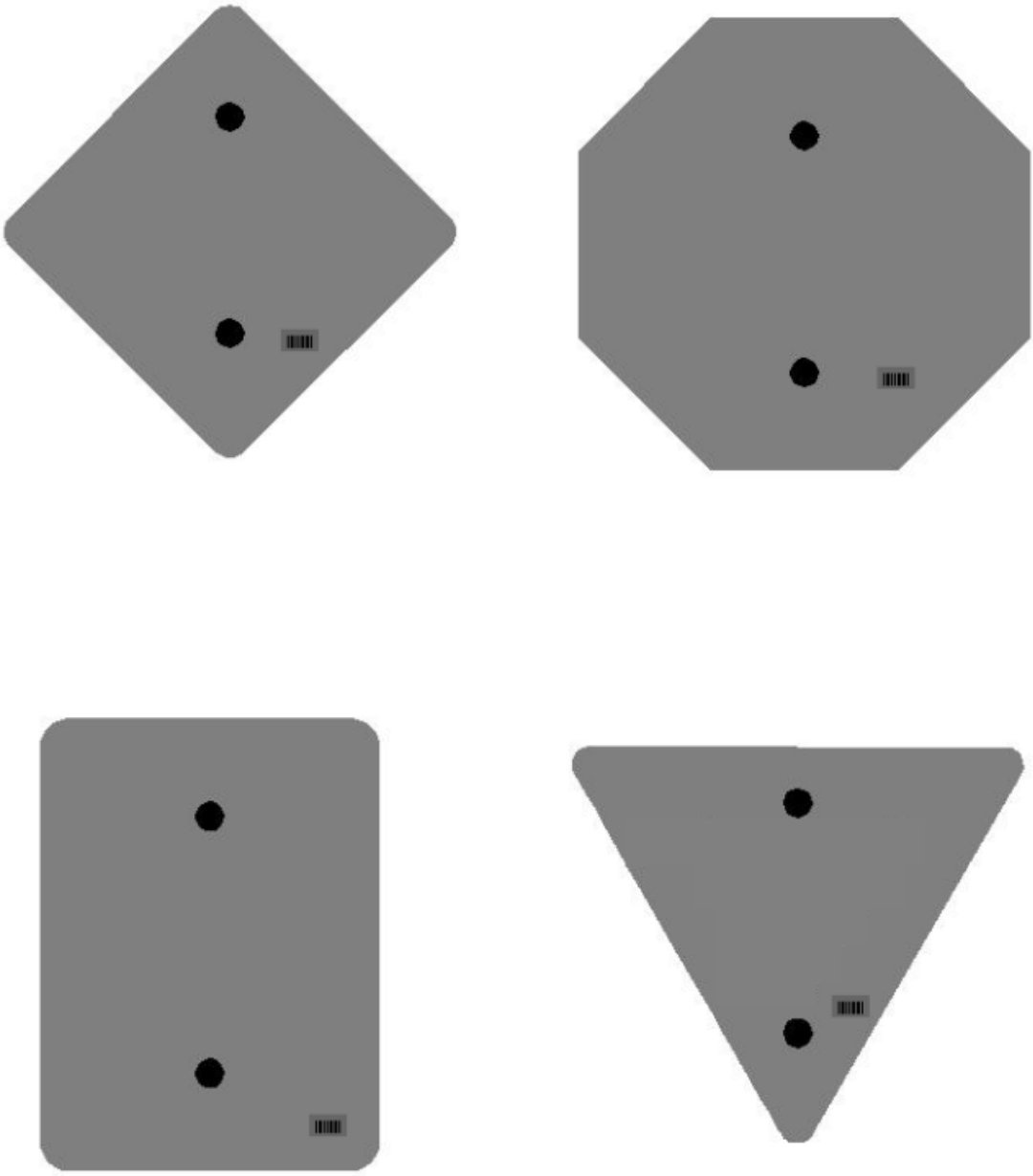
The Department will not make payment for this item until all barcodes are installed and sign inventory is complete on every permanent sign installed on the project. The Department will make payment for installation of the permanent sign in accordance to Section 715. The Department will consider payment as full compensation for all work required under this special note.

One Sign Post

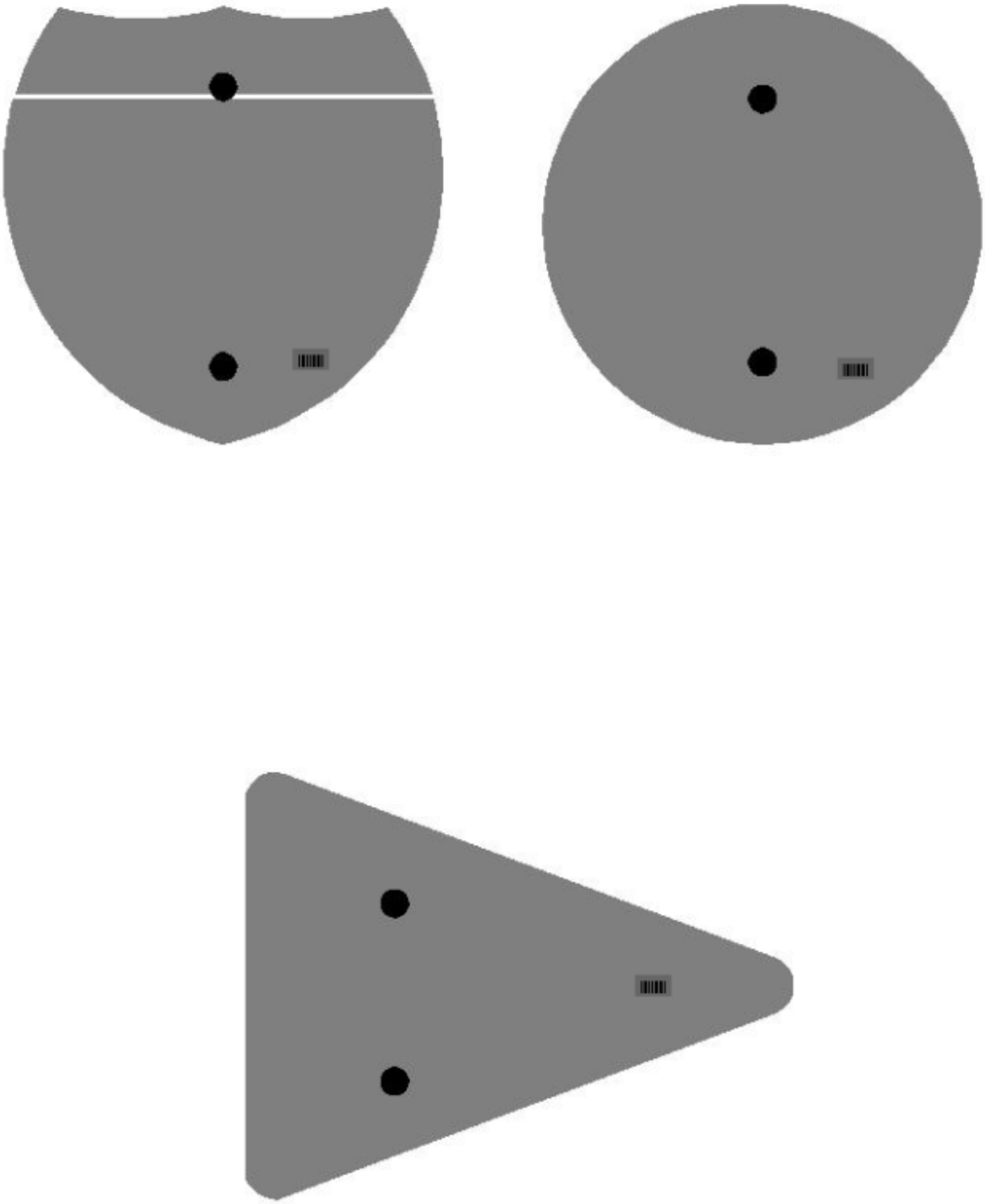




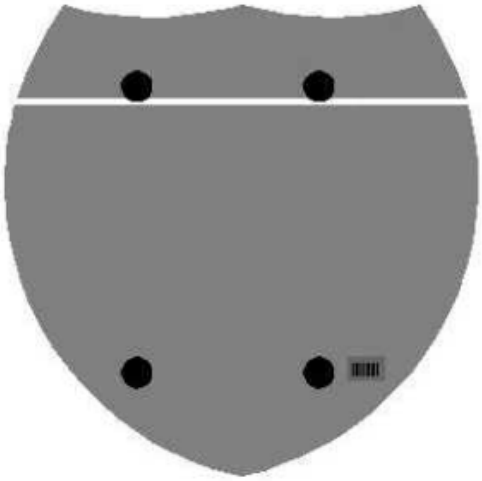
One Sign Post



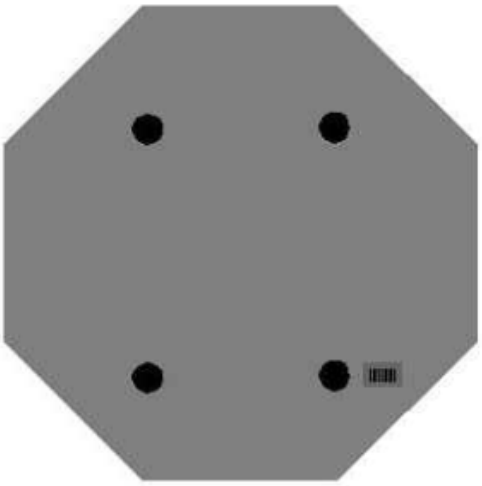
One Sign Post



Double Sign Post

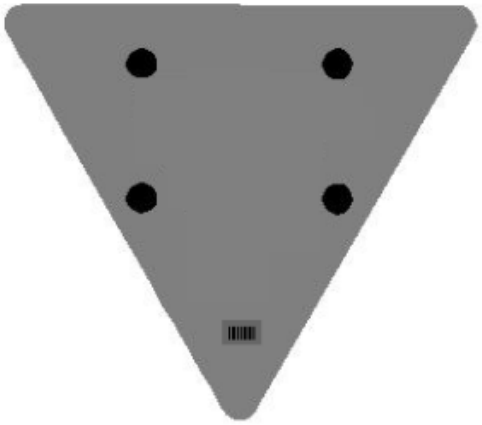


Interstate
Shield



48" Stop

2 Post Signs



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 36inches 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 2012 Standard Specifications for Road and Bridge Construction.

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:

% Deflection = [(AASHTO Nominal Diameter - D2) / AASHTO Nominal Diameter] x 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:

% 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:

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

SPECIAL PROVISION FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES

This Special Provision will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Construct a soil, granular, or rock embankment with granular or cohesive pile core and place structure granular backfill, as the Plans require. Construct the embankment according to the requirements of this Special Provision, the Plans, Standard Drawing RGX 100 and 105, and the 2012 Standard Specifications.

2.0 MATERIALS.

2.1 Granular Embankment. Conform to Subsection 805.10. When Granular Embankment materials are erodible or unstable according to Subsection 805.03.04, use the Special Construction Methods found in 3.2 of the Special Provision.

2.2 Rock Embankment. Provide durable rock from roadway excavation that consists principally of Unweathered Limestone, Durable Shale (SDI equal to or greater than 95 according to KM 64-513), or Durable Sandstone.

2.3 Granular Pile Core. Select a gradation of durable rock to facilitate pile driving that conforms to Subsection 805.11. If granular pile core material hinders pile driving operations, take appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

2.4 Cohesive Pile Core. Conform to Section 206 of the Standard Specifications and use soil with at least 50 percent passing a No. 4 sieve having a minimum Plasticity Index (PI) of 10. In addition, keep the cohesive pile core free of boulders, larger than 6 inches in any dimension, or any other obstructions, which would interfere with drilling operations. If cohesive pile core material interferes with drilling operations, take appropriate means necessary to maintain excavation stability, at no expense to the Department.

2.5 Structure Granular Backfill. Conform to Subsection 805.11

2.6 Geotextile Fabric. Conform to Type I or Type IV in Section 214 and 843 as required in the plans.

3.0 CONSTRUCTION.

3.1 General. Construct roadway embankments at end bents according to Section 206 and in accordance with the Special Provision, the Plans, and Standard Drawings for the full embankment section. In some instances, granular or rock embankment will be required for embankment construction for stability purposes, but this special provision does not prevent the use of soil when appropriate. Refer to the plans for specific details regarding material requirements for embankment construction.

Place and compact granular or cohesive pile core, soil, granular or rock embankment, and structure granular backfill according to the applicable density requirements for the project. When constructing granular or rock embankments, use granular pile core for driven pile foundations and use cohesive pile core for pre-drilled pile or drilled shaft foundations. Place geotextile fabric, Type IV between cohesive pile core and structure

granular backfill and granular or rock embankment.

When granular or rock embankment is required for embankment construction, conform to the general requirements of Subsection 206.03.02 B). In addition, place the material in no greater than 2-foot lifts and compact with a vibrating smooth wheel roller capable of producing a minimum centrifugal force of 15 tons. Apply these requirements to the full width of the embankment for a distance of half the embankment height or 50 feet, whichever is greater, as shown on Standard Drawing RGX-105.

When using granular pile core, install 8-inch perforated underdrain pipe at or near the elevation of the original ground in the approximate locations depicted on the standard drawing, and as the Engineer directs, to ensure positive drainage of the embankment. Wrap the perforated pipe with a fabric of a type recommended by the pipe manufacturer.

After constructing the embankment, excavate for the end bent cap, drive piling or install shafts, place the mortar bed, construct the end bent, and complete the embankment to finish grade according to the construction sequence shown on the Plans or Standard Drawings and as specified hereinafter.

Certain projects may require widening of existing embankments and the removal of substructures. Construct embankment according to the plans. Substructure removal shall be completed according to the plans and Section 203. Excavation may be required at the existing embankment in order to place the structure granular backfill as shown in the Standard Drawings.

After piles are driven or shafts installed (see design drawings), slope the bottom of the excavation towards the ends of the trench as noted on the plans for drainage. Using a separate pour, place concrete mortar, or any class concrete, to provide a base for forming and placing the cap. Place side forms for the end bent after the mortar has set sufficiently to support workmen and forms without being disturbed.

Install 4-inch perforated pipe in accordance with the plans and Standard Drawings. In the event slope protection extends above the elevation of the perforated pipe, extend the pipe through the slope protection.

After placing the end bent cap and removing adjacent forms, fill the excavation with structure granular backfill material to the level of the berm prior to placing beams for the bridge. For soil embankments, place Type IV geotextile fabric between embankment material and structure granular backfill. After completing the end bent backwall, or after completing the span end wall, place the structure granular backfill to subgrade elevation. If the original excavation is enlarged, fill the entire volume with compacted structure granular backfill at no expense to the Department. Do not place backfill before removing adjacent form work. Place structure granular backfill material in trench ditches at the ends of the excavation. Place Geotextile Fabric, Type IV over the surface of structure granular backfill prior to placing aggregate base course.

Tamp the backfill with hand tampers, pneumatic tampers, or other means the Engineer approves. Thoroughly compact the backfill under the overhanging portions of the structure to ensure that the backfill is in intimate contact with the sides of the structure.

Do not apply seeding, sodding, or other vegetation to the exposed granular embankment.

3.2 Special Construction Methods. Erodible or unstable materials may erode even when protected by riprap or channel lining; use the special construction method described below when using these materials.

Use fine aggregates or friable sandstone granular embankment at “dry land” structures only. Do not use them at stream crossings or locations subject to flood waters.

For erodible or unstable materials having 50 percent or more passing the No. 4 sieve, protect with geotextile fabric. Extend the fabric from the original ground to the top of slope over the entire area of the embankment slopes on each side of, and in front of, the

end bent. Cover the fabric with at least 12 inches of non-erodible material.

For erodible or unstable materials having less than 50 percent passing a No. 4 sieve, cover with at least 12 inches of non-erodible material.

Where erodible or unstable granular embankment will be protected by riprap or channel lining, place geotextile fabric between the embankment and the specified slope protection.

4.0 MEASUREMENT.

4.1 Granular Embankment. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment any Granular Embankment that is not called for in the plans.

The Department will not measure for payment any special construction caused by using erodible or unstable materials and will consider it incidental to the Granular Embankment regardless of whether the erodible or unstable material was specified or permitted.

4.2 Rock Embankment. The Department will not measure for payment any rock embankment and will consider it incidental to roadway excavation or embankment in place, as applicable. Rock embankments will be constructed using granular embankment on projects where there is no available rock present within the excavation limits of the project.

4.3 Granular Pile Core. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment furnishing and placing 8-inch perforated underdrain pipe and will consider it incidental to the Granular pile core. The Department will not measure for payment any granular pile core that is necessary because the contractor elects to use granular or rock embankment when it is not specified in the plans.

4.4 Cohesive Pile Core. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204.

4.5 Structure Granular Backfill. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure any additional material required for backfill outside the limits shown on the Plans and Standard Drawings for payment and will consider it incidental to the work.

The Department will not measure structure excavation at the end bent or an existing embankment for payment and will consider it incidental to Structure Granular Backfill.

The Department will not measure for payment the 4-inch perforated underdrain pipe and will consider it incidental to the Structure Granular Backfill.

4.6 Geotextile Fabric. The Department will measure the quantities as specified in Section 214. The Department will not measure the quantity of fabric used for separating granular or rock embankment and cohesive pile core and will consider it incidental to cohesive pile core.

4.7 End Bent. The Department will measure the quantities according to the

Contract. The Department will not measure furnishing and placing the 2-inch mortar or concrete bed for payment and will consider it incidental to the end bent construction.

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

Code	Pay Item	Pay Unit
02223	Granular Embankment	Cubic Yards
20209EP69	Granular Pile Core	Cubic Yards
20210EP69	Cohesive Pile Core	Cubic Yards
02231	Structure Granular Backfill	Cubic Yards
02596, 02599	Geotextile Fabric, Type	See Section 214

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

June 15, 2012

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 contacting 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 (between forty and seventy); 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 (between forty and seventy). 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, disability or age (between forty and seventy), except that such notice or advertisement may indicate a preference, limitation, or specification based on religion, or national origin when religion, or national origin 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 (between forty and seventy), 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 administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

REVISED: 12-3-92

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 (6) provides:
>
> No present or former public servant shall, within six (6) months of 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 the state in matters in which he was directly involved during 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, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved 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.
>
> KRS 11A.040 (8) states:
>
> A former public servant shall not represent a person in a matter before a state agency in which the former public servant was directly involved, 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, Room 136, Capitol Building, 700 Capitol Avenue, Frankfort, Kentucky 40601; telephone (502) 564-7954.

General Decision Number: KY160187 01/08/2016 KY187

Superseded General Decision Number: KY20150187

State: Kentucky

Construction Type: Highway

Counties: Adair, Barren, Bell, Breathitt, Casey, Clay, Clinton, Cumberland, Estill, Floyd, Garrard, Green, Harlan, Hart, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lincoln, Magoffin, Martin, McCreary, Menifee, Metcalfe, Monroe, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Russell, Taylor, Wayne, Whitley and Wolfe Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the 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 $10.15 (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 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016

SUKY2015-047 10/20/2015

	Rates	Fringes
BOILERMAKER	$ 24.65	12.94
BRICKLAYER		
Bricklayer	$ 22.90	8.50
Stone Mason	$ 21.50	8.50
CARPENTER		
Carpenter	$ 24.90	14.50
Piledriver	$ 24.55	14.50
CEMENT MASON	$ 21.25	8.50
ELECTRICIAN		
Electrician	$ 29.36	10.55
Equipment Operator	$ 26.90	10.31
Groundsman	$ 17.79	8.51
Lineman	$ 30.09	10.94

When workmen are required to work from bosum chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T.V. towers,

structural steel (open, unprotected, unfloored raw steel), and bridges or similar hazardous locations where workmen are subject to fall, except where using JLG's and bucket trucks up to 75 feet: Add 25% to workman's base rate for 50 to 75 feet, and add 50% to workman's base rate for over 75 feet.

IRONWORKER.....$ 27.56 20.57

LABORER
Group 1.....$ 21.80 12.36
Group 2.....$ 22.05 12.36
Group 3.....$ 22.10 12.36
Group 4.....$ 22.70 12.36

GROUP 1: Aging and Curing of Concrete (Any Mode or Method), Asbestos Abatement Worker, Asphalt Plant Laborers, Asphalt Laborers, Batch Truck Dumpers, Carpenter Tenders, Cement Mason Tenders, Cleaning of Machines, Concrete Laborers, Demolition Laborers, Dredging Laborers, Drill Tender, Environmental Laborer - Nuclear, Radiation, Toxic and Hazardous Waste - Level D, Flagmen, Grade Checkers, All Hand Digging and Hand Back Filling, Highway Marker Placers, Landscaping Laborers, Mesh Handlers and Placers, Puddler, Railroad Laborers, Rip-rap and Grouters, Right of Way Laborers, Sign, Guard Rail and Fence Installers (All Types), Signalmen, Sound Barrier Installer, Storm and Sanitary Sewer Laborers, Swampers, Truck Spotters and Dumpers, Wrecking of Concrete Forms, General Cleanup

GROUP 2: Batter Board Men (Sanitary and Storm Sewer), Brickmason Tenders, Mortar Mixer Operator, Scaffold Builders, Burner and Welder, Bushammers, Chain Saw Operator, Concrete Saw Operators, Deckhand Scow Man, Dry Cement Handlers, Environmental Laborers - Nuclear, Radiation, Toxic and Hazardous Waste - Level C, Forklift Operators for Masonry, Form Setters, Green Concrete Cutting, Hand Operated Grouter and Grinder Machine Operator, Jack Hammers, Lead Paint Abatement, Pavement Breakers, Paving Joint Machine, Pipe Layers - Laser Operators (Non-metallic), Plastic Pipe Fusion, Power Driven Georgia Buggy and Wheel Barrow, Power Post Hole Diggers, Precast Manhole Setters, Walk-behind Tampers, Walk-behind Trenchers, Sand Blasters, Concrete Chippers, Surface Grinders, Vibrator Operators, Wagon Drillers

GROUP 3: Air Track Driller (All Types), Asphalt Luteman and Rakers, Gunnite Nozzleman, Gunnite Operators and Mixers, Grout Pump Operator, Powderman and Blaster, Side Rail Setters, Rail Paved Ditches, Screw Operators, Tunnel Laborers (Free Air), Water Blasters

GROUP 4: Caisson Workers (Free Air), Cement Finishers, Environmental Laborer - Nuclear, Radiation, Toxic and Hazardous Waste - Level A and B, miners and Drillers (Free Air), Tunnel Blasters, and Tunnel Mockers (Free Air), Directional and Horizontal Boring, Air Track Drillers (All Types), Powder Man and Blasters, Troxler and Concrete Tester if Laborer is Utilized

PAINTER
All Excluding Bridges.....$ 19.92 9.57
Bridges.....$ 23.92 10.07

PLUMBER.....$ 22.52 7.80

POWER EQUIPMENT OPERATOR:
Group 1.....$ 29.95 14.40
Group 2.....$ 29.95 14.40
Group 3.....$ 27.26 14.40
Group 4.....$ 26.96 14.40

GROUP 1: Auto Patrol, Batcher Plant, Bituminous Paver, Cable-Way, Clamshell, Concrete Mixer (21 cu ft or over), Concrete Pump, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Engineer, Elevator (regardless of ownership when used for hoisting any building material), Elevating Grader and all types of Loaders, Hoe-type Machine, Hoisting Engine, Locomotive, LeTourneau or Carry-all Scoop, Bulldozer, Mechanic, Orangepeel Bucket, Piledriver, Power Blade, Roller (Bituminous), Roller (Earth), Roller (Rock), Scarifier, Shovel, Tractor Shovel, Truck Crane, Well Point, Winch Truck, Push Dozer, Grout Pump, High Lift, Fork Lift (regardless of lift height), all types of Boom Cats, Multiple Operator, Core Drill, Tow or Push Boat, A-Frame Winch Truck, Concrete Paver, Grade-All, Hoist, Hyster, Material Pump, Pumpcrete, Ross Carrier, Sheepfoot, Sideboom, Throttle-Valve Man, Rotary Drill, Power Generator, Mucking Machine, Rock Spreader attached to Equipment, Scoopmobile, KeCal Loader, Tower Cranes,(French, German and other types), Hydrocrane, Tugger, Backfiller Gurries, Self-propelled Compactor, Self-Contained Hydraulic Percussion Drill

GROUP 2: All Air Compressors (200 cu ft/min or greater), Bituminous Mixer, Concrete Mixer (21 cu. ft. or over), Welding Machine, Form Grader, Tractor (50 hp and over), Bull Float, Finish Machine, Outboard Motor Boat, Brakeman, Mechanic Tender, Whirly Oiler, Tract-air, Road Widening Trencher, Articulating Trucks

GROUP 3: Greaser on Grease Facilities servicing Heavy Equipment

GROUP 4: Bituminous Distributor, Cement Gun, Conveyor, Mud Jack, Paving Joint Machine, Pump, Tamping Machine, Tractor (under 50 hp), Vibrator, Oiler, Air Compressor (under 200 cu ft per minute), Concrete Saw, Burlap and Curing Machine, Hydro Seeder, Power Form Handling Equipment, Deckhand Oiler, Hydraulic Post Driver

SHEET METAL WORKER.....$ 20.40 7.80

TRUCK DRIVER
Driver (3 Tons and Over),
Driver (Truck Mounted
Rotary Drill).....$ 23.74 14.50
Driver (3 Tons and Under),
Tire Changer and Truck
Mechanic Tender.....$ 23.53 14.50
Driver (Semi-Trailer or
Pole Trailer), Driver
(Dump Truck, Tandem Axle),
Driver of Distributor.....$ 23.40 14.50
Driver on Mixer Trucks

(All Types).....	$ 23.45	14.50
Driver on Pavement Breakers.	$ 23.55	14.50
Driver, Euclid and Other Heavy Earth Moving Equipment and Low Boy.....	$ 24.31	14.50
Driver, Winch Truck and A-Frame when used in Transporting Materials.....	$ 23.30	14.50
Greaser on Greasing Facilities.....	$ 24.40	14.50
Truck Mechanic.....	$ 23.50	14.50
Truck Tender and Warehouseman.....	$ 23.20	14.50

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

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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.

These rates are listed pursuant to the Kentucky Determination No. CR-15-II- HWY dated July 20, 2015.

NOTE: Both Kentucky Determination No. CR-15-II-HWY and Federal Decision No. KY150187 apply to this project. Both sets of wage rates are included. If there is a difference in the two wages for the same classification, the Contractor is required to pay the higher of the two listed wages.

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 after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wages. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. 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

KENTUCKY LABOR CABINET
PREVAILING WAGE DETERMINATION
CURRENT REVISION
HIGHWAY CONSTRUCTION LOCALITY NO. II

Determination No. CR-15-II-HWY

Project No.
Highway

Date of Determination: July 20, 2015

This schedule of the prevailing rate of wages for Locality No. II including the counties of ADAIR, BARREN, BELL, BREATHITT, CASEY, CLAY, CLINTON, CUMBERLAND, ESTILL, FLOYD, GARRARD, GREEN, HARLAN, HART, JACKSON, JOHNSON, KNOTT, KNOX, LAUREL, LAWRENCE, LEE, LESLIE, LETCHER, LINCOLN, MCCREARY, MAGOFFIN, MARTIN, MENIFEE, METCALFE, MONROE, MORGAN, OWSLEY, PERRY, PIKE, POWELL, PULASKI, ROCKCASTLE, RUSSELL, TAYLOR, WAYNE, WHITLEY, and WOLFE has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination No. CR-15-II-HWY.

The following schedule of rates is to be used for highway construction projects advertised or awarded by the Kentucky Transportation Cabinet. This includes any contracts for the relocation of any utilities or other incidental construction projects advertised or awarded by public authorities as a result of the highway construction project.

Apprentices or trainees shall be permitted to work in accordance with Administrative Regulations. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) hours per day, or in excess of forty (40) hours per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one calendar day, but not more than ten (10) hours worked in any one calendar day, if such written agreement is prior to the over eight (8) hours in a calendar day actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked. Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

Anthony Russell, Commissioner
Department of Workplace Standards

CLASSIFICATIONS	RATE AND FRINGE BENEFITS	
BOILERMAKERS:	BASE RATE	$24.65
	FRINGE BENEFIT	12.94
BRICKLAYERS:		
Bricklayers:	BASE RATE	$22.90
	FRINGE BENEFITS	8.50
Stone Mason:	BASE RATE	$21.50
	FRINGE BENEFITS	8.50
CARPENTERS:		
Carpenters:	BASE RATE	$24.90
	FRINGE BENEFITS	14.50
Piledrivers:	BASE RATE	$24.55
	FRINGE BENEFITS	14.50
CEMENT MASONS:	BASE RATE	$21.25
	FRINGE BENEFITS	8.50
ELECTRICIANS:	*BASE RATE	$29.36
	FRINGE BENEFITS	10.55

*When workmen are required to work from bosum chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T.V. towers, structural steel (open, unprotected, unfloored raw steel), and bridges or similar hazardous locations where workmen are subject to a direct fall, except where using JLG's and bucket trucks up to 75 feet: Add 25% to workman's base rate for 50 to 75 feet, and add 50% to workman's base rate for over 75 feet.

LINEMAN:	*BASE RATE	$30.09
	FRINGE BENEFITS	10.94
EQUIPMENT OPERATOR:	*BASE RATE	$26.90
	FRINGE BENEFITS	10.31
GROUNDSMAN:	*BASE RATE	$17.79
	FRINGE BENEFITS	8.51
IRONWORKERS:	BASE RATE	$ 27.56
	FRINGE BENEFITS	20.57

CLASSIFICATIONS RATE AND FRINGE BENEFITS

LABORERS:

GROUP 1: Aging and curing of concrete (any mode or method), asbestos abatement worker, asphalt plant laborers, asphalt laborers; batch truck dumpers; carpenter tenders, cement mason tenders, cleaning of machines, concrete laborers, demolition laborers, dredging laborers, drill helper, environmental laborer - nuclear, radiation, toxic and hazardous waste – Level D, flagmen, grade checkers, all hand digging and hand back filling, highway marker placers, landscaping laborers, mesh handlers and placers, puddler, railroad laborers, rip-rap and grouters, right of way laborers, sign, guard rail and fence installers (all types), signalmen, sound barrier installer, storm and sanitary sewer laborers, swampers, truck spotters and dumpers, wrecking of concrete forms, general cleanup:

HEAVY & HIGHWAY	BASE RATE	$21.80
	FRINGE BENEFITS	12.36

GROUP 2: Batter board men (sanitary and storm sewer), brickmason tenders, mortar mixer operator, scaffold builders, burner and welder, bushammers, chain saw operator, concrete saw operators, deckhand scow man, dry cement handlers, environmental laborers – nuclear, radiation, toxic and hazardous waste – Level C, forklift operators for masonry, form setters, green concrete cutting, hand operated grouter and grinder machine operator, jack hammers, lead paint abatement, pavement breakers, paving joint machine, pipe layers – laser operators (non-metallic), plastic pipe fusion, power driven Georgia buggy and wheel barrow, power post hole diggers, precast manhole setters, walk-behind tampers, walk-behind trenchers, sand blasters, concrete chippers, surface grinders, vibrator operators, wagon drillers:

HEAVY & HIGHWAY	BASE RATE	$22.05
	FRINGE BENEFITS	12.36

GROUP 3: Air track driller (all types), asphalt luteman and rakersm gunnite nozzleman, gunnite operators and mixers, grout pump operator, powderman and blaster, side rail setters, rail paved ditches, screw operators, tunnel laborers (free air), and water blasters:

HEAVY & HIGHWAY	BASE RATE	$22.10
	FRINGE BENEFITS	12.36

GROUP 4: Caisson workers (free air), cement finishers, environmental laborer – nuclear, radiation, toxic and hazardous waste – Level A and B, miners and drillers (free air), tunnel blasters, and tunnel mockers (free air), directional and horizontal boring, air track drillers (all types), powder man and blasters, troxler and concrete tester if laborer is utilized:

HEAVY & HIGHWAY	BASE RATE	$22.70
	FRINGE BENEFITS	12.36

OPERATING ENGINEERS:

Group A-1:
NCCCO or OECP Certified; Crane, dragline, hoist (1 drum when used for stack or chimney construction or repair), hoisting engineer (2 or more drums), orangepeel, overhead crane, piledriver, truck crane, tower crane, hydraulic crane:

BASE RATE	$31.08
FRINGE BENEFITS	14.40

CLASSIFICATIONS RATE AND FRINGE BENEFITS

OPERATING ENGINEERS (CONTINUED):

Group A:

Auto patrol, batcher plant, bituminous paver, cable-way, clamshell, concrete mixer (21 cu. ft. or over), concrete pump, crane, crusher plant, derrick, derrick boat, ditching and trenching machine, dragline, dredge engineer, elevator (regardless of ownership when used for hoisting any building material), elevating grader and all types of loaders, hoe-type machine, hoisting engine, locomotive, LeTourneau or carry-all scoop, bulldozer, mechanic, orangepeel bucket, piledriver, power blade, roller (bituminous), roller (earth), roller (rock), scarifier, shovel, tractor shovel, truck crane, well points, winch truck, push dozer, grout pump, high lift, fork lift (regardless of lift height), all types of boom cats, multiple operator, core drill, tow or push boat, A-Frame winch truck, concrete paver, gradeall, hoist, hyster, material pump, pumpcrete, ross carrier,sheepfoot, sideboom, throttle-valve man, rotary drill, power generator, mucking machine, rock spreader attached to equipment, scoopmobile, KeCal loader, tower cranes (French, German and other types), hydrocrane, tugger, backfiller gurries, self-propelled compactor, self-contained hydraulic percussion drill:

BASE RATE	$29.95
FRINGE BENEFITS	14.40

Group B:

All air compressors (200 cu. ft. per min. or greater capacity), bituminous mixer, concrete mixer (under 21 cu. ft.), welding machine, form grader, tractor (50 H.P. and over), bull float, finish machine, outboard motor boat, brakeman, mechanic helper, whirly oiler, tractair and road widening trencher, articulating trucks:

BASE RATE	$27.26
FRINGE BENEFITS	14.40

Group B2:

Greaser on grease facilities servicing heavy equipment:

BASE RATE	$27.68
FRINGE BENEFITS	14.40

Group C:

Bituminous distributor, cement gun, conveyor, mud jack, paving joint machine, pump, tamping machine, tractors (under 50 H.P.), vibrator, oiler, air compressors (under 200 cu. ft. per min. capacity), concrete saw, burlap and curing machine, hydro seeder, power form handling equipment, deckhand oiler, hydraulic post driver:

BASE RATE	$26.96
FRINGE BENEFITS	14.40

PAINTERS:

All Excluding Bridges:

BASE RATE	$19.92
FRINGE BENEFITS	9.57

Bridges:

BASE RATE	$23.92
FRINGE BENEFITS	10.07

CLASSIFICATIONS	RATE AND FRINGE BENEFITS	
PLUMBERS:	BASE RATE	$22.52
	FRINGE BENEFITS	7.80
SHEET METAL:	BASE RATE	$20.40
	FRINGE BENEFITS	7.80
TRUCK DRIVERS:		
Truck helper and warehouseman:	BASE RATE	$23.20
	FRINGE BENEFITS	14.50
Driver, winch truck and A-Frame when used in transporting materials:	BASE RATE	$23.30
	FRINGE BENEFITS	14.50
Driver, (semi-trailer or pole trailer), driver (dump truck, tandem axle), driver of distributor:	BASE RATE	$23.40
	FRINGE BENEFITS	14.50
Driver on mixer trucks (all types):	BASE RATE	$23.45
	FRINGE BENEFITS	14.50
Truck mechanic:	BASE RATE	$23.50
	FRINGE BENEFITS	14.50
Driver (3 tons and under), tire changer and truck mechanic helper:	BASE RATE	$23.53
	FRINGE BENEFITS	14.50
Driver on pavement breakers:	BASE RATE	$23.55
	FRINGE BENEFITS	14.50
Driver (over 3 tons), driver (truck mounted rotary drill):	BASE RATE	$23.74
	FRINGE BENEFITS	14.50
Driver, Euclid and other heavy earth moving equipment and Low Boy:	BASE RATE	$24.31
	FRINGE BENEFITS	14.50
Greaser on greasing facilities:	BASE RATE	$24.40
	FRINGE BENEFITS	14.50

Kentucky Determination No. CR-15-II-HWY dated July 20, 2015

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 the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

These rates are listed pursuant to the Kentucky Determination No. CR-15-II-HWY dated July 20, 2015. 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 contract or 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 numbers of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wage. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or to 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
7.0%	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 Magoffin County.

PART IV

INSURANCE

INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

1) Commercial General Liability-Occurrence form – not less than $2,000,000 General aggregate, $2,000,000 Products & Completed Aggregate, $1,000,000 Personal & Advertising, $1,000,000 each occurrence.

2) Automobile Liability- $1,000,000 per accident

3) Employers Liability:

   a) $100,000 Each Accident Bodily Injury
   b) $500,000 Policy limit Bodily Injury by Disease
   c) $100,000 Each Employee Bodily Injury by Disease

4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
   a) "policy contains no deductible clauses."
   b) "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."

5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

PART V

BID ITEMS

161033

PROPOSAL BID ITEMS

Report Date 6/2/16

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	83,105.00	TON		$	
0020	00005		GEOGRID REINFORCEMENT FOR SUBGRADE	73,600.00	SQYD		$	
0030	00100		ASPHALT SEAL AGGREGATE	6.00	TON		$	
0040	00103		ASPHALT SEAL COAT	2.00	TON		$	
0050	00190		LEVELING & WEDGING PG64-22	7,397.00	TON		$	
0060	00194		LEVELING & WEDGING PG76-22	525.00	TON		$	
0070	00212		CL2 ASPH BASE 1.00D PG64-22	25,921.00	TON		$	
0080	00214		CL3 ASPH BASE 1.00D PG64-22	20,150.00	TON		$	
0090	00216		CL3 ASPH BASE 1.00D PG76-22	13,186.00	TON		$	
0100	00221		CL2 ASPH BASE 0.75D PG64-22	3,592.00	TON		$	
0110	00301		CL2 ASPH SURF 0.38D PG64-22	6,890.00	TON		$	
0120	00387		CL3 ASPH SURF 0.38B PG76-22	5,827.00	TON		$	
0130	02084		JPC PAVEMENT-8 IN	142.00	SQYD		$	
0140	02101		CEM CONC ENT PAVEMENT-8 IN	1,096.00	SQYD		$	
0150	02677		ASPHALT PAVE MILLING & TEXTURING	4,083.00	TON		$	
0160	20071EC		JOINT ADHESIVE	71,500.00	LF		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1660	01015		INSPECT & CERTIFY EDGE DRAIN SYSTEM	1.00	LS		$	
1670	01314		PLUG PIPE	3.00	EACH		$	
1680	01810		STANDARD CURB AND GUTTER	47,276.00	LF		$	
1690	01811		STANDARD CURB AND GUTTER MOD	346.00	LF		$	
1700	01815		BARRIER CURB AND GUTTER	42.00	LF		$	
1710	01825		ISLAND CURB AND GUTTER	92.25	LF		$	
1720	01875		STANDARD HEADER CURB	2,952.00	LF		$	
1730	01956		CONC TERMINAL SECTION TYPE 1	8.00	EACH		$	
1740	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	79.00	EACH		$	
1750	01986		DELINEATOR FOR BARRIER WALL-B/Y	29.00	EACH		$	
1760	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	24.00	EACH		$	
1770	01990		DELINEATOR FOR BARRIER WALL-B/W	40.00	EACH		$	
1780	02001		CURB TO BARRIER WALL TRANS	4.00	EACH		$	
1790	02002		REMOVE TEMP CONC BARRIER WALL	505.00	LF		$	
1800	02003		RELOCATE TEMP CONC BARRIER	3,465.00	LF		$	
1810	02014		BARRICADE-TYPE III	39.00	EACH		$	
1820	02015		CEMENT CONCRETE ISLAND	153.00	SQYD		$	
1830	02091		REMOVE PAVEMENT	614.00	SQYD		$	
1840	02159		TEMP DITCH	44.00	LF		$	
1850	02160		CLEAN TEMP DITCH	44.00	LF		$	
1860	02183		CONTAMINATED SOIL DISPOSAL P100	2,500.00	CUYD		$	
1870	02200		ROADWAY EXCAVATION	234,640.00	CUYD		$	
1880	02203		STRUCTURE EXCAV-UNCLASSIFIED	287.00	CUYD		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1890	02223		GRANULAR EMBANKMENT	8,370.00	CUYD		$	
1900	02242		WATER	1,110.00	MGAL		$	
1910	02262		FENCE-WOVEN WIRE TYPE 1	3,038.00	LF		$	
1920	02351		GUARDRAIL-STEEL W BEAM-S FACE	6,887.50	LF		$	
1930	02360		GUARDRAIL TERMINAL SECTION NO 1	9.00	EACH		$	
1940	02363		GUARDRAIL CONNECTOR TO BRIDGE END TY A	5.00	EACH		$	
1950	02367		GUARDRAIL END TREATMENT TYPE 1	1.00	EACH		$	
1960	02369		GUARDRAIL END TREATMENT TYPE 2A	8.00	EACH		$	
1970	02381		REMOVE GUARDRAIL	7,075.50	LF		$	
1980	02391		GUARDRAIL END TREATMENT TYPE 4A	4.00	EACH		$	
1990	02397		TEMP GUARDRAIL	400.00	LF		$	
2000	02404		SEPTIC TANK TREATMENT	2.00	EACH		$	
2010	02429		RIGHT-OF-WAY MONUMENT TYPE 1	240.00	EACH		$	
2020	02432		WITNESS POST	240.00	EACH		$	
2030	02475		PLUG WATER WELL	2.00	EACH		$	
2040	02488		CHANNEL LINING CLASS IV	6,734.00	CUYD		$	
2050	02545		CLEARING AND GRUBBING 132 ACRES	1.00	LS		$	
2060	02555		CONCRETE-CLASS B CHANNEL LINING	3.00	CUYD		$	
2070	02555		CONCRETE-CLASS B FENCE	15.28	CUYD		$	
2080	02555		CONCRETE-CLASS B GRAVITY RETAINING WALL	201.50	CUYD		$	
2090	02562		TEMPORARY SIGNS	1,450.00	SQFT		$	
2100	02585		EDGE KEY	479.50	LF		$	
2110	02596		FABRIC-GEOTEXTILE TYPE I	9,222.00	SQYD		$	
2120	02599		FABRIC-GEOTEXTILE TYPE IV	73,600.00	SQYD		$	
2130	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	64,399.00	SQYD	$2.00	$	$128,798.00
2140	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
2150	02651		DIVERSIONS (BY-PASS DETOURS)	1.00	LS		$	
2160	02651		DIVERSIONS (BY-PASS DETOURS) NO. 2	1.00	LS		$	
2170	02651		DIVERSIONS (BY-PASS DETOURS) NO. 3	1.00	LS		$	
2180	02651		DIVERSIONS (BY-PASS DETOURS) NO. 4	1.00	LS		$	
2190	02653		LANE CLOSURE	11.00	EACH		$	
2200	02654		TRUCK MOUNTED ATTENUATOR	2.00	EACH		$	
2210	02671		PORTABLE CHANGEABLE MESSAGE SIGN	5.00	EACH		$	
2220	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		$	
2230	02690		SAFELOADING	45.00	CUYD		$	
2240	02696		SHOULDER RUMBLE STRIPS-SAWED	3,080.00	LF		$	
2250	02701		TEMP SILT FENCE	30,129.00	LF		$	
2260	02703		SILT TRAP TYPE A	127.00	EACH		$	
2270	02704		SILT TRAP TYPE B	127.00	EACH		$	
2280	02705		SILT TRAP TYPE C	127.00	EACH		$	
2290	02706		CLEAN SILT TRAP TYPE A	127.00	EACH		$	
2300	02707		CLEAN SILT TRAP TYPE B	127.00	EACH		$	
2310	02708		CLEAN SILT TRAP TYPE C	127.00	EACH		$	
2320	02711		SEDIMENTATION BASIN	3,215.00	CUYD		$	

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2330	02712		CLEAN SEDIMENTATION BASIN	3,215.00	CUYD		$	
2340	02720		SIDEWALK-4 IN CONCRETE	3,102.00	SQYD		$	
2350	02726		STAKING	1.00	LS		$	
2360	02731		REMOVE STRUCTURE BILLBOARD-P147	1.00	LS		$	
2370	02731		REMOVE STRUCTURE BILLBOARD-P176	1.00	LS		$	
2380	02731		REMOVE STRUCTURE BILLBOARD-P178	1.00	LS		$	
2390	02731		REMOVE STRUCTURE BILLBOARD-P181	1.00	LS		$	
2400	02731		REMOVE STRUCTURE BILLBOARD-P186	1.00	LS		$	
2410	02731		REMOVE STRUCTURE BILLBOARD-P197	1.00	LS		$	
2420	02731		REMOVE STRUCTURE BILLBOARD-P205	1.00	LS		$	
2430	02731		REMOVE STRUCTURE BRIDGE STA. 3935+25	1.00	LS		$	
2440	02731		REMOVE STRUCTURE CULVERT-27552	1.00	LS		$	
2450	02731		REMOVE STRUCTURE CULVERT-27553	1.00	LS		$	
2460	02731		REMOVE STRUCTURE CULVERT-27554	1.00	LS		$	
2470	02731		REMOVE STRUCTURE CULVERT-27556	1.00	LS		$	
2480	02731		REMOVE STRUCTURE WALL-27557	1.00	LS		$	
2490	02731		REMOVE STRUCTURE WALL-27558	1.00	LS		$	
2500	02731		REMOVE STRUCTURE WALL-27559	1.00	LS		$	
2510	02731		REMOVE STRUCTURE WALL-27560	1.00	LS		$	
2520	02775		ARROW PANEL	5.00	EACH		$	
2530	02898		RELOCATE CRASH CUSHION	20.00	EACH		$	
2540	03171		CONCRETE BARRIER WALL TYPE 9T	3,465.00	LF		$	
2550	04741		POLE BASE IN MEDIAN WALL	7.00	EACH		$	
2560	04810		ELECTRICAL JUNCTION BOX	7.00	EACH		$	
2570	04935		TEMP SIGNAL	1.00	LS		$	
2580	04953		TEMP RELOCATION OF SIGNAL HEAD	82.00	EACH		$	
2590	05950		EROSION CONTROL BLANKET	11,307.00	SQYD		$	
2600	05952		TEMP MULCH	412,679.00	SQYD		$	
2610	05953		TEMP SEEDING AND PROTECTION	307,969.00	SQYD		$	
2620	05963		INITIAL FERTILIZER	19.00	TON		$	
2630	05964		20-10-10 FERTILIZER	31.90	TON		$	
2640	05985		SEEDING AND PROTECTION	615,938.00	SQYD		$	
2650	05990		SODDING	18,202.00	SQYD		$	
2660	05992		AGRICULTURAL LIMESTONE	381.80	TON		$	
2670	05997		TOPSOIL FURNISHED AND PLACED	58.00	CUYD		$	
2680	06510		PAVE STRIPING-TEMP PAINT-4 IN	158,570.00	LF		$	
2690	06513		PAVE STRIPING-TEMP PAINT-12 IN	840.00	LF		$	
2700	06514		PAVE STRIPING-PERM PAINT-4 IN	114,627.00	LF		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2710	06515		PAVE STRIPING-PERM PAINT-6 IN	9,649.00	LF		$	
2720	06565		PAVE MARKING-THERMO X-WALK-6 IN	1,491.00	LF		$	
2730	06568		PAVE MARKING-THERMO STOP BAR-24IN	856.00	LF		$	
2740	06569		PAVE MARKING-THERMO CROSS-HATCH	18,883.00	SQFT		$	
2750	06573		PAVE MARKING-THERMO STR ARROW	3.00	EACH		$	
2760	06574		PAVE MARKING-THERMO CURV ARROW	67.00	EACH		$	
2770	06575		PAVE MARKING-THERMO COMB ARROW	21.00	EACH		$	
2780	06588		PAVEMENT MARKER TY IVA-BY TEMP	1,338.00	EACH		$	
2790	06600		REMOVE PAVEMENT MARKER TYPE V	415.00	EACH		$	
2800	08100		CONCRETE-CLASS A	3.51	CUYD		$	
2810	08150		STEEL REINFORCEMENT	163.00	LB		$	
2820	08257		HANDRAIL-PEDESTRIAN ALUMINUM	622.00	LF		$	
2830	08901		CRASH CUSHION TY VI CLASS BT TL2	20.00	EACH		$	
2840	08902		CRASH CUSHION TY VI CLASS B TL3	1.00	EACH		$	
2850	10020NS		FUEL ADJUSTMENT	173,665.00	DOLL	$1.00	$	$173,665.00
2860	10030NS		ASPHALT ADJUSTMENT	281,175.00	DOLL	$1.00	$	$281,175.00
2870	20191ED		OBJECT MARKER TY 3	5.00	EACH		$	
2880	20210EP69		COHESIVE PILE CORE	1,280.00	CUYD		$	
2890	20211ES706		BORE & JACK PIPE	380.00	LF		$	
2900	20327ES212		EROSION CONTROL BLANKET (SPECIAL)	363.00	SQYD		$	
2910	20394ES835		PVC CONDUIT-3 IN- IN MEDIAN BARRIER WALL	1,383.00	LF		$	
2920	20432ES112		REMOVE CRASH CUSHION	3.00	EACH		$	
2930	20465EC		CLEAN CULVERT	1.00	LS		$	
2940	21289ED		LONGITUDINAL EDGE KEY	27,300.00	LF		$	
2950	22520EN		PAVE MARKING-THERMO YIELD BAR-36 IN	30.00	LF		$	
2960	22664EN		WATER BLASTING EXISTING STRIPE	159,410.00	LF		$	
2970	22884EN		CONC MED BARRIER TY 14E	1,365.00	LF		$	
2980	23026ED		ARCHITECTURAL TREATMENT	191.00	SQYD		$	
2990	23086EN		CONCRETE MEDIAN BARRIER TY 9C	350.00	LF		$	
3000	23158ES505		DETECTABLE WARNINGS	550.00	SQFT		$	
3010	23274EN11F		TURF REINFORCEMENT MAT 1	956.00	SQYD		$	
3020	24489EC		INLAID PAVEMENT MARKER	428.00	EACH		$	
3030	24668EC		STEEL ENCASEMENT PIPE 8 INCH	380.00	LF		$	
3040	24814EC		PIPELINE INSPECTION	11,736.00	LF		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3740	00078		CRUSHED AGGREGATE SIZE NO 2	62.00	TON		$	
3750	00440		ENTRANCE PIPE-15 IN	181.00	LF		$	
3760	00443		ENTRANCE PIPE-24 IN	49.00	LF		$	
3770	00460		CULVERT PIPE-12 IN	4.00	LF		$	
3780	00462		CULVERT PIPE-18 IN	360.00	LF		$	
3790	00464		CULVERT PIPE-24 IN	134.00	LF		$	
3800	00466		CULVERT PIPE-30 IN	247.00	LF		$	
3810	00468		CULVERT PIPE-36 IN	4.00	LF		$	
3820	00469		CULVERT PIPE-42 IN	162.00	LF		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3830	00472		CULVERT PIPE-60 IN	16.00	LF		$	
3840	00472		CULVERT PIPE-60 IN CMP	12.00	LF		$	
3850	00520		STORM SEWER PIPE-12 IN	45.00	LF		$	
3860	00521		STORM SEWER PIPE-15 IN	399.00	LF		$	
3870	00522		STORM SEWER PIPE-18 IN	12,415.00	LF		$	
3880	00524		STORM SEWER PIPE-24 IN	2,643.00	LF		$	
3890	00526		STORM SEWER PIPE-30 IN	1,957.00	LF		$	
3900	00528		STORM SEWER PIPE-36 IN	454.00	LF		$	
3910	00529		STORM SEWER PIPE-42 IN	318.00	LF		$	
3920	00532		STORM SEWER PIPE-60 IN	71.00	LF		$	
3930	01000		PERFORATED PIPE-4 IN	1,506.00	LF		$	
3940	01002		PERFORATED PIPE-8 IN	530.00	LF		$	
3950	01005		PERFORATED PIPE EDGE DRAIN-4 IN	33,616.00	LF		$	
3960	01010		NON-PERFORATED PIPE-4 IN	1,471.00	LF		$	
3970	01020		PERF PIPE HEADWALL TY 1-4 IN	19.00	EACH		$	
3980	01022		PERF PIPE HEADWALL TY 1-8 IN	9.00	EACH		$	
3990	01024		PERF PIPE HEADWALL TY 2-4 IN	3.00	EACH		$	
4000	01028		PERF PIPE HEADWALL TY 3-4 IN	29.00	EACH		$	
4010	01032		PERF PIPE HEADWALL TY 4-4 IN	11.00	EACH		$	
4020	01204		PIPE CULVERT HEADWALL-18 IN	16.00	EACH		$	
4030	01208		PIPE CULVERT HEADWALL-24 IN	13.00	EACH		$	
4040	01210		PIPE CULVERT HEADWALL-30 IN	3.00	EACH		$	
4050	01212		PIPE CULVERT HEADWALL-36 IN	3.00	EACH		$	
4060	01214		PIPE CULVERT HEADWALL-42 IN	4.00	EACH		$	
4070	01220		PIPE CULVERT HEADWALL-60 IN	1.00	EACH		$	
4080	01433		SLOPED BOX OUTLET TYPE 1-18 IN	1.00	EACH		$	
4090	01442		SLOPED AND PARALLEL HEADWALL-12 IN	1.00	EACH		$	
4100	01450		S & F BOX INLET-OUTLET-18 IN	2.00	EACH		$	
4110	01452		S & F BOX INLET-OUTLET-30 IN	2.00	EACH		$	
4120	01456		CURB BOX INLET TYPE A	132.00	EACH		$	
4130	01480		CURB BOX INLET TYPE B	3.00	EACH		$	
4140	01496		DROP BOX INLET TYPE 3	29.00	EACH		$	
4150	01499		DROP BOX INLET TYPE 4	2.00	EACH		$	
4160	01517		DROP BOX INLET TYPE 5F	1.00	EACH		$	
4170	01529		DROP BOX INLET TYPE 6D	2.00	EACH		$	
4180	01544		DROP BOX INLET TYPE 11	9.00	EACH		$	
4190	01550		DROP BOX INLET TYPE 12A	12.00	LF		$	
4200	01559		DROP BOX INLET TYPE 13G	7.00	EACH		$	
4210	01568		DROP BOX INLET TYPE 13S	1.00	EACH		$	
4220	01577		DROP BOX INLET TYPE 14	7.00	EACH		$	
4230	01650		JUNCTION BOX	6.00	EACH		$	
4240	01691		FLUME INLET TYPE 2	2.00	EACH		$	
4250	01740		CORED HOLE DRAINAGE BOX CON-4 IN	85.00	EACH		$	
4260	01756		MANHOLE TYPE A	14.00	EACH		$	
4270	01767		MANHOLE TYPE C	4.00	EACH		$	
4280	02200		ROADWAY EXCAVATION	1,366.00	CUYD		$	
4290	23045ES508		CONCRETE MEDIAN BARRIER TY 14B(50)	5.00	LF		$	
4300	23874EC		CONCRETE MEDIAN BARRIER TY 14A(50)	1.00	LF		$	

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Section: 0004 - BRIDGE-RETAINING WALL 27557

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4310	01000		PERFORATED PIPE-4 IN	320.00	LF		$	
4320	02223		GRANULAR EMBANKMENT	1,101.00	CUYD		$	
4330	02998		MASONRY COATING	428.00	SQYD		$	
4340	08003		FOUNDATION PREPARATION	1.00	LS		$	
4350	08100		CONCRETE-CLASS A	246.00	CUYD		$	
4360	08150		STEEL REINFORCEMENT	27,660.00	LB		$	
4370	21532ED		RAIL SYSTEM TYPE III	218.00	LF		$	
4380	23026ED		ARCHITECTURAL TREATMENT	200.00	SQYD		$	

Section: 0005 - BRIDGE-27550

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4390	02231		STRUCTURE GRANULAR BACKFILL	348.00	CUYD		$	
4400	02998		MASONRY COATING	936.00	SQYD		$	
4410	03299		ARMORED EDGE FOR CONCRETE	175.00	LF		$	
4420	08001		STRUCTURE EXCAVATION-COMMON	40.00	CUYD		$	
4430	08019		CYCLOPEAN STONE RIP RAP	2,930.00	TON		$	
4440	08033		TEST PILES	57.00	LF		$	
4450	08046		PILES-STEEL HP12X53	930.00	LF		$	
4460	08094		PILE POINTS-12 IN	28.00	EACH		$	
4470	08100		CONCRETE-CLASS A	313.60	CUYD		$	
4480	08104		CONCRETE-CLASS AA	654.60	CUYD		$	
4490	08130		MECHANICAL REINF COUPLER #5	8.00	EACH		$	
4500	08133		MECHANICAL REINF COUPLER #8	16.00	EACH		$	
4510	08135		MECHANICAL REINF COUPLER #10	32.00	EACH		$	
4520	08140		MECHANICAL REINF COUPLER #5 EPOXY COATED	40.00	EACH		$	
4530	08150		STEEL REINFORCEMENT	59,004.00	LB		$	
4540	08151		STEEL REINFORCEMENT-EPOXY COATED	170,930.00	LB		$	
4550	08633		PRECAST PC I BEAM TYPE 3	1,605.00	LF		$	
4560	20637ED		DRILLED SHAFT-ROCK 48 IN	133.90	LF		$	
4570	21532ED		RAIL SYSTEM TYPE III	363.00	LF		$	
4580	21777EN		DRILLED SHAFT COMMON-54 IN	215.90	LF		$	
4590	24404EC		MECHANICAL REINF COUPLER-#7 EPOXY COATED	626.00	EACH		$	

Section: 0006 - BRIDGE-CULVERT 27551

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4600	02223		GRANULAR EMBANKMENT	155.00	CUYD		$	
4610	08003		FOUNDATION PREPARATION	1.00	LS		$	
4620	08100		CONCRETE-CLASS A	132.00	CUYD		$	
4630	08150		STEEL REINFORCEMENT	12,390.00	LB		$	

Section: 0007 - BRIDGE-CULVERT 27552

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Section: 0007 - BRIDGE-CULVERT 27552

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4640	02223		GRANULAR EMBANKMENT	675.00	CUYD		$	
4650	08001		STRUCTURE EXCAVATION-COMMON	410.00	CUYD		$	
4660	08003		FOUNDATION PREPARATION	1.00	LS		$	
4670	08100		CONCRETE-CLASS A	180.00	CUYD		$	
4680	08150		STEEL REINFORCEMENT	18,550.00	LB		$	

Section: 0008 - BRIDGE-CULVERT 27553

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4690	02223		GRANULAR EMBANKMENT	220.00	CUYD		$	
4700	08003		FOUNDATION PREPARATION	1.00	LS		$	
4710	08100		CONCRETE-CLASS A	198.00	CUYD		$	
4720	08150		STEEL REINFORCEMENT	15,120.00	LB		$	

Section: 0009 - BRIDGE-CULVERT 27554

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4730	02223		GRANULAR EMBANKMENT	235.00	CUYD		$	
4740	08003		FOUNDATION PREPARATION	1.00	LS		$	
4750	08100		CONCRETE-CLASS A	240.00	CUYD		$	
4760	08150		STEEL REINFORCEMENT	20,890.00	LB		$	

Section: 0010 - BRIDGE-CULVERT 27556

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0170	02223		GRANULAR EMBANKMENT	485.00	CUYD		$	
0180	08003		FOUNDATION PREPARATION	1.00	LS		$	
0190	08100		CONCRETE-CLASS A	516.00	CUYD		$	
0200	08150		STEEL REINFORCEMENT	74,580.00	LB		$	

Section: 0011 - BRIDGE-RETAINING WALL 27558

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0210	01000		PERFORATED PIPE-4 IN	550.00	LF		$	
0220	02223		GRANULAR EMBANKMENT	793.00	CUYD		$	
0230	02998		MASONRY COATING	408.00	SQYD		$	
0240	08002		STRUCTURE EXCAV-SOLID ROCK	736.00	CUYD		$	
0250	08003		FOUNDATION PREPARATION	1.00	LS		$	
0260	08100		CONCRETE-CLASS A	273.00	CUYD		$	
0270	08150		STEEL REINFORCEMENT	31,200.00	LB		$	
0280	08257		HANDRAIL-PEDESTRIAN ALUMINUM	380.00	LF		$	
0290	23026ED		ARCHITECTURAL TREATMENT	282.00	SQYD		$	

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Section: 0012 - BRIDGE-RETAINING WALL 27559

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0300	01000		PERFORATED PIPE-4 IN	502.00	LF		$	
0310	02223		GRANULAR EMBANKMENT	1,056.00	CUYD		$	
0320	02998		MASONRY COATING	403.00	SQYD		$	
0330	08003		FOUNDATION PREPARATION	1.00	LS		$	
0340	08100		CONCRETE-CLASS A	265.00	CUYD		$	
0350	08150		STEEL REINFORCEMENT	29,200.00	LB		$	
0360	08257		HANDRAIL-PEDESTRIAN ALUMINUM	400.00	LF		$	
0370	21532ED		RAIL SYSTEM TYPE III	400.00	LF		$	
0380	23026ED		ARCHITECTURAL TREATMENT	110.00	SQYD		$	

Section: 0013 - BRIDGE-RETAINING WALL 27560

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0390	01000		PERFORATED PIPE-4 IN	292.00	LF		$	
0400	02223		GRANULAR EMBANKMENT	346.00	CUYD		$	
0410	02998		MASONRY COATING	172.00	SQYD		$	
0420	08003		FOUNDATION PREPARATION	1.00	LS		$	
0430	08100		CONCRETE-CLASS A	113.00	CUYD		$	
0440	08150		STEEL REINFORCEMENT	13,600.00	LB		$	
0450	08257		HANDRAIL-PEDESTRIAN ALUMINUM	204.00	LF		$	
0460	21532ED		RAIL SYSTEM TYPE III	204.00	LF		$	

Section: 0014 - BRIDGE-CULVERT 27555

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0470	02223		GRANULAR EMBANKMENT	330.00	CUYD		$	
0480	08003		FOUNDATION PREPARATION	1.00	LS		$	
0490	08100		CONCRETE-CLASS A	273.00	CUYD		$	
0500	08150		STEEL REINFORCEMENT	27,260.00	LB		$	

Section: 0015 - UTILITY-GAS

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0510	16003		G ENCASEMENT STEEL BORED RANGE 2	446.00	LF		$	
0520	16009		G ENCASEMENT STEEL OPEN CUT RANGE 2	899.70	LF		$	
0530	16010		G ENCASEMENT STEEL OPEN CUT RANGE 3	152.50	LF		$	
0540	16015		G PIPE POLYETHYLENE/PLASTIC 02 INCH	5,611.00	LF		$	
0550	16017		G PIPE POLYETHYLENE/PLASTIC 04 INCH	8,963.00	LF		$	
0560	16018		G PIPE POLYETHYLENE/PLASTIC 06 INCH	1,135.00	LF		$	
0570	16036		G SERVICE SHORT SIDE 1 OR 1-1/4 INCH	2.00	EACH		$	
0580	16038		G SERVICE SHORT SIDE 2 INCH	8.00	EACH		$	
0590	16039		G SERVICE SHORT SIDE 3/4 INCH	10.00	EACH		$	
0600	16041		G TIE-IN POLYETHYLENE/PLASTIC 02 INCH	16.00	EACH		$	
0610	16043		G TIE-IN POLYETHYLENE/PLASTIC 04 INCH	21.00	EACH		$	
0620	16044		G TIE-IN POLYETHYLENE/PLASTIC 06 INCH	3.00	EACH		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0630	16049		G VALVE POLYETHYLENE/PLASTIC 02 INCH	32.00	EACH		$	
0640	16050		G VALVE POLYETHYLENE/PLASTIC 03 INCH	4.00	EACH		$	
0650	16051		G VALVE POLYETHYLENE/PLASTIC 04 INCH	65.00	EACH		$	
0660	16052		G VALVE POLYETHYLENE/PLASTIC 06 INCH	2.00	EACH		$	
0670	16064		G VALVE BOX ADJUST	103.00	EACH		$	
0680	16065		G LINE MARKER	173.00	EACH		$	
0690	24573EN		GAS LINE RELOCATION (STA. 3933+09)	1.00	LS		$	
0700	24573EN		GAS LINE RELOCATION (STA. 3935+75)	1.00	LS		$	

Section: 0016 - SEWER

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0710	15015		S ENCASEMENT STEEL BORED RANGE 2	61.00	LF		$	
0720	15016		S ENCASEMENT STEEL BORED RANGE 3	126.00	LF		$	
0730	15017		S ENCASEMENT STEEL BORED RANGE 4	100.00	LF		$	
0740	15021		S ENCASEMENT STEEL OPEN CUT RANGE 2	79.00	LF		$	
0750	15022		S ENCASEMENT STEEL OPEN CUT RANGE 3	504.00	LF		$	
0760	15023		S ENCASEMENT STEEL OPEN CUT RANGE 4	159.00	LF		$	
0770	15032		S FORCE MAIN DUCTILE IRON 04 INCH	2,270.00	LF		$	
0780	15033		S FORCE MAIN DUCTILE IRON 06 INCH	1,080.00	LF		$	
0790	15050		S FORCE MAIN PE/PLASTIC 03 INCH	1,651.00	LF		$	
0800	15051		S FORCE MAIN PE/PLASTIC 04 INCH	1,425.00	LF		$	
0810	15052		S FORCE MAIN PE/PLASTIC 06 INCH	2,715.00	LF		$	
0820	15069		S FORCE MAIN TAP SLEEVE/VALVE RNG 1	4.00	EACH		$	
0830	15072		S FORCE MAIN TIE-IN 03 INCH	3.00	EACH		$	
0840	15073		S FORCE MAIN TIE-IN 04 INCH	3.00	EACH		$	
0850	15074		S FORCE MAIN TIE-IN 06 INCH	2.00	EACH		$	
0860	15084		S FORCE MAIN VALVE GATE	5.00	EACH		$	
0870	15090		S LATERAL SHORT SIDE 06 INCH	14.00	EACH		$	
0880	15091		S LATERAL SPECIAL	14.00	EACH		$	
0890	15092		S MANHOLE	6.00	EACH		$	
0900	15092		S MANHOLE INSTALL ON EX LINE	3.00	EACH		$	
0910	15093		S MANHOLE ABANDON/REMOVE	10.00	EACH		$	
0920	15094		S MANHOLE ADJUST TO GRADE	16.00	EACH		$	
0930	15101		S MANHOLE WITH DROP	7.00	EACH		$	
0940	15104		S PIPE DUCTILE IRON 08 INCH	1,751.00	LF		$	
0950	15112		S PIPE PVC 08 INCH	1,626.00	LF		$	
0960	15119		S PUMP STATION	1.00	EACH		$	
0970	15120		S SPECIAL ITEM	2.00	EACH		$	
0980	15121		S STRUCTURE ABANDON	1.00	EACH		$	
0990	15121		S STRUCTURE ABANDON LIFT STATION	1.00	EACH		$	
1000	15122		S STRUCTURE REMOVAL	1.00	EACH		$	
1010	15122		S STRUCTURE REMOVAL LIFT STATION	1.00	EACH		$	
1020	15123		S LINE MARKER	20.00	EACH		$	

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Section: 0017 - SIGNING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1030	06405		SBM ALUMINUM PANEL SIGNS	280.00	SQFT		$	
1040	06406		SBM ALUM SHEET SIGNS .080 IN	612.00	SQFT		$	
1050	06407		SBM ALUM SHEET SIGNS .125 IN	307.00	SQFT		$	
1060	06411		STEEL POST TYPE 2	2,384.00	LF		$	
1070	06412		STEEL POST MILE MARKERS	4.00	EACH		$	
1080	06441		GMSS GALV STEEL TYPE C	1,958.00	LB		$	
1090	06490		CLASS A CONCRETE FOR SIGNS	3.50	CUYD		$	
1100	06491		STEEL REINFORCEMENT FOR SIGNS	684.00	LB		$	
1110	20419ND		ROADWAY CROSS SECTION	6.00	EACH		$	
1120	24631EC		BARCODE SIGN INVENTORY	158.00	EACH		$	

Section: 0018 - SIGNALIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1130	04792		CONDUIT-1 IN	190.00	LF		$	
1140	04793		CONDUIT-1 1/4 IN	1,980.00	LF		$	
1150	04795		CONDUIT-2 IN	740.00	LF		$	
1160	04811		ELECTRICAL JUNCTION BOX TYPE B	28.00	EACH		$	
1170	04820		TRENCHING AND BACKFILLING	2,455.00	LF		$	
1180	04830		LOOP WIRE	10,060.00	LF		$	
1190	04844		CABLE-NO. 14/5C	12,570.00	LF		$	
1200	04845		CABLE-NO. 14/7C	435.00	LF		$	
1210	04850		CABLE-NO. 14/1 PAIR	10,110.00	LF		$	
1220	04885		MESSENGER-10800 LB	1,025.00	LF		$	
1230	04886		MESSENGER-15400 LB	1,395.00	LF		$	
1240	04895		LOOP SAW SLOT AND FILL	3,565.00	LF		$	
1250	04931		INSTALL CONTROLLER TYPE 170	4.00	EACH		$	
1260	04932		INSTALL STEEL STRAIN POLE	22.00	EACH		$	
1270	04950		REMOVE SIGNAL EQUIPMENT	2.00	EACH		$	
1280	06472		INSTALL SPAN MOUNTED SIGN	10.00	EACH		$	
1290	20093NS835		INSTALL PEDESTRIAN HEAD-LED	18.00	EACH		$	
1300	20188NS835		INSTALL LED SIGNAL-3 SECTION	30.00	EACH		$	
1310	20189NS835		INSTALL LED SIGNAL-5 SECTION	2.00	EACH		$	
1320	20266ES835		INSTALL LED SIGNAL- 4 SECTION	9.00	EACH		$	
1330	20408ES835		INSTALL LED BEACON-12 IN	10.00	EACH		$	
1340	21743NN		INSTALL PEDESTRIAN DETECTOR	18.00	EACH		$	
1350	23157EN		TRAFFIC SIGNAL POLE BASE	105.60	CUYD		$	
1360	23222EC		INSTALL SIGNAL PEDESTAL	4.00	EACH		$	
1370	23982EC		INSTALL ANTENNA	4.00	EACH		$	
1380	24525EC		ADVANCE WARNING FLASHER	1.00	EACH		$	
1390	24526ED		INSTALL-BEACON CONTROLLER-2 CIRCUIT	1.00	EACH		$	

Section: 0019 - LIGHTING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1400	04700		POLE 30 FT MTG HT	39.00	EACH		$	
1410	04701		POLE 40 FT MTG HT	11.00	EACH		$	
1420	04723		BRACKET 10 FT	32.00	EACH		$	
1430	04724		BRACKET 12 FT	5.00	EACH		$	
1440	04725		BRACKET 15 FT	6.00	EACH		$	
1450	04730		BRACKET C	7.00	EACH		$	
1460	04740		POLE BASE	43.00	EACH		$	
1470	04741		POLE BASE IN MEDIAN WALL	7.00	EACH		$	
1480	04750		TRANSFORMER BASE	43.00	EACH		$	
1490	04761		LIGHTING CONTROL EQUIPMENT	2.00	EACH		$	
1500	04773		HPS LUMINAIRE HIGH MAST	7.00	EACH		$	
1510	04780		FUSED CONNECTOR KIT	100.00	EACH		$	
1520	04797		CONDUIT-3 IN	760.00	LF		$	
1530	04800		MARKER	3.00	EACH		$	
1540	04810		ELECTRICAL JUNCTION BOX	1.00	EACH		$	
1550	04820		TRENCHING AND BACKFILLING	4,800.00	LF		$	
1560	04832		WIRE-NO. 12	6,450.00	LF		$	
1570	04833		WIRE-NO. 8	4,320.00	LF		$	
1580	04860		CABLE-NO. 8/3C DUCTED	630.00	LF		$	
1590	04940		REMOVE LIGHTING	1.00	LS		$	
1600	20391NS835		ELECTRICAL JUNCTION BOX TYPE A	13.00	EACH		$	
1610	20394ES835		PVC CONDUIT-3 IN- IN MEDIAN BARRIER WALL	1,535.00	LF		$	
1620	20410ED		MAINTAIN LIGHTING	1.00	LS		$	
1630	21543EN		BORE AND JACK CONDUIT	745.00	LF		$	
1640	24589ED		LED LUMINAIRE	43.00	EACH		$	
1650	24851EC		CABLE-NO. 10/3C DUCTED	5,440.00	LF		$	

Section: 0020 - WATERLINE - MCWD

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3050	02220		FLOWABLE FILL	237.00	CUYD		$	
3060	02289		DOUBLE VEHICULAR WOVEN WIRE GATE	1.00	EACH		$	
3070	14003		W CAP EXISTING MAIN	8.00	EACH		$	
3080	14007		W ENCASEMENT STEEL BORED RANGE 2	165.00	LF		$	
3090	14008		W ENCASEMENT STEEL BORED RANGE 3	330.00	LF		$	
3100	14013		W ENCASEMENT STEEL OPEN CUT RANGE 2	250.00	LF		$	
3110	14014		W ENCASEMENT STEEL OPEN CUT RANGE 3	610.00	LF		$	
3120	14019		W FIRE HYDRANT ASSEMBLY	1.00	EACH		$	
3130	14023		W FLUSHING ASSEMBLY	6.00	EACH		$	
3140	14028		W METER 3/4 INCH	22.00	EACH		$	
3150	14056		W PIPE PVC 02 INCH	55.00	LF		$	
3160	14057		W PIPE PVC 03 INCH	1,185.00	LF		$	
3170	14057		W PIPE PVC 03 INCH RSTRND JOINT	185.00	LF		$	
3180	14058		W PIPE PVC 04 INCH	1,185.00	LF		$	
3190	14058		W PIPE PVC 04 INCH RSTRND JOINT	185.00	LF		$	
3200	14059		W PIPE PVC 06 INCH	4,730.00	LF		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3210	14059		W PIPE PVC 06 INCH RSTRND JOINT	585.00	LF		$	
3220	14060		W PIPE PVC 08 INCH	1,835.00	LF		$	
3230	14085		W SERV PE/PLST SHORT SIDE 3/4 IN	22.00	EACH		$	
3240	14089		W TAPPING SLEEVE AND VALVE SIZE 1	8.00	EACH		$	
3250	14091		W TIE-IN 02 INCH	1.00	EACH		$	
3260	14094		W TIE-IN 06 INCH	1.00	EACH		$	
3270	14103		W VALVE 03 INCH	2.00	EACH		$	
3280	14104		W VALVE 04 INCH	1.00	EACH		$	
3290	14105		W VALVE 06 INCH	6.00	EACH		$	
3300	14106		W VALVE 08 INCH	4.00	EACH		$	
3310	14155		W TIE-IN 01 INCH	1.00	EACH		$	

Section: 0021 - WATERLINE-SAYLERSVILLE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3320	14003		W CAP EXISTING MAIN	6.00	EACH		$	
3330	14008		W ENCASEMENT STEEL BORED RANGE 3	217.50	LF		$	
3340	14009		W ENCASEMENT STEEL BORED RANGE 4	149.50	LF		$	
3350	14014		W ENCASEMENT STEEL OPEN CUT RANGE 3	609.50	LF		$	
3360	14015		W ENCASEMENT STEEL OPEN CUT RANGE 4	189.00	LF		$	
3370	14019		W FIRE HYDRANT ASSEMBLY	5.00	EACH		$	
3380	14021		W FIRE HYDRANT REMOVE	5.00	EACH		$	
3390	14023		W FLUSHING ASSEMBLY	1.00	EACH		$	
3400	14025		W METER 1 INCH	2.00	EACH		$	
3410	14027		W METER 2 INCH	13.00	EACH		$	
3420	14028		W METER 3/4 INCH	15.00	EACH		$	
3430	14030		W METER RELOCATE	36.00	EACH		$	
3440	14031		W METER VAULT	1.00	EACH		$	
3450	14035		W PIPE DUCTILE IRON 04 INCH WITH NITRILE GASKETS	1,780.00	LF		$	
3460	14036		W PIPE DUCTILE IRON 06 INCH	222.00	LF		$	
3470	14036		W PIPE DUCTILE IRON 06 INCH WITH NITRILE GASKETS	3,295.00	LF		$	
3480	14037		W PIPE DUCTILE IRON 08 INCH	280.00	LF		$	
3490	14037		W PIPE DUCTILE IRON 08 INCH WITH NITRILE GASKETS	3,107.00	LF		$	
3500	14056		W PIPE PVC 02 INCH	354.00	LF		$	
3510	14058		W PIPE PVC 04 INCH	315.00	LF		$	
3520	14059		W PIPE PVC 06 INCH	50.00	LF		$	
3530	14060		W PIPE PVC 08 INCH	2,370.00	LF		$	
3540	14068		W PIPE POLYETHYLENE/PLASTIC 04 INCH	1,281.00	LF		$	
3550	14069		W PIPE POLYETHYLENE/PLASTIC 06 INCH	3,230.00	LF		$	
3560	14070		W PIPE POLYETHYLENE/PLASTIC 08 INCH	1,822.00	LF		$	
3570	14080		W SERV PE/PLST LONG SIDE 3/4 IN	2.00	EACH		$	
3580	14081		W SERVICE RELOCATE	30.00	EACH		$	
3590	14082		W SERV PE/PLST SHORT SIDE 1 IN	2.00	EACH		$	
3600	14084		W SERV PE/PLST SHORT SIDE 2 IN	16.00	EACH		$	
3610	14085		W SERV PE/PLST SHORT SIDE 3/4 IN	27.00	EACH		$	
3620	14089		W TAPPING SLEEVE AND VALVE SIZE 1	7.00	EACH		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3630	14094		W TIE-IN 06 INCH	13.00	EACH		$	
3640	14095		W TIE-IN 08 INCH	19.00	EACH		$	
3650	14104		W VALVE 04 INCH	4.00	EACH		$	
3660	14105		W VALVE 06 INCH	23.00	EACH		$	
3670	14106		W VALVE 08 INCH	15.00	EACH		$	
3680	14113		W VALVE BOX ADJUST	31.00	EACH		$	
3690	14144		W LINE MARKER	22.00	EACH		$	

Section: 0022 - TRAINEES

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3700	02742		TRAINEE PAYMENT REIMBURSEMENT 1-CEMENT MASON	1,200.00	HOUR		$	
3710	02742		TRAINEE PAYMENT REIMBURSEMENT 1-GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	

Section: 0023 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3720	02568		MOBILIZATION	1.00	LS		$	
3730	02569		DEMOBILIZATION	1.00	LS		$	