CALL NO. 407

CONTRACT ID. 172131

JEFFERSON - BULLITT COUNTIES

FED/STATE PROJECT NUMBER 121GR17P026-FD05

DESCRIPTION KY 44 IN BULLITT AND JEFFERSON COUNTIES

WORK TYPE ASPHALT RESURFACING

PRIMARY COMPLETION DATE 11/15/2017

LETTING DATE: April 28,2017

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME April 28,2017. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

NO PLANS ASSOCIATED WITH THIS PROJECT.

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

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PART V BID ITEMS

PART I

SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 05

CONTRACT ID - 172131

121GR17P026-FD05

COUNTY - BULLITT

PCN - MP01500441701
FD05 015 0044 000-014

SHEPHERDSVILLE ROAD/4TH STREET (KY 44) (MP 0.000) FROM JEFFERSON COUNTY LINE EXTENDING EAST TO PAVEMENENT JOINT AT EAST SIDE OF CENTERVIEW DRIVE (MP 13.309), A DISTANCE OF 013.31 MILES.ASPHALT RESURFACING

GEOGRAPHIC COORDINATES LATITUDE 38:00:00.00 LONGITUDE 85:47:30.00

COUNTY - JEFFERSON

PCN - MP05600441701
FD05 056 0044 000-001

STITES STATION ROAD (KY 44) (MP 0.030) FROM FLOOD WALL GATE EAST OF US 31W EXTENDING EAST TO BULLITT COUNTY LINE (MP 0.588), A DISTANCE OF 0.56 MILES.ASPHALT RESURFACING

GEOGRAPHIC COORDINATES LATITUDE 38:01:00.00 LONGITUDE 85:54:50.00

COMPLETION DATE(S):

COMPLETED BY 11/15/2017	SPECIFIED COMPLETION DATE - ALL ITEMS IN CONTRACT
0 WORKING Hours	LANE CLOSURE DURING PROHIBITED HOURS-2ND & ADDITIONAL HOURS
0 WORKING Hours	LANE CLOSURE DURING PROHIBITED HOURS-FIRST HOUR

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

SPECIAL NOTE FOR RECIPROCAL PREFERENCE

Reciprocal preference to be given by public agencies to resident bidders

By reference, KRS 45A.490 to 45A.494 are incorporated herein and in compliance regarding the bidders residency. Bidders who want to claim resident bidder status should complete the Affidavit for Claiming Resident Bidder Status along with their bid in the Expedite Bidding Program. Submittal of the Affidavit should be done along with the bid in Bid Express.

PROJECT TRAFFIC COORDINATOR (PTC) FD05 015 0044 000-014

Be advised this project between milepoints 13.692-13.164 is a significant project pursuant to section 112.03.12.

SURFACING AREAS FD05 015 0044 000-014

The Department estimates the mainline surfacing width to vary 19-72 feet.

The Department estimates the total mainline area to be surfaced to be 171,100 square yards.

The Department estimates the shoulder width to vary 15-10 feet on each side. Portions of this project have a curb and gutter typical section with no shoulders.

The Department estimates the total shoulder area to be surfaced to be 24,750 square yards.

SURFACING AREAS FD05 056 0044 000-001

The Department estimates the mainline surfacing width to vary 18-32 feet.

The Department estimates the total mainline area to be surfaced to be 7,355 square yards.

The Department estimates the shoulder width to be 1.5 feet on each side.

The Department estimates the total shoulder area to be surfaced to be 1,035 square yards.

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-110-07 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.

OPTION A – FD05 015 044 000-014

Be advised that the Department will accept compaction of asphalt mixtures furnished for driving lanes and ramps, at 1 inch (25mm) or greater, between milepoint 9.939-13.309, 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.

OPTION B – FD05 056 044 000-001

Be advised that the Department will control and accept compaction of asphalt mixtures furnished on this project under OPTION B in accordance with Sections 402 and 403.

SPECIAL NOTES APPICABLE TO PROJECT
FD05 015 0044 000-0015

RAILROAD CROSSING AT MILEPOINT 12.337

Use Leveling and Wedging – Special to flatten the approach grade to the railroad crossing at milepoint 12.337 as directed by the Engineer. Obtain the Engineer's approval of the mix design gradation(s) prior to use. The Engineer may require multiple courses and adjust the gradation requirements of each course.

The railroad may be performing work on their crossing prior to, concurrent, or upon completion of the Contractor's work on the approach. Perform all work on the railway right-of-way at such times and in a manner to not unnecessarily interfere with the movement of trains or traffic upon the track of the railway company, and according to all other requirements of the railroad. Take all precautions to avoid accidents, damage, delays or interference with the railway company's trains or other property.

The Contractor shall acquire a Right of Entry (ROE) permit from the railroad prior to performing work in the vicinity of the crossing. The Right of Entry packet follows this note, as does a partially filled application. The Contractor shall pay all costs associated with the ROE, including, but not limited to, the application fee, required insurance, and flagging, if required. The need for flagging will be determined solely by the railroad.

Consider all of the permanent and temporary railroad facilities in their present or relocated positions when preparing a Bid Proposal. The Department will not allow any additional compensation for delays, inconvenience, or damage sustained by the Contractor due to any interference from railroad appurtenances or due to the railroad's operations. The Department will review requests for an extension of Contract time for such delays according to Subsection 108.07.

Accept payment at the Contract Lump Sum price for Leveling and wedging – Special as full compensation for all materials, labor, equipment, and incidentals for flattening the approach grade, obtaining ROE permit including, but not limited to, the application fee, required insurance, and flagging, if required, and complying with the railroad's requirements.

1610 Forest Ave Suite 120
Richmond, VA 23229
Office: (804) 226-7716

To: All Right-of-entry applicants
From: Public Projects Department, Design, Construction and Capacity, CSX Transportation, Inc.

Subject: Applications for Right-of-Entry Agreement to Property of CSX Transportation, Inc.

Attached is the necessary form and instructions for preparing your application to obtain permission to access Property of CSX Transportation, Inc. (CSXT) for Public Improvement projects. Entry for environmental, large equipment movement, soil borings, surveys, inspections, non-construction investigations or wireline/pipeline access should be redirected to: http://www.csx.com/?fuseaction=about.property.

In order to expedite the timely processing and ultimate execution of your request, please provide the following (instructions attached for each):

1. One signed original application form.
2. One copy of the work description statement.
3. One letter size print or sketch depicting location of project. Additional plans may be submitted for clarification, if necessary.

All right-of-entry applications and drawings should be sent to:

E-mail (Preferred Method)
jmiller@benesch.com **Or**

Mail
CSX Public Projects
c/o **Alfred Benesch & Company**
817 Providence Avenue,
Webster Groves, MO 63119
Attn.: **V. Jeane Miller**
Questions concerning technical aspects of the project and/or the application and agreement process should be directed to Project Manager Troy Creasy at Troy_Creasy@CSX.com

When the completed application documents as outlined above are received, the proposed agreement will be sent to you in approximately 14 days (provided the application is approved). Incomplete applications or drawings will be returned to the applicant and not handled until the correct information is received.

NO VERBAL AUTHORIZATION IS VALID TO WORK ON CSXT PROPERTY. FULLY EXECUTED AGREEMENTS, INSURANCE APPROVALS BY CSX, ADVANCED PAYMENT, AND ROADMASTER NOTIFICATION ARE REQUIRED PRIOR TO ANY ENTRY ON CSXT PROPERTY, OR WORK BEING PERFORMED.

If the work involves excavation, or other similar work requiring penetration below land surface, notification must be made to the state's or locality's one-call system and to CSXT's signal supervisor.

CSX Right-of-Entry Application Package

Instructions for Preparing Application Drawings

For uniformity in the preparation of prints and/or sketches to accompany applications, and in order to facilitate prompt processing, the following instructions will apply to all projects application drawings and/or sketches. Failure to include all pertinent information (either on the application or drawing) may result in the delay of processing or return of the application.

The size of the project application drawing shall be 8-1/2" x 11." Larger drawings or construction plans may be submitted if necessary for clarification but cannot be used in lieu of the project application drawing.

The project application drawing and/or sketch shall be to scale, or show adequate dimensional information, and must include:

- North arrow.
- Nearest road crossing showing milepost and DOT number as outlined below.
- Plan view clearly showing the proposed project, including stationing and legends if applicable.
- Centerline of all railroad tracks.
- Property and/or right-of-way lines if known.
- Location of all proposed work and routes of access.
- A statement indicating whether or not it will be necessary to: 1) physically cross any railroad track (with vehicles or on foot) and; 2) come within 25 feet of any railroad track at any point along the access route or while conducting work.
- Drawing number and date

Instructions for Preparing Application Form

- "Project Owner Information" and "Project Information" sections must be filled out completely.
- The agreement will be prepared in the name of the Project Owner. It is important to provide the complete Legal Name of the entity as well as its state of incorporation.
- Check the appropriate space to designate where the agreement should be mailed. If none or both are checked, the agreement will be mailed only to the Project Owner.
- **REQUIRED:** Provide the estimated distance to/from the nearest road crossing or milepost. Identify the road crossing by its CSXT Railroad Milepost number (including prefix, i.e. QC 292.83) and/or DOT/AAR number. The DOT/AAR number is a specific number assigned to each road crossing CSXT tracks and should be posted at or near the crossing (usually on a pole or signal mast). It is usually a rectangular white sign with black numbers/letters and will consist of 6 numbers followed by one letter (Example: 630 543 P). In lieu of the DOT number, an exact Latitude and Longitude may be provided to aid in finding the project location in the railroad's maps and files.
- Please remember to date and sign the application form.

Instructions for Preparing Proposed Work Description

Prepare a brief description of the proposed work (not to exceed three pages), providing sufficient information to justify the need to access CSXT property. The information shall include:

- the proposed start date and expected duration of the project;
- a description of the proposed work identifying the nature and location of any item or structure to be installed on CSXT property (e.g., culverts, monuments, ditches);
- Types of equipment to be used onsite (drill rigs, backhoe, excavator, etc.).
- Methods of restoring right-of-way if disturbed by work.

Please be aware that the Agreement will be strictly limited to the scope of services as defined in your work description. If, at any time, it becomes necessary to modify the scope of service, you must request a modification in writing and obtain a supplemental Agreement prior to performing the work.

Flagging Requirements

If required for your work, a CSXT flagman will be provided at the entire cost and expense of the work's owner and/or the applicant for the duration of the project. This protection cannot be provided by any personnel other than an authorized CSXT employee. CSXT will make the sole determination as to whether flagging protection is required based on the work to be performed. CSXT flagging costs are approximately $1,300.00 per day. While CSXT cannot guarantee the availability of flagmen at all requested times, every accommodation will be extended to the Contractor when forces are available.

INSURANCE REQUIREMENTS

I. **Insurance Policies:**

Agency and Contractor, if and to the extent that either is performing work on or about CSXT's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability (CGL) coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional insured.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000, which insurance must contain a waiver of subrogation against CSXT and its affiliates [if permitted by state law].

3. Commercial Automobile Liability insurance with limits of not less than $1,000,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional insured.

4. Railroad Protective Liability (RPL) insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

a. The Railroad Protective Liability Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance - Insurance Services Office (ISO) Form CG 00 35.
b. CSX Transportation must be the named insured on the Railroad Protective Liability Insurance Policy. The named insured's address should be listed as:

CSX Transportation, Inc.
500 Water Street, C-907
Jacksonville, FL 32202

c. The Name and Address of the Contractor and of the Project Sponsor/Involved Governmental Agency must be shown on the Declarations page.
d. A description of operations and location must appear on the Declarations page and must match the Project description.
e. Terrorism Risk Insurance Act (TRIA) coverage must be included.
f. Authorized endorsements must include:

(i) Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later

g. Authorized endorsements may include:

(i) Broad Form Nuclear Exclusion - IL 00 21
(ii) Notice of Non-renewal or cancellation
(iii) Required State Cancellation Endorsement
(iv) Quick Reference or Index - CL/IL 240

h. Authorized endorsements may not include:

(i) A Pollution Exclusion Endorsement except CG 28 31
(ii) An Endorsement that excludes TRIA coverage
(iii) An Endorsement that limits or excludes Professional Liability coverage
(iv) A Non-Cumulation of Liability or Pyramiding of Limits Endorsement
(v) A Known Injury Endorsement
(vi) A Sole Agent Endorsement
(vii) A Punitive or Exemplary Damages Exclusion
(viii) A "Common Policy Conditions" Endorsement
(ix) Policies that contain any type of deductible
(x) Any endorsement that is not named in Section 4 (f) or (g) above that CSXT deems unacceptable

i. *At Railroad's option, in lieu of purchasing RPL insurance (but not CGL insurance), Licensee may pay Railroad a Construction Risk Fee, currently THREE THOUSAND DOLLARS ($3,000) per location, and thereby be relieved of any obligation to purchase said RPL insurance.*

5. All insurance companies must be A. M. Best rated A- and Class VII or better.

6. Such additional or different insurance as CSXT may require.

II. **Additional Terms**

1. Contractor must submit the complete Railroad Protective Liability policy, Certificates of Insurance and all notices and correspondence regarding the insurance policies in an electronic format to:

insurancedocuments@CSX.com, with a copy to jmiller@benesch.com and troy_creasy@csx.com

2. Neither Agency nor Contractor may begin work on or about CSXT property until written approval of the required insurance has been received from CSXT or CSXT's Insurance Compliance vendor, Ebix.

III. **Insurance Contact Information**

1. CSXT utilizes a third-party company to handle all insurance documentation submittals and approvals. For insurance questions contact:

Ann Dinkfield Phone: (951) 658-4069 Email: Ann.Dinkfield@Ebix.com or
Ariana Sladky Phone: (619) 881-4251 Email: Ariana.Sladky@Ebix.com or
insurancedocuments@csx.com.

Payment of CSXT's Costs and Expenses

Key Points and Procedures

- For non-State agencies, Right of Entry administrative costs and anticipated flagging services must be paid in advance of the proposed work.
- CSXT flagging expenses will be estimated during the preparation of the Right of Entry agreement. The estimated cost will be incorporated into the agreement. Advance payment is required to cover these expenses prior to the start of project work.
- If CSXT anticipates that actual expenses will exceed the advance payment, additional payment will be required. Project work may be stopped until additional payment is received.
- If CSXT's actual expenses are less than the sum of any deposits the difference will be refunded after final cost accounting.

Project sponsor shall reimburse CSXT for all costs and expenses incurred by CSXT in connection with the Right of Entry.

Examples of Costs and Expenses associated with Right of Entry projects include:

- All out of pocket expenses
- Travel and lodging expenses
- Costs for equipment, tools, materials and supplies
- Sums paid to CSXT's consultants and subcontractors
- CSXT labor in connection with the Project

PAYMENT INSTRUCTIONS

1. Following receipt of a completed application, a Force Account Estimate will be provided that will include a non-refundable Application Fee in the amount of $750.00, plus any necessary flagging and administrative cost. Advance payment of the estimate amount, payable to CSX Transportation, Inc., shall be delivered to the below address along with a completed Schedule PA form that will be provided with the estimate.

CSX Transportation, Inc.
P. O. Box 116651
Atlanta. GA 30368-6651

   a. Deliver a scanned copy of the check and Schedule PA Form to jmiller@benesch.com for tracking purposes.

   b. Only a fully executed Right-of-Entry Agreement constitutes CSX approval of the project.

   c. Unused monies may be refunded following completion of the project.

   d. An example of a force Account Estimate, with four (4) days of flagging, is provided below as general reference.

ESTIMATE SUBJECT TO REVISION AFTER: 3/8/2016 DOT NO.: 123456A
CITY: City COUNTY: County STATE: VA
DESCRIPTION: RIGHT-OF-ENTRY REQUEST Estimate of cost to support Smith Street pavement resurfacing and striping
DIVISION: C&O Division (Huntington) SUB-DIV: Subdivision name MILE POST: RRMP
AGENCY PROJECT NUMBER:

	CONSTRUCTION ENGINEERING/INSPECTION:				
212	Contracted & Administrative Engineering Services (CSXT In-Office)			$	200
212	Contracted & Administrative Engineering Services (Application Fee)			$	1,150
	Subtotal			$	1,350
	FLAGGING SERVICE: (Contract Labor)				
070	Labor (Conductor-Flagman)			$	-
050	Labor (Foreman/Inspector)	4 Days @	$ 1,200 00	$	4,800
230	Per Diem & Expenses (Engineering Department)	4 Days @	$ 100 00	$	400
	Subtotal			$	5,200
	SIGNAL & COMMUNICATIONS WORK:			$	-
	TRACK WORK:			$	-
	PROJECT SUBTOTAL			$	6,550
900	CONTINGENCIES: 10.00%			$	655
	GRAND TOTAL			$	7,205
	DIVISION OF COST:				
	Agency 100.00%			$	7,205
	Railroad			$	-
	TOTAL			$	7,205

NOTE: Estimate is based on FULL CROSSING CLOSURE during work by Railroad Forces.
This estimate has been prepared based on site conditions, anticipated work duration periods, material prices, labor rates, manpower and resource availability, and other factors known as of the date prepared. The actual cost for CSXT work may differ based upon the agency's requirements, their contractor's work procedures, and/or other conditions that become apparent once construction commences or during the progress of the work.

Office of Assistant Chief Engineer Public Projects--Jacksonville, Florida
Estimated prepared by: Approved by: CSXT Public Project Group
DATE: 3/10/2015 REVISED: DATE:

2. At Railroad's option, in lieu of purchasing RPL insurance (but not CGL insurance), Applicant may pay Railroad a Construction Risk Fee, between THREE THOUSAND DOLLARS ($3,000) and FIVE THOUSAND DOLLARS ($5,000) per location, and thereby be relieved of any obligation to purchase said RPL insurance. Payment of the Construction Risk Fee will need to be arranged with Ebix at insurancedocuments@csx.com. Please see the Insurance Requirements section of this application for additional information.

Clear Form

CSX Right of Entry / Flagging Application

Date:		

ALL FIELDS MARKED WITH AN ASTERISK (*) ARE REQUIRED FIELDS AND MUST BE COMPLETED

SECTION 1: PROJECT INFORMATION

Legal Name of Party Performing the Work (required)

*Owner's Complete Legal Company Name					
*Legal Address (1)					
Legal Address (2)					
*City:		*State:		*Zip:	
*Business Type:					
State of Incorporation (If applicable)					

Billing Address

Check box if same as above ☐ (Billing address should match agreement agency/sponsor signatory)

Billing Address (1):					
Billing Address (2):					
City:		*State:		*Zip:	

Project Contact Information

*Contact Name:		Contact Title:	
*Office Phone:		Cell Phone:	
*Email:		*24/7 Emergency Phone:	

SECTION 2: PROJECT REFERENCE

*Is this a time extension request or a request to add an additional location to an existing Right-of-Entry Agreement?

If Yes, Provide Agreement # and/or date:

*Is this project related to another transaction/project with CSX?
If Yes, Provide as much information as possible.

*Provide Applicant's Project Reference Number:	

SECTION 3: PROJECT LOCATION/SCOPE/DESCRIPTION

Project Location

*City:	Shepherdsville	* County:	Bullitt	*State:	KY

In addition to the above location information, a minimum of one of the below references must be provided for processing.

Latitude: 37.9904 Longitude: -85.7136 DOT# 343532B

RR Milepost: 000-18.28 *Nearest address: 255 Highway 44 E, Shepherdsville, KY 40165

0 feet NORTH (Direction) from DOT Road Crossing Number

feet (Direction) from CSX Railroad Milepost Number

Project Scope

*Please select a type of entry request Milling & Paving

If Other, please describe here:

Railroad Operations

*How close will the proposed activity be to the nearest railroad track?

*Will the proposed activity require crossing railroad track(s)

Project Description

*Please provide an accurate project description, scope of work, and a detailed drawing(s). Please also include the type of equipment that will be used

*Proposed Project Start Date:

*Proposed Project Duration (Days):

*Will this work be performed at night and/or on weekends?

SECTION 4: AGREEMENT INFORMATION

*Upon submission of a completed Right-of-Entry application, a Right of Entry agreement and estimated cost for flagging will be sent to you upon CSX approval. Who will be the signatory on the Right of Entry agreement?

Name: Sponsor & Title:

CSX TRANSPORTATION – GOVERNMENT BILLING DEPT
NEW PROJECT FORM

To ensure compliance with Federal requirements, please provide the following information so that CSXT may accurately and appropriately setup and handle the necessary accounting associated with the proposed project.

*1) Is the project Federally Funded?	No
*2) Funding Source: If the project is funded by multiple sources please provide the approximate anticipated percentage of the total project cost to be paid by each source.	State If multiple or other please describe here:
*3) Project Requirements	☐ Procurement Restrictions (e.g. Buy America(n), Buy State, US Steel) ☐ Procurement Restrictions Waiver ☐ Suspended / Debarred ☐ Davis-Bacon Act ☐ E-Verify ☐ Other, please descibe here

*4) Single Audit Type: Please advise if the project is subject to single audit requirements by completing the appropriate box below (complete only one box).

Not Applicable ☑ CSX is not subject to the Single Audit. Note: This audit is not related to the project specific audit performed by your agency.	**Federal Audit** ☐ Please Specify ☐ OMB Circular A-133 ☐ Uniform Guidance Single Audit Status [1] [2]: ☐ Vendor (CFDA # Not Required) ☐ Recipient (CFDA #) ☐ Sub-Recipient (CFDA #)	**Florida Single Audit** ☐ (Florida Statute 215.97) CSFA # [3]

Recipient. The Federal Sub-Recipient and Vendor Determination Checklist is enclosed for reference.

[2] **CFDA Number:** If CSX is subject to the Federal Single Audit, please provide the Catalog of Federal Domestic Assistance (CFDA) number.

[3] **CSFA Number:** If CSX is subject to the Florida Single Audit, please provide the Catalog of State Financial Assistance (CSFA) number.

*Please Note: Per 2 CFR 200.425(a), CSXT can recover Federal Audit costs directly through this project.
For Audit related questions, contact GBCompliance@csx.com.

5) Agency Bill To Information

*Name:		Federal Award #:	
*Legal Address (1):		Date of Award:	
*Phone:		By signing this form you are authorizing CSXT to incur cost against this project.	
*Email			

Signature of Applicant
Please sign, print (optional), and e-mail this form to the authorized CSX representative

Signature of Applicant:		**Date:**	

FEDERAL SUBRECIPIENT AND VENDOR DETERMINATION CHECKLIST
Reference 29CFR99.210 and OMB Circular A-133.210

Subrecipient and Vendor Determinations

(a) General: An auditee may be a recipient, a subrecipient, and a vendor. Federal awards expended as a recipient or a subrecipient would be subject to audit under this part. The payments received for goods or services provided as a vendor would not be considered Federal awards. The guidance in paragraphs (b) and (c) of this section should be considered in determining whether payments rendered to CSX constitute a Federal award or a payment for goods and services.

SUBRECIPIENT

(b) Federal Award: Characteristics indicative of a Federal award received by a subrecipient are when the organization:

1. Determines who is eligible to receive what Federal financial assistance
2. Has its performance measured against whether the objectives of the Federal program are met
3. Has responsibility for programmatic decision-making
4. Has responsibility for adherence to applicable Federal program compliance requirements
5. Uses the Federal funds to carry out a program of the organization as compared to providing goods or services for a program of the pass-through entity

VENDOR

(c) Payment for goods and services:

1. Provides the goods and services within normal business operation
2. Provides similar goods or services to many different purchasers
3. Operates in a competitive environment
4. Provides goods or services that are ancillary to the operation of the Federal program
5. Is not subject to compliance requirements of the Federal program

(d) Use of judgment in making determination: There may be unusual circumstances or exceptions to the listed characteristics. In making the determination of whether a subrecipient or vendor relationship exists, the substance of the relationship is more important than the form of the agreement. It is not expected that all of the characteristics will be present and judgment should be used in determining whether an entity is a subrecipient or vendor.

Source: http://www.whitehouse.gov/sites/default/files/omb/circulars/a133/a133.pdf (§ ___210 Subrecipient and vendor determinations)

For Railroad Use Only - NTP Required Information					
OP#			Applicant Reference #		
Roadmaster Name:			Division:		
Roadmaster Email:			Subdivision:		
Roadmaster Phone:			Milepost:		
Scheduled Start Date:			# of Flagging Days:		
Special Instructions:					
RPL Purchased Under CSXT's Blanket Policy:		RPL Expiration Date:		CGL Expiration Date:	
Application Fees Attached?					
Approved:					
By:					
Date:					

SPECIAL NOTE FOR INLAID PAVEMENT MARKERS
FD05 015 0044 000-014

I. DESCRIPTION

Except as provided herein, perform all work in accordance with the Department's Standard and Supplemental Specifications and applicable Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications. This work shall consist of:

(1) Maintain and Control Traffic; and (2) Furnish and install Inlaid Pavement Markers (IPMs) in recessed grooves; and (3) Any other work as specified by these notes and the Contract.

II. MATERIALS

The Department will sample all materials in accordance with the Department's Sampling Manual. Make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Markers. Provide reflective lenses with depth control breakaway positioning tabs. Before furnishing the markers, provide to the Engineer the manufacturer's current recommendations for adhesives and installation procedures. Use one brand and design throughout the project. Use markers meeting the specifications in the table below.

SPECIFICATIONS FOR HOUSING AND REFLECTOR	
Material:	Polycarbonate Plastic
Weight:	Housing 2.00 oz.
	Reflector 2.00oz.
Housing Size:	5.00" x 3.00" x 0.70" high
Specific Intensity of Reflectivity at 0.2° Observation Angle	
White:	3.0 at 0°entrance angle
	1.2 at 20°entrance angle
Yellow:	60% of white values
Red:	25% of white values

C. Adhesives. Use adhesives that conform to the manufacturer's recommendations.

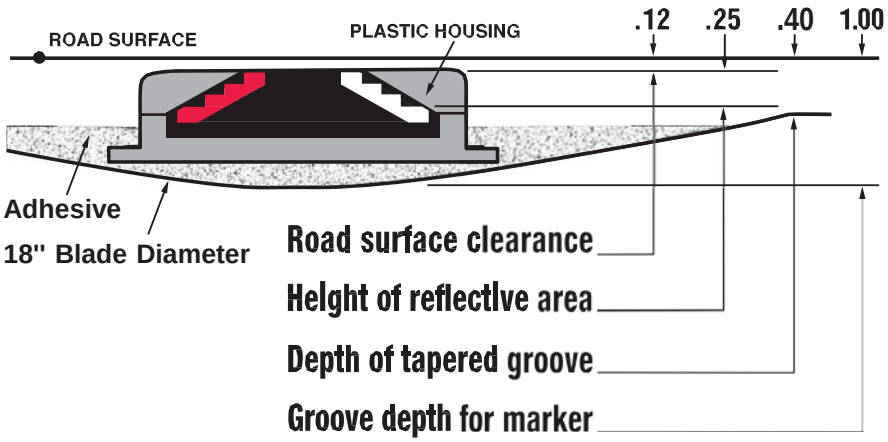
III. CONSTRUCTION

A. Experimental Evaluation. The University of Kentucky Transportation Center will be evaluating this installation of IPMs. Notify the Engineer a minimum of 14 calendar days prior to beginning work. The Engineer will coordinate the University's activities with the Contractor's work.

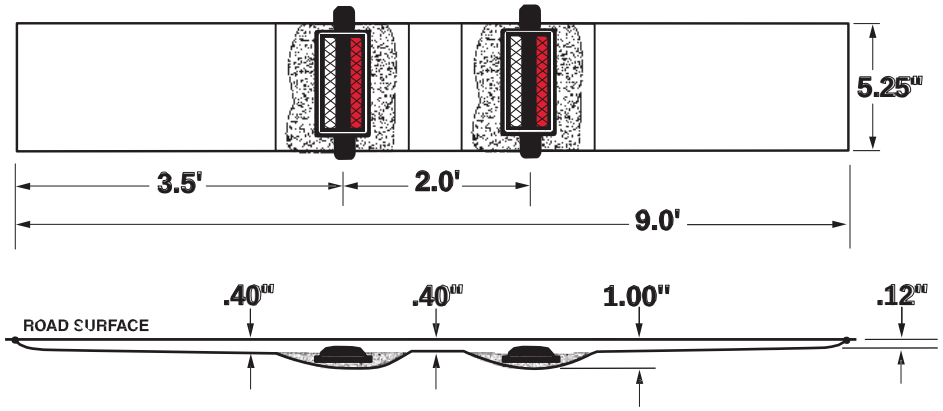
B. Maintain and Control Traffic. See Traffic Control Plan.

C. Installation. Install IPMs in recessed grooves cut into the final course of asphalt pavement according to the manufacturer's recommendations. Do not cut the grooves until the pavement has cured sufficiently to prevent tearing or raveling. Cut installation grooves using diamond blades on saws that accurately control groove dimensions. Remove all dirt, grease, oil, loose or unsound layers, and any other material from the marker area which would reduce the bond of the adhesive. Maintain pavement surfaces in a clean condition until placing markers.

Prepare the pavement surfaces, and install the markers in the recessed groove according to the drawing below. Use an approved snowplowable epoxy adhesive. Ensure that the adhesive bed area is equal to the bottom area of the marker, and apply adhesive in sufficient quantity to force excess out around the entire perimeter of the marker. Use materials, equipment, and construction procedures that ensure proper adhesion of the markers to the pavement surface according to the manufacturer's recommendations. Remove all excess adhesive from in front of the reflective faces. If any adhesive or foreign matter cannot be removed from the reflective faces, or if any marker fails to properly adhere to the pavement surface, remove and replace the marker at no additional cost to the Department.



D. Location and Spacing. Install the markers in the pattern for high reflectivity with two (2) IPMs per groove. Locate and space markers as shown in the current standard drawings or sepias (note: use Inlaid Pavement Markers wherever Type V Pavement Markers are called for). Do not install markers on bridge decks. Do not install a marker on top of a pavement joint or crack. Offset the recessed groove a minimum of 2 inches from any longitudinal pavement joint or crack and at least one inch from the painted stripe, ensuring that the finished line of markers is straight with minimal lateral deviation. Give preference to maintaining the 2-inch offset between recessed groove and joint as opposed to keeping the line of markers straight.



Place inlaid markers as much in line with existing pavement striping as possible. Place markers installed along an edge line or channelizing line so that the near edge of the plastic housing is no more than one inch from the near edge of the line. Place markers installed along a lane line between and in line with the dashes. Do not place markers over the lines except where the lines deviate visibly from their correct alignment, and then only after obtaining the Engineer's prior approval of the location.

If conflicts between recessed groove placement in relation to pavement joint and striping cannot be resolved, obtain the Engineer's approval to eliminate the marker or revise the alignment.

E. Disposal of Waste. Dispose of all removed asphalt pavement, debris, and other waste at sites off the right of way obtained by the Contractor at no additional cost to the Department. See Special Note for waste and Borrow.

F. Restoration. Be responsible for all damage to public and/or private property resulting from the work. Restore all damaged features in like kind materials and design at no additional cost to the Department.

G. On-Site Inspection. Make a thorough inspection of the site prior to submitting a bid and be thoroughly familiar with existing conditions so that the work can be expeditiously

performed after a contract is awarded. The Department will consider submission of a bid as evidence of this inspection having been made and will not honor any claims for money or grant Contract time extensions resulting from site conditions.

H. Caution. Do not take information shown on the drawings and in this proposal and the types and quantities of work listed as an accurate or complete evaluation of the material and conditions to be encountered during construction, but consider the types and quantities of work listed as approximate only. The bidder must draw his own conclusion as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation or extension of Contract time if the conditions encountered are not in accordance with the information shown.

IV. MEASUREMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. "INLAID PAYMENT MARKER" shall be measured as each. One (1) installation of "INLAID PAVEMENT MARKER" will consist of grooving the pavement, removing asphalt cuttings and debris, preheating pavement to remove moisture, adhesives, and installation of two (2) markers with all lenses in accordance with this note.

Note: Each pay item of Inlaid Pavement Marker will require two markers.

V. PAYMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Inlaid Pavement Markers. The Department will make payment for the completed and accepted quantity of completely installed "INLAID PAVEMENT MARKERS" at the Contract unit price, each. Accept payment as full compensation for all labor, equipment, materials, and incidentals to accomplish this work to the satisfaction of the Engineer. A system of one (1) groove and two (2) markers shall be paid as one "INLAID PAVEMENT MARKER". The bid item "INLAID PAVEMENT MARKER" shall be used regardless of the color and type of lenses required.

SPECIAL NOTE FOR LIQUIDATED DAMAGES
FD05 015 044 000-014

In addition to the requirements of Section 108.09, the Department will assess Liquidated Damages in the amount of $5,000 per hour for the first hour or part of an hour that a lane closure remains in place during hours prohibited by the Traffic Control Plan.

In addition to the requirements of Section 108.09, the Department will assess Liquidated Damages in the amount of $10,000 per hour for each additional hour or part of an hour that a lane closure remains in place during hours prohibited by the Traffic Control Plan.

A lane closure shall be defined as any traffic control device or Contract worker or vehicle in the traveled way that could potentially impact the flow of traffic. This includes but not limited to signs, barricades, barrels, cones, arrow boards, flaggers, Contractor work vehicles, and striping operations.

Contrary to Sections 108.07.02 and 108.09, the Department will assess Liquidated Damages for the months of December through March, regardless of whether seasonal or temperature limitations prohibit the Contractor from performing work on the controlling item or operation.

The Department will apply all liquidated damages accumulatively.

All other applicable portions of Section 108 apply.

SPECIAL NOTE FOR MANHOLE ADJUSTMENTS
FD05 015 0044 000-014

The City of Shepherdsville is responsible for manhole adjustments. Notify the Engineer a minimum of 30 calendar days prior to beginning any work on the project. Unless directed otherwise by the Engineer, do not begin resurfacing until the manhole adjustments are completed by the City. The Engineer will coordinate the work between the Contractor and City.

SPECIAL NOTE FOR PAVEMENT WEDGE AND SHOULDER SEPARATE OPERATION
FD05 015 0044 000-014

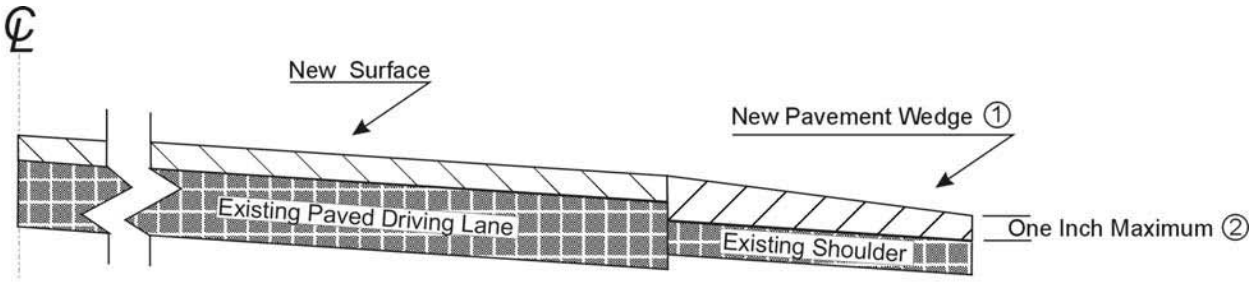
1.0 MATERIALS. Provide an Asphalt Surface Mixture conforming to Section 403 of the Standard Specifications, as applicable to the project, for the pavement wedge.

2.0 CONSTRUCTION. For shoulders greater than 3 feet in width, place the Asphalt Mixture for Pavement Wedge or Asphalt Surface Mixture as a separate operation from the driving lane. Prime the existing shoulder with tack material as the Engineer directs before placing the wedge. Construct according to Sections 407.03 and 403.03 as applicable.

When the Engineer deems it appropriate to pave both the driving lane and the adjoining wedge monolithically, equip the paver with a modified screed that extends the full width of the wedge being placed and is tapered to produce a wedge. Obtain the Engineer's approval of the modified screed before placing shoulder wedge monolithically with the driving lane.

The wedge may vary in thickness at the edge of the driving lanes. Where existing site conditions permit, limit the outside edge thickness of the new paving limits to one inch above the existing shoulder wedge elevation. If an Asphalt Surface Mixture is furnished for the pavement wedge, texture according to Section 403.03.08.

The following sketch is primarily for the computation of quantities; however, the wedge will result in a similar cross-section where sufficient width exists. Do not construct a shoulder for placing the wedge unless specified elsewhere in the Contract.



① Slope varies, but is down from the driving lanes except on outside of some curves where superelevation controls.

② Where existing site conditions permit.

3.0 MEASUREMENT. The Department will measure Asphalt Mixture for Pavement Wedge or Asphalt Surface Mixture placed as the pavement wedge according to Sections 403 and 407 as applicable.

4.0 PAYMENT. The Department will make payment for the completed and accepted quantities of Asphalt Surface Mixtures placed as pavement wedge according to Section 403. The Department will make payment for the completed and accepted quantities of Asphalt Mixture for Pavement Wedge according to Section 407.

SPECIAL NOTE FOR PAVEMENT WEDGE AND SHOULDER MONOLITHIC OPERATION
FD05 015 044 000-014

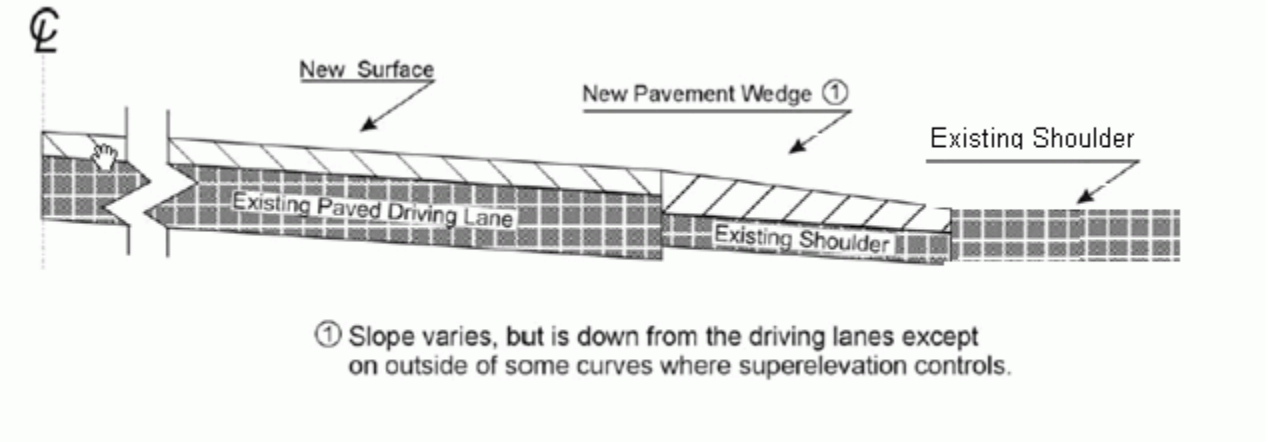
1.0 MATERIALS. Provide an Asphalt Surface Mixture conforming to Section 403 of the Standard Specifications, as applicable to the project, for the pavement wedge.

2.0 CONSTRUCTION. For shoulders 3 feet or less in width, place the specified Asphalt Surface Mixture on shoulders monolithically with the driving lane. Prime the existing shoulder with tack material as the Engineer directs before placing the wedge. Construct according to Section 403.03 of the Standard Specifications.

Equip the paver with a modified screed that extends the full width of the wedge being placed and is tapered to produce a wedge. Obtain the Engineer's approval of the modified screed before placing shoulder wedge monolithically with the driving lane.

The wedge may vary in thickness at the edge of the milled area in the shoulder. If the area to receive the shoulder wedge is milled prior to placement, during rolling operations pinch the outside edge of the new inlay wedge to match the existing shoulder elevation not being resurfaced. Unless required otherwise by the Contract, construct rolled or sawed rumble strips according to Section 403.03.08, as applicable.

The following sketch is primarily for the computation of quantities; however, the wedge will result in a similar cross-section where sufficient width exists. Do not construct a shoulder for placing the wedge unless specified elsewhere in the Contract.



3.0 MEASUREMENT. The Department will measure Asphalt Surface Mixture placed as the pavement wedge according to Section 403.

4.0 PAYMENT. The Department will make payment for the completed and accepted quantities of Asphalt Surface Mixtures on pavement wedges according to Section 403.

SPECIAL NOTE FOR PAVEMENT WEDGE AND SHOULDER MONOLITHIC OPERATION
FD05 056 0044 000-001

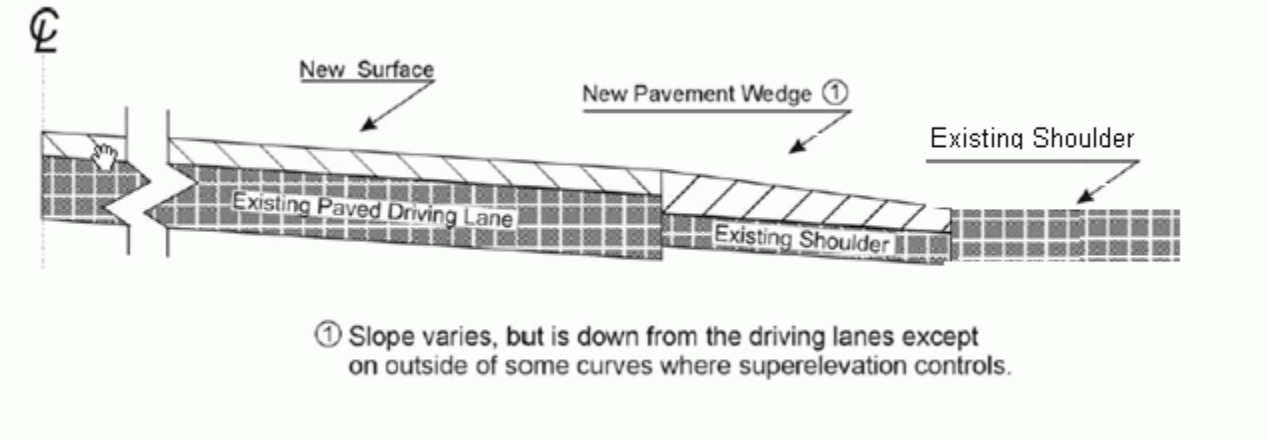
1.0 MATERIALS. Provide an Asphalt Surface Mixture conforming to Section 403 of the Standard Specifications, as applicable to the project, for the pavement wedge.

2.0 CONSTRUCTION. Place the specified Asphalt Surface Mixture on shoulders monolithically with the driving lane. Prime the existing shoulder with tack material as the Engineer directs before placing the wedge. Construct according to Section 403.03 of the Standard Specifications.

Equip the paver with a modified screed that extends the full width of the wedge being placed and is tapered to produce a wedge. Obtain the Engineer's approval of the modified screed before placing shoulder wedge monolithically with the driving lane.

The wedge may vary in thickness at the edge of the milled area in the shoulder. If the area to receive the shoulder wedge is milled prior to placement, during rolling operations pinch the outside edge of the new inlay wedge to match the existing shoulder elevation not being resurfaced. Unless required otherwise by the Contract, construct rolled or sawed rumble strips according to Section 403.03.08, as applicable.

The following sketch is primarily for the computation of quantities; however, the wedge will result in a similar cross-section where sufficient width exists. Do not construct a shoulder for placing the wedge unless specified elsewhere in the Contract.



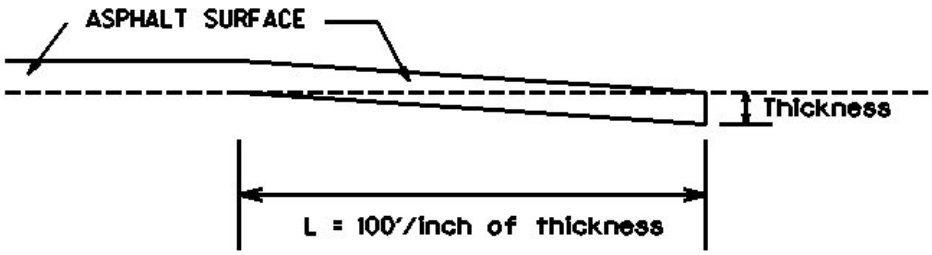
3.0 MEASUREMENT. The Department will measure Asphalt Surface Mixture placed as the pavement wedge according to Section 403.

4.0 PAYMENT. The Department will make payment for the completed and accepted quantities of Asphalt Surface Mixtures on pavement wedges according to Section 403.

SPECIAL NOTE FOR EDGE KEY
FD05 015 0044 000-014
FD05 056 0044 000-001

Construct Edge Keys as shown on the summary. Unless specified in the Contract or directed by the Engineer, do not construct edge keys at intersecting streets, roads, alleys, or entrances. Cut out the existing asphalt surface to the required depth and width shown on the drawing and heel the new surface into the existing surface. The Department will make payment for this work at the Contract unit price per ton for Asphalt Pavement Milling and Texturing, which shall be full compensation for all labor, materials, equipment, and incidentals for removal and disposal of the existing asphalt surface required to construct the edge key.

EDGE KEY



Thickness = 1 Inch **Thickness = 1 ¼ Inches**

L = 100 LF **L = 125 LF**

L= Length of Edge Key

SPECIAL NOTE FOR
ASPHALT MILLING AND TEXTURING
FD05 015 0044 000-014
FD05 056 0044 000-001

Begin paving operations within **48 hours** of commencement of the milling operation. Continue paving operations continuously until completed. If paving operations are not begun within this time period, the Department will assess liquidated damages at the rate prescribed by Section 108.09 until such time as paving operations are begun.

Take possession of the millings and recycle the millings or dispose of the millings off the Right-of-Way at sites obtained by the Contractor at no additional cost to the Department.

1-3520 48 hours Contractor keeps millings
01/2/2012

SPECIAL NOTE FOR TYPICAL SECTION DIMENSIONS
FD05 015 0044 000-014
FD05 056 0044 000-001

Consider the dimensions shown on the typical sections for pavement and shoulder widths and thickness' to be nominal or typical dimensions. The Engineer may direct or approve varying the actual dimensions to be constructed to fit existing conditions. Do not widen existing pavement or shoulders unless specified elsewhere in this proposal or directed by the engineer.

1-3725 Typical Section Dimensions
01/02/2012

SPECIAL NOTE FOR SIDEWALK RAMPS & DETECTABLE WARNINGS
FD05 015 0044 000-014

GENERAL

Unless otherwise stated in the contract, or as directed by or with prior approval from the Engineer, construct Sidewalk Ramps and Detectable Warnings in accordance with Sections 505 and 720; Supplemental Specifications; Standard Drawings RGX-040-03, RPM-150-08, RPM-152-08, RPM-170-09, and RPM-172-07; current editions, as applicable. In lieu of the Detectable Warnings shown on Standard Drawing RGX-040-03, the Department will also allow the use of any Detectable Warnings listed as Phase XI on the Kentucky Product Evaluation List (http://www.ktc.uky.edu/kytc/kypel/allevaluations.php). For Detectable Warnings as shown on Standard Drawing RGX-040-03, saw cut existing sidewalks, curb and gutter, and pavement, if present, as shown on the detail and reconstruct sidewalk ramps with detectable warnings as directed or approved by the Engineer. For Detectable Warnings from the Kentucky Product Evaluation List, install according to the manufacturer's recommendations. Unless specified otherwise in the Contract, construct sidewalk with 4" nominal minimum required thickness; however, if the existing sidewalk thickness is found to be greater or less than the thickness specified, transition the thickness as directed by the Engineer.

Except as required by the work, do not disturb drainage pipe, catch basins, and other roadway features, appurtenances and installations. Restore any roadway features, appurtenances, and installations damaged by the work in like kind materials and design at no additional cost to the Department. Dispose of all waste off the right of way at sites obtained by the Contractor at no additional cost to the Department (see Special Note for Waste and Borrow).

MEASUREMENT & PAYMENT

SIDEWALK RAMPS – The Department will measure Sidewalk Ramps in accordance with Section 505.04.01 and Standard Drawing RPM-170-09, current editions; however, contrary to Sections 505.04.05 and 505.04.06, the Department will not measure Roadway Excavation or Embankment in Place, but shall be incidental to the Sidewalk. Accept payment at the Contract unit price per square yard as full compensation for all labor, materials, equipment, and incidentals required for removal and disposal of existing sidewalk and curb and gutter, excavation and embankment, construction of the sidewalk ramps, reconstruction of the adjacent curb and/or sidewalk as necessary to install the sidewalk ramps, and restoration of disturbed features in accordance with these notes or as directed by the Engineer.

DETECTABLE WARNINGS – The Department will measure Detectable Warnings in accordance with Section 505.04.04 and Standard Drawings RGX-040-03 and RPM-170-09, current editions. The Department will make payment according to Section 505.05.

HANDRAIL – The Department will measure and make payment for Handrail in accordance with Section 720.05 and Standard Drawing RPM-172-07, current editions.

TRAFFIC CONTROL PLAN
FD05 015 0044 000-014
FD05 056 0044 000-001

TRAFFIC CONTROL GENERAL

Except as provided herein, maintain and control traffic in accordance with the 2010 Standard and Supplemental Specifications, Special Provisions and Special Notes, and the Standard and Sepia Drawings, current editions. Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic".

Contrary to Section 106.01, furnish new, or used in like new condition, traffic control devices at the beginning of the work and maintain in like new condition until completion of the work.

PROJECT PHASING & CONSTRUCTION PROCEDURES

The Engineer will not allow or permit lane closures on the following days:

Friday May 5 – Sunday May 7, 2017	Kentucky Derby Weekend
Friday May 26 – Monday May 29, 2017	Memorial Day Weekend
Friday June 30 – Tuesday July 4, 2017	Independence Day Weekend
Friday September 1 – Monday September 4, 2017	Labor Day Weekend
Friday October 13 – Sunday October 15, 2017	Knob Creek Shooting Event
Thursday November 23 – Sunday November 26, 2017	Thanksgiving Weekend

For milepoint 12.215-13.309 in Shepherdsville, lane closures are permitted during the following hours only:

Monday through Thursday nights	8:00 P.M. – 5:00 A.M.
8:00 P.M. Friday night through 5:00 A.M. Monday morning	

Shoulder closures which cause only minor disruptions in traffic will be permitted with prior approval of the Engineer during the following hours:

- Any hours a lane closure is allowed; and
- Monday through Friday 9:00 A.M. – 3:00 P.M.

The Engineer may specify additional days and hours when lane closures will not be allowed.

Do not allow traffic queues on I-65 Exit Ramps to extend beyond the exit gores at any time.

At locations with three or more lanes, maintain one lane of traffic in each direction at all times during construction. At locations with two lanes, maintain alternating one way traffic during construction.

In Jefferson County and Bullitt County milepoint 0.000-12.158, provide a minimum clear lane width of ten (10) feet. In Bullitt County milepoint 12.158-13.309, provide a minimum clear lane width of eleven (11) feet. However, provide for passage of vehicles of up to 16 feet in width. If traffic should be stopped due to construction operations, and a school bus on an official run arrives on the scene, make provisions for the passage of the bus as quickly as possible.

RAILROAD CROSSING AT MILEPOINT 12.337

See special notes applicable to project.

PUBLIC INFORMATION PLAN

A minimum of twenty one calendar days prior to beginning work, submit a proposed work schedule to the Engineer for approval. Partner with the Engineer to develop a traffic phasing plan prior to erecting any lane closures. The Department will prepare a Public Information Plan and provide public notification. Notify the Engineer immediately and obtain prior approval of any deviations from the previously approved closure schedule.

The District PIO will prepare an initial news release regarding the contract award for the project. The PIO will conduct interviews with the media throughout the project duration to keep the public informed of construction progress. Traffic advisories will be submitted to the media when a change in the MOT occurs. The contractor must provide to the PIO via the Resident Engineer notification of any change in the MOT at least five (5) days prior to the change.

CHANGEABLE MESSAGE SIGNS

Provide changeable message signs in advance of and within the project at locations determined by the Engineer. If work is in progress concurrently in both directions or if more than one lane closure is in place in the same direction of travel, provide additional changeable message signs as directed by the Engineer. As the actual queue lengthens and/or shortens, relocate or provide additional changeable message signs so that traffic has warning of slowed or stopped traffic before reaching the end of the actual queue. The Engineer may vary the designated locations as the work progresses. The Engineer will determine the messages to be displayed. In the event of damage or mechanical/electrical failure, repair or replace the Changeable Message Sign within 24 hours. The Department will measure for payment the maximum number of Changeable Message Signs in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual Changeable Message Signs only once for payment, regardless of how

many times they are set, reset, removed, and relocated during the duration of the project. The Department will not measure replacements for damaged Changeable Message Signs or for signs the Engineer directs be replaced due to poor condition or readability. Retain possession of the Changeable Message Signs upon completion of the work.

ARROW PANELS

Use arrow panels as shown on the Standard Drawings or as directed by the Engineer. The Department will measure for payment the maximum number of arrow panels in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual Arrow Panels only once for payment, regardless of how many times they are set, reset, removed, and relocated during the duration of the project. The Department will not measure replacements for damaged Arrow Panels or for panels signs the Engineer directs be replaced due to poor condition or readability for payment. Retain possession of the Arrow Panels upon completion of the work.

TEMPORARY ENTRANCES

The Engineer will not require the Contractor to provide continuous access to farms, single family, duplex, or triplex residential properties during working hours; however, provide reasonable egress and ingress to each such property when actual operations are not in progress at that location. Limit the time during which a farm or residential entrance is blocked to the minimum length of time required for actual operations, not extended for the Contractor's convenience, and in no case exceeding six (6) hours. Notify all residents twenty-four hours in advance of any driveway or entrance closings and make any accommodations necessary to meet the access needs of disabled residents.

Except as allowed by the Phasing as specified above, maintain direct access to all side streets and roads, schools, churches, commercial properties and apartments or apartment complexes of four or more units at all times.

The Department will measure asphalt materials required to construct and maintain any temporary entrances which may be necessary to provide temporary access; however, the Department will not measure aggregates, excavation, and/or embankment, but shall be incidental to Maintain and Control Traffic. The Engineer will determine the type of surfacing material, asphalt or aggregate, to be used at each entrance.

TRAFFIC SIGNAL LOOPS

Install traffic signal loops according to the Special Notes for Traffic Signal Loop Replacement. Coordinate the placement of the loops with the Engineer.

AUTOMATIC TRAFFIC RECORDER INDUCTANCE LOOPS

Install automatic traffic recorder inductance loops according to the Material, Installation, and Bid Item Notes for Permanent Traffic Data Acquisition Stations. Coordinate the placement of the loops with the Engineer.

THERMOPLASTIC INTERSECTION MARKINGS

Consider the locations listed on the summary as approximate only. Prior to milling and/or resurfacing, locate and document the locations of the existing markings. After resurfacing, replace the markings at their approximate existing locations or as directed by Engineer. Place markings not existing prior to resurfacing as required by the current MUTCD or as directed by the Engineer.

BARRICADES

The Department will not measure barricades used in lieu of barrels and cones for channelization or delineation, but shall be incidental to Maintain and Control Traffic according to Section 112.04.01.

PAVEMENT STRIPING

If there is to be a deviation from the existing striping plan, the Engineer will furnish the Contractor a striping plan prior to placement of the final surface course. Install Temporary Striping according to Section 112 with the following exceptions:

1. Place Temporary or Permanent Striping before opening a lane to traffic; and
2. Include edge lines in Temporary Striping between milepoints 12.700-13.056; and
3. If the Contractor’s operations or phasing requires temporary markings that must subsequently be removed from the final surface course, use an approved removable lane tape; however, the Department will not measure removable lane tape for separate payment, but will measure and pay for removable lane tape as temporary striping.

Traffic Control Plan
FD05 015 0044 000-014
FD05 056 0044 000-001
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PAVEMENT EDGE DROP-OFFS

Do not allow a pavement edge between opposing directions of traffic or lanes that traffic is expected to cross in a lane change situation with an elevation difference greater than 1½". Place Warning signs (MUTCD W8-11 or W8-9A) in advance of and at 1500' intervals throughout the drop-off area. Dual post the signs on both sides of the traveled way. Wedge all transverse transitions between resurfaced and unresurfaced areas which traffic may cross with asphalt mixture for leveling and wedging. Remove the wedges prior to placement of the final surface course.

Protect pavement edges that traffic is not expected to cross, except accidentally, as follows:

Less than 2" - No protection required.

2" to 4" - Place plastic drums, vertical panels, or barricades every 50 feet. During daylight working hours only, the Engineer will allow the Contractor to use cones in lieu of plastic drums, panels, and barricades. Wedge the drop-off with DGA or asphalt mixture for leveling and wedging with a 1:1 or flatter slope in daylight hours, or 3:1 or flatter slope during nighttime hours, when work is not active in the drop-off area.

Greater than 4' - Protect drop-offs greater than 4 inches within 10 feet of traffic by placing drums, vertical panels, or barricades every 25 feet. The Engineer will not allow the use of cones in lieu of drums, vertical panels, or barricades for drop-offs greater than 4". Place Type III Barricades directly in front of the drop-off facing on coming traffic in both directions of travel. Provide warning signs as shown on the Standard Drawings or as directed by the Engineer

Pedestrians & Bicycles - Protect pedestrian and bicycle traffic as directed by the engineer.

USE AND PLACEMENT OF CHANGEABLE MESSAGE SIGNS

The following policy is based upon current Changeable Message Signs (CMS) standards and practice from many sources, including the Federal Highway Administration (FHWA), other State Departments of Transportation, and Traffic Safety Associations. It is understood that each CMS installation or use requires individual consideration due to the specific location or purpose. However, there will be elements that are constant in nearly all applications. Accordingly these recommended guidelines bring a level of uniformity, while still being open to regional experience and engineering judgment.

Application

The primary purpose of CMS is to advise the driver of unexpected traffic and routing situations. Examples of applications where CMS can be effective include:

- Closures (road, lane, bridge, ramp, shoulder, interstate)
- Changes in alignment or surface conditions
- Significant delays, congestion
- Construction/maintenance activities (delays, future activities)
- Detours/alternative routes
- Special events with traffic and safety implications
- Crash/incidents
- Vehicle restrictions (width, height, weight, flammable)
- Advance notice of new traffic control devices
- Real-time traffic conditions (must be kept up to date)
- Weather /driving conditions, environmental conditions, Roadway Weather Information Systems
- Emergency Situations
- Referral to Highway Advisory Radio (if available)
- Messages as approved by the County Engineer's Office

CMS should not be used for:

- Replacement of static signs (e.g. road work ahead), regulatory signage (e.g. speed limits), pavement markings, standard traffic control devices, conventional warning or guide signs.
- Replacement of lighted arrow board
- Advertising (Don't advertise the event unless clarifying "action" to be taken by driver – e.g. Speedway traffic next exit)
- Generic messages
- Test messages (portable signs only)
- Describe recurrent congestion (e.g. rush hour)
- Public service announcements (not traffic related

Messages

Basic principles that are important to providing proper messages and insuring the proper operation of a CMS are:

- Visible for at least ½ mile under ideal daytime and nighttime conditions
- Legible from all lanes a minimum of 650 feet
- Entire message readable twice while traveling at the posted speed
- Nor more than two message panels should be used (three panels may be used on roadways where vehicles are traveling less than 45 mph). A panel is the message that fits on the face of the sign without flipping or scrolling.
- Each panel should convey a single thought; short and concise
- Do not use two unrelated panels on a sign
- Do not use the sign for two unrelated messages
- Should not scroll text horizontally or vertically
- Should not contain both the words left and right
- Use standardized abbreviations and messages
- Should be accurate and timely
- Avoid filler/unnecessary words and periods (hazardous, a, an, the)
- Avoid use of speed limits
- Use words (not numbers) for dates

Placement

Placement of the CMS is important to insure that the signs is visible to the driver and provides ample time to take any necessary action. Some of the following principles may only be applicable to controlled access roadways. The basic principles of placement for a CMS are:

- When 2 signs are needed, place on same side of roadway and at least 1,000 feet apart
- Place behind semi-rigid/rigid protection (guardrail, barrier) or outside of the clear zone
- Place 1,000 feet in advance of work zone; at least one mile ahead of decision point
- Normally place on right side of roadway; but should be placed closest to the affected lane so that either side is acceptable
- Signs should not be dual mounted (one on each side of roadway facing same direction)
- Point trailer hitch downstream
- Secure to immovable object to prevent thief (if necessary)
- Do not place in sags or just beyond crest
- Check for reflection of sun to prevent the blinding of motorist
- Should be turned ~3 degrees outward from perpendicular to the edge of pavement
- Bottom of sign should be 7 feet above the elevation of edge of roadway
- Should be removed when not in use
-

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Standard Abbreviations

The following is a list of standard abbreviations to be used on CMS.

Word	Abbrev.	Example
Access	ACCS	ACCIDENT AHEAD/USE ACCS RD NEXT RIGHT
Alternate	ALT	ACCIDENT AHEAD/USE ALT RTE NEXT RIGHT
Avenue	AVE	FIFTH AVE CLOSED/DETOUR NEXT LEFT
Blocked	BLKD	FIFTH AVE BLKD/MERGE LEFT
Boulevard	BLVD	MAIN BLVD CLOSED/USE ALT RTE
Bridge	BRDG	SMITH BRDG CLOSED/USE ALT RTE
Cardinal Directions	N, S, E, W	N I75 CLOSED/ DETOUR EXIT 30
Center	CNTR	CNTR LANE CLOSED/MERGE LEFT
Commercial	COMM	OVRSZ COMM VEH/USE I275
Condition	COND	ICY COND POSSIBLE
Congested	CONG	HVY CONG NEXT 3 MI
Construction	CONST	CONST WORK AHEAD/EXPECT DELAYS
Downtown	DWNTN	DWNTN TRAF USE EX 40
Eastbound	E-BND	E-BND I64 CLOSED/DETOUR EXIT 20
Emergency	EMER	EMER VEH AHEAD/PREPARE TO STOP
Entrance, Enter	EX, EXT	DWNTN TRAF USE EX 40
Expressway	EXPWY	WTRSN EXPWY CLOSED/DETOUR EXIT 10
Freeway	FRWY, FWY	GN SYNDR FWY CLOSED/DETOUR EXIT 15
Hazardous Materials	HAZMAT	HAZMAT IN ROADWAY/ALL TRAF EXIT 25
Highway	HWY	ACCIDENT ON AA HWY/EXPECT DELAYS
Hour	HR	ACCIDENT ON AA HWY/2 HR DELAY
Information	INFO	TRAF INFO TUNE TO 1240 AM
Interstate	I	E-BND I64 CLOSED/DETOUR EXIT 20
Lane	LN	LN CLOSED/MERGE LEFT
Left	LFT	LANE CLOSED/MERGE LFT
Local	LOC	LOC TRAF USE ALT RTE
Maintenance	MAINT	MAINT WRK ON BRDG/SLOW
Major	MAJ	MAJ DELWAYS I75/USE ALT RTE
Mile	MI	ACCIDENT 3 MI AHEAD/ USE

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		ALT RTE
Minor	MNR	ACCIDENT 3 MI MNR DELAY
Minutes	MIN	ACCIDENT 3 MI/30 MIN DELAY
Northbound	N-BND	N-BND I75 CLOSED/ DETOUR EXIT 50
Oversized	OVRSZ	OVRSZ COMM VEH/USE I275 NEXT RIGHT
Parking	PKING	EVENT PKING NEXT RGT
Parkway	PKWY	CUM PKWAY TRAF/DETOUR EXIT 60
Prepare	PREP	ACCIDENT 3 MIL/PREP TO STOP
Right	RGT	EVENT PKING NEXT RGT
Road	RD	HAZMAT IN RD/ALL TRAF EXIT 25
Roadwork	RDWK	RDWK NEXT 4 MI/POSSIBLE DELAYS
Route	RTE	MAJ DELAYS I75/USE ALT RTE
Shoulder	SHLDR	SHLDR CLOSED NEXT 5 MI
Slippery	SLIP	SLIP COND POSSIBLE/ SLOW SPD
Southbound	S-BND	S-BND I75 CLOSED/DETOUR EXIT 50
Speed	SPD	SLIP COND POSSIBLE/ SLOW SPD
Street	ST	MAIN ST CLOSED/USE ALT RTE
Traffic	TRAF	CUM PKWAY TRAF/DETOUR EXIT 60
Vehicle	VEH	OVRSZ COMM VEH/USE I275 NEXT RIGHT
Westbound	W-BND	W-BND I64 CLOSED/DETOUR EXIT 50
Work	WRK	CONST WRK 2MI/POSSIBLE DELAYS

Certain abbreviations are prone to inviting confusion because another word is abbreviated or could be abbreviated in the same way. DO NO USE THESE ABBREVIATIONS.

Abbrev.	**Intended Word**	**Word Erroneously Given**
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (merge)
LOC	Local	Location
LT	Light (traffic)	Left
PARK	Parking	Park
POLL	Pollution (index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
TEMP	Temporary	Temperature
WRNG	Warning	Wrong

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TYPICAL MESSAGES

The following is a list of typical messages used on CMS. The list consists of the reason or problem that you want the driver to be aware of and the action that you want the driver to take.

Reason/Problem	Action
ACCIDENT	ALL TRAFFIC EXIT RT
ACCIDENT/XX MILES	AVOID DELAY USE XX
XX ROAD CLOSED	CONSIDER ALT ROUTE
XX EXIT CLOSED	DETOUR
BRIDGE CLOSED	DETOUR XX MILES
BRIDGE/(SLIPPERY, ICE, ETC.)	DO NOT PASS
CENTER/LANE/CLOSED	EXPECT DELAYS
DELAY(S), MAJOR/DELAYS	FOLLOW ALT ROUTE
DEBRIS AHEAD	KEEP LEFT
DENSE FOG	KEEP RIGHT
DISABLED/VEHICLE	MERGE XX MILES
EMER/VEHICLES/ONLY	MERGE LEFT
EVENT PARKING	MERGE RIGHT
EXIT XX CLOSED	ONE-WAY TRAFFIC
FLAGGER XX MILES	PASS TO LEFT
FOG XX MILES	PASS TO RIGHT
FREEWAY CLOSED	PREPARE TO STOP
FRESH OIL	REDUCE SPEED
HAZMAT SPILL	SLOW
ICE	SLOW DOWN
INCIDENT AHEAD	STAY IN LANE
LANES (NARROW, SHIFT, MERGE, ETC.)	STOP AHEAD
LEFT LANE CLOSED	STOP XX MILES
LEFT LANE NARROWS	TUNE RADIO 1610 AM
LEFT 2 LANES CLOSED	USE NN ROAD
LEFT SHOULDER CLOSED	USE CENTER LANE
LOOSE GRAVEL	USE DETOUR ROUTE
MEDIAN WORK XX MILES	USE LEFT TURN LANE
MOVING WORK ZONE, WORKERS IN ROADWAY	USE NEXT EXIT
NEXT EXIT CLOSED	USE RIGHT LANE
NO OVERSIZED LOADS	WATCH FOR FLAGGER
NO PASSING	
NO SHOULDER	
ONE LANE BRIDGE	
PEOPLE CROSSING	
RAMP CLOSED	
RAMP (SLIPPERY, ICE, ETC.)	

RIGHT LANE CLOSED
RIGHT LANE NARROWS
RIGHT SHOULDER CLOSED
ROAD CLOSED
ROAD CLOSED XX MILES
ROAD (SLIPPERY, ICE, ETC.)
ROAD WORK
ROAD WORK (OR CONSTRUCTION) (TONIGHT, TODAY, TOMORROW, DATE)
ROAD WORK XX MILES
SHOULDER (SLIPPERY, ICE, SOFT, BLOCKED, ETC.)
NEW SIGNAL XX MILES
SLOW 1 (OR 2) - WAY TRAFFIC
SOFT SHOULDER
STALLED VEHICLES AHEAD
TRAFFIC BACKUP
TRAFFIC SLOWS
TRUCK CROSSING
TRUCKS ENTERING
TOW TRUCK AHEAD
UNEVEN LANES
WATER ON ROAD
WET PAINT
WORK ZONE XX MILES
WORKERS AHEAD

KY 44 RESURFACING
US 31W TO CENTERVIEW DRIVE
MP 0.03 TO 0.5 IN JEFFERSON COUNTY
MP 0.0 TO 13.3 IN BULLITT COUNTY
DRAFT PUBLIC INFORMATION PLAN

The primary goal of the Public Information Plan (PIP) is to inform the motoring public and area stakeholders of project information including Maintenance of Traffic (MOT) which includes lane and road closures. The KYTC District 5 Public Information Officer (PIO) will coordinate and disseminate to stakeholders and the media appropriate information regarding the construction plans.

LOCAL STAKEHOLDERS

- Elected Officials
  - State Senator Dan Seum- (502) 564-2450; dan.seum@lrc.ky.gov
  - State Senator Dennis Parrett – (502) 564-8100; dennis.parrett@lrc.ky.gov
  - State Representative Dan Johnson – (502) 564-8100; dan.johnson@lrc.ky.gov
  - State Representative Russell Webber – (502) 564-8100; Russell.webber@lrc.ky.gov
  - State Representative Charlie Miller – (502) 564-8100; Charlie.miller@lrc.ky.gov
  - Bullitt County Judge Executive Melanie Roberts – (502) 543-2262; judgeroberts@windstream.net
  - Bullitt County Magistrate District 1 Dennis Mitchell – (502) 922-4048
  - Bullitt County Magistrate District 4 Joe Rayhill – (502) 299-4106; joe.rayhill@yahoo.com
  - Metro Councilwoman Cindi Fowler – (502) 574-1114; cindi.fowler@louisvilleky.gov
  - City of Shepherdsville – (502) 215-1531; trichmond@shepcity.com

- Local Agencies
  - Bullitt County Sheriff– (502) 543-2514
  - Bullitt County E-911 Center – (502) 543-7074; fax (502) 955-5562
  - Staci Goedde, Bullitt County Schools Transportation Dept. – (502) 869-8031; staci.goedde@bullitt.kyschools.us
  - Hyte Rouse, Bullitt County Road Department – (502) 543-2510; hyterouse@windstream.net
  - Shepherdsville Police Chief Rick McCubbin – (502) 921-1000
  - Shepherdsville Fire Chief Layne Troutman (502) 543-7074; ltroutman@shepfire.com
  - Randy Frantz, Director of Transportation for Jefferson County Public Schools – (502) 485-3470; randy.frantz@jefferson.kyschools.us

  - Barry Barker, Transit Authority of the River City (TARC) – (502) 561-5100; jbarrybarker@ridetarc.org
  - Lt. Joe Seelye, Louisville Metro Police Department Traffic Division – (502) 817-9958; joe.seelye@louisvilleky.gov

- Utility Companies
  - Local utility companies are kept apprised of this project at the monthly utility coordination meetings hosted by District 5

- Neighborhoods and their Mayors

TRUCKING FIRMS AND OUT OF STATE STAKEHOLDERS

Information will be distributed electronically to trucking firms via Rick Taylor at the Department of Vehicle Regulation (502-564-4540; rick.taylor@ky.gov). Information will also be posted on the 511 website (www.511.ky.gov) and on the 511 telephone information system.

PRESENTATIONS

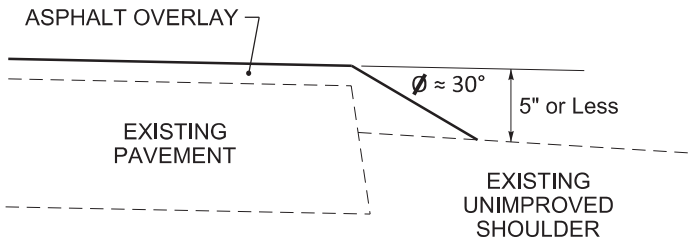
A project description including anticipated schedule will be provided to the media, stakeholders and other emergency service agencies via e-mail prior to construction. Information will be provided to these groups via traffic advisories, press releases, the District 5 website and the weekly District 5 Road Show of Construction and Maintenance Activities.

MEDIA RELATIONS

The District PIO will prepare an initial news release regarding the contract award for the project. The PIO will conduct interviews with the media throughout the project duration to keep the public informed of construction progress. Traffic advisories will be submitted to the media when a change in the MOT occurs. The contractor must provide to the PIO via the Resident Engineer notification of any change in the MOT at least five (5) days prior to the change.

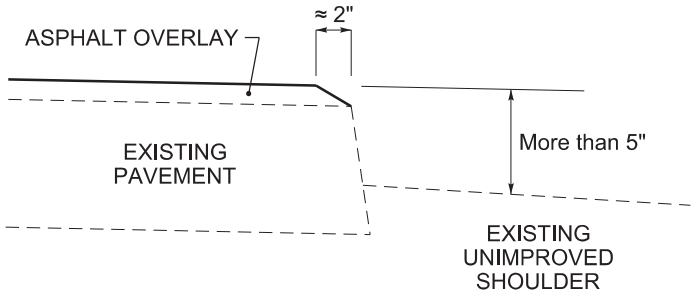
DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to low shoulder with dropoff of 5 inches or less)



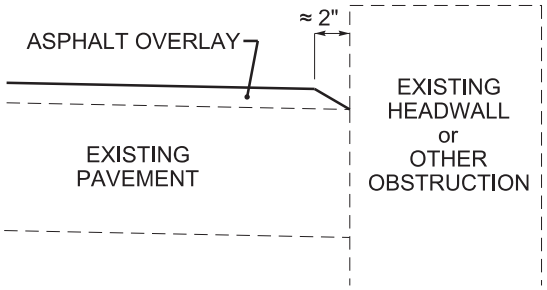
DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to low shoulder with dropoff of more than 5 inches)



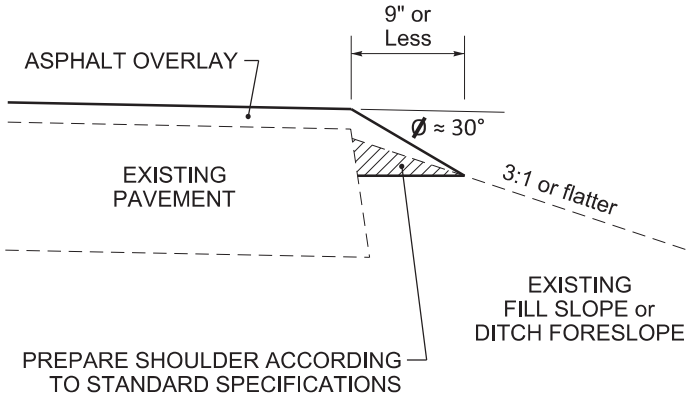
DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to an obstruction, such as an existing headwall)



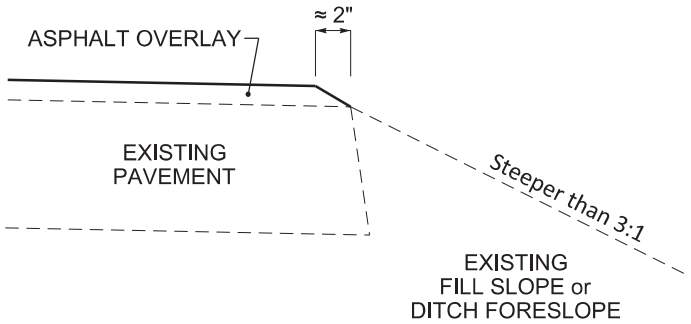
DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to fill slope or ditch foreslope that is 3:1 or less)



DURABLE PAVEMENT EDGE DETAIL

(Resurfacing adjacent to fill slope or ditch foreslope that is steeper than 3:1)



NOTES

1. DETAILS DO NOT APPLY TO OVERLAYS LESS THAN 1 INCH THICK.
2. THE DURABLE PAVEMENT EDGE DEVICE MAY BE DISENGAGED AT DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT, AS APROVED BY THE ENGINEER.

DRAWING NOT TO SCALE

DURABLE PAVEMENT EDGE DETAILS

SPECIAL NOTE FOR AUTOMATIC TRAFFIC RECORDER INDUCTANCE LOOPS

Be advised, existing traffic counting inductance loops are within the construction limits of this project. Notify the Engineer in writing, a minimum of 14 days prior to beginning any work. Install and test the new inductance loops and axle sensors according to the detail drawings and the Special Notes for Installation of Traffic Counting Inductance Loops and Axle Sensors.

The Engineer will contact and maintain liaison with the District Planning Engineer and the Division of Planning in order to coordinate any necessary work.

On projects that include milling of roadways with existing traffic counting inductance loops and if after milling the remnant contents of the existing saw slot (grout, loop wires, backer rod, and/or loop sealant) are not intact and flush with or below the top of the milled portion of the asphalt and with the saw slot completely filled with fines from the milling operation, clear the saw slot of loose remnant contents and refill the saw slot with natural sand. Obtain the Engineer's approval of the stabilized saw slot prior to resurfacing. The Department will not measure for separate payment clearing the saw slot and refilling with natural sand, but shall be incidental to Asphalt Pavement Milling and Texturing.

1-3891 ATR Inductance Loops
01/02/2012

SPECIAL NOTE FOR TRAFFIC SIGNAL LOOP DETECTORS

I. DESCRIPTION.

Be advised there are existing traffic signal loop detectors within the construction limits of this project. Except as specified herein, perform traffic signal loop replacement in accordance with the Department's Standard and Supplemental Specifications, Special Notes and Special Provisions, and Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications. Furnish all materials, labor, equipment, and incidentals for replacement of traffic signal loop installation(s) and all other work specified as part of this contract.

A. PREBID REQUIREMENTS. Each Contractor submitting a bid for this work shall make a thorough inspection of the site prior to submitting his bid and shall thoroughly familiarize himself with existing conditions so that the work can be expeditiously performed after a Contract is awarded. Submission of a bid will be considered evidence of this inspection having been made. Any claims resulting from site conditions will not be honored by the Department.

Information provided in this proposal and the types and quantities of work listed are not to be taken as an accurate or complete evaluation of the material and conditions to be encountered during construction. The bidder must draw his own conclusion as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation if the conditions encountered are not in accordance with the information shown.

It is not anticipated that utility facilities will need to be relocated and/or adjusted; however, in the event that it is discovered that the work does require that utilities be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities.

II. MATERIALS.

Except as specified herein, furnish materials in accordance with Sections 723.02 and 835. Provide for materials to be sampled and tested in accordance with the Department's Sampling Manual. Make materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing, unless otherwise specified in these Notes.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Sand. Furnish natural sand meeting the requirements of 804.04.01.

C. Seeding. Furnish Seed Mix Type I.

D. Loop Saw Slot and Fill. Furnish loop sealant, backer rod, and non-shrink grout according to the Saw Slot Detail.

E. Junction Boxes. Furnish electrical Junction Box Type B, #57 Aggregate, and Geotextile Fabric Type IV according to the Junction Box Detail.

F. Cable No. 14/1 Pair (Lead-in). Furnish cable that is specified in section 835. Cable shall be run splice free. This shall include splice kits to connect to the loop wire.

G. Conduit. Furnish and install appropriate conduit from transitions to the roadway, unction boxes and poles. See details below.

III. CONSTRUCTION METHODS.

Except as specified herein, construct and test Traffic Signal Loop Detectors in accordance with Section 723 and the drawings.

A. Testing. The Contractor shall test all loops and Cable No 14/1 Pair (Lead-In) according to section 723.03.17 before and after milling the roadway. The Contractor may have to separate the loop from the lead-in to perform this test. If the existing loop/lead-in meets the requirement in section 723.03.17 at the controller cabinet, the loop/lead-in shall not be replaced. If the existing loop/lead-in does not meet the requirement according to section 723.03.17 either before or after the milling, the loop/lead-in shall be replaced. If the loop is replaced before the milling, the Contractor shall verify that the loop meets the requirements per section 723.03.17 before the final surface is laid. If the loop does not meet the requirements per section 723.03.17, the Contractor shall replace the loop before the resurfacing activities begin and will be incidental to the milling bid item. The Contractor shall be responsible to re-splice the current loop to the lead-in with the proper splice as noted in the Standard Specifications (this will be incidental to the project).

B. Coordination. Notify the Engineer in writing, two (2) weeks prior to beginning any work. The Engineer will contact and maintain liaison with the District Traffic Engineer and the Central Office Division of Traffic Operations to coordinate the Department's operations with the Contractor's work.

C. Connection. The Contractor shall schedule all signal loop installation to ensure the new loops are connected to the lead-in and operational within 5 calendar days of the old loops being damaged and/or disconnected. This requirement includes damage caused by any work activity associated with the project. If the new signal loops are not functioning as intended following 5 calendar days, the Department may assess Liquidated Damages at a rate of $500 per calendar day per signal location until the loops are operating at pre-construction conditions. All liquidated damages will be applied cumulatively.

D. Maintain and Control Traffic. See Traffic Control Plan.

E. Milling. On projects involving milling and texturing of the existing pavement, install loops in the existing pavement before or after performing the milling and texturing, but prior to placement of the final asphalt surface course. If after milling the remnant contents of the existing saw slot (grout, loop wires, backer rod, and/or loop sealant) are not intact and flush with or below the top of the milled portion of the asphalt and with the saw slot completely filled with fines from the milling operation, clear the saw slot of loose remnant contents and refill the saw slot with natural sand. Obtain the Engineer's approval of the stabilized saw slot prior to resurfacing. The Department will not measure for separate payment clearing and stabilizing the saw slot, but shall consider this work incidental to Asphalt Pavement Milling and Texturing.

F. Loop Saw Slot and Fill. The following is a typical step by step procedure for the installation of a loop:

- Carefully mark the slot to be cut, perpendicular to the flow of traffic and centered in the lane.
- Make each saw-cut 3/8-inch wide and at a depth such that the top of the backer rod is a minimum of 4 inches below the surface of asphalt pavement.
- Drill a 1½ inch core hole at each corner and use a chisel to smooth corners to prevent sharp bends in the wire.
- Clean ALL foreign and loose matter out of the slots and drilled cores and within 1 foot on all sides of the slots using a high pressure washer.
- Completely dry the slots and drilled cores and within 1 foot on all sides of the slots.
- Measure 9-12 inches from the edge of the paved surface (shoulder break or face of curb) and drill a 1½ inch hole on a 45º angle to the conduit adjacent to the roadway.
- Closely inspect all cuts, cores, and slots for jagged edges or protrusions prior to the placement of the wire. All jagged edges and protrusions shall be ground or re-cut and cleaned again.
- Place the loop wire splice-free from the termination point (cabinet or junction box) to the loop, continue around the loop for two turns (6’x30’ loop) or three turns (6’x6’ loop), and return to the termination point.
- Push the wire into the saw slot with a blunt object such as a wooden stick. Make sure that the loop wire is pushed fully to the bottom of the saw slot. Screwdrivers shall not be used.
- Install duct sealant to a minimum of 1 inch deep into the cored 1½ inch hole.
- Apply loop sealant from the bottom up and fully encapsulate the loop wires in the saw slot. The wire should not be able to move when the sealant has set.
- Cover the encapsulated loop wire with a continuous layer of backer rod along the entire loop and home run saw slots such that no voids are present between the loop sealant and backer rod.

- Finish filling the saw cut with non-shrinkable grout per manufacturer's instructions. Alleviate all air pockets and refill low spaces. There shall be no concave portion to the grout in the saw slot. Any excess grout shall be cleaned from the roadway to alleviate tracking.
- Clean up the site and dispose of all waste off the project.
- Ensure that the grout has completely cured prior to subjecting the loop to traffic. Curing time varies with temperature and humidity.

G. Final Dressing, Clean Up, and Seeding. After all work is completed, clean work sites and all disturbed areas. Dispose of all waste and debris off the right of way at sites obtained by the Contractor at no additional cost to the Department. Sow all disturbed earthen areas with Seed Mix Type I.

H. Removal: The Contractor shall remove all existing junction boxes, wire from spans/poles/junction boxes/conduits, and conduits. The removal will be incidental to the project.

I. Property/Roadway Damage. The Contractor shall be responsible for all damage to public and/or private property resulting from the work. Upon completion of the work, restore all disturbed highway features and private property in like kind design and materials at no additional cost to the Department.

J. Right-of-Way Limits. The Department has not established exact limits of Right-of-Way. Limit work activities to obvious Right-of-Way and work areas secured by the Department through Consent and Release of the adjacent property owners. Be responsible for all encroachments onto private lands.

K. Utility Clearance. Work around and do not disturb existing utilities. The Department does not anticipate that existing utilities will require relocation; however, if utility relocation is required, the utility companies will work concurrently with the Contractor while relocating their facilities.

L. Caution. Consider the information in this proposal and shown on the plans and the type of work listed herein to be approximate. Do not take the information to be an accurate evaluation of the materials and conditions to be encountered during construction. The bidder must draw his own conclusions as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and will not consider any claims for additional compensation if the conditions encountered are not in accordance with the information shown.

M. Control. Perform all work under the absolute control of the Department of Highways. Obtain the Engineer's approval of all designs required to be furnished by the Contractor prior to incorporation into the work. The Department reserves the right to have other work performed by other Contractors and its own forces and to permit public

utility companies and others to do work during the construction within the limits of, or adjacent to, the project. Conduct operations and cooperate with such other parties so that interference with each other's work will be reduced to a minimum. By submitting bid, the Contractor agrees to make no claims against the Department for additional compensation due to delays or other conditions created by the operations of such other parties. 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 Engineer will decide as to the respective rights of the various parties involved in order to assure the completion of the work in general harmony and in a satisfactory manner, and his decision shall be final and binding upon the Contractor.

N. Bore and Jack. If conduit is under pavement of any kind, bore and jack 2" rigid steel conduit under all pavement areas except for the area that the loop transitions from the saw slot. The installation of conduit should follow the detail below.

IV. MEASUREMENT.

The Department will measure for payment only the bid items listed. See section 723.04 for bid item notes. All other items required to complete the construction shall be incidental to the bid items listed.

A. Maintain and Control Traffic. See Traffic Control Plan

B. Loop Wire. Bid Item 4830

C. Cable No. 14/1 Pair. Bid item 4850

D. Loop Saw Slot and Fill. Bid item 4895

E. Conduit. Bid item 4792, 4793, and 4795

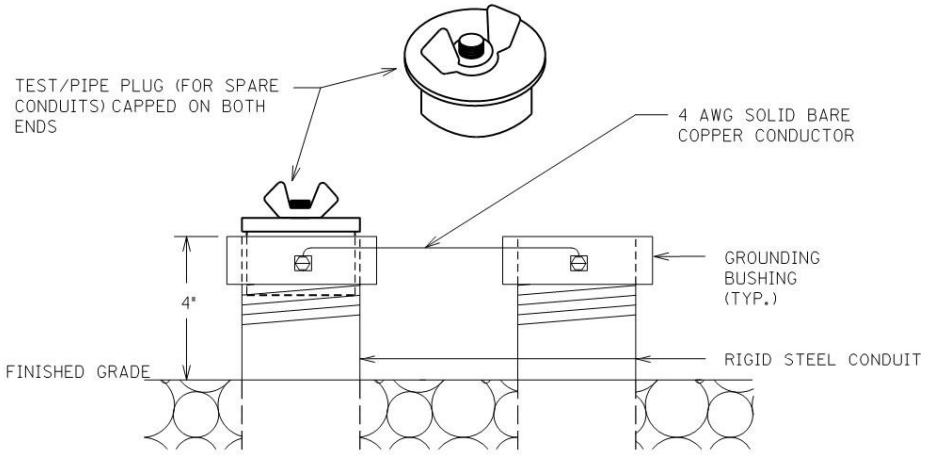
F. Trenching and Backfilling. Bid item 4820

G. Electrical Junction Box Type B. Bid item 4811

H. Bore and Jack Conduit. Bid item 21543EN

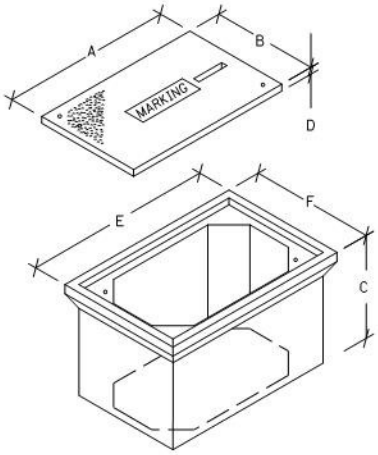
V. PAYMENT. The Department will make payment for the completed and accepted quantities of listed items according to Section 723.05. The Department will consider payment as full compensation for all work required under these notes and the Standard Specifications.

Traffic Signal Loop Detectors
Page 6 of 9



TEST/PIPE PLUG(FOR SPARE CONDUITS) AND GROUNDING DETAIL

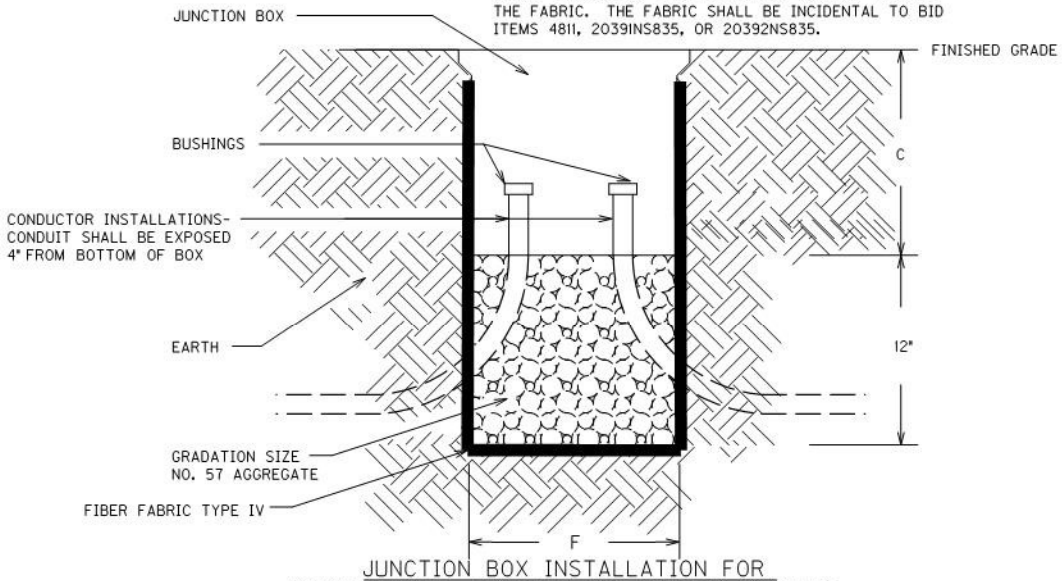
Traffic Signal Loop Detectors
Page 7 of 9



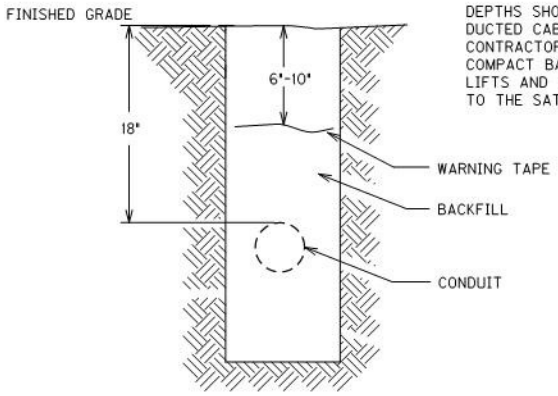
JUNCTION BOX DIMENSIONS (NOMINAL)						
	A	B	C	D	E	F
TYPE A	23"	14"	27"	2"	25"	15"
TYPE B	18"	11"	12"	1¾" *	20"	13"
TYPE C	36"	24"	30"	3"	38"	26"

* MINIMUM
NOTE: STACKABLE BOXES ARE PERMITTED

BEFORE THE INSTALLATION OF THE #57 AGGREGATE AND JUNCTION BOX, THE CONTRACTOR SHALL INSTALL GEOTEXTILE FILTER FABRIC TYPE IV IN THE HOLE. THE FABRIC SHALL EXTEND TO JUST BELOW THE LIP OF THE JUNCTION BOX AND SHALL BE CONTINUOUSLY ADHERED TO THE EXTERIOR OF THE BOX WITH ADHESIVE. ANY LOCATIONS WHERE CONDUITS ENTER THE BOX, THE FABRIC SHALL BE 'X CUT' ONLY AS MUCH AS NECESSARY TO ALLOW PASSAGE OF EACH INDIVIDUAL CONDUIT THROUGH THE FABRIC. THE FABRIC SHALL BE INCIDENTAL TO BID ITEMS 4811, 2039INS835, OR 20392NS835.



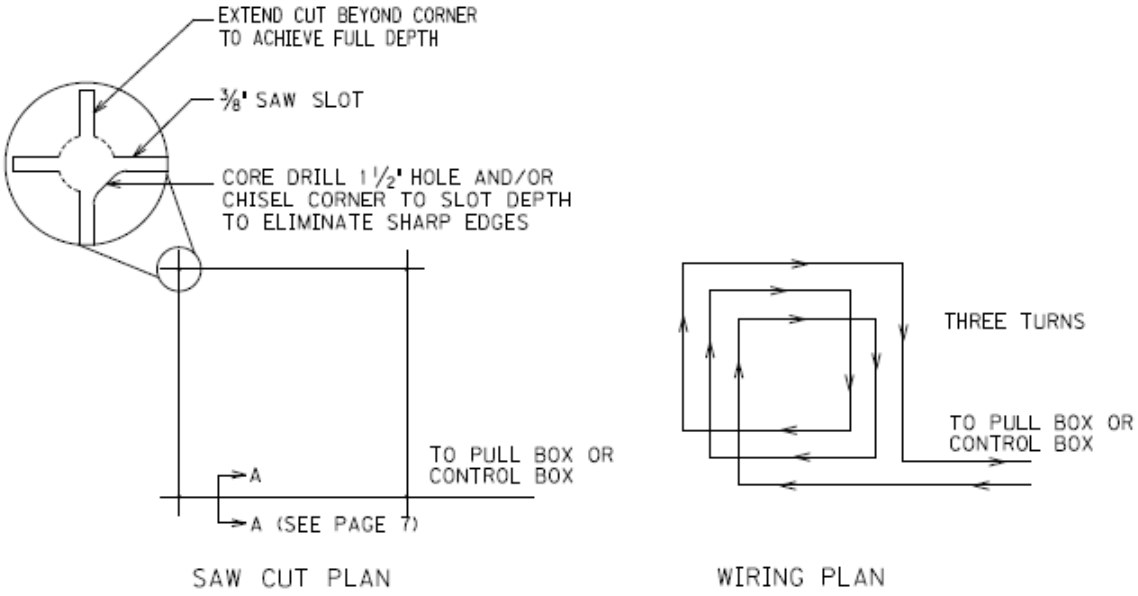
JUNCTION BOX INSTALLATION FOR
CONVENTIONAL LIGHTING OR TRAFFIC SIGNALS



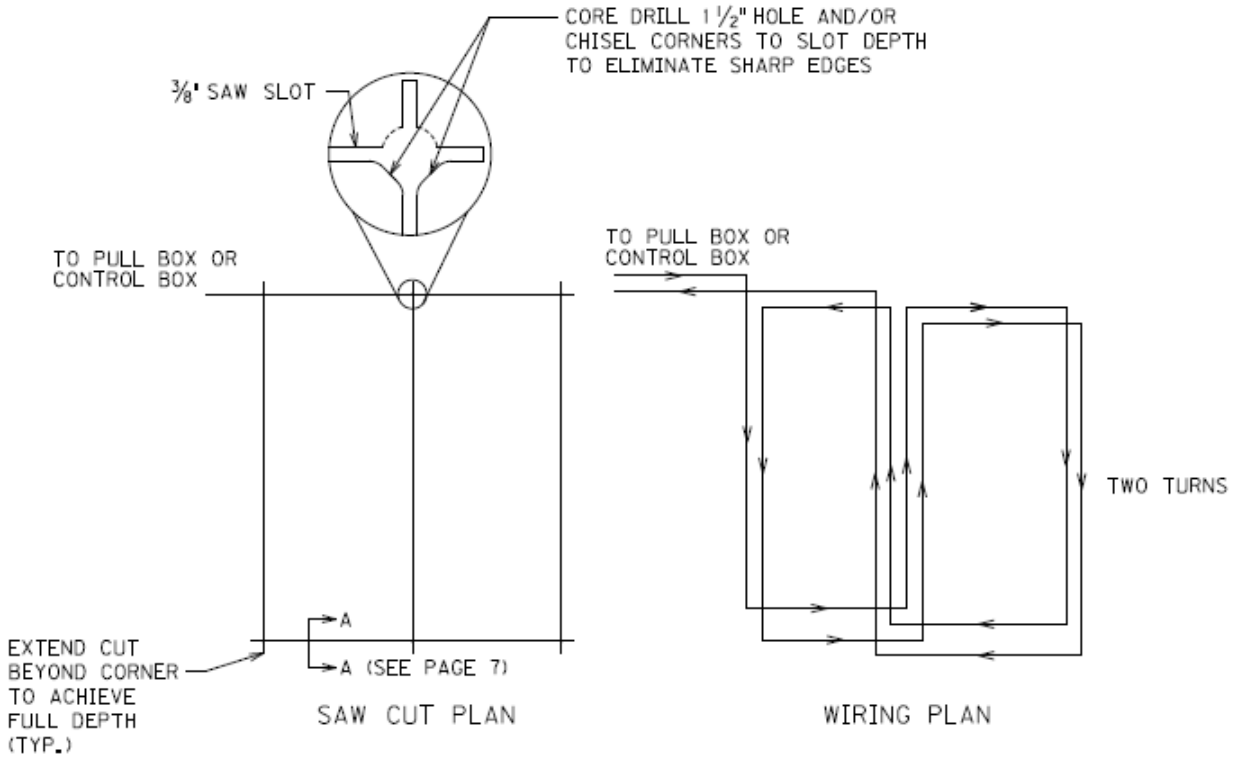
DEPTHS SHOWN FOR CONDUIT AND DUCTED CABLE ARE MINIMUMS. CONTRACTOR SHALL PLACE AND COMPACT BACKFILL IN 9" MAXIMUM LIFTS AND RETORE DISTURBED AREA TO THE SATISFACTION OF THE ENGINEER.

CONDUIT AND WARNING TAPE TRENCH

Traffic Signal Loop Detectors
Page 8 of 9

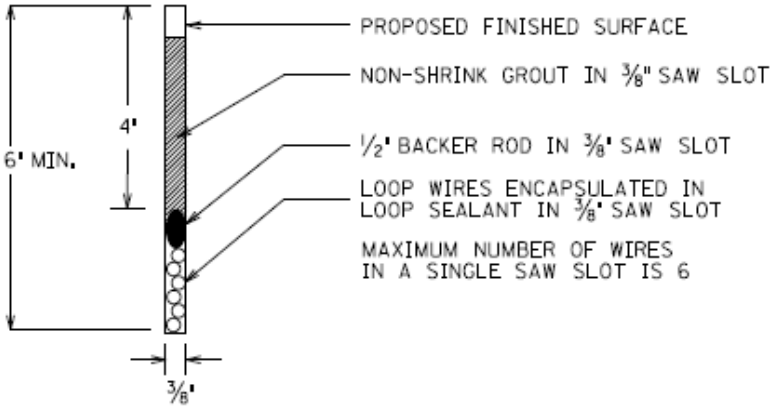


6'X6' LOOP

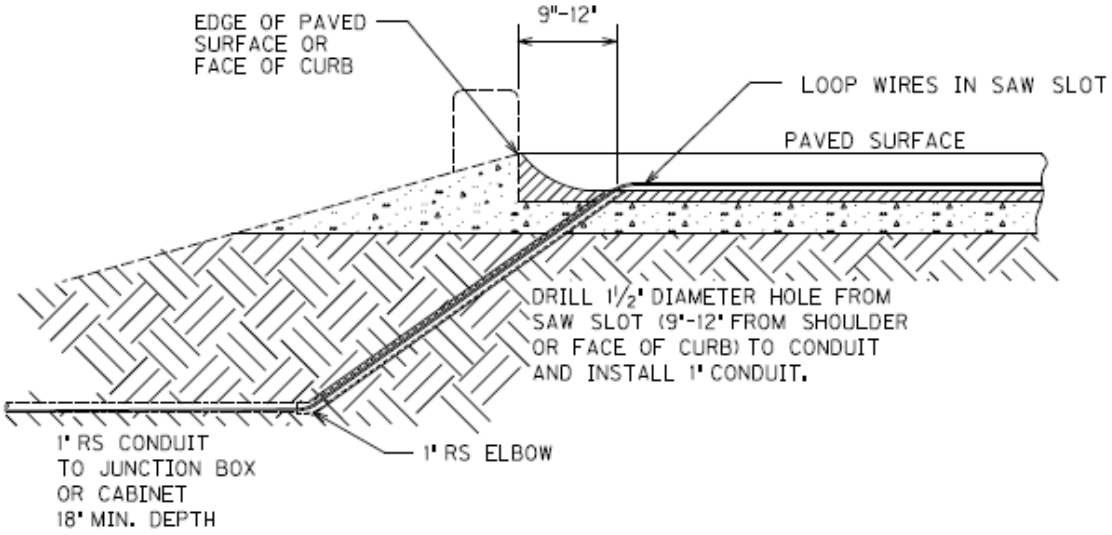


6'X30' QUADRAPOLE LOOP

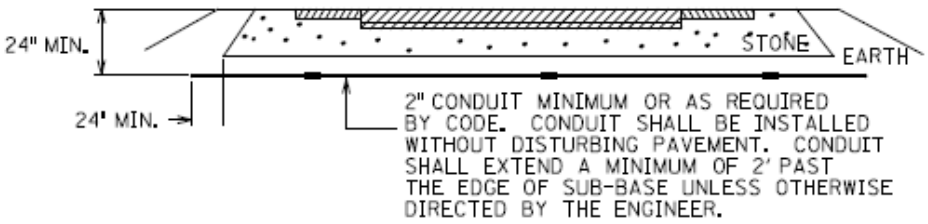
Traffic Signal Loop Detectors
Page 9 of 9



SECTION A-A (SAW SLOT DETAIL)

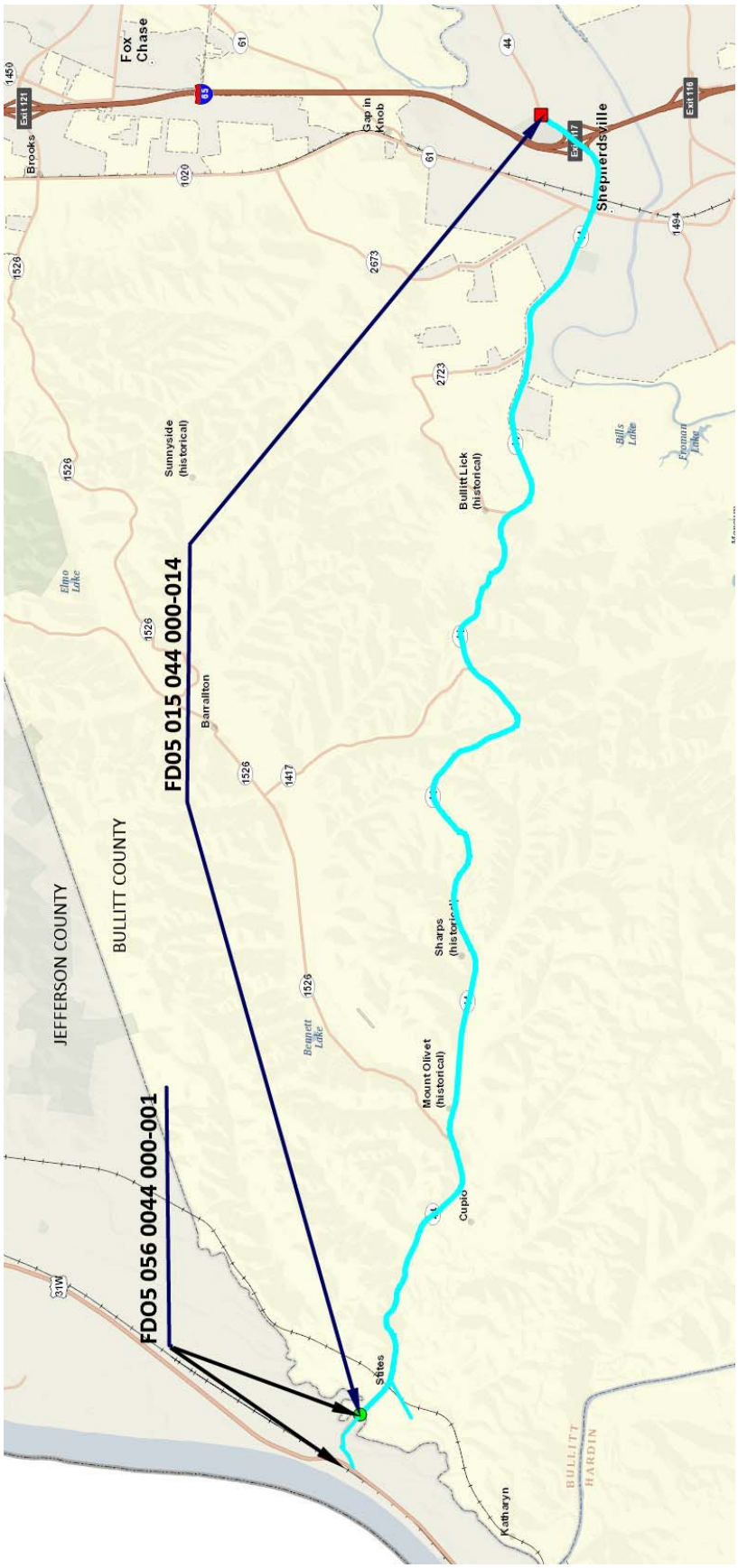


SAW SLOT EDGE OF PAVEMENT TRANSITION



CONDUIT UNDER EXISTING PAVEMENT DETAIL

FD GROUP 19


FD05 015 044 000-014
FDO5 056 0044 000-001
JEFFERSON COUNTY
BULLITT COUNTY
Fox Chase
Brooks
Gap in Knob
Shepherdsville
Sunnyside (historical)
Barrallton
Bullitt Lick (historical)
Bills Lake
Elmo Lake
Sharps (historical)
Mount Olivet (historical)
Cupid
Bennett Lake
Sites
Katharyn
BULLITT
HARDIN

MATERIAL SUMMARY

CONTRACT ID: 172131 **121GR17P026-FD05** **MP01500441701**

SHEPHERDSVILLE ROAD/4TH STREET (KY 44) FROM JEFFERSON COUNTY LINE EXTENDING EAST TO PAVEMENENT JOINT AT EAST SIDE OF CENTERVIEW DRIVE ASPHALT RESURFACING, A DISTANCE OF 13.31 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0065	00190	LEVELING & WEDGING PG64-22	645.00	TON
0070	00301	CL2 ASPH SURF 0.38D PG64-22	5,440.00	TON
0075	02562	TEMPORARY SIGNS	500.00	SQFT
0080	02650	MAINTAIN & CONTROL TRAFFIC - (BULLITT COUNTY)	1.00	LS
0085	02676	MOBILIZATION FOR MILL & TEXT - (BULLITT COUNTY)	1.00	LS
0090	02677	ASPHALT PAVE MILLING & TEXTURING	2,440.00	TON
0095	06510	PAVE STRIPING-TEMP PAINT-4 IN	68,000.00	LF
0100	06514	PAVE STRIPING-PERM PAINT-4 IN	260,000.00	LF
0105	10020NS	FUEL ADJUSTMENT	19,830.00	DOLL
0110	10030NS	ASPHALT ADJUSTMENT	49,800.00	DOLL
0115	02569	DEMOBILIZATION	1.00	LS
0120	22906ES403	CL3 ASPH SURF 0.38A PG64-22	6,665.00	TON
0125	00190	LEVELING & WEDGING PG64-22 - - SPECIAL	50.00	TON
0130	06566	PAVE MARKING-THERMO X-WALK-12 IN	930.00	LF
0135	06568	PAVE MARKING-THERMO STOP BAR-24IN	456.00	LF
0140	06574	PAVE MARKING-THERMO CURV ARROW	45.00	EACH
0145	06576	PAVE MARKING-THERMO ONLY	1.00	EACH
0150	06563	PAVE MARKING-R/R XBUCKS 16 IN	169.00	LF
0155	06562	PAVE MARKING-THERMO R 6 FT	8.00	EACH
0160	04830	LOOP WIRE - (TRAFFIC SIGNAL LOOPS)	5,016.00	LF
0165	04895	LOOP SAW SLOT AND FILL - (TRAFFIC SIGNAL LOOPS)	1,938.00	LF
0170	04793	CONDUIT-1 1/4 IN - (AUTOMATIC TRAFFIC RECORDER LOOPS)	20.00	LF
0175	04820	TRENCHING AND BACKFILLING - (AUTOMATIC TRAFFIC RECORDER LOOPS)	10.00	LF
0180	04830	LOOP WIRE - (AUTOMATIC TRAFFIC RECORDER LOOPS)	1,050.00	LF
0185	04895	LOOP SAW SLOT AND FILL - (AUTOMATIC TRAFFIC RECORDER LOOPS)	240.00	LF
0190	20360ES818	WOOD POST - (AUTOMATIC TRAFFIC RECORDER LOOPS)	2.00	EACH
0195	20468EC	ELECTRICAL JUNCTION BOX-10 X 8 X 4 - (AUTOMATIC TRAFFIC RECORDER LOOPS)	2.00	EACH
0200	02697	EDGELINE RUMBLE STRIPS	125,260.00	LF
0205	02696	SHOULDER RUMBLE STRIPS	4,150.00	LF
0210	20458ES403	CENTERLINE RUMBLE STRIPS	2,075.00	LF
0215	02720	SIDEWALK-4 IN CONCRETE	240.00	SQYD
0220	23158ES505	DETECTABLE WARNINGS - (NEW)	200.00	SQFT
0225	23158ES505	DETECTABLE WARNINGS - (RETROFIT)	40.00	SQFT
0230	24489EC	INLAID PAVEMENT MARKER	235.00	EACH
0235	06600	REMOVE PAVEMENT MARKER TYPE V	1,150.00	EACH
0240	02775	ARROW PANEL	2.00	EACH
0245	02671	PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH

MATERIAL SUMMARY

CONTRACT ID: 172131 **121GR17P026-FD05** **MP05600441701**

STITES STATION ROAD (KY 44) FROM FLOOD WALL GATE EAST OF US 31W EXTENDING EAST TO BULLITT COUNTY LINE ASPHALT RESURFACING, A DISTANCE OF .56 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00190	LEVELING & WEDGING PG64-22	40.00	TON
0010	00301	CL2 ASPH SURF 0.38D PG64-22	460.00	TON
0015	02562	TEMPORARY SIGNS	60.00	SQFT
0020	02650	MAINTAIN & CONTROL TRAFFIC - (JEFFERSON COUNTY)	1.00	LS
0025	02676	MOBILIZATION FOR MILL & TEXT - (JEFFERSON COUNTY)	1.00	LS
0030	02677	ASPHALT PAVE MILLING & TEXTURING	15.00	TON
0035	06510	PAVE STRIPING-TEMP PAINT-4 IN	1,900.00	LF
0040	06514	PAVE STRIPING-PERM PAINT-4 IN	12,420.00	LF
0045	10020NS	FUEL ADJUSTMENT	780.00	DOLL
0050	10030NS	ASPHALT ADJUSTMENT	1,955.00	DOLL
0055	02569	DEMOBILIZATION	1.00	LS
0060	06600	REMOVE PAVEMENT MARKER TYPE V	15.00	EACH

MILLING SUMMARY
FD05 0015 0044 000-014

Milepoint	Comment	Length	Width	Avg Depth
0.329	Edgekey at bridge	100	38	0.5
0.359	Edgekey at bridge	100	38	0.5
1.606	Edgekey at culvert	100	22	0.5
1.606	Mill over culvert	40	22	1
1.606	Edgekey at culvert	100	22	0.5
3.220	Edgekey at bridge	100	22	0.5
3.252	Edgekey at bridge	100	22	0.5
4.190	Edgekey at culvert	100	22	0.5
4.190	Mill over culvert	40	22	1
4.190	Edgekey at culvert	100	22	0.5
4.420	Edgekey	100	22	0.5
4.420	Mill	7287	22	1
5.800	Edgekey	100	22	0.25
8.100	Edgekey	100	24	0.5
9.300	Edgekey	100	24	0.5
10.115	Edgekey at bridge	125	22	0.625
10.139	Edgekey at bridge	125	22	0.625
12.158	Edgekey	125	40	0.625
12.215	Mill to intersection	150	40	1.25
12.215	Edgekey	125	50	1.25
12.272	Mill	343	44	1.25
12.337	Edgekey at Railroad	125	44	0.625
12.337	Edgekey at Railroad	125	44	0.625
12.337	Mill	111	44	1.25
12.358	Mill	940	48	1.25
12.536	Mill	623	72	1.25
12.654	Mill	200	84	1.25
12.692	Mill EB Lane	1151	24	1.25
12.692	Mill WB Lane	300	48	1.25
12.749	Mill WB Lane	850	24	1.25
12.970	Mill EB Lane	723	24	1.25
13.107	Mill EB Lane	300	36	1.25
12.970	Mill WB Lane	1024	24	1.25
13.164	Mill	465	62	1.25
13.252	Mill	150	36	1.25
13.281	Edgekey	125	36	0.625

MILLING SUMMARY
FD05 056 0044 000-001

Milepoint	Location	Length	Width	Avg Depth
0.030	Edgekey @ Floodwall	100.0	32.0	0.500
0.435	Egdekey at Bridge	100.0	22.0	0.500
0.479	Egdekey at Bridge	100.0	22.0	0.500

SIDEWALK RAMP AND DETECTABLE WARNING SUMMARY
FD05 0015 0044 000-014

INTERSECTION		RAMP		DETECTABLE WARNINGS			NOTES
MILEPOINT	LOCATION	TYPE	SY	QUANTITY	NEW SF	RETROFIT SF	
11.936	Lee St	1	6	1	10		SW Corner
11.936	Lee St	1	6	1	10		SE Corner
12.118	Plum St	1	6	1	10		SW Corner
12.118	Plum St	1	6	1	10		SE Corner
12.029	Abbott St	1	6	1	10		SW Corner
12.029	Abbott St	1	6	1	10		SE Corner
12.692	Adams Shephard Pkwy	4	50	2	20		NE Corner
12.692	Adams Shephard Pkwy	4	50	2	20		NW Corner
12.692	Adams Shephard Pkwy	4	50	2	20		SE Corner
12.854	I-65 On Ramp	1	6	1	10		NW Corner
12.854	I-65 On Ramp	1	6	1	10		NW Middle
12.854	I-65 On Ramp	1	6	1	10		NE Middle
12.854	I-65 On Ramp	1	6	1	10		NE Corner
13.035	I-65 Off Ramp	1	6	1	10		NE Corner
13.035	I-65 Off Ramp	1	6	1	10		NW Corner
13.164	Lakeview Dr	1	9	1	10		NE Corner
13.164	Lakeview Dr	1	9	1	10		NW Corner
13.180	Board of education	1	0	1		10	NW Corner
13.180	Board of education	1	0	1		10	NE Corner
13.250	School entrance	1	0	1		10	NW Corner
13.250	School entrance	1	0	1		10	NE Corner
	TOTAL		240		200	40	

THERMOPLASTIC INTERSECTION PAVEMENT MARKINGS SUMMARY
FD05 0015 0044 000-014

MILEOINT	INTERSECTION	X-WALKS 12 INCH LF	ST0P BARS 24 INCH LF	ARROWS CURVE EA	ARROWS STR EA	ARROWS COMB EA	"ONLY" EA	CATRAXX 6 INCH LF	RAILROAD "R" 6 FOOT EA	RAILROAD CROSS BUCK 16" LF	NOTES
12.215	KY 61	220	48	4							1
12.250-12.689	Two-Way Left-Turn Lane			26							2
12.301	Eastbound RR Crossing		72						4	83	3
12.376	Westbound RR Crossing		72						4	86	3
12.574	Hester St	220	60	4			1				
12.692	Adam Shepards Pkwy	400	96	5							
12.854	I-65 Ramps		60	1							
12.854	I-65 Ramp	60									4
13.035	I-65 Ramps		48								
13.048	I-65 Ramp	30									4
13.115	Lakeview Drive			1							
13.164-13.309	Two-Way Left-Turn Lane			4							2
13.309	Centerview Drive										5
	TOTAL	930	456	45			1		8	169	

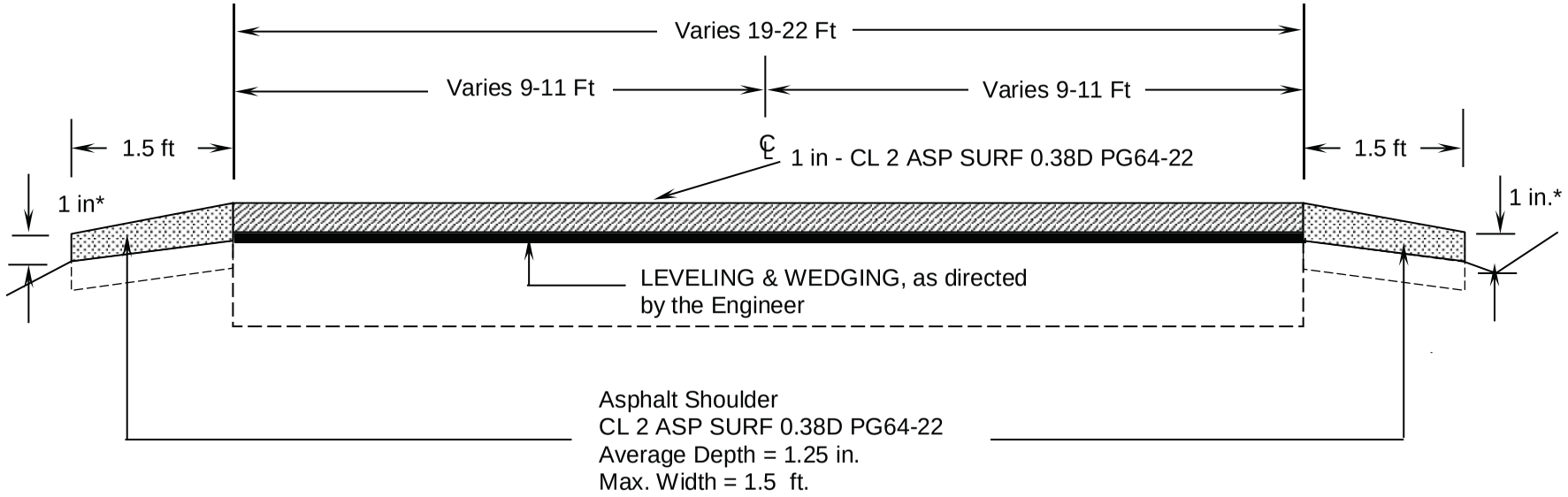
NOTES 1. Omit if in area omitted from resurfacing.
2. None Existing. Space pair of opposing arrows ~325 feet on centers or as directed by the Engineer.
3. None existing in Two-Way Left-Turn Lane (TWLTL). Place in TWLTL and right lane.
4. None Existing. Place as directed by Engineer.
5. Do Not Disturb Existing Crosswalk.

TRAFFIC LOOP SUMMARY
FD05 0015 0044 000-014

MILEPOINT	INTERSECTION	LOOP, SAW, SLOT AND FILL (LF)	LOOP WIRE (LF)	CONDUIT 1 1/4 INCH (LF)	CABLE NO. 14/1 (LF)	CABLE FIBER OPTIC (LF)	JUNCTION BOX TYPE B (EA)	JUNCTION BOX 10X8X4 (EA)	NOTES
12.215	KY 61	-	-						1
12.574	Hester St	408	1,056						
12.692	Adam Shepards Pkwy	612	1,584						
12.854	I-65 Ramps	510	1,320						
13.035	I-65 Ramps	408	1,056						
TOTAL		1,938	5,016	0	0	0	0	0	

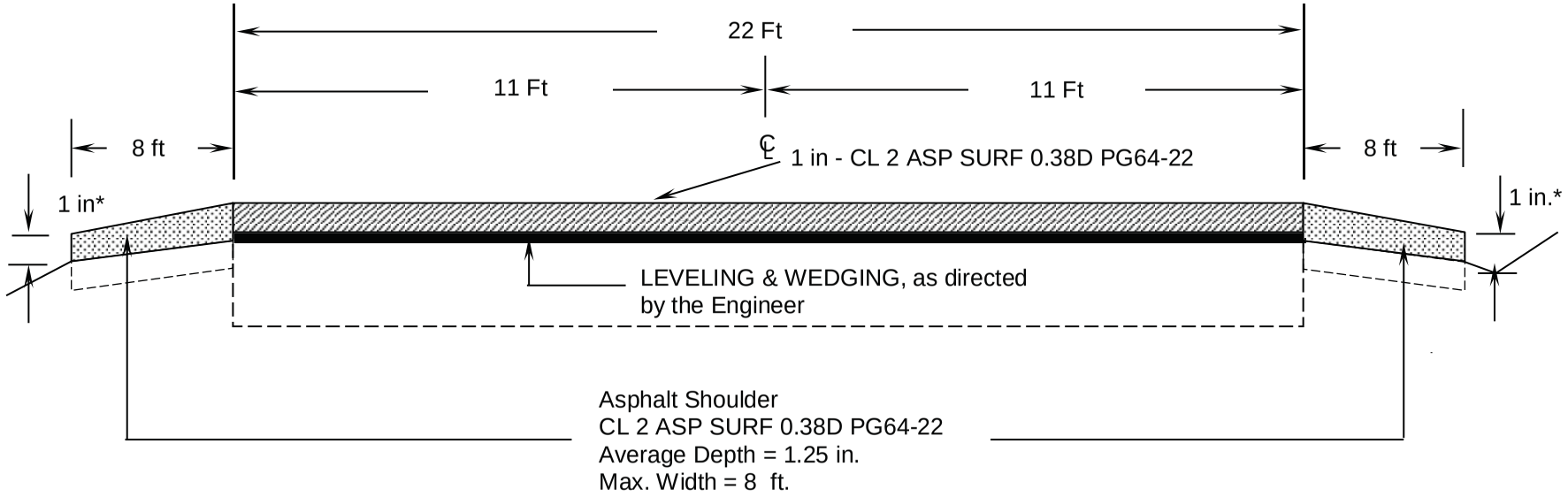
Notes: 1. By others.

BULLITT COUNTY
TYPICAL SECTION
FD05 015 0056 000-014
MILEPOINT 0.000-0.155
MILEPOINT 0.548-9.939



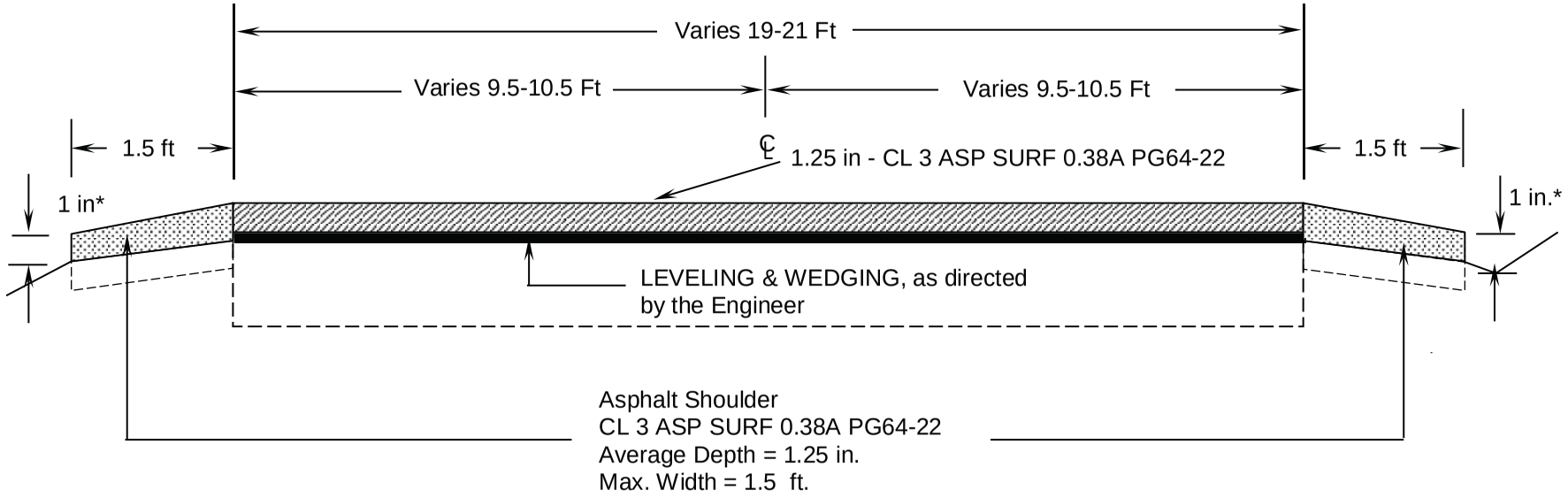
NOTES: 1. 1 Inch maximum drop-off as site conditions allow.
2. Construct Edge Line Rumble Strips milepoint 0.000-0.155 and 0.548-9.939

BULLITT COUNTY
TYPICAL SECTION
FD05 015 0056 000-014
MILEPOINT 0.155-0.548



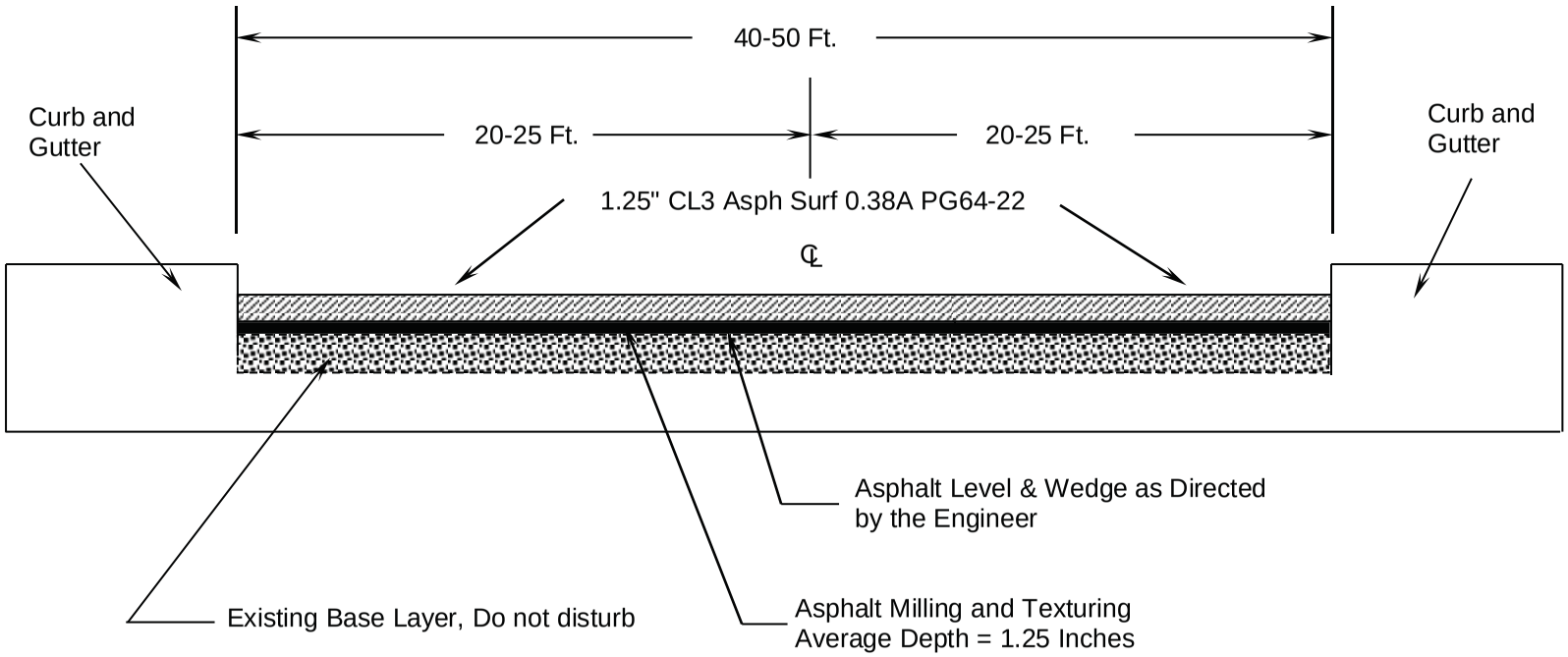
NOTES: 1. 1 Inch maximum drop-off as site conditions allow.
2. Construct Shoulder Rumble Strips milepoint 0.155-0.548
3. Construct Centerline Rumble Strips milepoint 0.155-0.548

BULLITT COUNTY
TYPICAL SECTION
FD05 015 0056 000-014
MILEPOINT 9.939-12.158



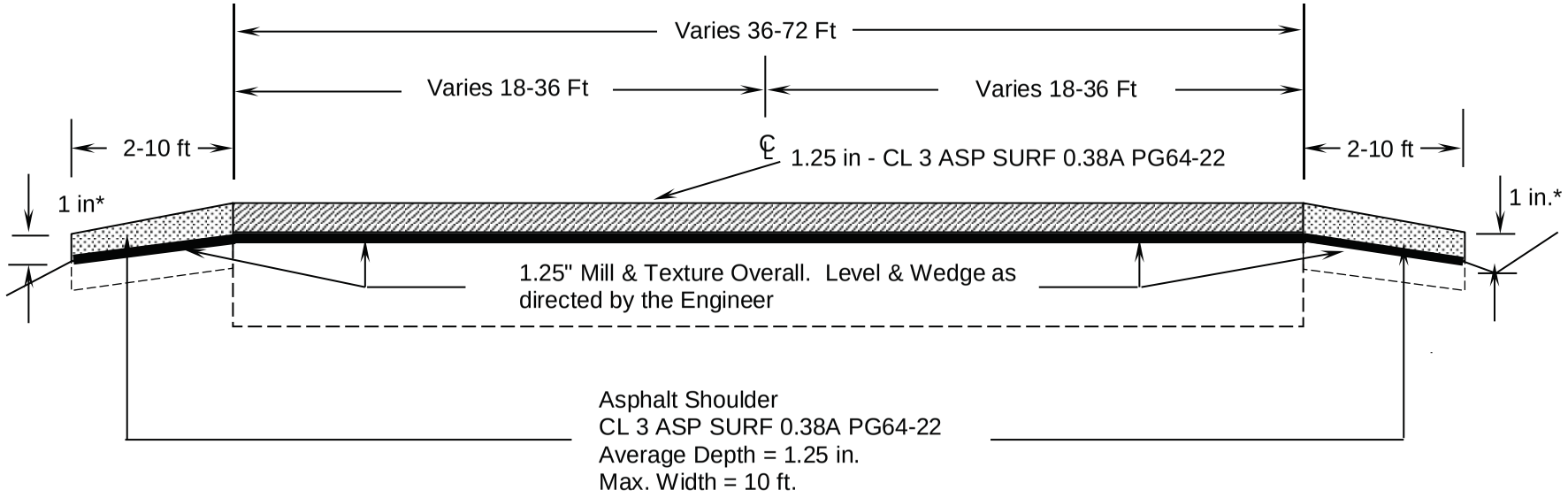
NOTES: 1. 1 Inch maximum drop-off as site conditions allow.
2. Construct Edgeline Rumble Strips milepoint 9.939 -10.860

BULLITT COUNTY
TYPICAL SECTION
FD05 015 0044 000-014
MILEOINT 12.158-12.260



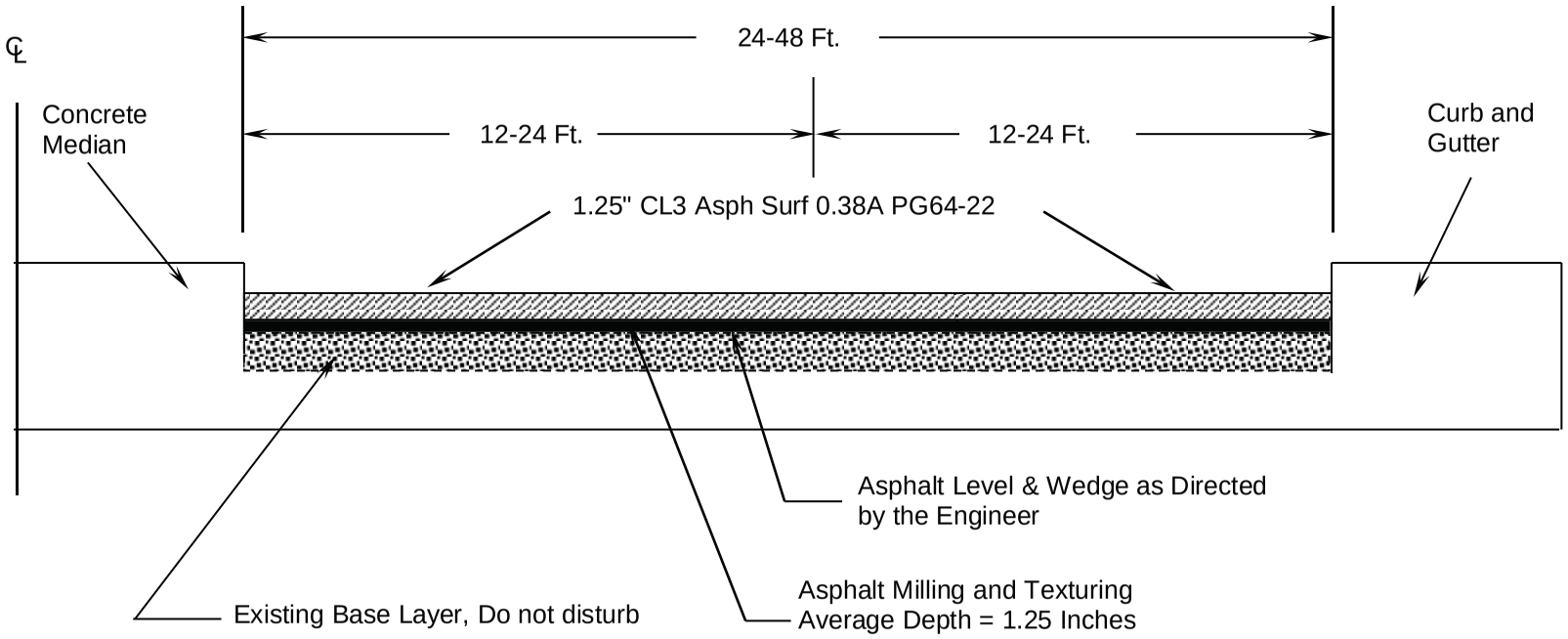
OMIT KY 61 INTERSECTION - LIMITS TO BE DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION

BULLITT COUNTY
TYPICAL SECTION
FD05 015 0056 000-014
MILEPOINT 12.260-12.692

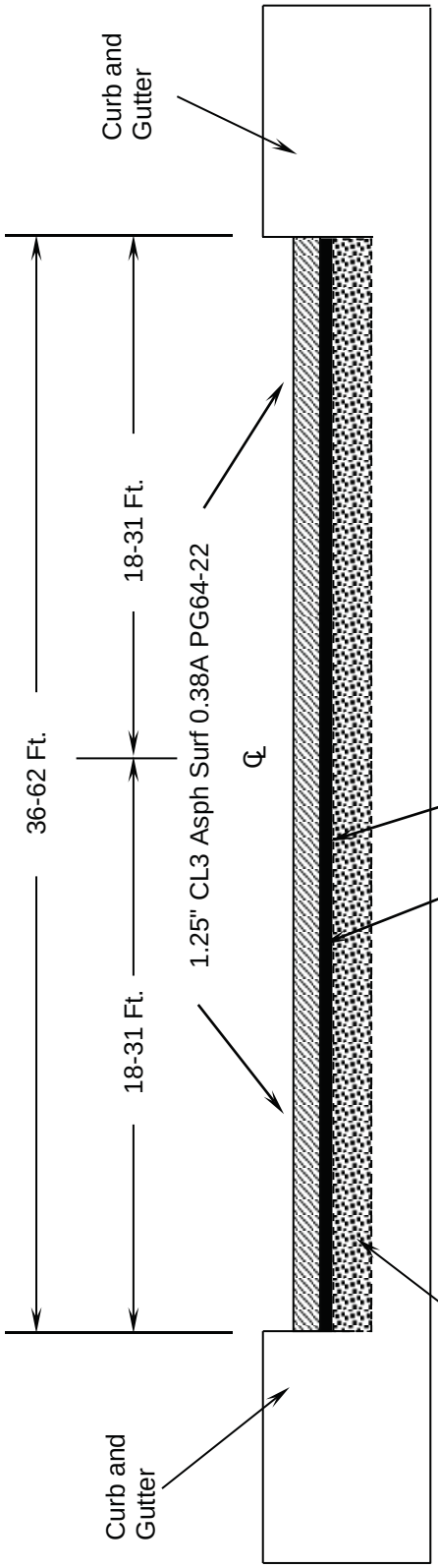


NOTES: 1. 1 Inch maximum drop-off as site conditions allow.
2. Construct Inlaid Pavement Markers in Two-Way Left Turn Lane.
3. Place Level & Wedging-Special to flatten approach to Railroad Crossing.

BULLITT COUNTY
TYPICAL HALF-SECTION
FD05 015 0044 000-014
MILEOINT 12.692-13.164

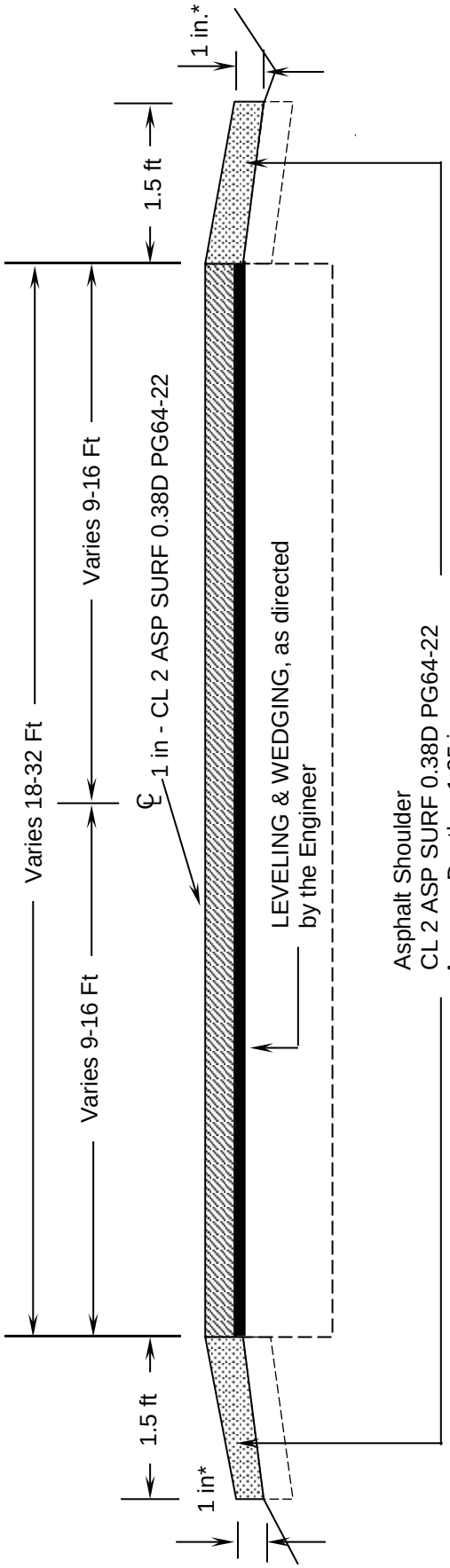


BULLITT COUNTY
TYPICAL SECTION
FD05 015 0044 000-014
MILEOINT 13.164-13.309



CONSTRUCT INLAID PAVEMENT MARKERS IN TWO-WAY LEFT TURN LANE

JEFFERSON COUNTY
TYPICAL SECTION
FD05 056 0044 000-001



NOTES: 1. 1 Inch maximum drop-off as site conditions allow.
2. Construct Edge Line Rumble Strips milepoint 0.030-0.588.

BULLITT CO. KY 44 ~m.p. 12.8
~LAT/LONG N 37.990021, W 85.710335
STATION A03

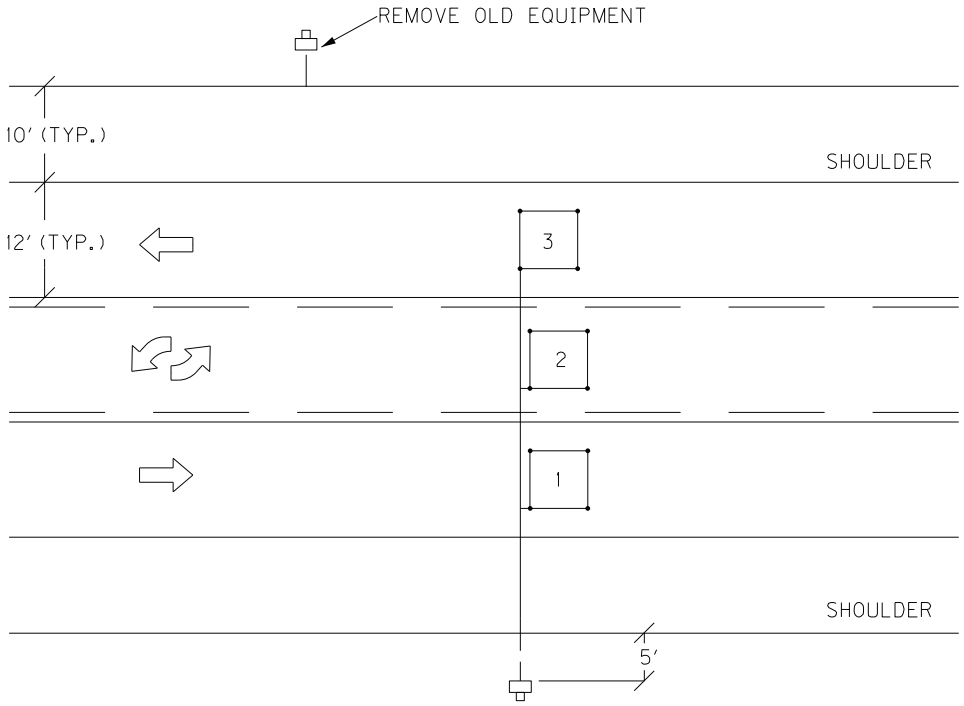
SITE LOCATION IS APPROXIMATE AND WILL BE DETERMINED IN THE FIELD AND APPROVED BY DIVISION OF PLANNING PERSONNEL PRIOR TO ANY CONSTRUCTION.

ALL LOOPS SHALL BE 6'X6' SQUARE AND SHALL BE INSTALLED IN THE CENTER OF THEIR RESPECTIVE LANE AS SHOWN. BETWEEN 2' AND 3' OF WIRE FOR EACH SENSOR SHALL BE COILED AND LABELED INSIDE THE CABINET. DIVISION OF PLANNING PERSONNEL WILL CONNECT THE LOOPS INSIDE THE CABINET.

INSTALL ONE (1) 10"x8"x4" CABINET ON ONE (1) 4"x4" POST.

INSTALL ONE (1) 1¼" CONDUIT FROM SAW SLOT TO CABINET.

REMOVE OLD CABINET, POST CONDUIT AND WIRE AND DISPOSE OF OFF THE PROJECT.



SCALE 1"=20'

BULLITT CO. KY 44 ~m.p. 13.4
~LAT/LONG N 37.996942, W 85.700458
STATION A02

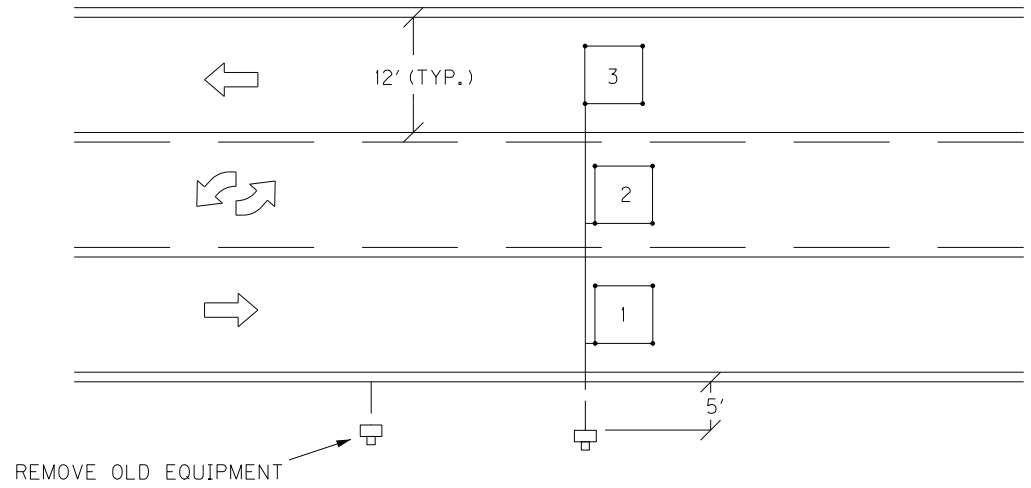
SITE LOCATION IS APPROXIMATE AND WILL BE DETERMINED IN THE FIELD AND APPROVED BY DIVISION OF PLANNING PERSONNEL PRIOR TO ANY CONSTRUCTION.

ALL LOOPS SHALL BE 6'X6' SQUARE AND SHALL BE INSTALLED IN THE CENTER OF THEIR RESPECTIVE LANE AS SHOWN. BETWEEN 2' AND 3' OF WIRE FOR EACH SENSOR SHALL BE COILED AND LABELED INSIDE THE CABINET. DIVISION OF PLANNING PERSONNEL WILL CONNECT THE LOOPS INSIDE THE CABINET.

INSTALL ONE (1) 10"x8"x4" CABINET ON ONE (1) 4"x4" POST.

INSTALL ONE (1) 1¼" CONDUIT FROM SAW SLOT TO CABINET.

REMOVE OLD CABINET, POST CONDUIT AND WIRE AND DISPOSE OF OFF THE PROJECT.



SCALE 1"=20'

PERMANENT TRAFFIC DATA ACQUISITION STATIONS
ESTIMATE OF QUANTITIES

Bid Item Code	Description	Unit	Quantity
2562	TEMPORARY SIGNS	SQ FT	
2650	MAINTAIN AND CONTROL TRAFFIC	LP SUM	
2775	ARROW PANEL	EACH	
4791	CONDUIT ¾ INCH	LIN FT	
4793	CONDUIT 1 ¼ INCH	LIN FT	20
4795	CONDUIT 2 INCH	LIN FT	
4811	ELECTRICAL JUNCTION BOX TYPE B	EACH	
4820	TRENCHING AND BACKFILLING	LIN FT	10
4821	OPEN CUT ROADWAY	LIN FT	
4829	PIEZOELECTRIC SENSOR	EACH	
4830	LOOP WIRE	LIN FT	1050
4850	CABLE NO. 14/1 PAIR	LIN FT	
4871	POLE – 35’ WOODEN	EACH	
4895	LOOP SAW SLOT AND FILL	LIN FT	240
4899	ELECTRICAL SERVICE	EACH	
20213EC	INSTALL PAD MOUNT ENCLOSURE	EACH	
20359NN	GALVANIZED STEEL CABINET	EACH	
20360ES818	WOOD POST	EACH	2
20391NS835	ELECTRICAL JUNCTION BOX TYPE A	EACH	
20392NS835	ELECTRICAL JUNCTION BOX TYPE C	EACH	
20468EC	ELECTRICAL JUNCTION BOX 10x8x4	EACH	2
21543EN	BORE AND JACK PIPE – 2 IN	LIN FT	
23206EC	INSTALL CONTROLLER CABINET	EACH	

MATERIAL, INSTALLATION, AND BID ITEM NOTES FOR PERMANENT TRAFFIC DATA ACQUISITION STATIONS

1. DESCRIPTION

Except as specified in these notes, all work shall consist of furnishing and installing all materials necessary for permanent data acquisition station equipment installation(s) and shall be performed in accordance with the current editions of:

- The Contract
- Division of Planning Standard Detail Sheets
- Kentucky Transportation Cabinet, Department of Highways, *Standard Specifications for Road and Bridge Construction*
- Kentucky Transportation Cabinet, Department of Highways, Standard Drawings
- National Fire Protection Association *(NFPA) 70: National Electrical Code*
- Institute of Electrical and Electronic Engineers (IEEE), *National Electrical Safety Code*
- Federal Highway Administration, *Manual on Uniform Traffic Control Devices*
- American Association of State Highway and Transportation Officials (AASHTO), *Roadside Design Guide*.
- Standards of the utility company serving the installation, if applicable

The permanent traffic data acquisition station layout(s) indicate the extent and general arrangement of the proposed installation and are for general guidance. Any omission or commission shown or implied shall not be cause for deviation from the intent of the plans and specifications. Information shown on the plans and in this proposal and the types and quantities of work listed are not to be taken as an accurate or complete evaluation of the material and conditions to be encountered during construction. The bidder must draw his own conclusion as to the conditions encountered. The Department of Highways (Department) does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation if the conditions encountered are not in accordance with the information shown. If any modifications of the plans or specifications are considered necessary by the Contractor, details of such modifications and the reasons, therefore, shall be submitted in writing to the Engineer for written approval prior to beginning such modified work.

The Contractor shall contact all utility companies and the district utility agent prior to beginning construction to insure proper clearance and shielding from existing and proposed utilities. The Contractor shall use all possible care in excavating on this project so as not to disturb any existing utilities whether shown on the plans or not shown on the plans. Any utilities disturbed or damaged by the Contractor during construction shall be replaced or repaired to original condition by the Contractor at no cost to the department. If necessary, to avoid existing utilities, the Contractor shall hand dig areas where poles or conduit cross utilities.

The Contractor shall be responsible for all damage to public and/or private property resulting from his work.

The Contractor shall inspect the project site prior to submitting a bid and shall be thoroughly familiarized with existing conditions. Submission of a bid will be considered an affirmation of this inspection having been completed. The Department will not honor any claims resulting from site conditions.

2. MATERIALS

All proposed materials shall be approved prior to being utilized. The Contractor shall submit for material approval an electronic file of descriptive literature, drawings and any requested design data for the proposed materials. After approval, no substitutions of any approved materials may be made without the written approval of the Engineer.

Materials requiring sampling shall be made available a sufficient time in advance of their use to allow for necessary testing.

2.1. Anchoring

2.1.1. Anchor and Anchor Rod

Anchor, except rock anchor, shall be expanding type, with a minimum area of 135 square inches.

Anchor rod shall be galvanized steel, double-eye, have a minimum diameter of 5/8 inches, and a minimum length of 84 inches. Minimum holding capacity shall be 15,400 lbs.

Rock anchor shall be galvanized steel, triple-eye, expanding type, with a minimum diameter of ¾ inch, a minimum 53 inches long, and a minimum tensile strength of 23,000 lb.

2.1.2. Guy Wire and Guy Guard

Guy wire shall be Class A, Zinc-coated, 3/8 inch diameter, high strength grade steel (minimum 10,800 lb.) and galvanized per ASTM A475. Guy guard shall be 8’ long, fully-rounded, yellow, and able to be securely attached to the guy wire.

2.1.3. Strandvise for Guy Wire

Strandvise for guy wire shall be 3/8 inch and rated to hold a minimum of 90% of the rated breaking strength (RBS) of the strand used.

2.2. Asphalt

Asphalt shall be a minimum CL2 Asph Surf 0.38C PG64-22 and conform to the *Standard Specifications for Road and Bridge Construction.*

2.3. Backer Rod

Backer rod shall be ½ inch diameter, closed cell polyethylene foam and shall meet or exceed the following physical properties:

- Density (average): 2.0 lbs/cu.ft. (minimum): ASTM D 1622 test method
- Tensile Strength: 50 PSI (minimum): ASTM D 1623 test method
- Compression Recovery: 90% (minimum): ASTM D 5249 test method
- Water Absorption: 0.03 gm/cc (maximum): ASTM C 1016 test method

2.4. Cabinets

2.4.1. Galvanized Steel Cabinet

Galvanized Steel Cabinet shall be constructed of 16 or 14 gauge galvanized steel and shall meet or exceed the industry standards set forth by UL 50 and NEMA 3R. The finish shall be an ANSI 61 gray polyester powder finish inside and out over the galvanized steel. Cabinet shall have minimum inside dimensions of 20 inches high by 20 inches wide by 8 inches deep.

The cabinet shall be equipped with the following:

- Drip shield top
- Seam-free sides, front, and back, to provide protection in outdoor installations against rain, sleet, and snow
- Hinged cover with 16 gauge galvanized steel continuous stainless steel pin.
- Cover fastened with captive plated steel screws, knob or latch
- Hasp and staple for padlocking
- No gaskets or knockouts
- Back panel for terminal block installation
- Post mounting hardware
- Terminal Blocks

2.4.2. Anchor Bolt for Pad Mounted Cabinet

Anchor bolt for pad mounted cabinet shall be galvanized steel with minimum dimensions of 3/8 inch by 6 inches.

2.5. Concrete

Concrete shall be Class A and conform to the *Standard Specifications for Road and Bridge Construction.*

2.6. Conduit and Conduit Fittings

Conduit and conduit fittings shall be rigid steel unless otherwise specified.

Conduit shall be zinc galvanized inside and out and conform to the NEC, UL Standard 6, and ANSI C-80.1.

Rigid Steel Conduit Fittings shall be galvanized inside and out and conform to the NEC, UL Standard 514B, and ANSI C-80.4. Intermediate Metal Conduit (IMC) will not be approved as an acceptable alternative to rigid steel conduit.

2.7. Conduit sealant

Conduit sealant shall be weather-, mold-, and mildew-resistant and chemically resistant to gasoline, oil, dilute acids and bases. Conduit sealant shall be closed cell type and shall meet or exceed the following properties:

- Cure Time — 20 minutes max.
- Density — 64.4 kg/m3; 6 lbs/ft3
- Compressive Strength (ASTM 1691) — 13.8 MPa; 330 or 300 psi

- Tensile Strength (ASTM 1623) 15.9 MPa; 270 or 250 psi
- Flexural Strength (ASTM D790) 14.5 MPa; 460 or 450 psi
- Service Temperature -20 to 200 F

2.8. Electrical Service Meter Base

Electrical service meter base shall meet or exceed all requirements of the National Electrical Code and the local utility providing the electrical service.

2.9. Electrical Service Disconnect

Electrical service disconnect shall meet or exceed all requirements of the National Electrical Code and the local utility providing the electrical service.

2.10. Flashing Arrow

Flashing Arrow shall conform to the *Standard Specifications for Road and Bridge Construction.*

2.11. Ground Fault Circuit Interrupter (GFCI) Receptacle

Ground Fault Circuit Interrupter Receptacle shall be 2-pole, 3-wire, 20 Amp, 125 Volt, 60 Hz, NEMA 5-20R configuration and meet or exceed the following standards and certifications:

- NEMA WD-1 and WD-6
- UL 498 and 943
- NOM 057
- ANSI C-73

This item shall include a UL listed, 4 inch x4 inch x $2^1/_8$ inch box with ¾ inch side and end knockouts and a 1½ inches deep, single-receptacle cover to house the GFCI receptacle. Box and cover shall be hot rolled, galvanized steel with a minimum thickness of 0.62 inches.

2.12. Grounding

2.12.1. Ground Rod

Ground Rod shall be composite shaft consisting of a pure copper exterior (5 mil minimum) that has been inseparably molten welded to a steel core. Ground Rod shall have a minimum diameter of 5/8 inch, a minimum length of 8 feet and shall be manufactured for the sole purpose of providing electrical grounding.

2.12.2. Ground Rod Clamp

Ground rod shall be equipped with a one piece cast copper or bronze body with a non-ferrous hexagonal head set screw and designed to accommodate a 10 AWG solid through 2 AWG stranded grounding conductor.

2.13. Grout

2.13.1. Grout for Inductive Loop Installation

Grout for inductive loop installation shall be non-shrink, shall meet the requirements of the *Standard Specifications for Road and Bridge Construction*,

and shall be included on the KYTC Division of Materials, *List of Approved Materials*.

2.13.2. Grout for Piezoelectric Sensor Installation

Grout for piezoelectric sensor installation shall be per the piezoelectric sensor manufacturer's recommendation. Grout shall be suitable for installation in both asphalt and Portland cement pavements. Grout shall have a short curing time (tack free in ten minutes; open to traffic in forty minutes; and fully cured within sixty minutes) to prevent unnecessary lane closure time and should be of sufficient consistency to prevent running when applied on road surfaces with a drainage cross slope. Particulate matter within the grout shall not separate or settle and the grout shall not shrink during the curing process.

2.14. Hardware

Except where specified otherwise, all hardware such as nuts, bolts, washers, threaded ends of fastening devices, etc. with a diameter less than 5/8 inch shall be passivated stainless steel, alloy type 316 or type 304. Stainless steel hardware shall meet ASTM F593 and F594 for corrosion resistance. All other nuts and bolts shall meet ASTM A307 and shall be galvanized.

2.14.1. Conduit Strap

Conduit strap shall be double-hole, stainless steel, and sized to support specified conduit. Conduit strap shall attach to wood pole or post with two 2 ¼ inch wood screws.

2.14.2. Mounting Strap for Pole Mount Cabinet

Mounting strap for pole mount cabinet shall be ¾ inch x 0.03 inch stainless steel; equipped with clips or buckles to securely hold strap.

2.14.3. Metal Framing Channel and Fittings

Metal framing channel shall be 1 5/8 inches wide galvanized steel that conforms to ASTM A1011 and ASTM A653. One side of the channel shall have a continuous slot with in-turned edges to accommodate toothed fittings.

Fittings shall be punch pressed from steel plates and conform to ASTM A575 and the physical requirements of ASTM A1011.

2.15. Junction Box

2.15.1. Junction Box Type A, B, or C

Junction Box Type A, B, or C shall meet or exceed ANSI/SCTE 77-2007, Tier 15. Box shall have an open bottom. A removable, non-slip cover marked "PLANNING" shall be equipped with a lifting slot and attached with a minimum of two 3/8 inch stainless steel hex bolts and washers. Type A Box shall have nominal inside dimensions of 13 inches wide by 24 inches long by 18 inches deep. Type B Box shall have nominal inside dimensions of 11 inches wide by 18 inches long by 12

inches deep. Type C Box shall have nominal inside dimensions of 24 inches wide by 36 inches long by 30 inches deep.

2.15.2. Aggregate for Junction Box Type A, B, or C

Aggregate for junction box type A, B, or C shall be gradation size no. 57 and conform to the *Standard Specifications for Road and Bridge Construction.*

2.15.3. Junction Box 10x8x4

Junction Box Type 10x8x4 shall be constructed of a UV-stabilized, nonmetallic material or non-rusting metal and be weatherproof in accordance with NEMA 4X. Box shall be equipped with an overhanging door with a continuous durable weatherproof gasket between the body and door. Door shall be hinged with stainless steel screws, hinge(s) and pin(s) and shall be equipped with a stainless steel padlockable latch on the side opposite the hinge(s). Junction Box 10x8x4 shall have minimum inside dimensions of 10 inches high by 8 inches wide by 4 inches deep.

2.16. Maintain and Control Traffic

Materials for the bid item Maintain and Control Traffic shall conform to the *Standard Specifications for Road and Bridge Construction,* and the KYTC Department of Highways *Standard Drawings.*

2.17. Piezoelectric Sensor

Piezoelectric sensor (piezo) shall provide a consistent level voltage output signal when a vehicle axle passes over it, shall have a shielded transmission cable attached, and shall meet the following requirements:

- Dimensions: such that sensor will fit in a ¾ inch wide by 1 inch deep saw cut. Total length shall be 6 feet unless specified otherwise.
- Output uniformity: ± 7% (maximum)
- Typical output level range: 250mV (minimum) from a wheel load of 400 lbs.
- Working temperature range: -40° to 160° F.
- Sensor life: 30 million Equivalent Single Axle Loadings (minimum)

Shielded transmission cable shall be coaxial and shall meet the following requirements:

- RG 58C/U with a high density polyethylene outer jacket rated for direct burial
- Length shall be a minimum of 100 feet. Installations may exceed 100 feet so the piezo shall be supplied with a lead-in of appropriate length so that the cable can be installed splice-free from the piezo to the cabinet.
- Soldered, water resistant connection to the sensor.

One installation bracket for every 6 inches of sensor length shall also be supplied. Piezo shall be a RoadTrax BL Class I or approved equal.

2.18. Saw Slot Sealant

Saw Slot Sealant shall be non-shrink, non-stringing, moisture cure, polyurethane

encapsulant suitable for use in both asphalt and concrete pavements. It shall provide a void-free encapsulation for detector loop cables and adequate compressive yield strength and flexibility to withstand heavy vehicular traffic and normal pavement movement.

The cured encapsulant shall meet or exceed the following:

- Hardness (Indentation): 35-65 Shore A, ASTM D2240
- Tensile Strength: 150 psi minimum, ASTM D412
- Elongation: 125% minimum 2 inch/minute pull, ASTM D412
- Tack-free Drying Time: 24 hours maximum, ASTM C679
- Complete Drying Time: 30 hours maximum, KM 64-447
- Chemical Interactions (seven day cure at room temperature, 24-hour immersion, KM 64-446):
  - Motor Oil: No effect
  - Deicing Chemicals: No effect
  - Gasoline: Slight swell
  - Hydraulic Brake Fluid: No effect
  - Calcium Chloride (5%): No effect

2.19. Seeding and Protection

Material for Seeding and Protection shall be Seed Mixture Type I and conform to the *Standard Specifications for Road and Bridge Construction.*

2.20. Signs

Materials for signs shall conform to the *Standard Specifications for Road and Bridge Construction.*

2.21. Splicing Materials

2.21.1. Electrical Tape

Electrical tape shall be a premium grade, UL-listed, all-weather, vinyl-insulating tape with a minimum thickness of 7 mil. Tape shall be flame retardant and resistant to abrasion, moisture, alkalis, acids, corrosion, and weather (including ultraviolet exposure).

2.21.2. Splice Kit

Splice kit shall be inline resin-type and rated for a minimum of 600V. Resin shall be electrical insulating-type and shall provide complete moisture and insulation resistance.

2.22. Steel Reinforcing Bar

Steel reinforcing bar shall be #5 and shall conform to the *Standard Specifications for Road and Bridge Construction.*

2.23. Terminal Block

Terminal block shall be rated for a minimum of 300 V and have a minimum of six

terminal pairs with 9/16-inch nominal spacing (center to center) for connecting loop and piezoelectric sensor wires to cable assemblies. Terminal block shall have screw type terminal strips to accommodate wire with spade-tongue ends.

2.24. Warning Tape

Warning tape shall be acid and alkali resistant formulated for direct burial. Tape shall be a minimum of 3 inches wide by 4.0 mils (nominal) thick, and shall be permanently imprinted with a minimum 1 inch black legend on a red background warning of an electric line. Tape shall meet or exceed the following industry specifications:

- American Gas Association (AGA) 72-D-56
- American Petroleum Institute (API) RP 1109
- American Public Works Association (APWA) Uniform Color Code
- Department of Transportation (DOT) Office of Pipeline Safety USAS B31.8
- Federal Gas Safety Regulations S 192-321 (e)
- General Services Administration (GSA) Public Buildings Service Guide: PBS 4-1501, Amendment 2
- National Transportation Safety Board (NTSB) PSS 73-1
- Occupational Safety and Health Administration (OSHA) 1926.956 (c) (1)

2.25. Wire and Cable

All cable and wire shall be plainly marked in accordance with the National Electrical Code (NEC).

2.25.1. Loop Wire

Loop wire shall be 14 AWG, stranded, copper, single conductor, and shall conform to the International Municipal Signal Association (IMSA) Specification No. 51-7.

2.25.2. Cable No. 14/1 Pair

Cable No. 14/1 pair loop lead-in cable shall be 14 AWG, stranded, copper paired, electrically shielded conductors, and shall conform to IMSA 19-2.

2.25.3. Grounding conductor

Grounding conductor and bonding jumper shall be solid or stranded, 4 AWG bare copper.

2.25.4. Service Entrance Conductor

Service entrance conductor shall be stranded, copper, Type USE-2, sized as required to comply with the NEC.

2.25.5. Terminal for electrical wire or cable

Terminal for electrical wires or cables shall be insulated, solderless, spade tongue terminals of correct wire and stud size. Terminal for electrical wires or cables shall be incidental to the wire or cable (including piezoelectric sensor transmission cable) to be connected to terminal strips.

2.26. Wood Post

Wood post shall be Southern Pine pretreated to conform to the American Wood Preservers' Association (AWPA) C-14 and shall have minimum dimensions of 4 inches by 4 inches by 8 feet long (for Galvanized Steel Cabinet) or 4 feet long (for Junction Box 10x8x4), sawed on all four sides with both ends square.

2.27. Wooden Pole

Wooden pole shall be a Class IV wood pole of the length specified and shall conform to the *Standard Specifications for Road and Bridge Construction* except the pole shall be treated in accordance with AWPA P9 Type A.

3. CONSTRUCTION METHODS

The plans indicate the extent and general arrangement of the installation and are for guidance. When the Contractor deems any modifications to the plans or specifications necessary, details of such changes and the reasons shall be submitted in writing to the engineer for written approval prior to beginning the modified work.

After the project has been let and awarded, the Division of Construction shall notify the Division of Planning of the scheduled date for a Pre-Construction meeting so that prior arrangements can be made to attend. This will allow the Division of Planning an opportunity to address any concerns and answer any questions that the Contractor may have before beginning the work.

The Division of Planning Equipment Management Team (502-564-7183) shall be notified a minimum of seven days before any work pertaining to these specifications begins to allow their personnel the option to be present during installation.

Unless otherwise specified, installed materials shall be new.

Construction involving the installation of loops or piezoelectric sensors shall not be performed when the temperature of the pavement is less than 38ºF.

A final inspection will be performed by a member of the Central Office Division of Planning equipment staff after the installation is complete to verify that the installation is in compliance with the plans and specifications.

Any required corrective work shall be performed per the *Standard Specifications for Road and Bridge Construction.*

3.1. Anchoring

Furnish: Anchor, anchor rod, guy wire, strand vise, guy guard.

Anchor shall be installed in relatively dry and solid soil. Rock anchor shall be installed in solid rock. Excavate the hole at a 45° to 60° angle in line with the guy (hole size shall be slightly larger than the expanded anchor – see manufacturer's recommendation). Attach rod to anchor, install assembly into hole, and expand anchor. Backfill and tamp entire disturbed area. The effectiveness of the anchor is dependent upon the thoroughness of backfill tamping. Attach guy to strand vise on pole and anchor rod and tighten to required tension. Install guy guard on guy.

3.2. Bore and Jack Pipe – 2"

Furnish: Steel Encasement Pipe, 2"

Bore and jack pipe – 2" shall conform to the Section 706 of the *Standard Specifications for Road and Bridge Construction.*

3.3. Cleanup and Restoration

Furnish: Seed Mix Type 1 (as required); fertilizer (as required); agricultural limestone (as required); mulch or hydromulch (as required); tackifier (as required).

The Contractor shall be responsible for repairing any damage to public and/or private property resulting from his work. Upon completion of the work, restore all disturbed highway features in like kind design and materials. This shall include filling any ruts and leveling ground appropriately. Contractor shall dispose of all waste and debris off the project. Sow all disturbed earthen areas with Seed Mix Type 1 per Section 212 of the *Standard Specifications for Road and Bridge Construction*. All materials and labor necessary for cleanup and restoration shall be considered incidental to other bid items.

3.4. Conduit

Furnish: Conduit; conduit fittings; bushings (grounding where required); LB condulets (as required); weatherheads (as required); conduit straps; hardware; conduit sealant.

Conduit that may be subject to regular pressure from traffic shall be laid to a minimum depth of 24 inches below grade. Conduit that will not be subject to regular pressure from traffic shall be laid to a minimum depth of 18 inches below grade.

Conduit ends shall be reamed to remove burrs and sharp edges. Cuts shall be square and true so that the ends will butt together for the full circumference of the conduit. Tighten couplings until the ends of the conduit are brought together. Do not leave exposed threads. Damaged portions of the galvanized surfaces and untreated threads resulting from field cuts shall be painted with an Engineer-approved, rust inhibitive paint. Conduit bends shall have a radius of no less than 12 times the nominal diameter of the conduit, unless otherwise shown on the plans.

Contractor shall install a bushing (grounding bushing where required) on both ends of all conduits. Cap spare conduits on both ends with caps or conduit sealant.

Conduit openings in junction boxes and cabinets shall be waterproofed with a flexible, removable conduit sealant, working it around the wires, and extending it a minimum 1 inch into the end of the conduit.

After the conduit has been installed and prior to backfilling, the conduit installation shall be inspected and approved by the Engineer.

3.5. Electrical Service

Furnish: Meter base, service disconnect, wire, GFCI AC duplex receptacle with box and cover; conduit, conduit fittings, bushings (grounding where required); LB condulets (as required); weatherhead; conduit straps; hardware; conduit sealant; ground rod with clamp; grounding conductor.

Prior to any construction, the Contractor shall initiate a work order with the local power

company for the installation of electrical service to the site. A representative from the Division of Planning and the local power company shall be consulted prior to choosing an exact location for the pole. The Contractor shall clear the right-of-way for the electrical service drop.

Contractor shall obtain electrical inspections, memberships, meter base, service disconnect and any other requirements by the utility serving the installation and pay all fees as required.

Install meter-base and disconnect panel with a 30-ampere, fused, circuit breaker inside. Install a manufactured weatherproof hub connectors to connect the conduit to the top of the meter base and service disconnect.

Install a rigid ¾ inch conduit with three 8 AWG service conductors from the cabinet, through the service disconnect to the meter base and a 1¼" conduit with three 8 AWG service conductors from the meter base to a weatherhead two feet from the top of the electrical service pole. Install conduit straps 30 inches on center and provide a drip loop where the wire enters the weatherhead. Splice electric drop with service entrance conductors at the top of the pole.

The limit of conduit incidental to "Install Electrical Service" for a pad mounted cabinet is 24 inches beyond face of service pole.

Install a 120-volt, 20-amp GFCI AC duplex receptacle with box and cover in the automatic data recorder (ADR) cabinet.

Install a ground rod with clamp. Install a grounding conductor wire from the meter base, through the disconnect panel, to the ground rod clamp. Install grounding conductor in 1-¾" conduit from service disconnect to ground rod.

After completing the installation and before the electrical service is connected, obtain a certificate of compliance from the Kentucky Department of Housing, Buildings and Construction, Electrical Inspection Division.

3.6. Flashing Arrow

Furnish: Arrow Panel

Construction of Flashing Arrow shall conform to the *Standard Specifications for Road and Bridge Construction.*

3.7. Galvanized Steel Cabinet

Furnish: Cabinet; wood posts; concrete; conduit fittings; metal framing channel; pipe clamp; terminal block(s); spade tongue wire terminals; wire labels; hardware.

Where right-of-way allows, locate the cabinet such that it is outside the clear zone in accordance with the *Roadside Design Guide*. Install Cabinet such that the door of the

cabinet faces the roadway.

Excavate as required and install wood posts to a depth of 36 inches and place concrete around posts as shown on the standard detail sheets. Install metal framing channel with pipe clamp between posts.

Install Cabinet on wood posts 38 inches above the finished grade as shown on the standard detail sheets. Install a unistrut between posts when two posts are specified.

Install the required number of terminal blocks on the cabinet back plate. Install a spade tongue terminal on each loop and piezo sensor wire entering the cabinet and connect wires to terminal block(s). Wiring shall be neat and orderly. Label all wires and cables inside cabinet.

Install conduit from ground to cabinet and attach to pipe clamp. Install locknuts to attach conduit to cabinet and install a conduit bushing as shown on the standard detail sheets.

3.8. Grounding

Furnish: Ground rod with clamp; grounding conductor.

At sites with electrical or solar service, all conduits, poles, and cabinets shall be bonded to ground rods and the electrical system ground to form a complete grounded system.

Install such that top of ground rod is a minimum of 3 inches below finished grade.

Grounding systems shall have a maximum 25 ohms resistance to ground. If the resistance to ground is greater than 25 ohms, two or more ground rods connected in parallel shall be installed. Adjacent ground rods shall be separated by a minimum of 6 feet.

3.9. Install Pad Mount Enclosure

Furnish: Concrete; anchor bolts with washers and nuts; conduit; conduit fittings; conduit grounding bushings; ground rod with clamp; grounding conductor; conduit sealant; wooden stakes (where required); wire labels; hardware.

The Contractor shall be responsible for securing the enclosure from the Central Office Division of Planning Warehouse in Frankfort and transporting it to the installation site.

Where right-of-way allows, locate the enclosure such that it is outside the clear zone in accordance with the *Roadside Design Guide*.

Excavate as required, and place concrete to construct the enclosure foundation as specified on the standard detail sheets. Install enclosure on the concrete base such that the door(s) of the enclosure opens away from traffic (hinges away from traffic). Install anchor bolts, washers, and nuts to secure the enclosure to the foundation.

Install ground rod with clamp and install one ¾ inch rigid conduit from enclosure base to

ground rod. Install a grounding conductor from ground rod to enclosure base and bond to each conduit bushing in the base.

Install one ¾ inch rigid steel conduit for electrical service from the base of the enclosure to 24 inches beyond the concrete base. Make all field wiring connections to the electrical service, as applicable.

If electrical service is not provided as a bid item in the contract, plug conduit on both ends with a cap, conduit sealant, or electrical tape. Mark the location of the buried conduit end with a wooden stake labeled "3/4 in. conduit."

Install specified rigid steel conduit(s) into the base of the enclosure for sensor wire entry. Install one spare 2 inch conduit from the enclosure base to 2 feet beyond the concrete base. Plug spare conduit on both ends with a cap, conduit sealant or electrical tape.

The limit of all conduits incidental to "Install Pad Mount Enclosure" is 24 inches beyond the edge of the concrete base.

Wiring in enclosure shall be neat and orderly. Label all wires and cables inside enclosure. KYTC personnel will furnish and install terminal blocks and connect sensors to terminal blocks.

3.10. Install Controller Cabinet

Furnish: Mounting brackets; mounting straps; conduit; LB condulets; conduit fittings; conduit grounding bushings; ground rod with clamp; grounding conductor; cable staples; conduit sealant; wooden stakes (where required); wire labels; hardware.

The Contractor shall be responsible for securing the cabinet from the Central Office Division of Planning Warehouse in Frankfort and transporting it to the installation site. Any existing holes in the cabinet not to be reused shall be covered or plugged to meet NEC requirements.

Install mounting brackets and secure cabinet to pole with mounting straps.

Install a ground rod with clamp. Install grounding conductor in 1-¾" conduit form cabinet to ground rod.

Install one ¾ inch rigid steel conduit with two lb condulets from cabinet to electrical service disconnect box. Make all field wiring connections to the electrical service, as applicable.

If electrical service is not provided as a bid item in the contract, plug conduit on both ends with cap, plumbers putty, conduit sealant, or electrical tape. Mark the location of the buried conduit end with a wooden stake labeled "3/4 in. conduit".

Install specified rigid steel conduit(s) and type LB condulet(s) into the bottom of the

cabinet for sensor wire entry. The limit of conduits incidental to "Install Controller Cabinet" is 24 inches beyond the face of the pole.

Wiring in cabinet shall be neat and orderly. Label all wires and cables inside cabinet. KYTC personnel will furnish and install terminal blocks and connect sensors to terminal blocks.

3.11. Junction Box Type 10x8x4

Furnish: Junction box; wood post; conduit fittings; wire labels; hardware.

Where right-of-way allows, locate the junction box such that it is outside the clear zone in accordance with the Roadside Design Guide.

Excavate as required and install wood post(s) to a depth of 18 inches. Install junction box on wood post such that the bottom of the box is 18 inches above the finished grade as shown on the standard detail sheets. Box shall be installed with four (4) 2½ inch wood screws and washers.

Install locknuts to attach conduit to junction box and install a conduit bushing as shown on the standard detail sheets.

Wiring inside box shall be neat and orderly. Label all wires and cables inside box.

3.12. Junction Box Type A, B, or C

Furnish: Junction box, No. 57 aggregate; grounding conductor

Excavate as required and place approximately 12 inches of No. 57 aggregate beneath the proposed junction box to allow for drainage. Install specified junction box type A, B, or C near the edge of pavement, flush with finished grade per the detail sheets. Where required, orient the box so that the dimensions comply with the National Electrical Code. Stub conduits with grounding bushings into junction box at its base to accommodate wires and connect grounding conductor to all grounding bushings. Backfill to existing grade, and restore disturbed area to the satisfaction of the Engineer.

Wiring inside box shall be neat and orderly. Label all wires and cables inside box.

3.13. Loops - Proposed

Furnish: Wire; saw slot sealant; backer rod; grout; conduit sealant.

The plans and notes specify the approximate location for loop installations. Prior to sawing slots or drilling cores, the Contractor shall meet with a representative of the Division of Planning to verify the precise layout locations on site. Avoid expansion joints and pavement sections where potholes, cracks, or other roadway flaws exist.

Upon completion of this meeting, the Contractor shall measure out and mark the proposed loop locations with spray paint or chalk such that the saw slots will be parallel

and perpendicular to the direction of traffic. Marked lines shall be straight and exact to the locations determined and sized as shown on the plans. Unless indicated otherwise, loops shall be 6 feet by 6 feet square and loops in the same lane shall be spaced 16 feet from leading edge to leading edge.

On resurfacing, rehabilitation, and new construction projects that include new asphalt pavement, the Contractor shall install loops prior to laying the final surface course. On projects with milling and texturing, the Contractor may install the loops prior to or after the milling operation; however, if installed prior to milling, the Contractor shall be responsible for ensuring that the loops are installed at a depth such that the milling operation will not disturb the newly installed loops. The Contractor shall correct damage caused by the milling operations to newly installed loops prior to placement of the final surface course at no additional cost to the Cabinet.

For projects that include the installation of new asphalt and piezoelectric sensors, the Contractor shall mark or otherwise reference all loops installed prior to the final surface course such that the loops can be accurately located when the piezoelectric sensors are installed after placement of the final surface course.

For projects that do not have asphalt surfacing, the Contractor shall install the loops in the surface of the pavement.

The Prime Contractor shall coordinate the installation of loops with the electrical sub-Contractor and the Engineer to ensure correct operation of the completed installation.

The following is a typical step by step procedure for the installation of a loop.

- Carefully mark the slot to be cut, perpendicular to the flow of traffic and centered in the lane.
- Make each saw-cut 3/8-inch wide and at a depth such that the top of the backer rod is a minimum of 2 inches below the surface of rigid (PCC/Concrete) pavement or 4 inches below the surface of asphalt pavement.
- Drill a 1½ inch core hole at each corner and use a chisel to smooth corners to prevent sharp bends in the wire.
- Clean ALL foreign and loose matter out of the slots and drilled cores and within 1 foot on all sides of the slots using a high pressure washer.
- Completely dry the slots and drilled cores and within 1 foot on all sides of the slots using oil-free forced air, torpedo heaters, electric heaters, or natural evaporation, depending on weather conditions. Be very careful not to burn the asphalt if heat is used.
- Measure 9-12 inches from the edge of the paved surface (shoulder break or face of curb) and drill a 1½ inch hole on a 45º angle to the conduit adjacent to the roadway.
- Closely inspect all cuts, cores, and slots for jagged edges or protrusions prior to the placement of the wire. All jagged edges and protrusions shall be ground or re-cut and cleaned again.

- Place the loop wire splice-free from the termination point (cabinet or junction box) to the loop, continue around the loop for four turns, and return to the termination point.
- Push the wire into the saw slot with a blunt object such as a wooden stick. Make sure that the loop wire is pushed fully to the bottom of the saw slot.
- Install conduit sealant to a minimum of 1" deep into the cored 1½ inch hole.
- Apply loop sealant from the bottom up and fully encapsulate the loop wires in the saw slot. The wire should not be able to move when the sealant has set.
- Cover the encapsulated loop wire with a continuous layer of backer rod along the entire loop and home run saw slots such that no voids are present between the loop sealant and backer rod.
- Finish filling the saw cut with non-shrinkable grout per manufacturer's instructions. Alleviate all air pockets and refill low spaces. There shall be no concave portion to the grout in the saw slot. Any excess grout shall be cleaned from the roadway to alleviate tracking.
- Clean up the site and dispose of all waste off the project.
- Ensure that the grout has completely cured prior to subjecting the loop to traffic. Curing time varies with temperature and humidity.

Exceptions to installing loop wire splice-free to the junction box or cabinet may be considered on a case-by-case basis and must be pre-approved by the Engineer. If splices are allowed, they shall be located in a junction box and shall conform to the construction note for Splicing.

If loop lead-in cable (Cable No. 14/1 Pair) is specified, cable shall be installed splice free to the cabinet ensuring that extra cable is left in each junction box or cabinet. All wires and cables shall be labeled in each junction box and cabinet.

Loop inductance readings shall be between 100 and 300 microhenries. The difference of the loop inductance between two loops in the same lane shall be ±20 microhenries. Inductance loop conductors shall test free of shorts and grounds. Upon completion of the project, all loops must pass an insulation resistance test of at least 100 million ohms to ground when tested with a 500 Volt direct current potential in a reasonably dry atmosphere between conductors and ground.

3.14. Loops – Existing

When noted on a data collection station layout sheet that there are existing inductive loops within the limits of the project, notify the Engineer in writing, a minimum of 14 calendar days prior to beginning milling operations. After milling and prior to placing asphalt inlay, conduct an operating test on the existing inductance loops at the control cabinet in the presence of the Engineer to determine if the inductance loop conductors have an insulating resistance of a minimum of 100 megohms when tested with a 500 volt direct current potential in a reasonably dry atmosphere between conductors and ground. The Department may also conduct its own tests with its own equipment.

If the tests indicate the loop resistances are above the specified limit and the Engineer determines the system is operable, proceed with the asphalt inlay. If the test indicates the loop resistance is not within the specified limits or if the Engineer determines the system is otherwise not operable, prior to placing the asphalt inlay install and test new loop detectors according to the station layout, notes, and Detail Drawings.

The Engineer will contact and maintain liaison with the District Planning Engineer and the Division of Planning in order to coordinate any necessary work.

3.15. Maintain and Control Traffic

Furnish (all as required): Drums, traffic cones, barricades used for channelization purposes, delineators, and object markers.

Maintain and Control Traffic shall conform to the plans, the Standard Specifications for Road and Bridge Construction, and the KYTC Department of Highways Standard Drawings.

3.16. Open Cut Roadway

Furnish: Concrete, reinforcing bars.

Excavate trench by sawing and chipping away roadway to dimensions as indicated on the detail sheets. After placing conduit, install concrete and steel reinforcing bars per the *Standard Specifications for Road and Bridge Construction.* Restore any disturbed sidewalk to its original condition.

3.17. Piezoelectric Sensor

Furnish: Piezoelectric sensor and cable; sensor support brackets; saw slot sealant; backer rod; grout; conduit sealant.

The plans and notes specify the approximate location for piezoelectric sensor (piezo) installations. Prior to sawing slots or drilling cores, the Contractor shall meet with a representative of the Division of Planning to verify the final layout on site. Avoid expansion joints and pavement sections where potholes, cracks, or other roadway flaws exist. Roadway ruts at the proposed piezo location shall not be in excess of ½ inch under a 4-foot straight edge.

Install the piezo perpendicular to traffic in the final surface course of the pavement. Locate the sensor in the lane as shown on the site layout drawing. Eleven-foot length sensors shall be centered in the lane.

The following is a typical step by step procedure for the installation of a piezo. Refer specifically to the manufacturer’s instructions provided with the sensor prior to installation.

- Carefully mark the slot to be cut, perpendicular to the flow of traffic and properly positioned in the lane.

- It is strongly recommended that a ¾ inch wide diamond blade be used for cutting the slot, or that blades be ganged together to provide a single ¾ inch wide cut. The slot shall be wet cut to minimize damage to the pavement.
- Cut a slot ¾ inch wide (±1/16 inch) by 1 inch minimum deep. The slot should be a minimum of 2 inches longer than the sensor (including the lead attachment). Drop the saw blade an extra ½ inch down on both ends of the sensor. The lead out of the passive cable should be centered on the slot.
- Cut the slot for the passive cable ¼ inch wide and at a depth so that the top of the backer rod is a minimum of 2 inches below the road surface.
- Clean ALL foreign and loose matter out of the slot and within 1 foot on all sides of the slot using a high pressure washer.
- Completely dry the slot and within 1 foot on all sides of the slot using oil-free forced air, torpedo heaters, electric heaters, or natural evaporation, depending on weather conditions. Be very careful not to burn the asphalt if heat is used.
- Measure 9-12 inches from the edge of the paved surface (shoulder break or face of curb) and drill a 1½ inch hole on a 45º angle to the conduit adjacent to the roadway.
- Place strips of 2-4 inch wide tape strips on the pavement along the lengths of both sides of the sensor slot, 1/8 inch away from the slot.
- Wear clean, protective latex (or equivalent) gloves at all times when handling sensors. Visually inspect sensor to ensure it is straight. Check lead attachment and passive cable for cuts, gaps, cracks and/or bare wire. Verify that the correct sensor type and length is being installed by checking the data sheet. Verify there is sufficient cable to reach the cabinet. Piezo lead-in cable shall not be spliced.
- Test the sensor for capacitance, dissipation factor and resistance, according to the directions enclosed with the sensor. Capacitance and dissipation should be within ±20% of the piezo data sheet. Resistance (using the 20M setting) should be infinite. Record the sensor serial number and the test results and label “pre-installation.” This information should be stored in the counter cabinet and/or returned to Department Planning personnel.
- Lay the sensor next to the slot and ensure that it is straight and flat.
- Clean the sensor with steel wool or an emery pad and wipe with alcohol and a clean, lint-free cloth.
- Place the installation bracket clips every 6 inches along the length of the sensor.
- Bend the tip of the sensor downward at a 30° angle. Bend the lead attachment end down at a 15° angle and then 15° back up until level (forming a lazy Z).
- Place the sensor in the slot, with the brass element 3/8 inch below the road surface along the entire length. The tip of the sensor should be a minimum of 2 inches from the end of the slot and should not touch the bottom of the slot. The top of the plastic installation bracket clips should be 1/8 inch below the surface of the road. The lead attachment should not touch the bottom or sides of the slot. Ensure the sensor ends are pushed down per the manufacturer’s instructions.
- Visually inspect the length of the sensor to ensure it is at uniform depth along its length and it is level (not twisted, canted or bent).

- On the passive cable end, block the end of the slot approximately 3-5 inches beyond the end of the lead attachment area creating an adequate "dam" so that the sensor grout does not flow out.
- Use one bucket of sensor grout per piezo installation. Overfill the slot with sensor grout and allow to cure for a minimum of 10 minutes before continuing with the installation. Ensure that sensor grout fills around and beneath the sensor completely and that there is not a trough on top.
- Remove the tape along the sides of the saw slot when the adhesive starts to cure.
- Carefully remove the dam from the end of the sensor.
- Route the lead-in cable through the saw slot
- Install conduit sealant to a minimum of 1" deep into the cored 1½ inch hole.
- Cover the lead-in cable with encapsulant, backer rod, and grout.
- If necessary, after the grout has hardened, grind with an angle grinder until the profile is a 1/16 inch mound. There shall be no concave portion to the mound.
- Clean up the site and dispose of all waste off the project.
- Ensure that the sensor grout has completely cured prior to subjecting the sensor to traffic. Curing time will vary with temperature and humidity.

Upon installation, test the sensor for capacitance, dissipation factor and resistance, according to the directions enclosed with the sensor. Capacitance and dissipation should be within +20% of the piezo data sheet. Resistance (using the 20M setting) should be infinite. Perform a functional test of the piezo with an oscilloscope to ensure that the sensor is generating a proper response to the passage of vehicles.

Record the sensor serial number and the test results and label "post-installation." This information should be stored in the counter cabinet and/or returned to Department Planning personnel.

3.18. Pole – Wooden

Furnish: Pole; anchoring equipment (as required); hardware (as required).

Excavate and install wood pole to a minimum depth of one-sixth the total pole height. Place backfill material in hole and compact until flush with existing grade. Install guy wire, guy guard, anchor, anchor rod, and strand vise, if necessary. Anchor shall be a minimum of one-third the pole height from the face of the pole. Provide temporary erosion control, seeding, protection and restoration of disturbed areas to the satisfaction of the Engineer.

3.19. Removal of Existing Equipment

The Contractor shall remove existing materials (including but not limited to: poles, anchors, cabinets, junction boxes, conduit and wire) not to be reused. Contractor shall dispose of all removed materials off the project. All materials and labor necessary for the removal of existing equipment shall be considered incidental to other bid items.

3.20. Signs

Furnish: Signs; sign standards; hardware.

Construction of **s**igns shall conform to the *Standard Specifications for Road and Bridge Construction.*

3.21. Splicing

Furnish: Splice kit; solder.

These notes describe the splicing process (if permitted) and are not intended to grant permission to splice. Permission to splice shall be determined by the Division of Planning and the locations shall be shown on the layout sheet. If splicing is needed but not shown on the layout sheet, the Contractor shall receive prior written approval from the Division of Planning.

All splices shall conform to the provisions of the NEC.

Splices for loop and loop lead-in wire shall be twisted and soldered. Abrade the outer jacket of both wires to promote good adhesion and prevent capillary leak paths. Seal the splice with an electrical sealing resin. Spliced loop conductors shall test free of shorts and unauthorized grounds and shall have an insulating resistance of at least 100 megohms when tested with a 500 volt direct current potential in a reasonably dry atmosphere between conductors and ground.

For piezos, the same type coax cable, supplied by the manufacturer, shall be used to splice to the sensor's lead-in cable. Cables shall be soldered. Abrade the outer jacket of both cables to promote good adhesion and prevent capillary leak paths. Seal the splice with an electrical sealing resin. Spliced piezo cables shall be tested and have a minimum resistance of 20 megohms, a maximum dissipation factor of 0.03, a capacitance within the manufacturer's recommended range based upon the length of additional cable. A functional test of the piezo shall be performed to ensure that the sensor is generating a proper response to the passage of vehicles.

3.22. Trenching and Backfilling

Furnish: Warning tape; seed mix type I; cereal rye or German foxtail-millet; mulch; concrete (as required); asphalt (as required).

Excavate trench and provide required cover as shown on the standard detail sheets. After placing conduit, backfill material shall be placed and compacted in lifts of 9 inches or less. Install warning tape as shown on the detail sheet. Provide temporary erosion control, seeding, protection and restoration of disturbed areas to the satisfaction of the Engineer. This item shall include concrete, asphalt or approved replacement material for sidewalks, curbs, roadways, etc. (if required).

3.23. Wiring

Furnish: Wire; wire labels; spade tongue wire terminals (as required).

Installation of all wiring shall conform to the NEC. Permanent identification numbers shall be affixed to all wires in all junction boxes and cabinets (see Layout(s) for loop and piezo numbers).

Additional lengths of each loop and piezo sensor wire shall be neatly coiled in all cabinets and junction boxes as follows:

Enclosure Type	Additional length of each wire
Galvanized Steel Cabinet	2’ – 3’
Pad Mount Cabinet (332)	6’ - 8’
Pole Mount Cabinet (336)	3’ - 4’
Junction Box Type 10x8x4	2’ – 3’
Junction Box Type A, B, or C	2’ – 3’

3.24. Wood Post

Furnish: Wood post; concrete (as required); seed mix type I; cereal rye or German foxtail-millet; mulch.

Excavate hole to specified depth and place concrete, if required. Install post, backfill to existing grade, and tamp backfill. Provide temporary erosion control, seeding, protection and restoration of disturbed areas to the satisfaction of the Engineer.

4. BID ITEM NOTES AND METHOD OF MEASUREMENT FOR PAYMENT

Only the bid items listed will be measured for payment. All other items required to complete the vehicle detection installation shall be incidental to other items of work. Payment at the contract unit price shall be full compensation for all materials, labor, equipment and incidentals to furnish and install these items.

4.1. Bore and Jack Pipe – 2”

Bore and jack pipe – 2” shall be furnished, installed, and measured for payment per the *Standard Specifications for Road and Bridge Construction*.

4.2. Conduit

Conduit shall include furnishing and installing specified conduit in accordance with the specifications. This item shall include conduit fittings, bodies, boxes, weatherheads, expansion joints, couplings, caps, conduit sealant, electrical tape, clamps, bonding straps and any other necessary hardware. Conduit will be measured in linear feet.

4.3. Electrical Service

Electrical Service shall include furnishing and installing all necessary materials and payment of all fees toward the complete installation of an electrical service which has passed all required inspections. Incidental to this item shall be furnishing and installing:

- Meter-base per utility company’s specifications
- Service disconnect panel per utility company’s specifications
- Meter base and service disconnect entrance hubs, waterproof
- Service entrance conductors
- Rigid steel conduit
- Rigid steel conduit fittings
- Conduit straps
- Weatherhead
- Duplex GFCI receptacle, 120-volt, 20-amp
- Ground rod with clamp
- Grounding conductor

Also incidental to this item shall be any necessary clearing of right of way for the electrical service drop.

Electrical service will be measured in individual units each.

4.4. Flashing Arrow

Flashing Arrow shall be furnished, installed, and measured for payment per the *Standard Specifications for Road and Bridge Construction.*

4.5. Galvanized Steel Cabinet

Galvanized Steel Cabinet shall include furnishing and installing galvanized steel cabinet on post as specified. Incidental to this item shall be furnishing and installing grounding hardware, and any necessary post/pole mounting hardware. Also incidental to this item shall be furnishing and installing the required number of terminal blocks and connection of all

sensors to the terminal blocks. Galvanized Steel Cabinet will be measured in individual units each.

4.6. Install Pad Mount Enclosure

Install Pad Mount Enclosure shall include installing a Department-furnished enclosure as specified on the detail sheets.

This item shall include obtaining the enclosure from KYTC and transporting it to the installation site and furnishing and installing the following:

- Concrete foundation (including any excavation necessary)
- Anchor bolts, lock washers, and nuts
- Conduit
- Conduit fittings (including grounding bushings)
- Weatherhead
- Terminal Strip(s)
- Ground rod with clamp
- Grounding conductor

Install Pad Mount Enclosure will be measured in individual units each.

4.7. Install Controller Cabinet

Install Controller Cabinet shall include installing a Department-furnished cabinet as specified on the detail sheets.

This item shall include obtaining the cabinet from KYTC and transporting it to the installation site and furnishing and installing the following:

- Conduit
- Conduit Fittings
- Terminal Strip(s)
- Ground rod with clamp
- Grounding conductor

Install Controller Cabinet will be measured in individual units each.

4.8. Junction Box Type 10" x 8" x 4"

Junction Box Type 10”x8”x4” shall include furnishing and installing specified junction box in accordance with the specifications. This item shall include connectors, splice sleeves, conduit fittings, mounting materials and any other items required to complete the installation. Incidental to this item shall be furnishing and installing specified post (wood, channel, metal, etc.) as required for the installation. Junction Box Type 10”x8”x4” will be measured in individual units each.

4.9. Junction Box Type A, B, or C

Junction Box Type A, B, or C shall include furnishing and installing specified junction box in accordance with the specifications. This item shall include excavation, furnishing and installing #57 aggregate, backfilling around the box, and restoration of disturbed areas to the satisfaction of the Engineer. Incidental to this item shall be furnishing and installing a

grounding conductor bonding all conduit grounding bushings in the box. Junction Box Type A, B, or C will be measured in individual units each.

4.10. Loop Saw Slot and Fill

Loop Saw Slot and Fill shall include sawing and cleaning saw slots and furnishing and installing conduit sealant, loop sealant, backer rod, grout, or other specified material. Loop Saw Slot and Fill will be measured in linear feet of sawed slot.

4.11. Maintain and Control Traffic

Maintain and Control Traffic shall be measured for payment per the *Standard Specifications for Road and Bridge Construction.*

4.12. Open Cut Roadway

Open Cut Roadway shall include excavating trench (sawing and chipping roadway) to dimensions as indicated on the detail sheets and furnishing and placing concrete, steel reinforcing bars, and asphalt. This item also includes restoring any disturbed sidewalk to its original condition. Open Cut Roadway will be measured in linear feet.

4.13. Piezoelectric Sensor

Piezoelectric sensor (piezo) shall include sawing and cleaning saw slots and furnishing and installing piezo in accordance with the specifications. This item shall include furnishing and installing lead-in wire, conduit sealant, encapsulation material, backer rod, grout, testing, and accessories. Piezo will be measured in individual units each.

4.14. Pole – 35’ Wooden

Pole – 35’ Wooden shall include excavation, furnishing and installing specified wood pole, backfilling and restoring disturbed areas to the satisfaction of the Engineer. Incidental to this item shall be furnishing and installing guy wire, anchor and anchor rod, strand vise, and guy guard, if specified.

Pole – 35’ Wooden will be measured in individual units each.

4.15. Signs

Signs shall be furnished, installed, and measured for payment per the *Standard Specifications for Road and Bridge Construction.*

4.16. Trenching and Backfilling

Trenching and Backfilling shall include excavation, warning tape, backfilling, temporary erosion control, seeding, protection and restoration of disturbed areas to original condition. This item shall include concrete, asphalt or approved replacement material for sidewalks, curbs, roadways, etc. (if required). Trenching and backfilling will be measured in linear feet.

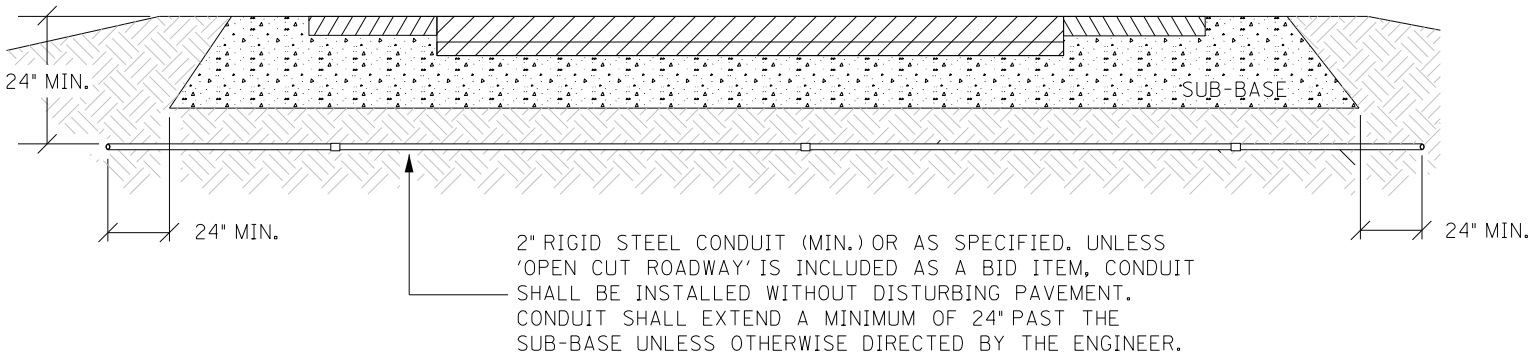
4.17. Wire or Cable

Wire or cable shall include furnishing and installing specified wire or cable within saw slot, conduit, junction box, cabinet, or overhead as indicated on the detail sheets. Incidental to this item shall be the labeling of all wires and cables in each junction box, cabinet and splice

box, and furnishing and installing other hardware required for installing cable. Wire or Cable will be measured in linear feet.

4.18. Wood Post

Wood Post shall include furnishing and installing wood post as specified. This item shall include excavation, furnishing and placing concrete (if required), backfilling around the post, and restoration of disturbed areas to the satisfaction of the engineer. Wood Post will be measured in individual units each.

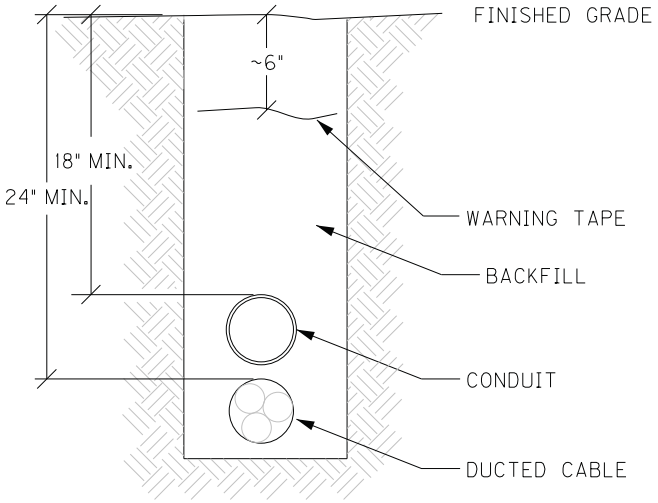


CONDUIT UNDER PAVEMENT

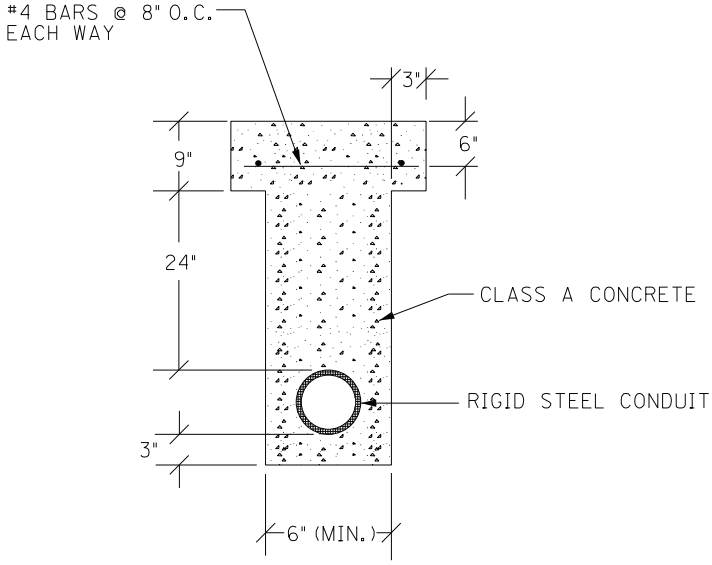
TOTAL TRENCH WIDTH SHALL BE 3" (NOM.) WIDER THAN THE SUM OF THE OUTSIDE DIAMETER(S) OF THE CONDUIT(S) INSTALLED. CONDUIT(S) SHALL BE CENTERED IN TRENCH.

CONTRACTOR SHALL PLACE BACKFILL IN LIFTS (9" MAX.) COMPACT BACKFILL, AND RESTORE DISTURBED AREA TO THE SATISFACTION OF THE ENGINEER

CONTRACTOR SHALL INSTALL UNDERGROUND UTILITY WARNING TAPE ABOVE CONDUIT AS SHOWN.



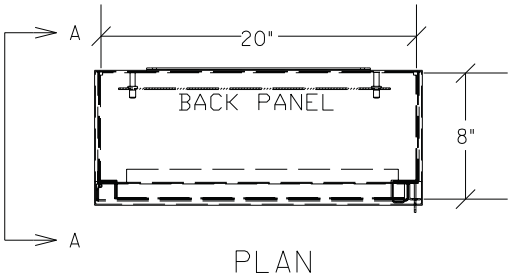
CONDUIT TRENCH



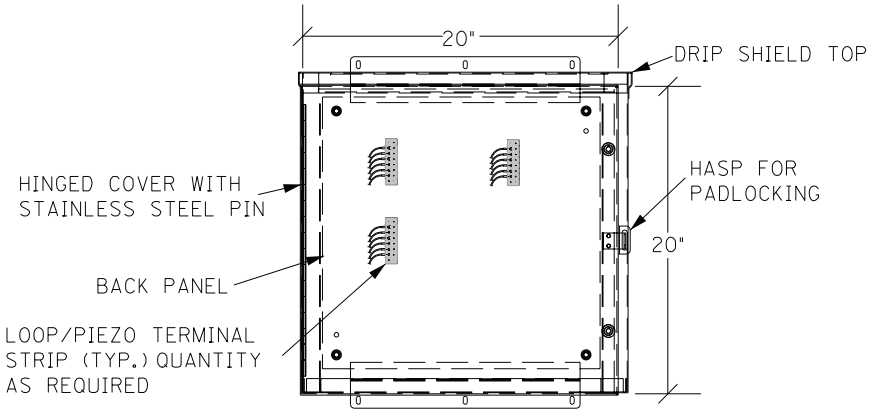
OPEN CUT PAVEMENT DETAIL

CONDUIT INSTALLATION

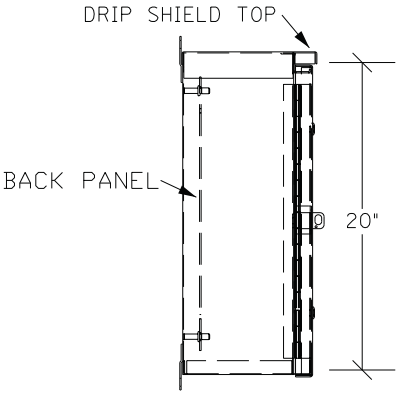
NOT TO SCALE



PLAN

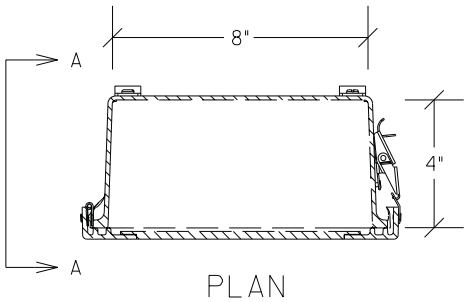


ELEVATION

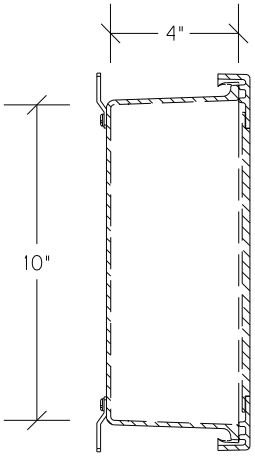


SECTION A-A

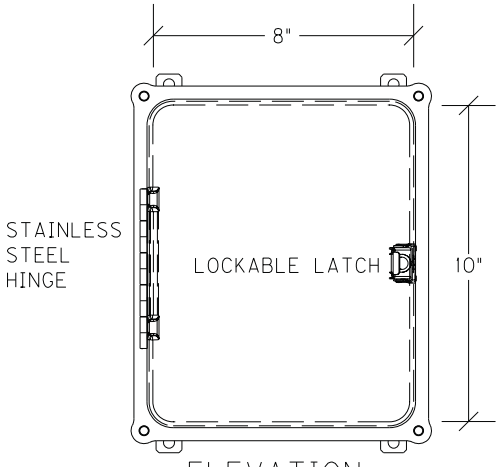
GALVANIZED STEEL CABINET



PLAN

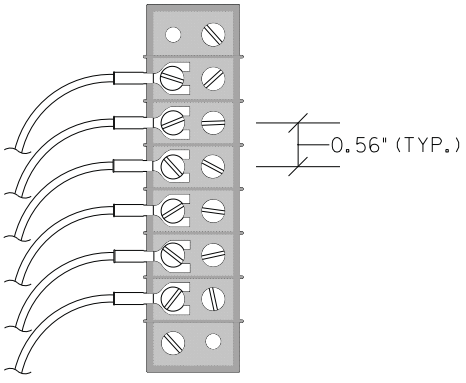


SECTION A-A



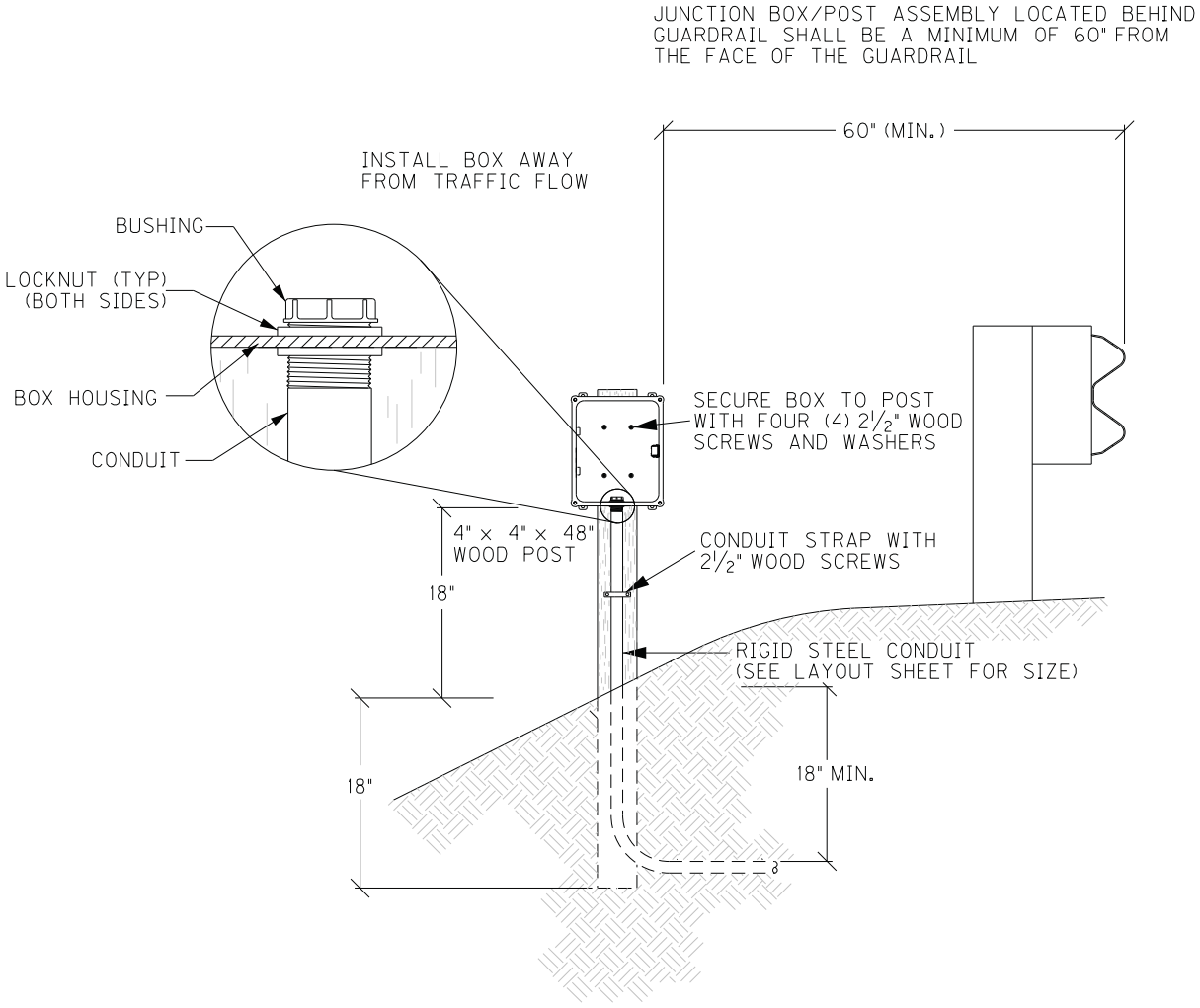
ELEVATION

JUNCTION BOX 10"x8"X4"



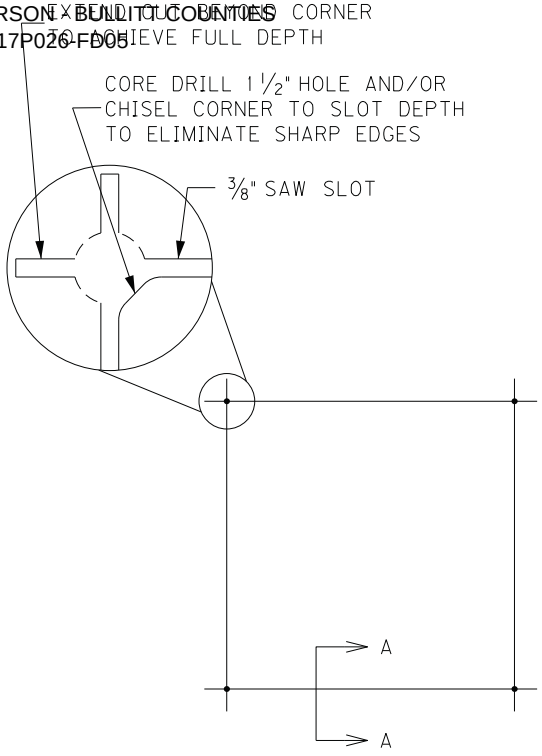
TERMINAL STRIP (TYP.)

NOT TO SCALE

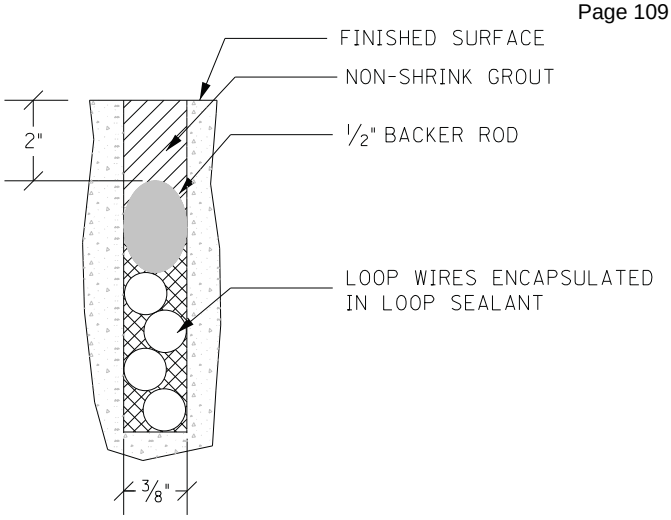


JUNCTION BOX 10"x8"x4" AND POST ASSEMBLY

NOT TO SCALE



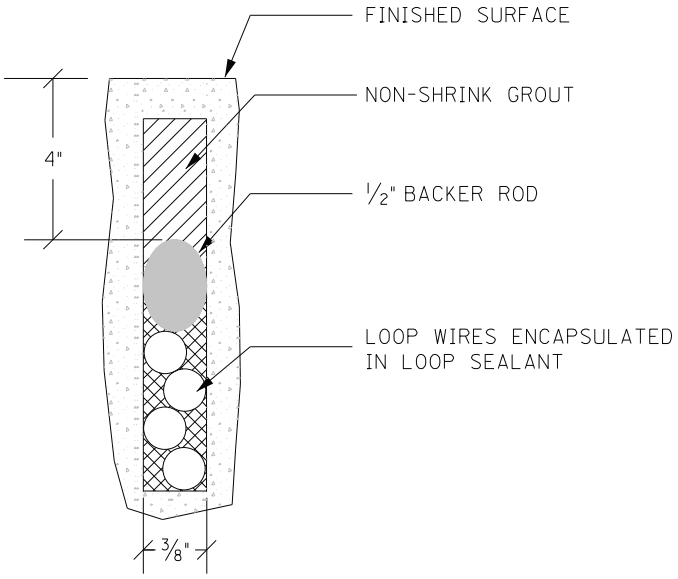
SAW CUT PLAN



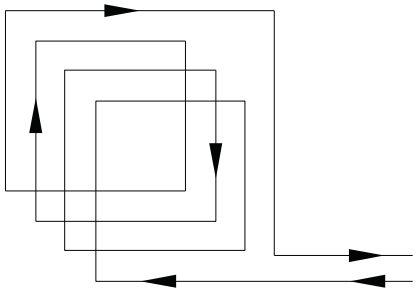
SECTION A-A (CONCRETE)

UNLESS SPECIFIED OTHERWISE, ALL LOOPS SHALL BE 6' x 6' SQUARE, CENTERED IN EACH LANE, WITH FOUR TURNS OF 14 AWG LOOP WIRE.

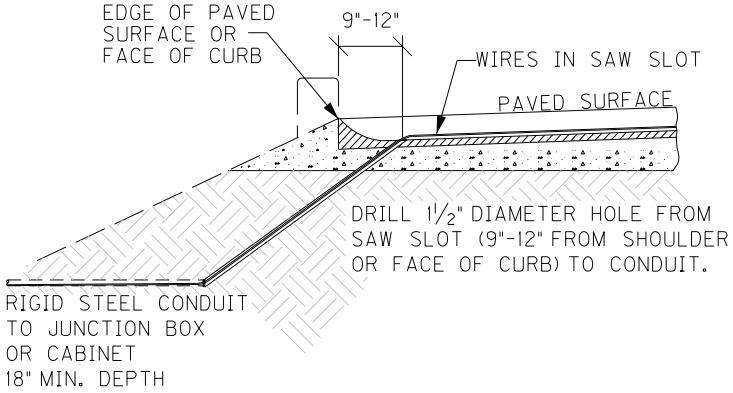
ADJACENT SAW SLOTS SHALL BE A MINIMUM OF 12" APART.



SECTION A-A (ASPHALT)



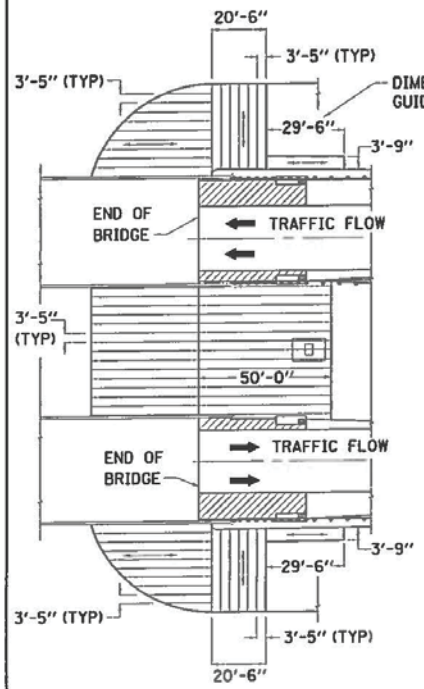
WIRING PLAN



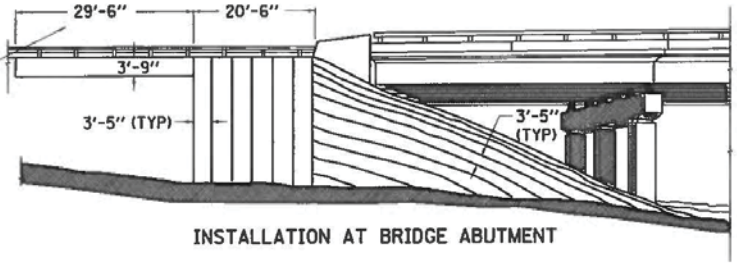
SAW SLOT EDGE OF PAVEMENT TRANSITION

INDUCTIVE LOOP DETECTOR

NOT TO SCALE



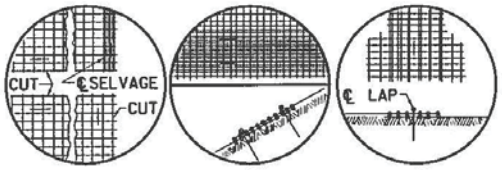
PLAN VIEW
INSTALLATION AT BRIDGE ABUTMENT



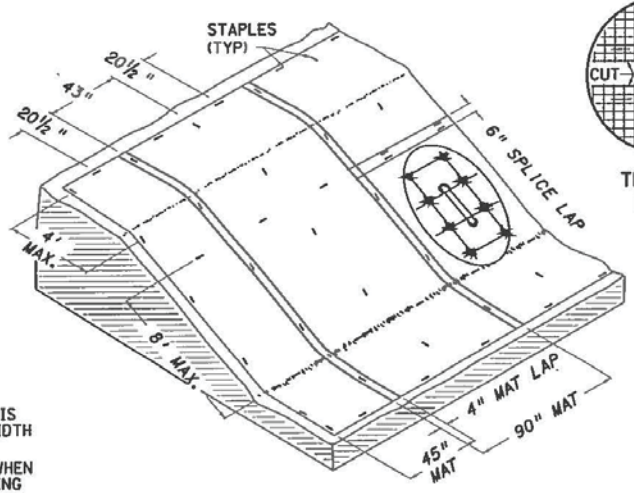
INSTALLATION AT BRIDGE ABUTMENT

NOTES

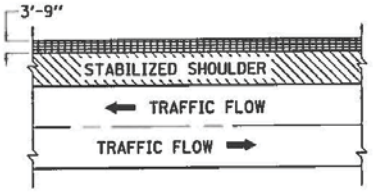
1. METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE IN ACCORDANCE WITH KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
2. BLACK PLASTIC NETTING: MANUFACTURED FROM EXTRUDED RECTANGULAR MESH PLASTIC; A MINIMUM OF 45" WIDE, APPROXIMATELY ¾"X1" MESH OPENINGS; WEIGHING NOT LESS THAN 2.6 LBS. PER 1000 SQ. FT. (±0.5 LB). OTHER NETTING MAY BE USED IF APPROVED BY THE ENGINEER.
3. STAPLES SHALL BE U-SHAPED AND MADE FROM STEEL WIRE OF NO. WI-WI.5 OR W2 AS NEEDED FOR INSTALLATION CONDITIONS. THE STAPLES SHALL HAVE A MINIMUM WIDTH OF 1" AND A MINIMUM LENGTH OF 6".
4. NETTING SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, ALL IN ACCORDANCE WITH THIS STANDARD DRAWING.
5. STAPLES SHALL BE DRIVEN FLUSH WITH SOIL SURFACE AT ALL EDGES AND LAPS IN ALTERNATE ROWS OF 4'-0" AND 8'-0" MAXIMUM SPACING DOWN THE SLOPE AS DEPICTED BELOW, (BEGIN AND END ALL INSTALLATIONS WITH A ROW OF STAPLES ON 4'-0" MAXIMUM SPACING) WITH THE STAPLE TOPS TURNED AS FOLLOWS; STAPLES ON 4'-0" SPACING, PARALLEL TO MAT LENGTH. STAPLES SHALL BRIDGE A MINIMUM OF TWO STRANDS OF NETTING AND BE LOCATED WITH AT LEAST TWO STRANDS BETWEEN STAPLE AND ALL EDGES. KEEP NETTING TAUT AND IN CONTACT WITH THE MULCH AT ALL POINTS, BUT DO NOT STRETCH.



TERMINAL EDGES | 6" SPLICE LAP | 4" MAT LAP



INSTALLATION ON SLOPES



INSTALLATION ADJACENT TO ROADWAY

ANY AREA WITHIN 8'-0" OF THE ROADWAY THAT IS SEEDED SHALL BE PROTECTED WITH ONE 3'-9" WIDTH OF NETTING.

STABILIZED SHOULDERS HAVE BEEN DEPICTED. WHEN THE SHOULDERS ARE EARTH THE STRIP OF NETTING SHALL BE ADJACENT TO THE ROADWAY.

NETTING

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

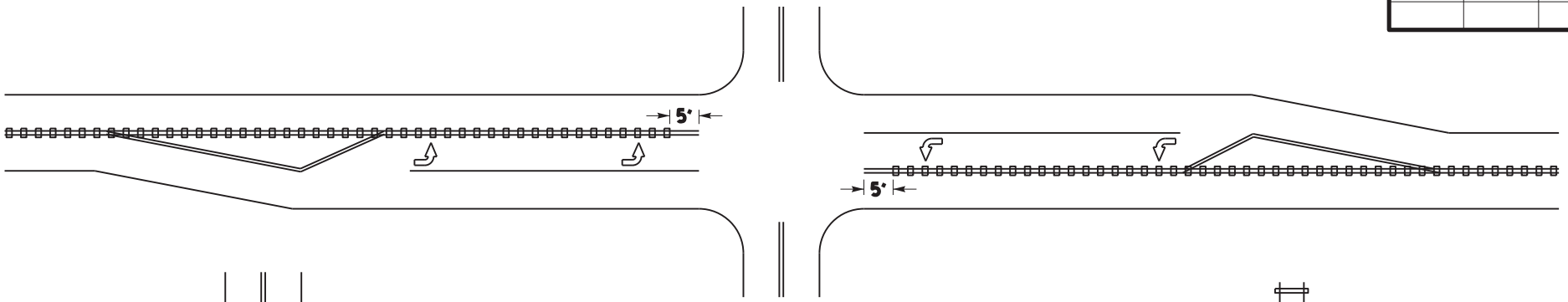
Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2012* and *Standard Drawings, Edition of 2016.*

SUPPLEMENTAL SPECIFICATIONS

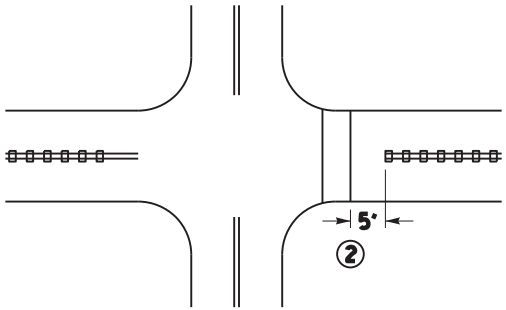
The contractor shall use the Supplemental Specifications that are effective at the time of letting. The Supplemental Specifications can be found at the following link:

http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx

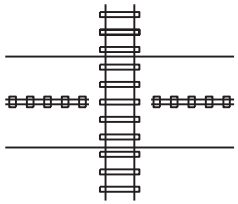
COUNTY OF	ITEM NO.	SHEET NO.



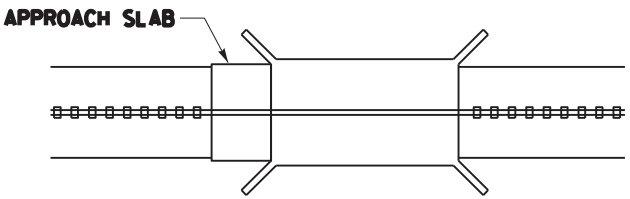
INTERSECTIONS WITH LEFT-TURN LANES ①



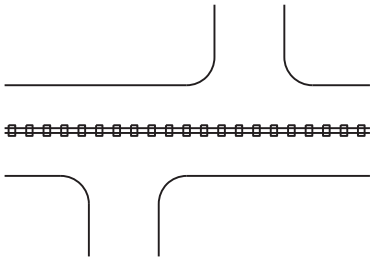
INTERSECTIONS WITHOUT LEFT-TURN LANES ①



HIGHWAY-RAIL GRADE CROSSINGS ③



BRIDGE DECK/APPROACH SLAB ④



DRIVEWAYS/MINOR
COMMERCIAL ENTRANCES ⑤

~ NOTES ~

① CENTERLINE RUMBLE STRIPS SHALL BE OMITTED THROUGH MAJOR INTERSECTIONS WITH, OR WITHOUT, LEFT-TURN LANES. OMIT THE CENTERLINE RUMBLE STRIPS APPROXIMATELY 5' IN ADVANCE OF THE AREA WHERE THE CENTERLINE PAVEMENT MARKINGS HAVE BEEN OMITTED (NORMALLY WHERE SIDE STREET RADIUS INTERSECTS MAINLINE).

② CENTERLINE RUMBLE STRIPS SHALL NOT BE INSTALLED THROUGH MARKED CROSSWALKS. OMIT THE CENTERLINE RUMBLE STRIPS APPROXIMATELY 5' IN ADVANCE OF MARKED CROSSWALKS.

③ CENTERLINE RUMBLE STRIPS SHALL NOT BE INSTALLED ACROSS HIGHWAY-RAIL GRADE CROSSINGS.

④ CENTERLINE RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS OR APPROACH SLABS.

⑤ CENTERLINE RUMBLE STRIPS SHALL BE INSTALLED THROUGH DRIVEWAYS & MINOR COMMERCIAL ENTRANCES.

6. CENTERLINE RUMBLE STRIPS SHOULD BE OMITTED WHERE THE POSTED SPEED LIMIT IS 45 MPH OR LESS, OR WHERE LANE WIDTHS ARE LESS THAN 11 FT.

BID ITEM AND UNIT TO BID
CENTERLINE RUMBLE STRIPS LF

DRAWING NOT TO SCALE

USE WITH CUR. STD. DWGS.
TPM-155 AND TPM-160

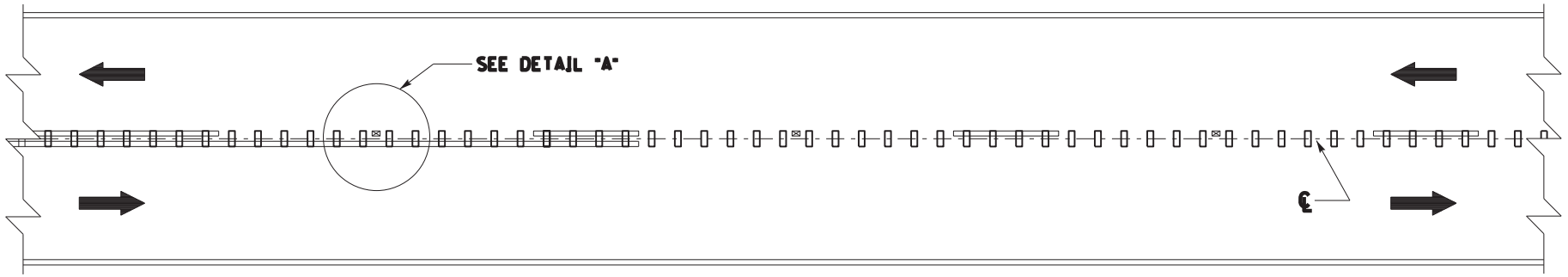
KENTUCKY
DEPARTMENT OF HIGHWAYS

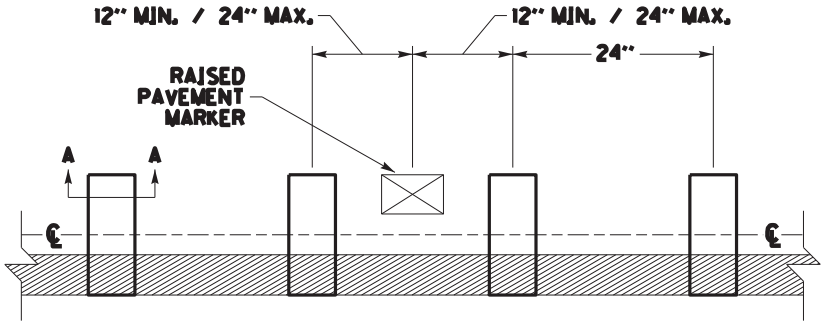
CENTERLINE RUMBLE STRIPS

SUBMITTED R. Jeffrey Wolfe 11-23-16 DATE

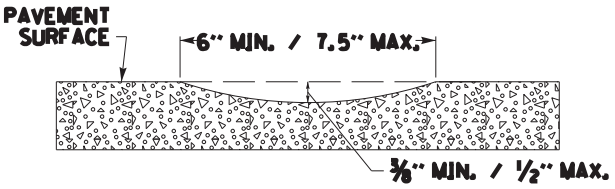
COUNTY OF	ITEM NO.	SHEET NO.

PLAN VIEW

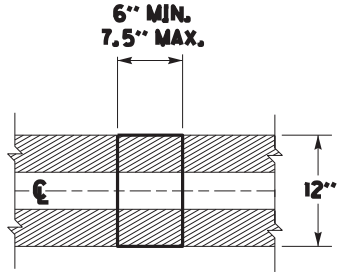




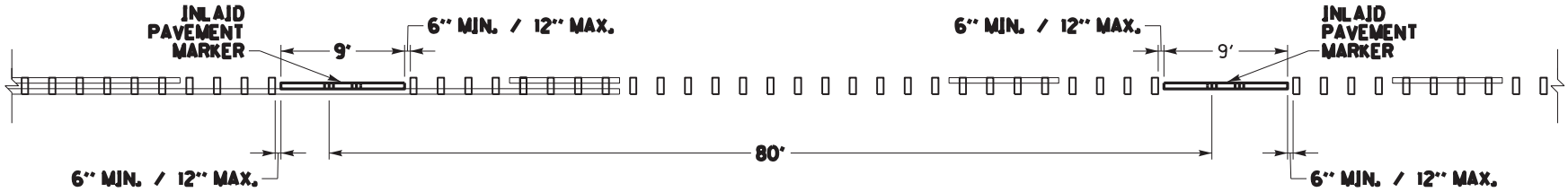
DETAIL "A"



SECTION A-A



RUMBLE STRIP DETAIL



DETAIL FOR CENTERLINE RUMBLE STRIPS WITH INLAID PAVEMENT MARKERS

~ NOTES ~

1. DISTANCES SHOWN ARE APPROXIMATE. MAINTAIN RUMBLE STRIP DIMENSIONS AND SPACING AS MUCH AS POSSIBLE.
2. CENTERLINE RUMBLE STRIPS SHALL BE INSTALLED IN LINE WITH THE CENTER OF THE ROADWAY AS MUCH AS POSSIBLE.
3. DISCONTINUE CENTERLINE RUMBLE STRIPS AT LEAST 12" BEFORE AND AFTER THE CENTER OF EACH RAISED PAVEMENT MARKER, AND AT LEAST 6" BEFORE AND AFTER THE GROOVE FOR EACH INLAID PAVEMENT MARKER. INSTALL AS MANY RUMBLE STRIPS AS POSSIBLE BETWEEN ADJACENT PAVEMENT MARKERS WHILE MAINTAINING THE 24" CYCLE.
4. DO NOT INSTALL CENTERLINE RUMBLE STRIPS IN AREAS INDICATED ON TPM-150.
5. CENTERLINE RUMBLE STRIPS SHOULD BE OMITTED WHERE THE POSTED SPEED LIMIT IS 45 MPH OR LESS, OR WHERE LANE WIDTHS ARE LESS THAN 11 FT.

BID ITEM AND UNIT TO BID	
CENTERLINE RUMBLE STRIPS	LF

DRAWING NOT TO SCALE

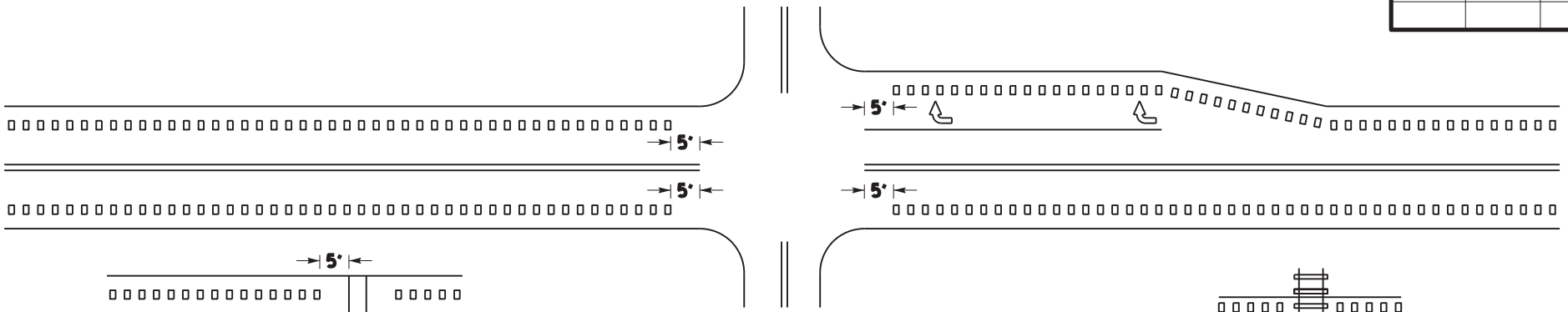
USE WITH CUR. STD. DWG. TPM-150

KENTUCKY
DEPARTMENT OF HIGHWAYS

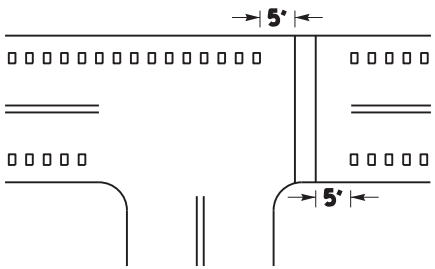
CENTERLINE RUMBLE STRIPS 4 INCH STRIPING

SUBMITTED R. Jeffrey Wolfe 11-23-16
DATE

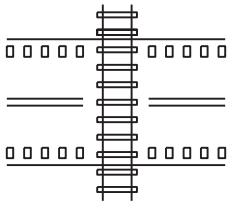
COUNTY OF	ITEM NO.	SHEET NO.



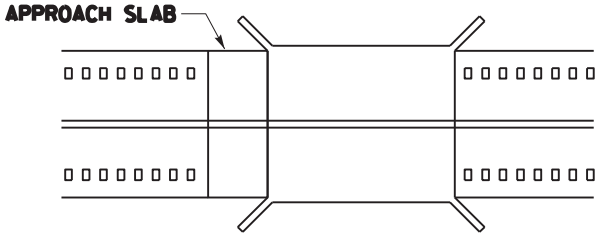
INTERSECTIONS WITH OR WITHOUT ① RIGHT TURN LANES



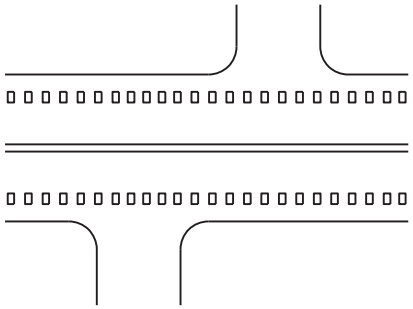
MARKED CROSSWALK ②



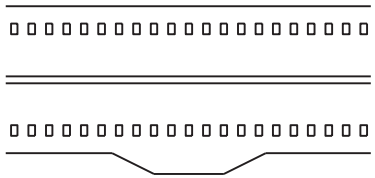
HIGHWAY-RAIL GRADE CROSSINGS ③



BRIDGE DECK/APPROACH SLAB ④



DRIVEWAYS/MINOR COMMERCIAL ENTRANCES ⑤



MAILBOX TURNOUTS ⑥

~ NOTES ~

① RUMBLE STRIPS SHALL BE OMITTED THROUGH MAJOR INTERSECTIONS WITH, OR WITHOUT, RIGHT-TURN LANES. OMIT RUMBLE STRIPS APPROXIMATELY 5' IN ADVANCE OF THE AREA WHERE EDGELINE PAVEMENT MARKINGS HAVE BEEN OMITTED (NORMALLY WHERE SIDE STREET RADIUS INTERSECTS MAINLINE).

② RUMBLE STRIPS SHALL NOT BE INSTALLED THROUGH MARKED CROSSWALKS. OMIT RUMBLE STRIPS APPROXIMATELY 5' IN ADVANCE OF MARKED CROSSWALKS.

③ RUMBLE STRIPS SHALL NOT BE INSTALLED ACROSS HIGHWAY-RAIL GRADE CROSSINGS.

④ RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS OR APPROACH SLABS.

⑤ RUMBLE STRIPS SHALL BE INSTALLED THROUGH DRIVEWAYS & MINOR COMMERCIAL ENTRANCES.

⑥ RUMBLE STRIPS SHALL BE INSTALLED THROUGH MAILBOX TURNOUTS.

7. RUMBLE STRIPS SHOULD BE OMITTED WHERE THE POSTED SPEED LIMIT IS 45 MPH OR LESS.

BID ITEMS AND UNIT TO BID	
EDGELINE RUMBLE STRIPS	LF
SHOULDER RUMBLE STRIPS	LF

DRAWING NOT TO SCALE

USE WITH SEPIA 006, 007, AND 008

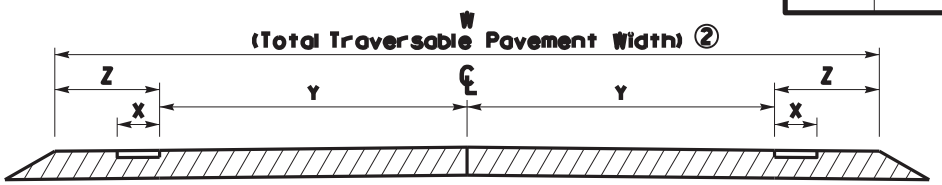
KENTUCKY
DEPARTMENT OF HIGHWAYS

SHOULDER & EDGELINE RUMBLE STRIP DETAILS

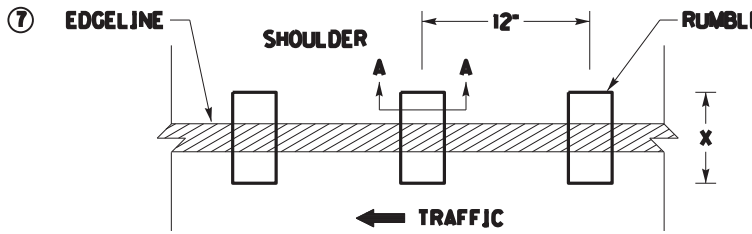
SUBMITTED R. Jeffrey Wolfe 11-23-16 DATE

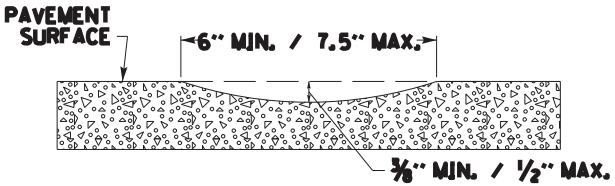
COUNTY OF	ITEM NO.	SHEET NO.

PAVEMENT WIDTH (W) ②	RUMBLE LENGTH (X) ⑥	ELRS ONLY		CLRS & ELRS	
		LANE WIDTH (Y) ③	SHOULDER WIDTH (Z) ④	LANE WIDTH (Y) ③	SHOULDER WIDTH (Z) ④
20'	8"	9'	1'	N/A	N/A
21'	8"	9.5'	1'	N/A	N/A
22'	8"	10'	1'	N/A	N/A
23'	8"	10'	1.5'	N/A	N/A
24'	8"	10.5'	1.5'	N/A	N/A
25'	8"	N/A	N/A	11'	1.5'
26'	8"	N/A	N/A	11'	2'
27'	8"	N/A	N/A	11.5'	2'
28'	8"	N/A	N/A	12'	2'
29'	8"	N/A	N/A	12'	2.5'
30'	8"	N/A	N/A	12'	3'
31'	8"	N/A	N/A	12'	3.5'
32'	8"	N/A	N/A	12'	4'
33'	8"	N/A	N/A	12'	4.5'



PAVEMENT CROSS-SECTION





SECTION A-A

~ NOTES ~

1. EDGELINE RUMBLE STRIPS SHOULD BE INSTALLED ACCORDING TO THE DIMENSIONS PROPOSED ABOVE UNLESS THERE IS AN ENGINEERING BASIS THAT SUPPORTS A CHANGE IN DIMENSION. FOR EXAMPLE, IF THE EXISTING LANE WIDTH IS NARROWER THAN THE LANE WIDTH PROPOSED IN THIS DRAWING AND THE EXISTING SHOULDER PAVEMENT DEPTH IS NOT SUITABLE TO BE CONVERTED INTO A PORTION OF THE PROPOSED LANE WIDTH, THEN THE EXISTING LANE WIDTH SHOULD BE USED INSTEAD OF THE WIDTH PROPOSED IN THIS DRAWING.

② PAVEMENT WIDTH (W) IS THE TOTAL WIDTH OF TRAVERSABLE PAVEMENT. DO NOT INCLUDE THE WIDTH OF ANY NON-TRAVERSABLE PAVEMENT, SUCH AS PAVEMENT WEDGES, WHEN MEASURING THE PAVEMENT WIDTH (W).

③ LANE WIDTH (Y) TO BE MEASURED FROM CENTER OF ROAD TO LANE SIDE EDGE OF RUMBLE STRIP.

④ PAVED SHOULDER WIDTH (Z) TO BE MEASURED FROM LANE SIDE EDGE OF RUMBLE STRIP TO OUTSIDE EDGE OF TRAVERSABLE PAVEMENT.

5. DISTANCES SHOWN ARE APPROXIMATE. MAINTAIN RUMBLE STRIP DIMENSIONS AND SPACING AS MUCH AS POSSIBLE. IF THE TYPICAL SECTION SHOWS A LANE WIDTH (Y) AND/OR SHOULDER WIDTH (Z) THAT DIFFERS FROM THE WIDTHS LISTED IN THIS DRAWING, THE ENGINEER SHALL DETERMINE THE LANE WIDTH (Y) AND/OR SHOULDER WIDTH (Z) AT THE TIME OF CONSTRUCTION.
NOTE: CENTERLINE RUMBLE STRIPS SHOULD BE OMITTED WHEN THE LANE WIDTH (Y) IS LESS THAN 11 FT.

⑥ RUMBLE LENGTH (X) MAY BE MODIFIED AS THE ENGINEER DIRECTS. IF THE SHOULDER WIDTH (Z) IS EQUAL TO OR LESS THAN THE PROPOSED RUMBLE LENGTH (X).

⑦ PLACE THE EDGELINE MARKING IN THE CENTER OF THE RUMBLE STRIP.

8. EDGELINE RUMBLE STRIPS SHOULD BE OMITTED WHERE THE POSTED SPEED LIMIT IS 45 MPH OR LESS.

BID ITEM AND UNIT TO BID
EDGELINE RUMBLE STRIPS LF

DRAWING NOT TO SCALE

USE WITH SEPJA 005

KENTUCKY
DEPARTMENT OF HIGHWAYS

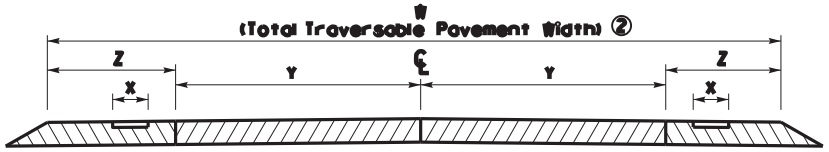
EDGELINE RUMBLE STRIP DETAILS TWO LANE ROADWAYS

SUBMITTED R. Jeffrey Wolfe 11-23-16
DATE

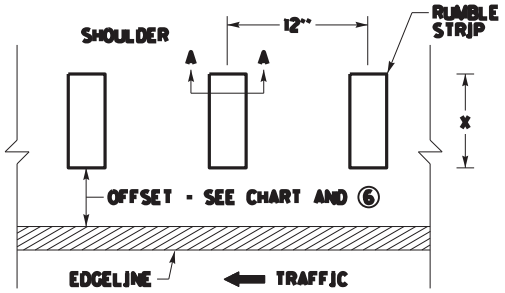
006

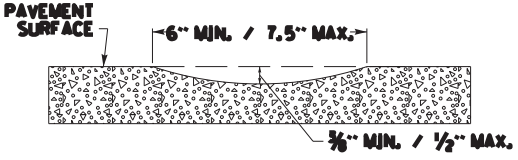
COUNTY OF	ITEM NO.	SHEET

PAVEMENT WIDTH (W) ②	RUMBLE LENGTH (X) ⑥	OFFSET ⑥	CLRS & SRS	
			LANE WIDTH (Y) ③	SHOULDER WIDTH (Z) ④
34'	8"	6"	12'	5'
35'	8"	6"	12'	5.5'
36'	8"	6"	12'	6'
37'	12"	12"	12'	6.5'
38'	12"	12"	12'	7'
39'	12"	12"	12'	7.5'
>=40'	16"	12"	12'	>=8'

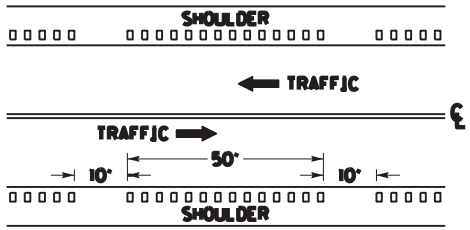


PAVEMENT CROSS-SECTION





SECTION A-A



BICYCLE GAPS ⑦

NOTES

1. SHOULDER RUMBLE STRIPS SHOULD BE INSTALLED ACCORDING TO THE DIMENSIONS PROPOSED ABOVE UNLESS THERE IS AN ENGINEERING BASIS THAT SUPPORTS A CHANGE IN DIMENSION. FOR EXAMPLE, IF THE EXISTING LANE WIDTH IS NARROWER THAN THE LANE WIDTH PROPOSED IN THIS DRAWING AND THE EXISTING SHOULDER PAVEMENT DEPTH IS NOT SUITABLE TO BE CONVERTED INTO A PORTION OF THE PROPOSED LANE WIDTH, THEN THE EXISTING LANE WIDTH SHOULD BE USED INSTEAD OF THE WIDTH PROPOSED IN THIS DRAWING.

② PAVEMENT WIDTH (W) IS THE TOTAL WIDTH OF TRAVERSABLE PAVEMENT. DO NOT INCLUDE THE WIDTH OF ANY NON-TRAVERSABLE PAVEMENT, SUCH AS PAVEMENT WEDGES, WHEN MEASURING THE PAVEMENT WIDTH (W).

③ LANE WIDTH (Y) TO BE MEASURED FROM CENTER OF ROAD TO CENTER OF EDGELINE STRIPE.

④ PAVED SHOULDER WIDTH (Z) TO BE MEASURED FROM CENTER OF EDGELINE STRIPE TO OUTSIDE EDGE OF TRAVERSABLE PAVEMENT.

5. DISTANCES SHOWN ARE APPROXIMATE. MAINTAIN RUMBLE STRIP DIMENSIONS AND SPACING AS MUCH AS POSSIBLE. IF THE TYPICAL SECTION SHOWS A LANE WIDTH (Y) AND/OR SHOULDER WIDTH (Z) THAT DIFFERS FROM THE WIDTHS LISTED IN THIS DRAWING, THE ENGINEER SHALL DETERMINE THE LANE WIDTH (Y) AND/OR SHOULDER WIDTH (Z) AT THE TIME OF CONSTRUCTION.
NOTE: CENTERLINE RUMBLE STRIPS SHOULD BE OMITTED WHEN THE LANE WIDTH (Y) IS LESS THAN 11 FT.

⑥ RUMBLE LENGTH (X) AND/OR OFFSET DISTANCE MAY BE MODIFIED AS THE ENGINEER DIRECTS, IF THE SHOULDER WIDTH (Z) IS EQUAL TO OR LESS THAN THE COMBINED WIDTH OF THE PROPOSED RUMBLE LENGTH (X) AND OFFSET DISTANCE.

⑦ ALL SHOULDER RUMBLE STRIPS ALONG SHOULDERS THAT ARE 5' OR WIDER SHOULD INCLUDE BICYCLE GAPS AS DETAILED.

8. SHOULDER RUMBLE STRIPS SHOULD BE OMITTED WHERE THE POSTED SPEED LIMIT IS 45 MPH OR LESS.

BID ITEM AND UNIT TO BID
SHOULDER RUMBLE STRIPS LF

DRAWING NOT TO SCALE

USE WITH SEPIA 005

KENTUCKY
DEPARTMENT OF HIGHWAYS

SHOULDER RUMBLE STRIP DETAILS
TWO LANE ROADWAYS

SUBMITTED R. Jeffrey Wolfe 11-23-16
DATE

007

COUNTY OF:
ITEM NO.
SHEET
MINOR CROSS ROAD
MAJOR CROSS ROAD
40'
80'
4
3
FLUSH MEDIAN AT MAJOR AND MINOR CROSSROADS
(FOUR LANE ROAD)
FLUSH MEDIAN AT MAJOR AND MINOR CROSSROADS
(TWO LANE ROAD)
~ NOTES ~
1. MARKERS INSTALLED AT DOUBLE YELLOW CENTERLINES SHALL BE PLACED BETWEEN THE TWO LINES.
2. MARKERS INSTALLED ALONG LANE LINES OR DASHED YELLOW CENTERLINES SHALL BE PLACED BETWEEN AND IN LINE WITH THE SKIPS.
3. MARKERS INSTALLED ALONG EDGE LINES SHALL BE PLACED SO THAT THE NEAR EDGE OF THE CASTING/GROOVE IS NO MORE THAN 1" FROM THE NEAR EDGE OF THE LINE.
4. LENGTH TO BE DETERMINED ON A PROJECT BY PROJECT BASIS.
5. MARKERS SHALL NOT BE INSTALLED ON TOP OF THE PAVEMENT JOINT. OFFSET MARKERS A MINIMUM OF 2" FROM THE PAVEMENT JOINT. ENSURE THAT THE FINISHED LINE OF MARKERS IS STRAIGHT WITH MINIMAL LATERAL DEVIATION. MARKERS MAY BE ELIMINATED OR PLACEMENT ADJUSTED AT THE DISCRETION OF THE ENGINEER.
BID ITEMS AND UNIT TO BID
PAVEMENT MARKER TYPE V (B-W/R, B-Y/R, BY, MW, MY) EACH
INLAID PAVEMENT MARKER EACH
LEGEND
BI-DIRECTIONAL (YELLOW)
MONO-DIRECTIONAL (WHITE)
MARKINGS (YELLOW)
MARKINGS (WHITE)
DRAWING NOT TO SCALE
KENTUCKY
DEPARTMENT OF HIGHWAYS
PAVEMENT MARKER ARRANGEMENTS
TWO-WAY, LEFT TURN LANE
SUBMITTED R. Gilbert Cole 1-30-17
DATE
110
MicroStation V8.11.7.443
E-SHEET NAME:
USER: jtelah
DATE PLOTTED: January 31, 2017
FILE NAME: C:\USERS\JEFF.LAL\DESKTOP\SEPIA 01.DGN

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

LABOR AND WAGE REQUIREMENTS
APPLICABLE TO OTHER THAN FEDERAL-AID SYSTEM PROJECTS

I. APPLICATION

1. These contract provisions shall apply to all work performed on the contract by the contractor with his own organization and with the assistance of workmen under his immediate superintendence and to all work performed on the contract by piecework, station work or by subcontract. The contractor's organization shall be construed to include only workmen employed and paid directly by the contractor and equipment owned or rented by him, with or without operators.

2. The contractor shall insert in each of his subcontracts all of the stipulations contained in these Required Provisions and such other stipulations as may be required.

3. A breach of any of the stipulations contained in these Required Provisions may be grounds for termination of the contract.

II. NONDISCRIMINATION OF EMPLOYEES

AN ACT OF THE KENTUCKY
GENERAL ASSEMBLY TO PREVENT
DISCRIMINATION IN EMPLOYMENT
KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (7) provides:

No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

a) The date of leaving office or termination of employment; or
b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

Kentucky Equal Employment Opportunity Act of 1978

The requirements of the Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) shall apply to this Contract. The apparent low Bidder will be required to submit EEO forms to the Division of Construction Procurement, which will then forward to the Finance and Administration Cabinet for review and approval. No award will become effective until all forms are submitted and EEO/CC has certified compliance. The required EEO forms are as follows:

- EEO-1: Employer Information Report
- Affidavit of Intent to Comply
- Employee Data Sheet
- Subcontractor Report

These forms are available on the Finance and Administration's web page under ***Vendor Information, Standard Attachments and General Terms*** at the following address: **https://www.eProcurement.ky.gov**.

Bidders currently certified as being in compliance by the Finance and Administration Cabinet may submit a copy of their approval letter in lieu of the referenced EEO forms.

For questions or assistance please contact the Finance and Administration Cabinet by email at **finance.contractcompliance@ky.gov** or by phone at 502-564-2874.

EMPLOYEE RIGHTS
UNDER THE FAIR LABOR STANDARDS ACT

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

FEDERAL MINIMUM WAGE
$7.25 PER HOUR
BEGINNING JULY 24, 2009

OVERTIME PAY

At least 1½ times your regular rate of pay for all hours worked over 40 in a workweek.

CHILD LABOR

An employee must be at least **16** years old to work in most non-farm jobs and at least **18** to work in non-farm jobs declared hazardous by the Secretary of Labor.

Youths **14** and **15** years old may work outside school hours in various non-manufacturing, non-mining, non-hazardous jobs under the following conditions:

No more than

- **3** hours on a school day or **18** hours in a school week;
- **8** hours on a non-school day or **40** hours in a non-school week.

Also, work may not begin before **7 a.m.** or end after **7 p.m.**, except from June 1 through Labor Day, when evening hours are extended to **9 p.m.** Different rules apply in agricultural employment.

TIP CREDIT

Employers of "tipped employees" must pay a cash wage of at least $2.13 per hour if they claim a tip credit against their minimum wage obligation. If an employee's tips combined with the employer's cash wage of at least $2.13 per hour do not equal the minimum hourly wage, the employer must make up the difference. Certain other conditions must also be met.

ENFORCEMENT

The Department of Labor may recover back wages either administratively or through court action, for the employees that have been underpaid in violation of the law. Violations may result in civil or criminal action.

Employers may be assessed civil money penalties of up to $1,100 for each willful or repeated violation of the minimum wage or overtime pay provisions of the law and up to $11,000 for each employee who is the subject of a violation of the Act's child labor provisions. In addition, a civil money penalty of up to $50,000 may be assessed for each child labor violation that causes the death or serious injury of any minor employee, and such assessments may be doubled, up to $100,000, when the violations are determined to be willful or repeated. The law also prohibits discriminating against or discharging workers who file a complaint or participate in any proceeding under the Act.

ADDITIONAL INFORMATION

- Certain occupations and establishments are exempt from the minimum wage and/or overtime pay provisions.
- Special provisions apply to workers in American Samoa and the Commonwealth of the Northern Mariana Islands.
- Some state laws provide greater employee protections; employers must comply with both.
- The law requires employers to display this poster where employees can readily see it.
- Employees under 20 years of age may be paid $4.25 per hour during their first 90 consecutive calendar days of employment with an employer.
- Certain full-time students, student learners, apprentices, and workers with disabilities may be paid less than the minimum wage under special certificates issued by the Department of Labor.

For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

U.S. Wage and Hour Division

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Wage and Hour Division

PART IV

INSURANCE

INSURANCE
(Railroad Involvement)

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.

6) RAILROAD PROTECTIVE LIABILITY INSURANCE. The policy shall name the railroad as the Named Insured and the limit of liability shall be not less than $5,000,000 combined single limit for Bodily Injury and Property Damage per occurrence, subject to a $10,000,000 aggregate limit per annual policy period. If the project involves a rail facility where passenger trains operate, the insurance limits required that are not less than a combined single limit of $5,000,000 each occurrence and $10,000,000 in the aggregate applying separately to each annual period. The original of this policy must be submitted for the railroad’s approval and filing prior to the commencement of work on this project.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

PART V

BID ITEMS

172131

PROPOSAL BID ITEMS

Report Date 4/3/17

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00190		LEVELING & WEDGING PG64-22	685.00	TON		$	
0020	00190		LEVELING & WEDGING PG64-22 - SPECIAL	50.00	TON		$	
0030	00301		CL2 ASPH SURF 0.38D PG64-22	5,900.00	TON		$	
0040	02562		TEMPORARY SIGNS	560.00	SQFT		$	
0050	02650		MAINTAIN & CONTROL TRAFFIC (BULLITT COUNTY)	1.00	LS		$	
0060	02650		MAINTAIN & CONTROL TRAFFIC (JEFFERSON COUNTY)	1.00	LS		$	
0070	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		$	
0080	02676		MOBILIZATION FOR MILL & TEXT (BULLITT COUNTY)	1.00	LS		$	
0090	02676		MOBILIZATION FOR MILL & TEXT (JEFFERSON COUNTY)	1.00	LS		$	
0100	02677		ASPHALT PAVE MILLING & TEXTURING	2,455.00	TON		$	
0110	02696		SHOULDER RUMBLE STRIPS	4,150.00	LF		$	
0120	02697		EDGELINE RUMBLE STRIPS	125,260.00	LF		$	
0130	02720		SIDEWALK-4 IN CONCRETE	240.00	SQYD		$	
0140	02775		ARROW PANEL	2.00	EACH		$	
0150	04793		CONDUIT-1 1/4 IN (AUTOMATIC TRAFFIC RECORDER LOOPS)	20.00	LF		$	
0160	04820		TRENCHING AND BACKFILLING (AUTOMATIC TRAFFIC RECORDER LOOPS)	10.00	LF		$	
0170	04830		LOOP WIRE (AUTOMATIC TRAFFIC RECORDER LOOPS)	1,050.00	LF		$	
0180	04830		LOOP WIRE (TRAFFIC SIGNAL LOOPS)	5,016.00	LF		$	
0190	04895		LOOP SAW SLOT AND FILL (AUTOMATIC TRAFFIC RECORDER LOOPS)	240.00	LF		$	
0200	04895		LOOP SAW SLOT AND FILL (TRAFFIC SIGNAL LOOPS)	1,938.00	LF		$	
0210	06510		PAVE STRIPING-TEMP PAINT-4 IN	69,900.00	LF		$	
0220	06514		PAVE STRIPING-PERM PAINT-4 IN	272,420.00	LF		$	
0230	06562		PAVE MARKING-THERMO R 6 FT	8.00	EACH		$	
0240	06563		PAVE MARKING-R/R XBUCKS 16 IN	169.00	LF		$	
0250	06566		PAVE MARKING-THERMO X-WALK-12 IN	930.00	LF		$	
0260	06568		PAVE MARKING-THERMO STOP BAR-24IN	456.00	LF		$	
0270	06574		PAVE MARKING-THERMO CURV ARROW	45.00	EACH		$	
0280	06576		PAVE MARKING-THERMO ONLY	1.00	EACH		$	
0290	06600		REMOVE PAVEMENT MARKER TYPE V	1,165.00	EACH		$	
0300	10020NS		FUEL ADJUSTMENT	20,610.00	DOLL	$1.00	$	$20,610.00
0310	10030NS		ASPHALT ADJUSTMENT	51,755.00	DOLL	$1.00	$	$51,755.00
0320	20360ES818		WOOD POST (AUTOMATIC TRAFFIC RECORDER LOOPS)	2.00	EACH		$	
0330	20458ES403		CENTERLINE RUMBLE STRIPS	2,075.00	LF		$	
0340	20468EC		ELECTRICAL JUNCTION BOX-10 X 8 X 4 (AUTOMATIC TRAFFIC RECORDER LOOPS)	2.00	EACH		$	
0350	22906ES403		CL3 ASPH SURF 0.38A PG64-22	6,665.00	TON		$	
0360	23158ES505		DETECTABLE WARNINGS (NEW)	200.00	SQFT		$	

PROPOSAL BID ITEMS

172131

Report Date 4/3/17

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0370	23158ES505		DETECTABLE WARNINGS (RETROFIT)	40.00	SQFT		$	
0380	24489EC		INLAID PAVEMENT MARKER	235.00	EACH		$	

Section: 0002 - DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0390	02569		DEMOBILIZATION	1.00	LS		$	