



CALL NO. 300

CONTRACT ID. 192202

HENDERSON COUNTY

FED/STATE PROJECT NUMBER FD04 051 0041 010-012

DESCRIPTION HENDERSON BY PASS (US 41)

WORK TYPE JPC PAVEMENT INLAY

PRIMARY COMPLETION DATE 10/15/2019

LETTING DATE: June 21,2019

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME June 21,2019. 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 I
SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 02

CONTRACT ID - 192202

FD04 051 0041 010-012

COUNTY - HENDERSON

PCN - MP05100411903

FD04 051 0041 010-012

HENDERSON BY PASS (US 41) (MP 10.750) FROM KY 425 EXTENDING NORTH TO I-69/BREATHITT PARKWAY (MP 11.525), A DISTANCE OF 0.78 MILES.JPC PAVEMENT INLAY SYP NO. 2--20050.00.

GEOGRAPHIC COORDINATES LATITUDE 37:47:00.00 LONGITUDE 87:34:00.00

COMPLETION DATE(S):

COMPLETED BY 10/15/2019	SPECIFIED COMPLETION DATE - ALL ITEMS IN CONTRACT
30 WORKING Days	MAXIMUM CALENDAR DAYS ALLOWED - ALL ITEMS IN CONTRACT
0 WORKING Hours	DROP-OFF >4" WITHIN 10' OF TRAFFIC IN NON-WORKING HOURS
0 WORKING Hours	US 41 or I-69 RAMP OR LANE CLOSURE DURING PROHIBITED HOURS

CONTRACT NOTES

PROPOSAL ADDENDA

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

BID SUBMITTAL

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

JOINT VENTURE BIDDING

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

UNDERGROUND FACILITY DAMAGE PROTECTION

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

REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY

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

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

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

SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to kytc.projectquestions@ky.gov. The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

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

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

HARDWOOD REMOVAL RESTRICTIONS

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

INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES

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

ACCESS TO RECORDS

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially

disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

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

April 30, 2018

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 electronic bidding software. Submittal of the Affidavit should be done along the bid in Bid Express.

April 30, 2018

EXPEDITE PROJECT WORK ORDER

The Contractor may request that the Department expedite the work order for this project to allow for maximization of time to complete the work. In order for the Department to accomplish this task, the Contractor may be required to “hand carry” all required project documentation to facilitate the process. Immediately UPON NOTIFICATION OF AWARD OF THE CONTRACT, deliver required project documentation to:

Division of Construction Procurement
200 Mero St.
Frankfort, KY 40602

PROJECT TRAFFIC COORDINATOR (PTC)

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

SURFACING AREAS

The Department estimates the ramp surfacing width to be variable.

The Department estimates the total ramp area to be removed and replaced to be 7,018 square yards. The Department estimates new pavement to 250 square yards.

DGA BASE

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

DGA BASE FOR SHOULDERS

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

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

FUEL PAY ADJUSTMENT

The Department has included the Contract bid item “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 the 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.

SPECIAL NOTE FOR JPC PAVEMENT

**THIS PROJECT IS A FULLY
CONTROLLED ACCESS HIGHWAY**

I. DESCRIPTION

Except as specified herein, construct Jointed Plain Concrete (JPC) Pavement in accordance with the Department's 2019 Standard and Supplemental Specifications, Special Provisions and Special Notes, and Standard and Sepia Drawings, current editions, and as directed by the Engineer. Section references are to the Standard Specifications. Furnish all materials, labor, equipment, and incidentals for the following work:

- (1) Maintain and control traffic; (2) Site Preparation and Erosion Control; and
- (3) Remove existing asphalt pavement and replace with JPC Pavement-9 Inch;
- (4) Partial Depth Patching; (5) Diamond Grind JPC Pavement; (6) Saw, clean, and Reseal existing joints; and (6) All other work specified as part of this contract.

II. MATERIALS

The Department will sample and test all materials according to the Department's Sampling Manual. Make the materials available for sampling a sufficient time in advance of use, to allow for the necessary time for testing, unless otherwise specified in these notes.

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

B. Erosion Control. See Special Note for Erosion Control.

C. Dense Graded Aggregate. Furnish Dense Graded Aggregate (DGA). Do **NOT** furnish Crushed Stone Base in lieu of DGA.

D. JPC Pavement-9 Inch. See Special note for Full Depth Concrete Pavement Repair 11J. Use Class P or Class A Concrete. At the Contractor's request and at no additional cost to the Department, the Engineer may approve high early strength rapid setting concrete; however, the use of chloride accelerators will not be approved. The Department will allow either central mixing or truck mixing.

E. Joint Sealant. Use Hot-Poured Elastic, no alternate.

F. Partial Depth Patching. Use Fibercrete (marketingassociatesinc.com).

III. CONSTRUCTION METHODS

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

B. Erosion Control. See Special Note for Erosion Control.

C. Site Preparation. Be responsible for all site preparation, including but not limited to, incidental excavation and backfilling; removal of all obstructions or any other items; disposal of materials; sweeping and removal of debris; temporary and permanent erosion and pollution control; final dressing, clean up, and seeding; and all incidentals. Perform all Site Preparation only as approved or directed by the Engineer. See Special Note for Erosion Control.

D. Pavement Removal. Consider pavement removal locations and dimensions shown on the drawings to be approximate only; the Engineer will determine exact locations and dimensions at the time of construction and mark areas to be removed. Prior to removal, saw-cut existing asphalt pavement at locations directed by the Engineer to provide a neat edge where new concrete will adjoin existing asphalt. Remove existing asphalt pavement and underlying DGA or other stone base as necessary to provide for the specified thickness of the replacement JPC Pavement without unnecessarily disturbing the remaining base by any method approved by the Engineer.

E. Preparation of Base. Immediately after pavement, compact the existing aggregate base to the Engineer's satisfaction. The Engineer will accept compaction by either visual inspection or by nuclear gauge. When the Engineer deems it necessary to stabilize the existing base, use DGA. The Contractor may use flowable fill and cement stabilization as an alternative to stabilize the existing base or to replace unsuitable materials, at the Contractor's request and at no additional cost to the Department when a plan for such is presented to and approved by the Engineer. During compaction, wet the base as the Engineer directs. Compact areas not accessible to compaction equipment by hand tamping.

F. JPC Pavement. Except as provided herein, construct JPC Pavement-9 Inch according to. Special note for Full Depth Concrete Pavement Repair 11J. Prior to pavement removal and placing JPC Pavement, obtain the Engineer's approval of proposed method of construction for ensuring and establishing a smooth profile. Immediately after removing asphalt pavement, stabilize any exposed DGA base as directed by the Engineer and place JPC. Install dowel bars and tie bars according to the Standard Drawings in both pavement and shoulders. Do not allow an area with removed pavement within (10) ten feet of traffic during non-working hours. If any such areas exist, perform pavement removal, base stabilization, and construct the JPC Pavement as one continuous operation. Construct the replacement JPC Pavement to be a minimum depth of 10 inches after Diamond Grinding; however, transition the finished grade to match adjacent pavement that is to remain in place; therefore, the actual thickness of the pavement may be greater than 10 inches in some areas. Consolidate the concrete, strike off, machine finish with a vibrating or roller screed, and straightedge the plastic concrete

JPC Pavement
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with a straightedge conforming to Section 501.02.18. The Department will not require texturing, use a broom finish. Do not seal the joints until after Diamond Grinding. Test the profile of the finished pavement with a 10 foot straightedge according to Section 501.03.19. Provide positive drainage upon completion of construction.

G. Curing. Use curing blankets only. Do not use burlap curing or white membrane curing compound. If the Contractor elects to use JPC Pavement 24/48/72 cure according to Section 502.03(C).

H. Joints in New JPC. Saw joints in the new JPC according to Special note for Full Depth Concrete Pavement Repair 11J. Clean and seal the joint with Hot-poured Elastic after Diamond Grinding.

I. Diamond Grinding. Perform Diamond Grinding on the new and existing JPC. See Section 501.03.16.

J. Ride Quality. See Section 501.03.19, category B (after Diamond Grinding).

K. Joints in Existing PCC. After Diamond Grinding, saw, clean and re-seal all transverse and longitudinal joints and new centerline joints in the existing PCC Concrete and the pavement shoulder joint with hot-poured elastic. Saw cut and seal a new centerline joint in any area where a ramp does not have a proper centerline joint (as determined by the Engineer).

L. Partial Depth Patching. Perform partial depth patching at sites designated by the Engineer at the time of construction according to the manufacturer's specifications.

M. Disposal of Waste. Dispose of all waste and debris 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.

N. Pavement Markings. See Traffic Control Plan.

O. On-Site Inspection. Prior to submitting a bid, make a thorough inspection of the site and become thoroughly familiar with the existing conditions so that the work can be expeditiously performed after contract award. The Department will consider submission of a bid as evidence of this inspection having been made. The Department will not honor any claims resulting from site conditions.

P. Property Damage and Restoration. Be responsible for all damage to public and/or private property resulting from the work. Repair or replace all damaged roadway features in like kind materials and design at no additional cost to the Department. Repair or replace damaged private property in like kind materials and design to the satisfaction of the owner at no additional cost to the Department or the owner.

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Q. Caution. Consider information shown on the drawings and in this proposal and the types and quantities of work listed are approximate only, and not 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 or Contract time if the conditions encountered are not in accordance with the information shown.

R. Utility Clearance. Determine the location of all underground and overhead utilities prior to construction. It is not anticipated that utility facilities will need to be relocated and/or adjusted; however, in the event that work does require relocation and/or adjustment, the utility companies will work concurrently with the Contractor while relocating their facilities.

S. Final Dressing, Clean Up, and Seeding and Protection. After all work is completed, remove all waste and debris from the construction sites. Remove all temporary shoulder widening and restore disturbed shoulders. Perform Class A final dressing on all disturbed areas. Sow disturbed earthen areas with Seed Mixture No. 1.

T. Coordination of Work. Be advised that other projects may be in progress within or in the near vicinity of this project. Take into consideration that the traffic control of those projects may affect this project and the traffic control of this project may affect those projects. Coordinate the work on this project with the work of the other contractors. In case of a conflict, the Engineer will determine the relative priority to give to work phasing on the various projects.

IV. METHOD OF MEASUREMENT

The Department will measure only the bid items listed. All other items required to complete the construction shall be incidental to the listed bid items.

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

B. Site Preparation. Other than the bid items listed, The Department will not measure Site Preparation for payment, but shall be incidental to the other items of the work.

C. Dense Graded Aggregate. See Section 302.04.01.

D. Erosion Control. See Special Note for Erosion Control.

E. Remove Pavement. The department will measure removed pavement in square yards regardless of type. The Department will not measure removal of underlying base material but shall be incidental to Remove Pavement.

JPC Pavement
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F. JPC Pavement-9 Inch. See Special Note for Full Depth Concrete Pavement Repair 11J, except the Department will measure the actual pavement area.

G. Joint Sealing. The Department will not measure sawing, cleaning, and sealing joints in new JPC Pavement-9 Inch for payment, but shall be incidental to JPC Pavement-10 Inch.

H. Smooth Dowels, Deformed Tie Bars, and Hook Bolts. The Department will not measure smooth dowels, deformed tie bars and hook bolts, but shall be incidental to JPC Pavement-9 Inch.

I. Diamond Grinding. See Section 503.04.01.

J. Saw, Clean, and Re-sealing Existing Joints. The department will measure Saw, Clean, and Re-sealing existing joints in linear feet.

K. Partial Depth Patching. The department will measure Partial Depth Patching in Cubic Feet.

IV. BASIS OF PAYMENT

The Department will make payment only for the bid items listed. 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. Erosion Control. See Special Note for Erosion Control.

C. DGA. See Section 302.05.

D. Remove Pavement. Accept payment at the Contract unit price per square yard as full compensation for all labor, materials, equipment, and incidentals for removing and disposing of pavement and underlying base materials.

E. JPC Pavement-9 Inch. See Special Note for Full Depth Concrete Pavement Repair 11J,

F. Diamond Grinding. See Section 503.04.01.

G. Joint Sealing. The Department will make payment for sawing, cleaning, and sealing joints in the existing PCC Pavement according to section 503.05.

H. Partial Depth Patching. Accept payment at the Contract unit price per Cubic Foot as full compensation for all labor, materials, equipment, and incidentals for removing and disposing of PCC Pavement and placing Partial Depth Patches.

SPECIAL NOTE

For Diamond Grinding Waste

Henderson County US-41 Item No. 2-20050

The contractor shall assure that all solid and liquid wastes associated with the diamond grinding operations are collected, managed, and disposed of appropriately. The waste material shall be disposed of at a permitted disposal facility, in accordance with the Environmental Performance Standards outlined in 401 KAR 47:030, or managed as a material for beneficial reuse.

SPECIAL PROVISION FOR WASTE AND BORROW SITES

Obtain U.S. Army Corps of Engineer's approval before utilizing a waste or borrow site that involves "Waters of the United States". The Corps of Engineers defines "Waters of the United States" as perennial or intermittent streams, ponds or wetlands. The Corps of Engineers also considers ephemeral streams, typically dry except during rainfall but having a defined drainage channel, to be jurisdictional waters. Direct questions concerning any potential impacts to "Waters of the United States" to the attention of the appropriate District Office for the Corps of Engineers for a determination prior to disturbance. Be responsible for any fees associated with obtaining approval for waste and borrow sites from the U.S. Army Corps of Engineer or other appropriate regulatory agencies.

1-296 Waste & Borrow Sites
01/02/2012

COORDINATION OF WORK WITH OTHER CONTRACTS

Be advised, there may be active project(s) adjacent to or within this project. These may be KYTC administered contracts, work being performed as part of a KYTC issued encroachment permit, or work being performed by Department forces. The Engineer will coordinate the work of the Contractor and others within the limits of this project. See Sections 105.06, 107.06 and 107.14.

SPECIAL NOTE FOR TYPICAL SECTION DIMENSIONS

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

TRAFFIC CONTROL PLAN

**THIS PROJECT IS A FULLY
CONTROLLED ACCESS HIGHWAY**

TRAFFIC CONTROL GENERAL

Except as provided herein, maintain and control traffic in accordance with the 2019 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 may specify days and hours when lane or ramp closures will not be allowed.

On I-69, maintain a minimum of one lane of traffic in each direction at all times when required by actual operations in progress; maintain two (2) lanes of traffic at all other times. Provide a minimum clear lane width of 12 feet; however, provide for passage of vehicles of up to 16 feet in width. If traffic is 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. Close US 41 and ramps between KY 224 and I-69 during construction.

Night Work is allowed on this project. Obtain the Engineer's approval of the method of lighting prior to performing night work.

Fourteen (14) calendar days prior to erecting any lane closures, partner with the Engineer to develop a Phasing Plan and Work Schedule to expedite the work and minimize disruption to traffic.

Consider these restrictions when submitting bid. The Department will not consider any claims for money or grant time extensions for any delays a result of these restrictions.

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PUBLIC INFORMATION PLAN

The Department considers this project to be a significant project according to Section 112.03.12. The Department will prepare a public information plan and provide public notification. Notify the Engineer immediately and obtain approval of any changes to the approved Work Schedule.

LANE CLOSURES

Contrary to Section 112.04.17, the Department will not measure long term lane or ramp closures for payment, but shall be incidental to Maintain and Control Traffic.

SIGNS

The Engineer may require additional signing and/or traffic control devices in addition to the items shown on the Standard Drawings. Sign posts and splices shall be compliant with NCHRP 350 or MASH. Manufacturer's documentation validating this compliance shall be provided to the Engineer prior to installation. Signs, including any splices, shall be installed according to manufacturer's specifications and installation recommendations. Contrary to section 112.04.02, the Department will measure only long term signs (signs intended to be continuously in place for more than 3 days) for payment. The Department will not measure; short term signs (signs intended to be left in place for 3 days or less) for payment, but shall be incidental to Maintain and Control Traffic. Contrary to Section 112.04.02, the Department will measure individual signs only once for payment, regardless of how many times they are erected or relocated. The Department will not measure replacements for damaged signs directed by the Engineer to be replaced due to poor condition or reflectivity.

DETOUR SIGNING

Prepare a detour plan for the Engineer's approval. Be responsible for erecting and maintaining the approved detour signing during construction and removing the detour signing upon completion.

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. Place changeable message signs one mile in advance of the anticipated queue at each lane closure. 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 at least one mile but not more than two miles before reaching the end of the actual queue. The Engineer may vary

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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 construction.

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 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 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 construction.

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.

The Department will measure barricades used for road closure and to protect pavement removal areas in individual units Each. The Department will measure for payment the maximum number of barricades in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual barricades 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 barricades the Engineer directs to be replaced due to poor condition or reflectivity.

PAVEMENT MARKINGS

Place Thermoplastic Pavement Marking at their existing locations. Place markings not existing as directed by the Engineer.

Traffic Control Plan
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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. Include Edge Lines in Temporary Striping; and
2. Use Removable Tape for Temporary Striping; and
3. Place Temporary or Permanent Striping before opening a lane to traffic; and

Use Durable Type I Tape for Permanent Striping.

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. Do not allow drop-offs greater than 4 inches within 10 feet of traffic during non-working hours.

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)

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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.

<u>Word</u>	<u>Abbrev.</u>	<u>Example</u>
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

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Mile	MI	ACCIDENT 3 MI AHEAD/ USE 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.

<u>Abbrev.</u>	<u>Intended Word</u>	<u>Word Erroneously Given</u>
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

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TEMP
 WRNG

Temporary
 Warning

Temperature
 Wrong

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

ACCIDENT
 ACCIDENT/XX MILES
 XX ROAD CLOSED
 XX EXIT CLOSED
 BRIDGE CLOSED
 BRIDGE/(SLIPPERY, ICE, ETC.)
 CENTER/LANE/CLOSED
 DELAY(S), MAJOR/DELAYS
 DEBRIS AHEAD
 DENSE FOG
 DISABLED/VEHICLE
 EMER/VEHICLES/ONLY
 EVENT PARKING
 EXIT XX CLOSED
 FLAGGER XX MILES
 FOG XX MILES
 FREEWAY CLOSED
 FRESH OIL
 HAZMAT SPILL
 ICE
 INCIDENT AHEAD
 LANES (NARROW, SHIFT, MERGE, ETC.)
 LEFT LANE CLOSED
 LEFT LANE NARROWS
 LEFT 2 LANES CLOSED
 LEFT SHOULDER CLOSED
 LOOSE GRAVEL
 MEDIAN WORK XX MILES
 MOVING WORK ZONE, WORKERS IN ROADWAY
 NEXT EXIT CLOSED
 NO OVERSIZED LOADS
 NO PASSING
 NO SHOULDER
 ONE LANE BRIDGE

Action

ALL TRAFFIC EXIT RT
 AVOID DELAY USE XX
 CONSIDER ALT ROUTE
 DETOUR
 DETOUR XX MILES
 DO NOT PASS
 EXPECT DELAYS
 FOLLOW ALT ROUTE
 KEEP LEFT
 KEEP RIGHT
 MERGE XX MILES
 MERGE LEFT
 MERGE RIGHT
 ONE-WAY TRAFFIC
 PASS TO LEFT
 PASS TO RIGHT
 PREPARE TO STOP
 REDUCE SPEED
 SLOW
 SLOW DOWN
 STAY IN LANE
 STOP AHEAD
 STOP XX MILES
 TUNE RADIO 1610 AM
 USE NN ROAD
 USE CENTER LANE
 USE DETOUR ROUTE
 USE LEFT TURN LANE
 USE NEXT EXIT
 USE RIGHT LANE
 WATCH FOR FLAGGER

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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

SPECIAL NOTE FOR PREFORMED QUADRAPOLE LOOPS

1.0 DESCRIPTION. Be advised that there are existing traffic signal loop detectors within the construction limits of this project. Except as specified herein, perform all work in accordance with the Department's Standard/Supplemental Specifications, Special Provisions, Special Notes, and Standard/Sepia Drawings, current editions, and as directed by the Engineer. Article references are to the Standard Specifications. Furnish all materials, equipment, labor, and incidentals for placement of preformed quadrapole loops, preformed loops, preformed loop/lead-In, loop lead-in, conduit, junction box, wiring, and connection to the existing signal system.

1.1 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. Information provided in the Plans regarding types and quantities of work is not to be taken as an accurate or complete evaluation of the materials and conditions to be encountered during construction. The bidder must make his own determinations as to the conditions encountered.

2.0 MATERIALS. Except as provided herein, provide materials according to Subsection 723.02 and Section 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 this Special Note.

2.1 Preformed Quadrapole Loops or Preformed loops. All preformed loop wire shall be 16-gauge THWN stranded copper, single conductor in a 2-4-2 configuration for Quadrapole as shown on the Quadrapole Loop detail. If it is a 6'x6' loop, the loop shall have 3 turns installed in the preformed loop. The loop shall be housed in a class A oil resistant heavy-duty reinforced rubber hose with a 250-PSI internal pressure rating. Hose for the loop assembly shall be one continuous piece. The 3/8" I.D. (5/8" O.D.) hose shall be factory assembled. Preformed loops shall be pre-wired. The loop configuration lengths shall be assembled for the specific application. Hose tee connections shall be high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing the glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. Preformed loop quadrapole loops.

Bid item 20453ES835 is used for 6'x30' loops, and bid item 20452ES835 is used for 6'x6' loops.

2.2 Preformed Loop/Lead-In. All preformed loop/lead-in (homerun) wire shall be 16-gauge THWN stranded copper, single conductor in a 2 configuration for homerun wire as shown on the quadrapole Loop detail. The homerun wire is from the junction box to the edge of the quadrapole loop. The home run shall be housed in a class A oil resistant heavy-duty reinforced rubber hose with a 250-PSI internal pressure rating. Hose for the loop and home run wire assembly shall be one continuous piece from the hose tee. The 3/8" I.D. (5/8" O.D.) hose shall be factory assembled. Homerun wires shall be pre-wired. The homerun lengths shall be assembled for the specific application. Hose tee connections shall be high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing the glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking.

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2.3 Maintain and Control Traffic. See Traffic Control Plan.

2.4 Sand. Furnish natural sand meeting the requirements of Subsection 804.04.01.

2.5 Seeding. Furnish Seed Mix Type I.

2.6 Loop Saw Slot and Fill. Furnish loop sealant, backer rod, and non-shrink grout according to the Saw Slot Detail. Use if sawing into existing pavement. Usually, the preformed loops will be laid on the ground under the final concrete inlay.

2.7 Junction Boxes. Furnish junction box type B, #57 aggregate, and geotextile filter type IV according to junction box detail.

2.8 Cable No. 14/1 pair. Furnish cable that is specified in Section 835. Cable shall be ran splice free. This shall include splice kits to connect to the preformed loop/lead-in (homerun).

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

3.0 CONSTRUCTION. Except as specified herein, install and test Preformed Quadrupole Loops in accordance with Section 723 and the drawings.

3.1 Testing. The Contractor shall test all loops and cable no 14/1 pair (lead-in) according to Subsection 723.03.17 before and after concrete inlay construction. The Contractor may have to separate the loop from the lead-in to perform this test. If the loop/lead-in meets the requirement in Section 723 at the controller cabinet, the loop/lead-in shall not be replaced. If existing loops do not meet the requirements in Subsection 723.03.17, the loops shall be replaced. Replacement loops may be installed either before or after the milling process.

The Contractor shall verify that loops (both existing and replacement loops) meet the requirements per Subsection 723.03.17 before the final concrete inlay is laid. If loops do not meet the conditions of Subsection 723.03.17, the Contractor shall replace them. If replacement loops have to be reinstalled, the costs of reinstallation shall be incidental loop to the concrete inlay bid item. The Contractor shall re-splice loops to the lead-in with the proper splice as noted in the spec book.

3.2 Coordination. Notify the Engineer in writing, two (2) weeks prior to beginning any work. The Engineer will contact the District Traffic Engineer to coordinate the Department's operations with the Contractor's work. The electrical Contractor shall coordinate with the general Contractor and inspector to ensure the preformed loops are located and installed prior to placing the concrete inlays.

3.3 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

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signal location until the loops are operating at pre-construction conditions. All liquidated damages will be applied cumulatively.

3.4 Maintain and Control Traffic. See Traffic Control Plan.

3.5 Concrete inlays. The electrical Contractor shall coordinate with the concrete Contractor and the resident engineer to get preformed loops installed in a timely matter. The Contractor may have to use 1" PVC conduit in sections of the concrete inlay for transition from lane to lane so that the preformed loop/lead-in can be connected to the preformed loop. The 1" PVC conduit shall be incidental to the project. The Contractor may have to use the preformed loop to maintain detection prior to placement of the concrete inlay. The preformed loop may be attached to the top pavement as recommended by the manufacturer.

3.6 Milling. On projects involving milling and texturing of the existing pavement, install preformed loops and/or preformed loop/lead-in in the existing pavement before or after performing the milling and texturing. After milling, the remnant contents of the existing saw slot (grout, loop wires, backer rod, and/or loop sealant) may not be flush with the top of the milled portion of the surface. In such cases, 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 and shall consider this work incidental to milling.

3.7 Loop Saw Slot and Fill. This will only be used if installed in existing concrete or in asphalt. The following is a typical step by step procedure for the installation of a loop.

- 1) Carefully mark the slot to be cut, perpendicular to the flow of traffic and centered in the lane.
- 2) Make each saw-cut 3/4-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/concrete pavement.
- 3) Drill a 1½ inch core hole at each corner and use a chisel to smooth corners to prevent sharp bends in the wire.
- 4) 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.
- 5) Completely dry the slots and drilled cores and within 1 foot on all sides of the slots.
- 6) 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 45° angle to the conduit adjacent to the roadway. There will be one for each homerun.
- 7) 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.
- 8) Place the preformed loop and homerun splice-free from the termination point (cabinet or junction box) to the preformed loop.
- 9) Push the preformed loop and homerun into the saw slot with a blunt object such as a wooden stick. Make sure that the preformed loop and homerun is pushed fully to the bottom of the saw slot. Screwdrivers shall not be used.
- 10) Install duct sealant to a minimum of 1 inch deep into the cored 1½ inch hole.

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- 11) Apply loop sealant from the bottom up and fully encapsulate the preformed loop and homerun in the saw slot. The preformed loop and homerun should not be able to move when the sealant has set.
- 12) Cover the encapsulated preformed loop and homerun 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.
- 13) 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.
- 14) Clean up the site and dispose of all waste off the project.
- 15) Ensure that the grout has completely cured prior to subjecting the loop to traffic. Curing time varies with temperature and humidity.

3.8 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.

3.9 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.

3.10 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.

3.11 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. Contractor is responsible for all encroachments onto private lands.

3.12 Utility Clearance. Work around and do not disturb existing utilities. The Department does not anticipate any utility impacts for loop installation. If utilities are impacted, work with associated utility companies to resolve issues.

3.13 Control. 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 permit other contractors, state forces, 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. 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 the Engineer's decision shall be final and binding upon the Contractor.

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3.14 Bore and Jack. Except for situations outlined in 3.15, bore and jack will be used if the conduit is under pavement of any kind. The conduit shall be 2” rigid steel conduit under all pavement areas except for the area that the loop transition from the saw slot. The installation of conduit should follow the below detail.

3.15 Open Cut Roadway. With permission of the Engineer, roadway may be open cut if the conduit is under pavement. The conduit shall be 2” rigid steel conduit under all pavement areas except for the area that the loop transition from the saw slot. The installation of conduit should follow requirements per Section 723.

4.0 MEASUREMENT. See Subsection 723.04 for bid item notes. Additional bid items include the following:

4.1 Preformed loop quadrapole loops. Use bid note for loop wire in subsection 723.04.05.

4.2 Preformed loops. Use bid note for loop wire in subsection 723.04.05.

4.3 Preformed loop/lead-in. Use bid note for loop wire in subsection 723.04.05.

4.4 Loop Test. The Department will measure the quantity as each individual unit loop tested. The Department will not measure disconnection, reconnection, traffic control, re-splicing per specifications, before and after testing per note above, and any associated hardware for payment and will consider them incidental to this item of work.

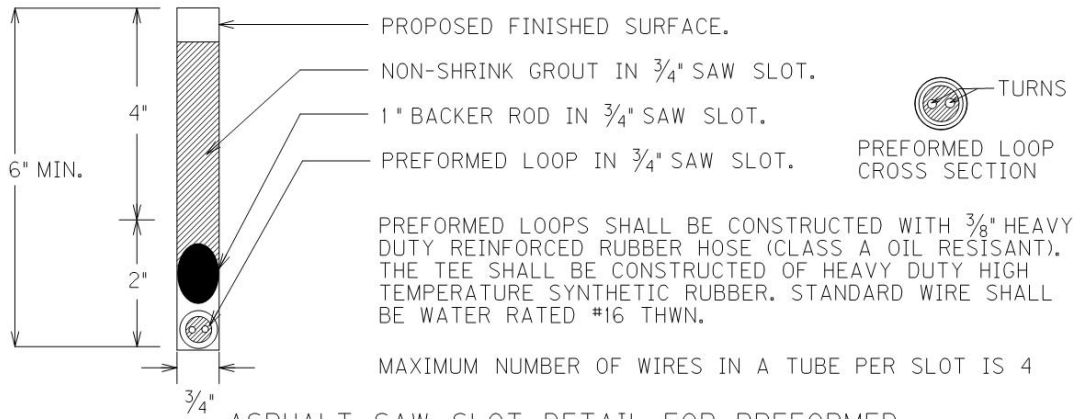
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities of listed items according to Subsection 723.05 in addition to the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
Conduit 1”	4792	Linear Foot
PVC Conduit – 1 ¼ inch – sch 80	24900EC	Linear Foot
PVC Conduit – 2 inch – sch 80	24901EC	Linear Foot
Conduit 2”	4795	Linear Foot
Preformed loop quadrapole loops	20453ES835	Linear Foot
Preformed loops	20452ES835	Linear Foot
Preformed loop/lead-in	4894	Linear Foot
Electrical Junction boxes type B	4811	Each
Loop Test	24963ED	Each
Trenching and Backfilling	4820	Linear Foot
Loop Wire	4830	Linear Foot
Cable-No. 14/1 Pair	4850	Linear Foot ¹
Loop Saw Slot and Fill	4895	Linear Foot ¹
Bore and Jack Conduit	21543EN	Linear Foot ³
Open Cut Roadway	4821	Linear Foot ³

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The Department will consider payment as full compensation for all work required under these notes and the Standard Specifications.

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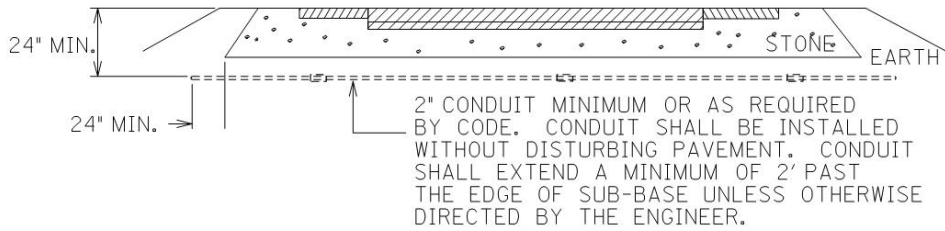


PREFORMED LOOPS SHALL BE CONSTRUCTED WITH $\frac{3}{8}$ " HEAVY DUTY REINFORCED RUBBER HOSE (CLASS A OIL RESISANT). THE TEE SHALL BE CONSTRUCTED OF HEAVY DUTY HIGH TEMPERATURE SYNTHETIC RUBBER. STANDARD WIRE SHALL BE WATER RATED #16 THWN.

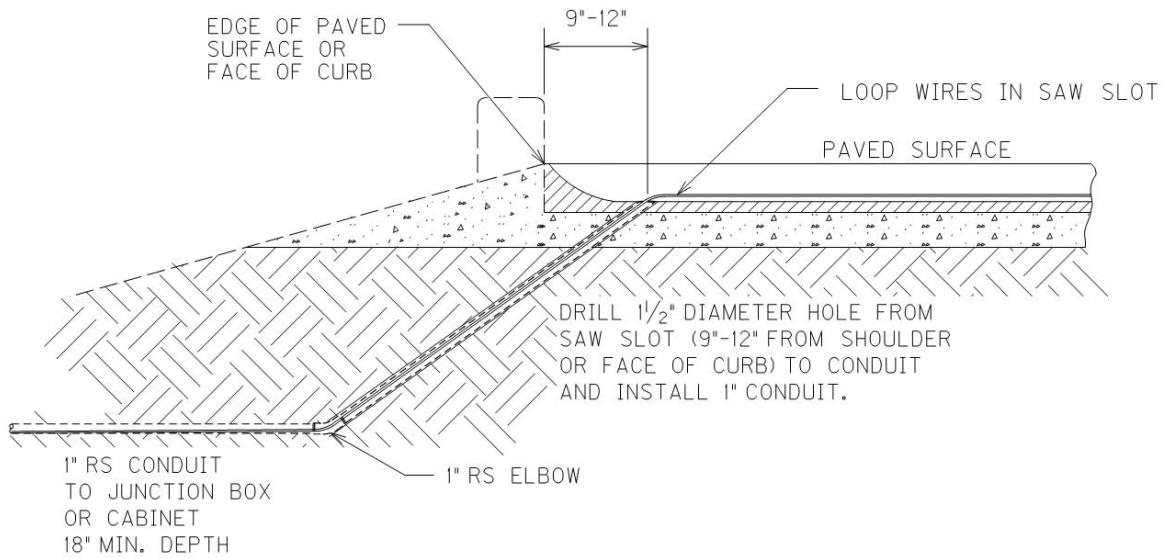
MAXIMUM NUMBER OF WIRES IN A TUBE PER SLOT IS 4

ASPHALT SAW SLOT DETAIL FOR PREFORMED

Use detail for concrete application if concrete is four inches or less

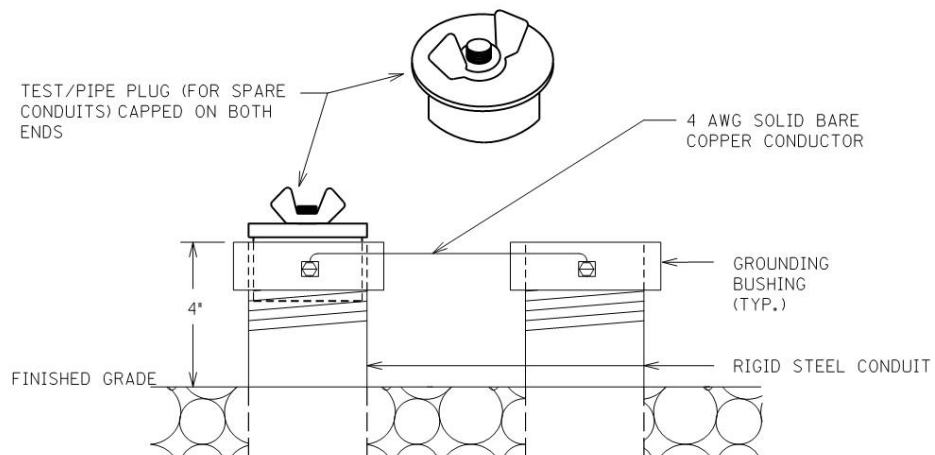


CONDUIT UNDER EXISTING PAVEMENT DETAIL



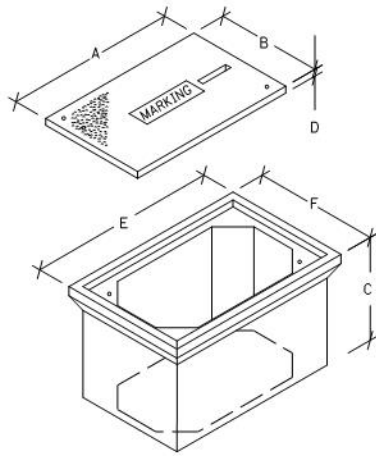
SAW SLOT EDGE OF PAVEMENT TRANSITION

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

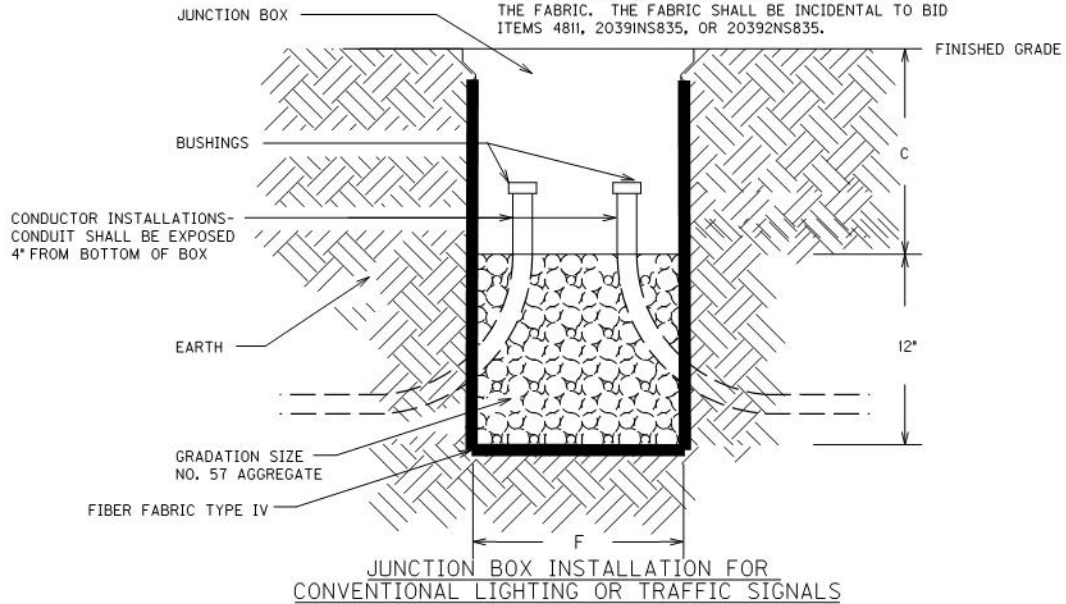
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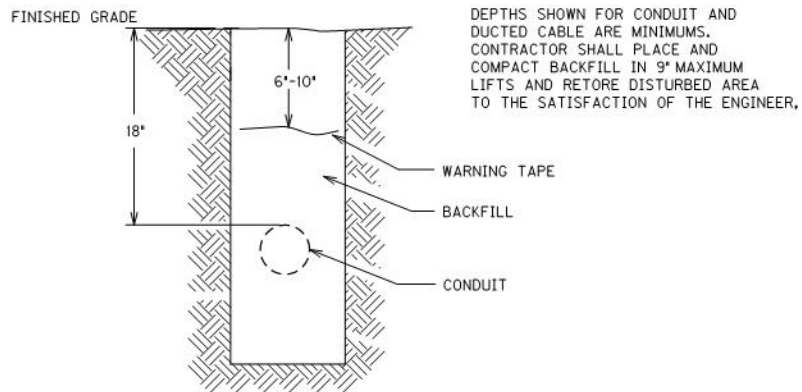
JUNCTION BOX DIMENSIONS (NOMINAL)						
	A	B	C	D	E	F
TYPE A	23"	14"	27"	2"	25"	15"
TYPE B	18"	11"	12"	1 3/4" *	20"	13"
TYPE C	36"	24"	30"	3"	38"	26"

* 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, 20391NS835, OR 20392NS835.



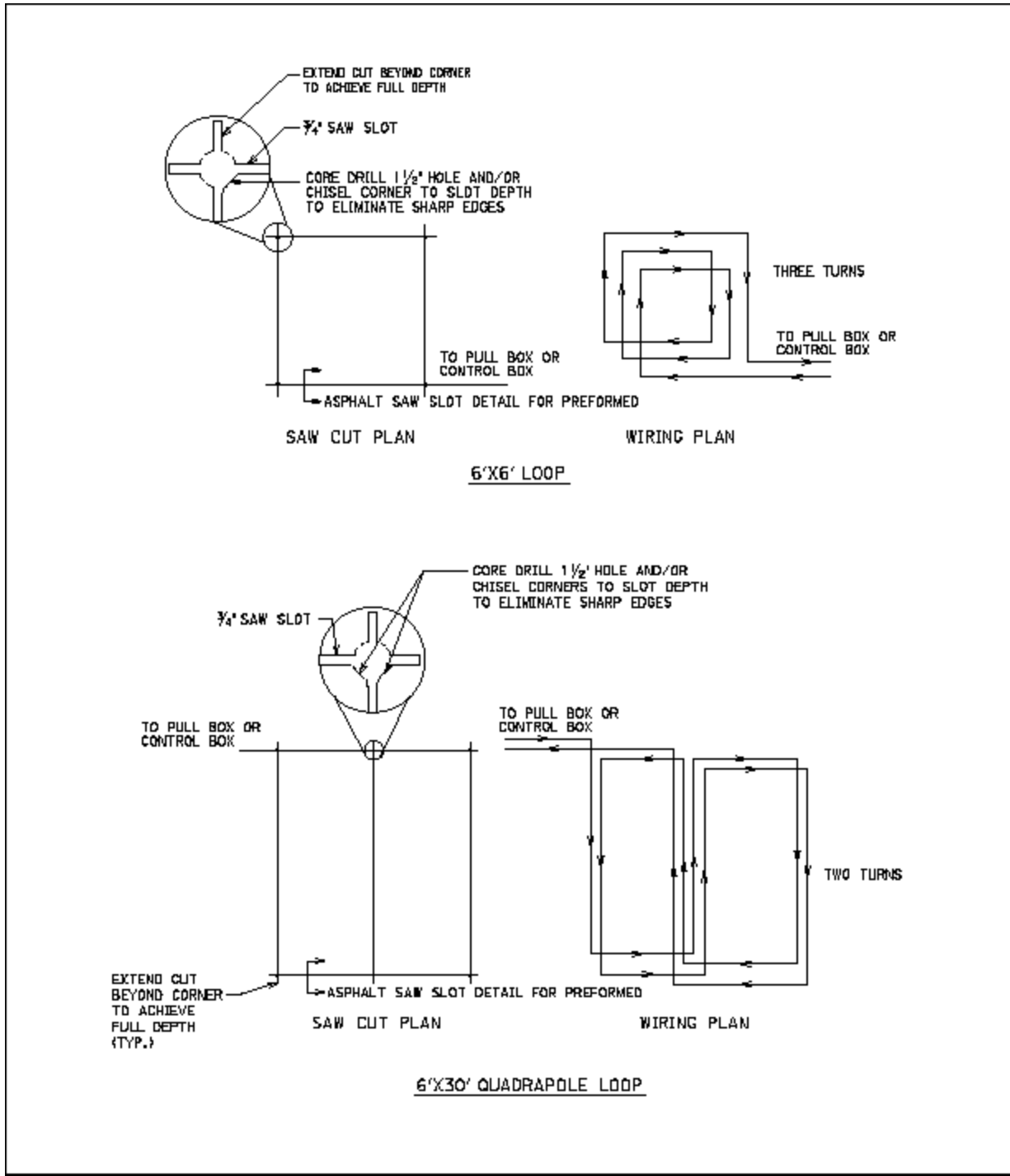
JUNCTION BOX INSTALLATION FOR
CONVENTIONAL LIGHTING OR TRAFFIC SIGNALS



CONDUIT AND WARNING TAPE TRENCH

Preformed Quadrupole Loops

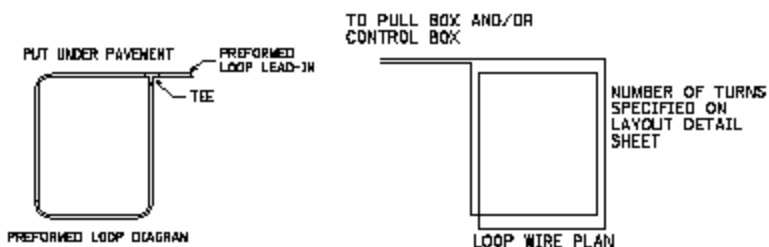
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Preformed Quadrapole Loops

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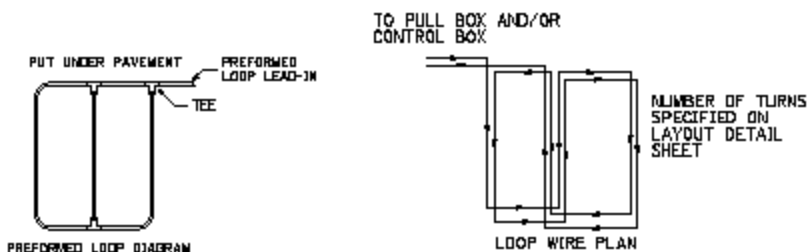
PREFORMED LOOP LEAD-IN SHALL BE TWISTED WITH THREE TO FIVE TURNS PER FOOT UNTIL TERMINATED AT FIELD CONNECTIONS IN THE CABINET OR CONNECTED TO SHIELDED CABLE.



STANDARD PREFORMED LOOP

•ALL LOOPS THAT ARE NOT QUADRAPLES SHALL BE STANDARD AND HAVE 3 TURNS

PREFORMED LOOP LEAD-IN SHALL BE TWISTED WITH THREE TO FIVE TURNS PER FOOT UNTIL TERMINATED AT FIELD CONNECTIONS IN THE CABINET OR CONNECTED TO SHIELDED CABLE.



QUADRAPOLE PREFORMED LOOP

•ALL 6'x30' LOOPS SHALL BE QUADRAPOLE AND SHALL HAVE A 2-4-2 CONFIGURATION

SPECIAL NOTE FOR EROSION CONTROL

I. DESCRIPTION

Perform all erosion and water pollution control work in accordance with the Department's Standard and Interim Supplemental Specifications, Special Provisions and Special Notes, and Standard and Sepia Drawings, current editions, and as directed by the Engineer. Section references are to the Standard Specifications. This work shall consist of:

(1) Developing and preparing a Best Management Practices Plan (BMP) tailored to suit the specific construction phasing for each site within the project; (2) Preparing the project site for construction, including locating, furnishing, installing, and maintaining temporary and/or permanent erosion and water pollution control measures as required by the BMP prior to beginning any earth disturbing activity on the project site; (3) Clearing and grubbing and removal of all obstructions as required for construction; (4) Removing all erosion control devices when no longer needed; (5) Restoring all disturbed areas as nearly as possible to their original condition; (6) Preparing seedbeds and permanently seeding all disturbed areas; (7) Providing a Kentucky Erosion Prevention and Sediment Control Program (KEPSC) qualified inspector; and (8) Performing any other work to prevent erosion and/or water pollution as specified by this contract, required by the BMP, or as directed by the Engineer.

II. MATERIALS

Furnish materials in accordance with these notes, the Standard Specifications and Interim Supplemental Specifications, and applicable Special Provisions and Special Notes, and Standard and Sepia Drawings, current editions. Provide for all materials to be sampled and tested in accordance with the Department's Sampling Manual. Unless directed otherwise by the Engineer, 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.

III. CONSTRUCTION

Be advised, these Erosion Control Plan Notes do not constitute a BMP plan for the project. Jointly with the Engineer, prepare a site specific BMP plan for each drainage area within the project in accordance with Section 213. Provide a unique BMP at each project site using good engineering practices taking into account existing site conditions, the type of work to be performed, and the construction phasing, methods and techniques to be utilized to complete the work. Be responsible for all erosion prevention, sediment control, and water pollution prevention measures required by the BMP for each site. Represent and warrant compliance with the Clean Water Act (33 USC Section 1251 et seq.), the 404 Permit, the 401 Water Quality Certification, and applicable state and

Erosion Control
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local government agency laws, regulations, rules, specifications, and permits. Contrary to Section 105.05, in case of discrepancy between these notes, the Standard Specifications, Interim Supplemental Specifications, Special and Special Notes, Standard and Sepia Drawings, and such state and local government agency requirements, adhere to the most restrictive requirement.

Conduct operations in such a manner as to minimize the amount of disturbed ground during each phase of the construction and limit the haul roads to the minimum required to perform the work. Preserve existing vegetation not required to be removed by the work or the contract. Seed and/or mulch disturbed areas at the earliest opportunity. Use silt fence, silt traps, temporary ditches, brush barriers, erosion control blankets, sodding, channel lining, and other erosion control measures in a timely manner as required by the BMP and as directed or approved by the Engineer. Prevent sediment laden water from leaving the project, entering an existing drainage structure, or entering a stream.

Provide for erosion control measures to be in place and functioning prior to any earth disturbance within a drainage area. Compute the volume and size of silt control devices necessary to control sediment during each phase of construction. Remove sediment from silt traps before they become a maximum of ½ full. Maintain silt fence by removing accumulated trappings and/or replacing the geotextile fabric when it becomes clogged, damaged, or deteriorated, or when directed by the Engineer. Properly dispose of all materials trapped by erosion control devices at approved sites off the right of way obtained by the Contractor at no additional cost to the Department (See Special Note for Waste and Borrow).

As work progresses, add or remove erosion control measures as required by the BMP applicable to the Contractor's project phasing and construction methods and techniques. Update the volume calculations and modify the BMP as necessary throughout the duration of the project. Ensure that an updated BMP is kept on site and available for public inspection throughout the life of the project.

After all construction is complete, restore all disturbed areas in accordance with Section 212. Completely remove all temporary erosion control devices not required as part of the permanent erosion control from the construction site. Prior to removal, obtain the Engineer's concurrence of items to be removed. Grade the remaining exposed earth (both on and off the Right of-Way) as nearly as possible to its original condition, or as directed by the Engineer. Prepare the seed bed areas and sow all exposed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

IV. MEASUREMENT

Erosion Control Blanket. If required by the BMP, the Department will measure Erosion Control Blanket according to Section 212.04.07.

Sodding. If required by the BMP, the Department will measure Sodding according to Section 212.04.08.

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Channel Lining. The Department will measure Channel Lining according to Sections 703.04.04.

Erosion Control. Contrary to Sections 212.04, 213.04, and 703.04 other than Erosion Control Blankets, Sodding, and Channel Lining, the Department will measure Erosion Control as one lump sum. The Department will not measure developing, updating, and maintaining a BMP plan for each site; providing a KEPSC qualified inspector; locating, furnishing, installing, inspecting, maintaining, and removing erosion and water pollution control items; Roadway Excavation, Borrow Excavation, Embankment In Place, Topsoil Furnished and Placed, and Spreading Stockpiled Topsoil; Topdressing Fertilizer, Temporary and Permanent Seeding and Protection, Special Seeding Crown Vetch, and Temporary Mulch; Sedimentation Basin and Clean Sedimentation Basin, Silt Trap Type "A" and Clean Silt Trap Type "A"; Silt Trap Type "B" and Clean Silt Trap Type "B"; Silt Trap Type "C" and Clean Silt Trap Type "C"; Temporary Silt Fence and Clean Temporary Silt Fence; Plants, Vines, Shrubs, and Trees; Gabion and Dumped Stone Deflectors and Riffle Structures; Boulders; Temporary Ditches and clean Temporary Ditches; Geotextile Fabric, and all other erosion and water pollution control items required by the BMP or the Engineer, but shall be incidental to Erosion Control.

V. Basis of Payment

Erosion Control Blanket. If not listed as a bid item, but required by the BMP, the Department will pay for Erosion Control Blankets as Extra Work according to Sections 104.03 and 109.04.

Sodding. If not listed as a bid item, but required by the BMP, the Department will pay for Sodding as Extra Work according to Sections 104.03 and 109.04.

Channel Lining. The Department will pay for Channel Lining as according to Section 703.05.

Erosion Control. Contrary to Sections 212.05 and 213.05, other than Erosion Control Blanket, Sodding, and Channel Lining, payment at the Contract lump sum price for Erosion Control, shall be full compensation for all materials, equipment, labor and incidentals necessary to complete the erosion and water pollution control work as specified in these notes, Sections 212 and 213, the Supplemental Specifications, applicable Special Provisions and Special Notes, and Standard and Sepia Drawings, including but not limited to developing, updating, and maintaining a BMP plan for each site; providing a KEPSC-RI qualified inspector; locating, furnishing, installing, inspecting, maintaining, and removing erosion and water pollution control items; Roadway Excavation, Borrow Excavation, Embankment In Place, Topsoil Furnished and Placed, and Spreading Stockpiled Topsoil; Topdressing Fertilizer, Temporary and Permanent Seeding and Protection, Special Seeding Crown Vetch, and Temporary Mulch; Sedimentation Basin and Clean Sedimentation Basin, Silt Trap Type "A" and Clean Silt Trap Type "A"; Silt Trap Type "B" and Clean Silt Trap

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Type "B"; Silt Trap Type "C" and Clean Silt Trap Type "C"; Temporary Silt Fence and Clean Temporary Silt Fence; Plants, Vines, Shrubs, and Trees; Gabion and Dumped Stone Deflectors and Riffle Structures; Boulders; Temporary Ditches and clean Temporary Ditches; Geotextile Fabric and all other erosion and water pollution control items required by the BMP or the Engineer.

SPECIAL NOTE FOR CONTRACT COMPLETION DATE & LIQUIDATED DAMAGES

COMPLETION DATE

The Contractor has the option of selecting the starting date for this Contract. Once selected, notify the Department in writing of the date at least two weeks prior to beginning work. Complete all work by October 15, 2019 or within 30 Working Days, whichever occurs first. Contrary to Section 108.07.02, the Engineer will begin charging working days on the day the Contractor starts work or sets up traffic control on the project.

LIQUIDATED DAMAGES.

The Department will assess Liquidated Damages accordance with Section 108.09, when either the allotted number of working days or the October 15, 2019 date is exceeded.

In addition to the requirements of Section 108.09, the Department will assess Liquidated Damages in the amount of \$1,000 per hour or part of an hour that a ramp or lane closure remains in place during hours prohibited by the Traffic Control Plan or the Engineer

In addition to the requirements of Section 108.09, the Department will assess Liquidated Damages in the amount of \$1,500 per hour or part of an hour that an excavated area within 10 feet of traffic remains unfilled with new JPC beyond 1 calendar day as allowed by the Traffic Control Plan.

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. No extension of Contract time will be granted due to inclement weather or temperature limitations that occur due to starting work on the Contract or a structure late in the construction season.

The Department will apply all liquidated damages accumulatively.

All other applicable portions of Section 108 apply.

HENDERSON COUNTY

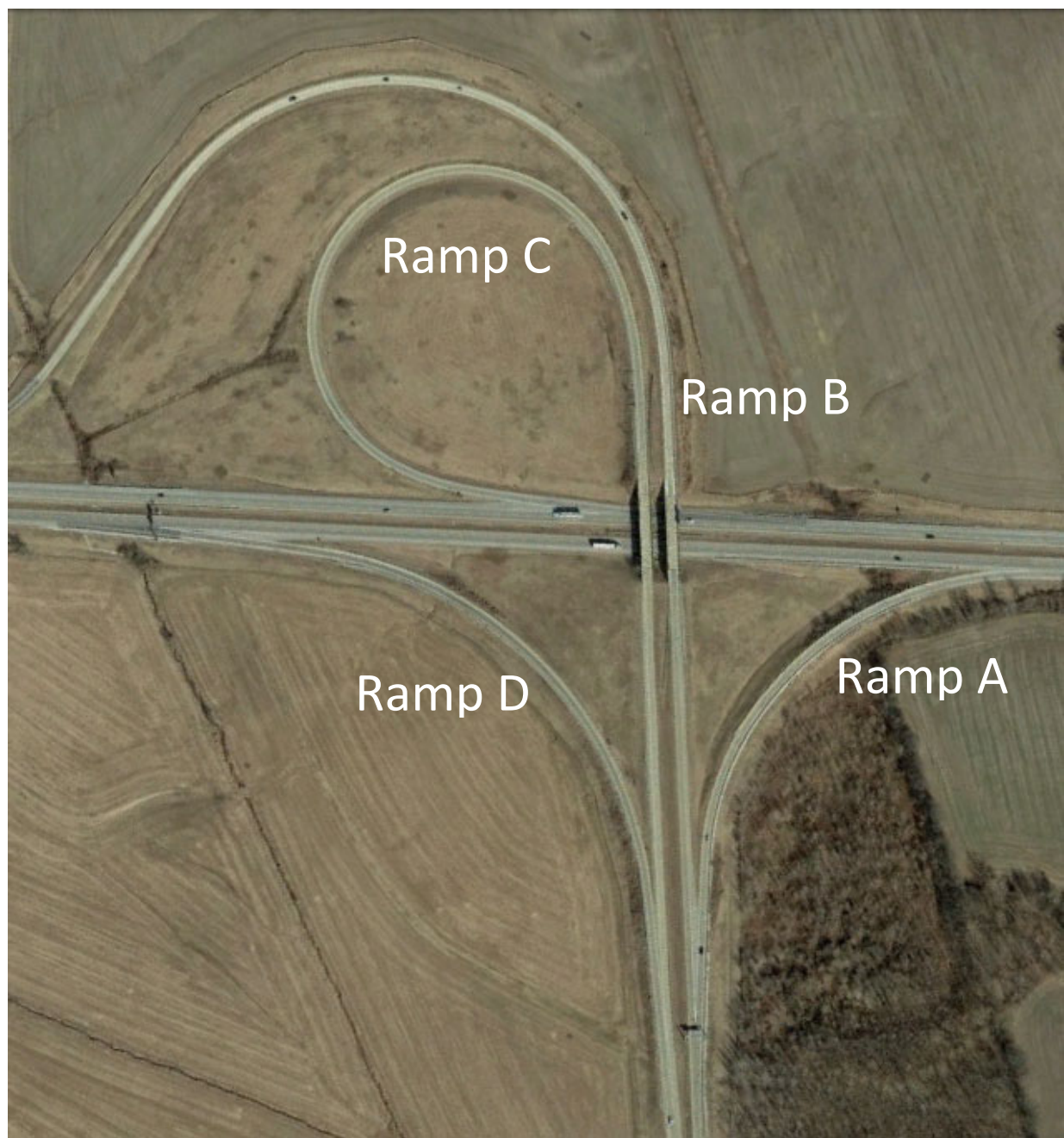


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Interchange Approach Section





JPC SUMMARY

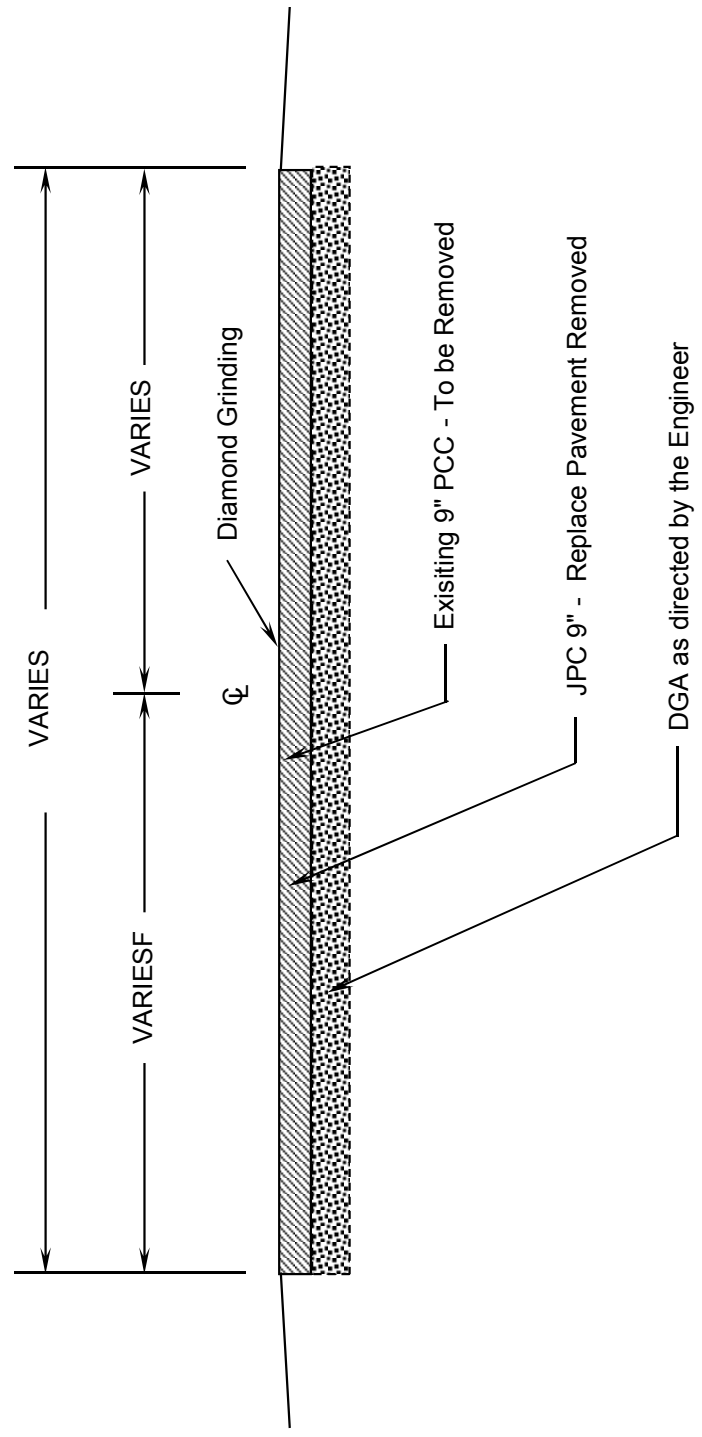
LOCATION	LENGTH	WIDTH	REMOVE 9" PCC (SY)	REPLACE 9" JPC (SY)	NOTES
INTERCHANGE APPROACH	30	10	33	33	SEE AERIAL LAYOUT
	240	4	107	107	
	10	10	11	11	
	110	12	147	147	
TRANSITION AREA	800	8	711	711	SEE AERIAL LAYOUT
	800	8	711	711	
	110	12	147	147	
	12	10	13	13	
	130	24	347	347	
	125	24	333	333	
	150	15	0	250	
	900	8	800	800	
RAMP A	475	10	528	528	This is new concrete. Current area is rock/dirt area and holding water. Replace half the ramp for the entire length of the ramp. Consider the dimensions approximate only. The Engineer will determine the actual locations and dimensions at the time of construction. Most of the work is where Ramp A and Ramp B diverge.
	200	16	356	356	
	165	18	330	330	
RAMP B	1250	8	1,111	1,111	Replace half the ramp for the entire length of the ramp.
RAMP C	1500	8	1,333	1,333	Replace half the ramp for the entire length of the ramp.
TOTALS:			7,018	7,268	

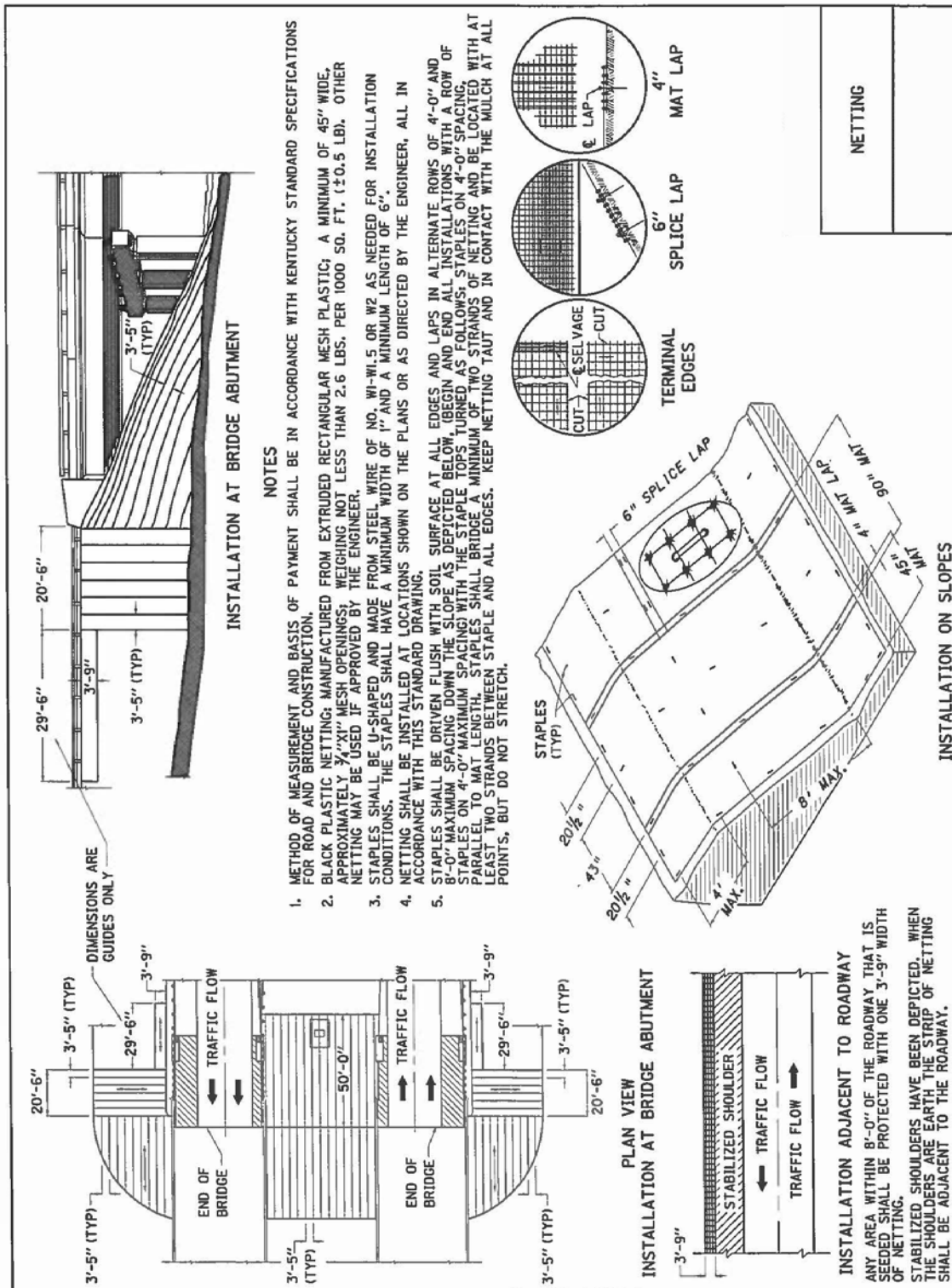
LOOP SUMMARY

INTERSECTION	PREFORMED LOOP LEADIN LF	PREFORM QUADRAPOLE LF	PVC		RS		CONDUIT BORE & JACK ROADWAY LF	OPEN CUT ROADWAY LF	CABLE NO. 14 LF	JUNCTION TYPE B		Trenching and Backfilling LF	Loop Test EA	NOTES
			CONDUIT 1 INCH LF	CONDUIT 1 1/4 INCH LF	CONDUIT 2 INCH LF	EA				EA				
US 41														
East Leg	60	204	20	20	0	0	0	900	1	0	0	0	0	(2) 6 ft x 30 ft Loop @ Stop Bar
Total	60	204	20	20	0	0	0	900	1	0	0	0	0	

- NOTES:**
- Quantities are for estimating purposes only. The Contractor shall field measure and inspect items to verify quantities.
 - 2 - 1 1/4 inch conduits may be used in place of 2" conduit. Field verify conduit to match existing facilities/tie-in to poles/cabinets. specifications. Only replace existing conduit if damaged.

TYPICAL SECTION





PART II
SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

Any reference in the notes, drawings, or proposal to the 2012 edition of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by applicable sections of the *Standard Specifications for Road and Bridge Construction, Edition of 2019* 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>

SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

2.0 MATERIALS.

2.1 General. Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

2.2 Sign and Controls. All signs must:

- 1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
- 2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
- 3) Provide a controller consisting of:
 - a) Keyboard or keypad.
 - b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
 - c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
 - d) Logic circuitry to control the sequence of messages and flash rate.
- 4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
- 5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
- 6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
- 7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
- 8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
- 9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
- 10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
- 11) Provide a photocell control to provide automatic dimming.

- 12) Allow an on-off flashing sequence at an adjustable rate.
- 13) Provide a sight to aim the message.
- 14) Provide a LED display color of approximately 590 nm amber.
- 15) Provide a controller that is password protected.
- 16) Provide a security device that prevents unauthorized individuals from accessing the controller.
- 17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/=>=>=>/	/MIN/SPEED/**MPH/
/KEEP/LEFT/<=<=<=</	/ICY/BRIDGE/AHEAD/ /ONE
/LOOSE/GRAVEL/AHEAD/	LANE/BRIDGE/AHEAD/
/RD WORK/NEXT/**MILES/	/ROUGH/ROAD/AHEAD/
/TWO WAY/TRAFFIC/AHEAD/	/MERGING/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/	/NEXT/***/MILES/
/REDUCE/SPEED/**MPH/	/HEAVY/TRAFFIC/AHEAD/
/BRIDGE/WORK/***0 FT/	/SPEED/LIMIT/**MPH/
/MAX/SPEED/**MPH/	/BUMP/AHEAD/
/SURVEY/PARTY/AHEAD/	/TWO/WAY/TRAFFIC/

*Insert numerals as directed by the Engineer.
Add other messages during the project when required by the Engineer.

2.3 Power.

- 1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

3.0 CONSTRUCTION. Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

4.0 MEASUREMENT. The final quantity of Variable Message Sign will be

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the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

5.0 PAYMENT. The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

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SPECIAL NOTE FOR FULL DEPTH CONCRETE PAVEMENT REPAIR

This Special Note applies to full depth repairs of concrete pavement. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Remove and replace concrete pavement. Comply with the applicable Standard Drawings and the Standard Specifications except as specifically superseded herein.

2.0 MATERIALS AND EQUIPMENT.

2.1 JPC Pavement. Test concrete materials according to section 601.03.03. Conform to 501, 502, and 601 except that the concrete must achieve 3000 psi in accordance with Section 4.4 of this note. The Engineer may allow pavement to be opened to traffic at less than 3,000 psi subject to the deductions described in Section 4.4 of this note.

2.2 Dowel Bars and Sleeves. Conform to 811.

2.3 Tie Bars. Conform to Section 811. Use epoxy coated tie bars in longitudinal and transverse joints.

2.4 Joint Sealants. Conform to Subsection 807.03.01 or 807.03.05.

2.5 Grout Adhesives and Epoxy Resin Systems. Conform to Section 826.

2.6 Dense Graded Aggregate (DGA) and Crushed Stone Base (CSB). Conform to Section 805.

2.7 Geotextile Fabric. Conform to Section 843.

2.8 Drills. Drill holes using a gang drill, capable of drilling a minimum of four simultaneously. Misalignment of holes shall not exceed 1/4 inch in the vertical or oblique plane.

2.9 Hammers. Only use chisel point hammers weighing less than 40 pounds to remove deteriorated concrete.

3.0 CONSTRUCTION.

3.1 Removal of Existing Pavement. Remove existing pavement to the extent the Contract specifies or as the Engineer directs. The minimum length of patches measured along centerline is 3 feet on each side of an existing joint.

When working with pavements with non-skewed transverse joints, if it is necessary to remove existing pavement closer than 6 feet to a transverse joint, remove the pavement 3 feet beyond that joint .

When working with pavements with skewed transverse joints, if it is necessary to remove existing pavement closer than 3 feet to a transverse joint, remove the pavement 3 feet beyond that joint.

Details of configurations of pavement and joints for various situations are depicted in the drawings herein.

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When small areas of removal and replacement are performed at bridge ends, maintain or reconstruct existing expansion joints at their existing location. When the Engineer determines extensive full width removal and replacement is required, construct new expansion joints at the locations shown on Standard Drawing No. RPN-010.

In the removal operation, make a full depth saw cut longitudinally along the centerline joint and shoulder joint and transversely along the area marked for removal. To prevent damage to the subbase, do not allow the saw to penetrate more than ½" into the subbase. The Engineer may direct or approve additional cuts within the removal area for ease of removal of the damaged slab and to prevent damage to adjacent pavement to remain in place. Do not overcut beyond the limits of the removal area. Prevent saw slurry from entering existing joints and cracks. To avoid pumping and erosion beneath the slab, do not allow traffic on sawed pavement for more than 48 hours before beginning removal procedures, unless directed by the Engineer.

Lift out the deteriorated concrete vertically with lift pins. If approved by the Engineer, use other methods that do not damage the base, shoulder, or sides of pavement that is to be left in place. If any damage does occur, repair as the Engineer directs and use an acceptable alternative method for the removal process. Do not damage the pavement base during these operations.

3.2 Pavement Replacement. Do not damage the pavement base during these operations.

3.2.1 Preparation of Base. Compact the new and existing aggregate base to the Engineer's satisfaction. The Engineer will accept compaction by either visual inspection or by nuclear gauge. When the Engineer deems it necessary to stabilize the existing base or replace unsuitable materials, excluding bridge ends, use 12 inches of geotextile fabric wrapped No. 2 aggregate topped with 4 inches of DGA or CSB. Use either Type III or Type IV geotextile fabric. Flowable fill and cement stabilization may be used as an alternative to stabilize the existing base or to replace unsuitable materials when a plan for such is presented to and approved by the Engineer. The Engineer may also direct using only DGA or CSB to correct base deficiencies. At bridge ends, treat existing base and subgrade as the Contract specifies. During compaction, wet the base as the Engineer directs. Compact areas not accessible to compaction equipment by hand tamping.

3.2.2 Underdrains. Construct, or repair damage to, pavement edge drains according to Section 704. If underdrains are placed omitting areas to be patched, construct additional lateral drains as necessary to provide outlets for the installed underdrain until performing the pavement replacement and completing the underdrain system. Provide drainage for any undercut or base repair areas.

3.2.3 Pavement Replacement. Using load transfer assemblies for dowel joints drill into the existing slab according to the details shown herein and on the Standard Drawings.

Use plain epoxy coated dowels of the size specified on the standard drawings based on the pavement thickness for contraction and expansion joints.

Drill holes for dowel bars and tie bars into the face of the existing slab, at a diameter as specified in the following. Drill the dowel bar holes and tie bar

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holes to a depth equal to 1/2 the length of the bars. Anchor tie bars into the existing pavement using an epoxy resin. Anchor dowel bars into the existing pavement using either an epoxy resin or an adhesive grout. For tie bars and dowel bars where an epoxy resin is to be used drill the holes 1/8 inch larger than the bar diameter. For dowel bars where an adhesive grout product is to be used, drill holes 1/4 inch larger than the bar diameter. Use a clear or opaque grout retention disk in both grout and epoxy applications. Operate the equipment to prevent damage to the pavement being drilled. Obtain the Engineer's approval of the drilling procedure. Install load transfer assemblies according to the Standard Drawings and Standard Specifications.

When indicated herein or in the Standard Drawings, use 1 inch deformed tie bars, 18 inches long on 30-inch centers and starting and ending 20 inches inside the edges of the repair area in the longitudinal joint. Use 1 inch deformed tie bars, or plain epoxy coated dowel bars sized in accordance with the Standard Drawings, 18 inches long beginning 12 inches inside of each edge and on 12-inch centers in transverse construction joints.

Install the dowels and tie bars according to Section 511 unless contradicted here. Ensure the holes are dry and free of dust and debris. Use a nozzle to insert the grout or epoxy starting at the back of the drilled hole to allow for full coating of the dowel or tie bar. After placement, use a bond breaker on the section of the dowel bar that is protruding from the hole.

Mix, place, finish, and cure concrete according to Section 501 with the exception that the Department will allow truck mixing, 2-bag mixers, and hand finishing.

When required, use a form on the side of the slab at longitudinal joints. When the adjacent traffic lane is not closed to traffic or the drop-off is not protected, temporarily fill the space between the form and the adjacent pavement with DGA. After placing the slab, remove the DGA and form. Fill the hole with concrete and thoroughly consolidate by rodding, spading, and sufficient vibration to form a dense homogeneous mass. Use a form on the side of the slab adjacent to shoulders. Excavate and backfill as shown on Section F'-F'.

For patches less than 25 feet in length, use a bond breaker and do not install tie bars at the longitudinal joint. Bond breakers should not exceed 1/8 inch in thickness, e.g. tar paper.

When resurfacing is required, a float finish is satisfactory. Otherwise, broom finish or, when the adjacent surface has a grooved finish, texture the surface according to Subsection 501.03.13 H). Finish the surface, including joints, to meet a surface tolerance of 1/8 inch in 10 feet that will be verified by straightedge. Cure the pavement and apply curing membranes according to 501.03.15.

Keep all pavement surfaces adjacent to this operation reasonably clean of excess grout and other materials at all times. Maintain all original longitudinal joints. Place transverse joints according to the details shown herein and on the Standard Drawings.

3.3 Joint Sealing. Seal all new or partially new joints with silicone rubber sealant or hot-poured elastic joint sealant according to Subsection 501.03.18.

4.0 MEASUREMENT.

4.1 Remove JPC Pavement. The Department will measure the quantity in square yards of surface area. The Department will not measure removal of

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underlying base material for payment and will consider it incidental to Remove JPC Pavement.

4.2 DGA or CSB. The Department will measure the quantity used to stabilize the existing base or to replace unsuitable material in tons. The Department will not measure removal of existing base material or underlying material for payment and will consider incidental to DGA or CSB. The quantity of DGA used for the drop-off protection shall be incidental to this work and will not be measured for payment.

4.3 JPC Pavement Non-Reinforced. The Department will measure according to 501.04.01. The Department will not measure dowels, tie bars, or joint sealing for payment and will consider it incidental to Non-Reinforced JPC Pavement.

JPC Pavement will be paid according to section 5.0 below and according to the following payment schedule based on the compressive strength. The cylinders for payment will be tested two hours prior the scheduled opening of traffic.

3000 psi and up	100% payment
2750 to 3000 psi	75% payment and approval from the Engineer to open to traffic*
2500 to 2750 psi	50% payment and approval from the Engineer to open to traffic*
2250 to 2500 psi	25% payment and approval from the Engineer to open to traffic*
Below 2250 psi	10% payment and no potential to open to traffic. Maintain traffic closure until concrete reaches a minimum of 2250 psi.

*If the Engineer approves opening to traffic, the Engineer will evaluate the concrete at 28 days (or sooner) to determine if the removal and replacement of the concrete is necessary due to pavement distress induced by the early opening (i.e. noticeable cracking). If required by the Engineer, remove and replace those slabs showing distress at no cost to the Department.

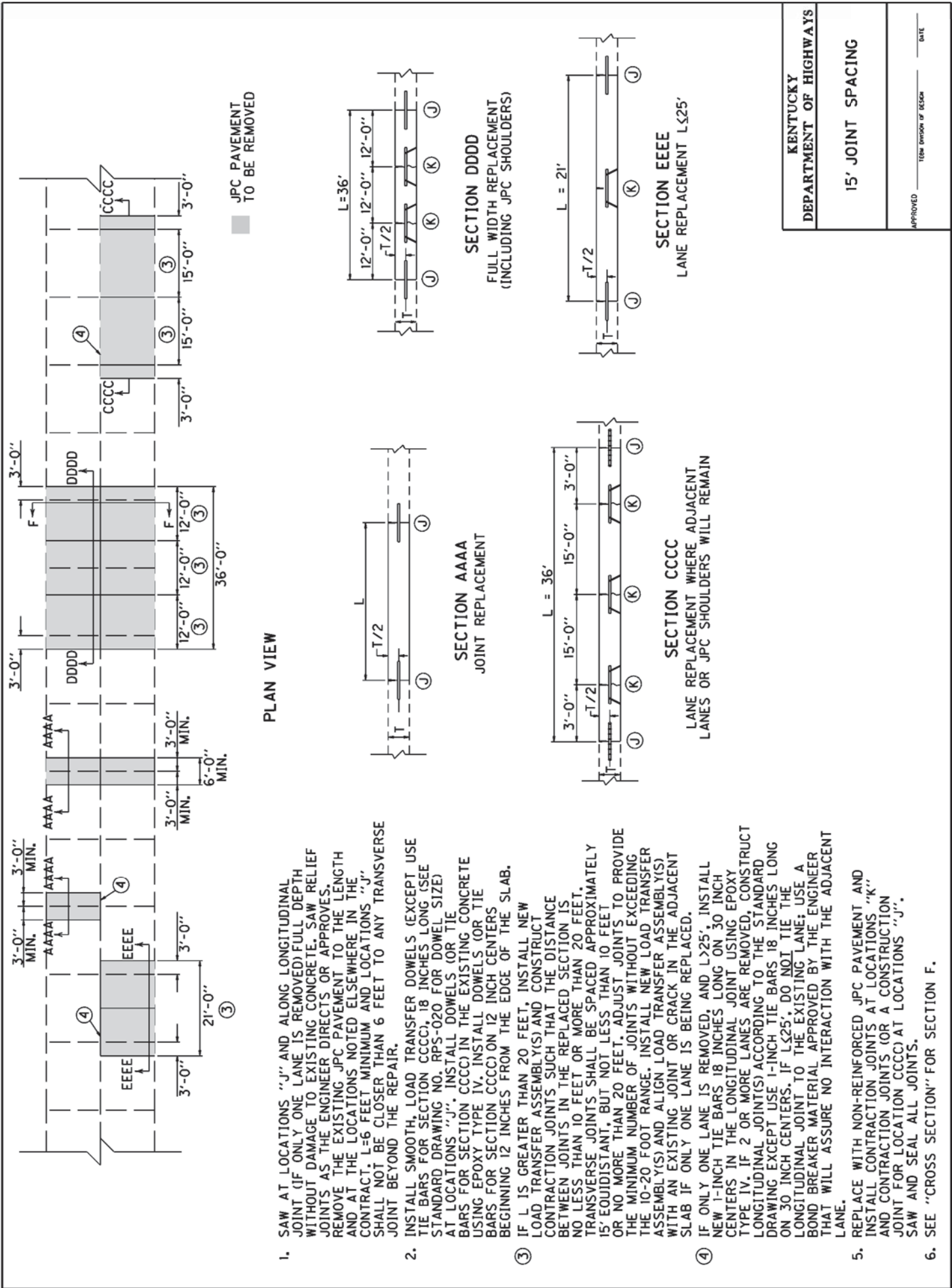
4.4 Underdrains. The Department will measure the quantity according to Subsection 704.04. The Department will not measure lateral drains for payment and will consider them incidental to the Underdrains.

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

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
----	Remove JPC Pavement	Square Yard
00001	DGA Base	Ton
00003	Crushed Stone Base	Ton
02069-02071, 02073, 02075, 02084, 02086, 02088	JPC Pavement Non-Reinforced, thickness	See Subsection 501.05
01000	Perforated Pipe, 4-inch	Linear Foot
02598, 02599	Fabric-Geotextile, Type	Square Yard

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

June 15, 2012



PLAN VIEW

SECTION AAAAA
JOINT REPLACEMENT

SECTION DDDD
FULL WIDTH REPLACEMENT
(INCLUDING JPC SHOULDERS)

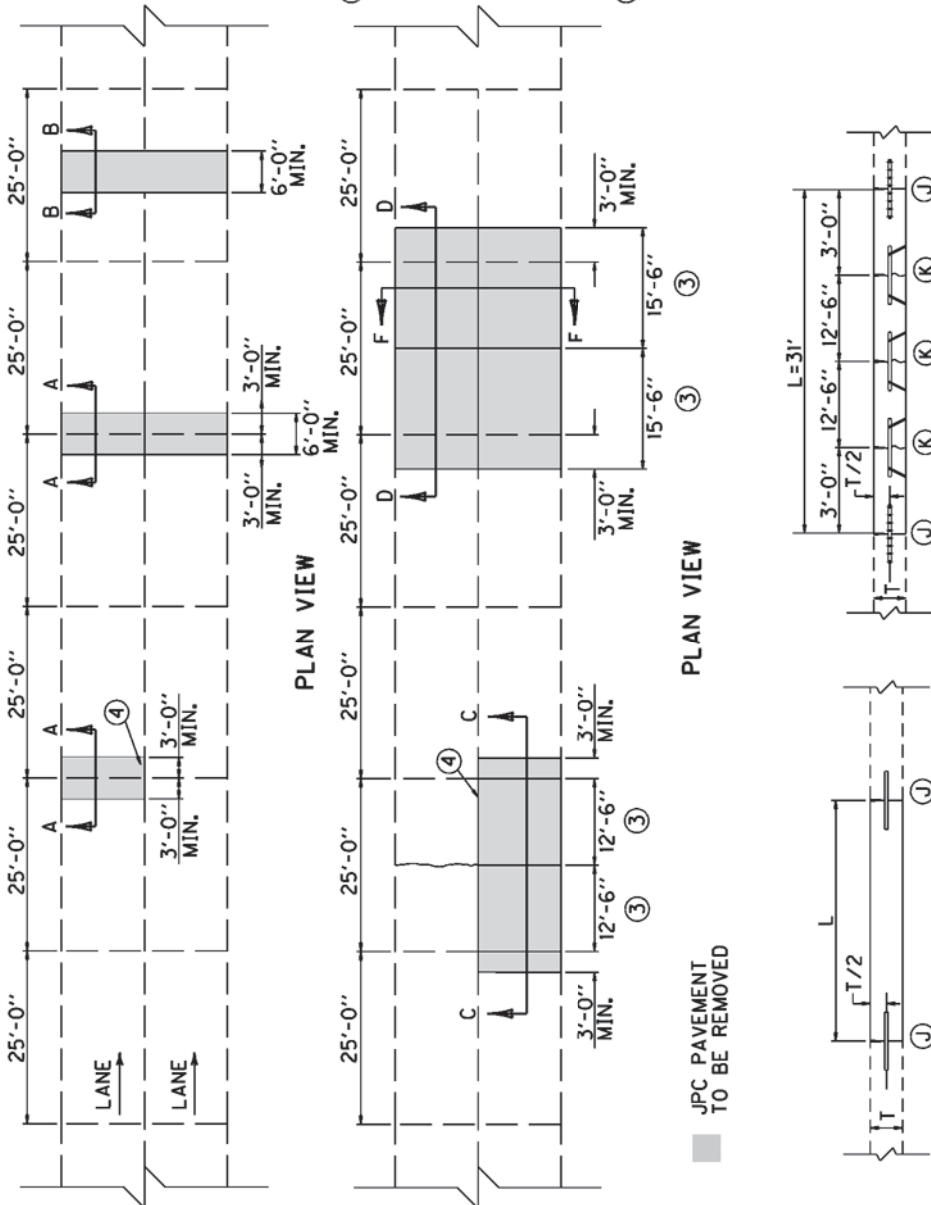
SECTION EEEE
LANE REPLACEMENT L<25'

SECTION CCCC
LANE REPLACEMENT WHERE ADJACENT
LANES OR JPC SHOULDERS WILL REMAIN

1. SAW AT LOCATIONS "J" AND ALONG LONGITUDINAL JOINT (IF ONLY ONE LANE IS REMOVED) FULL DEPTH WITHOUT DAMAGE TO EXISTING CONCRETE; SAW RELIEF JOINTS AS THE ENGINEER DIRECTS OR APPROVES. REMOVE THE EXISTING JPC PAVEMENT TO THE LENGTH AND AT THE LOCATIONS NOTED ELSEWHERE IN THE CONTRACT. L=6 FEET MINIMUM AND LOCATIONS "J" SHALL NOT BE CLOSER THAN 6 FEET TO ANY TRANSVERSE JOINT BEYOND THE REPAIR.
2. INSTALL SMOOTH, LOAD TRANSFER DOWELS (EXCEPT USE TIE BARS FOR SECTION CCCC); 18 INCHES LONG (SEE STANDARD DRAWING NO. RPS-020 FOR DOWEL SIZE) AT LOCATIONS "J". INSTALL DOWELS (OR TIE BARS FOR SECTION CCCC) IN THE EXISTING CONCRETE USING EPOXY TYPE IV. INSTALL DOWELS (OR TIE BARS FOR SECTION CCCC) ON 12 INCH CENTERS BEGINNING 12 INCHES FROM THE EDGE OF THE SLAB.
3. IF L IS GREATER THAN 20 FEET, INSTALL NEW LOAD TRANSFER ASSEMBLY(S) AND CONSTRUCT CONTRACTION JOINTS SUCH THAT THE DISTANCE BETWEEN JOINTS IN THE REPLACED SECTION IS NO LESS THAN 10 FEET OR MORE THAN 20 FEET. TRANSVERSE JOINTS SHALL BE SPACED APPROXIMATELY 15' EQUIDISTANT, BUT NOT LESS THAN 10 FEET OR NO MORE THAN 20 FEET. ADJUST JOINTS TO PROVIDE THE MINIMUM NUMBER OF JOINTS WITHOUT EXCEEDING THE 10-20 FOOT RANGE. INSTALL NEW LOAD TRANSFER ASSEMBLY(S) AND ALIGN LOAD TRANSFER ASSEMBLY(S) WITH AN EXISTING JOINT OR CRACK IN THE ADJACENT SLAB IF ONLY ONE LANE IS BEING REPLACED.
4. IF ONLY ONE LANE IS REMOVED, AND L>25', INSTALL NEW 1-INCH TIE BARS 18 INCHES LONG ON 30 INCH CENTERS IN THE LONGITUDINAL JOINT USING EPOXY TYPE IV. IF 2 OR MORE LANES ARE REMOVED, CONSTRUCT LONGITUDINAL JOINT(S) ACCORDING TO THE STANDARD DRAWING EXCEPT USE 1-INCH TIE BARS 18 INCHES LONG ON 30 INCH CENTERS. IF L<25', DO NOT TIE THE LONGITUDINAL JOINT TO THE EXISTING LANE; USE A BOND BREAKER MATERIAL APPROVED BY THE ENGINEER THAT WILL ASSURE NO INTERACTION WITH THE ADJACENT LANE.
5. REPLACE WITH NON-REINFORCED JPC PAVEMENT AND INSTALL CONTRACTION JOINTS AT LOCATIONS "K" AND CONTRACTION JOINTS (OR A CONTRACTION JOINT FOR LOCATION CCCC) AT LOCATIONS "J". SAW AND SEAL ALL JOINTS.
6. SEE "CROSS SECTION" FOR SECTION F.

KENTUCKY DEPARTMENT OF HIGHWAYS
15' JOINT SPACING
APPROVED _____ DATE _____ TECH. DIVISION OF DESIGN

1. SAW AT LOCATIONS "J" AND ALONG LONGITUDINAL JOINT (IF ONLY ONE LANE IS REMOVED) FULL DEPTH WITHOUT DAMAGE TO EXISTING CONCRETE. SAW RELIEF JOINTS AS THE ENGINEER DIRECTS OR APPROVES. REMOVE THE EXISTING JPC PAVEMENT TO THE LENGTH AND AT THE LOCATIONS NOTED ELSEWHERE IN THE CONTRACT. L=6 FEET MINIMUM AND LOCATIONS "J" SHALL NOT BE CLOSER THAN 6 FEET TO ANY TRANSVERSE JOINT BEYOND THE REPAIR.
2. INSTALL SMOOTH, LOAD TRANSFER DOWELS (EXCEPT USE TIE BARS FOR SECTION C), 18 INCHES LONG (SEE STANDARD DRAWING NO. RPS-020 FOR DOWEL SIZE) AT LOCATIONS "J". INSTALL DOWELS (OR TIE BARS FOR SECTION C) IN THE EXISTING CONCRETE USING EPOXY TYPE IV. INSTALL DOWELS (OR TIE BARS FOR SECTION C) ON 12 INCH CENTERS BEGINNING 12 INCHES FROM THE EDGE OF THE SLAB. IF L IS GREATER THAN 20 FEET, INSTALL NEW LOAD TRANSFER ASSEMBLY(S) AND CONSTRUCT CONTRACTION JOINTS SUCH THAT THE DISTANCE BETWEEN JOINTS IN THE REPLACED SECTION IS NO LESS THAN 10 FEET OR MORE THAN 20 FEET. TRANSVERSE JOINTS SHALL BE SPACED APPROXIMATELY 15' EQUIDISTANT, BUT NOT LESS THAN 10 FEET OR NO MORE THAN 20 FEET. ADJUST JOINTS TO PROVIDE THE MINIMUM NUMBER OF JOINTS WITHOUT EXCEEDING THE 10-20 FOOT RANGE. INSTALL NEW LOAD TRANSFER ASSEMBLY(S) AND ALIGN LOAD TRANSFER ASSEMBLY(S) WITH AN EXISTING JOINT OR CRACK IN THE ADJACENT SLAB IF ONLY ONE LANE IS BEING REPLACED.
3. IF ONLY ONE LANE IS REMOVED, AND L > 25', INSTALL NEW 1-INCH TIE BARS 18 INCHES LONG ON 30 INCH CENTERS IN THE LONGITUDINAL JOINT USING EPOXY TYPE IV. IF 2 OR MORE LANES ARE REMOVED, CONSTRUCT LONGITUDINAL JOINT(S) ACCORDING TO THE STANDARD DRAWING EXCEPT USE 1-INCH TIE BARS 18 INCHES LONG ON 30 INCH CENTERS. IF L < 25', DO NOT TIE THE LONGITUDINAL JOINT TO THE EXISTING LANE; USE A BOND BREAKER MATERIAL APPROVED BY THE ENGINEER THAT WILL ASSURE NO INTERACTION WITH THE ADJACENT LANE.
4. REPLACE WITH NON-REINFORCED JPC PAVEMENT AND INSTALL CONTRACTION JOINTS AT LOCATIONS "K" AND CONTRACTION JOINTS (OR A CONSTRUCTION JOINT FOR LOCATION C) AT LOCATIONS "J". SAW AND SEAL ALL JOINTS.
6. SEE "CROSS SECTION" FOR SECTION F.



SECTION A
JOINT REPLACEMENT

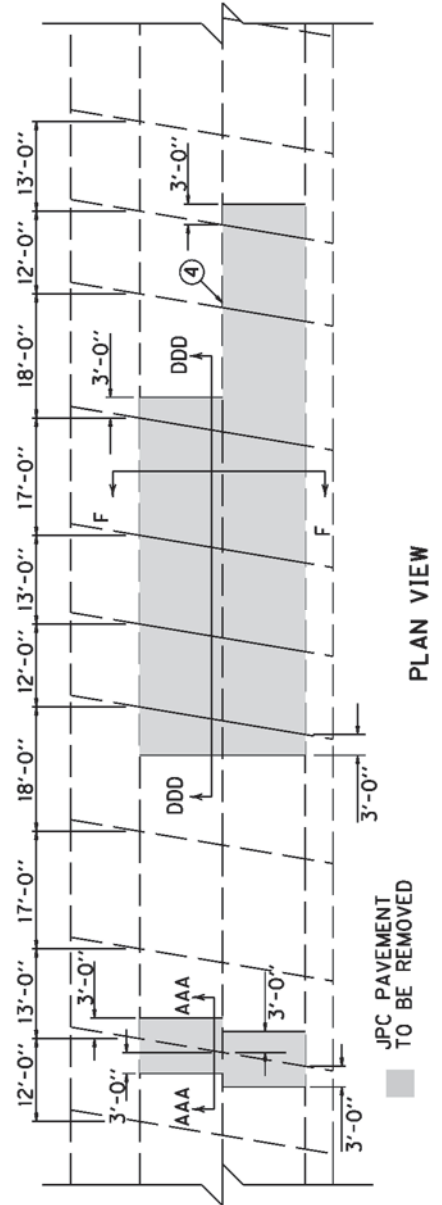
SECTION B
MID-SLAB REPLACEMENT

SECTION C
LANE REPLACEMENT WHERE ADJACENT LANES OR JPC SHOULDERS WILL REMAIN

SECTION D
FULL WIDTH REPLACEMENT (INCLUDING JPC SHOULDERS)

KENTUCKY DEPARTMENT OF HIGHWAYS
25' JOINT SPACING
APPROVED _____ DATE _____ TECHNICAL DIVISION OF DESIGN

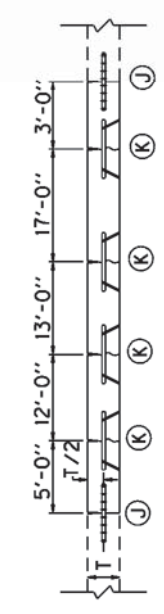
1. SAW AT LOCATIONS "J" AND ALONG LONGITUDINAL JOINT (IF ONLY ONE LANE IS REMOVED) FULL DEPTH WITHOUT DAMAGE TO EXISTING CONCRETE. SAW RELIEF JOINTS AS THE ENGINEER DIRECTS OR APPROVES. REMOVE THE EXISTING JPC PAVEMENT TO THE LENGTH AND AT THE LOCATIONS NOTED ELSEWHERE IN THE CONTRACT. L=6 FEET MINIMUM AND LOCATIONS "J" SHALL NOT BE CLOSER THAN 6 FEET TO ANY TRANSVERSE JOINT BEYOND THE REPAIR.
2. INSTALL SMOOTH, LOAD TRANSFER DOWELS (EXCEPT USE TIE BARS FOR SECTION DDD), 18 INCHES LONG (SEE STANDARD DRAWING NO. RPS-020 FOR DOWEL SIZE) AT LOCATIONS "J". INSTALL DOWELS (OR TIE BARS FOR SECTION DDD) IN THE EXISTING CONCRETE USING EPOXY TYPE IV. INSTALL DOWELS (OR TIE BARS FOR SECTION DDD) ON 12 INCH CENTERS BEGINNING 12 INCHES FROM THE EDGE OF THE SLAB. IF L IS GREATER THAN 20 FEET, INSTALL NEW LOAD TRANSFER ASSEMBLY(S) AND MATCH EXISTING JOINTS. INSTALL NEW LOAD TRANSFER ASSEMBLY(S) AND ALIGN LOAD TRANSFER ASSEMBLY(S) WITH EXISTING JOINTS IN ADJACENT SLABS.
- ④ IF ONLY ONE LANE IS REMOVED, AND $L > 25'$, INSTALL NEW 1-INCH TIE BARS 18 INCHES LONG ON 30 INCH CENTERS IN THE LONGITUDINAL JOINT USING EPOXY TYPE IV. IF 2 OR MORE LANES ARE REMOVED, CONSTRUCT LONGITUDINAL JOINT(S) ACCORDING TO THE STANDARD DRAWING EXCEPT USE 1-INCH TIE BARS 18 INCHES LONG ON 30 INCH CENTERS. IF $L > 25'$, DO NOT TIE THE LONGITUDINAL JOINT TO THE EXISTING LANE; USE A BOND BREAKER MATERIAL APPROVED BY THE ENGINEER THAT WILL ASSURE NO INTERACTION WITH THE ADJACENT LANE.
5. REPLACE WITH NON-REINFORCED JPC PAVEMENT AND INSTALL CONTRACTION JOINTS AT LOCATIONS "K". AND CONTRACTION JOINTS (OR A CONSTRUCTION JOINT FOR LOCATION DDD) AT LOCATIONS "J". SAW AND SEAL ALL JOINTS.
6. SEE "CROSS SECTION" FOR SECTION F.



PLAN VIEW

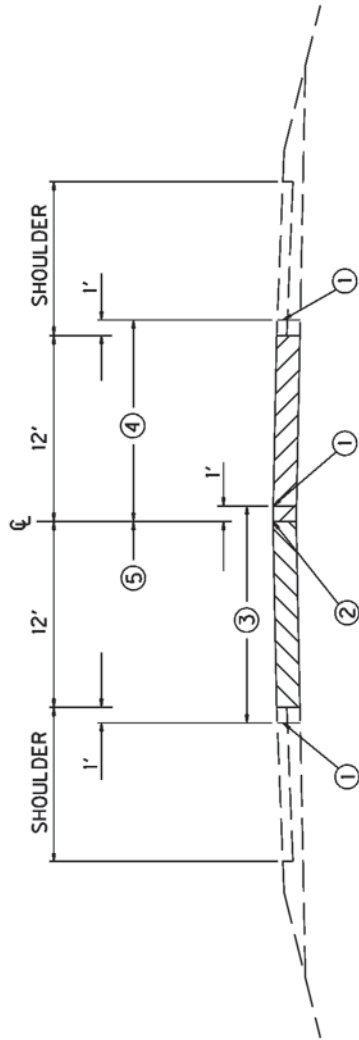


SECTION AAA
JOINT REPLACEMENT



SECTION DDD
LANE REPLACEMENT
(ALWAYS MATCH EXISTING JOINTS)

KENTUCKY DEPARTMENT OF HIGHWAYS
RANDOM SKEWED
APPROVED _____ DATE _____ TECHNICAL ENGINEER



SECTION F

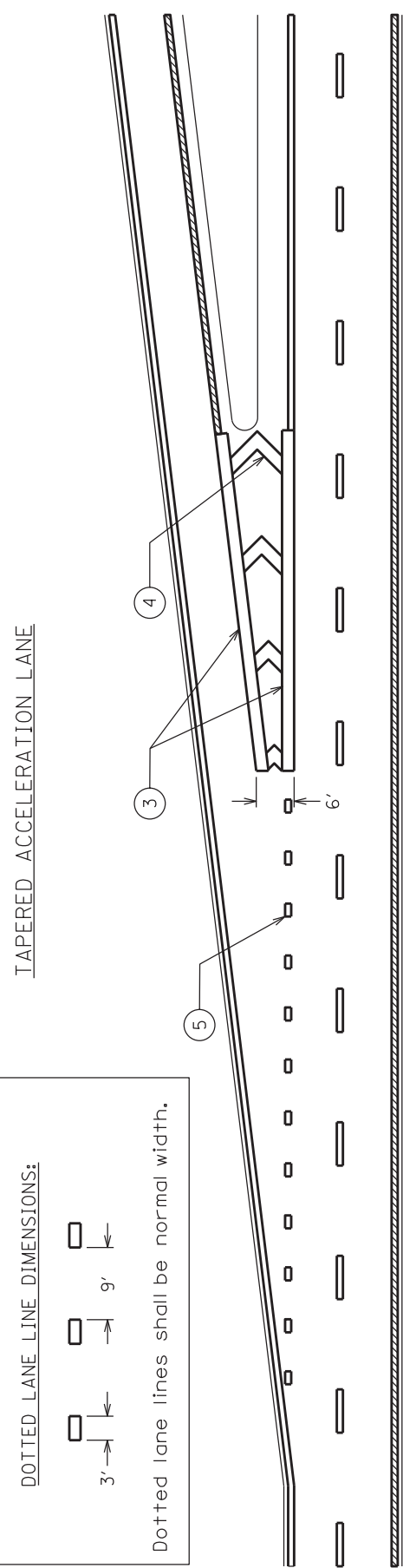
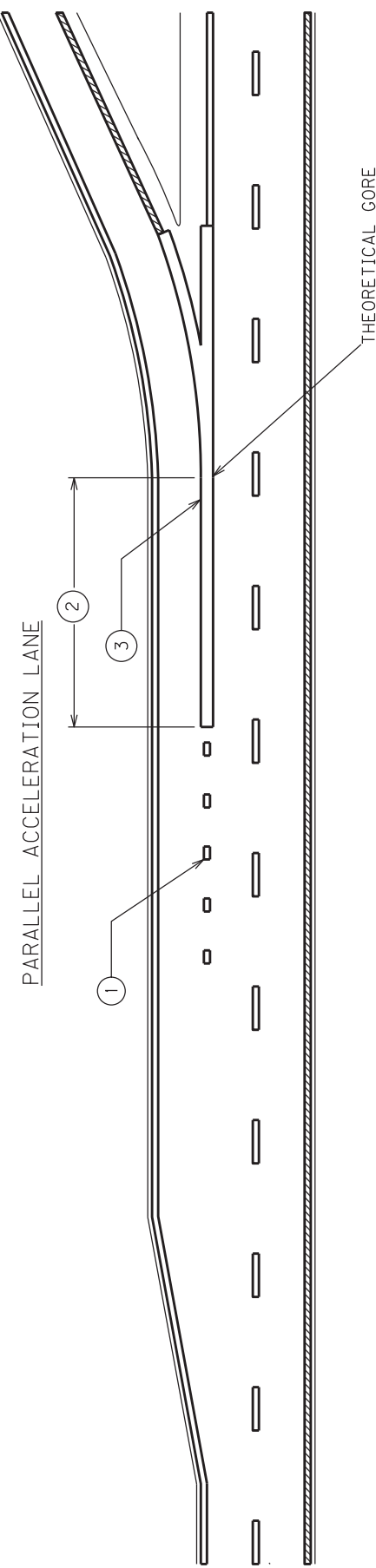
- ① SAW-CUT LINE. THIS ONE FOOT IS TO ALLOW FOR A FORM AND THE REMOVAL AND REPLACEMENT SHALL BE INCIDENTAL TO THE WORK, EXCEPT NEW ASPHALT MIXTURE SHALL BE PAID DIRECT ON A TONNAGE BASIS, AND NEW JPC PAVEMENT WILL BE PAID BY THE SQUARE YARD. COMPACT THE DGA BASE BY MECHANICAL TAMPERS TO THE ENGINEER'S SATISFACTION.
- ② EXISTING LONGITUDINAL JOINT.
- ③ FIRST SLAB REMOVAL LIMITS AND REPLACE 12-FOOT LANE.
- ④ SECOND SLAB REMOVAL LIMITS AND REPLACE 12-FOOT LANE.
- ⑤ THIS ONE FOOT IS TO ALLOW FOR A FORM ON THE FIRST POUR, AND A TEMPORARY PAVEMENT IS REQUIRED. THE DEPARTMENT WILL NOT REQUIRE REMOVAL OF THIS ONE FOOT IF THE GRADE OF THE EXISTING PAVEMENT IS ADEQUATE TO ENSURE THE NEW CONCRETE CAN BE PLACED AND FINISHED TO THE SATISFACTION OF THE ENGINEER. ANY TEMPORARY PAVEMENT IS INCIDENTAL TO JPC PAVEMENT.
6. THE ABOVE DRAWING DEPICTS THE ORDER OF SLAB REMOVAL WHEN BOTH ARE TO BE REMOVED AT THE SAME LOCATION. WHEN ONLY ONE SLAB OR LANE IS TO BE REMOVED, REMOVE AND REPLACE ACCORDING TO SECTION C, CC, OR CCCC. TRAFFIC CONTROL WILL SPECIFY WHICH LANE TO REMOVE FIRST.

KENTUCKY DEPARTMENT OF HIGHWAYS
CROSS SECTION
APPROVED _____ DATE _____ <small>TEAM DIVISION OF NELSON</small>

2016 APPLICABLE KENTUCKY STANDARD DRAWINGS

EROSION CONTROL BLANKET SLOPE INSTALLATION.....	RDI-040-01
EROSION CONTROL BLANKET CHANNEL INSTALLATION.....	RDI-041-01
TEMPORARY SILT FENCE	RDX-210-03
TEMPORARY SILT FENCE WITH WOVEN WIRE FENCE FABRIC	RDX-215-01
SILT TRAP - TYPE A.....	RDX-220-05
SILT TRAP - TYPE B	RDX-225-01
SILT TRAP - TYPE C	RDX-230-01
CURVE WIDENING AND SUPERELEVATION TRANSITIONS.....	RGS-001-07
SUPERELEVATION FOR MULTILANE PAVEMENT.....	RGS-002-06
MISCELLANEOUS STANDARDS	RGX-001-06
JOINTED PLAIN CONCRETE PAVEMENT FOR SHOULDERS AND MEDIANS.....	RPN-001-07
PAVEMENT TRANSITIONS AND JOINT DETAILS FOR JOINTED PLAIN CONCRETE PAVEMENT AT JOINTED PLAIN CONCRETE PAVEMENT	RPN-015-05
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPN-020-04
CONCRETE PAVEMENT JOINT DETAILS.....	RPS-010-11
EXPANSION AND CONTRACTION JOINT - LOAD TRANSFER ASSEMBLIES.....	RPS-020-14
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-030-06
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-031-06
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-032-06
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-033-07
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-034-07
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CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-036-06
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-037-06
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-038-06
CONCRETE PAVEMENT JOINTS - TYPES AND SPACING.....	RPS-039-06
HOT - Poured ELASTIC JOINT SEALS FOR CONCRETE PAVEMENT.....	RPX-015-04
LANE CLOSURE TWO-LANE HIGHWAY	TTC-100-04
LANE CLOSURE MULTI-LANE HIGHWAY CASE I	TTC-115-03
DOUBLE LANE CLOSURE	TTC-125-03
SHOULDER CLOSURE.....	TTC-135-02
PAVEMENT CONDITION WARNING SIGNS	TTD-125-02
MOBILE OPERATION FOR PAINT STRIPING CASE I	TTS-100-02
MOBILE OPERATION FOR PAINT STRIPING CASE II.....	TTS-105-02
MOBILE OPERATION FOR PAINT STRIPING CASE III.....	TTS-110-02
MOBILE OPERATION FOR PAINT STRIPING CASE IV	TTS-115-02
MOBILE OPERATION FOR DURABLE STRIPING CASE I	TTS-120-02
MOBILE OPERATION FOR DURABLE STRIPING CASE II	TTS-125-02
MOBILE OPERATION FOR DURABLE STRIPING CASE III.....	TTS-130-02
MOBILE OPERATION FOR DURABLE STRIPING CASE IV.....	TTS-135-02

COUNTY OF	ITEM NO.	SHEET NO.



DOTTED LANE LINE DIMENSIONS:

3' → ← 3' 9' → ←

Dotted lane lines shall be normal width.

LEGEND	
MARKINGS	WHITE
	YELLOW

- ① IN A PARALLEL ACCELERATION LANE, DOTTED LANE LINES SHALL BE INSTALLED FOR AT LEAST HALF THE LENGTH OF THE FULL-WIDTH ACCELERATION LANE PLUS TAPER MEASURED FROM THE THEORETICAL GORE. DOTTED EXTENSIONS MAY BE INSTALLED THROUGH THE TAPER IF DESIRED.
- ② WIDE SOLID LINE SHALL EXTEND DOWNSTREAM FROM THE THEORETICAL GORE FOR AT LEAST 1/4 THE LENGTH OF THE FULL-WIDTH ACCELERATION LANE PLUS TAPER.
- ③ 12" WIDE SOLID WHITE CHANNELIZATION LINES.
- ④ GORE AREA CHEVRON MARKINGS ARE OPTIONAL ON ENTRANCE RAMPS. SEE SEPIA 045 FOR DETAILS ON CHEVRON MARKINGS.
- ⑤ IN A TAPERED ACCELERATION LANE, DOTTED EXTENSIONS MAY BE INSTALLED AS SHOWN.

KENTUCKY
DEPARTMENT OF HIGHWAYS

TYPICAL ENTRANCE RAMP MARKINGS FOR INTERSTATES AND PARKWAYS

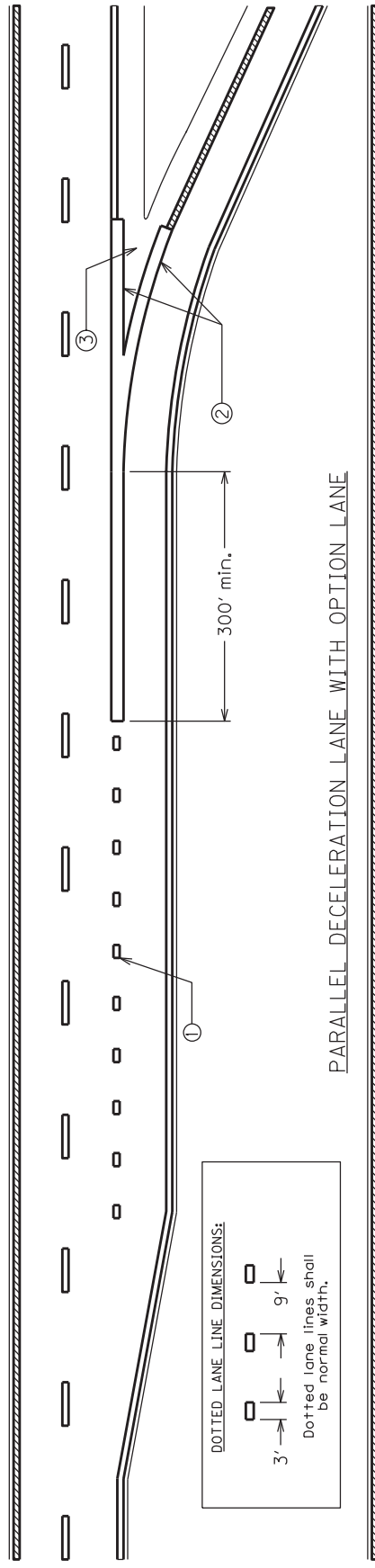
SUBMITTED: *R. [Signature]* DATE: 11-30-18

039

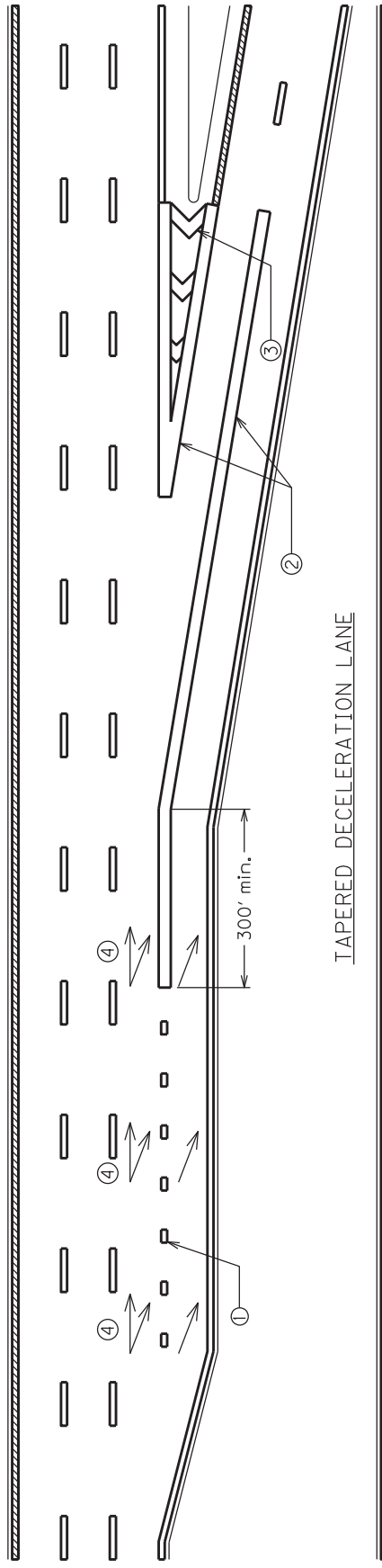
DRAWING NOT TO SCALE

COUNTY OF	ITEM NO.	SHEET NO.

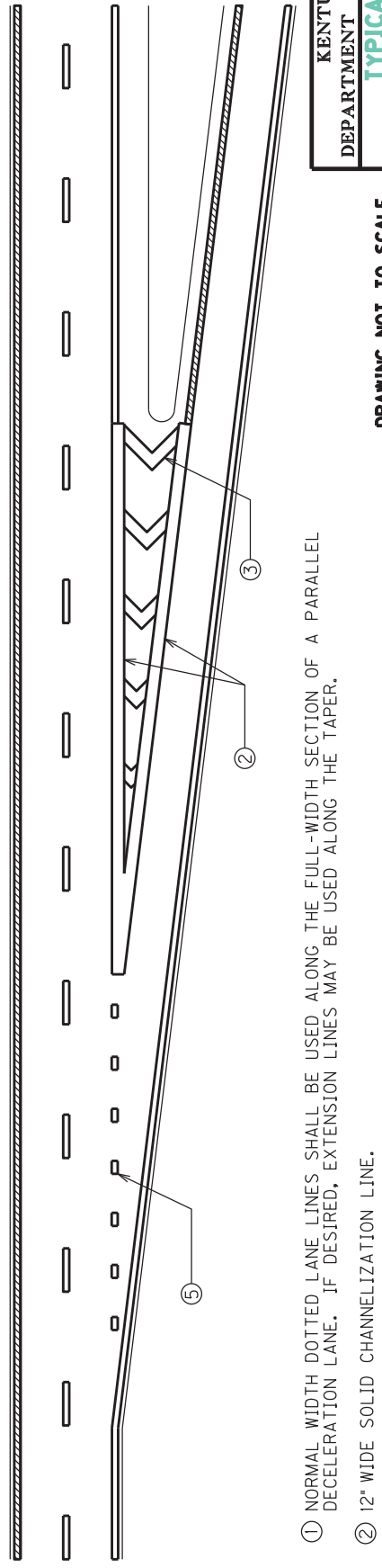
PARALLEL DECELERATION LANE



PARALLEL DECELERATION LANE WITH OPTION LANE



TAPERED DECELERATION LANE



- ① NORMAL WIDTH DOTTED LANE LINES SHALL BE USED ALONG THE FULL-WIDTH SECTION OF A PARALLEL DECELERATION LANE. IF DESIRED, EXTENSION LINES MAY BE USED ALONG THE TAPER.
- ② 12" WIDE SOLID CHANNELIZATION LINE.
- ③ CORE AREA CHEVRON MARKINGS SHOULD BE USED IN ACCORDANCE WITH SEPIA 045.
- ④ LANE USE ARROWS MAY BE USED WHEN THERE IS AN OPTION LANE. IF USED, A MINIMUM OF THREE ARROWS PER LANE SHOULD BE PLACED AS SHOWN AND SPACED AT APPROXIMATELY 1/4 MILE.
- ⑤ FOR TAPERED DECELERATION LANES, DOTTED EXTENSIONS MAY BE INSTALLED AS SHOWN.

DRAWING NOT TO SCALE

LEGEND	
MARKINGS	
▭	WHITE
▨	YELLOW

KENTUCKY
DEPARTMENT OF HIGHWAYS

TYPICAL EXIT RAMP MARKINGS FOR INTERSTATES AND PARKWAYS

Page 6 of 77

DATE 11-30-18

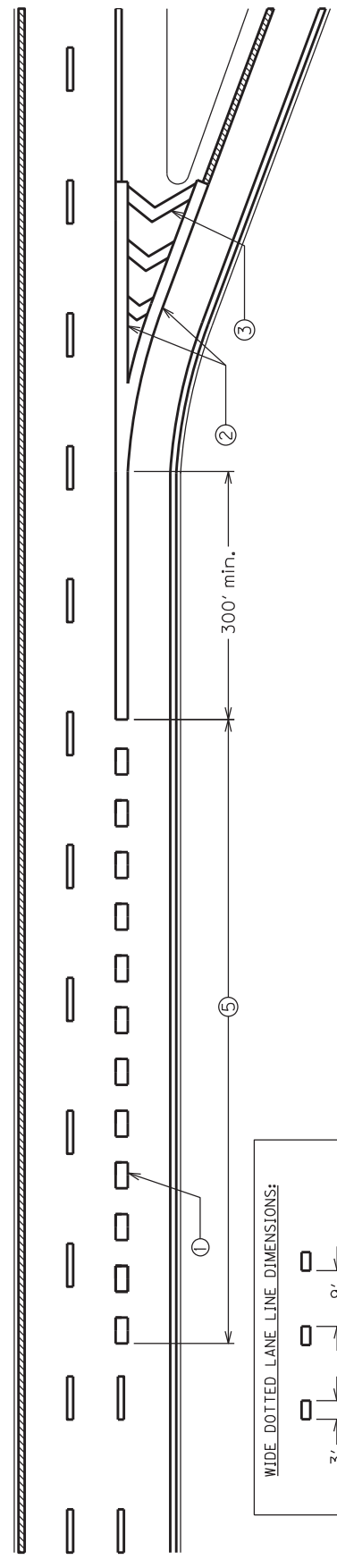
046

Page 1 of 2

Submitted *R. [Signature]*

COUNTY OF	ITEM NO.	SHEET NO.

SINGLE-LANE LANE DROP

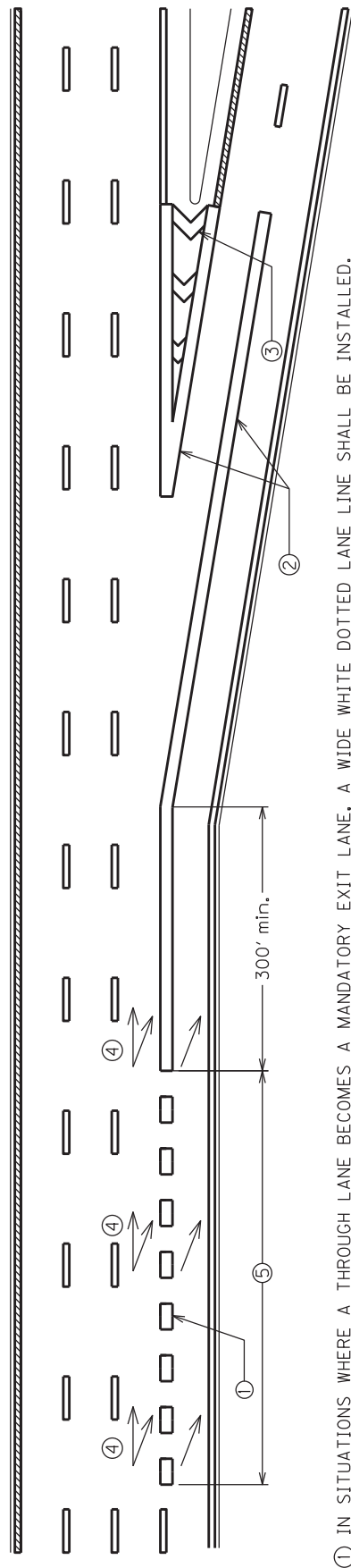


WIDE DOTTED LANE LINE DIMENSIONS:

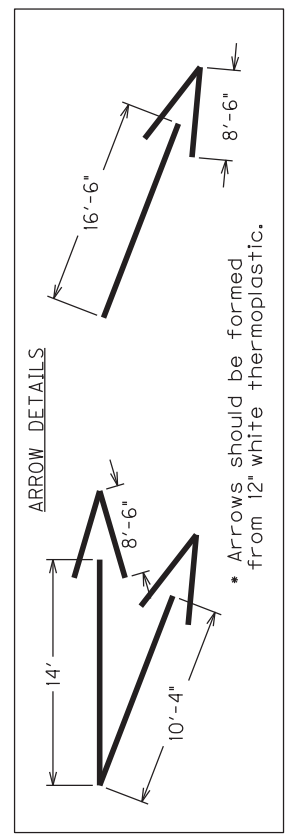
3' → □ → 3' → □ → 9' → □ →

Dotted lane lines shall be twice the normal width in lane drop scenarios.

LANE DROP WITH AN OPTION LANE



- ① IN SITUATIONS WHERE A THROUGH LANE BECOMES A MANDATORY EXIT LANE, A WIDE WHITE DOTTED LANE LINE SHALL BE INSTALLED.
- ② 12" WIDE SOLID CHANNELIZATION LINE.
- ③ CORE AREA CHEVRON MARKINGS SHALL BE USED IN LANE DROP SCENARIOS AND WHERE AN INTERSTATE OR PARKWAY SPLITS. SEE SEP/JA 045 FOR DETAILS ON GORE AREA CHEVRON MARKINGS.
- ④ LANE USE ARROWS MAY BE USED WHEN THERE IS AN OPTION LANE. A MINIMUM OF THREE ARROWS PER LANE SHOULD BE PLACED AS SHOWN AND SPACED AT APPROXIMATELY 1/4 MILE.
- ⑤ DOTTED LANE LINES SHOULD EXTEND BACK AN APPROXIMATE DISTANCE OF 1/2 MILE FROM THE THEORETICAL GORE.



DRAWING NOT TO SCALE

LEGEND	
MARKINGS	WHITE
	YELLOW

KENTUCKY
DEPARTMENT OF HIGHWAYS

TYPICAL EXIT RAMP MARKINGS FOR INTERSTATES AND PARKWAYS

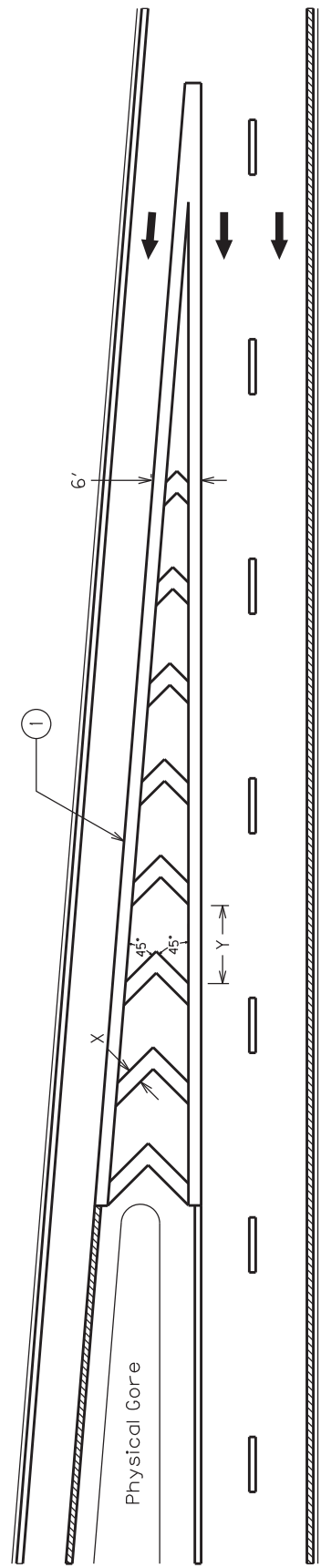
11-30-16
DATE

R. [Signature]
SUBMITTED

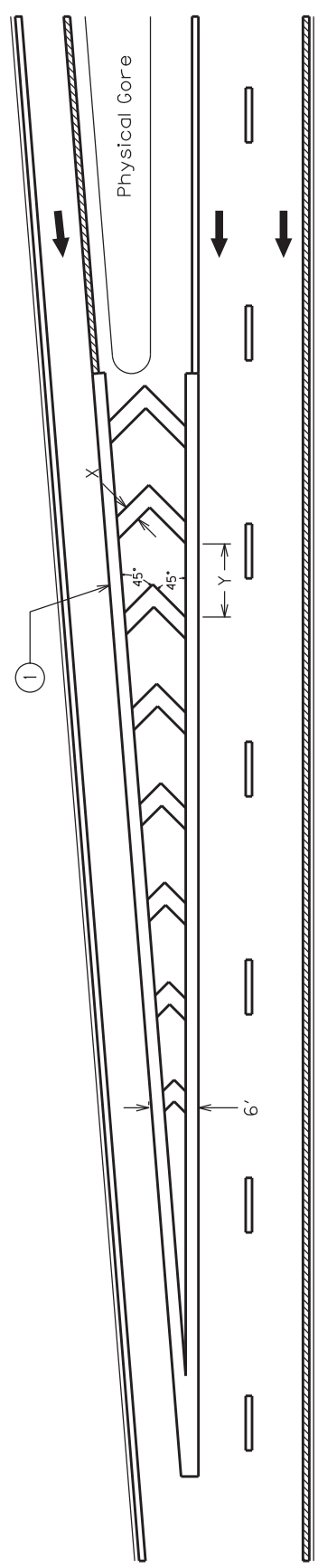
Page 2 of 2

COUNTY OF	ITEM NO.	SHEET NO.

TYPICAL EXIT RAMP GORE MARKINGS



TYPICAL ENTRANCE RAMP GORE MARKINGS



- 1 12" SOLID WHITE LINE TO BE INSTALLED AS SHOWN. THIS LINE SHOULD TERMINATE AT THE PHYSICAL GORE.
- 2 CHEVRON MARKINGS SHOULD BEGIN WHEN THE 12" WHITE CHANNELIZING LINES ARE APPROXIMATELY 6' APART.
- 3 A MINIMUM OF THREE CHEVRON MARKINGS SHOULD BE USED. IF AT LEAST THREE MARKINGS WILL NOT FIT INTO THE GORE AREA, NO CHEVRON MARKINGS SHOULD BE PLACED.
- 4 THE MINIMUM CHEVRON MARKING WIDTH (X) SHOULD BE 2'. THE MINIMUM SPACING BETWEEN CHEVRON MARKINGS (Y) SHOULD BE 20". THESE DIMENSIONS MAY BE INCREASED. FOR EACH ADDITIONAL 1' OF WIDTH (X), INCREASE THE SPACING (Y) BY 10'.
- 5 GORE AREA CHEVRON MARKINGS SHALL BE THERMOPLASTIC.

DRAWING NOT TO SCALE

LEGEND	
MARKINGS	
▭	WHITE
▨	YELLOW

KENTUCKY
DEPARTMENT OF HIGHWAYS

TYPICAL MARKINGS FOR GORE AREAS

SUBMITTED: *R. [Signature]* 11-30-18 DATE
045

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
- II. Nondiscrimination of Employees (KRS 344)

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.

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

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

Revised: January 25, 2017

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.

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



WWW.WAGEHOUR.DOL.GOV

PART IV
INSURANCE

INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

- 1) Commercial General Liability-Occurrence form – not less than \$2,000,000 General aggregate, \$2,000,000 Products & Completed Aggregate, \$1,000,000 Personal & Advertising, \$1,000,000 each occurrence.
- 2) Automobile Liability- \$1,000,000 per accident
- 3) Employers Liability:
 - a) \$100,000 Each Accident Bodily Injury
 - b) \$500,000 Policy limit Bodily Injury by Disease
 - c) \$100,000 Each Employee Bodily Injury by Disease
- 4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
 - a) "policy contains no deductible clauses."
 - b) "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."
- 5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

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

PART V
BID ITEMS

PROPOSAL BID ITEMS

192202

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Report Date 5/31/19

Section: 0001 - JPC INLAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00001		DGA BASE	500.00	TON		\$	
0020	02060		PCC PAVEMENT DIAMOND GRINDING	25,000.00	SQYD		\$	
0030	02073		JPC PAVEMENT-9 IN	7,268.00	SQYD		\$	
0040	02091		REMOVE PAVEMENT	7,018.00	SQYD		\$	
0050	02110		PARTIAL DEPTH PATCHING (FIBERCRETE)	200.00	CUFT		\$	
0060	02115		SAW-CLEAN-RESEAL TVERSE JOINT	25,000.00	LF		\$	
0070	02116		SAW-CLEAN-RESEAL LONGIT JOINT	75,000.00	LF		\$	
0080	06556		PAVE STRIPING-DUR TY 1-6 IN W	24,000.00	LF		\$	
0090	06557		PAVE STRIPING-DUR TY 1-6 IN Y	24,000.00	LF		\$	
0100	06568		PAVE MARKING-THERMO STOP BAR-24IN	30.00	LF		\$	
0110	06574		PAVE MARKING-THERMO CURV ARROW	2.00	EACH		\$	
0120	08540		JOINT SEALING (SAW AND SEAL NEW JPC CENTERLINE JOINT)	1,000.00	LF		\$	
0130	10020NS		FUEL ADJUSTMENT	1,810.00	DOLL	\$1.00	\$	\$1,810.00
0140	21415ND		EROSION CONTROL	1.00	LS		\$	

Section: 0002 - TRAFFIC SIGNAL LOOPS

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0150	04792		CONDUIT-1 IN	20.00	LF		\$	
0160	04793		CONDUIT-1 1/4 IN	20.00	LF		\$	
0170	04811		ELECTRICAL JUNCTION BOX TYPE B	1.00	EACH		\$	
0180	04820		TRENCHING AND BACKFILLING	30.00	LF		\$	
0190	04850		CABLE-NO. 14/1 PAIR	900.00	LF		\$	
0200	04894		PREFORMED LOOP/LEAD-IN	60.00	LF		\$	
0210	20453ES835		PREFORMED QUADRAPOLE LOOPS	204.00	LF		\$	

Section: 0003 - MAINTAIN AND CONTROL TRAFFIC

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0220	02014		BARRICADE-TYPE III	10.00	EACH		\$	
0230	02562		TEMPORARY SIGNS	1,000.00	SQFT		\$	
0240	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0250	02671		PORTABLE CHANGEABLE MESSAGE SIGN	6.00	EACH		\$	
0260	02775		ARROW PANEL	1.00	EACH		\$	

Section: 0004 - DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0270	02569		DEMOBILIZATION	1.00	LS		\$	