

**JOB SPECIAL PROVISIONS TABLE OF CONTENTS (ROADWAY)**

(Job Special Provisions shall prevail over General Special Provisions whenever in conflict therewith.)

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Job No.: JST0017B

Route: I-70

County: Cooper

 <p>RONNIE L. WILLIAMS NUMBER PE-2010000879 PROFESSIONAL ENGINEER</p> <p>THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY</p>	<p><b>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION</b> 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65102 Phone 1-888-275-6636</p> <p><b>Burns &amp; McDonnell Engineering Company, Inc.</b> 9400 Ward Parkway Kansas City, MO 64114 Certificate of Authority: 000165 Consultant Phone: 816.363.7231</p> <p>If a seal is present on this sheet, JSP's have been electronically sealed and dated.</p> <p>JOB NUMBER: JST0017B COOPER COUNTY, MO DATE PREPARED: 11/13/2025</p> <p>ADDENDUM DATE: <u>1/9/2026</u></p>
<p>Only the following items of the Job Special Provisions (Roadway) are authenticated by this seal: All</p>	

**JOB  
SPECIAL PROVISION**

A. General – State JSP-09-03L

**1.0 Description.** The Federal Government is not participating in the cost of construction of this project.

**1.1** This contract requires payment of the prevailing hourly rate of wages for each craft or type of worker required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations. The current State Wage Rates can be found on the Missouri Department of Transportation web page at [www.modot.org](http://www.modot.org) under "Doing Business with MoDOT", "Contractor Resources" for the applicable bid opening. This supplemental bidding document has important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

State Wage Rates

**1.2** The following documents are available on the Missouri Department of Transportation web page at [www.modot.org](http://www.modot.org) under "Doing Business with MoDOT"; "Standards and Specifications". The effective version shall be determined by the letting date of the project.

General Provisions & Supplemental Specifications

Supplemental Plans to July 2025 Missouri Standard Plans  
For Highway Construction

These supplemental bidding documents contain all current revisions to the published versions and have important legal consequences. It shall be conclusively presumed that they are in the bidder's possession, and they have been reviewed and used by the bidder in the preparation of any bid submitted on this project.

B. Contract Liquidated Damages JSP- 13-01D

**1.0 Description.** Liquidated Damages for failure or delay in completing the work on time for this contract shall be in accordance with Sec 108.8. The liquidated damages include separate amounts for road user costs and contract administrative costs incurred by the Commission.

**2.0 Period of Performance.** Prosecution of work is expected to begin on the date specified below in accordance with Sec 108.2. Regardless of when the work is begun on this contract, all work on all projects shall be completed on or before the date specified below. Completion by this date shall be in accordance with the requirements of Sec 108.7.1.

Notice to Proceed: March 9, 2026  
Contract Completion Date: December 31, 2027

**2.1 Calendar Days and Completion Dates.** Completion of the project is required as specified herein. The count of calendar days will begin on the date the contractor starts any construction operations on the project.

Project	Calendar Days	Daily Road User Cost
JST0017B	N/A	\$7,600

**3.0 Liquidated Damages for Contract Administrative Costs.** Should the contractor fail to complete the work on or before the contract completion date specified in Section 2.0, or within the number of calendar days specified in Section 2.1, whichever occurs first, the contractor will be charged contract administrative liquidated damages in accordance with Sec 108.8 in the amount of **\$3,000** per calendar day for each calendar day, or partial day thereof, that the work is not fully completed. For projects in combination, these damages will be charged in full for failure to complete one or more projects within the specified contract completion date or calendar days.

**4.0 Liquidated Damages for Road User Costs.** Should the contractor fail to complete the work on or before the contract completion date specified in Section 2.0, or within the number of calendar days specified in Section 2.1, whichever occurs first, the contractor will be charged road user costs in accordance with Sec 108.8 in the amount specified in Section 2.1 for each calendar day, or partial day thereof, that the work is not fully completed. These damages are in addition to the contract administrative damages and any other damages as specified elsewhere in this contract.

C. Work Zone Traffic Management JSP-02-06N

**1.0 Description.** Work zone traffic management shall be in accordance with applicable portions of Division 100 and Division 600 of the Standard Specifications, and specifically as follows.

**1.1 Maintaining Work Zones and Work Zone Reviews.** The Work Zone Specialist (WZS) shall maintain work zones in accordance with Sec 616.3.3 and as further stated herein. The WZS shall coordinate and implement any changes approved by the engineer. The WZS shall ensure all traffic control devices are maintained in accordance with Sec 616, the work zone is operated within the hours specified by the engineer, and will not deviate from the specified hours without prior approval of the engineer. The WZS is responsible to manage work zone delay in accordance with these project provisions. When requested by the engineer, the WZS shall submit a weekly report that includes a review of work zone operations for the week. The report shall identify any problems encountered and corrective actions taken. Work zones are subject to unannounced inspections by the engineer and other departmental staff to corroborate the validity of the WZS's review and may require immediate corrective measures and/or additional work zone monitoring.

**1.2 Work Zone Deficiencies.** Failure to make corrections on time may result in the engineer suspending work. The suspension will be non-excusable and non-compensable regardless if road user costs are being charged for closures.

**2.0 Traffic Management Schedule.**

**2.1** Traffic management schedules shall be submitted to the engineer for review prior to the start of work and prior to any revisions to the traffic management schedule. The traffic management schedule shall include the proposed traffic control measures, the hours traffic control will be in place, and work hours.

**2.2** The traffic management schedule shall conform to the limitations specified in Sec 616 regarding lane closures, traffic shifts, road closures and other width, height and weight restrictions.

**2.3** The engineer shall be notified as soon as practical of any postponement due to weather, material or other circumstances.

**2.4** In order to ensure minimal traffic interference, the contractor shall schedule lane closures for the absolute minimum amount of time required to complete the work. Lanes shall not be closed until material is available for continuous construction and the contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

**2.5 Traffic Congestion.** The contractor shall, upon approval of the engineer, take proactive measures to reduce traffic congestion in the work zone. The contractor shall immediately implement appropriate mitigation strategies whenever traffic congestion reaches an excess of **15 minutes** to prevent congestion from escalating beyond this delay threshold. If disruption of the traffic flow occurs and traffic is backed up in queues equal to or greater than the delay time threshold listed above, then the contractor shall immediately review the construction operations which contributed directly to disruption of the traffic flow and make adjustments to the operations to prevent the queues from reoccurring. Traffic delays may be monitored by physical presence on site or by utilizing real-time travel data through the work zone that generate text and/or email notifications where available. The engineer monitoring the work zone may also notify the contractor of delays that require prompt mitigation. The contractor may work with the engineer to determine what other alternative solutions or time periods would be acceptable. When a Work Zone Analysis Spreadsheet is provided, the contractor will find it in the electronic deliverables on MoDOT's Online Plans Room. The contractor may refer to the Work Zone Analysis Spreadsheet for detailed information on traffic delays.

### **2.5.1 Traffic Safety.**

**2.5.1.1 Recurring Congestion.** Where traffic queues routinely extend to within 1000 feet of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet of the ROAD WORK AHEAD, or similar, sign on an undivided highway, the contractor shall extend the advance warning area, as approved by the engineer.

**2.5.1.2 Non-Recurring Congestion.** When traffic queues extend to within 1000 feet of the ROAD WORK AHEAD, or similar, sign on a divided highway or to within 500 feet of the ROAD WORK AHEAD, or similar, sign on an undivided highway infrequently, the contractor shall deploy a means of providing advance warning of the traffic congestion, as approved by the engineer. The warning location shall be no less than 1000 feet and no more than 0.5 mile in advance of the end of the traffic queue on divided highways and no less than 500 feet and no more than 0.5 mile in advance of the end of the traffic queue on undivided highways.

**2.6 Transportation Management Plan.** The contractor Work Zone Specialist (WZS) shall review the Transportation Management Plan (TMP), found as an electronic deliverable on MoDOT's Online Plans Room and discuss the TMP with the engineer during the preconstruction conference. Throughout the construction project, the WZS is responsible for updating any changes or modifications to the TMP and getting those changes approved by the engineer a minimum of two weeks in advance of implementation. The WZS shall participate in the post construction conference and provide recommendations on how future TMPs can be improved.

### 3.0 Work Hour Restrictions.

**3.1** Except for emergency work, as determined by the engineer, and long term lane closures required by project phasing, all lanes shall be scheduled to be open to traffic during the five major holiday periods shown below, from 12:00 noon on the last working day preceding the holiday until 6:00 a.m. on the first working day subsequent to the holiday unless otherwise approved by the engineer.

Memorial Day

Labor Day

Thanksgiving

Christmas

New Year's Day

**3.1.1 Independence Day.** The lane restrictions specified in Section 3.1 shall also apply to Independence Day, except that the restricted periods shall be as follows:

When Independence Day falls on:	The Holiday is Observed on:	Halt Lane Closures beginning at:	Allow Lane Closures to resume at:
Sunday	Monday	Noon on Friday	6:00 a.m. on Tuesday
Monday	Monday	Noon on Friday	6:00 a.m. on Tuesday
Tuesday	Tuesday	Noon on Monday	6:00 a.m. on Wednesday
Wednesday	Wednesday	Noon on Tuesday	6:00 a.m. on Thursday
Thursday	Thursday	Noon on Wednesday	6:00 a.m. on Friday
Friday	Friday	Noon on Thursday	6:00 a.m. on Monday
Saturday	Friday	Noon on Thursday	6:00 a.m. on Monday

**3.1.2** The contractor's working hours will be restricted for the Special Events as shown below. All lanes shall be scheduled to be open to traffic during these Special Events.

#### University of Missouri Home Football Games

**3.1.3** The contractor's working hours will be restricted for the Special Events as shown below. All ramps to the Route 179 interchange shall be scheduled to be open to traffic during these Special Events.

#### Missouri River Valley Steam Engine Association

**3.2** The contractor shall not perform any construction operation on the roadway, roadbed or active lanes, including the hauling of material within the project limits, during restricted periods, holiday periods or other special events specified in the contract documents.

**3.3** Any work requiring a reduction in the number of through lanes of traffic shall be completed during nighttime hours. Nighttime hours shall be considered to be 7:00 p.m. to 6:00 a.m. for this project.

**3.4** The contractor shall not alter the start time, ending time, or a reduction in the number of through lanes of traffic or ramp closures without advance notification and approval by the engineer. The only work zone operation approved to begin 30 minutes prior to a reduction in through traffic lanes or ramp closures is the installation of traffic control signs. Should lane closures be placed or remain in place, prior to the approved starting time or after the approved ending time, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to, increased construction administration cost, potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delays, with a resulting cost to the traveling public. These damages are not easily computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of **\$1,000 per 15 minute increment** for each 15 minutes that the temporary lane closures are in place and not open to traffic in excess of the limitation as specified elsewhere in this special provision. It shall be the responsibility of the engineer to determine the quantity of unapproved closure time.

**3.4.1** The said liquidated damages specified will be assessed regardless if it would otherwise be charged as liquidated damages under the Missouri Standard Specification for Highway Construction, as amended elsewhere in this contract.

#### **4.0 Detours and Lane Closures.**

**4.1** When a changeable message sign (CMS) is provided, the contractor shall use the CMS to notify motorists of future traffic disruption and possible traffic delays one week before traffic is shifted to a detour or prior to lane closures. The CMS shall be installed at a location as approved or directed by the engineer. If a CMS with Communication Interface is required, then the CMS shall be capable of communication prior to installation on right of way. All messages planned for use in the work zone shall be approved and authorized by the engineer or its designee prior to deployment. When permanent dynamic message signs (DMS) owned and operated by MoDOT are located near the project, they may also be used to provide warning and information for the work zone. Permanent DMS shall be operated by the TMC, and any messages planned for use on DMS shall be approved and authorized by the TMC at least 72 hours in advance of the work.

**4.2** At least one lane of traffic in each direction shall be maintained at all times except for brief intervals of time required when the movement of the contractor's equipment will seriously hinder the safe movement of traffic. Periods during which the contractor will be allowed to interrupt traffic will be designated by the engineer.

**5.0 Basis of Payment.** No direct payment will be made to the contractor to recover the cost of equipment, labor, materials, or time required to fulfill the above provisions, unless specified elsewhere in the contract document. All authorized changes in the traffic control plan shall be provided for as specified in Sec 616.

#### **D. Early Notice to Proceed**

**1.0 Description.** The Notice to Proceed date for this contract shall be **March 9, 2025**.

**2.0** All contract forms shall be executed and returned to the Commission prior to the Notice to Proceed being issued. Submittal and signatures for all executed contract forms, the exception being the performance bond, will be by standard electronic methods.

**3.0. Basis of Payment.** No direct pay shall be provided for any labor, equipment, time, or materials necessary to complete this work. The contractor shall have no claim, or basis for any claim or suit whatsoever, resulting from compliance with this provision. No time extensions will be granted due to the contractor's failure to comply with this provision.

**E. Emergency Provisions and Incident Management JSP-90-11A**

**1.0** The contractor shall have communication equipment on the construction site or immediate access to other communication systems to request assistance from law enforcement or other emergency agencies for incident management. In case of traffic accidents or the need for law enforcement to direct or restore traffic flow through the job site, the contractor shall notify law enforcement or other emergency agencies immediately as needed. The area engineer's office shall also be notified when the contractor requests emergency assistance.

**2.0** In addition to the 911 emergency telephone number for ambulance, fire or law enforcement services, the following agencies may also be notified for accident or emergency situation within the project limits.

Missouri Highway Patrol 573-751-1000	
City of Boonville	Cooper County
Fire: 660-882-2606	Sheriff: 660-882-2771
Police: 660-882-2727	

**2.1** This list is not all inclusive. Notification of the need for wrecker or tow truck services will remain the responsibility of the appropriate law enforcement agency.

**2.2** The contractor shall notify law enforcement and emergency agencies before the start of construction to request their cooperation and to provide coordination of services when emergencies arise during the construction at the project site. When the contractor completes this notification with law enforcement and emergency agencies, a report shall be furnished to the engineer on the status of incident management.

**3.0** No direct pay will be made to the contractor to recover the cost of the communication equipment, labor, materials or time required to fulfill the above provisions.

**F. Project Contact for Contractor/Bidder Questions JSP-96-05A**

**1.0** All questions concerning this project during the bidding process shall be forwarded to the project contact listed below.

Zach Osman, Project Contact  
Statewide Improve I-70 Program  
830 MoDOT Drive  
Jefferson City, MO 65102

Telephone Number: 573-508-5062

Email: [zachary.osman@modot.mo.gov](mailto:zachary.osman@modot.mo.gov)

**1.1** All questions concerning the bid document preparation can be directed to the Central Office – Design as listed below.

Telephone Number: (573) 751-2876

Email: [BCS@modot.mo.gov](mailto:BCS@modot.mo.gov)

**2.0** Upon award and execution of the contract, the successful bidder/contractor shall forward all questions and coordinate the work with the engineer listed below:

Jeff Kroner, Resident Engineer  
Central District  
4201 Paris Rd, Columbia, MO 65202

Telephone Number: 573-442-4718

Email: [jeffery.kroner@modot.mo.gov](mailto:jeffery.kroner@modot.mo.gov)

**G. Supplemental Revisions JSP-18-01KK**

- Compliance with [2 CFR 200.216 – Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment](#).

The Missouri Highways and Transportation Commission shall not enter into a contract (or extend or renew a contract) using federal funds to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as substantial or as critical technology as part of any system where the video surveillance and telecommunications equipment was produced by Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

- Stormwater Compliance Requirements

**1.0 Description.** This provision requires the contractor to provide a Water Pollution Control Manager (WPCM) for any project that includes land disturbance on the project site and the total area of land disturbance, both on the project site, and all Off-site support areas, is one (1) acre or more. Regardless of the area of Off-site disturbance, if no land disturbance occurs on the project site, these provisions do not apply. When a WPCM is required, all sections within this provision shall be applicable, including assessment of specified Liquidated Damages for failure to correct Stormwater Deficiencies, as specified herein. This provision is in addition to any other stormwater, environmental, and land disturbance requirements specified elsewhere in the contract.

**1.1 Definitions.** The project site is defined as all areas designated on the plans, including temporary and permanent easements. The project site is equivalent to the “permitted site”, as defined in MoDOT’s State Operating Permit. An Off-site area is defined as any location off the project site the contractor utilizes for a dedicated project support function, such as, but not limited to, staging area, plant site, borrow area, or waste area.

**1.2 Reporting of Off-Site Land Disturbance.** If the project includes any planned land disturbance on the project site, prior to the start of work, the contractor shall submit a written report to the engineer that discloses all Off-site support areas where land disturbance is planned, the total acreage of anticipated land disturbance on those sites, and the land disturbance permit number(s). Upon request by the engineer, the contractor shall submit a copy of its land disturbance permit(s) for Off-site locations. Based on the total acreage of land disturbance, both on and Off-site, the engineer shall determine if these Stormwater Compliance Requirements shall apply. The Contractor shall immediately report any changes to the planned area of Off-site land disturbance. The Contractor is responsible for obtaining its own separate land disturbance permit for Off-site areas.

**2.0 Water Pollution Control Manager (WPCM).** The Contractor shall designate a competent person to serve as the Water Pollution Control Manager (WPCM) for projects meeting the description in Section 1.0. The Contractor shall ensure the WPCM completes all duties listed in Section 2.1.

**2.1 Duties of the WPCM:**

- (a) Be familiar with the stormwater requirements including the current MoDOT State Operating Permit for construction stormwater discharges/land disturbance activities; MoDOT's statewide Stormwater Pollution Prevention Plan (SWPPP); the Corps of Engineers Section 404 Permit, when applicable; the project specific SWPPP, the Project's Erosion & Sediment Control Plan; all applicable special provisions, specifications, and standard drawings; and this provision;
- (b) Successfully complete the MoDOT Stormwater Training Course within the last 4 years. The MoDOT Stormwater Training is a free online course available at MoDOT.org;
- (c) Attend the Pre-Activity Meeting for Grading and Land Disturbance and all subsequent Weekly Meetings in which grading activities are discussed;
- (d) Oversee and ensure all work is performed in accordance with the Project-specific SWPPP and all updates thereto, or as designated by the engineer;
- (e) Review the project site for compliance with the Project SWPPP, as needed, from the start of any grading operations until final stabilization is achieved, and take necessary actions to correct any known deficiencies to prevent pollution of the waters of the state or adjacent property owners prior to the engineer's weekly inspections;
- (f) Review and acknowledge receipt of each MoDOT Inspection Report (Land Disturbance Inspection Record) for the Project within forty eight (48) hours of receiving the report and ensure that all Stormwater Deficiencies noted on the report are corrected as soon as possible, but no later than stated in Section 5.0.

**3.0 Pre-Activity Meeting for Grading/Land Disturbance and Required Hold Point.** A Pre-Activity meeting for grading/land disturbance shall be held prior to the start of any land disturbance operations. No land disturbance operations shall commence prior to the Pre-Activity meeting except work necessary to install perimeter controls and entrances. Discussion items at the pre-activity meeting shall include a review of the Project SWPPP, the planned order of grading operations, proposed areas of initial disturbance, identification of all necessary BMPs that shall be

installed prior to commencement of grading operations, and any issues relating to compliance with the Stormwater requirements that could arise in the course of construction activity at the project.

**3.1 Hold Point.** Following the pre-activity meeting for grading/land disturbance and subsequent installation of the initial BMPs identified at the pre-activity meeting, a Hold Point shall occur prior to the start of any land disturbance operations to allow the engineer and WPCM the time needed to perform an on-site review of the installation of the BMPs to ensure compliance with the SWPPP is met. Land disturbance operations shall not begin until authorization is given by the engineer.

**4.0 Inspection Reports.** Weekly and post run-off inspections will be performed by the engineer and each Inspection Report (Land Disturbance Inspection Record) will be entered into a web-based Stormwater Compliance database. The WPCM will be granted access to this database and shall promptly review all reports, including any noted deficiencies, and shall acknowledge receipt of the report as required in Section 2.1 (f.).

**5.0 Stormwater Deficiency Corrections.** All stormwater deficiencies identified in the Inspection Report shall be corrected by the contractor within 7 days of the inspection date or any extended period granted by the engineer when weather or field conditions prohibit the corrective work. If the contractor does not initiate corrective measures within 5 calendar days of the inspection date or any extended period granted by the engineer, all work shall cease on the project except for work to correct these deficiencies, unless otherwise allowed by the engineer. All impact costs related to this halting of work, including, but not limited to stand-by time for equipment, shall be borne by the Contractor. Work shall not resume until the engineer approves the corrective work.

**5.1 Liquidated Damages.** If the Contractor fails to complete the correction of all Stormwater Deficiencies listed on the MoDOT Inspection Report within the specified time limit, the Commission will be damaged in various ways, including but not limited to, potential liability, required mitigation, environmental clean-up, fines, and penalties. These damages are not reasonably capable of being computed or quantified. Therefore, the contractor will be charged with liquidated damages specified in the amount of \$2,000 per day for failure to correct one or more of the Stormwater Deficiencies listed on the Inspection Report within the specified time limit. In addition to the stipulated damages, the stoppage of work shall remain in effect until all corrections are complete.

**6.0 Basis of Payment.** No direct payment will be made for compliance with this provision.

- ***Delete Sec 106.9 in its entirety and substitute the following:***

**106.9 Buy America Requirements.**

Buy America Requirements are waived if the total amount of Federal financial assistance applied to the project, through awards or subawards, is below \$500,000.

**106.9.1 Buy America Requirements for Iron or Steel Products.**

The contractor's attention is directed to Title 23 CFR 635.410 *Buy America Requirements*. Where articles, materials or supplies that consist wholly or predominantly of iron or steel or a combination of both are to be permanently incorporated into the contract work, steel and iron material shall be manufactured, from the initial melting stage through the application of coatings, in the USA except for "minimal use" as described herein. Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. Under a general waiver from FHWA the use of pig iron and processed, pelletized,

and reduced iron ore manufactured outside of the USA will be permitted in the domestic manufacturing process for steel or iron material.

**106.9.1.1** Any sources other than the USA as defined will be considered foreign. The required domestic manufacturing process shall include formation of ingots and any subsequent process. Coatings shall include any surface finish that protects or adds value to the product.

**106.9.1.2** "Minimal use" of foreign steel, iron or coating processes will be permitted, provided the cost of such products does not exceed 1/10 of one percent (0.1 percent) of the total contract cost or \$2,500.00, whichever is greater. If foreign steel, iron, or coating processes are used, invoices to document the cost of the foreign portion, as delivered to the project, shall be provided and the engineer's written approval obtained prior to placing the material in any work.

**106.9.1.3** Buy America requirements include a step certification for all fabrication processes of all steel or iron materials that are accepted per Sec 1000. The AASHTO Product Evaluation and Audit Solutions compliance program verifies that all steel and iron products fabrication processes conform to 23 CFR 635.410 Buy America Requirements and is an acceptable standard per 23 CFR 635.410(d). AASHTO Product Evaluation and Audit Solutions compliant suppliers will not be required to submit step certification documentation with the shipment for some selected steel and iron materials. The AASHTO Product Evaluation and Audit Solutions compliant supplier shall maintain the step certification documentation on file and shall provide this documentation to the engineer upon request.

**106.9.1.3.1** Items designated as Category 1 will consist of steel girders, piling, and reinforcing steel installed on site. Category 1 items require supporting documentation prior to incorporation into the project showing all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements. This includes the Mill Test Report from the original producing steel mill and certifications documenting the manufacturing process for all subsequent fabrication, including coatings. The certification shall include language that certifies all steel and iron materials permanently incorporated in this project was procured and processed domestically and all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410.

**106.9.1.3.2** Items designated as Category 2 will include all other steel or iron products not in Category 1 and permanently incorporated in the project. Category 2 items shall consist of, but not be limited to items such as fencing, guardrail, signing, lighting and signal supports. The prime contractor is required to submit a material of origin form certification prior to incorporation into the project from the fabricator for each item that the product is domestic. The Certificate of Materials Origin form ([link to certificate form](#)) from the fabricator must show all steps of manufacturing, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements and be signed by a fabricator representative. The engineer reserves the right to request additional information and documentation to verify that all Buy America requirements have been satisfied. These documents shall be submitted upon request by the engineer and retained for a period of 3 years after the last reimbursement of the material.

**106.9.1.3.3** Any minor miscellaneous steel or iron items that are not included in the materials specifications shall be certified by the prime contractor as being procured domestically. Examples of these items would be bolts for sign posts, anchorage inserts, etc. The certification shall read "I

certify that all steel and iron materials permanently incorporated in this project during all manufacturing processes, including coating, as being completed in the United States and in accordance with CFR Title 23 Section 635.410 Buy America Requirements procured and processed domestically in accordance with CFR Title 23 Section 635.410 Buy America Requirements. Any foreign steel used was submitted and accepted under minor usage". The certification shall be signed by an authorized representative of the prime contractor.

**106.9.1.4** When permitted in the contract, alternate bids may be submitted for foreign steel and iron products. The award of the contract when alternate bids are permitted will be based on the lowest total bid of the contract based on furnishing domestic steel or iron products or 125 percent of the lowest total bid based on furnishing foreign steel or iron products. If foreign steel or iron products are awarded in the contract, domestic steel or iron products may be used; however, payment will be at the contract unit price for foreign steel or iron products.

**106.9.2 Buy America Requirements for Construction Materials other than iron or steel products.**

Construction materials mean articles, materials, or supplies that consist of only one of the items listed. Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material. Upon request by the engineer, the contractor shall submit a domestic certification for all construction materials listed that are incorporated into the project.

- (a) Non-ferrous metals
- (b) Plastic and Polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)
- (c) Glass (including optic glass)
- (d) Fiber optic cable (including drop cable)
- (e) Optical fiber
- (f) Lumber
- (g) Engineered wood
- (h) Drywall

**106.9.3 Buy America Requirements for Manufactured Products.**

Manufactured products mean articles, materials or supplies that have been processed into a specific form and shape, or combined with other articles, materials or supplies to create a product with different properties than the individual articles, materials or supplies. If an item is classified as an iron or steel product, an excluded material, or other product category as specified by law or in 2 CFR part 184, then it is not a manufactured product. However, an article, material or supply classified as a manufactured product may include components that are iron or steel products, excluded materials, or other product categories as specified by law or in 2 CFR part 184. Mixtures of excluded materials delivered to a work site without final form for incorporation into a project are not a manufactured product.

**106.9.3.1** Produced in the United States, in the case of manufactured products, means:

- (A) For projects obligated on or after October 1, 2025, the product was manufactured in the United States; and
- (B) For projects obligated on or after October 1, 2026, the product was manufactured in the United States and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product.

**106.9.3.2** (i) With respect to precast concrete products that are classified as manufactured products, components of precast concrete products that consist wholly or predominantly of iron or steel or a combination of both shall meet the requirements of paragraph (b) of this section. The cost of such components shall be included in the applicable calculation for purposes of determining whether the precast concrete product is produced in the United States.

(ii) With respect to intelligent transportation systems and other electronic hardware systems that are installed in the highway right of way or other real property and classified as manufactured products, the cabinets or other enclosures of such systems that consist wholly or predominantly of iron or steel or a combination of both shall meet the requirements of paragraph (b) of this section. The cost of cabinets or other enclosures shall be included in the applicable calculation for purposes of determining whether systems referred to in the preceding sentence are produced in the United States.

**106.9.4 Waiver for De Minimis Costs for Manufactured and Construction Materials other than iron or steel products.**

“The total value of the non-compliant products is no more than the lesser of \$1,000,000 or 5% of total applicable costs for the project.” The contractor shall submit to the engineer any non-domestic materials and their total material cost to the engineer. The contractor and the engineer will both track these totals to assure that the minimal usage allowance is not exceeded.

- Third-Party Test Waiver for Concrete Aggregate

**1.0 Description.** Third party tests may be allowed for determining the durability factor for concrete pavement and concrete masonry aggregate.

**2.0 Material.** All aggregate for concrete shall be in accordance with Sec 1005.

**2.1** MoDOT personnel shall be present at the time of sampling at the quarry. The aggregate sample shall be placed in an approved tamper-evident container (provided by the quarry) for shipment to the third-party testing facility.

**2.2** AASHTO T 161 Method B Resistance of Concrete to Rapid Freezing and Thawing, shall be used to determine the aggregate durability factor. All concrete beams for testing shall be 3-inch wide by 4-inch deep by 16-inch long or 3.5-inch wide by 4.5-inch deep by 16-inch long. All beams for testing shall receive a 35-day wet cure fully immersed in saturated lime water prior to initiating the testing process.

**2.3** Concrete test beams shall be made using a MoDOT approved concrete pavement mix design.

**3.0 Testing Facility Requirements.** All third-party test facilities shall meet the requirements outlined in this provision.

**3.1** The testing facility shall be AASHTO accredited.

**3.1.1** For tests ran after January 1, 2025, accreditation documentation shall be on file with the Construction and Materials Division prior to any tests being performed.

**3.1.2** Construction and Materials Division may consider tests completed prior to January 1, 2025, to be acceptable if all sections of this provision are met, with the exception of 3.1.1. Accreditation

documentation shall be provided with the test results for tests completed prior to January 1, 2025. No tests completed prior to September 1, 2024, will be accepted.

**3.2** The testing facility shall provide their testing process, list of equipment, equipment calibration documentation, and testing certifications or qualifications of technicians performing the AASHTO T 161 Procedure B tests. The testing facility shall provide details on their freezing and thawing apparatus including the time and temperature profile of their freeze-thaw chamber. The profile shall include the temperature set points throughout the entirety of the freeze-thaw cycle. The profile shall show the cycle time at which the apparatus drains/fills with water and the cycle time at which the apparatus begins cooling the specimens.

**3.3** Results, no more than five years old, from the third-party test facility shall compare within  $\pm 2.0$  percent of an independent test from another AASHTO accredited test facility or with MoDOT test records, in order to be approved for use (e.g. test facility results in a durability factor of 79, MoDOT's recent durability test factor is 81; this compared within  $\pm 2$  percent). The independent testing facility shall be in accordance with this provision. The comparison test can be from a different sample of the same ledge combination.

**3.4** When there is a dispute between the third party durability test results and MoDOT durability test results, the MoDOT durability test result shall govern.

**3.5** Test results shall be submitted to MoDOT's Construction and Materials division electronically for final approval. Test results shall include raw data for all measurements of relative dynamic modulus of elasticity and percent length change for each individual concrete specimen. Raw data shall include initial measurements made at zero cycles and every subsequent measurement of concrete specimens. Raw data shall include the cycle count and date each measurement was taken. Test results shall also include properties of the concrete mixture as required by AASHTO T 161. This shall include the gradation of the coarse aggregate sample. If AASHTO T 152 is used to measure fresh air content, then the aggregate correction factor for the mix determined in accordance with AASHTO T 152 shall also be included.

**4.0 Method of Measurement.** There is no method of measurement for this provision. The testing requirements and number of specimens shall be in accordance with AASHTO T 161 Procedure B.

**5.0 Basis of Payment.** No direct payment will be made to the contractor or quarry to recover the cost of aggregate samples, sample shipments, testing equipment, labor to prepare samples or test samples, or developing the durability report.

- ***Delete paragraph 15.0 of the General Provision Disadvantaged Business Enterprise (DBE) Program Requirements and substitute the following:***

**15.0 Bidder's List Quote Summary.** MoDOT is a recipient of federal funds and is required by 49 CFR 26.11 to provide data about its DBE program. All bidders who seek to work on federally assisted contracts must submit data about all DBE and non-DBEs in accordance with Sec 102.7.9. MoDOT will not compare the submitted Bidder's List Quote Summary to any other documents or submittals, pre or post award. All information will be used by MoDOT in accordance with 49 CFR 26.11 for reporting to USDOT and to aid in overall DBE goal setting.

- **Add Sec 102.7.9 to include the following:**

**102.7.9 Bidder's List Quote Summary.** Each bidder shall submit with each bid a summary of all subcontractors, material suppliers, and service providers (e.g. hauling) considered on federally funded projects pursuant to 49 CFR 26.11. The bidder will provide the firm's name, the corresponding North American Industry Classification System (NAICS) code(s) the firm(s) were considered for, and whether or not they were used in the bid. The information submitted should be the most complete information available at the time of bid. The information shall be disclosed on the Bidder's List Quote Summary form provided in the bidding documents and submitted in accordance with Sec 102.10. Failure to disclose this information may result in a bid being declared irregular.

H. Utilities

**1.0** For informational purposes only, the following is a list of names, addresses, and telephone numbers of the known utility companies in the area of the construction work for this improvement:

<u>Utility Name</u>	<u>Known Required Adjustment</u>	<u>Type</u>
Ameren Missouri Kyle Whanger Phone: (573) 975-9962 Email: <a href="mailto:kwhanger@ameren.com">kwhanger@ameren.com</a>	None	Electric
Ameren Missouri Sean Hagan Email: <a href="mailto:shagan@ameren.com">shagan@ameren.com</a>	None	Gas
AT&T Distribution Justin Courtouise Phone: (636) 448-2136 Email: <a href="mailto:jc670s@att.com">jc670s@att.com</a>	None	Communications
AT&T Transmission Lenny Vohs Email: <a href="mailto:lv2121@att.com">lv2121@att.com</a>	None	Communications
AT&T Transmission Kevin Wingard Phone: (580) 931-7688 Email: <a href="mailto:kwingard@sdt-1.com">kwingard@sdt-1.com</a>	None	Communications

AT&T Transmission Justin Rahm Email: <a href="mailto:jrahm@sdt-1.com">jrahm@sdt-1.com</a>	None	Communications
City of Boonville Jeff Ditto Phone: (660) 882-5257 Email: <a href="mailto:jeff.ditto@boonville-mo.org">jeff.ditto@boonville-mo.org</a>	None	Electric
CO-MO Connor McGill Phone: (573) 539-8176 Email: <a href="mailto:cmcgill@co-mo.coop">cmcgill@co-mo.coop</a>	Yes 2.0	Electric
CO-MO Mark Parshall Phone: (573) 832-9027 Email: <a href="mailto:mparshall@co-mo.net">mparshall@co-mo.net</a>	Yes 2.0	Fiber
Lumen Rich Obremski Phone: (314) 378-9931 Email: <a href="mailto:richard.obremski@lumen.com">richard.obremski@lumen.com</a>	Yes 2.1	Fiber
MNA – Bluebird Mark Mcferren Email: <a href="mailto:mark.mcferren@bluebirdnetwork.com">mark.mcferren@bluebirdnetwork.com</a>	None	Communications
MoDOT Central District Jason Morff Email: <a href="mailto:jason.morff@modot.mo.gov">jason.morff@modot.mo.gov</a>	None	Fiber & Electric
Panhandle Eastern Pipeline Chad Reitinger Phone: (913) 608-6602 Email: <a href="mailto:Chad.Reitinger@energytransfer.com">Chad.Reitinger@energytransfer.com</a>	None	Gas
Socket Telecom Todd Pulis Phone: (573) 818-4778 Email: <a href="mailto:tpulis@corp.socket.net">tpulis@corp.socket.net</a>	None	Communications

Optimum Communications Tim Goerlitz Phone: (816) 248-6671 Email: <a href="mailto:timothy.goerlitz@alticetechservicesusa.com">timothy.goerlitz@alticetechservicesusa.com</a>	None	Communications
Optimum Communications Josh Cubley Email: <a href="mailto:josh.cubley@alticeusa.com">josh.cubley@alticeusa.com</a>	None	Communications
Optimum Communications Nathan Arnold Email: <a href="mailto:nathan.arnold@alticeusa.com">nathan.arnold@alticeusa.com</a>	None	Communications

**1.1** The existence and approximate location of utility facilities known to exist, as shown on the plans, are based upon the best information available to the Commission at this time. This information is provided by the Commission "as-is", and the Commission expressly disclaims any representation or warranty as to the completeness, accuracy, or suitability of the information for any use. Reliance upon this information is done at the risk and peril of the user, and the Commission shall not be liable for any damages that may arise from any error in the information. It is, therefore, the responsibility of the contractor to verify the above listing information indicating the existence, location, and status of any facility. Such verification includes direct contact with the listed utilities.

**2.0** CO-MO Electric Cooperative will be responsible for the installation of two new power drops at the Route 179 interchange. The contractor will coordinate with CO-MO and MoDOT to notify them when the site is ready for power installation. Refer to the plan sheets for the specific power drop locations. No additional utility coordination is anticipated for CO-MO beyond this scope.

**2.1** Lumen is expected to relocate its facilities along I-70 in advance of construction. Relocation activities will begin at the east end of the project and progress westward. The new alignment will generally shift facilities to the south side of I-70, with some connections remaining on the north side as shown in the submitted plans. The contractor shall confirm the timeline and sequencing of Lumen's work, including any plans for decommissioning or abandoning existing lines, through direct coordination with Lumen and MoDOT prior to construction.

## I. Union Pacific Railroad Requirements

### **1.0 Introduction.**

**1.1** These Railroad Requirements set forth terms and conditions agreed between the Union Pacific Railroad Company (Railroad) and the Missouri Highways and Transportation Commission (Commission), under which the Railroad will allow the Commission's contractors to enter in and upon the Railroad's real property, right of way, tracks and other facilities (Railroad's Property) to perform the contractor's work relating to this project.

**1.2** To report an emergency on the Railroad, call: (888) 877-7267.

**1.3** The project location is at Railroad Milepost 160.47 on Railroads River Subdivision, designated as USDOT Crossing # 442 497M. **Current FRA data shows 6 daytime trains per day and 4 nighttime trains per day.**

**1.4** Definitions of terms set forth in the current edition of the Missouri Standard Specifications for Highway Construction shall be applicable to those terms as used in these Railroad Requirements.

## **2.0 Authority of Railroad Representative and Engineer.**

**2.1** The authorized representative of the Railroad, herein called "Railroad Representative", shall have final authority in all matters affecting the safe maintenance and operation of railroad traffic including the adequacy of the foundations and structures supporting the railroad tracks.

**2.1.1** The Railroad designates the following individual as the Railroad Representative for this project. Except as otherwise provided in these Railroad Requirements, the contractor shall address all notices concerning this project to the Railroad Representative, as follows:

Chris Duran

Senior Public Project Representative

[cduran@benesch.com](mailto:cduran@benesch.com)

direct: 816-601-4863 mobile: 479-440-0390

**2.1.2** The Railroad, or the individual identified above, may designate a different individual to act as the Railroad Representative for this project, and may change the address information stated above, by giving written notice of the changes to the contractor and to the Engineer, as provided in these Railroad Requirements.

**2.2** The authorized representative of the Commission (Engineer) shall have authority over all other matters as prescribed herein and in the project specifications.

## **3.0 Contractor's Indemnity Obligations to the Railroad.**

**3.1** The contractor agrees to indemnify, defend and hold harmless the Railroad from and against any injury or death of persons whomsoever, or from any loss or damage to the Railroad's Property, caused by acts or omissions of the contractor in performing work on this project, whether on, over, under or in the vicinity of the Railroad's Property. In the event the contractor shall fail to restore the Railroad's Property immediately to a condition acceptable to the Railroad when any such loss or damage to the Railroad's Property is called to the contractor's attention by the Railroad, then the Railroad may perform such corrective work at the cost of the contractor. The Railroad shall have the right to bring an action directly against the contractor to recover any loss or damage sustained by the Railroad by reason of the contractor's breach of agreements contained in these Railroad Requirements. In addition to such remedies of the Railroad, the Commission will withhold from final payment due to the contractor the amount reasonably necessary to reimburse the Railroad for such loss or damage or for performing such work. The term "loss or damage" as used herein shall include, but not be limited to, the erosion and silting of, water damage to, and the accidental or intentional placing or dropping of objects on the Railroad's Property.

#### **4.0 Notice of Starting Work.**

**4.1** The contractor shall not commence any work on the Railroad's right of way until contractor has complied with the following conditions (no particular order):

**4.1.1** At least ten (10) days in advance of the date the contractor proposes to begin work on the Railroad's Property, the contractor has given written notice of the contractor's proposed start date and time to the Railroad Representative, and Railroad's Manager of Track Maintenance (see paragraph 12.2.3 below), with a copy to the Engineer.

**4.1.2** The Commission has obtained written approval from the Railroad's Representative for the contractor's insurance coverage as required by Section 17 of these Railroad Requirements, and authorization for the contractor to begin work on the Railroad's Property.

**4.1.3** The contractor has determined whether fiber optic cable systems are buried on the Railroad's Property. If fiber optic cable systems are buried on the Railroad's Property, then the contractor has contacted the Railroad at the 24-hour number, 800-336-9193, has contacted the telecommunications company involved, has arranged for a cable locator, and has made arrangements for relocation or other protection of the fiber optic cable system on the Railroad's Property.

**4.1.4** Union Pacific Property Access Training must have been completed by each person on UPRR right of way. A valid copy of certification must be with the individual anytime they are on the job site. For guidance on completing the training, visit the website provided:  
<https://www.up.com/aboutup/community/safety/erailsafe/up-pat/index.htm>

**4.2 Right of Entry.** At least thirty (30) days in advance of the date the contractor proposes to begin work on the Railroad's Property, the contractor shall enter into a Contractor's Right of Entry Agreement (CROE) with Railroad prior to working on Railroad property. Submit the following information to the Railroad Representative:

- a. MoDOT manager contact information
- b. Contractor contact information
- c. Site location (include address, DOT#)
- d. Site map
- e. Brief description of scope of work
- f. Proposed schedule for work on UP right of way

**4.2.1** After reviewing the information, the Railroad Representative will send all of the information to UP Real Estate for processing. UP Real Estate will draft the CROE agreement and send it to the contractor for signature. The signed contract and administrative fee must then be returned to UP Real Estate.

**4.2.2** **Administrative Fee.** Upon the execution and delivery of this CROE agreement, Contractor shall pay the Railroad Two Thousand Two Hundred Dollars (\$2,200.00) as reimbursement for clerical, administrative and handling expenses in connection with the processing of this CROE agreement.

## **5.0 Interference with Railroad's Operations.**

**5.1** The Railroad's right of way is located within the limits of this project. The contractor shall take care to insure that it will not drop any debris or material on the Railroad's Property.

**5.2** The contractor shall arrange and conduct all of the contractor's work so that it causes no interference with the Railroad's operations, including train, signal, telephone, telegraphic services, damage to the Railroad's Property, poles, wires and other facilities of tenants on the Railroad's Property. Whenever the contractor's work may directly affect the operations or safety of trains, the contractor shall submit a written description of the method of doing such work to the Railroad Representative for approval, but such approval shall not relieve the contractor from liability resulting from the contractor's work. Any work to be performed by the contractor that requires flagging service shall be deferred by the contractor until the flagging services are available at the job site.

**5.3** Whenever the contractor's work upon the Railroad's Property will unavoidably cause an impediment to the Railroad's operations, such as requiring the use of runaround tracks or reduced train speed, the contractor should schedule and conduct these operations so that this impediment is reduced to the absolute minimum.

**5.4** If conditions arising from, or in connection with the work require immediate and unusual provisions to protect the Railroad's operations and property, the contractor shall make such provisions. If in the judgment of the Railroad Representative, or the Engineer if the Railroad Representative is absent, such provision is insufficient, then the Railroad Representative or Engineer may require or provide such provisions as he/she deems necessary. In any event, the contractor shall make such provisions at the contractor's expense, and without cost to the Railroad or the Commission.

## **6.0 Track Clearances.**

**6.1** During construction, the contractor shall maintain not less than the minimum track clearances as shown on the project plans. However, before undertaking any work within the Railroad's Property and before placing any obstruction over any track, the contractor shall:

**6.1.1** Notify the Railroad Representative and the Railroad's Manager of Track Maintenance at least ten (10) days in advance of the proposed work.

**6.1.2** Receive assurance from the Railroad's Manager of Track Maintenance that arrangements have been made for flagging service as may be necessary.

**6.1.3.** Receive permission from the Railroad Representative to proceed with the work, as provided in section 4.0.

**6.1.4.** Confirm that the Engineer has received copies of the contractor's notice to the Railroad, and of the Railroad's response.

**6.1.5** Note that temporary Work Zone traffic control must not circumvent the active warning devices at this location.

**6.1.6** Temporary traffic control must comply with MUTCD standards. Any time work is within 25' of the track, the potential to foul the track exists or a pilot car is used traversing the crossing will require a Railroad flag person to be present. Traffic control must be returned to normal operations through the crossing area before releasing the Railroad's flag person.

## **7.0 Construction Procedures.**

**7.1. General.** The contractor's work on the Railroad's property shall be:

**7.1.1** Subject to the Railroad's inspection and review.

**7.1.2** Performed in accordance with these Railroad Requirements.

**8.0 Maintenance of Railroad Facilities.** Within the project limits, the contractor shall maintain Railroad's Property, including all ditches and drainage structures, free of silt or other obstructions that may result from contractor's operations. The contractor shall promptly repair eroded areas within the Railroad's Property and repair any other damage to the Railroad's Property or the Railroad's tenants. The contractor shall perform all such maintenance and repair of damages due to the contractor's operations at the contractor's expense.

## **9.0 Storage of Materials and Equipment.**

**9.1** The contractor shall obtain permission from the Railroad Representative before storing any materials or equipment anywhere on Railroad's Property. The Railroad will not be liable for damage to such material and equipment from any cause, and the Railroad Representative may move such material and equipment or require the contractor to move it, at the contractor's expense.

**9.2** The contractor shall not leave unattended any grading or construction machinery parked upon Railroad's Property, unless it is effectively immobilized so that unauthorized persons cannot move such machinery.

**10.0 Cleanup.** Upon completion of the work, the contractor shall remove from within the limits of the Railroad's Property all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the contractor's and shall leave Railroad's Property in a neat condition satisfactory to the Railroad Representative.

**11.0 Damages.** The Railroad shall not assume liability for any damages to the contractor, contractor's work, employees, servants, equipment and materials caused by the Railroad's traffic. However, the preceding sentence shall not exempt the Railroad from liability for any loss, damage or injury proximately caused by the Railroad's intentional misconduct or sole or gross negligence. The contractor shall directly reimburse the Railroad for any cost the Railroad reasonably incurs for repairing damages to the Railroad's Property or to property of the Railroad's tenants, caused by or resulting from the operations of the contractor relating to this project.

## **12.0 Flagging Services.**

**12.1 When Flagging is Required.** The Railroad has sole authority to determine the need for flagging to protect the Railroad's operations. Whenever the Railroad requires flagging services

with reference to any of the contractor's work on this project, the contractor shall not perform any such work until all required flaggers are present at the job site.

**12.1.1** In general, the Railroad may require flagging services whenever the contractor's personnel or equipment are, or are likely to be, working on the Railroad's Property, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging, to prevent unreasonable risks of accidental hazard to the Railroad's operations or personnel.

**12.1.2** Normally, the Railroad will assign one flagger to a project; but in some cases, more than one may be necessary, such as yard limits where the Railroad may assign up to three flaggers. However, if the contractor works within distances that violate instructions given by the Railroad Representative, or performs work upon or adjacent to Railroad's Property that has not been scheduled with the Railroad Representative, the Railroad may require flagging services full time until the project is completed.

**12.1.3** If flagging is determined to be required by the Manager of Track Maintenance (MTM), and the MTM advises that third party flagging is to be used, then third party flagging must be used. If flagging is determined to be required by the MTM and the MTM advises that an agreement employee flagging is to be used, then an agreement flagger will be put up for bid (and scheduled accordingly).

UPRR Third Party Flagging Policy Link

[https://www.up.com/real\\_estate/third-party-flagging/index.htm](https://www.up.com/real_estate/third-party-flagging/index.htm)

## **12.2 Scheduling and Notification of Flagging Services.**

**12.2.1** The contractor shall arrange with the Railroad all flagging services required by the Railroad to accomplish the contractor's work on this project.

**12.2.2** Before the contractor begins work on the Railroad's Property, the contractor shall furnish to the Railroad Representative and the Engineer a schedule for all work required to complete the contractor's portion of the project within the Railroad's Property and shall arrange for a job site meeting between the contractor, the Engineer, and the Railroad Representative. Until the contractor has provided its work schedule and met on-site with the Railroad Representative and the Engineer, the Railroad may withhold all flagging services from the contractor's proposed job site.

**12.2.3** Before the contractor first begins any work upon or adjacent to the Railroad's Property, the contractor shall give not less than thirty (30) days advance notice to the Railroad, and to the Engineer, of its intent to begin such work. The contractor shall address all notices relating to flagging as instructed in the fully executed CROE agreement.

**12.2.4** The Railroad usually assigns one flagger to work at the job site on a continuous basis until the contractor no longer needs flagging services. The contractor shall not call for flagging services on a spot basis. The Railroad's assigned flagger shall notify the Engineer when flagging services have begun and ended. The flagger shall give these notices immediately upon arrival at the job site on the first day, and before departing from the job site on the last day of each separate period

when the Railroad provides flagging services, or as soon as possible thereafter. The Engineer shall document these notifications in the project records.

**12.2.5** After the contractor has begun work that requires flagging services, the contractor shall give not less than ten (10) day's advance written notice to the Railroad before discontinuing flagging services and terminating the obligation to pay for flagging services. The contractor shall simultaneously provide a copy of this notice to the Engineer. If the contractor's work on or adjacent to the Railroad's Property is suspended at any time, or for any reason, then before the contractor resumes any work on or adjacent to the Railroad's Property, the contractor shall give advance, written notice to the Railroad and to the Engineer of its intent to resume such work. This notice shall provide sufficient details of the contractor's proposed work to enable the Railroad Representative to determine whether flagging services will be required before the contractor resumes its work on or adjacent to the Railroad's Property. The contractor shall give this required notice at least three (3) working days' before it intends to resume such work; however. The Railroad may take up to thirty (30) days after the contractor has given this notice before resuming flagging services at the job site. The requirements of this paragraph 12.2.5 shall not apply if the suspension and resumption of the contractor's work were previously scheduled with the Railroad pursuant to paragraph 12.2.2 of these Railroad Requirements, or the suspension was caused by an emergency as provided in paragraph 12.2.6 of these Railroad Requirements.

**12.2.6** If, after the Railroad has assigned a flagger to the project site in accordance with section 12.0, any emergency requires the flagger's presence elsewhere, then the contractor shall suspend work on the Railroad's Property until the flagger is again available. Any additional costs to the contractor resulting from such delay shall be borne by the contractor and not by the Railroad.

### **12.3 Payment for Flagging Services.**

**12.3.1** The Commission will pay the Railroad directly for the cost of flagging services associated with this project by deducting the amount from the Commission's payments to the contractor. If a third-party flagger is used, the contractor has the option to pay the flagger directly but must notify the MoDOT Engineer of such payments for flagging.

**12.3.2** The estimated cost of flagging services is approximately \$1,600 per day, based on an 8-hour work day and a 40-hour work week. The Railroad shall charge not more than its actual cost of providing these flagging services, which includes the base pay for the flagger or flaggers who actually performed the required flagging services, the Railroad's reasonable overhead costs, and the reasonable costs actually incurred for the flagger's travel expenses, meals and lodging if required. The Railroad may charge a maximum of one hour of travel time each way per day per flagger, for travel to and from the job site. A flagger's work in excess of 8 hours per day or 40 hours per week, but not more than 12 hours per day, will result in overtime pay at 1.5 times that employee's regular hourly rate. A flagger's work in excess of 12 hours per day will result in overtime pay at 2.0 times that employee's regular hourly rate. If a flagger performs required flagging services on a holiday, then the overtime pay rate shall be 2.5 times that employee's regular hourly rate. The Commission also shall reimburse the Railroad for its actual expenses reasonably incurred in preparing and handling invoices to the Commission for the cost of these flagging services. The Railroad's charges to the Commission shall comply with applicable provisions of the current Federal Aid Policy Guide issued by the Federal Highway Administration.

**12.3.3** The Railroad shall submit progress invoices to the Engineer during the time the Railroad requires flagging services. The Railroad shall submit its final invoice for flagging services to the

Engineer within one hundred eighty (180) days after the contractor has notified the Railroad and the Commission that all its work over the Railroad's Property is complete, in accordance with section 18.0 below. If the Commission does not receive the Railroad's final flagging invoice within this time period, then the Railroad shall obtain payment directly from the contractor.

**12.3.4** If a dispute arises between the Railroad, the Commission and the contractor concerning the amount charged for flagging service, then the Commission may deduct the full amount of the Railroad's invoice from the contractor's payment until the dispute is resolved.

**12.4 Flagging Complaints.** The contractor and the Railroad shall attempt to resolve any complaints concerning flagging services in a timely manner. If the contractor disputes the need for a flagger, the contractor shall notify the Railroad Representative and the Engineer. The contractor shall confirm any verbal complaints in writing within five (5) working days, by sending a copy to the Railroad Representative and to the Engineer.

### **13.0 Haul Across Railroads.**

**13.1** Where the plans show or imply that the contractor must haul materials of any nature across a Railroad, unless the plans clearly show that the Commission has included arrangements for such haul in the agreement with the Railroad, the contractor shall make all necessary arrangements with the Railroad regarding means of transporting such materials across the Railroad. The Railroad need not construct a haul road for the contractor unless no other alternate means is available to the contractor. The contractor shall bear all costs incidental to such crossings, including flagging, whether services are performed by contractor's own forces or by the Railroad's personnel. The contractor shall execute the Railroad's standard Road Crossing Agreement covering terms and conditions for the temporary crossing.

**13.2** Neither the contractor nor the Railroad shall construct any crossing for use by the contractor for transporting materials or equipment across the tracks of the Railroad until the Railroad Representative specifically authorizes the installation, maintenance, necessary watching and flagging thereof and removal, which shall be done at the contractor's expense.

**14.0 Work for the Benefit of the Contractors.** The project plans show all temporary or permanent changes in wire lines or other facilities that are necessary to complete the project, or these changes will be covered by appropriate plan revisions approved by the Commission and the Railroad. If the contractor desires any further changes, the contractor shall make separate arrangements with the Railroad for those changes, at the contractor's expense.

**15.0 Cooperation and Delays.** The contractor shall arrange a schedule with the Railroad for accomplishing staged construction involving work by the Railroad or tenants of the Railroad. In arranging a schedule, the contractor shall request information from the Railroad, and the Railroad shall promptly provide information, concerning the minimum lead time required for assembling crews and materials. The contractor shall schedule adequate time for those activities. The contractor shall not make any claim against the Railroad for hindrance or delay on account of railway traffic for:

**15.1** Any work the Railroad performs.

**15.2** Other delay incident to or necessary for the safe maintenance of railway traffic.

**15.3** Any delays due to compliance with these Railroad Requirements.

**16.0 Trainman's Walkways.** The contractor shall maintain along the outer side of each exterior track of multiple operated tracks, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than 12 feet from the centerline of the track. Before the close of each workday, the contractor shall remove all temporary impediments to walkways and track drainage encroachments or obstructions that were allowed during work hours when flagging services were available. Whenever the contractor excavates or maintains any excavation near the walkway, the contractor shall install a handrail with 12 feet minimum clearance from the centerline of the track.

**17.0 Insurance.**

**17.1 General Insurance Provisions.** The contractor shall, at its sole cost and expense, procure and continuously maintain in force during this project, the insurance coverage required under this section 17 until the contractor has completed all project work on the Railroad's Property, has removed all equipment and materials from the Railroad's Property, and has cleaned and restored the Railroad's Property to the satisfaction of the Engineer and the Railroad Representative. The amount of work to be performed upon, over or under the Railroad's Property is estimated to be one percent (1%) of the contractor's total bid for the project.

**17.2 Commercial General Liability Insurance.** The contractor shall maintain commercial general liability ("CGL") insurance with a limit of not less than \$5,000,000 for each occurrence and an aggregate limit of not less than \$10,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage). The policy must contain the following endorsement, which must be stated on the certificate of insurance: "Contractual Liability Railroad's" ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

**17.3 Business Automobile Coverage Insurance.** The contractor shall maintain business auto coverage written on ISO form CA 00 01 (or a substitute form providing equivalent liability coverage) with a combined single limit of not less than \$5,000,000 for each accident. The policy must contain the following endorsements, which must be stated on the certificate of insurance: "Coverage For Certain Operations In Connection With Railroad's" ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Property" as the Designated Job Site; and Motor Carrier Act Endorsement - Hazardous Materials Clean Up (MCS-90) if required by law.

**17.4 Alternate Liability Insurance Limits.** Instead of the minimum limits of insurance coverage described above in subsections 17.2 and 17.3, Railroad will accept CGL insurance limits of at least \$2,000,000 for each occurrence or claim and an aggregate limit of at least \$2,000,000, and will accept Business Automobile Insurance containing a combined single limit of at least \$2,000,000 per occurrence or claim, if the contractor will secure Railroad Protective Liability Insurance coverage with a combined single limit of \$5,000,000 per occurrence and an aggregate limit of \$10,000,000. The contractor's election to maintain these alternate liability insurance limits shall not affect the applicability of any other terms and conditions set forth in these Railroad Requirements.

**17.5 Workers' Compensation and Employers' Liability Insurance.** The contractor shall maintain workers' compensation insurance coverage, with not less than the minimum statutory liability required under the workers' compensation laws of the State of Missouri. The contractor shall maintain Employers' Liability (Part B) insurance coverage with limits of at least \$500,000 for each accident, a \$500,000 disease policy limit, and \$500,000 for each employee. If the contractor is self-insured, then the contractor shall provide evidence of state approval and excess workers' compensation coverage, which must include coverage for liability arising out of the U. S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable. The policy must contain the following endorsement, which must be stated on the certificate of insurance: "Alternate Employer Endorsement" ISO form WC 00 03 01 A (or a substitute form providing equivalent coverage) showing the Railroad in the schedule as the alternate employer (or a substitute form providing equivalent coverage).

**17.6 Railroad Protective Liability Insurance.** The contractor must maintain Railroad Protective Liability insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of the Railroad as named insured, with a limit of not less than \$2,000,000 per occurrence and an aggregate limit of \$6,000,000. Before commencing any work on the Railroad's Property, the contractor shall submit the original insurance policy to the Railroad or may submit a binder stating that the required Railroad Protective Liability policy is in place until the contractor delivers the original policy to the Railroad. The contractor shall cause the Railroad Protective Liability Insurance policy to include a description of the named insured, the work, and the job site, as follows:

**17.6.1** Named Insured: Union Pacific Railroad Company.

**17.6.2** Description and Designation:

Perform bridge widening and rehabilitation.

Cooper County, Route I-70

Job No. JST0017B

I-70 crossing Union Pacific west of the Missouri River Bridge at Rocheport.

**17.7 Umbrella or Excess Insurance.** If the contractor utilizes umbrella or excess insurance policies, these policies must "follow form" and afford no less coverage than the primary policy.

**17.8 Pollution Liability Insurance.** The contractor shall maintain pollution liability insurance coverage, which must be written on ISO form Pollution Liability Coverage Form Designated Sites CG 00 39 12 04 (or a substitute form providing equivalent liability coverage), with limits of at least \$5,000,000 per occurrence and an aggregate limit of \$10,000,000. If the scope of work as defined in this Project includes the disposal of any hazardous or non-hazardous materials from the job site, the contractor must furnish to the Railroad evidence of pollution legal liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting the materials, with coverage in minimum amounts of \$1,000,000 per loss, and an annual aggregate of \$2,000,000.

**17.9 Other Insurance Requirements.**

**17.9.1.** Each policy required above (except workers' compensation and employers' liability) must include the Railroad as "Additional Insured" using ISO Additional Insured Endorsements CG 20 26, and CA 20 48 (or substitute forms providing equivalent coverage). The coverage provided to the Railroad as an additional insured shall, to the extent provided under ISO Additional Insured

Endorsement CG 20 26 and CA 20 48, provide coverage for the Railroad's negligence whether sole or partial, active or passive.

**17.9.2** Where allowable by law, the punitive damage exclusion shall be deleted, and the deletion shall be indicated on the certificate of insurance.

**17.9.3** The contractor waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against the Railroad and its agents, officers, directors and employees, except that these waivers shall not apply to punitive damages, nor to any loss, damage or injury proximately caused by the Railroad's intentional misconduct or sole or gross negligence. The certificate of insurance shall acknowledge these waivers.

**17.9.4** Prior to commencing any work on the Railroad's Property, the contractor shall furnish the Railroad with one or more certificates of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth in this Section 17.

**17.9.5** The contractor shall only obtain insurance policies written by a reputable insurance company acceptable to the Railroad, or which currently has a Best's Insurance Guide Rating of A- and Class VII or better, and which is authorized to do business in the State of Missouri.

**17.9.6** The fact that insurance is obtained by the contractor or by the Railroad on behalf of the contractor will not be deemed to release or diminish the liability of the contractor, including, without limitation, liability under the indemnity provisions contained in Section 1.4 of these Railroad Requirements. Damages recoverable by the Railroad from the contractor or any third party will not be limited by the amount of the required insurance coverage, except to the extent of any payments the Railroad has received pursuant to that insurance coverage.

**17.10 Evidence of Insurance.** The contractor shall provide evidence of insurance as required above to the addresses shown below, for review by the Commission and transmittal to the Railroad.

Railroad  
Real Estate  
Union Pacific Railroad Company  
1400 Douglas St., MS 1690  
Omaha, NE 68179-1690

Commission  
Brandi Baldwin  
State Construction and Materials Engineer  
Missouri Department of Transportation  
P.O. Box 270  
Jefferson City, MO 65102

**17.11** Except as otherwise specifically provided in these Railroad Requirements, the Railroad will not accept binders as evidence of insurance, and the contractor shall provide the Railroad with the original insurance policy.

**17.12 Insurance Required of Subcontractors.** If any part of the work is sublet, the contractor shall maintain and provide evidence of similar insurance, in the same amounts as required of the prime contractor, to cover the subcontractor's operations. The Railroad will accept endorsements to the prime contractor's policies specifically naming subcontractors and describing the subcontractor's operations, for this purpose.

**17.13 Cancellation of Insurance.** The contractor and its insurers shall not cancel any of the required insurance coverage, except by permission of the Commission and the Railroad, or after

thirty (30) days' written notice to the Commission and the Railroad at the addresses shown in subsection 17.10.

**18.0 Completion of Work on Railroad's Property.** The contractor shall notify Engineer and Railroad's Representative when the contractor has completed its work on Railroad's Property.

**19.0 Failure to Comply.** If the contractor violates or fails to comply with any of the requirements of these Railroad Requirements, then the Railroad Engineer may require that the contractor vacate the Railroad's property and the Engineer may withhold all monies due to the contractor until the contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

**20.0 Payment for Cost of Compliance.** The contractor is not entitled to any separate payment for any extra cost it may incur on account of compliance with these Railroad Requirements. The contractor shall include all such costs in the contract unit price for items properly authorized in the contract.

J. Delayed Receipt of Railroad Clearance Certification

**1.0 Description.** The Contractor is made aware that MoDOT is seeking final approval from the Union Pacific Railroad (UPRR). The UPRR previously approved conceptual plans. Unsigned final plans were provided to the railroad on August 25<sup>th</sup>, and sealed plans were provided on October 24<sup>th</sup>. It is anticipated that railroad approval of the plans will be provided by the end of 2025, and the Construction and Maintenance Agreement will be signed by April 30, 2026. The Contractor will not be able to work over the UPRR until the Construction and Maintenance Agreement is complete along with the subsequent Contractor's Right of Entry Agreement.

**2.0 Basis of Payment.** No direct pay shall be provided for any labor, equipment, time or materials necessary to complete this work. The contractor shall have no claim, or basis for any claim or suit whatsoever, resulting from compliance with this provision. Any allowance for time extensions, that results from a delay in railroad clearance, will be covered under Sec 108.14 of the current Missouri Standard Specifications for Highway Construction.

K. Clean Water Act Requirements

**1.0 Description.** The Contractor shall be aware that any work within streams, wetlands, or special aquatic sites requires a Section 404 permit from the Corps of Engineers.

**2.0** The project meets the conditions of the following listed permits with no pre-construction notification to the Corps of Engineers:

Section 404 Nationwide Permit 14 (Linear Transportation Projects)

**3.0** The Contractor shall abide by all general conditions of Section 404 and 401 Permits, and specific conditions of the following listed Nationwide Permit found in the General Provisions and Supplemental Specifications to the current Missouri Standard Specifications for Highway Construction referenced in this contract.

Section 404 Nationwide Permit 14 (Linear Transportation Projects)

**3.1** If there are any changes to the scope or limits to the project, the Contractor must notify the Engineer who will then notify the MoDOT Environmental Section to verify that the project still meets permit conditions.

**3.2** No additional time will be added to the contract for the contractor to obtain any permits.

**4.0 Basis of Payment.** There will be no direct payment for compliance with this provision.

**L. Tree Clearing Restriction**

**1.0 Description.** The project is within the known range of several federally protected bat species. These bats are known to roost in trees with suitable habitat characteristics during summer months.

- 1.1** MoDOT has determined that suitable trees for one or more of these bat species exist within the project area.
- 1.2** To avoid negative impacts to these bat species, removal of any trees/limbs greater than three (3) inches in diameter shall only occur between October 16 and March 31.
- 1.3** Ground disturbance from the tree clearing resulting in erodible soil conditions will require erosion control measures be installed.

**2.0 Basis of Payment.** No direct pay shall be provided for any labor, equipment, time, or materials necessary to complete this work.

**M. Restrictions for Migratory Birds NJSP-16-06A**

**1.0 Description.** Swallows or other bird species protected by the Migratory Bird Treaty Act may be nesting under the bridge or bridges that will be repaired under this contract.

**2.0 Restrictions.** To comply with the Migratory Bird Treaty Act, nests of protected species cannot be disturbed when active (eggs or young are present). Generally, nests are active between April 1 and July 31, but active nests can be present outside of these dates.

**3.0 Avoidance Measures.** The contractor shall not disturb active nests or destroy adults, eggs or young birds. In an effort to comply with the Migratory Bird Treaty Act, the contractor operations will be limited to the options established in the following sections.

**3.1 Inactive or Partially Constructed Nests.** If nests are present and MoDOT determines that the nests are inactive or partially constructed, the contractor may remove the nests provided that the colony's inactive or partially constructed nests are completely removed by March 15 and the contractor maintains a nest free condition until the bridge work is complete. Dry removal methods shall be used when practicable. If dry removal is not practicable, hydro cleaning may be used if approved by the Engineer and only if water is free of blasting grit, chemicals, or detergents, and applied using pressure less than 5,000 PSI. Clean water such as that from municipal water

treatment plants or wells shall be used. Use of source water from Waters of the State (i.e., streams or lakes), is allowable, if the appropriate methods to prevent the possible spread of invasive aquatic species are implemented.

**3.2 Water and Equipment Used for Hydro cleaning.** Aquatic invasives such as zebra mussels and some algae species have infested several bodies of water in the United States and can be transported by vessels (barges, boats, tugs, tankers, etc.) and equipment (tanks, tubing, pumps, etc.) that have been used in areas that contain these invasive species. If equipment is not properly inspected and treated to prevent the spread of invasives, these species can be introduced into areas not currently known to have a population. These invasive species are detrimental to existing ecosystems and can outcompete native species. To assist in preventing the introduction and spread of aquatic invasive species through MoDOT projects in Missouri streams and lakes, the following precautions shall be followed.

**3.2.1 Use of Water from Streams, Lakes or Ponds.** Contractors shall not use water for nest removal from streams, lakes or ponds, unless they have implemented appropriate methods to prevent the possible spread of invasive aquatic species. Water sources from municipal water treatment plants or wells may be used without following these measures provided the equipment to be used has not previously contained waters from streams, lakes or ponds. If the equipment has previously contained waters from other streams or lakes, the following measures must be implemented prior to use.

**3.2.1.1 Equipment Washing.** Prior to the use or re-use of equipment following any use with water from streams, lakes or ponds, all equipment shall be washed and rinsed thoroughly with hard spray (power wash) and hot (minimum 120° F) water, for at least one minute.

**3.2.1.2 Equipment Treating or Drying.** Equipment shall be treated or dried in one of the following manners.

**3.2.1.2.1** Equipment interior and/or other surfaces shall be treated with a 10% bleach solution to kill any aquatic nuisance species. This solution must also be run through all intake lines and hoses, to sterilize interior components. When chlorine treatment is used, all chlorine runoff from equipment washing must be collected and properly treated and/or disposed of in accordance with Sec 806.

**3.2.1.2.2** Equipment interior and/or other surfaces shall be treated with 140° F water for a minimum of 10 seconds contact on all surfaces. 140 ° F water must also be run through all intake lines and hoses, to purge any standing water.

**3.2.1.2.3** Equipment shall be flushed of all non-municipal water, and dried thoroughly, in the sun before using in or transporting between streams and lakes. Dry times will depend on the season the equipment is being used. Equipment must dry a minimum of 7 days for June-September, 18 days for March-May; 18 days for October-November, and 30 days for December-February. The drying method should be reserved as a last resort option.

**3.2.2** Prior to use of equipment, contractors shall provide the MoDOT inspector written documentation of the equipment's geographic origin (including the water body it was last used in), as well as defining the specified treatment method used to adequately ensure protection against invasive species. The written documentation will include a statement indicating the contractor is

aware of these provisions and will also treat the equipment appropriately after completion of the project.

**3.3 Active Nests.** The contractor may work on the bridge if active nests are present, as long as the work does not impact or disturb the birds and/or nests. At a minimum, work shall not be performed within 10 feet of an active nest; however, the contractor is responsible for ensuring their activities do not impact the nests, eggs, or young.

**4.0 Additional Responsibilities.** If active bird nests remain after all reasonable avoidance measures have been taken, or if bird nests are observed during project construction, the contractor shall notify the Resident Engineer and contact the MoDOT Environmental Section (573-526-4778) to determine if there are other allowable options.

#### N. Wildlife Crossings

**1.0 Description.** This work shall consist of constructing wildlife crossings through type C concrete traffic barrier in the median as shown on the special sheet in the plans.

#### **2.0 Construction Requirements:**

**2.1** Wildlife crossings shall conform to the spacing and dimensions as shown on the special sheet in the plans. The intent of wildlife crossings is to provide cross-median-barrier access for small and medium sized wildlife at locations where the roadway excavation transitions from deep cut to deep fill.

**2.2** The method of construction for wildlife crossings shall be devised by the contractor and approved by the engineer. Slipforming of the barrier is allowed, however the contractor shall take care to ensure the wildlife crossing form is sufficiently anchored and will not shift during the slipforming operation.

**2.3** Forms may be stay-in-place or removable. Stay-in-place forms shall consist of material conforming to the applicable specifications for group C pipe or better. Stay-in-place forms, based on the sole judgment of the engineer, shall not pose a long-term maintenance concern, and shall be securely anchored to the type C barrier to prevent separation.

**2.4** Rectangular openings may be substituted for semi-circular openings as approved by the engineer. Rectangular openings shall not exceed 15" in width and 7.5" in height, and corners shall have a 0.75" camber, 0.5" radius, or alternate as approved by the engineer.

**3.0 Method of Measurement.** Wildlife crossings shall be measured per each.

**4.0 Basis of Payment:** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

Item No.	Units	Description
617.99.01	Lump Sum	Median Barrier

Wildlife Crossings are designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
617-99.02	EA	Wildlife Crossings

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## O. Alternates for Pavements JSP-96-04G

**1.0 Description.** This work shall consist of a pavement composed of either portland cement concrete or asphaltic concrete, constructed on a prepared subgrade in accordance with the standard specifications and in conformity with the lines, grades, thickness and typical cross sections shown on the plans or established by the engineer.

**1.1** Separate **lump sum** pay items, descriptions and quantities are included in the itemized proposal for each of the alternates. The bidder shall only bid one of the alternates and leave the contract unit price column blank for any **lump sum** pay item listed for any other alternate. If the bidder leaves any value in the unit price column for another alternate other than the one they are bidding, the bid will be rejected.

### 2.0 Mainline Pavements

**2.0.1** A sum of **\$11,825,100** will be added by the Commission to the total bid using an asphalt alternate (Alternate B) for the I-70 mainline pavement for bid comparison purposes to factor in life cycle cost analysis of the roadway. The additional amount added will not represent any additional payment to be made to the successful bidder and is used only for determining the low bid.

**2.0.2** A sum of **\$922,900** will be added by the Commission to the total bid using an asphalt alternate (Alternate D) for the I-70 A2 Shoulders for bid comparison purposes to factor in life cycle cost analysis of the roadway. The additional amount added will not represent any additional payment to be made to the successful bidder and is used only for determining the low bid.

**2.0.3** A sum of **\$154,900** will be added by the Commission to the total bid using an asphalt alternate (Alternate F) for the I-70 Strengthened Shoulders for bid comparison purposes to factor in life cycle cost analysis of the roadway. The additional amount added will not represent any additional payment to be made to the successful bidder and is used only for determining the low bid.

**2.1** The quantities shown for each alternate reflect the total square yards of pavement surface designated for alternate pavement types as computed and shown on the plans. No additional payment will be made for asphaltic concrete mix quantities to construct the required 1:1 slope along the edge of the pavement, or for tack applied between lifts of asphalt.

**2.2** Pavement alternates composed of Portland cement concrete shall have contrast pavements for intermittent markings (skips), dotted lines, and solid intersection lane lines. The pavement markings shall comply with Sec 620. No additional payment will be for the contrast pavement markings.

**3.0 Method of Measurement.** The **quantities** quantity of concrete pavement will **not** be measured unless the paving plan is modified by the Engineer. Modifications to concrete pavement will be measured in accordance with Sec 502.14. The **quantities** quantity of asphaltic concrete pavement

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will not be measured unless the paving plan is modified by the Engineer. Modifications to asphalt concrete pavement will be measured in accordance with Sec 403.22.

**4.0 Basis of Payment.** The accepted quantity of the chosen alternate and other associated items will be paid for at the Lump Sum unit price for each of the appropriate pay items included in the contract.

~~4.1 For projects with previously graded roadbeds, any additional quantities required to bring the roadway subgrade to the proper elevation will be considered completely covered by the pay item for Subgrading and Shouldering.~~

**4.1 4.1** For projects with grading in the contract, there will be no adjustment of the earthwork quantities due to adjusting the roadway subgrade for alternate pavements.

P. Law Enforcement in the Work Zone JSP-15-03

**1.0 Description.** This project has been selected for use of law enforcement personnel in the work zone to help control traffic and promote safety.

**2.0 Traffic Control Plan and Preconstruction Conference.** The contractor shall present any variations planned to the Traffic Control Plan to the engineer prior to the preconstruction conference. Law enforcement agency representatives may be present at the preconstruction conference. The preconstruction conference will include discussion about the proposed strategy for use of law enforcement in the work zone. Based upon input from the law enforcement agency personnel, the engineer and the contractor, a strategy will be developed for best use of the law enforcement hours by spacing involvement at various times and durations throughout the life of the project.

**3.0 Control of Work.** The engineer will contact the law enforcement agency and make all arrangements to schedule this work. The contractor may make suggestions to the engineer for improving the strategy at any time. The engineer will contact the law enforcement agency with any approved changes.

3.1 The engineer will make the final decision on all aspects of law enforcement in the work zone.

**4.0 Basis of Payment.** The Commission will reimburse the law enforcement agency per terms of the agreement between the two agencies. The contractor will not be part of that agreement and will not be required to participate in the cost. No direct payment will be made to the contractor for any costs associated with this provision.

Q. Liquidated Damages for Winter Months JSP-04-17A

Delete Sec 108.8.1.3 (a)

Liquidated damages for failure to complete the work on time shall not be waived from December 15, 2027 to March 15, 2028 both dates inclusive.

R. Liquidated Savings Specified JSP 03-06A

**1.0 Description.** If construction of bridge widening, mainline paving, shoulder paving, and median barrier is not completed by December 31, 2027, the Commission, the traveling public, and state and local police and governmental authorities will be damaged in various ways, including but not limited to potential liability, traffic and traffic flow regulation cost, traffic congestion and motorist delay, with its resulting cost to the traveling public.

**2.0 Liquidated Savings Specified for Early Completion.** The contractor may receive an incentive payment from the Commission, in addition to all other sums earned under the contract, if the contractor completes construction of bridge widening, mainline paving, shoulder paving, guardrail and median barrier. To qualify for this incentive payment, all bridge work, paving work, median barrier, and guardrail shall be completed. An incentive payment of **\$1,500,000** will be paid if the work identified to qualify for incentive payment is completed by July 1, 2027. If the above payment conditions are not met, the contractor can receive an incentive payment of **\$500,000** if the work identified to qualify for incentive payment is completed by September 1, 2027.

**2.1** In the event of an excusable delay, including differing site conditions, an extension of the contract completion time will not extend the time specified for determining any liquidated savings or incentive , except that, in its discretion, the Commission may extend the time specified should the delay be directly caused by the Commission. Further, in the event of an excusable delay, if the contractor completes the work providing for liquidated savings or incentive on or before the milestone or other date, that shall not constitute a basis to claim acceleration costs in addition to the liquidated savings or incentive that may be earned.

**2.2** The incentive payment described above is made, not as a bonus or gift, but as stipulated compensation in full for reduced risks, delay and inconvenience experienced by the traveling public, and for other reduced costs to the Commission and public resulting from early completion.

S. Quality Management NJSP-15-22

**Quality Management.** The contractor shall provide Quality Management as specified herein to ensure the project work and materials meets or exceeds all contract requirements.

**1.1** The contractor shall provide Quality Control (QC) of the work and material, as specified herein, to ensure all work and material is in compliance with contract requirements. QC staff shall perform and document all inspection and testing. The QC inspectors and testers may be employed by the contractor, sub-contractor, or a qualified professional service provided by the contractor.

**1.2** The engineer will provide Quality Assurance (QA) inspection. The role of QA is to verify the performance of QC and provide confidence that the product will satisfy given requirements for quality.

**1.3** The contractor shall designate a person to serve as the project Quality Manager (QM). The QM shall be knowledgeable of standard testing and inspection procedures for highway and bridge construction, including a thorough understanding of the Missouri Standard Specifications. The QM shall be responsible for the implementation and execution of the Quality Management Plan and shall oversee all QC responsibilities, including all sub-contract work. The QM shall be the primary point of contact for all quality related issues and responsibilities, and shall ensure qualified QC technicians

and inspectors are assigned to all work activities. The QM should be separate from the manager of the work activities to effectively manage a QC program.

**1.4** Any QC personnel determined in sole discretion of the engineer to be incompetent, derelict in their duties, or dishonest, shall at a minimum be removed from the project. Further investigation will follow with a stop work notification to be issued until the contractor submits a corrective action report that meets the approval of the engineer.

**2.0 Quality Management Plan.** The contractor shall develop, implement and maintain a Quality Management Plan (QMP) that will ensure the project quality meets or exceeds all contract requirements, and provides a record for acceptance of the work and material. A sample QMP, which shows minimum requirements, is provided on the MoDOT website at: [www.modot.org/quality](http://www.modot.org/quality).

**2.1** The QMP shall address all QC inspection and testing requirements of the work as described herein. A draft QMP shall be submitted to the Resident Engineer for review at least two weeks prior to the pre-construction conference. An approved QMP is required at least two weeks prior to the start of work, unless otherwise allowed by the engineer. Physical work on the project shall not begin prior to approval of the QMP by the engineer.

**2.2** The approved QMP shall be considered a contract document and any revisions to the QMP will require approval from the engineer.

**2.3** The following items shall be included in the Quality Management Plan:

- a) Organizational structure of the contractor's project management, production staff, and QC staff, specific to this project.
- b) Name, qualifications and job duties of the Quality Manager.
- c) A list of all certified QC testers who will perform QC duties on the project, including sub-contract work, and the tests in which they are certified.
- d) A list of all QC inspectors who will perform QC inspection duties on the project, including sub-contract work, and the areas of inspection that they will be assigned.
- e) A procedure for verifying documentation is accurate and complete as outlined in Section 3.
- f) A procedure describing QC Inspections as outlined in Section 4.
- g) A procedure describing QC Testing, as outlined in Section 5, including a job specific Inspection and Test Plan (ITP).
- h) A procedure describing Material Receiving as outlined in Section 6.
- i) A list of Hold Points that are not included in the checklist forms, as outlined in Section 8.
- j) A procedure for documenting and resolving Non-Conforming work as outlined in Section 9.
- k) A procedure for tracking and documenting revisions to the QMP.

- I) A list of any approved changes to the Standard Specifications or ITP, including a reference to the corresponding change order.
- m) Format for the Weekly Schedule and Work Plans as outlined in Section 10, including a list of activities that will require pre-activity meetings.

**3.0 Project Documentation.** The contractor shall establish a Document Control Procedure for producing and uploading the required Quality Management documents to a MoDOT-provided server. The document management software used by MoDOT is Microsoft SharePoint®. Contractors do not need to purchase Microsoft SharePoint®, however, it is recommended that new users acquire some basic training to better understand how to use this software. MoDOT does not provide the software training, but there are several online vendors who do. Contractors are required to use Microsoft Excel® and Microsoft Word® with some documents.

**3.1** The contractor shall utilize the file structure and file naming convention provided by MoDOT. A sample file structure is available on the MoDOT website.

**3.2** Documents (standard forms, reports, and checklists) referenced throughout this provision are considered the minimum documentation required. They shall be obtained from MoDOT at the following web address: [www.modot.org/quality](http://www.modot.org/quality). The documents provided by MoDOT are required to be used in the original format, unless otherwise approved by the engineer. Any alteration to these forms shall be approved by the engineer.

**3.3** Timely submittal of the required documents to the MoDOT document storage location is essential to ensure payment can be processed for the completed work. Submittal of the documents is required within 12 hours of the work shift that the work was performed, or on a document-specific schedule approved by the engineer and included in the QMP.

**3.4** The contractor shall establish a verification procedure that ensures all required documents are submitted to the engineer within the specified time, and prior to the end of each pay period for the work that was completed during that period. Payment will not be made for work that does not include all required documents. Minimum documents that might be required prior to payment include: Test Reports, Inspection Checklists, Materials Receiving Reports, and Daily Inspection Reports.

**3.5** The contractor shall perform an audit at project closeout to ensure the final collection of documents is accurate and complete.

**4.0 Quality Control Inspections.** The QMP shall identify a procedure for performing QC inspections. QC inspections shall be performed for all project activities to ensure the work is in compliance with the contract, plans and specifications.

**4.1** The QM shall identify the QC inspectors assigned to each work activity. The QC inspectors shall inspect the work to ensure the work is completed in accordance with the plans and specifications, and shall document the inspection by completing the required inspection checklists, forms, and reports provided by MoDOT. Depending on the type of work, the checklists may be necessary daily, or they may follow a progressive work process. The frequency of each checklist shall be stated in the QMP. The contractor may propose alternate versions of checklists that are more specific to the work.

**4.2** A Daily Inspection Report (DIR) is required to document pertinent activity on the project each day. This report shall include a detailed diary that describes the work performed as well as observations made by the inspection staff regarding quality control. The report shall include other items such as weather conditions, location of work, installed quantities, tests performed, and a list of all subcontractors that performed work on that date. The report shall include the full name of the responsible person who filled out the report and shall be digitally signed by an authorized contractor representative.

**4.3** External fabrication of materials does not require further QC inspection if the product is currently under MoDOT inspection or an approved QC/QA program. QC inspection and testing required in the production of concrete for the project shall be the responsibility of the contractor.

**4.4** The contractor shall measure, and document on the DIR, the quantity for all items of work that require measurement. Any calculations necessary to support the measurement shall be included with the documentation. The engineer will verify the measurements prior to final payment.

**5.0 Quality Control Testing.** The QMP shall identify a procedure for QC testing. The contractor shall perform testing of the work at the frequency specified in the Inspection and Test Plan (ITP).

**5.1** MoDOT will provide a standard ITP and the contractor shall modify it to include only the items of work in the contract, including adding any Job Special Provision items. The standard ITP is available on the MoDOT website at [www.modot.org/quality](http://www.modot.org/quality). The contractor shall not change the specifications, testing procedures, or the testing frequencies, from the standard ITP without approval by the engineer and issuance of a change order.

**5.2** Test results shall be recorded on the standard test reports provided by the engineer, or in a format approved by the engineer. Any test data shall be immediately provided to the engineer upon request at any time, including prior to the submission of the test report.

**5.3** The contractor shall ensure that all personnel who perform sampling and/or testing are certified by the MoDOT Technician Certification Program or a certification program that has been approved by MoDOT for the sampling and testing they perform.

**5.4** If necessary, an independent third party will be used to resolve any significant discrepancies between QC and QA test results. All dispute resolution testing shall be performed by a laboratory that is accredited in the AASHTO Accreditation Program in the area of the test performed. The contractor shall be responsible for the cost to employ the third party laboratory if the third party test verifies that the QA test was accurate. The Commission shall be responsible for the cost if the third party test verifies that the QC test was accurate.

**6.0 Material Receiving.** The QMP shall identify a procedure for performing material receiving. Standard material receiving forms will be provided by the engineer.

**6.1** The procedure shall address inspections for all material delivered to the site (excluding testable material such as concrete, asphalt, aggregate, etc.) for general condition of the material at the time it is delivered. The material receiving procedure shall record markings and accompanying documentation indicating the material is MoDOT accepted material (MoDOT-OK Stamp, PAL tags, material certifications, etc.).

**6.2** All required material documentation must be present at the time of delivery. If the material is not MoDOT accepted, the contractor shall notify the engineer immediately and shall not incorporate the material into the work.

**7.0 Quality Assurance.** The engineer will perform Quality Assurance inspection and testing (QA) to verify the performance of QC inspection and testing. The frequency of the QA testing will be as shown in the ITP, but may be more frequent at the discretion of the engineer. The engineer will record the results of the QA testing and inspection and will inform the contractor of any known discrepancies.

**7.1** QA is responsible for verifying the accuracy of the final quantity of all pay items in the contract. This includes taking measurements on items that require measurement and other items that are found to have appreciable errors.

**7.2** QA inspection and test results shall not be used as a substitute for QC inspection and testing.

**7.3** QA will be available for Hold Point inspections at the times planned in the Weekly Schedule. The inspections may be re-scheduled as needed, but a minimum 24-hour advance notification from the contractor is required unless otherwise approved by the engineer.

**8.0 Hold Points.** Hold Points are events that require approval by the engineer prior to continuation of work. Hold Points occur at definable stages of work when the succeeding work depends on a QA review of the preceding work before work can continue.

**8.1** A list of minimum Hold Points will be provided by the engineer and shall be included in the QMP. The engineer may make changes to the Hold Point list at any time.

**8.2** Prior to all Hold Point inspections, QC shall provide the engineer with the Daily Inspection Reports, Inspection Checklists, Test Reports, and Material Receiving Reports for the work performed leading up to the Hold Point. If the engineer identifies any corrective actions needed during a Hold Point inspection, the corrections shall be completed prior to continuing work. The engineer may require a new Hold Point to be scheduled if the corrections require a follow-up inspection.

**9.0 Non-Conformance Reporting.** Non-conformance reports shall be issued by the contractor for work that does not meet the contract requirements. Non-conforming work includes work, testing, materials and processes that do not meet contract requirements. The contractor shall establish a procedure for identifying and resolving non-conforming work as well as tracking the status of the reports.

**9.1** Contractor QC staff or production staff should identify non-conforming work and document the details on the Non-Conformance Report form provided by MoDOT. QA staff may also initiate a non-conformance report.

**9.2** In-progress work that does not meet the contract requirements may not require a non-conformance report if production staff is aware of the issue and corrects the problem during production. QC or QA may issue a non-conformance report for in-progress work when documentation of the deficiency is considered beneficial to the project record.

**9.3** The contractor shall propose a resolution to the non-conforming work. Acceptance of a resolution by the engineer is required before closure of the non-conformance report.

**9.4** For recurring non-conformance work of the same or similar nature, a written Corrective Action Request will be issued by QC or QA. The contractor shall then establish a procedure for tracking the corrective action from issuance of the request to implementation of the solution. Approval from the engineer is required prior to implementation of the proposed corrective action. The contractor shall notify the engineer after the approved corrective action has been implemented.

**10.0 Work Planning and Scheduling.** The contractor shall include Quality Management in all aspects of the work planning and scheduling. This shall include providing a Weekly Schedule, a Work Plan for each work activity, and holding pre-activity meetings for each new activity.

**10.1** A Weekly Schedule shall be provided to the engineer each week that outlines the planned project activities for the following two-week period. This schedule shall include all planned work, identification of all new activities, traffic control events, and requested Hold Point inspections for the period. Planned quantity of materials, along with delivery dates should also be included in the schedule.

**10.2** A Work Plan shall be submitted to the engineer at least one week prior to the pre-activity meeting. The Work Plan shall include the following: a safety plan, list of materials to be used, work sequence, defined responsibilities for QC testing and inspection personnel, and stages of work that will require Hold Point inspections.

**10.3** A pre-activity meeting is required prior to the start of each new activity. The purpose of this meeting is to discuss details of the Work Plan and schedule, including all safety precautions. Those present at the meeting shall include: the production supervisor for the activity, the Quality Manager, QC inspection and testing staff, and QA. The Quality Manager will review the defined responsibilities for QC testing and inspection personnel and will address any quality issues with the production staff. Attendees may join the meeting in person or by phone or video conference.

**11.0 Basis of Payment.** Payment for all costs associated with developing, implementing and maintaining the Quality Management Plan, providing Quality Control inspection and testing, and all other costs associated with this provision, will be considered included in the unit price of each contract item. No direct pay will be made for this provision.

T. Aggregate for Concrete

**Delete Section 1005 in its entirety and replace with the following:**

**1005.1 Scope.** This specification covers aggregate to be used for concrete construction.

**1005.2 Coarse Aggregate.**

**1005.2.1** All coarse aggregate for concrete shall consist of sound, durable rock, free from objectionable coatings and frozen and cemented lumps. The percentage of deleterious substances shall not exceed the following values, and the sum of percentages of all deleterious substances, exclusive of the material passing No. 200 sieve (Gradations D and E), and thin or elongated materials, shall not exceed 6.0 percent. For crushed stone, the percentage of wear shall not

exceed 50 when tested in accordance with AASHTO T 96.

Deleterious Material	Percent by Weight
Deleterious Rock	6.0
Shale	1.0
Chert in Limestone	4.0
Other Foreign Material	0.5
Material Passing No. 200 Sieve	
Gradations D & E	2.5 <sup>a</sup>
Thin or Elongated	5.0

<sup>a</sup> Value may be raised to 3.0 percent, providing the material passing the #200 sieve in the fine aggregate is less than or equal to 1.0 percent.

**1005.2.1.1** The above requirements shall apply to each size or fraction of aggregate produced.

**1005.2.1.2** Crushed stone shall be obtained from rock of uniform quality. Rock tested for initial approval, source samples, and production samples shall meet the requirements below. The absorption and soundness test results may be waived provided a durability factor of 90 percent or higher is achieved. Concrete pavement aggregate approval will be based on maximum aggregate size produced that meets durability requirements.

Test Method <sup>3</sup>	Concrete Masonry Aggregate	Concrete Pavement Aggregate, additional Source Approval Samples
Los Angeles Abrasion, AASHTO T 96, percent loss, max. <sup>1</sup>	50	50
Absorption, AASHTO T 85, percent, max. <sup>1</sup>	3.5	2.0
Soundness, MoDOT Test Method TM 14, percent loss, max. <sup>1</sup>	18.0	16.0
Durability Factor, AASHTO T 161 Procedure B, percent, min.	N/A	80
Micro Deval, AASHTO T327, percent loss, max. <sup>1</sup>	N/A	Value of the First Source Approval +5.0 <sup>2</sup>
Reactivity, MoDOT Test Method TM 93	passes	passes

<sup>1</sup> Evaluated every year

<sup>2</sup> When the Micro-Deval percent abrasion loss is 5.0 higher or more than the Micro-Deval abrasion loss of the first source approval, new T 161 B and TM-93 tests are required

<sup>3</sup>The engineer may require additional testing based on variable test results

**1005.2.1.3** All tests in 1005.2.1.2 shall be run for each source approval. The absorption, durability factor, and TM-93 test results may be waived for concrete pavement approval by the State Construction and Materials Engineer provided sufficient evidence of field performance is submitted. The aggregate producer or contractor, shall provide the following to the State Construction and Materials Engineer prior to any consideration of waiver of test requirements:

- (a) The ledge combination aggregate has been previously used on a minimum of three different Missouri mainline pavement roadways,
- (b) The minimum individual age of the three concrete pavements shall be 25 years,
- (c) The minimum individual quantity of the three concrete pavements shall be 14,000 square yards mainline concrete pavement. Ramps shall not be used to meet this requirement.

The required documentation for a field performance waiver shall include the job number or contract ID, route, direction, specific location (e.g., log mile or station), and year(s) paved. Neither MoDOT nor the Commission is responsible for providing this required documentation.

**1005.2.1.4** Gravel shall be washed and shall be in accordance with the criteria below for initial approval. Source approval and production samples shall also meet the following criteria:

Property	Value
Los Angeles Abrasion, AASHTO T 96, percent loss, max.	45
Absorption, AASHTO T 85, percent, max.	4.5
Soundness, MoDOT Test Method TM 14, percent loss, max.	18.0

**1005.2.1.5** The engineer reserves the right to use additional test methods, such as ASTM C25, ASTM C1105, ASTM C1260, or other appropriate tests, to measure the soundness and durability of aggregate for use in concrete when deemed necessary.

**1005.2.2** Coarse aggregate for concrete pavement or base course shall be crushed stone or porphyry.

**1005.2.3 Grade F Aggregate.** Coarse aggregate for Portland cement concrete pavement, base and approach slabs for bridges that is not produced from the Burlington, Keokuk, Cedar Valley (formerly Callaway) or Warsaw limestone formations, which is obtained from sources in the following areas shall have a maximum top size of  $\frac{3}{4}$  inch:

- (a) State of Kansas, Iowa and Nebraska.
- (b) Counties of Missouri – Adair, Andrew, Atchison, Bates, Benton, Buchanan, Caldwell, Carroll, Cass, Cedar, Chariton, Clay, Clinton, Daviess, DeKalb, Gentry, Grundy, Harrison, Henry, Holt, Jackson, Johnson, Lafayette, Linn, Livingston, Mercer, Macon, Nodaway, Pettis, Platte, Putnam, Randolph, Ray, St. Clair, Saline, Schuyler, Sullivan, Vernon and Worth.

**1005.2.4** Grade F shall be obtained from rock of uniform quality. Rock tested for initial approval,

source samples, and production samples, shall meet the requirements below. The absorption, soundness, and bulk specific gravity test results may be waived provided a durability factor of 90 percent or higher is achieved.

Property	Value
Los Angeles Abrasion, AASHTO T 96, percent loss, max.	50
Absorption, AASHTO T 85, percent, max.	1.5
Soundness, MoDOT TM 14, percent loss, max.	10.0
Bulk Specific Gravity, AASHTO T 85, min.	2.58
<b>Durability Factor, AASHTO T 161 Procedure B, percent, min:</b>	80 <sup>a</sup>

<sup>a</sup> Approval will be based on maximum aggregate size produced that meets durability requirements.

**1005.2.5** Coarse aggregate for concrete for structures, except as specified in [Sec 1005.2.6](#), may be gravel or crushed stone. Coarse aggregate for Class B, B-1, B-2, MB-2 or Seal concrete shall be in accordance with either Gradation D or E. Coarse aggregate for Class A-1 concrete shall be in accordance with Gradation E.

Gradation D	Percent by Weight
Passing 1-inch sieve	100
Passing 3/4-inch sieve	85-100
Passing 3/8-inch sieve	15-55
Passing No. 4 sieve	0-10

Gradation E	Percent by Weight
Passing 3/4-inch sieve	100
Passing 1/2-inch sieve	70-100
Passing 3/8-inch sieve	30-70
Passing No. 4 sieve	0-20
Passing No. 8 sieve	0-6

**1005.2.6** Coarse aggregate for ornamental concrete shall be crushed stone in accordance with [Sec 1005.2.5](#), Gradation E. However, the use of coarse aggregate containing more than 2 percent chert will not be permitted.

### 1005.3 Fine Aggregate.

**1005.3.1** Fine aggregate for concrete shall be a fine granular material naturally produced by the disintegration of rock of a siliceous nature, or shall be manufactured from an approved limestone or dolomite source as defined in [Sec 1005.2](#). By specific approval from the engineer, chat sand produced from flint chat in the Joplin area or fines manufactured from igneous rock or chert gravel may be used. Fine aggregate shall be free from cemented or conglomerated lumps and shall not have any coating of injurious material. The percentage of deleterious substances shall not exceed the following values:

Deleterious Material	Percent by Weight
Clay Lumps and Shale	0.25
Coal and Lignite	0.50
Total Lightweight Particles, including Coal and Lignite	0.50
Material Passing No. 200 Sieve	
(a) Natural Sand	2.0
(b) Manufactured Sand	4.0
Other Deleterious Substances	0.10

**1005.3.2** The total lightweight particle requirement will not apply to angular chert sand or manufactured sand.

**1005.3.3** Fine aggregate shall produce a mortar having a seven-day compressive strength of at least 90 percent of a control mortar developed at the same proportions, using standard Ottawa sand. Tests shall be performed in accordance with AASHTO T 106. Cement used in the tests shall be Type I, in accordance with [Sec 1019](#). AASHTO T 106 may be waived provided the fine aggregate produces a glass color standard lighter than Organic Platte No. 3, in accordance with AASHTO T 21.

**1005.3.4** Fine aggregate for ornamental concrete shall be free from coal and lignite material when tested in accordance with AASHTO T 113.

**1005.3.5** All fine aggregate for PCCM shall meet the following gradation requirements:

Sieve	Percent by Weight
Passing 3/8-inch sieve	100
Passing No. 4 sieve	95-100
Passing No. 8 sieve	70-100
Passing No. 16 sieve	45-90
Passing No. 30 sieve	15-65
Passing No. 50 sieve	5-30
Passing No. 100 sieve	0-10

#### **1005.4 Lightweight Aggregates.**

**1005.4.1** Lightweight aggregates shall be prepared by expanding, calcining, or sintering argillaceous material such as clay, shales, and slates.

**1005.4.2 Grading.** The grading shall be uniform and conform to the requirements given in Table I.

**1005.4.3 Unit Weight.** The unit weight of lightweight aggregates shall not exceed the following:

Dry, Loose Weight, Max. lb/cu ft
Fine Aggregate 70
Coarse Aggregate 55

**1005.4.3.1 Uniformity of Weight.** If the unit weight of any shipment of lightweight aggregate when tested in accordance with AASHTO T 19 is found to vary by more than 10 percent from that of the sample submitted for source approval, the aggregate shipment may be rejected.

**1005.4.4 Soundness.** When tested in accordance with AASHTO T 104, the loss of lightweight fine or coarse aggregate in 5 cycles of the accelerated soundness test shall not exceed 8 percent if sodium sulfate is used or 10 percent if magnesium sulfate is used.

**1005.4.5 Drying Shrinkage.** The drying shrinkage of concrete specimens prepared and tested in accordance with AASHTO M 195, shall not exceed 0.07 percent.

**1005.4.6 Sampling.** Samples of fine and coarse aggregate shall be furnished by the contractor for source approval. Other samples shall be taken from shipments at intervals specified by the engineer.

Table I Grading Requirements for Lightweight Aggregate											
		Percent Passing Sieve Sizes									
Grade	Size	1 1/2"	1"	3/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 50	No. 100
<b>Fine Aggregate</b>											
	No. 4 to 0	---	---	---	---	100	85-100	---	40-80	10-35	5-20
<b>Coarse Aggregate</b>											
<b>1</b>	1" to 1/2"	100	90-100	20-55	0-10	0-5	---	---	---	---	---
<b>2</b>	1" to No. 4	100	95-100	---	25-60	---	0-10	0-5	---	---	---
<b>3</b>	3/4" to No. 4	---	100	90-100	---	20-55	0-10	0-5	---	---	---
<b>4</b>	1/2" to No. 4	---	---	100	90-100	40-70	0-15	0-5	---	---	---
<b>5</b>	3/8" to No. 8	---	---	---	100	85-100	10-30	0-10	0-5	---	---

U. Removal and Delivery of Existing Signs JSP-12-01C

**1.0 Description.** All Commission-owned signs removed from the project shall be disassembled, stored, transported, and disposed of as specified herein. Sign supports, structures and hardware removed from the project shall become the property of the contractor.

**2.0 Disassembly and Delivery.**

**2.1** All Commission-owned signs, (excluding abandoned billboard signs), designated for removal in the plans, or any other signs designated by the Engineer, shall be removed from the sign supports and structures, disassembled, stored, transported, and delivered by the contractor to the recycling center for destruction.

**2.2** The contractor shall coordinate and make arrangements with the recycling center for delivery of the signs. Sign panels shall be disassembled and/or cut into sizes as required by the recycling center.

**2.3** The contractor shall provide the Engineer with a "Sign Delivery Certification" attesting to completion of delivery of all existing sign material from the project to the recycler. In addition, the contractor shall provide to the Engineer a final "Sign Certification of Destruction" from the recycler that documents the total pounds of scrap sign material received from the project and attests that all such material will not be re-purposed and will be destroyed in a recycling process. The contractor can locate the required certification statements from the Missouri Department of Transportation website:

<https://www.modot.org/forms-contractor-use>

**2.4** Funds received from the disposal of the signs from the recycling center shall be retained by the Contractor.

**3.0 Basis of Payment.** All costs associated with removing, disassembling and/or cutting, storing, transporting, and disposing of signs shall be considered as completely covered by the contract unit price for Item No. 202-20.10, "Removal of Improvements", per lump sum.

V. Temporary Long-Term Rumble Strips JSP-13-04C

**1.0 Description.** The work shall include furnishing, installing, maintaining and removing long-term rumble strips, as shown in the plans, or as designated by the engineer.

**2.0 Material.**

**2.1** The long-term rumble strips shall be 10 feet to 12 feet in length, fabricated from a polymer material, and be orange in color.

**2.2** The long-term rumble strips shall have a minimum width of 4 inches, but no greater than 6 inches. The long-term rumble strips shall have a minimum thickness of 0.25 inch, but no greater than 0.50 inch.

**2.3** The long-term rumble strips shall have a pre-applied adhesive backing for securing to the asphalt or concrete roadway surface.

**3.0 Construction.** Long-term rumble strips layout and spacing shall be in accordance with the plans or as approved by the engineer. The long-term rumble strips shall be installed and removed in accordance with manufacturer's recommendation. The contractor shall monitor and repair, and maintain if necessary the long-term rumble strips until removed.

**3.1** Each set shall consist of five individual strips spaced ten to twelve feet on center.

**3.2** The long-term rumble strips removal process shall not damage the roadway surface. If any damage occurs to the pavement during the removal of long-term rumble strips, the contractor shall replace or repair the damaged pavement at no cost to the Commission.

**3.3** The long-term rumble strips shall be removed as directed by the Engineer to avoid damage due to winter snow removal operations. The long-term rumble strips shall be reinstalled as directed by the Engineer.

**4.0 Method of Measurement.** Measurement of long-term rumble strips will be per each complete set of five strips.

**5.0 Basis of Payment.** Temporary Long-Term Rumble Strips, per each set. There will be no direct payment if Contractor is directed to reinstall the long-term rumble strips after removal for winter snow removal operations. All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

Item No.	Units	Description
616.99.01	Lump Sum	Traffic Control

Temporary Long-Term Rumble Strips are designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
616-20.02	EA	Temporary Long-Term Rumble Strips

## W. Work Zone Intelligent Transportation System NJSP-15-32A

**1.0 General.** The Work Zone Intelligent Transportation System (WZITS) shall be a portable, real-time, automated, solar powered system that calculates and displays travel time through work zones and identifies queuing. The goal of this system is to provide advance traffic condition information to motorists at key decision points due to construction activity. The information reported to the public will include an accurate drive time through the work zone and queue warning. This system shall be in operation 24 hours per day, seven days per week, during the construction period.

**1.1 Pre-Bid Conference.** The WZITS shall be a proven system verifiable by at least ten months of continuous deployment in one or more states. All Contractors/Subcontractors are asked to attend a Virtual Pre-Bid Conference on January 5, 2026. This meeting, which is being

held to clarify the scope of the work for this project, will begin promptly at 1:00 PM. All contractors will be required to bring proof of prior deployments as well as contact information from prior deployments (names and phone numbers) to this Pre-Bid Conference. The references will be contacted by the Department and a determination will be made as to whether the Contractor's system meets the requirements and conditions of this specification. The Department reserves the right to reject any bids received from Contractors who do not meet the qualifications and certifications as described here. The decision to reject a bid may be based on information about past performance. It is highly recommended that Contractors/Subcontractors attend the Pre-Bid Conference.

**2.0 Description.** This item shall consist of submittal and approval of a Work Zone Intelligent Transportation System plan, furnishing, installing, relocating, and operating a portable, automated, solar powered real-time work zone system ("Work Zone Intelligent Transportation System") meeting the requirements noted herein, and providing a system manager to maintain the system during the duration of the project. The contractor shall assume responsibility for any damaged equipment due to crashes, vandalism, adverse weather, etc. that may occur during the system's deployment.

**2.1** The Contractor shall furnish and maintain this system for measuring and delivering real-time messages for the work zone.

**2.2** The contractor is responsible for coordinating any work in adjacent roadway construction projects.

**2.3** The contractor will be responsible for relocating the devices as directed by the engineer. When the equipment is no longer required for this project, the contractor shall remove it and retain ownership.

### **3.0 System Requirements**

**3.1** The Work Zone Intelligent Transportation System shall be installed on I-70. It shall consist of the following as a minimum:

- 6 portable changeable message signs
- 6 portable non-intrusive traffic sensors
- 1 central computer

### **4.0 Smart Work Zone Plan**

**4.1 General.** The contractor shall submit to the Engineer for approval a written and illustrated WZITS Plan three (3) weeks prior to mobilization of any component of the WZITS System. The WZITS Plan shall include the items required in this specification. The Contractor will not be allowed to start any construction activities that will affect traffic on the project until the WZITS Plan is approved by the Engineer.

**4.2 Content of the WZITS Plan.** The WZITS Plan shall include, as a minimum, the following items:

- (a) A detailed plan showing the proposed locations of all WZITS devices and equipment description including make and model.

- (b) A description of all proposed thresholds and proposed CMS messages to be implemented.
- (c) The name and contact information of the WZITS System Manager.
- (d) A detailed description of the proposed methods of communication between WZITS devices and WZITS Central Computer and between WZITS Central Computer and the [MoDOT District Office](#) located at [1511 Missouri Boulevard, Jefferson City MO 64102](#).
- (e) Proposed corrective method procedures including response times and notification process.

**4.3 Approval of Plan.** Approval of the WZITS Plan by the Engineer is required prior to the placement of any WZITS devices. Approval is conditional and will be predicated on satisfactory performance during construction. The Engineer reserves the right to require the Contractor to make changes in the WZITS Plan and operations, at no additional cost to the Commission, including removal of personnel, as necessary, to obtain the quality specified. The Contractor shall notify the Engineer in writing a minimum of seven (7) calendar days prior to any proposed changes in the WZITS Plan. Proposed changes are subject to approval by the Engineer.

## 5.0 Materials.

**5.1 Changeable Message Signs.** The Work Zone Intelligent Transportation System shall utilize MoDOT approved portable changeable message signs (CMS) in accordance with Missouri Standard Specifications for Highway Construction section 616 Temporary Traffic Control and 1063 Temporary Traffic Control Devices and Standard Plans for Highway Construction 616.10. Each CMS shall be capable of displaying eight characters on each of three rows. Each CMS power supply shall be properly sized to allow continuous operation for up to ten days during periods of darkness and inclement weather.

**5.2** Each CMS shall be integrated with a radio/modem, and/or a traffic sensor or other equipment (e.g. controller) mounted on it and shall act as a single “device” for the purpose of communicating with similarly integrated “devices” and displaying real-time traffic condition information. Each device shall be capable of communicating through radios/modems with other device(s) at upstream or downstream locations. MoDOT [TMC or District](#) staff must have the ability to override messages displayed on any CMS in the system. This feature must be password protected and on a website separate from MoDOT’s public website.

**5.3 Portable Non-Intrusive Traffic Sensors.** The Smart Work Zone System traffic sensors shall be side-fired microwave radar type whose accuracy is not degraded by inclement weather and visibility conditions including precipitation, fog, darkness, excessive dust and road debris. These sensors shall be capable of acquiring traffic data from up to six (6) lanes of traffic on a lane-by-lane basis.

**5.4 Central Computer.** The central computer shall provide the functionality described below:

### **General**

- Provide a Graphical User Interface that is compliant with Windows standards.

- Communication between the central computer and any device shall be independent and *non-reliant* upon communications with any other CMS or sensor.
- Alerts to MoDOT [TMC or District](#) staff and the Engineer shall be provided via pagers and/or e-mail. Alerts shall be sent in the event of device failure or traffic delays over [15](#) minutes.

### **Data Processing Software**

- The capability to collect and store sensor data.
- The capability to compare traffic data collected from sensors to user-defined thresholds and automatically update one or more CMS's.
- The capability to estimate travel times and automatically update one or more portable CMS's consistent with user-defined thresholds.
- The capability to display alternate route messages consistent with user-defined thresholds.

### **Data Management**

- Storage of speed, volume, occupancy, CMS message history, and travel times as well as appropriate sensor status for each day.

### **Website**

- The Contractor will be responsible for hosting the website and obtaining domain names. Possible domain names and overall website design must be submitted to the Engineer for approval prior to it being made available.
- The website shall contain an accurate map of the area affected by the work zone, including state highways or routes that may be used as alternates.
- Icons or hyperlinked text should accurately depict the current location of the system components and give real-time information provided by each component. In the event components are moved to a new location, the website must reflect these changes to the system layout.
- Historical data should be password protected and stored on the website for each day the system is in use, with date and time stamps included. The above data shall be available to MoDOT staff at all times for the duration of work zone activity. An electronic copy of all data, including date and duration of system malfunction, shall be provided to MoDOT staff after all work zone activity is completed and the WZITS has been removed.
- The MoDOT [TMC or District](#) staff and the Engineer shall have the capability to override messages, via password protection, from the website.
- Device information shall be provided to MoDOT TMC staff through icons or hyperlinked text representing each device. Detectors should provide real-time speeds at the respective locations and CMS's should provide the current message of each sign.
- The website shall be designed and operated to allow [20](#) users to access the site at one time.

**6.0 System Manager.** The contractor shall employ a system manager for the WZITS. The system manager shall be locally available to maintain system components, maintain the website, move portable devices as necessary, and respond to emergency situations. The system manager shall be responsible for coordinating the placement of devices in the project areas. It is the responsibility of the system manager to move system components that interfere with construction operations and relocate the components to another area. The system manager shall supply a local phone number and/or a toll free number to the engineer to contact

the system manager or other system representative at any time. The system manager shall not perform any other duties on the jobsite.

**7.0 Operational Test.** Once the WZITS is installed, it shall undergo a five-day operational test. The operational test shall include a test of the system in operation during a lane closure to ensure that all WZITS equipment (including the changeable message signs, traffic sensors, central computer, communication devices, and website) is operating in a fully functional manner and in accordance with the Smart Work Zone Plan for a duration of at least five (5) calendar days. The contractor shall provide for complete operations support from the vendor during the operational test, and the contractor shall provide verification that the reported drive time through the work zone accurately reflects actual field conditions. If any equipment malfunctions occur for a combined period of four (4) hours or more during this operational test on any day, no credit will be given for that day for the operational test period, and the five-day operational test will reset.

**7.1** The contractor shall maintain records of equipment stoppages and resumptions during the five-day operational test for submission to the engineer for his approval. In the event that ten percent or more of the time similar malfunctions occur that affect the proper operation of the WZITS, the engineer may declare a system component defective and require replacement of the equipment at no additional cost. When a system component defect is declared, the five-day operational test shall begin again after all defective equipment is replaced and the system is fully operational.

**7.2 Report.** The contractor shall submit a report to the engineer detailing the daily activity of the system during the operational test. The report shall indicate the date and time of any activity necessary to maintain operation of the WZITS during the operational test period. Each entry shall include the following information:

- Identity of the equipment on which work was performed
- Cause of equipment malfunction (if known)
- A description of the type of work performed
- Time required to repair equipment malfunction

Once the operational test report is received and approved by the engineer, the WZITS will be considered operational and the system will be accepted for use.

**8.0 Method of Measurement.** Work Zone Intelligent Transportation System (WZITS) shall be measured by one lump sum and shall be divided into the following payment schedule:

- 35 percent will be paid when all of the WZITS equipment is delivered to the jobsite.
- 25 percent will be paid when the engineer approves the Operational Test Report.
- 20 percent will be paid after 30 calendar days of full system operation.
- 20 percent will be paid after traffic is in its final position, the contractor's equipment has been removed from the project, and historical data has been provided to the engineer.

**8.1 Deduction for Failed System.** A percentage of the lump sum will be deducted should the system malfunction for three (3) or more consecutive calendar days or any total of five (5) calendar days in any one calendar month after the approval of the operational test. This deduction will be based on a ratio of calendar days of unsuccessful operation to total calendar

days of operation following the approval of the operational test. This deduction will not reduce the total system payment to less than **60** percent of the lump sum.

**9.0 Basis of Payment.** Payment for submittal and approval of a Work Zone Intelligent Transportation plan, furnishing, installing, relocating, operating, maintaining, testing, monitoring, providing a website, providing historical data, and removal of the Work Zone Intelligent Transportation System (WZITS), including all items required for proper operation of this installation, will be completely covered by the contract unit price.

Item No.	Units	Description
616.99.01	Lump Sum	Traffic Control

Work Zone Intelligent Transportation System is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
616-99.01	LS	Work Zone Intelligent Transportation System

X. Mowing JSP-00-11

**1.0 Description.** This work shall consist of mowing right of way within the construction limits of the project as approved or directed by the engineer. Mowing shall be in accordance with MoDOT's Roadside Vegetation Management Policy, May 2017.

**2.0 Construction Requirements.** The contractor shall be responsible for controlling the height of vegetation for traffic safety, including at approaches, crossings and intersections with abutting property to highways, railroads, trails, roads and streets.

**2.1** Roadside mowing shall be completed within 15 feet from the edge of the paved or aggregate shoulders or where the grass begins unless physically obstructed around mid-May and mid-July. A final mowing of up to 30 feet should be completed every year beginning in mid-September. Selectively applying herbicides to control brush up to 50 feet is permitted.

**2.2** Medians less than 60 feet wide shall be mowed entirely each mowing cycle.

**2.3** Interchanges on major roads should be mowed 15 feet from the edge of the paved or aggregate shoulders or where the grass begins unless physically obstructed in mid-May, mid-July and beginning in mid-September. Mowing shall be done on the interior of interchanges where slopes are 3 to 1 or flatter.

**2.4** Mowing shall be performed in a workmanlike manner with no rutting, scalping or any other resulting unsightly conditions. If mowing is determined by the engineer to be unsatisfactory, the contractor shall mow the area again at no cost to the Commission. All damaged areas shall be restored to the satisfaction of the engineer by the contractor at the contractor's expense.

**3.0 Method of Measurement.**

**3.1** Measurement of mowing will be made to the nearest 0.1 acre [0.1 ha] for the actual area mowed per mowing operation. The total quantity measured will be the summation of all of the areas approved by the engineer.

**4.0 Basis of Payment.** The accepted quantities of mowing will be paid for at the contract unit price.

Item No.	Units	Description
201-00.00	Acres	Mowing

Y. Federal Aviation Administration (FAA) Filing Requirements

**1.0 Description.** This work shall consist of notifying the FAA prior to installation of streetlight fixtures at Rest Area and Route 87 interchange.

**2.0 Construction Requirements.** The Commission has completed an initial filing with the FAA for the installation of streetlight fixtures. The CASE ID filings include

- 2025-ACE-2706-OE
- 2025-ACE-2707-OE
- 2025-ACE-2708-OE
- 2025-ACE-2709-OE
- 2025-ACE-2710-OE

The contractor shall be responsible for providing notification to the FAA upon commencing installation of streetlight poles. FAA notification shall reference the CASE ID numbers listed above.

**2.1** If streetlight installation is not planned to commence prior to February 11, 2027, the Contractor shall notify FAA a minimum of 15 days prior (January 27, 2027), requesting an extension of the No Hazard Determination.

**2.2** The contractor shall notify the Commission of all correspondence submitted and receiving from FAA.

**3.0 Basis of Payment.** No direct payment will be made to the contractor to recover the cost of equipment, labor, materials or time required to fulfill the above provision.

Z. Concrete Traffic Barrier, Type D (Median) (Modified)

**1.0 Description.** This work shall consist of constructing a modified Type D barrier on concrete pavement at the locations shown on the plans.

**2.0 Materials.** All materials shall comply with Sec 617.

**3.0 Construction Requirements.** All construction requirements shall comply with Sec 617.

**4.0 Method of Measurement.** The barrier shall be measured to the nearest one linear foot.

**5.0 Basis of Payment:** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

Item No.	Unit	Description
617.99.01	Lump Sum	Median Barrier

Concrete Traffic Barrier, Type D (Median)(Modified) is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
617-99.03	LF	Concrete Traffic Barrier, Type D (Median)(Modified)

AA. Inlaid Pavement Marker Installation

**1.0 Description.** This work shall consist of furnishing and installing inlaid pavement markers as shown on the plans or as directed by the engineer. An inlaid pavement marker shall consist of a retro-reflective pavement marker installed below the pavement surface. The marker shall be installed with a cradle device which supports the reflector at the proper depth below the pavement and attached to the pavement with adhesive. In addition to cutting a location for the marker, a slot shall be grooved into the pavement both before and after the marker for visibility of the marker and drainage. Final product shall have two markers in place at each location.

**2.0 Material.** All material shall be in accordance with the following.

**2.1 Marker.** The marker shall have two retro-reflective lenses white facing traffic and red facing opposing / wrong way traffic to reflect incident light from opposite directions. The lens shall be hermetically sealed and permanently bonded to the marker base. The manufacturer's identification shall be molded in the face of the marker lens or on the marker body so as to be visible after installation. The reflector color shall be as shown on the plans.

**2.1.1** The marker shall have nominal dimensions of 2.0 x 5.0 x 0.7 inches. The reflective surface of each lens shall be a nominal 1.93 square inches in area.

**2.1.2** In addition to the requirements described, the marker/cradle system shall be National Transportation Product Evaluation Program (NTPEP) approved. The marker shall receive at a minimum an average rating of 3.0 for lens and visibility after one year of exposure on both concrete and asphalt test decks. A written request for qualification shall be sent by the manufacturer to Construction and Materials with the following information:

- (a) Brand name of the product.
- (b) A copy of the actual test results from NTPEP.
- (c) Certification that the material meets this specification and is intended for use as described.
- (d) Specific installation instructions.

**2.2 Adhesive.** The adhesive used to bond the marker to the pavement shall be an epoxy approved by the engineer or meet the manufacturers specifications.

### **3.0 Construction Requirements.**

**3.1 Reflector placement.** A cradle shall be used to hold the marker at the correct nominal depth of 0.12 inch. The cradle shall be made of polycarbonate plastic, and the net weight of the cradle and marker shall be less than 5 ounces. When installed, the marker shall be perpendicular to traffic.

**3.2 Pavement groove.** There shall be a groove cut both in advance and behind the marker using diamond tipped blades. The entire groove shall be cut in accordance with the manufacturer's recommendations. The groove should be straight to within 1/2 inch in 10 feet. The width of the groove shall be 5 inches or per manufacturer's specifications.

The overall length of the groove cut in the pavement surface shall be 9 feet, with markers placed 3.5 feet from either end and spaced 2.0 feet apart.

**3.3 Installation.** The groove and the bottom surface of the marker shall be free of scale, dirt, rust, oil, grease, or any other contaminant that might reduce bonding to the adhesive.

**3.3.1** The adhesive used to install the marker shall be machine applied unless otherwise approved by the engineer. The machine mixer and applicator shall be capable of accurately and uniformly proportioning the components. The mixing chamber shall produce an epoxy adhesive of uniform color with no visible evidence of streaks on the surface or within the mixed epoxy adhesive.

**3.3.2** No markers shall be installed when the ambient temperature is below 50 F (10 C), the relative humidity is above 80 percent, or the pavement surface is wet.

**3.3.3** Newly placed bituminous pavement surfaces shall be allowed to cure for a minimum of seven days prior to installing reflectors.

**3.3.4** A longitudinal adjustment to the location of a marker shall be made in order to avoid damage to deteriorated pavement or transverse joints. In locations where concrete and bituminous surfaces abut, markers shall be installed in the concrete surface.

**3.3.5** The pavement shall be accurately cut to the marker manufacturer's specifications. The depth of the groove where the marker is to be placed shall be in accordance with manufacturer's specifications.

**3.3.6** If necessary, installation grooves on crowned pavements, superelevated pavements, or ramps shall be cut as needed to provide proper marker fit.

**3.3.7** The groove shall be clean and dry prior to application of the adhesive.

**3.3.8** There shall be no adhesive on the lens or top of the marker.

**3.3.9** When hand mixing of epoxy adhesive is permitted, no more than one quart (L) of epoxy adhesive shall be mixed at one time. The marker shall be installed within five minutes after mixing operations are started.

**3.3.10** The installed marker shall be protected from traffic until the adhesive has cured according to manufacturer's recommendations. If, after the manufacturer's recommended cure time, epoxy adhesive can be penetrated by a screwdriver or other pointed instrument, the marker shall be removed, cleaned, and reinstalled.

**4.0 Method of Measurement.** Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. When required, measurement of inlaid pavement markers will be measured per each. The revision or correction will be computed and added to or deducted from the contract quantity.

**5.0 Basis of Payment.** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

Item No.	Units	Description
602.99.01	LS	Lump Sum Pavement Markings

Inlaid Pavement Marker Installation is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
620-99.02	Each	Inlaid Pavement Marker Installation

## BB. Overhead Cantilever Truss

**1.0 Description.** This work shall consist of providing all materials and labor associated with the cantilever sign trusses, from bottom of the baseplate and above, as depicted in the Standard Plans, contract plans, signing details, and signing cross-sections. Any utility requiring relocation for post foundations shall be coordinated in accordance with the contract provisions.

**2.0 Construction Requirements.** All work shall be in accordance with Sec 903.

**2.1** Prior to ordering the cantilever signing materials, the Contractor shall verify the dimensions with the Engineer.

**3.0 Method of Measurement.** Final measurement of the cantilever sign trusses for payment will not be made.

**4.0 Basis of Pavement.** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

Item No.	Unit	Description
903.99.01	Lump Sum	Lump Sum Permanent Signing

Overhead Cantilever Truss Installation is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Type	Description
903-99.01	Lump Sum	Misc. Sign No. 47, Overhead Cantilever Truss, 26 Ft. - 6 In.
903-99.01	Lump Sum	Misc. Sign No. 54, Overhead Cantilever Truss, 26 Ft. - 6 In.

CC. 4-Inch Square Steel Sign Post JSP-23-02

**1.0 Description.** The 4-inch square steel post and breakaway system shall be MASH 2016 approved and on [MoDOT's Approved Products List](#).

**2.0 Material.** All material shall be in accordance with Division 1000 and as further specified per this provision. The 4-inch square steel posts are to be multi-directional. The posts shall be 4 inches square, 8 gauge, and galvanized. The 4-inch square steel posts shall be hot-dip galvanized after fabrication. Galvanizing of sign posts, bolts, nuts, washers, other appurtenances, and repair of galvanizing shall be in accordance with Sec. 1081.

**3.0 Construction Requirements.** Concrete footing construction shall be in accordance with Sec. 903.3.1.2. Post installation shall follow the manufacturer's recommendations.

**4.0 Method of Measurement.** Measurement of 4-inch square steel posts will be made to the nearest linear foot for each post, as shown on the plans. Measurement for 4-inch square steel post base will be made per each.

**5.0 Basis of Payment.** Payment for 4-inch square steel post will be paid for at the contract unit price. Post cap, post clamp, hardware (nuts and bolts), and backing bars are incidental to the post.

All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for:

Item No.	Unit	Description
903.99.01	Lump Sum	Lump Sum Permanent Signing

4-Inch Square Steel Sign Post Installation is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Type	Description
903-12.30	LF	4 IN. Square Steel Post
903-10.05	EA	Square Steel Sign Post (4-In.) Base

DD. Permanent Traffic Counting System

**1.0 Description.** This work shall consist of furnishing, installing, and configuring Permanent Traffic Counting System, including all associated equipment, hardware, and connections as specified herein and in accordance with manufacturer recommendations, the plans, and as directed by the Engineer.

**2.0 Materials.** The system shall include the following components:

- (2) PTZ Camera Unit with weatherproof housing, dome wiper, heater, and defrost
- (1) Counter Processing Unit
- (2-3) 12V Infrared (IR) Lights with 48W power, 30° beam angle, and 850nm wavelength
- (1) Camera junction box
- (1) IR light junction box
- All necessary conduit (minimum 50 feet) and cable assemblies for Ethernet, power (24V to camera, 12V to IR lights), and data
- Cellular modem for remote access
- Portable touchscreen monitor and mini keyboard/mouse pad for on-site configuration

**3.0 Construction Requirements**

**3.1 Installation Location and Geometry**

- Install the camera on a pole at a height of 30 feet, offset 25 to 35 feet from the edge of the first travel lane.
- Mount IR lights at a height of 18 feet, aimed toward the center of the travel lanes at a 25° angle.
- Mount the counter cabinet near the base of the pole and run AC power to the cabinet.

**3.2 Equipment Installation**

- Securely mount the camera, IR lights, junction boxes, and counter unit in accordance with manufacturer guidelines.
- Route and connect all conduits and cabling to provide reliable power and network communication to each component.
- Install the cellular antenna on the cabinet for optimal signal strength.

**3.3 System Configuration and Testing**

- Configure the system locally using a touchscreen monitor or remotely via one of the approved methods:
  - Remote Desktop (RDP) via static IP
  - Web Access (HTTP port 1001)

- RemotePC web portal
- Verify functionality including:
  - Live camera feed
  - Vehicle detection and classification (FHWA 13-bin)
  - Nighttime operation using IR lighting
  - Data logging and retrieval via USB or network
- Ensure accuracy for vehicle detection up to 4 lanes in one direction and up to 100 feet from the camera.

**4.0 Basis of Payment:** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for:

Item No.	Unit	Description
901.99.01	Lump Sum	Lump Sum Lighting and ITS

Permanent Traffic Counting System are designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
910-99.01	Lump Sum	Permanent Traffic Counting System

**5.0 Basis of Acceptance.** The installed system shall be considered acceptable when:

- All equipment is installed, configured, and securely mounted.
- The system demonstrates consistent and accurate traffic counts and classification for day and night operation.
- The remote access functionality is fully operational and verified by the Engineer.

#### EE. Gravity Block Retaining Wall

**1.0 Description.** This work involves the construction of a strapless (no geogrid or tie backs) gravity block retaining wall along Interstate 70. The area is constrained by proximity of the existing outer road.

**2.0 Material and Construction Requirements.** The contractor shall submit shop drawings prior to beginning construction. The contractor shall provide and install a gravity block wall system per the block manufacturer's instructions.

**3.0 Basis of Payment.** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for:

Item No.	Unit	Description
703.99.01	Lump Sum	Lump Sum Retaining Wall

Gravity Block Retaining Wall is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
703-99.04	SQ FT	Gravity Block Retaining Wall

FF. Modifying Existing Median Drop Inlets

**1.0 Description.** This work consists of modifying existing median drop inlets located within the median of I-70 to be left in place.

**2.0 Construction.** The Contractor shall remove the existing median drop inlet to an elevation that is sufficient to provide a minimum depth of cover over the drop inlet and avoid any conflicts with grading operations to widen I-70 and install new Type C Concrete Barrier in the median of I-70 per the plans and standards. Prior to grading material over the modified drop inlet, the drop inlet shall be capped with a cover to prevent soil and water penetration and maintain the existing drainage. Details of the inlets shall be in accordance with MoDOT standard plans 731.10 or modified as approved by the Engineer to meet the dimensions shown on the contract plans.

**2.1 Performance Inspection.** The Contractor shall conduct a performance inspection on existing pipes to determine if any existing drainage lines are clogged. The performance inspection may be either a manual or remote performance inspection as approved by the Engineer. All inspections will be in accordance with Sec 724.3. If the existing pipes are damaged by the Contractor operations, the Contractor shall repair these damages at no cost to the Commission and drainage shall be reestablished as approved by the Engineer.

**2.2 Culvert Cleanout.** If a drainage line clog is identified during the performance inspection, the Contractor shall clean out the culvert per Sec 206.4.14 to restore the existing culvert to full capacity.

**2.3** The construction and materials for modifying the existing concrete drop inlets shall conform to Section 731.

**3.0 Basis of Payment:** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for:

Item No.	Unit	Description
726.99.01	Lump Sum	Lump Sum Drainage

Modifying Existing Median Drop Inlets are designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Unit	Description
731.99.02	EA	Modify Existing Median Drop Inlets

GG. Missouri Logos

**1.0 Description.** Special Supplemental Guide Signs, which show the motorist services and sites available on a crossroad at or near an interchange, are within the limits of the project. These signs may include Specific Service Signing (Logos), Tourist-Oriented Destination signs (TODS), traffic generator signs for privately owned and operated tourist-oriented activity sites, and signing for Colleges, State and Federal Agency sites, Welcome Center Affiliate sites and State Correctional Centers.

**1.1** These signs shall remain visible to and effective for the traveling public during all stages of construction.

**1.1.1** Should the Contractor's operations disturb the area around the sign where it would not be displayed for a period of longer than 30 days, the sign shall be temporarily mounted within the work area in a location in proximity to the sign's original location.

**1.2** Any work involving the relocation (permanent or temporary), repair, replacement or legend modification required for these signs is the responsibility of Missouri Logos. The Contractor shall be solely responsible for determining if the project will affect these signs due to Contractor operations during construction of this project. The Contractor shall be responsible for coordinating this work with them using the contact information below and providing full cooperation during this work.

**Ron Young – Missouri Logos**

Phone: (573) 893-6662 (Mon-Fri 8:00 a.m. – 5:00 p.m.)  
Email: [ryoung@interstatelogo.com](mailto:ryoung@interstatelogo.com)

**Missouri Logos, LLC**

4742-A Country Club Dr.  
Jefferson City, MO 65109  
Phone: 800-666-3514  
Email: [missourilogos@interstatelogo.com](mailto:missourilogos@interstatelogo.com)  
Web: [missouri.interstatelogo.com](http://missouri.interstatelogo.com)

**2.0** Replacement costs of any business specific logo panels damaged by vandalism or natural forces are the responsibility of the specified business. Any Supplemental Guide Sign damaged because of the Contractor's action shall be replaced at the Contractor's expense.

**3.0 Basis of Payment.** No direct payment will be made to the Contractor to recover the cost of equipment, labor, materials, or time required to fulfill this provision.

HH. CCTV Pole (60 FEET) and Lowering System

**1.0 Description.** The camera lowering system shall be designed to support and lower a standard closed circuit television camera, lens, housing, PTZ mechanism, cabling, connectors and other supporting field components without damage or causing degradation of camera operations. The camera lowering system device and the pole are interdependent; and thus, must be considered a single unit or system. The lowering system shall consist of a pole, suspension contact unit, divided support arm, and a pole adapter for attachment to a

pole top tenon, pole top junction box, conduit mount adapter and camera connection box. The divided support arm and receiver brackets shall be designed to self-align the contact unit with the pole center line during installation and insure the contact unit cannot twist under high wind conditions. Round support arms are not acceptable. The camera-lowering device shall withstand wind forces of 100 mph with a 30 percent gust factor using a 1.65 safety factor. The lowering device manufacturer, upon request, shall furnish independent laboratory testing documents certifying adherence to the stated wind force criteria utilizing, as a minimum effective projected area, the actual EPA or an EPA greater than that of the camera system to be attached. The camera-lowering device to be furnished shall be the product of manufacturers with a minimum of 3 years of experience in the successful manufacturing of camera lowering systems. The lowering device provider shall be able to identify a minimum of 3 previous projects where the purposed system has been installed successfully for over a one-year period of time each.

The lowering device manufacturer shall furnish a factory representative to assist the electrical contractor with the assembly and testing of the first lowering system onto the pole assembly. The manufacturer shall furnish the applicable DOT engineer documentation certifying that the electrical contractor has been instructed on the installation, operation and safety features of the lowering device. The contractor shall be responsible for providing applicable maintenance personnel "on site" operational instructions.

**1.1 Suspension Contact Unit.** The suspension contact unit shall have a load capacity 200 lbs. with a 4 to 1 safety factor. There shall be a locking mechanism between the fixed and moveable components of the lowering device. The movable assembly shall have a minimum of 2 latches. This latching mechanism shall securely hold the device and its mounted equipment. The latching mechanism shall operate by alternately raising and lowering the assembly using the winch and lowering cable. When latched, all weight shall be removed from the lowering cable. The fixed unit shall have a heavy duty cast tracking guide and means to allow latching in the same position each time. The contact unit housing shall be weatherproof with a gasket provided to seal the interior from dust and moisture.

**1.1.1** The prefabricated components of the lift unit support system shall be designed to preclude the lifting cable from contacting the power or video cabling. The lowering device manufacturer shall provide a conduit mount adapter for housing the lowering cable. This adapter shall have an interface to allow the connection of a contractor provided conduit and be located just below the cable stop block at the back of the lowering device. The Contractor shall supply internal conduit in the pole as required by the Engineer. The only cable permitted to move within the pole or lowering device during lowering or raising shall be the stainless steel lowering cable. All other cables must remain stable and secure during lowering and raising operations.

**1.1.2** The female and male socket contact halves of the connector block shall be made of thermosetting synthetic rubber known as Hypalon. The female brass socket contacts and the male high conductivity brass pin contacts shall be permanently molded into the Hypalon body.

**1.1.3** The current carrying male contacts shall be 1/8 inches in diameter. There shall be two male contacts that are longer than the rest which will make first and break last providing optimum grounding performance. The number of contacts shall be 14 and the camera mounted thereto, shall be capable of performing all of its necessary functions on 14 contacts or less.

**1.1.4** The current carrying female contacts shall be 1/8 inches I.D. All of the contacts shall be recessed 0.125" from the face of the connector. Cored holes in the rubber measuring 0.25" in diameter and 0.125" deep molded into the connector body are centered on each contact on the face of the connector to create rain-tight seals when mated with the male connector.

**1.1.5** The wire leads from both the male and female contacts shall be permanently and integrally molded in the Hypalon body. The current carrying and signal wires molded to the connector body shall be constructed of #18/1 AWG Hypalon jacketed wire.

**1.1.6** The contacts shall be self-wiping with a shoulder at the base of each male contact so that it will recess into the female block, thereby giving a rain-tight seal when mated. The electrical contact connector must meet Mil Spec Q-9858 and Mil Spec I-45208.

**1.2 Lowering Tool.** The camera-lowering device shall be operated by use of a portable lowering tool. The tool shall consist of a lightweight metal frame and winch assembly with cable as described herein, a quick release cable connector, an adjustable safety clutch and a variable speed industrial duty electric drill motor. This tool shall be compatible with accessing the support cable through the hand hole of the pole. The lowering tool shall attach to the pole with one single bolt. The tool will support itself and the load assuring lowering operations and provide a means to prevent freewheeling when loaded. The lowering tool shall be delivered to the applicable DOT engineer upon project completion. The lowering tool shall have a reduction gear to reduce the manual effort required to operate the lifting handle to raise and lower a capacity load. The lowering tool shall be provided with an adapter for operating the lowering device by a portable drill using a clutch mechanism. The lowering tool shall be equipped with a positive breaking mechanism to secure the cable reel during raising and lowering operations and prevent freewheeling. The manufacturer shall provide a variable speed, heavy-duty reversible drill motor and a minimum of one lowering tool plus any additional tools required by plan notes. The lowering tool shall be made of durable and corrosion resistant materials, powder coated, galvanized, or otherwise protected from the environment by industry -accepted coatings to withstand exposure to a corrosive environment.

**2.0 Materials.** All pulleys for the camera lowering device and portable lowering tool shall have sealed, self lubricated bearings, oil tight bronze bearings, or sintered- oil impregnated, bronze bushings. The lowering cable shall be a minimum 1/8-inch diameter stainless steel aircraft cable with a minimum breaking strength of 1740 pounds with (7) strands of 19 wire each.

**2.0.1** All electrical and video coaxial connections between the fixed and lowerable portion of the contact block shall be protected from exposure to the weather by a waterproof seal to prevent degradation of the electrical contacts. The electrical connections between the fixed and movable lowering device components shall be designed to conduct high frequency data bits and one (1) volt peak-to-peak video signals as well as the power requirements for operation of dome environmental controls.

**2.0.2** The interface and locking components shall be made of stainless steel and or aluminum. All external components of the lowering device shall be made of corrosion

resistant materials, powder coated, galvanized, or otherwise protected from the environment by industry-accepted coatings to withstand exposure to a corrosive environment.

**2.0.3** The camera junction box shall be cast ZA-12 (12% aluminum and 88% zinc) and weigh a minimum of 50 LBS to insure stability of camera during the raising and lowering operation. The camera junction box shall have 2 fully gasketed doors to prevent water intrusion. The bottom of the camera junction box shall be equipped with a condensation/moisture exit system.

**2.0.4** The Camera Manufacturer shall provide weights and /or counterweights as necessary to assure that the alignment of pins and connectors are proper for the camera support to be raised into position without binding. The lowering unit will have sufficient weight to disengage the camera and its control components in order that it can be lowered properly.

**2.0.5** The Camera Manufacturer shall provide the power and signal connectors for attachment to the bare leads in the pole top and/or camera junction boxes.

**2.0.6** Either the Camera Manufacturer or the Lowering Device Provider shall provide a mounting flange sufficient for mounting the respective camera assembly to the bottom of the Camera connection box.

## **2.1 Camera Lowering System Steel Pole**

**2.1.1 Design.** Design shall be in accordance with the 2001 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals." Minimum Loading requirements shall be based on an isotach wind velocity for the area of installation according to 2001 AASHTO isotach wind chart with a 1.3 gust factor.

Shop Drawings are required and shall include details of the hand holes, cable inlets, and pole cap, as well as fasteners and hardware required for the lowering device. Calculations showing that the pole meets the requirements of the AASHTO specifications shall be submitted with the shop drawings, and calculations shall be signed and sealed by a Professional Engineer registered in the State of Missouri.

**2.1.2 Fabricator.** The Fabricator shall be certified under Category I, "Conventional Steel Structures" as set forth by the American Institute of Steel Construction Quality Certification Program. Proof of this certification will be required to ensure that the fabricator has the personnel, organization, experience, procedures, knowledge, equipment, capability and commitment to fabricate quality pole structures.

**2.1.3 Welding.** All welding shall be in accordance with Sections 1 through 8 of the American Welding Society (AWS) D1.1 Structural Welding Code. Tackers and welders shall be qualified in accordance with the code. Tube longitudinal seam welds shall be free of cracks and excessive undercut, performed with automatic processes, and be visually inspected. Longitudinal welds suspected to contain defects shall be magnetic particle inspected. All circumferential butt-welded pole and arm splices shall be ultrasonically or radiographically inspected.

**2.1.4 Material Certifications.** All materials and products shall be manufactured in the United States of America, and comply with ASTM or AASHTO specifications. Mill

certifications shall be supplied as proof of compliance with the specifications.

**2.1.5 Performance Calculations.** The pole shall be designed to support the specified camera and accessories. Close consideration must be given to the effective projected area of the complete lowering system and camera equipment to be mounted on the pole along with the weight when designing the pole to meet the specified deflection performance criteria. The pole top deflection shall not exceed one inch in a 30-mph (non-gust) wind. The calculations shall include a pole, base plate, and anchor bolt analysis. The pole calculations shall be analyzed at the pole base, at 5-ft. pole intervals/segments and at any other critical pole section. At each of these locations, the following information shall be given:

The pole's diameter, thickness, section modulus, moment of inertia, and cross sectional area.

The centroid, weight, projected area, drag coefficient, velocity pressure, and wind force of each pole segment.

The axial force, shear force, primary moment, total moment, axial stress, bending stress, allowable axial stress, allowable bending stress, and combined stress ratio (CSR).

The pole's angular and linear deflection.

**2.1.6 Pole Shaft.** The pole shaft shall conform to ASTM A595 Grade A with a minimum yield strength of 55 ksi or ASTM A572 with a minimum yield strength of 65 ksi. The shaft shall be round, 12-sided or 16 sided with a four inch corner radius, have a constant linear taper of 0.14 in/ft, and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Longitudinal seam welds within 6 inches of complete penetration pole to base plate welds shall be complete penetration welds. The shaft shall be hot dip galvanized per the requirements of the contract documents.

**2.1.7 Winch Hand Hole.** The hand hole opening shall be reinforced with a minimum 2-inch wide hot rolled steel rim. The minimum outside dimension shall be 6 inches x 27 inches. The handhole shall have a tapped hole for mounting the portable winch thereto as shown on the drawings. Unless otherwise required, the bottom lip of this handhole shall be a minimum of 30 inches from the pole base.

**2.1.8 Pole Top Tenon.** The pole shall have a custom plate mounted tenon that allows the field modification of the arm/camera orientation up to 360 degrees. With this design the DOT engineer can make slight orientation modifications to the camera mount to allow optimum viewing in case of future road development, change in terrain or a change in the viewing needs priority. The tenon shall have mounting holes and slot as required for the mounting of the camera-lowering system. The tenon shall be of dimensions necessary to facilitate camera lowering device component installation. For details, see applicable drawings.

**2.1.9 Cable Supports / Electrical Cable Guides and Parking Stand (Eyebolts).** Top and bottom electrical cable guides shall be located within the pole aligned with each other as referenced in the drawings. One cable guide shall be positioned 2 inches below the handhole and the other shall be positioned 1 inch directly below the top of tenon. Two

parking stands shall be positioned a maximum of 2.75 inches below the top of the handhole and located at 90 and 270 degrees from the handhole.

**2.1.10 Base Plate.** Base plates shall conform to ASTM A36 or A572 Grade 42. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration butt weld with backup bar. Plates shall be hot dip galvanized per the requirements of the contract documents.

**2.1.11 Anchor Bolts.** Anchor bolts shall conform to the requirements of ASTM F1554 Grade 55. The upper 12 inches of the bolts shall be hot dip galvanized per ASTM A153. Each anchor bolt shall be supplied with two hex nuts and two flat washers. The strength of the nuts shall equal or exceed the proof load of the bolts.

**3.0 Basis of Payment.** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for:

Item No.	Unit	Description
901.99.01	Lump Sum	Lump Sum Lighting and ITS

CCTV Pole, 60 FT., with Lowering Device, Furnish and Install is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Type	Description
910-99.02	Each	CCTV Pole, 60 FT, with Lowering Device, Furnish and Install

II. Locating and Avoiding Existing Drainage Structures During Guardrail Installation

**1.0 Description.** This work consists of locating drainage structures being Used In Place within the project limits to avoid damage during guardrail installation.

**2.0 Construction.** The Contractor shall survey the existing roadway and identify existing drainage structures being Used In Place at all locations identified in the plans where guardrail is to be installed.

If guardrail installation occurs over a drainage structure to be Used In Place, the Contractor shall assess the depth of cover over the drainage structure. If depth of cover is inadequate to allow for installation of a guardrail post, the guardrail installation shall be adjusted to avoid damaging the drainage structure.

**3.0 Basis of Payment:** No direct payment will be made to the contractor to recover the cost of equipment, labor, materials or time required to fulfill the above provision.

JJ. Lighting Pole, 40 FT. or 12.2 M, Type AT Design 3

**1.0 Description.** This work shall consist of furnishing and installing lighting pole as shown on the plans.

**2.0 Construction Requirements.** Work shall follow all requirements identified in Section 901 of the Missouri Standard Specifications for Highway Construction.

**3.0 Basis of Pavement.** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

:

Item No.	Unit	Description
901.99.01	Lump Sum	Lump Sum Lighting and ITS

Lighting Pole, 40 FT. or 12.2 M, Type AT Design 3 is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
901-99.02	EA	LIGHTING POLE, 40 FT. OR 12.2 M, TYPE AT DESIGN 3

KK. Glare Screen Installation on Temporary and Permanent Traffic Safety Barrier

**1.0 Description.** This work shall consist of furnishing and installing glare screens on temporary concrete traffic safety barriers and relocating them to permanent concrete traffic safety barriers at the locations shown on the plans, including all materials, hardware, and incidentals necessary to complete the work as specified.

**2.0 Material.** Glare screens shall be of the type and color shown on the plans and shall meet the manufacturer's recommendations for exterior use. All hardware shall be stainless steel or galvanized steel and compatible with the barrier material. Materials shall not reduce the crashworthiness of the barrier.

**3.0 Construction Requirements.** The Contractor shall install glare screens in accordance with the manufacturer's recommendations and as directed by the Engineer. Attachment to the barrier shall not damage or compromise its structural integrity. Any drilling, anchoring, or surface repair shall be approved by the Engineer prior to installation. The Contractor shall maintain proper alignment and uniform height throughout the installation.

**4.0 Basis of Pavement.** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

Item No.	Unit	Description
903.99.01	Lump Sum	Lump Sum Permanent Signing

Glare Screen Installation on Temporary and Permanent Traffic Safety Barrier is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
903-99.03	LF	GLARE SCREEN ON TRAFIC BARRIER

LL. Pavement Edge Treatment**1.0 Amend Sec 619.1 as follows**

619.1 Description. This work shall consist of the elimination of pavement edge differential as required by Contractors option.

**2.0 Delete Sec 619.5 and insert the following:**

**619.5 Basis of Payment.** Installation of Pavement Edge Treatment shall be considered incidental, and no direct payment will be made for the installation of Pavement Edge Treatment.

MM. Lump Sum Grading**1.0 Description.** Delete **Sec 203.9** and insert the following:

The accepted quantity of Grading will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Grading, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
203.99.01	Lump Sum	Lump Sum Grading

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional grading needed except for changes in the grading plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Grading are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
201.30.00	Acres	Clearing and Grubbing
203.50.00	C.Y	Unclassified Excavation
203.60.00	C.Y.	Compacting Embankment
203.70.75	STA	Compacting in Cut

**NN. Lump Sum Pavement Alternate A****1.0 Description.** Delete **Sec 502.15.1** and insert the following:

The accepted quantity of Pavement Alternate A will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Pavement Alternate A, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
505.99.01	Lump Sum	Lump Sum Pavement Alternate A

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract. All pay adjustment factors identified in Sec 502.15 shall remain in effect.

**2.2** No payment will be made for any additional Pavement Alternate A needed except for changes in the paving plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Pavement Alternate A are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
205.10.10	S.Y.	Modified Subgrade
303.06.00	S.Y.	Furnishing Rock Base Material
303.06.10A	S.Y.	Placing Rock Base 12" Thick
502.13.11	S.Y.	Concrete Pavement (11 IN. Non-reinforced, 15 FT. Joints)
626.20.00A	STA	Portland Cement Concrete Rumble Strip

**OO. Lump Sum Pavement Alternate B****1.0 Description.** Delete **Sec 403.23** and insert the following:

The accepted quantity of Pavement Alternate B will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Pavement Alternate B, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
403.99.01	Lump Sum	Lump Sum Pavement Alternate B

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract. All pay adjustment factors identified in Sec 403.23 shall remain in effect.

**2.2** No payment will be made for any additional Pavement Alternate B needed except for changes in the paving plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Pavement Alternate B are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
205.10.10	S.Y.	Modified Subgrade
303.06.00	S.Y.	Furnishing Rock Base Material
303.06.10A	S.Y.	Placing Rock Base 12" Thick
403.99.05	S.Y.	14.5 IN. Asphaltic Concrete Mixture
626.10.00A	STA	Bituminous Shoulder Rumble Strip

PP. Lump Sum Alt. Pvmt C – Type A2 Shoulder - Concrete

**1.0 Description.** Delete **Sec 502.15.1** and insert the following:

The accepted quantity of Alt. Pvmt C – Type A2 Shoulder - Concrete will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Alt. Pvmt C – Type A2 Shoulder - Concrete, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
505.99.01	Lump Sum	Alt. Pvmt C – Type A2 Shoulder - Concrete

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract. All pay adjustment factors identified in Sec 502.15 shall remain in effect.

**2.2** No payment will be made for any additional Alt. Pvmt C – Type A2 Shoulder - Concrete needed except for changes in the shoulder plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Alt. Pvmt C – Type A2 Shoulder - Concrete are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
502.13.40	S.Y.	Type A2 Shoulder

QQ. Lump Sum Alt. Pvmt D – Type A2 Shoulder - Asphalt

**1.0 Description.** Delete **Sec 403.23** and insert the following:

The accepted quantity of Lump Sum Alt. Pvmt D – Type A2 Shoulder - Asphalt will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Alt. Pvmt D – Type A2 Shoulder - Asphalt, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
403.99.01	Lump Sum	Alt. Pvmt D – Type A2 Shoulder - Asphalt

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract. All pay adjustment factors identified in Sec 403.23 shall remain in effect.

**2.2** No payment will be made for any additional Alt. Pvmt D – Type A2 Shoulder - Asphalt needed except for changes in the shoulder plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Alt. Pvmt D – Type A2 Shoulder - Asphalt are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
401.01.50	S.Y.	Type A2 Shoulder



RR. Lump Sum Alt. Pvmt E – Concrete Strengthened Shoulders

**1.0 Description.** Delete **Sec 502.15.1** and insert the following:

The accepted quantity of Alt. Pvmt E – Concrete Strengthened Shoulders will be paid for lump sum.

**2.0 Construction.** Strengthened Shoulders shall have 1 ¼" dowel baskets and shall not be tied to mainline pavement.

**3.0 Payment.** Progress payments for Lump Alt. Pvmt E – Concrete Strengthened Shoulders, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
505.99.01	Lump Sum	Alt. Pvmt E – Strengthened Concrete Shoulders

**3.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract. All pay adjustment factors identified in Sec 502.15 shall remain in effect.

**3.2** No payment will be made for any additional Alt. Pvmt E – Concrete Strengthened Shoulders needed except for changes in the shoulder plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**3.3** Contract items included in the Lump Sum Alt. Pvmt E – Concrete Strengthened Shoulders are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
205.10.10	S.Y.	Modified Subgrade
304.99.05	S.Y.	Type 5 Aggregate for Base (14.5 IN. Thick)
502.99.05	S.Y.	Concrete Pavement (8 ½ IN. Non-reinforced, 12 FT. Joints)

SS. Lump Sum Alt. Pvmt F – Asphalt Strengthened Shoulders

**1.0 Description.** Delete **Sec 403.23** and insert the following:

The accepted quantity of Lump Sum Alt. Pvmt F – Asphalt Strengthened Shoulders will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Alt. Pvmt F – Asphalt Strengthened Shoulders, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
403.99.01	Lump Sum	Alt. Pvmt F – Strengthened Asphalt Shoulders

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract. All pay adjustment factors identified in Sec 403.23 shall remain in effect.

**2.2** No payment will be made for any additional Alt. Pvmt F – Asphalt Strengthened Shoulders needed except for changes in the shoulder plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.2** Contract items included in the Lump Sum Alt. Pvmt F – Asphalt Strengthened Shoulders are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
205.10.10	S.Y.	Modified Subgrade

304.99.05	S.Y.	Type 5 Aggregate for Base (16 IN. Thick)
403.099.05	S.Y.	10.5 IN. Asphaltic Concrete Mixture

TT. Lump Sum Guardrail and Guard Cable

**1.0 Description.** Delete **Sec 606.10.4** and insert the following:

The accepted quantity of guardrail and guard cable will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Guardrail and Guard Cable, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
606-99.01	Lump Sum	Lump Sum Guardrail and Guard Cable

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional guardrail or guard cable needed except for changes in the guardrail and guard cable plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Guardrail and Guard Cable are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
205.10.10	S.Y.	Modified Subgrade
606.10.61	L.F.	MGS Guardrail, 8 FT. Posts, 6 FT. – 3 IN. Spacing
606.10.69	EA	MGS Bridge Approach Transition Section (Regular/No Curb)
606.10.70	EA	MGS Vertical Concrete Barrier Transition
606.10.80	EA	MGS End Anchor
606.30.14	EA	Type A Crashworthy End Terminal (MASH)
606.30.22	EA	Type E Crashworthy End Terminal (MASH)
606.41.00	L.F.	Median Guard Cable 3-Strand
606.41.10	EA	Anchor Assembly, Guard Cable 3-Strand



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UU. Lump Sum Lighting and ITS

**1.0 Description.** Delete **Sec 901.19** and insert the following:

The accepted quantity of Lighting and ITS will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Lighting and ITS, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
901.99.01	Lump Sum	Lump Sum Lighting and ITS

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional lighting or ITS needed except for changes in the lighting and ITS plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Guardrail and Guard Cable are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
901.10.64	EA	Lighting Pole, 45 FT. or 13.5M, Type AT Design 1
901.11.15	EA	Bracket Arm, 15 FT. or 4.6 M
901.13.12	EA	Luminaire, LED-B
901.22.30	EA	Base Mounted Control Station 240 Volt – 4 Circuit
901.30.03	L.F.	Conduit, 3 IN. Rigid, In Trench
901.40.03	L.F.	Conduit, 3 IN. Rigid, Pushed
901.50.10	L.F.	Trenching Type 1
901.61.20	EA	Pull Box, Concrete, Standard
901.70.02	L.F.	Cable, 2 AWG 1 Conductor
901.71.10	L.F.	Cable, 10 AWG 1 Conductor, Pole and Bracket
901.72.02	L.F.	Wire, 2 AWG, Bare Neutral
901.74.07	L.F.	Cable-Conduit, 1 IN., 2 Conductors and 1 Bare Neutral, 8 AWG
901.82.45	EA	Pole Foundation (45 FT. or 13.5 Mounting Height)
901.86.10	EA	Power Supply Assembly, Type 2, 240/120 Volt Service, Lighting Only
901.99.02	EA	Lighting Pole, 40 FT. or 12.2 M, Type AT Design 3
910.37.00	EA	CCTV Camera Assembly, Installed
910.52.01	L.F.	Conduit, 3 IN., Rigid in Trench
910.72.01	L.F.	Conduit, 3 IN., Rigid, Pushed

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910.82.02	L.F.	Cable, 2 AWG, 1 Conductor, Power
910.84.02	L.F.	Wire, 2 AWG, Bare Neutral
910.86.21	EA	Power Supply Assembly, Type 2, 240/120 Volt Service, ITS
910.88.20	EA	Pull Box, Concrete, Standard
910.91.00	C.Y.	Base, Concrete
910.99.01	L.S.	Permanent Traffic Counting System
910.99.02	EA	CCTV Pole, 60 FT., With Lowering Device, Furnish and Install

#### VV. Lump Sum Permanent Signing

**1.0 Description.** Delete **Sec 903.6** and insert the following:

The accepted quantity of Permanent Signing will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Permanent Signing, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
903.99.01	Lump Sum	Lump Sum Permanent Signing

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional permanent signing needed except for changes in the signing plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Permanent Signing are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
903.10.05	EA	Square Steel Sign Post (4 IN.) Base
903.10.10	C.Y.	Concrete Footings, Embedded
903.10.20	C.Y.	Concrete Footings, Bolt Down
903.12.10	LBS	Structural Steel Posts
903.12.20	LBS	Pipe Posts
903.12.30	L.F.	4 IN. Square Steel Post
903.12.52	EA	7 FT. Channel Post Delineator, Double Stacked White
903.12.56	EA	7 FT. Channel Post Delineator, White
903.12.57A	EA	7 FT. Channel Post Delineator, Yellow
903.12.58	EA	7 FT. Channel Post Delineator, White/Red

903.12.59A	EA	7 FT. Channel Post Delineator, Yellow/Red
903.12.70A	L.F.	2 IN. PSST Post – 12 GA.
903.12.74	EA	Concrete Post Anchor for 2 IN. PSST – 7 GA.
903.50.04A	S.F.	SH-Flat Sheet
903.50.11A	S.F.	ST-Structural
903.50.69A	S.F.	SHF-Flat Sheet Fluorescent
903.50.71A	S.F.	STF-Structural Fluorescent
903.80.00	EA	Temporary Ground Mounted Logo Signs
903.99.01	L.S.	Sign NO.47, Overhead Cantilever Truss, 26'-6"
903.99.01	L.S.	Sign NO 54, Overhead Cantilever Truss, 26'-6"
903.99.03	L.F.	Glare Screen on Traffic Safety Barrier



## WW. Lump Sum Traffic Control

### 1.0 Description. Amend **616.11.1** and **616.12** as follows:

Lump Sum Temporary Traffic Control. No measurement will be made for temporary traffic control items grouped and designated to be paid per lump sum. The list of lump sum items provided in the plans or contract is considered an approximation and may be subject to change based on field conditions. This is not a complete list and may exclude quantities for duplicate work zone packages used in simultaneous operations. The contractor shall provide all traffic control devices required to execute the provided traffic control plans for each applicable operation, stage, or phase. No measurement will be made for any additional signs or devices needed except for changes in the traffic control plan directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**1.1** All temporary traffic barrier items to include furnishing, installing, relocating, and delineation will be measured and paid as pay items in the contract.

**2.0 Payment.** The accepted quantity of Traffic Control will be paid for lump sum.

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** Progress payments for Lump Sum Traffic Control, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
616.99.01	Lump Sum	Lump Sum Traffic Control

**2.3** Contract items included in the Lump Sum Traffic Control are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
206.30.00	C.Y.	Class 3 Excavation
304.05.04	S.Y.	Type 5 Aggregate for Base (4 IN Thick)
401.12.09	TON	Bituminous Pavement Mixture PG64-22 (BP-1)
401.30.00	TON	Bituminous Pavement Mixture PG64-22 (Base)
604.40.11	EA	Pipe Collar, Type A
612.20.19	EA	Impact Attenuator 70 MPH (Sand Barrel Array)
612.20.20	EA	Replacement Sand Barrel
612.20.30	EA	Impact Attenuator (Relocation)
612.20.40	EA	Work Zone Crash Cushion (Narrow)
612.20.41	EA	Work Zone Crash Cushion (Narrow)(Relocation)
616.10.05	S.F.	Construction Signs
616.10.10	S.F.	Relocated Signs
616.10.20	EA	Channelizer (Drum-Like)
616.10.30	EA	Type 3 Movable Barricade
616.10.40	EA	Flashing Arrow Panel
616.10.95	EA	Radar Speed Advisory System
616.10.99	EA	Changeable Message Sign with Communication Interface, Contractor Furnished/Retained
616.20.02	EA	Temporary Long-Term Rumble Strips
616.99.01	LS	Work Zone Intelligent Transportation System
620.70.01	L.F.	Pavement Marking Removal
620.80.76	L.F.	4 IN. Temporary Pavement Marking Paint
621.46.00A	C.Y.	Flowable Backfill
622.10.03	S.Y.	Coldmilling Bituminous Pavement for Removal of Surfacing (Greater than 3 IN. Thick)
622.99.09	STA.	Filling Existing Bituminous Rubble Strip
726.10.18	L.F.	18 IN. Pipe Group A
726.10.24	L.F.	24 IN. Pipe Group A
731.10.32	L.F.	Precast Concrete Drop Inlet 3 FT. X 2 FT.

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XX. Lump Sum Erosion Control

**1.0 Description.** Delete **Sec 806.110.4** and insert the following

The accepted quantity of Erosion Control will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Erosion, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
806.99.01	Lump Sum	Lump Sum Erosion Control

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional erosion control needed except for changes in the erosion plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Erosion Control are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
611.30.10	C.Y.	Furnishing Type 1 Rock Blanket
611.30.20	C.Y.	Furnishing Type 2 Rock Blanket
611.30.30	C.Y.	Placing Type 1 Rock Blanket
611.30.40	C.Y.	Placing Type 2 Rock Blanket
618.10.20	EA	Additional Mobilization for Seeding
624.01.03A	S.Y.	Permanent Erosion Control Geotextile
802.50.06	ACRE	Mulching
805.10.00A	ACRE	Seeding – Cool Season Grasses
806.10.03	C.Y.	Sediment Trap Excavation
806.10.04	C.Y.	Sediment Trap Rock
806.10.05	L.F.	Rock Ditch Check
806.1006	L.F.	Alternate Ditch Check
806.10.07A	EA	Curb Inlet Check
806.10.17	ACRE	Temporary Seeding
806.10.19	L.F.	Silt Fence
806.41.40	S.Y.	Type 3B Erosion Control Blanket

YY. Lump Sum Permanent Pavement Marking

**1.0 Description.** Delete Sec **620.20.5.1** and insert the following:

The accepted quantity of permanent pavement marking lines, markings, and inlaid pavement marker installation will be paid for lump sum. Payment for pavement marking lines shall be adjusted based on retroreflectivity measurements per Sec 620.40.2.2.4.

**2.0 Payment.** Progress payments for Lump Sum Permanent Pavement Marking, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-

approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
602-99.01	Lump Sum	Lump Sum Permanent Pavement Marking

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional pavement markings except for changes in the pavement marking plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Permanent Pavement Marking are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
620.00.54	EACH	Preformed Thermoplastic Pavement Marking, Lane Reduction Arrow
620.05.902B	L.F.	6 Inch White Class 2 Pavement Marking Paint (25-MIL, Type L Beads)
620.59.03B	L.F.	6 Inch Yellow Class 2 Pavement Marking Paint (25-MIL, Type L Beads)
620.59.06B	L.F.	12 Inch White Class 2 Pavement Marking Paint (25-MIL, Type L Beads)
620.99.02	EA	Inlaid Pavement Marker Installation

ZZ. Lump Sum Drainage

**1.0 Description.** Delete **Sec 724.50** and insert the following:

The accepted quantity of Drainage will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Drainage, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
726.99.01	Lump Sum	Lump Sum Drainage

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional drainage needed except for changes in the drainage plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.4** Contract items included in the Lump Sum Drainage are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
206.30.00	C.Y.	Class 3 Excavation
206.33.00	C.Y.	Class 4 Excavation
206.35.00	EA	Culvert Cleanout
403.01.32	TON	Asphalt Concrete Mixture PG 76-22 (SP125BSM Mix)
502.11.10	S.Y.	Concrete Pavement (10 IN. Non-Reinforced)
604.40.11	EA	Pipe Collar, Type A
605.30.30A	L.F.	Pipe Aggregate Pavement Edge Drain
609.60.20	C.Y.	Furnishing Type 2 Rock Ditch Liner
609.60.42	C.Y.	Placing Type 2 Rock Ditch Liner
609.70.00	C.Y.	Rock Lining
614.10.22	EA	Grate and Bearing Plate (3 FT. X 3 FT.)
614.10.24	EA	Grate and Bearing Plate (5 FT. X 3 FT.)
614.11.21	EA	Curved Grate and Bearing Plate (4 FT. X 2 FT.)
614.30.14	EA	Manhole Frame and Cover, Type 4
621.46.00A	C.Y.	Flowable Backfill
624.01.03A	S.Y.	Permanent Erosion Control Geotextile
703.40.01	C.Y.	Class B-1 Concrete
706.10.30	LBS	Reinforcing Steel (Culverts)
726.10.18	L.F.	18 IN. Pipe Group A
726.10.24	L.F.	24 IN. Pipe Group A
726.10.30	L.F.	30 IN. Pipe Group A
726.10.36	L.F.	36 IN. Pipe Group A
726.10.42	L.F.	42 IN. Pipe Group A
726.50.24	L.F.	Jacked 24 IN. Class III Reinforced Concrete Pipe Culverts (Gasket Type)
726.50.30	L.F.	Jacked 30 IN. Class III Reinforced Concrete Pipe Culverts (Gasket Type)
731.00.48	L.F.	Precast Concrete Manhole – 48 IN.
731.10.33	L.F.	Precast Concrete Drop Inlet 3 FT. X 3 FT.
731.10.42	L.F.	Precast Concrete Drop Inlet 4 FT. X 2 FT.
731.10.53	L.F.	Precast Concrete Drop Inlet 5 FT. X 3 FT.
731.99.02	EA	Modify Existing Median Drop Inlets
732.06.24A	EA	24 IN. or Allowed Substitute Group A Flared End Section
732.06.30A	EA	30 IN. or Allowed Substitute Group A Flared End Section

732.06.36A	EA	36 IN. or Allowed Substitute Group A Flared End Section
732.10.19A	EA	42 IN. or Allowed Substitute Safety Flared End Section

AAA. Lump Sum Retaining Wall

**1.0 Description.** Delete Sec 703.5 and insert the following:

The accepted quantity of Retaining Wall will be paid for lump sum.

**2.0 Payment.** Progress payments for Lump Sum Retaining Wall, including material allowance payments in accordance with Sec 109.7.2, will be made based on Engineer-approved schedule of values or percentage complete determinations supported by project documentation.

Item No.	Unit	Description
703.99.01	Lump Sum	Lump Sum Retaining Wall

**2.1** No direct payment will be made for incidental items necessary to complete the work, unless specifically provided as a pay item in the contract.

**2.2** No payment will be made for any additional retaining wall needed except for changes in the retaining wall plans directed by the engineer. Additional items directed by the engineer will be paid for in accordance with Sec 109.4.

**2.3** Contract items included in the Lump Sum Retaining Wall are limited to the items listed below and are designated in the Summary of Quantities Sheet

Item No.	Unit	Description
609.10.42	L.F.	Concrete Gutter Type B
609.60.20	C.Y.	Furnishing Type 2 Rock Ditch Liner
609.60.42	C.Y.	Placing Type 2 Rock Ditch Liner
624.01.03A	S.Y.	Permanent Erosion Control Geotextile
703.99.04	S.F.	Gravity Block Retaining Wall

 REVISED

BBB. Lump Sum Payment Schedule

**1.0 Description.** This provision establishes the schedule of payment for the work to be performed under this contract when compensation is on a lump sum basis. This provision defines the schedule, conditions, and procedures for partial payments to the Contractor, as well as the requirements for documentation and approval.

**2.0 General.** All work to be paid for at the contract lump sum price shall be full compensation for furnishing all labor, materials, equipment, tools, and incidentals necessary to complete the project in accordance with the plans, specifications, and contract documents. It is the intent of the Commission to pay all items in an amount totaling the lump sum bid amount for each item.

No measurements or adjustments to quantities and lump sum payment amounts will be made except for instances of differing site conditions or at the Engineers' discretion

**2.1 Payment Schedule Submittal.** Prior to the first pay estimate, the Contractor shall submit to the Engineer a detailed payment schedule allocating the lump sum price for the work. The schedule shall show percentage values for each component, which together total 100% of the lump sum bid amount. Components should reflect measurable milestones such as mobilization, site preparation, foundations, structural work, utilities, paving, electrical, or other definable features of work.

**2.1.1** The schedule shall be subject to approval by the Engineer.

**2.1.2** No payments will be processed until the Payment Schedule is approved.

**2.2 Progress Payments.** Progress payments will be based on the percentage of completion of each approved component of work as determined by the Engineer. The Contractor shall submit a monthly estimate reflecting actual progress achieved. The Engineer will verify the quantities and completion percentages prior to payment. The cumulative total of progress payments shall not exceed the contract lump sum amount.

**3.0 Basis of Payment.** No direct payment will be made to the Contractor to recover the cost of equipment, labor, materials, or time required to fulfill this provision.



#### CCC. Excavating and Disposing Unsuitable Material

**1.0 Description.** This work shall consist of excavating unsuitable material as defined in **Sec 203.4.5.** Excavating and Disposing Unsuitable Material (Small Area) shall be defined as areas having a volume of less than 500 CUYD, with Excavating and Disposing Unsuitable Material (Large Area) having a volume greater than 500 CUYD.

**2.0 Construction.** Excavation and disposal of unsuitable material shall be in accordance with **Sec 203.4.15. Rock Fill used for backfill for Excavating and Disposing of Unsuitable Material areas, shall include all costs associated with both furnishing and placing the rock fill.**

**3.0 Measurement.** Measured for Excavating and Disposing Unsuitable Material shall be in accordance with **Sec 203.8.2.**

**4.0 Basis for Payment.** Payment for Excavating and Disposing Unsuitable Material (Small Area) will be made at fixed unit price of \$15.00 per cubic yard. Payment for Excavating and Disposing Unsuitable Material (Large Area) will be made at fixed unit price of \$10.00 per cubic yard. Payment for Rock Fill will be made at fixed unit price of \$45.00 per cubic yard.

Item No.	Units	Description
206.99.07	CUYD	Excavating and Disposing of Unsuitable Material (Small Area)
206.99.07	CUYD	Excavating and Disposing of Unsuitable Material (Large Area)
214.30.00	CUYD	Placing Rock Fill

**1 ADDED****DDD. Filling Existing Bituminous Rumble Strip**

**1.0 Description.** This work shall consist of filling existing shoulder rumble strips as shown on the plans or as directed by the Engineer. This work is necessary to eliminate existing rumble strip indentations to allow for smoother paving, striping, or surface treatments. Filling the existing bituminous rumble strips shall be done prior to using the temporary access.

**2.0 Construction Requirements.** The Contractor shall clean all loose debris, dirt, and moisture from the rumble strip indentations prior to placing any fill material. The fill material shall be an asphaltic mix or other approved material compatible with the surrounding pavement and suitable for bonding and long-term performance.

**2.0.1** Fill material shall be placed in a manner that ensures the filled rumble strip is flush with the adjacent pavement surface, with no protrusions or depressions exceeding 1/8 inch. Compaction shall be performed as necessary to achieve a uniform, dense fill that resists future settlement or raveling.

**2.0.2** The Contractor shall ensure that the filled area blends smoothly with the existing pavement and poses no hazard to vehicles. All work shall be completed prior to any overlay, striping, or other surface treatment, unless otherwise approved by the Engineer.

**2.1 Engineer's Discretion.** The Resident Engineer will inspect the condition of filled existing bituminous rumble strips. If, in the opinion of the Resident Engineer, the surface becomes delaminated, undrivable, or otherwise unsatisfactory, the contractor shall take immediate corrective action as directed.

**3.0 Method of Measurement.** Measurement of filled rumble strips will be made per station along the centerline or edge line of the filled strip, regardless of the width or configuration of the individual indentations. The quantity of filled rumble strips will not be measured unless the traffic control plan is modified by the Engineer. Modifications to filled rumble strips will be measured per station along the centerline or edge line of the filled strip, regardless of width or configuration of the individual indentations.

**4.0 Basis of Payment.** All expenses incurred by the contractor by reason of their compliance with this provision shall be considered completely covered by the unit prices bid for

Item No.	Unit	Description
616.99.01	Lump Sum	Lump Sum Traffic Control

Filling Existing Bituminous Rumble Strip is designated in the Summary of Quantities Sheet and shown as bid item:

Item No.	Units	Description
622.99.09	STA	Filling Existing Bituminous Rumble Strip

**1 ADDED****EEE. Rigid Geogrid to Enhance Aggregate Base or to Enhance Rock Base NJSP-18-11B**

**1.0 Description.** This work shall consist of furnishing and installing rigid geogrid base reinforcement, over a separation geotextile, on a prepared subgrade prior to the placement of the aggregate base or rock base as shown in the plans or as directed by the engineer.

**2.0 Materials.** The rigid geogrid shall be manufactured from a punched and drawn polypropylene sheet integrally formed into a biaxial or triaxial grid structure designed to provide significant mechanical interlock with the aggregate material being reinforced. The rigid geogrid structure shall be dimensionally stable to retain its reinforcement and interlock capabilities under repeated dynamic loads while in service and shall have high resistance to damage during construction, ultraviolet degradation, and all naturally encountered forms of chemicals, alkalis, acids, and biological degradation encountered in the materials being reinforced. Woven or flexible geogrids will not be allowed. A separation geotextile meeting the requirements of Sec 1011.3.4 shall be used in conjunction with the rigid geogrid. All aggregate base shall comply with Sec 304 and all rock base shall comply with Sec 303.

**2.1 Physical Properties.** The rigid geogrid shall meet the following properties:

<b>Property</b>	<b>Test Method</b>	<b>Units</b>	<b>Geogrid Requirements</b>	
			<b>MD</b>	<b>XMD</b>
Rigid Geogrid Type	Observed	Punched & Drawn Polypropylene		
Aperture Shape	Observed	Equilateral Triangular, Rectangle, or Square		
Minimum Roll Width	Observed	feet	9	
<b>Minimum Index Properties (Unless indicated otherwise)</b>				
Rib Thickness	Observed	inch	0.05	0.05
Maximum Aperture Dimensions <sup>6,7</sup>	Caliper	inch	1.3	1.3
Tensile Strength @ 2 % Strain	ASTM D6637	lbs/ft	410	620
Tensile Strength @ 5 % Strain	ASTM D6637	lbs/ft	810	1340
Ultimate Tensile Strength	ASTM D6637	lbs/ft	1310	1970
<b>Structural Integrity</b>				
Junction Efficiency <sup>2</sup>	ASTM D7737 Method A	Percent	93	
Flexural Stiffness <sup>3</sup>	ASTM D7748	mg-cm	750,000	
Aperture Stability <sup>4</sup>	GRI GG9	m-N/deg	0.65	
<b>Durability</b>				
Resistance to Installation Damage <sup>5</sup>	ASTM D 6637	%SC / %SW / %GP	95 / 93 / 90	
UV Resistance @ 500 hours	ASTM D 4355	Percent	100	
Resistance to Chemical	EPA 9090 Emersion	Percent	100	

**Notes:**

1. Minimum Average Roll Values (MARVs) determined in accordance with ASTM 4759, unless indicated otherwise. MD = Machine Direction; XMD = Cross-Machine Direction
2. Load transfer capability expressed as a percentage of ultimate tensile strength.
3. Resistance to bending force determined in accordance with ASTM D7748, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension.
4. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with GRI GG9.

5. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well-graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The rigid geogrid shall be sampled shall be in accordance with ASTM D5818 and load capacity shall be determined in accordance with ASTM D6637.

6. Nominal dimensions rounded to the nearest one tenth of an inch.

7. Maximum MD or XMD shall be no greater than or equal to 2\*D85 of the aggregate base. Minimum MD or XD shall be no less than 1.0 inches.

**2.2 Acceptance.** The contractor shall furnish a manufacturer's certification to the engineer for each lot of material furnished stating the name of the manufacturer, the chemical composition and certifying that the material supplied is in accordance with this specification. The certification shall include or have attached typical results of tests from specific lots for all specified requirements. A rigid geogrid will be rejected at installation if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transport, handling or storage.

**2.3 Handling.** Each roll shall be clearly marked with manufacturer's name, brand name, lot number. During all periods of shipping and storage, the separation geotextile and rigid geogrid shall be protected from temperatures greater than 140 deg. F and all deleterious materials that might otherwise become affixed to the rigid geogrid and affect its performance. The manufacturer's recommendations shall be followed regarding protection from direct sunlight. The separation geotextile and rigid geogrid shall be stored off the ground in a clean, dry environment.

**3.0 Construction.** The separation geotextile and rigid geogrid shall be installed in accordance with the manufacturer's recommendations and with this job special provision.

**3.1 Site Preparation.** The surface shall be smooth and free of stumps, large stones, sharp objects, and debris that may puncture the separation geotextile or damage the rigid geogrid.

### **3.2 Separation Geotextile.**

**3.2.1** The separation geotextile fabric shall be used on all subgrades that require the rigid geogrid to prevent the infiltration of fines.

**3.2.2 Separation Geotextile Installation.** The separation geotextile shall be laid out smooth and applied with tension to minimize wrinkles or folds on the prepared subgrade. The separation geotextile shall be oriented such that the roll length runs parallel to the construction centerline.

**3.2.3 Exposure.** The separation geotextile shall be covered with rigid geogrid material the same day of placement to protect against unnecessary exposure.

**3.2.4 Overlaps.** The end of separation geotextile rolls and adjacent separation geotextile rolls shall be overlapped a minimum of 3 feet. The overlap shall be in the direction of anticipated aggregate placement and shall be held in place by U-staples, washer pins or aggregate piles.

**3.3 Rigid Geogrid Installation.** The rigid geogrid shall be laid out smooth and applied with tension to minimize wrinkles or folds on the separation geotextile. The rigid geogrid shall be oriented such that the roll length runs parallel to the construction centerline.

**3.3.1 Exposure.** The rigid geogrid shall be covered with aggregate base material the same day of placement to protect against unnecessary exposure.

**3.3.2 Overlaps.** The end of rigid geogrid rolls and adjacent rigid geogrid rolls shall be overlapped a minimum of 3 feet. The overlap shall be in the direction of anticipated aggregate placement and shall be held in place by U-staples, washer pins or aggregate piles.

**3.3.3 Intermediate Splicing.** The rigid geogrid may require intermediate splices to provide for a smooth layout minimizing wrinkles or folds around curves. Each splice shall be overlapped a minimum of 3 feet and kept taut with fasteners.

**3.4 Aggregate Placement.** Materials shall be placed onto the rigid geogrid from the edge or over previously placed aggregate. A minimum of 6 inches of crushed aggregate shall be placed over the rigid geogrid before construction equipment is allowed on the material. Construction equipment will not be allowed directly on the rigid geogrid. Rollers shall not use vibratory compaction. Avoid sudden stops or sharp turns when operating construction equipment over the rigid geogrid.

**3.5 Damaged Areas.** If any separation geotextile or rigid geogrid is damaged during installation, the contractor shall repair or replace the separation geotextile and rigid geogrid in accordance with manufacturer's recommendations. The contractor shall replace any separation geotextile and rigid geogrid damaged prior to or during installation at no expense to the commission.

**4.0 Method of Measurement.** Measurement of the separation geotextile and rigid geogrid will be made to the nearest square yard. Incidental overlaps for connections and splices are not included in the pay item.

**5.0 Basis of Payment.** Payment for the rigid geogrid and separation geotextile shall be subsidiary to the Modified Subgrade bid item and included in the related Lump Sum pay item