

Job No.: J9P3233
Route: 61
County: Ste Genevieve
Perry
Cape Girardeau

JOB SPECIAL PROVISIONS TABLE OF CONTENTS

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

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 <p>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</p>	<p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65102 Phone 1-888-275-6636</p>
	<p>If a seal is present on this sheet, JSP's have been electronically sealed and dated.</p>
	<p>JOB NUMBER: J9P3233 STE GENEVIEVE COUNTY, MO PERRY COUNTY, MO CAPE GIRARDEAU COUNTY, MO DATE PREPARED: 7/10/2020</p>
	<p>ADDENDUM DATE:</p>
<p>Only the following items of the Job Special Provisions (Roadway) are authenticated by this seal: ALL</p>	

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JOB
SPECIAL PROVISION

A. General - Federal JSP-09-02F

1.0 Description. The Federal Government is participating in the cost of construction of this project. All applicable Federal laws, and the regulations made pursuant to such laws, shall be observed by the contractor, and the work will be subject to the inspection of the appropriate Federal Agency in the same manner as provided in Sec 105.10 of the Missouri Standard Specifications for Highway Construction with all revisions applicable to this bid and contract.

1.1 This contract requires payment of the prevailing hourly rate of wages for each craft or type of work required to execute the contract as determined by the Missouri Department of Labor and Industrial Relations and requires adherence to a schedule of minimum wages as determined by the United States Department of Labor. For work performed anywhere on this project, the contractor and the contractor's subcontractors shall pay the higher of these two applicable wage rates. State Wage Rates, Information on the Required Federal Aid Provisions, and the current Federal Wage Rates are available on the Missouri Department of Transportation web page at www.modot.org under "Doing Business with MoDOT", "Contractor Resources". Effective Wage Rates will be posted 10 days prior to the applicable bid opening. These supplemental bidding documents 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.

1.2 The following documents are available on the Missouri Department of Transportation web page at 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 2020 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-13-01B

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.

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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 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: January 4, 2021
Completion Date: October 1, 2022

2.1 Calendar Days. The count of calendar days will begin on the date the contractor starts any construction operations on the project.

Job Number	Calendar Days	Daily Road User Cost
J9P3233	N/A	\$2300

3.0 Liquidated Damages for Contract Administrative Costs. Should the contractor fail to complete the work on or before the 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 **\$2000** 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 above specified 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 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-02-06J

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.

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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 10 minutes to prevent congestion from escalating to 15 minute or above threshold. If disruption of the traffic flow occurs and traffic is backed up in queues of 15 minute delays or longer, 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.

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

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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.

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:

12:00 noon July 2, 2021 – 6:00 a.m. July 6, 2021
12:00 noon July 1, 2022 – 6:00 a.m. July 5, 2022
12:00 noon June 30, 2023 – 6:00 a.m. July 5, 2023

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.

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. The CMS shall be capable of communication with the Transportation Management Center (TMC), if applicable, 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.

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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. 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 resident engineer's office shall also be notified when the contractor requests emergency assistance.

Brian Holt, Resident Engineer: 573-243-0899 (Office) 573-703-6347 (Mobile)

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 State Highway Patrol: 636-300-2800 (Troop C – Ste Genevieve and Perry)
Missouri State Highway Patrol: 573-840-9500 (Troop E – Cape Girardeau)
Ste Genevieve County Sheriff: 573-883-5820
Perry County Sheriff: 573-547-4576
Cape Girardeau County Sheriff: 573-243-3551

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.

2.0 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.

E. Project Contact for Contractor/Bidder Questions JSP-96-05

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

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Jeffery Wachter, Project Contact
MoDOT – Southeast District
PO Box 160
Sikeston, MO 63801

Telephone Number: 573-472-5294 (Office) 573-258-9679 (Mobile)
Email: Jeffery.Wachter@modot.mo.gov

All questions concerning the bid document preparation can be directed to the Central Office – Design at (573) 751-2876.

F. Flagging Procedure for Two-Lane Roadways (3-2-1 Cone Procedure) NJSP-17-03A

1.0 Description. Flagging operations shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) Chapter 6, Section 107 and 616 in Missouri Standard Specifications for Highway Construction, Missouri Standard Plans for Highway Construction, temporary traffic control plans, and as described herein.

2.0 Procedures for Flagging Short, Intermediate, or Long-Term Stationary Operations. This procedure includes the use of three traffic cones or other channelizing devices.

2.1 Step 1. The flagger shall place three cones across the lane of traffic to be stopped, from centerline to shoulder. When no vehicles are present, the flagger should remain on the shoulder with the stop paddle visible.

2.2 Step 2. When traffic has stopped, the flagger shall move towards the centerline of the roadway, keeping the stop paddle visible, and keeping a visual contact with the stopped drivers. Once the flagger has confirmed that opposing traffic is clear, the flagger shall prepare to release the stopped traffic.

2.3 Step 3a. If the vehicles are to travel in the current lane, the flagger shall remove the center cone from the center of the lane.

2.4 Step 3b. If the vehicles are to travel in the opposite lane, the three cones shall remain across the closed lane.

2.5 Step 4. If opening the lane (Step 3a above) the flagger shall walk back to the shoulder with the cone, turn the stop paddle to slow, and then release traffic using a hand signal to direct vehicles between the two remaining cones. If releasing traffic to the other lane (Step 3b above) the flagger shall remain near the centerline of the roadway, turn the stop paddle to slow, and use a hand signal to direct the traffic around the cones into the open lane.

2.6 Once all traffic has cleared, the flagger shall return the slow paddle to stop. The flagger shall replace the cone to the center of the lane or leave the cones across the lane. The flagger then returns to the shoulder and repeats the steps.

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2.7 If the roadway width is less than 12 feet, the number of cones may be reduced to two or one, or other channelizing devices may be used.

3.0 Basis of Payment. No direct payment will be made for any cost associated with this provision.

Pictorial Representation of Steps for Flagging Procedure for Two-Lane Roadways (3-2-1 Cone Procedure)



STEP 1



STEP 2



STEP 3



STEP 4

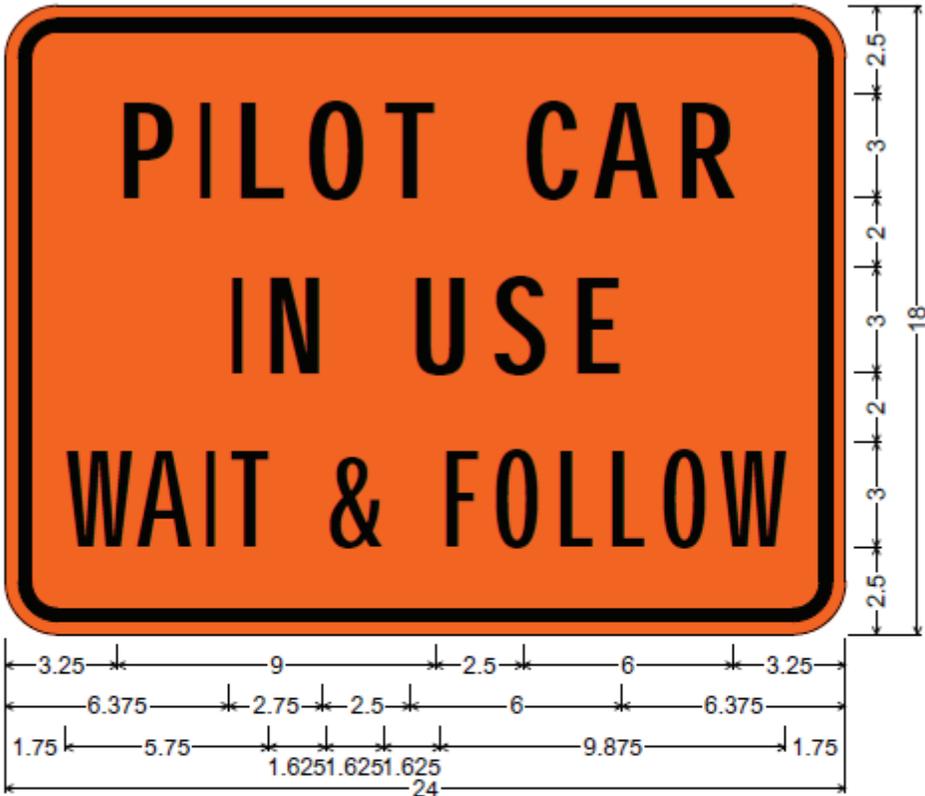
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G. Pilot Car in Use – Wait and Follow Sign NJSP-1803

1.0 Description. The sign shown below shall be printed on 4 mm corrugated plastic or similar and supported with a 10"x30", 9 gauge, galvanized steel H-frame, or similar. This sign shall only be used at private and commercial entrances to enhance the work zone signing, and will not be permitted for use on intersecting state, county or city roads.

2.0 Method of Payment. Signs shall be contractor furnished/contractor retained. The cost of the signs and stands are incidental to other traffic control items.

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1.500" Radius, 0.375" Border, 0.375" Indent, Black on Orange;
 "PILOT CAR" C; "IN USE" C; "WAIT & FOLLOW" B 80% spacing;
 Table of letter and object lefts.

P	I	L	O	T	C	A	R
3.250	5.500	6.500	8.500	10.750	14.750	16.750	19.125
I	N	U	S	E			
6.375	7.375	11.625	13.875	16.125			
W	A	I	T	&			
1.750	3.750	5.625	6.375	9.125			
F	O	L	L	O	W		
12.375	13.875	15.750	17.250	18.750	20.375		

H. Bridge End Transitions

1.0 At all bridge exceptions, the engineer will determine in the field the ending point of the transition. This point will not necessarily be at the bridge end, but will be located at a point which provides the smoothest transition and approach to the bridge. Where bridges are to be resurfaced, the surfacing shall be from curb to curb.

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I. Pavement Marking Log

1.0 Description. The contractor shall log the locations of existing pavement marking prior to any construction operations that may affect the existing pavement marking. The log shall contain all existing pavement marking and shall include center stripes, no passing stripes, lane lines, turn arrows, hash bars, cross walks, and stop bars. The contractor shall provide a copy of the existing pavement marking log to the engineer. The contractor shall place the new pavement marking at the same locations as the existing pavement marking, unless otherwise directed by the engineer or shown on the plans.

2.0 Basis of Payment. No direct payment will be made for logging of existing pavement marking.

J. Winter Months Requirements

1.0 Description. This project contains work which spans the winter months. Winter months is defined as November 15th through March 15th for JSP J.

2.0 Work to be Completed. The contractor shall cease operations for the winter months by November 15, 2021. Any paving operation performed by the contractor shall not result in a lane height differential between adjacent lanes. Any edge drop off condition resulting from paving operations shall be addressed with edge treatment, as noted in the Plans. Guardrail installations shall be completed for any completed length where the final surface was placed.

3.0 Maintenance of Pavement Marking. Pavement marking shall be in accordance with JSP T Optional Temporary Pavement Marking Paint NJSP-18-07B.

4.0 Winter Related Maintenance Activities. The contractor shall have the project in a condition as not to interfere with the plowing of snow. The contractor shall also provide a taper at the end of his paving that will not be damaged by the plowing of snow. The taper shall be installed at a rate of 1" to 50'.

5.0 Liquidated Damages Specified. If the requirements for winter months in accordance with this provision are not met and operations are not ceased by November 15, 2021, 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 delay, with its resulting cost to the traveling public. 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 **\$2,300 per day** for each full day that operations are not ceased. It shall be the responsibility of the engineer to determine the quantity of excess closure time.

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

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6.0 Basis of Payment. There will be no direct pay for compliance with this provision.

K. Temporary Short-Term Rumble Strips JSP-13-05E

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

2.0 Material.

2.1 The short-term rumble strips shall be 10 to 12 feet in length, minimum of 8 inches wide, $\frac{3}{4}$ to $1\frac{1}{4}$ inch thick, fabricated from a polymer material, and orange in color.

2.2 The short term-rumble strips shall not curl or deform across the width of the strip, maintaining its rigidity.

3.0 Construction.

3.1 Each set shall consist of three individual strips spanning a single lane, spaced in accordance with the plans or as directed by the engineer. The short-term rumble strips shall be installed and removed in accordance with manufacturer's recommendation.

3.2 The contractor shall monitor, maintain alignment, and repair if needed the short-term rumble strips during construction. Short-term rumble strips shall not be placed on roadways when there are no workers present.

3.3 Strips shall not extend onto the shoulder without the approval of the Engineer.

4.0 Method of Measurement. Measurement of short-term rumble strips will be based per each set.

5.0 Basis of Payment. The accepted quantity of Temporary Short-Term Rumble Strips sets will be paid for at the contract unit price for 616-20.04, Temporary Short-Term Rumble Strips, per each set. The short-term rumble strips unit bid price shall include the cost of all labor, equipment and materials to install, maintain, remove and relocate the rumble strips during the construction of the project.

L. Permanent Aggregate Edge Treatment NJSP-15-40A

1.0 Description. This work shall consist of furnishing and installing a permanent aggregate edge treatment along the edge of shoulder or pavement as shown on the plans or as directed by the engineer.

2.0 Construction Requirements. Aggregate shall be simultaneously deposited and spread on the sub-grade and shall not be deposited on the pavement or shoulder and bladed into place. Aggregate

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material shall be shaped according to the typical section and compacted until there is no visible evidence of further consolidation.

3.0 Material Requirements. Material used for the aggregate edge treatment shall be Type 1, 5, or 7 Aggregate in accordance with Sec 1007 or an allowable substitute approved by the engineer. Bituminous cold millings meeting the gradation for Type 1, 5 or 7 Aggregate may be used in lieu of aggregate. Limestone screenings or other material with excessive fines will not be allowed. Material will be accepted based on certification in lieu of testing contingent upon satisfactory results being obtained in the field.

4.0 Measurement by Weight. Measurement of the aggregate edge treatment material shall be per ton and in accordance with Sec 310.5.3.

5.0 Basis of Payment. The accepted quantities of aggregate edge treatment will be paid for at the contract unit price for 304-99.10, Permanent Aggregate Edge Treatment, per ton and will be full compensation for all labor, equipment and material to complete the described work.

M. Modified Shaping Slopes Class III

1.0 Description. Modified Shaping Slopes, Class III shall consist of providing fill material and shaping slopes to construct additional shoulder width for the installation of guardrail and Type A crashworthy end terminals in accordance with the standard plans.

2.0 Material. The material used shall be a **3-inch minus aggregate**, or other granular material approved by the engineer. The material shall be similar to a quarry-run stone graded from course to fine with a minimum of voids. At least 20 percent of the material shall contain course stone 1.5 inches or larger. Acceptance of quality and size of material may be made by visual inspection. Any excess material shall be disposed of outside of the limits of the right of way.

3.0 Construction Requirements. Slope areas to be shaped by the addition of material shall be scarified to allow bonding with the added material. Density shall be obtained by reasonable compactive efforts consisting of no less than three passes with a roller or other methods approved by the engineer. The contractor will not be required to excavate any classified rock excavation under this item.

3.1 Benching of the existing slope may be necessary to provide stability to the additional shoulder width constructed by Modified Shaping Slopes, Class III. All costs for benching shall be included in the cost of Modified Shaping Slopes, Class III.

3.2 Modified Shaping Slopes, Class III will apply only to those sections that have been specifically designated as such on the plans.

4.0 Method of Measurement. Final measurement will not be made except where appreciable errors are found in the contract quantity. Where required, measurement will be made in accordance with Sec 215.3.

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5.0 Basis of Payment. The accepted quantity of Modified Shaping Slopes, Class III will be paid for at the contract unit price for 215-99.03, Modified Shaping Slopes, Class III, per linear foot. If Modified Shaping Slopes, Class III is not provided but is required, payment will be in accordance with Sec 104.3. No direct payment will be made for any additional material required for shaping slopes.

N. Guardrail Grading Requirements JSP-17-02B

1.0 Description. Guardrail installation and grading shall be in accordance with Missouri Standard Specifications for Highway Construction, Missouri Standard Plans for Highway Construction, and as described herein.

2.0 Construction Requirements. When guardrail and/or end treatment removal and replacement requires grading of the shoulder and/or slopes, Section 606.3.1(b), (c), and 606.3.1.1 of the Missouri Standard Specifications shall be waived and the following shall apply:

- a) Along roadways and shoulders, remove no more guardrail than can be reconstructed within seven (7) calendar days, including weekends and holidays. The seven day counting period shall start when the first piece of safety hardware is removed.
- b) The active work zone area that encompasses the guardrail and/or end treatment reconstruction, shall not exceed one (1) mile in length. The contractor shall be required to provide and maintain approved channelizing devices adjacent to the reconstruction area.
- c) Only one-side of the roadway shall be worked on at the same time. Divided facilities shall be limited to work on one-side of each direction at the same time.
- d) When the removal of any existing safety hardware device exposes non-breakaway obstacles, the reconstruction of the safety hardware device protecting the obstacle shall be replaced within 48 hours of removal or an approved temporary crashworthy device shall be provided, installed and maintained at the contractor's expense until the non-breakaway obstacle is permanently protected. The 48 hour counting period shall start when the first piece of safety hardware is removed.
- e) Areas where guardrail and/or end treatments have been removed, but not yet replaced, shall be delineated in accordance with plans or as directed by the Engineer.

3.0 Non-Compliance. Non-compliance with this provision shall result in the immediate suspension of work in accordance with Sec 105.1.2. No work, including but not limited to additional guardrail removal and grading, shall be allowed to proceed except for work necessary to restore guardrail installation.

4.0 Basis of Payment. No direct payment will be made for compliance with this provision. Guardrail items, grading, and temporary traffic control devices will be paid for as provided in the contract.

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O. Pavement and Bridge Surface Removal and Texturing

Delete Sec 622.10.3.1 and substitute the following:

622.10.3.1 Except for cold milling of depth transitions sections and butt joints, all pavement that is cold milled for the purpose of resurfacing shall receive the first lift of resurfacing during the same day or night work shift as the cold milling operation. If required, the second lift of resurfacing shall be completed within 48 hours from the completion of the first lift of resurfacing.

P. 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 86.28 on Railroads Desoto Subdivision Ste. Genevieve Industrial Lead designated as USDOT Crossing # 371078S. **Current FRA data shows 6 switching trains per day and is not a passenger route.**

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:

Mr. Chris Keckeisen,
Engineering Design - Public Projects
Union Pacific Railroad Company
1400 Douglas, MS 0910
Omaha, NE 68179
Telephone: (402) 544-5131
Email: ctkecke@up.com

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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.

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4.1.4 The contractor's employees, representatives or agents who are regularly assigned to perform work on the Railroad's Property have been certified as having completed the Internet Safety Orientation available at www.contractororientation.com. This certification shall be renewed annually. In addition the contractor shall require that every employee, representative or agent who is not regularly assigned to perform work on the Railroad's Property has received appropriate safety training before performing any work on the Railroad's property. The cost of the Internet Safety Orientation, which is subject to change, is currently \$11 per person per year.

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 One Thousand twenty-five Dollars (\$1,025) 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.

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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 flagperson 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.

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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.

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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).

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.

Jared Treaster - Manager of Track Maintenance
573-318-4382 (cell)

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

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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.

12.3.2 The estimated cost of flagging services is approximately \$1300 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.

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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 25 feet from the centerline of the track. Before the close of each work day, 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.

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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

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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:

Resurfacing (mill/fill) bridge deck (J0134).

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USDOT # 371078S MP 86.28 Desoto Sub Ste. Genevieve Ind. lead, Ste. Genevieve, MO.

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.

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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
Mr. Daniel Peters
Senior Manager, Real Estate
Union Pacific Railroad Company
1400 Douglas St., MS 1690
Omaha, NE 68179-1690

Commission
Mr. Dave Ahlvers
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.

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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.

Q. Sensitive Streams Or Waterbodies Near Project Area

1.0 Description. The project crosses, or is in the vicinity of, a sensitive stream or watershed. Waterbodies within and near the project area may serve as habitat for federal and state listed sensitive species. To avoid any negative impacts to these species and their habitats, water quality shall be protected from construction impacts.

1.1 The contractor shall prevent any debris and materials from construction activities from entering streams and other waterbodies. If debris or materials do enter waterbodies, and if deemed necessary by the engineer or MoDOT's environmental personnel, it shall be removed as directed by the engineer at the contractor's expense.

2.0 Basis of Payment. No direct payment will be made for any expense incurred by the contractor by reason of compliance with the specific requirements of the provision, including any delay, inconvenience, or extra work except for those items for which payment is included in the contract.

R. Additional Flaggers

1.0 Additional flagger(s) and appropriate construction signs shall be provided at state route intersections and at other locations, as requested by the Engineer.

2.0 Basis of Payment. There will be no direct pay for all labor and equipment necessary to provide additional flaggers. All cost shall be considered completely covered under the pay items provided in the contract.

S. Damage to Existing Roadways and Entrances

1.0 Description. This work shall consist of repairing any damage to existing pavement, shoulders, side roads, and entrances caused by Contractor operations. This shall include, but is not limited to, damage caused by the traffic during Contractor operations within the project limits including the work zone signing.

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2.0 Construction Requirements. Any cracking, gouging, or other damage to the existing pavement, shoulders, side roads, or entrances from general construction shall be repaired within twenty-four (24) hours of the time of damage at the Contractor's expense. Repair of the damaged pavement, shoulders, side roads, or entrances shall be as determined by the Engineer.

3.0 Method of Measurement. No measurement of damaged pavement, shoulder, side roads, or entrances, as described above, shall be made.

4.0 Basis of Payment. No payment will be made for repairs to existing pavement, shoulders, side roads or entrances damaged by Contractor operations.

T. Optional Temporary Pavement Marking Paint NJSP-18-07B

1.0 Description. This provision provides the contractor with the option to either complete all Permanent Pavement Marking Paint (PPMP) prior to the time limits specified herein or to apply Temporary Pavement Marking Paint (TPMP) in accordance with Sec 620.10.2 (4 in. width) in all locations shown on the plans as PPMP and delay application of the PPMP until the spring of 2022, as allowed herein. PPMP is defined as Standard Waterborne Paint and High Build Waterborne Paint and does not include Sec 620.20.3 Durable Pavement Markings.

1.1 No application of PPMP shall occur between October 1, 2021 and March 1, 2022, both dates inclusive, except as stated herein. When the contractor has begun application of PPMP prior to October 1, 2021, and weather limitations stated in Sec 620.20.2.4 can be met, the contractor may complete the PPMP within the first seven (7) calendar days of October. If all (100%) of the PPMP is not completed on or before October 7, 2021, all previously applied PPMP, including any painted markings applied prior to October 1, shall be considered TPMP, and the contractor shall complete the remaining marking with TPMP, and then re-apply PPMP in all planned locations after March 1, 2022. All PPMP shall be completed prior to June 1, 2022. No additional payment will be made for PPMP that is later determined to be TPMP due to the contractor's failure to complete the PPMP within the time specified.

1.2 Use of TPMP Prior to October 1. The contractor has the option to apply TPMP in lieu of PPMP prior to October 1, 2021, even when there is sufficient time to complete the PPMP prior to October 1, 2021. For example, the contractor may choose to use TPMP as a base coat for the PPMP on open-graded surfaces in order to achieve higher retroreflectivity readings on the surface coat as compared to a single application.

1.2.1 The contractor has the option of using TPMP in lieu of Temporary Raised Pavement Markers if applied each day that existing markings are obliterated.

2.0 Construction Requirements. TPMP shall be accurately placed in the final planned location and shall be completely covered by the final application of PPMP. Any failure to comply with this requirement shall be corrected by removal of the misplaced pavement markings at the contractor's expense and without marring of the pavement surface.

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2.1 Prior to application of the PPMP on TPMP, TPMP shall be fully cured in accordance with the manufacturer's recommendation, or for a period of 12 hours, whichever is greater.

3.0 Weather Limitations. All weather limitations specified in Sec 620 for PPMP and TPMP shall apply. Cold Weather Pavement Marking Paint, in accordance with Sec 620.10.6, shall be used for TPMP when specified weather limitations do not allow the use of waterborne paint. No additional payment will be made for the use of Cold Weather Pavement Marking Paint as TPMP. Cold Weather Pavement Marking Paint is not an allowable substitute for PPMP and shall subsequently be covered with PPMP.

4.0 Time Exception. If application of PPMP is to be delayed to the spring of 2022, the contractor shall submit a request to the engineer for a time exception and shall provide a revised work schedule that shows the planned completion of the PPMP.

4.1 Upon receipt of the time exception request in Section 4.0, the engineer will list "Application of Permanent Pavement Marking Paint" as an exception on the Semi-Final Inspection form, thus granting an exception to the count of contract time thru June 1, 2022, solely for the purpose of delaying application of PPMP. This time exception shall not apply to any time needed to complete any other work items. Liquidated Damages, as specified elsewhere in this contract, shall remain in effect for all other work items not completed by the contract time limits, as specified elsewhere in this contract, and for PPMP not completed by June 1, 2022.

5.0 Method of Measurement. No final measurement will be made for TPMP.

6.0 Basis of Payment. Full payment for TPMP will be made at the contract lump sum price even when PPMP is completed prior to the time limitation and TPMP is not used or only partially used.

6.2 If a \$0 bid is entered for TPMP, no payment will be made should TPMP become necessary.

Item Number	Description	Unit
6209901	TEMPORARY PAVEMENT MARKING PAINT	LS

U. Temporary Short-Term Rumble Strips JSP-13-05E

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

2.0 Material.

2.1 The short-term rumble strips shall be 10 to 12 feet in length, minimum of 8 inches wide, ¾ to 1¼ inch thick, fabricated from a polymer material, and orange in color.

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2.2 The short term-rumble strips shall not curl or deform across the width of the strip, maintaining its rigidity.

3.0 Construction.

3.1 Each set shall consist of three individual strips spanning a single lane, spaced in accordance with the plans or as directed by the engineer. The short-term rumble strips shall be installed and removed in accordance with manufacturer's recommendation.

3.2 The contractor shall monitor, maintain alignment, and repair if needed the short-term rumble strips during construction. Short-term rumble strips shall not be placed on roadways when there are no workers present.

3.3 Strips shall not extend onto the shoulder without the approval of the Engineer.

4.0 Method of Measurement. Measurement of short-term rumble strips will be based per each set.

5.0 Basis of Payment. The accepted quantity of Temporary Short-Term Rumble Strips sets will be paid for at the contract unit price for 616-20.04, Temporary Short-Term Rumble Strips, per each set. The short-term rumble strips unit bid price shall include the cost of all labor, equipment and materials to install, maintain, remove and relocate the rumble strips during the construction of the project.

V. Contractor Quality Control NJSP-15-42

1.0 The contractor shall perform Quality Control (QC) testing in accordance with the specifications and as specified herein. The contractor shall submit a Quality Control Plan (QC Plan) to the engineer for approval that includes all items listed in Section 2.0, prior to beginning work.

2.0 Quality Control Plan.

- (a) The name and contact information of the person in responsible charge of the QC testing.
- (b) A list of the QC technicians who will perform testing on the project, including the fields in which they are certified to perform testing.
- (c) A proposed independent third party testing firm for dispute resolution, including all contact information.
- (d) A list of Hold Points, when specified by the engineer.
- (e) The MoDOT Standard Inspection and Testing Plan (ITP). This shall be the version that is posted at the time of bid on the MoDOT website (www.modot.org/quality).

3.0 Quality Control Testing and Reporting. Testing shall be performed per the test method and frequency specified in the ITP. All personnel who perform sampling or testing shall be certified in the MoDOT Technician Certification Program for each test that they perform.

3.1 Reporting of Test Results. All QC test reports shall be submitted as soon as practical, but no later than the day following the test. Test data shall be immediately provided to the engineer upon

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request at any time, including prior to the submission of the test report. No payment will be made for the work performed until acceptable QC test results have been received by the engineer and confirmed by QA test results.

3.1.1 Test results shall be reported on electronic forms provided by MoDOT. Forms and Contractor Reporting Excel2Oracle Reports (CRE2O) can be found on the MoDOT website. All required forms, reports and material certifications shall be uploaded to a Microsoft SharePoint® site provided by MoDOT, and organized in the file structure established by MoDOT.

3.2 Non-Conformance Reporting. A Non-Conformance Report (NCR) shall be submitted by the contractor when the contractor proposes to incorporate material into the work that does not meet the testing requirements or for any work that does not comply with the contract terms or specifications.

3.2.1 Non-Conformance Reporting shall be submitted electronically on the Non-Conformance Report form provided on the MoDOT Website. The NCR shall be uploaded to the MoDOT SharePoint® site and an email notification sent to the engineer.

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

4.0 Work Planning and Scheduling.

4.1 Two-week Schedule. Each week, the contractor shall submit to the engineer a schedule that outlines the planned project activities for the following two-week period. The two-week schedule shall detail all work and traffic control events planned for that period and any Hold Points specified by the engineer.

4.2 Weekly Meeting. When work is active, the contractor shall hold a weekly project meeting with the engineer to review the planned activities for the following week and to resolve any outstanding issues. Attendees shall include the engineer, the contractor superintendent or project manager and any foreman leading major activities. This meeting may be waived when, in the opinion of the engineer, a meeting is not necessary. Attendees may join the meeting in person, by phone or video conference.

4.3 Pre-Activity Meeting. A pre-activity meeting is required in advance of the start of each new activity, except when waived by the engineer. The purpose of this meeting is to review construction details of the new activity. At a minimum, the discussion topics shall include: safety precautions, QC testing, traffic impacts, and any required Hold Points. Attendees shall include the engineer, the contractor superintendent and the foreman who will be leading the new activity. Pre-activity meetings may be held in conjunction with the weekly project meeting.

4.4 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, in the opinion of the engineer, a review of the preceding work is necessary before continuation to the next stage.

4.4.1 A list of typical Hold Point events is available on the MoDOT website. Use of the Hold Point process will only be required for the project-specific list of Hold Points, if any, that the engineer submits

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to the contractor in advance of the work. The engineer may make changes to the Hold Point list at any time.

4.4.2 Prior to all Hold Point inspections, the contractor shall verify the work has been completed in accordance with the contract and specifications. 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. Re-scheduling of Hold Points require a minimum 24-hour advance notification from the contractor unless otherwise allowed by the engineer.

5.0 Quality Assurance Testing and Inspection. MoDOT will perform quality assurance testing and inspection of the work, except as specified herein. The contractor shall utilize the inspection checklists provided in the ITP as a guide to minimize findings by MoDOT inspection staff. Submittal of completed checklists is not required, except as specified in 5.1.

5.1 Inspection and testing required in the production of concrete for the project shall be the responsibility of the contractor. Submittal of the 501 Concrete Plant Checklist is required.

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

W. MoDOT's Construction Workforce Program NJSP-15-17A

1.0 Description.

1.1 Projects utilizing federal funds include contract provisions for minority and female workforce utilization in the various trade crafts used to complete construction contracts. These federal contract workforce goals are described in the section labeled "Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity". These goals are included in all MoDOT federal aid contracts and are under the authorization and enforcement of the U.S. Department of Labor (US DOL).

1.2 The Federal workforce requirement (Goals – TABLE 1) is authorized in 41 CFR Part 60-4 and Executive Order 11246 which set Equal Employment Opportunity goals with Affirmative Action requirements.

1.3 The required federal aid workforce provisions noted above, coupled with the following additional contract provisions, constitute MoDOT's Construction Workforce Program herein called Program.

1.4 This provision does not require pre-qualification nor is it a condition of award.

1.5 The Program does not eliminate or limit any actions the US DOL may take in relation to this contract's federal provisions.

1.6 The Program goals included in the contract are separate from any Disadvantaged Business Enterprise (DBE) or On-The-Job (OJT) training provision that may be included as contract provisions. DBE and OJT goals may or may not be included in a contract based on the individual size of contracts, type of contract work, anticipated length of contract, available and willing resources or other reasons.

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1.7 Contractor, for the purpose of this provision, means the prime contractor and any and all subcontractors.

1.8 It is expected that the contractor recognizes the construction workforce goals for both minority and female workers in the project's county and make efforts to attain those goals, if possible, through the existing workforce makeup of the prime (including subcontractors) that will be on the project and/or through hiring opportunities that may arise for the project. However, it is not the intent of this provision to compel any contractor to displace existing workforce or move workers around to just meet the workforce goals.

1.9 If the contractor's existing Missouri construction workforce meets or exceeds the federal workforce goals established in Table 1, then the OJT goal (Training Provision) if included in the contract, does not be apply.

1.10 Contractor's Workforce Plan. The Contractor shall submit its Workforce Plan a minimum of 1 week before construction starts. One plan shall be submitted for the project that shall include the cumulative planned workforce of the prime and subcontractor(s). The contractor shall prepare the plan, for total minority and female utilization, regardless of the craft. The Engineer will provide the Contractor with comments regarding their Workforce Plan prior to the start of construction. Once work starts, all monthly reporting shall include the craft of each worker reported. If the contractor's plan includes project manager, direct project support roles, project testers or other project professionals, these designations should also be included in addition to the workers designated by craft such as laborer, operator, carpenter, ironworker and others.

1.11 The plan accepted by the engineer before the start of construction will be the effort expected of the prime contractor to maintain during the life of the project.

1.12 If the contractors planned project workforce plan (including OJT hours if included in the contract) is short of the goals included in Table 1, there is opportunity for the contractor to receive a reimbursement of \$10.00 / hour for any new project minority and female hires needed through the remainder of the project. The reimbursement is applicable to work that qualifies for prevailing wage under the federal Davis-Bacon Act, 40 U.S.C. §§ 3141–3148, in accordance with an approved workforce plan. Any reimbursement must be pre-approved by the Engineer. The reimbursement is provided as a remedy to the contractor and as an aid in the long-term growth of experienced persons in the building of roads and bridges in Missouri. The contractor shall manage the plan through the life of the project as described in the plan or as modified, in coordination with the Engineer. The total amount available per project is not capped.

1.13 The Contractor's workforce plan may include existing construction support and professional services staff.

2.0 Forms and Documentation. The bidder must submit the following documents if awarded the contract:

Cumulative Workforce Utilization Reports. This report is contract specific. One report shall be

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submitted to the Engineer by the 15th of each month. The report will be used to report the total workforce compliance data for the prime contractor and all subcontractors retained by the contractor on the Commission's construction contract. The reporting shall include the workforce hours per each craft broken down by gender and ethnicity. Construction Support, testing and other professional services hours shall be included as these hours are part of the overall plan. The report will include the previous month's hours worked for the project. For projects less than 60 days in length, only one report with total hours worked by classification is required at substantial completion of construction.

3.0 Methods for Securing Workforce Participation and Good Faith Efforts.

3.1 By submitting a bid, the Bidder agrees, as a material term of the contract, to carry out MoDOT's Construction Workforce Program by making good-faith efforts to utilize minority and female workers on the contractor's job sites to the fullest extent consistent with submitting the lowest bid to MoDOT. The Bidder shall agree that the Program is incorporated into this document and agree to follow the Program. If a bidder is unable to meet the workforce goals at the time of bid, it shall be required to objectively demonstrate to MoDOT that the goals have been met or demonstrate a good faith effort has been made with the level of effort submitted prior to the start of construction.

3.2 The Engineer, through consultation with MoDOT's External Civil Rights (ECR's) Division, may determine that the contractor has demonstrated that good-faith efforts to secure minority and female participation have been made.

3.3 In evaluating good-faith efforts, the ECR's Division will take into consideration the affirmative actions listed in the Federal Provisions (including provisions of Executive Order 11246).

3.4 MoDOT's Program allows the contractor flexibility to implement a project specific workforce and improve the diversity of their existing workforce that can be utilized across various areas of the state to meet future MoDOT Program goals and Federal Provisions.

3.5 If the contractor's approved plan changes during the project and/or the available workforce changes from what is approved at any time, it is the contractor's responsibility to remedy, in coordination with MoDOT's ECR Division, the conditions as outlined and made available through this provision.

4.0 Compliance Determination. (Required with project closeout) All documentation and on-site information will be reviewed by MoDOT's ECR Division in making a determination of whether the contractor made sufficient good faith efforts to meet the compliance with MoDOT's Construction Workforce Program.

5.0 Liquidated Damages. If the contractor elects to not submit a workforce plan prior to work starting or fails to fulfill their workforce plan committed to prior to the start of construction, the contractor will be required to establish a good-faith effort determination, as to why either of these events occurred. MoDOT may sustain damages, the exact extent of which would be difficult or impossible to ascertain, as this impacts the cost of future road and bridge construction. Therefore, in order to liquidate those damages, MoDOT shall be entitled, at its sole discretion, to deduct and withhold the following amounts:
The sum of one thousand five hundred (\$1,500)

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6.0 Administrative Reconsideration. The contractor shall be offered the opportunity for administrative reconsideration upon written request related to findings and/or actions determined by MoDOT’s ECR’s Division. The Administrative Reconsideration Committee shall be composed of individuals not involved in the original MoDOT determination(s).

7.0 Available Pre-Apprentice Training Programs. The Commission has established a labor force recruiting program intended to assist contractors in identifying, interviewing and hiring qualified job applicants. MoDOT strongly encourages the hiring of individuals from the MoDOT funded pre-apprentice training programs.

8.0 Independent Third-Party Compliance Monitor (Monitor). MoDOT may utilize a monitor that will be responsible for tracking the project’s workforce utilization for the information the contractor submits. The contractor and its subcontractors shall allow the monitor access to their reports, be available to answer the monitor’s questions and allow the monitor to access to the site and to contractor and subcontractor employees. The monitor shall abide by the contractor’s project site protocols.

9.0 Regional Diversity Council (Council). (Applicable to the Kansas City and St. Louis District regions only) The Council shall consist of local community leaders, leadership of local construction trades, MoDOT staff, Industry representation, and a representative(s) from the Federal Highway Administration. The Council will meet quarterly and evaluate the workforce activity per each project according to the following criteria:

- a. Review monthly workforce reports.
- b. Review progress toward the stated project workforce program.
- c. Review findings of Administrative Reconsideration hearings.
- d. Recommend *other* workforce actions to MoDOT.

10.0 Federal Workforce Goals.

Female Participation for Each Trade is 6.9% Statewide for Missouri.

Minority Participation for Each Trade is shown below in Table 1.

TABLE 1:

County	Goal (Percent)	County	Goal (Percent)
Adair	4	Linn	4
Andrew	3.2	Livingston	10
Atchison	10	McDonald	2.3
Audrain	4	Macon	4
Barry	2.3	Madison	11.4
Barton	2.3	Maries	11.4
Bates	10	Marion	3.1
Benton	10	Mercer	10
Bollinger	11.4	Miller	4

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Boone	6.3	Mississippi	11.4
Buchanan	3.2	Moniteau	4
Butler	11.4	Monroe	4
Caldwell	10	Montgomery	11.4
Callaway	4	Morgan	4
Camden	4	New Madrid	26.5
Cape Girardeau	11.4	Newton	2.3
Carroll	10	Nodaway	10
Carter	11.4	Oregon	2.3
Cass	12.7	Osage	4
Cedar	2.3	Ozark	2.3
Chariton	4	Pemiscot	26.5
Christian	2	Perry	11.4
Clark	3.4	Pettis	10
Clay	12.7	Phelps	11.4
Clinton	10	Pike	3.1
Cole	4	Platte	12.7
Cooper	4	Polk	2.3
Crawford	11.4	Pulaski	2.3
Dade	2.3	Putnam	4
Dallas	2.3	Ralls	3.1
Daviess	10	Randolph	4
DeKalb	10	Ray	12.7
Dent	11.4	Reynolds	11.4
Douglas	2.3	Ripley	11.4
Dunklin	26.5	St. Charles	14.7
Franklin	14.7	St. Clair	2.3
Gasconade	11.4	St. Francois	11.4
Gentry	10	Ste. Genevieve	11.4
Greene	2	St. Louis City	14.7
Grundy	10	St. Louis County	14.7
Harrison	10	Saline	10
Henry	10	Schuyler	4
Hickory	2.3	Scotland	4
Holt	10	Scott	11.4
Howard	4	Shannon	2.3
Howell	2.3	Shelby	4
Iron	11.4	Stoddard	11.4
Jackson	12.7	Stone	2.3
Jasper	2.3	Sullivan	4
Jefferson	14.7	Taney	2.3
Johnson	10	Texas	2.3
Knox	4	Vernon	2.3
Laclede	2.3	Warren	11.4
Lafayette	10	Washington	11.4
Lawrence	2.3	Wayne	11.4

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Lewis	3.1	Webster	2.3
Lincoln	11.4	Worth	10
		Wright	2.3

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION
 CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

This contractor and subcontractor shall abide by the requirements of 41 CFR 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability or veteran status.

As used in these specifications:

"Minority" includes;

- (i) Black (all person having origins in any of the Black African racial groups not of Hispanic origin);
- (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
- (iii) Asian and pacific islander (all persons having origins in any of the original peoples of the Far East, southeast Asia, the Indian Subcontinent, or the Pacific Islands; and
- (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable tribal affiliations through membership and participation or community identification).

X. Supplemental Revisions JSP-18-01M

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.

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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.

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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.

COVID-19 Safety

1.0 Description. The coronavirus disease 2019 or COVID-19 has reached a pandemic stage across

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the United States, including the State of Missouri. To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers and the public, the contractor shall be aware of all COVID-19 guidance from the Center for Disease Control (CDC) and other government health mandates. The contractor shall conduct all operations in conformance with these safety directives. The guidance may change during the project construction and the contractor shall change and adapt their operation and safety protocols accordingly.

2.0 Safety Plan. The contractor shall include these procedures in the project safety plan as called for in the contract documents and revise the safety plan as needed.

3.0 Essential Work. In accordance with any state or local Stay at Home Order, care for the infrastructure has been deemed essential and MoDOT is moving forward with construction projects, this project is considered essential and the contractor and their employees, subcontractors and suppliers are considered essential business and performing essential functions.

4.0 Basis of Payment. Compliance with regulations and laws pertaining to COVID-19 is covered under Sec 107 of the Missouri Standard Specifications for Highway Construction. No direct payment will be made for compliance with this provision.

Anti-Discrimination Against Israel Certification

By signing this contract the Company certifies it is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel, companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel, or persons or entities doing business in the State of Israel as defined by Section 34.600 RSMo. This certification shall not apply to contracts with a total potential value of less than One Hundred Thousand Dollars (\$100,000) or to contractors with fewer than ten (10) employees.

Y. Intelligent Compaction NJSP-18-08A

1.0 Description. This work shall consist of collecting location, temperature, speed and intelligent compaction measurement values (ICMV) from properly instrumented rollers within the mainline paving limits and then submitting the Intelligent Compaction (IC) Data in the defined format. This provision shall apply for each lift of mainline pavement. This work shall be completed in accordance with the general principles set forth in AASHTO PP81-17 Standard Practice for Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications, and specifically as stated in the following sections.

2.0 IC Asphalt Rollers. All asphalt rollers with the exception of the finish roller shall be properly instrumented. These instrumented rollers will be referred to as IC Rollers. Steel wheel rollers shall be self-propelled double-drum vibratory rollers equipped with accelerometers mounted to acquire signals from the vibratory response in the drum measuring the interactions between the rollers and compacted materials in order to evaluate the applied compaction effort known as the ICMV. Rubber tire rollers will not be required to collect the ICMV. IC Rollers shall be equipped with non-contact temperature sensors

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for measuring pavement surface temperatures as well as a Global Positioning System (GPS) to map the roller position history.

3.0 Equipment Accuracy. IC Roller accuracy shall be in accordance with the following.

Operating Parameter	Accuracy
Global Positioning System	±50 mm (±2 in.) in the X and Y Direction
Rolling Speed	±0.5 kph (±0.3 mph)
Frequency	±2 Hz
Amplitude	±0.2 mm (±0.008 in.)
Temperature	±1.5°C (±2.7°F)

4.0 Onboard Unit. The IC Rollers shall include an integrated on-board documentation system that is capable of displaying real-time color-coded maps of IC measurement values including the stiffness response values, roller location, number of roller passes, pavement surface temperatures and line work (alignment file) if applicable. The unit shall display the current value for roller speeds, vibration frequencies and vibration amplitude of the roller drums. The operator shall have the ability to label or select each Layer ID. The display unit shall be capable of transferring the data by means of a USB port to a removable media device.

5.0 Software Requirements. The manufacturer’s Intelligent Compaction software, or cloud computing, shall map and export gridded all-pass data and resemble PP81 section 4.3.5.2 as much as possible. At minimum, the exported data shall consist of the required fields in Table 5 of PP81 in order to allow adequate filtering in Veta.

6.0 Global Positioning System (GPS). Radio and receiver units shall be mounted on each IC roller to monitor the drum locations and track the number of passes of the rollers. The GPS system shall also meet the following requirements:

- (a) Set all GPS devices to the Universal Transverse Mercator (UTM) coordinate system No.15 except for portions of the SE District which are No. 16, regardless of whether GPS or Grid data are originally recorded. If UTM coordinates are not available, use the State Plane coordinate system and designate the appropriate State Plane zone. The recorded coordinates shall be in US survey feet. If an alternate coordinate system is established for the construction of the project, it may be used for the IC.
- (b) Provide a GPS system that can be a ground-based base station or Virtual Reference Station (VRS) to achieve Real Time Kinematic Global Positioning Systems (RTK-GPS) accuracy.
- (c) Provide GPS receivers on IC Rollers and a hand-held GPS rover that reference to the same ground-based base station channel or have the same VRS subscription.
- (d) Provide the recorded GPS data, whether from the IC Rollers or hand-held GPS rovers, in the following formats:

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- (i) The time stamp shall be in military format (HHMMSS.SS) in local time zone. Accuracy of 0.01 second is necessary to differentiate sequence of Intelligent Compaction data points during post processing.
- (ii) Provide GPS latitudes and longitudes in DDMM.MMMMMMMM or decimal degrees (DD.DDDDDDDD).
- (iii) Provide grid coordinates in feet to the nearest 0.1 foot.

7.0 Rover. The contractor shall provide one fully equipped survey grade hand-held GPS rover with RTK for the duration of the contract. The rover may remain in the possession of the contractor but shall be available to the engineer as needed.

7.1 Rover Specifications. The Rover shall read GPS signals L1 C/A, L1/L2 P-Code, and L2C and Glonass signals L1/L2 CA, L1/L2 P-Code. It shall achieve horizontal accuracies of 10mm + 1 ppm RMS and vertical accuracies of 15 mm + 1 ppm RMS in RTK surveys. It shall support Network RTK using NTRIP and have an internal modem with cellular service provided. Single Baseline RTK shall also be supported with an internal UHF Radio. Training shall be provided to ensure that MoDOT personnel shall have enough knowledge of software and hardware to operate the GPS rover.

8.0 Control Points. The contractor shall establish control points on the project at locations necessary to ensure compliance with the outlined provisions.

9.0 Data Management. All submitted files shall be adequately labeled prior to submission as defined in the MoDOT IC-PMTPS Project Protocol.

9.1 Trial Section Data. The results from the trial section shall be recorded on the appropriate spreadsheet and submitted to the engineer within 24 hours of completing the trial section.

9.2 Unfiltered Raw Data. Shall be downloaded twice per day and forwarded to the Engineer before the start of the next day's production.

9.3 Formatted Raw Data. Formatted Raw Data shall be submitted to the Engineer before the start of the next day's production. The formatted raw IC data shall be compatible with the latest version of Veta. The data shall include IC data files, core locations/data, and coordinates of daily production boundaries. The GPS and temperature verification data shall be submitted as well in a separate file. Each file shall be labeled with the corresponding production date, direction, starting and ending log mile, and lane if applicable (e.g. 160623, NB, 283.21-281.82, PL).

9.4 Veta Project File. The file shall include the day's production data and be submitted to the engineer within 36 hours after completion of the day's paving. The valid Veta project file shall contain the day's IC data, core locations and paving boundaries. IC Data shall include at a minimum roller locations, temperatures, amplitudes, frequencies and speeds.

9.5 Loss of Data. If data collection ceases as a result of circumstances reasonably beyond the control of the contractor, the contractor will be allowed to continue the days paving without jeopardizing a

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portion of the lump sum payment for that day. Provided that the engineer is notified immediately of the issue and has determined the contractor has made a reasonable effort to resolve the issue. A meeting with the engineer shall be held to determine how to proceed, if the issue is expected to extend into the next day's paving. Failure to notify the engineer of the issue at hand will result in deduction from the lump sum pay item based on the percentage of the data which is lost.

9.6 Summary Report. The Summary Report shall be furnished to the engineer by the contractor two days prior to the 1st and 15th of each month which includes the roller coverage results, classification for each segment, any qualifying GPS obstructions and the mean temperature at the optimum pass count. A blank copy of the Summary Report can be found in the construction forms folder on the IC SharePoint page.

10.0 Daily Verification. The temperature and GPS on each IC Roller shall be verified and recorded at the start of each day. IC Roller GPS verification shall include verifying a point established by the rover for both X and Y position to an accuracy of +/- 6 Inches. The rover shall be verified for both X and Y position with a control point at the start of each day. The IC roller temperature sensor verification shall be compared with a temperature gun which has been calibrated within the last year. The temperatures shall compare to within 5°F. A record of each verification, shall be submitted to the engineer electronically as soon as possible but no later than the start of the next day's production.

11.0 IC Segments. Each IC Segment shall consist of one day's production.

12.0 Technical Support. Technical Support from the IC roller manufacturer shall include availability on an as-needed basis for the duration of the project at no cost to the Commission. The manufacturer's representative shall provide assistance with setup, verification, data management, operation, and analysis.

13.0 Training. One training will be provided by the Engineer annually. The IC Technician and other IC quality control staff shall have completed a qualifying IC/IR training within the past 2 years. Equipment operators shall be knowledgeable of the equipment that will be used and trained as needed by the contractor or equipment supplier.

14.0 IC Quality Control Plan. A pre-activity meeting shall be required prior to mainline paving. The IC Quality Control Plan shall be submitted to the Engineer at least 2 weeks prior to the mainline paving pre-activity meeting. The plan at minimum shall include the following:

- (a) A list of personnel previously trained
- (b) Detailed daily verification procedure for checking the RTK-GPS of both the IC roller(s) and rover(s)
- (c) Procedure for the construction of the trial section and establishment of the optimum compaction pass count and target IC-MV value
- (d) Procedure for downloading IC data from the roller(s)
- (e) A list of employees attending the provided training, along with the procedure for training operators or other individuals who may not be attending the training
- (f) Detailed daily verification procedure for checking the temperature sensor on IC Roller
- (g) The name of the designated IC Quality Control Technician

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- (h) Procedure for submitting data
- (i) Contact information for technical support staff
- (j) A list of the control points with either UTM or State Plane Coordinates established by the contactor

15.0 Coring. Cores shall be taken as typically required by the Missouri Standard Specification for acceptance of the pavement. The GPS coordinates of each core shall be collected with an accuracy of +/- 2 inches and submitted to the Engineer by the start of the next day's production.

16.0 Daily Production Boundaries. The paving limits of the freshly placed mat shall be collected with an accuracy of +/- 2 inch. The edge of the new paved mainline surface shall be collected at least every 100 feet for curves and every 200 feet for tangent sections. These points shall be used to define the boundaries of each segment.

17.0 Software Access. The contractor shall supply the Engineer with the manufacturer's Intelligent Compaction Computer Software 14 days prior to beginning work and until ninety days after completion of all work. If Cloud Storage or Cloud Computing is used, the Engineer shall be supplied one user ID with full access for the same time period specified.

18.0 GPS Obstructions. Isolated areas influenced by a GPS obstruction may be excluded from % roller coverage computation provided that the following conditions are satisfied:

- 1) The position data is present
- 2) The GPS Reception Mode as recorded by the onsite equipment indicates that a obstruction is present
- 3) The location is properly flagged in the Veta project file and the location is identified in the bi-weekly report
- 4) The total of these areas are no more than 5% of any single day's production.

19.0 Trial Section. Mainline paving shall begin with the construction of a trial section for each mix type. One trial section may be constructed for each mix design. The Engineer shall be notified at least 48 hours prior to construction of the trial section. The trial section shall be constructed and compacted with the same equipment, progression and methods which will be used during production. The roller speed and frequency used on the trial section shall be maintained during the construction of the project. The trial section shall be constructed with sufficient passes to determine the optimum density. The trial section shall typically be 1000 feet in length, with the last 400 feet being utilized for testing, the width of one lane and shall be constructed as part of the project. Within the 400 feet long testing portion, one Evaluation Location shall be identified for each 100 feet. Flexibility will be allowed up a maximum combined length of 1500 feet in order to facilitate the construction of the trial section. Areas needed beyond the 1500 feet will be assessed as deficient. Each Evaluation Location shall be positioned away from the center of the lane due to potential overlap of roller passes during compaction. After each of the passes, the contractor shall collect a density measurement with a nuclear gauge at each Evaluation Location. When approved by the engineer, initial pairs or pass groups may be completed between density measurements. The passes shall be continued until either the pavement density begins to decrease or the density measurement on two consecutive passes are within 0.2%. Following completion of the trial section, a compaction curve shall be constructed from the pass vs. density

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information. From this curve the optimum number of passes and optimum IC-MV shall be determined from either the peak density versus pass value or from the 0.2% increase pass versus density values. If the 0.2% increase is the determining factor, the pass prior to the 0.2% increase will be used. Cores shall be collected at each Evaluation Location after completion of the recorded passes. The density of each core shall be determined by the contractor and used to correlate with the final density collected from the nuclear gauge. If the density at the optimum pass count is determined to be outside the required acceptance range, then a new trial section shall be initiated. The trial section will not be considered for IC incentive or disincentive payment up to the 1500 feet max length.

20.0 Segment Classification. Passing Segments shall have a minimum of 90% coverage at or above the optimum number of passes. Segments with between 90% and 70% coverage will be called moderate segments. Any segment with less than 70% coverage at the optimum number of passes shall be a Deficient Segment, including areas where data is lost. If 70% of the target IC-MV is not obtained, the segment shall be flagged accordingly in the Veta project file. All segments with a mean temperature of less than 180 F at the optimum pass shall be considered deficient.

21.0 Quality Assurance. Quality Assurance will be performed by means of a commission furnished, commission retained magnetic GPS system attached to the top of any IC roller. Thermal Sensors may also be installed by means of magnetic mount. The units will be solar powered. The contractor shall provide the engineer access to these systems and accommodate the presence of the device on the IC Roller.

22.0 Basis of Payment. Payment for compliance with this provision will be made at the contract unit price for Item No. 401-99.01, Intelligent Compaction, lump sum. In addition, an incentive payment of \$75 per 1000 feet will be made on all Passing Segments and a disincentive deduct of \$75 per 1000 feet will be made on all Deficient Segments. No additional payment will be made for the equipment, software, training, survey, analysis, trial section, trial section cores or any other incidentals necessary to complete the work.

$$\text{Incentive or Disincentive Payment} = ((\text{Length of Days Run}) / 1000) \times \$75$$

Z. Paver-Mounted Thermal Profiles NJSP-18-09A

1.0 Description This work shall consist of collecting the paving location, surface temperature and paver stops with a Contractor supplied, Contractor retained Paver-Mounted Thermal Profile System (PMTPS) for each lift of mainline asphalt pavement. The PMTPS shall be used to continually monitor the surface temperature of the mat immediately behind the paver screed during paving operations in order to determine the thermal segregation levels for each subplot. Data from the PMTPS shall be automatically uploaded and processed through a wireless data connection or exported to an USB drive. This work shall be completed in accordance with the general principles set forth in AASHTO PP 80-17 "Standard Practice for Continuous Thermal Profile of Asphalt Mixture Construction", and specifically as stated in the following sections.

2.0 PMTPS Equipment The PMTPS shall consist of a temperature scanner/camera, wheel speed/distance sensor, GPS antenna, control panel and necessary cabling. The PMTPS shall

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measure the surface temperature over the complete paving width. The current position shall be recorded via the GPS antenna. The control panel shall feature the keys and screen displays necessary to control the system as well as the software for data recording and visualization during the paving process. The system shall provide a real-time map of the temperature readings, as well as the total number of sublots in each temperature segregation category. The system shall store the data locally on a memory stick and also upload the data directly to cloud-based software which shall be supplied by the contractor for use on this project. Logon information shall be provided to the engineer for direct access to the cloud storage. In addition the equipment shall meet the following requirements;

<u>Parameter</u>	<u>Requirement</u>
Longitudinal and Lateral Surface	≤ 12.0 inch intervals at all paving speeds
Temperature Readings Footprints	Tolerance: ±1 inch
Surface Temperature Readings	Range: 32°F to 480°F Accuracy: ± 6° F
Location (x and y)	Accuracy: ± 4 feet
Ground Distance Sensor	Accuracy: ± 1/1000 feet

3.0 Verification. The system shall have a documented verification before beginning construction and a minimum of once per week for Travel Distance and Temperature.

4.0 PMTPS Training. The PMTPS Technician and individuals performing daily setup of the equipment shall be properly trained. If trained personnel are unavailable PMTPS scanning and mainline paving shall not be performed. The PMTPS Technician shall have completed a qualifying Veta training within the last 2 years.

5.0 Thermal Profile Sublots For each run, the thermal profiles shall be divided into sublots that are 150 ft. in length and of the width placed. Sublots shall not extend over multiple days, different lifts or directions.

6.0 Thermal Segregation Exclude the following surface temperature readings from each subplot: (1) Surface temperature readings less than 180°F; and (2) Surface temperature readings within 2 ft. prior to and 8 ft. after paver stops that are greater than 1 minute in length. The temperature differential is the difference between the surface temperature readings at the 98.5 and 1 percentile in each 150 ft. subplot. The thermal segregation categories are based on the temperature differential as shown in the table below.

Temperature Differential (TD)	Thermal Segregation Category
TD ≤25.0 F	Low
25.0 F < TD ≤ 50.0 F	Moderate
TD > 50.0 F	Severe

7.0 Data Management. All of the header inputs shall be correctly entered by the contractor at the start of each run. The Veta Thermal Segregation Report shall be generated and electronically submitted to the engineer for each day before the start of the next day’s production, along with the Veta file. Each file shall be labeled with the corresponding production date, direction, starting and ending log mile, and

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lane according to the MoDOT IC-PMTPS Protocol. The contractor shall provide to the engineer a Summary Report of the daily Thermal Segregation Reports two days prior to the 1st and 15th of each month for verification. A blank copy of the Summary Report can be found in the construction forms folder on the IC SharePoint page.

8.0 Incentive/Disincentive. Incentive/disincentive adjustments shall be made for each subplot in accordance with the following:

Thermal Segregation Category	Adjustment per 150 ft. Sublot
Low	\$7 Incentive
Moderate	No Pay Adjustment
Severe	\$7 Disincentive

9.0 Quality Assurance (QA) Testing. The Engineer will record spot temperature readings with a calibrated infrared thermometer. 2 QA test sets each consisting of 3 spot readings at the lane quarter points will be taken for each full production day. The test sets will be taken at random locations. The contractor shall assist the engineer with determining the GPS location of each spot reading location. The recorded temperature shall be within 12°F of the temperature recorded by the thermal scanner for each location. If 4 readings from any 2 consecutive test sets fall outside of the 12°F range, then conflict resolution shall be initiated to determine corrective action.

10.0 Basis of Payment. Payment for compliance with this provision will be made at the Lump Sum Price for Item 401-99.01, Infrared Scanning. No additional compensation will be provided to the contractor for any direct or indirect cost, including scheduling delays, associated with the installation of the noted equipment, training or the affiliated data processing.

AA. Superpave Performance Testing and Increased Density NJSP-20-01

1.0 Performance Testing. This provision will apply to each Sec 403 mixture on the project, with the exception that SMA will not be tested. Quality Control (QC) testing for Flexibility Index (FI) and Hamburg Wheel Track (HWT) testing will be required by the contractor at a frequency of 1/10,000 tons for the mainline pavement. The random testing location will be determined by the engineer. Acceptable test results meeting the 100% pay criterion for both FI and HWT shall be submitted with the mix design for approval. Incentive/disincentive payment will be calculated based upon the mixture cost for the tonnage represented by each sample, generally 10,000 tons. Incentive up to a maximum of 3% of the mixture item cost will be paid if the FI results are within the incentive range and the Hamburg results are below 12.5mm. The engineer will also perform a set of tests at the 1/10,000 interval for Quality Assurance (QA). A favorable comparison will be achieved if the results for QA and QC are within 30%. In addition, a 1% incentive is being offered for sublots with qualifying density results above 94% - 97%.

2.0 Mix Sampling and Preparation. Loose mix may be sampled from the roadway or the plant, in accordance with AASHTO R 97. No conditioning will be performed on plant mixed samples. Lab mixed samples for mix design submittal shall be short term conditioned in accordance with AASHTO R30 prior to splitting. All loose mix material shall be allowed to cool to room temperature and then reheated to compaction temperature for splitting to the appropriate size in accordance R47. Samples

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shall then be heated to the compaction temperature +/- 3 C prior to molding. The specimens shall be compacted to 7.0 +/- 0.5% air voids.

3.0 Flexibility Index Testing. The FI testing will be completed in accordance with Illinois Test Procedure 405 dated 01/01/16 available at www.modot.org/forms-contractor-use. In lieu of the FI, the Ideal CT criteria may be substituted using the limits shown below. The Ideal CT shall be completed in accordance with ASTM D8225 and at a test temperature of 25 F when used.

FLEXIBILITY INDEX	Ideal CT	Percent of Contract Price
NMAS <190	NMAS <190	
< 2.0	< 32	98%
2.0 – 3.9	32 – 60	100%
4.0 – 7.9	60 - 97	102%
>8.0	> 97	103%

4.0 Hamburg Wheel Track. Hamburg Wheel Track testing will be completed in accordance with AASHTO T324 at test temperature of 50F and 62 mm specimen height.

PG Grade High Temperature *	Minimum Wheel Passes	Maximum Rut Depth (mm)
58S-xx	5,000	12.5
64S-22	7,500	12.5
64H-22	15,000	12.5
64V-22	20,000	12.5

*Determined by the binder grade specified in the contract.

5.0 Design Gyration. The number (N) of gyrations required for gyratory compaction shall be in accordance with Sec 403.4.5. At the option of the contractor, the number of gyrations and air voids may be lowered. Mixtures having lowered gyrations shall have a minimum VMA of 1.0% above the minimum according to Sec 403.4.6.2 and a design air voids of between 4.0% to 3.0%. The minimum gyration level shall be in accordance with the following:

Design	N _{design}
F	35
E	50
C	60
B	65

6.0 VFA Requirements. Sec 403.4.6.3 “Voids Filled with Asphalt (VFA)” shall be omitted provided that the Hamburg Wheel Tracking Requirements described above are satisfied and the Flexibility Index is above 2.

7.0 Removal Limits.

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Omit Sec 403.23.7.3 and replace with the following:

403.23.7.3 Removal of Material. All lots of material with a PFT less than 50.0 shall be removed and replaced with acceptable material by the contractor. Any subplot of material with a percent of theoretical maximum density of less than 90.0 percent or greater than 98.0 percent shall be removed and replaced with acceptable material by the contractor. For SMA mixtures, any subplot of material with a percent of theoretical maximum density of less than 92.0 percent shall be removed and replaced with acceptable material by the contractor. Any subplot of material with air voids in the compacted specimens less than 2.0 percent shall be evaluated with Hamburg testing. If after testing the rut depth is greater than 18mm at the designated number of wheel passes above, the subplot of material shall be removed and replaced with acceptable material by the contractor. No additional payment will be made for such removal and replacement. The replaced material will be tested at the frequencies listed in [Sec 403.19](#). Pay for the material will be determined in accordance with the applicable portions of [Sec 403.23](#) based on the replacement material.

8.0 Elevated Density. Sublots with a QC density test result which compares favorably with QA and has a result of 97% – 94% shall receive a 1% incentive based on the bituminous mixture unit price.

9.0 Basis of Pavement. The cost of this item is incidental to the contract. No direct payment will be made for any expenses related to this provision.