

ORDER NO.: 251  
CONTRACT ID. NO.: CM224PMN124680

Form C-6a  
Rev. 3-22-05

CNSP (F) 1-9-06

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
BID PROPOSAL AND CONTRACT**

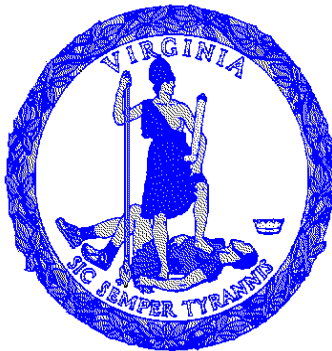
ROUTE NUMBER: 301

FHWA NUMBER: NONE

PROJECT NUMBER: PM2N-060-F24, P401

COUNTY: MONTGOMERY

DISTRICT: Salem



DESCRIPTION: 2024 PLANT MIX - VTTI

LOCATION: VARIOUS

DATE BID SUBMITTED: 10:00 AM WEDNESDAY FEBRUARY 28, 2024

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

Form C-118  
Rev. 7-6-05

**COMMONWEALTH OF VIRGINIA**  
**DEPARTMENT OF TRANSPORTATION**  
**NOTICE TO BIDDERS**

As a matter of information, the bidder's attention is directed to the points noted herein. Every point enumerated below is fully covered by proposal documents that describe them in detail. Bidders should check their proposal against all requirements, as strict compliance with all provisions is mandatory.

1. Bids shall be filed electronically through Bidx ([www.bidx.com/main/index.html](http://www.bidx.com/main/index.html)) at the times designated in the Notice of Advertisement for Bids. For information see (<http://cabb.virginiadot.org/cabb/>)
2. Unless otherwise specified or permitted in the proposal, prices shall be submitted on all items shown in the proposal.
3. Proposals conditioned by proposed alternates, other than those specified or permitted, or by reserving the right to accept or reject an award or to enter into a contract pursuant to an award will not be considered.
4. A bid total shall be shown in each space provided.
5. Bid bonds shall conform to Section 102.07. The bid bond number shall be placed in the appropriate space in your electronic bid. As an alternative you may complete the bottom line of the Form C-24. This form may be mailed or faxed but must be received prior to the opening of the bids.
6. Joint venture proposals shall show the Firm Name of each party and shall be signed by an authorized representative of each Firm. A letter shall be filed with the prequalification office describing responsibility of each firm and the amount of maximum capacity pledge by each firm of a joint venture.

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Form C-24  
Rev. 7-6-05

**COMMONWEALTH OF VIRGINIA**  
**DEPARTMENT OF TRANSPORTATION**  
**PROPOSAL GUARANTY**

KNOW ALL MEN BY THESE PRESENTS, THAT WE \_\_\_\_\_ As principal, and \_\_\_\_\_ Surety, are held and firmly bound unto the Commonwealth of Virginia as obligee, in the amount of FIVE PERCENT OF THE DOLLAR VALUE OF THE BID, lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally and firmly by these presents.

SIGNED, sealed and dated this \_\_\_\_\_ Day of \_\_\_\_\_, 20 \_\_\_\_\_

WHEREAS, the above said principal is herewith submitting its proposal for:

PROJECT NUMBER: PM2N-060-F24, P401

NOW, THEREFORE, the condition of the above obligee is such, that if the aforesaid principal shall be awarded the contract upon said proposal and shall within the time specified in the Specifications after the notice of such award enter into a contract and give bond for the faithful performance of the contract, then this obligation shall be null and void; otherwise to remain in full force and effect and the principal and surety will pay unto the obligee the difference in money between the amount of the bid of the said principal and the amount for which the obligee may legally contract with another party to perform the said work if the latter amount be in excess of the former; but in no event shall the liability exceed the penal sum hereof.

\_\_\_\_\_  
(Principal\*)

By: \_\_\_\_\_  
(Officer, Partner or Owner) (Seal)

\_\_\_\_\_  
(Surety Company)

By: \_\_\_\_\_  
(Attorney-in-Fact\*\*) (Seal)

\_\_\_\_\_  
(Principal\*)

By: \_\_\_\_\_  
(Officer, Partner or Owner) (Seal)

\_\_\_\_\_  
(Address)

By: \_\_\_\_\_  
(Surety Company)

\_\_\_\_\_  
(Principal\*)

By: \_\_\_\_\_  
(Officer, Partner or Owner) (Seal)

\_\_\_\_\_  
(Attorney-in-Fact\*\*) (Seal)

By: \_\_\_\_\_  
(Address)

\*Note: If the principal is a *joint venture*, each party thereof must be named and execution made by same hereon. If there is more than one surety to the bid bond, each surety must be named and execution shall be made by same hereon.

**Electronic Bid Only:** In lieu of completing the above section of the Contract Performance Bond, the Principal shall file an Electronic Bid Bond when bidding electronically. By signing below the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the Commonwealth of Virginia under the same conditions of the bid bond as shown above.

\_\_\_\_\_  
Electronic Bid Bond ID#

\_\_\_\_\_  
Company/Bidder Name

\_\_\_\_\_  
Signature and Title

\*\*Attach copy of Power of Attorney

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

Form C-48  
 Rev. 2-23-11

COMMONWEALTH OF VIRGINIA  
 DEPARTMENT OF TRANSPORTATION  
**SUBCONTRACTOR/SUPPLIER SOLICITATION AND UTILIZATION FORM (ALL BIDDERS)**

PROJECT NO.: PM2N-060-F24, P401

CONTRACT ID. NO.: CM224PMN124680

FHWA NO: NONE

DATE SUBMITTED\_\_\_\_\_

**All bidders, including DBEs bidding as Prime Contractors, shall complete and submit the following information as requested in this form within ten (10) business days after the opening of bids.**

The bidder certifies this form accurately represents its solicitation and utilization or non-utilization, as indicated, of the firms listed below for performance of work on this contract. The bidder also certifies he/she has had direct contact with the named firms regarding participation on this project.

BIDDER \_\_\_\_\_ SIGNATURE \_\_\_\_\_

TITLE \_\_\_\_\_

**SUBCONTRACTOR/SUPPLIER SOLICITATION AND UTILIZATION (ALL)**

VENDOR NUMBER	NAME OF SUBCONTRACTOR/SUPPLIER	TELEPHONE NUMBER	DBE OR NON-DBE	UTILIZED (Y/N)

**NOTE:** ATTACH ADDITIONAL PAGES, IF NECESSARY.

BIDDER MUST SIGN EACH ADDITIONAL SHEET TO CERTIFY ITS CONTENT AND COMPLETION OF FORM.

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

Form C-7  
Rev. 1-19-12  
SHEET 1

**TERMS OF THE PROPOSAL\CONTRACT**  
**COMMONWEALTH OF VIRGINIA**  
**DEPARTMENT OF TRANSPORTATION**  
**SUBMITTED: 10:00 AM WEDNESDAY FEBRUARY 28, 2024**

PROJECT NUMBER: PM2N-060-F24, P401  
ROUTE NUMBER: 301  
FHWA NUMBER: NONE

DESCRIPTION: 2024 PLANT MIX - VIRGINIA TECH TRANSPORTATION  
LOCATION: VARIOUS  
DISTRICT: Salem COUNTY: MONTGOMERY

I/we declare that no other person, firm or corporation is interested in this proposal; that I/we have carefully examined the plans, job specifications, current Road and Bridge specifications, and all other documents pertaining thereto and thoroughly understand the contents thereof; that I/we meet the prequalification requirements for bidding on this proposal; that I/we understand that the plans and current Road and Bridge specifications, are a part of this proposal; that all of the quantities shown herewith are a part of this proposal; that all the quantities shown herewith are approximate only; that I/we have examined the location of the proposed work and source of supply of materials; and that I/we agree to bind myself/ourselves upon award by the Commonwealth under this proposal to a contract with necessary surety bond to start work according to project specifications, and to complete all work in accordance with the plans, job specifications and current Road and Bridge Specifications within the time limit set forth in the contract.

**COMPLETION DATE: NOVEMBER 15, 2024**

BID TOTAL \$ \_\_\_\_\_

Attached is a bond conforming to the requirements of the current Road and Bridge Specifications, it being understood that such bond is to be forfeited as liquidated damages if, upon acceptance of the terms of this proposal, I/we fail to execute the contract and furnish bond as provided in the current Road and Bridge Specifications.

\_\_\_\_\_  
(Names of Individual(S), Firm(S) Or Corporation)

\_\_\_\_\_  
Street Address City State Zip Code Vendor#/Fin#

\_\_\_\_\_  
Print Name Signature Title

\_\_\_\_\_  
\_\_\_\_\_

In consideration of the commitments made as shown herein, the Commonwealth of Virginia by The Commonwealth Transportation Commissioner agrees to pay for all items of work performed and materials furnished at the unit price(s) and under the conditions set forth in this proposal, in witnessed by the affixing of the name below.

Contract Execution Date \_\_\_\_\_ By \_\_\_\_\_

CHIEF ENGINEER  
VIRGINIA DEPARTMENT OF TRANSPORTATION

Proposal ID: CM224PMN124680 Oversight/State Project No.: PM2N-060-F24, P401

Order No.: 251

Federal Project No.: NONE

Contractor: \_\_\_\_\_

SECTION: 0001 REGULAR BID ITEMS

Cat Alt Set ID: \_\_\_\_\_ Cat Alt Mbr ID: \_\_\_\_\_

Proposal Line Number	Spec No.	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
				Dollars	Cents	Dollars	Cents
0010	310	310SD20-0001 TACK COAT	50.000 GAL	_____	_____	_____	_____
0020	315	315SD20-0043 ASPH. CONC. TY. IM-19.0D MAINT	184.800 TON	_____	_____	_____	_____
0030	315	315SD20-0048 ASPH. CONC. TY. BM-25.0D MAINT	314.150 TON	_____	_____	_____	_____
0040	ATTD	315SX20-0007 ASPHALT CONCRETE BM- 25.0E	125.660 TON	_____	_____	_____	_____
0050	515	515SD20-0015 FLEXIBLE PAVEMENT PLANING ABOVE 4"	1,760.000 SY	_____	_____	_____	_____
Section: 0001				Total:	_____	_____	_____
				Total Bid:	_____	_____	_____

**Bid Items Eligible For Fuel Adjustment**

Instructions: This form shall be completed in accordance with the Special Provision for Optional Adjustment for Fuel. If you choose to have Fuel Adjustment applied to any of the items listed below, write the word "Yes" in the "OPTION" column beside the item. The form must be signed, dated, and submitted to the Contract Engineer within the timeframe required in the Special Provision.

SECTION: 0001                      REGULAR BID ITEMS

Item Number	Item Description	Fuel Factor gal/unit	Option
310SD20-0001	TACK COAT	0.016	_____
315SD20-0043	ASPH. CONC. TY. IM-19.0D MAINT	3.500	_____
315SD20-0048	ASPH. CONC. TY. BM-25.0D MAINT	3.500	_____
315SX20-0007	ASPHALT CONCRETE BM-25.0E	3.500	_____

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

\_\_\_\_\_  
(Firm or Corporation)

\_\_\_\_\_  
(Vendor No.)

Contract ID: CM224PMN124680

Order No.: 251

Bid Items Eligible For Asphalt Adjustment within this Project

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SECTION: 0001

REGULAR BID ITEMS

Item Number	Item Description
310SD20-0001	TACK COAT
315SD20-0043	ASPH. CONC. TY. IM-19.0D MAINT
315SD20-0048	ASPH. CONC. TY. BM-25.0D MAINT
315SX20-0007	ASPHALT CONCRETE BM-25.0E



**ORDER NO.: 251  
CONTRACT ID. NO.: CM224PMN124680**

Form C-111S  
6-7-16

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
MINIMUM SWAM REQUIREMENTS**

PROJECT NO. PM2N-060-F24, P401

FHWA NO. NONE

**\*\*\* INSTRUCTIONS \*\*\***

THIS FORM CAN BE USED BY THE CONTRACTOR TO SUBMIT THE NAMES OF SWAM FIRMS TO BE UTILIZED ON THE PROJECT. THE CONTRACTOR SHALL INDICATE THE DESCRIPTION OF THE CATEGORY (S, M, SP or H) AND THE TYPE OF WORK THAT EACH SWAM WILL PERFORM AND THE ALLOWABLE CREDIT PER ITEM(S). ADDITIONAL SHEETS TO SHOW THE ALLOWABLE CREDIT PER ITEM MAY BE ATTACHED IF NECESSARY. **PLEASE NOTE:** THE AMOUNT OF ALLOWABLE CREDIT FOR A SWAM SUPPLIER IS 60% OF THE TOTAL COST OF THE MATERIALS OR SUPPLIES OBTAINED AND 100% FOR A SWAM MANUFACTURER OF THE MATERIALS AND SUPPLIES OBTAINED. A CONTRACTOR MAY COUNT 100% OF THE FEES PAID TO A SWAM HAULER FOR THE DELIVERY OF MATERIALS AND SUPPLIES TO THE PROJECT SITE, BUT NOT FOR THE COST OF THE MATERIALS AND SUPPLIES THEMSELVES.

**SWAM REQUIREMENT** 0.00 %

**PERCENT ATTAINED BY BIDDER** \_\_\_\_\_ %

NAMES(S) AND CERTIFICATION NO. OF SWAM(S) TO BE USED	USED AS SUBCONTR. (S) MFG. (M) SUPPLIER (SP) HAULER (H)	TYPE OF WORK AND ITEM NO(S)	\$ AMOUNT OF ALLOWABLE CREDIT PER ITEM
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**TOTAL** \$ \_\_\_\_\_

TOTAL CONTRACT VALUE \$ \_\_\_\_\_ x REQUIRED SWAM \_\_\_\_\_ % = \$ \_\_\_\_\_

I/WE CERTIFY THAT THE PROPOSED SWAM(S) SUBMITTED WILL BE USED ON THIS CONTRACT AS STATED HEREON AND ASSURE THAT DURING THE LIFE OF THE CONTRACT. I/WE WILL MEET OR EXCEED THE PARTICIPATION ESTABLISHED HEREON BY THE DEPARTMENT.

\_\_\_\_\_ BY \_\_\_\_\_  
BIDDER SIGNATURE

\_\_\_\_\_ BY \_\_\_\_\_  
TITLE DATE

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

Form C-112S  
6-7-16

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
**CERTIFICATION OF BINDING AGREEMENT**  
WITH

**SMALL, WOMEN-OWNED, AND MINORITY-OWNED BUSINESS FIRMS**

Project No.: PM2N-060-F24, P401

Federal Project No.: NONE

This form is to be submitted in accordance with the Department's Special Provision for Section 107.15.

It is hereby certified by the below signed Contractors that there exists a written quote, acceptable to the parties involved preliminary to a binding subcontract agreement stating the details concerning the work to be performed and the price which will be paid for the aforementioned work. This document is not intended to, nor should it be construed to, contain the entire text of the agreement between the contracting parties. This document does not take the place of, nor may it be substituted for, an official subcontracting agreement in those situations that may require such an agreement. A copy of the fully executed *subcontract agreement* shall be submitted to the Engineer within fourteen (14) business days after contract execution.

It is further certified that the aforementioned mutually acceptable quote and fully executed subcontract agreement represent the entire agreement between the parties involved and that no conversations, verbal agreements, or other forms of non-written representations shall serve to add to, delete, or modify the terms as stated.

The prime Contractor further represents that the aforementioned mutually acceptable quote and fully executed subcontract agreement shall remain on file for a period of not less than one year following completion of the prime's contract with the Department or for such longer period as provisions of governing Federal or State law or regulations may require. For purposes of this form, the term Prime Contractor shall refer to any Contractor utilizing a SWAM subcontractor, regardless of tier, in which they are claiming SWAM credit toward the contract goal.

Contractors further jointly and severally represent that said binding agreement is for the performance of a "commercially useful function" as that term is employed in 49 C.F.R. Part 26.55 (c), (d).

SWAM Contractor \_\_\_\_\_

By: \_\_\_\_\_  
Signature Title  
Date: \_\_\_\_\_

\*Subcontractor \_\_\_\_\_

By: \_\_\_\_\_  
Signature Title  
Date: \_\_\_\_\_

\* TO BE SIGNED BY THE SUBCONTRACTOR ONLY IF THEY HAVE A CONTRACT WITH THE ABOVE SWAM FIRM

Prime Contractor \_\_\_\_\_

By: \_\_\_\_\_  
Signature Title  
Date: \_\_\_\_\_

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**CONTRACT ID. NO.: CM224PMN124680**

**NO PLAN ASSEMBLY**

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**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

cn100-000026-08

**GENERAL PROJECT REQUIREMENTS, SUPPLEMENTAL SPECIFICATIONS (SSs), SPECIAL PROVISIONS (SPs) AND SPECIAL PROVISION COPIED NOTES (SPCNs)**

This project shall be constructed according to: the plans; the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2020 and the Supplement thereto, dated 2022; the *Virginia Department of Transportation Road and Bridge Standards*, dated 2016, with revisions issued online as of the advertisement date for this project incorporated; the 2011 edition of the *Virginia Work Area Protection Manual with Revision Number 2.1* incorporated, dated November 1, 2020; the 2009 edition of the *MUTCD with Revision Numbers 1 and 2* incorporated, dated May 2012; and the 2011 edition of the *Virginia Supplement to the MUTCD with Revision Number 1* dated September 30, 2013; and the Supplemental Specifications, Special Provisions and Special Provision Copied Notes in this contract. The status in the Contract of each of these documents will be according to Section 105.12 of the Specifications.

Special Provision Copied Notes in this contract are designated with "(SPCN)" after the date.

The information at the top and left of each Special Provision Copied Note in this contract is file reference information for Department use only. The information in the upper left corner above the title of each Supplemental Specification and Special Provision in this contract is file reference information for Department use only.

4-4-22 (SPCN)

[cn104-000110-00](#)

**SECTION 104.01—INTENT OF CONTRACT** of the Specifications is replaced by the following:

The intent of the Contract is to provide for the completion of all work specified therein.

The Contractor shall base his bid on the cost of completing all work specified in the Contract.

Budgetary constraints as deemed necessary by the Department may be imposed at any time during the life of the Contract. This may affect the number of routes paved and thus the final quantity of work to be performed.

If prior to initiating or during the performance of the work, the Engineer determines that the cost of completion of all work specified in the Contract will exceed the limits of the budgeted funds, the Contractor will be notified immediately. With such notice the Engineer will specify which routes will be deleted according to the Department's predetermined listing of priorities.

If after routes are deleted and work proceeds, budgets revisions indicate that the cost of work to be completed by the Contractor will fall below the limits of the budgeted funds, the Department will determine which of the previously deleted routes will be returned to the Schedule to be completed at the contract unit price.

10-21-08; Reissued 7-12-16 (SPCN) [\[formerly cn104-010100-00\]](#)

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[cn105-000610-00](#)

**SECTION 105.06—SUBCONTRACTING** of the Specifications is amended to replace the first paragraph with the following:

No portion of the Contract shall be subcontracted or otherwise disposed of without the written consent of the Engineer, except for work that is \$25,000 or less per subcontractor, where the cumulative total of the sublets not requiring the Engineer's written consent will not exceed 10 percent of the original contract value. This will not, however, waive the requirements for prequalification, and will be considered part of the percentage the Contractor is allowed to subcontract. The Contractor shall notify the Engineer of the name of the firm to whom the work will be subcontracted, and the amount and items of work involved. Such notification shall be made and verbal approval given by the Engineer prior to the subcontractor beginning work.

5-15-08; Reissued 7-12-16 (SPCN) [\[formerly cn105-060100-00\]](#)

[cn107-002110-01](#)

**SECTION 107.21(d) CONSTRUCTION LOADING OF STRUCTURES** of the Specifications is replaced with the following:

(d) **Construction Loading of Structures:** In the course of planning and prosecuting the work for the asphalt maintenance schedules in the Contract, the Contractor shall consider the size and weight limitation of any existing structure(s) affecting the prosecuting the work in a schedule when contemplating construction loads, equipment access, haul and delivery routes of materials, and other related activities. If the size or weight limitation of an existing structure changes after the receipt of bid date for the Contract and remains so up to and including the actual prosecution of work for a schedule in the Contract, preventing or limiting access across the structure, and the Contractor determines this limitation impacts his operations; he shall notify the Engineer of such change. If the Engineer confirms such change has occurred, the change will be considered a change to the character of the work according to the provisions of [Section 104.02\(b\)](#) of the Specifications and is eligible for adjustments according to the provisions therein.

10-30-17 (SPCN) [\[formerly cn107-210100-01\]](#)

[cn108-000110-00](#)

**SECTION 108.01—PROSECUTION OF WORK** is amended to add the following:

Once the Contractor has begun work on a given schedule or portion thereof he shall endeavor to prosecute such work fully and continuously according to the details and requirements of the Contract to its completion. In the event the Contractor has to temporarily suspend the work on a given schedule or portion thereof he shall notify the Engineer at least 24 hours in advance of the time and date he plans to pull off the work site. Prior to leaving the work site, the Contractor shall ensure the work site has been properly and safely secured to protect the traveling public according to the provisions of the *Virginia Work Area Protection Manual*, the *MUTCD*, Section 512 of the Specifications, and other requirements included in the Contract.

8-17-10; Reissued 7-12-16 (SPCN) [\[formerly cn108-010100-00\]](#)

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[cn211-000100-00](#)

**POLISHING AGGREGATE IN ASPHALT CONCRETE - Section 211—Asphalt Concrete** of the Specifications is amended as follows:

**Section 211.02—Materials** is amended by replacing (e) with the following:

Fine or coarse aggregate that tend to polish under traffic will not be permitted in any final surface exposed to traffic except as permitted within the limits of Section 211.04(a) and (b) of the Specifications and as designated by the Engineer or as permitted elsewhere in these Specifications.

**Section 211.04—Asphalt Concrete Mixtures** is amended by replacing (a) and (b) with the following:

Asphalt concrete mixtures shall conform to Table II-14 and the following:

- (a) **Types SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D and SM-9.5E asphalt concrete** shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate, slag or stone screenings or a combination thereof combined with asphalt cement.

**NOTE:** For all surface mixes, except where otherwise noted, no more than 5 percent of all aggregate retained on the No. 4 sieve and no more than 20 percent of the total aggregate may be polish susceptible. At the discretion of the Engineer, a SM-9.5AL may be specified and polish susceptible aggregates may be used (without percentage limits).

- (b) **Types SM-12.5A, SM-12.5D, SM-12.5E, IM-19.0A, IM-19.0D, and IM-19.0E asphalt concrete** shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate, slag or stone screenings or a combination thereof combined with asphalt cement.

**NOTE:** At the discretion of the Engineer, an intermediate mix may be designated as either a SM-19.0A or SM-19.0D. For SM-12.5 and SM-19.0 surface mixes, no more than 5 percent of the aggregate retained on the No. 4 sieve may be polish susceptible. All material passing the No. 4 sieve may be polish susceptible. No more than 35 percent of the total aggregate composition (polish and non-polish susceptible) shall be passing the No. 8 sieve. At the discretion of the Engineer, a SM-12.5AL may be specified and polish susceptible aggregates may be used (without percentage limits).

10-7-09; Reissued 7-12-16 (SPCN)

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[cn315-000100-00](#)

**SECTION 315.05(c) PLACING AND FINISHING** is modified by replacing the third paragraph with the following:

The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 6 inches or more. The joint in the wearing surface shall be offset 6 inches to 12 inches from the centerline of the pavement if the roadway comprises two traffic lanes. The joint shall be offset approximately 6 inches from the lane lines if the roadway is more than two lanes in width. The longitudinal joint shall be uniform in appearance. On all roads except secondary routes, if the offset for the longitudinal joint varies from a straight line more than 2 inches in 50 feet on tangent alignment, or from a true arc more than 2 inches in 50 feet on curved alignment, the Contractor shall seal the joint using a water-proof sealer at no cost to the Department. The Contractor shall recommend a sealant and installation procedure to the Engineer for approval before proceeding. On all roads except secondary routes, if the offset for the longitudinal joint varies from a straight line more than 3 inches in 50 feet on tangent alignment, or from a true arc more than 3 inches in 50 feet on curved alignment, the Engineer may reject the paving. The Engineer will not require offsetting layers when adjoining lanes are paved in echelon and the rolling of both lanes occurs within 15 minutes after laydown.

1-18-17 (SPCN)

[cn510-000100-00](#)

**LOCATING, REMOVING AND DISPOSING OF RECESSED PAVEMENT MARKERS AND RAISED SNOW-PLOWABLE MARKERS** — The Contractor shall locate, remove and dispose of existing recessed pavement markers and raised snow-plowable markers prior to resurfacing. The cavity left by the removal of the existing recessed pavement markers shall be cleaned of debris, filled with the approved mix for resurfacing and compacted. Locating, removing and disposing of recessed pavement markers and raised snow-plowable markers; cleaning and filling the cavity, and compacting the material placed in the cleaned cavity will not be measured for payment. The cost for performing this work shall be included in the price bid for other appropriate items of work.

10-17-10; Reissued 7-12-16 (SPCN)

[cn512-000100-00](#)

**TABLE V-1, ADT GROUPS** — The Specifications are amended to include the following table:

**TABLE V-1**  
**Average Daily Traffic (ADT) Groups**

<b>Traffic Group</b>	<b>ADT</b>	<b>Traffic Group</b>	<b>ADT</b>
I	0-9	X	2,000-2,999
II	10-24	XI	3,000-3,999
III	25-49	XII	4,000-4,999
IV	50-99	XIII	5,000-5,999
V	100-249	XIV	6,000-9,999
VI	250-399	XV	10,000-14,999
VII	400-749	XVI	15,000-19,999
VIII	750-999	XVII	20,000-29,999
IX	1,000-1,999	XVIII	30,000-39,999
		XIX	40,000 & over

7-12-16 (SPCN)



**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[cn512-000120-00](#)

**SECTION 512—MAINTAINING TRAFFIC** of the Specifications is amended as follows:

**Section 512.03(i)—Impact Attenuator Service** is amended to replace the second paragraph with the following:

Only Type 1 re-directive low-maintenance impact attenuators in accordance with Section 505 shall be used on highways with posted speed limits greater than 50 mph or with an ADT greater than 25,000 vehicles per day.

7-13-16\_(SPCN)

[cn515-000100-02](#)

**DISINCENTIVE FOR PLANING IN MULTIPLE LANES**

The Special Provision for **COLD PLANING (MILLING) ASPHALT CONCRETE OPERATIONS** "[SP515-000100-00](#)" dated July 12, 2016 is amended as follows:

**Section III.A.1. Regular planing and performance planing in multiple lanes** is amended to replace the first bulleted subparagraph of the fourth paragraph with the following:

- The Contractor will be limited in the case of **regular pavement planing**, whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 24 hours of completion of planing that roadway or portion of roadway. Single-lift operations must be restored to final elevation to satisfy this requirement. If the Contractor elects not to pave back the planed travel lanes within 24 hours from the end of the regular planing operation, or is prevented from doing so by predictable weather, the Department will assess a disincentive in the amount of **\$5,000** for each calendar day the planed travel lane surface is not paved back, including Sundays and Holidays.

**Section III.A.1. Regular planing and performance planing in multiple lanes** is amended to replace the first bulleted subparagraph of the fifth paragraph with the following:

- **Performance pavement planing** may be performed in multiple lanes across the entire widths of the lanes up 4 miles of travel lane unless otherwise stated in the Contract. Performance planed travel lane surfaces must be paved back within 96 hours from the end of the performance planing operation. Single-lift operations must be restored to final elevation to satisfy this requirement. If the Contractor elects not to pave back the planed travel lanes within 96 hours from the end of the performance planing operation, or is prevented from doing so by predictable weather, the Department will assess a disincentive in the amount of **\$5,000** for each calendar day the planed travel lane surface is not paved back, including Sundays and Holidays.

11-23-16 (SPCN)

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[cn704-000200-00](#)

**INLAID PAVEMENT MARKER LOCATION AND SPACING** — The Contractor shall not install markers on existing bridge decks. Inlaid Pavement Markers shall be installed on new bridge decks where required by the Plans. Inlaid Pavement Markers shall be placed in relation to pavement joints and cracks as follows:

- In existing Asphalt Concrete pavement, new or existing Hydraulic Cement Concrete pavement, and bridge decks, the edge of the groove shall be at least 2 inches from pavement joints and cracks, ensuring that the finished line of markers is straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Offset from the longitudinal joint shall take precedence over straightness of the line of markers.
- In new Hydraulic Cement Concrete pavement or when installed in conjunction with new latex modified microsurfacing or slurry seal treatments, the edge of the groove shall be 2 inches minimum from the surface course pavement joint and 1 inch maximum off alignment from the corresponding pavement marking line. The finished line of markers shall be straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Straightness of the line of markers and alignment with the corresponding pavement marking line takes precedence over offset from the surface course joint.

8-11-21

**DRUG-FREE WORKPLACE**— The Contractor shall:

- Provide a Drug-Free Workplace for the Contractor's employees.
- Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- State in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a Drug-Free Workplace.
- Include the provisions of the foregoing clauses in every Subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each Subcontractor or vendor.

For the purposes of this provision, "Drug-Free Workplace" means a site for the performance of work done in connection with the Contract. The Contractor's employees, and those of his Subcontractors, shall be prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession, or use of any controlled substance or marijuana during the performance of the Work.

7-3-19 (SPCN)

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

**cq107-000150-00**

**EQUAL EMPLOYMENT OPPORTUNITY**

**Section 107.14(a)1 – Required by §2.2-4201 and §2.2-4311 of the Code of Virginia** is replaced with the following:

1. **Required by §2.2-4201 and §2.2-4311 of the Code of Virginia:** During the performance of this Contract, the Contractor agrees as follows:
  - a. The Contractor shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause, including the names of all contracting agencies with which the Contractor has contracts of over \$10,000.
  - b. The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that such contractor is an equal opportunity employer. However, notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this chapter.
  - c. If the Contractor employs more than five employees, the Contractor shall (i) provide annual training on the Contractor's sexual harassment policy to all supervisors and employees providing services in the Commonwealth, except such supervisors or employees that are required to complete sexual harassment training provided by the Department of Human Resource Management, and (ii) post the Contractor's sexual harassment policy in (a) a conspicuous public place in each building located in the Commonwealth that the Contractor owns or leases for business purposes and (b) the Contractor's employee handbook.

The Contractor shall include the provisions of subdivisions a, b, and c in every subcontract or purchase order of over \$10,000, so that such provisions shall be binding upon each subcontractor or vendor.

Nothing contained in this chapter shall be deemed to empower any agency to require any contractor to grant preferential treatment to, or discriminate against, any individual or any group because of race, color, religion, sex, or national origin on account of an imbalance that may exist with respect to the total number or percentage of persons of any race, color, religion, sex, or national origin employed by such contractor in comparison with the total number or percentage of persons of such race, color, religion, sex, or national origin in any community or in the Commonwealth.

5-11-22 (SPCN)

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[SP102-000120-00 \[formerly SP102-010100-00\]](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**NON-DISCRIMINATION IN EMPLOYMENT AND CONTRACTING PRACTICES**

January 10, 2017

**I. Description**

This Special Provision implements Executive Order 61, ensuring equal opportunity and access for all Virginians in state contracting and public services.

**II. Non-Discrimination**

The Contractor shall maintain a non-discrimination policy, which prohibits discrimination by the Contractor on the basis of race, sex, color, national origin, religion, sexual orientation, gender identity, age, political affiliation, disability, or veteran status. This policy shall be followed in all employment practices, subcontracting practices, and delivery of goods or services. The Contractor shall also include this requirement in all subcontracts valued over \$10,000.

**III. Measurement and Payment**

Conformance with this Special Provision will not be measured for individual payment, and will be considered incidental to the Work.

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[SP105-000100-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**INFORMAL PARTNERING**

January 14, 2008c; Reissued July 12, 2016

**I. DECLARATION AND DESCRIPTION**

The Virginia Department of Transportation (VDOT) is firmly committed to the formation of a partnering relationship with the Contractor, all subcontractors, suppliers, FHWA representatives; where appropriate, other federal agencies, local government officials, utilities representatives, law enforcement and public safety officials, consultants, and other stakeholders to effectively and efficiently manage and complete each construction or maintenance contract to the mutual and individual benefits and goals of all parties. Partnering is an approach to fulfilling this commitment where all parties to the contract, as well as individuals and entities associated with or otherwise affected by the contract, willingly agree to dedicate themselves by working together as a team to fulfill and complete the construction or maintenance contract in cost effective ways while preserving the highest standards of safety and quality called for by the Contract combined with the goals of on time/on budget completion. The approach must still allow for the fact that the members of the team share many common interests yet have differing authorities, interests, and objectives that must be accommodated for the project to be viewed as successful by all parties. It is recognized by VDOT that partnering is a relationship in which:

- Trust and open communications are encouraged and expected by all participants
- All parties move quickly to address and resolve issues at the lowest possible level by approaching problems from the perspectives and needs of all involved
- All parties have identified common goals and at the same time respect each other's individual goals and values
- Partners create an atmosphere conducive to cooperation and teamwork in finding better solutions to potential problems and issues at hand

**II. INFORMAL PARTNERING STRUCTURE**

It is the business intent of the Department that **informal** partnering will be required on **this** project, whereby the spirit and principles of partnering are practiced from onsite field personnel to executive level owners and employees. The VDOT Field Guide to Partnering available on the VDOT website <http://www.virginiadot.org/business/resources/partnerfinalallowres.pdf> will be the standard reference guide utilized to structure and guide partnering efforts. This guide will be systematically evaluated to incorporate better practices as our partnering efforts evolve. Of particular note is the need for effective and responsive communication between parties to the partnering relationship as emphasized in Section 105.03(d) of the Specifications.

Informal partnering need not require the services of a professional facilitator and may be conducted by the actual partnering participants themselves. Informal partnering, and more specifically the Partnering Charter, will not change the legal relationship of the parties to the Contract nor relieve either party from any of the terms of the Contract.

**III. PROCEDURES**

The following are general procedures for informal partnering and are not to be considered as inclusive or representative of procedural requirements for all projects. Participants shall consult the VDOT Field Guide for Partnering for assistance in developing specific guidelines to those efforts required for their individual projects.

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**Prior To Project Construction:** At least 5 days prior to or in connection with the preconstruction conference the Contractor shall attend a conference with the Engineer at which time he and the Engineer shall discuss the extent of the informal partnering efforts required for the project, how these have been accommodated in the Contractor's bid and the identity of expectations and stakeholders associated with the project. Informal partnering efforts require the Department and the Contractor to mutually choose a single person from among their collective staffs, or a trained facilitator to be responsible for leading all parties through the VDOT Field Guide to Partnering and any subsequent partnering efforts.

**Partnering Meetings During Project Construction:** In informal partnering efforts the Contractor shall provide a location for regularly scheduled partnering meetings during the construction period. Such meetings will be scheduled as deemed necessary by either party. The Contractor and VDOT will require the attendance of their key decision makers, including subcontractors and suppliers. Both the Contractor and VDOT shall also encourage the attendance of affected utilities, concerned businesses, local government and civic leaders or officials, residents, and consultants, which may vary at different times during the life of the Contract. The Department and the Contractor are to agree upon partnering invitees in advance of each meeting. Follow-up partnering workshops may be held throughout the duration of the project as deemed necessary by the Contractor and the Engineer.

**IV. MEASUREMENT AND PAYMENT**

**Informal Partnering**, because the extent to which certain partnering activities are pursued is at the Contractor's option, and may vary according to project complexity, work history between the parties, project duration, the Contractor's own unique methods, means, and schedule to execute and complete the work, etc.; will not be paid for as a separate bid item but all the costs associated with informal partnering efforts for the duration of the work shall be considered inclusive and incidental to the cost of other appropriate items.

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

**SP109-000100-04**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**ASPHALT MATERIAL PRICE ADJUSTMENT**

June 29, 2023

All asphalt material contained in the master listing on the [Construction Division web site](#) of eligible bid items and designated by pay items in the Contract will be price adjusted according to the provisions as set forth herein. Other items will not be adjusted, except as otherwise specified in the Contract. If new pay items which contain asphalt material are established by Change Order, they will not be subject to Price Adjustment unless specifically designated in the Change Order to be subject to Price Adjustment.

Each month, the Department will publish an average state-wide PG 64S-22 f.o.b. price per ton and an average PG 64E-22 f.o.b. price per ton developed from the average terminal prices provided to the Department from suppliers of asphalt cement to contractors doing work in Virginia. The Department will collect terminal prices from approximately 12 terminals each month. These prices will be received once each month from suppliers on or about the last weekday of the month. The high and low prices will be eliminated and the remaining values averaged to establish the average statewide price for the following month. The monthly state-wide average price will be posted on the Construction Division website on or about the first weekday of the following month. In the event the average prices were to change by 10 percent or more of the Base Index during the middle of the month the Contractor can submit a letter to the Department and supplier that provides evidence of the difference in price. Upon receipt of the letter consideration will be given to extend additional adjustments as deemed necessary.

This monthly statewide average price will be the Base Index for all contracts on which bids are received during the calendar month of its posting and will be the Current Index for all asphalt placed during the calendar month of its posting. In the event an index changes radically from the apparent trend, as determined by the Engineer, the Department may establish an index which it determines to best reflect the trend.

The amount of adjustment applied will be based on the difference between the contract Base Index and the Current Index for the applicable calendar month during which the work is performed. The quantity of asphalt cement for asphalt concrete pavement to which adjustment will be applied will be the quantity based on the percent of asphalt cement shown on the appropriate approved job mix formula.

Adjustment of any asphalt material other than PG 64S-22 and PG 64E-22 will be based on the indexes for PG 64S-22.

The quantity of asphalt emulsions to which adjustment will be applied will be the quantity based on 65 percent residual asphalt.

Price adjustment will be shown as a separate entry on the monthly progress estimate; however, such adjustment will not be included in the total cost of the work for progress determination or for extension of contract time. Price adjustment will be calculated using the same units as the corresponding Pay Items in the Contract.

Any apparent attempt to unbalance bids in favor of items subject to price adjustment or failure to submit required cost and price data as noted hereinbefore may result in rejection of the bid proposal.

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**CONTRACT ID. NO.: CM224PMN124680**

[SP109-000110-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**OPTIONAL ADJUSTMENT FOR FUEL**

July 1, 2015; Reissued July 12, 2016

The Department will adjust monthly progress payments up or down as appropriate for cost changes in fuel used on specific items of work identified in this provision. The Department will provide a master listing of standard bid items eligible for fuel adjustment on its website.

Included with this proposal is a listing of standard bid items the Department has identified as eligible for fuel adjustment on this project(s) as well as the respective fuel factors per pay unit for those items. Only items on this listing will be eligible for adjustment. The fuel usage factor for each item is considered inclusive of all fuel usage. Generally, non-standard pay items are not eligible for fuel adjustment.

The listing of eligible items applicable to this particular project is shown on Form C-21B "Bid Items Eligible for Fuel Adjustment" included with the bidding documents. The Bidder may choose to have fuel adjustment applied to any or all eligible items on this project's listing by designating the items for which the fuel adjustment will apply. The Bidder's selection of items for fuel adjustment may not be changed once he has submitted Form C-21B to the Department.

In order to be eligible for fuel adjustment under this provision, the apparent lowest responsive and responsible Bidder shall clearly identify on Form C-21B those pay items he chooses to have fuel adjustment applied on. Within 21 days after the receipt of bids the apparent successful Bidder shall submit his designated items on Form C-21B to the Contract Engineer. Items the successful Bidder chooses for fuel adjustment must be designated by writing the word "Yes" in the column titled "Option" by each bid item chosen for fuel adjustment. The successful Bidder's designations on Form C-21B must be written in ink or typed, and signed by this Bidder to be considered complete. Items not properly designated or left blank on the Bidder's C-21B "Bid Items Eligible for Fuel Adjustment" form may be not considered for adjustment. If the apparent successful Bidder fails to return his Form C-21B within the timeframe specified, items will not be eligible for fuel adjustment on this project.

The monthly index price to be used in the administration of this provision will be calculated by the Department from the Diesel fuel prices published by the U. S. Department of Energy, Energy Information Administration on highway diesel prices, for the Lower Atlantic region. The monthly index price will be the price for diesel fuel calculated by averaging each of the weekly posted prices for that particular month.

For the purposes of this provision, the base index price will be calculated using the data from the month preceding the receipt of bids. The base index price will be posted by the Department at the beginning of the month for all bids received during that month.

The current index price will be posted by the Department and will be calculated using the data from the month preceding the particular estimate being vouchered for payment.

The current monthly quantity for eligible items of work selected by the Contractor for fuel adjustment will be multiplied by the appropriate fuel factor to determine the gallons of fuel to be cost adjusted. The amount of adjustment per gallon will be the net difference between the current index price and the base index price. Computation for adjustment will be made as follows:



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$$S = (E - B) QF$$

Where; S = Monetary amount of the adjustment (plus or minus)  
B = Base index price  
E = Current index price  
Q = Quantity of individual units of work  
F = Appropriate fuel factor

Adjustments will not be made for work performed beyond the original contract time limit unless the original time limit has been changed by an executed Work Order.

If new pay items are added to this contract by Work Order and they are listed on Department's master listing of eligible items, the Work Order must indicate which of these individual items will be fuel adjusted; otherwise, those items will not be fuel adjusted. If applicable, designating which new pay items will be added for fuel adjustment must be determined during development of the Work Order and clearly shown on Form C-10 Work Order. The Base Index price on any new eligible pay items added by Work Order will be the Base Index price posted for the month in which bids were received for that particular project. The Current Index price for any new eligible pay items added by Work Order will be the Index price posted for the month preceding the estimate on which the Work Order is paid.

When quantities differ between the last monthly estimate prepared upon final acceptance and the final estimate, adjustment will be made using the appropriate current index for the period in which that specific item of work was last performed.

In the event any of the base fuel prices in this contract increase more than 100 percent (i.e. fuel prices double), the Engineer will review each affected item of work and give the Contractor written notice if work is to stop on any affected item of work. The Department reserves the right to reduce, eliminate or renegotiate the unit price for remaining portions of affected items of work.

Any amounts resulting from fuel adjustment will not be included in the total cost of work for determination of progress or for extension of contract time.

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**SP109-000130-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**USE OF ELECTRONICALLY TRANSMITTED WEIGH TICKETS**

October 10, 2019

**SECTION 109 – MEASUREMENT AND PAYMENT** of the Specifications is amended as follows:

**Section 109.01(b) Measurement by Weight** is replaced with the following:

**Measurement by Weight:** Materials that are measured or proportioned by weight shall be weighted on accurate scales as specified in this Section. When material is paid for on a tonnage basis, personnel performing the weighing shall be certified by the Department and shall be bonded to the Commonwealth of Virginia in the amount of \$10,000 for the faithful observance and performance of the duties of the weighperson required herein. The bond shall be executed on a form having the exact wording as the Weighpersons Surety Bond Form furnished by the Department and shall be submitted to the Department prior to the furnishing of the tonnage material.

Trucks used to haul material shall be equipped with a cover suitable to protect the material and to protect the traveling public. The truck tare to be used in the weighing operation shall be the weight of the empty truck determined with full tanks of fuel and the operator seated in the cab. The tare weight of trucks shall be recorded to the nearest 20 pounds. At the option of the Contractor, a new tare may be determined for each load. When a new tare is obtained for each load, the requirement for full tanks of fuel will be waived.

Net rail shipment weights may be used for pay quantities when evidenced by railroad bills of lading. However, such weights will not be accepted for pay quantities of materials that subsequently pass through a stationary mixing plant.

Scales shall conform to the requirements for accuracy and sensitivity as set forth in the NIST Handbook No. 44 for Specification Tolerances and Requirements for Commercial and Weighing Devices. Scales used in the weighing of materials paid for on a tonnage basis shall be approved and sealed in accordance with the requirements of the policies of the Bureau of Weights and Measures of the Department of Agriculture and Consumer Services, or other approved agencies, at least once every six months and upon being moved. Hopper and truck scales shall be serviced and tested by a scale service representative at least once every six months. Hopper scales shall be checked with a minimum 500 pounds of test weights and truck scales shall be checked with a minimum 20,000 pounds of test weights.

Copies of scale test reports shall be maintained on file at the scale location for at least 18 months, and copies of all scale service representative test reports shall be forwarded to the Department.

The quantity of materials paid for on a tonnage basis shall be determined on scales equipped with an automatic printer. Truck scale printers shall print the net weight and either the gross or tare weight of each load. Hopper scale printers shall print the net weight of each load. The weigh ticket shall also show the legal gross weight for material weighed on truck scales and the legal net weight for material weighed on hopper scales. As a substitute for printed tickets, electronic tickets may be provided. Electronic ticketing systems shall record and show all the same information required on a printed ticket and meet the requirements herein.

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If the automatic printer becomes inoperative, the weighing operation may continue for 48 hours provided satisfactory visual verification of weights can be made. The written permission of the District Materials Engineer shall be required for the operation of scales after 48 hours.

If significant discrepancies are discovered in the printed or electronically recorded and displayed weight, the ultimate weight for payment will be calculated on volume measurements of the materials in place and unit weights determined by the Engineer or by other methods deemed appropriate to protect the interests of the Commonwealth.

1. **Duties of the Weighperson.** The weighperson shall furnish a signed weigh ticket or electronic ticket for each load that shows the date, load number, plant name, size and type of material, project number, schedule or purchase order number, and the weights specified herein; maintain sufficient documentation so that the accumulative tonnage and distribution of each lot of material, by Contract, can be readily identified; and submit by the end of the next working day a summary of the number of loads and total weights for each type of material by Contract.
2. **Electronic ticketing system.** Electronic tickets may be provided as a substitute for weigh tickets at no additional cost to the Department. Electronic Tickets shall be automatically generated using a combined software and hardware fleet management or electronic ticketing system. This system shall be fully integrated with the Contractor's Load Read-Out scale system used to weigh the material being placed.

The system must be accessible to all engineering and inspection staff involved in the project via a mobile device (iOS or android) and a desktop computer.

In addition to the information required for printed weigh tickets, the system must provide the following information to the Engineer at any point in time during or after materials placement:

- Description of material being transported
- Mix Design Number or VDOT Material Identifier
- Unique Truck ID
- Time at Scale
- Time at Destination
- Time offloaded from vehicle
- Location (latitude and longitude in decimal degrees to nearest 0.0000001) where material was offloaded from truck.

If the supplier chooses to utilize the electronic ticket option, the system must allow individual tickets and daily summaries to be exported as Portable Document Format (PDF) files conforming to ISO 32000.

The system software and hardware shall be designed in such a way that data inputs from scales cannot be altered by the Contractor or the Department.

Delays due to poor GPS satellite reception, loss of cellular coverage, or any other technical or mechanical issues with an electronic ticketing system software, hardware, or other components will not be considered entitlement to any form of adjustment or time extension. The Engineer may reject material at any time if electronic tickets become unavailable or fail to provide appropriate and correctly formatted information at the time the ticket is transmitted. The Contractor, at his discretion, may provide printed tickets in place of electronic tickets, provided they comply with the requirements herein.

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[SP208-000100-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 208—SUBBASE AND AGGREGATE BASE MATERIAL**  
**Crushed Hydraulic Cement Concrete (CHCC)**

July 12, 2016

**SECTION 208—SUBBASE AND AGGREGATE BASE MATERIAL** of the Specifications is amended as follows:

**Section 208.02—Materials** is replaced with the following:

(a) **Subbase material** may consist of any mixture of natural or crushed gravel, crushed stone or slag, **crushed hydraulic cement concrete (CHCC)**, and natural or crushed sand; with or without soil mortar. Subbase material may be used in a stabilized or unstabilized form.

(b) **Aggregate base material** may be designated as Type I or Type II as follows:

**Type I** shall consist of crushed stone, crushed slag, crushed hydraulic cement concrete (CHCC), crushed gravel or any combination of these material: with or without soil mortar or other admixtures. Crushed gravel shall consist of particles of which at least 90 percent by weight of the material retained on the No. 10 sieve shall have at least one face fractured by artificial crushing.

**Type II** shall consist of gravel, stone, or slag screenings; fine aggregate and crushed coarse aggregate; sand-clay-gravel mixtures; crushed hydraulic cement concrete; or any combination of these materials; with or without soil mortar or other admixtures. Aggregate base materials Type I or II may be used in a stabilized or unstabilized form.

(c) **Crushed Hydraulic Cement Concrete** shall not be used as Subbase or aggregate base material when any subsurface drainage system, such as standard underdrains (UD-4 or UD-5) and /or a stabilized open graded aggregate drainage layer (OGDL) is present, except when the CHCC is cement stabilized.

**Section 208.03(b) Atterberg Limits** is amended to include the following:

**Plasticity:** Subbase and aggregate base materials shall be either non-plastic (PI=0) or shall conform to Table II-11 of the Specifications when tested according to VTM-7. If the material is classified as non-plastic (PI=0), according to VTM-7, the Liquid Limit requirement will be waived. Exceptions to this provision are noted as follows:

1. 100% CHCC and 20% or less CHCC Blends will be tested and subject to penalty as noted in Table II-11 of the Specifications for the plasticity index, excluding Liquid Limit penalties.
2. Greater than 20% CHCC Blends will follow testing guidelines as set forth in Section 208.06 (b) for Atterberg limits.

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**Section 208.03** is amended to add the following:

- (h) **Deleterious Material:** The quantity of deleterious materials present in stockpiles of Crushed Hydraulic Cement Concrete, to be used in blending with virgin aggregates or as 100 percent CHCC, shall not exceed the following values:

<b>MATERIAL</b>	<b>PERCENT BY WEIGHT (MASS)</b>
Asphalt Concrete	5.0
Glass and Metals	5.0
Wood, Plastic, Brick and other foreign matter	0.5

**Section 208.04—Job-Mix Formula** is replaced by the following:

- (a) The Contractor shall submit, or shall have the source of supply submit, for the Engineer's approval, a job-mix formula for each mixture to be supplied for the project prior to starting work. The formula shall be within the design range specified in Table II-9 of the Specifications. If unsatisfactory results or other conditions make it necessary, the Contractor shall prepare and submit a new job-mix formula for approval.
- (b) A job mix formula shall be submitted for the engineer's approval for each category of CHCC mixture used. Designated categories shall indicate the mixture percentage of CHCC used according to the following criteria:
1. **Category 1:** 100% CHCC  
**Category 2:** 20% or less CHCC (□ 20%)  
**Category 3:** greater than 20% CHCC but less than 100% CHCC (>20%<100%)
  2. The quantity of CHCC in the mix shall be expressed as a percentage of the total mix.

**Section 208.06—Acceptance** is amended to include the following:

The following applies specifically to the use of Crushed Hydraulic Cement Concrete (CHCC) mixtures in addition to the acceptance criteria specified in this section:

1. **100% CHCC** shall conform to this special provision.
2. **20% or Less CHCC Blends** shall conform to this special provision.
3. **Greater than 20% CHCC Blends** shall conform to the following:
  - a. The virgin aggregate portion of the blend will be tested for Atterberg limits, prior to CHCC blending.
  - b. Price adjustments for Liquid Limit and the Plasticity Index of the virgin aggregates used in the blend with CHCC shall be according to Table II-11 of the Specifications.
  - c. No additional testing for Liquid Limit or Plasticity Index will be required on the final blended product.
4. All shipments of products containing CHCC must be designated on the shipping ticket (scale ticket) by the use of the letter "R". Examples: [22R, 21AR and 21BR] for: Aggregate Base material, Type I or Subbase materials.

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[SP211-000100-02](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 211—ASPHALT CONCRETE**

March 28, 2022

**SECTION 211—ASPHALT CONCRETE** of the Specifications is amended as follows:

**Section 211.03(a) SUPERPAVE mixes** is amended by inserting the following:

For SM-9.5 and SM-12.5 mixes, the minimum asphalt contents shall be based on the following unless otherwise approved by the Engineer:

<b>Bulk Specific Gravity of the Total Aggregate</b>	<b>Minimum Design AC Content Mix Type (%)</b>	
	<b>SM-9.5</b>	<b>SM-12.5</b>
Less Than 2.65	5.5	5.3
2.65 - 2.74	5.4	5.2
2.74 - 2.85	5.3	5.1
Greater Than 2.85	5.2	5.0

**Section 211.09—Adjustment System** is amended to replace the third paragraph with the following:

If the total adjustment for a lot is greater than 25 points, the Contractor shall remove the failing material from the road. If the total adjustment is 25 points or less and the Contractor does not elect to remove and replace the material, the unit price for the material will be reduced by 3% for SM, IM, and BM Superpave mixes, and by 1% for all other mixes, for each adjustment point the material is outside of the process tolerance. The Engineer will apply this adjustment to the tonnage represented by the samples. If the Engineer applies adjustment points against two successive lots, the Contractor shall ensure plant adjustment is made prior to continuing production.

**Section 211.09—Adjustment System** is amended to replace the last paragraph with the following:

The Engineer will reduce the unit bid price for SM, IM, and BM Superpave mixes by 1.0%, and for all other mixes by 0.5%, for each adjustment point applied for standard deviation.

The Engineer will increase the unit bid price for SM, IM, and BM mixes by 5% if the following criteria are met: 1) the standard deviation of the AC content is within the ranges of 0.0 – 0.15; 2) there are no adjustment points assigned for any sieve sizes as noted in Table II-16; and 3) the average AC content is no less than 0.10% below and no more than 0.20% above the approved mix design AC content.

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[SP305-000100-01](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SHOULDER RENOVATION**

October 3, 2016

**I. DESCRIPTION**

This work shall consist of renovating existing low (erosion or overlay) and high shoulders (debris buildup) and shoulders disturbed due to plant mix overlay or guardrail work as specified in the Contract Documents to provide finished shoulder designs and guardrail heights that conform to the Specifications, Standard Drawings, and Plans. For the purposes of this provision, machining shoulders and manual shoulder restoration shall be viewed as placing, grading, and compacting operations of approved shoulder materials performed by mechanized equipment or manually. Materials allowed for renovating shoulders shall include furnishing and delivery of these materials to the jobsite or to the location(s) designated in the Contract Documents.

**II. MATERIALS**

Shoulder material shall be either virgin aggregate base material (type and size as specified) or Shoulder Maintenance Material (SMM). SMM shall be: Aggregate Material; Crusher Run Aggregate; Aggregate Subbase or Base; Select Material; recycled materials including Reclaimed Asphalt Pavement (RAP) or Crushed Hydraulic *Cement* Concrete (CHCC); or combinations thereof, conforming to the followings grading when tested in accordance with VTM-25:

<b>% by Weight of Material Passing Sieve</b>		
<b>1-1/2 in</b>	<b>1 in</b>	<b>No. 4</b>
100	80-100	20-60

Shoulder Maintenance Material, if used, shall be 1-1/2 inch maximum size as determined visually, using VTM-25, or by field measurement. Shoulder Maintenance Material shall have a loose, unconsolidated consistency and shall not contain any clusters of materials that exceed the 1-1/2-inch grading requirement. Material out of conformance with the maximum size limitation will be rejected. However, a sample of material shall be tested for gradation using VTM-25; test results within the last year may be used for stockpile material.

Shoulder Maintenance Material, when comprised of blended aggregate, RAP, or CHCC, shall be thoroughly mixed (manipulated) and shall have a dappled appearance when placed, graded, and compacted.

The use of Shoulder Maintenance Material is subject to the limitations as described herein and elsewhere in the Special Provision Copied Note for Alternate Category Bid Items and Award of Contract included in the Contract.

**III. PROCEDURES**

The use of more than one type of approved material on uninterrupted runs of shoulder work will not be permitted.

The use of CHCC or any CHCC blended material as SMM will only be permitted in areas 3 feet in width or less and no more than 3 inches in compacted depth once placed.

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Shoulder material shall be spread, graded, and compacted according to Section 305.03(e) of the Specifications, except as noted herein. Subgrade shaping will generally not be required unless directed by the Engineer. However, when shaping of the subgrade is required, the cost of such work shall be included in the cost of machining shoulders or manual shoulder renovation work.

The maximum compacted lift thickness of shoulder material (except CHCC or CHCC blends) shall be 6 inches. The acceptability of furnished and finished (compact) shoulder material will be determined by visual inspection, field measurement, or a combination thereof, at the discretion of the Engineer.

Final pavement surface edge or final paved or stabilized shoulder surface edge shall include existing pavement not designated for overlay and completely compacted pavement overlays, and their corresponding shoulders.

The Contractor shall promptly remove and dispose of surplus shoulder material encountered as a result of shoulder renovation work as well as any shoulder material spilled, left or tracked on the pavement.

Grading for shoulder renovation shall be performed by the following methods:

**A. Machining shoulders** shall be performed in areas where there is no existing guardrail and none is scheduled to be placed or updated under this contract, in areas with existing guardrail where that guardrail will not be disturbed, in areas scheduled for new guardrail installation before new guardrail is installed, or in areas where existing guardrail will be removed in preparation for guardrail improvement or guardrail replacement. In each of these grading situations it is to be assumed grading can be performed by mechanized equipment unencumbered by existing or newly installed guardrail.

Machining shoulders shall include grading shoulders to appropriate slope and grade where sufficient material is present to renovate the existing shoulders, grading existing shoulders to fill in low areas after shoulder material has been placed, or grading down areas where high shoulders exist due to debris buildup.

Machining shoulders shall result in a uniformly finished slope to the shoulder break that conforms to the Standard Drawings and the included sketch after compaction. Renovated shoulders shall smoothly tie the graded shoulder edge elevation to the adjoining elevation of the final pavement surface edge and final paved or stabilized shoulder surface edge.

**B. Manual shoulder restoration** shall be used to renovate shoulders in areas where existing guardrail will be undisturbed by adjacent plant mix or other operations specified in the contract.

Manual shoulder restoration shall include grading shoulders around existing guardrail by hand or other intensive production methods to appropriate slope and grade where sufficient material is present to restore the existing shoulders, grading existing shoulders to fill in low areas after shoulder material has been placed, or grading down areas where high shoulders exist due to debris buildup.

Manual shoulder restoration shall result in a uniformly finished slope to the shoulder break that conforms to the Standard Drawings and the included sketch after compaction. Restored shoulder work shall smoothly tie the graded shoulder edge elevation to the adjoining elevation of the final pavement surface edge and final paved or stabilized shoulder surface edge.



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**Note: Shoulder material specified in this Special Provision is the only allowable material for manual shoulder restoration work unless otherwise approved by the Engineer.**

Shoulder material (depending on the type of shoulder renovation operation specified in the Contract Documents or directed by the Engineer) shall be furnished and placed by the Contractor in low shoulder areas, then machined or manually graded off as necessary, and then compacted to provide a finished cross slope that conforms to the applicable Standard Drawings as well as the existing road profile grade.

Where guardrail is to be installed or reinstalled, the placement widths and limits of shoulder material shall be according to the detail requirements for the specific type of guardrail as designated in the Contract Documents and as shown in the Standard Drawings, the attached sketch, or as otherwise indicated in the Contract Documents. Guardrail height shall conform to the Standard Drawings for the applicable guardrail type once work is completed. This work shall proceed as directed by the Engineer.

**IV. MEASUREMENT AND PAYMENT**

**Machining shoulders** will be measured in linear feet along the adjacent edge of pavement and will be paid for at the Contract unit price per linear foot. The price shall include placing, grading, and compaction. This price shall also include removing and disposing of surplus, spilled, and tracked material resulting from the Contractor's operations.

**Manual shoulder restoration** will be measured in linear feet along the adjacent edge of pavement specified in the Contract or directed by the Engineer, and will be paid for at the Contract unit price per linear foot. The price shall include placing, grading, and compaction. This price shall also include removing and disposing of surplus, spilled, and tracked material resulting from the Contractor's operations.

**Virgin aggregate base material** will be measured in tons and will be paid for at the Contract unit price per ton. The price bid shall include furnishing and delivery.

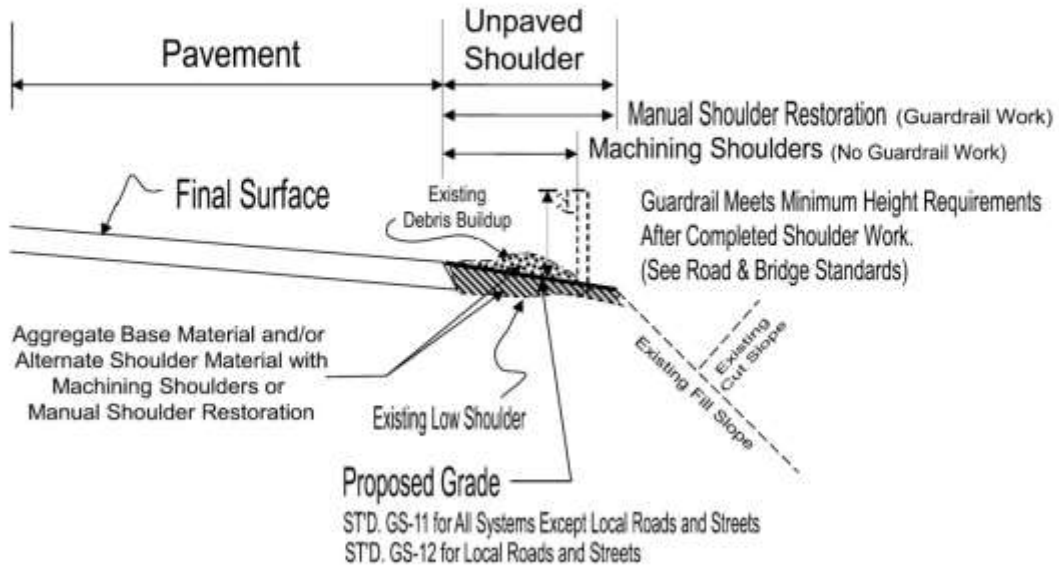
**Shoulder Maintenance Material, if requested and authorized for use**, will be measured in tons or square yards and will be paid for at the Contract unit price per ton as bid in Section 0002 of the Special Provision Copied Note for Alternate Category Bid Items and Award of Contract. The price bid shall include furnishing and delivery.

Tonnage for Shoulder Maintenance Material will be based on certified weigh tickets from the source of supply, or when supplied directly from the field, will be computed on the basis of 110 pounds per inch of depth per square yard, converted to tons.

Payment will be made under:

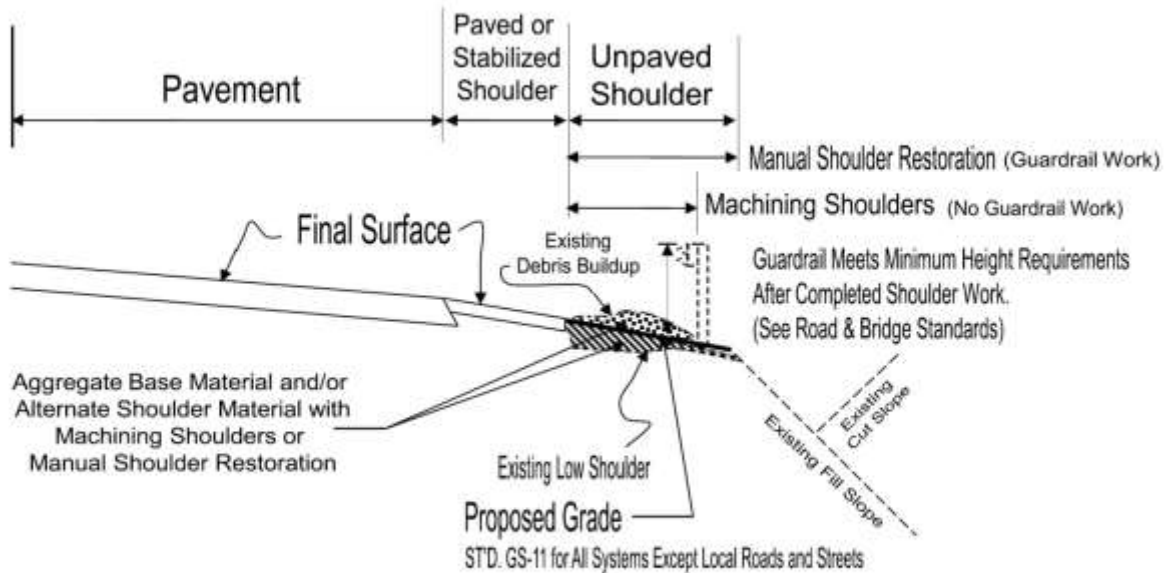
<b>Pay Item</b>	<b>Pay Unit</b>
Virgin Aggregate Base Material, Type ( ), No. ( )	Ton
Machining Shoulders	Linear Foot
Manual Shoulder Restoration	Linear Foot
Shoulder Maintenance Material	Ton

# SHOULDER RENOVATION



Typical Section for Unpaved Shoulder

Not to Scale



Typical Section for Paved or Stabilized Shoulder

Not to Scale

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[SP305-000110-00](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**STABILIZED AND PAVED SHOULDER OVERLAY**

December 3, 2015; Reissued July 12, 2016

**I. DESCRIPTION**

This work shall consist of furnishing and placing stabilized and paved shoulder overlay on existing stabilized and paved shoulder surfaces according to the Road and Bridge Standards and the Specifications. The purpose of this work is to provide a resurfaced shoulder with a slope and guardrail height that conforms to the Road and Bridge Standards, the Specifications and the requirements herein when work is completed.

**II. MATERIALS**

Materials for stabilized and paved shoulder overlay shall be according to the applicable requirements for the materials placed at the locations indicated in the Contract.

**III. PROCEDURES**

The Contractor shall furnish and place stabilized and paved shoulder overlay where specified. The material shall be spread, graded, and compacted according to the requirements for stabilized and paved shoulders in Section 305.03(e) of the Specifications or as indicated elsewhere in the Contract. When overlaying the existing stabilized shoulder, the material may be paced in a single lift.

At locations without guardrail or other guide device, the width of placement of stabilized and paved shoulder overlay shall be the same as the existing stabilized or paved shoulder.

At locations with guardrail or other guide device where the existing stabilized or paved shoulder does not extend to the guardrail or other guide device, the width of placement of stabilized and paved shoulder overlay shall be the same as the existing stabilized or paved shoulder.

At locations with guardrail or other guide device where the existing stabilized or paved shoulder extends to and behind the guardrail or other guide device, the width of placement of stabilized and paved shoulder overlay shall extend to the front edge of the guardrail.

The final compacted resurfaced stabilized and paved shoulder overlay slope shall be according to the requirements of the applicable standard shoulder design of Road and Bridge Standards and the Specifications. At locations where existing guardrail is not disturbed or where guardrail improvements or replacements are required, the finished guardrail height shall conform to the Road and Bridge Standards when work is completed.

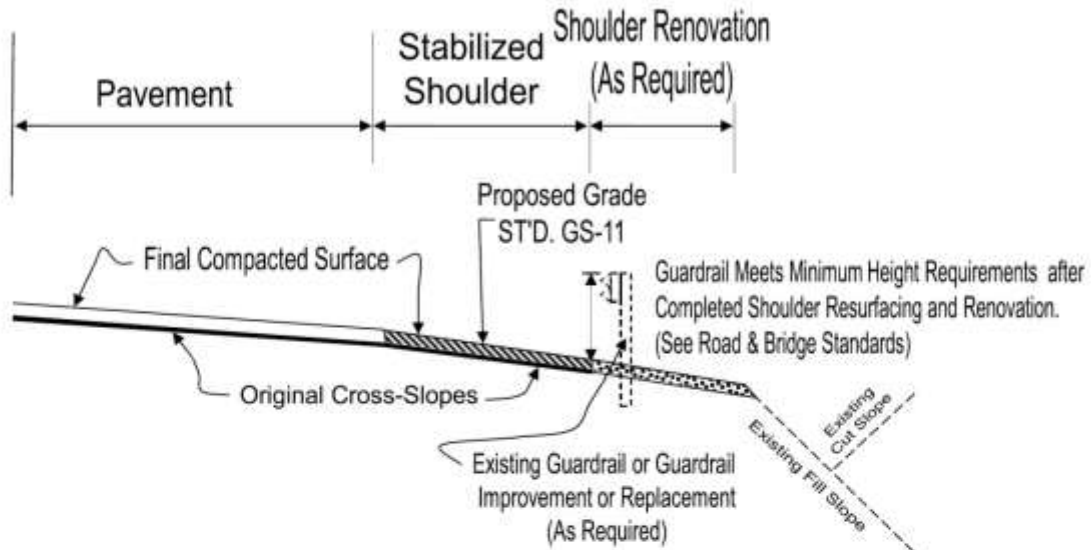
Shoulder renovation shall be as applied as required according to the Special Provision for **Shoulder Renovation**.

**IV. MEASUREMENT AND PAYMENT**

**Stabilized and paved shoulder overlay** will be measured and paid for according to the applicable items required for overlaying stabilized and paved shoulders.

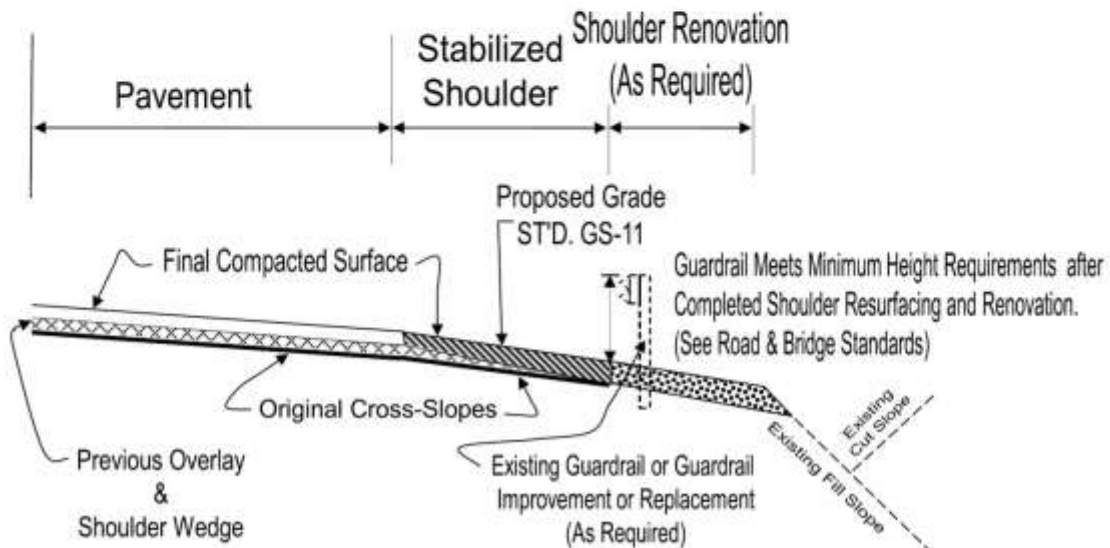
**Shoulder Renovation** will be measured and paid for according to the Special Provision for **Shoulder Renovation**.

# STABILIZED AND PAVED SHOULDER OVERLAY



Typical Section for First Overlay

Not to Scale



Typical Section for Previous Overlay

Not to Scale

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

[SP315-000320-01](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**PAVEMENT SHOULDER WEDGE**

September 16, 2019

**I. DESCRIPTION**

This work shall consist of installing a consolidated pavement shoulder wedge shape at locations designated in the Plans or as directed by the Engineer. A pavement shoulder wedge is formed by a pavement shoulder wedge device to produce a consolidated wedge shaped pavement edge.

**II. APPLICABILITY**

The Contractor shall install shoulder wedge on new construction, mill-and-resurface and overlay projects that mill or pave to the edge of pavement. The Contractor shall install shoulder wedge on roadway segments where all of the following conditions are met:

- Open ditch sections (no curb and gutter).
- Paved Shoulder Widths 4 feet wide or less.
- Speed limits greater than 35 mph.
- Specified final asphalt surface lift thickness at least 1.25 inches.

The Contractor shall install shoulder wedge on other roadway segments directed by the Engineer.

The Contractor shall stop installation of the shoulder wedge in specific locations where any of the following field conditions are present, and resume installation after passing these locations:

- Driveways, intersections, interchanges, or bridges.
- Ditch slope begins within one foot from the edge of pavement or less than one foot of unpaved shoulder exists, if wedge is placed on unpaved shoulder as shown in Figures 3 and 4.
- Guardrail exists and the face of guardrail is within 3 feet from the existing edge of pavement.

**III. EQUIPMENT**

The Contractor shall use a wedge forming and consolidating device to create a sloped edge profile onto the roadway shoulder. The device shall accommodate varying wedge thicknesses from 1-1/4 inches to 5 inches, compact the asphalt concrete, and provide a sloped wedge equal to  $30^{\circ} \pm 5^{\circ}$  measured from the pavement surface cross slope extended. The device shall be adjustable to accommodate transitions to cross roads, driveways and obstructions. The Contractor shall not use a conventional single plate strike off.

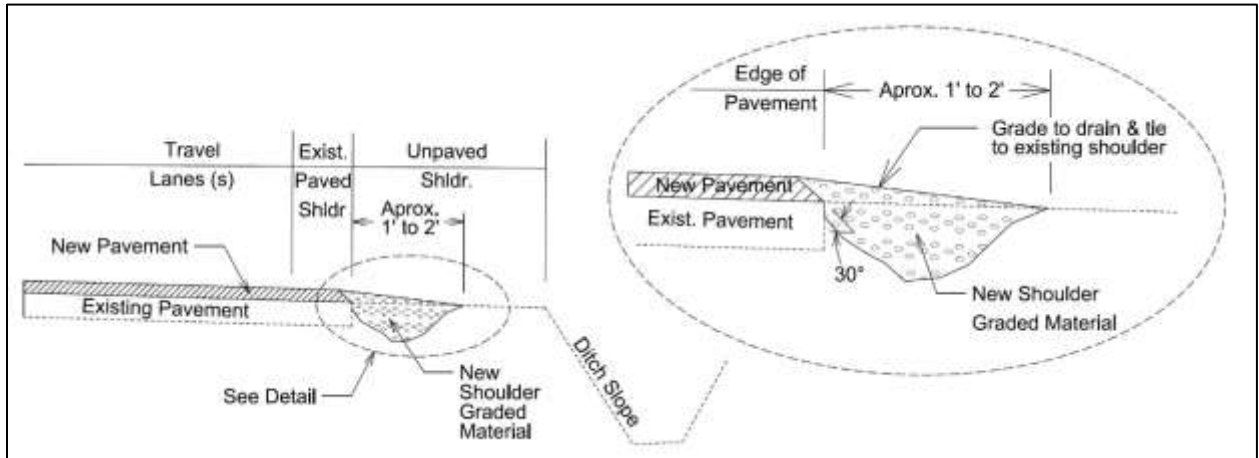
The Engineer may require a test section constructed at the beginning of work to demonstrate the edge shape, after the compaction of the pavement surface, to the satisfaction of the Engineer

**IV. PROCEDURES**

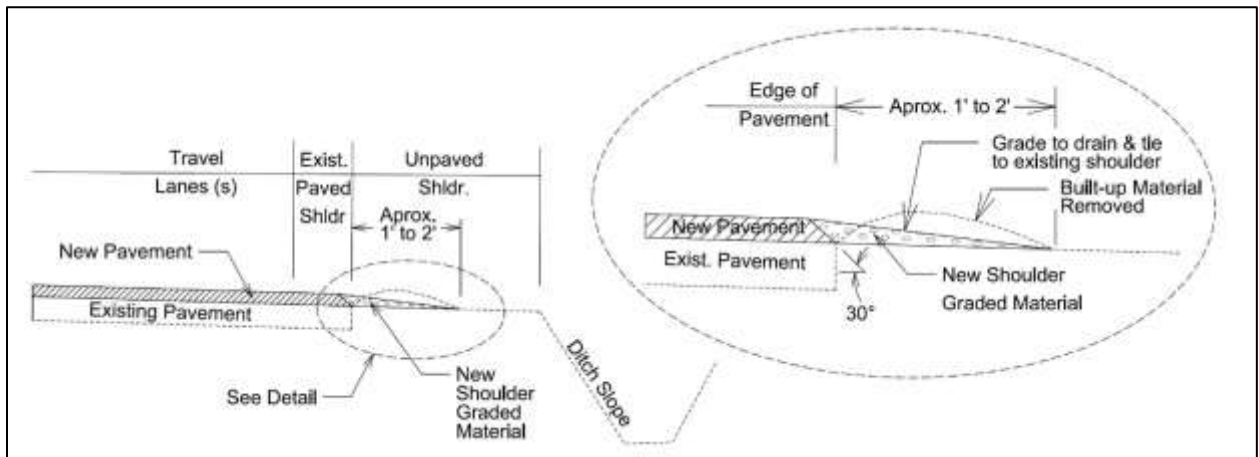
The Contractor shall prepare the unpaved shoulder to accept the pavement shoulder wedge by removing soil build up and vegetation that exists within one foot from the existing edge of pavement.

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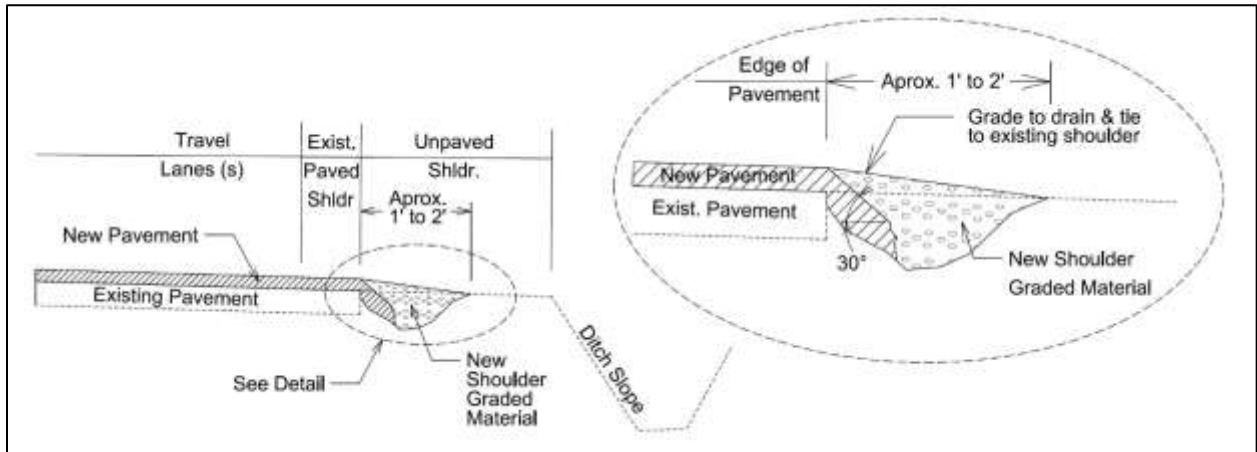
Pavement shoulder wedge shall be placed either on the existing pavement (Figures 1 and 2) or on the unpaved shoulder (Figures 3 and 4) as directed in the Plans or by the Engineer.



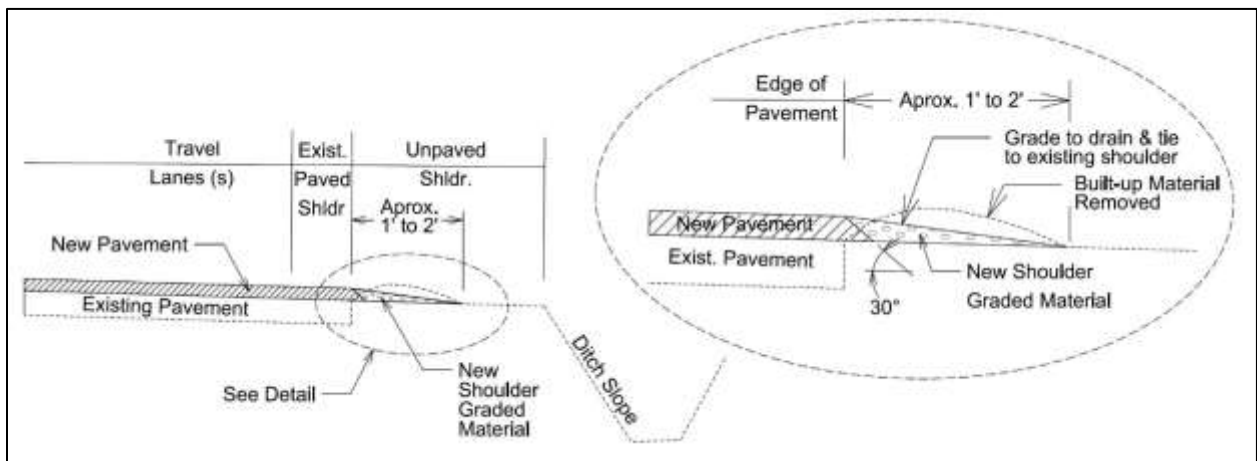
**Figure 1: Wedge over Existing Pavement – Low Shoulder**



**Figure 2: Wedge over Existing Pavement – High Shoulder**



**Figure 3: Wedge over Unpaved Shoulder – Low Shoulder**



**Figure 4: Wedge over Unpaved Shoulder – High Shoulder**

The Contractor shall attach the shoulder wedge device to the screed of the paver that confines the material at the end gate and extrudes the asphalt material in such a way that results in a compacted wedge shape pavement edge equal to  $30^{\circ} \pm 5^{\circ}$  measured from the pavement surface cross slope extended. Contact shall be maintained between the device and the road shoulder surface and allow for transitions to cross roads, driveways and obstructions. The Contractor shall use the device to consolidate the asphalt to increase the density of the extruded profile.

The Contractor may perform handwork such as transitions at driveways, intersections, interchanges, and bridges or other areas approved by the Engineer.

After paving is complete, shoulders, where specified, shall be constructed to smoothly tie the graded shoulder edge elevation to the adjoining elevation of the final pavement top surface edge or final paved or stabilized shoulder top surface edge. The shoulder shall also be graded to obtain a uniform shoulder slope to the shoulder break that conforms to the Standard Drawings.

The Contractor shall furnish and place aggregate base material where specified. The material shall be spread, graded, and compacted in accordance with Section 305.03(e) of the Specifications, except for the shaping of the subgrade which will not be required.

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The Contractor shall follow the SWPPP and ESC Plan in the Contract.

**V. MEASUREMENT AND PAYMENT**

**Pavement shoulder wedge**, except for shoulder preparation, will not be measured for separate payment but shall be included in the cost for Asphalt Concrete.

**Pavement shoulder wedge prep** will be measured in linear feet along the adjacent edge of pavement and will be paid for at the contract unit price per linear foot. This price shall include grading the existing unpaved shoulder to accommodate the pavement shoulder wedge using mechanized equipment or manual methods. This price shall also include the removal and disposal of surplus, tracked, and spilled material resulting from the Contractor's operations

**Aggregate base material** used to repair and fill low shoulders will be measured and paid for in accordance with Section 305 of the Specifications.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Pavement shoulder wedge prep	Linear Foot



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SP512-000120-04

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 512—MAINTAINING TRAFFIC FOR RESURFACING PROGRAM**

June 12, 2023

**SECTION 512—MAINTAINING TRAFFIC** of the Specifications is amended as follows:

**Section 512.03(a) Temporary Signs** is amended to delete the 9<sup>th</sup> paragraph.

**Section 512.03(b) Flagger Service** is amended to include the following:

The Contractor shall have no less than one flagger each at the beginning and ending of each work site. The Contractor shall also have flaggers at all roadway intersections within the work site, as required by the VWAPM. When the Engineer determines additional flaggers are necessary at the work site, the Contractor shall furnish them. On a divided highway the Engineer will instruct the Contractor where flaggers shall be stationed.

Radio communications shall be used between flaggers unless all flaggers have clear, unobstructed line of sight with each other at all times.

**Section 512.03(d) Pilot Vehicles** is amended to include the following:

Pilot vehicles shall be used on all roads where modified seal treatments, seal treatments using latex modified emulsified asphalt (CRS-2L) and other seal treatments on roads having more than 49 ADT are being placed, unless otherwise directed by the Engineer.

Radio communication shall be used between all pilot vehicles and flaggers.

**Section 512.03(q) Type 3 Barricades** is amended to add the following:

When closing sidewalks with Type 3 barricades, the barricades shall be wide enough to cover the width of the sidewalk.

**Section 512.03(s) Portable Changeable Message Sign (PCMS)** is amended to replace the fifth paragraph with the following:

During emergency situations the Contractor shall make every effort to deploy units it has assigned to the project. However, if the number of units shown on the plans are already in operation and cannot be reassigned to handle the emergency situation, the Contractor shall immediately contact the Engineer. The Engineer will then make a determination as to the most expeditious manner in which to deploy units for emergency use, whether by using Department supplied units, directing the Contractor to reassign those units he has committed to the project, or having the Contractor supply additional units as needed. In these circumstances, the cost for such additional units that are authorized by the Engineer shall be paid for according to Section 512.04 of this Special Provision.

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**Section 512.03(y) Temporary pedestrian accommodations** is inserted as follows:

**Temporary pedestrian accommodations:** The Contractor shall close all pedestrian pathways that cross a milled or performance-planed surface in accordance with the VWAPM. The Contractor shall establish pedestrian detours where determined practical by the Engineer. Pedestrian pathways shall be re-opened when that segment of highway is opened to vehicles.

**Section 512.04 Measurement and Payment** is replaced with the following:

**Maintenance of Traffic** will be paid for at the lump sum price per schedule as designated in the Contract. Such traffic control shall include furnishing, erecting, installing or employing, and maintaining traffic control devices.

Payment for traffic control will be made incrementally as a percentage on the lump sum price based on the percentage of tonnage or square yards (as with slurry seal, latex emulsion, and surface treatment contracts) and placed on the schedule for the payment period covered by the appropriate progress estimate.

Additional traffic control layout detail items that are determined and authorized by the Engineer to be necessary to ensure the safety of the traveling public and are in addition to the number required by the traffic control layout details in the VWAPM and the Contract, will be measured and paid for as follows; therefore, the provisions of Section 104.02 of the Specifications will not apply:

- **Pilot vehicles** shall include vehicles, drivers, necessary warning devices, fuel and maintenance. Where additional pilot vehicles are required as determined and authorized by the Engineer, such vehicles will be measured in hours of actual use and will be paid for at the rate of **\$30** per hour of employed use.
- **Electronic arrows** shall include arrow boards, fuel, maintenance, and a truck or trailer having flashing vehicle warning lights. Where additional electronic arrows beyond those required by the VWAPM are determined to be necessary and authorized by the Engineer, electronic arrows will be measured in hours of actual use and will be paid for at the rate of **\$5** per hour for each hour of employed use.
- **Warning lights** for use on sign panels or installed on traffic barrier service will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items. This shall include maintaining, relocating, and removing warning lights as needed.
- **Group 1 channelizing devices** will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items.
- **Group 2 channelizing devices** shall include furnishing and maintaining devices, removing devices when no longer required, and signs. Where additional Group 2 channelizing devices beyond those required by the VWAPM are determined to be necessary and authorized by the Engineer, those Group 2 channelizing devices will be measured in days and paid for at the rate of **\$1** per day per device. . When group 2 channelizing devices are moved to a new location or are removed and re-installed at the same location, the relocated devices will be measured for separate payment. However, when Group 2 channelizing devices are moved laterally within the lane or from one lane to another or from a shoulder into a lane by simply moving the devices across the lane edge line without removal from the roadway, no additional payment will be made.

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- **Traffic barrier service** will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items. This shall include warning lights, delineators, barrier vertical panels, fixed object attachments, patching restraint holes, fixed object attachments used on traffic barrier service in locations where existing guardrail is in place including restoring existing guardrail to its original condition, maintaining, and removing traffic barrier service when no longer required.
- **Traffic barrier service guardrail terminal** will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items. This shall include furnishing, installing, moving to a new location as directed or approved by the Engineer, and removing when no longer needed.
- **Impact attenuator service** will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items. This shall include Impact attenuators used with barrier openings for equipment access.
- **Aggregate material** will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items. This shall include preparing the grade and furnishing, placing, maintaining, and removing material as required.
- **Type 3 barricades** will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items. This shall include barricades with retroreflective sheeting, sandbags, maintaining, relocating to new locations, and removing the type 3 barricades when no longer required.
- **Pedestrian barricade devices** will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items. This shall include maintaining, sand bag ballast, relocating to new locations, and removing when no longer required.
- **Temporary (construction) signs** shall include furnishing, installing, maintaining, covering, uncovering, relocating, and removing the following: temporary signs, temporary sign panels, sign panel bracing, sign supports, hardware, delineators, and flags.

When additional temporary signs beyond those required by the VWAPM are determined to be necessary and authorized by the Engineer, the additional signs will be paid for at **\$20** per square foot..

- **Truck mounted attenuators** shall include the truck mounted attenuator, mounting vehicle, warning lights, vehicle-mounted signs, electronic arrow boards used in lieu of vehicle warning lights,, and maintenance. Electronic arrow boards required on truck-mounted attenuator support vehicles in moving or mobile operations will be measured and paid for separately.

When truck-mounted attenuators beyond those required by the Contract are determined to be necessary and authorized by the Engineer, these will be measured in hours of actual use required, and will be paid for at the rate of **\$22** per employed hour. When electronic arrows are required and authorized as determined by the Engineer and not incidentally mounted (and permitted) on such truck mounted attenuator support vehicles, they will be paid for separately as specified herein.

- **Portable Changeable Message Signs (PCMS)**, not designated in the Contract as a separate pay item but where additional Portable Changeable Message Signs are required as determined and authorized by the Engineer, these will be measured in hours of actual use and paid for at the rate of **\$15** per hour for each hour of employed use. This price shall include mobilizing the units to the project, maintenance, operation, and repositioning the units.

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**Flagger Service** will be measured in hours of operations, per flagger, as required by Section 512.03(b) and authorized or approved by the Engineer, and will be paid for at the Contract hour price. This price shall include paddles, safety equipment, and required communication gear.

**Automatic Flagger Assistance Devices (AFADs)** may be used instead of Flagger Service when approved by the Engineer, at no additional cost to the Department. This price shall include furnishing or mobilizing the AFAD to the project, services of the trained AFAD operators, channelizing devices, safety equipment, fuel, necessary warning devices, maintenance, and removal. Separate payment for the certified flagger operating the AFAD will not be made.

**Portable Temporary Rumble Strip (PTRS) Array** will not be measured for separate payment. The cost thereof – including installing, maintaining, removing devices when no longer required, and relocating throughout the day - shall be included in the price for the LS Maintenance Of Traffic pay item. An Array shall consist of three rumble strips.

**Eradication of existing pavement markings** will be measured in linear feet of a 6-inch width or portion thereof as specified herein. Widths that exceed a 6-inch increment by more than 1/2 inch will be measured as the next 6-inch increment. Measurement and payment for eradication of existing pavement markings specified herein shall be limited to linear pavement line markings. Eradication of existing pavement markings will be paid for at the contract unit price per linear foot. This price shall include removing linear pavement line markings, cleanup, and disposing of residue.

**Eradication of existing nonlinear pavement markings** will be measured in square feet based on a theoretical box defined by the outermost limits of the nonlinear pavement marking as defined in Standard PM-10 of the *VDOT Road and Bridge Standards*. Nonlinear pavement markings shall include but not be limited to stop lines, arrows, images, symbols, and messages. Eradication of existing nonlinear pavement markings will be paid for at the contract unit price per square foot. This price shall include removing nonlinear pavement markings, cleanup, and disposing of residue.

**Basic Work Zone Traffic Control** – Separate payment will not be made for providing a person to meet the requirements of Section 105.14 of the Specifications. The cost thereof shall be included in the price of other appropriate pay items.

**Intermediate Work Zone Traffic Control** - Separate payment will not be made for providing a person to meet the requirements of Section 105.14 of the Specifications. The cost thereof shall be included in the price of other appropriate pay items.

**Temporary (construction) pavement markings**, including FTPMs used in substitution of temporary pavement markings, will be measured and paid for in accordance with the Special Provision for Pavement Markings and Markers for Resurfacing Program.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Flagger Service	Hours
Maintenance of Traffic (Schedule)	Lump Sum
Eradication of existing pavement marking	Linear foot
Eradication of existing nonlinear pavement marking	Square foot

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**SP515-000100-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**COLD PLANING (MILLING) ASPHALT CONCRETE OPERATIONS**

July 12, 2016

**I. DESCRIPTION**

This provision shall govern cold planing (milling) asphalt concrete operations in preparation for pavement repair and/or pavement overlay. Cold planing of asphalt concrete pavement shall be performed according to Section 515 of the Specifications and the requirements herein.

**II. GENERAL PROCEDURES**

The Contractor is permitted to perform either regular pavement planing or performance pavement planing to the Contract specified depth or as directed by the Engineer in order to provide a uniform sound substrate prior to paving roadways designated in the schedules according to Section 315 of the Specifications, the requirements herein, or elsewhere in the Contract.

**A. Regular and Performance Planing**

The following general conditions apply to either type of cold pavement planing:

Limitations of operations for planing shall be performed according to Section 108.02 of the Specifications, other Contract specific requirements, and as specified herein.

Where the depth of planing designated in the Contract or directed by the Engineer is 2 inches or less, the Contractor shall have the option of planing the abutting lane or shoulder on alternate days or squaring up the planing operation at the end of each work shift. However, abutting lanes or shoulders shall be planed and squared up regardless of planing depth prior to holidays or any temporary shutdowns.

Where the depth of planing designated in the Contract or directed by the Engineer is greater than 2 inches in the Contract, the Contractor shall square up the planing operation at the end of each workday or plane adjacent lanes including abutting shoulders within the same day for the length of that day's planing operation.

The Contractor will not be permitted to plane a portion of the width of a travel lane, ramp, loop or shoulder and leave it unpaved and open to traffic. Abutting shoulders may also be planed during single and multiple lane planing operations. Planing operations shall be planned and performed to maintain positive drainage according to Section 315.05(c) of the Specifications.

In the event an emergency or an unforeseen circumstance such as equipment failure or breakdown occurs during the Contractor's operations and such emergency or unforeseen circumstance within his control prevents the Contractor from squaring up the planed surface on adjacent lanes prior to a holiday or temporary shutdown, any additional signage, traffic control devices or temporary markings or markers required to protect the traveling public shall be the Contractor's responsibility and at his expense.

Where uneven pavement joints exist either transversely or longitudinally at the edges of travel lanes, the Contractor shall provide advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract for the scope of operation he is performing. The cost for such advance warning signage and traffic control devices shall be included in the cost of other appropriate items

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Where appropriate according to Contract requirements and site specific conditions, the existing asphalt concrete layers shall be planed to permit the transition of the top course of the asphalt concrete overlay according to the details of the ACOT-1 Standard. Any sub-courses termination may be notched into the existing pavement or blended with the next course of pavement.

**B. Performance Planing Only Limitations:**

When the Contractor elects to performance plane on roadways specified to be planed to a depth of 2 inches or less, the Contractor shall performance plane only that amount of pavement which can be paved back within the time allowance specified herein for completion of planing the roadway or portion of roadway. The Contractor is required to perform pavement surface testing as specified in Section 515.04 of the Specifications to verify the Contractor has achieved the acceptable surface texture specified in that Section prior to opening the performance planed surface to traffic. Additional traffic control devices and signage required for the extended pave back time allowance specified herein for performance planing operations versus the traffic control devices required for the pave back operations for regular pavement planing operations specified herein shall be at the Contractor's expense.

**III. ROADWAY CLASSIFICATION LIMITATIONS**

The following restrictions, based on the type of roadway, shall apply:

**A. All Interstates and other Limited Access Roadways including Ramps and Loops posted at 55 Mph or Greater**

**1. Regular planing and performance planing in multiple lanes**

The Contractor shall plan, execute and maintain pavement planing operations to avoid trapping water on the roadway. On roadways with a combination of 3 or 4 lanes and shoulders (i.e. 2 travel lanes and 1 or 2 shoulders in one direction) where the travel lanes and shoulders will not be completely planed to drain prior to the start of paving operations, planing shall be performed so that water will not pond on the travel surface. When the Contract does not include the removal of the shoulder at the specific roadway planing location, the Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates (excluding curb and gutter sections) for those portions of the planed roadway that are to be opened to traffic. The Contractor shall restore the shoulders to their original grades once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring roadway shoulders shall be included in the price bid for other items of work.

On roadways with a combination of 5 or more lanes and shoulders (i.e. 3 or more travel lanes and 2 shoulders in one direction), the extent to which the interior lanes shall be planed will be such that the planed portions can be repaved within the work-zone time limits unless provisions are made to mitigate the ponding of water (i.e., milling adjacent lane(s) and shoulders or cutting drainage outlets through the shoulder).

Ramps and exits shall be planed in such a manner that an even longitudinal joint (elevation difference of greater than 1 inch) is not left for vehicles to cross within the posted speed limits in a "run on" situation. To prevent this, the Contractor can plane ramps and exits to the extent that the joint line between new and existing pavement crossed by traffic is traversed at an angle close to ninety (90) degrees per the ACOT-1 Standard for temporary transverse joints or can perform tapered planing along the ramp/exit longitudinal joint to provide a smooth transition for vehicles to cross, or can square up ramp or exit pavement with the adjacent mainline lane at the time of installation.

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The following additional restrictions will apply to roadways where **regular pavement planing** is applicable:

- The Contractor will be limited in the case of regular pavement planing, whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 24 hours of completion of planing that roadway or portion of roadway.
- The Contractor shall pave all roadways, ramps and loops planed during the week before that weekend.
- On roadways with a combination of 4 or more lanes and shoulders (i.e. 2 or more travel lanes and 2 shoulders) in one direction, all travel lanes must be paved back before the weekend. Up to two thousand five hundred (2,500) feet of shoulder may be planed and left over the weekend provided the portion of planed shoulder left unpaved over the weekend is paved within 24 hours after the end of the weekend period.

The following additional restrictions will apply to roadways where **performance pavement planing** is planned by the Contractor:

- Performance planing may be performed in multiple lanes across the entire widths of the lanes up 4 miles of travel lane unless otherwise stated in the Contract. Performance planed travel lanes surfaces must be paved back within 96 hours from the end of the performance planing operation
- Where the Contractor decides to performance plane multiple lanes, the Contractor shall be responsible for furnishing and installing advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract. Temporary pavement markings and markers used for lane demarcation on performance planed surfaces will be according to Section 704.04 of the Specifications and the *Special Provision for SECTION 704—PAVEMENT MARKINGS AND MARKERS* included in the Contract. The cost for such warning devices and advance signage required by multiple lane planing operations shall be included in the cost of other appropriate items unless otherwise specified in the Contract by a specific pay item(s) for separate payment.

**B. Non-Limited Access Roadways with an ADT of 10,000 or Greater (Traffic Group XV and above) and a Posted Speed Limit of 45 Mph or Greater**

**1. Regular planing and performance planing in multiple lanes**

The Contractor shall plan and proceed with the pavement planing operation to avoid trapping water on the roadway. On roadways with a combination of 3 or 4 lanes and shoulders (i.e. 2 travel lanes and 1 or 2 shoulders) in one direction where the travel lanes and shoulders will not be completely planed prior to the start of paving operations, planing operations shall be performed so water will not pond on the travel surface. When the Contract does not include the removal of the shoulder, the Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates, excluding curb and gutter sections, for those portions of the planed roadway that are to be opened to traffic. The Contractor shall restore the shoulders to their original grades once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring the roadway shoulder shall be included in the price bid for other items of work.

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On roadways with a combination of 5 or more lanes and shoulders (i.e. 3 or more travel lanes and 2 shoulders in one direction), the extent of pavement planing on the interior lanes shall be such that the planed surface can be repaved within the timeframe of the work-zone time limits unless provisions are made to mitigate the ponding of water (i.e. planing adjacent lane(s) to mitigate the ponding of water).

The following additional restrictions will apply to roadways where **performance pavement planing** is planned by the Contractor:

- Performance planing may be performed in multiple lanes across the entire widths of the lanes up a total of 4 miles of travel lane unless otherwise stated in the Contract.
- Performance planed travel lane surfaces must be paved back within 10 days from the start of the performance planing operation.
- Where the Contractor decides to performance plane multiple lanes, the Contractor shall be responsible for furnishing and installing advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract. The cost for such warning devices and advance signage required by multiple lane planing operations shall be included in the cost of other appropriate items unless otherwise specified in the Contract by a specific pay item(s) for separate payment. Temporary pavement markings required by such operations will be handled according to Section 704.04 and the *Special Provision for SECTION 704—PAVEMENT MARKINGS AND MARKERS* included in the Contract.

The following additional restrictions will apply to roadways where **regular pavement planing** is applicable:

- The Contractor will be limited whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 24 hours of completion of planing that roadway or portion of roadway.
- The Contractor shall pave all roadways that have been regular planed during the week before that weekend.
- On roadways with a combination of 4 or more lanes and shoulders (i.e. 2 or more travel lanes and 2 shoulders in one direction), all travel lanes must be paved back before the weekend. Up to two thousand five hundred (2,500) feet of shoulder may be planed and left over the weekend provided the portion of planed shoulder left unpaved over the weekend is paved within 24 hours after the end of the weekend period.

**C. All Other Roadways**

**1. Regular Pavement Planing (single or multiple lanes)**

If the Contractor elects to perform regular pavement planing the Contractor will be permitted to leave up to two miles of travel lane open to the traveling public provided such planing (milling) is performed across the entire lane width. This same total length restriction will apply in cases where multiple-lane regular pavement planing is permitted in the Contract or allowed by the Engineer. The Contractor will be limited in the case of regular pavement planing, whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 96 hours of completion of planing that roadway or portion of roadway.



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**2. Performance Pavement Planing**

When the Contractor elects to performance plane roadways specified to be planed to a depth of 2 inches or less, the Contractor shall plane only the amount of pavement that can be paved back within 14 calendar days of completion of planing that roadway or portion of roadway. The Contractor is required to perform pavement surface testing as specified in Section 515.04 of the Specifications to verify the Contractor has achieved the acceptable surface texture prior to opening the performance planed surface to traffic. The additional traffic control devices and signage required for the 14 calendar day pave back operation allowance for performance planing operations shall be at the Contractor's expense.

Temporary pavement markings required by such operations will be handled according to Section 704.04 and the *Special Provision for **SECTION 704—PAVEMENT MARKINGS AND MARKERS*** included in the Contract.

Roadways on which the roadway edges (i.e. edge milling) are to be planed shall be paved back within 10 days from the completion of the planing operation.

**IV. MEASUREMENT AND PAYMENT**

Measurement and payment will be according to Section 515.05 of the Specifications.

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**SP704-000100-06**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 704—PAVEMENT MARKINGS AND MARKERS FOR RESURFACING PROGRAM**

June 12, 2023

**SECTION 704 – PAVEMENT MARKINGS AND MARKERS** of the Specifications is replaced with the following:

**704.01 – Description**

This work shall consist of establishing the location of retroreflective pavement markings and installing pavement markings and pavement markers in accordance with the *MUTCD*, the Contract, and as directed by the Engineer.

**704.02 – Materials**

- (a) **Pavement Markings** shall conform to Section 246.
- (b) **Glass Beads** and retroreflective optics materials shall conform to Section 234.
- (c) **Pavement Markers** shall conform to Section 235.
- (d) **Contrast Pavement Markings** shall conform to Section 246.

For Type B, Class VI pavement marking materials that are to be applied to latex emulsion or slurry seal surfaces, the selected Type B, Class VI manufacturer shall be a manufacturer that approves and warrants their product for application on that type of surface.

The Contractor shall use a Department approved inventory tracking system for all materials received from the manufacturer. Shipment of materials from such inventory shall be accompanied by a signed Form C-85 containing the following certification statement:

*Material shipped under this certification has been tested and approved by VDOT as indicated by laboratory test numbers (MS#) listed hereon.*

**Section 704.03 – Procedures**

Once received by the Contractor, the Contractor shall store all materials in accordance with the manufacturer's instructions until the day of installation, unless the Engineer otherwise authorizes. Pavement marking material shall not be installed if the material has exceeded its shelf life, has been improperly stored, has deteriorated or is otherwise damaged.

Pavement markings and markers shall be installed as per the manufacturer's installation instructions. The Contractor shall furnish a copy of those installation instructions to the Engineer prior to installation.

The Contractor shall have a certified Pavement Marking Technician present during all temporary pavement marking, permanent pavement marking, and pavement marker operations, except Flexible Temporary Pavement Marker (FTPM) installation.

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The Contractor may mark the locations of proposed permanent markings on the roadway by installing premarking materials. Premarkings may be accomplished by installing removable tape, chalk, or lumber crayons, except pavement markings such as stop lines, crosswalks, messages, hatching, etc., shall be premarked using chalk or lumber crayons. Premarkings for yellow markings may be white or yellow. Premarkings for other colors shall be white.

When tape is used as a premarking material, premarking shall consist of 4- inch by 4-inch-maximum squares or 4-inch-maximum diameter circles spaced at 100-foot minimum intervals in tangent sections and 50-foot minimum intervals in curved sections. At locations where the pavement marking will switch colors (e.g., gore marking) the ends of the markings may be premarked regardless of the spacing.

When the Contractor uses chalk or lumber crayon as a premarking, the entire length of the proposed pavement marking may be premarked.

Premarkings shall be installed so their installation will not affect the adhesion of the permanent pavement markings. When removable tape is used as the premarking material and the lateral location of such premarkings to location of the final pavement markings exceeds 6 inches, the tape shall be removed at no additional cost to the Department.

The Contractor shall provide staking in the field that documents any changes in passing zones on undivided roads and placement of railroad crossing markings. Any changes to these markings that are specified in the Contract shall be staked. The Contractor shall complete all staking and notify the Engineer at least 14 days before the scheduled start of resurfacing operations.

The Contractor shall reference this staking when installing temporary markings, and for the premarking to be done in advance of permanent marking installation. The stakes shall be removed at the conclusion of the project.

All existing markings shall be replaced with permanent markings of the same width, color, size, and location unless otherwise directed in the PM Series Standard Drawings, in the Contract, or by the Engineer. All replacement markers shall have the same retroreflector colors (front and back) as existing markers unless otherwise directed in the Contract or by the Engineer.

The Contractor shall sweep clear all surface-treated, slurry seal, and latex emulsion roadways before installation of permanent pavement markings. Any loose aggregate remaining on the surface shall be blown-out with an air compressor or other approved method.

The Contractor shall exercise caution and protect the public from damage while performing pavement marking operations. The Contractor shall be responsible for the complete preparation of the pavement surface, including, but not limited to, removing dust, dirt, loose particles, oily residues, curing compounds, concrete laitance, residues from eradication, and other foreign matter immediately before installing pavement markings. The pavement surface shall be clean and dry at the time of pavement marking installation and shall be tested in accordance with VTM 94 before permanent installation, with the VTM 94 test results noted on Form C-85. The Contractor shall provide the equipment indicated in VTM 94 that are needed to perform the moisture test before application.

If the Contractor cannot have permanent pavement markings installed within the time limits specified, the Contractor shall install and maintain temporary pavement markings within the same time limits at no additional cost to the Department until the permanent pavement markings can be installed. Installation, maintenance, and removal or eradication of temporary pavement markings shall be according to Section 512.

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Liquid markings shall be applied so as to prevent splattering and overspray and shall be protected from traffic until track free by the use of traffic control guarding or warning devices as necessary. If a vehicle crosses a pavement marking and tracks it or if splattering or overspray occurs, the affected marking and resultant tracking, overspray, or splattering shall be completely removed and new markings applied at the Contractor's expense.

Truck-mounted equipment for application of liquid long line Type B markings shall be capable of hot applying liquid and/or plastic markings and broadcasting glass beads uniformly over the entire surface of the marking. Truck mounted equipment tanks shall be equipped with a mechanical agitator to keep the pavement marking materials thoroughly mixed at all times. Materials shall be blended, heated, and applied in accordance with the manufacturer's installation instructions. Markings shall be applied in widths of 4 through 8 inches in accordance with the the Plans and Specifications. Equipment shall be capable of applying two pavement lines, either solid or skip, at the same time when double line markings are required.

Non-truck mounted equipment shall be regulated to allow for calibration of the amount and type of material applied.

The Contractor shall be responsible for ensuring that equipment is thoroughly cleaned between changes in colors or types of materials.

Markings shall not be installed directly over longitudinal pavement joints, except to cross the joint perpendicularly or at an angle.

Pavement markings shall have clean and well-defined edges without running, bleeding or deformation. Markings shall be uniform in appearance, free of waviness (waviness is defined as the edge of the marking shall not vary from a straight line more than 1/4 inch in three feet or more than one inch in fifty feet for a maximum distance of 500 feet); shall be straight on tangent alignment; and shall be on a true arc on curved alignment.

The widths of pavement markings shall not deviate more than 1/4 inch on tangent nor more than 1/2 inch on curves from the required width. The length of the gap and the length of the individual stripes that form skip lines shall not deviate more than two inches from their required lengths. The length of the gap and individual skip line shall be of such uniformity throughout the entire length of each that a normal striping machine shall be able to repeat the pattern and superimpose additional striping upon the existing marking.

Glass beads and retroreflective optics shall be applied at the rate specified herein or as specified in the Department's Approved List for the specific pavement marking product. Beads and optics shall be evenly distributed over the entire lateral and longitudinal surface of the marking. The Contractor shall apply beads to the surface of liquid markings with a bead dispenser attached to the applicator that shall uniformly dispense beads simultaneously on and into the just-applied marking. The bead dispenser shall be equipped with a cut-off control synchronized with the applied marking material cut off control so that the beads are applied totally on the marking. Beads shall be applied while the liquid marking is still fluid, resulting in approximately 60% embedment in the marking's surface. Beads installed on crosswalks and stop lines on roadways with curbs only (no gutter) may be hand applied for two feet at the end of each line next to the curb with 100 percent of the beads embedded 50% to 60% into the marking's surface.

The Engineer will make a visual evaluation of the pavement marking material to assess the condition, retroreflectivity, and color after its installation and again prior to final acceptance. The Department, the Contractor, and the marking manufacturer's representative will make a further inspection if problem areas are suspected to identify specific areas of concern. If required by the Engineer, the suspect areas shall be tested by the Contractor in the presence of the Engineer in accordance with VTM-125 to define the evaluation sections and the number of measurements needed. Acceptable test results shall meet the retroreflectivity and color requirements specified in Section 246. Markings that do not meet the requirements for retroreflectivity and day and nighttime color specified in Section 246 shall be eradicated and replaced by the Contractor at no cost to the Department.

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Pavement markings that exhibit signs of significant tearing, deformation, shrinkage, roll back, lifting, or other signs of poor adhesion shall also be replaced by the Contractor at no cost to the Department.

All costs associated with testing the marking material for retroreflectivity, color, and adhesion shall be borne by the Contractor. The Contractor will be paid for maintenance of traffic during this testing at the contract unit price for the maintenance of traffic items used.

Pavement marking manufacturer's material guarantees shall be obtained by the Contractor and assigned to the Department in writing prior to final acceptance.

- (a) **Pavement Line Markings:** Pavement markings shall be white or yellow markings (unless another color is specified in the Contract) as required by the *MUTCD* and plans for the specific location or as specified by the Engineer. Line markings shall be installed in accordance with Table VII-3 unless otherwise recommended by the manufacturer and approved by the Engineer. The Contractor shall furnish a copy of the manufacturer's installation instructions for the specific marking to the Engineer prior to installation.

The Contractor shall perform quality control testing for application thickness and glass bead rate in accordance with VTM-94 at the beginning of each workday and every 3 hours thereafter. The Contractor shall provide the apparatuses needed to perform the quality control testing in accordance with VTM-94. Compliance testing using VTM-94 shall be performed in the presence of the Engineer and shall be documented on the Pavement Marking, Contractor's Daily Log and Quality Control Report, Form C-85, immediately after testing is completed. If requested by the Engineer, the Contractor shall provide a quality control (QC) test plate and the provision of the test plate shall be documented on the Form C-85. The Contractor shall also provide a printed or electronic copy of the signed Form C-85 to the Materials Division Quality Assurance Technician for materials notebook evaluation.

The Contractor shall maintain a daily log, Form C-85, for both temporary and permanent pavement markings and markers. The C-85 form shall not be modified. All log entries shall be in electronic or legible ink format. The log shall be signed by the Contractor and delivered to the Engineer by the end of each workday. If the C-85 is in electronic format, it shall be kept current with VTM-94 testing throughout the day, and a copy signed by the Contractor (either an electronically signed copy using a secure digital signature, or a printed copy with ink signature) shall be delivered to the Engineer at the end of each workday.

Pavement line markings shall consist of solid and skip lines, including but not limited to, lane division lines, edgelines, channelizing, outlining and marking safety zones around objects, and forming islands and parking lot stalls.

1. **Type A markings** shall be applied in accordance with the manufacturer's installation instructions. When applying atop existing pavement markings, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Glass beads for Type A, Class I markings shall be AASHTO M 247 Type 1 Beads applied at a minimum rate of 6 pounds per gallon of paint.

Retroreflective optics for Type A, Class II markings shall be applied as noted in the Department's Approved List 20 for the selected pavement marking product.

The Contractor may substitute Type A, Class I cold weather paint (traffic paint designed for application at temperatures below 40 °F) for Type A, Class I conventional paint at no additional cost to the Department. Cold weather paint shall be from the Department's Approved List 20.

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2. **Type B markings** shall be applied in accordance with the manufacturers' installation instructions.

The Contractor shall furnish a properly calibrated infrared instrument to measure the actual temperature of molten thermoplastic material. Multi-component material shall be applied using internally injected guns for the proper mixing of components.

Non-truck mounted equipment for application of thermoplastic material shall include an extrude die with a burner, temperature controller, agitator, and mechanical bead applicator to allow for the correct amount of material to be applied.

- a. **Thermoplastic (Class I)** material shall be applied by screed extrusion, ribbon gun, or spray equipment in accordance with the manufacturer's installation instructions. A primer/adhesive manufactured or recommended by the thermoplastic marking manufacturer shall be applied to hydraulic cement concrete surfaces and to asphalt concrete surfaces in accordance with the manufacturer's installation instructions.

Alkyd thermoplastic may be applied directly after the paving operations if the paved surface can support the equipment. Hydrocarbon thermoplastic shall not be applied to asphalt surfaces less than 30 days after paving operations are complete, hydrocarbon thermoplastic may be applied to hydraulic cement concrete surfaces as soon as permitted by the manufacturer's instructions.

Alkyd and hydrocarbon materials shall not be mixed together.

Thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent worn away or eradicated. When applying thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Thermoplastic marking material shall be applied at thickness of 90 mils ( $\pm 5$  mils) above the riding surface, whether dense or open graded surface.

Glass beads and retroreflective optics shall be surface applied at the rate of 10 pounds per 100 square feet unless specified otherwise on the Materials Division's Approved Products List 43 for the specific thermoplastic product.

- b. **Preformed thermoplastic (Class II)** material shall be installed in accordance with the manufacturer's installation instructions. A primer or sealer manufactured by or recommended by the preformed thermoplastic manufacturer shall be applied to all hydraulic cement concrete surfaces and to asphalt concrete surfaces in accordance with the manufacturer's installation instructions.

Preformed thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent worn away or eradicated. When applying preformed thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Permanent transverse rumble strips shall be applied using two strips of white Type B, Class II material. The bottom strip shall be 250 mils thick and 4 inches wide, and the top strip shall be 125 mils thick and 2 inches wide (centered atop the bottom strip), unless noted otherwise in the plans. Transverse rumble strips shall be installed in arrays as per the Standard Drawings and the plans.

Preformed thermoplastic shall be 125 mils thick ( $\pm 5$  mils) unless otherwise approved by the Engineer.

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Additional glass beads and retroreflective optics shall be evenly applied at a rate of 7 pounds per 100 square feet (unless another rate is specified in the Materials Division's Approved Products List 73 for the selected pavement marking product) to flood the entire surface immediately after installation while the material is molten.

- c. **Epoxy resin (Class III)** material shall be applied in accordance with the manufacturer's installation instructions and shall not be applied over existing pavement markings unless the existing marking is 90 percent worn away or eradicated. Epoxy marking material shall be applied at a wet film thickness of 20 mils ( $\pm 1$  mil).

Glass beads and retroreflective optics shall be applied to the surface of the marking at the rate of 25 pounds per gallon of material, unless otherwise specified in the Materials Division's Approved Products List 75 for the specific epoxy resin product.

- d. **Plastic-backed preformed tape (Class IV)** shall be installed in accordance with the manufacturer's installation instructions. Tape may be applied to asphalt concrete and hydraulic cement concrete pavements. Tape may be installed immediately following the final rolling of new asphalt concrete surface provided installation is done in strict conformance with the preformed tape manufacturer's instructions for this type of application. Tape shall not be applied over existing pavement markings of other materials unless the existing marking is 90 percent worn away or eradicated.

Primer/adhesive shall be used to enhance adhesion in accordance with the manufacturers' installation instructions, except when tape is inlaid immediately following the final rolling of the new asphalt concrete surface.

Tape for pavement line markings shall be applied by an application cart as recommended by the manufacturer. Tape shall be tamped into place with a tamper cart with a weight as recommended by the manufacturer. Vehicle wheels may be used to tamp line markings if allowed by the manufacturer's installation instructions. If vehicle wheels are used to tamp the markings, the Contractor shall ensure that the vehicle tires ride true down the length of the tape marking.

- e. **Patterned preformed tape (Class VI)** shall be installed either under the guidance of the manufacturer's representative or by a manufacturer's certified technician.

Type B, Class VI markings applied to new plant mix asphalt surfaces shall be installed as per manufacturer's installation instructions, except that non-embedded (adhesive) surface application will not be permitted; the markings shall be inlaid in the freshly installed asphalt surface before the pavement mat has cooled. The temperature of the asphalt mat shall be between 100 and 180 degrees. The Type B, Class VI markings shall be inlaid with a roller (minimum 2 tons) operating in a non-vibratory mode when the asphalt mat is between 100 and 180 degrees.

The Contractor shall ensure that markings are not degraded by subsequent operations. Markings that are improperly inlaid during the pavement operations shall be completely eradicated and reapplied via non-embedded surface application at the Contractor's expense.

Surface-applied Type B Class VI markings shall not be installed directly over existing markings, except that Type B Class VI markings may be installed over Type A markings that are fully dry and are at a thickness of 10 mils or less.

The Contractor shall install Type B, Class VI markings on existing asphalt concrete roadway surfaces, hydraulic cement concrete surfaces, and existing or new surface treatment, slurry seal, and latex emulsion surfaces in accordance with the manufacturer's installation instructions for pavement surface preparation, sweeping, and installation techniques for non-embedded (adhesive) surface applications and splicing.

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When installed on Latex Emulsion or other Surface Treatment surfaces, the Contractor shall select a product from the Department's Approved List 17 which is warranted by the manufacturer against failure resulting from improper installation and material defects when used on that type of surface, and a low-VOC surface preparation primer adhesive shall be applied prior to application of the Type B, Class VI markings.

Prior to surface application of Type B, Class VI markings:

- The surface shall be swept clear of all loose aggregate immediately before spraying the surface preparation primer adhesive, and
- The primer adhesive shall be sprayed uniformly at the correct thickness (shall not exceed the maximum thickness specified by the manufacturer), and the primer adhesive shall be cured in accordance with the manufacturer's installation instructions.

After application of the surface preparation primer adhesive, the tape shall be tamped to the road using a 200 pound minimum tamper cart and vehicle wheels. The Contractor shall ensure that the vehicle tires, if used, ride true down the length of the tape marking and in accordance with manufacturer instructions.

- f. **Polyurea (Class VII)** shall be applied in accordance with the manufacturer's installation instructions. Polyurea marking material shall not be applied over existing pavement markings unless the existing marking is 90 percent worn away or eradicated; or over Type A markings that are fully dry and are at a thickness of 10 mils or less.

Polyurea marking material shall be applied at a wet film thickness of 20 mils ( $\pm$  1 mil). Glass beads and retroreflective optics shall be applied at the rate specified in the VDOT Materials Division's Approved Products List 74 for the specific polyurea product.

3. **Type D and E temporary pavement markings** shall be installed in accordance with the manufacturers' installation instructions and will be paid for in accordance with Section 512.

- (b) **Pavement message and symbols markings** shall be the color required by the *MUTCD* or the plans for the specific location or as specified by the Engineer. The Contractor shall install message and symbols markings in accordance with Table VII-3, unless otherwise recommended in the manufacturers' installation instructions and approved by the Engineer.

Surface temperature at time of application shall be in accordance with manufacturer's installation instructions. If the installation instructions do not specify minimum surface temperature, then the markings shall not be installed unless the surface temperature at time of application is 50°F or higher. Surface temperature requirements shall not be considered met if the temperature is forecasted to drop below the minimum within two hours of application. The Contractor may heat the pavement for a short duration to dry the pavement surface and bring the surface temperature to within the allowable temperatures for pavement marking installation, at no extra cost to the Department. Heat torch temperatures shall not exceed 300°F. The Contractor shall monitor pavement temperature to ensure it does not rise above 120°F at any time. Any damage to the pavement shall be promptly repaired at no extra cost to the Department.

Message and symbol markings include, but shall not be limited to, those detailed in Standard Drawing PM-10.

The sizes and shapes of symbols and characters shall match the size and shape specified in Standard Drawing PM-10 or elsewhere in the Contract. Hand-drawn or "stick" symbols or characters will not be allowed.



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**TABLE VII-3**  
**Pavement Markings**

Type	Class	Name	Film Thickness (mils)	Pavement Surface	Application Limitations	Appr. List No.
A	I	Conventional or Cold-Weather Traffic Paint	15 ± 1 when wet	AC HCC	May be applied directly after paving operations	20
A	II	High Build Traffic Paint	25 ± 2 when wet	AC HCC	May be applied directly after paving operations	20
B	I	Thermoplastic Alkyd	90 ± 5	AC HCC	May be applied directly after paving operations	43
	I	Thermoplastic Hydrocarbon	90 ± 5 when dry	AC HCC	Do not apply less than 30 days after paving operations	43
	II	Preformed Thermoplastic	120-130	AC HCC	Manufacturers installation instructions	73
	III	Epoxy resin	20 ± 1 when wet	AC HCC	Manufacturers installation instructions	75
	IV	Plastic-backed preformed Tape	60 - 120	AC HCC	Manufacturer's installation instructions	17
	VI	Patterned preformed Tape	20 min <sup>1</sup> 65 min <sup>2</sup>	AC HCC	(Note 4)	17
	VII	Polyurea	20 ± 1	AC HCC	Manufacturer's installation instructions	74
D	III	Wet Reflective Removable tape	(Note 3)	AC HCC	Temporary pavement marking	17
E		Removable black tape (Non-Reflective)	(Note 3)	AC	Temporary pavement marking for covering existing markings	17

<sup>1</sup>Thinnest portion of the tape's cross section.

<sup>2</sup>Thickest portion of the tape's cross section.

<sup>3</sup>In accordance with manufacturer's installation instructions.

<sup>4</sup>In accordance with the manufacturer's installation instructions, except that Type B, Class VI markings on new plant mix asphalt surfaces shall be inlaid into the freshly installed asphalt surface and not surface-applied.

- (c) **Eradication:** Eradication of existing pavement markings shall be in accordance with Section 512 except only 90 percent removal is required where the new markings will completely cover existing markings.
- (d) **Pavement markers:** Retroreflectors for pavement markers shall conform to Section 235. The front side shall be the same color as the adjacent pavement marking. The back side of the shall be red for one-way markers, and the same color as the adjacement pavement marking for two-way markers.

Permanent markers shall not be installed until after the installation of the corresponding permanent line marking unless approved by the Engineer. If permanent markers are installed before installation of the corresponding permanent marking, then the Contractor shall ensure that the retroreflector is not damaged or obscured during the subsequent line marking installation.

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1. **Inlaid Pavement Markers** shall be installed as per Standard Drawing PM-8.

The Contractor shall not install markers on existing bridge decks. Inlaid Pavement Markers shall be installed on new bridge decks where required by the Plans.

Inlaid Pavement Markers shall be placed in relation to pavement joints and cracks as follows:

- In existing Asphalt Concrete pavement, new or existing Hydraulic Cement Concrete pavement, and bridge decks, the edge of the Inlaid Pavement Marker groove shall be at least 2 inches from pavement joints and cracks, ensuring that the finished line of markers is straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Offset from the longitudinal joint shall take precedence over straightness of the line of markers.
- In new Hydraulic Cement Concrete pavement or when installed in conjunction with new latex modified microsurfacing or slurry seal treatments, the edge of the Inlaid Pavement Marker groove shall be at least 2 inches from all longitudinal and transverse surface course pavement joints and 1 inch maximum off alignment from the corresponding pavement marking line. The finished line of markers shall be straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Straightness of the line of markers and alignment with the corresponding pavement marking line takes precedence over offset from the surface course joint.

Retroreflectors shall be affixed to holders, using an adhesive from the Department's Approved List 22 (Inlaid Pavement Markers) prior to installation.

Tapered grooves and plunge cuts shall be cut using diamond blades that can accurately control the groove dimensions, resulting in smooth uniform tapers and smooth groove bottoms and ensuring the pavement does not tear or ravel. The Contractor shall remove all dirt, grease, oil, loose or unsound layers, and any other material from the groove which would reduce the bond of the adhesive. Pavement surfaces shall be maintained in a clean and dry condition until the marker is placed.

Holders shall be installed in the same shift as grooving.

The epoxy adhesive shall be thoroughly mixed until it is uniform in color, and applied in accordance with the manufacturer's installation instructions. The Contractor shall partially fill the plunge cut with sufficient epoxy adhesive such that the epoxy adhesive bed area is equal to the bottom area of the holder. The Contractor shall then set the holder in the epoxy adhesive such that the breakaway tabs are resting on the road surface, the holder is centered in the cut, and then fill in additional epoxy adhesive if necessary so the entire perimeter of the holder is completely surrounded in epoxy, with the epoxy level with the edge of the holder in accordance with the manufacturer instructions.

The Contractor shall remove all adhesive and foreign matter from the face of the retroreflector or replace the retroreflector if adhesive and foreign matter cannot be removed. The marker shall be replaced if it is not properly positioned and adhered in the plunge cut.

2. **Nonplowable raised pavement markers** shall be bonded to the surface in accordance with the manufacturer's installation instructions. The bonding material shall be from the Department's Approved List 22 for the specific marker.

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- (e) **Maximum Allowable Time Limits for Unmarked Roads:** Existing markings that are obscured, covered, or eradicated by resurfacing operations (including existing symbol and message markings where the need for temporary symbol or message markings has been identified in the Contract) shall be replaced with either temporary or permanent markings within the time limits established in Table VII-4, except as noted herein.

If the Contractor begins the next lift within the time limits specified in Table VII-4 for a non-final surface, then the time limits shall be recalculated as starting at the end of the work day from the time of that next resurfacing operation.

The Engineer may allow the extension of the time limits by up to 12 hours for 10,000 ADT or greater roads, up to 24 hours for 9,999 to 3,000 ADT roads, and up to 48 hours for less than 3,000 ADT roads, provided that all of the following apply:

- The road is non-limited access.
- The road has a posted or statutory speed limit of 40 mph or below.
- All lanes are delineated by the milled surface or asphalt overlay.
- The Engineer determines that there is not significantly deficient sight distance.
- "Unmarked Pavement Ahead" or "No Center Line" warning signs were properly installed in accordance with the VWAPM when the unmarked lane was opened to traffic.

For final surfaces, the Contractor shall determine if the permanent markings can be installed within these time limits, based on the installation requirements for that permanent marking material on that type of surface, and the weather conditions. If the permanent markings will not be installed within these time limits, then temporary markings shall be installed.

Temporary markings are not required on roads that are unmarked in the permanent condition.

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**Table VII-4 – Time Limits for Unmarked Roads:**

Road type	lane lines, center lines, edge lines, and gore lines	Symbols, messages, and transverse lines
Interstates and limited access highways, including ramps	<p>Shall be temporarily or permanently marked <b>before opening the road to traffic.</b></p> <p>On Latex Microsurfacing surfaces, if the surface has not cured enough to hold the temporary markings (weathered-in texture), then the Contractor shall apply the temporary paint before opening the lane to traffic and then shall refresh the temporary markings as necessary as per Section 512.03(k).</p>	<p>If the Contract Documents indicate such markings are required to be temporarily marked, they shall be installed <b>within 24 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.</p>
Non-limited access roads (speed limit $\geq$ 35 mph and ADT $\geq$ 10,000) (See Note)	<p>Shall be temporarily or permanently marked within <b>24 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.</p>	<p>If the Contract Documents indicate such markings are required to be temporarily marked, they shall be installed <b>within 72 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.</p>
Non-limited access roads (speed limit $\geq$ 35 mph and ADT of 3,000-9,999) (See Note)	<p>Shall be temporarily or permanently marked within <b>48 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.</p>	<p>If the Contract Documents indicate such markings are required to be temporarily marked, they shall be installed <b>within 96 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.</p>
Non-limited access roads (speed limit $\geq$ 35 mph and ADT of 1,000-2,999)	<p>Shall be temporarily or permanently marked within <b>72 hours</b> after the end of the workday when the corresponding existing markings were obscured, removed, or eradicated.</p>	<p>Temporary symbol/message/transverse line markings are not required.</p>
Non-limited access roads with speed limit $<$ 35 mph or ADT $<$ 1,000	<p>Temporary markings are not required.</p> <p>If the road will have permanent markings, then “Unmarked Pavement Ahead” or “No Center Line” temporary signs shall be installed as per the VWAPM before reopening the travel lanes to traffic.</p>	<p>Temporary symbol/message/transverse line markings are not required.</p>

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NOTE: If an approach to a signalized intersection has (a) two or more approach through lanes, (b)  $\geq 45$  mph speed limit, (c) greater than 3000 ADT, and (d) all markings on the approach are obliterated, then all lane lines and centerlines within 250 feet of the location of the stop line location shall be temporarily or permanently marked within **24 hours** of opening the approach to traffic, unless a time extension is approved by the Engineer and "Unmarked Pavement Ahead" or "No Center Line" warning signs were properly installed as per the VWAPM when the unmarked approach was first opened to traffic.

- (f) **Temporary Pavement Markings:** Premarking, dotting or layout marking shall not be used as a substitute for temporary pavement marking.

Temporary linear, symbol, and message pavement markings specified in the Contract shall be installed at the same locations that the permanent pavement markings are to be installed, unless otherwise approved by the Engineer.

Temporary lane lines, centerlines, and edge lines may be marked with Type D removable tape, Type A-temporary paint, or FTPMs. All temporary symbol and message markings and other types of temporary markings may be marked with Type D-removable tape or Type A-temporary paint.

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Type A, Class I paint used for temporary pavement markings shall be installed in accordance with the manufacturer's installation instructions and as detailed in the following table:

	<b>Milled Surface</b>	<b>Intermediate Lifts or Final Surface (See Note 1)</b>
<b>Thickness</b>	15 ± 1 mils when wet	8 to 10 mils when wet
<b>Glass Bead Application Rate</b>	6 lbs. minimum of glass beads per gallon of material	3 lbs. of glass beads per gallon of material for 8 to 10 mils and 6 lbs. per gallon for 11 to 15 mils (See Note 2)
<b>Long Line Width</b>	Same width as the permanent markings	
<b>Skip Line Pattern</b>	10-foot line segments / 30-foot gaps (approx.)	10-foot line segments / 30-foot gaps (approx.)

<sup>1</sup>Placing the paint at a greater thickness (in order to avoid re-striping in cases of longer duration) is allowable, provided that no more than 10 mils thickness remains at the time the permanent marking is placed. If the temporary paint is too thick to support proper application of the permanent markings, then the Engineer may require partial eradication of the temporary markings at the Contractor's expense prior to permanent marking eradication.

<sup>2</sup>Where the permanent marking is 6 inches or greater in width, the temporary Type A, Class I pavement markings on the intermediate lift or final surface shall be 75% the width of the permanent marking. Where the permanent marking is 4 inches in width, the temporary Type A, Class I pavement markings on the intermediate lift or final surface shall also be 4 inches.

Temporary Type A, Class I pavement markings on final surfaces shall be arranged and spaced so that they will be completely covered by the subsequent installation of permanent pavement markings atop those temporary paint markings.

Temporary passing zone changes shall be at the same location as the permanent marking passing zone change locations.

Temporary stop lines, when required by the Contract, shall be 12 inches wide unless otherwise directed.

Temporary crosswalks, when required by the Contract, shall be two parallel 6-inch white lines unless otherwise directed.

The moisture test in VTM 94 is not required for temporary pavement marking. However, if the VTM 94 moisture test is not performed, the Contractor shall document the approximate surface wetness on the Form C-85.

If the surface is visibly dry (does not have puddling or free-standing water present), the Contractor is responsible for installing and maintaining the temporary pavement markings. If the Contractor opts not to perform VTM 94 and the temporary markings applied to a visibly dry surface do not sufficiently adhere to the surface, temporary pavement markings shall be reapplied at no additional cost to the Department.

If the surface has puddling or free-standing water present, or if a VTM 94 moisture test result indicates that the condition of the surface is not suitable for temporary pavement marking application, the Engineer may direct the Contractor to install temporary pavement markings on the surface in order to avoid having traffic operate on an unmarked road. In such circumstances the Department may direct the Contractor to install one subsequent reapplication of the temporary markings once the surface has dried, if the previous installation did not satisfactorily adhere to the road. In such circumstances the Contractor will be compensated at the Contract bid price for those temporary markings.

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In order to quicken the paint drying process, the Contractor may spray an Engineer-approved drying agent into the traffic paint during installation in accordance with the manufacturer's installation instructions, at no additional cost to the Department.

While in place, temporary pavement markings shall be maintained at adequate visibility and retroreflectivity, as defined in Section 512, until the permanent markings are installed. No additional application (refreshing) is required as long as the temporary markings continue to meet these requirements.

If Type D-removable tape fails the visual evaluation or is deficient in any other respect before the installation of permanent markings, the tape shall be removed and new temporary markings shall be applied at no additional cost to the Department.

If Type A temporary paint does not meet the requirements of Section 512 before the installation of permanent markings, such temporary markings shall be refreshed by the application of a lighter application (applied so as to enhance visibility but not as to require eradication before application of permanent markings) of Type A-temporary markings at the Contractor's expense.

Permanent pavement markings shall not be installed atop Type A temporary markings if the paint is not fully dry . If the temporary paint is not located directly underneath the location where the permanent markings are to be installed, they shall be 100% eradicated in accordance with Section 512 before installation of permanent markings at no additional cost to the Department.

**(g) Time Limits for Permanent Pavement Marking and Marker Application**

All permanent linear, message, and symbol markings and markers shall be completed within the time limits described in Table VII-5 below. These time limits begin on the last workday (final surface) of continuous paving for that section of roadway, except that for Standard RS-3, RS-4, RS-8, and RS-9 rumble stripe markings these time limits begin on the last workday of rumble strip installation.

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**Table VII-5 Time Limits for Permanent Pavement Marking and Marker Application**

Road type	Marking/marker type	Time Limit (see note 2)
<b>Interstates and other limited access highways (including ramps)</b>	Type B, Class VI markings	See Note 1
	Liquid longitudinal markings	Within 30 days
	Symbol, message, gore area chevron, and transverse line markings	Within 30 days
	Markers	Within 45 days
<b>Non-limited access primaries with <math>\geq 10,000</math> ADT or speed limit <math>\geq 45</math> mph</b>	Type B, Class VI markings	See Note 1
	Liquid longitudinal markings	Within 30 days
	Symbol, message, gore area chevron, and transverse line markings	Within 30 days
	Markers	Within 60 days
<b>All other roads</b>	Type B, class VI markings	See Note 1
	Liquid longitudinal markings	Within 30 days
	Symbol, message, gore area chevron, and transverse line markings	Within 45 days
	Markers	Within 60 days

**Notes**

- (1) Type B, Class VI longitudinal markings on Plant Mix surfaces shall be inlaid on the same day the final surface is placed as specified herein. Type B, Class VI longitudinal markings on Latex Microsurfacing, Slurry Seal, and Surface Treatment operations shall be placed between 14 and 30 days after the last workday of continuous paving on that section of roadway.
- (2) Except as indicated in Note (1) the time limit commences for a continuous section at the end of the last workday that the final surface is placed. For roads with more than two lanes, each direction will be considered a separate continuous section.

Permanent markings shall not be installed where pavement curing time or weather conditions prohibit installation, or where the pavement surface does not meet the markings manufacturer's requirements (e.g. the aggregate is not worn-in at the edges).

Any necessary refreshing or replacement of temporary pavement markings or FTPMs will not affect the allowable time limit for completion of permanent pavement marking installation.

**704.04 – Measurement and Payment**

**Pavement line markings** will be measured in feet and paid for at the Contract foot price for the type, class and width specified. This price shall include furnishing and installing the pavement marking material, surface preparation, premarking, documentation and staking of existing markings, quality control tests, daily log, guarding devices, primer, adhesive, glass beads, and manufacturer's warranty.

**Contrast Pavement Line Marking** will be measured in linear feet and will be paid for at the Contract unit price per linear foot for the type or class and width specified. This price shall include surface preparation, premarking, furnishing, installing, quality control tests, daily log, guarding devices, primer or adhesive, glass beads, reflective optics materials when required, and warranty.



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**Pavement message markings** will be measured in units of each per location or in linear feet as applicable for the message, type, class material, and size specified, and will be paid for at the Contract unit price per each or linear foot. This price shall include surface preparation, premarking, furnishing, installing, quality control tests, daily log, guarding devices, primer or adhesive, glass beads, reflective optics materials when required, and warranty.

**Pavement symbol markings** will be measured in units of each per location for the symbol, type, and class of material specified, and will be paid for at the Contract unit price per each. This price shall include surface preparation, premarking, furnishing, installing, quality control tests, daily log, guarding devices, primer or adhesive, glass beads, reflective optics materials when required, and warranty.

**Temporary pavement line markings** will be measured in feet and paid for at the Contract foot price for the type, class, and width specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer, adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

If temporary line markings require refreshing, reapplication, or replacement before the final surface or the permanent markings are installed, all cost for refreshing, reapplication, or replacement shall be at the Contractor's expense, unless the Contractor was directed by the Engineer to apply the temporary markings to a visibly wet surface or to an insufficiently cured latex emulsion, slurry seal, or surface treatment surface.

If the Contractor uses FTPMs to simulate the temporary pavement marking, they will be measured in linear feet and paid for at the linear foot price for the temporary marking material being simulated. That measurement shall represent all FTPMs required for that simulated line marking. No additional payment will be made if the Contractor elects to remove FTPMs and install other temporary pavement markings. This cost shall include furnishing, installing and maintaining the FTPMs, removable covers, surface preparation, quality control tests, daily log, guarding devices, removal, and disposal.

**Temporary pavement message (word) markings** will be measured in units of each and paid for at the Contract each price for the character size, type, and class specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer or adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

**Temporary pavement symbol markings** will be measured in units of each and paid for at the Contract each price for the size, type, and class specified. This price shall include furnishing, installing, and maintaining the pavement marking materials; surface preparation, inspections, testing, daily log, and guarding devices; providing primer or adhesive, glass beads, and drying agents; and disposal, and removing removable markings when no longer required.

If temporary pavement line, message, or symbol markings require refreshing, reapplication, or replacement before the final surface or the permanent markings are installed, all cost for refreshing, reapplication, or replacement (including Maintenance of Traffic costs) shall be at the Contractor's expense unless the Contractor was directed by the Engineer to apply the temporary markings to a visibly wet surface or to an insufficiently cured latex emulsion, slurry seal, or surface treatment surface.

**Pavement markers** will be measured in units of each for the marker type and pavement type specified and will be paid for at the contract unit price per each. This price shall include surface preparation, furnishing, installing, prismatic retroreflectors, pavement cutting, adhesive, holders, quality control tests, and daily log.

**Eradication of pavement markings** will be measured and paid for in accordance with Section 512.

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Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
(Type and class) Pavement line marking (width)	Linear Foot
(Type and Class) Contrast Pavement Line Marking (width)	Linear Foot
Pavement message marking (Message, Type and Class Material, size character)	Each or Linear Foot
Pavement symbol marking (Symbol, Type and class material)	Each
(Type) Pavement marker (type pavement)	Each
(Type and class) Temporary pavement line marking (width)	Linear Foot
Temporary pavement message (word) marking (size character, type and class material)	Each
Temporary pavement symbol marking (Symbol, Type and class material)	Each

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**SP801-000100-01**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**LANE CLOSURE COORDINATION (LCC)/LANE CLOSURE IMPLEMENTATION (LCI)**

September 20, 2017

**I. General Requirements**

This work shall consist of coordinating and communicating lane closure operations through the local Transportation Operations Centers (TOC's). The Contractor shall coordinate lane closures in accordance with this Special Provision, and only implement lane closures with approval from the Department.

**II. Training**

The Contractor shall have individuals trained to input work-zone information into the Department's LCC/LCI system, currently LCAMS and VaTraffic, on a weekly basis and to update as needed. These individuals shall be able to speak, understand, read, and write English, and be able to operate a computer. No advanced computer skills are needed to use the LCAMS or VaTraffic systems. The Contractor shall have a computer with internet connectivity and email capability.

The Contractor shall contact the Regional TOC Work Zone Lane Closure (LCAMS/VaTraffic) Coordinator to initiate system access and schedule training, when necessary. The Department requires a 10 business-day notice to schedule classroom training for LCAMS. The Contractor's designated individuals shall complete the courses Introduction to VaTraffic, VaTraffic Reports, VaTraffic Planned Events, and VaTraffic Work Zones. LCAMS and VaTraffic training for the individuals shall be completed prior to the Notice to Proceed date.

**III. Lane Closure Process**

1. **Lane Closure Coordination Process.** All lane closures shall be entered as precisely as possible into the Lane Closure Advisory Management System (LCAMS) and VaTraffic no later than 8 AM on Thursday of the week prior to the planned lane closure, and updated as needed. For the purposes of this Special Provision, a week starts on Sunday. If this submission deadline changes (e.g., for weeks involving a holiday), the Engineer will notify the Contractor at least one week in advance. Final approval for the lane closure will be issued by the Engineer. All fields in LCAMS and VaTraffic must be properly filled out.

A. **Point of Contact.** The data fields labeled "Requesting Org POC" in LCAMS and "Point of Contact" in VaTraffic shall contain the name and email address of the person physically entering the request into LCAMS.

B. **Conflict Resolution.** LCAMS will identify and flag most conflicts, and will automatically assign priority as first-come, first-serve. The Contractor has the right to contact the higher-priority party and attempt resolution with them, provided the Contractor submits the final resolution to the Engineer no later than 5 PM on Thursday of the week prior to the planned lane closure. The Engineer will handle all unresolved conflicts between requests and other events according to the priorities listed below, with the highest priority item first. If some or all requests involved in the conflict are the same priority level, conflict resolution will be on a first-come, first-serve basis.

(1) **Emergency Work.** Work that if not done "will result" in damage to a motorist vehicle or infrastructure, or danger to public health and safety.

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- (2) **Lower Priority Items Previously Delayed.** Work that while considered a lower priority, if perpetually delayed could result in severe consequences.
  - (3) **Urgent Work.** Work that if not done “may result” in damage to the motorist vehicle or infrastructure, or danger to public health and safety.
  - (4) **Contractual Obligated Work.** Work that is expected to be accomplished “on-time, on-budget”.
  - (5) **Weather Dependent Work.** Work that is dependent on the temperature and clear or dry conditions.
  - (6) **Routine Maintenance Work.** Work that is routine in nature that can be rescheduled and moved around, within limits, without undue risk.
- C. The request shall be supported by the Schedule of Record, and the Engineer may deny requests which are not. The Contractor will be allowed to request lane closures to accommodate potential weather delays.
- D. The Contractor may revise his entries in LCAMS and VaTraffic after the Thursday deadline subject to the approval of the Engineer and the conflict resolution requirements herein.
2. **Lane Closure Implementation Process.** The Contractor shall notify the Regional TOC no later than 15 minutes, but no earlier than 45 minutes, prior to installing the lane closure, or no later than 15 minutes prior to scheduled start time if lane closure is delayed or canceled. The Contractor shall notify the TOC and update VaTraffic of any changes in lane-closure impact during the execution of work. The Contractor shall notify the Regional TOC no later than 15 minutes after the lane is reopened to traffic.
3. **Emergency Lane Closure.** If an Emergency Lane Closure is required, the Contractor shall coordinate directly with the TOC regarding the lane closure as soon as the location and size of the lane closure is known. An Emergency Lane Closure is defined as road work which could not have been anticipated and is required to protect the public from immediate, severe harm, and has a priority as defined by Section III-1B(1).

**IV. Measurement and Payment**

Lane closure coordination will not be measured or paid for separately, but the cost thereof shall be included in the price of other items.

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VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**PUBLIC NOTIFICATION OF PARKING RESTRICTIONS**  
**(Plant Mix)**

August 18, 2015; Reissued July 12, 2016\_

The Contractor shall be responsible for notifying the public of parking restrictions due to the resurfacing operations scheduled in this contract by distributing door-hangers and erecting “No Parking” signs throughout the subdivision streets affected as follows:

- A template for printing door-hangers will be provided to the Contractor by the Department. The Contractor shall make all necessary arrangements to furnish and distribute the printed door-hangers to homes no more than thirty (30) days prior to commencement of work and no less than three (3) days in the affected areas.
- A template for furnishing “No Parking” signs will be provided to the Contractor by the Department. The Contractor shall make all necessary arrangements for furnishing and placing the “No Parking” signs, including posts, for affected homes no more than three (3) working days prior to commencement of work. “No Parking” Signs shall be placed a minimum of 36” off the ground and shall clearly be visible to the public. The Contractor shall install the sign posts using posts of their choosing so long as the “No Parking” Sign is securely mounted and does not result in warping of the sign. The Contractor shall notify the appropriate police department after signs are installed and prior to commencement of work. If the commencement of work date follows a holiday or weekend, the three (3) working day prior notification requirement shall be in addition to the weekend or holiday. The period of operations, as designated on the “No Parking” signs, shall not exceed fourteen (14) consecutive calendar days.

The Contractor shall visually inspect the construction site each day after the placement of “No Parking” signs to ensure they are still in place. Any damaged or missing signs shall be promptly replaced at the Contractors expense.

All “No Parking” signs shall be removed and disposed of by the Contractor upon completion of the work.

The cost of furnishing and distributing door-hangers, furnishing, installing, maintaining, and removing “No Parking” signs and posts shall be borne by the Contractor at no cost to the Department. Door Hangers and No Parking Signs shall be produced in color and laminated prior to distribution.

Template examples can be found on the following three (3) pages.

To obtain “color” template copies for production visit the following link:

<http://www.virginiadot.org/business/resources/const/PublicNotificationOfParkingRestrictionsTemplates.pdf>



Door Hanger (Front)

## Asphalt

Within the next 30 days, you will see construction crews and equipment preparing to treat and improve the roads in your neighborhood. This work is **dependent on weather** and may occur later than this timeframe due to contractor schedules.

### WHAT YOU NEED TO KNOW

Crews will be paving your streets with asphalt. This application will improve the ride for motorists, and enhance the condition of your street.

### WHAT TO EXPECT

Residents will see construction workers and equipment in your neighborhood.

Stay alert for temporary lane closures.

### HOW TO PREPARE

When work begins, please avoid parking your vehicles on the street. Construction crews will place “No Parking” signs on the affected streets a minimum of 3 business days before work begins, notifying residents of the specific days parking will be prohibited. Please remove other obstructions from the road, such as basketball hoops or garbage cans.

### RESOURCES

For more information about this process, please visit [www.virginiadot.org/asphalt](http://www.virginiadot.org/asphalt).

To contact us, call VDOT’s Customer Service Center at 1-800-FOR-ROAD (800-367-7623) or email [customerservice@VDOT.Virginia.Gov](mailto:customerservice@VDOT.Virginia.Gov).

*Scan this QR code using a  
smartphone to view VDOT  
information on asphalt.*



Door Hanger (Back)

**NO PARKING**

**STREET PAVING**

DATES: \_\_\_\_\_ --- \_\_\_\_\_



FOR INFORMATION CALL: **1-800-FOR-ROAD**

**CARS TOWED**



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VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 105.03—AUTHORITIES OF PROJECT**  
PERSONNEL, COMMUNICATION AND DECISION MAKING  
**(Asphalt Schedules Only)**

October 7, 2016

**SECTION 105.03**—Authorities of Project Personnel, Communication and Decision Making of the Specifications is amended to replace **TABLE I-2A PROCESS GUIDELINES FOR REQUESTS GENERATED BY THE CONTRACTOR** with the following:

**PROCESS GUIDELINES FOR REQUESTS GENERATED BY THE CONTRACTOR**

Process	Situation	Normal resolution process		Escalated process		Process if no resolution
		By	Within (calendar days)	By	Within	
Submittal	Contractor requests the Department's review, acceptance or approval of shop drawings, materials data, test reports, project progress schedules, or other submittals required by Specifications or other Contract Documents.	Department's Designated Project Manager	<ul style="list-style-type: none"> <li>• Acknowledge: 3 days<sup>1</sup></li> <li>• Accept or Return: 14 days</li> <li>• Final Determination/Approve: 30 days or as outlined in Contract.</li> </ul>	DA or their designee*	7 days	Submit RDA or CCR
Confirmation of Verbal Instruction (COVI)	Routine field issues, within the framework of the Contract, Contractor resolves through negotiation with the Department's field personnel.	Department's Appropriate field personnel	<ul style="list-style-type: none"> <li>• Confirmation: 1 day<sup>1</sup></li> </ul>	DA or their designee	1 day <sup>1</sup>	Submit Request for RDA
Request for Information (RFI)	Contractor needs the Department to supply information to provide better understanding of or to clarify a certain aspect of the work.	Department's Designated Project Manager	<ul style="list-style-type: none"> <li>• Action: 1 day<sup>1</sup> (or appropriate Action Plan)</li> </ul>	DA or their designee*	2 days <sup>1</sup>	Submit RDA or CCR
Request for Dept. Action (RDA)	Contractor needs the Department to take certain action Contractor feels is required for proper completion of a portion of the Work or the project.	Department's Designated Project Manager	<ul style="list-style-type: none"> <li>• Acknowledge: 1 day<sup>1</sup></li> <li>• Action: 2 days<sup>1</sup> (or appropriate Action Plan)</li> </ul>	DA or their designee*	2 days <sup>1</sup>	Submit CCR
Contract Change Request (CCR)	Contractor needs the Department to make an adjustment to the Contract because of excusable and/or compensable events, instructions that have or have not been given or other work that will require time and/or cost beyond that specified or envisioned within the original Contract.	Department's Designated Project Manager	<ul style="list-style-type: none"> <li>• Acknowledge: 3 days<sup>1</sup></li> <li>• Action: 30 days (45 days if federal oversight project)</li> </ul>	DA or their designee*	7 days	Claims process

<sup>1</sup>Process initiated on the last business day of a week shall be acknowledged before 5 pm on the next VDOT business day.

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VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**SECTION 107.15 USE OF SMALL BUSINESSES (SWAM PROGRAM)**

June 7, 2021

**SECTION 107 – LEGAL REQUIREMENTS** of the Specifications is amended as follows:

**Section 107.15 – Use of Small, Women-Owned, and Minority-Owned Businesses (SWaMs)**, is replaced in its entirety with the following:

**Section 107.15 – Use of Small Businesses, Including Small Women-Owned, Small Minority-Owned, and Small Service Disabled Veteran-Owned Businesses (SWaM Program)**

**(a) SWaM Program**

In accordance with applicable rules, regulations, and laws, it is the policy of the Department that small businesses, including those owned by women, minorities, and service disabled veterans (SWaMs) shall have the maximum opportunity to participate in the performance of the Contract. The Contractor is encouraged to seek out and to take necessary and reasonable steps to provide SWaMs with the maximum opportunity possible to compete for and perform work as subcontractors and suppliers on the Contract.

For the purposes of VDOT's SWaM Program, SWaMs are small businesses certified by the Department of Small Business and Supplier Diversity (DSBSD) and defined in Virginia Code § 2.2-1604 and § 2.2-4310 as: (i) small, (ii) any subcategory of small, (iii) small women-owned, (iv) small minority-owned, and (v) small service disabled veteran-owned. For the purpose of this SWaM Program, performance of the Contract shall include, but not be limited to, furnishing labor, materials, supplies, equipment, and services; and leasing equipment or, where applicable, any combination thereof.

By bidding on, and by accepting and executing this Contract on the basis of that bid, the Contractor agrees to assume these contractual obligations. The Contractor shall carry out applicable requirements of this SWaM Program in the award, administration, and performance of this Contract. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or other such remedy, as VDOT deems appropriate, which may include, but is not limited to: (1) withholding monthly progress payments; (2) assessing sanctions; (3) liquidated damages; and/or (4) disqualifying the contractor from future bidding.

**(a) SWaM Certification**

The only subcontractors eligible to perform work on a state funded contract and receive SWaM goal credit are SWaMs certified by DSBSD. Additionally, SWaM businesses must be certified in a NIGP code applicable to the kind of work the businesses would perform on the Contract to receive credit toward the SWaM goal. A directory listing of certified SWaM businesses can be obtained from the DSBSD website, [www.sbsd.virginia.gov](http://www.sbsd.virginia.gov).

In support of the SWaM Program, VDOT has a service that easily locates SWaM certified businesses that are near a job site using an interactive map that can be accessed using the following link: [VDOT's SWaM Patrol - Path to 42](#).

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**(b) SWaM Program-Related Certifications Made by Bidders/Contractors**

By bidding on, and by accepting and executing the Contract on the basis of that bid, the Bidder/Contractor certifies to each of the following SWaM Program-related conditions and assurances:

1. Under penalty of perjury and other applicable penal law that it has complied with the SWaM Program requirements in submitting the bid, and shall comply fully with these requirements in the bidding, award, and execution of the Contract.
2. To ensure that SWaMs have been given full and fair opportunity to participate in the performance of the Contract, the Contractor certifies that all reasonable steps were, and will be, taken to ensure that SWaMs had, and will have, an opportunity to compete for and perform work on the Contract.
3. As a Bidder, good faith efforts were made to obtain SWaM participation in the proposed Contract at or above the goal for SWaM participation established by the Department. If necessary, it has submitted as a part of its bid true, accurate, complete, and detailed documentation of the good faith efforts it performed to meet the Contract goal for SWaM participation. The Bidder, by signing and submitting its bid, certifies the SWaM participation information submitted within the stated time thereafter is true, correct, and complete, and that the information provided includes the names of all SWaMs that will participate in the contract, the specific line items that each listed SWaM will perform, and the creditable dollar amounts of the participation of each listed SWaM. The specific line item must reference the VDOT line number and item number contained in the Proposal.
4. The Bidder further certifies, by signing its bid, it has committed to use each SWaM listed for the specific work item shown to meet the Contract goal for SWaM participation. Award of the Contract will be conditioned upon meeting these requirements and other applicable requirements in the Contract. By signing the bid, the Bidder certifies on work that it proposes to sublet, it has made good faith efforts to seek out and consider SWaMs as potential subcontractors.
5. The Contractor shall make good faith efforts to utilize SWaMs to perform work designated to be performed by SWaMs at or above the amount or percentage of the dollar value specified in the Contract. Further, the Contractor understands it shall not unilaterally terminate, substitute for, or replace any SWaM that was designated in the executed Contract in whole or in part with another SWaM, any non-SWaM, or with the Contractor's own forces or those of an affiliate of the Contractor without the prior written consent of the Department as set out within this provision.
6. The Contractor shall designate and make known to the Department a liaison officer who is assigned the responsibility of administering and promoting an active and inclusive SWaM Program as required by this Special Provision. The designation and identity of this officer need be submitted only once by the Contractor during any 12-month period at the preconstruction conference for the first contract the Contractor has been awarded during that reporting period.
7. Each SWaM participating in the Contract shall fully perform the designated work items with the SWaM's own forces and equipment under the SWaM's direct supervision, control, and management. Where a contract exists and where the Contractor, SWaM, or any other subcontractor retained by the Contractor has failed to comply with the SWaM Program requirements on that contract, VDOT has the authority and discretion to determine the extent to which the SWaM Contract requirements have not been met, and will assess against the Contractor any remedies available at law or provided in the Contract in the event of such a Contract breach.

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8. In the event a bond surety assumes the completion of work, if for any reason the Department has terminated the Contractor, the surety shall be obligated to meet the same SWaM Program Contract terms and requirements as were required of the original Contractor in accordance with this Special Provision.

**(c) Compliance Procedures**

In addition to procedures applicable to subcontractors in general, the following procedures shall apply for SWaM Program compliance purposes.

1. **Contract Goal, Good Faith Efforts Specified.** The Contract will only be awarded to a Bidder who makes good faith efforts to meet the SWaM goal. A Bidder has made good faith efforts if the Bidder does the following:

A. The Bidder completes and submits as a part of the Bid:

- (1) **Form C-111S, Minimum SWaM Requirements**, documenting its small business subcontracting plan to attain SWaM participation equal to or greater than the SWaM goal established for the project. Form C-111S may be submitted electronically or may be faxed to the Department, but in no case shall the Bidder's Form C-111S be received later than 10:00 a.m. the next business day after the date and time stated in the bid proposal for the receipt of bids. Contractors who are SWaMs are deemed to have met all the compliance procedures.

Where the award of a contract for services is made to a SWaM Contractor and the Contractor intends to subcontract work as part of its performance under this Contract, the Contractor shall submit Form C-111S and comply with the subcontracting procedures.

- (2) **Form C-48, Subcontractor/Supplier Solicitation and Utilization**, representing its solicitation of subcontractors/suppliers, whether the listed businesses are SWaMs or non-SWaMs, and utilization or non-utilization of the businesses listed for performance of work on the Contract. Form C-48 may be submitted electronically or may be faxed to the Department, but the Bidder's Form C-48 must be received within 10 business days after the bid opening.
- (3) **Form C-31, Subletting Request**, identifying proposed subcontractors, proposed items and amounts proposed to be sublet, and whether subcontractors are SWaM certified. For each subcontractor not identified at the time of bid, a Form C-31 shall be submitted to the Department electronically or by fax prior to the subcontractor beginning work.

Failure of the Bidder to submit these Forms in the time frame specified may be cause for rejection of the bid in accordance with this SWaM Program and the Specifications.

- B. If the Bidder is not able to meet the SWaM goal, the Bidder must submit Form C-111S exhibiting the SWaM participation it commits to attain as a part of its bid documents within the time required above. The Bidder shall then submit **Form C-49S, SWaM Good Faith Efforts Documentation**, electronically or by fax, within 2 business days after the bid opening.
- C. The lowest responsive and responsible Bidder must submit its properly executed Form C-112S within 3 business days after the bids are opened. SWaMs bidding as prime contractors are not required to submit Form C-112S. Contractors who are SWaMs are deemed to have met all the compliance procedures.

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- D. If, after review of the apparent lowest bid, the Department determines the SWaM goal or other requirements have not been met, the apparent lowest successful Bidder must submit Form C-49S which must be received by the State Contract Engineer within 2 business days after official notification of such failure to meet the aforementioned SWaM requirements.
- E. The procurement of the Contract shall be conducted in accordance with small business enhancement terms set forth in this SWaM Program for small businesses certified by DSBSD.

Forms C-31, C-48, C-49S, C-61, C-111S, and C-112S can be obtained from the VDOT website at: <http://vdotforms.vdot.virginia.gov/>.

**2. Good Faith Efforts Described**

Good faith efforts means all necessary and reasonable steps that the Bidder/Contractor took to achieve the SWaM goal or comply with the requirements of this SWaM Program which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to obtain or fulfill the requirement.

In order to award a contract to a Bidder who has failed to meet the SWaM goal, or otherwise evaluate whether the Contractor has complied with the requirements of the SWaM Program, VDOT will determine if the Bidder/Contractor made adequate good faith efforts, and if given all relevant circumstances, those efforts were made actively and aggressively to meet the SWaM goal. Efforts to obtain SWaM participation are not good faith efforts if they could not reasonably be expected to produce a level of SWaM participation sufficient to meet the SWaM goal.

Good faith efforts may be determined through use of the following list of the types of actions the Bidder/Contractor may take to obtain SWaM participation. This is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts of similar intent may be relevant in appropriate cases:

- A. Soliciting SWaM participation through reasonable and available means, such as but not limited to, attending pre-bid meetings, advertising, and sending written notices to SWaMs who have the capability to perform the work of the Contract. Examples include: (i) advertising the opportunity to bid in at least one daily/weekly/monthly newspaper of general circulation or on the internet with supporting documentation, including copies of the advertisement; (ii) telephoning SWaMs as shown by a completely documented telephone log, including the date and time called, contact person, or voice mail status; or (iii) emailing SWaMs as shown by copies of the email and responses. The Bidder/Contractor shall solicit this interest no less than five (5) business days before the bids are due so that the solicited SWaMs have enough time to reasonably respond to the solicitation. The Bidder/Contractor shall determine with certainty if the SWaMs are interested by taking reasonable steps to follow up initial solicitations as evidenced by documenting such efforts as requested on Form C-49S.
- B. Selecting portions of the work to be performed by SWaMs in order to increase the likelihood that the SWaM goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate SWaM participation, even when the Contractor might otherwise prefer to completely perform all portions of this work in its entirety or use its own forces.

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- C. Providing interested SWaMs with adequate information about the Plans, Specifications, and requirements of the Contract in a timely manner, which will assist the SWaMs in responding to a solicitation.
- D. Negotiating for participation in good faith with interested SWaMs.
  - (1) Evidence of such negotiation shall include the names, addresses, and telephone numbers of SWaMs that were considered; dates SWaMs were contacted; a description of the information provided regarding the Plans, Specifications, and requirements of the Contract for the work selected for subcontracting; and, if insufficient SWaM participation seems likely, evidence as to why additional agreements could not be reached for SWaMs to perform the work.
  - (2) A Bidder/Contractor using good business judgment should consider a number of factors in negotiating with subcontractors, including SWaM subcontractors, and should take a firm's price, qualifications, and capabilities, as well as contract goals, into consideration. However, the fact that there may be some additional costs involved in finding and using SWaMs is not sufficient reason for a Bidder's/Contractor's failure to meet the Contract goal for SWaM participation, as long as such costs are reasonable and comparable to costs customarily appropriate to the type of work under consideration. Also, the ability or desire of a Bidder/Contractor to perform the work on the Contract with its own organization does not relieve the Bidder/Contractor of the responsibility to make diligent good faith efforts. Bidders/Contractors are not, however, required to accept higher quotes from SWaMs if the Bidder can show price difference to be excessive, unreasonable, or greater than would normally be expected by industry standards.
- E. A Bidder/Contractor cannot reject a SWaM as being unqualified without sound reasons based on a thorough investigation of the SWaM's capabilities. The SWaM's standing within its industry, membership in specific groups, organizations, associations, and political or social affiliations, and union versus non-union employee status are not legitimate causes for the rejection or non-solicitation of bids in the Bidder's efforts to meet the project goal for SWaM participation.
- F. Making efforts to assist interested SWaMs in obtaining necessary equipment, supplies, materials, or related assistance or services subject to the restrictions contained in these provisions.
- G. Effectively using the services of appropriate personnel from the Department and from (i) DSBSD, (ii) available community organizations, (iii) contractors' groups, (iv) local, state, and Federal business assistance offices, (v) the Virginia Department of Veterans; and (vi) other organizations as allowed on a case-by-case basis; to provide assistance in the recruitment and utilization of qualified SWaMs.

**(d) Documentation and Administrative Reconsideration of Good Faith Efforts**

- 1. **During Bidding:** As described in Section 107.15(d)(1), where a Bidder fails to meet the SWaM goal, the Bidder must submit Form C-49S documenting its good faith efforts made to meet the SWaM goal within 2 business days after notification of such failure. The means of transmittal and the risk for timely receipt of this information shall be the responsibility of the Bidder. The Bidder shall attach additional pages to the certification, if necessary, in order to fully document specific good faith efforts made to obtain the SWaM goal.
  - A. A Bid may be found non-responsive where the Bidder has failed to submit the required documentation in the time and manner specified.

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- B. Before awarding a contract or renewing a renewable contract with the Contractor, the Department will review the Contractor's record of compliance with its small business subcontracting plan requirements in Form C-111S submitted on past contracts. The failure to meet satisfactorily the designated small business subcontracting procurement plan requirements shall be considered in the prospective award or renewal of a contract in accordance with applicable rules, regulations, and laws, and Section 102.08
- C. If the lowest Bidder's Bid is rejected the Department may award the Contract to the next lowest Bidder, re-advertise the Proposal at a later date, or proceed otherwise as determined by the Department.

**2. Administrative Reconsideration.**

Where the Department determines that the apparent low Bidder has failed or appears to have failed to meet the requirements of Section 107.15(d)(1) and has failed to adequately document that it made a good faith effort to obtain sufficient SWaM participation to meet the SWaM goal, the Department will notify the Bidder and provide the opportunity for the Bidder to request administrative reconsideration before the Department rejects that bid as non-responsive. The Bidder may submit a request for reconsideration in writing to the State Contract Engineer within 5 business days of receipt of notification by the Department and shall be given the opportunity to discuss the issue and present its evidence to the Administrative Reconsideration Panel (Panel), either in person or by telephone or video conference as the Panel chooses. The Panel will be made up of VDOT Division Administrators or their designees, none of whom took part in the initial determination that the Bid is non-responsive. After presentation by the Bidder, the Panel shall notify the Bidder in writing of its decision and explain the basis for finding that the Bid is or is not responsive.

If the Panel determines the Bidder failed to meet the requirements of the SWaM goal and has failed to make adequate good faith efforts to achieve the level of SWaM participation as specified in the Proposal, the Bidder's Bid will be rejected.

If the Panel determines sufficient documented evidence was presented to demonstrate that the apparent low Bidder made reasonable good faith efforts, the Department will award the Contract and reduce the SWaM requirement to the Bidder's actual commitment shown in their Form C-111S at the time of its Bid. The Contractor is still encouraged to seek additional SWaM participation during the life of the Contract.

**(e) SWaM Participation for Contract Goal Credit**

SWaM participation on the Contract will count toward meeting the SWaM goal in accordance with the following criteria:

1. Cost-plus subcontracts will not be considered to be in accordance with normal industry practice and will not normally be allowed for credit.
2. The applicable percentage of the total dollar value of the subcontract awarded to the SWaM will be counted toward meeting the SWaM goal in accordance with Section 107.15(c) for the value of the work, materials, equipment, supplies, or services that are actually performed or provided by the SWaM itself or subcontracted by the SWaM to other SWaMs.
3. When a SWaM performs work as a participant in a joint venture with a non-SWaM, the Contractor may count toward the SWaM goal only that portion of the total dollar value of the Contract equal to the distinctly defined portion of the Work that the SWaM has performed with the SWaM's own forces or in accordance with the provisions of this Section.



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The Department shall be contacted in advance regarding any joint venture involving both a SWaM and a non-SWaM to coordinate Department review and approval of the joint venture's organizational structure and proposed operation where the Contractor seeks to claim the SWaM's credit toward the SWaM goal.

4. When a SWaM subcontracts part of the work of the Contract to another business, the value of that subcontracted work may be counted toward the SWaM goal only if the SWaM's subcontractor is a certified SWaM. Work that a SWaM subcontracts to either a non-SWaM or to a non-certified SWaM will not count toward the SWaM goal. The cost of supplies and equipment a SWaM subcontractor purchases or leases from the Contractor or the Contractor's affiliates will not count toward the Contract goal for SWaM participation.
5. A Contractor may not count the participation of a SWaM Subcontractor toward the Contractor's final compliance with the SWaM goal obligations until the amount being counted has actually been paid to the SWaM.

**(f) Performing a Commercially Useful Function (CUF)**

No credit toward the SWaM goal will be allowed for Contract payments or expenditures to a SWaM firm if that SWaM firm does not perform a CUF on the Contract. A SWaM performs a CUF when the SWaM is solely responsible for execution of a distinct element of the Work and the SWaM actually performs, manages, and supervises the work involved with the firm's own forces or in accordance with the provisions of Section 107.15(f). To perform a CUF the SWaM alone shall be responsible and bear the risk for the material and supplies used on the Contract, selecting a supplier or dealer from those available, negotiating price, determining quality and quantity, ordering the material and supplies, installing those materials with the SWaM's own forces and equipment where applicable, and paying for those materials and supplies itself. Whether the SWaM is performing a CUF will be determined based on the amount of work subcontracted, and whether the amount the SWaM is to be paid under the Contract shall be commensurate with the work the SWaM actually performs and the SWaM credit claimed for the SWaM's performance.

1. **Monitoring CUF Performance:** It shall be the Contractor's responsibility to ensure that all SWaMs selected for subcontract work on the Contract, for which he seeks to claim credit toward the SWaM goal, perform a CUF. Further, the Contractor is responsible for and shall ensure that each SWaM fully performs the SWaM's designated tasks with the SWaM's own forces and equipment under the SWaM's own direct supervision and management or in accordance with the provisions of Section 107.15(f). For the purposes of this provision the SWaM's equipment will mean either equipment directly owned by the SWaM as evidenced by title, bill of sale or other such documentation, or leased by the SWaM, and over which the SWaM has control as evidenced by the leasing agreement from a firm not owned in whole or part by the Contractor or an affiliate of the Contractor under the Contract.

The Department will monitor the Contractor's SWaM involvement during the performance of the Contract. However, the Department is under no obligation to warn the Contractor that a SWaM's participation will not count toward the goal.

2. **SWaMs Must Perform a Useful and Necessary Role in Contract Completion:** A SWaM does not perform a CUF if the SWaM's role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of SWaM participation. In determining whether a SWaM is such an extra participant, VDOT will examine similar transactions, particularly those in which SWaMs do not participate.

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3. **SWaMs Must Perform The Contract Work With Their Own Workforces:** If a SWaM does not perform and exercise responsibility for at least 30% of the total cost of the SWaM's contract with the SWaM's own work force, or the SWaM subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the Department will presume that the SWaM is not performing a CUF and such participation will not be counted toward the SWaM goal. When a SWaM is presumed not to be performing a CUF, the SWaM may present evidence to rebut this presumption. The Department may determine that the SWaM is performing a CUF given the type of work involved and normal industry practices.
4. **VDOT Makes Final Determination On Whether a CUF Is Performed:** VDOT has the final authority to determine whether a SWaM firm has performed a CUF. To determine whether a SWaM is performing or has performed a CUF, VDOT will evaluate the amount of work subcontracted by that SWaM or performed by other firms and the extent of the involvement of other firms' forces and equipment. Any SWaM work performed by the Contractor or by employees or equipment of the Contractor shall be subject to disallowance under the SWaM Program, unless the independent validity and need for such an arrangement and work is demonstrated.
5. **Factors Used to determine if a SWaM Trucking Firm is performing a CUF:**
  - A. To perform a CUF the SWaM trucking firm shall be completely responsible for the management and supervision of the entire trucking operation for which the SWaM is responsible by subcontract on a particular contract. There shall not be a contrived arrangement, including, but not limited to, any arrangement that would not customarily and legally exist under regular construction project subcontracting practices for the purpose of meeting the SWaM goal.
  - B. The SWaM must own and operate at least one fully licensed, insured, and operational truck used in the performance of the Contract work. This does not include a supervisor's pickup truck or a similar vehicle that is not suitable for and customarily used in hauling the necessary materials or supplies.
  - C. The SWaM receives full credit for the total reasonable amount the SWaM is paid for the transportation services provided on the Contract using trucks the SWaM owns, insures, and operates using drivers that the SWaM employs and manages.
  - D. The SWaM may lease trucks from another certified SWaM firm, including from an owner-operator who is certified as a SWaM. The SWaM firm that leases trucks from another SWaM will receive credit for the total fair market value actually paid for transportation services the lessee SWaM firm provides on the Contract.
  - E. The SWaM may also lease trucks from a non-SWaM firm, including an owner-operator. The SWaM who leases trucks from a non-SWaM is entitled to credit for the total value of the transportation services provided by non-SWaM leased trucks equipped with drivers, not to exceed the value of transportation services on the Contract provided by SWaM-owned trucks or leased trucks with SWaM employee drivers. For additional participation by non-SWaM lessees, the SWaM will only receive credit for the fee or commission it receives as a result of the lease arrangement.

Example: SWaM Firm X uses two (2) of its own trucks on a contract. The firm leases two (2) trucks from SWaM Firm Y and six (6) trucks equipped with drivers from non-SWaM Firm Z. SWaM credit would be awarded for the total transportation services provided by SWaM Firm X and SWaM Firm Y, and may also be awarded for the total value of transportation services by four (4) of the six (6) trucks provided by non-SWaM Firm Z.

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In all, full SWaM credit would be allowed for the participation of eight trucks.

With respect to the other two trucks provided by non-SWaM Firm Z, SWaM credit could be awarded only for the fees or commissions pertaining to those trucks that SWaM Firm X receives as a result of the lease with non-SWaM Firm Z.

- F. The SWaM may lease trucks without drivers from a non-SWaM truck leasing company. If the SWaM leases trucks from a non-SWaM truck leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.

Example: SWaM Firm X uses two of its own trucks on a contract. It leases two additional trucks from non-SWaM Firm Z. Firm X uses its own employees to drive the trucks leased from Firm Z. SWaM credit would be awarded for the total value of the transportation services provided by all four trucks.

- G. For purposes of this section, the lease must indicate that the SWaM firm leasing the truck has exclusive use of and control over the truck. This will not preclude the leased truck from working for others during the term of the lease with the consent of the SWaM, provided the lease gives the SWaM absolute priority for and control over the use of the leased truck. Leased trucks must display the name and identification number of the SWaM firm that has leased the truck at all times during the life of the lease.

**(g) Verification of SWaM Participation**

**1. During the Contract**

Within 14 days after contract execution, the Contractor shall submit to the Engineer, with a copy to the District Civil Rights Office (DCRO), a fully executed Subcontract for each SWaM used to claim credit in accordance with the requirements stated on Form C-112S. The Subcontract shall be executed by both parties stating the work to be performed, the details or specifics concerning such work, and the price which will be paid to the SWaM.. In lieu of subcontracts, purchase orders may be submitted for haulers, suppliers, and manufacturers. Such purchase orders must contain, at least, the following information: authorized signatures of both parties; description of the scope of work to include contract item numbers, quantities, and prices; and required contract provisions.

Within 14 days after contract execution, the Contractor shall submit to the Department a fully executed Form C-61 showing the name(s) and certification numbers of the SWaMs who will perform work to be reported as said participation credit. Each month during the Project, the Contractor shall furnish information relative to all SWaM involvement on the project using Form C-61. The District Civil Rights Office (DCRO) will monitor good faith effort documentation monthly to determine progress being made toward meeting the SWaM goal established for the Contract based on the Form C-61 that the Contractor submits during the monthly reporting periods after notice to proceed.

The Department reserves the right to request proof of payment via copies of cancelled checks with appropriate identifying notations. Failure to provide Form C-61 to the DCRO within 5 business days after the reporting period may result in delay of approval of the Contractor's monthly progress estimate for payment. The names and certification numbers of SWaM businesses provided by the Contractor on the various forms indicated in this Special Provision shall be exactly as shown on the DSBSD's latest list of certified SWaMs. Signatures on all forms indicated herein shall be those of authorized representatives of the Contractor as shown on Form C-32 or Form C-32A, or authorized by letter from the Contractor.

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The Contractor shall submit to the Engineer its progress schedule with a copy to the DCRO, as required by Section 108.03 or other such specific contract scheduling specification that may include contractual milestones, i.e., monthly or VDOT requested updates. The Contractor shall include a narrative of applicable SWaM activities relative to work activities of the Contractor's progress schedule, including the approximate start times and durations of all SWaM participation to be claimed for credit that shall result in full achievement of the SWaM goal required in the Contract.

If the Contractor plans to use SWaMs who have not been previously documented with the Contractor's Bid and for which the Contractor desires to claim credit toward the SWaM goal, before the SWaM begins work the Contractor shall be responsible for a revised Form C-111S showing the names and certification numbers of any current SWaMs.

The Contractor shall obtain the prior approval of the Department for any assistance it may provide to the SWaM beyond its existing resources in executing its commitment to the work in accordance with the requirements listed in Section 107.15(d). If the Contractor is aware of any assistance beyond a SWaM's existing resources that the Contractor, or another subcontractor, may be contemplating or may deem necessary and that have not been previously approved, the Contractor shall submit a new or revised narrative statement for VDOT's approval prior to assistance being rendered.

2. **SWaM Non-Performance.** If a SWaM, through no fault of the Contractor, is unable or unwilling to fulfill their agreement with the Contractor, the Contractor shall immediately notify the Department in writing and provide all relevant facts. If a Contractor intends to terminate or relieve a SWaM of the responsibility to perform work under their subcontract, the Contractor is required to comply with termination provisions below.

3. **Contractor Non-Compliance.**

If the Contractor fails to conform to the schedule of SWaM participation as shown on the progress schedule, fails to meet the SWaM participation goals for each month of the Contract as shown on the progress schedule, or at any point at which it is clearly evident that the remaining dollar value of allowable credit for performing work is insufficient to obtain the scheduled participation, and the Contractor has not taken the actions required when a SWaM is unwilling or unable to perform, the Contractor may be disqualified from bidding as provided in Section 107.15(i) for a period up to 60 days, or until such time as conformance with the schedule of SWaM participation is achieved or until the preceding actions are taken. Disqualification may be avoided if the Contractor can show: (1) the SWaM is unable or unwilling to complete their portion of the Work, and the Contractor shows reasonable good faith effort to fulfill the SWaM requirement otherwise; or (2) the Department has eliminated or delayed work which the Contractor, as shown on the progress schedule, had planned to sublet to a SWaM.

If the Contractor fails to comply with correctly completing and submitting any of the required documentation required by this provision within the specified time frames, the Department will withhold payment of the monthly progress estimate until such time as the required submissions are received by the Department. Where such failures to provide required submittals or documentation are repeated the Department may disqualify the Contractor and any prime contractual affiliates, as in the case of a joint venture, from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects until such submissions are received in accordance with Section 107.15(i).

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4. **Contract Changes.** During construction there may be changes in the Work necessary for the satisfactory completion of the Project. The SWaM goal applicable to the Contract includes change orders that have more than a minimal impact on the overall Contract amount or the expected SWaM participation. The Contractor should closely monitor changes in the Work to verify if they will impact work to be performed by SWaMs.

**A. Increases in Contract Amount**

To meet the SWaM goal as applied to a change order increasing the overall Contract amount, the Contractor must make good faith efforts to obtain additional SWaM participation to meet the SWaM goal on the increase in the overall Contract amount. The Contractor could meet this obligation either by obtaining the additional work from SWaM subcontractors or suppliers or by documenting good faith efforts to do so.

For example, if a project has a 10% SWaM participation goal, and during the project the Department issues a change order that will add \$500,000 to the overall Contract amount, the 10% goal applies to this additional \$500,000. To meet the SWaM goal as applied to the Change Order, the Contractor would have to make good faith efforts to obtain an additional \$50,000 in SWaM participation.

If after making a good faith effort the Contractor cannot obtain additional SWaM participation sufficient to meet the increased SWaM goal, the Contractor shall document its good faith efforts by submitting a revised Form C-111S exhibiting the SWaM participation it commits to attain. The Contractor shall also submit a revised Form C-49S. If the Department determines that these Forms demonstrate that the Contractor made reasonable good faith efforts, the Department will reduce the SWaM goal to the Contractor's actual commitment shown in the revised Form C-111S. The Contractor is still encouraged to seek additional SWaM participation during the life of the Contract.

The Contractor may notify the Department if it believes that a Change Order has such a minimal impact on the overall Contract amount or the expected SWaM participation that it would not be sensible to apply the goal to the Change Order. The Department will determine whether it is necessary to apply the SWaM goal to the Change Order.

**B. Decreases in Amount of SWaM Work**

If changes in the Work eliminate or decrease the amount of work designated to be performed by SWaM(s), the Contractor must follow the procedures in Section 107.15(l)(2)(D), and must make good faith efforts to meet the SWaM goal by finding additional work for SWaMs to perform or finding additional SWaMs to perform work under the Contract to the extent needed to meet the SWaM goal.

5. **Documentation Required for Semi-Final Payment**

On those projects nearing completion, the Contractor must submit Form C-61 marked "Semi-Final" to the DCRO within 20 days after the submission of the last regular monthly progress estimate. The form must include each SWaM used on the Contract work and the work performed by each SWaM. The form shall include the actual dollar amount paid to each SWaM for the accepted creditable work on the Contract. The form shall be certified under penalty of perjury, or other applicable law, to be accurate and complete. The Department will use this certification and other information available to determine applicable SWaM credit allowed to date by the Department and the extent to which the SWaMs were fully paid for that work. The Contractor shall acknowledge by the act of filing the form that the information is supplied to obtain SWaM credit, and that Contractor has complied with the requirements of the SWaM Program.

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A letter of certification, signed by both the Contractor and appropriate SWaMs will accompany the form, indicating the amount, including any retainage, if present, that remains to be paid to the SWaMs.

**6. Documentation Required for Final Payment**

On those projects that are complete, the Contractor shall submit a Form C-61 marked "Final Report" to the DCRO, within 60 days after final acceptance of the Project. The form must include each SWaM used on the Contract and the work performed by each SWaM. The form shall include the actual dollar amount paid to each SWaM for the creditable work on the Contract. The Department may delay final payment until the Contractor provides the required documentation or complies with its small business subcontracting plan in Form C111S.

Before final payment is made, the Department will use this form and other information available to confirm that the Contractor has certified compliance with the Contract's small business subcontracting plan shown in Form C111S, and determine if the Contractor has satisfied the SWaM goal percentage specified in the Contract and the extent to which credit was allowed. The Contractor shall acknowledge by the act of signing and filing the form that the information is supplied to obtain SWaM credit, and that Contractor has complied with the requirements of the SWaM Program.

If there are any variances between the Contractor's required small business subcontracting plan in Form C111S and the actual participation, the Contractor shall provide a written explanation to the Department in the final Form C-61. The written explanation shall be kept with the Contract file and made available upon request. The Contractor's written explanation must substantiate that the variance: (i) was due solely to quantitative underruns, elimination of items subcontracted to SWaMs, or circumstances beyond their control; and (ii) all feasible means have been used to obtain the required participation. The State Contract Engineer upon evaluation of such written explanation will make a determination whether or not the Contractor has met the requirements of the Contract in accordance Section 107.15(i). If the determination is that the Contractor failed to meet the SWaM goal or otherwise comply with the requirements of this SWaM Program, the Contractor may be disqualified from bidding as provided in Section 107.15(i).

**(h) Disqualification of Contractor**

Contractors may be disqualified from bidding for failure to comply with this SWaM Program. Disqualification means the suspension or revocation of the Contractor's prequalification privileges. The disqualification of the Contractor will also result in the disqualification of each member when the Contractor is a joint venture, and any affiliate of the Contractor that has essentially the same operational management or draws from the same labor resource pool. Disqualification, for the purpose of this SWaM Program, means that the Contractor, the members of the joint venture when applicable, and its affiliates, will retain their prequalification status, but will be restricted from bidding as a prime contractor, or performing work as a subcontractor on VDOT projects for the specified period of time if the State Contract Engineer determines that such work could adversely affect other work under contract to VDOT.

Before disqualification as provided herein, the Contractor may submit documentation to the State Contract Engineer to substantiate that the failure was due solely to quantitative underruns, elimination of items subcontracted to SWaMs, or to circumstances beyond their control, and that all feasible means have been used to obtain the required participation.

The State Contract Engineer upon evaluation of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract.

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Before the issuance of a written determination of disqualification, the State Contract Engineer shall (i) notify the Contractor in writing of the results of the evaluation, (ii) disclose the factual support for the determination, and (iii) allow the Contractor an opportunity to inspect any documents that relate to the determination, if so requested by the Contractor within 5 business days after receipt of the notice.

Within 10 business days after receipt of the notice, the Contractor may submit rebuttal information challenging the evaluation. The State Contract Engineer shall issue the written determination of disqualification based on all information in the possession of the Department, including any rebuttal information, within 5 business days of the date the State Contract Engineer received such rebuttal information.

If the State Contract Engineer determines that the Contractor should be disqualified, the decision shall be administratively final unless the Contractor requests an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. If the Administrative Reconsideration Panel's evaluation reveals that the Contractor should not be disqualified, the Department shall cancel the proposed disqualification action. If the evaluation reveals that the Contractor should be disqualified, the Administrative Reconsideration Panel shall so notify the Contractor. The notice shall state the basis for the determination. The decision of the Administrative Reconsideration Panel shall be final and conclusive unless the Contractor appeals the decision within 10 calendar days after receipt of the notice by instituting a legal action as provided in Virginia Code § [2.2-4364](#).

If the decision is made to disqualify the Contractor as described herein, the disqualification period will begin upon the Contractor's failure to request an appearance before the Administrative Reconsideration Panel or instituting a legal action within the designated time frame or upon the Administrative Reconsideration Panel's or a court's decision to affirm the disqualification, as applicable.

As used above, "all feasible means" refers to reasonable good faith efforts to obtain sufficient SWaM participation to meet the SWaM goal as specified in Section 107.15(d)(2).

(i) **Miscellaneous SWaM Program Requirements**

1. **Loss of SWaM Eligibility:** When a SWaM has been removed from eligibility as a certified SWaM, the following actions will be taken:
  - A. When a Contractor has made a commitment to use a Subcontractor that is not currently SWaM certified, thereby making the Contractor ineligible to receive SWaM participation credit for work performed, and a Subcontract has not been executed, the ineligible Subcontractor does not count toward either the SWaM goal or overall goal. The Contractor shall meet the SWaM goal with a Subcontractor that is eligible to receive SWaM credit for work performed, or must demonstrate to the State Contract Engineer that it has made good faith efforts to do so.
  - B. When a Contractor has executed a Subcontract with a certified SWaM before official notification of the SWaM's loss of eligibility, the Contractor may continue to use the subcontractor on the Contract and shall continue to receive SWaM credit toward its SWaM goal for the subcontractor's work.
  - C. When the Department has executed a prime contract with a SWaM that is certified at the time of contract execution but that is later ruled ineligible, the portion of the ineligible contractor's performance on the contract before the Department has issued the notice of its ineligibility shall count toward the SWaM goal.

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2. **Termination of SWaM:** If a SWaM that the Contractor committed to use to meet the SWaM goal fails, refuses, or is unable to complete their work on the Contract for any reason, the Contractor shall promptly notify the Department. The Contractor shall not terminate, substitute or replace that SWaM without providing the notices and obtaining the Department's prior written consent in accordance with this section. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a SWaM with its own forces or those of an affiliate, a non-SWaM, or with another SWaM. Unless the Contractor obtains the Department's prior written consent the Contractor shall utilize the specific SWaMs listed in its Form C-111S to perform the work and supply the materials for which each is listed, and the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed SWaM.

A. Written consent from the Department for terminating the performance of any SWaM shall be granted only when the Contractor can demonstrate that it has good cause to do so. For purposes of this section, good cause includes the following circumstances:

- (1) The listed SWaM fails or refuses to execute a written contract.
- (2) The listed SWaM fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the SWaM to perform its work on the Subcontract results from the bad faith or discriminatory action of the Contractor.
- (3) The listed SWaM fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements.
- (4) The listed SWaM becomes bankrupt, insolvent, or exhibits credit unworthiness.
- (5) The listed SWaM is ineligible to work on public works projects because of suspension, debarment, disqualification, lack of prequalification, or applicable state law.
- (6) The Department has determined that the listed SWaM is not a responsible contractor.
- (7) The listed SWaM voluntarily withdraws from the project and provides to the Department written notice of its withdrawal.
- (8) The listed SWaM is ineligible to receive SWaM credit for the type of work required.
- (9) A SWaM owner dies or becomes disabled with the result that the listed SWaM is unable to complete its work on the Contract.
- (10) Other documented good cause that the Department determines compels the termination of the SWaM. Provided, that good cause does not exist if the Contractor seeks to terminate a SWaM it relied upon to obtain the Contract so that the Contractor can self-perform the work for which the SWaM was engaged or so that the Contractor can substitute another SWaM or non-SWaM contractor after contract award.

The Department's written consent by to terminate any SWaM shall concurrently constitute written consent to substitute or replace the terminated SWaM with another SWaM. Consent to terminate a SWaM shall not be based on the Contractor's ability to negotiate a more advantageous contract with another subcontractor whether that subcontractor is, or is not, a certified SWaM.

B. All Contractor requests to terminate, substitute, or replace a certified SWaM shall be in writing, and shall include the following information:



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- (1) The date the Contractor determined the SWaM to be unwilling, unable, or ineligible to perform.
- (2) The projected date that the Contractor shall require a substitution or replacement SWaM to commence work if consent is granted to the request.
- (3) A brief statement of facts describing and citing specific actions or inaction by the SWaM giving rise to the Contractor's assertion that the SWaM is unwilling, unable, or ineligible to perform.
- (4) A brief statement of the affected SWaM's capacity and ability to perform the work as determined by the Contractor.
- (5) A brief statement of facts regarding actions taken by the Contractor which are believed to constitute good faith efforts toward enabling the SWaM to perform.
- (6) The current percentage of work completed on each bid item by the SWaM.
- (7) The total dollar amount currently paid per bid item for work performed by the SWaM.
- (8) The total dollar amount per bid item remaining to be paid to the SWaM for work completed, but for which the SWaM has not received payment, and with which the Contractor has no dispute.
- (9) The total dollar amount per bid item remaining to be paid to the SWaM for work completed, but for which the SWaM has not received payment, and over which the Contractor and the SWaM have a dispute.

**C. Contractor's Written Notice to SWaM of Pending Request to Terminate and Substitute with another SWaM.**

Before transmitting its request to terminate and substitute a SWaM to the Department, the Contractor shall send a written notice of its intent to terminate or substitute to the affected SWaM, with a copy sent to the DCRO. The affected SWaM may submit a response letter to the DCRO within 5 business days of receiving the notice to terminate from the Contractor. The affected SWaM shall explain its position concerning performance on the committed work, and the reasons, if any, why it objects to the proposed termination of its Subcontract and why the Department should not approve the Contractor's action. The Department will consider both the Contractor's request and the SWaM's response and explanation before approving the Contractor's termination and substitution request, or determining if any action should be taken against the Contractor.

If, after making its best efforts to deliver a copy of the "request to terminate and substitute" letter, the Contractor is unsuccessful in notifying the affected SWaM, the Department will verify that the affected SWaM is unable or unwilling to continue the contract. The Department will immediately approve the Contractor's request for a substitution.

**D. Proposed Substitution With Another Certified SWaM**

Upon termination of a SWaM, or when a SWaM fails to complete its work on the Contract for any reason, the Contractor shall use reasonable good faith efforts to replace the terminated SWaM. These good faith efforts shall be directed at finding another SWaM to perform at least the same amount of work under the Contract as the original SWaM, to the extent needed to meet the SWaM goal.

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The termination of such SWaM shall not relieve the Contractor of its obligations pursuant to this section, and the unpaid portion of the terminated SWaM's contract will not be counted toward the SWaM goal.

When a SWaM substitution is necessary, the Contractor shall submit an amended Form C-111S with the name of another SWaM, the proposed work to be performed by that, and the dollar amount of the work to replace the unfulfilled portion of the work of the originally committed SWaM. The Contractor shall furnish all pertinent information including the Contract I.D. number, project number, bid item, item description, bid unit and bid quantity, unit price, and total price. In addition, the Contractor shall submit documentation for the requested substitute SWaM as described in this section of this Special Provision.

Should the Contractor be unable to find another SWaM to perform at least the same amount of work under the Contract as the terminated SWaM, the Contractor shall provide written documentation of its good faith efforts made to do so to VDOT within 7 days, which may be extended for an additional 7 days if necessary at the Contractor's request. The Department will review the quality, thoroughness, and intensity of those efforts. Efforts that are viewed by VDOT as merely superficial or pro-forma will not be considered good faith efforts to meet the Contract goal for SWaM participation. The Contractor must document the steps taken that demonstrated its good faith efforts to obtain participation as set forth in Section 107.15(d)2. The Department will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

Should the Contractor fail to submit the documentation and information as required any work performed by the substitute SWaM will not be counted toward the SWaM goal.

**(j) Suspected Evidence of Criminal Conduct**

Failure of a Bidder, Contractor, or Subcontractor to comply with the Specifications and the SWaM Program wherein there appears to be evidence of criminal, false, fraudulent, or dishonest conduct shall be considered a violation of the Virginia Governmental Frauds Act, punishable as allowed by the Code of Virginia for a Class 6 Felony, and the Virginia Fraud Against Taxpayers Act, subject to the civil penalties allowed by the Code of Virginia, and referred to the Attorney General for the Commonwealth of Virginia for investigation and, if warranted, prosecution.

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SQ107-001620-00

May 11, 2021

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**PREVAILING WAGE RATES**

**SECTION 107 – LEGAL RESPONSIBILITIES** of the Specifications is amended as follows:

**Section 107.13 – Labor and Wages** is amended as follows:

**Section 107.13(a) Predetermined Minimum Wages** is replaced with the following:

(a) **Prevailing Wage Rates:** The provisions of laws requiring the payment of a prevailing minimum wage rate are incorporated in and expressly made a part of this Contract. The Contractor and the Contractor's subcontractors shall pay wages, salaries, benefits, and other remuneration to any mechanic, laborer, or worker employed, retained, or otherwise hired to perform services in connection with the Contract at a rate at least equal to the prevailing wage rates determined by the Commissioner of Labor and Industry for work to be performed under this Contract, which are listed below. The wage determination establishes the rates that must be paid for the entire term of the Contract.

1. If the Contractor needs a job classification not listed in the wage determination to submit a bid or comply with this provision, the Contractor shall submit to the Department a completed Request for Additional Wage Classification, along with the reason for the additional classification, the proposed rate, and any supporting documentation. The Request form is available on the Virginia Department of Labor and Industry (VDOLI) website at: [www.doli.virginia.gov/wp-content/uploads/2021/04/Request-for-Additional-Wage-Classification.pdf](http://www.doli.virginia.gov/wp-content/uploads/2021/04/Request-for-Additional-Wage-Classification.pdf).

If other or additional classifications are used, omission of classifications shall not be cause for additional compensation to the Contractor. The Contractor shall be responsible for determining local practices with regard to the application of the various labor classifications.

2. The Contractor or the Contractor's subcontractors who employ any mechanic, laborer, or worker to perform work contracted to be done under the Contract at a rate that is less than the prevailing wage rate may be subject to civil and criminal liabilities and penalties as provided in § 2.2-4321.3 of the Code of Virginia.
3. Upon the award of the Contract, the Contractor shall certify, under oath, to the Commissioner of VDOLI the pay scale for each craft or trade employed on the project to be used by the Contractor and any of the Contractor's subcontractors for work to be performed under the Contract. This certification shall, for each craft or trade employed on the project, specify the total hourly amount to be paid to employees, including wages and applicable fringe benefits, provide an itemization of the amount paid in wages and each applicable benefit, and list the names and addresses of any third party fund, plan or program to which benefit payments will be made on behalf of employees. The certification form is available at: [www.doli.virginia.gov/wp-content/uploads/2021/04/DOLI-Pay-Scale-Certification-for-Public-Works-Projects.pdf](http://www.doli.virginia.gov/wp-content/uploads/2021/04/DOLI-Pay-Scale-Certification-for-Public-Works-Projects.pdf). The form may be emailed to [prevailingwage@doli.virginia.gov](mailto:prevailingwage@doli.virginia.gov), faxed to 804-371-6524, or mailed to Virginia Department of Labor and Industry, 600 East Main St., Suite 207, Richmond, VA, 23219, Attn: Prevailing Wage.

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4. The Contractor and the Contractor's subcontractors shall keep, maintain, and preserve (i) records relating to the wages paid to and hours worked by each individual performing the work of any mechanic, laborer, or worker and (ii) a schedule of the occupation or work classification at which each individual performing the work of any mechanic, laborer, or worker on the public works project is employed during each work day and week. These records should include but are not limited to: (i) time cards, time sheets, daily work records, etc.; (ii) payroll ledger or journals and canceled checks or check register; and (iii) fringe benefit records must include program, address, account number, and canceled checks. The employer shall preserve these records for a minimum of six years and make such records available to VDOLI within 10 days of a request and shall certify that records reflect the actual hours worked and the amount paid to its workers for whatever time period they request.
5. The Contractor and the Contractor's subcontractors performing work on this Contract shall post the general prevailing wage rate for each craft and classification involved, as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places accessible to all employees at the site of the work or at any such places as are used by the Contractor or subcontractors to pay workers their wages. Within 10 days of such posting, the Contractor or subcontractors shall certify to the Commissioner of VDOLI their compliance with this requirement. The certification is form available at:  
[www.doli.virginia.gov/wp-content/uploads/2021/04/PW\\_Posting\\_Compliance\\_Form.pdf](http://www.doli.virginia.gov/wp-content/uploads/2021/04/PW_Posting_Compliance_Form.pdf).  
The form may be emailed to [prevailingwage@doli.virginia.gov](mailto:prevailingwage@doli.virginia.gov), faxed to 804-371-6524, or mailed to Virginia Department of Labor and Industry, 600 East Main St., Suite 207, Richmond, VA, 23219, Attn. Prevailing Wage.
6. Helpers. Helpers are not included in the VDOLI wage determinations. If the Contractor thinks the project needs a "helper" wage determination, the Contractor must prove the following conditions:
  - a. The work duties are defined and distinct from listed classifications;
  - b. The use of helpers is an established practice in the area; and
  - c. The helper is not employed as a trainer, or apprentice
7. Apprentices and trainees. If an apprentice or trainee is registered in a bona fide apprenticeship program that is registered with the US Department of Labor, the Commonwealth, or an out-of-state agency then the wages paid to such an individual will be specified by the apprenticeship, or training agreement and not subject to prevailing wage rates.
8. Appeal of wage determination. If the Contractor thinks an error has occurred, either in the listing of wage determinations, or in the calculation of specific wages, the Contractor may fill out the form available on the VDOLI website titled "Appeal for Clarification of Wage Determination". In this form the Contractor can list the reason for the appeal, and can submit all relevant documents to support the appeal. The form should be submitted VDOLI, the agency responsible for processing the appeal.
9. Prevailing wage rates for work done off-site. For the purposes of this provision, the requirement to pay prevailing wage rates for "services in connection with the Contract" includes services performed at the site of work, at a site dedicated exclusively, or near so, to the performance of the Contract, or a site adjacent, or virtually adjacent to the site of the work; but does not include the Contractor's home office or branch locations, tool yards, fabrication or batch plants, or similar locations not established specifically for the project.
10. Subcontracts. The Contractor shall insert this Special Provision into any subcontracts let to subcontractors for performance of services in connection with the Contract.



**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF LABOR AND INDUSTRY**

**Gary G. Pan**  
 COMMISSIONER

Main Street Centre  
 600 East Main Street, Suite 207  
 Richmond, Virginia 23219  
 PHONE (804) 371-2327  
 FAX (804) 371-6524

Virginia Department of Labor and Industry Wage Determination Decision

Project Name VDOT - 251  
 State Project Code PM2N-060-F24, P401  
 DOLI Project Number VDOT-24-0019  
 County or Independent City Montgomery County  
 Publication Date 01/22/2024  
 Construction Type Highway

Wage Determinations	Wage	Fringe
Carpenter (Includes Form Work)	\$17.65	
Cement Mason/Concrete Finisher	\$19.94	
Electrician, Includes Traffic Signalization	\$30.55	\$11.51
Ironworker, Reinforcing	\$22.71	
Ironworker, Structural	\$27.38	
Laborer: Asphalt, Includes Raker, Shoveler, Spreader and Distributor	\$15.40	
Laborer: Common or General	\$14.33	
Laborer: Grade Checker	\$15.07	
Laborer: Pipelayer	\$15.11	
Laborer: Power Tool Operator	\$15.69	
Operaoatr: Tractor (Utility)	\$15.18	
Operator: Asphalt Spreader and Distributor	\$17.25	
Operator: Backhoe/Excavator/Trackhoe	\$20.53	
Operator: Bobcat/Skid Steer/Skid Loader	\$19.16	\$4.45

Wage Determinations	Wage	Fringe
Operator: Broom/Sweeper	\$14.32	\$0.25
Operator: Bulldozer, Including Utility	\$17.81	
Operator: Crane	\$25.82	
Operator: Drill	\$24.66	
Operator: Gradall	\$18.65	
Operator: Grader/Blade	\$26.13	
Operator: Hydroseeder	\$16.64	
Operator: Loader	\$22.22	
Operator: Mechanic	\$19.59	
Operator: Milling Machine	\$23.12	\$3.60
Operator: Paver (Asphalt, Aggregate, and Concrete)	\$16.66	
Operator: Piledriver	\$21.83	\$4.08
Operator: Roller	\$15.85	
Operator: Roller (Finishing)	\$14.85	
Operator: Screed	\$22.13	\$4.89
Pavement Marking Operator	\$19.40	
Pavement Marking Truck Driver	\$21.40	
Traffic Control: Flagger	\$12.00	
Truck Driver: 1/Single Axle Truck	\$15.19	
Truck Driver: Fuel and Lubricant Service	\$18.25	
Truck Driver: Heavy 7CY & Under	\$15.36	
Truck Driver: Heavy Over 7CY	\$16.69	
Truck Driver: Multi Axle	\$16.19	

### Additional Notes

All rates are determined by DOLI and any appeals of specific classifications may be made through the Wage Determination Appeal form available at <http://www.doli.virginia.gov/wp-content/uploads/2021/04/Appeal-for-Wage-Determination-Clarification.pdf>

Any additional classifications may be requested through the Additional Wage Classification form available at <http://www.doli.virginia.gov/wp-content/uploads/2021/04/Request-for-Additional-Wage-Classification.pdf>

Understand your duties as a contractor under Virginia law by referencing our Contractor Responsibilities information sheet available at <http://www.doli.virginia.gov/wp-content/uploads/2021/04/PREVAILING-WAGE-CONTRACTOR-RESPONSIBILITIES.pdf>

Your employees have specific rights, which can be found on our List of Employee Rights information sheet available at <http://www.doli.virginia.gov/wp-content/uploads/2021/04/PREVAILING-WAGE-EMPLOYEE-RIGHTS.pdf>

Any further questions should be directed to [PrevailingWage@doli.virginia.gov](mailto:PrevailingWage@doli.virginia.gov)

**ORDER NO.: 251**  
**CONTRACT ID. NO.: CM224PMN124680**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**TYPE E ASPHALT CONCRETE MIXTURES FOR RESURFACING PROGRAM**

May 25, 2023

**I. Description**

*This Specification covers the requirements and materials used to produce Asphalt Concrete with Type E designation with either polymer modified binders or ground tire rubber (GTR) modified binders using a wet process. These mixtures shall be designed, produced, and placed as required by this Special Provision and Sections 211 and 315 of the Specifications.*

**II. Materials**

*All materials shall conform to Section 211.02 of the Specifications with the exception of 211.02(a).*

**Asphalt materials** used in Asphalt Concrete Mixtures with the E designation shall conform to one of the following:

- a. A neat asphalt material with polymer modification that complies with the requirements of PG 64E-22, in AASHTO M 332, and have a rolling thin film oven test residue elastic recovery at 77°F of a minimum of 70 percent when tested in accordance with ASTM D 6084 procedure A.
- b. A neat asphalt material with a terminal blended crumb rubber modification, complying with the requirements of PG 64E-22, in AASHTO M 332, and have a rolling thin film oven test residue elastic recovery at 77°F of a minimum of 70 percent when tested in accordance with ASTM D 6084 procedure A
- c. On-site blended Asphalt Rubber Binder (ARB) shall conform to ASTM D 6114 Type II specifications, by using a PG binder blended with GTR. A PG 64S-22 shall be used, however, the Contractor may substitute PG 58S-28 where needed to meet the requirements of ASTM D 6114 (Type II) as approved by the Engineer. The minimum percentage of granulated rubber by weight of total asphalt binder is 15%.

E designated mixtures shall not contain more than 15 percent reclaimed asphalt pavement (RAP) material (by weight). Recycled Asphalt Shingles (RAS) shall not be used in asphalt concrete with rubber-modified binders.

**III. Job-Mix Formula (JMF)**

**Mix Type SM-4.75E, SM-9.0E SM-9.5E, SM-12.5E, IM-19.0E asphalt concrete shall be designed in accordance with Section 211 of the Specifications and the following requirements.**

*The Contractor shall submit the mix design at least 1 month before the mix is scheduled to be produced.*

*For On-site blended ARB, the Contractor shall provide documentation on the method and equipment for combining the GTR and PG binder. The documentation shall include the percentage by weight for each material being incorporated into the mixture, as well as the grade of PG binder used. The Contractor shall furnish samples of the ARB to be tested as part of the mix design approval process.*

**IV. Production Testing**

The Contractor and the Department will conduct testing as required by Sections 211.05 and 211.06 of the Specifications.

In addition, if on-site blended ARB is being used, the Contractor shall furnish samples of the ARB proposed for use on the project, at least two weeks prior to beginning production. The samples shall consist of 4 one-quart size cans of the ARB, together with the formulation and the grade of binder used.



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The method and equipment for combining the GTR and PG binder shall be so designed and accessible that the Engineer can readily determine the percentage by weight for each material being incorporated into the mixture.

**V. Acceptance**

Lot acceptance shall be as required by Section 211.08 of the Specifications. Field density shall be determined in accordance with Section 315 of the Specifications.

**VI. Asphalt Concrete Mixing Plant**

Plants used for the preparation of asphalt concrete mixtures shall conform to 211. When using either a neat asphalt material with a terminal blended crumb rubber modification or an on-site blended ARB, the additional following requirements shall be met.

- (a) **Hot Mixture Storage:** If the Contractor elects to use a storage system, the system shall be capable of conveying the mix from the plant to the storage bins and storing the mix without segregation, oxidation, or a loss in temperature of the mix.

The conveyor system may be a continuous or skip bucket type. Continuous type conveyers shall be enclosed so that the mix temperature is maintained.

Suitable storage bins shall be provided. Storage bins shall be heated and insulated and have a controlled atmosphere around the mixture. The storage bins shall be designed in a manner to prevent segregation of the mix during discharge from the conveyor into the bins and shall be equipped with discharge gates that will not cause segregation of the mix while the mix is being loaded into the trucks.

The holding times shall be within limitations imposed by the Engineer, based on laboratory tests of the stored mixture. Approval for the use of storage bins may be withdrawn by the Engineer if the amount of heat loss, segregation, or oxidation of the mix is excessive.

- (b) **Mixing Temperatures:** The temperature of the asphalt rubber mixture immediately after mixing shall not be greater than the manufacturer's recommendation, per section 211.03 (d) 6.c.
- (c) **ARB Mixing Plant Equipment:** Additional plant equipment shall be required for the on-site blending of asphalt rubber binder (ARB) as described below:

1. **Mixing and Reaction Equipment:** Equipment utilized in the mixing and reaction of ARB shall include the following as a minimum: Feed system for the GTR, a blending tank and a separate storage tank(s), as well as a heating and metering systems.

An asphalt heating tank with hot oil heat transfer to heat the PG binder to the necessary temperature before blending with the granulated rubber. This unit shall be equipped with a thermostatic heat control device.

PG binder shall be introduced into the mechanical blender through meters that are capable of measuring and reporting the flow rate and total quantity of PG binder in both gallons and weight.

The GTR feed shall be equipped with devices by which the rate and quantity of ground rubber by weight can be measured and reported.

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A mechanical blender shall be used for complete, homogeneous blending and mixing of the PG binder and ground rubber. Mixing shall continue until a homogeneous mixture of uniformly distributed and properly blended ARB is produced. The percentage of ground rubber based on total ARB shall be recorded.

An ARB storage tank shall be equipped with a heating system to maintain the proper temperature of the binder and an internal mixing unit capable of maintaining a homogeneous mixture of asphalt and ground rubber.

The Contractor shall provide a safe sampling device capable of delivering a representative sample of the ARB. The device shall deliver a sufficient quantity of binder for the required test.

2. **Mixing:** After the material has reacted for at least 45 minutes (or a prescribed reaction time specified by the GTR supplier), the ARB shall be metered into the mixing chamber of the asphalt concrete production plant at the percentage approved on the JMF.

When batch type asphalt concrete plants are used to produce the rubberized asphalt concrete mixture, the ARB and mineral aggregate shall be proportioned by weight.

When continuous mixing type asphalt concrete plants are used to produce the rubberized asphalt concrete, the ARB shall be proportioned by an asphalt meter of the mass flow, coriolis effect type.

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**SQ704-000110-00**

VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**PAVEMENT MARKING AND MARKERS**  
(Data Logger System)

September 25, 2020

**I. DESCRIPTION**

This work shall consist of maintaining a daily log, Form [C-85](#), to record project and Contractor identification; project location; material installation time, date and location; environmental conditions; material composition; and material application rates for both temporary and permanent pavement markings and markers.

**II. PROCEDURES**

The Contractor shall maintain a daily log, Form [C-85](#), for both temporary and permanent pavement markings and markers. The C-85 form shall not be modified. All log entries shall be in electronic or legible ink format. The log shall be signed by the Contractor and delivered to the Engineer by the end of each workday. If the C-85 is in electronic format, then a printed copy, signed by the Contractor, shall be delivered to the Engineer at the end of each workday.

The Contractor shall use either of the following two methods to perform quality control (QC) testing for application thickness and glass bead rate for liquid temporary and permanent linear markings. However, the VTM 94 QC testing shall be used for all liquid linear markings that are installed by push cart.

1. **VTM 94 quality control testing:** The “Quality Control Measurements” portion of the Form C-85 shall be filled out for all markings using the VTM 94 QC testing method, and the C-85 shall be kept current throughout the day. The Contractor shall perform QC testing for application thickness and glass bead rate in accordance with VTM 94 at the beginning of each workday and every 3 hours thereafter. The Contractor shall provide the equipment needed to perform the QC testing in accordance with VTM 94. QC testing using VTM 94 shall be performed in the presence of the Inspector and shall be documented on Form C-85, immediately after testing is completed. If directed by the Engineer, the Contractor shall provide a QC test plate and the provision of the test plate shall be documented on the Form C-85. The Contractor shall also provide a printed or electronic copy of the signed Form C-85 to the District Materials Engineer for materials notebook evaluation.
2. **Data Logger System (DLS) quality control testing:** Before beginning pavement marking operations, the Contractor shall provide the DLS manufacturer’s instructions for equipment calibration and operation. Each DLS shall have an annual calibration of all mechanical and electrical components and its software function and output confirmed by the DLS manufacturer or their designated representative. Evidence of the annual calibration shall be carried by a signed and dated stamp or seal affixed to the inside of the driver’s door of each striper.

The Contractor shall submit electronic records from the DLS each day for all linear markings for which the Contractor is providing QC testing using this method. The record shall be produced in its final format directly from the DLS, before the records are removed from the DLS. The records shall be formatted to be read by Microsoft Excel (\*.xlsx) and shall be electronically provided to the Engineer via email or USB flash drive.

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The DLS report shall include the following:

- Project number
- Route number and direction
- Contractor name
- GPS coordinates for the truck's position during the application of the corresponding line, to an accuracy of within 10 feet
- Date and time for start and end of application
- Line information – color (white or yellow), pattern (skip, double, dotted, etc.), and location (i.e. left edge)
- Vehicle speed, to an accuracy of +/- 0.1 mph
- Weight or volume of binder material, with separate data entries for each 0.1 mph increment
- Weight of glass beads
- Pavement temperature (°F), surface temperature (°F), dew point (°F), air temperature (°F), and humidity (%).
- Calculate and provide average application thickness and bead application rate for each 0.1 mile increment

If the equipment critical to the DLS fails or is observed to be reporting incorrect measurements, the Contractor shall switch to using the VTM 94 QC testing method.

**III. MEASUREMENT AND PAYMENT**

**Data Logger System (DLS)** shall be included in the price bid for pavement markings and markers.

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SS109-002020-01

May 1, 2023

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 109—MEASUREMENT AND PAYMENT**

**SECTION 109—MEASUREMENT AND PAYMENT** of the Specifications is amended as follows:

**SECTION 109.08—Partial Payments** is replaced in its entirety with the following:

(a) **General**

Partial payments will be based on a monthly progress estimate consisting of approximate quantities and value of work performed as determined by the Engineer. When the method of measurement for a Contract item is in units of each or lump sum, the value of work accomplished for partial payment will be determined on a pro rata basis. Partial payments will be made once each month for the work performed in accordance with the Contract requirements. The Contractor will be given the opportunity to review the monthly progress estimate prior to each partial payment. Upon final acceptance, one last monthly estimate will be prepared and any additional payment due will be vouchered for payment.

The monthly progress estimates will be prepared in accordance with the following schedule:

1. **Contractor companies whose name begins with the letter A through F:** The monthly progress estimate will be prepared on the 4th day of each month, beginning on the first 4th day following the date of the Contract execution, and on the same day of the succeeding months as the work progresses.
2. **Contractor companies whose name begins with the letter G through P:** The monthly progress estimate will be prepared on the 11th day of each month, beginning on the first 11th day following the date of the Contract execution, and on the same day of the succeeding months as the work progresses.
3. **Contractor companies whose name begins with the letter Q through Z:** The monthly progress estimate will be prepared on the 20th day of each month, beginning on the first 20th day following the date of the Contract execution, and on the same day of the succeeding months as the work progresses.

For contracts without a payment bond, the Contractor shall submit to the Engineer a letter from each materials supplier and subcontractor involved stating that the Contractor has paid or made satisfactory arrangements for settling all bills for materials and subcontracted work that was paid on the previous month's progress estimate. The Department will use the source of supply letter and approved subletting request to verify that certifications have been received for work that was paid on the previous monthly estimate. The Contractor shall furnish these and other certificates as are required as a prerequisite to the issuance of payment for the current monthly estimate.

The Department may withhold the payment of any partial or final estimate voucher or any sum(s) thereof from such vouchers if the Contractor fails to make payment promptly to all persons supplying equipment, tools, or materials; or for any labor he uses in the prosecution of the Contract work.

Unless otherwise provided under the terms of the Contract, interest shall accrue at the rate of one percent per month.

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Contractors doing business as an individual must provide their social security numbers; proprietorships, partnerships, and corporations must provide their federal employer identification numbers.

**(b) Payment to Subcontractors**

Payment to subcontractors shall be in accordance with the provisions of Code of Virginia § 2.2- 4354 and § 2.2-4355 as follows.

1. Department has paid Contractor for Subcontractor's Work.

Upon the Department's payment to the Contractor for the subcontractor's portion of the work as shown on the monthly progress estimate and the receipt of payment by the Contractor for such work, the Contractor shall make compensation in full to the subcontractor. For the purposes of this Section, payment of the subcontractor's portion of the Work shall mean that payment has been issued for that portion of the Work that was identified on the monthly progress estimate for which the subcontractor has performed service.

The Contractor shall take one of the following two actions within 7 days after receipt of payment from the Department for the subcontractor's portion of the Work as shown on the monthly progress estimate:

- a. Pay the subcontractor for the proportionate share of the total payment received from the agency attributable to the Work performed by the subcontractor; or
- b. Notify the Department and subcontractor, in writing, of his intention to withhold all or a part of the subcontractor's payment along with the reason for nonpayment.

In the event payment is not made as required, the Contractor shall pay interest at the rate of one percent per month, unless otherwise provided in the Contract, to the subcontractor on all amounts that remain unpaid after 7 days, except for the amounts withheld as provided in this Section.

2. Department has not paid Contractor for Subcontractor's Work.

In the event that the Contractor has not received payment from the Department for work performed by a subcontractor under the Contract, the Contractor is liable for the entire amount owed to such subcontractor and shall pay such subcontractor within 60 days of the receipt of an invoice following satisfactory completion of the work for which the subcontractor has invoiced. The Contractor shall not be liable for amounts otherwise reducible due to the subcontractor's noncompliance with the terms of the Contract. However, in the event that the Contractor withholds all or part of the amount invoiced by the subcontractor under the terms of the Contract, the Contractor shall notify the subcontractor within 50 days of the receipt of such invoice, in writing, of his intention to withhold all or part of subcontractor's payment with the reason for nonpayment, specifically identifying the contractual noncompliance, the dollar amount being withheld, and the lower-tier subcontractor responsible for the contractual noncompliance. Payment by the party contracting with the Contractor shall not be a condition precedent to payment to any lower-tier subcontractor, regardless of the Contractor receiving payment for amounts owed to them. Any contrary provisions shall be unenforceable.

3. Nothing in this Section shall be construed to (i) apply to or prohibit the inclusion of any retainage provisions in a construction contract or (ii) apply to contracts awarded solely for professional services as that term is defined in Code of Virginia § 2.2-4301 where the Department is contracting directly with an architectural and engineering firm.

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4. The Contractor shall include in each of its subcontracts provisions requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower tier subcontractor.
5. If the Contractor fails to make payment to the subcontractor within the time frames specified herein, the subcontractor shall notify the Engineer and the Contractor's bonding company in writing. The Contractor's bonding company shall be responsible for insuring payment in accordance with this Section and Section 107.01.

(c) Retainage

If the Engineer determines the Contractor's progress is unsatisfactory according to Section 108.03 or other applicable Contract documents, the Engineer will send a notice of unsatisfactory progress to the Contractor advising him of such determination. This notification will also advise the Contractor that five percent retainage of the monthly progress estimate is being withheld and will continue to be withheld for each month the Contractor's actual progress is determined to be unsatisfactory.

When the Engineer determines that the Contractor's progress is satisfactory in accordance with these requirements, the 5 percent retainage previously withheld because of unsatisfactory progress will be released in the next monthly progress estimate, and the remaining monthly progress estimates will be paid in full provided the Contractor's progress continues to be satisfactory.

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**CONTRACT ID. NO.: CM224PMN124680**

SS211-002020-02

May 15, 2023

*VIRGINIA DEPARTEMENT OF TRANSPORTATION*  
*2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS*  
**SECTION 211 – ASPHALT CONCRETE**

SECTION 211 – ASPHALT CONCRETE of the Specifications is amended as follows:

Section 211.01 – Description is replaced with the following:

Asphalt concrete shall consist of a combination of mineral aggregate and asphalt material mixed mechanically in a plant specifically designed for such purpose.

An equivalent single-axle load (ESAL) will be established by the Engineer, and SUPERPAVE mix types may be specified as one of the types listed as follows:

Mix Type <sup>1</sup>	Equivalent Single-Axle Load (ESAL) Range (millions)	Minimum Asphalt Performance Grade (PG) <sup>2</sup>	Nominal Maximum Aggregate Size <sup>3</sup>
SM-4.75A	0 to 3	64S-16	No. 4
SM-4.75D	3 to 10	64H-16	No. 4
SM-4.75E	3 to 10	64E-22	No. 4
SM-9.0A	0 to 3	64S-16	3/8 in
SM-9.0D	3 to 10	64H-16	3/8 in
SM-9.0E	Above 10	64E-22	3/8 in
SM-9.5A	0 to 3	64S-16	3/8 in
SM-9.5D	3 to 10	64H-16	3/8 in
SM-9.5E	Above 10	64E-22	3/8 in
SM-12.5A	0 to 3	64S-16	1/2 in
SM-12.5D	3 to 10	64H-16	1/2 in
SM-12.5E	Above 10	64E-22	1/2 in
IM-19.0A	Less than 10	64S-16	3/4 in
IM-19.0D	10 to 20	64H-16	3/4 in
IM-19.0E	20 and above	64E-22	3/4 in
BM-25.0A	All ranges	64S-16	1 in
BM-25.0D	Above 10	64H-16	1 in

<sup>1</sup>SM = Surface Mixture; IM = Intermediate Mixture; BM = Base Mixture

<sup>2</sup>**Minimum Asphalt Performance Grade (PG)** is defined as the minimum binder performance grade for the job mix formulas as determined by AASHTO T170 or AASHTO M332.

<sup>3</sup>**Nominal Maximum Aggregate Size** is defined as one sieve size larger than the first sieve to retain more than 10 percent aggregate.

Asphalt concrete shall conform to the requirements for the mix type designated on the plans or elsewhere in the Contract for use.

At the Contractor's option, an approved Warm Mix Asphalt (WMA) additive or process may be used to produce the asphalt concrete mix type designated.

Table II-12A – Standard Deviation is renamed Aggregate Properties and is replaced with the following:



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TABLE II-12A  
Aggregate Properties

Mix Type	Coarse Aggregate Properties			Fine Aggregate Properties	
	CAA		ASTM D4791	SE	FAA
	1 fractured face	2 fractured faces	F & E (5:1) % by weight		
SM-4.75A				40% min.	40% min.
SM-4.75D				45% min.	45% min.
SM-4.75E				45% min.	45% min.
SM-9.0 A	85% min.	80% min.	10% max. <sup>1</sup>	40% min.	40% min.
SM-9.0 D	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.0 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.5 A	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.5 D	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-9.5 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-12.5 A	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-12.5 D	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
SM-12.5 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
IM-19.0 A	85% min.	80% min.	10% max. <sup>1</sup>	45% min.	45% min.
IM-19.0 D	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
IM-19.0 E	95% min.	90% min.	10% max. <sup>1</sup>	45% min.	45% min.
BM-25.0 A	80% min.	75% min.	10% max. <sup>1</sup>	45% min.	45% min.
BM-25.0 D	80% min.	75% min.	10% max. <sup>1</sup>	45% min.	45% min.

<sup>1</sup>10 percent measured at 5:1 on maximum to minimum dimensions

Table II-13 – Asphalt Concrete Mixtures: Design Range is replaced with the following:

**TABLE II-13**  
**Asphalt Concrete Mixtures: Design Range**

Mix Type	Percentage by Weight Passing Square Mesh Sieves										
	1 1/2 in	1 in	3/4 in	1/2 in	3/8 in	No. 4	No. 8	No. 16	No. 30	No. 50	No. 200
SM-4.75 A,D,E				100 <sup>1</sup>	95-100	90-100		30-55			6-13
SM-9.0 A,D,E				100 <sup>1</sup>	90-100	90 max.	47-67				2-10
SM-9.5 A,D,E				100 <sup>1</sup>	90-100	58-80	38-67		23 max		2-10
SM-12.5 A,D,E			100	95-100	90 max.	58-80	34-50		23 max		2-10
IM-19.0 A,D,E		100	90-100	90 max.	--	--	28-49				2-8
BM-25.0 A,D	100	90-100	90 max.	--	--	--	19-38				1-7
C (Curb Mix)				100	92-100	70-75	50-60		28-36	15-20	7-9

<sup>1</sup>A production tolerance of 1% will be applied to this sieve regardless of the number of tests in the lot.

Table II-14 – Mix Design Criteria is replaced with the following:

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**TABLE II-14**  
**Mix Design Criteria**

<b>Mix Type</b>	<b>VTM (%) Production</b>	<b>VFA (%) Design</b>	<b>VFA (%) Production</b>	<b>Min. VMA (%)</b>	<b>Fines/Asphalt Ratio</b>	<b>No. of Gyrations N Design</b>
SM4.75A <sup>2,4</sup>	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75D <sup>2,4</sup>	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75E <sup>2,4</sup>	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM-9.0A <sup>1,2</sup>	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0D <sup>1,2</sup>	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0E <sup>1,2</sup>	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.5A <sup>1,2</sup>	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5D <sup>1,2</sup>	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5E <sup>1,2</sup>	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-12.5A <sup>1,2</sup>	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5D <sup>1,2</sup>	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5E <sup>1,2</sup>	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
IM-19.0A <sup>1,2</sup>	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0D <sup>1,2</sup>	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0E <sup>1,2</sup>	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
BM-25.0A <sup>2,3</sup>	1.0-4.0	67-87	67-92	13.0	0.6-1.3	50
BM-25.0D <sup>2,3</sup>	1.0-4.0	67-87	67-92	13.0	0.6-1.3	50

<sup>1</sup>Binder content should be selected at 4.0% air voids for A & D mixes, 3.5% air voids for E mix.

<sup>2</sup>Fines-asphalt ratio is based on effective binder content.

<sup>3</sup>Base mix shall be designed at 2.5% air voids. BM-25A shall have a minimum binder content of 4.4% unless otherwise approved by the Engineer. BM-25D shall have a minimum binder content of 4.6% unless otherwise approved by the Engineer.

<sup>4</sup> Binder content shall be selected at 5.0 percent air voids.

**211.02—Materials (h)-** is replaced with the following

**(h)** An antistripping additive shall be used in all asphalt mixes. It may be hydrated lime or a chemical additive from the Materials Division Approved List No. 7 or a combination of both. When using an approved chemical additive, it shall be added at a rate of not less than 0.30 percent by weight of the total asphalt content of the mixture unless otherwise indicated on the Department's Approved List No. 7.

**211.02—Materials (m)-** is replaced with the following

**(m)** Warm Mix Asphalt (WMA) additives or processes shall be approved by the Department prior to use and shall be obtained from the Department's Approved List No. 66. When using an approved chemical additive, it shall be added at a rate of not less than 0.50 percent by weight of the total asphalt content of the mixture unless otherwise indicated on the Department's Approved List No. 66.

Section 211.03(d)8 – For surface mixes is replaced with the following:

For surface mixes, permeability test data shall be submitted in accordance with VTM-120 using either single point verification or the regression method for each surface mix having a different gradation. The specimen height shall be one inch for SM-4.75 mix types.

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If the average of the permeability results from the single point verification method exceeds  $150 \times 10^{-5}$  cm/sec, or if the regression method predicts a permeability exceeding  $150 \times 10^{-5}$  cm/sec at 7.5% voids, the Contractor shall redesign the mixture to produce a permeability number less than  $150 \times 10^{-5}$  cm/sec.

Section 211.04(a) – Types SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete is renamed Types SM-4.75A, SM-4.75D, SM-4.75E, SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete and replaced with the following:

Types SM-4.75A, SM-4.75D, SM-4.75E, SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate; slag or stone screenings; or a combination thereof combined with asphalt binder.

For all surface mixes, except where otherwise noted, no more than 5% of the aggregate retained on the No. 4 sieve and no more than 20% of the total aggregate may be polish-susceptible. At the discretion of the Engineer, SM-9.5AL or SM-12.5AL may be specified and polish susceptible aggregates may be used (without percentage limits).

Unless Type C (curb mix) is specified by the Engineer in the Contract, SM-9.0, SM-9.5, and SM-12.5 mix types are acceptable for use in the construction of asphalt curbing.

Section 211.04(e) – Type SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete is renamed Type SM-4.75, SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete and amended to replace the first paragraph with the following:

Type SM-4.75, SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete may be designated E (polymer modified), or stabilized (S). Asphalt concrete mixtures with the E designation may not be stabilized.

Table II-15 – Process Tolerance is replaced with the following:

**TABLE II-15**  
**Process Tolerance**

Tolerance on Each Laboratory Sieve and Binder Content: Percent Plus and Minus													
No. Tests	Top Size <sup>1</sup>	1 ½"	1"	¾"	½"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 200	A.C.
1	0.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	5.0	2.0	.60
2	0.0	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	3.6	1.4	0.43
3	0.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	2.8	1.1	0.33
4	0.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	2.5	1.0	0.30
5	0.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	2.7	2.2	0.9	0.27
6	0.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.0	0.8	0.24
7	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.3	1.9	0.8	0.23
8	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	1.8	0.7	0.21
12	0.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.4	0.6	0.17

<sup>1</sup>Defined as the sieve that has 100% passing as defined in Table II-13.

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Section 211.08 – Acceptance is amended by replacing the sixth paragraph with the following:

Binder content will be measured as extractable binder or weight after ignition. The Contractor shall submit a copy of burn tickets from an ignition oven to the Engineer and all the original tickets shall be available upon Engineer's request. The Engineer shall be notified within 24 hours from testing of a report edit if the date and time on a ticket do not match information submitted in PLAID. Original tickets shall be maintained on file by the Contractor for a period of 5 years or until final acceptance of the applicable contract, whichever is greater.

Section 211.09 – Adjustment System is amended by replacing the first paragraph and following table with the following:

If a lot of material does not conform to the acceptance requirements of Section 211.08, the Department will determine adjustment points as follows:

**Adjustment Points for Each 1% the Gradation Is Outside the  
Process Tolerance Permitted In Table II-15**

Sieve Size	(Applied in 0.1% increments)
1 1/2 in	1
1 in	1
3/4 in	1
1/2 in	1
3/8 in	1
No. 4	1
No. 8	1
No. 16	1
No. 30	2
No. 50	2
No. 200	3

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SS220-002020-01

August 28, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
SECTION 220 – CONCRETE CURING MATERIALS

*SECTION 220 – CONCRETE CURING MATERIALS of the Specifications is amended as follows:*

**Section 220.02(a) – Waterproof paper** is replaced with the following:

**Waterproof paper** shall conform to ASTM C171. One side shall be composed of white, light-reflecting paper.

**Section 220.02(b) – PE film** is replaced with the following:

**PE film** shall conform to ASTM C171 except that its nominal thickness shall be 3.0 mils. The thickness at any point shall be at least 2.5 mils.

**Section 220.02(c) – Burlap and PE film** is replaced with the following:

**Burlap and PE film** may be used in combination. They shall be bonded securely so that they cannot be easily separated in a dry or saturated condition. White PE film shall conform to the reflectance requirements of ASTM C171. Burlap shall conform to Section 220.02(f). The combination product shall have a total weight of 11 ounces per square yard with 11 threads of burlap per inch.

**Section 220.02(f) – Burlap** is inserted as follows:

**Burlap** used by itself shall conform to AASHTO M 182, Class 3, except the weight of each sample may vary by 10%. Acceptance shall be based on the average weight of all samples submitted according to AASHTO M 182, Table 3. If any individual sample is outside the 10% tolerance, the lot will be rejected.

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SS234-002020-01

May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 234 – GLASS BEADS AND RETROREFLECTIVE OPTICS**

**SECTION 234 – GLASS BEADS FOR REFLECTORIZING TRAFFIC MARKINGS** of the Specifications is replaced as follows:

**SECTION 234 – GLASS BEADS AND RETROREFLECTIVE OPTICS**

**234.01 – Description**

This specification covers glass beads and retroreflective optics applied on the surface or incorporated into traffic-marking materials so as to produce a retroreflective surface.

**234.02 – Detail Requirements**

Glass beads and retroreflective optics shall be supplied from a supplier listed on Materials Approval List No. 76.

The Contractor shall provide a written certification that each batch of glass beads or retroreflective optics used in or on VDOT pavement markings meets VDOT specifications and does not exceed the AASHTO M 247 maximum concentration limits for Lead and Arsenic.

- (a) **Glass beads** shall have a composition designed to be highly resistant to traffic wear and weather. Materials other than glass will be allowed if the pavement marking product was tested on the NTPEP test deck with the alternative bead material.

Glass beads shall have a Refractive Index of 1.50-1.79 when tested as per AASHTO T 346.

Glass beads shall conform to AASHTO M 247, except that at least 80 percent of the beads shall be round when tested in accordance with ASTM D 1155, Procedure B.

- (b) **Retroreflective Optics** shall have a concentration designed to be highly resistant to traffic wear and weather. Retroreflective Optics shall be composed of glass beads, ceramic materials, or a combination of glass beads or ceramic materials affixed to a glass bead core.

Retroreflective Optics shall have a Refractive Index of 1.8 or higher when tested as per AASHTO T 346.

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SS235-002020-01

May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 235 – RETROREFLECTORS**

**SECTION 235 – RETROREFLECTORS** of the Specifications is deleted and replaced as follows:

**235.01 – Description**

Retroreflectors are retroreflective surfaces that redirect the vehicle headlights back to the driver to delineate the road. The retroreflective surface may consist of a plastic prismatic reflector or retroreflective sheeting. Retroreflectors are used with:

- Pavement Markers (Permanent and Temporary)
- Delineators (Guardrail, Barrier, Flexible Post, Road Edge)

Pavement markers and Delineators shall be approved by reviewing performance data from one or both of the following test programs:

- (a) AASHTO's National Transportation Product Evaluation Program (AASHTO/NTPEP). Test data values used for approval may be based upon the data generated per the applicable NTPEP Work Plan.
- (b) VDOT Test Facility – VDOT may elect to evaluate performance from their own test facility.

**235.02 – Detail Requirements**

- (a) **Inlaid Pavement Markers** – Holders for inlaid pavement markers shall be made of polycarbonate plastic nominally 4.75 inches wide excluding breakaway tabs, and shall be able to hold retroreflectors from the Department's Approved List 22 under Inlaid Pavement Markers. The top of the the retroreflector shall be 1/8 inch below the pavement surface when installed with the breakaway positioning tabs resting on the pavement surface.

Retroreflectors for inlaid pavement markers shall have a nominal width of 4 inches excluding the holders.

- (b) **Pavement Markers (Temporary)** – Refer to VTM-70 for testing and approval
- (c) **Pavement Markers (Permanent)** – Refer to VTM-70 for testing and approval
- (d) **Delineators** – Refer to VTM-70 for testing and approval
- (e) **Aluminum panels for delineators** shall be at least 0.064 inch thick conforming to ASTM B-209, alloy 5052.

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SS236-002020-01

May 14, 2021

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
*SECTION 236 – WOOD PRODUCTS*

**SECTION 236 WOOD PRODUCTS** of the Specifications is amended as follows:

**236.02 – Detail Requirements** is replaced with the following:

(a) **Structural timber and lumber** shall conform to AASHTO M168. The species and grade of structural lumber shall be as shown on the plans. .

Except as otherwise specified, the species and grade of structural lumber, timber, and posts for the following applications shall be as follows:

1. **Bridges** shall be at least 1,550(psi) Fb (Fiber Bending) and:
  - 5 inch by 5 inch and larger: Southern Pine, No. 1 Dense.
  - 2 inch through 4 inch by 2 inch through 4 inch: Southern Pine, No. 1 Dense.
  - 2 inch through 4 inch by 5 inch and through 6 inch: Southern Pine, Non-Dense Select Structural
  - 2 inch through 4 inch by 8 inch only: Southern Pine, Non-Dense Select Structural.
  - 2 inch through 4 inch by 10 inch only: Southern Pine, Select Structural.
  - 2 inch through 4 inch by 12 inch only: Southern Pine, Select Structural.
2. **Signs** shall be at least 1,100 (psi) Fb with material being dressed on all sides and:
  - 4 inches and less in the least dimension: Southern Pine, No. 2.
  - Over 4 inches in the least dimension: Southern Pine, No. 1.
3. **Guardrail** shall be at least 1550 (psi) Fb Southern Pine, No. 1 Dense.
4. **Fence** shall be Southern Pine, No. 2, for line, corner, and brace units.
5. **Signalization and electrical service** shall conform to ANSI Class 05.1. Sawn material, both rough and dressed, shall be certified by the mill as to grade and shall be grade marked in accordance with the grading rules and basic provisions of the American Lumber Standards (PS-20-70) by a lumber grading or inspection bureau or agency approved by the Department. The grade mark shall be applied after dressing if the sawn material is dressed.

(b) **Timber piles** shall conform to ASTM D25. Piles shall be clean peeled and have a butt circumference of at least 31 inches. The Engineer will accept piles for fender systems or other nonload bearing uses under the following criteria provided the piles can be properly driven: A straight line from the center of the butt to the center of the tip may lie partly outside the body of the pile, but the distance between the line and pile shall be not more than 1/2 percent of the length of the pile or 3 inches, whichever is smaller.



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Points for timber piles shall be steel or cast iron and of a shape that will allow a secure connection to the pile and withstand driving.

Timber piles shall be branded prior to shipment with the supplier brand, year of treatment, species of timber and preservative treatment, retentions, class, and length. Brand symbols shall conform to AWWA M6.

- (c) **Wood Preservatives** - Wood preservatives shall conform to the requirements of the American Wood Protection Association (AWPA) U1 Standards. The AWWA designates the different wood exposure conditions in the following "Use Category System":

UC4A: Above ground, ground contact, fresh water contact or other conditions favorable to wood deterioration. (For Example: sign posts, fence posts and gates).

UC4B: Ground contact in severe environments, critically important components and salt water splash zones (For Example: bridge timbers, bridge decking, guardrail posts and offset blocks).

UC4C: Ground contact in very severe environments, or climates with an extremely high potential for deterioration of critical structural components.  
(For Example: foundation pilings).

UC5B: Wood exposed to salt and brackish water (For Example: piles, bracing and bulk-heads).

**Wood preservatives for Highway Construction and Hand-Contact Surfaces, listed in Tables 1 and 2 below** shall be used according to their suitability for the wood exposure condition and shall not be used interchangeably.

1. Wood used for **Highway Construction** (including but not limited to - bicycle trails, pedestrian overlooks, maintenance applications for posts (sign, fence, guardrail), bridge decking, gates, stair treads, and offset blocks, piles, timbers, and composites) shall be treated with the following preservative per **Table 1** below:

Chromated Copper Arsenate (CCA)

Creosote

Pentachlorophenol (PCP)

Dichloro Octyl Isothiazolin (DCOI)

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<b>Table 1 – Southern Yellow Pine Treatments &amp; Retentions for Highway Construction per AWP</b>						
<b>Commodity Specifications</b>		<b>Use Category</b>	<b>Preservative Retentions</b>			
			<b>Waterborne (pcf)</b>	<b>Oil borne (pcf)</b>		
<b>Desig</b>	<b>Wood Usage</b>		<b>CCA</b>	<b>Creosote</b>	<b>PCP</b>	<b>DCOI</b>
<b>A</b>	<b>Sawn Products:</b> Boards, lumber and timber	UC4A	0.40	10.0	0.50	0.15
	Lumber and Timber products for bridge structures, bridge decking, gates, and stair treds	UC4C	0.60	12.0 *	0.50	0.2
<b>B</b>	<b>Posts:</b> Round, 1/2 and 1/4 round, building, fence and sign posts, poles < 16 feet in length.	UC4A	0.40	N/A	N/A	0.13
	Guardrail Posts and offset blocks	UC4B	0.50	N/A	N/A	0.17
<b>E</b>	<b>Round Timber Pilings:</b> Pilings and foundations for land and fresh water use	UC4C	0.80	12.0	0.60	0.2
<b>F</b>	<b>Wood Composites:</b> Plywood	UC4A	0.40	10.0	0.50	0.2
	**Glue laminated members (glue then treat)	UC4A	N/A	10.0	0.60	0.2
	**Glue laminated members (treat then glue)	UC4A	0.40	10.0	0.60	0.2
	Laminated veneer lumber	UC4A	N/A	10.0	N/A	N/A
<b>G</b>	<b>Marine Applications</b> (in or above salt water, brackish water, or tidal water) Plywood & Solid Sawn	UC5B	2.5	25.0	N/A	N/A
	Piles (outer zone/inner zone)	UC5B	2.5/1.5	20.0	N/A	N/A
	Sawn - Dual treatment: CCA with CR	UC5B	1.5	20.0	N/A	N/A
	Piles - Dual treatment: CCA with CR	UC5B	1.0	20.0	N/A	N/A

**\*Creosote (CR) preservative is not allowed for bridge decks.**

**\*\*For Glue laminated members Contractor must certify glue is compatible with treatment**

- Wood used for **Hand-Contact Surfaces** (including but not limited to handrails, playground equipment, and picnic tables shall be treated with the following non-arsenical, water-borne preservatives per **Table 2** below:

Alkaline Copper Quat (ACQ)  
Copper Azole (CA)  
Micronized Copper Azole (MCA)

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Table 2 – Southern Yellow Pine Treatments & Retentions for Hand-Contact Surfaces per AWP					
Commodity Specifications		Use Category	Preservative Retentions		
Designation	Wood Usage		Waterborne (pcf)		
			ACQ- A,B,C,D **	CA-B CA-C **	MCA, MCA-C **
A	<b>Sawn Products:</b> Boards, lumber and timber for picnic tables, handrails, playground equipment	UC4B	0.60	0.31	0.31
F	<b>Wood Composites:</b> Plywood for picnic tables, handrails, playground equipment	UC4B	0.60	0.31	0.31

**\*\* Note – ACQ, CA, MCA - Many wood treatments can be highly corrosive to metal under some conditions.** Fasteners or connectors that will be in contact with wood using ACQ, CA, MCA wood preservative treatments shall be either 304 or 316 stainless steel or hot-dipped galvanized steel that conforms to ASTM A153 or ASTM A653, Class G185. The Engineer will not permit the use of mechanically galvanized steel hardware or fasteners with ACQ, CA, MCA treated wood. Wood treated with ACQ, CA, MCA shall be separated from steel or aluminum beams or posts using a non-metallic, rubber flashing.

Treatment shall conform to these additional requirements:

1. Waterborne preservatives shall be used for timber where a clean surface is desirable. The moisture content of wood material shall be not more than 19 percent at the time of treatment.
2. Oilborne preservatives (Pentachlorophenol, Creosote, Copper Naphthenate) may be used for timber that is not to be painted. Timbers treated with Pentachlorophenol, Creosote, or Copper Naphthenate shall be free of excess preservative on the wood surface. VDOT allows oilborne preservatives for special projects.
3. Field Cuts to Treated Wood - All cuts, pile cutoffs, bolt holes, field cuts and damage which penetrates the treated zone shall be protected in accordance with AWP Standard M4. In cases in which the originally used preservative is not available for field use, copper naphthenate with minimum 2% copper metal shall be used. In all cases 3 heavy brushed applications of any preservative shall be used, with adequate penetration time between applications.
4. For any product not listed, refer to the latest AWP, U1 Standard.
5. Treated timber shall be supplied only from facilities on Approved List # 45.

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**CONTRACT ID. NO.: CM224PMN124680**

SS246-002020-02

May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 246 – PAVEMENT MARKING**

**SECTION 246 – PAVEMENT MARKING** of the Specifications is amended as follows:

**Section 246.02 – Detail Requirements** is amended to replace the fifth through seventh paragraphs with the following:

Pavement marking materials shall produce a retroreflective line, message, legend or symbol of specified thickness, width or design in accordance with the MUTCD and Contract requirements.

Pavement marking material shall have the pigment, glass beads, retroreflective optics, and filler well dispersed in the resin, and shall be free from skins, dirt, and foreign objects.

Glass beads and retroreflective optics shall conform to Section 234.

**Section 246.02(a) – Approval of Pavement Markings** is amended to replace the second paragraph of the second bullet with the following:

When pavement markings are installed on the NTPEP test deck or the VDOT facility, the material's thickness, beads/retroreflective optics, and formulation shall be documented to ensure the equivalent thickness, beads/retroreflective optics and formulation are installed on VDOT roadways following approval.

**Section 246.02(b) – Certifications** is replaced with the following:

The pavement marking material manufacturer shall certify each batch or lot of material supplied and installed is the same product (thickness, retroreflective optics package and formulation) that was tested and approved on the AASHTO/NTPEP or VDOT test facility in accordance with the Materials Division, Manual of Instructions for Certification I and II Materials. The certification shall include the NTPEP test number from the Materials Division's Approved Products List. The Contractor shall retain the manufacturer's certifications.

**Section 246.02(c) – Warranty Requirements** is amended to replace the first paragraph with the following:

Pavement marking products shall carry the warranties as supplied by the manufacturer of the individual marking types (classes) for the specific timeframes per type and class and the material requirements for retroreflectivity, durability, color, luminance (Y%), and adhesion as referenced herein. Warranties shall be those commercially supplied or those unique to the Commonwealth in the case of certain products, such as Type B, Class VI preformed pavement marking tape as detailed herein. Manufacturers' warranties shall be obtained by the Contractor and assigned to the Department in writing prior to final acceptance. Warranty periods shall begin on the date of receipt at the project as verified by delivery tickets signed by the Engineer.

**Section 246.03(a) – Paint Pavement Marking Materials (Type A)** is renamed **Section 246.03(a) – Conventional or Cold Weather Paint Marking Materials (Type A, Class I)** and amended to replace the first paragraph with the following:

Type A, Class I paint material shall be a fast-drying, waterborne, nonleaded, acrylic or modified acrylic resin paint suitable for use on both asphalt and hydraulic cement concrete pavement surfaces and shall be selected from the Materials Division's Approved Products List No. 20.

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Type A, Class I material shall be designed to be applied at approximately 15 mils wet film thickness in conjunction with AASHTO M 247 Type I beads as per Section 234 of the Specifications.

Type A, Class I cold weather paint shall be capable of being both applied and remaining fully adhered to the surface at temperatures below 40 °F.

**Section 246.03(a)1e – IR Scan from NTPEP** is replaced with the following:

**e. IR Scan from NTPEP.**

**Section 246.03(b) – High Build Paint Marking Materials (Type A, Class II)** is added as follows:

Type A, Class II Paint material shall be a fast-drying, waterborne, nonleaded, acrylic or modified acrylic resin paint suitable for use on both asphalt and hydraulic cement concrete pavement surfaces and shall be selected from the Materials Division’s Approved Products List No. 20. Type A, Class II material shall be designed to be applied at approximately 27 mils wet film thickness.

1. **Initial Approval** - Maintained retroreflectivity, color (including luminance), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

a. **Maintained Retroreflectivity:** The photometric quantity to be measured is the coefficient of retroreflected luminance ( $R_L$ ) in accordance with ASTM E1710 for 30-meter geometry.  $R_L$  shall be expressed in millicandelas per square foot per foot-candle when measured in the skipline or centerline areas:

<b>Coefficient of Retroreflected Luminance (<math>R_L</math>) (mcd/ft<sup>2</sup>/fc) Paint</b>		
<b>Color</b>	<b>Initial</b>	<b>1 Year In-Service</b>
White	300	125
Yellow	225	100

- b. **Day and Nighttime Color and Luminance (Y%):** Measured according to ASTM D6628.
- c. **Durability:** Paint shall have a durability rating of at least 8 when determined in the wheel path area when tested in accordance with the NTPEP Work Plan.
- d. **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.
- e. **IR Scan from NTPEP.**

2. **Batch Testing**

Paint batch testing shall be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division’s Manual of Instructions. The test results shall be compared against NTPEP lab test results and the Specifications. Testing shall be performed to determine the following physical requirements and properties:

- a. **Solids, (% weight)** according to ASTM D2369: Acceptable range from NTPEP results (+/- 2%).
- b. **Pigment (% weight)** according to ASTM D3723: Acceptable range from NTPEP results (+/- 2%).
- c. **Density (wt/gal.)** according to ASTM D1475: Acceptable range from NTPEP results (+/-0.3 lbs/gal).

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- d. **Viscosity (KU)** according to ASTM D562: Acceptable range from NTPEP results (+/-5KU).
- e. **Contrast Ratio** according to ASTM D2805 (2°,D 65): Paint shall show a dry hiding quality that will give a contrast ratio of at least 0.96 at (15 mil) wet film thickness.
- f. **Day Color, Luminance (Y%) - (without Drop-on Beads):**

Color testing results shall conform to the chromaticity coordinate limits that follow. Color determination for paint materials will be made without drop-on beads at least 24 hours after application in accordance with ASTM D6628.

<b>Day Color, Chromaticity Coordinates (Without Drop-on Beads), High Build Paint</b>									
	<b>x</b>	<b>y</b>	<b>x</b>	<b>y</b>	<b>x</b>	<b>y</b>	<b>x</b>	<b>y</b>	<b>Y%</b>
White	0.355	0.355	0.305	0.305	0.285	0.325	0.335	0.375	80.0 Min
Yellow	0.493	0.473	0.518	0.464	0.486	0.428	0.469	0.452	50.0-60.0

- g. **Settling properties:** Settling shall be no less than a rating of 8 when tested in accordance with the NTPEP Work Plan.
- h. **Freeze-thaw and heat stability:** Paint shall show no coagulation or change in viscosity greater than +/- 5 KU when tested in accordance with the NTPEP Work Plan.
- i. **Water resistance:** Paint shall show no blistering, peeling, wrinkling, softening, or loss of adhesion when tested in accordance with the NTPEP Work Plan.
- j. **VOC:** The VOC content shall be no greater than 150 grams/liter when tested in accordance with EPA Method 24.
- k. **Flash point:** Paint shall have a flash point of at least 201 degrees F when tested in accordance with ASTM D93, Pensky-Martens Closed Cup.
- l. **Infrared (IR) Scan:** Shall match IR scan from NTPEP.

**Section 246.03(b) – Thermoplastic Marking Materials (Type B, Class I)** is renumbered as 246.03(c) and replaced as follows:

Thermoplastic material shall be suitable for use on asphalt and hydraulic cement concrete pavement surfaces and shall be selected from the Materials Division’s Approved Products List No. 43.

The binder shall be either alkyd or hydrocarbon based. If an alkyd thermoplastic is used, the binder shall consist of synthetic resins, at least one of which is solid at room temperature, and high-boiling plasticizers. At least one-half of the binder composition shall be a maleic-modified glycerol ester of resin and shall be at least 10 percent by weight of the entire material formulation.

Thermoplastic marking materials shall be capable of application at pavement surface temperatures of 50 degrees Fahrenheit and above on all asphalt and hydraulic cement concrete pavement surfaces. Thermoplastic material shall be capable of successfully fusing to itself and previously applied thermoplastic pavement markings.

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1. **Initial Approval** - Maintained retroreflectivity, color, luminance (Y%), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

a. **Maintained Retroreflectivity:** The photometric quantity to be measured is the coefficient of retroreflected luminance ( $R_L$ ) in accordance with ASTM E1710 for 30-meter geometry when measured in the skip line area.

<b>Coefficient of Retroreflected Luminance (<math>R_L</math>) (mcd/ft<sup>2</sup>/fc) Thermoplastic</b>		
<b>Color</b>	<b>Initial</b>	<b>1 Year In-Service</b>
White	300	250
Yellow	250	200

b. **Day and Nighttime Color and Luminance (Y%):** According to ASTM D6628

c. **Durability:** Thermoplastic shall have a durability rating of at least 8 as determined in the wheel path area when tested in accordance with the NTPEP Work Plan.

d. **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested per ASTM E303, if available.

2. **Batch Testing:**

Thermoplastic batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. The tests results will be compared against the following specifications and requirements:

- a. **Pigment and Glass Bead (% Weight)** according to ASTM D4451 82.0% Max
- b. **Intermix Glass Bead Content (% Weight)** according to AASHTO T 250 and ASTM D4797 30.0% Min
- c. **TiO<sub>2</sub> (%) for white thermoplastic** according to ASTM D1394 or equivalent method 10.0% Min
- d. **Binder (%)** according to AASHTO T 250/ASTM D4451 18.0% Min
- e. **Calcium Carbonate and Inert Fillers** 42.0 % Max
- f. **Day Color, Luminance (Y%) (Without Drop-on Beads):** Color testing results shall conform to the chromaticity coordinate limits that follow. Color determination for thermoplastic materials will be made without drop-on beads after cooling in accordance with AASHTO T 250 and ASTM D6628.

<b>Day Color, Chromaticity Coordinates (Without Drop-on Beads), Thermoplastic</b>									
	<b>x</b>	<b>y</b>	<b>x</b>	<b>y</b>	<b>x</b>	<b>y</b>	<b>x</b>	<b>y</b>	<b>Y%</b>
White	0.355	0.355	0.305	0.305	0.285	0.325	0.335	0.375	80.0 Min
Yellow	0.499	0.466	0.545	0.455	0.518	0.432	0.485	0.454	40.0-60.0

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- g. **Nighttime Yellow Color (with Drop-on Beads):** The initial nighttime color of yellow thermoplastic pavement marking material shall conform to the following CIE chromaticity coordinate requirements when tested in accordance with ASTM D6628 and VTM-111.:

<b>Night Time Color, Chromaticity Coordinates (with Drop-on Beads) Thermoplastic</b>								
Color	1		2		3		4	
	x	y	x	y	x	y	x	y
Yellow	0.486	0.439	0.520	0.480	0.560	0.440	0.498	0.426

- h. **Water absorption:** Materials shall not have more than 0.5 percent retained water by weight when tested in accordance with ASTM D570, Procedure A.
- i. **Softening point:** Materials shall have a softening point of at least 194 degrees F as determined in accordance with ASTM E28.
- j. **Specific gravity:** The specific gravity of the thermoplastic compound at 77 degrees F shall be from 1.7 to 2.2.
- k. **Impact resistance:** The impact resistance shall be at least 10 inch-pounds at 77 degrees F after the material has been heated for 4 hours at 400 degrees F and cast into bars of 1-inch cross-sectional area, 3 inches long, and placed with 1 inch extending above the vise in a cantilever beam, Izod-type tester conforming to ASTM D256 using the 25 inch-pound scale.
- l. **No-Track Time:** Material shall set to bear traffic in not more than 2 minutes when the road temperature is 50 degrees F or above.
- m. **Intermixed Glass beads:** Glass beads shall conform to Section 234.
- n. **Flashpoint:** The material flashpoint shall be no less than 500 degrees F when tested in accordance with ASTM D92.

**Section 246.03(c) Preformed Thermoplastic Pavement Marking Material (Type B, Class II)** is renumbered as 246.03(d).

**Section 246.03(d)1 Initial approval** is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

**Section 246.03(d) Epoxy-Resin Pavement Marking Material (Type B, Class III)** is renumbered as 246.03(e).

**Section 246.03(e)1 Initial approval** is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

**Section 246.03(e) Polyurea Pavement Marking Material (Type B, Class VII)** is renumbered as 246.03(f).

**Section 246.03(f)1 Initial approval** is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:



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**Section 246.03(f) Permanent, Plastic-Backed, Preformed Tapes (Type B, Class IV and Type B, Class VI)** is renumbered as 246.03(g).

**Section 246.03(g)1 Initial approval** is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%), durability, and adhesion shall conform to the following requirements after the material has been installed on the test deck for 1 year:

**Section 246.03(g) – Temporary Pavement Marking Materials** is renumbered as 246.03(h) and replaced with the following:

**Temporary Pavement Marking Materials** other than paint shall consist of Type D, Class III, removable, wet reflective tape and Type E removable black, non-reflective tape. Determination of conformance will include, but not be limited to, the evaluation of test data from AASHTO's NTPEP or other VDOT Test Facilities.

**1. Wet Reflective, Removable Tape (Type D, Class III):**

Wet reflective, removable tape shall be a durable, retro-reflective pliant material consisting of a mixture of polymeric materials, pigments, and glass beads (reflective optics) evenly distributed throughout its cross-sectional area and embedded into the surface. This tape shall be suitable for use on both asphalt and hydraulic cement concrete surfaces and shall be selected from the Department's Approved List 17.

a. **Initial Approval** - Maintained retroreflectivity (dry and wet), color, luminance (Y%), and adhesive bond rating shall conform to the following requirements after the material has been installed on the test deck for 90 days:

(1) **Maintained Dry Retroreflectivity:** The dry photometric quantity to be measured is the coefficient of retroreflected luminance ( $R_L$ ) in accordance with ASTM E1710 for 30-meter geometry when measured in the skip line or centerline areas.

**Coefficient of Retroreflected Luminance ( $R_L$ ) (mcd/ft<sup>2</sup>/fc) Dry Retro Removable Tape-Type D, Class III**

Color	Initial	90 Days In-Service
White	250	150
Yellow	200	100

(2) **Maintained Wet Retroreflectivity:** The wet photometric quantity to be measured is the coefficient of retroreflected luminance ( $R_L$ ) in accordance with VTM 124 (Visual Evaluation or ASTM E2177, Recovery Method) when measured in the skip line or centerline areas.

**Coefficient of Retroreflected Luminance ( $R_L$ ) (mcd/ft<sup>2</sup>/fc) Wet Retro Removable Tape-Type D, Class III**

Color	Initial	90 Days In-Service
White	150	100
Yellow	125	75

(3) **Day and Nighttime Color and Luminance (Y%):** According to ASTM D6628.

(4) **Adhesive Bond Rating:** The average adhesive bond rating (from transverse and longitudinal lines) shall be 3 or higher according to the NTPEP Work Plan.

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- (5) **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.
- (6) **Thickness:** Per the manufacturer's recommendation.
- (7) **Adhesion:** No line shall be displaced, torn or missing.

b. **Batch Testing:**

Wet reflective, removable tape batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. Test results shall be compared against the following specifications and requirements:

- (1) **Retroreflectivity:** Refer to initial requirements
- (2) **Day and Night Color and Luminance:** Refer to initial requirements
- (3) **Thickness:** Refer to initial requirements
- (4) **Width:** The width shall be no less than the nominal width and no greater than 1/8" of the nominal width.
- (5) **Length:** The length shall be no less than the length stated on the manufacturer's packaging.
- (6) **Skid Resistance:** Refer to initial requirements.

2. **Removable Black, Non-Reflective Tape (Type E):**

Removable black, non-reflective tape shall be a durable, pliant material consisting of a mixture of polymeric materials, pigments and a friction material evenly distributed throughout its cross-sectional area and embedded into the surface. Removable black, non-reflective tape shall be suitable for use on asphalt concrete pavement surfaces, and shall be selected from the Department's Approved List 17.

- a. **Initial Approval** - Maintained adhesive bond rating shall conform to the following requirements after the material has been installed on the test deck for 90 days:
  - (1) **Adhesive Bond Rating:** The average adhesive bond rating (from transverse and longitudinal lines) shall be 3 or higher according to the NTPEP Work Plan.
  - (2) **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.
  - (3) **Thickness:** Per the manufacturer's recommendation.
  - (4) **Adhesion:** No line shall be displaced, be torn or missing.

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b. **Batch Testing**

Black removable, non-reflective tape batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. Test results shall be compared against the following specifications:

- (1) **Skid Resistance:** Refer to initial requirements
- (2) **Thickness:** Refer to initial requirements
- (3) **Width:** The width shall be no less than the nominal width and no greater than 1/8" of the nominal width.
- (4) **Length:** The length shall be no less than the length stated on the manufacturer's packaging.

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**CONTRACT ID. NO.: CM224PMN124680**

SS248-002020-01

May 26, 2023

*VIRGINIA DEPARTEMENT OF TRANSPORTATION*  
*2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS*  
*SECTION 248 – STONE MATRIX ASPHALT CONCRETE*

**SECTION 248 – STONE MATRIX ASPHALT CONCRETE** of the Specifications is amended as follows:

**248.02 – Materials (f) is amended by replacing the first paragraph with the following:**

**Antistripping Additive:** An antistripping additive shall be used in all stone matrix asphalt mixes. It may be hydrated lime or a chemical additive from the Materials Division's Approved List No. 7, or a combination of both. When an approved chemical additive is used, it shall be added at a rate of not less than 0.30 percent by weight of the total asphalt content of the mixture unless otherwise indicated on the Department's Approved List No. 7.

**Section 248.04 Acceptance is amended by replacing the third, fourth, fifth, sixth paragraphs with the following:**

The Contractor shall check and report the percentage of flat and elongated particles (F&E) in the coarse aggregates of the mix design during production. Two of eight sub-lots from the first lot of material shall be selected for F&E verification when the Contractor samples the SMA material for acceptance (gradation and AC content). F&E testing shall be performed in accordance with VTM-121, after the gradation is performed. If passing results are obtained on each sample in the first lot, then F&E testing shall be performed on a frequency of every second lot of material produced (i.e., Lots 3, 5, 7, etc.) by randomly selecting two sub-lots. If the F&E of the mix exceeds the specified limits, the Contractor shall stop production and notify the Engineer. Production shall not resume until the Contractor has taken corrective action and the Engineer has accepted the Contractor's means of correction. Once production has resumed, the Contractor shall determine the F&E of the mix for two consecutive lots by randomly selecting two sub-lots per lot. If passing results are obtained for these two lots, then the F&E testing frequency shall return to every second lot of material produced.

The Contractor shall check and report the VCA of the mix during production for each gyratory sample. If the VCA of the mix equals the VCA of the DRC, the Contractor shall immediately notify the Engineer, document the JMF changes in the Producer Lab Analysis and Information Details (PLAID) website, and provide corrective action. If the VCA of the mix exceeds the VCA of the DRC, the Contractor shall stop production, notify the Engineer, and remove and replace that day's production at no cost to the Department. Production shall not resume until the Contractor has taken corrective action and the Engineer has accepted the Contractor's means of correction.

If the Department determines that the mixture being produced does not conform to the approved job-mix formula or the volumetric properties in Table II-25, based on the Department or the Contractor's test results, the Contractor shall immediately make corrections to bring the mixture into conformance with the approved job-mix formula and Table II-25 or cease paving with that mixture. The Engineer will investigate and determine the acceptability of the mix placed since the previous passing sample.

The finished pavement shall be uniform, free of irregularities and smooth. If irregularities including segregation, rutting, raveling, flushing, fat spots, mat slippage, irregular color, irregular texture, roller marks, tears, gouges, streaks, uncoated aggregate particles, or broken aggregate particles are detected, the Contractor shall immediately notify the Engineer and address the determined irregularities with corrective action. When irregularities are noted, the acceptability of the finished mat shall be determined by the Engineer.

The Engineer will limit subsequent paving operations using either a revised or another job-mix formula, which has not been verified as described herein, to a test run of 300 tons maximum if such material is to be placed in Department project work. The Engineer will not allow any further paving for the Department using that revised mixture until the acceptability of that mixture has received the Engineer's approval based on the 300-ton constraint.

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**CONTRACT ID. NO.: CM224PMN124680**

SS315-002020-04  
2023

June 16,

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
*SECTION 315 – ASPHALT CONCRETE PLACEMENT*

**SECTION 315 – ASPHALT CONCRETE PLACEMENT** of the Specifications is replaced with the following:

**315.01 – Description**

This work shall consist of constructing one or more courses of asphalt concrete on a prepared foundation in accordance with these Specifications and within the specified tolerances for the lines, grades, thicknesses, and cross sections shown on the plans or established by the Engineer. At the Contractor's option, the asphalt concrete mix may be produced using a warm-mix additive or warm-mix process approved by the Department. When used, the temperature placement limitations for Warm Mix Asphalt (WMA) shall apply.

This work shall also consist of constructing asphalt concrete curb and rumble strips in accordance with these Specifications, plan details, and the Standard Drawings.

**315.02 – Materials**

- (a) **Asphalt concrete** shall conform to Section 211. The Contractor shall alter the design if SUPERPAVE design densities begin to exceed 98 percent of the Theoretical Maximum Density (TMD) during construction.
- (b) **Asphalt for Tack Coat** shall conform to Section 210 and shall be applied according to Section 310.
- (c) **Asphalt for prime coat** shall conform to Section 210 and shall be applied according to Section 311.
- (d) **Curb backup material** shall be asphalt concrete conforming to any surface or intermediate mixture listed in Table II-13 and Table II-14.
- (e) **Liquid asphalt coating (emulsion) for rumble strips** shall conform to Section 210. The Contractor shall use CSS-1h or CQS-1h asphalt emulsions for centerline rumble strips. The CSS-1h or CQS-1h liquid asphalt may be diluted by up to 30 percent at the emulsion manufacturer's facility.

**315.03 – Equipment**

- (a) **Hauling Equipment:** Trucks used for hauling asphalt mixtures shall have structurally sound, tight, clean, smooth metal or other non-absorptive, inert material bodies equipped with a positive locking metal tailgate. Surfaces in contact with asphalt mixtures shall be given a thin coat of aliphatic hydrocarbon invert emulsion release agent (nonpuddling), a lime solution, or other release agent materials on the Materials Division's Approved List No. 8. The beds of dump trucks shall be raised to remove excess release agent prior to loading except when a nonpuddling release agent is used. Only a nonpuddling agent shall be used in truck beds that do not dump. Each Contractor truck used for hauling asphalt shall be equipped with a tarpaulin or other type of cover acceptable to the Engineer that shall protect the mixture from moisture and foreign matter and prevent the rapid loss of heat during transportation.

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- (b) **Asphalt Pavers:** The asphalt paver shall be designed and recommended by the Manufacturer for the type of asphalt to be placed and shall be operated in accordance with the Manufacturer's recommendations. The Contractor shall readily have and maintain on the project site any written recommendations from the Manufacturer of the mix relative to handling and placing of the mixture. In the absence of the Manufacturer's recommendations, the recommendations of the National Asphalt Pavement Association shall be followed. The paver shall be capable of producing a smooth uniform texture, dense joints, and a smooth riding surface even when screed extensions are used.
- (c) **Rollers:** Rollers shall be steel wheel, static or vibratory, or pneumatic tire rollers and shall be capable of reversing without backlash. The Contractor shall operate rollers at speeds slow enough to avoid displacement of the mixture. The number and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition. The Engineer will not allow the use of equipment that results in excessive crushing of aggregate or marring of the pavement surface. If the Contractor's equipment mars the surface of the pavement during construction to the extent that imperfections cannot satisfactorily be corrected or produces permanent blemishes, the Engineer will require the Contractor to discontinue the use of that particular equipment and replace that equipment with satisfactory units.
- (d) **Rotary Saw:** The Contractor shall supply a gasoline-powered rotary saw with a carbide blade for cutting test samples from the pavement. The Contractor shall provide gasoline, oil, additional carbide blades, and maintenance for the rotary saw. The Contractor shall cool the pavement prior to sawing the sample. As an alternative, the Contractor may furnish the necessary equipment for coring and testing 4-inch core samples in accordance with VTM-22.
- (e) **Material Transfer Vehicle (MTV):** When required in the Contract, the Contractor shall furnish a self-propelled MTV storage unit capable of receiving material from trucks, storing the material, and transferring the material from the unit to a paver hopper insert via a conveyor system. The paver hopper insert and unit shall have a combined minimum storage capacity of 15 tons. The storage unit or paver hopper insert must be able to remix the material in order to produce a uniform, non-segregated mix having a uniform temperature prior to placing the asphalt material on the roadway surface.

**315.04 – Placement Limitations**

The Contractor shall not place asphalt concrete mixtures when weather or surface conditions are such that the material cannot be properly handled, finished, or compacted. The surface upon which asphalt mixtures is to be placed shall be free of standing water, dirt, and mud and the base temperature shall conform to the following:

**(a) Asphalt Concrete Produced with Warm Mix Asphalt Additives or Processes:**

The Contractor shall note on the delivery ticket that the load is Warm Mix Asphalt.

1. **When the base temperature is 40 degrees F and above:** The Engineer will permit lay-down at any temperature below the maximum limits given in Section 211.08.
2. **When the mixture temperature is below 200 degrees F:** The Contractor will not be allowed to place the material.

**(b) Asphalt Concrete Produced without Warm Mix Asphalt Additives or Processes:**

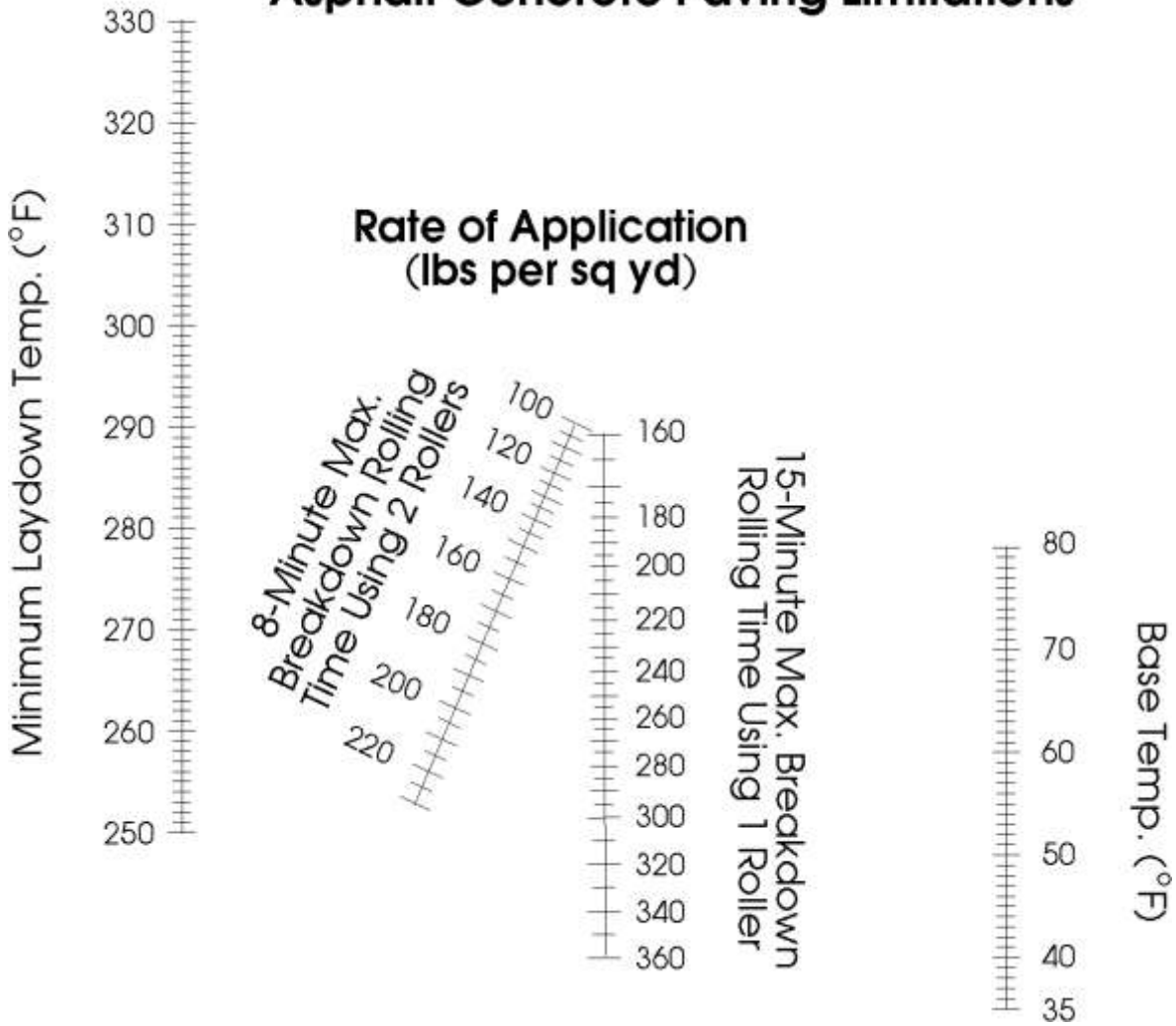
1. **When the base temperature is above 80 degrees F:** The Engineer will allow laydown of the mixture at any temperature conforming to the limits specified in Section 211.

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2. **When the base temperature is between 40°F and 80°F** the Contractor shall use Table III-2 to determine the minimum laydown temperature of the asphalt concrete mixes. At no time shall the base temperature for base (BM) and intermediate (IM) mixes be less than 40°F. At no time shall the laydown temperature for BM and IM mixes be less than 250°F.

**TABLE III-2**  
**Cold Weather Paving Limitations**

## Asphalt Concrete Paving Limitations



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The minimum base and laydown temperatures for surface mixes (SM) shall never be less than the following:

<b>PG Binder/Mix Designation</b>	<b>Percentage of Reclaimed Asphalt Pavement (RAP) Added to Mix</b>	<b>Minimum Base Temperature</b>	<b>Minimum Placement Temperature</b>
PG 64S-22 (A)	<=25%	40°F	250°F
PG 64S-22 (A)	>25%	50°F <sup>2</sup>	270°F <sup>2</sup>
PG 64H-22 (D)	<=30%	50°F <sup>2</sup>	270°F <sup>2</sup>
PG 64E-22 (E)	<=15%	50°F <sup>2</sup>	290°F <sup>2</sup>
PG 64S-22 (S)	<=30%	50°F <sup>2</sup>	290°F <sup>2</sup>

3. **When the laydown temperature is between 301 degrees F and 325 degrees F:** The number of compaction rollers shall be the same number as those required for 300 degrees F.

Intermediate and base courses that are placed at rates of application that exceed the application rates shown in Table III-2 shall conform to the requirements for the maximum application rate shown for 8-minute and 15-minute compaction rolling as per number of rollers used.

If the Contractor is unable to complete the compaction rolling within the applicable 8-minute or 15-minute period, the Engineer will either require the placing of the asphalt mixture to cease until sufficient rollers are used or other corrective action be taken to complete the compaction rolling within the specified time period.

The Contractor shall complete compaction rolling prior to the mat cooling down to 175 degrees F. Finish rolling may be performed at a lower mat temperature.

The Contractor shall not place the final asphalt pavement finish course until temporary pavement markings will no longer be required.

**(c) SM-4.75 Mixtures Placement:**

1. The minimum placement temperature shall be 290°F regardless of WMA use.
2. The minimum ambient and base temperature shall be 50°F. The Contractor shall employ a MTV during the placement of SM-4.75 mixtures when either the ambient or base temperature is between 50°F and 60°F.

**315.05 – Procedures**

- (a) **Base Course:** The Contractor shall prepare the subgrade or subbase as specified in Section 305. The Contractor shall grade and compact the course to the required profile upon which the pavement is to be placed, including the area that will support the paving equipment.
- (b) **Conditioning Existing Surface:** The surface on which the asphalt concrete is to be placed shall be prepared in accordance with the applicable specifications and shall be graded and compacted to the required profile and cross section.

When specified in the Contract, before placement of asphalt concrete, the Contractor shall seal longitudinal and transverse joints and cracks by the application of an approved crack sealing material in accordance with Section 322.



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1. **Priming and Tacking:** The Contractor shall paint contact surfaces of curbing, gutters, manholes, and other structures projecting into or abutting the pavement and cold joints of asphalt with a thick, uniform coating of asphalt prior to placing the asphalt mixture.

The Contractor shall apply a tack or prime coat of asphalt conforming to the applicable requirements of Section 311 or Section 310 and as specified below. Liquid asphalt classified as cutbacks or emulsions shall be applied ahead of the paving operations, and the time interval between applying and placing the paving mixture shall be sufficient to ensure a tacky residue has formed to provide maximum adhesion of the paving mixture to the base. The Contractor shall not place the mixture on tack or prime coats that have been damaged by traffic or contaminated by foreign material. Traffic shall be excluded from such sections.

- a. **Priming aggregate base or subbase:** The Engineer will not require priming with asphalt material on aggregate subbase or base material prior to the placement of asphalt base, intermediate or surface layers unless otherwise specified in the Contract.
- b. **Tacking:** Tack at joints, adjacent to curbs, gutters, or other appurtenances shall be applied with a hand wand or with spray bar at the rate of 0.2 gallon per square yard. At joints, the tack applied by the hand wand or a spray bar shall be 2 feet in width with 4 to 6 inches protruding beyond the joint for the first pass. Tack for the adjacent pass shall completely cover the vertical face of the pavement mat edge so that slight puddling of asphalt occurs at the joint, and extend a minimum of 1 foot into the lane to be paved. Milled faces that are to remain in place shall be tacked in the same way for the adjacent pass. Use of tack at the vertical faces of longitudinal joints will not be required when paving is performed in echelon.

The tack coat shall be eliminated on asphalt saturated (rich) sections or those that have been repaired by the extensive use of asphalt patching mixtures when directed by the Engineer.

Tack shall not be required atop asphalt stabilized open-graded material drainage layers.

Tack shall be applied between the existing asphalt surface and each asphalt course placed thereafter.

2. **Removing depressions and elevating curves:** Where irregularities in the existing surface will result in a course more than 3 inches in thickness after compaction, the Contractor shall bring the surface to a uniform profile by patching with asphalt concrete and thoroughly tamping or rolling the patched area until it conforms with the surrounding surface. The mixture used shall be the same as that specified for the course to be placed.

When the Contractor elects to conduct operations to eliminate depressions, elevate curves, and place the surface course simultaneously, the Contractor shall furnish such additional spreading and compacting equipment as required to maintain the proper interval between the operations.

- (c) **Placing and Finishing:** The Contractor shall not place asphalt concrete until the Engineer approves the surface upon which it is to be placed.

The Contractor's equipment and placement operations shall properly control the pavement width and horizontal alignment. The Contractor shall use an asphalt paver sized to distribute asphalt concrete over the widest pavement width practicable. Wherever practicable, and when the capacity of sustained production and delivery is such that more than one paver can be successfully and continuously operated, pavers shall be used in echelon to place the wearing course in adjacent lanes. Crossovers, as well as areas containing manholes or other obstacles that prohibit the practical use of mechanical spreading and finishing equipment may be constructed using hand tools. However, the Contractor shall exercise care to obtain the required thickness, jointing, compaction, and surface smoothness in such areas.

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The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 6 inches or more. The joint in the wearing surface shall be offset 6 inches to 12 inches from the centerline of the pavement if the roadway comprises two traffic lanes. The joint shall be offset approximately 6 inches from the lane lines if the roadway is more than two lanes in width. The longitudinal joint shall be uniform in appearance. If the offset for the longitudinal joint varies from a straight line more than 2 inches in 50 feet on tangent alignment, or from a true arc more than 2 inches in 50 feet on curved alignment, the Contractor shall seal the joint using a water-proof sealer at no cost to the Department. The Contractor shall recommend a sealant and installation procedure to the Engineer for approval before proceeding. If the offset for the longitudinal joint varies from a straight line more than 3 inches in 50 feet on tangent alignment, or from a true arc more than 3 inches in 50 feet on curved alignment, the Engineer may reject the paving. The Engineer will not require offsetting layers when adjoining lanes are paved in echelon and the rolling of both lanes occurs within 15 minutes after laydown.

The Contractor shall have a certified Asphalt Field Level II Technician present during all paving operations. Immediately after placement and screeding, the surface and edges of each layer shall be inspected by the Asphalt Field Level II Technician to ensure compliance with the asphalt placement requirements and be straightedged to verify uniformity and smoothness. The Asphalt Field Level II Technician shall make any corrections to the placement operations, if necessary, prior to compaction.. The finished pavement shall be uniform and free of irregularities. If irregularities, including but not limited to segregation or flushing, are identified during the paving operation, the Contractor shall immediately notify the Engineer and address the irregularities with corrective action. If the irregularities continue, the Contractor shall cease the paving operation and not resume until corrective measures have been approved by the Department. When irregularities are noted, the limits of the finished mat shall be determined by the Engineer. The limits of the deficient area of the finished mat shall be removed and replaced at no cost to the Department.

The Contractor's Asphalt Field Level II Technician shall be present during all density testing.

Asphalt concrete placement shall be as continuous as possible and shall be scheduled such that the interruption occurring at the completion of each day's work shall not detrimentally affect the partially completed work. Material that cannot be spread and finished in daylight shall not be dispatched from the plant unless the Engineer approves the use of artificial lighting. When paving is performed at night, the Contractor shall provide sufficient light to properly perform and thoroughly inspect every phase of the operation. Such phases include cleaning planed surfaces, applying tack, paving, compacting, and testing. Lighting shall be provided and positioned so as to not create a blinding hazard to the traveling public.

The Contractor shall ensure that the roller does not pass over the end of freshly placed material during the compaction of asphalt concrete except when a transverse construction joint is to be formed. Edges of pavement shall be finished true and uniform.

Asphalt concrete SUPERPAVE pavement courses shall be placed in layers not exceeding five times the Nominal Maximum Aggregate Size (NMAS) in the asphalt concrete. The maximum thickness may be reduced if the mixture cannot be adequately placed in a single lift and compacted to the required uniform density and smoothness. The minimum thickness for a pavement course shall be no less than 2.5 times the NMAS of the asphalt concrete. The NMAS for each mix shall be defined as one sieve size larger than the first sieve to retain more than 10 percent aggregate as shown in the design range specified in Section 211.03, Table II-13. The Contractor may place base courses in irregularly shaped areas of pavement such as transitions, turn lanes, crossovers, and entrances in a single lift.

The Contractor shall square up overlays in excess of 220 pounds per square yard or lanes with a milled depth greater than 2 inches prior to opening to traffic.

The Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates, excluding curb and gutter sections, on the milled roadway areas that are to be opened to traffic. Plan and prosecute the milling operation to avoid trapping water on the roadway and restore drainage outlets to original grade once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring the drainage slots in the roadway shoulder shall be included in the price bid for other items of work.

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The Contractor shall plan and prosecute a schedule of operations so that milled roadways shall be overlaid with asphalt concrete as soon as possible. In no instance shall the time lapse exceed 14 days after the milling operations, unless otherwise specified in Section 515 or other provisions in the contract. The Contractor shall keep milled areas of the roadway free of irregularities and obstructions that may create a hazard or annoyance to traffic in accordance with Section 104.

The Contractor shall use a short ski or shoe to match the grade of the newly overlaid adjacent travel lane on primary, interstate, and designated secondary routes. Unless otherwise directed by the Engineer, a 24-foot minimum automatic grade control ski shall be used on asphalt mixtures on divided highways, with the exception of overlays that are less than full width and the first course of asphalt base mixtures over aggregate subbases. Care shall be exercised when working along curb and gutter sections to provide a uniform grade and joint.

The Contractor shall construct the final riding surface to tie into the existing surface by an approved method, which shall include the cutting of a notch into the existing pavement. In addition to notching, the Contractor may use an asphalt mix design containing a fine-graded mix to achieve a smooth transition from the new asphalt concrete overlay to the existing pavement, with the approval of the Engineer. The material shall be of a type to ensure that raveling will not occur. The cost for constructing tie-ins in the asphalt concrete overlay shall be included in the asphalt concrete contract unit price.

Prior to application of tack coat and commencement of paving operations if, in the opinion of the Engineer, the existing pavement surface condition may detrimentally affect or prevent the bond of the new overlay, the Contractor shall clean the existing pavement surface of all accumulated dust, mud, or other debris. At no point shall soil, aggregate, or other potential bond breaker material be stored on the pavement surface, unless otherwise approved by the Engineer. If the Contractor wishes to stockpile materials on the pavement surface, the Contractor shall provide documentation to the Engineer for approval on the means and methods that will be used to ensure it will not detrimentally affect or prevent the bond of the next pavement layer. This includes all base, intermediate and surface asphalt layers.

The Contractor shall ensure the surface remains clean until commencement of, and during, paving operations. The cost for cleaning and surface preparation shall be included in the asphalt concrete contract unit price.

The Contractor shall employ a Material Transfer Vehicle (MTV) during the placement of surface mixes (SM) on all Interstate routes. If equipment within the paving train breaks down, paving shall be discontinued once the material on-site has been placed and no more material shall be shipped from the asphalt plant.

When required in the Contract, a MTV shall be used during the placement of designated asphalt mixes on full lane width applications.

- (d) **Compacting:** Immediately after the asphalt mixture is placed, struck off, and surface irregularities are corrected, the mixture shall be thoroughly and uniformly compacted by rolling. Rolling shall be a continuous process, insofar as practicable, and all parts of the pavement shall receive uniform compaction.

The asphalt surface shall be rolled when the mixture is in the proper condition. Rolling shall not cause undue displacement, cracking, or shoving of the placed mixture.

The Contractor shall use the number, weight, and type of rollers sufficient to obtain the required compaction while the mixture is in a workable condition. The sequence of rolling operations and the selection of roller types shall provide the specified pavement density.

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Rolling shall begin at the sides of the placement and proceed longitudinally parallel with the center of the pavement, each pass overlapping at least 6 inches, gradually progressing to the crown of the pavement. When abutting a previously placed lane, rolling shall begin at the outside unconfined side and proceed toward the previously placed lane. On superelevated curves, rolling shall begin at the low side and proceed to the high side by overlapping longitudinal passes parallel with the centerline.

The Contractor shall correct displacements occurring as a result of reversing the direction of a roller or other causes at once by the use of rakes or lutes and the addition of fresh mixture when required. Care shall be taken in rolling not to displace or distort the line and grade of the edges of the asphalt mixture. Edges of finished asphalt pavement surfaces shall be true curves or tangents. The Contractor shall correct irregularities in such areas.

The Contractor shall keep the wheels/drums of the rollers properly moistened with water, water mixed with a very small quantity of detergent or other Engineer approved material to prevent adhesion of the mixture to the rollers. The Engineer will not allow the use or presence of excess liquid on the rollers.

The Contractor shall thoroughly compact the mixture along forms, curbs, headers, walls, and other places not accessible to rollers with hot hand tampers, smoothing irons, or mechanical tampers,. On depressed areas, a trench roller or cleated compression strips may be used under the roller to ensure proper compression.

For SM-4.75 mixes, breakdown rolling shall be accomplished with steel wheel rollers with a minimum weight of 10 tons. SM-4.75 mixes shall receive at least three breakdown roller passes before intermediate and finish rolling.

The Contractor shall protect the surface of the compacted course until the material has cooled sufficiently to support normal traffic without marring.

(e) **Density** will be determined in accordance with Method A for all interstate and limited access routes, and for primary and secondary routes with an ADT of at least 2,000 and at least 20 feet in width. Method B will be used for all other routes. Control Strips will not use Method A or B, but will use the methods described in Section 315.05(e)1a.

1. The Contractor shall perform roller pattern and control strip density testing on surface, intermediate, and base courses in accordance with VTM-76. The Contractor shall have a certified Asphalt Field Technician II perform all density testing.

Density shall be determined with a thin-lift nuclear gauge conforming VTM-81 or from the testing of plugs/cores taken from the roadway where the mixture was placed. Density test locations shall be marked and labeled in accordance with VTM-76. When acceptance testing is performed with a nuclear gauge, the Contractor shall have had the gauge calibrated within the previous 12 months by an approved calibration service. In addition, the Contractor shall maintain documentation of such calibration service for the 12-month period from the date of the calibration service. The required density of the compacted course shall not be less than 98.0 percent or more than 102.0 percent of the target control strip density.

Nuclear density roller pattern and control strip density testing shall be performed on asphalt concrete overlays placed directly on surface treatment roadways and when overlays are placed at an application rate less than 125 pounds per square yard, based on 110 pounds per square yard per inch, on any surface. In these situations, the Engineer will not require sawed plugs or core samples and the minimum control strip density of 92.5 of TMD will not be required. The required density of the compacted course shall not be less than 98.0 percent or more than 102.0 percent of the target control strip.

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The Engineer will divide the project into “control strips” and “test sections” for the purpose of defining areas represented by each series of tests.

- a. **Control Strip:** Control strips shall be constructed in accordance with these specifications and VTM-76.

The term *control strip density* is defined as the average of 10 determinations selected at stratified random locations within the control strip.

The Contractor shall construct one control strip at the beginning of work on each roadway and shoulder course and on each lift of each course. The Engineer will require the Contractor to construct an additional control strip whenever a change is made in the type or source of materials; whenever a significant change occurs in the composition of the material being placed from the same source; or when there is a failing test strip. During the evaluation of the initial control strip, the Contractor may continue paving operations, however, paving and production shall be discontinued during construction and evaluation of any additional control strips. If two consecutive control strips fail, subsequent paving operations shall not begin or shall cease until the Contractor recommends corrective actions to the Engineer and the Engineer approves the Contractor proceeding with the corrective action(s). If the Contractor and the Engineer mutually agree that the required density cannot be obtained because of the condition of the existing pavement structure, the target control strip density shall be determined from the roller pattern that achieves the optimum density and this target control strip density shall be used on the remainder of the roadway that exhibits similar pavement conditions.

Either the Engineer or the Contractor may initiate the construction of an additional control strip at any time.

The length of the control strip shall be approximately 300 feet and the width shall not be less than 6 feet. On the first day of construction or beginning of a new course, the control strip shall be started between 500 and 1,000 feet from the beginning of the paving operation. The Contractor shall construct the control strip using the same paving, rolling equipment, procedures, and thickness as shall be used for the remainder of the course being placed.

The Contractor's Asphalt Field Level II Technician shall take one reading at each of 10 stratified random locations. No determination shall be made within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes. The average of these 10 determinations shall be the control strip density recorded to the nearest 0.1 pound per cubic foot. The minimum control strip density shall be determined in accordance with VTM-76.

The control strip shall be considered a lot. If the control strip density conforms to the requirements of 92.5% of TMD for surface, intermediate and base mix, the Engineer will consider the control strip to be acceptable and the control strip density shall become the target control strip density.

If the Engineer determines that the control strip requirements of 92.5% of TMD for surface, intermediate and base mix cannot be met due to in-situ pavement conditions, Method 'B' will be used for acceptance and payment and density adjustments will be waived.

Otherwise, if the density does not conform to the requirements specified of 92.5% of TMD for surface, intermediate and base mix, the tonnage placed in the control strip and any subsequent paving prior to construction of another control strip will be paid for in accordance with Table III-3. If the control strip density is below 88% TMD, then that tonnage shall be removed from the roadway at no cost to the Department.

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At the discretion of the Engineer, the material may be accepted at 75% of the contract unit price. The Contractor shall take corrective action(s) to comply with the density requirement of a minimum of 92.5% of TMD.

**TABLE III-3**  
**Control Strip Requirement and Payment Schedule for SM, IM and BM mixes**

% TMD	% of Payment
Greater than 96.5 <sup>1</sup>	95
<b>92.5– 96.5<sup>1</sup></b>	<b>100</b>
90.0-92.4	90
88.0-89.9	80
Less than 88.0	Removal

<sup>1</sup> For Base Mix only, the range for 100% pay shall be 92.5-97.0% of TMD.

- b. **Test section (lot):** For the purposes of both Contractor quality control and determining acceptance, the Engineer will consider each day's production as a lot unless the paving length is less than 3,000 linear feet or more than 7,500 linear feet, regardless of the method of acceptance (Method A or B). When paving is less than 3,000 feet, that day's production will be combined with the previous day's production or added to the next day's production to create a lot as described below.

The standard size of a lot will be 5,000 linear feet (five 1,000 foot sublots) of any pass 6 feet or greater made by the paving train for the thickness of the course. If the Engineer approves, the lot size may be increased to 7,500 linear foot lots with five 1,500 foot sublots when the Contractor's normal daily production exceeds 7,000 feet. Pavers traveling in echelon will be considered as two passes. When a partial lot occurs at the end of a day's production or upon completion of the project, the lot size will be redefined as follows:

- If the partial lot contains one or two sublots, the sublots will be added to the previous lot.
- If the partial lot contains three or four sublots, the partial lot will be redefined to be an entire lot.

The Contractor shall test each lot for density by taking a nuclear density gauge reading from two random test sites selected by the Engineer within each subplot. When saw plugs or cores are used to determine acceptance, a single test site will be selected by the Engineer. Test sites will not be located within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes.

The Engineer will compare the average of the subplot density measurements to the target nuclear density, or for plugs and cores, to the target percent of theoretical maximum density achieved on the control strip to determine the acceptability of the lot. The Contractor shall immediately notify the Engineer and institute corrective action if two consecutive sublots produce density results less than 98% or more than 102% of the target control strip density.

Density testing for acceptance will not be performed on areas too thin or irregular to test accurately, such as open-graded friction courses, and wedge-and-leveling courses. Areas that are difficult to compact due to subgrade support or space limitations, including but not limited to crossovers and gore areas, will be placed in accordance with Section 315.05(e)2.

For purposes of density determination, acceptance, and payment, Main Pavement is defined to include travel lanes, shoulders 6 feet or greater, turn lanes, ramps, and acceleration and deceleration lanes.

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**(1) Method 'A' (plugs or cores)**

Any pay adjustment will only be applied to Main Pavement.

The Contractor shall perform acceptance testing for density for each sublot by obtaining one plug, defined as a sawed 4-inch by 4-inch specimen, or one 4-inch-diameter core, at a single random test site selected by the Engineer. More than one plug or core can be taken if the original sample is damaged.

The sub-lot site shall be marked as described in VTM-76. The bulk specific gravity of the plugs or cores shall be determined in accordance with VTM-6. The density of the plugs or cores shall be determined in accordance with VTM-22, except that the daily Rice values obtained by the contractor for the mix will be used for calculating percent density (instead of using the 5-day running average as noted in VTM-22).

Plugs or cores shall be taken from the pavement during the paving shift and bulked in the presence of the Engineer unless otherwise approved. The Department reserves the right to have the plugs or cores bulked on the project site. In the event of any uncertainty around the bulking procedures or results, the Department further reserves the right to re-bulk the samples. The Contractor will have the right to witness the re-bulking. The Contractor will be responsible for maintaining the cores until approved for disposal by the Department.

The Contractor shall number sublot test sites sequentially per lot, mark these on the pavement, fill them with the paving mixture, and compact them prior to the completion of each day of production.

The Contractor shall clean and straighten any irregular edges before filling and compacting. Liquid tack material shall be applied so it visibly covers all plug or core hole surfaces (sides, bottom, etc.). Asphalt concrete mixture available on the same day of paving, or other permanent patching material as approved by the Engineer, shall be placed into the plug or core hole and compacted with a 10-pound weighted hand tool or greater compactive effort with rollers or other equipment available on-site and approved by the Engineer.

The tonnage of each lot for the pay adjustment will be based on the lot's width and length and the mixture application rate as designated in the Contract or as revised by the Engineer. Payment will be made in accordance with Table III-4A.

**TABLE III-4A**  
**Payment Schedule for Method A Lot Densities for SM, IM and BM mixes**

% TMD	% of Payment
Greater than 96.5 <sup>1</sup>	95
92.5 – 96.5 <sup>1</sup>	100
90.0–92.4	90
88.0 – 89.9	80
Less than 88.0	Removal

<sup>1</sup> For Base Mix only, the range for 100% pay shall be 92.5-97.0% TMD.

If a minimum of 80% of each test section lot's core/plug samples is no lower than 92.5% of TMD and the lot average results in 100% payment, then the Engineer will increase the unit bid price for AC mixture by 5%. BM-25.0D+0.4 and BM-25.0D+0.8 shall not be eligible for five percent pay increase. No increase will be applied if core/plug samples are cut outside of the paving shift unless otherwise approved by the Engineer; any applicable density pay reduction from Table III-4A may still apply.

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If any subplot(s) are lower than 88.0% of TMD then those sublots shall be removed from the roadway at no cost to the Department. If the lot average is below 88.0% of TMD then that test section shall be removed from the roadway at no cost to the Department.

Longitudinal joints shall also be tested for density using a nuclear density gauge at each test site in the subplot. For surface and intermediate mixes, the edge of the gauge shall be placed within 4 inches of the joint. For base mixes, the edge of the gauge shall be placed within 6 inches of the joint. The Contractor shall not place the gauge over top of the joint. The joint density value shall be recorded. The Contractor shall report to the Engineer and institute corrective action if a single longitudinal joint density reading is less than 95% of the target control strip density. The Engineer will not use the values obtained from the joint readings in payment calculation. The Contractor shall furnish the test data developed during the day's paving to the Engineer by the end of the day's operations.

**(2) Method 'B' (nuclear gauge)**

Any pay adjustment will only be applied to Main Pavement.

The Contractor shall test each lot for density by taking a nuclear density gauge reading from two random test sites selected by the Engineer within each subplot. Test sites will not be located within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes.

The Engineer will compare the average of the subplot density measurements to the target nuclear density, or for cores, to the target percent of theoretical maximum density achieved on the control strip to determine the acceptability of the lot. Once the average density of the lot has been determined, the Engineer will not allow the Contractor to provide additional compaction to raise the average. The Contractor shall immediately institute corrective action if two consecutive sublots produce density results less than 98% or more than 102% of the target control strip density.

Longitudinal joints shall also be tested for density using a nuclear density gauge at each test site in the subplot. For surface and intermediate mixes, the edge of the gauge shall be placed within 4 inches of the joint. For base mixes, the edge of the gauge shall be placed within 6 inches of the joint. The Contractor shall not place the gauge over top of the joint. The joint density value shall be recorded. The Contractor shall report to the Engineer and institute corrective action if a single longitudinal joint density reading is less than 95 percent of the target control strip density. The Engineer will not use the values obtained from the joint readings in payment calculation. The Contractor shall furnish the test data developed during the day's paving to the Engineer by the end of the day's operations.

The tonnage of each lot for the pay adjustment will be based on the lot's width and length and the mixture application rate as designated in the Contract or as revised by the Engineer. Payment will be made in accordance with the requirements of Table III-4B.



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**TABLE III-4B**  
**Payment Schedule for Method B Lot Densities**

% of Target Control Strip Density	% of Payment
Greater than 102.0	95
98.0 to 102.0	100
97.0 to less than 98.0	95
96.0 to less than 97.0	90
Less than 96.0, but (% of Target Control Strip Density x %TMD control strip cores) > 88%	75
Less than 96.0, and (% of Target Control Strip Density x %TMD control strip cores) ≤ 88%	Removal <sup>1</sup>

1. If any lot produces density results less than 96.0% of Target, and (% of Target Control Strip Density x % TMD control strip cores) ≤ 88%, then that lot shall be removed from the roadway at no cost to the Department.

**(3) Verification, Sampling, and Testing (VST)**

The Engineer at any time on any project may perform lot density verification testing regardless of whether Method A or B is being used for density acceptance. Lot density verification is performed by testing plugs or cores. The Contractor shall be responsible for taking plugs or cores for testing. The Engineer will perform verification testing of the plugs or cores.

On surface, intermediate, and base mixes, the Contractor shall take two plugs or cores per VST lot at locations selected by the Engineer. If the Engineer determines the density of the plugs or cores does not conform to the requirements for the lot in question or the same payment percentage determined by the Contractor's testing for that lot, then the Contractor may request additional sampling to be invoked. The Contractor shall take one additional plug or core from the remaining sublots. Payment for that lot, based on the results of the initial two plugs or cores or referee procedure, will be in accordance with the Table III-4A for Method A on the basis of the percentage of the theoretical maximum density or Table III-4B for Method B on the basis of the percentage of the control strip bulk density achieved.

2. **Surface, intermediate, and base courses** not having a sufficient quantity of material to run a roller pattern and control strip, and unique sections defined on the Plans or within the Contract that are 3500 feet or less and at least 6 feet in width shall be compacted to a minimum density of 92.5 percent as determined in accordance with VTM-22. The Contractor shall be responsible for cutting cores or sawing plugs for testing by the Department. One plug or core shall be obtained within the first 500 feet of small quantity paving and every 1000 feet thereafter for testing by the Department. Plug or core locations shall be randomly selected by the Engineer. If the density is determined to be less than the minimum, the Engineer will make payment in accordance with Table III-5.

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**TABLE III-5**  
**Payment Schedule for Surface, Intermediate and Base Courses (Not sufficient quantity to perform density roller pattern and control strip)**

% TMD	% of Payment
Greater than or equal to 92.5	100
90.0-92.4	90
88.0-89.9	80
Less than 88.0	Removal <sup>1</sup>

1. Removal shall be at no cost to the Department.

Any section in which a mixture (e.g., SM-9.0) is being placed at an application rate of less than 125 pounds per square yard (based on 110 pounds per square yard per inch) that does not have a sufficient quantity of material for a roller pattern and control strip shall be compacted by rolling a minimum of three passes with a minimum 8-ton roller. The Engineer will not require density testing.

For asphalt patching or paving widths narrower than 6 feet in width, the minimum density of 91.5 percent of the maximum theoretical density will be determined in accordance with VTM-22. The Contractor is responsible for cutting cores or sawing plugs. One set of cores or plugs shall be obtained within the first 20 tons of material and every 100 tons thereafter for testing by the Contractor or the Department. The Engineer will randomly select plug or core locations. If the density is less than the 91.5 percent, payment will be made on the tonnage within the 20 or 100 ton lot in accordance with Table III-6.

**TABLE III-6**  
**Payment Schedule for Surface, Intermediate and Base Courses (Asphalt Patching)**

% TMD	% of Payment
Greater than or equal to 91.5	100
90.0-91.4	95
88. 1-89.9	90
Less than or equal to 88.0	Removal <sup>1</sup>

1. Removal shall be at no cost to the Department.

- (f) **Joints:** Transverse joints shall be formed by cutting back on the previous run to expose the full depth of the course. A coat of asphalt shall be applied to contact surfaces of transverse joints just before additional mixture is placed against the previously rolled material.

Joints adjacent to curbs, gutters, or adjoining pavement shall be formed by hand placing sufficient mixture to fill any space left uncovered by the paver. The joint shall then be set up with rakes or lutes to a height sufficient to receive full compression under the rollers.

- (g) **Rumble Strips:** This work shall consist of constructing rumble strips or rumble stripes on mainline shoulders or centerlines of highways by cutting concave depressions into existing asphalt concrete surfaces as shown on the Standards Drawings and as directed by the Engineer. Rumble stripes are defined as edgeline or centerline rumble strips with permanent longitudinal pavement markings subsequently installed within the rumble strip grooves.

Rumble strips and rumble stripes shall be installed in accordance with the RS-Series Standard Drawings. The Contractor shall demonstrate to the Engineer the ability to achieve the desired surface regarding alignment, consistency, and conformity with these Specifications and the Standard Drawings before beginning production work on mainline shoulders or centerlines. The test site shall be approximately 25 feet longitudinally at a location mutually agreed upon by the Contractor and Engineer.

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Pavement markings for rumble stripes shall be applied after the grooves have been cut. The grooves shall be thoroughly cleaned and the surface prepared before pavement marking application, in accordance with the Standard Drawings and Section 704. Overspray of pavement marking materials shall not extend more than one inch beyond the lateral position of the pavement marking line shown in the RS-Series Standard Drawings.

Rumble strips shall not be installed on shoulders of bridge decks, in acceleration or deceleration lanes, on surface drainage structures, or in other areas identified by the Engineer.

Waste material resulting from the operation shall be removed from the paved surface and shall be disposed of in accordance with Section 106.04.

- (h) **Saw-Cut Asphalt Pavement:** This work shall consist of saw-cutting the existing asphalt pavement to a depth as shown on the plans or as directed by the Engineer.
- (i) *Coating designed surface cuts:* Designed Surface Cuts are roadway features installed by cutting or grinding into a road surface, for example, Rumble strips, rumble stripes, and plastic inlaid marker grooves.

Designed Surface Cuts shall be coated with liquid asphalt coating (emulsion) when the Designed Surface Cuts are being cut into an existing asphalt surface (i.e. more than one year since placement); when new Designed Surface Cuts are being cut into the pavement surface in conjunction with a surface treatment, latex emulsion, or slurry seal pavement operation; or when the proposed plant mix surface is less than one inch deep.

Liquid asphalt coating (emulsion) shall not be used when Designed Surface Cuts are being cut into new pavement, or being cut in conjunction with plant mix paving operations where the proposed plant mix surface is one inch or greater in depth.

When liquid asphalt coating (emulsion) is required, the Contractor shall coat the entire rumble strip area with the liquid asphalt coating (emulsion) using a pressure distributor following the cutting and cleaning of the depressions of waste material. For rumble strips installed on the shoulder, the approximate application rate shall be 0.1 gallons per square yard. For centerline rumble stripes and plastic inlaid marker grooves, the approximate application rate shall be 0.05 gallons per square yard. The application temperature shall be between 160 degrees F and 180 degrees F. For shoulder rumble strips and plastic inlaid marker grooves, overspray shall not extend more than 2 inches beyond the width of the cut depressions and shall not come in contact with pavement markings.

If liquid asphalt coating (emulsion) is applied before installation of the plastic inlaid marker, then the bottom of the plunge cut shall be protected during liquid asphalt coating (emulsion) application so as to avoid inhibiting the ability of the marker epoxy to bond to the bottom of the plunge cut. If the liquid asphalt coating (emulsion) is applied after the plastic inlaid marker has been installed, then the retroreflector shall be protected during the liquid asphalt coating (emulsion) application to prevent the coating material from dirtying or damaging the retroreflector, with the protection removed after the coating has been completed.

### **315.06 – Pavement Samples**

The Contractor shall cut samples from the compacted pavement for depth and density testing. Samples shall be taken for the full depth of the course at the locations selected by the Engineer. The removed pavement shall be replaced with new mixture and refinished. No additional compensation will be allowed for furnishing test samples and reconstructing areas from which they were taken.

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**315.07—Pavement Tolerances**

- (a) **Surface Tolerance:** The Engineer will test the pavement surface by using a 10-foot straight-edge. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall not be more than 1/4 inch. The Contractor shall correct humps and depressions exceeding the specified tolerance or the defective work shall be removed and replaced with new material.
- (b) **Finished Grade Tolerance:** Finished grade elevations shall be within +/-0.04 foot of the elevations indicated in the plans after placement of the final pavement layer unless otherwise specified, provided the actual cross slope does not vary more than 0.20 percent from the design cross slope indicated in the plans, and the plan depth thickness conforms to the thickness tolerances specified herein.

If the Engineer determines either the finished grade elevations or cross slope exceed the specified tolerances, the Contractor shall submit a corrective action plan to the Engineer for approval.

- (c) **Thickness Tolerance:** The thickness of the base course will be determined by the measurement of cores as described in VTM-32.

Acceptance of asphalt concrete base course for depth will be based on the mean result of measurements of samples taken from each lot of material placed. A lot of material is defined as the quantity being tested for acceptance except that the maximum lot size will be 1 mile of 24-foot-width base course.

A lot will be considered acceptable for depth if the mean result of the tests is within the following tolerance of the plan depth for the number of tests taken:

Plan Depth	1 test	2 tests	3 tests	4 tests
≤4"	0.6"	0.5"	0.4"	0.3"
>4" ≤8"	0.9"	0.7"	0.5"	0.4"
>8" ≤12"	1"	0.9"	0.7"	0.5"
>12"	1.2"	1"	0.8"	0.6"

If an individual depth test exceeds the one test tolerance for the specified plan depth, the Engineer will exclude that portion of the lot represented by the test from the lot. If an individual test result indicates that the depth of material represented by the test is more than the tolerance for one test, the Contractor will not be paid for that material in excess of the tolerance throughout the length and width represented by the test. If an individual test result indicates that the depth of the material represented by the test is deficient by more than the one test tolerance for the plan depth, the Contractor shall correct the base course represented by the test as specified hereinafter.

If the mean depth, based on two or more tests, of a lot of material is excessive (more than the plan depth specified in the contract), the Engineer will not pay the Contractor for any material in excess of the tolerance throughout the length and width of the lots represented by the tests.

If the mean depth, based on two or more tests, of a lot of material is deficient (less than the plan depth specified in the contract) by more than the allowable tolerance, the Contractor will be paid for the quantity of material that has been placed in the lot. Any required corrective action will be determined by the Engineer.

For excessive depth base courses, the rate of deduction from the tonnage allowed for payment as base course will be calculated at a weight of 115 pounds per square yard per inch of depth in excess of the tolerance. For sections of base course that are deficient in depth by more than the one test tolerance and less than two and half times the one test tolerance, the Contractor shall furnish and place material specified for the subsequent course to bring the base course depth within the tolerance.

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This material will be measured on the basis of tonnage actually placed, determined from weigh tickets, and will be paid for at the contract unit price for the base course material. Such material shall be placed in a separate course. If the deficiency is more than two and half times the one test tolerance, the Contractor shall furnish and place base course material to bring the base course thickness within the tolerance. Corrections for deficient base course depth shall be made in a manner to provide a finished pavement that is smooth and uniform. Sections requiring significant grade adjustments which have been previously identified and documented by the Engineer as being outside of the control of the Contractor will be exempt from deduction or corrective action.

When the Contract provides for the construction or reconstruction of the entire pavement structure, the surface and intermediate courses shall be placed at the rate of application shown on the plans within an allowable tolerance of  $\pm 5$  percent of the specified application rate for application rates of 100 pounds per square yard or greater and within 5 pounds per square yard for application rates of less than 100 pounds per square yard. The Engineer will deduct the amount of material exceeding the allowable tolerance from the quantities eligible for payment.

When the Contract provides for the placement of surface or intermediate courses over existing pavement, over pavements constructed between combination curb and gutter, or in the construction or reconstruction of shoulders, such courses shall be placed at the approximate rate of application as shown on the plans. However, the specified rate of application shall be altered where necessary to produce the required riding quality.

**315.08 – Measurement and Payment**

**Asphalt concrete base** will be measured in tons and will be paid for at the contract unit price per ton. This price shall include preparing and shaping the subgrade or subbase, constructing and finishing shoulders and ditches, and removing and replacing unstable subgrade or subbase.

**Asphalt concrete** will be measured in tons and will be paid for at the contract unit price per ton. Net weight information shall be furnished with each load of material delivered in accordance with Section 211. Batch weights will not be permitted as a method of measurement unless the Contractor's plant is equipped in accordance with Section 211, in which case the cumulative weight of the batches will be used for payment.

**Asphalt used in the mixtures**, when a pay item, will be measured in tons in accordance with Section 109.01 except that transporting vehicles shall be tare weighed prior to each load. The weight will be adjusted in accordance with the percentage of asphalt indicated by laboratory extractions.

**Tack coat**, when a pay item, will be measured and paid for in accordance with Section 310 of the Specifications. When not a pay item, it shall be included in the price for other appropriate pay items.

**Asphalt curb backup material** will be measured in tons and will be paid for at the contract unit price per ton. This price shall include placing, tamping, and compacting.

**Liquid Asphalt Cement**, when a pay item, will be measured in tons in accordance with Section 109.01 except that transporting vehicles shall be tare weighed before each load. When used in the mixture, the weight will be adjusted in accordance with the percentage of asphalt indicated by laboratory extractions.

**Warm Mix Asphalt (WMA)** additive or process will not be measured for separate payment, the cost of which, shall be included in the contract unit prices of other appropriate items.

**Rumble strips** will be measured in linear feet and will be paid for at the contract unit price per linear foot of mainline pavement or shoulder where the rumble strips are actually placed and accepted, excluding the test site. This distance will be measured longitudinally along the center line of pavement (mainline) or edge of pavement (shoulders) with deductions for bridge decks, acceleration/deceleration lanes, surface drainage structures, and other sections where the rumble strips were not installed.

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This price shall include installing, cleaning up debris and disposing of waste material. The test site will not be measured for payment but shall be included in the unit price for rumble strip.

**Liquid asphalt coating** will be measured in square yards and will be paid for at the Contract square yard price. This price shall include cleaning Designed Surface Cuts before application of the coating, furnishing and applying coating, and protection of all retroreflectors.

**Saw-cut asphalt concrete pavement** will be measured in linear feet for the depth specified and will be paid for at the contract unit price per linear foot, which price shall be full compensation for saw-cutting the asphalt pavement to the depth specified, cleaning up debris and disposal of waste material.

These prices for asphalt shall also include heat stabilization additive(s), furnishing samples, and maintaining traffic.

Patching will be paid for at the contract unit price for the various items used unless a reconditioning item is included in the Contract.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Asphalt concrete base course (Type)	Ton
Asphalt concrete (Type)	Ton
Asphalt concrete curb backup material	Ton
Liquid asphalt cement	Ton
Liquid asphalt coating	Square yard
Rumble Strip Standard)	Linear foot
Saw-cut asphalt concrete (depth)	Linear foot

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SS318-002020-01

August 2, 2023

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

**SECTION 318 – PAVEMENT INTERLAYERS**

**SECTION 318 – PAVEMENT INTERLAYERS** of the Specifications is amended as follows:

**Section 318.03(c) – Overlapping of Adjacent Interlayer Rolls** is replaced by the following:

**Overlapping of Adjacent Interlayer Rolls:** Adjacent interlayer rolls shall be overlapped, seamed, or fastened per the manufacturer's instructions; however, those instructions shall not supersede the requirements below.

1. When selecting roll sizes of interlayer products, and particularly when selecting the roll width, the lane width and any additional width needed for longitudinal overlap shall be considered.
2. When the size of the roll is less than that of the installation, then overlapping of the material will be required and the following will apply:
  - a. Overlaps are not allowed in the wheel path and/or under the construction joint;
  - b. Minimum overlaps shall not be less than 2 inches (50 mm), and
  - c. All longitudinal and transverse overlaps shall receive a second tack coat between the fabric overlaps.

Each of the requirements applies unless otherwise approved by the Engineer.

**Section 318.03(e) – Bond Strength** is inserted as follows:

**Bond Strength:** The Contractor shall ensure an adequate bond is made between the existing surface, interlayer, and the new overlay. The referee system for bond strength according to Section 310.03(c) is applicable for pavement interlayer placement.

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SS321-002020-02

May 4, 2023

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 321 – TRENCH WIDENING**

**SECTION 321 – TRENCH WIDENING** of the Specifications is amended as follows:

**321.01 – Description**

This work shall consist of installing asphalt concrete mixtures into a constructed trench to widen shoulders and travel lanes up to but not including the surface mix in accordance with the Plans and Specifications and as directed by the Engineer.

**321.02 – Material**

(f) **Materials** shall conform to Section 211.02 and 315.02.

(g) **Trench widening material** IM-19.0A shall be used for IM-19.0A(T) and IM-19.0D shall be used for IM-19.0D(T). Where BM-25.0(T) is designated, either BM-25.0A or BM-25.0D shall be used by the Contractor.

**321.03 – Placement Limitations**

The Contractor shall not place asphalt concrete mixtures when weather or surface conditions are such that the material cannot be properly handled, finished, or compacted. The surface upon which asphalt concrete mixtures is to be placed shall be free of standing water, dirt, and mud and the base temperature shall conform to Section 315.04.

**321.04 – Procedure**

(a) **Trench Widening Route Types:** The minimum lift density as determined according to VTM-22 is based on the type of trench widening as defined below and specified in the Contract. Where trench widening is 2 feet in width, compaction may be performed with small single drum walk-behind rollers or other mechanical means acceptable to the Engineer.

1. **Type 1: Paved Shoulder Only** shall be installed on routes where the widening will serve as a paved shoulder and will not be subjected to constant traffic. The painted edge line will not be on the trench widening. The minimum density requirement will not be enforced and plugs/cores are not required for this type of trench widening. Steel double drum rollers weighing at least 8 tons shall perform compaction of the asphalt concrete. At least five passes shall be completed.
2. **Type 2: Widened Travel Lane and Paved Shoulder** shall be installed on routes where the widening will serve as a wider travel lane and paved shoulder that will be subjected to traffic. The widening will not include removal of existing travel lane pavement, i.e., inside the edge line marking. The painted edge line will be on the trench widening. The minimum density applies to this type of trench widening.
3. **Type 3: Repaired Travel Lane and Paved Shoulder** shall be used on routes where the widening will include a portion of the existing travel lane, serve as a paved shoulder and will be subjected to traffic as a part of the travel lane. The widening will include removal of existing pavement, i.e., inside the edge line marking. The painted edge line will be on the trench widening. The minimum density applies to this type of trench widening.

(b) Trench widening routes shall be widened by trenching on one or both sides of the existing roadway and placing Trench Widening Material in accordance with the width and depth specified for that route.

The depth of the base course will be determined by the measurement of cores as described in VTM-32 and 315.07(c), unless otherwise approved by the Engineer. Any remaining material, after final grading, shall be classified as excess material, and will be disposed of according to Section 106.04 of the Specifications or as directed by the Engineer.

The trench shall be shaped to have vertical sides with the width, depth and type specified in the Contract (2-foot minimum to 6-foot maximum width); be free of excess material; and shall be tacked against the existing pavement side before Trench Widening Material is placed.



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The Contractor shall ensure that disruption to driveways, entrances, mailboxes, and intersections are minimized and that precautions are taken to ensure that roadway drainage does not pond on the roadway surface.

**321.05 - Acceptance**

Where density requirements apply, the Contractor is responsible for cutting cores or sawing plugs for density testing. One plug or core per course of material shall be obtained within the first 500 feet and every 2,500 feet thereafter of the trench widening route for testing by the Contractor or the Department. Core and plug locations shall be randomly selected within each section. If the density achieved is less than 91.5% of the maximum theoretical density for the Type 2 or 3 trench widening routes, payment adjustment will be made on the actual tonnage within the 500- or 2,500-foot lot according to Table III-6 in Section 315.

**321.06- Measurement and Payment**

**Asphalt Concrete Type BM-25.0(T), IM-19.0A(T) or IM-19.0D(T)** will be measured in tons and will be paid for at the Contract ton price. This price shall include furnishing and placing the Trench Widening Material, trenching, tack, grading and disposing of excess material.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Asphalt Concrete Type BM-25.0(T)	Ton
Asphalt Concrete Type IM-19.0A(T)	Ton
Asphalt Concrete Type IM-19.0D(T)	Ton

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SS512-002020-03

July 1, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 512 – MAINTAINING TRAFFIC**

**SECTION 512 – MAINTAINING TRAFFIC** of the Specifications is amended as follows:

**Section 512.02(f) – Temporary (Construction) signs** is replaced with the following:

**Temporary (Construction) signs** shall have retroreflective sign sheeting in accordance with Sections 247 and 701.

Sign substrates for rigid temporary signs and temporary overlay panels shall be fabricated of either aluminum at least 0.080-inches thick, conforming to Section 229.02(a); 0.4-inch-thick corrugated polypropylene; 0.4-inch-thick corrugated polyethylene plastic; or 0.079-inch-thick aluminum/plastic laminate as approved by the Engineer. Sign substrates shall be smooth, flat, and free of metal burrs or splinters.

Sign substrate materials for signs mounted on drums, Type 3 barricades, and portable sign stands shall be as specified below and shall be the same material that was used when the device was approved in accordance with National Cooperative Highway Research Program (NCHRP) Report 350 or MASH.

**Sign Substrates for Type 3 Barricades and Portable Sign Stands**

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Rollup sign  
0.4 inch thick corrugated polypropylene or polyethylene plastic  
0.079 inch thick aluminum/plastic laminate

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**Sign Substrates for Drums**

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0.4 inch thick corrugated polypropylene or polyethylene plastic

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**Section 512.03 – Procedures** is amended by replacing the sixth and seventh paragraphs with the following:

The Contractor shall correct ineffective or unacceptable work zone traffic control devices immediately unless allowed otherwise by the Contract.

The color of Automated Flagger Assistance Device trailers, arrow board trailers, portable traffic control signal trailers, ITS trailer equipment, and portable changeable message sign trailers and sign frames shall be either Virginia highway orange (DuPont Color No. LF74279 AT or color equivalent) or federal yellow. The back traffic facing trailer frame, where the signal and brake lights are located, shall be fully covered with 2 inch high retroreflective sheeting conforming to Section 247.02(c). The sheeting shall have alternating 11 inch wide vertical red stripes and 7 inch wide vertical white stripes.

The Contractor shall locate, remove, and dispose of all existing asphalt-embedded Snowplowable Raised Pavement Marker (SRPM) castings which lie within a travel lane that has been shifted during construction for three months or longer. The cavity left by the removal of the existing marker shall be cleaned of debris, filled with an approved mix design for resurfacing or material found on the Department's Approved List 78, and compacted before shifting traffic.

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**CONTRACT ID. NO.: CM224PMN124680**

**Section 512.03(a) – Temporary Signs** is replaced with the following:

**Temporary Signs:** The Contractor shall furnish, install, remove, relocate, and maintain temporary signs and sign panels necessary for prosecution of the work which shall include but not be limited to, maintenance of traffic, off project detour signs, and begin and end of road work signs for construction, maintenance, permit, utility, and incident management activities. Installation shall be in accordance with Section 701. The Contractor shall also furnish and install those signs not listed in the *VWAPM*, the *MUTCD*, or the Contract (such as “Turn Lane Open with arrow” and “Grooved Pavement Ahead”) that may be required by the Engineer.

Signs shall be fabricated in accordance with the *MUTCD*, *VWAPM*, the FHWA Standard Highway Signs and Markings book (including its Supplement), and the Virginia Standard Highway Signs book. If the Contractor proposes a sign message not included in the Plans, *VWAPM*, or *MUTCD*, then the Contractor shall submit a sign fabrication detail to the Engineer for approval before fabrication. The sign fabrication detail shall include sign size, legend, font, legend dimensions, radius, border, margins, sheeting type, and colors.

The Contractor shall relocate, cover, uncover, remove, and reinstall existing signs that conflict with the signs needed for maintenance of traffic. Covering of existing signs shall be accomplished in accordance with Section 701.03(d).

The Contractor shall ensure an unrestricted view of sign messages. The Contractor shall furnish and install flags for temporary signs, as directed by the Engineer; however flags will not be required for use on portable sign supports.

Sign location, lateral placement, and mounting height shall conform to the *VWAPM*, the *MUTCD*, the Contract, and as directed by the Engineer. The Contractor shall furnish all sign supports and hardware for use with temporary signs.

When the sign sequence is not provided in the plans, either by illustration or reference to a typical traffic control figure in the *VWAPM*, the Contractor shall submit a sketch of his proposed sign sequencing and positioning to the Engineer for approval before installation.

Temporary signs shall be mounted using wooden post supports, square tube sign post supports, or portable sign stands, except where noted otherwise on the Plans. Portable sign stands shall not be used longer than three consecutive days (72 continuous hours). Wooden and square tube post installations shall be in accordance with Standard Drawing WSP-1.

Portable sign stands manufactured on or before December 31, 2019 may be used if they are in good working condition, conform to NCHRP Report 350 Test Level 3 or MASH, and are a product shown on the Traffic Control Device Pre-Approval list. Portable sign stands manufactured after December 31, 2019 shall conform to MASH and shall be a product shown on the Department’s Approved List for MASH Approved Products. The Contractor shall submit a certification letter stating the brands and models of portable sign stands to be used along with a copy of the certification letters indicating compliance with NCHRP Report 350 Test Level 3 or MASH. Portable sign stands shall support a 20 square foot sign in sustained winds of 50 mph or wind gusts of passing vehicles without tipping over, walking, or rotating more than  $\pm 5$  degrees about its vertical axis.

Portable sign stands shall include decals, stenciling, or some other durable marking system that indicates the manufacturer and model number of the stands. Such marking shall be of sufficient size so it is clearly legible to a person in a standing position.

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The Contractor shall erect, maintain, move, and be responsible for the security of sign panels and shall ensure an unrestricted view of sign messages for the safety of traffic.

**Section 512.03(g)2b(1) – Drums** is replaced with the following:

**Drums** shall be round or partially round; made from plastic; have a minimum height of 36 inches; have a cross-sectional width no less than 18 inches in any direction; have a closed top; and shall conform to the VWAPM. Drums shall be designed to allow for separation of ballast and drum upon vehicular impact but not from wind and vacuum created by passing vehicles. The base of the unit height shall not exceed 5 inches. Two-piece drums may have a flared drum foundation, a collar not exceeding 5 inches in height and be of suitable shape and weight to provide stable support. One-piece drums that comply with these requirements may be used.

The Contractor shall furnish and install signs (Stop, Chevron, keep Right, etc.) for drums when directed by Engineer. Signs used on drums shall be tested for conformance with NCHRP 350, Test Level 3, and/or MASH requirements and shall be made of the same material used in the test. The Contractor may use other materials allowed by the FHWA acceptance letter when approved by the Engineer.

**Section 512.03(g)2b(3) – Direction indicator barricades** is deleted.

**Section 512.03(h) –Traffic Barrier Service** is replaced with the following:

**Traffic Barrier Service** shall be of sufficient length to provide anchorage and protection of traffic and personnel in work areas.

The Contractor shall begin continuous progressive prosecution of the work protected by the barrier once the barrier is in place until its completion. If the Contractor ceases to continuously prosecute such work, the Engineer may cause the Contractor to discontinue operations in other areas on the project and concentrate work efforts behind the traffic barrier service until that work is completed. The Contractor shall remove the traffic barrier service when the Engineer determines work is completed to the extent that traffic barrier service is no longer required.

While performing work activities, workers and equipment shall remain behind the protection of the traffic barrier service except as approved by the Engineer. Work outside traffic barrier service protection shall only proceed under the protection and direction of approved traffic control devices or flagger service to safeguard workers and traffic in advance of and at the point the traffic barrier service is opened for ingress or egress adjacent to the travel lane. The Engineer will not permit any equipment extending into an open travel lane.

Barrier openings for access to the work area may be provided only along tangent sections or along curved sections on the inside of traffic and shall be limited to the minimum length required for equipment access. The Contractor shall delineate and maintain normal pavement alignment at the barrier opening with Type D pavement marking.

At ingress openings, the exposed end of the barrier service shall be provided with a temporary impact attenuator approved by the Engineer. At egress openings, the exposed end shall be transitioned at a rate that complies with the VWAPM. For speeds below 30 mph, the transition flare rate shall be the same as that indicated for 30 mph. An impact attenuator will not be required at the exposed end of egress openings in barrier service provided the deflection angle between the pavement edge and the ends of the barrier service openings is 20 degrees or more.

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Repairs to traffic barrier service shall match existing barrier so that positive connections can be maintained.

Delineators and barrier panels shall have reflectorized sheeting conforming to Section 247, shall be from the Department's Approved List 23, and shall be installed on traffic barrier service in accordance with the VWAPM.

The Contractor shall maintain the structural integrity of the barrier and its alignment while it is in use and shall maintain any associated warning lights, barrier delineators, barrier panels, and other devices in functional, clean and visible conditions at all times.

1. **Guardrail barrier service and terminal treatments** shall be installed in accordance with Section 505 except that the offset distance shall be as specified by the Engineer. The Contractor may be permitted to reuse guardrail or its hardware used for traffic barrier service guardrail for permanent installation provided the guardrail material is acceptable to the Engineer and conforms to Section 505 and the Standard Drawings for such guardrail. Marred galvanized surfaces shall be repaired in accordance with Section 233. Terminal treatments shall be permanently identified with a device specific Manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.
2. **Traffic barrier service** (concrete or longitudinal steel) shall be installed in accordance with the Plans and Standard Drawings or as directed by the Engineer, who will design according to Appendix A of the VWAPM. When traffic barrier ends at guardrail, fixed object attachment methods for construction zone shall be used to connect the barrier to the guardrail. Installation shall include additional guardrail posts and attachments as required. The traffic barrier, at a minimum, shall be tapered with the end of the barrier located behind the adjacent guardrail post in accordance with the VWAPM. Barrier connections shall be snug to prevent motion between sections.

Traffic barrier service used as a parapet shall be anchored as shown on the Plans or Section 500 of the Standard Drawings. Anchor holes in bridge decks shall be drilled with a rotary impact drill or other approved equipment that will limit damage to the deck. Anchor holes shall be located to avoid cutting reinforcing steel. Upon removal of the parapet, anchor holes shall be cleaned and filled with Type EP-4 or EP-5 epoxy mortar conforming to Section 243.

The Department will not permit the use of concrete traffic barrier service for permanent installations on bridge structures.

Traffic barrier service sections manufactured on or before December 31, 2019 and successfully tested to NCHRP 350 or MASH 2009 may be used until December 31, 2029, if they are in good working condition, and are a product shown on the Department's Approved Lists for NCHRP-350 or MASH Approved Products. Traffic barrier service sections manufactured after December 31, 2019, and all products in use after December 31, 2029, shall conform to MASH 2016 or its successor, and shall be from the Department's Approved List for Provisionally Approved MASH Products. All traffic barrier service runs shall be interlocking barrier of the same design or type.

The Contractor shall visually inspect all traffic barrier service shipped to a project before placing it in use. Concrete barrier sections shall be structurally sound with no concrete missing along the top, bottom, sides, or end sections of the barrier; no through cracks; and no exposed rebar. The Contractor shall promptly remove any traffic barrier service found by the Contractor or Engineer to be unacceptable due to inadequate structural integrity or functionality and replace the concrete barrier service at no cost to the Department.

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Concrete barrier service shall be cleaned or coated sufficiently to afford good visibility and uniformity of appearance.

The Engineer will review and must approve the layout and anchorage method for job specific applications before the barrier is authorized for installation.

With the approval of the Engineer, the Contractor may use additional traffic barriers for his convenience but at his own expense.

**Section 512.03(i) – Impact Attenuator Service** is replaced with the following:

**Impact Attenuator Service:** The Contractor shall install impact attenuator service at locations shown on the Plans or designated by the Engineer. An object marker for temporary impact attenuator shall be installed on the attenuator according to the details shown in the Standard Drawings. The object marker for impact attenuator service shall have reflective sheeting conforming to Section 247 featuring alternating diagonal black and orange 3 inch stripes sloping downward at an angle of 45 degrees in the direction vehicular traffic is to pass. Impact attenuators shall be permanently identified with a device specific Manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.

Impact Attenuator Service not shown on the Plans may be used at the request of the Contractor for the Contractor's convenience at the Contractor's expense.

All impact attenuator service shall be reviewed and approved by the State Location and Design Engineer before installation.

Impact Attenuators manufactured on or before December 31, 2019 and successfully tested to NCHRP 350 or the MASH 2009 may continue to be used until December 31, 2029. Impact Attenuators manufactured after December 31, 2019 shall meet MASH 2016 and shall be from the Department's Approved List for Provisionally Approved MASH Products.

**Section 512.03(j)2c – Equipment** is replaced with the following:

12 inch aluminum or polycarbonate traffic signal head sections with backplates mounted in the vertical display arrangement. Signal head sections may be mounted in the horizontal display arrangement when approved by the Engineer. Signal head sections and backplates shall conform to Section 238.

**Section 512.03(k) – Temporary (Construction) Pavement Markings** is replaced with the following:

**Temporary (Construction) Pavement Markings** shall be installed at locations shown on the Plans, the *VWAPM*, and as directed by the Engineer. Temporary pavement markings shall conform to Section 704 and be selected from the Department's Approved List 17. Temporary pavement markings are classified as Type A or B (temporary markings), Type D, Class III (removable tape), Type E (non-reflective black removable tape), and Flexible Temporary Pavement Markers (FTPMs).

The Contractor shall install temporary pavement markings in accordance with the manufacturer's recommendations, except that if the manufacturer's recommendation for material thickness and quantity of beads is less than that used when the material was tested by the NTPEP, the minimum product application rates shall conform to the NTPEP approved test rates for the specific marking.

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The Contractor shall furnish a copy of the manufacturer's installation recommendations, including the NTPEP data for product thickness and glass bead quantities to the Engineer.

The Contractor shall maintain the temporary pavement markings and shall correct any deficient markings by reapplying markings as directed or needed. The Department considers deficient any temporary pavement markings that provide inadequate guidance to motorists due to inadequate retroreflectivity, color qualities, or adherence to the pavement. The Engineer will make a visual nighttime inspection of all temporary pavement markings to identify areas where markings have inadequate retroreflectivity. Other deficient qualities may be identified by visual inspection at any time.

Markings that no longer adhere to the pavement, and may cause guidance problems for motorists, or are inadequately retroreflective as determined by the Engineer shall be replaced by the Contractor, with the following exceptions:

- Reapplication of skip line temporary pavement markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for at least two consecutive skip lines.
- Reapplication of centerline (except skip lines) or edge line temporary pavement markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for a continuous section of at least 70 feet.
- Reapplication of transverse markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for a continuous section of at least 3 feet.

The Contractor may take retroreflectivity readings to counter visual observations by the Engineer as the basis for replacement of temporary pavement markings. These measurements shall be taken within 48 hours after the Contractor has been notified of the visual determination by the Engineer of deficient markings. The Engineer will grant additional time to the Contractor when inclement weather prevents accurate measurement of the temporary pavement markings.

The Contractor shall brush any form of debris from the marking before taking the retroreflectivity readings. Retroreflectivity measurements shall be taken in the presence of the Engineer using Contractor furnished equipment conforming to ASTM E1710. A copy of the operating instructions for the reflectometer shall be furnished to the Engineer before taking the measurements. The Contractor shall calibrate and operate the equipment in accordance with the manufacturer's instructions. The photometric quantity to be measured is the coefficient of retroreflected luminance (RL), which shall be expressed as millicandelas per square foot per footcandle (mcd/sf/fc). Measurements shall be taken at three random locations within each area of markings that are suspected of being inadequately retroreflective. When the length of the questionable visually inspected area is greater than 1 mile, the Contractor shall take measurements at three locations per mile segment or portion thereof. Measurements for all lines shall be taken in the middle of the line horizontally. Measurements for skip lines shall be taken in the middle of their length. Measurements for transverse lines shall be taken outside of the wheel path locations. The Engineer will designate the locations along the line segments where the measurements shall be taken. The Contractor shall make a log of the measurements and their locations and provide a copy to the Engineer. When the average of the three readings for an area is below 100 mcd/sf/fc, the Contractor shall reapply the markings as indicated.

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Temporary (construction) pavement markings found in need of reapplication in accordance with these requirements shall be reapplied by the Contractor at no additional cost to the Department, with the following exceptions:

- Type D markings that have been under traffic for more than 180 days and requires reapplication will be paid for at the contract unit price when reapplied, unless the manufacturer's warranty coverage is still applicable.
- Markings damaged by the Department's snow removal or other maintenance and construction operations will be paid for at the contract unit price.

Deficient temporary pavement markings shall be replaced in the time specified in Section 704 for the maximum duration of unmarked roads.

Eradication for reapplication of Type A or B pavement markings is not required if allowed by the marking manufacturer, if the existing marking is well adhered and the total thickness of the existing and reapplied marking combined will not exceed 40 mils. If not well adhered, 90 percent of the existing markings shall be eradicated before reinstallation of the markings.

Existing Type D markings that are deficient (no longer retaining sufficient retroreflectivity) shall be removed before reapplication of new Type D, Class III markings.

1. **Temporary Type A or B pavement markings** shall be used where the roadway is to be resurfaced before changes in the traffic pattern or where pavement is to be demolished and traffic patterns will not change before demolition.
2. **Type D, Class III pavement markings** shall be used on final roadway surfaces or in areas where traffic patterns are subject to change before pavement is resurfaced, unless otherwise specified in the Contract.

On non-final pavement surfaces, the Contractor may install Type A or B pavement markings when the surface temperature of the pavement is below the manufacturer's minimum application temperature for a Type D pavement marking. In such cases, the Contractor shall select a Type A or B product known to perform the best under those temperature conditions. When a Type A or B pavement marking is used instead of a Type D pavement marking due to the surface temperature being below the manufacturer's minimum application temperature, the Contractor will be paid at the contract unit price for Type D pavement marking. This shall include the Type A or B marking and any necessary eradication of the Type A or B pavement marking.

3. **Type D, Class III contrast pavement markings** shall be used for all longitudinal temporary pavement markings on bridge decks and hydraulic cement concrete riding surfaces if all of the following are met:
  - The road has a speed limit of 45 MPH or greater.
  - The hydraulic cement concrete riding surface in question is at least 200 feet in length.
  - The temporary markings are planned for at least 30 days of use.

Type D, Class III contrast markings are not required for any markings that are parallel to and within one foot of existing guardrail or other longitudinal barrier.

4. **Type E pavement markings** shall be used to cover existing markings in accordance with paragraph (l) herein.



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5. **Flexible Temporary Pavement Markers (FTPMS)** may be used to simulate a temporary pavement marking line on the final surface, as an interim measure until the permanent pavement marking can be installed. FTPMs shall not be used in substitution for lines slated to be in place for more than 30 days.

FTPMS shall conform to Section 235 and shall consist of products from the Department's Approved List 22. All FTPM's shall be new product. FTPMs are suitable for use up to one year after the date of manufacture when stored in accordance with the manufacturer's recommendations.

FTPMS shall include a removable material covering the reflective lens to protect the lens from being obscured or damaged during the paving operation.

FTPMS spacing shall be as follows:

- When simulating solid lines, the FTPMs shall be placed every 20 feet.
- When simulating double lines, pairs of side-by-side FTPMs shall be placed every 20 feet.
- When simulating broken lines with a 10-foot-skip/30-foot-gap pattern, 3 FTPMs shall be used per skip (5 feet between each FTPM), with a 30-foot gap between simulated skips.
- When simulating dotted lines with a 3-foot skip/9-foot-gap pattern, 2 FTPMs shall be used per skip (3 feet between the two FTPMs), with a 9-foot gap between simulated skips.

FTPMS shall not be used to simulate transverse lines, symbol/message markings, or dotted lines with 2-foot dot/6-foot-gap pattern.

The color of FTPM units and their reflective surfaces shall be the same color (white or yellow) as the temporary pavement markings they are being used in substitution for. FTPMs shall be installed at the same locations that permanent pavement markings will be installed.

For surface treatment, slurry seal or latex emulsion treatment operations, the appropriate FTPMs with protective covering shall be installed before placing the new treatment. The lens protective covering shall be kept in place during the final surface placement to protect the lens from being obscured or damaged by the paving operation. Upon completion of surface treatment, slurry seal or latex emulsion treatment placement, the Contractor shall remove the protective covering from the reflective lens of the FTPMs before leaving the work site. Failure to remove such covering shall result in the non-payment for that portion type (skip or solid) of temporary pavement marking.

For plant mix operations, the appropriate FTPMs shall be installed on the newly-placed pavement after the pavement is thoroughly compacted and has cooled to the FTPM manufacturer's recommended temperature for installation.

The Contractor shall maintain the FTPMs until the permanent pavement markings are installed. Damaged or missing FTPMs shall be replaced within 24 hours of discovery at the Contractor's expense with new FTPMs of the same manufacturing type, color and model. No more than one FTPM may be damaged or missing out of every skip line or dotted line simulated segment. No two consecutive FTPMs may be damaged or missing on a simulated solid line or double line application, and no more than 30% of the FTPMs may be damaged or missing on any measured 100-foot segment of simulated solid line.

Once applied, FTPMs will be considered for a single use. If a FTPM requires replacement before installation of permanent pavement markings, it shall be properly disposed of and replaced with a new FTPM at no additional cost to the Department.

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FTPMS shall be removed and properly disposed of when permanent pavement markings are installed. Used FTPMS removed from the pavement, including all containers, packaging, damaged FTPM's and all other miscellaneous items of waste, shall be appropriately disposed of in accordance with Section 106.04.

**Section 512.03(l) – Eradicating Pavement Markings** is replaced with the following:

**Eradicating Pavement Markings:** Markings that may conflict with desired traffic movement, as determined by the Engineer, shall be eradicated as soon as practicable: either immediately before the shifting of traffic or immediately thereafter and before the conclusion of the workday during which the traffic shift is made. Work shall be done in accordance with Section 704 except as noted herein.

The Contractor shall perform eradication by grinding, blasting, or a combination thereof. Blasting may be performed using water blasting, sand blasting, hydroblasting (combination of sand and water), or shot blasting. Water blasting and hydroblasting shall be done with equipment that includes a vacuum recovery system and capability to adjust the water pressure.

The Contractor may submit other methods for eradication for the Engineer's approval; however, the Department will not permit obscuring existing pavement markings with black paint or asphalt as a substitute for removal or obliteration. The Contractor shall minimize roadway surface damage when performing the eradication. The Contractor shall repair the pavement if eradication of pavement markings results in damage to or deterioration of the roadway presenting unsafe conditions for motorcyclists, bicyclists, or other road users. Pavement repair, when required, shall be performed using a method approved by the Engineer.

The Contractor shall ensure workers are protected in accordance with Section 107.17 when eradicating pavement markings.

The Contractor shall vacuum or collect the eradication residue (removed markings, debris, and water) during and immediately after the eradication operation. Dust shall be collected during the entire operation. The Contractor shall ensure that no debris enters inlets or waterways.

Eradication residue from the removal of any pavement markings is considered to be a nonhazardous waste material and shall be disposed of in a properly permitted waste disposal facility in accordance with applicable state and federal laws and regulations. The Department does not require Contractor testing of the eradication residue for the eight Resource Conservation Recovery Act metals.

When markings are removed for lane shifts, transitions, or other areas or conditions required in the VWAPM, 100% of the pavement marking shall be removed.

Type E pavement markings may be used to cover existing markings instead of eradication on asphalt concrete surfaces. The Contractor shall use this material to cover markings as indicated in the Plans or as directed by the Engineer. Type E pavement marking shall be applied in accordance with the manufacturer's recommendations. Type E markings shall not be adhered to the pavement for more than 120 days. Type E markings shall not be used on HCC surfaces or bridge decks.

When eradicating symbols and messages, the entire theoretical box bounding the outermost limits of the markings shall be uniformly eradicated.

Eradication of 24" lines shall be considered nonlinear marking eradication.

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**Section 512.03(m) – Temporary Pavement Markers** is renamed **Temporary Raised Pavement Markers** replaced with the following:

**Temporary Raised Pavement Markers** shall be installed with temporary pavement markings where required by the VWAPM and where directed by the Engineer. Temporary raised pavement markers shall not be used with Type E markings.

Temporary raised pavement markers shall be installed at the spacing required by the VWAPM, and as shown on Standard Drawing PM-8. . The Contractor may install two one-way markers instead of each two-way marker at no additional cost to the Department.

Temporary raised pavement markers shall be installed with a hot applied bitumen adhesive, except epoxy may be used on hydraulic cement concrete roadways and non-final surfaces of asphalt concrete roadways. Pavement damage caused by removing markers shall be repaired in kind by the Contractor at no additional cost to the Department.

The Contractor shall replace damaged, ineffective, or missing temporary raised pavement markers upon notification by the Engineer at no additional cost to the Department. Markers damaged by the Department's snow removal operations or other maintenance and construction operations, however, will be paid for at the contract unit price.

**Section 512.03(p) –Temporary Pavement Message and Symbol Markings** is replaced with the following:

**Temporary Pavement Message and Symbol Markings** shall be the color, shape, and size required by the MUTCD, Standard Drawing PM-10, and the Plans. The Contractor shall install message and symbol markings in accordance with MUTCD, Section 704, the VWAPM, and the Standard Drawings.

Temporary pavement message and symbol markings shall be installed and maintained using the material specified on the Plans in accordance with Section 512.03(k).

Pavement message/symbol markings shall be installed at locations shown on the Plans and at locations designated by the Engineer.

Temporary pavement message markings shall be maintained in accordance with Section 512.03(k). Retroreflective measurements conforming to Section 512.03(k) shall be taken out of the wheel path locations. The pavement message/symbol marking shall be replaced when the average of the three readings for the symbol/message is below 100 mcd/sf/ft.

**Section 512.03(q) – Type 3 Barricades** is replaced as follows:

**Type 3 Barricades:** Type 3 barricades shall conform to NCHRP Report 350, Test Level 3, or MASH. Type 3 barricades shall be selected from those shown on the Department's Traffic Control Device Pre-Approval List. The Contractor shall provide a certification letter stating the brands and models of Type 3 barricades from the list proposed for the project. Instead of using Type 3 barricades on the listing, the Contractor may use other brands and models, if he submits a copy of the FHWA acceptance letter indicating the proposed substitutes complies with Test Level 3 of NCHRP Report 350 or MASH before use.

Type 3 Barricades shall be installed and ballasted in accordance with the VWAPM.

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**Section 512.03(r) – Truck-mounted or trailer mounted attenuators** is replaced as follows:

**Truck-mounted or trailer-mounted attenuators (TMAs):** Truck-mounted and trailer-mounted attenuators manufactured on or prior to December 31, 2019 may be used if they are in good working condition, conform to Test Level 3 of NCHRP Report 350 or MASH, and are a product shown on the Department's Approved Lists for NCHRP-350 or MASH Approved Products. TMAs manufactured after December 31, 2019 shall conform to MASH Test Level 3 and shall be a product shown on the Department's Approved List for MASH Approved Products.

The Contractor shall submit catalog cuts/brochures of the TMA and a copy of the certification letter documenting NCHRP 350/MASH compliance of the specific TMA before their use on the project. TMAs shall be permanently identified with a device-specific manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.

The weight of the support vehicle shall be as recommended by the manufacturer of the Truck/Trailer-mounted attenuator. The Contractor shall provide a copy of the manufacturer's recommendations to the Engineer, a copy of the original weigh ticket for the support vehicle, and a self-certification letter stating the support vehicle has not been altered since the original weight ticket was issued. The weigh ticket shall contain adequate information to identify the ticket with the applicable support vehicle. A copy of the self-certification and weigh ticket shall be available in the support vehicle at all times and upon request.

Additional weight may be added to the support vehicle to achieve the range recommended by the manufacturer of the Truck/Trailer-mounted attenuator provided the total weight is properly balanced without overloading any one axle, and is within the Gross Vehicle Weight Recommendation of the support vehicle. The added weight shall be securely attached to the support vehicle to prevent movement during an impact or movement of the vehicle. The additional weight and attachment method shall be self-certified by the Contractor and a copy of the self-certification letter shall be with the support vehicle at all times or a final stage manufacturer's certification sticker may be placed on the inside door of the altered vehicle.

The Truck/Trailer-mounted attenuator shall be no less than 72 inches wide and no more than 96 inches wide. There shall be no additional devices such as signs, lights, and flag holders attached to the Truck/Trailer-mounted attenuator except those that were tested on the Truck/Trailer-mounted attenuator and provided by the manufacturer of the Truck/Trailer-mounted attenuator.

The support vehicle shall have at least one vehicle warning light functioning while in operation in accordance with the VWAPM. When allowed by the VWAPM, an electronic arrow operated in the caution mode may be used with the vehicle warning light. When installing and removing lane closures on a multilane roadway as well as when performing mobile operations, the support vehicle shall be equipped with both vehicle warning lights and an arrow board.

The support vehicle shall be operated and parked in accordance with the manufacturer's recommendations.

**Limitations:** Traffic control devices shall not be installed from or removed to the Truck/Trailer-mounted attenuator support vehicle. When the Truck/Trailer-mounted attenuator is deployed there shall be no unsecured material in the bed of the support vehicle except the additional secured weight or truck-mounted devices such as an arrow board, a changeable message sign, or truck mounted signs.

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There shall also be no additional devices such as signs, lights, and flag holders attached to the Truck/Trailer-mounted attenuator except those that were tested on the Truck/Trailer-mounted attenuator and provided by the manufacturer of the Truck/Trailer-mounted attenuator.

If the Truck/Trailer-mounted attenuator is impacted, resulting in damage that causes the unit to be ineffective, all work requiring the use of the Truck/Trailer-mounted attenuator shall cease until such time that repairs can be made or the Contractor provides another acceptable unit.

**Section 512.03(s) – Portable Changeable Message Signs** is amended to replace the second and third paragraphs with the following:

The sign shall be capable of sequentially displaying at least 2 phases of 3 lines of text each with appropriate controls for selection of messages and variable off-on times. Trailer-mounted PCMS shall be capable of displaying 3 lines of 8-character 18-inch text in a single phase, and vehicle-mounted PCMS shall be capable of displaying 3 lines of 8-character 10-inch text in a single phase. Each character module shall at a minimum use a five wide by seven high pixel matrix. The message shall be composed from keyboard entries.

Access to PCMS control mechanisms shall be physically locked at all times when deployed to deter message tampering.

The message shall be legible in any lighting condition. Motorists should be able to read the entire PCMS message twice while traveling at the posted speed.

The sign panel support shall provide for an acceptable roadway viewing height that shall be at least 7 feet from bottom of sign to crown of road.

**Section 512.03(w) – Portable Temporary Rumble Strips (PTRS)** is replaced as follows:

**Portable Temporary Rumble Strip (PTRS):**

A PTRS may be made of rubber or recycled rubber. It shall have a recessed, raised or grooved design to prevent movement and hydroplaning. PTRS color shall be in accordance with the VWAPM.

A PTRS shall consist of interlocking or hinged segments of equal length that prevent separation when in use. The combined overall usable length of the PTRS shall be between 10 feet 9 inches and 11 feet. The width of the PTRS shall be 12 to 13 inches. PTRS shall be between 5/8 inch and 1.0 inch in height. The weight of each roadway strip shall be between 100 and 120 pounds. The leading and departing edge taper shall be between 12 and 15 degrees.

Each roadway length of the PTRS shall have either a minimum of one cutout handle in the end of the rumble strip, or an interlocking segment which can be used as a handle for easy deployment or removal.

The manufacturer of the PTRS shall provide a signed affidavit that states the PTRS is able to withstand being run over by an 80,000 pound vehicle and retain its original placement with minor incidental movement of 6 inches or less during an 8 hour deployment. Incidental movement of the PTRS shall be parallel with other rumble strips in an array but shall not move so that its placement compromises the performance and safety of the other rumble strips, workers or the traveling public.

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The PTRS shall be installed in accordance with manufacturers installation instructions, without the use of adhesives or fasteners.

PTRS Placement shall be in accordance with the VWAPM.

**Section 512.04 – Measurement and Payment** is amended to replace the 13th paragraph with the following:

**Impact attenuator service** will be measured in units of each and will be paid for at the Contract each price for the type specified. This price shall include installing, maintaining, and removing impact attenuator and object marker. Impact attenuators used with barrier openings for equipment access will not be measured for separate payment but the cost thereof shall be included with other appropriate items. When impact attenuator service is moved to a new location, as directed or approved by the Engineer, the relocated terminal will be measured for separate payment. Payment for impact attenuator service will not be made until the work behind the corresponding barrier service is actively pursued.

**Section 512.04 – Measurement and Payment** is amended to replace the 16th paragraph with the following:

**Temporary pavement markings** will be measured in linear feet and will be paid for at the contract linear foot price for the type, class and width specified. This price shall include marking materials, glass beads, adhesive, preparing the surface, maintaining, removing removable markings when no longer required, inspections, and testing.

If the Contractor uses FTPMs to simulate the temporary pavement marking, they will be measured in linear feet and paid for at the linear foot price for the temporary marking material being simulated. That measurement shall represent all FTPMs required for that simulated line marking. No additional payment will be made if the Contractor elects to remove FTPMs and install other temporary pavement markings. This cost shall include furnishing, installing and maintaining the FTPMs, removable covers, surface preparation, quality control tests, daily log, guarding devices, removal, and disposal.

**Section 512.04 – Measurement and Payment** is amended to replace the 21st paragraph with the following:

**Eradication of existing nonlinear pavement markings** will be measured in square feet based on a theoretical box defined by the outermost limits of the nonlinear pavement markings as defined in Standard Drawing PM-10. Nonlinear pavement markings shall include but not be limited to, arrows, images, symbols, and messages. Eradication of existing nonlinear pavement markings will be paid for at the contract unit price per square foot. This price shall include removing nonlinear pavement markings, cleanup, and disposing of residue.

**Section 512.04 – Measurement and Payment** is amended to replace the 30th paragraph with the following:

**Portable Temporary Rumble Strip (PTRS) Array** will be measured in Days per array and will be paid for at the Contract Day price. An Array shall consist of three rumble strips. This price shall include installing, maintaining, removing devices when no longer required, and relocating throughout the day.

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**Section 512.04 – Measurement and Payment** is amended by revising the Pay Item Table as follows:

The following pay items are removed:

<b>Pay Item</b>	<b>Pay Unit</b>
Portable temporary rumble strip	Each

The following pay items are inserted:

<b>Pay Item</b>	<b>Pay Unit</b>
Portable temporary rumble strip array	Day

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SS704-002020-02

May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION  
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS  
**SECTION 704 – PAVEMENT MARKINGS AND MARKERS**

**SECTION 704 – PAVEMENT MARKINGS AND MARKERS** of the Specifications is amended as follows:

**Section 704.02 – Materials** is amended to replace the first paragraph with the following:

For Type B, Class VI pavement marking materials that are to be applied to latex emulsion or slurry seal surfaces, the selected Type B, Class VI manufacturer shall be a manufacturer that approves and warrants their product for application on that type of surface.

**Section 704.03 – Procedures** is amended to replace the second paragraph with the following:

The Contractor shall have a certified Pavement Marking Technician present during all temporary pavement marking, permanent pavement marking, and pavement marker operations, except Flexible Temporary Pavement Marker (FTPM) installation.

**Section 704.03 – Procedures** is amended to replace the fourth through tenth paragraph with the following:

If the Contractor cannot have permanent pavement markings installed within the time limits specified, the Contractor shall install and maintain temporary pavement markings within the same time limits at no additional cost to the Department until the permanent pavement markings can be installed. Installation, maintenance, and removal or eradication of temporary pavement markings shall be according to Section 512.

The Contractor may mark the locations of proposed permanent markings on the roadway by installing premarking materials. Premarkings may be accomplished by installing removable tape, chalk, or lumber crayons, except pavement markings such as stop lines, crosswalks, messages, hatching, etc., shall be premarked using chalk or lumber crayons. Premarkings for yellow markings may be white or yellow. Premarkings for other colors shall be white.

When tape is used as a premarking material, premarking shall consist of 4- inch by 4-inch-maximum squares or 4-inch-maximum diameter circles spaced at 100-foot minimum intervals in tangent sections and 50-foot minimum intervals in curved sections. At locations where the pavement marking will switch colors (e.g., gore marking) the ends of the markings may be premarked regardless of the spacing.

When the Contractor uses chalk or lumber crayon as a premarking, the entire length of the proposed pavement marking may be premarked.

Premarkings shall be installed so their installation will not affect the adhesion of the permanent pavement markings. When removable tape is used as the premarking material and the lateral location of such premarkings to location of the final pavement markings exceeds 6 inches, the tape shall be removed at no additional cost to the Department.

The Contractor shall exercise caution and protect the public from damage while performing pavement marking operations. The Contractor shall be responsible for the complete preparation of the pavement surface, including, but not limited to, removing dust, dirt, loose particles, oily residues, curing compounds, concrete laitance, residues from eradication, and other foreign matter immediately before installing pavement markings. The pavement surface shall be clean and dry at the time of pavement marking installation and shall be tested in accordance with VTM 94 before permanent installation, with the VTM 94 test results noted on Form C-85.



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The Contractor shall provide the equipment indicated in VTM 94 that are needed to perform the moisture test before application.

**Section 704.03 – Procedures** is amended by replacing the thirteenth paragraph with the following:

Non-truck mounted equipment shall be regulated to allow for calibration of the amount and type of material applied.

**Section 704.03 – Procedures** is amended to replace the eighteenth paragraph with the following:

Glass beads and retroreflective optics shall be applied at the rate specified herein or as specified in the Department's Approved List for the specific pavement marking product. Beads and optics shall be evenly distributed over the entire lateral and longitudinal surface of the marking. The Contractor shall apply beads to the surface of liquid markings with a bead dispenser attached to the applicator that shall uniformly dispense beads simultaneously on and into the just-applied marking. The bead dispenser shall be equipped with a cut-off control synchronized with the applied marking material cut off control so that the beads are applied totally on the marking. Beads shall be applied while the liquid marking is still fluid, resulting in approximately 60% embedment in the marking's surface. Beads installed on crosswalks and stop lines on roadways with curbs only (no gutter) may be hand applied for two feet at the end of each line next to the curb with 100 percent of the beads embedded 50% to 60% into the marking's surface.

**Section 704.03(a)1 – Type A markings** is replaced with the following:

**Type A markings** shall be applied in accordance with the manufacturer's installation instructions. When applying atop existing pavement markings, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Glass beads for Type A, Class I markings shall be AASHTO M 247 Type 1 Beads applied at a minimum rate of 6 pounds per gallon of paint

Retroreflective optics for Type A, Class II markings shall be applied as noted in the Department's Approved List 20 for the selected pavement marking product.

The Contractor may substitute Type A, Class I cold weather paint (traffic paint designed for application at temperatures below 40 °F) for Type A, Class I conventional paint at no additional cost to the Department. Cold weather paint shall be from the Department's Approved List 20.

**Section 704.03(a)2 – Type B markings** is amended to replace the third paragraph with the following:

Non-truck mounted equipment for application of thermoplastic material shall include an extrude die with a burner, temperature controller, agitator, and mechanical bead applicator to allow for the correct amount of material to be applied.

**Section 704.03(a)2a – Thermoplastic (Class I)** is amended to replace the fourth through sixth paragraphs with the following:

Thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent percent worn away or eradicated. When applying thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Thermoplastic marking material shall be applied at thickness of 90 mils ( $\pm$  5 mils) above the riding surface, whether dense or open graded surface.

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Glass beads and retroreflective optics shall be surface applied at the rate of 10 pounds per 100 square feet unless specified otherwise on the Materials Division's Approved Products List 43 for the specific thermoplastic product.

**Section 704.03(a)2b – Preformed thermoplastic (Class II)** is amended to replace the first and second paragraphs with the following:

**Preformed thermoplastic (Class II)** material shall be installed in accordance with the manufacturer's installation instructions. A primer or sealer manufactured by or recommended by the preformed thermoplastic manufacturer shall be applied to all hydraulic cement concrete surfaces and to asphalt concrete surfaces in accordance with the manufacturer's installation instructions.

Preformed thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent worn away or eradicated. When applying preformed thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Permanent transverse rumble strips shall be applied using two strips of white Type B, Class II material. The bottom strip shall be 250 mils thick and 4 inches wide, and the top strip shall be 125 mils thick and 2 inches wide (centered atop the bottom strip), unless noted otherwise in the plans. Transverse rumble strips shall be installed in arrays as per the Standard Drawings and the plans.

**Section 704.03(b) – Pavement messages and symbols markings** is amended to replace the second paragraph with the following:

Surface temperature at time of application shall be in accordance with manufacturer's installation instructions. If the installation instructions do not specify minimum surface temperature, then the markings shall not be installed unless the surface temperature at time of application is 50°F or higher. Surface temperature requirements shall not be considered met if the temperature is forecasted to drop below the minimum within two hours of application. The Contractor may heat the pavement for a short duration to dry the pavement surface and bring the surface temperature to within the allowable temperatures for pavement marking installation, at no extra cost to the Department. Heat torch temperatures shall not exceed 300°F. The Contractor shall monitor pavement temperature to ensure it does not rise above 120°F at any time. Any damage to the pavement shall be promptly repaired at no extra cost to the Department.

Message and symbol markings include, but shall not be limited to, those detailed in Standard Drawing PM-10.

The sizes and shapes of symbols and characters shall match the size and shape specified in Standard Drawing PM-10 or elsewhere in the Contract. Hand-drawn or "stick" symbols or characters will not be allowed.

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Table VII-3 is replaced with the following:

**TABLE VII-3**  
**Pavement Markings**

Type	Class	Name	Film Thickness (mils)	Pavement Surface	Application Limitations	Appr. List No.
A	I	Conventional or Cold-Weather Traffic Paint	15 ± 1 when wet	AC HCC	May be applied directly after paving operations	20
A	II	High Build Traffic Paint	25 ± 2 when wet	AC HCC	May be applied directly after paving operations	20
B	I	Thermoplastic Alkyd	90 ± 5	AC HCC	May be applied directly after paving operations	43
	I	Thermoplastic Hydrocarbon	90 ± 5 when dry	AC HCC	Do not apply less than 30 days after paving operations	43
	II	Preformed Thermoplastic	120-130	AC HCC	Manufacturers installation instructions	73
	III	Epoxy resin	20 ± 1 when wet	AC HCC	Manufacturers installation instructions	75
	IV	Plastic-backed preformed Tape	60 - 120	AC HCC	Manufacturer's installation instructions	17
	VI	Patterned preformed Tape	20 min <sup>1</sup> 65 min <sup>2</sup>	AC HCC	(Note 4)	17
	VII	Polyurea	20 ± 1	AC HCC	Manufacturer's installation instructions	74
D	III	Wet Reflective Removable tape	(Note 3)	AC HCC	Temporary pavement marking	17
E		Removable black tape (Non-Reflective)	(Note 3)	AC	Temporary pavement marking for covering existing markings	17

<sup>1</sup>Thinnest portion of the tape's cross section.

<sup>2</sup>Thickest portion of the tape's cross section.

<sup>3</sup>In accordance with manufacturer's installation instructions.

<sup>4</sup>In accordance with the manufacturer's installation instructions, except that Type B, Class VI markings on new plant mix asphalt surfaces shall be inlaid into the freshly installed asphalt surface and not surface-applied.

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**Section 704.03(d)1 – Snowplowable raised pavement markers** is renamed **Section 704.03(d)1 – Inlaid Pavement Markers** and replaced as follows:

**Inlaid Pavement Markers** shall be installed with retroreflectors with front-side and back-side colors as per Standard Drawing PM-8.

The Contractor shall not install markers on existing bridge decks. Inlaid Pavement Markers shall be installed on new bridge decks where required by the Plans.

Inlaid Pavement Markers shall be placed in relation to pavement joints and cracks as follows:

- In existing Asphalt Concrete pavement, new or existing Hydraulic Cement Concrete pavement, and bridge decks, the edge of the groove shall be at least 2 inches from pavement joints and cracks, ensuring that the finished line of markers is straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Offset from the longitudinal joint shall take precedence over straightness of the line of markers.
- In new Hydraulic Cement Concrete pavement or when installed in conjunction with new latex modified microsurfacing or slurry seal treatments, the edge of the groove shall be at least 2 inches from all longitudinal and transverse surface course pavement joints and 1 inch maximum off alignment from the corresponding pavement marking line. The finished line of markers shall be straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Straightness of the line of markers and alignment with the corresponding pavement marking line takes precedence over offset from the surface course joint.

Retroreflectors shall be affixed to holders, using an adhesive from the Department's Approved List 22 (Inlaid Pavement Markers) prior to installation.

Inlaid Pavement Markers shall be installed as per Standard Drawing PM-8.

Tapered grooves and plunge cuts shall be cut using diamond blades that can accurately control the groove dimensions, resulting in smooth uniform tapers and smooth groove bottoms and ensuring the pavement does not tear or ravel. The Contractor shall remove all dirt, grease, oil, loose or unsound layers, and any other material from the groove which would reduce the bond of the adhesive. Pavement surfaces shall be maintained in a clean and dry condition until the marker is placed.

Holders shall be installed in the same shift as grooving.

The epoxy adhesive shall be thoroughly mixed until it is uniform in color, and applied in accordance with the manufacturer's installation instructions. The Contractor shall partially fill the plunge cut with sufficient epoxy adhesive such that the epoxy adhesive bed area is equal to the bottom area of the holder. The Contractor shall then set the holder in the epoxy adhesive such that the breakaway tabs are resting on the road surface, the holder is centered in the cut, and then fill in additional epoxy adhesive if necessary so the entire perimeter of the holder is completely surrounded in epoxy, with the epoxy level with the edge of the holder in accordance with the manufacturer instructions.

The Contractor shall remove all adhesive and foreign matter from the face of the retroreflector or replace the retroreflector if adhesive and foreign matter cannot be removed. The marker shall be replaced if it is not properly positioned and adhered in the plunge cut.

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**Section 704.03(d)2 – Raised Pavement Markers** is renamed **Nonplowable Raised Pavement Markers** and is replaced with the following:

**Nonplowable raised pavement markers** shall be bonded to the surface in accordance with the manufacturer's installation instructions. The bonding material shall be from the Department's Approved List 22 for the specific marker.

**Section 704.04 – Measurement and Payment** is amended to replace the fifth paragraph with the following:

**Pavement markers** will be measured in units of each for the type specified and will be paid for at the contract unit price per each. This price shall include surface preparation, furnishing, installing, prismatic retroreflectors, pavement cutting, adhesive, holders, quality control tests, and daily log.

**Section 704.04—Measurement and Payment** is amended by revising the Pay Item Table as follows:

The following pay items are removed:

<b>Pay Item</b>	<b>Pay Unit</b>
Pavement message marking (Message)	Each or Linear Foot

The following pay items are inserted:

<b>Pay Item</b>	<b>Pay Unit</b>
Pavement message marking (Message, Type or class material)	Each or Linear Foot

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VIRGINIA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION FOR  
**THICK-LIFT PAVING FOR ACCELERATED PAVEMENT TESTING**

December 19, 2023

**I. DESCRIPTION**

These Specifications cover the requirements and materials used to produce and place thick-lift paving materials at VDOTs Accelerated Pavement Test Facility. The asphalt mixtures shall be designed, produced, and placed as required by this Special Provision, Contract Notes, and Sections 211 and 315 of the Specifications. Thick-lift asphalt mixtures consist of a combination of coarse aggregate, fine aggregate, Reclaimed Asphalt Pavement (RAP), and liquid asphalt binder mechanically mixed in a plant to produce a stable asphalt concrete paving mixture.

The Contractor shall furnish all labor, materials, and equipment required for completing the work. The Contractor shall select the construction methods to meet the performance requirements specified herein.

**II. MATERIALS**

*All materials shall be in accordance with Section 211.02 of the Specifications with the exception that Recycled Asphalt Shingles (RAS) shall not be allowed in these mixtures.*

**III. JOB-MIX FORMULA**

Asphalt Material BM-25.0D, BM-25.0E, and IM-19.0D shall be designed to meet the requirements of Section 211.03 of the Specifications.

Asphalt Material BM-25.0E shall contain binder (PG) 64E-22 conforming to AASHTO M332 and Section 210 of the Specifications; coarse aggregate conforming to Section 211 of the Specifications for BM-25.0; and fine aggregate conforming to Section 211 of the Specifications for BM-25.0. Asphalt material BM-25.0E will be measured and paid for in accordance with Section 315 of the Specifications.

The percentage of reclaimed asphalt pavement (RAP) in any mixture shall not exceed 30%.

Grading and volumetric properties shall be reported in the mix design submittal in accordance with AASHTO R35 and shall include the varying AC analysis. The job-mix formula (JMF) shall meet the nominal maximum aggregate sizes (NMAS) of the designated mix type. The JMF shall establish a single percentage of aggregate passing each required sieve, a single percentage of liquid asphalt binder to be added to the mixture, the ranges for which the SUPERPAVE volumetric properties defined by AASHTO R35 will be held to during production, and a temperature at which the mixture is to be produced.

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In addition, the properties listed in Table 1 shall be reported along with the JMF submittal for each mixture.

**Table 1**  
**Performance Testing**

<b>Performance Property</b>	<b>Performance Test</b>	<b>Test Method</b>	<b>Criteria</b>
Rutting	APA Rut Depth	VTM-142	Report
	IDT-HT	VTM-145	Report
Durability	Cantabro Mass Loss	VTM-144	Report
Cracking	IDT-CT	VTM-143	Report

**IV. PRODUCTION TESTING**

The Contractor and the Department will conduct testing as required by Section 211.05 and 211.06 but with frequencies defined in Table 2 herein. The Contractor shall fabricate and provide the specimens meeting requirements in Table 1, including dimensions and air voids, to the Department.

**Table 2**  
**Production Testing<sup>1</sup>**

<b>Entity</b>	<b>Gradation/AC</b>	<b>Volumetrics</b>	<b>APA rutting</b>	<b>IDT-HT</b>	<b>CT<sub>index</sub></b>	<b>Cantabro</b>
Producer	1 per mixture	1 per mixture	-	-	-	-
VDOT/VTRC <sup>2</sup>	1 per mixture	1 per mixture	1 per mixture	1 per mixture	1 per mixture	1 per mixture

<sup>1</sup>Minimize any cooling of the plant produced mix and bring the specimens to the compaction temperature and compact immediately to the specimen size and air void requirements in Table 1.

<sup>2</sup>VDOT/VTRC pills shall be fabricated by the Contractor in accordance with Table 1 and provided to the Department.

**V. PLACEMENT**

**Laydown Requirements**

The Contractor shall be required to prepare each test lane by milling to the appropriate depth prior to paving. Each lane shall be prepared, paved, and compacted prior to proceeding to the next test lane. The Contractor shall only place a single lift per lane per day.

**Density**

Field density shall be determined in accordance with the Special Provision for Density Determination Section 315, Method A (core method). Cores shall be collected by the Contractor at a frequency of 6 per 300 ft lane stratified randomly with 3 each per 150 ft test section. All density cores shall be collected from outside the expected APT Testing Zones. Two 45-ft-long APT Testing Zones will be marked in each test lane. The APT Testing Zone and marked sensor locations are considered “no core zones” meaning cores are not to be cut within these locations. All cores shall be provided to the Department.

**Thickness**

The thickness of each density core shall be measured by the Contractor’s Certified Density Technician and reported to the Department. All cores shall be provided to the Department.

**Tack Coat**

Asphalt tack coat shall be CQS-1h, CRS-1h, or CSS-1h conforming to Section 210 of the Specifications and selected from the Department’s Approved List 50.1. Asphalt tack coat shall be applied where any asphalt course is placed on another asphalt course not placed within the same day in accordance with Section 310 and 314.04(b) of the Specifications.

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The tack coat shall be applied at a rate of 0.05 to 0.10 gal/SY. Tack material shall be part of VDOTs approved list and paid separately from the mixture. The required application rates shall be verified prior to paving by the engineer or their designee.

**Material Transfer Vehicle (MTV)**

A material transfer vehicle, conforming to Section 315.03 of the Specifications, shall be used for placement of all mixtures.

**Compaction Equipment**

Rollers, conforming to Section 315.03 of the Specifications, shall be used for compaction of all mixtures. Two rollers, a breakdown roller and a finish roller, are required. The breakdown roller shall have a minimum mass of 15 tons and a minimum drum width of 72 inches. The finish roller shall have a mass of 8-10 tons and a minimum drum width of 66 inches.

**Profile milling**

May be required if the drop off between adjacent lanes is greater than 0.5 inches at no cost to the Department.

**Test Strip**

Two 150-ft-long test strips shall be performed and reviewed by the Engineer in Lane 1 prior to production paving. For the test strip, the Contractor shall mill 6 inches of existing pavement. The first test strip shall be filled with 6 inches of BM-25.0D placed in one lift. The second test strip shall be filled with 6 inches of IM-19.0D placed in one lift. The test strip for each mix type shall be constructed immediately prior to production paving.

**VI. ACCEPTANCE**

Acceptable density shall be defined as having a minimum average Gmm of 93.5% (average of 6 measurements) for the full depth of the core with no single core less than 92.5% as measured on collected cores.

Acceptable thickness shall be defined as having a tolerance of plus/minus 0.25 inches of the total planned thickness of the paved work per core and shall be measured from density cores. Any test lanes that fail to meet the density and thickness requirements may be subjected to removal and replacement as determined by the Engineer.

**VII. MEASUREMENT AND PAYMENT**

**Asphalt Concrete – (ton)** includes the asphalt mixture produced for testing and placement on the VDOTs Accelerated Pavement Test Facility. The price shall include labor, equipment, materials, and all incidentals required to meet all elements of the work as set forth in this special provision to produce and place the asphalt mixture and test strips prior to production paving. Incidentals shall include mix design preparation, lab testing, field testing, sample preparation, test strip production and placement for each mix type, reporting of results and attendance of required personnel to preconstruction meeting.

**Tack Coat – (gallon)** includes the asphalt tack coat material and any preparation required for placement. The price shall include labor, equipment, materials, and all incidentals required to meet all elements of the work as set forth in this special provision to produce and place the asphalt tack coat. Incidentals shall include any field testing and application rate trials.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Asphalt Concrete (mix type)	Ton
Tack Coat	Gallon



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**TIER 1 PROJECT  
 “NO PLAN” RAAP (CONSTRUCTION & MAINTENANCE) PROJECTS  
 COMMONWEALTH OF VIRGINIA  
 DEPARTMENT OF TRANSPORTATION**

**CONSTRUCTION:** \_\_\_\_\_ **MAINTENANCE:**  X

DISTRICT:  Salem  CITY/COUNTY:  Montgomery  UPC NO.:  124680

FUNCTIONAL CLASS  Local  FHWA 534 DATA  17005  TYPE CODE  F000

ROUTE:  VTTI HVS  PROJ.  PM2N-060-F24,P401  FEDERAL NO.:  N/A

FROM:  37.1901500, -80.3959423  TO:  37.1901580, -80.3959081

LENGTH (FEET):  1500  MILES  0.284

TOPO:  N/A  DESIGN SPEED (MPH):  N/A  VPD (YEAR)  0

PROJECT MGR:  Ibrahim Abuawad  R/W DONATION:  N/A

Utilities  N/A  and/or Railroads  N/A  are involved in the construction of this project.

This project is to be constructed in accordance with the Department's 2020 Road and Bridge Specifications, 2016 Road and Bridge Standards, 2009 MUTCD, 2011 Virginia Supplement to the MUTCD, 2011 Work Area Protection Manual and as amended by contract provisions and the complete plan assembly.

Design features relating to construction or to regulation and control of traffic may be subject to change as deemed necessary by the department.

<b>RECOMMENDED FOR APPROVAL FOR CONSTRUCTION</b>	
12/22/2023	Thomas W. DiGiulian, PE
DATE	DISTRICT PLANNING AND INVESTMENT MANAGER
12/22/2023	Thomas W. DiGiulian, PE
DATE	DISTRICT PROJECT DEVELOPMENT ENGINEER
<b>APPROVED FOR CONSTRUCTION</b>	
12/22/2023	Anne Booker
DATE	DISTRICT ADMINISTRATOR

**Commonwealth of Virginia -- Department of Transportation  
 Maintenance Division**

**District:** Salem

**Date:** 12/22/2023

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**Schedule:** PM-2N-24

**Montgomery (CO)**

**State Project Number:** PM2N-060-F24, P401

<b>Route:</b> HVS/APT @ VTTI	<b>Milepost From:</b> 0		
<b>Subdivision:</b>	<b>Lane:</b> B	<b>PCN:</b> M224PMN124680	<b>UPC:</b> 124680
<b>Traf Grp:</b>	<b>Milepost To:</b> 0.06		
<b>From Intersection:</b>			
<b>From Offset:</b> OMI	<b>From X/Y Coordinates:</b>	37.190150, -80.395942	
<b>To Intersection:</b>			
<b>To Offset:</b> OMI	<b>To X/Y Coordinates:</b>	37.190158, -80.395908	

**Public Comments:**

Item Code & Description	Detail	Len(mi)	Wid(ft)	Dep(in)	Gal/SqYd	Lbs/SqYd	Quantity	UOM
310SD20-0001 - TACK COAT	TACK COAT - TEST LANE 2						50	GAL
315SD20-0043 - ASPH. CONC. TY. IM-19.0D MAINT	TEST LANE 3: IM-19D @ 6" THICK (ONE LIFT)	0.06	10	6		700	123.2	TON
315SD20-0043 - ASPH. CONC. TY. IM-19.0D MAINT	TEST LANE 1: SECOND TEST STRIP - IM-19D MIX	0.03	10	6		700	61.6	TON
315SD20-0048 - ASPH. CONC. TY. BM-25.0D MAINT	TEST LANE 1: FIRST TEST STRIP - BM-25D MIX	0.03	10	6		714	62.83	TON
315SD20-0048 - ASPH. CONC. TY. BM-25.0D MAINT	TEST LANE 2: BM-25D @ 6" THICK (TWO LIFTS)	0.06	10	6		714	125.66	TON
315SD20-0048 - ASPH. CONC. TY. BM-25.0D MAINT	TEST LANE 4: BM-25D @ 6" THICK (ONE LIFT)	0.06	10	6		714	125.66	TON
315SX20-0007 - NS ASPHALT CONCRETE BM-25.0E	TEST LANE 5: BM-25E @ 6" THICK (ONE LIFT)	0.06	10	6		714	125.66	TON
515SD20-0015 - FLEXIBLE PAVEMENT PLANING ABOVE 4"	TEST LANE 2: MILLING @ 6" DEEP	0.06	10	6			352	SY
515SD20-0015 - FLEXIBLE PAVEMENT PLANING ABOVE 4"	TEST LANE 1: MILLING @ 6" DEEP	0.06	10	6			352	SY
515SD20-0015 - FLEXIBLE PAVEMENT PLANING ABOVE 4"	TEST LANE 4: MILLING @ 6" DEEP	0.06	10	6			352	SY
515SD20-0015 - FLEXIBLE PAVEMENT PLANING ABOVE 4"	TEST LANE 3: MILLING @ 6" DEEP	0.06	10	6			352	SY
515SD20-0015 - FLEXIBLE PAVEMENT PLANING ABOVE 4"	TEST LANE 5: MILLING @ 6" DEEP	0.06	10	6			352	SY

**State Project Number:** PM2N-060-F24, P401

**Notes:**

Miscellaneous Notes

ALL WORK MUST BE COMPLETED AFTER MAY 1st, 2024 AND BEFORE OCTOBER 1st, 2024.

Miscellaneous Notes

THE TACK COAT SHALL BE USED BETWEEN THE TWO BASE MIX LIFTS OF TEST LANE 2.

Miscellaneous Notes

THE BASE MIX OF TEST LANE 2 SHALL BE PLACED IN TWO 3" THICK LIFTS. THE TWO LIFTS SHALL BE PLACED ON TWO CONSECUTIVE DAYS.

Miscellaneous Notes

A PRE-PAVING MEETING SHALL BE HELD 2 WEEKS PRIOR TO THE BEGINNING OF WORK AT THE HVS SITE. THE CONTRACTOR TEAM ATTENDING THE PRE-PAVING MEETING SHALL INCLUDE BUT NOT LIMITED TO THE PAVING SUPERINTENDANT, ROLLER OPERATORS, AND DENSITY TECHNICIAN.

Miscellaneous Notes

FOR MORE DETAILS, THE CONTRACTOR SHALL REFER TO THE THICK-LIFT PAVING FOR ACCELERATED PAVEMENT TESTING SPECIAL PROVISION INCLUDED WITHIN THE CONTRACT DOCUMENTS.

**Schedule:** PM-2N-24

**State Project Number:** PM2N-060-F24, P401

**Schedule Totals**

<b>Item</b>	<b>Quantity</b>	<b>UOM</b>
310SD20-0001 - TACK COAT	50	GAL
315SD20-0043 - ASPH. CONC. TY. IM-19.0D MAINT	184.8	TON
315SD20-0048 - ASPH. CONC. TY. BM-25.0D MAINT	314.15	TON
315SX20-0007 - NS ASPHALT CONCRETE BM-25.0E	125.66	TON
515SD20-0015 - FLEXIBLE PAVEMENT PLANING ABOVE 4"	1760	SY

**Schedule Notes**

FOR THE PURPOSE OF COORDINATION OF ACCESS AND PREVENTION OF CONFLICT WITH OTHER RESEARCH OPERATIONS, THE CONTRACTOR SHALL COORDINATE AT LEAST 2 WEEKS PRIOR TO THE START OF PAVING OPERATIONS WITH THE FOLLOWING CONTACT LIST:  
BRIAN DIEFENDERFER - VTRC (434) 293-1944 brian.diefenderfer@vdot.virginia.gov  
CLYDE LANDRETH - VDOT (540) 588-5300 d.landreth@vdot.virginia.gov  
DUANE MANN - VDOT (540) 765-7226 m.mann@vdot.virginia.gov  
BILLY HOBBS – VTTI (540) 599-0602 hobbs@vti.vt.edu