ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

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

CNSP (E) 1-9-06

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

ROUTE NUMBER: 664

FHWA NUMBER: NONE

PROJECT NUMBER: 0664-121-482, N501

COUNTY: NEWPORT NEWS

DISTRICT: HAMPTON ROADS

BID PROPOSAL AND CONTRACT
EMERGENCY CONTRACT

DESCRIPTION: MMMBT VOID REPAIR

FROM: NORTH ISLAND (6.47)

TO: SOUTH ISLAND (7.82)

DATE BID SUBMITTED: 9:00 AM TUESDAY, JULY 8, 2025

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

Form C-118(ec)
Rev. 7-28-05

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. Proposals shall be filed at one of the locations and at the times designated in the Notice of Advertisement for Bids.

2. The name of the Firm submitting the bid shall be shown on the proposal Form C-7ec and envelope exactly as it appears on the Certificate of Qualification, and the proposal shall be signed by an authorized representative of the Firm.

3. All prices shall be typed or written in Blue or Black ink.

4. Unless otherwise specified or permitted in the proposal, prices shall be submitted on all items shown in the proposal.

5. 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.

6. Erasures or alternations in the bidder's entries in the proposal shall be initialed by an authorized representative of the Firm. Telegraphic corrections will not be considered.

7. A bid total shall be shown in each space provided.

8. Bid bonds shall conform with Section 102.07. The bid bond shall be on Form C-24, and shall be signed by the Surety and an authorized representative of each Firm.

9. Joint venture proposals shall show the Firm Name of each party and shall be signed by an authorized representative of each Firm.

10. All attachments included in the Proposal shall be returned complete as issued except for Form C-61, if applicable, which shall be retained by the Bidder and, upon notification by the Department that they are low bidder, shall be completed and returned to the Department within the time specified in the Specifications.

11. Forms C-16a, C42, C-43 and C-48 shall be returned only when applicable.

12. The following forms when incorporated in the proposal shall be signed by an authorized representative of the Firm and returned with the bid proposal:

Form C-24	PROPOSAL GUARANTY
Form CW	CONDITIONAL WITHDRAWAL OF PROPOSALS (if applicable)
Form C-16a	PRICE ADJUSTMENT (if applicable)
Form C-100	AFFIDAVIT
Form C-7	TERMS OF THE PROPOSAL\CONTRACT
Form C-78	ACKNOWLEDGEMENT OF REVISION (if applicable)

13. Forms, bid item sheets and other contract documents submitted by the bidder shall be stapled together in the upper left corner and returned to the Department prior to the time designated. In the event the bidder fails to submit any of the required documents shown herein, he shall be considered non-responsive and his bid will be rejected.

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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: 0664-121-482, N501

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*)	_____ (Surety Company)
By: _____ (Officer, Partner or Owner) (Seal)	By: _____ (Attorney-in-Fact**) (Seal)
_____ (Principal*)	_____ (Address)
By: _____ (Officer, Partner or Owner) (Seal)	By: _____ (Surety Company)
_____ (Principal*)	_____ (Attorney-in-Fact**) (Seal)
By: _____ (Officer, Partner or Owner) (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.: E78
CONTRACT ID. NO.: C0000127471N01

Order No.: E78

Form C-18a
Rev. 1-8-25

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
CONTRACT PERFORMANCE BOND

Know all men by these presents.That we _____

_____

Hereinafter called the ("principal") and _____

_____ (hereinafter called the "Surety"), are held and firmly

bound unto the Commonwealth of Virginia (hereinafter called the "Owner"), in full and just sum of _____

_____

Dollars ($_____) lawful money of the United States of America to be paid to said "Owner." Its successors, and assigns, to which payment well and truly to be made we bind ourselves, executors, administrators, successors, and assigns jointly and severally and firmly by these presents:

Whereas, The above bounden: "Principal" has entered into a contract with the said "Owner" by and through the Commonwealth Transportation Commissioner of the Department of Transportation, said contract being attached hereto, for constructing or otherwise improving

Project: 0664-121-482, N501
FROM: NORTH ISLAND (6.47)

TO: SOUTH ISLAND (7.82)
upon certain terms and conditions in said contract more particularly mentioned: and

Whereas. It was one of the conditions of the award of the "Owner" pursuant to which said contract was entered into, that these presents shall be executed:
Now: Therefore. The conditions of this obligation is such that if the above burden "Principal" shall in all respects comply with the terms and conditions of said contract and his obligations thereunder, including the "Specifications", with amendments thereto, "Special Provisions," "Proposal," and plans therein refered to and made a part thereof, and such alterations as may be made in said plans and specifications as therein provided for, and shall indemnify and save harmless the said "Owner" against or from all cost, expenses, damages, injury or as loss to which the said

:"Owner" may be subjected by reason of any wrongdoing, misconduct, want of care or skill, negligence or default, including patent infringements, delay or failure to comply with contract provisions, on the part of said "Principal," his agents or employees, in the execution or performance of said contract, including errors in the plans furnished by the "Principal," and shall pay all just claims for damages and injury to property then this obligation to be void; otherwise, to be and remain in full force and virtue in law.

By executing this form, the principal and Surety affirm that the Surety meets the requirements set forth in the VDOT Road and Bridge Specifications, Section 103.05. These requirements include, but are not limited to, that the Surety has a minimum "Best Rating" of "B+" and that the Surety is authorized to do business in Virginia by the State Corporation Commission.

Witness, The signature of the "Principal" and the signature of the "Surety" by its Attorney-in-fact and its corporate seal duly attached by their Attorney-in-fact,

hereunto affixed this _____day of _____in the year_____

_____	_____
(Principal)	(Surety Company)
By: _____	By: _____
(Officer, Partner or Owner) (SEAL)	Attorney-in-fact (SEAL)
_____	_____
(Address)	(Address)

(Continued)

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

Order No.: E78

Form C-18a
Rev. 1-8-25

CONTRACT PAYMENT BOND

Know all men by these presents. That we _____

Hereinafter called the "Principal" and _____

_____

(hereinafter called the "Surety"), are held and firmly bound unto the Commonwealth of Virginia (hereinafter called the "Owner"), in full and the just sum of _____

_____

Dollars ($_____) lawful money of the United States of America to be paid to said "Owner." Its successors, and assigns, to which payment well and truly to be made we bind ourselves, executors, administrators, successors, and assigns jointly and severally and firmly by these presents:

Whereas. The above bounden "Principal" has entered into a contract with the said "Owner" by and through the Commonwealth Transportation Commissioner of the Department of Transportation, said contract being attached hereto, for constructing or otherwise improving

Project: 0664-121-482, N501
FROM: NORTH ISLAND (6.47)

TO: SOUTH ISLAND (7.82)

upon certain terms and conditions in said contract more particularly mentioned: and

Whereas. It was one of the conditions of the award of the "Owner" pursuant to which said contract was entered into, that these presents shall be executed:

Now: Therefore. The conditions of this obligation is such that if the above burden "Principal" shall promptly pay all just claims for labor and material (including public utility services and reasonable rental of equipment when such equipment is actually used at the site) performed for or supplied to said "Principal" or any subcontractor in the prosecution of the work contracted for then this obligation is to be void; otherwise; to be and remain in full force and virtue in law.

By executing this form, the principal and Surety affirm that the Surety meets the requirements set forth in the VDOT Road and Bridge Specifications, Section 103.05. These requirements include, but are not limited to, that the Surety has a minimum "Best Rating" of "B+" and that the Surety is authorized to do business in Virginia by the State Corporation Commission.

Witness. the signature of the "Principal" and the signature of the "Surety" by its Attorney-in-fact and its corporate seal duly attached by their Attorney-in-fact,

hereunto affixed this _____ day of _____ in the year _____

(Principal)	(Surety Company)
By: _____	By: _____
(Officer, Partner or Owner) (SEAL)	Attorney-in-fact (SEAL)
_____	_____
(Address)	(Address)

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CONTRACT ID. NO.: C0000127471N01

Order No.: E78

Form C-73
Rev. 8-19-20

COMMONWEALTH OF VIRGINIA
VIRGINIA DEPARTMENT OF TRANSPORTATION

CERTIFICATE OF INSURANCE

This form must be completed and returned with in 15 days of notification of contract award to:
State Contract Engineer
Virginia Department of Transportation
1401 E. Broad Street, Richmond, VA 23219

This is to Certify that the _____
Insurance Company

Assured _____
Company

Address _____
Street City/County State Zip Code

Policies of Insurance Described as Follows:

Kind of Policy	Workmen's Compensation	Bodily Injury Liability and Property Damage Liability
Policy Number		
Effective Dates	From: To:	From: To:
Limits of Compensation	Provided by Workmen's Compensation Laws of Commonwealth of Virginia	Each Occurrence: $ _____ Aggregate: $ _____
Exact Location Covered		
Classification of Work Covered (detail)		

This Certificate is issued at the request of the Virginia Department of Transportation, 1401 E. Broad Street, Richmond, Va. 23219.

Dated at _____ _____
City/County State

_____
Agency

on the _____ of _____ By: _____
Day Month Year

Authorized Representative

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

Form C-78
Rev.7-13-05

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

ORDER NO. E78
PROJECT NO. 0664-121-482, N501

ACKNOWLEDGEMENT OF REVISION

Acknowledgement shall be made of receipt of any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department through the Contract Engineer's Office prior to the bid opening date shown herein. Failure to include this acknowledgement in the bidding proposal may result in the rejection of your bid.

By signing this bid, the Bidder acknowledges receipt of the following revisions and/or addenda to the proposal and/or plans for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

1. Cover letter of _____
   (Date)

2. Cover letter of _____
   (Date)

3. Cover letter of _____
   (Date)

_____ _____
SIGNATURE DATE

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

Form C-100
Rev. 7-13-05

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
AFFIDAVIT

PROJECT NUMBER: 0664-121-482, N501

This form shall be completed, signed, notarized and returned with bid; and failure to do so, may result in the rejection of your bid. A separate form shall be submitted by each principal of a joint venture bid.

1. In preparation and submission of this bid, I, the firm, corporation or officers, agents or employees thereof did not, either directly or indirectly, enter into any combination or arrangement with any person, firm or corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive bidding in violation of the Sherman Act (15 U.S.C. Section 1) or Article 1.1 or Chapter 12 of Title 18.2 (Virginia Governmental Frauds Act), Sections 59.1-9.1 through 59.1-9.17 or Sections 59.1-68.6 through 59.1-68.8 of the Code of Virginia.

2. I, the firm, corporation or officers, agents or employees thereof have neither directly nor indirectly entered into any combination or arrangement with any person, firm or corporation or entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, the effect of which is to prevent competition or increase the cost of construction or maintenance of roads or bridges.

During the preceding twelve months, I (we) have been a member of the following Highway Contractor's Associations, as defined in Section 33.1-336 of the Code of Virginia (1970). (If none, so state).

Name	Location of Principal Office

3. I (we) have __, have not ___ , participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, 11246, and that I/we have ___, have not ___, filed with the joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of $10,000 or under are exempt.)

(Continued)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders of their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

4. The bidder certifies to the best of its knowledge and belief, that it and its principals:

   (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal department or agency;

   (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

   (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated above; and

   (d) Where the bidder is unable to certify to any of the statements in this certification, the bidder shall show an explanation below.

Explanations will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any explanation noted, indicate below to whom it applies, initiating agency, and dates of action. Providing false information may result in federal criminal prosecution or administrative sanctions. The bidder shall provide immediate written notice to the Department if at any time the bidder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

The undersigned is duly authorized by the bidder to make the foregoing statements to be filed with bids submitted on behalf of the bidder for contracts to be let by the Commonwealth Transportation Board.

Signed at _____ , this ____ day of _____ , 20 ____
County (City), STATE

_____ By: _____ _____
(Name of Firm) (Signature) Title (print)

STATE of _____ COUNTY (CITY) of _____
To-wit:

I _____ a Notary Public in and for the State and County(City) aforesaid, hereby certify that this day _____ personally appeared before me and made oath that he is duly authorized to make the above statements and that such statements are true and correct:

Subscribed and sworn to before me this _____ day, of _____ , 20 ____

_____ My Commission expires _____
Notary Public

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Form C-48
Rev. 2-23-11

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

PROJECT NO. 0664-121-482, N501 **CONTRACT ID. NO.** C0000127471N01

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.: E78
CONTRACT ID. NO.: C0000127471N01

Form C-7
Rev. 2-2-24

TERMS OF THE PROPOSAL\CONTRACT
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

SUBMITTED: 9:00 AM TUESDAY, JULY 8, 2025

PROJECT NUMBER: 0664-121-482, N501

ROUTE NUMBER: 664

FHWA NUMBER: NONE

DESCRIPTION: MMMBT VOID REPAIR

FROM: NORTH ISLAND (6.47)

TO: SOUTH ISLAND (7.82)

DISTRICT: HAMPTON ROADS COUNTY: NEWPORT NEWS

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: DECEMBER 3, 2025

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: C0000127471N01 **Oversight/State Project No.:** 0664-121-482

Order No.: E78 **Federal Project No.:** NONE

Contractor: _____

SECTION: 0001 50

Cat Alt Set ID: **Cat Alt Mbr ID:**

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0010	ATTD	404SX20-0001 CONCRETE SELF-CONSOLIDATING CONCRETE	25.000 CY	_____	_____	_____	_____
0020	ATTD	407SX20-0003 STRUCT. STEEL GRADE A36	LUMP SUM	LUMP SUM		_____	_____
0030	ATTD	416SX20-0001 WATERPROOFING - EPOXY RESIN PETTIT PAINT A-788 SPLASH ZONE EPOXY	3.000 SY	_____	_____	_____	_____
0040	ATTD	512SX20-0019 TRAFFIC CONTROL SINGLE LANE CLOSURES	24.000 EA	_____	_____	_____	_____
0050	513	513SD20-0001 MOBILIZATION MOBILIZATION PER CONTRACT AMOUNT LESS THAN $200,000	LUMP SUM	LUMP SUM		_____	_____

Section: 0001 **Total:** _____.____

Total Bid: _____.____

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

TABLE OF CONTENTS FOR PROVISIONS

FORMS and SCHEDULE OF ITEMS PRECEDE SPCNs, SPs and SUPPLEMENTAL SPECS.

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)

cn102-000410-00 **SEC.102.04**(a)**—EVIDENCE OF EXAMINATION OF SITE OF WORK AND PROPOSAL —** Section 102.04(a) of the Specifications is amended to include the following:

Prospective Bidders are hereby advised that attendance of the Proj. Showing is a prerequisite for submitting a bid proposal for this project. The "Notice of Advertisement for Bids" will designate the date, time and location for showing the work for interested parties. Prospective Bidders shall register in writing with the Engineer at the Project Showing and all attending parties will be noted in the Project Showing letter. Failure on the part of the Prospective Bidder to attend the Project Showing for this project and to register with the Engineer will be cause for rejection of the Bidder's proposal.

7-12-16 (SPCN) [formerly cn102-040100-00

cn103-000120-00 **SECTION 103.02—AWARD OF CONTRACT** of the Specifications is replaced in its entirety with the following:

103.02 – Award of Contract

The Board, or the Commissioner as authorized under § 33.2-209 of the Code of Virginia, will award the Contract to the lowest responsive and responsible bidder without discrimination on the grounds of race, color, gender, or national origin, or other basis prohibited by law, subject to the provisions, if applicable, in § 2.2-4324 of the Code of Virginia.

The award date will not be later than midnight on the 60th day after the opening of bids. If the Board, or the Commissioner as authorized by law, has not awarded the Contract within this period due to any circumstances not attributable to the bidder, the bidder may withdraw his bid without penalty or prejudice unless the time limit is extended by mutual consent.

After approval for the award of contracts, the Department will provide written notice of award to the successful bidder and will post the Ballots on the Department's bidding webpage. The Ballot serves as public Notice of Award for a contract. The date of the Notice of Award is the "Approved" date appearing at the top of the Ballot that lists the Contract.

6-26-24(SPCN)
cn105-000140-00 **SECTION 105.14—MAINTENANCE DURING CONSTRUCTION** of the Specifications is amended by the following:

Section 105.14(a)3 – Flagging Traffic is replaced with the following:

3. **Flagging Traffic:** Flaggers shall be able to communicate to the traveling public in English while performing the job duty as a flagger at the flagger station.

   All flaggers shall possess a valid, current flagger certification card, be it a physical or electronic card, **at all times while performing flagging duties**.

   Flaggers shall be certified by the VDOT Basic or Intermediate Work Zone Traffic Control Training course or by the ATSSA's classroom Flagger Certification Program.

   The following constitutes a valid flagger certification card:

   - Cards issued by VDOT following completion of the Basic Work Zone course;
   - Cards issued by VDOT following completion of the Intermediate Work Zone course;
   - Cards issued by ATSSA following completion of a Flagger course;
   - Cards issued by VDOT following completion of the Flagger-only course, provided the cards were issued on or before December 31, 2024, and have not yet reached the expiration date (two years after date of issuance).

Flaggers who fail to possess a valid, current, flagger certification card, or refuse to allow inspection of same upon request, shall be removed from the flagging site, and operations requiring flagging shall be suspended by the Engineer. Suspended operations requiring flagging may resume once a certified flagger arrives on-site to perform flagging duties in accordance with applicable requirements. Flaggers improperly performing duties may be subject to flagger certification revocation at the sole discretion of the Engineer.

12-20-24 (SPCN)

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]

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

MANDATORY PRE-BID SHOWING / SITE INSPECTION

Bidders are advised there will be a **mandatory** Pre-Bid Showing conference and Site Visit held at the time and place as indicated below.

Bids will only be accepted from those bidders who are represented at this mandatory Pre-Bid showing conference and Site Visit. Attendance at this mandatory showing conference will be evidenced by the representative's signature on the Department's attendance roster.

Bidders are invited to bring a copy of the solicitation proposal with them. Any changes resulting from this mandatory Pre-Bid Showing Conference and Site Visit will be issued in a written addendum to the solicitation proposal.

Mandatory Pre-Bid Conference and Showing:
Date: Thursday June 5, 2025
Time: 1PM
Location: VDOT Hampton Roads District Office
James River-A Auditorium
7511 Burbage Drive
Suffolk, VA 23435

5/30/2025 (SPCN)

cn245-000100-01 **SECTION 245.03—TESTING AND DOCUMENTATION** of the Specifications is amended by the following:

Section 245.03(e) – Prefabricated Geocomposite Pavement Underdrain is replaced by the following:

Prefabricated Geocomposite Pavement Underdrain: Prefabricated geocomposite pavement underdrain shall consist of a polymeric drainage core allowing water inflow from both sides, encased in a nonwoven filter fabric envelope having sufficient flexibility to withstand bending and handling without damage. Prefabricated geocomposite pavement underdrain shall conform to the following:

1. **Core:** The drainage core shall be made from an inert, polymeric material resistant to commonly encountered chemicals and substances in the pavement environment and shall have a thickness of not less than 3/4 inch. Outer surfaces shall be smooth to prevent excessive wear of bonded filter fabric.

Physical Properties	Test Method	Requirements
Compressive strength	ASTM D1621, D2412, and D6364	Min. 40 psi at 20% max. deflection immediately after 24 hrs of specimen conditioning at 0 deg F and at 125 deg F
Water flow rate (after 100 hr at 10 psi normal confining pressure and gradient of no more than 0.1)	ASTM D4716	Min. 15 gal/min/ft width for 12-in specimen length

2. **Filter Fabric**: Geotextile shall be bonded to and tightly stretched over both sides of the core. Geotextile shall not sag or block the flow channels, shall have a life equivalent to that of the core material, and shall conform to the requirements of Section 245.03(c) of the Specifications.

Section 245.03(f) – Geocomposite Wall Drains is replaced by the following:

Geocomposite Wall Drains: Prefabricated geocomposite wall drain shall consist of a polymeric drainage core with a nonwoven filter fabric (single sided or double sided) having sufficient flexibility to withstand bending and handling without damage. Geocomposite wall drains shall conform to the following:

1. **Core:** The drainage core shall be made from an inert, polymeric material resistant to commonly encountered chemicals and substances in the roadway. Outer surfaces shall be smooth to prevent excessive wear of bonded filter fabric.

Physical Property	Test Method	Requirements
Compressive strength	ASTM D1621, D2412, and D6364	Min. 40 psi at 20% max. deflection immediately after 24 hrs of specimen conditioning at 0 degree F and at 125 degree F
Water flow rate (after 100 hr at 10 psi normal confining pressure and gradient of no more than 1.0)	ASTM D4716	Min. 15 gal/min/ft width (for 12-in specimen length)

2. **Filter Fabric:** Geotextile shall be bonded to and tightly stretched over the core. Geotextile shall not sag or block the flow channels, shall have a life equivalent to that of the core material, and shall conform to the requirements of Section 245.03(c) of the Specifications.

Section 245.03(g) – Geomembrane Moisture Barrier is replaced by the following:

Geomembrane Moisture Barrier: Geomembrane moisture barrier shall be resistant to biological attack. Geomembrane shall be constructed of PVC and shall conform to the requirements of ASTM D7176 for PVC 30 or higher grades. In addition, geomembrane shall comply with the requirements of ASTM D7408 for bond seam strength and peel strength.

1-10-24 (SPCN)

HAMPTON ROADS BRIDGE TUNNEL SECURITY REQUIREMENTS (Hampton Roads District Only) — Prior to commencing the work the following is required:

a. The Engineer will notify the Contractor and will:

   i. Ensure an *Agreement Establishing a Company Representative*, signed by an officer of the company, is completed by the Contractor prior to commencing work.

   ii. Coordinate with the VDOT Security and Emergency Management Division (SEMD) staff and the Contractor to determine a mutually agreeable date, time and location for conducting fingerprint-based criminal history background checks (CHBC).

b. Each employee of the prime Contractor and any subcontractor of the prime Contractor, who will be involved in this project, is required to sign the *CII Non-disclosure Agreement (Individual)* and to pass a fingerprint-based CHBC.

c. Results of the fingerprint-based CHBC:

   i. Favorable results of the CHBC are usually available within 24 hours of the time the background check is conducted.

   ii. In the event an employee of the Contractor has a criminal history, official criminal history reports issued by the Virginia State Police are usually available within five business days, though longer delays may ensue.

   iii. Based upon the review of the official criminal history reports issued by the Virginia State Police, VDOT reserves the right to deny issuance of a VDOT Security Clearance and/or a VDOT-issued photo-identification badge to that employee.

d. An individual employee's failure to successfully pass the fingerprint-based CHBC will not negate the Contract award and the Contractor will be allowed to replace those individuals; however, if key Contractor or subcontractor personnel fail the fingerprint-based CHBC, the Contract may be cancelled.

e. All costs for the CHBC, estimated to be $50.00 per individual, will be borne by the prime Contractor and will not be paid separately but the cost thereof shall be included with other appropriate items.

f. Evidence of current CHBC from Department of Criminal Justice Services (DCJS) is acceptable in lieu of a fingerprint-based CHBC.

g. A VDOT-issued photo-identification badge is required for each employee of the prime Contractor and any subcontractors of the prime Contractor, who will be involved in this project.

h. The requirements herein (a through h) will apply to any additional prime Contractor or subcontractor employees or to any proposed replacements, who will be involved in this project during the term of the Contract.

10-2-08; Reissued 7-12-16_(SPCN)

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 Contractors 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)

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)

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

Section 512.04 – Measurement and Payment is amended by replacing with the following:

Maintenance of traffic including advance warning signs, electronic arrows, channelizing devices, truck mounted attenuators, and portable changeable message signs will be paid for as each as follows:
The Contractor’s price bid shall include, but not be limited to, the following

- Providing a person to meet the basic and intermediate work zone traffic control requirements of Section 105.14 of the Specifications,

- Furnishing, placing, maintaining, replacing, relocating, adjusting, aligning, removing advance warning signs, electronic arrows, channelizing devices, truck mounted attenuators, portable changeable message signs, and

- Supplying all labor, material and equipment incidental to complete this work in accordance with the Virginia Work Area Protection Manual (VWAPM) and traffic engineering guidelines and principles.

Payment will be made under:

Pay Item	Pay Unit
Traffic Control (Single Lane Closure)	EA

~~0~~5-20-25 (SPCN)

SP100-000110-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
EMERGENCY CONTRACT PROJECTS

July 12, 2016

SECTION 103—AWARD AND EXECUTION OF CONTRACTS of the Specifications is amended as follows:

Section 103.05—Requirements of Contract Bond is amended to replace the first paragraph, including subparagraphs (a) and (b), with the following:

Within 72 hours after notification of award of the Contract, the successful bidder shall furnish the following bonds for contracts in excess of $250,000:

(a) a performance bond in the sum of the Contract amount, conditioned upon the faithful performance of the Contract in strict conformity with the plans, Specifications and conditions of the Contract, and

(b) a payment bond in the sum of the Contract amount, conditioned upon the prompt payment for all labor, materials, public utility services and rental of equipment used in the prosecution of the work for the Contract.

And to replace the second paragraph with the following:

Bidders will not be awarded an unbonded contract when their bid plus the balance of other unbonded contracts exceeds $250,000.00 or as otherwise limited by their current prequalification status.

Section 103.06(d) **Workers' Compensation Insurance Certificate** is amended to replace the second paragraph with the following:

Within 72 hours after the date of the notice of award of the Contract, the bidder shall submit a Certificate of Insurance verifying Workers' Compensation coverage using the Department's forms (Form C-73). The certificate shall be executed by an approved and authorized insurance company as required by state law and shall cover the Contract. The Contractor shall likewise obtain a Certificate of Insurance for Workers' Compensation coverage from each subcontractor prior to performance of work and shall provide a copy to the Department.

Section 103.06(e) **Progress Schedule** is replaced with the following:

(e) **Progress Schedule:** The Contractor is not required to submit a progress schedule for this contract.

Section 103.07—Failure to Furnish Bonds or Certificate of Insurance is replaced with the following:

The successful bidder's failure to furnish to the Department acceptable bonds, workers' compensation insurance certificates or the Contractor's Bodily Injury and Property Damage Liability Insurance certificates within 72 hours after the date of Award Recommendation Letter shall be considered just cause for cancellation of the award and forfeiture of the proposal guaranty. In such event, the proposal guaranty shall become the property of the Commonwealth, not as a penalty but in liquidation of damages sustained. The Contract may then be awarded to the next lowest responsive and responsible bidder, or the Work may be re-advertised or constructed otherwise, as determined by the Board or the Department.

SECTION 105—CONTROL OF WORK of the Specifications is amended as follows:

Section 105.01—Notice to Proceed is replaced with the following:

Unless otherwise indicated in the Contract, the date of the Notice to Proceed will be the date of contract execution. The State Contract Engineer will contact the Contractor on the date of contract execution to inform him of such action. The State Contract Engineer will confirm this date in the letter of Contract Execution. This letter of Contract Execution will be distributed to Department personnel involved in the administration of the Contract as well as the Contractor.

The Contractor may request to adjust the start date for the work on the Contract. If accepted by the Engineer, such adjustment will not be considered as a basis for claim that the time resulting from Contractor's requested start date is insufficient to accomplish the work nor shall it relieve the Contractor of his responsibility to perform the work according to the scope of work and requirements of the Contract. In no case shall work begin before the Department executes the Contract. The Contractor shall notify the Engineer at least 24 hours prior to the date on which he plans to begin the work.

Section 105.05(b) **Equipment** is amended to add the following:

The Contractor shall provide the Engineer a list of all equipment available for use on the Contract. The make, model, size, capacity, and year of manufacture shall be listed for each piece of equipment. The list shall be provided at the pre-construction conference or no later than one week prior to the first estimate and shall be updated as changes occur but at least once a month.

SECTION 106—CONTROL OF MATERIAL of the Specifications is amended as follows:

Section 106.01—Source of Supply and Quality Requirements is amended to replace the first and second paragraphs with the following:

The materials used throughout the work shall conform to the Contract. The Contractor shall regulate his supplies so that there will be a sufficient quantity of tested material on hand at all times to prevent any delay of work. Except as otherwise specified, materials, equipment, and components shall be new. The Contractor shall file a statement of the known origin, composition and manufacture of all materials to be used in the work, including optional or alternate items. Material requirements not previously reported shall be submitted at least five days prior to their use on the project. The Contractor's statement shall be electronically submitted by use of Form C-25 and shall be identified by the complete project number, and all items or component materials shall be identified by the specific contract item number and the Specification reference shown in the Contract.

At the option of the Engineer, materials may be approved at the source of supply. If it is found during the life of the Contract that previously approved sources of supply do not supply materials or equipment conforming to the Contract requirements, do not furnish the valid test data required to document the quality of the material or equipment, or do not furnish documentation to validate quantities to document payment, the Contractor shall change the source of supply and furnish material or equipment from other approved sources. The Contractor shall notify the Department of this change, and provide the same identifying information noted in this Section, at least five days prior to their use on the project.

Section 106.02—Material Delivery is amended to delete the first sentence.

SECTION 108—PROSECUTION AND PROGRESS OF WORK of the Specifications is amended as follows:

Section 108.01—Prosecution of Work is amended to include the following:

The Contractor shall begin work within 24 hours of the date of the contract execution unless otherwise permitted by specific language in the Contract.

Section 108.03—Progress Schedule is replaced with the following:

A progress schedule will not be required for this contract.

Section 108.04—Determination and Extension of Completion Date is replaced with the following:

Unless otherwise indicated in the Contract, the contract time limit will be specified as a fixed date for completion. The Contractor shall take into consideration normal conditions considered unfavorable for the prosecution of the work, and shall place sufficient workers and equipment on the project to complete the work according to the specified contract time limit. No request for an extension of time will be considered that is based on any claim that the contract time limit as originally established was inadequate.

If the satisfactory fulfillment of the Contract with extensions and increases authorized according to Sections 104.02 and 104.03 of the Specifications requires the performance of work in greater quantities than those specified in the Contract, the Contractor shall inform the Department in writing if the additional quantities require additional time to perform the work and, if so, the reason supporting such a determination and the additional amount of time requested to perform the work due to the greater quantities. The Engineer will determine if additional contract time is warranted by the greater quantities as specified in the Contractor's request. Where the Engineer determines such additional time is warranted, the amount of additional time as well as the additional quantities involved shall be specifically identified in the authorized change order to the Contract.

With a fixed date contract when the date of contract execution is not within 60 calendar days after the opening of bids, or when the Contractor is unable to commence work because of any failure of the Department, or when the Contractor is delayed because of the fault of the Department, the Contractor will be given an extension of time based on the number of days delayed beyond the 60 calendar days. No time extension will be allowed for a delay in the date of contract execution when the delay is the fault of the Contractor.

During prosecution of the work, the Contractor shall identify the causes for any delays attributable to conditions he deems to be beyond his control and shall identify the particular construction operations affected, their criticality to project milestones or overall contract completion, and the significant dates that encompass the periods of delay. The Contractor shall furnish all such information necessary for the Department to make an adequate evaluation of any claim received from the Contractor for an extension of the contract time limit within three days of experiencing such a delay.

The Engineer may give consideration for extension of time when a delay occurs due to unforeseen causes beyond the control of and without the fault or negligence of the Contractor. However, consideration will not be given to extensions of time attributable to normal weather conditions or conditions resulting from normal weather.

If there is a delay in the progress of the work due to unforeseen causes described within these Specifications, and the delay extends the contract time limit into the period between November 30 of one year and April 1 of the following year and working conditions during such period are unsuitable for the continuous prosecution or completion of the work, then consideration may be given to granting an extension of time that will encompass a suitable period during which such work can be expeditiously and acceptably performed.

Section 108.07—Default of Contract is amended to replace (a) in the first paragraph with the following:

(a) fails to begin the Work within 5 consecutive calendar days after the date of execution for this Contract.

SP102-000100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
PAPER BIDDING (EMERGENCY CONTRACTS)

July 12, 2016

SECTION 101.02—TERMS of the Specifications is amended as follows:

Proposal (Bid Proposal) is replaced by the following:

The Department documents in the Notice of Advertisement for Bids that contain the project requirements and other information upon which a bid is to be based. The Proposal includes the plans, Specifications, Special Provisions, Supplemental Specifications, referenced Standards, addenda, revisions, all other documents referred to therein, whether or not attached, and the printed forms on which the Department requires bids to be submitted.

SECTION 102—BIDDING REQUIREMENTS AND CONDITIONS of the Specifications is amended as follows:

Section 102.02(a) **Standard Proposal** is amended to replace the third bullet with the following:

- any Specifications, plans, attachments, revisions, addenda, and any other documents specified or referenced in the Proposal. Papers bound with or attached to the paper proposal will be considered a part of the bid.

Section 102.05(a) **General** is amended to replace the first paragraph with the following:

The bidder shall submit the bid by paper. The bidder shall furnish a unit or lump sum price as called for in the proposal, in numerical figures, for each pay item listed. The bidder shall also show the products of the unit prices and quantities in numerical figures in the column provided for that purpose and the total amount of the bid. Figures shall be handwritten in ink or typed.

Section 102.05(d) **Required Certifications** is amended to replace the second paragraph with the following:

A sworn statement shall be executed by the bidder or his agent certifying that the bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action to restrain free competitive bidding in connection with the Proposal. The sworn statement shall be in the form of an affidavit furnished by the Department and shall be sworn to before a person who is authorized by the laws of the Commonwealth to administer oaths. The original of the sworn statement shall be filed with the Department when the bid is submitted.

Section 102.05(f) **Signing the Bid** is replaced with the following:

(f) Bids shall be signed in ink. The names of persons authorized to sign bids shall be on file with the Department. A name will be considered to be on file if it appears as that of an officer, a partner, a member, a manager or an owner on the current Contractor's Prequalification Application. Requests by the bidder to revise the list of persons authorized to sign bids on their behalf shall be submitted in writing and approved prior to the date bids are opened. A bid signed by someone whose name is not on file as someone authorized by the bidder may be rejected. If the individual signing the bid for a joint venture is not previously identified as authorized to sign a bid, the firm of record is responsible for the bid.

Section 102.06—Irregular Bids is amended in the first paragraph as follows:

Section 102.06(i) is replaced with the following:

(i) if envelopes containing submitted paper bids identifies a project different than the project for which the bid is submitted.

Section 102.06(l) is replaced with the following:

(l) if any papers included in the paper bid or attachments included in the bid are detached or altered when the bid is submitted except as otherwise provided for herein.

Section 102.06(p) is added as follows:

(p) if the bid is not written in ink or typed.

Section 102.09—Submission of Bid is replaced by the following:

Each paper bid may be submitted in the envelope furnished by the Department. The blank spaces on the envelope shall be filled in correctly. When any other envelope is used, it shall be the same general size and shape as the envelope furnished by the Department and shall be marked to indicate its contents clearly. Bids shall be sealed in an envelope and addressed to: Virginia Department of Transportation, C/O: Eric Kevitz, 7511 Burbage Drive, Suffolk, VA 23435.

Bids shall be filed prior to the time and at the place specified in the Notice of Advertisement. Bids received after that time will be returned to the bidder unopened. The date for the opening of bids may be deferred by the Department, in which case the bidders will be notified.

Section 102.10—Withdrawal of Bid is amended to replace (a) and (b) with the following:

(a) **Standard Withdrawal:** A bidder may withdraw a paper bid provided the request for the withdrawal is written and signed by a person(s) who qualifies to execute the bid according to Section 102.05 of the Specifications. The request must be received by the Contract Engineer at least 1 hour prior to the time specified for receiving bids.

(b) **Conditional Withdrawal:** A bidder who desires to bid on more than one project for which bids are to be opened on the same date and desires to protect himself against receiving awards for more projects than he is equipped to handle may secure the protection desired by completing the forms for the conditional withdrawal of bids.

Section 102.11—eVA Business-To-Government Vendor Registration is amended to include the following:

Bidders submitting bids by paper are not required to be a registered vendor in “eVA Internet e-procurement solution” (www.eVA.virginia.gov).

Section 102.12—Public Opening of Bids is replaced by the following:

Paper bids, along with all other bids, will be opened and read publicly at the time and place specified in the Notice of Advertisement. Interested parties are invited to be present at the opening or view the lettings in real time on the Department’s Construction website at www.VDOT.Virginia.gov. As-Read results will be posted on this website as soon as possible on the day of the reading.

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.

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.

(b) **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.

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.

(c) **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.

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.

(d) **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.

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.

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.

(e) **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.

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 Bidis 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.

(f) **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. 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.

(g) **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 SWaMs 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 SWaMs 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.

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. 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.

(h) **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.

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).

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. 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).

(i) **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. 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).

(j) **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.

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:

(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. 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.

(k) **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.

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.

   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. The form may be emailed to 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.

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.
The form may be emailed to 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.

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

PREVAILING WAGE RATE DETERMINATION

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 - E78
State Project Code	0664-121-482, N501
DOLI Project Number	VDOT-25-0104
County or Independent City	Newport News (City)
Publication Date	05/29/2025
Construction Type	Highway

Wage Determinations	Wage	Fringe
Carpenter (Includes Form Work)	$20.21	
Cement Mason/Concrete Finisher	$16.03	
Electrician, Includes Traffic Signalization	$30.55	$11.51
Ironworker, Reinforcing	$24.03	
Ironworker, Structural	$27.38	
Laborer: Asphalt, Includes Raker, Shoveler, Spreader and Distributor	$18.62	$2.62
Laborer: Common or General	$14.85	
Laborer: Grade Checker	$14.88	
Laborer: Pipelayer	$17.76	
Laborer: Power Tool Operator	$15.69	
Operator: Asphalt Spreader and Distributor	$19.09	$1.81
Operator: Backhoe/Excavator/Trackhoe	$20.74	

Wage Determinations	Wage	Fringe
Operator: Bobcat/Skid Steer/Skid Loader	$19.16	$4.45
Operator: Broom/Sweeper	$17.40	$2.01
Operator: Bulldozer, Including Utility	$19.43	
Operator: Crane	$24.42	$4.69
Operator: Drill	$24.66	
Operator: Gradall	$19.26	
Operator: Grader/Blade	$23.21	
Operator: Hydroseeder	$16.64	
Operator: Loader	$17.86	
Operator: Mechanic	$21.43	
Operator: Milling Machine	$23.12	$3.60
Operator: Paver (Asphalt, Aggregate, and Concrete)	$20.12	$3.81
Operator: Piledriver	$21.83	$4.08
Operator: Roller	$21.32	
Operator: Screed	$22.13	$4.89
Traffic Control: Flagger	$12.89	
Traffic Sign Mechanic	$23.00	
Truck Driver: 1/Single Axle Truck	$18.26	$4.88
Truck Driver: Fuel and Lubricant Service	$18.25	
Truck Driver: Heavy 7CY & Under	$15.53	
Truck Driver: Heavy Over 7CY	$16.98	
Truck Driver: Single & Multi Axle	$18.77	$4.63

Additional Notes

All wage rates to be used on a contract will be set at the time the contract is awarded. While DOLI maintains a list of wage determinations online for reference purposes, only the wage determinations made in an official Wage Determination Decision, sent by DOLI to the contracting agency, can be used to ascertain the exact rates to be paid for a specific contract.

All rates are determined by DOLI and any appeals of specific classifications may be made through the Wage Determination Appeal form available at https://doli.virginia.gov/wp-content/uploads/2022/05/Appeal-for-Clarification-of-Wage-Determination.pdf

Any additional classifications may be requested through the Additional Wage Classification form available at https://doli.virginia.gov/wp-content/uploads/2022/05/Appeal-for-Clarification-of-Wage-Determination.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

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.

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.

4. The Contractor shall include in each of its subcontracts provision**s** 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 frame**s** 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.

SS211-002020-03 March 18, 2024

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 binder 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[1]	Equivalent Single-Axle Load (ESAL) Range (millions)	Minimum Asphalt Performance Grade (PG)[2]	NominalMaximum Aggregate Size[3]
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-25.0	All ranges	64H-16	1 in

[1]SM = Surface Mixture; IM = Intermediate Mixture; BM = Base Mixture
[2]**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.
[3]**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:

TABLE II-12A
Aggregate Properties

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

[1]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

	Percentage by Weight Passing Square Mesh Sieves										
Mix Type	1 1/2 in	1 in	¾ in	½ in	3/8 in	No. 4	No. 8	No. 16	No. 30	No. 50	No. 200
SM-4.75 A,D,E				100[1]	95-100	90-100		30-55			6-13
SM-9.0 A,D,E				100[1]	90-100	90 max.	47-67				2-10
SM-9.5 A,D,E				100[1]	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	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

[1]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:

TABLE II-14
Mix Design Criteria

Mix Type	VTM (%) Production	VFA (%) Design	VFA (%) Production	Min. VMA (%)	Fines/Asphalt Ratio	No. of Gyrations N Design
SM4.75A [2, 4]	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75D [2, 4]	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75E [2, 4]	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM-9.0A [1,2]	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0D [1,2]	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0E [1,2]	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.5A [1,2]	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5D [1,2]	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5E [1,2]	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-12.5A [1,2]	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5D [1,2]	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5E [1,2]	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
IM-19.0A [1,2]	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0D [1,2]	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0E [1,2]	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
BM-25.0 [2,3]	0.5-3.5	67-87	67-92	12.0	0.6-1.3	50

[1]Binder content should be selected at 4.0% air voids for A and D mixes, 3.5% air voids for E mix.
[2]Fines-asphalt ratio is based on effective bindercontent.
[3]Base mix shall be designed at 2.0% air voids. BM-25.0shall have a minimum binder content of 4.6% unless otherwise approved by the Engineer.
[4] Binder content shall be selected at 5.0 percent air voids.

Table II-14A- Recommended Performance Grade of Asphalt Cement is replaced with the following:

TABLE II-14A
Recommended Performance Grade of Asphalt Cement

Mix Type	Percentage of Reclaimed Asphalt Pavement (RAP) in Mix		
	%RAP ≤ 25.0%	**25.0% < %RAP ≤ 30%**	**25.0% < %RAP ≤ 35%**
SM-4.75A, SM-9.0A, SM-9.5A, SM-12.5A	PG 64S-22	PG 64S-22	
SM-4.75D, SM-9.0D, SM-9.5D, SM-12.5D	PG 64H-22	PG 64S-22	
IM-19.0A	PG 64S-22	PG 64S-22	
IM-19.0D	PG 64H-22	PG 64S-22	
BM-25.0	PG 64H-22		PG 64S-22

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

(h) An antistripping additive shall be used in all asphalt mixes. IAdditives 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 ApprovedList 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 ApprovedList 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. If the average of the permeability results from the single point verification method exceeds 150 x 10^{-5} cm/sec, or if the regression method predicts a permeability exceeding 150 x 10^{-5} cm/sec at 7.5% voids, the Contractor shall redesign the mixture to produce a permeability number less than 150 x 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 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-9.0, 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[1]**	**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

[1]Defined as the sieve that has 100% passing as defined in Table II-13.

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

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.

SS223-002020-02 April 4, 2023

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 223 – STEEL REINFORCEMENT

SECTION 223 – STEEL REINFORCEMENT of the Specifications is amended as follows:
SECTION 223.02(a) – Reinforcement is replaced as follows:

1. **Deformed bars** shall conform to ASTM A615, Grade 40 or 60; or ASTM A706, Grade 60. Longitudinal bars for continuous reinforced hydraulic cement concrete pavement shall be Grade 60.

2. **Plain bars** shall conform to ASTM A615, Grade 40 or 60; or ASTM A706, Grade 60, deformation waived. When used as a dowel, material may be a plain bar conforming to the requirements of ASTM A615, Grade 40 or 60, or a plain dowel conforming to the requirements of ASTM A709, Grade 36; or ASTM A706, Grade 60.

3. **Welded wire fabric** shall conform to ASTM A1064. When used in continuously reinforced hydraulic cement concrete pavement wire fabric shall be deformed, furnished in flat sheets, and shall conform to ASTM A1064, Grade 70.

4. **Structural steel** shall conform to Section 226.

5. **Bar mats** shall conform to ASTM A184.

6. **Spiral wire** shall conform to AASHTO M32 or ASTM A1064.

7. Wire mesh for use in gabions shall be made of galvanized steel wire at least 0.105 inch, 12 gage, in diameter. The tensile strength of the wire shall be at least 60,000 pounds per square inch. Wire mesh shall be galvanized in accordance with ASTM A641, Class 3. When PVC coating is specified, it shall be at least 0.015 inch in thickness and shall be black.

   Wire shall be welded to form rectangular openings or twisted to form hexagonal openings of uniform size. The linear dimension of the openings shall be not more than 4 1/2 inches. The area of the opening shall be not more than 9 square inches. The unit shall be nonraveling. Nonraveling is defined as the ability to resist pulling apart at any of the twists or connections forming the mesh when a single wire strand in a section is cut.

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.

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.

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.

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 AWPA M6.

(c) **Wood Preservatives** - Wood preservatives shall conform to the requirements of the American Wood Protection Association (AWPA) U1 Standards. The AWPA 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 Tables1 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)

Table 1 – Southern Yellow Pine Treatments & Retentions for Highway Construction per AWPA

Commodity Specifications		Use Category	Preservative Retentions			
			Waterborne (pcf)	Oil borne (pcf)		
Desig	Wood Usage		CCA	Creosote	PCP	DCOI
A	**Sawn Products:** 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	**Posts:** 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
E	**Round Timber Pilings:** Pilings and foundations for land and fresh water use	UC4C	0.80	12.0	0.60	0.2
F	**Wood Composites:** 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
G	**Marine Applications** (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**

2. 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 preserviatives per **Table 2** below:

Alkaline Copper Quat (ACQ)
Copper Azole (CA)
Micronized Copper Azole (MCA)

Table 2 – Southern Yellow Pine Treatments & Retentions for Hand-Contact Surfaces per AWPA

Commodity Specifications		Use Category	Preservative Retentions		
			Waterborne (pcf)		
Designation	Wood Usage		ACQ-A,B,C,D **	CA-B CA-C **	MCA, MCA-C **
A	**Sawn Products:** Boards, lumber and timber for picnic tables, handrails, playground equipment	UC4B	0.60	0.31	0.31
F	**Wood Composites:** 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 AWPA 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 AWPA, U1 Standard.

5. Treated timber shall be supplied only from facitities on Approved List # 45.

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. 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:

Coefficient of Retroreflected Luminance (R_L) (mcd/ft^2/fc) Paint

Color	Initial	1 Year In-Service
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).

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.

Day Color, Chromaticity Coordinates (Without Drop-on Beads), High Build Paint

	x	y	x	y	x	y	x	y	Y%
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.

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.

Coefficient of Retroreflected Luminance (R_L) (mcd/ft^2/fc) Thermoplastic

Color	Initial	1 Year In-Service
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. **TiO2 (%) 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.

Day Color, Chromaticity Coordinates (Without Drop-on Beads), Thermoplastic

	x	y	x	y	x	y	x	y	Y%
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

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:.

Night Time Color, Chromaticity Coordinates (with Drop-on Beads) Thermoplastic

	1		2		3		4	
Color	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:

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^2/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^2/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 the NTPEP Work Plan.

      (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.

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.

SS248-002020-02 **March 18, 2024**

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 asphaltcontent of the mixture unless otherwise indicated on the Department's Approved List No. 7.

248.03 – **Composition of SMA Mixture** is amended as follows**:**

TABLE II-24 is replaced with the following:

TABLE II-24
SMA Design Range

Type No. (See Note)	**Percentage by Weight Passing Square Mesh Sieves (in)**							
	1	3/4	1/2	3/8	No. 4	No. 8	No. 30	No. 200
Surface Mixes								
SMA 12.5		100	83-93	80 max	22-27	16-24	14-20	9-11
SMA 9.5		100	90-100	65-75	25-32	15-25		9-11
Intermediate Mixes								
SMA 19.0	100	85-95	50-60	30-45		16-24	12-16	8-10

Note: The required PG binder will be shown in parentheses as part of the mix type on the plans or in the proposal, e.g., SMA 12.5 (64E-22).

Section 248.04—Acceptance is amended by replacing the third, fourth, fifth, and 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.

SS305-002020-02 December 20,2023

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 305 – SUBGRADE AND SHOULDERS

Section 305.03(a)1 – Subgrade consisting of material in place is replaced with the following:

1. **Subgrade consisting of material in place:** The subgrade area shall be scarified to a depth of 6 inches for a distance of 2 feet beyond the proposed edges of the pavement on each side. If sandy or other soil is encountered that will not compact readily, clay or other suitable material may be added or water applied in such quantity and within the allowable moisture content specified herein as will permit compaction of the subgrade. Subgrade material shall be compacted at optimum moisture, within ±20 percent of optimum. The density of the subgrade when compared to the theoretical maximum density as determined in accordance with VTM-1 or VTM-12 shall conform to the following:

% Retained on No. 4 Sieve	Min. % Density
0-50	100
51-60	95
61-70	90

Percentages of material shall be reported to the nearest whole number.

Field density determination will be performed with a portable nuclear density gauge as specified in VTM-10, or by other approved methods as directed by the Engineer.

The Contractor shall then shape and check the subgrade to ensure a typical cross section and uniform grade prior to placement of any subsequent courses. If the subgrade becomes eroded or distorted prior to placement of material for subsequent courses, the Contractor shall scarify, reshape, and recompact it in accordance with the original requirements.

At the time of placing material for subsequent courses, the Contractor shall compact the subgrade to the required density, free from mud and frost, and to a condition that will permit compaction of subsequent courses without distortion.

The Contractor shall remove material from the unstable area and contaminated aggregate if the approved subgrade becomes unstable after placement of the subbase or base course and becomes mixed with the aggregate therein. The area shall then be backfilled and compacted, and the subsequent course thereon reconstructed.

Section 305.03(e) – Shoulders is replaced with the following:

Shoulders: Aggregate shoulder material shall be placed in accordance with the applicable specifications governing the type of material or construction being used and shall be compacted at optimum moisture, within ±2 percentage points of optimum. Except when aggregate material No. 18 is used, the density of the aggregate shoulder material, when compared to the theoretical maximum density as determined in accordance with VTM-1, shall conform to the following:

% Retained on No. 4 Sieve	Min. % Density
0-50	100
51-60	95
61-70	90

Percentages of material will be reported to the nearest whole number. The above density requirements may be reduced by 5% per VTM-10 when using the portable nuclear density gauge in direct transmission mode.

When aggregate material No. 18 is used, the density, when compared to the theoretical maximum density, shall be not less than 90 percent or more than 95 percent.

Field density determination will be performed with a portable nuclear density gauge as specified in VTM-10, or by other approved methods as directed by the Engineer. When the total thickness of the layer for aggregate shoulder material being constructed is less than 4 inches, the minimum density requirement may not be enforced. For such cases, the aggregate shoulder should be compacted with three or more passes of a heavy-duty vibratory roller (e.g., a 10-ton smooth drum roller) or as approved by the Engineer. The aggregate shoulder should be compacted until it is apparent that no further densification can be obtained.

When it is determined by the Engineer that operating a roller/compactor on the shoulder material is a rollover hazard, the compaction requirements can be waived by the Engineer.

Aggregate in the guardrail section of fills, 1 foot from the roadway side of the guardrail face to the outside of the shoulder, shall be compacted until a density of at least 90 percent of the theoretical maximum density has been obtained. The asphalt mixture in this area shall be sealed immediately after the hot mixture is spread. Rolling of the asphalt mixture shall continue until roller marks are eliminated.

Stabilized and paved shoulders shall be constructed in accordance with the applicable specifications for pavement stabilization. If the aggregate shoulder material becomes overconsolidated prior to final finishing, it shall be scarified for the approximate depth, reshaped, and recompacted to conform to the specified grade and cross section.

Shoulders shall be constructed simultaneously with nonrigid types of base or surface courses other than asphalt concrete or in advance of the base or surface course so as to prevent spreading of base or surface materials. The area of shoulders 12 inches adjacent to the pavement shall be rolled simultaneously with the course being deposited.

Where base or surface courses are being constructed under traffic and are more than 1 inch in depth, shoulder material adjacent thereto shall be placed within 72 hours after placement of the base or surface course.

SS308-002020-01 July 13, 2021

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 308 – SUBBASE COURSE

SECTION 308 – SUBBASE COURSE of the Specifications is amended as follows:

Section 308.03 – Procedures is replaced by the following:

Prior to placement of the subbase course, the subgrade shall be constructed in accordance with Section 304 and Section 305 as applicable.

Subbase material shall be mixed in an approved central mixing plant of the pugmill or other mechanical type in accordance with Section 208.05. The Contractor shall place the mixed material on the subgrade by means of an approved aggregate spreader. The Engineer will not require the use of such spreader when the material is being applied solely for the temporary maintenance of traffic or where the width of the course shown on the plans is transitional and impracticable to place with a spreader box.

The Contractor shall spread and compact the material in two or more layers of approximately equal thickness where the required thickness is more than 6 inches. The compacted thickness of any one layer shall be not more than 6 inches, however the Engineer may approve increasing the compacted depth of a single layer of the subbase course to 10 inches when vibrating or other approved types of special compacting equipment are used.

Each layer of subbase course shall be compacted at optimum moisture, within ±2 percentage points of optimum. The density of each layer of subbase aggregate material, when compared to the theoretical maximum density as determined in accordance with VTM-1, shall conform to the following:

% Material Retained on No. 4 Sieve	Min. % Density
0-50	100
51-60	95
61-70	90

Percentages shall be reported to the nearest whole number. The above density requirements may be reduced by 5% per VTM-10 when using the portable nuclear density gauge in direct transmission mode.

The Department will perform field density determinations with a portable nuclear density gauge using the density control strip as specified in Section 304 and VTM-10, or by other approved methods as directed by the Engineer.

The Contractor shall scarify, reshape, and recompact the surface of the subbase if it becomes uneven or distorted and sets up in that condition. If the subbase when compacted and shaped shows a deficiency in thickness or if depressions occur in the surface, the Contractor shall scarify such sections at his own expense before additional material is added.

SS309-002020-01 July 13, 2021

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 309 – AGGREGATE BASE COURSE

SECTION 309 – AGGREGATE BASE COURSE of the Specifications is amended as follows:

Section 309.05 – Density Requirements is replaced by the following:

The Contractor shall spread and compact the material in two or more layers of approximately equal thickness where the required thickness is more than 6 inches. The compacted thickness of any one layer shall be not more than 6 inches, however the Engineer may approve increasing the compacted depth of a single layer of the base course to 10 inches when vibrating or other approved types of special compacting equipment are used.

The Contractor shall compact each layer at optimum moisture within ±2 percentage points of optimum after mixing and shaping. The density of each layer of base aggregate material, when compared to the theoretical maximum density as determined in accordance with VTM-1, shall conform to the following:

% Material Retained on No. 4 Sieve	Min. % Density
0-50	100
51-60	95
61-70	90

Percentages shall be reported to the nearest whole number. The above density requirements may be reduced by 5% per VTM-10 when using the portable nuclear density gauge in direct transmission mode.

The base course will be tested in place for depth and density. The Department will perform field density determinations with a portable nuclear density gauge using the density control strip as specified in Section 304 and VTM-10, or by other approved methods as directed by the Engineer.

The Contractor shall maintain the surface of each layer during the compaction operations in a manner such that a uniform texture is produced and the aggregates are firmly keyed. The Contractor shall uniformly apply water over the base materials during compaction in the amount necessary to obtain proper density.

Irregularities in the surface shall be corrected by scarifying, remixing, reshaping, and recompacting until a smooth surface is secured. The surface shall thereafter be protected against the loss of fine materials by the addition of moisture, when necessary, and shall be maintained in a satisfactory and smooth condition until accepted by the Engineer.

The Engineer will base acceptance of the aggregate base course for depth on the requirements of Section 308.

SS315-002020-04 June 16, 2023

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.

(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.

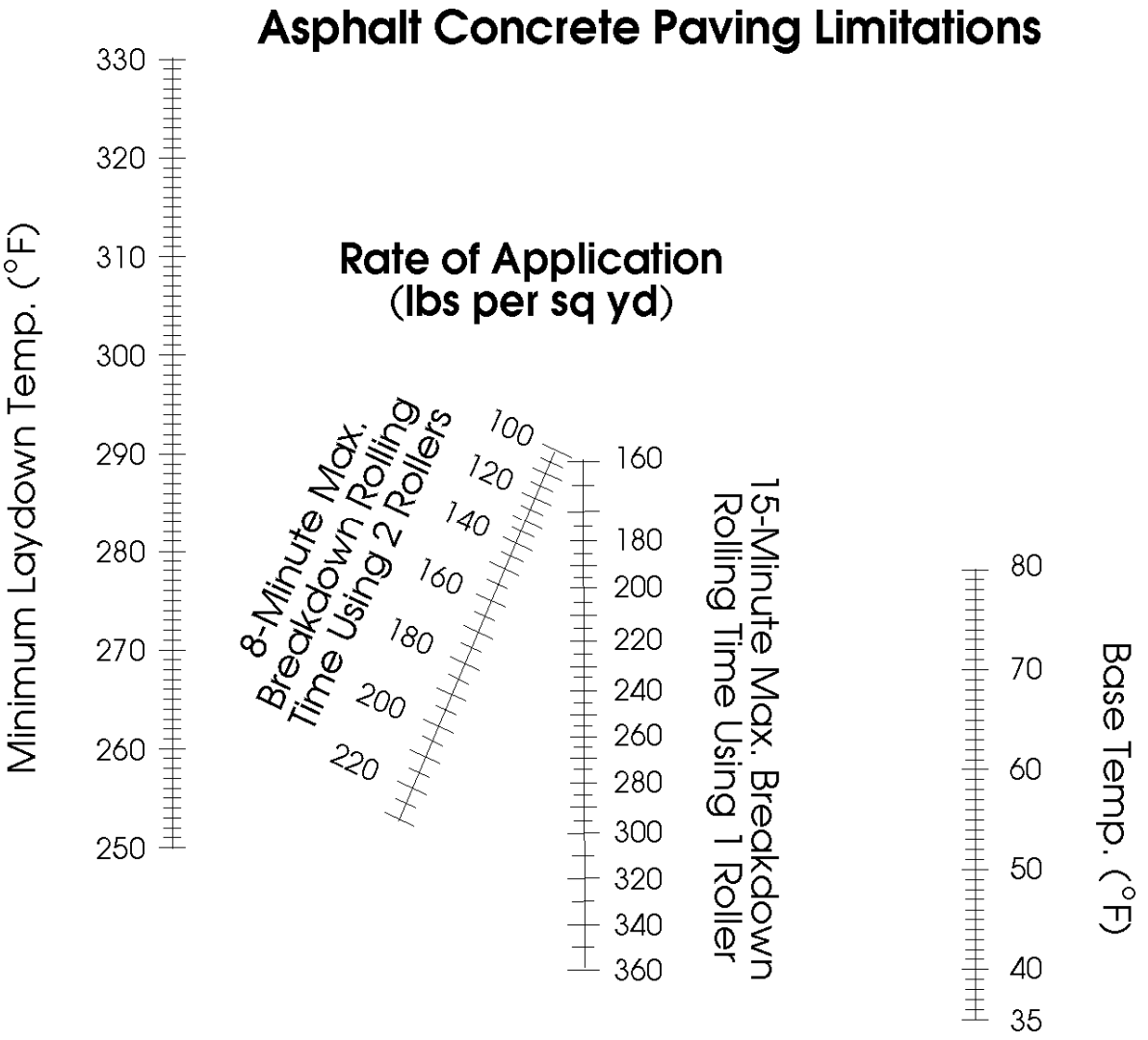
2. **When the mixture temperature is below 200 degrees F:** The Contractor will not be allowed to place the material.

(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.

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 shallthe laydown temperature for BM and IM mixes be less than 250°F.

TABLE III-2
Cold Weather Paving Limitations



The minimum base and laydown temperatures for surface mixes (SM) shall never be less than the following:

PG Binder/Mix Designation	Percentage of Reclaimed Asphalt Pavement (RAP) Added to Mix	Minimum Base Temperature	Minimum Placement Temperature
PG 64S-22 (A)	<=25%	40°F	250°F
PG 64S-22 (A)	>25%	50°F[2]	270°F[2]
PG 64H-22 (D)	<=30%	50°F[2]	270°F[2]

PG 64E-22 (E)	<=15%	50°F[2]	290°F[2]
PG 64S-22 (S)	<=30%	50°F[2]	290°F[2]

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.

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.

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.

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.

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.

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 correctives 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. 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[1]	95
92.5– 96.5[1]	**100**
90.0-92.4	90
88.0-89.9	80
Less than 88.0	Removal

[1] 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 sublot. 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 sublot 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.

(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[1]	95
92.5 – 96.5[1]	100
90.0–92.4	90
88.0 – 89.9	80
Less than 88.0	Removal

[1] 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.

If any sublot(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 sublot. 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 sublot. 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 sublot 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 sublot. 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.

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[1]

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.

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[1]

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[1]

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.

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.

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. 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 ±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. 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:

Pay Item	Pay Unit
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

SS317-002020-01 June 21, 2024

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 317 – STONE MATRIX ASPHALT CONCRETE PLACEMENT

SECTION 317 – STONE MATRIX ASPHALT CONCRETE PLACEMENT of the Specifications is amended as follows:

Section 317.08– Compaction is replaced by the following:

Immediately after the mixture has been spread and struck off, it shall be thoroughly and uniformly compacted by rolling. Rolling shall be accomplished with steel wheel roller(s) with a minimum weight of 10 tons. A minimum of three rollers shall be available at all times for compaction and/or finish rolling.

The Contractor shall approach the use of vibratory rollers on SMA with caution to minimize coarse aggregate fracture/breakage in the aggregate skeleton of SMA mixes. If the Contractor elects to use a vibratory roller, the mat shall receive not more than three vibratory passes. The Contractor shall use the roller only on the highest frequency and lowest amplitude setting.

It shall be the Contractor's responsibility to adjust the rolling procedures to provide the specified pavement density. Rollers shall move at a uniform speed. Rolling shall be continued until all roller marks are eliminated and the minimum density has been obtained. The Contractor shall monitor density during the compaction process by use of nuclear density gages to ensure that the minimum required compaction is being obtained. During the trial section, the Department will randomly select 3 plug or core locations to determine the in-place density according to VTM-22.

The Contractor shall keep the wheels of the rollers properly moistened with water that has been mixed with very small quantities of detergent or other approved additives to prevent adhesion of the mixture to the rollers.

For the purposes of evaluating and determining acceptance, each day's production shall be considered a lot unless the paving length is less than 3,000 linear feet or greater than 7,500 linear feet. When paving is less than 3,000 feet, that day's production amount shall 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 shall be 5,000 linear feet, with 1,000 foot sublots, of any pass 6 feet or greater for the specified thickness of the course. The Engineer may approve an increase in the lot size to 7,500 linear foot lots with 1,500 foot sublots when the normal daily production is in excess of 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 shall 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 perform acceptance testing for density for each sublot by obtaining one sawed 4 inch by 4 inch specimen, or one 4-inch-diameter cores, at a single random test site specified by the Engineer. Test sites shall not be located within 12 inches of the edge of any application width for surface and intermediate mixes.

- The sub-lot site shall be marked as described in VTM-76.

- The bulk specific gravity of the cores shall be determined in accordance with VTM-6.

- The density of the cores shall be determined in accordance with VTM-22.

  The Contractor shall bulk the cores or plugs in the presence of the Engineer. The cores or plugs may be bulked on the project site. Sublot test sites shall be numbered sequentially per lot, marked on the pavement, filled with the paving mixture, and compacted prior to completion of each day's production.

  If any sublots are lower than 90.0% of TMD, those sublots shall be removed from the roadway and replaced at no additional cost to the Department.

  The payment for lot density will be in accordance with the following schedule:

Payment Schedule

% Density Achieved	% of Payment
More than 98.0	97
94.0 to 98.0	100
92.0 to 93.9	85
90.0 to 91.9	65
Less than 90.0	Remove and replace

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.

SS319-002020-02 March 18, 2024

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 319 – THIN HOT MIX ASPHALT CONCRETE OVERLAY

SECTION 319 – THIN HOT MIX ASPHALT CONCRETE OVERLAY of the Specifications is amended as follows:

319.01 – Description

This work shall consist of the production and placement of a Thin Hot-Mix Asphalt Concrete Overlay (THMACO) according to the Plans, Specifications, and as directed by the Engineer.

319.02 – Materials

(a) **Asphalt** binder shall be a performance graded asphalt (PG) 64V-28 conforming to AASHTO M 332 and Section 210 or as designated by the Engineer

(b) **RAP:** Recycled asphalt pavement material will not be permitted.

(c) **Coarse aggregate** shall conform to Section 203 or as directed by the Engineer. Water Absorption when tested according to AASHTO T 85 shall be not exceed 2%. Material retained on the No. 4 sieve and larger sieves shall conform to the following when tested according to ASTM D4791:

Flat & Elongated Ratio	Maximum Content
3:1	25%
5:1	10%

(d) **Fine aggregate** shall conform to Section 202, except for grading, which shall be tested according to AASHTO TP 33 (Method A) with a value of at least 45% and a sand equivalent value of at least 50 when tested according to AASHTO T 176.

(e) **Mineral filler** shall conform to Section 201.

(f) **Fiber additive** when required shall be cellulose or mineral fiber approved by the Engineer based on supplier's certification of properties and documentation of success in similar applications in hot mix asphalt.

(g) **Antistripping additive** shall be used and shall be hydrated lime, a chemical additive from the Department's Approved List No. 7, or a combination of both. The approved chemical additive shall be added at a rate of not less than 0.30% by weight of the total asphalt content of the mixture. The mixture shall produce a tensile strength ratio (TSR) of at least 0.80 for the design and production tests. The TSR shall be determined according to AASHTO T 283, including a freeze-thaw cycle (4-inch specimens compacted with a Marshall Hammer or 3.5 by 6-inch specimens when compacted with a gyratory compactor), except that the 16-hour curing time requirement and the 72 to 96-hour storage period will not be enforced by the Department. Design tests shall use the same materials that are used in the production mix and shall be conducted in a laboratory approved by the Department.

When a chemical additive is used, it shall be added to the asphalt binder prior to the introduction of the asphalt binder into the mix. Any chemical additive or particular concentration of chemical additive found to be harmful to the asphalt concrete or that changes the original asphalt binder performance grade (PG) shall not be used.

(h) **Hydrated lime** shall conform to ASTM C977. Hydrated lime shall be added at a rate of at least 1% by weight of the total dry aggregate.

A separate bin or tank and feeder system shall be provided to store and accurately proportion the dry or slurried lime into the aggregate. The lime and aggregate shall be mixed by pugmill or other Department approved means to achieve a uniform lime coating of the aggregate before entering the drier. If lime is added in dry form, the aggregate shall contain at least 3% free moisture. The Department will not permit the stockpiling of lime treated aggregate.

The feeder system shall be controlled by a proportioning device, which shall be accurate to within ±10 percent of the specified amount. The proportioning device shall have a convenient and accurate means of calibration. A flow indicator or sensor shall be provided with the proportioning device and interlocked with the plant controls, aggregate feed, or weigh system, such that production of the mixture shall be consistently maintained and, if there is a stoppage of the lime feed, interrupted.

The method of introducing and mixing the lime and aggregate shall be subject to approval by the Engineer before beginning production.

319.03 – MIX FORMULA

The Contractor shall submit for the Engineer's approval, a job mix formula within the following design ranges of percent passing each sieve size as noted:

Sieve Size	Percent By Weight Passing Square Mesh Sieves	Production Tolerance (Single Test)
1/2 in	100	-2
3/8 in	85-100	± 5
No.4	25-40	± 4
No.8	19-32	± 4
No.16	15-23	± 3
No. 30	10-18	± 3
No.50	8-13	± 3
No.100	6-10	± 2
No. 200	4-7	± 1

Asphalt Content, %	Production Tolerance (Single Test)
5.0 – 5.5[1]	±0.2

[1]Target asphalt content shall result in a minimum film thickness of 9 microns.

In addition to the job mix submittal, the Contractor shall submit ignition furnace calibration data according to VTM 102 and aggregate property test results prepared by an approved testing laboratory for the aggregate components or aggregate blend.

Job mixes outside the above design range will be considered by the Engineer based on mix performance documented by the supplier to eliminate or minimize flushing or visual deficiencies and may include changes to gradation, asphalt content or the use of fibers. The Engineer may require limited production of less than 300 tons for verification of an acceptable mix, before the Engineer's approval of the job mix.

319.04 – SURFACE PREPARATION

Before beginning paving operations, the existing pavement surface shall be cleaned of all accumulated dust, mud, vegetation or other debris, which may affect the bond of the THMACO by the Contractor.

Pavement cracks or joints 1/4-inch or more in width shall be cleaned and filled with a sealant material conforming to Section 322.04. Quantities and payment will be according to Section 322.

Pavement markers, thermoplastic pavement marking and tape pavement markings shall be removed before beginning paving operations. Pavement irregularities greater than 1 inch in depth shall be filled with a material designated in the Contract or approved by the Engineer. Payment for the material will be according to Section 315.

Utility structures shall be protected and referenced before paving for location and adjustment (when necessary) after paving at no cost to the Department.

319.05 – Tack Coat

Unless otherwise directed in the Contract, two options for placing the tack coat are available.

(a) **Option 1:** A tack coat of asphalt emulsion conforming to Section 210.04 (e) or other emulsion approved by the Engineer shall be applied before placement of the asphalt concrete. The tack coat shall be placed within 10 seconds prior to placing the THMACO unless otherwise directed by the Engineer. At no time should any part of the paving machine come into contact with the tack coat before the overlay is applied. The emulsion shall be uniformly applied with a paver spray bar, except hand spray equipment may be used in areas inaccessible to the paver spray bar as directed by the Engineer; inaccessible areas are exempt from the 10-second criterion. The asphalt emulsion shall be applied at a temperature recommended by the supplier at a starting rate of 0.20 gallons per square yard ±0.02 unless otherwise approved by the Engineer.

(b) **Option 2:** A Hot-Applied Non-Tracking tack coat conforming to Section 310 and listed on Approved List No. 50.1A shall be applied before placement of the THMACO. The tack coat shall be uniformly applied with a spray bar paver or a mechanical distributor, except hand spray equipment may be used in areas inaccessible. The tack coat shall be applied at a temperature recommended by the supplier at a residual rate of 0.12 gallons per square yard ±0.02 unless otherwise approved by the Engineer.

319.06 – Placement of Hot Mix Asphalt

The horizontal alignment of the longitudinal joint in the THMACO shall align overtop the longitudinal joint in the existing pavement as follows:

- when placed over an existing asphalt pavement, the THMACO joint shall be within 1 inch of either side of the existing joint (2 inch allowable variation, total);

- when placed over an existing concrete pavement, the THMACO joint shall be within 1/4 inch of either side of the existing joint (1/2 inch allowable variation, total).

The application rate of the THMACO shall be a minimum of 80 pounds per square yard and shall have a thickness of between 3/4-inch and 1-inch compacted lift thickness.

THMACO shall be placed by a paver designed for the placement of thin lifts as designated in the Contract. The THMACOshall be delivered to the paver hopper at a temperature of 315°F ±15°F measured in the paver hopper. The paver shall be capable of placing the THMACO at a speed of 30 feet per minute. When the base temperature is 50°F or above, placement of the asphalt concrete wearing course will be permitted.

319.07 – Compaction

Two steel double drum rollers weighing no less than 10 tons shall perform compaction of the THMACO. No less than two passes shall be completed before the surface temperature of the THMACO has reached 185°F.

319.08 – Acceptance

The Contractor shall perform gradation and asphalt binder content tests on one sample taken in a random manner approved by the Engineer from each 500 tons of production. The material will be considered acceptable for gradation and asphalt binder content, if the results obtained are within the tolerance allowed from the job mix formula in the above table. Material represented by test results outside the tolerance may be removed and replaced with acceptable material by the Contractor at no additional cost to the Department at the discretion of the Engineer.

Should visual examination by the Engineer reveal that the material in any load, or portion of the paved roadway is contaminated, segregated, or flushed with asphaltbinder, that load, or portion of the paved roadway may be rejected without additional sampling of the material.

319.09 – Warranty

The Contractor shall provide a one-year warranty from the date of final acceptance on all THMACO surfaces. The Department will periodically monitor the overlay surface installed throughout the warranty period for compliance and acceptability. The Contractor shall repair any area that fails before the end of the warranty period and shall do so within 14 days after Department notification unless otherwise directed by the Department. Failure of the THMACO surface is defined as either: the loss of adhesion of the material to the underlying layer resulting in a pothole greater than 1 square foot of area (delamination); or being flushedwith asphalt binder in greater than 1 square yard of area, either from within the mix or from the underlying tack (flushing). The Engineer shall notify the Contractor of the date for the warranty inspection at the end of the warranty period and the Contractor shall be present at the inspection.

319.10 – Measurement and Payment

Thin hot mix asphalt concrete will be measured in tons and paid for at the contract unit price per ton, which shall include warranty, tack coat, surface preparation (except crack and joint sealing), all materials, additives, labor and equipment as described herein to install and complete the work.

Crack and joint sealing will be paid according to Section 322.

Payment will be made under:

Pay Item	Pay Unit
Thin Hot Mix Asphalt Concrete	Ton

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.

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:

Pay Item	Pay Unit
Asphalt Concrete Type BM-25.0(T)	Ton
Asphalt Concrete Type IM-19.0A(T)	Ton
Asphalt Concrete Type IM-19.0D(T)	Ton

SS407-002020-02 November 1, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 407 – STEEL AND OTHER METAL STRUCTURES

SECTION 407 – STEEL AND OTHER METAL STRUCTURES of the Specifications is amended as follows:

Section 407.04 – Fabrication Procedures is amended by replacing the seventh, eighth, and ninth paragraphs with the following:

The Contractor shall furnish a complete mill analysis showing chemical and physical results from each heat of steel for all units prior to fabrication. Before cutting, pieces of steel other than steel conforming to ASTM A709, Grade 36, that are to be cut to smaller-sized pieces shall be legibly marked with the ASTM A6 specification identification color code or the material specification designation. The identification color code of the latest system adopted under ASTM A6 shall be used to identify material. Any markings that indicate direction of roll shall be transferred to each new piece before cutting the new piece from the larger plate.

If requested by the Engineer, the Contractor shall furnish an affidavit from the fabricator certifying that the fabricator has marked and maintained the identification of steel in accordance with these specifications throughout the fabrication operation.

Section 407.06(c) – Assembly of Structural Connections Using High-Strength Bolts is amended by replacing the first paragraph with the following:

Assembly of Structural Connections Using High-Strength Bolts: Field connections shall be made with high-strength bolts 7/8-inch in diameter fabricated in accordance with ASTM F3125, Grade A325 unless otherwise specified. The Engineer will give consideration to the substitution of adequately designed welded connections if requested in writing by the Contractor.

Section 407.06(c)1 – Bolts, nuts, and washers is replaced with the following:

Bolts, nuts, and washers: Bolts, nuts, and washers shall conform to Section 226 and shall each be from one manufacturer on any one structure unless otherwise approved by the Engineer. In addition, each bolt, nut, and washer combination, when installed, shall be from the same rotational-capacity lot. Prior to installation, the Contractor shall perform a field rotational-capacity test on two nut, bolt, and washer assemblies for each diameter and length in accordance with VTM 135. Bolts fabricated in accordance with ASTM F3125, Grade A490 and galvanized bolts fabricated in accordance with ASTM F3125, Grade A325 shall not be reused. Retightening previously tightened bolts, which may have been loosened by the tightening of adjacent bolts, shall not be considered a reuse. Other bolts may be reused only if approved by the Engineer. Threads of plain (uncoated) bolts shall be oily to the touch when installed. Galvanized nuts shall be lubricated by lubricant containing a visible dye. Threads of weathered or rusted bolts shall be cleaned of loose rust, scale, and debris and relubricated. Lubricant shall be as recommended by the fastener manufacturer.

Section 407.06(c)3 – Installation is amended by replacing the second paragraph with the following:

When bolts fabricated in accordance with ASTM F3125, Grade A490 are used with steel having yield points less than 40 kips per square inch, hardened washers shall be installed under the nut and bolt head.

Section 407.06(c)3 – Installation is amended by replacing the eighth paragraph with the following:

The required minimum bolt tension is equal to 70% of specified minimum tensile strengths of bolts rounded to the nearest kip as specified in ASTM F3125 for Grades A325 and A490. *Snug tight* is defined as the tightness attained when a power wrench begins to impact solidly or when the bolts are firmly hand tightened with a spud wrench such that the complete area of the connecting surfaces are brought into firm contact with each other. Snug tightening shall progress systematically from the most rigid part of the connection to the free edges, and then the bolts of the connection shall be retightened in a similar systematic manner as necessary until all bolts are simultaneously snug tight and the connection is fully compacted.

Section 407.06(c)3b – Direct Tension Indicators (DTI) is amended by replacing the first paragraph with the following:

Direct Tension Indicators (DTI): Direct tension indicator washers shall be used for all high strength bolts, and installation shall be in accordance with Section 407.06(c)3; however, the indicator washer shall not be considered a substitute for the required hardened washer under the turned element. The indicator washer may be considered a substitute for the hardened washer required under the unturned element when bolts conforming to ASTM F3125, Grade A490 are used with steel conforming to ASTM A709, Grade 36. Direct tension-indicator washers shall not be painted or coated with any epoxy or similar material prior to installation. The normal installation shall consist of the load indicator washer being placed under the unturned bolt head or unturned nut. However, if conditions require installation under the turned bolt portion, a hardened flat washer or nut face washer shall be fitted against the tension-indicating protrusions. Tension-indicating washers shall not be substituted for the hardened washers required with short-slotted or oversized holes but may be used in conjunction with them.

Table IV-3 – Bolt Tension is replaced with the following:

TABLE IV-3

Bolt Tension

	Required Min. Bolt Tension (lb.)	
Bolt Size	**Grade A325 Bolts**	**Grade A490 Bolts**
1/2	12,000	15,000
5/8	19,000	24,000
3/4	28,000	35,000
7/8	39,000	49,000
1	51,000	64,000
1 1/8	56,000	80,000
1 1/4	71,000	102,000
1 3/8	85,000	121,000
1 1/2	103,000	148,000

Section 407.06(i) – Finishing is amended by replacing the third paragraph with the following:

Areas of weathering steel that are designated to be painted shall be cleaned and coated in accordance with Section 411.

SS411-002020-01 November 1, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 411 – PROTECTIVE COATING OF METAL IN STRUCTURES

SECTION 411 – PROTECTIVE COATING OF METAL IN STRUCTURES of the Specifications is amended as follows:

Section 411.06(a) – Shop Coating is amended by inserting the following after the fourth paragraph:

Areas of weathering steel that are designated to be painted shall be thoroughly cleaned to no less than 6 inches outside the designated area and coated with an approved System B, Group I coating system.

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
Rollup sign
0.4 inch thick corrugated polypropylene or polyethylene plastic
0.079 inch thick aluminum/plastic laminate

Sign Substrates for Drums
0.4 inch thick corrugated polypropylene or polyethylene plastic

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.

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 ±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.

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 Contrctor 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 materilas 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.

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.

   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. 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 retroflectivity readings. Retroflectivity 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 (R_L), 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.

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 (I) herein.

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.

FTPM 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.

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.

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/fc.

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.

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. 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.

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.

Section 512.04 – Measurement and Payment is amended by revising the Pay Item Table as follows:

The following pay items are removed:

Pay Item	Pay Unit
Portable temporary rumble strip	Each

The following pay items are inserted:

Pay Item	Pay Unit
Portable temporary rumble strip array	Day

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 warranties 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. 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 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 (± 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.

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.

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[1] 65 min[2]	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

[1]Thinnest portion of the tape's cross section.
[2]Thickest portion of the tape's cross section.
[3]In accordance with manufacturer's installation instructions.
[4]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.

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.

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:

Pay Item	Pay Unit
Pavement message marking (Message)	Each or Linear Foot

The following pay items are inserted:

Pay Item	Pay Unit
Pavement message marking (Message, Type or class material)	Each or Linear Foot

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
LIMITATIONS OF OPERATIONS

May 16, 2025
UPC:0664-121-482, N501

SECTION 108.02 – LIMITATIONS OF OPERATIONS of the Specifications is amended to include:

The Contractor shall submit written requests for all lane and shoulder closure requests to the Engineer for approval at least seven (7) days in advance of a proposed closure, stating the location, purpose, date, time, and duration of the closure. Written confirmation shall be submitted no later than twenty-four (24) hours prior to any scheduled shoulder or lane closure and shall include the proposed tasks and a listing of materials, labor, and equipment to be utilized. Complete road and ramp closures are not permitted. The Contractor is responsible for providing adequate advance notification via variable message and required static signing for all shoulders~~,~~ and lane closures in accordance with Section 512 of the 2020 Virginia Road and Bridge Specifications, 2015 Virginia Work Area Protection Manual Revision 1, Revision 2, and Revision 2.1 (WAPM) and as amended by contract provisions. Once a closure is in place, work shall commence immediately and shall progress on a continuous basis to completion or to a designated time. See Temporary Traffic Control Plan for allowable lane closure hours.

Extension of a ramp or lane closure time, except as approved by the Engineer, is not acceptable and bears a Non-Compliance Lane User Fee charge. The Lane User Fee charges for occupying lane(s) outside of the allowable hours listed in the Temporary Traffic Control Plan will be assessed at the rates reflected in the table below for every 15-minute interval starting from the end of the allowable hours until such time as all lanes are restored to traffic. If assessed, such Lane User Fee will be deducted from the next monthly progress estimate(s):

Project 0664-121-482, P101: Non-Compliance Lane User Fees		
I-664 SUMMER (April 15 – October 15)		
MONDAY TO FRIDAY	**South Bound**	**North Bound**
HOURS	ACCUMULATIVE RATE **PER 15 MINUTE** INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE **PER 15 MINUTE** INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE
5:01 AM TO 6:00 AM	--	$3,350
6:01 AM TO 7:00 AM	$12,250	$25,000
7:01 AM TO 8:00 AM	$7,500	$25,000
After 8:00 AM and continue until all lanes are restored to traffic	$ 7,500	$25,000

SATURDAY	South Bound	North Bound
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE
7:01 AM TO 8:00 AM	$25,000	$25,000
8:01 AM TO 9:00 AM	$25,000	$25,000
9:01 AM TO 10:00 AM	$2,750	$4,250
After 10:00 AM and continues until all lanes are restored to traffic	$2,750	$4,250

SUNDAY	South Bound	North Bound
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE
8:01 AM TO 9:00 AM	$2,750	$25,000
9:01 AM TO 10:00 AM	$2,750	$4,250
10:01 AM TO 11:00 AM	$2,750	$4,250
11:01 AM TO 12:00 PM	$3,500	$4,250
12:00 PM TO 1:00 PM	$7,250	$4,250
After 1:00 PM And continues until all lanes are restored to traffic	$25,000	$7,000

I-664 NON-SUMMER (October 16 – April 14)		
MONDAY TO FRIDAY	**South Bound**	**North Bound**
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE
5:01 AM TO 6:00 AM	$100	$4,500
6:01 AM TO 7:00 AM	$9,500	$25,000
7:01 AM TO 8:00 AM	$9,500	$25,000
After 8:00 AM And continues until all lanes are restored to traffic	$ 9,500	$25,000

SATURDAY	**South Bound**	**North Bound**
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE
7:01 AM TO 8:00 AM	-	-
8:01 AM TO 9:00 AM	-	$ 125
9:01 AM TO 10:00 AM	$ 150	$ 9,000
10:01 AM TO 11:00 AM	$ 1,500	$ 25,000
11:01 AM TO 12:00 PM	$ 1,900	$ 20,000
12:01 PM TO 1:00 PM	$ 2,400	$ 25,000
After 1:01 PM and continues until all lanes are restored to traffic	$ 6,500	$ 25,000
SUNDAY	**South Bound**	**North Bound**
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE
8:01 AM TO 9:00 AM	-	-
9:01 AM TO 10:00 AM	-	$ 100
10:01 AM TO 11:00 AM	$ 200	$ 1,800
11:01 AM TO 12:00 PM	$ 1,000	$ 18,000
After 12:00 PM And continues until all lanes are restored to traffic	$ 13,000	$ 25,000

The Lane User Fee will begin at the point in time at which the violation occurs unless otherwise directed by the Engineer. Restoration of traffic shall mean the completion of all construction work, the removal of all traffic control devices and signs and removal of all workers, materials, and equipment from the roadway, allowing all lanes to be safely opened to public traffic.

If the Contractor incurs the assessment of these Lane User Fees for failure to restore traffic lanes within the permitted time limits, the Contractor will not be allowed further lane closures until the reasons for the assessment are evaluated and the Contractor can provide assurance to the satisfaction of the Engineer that the causes have been corrected.

The Engineer reserves the right to monitor traffic conditions impacted by the work and to make additional restrictions as may be necessary, i.e., terminate a lane closure early. Additional restrictions for special local events may be necessary.

No lane closures are allowed from Monday night 8:00 pm before Thanksgiving until the following Monday night at 8:00 pm. No lane closures are allowed during the period from the week of Christmas Day to 8:00 pm on the Monday night after the week of New Year's Day. Good Friday and Easter Monday shall be treated as Holidays as outlined in the Temporary Traffic Control Plan. No lane closures are allowed after the 4th of July Holiday until the following Monday night at 8:00 pm.

These Lane User Fees are imposed, not as a penalty, but in order to minimize the impact of lane closures and construction operations on roadway users. The Lane User Fee amount is based on daily road user costs which are defined as representing the average daily cost of interference and inconvenience to the road user and scheduled recreational activities.

The Contractor waives any defense as to the validity of any Lane User Fees stated in the Contract Documents, or these Specifications and assessed by the Department against the Contractor on the grounds that such Lane User Fees are void as penalties or are not reasonably related to actual damages.

Any liquidated damages assessed in accordance with Section 108.06 of the Specifications will be in addition to the Lane User Fee as shown herein.

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
TUNNEL SECTION CLOSURE VOID

May 20, 2025
0664-121-482, N501

I. DESCRIPTION

This work shall consist of furnishing and placing Self -Consolidating Concrete (SCC) for use as backfill material and patch compound as a perimeter sealant in the Tunnel Section Closure Void of the South Vent Building.

The Contractor shall submit a workplan documenting the safety and general construction procedures to complete this project. At a minimum, this workplan should include:

A. Procedures for executing the various steps in this project.

B. Safety provisions for working near traffic

C. Emergency Exit procedures for the Exhaust Duct and Roadway

II. MATERIALS

1. Self -Consolidating Concrete (SCC) shall conform to the requirements of Section 217 of the VDOT Road and Bridge Specifications, except as noted herein.

A. Requirements for Self-Consolidating Concrete

Class of Concrete	Design Min. Laboratory Compressive Strength at 28 Days (f'_c)	Design Max. Laboratory Permeability at 28 Days (Coulombs)	Max. Aggregate Size No.	Min. Cementitious Content (lbs/cu yd)	Max. Water /Cementitious lb. water / lb. cement	Consistency (slump flow) (in)	Air Content (percent)
Drilled Shaft Concrete	5,000 or as specified on the Plans	1500	8	635	0.40	23 ± 3	4 ½ ± 1 ½

B. Requirements for Low-Permeability and Alkali-Silica Reactivity (ASR)

1. Class F Fly Ash, slag cement, and silica fume shall conform to the requirements of Section 215 of the VDOT Road and Bridge Specifications.

C. Consistency of Concrete

The Contractor shall perform all tests under the supervision of the Engineer, or a Department representative. Concrete shall stay plastic and within the slump flow specified during the placement. Concrete placement will be conducted that air is not encapsulated and segregation is not occurring. At the completion of the placement, the slump of the concrete shall be a minimum of 6 inches as directed by the Engineer.

1. Epoxy patch compound shall be Pettit Paint A-788 Splash Zone Epoxy or approved equal.

2. Steel Plates: Grade A36, ¼ in thickness, field dimensioned

3. Steel Angles: Grade A36, L2x2x1/4, field dimensioned

III. PROCEDURES

1. Self -Consolidating Concrete (SCC) procedures shall utilize tremies for concrete placement.

a) Tremies used to place concrete shall consist of a tube of sufficient length, weight, and diameter to discharge concrete at the void base elevation. The tremie shall not contain aluminum parts that will have contact with the concrete. The tremie inside diameter shall be at least six times the maximum size of aggregate used in the concrete mix but shall not be less than 10 inches. The inside and outside surfaces of the tremie shall be clean and smooth to permit both flow of concrete and unimpeded withdrawal during concreting. The wall thickness of the tremie shall be adequate to prevent crimping or sharp bends. Tremie pipe clamps shall not be placed below water or below an area where they cannot be observed or are inaccessible to personnel unless otherwise approved in writing by the Engineer.

b) The tremie used for wet excavation concrete placement shall be watertight. Underwater or under-slurry placement shall not begin until the tremie is placed to the void base elevation, and the concrete shall be kept completely separated from the water or slurry prior to the time it is discharged. Valves, bottom plates, or plugs may be utilized for this purpose only if concrete discharge can begin within one tremie diameter of the base of the void. Plugs shall either be removed from the excavation or be of material, approved by the Engineer, which will not cause a defect in the void if not removed. The discharge end of the tremie shall be constructed to permit the free radial flow of concrete during placement operations. The tremie discharge end shall remain fully immersed in concrete at all times after starting the flow of concrete. The flow of the concrete shall be continuous. The level of the concrete in the tremie shall be maintained above the level of slurry or water in the borehole at all times to prevent water or slurry intrusion into the void concrete.

2. Epoxy patch compound material shall be installed according to the manufacturer’s recommendations.

IV. SEQUENCE OF COSNRUCTION

1. The water in the existing void space shall be at a static level to allow the contractor to work calmly without the void re-filling.

2. Install Self -Consolidating Concrete (SCC) in lifts of approximately 7 feet, on both sides of the void, during the same work shift.

3. Allow appropriate time for the fill to harden.

   a. Remove water above the Self -Consolidating Concrete (SCC).

   b. If water reenters the void space within 48 hours, repeat steps 1. and 2. for the side of the void where water infiltration is occurring.

4. If no water reenters the void space, no further activity is needed, and the following steps are not required.

5. If water refills either side of the void space, continue this procedure equally on both sides until no water refills either side of the void space, or Self -Consolidating Concrete (SCC) reaches a height of 3 feet below the opening in the exhaust duct.

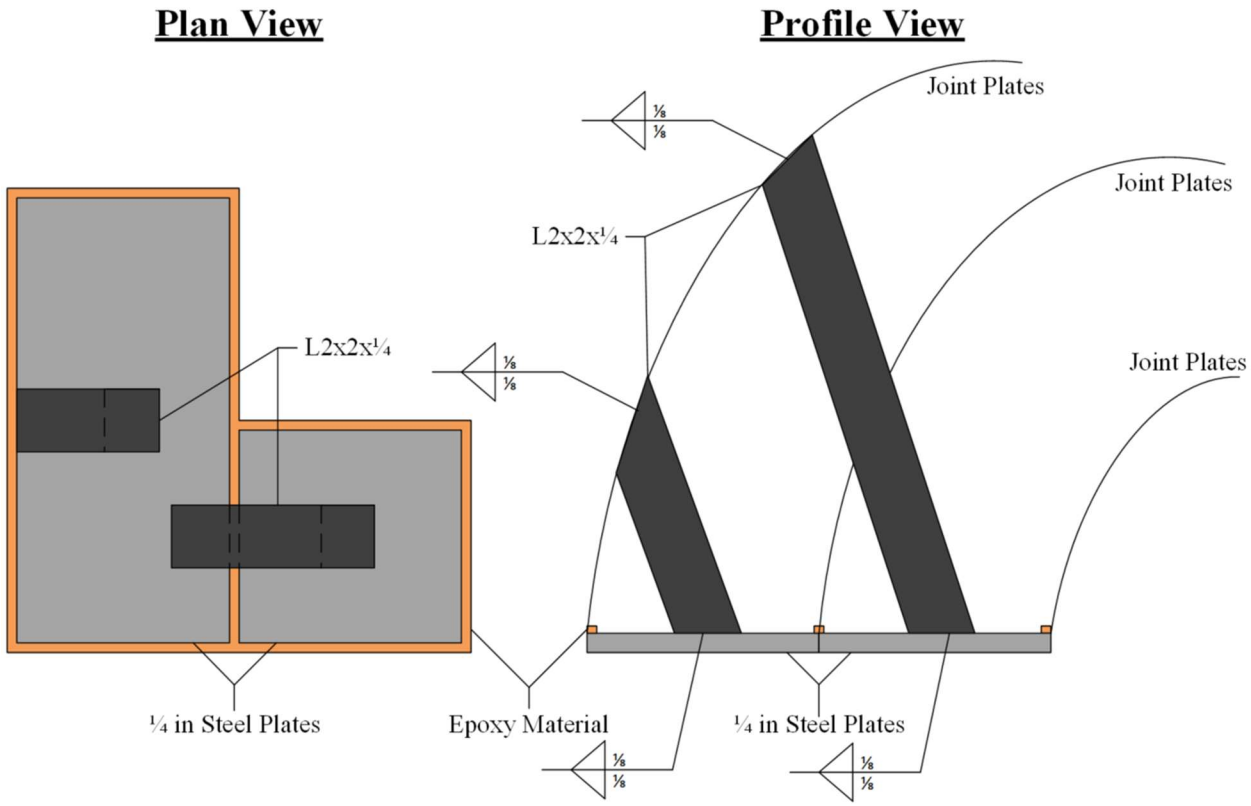
6. Allow the SCC to harden, then install ¼ inch steel plate in sections and brace with an angle above 60 degrees. (See Detail below)

   a. Actual plate and bracing dimensions shall be determined in the field. Actual dimensions shall depend on final SCC elevation.

   b. The existing steel tunnel liner is heavily corroded. Clean and prepare all metal mating surfaces to the extent possible for welding.

   c. Bracing should be welded at approximately each plate's centroid. Lengths will be determined in the field.

   d. Apply Epoxy Compound Material around each plate's perimeter as form of sealant.



V. MEASUREMENT AND PAYMENTS

Self -Consolidating Concrete (SCC) will be measured by cubic yards and will be paid for at the contract unit price per cubic yard. The price shall be full compensation for furnishing and installing the fill and shall include all submittals, labor, equipment, materials, testing, appurtenances, and incidentals necessary to complete the work.

Epoxy Compound Material will be measured by linear foot and will be paid for at the contract unit price per square yard. The price shall be full compensation for furnishing and installing the epoxy and shall include all submittals, labor, equipment, materials, testing, appurtenances, and incidentals necessary to complete the work.

Steel will be measured by lump sum and will be paid for at the contract unit price. The price shall be full compensation for furnishing and installing the steel items and shall include all submittals, labor, equipment, materials, testing, appurtenances, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Concrete (Self-Consolidating Concrete)	CY
Waterproofing (Epoxy Resin)	SY
Struct. Steel (Grade A36)	LS

ORDER NO.: E78
CONTRACT ID. NO.: C0000127471N01

Form TEC
Rev. 2-2-2011

TIER 1 PROJECT
"NO PLAN" RAAP (CONSTRUCTION & MAINTENANCE) PROJECTS
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION: _____ MAINTENANCE: __X__

DISTRICT: Hampton Roads CITY/COUNTY: Newport News UPC NO.: 127471

FUNCTIONAL CLASS Interstate FHWA 534 DATA _____ TYPE CODE N/A

ROUTE: 00664 PROJ. 0664-121-482, P101, N501 FEDERAL NO.: N/A

FROM: North Island (6.47) TO: South Island (7.82)

LENGTH (FEET): N/A MILES 1.35

TOPO: N/A DESIGN SPEED (MPH): 55 VPD (YEAR) N/A

PROJECT MGR: Mark Grass 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 and Supplemental Specifications July 2022, 2016 Road and Bridge Standards (Revised March 2025), 2009 MUTCD Rev 2 May 2012, 2011 Virginia Supplement to the MUTCD Rev 1 Sept 2013, 2011 Virginia Work Area Protection Manual Rev 2.1 November 1, 2020 (WAPM) 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.

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
	Todd M. Halacy, P.E. Digitally signed by Todd M. Halacy, P.E. Date: 2025.05.28 11:11:27 -04'00'
DATE	DISTRICT PLANNING AND INVESTMENT MANAGER
	Bruce L Duvall, P.E. Digitally signed by Bruce L Duvall, P.E. Date: 2025.05.28 12:03:06 -04'00'
DATE	DISTRICT PROJECT DEVELOPMENT ENGINEER
APPROVED FOR CONSTRUCTION	
	Christopher G Hall Digitally signed by Christopher G Hall Date: 2025.05.28 17:26:42 -04'00'
DATE	DISTRICT ADMINISTRATOR

Form TEC
Rev. 2-2-2011

TIER 1 PROJECT
”NO PLAN” RAAP (CONSTRUCTION & MAINTENANCE) PROJECTS
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

SEALING AND SIGNING SHEET

Sealed and Signed by:
David R. Gibbings
License No.
0402031949
On the Date of:
05/023/2025
An electronic version of the original sealed and signed sheet and No Plan assembly is available in the L&D Plan File Room.
Jacobs
Jacobs Virginia Beach, Virginia Structural

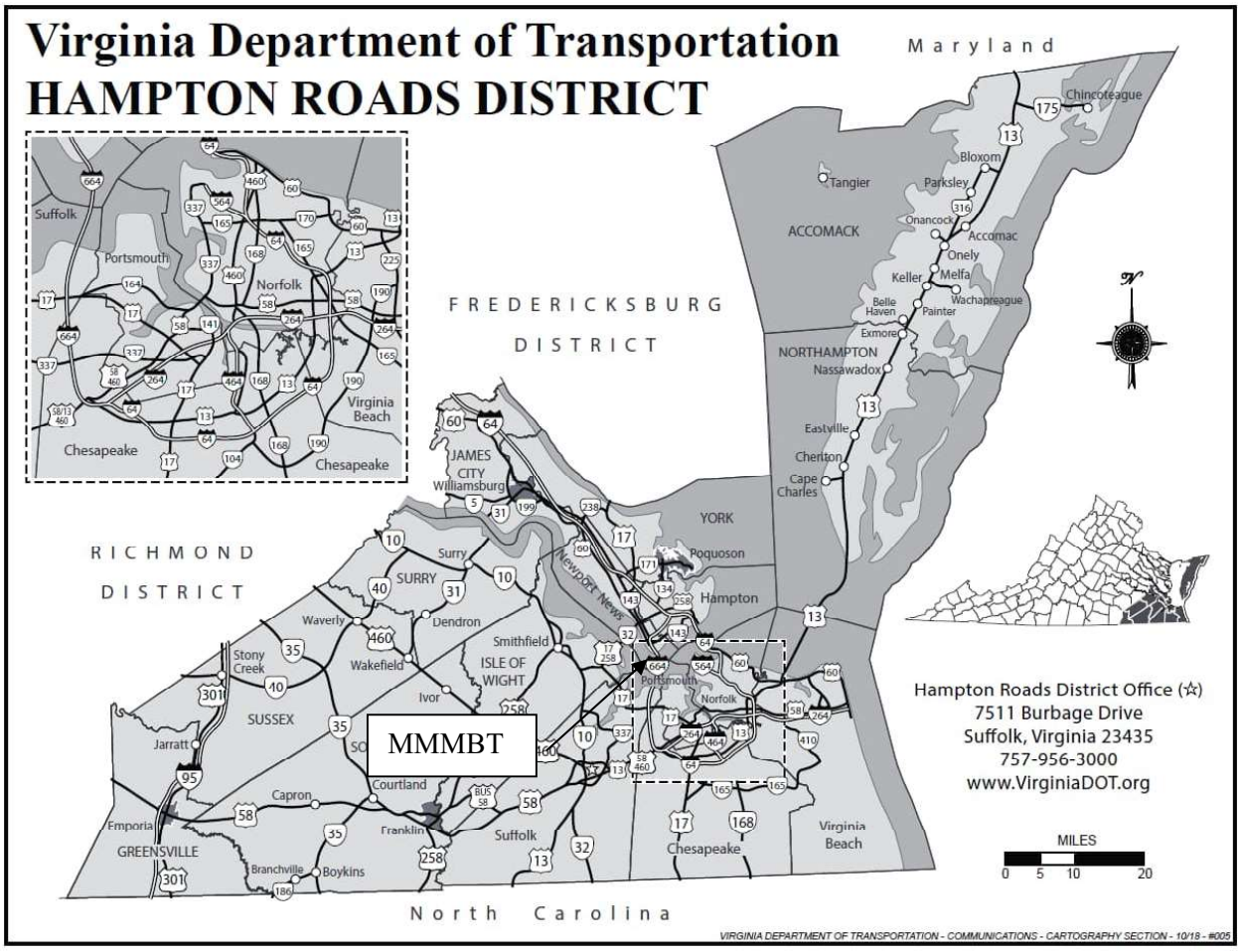
COMMONWEALTH OF VIRGINIA
DAVID R. GIBBINGS
No. 0402031949
PROFESSIONAL ENGINEER

Gibbings David

Digitally signed by Gibbings, David
DN: cn=Gibbings, David, ou=Users, email=David.Gibbings@jacobs.com
Reason: I am approving this document
Location: Virginia Beach, VA
Date: 2025.05.23 14:36:26 -04'00'

Form TEC
Rev. 2-2-2011

LOCATION MAP
PROJECT:



MMMBT = Monitor-Merrimac Memorial Bridge-Tunnel

Scope of Work

Contract UPC: 127471
State Project Number: 0664-121-482, P101, N501
Federal Project: N/A

Tunnel Section Closure Void at South Vent Building Repair - Purpose and Need: The purpose of this project is to fill the void in the south tunnel closure arrangement of the Monitor-Merrimac Memorial Bridge Tunnel at the south vent building interface to the first tunnel tube section to arrest active leakage. This active leakage results in the void being completely filled within approximately 30 minutes.

The project consists of repairs to the closure arrangement at the south vent building of the Monitor-Merrimac Memorial Bridge Tunnel. These repairs will utilize self-consolidating concrete (SCC) to plug the void and any areas of water infiltration. The work will take place in the exhaust duct, above the roadway, over a lane closure. The repair material delivery system may be routed through the exhaust flues to access the upper plenum, unless the contractor determines a more suitable method with approval of the Engineer.

The Contractor shall follow all MMMBT facility exhaust duct entry and exit procedures.

During construction, lane closures will be limited to off-peak hours. A Transportation Management Plan has been developed to specify the periods of lane closures and to notify stakeholders such as State Police, local governments, and the media prior to lane closures.

ROAD SYSTEMS	SCOPE OF WORK
Monitor-Merrimac Memorial Bridge-Tunnel	Tunnel Section Closure Void at South Vent Building Repairs

GENERAL NOTES
Project No. 0664-121-482, P101, N501

All Work performed under this contract shall conform to the conditions of the permits and regulatory approvals and be in accordance with the Section 107.02 of the VDOT 2020 Road and Bridge Specifications.

The Contract shall construct all work using materials specified herein. Any substitution of materials with an approved equal shall be submitted to the Engineer for approval.

All existing details and existing dimensions in these contract documents are based on information shown in as-built plans or measured during field visits to the work site. It is the responsibility of the Contractor to notify the Engineer of any discrepancies before the commencement of construction activities, including ordering of materials and shop-fabricated components.

The presence, size, and location of utilities shall be verified in the field. The Contractor shall notify the Engineer of any conflicts that may impact the work as shown in the contract documents prior to the commencement of construction activities.

It is the Contractor's responsibility to satisfy himself as to the location of any utilities in the immediate vicinity of construction to prevent damage to them. Should any damage to such utilities occur the Contractor shall be required to repair such damage at his own expense and to the satisfaction of VDOT.

All existing details, existing dimensions, and all new dimensions in these contract documents are based on information shown in as-built plans and/or obtained during field inspection of the structure. It is the responsibility of the Contractor to verify in the field all dimensions and details and notify the Engineer of any discrepancies before construction is started or materials are ordered.

In the exhaust duct (upper duct) the weight distribution of material, personnel, and equipment shall be limited to 500lb live load per ceiling panel.

Restrictions to traffic shall be removed by 5:00 am the day before a holiday(s) and shall not be restricted again until 8:00 pm the day after the holiday(s). When a holiday falls on Monday, restrictions shall be removed by 5:00 am the preceding Friday. When a holiday falls on a Friday, restrictions shall not be placed until 8:00 pm the following Monday.

No lane closure signing, or other disruptive work is to be initiated prior to the beginning closure time specified. The removal of all signs, equipment, and materials will be accomplished prior to the ending closure time specified.

The Contractor shall not conduct operations when the weather causes unsafe conditions for the traveling public as determined by the Engineer.

It is the intent to minimize the impact to the traveling public. Lane closures or restrictions over segments of the project, in which no work is anticipated within a reasonable time frame, as determined by the Engineer, shall not be permitted.

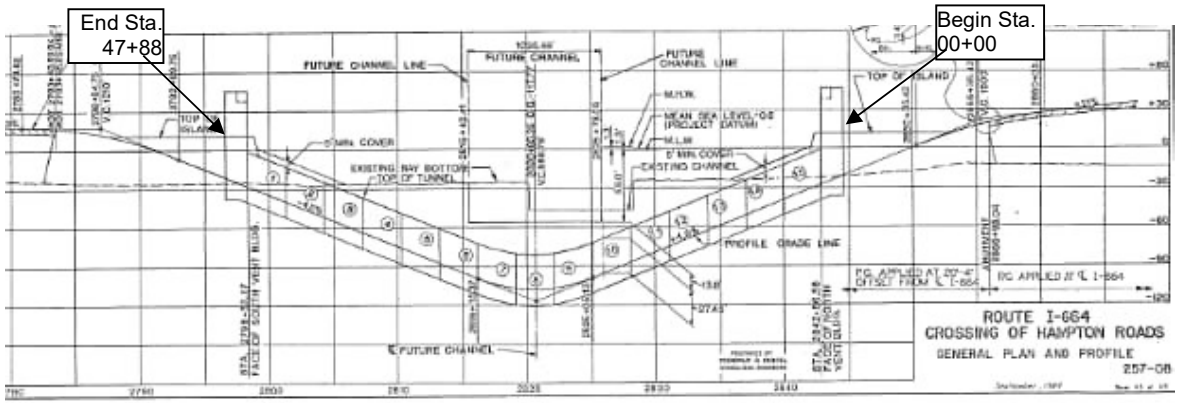


Figure 1 MMMBT Tunnel Profile

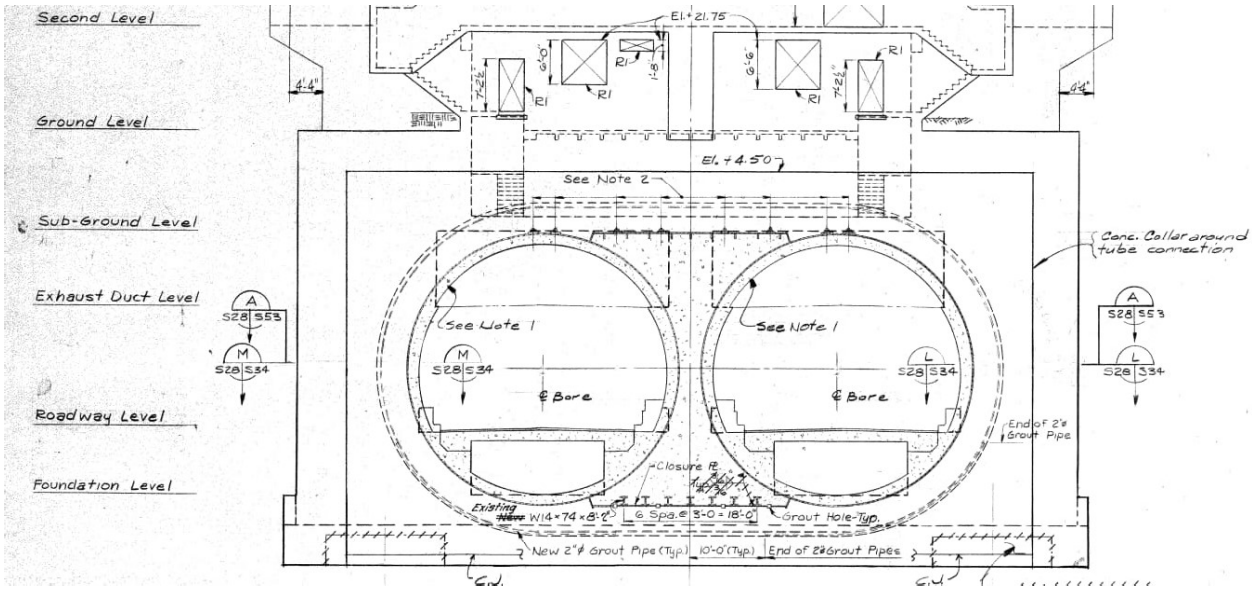


Figure 2 MMMBT Tunnel Cross Section

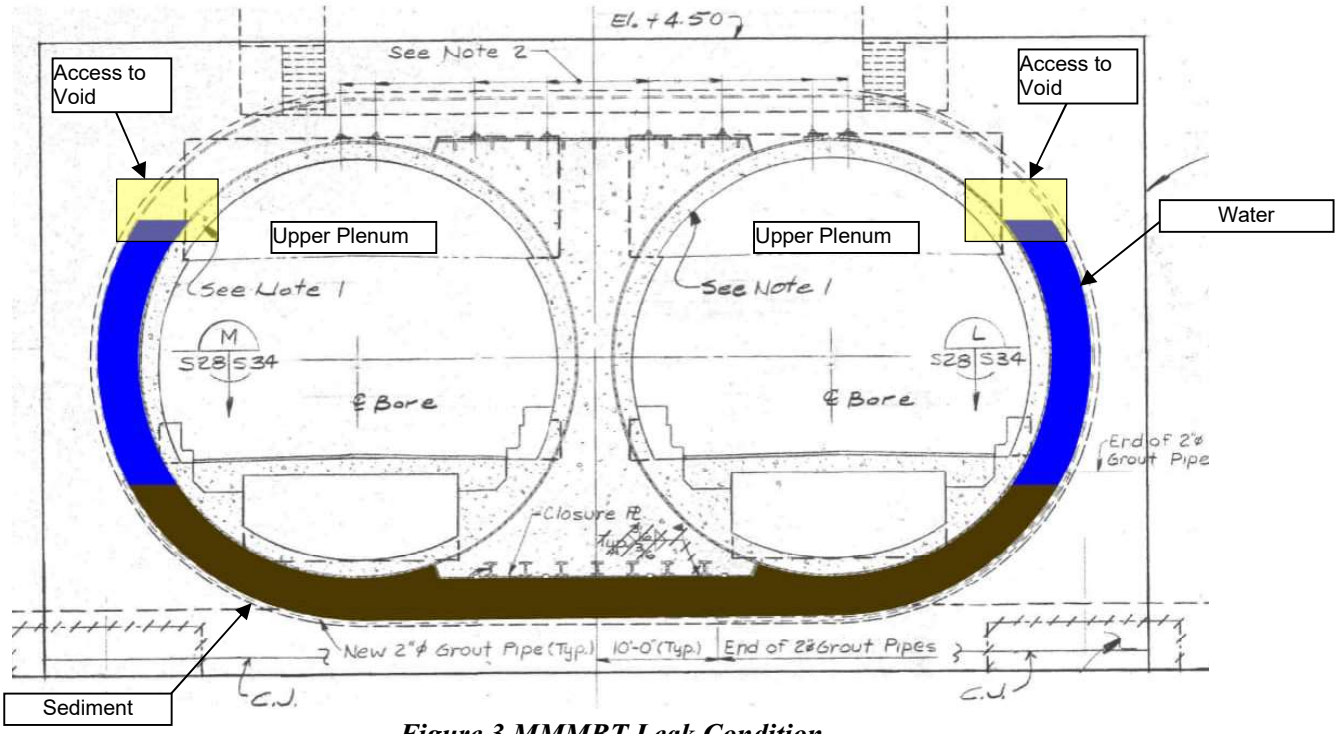


Figure 3 MMMBT Leak Condition

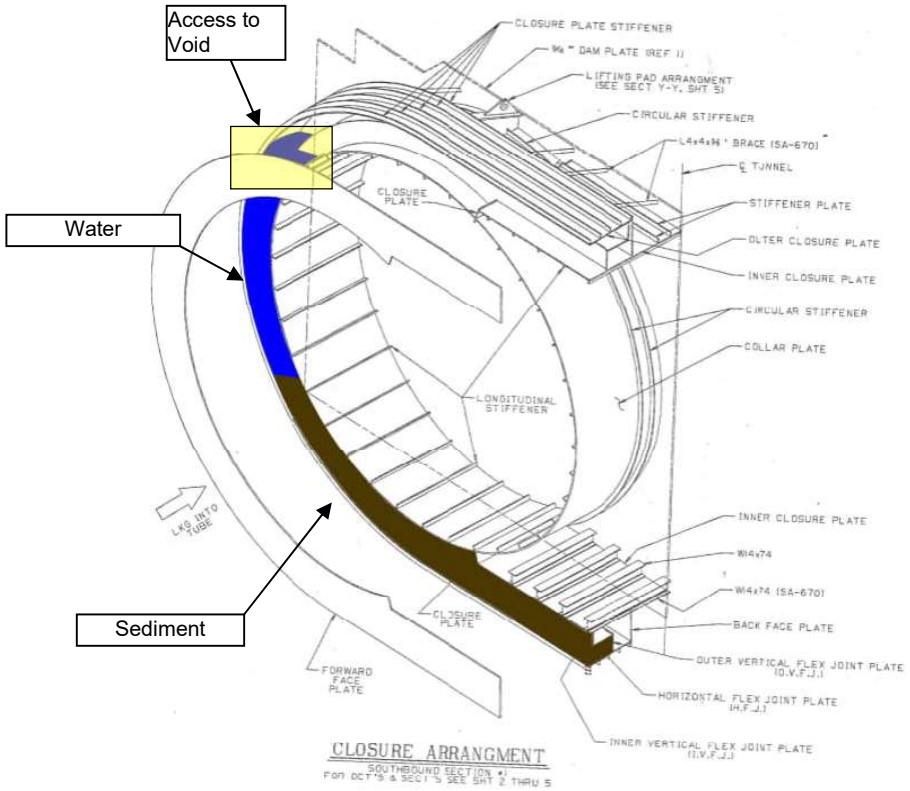


Figure 4 MMMBT Leak Condition

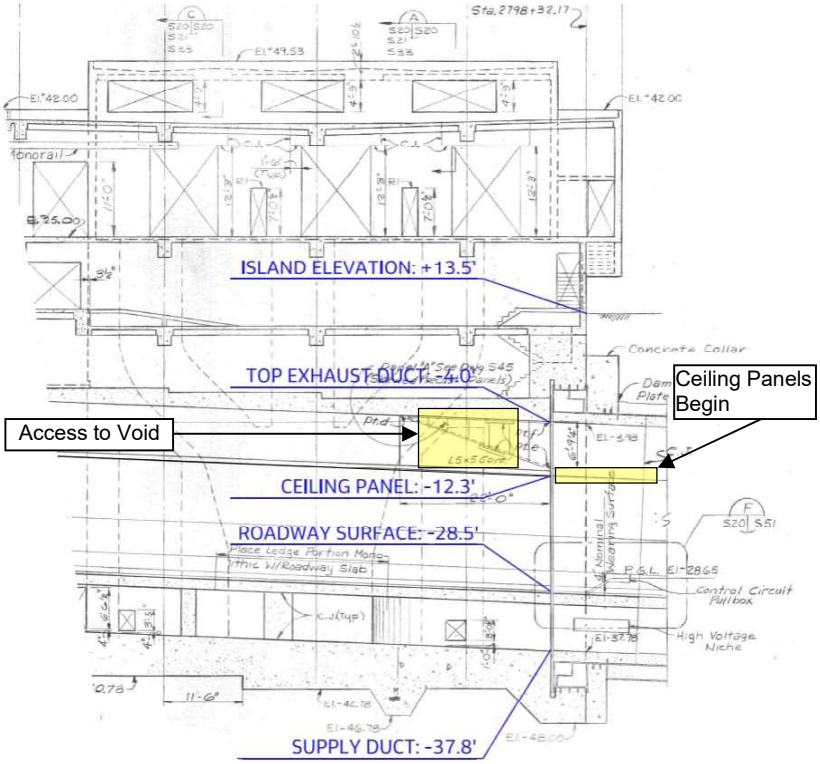


Figure 5: MMMBT Tunnel Section at Island – Tube Interface

Figure 6: MMMBT Exhaust Duct Damage from Leak/Access to Void

The following is a list of Standard and Non-Standard Pay Items that could be utilized on this assignment for the Tunnel Section Closure Void at South Vent Building Repair. Quantities will vary.

SUMMARY OF QUANTITIES

PROJECT NO.

LINE NO.	ITEM NO.	SPEC NO.	ITEM DESCRIPTION	UNIT	QUANTITY
0010	404SX20-0001	ATTD	NS CONCRETE	CY	25.000
0020	416SX20-0001	416 ATTD	WATERPROOFING - NS EPOXY RESIN	SY	3.000
0030	407SX20-0003	407 ATTD	*NS STRUCT. STEEL	LS	1.000
0040	512SX20-0019	ATTD	NS TRAFFIC CONTROL Single Lane Closures	EA	24.000
0050	513SD20-0001	513	MOBILIZATION Mobilization Per Contract Amount Less Than $200,000	LS	1.000

*For bid purposes: assume 20 SF of ¼" steel plate for each side (40 SF total) and 20 LF of L2x2x¼ bracing for each side (40 LF total).

Temporary Traffic Control Plan
State Project No. 0664-121-482, P101, N501
UPC No. 127471

I INTRODUCTION

A The Contractor shall use the Traffic Management Plan provided herein. Traffic Control shall be the responsibility of the Contractor. The Contractor shall be required to provide all necessary traffic control equipment per the latest edition of the *Virginia Area Protection Manual*. Allowable Lane Closures times shall be in accordance with VDOT's current guidelines *Allowable Lane Closure Hours for the State Highway System in the Hampton Roads District*, dated January 2024.

B If the proposed work cannot be completed within the allowable lane closure hours, a request for an exception must be submitted to VDOT's project manager. All requests must include the following:

1. Route/Direction
2. Location of Closure (Interchange to Interchange OR Intersection to Intersection)
3. Number of Through Lanes to be Closed.
4. Closure Begin and End Day of Week, Date, and Time
5. Comparison to Published Hours
6. Number of Through Lanes to be Closed.
7. Closure Begin and End Day of Week, Date, and Time
8. Comparison to Published Hours
9. Calibri (Body) Detailed Explanation as to why the work cannot be completed within Allowable Hours

C The VDOT project manager will review the request and, if in agreement, send the request to Traffic Engineering a minimum of 3 weeks in advance of the planned closure.

II SINGLE LANE CLOSURE

A The Contractor shall coordinate with VDOT and follow the single lane closure procedures as established by the Hampton Roads Harbor Tunnels.

B The Contractor shall enter all single lane closure requests into the Lane Closure Advisory and Management System (LCAMS).

III TRANSPORTATION OPERATIONS PLAN/PUBLIC COMMUNICATIONS PLAN

A The Contractor and VDOT shall coordinate in notifying the public of proposed lane closures. The following process shall be followed for all shoulder and lane closures:

1. The Contractor shall inform the Engineer or designee of the planned lane closure for the following week by 3 PM Tuesday when abiding by the Allowable Lane Closure Hours. For instances when the Contractor wishes to work outside the Allowable Lane Closure Hours, Traffic Engineering needs all requests to be submitted by noon on Monday of the week before the planned closure outside of Allowable Lane Closure Hours.

2. The Contractor shall enter the planned lane closure request into the Lane Closure Advisory and Management System (LCAMS) by Noon on Wednesday for the following week. All LCAMS entries shall include the entire length of the tunnel facility.

3. Traffic Operations Center (TOC) personnel shall review the planned lane closure for any conflicts and notify the Contractor by Noon on Friday.

4. After conflicts have been resolved (if any) the Contractor shall enter lane closure data into VA Traffic or coordinate with the Engineer or Facility Control Room staff to enter the lane closure data into VA-Traffic.

5. Lane and shoulder closures are subject to the approval of the District Traffic Engineer (DTE) and the Eastern Region Traffic Operations Center (ERTOC).

6. The Hampton Roads District Public Affairs Office will use various media publications to announce planned lane closures.

7. Short-term, mobile, or intermediate term temporary traffic control and lane closures will not be allowed during the holidays as defined by Section 108.02 (b) of the Road and Bridge specifications.

8. The following is a list of local emergency contact agencies:

   a. Virginia State Police: (757) 424-6800

   b. Newport News Police Department: (757) 247-2500

   c. Suffolk Police Department: (757) 923-2350

   d. 911 Center: 911

   e. HAZMAT Center (if spill involved): 911

9. Procedures to respond to traffic incidents that may occur in the work zone:

   a. The Contractor shall notify the State Police and the VDOT Inspector.

   b. Depending on the severity of the incident, the Contractor may have to cease work.

c. Upon arrival on scene, the State Police will determine the response necessary to allow traveling public around the incident.

d. The VDOT Inspector shall notify the Engineer of the incident and take pictures as necessary, especially pictures of the Contractor's work zone to verify proper setup.

e. The Contractor shall notify the following personnel of the incident:

i. Facility Control Room staff

ii. VDOT Inspector

iii. Construction Manager

iv. Area Operations Engineer, Greg Nataluk, (757) 619-2633

v. Area Construction Engineer

vi. District Work Zone Safety Coordinator

vii. District Safety Manager, Victor Bradford or Rodney Higgs, (757) 956-3176

viii. District Public Affairs, (757) 956-3032

ix. District Traffic Engineer, Tim Haynam, (757) 504-5663

x. Lane Closure Advisory and Management System, TOC Control Room

xi. TOC Control Room, Shift Supervisor, (757) 424-9915

f. The State Police will take control of the incident and direct its clearing and restoration to normal traffic conditions.

g. The State Police report of the incident will be reviewed by the Area Construction Engineer to determine if any modification of the temporary traffic control plan is necessary. If it is determined that it is necessary to alter the plan, a meeting will be called with the Contractor, VDOT project personnel, VDOT traffic safety representatives, and the State Police (if necessary) to discuss modification and implementation of an improved traffic control plan.

IV EMERGENCY EXIT PLAN

A In the event the VDOT needs to open the tunnel to both lanes of traffic, the Contractor shall provide, for review and approval by the Engineer, an Emergency Exit Plan for vacating the tunnel upon request by VDOT.

1. The plan shall be executable in one (1) hour from notification from VDOT.

B The Exit Plan shall include procedures for:

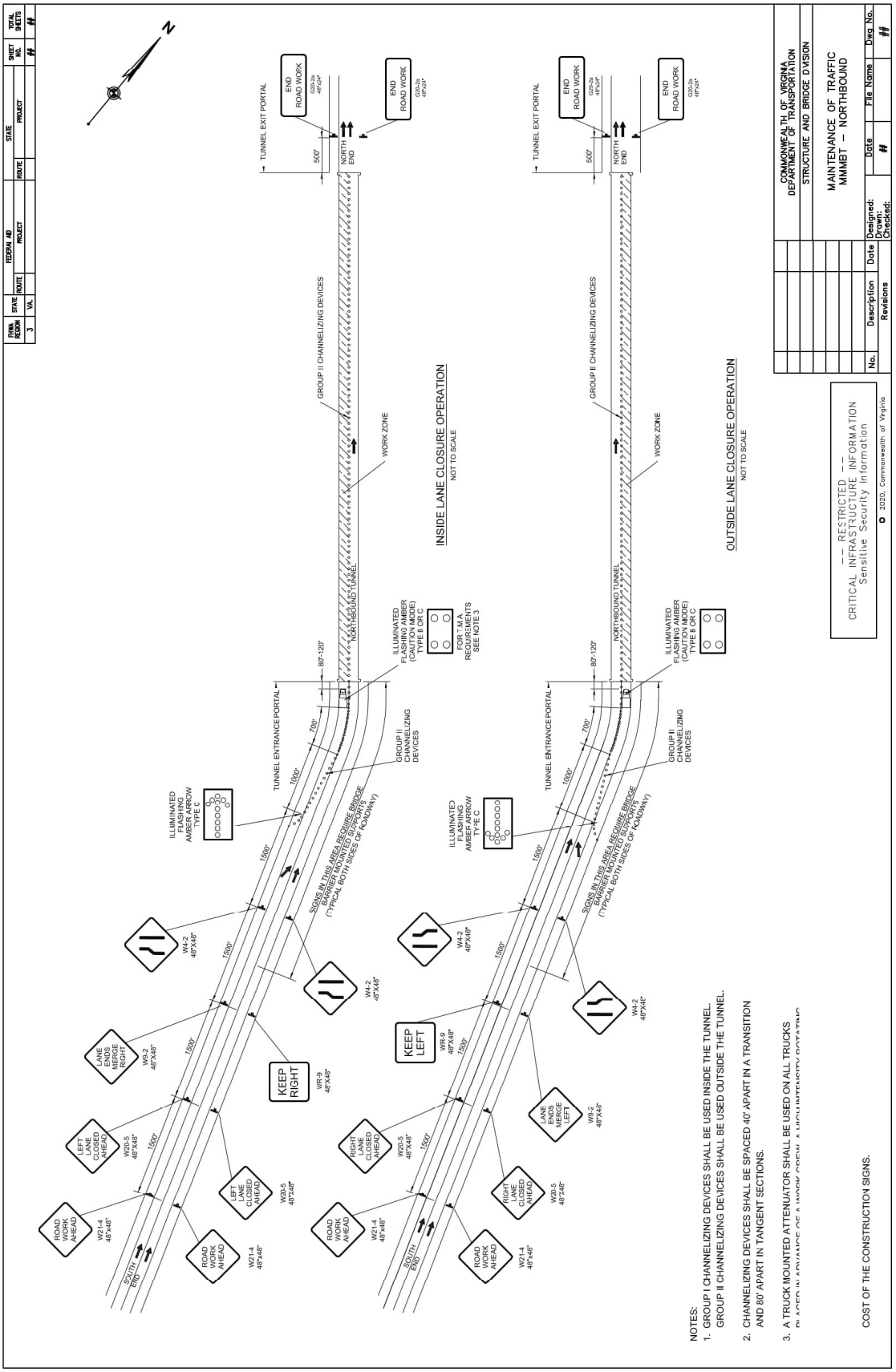
1. Stopping Work,

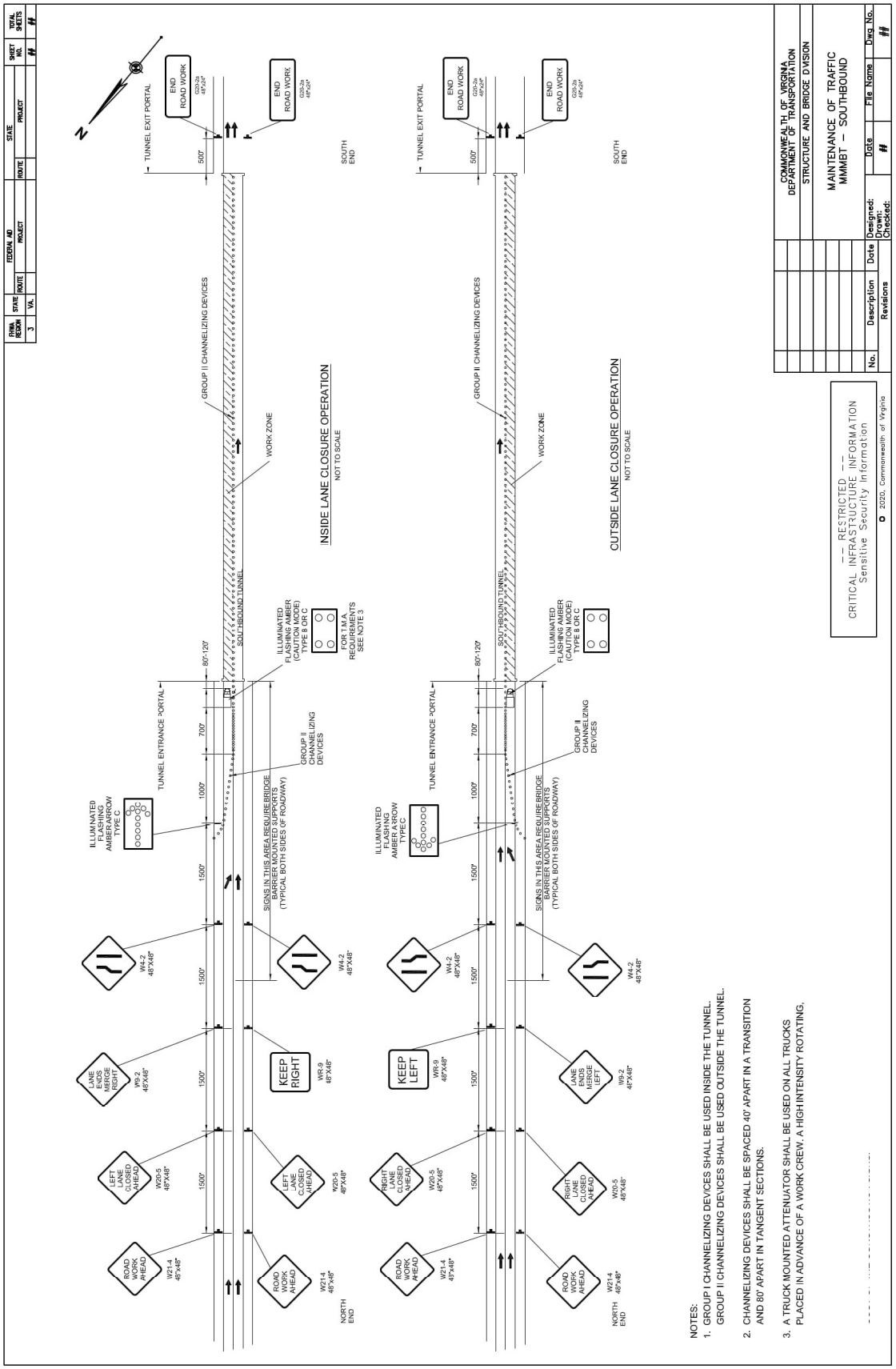
2. Securing the work area,

3. Removing all personnel, equipment, and material from the tunnel,

4. Cleaning construction debris from the roadway,

5. Clearing all lanes for traffic.


FHWA REGION 3
STATE VA.
FEDERAL AID PROJECT
STATE ROUTE PROJECT
SHEET NO. #
TOTAL SHEETS #
N
INSIDE LANE CLOSURE OPERATION
NOT TO SCALE
OUTSIDE LANE CLOSURE OPERATION
NOT TO SCALE
TUNNEL EXIT PORTAL
END ROAD WORK
G20-2a 48"x24"
500'
NORTH END
GROUP II CHANNELIZING DEVICES
WORK ZONE
NORTHBOUND TUNNEL
80'-120'
ILLUMINATED FLASHING AMBER (CAUTION MODE) TYPE B OR C
FOR T.M.A. REQUIREMENTS SEE NOTE 3
TUNNEL ENTRANCE PORTAL
700'
1000'
GROUP II CHANNELIZING DEVICES
ILLUMINATED FLASHING AMBER ARROW TYPE C
1500'
SIGNS IN THIS AREA REQUIRE BRIDGE BARRIER MOUNTED SUPPORTS (TYPICAL BOTH SIDES OF ROADWAY)
W4-2 48"X48"
LANE ENDS MERGE RIGHT W9-2 48"X48"
KEEP RIGHT W9-9 48"X48"
LEFT LANE CLOSED AHEAD W20-5 48"X48"
ROAD WORK AHEAD W21-4 48"X48"
SOUTH END
KEEP LEFT W9-9 48"X48"
RIGHT LANE CLOSED AHEAD W20-5 48"X48"
LANE ENDS MERGE LEFT W9-2 48"X48"
RIGHT LANE CLOSED AHEAD W20-5 48"X48"
— RESTRICTED —
CRITICAL INFRASTRUCTURE INFORMATION
Sensitive Security Information
© 2020, Commonwealth of Virginia
No. Description Date Revisions
Designed: Drawn: Checked:
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION
MAINTENANCE OF TRAFFIC
MMMBT – NORTHBOUND
Date # File Name Dwg. No. #
NOTES:
1. GROUP I CHANNELIZING DEVICES SHALL BE USED INSIDE THE TUNNEL.
GROUP II CHANNELIZING DEVICES SHALL BE USED OUTSIDE THE TUNNEL.
2. CHANNELIZING DEVICES SHALL BE SPACED 40' APART IN A TRANSITION AND 80' APART IN TANGENT SECTIONS.
3. A TRUCK MOUNTED ATTENUATOR SHALL BE USED ON ALL TRUCKS
PLACED IN ADVANCE OF A MOVING OPERATION
COST OF THE CONSTRUCTION SIGNS.


FINAL REGION 3
STATE VA.
FEDERAL AID PROJECT
ROUTE
STATE PROJECT
ROUTE
SHEET NO. #
TOTAL SHEETS #
N
TUNNEL EXIT PORTAL
END ROAD WORK G20-2a 48"x24"
500'
SOUTH END
GROUP II CHANNELIZING DEVICES
WORK ZONE
INSIDE LANE CLOSURE OPERATION
NOT TO SCALE
SOUTHBOUND TUNNEL
80'-120'
TUNNEL ENTRANCE PORTAL
ILLUMINATED FLASHING AMBER ARROW TYPE C
ILLUMINATED FLASHING AMBER (CAUTION MODE) TYPE B OR C
FOR T.M.A. REQUIREMENTS SEE NOTE 3
SIGNS IN THIS AREA REQUIRE BRIDGE BARRIER MOUNTED SUPPORTS (TYPICAL BOTH SIDES OF ROADWAY)
GROUP II CHANNELIZING DEVICES
700'
1000'
1500'
W4-2 48"X48"
LANE NARROWS MERGE RIGHT W9-2 48"X48"
KEEP RIGHT W9-9 48"X48"
LEFT LANE CLOSED AHEAD W20-5 48"X48"
ROAD WORK AHEAD W21-4 48"x48"
NORTH END
CUTSIDE LANE CLOSURE OPERATION
NOT TO SCALE
KEEP LEFT W9-9 48"X48"
LANE NARROWS MERGE LEFT W9-2 48"X48"
RIGHT LANE CLOSED AHEAD W20-5 48"X48"
NOTES:
1. GROUP I CHANNELIZING DEVICES SHALL BE USED INSIDE THE TUNNEL.
GROUP II CHANNELIZING DEVICES SHALL BE USED OUTSIDE THE TUNNEL.
2. CHANNELIZING DEVICES SHALL BE SPACED 40' APART IN A TRANSITION
AND 80' APART IN TANGENT SECTIONS.
3. A TRUCK MOUNTED ATTENUATOR SHALL BE USED ON ALL TRUCKS
PLACED IN ADVANCE OF A WORK CREW. A HIGH INTENSITY ROTATING,
RESTRICTED
CRITICAL INFRASTRUCTURE INFORMATION
Sensitive Security Information
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No. Description Date
Revisions
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION
MAINTENANCE OF TRAFFIC
MMMBT – SOUTHBOUND
Designed:
Drawn:
Checked:
Date
#
File Name
Dwg. No.
#