RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

****

PROPOSAL DOCUMENTS
CONTRACT AND CONTRACT BOND
SUPPLEMENTAL SPECIFICATIONS
SPECIAL PROVISIONS
REPAIR PLANS
RECORD PLANS

HNTB Corporation

June 2019

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

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INSTRUCTIONS TO BIDDERS

1. FORM OF BID: Submit bid, on forms furnished by the Authority, without alterations in the form. When completing bid, please notice the unit (Lump Sum, Each, Square Foot, etc…) of the individual line item and enter unit and total bid item prices accordingly.

   If applicable, Contractor shall replace any original bid tab sheets with replacement bid tab sheets issued through an Addendum.

   a. Required Forms: The following list of required forms to be included in bid is provided for Contractors reference only:
      i. Bid (see below)
      ii. Non-Collusion Affidavit
      iii. Statement of Contracts Underway
      iv. Joint Venture Statement (if applicable)
      v. Bidder or Subcontractor Shotcrete Experience
      vi. Bidder or Subcontractor Steel Repairs Experience
      vii. Bid Bond
      viii. Receipt of Addenda (if applicable)
      ix. Railroad Agreement (Schedule I)

2. SUBMISSION OF BID: Make sure the Authority receives bid prior to time and date listed on the Invitation to Bid. Bidder is responsible for delivery of the bid at or before the time set for opening. Bids received after the time set will be rejected.

If mailing, please write "Attention: RMTA MR – 2019 Contract Bid Opening" on outside of envelope or on mailing label.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

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INVITATION TO BID

The Richmond Metropolitan Transportation Authority (RMTA), 901 East Byrd Street, Suite 1120, Richmond, Virginia 23219 until 10:00 a.m. local time, will receive sealed Proposals for the above project on **Thursday, June 27, 2019** at which time and place the bids will be publicly opened and read.

The work under this contract shall be completed no later than July 1, 2020 with the exception of:

- Boulevard Bridge steel repairs shall be completed no later than November 22, 2019.
- Deck Sealing shall be completed no later than October 25, 2019.
- Cub Cadet 48" Mower must be purchased no later than 15 days after the Notice to Proceed.

The principal items of work and approximate quantities are as follows:

Item:	Quantity:	Unit:
Repair Asphalt Concrete Pavement Cracks	20,000	L.F.
Expansion Joint	3489	L.F.
Shotcrete Type A, (Standard)	160	S.F.
Shotcrete Type A, (Elevated)	509	S.F.
Shotcrete Type A, (Over Water)	491	S.F.
Boulevard Bridge, Sway Frame, Lower Strut and Gusset Plate	1	.L.S.
Boulevard Bridge, Lacing Bar and Bolt Replacement (Multiple Locations)	165	EA.
Bridge 11, Pier 2, Unit 2, Beam 4 Stiffener Replacement	1	.L.S.
Bridge 65, Pier 11, Unit 12, Girder 1 Bearing Alignment	1	.L.S.
Bridge 65, Pier 12, Unit 12 Bearing Retrofit	1	.L.S.
On Ramp Rehabilitation	1	.L.S.
Main Line Approach Slab Rehabilitation	1	.L.S.
Salt Shed Site Reconstruction	1	.L.S.
Forest Hill Toll Plaza Painting	1	.L.S.
Concrete Surface Coating	240,894	.S.F.

Guardrail GR-2	8,000	.L.F.

A **mandatory** pre-bid meeting will be held at 901 East Byrd Street, Suite 1120, Richmond, Virginia 23219 at 10:00 a.m. local time, on **Thursday, June 13, 2019**. A mandatory site visit shall immediately follow the office portion of the pre-bid meeting. Only contractors and qualified subcontractors, who meet the requirements to propose, as stated below, should attend the pre-bid meeting.

Bids for this Contract must be submitted on complete bidding forms bound in the Contract Documents. The successful bidder will be notified in writing.

To submit Proposals for this Contract, contractors or qualified subcontractors shall, on Thursday, June 13, 2019 at 10:00 a.m. local time, meet the following requirements:

- Be prequalified by the Virginia Department of Transportation for bidding on State projects. The Authority reserves the right to request additional experience information for any bidder that has not been assigned the "**Major Structures**" and/or "**Bridge Repair**" work classes by VDOT or for contractors that have a prequalification level of Conditional, Currently Inactive or Probationary.
- Have prior experience in the jacking and blocking of beams and structural steel repairs. Contractor shall be able to provide written documentation demonstrating the successful completion of at least three bridge superstructure repair projects where one or more steel beams were jacked off the bearing and a portion of the steel beam was replaced with new steel by welding.
- Have prior experience in the repair of bridge substructures using Shotcrete and be able to provide written documentation demonstrating the successful placement of at least three bridge substructure repair projects where the cumulative shotcrete square footage applied was a minimum of 10,000 s.f.

Note that a bidder must have prior experience and be able to provide written documentation in a minimum of one of the three work experience categories as noted above. A bidder cannot have subcontractors be the documented experience in all categories.

Complete Contract documents will be available on Thursday, May 30, 2019 after 1:00 p.m. (local time) from www.rmtaonline.org or may be purchased for $70.00 per set from the Richmond Metropolitan Transportation Authority at 901 East Byrd Street, Suite 1120, Richmond, Virginia 23219. The documents may also be examined by any party, without purchase, at the Authority's office during normal business hours after such date. Specifications (Virginia Department of Transportation 2016 Road and Bridge Specifications, revised January 2018) and (2011 Virginia Work Area Protection Manual, Revision 1 - April 1, 2015) which form

an integral part of this Contract, are available from the Virginia Department of Transportation website free of charge.

Unsubmitted Contract documents need not be returned and no refunds will be made for any documents.

Each Bidder submitting a Proposal must also complete a statement bound with the Proposal forms, in which each Bidder shall give full information relating to the status of their contracts presently underway.

Each Proposal must be accompanied by a Proposal Guarantee consisting of either a certified check in the amount of at least five (5) percent of the Total Bid Price, made payable to the Richmond Metropolitan Transportation Authority, or a Proposal Bond (on the form provided) in the amount of five (5) percent of the same Total Bid Price.

The Authority strongly encourages the submission of bids by contractors whose principal businesses are located in the Richmond Metropolitan Area and further strongly encourage such contractors to utilize the services of local subcontractors and vendors.

The Authority strongly encourages minority owned and women owned businesses to submit proposals for this contract.

The Authority reserves the right to reject any and all Proposals submitted, and to waive informalities in bidding, as it may deem in its best interests.

Project related inquiries must be submitted in writing to Mr. Mark Grossenbacher, P.E. at HNTB Corporation at mgrossenbacher@hntb.com or Ms. Theresa Simmons, P.E., RMTA Director of Operations at Theresa.Simmons@rmtaonline.org. The deadline to submit inquiries and questions is Friday, June 21, 2019 at 1 P.M. local time.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY
Joi Dean, CEO
Richmond, Virginia

(Note: Bidders shall not remove this Bidding form from attached documents.)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR – 2019

MISCELLANEOUS REPAIRS

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BID FOR GENERAL CONSTRUCTION CONTRACT

To: Richmond Metropolitan Transportation Authority
901 East Byrd Street, Suite 1120
Richmond, Virginia 23219

Gentlemen:

I/we, the undersigned, declare: that no other person, firm or corporation is interested in this Bid; that I/we have carefully examined the Plans, Standard Specifications, Supplemental Specifications, and all other documents pertaining to this Contract which form a part of this Bid as if set forth at length herein; that I/we understand that the quantities of items shown herein below are approximate only; that I/we have examined the location of the proposed work; that I/we agree to bind myself/ourselves, upon award to me/us by the Richmond Metropolitan Transportation Authority under this Bid, to enter into and execute a Contract, with necessary surety bond, for the project named above; that I/we agree to start work not later than the date stated in the written Notice to Proceed (Sec. 105.01 of the Specifications), to furnish all necessary materials, provide all necessary labor, equipment, tools and plant, pay for all required insurance, bonds, permits, fees and service, and do all required work in strict compliance with the terms of all documents comprising said Contract, and to fully complete the entire project by July 1, 2020 and that I/we agree to accept as full compensation for the satisfactory prosecution of this project the following named unit and lump sum prices for the various scheduled items of work.

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
1	MOBILIZATION	LS	1		$0.00	513
2	TRUCK MOUNTED ATTENUATOR	HR	1,500		$0.00	512
3	PORTABLE CHANGEABLE MESSAGE SIGN	HR	100		$0.00	512
4	ELECTRONIC ARROW	HR	1,500		$0.00	512
5	FLAGGER SERVICE	HR	160		$0.00	512
6	GROUP 2 CHANNELIZING DEVICE	DAY	4,270		$0.00	512
7	FENCE (FE-CL)	LF	930		$0.00	ATTD/SP-D/SP-Z
8	FENCE (FE-CL) - BRIDGE B64	LF	125		$0.00	ATTD/SP-D/SP-Z
9	FENCE (FE-CL FABRIC ONLY)	LF	700		$0.00	ATTD/SP-D/SP-Z
10	ASPHALT BM-25	TON	472		$0.00	ATTD/SP-Z
11	ASPHALT SM-9.5E	TON	236		$0.00	ATTD/SP-Z
12	WATERPROOFING MEMBRANE (PETROMAT 4597)	SY	583		$0.00	ATTD/SP-Z
13	HOLDING POND LINER (APPEX 4S)	SF	4,000		$0.00	ATTD/SP-Z
14	ASPHALT CONCRETE PATCH	IN * SY	100		$0.00	ATTD/SP-G
15	REPAIR ASPHALT CONCRETE PAVEMENT CRACKS	LF	20,000		$0.00	ATTD/SP-T
16	STANDARD 6" CURB CG-2	LF	160		$0.00	ATTD/SP-M
17	STANDARD 4" CURB CG-3	LF	25		$0.00	ATTD/SP-M
18	BITUMINOUS CONCRETE CURB	LF	200		$0.00	ATTD/SP-Z
19	PATCHING TYPE A	SY	20		$0.00	412
20	PATCHING TYPE B	SY	50		$0.00	412
21	PATCHING HYDRAULIC CEMENT CONCRETE PAVEMENT	SY	75		$0.00	ATTD/SP-E
22	BRINE TANK CONCRETE PADS	CY	15		$0.00	504/SP-BB
23	TRIM EXISTING VEGETATION	SF	20,000		$0.00	ATTD/SP-C
24	SHOTCRETE, TYPE A (STANDARD)	SF	160		$0.00	ATTD/SP-F
25	SHOTCRETE, TYPE A (ELEVATED)	SF	509		$0.00	ATTD/SP-F
26	SHOTCRETE, TYPE A (OVER WATER)	SF	491		$0.00	ATTD/SP-F
27	JOINT SEALANT REPLACEMENT	LF	3,489		$0.00	427/SP-Q
28	BRIDGE RAILING	LF	110		$0.00	410/SP-V

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
29	BRIDGE RAILING POSTS	EA	4		$0.00	410/SP-V
30	TYPE B CLASS VI PAVEMENT LINE MARKING 6"	LF	250		$0.00	704/SP-R
31	TYPE B CLASS VI PAVEMENT LINE MARKING 8"	LF	100		$0.00	704/SP-R
32	TYPE B CLASS VI PAVEMENT LINE MARKING 12"	LF	100		$0.00	704/SP-R
33	PAVEMENT MESSAGE MARK. "STAY"	EA	6		$0.00	704/SP-R
34	PAVEMENT MESSAGE MARK. "IN"	EA	6		$0.00	704/SP-R
35	PAVEMENT MESSAGE MARK. "LANE"	EA	6		$0.00	704/SP-R
36	BOULEVARD BRIDGE SWAY FRAME, LOWER STRUT AND GUSSET PLATE REPAIRS	LS	1		$0.00	ATTD/SP-I
37	BRIDGE 11 PIER 2, UNIT 2, BEAM 4 STIFFENER REPLACEMENT	LS	1		$0.00	ATTD/SP-I
38	BRIDGE 65 PIER 11, UNIT 12, GIRDER 1 BEARING ALIGNMENT	LS	1		$0.00	ATTD/SP-I
39	BRIDGE 65 PIER 12, UNIT 12, GIRDER 1 BEARING RETROFIT	LS	1		$0.00	ATTD/SP-I
40	BOULEVARD BRIDGE FABRICATE LACING BARS AND BOLTS	LS	1		$0.00	ATTD/SP-I
41	BOULEVARD BRIDGE LACING BAR AND BOLT REPLACEMENT (multiple locations)	EA	165		$0.00	ATTD/SP-I
42	10TH STREET ON RAMP REHABILITATION	LS	1		$0.00	ATTD/SP-N
43	MAINLINE APPROACH SLAB REHABILITATION	LS	1		$0.00	ATTD/SP-W
44	BRIDGE DECK SEALING	SY	8,738		$0.00	ATTD/SP-O
45	B65 SP 13 BRIDGE DECK SEALING	SY	225		$0.00	ATTD/SP-O
46	REPAIR EXISTING DROP INLET OR MANHOLE TOP	EA	10		$0.00	ATTD/SP-P
47	CONCRETE SURFACE COATING	SF	240,894		$0.00	ATTD/SP-S
48	CONCRETE BARRIER DELINEATORS	EA	500		$0.00	702/SP-CC
49	CRUSHED AGGREGATE NO. 21A OR 21B	TON	702		$0.00	ATTD/SP-K/SP-Z
50	COARSE AGGREGATE NO.57	TON	100		$0.00	ATTD/SP-K
51	AGGREGATE MATERIAL NO.1	TON	50		$0.00	ATTD/SP-K
52	RIPRAP CLASS I	TON	500		$0.00	ATTD/SP-K
53	CLEAN MANHOLE	EA	1		$0.00	ATTD/SP-H
54	STORM DRAIN DI-1	EA	1		$0.00	ATTD/SP-H/SP-Z
55	PIPE - 8" PVC INSTALLED	LF	158		$0.00	ATTD/SP-H/SP-Z

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
56	GUARDRAIL GR-2	LF	8,000		$0.00	221/SP-Y
57	GUARDRAIL TERMINAL	EA	8		$0.00	505/SP-Y
58	GUARDRAIL OFFSET BLOCK	EA	1,400		$0.00	221/SP-Y
59	FIXED OBJECT ATTACH. GR-FOA-2 TY. I	EA	13		$0.00	505/SP-Y
60	RAILROAD COORDINATION	LS	1		$0.00	ATTD/SS-107.19
61	TOPSOIL, CLASS B	CY	50		$0.00	244/SP-K
62	REGULAR SEED	LB	100		$0.00	244/SP-K
63	FERTILIZER 15-30-15	TN	1		$0.00	244/SP-K
64	LIME	TN	1		$0.00	244/SP-K
65	DEBRIS REMOVAL JAMES RIVER BRIDGE 8	LS	1		$0.00	ATTD/SP-U
66	WHEEL LOADER AND OPERATOR 3CY BUCKET	HR	100		$0.00	SP-AA
67	MISCELLANEOUS COATINGS	SF	1,000		$0.00	411/SP-L
68	FOREST HILL TOLL PLAZA PAINTING	LS	1		$0.00	SP-X
69	EQUIPMENT - CUB CADET 48" MOWER	LS	1		$0.00	ATTD/SP-J
70	5000 GALLON DOUBLE WALL STORAGE TANK	EA	2		$0.00	SP-BB
71	OVERHEAD SIGN REPLACEMENT/REPAIRS 200256	LS	1		$0.00	SP-DD
72	OVERHEAD SIGN REPLACEMENT/REPAIRS 200545	LS	1		$0.00	SP-DD
73	OVERHEAD SIGN REPLACEMENT/REPAIRS 200553	LS	1		$0.00	SP-DD
74	OVERHEAD SIGN REPLACEMENT/REPAIRS 200554	LS	1		$0.00	SP-DD
75	OVERHEAD SIGN REPLACEMENT/REPAIRS 202556	LS	1		$0.00	SP-DD
				Total	**$0.00**	

(SIGN HERE) (INSERT HERE)

Signature of Owner, Partner, or Corporate Officer: **Title:**

TOTAL $0.00

The quantities shown in the above schedule of items are considered to be approximate only and are given as the basis for comparison of bids. The Authority may increase or decrease the amount of any item or portion of the work as may be deemed necessary or expedient. The Authority reserves the right to delete, in whole or in part, without prejudice prior to the award of the Contract, any items listed in the Bid. It is understood that payment for unit price items will be made for the actual quantities of such work satisfactorily completed, rather than the estimated quantities given hereinabove, an increase or decrease in the quantity for any unit price item will not be regarded as sufficient grounds for an increase or decrease in the unit price, nor in the time allowed for the completion of the work, except as provided for in the Specifications.

The cost of any work performed, materials furnished, services provided or expenses incurred, whether or not specifically delineated in the Contract document but which are incidental to the scope, intent and completion of this Contract, have been included in the price bid for the various items scheduled hereinabove.

Accompanying this Bid is a Bid Guarantee (Sec. 102.07 of the Specifications) consisting of either a certified check in the amount of at least (5) percent of the Total Bid Price for this Contract or a Bid Bond (Sec. PB of the bid documents) in the amount of (5) percent of the same Total Bid Price. It is hereby understood and agreed that said check or bond is to be forfeited as liquidated damages in the event that, on the basis of this Bid, the Authority should award this Contract to me/us and that I/we should fail to execute and deliver said Contract and the prescribed Contract Bond, together with the required progress schedule, proof of proper insurance coverage and other necessary documents, all within the prescribed time (Sec. 103.07 of the Specifications); otherwise, said check or bond is to be returned to the undersigned.

Business Name of Bidder: _____

Type of Organization: Individual ☐
Partnership ☐
Corporation ☐

Virginia Contractor Registration No.: _____

Address of Bidder: _____

_____

Signature of Owner, Partner or Corp. Officer: _____

Title: _____

Date: _____

Witness or Attest: _____ (Affix Corporate Seal Here)

NOTE: ONLY A PREQUALIFIED BIDDER MAY USE THIS BIDDING FORM. BIDDING FORMS ARE NOT TRANSFERABLE.


RICHMOND EXPRESSWAY SYSTEM
Scale:
0 1000 2000 3000ft.
48 - Bridge Number
RMTA Facilities Shown in Red
RMTA
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY
RICHMOND
CITY OWNED GRAVEL LOT
APPROXIMATELY 10,500 S.F. RMTA OWNED STAGING AREA
RMTA OWNED ABANDONED RAMP
RMTA OWNED STAGING AREA
Section One
Section Two Connection To I-195
Section Three
Section Four Downtown Expressway
Connection to Downtown Expressway
Downtown Expressway State Rte. 195
Powhite Parkway State Rte 76
Powhite Parkway Extension (VDOT Toll Road)
CHIPPENHAM PARKWAY INTERCHANGE
FOREST HILL AVE. INTERCHANGE
STADIUM INTERCHANGE
BOULEVARD INTERCHANGE
DOWNTOWN I-95 INTERCHANGE
BRYAN PARK INTERCHANGE
POWHITE BRIDGE OVER THE JAMES RIVER
BOULEVARD BRIDGE 7500# Limit
JAMES RIVER BRIDGE
MANCHESTER BRIDGE
MAYOS BRIDGE
ROBERT E. LEE BRIDGE
HUGUENOT BRIDGE
Toll Plaza (SB)
Toll Plaza (NB)
Toll Plaza
Toll Booths
JAMES
Williams Island
UNIVERSITY OF RICHMOND
JOSEPH BRYAN PARK
WILLIAM BYRD PARK
MAYMONT PARK
HOLLYWOOD CEMETERY
MT. CALVARY CEMETERY
RIVERVIEW CEMETERY
FOREST HILL PARK
Chimborazo Park
Virginia Commonwealth University
VIRGINIA UNION UNIVERSITY
Science Museum Of Virginia
Virginia Museum Of Fine Arts
Visitor Information Center
The Diamond
CITY STADIUM
STATE CAPITOL
City Hall
Shockoe Slip Historic District
MAIN ST. STATION
COLISEUM
Public Library
Water Works
WILLOW OAKS COUNTRY CLUB
LABURNUM AVE.
WESTWOOD AVE.
BROOKLAND PARK BLVD.
OVERBROOK RD.
BROAD ST.
MONUMENT AVE.
PATTERSON AVE.
GROVE AVE.
CARY STREET ROAD
RIVERSIDE DR.
HUGUENOT ROAD
FOREST HILL AVE.
CHIPPENHAM
PARKWAY
BLILELY RD.
JAHNKE RD.
SEMMES AVE.
HULL ST.
COMMERCE RD.
MAURY ST.
MARSHALL ST.
CLAY ST.
FAIRFIELD AVE.
NINE MILE RD.
CARRINGTON ST.
MOSBY ST.
MECHANICSVILLE
NORTH AVE.
CHAMBERLAYNE AVE.
BROOK RD.
COLORADO AVE.
CSX RAILWAY
NORFOLK SOUTHERN
(SOUTHERN RAILWAY)
SEABOARD COAST LINE
(C. & O. RY.)
R. F. & P. R.R.
I-195

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

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NON-COLLUSION AFFIDAVIT

STATE OF _____)
_____) ss.
COUNTY OF _____)

I, _____, of the City of _____, County of _____ and State of _____, being of full age and duly sworn according to law on my oath depose and say:

That I am _____(Title) of _____, the Bidder making the Bid submitted to the Richmond Metropolitan Transportation Authority, on the _____ day of _____, 20___, for Contract No. MR -2019 in connection with the Richmond Expressway System; that I executed the said Bid with full authority to do so;

The said Bidder has not, directly or 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 or which would increase the cost of construction or maintenance in connection with the said Contract; that no person or selling agency has been employed or retained to solicit or secure the said Contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide full-time employees;

And that said Bidder is or has been a member of the following highway contractors' association during the preceding twelve months:

Name of Association	Location of Principal Office
_____	_____
_____	_____
_____	_____

I further warrant that all statements contained in said Bid and in this Affidavit are true and correct and made with full knowledge that the said Authority relies upon the truth of the statements contained in said Bid and in this Affidavit in awarding the said Contract.

Sworn to and subscribed
before me this_____
day of _____,
20___.

By:_____(L.S.)
Person Signing Bid

Print Name:_____

_____
Notary Public

My commission expires:

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

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STATEMENT OF CONTRACTS UNDERWAY

The following is a tabulation of all contracts in which I/we am/are engaged as of the date given below, whether as a prime contractor or as a subcontractor. This tabulation includes not only contracts which are under construction, but also those awarded to me/us but not begun, and those on which I/we am/are the lowest bidder awaiting formal award.

Contract Designation	City and State	Owner	Estimated Value of Work Remaining to be Completed	Estimated Completion Date

Total: $_____

NOTE: Contracts in which the remaining work in each amounts to less than $25,000 may be combined into one entry under the fourth column and designated as "Miscellaneous" in the first column.

If more space is needed, attach additional sheet(s).

The undersigned guarantees the accuracy and completeness of all the information given above.

Business Name of Bidder: _____

Address of Bidder: _____

_____

Signature of Owner,
Partner or Corp. Officer: _____

Title: _____

Date: _____

Witness or Attest:

_____

(Affix Corporate Seal Here)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

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JOINT VENTURE STATEMENT

STATE OF _____)
_____) ss.
COUNTY OF _____)

We, the undersigned, being duly sworn according to law, upon our respective oaths depose and say that:

1. The following named contractors have entered into a Joint Venture for the purpose of carrying out all the provisions of Contract No. MR-2019 for the above project:

(a)_____ ☐ An Individual ☐ A Partnership ☐ A Corporation

(b)_____ ☐ An Individual ☐ A Partnership ☐ A Corporation

(c)_____ ☐ An Individual ☐ A Partnership ☐ A Corporation

2. The contractors, under whose names we have affixed our respective signatures, have duly authorized and empowered us to execute this Joint Venture Statement in the name of and on behalf of such contractors for the purpose herein above stated.

3. Under the provisions of such Joint Venture, the assets of each of the contractors named in Paragraph 1 hereof, and in case any contractor so named above is a partnership, the assets of the individual members of such partnership, will be available for the performance of such Joint Venture and liable therefore and for all obligations incurred in connection therewith.

4. The assets and liabilities of the named contractors for whom we respectively execute this Joint Venture Statement are set forth in the statements given to the Virginia Department of Transportation in our prequalification questionnaire(s).

5. This Joint Venture Statement is executed so that the named contractors, as one organization, may, under such Joint Venture, bid upon said Contract, and be awarded the Contract if they should become the successful bidder therefore. Any bid, bond and agreement relating to said Contract shall be executed by any of the undersigned, and when so executed shall bind this Joint Venture and each and every contractor named herein, severally and jointly. Simultaneously with the execution of the Contract, the contractors entering into this Joint Venture shall designate and appoint a Project Supervisor to act as their true and lawful agent with full power and authority to do and perform any and all acts or things necessary to carry out the work set forth in said Contract.

6. We bind the contractors for whom we respectively execute this Joint Venture Statement in firm agreement with the Richmond Metropolitan Transportation Authority that each of the representations herein set forth is true.

Subscribed and sworn to before me,
this _____day of

_____, 20___.

_____
Notary Public

My commission expires_____

(a)_____
Name of Contractor

By_____(L.S.)
Print Name:

Title: _____

Va. Contractor Reg. No. _____

****

****

Subscribed and sworn to before me,
this _____day of

_____, 20___.

_____
Notary Public

My commission expires_____

(b)_____
Name of Contractor

By_____(L.S.)
Print Name:

Title: _____

Va. Contractor Reg. No. _____

****

Subscribed and sworn to before me,
this _____day of

_____, 20___.

_____
Notary Public

My commission expires_____

(c)_____
Name of Contractor

By_____(L.S.)
Print Name:

Title: _____

Va. Contractor Reg. No. _____

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

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****

SHOTCRETE EXPERIENCE – BIDDER/SUBCONTRACTOR

In addition to the bidding requirements stated elsewhere in these documents, prospective bidders or their subcontractor must have successfully completed at least three bridge substructure repair projects where the cumulative shotcrete square footage applied is a minimum of 10,000 s.f. This form is provided to bidders for them to demonstrate that experience, and must be completed and submitted by all bidders, bound in this proposal. Note that a bidder must be experienced, and complete the experience forms, in either shotcrete repairs, steel repairs, or epoxy injection of cracks in submerged concrete piers, or all forms. A bidder cannot have a subcontractor be the documented experience in all categories.

If the bidder is not anticipating self-performing the scope of work associated with the experience type listed herein, please list the name of the qualified subcontractor below:

Subcontractor (If applicable) _____
Company Name

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 1

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 2

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 3

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 4

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR - 2019

MISCELLANEOUS REPAIRS

****

STEEL SUPERSTRUCTURE REPAIR EXPERIENCE - BIDDER/SUBCONTRACTOR

In addition to the bidding requirements stated elsewhere in these documents, prospective bidders or their subcontractor must have successfully completed at least three (3) bridge superstructure repair projects where one or more steel beams were jacked off the bearing and a portion of the steel beam was replaced with new steel by welding. This form is provided to bidders for them to demonstrate that experience, and must be completed and submitted by all bidders, bound in this proposal. Note that a bidder must be experienced, and complete the experience forms, in either shotcrete repairs, steel repairs, or epoxy injection of cracks in submerged concrete piers, or all forms. A bidder cannot have a subcontractor be the documented experience in all categories.

If the bidder is not anticipating self-performing the scope of work associated with the experience type listed herein, please list the name of the qualified subcontractor below:

Subcontractor (If applicable) _____
Company Name

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 1

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 2

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 3

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 4

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

****

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that_____ _____, as Principal/Contractor, and _____, as Surety, legally authorized to do business in the Commonwealth of Virginia, are held and firmly bounded unto the Richmond Metropolitan Transportation Authority, as Authority, in the amount of FIVE (5) PERCENT OF THE DOLLAR VALUE OF THE TOTAL AMOUNT WRITTEN IN THE BID, on which the Contract is awarded 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:

WHEREAS, the Contractor is herewith submitting its Bid for Contract No. MR-2019 entitled Miscellaneous Repairs, in connection with the Richmond Expressway System; and

NOW, THEREFORE, the condition of this obligation is such, that if the Contractor shall be awarded the Contract upon said Bid and shall, within fifteen (15) calendar days after the date of written notice of such award, enter into and deliver a Contract and the prescribed Contract Bond for the faithful performance of the Contract, together with the required proof of proper insurance coverage and other necessary documents, then this obligation shall be null and void; otherwise, to remain in full force and effect, and the Contractor and Surety will pay unto the Authority the difference in money between the amount of the Total Amount written in the Bid of said Contractor and the amount for which the Authority 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 Surety's liability exceed the penal sum hereof.

SIGNED AND SEALED this _____day of _____. 20____.

PRINCIPAL/CONTRACTOR

_____

Business Name

_____

Address

Witness or Attest:

_____

_____ By:_____(L.S.)

Title:

(Affix Corporate Seal Here)

SURETY:

_____

Business Name

_____

Address

Witness or Attest:

_____

_____ By:_____(L.S.)

Title:

(Attach evidence of Power of Attorney)

(Affix Corporate Seal Here)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

****

CONTRACT AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20 ____, between the Richmond Metropolitan Transportation Authority, 901 East Byrd Street, Suite 1120, Richmond, Virginia, 23219, hereinafter called the Authority and _____, or his, it's or their successors, executors, administrators and assigns, hereinafter called the Contractor.

WITNESSETH, that the Contractor agrees with the Authority for the consideration herein mentioned, and at his, its or their own proper cost and expense, to do all the work and furnish all the materials, equipment, teams and labor necessary to prosecute and complete and to extinguish all liens therefore, Contract No. MR - 2019, entitled Miscellaneous Repairs, in the manner and to the full extent as set forth in the Special Provisions, Plans, Supplemental Specifications, 2016 Road and Bridge Specifications of the Virginia Department of Transportation (revised January 2018), Bid (for the basis of award stated herein below) and other documents related to said Contract which are on file at the office of the Richmond Metropolitan Transportation Authority and which are hereby adopted and made part of this Agreement as completely as if incorporated herein, and to the satisfaction of the Richmond Metropolitan Transportation Authority or its duly authorized representative who shall have at all times full opportunity to inspect the materials to be furnished and the work to be done under this Agreement. In the event of a conflict among the Contract Documents, the Contract Documents shall control one over another in the following descending order of precedence: Special Provisions, Plans, Supplemental Specifications, 2016 Road and Bridge Specifications of the Virginia Department of Transportation (revised January 2018). Bid and other documents related to said Contract.

This Contract is awarded on the basis of the Total Bid Price (based on Bid quantities)

of_____dollars

and _____Cents ($_____).

In consideration of the foregoing premise, the Authority agrees to pay the Contractor for all items of work performed and materials furnished at the unit and lump sum prices bid therefore in the Bid submitted for this Contract, subject to any percentage reductions in the total Contract amount that may be named in the Bid corresponding to the basis of award stated in the above paragraph, and subject to the conditions set forth in the Specifications.

The Contractor agrees as follows:

Indemnification: The Contractor shall indemnify and hold harmless Richmond Metropolitan Transportation Authority, and all officers, directors and employees of the named entity, (individually and collectively), from any and all liability, loss, damage, expense, cause of action, suits, claims or judgments arising from injury to person or property resulting from activity arising out of this contract; and shall, at its own cost and expense, defend any and all suits which may be brought against such parties, either alone or in conjunction with others upon any such liability or claim or claims and shall satisfy, pay and discharge any and all judgments and fines that may be recovered against such parties in any such action or actions, provided, such indemnity shall not extend to the negligence of such parties and, provided, further, that such parties shall give the Richmond Metropolitan Transportation Authority written notice of any such claim or demand.

Cancellation of Contract: The Authority reserves the right to cancel and terminate any resulting contract, in part or in whole, without penalty, upon 60 days written notice. Any contract cancellation notice shall not relieve the contractor of the obligation to deliver and/or complete all work tasks in progress prior to the effective date of cancellation.

Term of Contract: Sealed proposals for the above project are due Thursday, June 13, 2019 at 10:00 a.m. at which time and place the bids will be publicly opened and read. The work under this contract shall be completed no later than July 1, 2020 with the exceptions of:

- Boulevard Bridge repairs that shall be completed no later than November 22, 2019.
- Concrete Bridge Deck Sealant shall be completed no later than October 25, 2019.
- Cub Cadet 48" Mower must be purchased no later than 15 days after the Notice to Proceed.

Scope of Work: A complete list of all bid items and estimated quantities is included beginning on sheet P-2 in BID FOR GENERAL CONSTRUCTION CONTRACT.

Anti-Discrimination: By submitting their (bids/proposals), (bidders/offerors) certify to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and §2.2-4311 of the *Virginia Public Procurement Act.* If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Code of Virginia,* § 2.2-4343.1 E).

During the performance of this Contract, the Contractor agrees as follows:

a. I/WE will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin, except where religion, sex or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor.

b. I/WE agree to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

c. I/WE in any solicitations or advertising for employees placed by or on behalf of itself, will state that it is an equal opportunity employer.

d. Notices and advertisements and solicitations placed in accordance with federal law, rule or regulation, shall be deemed sufficient for the purposes of meeting the requirements of this section.

e. The Contractor does not, and shall not during the performance of the contract for goods and services in the Commonwealth, knowingly employ an unauthorized alien as defined in the Federal Immigration Reform and Control Act of 1986.

To the extent that the Contractor enters into any subcontract or purchase order over Ten Thousand Dollars ($10,000.00), the provisions of (a), (b) (c) (d) and (e) above shall be binding on each subcontractor or vendor.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement the day and year written above.

RICHMOND METROPOLITAN
TRANSPORTATION AUTHORITY

By: _____
Joi Dean, CEO

Sworn to and Subscribed
before me this_____
day of _____, 20 _____.

(Authority's Seal)

_____
Notary Public

My commission expires:
_____

CONTRACTOR:

_____
Business Name

_____
Address

_____

by: _____(L.S.)
Title

(Affix Corporate Seal Here)

Sworn to and subscribed
before me this _____

day of_____,20_____.

_____

Notary Public

My commission expires: _____

EVIDENCE OF CORPORATE AUTHORITY

I, _____, hereby certify that I am Secretary of _____, a Corporation existing under the laws of the State of _____, and that the following resolution was adopted at a meeting of the Board of Directors of the said Corporation duly called and held on the _____day of _____, 20____, and that the same remains in full force and effect:

(Here insert resolution)

IN WITNESS WHEREOF, I have hereto appended my signature and the seal of the said Corporation on this the _____day of _____, 20_____.

_____
Secretary

SEAL

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

****

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS, that_____ _____, as Principal/Contractor, and _____, as Surety, legally authorized to do business in the Commonwealth of Virginia, are held and firmly bounded unto the Richmond Metropolitan Transportation Authority (Authority), in the amount of _____Dollars and _____Cents ($_____), 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:

WHEREAS, the Contractor has entered into a Contract with the Authority for the faithful prosecution and completion of a project designated as Contract No. MR-2019, entitled Miscellaneous Repairs, in connection with the Richmond Expressway System; and

WHEREAS, it was one of the conditions of the Contract award by the Authority pursuant to which said Contract was entered into, that these presents shall be executed;

NOW, THEREFORE, the condition of this obligation is such, that if the Contractor shall faithfully prosecute and complete the entire work prescribed for this project in full compliance with the terms and conditions of said Contract, including the Plans, Standard Specifications, Supplemental Specifications, Bid and all other documents pertaining to this Contract, and such alterations as may be made in said Plans and Specifications as therein provided for, shall indemnify and save harmless the Authority against or from all costs, expenses; damages injury or loss to which the Authority may be subjected by reason of any wrongdoing, misconduct, want of care or skill, negligence or default, including patent infringement, on the part of the Contractor, his agents or employees, in the execution or performance of said Contract, including errors in drawings furnished by the Contractor, and shall promptly pay all just claims for damages, for injury to property, and for labor, materials, equipment rentals, services and other charges incurred by the

Contractor in or about the work contracted for, and extinguish all liens therefore, then this obligation shall be null and void; otherwise, to remain in full force and effect.

SIGNED AND SEALED THIS _____day of _____, 20____.

PRINCIPAL/CONTRACTOR:

_____
Business Name

_____
Address

Witness or Attest:

_____

By: _____(L.S.)
Title

(Affix Corporate Seal Here)

SURETY:

_____
Business Name

_____
Address

_____

Witness or Attest:

_____

By: _____(L.S.)
Title

Countersigned by
Resident Virginia Agent:

(Attach evidence of Power of Attorney)

_____

(Affix Corporate Seal Here)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

****

FINAL RELEASE OF LIABILITY

I/We, _____, hereby certify that all bills, charges and salaries for labor, services, materials and rental of equipment, arising out of the prosecution of the work under Contract/Project No. MR-2019 have been paid, or satisfactory arrangements for payment have been made. I/We further certify that all other just demands and liens relating to this project have been fully satisfied or provided for. I/We hereby release the Richmond Metropolitan Transportation Authority, its Engineers and representatives from all claims demands and liability of whatsoever nature arising from anything done or furnished under this contract except to the extent only as to the following matters for which unresolved claims have been submitted by the Contractor in accordance with Section 105.19 of the Supplemental Specifications of the Contract:

SIGNED AND SEALED THIS _____ day of _____, 20____.

_____
Business Name

_____
Address

_____

By: _____(L.S.)

Title: _____

(Affix Corporate Seal Here)

STATE OF VIRGINIA AT LARGE: }
}
CITY/COUNTY OF } to-wit:

The foregoing instrument was acknowledged before me this _____day of _____, 20___, by _____, _____of

[name] [title]

_____,

[business name]

a _____corporation/partnership, on behalf of said corporation/partnership,

[state]

_____
Notary Public

My Commission expires:_____.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

****

SWaM Participation

The Authority strongly encourages the submission of bids by qualified contractors whose principal businesses are located in the Richmond Metropolitan Area and further encourage such contractors to utilize the services of local subcontractors and vendors.

In addition, the Authority strongly encourages the submission of bids by qualified contractors certified as Small, Women, and Minority Owned (SWaM) businesses and/or Disadvantaged Business Enterprises (DBE).

Furthermore, the Authority encourages the use of certified Small, Women, and Minority Owned (SWaM) businesses and Disadvantaged Business Enterprises (DBE) as subcontractors or vendors to the fullest extent reasonably possible.

Certification:

The Virginia Department of Small Business and Supplier Diversity is responsible for the certification of eligible small, women, and minority-owned businesses to participate in the SWaM Procurement Initiative. They also certify Disadvantaged Business Enterprises (DBEs) for participation under the Virginia Unified Certification Program (as part of the federal DBE Program). Service Disabled Veterans are also able to obtain SWaM certification upon receipt of their certification by the Department of Veterans Services and by meeting the eligibility requirements of the SWaM Program.
https://www.sbsd.virginia.gov/directory/

SWaM Category Type:
(As certified by the Virginia Department of Small Business and Supplier Diversity)

Minority Owned (M)
Small Business (S)
Women Owned (W)
Minority Owned with Small Business Certification (MS)
Women Owned with Small Business Certification (WS)

Other SWaM, DBE, WBE and MBE Programs:

Any contractors, subcontractors or vendors whose principal businesses are located outside the Commonwealth of Virginia must submit information on any business that is qualified as a Small, Women-Owned, Minority Owned and/or Disadvantaged Business Enterprises (DBE) by their home state or any federal program.

SwaM Summary:

As a part of the project closeout process and a prerequisite to final payment, the prime contractor shall submit fully executed pages DBE-3 and DBE-4, along with any additional sheets as needed, to document the actual amounts paid to each SWaM and/or DBE businesses that provided service or products during this execution of the contract.

****

Firm Name: _____

Firm Address: _____

Owner/Contact Name: _____

Owner/Contact Phone Number: _____

SWaM Category Type: _____ SWaM Certification Number: _____

Amount Paid: $ _____

****

Firm Name: _____

Firm Address: _____

Owner/Contact Name: _____

Owner/Contact Phone Number: _____

SWaM Category Type: _____ SWaM Certification Number: _____

Amount Paid: $ _____

****

Firm Name: _____

Firm Address: _____

Owner/Contact Name: _____

Owner/Contact Phone Number: _____

SWaM Category Type: _____ SWaM Certification Number: _____

Amount Paid: $ _____

Contractor shall attach additional sheets if needed.

SIGNED AND SEALED THIS _____ day of _____, 20____.

_____
Business Name

_____
Address

_____

By: _____(L.S.)

Title: _____

STATE OF VIRGINIA AT LARGE: }
}
CITY/COUNTY OF } to-wit:

The foregoing instrument was acknowledged before me this _____day of _____, 20___, by _____, _____of _____[name] _____[title]

_____,
_____[business name]

a _____ corporation/partnership, on behalf of said Corporation/partnership, _____[state]

_____
Notary Public

My Commission expires:_____.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019

MISCELLANEOUS REPAIRS

****

RECEIPT OF ADDENDA

I/We hereby acknowledge receipt of the following addenda and have made the necessary revisions to the Contractor's Proposal, plans, and specifications, etc., and agree that these addenda are included in the Contractor's Proposal.

Addenda #	Signature	Date
1.		
2.		
3.		
4.		
5.		
6.		

I understand that failure to confirm receipt of addenda may cause the bid to be irregular.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY
SUPPLEMENTAL SPECIFICATIONS

To

VIRGINIA DEPARTMENT OF TRANSPORTATION
2016 ROAD AND BRIDGE SPECIFICATIONS

FOR
RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019
MISCELLANEOUS REPAIRS

INDEX

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

****

SUPPLEMENTAL SPECIFICATIONS

PREFACE:

The 2016 Road and Bridge Specifications of the Virginia Department of Transportation, available from the Virginia Department of Transportation, as amended and augmented by the Supplemental Specifications following, shall govern the construction of this Project and the performance of the Contract. These specifications are hereby made a part of the Contract as fully and with the same effect as if set forth at length herein.

Attention is directed to the fact that any other documents printed by the Virginia Department of Transportation modifying or supplementing said 2016 Road and Bridge Specifications (revised January 2018), such as Standard Supplemental Specifications, Special Provisions (by the Department), Notice to Bidders, etc., do not form a part of this Contract nor govern its performance, unless specifically so stated in the Supplemental Specifications herein contained. The 2016 edition of the VDOT "Road and Bridge Standards", revised September 2018 are hereby made a part of this contract. The Virginia Erosion and Sediment Control Handbook, Third Edition 1992 Standards and Specifications are hereby made a part of this Contract.

References to “Proposal” have been changed to “Bid” in the Authority’s documents for this contract, including many standard VDOT terms such as “Examination of Site of Work and Bid [Proposal]”. This shall be accounted for when working contract documents prepared by the Authority with those standards prepared by VDOT.

References made to specific section numbers in these Supplemental Specifications, or in any of the various documents which constitute the complete Contract Documents, shall, unless otherwise denoted, be construed as referenced to the corresponding section of the 2016 Road and Bridge Specifications issued by the Virginia Department of Transportation.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

SUPPLEMENTAL SPECIFICATIONS

TO

VIRGINIA DEPARTMENT OF TRANSPORTATION
2016 ROAD AND BRIDGE SPECIFICATIONS

The following provisions represent modifications to the corresponding sections of the Virginia Department of Transportation Specifications, described above, and relate exclusively to the Richmond Metropolitan Transportation Authority Contracts. In case of conflicting requirements between the Virginia Department of Transportation Specifications and these Supplemental Specifications, the Supplemental Specifications shall govern. Any applicable provision in the Virginia Department of Transportation Specifications not amended by and not in conflict with any Supplemental Specifications or Special Provisions shall be in full effect.

All modifications contained herein are additions to the provisions of the designated sections of the Virginia Department of Transportation Specifications unless the text specifically identifies a requirement to be an amendment to, deletion of or substitution for a provision in the Virginia Department of Transportation Specifications.

SECTION 101 - DEFINITION OF ABBREVIATIONS, ACRONYMS AND TERMS

101.02 Terms

The following new definitions are added to this section:

ADDENDUM - - A written, fax or e-mail revision or addition to any of the Contract Documents, transmitted in advance of the opening of Bids to all parties who have been recorded by the Authority as having secured full sets of Contract Documents directly from the Authority or their designee.

AUTHORITY - - The Richmond Metropolitan Transportation Authority, a political subdivision and public body corporate and politic of the Commonwealth of Virginia, organized and existing under Virginia Code §§ 33.2-2900 et seq. The Authority's principal office is presently located at 901 East Byrd Street, Suite 1120, Richmond, Virginia, 23219.

AFFILIATE - - Any business entity which is closely associated to another business entity so that one has the power to control the other either directly or indirectly; or, where one business entity systematically shares resources, officers and/or other management with another business entity to the extent that a business relationship legally exists or is publicly perceived to exist; or, when a third party has the power to control both; or, where one business entity has been so closely allied with another through an established course of dealings, including but not limited to the lending of financial wherewithal or engaging in joint ventures, so as to cause a public perception that the two firms are one entity.

AVERAGE ANTICIPATED OPERATING SPEED - - The posted speed of the work zone plus 5 miles per hour as defined in Appendix A of the Virginia Work Area Protection Manual.

MOT - - Maintenance of Traffic

BID BOND - - One of the two permissible means of security offered as the Bid Guaranty, in the form of a surety bond executed by the Bidder and the Contractor's Surety, guaranteeing that if the Authority should award the Contract to the Contractor, the Bidder will execute and deliver the Contract Agreement and Contract Bond, together with other required documents, all within the prescribed time.

STANDARD DRAWINGS - - Whenever the Plans and/or Specifications refer to "Standards" or "Standard Drawings" such reference shall be construed to mean the set of drawings issued by the Location and Design Division, Virginia Department of Transportation, 2016, and entitled "Road and Bridge Standards", Volumes I and II. Only those standards or standard drawings specifically referred to by number on the Plans or in the various Contract Documents are applicable to work on this Contract.

FULL COMPLETION OF ALL WORK (OR TO FULLY COMPLETE ALL WORK) - - The completion of all work specified under this Contract as evidenced by the formal acceptance thereof by the Authority.

WORK AREA PROTECTION MANUAL - - The 2011 Virginia Work Area Protection Manual including Revision 1 (4/2015), and all subsequent revisions.

Whenever in the various Contract Documents the term, "Commission" or "State" appears it shall be replaced by the term, "Richmond Metropolitan Transportation Authority." Similarly, the term, "Commissioner" shall be replaced by the term, "CEO of the Richmond Metropolitan Transportation Authority," and the term, "Deputy Commissioner" replaced by the term, "Director of Operations of the Richmond Metropolitan Transportation Authority."

Whenever in the Virginia Department of Transportation Specifications and Standard Drawings the term, "Department" or "Virginia Department of Transportation" appears, it shall be replaced by the term, "Richmond Metropolitan Transportation Authority, (Authority)" except in references to said Virginia Department of Transportation as being the author of certain Specifications and Standard Drawings, and in reference to said Department as the agency prequalifying prospective Bidders.

Whenever in the Virginia Department of Transportation Specifications and Standard Drawings the term, "District Engineer" appears, it shall be replaced by the term, "Engineer."

The definitions for the following terms as they appear in this section are deleted and the following definitions substituted therefore:

CONTRACT TIME - - Each calendar date indicated in the Specifications or Special Provisions as the time allowed for the completion of any designated portion or for all of the work under the Contract, including any extensions thereto that may subsequently be authorized.

ENGINEER - - The authorized representative(s) of the firm of the General Consultant, HNTB Corporation, who have been duly appointed by the Authority to prepare Plans and Specifications for the Contract and to monitor the construction work performed in connection therewith.

The headquarters office of HNTB Corporation for this project is located at 2900 S. Quincy St, Suite 600, Arlington, Virginia 22206, telephone (703) 824-5100.

SPECIFICATIONS (SPEC) - - The general term comprising all the directions, provisions and requirements contained in the Virginia Department of Transportation, 2016 Road and Bridge Specifications (revised January 2018), the Authority's Supplemental Specifications and Special Provisions, and in any Addenda and Change Orders or Supplemental Agreements that may be issued, all of which are necessary for the proper performance of the Contract.

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS

102.01 Prequalification of Bidders

This Section is amended to add the following:

Only contractors who have been prequalified by the Virginia Department of Transportation for bidding on State projects will be permitted to submit Bids for Contracts for Construction of this Project. The foregoing notwithstanding, the Authority reserves the right to reject the bid of any bidder because of reason of unsatisfactory performance or progress on other or prior Authority contracts, as determined by the Authority in its sole discretion.

Contractor shall also see Prequalification requirements in the "Invitation to Bid" (Sheet IB-2 of the Contract Documents). If a Subcontractor is listed in one of the experience forms, that Subcontractor or a different Subcontractor which meets the experience requirements must complete at least 90% of the work in that category.

In order to bid on this project, prospective Bidders must meet the Prequalification requirements at the time specified in the "Invitation to Bid". The Authority cannot be held liable in the event a party is unable to submit a valid bid due to a delay in the prequalification procedure. Securing prequalification and the timing thereof, shall at all times be the sole responsibility of the Contractor.

If a group of contractors should desire to submit a single bid for a contract or group of contracts, acting under the terms of a joint venture, each such contractor must be prequalified in the proper classification of work and must be registered with the Virginia Department of Transportation. The sum of the maximum pre-qualified classification capacity of the contractors comprising the joint venture must be greater than the estimated dollar value of the contract or group of contracts comprising the bid.

102.02 Content of Proposal

This section is amended as follows:

The following documents are bound with and are also a part of the Bid Form:

Bid
Non-Collusion Affidavit
Statement of Contracts Underway
Joint Venture Statement
Bid Bond
Receipt of Addenda (if applicable)

102.04 Examination of Site of Work and Proposal

The Section is amended to add the following:

In addition to the mandatory site visit, the Bidders are allowed to visit the Project site to form their own conclusions regarding access requirements, effort required to perform the tasks and other information needed to prepare their bid. Prior to visiting the site, a Bidder shall notify the Authority and Glen Parker (Construction Manager) at 804-938-3963 to coordinate the time and date of the Bidder's visit.

Any Addenda that may be issued will be posted on the RMTA website: http://www.rmtaonline.org/news-events/#news-rfps-public. All bidders are required to download any and all addenda from the website. The Authority shall not be responsible for individually delivering addenda to all proposers.

102.05 Preparation of Bid

Sub-Section (a) is amended to add the following:

No electronic bids shall be accepted. All bids shall be submitted on forms furnished by the Authority.

As part of the execution of the Bid, each Bidder shall execute the Statement of Contracts Underway, and the Non-Collusion Affidavit and, in the case of Joint Venture Bidders, the Joint Venture Statement.

The Statement of Contracts Underway shall list the stipulated status information of all other work in which the Bidder is presently engaged, whether as a prime contractor or a subcontractor. Such listings shall include not only contracts which are under construction, but also those awarded to the Contractor but not begun and those on which the contractor is the lowest bidder awaiting formal award. In the case of Joint Venture Bidders, each party involved shall complete, execute and submit a separate Statement of Contracts Underway, as well as the Bidder's portion of the Joint Venture Statement. Additional Statements of Contracts Underway forms are available at the office of the General Manager of the Authority.

The Non-Collusion Affidavit must be executed by the person signing the Bid. In the case of Joint Venture Bidders, only the person signing the Bid on behalf of the Contractors involved need execute the Non-Collusion Affidavit.

The Richmond Metropolitan Transportation Authority may elect to receive bids on more than one construction contract on the same date. When this event occurs, the Authority will award the various contracts after all of the bids for the various contracts are received and analyzed.

Sub-Section (f) is amended as follows:

In the event of a joint venture of a group of Contractors submitting a single Bid, the Bid shall be signed by an individual owner, partner or officer of any one of the Contractors bound in the joint venture, and the official business address of the joint venture shall be given. In addition, a Joint Venture Statement must be executed by all Contractors involved.

102.06 Irregular Bids

This section is amended as follows:

The following section is deleted:
Section (m)

The following is added:

(p). If the bidder fails to submit the executed Statement of Contracts Underway; in the case of Joint Venture Bidders, failure to submit an executed Statement of Contracts Underway for each Contractor in the joint venture and the Joint Venture Statement.

(q). If the signed bid form is received from a party who was not represented, and recorded by the Authority as attending both the mandatory pre-bid meeting and site visit.

(r). If the bidder is not pre-qualified by the Virginia Department of Transportation at the time of the mandatory pre-bid meeting.

(s). If the bidder fails to properly acknowledge receipt of addenda/addendum in the Receipt of Addenda form.

(t). Alterations to the Bid Tab

102.07 Proposal Guaranty (Bid Bond)

Add the following:

If a certified check is submitted as the Bid Guaranty, the check is to be made payable to the Richmond Metropolitan Transportation Authority, and the project name and Contract number shall also appear on the face of the check, as well as the business name of the bidder.

A bid bond will be accepted only if executed on a form which contains the exact wording as the Bid Bond included in these contract documents form. Any bid accompanied by a bond having wording which differs in any respect from the Bid Bond form may be rejected.

102.09 Submission of Bid

This section of the Specifications is completely replaced by the following:

Bids will be accepted at the Authority's office at 901 East Byrd Street, Suite 1120, Richmond, Virginia until scheduled bid opening time and shall be submitted in a sealed envelope. Bids shall be filed prior to the time specified in the Invitation to Bid. Bids received after that time will be returned to the bidder unopened. The bid date may be deferred by the Authority, in which case the bidders will be notified.

102.12 Public Opening of Bids

This section of the Specifications is completely replaced by the following:

Bids will be opened and read publicly at the time and place specified in the Invitation to Bid. Interested parties are invited to be present.

SECTION 103 - AWARD AND EXECUTION OF CONTRACTS

103.01 Consideration of Bids

Add the following:

In reviewing bids received, the Authority will give full consideration to a Bidder's capacity for undertaking and handling the work included in the bid. The difference in amounts between the maximum capacity stated in the prequalification certification for this classification of work, and the total estimated value of work remaining to be completed by the Bidder's organization as given in the Bidder's Statement of Contract Underway, shall constitute the Bidder's net capacity for handling additional work. Such net capacity will be considered by the Authority in determining the successful Bidders for Contracts on this Project.

103.02 Award of Contract

This section of the Specifications is completely replaced by the following:

The Authority will award a contract within sixty (60) calendar days of the bid opening for said Contract. If a Contract is not awarded within this time period, the Bidder shall have the right to withdraw the Bidder's Bid for the Contract without penalty or prejudice, unless the award date is extended by mutual consent.

The Authority agrees that Award of Contract, if made, will be determined without discrimination on the ground of race, creed, color, sex or national origin.

Basis for Contract Award: The Contract, if awarded, will be awarded to the lowest responsive and responsible bidder, if any, provided the bid is reasonable and it is in the best

interest of the Authority to accept it and subject to the Authority's right to reject any and all bids and to waive informality in the bids and in the bidding. Determination of the lowest responsive bidder, if any, will be based on the Total Bid Amount entered on the Bid Tab Form including any properly submitted bid modifications taken in sequence as the Authority in its discretion chooses to Award. **Where the sum of the values entered in the multiple parts do not agree with the Total Bid Amount, the Total Bid Amount entered on the Bid Tab Form, including** any **properly submitted bid modifications, shall take precedence.**

In the event that the Total Bid Amount from the lowest responsible bidder exceeds available funds, the Authority may negotiate the Total Bid Amount with the apparent low bidder to obtain a contract price within available funds, pursuant to §2.2-4318 of the Code of Virginia, as amended, and Section 12(c) herein.

Informalities: The Authority reserves the right to waive any informality in the bids when such waiver is in the interest of the Authority.

Negotiation with Lowest Responsible Bidder: If award of a contract to the lowest responsive and responsible bidder is precluded because of limitations on available funds, under the provisions of §2.2-4318 of the Code of Virginia (the Public Procurement Act), the Authority reserves the right to negotiate the Total Bid Amount with the lowest responsive, responsible bidder to obtain a contract price within the available funds. This may involve changes in either the features or scope of the work included in the Contract Documents. Such negotiations with the apparent low bidder may include reducing the quantity, quality, unit prices, or other cost saving mechanisms involving items in the Total Bid Amount. The Authority shall notify the lowest responsive and responsible bidder that such a situation exists and the Authority and bidder shall then conduct their negotiations in person, by mail, by telephone or by any means they find convenient. If an acceptable contract can be negotiated, the changes to the Invitation to Bid documents agreed upon in the negotiations shall be summarized in a "Post Bid Modification" and included in the contract. If an acceptable contract cannot be negotiated, the Authority reserves the right to terminate negotiations and begin negotiations with the second lowest responsive and responsible bidder or terminate negotiations with all bidders and reject all bids.

Notice of Award: The Notice of Award, the Notice of Intent to Award, or the Notice of Decision to Award will be posted at the Authority's Construction Engineering Inspection Office.

103.06 Contract Documents

Subsection (d) of this section of the Specifications is amended to include:

- All insurance certificates as required in Sec. 103.06 (d), as prescribed in Sec. 107 and as may be required in other sections.

Subsection (e) of this subsection of the Specifications is amended to include the following:

The Contractor shall submit a progress schedule using the Critical Path Method (CPM) format. As a minimum, the schedule shall include:

- The duration of activities.
- The interrelationship of critical activities.
- Maintenance of traffic changes.
- Any temporary work necessary to complete project.
- An easily distinguishable critical path.
- Final completion by the date specified.

SECTION 104 - SCOPE OF WORK

104.02 Changes in Quantities or Alterations in the Work

Subsection (b) of this section of the Specifications is amended to include:

1. Major Items: There are no major items under this contract.

2. Minor Items: All items under this Contract are considered minor items. No adjustment of contract unit prices will be made for overruns or underruns of the original contract quantities, regardless of the extent of such overruns or underruns.

SECTION 105 - CONTROL OF WORK

105.01 Notice to Proceed

Add the following:

Notice to Proceed will be issued within seven (7) calendar days after the execution of the Contract by the Authority.

Contractor shall submit CPM schedule as detailed in Section 103.06 within fourteen (14) days of issuance of Notice to Proceed by the Authority.

105.06 Subcontracting

Add the following:

Except as noted below, the consent to sublet any part of the work, or obtain supplies, shall not be construed to be an approval of the said subcontract, supply contract or any of its terms, but shall operate only as an approval of the making of a subcontract or supply contract between the Contractor and Subcontractor or Supplier. The Subcontractor agrees, as a condition of entering into a subcontract on the project, that the Contractor shall make no claim whatsoever against the Authority, the Engineer, or any of their officers, servants, agents or employees for any work performed or thing done by reason of said subcontract, or for any other cause whatsoever that may arise by reason of the relationship created between the Contractor and Subcontractor unless the proposed Subcontractor furnishes a statement to the effect that said Subcontractor is acquainted with all provisions of the Contract and agrees thereto.

In the case of extra work to be performed on a force-account basis, if any portion of such work is proposed to be sublet on the basis of negotiated unit and/or lump-sum prices instead of on a force-account basis, then such negotiated unit and/or lump-sum prices shall first meet with the approval of the Engineer before consent will be given to sublet the work.

Sublet work shall not begin until approval thereof has been secured from the Engineer. It is understood, however, that any consent by the Engineer for the subletting of any of the work under the Contract in no way relieves the Contractor from the Contractor's full obligations under the Contract. The Contractor shall be responsible for all acts of omissions of any Subcontractor or Supplier.

105.13 State Force Construction Surveying

This Section is deleted in its entirety. All construction surveying shall be the responsibility of the Contractor.

105.15 Removing and Disposing of Structures and Obstructions

This section is amended as follows:

All materials removed by the Contractor as specified therein, shall become the property of the Contractor, except as may be otherwise specifically required, and shall be legally disposed of by the Contractor off of RMTA property.

105.19 Submission and Disposition of Claims

This section of the Specifications is completely replaced by the following:

(a) Alleged Damages and Exceptions. Early or prior knowledge by the Authority of an existing or impending claim for damages might alter the plans, scheduling and other actions of the Authority or result in mitigation or elimination of the effect of the act objected to by the

Contractor. Therefore, a written statement describing (1) the act of omission or commission by the Authority or its agents that allegedly caused or will likely cause damage to the Contractor and (2) the nature of the claimed damage must be submitted to the Engineer at the time of occurrence or beginning of the work upon which the claim and subsequent action is based. If such damage is reasonable likely to result from the Contractor's acting upon an order emanating from the Engineer, the Contractor shall take written exception, delivered to the Authority, to such order immediately. Submission of such written statement or exception, as specified, shall be mandatory. Failure to submit such written statement or exception shall be a conclusive waiver of such damages or exception by the Contractor. Mere oral notice or statement will not be sufficient, nor will notice or statement after the event.

(b) Additional Compensation. At the time of occurrence or prior to beginning the work the Contractor shall furnish the Engineer, in writing, an itemized list of materials, equipment, and labor for which additional compensation will be claimed. The contractor shall afford the Engineer every facility for keeping an actual cost record of the work. The Contractor and the Engineer shall compare records and bring them into agreement at the end of each day. Failure on the part of the Contractor to afford the Engineer proper facilities for keeping a record of actual costs will constitute a conclusive waiver of a claim for such extra compensation except to the extent that it is substantiated by the Authority's records. The filing of such notice by the Contractor and the keeping of cost records by the Engineer shall in no way establish the validity of a claim. Failure to submit such written itemized list shall be a conclusive waiver of such claim for additional compensation. Mere oral notice or statement will not be sufficient, nor will notice or statement after the fact.

(c) Verification. If the Contractor's claim contains data furnished by the Contractor that cannot be verified by the Authority's records, the data shall be subject to complete audit by the Authority or its authorized representative if they are to be used as a basis for claim settlement.

(d) Claims Procedure. Upon completion of the Contract, the Contractor may, within 60 calendar days from expiration of the period for review of the Final Estimate by the Contractor as provided in Section 109.10, submit to the Authority a written claim (original plus three legible copies) for such amount as the Contractor deems it is entitled to under the said contract setting forth the facts upon which said claim is based and including all pertinent data and correspondence which may substantiate the claim, provided that written notice of intention to file such claim shall have been given to the Authority at the time of occurrence or beginning of the work upon which claim and subsequent action is based. Failure of the Contractor to furnish any of the items required by Section 109.10 as prerequisite to the issuance of final payment shall not extend the time period in which the Contractor may submit a claim under this or any other section of the Contract. If the claim is not disposed of by agreement, then within 90 calendar days from receipt of said claim, the Authority will make an investigation and notify the Contractor by registered or certified

mail, return receipt requested, of its decision; however, the Authority and Contractor may, by mutual agreement, extend such 90-calendar day period for another 30 calendar days. The decision of the CEO of the Authority shall be final, and failure of the Contractor to comply with the provisions of this section shall constitute a conclusive waiver of any such claim hereunder.

SECTION 106 - CONTROL OF MATERIAL

106.01 Source of Supply and Quality Requirements

This section is amended to add the following:

The Contractor shall not use in preparation of the bid nor on construction of this project any supplier or material person, hereinafter referred to simply as supplier, debarred by the Virginia Department of Transportation as of the date of advertisement.

It shall be the responsibility of the Bidder to determine from the Department's listings which suppliers are debarred as of the date of advertisement of this project. Such listings will be posted in the office of the Contract Engineer, 1401 E. Broad Street, Richmond, Virginia and in each District Office.

The Engineer will not approve for use any material furnished by a supplier debarred by the Department.

If subsequent to award of this contract, a previously debarred supplier is reinstated to eligibility, the Engineer may approve the use of that supplier on this project when requested by the Contractor and after consideration of all relevant factors.

106.02 Material Delivery

This section is amended as follows:

Contractor's invoices for materials delivered to the site shall show actual prices for such materials.

106.04 Disposal Areas.

The entire third paragraph under section (a) of the Specification is deleted.

SECTION 107 – LEGAL RESPONSIBILITIES

107.12 Responsibility for Damage Claims

Delete the first line of paragraph (a) and substitute:

"The Contractor shall indemnify and save harmless the Authority, the Engineer and its…"

Add the following statement to the end of paragraph (b):

". . . the contract provided, however, that the Authority and, where applicable, the Engineer are intended beneficiaries of this Contract and shall have standing to enforce the provisions of this Contract including the right to indemnification and the right to ascertain claims for damages.

Add the following after the last paragraph of this section:

In connection with the indemnification assumed by the Contractor by virtue of this section, but without limitation or release of the Contractor's responsibility for such indemnification or any other liability hereunder, the Contractor shall provide the following types and minimum amounts of insurance coverage for this project:

(a) Contractor's Comprehensive General Bodily Injury and Property Damage Liability Insurance, including Contractor's Protective Liability Insurance and Contractual Liability Insurance:

(1) One (1) person in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(2) Two (2) or more persons in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(3) Property Damage in any one (1) occurrence, amount One Million Dollars ($1,000,000), with aggregate property damage policy limit of One Million Dollars ($1,000,000).

The portion of the policy dealing with property damage liability shall contain a provision of endorsement providing insurance protection against property damage, including loss of use, caused by explosion and/or collapse, and against damage to existing underground and overhead pipes, cables, ducts and other such facilities, whether or not such facilities appear on available plans and whether or not accurately located on such plans.

The Contractual Liability Insurance policy shall contain an endorsement attesting to the Contractor's responsibilities for indemnification set forth in this section. Insurance certificates shall specifically indicate the inclusion of such an endorsement with particular reference to the Contract number and to "Compliance with Sec. 107.13 of the Specifications."

(b) Comprehensive Automobile and Truck Liability Insurance including coverage for Contractor's automotive equipment (and including non-owned and hired vehicles):

(1) One (1) person in any (1) occurrence, amount One Million Dollars ($1,000,000).

(2) Two (2) or more persons in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(3) Property damage in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(c) Workmen's Compensation Insurance - Statutory. Employer's Liability Insurance in the amount of Five-Hundred Thousand Dollars ($500,000).

If any part of the work is sublet, similar insurance shall be obtained by or on behalf of the Subcontractor to cover the Subcontractor's operation.

The insurance specified shall be with an insurance company acceptable to the parties hereto and licensed to do business in the State of Virginia. All insurance must be obtained before any work is commenced and kept in effect until its completion.

In compliance with Sec. 103.06, satisfactory evidence, in triplicate, of all required insurance coverage, including special endorsements, shall be forwarded to the Authority for approval within fourteen (14) Calendar Days after the date of written notice of Award of Contract. All insurance coverage must be approved by the Authority before the Contract will be executed by the Authority.

The Authority's approval of insurance furnished by the Contractor, or its failure to disapprove such insurance shall not relieve the Contractor of full responsibility for liability, damages and accidents as set forth elsewhere herein.

All policies required above shall include an endorsement requiring thirty (30) calendar days prior written notice to the Authority before any change or cancellation is made effective.

All policies required shall be maintained until completion and acceptance of all work under this Contract.

No separate payment will be made for the cost of the insurance herein specified but the Contractor shall include the cost of such insurance in the prices bid for the various items scheduled in the Bid.

107.19 Railway - Highway Provisions

This section is amended as follows:

CSX Transportation

When performing work on, over or adjacent to CSX Transportation (CSXT) right-of-way or operations, the Contractor must abide by the current CSXT Special Provisions, CSXT Construction Submission Criteria, Construction Requirements, and Insurance Requirements.

All construction related correspondence and submittals will be directed to HNTB, acting as Engineer on behalf of the Richmond Metropolitan Transportation Authority. The Authority and the Engineer will have the sole responsibility and authority for submitting the Contractor's construction submissions and coordinating all reviews with CSX Transportation.

The Contractor shall submit complete Construction Submission packages for all areas that may require a construction agreement within fifteen (15) calendar days of Notice to Proceed. The Authority shall have up to seven (7) calendar days to review all submittals. The Contractor shall address any comments and submit revised Construction Submission packages for all areas that may require a construction agreement within thirty (30) calendar days of Notice to Proceed.

If any submissions are returned not approved by CSX Transportation, the Contractor shall have seven (7) calendar days after receipt of comments to address any comments and submit revised Construction Submission package(s).

Failure of the Contractor to meet the time schedules listed above in Section 107.19 shall be considered a Failure to Complete on Time subject to the Liquidated Damages as described in Section 108.06. All construction related correspondence shall be considered "submitted" on the date that it is received by the Authority.

Contractor shall coordinate all work activities in the areas described below with the Richmond Metropolitan Transportation Authority or its authorized representative.

Bridge:	Location	Repairs:	Railroad Owner:
65	Pier 12, unit 12	Steel Repair	CSX Corp.
8N	Piers 14, 15	Shotcrete	CSX Corp.
67	Pier 1	Shotcrete	CSX Corp.
13	Piers 2, 3	Concrete Coatings	CSX Corp.

Contractor hereby agrees to fully execute Schedule I – Contractor's Acceptance and to abide by and perform all applicable terms of the Construction Agreement between CSXT and the Richmond Metropolitan Transportation Authority, including, but not limited to Exhibits C and F to the Agreement, and Sections 3, 9 and 11 of the Agreement. A copy of this agreement, construction requirements and submission criteria are included in the contract documents.

The cost for flagger or watchperson services near CSXT tracks for work performed under this MR – 2019 Contract will be paid by the Richmond Metropolitan Transportation Authority.

Norfolk Southern Corporation

When performing work on, over or adjacent to Norfolk Southern Corporation. (NS Corp.) right-of-way or operations, the Contractor must abide by the current NS Corp. Special Provisions, Construction Submission Criteria, Construction Requirements, and Insurance Requirements.

All construction related correspondence and submittals will be directed to NS Corp. with a copy to HNTB acting as Engineer on behalf of the Richmond Metropolitan Transportation Authority. The Contractor will have the sole responsibility and authority for submitting and coordinating all reviews with NS Corp.

The Contractor shall submit complete Construction Submission packages for all areas that may require a construction agreement within fifteen (15) calendar days of Notice to Proceed.
The Contractor shall address any comments and submit revised Construction Submission packages for all areas that may require a construction agreement within thirty (30) calendar days of Notice to Proceed.

If any submissions are returned not approved by NS Corp. the Contractor shall have seven (7) calendar days after receipt of comments to address any comments and submit revised Construction Submission package(s).

Failure of the Contractor to meet the time schedules listed above in Section 107.19 shall be considered a Failure to Complete on Time subject to the Liquidated Damages as described in

Section 108.06. All construction related correspondence shall be considered "submitted" on the date that it is sent to NS Corp.

Contractor shall coordinate all work activities in the areas described below with the Richmond Metropolitan Transportation Authority or its authorized representative.

Bridge:	Location	Repairs:	Railroad Owner:
65	Pier 10 (South Face)	Shotcrete	NS Corp.
5	Abutments and Piers	Concrete Coatings	NS Corp.

The cost right of entry permits, and for flagger or watchperson services near NS Corp. tracks for work performed under this Contract will be paid by the Contractor.

SECTION 108 - PROSECUTION AND PROGRESS OF WORK

108.04 Determination and Extension of Completion Date

In the second paragraph of this section, substitute the number "75" for the number "60" wherever it appears.

108.06 Failure to Complete on Time

Sub-section (B) is completely replaced by the following:

CONTRACTOR WAIVES ANY DEFENSE AS TO THE VALIDITY OF ANY LIQUIDATED DAMAGES STATED IN THIS CONTRACT ON THE GROUNDS THAT SUCH LIQUIDATED DAMAGES ARE VOID AS PENALTIES OR ARE NOT REASONABLY RELATED TO ACTUAL DAMAGES.

SECTION 109 - MEASUREMENT AND PAYMENT

109.06 Common Carrier Rates.

This Section of the Specifications is deleted in its entirety.

109.08 Partial Payments

This section is completely replaced by the following:

Partial payments will be made once each month covering work performed and materials complete-in-place in accordance with the contract and for materials delivered in accordance with Sec. 109.09 on and between the 5th day of a month and the 4th day of the succeeding month as the

work progresses. Partial payments will be made on the value of work performed based on approximate estimates prepared by the Engineer, provided, however, that no estimate shall be certified or payment made where the net amount receivable by the Contractor is less than Five-hundred Dollars ($500.00). The value of work done on items measured on a unit basis will be determined on a pro rata basis. If the Engineer determines that the Contractor has been overpaid, all further partial payments may be credited against such overpayment.

The Engineer will review the partial payment estimate with the Contractor's representative prior to each partial payment.

From the total of the amounts so determined will be deducted an amount equivalent to five (5) percent of the whole, which will be retained by the Authority until completion of the entire Contract in an acceptable manner and the balance, less all previous payments, shall be certified for payment.

Total Contract value shall be considered to mean the original amount of the Contract, except when the Contract is increased or decreased by a supplemental agreement in which case the adjusted total shall be used.

The Authority reserves the right to withhold the payment of any partial or final estimate voucher or any sum or sums thereof from such vouchers in the event of the failure of the Contractor to promptly make payment to all persons supplying equipment, tools or materials, or for any labor used by the Contractor in the prosecution of the work provided for in the Contract, and for any other cause as determined by the Authority in its sole discretion, including overpayment on previous partial payments.

109.10 Final Payment

This section of the Specifications is completely replaced by the following:

After final inspection and final acceptance of the project has been made by the Engineer, as provided in Sec. 108.09, the Engineer will prepare the final estimate of item quantities and amounts for the completed work. The Contractor will be afforded a period of fifteen (15) calendar days from the date of the final estimate to review the final estimate at the Authority's office.

As a prerequisite to the issuance of final payment, the Contractor will be required to furnish the following items to the Engineer:

(a) An executed SWaM Participation form (on the Authority's standard form) attesting to actual amounts fully paid to each Small, Women, and Minority Owned (SWaM) businesses and/or Disadvantaged Business Enterprises (DBE).

(b) An executed Final Release of Liability (on the Authority's standard form) attesting to the fact that all bills, charges and salaries for labor, services, materials and rental of equipment, arising out of the prosecution of work under this Contract have been fully paid or arrangements satisfactory to the Engineer therefore have been made and all other just demands and liens relating to this project fully satisfied or arrangements to the Engineer therefore have been made, and releasing the Authority and their representatives from all claims, demands and liability of whatsoever nature from anything done or furnished under this Contract, except to the extent only as to such matters for which unresolved claims have been submitted by the Contractor in accordance with Section 105.19 hereof;

(c) Sworn statements of any property owners or other parties who may have had any claims against the Contractor or liens against the project, evidencing that all their claims and liens are fully satisfied or provided for and the Contractor and Authority are released there from;

(d) Any other documents, invoices, releases or objects which the Engineer may request in finalizing the Contract.

After the above items have been forwarded to the Engineer, and the final estimate and certificate for final payment sent to the Authority with the Engineer's recommendation for acceptance, the Contractor will be paid the total Contract amount less the amounts of all previous partial payments and less any imposed liquidated damages. This net amount will be subject to any increase or decrease resulting from corrections to any errors in previous partial payments that may be detected at this time and to deductions for unacceptable work not corrected by the Contractor as required hereunder.

This final payment will become due and payable to the Contractor within ninety (90) calendar days after the date when all the above listed documents and tracings have been received by the Engineer and acknowledged in writing by the Contractor. The Contractor will be entitled to interest on the final payment amount at the rate of four (4) percent per annum for the length of time beyond said 90 calendar days period that the final payment should remain unpaid.

SECTION 411—PROTECTIVE COATING OF METAL IN STRUCTURES

411.01 Description

This section is amended to include the following:

Regulatory Agencies

The Contractor shall perform all work in accordance with accepted construction standards and in compliance with Steel Structures Painting Council (SSPC), Occupational Safety and Health Act (OSHA), United States Coast Guard (USCG), United States Environmental Protection Agency (EPA), Virginia Air Pollution Control Board (VAPCB), Virginia Department of Environmental Quality (VDEQ) and other regulatory agencies' rules, regulations, standards and guidelines currently in effect.

Superintendent

The Contractor shall furnish a competent superintendent who is thoroughly familiar with the above regulations, the specified requirements and the methods needed for proper performance of the work. The superintendent's experience record shall be submitted to the Authority for review and approval. The superintendent shall plan, direct, coordinate, and supervise all of the work.

Quality Control

The Contractor shall be responsible for quality control on this project. The Contractor's site supervisor shall be equipped with thermometers, relative humidity gauges, wet and dry film thickness gauges and shall monitor all of the cleaning and painting operations. The Engineer will monitor work daily.

Classification

All surfaces shall be classified as Type B, unless otherwise noted.

Schedule

Contractor shall coordinate Coatings work schedules and Maintenance of Traffic patterns with adjacent contractors on site for other Authority contracts.

411.02 Materials

This section is amended to include the following:

Soluble Salt Remover: If chloride level is found to be above the threshold level (as described in Section 411.04), the contractor shall add a commercial soluble salt remover to the Method 7 preparation (pressure wash) as described in Section 411.04. In the first 50 sq ft, the contractor shall test the worst deteriorated areas to determine the required rate of application, nozzle pressure, nozzle distance from surface, and dilution ration of mixture to achieve the desired level of cleanliness. Testing shall be the CHLOR*TEST method.

The Soluble Salt Remover shall be CHLOR*RID or Engineer approved equal. CHLOR*RID is manufactured by CHLOR RID International, Inc. of Chandler, AZ, PH: (480) 821-0039. The material shall meet or exceed the following specifications:

- Material shall contain zero VOC's.
- Material shall have a minimum shelf life of 24 months.
- Material shall be suitable for hand washing spot areas and for application by pressure washer at any pressure.
- Material shall be biodegradable.

The Soluble Salt Remover shall be used in accordance with all manufacturer's recommendations, specifications and directions.

411.04 General Surface Preparation and Application Standards

This section is amended to include the following:

All wash water shall be filtered with a 40 or finer mesh material to catch particles of paint and debris.

The Engineer or Engineer's representative will test the existing coatings for chloride contamination by the CHLOR*TEST (chloride test kit) method. Testing shall be completed at a minimum of one location per pier and one location per span. The maximum allowable level of chloride contamination shall be 5 micrograms/cm2. When the chloride test results indicate a chloride level of 5 micrograms/cm2 or greater, a soluble salt remover shall be added to the wash water as specified in Section 411.02. CHLOR*TEST results will be made available to the contractor.

If the Engineer allows the Contractor to complete the CHLOR*TEST, the Engineer shall approve and document each test.

If the contractor prefers to forego Engineer's testing of contaminated areas, Contractor shall have the option to include CHLOR*RID in all Method 7 wash water.

Cleaned steel surfaces shall be tested for soluble salt levels after all preparation and cleaning methods are completed but prior to the start of any coating activities. The maximum level of soluble salt shall be 5 micrograms/cm2. If test results show a higher level of soluble salt, Contractor shall re-wash surface with CHLOR*RID until soluble salt contamination level is less than 5 micrograms/cm2.

See Special Provisions for further details on structures and surfaces to be coated.

411.04(B) General Surface Preparation and Application Standards – Physical Application

This section is amended to include the following:

All coating color formula, except for Bridges 61 and 62 shall be RMTA Green, which is Federal Standard I.D. #595-24227, or as otherwise directed by the Engineer. Contractor shall submit a color sample for review and approval by the Engineer.

All abrasive blast cleaned surfaces shall receive the following three-coat zinc, epoxy and urethane system or engineer approved equal:

- AMERCOAT 68HS – Zinc Rich Epoxy Primer 2-5 mils D.F.T.
- AMERCOAT 399 – Fast Dry, High Solids Epoxy 4-8 mils D.F.T.
- AMERCOAT 450H – Gloss Acrylic Aliphatic Polyurethane 2-3 D.F.T.

All high-pressure water cleaned and power tool cleaned surfaces shall receive the following three coat sealer, epoxy and urethane system or engineer approved equal:

- AMERLOCK Sealer Primer 1-2 mils D.F.T.
- AMERCOAT 399 Epoxy 4-8 mils D.F.T.
- AMERCOAT 450H Acrylic Aliphatic Polyurethane 2-3 mils D.F.T.

411.11 Measurement and Payment

This section is amended to include the following:

Measurement and payment for "Zone Coating", "Environmental Protection" and "Disposal of Material" shall be paid per individual structure on a lump sum basis per activity and per structure location. Surface preparation effort shall be included in the lump sum price bid for Zone Coating. Structure surfaces to be coated shall be as defined in the Special Provisions.

SECTION 512 - MAINTAINING TRAFFIC

512.01 Description

The following is added to this section:

The Contractor shall schedule the Contractor's operations in a manner as to not adversely affect traffic conditions. At all locations, the Contractor shall schedule the Contractor's operations

in such a manner that all available traffic lanes are open to traffic on Commonwealth of Virginia holidays, the day preceding holidays and the day after holidays. If a holiday falls on a Saturday, Monday shall be considered the preceding day. If a holiday falls on a Sunday, Monday shall be considered the day after. Ramp traffic (unless otherwise noted) shall be maintained at all times.

The Engineer reserves the right to require the Contractor to provide a proposed maintenance of traffic plan for all lane closures seven (7) calendar days prior to closure. The Engineer shall coordinate the maintenance of traffic plan with the RMTA and provide any changes and additions required prior to the lane closure. In the event that a detour route is detailed in the contract drawings, the Contractor shall be required to provide a traffic plan for installing and removing the proposed detour route.

The Contractor shall not utilize shoulders, median or similar areas for storage of equipment or material including vehicles used by Contractor's personnel to access the site. Any stored equipment shall be placed behind guardrail or concrete barriers.

The Contractor shall provide continuous monitoring of traffic control devices as part of the effort required to maintain them. Additionally, the Contractor shall possess a minimum of one spare operable electronic arrow on site only when directed by the Engineer.

When night work is in progress, the Contractor shall provide sufficient lighting of the work site(s) to enable the satisfactory completion of the work. Lighting shall be arranged so as not to interfere with or impede traffic approaching the worksite(s). Payment for lighting of the work site shall be covered in other pay items and will not be measured for payment.

512.03 Procedures

Add the following:

See Maintenance of Traffic Special Provision for specific bridge and lane closure restrictions, assessment of damages due to MOT violations and certified personnel requirements.

All maintenance of traffic operations shall be conducted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), the Virginia Work Area Protection Manual, and subject to the approval of the Engineer, VDOT, City of Richmond, and the RMTA. The Contractor’s signing and MOT shall consider the efforts of adjacent contractors, motorists and pedestrian traffic.

The Contractor shall submit a plan sequenced with a plan of operations, for maintenance of traffic and detours to the Engineer for review and approval prior to commencement of work in a specific area. The plan shall be in accordance with the Virginia Work Area Protection Manual

and the MUTCD. Plan shall be submitted at least seven (7) days prior to proposed work start date. If and when the Engineer provides sequence of construction plans and estimated quantities for maintenance of traffic items, the plans and items are for estimating purposes only.

512.04 Measurement and Payment

This section is replaced with the following:

Any maintenance of traffic required for coating locations paid under the "Miscellaneous Coating" bid item or for Various Bridges shall be paid for under the following items:

Flagger Service will be measured in hours as authorized or approved by the Engineer except when used for the Contractor's convenience, such as for ingress and egress for moving construction equipment or materials. In such cases, payment will not be made for flagger service. Flagger service will be paid for at the contract unit price per hour. This price shall include paddles, safety equipment, and portable traffic control signals.

Electronic Arrows will be measured in hours of actual use as required by the Engineer. Electronic arrows will be paid for at the contract unit price per hour. This price shall include arrow panels, fuel, maintenance, and a truck or trailer having flashing amber warning lights. The RMTA reserves the right to substitute their Electronic Arrow In lieu of Contractor's at the RMTA's direction. RMTA Electronic Arrow shall be operated by RMTA staff only. Contractor shall not submit or be paid for Electronic Arrow hourly pay units for when the RMTA's Electronic Arrow is in service.

Group 2 Channelizing Devices, as required by the Engineer, will be measured in days and will be paid for at the contract unit price per day. This price shall include maintaining devices, removing devices when no longer required, and signs. When Group 2 channelizing devices are moved to a new location or are removed and re-installed at the same location, they will be measured for separate payment. However, when the Group 2 channelizing devices are moved from one lane to another by simply moving the devices across the lane edge line without removal from the roadway, no additional payment will be made.

Truck-Mounted Attenuator (TMA) will be measured in hours of actual use and will be paid for at the contract unit price per hour. This price shall include the truck-mounted attenuator; support vehicle; lights; electronic arrows if allowed but not required; and maintenance. When electronic arrows are used at the option of the Contractor in lieu of the rotating or high-intensity amber strobe light, the cost of the electronic arrow shall be included in the price bid for truck-mounted attenuators. When electronic arrows are required and not only allowed on the truck-mounted attenuator support vehicles, they will be paid for separately. The

RMTA reserves the right to substitute their TMA in lieu of contractor's TMA at the RMTA's direction. RMTA TMA shall be operated by RMTA staff only. Contractor shall not submit or be paid for TMA hourly pay units for when the RMTA's TMA is in service.

Payment will be made under:

Pay Item	Pay Unit
Flagger Service	Hour
Electronic Arrow	Hour
Group 2 Channelizing Device	Day
Truck-Mounted Attenuator	Hour

The RMTA reserves the right to substitute their Portable Changeable Message Sign (PCMS) in lieu of contractor's PCMS at the RMTA's direction. Contractor shall not submit or be paid for PCMS hourly pay units for when the RMTA's PCMS is in service. When Contractor's PCMS is used, PCMS will be measured and paid for in hours of use.

SECTION 514 - FIELD OFFICE

This section of the Specifications is completely replaced by the following:

A field office is not required for this project.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

SPECIAL PROVISIONS

To

VIRGINIA DEPARTMENT OF TRANSPORTATION

2016 ROAD AND BRIDGE SPECIFICATIONS

FOR

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2019
MISCELLANEOUS REPAIRS

CONTENTS

CONTENTS

SPECIAL PROVISION
TOLL COLLECTION PASS CARDS

DESCRIPTION

This provision details the disbursement and return of Toll Collection Pass Cards (Cards).

PROCEDURES

The Contractor shall provide the Engineer and the RMTA with a written request for Cards within seven (7) calendar days prior to work start. The written request shall contain, but not be limited to, the number of Cards requested, names and addresses of the individuals to whom the Cards shall be assigned, a brief but thorough explanation why each individual requires a Card, and the anticipated time frame for each individual to require the Card.

The Engineer shall review the Request for Cards within seven (7) calendar days of receipt of Request. The RMTA, via the Engineer, may provide between zero and the total number of Cards requested.

Cards cannot be used in the Open Road Tolling (ORT), or "Express", lanes located on northbound and southbound Powhite Parkway and on the westbound Downtown Expressway (DTE). At these Toll Plazas, Contractors' vehicles must go through a "Full Service" lane to use Toll Pass Cards.

In the event that the Contractor is required to use the ORT lanes to perform Maintenance of Traffic operations, and with the approval of the Engineer, arrangements be made to permit designated vehicles to use the ORT lanes with compensation. Other than said designated vehicles, additional Contractor's vehicles using the ORT lanes will not be compensated and are required to purchase an E-ZPass Transponder.

Prior to the distribution of a Card, the individual designated to receive a Card shall be required to provide a picture ID (driver's license preferred) of him- or herself, their home phone number, the name of their employer, their employer's address, and their employer's phone number. In addition, each person receiving a Card is required to sign a statement of fact that the Card shall be used only for and during the execution of RMTA contract obligations. Misuse of any Card by an individual shall result in the immediate revocation of Card privileges. Engineer shall notify individual's company and the Contractor of the assumed Card misuse. The Contractor is responsible for returning the misused Card to the Engineer within 48 hours of notification.

In addition, all Cards issued in accordance to this contract shall be returned to the Engineer within 48 hours after completion of work. Failure to return all Cards may result in delays in processing of the final payment.

SPECIAL PROVISION
MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC

All maintenance of traffic operations shall be conducted in accordance with the most current versions of the Manual on Uniform Traffic Control Devices (MUTCD), the Virginia Work Area Protection Manual (WAPM), and subject to the approval of the Engineer, VDOT, City of Richmond, and the RMTA. The Contractor shall prepare and submit a Maintenance of Traffic (MOT) Plan for review and approval by the Engineer for each phase of construction. The Contractor's signing and MOT plan shall consider the efforts of adjacent contractors, motorists and pedestrian traffic.

The Contractor shall provide the Engineer no less than 7 calendar days' notice before closing any lane, ramp or bridge. A minimum of ten (10) calendar days' notice is required if the request is to close Boulevard Bridge. A minimum of fourteen (14) calendar days' notice is required if the request is to close any lane that would impact or extend onto a VDOT/City of Richmond roadway. Approval to close any ramp or bridge is subject to review and consideration of event traffic in the vicinity.

No work or installation of any MOT devices may commence unless the work can be completed and the area reopened to traffic within the allowable lane closure hours, AND the Contractor has a contingency plan approved by the Engineer. No less than seven (7) calendar days prior to beginning the work, the Contractor shall submit a contingency plan to the Engineer for approval. This plan shall detail temporary protective measures to allow for restoration of the road for use when the Contractor is unable to complete a repair due to unusual circumstances beyond his control. Temporary protective measures shall only be used in emergency situations and are not allowed to remain in place for an extended period of time without authorization by the Engineer.

The Contractor shall be aware that no traffic control devices (such as Group II channeling devices, cones, Arrow Boards, etc.), with the exception of advance warning signs, shall be placed on any median, roadway or shoulder prior to the time shown. Advance warning signs may be placed not more than thirty (30) minutes prior to the begin time in this special provision. All traffic control devices including advance warning signs and detours shall be removed, the roadway free of debris, and the lane open to traffic by the end time in this special provision.

The Contractor shall be aware that failure to comply with the times set forth in this special provision could result in liquidated damages.

Prior to setting any lane or shoulder closures, the Contractor shall meet with the Engineer to review MOT for each of the lane closures the Contractor intends to perform. The Contractor shall prepare a sketch identifying the signs to be used and their respective locations. Sketches shall be prepared in accordance with the current version of the WAPM. The Contractor shall

coordinate these meetings with the Engineer, so that the RMTA has no less than seven (7) days after the meeting ends, to advise the motoring public of upcoming traffic restrictions. Maintenance and installation of all lane closures shall be the sole responsibility of the Contractor.

DOWNTOWN EXPRESSWAY (DTE) & BELTLINE EXPWY. CONNECTOR TO DTE

Eastbound DTE/Northbound Connector: The road is to be clear by 6:00 a.m.
Westbound DTE/Southbound Connector: The road is to be clear by 3:00 p.m.

TIMES OF ALLOWABLE SINGLE LANE CLOSURES:

(1) E.B. DTE / N.B. Connector:
   A. Weekdays – 10:00 a.m. to 6:00 a.m.
   B. Weekends – 10:00 a.m. Friday – 6:00 a.m. Monday.

(2) W.B. DTE / S.B. Connector:
   A. Weekdays – 6:00 a.m. to 3:00 p.m. & 7:00 p.m. to 6:00 a.m.
   B. Weekends – 7:00 p.m. Friday – 3:00 p.m. Monday.

TIMES OF ALLOWABLE MULTIPLE LANE CLOSURES: Multiple lane closures which restrict open lanes to (1) one in a single direction.

(1) E.B. DTE / N.B. Connector:
   A. Weekdays – 7:00 p.m. to 6:00 a.m.
   B. Weekends – RMTA shall decide allowable times based on individual weekend request by Contractor.

(2) W.B. DTE / S.B. Connector:
   A. Weekdays – 9:00 p.m. to 6:00 a.m.
   B. Weekends – RMTA shall decide allowable times based on individual weekend request by Contractor.

NUMBER OF LANES CLOSED (ANY DIRECTION)

- All roadways must have a minimum of (1) one lane open at all times. If a full roadway closure is required, the Contractor, the Authority and the Engineer shall schedule a mutually agreeable time. The length of the full closure shall be minimized by the Contractor.

- Where three (3) or more roadway lanes exist, the number of lanes which the Contractor may close is at the Engineer's discretion, based on the geometry of the area where lane/shoulder closures are desired.

DTE TOLL PLAZA (GATED LANES) AND EXPRESS LANES (ORT ZONE) RESTRICTIONS

NUMBER OF LANES CLOSED W.B DTE TOLL PLAZA (GATED LANES)

- No more than one lane closure will be permitted at any time for the cash lanes 43-46.
- One (l) Full Service lane must remain open at all times.
- No Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.
- Lane 45 (Secure Booth) may not be closed from 11:00 p.m. to 7:00 a.m. any day.

NUMBER OF LANES CLOSED E.B DTE TOLL PLAZA (GATED LANES)

- There shall be at least three toll lanes open in a single direction at all times.
- One (l) Full Service lane must remain open at all times.
- No Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.
- Lane 55 (Secure Booth) may not be closed from 11:00 p.m. to 7:00 a.m. any day.

NUMBER OF LANES CLOSED W.B DTE EXPRESS (ORT) LANES

- No more than two lane closures will be permitted at any time for the WB express lanes 47- 49.
- No Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.

DOWNTOWN EXPRESSWAY (DTE) RAMP CONNECTIONS TO/FROM I-95

Lane closures on Bridges 63 and 66 shall only be permitted at nights between 9 P.M. and 6 A.M. and on weekends between 9 P.M. Friday and 6 A.M. Monday. Closures of Ramp Bridges 64, 65, 67 and 68 shall only be permitted at nights between 10 P.M. and 5 A.M weekdays, and on weekends between 5 A.M. Saturday and 5 A.M. Monday.

There shall be no total closures of the either the eastbound Downtown Expressway (DTE) or westbound DTE permitted; One lane shall be maintained on Bridge 63 and Bridge 66 at all times. In addition, Contractor shall maintain at least one ramp entering and at least one ramp exiting the city at all times; Bridge 64 shall not be permitted to be closed while Bridge 65 is closed and Bridge 67 shall not be permitted to be closed while Bridge 68 is closed.

All lane closures must be coordinated with VDOT, RMTA and the Engineer for final approval of dates and times. Contractor shall notify VDOT Smart Traffic Center at 804-796-4520 to advice of the lane closure status of these bridges.

POWHITE PARKWAY

Northbound/Eastbound: The road is to be clear by 6:00 am.
Southbound/Westbound: The road is to be clear by 3:00 pm.

TIMES OF ALLOWABLE SINGLE LANE CLOSURES:

(1) Northbound/Eastbound:

A. Weekdays – 10:00 a.m. to 5:00 a.m.

B. Weekends – 10:00 a.m. Friday – 5:00 a.m. Monday.

(2) Southbound/Westbound:

A. Weekdays – 6:00 a.m. to 3:00 p.m. & 7:00 p.m. to 6:00 a.m.

B. Weekends – 7:00 p.m. Friday – 3:00 p.m. Monday.

TIMES OF ALLOWABLE MULTIPLE LANE CLOSURES: Lane closures which restrict open lanes to (1) one in a single direction.

(1) Northbound/Eastbound:

A. Weekdays – 9:00 p.m. to 5:00 a.m.

B. Weekends – RMTA shall decide allowable times based on individual weekend request by Contractor.

(2) Southbound/Westbound:

A. Weekdays – 9:00 p.m. to 6:00 a.m.

B. Weekends – RMTA shall decide allowable times based on individual weekend request by Contractor.

LANE RESTRICTIONS (ANY DIRECTION)

- All roadways must have a minimum of (1) one lane open at all times.
- Where three (3) or more roadway lanes exist, the number of lanes which the Contractor may close is at the Engineer's discretion, based on the geometry of the area where lane/shoulder closures are desired.

<u>POWHITE PARKWAY TOLL PLAZA (GATED LANES) AND EXPRESS LANES (ORT ZONE) RESTRICTIONS</u>

NUMBER OF LANES CLOSED POWHITE N.B. AND S.B. TOLL PLAZAS (GATED LANES)

- There shall be at least three toll lanes open in a single direction at all times.
- One (l) Full Service lane must remain open at all times.
- No NB Toll Lane shall be closed from 5:00 a.m. to 10:00 a.m.
- No SB Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.
- Lane 3 and Lane 12 (Secure Booths) may not be closed between 11:00 p.m. to 7:00 a.m. any day.

NUMBER OF LANES CLOSED POWHITE EXPRESS (ORT) LANES

- No more than two lane closures will be permitted at any time for the NB express lanes 90 - 92.
- No more than two lane closures will be permitted at any time for the SB express lanes 93 - 95.
- No NB ORT Toll Lane shall be closed from 5:00 a.m. to 10:00 a.m.

- No SB ORT Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.

EXIT AND ENTRANCE RAMP TOLL PLAZAS

TIMES AND NUMBERS OF TOLL LANE CLOSURES (ANY DIRECTION)

No toll lane closures shall be permitted during peak hours each weekday. Peak hours are 6:00 a.m. to 10:00 a.m. for EB or NB ramps and 3:00 p.m. to 7:00 p.m. for WB or SB ramps.

- The number of lanes which the Contractor may close is at the Engineer's discretion, based on the geometry of the area where lane/shoulder closures are desired.
- The Authority and the Engineer shall schedule a mutually agreeable time.
- The length of the full closure shall be minimized by the Contractor.

The Contractor shall provide the Engineer no less than seven (7) calendar days' notice before closing any given toll lane or any exit or entrance ramp. Pick up operation shall commence no later than thirty (30) minutes prior to closing period(s) referenced above.

The Contractor shall provide written notice to the Engineer a minimum of seven (7) calendar days' notice before any lane or ramp closures. The RMTA and the Engineer reserve the right to restrict dates and times of proposed lane or ramp closures. Contractor shall not be permitted to close any ramps or lanes during events in Downtown Richmond or the vicinity when high traffic volumes are expected to enter or exit Downtown.

All lane closures must be coordinated with VDOT, RMTA, City of Richmond (if applicable) and the Engineer for final approval of dates and times. It will be the Engineer's sole responsibility to notify VDOT Traffic Operations Center (Smart Traffic) at 804-796-4520 to advise of the lane closure status of these bridges. The Contractor shall communicate any changes in these times/dates immediately with the Engineer.

POINT OF CONTACT

The Contractor must have a point of contact or construction foreman responsible for the entire project on site at all times. This person will coordinate all work and shall be in close contact with the onsite inspections and shall clearly communicate any changes to the work plan, if they occur. In the event that this individual changes from the previous day, the Contractor shall contact the Engineer and confirm this change, prior to starting any work. The Contractor will be required to have a point of contact on duty at all times, regardless of extended shifts or type(s) of work being performed

BOULEVARD BRIDGE

Boulevard Bridge is a two-lane bridge carrying traffic in two opposing directions. Traffic in both directions must be maintained at all times. Typically, only single lane closures are permitted at any time. A full bridge closure may be permitted under rare circumstances with the approval of the Engineer and the Authority. The Contractor shall submit plans no less than ten (10) calendar days' notice prior for approval. Consideration to traffic volumes and event traffic in the vicinity will be given.

Lane closures shall not be permitted Monday – Friday between the hours of 6:30 am to 9:30 am and 3:00 pm to 7:00 pm, or as directed by the Engineer.

Traffic control shall utilize flaggers and be in accordance with MUTCD and the Virginia Work Area Protection Manual standards. Truck mounted attenuators are prohibited on Boulevard Bridge.

LANE CLOSURE AND MOT VIOLATIONS

The RMTA reserves the right to charge liquidated damages for the Contractor's failure to remove a lane or ramp closure by the prescribed time each day. The liquidated damages shall be established as One Thousand Dollars ($1,000) per each fifteen (15) minutes, or a portion of 15 minutes, per lane or ramp, for any closure beyond the limits established above. Assessment of liquidated damages will stop when all maintenance of traffic devices have been removed from the roadway and lanes or ramps have been safely reopened to the approval of the Engineer. Any liquidated damages assessed in this Special Provision will be in addition to those listed in Section 108 of the Specifications.

Active work shall be pursued by the Contractor within one (1) hour from the time a lane or ramp closure is placed. The RMTA reserves the right to charge liquidated damages, as stated above, after one (1) hour of non-active work from the time the lane or ramp closure placement is completed. If active work has not started within two (2) hours from the time that the lane closure placement is completed, the Engineer shall require the lane closure to be immediately removed. Assessment of liquidated damages will end when lanes or ramps have been safely reopened to the approval of the Engineer or active work is pursued. Active work will be on-site activity as determined by the Engineer and the RMTA.

In addition, active work must be on-going at all times while a closure is in place. If active work is stopped for one (1) hour while a closure is in place or a closure is not removed within one (1) hour of the completion of active work, the Authority reserves the right to charge liquidated damages as stated above.

STAGING AREA / CONSTRUCTION ENTRANCE

The Contractor shall be aware of the close proximity of live traffic to the work zone. Extra care shall be taken when slow moving vehicles are entering live traffic. Contractor must demonstrate how vehicles can enter and exit the work zone safely and minimize impacts to general public in his MOT plan. Contractor may consider the use of a shadow vehicle for equipment entering live traffic at slow speeds

CERTIFICATION OF PERSONNEL

FHWA regulations provided in 23 CFR Subpart J state "States shall require that personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control be trained, appropriate to the job decisions each individual is required to make." In accordance with the FHWA regulation and VDOT regulations, the Contractors foreman, or employee who is directly responsible for placing maintenance of traffic devices, shall be properly trained. The minimum training required for this Contract is the "Basic Work Zone Traffic Control Training" course. This is a one-day course designed by VDOT. For more information on the course, see the following: http://www.vdot.virginia.gov/business/trafficeng-WZS.asp

A trained employee must be on-site prior to setting up traffic control devices or a stop work order may be issued. In addition, a trained employee must be on-site at all times when any work inside a work zone requiring traffic control is on-going. A trained employee must be on-site at all times during the removal of traffic control devices. This employee will coordinate with the "Point of Contact" at all times. If the inspector or engineer observes the Contractor without a trained employee on-site during the setting up, maintenance or removal of the work zone traffic control, the RMTA reserves the right to charge liquidated damages at the rate of One Thousand Dollars ($1,000) per day.

RESTRICTED TIME OF WORK AREAS

Portions of the Downtown Expressway, Beltline Expressway Connectors, and the Powhite Parkway are adjacent to residential areas. These areas are identified as, but not limited to, the neighborhoods near the intersection of Powhite Parkway and Forest Hill Avenue and neighborhoods between the Downtown Expressway Beltline Connector and Park Drive/Blanton Avenue on the north end of the project.

Work in these areas after 11:00 PM shall be restricted. Activities permitted after this time shall include saw-cutting, placement of concrete, and asphalt paving. Any activities that produce unacceptable decibel levels, as determined by the Engineer and the RMTA, shall not be permitted. Typical activities not permitted after 11:00 PM include, but are not limited to, jack hammering or roto-hammering.

PROTECTION OF PROPERTY

The Contractor shall provide for the Engineer's review the method intended to protect the motoring public, from any activity which poses a potential threat to another's property or person (i.e. cars, motorcycles, pedestrians, businesses, etc.).

TRAFFIC ON MILLED SURFACES

At the Contractor's discretion he will be allowed to have traffic drive on a milled surface for no more than forty-eight (48) hours after the milling operation is complete. If the Contractor chooses this method and there are elevation differences, he will be required to install temporary pavement wedges per VDOT Road and Bridge Standard 305.01, ACOT -1. This detail is provided below for the Contractor's reference. The Contractor shall also have proper drainage measures in-place prior to forecasted inclement weather. Drainage measures shall be submitted to the Engineer for approval prior to installation. Contractor shall be responsible for installation and maintenance of the pavement wedges and drainage measures to the approval of the Engineer. The Contractor shall not be allowed to remove any lane closure until all required pavement wedges and drainage measures are installed

HOLIDAYS AND SPECIAL EVENTS

The project will be officially shut down for the following holidays during the periods noted:

- Memorial Day (Monday 5/27/19): 5/24/19 (Friday) – 5:00 A.M. through 5/28/19 (Tuesday) – 10:00 A.M.
- Independence Day (Thursday 7/4/19): 7/3/19 (Wednesday) – 5:00 A.M. through 7/5/19 (Friday) – 10:00 A.M.
- Labor Day (Monday 9/2/19): 8/30/19 (Friday) - 5:00 A.M. through 9/3/19 (Tuesday) - 10:00 A.M.
- Thanksgiving (Thursday 11/28/19): 11/27/19 (Wednesday) – 5:00 A.M. through 12/2/19 (Monday) – 10:00 A.M.
- Christmas (Wednesday 12/25/19): 12/24/19 (Tuesday) – 5:00 A.M. through 12/26/19 (Thursday) – 10:00 A.M.
- New Year's Day (Wednesday 1/1/20): 12/31/19 (Tuesday) – 5:00 A.M. through 1/2/20 (Thursday) – 10:00 A.M.

The Authority will not allow any lane closures during special events. The Engineer reserves the right to limit/cancel/modify the lane closure times and/or work that may be performed to accommodate the following special events. The Contractor should be aware of typical increased weekend traffic during these events.

- Any NASCAR Race in Richmond (Typically 2 per year in April and September)
- Ukrop's Monument Ave. 10K Race (Typically the second weekend in April)
- Dominion River Rock (Weekend in middle of May)
- Slide the City (Typically a Saturday in June)
- Jazz Festival at Maymont Park (Typically a weekend in August).
- Richmond Folk Festival (Weekend in the Middle of October)
- Richmond Marathon (Weekend in the Middle of November)

The Contractor shall prepare and submit a Schedule of Work Activities and Maintenance of Traffic (MOT) Plan for review and approval by the Engineer a minimum of fourteen (14) calendar days in advance of any special event.

No allowance shall be made for these periods in determining the contract end date.

MEASUREMENT AND PAYMENT

Standard Maintenance of Traffic pay items will be measured and paid as per VDOT 2016 Road and Bridge Specifications Section 512.04.

SPECIAL PROVISION
TRIM EXISTING VEGETATION

DESCRIPTION AND LOCATION

This work includes the cutting back of vegetation at specific locations adjacent to the roadway that include, but are not limited to, signs, guardrails, bridges, abutments, junction boxes, electrical services and access paths. This work is to include pruning existing branches and clearing of vegetation as close to the ground as possible to allow access to structures. It is not anticipated that herbicide spraying will be required for this item.

LOCATIONS

All work locations to be determine by the Engineer.

PROCEDURES

All work shall be in accordance with Section 601 and this Special Provision.

Contractor shall cut back or remove vegetation in areas where vegetation is encroaching structures or obstructing access to structures. Cut back shall be considered as a 10' clearance of foliage from structure as measured in all directions from the structure. For roadways, Contractor shall cut back vegetation where it is encroaching over the existing guardrails. Cut back shall provide a 4' clearance from the foliage to the guardrail or barrier face.

Branches of trees that overhang the roadway or reduce sight distance and that are less than 20 feet above the elevation of the finished grade shall be trimmed, as directed by the engineer, using approved tree surgery practices in accordance with the VDOT requirements of Section 601.03(b).

All trimmings, dead wood, windfalls, stumps, and rubbish in the trimming areas shall be removed as directed by the Engineer and legally disposed of by the Contractor off site. Contractor will not be permitted under any circumstance to burn debris on RMTA property.

MEASUREMENT AND PAYMENT

Trim Existing Vegetation will be measured in square feet of surface area and will be paid for at the contract unit price per square foot. This price shall include all labor, equipment, materials, incidentals and proper disposal of material off-site for vegetation removal throughout the RMTA Expressway System.

PAY ITEM	PAY UNIT
Trim Existing Vegetation	Square Foot

SPECIAL PROVISION
RIGHT-OF-WAY FENCE

DESCRIPTION

This work shall consist of furnishing, removing, replacing and installing sections of right-of-way fence. Locations will be determined by the Engineer.

MATERIALS

ITEM	VDOT STANDARD	VDOT SECTION
Right-of-way fence	FE-CL	507
Right-of-way fence (fabric only)	FE-CL	507
Bridge B64 fence	FE-CL	507

MEASUREMENT AND PAYMENT

Right-of-way fence will be measured and paid for in accordance with the **Fence (FE-CL)** item as described in VDOT Section 507.

Bridge B64 fence will be measured and paid for in accordance with the **Fence (FE-CL)** item as described in VDOT Section 507.

The Pay Item **Fence (FE-CL Fabric Only)** will be measured in linear feet of installed fence fabric, complete in place, along the top of the fence and will be paid for at the contract unit price per linear foot of fence fabric.

Pay Item	Pay Unit
Fence (FE-CL)	Linear Foot
Fence (FE-CL Fabric Only)	Linear Foot
Bridge B64 fence	Linear Foot

SPECIAL PROVISION
HYDRAULIC CEMENT CONCRETE REPAIR

DESCRIPTION

This work shall consist of constructing reinforced, non-reinforced, or continuously reinforced hydraulic cement concrete pavement and approach slabs composed of hydraulic cement concrete, with or without reinforcement as specified, on a prepared subgrade or base course in accordance with these specifications and within the specified tolerances for the lines, grades, thicknesses, and cross sections shown on the plans or as established by the Engineer. These repairs shall be in accordance with VDOT Spec. 316 Hydraulic Cement Concrete Pavement unless otherwise noted herein.

MATERIALS

Patching repairs will be made using a rapid-cure cement-based patching product, matching the requirements of VDOT Class A4 concrete, modified as necessary to achieve a compressive strength of at least 3,000 psi in a maximum of 8 hours. The product recommended for concrete pavement repairs is Heartland High Performance Volumetric Concrete. Substitute products may be used as approved by the Engineer. All products used must be listed on the most current VDOT Approved Products List. Contractor shall submit proposed product data sheet to Engineer for approval prior to use.

PROCEDURES

It is the Contractor's responsibility to dispose of the displaced concrete off site according to all applicable federal, state, and local laws.

The Contractor may not utilize the grassy areas adjacent to the Expressway System for construction purposes. If the use of these areas becomes absolutely necessary, the Contractor is to request, in writing, permission to conduct operations in said areas and also accept responsibility for any damage to said areas. Repair to any damaged areas will be prescribed solely by the Engineer.

At locations where bridge deck expansion joint sealant is being repaired or replaced, Contractor shall sound bridge deck two feet from each side of the joint opening. All delaminated concrete shall be removed to a minimum depth of at least ½" or as directed by the Engineer. At locations where joint sealant will be attached to repair product, Contractor shall certify that joint sealant primer will fully bond to concrete repair product. If any joint sealant does not bond to areas where concrete was repaired, as determined by the Engineer, Contractor shall fully remove sealant and concrete repair product and replace same with comparable product at Contractor's expense and without extension of contract time.

Vehicular traffic will not be permitted on repaired areas until patching compound has attained a compressive strength of 3,000 pounds per square inch.

LOCATION

Work locations shall be as determined by the Engineer.

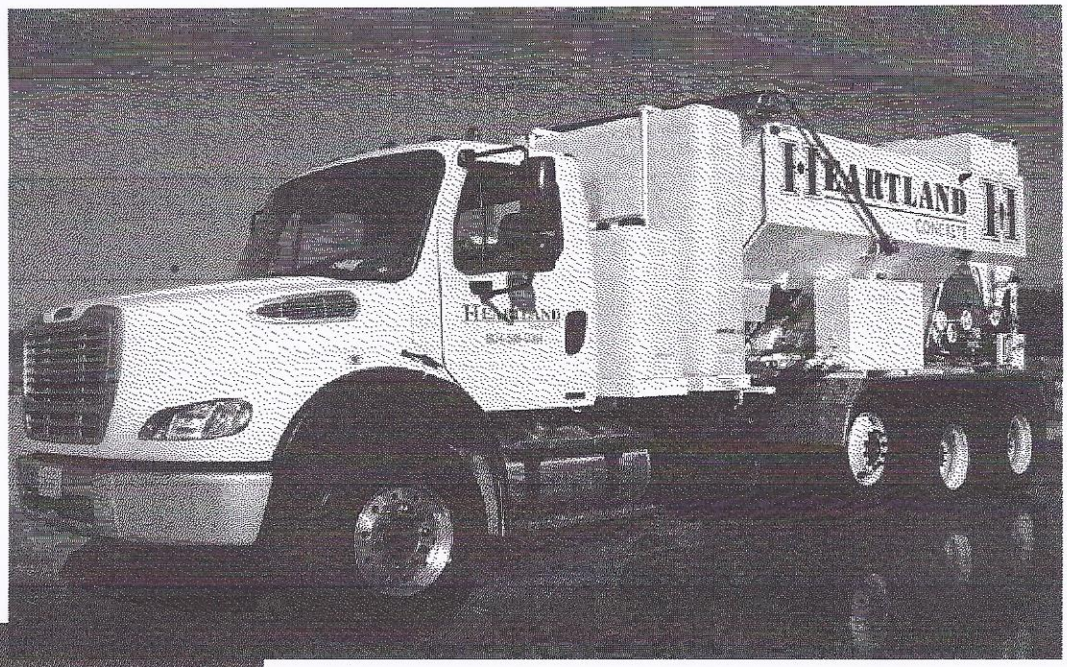
MEASUREMENT AND PAYMENT

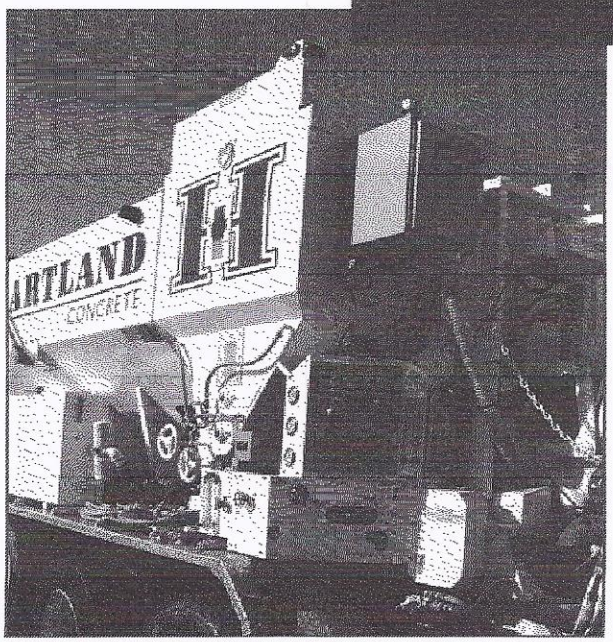
Hydraulic cement concrete pavement will be measured in square yards of concrete pavement and will be paid for at the contract unit price per square yard. This price shall include furnishing and placing materials, including dowels, reinforcement, and joint material, provided that for any pavement found deficient in average thickness, as described in VTM-26, by more than 0.20 inch but not more than 1.00 inch only the reduced price stated herein will be paid. The width of measurement will be the width of the pavement shown on the typical cross section of the plans, additional widening where called for, or as otherwise directed in writing by the Engineer. The length will be measured horizontally along the centerline of each roadway or ramp. Concrete removal and surface preparation shall be incidental to all repair items.

Pay Item	Pay Unit
Hydraulic cement concrete	Square yard

Heartland High Performance Volumetric Concrete

The Heartland High Performance Volumetric Concrete Solution is designed for the ultimate in construction quality, efficiency, flexibility and ease of operation. Heartland High Performance Concrete is friendly to the environment by eliminating waste, mixing the exact amount required for the project at the time it is needed. Heartland High Performance Volumetric Certified operators have ultimate control of the mix design on your project site, allowing us to provide the freshest, highest quality concrete, slurry, flowable fill, grout and shotcrete available for your project.





- Eliminate concrete waste
- Cost effective on–site concrete production
- Minimize crew production costs
- Control delivery schedule
- On–Demand production
- Eliminate "Hot" Loads
- Instantaneous mix design changes
- Integrate Rapid Return to Service Solutions
- Exceeds industry standards
- Independent certified testing

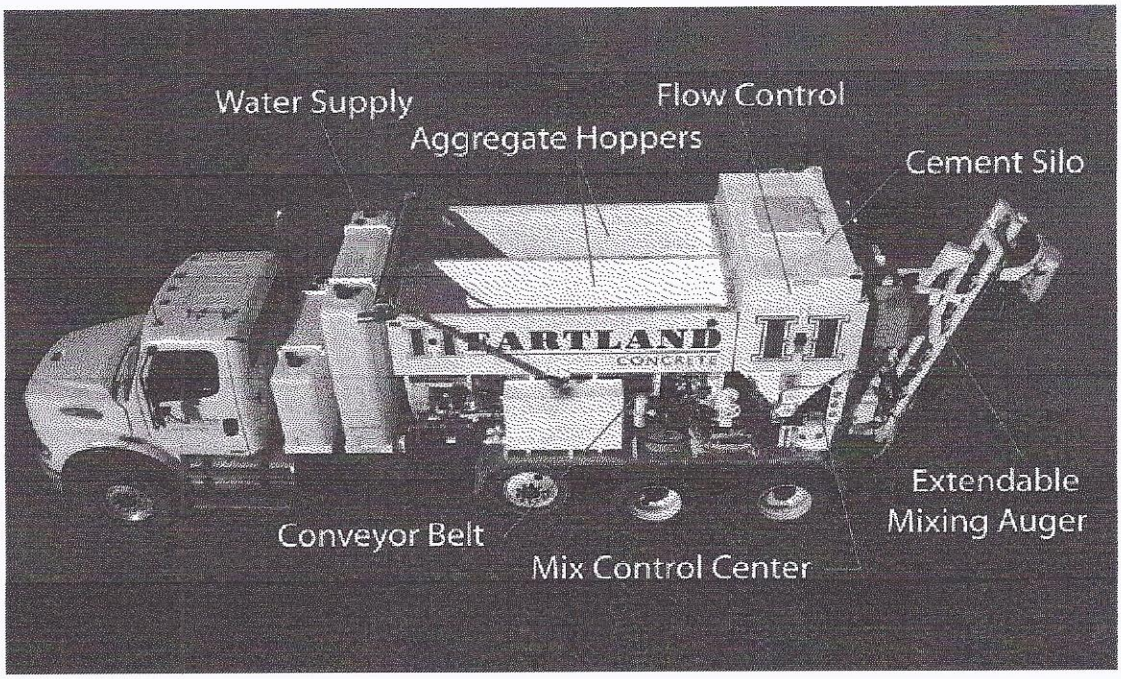
HEARTLAND
CONCRETE

23220 Airpark Drive, Petersburg, VA 23803
Office. 804.518.0361 Fax. 804.518.0363
www.heartlandconcrete.us

Why High Performance Volumetric?

The Heartland High Performance Volumetric Concrete system, provides many unique advantages to projects, owners, contractors and engineers.

First off, the mix design is calculated for a specific strength or certain desirable finishes. The mix is proportioned using known volumes of the component materials in the mix design. All of the ingredients are stored in separate compartments on the unit, as opposed to the traditional method of mixing sand, stone, water and cement at a central batch plant. Other admixtures can be added to produce a specified concrete mix design, on a continuous or intermittent basis, on site where the mix is to be poured.



Once the Heartland High Performance Volumetric Mixer arrives at the project, the ingredients are conveyed into the mixing auger which will continuously meter and combine the correct proportions using a volumetrically calibrated state of the art computer control system. This method of mixing the materials needed on site allows for a much easier clean up and wash out as the only component that needs to be cleaned is the mixing auger. Heartland High Performance Volumetric Mixers eliminate waste by allowing us to provide the exact amount of concrete the customer needs–nothing more. All mix designs can be made from the same High Performance Volumetric Mixer , on-the-fly, as desired saving you time and money.

- Long Distance and Remote Deliveries
- High Security Facilities
- Critical Production and Manufacturing Facilities
- Meet Around the Clock Demand
- No strength loss because of in truck hydration
- Low slump mixes are easily produced
- Meet Requirements of Virtually Any Mix Design
- Adjustable Discharge Rates

HEARTLAND CONCRETE
23220 Airpark Drive, Petersburg, VA 23803
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Form TL-27MC (Revised 12/07)

VIRGINIA DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION

STATEMENT OF HYDRAULIC CEMENT CONCRETE MIX DESIGN

Submit one copy to the District Administrator, Virginia Department of Transportation. Approval must be received by the contractor from the Materials Division before work is begun. This mix design is approved for all projects of the Department for the class of concrete shown: Calendar Year 2011 Mix Design No. 4-5206-11

Producer *Heartland Concrete* Plant Location Petersburg Phone (804) 518-0361

Type of Mix: Volumetric X Job Mix _____ Date 7/6/2011

Mix Design - One Cubic Yard (Meter) Based on SSD Condition

Class of Concrete Rapid 658 (E) Slump/ 4 - 8 In. _____ mm Air Content 4 - 8 %

_____ (M) Flow

Material	Quantities				Code	Source Name	Plant/Quarry Location
Cement Type Rapid	658	lbs.		kg.	CTS	CTS	Logansport, In
Min.Admix.) FlyAsh	0	lbs.		kg.			
Min.Admix.2		lbs.		kg.			
Sand (1)	1235	lbs.		kg.	6014	Luck	Carolina Quarry
No. 57 Stone (1)	1774	lbs.		kg.	7007	Luck	Fairfax Quarry
Gr./No. ____ Aggr. (1)		lbs.		kg.			
Water (2) 275 lbs.	33.0	gal.		L.		City	Arlington, VA
Admixture (AE) (3)	Dosage varies	oz.		ml.	66	Sika	Lyndhurst, NJ
Admixture (Retarder) (3)		oz.		ml.			
Admixture (Other) (3)	26.3	oz.		ml.	191	Sika	Lyndhurst, NJ

NOTES: Mix based on CTS Rapid Set manufactures recommendations

(1) The quantities of fine and coarse aggregates necessary to conform to specifications in regard to consistency and workability shall be determined by the method described in "Recommended Practice for Selecting Proportions for Normal Weight Concrete" (ACI-211.1) and the actual quantities used shall not deviate more than plus or minus 5 percent from such quantities.

(2) To provide minimum slump permissible in Table II-17 while satisfying placement and finishing requirements. A separate design shall be submitted for each slump desired.

(3) The quantity of admixture will not be approved or disapproved since it varies considerably and must be initially established by trial and error by the producer or contractor with subsequent adjustment during batching to maintain the desired results within the range specified

Mineral Admixture #1 - sp.gr.	2.09
Mineral Admixture # 2 - sp.gr.	
Sand - Abs.	0.38
Sand - F.M.	2.80
Sand - sp.gr.	2.64
C.A. #1 - Abs.	0.75
C.A. #1 - sp.gr.	2.86
C.A. #1 Unit mass 104 (Lbs/C.F.) / _____ (kg/C.M.)	
Aggr. #2 - Abs.	
Aggr. #2 - sp.gr.	
2nd F.A./C.A.-F.M./u.wt. _____ (E) / _____ (M)	
Design W/C Ratio	0.42

Contractor _____ (Name of Company) By Mitch Upton (Certified Technician Preparing Form)

Producer Technician's Expiration Date 12/31/2012 (Do Not Use Social Security Number)

FOR DEPARTMENT USE ONLY

Remarks: _____

Copies: District Materials Engineer
Project Inspector
Plant Inspector
Sub- Contractor and / or R.M. Producer

Checked by Trey Simpson

Approved by Harold Dyson PE (District Materials Engineer) 7/14/11

Approved tentatively subject to the production of material meeting the requirements of the Specifications and Special Provisions.

SPECIAL PROVISION
SHOTCRETE

DESCRIPTION

This work shall consist of detecting delaminated sections of concrete substructure members, removing delaminating concrete, preparing surfaces in concrete spalls, preparing exposed rebar within spalls and repairing surfaces with pneumatically applied concrete.

MATERIALS

VDOT Specification Section 412 shall apply. Contractor shall provide shotcrete mix design and performance data at least seven (7) calendar days prior to scheduled work start date to Engineer for approval. Shotcrete shall be Class A with silica fume. Shotcrete mixtures submitted for approval by the Engineer shall be on the VDOT Approved Products List.

PROCEDURE

Contractor shall visually inspect exposed concrete substructure surfaces for suspected delamination. Contractor shall sound out with a hammer or similar implement all surfaces where delamination is suspected. Delaminated sections shall be removed as directed by the Engineer.

Contractor shall notify the Engineer a minimum of 24 hours prior to the removal of any concrete to allow a proper inspection. Concrete removal shall not commence without an inspection and approval by the Engineer. The Contractor shall provide access to the Engineer to inspect work areas. The Authority reserves the right to restrict payment on any areas where the Engineer removed concrete prior to an inspection and approval. If the Engineer does not complete an inspection within 24 hours of notice by the Contractor, the Contractor is permitted to proceed with concrete removal without penalty.

The surface of all Shotcrete repairs shall receive "neat lines", acceptability subject to approval of the Engineer. All shotcrete repairs shall be completed no later than November 22, 2019.

LOCATIONS

A table of currently identified spalls, areas of delamination and cracks on a particular element of the referenced structure is presented below. This table is provided for informational purposes only. The estimated quantities below are provided for planning purposes only and are in no way a guarantee of actual quantities. The RMTA reserves the right to delete or add structures and repair locations to the scope of work. The Contractor is responsible to inspect the structure locations prior to bidding. No adjustments shall be made in unit price due to deletion of structure locations from the scope of work.

Shotcrete work locations are broken down into three categories:

1. "Standard" - Locations on land less than 30 feet above grade.
2. "Elevated" - Locations on land greater than 30 feet above grade.
3. "Above Water" - Locations above the James River or Kanawha Canal.

Shotcrete (Class A) Standard - Possible Locations		
RMTA Bridge #	Element	Estimated Shotcrete Qty. (S.F.)
4	Joint Header Spall on Pier 1	35
6	Joint Header Spall on Pier 2	45
11	Bearing seat at Pier 1 Beam 6	15
B60	Pier 1	65

Shotcrete (Class A) Elevated - Possible Locations		
RMTA Bridge #	Element	Estimated Shotcrete Qty. (S.F.)
64	Pier 3 (west face of Pier cap)	45
	Pier 10	36
65	Pier 1	3
	Pier 8	10
	Pier 9 G1 Bearing Pedestal and North face	19
	Pier 10 (South face)	8
	Pier 11	74
	Pier 14	15
66	Pier 6	25
	Pier 8	10
	Pier 9	10
	Pier 19	18
67	Pier 1	50
	Pier 4	18
	Pier 5	18

Shotcrete (Class A) Over Water - Possible Locations		
RMTA Bridge #	Element	Estimated Shotcrete Qty. (S.F.)
BB	Pier 18 North Face	25
	Pier 22 East Face	21
8N	Pier 1	17
	Pier 2	18
	Pier 3	16
	Pier 4	22
	Pier 5	16
	Pier 6	30
	Pier 7	16
	Pier 8	16
	Pier 10	20
	Pier 11	22
	Pier 12	17
	Pier 13	30
8S	Pier 9 G1 Bearing Pedestal	15
	Pier 14 Deck Joint Header	50
	Pier 16 Deck Joint Header	50
	North Abutment G5 Bearing Pedestal	15
	North Abutment Backwall	35
65	Pier 11	40

COORDINATION AND SCHEDULING

Contractor shall coordinate and schedule all Shotcrete Repair activities with the Engineer. RMTA structures to be repaired may require access from property owned or managed by others (e.g. VDOT or City of Richmond). Contractor shall coordinate and schedule with appropriate owner, party or agency work activities on non-RMTA property. In addition, Contractor shall secure all necessary permits required for site access to perform work. Contractor shall abide by all permits regulations and guidelines issued by the governing agency. Contractor shall provide name and phone number of contact person at each governing agency where a RMTA structure scheduled to be repaired is located (excluding RMTA property) at least five days prior to scheduled work start to the Engineer.

MEASUREMENT AND PAYMENT

Potential Shotcrete work locations are hereby delineated by means of access. Access to "Elevated" shotcrete work locations may require the use of a man lift or significant staging. Access to "Standard" shotcrete work locations may require incidental staging. Access to "Above Water" shotcrete work locations may require a float, staging built up from the River and attached to the bridge, or the use of an under-bridge access platform truck. Shotcrete Unit Costs shall be measured and paid for according to the defined Pay Items below:

The Pay Item **Shotcrete, Type A (Standard)** will be measured in square feet of surface to which it is applied and will be paid for at the contract unit price per square foot. This Unit Price shall include all cutting, drilling, hammering, and all other work involved in the complete removal and disposal of concrete and other materials necessary to provide for joining new and old portions of the structure according to this Special Provision or as directed by the Engineer. This Unit Cost shall include all access requirements to perform Shotcrete repairs at grade and up to 30' above grade. The Contract Unit Price shall also include dowels or other approved anchor devices, disposing of surplus material, cleaning and repairing reinforcing steel, welded wire fabric and steel and synthetic fibers.

The Pay Item **Shotcrete, Type A (Elevated)** will be measured in square feet of surface to which it is applied and will be paid for at the contract unit price per square foot where the work location is equal to or greater than 30' above grade. This Unit Price shall include all cutting, drilling, hammering, and all other work involved in the complete removal and disposal of concrete and other materials necessary to provide for joining new and old portions of the structure according to this Special Provision or as directed by the Engineer. This Unit Cost shall include all access requirements to perform Shotcrete repairs where the work is at elevations of 30' or more above grade. The Contract Unit Price shall also include dowels or other approved anchor devices, disposing of surplus material, cleaning and repairing reinforcing steel, welded wire fabric and steel and synthetic fibers.

The Pay Item **Shotcrete, Type A (Over Water)** will be measured in square feet of surface to which it is applied and will be paid for at the contract unit price per square foot. This Unit Price shall include all cutting, drilling, hammering, and all other work involved in the complete removal and disposal of concrete and other materials necessary to provide for joining new and old portions of the structure according to this Special Provision or as directed by the Engineer. This Unit Cost shall include all access requirements to perform Shotcrete repairs above the James River or Kanawha Canal. The Contract Unit Price shall also include dowels or other approved anchor devices, disposing of surplus material, cleaning and repairing reinforcing steel, welded wire fabric and steel and synthetic fibers.

Pay Item	Pay Unit
Shotcrete, Type A (Standard)	Square foot
Shotcrete, Type A (Elevated)	Square foot
Shotcrete, Type A (Over Water)	Square foot

SPECIAL PROVISION
PATCHING ASPHALT PAVEMENT

DESCRIPTION

This work shall consist of repairing sections of cracked and deteriorated SMA or SM asphalt concrete pavement on the RMTA system.

LOCATIONS

Asphalt pavement patch locations shall be determined by the Engineer. Asphalt pavement on the entire RMTA system is subject to asphalt patching.

MATERIALS

Patching material shall be **SuperPave Mix SM 9.5E** with performance grade binder (PG 64E-22) subject to Engineer's approval. The mix design shall be submitted to the Engineer for approval at least 7 calendar days prior to starting work.

PROCEDURES

Patching consists of saw cutting an area designated by the Engineer, then removing the contents inside the area with pneumatic hammers. Once the contents have been removed, the hole is to be compacted and blown out with compressed air. Then the entire surface area, including sides, shall be covered with a tack coat. Surface course asphalt concrete is then to be placed in the hole and then rolled. All holes are to be a minimum 2" deep unless otherwise directed by the Engineer. The asphalt will be placed, in 2" lifts, with each 2" lift being tamped by gasoline-powered, piston-driven hand tamper with a compacting area of not less than 1 square foot. After the final or only lift of asphalt has been placed, the asphalt is to be rolled with a steel-drum, vibratory roller that has been approved by the Engineer.

MEASUREMENT AND PAYMENT

Asphalt Concrete Patch shall be measured in square yards per inch of depth and will be paid for at the contract unit price per square yard per inch. This price shall include all equipment, labor, material, removal and disposal of materials, and incidentals required to complete the work.

Pay Item	Pay Unit
Asphalt Concrete Patch	Inch x Square Yard

SPECIAL PROVISION
CLEANING DRAINAGE MANHOLE

DESCRIPTION

This work shall consist of cleaning out built up trash and debris from the interior of a drainage manhole. Work shall be performed by manual labor, the use of a vacuum truck or any other method chosen by the Contractor and approved by the Engineer.

The manhole is approximately 50' west of the centerline of Portland Place, approximately 900' south of its intersection with Queen Charlotte Road. Approximate Google Maps coordinates are 37.548545, -77.491843. In 2008, the RMTA installed a steel trash separator device inside the manhole. The device is bolted to the sides and bottom of the manhole. The bottom of the device is approximately 23' below the top of manhole. The base of the manhole is a 4' x 4' square and the circular riser is 48" diameter. Steps are attached to the side of the manhole spaced approximately 16" on center.

There is a stone access road to the manhole from Portland Place Road.

Work shall be performed in accordance with all OSHA confined space and other applicable regulations pertaining to this type.

The Contractor shall clean the manhole twice during this Contract. The first shall be within one month after the Notice To Proceed is issued. The second shall be within one month of the contract completion date. The RMTA reserves the right to delete one of the cleaning occurrences. If only one cleaning is chosen, the cleaning date shall be as agreed upon by the Engineer and the Contractor.

MEASUREMENT AND PAYMENT

Clean Manhole will be measured in units of each occurrence of cleaning the manhole and will be paid for at the contract price per each. This price shall include all equipment, labor, incidentals and the proper disposal of trash and debris offsite per each cleaning.

Pay Item	Pay Unit
Clean Manhole	Each

SPECIAL PROVISION
BRIDGE REPAIRS

DESCRIPTION

This work shall consist of repairing specific steel surfaces of bridge structural steel members and bridge deck joint repairs. Repair plans for specific bridge rehabilitation details are provided in the Appendix.

All repairs shall be completed in accordance with the plan sheets, the requirements herein, and the 2016 VDOT Road and Bridge Specifications. All welding and testing shall be in accordance with AASHTO/AWS D1.5 Specifications. For each welder, welding operator, or tacker, the Contractor shall submit a copy of the certificate of qualification to the Engineer. The qualification certification shall state the name of the welder, operator, or tacker; name and title of the person who conducted the examination; type of specimens; position of welds; results of tests; and date of the examination. The qualification certification shall be made by an approved agency. Testing shall be in accordance with AASHTO/AWS D1.5 Specifications with a Flaw Severity Class A.

For the Contractor's reference, sheets from the as-built plans for Boulevard Bridge, as well as Bridges 11 and 65 are included in the Appendix.

All new structural steel plate(s) and lacing bars shall be shop primed. Subsequent coatings shall be field applied following plate installation. In addition to the repair plate(s), steel surfaces within one foot of repaired area and any other steel surface where the coating system was damaged during these repairs shall be cleaned and coated under this contract. All prime and paint coat application costs shall be the responsibility of the Contractor and shall be incidental to the bridge repair item.

All structural steel shall first be solvent cleaned as per SSPC SP-1 specification to remove contamination. Then the Contractor shall use hand tools to clean surfaces removing loose rust, soot, or other remaining contamination using specification SSPC-2. Lastly, the Contractor shall apply a primer and intermediate coat of Surface Tolerant Aluminum Mastic Epoxy and a finish Coat of Urethane as per the recommendation of the manufacturer. Specifications for SSPC-1, SSPC-2 are attached to this Special Provision.

The Contractor shall perform 100% ultrasonic testing for the entire length of the full penetration welds used for repairs at the locations noted on the plans. All testing costs shall be the responsibility of the Contractor and shall be incidental to the bridge repair item.

Prior to any steel fabrication, the Contractor shall field verify all dimensions and assess the

working conditions to determine any constructability issues. Should the Contractor have any issues or questions, they shall be submitted to the Engineer prior to steel fabrication and start of work.

The Kanawha Canal discharges into the James River which is in the Chesapeake Bay Watershed and all work may be subject to the provisions in the Chesapeake Bay Preservation Act; therefore, no debris or wastewater of any type shall be discharged into the canal or river. Furthermore, the Contractor shall be responsible for compliance with all environmental laws and regulations regarding this type of work. All environmental permits as well as submittals, if required, shall be incidental to this work.

The Contractor is advised that the area under the Boulevard Bridge and Bridge 65 is not owned by RMTA and may require work permits from the City of Richmond.

For lane closures on and underneath these bridges and associated measurement and payment items, the Contractor shall refer to the special provisions for Maintenance of Traffic.

BRIDGE DESCRIPTIONS

Boulevard Bridge

The Boulevard Bridge is a two-lane bridge that carries State Route 161 (Westover Hills Boulevard) over the James River as well as Norfolk Southern and CSX Railroads. The superstructure consists of 13 spans of a semi-continuous steel girder floor beam system and 11 spans of a semi-continuous steel deck truss. The bridge is a weight limited structure; the maximum weight of a vehicle is 7,500 pounds.

The repair on Span 13 consists of replacing the sway frame, sway frame connection plate, removal and replacement of the lower strut and replacement of the lower strut connection plate.

The fabrication of four (4) different types of lacing bars (120 each of Type A, 15 each of Type B, 15 each of Type C and 15 each of Type D) and procuring a total of 330 bolts/nuts/washers.

The removal of damaged lacing bars and rivets and replacement with a new lacing bar and bolts at various locations.

Lacing bars and other repair locations are difficult to access and include mid-span lower chord and truss member connections.

All steel repairs require that traffic be removed from the lane over the repair area. In addition, if these repairs impact the operation of the railroad, the Contractor must receive construction approval from the appropriate railroad and schedule a railroad flagger before beginning work.

The Contractor shall utilize roadway flaggers to control traffic when one lane of the bridge is closed in accordance with the Special Provision for Maintenance of Traffic. See the repair plans for more information.

Bridge 11

This bridge is located immediately after the northbound lanes of Powhite Parkway split into the Downtown Expressway Connector and the I-195 Connector. The bridge carries three lanes of traffic. The bridge has two abutments and two piers and is a multi-beam structure with three simple spans.

The repair on Pier 2, Unit 2, Beam 4 consists of removing the stiffener area with section loss by air carbon arc process, install and weld the new stiffener.

Bridge 65

This bridge is a one lane ramp which carries NB I-95 over both the CSX and NS Railroad to WB Downtown Expressway (VA 195). The bridge ends with the connection with Bridge 63, has no abutments and 20 piers and is a multi-girder structure with 20 simple spans. In addition, Bridge 65, Spans 10 and 11 crosses over the Kanawha Canal.

The repair on Pier 11, Unit 12, Girder 1 consists of installing temporary jacking supports and assemblies, grinding weld between sole plate to bottom flange, and realigning sole plate and rocker plate to the centerline of masonry plate.

The repair on Pier 12, Unit 12 consists of installing new support posts, removing necessary bearing stiffeners and install proposed support post at various locations specified in the drawings and install proposed W section shims and plates on top of the proposed support post.

Measurement and Payment

The Pay Items for Bridge Repairs will be paid for at the contract lump sum bid price at each location of bridge steel repairs. This price shall include all materials, labor, tools, equipment, and incidentals necessary to complete the repairs including access to the site, jacking and shoring procedures, removal of existing steel, steel fabrication, cutting, grinding, steel installation, welding, labor, shop and field cleaning, priming and painting, ultrasonic testing (where noted on plans), and shop coating of steel plates.

This price shall also include review fees; submittals; and preparation of all plans, drawings, schedules, and narratives necessary for describing the Contractor's means and methods required to perform the work. This price shall include any requirements to remain in compliance with all environmental laws and regulations for work near or in the James River and Kanawha Canal. Legal offsite disposal of all waste materials shall be incidental to this item.

Any repairs which may require coordination with railroads shall be performed in accordance with the Supplemental Specifications, Section 107.19 Railway-Highway Provisions.

Payment will be made under:

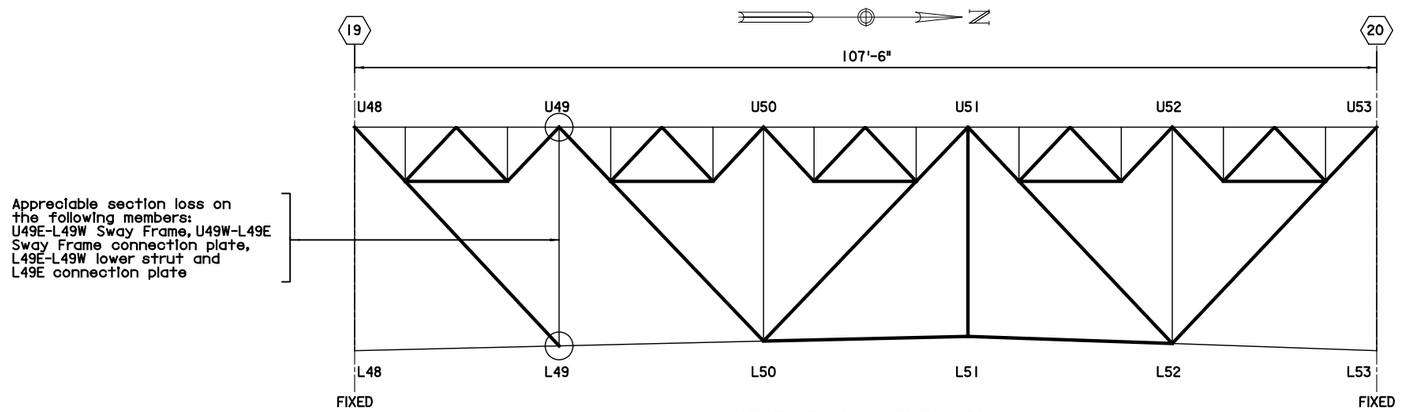
Designation	Description and Location	Pay Unit
Boulevard Bridge	Sway Frame, Lower strut and Gusset Plate Repairs	Lump Sum
Boulevard Bridge	Fabrication of Lacing Bars	Lump Sum
Boulevard Bridge	Lacing Bar and Bolt Replacement	Each
Bridge 11	Pier 2, Unit 2, Beam 4 Stiffener Replacement	Lump Sum
Bridge 65	Pier 11, Unit 12, Girder 1 Bearing Alignment	Lump Sum
Bridge 65	Pier 12, Unit 12 Bearing Retrofit	Lump Sum

SPAN 13
SWAY FRAME

SPAN 13
LOWER STRUT

SPAN 13
SWAY FRAME CONNECTION PLATE

SPAN 13
LOWER STRUT CONNECTION PLATE



WEST TRUSS ELEVATION
SPAN 13
(LOOKING WEST)

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2016, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. All existing structural steel is ASTM-A7. All new structural steel shall be AASHTO M270, grade 36.
4. All bolts used in repairs shall be A325 bolts with a 3/4" diameter.
5. Bolts as noted may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30 mph.
6. All proposed structural steel shall be shop primed.
7. Reference: Boulevard Bridge As-Built Plans.

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

Lower Strut

1. Temporarily support/tie-off the horizontal bracing member.
2. Remove existing lower strut.
3. Install proposed lower strut.
4. Remove temporary support/tie-off.
7. Clean repair area.

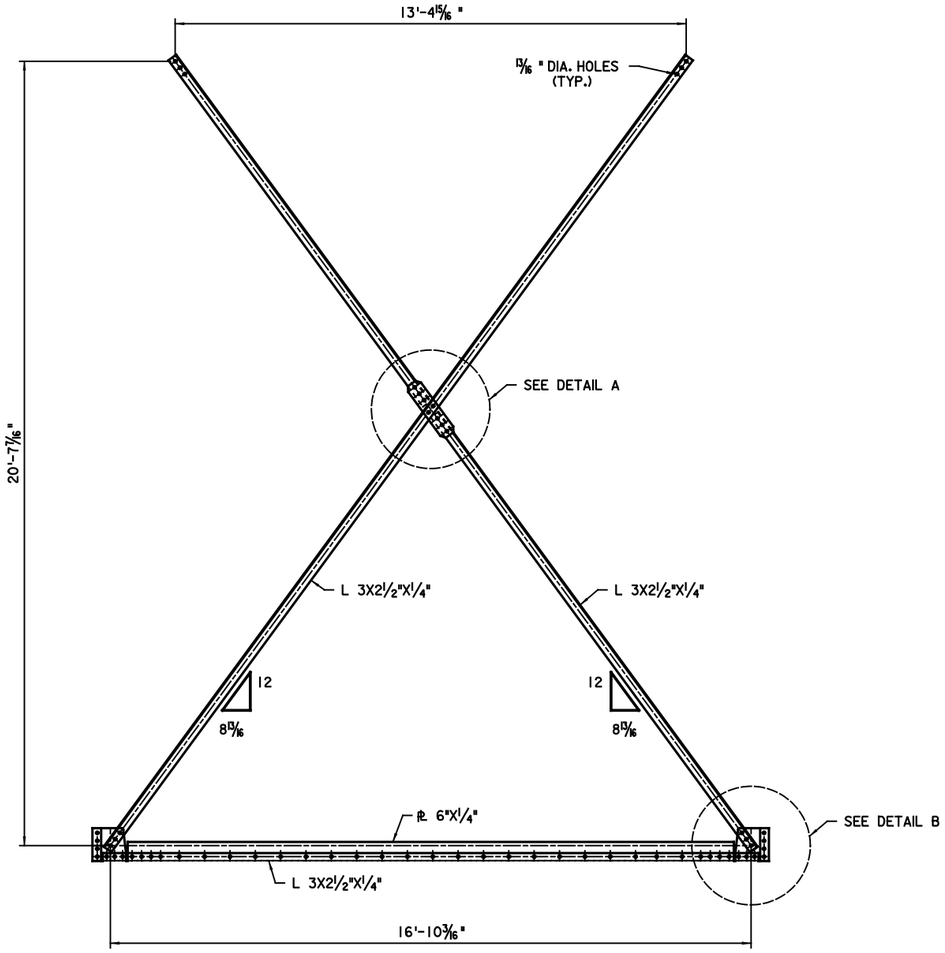
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
SWAY FRAME, LOWER STRUT AND GUSSET PLATE REPAIRS

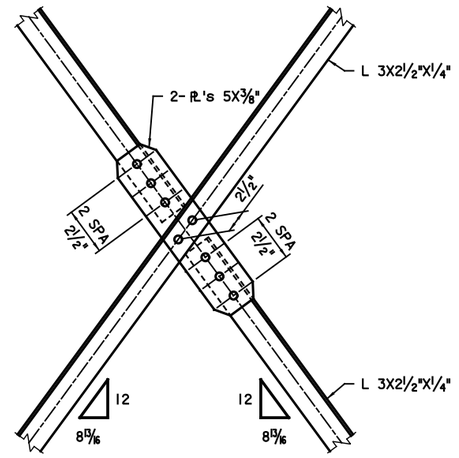
HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	
AS NOTED	MARCH 2019	1 OF 7	

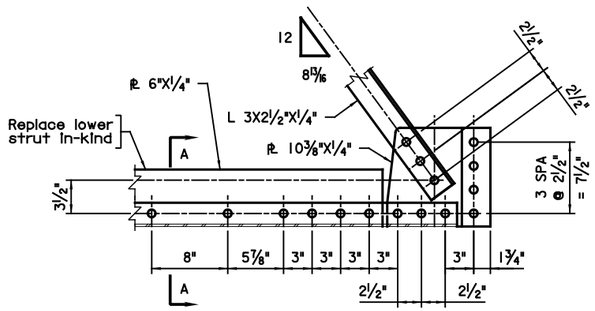
PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2019		SP-1



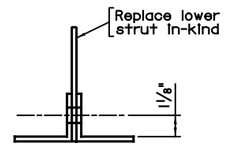
SPAN 13
SWAY FRAME
Scale: 1/2" : 1'-0"



DETAIL A
Scale: 1 1/2" : 1'-0"



DETAIL B
Scale: 1 1/2" : 1'-0"



SECTION A-A
Scale: 3" = 1'-0"

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2016, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. All existing structural steel is ASTM-A7. All new structural steel shall be AASHTO M270, grade 36.
4. All bolts used in repairs shall be A325 bolts with a 3/4" diameter.
5. Bolts as noted may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30 mph.
6. All proposed structural steel shall be shop primed.
7. Reference: Boulevard Bridge As-Built Plans.

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

Lower Strut

1. Temporarily support/tie-off the horizontal bracing member.
2. Remove existing lower strut.
3. Install proposed lower strut.
4. Remove temporary support/tie-off.
7. Clean repair area.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
SWAY FRAME, LOWER STRUT
AND GUSSET PLATE REPAIRS

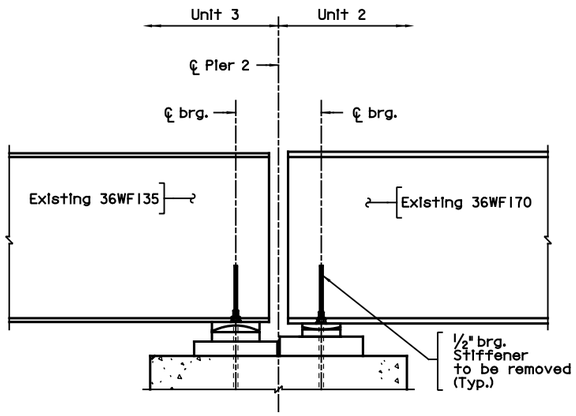
HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	MARCH 2019	2	7

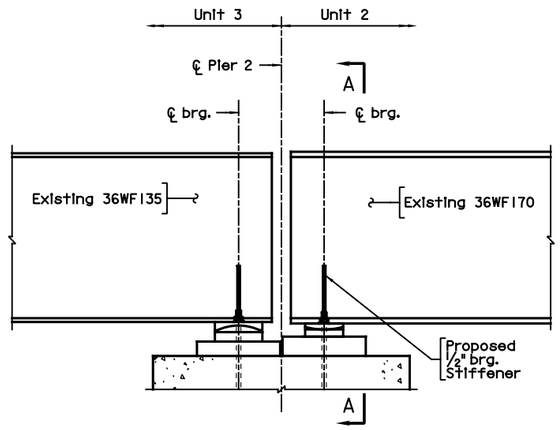
PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2019		SP-1-2

BRIDGE 11, PIER 2
BEAM 4

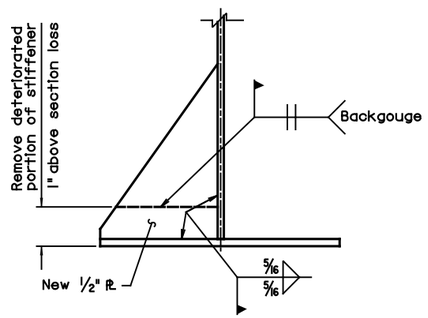
BRIDGE 11, PIER 2
BEAM 4, CLOSE-UP VIEW



EXISTING PIER 2 ELEVATION
Looking East
Scale: ¾" = 1'-0"



PROPOSED PIER 2 ELEVATION
Looking East
Scale: ¾" = 1'-0"



SECTION A-A
Not to scale

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2016, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. Contractor shall be required to apply a three coat epoxy-urethane system to all new structural steel and to areas of existing structural steel where existing paint coatings are damaged during repair work. Surface preparation shall meet SSPC-SP1, SP2 and SP3. Type and color of coating shall be approved by the Engineer.
4. All existing steel is ASTM-A36.
5. Contractor shall provide temporary bracing for bottom flange near the proposed repair prior to cutting web.
6. All structural steel of the stiffener that is to be removed shall be cut by the air carbon arc process. All full penetration butt welds shall be ground flush. Contractor to take special care not to damage the stringer flange.
7. All repair welding shall be performed in accordance with AASHTO/AWS 2016 Bridge Welding Code, 7th Edition. The Contractor is required to perform 100% ultrasonic testing for the length of the full penetration welds in the web patch plates to web and the web patch plates to flange fillet welds. All full penetration welds in web shall be ground smooth.
8. Caulk shall be added around the perimeter of all repairs to ensure no water will infiltrate the area.

Reference: Bridge B-11 As-Built Plans

Legend:

▨ - Section loss

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviations from the sequence of construction shown are acceptable upon review and approval by the Engineer. Live load over the subject stringer shall be removed during repair.

Stiffener Replacement:

1. Remove Stiffener area with section loss by the air carbon arc process.
2. Install and weld stiffener.
3. Clean and paint repair area.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 11
PIER 2, UNIT 2, BEAM 4
STIFFENER REPLACEMENT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	MARCH 2019	3	7

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2019		SP-1-3

BRIDGE 65, PIER 11
STRINGER 1-12, BEARING MISALIGNED

EXISTING PIER 11
WEST FASCIA ELEVATION

BRIDGE 65, PIER 11
STRINGER 1-12, BEARING MISALIGNED

PROPOSED PIER 11
WEST FASCIA ELEVATION

Not to Scale

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2016, current supplemental specifications, contract special provisions, and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. The existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
4. All repair welding shall be performed in accordance with AASHTO/AWS 2016 Bridge Welding Code, 7th Edition.
5. Contractor is responsible for determining the best location and method for jacking. Contractor shall only apply enough jacking force to relieve the load from the stringer bearing. A suggested jacking point is shown in these plans; however, an alternate method or location may be submitted by the Contractor. Alternate methods and locations shall be approved by the Engineer. Maximum jacking height is ¼". Live load over subject stringer shall be removed while jacks are in use.
6. Temporary jacking supports shall be installed as close to existing bearing stiffener as possible.
7. Contractor shall provide shop drawings signed and sealed by a licensed Professional Engineer in the Commonwealth of Virginia for temporary jacking support, jack and jacking procedure.
8. Service loads on jack:

   Vertical: Dead load = 69kips, Live load + Impact = 76kips
   Horizontal: Wind and thermal = 17kips

   Jacks shall have minimum 2x capacity of the maximum jacking load.
9. Reference: Bridge B65 original plans.

Legend:

N.S. - Near side
F.S. - Far side

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer. Live load over subject stringer shall be removed while jacks are in use.

1. Install temporary jacking supports and jacking assemblies. Jack fascia stringer from pier cap and lock-off jacks. Maximum jacking height is 1/4".
2. Grind weld between sole plate and bottom flange.
3. Realign sole plate and rocker plate to centerline of masonry plate at 60° F.

   For temperatures other than 60°F adjustment shall be ⅛" expansion or contraction per 10° F increase or decrease. Reweld sole plate to bottom flange.
4. Remove jacking system and temporary jacking support.
5. Clean repair area.

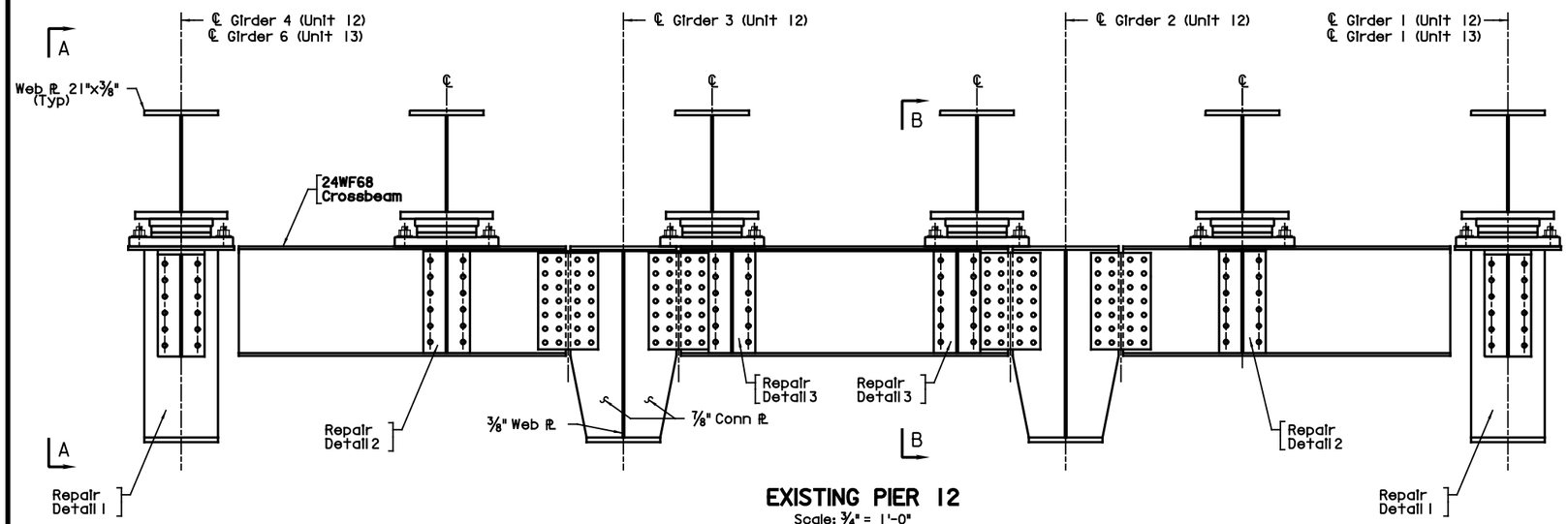
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 65
PIER 11, UNIT 12, GIRDER 1
BEARING REALIGNMENT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

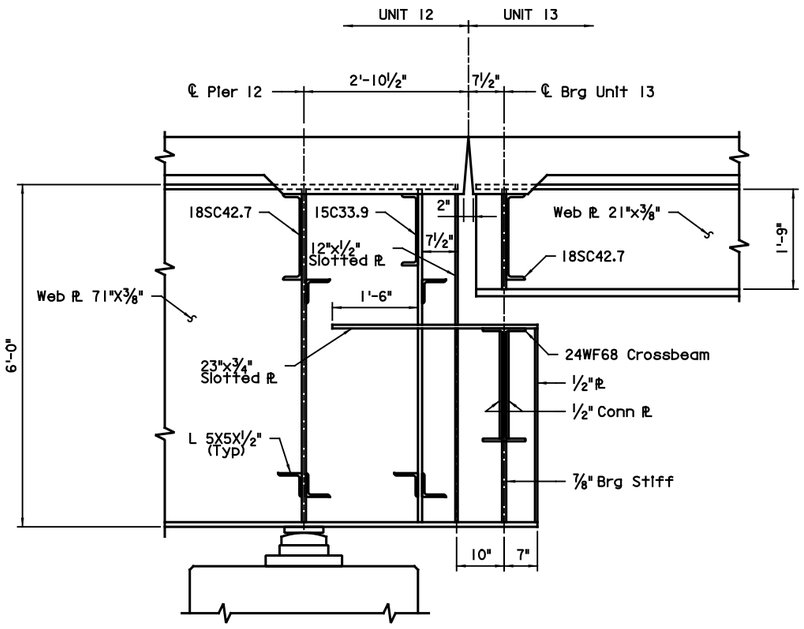
SCALE	DATE	SHEET	OF
AS NOTED	MARCH 2019	4	7

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2019		SP-1-4



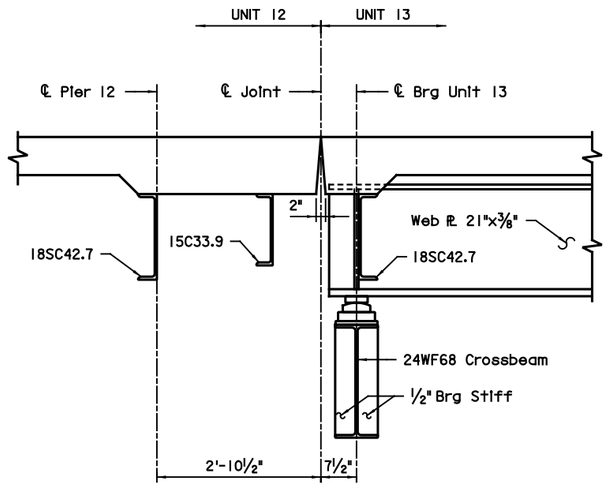
EXISTING PIER 12

Scale: 3/4" = 1'-0"



SECTION A-A

Scale: 3/4" = 1'-0"



SECTION B-B

Scale: 3/4" = 1'-0"

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2016, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. The existing W shape structural steel in Units 12 and 13 is ASTM A36. The existing welded plate girders of Unit 12 consist of ASTM A572 Grade 50 steel for thickness of 3/4" and under and ASTM A588 for steel thickness over 3/4".
4. All new structural steel shall be AASHTO M270, Grade 36.
5. All new bolts attaching proposed support post to the Unit 12 members shall be ASTM F3125, Grade A490 Type 3 bolts. All other bolts may be ASTM F3125, Grade A325 Type 3 bolts.
6. In the event that welding is required, all repair type welding shall be performed in accordance AASHTO/AWS 2016 Welding Code, 7th Edition.
7. The contractor shall provide drawings signed and sealed by a licensed Profesional Engineer in the Commonwealth of Virginia.
8. Factored Service Reaction loads from Unit 13 on Unit 12 cantilever at Pier 12:

   a. Dead Load Reaction = 47 kips
   b. Live Load Reaction = 79 kips
   c. Total Reaction = 126 kips

9. If bridge jacks are required, the minimum jack capacity shall be 2 X Total Service Reaction Load.
10. Contractor is to reference the B65 "AS-Built" plans for Units 12 and 13.
11. Legend:

    N.S. - Near Side
    F.S. - Far Side

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

1. Vehicular live load shall be removed during removal of any Unit 12 bearing stiffeners and during installation of support posts. This includes the time interval between removal of bearing stiffeners until the time of complete installation of the proposed support post. At no time shall the contractor open the bridge to traffic with bearing stiffeners removed.
2. Install new support posts at Unit 12 girders 1 and 6 as shown in Repair Detail 1.
3. Remove necessary bearing stiffeners located at Unit 12 girders 2 and 5 and install proposed support posts. Replace removed bearing stiffeners as close as possible to the support post. See Repair Detail 2. Note to contractor: If the existing Unit 12 bearing stiffeners are damaged it will be the engineer's decision as to replacing with new material or reuse.
4. Remove necessary bearing stiffeners located at Unit 12 girders 3 and 4 and install proposed support posts. Install removed bearing stiffeners as close as possible to the proposed support post. See Repair Detail 3. Note to contractor: If the existing Unit 12 bearing stiffeners are damaged it will be the engineer's decision as to replacing with new material or reuse.
5. Install proposed W section shims and plates on top of the proposed support posts locating as close as possible to the existing Unit 13 bearings. The contractor shall leave an approximate 1/8" gap between the bottom flange of the Unit 13 girders and the proposed shims.

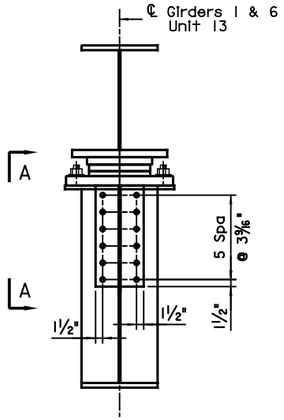
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 65, PIER 12, UNIT 12
BEARING RETROFIT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

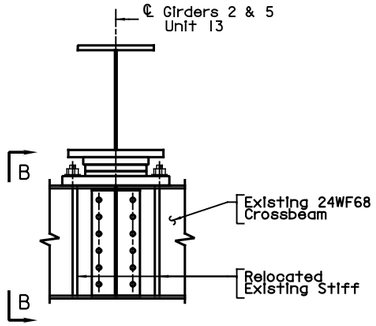
SCALE	DATE	SHEET	OF
AS NOTED	MARCH 2019	5	7

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2019		SP-1-5



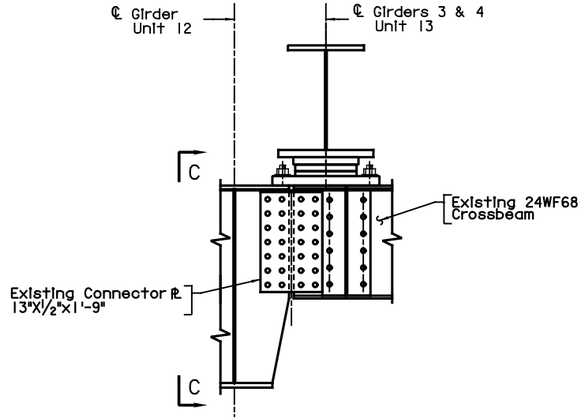
REPAIR DETAIL 1
GIRDERS 1 AND 6, UNIT 13
GIRDERS 1 AND 4, UNIT 12

Scale: ¾" = 1'-0"



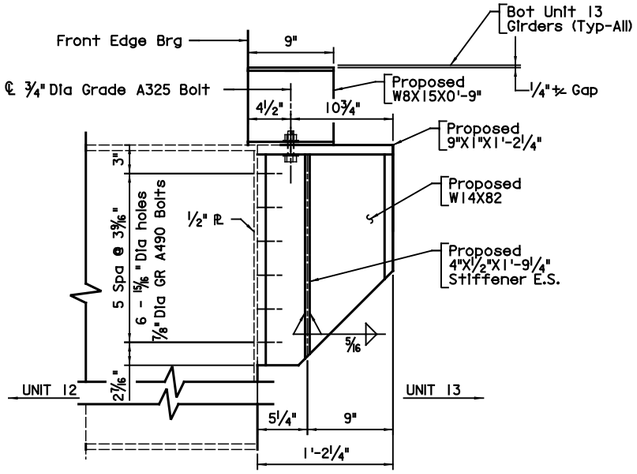
REPAIR DETAIL 2
GIRDERS 2 AND 5, UNIT 13

Scale: ¾" = 1'-0"

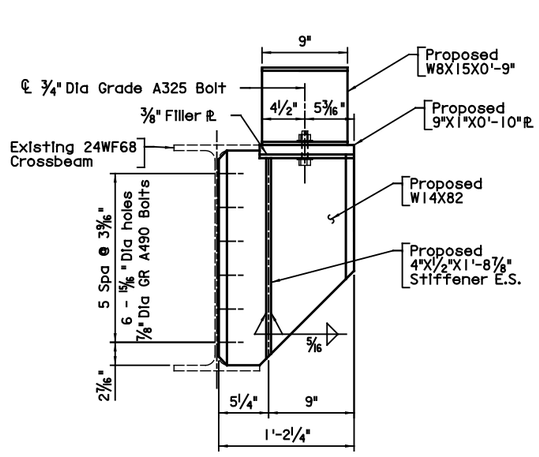


REPAIR DETAIL 3
GIRDERS 3 AND 4, UNIT 13

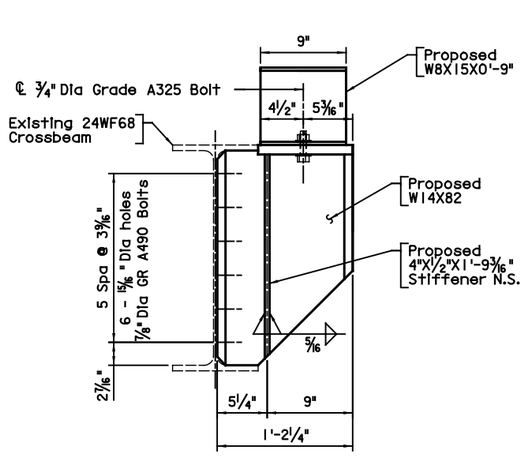
Scale: ¾" = 1'-0"



SECTION A-A
Scale: 1½" = 1'-0"



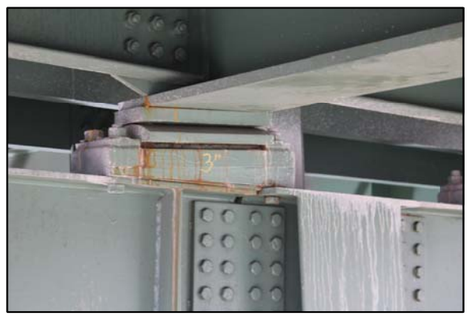
SECTION B-B
Scale: 1½" = 1'-0"



SECTION C-C
Scale: 1½" = 1'-0"

REPAIR DETAIL 1

REPAIR DETAIL 2



REPAIR DETAIL 3

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

1. Vehicular live load shall be removed during removal of any Unit 12 bearing stiffeners and during installation of support posts. This includes the time interval between removal of bearing stiffeners until the time of complete installation of the proposed support post. At no time shall the contractor open the bridge to traffic with bearing stiffeners removed.
2. Install new support posts at Unit 12 girders 1 and 6 as shown in Repair Detail 1.
3. Remove necessary bearing stiffeners located at Unit 13 girders 2 and 5 and install proposed support posts. Replace removed bearing stiffeners as close as possible to the support post. See Repair Detail 2. Note to contractor: If the existing Unit 12 bearing stiffeners are damaged it will be the engineer's decision as to replacing with new material or reuse.
4. Remove necessary bearing stiffeners located at Unit 13 girders 3 and 4 and install proposed support posts. Install removed bearing stiffeners as close as possible to the proposed support post. See Repair Detail 3. Note to contractor: If the existing Unit 12 bearing stiffeners are damaged it will be the engineer's decision as to replacing with new material or reuse.
5. Install proposed W section shims and plates on top of the proposed support posts locating as close as possible to the existing Unit 13 bearings. The contractor shall leave an approximate ⅛" gap between the bottom flange of the Unit 13 girders and the proposed shims.

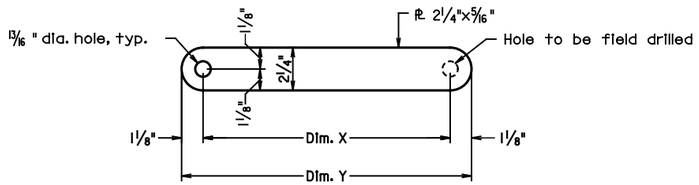
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 65, PIER 12, UNIT 12
BEARING RETROFIT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

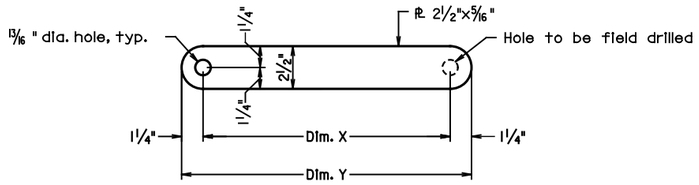
SCALE	DATE	SHEET	OF
AS NOTED	MARCH 2019	6	7

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2019		SP-1-6



PROPOSED LACING BAR REPLACEMENT (TYPE A, B & D)

Scale: 3" = 1'-0"



PROPOSED LACING BAR REPLACEMENT (TYPE C)

Scale: 3" = 1'-0"

LACING BAR	Dim. X*	Dim. Y*	Fabrication Qty.	Installation Qty.	Bolts Qty.
Type "A"	8½"	10¾"	120	120	240
Type "B"	1'-3½"	1'-5¾"	15	15	30
Type "C"	1'-11¾"	2'-2¼"	15	15	30
Type "D"	1'-4¼"	1'-7"	15	15	30

* Dimension may vary, field verification required.

TYPICAL 100% SECTION LOSS OF LACING BARS AND BATTEN PLATES

TYPICAL SECTION LOSS OF LACING BARS AND MISSING RIVETS ON TRUSS LOWER CHORD

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2016, current supplemental specifications, contract special provisions and contract.
2. Contractor shall verify all dimensions of the existing lacing bars to be replaced, paying particular attention to the alignment of the member and bolts to be replaced. Field verified dimensions are to be used to determine the final geometry prior to fabrication.
3. Contractor shall be required to apply a three coat epoxy-urethane system to all new structural steel and to areas of existing structural steel where existing paint coatings are damaged during repair work. Surface preparation shall meet SSPC-SP1, SP2 and SP3. Type and color of coating shall be approved by the Engineer.
4. All existing structural steel is Fy=30ksi, Fu=60ksi. All new structural steel shall be AASHTO M270, grade 36 and shop primed.
5. ¾" diameter A325 high strength bolts shall be used in the repairs. Threads are to be excluded from planes.
6. Rivets at location of existing lacing bars to be replaced shall be removed and replaced with new A325 bolts.
7. Following completion of installation, all unused lacing bars and bolts shall be transferred to RMTA possession at no additional cost.
8. Reference: Boulevard Bridge Over James River As-built plans.

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

1. Locate and size lacing bars for replacement.
2. Remove corroded lacing bar and clean the truss member behind it. Note any section loss and report findings to Engineer.
3. Install proposed lacing bar replacment. Bolt in place.
4. Locate missing rivets and replace with A325 bolts.
5. Paint repair area.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE LACING BAR AND BOLT REPLACEMENT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	MARCH 2019	7	7

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2019		SP-1-7

SSPC: The Society for Protective Coatings

SURFACE PREPARATION SPECIFICATION NO. 1

Solvent Cleaning

1. Scope

1.1 This specification covers the requirements for the solvent cleaning of steel surfaces.

2. Definition

2.1 Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from steel surfaces.

2.2 It is intended that solvent cleaning be used prior to the application of paint and in conjunction with surface preparation methods specified for the removal of rust, mill scale, or paint.

3. Surface Preparation Before and After Solvent Cleaning

3.1 Prior to solvent cleaning, remove foreign matter (other than grease and oil) by one or a combination of the following: brush with stiff fiber or wire brushes, abrade, scrape, or clean with solutions of appropriate cleaners, provided such cleaners are followed by a fresh water rinse.

3.2 After solvent cleaning, remove dirt, dust, and other contaminants from the surface prior to paint application. Acceptable methods include brushing, blow off with clean, dry air, or vacuum cleaning.

4. Methods of Solvent Cleaning

4.1 Remove heavy oil or grease first by scraper. Then remove the remaining oil or grease by any of the following methods:

4.1.1 Wipe or scrub the surface with rags or brushes wetted with solvent. Use clean solvent and clean rags or brushes for the final wiping.

4.1.2 Spray the surface with solvent. Use clean solvent for the final spraying.

4.1.3 Vapor degrease using stabilized chlorinated hydrocarbon solvents.

4.1.4 Immerse completely in a tank or tanks of solvent. For the last immersion, use solvent which does not contain detrimental amounts of contaminant.

4.1.5 Emulsion or alkaline cleaners may be used in place of the methods described. After treatment, wash the surface with fresh water or steam to remove detrimental residues.

4.1.6 Steam clean, using detergents or cleaners and follow by steam or fresh water wash to remove detrimental residues.

5. Inspection

5.1 All work and materials supplied under this standard shall be subject to timely inspection by the purchaser or his authorized representative. The contractor shall correct such work or replace such material as is found defective under this standard. In case of dispute the arbitration or settlement procedure established in the procurement documents, if any, shall be followed. If no arbitration or settlement procedure is established, then a procedure mutually agreeable to purchaser and contractor shall be used.

5.2 The procurement documents covering work or purchase should establish the responsibility for testing and for any required affidavit certifying full compliance with the standard.

6. Disclaimer

6.1 While every precaution is taken to ensure that all information furnished in SSPC standards and specifications is as accurate, complete, and useful as possible, SSPC cannot assume responsibility nor incur any obligation resulting from the use of any materials, coatings, or methods specified herein, or of the specification or standard itself.

6.2 This specification does not attempt to address problems concerning safety associated with its use. The user of this specification, as well as the user of all products or practices described herein, is responsible for instituting appropriate health and safety practices and for ensuring compliance with all governmental regulations.

7. Note

Notes are not requirements of this specification.

7.1 A Commentary Section is available and contains additional information and data relative to this specification. The Surface Preparation Commentary, SSPC-SP COM, is not part

of this specification. The table below lists the subjects discussed relevant to solvent cleaning and the appropriate Commentary section.

Section Subject	SSPC-SP COM Section
Solvents and Cleaners	5.1.1 through 5.1.3
Steam Cleaning	5.1.4
Threshold Limit Values	5.1.5

SSPC: The Society for Protective Coatings

SURFACE PREPARATION SPECIFICATION NO. 2

Hand Tool Cleaning

1. Scope

1.1 This standard covers the requirements for hand tool cleaning steel surfaces.

2. Definitions

2.1 Hand tool cleaning is a method of preparing steel surfaces by the use of non-power hand tools.

2.2 Hand tool cleaning removes all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Mill scale, rust, and paint are considered adherent if they cannot be removed by lifting with a dull putty knife.

2.3 SSPC-VIS 3 or other visual standard of surface preparation agreed upon by the contracting parties may be used to further define the surface (see Note 8.1).

3. Referenced Standards

3.1 The latest issue, revision, or amendment of the referenced standards in effect on the date of invitation to bid shall govern, unless otherwise specified. Standards marked with an asterisk (*) are referenced only in the Notes, which are not requirements of this standard.

3.2 If there is a conflict between the requirements of any of the cited reference standards and this standard, the requirements of this standard shall prevail.

3.3 SSPC SPECIFICATIONS:

SP 1	Solvent Cleaning
***SP 3**	Power Tool Cleaning
***SP 11**	Power Tool Cleaning to Bare Metal
***SP 15**	Commercial Grade Power Tool Cleaning
VIS 3	Guide and Reference Photographs for Steel Surfaces Prepared by for Power- and Hand-Tool Cleaning

3.4 INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO):

***8501-1**	Preparation of steel substrates before application of paints and related products: Visual assessment of surface cleanliness—Part I.

4. Surface Preparation Before and After Hand Tool Cleaning

4.1 Before hand tool cleaning, visible deposits of oil, grease, or other materials that may interfere with coating adhesion shall be removed in accordance with SSPC-SP 1 or other agreed-upon methods. Nonvisible surface contaminants such as soluble salts shall be treated to the extent specified by the procurement documents [project specifications] (see Note 8.2).

4.2 After hand tool cleaning and prior to painting, reclean the surface if it does not conform to this standard.

4.3 After hand tool cleaning and prior to painting, remove dirt, dust, or similar contaminants from the surface. Acceptable methods include brushing, blow off with clean, dry air, or vacuum cleaning.

5. Methods of Hand Tool Cleaning

5.1 Use impact hand tools to remove stratified rust (rust scale).

5.2 Use impact hand tools to remove all weld slag.

5.3 Use hand wire brushing, hand abrading, hand scraping, or other similar non-impact methods to remove all loose mill scale, all loose or non-adherent rust, and all loose paint.

5.4 Regardless of the method used for cleaning, if specified in the procurement documents, feather the edges of remaining old paint so that the repainted surface can have a reasonably smooth appearance.

5.5 If approved by the owner, use power tools or blast cleaning as a substitute cleaning method for this standard.

6. Inspection

6.1 Unless otherwise specified in the procurement documents, the contractor or material supplier is responsible for quality control to assure that the requirements of this document are met. Work and materials supplied under this standard are also subject to inspection by the purchaser or an authorized representative. Materials and work areas shall be accessible to the inspector.

6.2 Conditions not complying with this standard shall be corrected. In the case of a dispute, an arbitration or settlement procedure established in the procurement documents (project specification) shall be followed. If no arbitration or settlement procedure is established, then a procedure mutually agreeable to purchaser and material supplier (or contractor) shall be used.

7. Disclaimer

7.1 While every precaution is taken to ensure that all information furnished in SSPC standards and specifications is as accurate, complete, and useful as possible, SSPC cannot assume responsibility nor incur any obligation resulting from the use of any materials, coatings, or methods specified herein, or of the specification or standard itself.

7.2 This standard does not attempt to address problems concerning safety associated with its use. The user of this standard, as well as the user of all products or practices described herein, is responsible for instituting appropriate health and safety practices and for ensuring compliance with all governmental regulations.

8. Notes

Notes are not requirements of this standard.

8.1 Note that the use of visual standards in conjunction with this standard is required only when they are specified in the procurement documents (project specification) covering the work. It is recommended, however, that the use of visual standards be made mandatory in the procurement documents.

SSPC-VIS 3 provides a suitable comparative visual standard for SSPC-SP 2, SSPC-SP 3, SSPC-SP 11, and SSPC-SP 15. ISO 8501-1 may also serve as a visual standard.

8.2 The SSPC Surface Preparation Commentary (SSPC-SP COM) contains additional information and data relevant to this specification. The Commentary is non-mandatory and is not part of this specification. The table below lists the subjects discussed relevant to hand tool cleaning and the appropriate Commentary Section.

Subject	Commentary Section
Film Thickness	10
Maintenance Painting	4.2
Rust, Stratified Rust, Pack Rust, and Rust Scale	4.3.1
Visual Standards	11
Weld Spatter	4.4.1

SPECIAL PROVISION
EQUIPMENT PURCHASE AND DELIVERY

DESCRIPTION

This work shall consist of purchasing new fully assembled and installed equipment for and delivery to the RMTA. Presented below are a list of items to be purchased and their minimum specification are contained herein. The Cub Cadet Mower shall be delivered no later than 30 days after notice to proceed.

1. Cub Cadet 48 in 24hp Heavy Duty Zero-Turn Mower

The Contractor shall submit specifications certified by the manufacturer to the Engineer for approval prior to purchase of equipment. If the Contractor finds a similar product not meeting the minimum specifications, the Contractor may submit all applicable documents in writing for the Engineer to review. Alternate products not meeting minimum specification shall be substituted only with Approval by both the RMTA and the Engineer.

Once items have been approved, the Contractor shall submit a time for delivery to the Engineer and RMTA for approval. The Contractor shall be aware that delivery times shall take place typically between the hours of 8 A.M. to 5 P.M. Monday through Friday. All equipment shall be delivered to the SB Powhite Parkway Storage Yard.

All manuals, warranty information, registration information, and other paperwork shall be neatly organized in a binder when delivered. Additionally, all equipment shall be tested and have all fluids topped off, including, but not limited to fuel, oil, hydraulic fluid, etc.; so that each piece of equipment can be used in the manner it was intended for once it was delivered. All completed units shall comply and be tested in accordance with all applicable O.S.H.A. ANSI, FMVSS, etc. standards and regulations.

ITEMS FOR PURCHASE

1. <u>Cub Cadet Mower 48" 24hp Kawasaki Heavy Duty Zero-Turn</u>
   Part no. 17AIDUB010 MFG- CCW Description – ZF LX 48

   <u>ENGINE</u>
   - Cylinders/Material
   - 2/Cast-iron sleeve
   - Engine Type - 24 HP professional-grade Kawasaki FR Series V-Twin OHV

POWERTRAIN

- Lubrication - Fully pressurized automotive-style oil pump w/ spin-on oil filter

MOWER DECK

- Deck Wash - Patented SmartJet™ high-pressure deck washing system
- Deck Attach/Removal - QuickAttach™ in seconds (no tools required)
- Deck Lift - Hand lever adjustment w/ spring assist
- Deck Style/Construction - 11-gauge, floating, fabricated w/7-gauge reinforced plate
- Anti-Scalping - 2 greasable heavy-duty gauge wheels
- Deck Cutting Height - 1" - 5"
- Cutting Width/Blades - 48" triple-blade (high-lift)

ELECTRICAL SYSTEM

- Alternator - 12V - 15 amp regulated
- Battery Voltage - 230 cold crank amp

OPERATION

- Engine Start - Electric
- PTO Clutch - Electronic fingertip engagement
- Safety Systems - Operator presence, RevTEK™ reverse mowing technology
- Seat - High-back elasticity vibration control (EVC) suspension seat w/armrests

GENERAL

- Hour Meter - Standard electronic

ADDITIONAL SPECIFICATIONS

- Overall Length - 70"
- Wheelbase - 43"
- Reverse Speed - 4 mph
- Approximate Weight - 730 lbs.
- Fuel Tank Capacity - Twin 2.8 gal (5.6 gal. total)
- Engine Oil Capacity - 2.1 qt.
- Forward Speed - 8 mph
- Frame - Heavy-duty 12-gauge reinforced fully-welded 1-piece full-length steel frame
- Cup Holder – Standard
- Turning Radius – Zero
- Steering – Front Axle, Fabricated, Greasable
- Warranty - 4-year/500-hr limited warranty
- Transmission - Hydro-Gear™ ZT3100™ w/oil reservoir and filter
- Parking Brake - Integrated parking brake in lap bars

Capital Repair Services, LLC at 6566 W Braod St, Richmond, VA 23230 may have the specified mower in stock. A point of contact with Capital Repair Services is Pete, (804) 377-6230 and scott@superior-trailer.com

MEASUREMENT AND PAYMENT

Acquisition and Delivery of the Cadet Mower will be measured per lump sum and paid for at the contract unit price. The price shall include; purchasing for the RMTA, delivering equipment to the RMTA, any testing and break-in procedures, organization of all paperwork neatly in a binder, and all equipment, labor and incidentals required to complete the work.

Pay Item	Pay Unit
Acquisition and Delivery of 48" Cadet Mower	L.S.

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SPECIAL PROVISION
SLOPE STABILIZATION

DESCRIPTION

This work shall consist of slope stabilization material at designated locations as directed by the Engineer. The contractor shall submit the source of supply for Engineers approval.

MATERIALS

ITEM	VDOT SECTION
CRUSHER RUN AGGREGATE NO. 25 OR 26	205
COARSE AGGREGATE NO. 57	203
AGGREGATE MATERIAL NO. 1	203
FINE AGGREGATE A – SAND	202
CLASS I RIP RAP	414
CRUSHED AGGREGATE NO. 21A OR 21B	208
TOPSOIL, CLASS B	244
REGULAR SEED	244
FERTILIZER 15-30-15	244
LIME	244

LOCATIONS

Locations to be determined by the Engineer.

PROCEDURES

Generally, all work shall be performed from the edge of pavement or shoulder, utilizing lane closures as necessary to protect workers and the motoring public. Removal of guardrail is not

anticipated but if removed, is incidental to work performed. It is solely the responsibility of the Contractor for acquiring permits or permissions for access from areas not owned by the RMTA. If the Contractor removes fence fabric to facilitate the repair work, the cost of removing and reinstalling the fence fabric will be incidental to the scope of work. Equipment shall be capable of depositing repair materials over existing guardrail. Compaction of crusher run and 21A/21B will be required.

Stone Repair:

The Contractor shall cut the subgrade to the approval of the Engineer, so that the finished grade of the riprap will be at the elevation of the surrounding area. Contractor shall excavate a trench at the toe of the slope to key in the riprap and shall be at least two feet deep. Contractor shall remove and dispose offsite all brush, trees, stumps, and other objectionable material to the approval of the Engineer. Removal of such items will be incidental to the work.

Stone placement should start at the toe trench and work upwards. RipRap shall be placed so it forms dense, well-graded mass of stone with minimum voids. The Contractor should be aware that the desired distribution of stones throughout the mass may be obtained by selective loading at the quarry and controlled dumping during final placement. RipRap shall be placed at its full thickness in one operation. The Contractor shall not place riprap by dumping through chutes or other methods that cause segregation of stone sizes. Extra care shall be taken not to dislodge the underlying base when placing the RipRap. The finished slope shall be free of pockets of small stone or clusters of large stones. The Contractor should be advised that hand placing may be necessary to achieve proper distribution of stone sizes to produce a relatively smooth, uniform surface. The finished grade of the riprap shall blend with the surrounding area.

Top Soil Repair:

The Contractor shall perform regular excavation to prepare the site for top soil. All areas of slope stabilization shall have a minimum of 6" Class B Topsoil. The Contractor shall place top soil in a way that the loose depth shall be sufficient to allow the area to conform to the elevations shown on the plans after the topsoil settles. After topsoil has been applied, the Contractor shall remove large clods, hard lumps, and stones larger than 3 inches in diameter; brush; roots; stumps; litter; and foreign material. Where residential or commercial yards exist and to the approval of the Engineer, the Contractor shall remove all stones larger than 3/4 inch in diameter. Such areas shall be hand raked to provide a smooth yard suitable for mowing by a yard mower. When the placement of top soil is complete, the area shall be in a condition to receive seed without further soil preparation. Areas of repair shall be seeded within 7 calendar days after repair is completed. The Contractor is advised that temporary erosion control measures shall to the approval of the Engineer, be installed if seeding operation cannot occur at the moment that the repair is complete. Contractor shall install and maintain erosion control measures over the entire repaired area until the area is stabilized.

MEASUREMENT AND PAYMENT

Stone and topsoil will be measured by cross-sectioning the area filled, prior to the placement of material and then converting to tons by using an appropriate conversion factor. If, by mutual consent, the Engineer and Contractor should agree to use a weight ticket furnished with the material to gauge either the quantity of stone placed at various locations or the total quantity of material placed at multiple locations to arrive at final quantities, this will be an acceptable method in lieu of the previously specified method.

Top soil will be paid in accordance with VDOT specifications. Any labor and disposal costs required for the removal of large clods, hard lumps, and stones larger than 3/4 inch in diameter; brush; roots; stumps; litter; and foreign material, and hand raking shall be incidental.

Pay Item	Pay Unit
CRUSHER RUN AGGREGATE NO. 25 OR 26	TON
COARSE AGGREGATE NO. 57	TON
AGGREGATE MATERIAL NO. 1	TON
FINE AGGREGATE A – SAND	TON
CLASS I RIP RAP	TON
CRUSHED AGGREGATE NO. 21A OR 21B	TON
TOPSOIL, CLASS B	CY
REGULAR SEED	LB
FERTILIZER 15-30-15	TON
LIME	TON

SPECIAL PROVISION
MISCELLANIOUS BRIDGE COATINGS

DESCRIPTION

This work shall consist of cleaning and coating miscellaneous steel surfaces of existing bridge structural members. The intent of this work is to re-coat isolated structural members which exhibit corrosion and possible minor section loss. Structures are assumed to be Type B structures.

MATERIALS

All cleaned surfaces shall receive the following coating system, or engineer approved equal:

A. Polymeric Epoxy Amine at 1.0 -2.0 mils DFT. A thixotropic penetrating primer/sealer with excellent wetting properties that cures down to 35°. High solids that contains corrosion inhibitors and is compatible with a variety of topcoats.

B. Epoxy Polyamide (3/4 tint formula) at 3.0 – 5.0 mils DFT. Low temperature and rapid curing primer/finish that is VOC compliant with current AIM regulations. Solids content by Volume 63% ±2%.

C. Aliphatic Acrylic-Polyester Polyurethane (full tint formula) at 3.0 – 5.0 mils DFT. High build, low sheen finish that has excellent resistance to corrosion, chemicals and abrasion. VOC compliant with to current AIM regulations. Solids content by volume 61% ± 2%.

PROCEDURES

Contractor shall remove deteriorated coating back around the edges of the repair until an area of completely intact and adherent coating film, with no rust or blisters underneath, is attained. Edges of tightly adherent coating remaining around the repair shall be recoated and must be feathered so that the recoated surface can have a smooth appearance to provide a transition from the area of repair to the intact coating.

The remaining existing coating should have sufficient adhesion so that it cannot be lifted as a layer by inserting the blade of a dull putty knife under it using moderate pressure. Unless experience or spot tests show otherwise and to the approval of the Engineer, the contractor should use the same generic type of coating for this work as is in the existing coating.

The cleaning method required shall be power tool cleaning (SSPC-SP-3). This is Method 3 in Section 411.

LOCATIONS

Locations	Description
B9S	Pack rust around bearings, floorbeams, deck pan and bottom flange
B9N	Pack rust between floorbeams and deck pan
B10S	Pack rust around bearings, floorbeams, deck pan and bottom flange
B10N	Pack rust around bearings, floorbeams, deck pan and bottom flange

MEASUREMENT AND PAYMENT

Miscellaneous Coatings will be measured in units of square foot of surface area and will be paid for at the contract unit price. This price shall include costs of any necessary staging for access, equipment required, labor, environmental protection, proper disposal of material offsite, and any incidentals required to complete the work.

The minimum square footage payment for an individual work location shall be 30 square feet. An individual work location shall be defined as a single bridge span.

Payment for MOT required at individual work locations shall be paid for in accordance with the individual Electronic arrow, Group 2 channelizing devices and Truck mounted attenuator bid items listed in Section 512.

Payment will be made under:

Pay Item	Pay Unit
Miscellaneous Coatings	Square Foot

SPECIAL PROVISION
CONCRETE CURB

DESCRIPTION

This work shall consist of removing and replacing sections of Hydraulic Cement Concrete Curb.

MATERIALS

ITEM	VDOT SECTION
Hydraulic Cement Concrete Curb	502

LOCATIONS

locations for curb replacement may be determined by the Engineer.

PROCEDURES

Contractor shall inspect each location to determine the limits of work and shall submit plans to Engineer for approval prior to commencing work. Curb to be replaced shall be sawcut and removed in the designated area, then disposed of in an approved disposal area. New curb shall be installed in accordance with VDOT Specification 502 and shall match the profile of the existing curb.

MEASUREMENT AND PAYMENT

Curb shall be measured in linear feet and will be paid for at the contract unit price per linear foot. This price shall include the removal and disposal of the existing curb, repair of any adjacent damage to pavements, sidewalks, landscaping or turf areas; in addition to all equipment, labor, material, and incidentals required to complete the new installation. No additional payment will be made on the basis of varying curb shapes.

Payment will be made under:

Pay Item	Pay Unit
Standard 6" Curb, CG-2	Linear foot
Standard 4" Curb, CG-3	Linear foot

SPECIAL PROVISION
BRIDGE 66 ON-RAMP REHABILITATION

DESCRIPTION

This Work shall consist of the repair and rehabilitation of the existing Richmond Metropolitan Transportation Authority (RMTA) Downtown Expressway (DTE) 10th Street, Eastbound (Bridge 66) on-ramp roadway. This Work is to correct settlement caused by surface water infiltration and subsequent drainage system localized failures within the on-ramp roadway section. The Work Area is adjacent the Bridge 66 retaining wall with general limits being the **existing on-ramp concrete full pavement width** (curb to curb), including corresponding sub-base and Select Backfill depths from the asphalt pavement joint up to the abutment joint with Bridge 66. All pavement rehabilitation shall be in accordance with 2016 VDOT Road and Bridge Specifications (hereafter VDOT Specifications) Section 412 for Bridge Decks unless otherwise noted herein. The new on-ramp replacement pavement details shall also be consistent with the existing reinforced concrete details of the adjacent Approach Slab as shown in the Preliminary Plans.

The provided Preliminary Plans show **dimensions as estimates only**, and that no claim for extra quantities or minimized work scope shall be accepted based on these values except for the Select Backfill (Abutment Zone) material which shall be paid on a per Ton basis (based upon weight tickets submitted to the Inspector). The Preliminary Plans were prepared from information contained within the as-built bridge approach plans of this Bridge 66 abutment. These **as-built plans are also provided in the Appendix for Contractor's reference only**. The Contractor and Engineer shall jointly inspect the site and be in mutual agreement regarding all final Work Area limits and final Work Plan details required to perform the Work.

The overall on-ramp rehabilitation work shall specifically consist of removing the existing concrete pavement and any additional unsound concrete pavement that makes up the roadway slab and the bridge approach slab (demolition). Where applicable, additionally carry out Structure Excavation and corresponding Select Backfill (Abutment Zone) repair and rehabilitation procedures to minimize long-term roadway slab settlement. Preliminary Plan limits of the Select Backfill (Abutment Zone) material removal and replacement have been projected to be commensurate with estimated existing structure geometrics; whereby, the established final work limits shall be subject to the approval of the Engineer. This Work is also intended to replace the existing (failed) underdrain system consisting of repairing and constructing new underdrains, crossdrains, edgedrains, or prefabricated geocomposite pavement edgedrains (PGPE), including outlet pipe, (collectively, "underdrains") using equivalently dimensioned pipe, aggregate, and geosynthetics corresponding to these same Engineer approved limits.

The 10th Street on-ramp is critical to the DTE operations whereby time is of the essence. *Please be advised that* **once the Contractor begins the demolition process of the existing on-ramp**

roadway slab and bridge approach slab, the Work must immediately progress in an expedient manner to complete the entire repair and rehabilitation process and provide lanes back open to traffic within the stipulated seven (7) calendar days in accordance with all dates and times listed in the Maintenance of Traffic special provision SP-B. Work not completed within the 7-day work schedule stipulation **may** be subject to corresponding Liquidated Damages also per SP-B at the sole discretion of the RMTA. Standard Maintenance of Traffic pay items will also be measured and paid as per SP-B.

Prior to beginning any work, the Contractor shall submit to the Engineer for approval an overall Work Plan inclusive of the on-ramp concrete pavement and bridge approach slab demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and all related ancillary work. The complete on-ramp rehabilitation plan details shall be provided per the **required Work Plan** Section contained herein as confirmed by the Engineer. This plan also requires inclusion of the specific on-ramp closure MOT plan with detours subject to the approval by the Engineer and RMTA.

MATERIALS

All materials identified herein, and including all associated ancillary items, necessary for the full and complete performance of the **On-Ramp Rehabilitation** work is to be included and paid for at the contract lump sum price provided under the Measurement and Payment Section of this contract. The primary materials, at a minimum, are identified in this Section.

Structural Excavation shall conform to the requirements set forth in Section 401 Structure Excavation of VDOT Specifications.

Select Backfill (Abutment Zone) shall specifically consist of Number 21A or 21B stone conforming to Section 208 or Select Material Type I, minimum CBR 30 conforming to Section 207 of the VDOT Specifications. All Select Backfill materials used for the repair and rehabilitation work should also be granular, free-draining materials. Where adjacent embankment and existing wall structures retain in-situ cohesive soils, drainage shall be provided to reduce hydrostatic water pressure behind these structures.

Class A4 Bridge Deck Concrete shall be used for the on-ramp roadway construction in conformance with Section 217 inclusive of additional modifications to minimize cracking with shrinkage reducing admixtures; and, the rehabilitation work shall be in accordance with Section 412 for Bridge Decks and Section 509 for Hydraulic Cement Concrete Pavement of VDOT Specifications unless otherwise noted herein.

Steel Reinforcement / Deformed Reinforcing Bars shall conform to ASTM A615, Grade 60. These specifications cover steel items designed to give added flexural strength to hydraulic cement concrete or to control and reduce cracking in such applications per Section 223 requirements of the VDOT Specifications.

Coarse Aggregate material used to backfill underdrain, crossdrain, and outlet pipe trenches shall conform to Section 203 and be No. 57 aggregate, and No. 8 aggregate material gradation requirements of VDOT Specifications.

Drainage Pipe for underdrains shall conform to Section 232 and the associated **Geosynthetics**, including geotextile drainage fabrics and prefabricated (PGPE) drains shall conform to Section 245. This integral underdrain rehabilitation work shall also be in accordance with Section 501 all per the VDOT Specifications.

Ancillary Items including, but not limited to, pavement markings, delineators, joint material, materials for any required repairs, and all other necessary materials shall be per the appropriate VDOT Specifications unless otherwise noted herein.

SCOPE OF WORK

The full extent of the Work Area should be to ensure that the on-ramp rehabilitation work length, width and depth are all compatible with the observed settlement limits. Overall, the Work primarily includes on-ramp concrete pavement demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and all related ancillary work. Consequently, field verification of all Work Area limits is necessary to complete this Work. All required ancillary work performed shall also be at no additional cost to the RMTA and with no extension of contract time. This shall also include any required permits.

Demolition Operations work shall consist of **demolishing ONLY existing on-ramp roadway pavement and the bridge approach slab** in general conformance with Section 508 of VDOT Specifications. The intent is to remove the existing on-ramp concrete pavement and bridge approach slab strictly limited to Work Areas being rehabilitated in conformity to the lines and contours shown on the Preliminary Plans and as finalized by the Engineer. Specifically, this on-ramp and bridge approach slab pavement shall be broken into pieces and either used in fill areas as rock embankment in accordance with Section 303 or disposed of at locations selected by the Contractor and approved by the Engineer. *Contrary to Section 508.02 Procedures, sub-section (a)*

Demolition of Pavement Structures, sub-part (b), ***no material shall be left within the roadway prism***.

The Contractor shall first evaluate the on-ramp and bridge approach slab concrete pavement thickness over the existing Select Backfill and adjust the depth of demolition as to prevent damage to the adjacent retaining wall, back of bridge abutment and median embankment structures. Prior to any existing pavement demolition work the Contractor shall also perform a work site analysis, jointly with the Engineer, to locate any potential problem areas where there may be adverse impacts to adjacent structural elements. With the approval of the Engineer, the final outer limits of the entire demolition work may be adjusted to avoid destructive contact with the existing retaining wall and other, in-place structures. Due to demolition operations, and milling machine limitations, the Contractor shall also utilize jack hammering and saw cutting to remove any remaining existing concrete pavement not removed during the initial demolition process.

After completing concrete pavement demolition operations, the Contractor shall clean up all associated debris. Clean-up operations shall directly follow the demolition process to prevent any debris from resettling into the surrounding sub-base and other in-situ material to the Engineer's satisfaction.

Structure Excavation will be performed per Section 401 of VDOT Specifications. The limits are estimated to be from the surface of the original ground or on-ramp roadway down to the bottom of the foundation shown on the Preliminary Plans or such limit modifications as a part of the Work Plan as approved by the Engineer. This may involve depths down to 18 inches below the bottom of the neat work not directly over footings, or to the top of existing concrete where excavation exposes existing footings. All final depths are subject to the approval of the Engineer.

Drainage System Replacement and Associated Repair work shall be performed in accordance with Section 302 and 510 of the VDOT Specifications for drainage structures. The work may also consist of replacing existing drainage outlets to ensure proper, long-term drainage flow. All final lengths and drainage system replacement attributes are subject to the approval of the Engineer.

Select Backfill (Abutment Zone) material consisting of Number 21A or 21B stone conforming to Section 208 or Select Material Type I, minimum CBR 30 conforming to Section 207 shall be explicitly used by the Contractor to replace the material removed during the Structure Excavation operations. The Contractor and Engineer shall jointly inspect the site and be in mutual agreement regarding the detail indicating the final limits (zone) of the Select Backfill resulting from the excavation work and based on the Work Plan detail sheet(s). The Contractor shall compact the material in accordance with Sections 305 and 303, respectively. The top surface of the backfill material shall be neatly graded. Where only one side of abutments, wingwalls,

piers, or culvert headwalls can be backfilled, care shall be taken that the area immediately adjacent to the structure is not compacted to the extent that it will cause overturning or excessive pressure against the structure.

Mechanical Milling may be performed as additional option for pavement removal in accordance with the VDOT Specifications for Type A Milling. The anticipated depth range is possibly 8 inches (minimum) up to 1 foot, 9 inches and must be field verified to confirm sufficient removal depths of **ONLY the on-ramp roadway reinforced concrete pavement and the reinforced bridge approach slab** strictly limited to within the designated Work Area as confirmed by the Engineer. Prior to initiating Mechanical Milling or any other existing concrete pavement demolition work, the Contractor shall remove all debris from the ramp roadway and dispose of it offsite.

The Contractor shall use extra caution during the milling procedures. Damaged surrounding reinforcing steel involving any adjacent existing concrete pavements shall be repaired in accordance with Section 412.03 of the VDOT Specifications at no additional cost to the Authority and with no extension of contract time. Reinforcing steel shall be ASTM A615 Grade 60 deformed and plain uncoated for all associated pavement repairs.

Class A4 Concrete shall be used for all reinforced concrete pavement rehabilitation work consisting of the construction of new sections of hydraulic cement concrete within the Work Area or other areas as identified by the Engineer. These repairs shall be in accordance with Section 412 for Bridge Decks and Section 509 for Hydraulic Cement Concrete Pavement unless otherwise noted herein. Specifically, ANY pavement repairs will be made using a rapid-cure cement-based patching product, matching the requirements of VDOT Class A4 Concrete, modified as necessary to achieve a compressive strength of at least 3,000 psi in a maximum of 8 hours. The product *recommended* for bridge deck and pavement repairs is *Heartland High Performance Volumetric Concrete*. Substitute products may be used as approved by the Engineer. All products used must be listed on the most current VDOT Approved Products List. Contractor shall submit proposed product data sheet to Engineer for approval prior to use.

Pavement Markings and Delineator work shall require Eradication of Existing Pavement Markings, applying new Pavement Markings and removal and replacement of Delineators. Type B markings will be installed only on concrete surfaces per the manufacturer's recommendations. Prior to installation of any pavement markings the Contractor and Engineer shall jointly review the site and be in mutual agreement on which markings are being removed / installed. In general, the Contractor shall match all existing markings in their current location unless directed by the Engineer. All pavement marking shall be installed per the Manufacturers recommendations or as approved by the Engineer. The Contractor shall also make sure that the surface is clear of any debris, by removing it with compressed air. Installing delineators along

existing concrete barrier walls in locations determined by the engineer shall be per the manufacturer's recommendations. The Contractor shall refer to Section 3F.04 Delineator Placement and Spacing on pages 426-427 of the Manual for Uniform Traffic Control Devices for additional guidance. Any costs for removing and disposing offsite of existing Pavement Markings, Eradication and Delineators shall be incidental to this work.

New Joints shall be designed, furnished and installed to accommodate the movement of rigid structures (See Section E-E, Anchor Slab Type I Detail of the Preliminary Plans), such as component parts of hydraulic cement concrete, and seal the joint from intrusion of water or incompressibles. The Contractor shall provide final details based on the Preliminary Plans and as-built drawings from Bridge B66 which are all included in the Appendix for reference only. Joints using steel dowels and forming using rigid Styrofoam, wood, or other materials shall be as approved by the Engineer. The Contractor shall use elevation measurements taken during the previous work to ensure that the new joints match both the elevations on each surrounding structures and cross slope of the existing joints of the Approach Slab and pavements. The Contractor shall also remove all remnants of existing joint sealer material, dirt, and debris from the joint and any damaged Approach Slab adjacent to the failed existing joint material and thoroughly clean and prepare concrete surfaces before installing the new joint material. Install joint sealer along all repair lengths shall use **Wabo Evazote UV** or approved equivalent. All spaces between newly formed joints shall also be uniform in width so that one size of Evazote joint sealant material can be installed once the replacement reinforced concrete pavement has properly cured. The cost of joint material and installation shall be incidental to the lump sum cost of performing the Work Area rehabilitation.

WORK PLAN (Required)

Prior to beginning the Work, the Contractor shall submit to the Engineer for approval an overall repair and rehabilitation plan inclusive of the on-ramp concrete pavement demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and all related ancillary work. This overall Work Plan shall include complete details of the following items, as a minimum:

a) The Contractor shall also submit Maintenance of Traffic and, specifically, Detour plans to the Engineer for review and approval prior to commencing **ANY** work. See Maintenance of Traffic special provision SP-B for details and requirements.

b) The Contractor's means of controlling unintended adverse impacts or destructive contact with collateral structural elements surrounding the failed pavement area shall be identified prior to commencing any work. The intent is to confirm that the Contractor

shall make every attempt to prevent un-intended damage to the in-situ and existing, in-place structures surrounding the repair and rehabilitation work area.

c) The Contractor shall provide specific details of the method of demolition and Structural Excavation procedures of the on-ramp roadway slab and corresponding underlying sub-base prior to commencing any work. This should also include some details for removing and replacing the existing failed drainage systems.

d) The Contractor's methods of protecting these existing structural systems shall also be provided for review and comment by the Engineer prior to commencing any work.

e) A detailed plan indicating the limits of the Structural Excavation and corresponding Select Backfill material with notes shall be included on the Contractor's detail sheets of the overall repair and rehabilitation work plan.

f) A detailed (Class A4) paving plan shall be provided to the Engineer for review and approval prior to commencing **ANY** paving work.

g) All repaired or reconstructed joints shall be free of cracked and spalled areas and their faces shall be free of all foreign matter, curing compounds, oils, greases and dirt. All faces must be sandblasted or brushed with a mechanical rotary wire brush. Just prior to sealing, the joint shall be blown out with oil-free compressed air.

h) The Contractor's method for material inspection and approval for use by the Engineer shall be coordinated with the project schedule.

COORDINATION AND SCHEDULING

Contractor shall coordinate all work activities with the Engineer. Contractor shall provide at least fourteen (14) days' notice of any closure prior to starting work.

To complete the Work, Contractor may require access from property owned or managed by parties other than the RMTA. Contractor shall coordinate and schedule with appropriate owner, party or agency work activities on non-RMTA property. In addition, Contractor shall secure all necessary permits required for site access to perform work. Contractor shall abide by all permits, regulations and guidelines issued by the governing agency.

Upon completion of the use of properties adjacent to or below bridges for storage or work areas, Contractor shall restore the property to a condition similar or equal to that existing before work started. Any costs related to gaining access to property, stabilizing property, sediment control devices and restoring property shall be incidental to the other work items established for the on-ramp rehabilitation.

SPECIAL PROVISION
BRIDGE 66 ON-RAMP REHABILITATION

Contractor shall protect all utilities on Bridges from all work, specifically during the existing pavement demolition and associated Structural Excavation operations.

MEASUREMENT AND PAYMENT

All on-ramp rehabilitation work will be measured and paid for at the contract lump sum price at the specific 10th Street on-ramp (BR #66) location per the pay item specified below. This price shall include all materials and labor to complete the on-ramp concrete pavement demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and any and all associated ancillary work to complete the entirety of the repair and rehabilitation of the on-ramp roadway. Environmental Protection and Health Safety will also be included and paid for at this contract lump sum price for this location. Disposal of Material will also be included and paid for at this contract lump sum price at this location. Maintenance of Traffic will also be included and paid for at this contract lump sum price at this location.

Measurement for Select Backfill shall be made on a per Ton basis (based upon weight tickets submitted to the Inspector) for all compacted stone placed for leveling and backfill in accordance with specifications and accepted by the Agency. No separate measurement will be made for random backfill as it shall be considered incidental to excavation.

Payment will be made under;

Pay Item	Pay Unit
On-Ramp Rehabilitation: *Existing Concrete Pavement Demo / Existing Bridge Approach Slab Demo / Structure Excavation / Replacement Drainage System and Repair / Select Backfill / Reinforced Concrete (Class A4) Pavement / Joints / Markings and Delineators / Environmental Protection / Disposal of Material and Cleanup (B66)*	LS
Select Backfill (Abutment Zone)	TONs

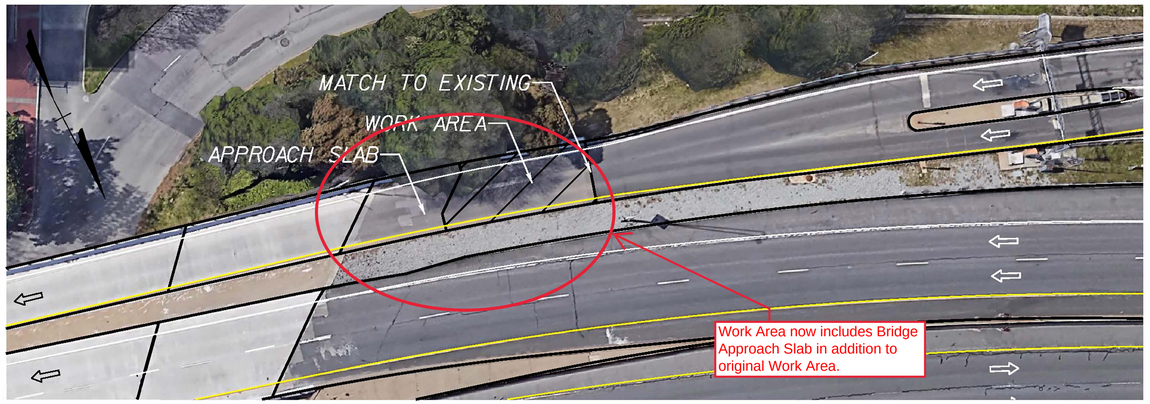
Select Backfill (Abutment zone) Number 21A or 21B stone conforming to Section 208 will be measured in Tons and shall be paid for at the contract unit price per Ton. This price shall include furnishing, excavating, placing, compacting, and grading select backfill material. In computing volumes of backfill, methods having general acceptance in the engineering profession will be used. When the measurement is based on the cross-sectional area, the average end area method will be used subject to the approval of the Engineer.

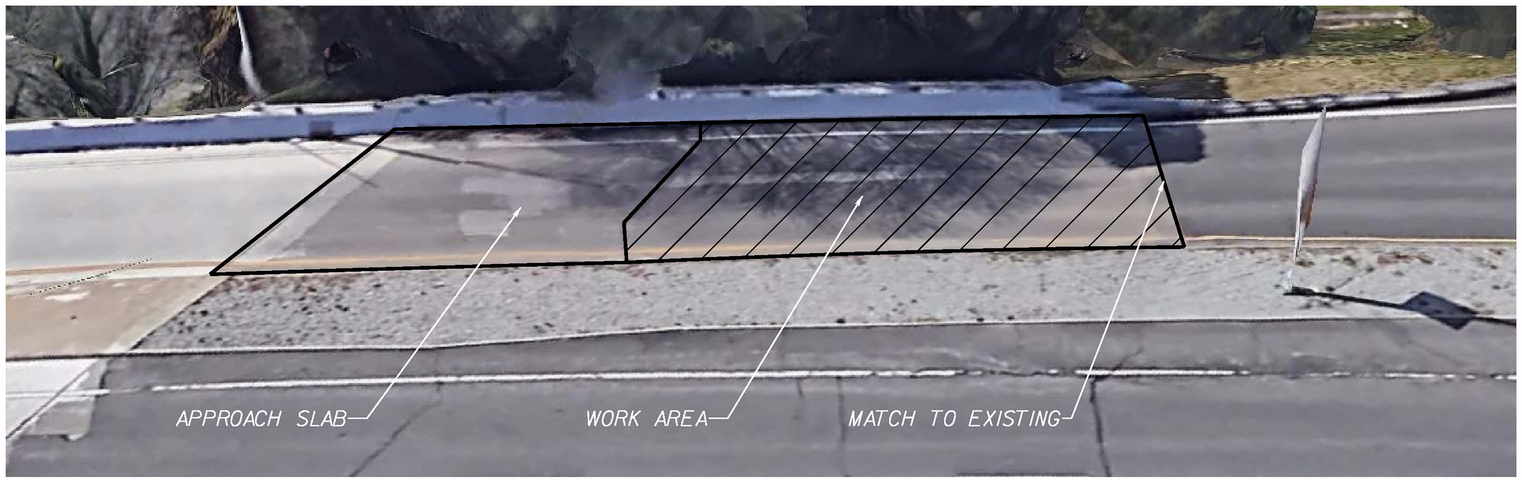
PROJECT MANAGER <Project Mgr. Name. (000).000-0000. (District)> _____
SURVEYED BY, DATE <Surveyor Name. (000).000-0000. (District)> _____
DESIGN BY <Designer Name. (000).000-0000. (District)> _____.
SUBSURFACE UTILITY BY, DATE <Surveyor Name. (000).000-0000. (District).

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	.	.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

10TH STREET ON RAMP REHABILITATION





NOTE: ALL WORK AREAS RELATING TO EXISTING STRUCTURES, PAVEMENTS, DRAINAGE, AND ANCILLARY INFASTRUCTURE DETAILS ARE FROM AS-BUILT PLANS AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. REFERENCE ONLY - SEE AS-BUILT PLANS.

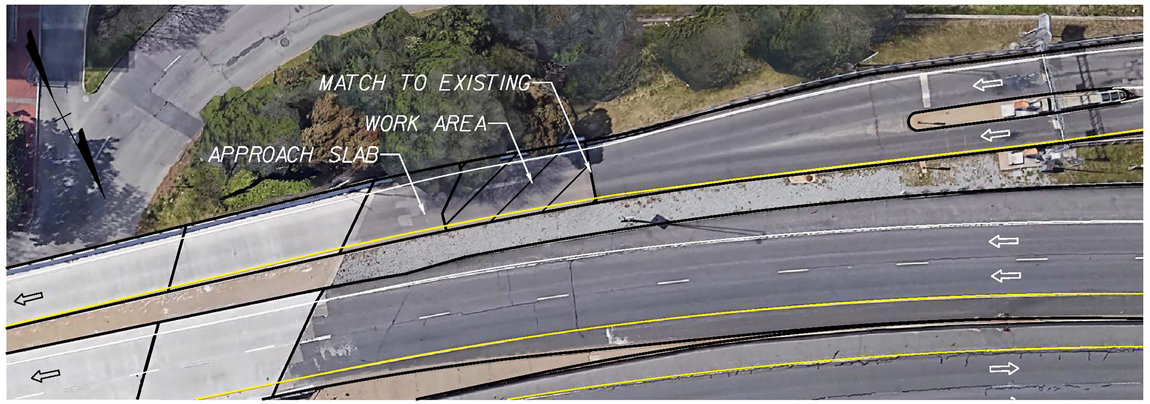
N.T.S.	PROJECT MR 2018 · SP-N-1	SHEET NO. 1

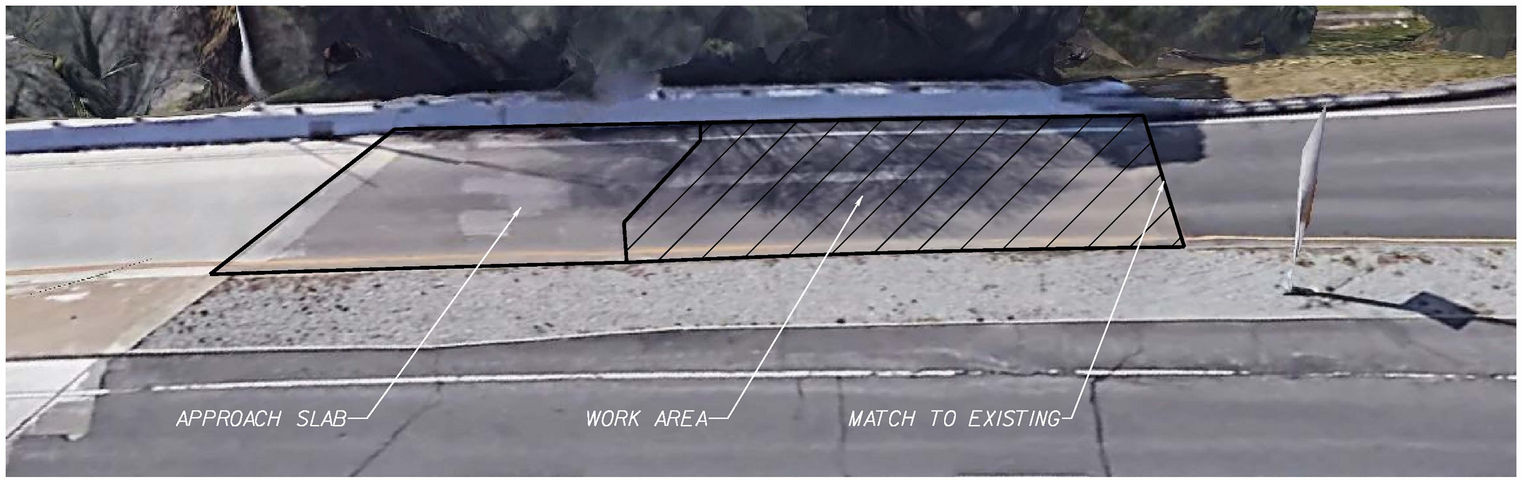
PROJECT MANAGER <Project Mgr. Name. (000).000-0000. (District)> _____
SURVEYED BY, DATE <Surveyor Name. (000).000-0000. (District)>_____
DESIGN BY <Designer Name. (000).000-0000. (District)> _____.
SUBSURFACE UTILITY BY, DATE <Surveyor Name. (000).000-0000. (District).

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	.	.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

10TH STREET ON RAMP REHABILITATION





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N.T.S.	PROJECT MR 2018 · SP-N-1	SHEET NO. 1

PROJECT MANAGER<Project Mgr. Name. (000).000-0000. (District)> _____
SURVEYED BY, DATE <Surveyor Name. (000).000-0000. (District)>_____
DESIGN BY <Designer Name. (000).000-0000. (District)> _____
SUBSURFACE UTILITY BY, DATE <Surveyor Name. (000).000-0000. (District).

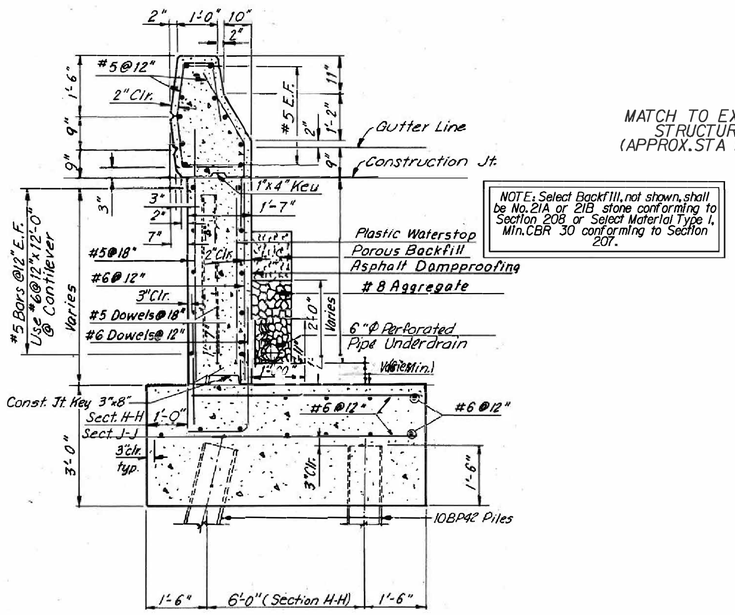
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	. . .	3

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

10TH STREET ON RAMP REHABILITATION

10TH STREET RAMP CROSS SECTION

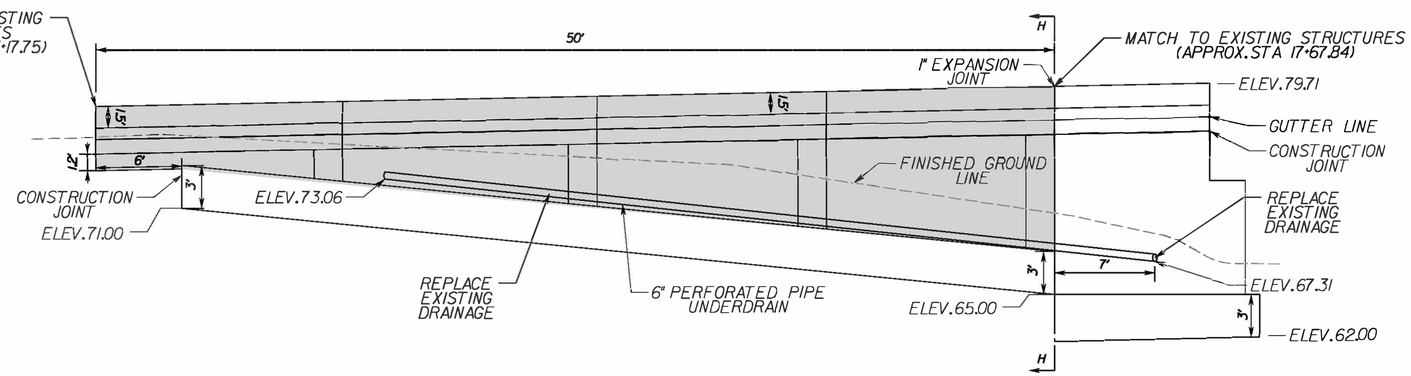
(N.T.S.)



NOTE: Select Backfill, not shown, shall be No. 21A or 21B stone conforming to Section 208 or Select Material Type I, Min. CBR 30 conforming to Section 207.

10TH STREET RAMP WEST ABUTMENT ELEVATION AS-BUILT

(N.T.S.)



NOTE: ALL DIMENSIONS AND ELEVATIONS ARE FROM AS-BUILT PLANS AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. REFERENCE ONLY - SEE AS-BUILT PLAN SHEET 5 OF 46.

N.T.S.	PROJECT MR 2018 SP—N—3	SHEET NO. 3

PROJECT MANAGER<Project Mgr. Name. (000).000-0000. (District)> _____
SURVEYED BY, DATE <Surveyor Name. (000).000-0000. (District)>_____
DESIGN BY <Designer Name. (000).000-0000. (District)> _____
SUBSURFACE UTILITY BY, DATE <Surveyor Name. (000).000-0000. (District).

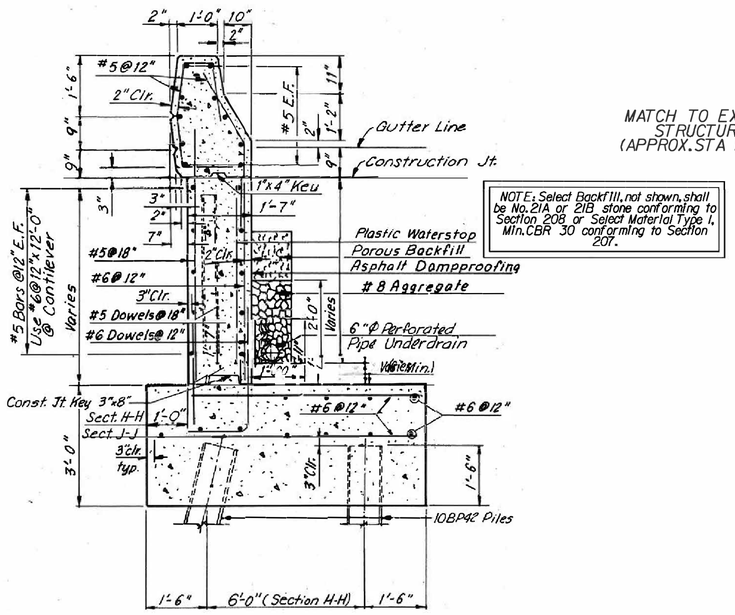
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	. . .	3

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

10TH STREET ON RAMP REHABILITATION

10TH STREET RAMP CROSS SECTION

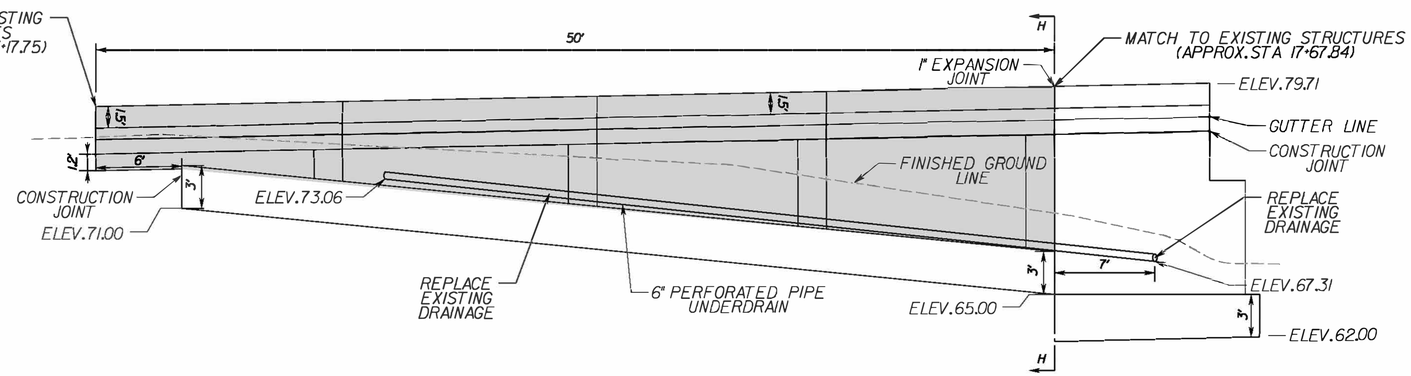
(N.T.S.)



NOTE: Select Backfill, not shown, shall be No. 21A or 21B stone conforming to Section 208 or Select Material Type I, Min. CBR 30 conforming to Section 207.

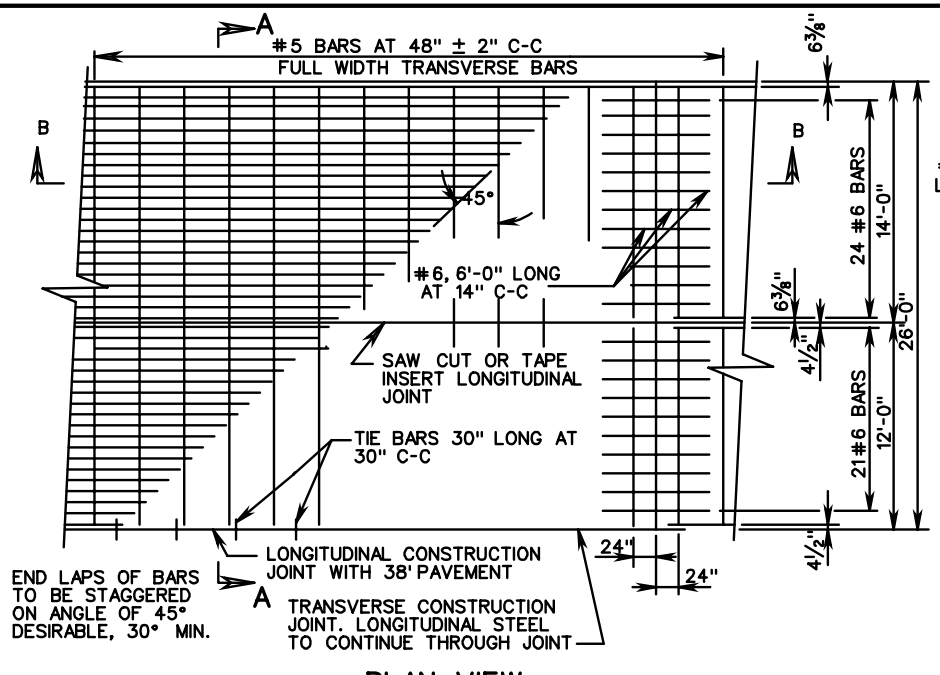
10TH STREET RAMP WEST ABUTMENT ELEVATION AS-BUILT

(N.T.S.)

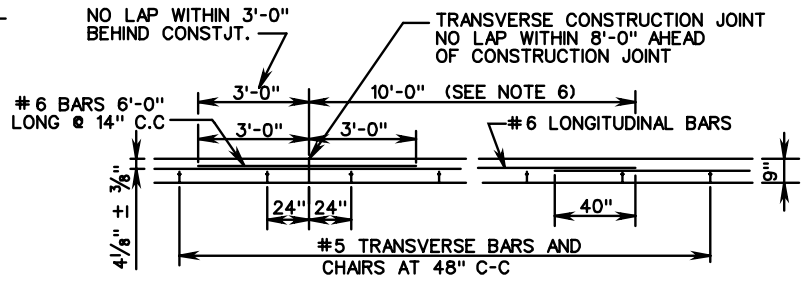


NOTE: ALL DIMENSIONS AND ELEVATIONS ARE FROM AS-BUILT PLANS AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. REFERENCE ONLY - SEE AS-BUILT PLAN SHEET 5 OF 46.

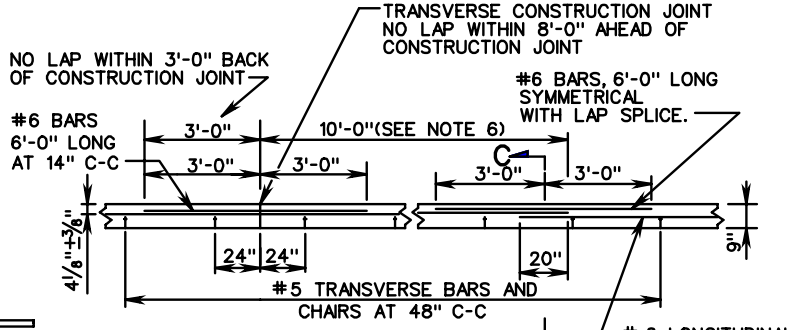
N.T.S.	PROJECT MR 2018 SP—N—3	SHEET NO. 3



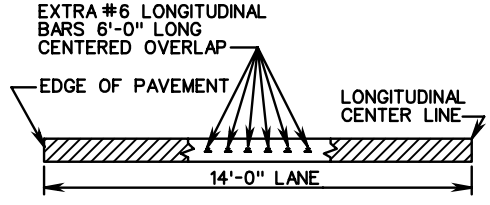
PLAN VIEW
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT



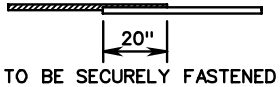
SECTION B-B
DOUBLE LAP METHOD



SECTION B-B
EXTRA BAR METHOD

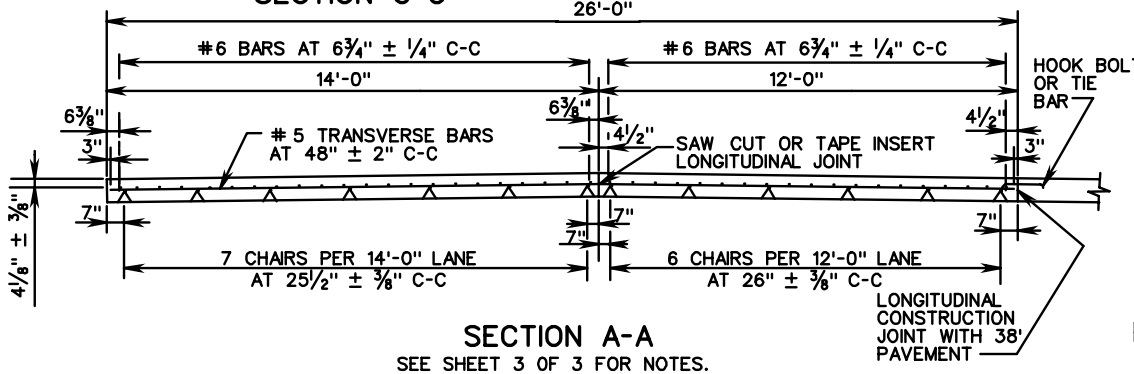


SECTION C-C

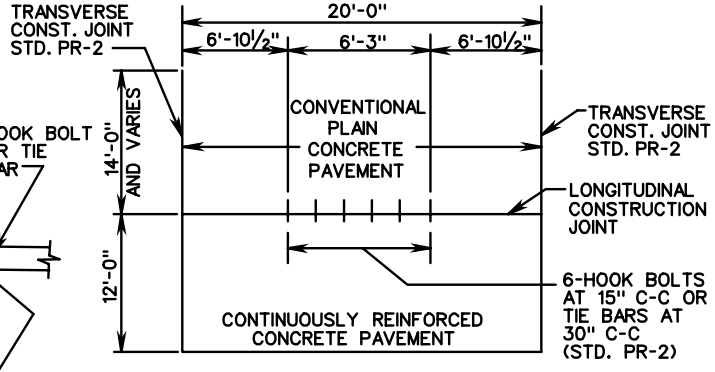


BARS TO BE SECURELY FASTENED TO PREVENT SEPARATION DURING CONCRETE PLACEMENT.

TYPICAL
LONGITUDINAL LAP



SECTION A-A
SEE SHEET 3 OF 3 FOR NOTES.



PLAN-RAMP & MAIN LINE CONNECTION

SPECIFICATION REFERENCE	9" THICK CONTINUOUSLY REINFORCED CONC. PAVE.	VDOT ROAD AND BRIDGE STANDARDS
316	(14 FOOT TRAVEL LANE)	REVISION DATE
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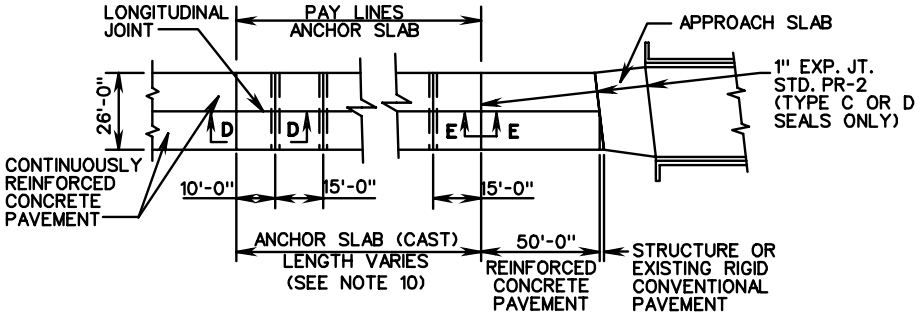
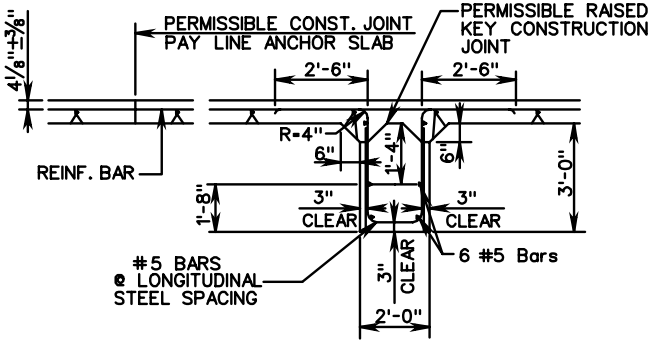
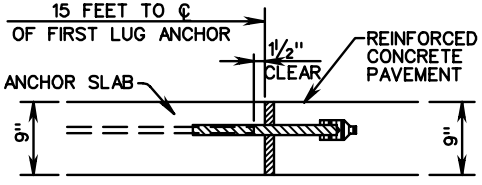
PR-5



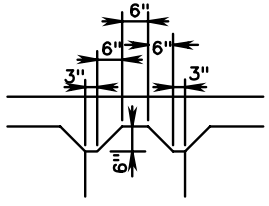
PLAN VIEW
ANCHOR SLAB TYPE I



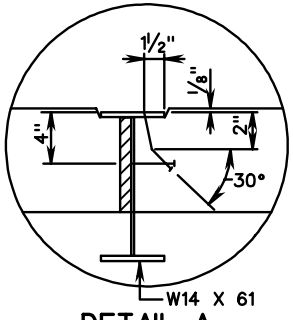
SECTION D-D



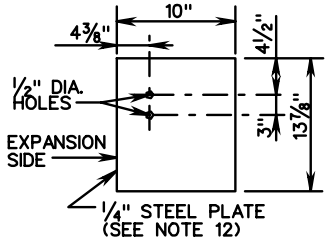
SECTION E-E
ANCHOR SLAB TYPE I



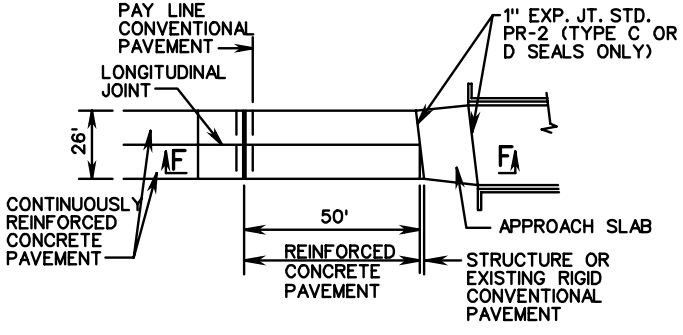
DETAIL-RAISED KEY
CONSTRUCTION JOINT



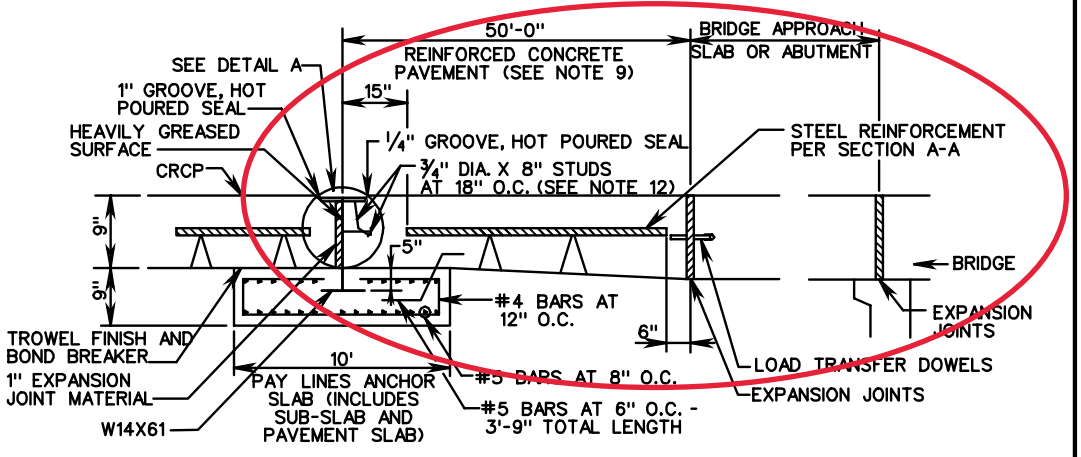
DETAIL A



END PLATE DETAIL
ANCHOR SLAB TYPE II



PLAN VIEW
ANCHOR SLAB TYPE II
(SEE NOTE 11)



SECTION F-F
ANCHOR SLAB TYPE II

SEE SHEET 3 OF 3 FOR NOTES.

VDOT
ROAD AND BRIDGE STANDARDS

SHEET 2 OF 3
301.14

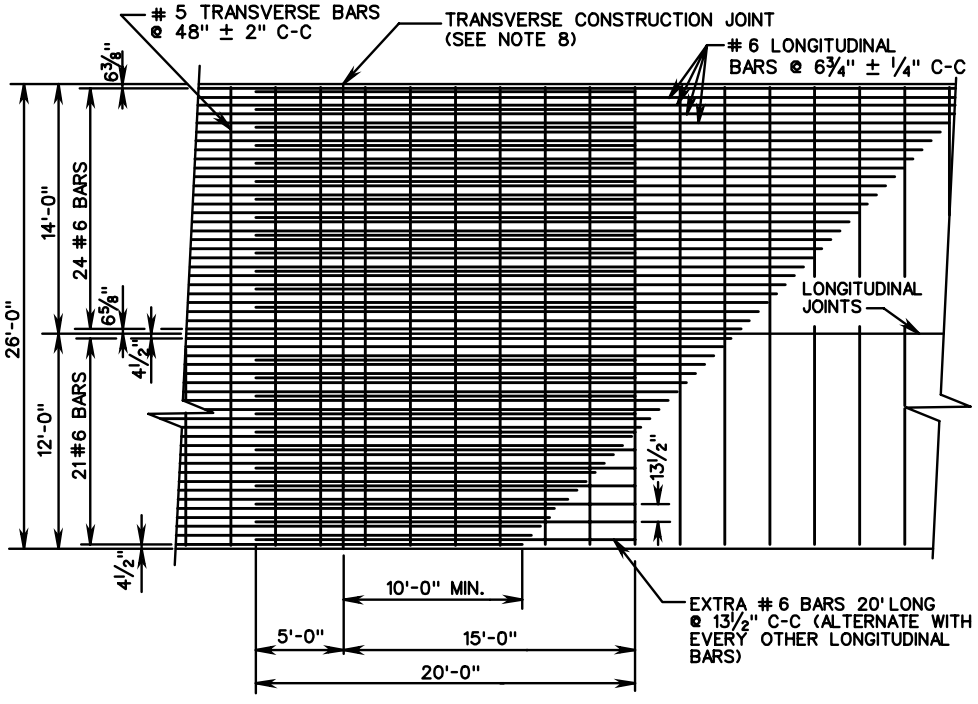
REVISION DATE

9" THICK CONTINUOUSLY REINFORCED CONC. PAVE.

(14 FOOT TRAVEL LANE)

VIRGINIA DEPARTMENT OF TRANSPORTATION

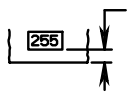
SPECIFICATION REFERENCE
316



PLAN VIEW
LEAVE OUT JOINT
STEEL BAR REINFORCEMENT ONLY

NOTES:

1. HOOK BOLTS OR TIE BARS ARE TO BE PLACED IN THE SAME HORIZONTAL PLANE AS THE # 5 TRANSVERSE BARS. WHERE NECESSARY, ADJUST THE LOCATION OF THE HOOK BOLTS OR TIE BARS TO A 2½" MINIMUM CLEARANCE BETWEEN HOOK BOLTS OR TIE BARS AND TRANSVERSE BARS.
2. TRANSVERSE CONSTRUCTION JOINT BARS ARE TO BE PLACED IN THE SAME HORIZONTAL PLANE AS THE # 6 LONGITUDINAL BARS.
3. # 6 LONGITUDINAL BARS ARE TO BE LAPPED AND TIED IN THE SAME HORIZONTAL PLANE.
4. FOR THE 38 FOOT WIDTH PAVEMENT USE SINGLE 12 FOOT LANES WITH TWO LONGITUDINAL CONSTRUCTION JOINTS OR 12 FOOT AND 14 FOOT LANES WITH ONE LONGITUDINAL CONSTRUCTION JOINT AND ONE SAW CUT OR TAPE INSERT LONGITUDINAL JOINT. TRANSVERSE BARS SHALL NOT EXTEND THROUGH LONGITUDINAL CONSTRUCTION JOINTS, BUT SHALL EXTEND FULL LENGTH (25'-6') FOR SAW CUT OR TAPE INSERT LONGITUDINAL JOINT.
5. SMOOTH SURFACE TO BE STEEL TROWELED 8" IN FROM EDGE OF PAVEMENT EVERY 500 FT., AND THE STATION NUMBER STAMPED INTO IT AS SHOWN BELOW. THE DATE IS TO BE SHOWN IN A SIMILIAR MANNER AT THE BEGINNING OF EACH DAYS POUR. BOTH OUTSIDE EDGES OF DIVIDED HIGHWAY IS TO BE STAMPED. ONE EDGE OF UNDIVIDED HIGHWAY WHERE FEASIBLE (TRAVEL LANE).



6. DOUBLE LAP REQUIREMENT (40") AND THE EXTRA BAR METHOD APPLY ONLY TO LAPS FALLING WITHIN AN AREA OF 10' BEYOND THE CONSTRUCTION JOINT.
7. CONCRETE FOR LUG ANCHORS SHALL BE POURED AGAINST COMPACTED SUBGRADE. CONCRETE FOR LUGS AND ANCHOR SLAB MAY BE POURED MONOLITHICALLY OR POURED USING RAISED KEY CONSTRUCTION JOINT METHOD. ADEQUATE CONSOLIDATION OF CONCRETE IN LUGS WILL BE OBTAINED WITHOUT DISPLACING LONGITUDINAL CONTINUOUS STEEL, BY THE USE OF INTERNAL VIBRATION. WHEN LESS THAN FULL WIDTH LUG AND PAVEMENT SLAB IS PLACED, THE # 5 TRANSVERSE STEEL IN THE LUGS SHALL BE EXTENDED, LAPPED AND SPLICED AT LEAST 25 DIAMETERS.
8. LONGITUDINAL STEEL TO CONTINUE THROUGH JOINT. EXTRA #6 BARS 20' LONG SHALL BE SPACED AT 13½" C-C.
9. CONCRETE SHOULD BE ADEQUATELY VIBRATED UNDER BEAM FLANGE TO ELIMINATE HONEYCOMBS.
10. IN CONDITIONS OF SOFT CLAY UNDERLYING SOILS (AASHTO SOIL CLASSIFICATION OF GROUP A-4, A-5, A-6, OR A-7) INCLUSIVE OF SUBGROUPS (PER AASHTO MATERIALS SPECIFICATIONS M 145), AN ANCHOR SLAB TYPE I UTILIZING 5 ANCHOR LUGS (ANCHOR SLAB LENGTH = 85') OR AN ANCHOR SLAB TYPE II SHALL BE USED. REINFORCEMENT STEEL SIZE AND SPACING WILL BE THE SAME AS THE CONTINUOUS CONCRETE PAVEMENT.

    IN CONDITIONS OF GRANULAR UNDERLYING SOILS ONLY (AASHTO SOIL CLASSIFICATION OF GROUP A-1, A-2, OR A-3) INCLUSIVE OF SUBGROUPS (PER AASHTO MATERIALS SPECIFICATIONS M 145), AN ANCHOR SLAB TYPE I UTILIZING 3 ANCHOR LUGS (ANCHOR SLAB LENGTH = 55') OR AN ANCHOR SLAB TYPE II MAY BE USED. REINFORCEMENT STEEL SIZE AND SPACING WILL BE THE SAME AS THE CONTINUOUS CONCRETE PAVEMENT.
11. WELD STEEL END PLATE TO BOTH ENDS OF WF BEAM TO SEAL ENDS. WELD SHEAR CONNECTORS TO WEB AND FLANGE OF WF BEAM.
12. 2 INCH MINIMUM CONCRETE COVER FOR STEEL IN SUB-SLABS.
13. WIDE FLANGE BEAM TO BE TREATED WITH CORROSION INHIBITOR PER SECTION 407 OF THE ROAD AND BRIDGE SPECIFICATIONS.
14. ALL REINFORCED BARS SHALL BE GRADE 60 STEEL.
15. THE USE OF TUBE FEEDING TO PLACE REINFORCEMENT IN PLASTIC CONCRETE WILL NOT BE ALLOWED.

SPECIFICATION REFERENCE	9" THICK CONTINUOUSLY REINFORCED CONC. PAVE.	VDOT ROAD AND BRIDGE STANDARDS
316	(14 FOOT TRAVEL LANE)	REVISION DATE
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		301.15

SPECIAL PROVISION
BRIDGE DECK SEALING

DESCRIPTION

This work shall consist of furnishing and applying a concrete sealant to Bridges 37, 49, 50, 51, 54, 55, 56, 57, 58, 60, 62, and 65 (span 13) decks including all lanes and shoulders and other areas as directed by the Engineer.

LOCATION

DECK SEALING	
RMTA Bridge #	Area (S.Y)
37	994
49	499
50	645
51	261
54	1224
55	944
56	871
57	712
58	664
60	538
62	592
65	225

MATERIAL

Contractor shall apply Chem-Crete Pavix CCC100 concrete sealant to all the decks listed excluding B65 (span 13) which will require SikaPronto 19 TF or Engineer approved equal.

SURFACE PREPARATION

The deck surface shall be cleaned by pressure washing only, to remove oils, dirt, curing compounds, weak surface mortar and other contaminants. Alternative cleaning methods shall

require approval of the Engineer. Contractor shall make sure the deck surface is free of any sealers, which may impede absorption of the product.

No vehicle traffic will be allowed on the prepared surface prior to applying the concrete sealant. In the event the lane must be opened to traffic; the surface shall be cleaned again to the approval of the Engineer.

The Contractor shall be aware that the bridges received a full deck overlay one year ago. Extra care shall be taken not to damage any of the recently installed contrast pavement markings, snow-plowable raised pavement markers, and bridge deck joint sealant. Any damage to existing components shall be repaired at the Contractors expense, to the approval on the Engineer and with no extension in contract time.

APPLICATION

The contractor shall follow all the manufacturer's recommendation for applying the concrete sealant. The concrete substrate shall be at least 40 °F prior to application. The Contractor shall use an application rate at a minimum of 150 square feet per gallon to a maximum of 200 square feet per gallon.

The contractor shall use a truck or trailer mounted low pressure sprayer to apply the sealant in an expeditious manner. The sealant shall cure for a minimum of one hour or per manufacturer's recommendations whichever is greater at an air temperature of 75 ˚F before opening the lane to traffic.

During the drying process, the Contractor will be required to remain inside the lane closure until the lane is opened to traffic.

MEASUREMENT AND PAYMENT

Concrete Bridge Deck Sealant will be measured in square yards and paid for at the contract unit price, which shall be full compensation for, surface preparation, furnishing and applying the concrete sealant, any additional cleanup required, and all equipment, labor and incidentals required to complete the work. MOT will be paid as per Maintenance of Traffic special provision SP-B.

Pay Item	Pay Unit
Bridge Deck Sealant	S.Y.
B65 SP 13 Bridge Deck Sealing	S.Y.

Construction

SikaPronto® 19 TF (Tack Free)

New, fast traffic time, high molecular weight methacrylate, crack healer/penetrating sealer

Description	SikaPronto 19 TF is a 2-component, rapid-curing, solvent-free, high molecular weight methacrylate, crack healer/penetrating sealer, with an extremely fast traffic time to minimize downtime.
Where to Use	Use on grade, above and below grade on concrete and mortar. SikaPronto 19 TF seals surface of concrete from water and chlorides. For horizontal decks, slabs, patios, driveways, parking garages, and other substrates exposed to foot and pneumatic-tire traffic.
Advantages	■ Penetrates cracks by gravity. ■ Structurally improves concrete surface. ■ Opens to traffic in under 3 hours. ■ Easy-to-use, 2-component system. ■ Does not produce a vapor barrier. ■ Low viscosity for easy, topical applications and excellent penetration into cracks. ■ Low odor. ■ High bond strength. ■ Prolongs life of cracked concrete. ■ As a penetrating sealer, SikaPronto 19 TF reduces water absorption and chloride-ion intrusion.
Coverage	Typical coverage is 90-150 sq. ft./gal. for crack healing and surface sealing. Coverage varies with porosity and surface profile of substrate. Higher porosity will reduce coverage.
Packaging	1 gal. units, 4/carton; 4.5 gal. units.

Typical Data *(Material and curing conditions @ 73°F (23°C) and 50% R.H.)*

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Shelf Life Component 'A': 3 months in original, unopened container.
Component 'B': 6 months in original, unopened container.

Storage Conditions Store dry at 40°-95°F (4°-35°C). **Condition material to 65°-75°F (18°-24°C) before using.** Storage at higher temperatures may cause material to pre-polymerize and will reduce shelf life.

Color Dark purple when liquid; light amber after cure.

Mixing Ratio Plant-proportioned kit; mix entire unit.

Methacrylate Monomer Viscosity 25 cps maximum.

Pot Life Approximately 15 minutes.

Bulk Cure Time 90 minutes maximum.

Traffic Time 3 hours maximum.

Flexural Properties (ASTM D-790)

1 day Flexural Strength (Modulus of Rupture) 2,500 psi (17.2 MPa)

Bond Strength (ASTM C-882): Hardened concrete to hardened concrete

2 day	**(dry cure)**	Bond Strength	2,100 psi (14.4 MPa)
14 day	**(moist cure)**	Bond Strength	2,300 psi (15.8 MPa)

Compressive Properties (ASTM D-695)
Compressive Strength, psi (MPa)

	40°F* (4°C)	73°F* (23°C)	90°F* (32°C)
1 hour	-	1,000 (6.8)	1,900 (13.1)
2 hour	-	2,300 (15.8)	2,700 (18.6)
1 day	1,800 (12.4)	2,900 (20.0)	3,500 (24.1)
7 day	3,500 (24.1)	3,100 (21.3)	4,300 (29.6)

* Material cured and tested at the temperatures indicated.

Construction

How to Use

Surface Preparation

Substrate must be clean, sound and free of surface moisture. Remove dust, laitance, grease, oils, curing compounds, waxes, impregnations, foreign particles, coatings and disintegrated materials by mechanical means (i.e., blast cleaning). For best results, substrate should be dry. However, a saturated surface dry condition is acceptable.

Mixing

Before adding 'B' Component, mix 'A' Component for 30 seconds with a low-speed drill using a Sika paddle. Empty entire contents of 'B' Component into pail containing 'A' Component. Mix for 3 minutes with a low-speed drill (400-600 rpm) using a Sika paddle. Caution: Mix only that quantity that can be placed within the pot life. Material should be quickly poured from pail onto concrete surface to prolong working life.

Application

SikaPronto 19 TF is applied to horizontal surfaces by roller, squeegee or broom. Spread material over area and allow to pond over cracks. Let material penetrate into cracks and substrate; remove excess material leaving no visible surface film. For cracks greater than 1/8 in. (3 mm) wide, fill crack with oven-dried sand before applying SikaPronto 19 TF. Seal cracks from underside, when accessible, to prevent leakage.

A second treatment may be required on very porous substrates. Apply second treatment before broadcasting. After treatment, wait at least 20 minutes at 73°F (23°C); cover with light broadcast of a dry 8/20 or similar sand. Distribute evenly over the surface at a rate of 15 to 20 lbs./100 sq. ft. Allow to cure 3 hours at 73°F (23°C). Remove any loose sand and open to traffic. Consult Sika Technical Service for additional information.

Limitations

- Do not delay broadcasting more than 20 minutes @ 73°F (23°C).
- Do not thin. Addition of solvents will prevent proper cure.
- Minimum ambient and substrate temperature 35°F (2°C).
- Minimum age of concrete is 21-28 days, depending on curing and drying conditions.
- Sealed concrete surface may appear blotchy due to differential absorption.
- Not designed to seal cracks subject to hydrostatic pressure at the time of application.

Caution

Component 'A': Irritant; Suspect Carcinogen; Combustible - Contains styrene. Keep away from sparks and open flames. Skin, eye, and respiratory tract irritant. Other target organs: CNS, kidney, liver. Avoid contact. Avoid breathing vapors. Use only with adequate ventilation. Styrene is listed by IARC as a possible carcinogen, IARC 2B. (Not listed by NTP.) Use of safety goggles and chemical resistant gloves is recommended. Product may be rapidly absorbed through skin. In case of high vapor concentrations or exceedance of PELs, use an appropriate NIOSH approved respirator. Wash thoroughly after use. Remove contaminated clothing.

Component 'B': Irritant; Organic Peroxide; Combustible - Contains benzoyl peroxide. Skin and eye irritant. Avoid contact. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. In case of high vapor concentrations or exceedance of PELs, use an appropriate NIOSH approved respirator. Wash thoroughly after use. Remove contaminated clothing.

First Aid

Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. **Skin:** Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. **Inhalation:** Remove person to fresh air. **Ingestion:** Do not induce vomiting. **In all cases, contact a physician immediately if symptoms persist.**

Clean Up

Ventilate area of spill. Remove sources of ignition. Confine spill. Collect and/or absorb and dispose of in accordance with current, applicable local, state and federal regulations. Remove uncured material from tools and mixing equipment with water. Cured material can only be removed mechanically.

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Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

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SPECIAL PROVISION
DRAINAGE STRUCTURE REPAIRS

DESCRIPTION

This work shall be performed in accordance with Section 302 and 510 of the Specifications and VDOT 2016 Road and Bridge Standards for drainage structures. The work shall consist of repairing and adjusting existing drainage inlets and manholes and installation of metal nosing.

MATERIALS

All materials shall conform to section 302.02 of the Specifications. Concrete shall be Class A3.

MEASUREMENT AND PAYMENT

REPAIRING EXISTING DROP INLET or MANHOLE TOP or REPLACE DROP INLET GRATE shall be measured and paid for in units of each, complete in place, which price shall include removal of portions of existing structure, forming, furnishing and placing all Class A3 concrete, reinforcing steel, resetting manhole frame and cover, labor, tools, equipment and all incidentals necessary to complete the work.

Pay Item	Pay Unit
REPAIR EXISTING DROP INLET or MANHOLE TOP	Each
REPLACE DROP INLET GRATE	Each

SPECIAL PROVISION
EXPANSION JOINT SEALANT

DESCRIPTION

This work consists of removing joint material for its entire length including parapet walls, sandblasting the joint substrates clean, applying an epoxy bonder to both the joint substrate and joint seal and installation of a low density, closed cell, cross-linked nitrogen blown joint seal.

All repair work, materials, methods and equipment shall be in accordance with the joint sealant manufacturer's recommendations unless specified in this special provision or as directed by the Engineer.

The Contractor shall obtain the most recent copies of the sealant manufacturer's current installation guidelines and equipment recommendations and submit to the Engineer (7) days prior to any joint installation or removal.

MATERIALS

Materials shall be delivered to the job site in the manufacturer's original sealed containers. Each container shall be marked with the manufacturer's name and lot number. Materials will be accepted based on the manufacturer's certification, subject to the storage and handling requirements of the manufacturer.

Joint Sealant shall be the Wabo Evazote UV seal or Engineer approved equal.

Backer rod shall be a round, flexible, continuous-length, non-absorbent, non-gassing, non-staining and non-shrinking material extruded from a closed-cell polyolefin or equivalent that is compatible with the joint sealant and approved for use by the sealant manufacturer.

Wherever the Wabo Evazote UV seal is to be applied, the epoxy bonder shall be the recommended epoxy bonder listed in the *Watson Bowman ACME* document for the type of seal. Mixing and application apparatus utilized for sealant application must be as recommended by the manufacturer.

LOCATION

Presented below is a table of currently identified Joint Sealant replacements locations. These estimated quantities below are provided for planning purposes only and are in no way a guarantee of actual quantities. In addition to the length of the joint, joint sealant material shall continue up to the sloped face and stop at the vertical face of both bridge parapets. The Contractor is responsible to inspect the structure locations prior to bidding.

JOINT SEALANT REPLACEMENTS TABLE			
Bridge #	Location	Length (ft)	Width (in)
63	West Abutment	40	2 3/4"
	Pier 14	35	2 3/4"
	Pier 15	35	2 3/4"
	Pier 16	35	3 1/2"
	Pier 17	35	3 1/4"
	Pier 18	33	2 3/8"
	Pier 19	33	3 1/2"
	Pier 20	40	2 1/8"
	Pier 21	27	2 1/4"
	Pier 22	29	2 1/2"
64	Longitudinal	300	3"
	Pier 1	19	3 1/2"
	Pier 2	21	3"
	Pier 3	34	2 3/4"
	Pier 4	28	2 3/4"
	Pier 5	27	3"
	Pier 6	27	2 7/8"
	Pier 7	27	3"
	Pier 8	27	3 1/4"
	Pier 9	27	3 7/8"
	Pier 10	27	2 3/4"

JOINT SEALANT REPLACEMENTS TABLE			
Bridge #	Location	Length (ft)	Width (in)
65	Longitudinal	240	N/A
	Pier 4	16	3"
	Pier 5	16	3"
	Pier 6	22	3"
	Pier 7	29	2 3/4"
	Pier 8	27	2 3/4"
	Pier 9	27	3 1/2"
	Pier 10	27	3 1/2"
	Pier 11	27	2 1/8"
	Pier 12	27	4"
	Pier 13	27	2 3/4"
	Pier 14	27	4"
	Pier 15	27	3"
	Pier 16	27	3 1/4"
	Pier 17	27	3"
	Pier 18	27	3"
	Pier 19	27	4"
	Pier 20	30	2 1/2"

JOINT SEALANT REPLACEMENTS TABLE			
Bridge #	Location	Length (ft)	Width (in)
66	Abutment 1	78	1 1/2"
	Pier 1	68	2"
	Pier 2	62	1 1/2"
	Pier 3	56	2 1/2"
	Pier 4	54	1 7/8"
	Pier 5	53	2"
	Pier 6	51	1 1/2"
	Pier 7	49	1 5/8"
	Pier 8	48	1 1/2"
	Pier 9	46	1 1/2"
	Pier 10	44	1 1/4"
	Pier 11	42	2"
	Pier 12	41	1 1/2"
	Pier 13	40	1 3/4"
	Pier 14	39	2 3/4"
	Pier 15	35	2 3/4"
	Pier 16	35	3 3/4"
	Pier 17	35	3"
	Pier 18	33	2 1/4"
	Pier 19	33	4"
	Pier 20	33	2 3/4"
	Pier 21	39	3"
	Pier 22	57	2 3/4"

JOINT SEALANT REPLACEMENTS TABLE			
Bridge #	Location	Length (ft)	Width (in)
67	Pier 1	27	4"
	Pier 2	27	3"
	Pier 3	27	4 1/2"
	Pier 4	27	3 1/4"
	Pier 5	27	3 1/2"
	Pier 6	27	3"
	Pier 7	27	3 1/2"
	Pier 8	25	2 1/4"
	Pier 9	25	2 1/2"
	Pier 10E	25	N/A
	Pier 11	25	N/A
	Pier 12E	18	2 3/4"
	Pier 13E	15	2 1/2"
	North Abutment	14	2 5/8"
	Longitudinal	150	N/A

JOINT SEALANT REPLACEMENTS TABLE			
Bridge #	Location	Length (ft)	Width (in)
68	Pier 1	26	2"
	Pier 2	26	2 1/8"
	Pier 3	26	3 1/4"
	Pier 4	26	2 3/4"
	Pier 5	23	2 1/4"
	Pier 19	27	3 1/4"
	Pier 20	29	2 3/8"

COORDINATION AND SCHEDULING

Contractor should be aware that it may be difficult to install the joint sealant material in one continuous piece across all lanes of traffic. The Contractor shall refer to the Maintenance of Traffic special provision SP-E for details on scheduling restrictions.

PROCEDURES

It is the Contractor's responsibility to measure the openings at each joint location. Measurements will be taken at each location in accordance with the manufacturer's guidelines. Seal material shall

be sized 25% larger than the actual joint width at neutral temperature. All joints shall be uniform and maintain design width prior to installing joint seals. **Non-uniform joints will be saw cut to design width with no additional cost to the Authority.**

Please note measurement taken during this stage will not be used for payment. The procedures for taking measurements for payment are described below.

The Contractor shall follow the Manufacturer's recommendations for installation of the Joint Sealant Material and submit to the Engineer for approval (7) days prior to initial installation. The Contractor shall completely remove the old seal and sealant from transverse joint, longitudinal joint and parapet joint if present. The exposed substrate shall be sandblasted thoroughly, removing all visible residue and contaminants to assure a good bonding surface. Wire brushing will **not** be allowed. The concrete substrate, if present, shall be sandblasted until clean, sound, free of contaminants and steel armor joint to "Near White" SSPC–SP10. All dust and debris shall be blown out with moisture-free and oil-free compressed air immediately prior to application of the epoxy bonder.

PROJECT CLEANUP

After installation of Joint Sealant material, all waste materials such as: existing joint sealant removed, sandblasting debris, containers, boxes, packages, wrappers, etc. generated under this project shall be disposed of properly off site. All sandblasting media shall be properly cleaned and removed from area below bridge. Failure to properly remove and clean spent media from pier caps may delay final payment of this contract. In addition, the new LMC overlay and parapet wall must be cleaned of any marks, excess epoxy or other discolorations to the satisfaction of the Engineer.

MEASUREMENT AND PAYMENT

Measurement of Joint Sealant replacement shall be per Linear Foot of joint sealant. Contractor shall measure the joint width required to fit each joint, furnish and install the appropriate size.

Payment shall include furnishing and installing the new joint, removing and disposing of the existing sealant, sandblasting and disposing of the sandblast media, and furnishing and installing the epoxy bonder and joint sealant in accordance with the sealant manufacturer's guidelines or as approved by the Engineer. Any Maintenance of Traffic operations required will be paid for under the Maintenance of Traffic item, see Special Provision SP-E.

Payment will be made under:

Pay Item:	Pay Unit:
Joint Sealant Replacement	Linear Foot

SPECIAL PROVISION
PAVEMENT MARKINGS

DESCRIPTION

This work shall consist of Eradication of Existing Pavement Markings and Message Mark and applying new Pavement Markings and Message Mark. The Contractor shall install Pavement Markings and Message Mark per the manufacturer's recommendations.

MATERIALS

ITEM	VDOT SECTION
Type B Class VI Pavement Line Marking 6"	704*
Type B Class VI Pavement Line Marking 8"	704*
Type B Class VI Pavement Line Marking 12"	704*
Pavement Message Marking "STAY"	704*
Pavement Message Marking "IN"	704*
Pavement Message Marking "LANE"	704*

*Note: Contractor shall comply with the VDOT 2016 Road and Bridge Specification Revisions in "Division 7 – Traffic Control Devices"

Pavement markings shall conform to the requirements of Section 246 and the glass beads shall conform to the requirements of Section 234

Materials shall be delivered to the job site in the manufacturer's original sealed containers. Each container shall be marked with the manufacturer's name and lot number. Materials will be accepted based on the manufacturer's certification, subject to the storage and handling requirements of the manufacturer. The Contractor shall use an approved inventory tracking system for all materials received from the manufacturer. Shipment of materials from such inventory shall be accompanied by a signed form C-85 containing the following certification statement:

Material shipped under the certification has been tested and approved by VDOT as indicated by Laboratory test numbers listed hereon.

PROCEDURES

The Contractor shall submit an MOT plan (7) days prior for approval of the Engineer and the RMTA. The Contractor shall refer to the Maintenance of Traffic Special Provision (SP-B) for allowable lane closure times.

Prior to installation of any pavement markings and message mark the Contractor and Engineer shall drive the site and be in mutual agreement on which markings are being removed / installed. Unless directed by the Engineer, no hatch markings are to be installed. The Contractor shall make sure that the surface is clear of any debris, by removing it with compressed air.

In general, the Contractor shall match all markings and messages in their current location unless directed by the Engineer. The Contractor shall have a Certified Pavement Marking Technician present during pavement marking operations. All pavement marking, and messages shall be installed per the Manufacturers recommendations or as approved by the Engineer.

Hand tools shall be the only method of removal for the existing pavement markings. Power tools, including hand drills / and sanders shall not be used at any time, unless approved by the Engineer. Grinding for inlaid pavement markings will not be used for these repairs.

LOCATIONS

Locations for pavement markings may be determined by the Engineer.

MEASUREMENT AND PAYMENT

Type B Class IV Pavement Line Marking 6”, **Type B Class IV Pavement Line Marking 8”** and **Type B Class IV Pavement Line Marking 12”**, will be measured by linear foot and be paid at the contract price. This price shall be full compensation for furnishing and installing pavement line markings, surface preparation, all equipment, labor, and incidentals required to complete the work. The cost of eradicating any existing pavement markings on asphalt concrete or bituminous asphalt concrete; installing, maintaining, and removing any Type A and Type D Construction Pavement Markings will be incidental to this item.

Pavement Message Marking "STAY", Pavement Message Marking "IN", Pavement Message Marking "LANE" will be measured by each and be paid for at the contract unit price. This price shall be full compensation for furnishing and installing pavement message markings, surface preparation, all equipment, labor, and incidentals required to complete the work. The cost of eradicating any existing pavement message marking on asphalt concrete or bituminous asphalt concrete; installing, and maintaining will be incidental to this item.

Pay Item	Pay Unit
Type B Class VI Pavement Line Marking 6"	Linear Foot
Type B Class VI Pavement Line Marking 8"	Linear Foot
Type B Class VI Pavement Line Marking 12"	Linear Foot
Pavement Message Marking "STAY"	Each
Pavement Message Marking "IN"	Each
Pavement Message Marking "LANE"	Each

SPECIAL PROVISION
CONCRETE COATINGS

DESCRIPTION

This work shall consist of cleaning, patching and coating the Piers, Abutments, Parapets, Retaining and Median walls. The intent of this work is to provide a properly prepared concrete surface that is suitable for application and adhesion of the specified protective coating system.

MATERIALS

All cleaned surfaces shall receive the following coating system, or Engineer approved equal:

A. PPG Amercoat 385 Polyamide Epoxy at 3.0 -8.0 mils DFT. A multi-purpose high build epoxy compatible with a wide range of substrates and surface preparations that cures down to 40°.
B. PPG Amercoat 114A Epoxy Filler Compound for bug holes and surface cracks in concrete.

PROCEDURES

Contractor shall repair all delamination, spalls and significant cracks and allow proper curing as per manufacturer's recommendations before applying coating. Surface Preparation will be in accordance with SSPC SP-13 guidelines with minimum high-pressure water cleaning of 3000 PSI. Detergent water cleaning and steam cleaning may be used to remove oils and grease from concrete. After pressure cleaning the surface of the piers and abutments, it must dry for a minimum of 24 hours before applying the coating.

Coating application must be in accordance with the approved manufactures recommendation. Application will be by brush and roller only. No spraying will be permitted. A minimum of two coats will be necessary to achieve adequate film-build. One coat application will not be allowed.

LOCATIONS

PARAPET COATING	
RMTA Bridge #	Area (S.F)
4	1478
6	1777
11	1294
12	1314
13	2112
17 (Floyd Ave)	694
17 (Cary)	871
36	1226
37	1907
46	1463
47	1541
48	1775

PIERS AND ABUTMENTS		
RMTA Bridge #	Location	Area (S.F)
4	Abutment 1	1006
	Pier 1	2379
	Abutment2	732
5	Abutment 1	438
	Pier 1	1821
	Pier 2	1593
	Pier 3	1525
	Pier 4	1904
	Pier 5	1028
	Abutment 2	643
6	Pier 1	2548
	Pier 2	2500
	Pier 3	2848
13	Pier 1	1049
	Pier 2	982
	Pier 3	1035
	Pier 4	1093
	Pier 5	1041

PIERS AND ABUTMENTS		
RMTA Bridge #	Location	Area (S.F)
17	Pier 1	1389
	Pier 2	2040
	Pier 3	2397
36	Abutment 1	802
	Pier 1	1163
	Abutment 2	1035
37	Abutment 1	1690
	Pier 1	1768
	Pier 2	1709
	Abutment 2	688
46	Abutment 1	1032
	Abutment 2	949
66	Abutment 1	964
	Pier 1	1945
	Pier 2	1801

MEDIAN AND RETAINING WALL	
Location	Area (S.F)
DTE Median Wall	3030
Powhite Median Wall	71206
DTE Connector Median Wall	10725
Retaining Wall S. B/W Meadow and Allen (801)	10801
Retaining Wall S. Meadow On-ramp EB (802)	8127
Retaining Wall B/W Meadow and Allen West (803) - three walls	8385
Retaining Wall N. B46 (Allen) West (804)	3485
Retaining Wall WB DTE BTN Allen and Meadow	8385
Retaining Wall at the Cary St On-Ramp	17783
Retaining Wall N, WB ramp west of Allen (805)	3021
Retaining Wall EB ramp West of Allen (806)	3033
Retaining Wall NB FH to end of on ramp	11580
Retaining Wall N b/w manual toll lane and VDOT snow facility	1920

MEASUREMENT AND PAYMENT

The Piers, Abutments, Parapets, Retaining and Median Walls will be measured by square feet and paid for at the contract price. This price shall be full compensation for any necessary patching/crack sealing, surface preparation, environmental protection, proper disposal of waste material offsite, furnishing and installing coatings per manufacturer's recommendations, all equipment, labor, materials, and incidentals required to complete the work.

Maintenance of Traffic items for concrete coatings will be paid as per MOT Special Provision SP-B and the Supplemental Specifications.

Payment will be made under:

Pay Item	Pay Unit
Concrete coatings	Square Feet

SPECIAL PROVISION
REPAIRING ASPHALT CONCRETE PAVEMENT CRACKS

DESCRIPTION

This work includes repairing pavement cracks in asphalt pavement. The repair consists primarily of filling the joint with hot poured liquid asphalt and applying a detack liquid over top to remove surface tack.

LOCATIONS

A table of currently identified locations of Asphalt Concrete Pavement Cracks is presented below. This table is provided for informational purposes only. The estimated quantities below are provided for planning purposes only and are in no way a guarantee of actual quantities. The RMTA reserves the right to add or delete locations to the scope of work. The Contractor is responsible to inspect these locations prior to bidding. No adjustments in unit price shall be made as a result of the addition or deletion of work locations from the scope of work.

Asphalt Concrete Pavement Cracks	
Location	**Area (lf)**
Downtown Expressway	20000

MATERIALS

Asphalt shall conform to VDOT Spec. Section 210. Detack shall be manufactured by Crafco or Engineer approved equal.

Contractor shall submit product data or information sheet to the Engineer for review a minimum of 7 calendar days prior to starting work.

PROCEDURES

Joints shall be prepared by blowing loose debris from them with compressed air. Compressors shall be of sufficient capacity to clean the crack opening with relative ease. Hot liquid asphalt shall then be poured into the crack to a level 3/16" ± 1/16" below the existing asphalt surface (horizontal) and as per Manufacturers Recommendations. Immediately after asphalt application apply Detack over hot liquid asphalt.

MEASUREMENT AND PAYMENT

Repair of asphalt pavement cracks shall be measured and paid by the linear foot which shall include joint preparation, hot liquid asphalt, detack, and all labor, equipment, and incidentals necessary to complete the work.

Pay Item	Pay Unit
Repair Asphalt Concrete Pavement Cracks	Linear Foot

SPECIAL PROVISION
DEBRIS REMOVAL AT THE JAMES RIVER BRIDGE (POWHITE PKWY)

DESCRIPTION

This work shall consist of accessing, removing, and disposing of accumulated river debris around the piers of the James River Bridge (RMTA Bridge #8).

PROCEDURES

The contractor shall remove all accumulated river debris from the James River within the limits of 30 linear feet in all directions of all piers of the James River Bridge or as directed by the Engineer. This area exists between both the North and South banks of the James River. Lane closures and other applicable maintenance of traffic items will be required to perform this operation. Once the debris has been removed, it must be disposed of according to applicable laws pertaining to such.

No self-propelled equipment will be allowed in the river nor will any causeway or structure be allowed within the banks of the river. Equipment allowed for use by contractor personnel located in the river shall be limited to chain saws or other hand-held cutting devices, hand tools, boats and rigging equipment.

This activity must occur on weekends, between sunrise and sunset on Saturdays and Sundays only.

EQUIPMENT

Cranes, or similar equipment, used for lifting debris from the river up to the bridge deck shall have rubber tires with non-scarring load distribution plates on the outriggers. All equipment is subject to the approval of the Engineer. The Contractor shall submit the proposed method of debris removal and the maintenance of traffic plan to the Engineer for **REVIEW AND APPROVAL** no less than two weeks prior to beginning this work.

MEASUREMENT AND PAYMENT

The bid price for this work shall include the collection and disposal of debris below the James River Bridge, Maintenance of Traffic and all labor, material, equipment, disposal fees, and incidentals necessary to complete the work.

Pay Item	Pay Quantity
Debris Removal J.R.B.	Lump Sum

SPECIAL PROVISION
BRIDGE RAILING REPLACMENT

DESCRIPTION

This work shall consist of removal of damaged railings, posts, and hardware, and replacement with new railings, railing posts and installation using all necessary hardware as directed by the Engineer. The Contractor shall refer to the bridge railing replacement plan sheet for details and other notes.

Prior to beginning work, the Contractor shall submit shop drawings of the railing and posts to the Engineer for approval. All materials shall match existing color and appearance of existing railing to remain and to the approval of the Engineer. Installation of "shinny" railing and posts will not be permitted. The Contractor may submit refurbished railing and posts matching the existing railing to the Engineer for review and approval.

MATERIALS

ITEMS	VDOT SECTION
Replacement Bridge Railing	410
Replacement Railing Posts	410

PROCEDURES

Installation of bridge railings, posts, and all other necessary hardware shall be per Manufacturer's recommendations. The Contractor shall refer to Maintenance of Traffic Special Provisions, SP-B, for allowable lane closure times.

LOCATIONS

Four locations have been identified for repair. Locations, approximate lengths of Railing are provided. The Contractor shall field verify all lengths of railing, and number of posts requiring replacement to the approval of the Engineer.

PARAPET AND RAILING		
Bridge #	Location	Length (ft)
8S	Span 9 East Railing	15
BB	Unit 1(West)	20
B49	Span 1	20
B50	Span 2	30

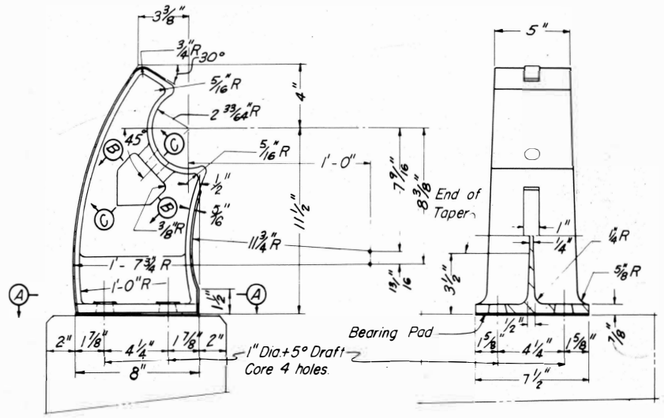
MEASUREMENT AND PAYMENT

Replacement Bridge Railing will be paid by linear foot at the contract price. This price shall include full compensation for removal and proper disposal offsite of existing damaged bridge railing, installation of new bridge railing, rail splice and expansion joints, all equipment, labor, materials, and incidentals necessary to replace the railing with in the required limits and in accordance with section 410 of the specifications.

Replacement Railing Posts will be paid by each at the contract price. This price shall include full compensation for removal and proper disposal offsite of existing damaged bridge railing posts, installation of new bridge railing posts, neoprene bearing pads, Aluminum shims, Anchor bolts, Toggle Bolts, drilling and grouting in concrete parapet, and all necessary hardware, equipment, labor, and any incidentals necessary to complete this work in accordance with section 410 of the specifications.

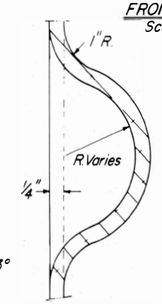
Pay Item	Pay Unit
Replacement Bridge Railing	Linear Foot
Replacement Railing Posts	Each

BRIDGE RAILING AND POST REPLACEMENT DETAIL:

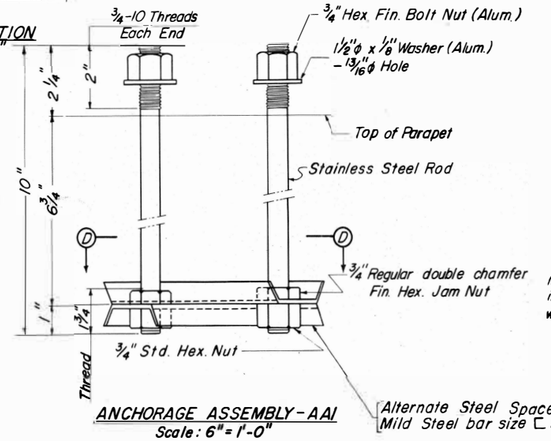


SIDE ELEVATION
Scale: 3"=1'-0"

SECTION A-A
Scale: 3"=1'-0"



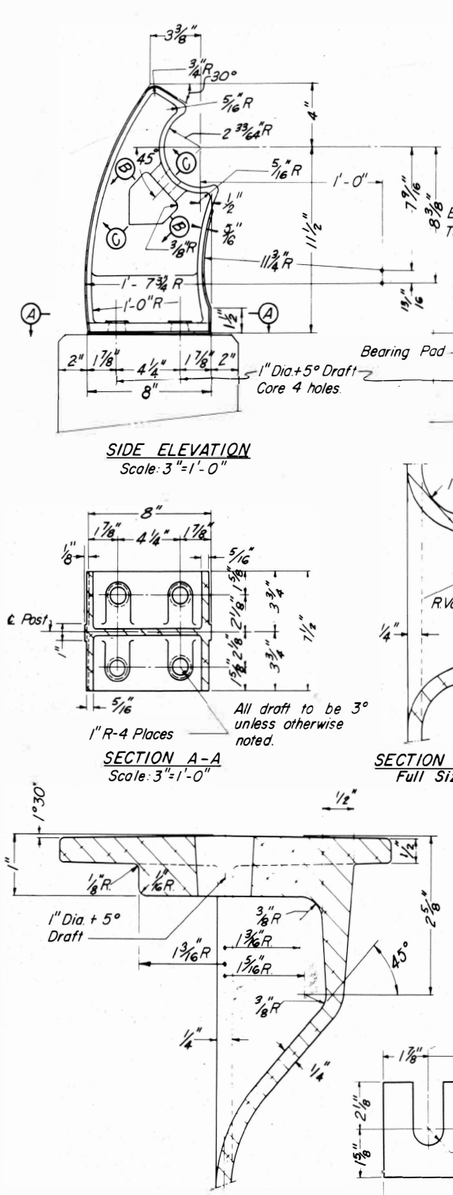
SECTION B-B
Full Size



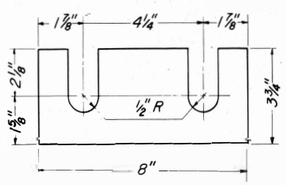
FRONT ELEVATION
Scale: 3"=1'-0"

ANCHORAGE ASSEMBLY-AAI
Scale: 6"=1'-0"

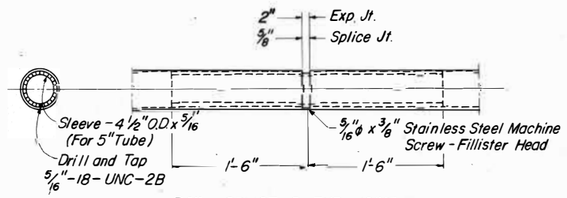
AAI - Steel Spacer — ASTM A425, or A36 (As shown)
AAI { Nuts (Top) — ASTM B211, Alloy 6262-T9 or 6061-T6
Top Washers — ASTM B209, Alloy ALCLAD 2024-T3 or T4
Rods — ASTM A-276, Type 430 Annealed, Hot-finished
Nuts (Bottom) — ASTM A307
Threads on all rods may be rolled or cut.



SECTION C-C
Full Size



SHIM DETAIL
No Scale
Shims to be made from 1/16" or 1/8" material. Shims shall not project outside of post base.

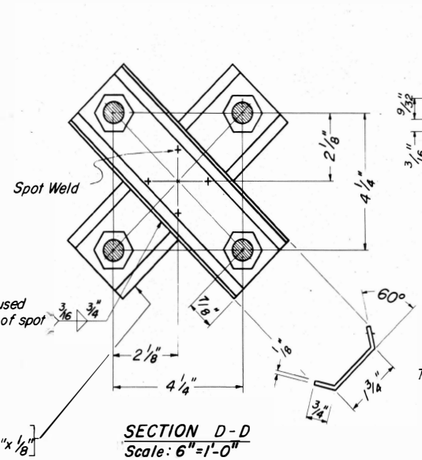


RAIL SPLICE & EXP. JOINT
Scale: 1 1/2"=1'-0"

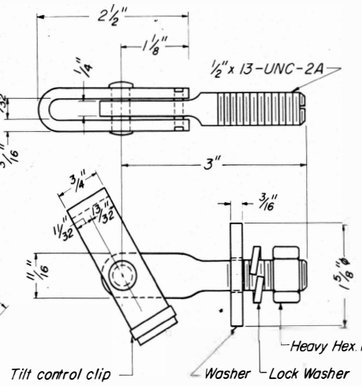
NOTES:

1) Dimensions and details shown are based on as-built drawings from the James River Bridge Widening in 1987.
2) Contractor shall field verify all existing dimensions bridge railing, posts, and all necessary hardware required for installation prior to fabrication and construction.
3) Locations of repairs as shown in the special provision and to be determined by the Engineer.
4) Shop drawings of the type of bridge railing, and posts shall be submitted to the Engineer for review in accordance with these details and section 410 of the specifications.
5) Contractor shall submit a construction plan and maintenance of traffic plan for approval by the Engineer before beginning construction.

NOTES:
Rail to be continuous over a minimum of 3 posts before splicing, unless otherwise shown.
Post spacing to be measured along inside face of parapet. See Deck Plans.

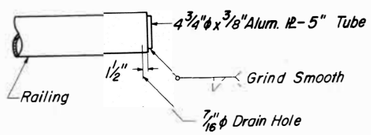


SECTION D-D
Scale: 6"=1'-0"



TOGGLE BOLT ASSEMBLY-TBI
TRAFFIC RAIL
Full Size

Material for toggle bolt assembly TBI shall be carbon or stainless steel having a minimum elongation of 12%. Any non stainless component to be either galvanized to ASTM-A153 or cadmium plated to ASTM-A165, Type NS.
Required minimum tensile load to equal 9000 lbs. when in an open position and tested thru a 1"ϕ hole.



RAIL END CAP
Scale: 1 1/2"=1'-0"

NOTES:
Posts shall be seated on neoprene bearing pads 1/16 minimum thickness, having a nominal durometer hardness of 70. Pads shall conform to post base dimensions.
Aluminum shims may be used for adjusting post alignment, maximum thickness of shim build-up not to exceed 1/8. Where more tilting of the post is required, the concrete area shall be ground down
Posts shall be cast aluminum.
Rail members shall be aluminum extruded tube.
Anchor bolts may be set normal to profile grade.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY
HNTB
2900 S. QUINCY STREET, SUITE 200
ARLINGTON, VIRGINIA
(703) 824-5100

MISCELLANEOUS REPAIRS –2019

BRIDGE RAILING AND POST REPLACEMENT

Scale:	Date:	Contract No.:	Sheet:
NTS	MAY 2015		SP-L.3

2015 MR Railing Replacement.dgn
3/31/2015

SPECIAL PROVISION
MAINLINE APPROACH SLAB TYPE A MILLING AND
VERY EARLY STRENGTH LATEX MODIFIED CONCRETE OVERLAY

I. DESCRIPTION

This work shall consist of the removal of a portion of the existing concrete bridge approach slabs and any additional unsound concrete using Type A milling and replacing the milled approach slab with a new Very Early Strength Latex Modified Concrete (VESLMC) overlay. The work locations are generally the approaches to the RMTA bridges 61 (WB), 63 (EB & WB) and 66 (WB). Once the Contractor begins the process of replacing the existing bridge approach surface, the work must progress in an expedient manner to complete the entire overlay process and provide lanes open to traffic in accordance with all dates and times listed in the Maintenance of Traffic special provision SP-B. The record plans for these bridges are included in the Appendix for reference. The Contractor shall adhere to the 2016 Road and Bridge Specifications Section 425 and the special provisions herein.

This work shall consist of: Type A Milling approximately 1.5 inches of the top surface of bridge approach slabs; removing all unsound concrete using procedures; sounding the surrounding deck and approach pavement for additional unsound concrete; removing loose and unsound concrete with hand tools as necessary; removal and disposal of all concrete and debris off-site including any required permits; vacuuming; shielding; water control; forming for full depth repairs if needed; and all aspects of work necessary to prepare for the placement of VESLMC in areas where unsound concrete was removed and the placement of VESLMC Overlay.

Contractor shall also refer to the Maintenance of Traffic special provision SP-B for lane closure times, a copy of VDOT Detail 305.01, and liquidated damages. All asphalt, asphalt placement and removal shall be incidental to the mechanical milling.

II. MECHANICAL MILLING (TYPE A MILLING)

Preparation prior to initiating any Mechanical Milling, the Contractor shall remove all debris from the deck and dispose of it offsite. Next the Contractor shall evaluate the concrete cover over the existing reinforcing steel in order to adjust the actual depth of milling as to prevent damage to the existing reinforcing steel. Where steel rebar has less than 2" concrete cover, with the approval of the Engineer, the milling depth may be reduced to avoid contact with these shallow reinforcing bars; however, in no case shall the demolition depth be less than 0.75 inch nor shall the overall depth of the approach slab removal be less than 1.5 inches. The Contractor **may** consider the use of Ground-Penetrating Radar (GPR) for this purpose with such use being incidental to the Contractor's responsibility and account for GPR in their bid.

Mechanical Milling shall be performed in accordance with the Specifications for Type A Milling at a depth of 1.5 inches. If analysis results indicate that the top mat of reinforcement is less than 1.25 inches from the deck surface, and with the approval of the Engineer, the Contractor may reduce the height of milling to avoid damage to the reinforcing steel. A reduced mill depth of ¾ inches shall only be used in these areas with the approval of the Engineer.

The Contractor shall use extra caution during the milling procedures. Damaged reinforcing steel shall be repaired in accordance with Section 412.03 of the 2016 Road and Bridge Specifications at no additional cost to the Authority and with no extension of contract time. Reinforcing steel shall be ASTM A615 Grade 60 deformed and plain uncoated.

Due to the limitations of the milling machine, the Contractor shall utilize jack hammering and saw cutting to remove unsound concrete not removed during the milling process. When saw cutting the deck near bridge joints and scuppers, adequate shielding to the approval of the Engineer should be used to protect nearby live traffic and pedestrians that may be present both near and below the work area, from sparks and other debris.

The limits of work will be from the following;

Bridge:	Location:	Work Limits:
61 (Both Ends)	WB DTE Over S 12th Street	Asphalt Pavement to Abutment
63 (East End)	WB DTE over Virginia St and S. 14th St / CSC RR adjacent 12th St Off-Ramp	Asphalt Pavement to Abutment
66 (West End)	EB DTE over Virginia St, S. 12th St / 14th St / CSX RR adjacent 10th St On-Ramp	Asphalt Pavement to Abutment

The Contractor will be permitted, at his discretion to allow traffic to drive on the milled surface for no more than 48 hours after milling (e.g. the deck could be milled Wednesday night before a weekend lane closure). An extension of the 48-hour limit may be granted in writing at the discretion of the Engineer. If traffic is allowed on milled surfaces, temporary pavement wedges must be installed per VDOT Detail 305.01. Additional signing and use of Temporary Type D pavement markings shall be required to adequately warn motorists of this condition and delineate the lanes. No lane shall be opened to traffic until these pavement wedges are installed and temporary markings are installed. All lanes of the bridge must be open and available to traffic Monday through Friday during peak rush hour times. Contractor shall be responsible for maintaining milled surfaces when open to traffic. Contractor shall maintain pavement wedges and have proper drainage measures in-place prior to forecasted inclement weather. Drainage

measures shall be submitted to the Engineer for approval prior to installation. All equipment, materials including Type D pavement markings, and labor required to maintain drainage measures and pavement wedges of the milled surface will be incidental.

III. LATEX MODIFIED CONCRETE OVERLAY

Latex Modified Concrete overlay shall be Very Early Strength Latex Modified Concrete (VESLMC). Required patches and overlays incidental to the Work shall be constructed in accordance with the requirements of Section 217.13 and 425 of the Specifications of the Virginia Department of Transportation. Supplemental requirements for Very Early Strength Latex Modified Concrete (VESLMC) are:

- Compressive Strength, minimum (ASTM C39):
  - 3 hours: 2500 psi
  - 24 hours: 3500 psi
- Compressive strength specimens shall be cured in the molds until tested and in conditions identical to the material placed on the structure.
- Permeability, maximum at 28 days, AASHTO T277 and ASTM C1202: 1000 coulombs.
- Permeability samples shall be cured 1 day in the molds and air cured 28 days.
- Contractor shall submit compressive strength and permeability test results to Engineer for approval (14) days prior to initial placement of VESLMC.

Prior to placing the overlay, the Contractor shall calibrate the mobile concrete mixers. Once the mixers are calibrated, the mixtures shall be sampled and tested for slump and air content. Specimens shall be prepared and tested to demonstrate that the concrete mixture will obtain a compressive strength of at least 2500 psi within the curing period, and at the curing temperatures in which the overlay will be placed. The compressive strength shall reach at least 3500 psi at an age of 1 day. During the overlay, placement samples shall be taken for testing of compressive strength and permeability but slump and air content measurements will not be required.

The overlay shall be one continuous pour over the entire length of the slab between joints. All lanes and shoulders shall be poured back in essentially the same location. The Contractor will not be permitted to have a “cold joint” in the transverse direction along any span between the bridge joints. Additionally, the Contractor will not be allowed to place any longitudinal cold joint in the vehicle wheel path as determined by the Engineer.

The Contractor shall furnish VESLMC overlay at a depth of 2 inches, however in areas where the milling is limited due to the depth to the top mat of reinforcement a minimum depth of 1 1/2

inches will be allowed with approval of the Engineer. This depth will increase in areas where additional unsound concrete was removed.

Placing and consolidating VESLMC shall be conducted to form a compact, dense, impervious mass of consistent texture that will show uniform faces on exposed surfaces. Any defective concrete section found shall be removed or repaired as directed by the Engineer. The Contractor shall ensure that all concrete trucks leaving the work site have been properly cleaned to ensure that concrete deposits are not left on any roadway as they return to the staging area to be refilled.

The concrete shall be maintained in a moist condition by fogging after screeding and until covered with the sheeting. Fogging with pressure sprayers acceptable to the Engineer and sufficient to maintain a moist surface shall be required. Burlap used to aid in curing shall be cut into manageable pieces. Material shall be in strips no greater than the width of the lane being poured by an arm span in length to sufficiently cover the freshly placed concrete overlay. The burlap must be soaked in water and rung out before being placed onto the deck. Spraying water on burlap alone will not be allowed. Burlap shall be taught and placed in a manner as not to adversely affect the final riding surface. Dragging the wet burlap across the new LMC will not be allowed. Moist burlap shall be placed in such a manner as to provide a uniform and even finished surface. A 1 foot minimum overlap shall between pieces of burlap. The Contractor shall also use a soaker hose, or misting hose to help keep the burlap wet for the first 90 minutes of curing.

The deck surface shall be tested with a 10-foot straightedge and rescreeded as many times as is necessary to ensure a smooth riding surface. The straightedge shall be held in successive positions at the edges and quarter points and on the centerline, parallel thereto and in contact with the surface. Advancement along the deck shall be in successive stages of not more than the length of the straightedge. The surface shall also be checked transversely at the ends, quarter points, and center of the span. The top of the proposed VESLMC overlay shall match the line and grade between the adjacent joints.

Areas showing high spots or depressions of more than 1/8 inch in 10 feet in the longitudinal direction and 1/4 inch in 10 feet in the transverse direction shall be struck off or filled with freshly mixed concrete. Attention shall be given to ensure that the surface across joints conforms to the requirements for smoothness.

IV. QUANTITIES – Field Verification Required

The approximate quantities of Type A Milling is about 175 SY; and, furnishing and placing the corresponding VESLMC is about 3 to 5 CY. These quantities require field verification and which are to be made part of the Contract Lump Sum price.

V. FINAL PAYMENT

The Contractor and the Engineer shall agree on a suitable debris removal technique in the field. Typical methods include vacuuming and / or pressure washing. The Contractor shall dispose of all debris properly off site. The cost of cleaning shall be incidental to the Type A Milling quantity.

VI. METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The **Mainline Approach Slab Rehabilitation Work** in its entirety shall be measured and paid for on a **Lump Sum** basis for the depth and length specified in the as-built plans or as approved by the Engineer. The bid price will be considered full compensation for the removal and disposal of unsound and loose concrete, replacement of any damaged reinforcing steel, pavement wedges, if used (including maintaining the pavement wedges, disposal of asphalt and cleaning the deck after removal), installation and maintenance of drainage measures on milled surfaces, and all labor, tools, equipment, materials, and incidentals required to complete the Work. Specifically, the following items, at a minimum, are to be included:

Mechanical Milling Type A will be for the length of the approach slab rehabilitation shall be approximately eight (8) feet laterally beyond the abutment joint into the existing and adjacent asphalt paving subject to the approval of the Engineer. The width shall be from edge of pavement to edge of pavement. The work to be performed by the Contractor will also be to the edge of the joint. Any damage to the joints shall be repaired up to full joint replacement to the approval of the Engineer and at no additional cost to the RMTA and with no extension of contract time.

Very Early Strength Latex Modified Concrete (VESLMC) Overlay will be measured and paid for under the following (2) Items:

> ***Furnish*** Very Early Strength Latex Modified Concrete shall be measured in cubic yards and will be paid for at the contract unit price per cubic yard. This price shall be full compensation for trial batching, compressive strength and permeability testing, producing the Very Early Strength Latex Modified Concrete, and delivering it to the job site. The Engineer may direct additional depth of Very Early Strength Latex Modified Concrete to address cross slope and other surface irregularities and rideability issues. Additional Very Early Strength Latex Modified Concrete beyond the depth range of the pay item that is requested to address such issues, at the direction of the Engineer, will be compensated for in accordance with VDOT Specifications Sections 104.02 and 109.05. Only those volumes of additional Very Early Strength Latex Modified Concrete that are approved for additional

payment by the Engineer prior to or during the placement of the overlay will be considered for additional payment.

Place Very Early Strength Latex Modified Concrete shall be measured and paid for at the contract unit price per square yard. This price shall also include handling, finishing, and curing the Very Early Strength Latex Modified Concrete and all material, labor, tools, equipment, and incidentals necessary to complete the work. Very Early Strength Latex Modified Concrete shall be placed to the minimum depth as specified in the plans and verified by the Engineer prior to and during placement operations. Placement also shall include those depths necessary to accomplish all partial and full depth repairs at no additional cost to the Authority. Any survey cost associated with matching the proposed overlay to the line and grade between the adjacent joints shall be incidental to this work.

Pavement Line Markings required by the newly placed Very High Early Strength Latex Modified Concrete Overlay shall be Contrast Type B Class VI Pavement Line Markings (4") and Gore Type B Class VI (8"). The Contractor shall install pavement markings per the manufacturer's recommendations and Section 704 of the VDOT Specifications. The Contractor shall be aware that permanent markings shall be inlaid or "recessed" into the overlay. All pavement line markings are considered incidental to the Work.

Type B Class VI Pavement Line Marking 4" Contrast shall also be an additional 3 inches wider minimum, then the width specified in the pay item. This additional tape width shall be black non-reflective with 1 ½ inches minimum on both sides of the white or yellow. Pavement markings shall conform to the requirements of Section 246 and the glass beads shall conform to the requirements of Section 234.

Snow-Plowable raised pavement markers shall conform to the requirements of Section 235 in the VDOT Specifications.

ALL payment herein will be made under:

Pay Item	Pay Unit
Mainline Approach Slab Rehabilitation: Type A Milling 1.5" / Furnish and Place Very Early Strength Latex Modified Concrete (VESLMC) Overlay / Type B Class VI Pavement Markings	**LUMP SUM**

The Contractor shall be aware that clearance issues may exist with large equipment due to bridge overpasses. Large milling machines may have to lower their waste chutes and smaller dump trucks used as a result. It shall be the Contractor's responsibility to account for this in their bid.

SPECIAL PROVISION
FOREST HILL TOLL PLAZA COATINGS

DESCRIPTION

This work shall consist of cleaning and coating steel surfaces of three toll plaza canopies at Forest Hill Road. The intent of this work is to prepare the steel canopies and apply a spot coat of primer and a full coat of finish paint system. Coating application will be by brush and roller only.

MATERIALS

All cleaned surfaces shall receive the following coating system, or engineer approved equal:

A. Spot Primer - Cycloaliphatic Amine Epoxy Aluminum primer at 8.0 -10.0 mils DFT. Economical, aluminum-pigmented high solid mastic with excellent performance properties. Designed for a broad range of applications, this material provides good corrosion resistance, film build and surface tolerance.

B. Full Finish Coat – Aliphatic Acrylic Polyurethane 70% solids at 2-3 mils DFT. Thin film, high gloss finish with exceptional weathering performance characteristics.

PROCEDURES

Contractor shall power wash all steel surfaces at a minimal 3500 psi to clean the underside and columns of the Toll Plaza canopies. Rusted and loose paint areas shall be cleaned to SSPC SP-3 to remove all contaminants, rust, loose paint and other detrimental foreign matter. Power Tool cleaning shall remove deteriorated coating back around the edges of the repair until an area of completely intact and adherent coating film, with no rust or blisters underneath, is attained. Edges of tightly adherent coating remaining around the repair shall be recoated and must be feathered so that the recoated surface can have a smooth appearance to provide a transition from the area of repair to the intact coating.

The remaining existing coating should have sufficient adhesion so that it cannot be lifted as a layer by inserting the blade of a dull putty knife under it using moderate pressure. Unless experience or spot tests show otherwise and to the approval of the Engineer, the contractor should use the same generic type of coating for this work as is in the existing coating.

The cleaning method required shall be power tool cleaning (SSPC-SP-3). This is Method 3 in Section 411.

LOCATIONS

Forest Hill Toll Plaza

EB Forest Hill – Two Lane Plaza

WB Forest Hill – Two Lane Plaza

SB PW Forest Hill exit ramp – Four Lane Plaza

MEASUREMENT AND PAYMENT

Forest Hill Toll Plaza Coatings will be measured in units of Lump Sum and will be paid for at the contract Lump Sum price. This price shall include costs of any necessary staging for access, equipment required, labor, environmental protection, proper disposal of material offsite, and any incidentals required to complete the work.

Payment for MOT required at individual work locations shall be paid for in accordance with the individual Electronic arrow, Group 2 channelizing devices and Truck mounted attenuator bid items listed in Section 512.

Payment will be made under:

Pay Item	Pay Unit
Forest Hill Toll Plaza Coating	Lump Sum

SPECIAL PROVISION
GUARDRAIL

DESCRIPTION

This work shall consist of furnishing, removing, and replacing sections of guardrail and guardrail Terminals.

MATERIALS

ITEM	VDOT SECTION
GUARDRAIL TERMINAL	505
FIXED OBJECT ATTACH. GR-FOA-2 Type 1	505
GUARDRAIL (GR-2)	221
GUARDRAIL OFFSET BLOCKS	221

LOCATIONS

Locations to be determined by the Engineer.

PROCEDURES

Contractor shall inspect each location to determine the limits of work and shall submit plans to Engineer for approval prior to commencing work. Guardrail and/or guardrail terminals to be replaced shall be removed in the designated area, and then disposed of in an approved disposal area. Removal and disposal shall include rail, posts, and hardware. The shoulder and area around posts to be restored in like kind to specification. New guardrail and guardrail terminals shall be installed in accordance with VDOT Specification 505 and 221.

MEASUREMENT AND PAYMENT

GUARDRAIL TERMINAL (various types) will be measured in units of each and shall be paid for at the contract unit price per each. This price shall include the removal and disposal of the existing guardrail terminal; in addition to all equipment, labor, materials, surface preparation, and incidentals required to complete the new installation.

FIXED OBJECT ATTACH. GR-FOA-2 TY. I will be measured in units of each and shall be paid for at the contract unit price per each. This price shall include the removal and disposal of the existing FOA; in addition to all equipment, labor, materials, surface preparation, and incidentals required to complete the new installation.

GUARDRAIL (GR-2) will be measured in linear feet and shall be paid for at the contract price per linear foot. This price shall include the removal and disposal of the existing guardrail and posts; in addition to all equipment, labor, materials, surface preparation, and incidentals required to complete the new installation.

GUARDRAIL OFFSET BLOCKS will be measured in units of each and shall be paid for at the contract unit price per each. This price shall include the removal and disposal of the existing block; in addition to all equipment, labor, materials, surface preparation, and incidentals required to complete the new installation.

Pay Item	Pay Unit
GUARDRAIL TERMINAL (various types)	EA
FIXED OBJECT ATTACH. GR-FOA-2 TY. I	EA
GUARDRAIL (GR-2)	LF
GUARDRAIL OFFSET BLOCK	EA

SPECIAL PROVISION
SALT SHED SITE RECONSTRUCTION

DESCRIPTION

This work shall consist of reconstructing the salt shed asphalt work pad and loop road, replacement of asphalt curbing, overflow inlet and pipe replacement, replacement of the salt holding pond liner and chain link fence around the pond. The existing asphalt areas, stone base, holding pond liner and chain link fencing around the pond **will be demolished and removed by others.** The plans for the reconstruction are as built drawings from the original construction.

This work shall consist of: proof rolling of the newly exposed subgrade, placement and compaction of 6" of 21A aggregate, placement of 4" base asphalt, placement of the waterproof membrane (work pad only), and placement of 2" of surface mix asphalt, placement of asphalt curbing, removal and replacement of the drop inlet, remove and replace the drain pipe to tie to the sewer (to be field verified) and placement of the salt holding pond geosynthetic liner.

The salt storage sheds are to remain in place. The existing storage tanks are to be removed and replaced with this contract. The Contractor shall adhere to the 2016 Road and Bridge Specifications and the special provisions herein.

MATERIALS

ITEM	VDOT SECTION
CRUSHED AGGREGATE NO. 21A OR 21B	208
BM-25 ASPHALT CONCRETE	210, 211, 315
SM-9.5E ASHPALT CONCRETE	210, 211, 315
ASPHALT CONCRETE CURB	315
PETROMAT 4597 (WATERPROOF MEMBRANE)	245/SP-Z
APPEX 4S (GEOSYNTHETIC HOLDING POND LINER)	245/SP-Z
DI-1 DROP INLET REMOVE AND REPLACE	302
8" PVC PIPE	232

MATERIALS

Crushed Aggregate shall conform to the requirements set forth in Section 208 Subbase and Aggregate Base Materials of the VDOT Specifications.

SPECIAL PROVISION
SALT SHED RECONSTRUCTION

Asphalt and Asphalt Curb shall conform to the requirements set forth in Section 210 Asphalt Materials, 211 Asphalt Concrete and 315 Asphalt Concrete Placement of the VDOT Specifications.

Geosynthetics shall conform to the requirements set forth in Section 245 Geosynthetics and Low Permeability Liners of the VDOT Specifications and this special provision.

Drop Inlet shall conform to the requirements set forth in Section 302 Drainage Structures of the VDOT Specifications.

PVC Pipe shall conform to the requirements set forth in Section 232 Pipe and Pipe Arches of the VDOT Specifications.

SCOPE OF WORK - PAVEMENT RECONSTRUCTION

Preparation prior to placement of stone and asphalt, the contractor shall dress and proof roll the subgrade to the approval of the Engineer. Once subgrade is acceptable contractor shall place and compact 6" of 21-A stone. Once stone is placed, the contractor shall place 4" of asphalt base surface, waterproof membrane (between the base asphalt and surface asphalt layers only on the work pad following manufacturers installation instructions), 2" of asphalt surface mix and asphalt curbing in accordance with the as-built plans.

SCOPE OF WORK - SALT HOLDING POND LINER

Preparation prior to placement of the new liner, the existing geosynthetic liner is be removed by others. The existing 6" compacted clay liner is to be reused. The contractor is responsible to fine grade the clay liner if needed prior to geosynthetic liner installation. The geosynthetic liner material is to be installed per manufacturer's specifications and in accordance with the as-built plans.

SCOPE OF WORK – DROP INLET AND PIPE REPLACEMENT

Preparation the contractor shall remove the existing drop inlet structure and pipe. The contractor shall field locate the tie in to the sewer systems and remove the existing pipe and any fencing necessary to facilitate replacement. The contractor shall be responsible for proper installation and backfilling of the pipe prior to asphalt placement. The cost of removal of fencing, excavation, restoration, seeding and removal shall be incidental to this work.

SPECIAL PROVISION
SALT SHED RECONSTRUCTION

COORDINATION AND SCHEDULING

The contractor is required to coordinate the work outlined in this provision with the other contractor to prevent prolonged exposed subgrade.

QUANTITIES

The approximate quantities are included in the bid tabulation of the contract.

MEASUREMENT AND PAYMENT

The Salt Shed Reconstruction Work shall be measured and paid for on a Unit Cost basis for the quantities specified in the as-built plans or as approved by the Engineer.

MATERIALS

Pay Item	Pay Unit
CRUSHED AGGREGATE NO. 21A OR 21B	TONS
BM-25 ASPHALT CONCRETE	TONS
SM-9.5E ASHPALT CONCRETE	TONS
ASPHALT CONCRETE CURB	LF
PETROMAT 4597 (WATERPROOF MEMBRANE)	SF
APPEX 4S (GEOSYNTHETIC HOLDING POND LINER)	SF
DI-1 DROP INLET REMOVE AND REPLACE	EA
8” PVC PIPE	LF

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
	3	VA.			2007A146-043	A5 of 7

SUPERVISED BY _____

DESIGNED BY _____

PLAN NOTEBOOK No _____ SURVEYED PLOTTED ALIGNMENT CHECKED RC-CP-WM CHECKED

BY	DATE

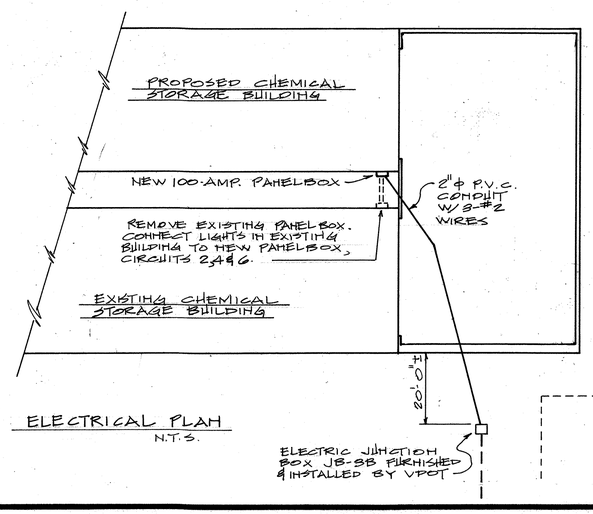
POWHITE PARKWAY
CHEMICAL STORAGE BUILDING

NOTES :

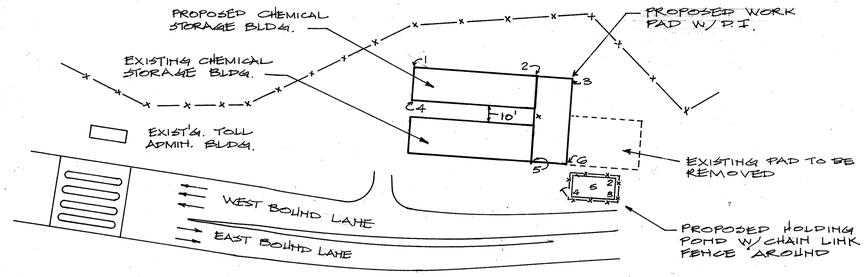
1. THE CONTRACTOR SHALL REMOVE THE ENTIRE EXISTING WORK PAD AND DROP INLET. THE EXISTING DRAIN PIPE SHALL BE PLUGGED.
2. THE CONTRACTOR SHALL PROVIDE ALL FILL MATERIAL NEEDED FROM AN APPROVED SITE.
3. AN EROSION CONTROL PLAN MUST BE SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL. THIS EROSION CONTROL PLAN MUST BE MAINTAINED DURING THE ENTIRE PROJECT CONSTRUCTION TIME.
4. EXISTING BENCHMARK CORNER OF EXISTING WORK PAD AT EXISTING BUILDING. ASSUMED ELEVATION : 100.00 . X

LIGHTING (100 AMPS)
120/240 V. 1-PHASE 3-WIRE

NO.	SPACE	SPACE	NO.
1	NEW BLDG. INT. LIGHTS	OLD BLDG. INT. LIGHTS	2
3	NEW BLDG. INT. LIGHTS	OLD BLDG. INT. LIGHTS	4
5	NEW BLDG. INT. LIGHTS	OLD BLDG. FLOOD LIGHTS	6
7	NEW BLDG. INT. LIGHTS	SPARE	8
9	NEW BLDG. FLOOD LIGHTS	SPARE	10
11	SPARE	SPARE	12



ELECTRICAL PLAN
N.T.S.



PART SITE PLAN
N.T.S.

HOLDING POND ELEV.		
	EXISTING	PROPOSED
1	99.12	99.50
2	99.76	101.00
3	99.10	101.00
4	99.35	101.00
5	99.25	95.70±

ELEVATIONS		
NO.	EXISTING	PROPOSED
1	96.17	101.00
2	99.13	100.00
3	99.30	100.00
4	98.83	101.00
5	———	100.00
6	100.15	99.75
7	———	99.75

As Built Drawings
Date 2-8-96
Signature [signature]

VDOT NO. 6013

SP-Z-3

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	2007A146-043		A5 OF 7

5

NOTES:

1. WORK PAD SHALL SLOPE A MINIMUM OF 2" IN ELEVATION FROM THE OUTER PERIMETER OF THE WORK PAD TO EXCAVATION TYPE FOUNDED UNDER, TO THE TOP OF THE NATIVE EARTH UNDER.
2. SEAL PAD UNDER WITH CHEMICAL RESISTANT LINER AT THE STORM OVERFLOW.
3. 6" Ø DRAIN PIPE SHALL BE CONNECTED TO EXIST. PIPE.

* DROP INLET WAS RELOCATED. MIXING PAD WAS SLOPED FROM ELEV. 100.00 TO 99.75 AT ELEVATION POINT "B" & A MEMBRANE LINER ASPHALT SWALE WAS CONSTRUCTED FROM MIXING PAD TO POND.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

		3	VA.			2007A146-043	A6 of 7

FOWHITE PARKWAY
CHEMICAL STORAGE BUILDING

SECTION A-A
N.T.S.

Contractor to remove and replace he existing drop inlet with a DI-1 and remove and replace the existing pipe tying to the sanitary sewer with 8" PVC.

Approximate location of the existing drop inlet and pipe to be replaced.

PLAN OF WORK PAD

SECTION

SECTION

SECTION

SECTION

As Built Drawings
Date 2-8-96

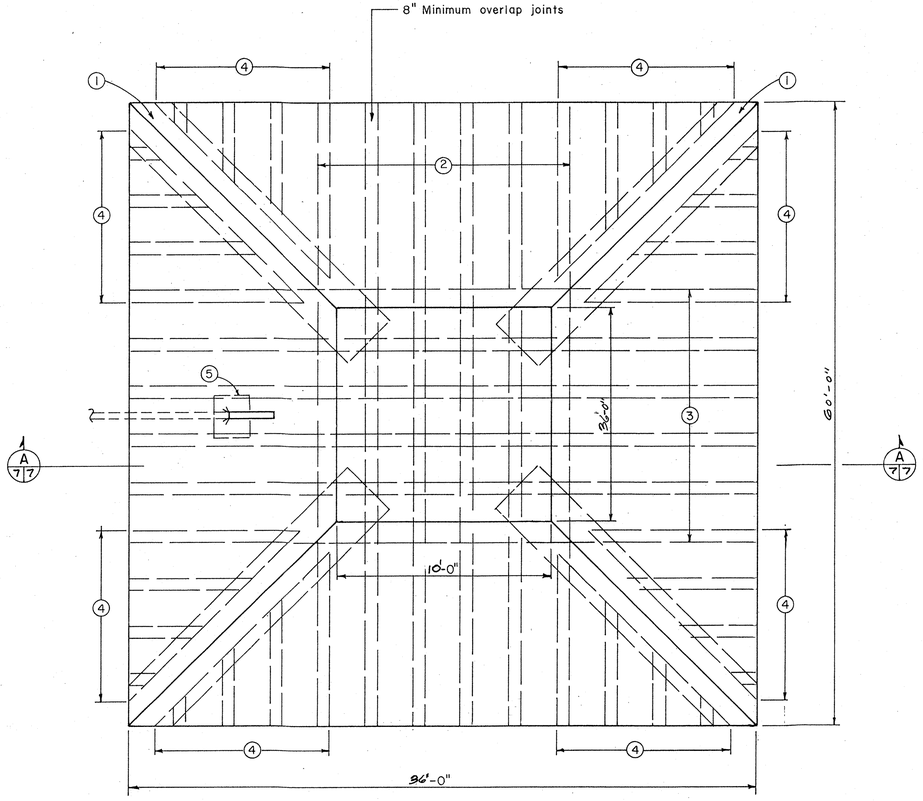
SURVEYED BY
DESIGNED BY
PLAN

SP-Z-4

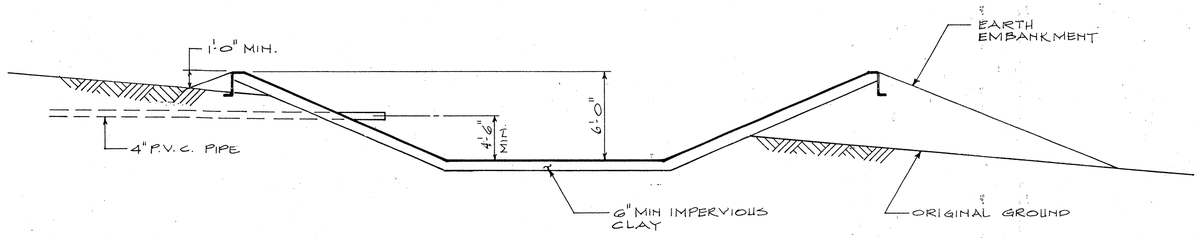
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
	3	VA.			20074146-043	A7 of 7

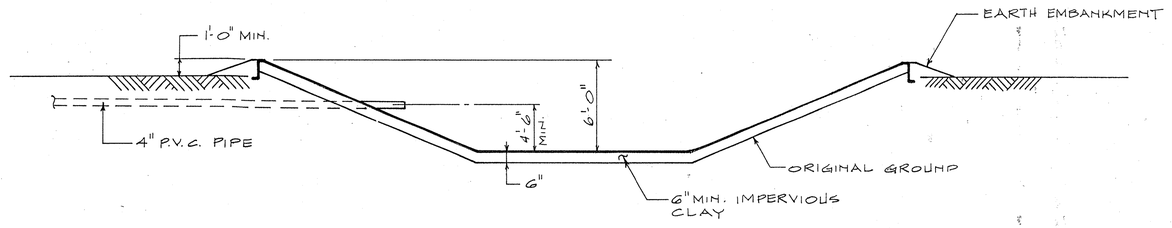
POWHITE PARKWAY
CHEMICAL STORAGE BUILDING



PLAN VIEW
N.T.S.



SECTION
Method "A" (A 7/7)



SECTION
Method "B" (A 7/7)

Contractor to install a single layer Appex 4S liner.

LINER INSTALLATION

Layers 1&2 Fiberglass Felt Type IV Ply Sheet

VOID

1. Line the four (4) valleys of the pond.
2. Line two (2) center sides and bottom of pond.
3. Line other two (2) center sides and bottom of pond.
4. Line remaining corners of pond repeat steps 1 thru 4 for second layer.

Note: All overlap joints shall be sealed with roof and foundation coating. (Leak Pruf)

Layer 3 Waterproofing Membrane (WP. MEM.)

Follow steps 1 thru 4 above.

5. Make a boot for pipe from WP. Mem. material. Seal around P.V.C. pipe with roof cement. Coat entire surface of WP. Mem. material with roof and foundation coating. (Leak Pruf)

Note: All overlap joints shall be thermofused (follow manufacture's specifications.

HOLDING POND

As Built Drawings
Date 2-8-96
Signature [signature]

SUPERVISED BY
DESIGNED BY

PLAN NOTEBOOK No.
SURVEYED BY
ALIGNMENT CHECKED
RT. OF WAY CHECKED

DATE	BY

CHECKED
CHECKED

VDH&T NO. 6013

SP-Z-5

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
	20074146-043		A7 of 7

PETROMAT®
BY PROPEX

Product Data
PETROMAT® 4597

PETROMAT® 4597 is a nonwoven polypropylene geotextile produced by Propex, and will meet the following Minimum Average Roll Values (MARV) when tested in accordance with the methods listed below. **PETROMAT 4597** is used as a moisture barrier and stress absorbing interlayer beneath asphalt overlay or a chip seal and exceeds AASHTO M288 requirements for paving fabric[1].

PETROMAT 4597 conforms to the property values listed below[2]. Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

		MARV[3]	
PROPERTY	TEST METHOD	ENGLISH	METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured Inputs		100%	100%
% U.S. Manufactured		100%	100%
PHYSICAL			
Mass/Unit Area	ASTM D-5261	4.6 oz/yd²	156 g/m²
MECHANICAL			
Tensile Strength (Grab)	ASTM D-4632	120 lbs	534 N
Elongation	ASTM D-4632	50%	50%
Asphalt Retention	ASTM D-6140	0.24 gal/yd²	1.1 l/m²
Melting Point	ASTM D-276	320 °F	160 °C
ENDURANCE			
UV Resistance % Retained at 500 hrs	ASTM D-4355	70%	70%

NOTES:
1. Propex suggests that the minimum temperature of the asphalt overlay be 280 °F during installation.
2. The property values listed above are effective 04/2011 and are subject to change without notice.
3. Values shown are in weaker principal direction. Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.

Propex™ Geotextile Systems

TESTED. PROVEN. TRUSTED
www.geotextile.com

Propex Operating Company, LLC · 6025 Lee Highway, Suite 425 · PO Box 22788 · Chattanooga, TN 37422
ph 423 899 0444 · ph 800 621 1273 · fax 423 899 7619

APPEX® 4S

Premium Polyester-Reinforced, APP Smooth Cap, Ply, or Flashing Sheet

Meets the requirements of ASTM D 6222, Type I, Grade S

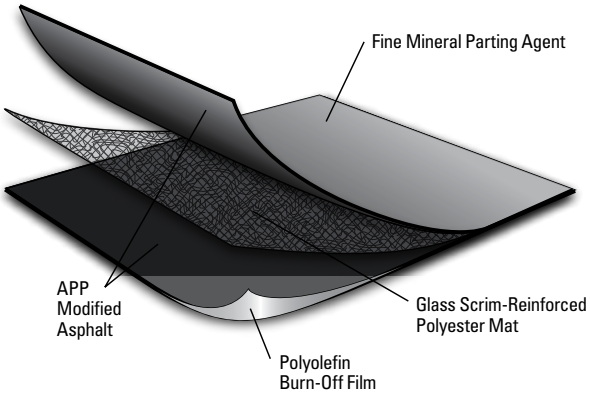
Features and Components

APPeX 4S is used as a cap or base sheet in APP multi-ply roofing systems.

Premium APP (Atactic Polypropylene) Polymer and Asphalt Blend: Provides an extremely durable sheet with excellent weathering characteristics, flexibility and dimensional stability for ease of handling and quick installations.

Polyester Reinforcement Mat: Provides bidirectional glass-scrim reinforcement and offers robust tear strength and puncture resistance, allowing for high wind performance and excellent hail rating. The sheet also exhibits strong dimensional stability and enhanced elongation.

Surfacing: Fine mineral parting agent on the top of the sheet. A polyolefin burn-off film on the bottom side enables the product to be applied using heat-welding techniques.



System Compatibility

This product may be used as a component in the following systems. Please reference product application for specific installation methods and information.

Multi-Ply	BUR		APP		SBS				
	HA	CA	CA	**HW**	HA	CA	HW	SA	
	Compatible with the selected Multi-Ply systems above								

Single Ply	TPO		PVC		EPDM		
	MF	FA	MF	FA	MF	FA	BA
	Do not use in Single Ply systems						

Key: **HA** = Hot Applied **CA** = Cold Applied **HW** = Heat Weldable **SA** = Self Adhered **MF** = Mechanically Fastened **FA** = Fully Adhered **BA** = Ballasted

Energy and the Environment

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%

Peak Advantage® Guarantee Information

Systems	Guarantee Term
Dependent on system*	Up to 20 years

*Contact JM Technical Services for specific system requirements or guarantee terms.

Codes and Approvals

- UL Class A ratings may be obtained in numerous constructions, both new and re-roof at slopes up to 1" per foot (83 mm/m).

Product Application

Heat Weld

- When used as a cap sheet, the use of an approved surfacing is required.
- Refer to JM APP modified bitumen specifications and detail drawings for application and slope information.

Packaging and Dimensions

Roll Width	39 3⁄8" (1 m)
Roll Length	32' 10" (10.01 m)
Roll Coverage*	95.8 ft² (8.9 m²)
Roll Weight	100 lb (45.4 kg)
Rolls per Pallet	25
Pallets per Truck**	18

*Assumes a 4" side lap.
** Assumes a 48' flatbed truck.

Refer to the Safety Data Sheet and product label prior to using this product. The Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

Johns Manville

APPEX® 4S

Premium Polyester-Reinforced, APP Smooth Cap, Ply, or Flashing Sheet

Meets the requirements of ASTM D 6222, Type I, Grade S

Tested Physical Properties

	Physical Properties		ASTM Test Method	Standard for ASTM D 6222, Type I, Grade S	APPeX 4S	
					MD*	XMD**
Strength	Tear Resistance @ 73.4° F		D 4073 / 5147	≥ 70 lbf	122 lbf	92 lbf
	Peak Load at 0°F (-18°C)		D 5147	≥ 60 lbf/in-width	133 lbf/in-width	107 lbf/in-width
	Peak Load at 73.4°F (23°C)	Unconditioned	D 5147	≥ 50 lbf/in-width	98 lbf/in-width	66 lbf/in-width
		90-Day Heat Conditioned	D 5147 / 5869	≥ 50 lbf/in-width	102 lbf/in-width	67 lbf/in-width
Longevity	Low Temp. Flexibility @ 180° F Mandrel (Pass-Fail)	Unconditioned	D 5147	Pass @ 32° F "none of the specimens show cracking"	Pass	
		90-Day Heat Conditioned	D 5147 / 5869		Pass	
	Low Temperature Unrolling (Pass-Fail) Unroll in 4-6s; Visual Inspection in "unrolled" position		D 5636	Pass @ 41° F "none of the specimens show cracking"	Pass	
	Compound Stability - 2 hr 15 min @ 230° F (Pass-Fail)		D 5147	Pass "no failures showing signs of flowing, dripping, or drop formation"	Pass	
	Thickness		D 5147	≥ 140 mils	146 mils	
	Bottom Coating Thickness		D 5147	≥ 30 mils	72 mils	
	Water Absorption - water by distillation		D 5147 / 95	≤ 3.2 %	0.6%	
	Moisture Content - water by distillation		D 5147 / 95	≤ 1 %	0.2%	
	Ultimate Elongation at 73.4°F (-18°C)		D 6222	≥ 30 %	52%	49%
	Elongation at Peak Load @ 0° F		D 5147	≥ 10 %	12%	10%
	Elongation at Peak Load @ 74.4° F	Unconditioned	D 5147	≥ 23 %	49%	45%
		90-Day Heat Conditioned	D 5147 / 5869	≥ 23 %	41%	32%
Installation	Dimensional Stability - 24 hr @ 176° F		D 5147 / 1204	≤ 1 %	0.30%	0.10%
	Net Mass per Unit Area		D 146	≥ 70 lb/100 ft^2	89 lb/100 ft^2	

*MD = Machine Direction
**XMD = Cross-Machine Direction

Note: All data represents tested values.

Refer to the Safety Data Sheet and product label prior to using this product. The Safety Data Sheet is available by calling (800) 922-5922 or on the Web at www.jm.com/roofing.

SPECIAL PROVISION
WHEEL LOADER AND OPERATOR

DESCRIPTION

The contractor shall furnish a wheel loader (3 CY bucket capacity) and an operator for work such as moving stockpiled materials and other work as directed by the Engineer on the RMTA system.

LOCATION

Work will be performed as needed at the Douglasdale storage lot and the salt shed site.

MATERIAL

Contractor shall supply a suitable wheel loader equipped with a 3-cubic yard bucket and an operator to include fuel and mobilization to the location as directed by the Engineer.

MEASUREMENT AND PAYMENT

Wheel loader and Operator (3 CY bucket) will be measured in hours onsite and paid for at the contract unit price, which shall be full compensation for, equipment, fuel, mobilization and operator. MOT will be paid as per Maintenance of Traffic special provision SP-B.

Pay Item	Pay Unit
Wheel loader and Operator (3 CY bucket)	HOUR

SPECIAL PROVISION
5000 GALLON DOUBLE WALL STORAGE TANKS AND BRINE TANK CONCRETE PADS

DESCRIPTION

This work shall consist of supplying and installing tanks, pumps and other required equipment for the proper storage and handling of a brine liquid.

Any required excavation and placement of stone to prepare the tank concrete foundation shall be incidental to the other items described in this Special Provision.

The Contractor shall be required to submit product data sheets to the Engineer for approval for all products proposed to be used to complete the tank supply and installation work, including but not limited to tank, pumps, and pipes.

5000 GALLON DOUBLE WALL TANK AND EQUIPMENT

The Authority intends to use Brine on the Expressway System. This work shall consist of supplying and installing the necessary equipment for the storage of the brine liquid. In addition, Contractor shall supply all pumps and pipes necessary for the transfer of the brine into and out of the tank.

Tanks

Tanks shall be an upright double walled tank constructed of cross linked polyethylene resins with a capacity of 5,000 gallons. Tank shall be designed for above-ground, vertical installation and capable of containing sodium chloride at atmospheric pressure. Tank shall have a minimum rating of 10.7 Lbs. per gallon (1.28 specific gravity). Tie-down supports for the tank required by the manufacturer shall be supplied and installed by the Contractor. Tank shall be equipped with lifting lugs for removal from delivery truck and placement onto concrete pad.

Tank design and fabrication shall be in accordance with ASTM D1998-15 "Standard Specification for Polyethylene Upright Storage Tanks." Tank shipping and installation shall be in accordance with the manufacturer's specifications.

Manufacturer Snydor ASM TK 5000 CCS may have this model in stock. Contact Jeff Chlian, jchlian@varitech-industries.com. Office: 320-763-5074.

Tank Concrete Pads

The Contractor shall design a concrete slab to support the two upright tanks in accordance with ACI 318-05 and the tank manufacturer's guidelines. It is anticipated that the slabs shall be approximately 12" thick with one mat of #5 rebar spaced 9" on

center. The pad design shall be submitted as a working drawing to the Engineer for review and approval in accordance with VDOT Section 105.10.

Pump

Pump shall be a stainless steel centrifugal pump with mechanical seals. The pump shall be sized for a minimum flow rate of 150 gpm at a head (vertical lift) of 20 feet or the height of the approved tank, whichever is greater.

Pipes

Pipes and fittings shall be 3" I.D. made of stainless steel, PVC, polyethylene or rubber. Pipe joints shall be flanged (carbon steel bolts for flanges are acceptable). Pipes shall be a suitable length for convenient loading and unloading of the tank. Each tank will be provided with a U-vent and sight glass.

Gaskets and Seals

Gaskets and seals shall be EPDM, Teflon, butyl rubber, isoprene or natural rubber.

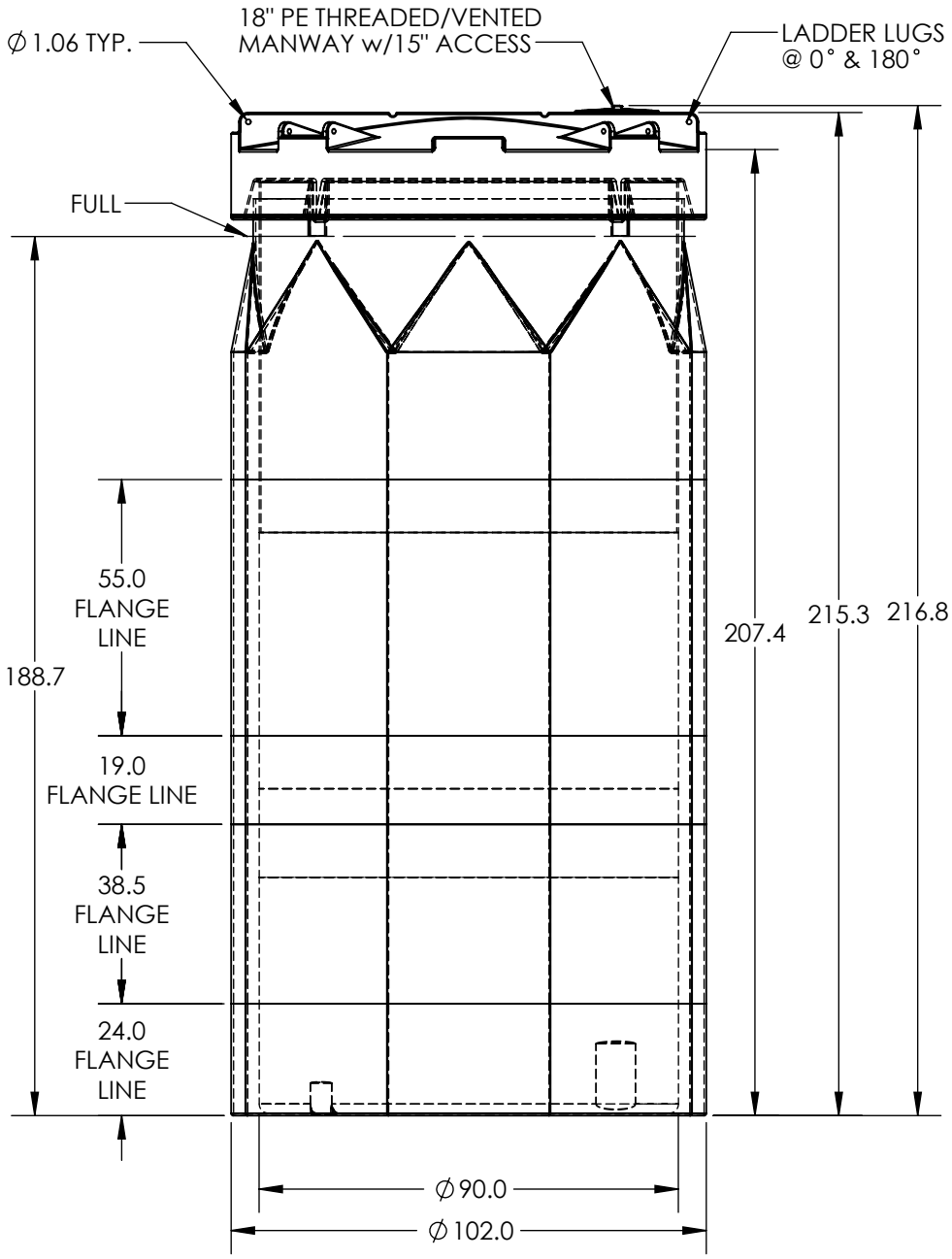
The tank shall be guaranteed for the normal, designed and specified use of containing liquid melting agents such as sodium chloride for a period of three years from the date of delivery. All other components shall be guaranteed for a period of two years.

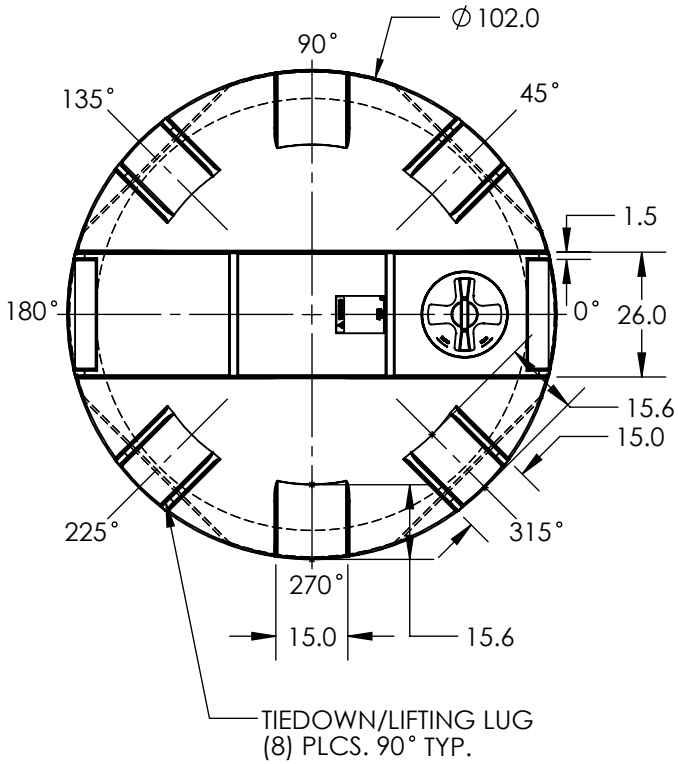
MEASUREMENT AND PAYMENT

The Pay Item **5000 Double Wall tank and Equipment** will be paid for at the contract lump sum price. This price shall include supplying, delivery and installation of a tank, pump, pipes, fittings, gaskets, seals and all other equipment necessary for the proper storage and handling of the sodium chloride deicing liquid.

The Pay Item **Concrete** will be measured in cubic yards and will be paid for at the contract unit price per cubic yard, complete-in-place. This Pay Item is established for concrete required for the tank slabs. Required steel rebar and reinforcement shall be incidental to this item. Any anchor bolts required to tie-down the tank shall also be incidental to this item.

Pay Item	Pay Unit
5000 Double Wall tank and Equipment	EA
Concrete	Cubic Yard





***ALL EXTERNAL PIPING MUST BE INDEPENDENTLY SUPPORTED.**
***ONLY BASE FITTINGS TO BE LEFT INSTALLED AT TIME OF SHIPMENT PER SII PROCEDURE.**
***Consult Snyder's Guidelines for Use and Installation prior to delivery.**
Available on-line at http://www.snyderindustriestanks.com/Technical

ALL DIMENSIONS ARE IN INCHES, NOMINAL, & SUBJECT TO CHANGE WITHOUT NOTICE.
ALL DIMENSIONS ON ROTATIONAL MOLDED PARTS ARE SUBJECT TO A ± 3% TOLERANCE.

DO NOT SCALE	DRAWN BY	DATE
STATUS: **Released**	ET3	10/6/2014

SNYDER INDUSTRIES, INC.
4700 Fremont Street
Lincoln, NE 68504
(402) 467-5221
www.snydernet.com

TITLE: **ASM TK 5000 CCS**

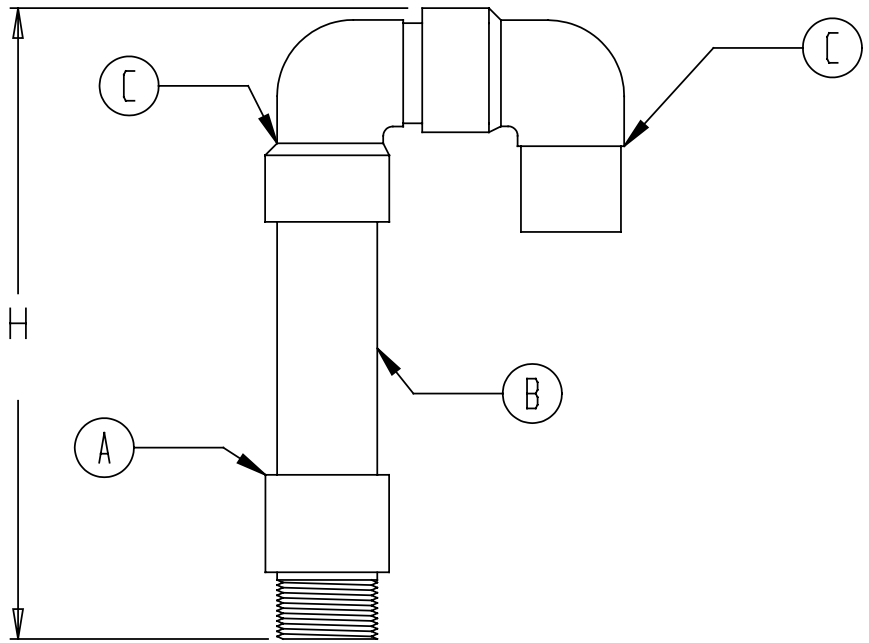
REVISION: **A**

SHEET: 1 OF 1

PART NO. **5630000N & 5560000N**

ENG. ID. **A003588**

U-VENT SIZE	PART DESCRIPTION			ASSY. PART #	HEIGHT (D)
	A	B	C (2 EA. REQUIRED)		
1/2"	1/2" ADAPTER MPT X S	1/2" PVC SCH. 40 PIPE 7 3/8" LONG	1/2" 90 DEG. STREET ELBOW S X SPIG	347190	8 5/8"
3/4"	3/4 ADAPTER MPT X S	3/4" PVC SCH. 40 PIPE 7 3/8" LONG	3/4" 90 DEG. STREET ELBOW S X SPIG	347191	9"
1"	1" ADAPTER MPT X S	1" PVC SCH. 40 PIPE 7 3/8" LONG	1" 90 DEG. STREET ELBOW S X SPIG	347192	9 5/8"
1.25"	1.25" ADAPTER MPT X S	1.25" PVC SCH. 40 PIPE 7 3/8" LONG	1.25" 90 DEG. STREET ELBOW S X SPIG	347193	10 1/8"
1.5"	1 1/2" ADAPTER MPT X S	1.5" PVC SCH. 40 PIPE 7 3/8" LONG	1.5" 90 DEG. STREET ELBOW S X SPIG	347194	10 1/2"
2"	2" ADAPTER MPT X S	2" PVC SCH. 40 PIPE 7 3/8" LONG	2" 90 DEG. STREET ELBOW S X SPIG	347156	10 3/4"
3"	3" ADAPTER MPT X S	3" PVC SCH. 40 PIPE 7 3/8" LONG	3" 90 DEG. STREET ELBOW S X SPIG	347195	13 3/8"
4"	4" ADAPTER MPT X S	4" PVC SCH. 40 PIPE 7 3/8" LONG	4" 90 DEG. STREET ELBOW S X SPIG	347196	14 1/2"
6"	6" ADAPTER MPT X S	6" PVC SCH. 40 PIPE 7 3/8" LONG	6" 90 DEG. STREET ELBOW S X SPIG	347197	18 3/8"



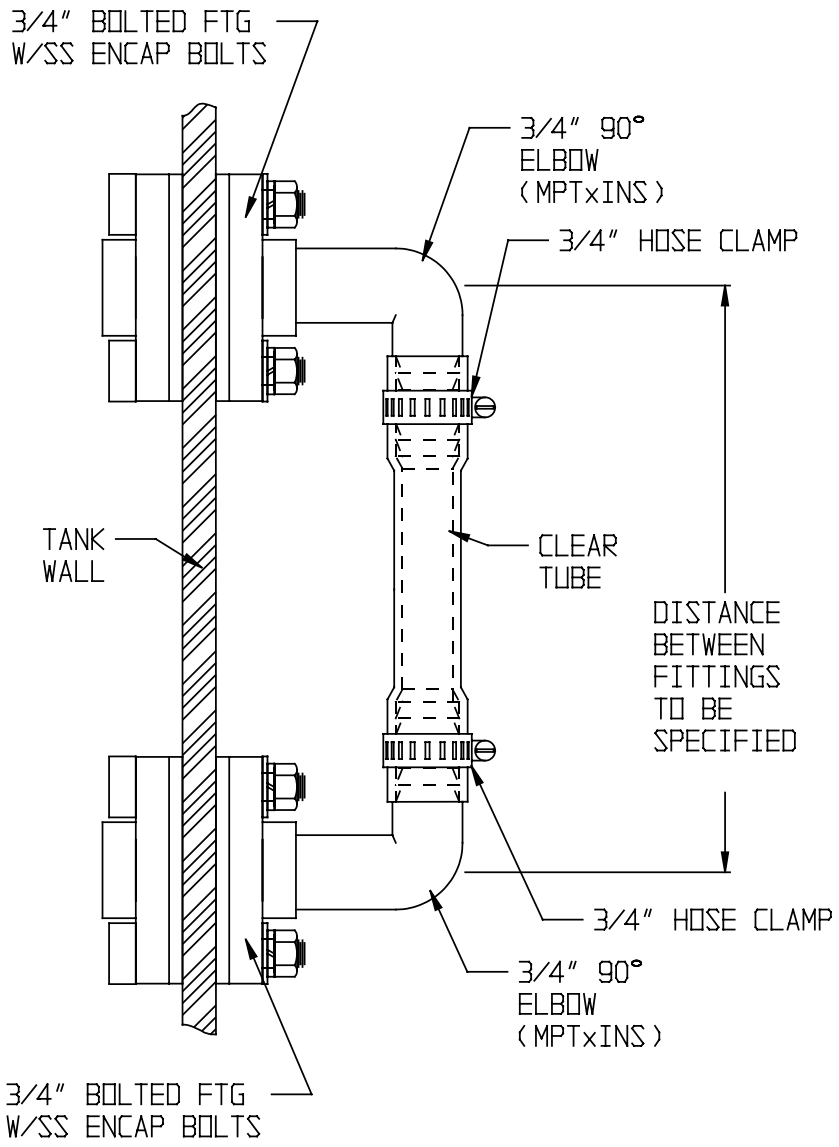
SNYDER INDUSTRIES INC.

PVC U-VENT ASSEMBLY DETAIL

REF#: 0000

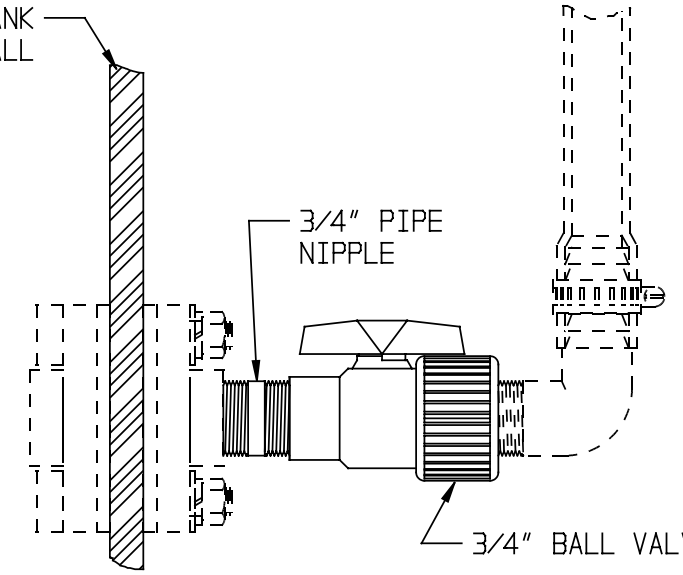
04/27/95

SIGHT GLASS ASSEMBLY



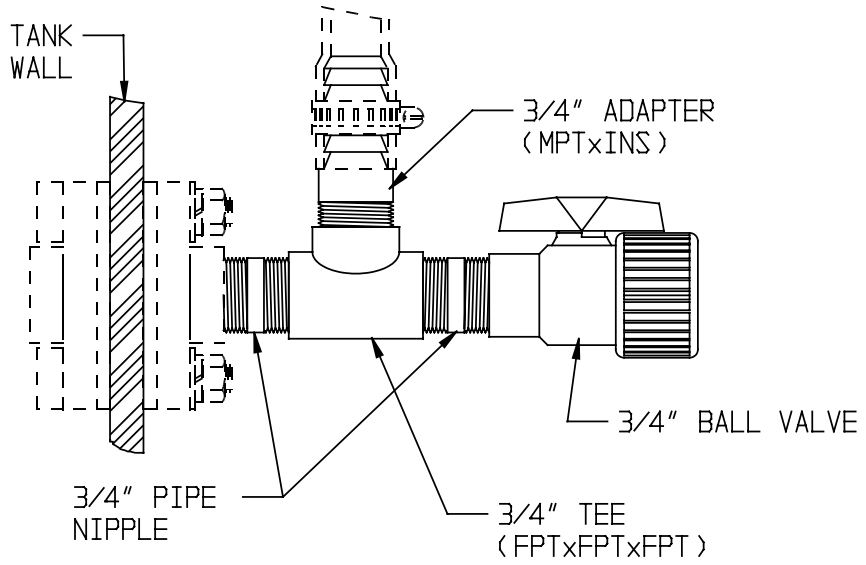
ASSEMBLY PART NUMBERS:				
FTG MAT'L	GASKET MATERIAL		ACCESSORIES	
	EPDM	VITON	VALVE	DRAIN VALVE
PVC	347363	347364	347365	347366
CPVC	N/A	347974	347975	347976

VALVE ASSEMBLY



NOTE:
PART# DOES NOT INCLUDE FTG,
ELBOW, CLAMP OR TUBING.

DRAIN VALVE ASSEMBLY W/TEE



NOTE:
PART# DOES NOT INCLUDE FTG,
ELBOW, CLAMP OR TUBING.

SNYDER INDUSTRIES INC.

BOLTED FTG SIGHT GLASS ASSEMBLY & ACCESSORIES

FILE: SIGHTGLASS-BLT.prt
DATE: 05/02/02

SPECIAL PROVISION
CONCRETE BARRIER DELINEATORS

DESCRIPTION

This work shall consist of installing delineators along existing concrete barrier walls or bridge parapet walls in locations determined by the engineer. In areas where delineators will be installed after the barrier has received a coating, the coating must be dry as determined by the Engineer. The Contractor shall install all delineators per the manufacturer's recommendations and to the approval of the Engineer.

The Contractor shall refer to *Section 3F.04 Delineator Placement and Spacing* on pages 426-427 of the Manual for Uniform Traffic Control Devices for additional guidance.

Any costs for removing and disposing offsite of existing delineators shall be incidental to this work. This shall include any required disposal permits.

LOCATIONS

locations for installing delineators may be determined by the Engineer.

MATERIALS

ITEM	VDOT SECTION
Concrete Barrier Delineators	702*

*Note: Contractor shall comply with the VDOT 2016 Road and Bridge Specification Revisions in "Division 7 – Traffic Control Devices"

Materials shall be delivered to the job site in the manufacturer's original sealed containers. Each container shall be marked with the manufacturer's name and lot number. Materials will be accepted based on the manufacturer's certification, subject to the storage and handling requirements of the manufacturer. The Contractor shall use an approved inventory tracking system for all materials received from the manufacturer. Shipment of materials from such inventory shall be accompanied by a signed form C-85 containing the following certification statement:

Material shipped under the certification has been tested and approved by VDOT as indicated by Laboratory test numbers listed hereon.

PROCEDURES

Delineators shall be installed in accordance with the latest editions of the "Manual on Uniform Traffic Control Devices" (MUTCD) and the 2016 Road and Bridge Standards.

The Contractor shall, unless otherwise directed by the Engineer, remove old delineators and install new delineators during the same lane closure. Delineators shall always be visible to motorists once traffic is allowed back on the ramp. The Contractor shall refer to Maintenance of Traffic Special Provision SP-B for allowable lane closure times.

The Contractor and the Engineer shall first agree on the delineator spacing and layout prior to the installation of and removal of any existing delineators.

MEASUREMENT AND PAYMENT

Barrier Delineators will be measured by each and be paid for at the contract price. This price shall be full compensation for removing of existing delineators and disposal offsite, and permits or fees required for disposal, furnishing and installing delineators per manufacturer's recommendations, all equipment, labor, materials, and incidentals required to complete the work. Maintenance of Traffic items for Concrete Barrier Delineators will be paid for as per MOT Special Provision SP-B and the supplemental specifications.

SPECIAL PROVISION
OVERHEAD SIGN STRUCTURE REPLACEMENT/REPAIRS

DESCRIPTION

This work shall consist of making repairs as outlined and attaching new sign panels to existing mounting hardware on simple span and bridge mounted sign structures. Removal and disposal of the existing panel to be replaced will be required.

MATERIALS

ITEM	VDOT SECTION
Overhead Sign Panel Replacement	229 and 701

LOCATIONS

OVERHEAD SIGN REPLACEMENT/REPAIRS		
Location	Sign Number	Area (S.F)
NB Powhite South of exit ramp to Douglasdale	200256	209
Ramp from NB Chippenham Parkway to NB Powhite Parkway	200545	434
NB Powhite Parkway between the entrance ramp from Douglasdale Ave and exit ramp to Cary St	200553	180
NB Powhite between the entrance ramp from Douglasdale Ave and the exit ramp to Cary St	200554	398
SB Powhite between the on-ramp from Cary St. and the exit ramp to Douglasdale	202556	228

2019 RMTA Overhead Sign Replacement/Repairs	
Sign Number	Repairs
200256	Replace broken/missing backing strip studs (28 each) and z-bar studs (19 each)
	Replace the deteriorating reflective sign sheeting material
	Remove debris from top of pedestal
	Apply penetrating epoxy primer to exposed anchor bolts/nuts.
200545	Replace the deteriorating reflective sign sheeting material
	Clean and apply a protective coating to all the exposed footing surfaces
	Replace hand hole access panel
200553	Replace the deteriorating reflective sign sheeting material
	Replace broken hanger
	Replace broken/missing backing strip studs (20 each) and z-bolt studs (2 each)
	Clean and apply a protective coating to all exposed footing surfaces
200554	Replace broken and missing backing strip studs (59 each) and z-bar studs (16 each)
	Replace deteriorating reflective sign sheeting material
	Replace damaged sign panel
	Replace hand hole access panel
	Clean and apply protective acrylic to all exposed footing surfaces
202556	Replace broken/missing backing strip studs (43 each) and z-bar studs (37 each)
	Replace the reflective sign sheeting material
	Move exposed electrical wires back into structure pole and replace missing handhole cover
	Clean and apply protective coating to exposed concrete footing surfaces
	Repair spall on the corner of the concrete pedestal

PROCEDURES

Sign Panel Replacement

The Contractor shall follow the manufacturer's recommendations for installation of new overhead sign panels. Contractor shall submit shop drawings for the sign panel and submit any bracket modifications and/or new brackets if required to the Engineer for approval. Once drawings have been approved, the Contractor shall submit an MOT plan (7) days prior to any

lane closure for approval by the Engineer and the RMTA. Included in the MOT plan, shall be a contingency plan to direct traffic if the old sign panel is removed and the new panel cannot be put back up during the same closure. Messages, shields, arrows, and borders shall conform to the most current version of the Manual on Uniform Traffic Control Devices (MUTCD), The Virginia Supplement to the 2009 MUTCD, and the specifications herein.

Contractor shall remove and dispose of the existing panel offsite. Proper shielding shall be used to protect motorists from debris caused by saw cutting, grinding, welding or other work tasks creating fragments. All work areas shall be well lit using trailer mounted light pods to illuminate the work area. The Contractor shall take extra care not to damage the existing mounting supports when removing the existing panel.

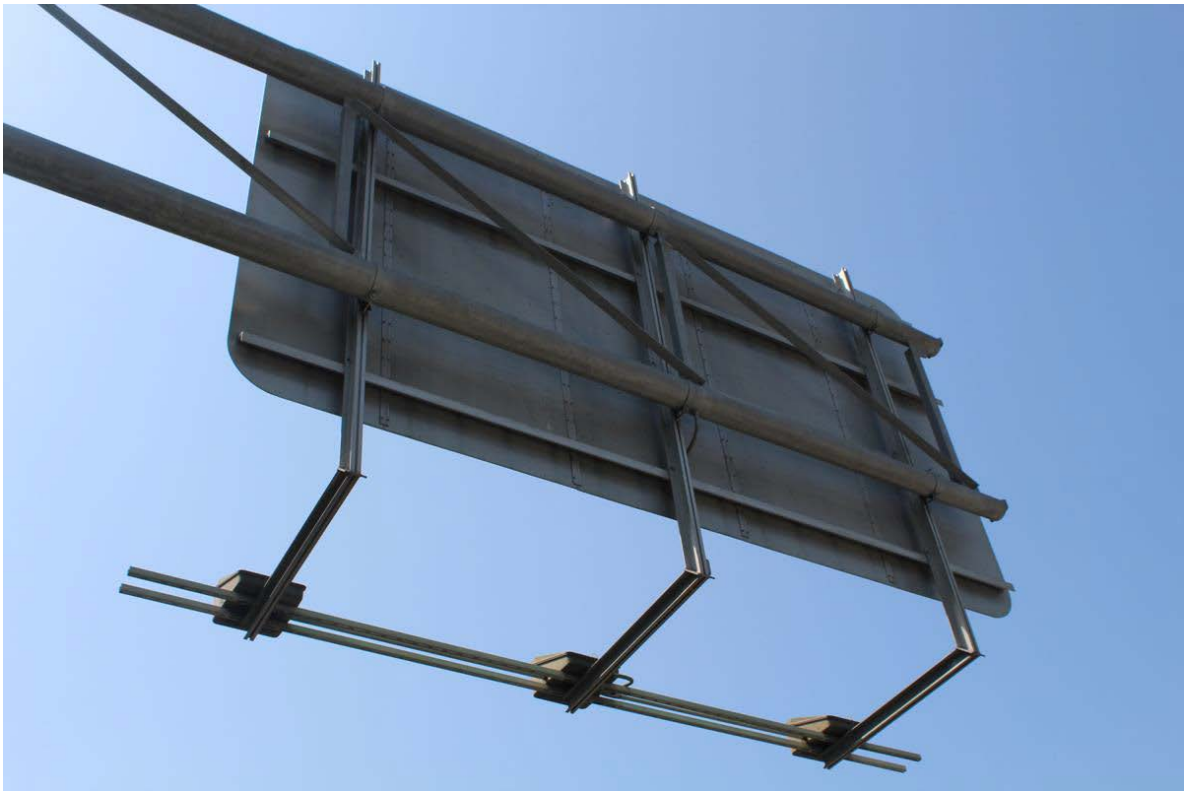
For the sign panels noted herein the Contractor will make the repairs as outlined and replace the sign panel.

MEASUREMENT AND PAYMENT

Overhead Sign Panels Replacement/Repairs will be measured by a lump sum basis and paid at the contract unit price. This shall be full compensation for verifying the existing mounting structure; submitting and resubmitting, if required, of shop drawings for Engineer's approval; removal of the existing sign panel and disposal offsite; any required permits or fees for disposal; furnishing and fabricating the new sign panel and any additional mounting brackets if required, installing the sign panel; trailer mounted lighting pods; and all equipment, labor and incidentals required to install the new sign panel. MOT will be paid for under the items listed in the Maintenance of Traffic special provision SP-B and the supplemental specifications.

Pay Item	Pay Unit
Overhead Sign Panel Replacement/Repairs Str. No. 200256	L.S.
Overhead Sign Panel Replacement/Repairs Str. No. 200545	L.S.
Overhead Sign Panel Replacement/Repairs Str. No. 200553	L.S.
Overhead Sign Panel Replacement/Repairs Str. No. 200554	L.S.
Overhead Sign Panel Replacement/Repairs Str. No. 202556	L.S.

Sign 200256

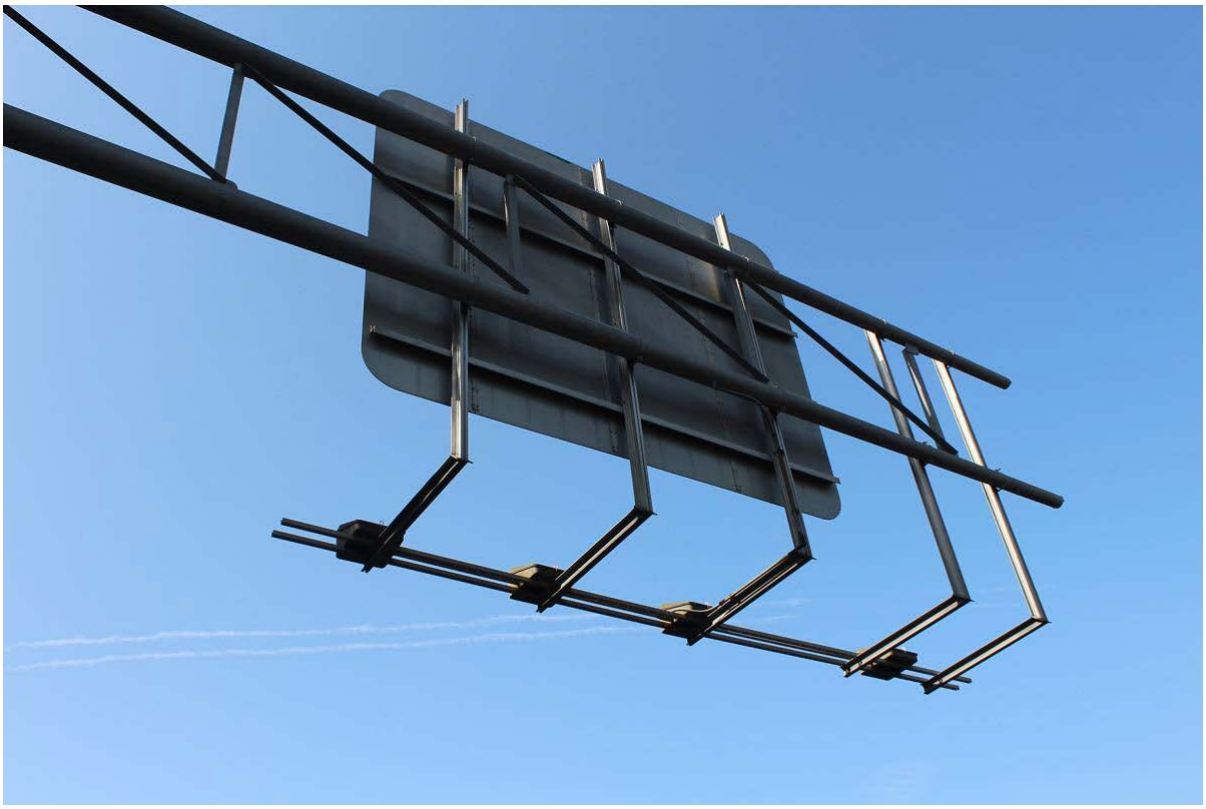


SP-DD-4

Sign 200545

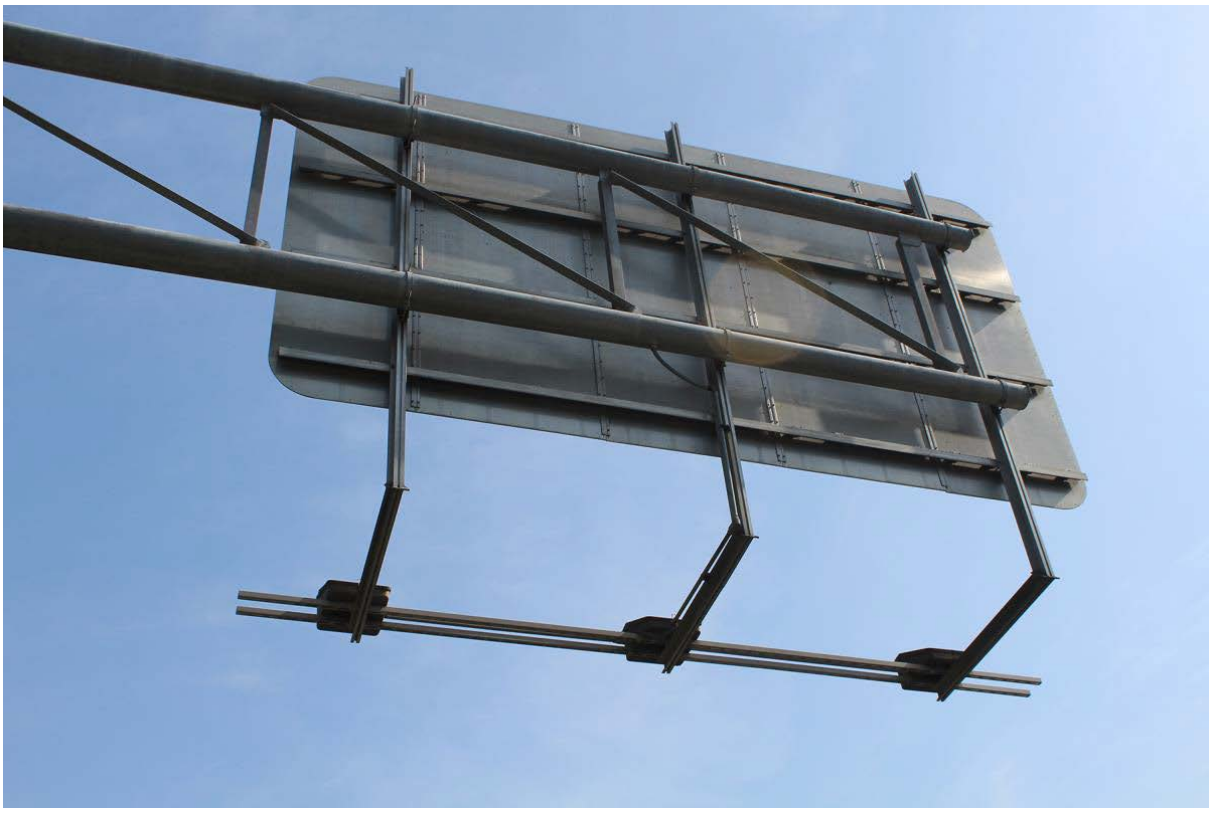

TOLL PLAZA 1/2 MILE
EXPRESS
FULL SERVICE
E-ZPass ONLY
CASH
E-ZPass
KEEP LEFT
KEEP RIGHT

Sign 200553



Sign 200554

Sign 202556



SP-DD-8

Project: Richmond, Virginia - Proposed shotcrete and steel repairs on RMTA Structures at the following locations:

RMTA Bridge 65 Pier 12, Unit 12 over and adjacent to CSXT: Milepost CAB-0.01, in the Rivanna Subdivision, within the Florence Division.

RMTA Bridge 8 Piers 14-15 over and adjacent to CSXT; Milepost CAB 3.67, in the Rivanna Subdivision, within the Florence Division.

RMTA B13 Piers 2-3 over and adjacent to CSXT; Milepost ARN 1.22, in the North End Subdivision, within the Florence Division.

RMTA Bridge 67, Pier 1, Span 1 over and adjacent to CSXT: Milepost S-0.15, in the Bellwood Subdivision, within the Florence Division.

CONSTRUCTION AGREEMENT

This Construction Agreement ("**Agreement**") is made as of _____,2018, by and between CSX TRANSPORTATION, INC., a Virginia corporation with its principal place of business in Jacksonville, Florida ("**CSXT**"), and the RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY, a body corporate and political subdivision of the Commonwealth of Virginia ("**Agency**" and "RMTA").

EXPLANATORY STATEMENT

1. Agency has proposed to repair, or to cause to be repaired, RMTA Bridges in Richmond, Virginia (the "Project").
    - B65 Ramp from northbound I-95 to westbound Downtown Expressway (RTE. 195) over the James River, the Kanawha Canal and CSX Railroad.
        - Pier 12, Unit 12 over and adjacent to CSXT: Milepost CAB-0.01, in the Rivanna Subdivision, within the Florence Division.
    - B8 Northbound Powhite Parkway (RTE. 76) over James River, Kanawha Canal and CSX Railroad.
        - Piers 14-15 over and adjacent to CSXT; Milepost CAB 3.67, in the Rivanna Subdivision, within the Florence Division.
    - B13 Douglasdale Road over I-195 Connector/Powhite Parkway (RTE. 76) and CSX Railroad
        - Piers 2-3 over and adjacent to CSXT; Milepost ARN 1.22, in the North End Subdivision, within the Florence Division.

    - B67 Ramp from eastbound Downtown Expressway (RTE. 195) to northbound (I-95) over Dock Street, East Cary Street, East Main Street (RTE. 60) and CSX Railroad.

- Pier 1, Span 1 over and adjacent to CSXT: Milepost S-0.15, in the Bellwood Subdivision, within the Florence Division.

2. Agency has obtained, or will obtain, all authorizations, permits and approvals from all local, state and federal agencies (including Agency), and their respective governing bodies and regulatory agencies, necessary to proceed with the Project and to appropriate all funds necessary to construct the Project.

3. Agency acknowledges that: (i) by entering into this Agreement, CSXT will provide services and accommodations to promote public interest in this Project, without profit or other economic inducement typical of other Agency contractors; (ii) neither CSXT nor its affiliates (including their respective directors, officers, employees or agents) will incur any costs, expenses, losses or liabilities in excess of payments made to CSXT, by or on behalf of Agency or its contractors, pursuant to this Agreement; and (iii) CSXT retains the paramount right to regulate all activities affecting its property and operations.

NOW, THEREFORE, in consideration of the foregoing Explanatory Statement and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by the parties, the parties agree as follows:

1. Project Plans and Specifications

1.1. Preparation and Approval. Pursuant to Exhibit A of this Agreement, all plans, specifications, drawings and other documents necessary or appropriate to the design and construction of the Project shall be prepared, at Agency's sole cost and expense, by Agency or CSXT or their respective contractors. Project plans, specifications and drawings prepared by or on behalf of Agency shall be subject, at CSXT's election, to the review and approval of CSXT. Such plans, specifications and drawings, as prepared or approved by CSXT, are referred to as the "Plans", and shall be incorporated and deemed a part of this Agreement. Plans prepared or submitted to and approved by CSXT as of the date of this Agreement are set forth in Exhibit B to this Agreement.

1.2. Effect of CSXT Approval or Preparation of Plans. By its review, approval or preparation of Plans pursuant to this Agreement, CSXT signifies only that such Plans and improvements constructed in accordance with such Plans satisfy CSXT's requirements. CSXT expressly disclaims all other representations and warranties in connection with the Plans, including, but not limited to, the integrity, suitability or fitness for the purposes of Agency or any other persons of the Plans or improvements constructed in accordance with the Plans.

1.3. Compliance with Plans. The Project shall be constructed in accordance with the Plans.

2. Allocation and Conduct of Work

Work in connection with the Project shall be allocated and conducted as follows:

2.1. CSXT Work. Subject to timely payment of Reimbursable Expenses as provided by Section 4, CSXT shall provide, or cause to be provided, the services as set forth by Exhibit A to this Agreement. Agency agrees that CSXT shall provide all services that CSXT deems necessary or appropriate (whether or not specified by Exhibit A) to preserve and maintain its property and operations, without impairment or exposure to liability of any kind and in compliance with all applicable federal, state and local regulations and CSXT's contractual obligations, including, but not limited to, CSXT's existing or proposed third party agreements and collective bargaining agreements.

2.2. Agency Work. Agency shall perform, or cause to be performed, all work as set forth by Exhibit A, at Agency's sole cost and expense.

2.3. Conduct of Work. CSXT shall commence its work under this Agreement following: (i) delivery to CSXT of a notice to proceed from Agency; (ii) payment of Reimbursable Expenses (as provided by Section 4.1) as required by CSXT prior to the commencement of work by CSXT; (iii) issuance of all permits, approvals and authorizations necessary or appropriate for such work; and (iv) delivery of proof of insurance acceptable to CSXT, as required by Section 9. The initiation of any services by CSXT pursuant to this Agreement, including, but not limited to, the issuance of purchase orders or bids for materials or services, shall constitute commencement of work for the purposes of this Section. The parties intend that all work by CSXT or on CSXT property shall conclude no later than March 1, 2017, unless the parties mutually agree to extend such date.

3. Special Provisions. Agency shall observe and abide by, and shall require its contractors ("**Contractors**") to observe and abide by the terms, conditions and provisions set forth in Exhibit C to this Agreement (the "Special Provisions"). To the extent that Agency performs Project work itself, Agency shall be deemed a Contractor for purposes of this Agreement. Agency further agrees that, prior to the commencement of Project work by any third party Contractor, such Contractor shall execute and deliver to CSXT Schedule I to this Agreement to acknowledge Contractor's agreement to observe and abide by the terms and conditions of this Agreement.

4. Cost of Project and Reimbursement Procedures

4.1. ·Reimbursable Expenses. Agency shall reimburse CSXT for all costs and expenses incurred by CSXT in connection with the Project, including, without limitation: (1) all out of pocket expenses, (2) travel and lodging expenses, (3) telephone, facsimile, and mailing expenses, (4) costs for equipment, tools, materials and supplies, (5) sums paid to CSXT's consultants and subcontractors, and (6) CSXT labor in connection with the Project, together with CSXT labor overhead percentages established by CSXT pursuant to applicable law (collectively,

"**Reimbursable Expenses**"). Reimbursable Expenses shall also include expenses incurred by CSXT prior to the date of this Agreement to the extent identified by the Estimate provided pursuant to Section 4.2.

4.2. Estimate. CSXT has estimated the total Reimbursable Expenses for the Project as shown on Exhibit D (the "**Estimate**", as amended or revised). In the event CSXT anticipates that actual Reimbursable Expenses for the Project may exceed such Estimate, it shall provide Agency with the revised Estimate of the total Reimbursable Expenses, together with a revised Payment Schedule (as defined by Section 4.3.1), for Agency's approval and confirmation that sufficient funds have been appropriated to cover the total Reimbursable Expenses of such revised Estimate. CSXT may elect, by delivery of notice to Agency, to immediately cease all further work on the Project, unless and until Agency provides such approval and confirmation.

4.3. Payment Terms.

4.3.1. Agency shall pay CSXT for Reimbursable Expenses as set forth in the Payment Schedule as shown on Exhibit E (the "Payment Schedule", as revised pursuant to Section 4.2). CSXT agrees to submit invoices to Agency for such amounts and Agency shall remit payment to CSXT at the later of thirty (30) days following delivery of each such invoice to Agency or, the payment date (if any) set forth in the Payment Schedule.

4.3.2. Following completion of the Project, CSXT shall submit to Agency a final invoice that reconciles the total Reimbursable Expenses incurred by CSXT against the total payments received from Agency. Agency shall pay to CSXT the amount by which Reimbursable Expenses exceed total payments as shown by the final invoice, within thirty (30) days following delivery of such invoice to Agency. In the event that the payments received by CSXT from Agency exceed the Reimbursable Expenses, CSXT shall remit such excess to Agency.

4.3.3. In the event that Agency fails to pay CSXT any sums due CSXT under this Agreement: (i) Agency shall pay CSXT interest at the lesser of 1.0% per month or the maximum rate of interest permitted by applicable law on the delinquent amount until paid in full; and (ii) CSXT may elect, by delivery of notice to Agency: (A) to immediately cease all further work on the Project, unless and until Agency pays the entire delinquent sum, ·together with accrued interest; and/or (B) to terminate this Agreement.

4.3.4. All invoices from CSXT shall be delivered to Agency in accordance with Section 16 of this Agreement. All payments by Agency to CSXT shall be made by certified check and mailed to the following address or such other address as designated by CSXT's notice to Agency:

4.4. Effect of Termination. Agency's obligation to pay to CSXT Reimbursable Expenses in accordance with Section 4 shall survive termination of this Agreement for any reason.

5. Appropriations. Agency represents to CSXT that: (i) Agency has appropriated funds sufficient to reimburse CSXT for the Reimbursable Expenses encompassed by the Estimate attached as Exhibit D; (ii) Agency shall use its best efforts to obtain appropriations necessary to cover Reimbursable Expenses encompassed by subsequent Estimates approved by Agency; and (iii) Agency shall promptly notify CSXT in the event that Agency is unable to obtain such appropriations.

6. Easements and Licenses

6.1. Agency Obligation. Agency shall acquire all necessary licenses, permits and easements required for the Project.

6.2. Temporary Construction Licenses. Insofar as it has the right to do so, CSXT hereby grants Agency a nonexclusive license to access and cross CSXT's property, to the extent necessary for the construction of the Project (excluding ingress or egress over public grade crossings), along such routes and upon such terms as may be defined and imposed by CSXT and such temporary construction easements as may be designated on the Plans approved by CSXT.

7. Permits At its sole cost and expense, Agency shall procure all permits and approvals required by any federal, state, or local governments or governmental agencies for the construction, maintenance and use of the Project, copies of which shall be provided to CSXT.

8. Termination

8.1. By Agency. For any reason, Agency may, as its sole remedy, terminate this Agreement by delivery of notice to CSXT. Agency shall not be entitled to otherwise pursue claims for consequential, direct, indirect or incidental damages or lost profits as a consequence of CSXT's default or termination of this Agreement or Work on the Project by either party.

8.2. By CSXT. In addition to the other rights and remedies available to CSXT under this Agreement, CSXT may terminate this Agreement by delivery of notice to Agency in the event Agency or its Contractors fail to observe the terms or conditions of this Agreement and such failure continues more than ten (10) business days following delivery of notice of such failure by CSXT to Agency.

8.3. Consequences of Termination. If the Agreement is terminated by either party pursuant to this Section or any other provision of this Agreement, the parties understand that it may be impractical for them to immediately stop the Work. Accordingly, they agree that, in such instance a party may continue to perform Work until it has reached a point where it may reasonably and safely suspend the Work. Agency shall reimburse CSXT pursuant to this Agreement for the Work performed, plus all costs reasonably incurred by CSXT to discontinue the Work and protect the Work upon full suspension of the same, the cost of returning CSXT's property to its former condition, and all other costs of CSXT incurred as a result of the Project up to the time of full suspension of the Work. Termination of this Agreement or Work on the Project, for any reason, shall not diminish or reduce Agency's obligation to pay CSXT for Reimbursable Expenses incurred in accordance with this Agreement. In the event of the termination of this Agreement or the Work for any reason, CSXT's only remaining obligation to Agency shall be to refund to Agency payments made to CSXT in excess of Reimbursable Expenses in accordance with Section 4.

9. Insurance. In addition to the insurance that Agency requires of its Contractor, Agency shall acquire or require its Contractor to purchase and maintain insurance in compliance with CSXT's insurance requirements attached to this Agreement as Exhibit F. Neither Agency nor Contractor shall commence work on the Project until such policy or policies have been submitted to and approved by CSXT's Risk Management Department.

10. Ownership and Maintenance

10.1. By Agency. Agency shall own and, without cost to CSXT, shall maintain, repair, replace and renew, or cause same to be done, in good condition and repair to CSXT's satisfaction, the Bridge #I OS railroad bridge structure (excluding only those components which CSXT owns and has agreed to maintain, repair and replace pursuant to this Section}, the highway underpass structure, the roadway surfacing, the roadway slopes, the retaining walls, the roadway drainage facilities, sidewalks and lighting. In the event that Agency fails to properly maintain such structures and improvements, and such failure, in the opinion of CSXT, jeopardizes the safe and efficient operation of its property, CSXT shall be entitled to remedy such failure and recover from Agency the costs incurred by CSXT in doing so.

Agency shall own and, without cost to CSXT, maintain, repair, replace and renew, or cause same to be done, in good condition and repair to CSXT's satisfaction, the RMTA Bridge #65 highway overpass structures, the roadway surfacing, the roadway slopes, the retaining walls, and the highway drainage facilities. In the event that Agency fails to properly maintain such structures and improvements and such failure, in the opinion of CSXT, jeopardizes the safe and efficient operation of its property, CSXT shall be entitled to remedy such failure and recover from Agency the costs incurred by CSXT in doing so. Upon the cessation of use of the Project by Agency, Agency shall remove the bridge structures and restore CSXT's property to its original condition, at Agency's sole cost and expense, to CSXT's satisfaction.

10.2. By CSXT. CSXT shall own and, at its sole cost and expense, maintain, repair, replace and renew its tracks, ballast and approach embankments, and railroad signal and communication systems, and CSXT shall be permitted to install, maintain, repair and replace other utilities, facilities and cable, or cause same to be done, as CSXT authorizes from time to time on or within the railroad bridge structure.

10.3. Alterations. Agency shall not undertake any alteration, modification or expansion of the Project, without the prior approval of CSXT, which may be withheld for any reason, and the execution of such agreements as CSXT may require.

11. Indemnification

11.1. Generally. To the maximum extent permitted by applicable law, Agency and its Contractors shall indemnify, defend, and hold CSXT and its affiliates harmless from and against all claims, demands, payments, suits, actions, judgments, settlements, and damages of every nature, degree, and kind (including direct, indirect, consequential, incidental, and punitive damages), for any injury to or death to any person(s) (including, but not limited to the employees of CSXT, its affiliates, Agency or its Contractors), for the loss of or damage to any property whatsoever (including but not limited to property owned by or in the care, custody, or control of CSXT, its affiliates, Agency or its Contractors, and environmental damages and any related remediation brought or recovered against CSXT and its affiliates), arising directly or indirectly from the negligence, recklessness or intentional wrongful misconduct of the Contractors, Agency, and their respective agents, employees, invitees, contractors, or its contractors' agents, employees or invitees in the performance of work in connection with the Project or activities incidental thereto, or from their presence on or about CSXT's property . The foregoing indemnification obligation shall not be limited to the insurance coverage required by this Agreement, except to the extent required by law or otherwise expressly provided by this Agreement.

11.2. Compliance with Laws. Agency shall comply, and shall require its Contractors to comply, with any federal, state, or local laws, statutes, codes, ordinances, rules, and regulations applicable to its construction and maintenance of the Project. Agency's Contractors shall indemnify, defend, and hold CSXT and its affiliates harmless with respect to any fines, penalties, liabilities, or other consequences arising from breaches of this Section.

11.3. "CSXT Affiliates". For the purpose of this Section 11, CSXT's affiliates include CSX Corporation and all entities, directly or indirectly, owned or controlled by or under common control of CSXT or CSX Corporation and their respective officers, directors, employees and agents.

11.4. Notice of Incidents. Agency and its Contractor shall notify CSXT promptly of any

loss, damage, injury or death arising out of or in connection with the Project work.

11.5. Survival. The provisions of this Section 11 shall survive the termination or expiration of this Agreement.

12. Independent Contractor The parties agree that neither Agency nor its Contractors shall be deemed either agents or independent contractors of CSXT. Except as otherwise provided by this Agreement, CSXT shall exercise no control whatsoever over the employment, discharge, compensation of, or services rendered by Agency or Agency's Contractors, or the construction practices, procedures, and professional judgment employed by Agency or its Contractor to complete the Project. Notwithstanding the foregoing, this Section 12 shall in no way affect the absolute authority of CSXT to prohibit Agency or its Contractors or anyone from entering CSXT's property, or to require the removal of any person from its property, if it determines, in its sole discretion, that such person is not acting in a safe manner or that actual or potential hazards in, on or about the Project exist.

13. "Entire Agreement " This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of both parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter. In the event of any inconsistency between this Agreement and the Exhibits, the more specific terms of the Exhibits shall be deemed controlling.

14. Waiver If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

15. Assignment CSXT may assign this Agreement and all rights and obligations herein to a successor in interest, parent company, affiliate, or future affiliate. Upon assignment of this Agreement by CSXT and the assumption of CSXT's assignee of CSXT's obligations under this Agreement, CSXT shall have no further obligation under this Agreement. Agency shall not assign its rights or obligations under this Agreement without CSXT's prior consent, which consent may be withheld for any reason.

16. Notices All notices, consents and approvals required or permitted by this Agreement shall be in writing and shall be deemed delivered upon personal delivery, upon the expiration of three (3) days following mailing by first class U .S. mail , or upon the next business day following mailing by a nationally recognized overnight carrier, to the parties at the addresses set forth below, or such other addresses as either party may designate by delivery of prior notice to the other party:

If to CSXT: CSX Transportation, Inc.
500 Water Street, J-301
Jacksonville, Florida 32202
Attention: Director Project Management- Public Projects

If to Agency: Richmond Metropolitan Transportation Authority
901 East Byrd Street, Suite 1120
Richmond, VA 23219
Attention: Theresa Simmons, PE, Director of Operations

17. Severability The parties agree that if any part, term or provision of this Agreement is held to be illegal, unenforceable or in conflict with any applicable federal, state, or local law or regulation, such part, term or provision shall be severable, with the remainder of the Agreement remaining valid and enforceable.

18. Applicable Law This Agreement shall be governed by the laws of the Commonwealth of Virginia, exclusive of its choice of law rules. The parties further agree that the venue of all legal and equitable proceedings related to disputes under this Agreement shall be situated in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any State or Federal court situated in Duval County, Florida.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in duplicate, each by its duly authorized officers, as of the date of this Agreement.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

By:_____

Print Name:_____

Title: _____

CSX TRANSPORTATION, INC.

By:_____

Print Name: Dale W. Oplfardt
Title: Assistant Vice President – Engineering

EXHIBIT A

ALLOCATION OF WORK

Subject to Section 2.1, work to be performed in connection with the Project is allocated as follows:

A. Agency shall let by contract to its Contractors:

1. Bridge Repairs on RMTA System.
    a. B65 Ramp from northbound I-95 to westbound Downtown Expressway (RTE. 195) – steel repair.
    b. B8 Northbound Powhite Parkway (RTE. 76) over James River, Kanawha Canal and CSX Railroad – shotcrete repair.
    c. B13 Douglasdale Road over I-195 Connector/Powhite Parkway (RTE. 76) and CSX Railroad – concrete coatings.
    d. B67 Ramp from eastbound Downtown Expressway (RTE. 195) to northbound (I-95) – shotcrete.

Subject to Section 2.1, work to be performed in connection with the Project is allocated as follows:

B. CSXT shall perform or cause to be performed:

1. Preliminary Engineering Services
2. Railroad Flagging Services
3. Construction Monitoring

EXHIBIT B

PLANS AND SPECIFICATIONS

Plans, Specifications and Drawings:

As of the date of this Agreement, the following plans, specifications and drawings have been submitted by Agency to CSXT for its review and approval:

Miscellaneous As-Built Plans for Bridges 8, 9, 13 and Bridges 67; Titled: Richmond Expressway System, Downtown Expressway; Prepared by Howard, Needles, Tammen & Bergendoff

NOTE: **In the event subsequent plan submissions are made by Agency to CSXT for review and approval, once approved, said plans shall be considered to be incorporated into this Exhibit B as of the date of CSXT's written approval**

EXHIBIT C

CSXT SPECIAL PROVISIONS

DEFINITIONS:

As used in these Special Provisions, all capitalized terms shall have the meanings ascribed to them by the Agreement, and the following terms shall have the meanings ascribed to them below:

"CSXT" shall mean CSX Transportation, Inc., its successors and assigns.

"CSXT Representative" shall mean the authorized representative of CSX Transportation, Inc.

"Agreement" shall mean the Agreement to which this Exhibit C is made a part thereof and as may be amended from time to time.

"Agency" shall mean the Richmond Metropolitan Transportation Authority.

"Agency Representative" shall mean the authorized representative of Richmond Metropolitan Transportation Authority.

"Contractor" shall have the meaning ascribed to such term by the Agreement.

"Work" shall mean the Project as described in the Agreement.

I. AUTHORITY OF CSXT ENGINEER

The CSXT Representative shall have final authority in all matters affecting the safe maintenance of CSXT operations and CSXT property, and his or her approval shall be obtained by the Agency or its Contractor for methods of construction to avoid interference with CSXT operations and CSXT property and all other matters contemplated by the Agreement and these Special Provisions.

II INTERFERENCE WITH CSXT OPERATIONS

A. Agency or its Contractor shall arrange and conduct its work so that there will be no interference with CSXT operations, including train, signal, telephone and telegraphic services, or damage to CSXT's property, or to poles, wires, and other facilities of tenants on CSXT's Property or right-of-way. Agency or its Contractor shall store materials so as to prevent trespassers from causing damage to trains, or CSXT Property. Whenever Work is likely to affect the operations or safety of trains, the method of doing such Work shall first be submitted to the CSXT Representative for approval, but such approval shall not relieve Agency or its Contractor from liability in connection with such Work.

B. If conditions arising from or in connection with the Project require that immediate and unusual provisions be made to protect train operation or CSXT's property, Agency or its Contractor shall make such provision. If the CSXT Representative determines that such provision is insufficient, CSXT may, at the expense of Agency or its Contractor, require or provide such provision as may be deemed necessary, or cause the Work to cease immediately.

III NOTICE OF STARTING WORK. Agency or its Contractor shall not commence any work on CSXT Property or right-of-way until it has complied with the following conditions:

A. Notify CSXT in writing of the date that it intends to commence Work on the Project. Such notice must be received by CSXT at least ten (10) business days in advance of the date Agency or its Contractor proposes to begin Work on CSXT property. The notice must refer to this Agreement by date. If flagging service is required, such notice shall be submitted at least thirty (30) business days in advance of the date scheduled to commence the Work.

B. Obtain authorization from the CSXT Representative to begin Work on CSXT property, such authorization to include an outline of specific conditions with which it must comply.

C. Obtain from CSXT the names, addresses and telephone numbers of CSXT's personnel who must receive notice under provisions in the Agreement. Where more than one individual is designated, the area of responsibility of each shall be specified.

IV WORK FOR THE BENEFIT OF THE CONTRACTOR

A. No temporary or permanent changes to wire lines or other facilities (other than third party fiber optic cable transmission systems) on CSXT property that are considered necessary to the Work are anticipated or shown on the Plans. If any such changes are, or become, necessary in the opinion of CSXT or Agency, such changes will be covered by appropriate revisions to the Plans and by preparation of a force account estimate. Such force account estimate may be initiated by either CSXT or Agency, but must be approved by both CSXT and Agency. Agency or Contractor shall be responsible for arranging for the relocation of the third-party fiber optic cable transmission systems, at no cost or expense to CSXT.

B. Should Agency or Contractor desire any changes in addition to the above, then it shall make separate arrangements with CSXT for such changes to be accomplished at the Agency or Contractor's expense.

V HAUL ACROSS RAILROAD

A. If Agency or Contractor desires access across CSXT property or tracks at other than an existing and open public road crossing in or incident to construction of the Project, the Agency or Contractor must first obtain the permission of CSXT and shall execute a license

agreement or right of entry satisfactory to CSXT, wherein Agency or Contractor agrees to bear all costs and liabilities related to such access.

B. Agency and Contractor shall not cross CSXT's property and tracks with vehicles or equipment of any kind or character, except at such crossing or crossings as may be permitted pursuant to this section.

VI COOPERATION AND DELAYS

A. Agency or Contractor shall arrange a schedule with CSXT for accomplishing stage construction involving work by CSXT. In arranging its schedule, Agency or Contractor shall ascertain, from CSXT, the lead time required for assembling crews and materials and shall make due allowance therefor

B. Agency or Contractor may not charge any costs or submit any claims against CSXT for hindrance or delay caused by railroad traffic; work done by CSXT or other delay incident to or necessary for safe maintenance of railroad traffic; or for any delays due to compliance with these Special Provisions.

C. Agency and Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.

D. Agency and Contractor understand and agree that CSXT does not assume any responsibility for work performed by others in connection with the Project. Agency and Contractor further understand and agree that they shall have no claim whatsoever against CSXT for any inconvenience, delay or additional cost incurred by Agency or Contractor on account of operations by others.

VII STORAGE OF MATERIALS AND EQUIPMENT

Agency and Contractor shall not store their materials or equipment on CSXT's property or where they may potentially interfere with CSXT's operations, unless Agency or Contractor has received CSXT Representative's prior written permission. Agency and Contractor understand and agree that CSXT will not be liable for any damage to such materials and equipment from any cause and that CSXT may move, or require Agency or Contractor to move, such material and equipment at Agency's or Contractor's sole expense. To minimize the possibility of damage to the railroad tracks resulting from the unauthorized use of equipment, all grading or other construction equipment that is left parked near the tracks unattended by watchmen shall be immobilized to the extent feasible so that it cannot be moved by unauthorized persons.

VIII CONSTRUCTION PROCEDURES

A. General

1. Construction work on CSXT property shall be subject to CSXT's inspection and approval.
2. Construction work on CSXT property shall be in accord with CSXT's written outline of specific conditions and with these Special Provisions.
3. Contractor shall observe the terms and rules of the CSXT Safe Way manual, which Agency and Contractor shall be required to obtain from CSXT, and in accord with any other instructions furnished by CSXT or CSXT's Representative.

B. Blasting

1. Agency or Contractor shall obtain CSXT Representative's and Agency Representative's prior written approval for use of explosives on or adjacent to CSXT property. If permission for use of explosives is granted, Agency or Contractor must comply with the following:

    a. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of Agency or Contractor.

    b. Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.

    c. No blasting shall be done without the presence of an authorized representative of CSXT. At least thirty (30) days advance notice to CSXT Representative is required to arrange for the presence of an authorized CSXT representative and any flagging that CSXT may require.

    d. Agency or Contractor must have at the Project site adequate equipment, labor and materials, and allow sufficient time, to (i) clean up (at Agency's expense) debris resulting from the blasting without any delay to trains; and (ii) correct (at Agency's expense) any track misalignment or other damage to CSXT's property resulting from the blasting, as directed by CSXT Representative, without delay to trains. If Agency's or Contractor's actions result in delay of any trains, including Amtrak passenger trains, Agency shall bear the entire cost thereof.

    e. Agency and Contractor shall not store explosives on CSXT property.

2. CSXT Representative will:

a. Determine the approximate location of trains and advise Agency or Contractor of the approximate amount of time available for the blasting operation and clean-up.

b. Have the authority to order discontinuance of blasting if, in his or her opinion, blasting is too hazardous or is not in accord with these Special Provisions.

IX MAINTENANCE OF DITCHES ADJACENT TO CSXT TRACKS

Agency or Contractor shall maintain all ditches and drainage structures free of silt or other obstructions that may result from their operations. Agency or Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either (1) silt fence; (2) hay or straw barrier; (3) berm or temporary ditches; (4) sediment basin; (5) aggregate checks; and (6) channel lining. All such maintenance and repair of damages due to Agency's or Contractor's operations shall be performed at Agency's expense.

X FLAGGING *I* INSPECTION SERVICE

A. CSXT has sole authority to determine the need for flagging required to protect its operations and property. In general, flagging protection will be required whenever Agency or Contractor or their equipment are, or are likely to be, working within fifty (50) feet of live track or other track clearances specified by CSXT, or over tracks.

B. Agency shall reimburse CSXT directly for all costs of flagging that is required on account of construction within CSXT property shown in the Plans, or that is covered by an approved plan revision, supplemental agreement or change order.

C. Agency or Contractor shall give a minimum of thirty (30) days advance notice to CSXT Representative for anticipated need for flagging service. No work shall be undertaken until the flag person(s) is/are at the job site. If it is necessary for CSXT to advertise a flagging job for bid, it may take up to ninety (90) days to obtain this service, and CSXT shall not be liable for the cost of delays attributable to obtaining such service.

D. CSXT shall have the right to assign an individual to the site of the Project to perform inspection service whenever, in the opinion of CSXT Representative, such inspection may be necessary. Agency shall reimburse CSXT for the costs incurred by CSXT for such inspection service. Inspection service shall not relieve Agency or Contractor from liability for its Work.

E. CSXT shall render invoices for, and Agency shall pay for, the actual pay rate of the flagpersons and inspectors used, plus standard additives, whether that amount is above or below the rate provided in the Estimate. If the rate of pay that is to be used for inspector or flagging service is changed before the work is started or during the progress of the work, whether by law or agreement between CSXT and its employees, or if the tax rates on labor are changed, bills will be rendered by CSXT and paid by Agency using the new rates. Agency and Contractor shall perform their operations that require flagging protection or inspection service in such a manner and sequence that the cost of such will be as economical as possible.

XL UTILITY FACILITIES ON CSXT PROPERTY

Agency shall arrange, upon approval from CSXT, to have any utility facilities on or over CSXT Property changed as may be necessary to provide clearances for the proposed trackage.

XII CLEAN-UP

Agency or Contractor, upon completion of the Project, shall remove from CSXT's Property any temporary grade crossings, any temporary erosion control measures used to control drainage, all machinery, equipment, surplus materials, falsework, rubbish, or temporary buildings belonging to Agency or Contractor. Agency or Contractor, upon completion of the Project, shall leave CSXT Property in neat condition, satisfactory to CSXT Representative.

XIII FAILURE TO COMPLY

If Agency or Contractor violate or fail to comply with any of the requirements of these Special Provisions, (a) CSXT may require Agency and/or Contractor to vacate CSXT Property; and (b) CSXT may withhold monies due Agency and/or Contractor; (c) CSXT may require Agency to withhold monies due Contractor; and (d) CSXT may cure such failure and the Agency shall reimburse CSXT for the cost of curing such failure.

EXHIDIT D

INITIAL ESTIMATE
ATTACHED

EXHIBIT E

PAYMENT SCHEDULE

Agency shall remit payment to CSXT for its Reimbursable Expenses within thirty (30) days following delivery to Agency of an invoice.

EXHIBIT F

INSURANCE REQUREMENTS

Insurance Policies:

Agency and Contractor, if and to the extent that either is performing work on or about CSXT's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional insured.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000, which insurance must contain a waiver of subrogation against CSXT and its affiliates [if permitted by state law].

3. Commercial automobile liability insurance with limits of not less than $1,000,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional insured.

4. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

    a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance- Insurance Services Office (ISO) Form CG 00 35.
    b. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.
    c. Name and Address of Contractor and Agency must be shown on the Declarations page.
    d. Description of operations must appear on the Declarations page and must match the Project description, including project or contract identification numbers.
    e. Authorized endorsements must include the Pollution Exclusion Amendment-CG 28 31, unless using form CG 00 35 version 96 and later.
    f. Authorized endorsements may include:
        i. Broad Form Nuclear Exclusion- IL 00 21
        ii. 30-day Advance Notice of Non-renewal or cancellation
        iii. Required State Cancellation Endorsement
        iv. Quick Reference or Index- CLIIL 240
    g. Authorized endorsements may not include:
        i. A Pollution Exclusion Endorsement except CG 28 31
        ii. A Punitive or Exemplary Damages Exclusion

iii. A "Common Policy Conditions" Endorsement
iv. Any endorsement that is not named in Section 4 (e) or (f) above.
v. Policies that contain any type of deductible

5. All insurance companies must be A.M. Best rated A- and Class VII or better.

6. Such additional or different insurance as CSXT may require.

Additional Terms

1. Contractor must submit the original Railroad Protective Liability policy, Certificates of Insurance and all notices and correspondence regarding the insurance policies to:

Jonathan MacArthur
Insurance Department
CSX Corporation
500 Water Street- C907
Jacksonville, FL 32202
904.359.3394 (Phone)
904.306.5325 (Fax)
Jonathan_MacArthur@csx.com

2. Neither Agency nor Contractor may begin work on the Project until it has received CSXT's written approval of the required insurance.

Project: Richmond, Virginia - Proposed shotcrete and steel repairs on RMTA Structures at the following locations:

RMTA Bridge 65 Pier 12, Unit 12 over and adjacent to CSXT: Milepost CAB-0.01, in the Rivanna Subdivision, within the Florence Division.

RMTA Bridge 8 Piers 14-15 over and adjacent to CSXT; Milepost CAB 3.67, in the Rivanna Subdivision, within the Florence Division.

RMTA B13 Piers 2-3 over and adjacent to CSXT; Milepost ARN 1.22, in the North End Subdivision, within the Florence Division.

RMTA Bridge 67, Pier 1, Span 1 over and adjacent to CSXT: Milepost S-0.15, in the Bellwood Subdivision, within the Florence Division.

CSXT OP# (*TBD*),

SCHEDULE I

CONTRACTOR'S ACCEPTANCE

To and for the benefit of CSX Transportation, Inc. ("CSXT") and to induce CSXT to permit Contractor on or about CSXT's property for the purposes of performing work in accordance with the Agreement dated _____ between the RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY and CSXT, Contractor hereby agrees to abide by and perform all applicable terms of the Agreement, including, but not limited to Exhibits C and F to the Agreement, and Sections 3, 9 and 11 of the Agreement.

Contractor: _____

By: _____

Name: _____

Title: _____

APPENDIX

CSX Transportation

CONSTRUCTION SUBMISSION CRITERIA

Public Projects Group
Jacksonville, FL
Date Issued: May 8, 2009

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INTRODUCTION

The information in this document is intended to improve communication and clarify the CSXT criteria related to construction submissions that may involve CSXT property. All work must be performed in a manner as to not adversely impact existing CSXT operations. Please note that there are other standards associated with construction that must be adhered to including but not limited to the CSXT Special Provisions, CSXT Insurance Requirements as well as governing local, county, state and federal requirements. This document and other CSXT standards are subject to change without notice, and future revisions will be available at the CSXT website www.csx.com.

I. DEFINITIONS

Agency – The project sponsor.

AREMA – American Railway Engineering and Maintenance Association – the North American railroad industry standards group.

Construction Submission – The Agency or its representative shall submit six (6) sets of plans, supporting calculations, and detailed means and methods procedures for the specific proposed activity. All plans and supporting calculations shall be signed/sealed by a Professional Engineer as defined below.

Controlled Demolition – Removal of the existing structure or subcomponents in a manner that prevents any portions from falling onto CSXT employees, equipment or property. The proposed procedures shall be detailed in the means and methods submission for CSXT review and acceptance.

Contractor – The Agency's or CSXT's representative retained to perform the project work.

Engineer – CSXT Engineering Representative or a GEC authorized to act on the behalf of CSXT.

GEC – General Engineering Consultant who has been authorized to act on the behalf of CSXT.

Professional Engineer – An engineer who is licensed in state or commonwealth (if required by the Agency) in which the project is to occur. The drawings and calculations shall be prepared by the Professional Engineer and shall bear his seal and signature.

Submission Review Period - **a minimum of 30 days in advance of start of work.** Up to 30 days will be required for the initial review response. Up to an additional 30 days may be required to review any/all subsequent submissions or resubmission.

Theoretical Railroad Live Load Influence Zone – A 1½ horizontal to 1 vertical theoretical slope line starting 1'-6" below top of rail elevation and 12'-0" from the centerline of the nearest track.

II. DEMOLITION PROCEDURE

The Agency or its contractor shall submit, as defined above, a detailed procedure for demolition of the structure over railroad tracks.

A. The Agency or its Contractor shall submit the detailed procedure for demolition of existing structures over or adjacent to CSXT's tracks or right-of-way. This procedure shall include a plan showing the locations of cranes, horizontally and vertically, operating radii, with loading or disposal locations shown, with all dimensions referenced from the center line of the near track, including beam placement on ground or truck loading staging plan. The plan shall also include the location, with relevant dimensions, of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions. No crane or equipment may be set on the CSXT rails or track structure and no material may be dropped on CSXT property.

B. Also included with this submittal the following information:

1. Computations showing weight of picks must be submitted. Computations shall be made from field verified plans of the existing structure beams being removed and those plans or sections thereof shall also be included in the submittal; the weight shall include the weight of concrete or other materials including lifting rigging.

2. If the sponsor can prove to CSXT that plans do not exist and weights must be calculated from field measurements, the field measurements are to be made under the supervision of the Professional Engineer submitting the procedure and shall include sketches and estimated weight calculations with the procedure. If possible, field measurements shall be taken with a CSXT representative present.

3. Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick. A complete set of crane charts, including crane, counterweight, maximum boom angle, and boom nomenclature is to be submitted. Safety factors that may have been "built in" to the crane charts are not to be considered when determining the 150% Factor of Safety.

4. A data sheet shall be prepared listing the type, size and arrangements of slings, shackles, or other connecting equipment. Include copies of a catalog or information sheets for specialized equipment. All specific components proposed for use shall be clearly identified and highlighted in the submitted documents. The safe working load capacity of the connecting equipment shall be 150% above the calculated weight of the pick.

5. A complete written procedure is to be included that describes the sequence of events, indicating the order of lifts and any repositioning or rehitching of the crane or cranes.

6. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical subtasks (i.e., torch/saw cutting various portions of the superstructure or substructure, dismantling splices, installing temporary bracing, etc.) shall be furnished so that the potential impact(s) to CSXT operations may be assessed and eliminated or minimized.

7. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.

8. Design and supporting calculations prepared by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review. A guardrail will be required to be installed in a track where a temporary bent is located within twelve (12) feet from the centerline of that track. The guardrail will be installed by CSXT forces at the expense of the Agency or its contractor.

9. Existing, obsolete, bridge piers shall be removed to a minimum of 3'-0" below the finished grade, final ditch line invert, or as directed by the Engineer.

10. A minimum quantity of 25 tons of CSXT approved track ballast may be required to be furnished and stockpiled on site by the Contractor, or as directed by the Engineer.

11. CSXT's tracks, signals, structures, and other facilities shall be protected from damage during demolition of existing structure or replacement of deck slab.

NOTE: On-track or ground level debris shields such as crane mats are prohibited for use by CSXT.

C. Overhead Demolition Debris Shield - Shall be installed prior to the demolition of the bridge deck or other relevant portions of the superstructure.

1. The demolition debris shield shall be erected from the underside of the bridge over the track area to catch all falling debris.

2. The Contractor shall include the demolition debris shield installation/removal means and methods as part of the proposed Controlled Demolition procedure submission.

3. The demolition debris shield shall provide 23'-0" minimum vertical clearance or maintain the existing vertical clearance if the existing clearance is less than 23'-0" as approved by CSXT. Horizontal clearance to the centerline of the track should not be reduced unless approved by the Engineer.

4. The vertical clearance ATR (above top of rail) is measured from the top of rail to the lowest point on the overhead shielding system measured within a distance of 6'-0" out from each side of the track centerline.

5. The demolition debris shield design and supporting calculations, all signed/sealed by a Professional Engineer, shall be submitted for review and acceptance.

6. The demolition debris shield shall have a **minimum** design load of 50 pounds per square foot **plus** the weight of the equipment, debris, personnel, and other loads to be carried.

7. The Contractor shall include the proposed bridge deck removal procedure in its demolition means and methods and shall verify that the size and quantity of the demolition debris generated by the procedure does not exceed the shield design loads.

8. The contractor shall clean the demolition debris shield daily or more frequently as dictated either by the approved design parameters or as directed by the Engineer.

D. Vertical Demolition Debris Shield – This type of shield may be required for substructure removals in close proximity to CSXT track and other facilities, as determined by the Engineer.

1. Prior to commencing the demolition activity, the Contractor shall install a ballast protection system consisting of geotextile to keep the railroad ballast from becoming fouled with construction or demolition debris and fines. The geotextile ballast protection system shall be installed and maintained by the Contractor for the project duration in accordance with the attached plan, or with additional measures as directed by the Engineer.

2. The Agency, or its Contractor, shall submit detailed plans, with detailed calculations, prepared and submitted by a Professional Engineer of the protection shield and ballast protection systems for approval prior to the start of demolition.

3. Blasting will not be permitted to demolish a structure over or within CSXT's right-of-way.

E. The Controlled Demolition procedure must be approved by the Engineer prior to undertaking work on the project.

F. The Contractor shall provide timely communication to the Engineer when scheduling the demolition-related work so that the Engineer may be present during the entire demolition procedure.

G. At any time during demolition activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSXT facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSXT and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

III. ERECTION PROCEDURE

The Agency or its Contractor shall submit a detailed procedure for performing erection on/about CSXT property, as defined above.

A. The Agency or its Contractor shall submit six (6) copies of the detailed procedure for erection of the proposed structures over or adjacent to CSXT's tracks or right-of-way. This procedure shall include a plan showing the locations of cranes, horizontally and vertically, operating radii, with staging locations shown, including beam placement on ground or truck unloading staging plan. Plan should also include the location of all tracks, other railroad facilities; wires, poles, adjacent structures, or buried utilities that could be affected, showing that the proposed lifts are clear of these obstructions. No crane or equipment may be set on the CSXT rails or track structure.

B. Also included with this submittal the following information:

1. As-built Bridge Seat Elevations - All as-built bridge seats and top of rail elevations shall be furnished to the Engineer for review and verification at least 30 days in advance of construction or erection, to ensure that minimum vertical clearances as approved in the plans will be achieved.

2. Computations showing weight of picks must be submitted. Computations shall be made from plans of the structure beams being erected, and those plans or sections thereof shall also be included in the submittal; the weight shall include the weight of concrete or other materials including lifting rigging.

3. Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick. A complete set of crane charts, including crane, counterweight, maximum boom angle, and boom nomenclature is to be submitted. Safety factors that may have been "built in" to the crane charts are not to be considered when determining the 150% Factor of Safety.

4. A data sheet shall be prepared listing the type, size and arrangements of slings, shackles, or other connecting equipment. Include copies of a catalog or information sheets for specialized equipment. All specific components proposed for use shall be clearly identified and highlighted in the submitted documents. The safe working load capacity of the connecting equipment shall be 150% above the calculated weight of the pick.

5. A complete written procedure is to be included that describes the sequence of events, indicating the order of lifts and any repositioning or rehitching of the crane or cranes.

6. A time schedule for each of the various stages must be shown as well as a schedule for the entire lifting procedure. The proposed time frames for all critical sub tasks (i.e., performing aerial splices, installing temporary bracing, etc.) shall be furnished so that the potential impact(s) to CSXT operations may be assessed and eliminated or minimized.

7. The names and experience of the key Contractor personnel involved in the operation shall be included in the Contractor's means and methods submission.

8. Design and supporting calculations prepared by the Professional Engineer for items including the temporary support of components or intermediate stages shall be submitted for review. A guardrail will be required to be installed in a track where a temporary bent is located within twelve (12) feet from the centerline of that track.

C. The proposed Erection procedure must be approved by the Engineer prior to undertaking work on the project.

D. The Contractor shall provide timely communication to the Engineer when scheduling the erection-related work so that the Engineer may be present during the entire erection procedure.

E. At any time during construction activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSXT facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSXT and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

IV. EXCAVATION AND SHORING

The Agency or its contractor shall submit, as defined above, a detailed procedure for the installing sheeting/shoring adjacent to Railroad Tracks.

A. Shoring protection shall be provided when excavating adjacent to an active track or railroad facility or as determined by CSXT. Shoring will be provided in accordance with AREMA *Manual for Railway Engineering,* Chapter 8, Part 28, except as noted below.

B. Shoring may not be required if all of the following conditions are satisfied:

1. Excavation does not encroach upon a 1½ horizontal: 1 vertical theoretical slope line starting 1'-6" below top of rail and at 12'-0" minimum from centerline of the track (live load influence zone).

2. Track is on level ground or in a cut section and on stable soil.

3. Excavation does not adversely impact the stability of a CSXT facility (i.e., signal bungalow, drainage facility, undergrade bridge, building, etc.).

4. Shoring is not required by any governing construction code.

C. When the track is on an embankment, excavating the toe of the embankment without shoring may affect the stability of the embankment. Therefore, excavation of the embankment toe without shoring will not be permitted.

D. Trench boxes are prohibited for use on CSXT within the theoretical railroad live load influence zone.

E. The required protection is the cofferdam type that completely encloses the excavation. Where dictated by conditions, partial cofferdams with open sides away from the track may be used. Cofferdams shall be constructed using steel sheet piling, or when approved by the Engineer, steel soldier piles with timber lagging. Wales and struts shall be provided and designed as needed. The following shall be considered when designing cofferdams:

1. Shoring shall be designed to resist a vertical live load surcharge of 1,880 lbs. per square foot, in addition to active earth pressure. The surcharge shall be assumed to act on a continuous strip, 8'-6" wide. Lateral pressures due to surcharge shall be computed using the strip load formula shown in AREMA *Manual for Railway Engineering,* Chapter 8, Part 20.

2. Allowable stresses in materials shall be in accordance with AREMA *Manual for Railway Engineering,* Chapter 7, 8, and 15.

3. A construction procedure for temporary shoring shall be shown on the drawing.

4. All shoring systems on or adjacent to CSXT right-of-way shall be equipped with railings or other approved fall protection.

5. A minimum horizontal clearance of 10'-0" from centerline of the track to face of nearest point of shoring shall be maintained, provided a 12'-0" roadbed is maintained with a temporary walkway and handrail system.

F. The contractor shall submit the following drawings and calculations (all shall be signed/sealed by a Professional Engineer) for CSXT's review and approval.

1. Six (6) sets of detailed drawings of the shoring systems showing sizes of all structural members, details of connections, and distances from centerline of track to face of shoring. Drawing shall show a section showing height of shoring and track elevation in relation to bottom of excavation.

2. Six (6) sets of calculations of the shoring design.

   The drawings and calculations shall be prepared by a Licensed Professional Engineer in the state (if required by the Agency) where the shoring is to be constructed and shall bear his seal and signature. Shoring plans shall be approved by CSXT's construction engineering and inspection representative.

3. For sheeting and shoring within 18'-0" of the centerline of the track, the live load influence zone, and in slopes, the contractor shall use interlocked steel sheeting (sheet pile).

4. Sheet pile installed in slopes or within 18'-0" of the centerline of track shall not be removed.

5. Sheet piles shall be cut off a minimum of 3'-0" below the finished grade, ditch line invert, or as directed by the Engineer. The ground shall be backfilled and compacted immediately after sheet pile is cut off.

6. A procedure for cutting off the sheet pile and restoring the embankment shall be submitted to the Engineer for review and acceptance.

G. Blasting is not permitted on or adjacent to CSXT right-of-way without prior written approval from the Engineer. Mechanical and chemical means of rock removal must be explored before blasting is considered. If written permission for the use of explosives is granted, the Agency or Contractor must comply with all of the following:

1. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the Agency or Contractor.

2. Electronic detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.

3. No blasting shall be done without the presence of an authorized representative of CSXT. Advance notice to the Engineer as required by the CSXT Special Provisions is required to arrange for the presence of an authorized CSXT representative and any flagging that CSXT may require.

4. Agency or Contractor must have at the project site adequate equipment, labor and materials, and allow sufficient time, to clean up debris resulting from the blasting and correct any misalignment of tracks or other damage to CSXT property resulting from the blasting. Any corrective measures required must be performed as directed by the Engineer at the Agency's or Contractor's expense without any delay to trains. If Agency's or Contractor's actions result in the delay of any trains including passenger trains, the Agency or Contractor shall bear the entire cost thereof.

5. The Agency or Contractor may not store explosives on CSXT property.

6. At any time during blasting activities, the Engineer may require revisions to the previously approved procedures to address weather, site conditions or other circumstances that may create a potential hazard to rail operations or CSXT facilities. Such revisions may require immediate interruption or termination of ongoing activities until such time the issue is resolved to the Engineer's satisfaction. CSXT and its GEC shall not be responsible for any additional costs or time claims associated with such revisions.

V. TRACK MONITORING

The Agency or its Contractor shall submit, for CSXT review and approval, a detailed track monitoring program to detect both horizontal and vertical movement of the CSXT track and roadbed, a minimum of 30 days in advance of start of work.

A. For the installation of temporary or permanent shoring systems, including but not limited to soldier piles and lagging, and interlocked steel sheeting on or adjacent to CSXT's right-of-way, the contractor may be required to submit a detailed track monitoring program for CSXT's approval prior to performing any work near CSXT's right-of-way.

B. The program shall specify the survey locations, the distance between the location points, and frequency of monitoring before, during, and after construction. CSXT reserves to the right to modify the survey locations and monitoring frequency as necessary during the project.

C. The survey data shall be collected in accordance with the approved frequency and immediately furnished to the Engineer for analysis.

D. If any movement has occurred as determined by the Engineer, CSXT will be immediately notified. CSXT, at its sole discretion, shall have the right to immediately require all contractor operations to be ceased, have the excavated area immediately backfilled and/or determine what corrective action is required. Any corrective action required by CSXT or performed by CSXT including the monitoring of corrective action of the contractor will be at project expense.