RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR – 2017

MISCELLANEOUS REPAIRS

****

ADDENDUM NO. 1
April 11, 2017

DESCRIPTION

The attached pages are issued to amend, and become part of, the Contract Documents.

Contractor shall acknowledge receipt of this Addendum on the Receipt of Addenda form (Contract Page RA-1). Failure to complete and include the RA-1 form in the bid package may cause bid to be found irregular.

Date of receipt of bids is unchanged.

Date of contract completion is unchanged.

INSTRUCTIONS TO BIDDERS

1. All Bidders are directed to replace the INSTRUCTIONS TO BIDDERS (an unnumbered page) with Addendum No. 1 INSTRUCTIONS TO BIDDERS.

2. This addendum has been issued to remove Required Form ix. Railroad Agreement (Schedule I) from the list of mandatory forms the contractor must include with their bid.

MR-2017 BID TAB

1. All Bidders are directed to replace Pages: P-3 and P-4 from the Bid Documents with Addendum No. 1 Pages: P-3 and P-4.

2. This addendum has been issued to delete ITEM NO. 29 and add ITEM NO. 45 to the MR-2017 Bid Tab for the UT Testing of Pins on RMTA Bridge No.'s 9N, 9S, 10N and 10S. The UNIT for ITEM NO. 45 is Lump Sum.

SPECIAL PROVISION BRIDGE REPAIRS SP-I

1. All Bidders are directed to replace Pages: SP-I-1, SP-I-2, SP-I-3, SP-I-4, SP-I-5 from the Bid Documents with Addendum No. 1 Pages SP-I-1, SP-I-2, SP-I-3, SP-I-4, SP-I-5.

2. This addendum has been issued to revise location descriptions, bridge descriptions, and the requirements for UT Testing of Pins on RMTA Bridge No.'s 9N, 9S, 10N and 10S.

SPECIAL PROVISION BRIDGE REPAIRS PLAN SHEETS SP-I

1. All Bidders are directed to replace the Bridge Repair Plan Sheets: SP-I-4, SP-I-5, SP-I-6 from the Bid Documents with Addendum No. 1 Bridge Repair Plan Sheets: SP-I-4, SP-I-5, SP-I-6.

2. This addendum has been issued to revise various details, sections, quantities, notes and suggested sequence of construction on each Plan Sheet.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2017

MISCELLANEOUS REPAIRS

****

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

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 – 2017 Contract Bid Opening" on outside of envelope or on mailing label.

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
21	SHOTCRETE, TYPE A (OVER WATER)	SF	767			ATTD/412
22	JOINT SEALANT REPAIR	IN*LF	30			427
22	BOULEVARD BRIDGE FABRICATE LACING BARS AND BOLTS	LS	1			PLAN SP-I-1/ATTD
23	BOULEVARD BRIDGE LACING BAR AND BOLT REPLACEMENT (MULTIPLE UNDEFINED LOCATIONS)	EA	45			PLAN SP-I-1/ATTD
24	BOULEVARD BRIDGE RIVET REPLACEMENT (MULTIPLE UNDEFINED LOCATIONS)	EA	50			PLAN SP-I-1/ATTD
25	BRIDGE 10S SOUTH GIRDER HIGH LOAD IMPACT REPAIR	LS	1			PLAN SP-I-1/ATTD
26	BRDIGE 67 PIER 12W FLOORBEAM 16	LS	1			PLAN SP-I-1/ATTD
27	BRIDGE 67 LOWER LATERAL GUSSET PLATES (TOP & BOTTOM) NEAR PIER 10W	LS	1			PLAN SP-I-1/ATTD
28	BRIDGE 67 LOWER LATERAL GUSSET PLATE (TOP ONLY) OPPOSITE END OF LATERAL BRACE THAT CONNECTS TO	LS	1			PLAN SP-I-1/ATTD
29	DELETED - Not In Contract (NIC)	NIC	NIC			NIC
30	CONCRETE BRIDGE DECK SEALANT	SY	24,060			PLAN SP-O-1/ATTD
31	MISCELLANEOUS COATINGS	SF	100			ATTD/411
32	PAVEMENT MESSAGE MARK. "E-ZPass"	EA	6			ATTD/704
33	CRUSHER RUN AGGREGATE NO. 25 OR 26	TON	10			ATTD/205
34	COARSE AGGREGATE NO.57	TON	10			ATTD/203
35	AGGREGATE MATERIAL NO.1	TON	10			ATTD/203
36	CLEAN MANHOLE	EA	1			ATTD
37	REPAIR EXISTING DROP INLET OR MANHOLE TOP	EA	2			302/510/ATTD
38	PARAPET WALL COATING	SY	6,513			ATTD/SP-S
39	CONCRETE BARRIER DELINEATORS	EA	232			ATTD/702
40	ACQUISITION AND DELIVERY OF TRACTOR CAB	LS	1			ATTD/SP-V

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
41	ACQUISITION AND DELIVERY OF LAWN MOWER	LS	1			ATTD/SP-V
42	DEBRIS REMOVAL - POWHITE BRIDGE B8	LS	1			ATTD/SP-U
43	DEBRIS REMOVAL - BOULEVARD BRIDGE	LS	1			ATTD/SP-U
44	FINE AGGREGATE A - SAND	TON	10			202
45	B9N, 9S, 10N & 10S UT TESTING OF 24# PINS	LS	1			PLAN SP-I-1/ATTD
				Total		

(SIGN HERE) (INSERT HERE)

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

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 10S and 67 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 Carboline Carbomastic 15 Surface Tolerant Aluminum Mastic Epoxy and a finish Coat of Carboline Carbothane 133 LH as per the recommendation of the manufacturer. Specifications for SSPC-1, SSPC-2, Carbomastic 15, and Carbothane 133 LH are attached to this Special Provision.

The Contractor shall perform 100% ultrasonic testing (UT) for the entire length of the full penetration welds used for repairs at the locations noted on the plans. <u>All UT testing costs for welds</u> 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 67 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. Three separate repairs are required.

The first repair shall include the fabrication of three different types of lacing bars (15 each of Type A, Type B and Type C) and procuring a total of 140 bolts/nuts/washers.

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

The third repair is the removal of damaged or missing rivets and replacement with new 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.

Bridges 9N, 9S, 10N & 10S

Each bridge contains six (6) pins that will require UT Testing to ensure there are no internal flaws not visible by a hands-on inspection. There are three (3) pins at each abutment located at the bearings and hinge location that range in size from 3" to 5" in diameter. There is a total of twenty-four (24) pins that will need to be tested for the four (4) bridges.

The Contractor shall submit a proposal from a qualified testing company outlining the Scope of Services for the UT Testing of pins, to be approved by the Engineer prior to performing the work.

The Contractor shall provide a draft copy of the UT inspection report for review and comment within one week of completing the pin testing.

The letter type inspection report shall include

- Scope of services and project information.
- Method of access and testing/examination.
- Description of testing equipment.
- Inspector qualifications, experience and certifications.
- Results of Testing/Examination with recommendations.
- Inspection specific photographs (as necessary).
- Test forms for each bridge pin.

Following completion of the inspection, the Contractor shall furnish three copies of the letter report which will be sealed and signed by a Virginia-registered professional Engineer.

Bridge 10S

This bridge carries a single CSX Railroad track over the southbound lanes of the Downtown Expressway Connector. There is one span consisting of a through steel girder and floorbeam system. This bridge has an adjacent parallel structure to the north (Parallel bridge is VDOT 1863). The parallel structures share both abutments. Due to the skew of the abutments, there are three bearings at each abutment; two abutment bearings and one end bearing. There are two pin connections; at the south through girder bearing at the west abutment and at the north through girder bearing at the east abutment. The repair is to grind flush the high load impact damage that occurred to the bottom flange on the south girder.

Bridge 67

Bridge 67 is a single lane bridge ramp carrying traffic from EB State Route 195 (Downtown Expressway) to NB I-95 that crosses Dock Street, E Cary Street, E Main Street, and CSX Railroad. The superstructure comprises 12 simple spans and three continuous spans of multiple steel girders. Two repairs are located near Pier 10W. One to the lower lateral gusset plates (top and bottom) and the other to the lower lateral gusset plate (top only) along the same lateral brace that connects to the existing VDOT truss. The third repair located at Pier 12W Floorbeam 16 web and stiffeners and bottom flange. This repair involves adding an angle and strengthening plate to the web/bottom flange location, removing and replacing a portion of two corroded stiffeners at their connection to the bottom flange.

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 but not limited to, 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, UT testing of welds (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.

The price for UT testing of pins shall include costs for providing a Scope of Services to be approved by the Engineer and inspection test reports as defined under the Bridge Description for Bridges 9N, 9S 10N & 10S above.

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	Lacing Bar Fabrication and Bolts (Plan Sheet SP-I-6)	Lump Sum
Boulevard Bridge	Lacing Bar and Bolt Replacement, Multiple Undefined Locations (Plan Sheet SP-I-6)	Each
Boulevard Bridge	Rivet Replacement Multiple Undefined Locations (Plan Sheet SP-I-6)	Each
Bridges 9N, 9S, 10N & 10S	B9N, 9S, 10N & 10S UT Testing of 24# Pins	Lump Sum
Bridge 10S	South Girder, High Load Impact Damage, Grind Out Damage (Plan Sheet SP-I-3)	Lump Sum
Bridge 67	Pier 12W, Floorbeam 16 (Plan Sheets SP-I-4 & SP-I-5)	Lump Sum
Bridge 67	Lower Lateral Gusset Plates (Top & Bottom) Near Pier 10W (Plan Sheets SP-I-1 & SP-I-2)	Lump Sum
Bridge 67	Lower Lateral Gusset Plate (Top Only) Opposite End of Lateral Brace That Connects to Existing VDOT Truss Near Pier 93-94 (Plan Sheets SP-I-1 & SP-I-2)	Lump Sum

BRIDGE 67, PIER 12W
FLOORBEAM 16
LOOKING EAST

BRIDGE 67, PIER 12W
FLOORBEAM 16
LOOKING NORTH

BRIDGE 67, PIER 12W
FLOORBEAM 16
LOOKING NORTH

BRIDGE 67, PIER 12W
FLOORBEAM 16
LOOKING NORTHWEST

Notes:

Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, issued 2007, current supplemental specifications, contract special provisions.

Contractor shall verify all dimensions, existing and new plates prior to beginning repair work.

All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.

7/8" diameter A325 high strength bolts shall be used. Threads are to be excluded from plates. All holes are 15/16 " diameter.

Paint primer shall be applied to all areas to be covered by retrofit plates and angles. Paint primer shall be applied to all areas to be covered by retrofit plates and angles. Splice to be painted after bolt replacement.

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 preparations shall meet SSPC-SP1, SP2 and SP3. Type and color of coating shall be approved by the Engineer.

Bolts at splice location shall be removed and replaced with new A325 bolts.

Bolts may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30mph.

Caulk shall be added around the perimeter of all repairs to ensure no water will infiltrate the area.

Reference: Bridge 67, Contract C-10, original design plans.

Legend:

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

- Section loss

Suggested Sequence of Construction:

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

See sheet 5 of 5 (SP-1-5) for repair details.

Bottom Flange Repair:

1. Remove traffic from bridge.
2. Trim web splice plate to accommodate proposed angles.
3. Remove deteriorated section of stiffeners or at a minimum enough section to accommodate the proposed angles, whichever controls. Removal shall consist of air carbon arc gouging and then grinding smooth. Engineer shall perform visual inspection of areas and dye pen test for cracks of any suspected areas.
4. Remove bottom flange splice plates.
5. Clean and paint all rusted areas in repair limits.
6. Field drill holes through strengthening angle, plate and fill plates as identified for field drilling on sheet SP-1-5. Place 16"x1/2" strengthening plate. Install connecting bolts on east side of web. Locate angle and fill plates (if required) and complete connection.
7. Insert web bolts after all angles connected to flanges.
8. Weld proposed section of stiffener to existing web and stiffener.
9. Paint all new repair areas.

ADDENDEUM NO. 1
4/11/17

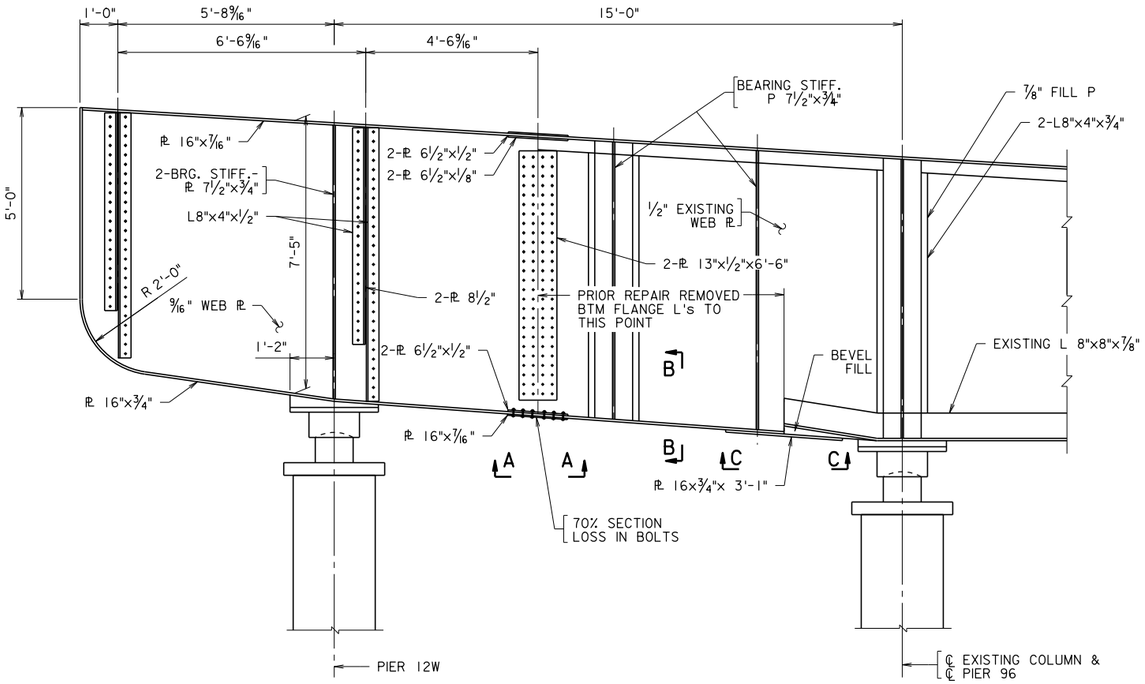
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 67
PIER 12W
FLOORBEAM 16

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

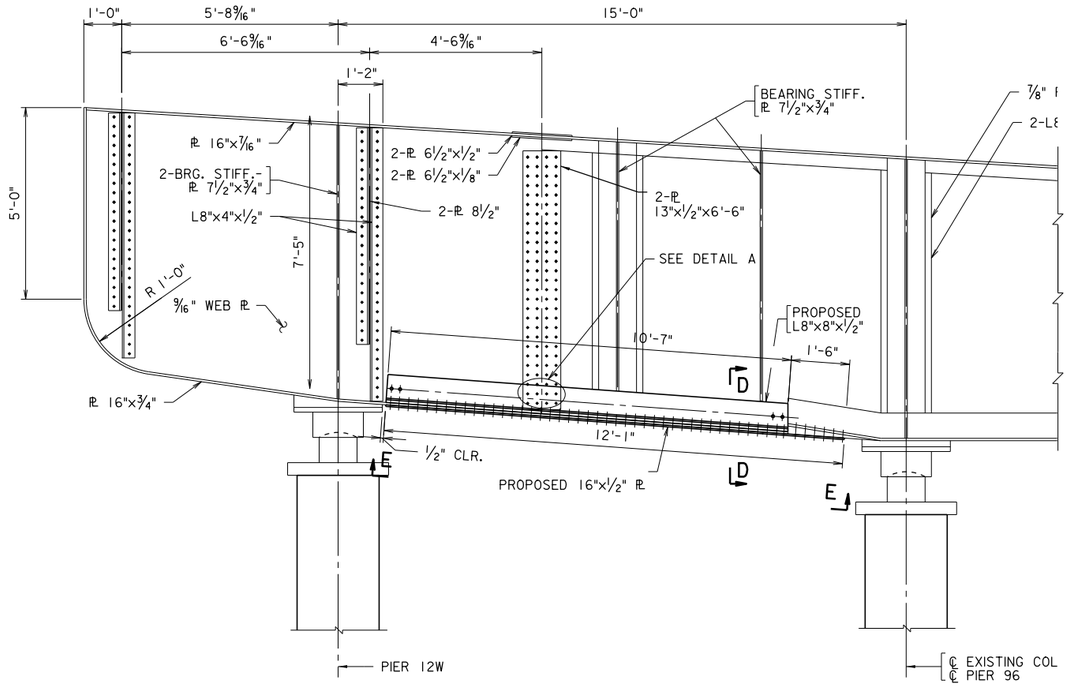
SCALE	DATE	SHEET	OF
AS NOTED	FEBRUARY 2017	4	5

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2017		SP-1-4



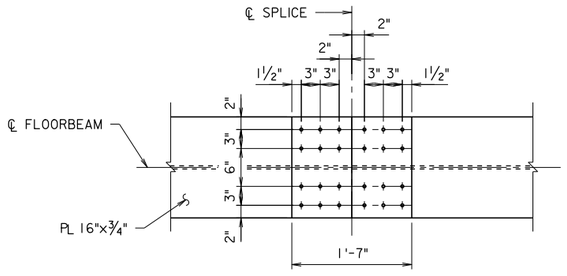
EXISTING ELEVATION - FLOORBEAM 16

Scale: 1/2" = 1'-0"



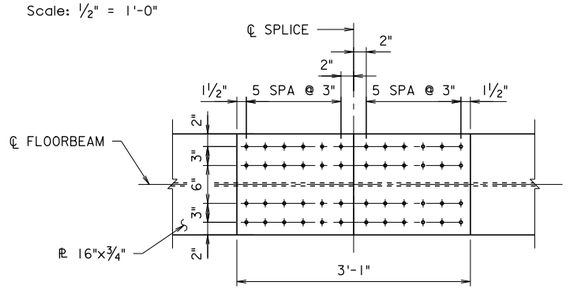
PROPOSED ELEVATION - FLOORBEAM 16

Scale: 1/2" = 1'-0"



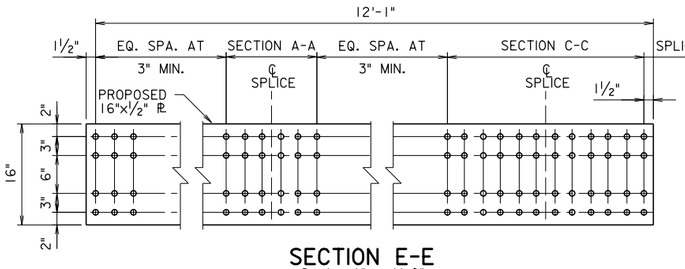
EXISTING SECTION A-A

Scale: 1" = 1'-0"



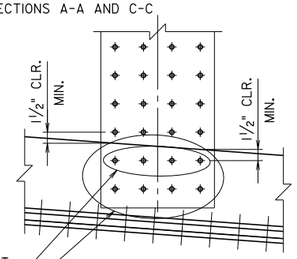
EXISTING SECTION C-C

Scale: 1" = 1'-0"



SECTION E-E

Scale: 1" = 1'-0"



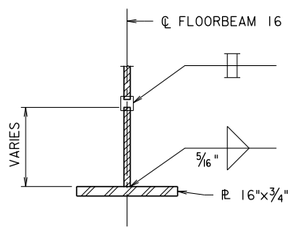
DETAIL A

Scale: 1 1/2" = 1'-0"

BOLTS THAT DO NOT MEET 1 1/2" CLEARANCE SHALL NOT BE REINSTALLED

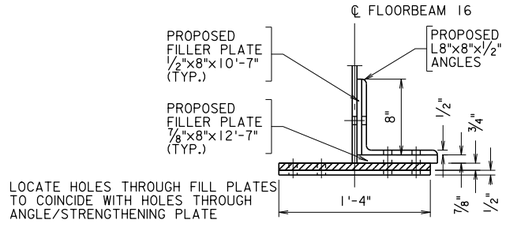
FIELD DRILL HOLES THROUGH ANGLE/FILL PLATES AT SPLICE LOCATION

IF MINIMUM CLEARANCE CANNOT BE OBTAINED, NEW ANGLE WILL HAVE TO BE TRIMMED HORIZONTALLY AT SPLICE PLATE.



EXISTING SECTION B-B

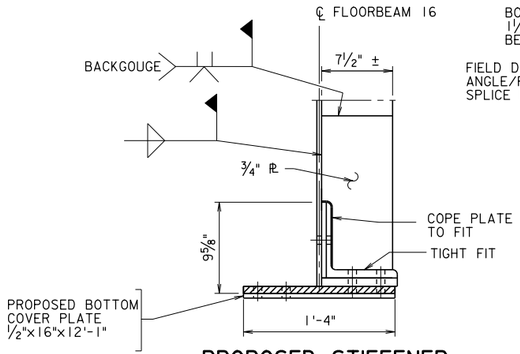
Scale: 1" = 1'-0"



SECTION D-D

Scale: 1 1/2" = 1'-0"

FILL PLATES TO BE DETERMINED BY CONTRACTOR TO ENSURE ANGLES WILL SEAT PROPERLY AGAINST THE WEB AND BOTTOM FLANGE



PROPOSED STIFFENER WEB PATCH PLATE

Scale: 1 1/2" = 1'-0"

Section loss

Approximate Steel Weight = 1,100lbs

ADDENDEUM NO. 1
4/11/17

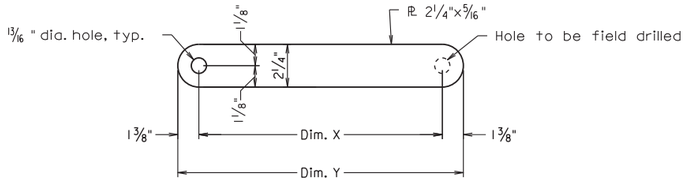
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 67
PIER 12W
FLOORBEAM 16

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	FEBRUARY 2017	5	5

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2017		SP-1-5



PROPOSED LACING BAR REPLACEMENT

Scale: 3" = 1'-0"

LACING BAR	Dim. X*	Dim. Y*	Fabrication Qty.	Installation Qty.	Bolts Qty. **
Type "A"	10 3/8"	1'-1 1/8"	15	15	30
Type "B"	1'-1 13/16"	1'-3 15/16"	15	15	30
Type "C"	1'-1"	1'-3 3/4"	15	15	30

* Dimension may vary, field verification required.

** In addition to lacing bar replacement the Contractor shall supply and install 50 additional bolts, nuts and washers to replace missing rivets.

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 2007, 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. 3/4" 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. Contractor shall provide number of bolts shown + 20% spare. (204 bolts)
8. Following completion of installation, all unused lacing bars and bolts shall be transferred to RMTA possession at no additional cost.
9. 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.

ADDENDEUM NO. 1
4/11/17

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
LACING BAR AND BOLT
REPLACEMENT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	FEBRUARY 2017	6	5

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2017		SP-1-6