Attachment 2: Preliminary Plans

Project Details for E. Broad St. Bridge Replacement over Abandoned RR Spur

The major items for **the conceptual design** are

(1) Dimensions of the tunnel (bridge)
   a. Length is matched with the current one.
   b. Height remains the same.
   c. Width remains the same.

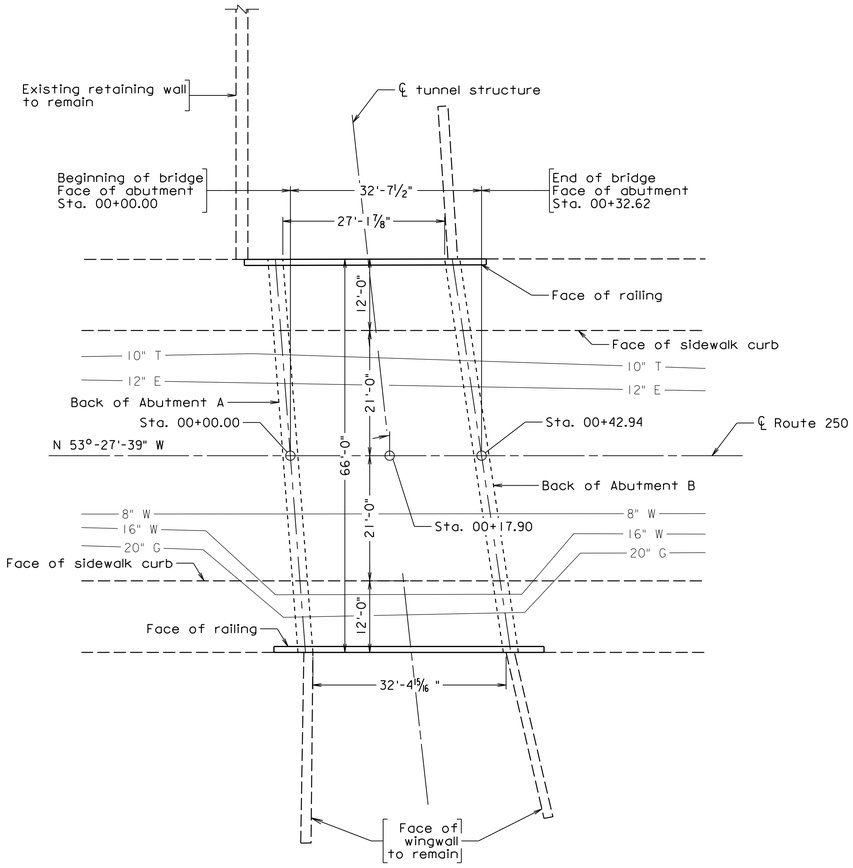
(2) Shape of the tunnel
   a. Remains the same as the superstructure is replaced.

(3) Lighting
   a. Details including location, types and number of lights will be finalized at later design stage.

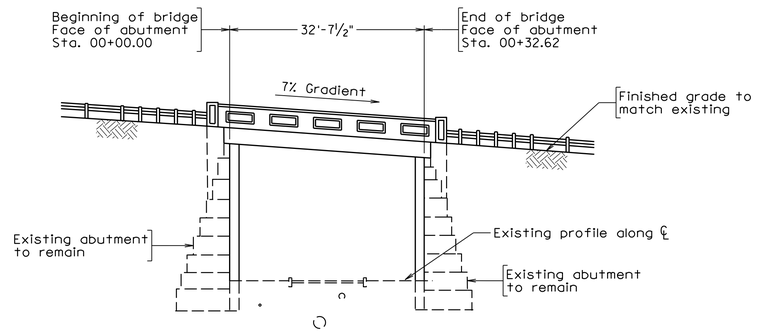
(4) Parapets
   a. Concrete parapets are proposed to emulate the existing ones while meeting Federal guidelines.

(5) Superstructure Type
   a. Precast concrete beams will be utilized to replace the existing superstructure.

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		1
NBIS Number:			UPC No.		
Federal Oversight Code: N/A			FHWA Construction and Scour Code:		N/A



PLAN



ABUTMENT A ABUTMENT B

DEVELOPED SECTION ALONG ℄

DESIGN EXCEPTIONS

None.

GENERAL NOTES:

Width: 12'-0" sidewalk, 42'-0" roadway, 12'-0" sidewalk; 66'-0" overall.

Span layout: 42'-11¼" prestressed concrete adjacent box beams.

Capacity: HL-93 Loading

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2020.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, June 2011 and latest revisions.

Virginia Structure No. of existing bridge is 21575.

The existing structure is designated as a Type B structure in accordance with Section 411.

B33962.121.001.GPE.dgn

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER
TIMMONS GROUP RICHMOND, VA STRUCTURAL ENGINEER

PLANS BY:	Timmons Group
COORDINATED:	
SUPERVISED:	Gary S. Johnson
DESIGNED:	Gregory Kozina
DRAWN:	Gregory Kozina
CHECKED:	Jennifer A. Johnson

Scale: Not to scale

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

For Table of Revisions, see Sheet 2.

CITY OF RICHMOND, VIRGINIA

VEHICULAR BRIDGE
RTE. 250 OVER CSX R.O.W.
CITY OF RICHMOND

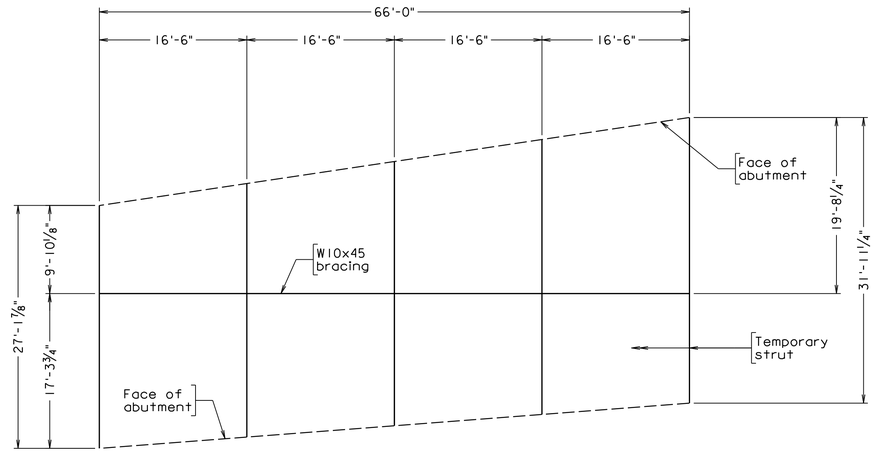
Recommended for Approval: _____ City Engineer Date

Approved: _____ Chief Engineer Date

XXX-XXX

Date: Oct. 19, 2022

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		2



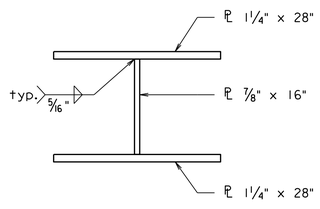
TEMPORARY BRACING PLAN

Scale: 1/8" = 1'-0"

Notes:

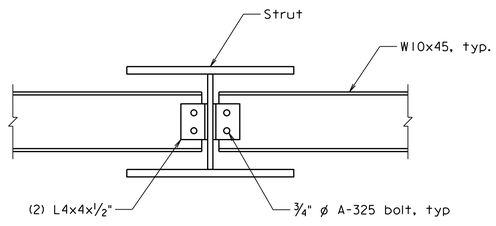
Temporary strut system to be installed prior to demolition of existing structure.

Each primary temporary bracing member is design for a factored compression load of ___ kips and a service load of ___ kips.



STRUT SECTION

Scale: 1" = 1'-0"



SECTION B-B

Scale: 1" = 1'-0"

B39962.121.003_Sequence Of Construction.dgn

TIMMONS GROUP
RICHMOND, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

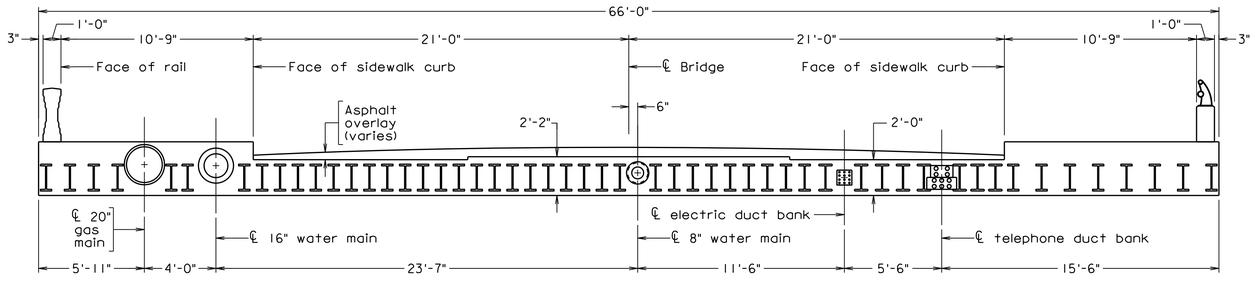
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

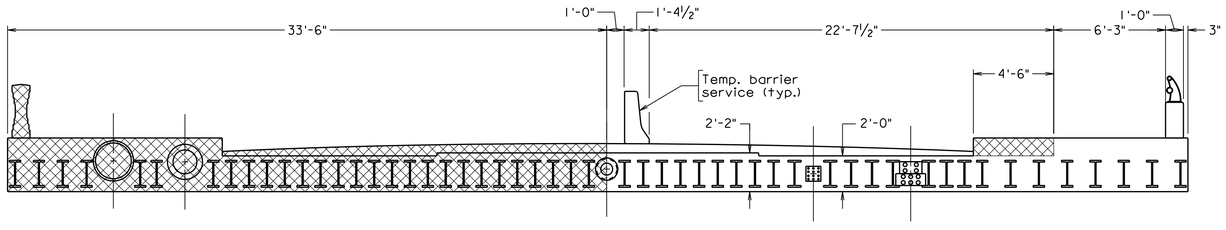
SEQUENCE OF CONSTRUCTION

Designed: GJK	Date	Plan No.	Sheet No.
Drawn: GJK	Oct. 2022	XXX-XXX	2 of 5
Checked: GJS			

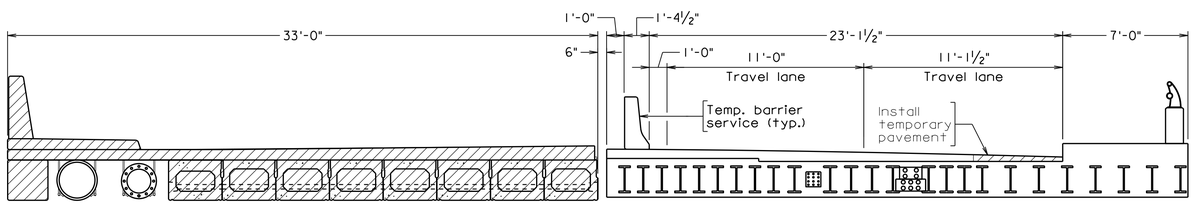
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		3



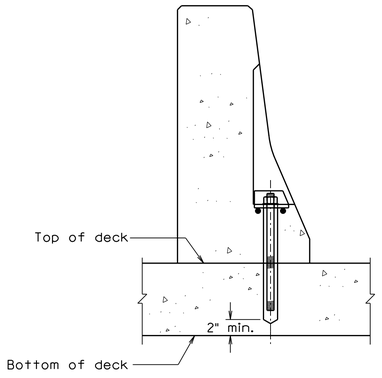
EXISTING TRANSVERSE SECTION



PHASE I - DEMOLITION



PHASE I - CONSTRUCTION



TRAFFIC BARRIER SERVICE
CONRETE PARAPET (SINGLE FACE)
Not to scale

NOTES:

1. Bolt down side adjacent to traffic.
2. For details not shown, see VDOT Road and Bridge Standards MB-10A.
3. After removing Temporary barrier, cut ⅞" ø bolt or threaded rod as low as practical below roadway surface and fill recess with epoxy bonding compound EP-4.
4. Anchor system shall be tested to provide a minimum pullout of 32,000 lbs. and installed according to manufacturer's recommendations.

LEGEND:

- Demolition
- Construction
- Completed

TIMMONS GROUP
RICHMOND, VA
STRUCTURAL ENGINEER

Scale: ¼" = 1'-0" unless noted otherwise

No.	Description	Date
Revisions		

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

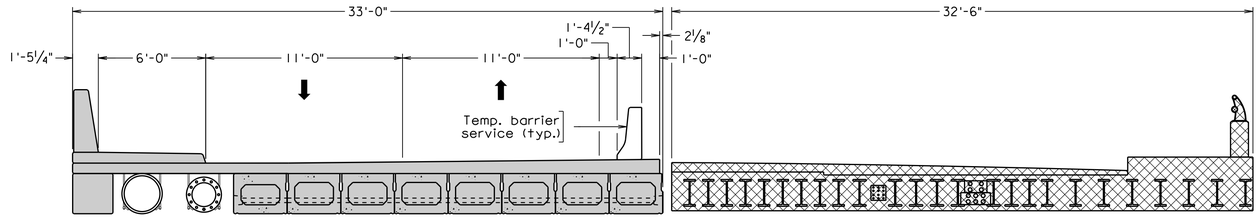
STRUCTURE AND BRIDGE DIVISION

SEQUENCE OF CONSTRUCTION

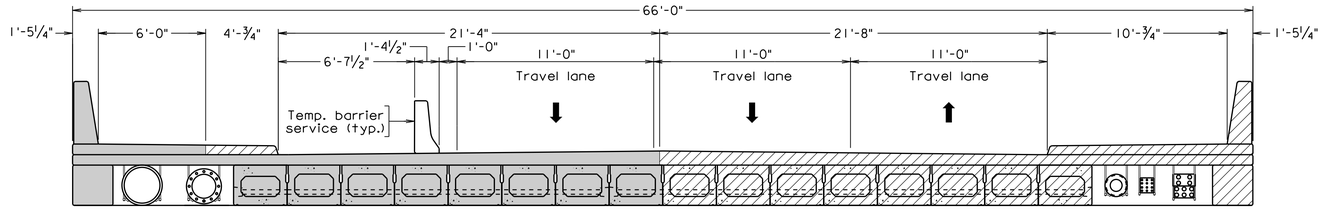
Designed: GJK	Date	Plan No.	Sheet No.
Drawn: GJK	Jan. 2023	XXX-XXX	3 of 5
Checked: GJS			

B39962.121.004_Sequence Of Construction.dgn

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		4



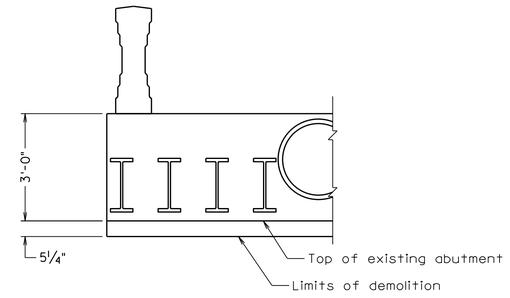
PHASE II - DEMOLITION



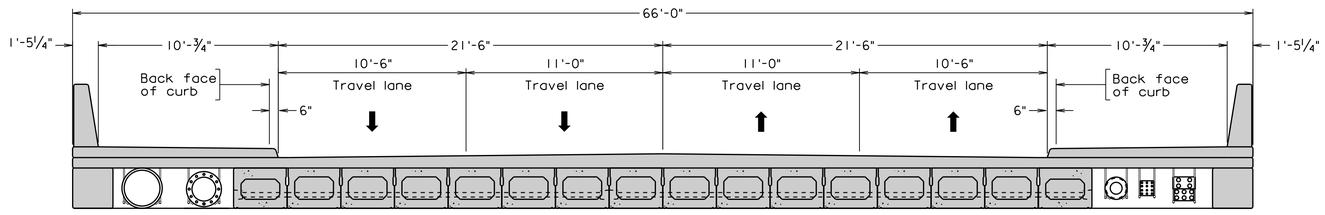
PHASE II - CONSTRUCTION

Notes:

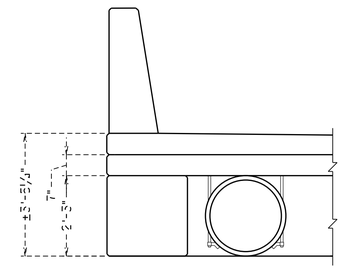
Contractor shall install Phase II sidewalk after superstructure is completed and travel lanes have been shifted.



PART SECTION - EXISTING



TYPICAL SECTION - COMPLETED



PART SECTION - PROPOSED

LEGEND:

- Demolition
- Construction
- Completed

TIMMONS GROUP
RICHMOND, VA
STRUCTURAL ENGINEER

Scale: ¼" = 1'-0" unless noted otherwise

No.	Description	Date
Revisions		

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SEQUENCE OF CONSTRUCTION

Designed: GJK	Date	Plan No.	Sheet No.
Drawn: GJK	Jan. 2023	XXX-XXX	4 of 5
Checked: GJS			

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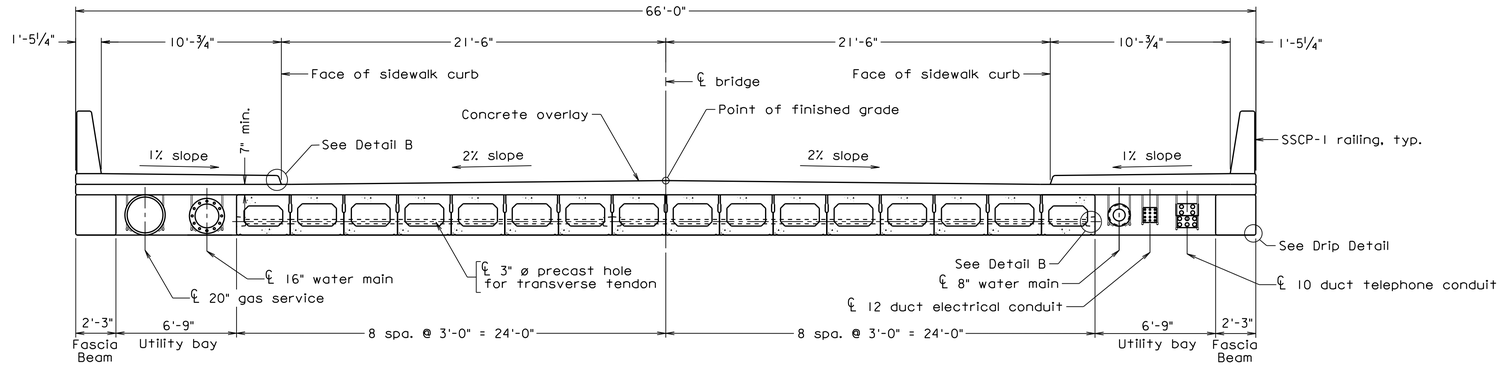
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		250		5



TRANSVERSE SECTION

Scale: ¾" = 1'-0"

Notes:

The bridge and roadway widths shown are nominal. Actual widths may vary due to fabrication and construction (gaps between slabs) tolerances.

Concrete for the overlay shall be Low Shrinkage Class A4 Modified having a minimum 28 day compressive strength of 4000 psi. Payment for the concrete overlay shall be made at the unit price for Concrete Class A4.

All reinforcing bars in concrete overlay shall be Corrosion Resistant Reinforcing steel, Class I.

Top surfaces of all slabs shall be a clean concrete surface, free of laitance, with surface intentionally roughened to an amplitude of ¼".

Transverse tendons shall be 1¼" diameter smooth rods conforming to ASTM A449 with 8" long threaded ends tensioned to 30,000 lbs. The rod shall have a washer and nut at each end. Rods, nuts, washers and 1" x 5" x 5" steel plates shall be galvanized. Where the length of transverse tendon required is greater than or equal to 20 feet, ½" diameter, coated, seven-wire low-relaxation Grade 270 strand tensioned to 31,600 lbs. may be used in lieu of rods.

Engineered Cementitious Composite concrete shall be furnished, placed and paid for in accordance with the current VDOT Special Provision for Shear Keys and Blockouts Between Adjacent Members.

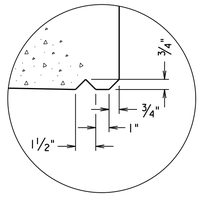
Post-tensioning of transverse tendons and the casting of parapets shall not be done until all grouting of keys are completed and the ECC has reached a minimum strength of 4000 psi.

Location of utilities to be determined and verified in the field.

For waterproofing details, see sheet XX.

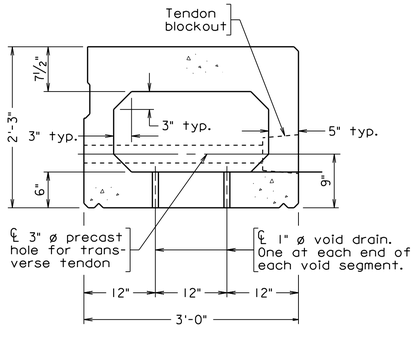
For deck slab and sidewalk reinforcement details, see sheet XX.

For rail details, see sheets XX-XX.



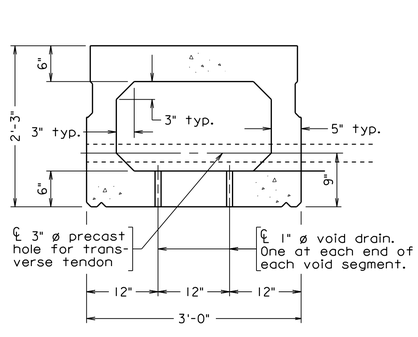
DRIP DETAIL

Not to scale



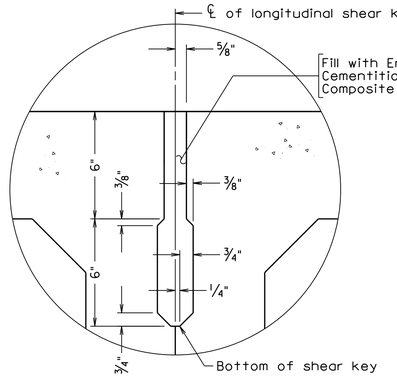
TYPICAL EXTERIOR SECTION TYPE A

Scale: 1" = 1'-0"



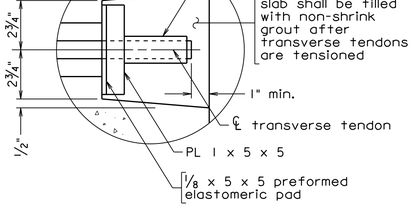
TYPICAL INTERIOR SECTION TYPE B

Scale: 1" = 1'-0"



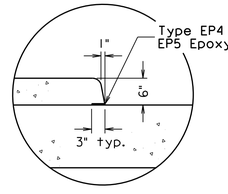
DETAIL A

Overlay and joint fabric not shown
All shear key dimensions typ. each side
Scale: 3" = 1'-0"



DETAIL B

Not to scale



DETAIL C

Not to scale

TIMMONS GROUP
RICHMOND, VA
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
STRUCTURE AND BRIDGE DIVISION

TRANSVERSE SECTION

Designed: GJK	Date	Plan No.	Sheet No.
Drawn: GJK	Jan. 2023	XXX-XXX	5 of 5
Checked: RSJ			

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