

STATE	FEDERAL AID		STATE	SHEET NO.
ROUTE	PROJECT		ROUTE	PROJECT
VA.			64	0064-003-2011 & 2012
NBIS Number:			UPC No.	103702
Federal Oversight Code:			FHWA Construction and Scour Code: X421-S8	

GENERAL NOTES:

Width: 30'-8" face-to-face of curbs.
 Length: 578'-0" W.B.L. & 536'-0" E.B.L. face-to-face of abutment backwalls
 Specifications: Construction - Virginia Department of Transportation Road and Bridge Specifications, 2007.
 Standards - Virginia Department of Transportation Road and Bridge Standards, 2008.

This contract is for (1) Repair of deck, (2) Preparation for and placing of various types of overlay on the deck, (3) Abutment bearing replacements, (4) Deck Extension, (5) Pier joint and curb closures, (6) Abutment bridge seat reconstruction, (7) Waterproofing curbs & vertical edge of deck, and (8) Pier bearing modifications.

This project is to be constructed in accordance with the Virginia Dept. of Transportation Work Area Protection Manual, May 2011.

A twelve foot (12'-0") minimum lane shall be open to traffic at all times.

Bridge number of existing structures are 2011 & 2012. Plan number is 157-18. Half-Scale Plans of the existing structure may be obtained at the Staunton District Structure and Bridge Office.

All new and replacement reinforcing steel shall conform to ASTM A615, Grade 60. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted, and are subject to fabrication and construction tolerances.

All structural steel, including bearings, shall be ASTM A709 Grade 36.

Only one longitudinal construction joint at centerline of the bridge shall be permitted for placing Hydraulic Cement Concrete overlay.

The estimated quantity for Asphalt Concrete Type SM 9.5A is to provide pavement and shoulder tie-in to the bridges.

Asphalt concrete approach wedge build-ups, minimum 10 foot length, shall be temporarily installed in the traveled lane until all permanent asphalt work can be done in a single paving operation. Temporary wedges shall be paid for at the contract unit price of Asphalt Concrete Type SM-9.5A. The removal and disposal of the temporary wedges shall be incidental to the bid item Asphalt Concrete Type SM-9.5A.

The estimated quantity for Removal of Asphalt Concrete Overlay is for approach slab asphalt at Abutment B (both bridges) to provide acceptable pavement and shoulder tie-ins. The estimated quantity is based on a 1/2" depth.

Type A milling shall be performed in accordance with the sequence of operations. Milling the entire deck at one time will not be permitted.

Type A milling shall be performed with fine milling head such that cutting heads on the milling machine shall not be spaced more than 3/16" apart.

Hydrodemolition shall be performed after completion of milling.

In order to perform the work within the time limit specified, work will be permitted at night as allowed by the Engineer. Lighting required to perform night work will be considered incidental to other bid items.

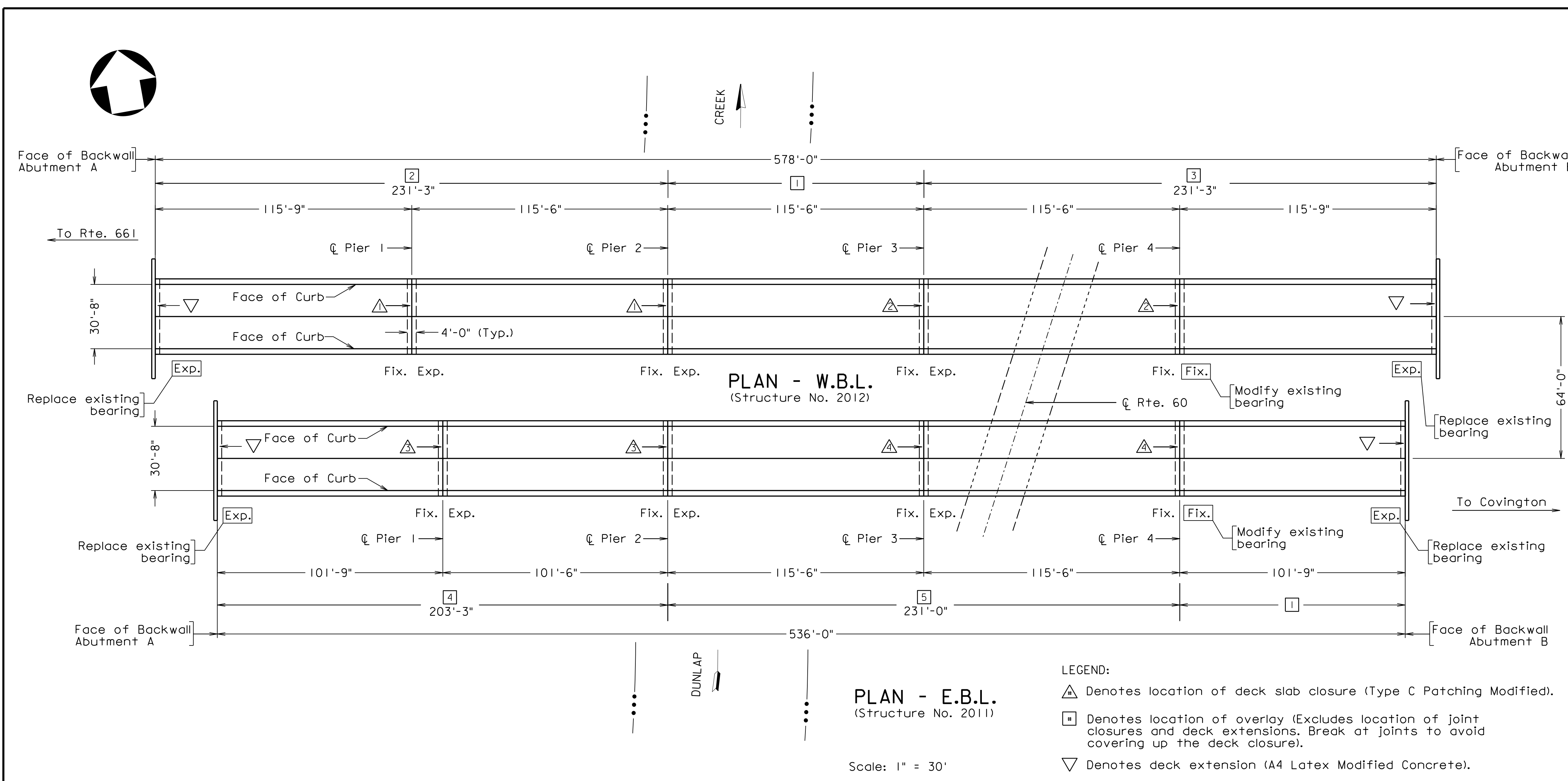
The existing structure is classified as a Type B structure under Section 411.01 of the Specifications.

All openings in the deck within 4'-0" of the centerline of bridge shall be covered with a steel plate when work is not in progress in this area. The cost of the plate shall be incidental to other Traffic Control items and shall be an ASTM 572 Grade 50 Steel PL 4'-0" x 12'-0" x 3/4" min.

Sequence of Operations:
 1) All bearing modifications and replacements
 2) WBL Joint closures (Piers 2, 3 then piers 1, 4)
 3) Deck extensions (may be done in conjunction with operation 2)
 4) Curb replacement, waterproofing
 5) Merge WBL traffic to left lane
 6) Milling & Hydrodemolition
 7) Overlays and deck patching
 8) Switch traffic to opposite lane and repeat 6-7
 9) Joint Sealer
 10) Perform 1-9 on EBL

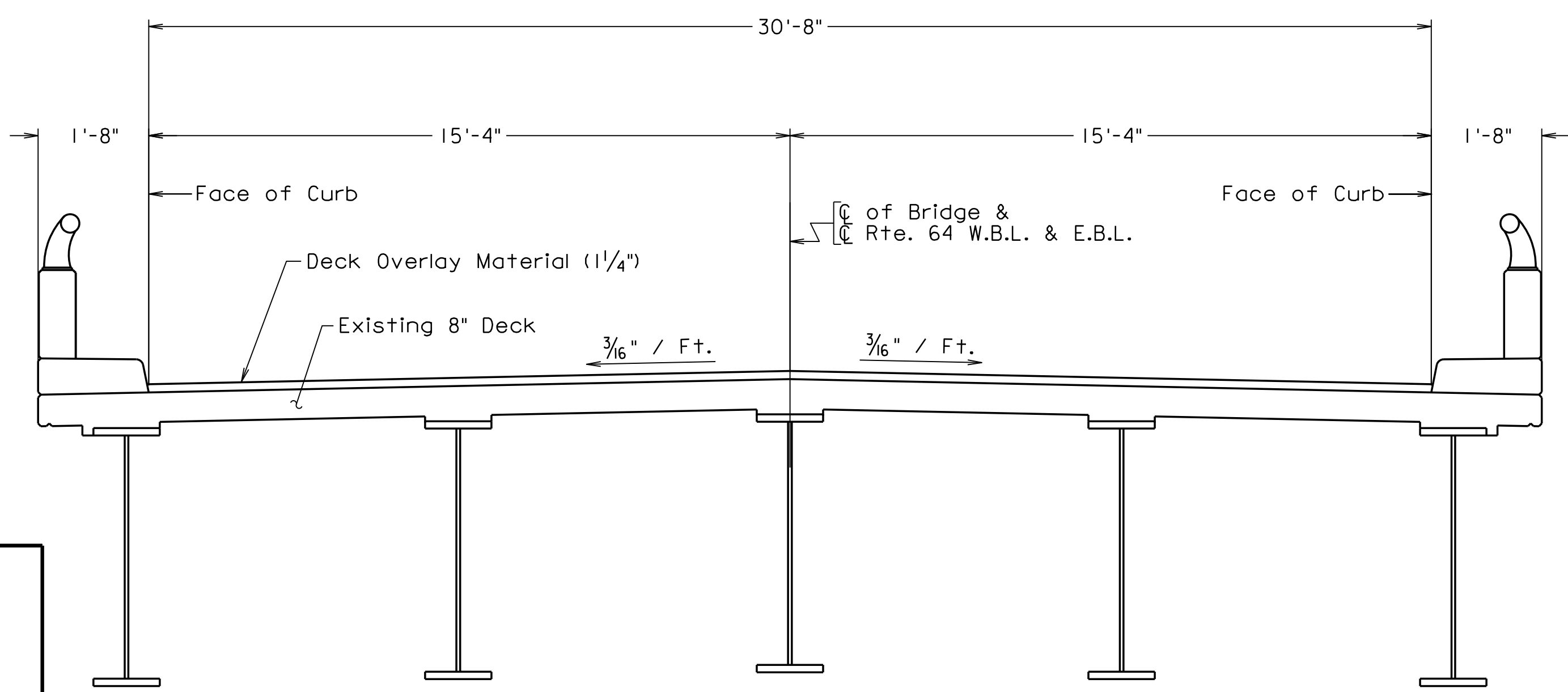
VDOT
 COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE REPAIRS ON
 RTE. 64 OVER RTE. 60 & DUNLAP CREEK
 ALLEGHANY CO. 2.92 MI W. OF RTE. 661
 PROJECT 0064-003-2011 & 2012



LEGEND:
 ▲ Denotes location of deck slab closure (Type C Patching Modified).
 □ Denotes location of overlay (Excludes location of joint closures and deck extensions. Break at joints to avoid covering up the deck closure).
 ▽ Denotes deck extension (A4 Latex Modified Concrete).

DECK CLOSURE/OVERLAY MATERIAL	
Location	Material
▲	Latex Modified Concrete
▲	ECC: 2% PVA Fibers (0.4")
▲	HyFRC: Synthetic Fibers 1.2% PP (2")
▲	HyFRC: 0.6% Steel Fibers (2.4")
□	Silica Fume Concrete
2	Latex Modified Concrete
3	Low Cracking Shrinkage Reducing Admixture
4	Low Cracking Lightweight Coarse Aggregate
5	Low Cracking Partial Lightweight Fine Aggregate



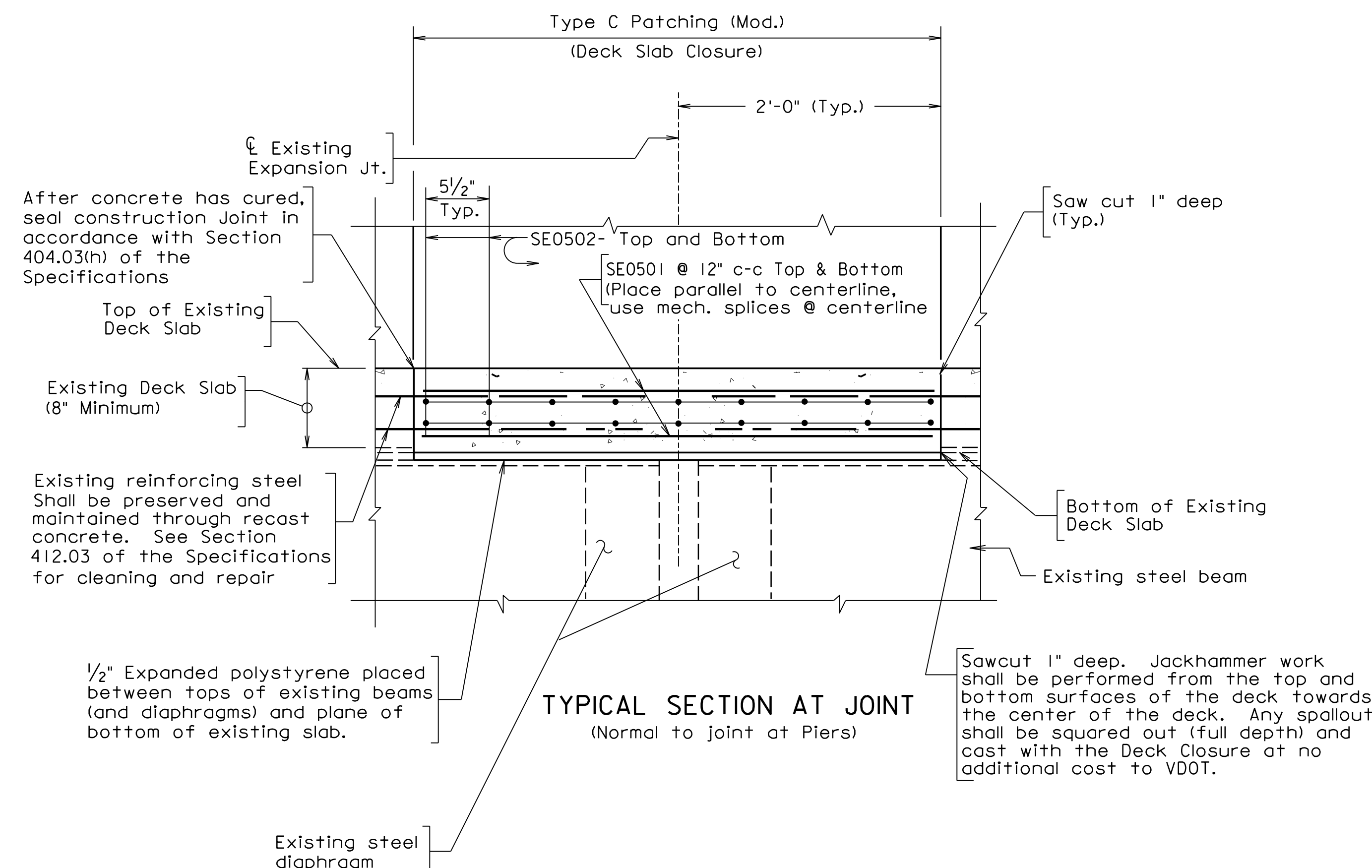
TYPICAL TRANSVERSE SECTION - W.B.L. & E.B.L.

Scale: Not to scale

VDOT S&B DIVISION STAUNTON, VA STRUCTURAL ENGINEER
PLANS BY: Staunton District S&B
COORDINATED:
SUPERVISED: DARRELL W. HAYES
DESIGNED: IK HYEON KIM
DRAWN: IK HYEON KIM
CHECKED: D.W.HAYES, M.A.Ali, P.W.Thompson

No.	Description	Date
1	Sheet Number	6-12-14
REVISIONS		
For Table of Revisions, see Sheet 2.		

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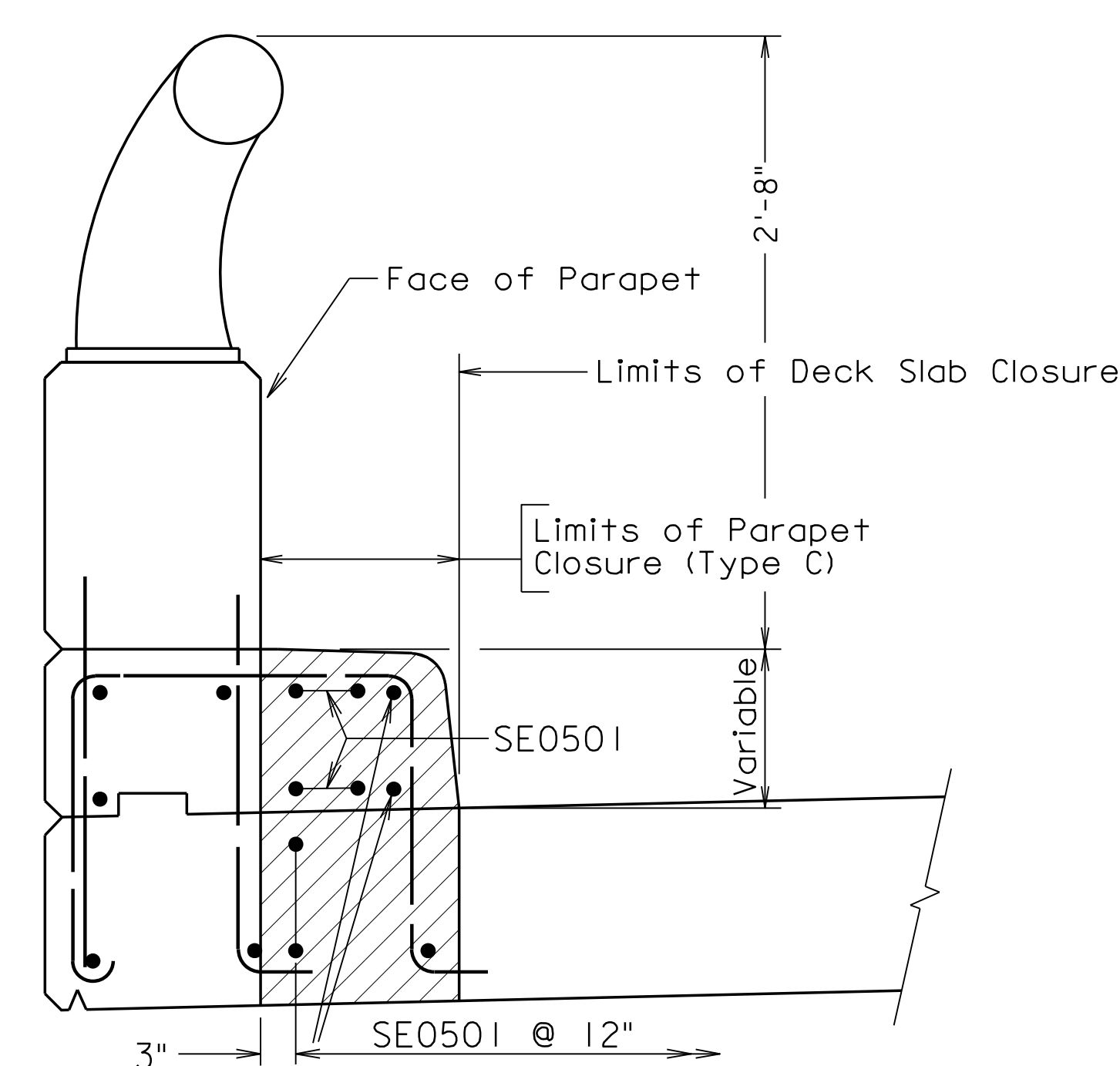


Note:
Existing shear stud connectors within limits of deck slab closure zone shall be removed by cutting. Removal by bending and breaking off will not be allowed. Protrusions above top of flange shall be neatly ground off.

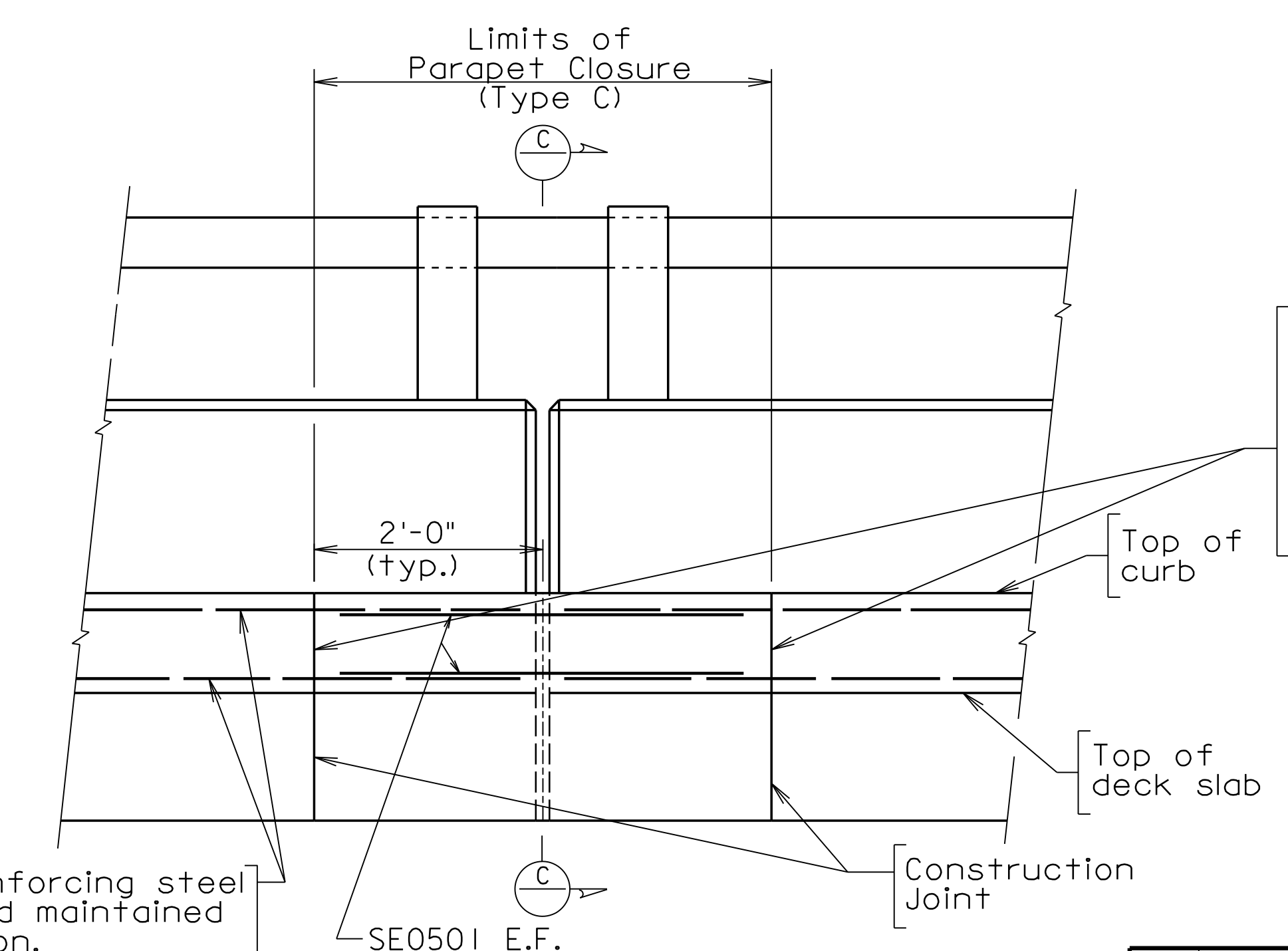
**TYPE C PATCHING (MODIFIED)
(DECK SLAB CLOSURE)**

REINFORCING STEEL SCHEDULE					
Mark	No.	Size	Length	Pin	Location
AH0401	8	#4	0'-8"	-	Abutment
AH0402	24	#4	2'-0"	-	Abutment
AH0403	24	#4	4'-8"	-	Abutment
AH0404	16	#4	1'-0"	-	Abutment
AH0603	8	#6	38'-0"	-	Abutment
AV0401	16	#4	0'-8"	-	Abutment
AV0402	24	#4	3'-8"	2" ∅	Abutment
AV0403	24	#4	2'-8"	-	Abutment
ES0401	32	#4	1'-8"	-	Slab
RV0401	16	#4	2'-7"	2" ∅	Slab
SE0501	592	#5	3'-8"	-	Slab
SE0502	144	#5	31'-6"	-	Slab
SL0601	204	#6	6'-3"	4 1/2" ∅	Slab
SL0502	184	#5	2'-9"	-	Slab
ST0501	56	#5	15'-9"	-	Slab
ST0502	56	#5	16'-3"	-	Slab

Bending Diagram	
<p>SL0601</p>	<p>RV0401</p>
<p>AV0402</p>	<p>⊗ Dimensions in bending diagram are out to out of bars.</p>



**SECTION C-C
PARAPET CLOSURE (TYPE C)**



**ELEVATION
PARAPET CLOSURE (TYPE C)**

Rev. No.	Sheets Revised	Date
△	All Sheets	6-12-14

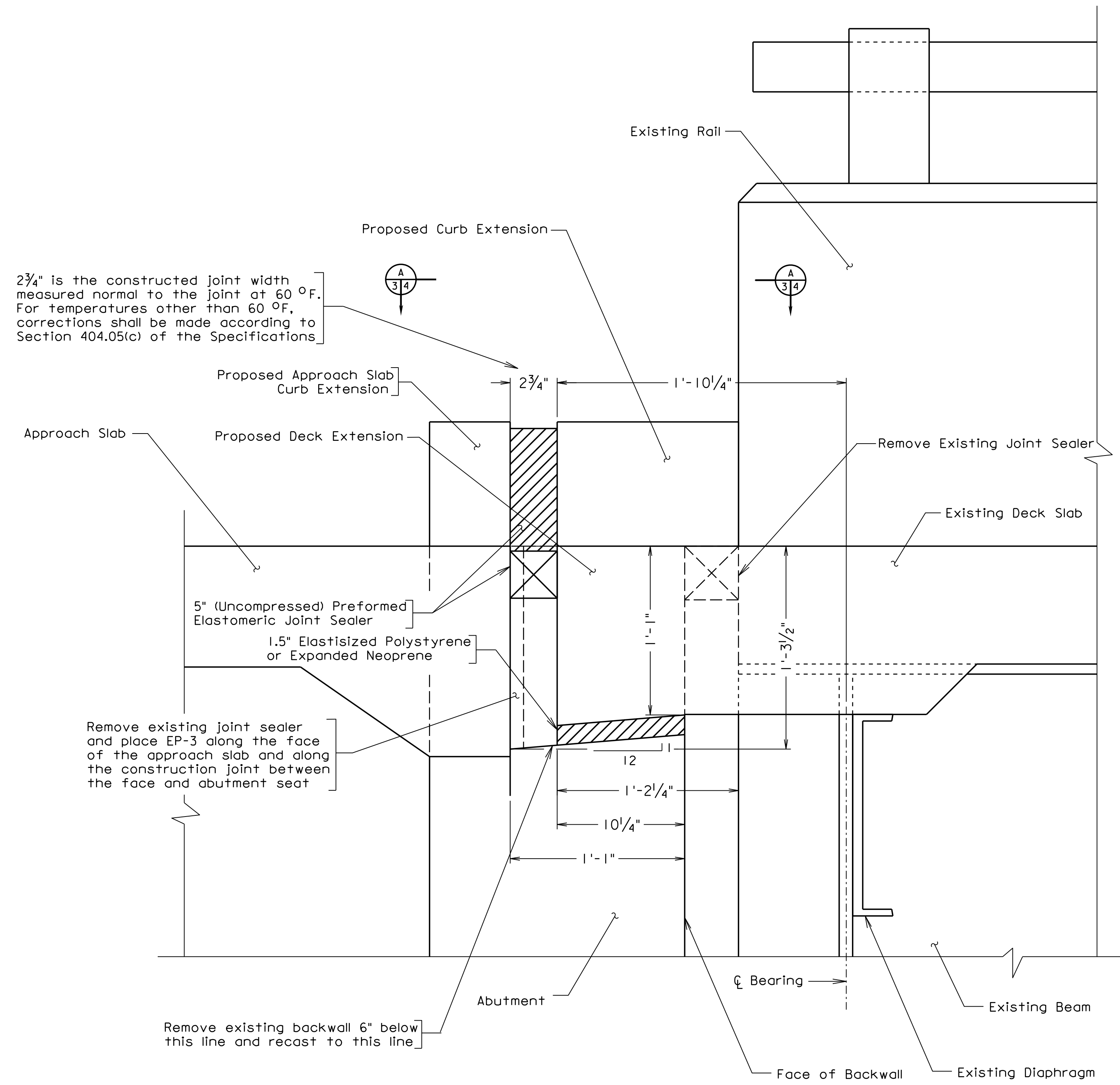
TABLE OF REVISIONS

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION STRUCTURE AND BRIDGE DIVISION			
DECK CLOSURE & JOINT DETAILS			
△	Sheet Number	6-12-14	
△	Rebar Schedule	6-12-14	
△	Table of Revisions	6-12-14	
No.	Description	Date	
Revisions			
Designed: JK.....	Date	Plan No.	Sheet No.
Drawn:K.....	May 2014		2 of 9
Checked: .DWH.....			

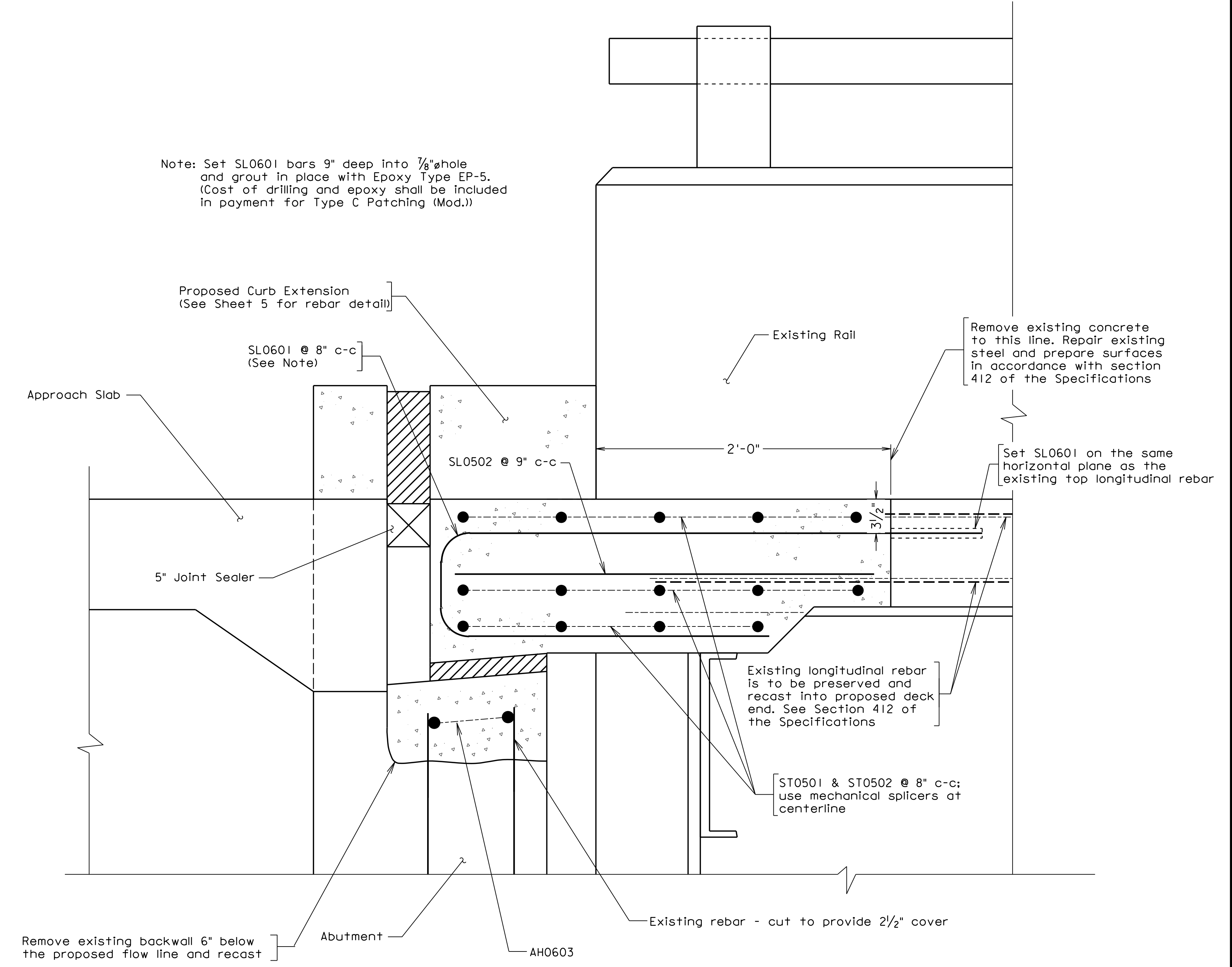
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VA.		64	0064-003-2011 & 2012

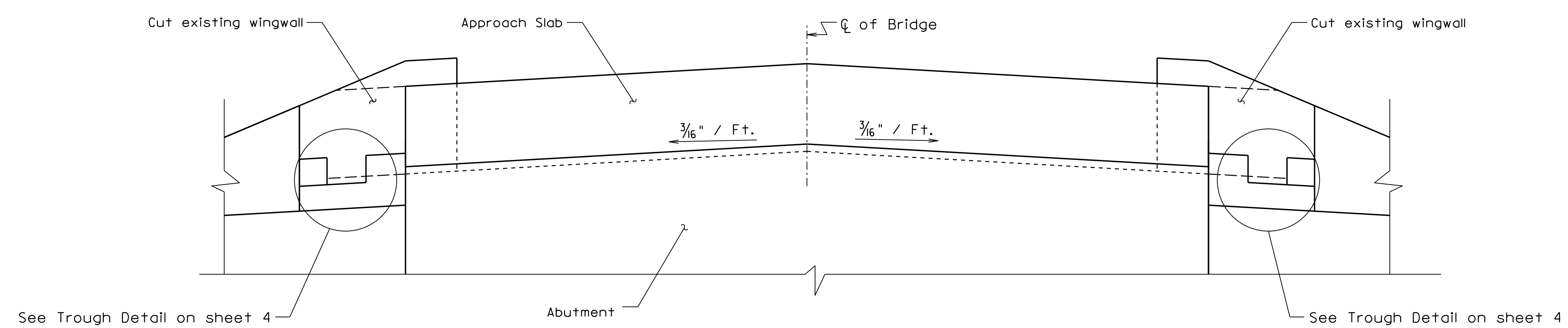
⊗ See sheet 2 for rebar schedule



EXPANSION JOINT RECONSTRUCTION (TYPE C)



EXPANSION JOINT RECONSTRUCTION (TYPE C) REBAR LAYOUT



TRANSVERSE VIEW

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION			
STRUCTURE AND BRIDGE DIVISION			
DECK EXTENSION DETAILS			
Sheet Number	6-12-14	Designed: K.....	Date
Curb Extension	6-12-14	Drawn: K.....	Plan No.
No.	Description	Date	Sheet No.
	Revisions	Checked: MAA:FWI	May 2014

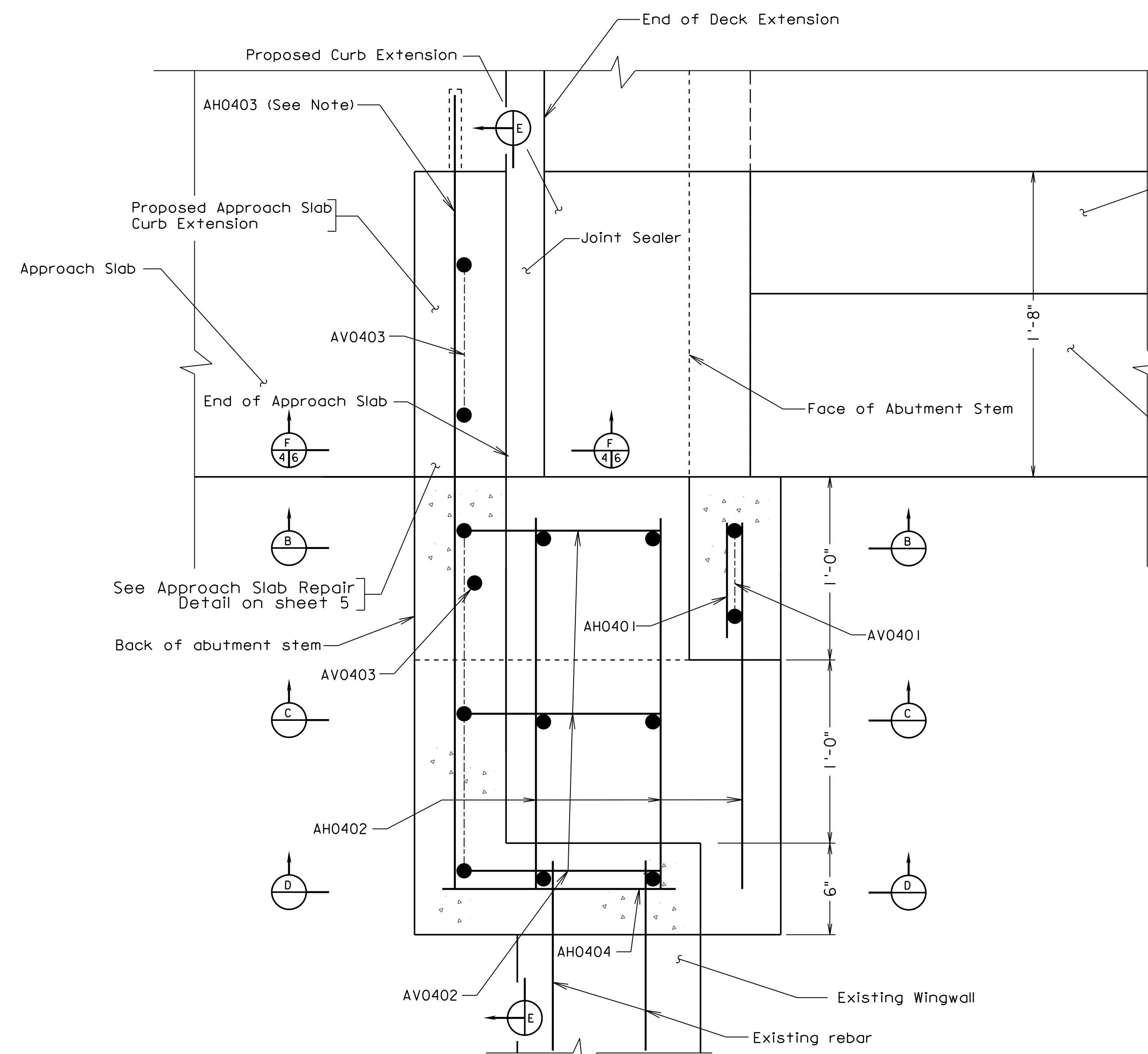
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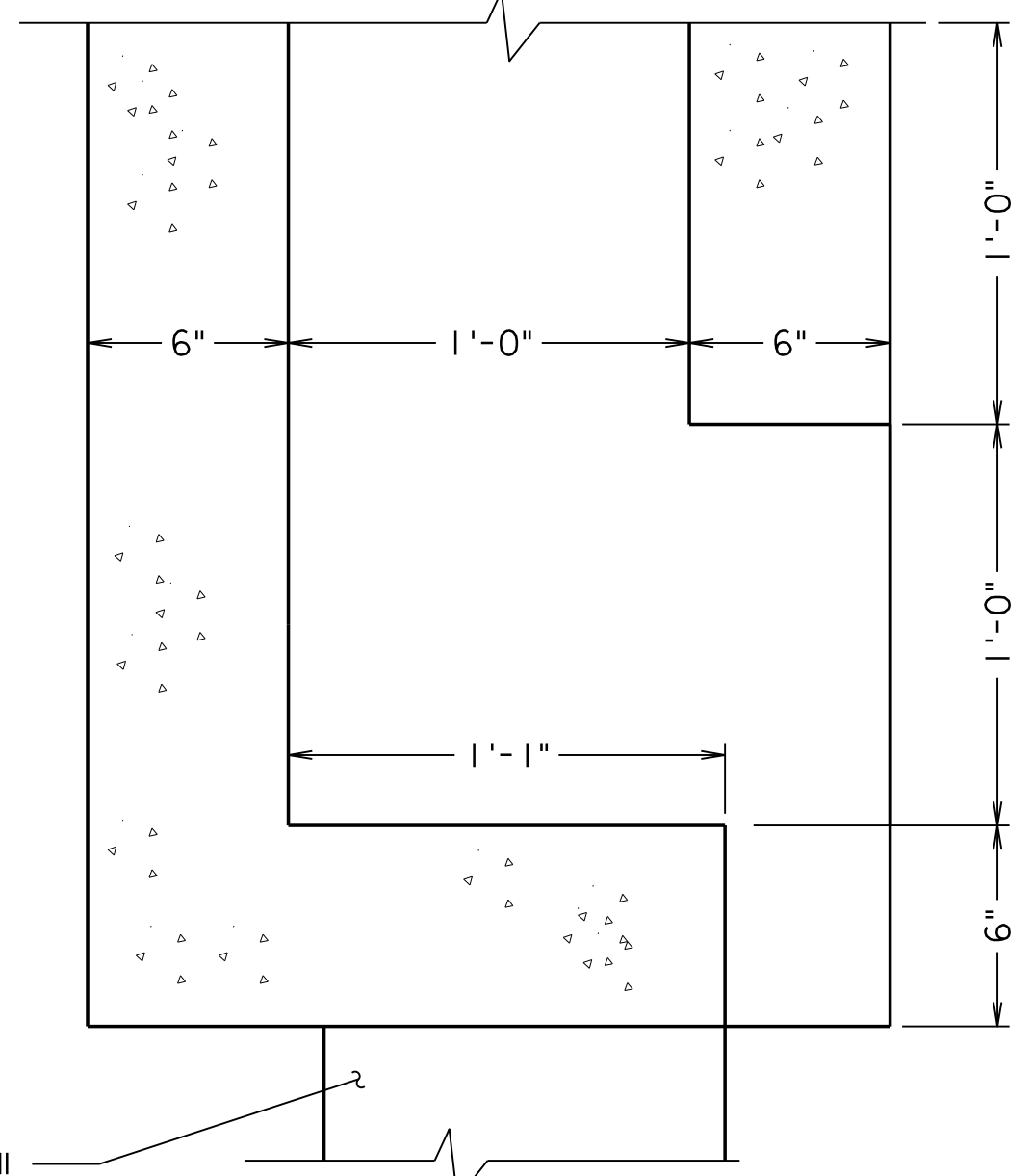
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VA.		64	0064-003-2011 & 2012

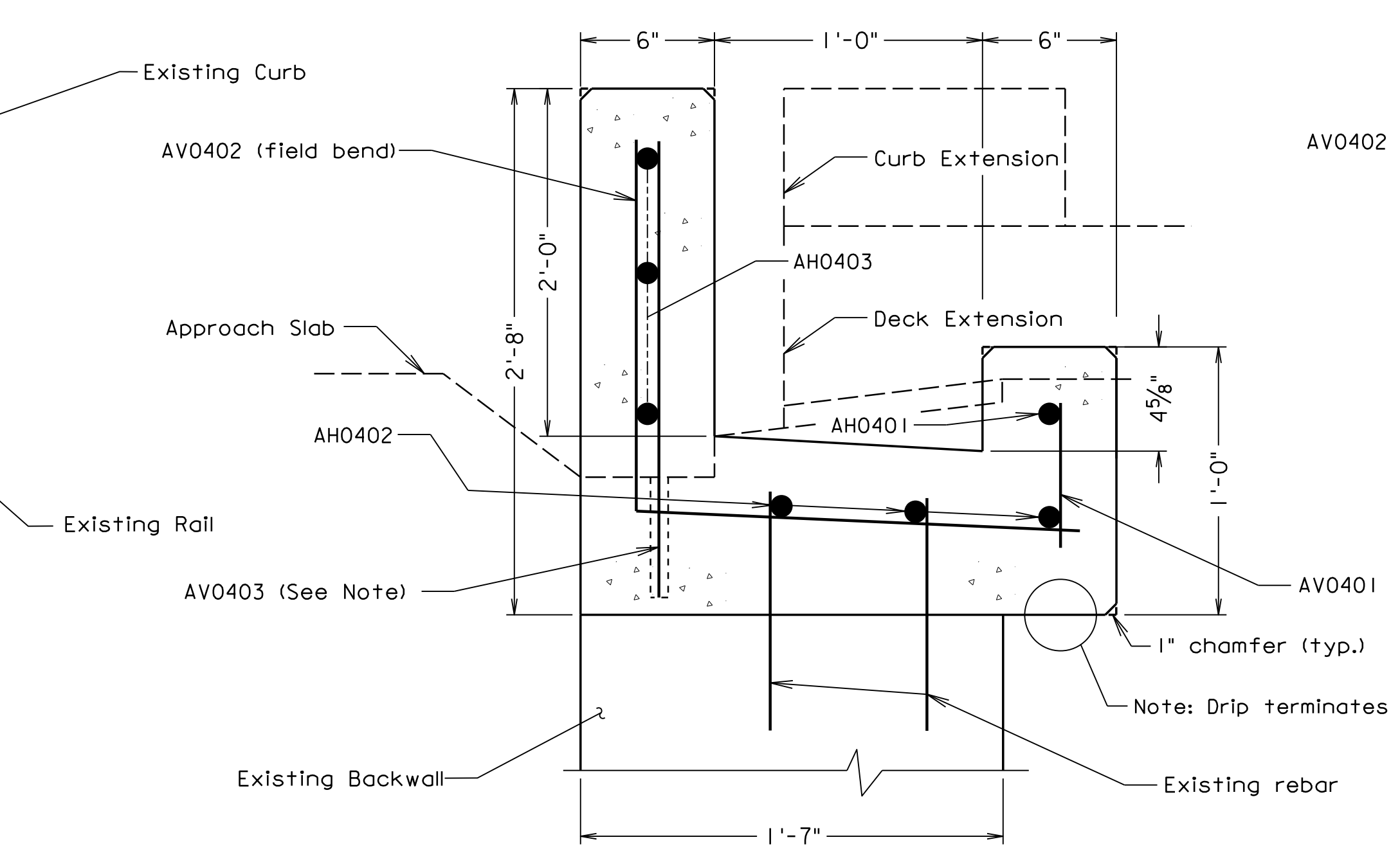
See sheet 2 for rebar schedule



TROUGH DETAIL REBAR LAYOUT SECTION A-A
(Applied to all four wings)
(Part Plan View)

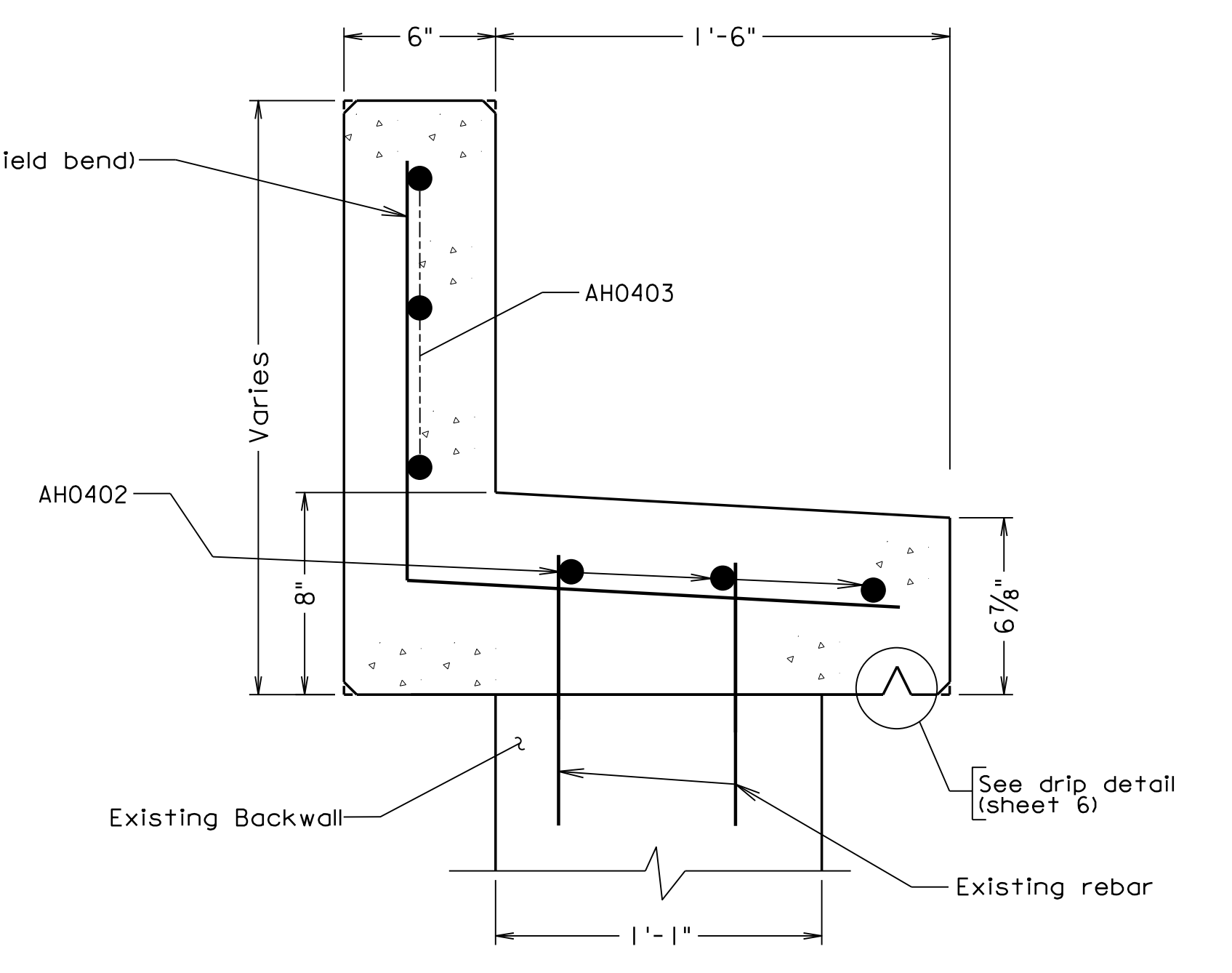


TROUGH DETAIL SECTION A-A
(Rebar not shown)

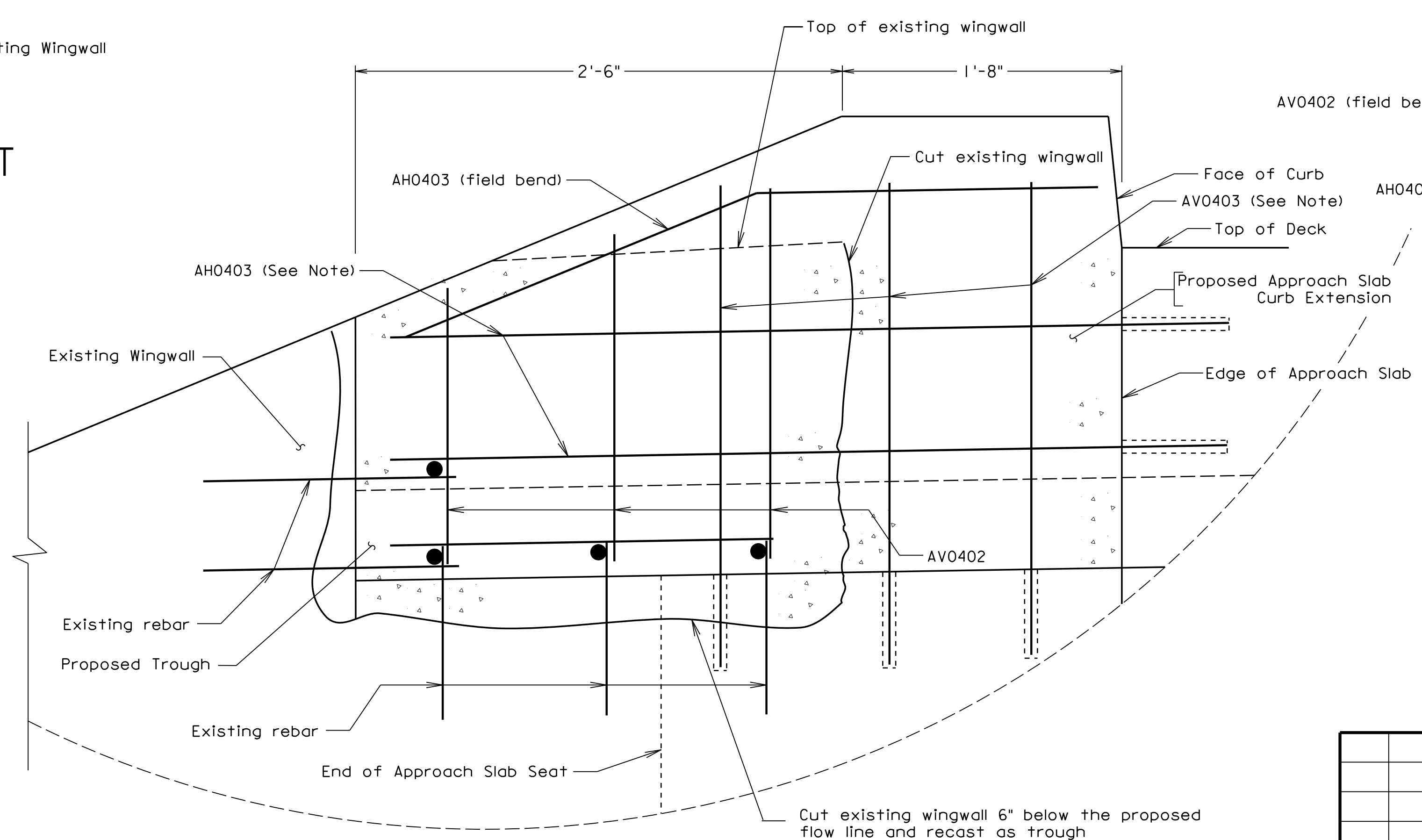


SECTION B-B
(Detail omitted for clarity)

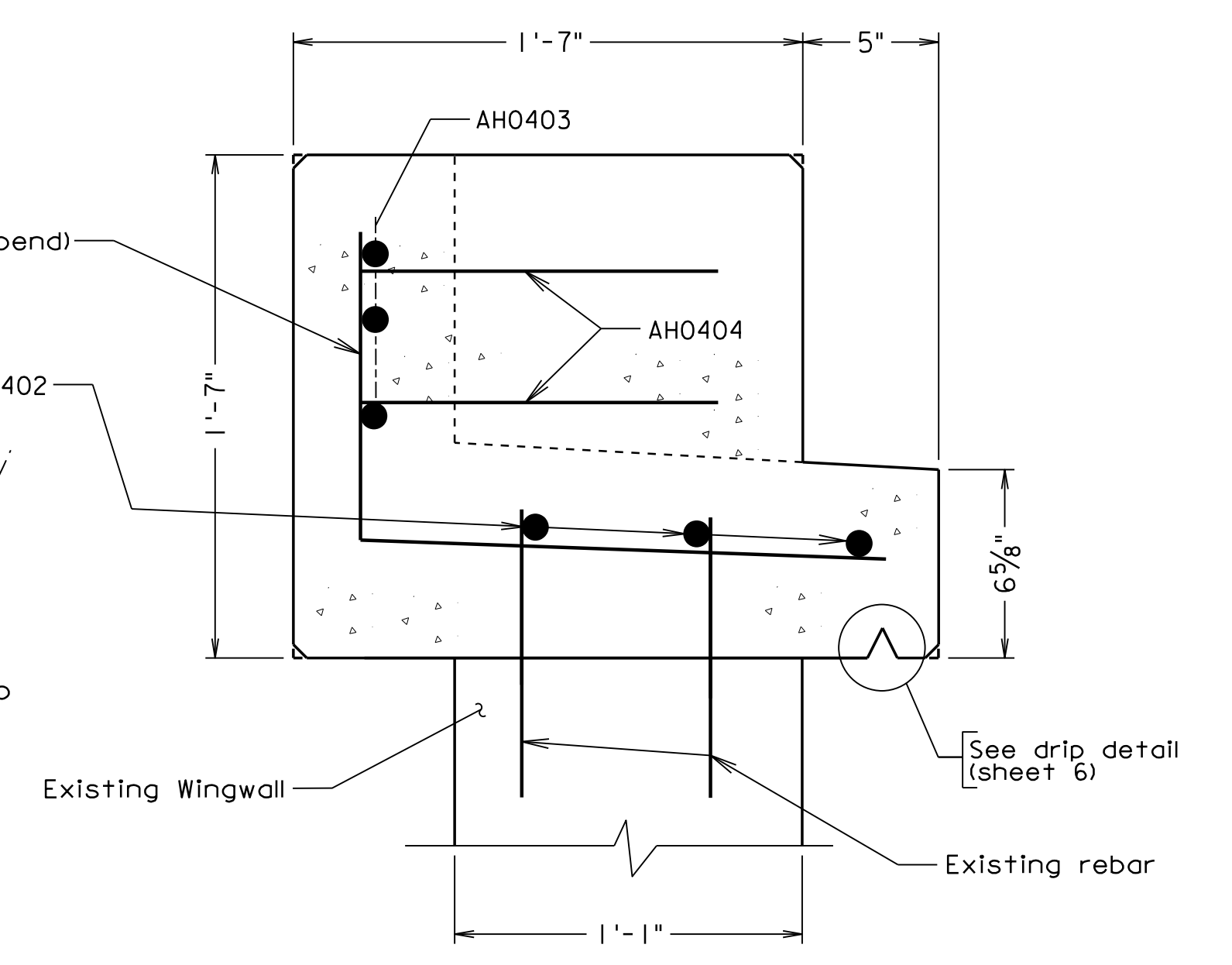
Note: Set AH0403 & AV0403 bars 9" deep into 5/8" hole and grout in place with Epoxy Type EP-5. (Cost of drilling and epoxy shall be included in payment for Type C Patching (Mod.))



SECTION C-C
(Trough section shown only)



WING MODIFICATION SECTION E-E

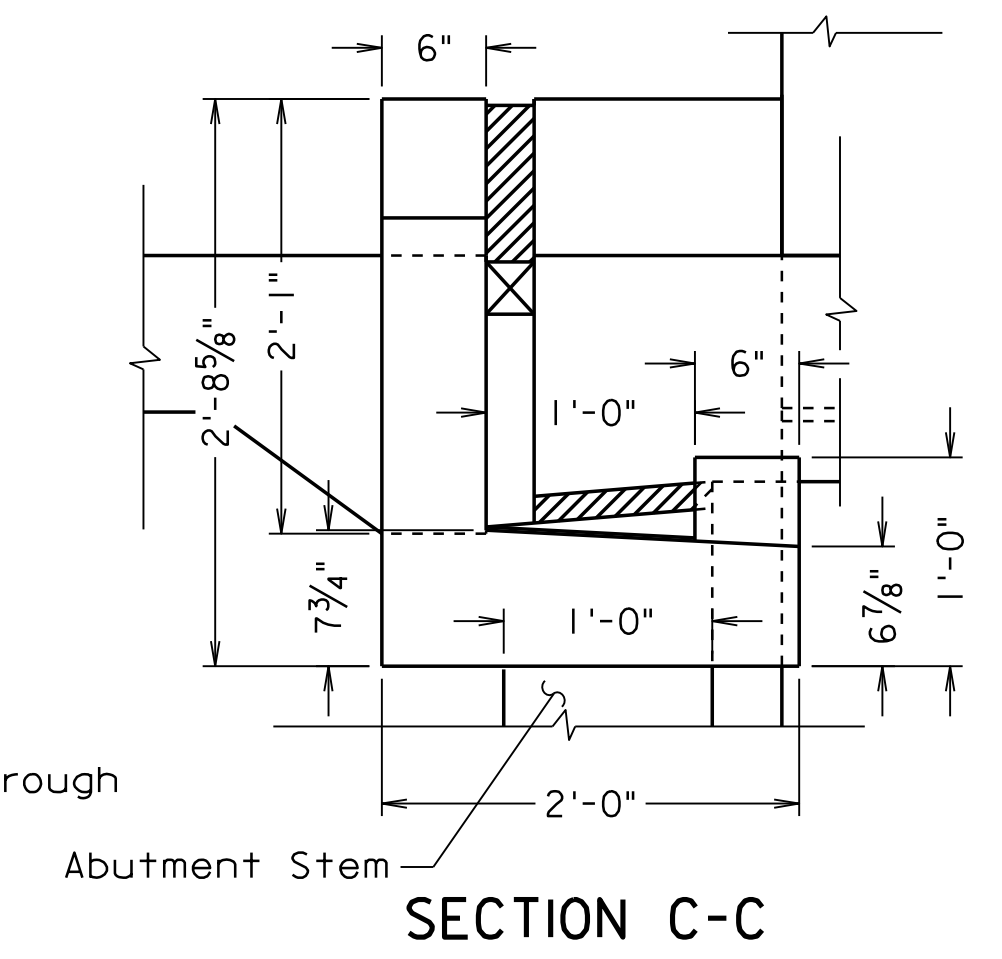
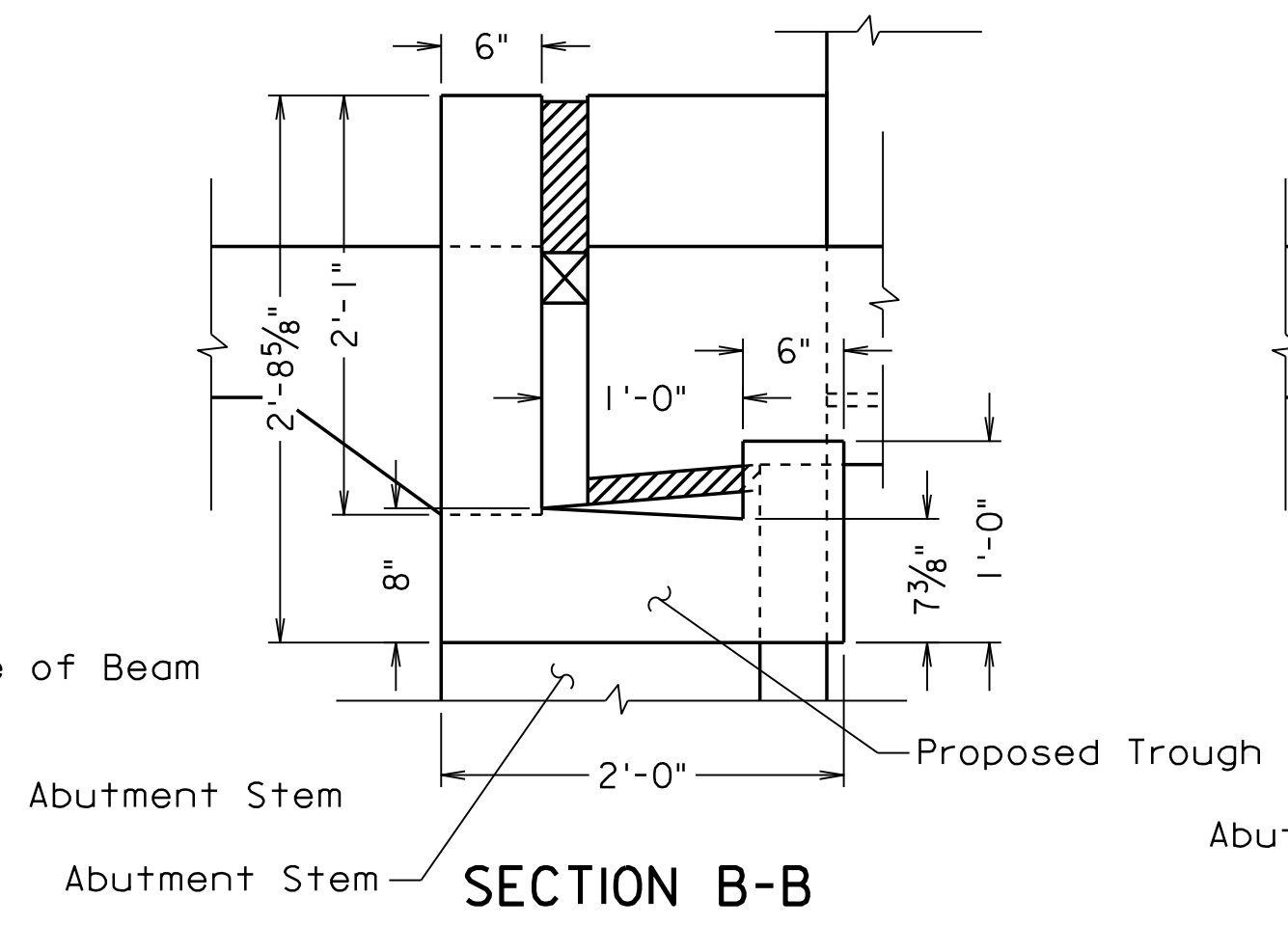
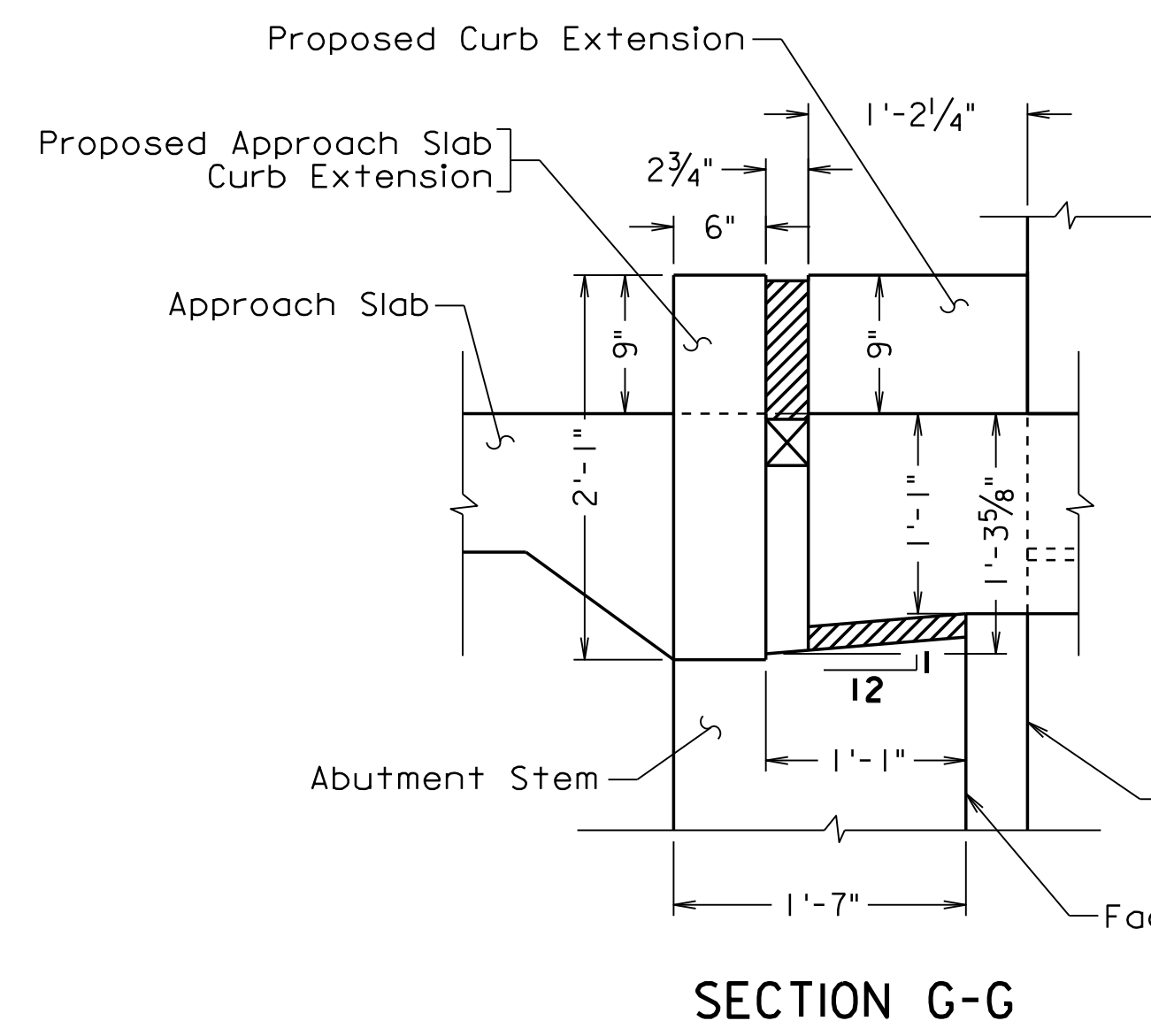
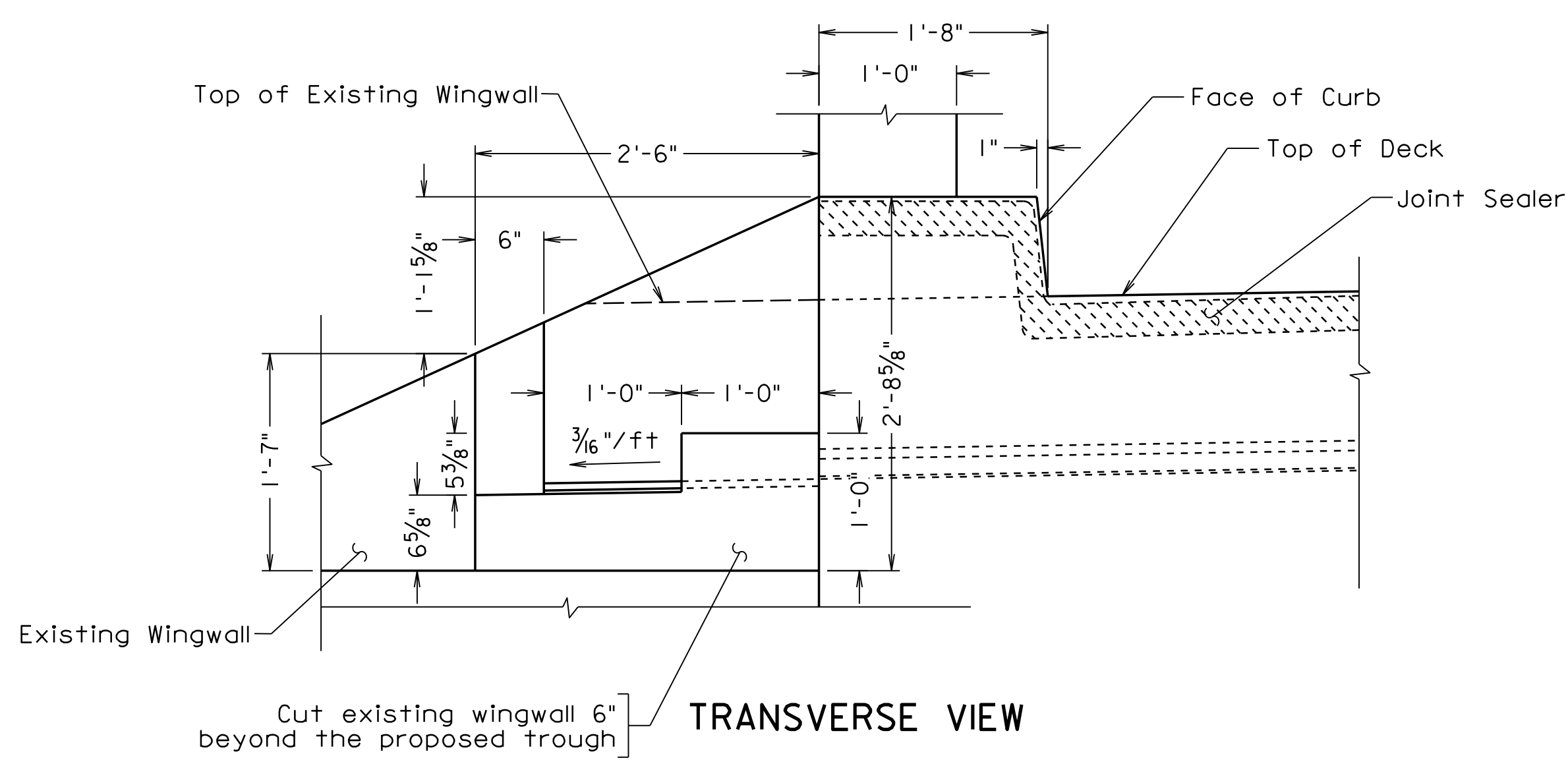
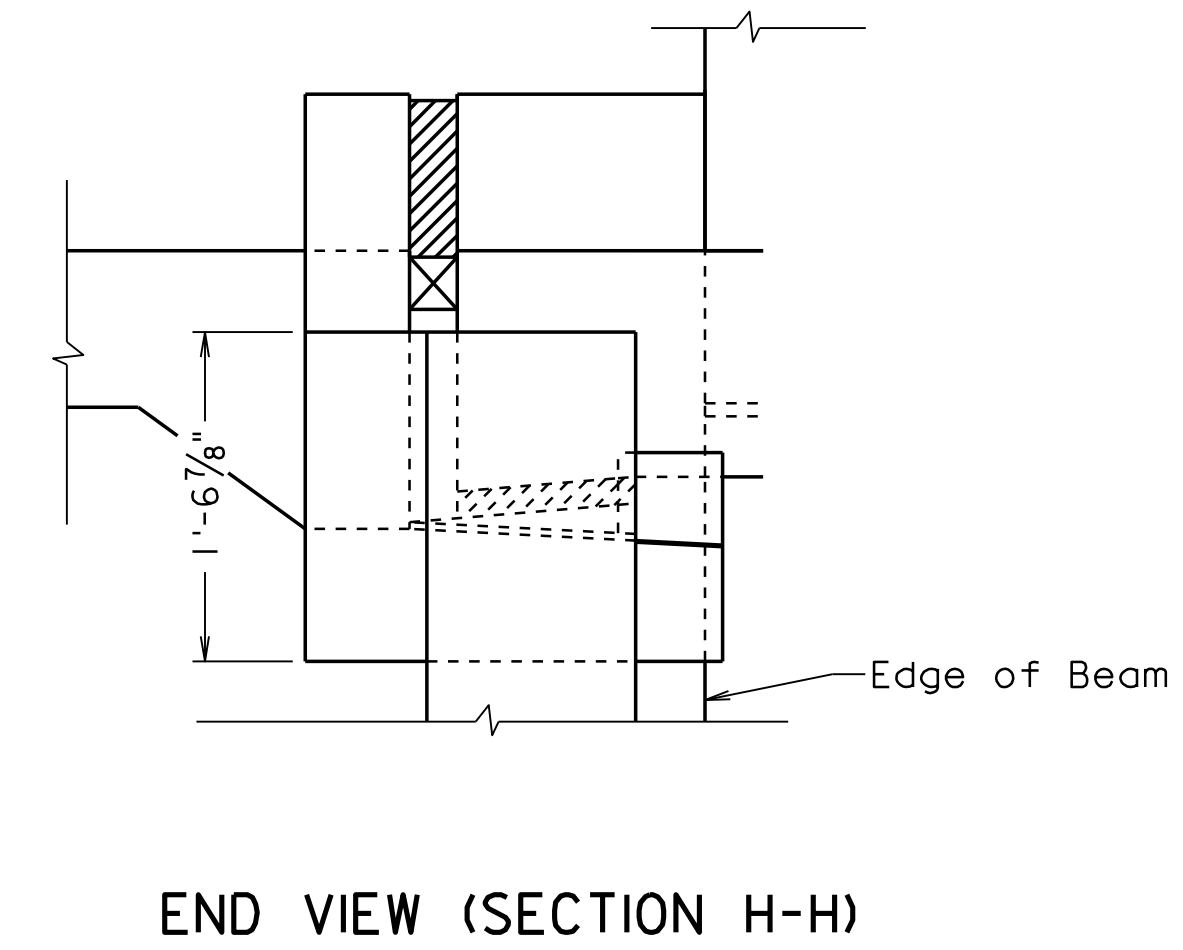
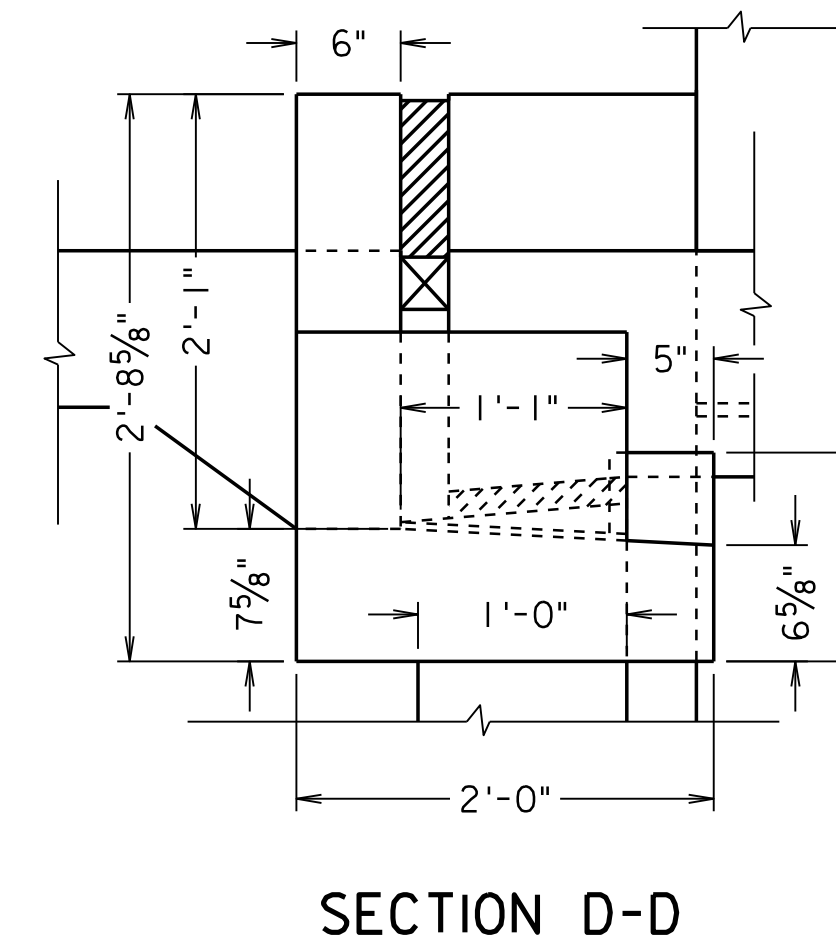
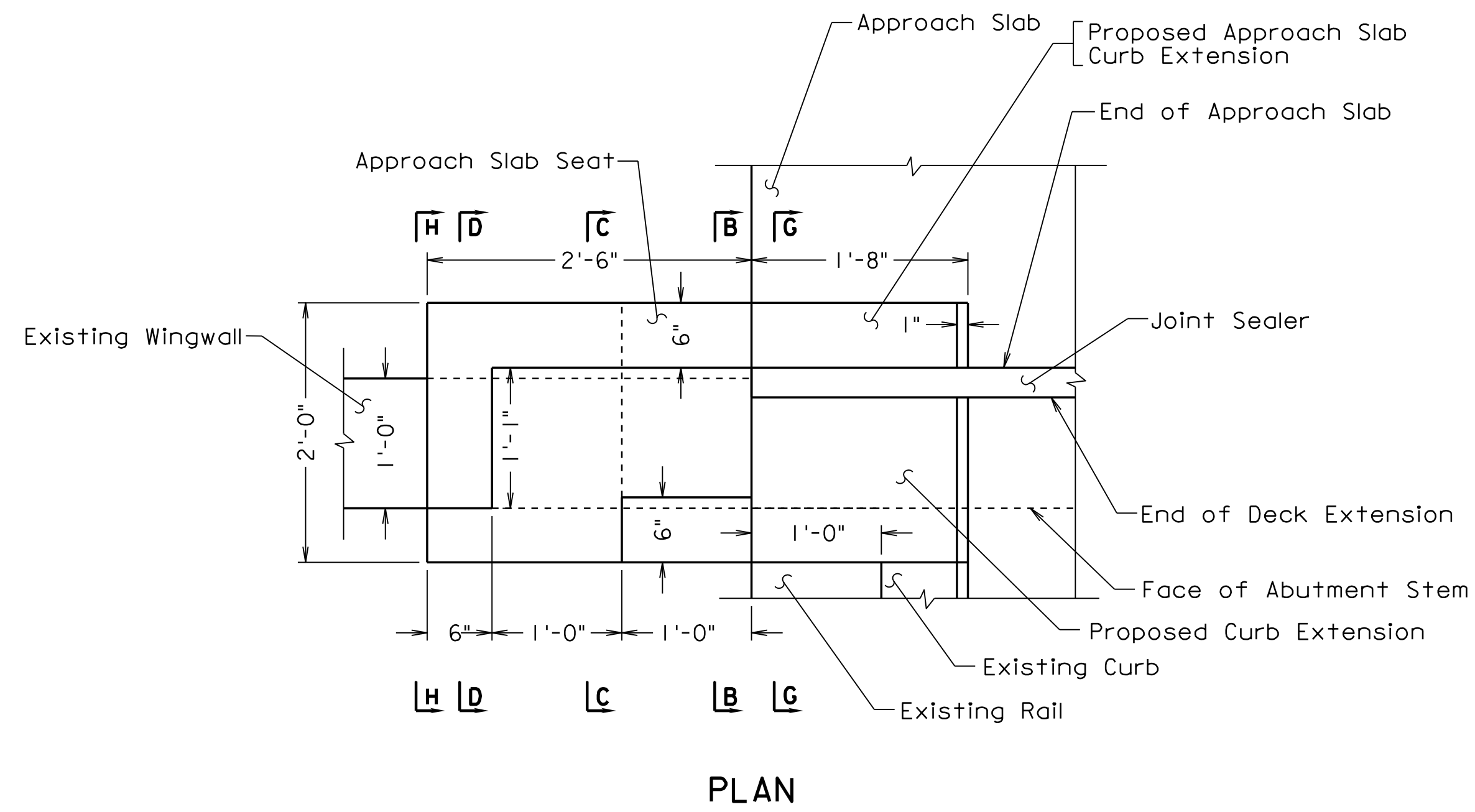


SECTION D-D
(Trough section shown only)

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COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION	
STRUCTURE AND BRIDGE DIVISION	
TROUGH DETAIL & WING MODIFICATION (1)	
Sheet Number	6-12-14
Dimensions	6-12-14
Rebar Detail	6-12-14
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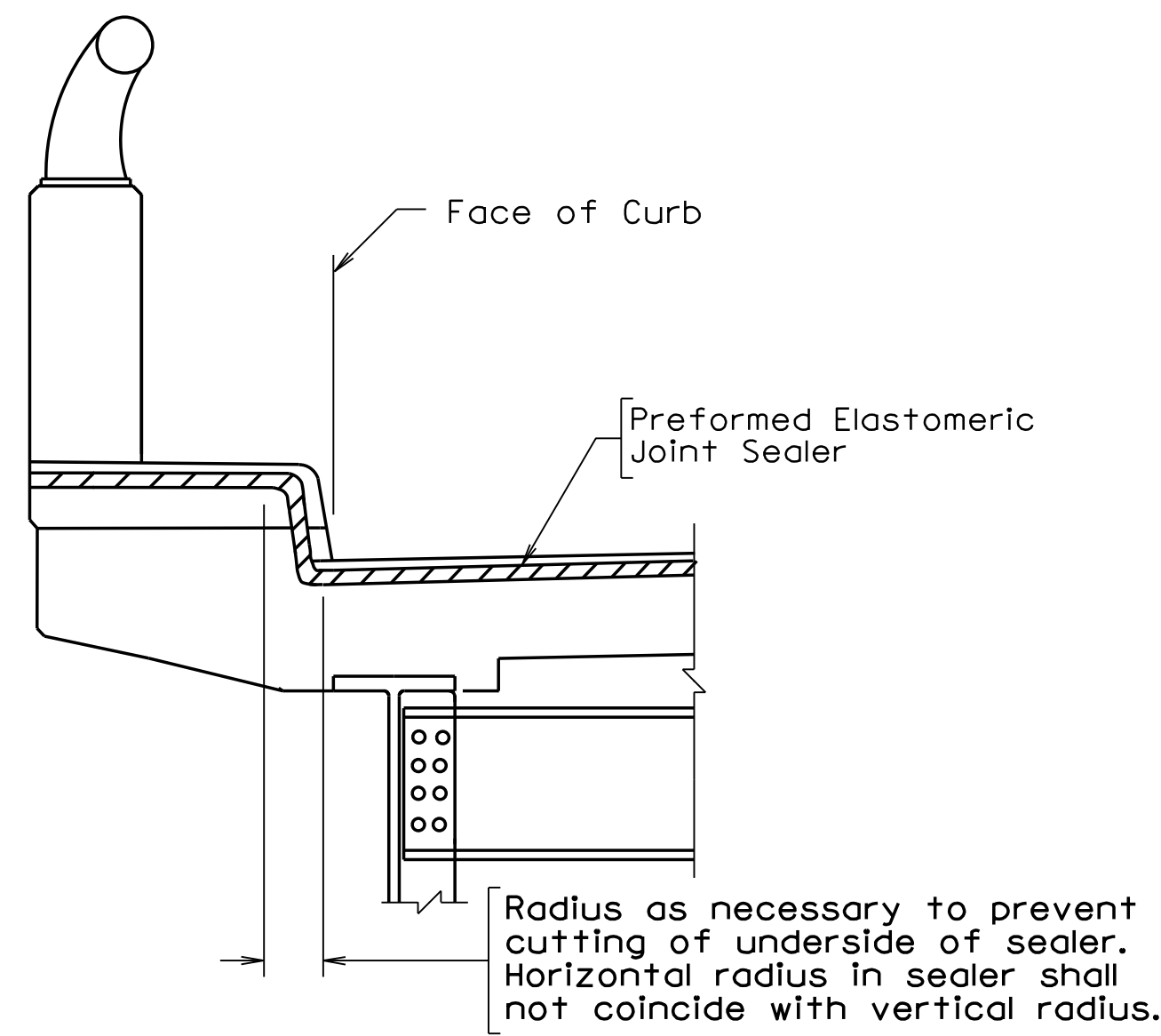
VDOT S&B DIVISION
STAUNTON, VA
STRUCTURAL ENGINEER

Scale: 1"=1'-0"

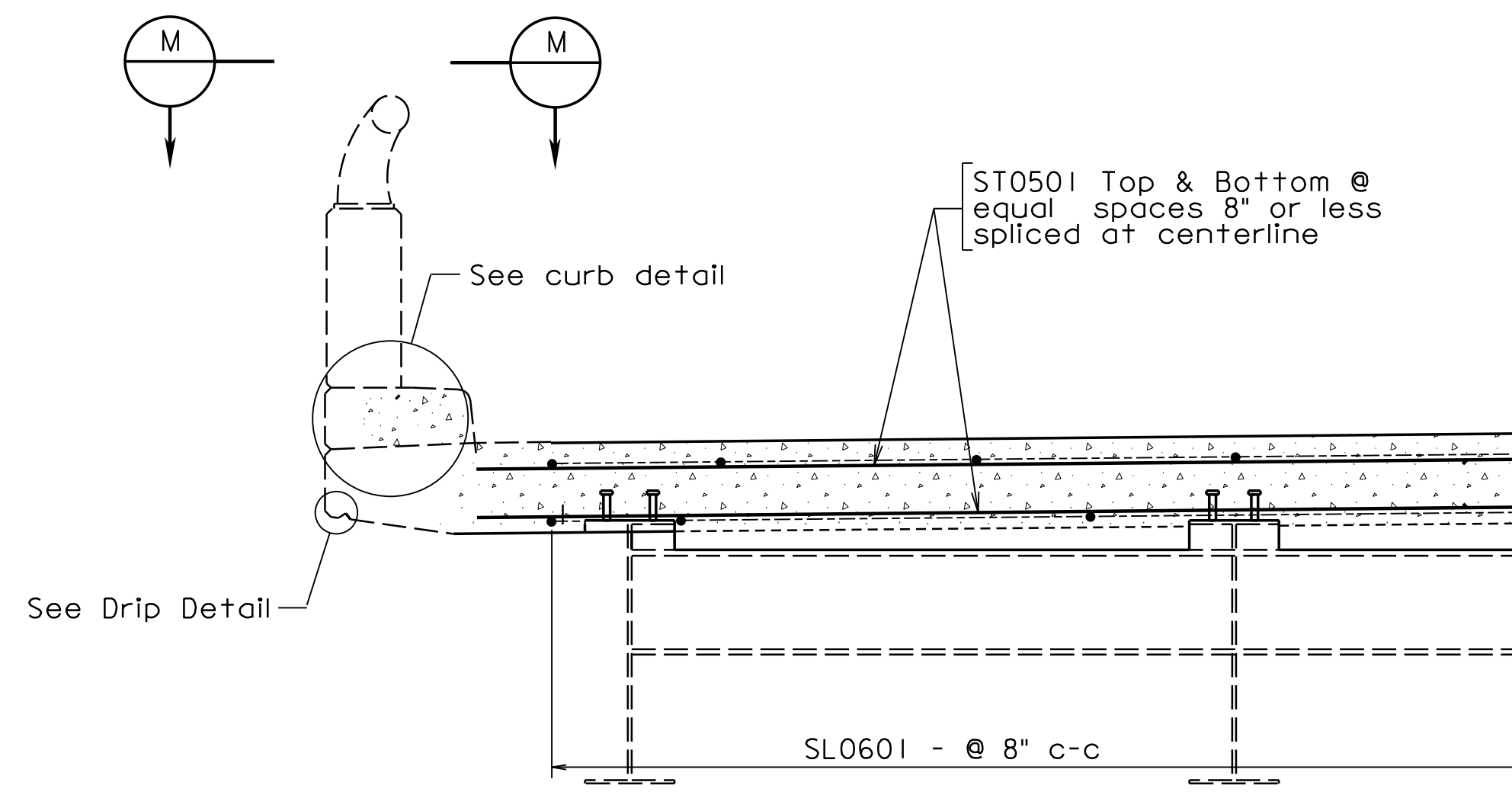
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TROUGH DETAIL & WING MODIFICATION (2)			
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No.	Description	Date	Designed: IK..... Drawn: IK..... Checked: EWT.....
Revisions		Date	Plan No.
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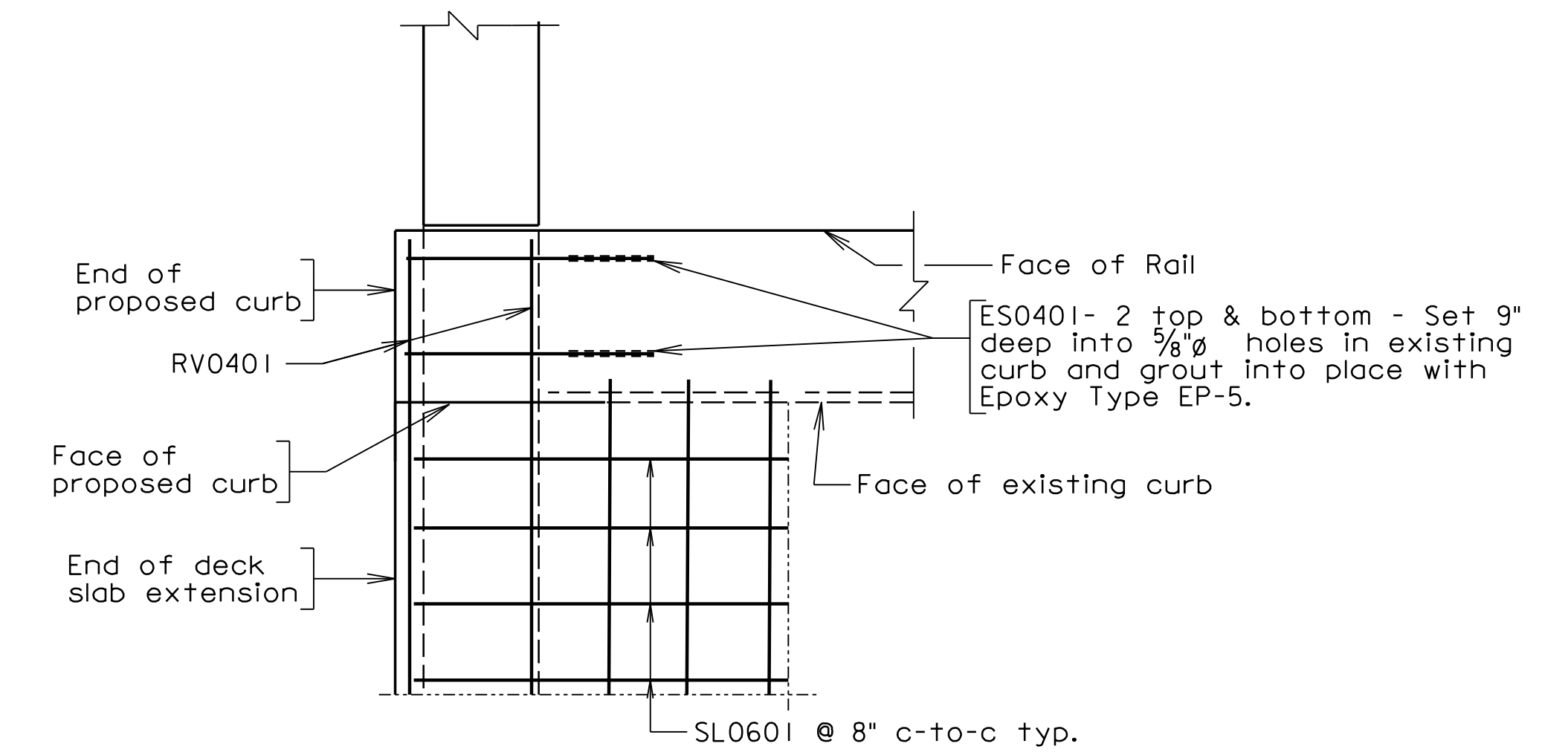
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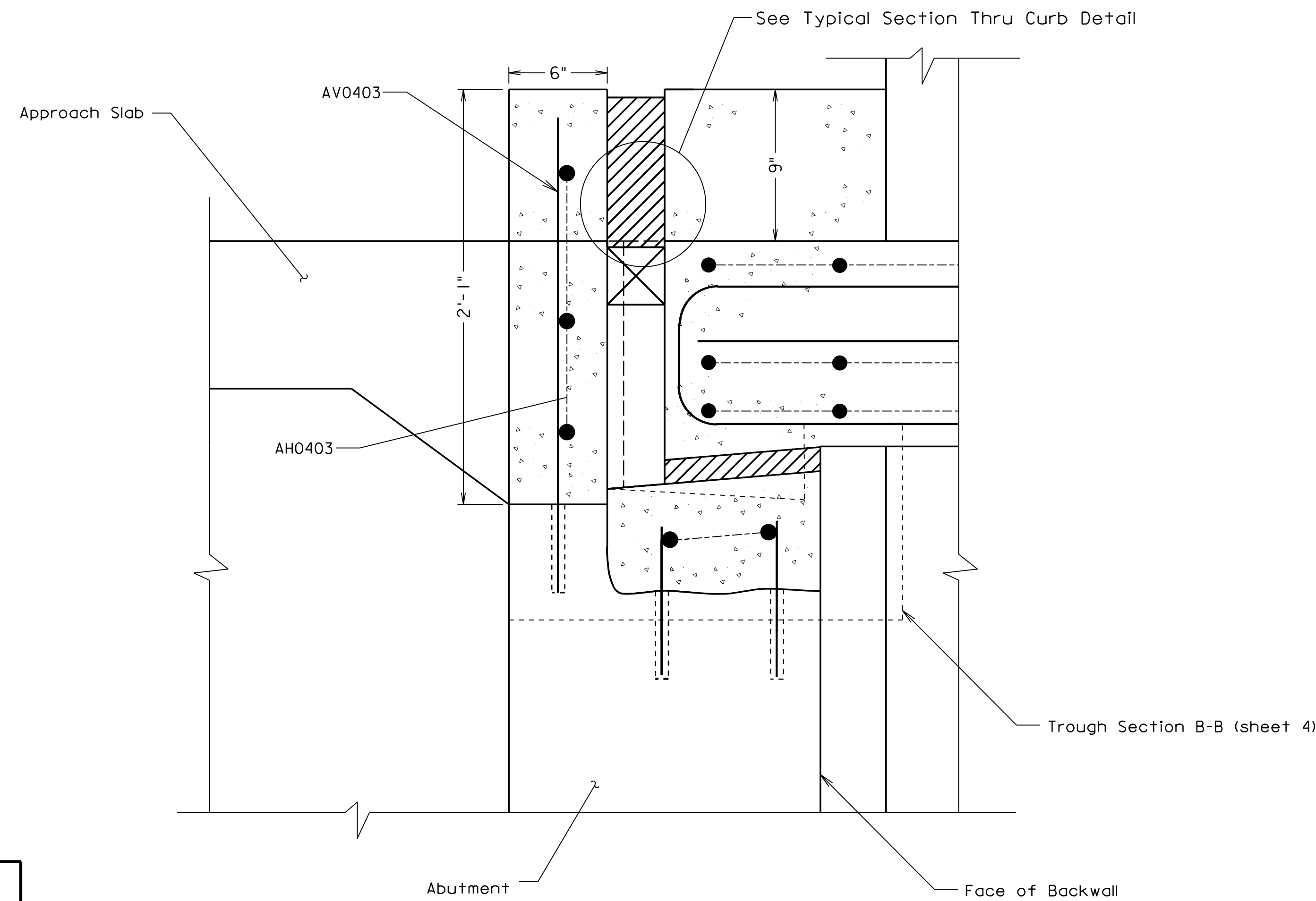
TYPICAL SECTION THRU CURB
(Expansion Joint @ Abutments)



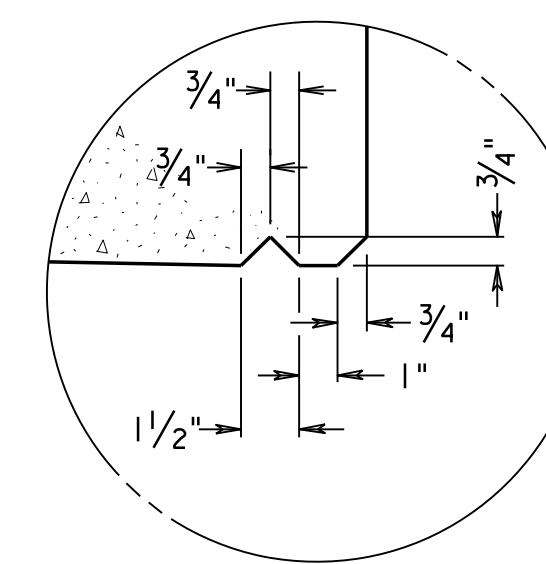
DECK EXTENSION HALF ELEVATION
Not to Scale



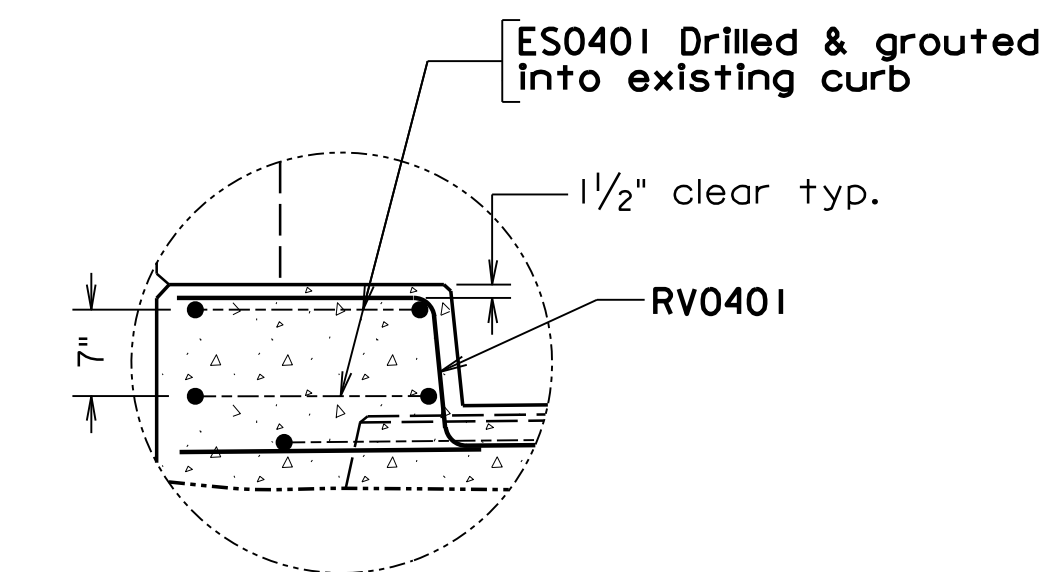
SECTION M-M
TYPICAL CURB EXTENSION
Not to Scale



APPROACH SLAB REPAIR DETAIL
SECTION F-F (F/416)



DRIP DETAIL



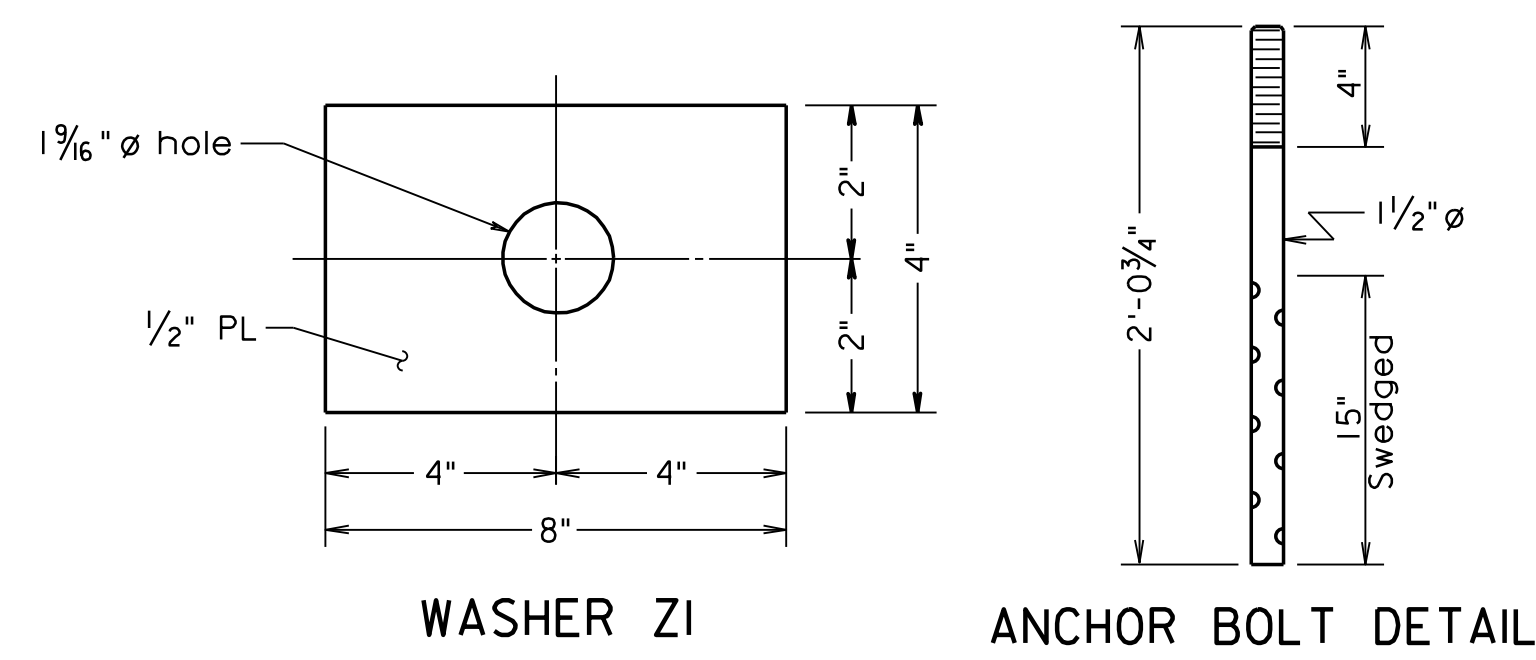
CURB DETAIL

Note:
Curb is to be cast with deck extension with Concrete Class A4 and is to be included in bid price for Type C Patching (Mod.). Form and chamfer curb extension to match existing.

64_Dunlap_Creek.dgn

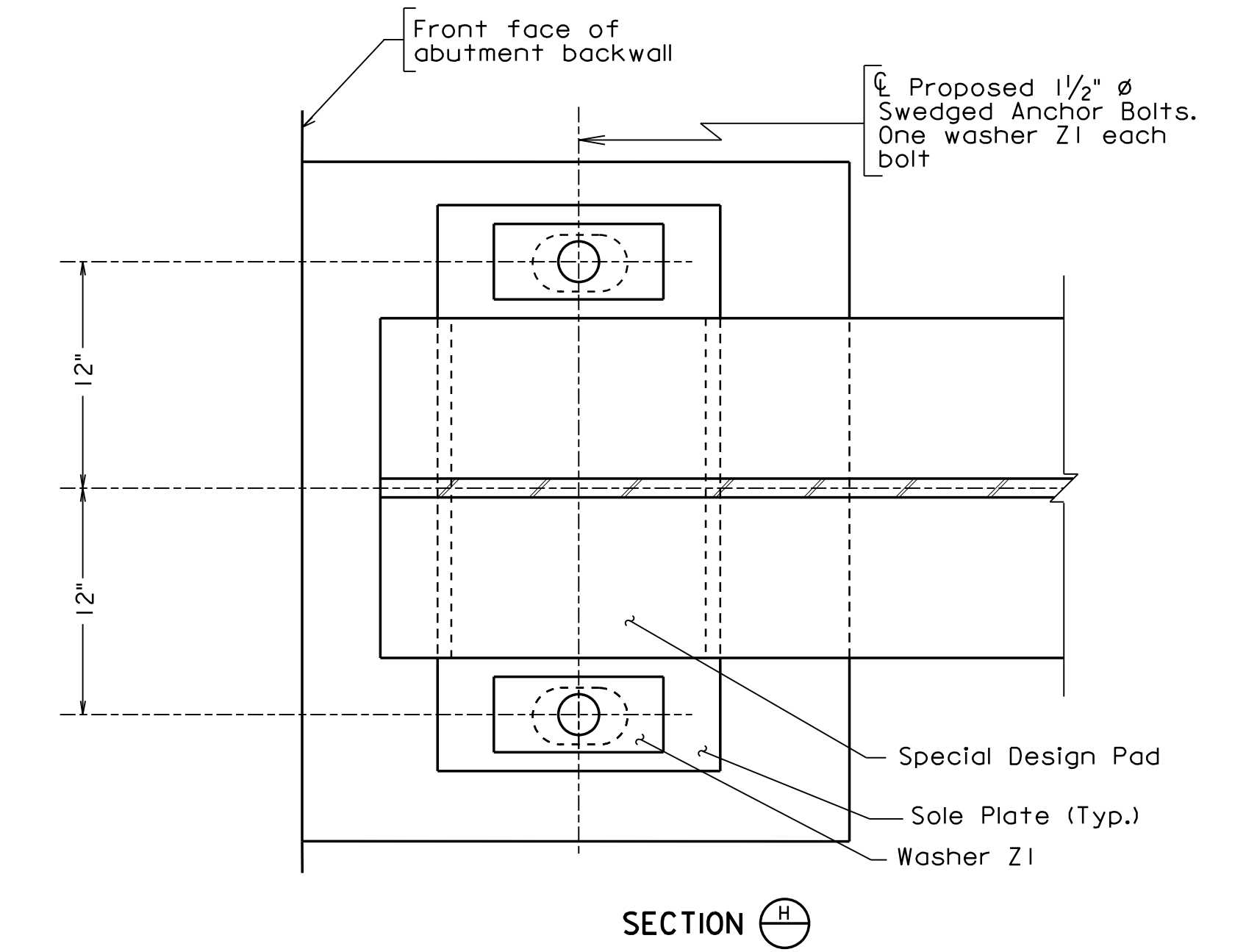
		COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION	
		STRUCTURE AND BRIDGE DIVISION	
		CURB EXTENSION & APPROACH SLAB REPAIR DETAIL	
△	Sheet Number	6-12-14	
△	Section Thru. Curb	6-12-14	
△	Curb Repair Detail	6-12-14	
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Designed: JK.....	Date	Plan No.	Sheet No.
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Note: The sole plate, jacking, stiffener plates, and any portions of diaphragms or beams damaged during modifications shall be painted using System B paint. Brush painting will be allowed.



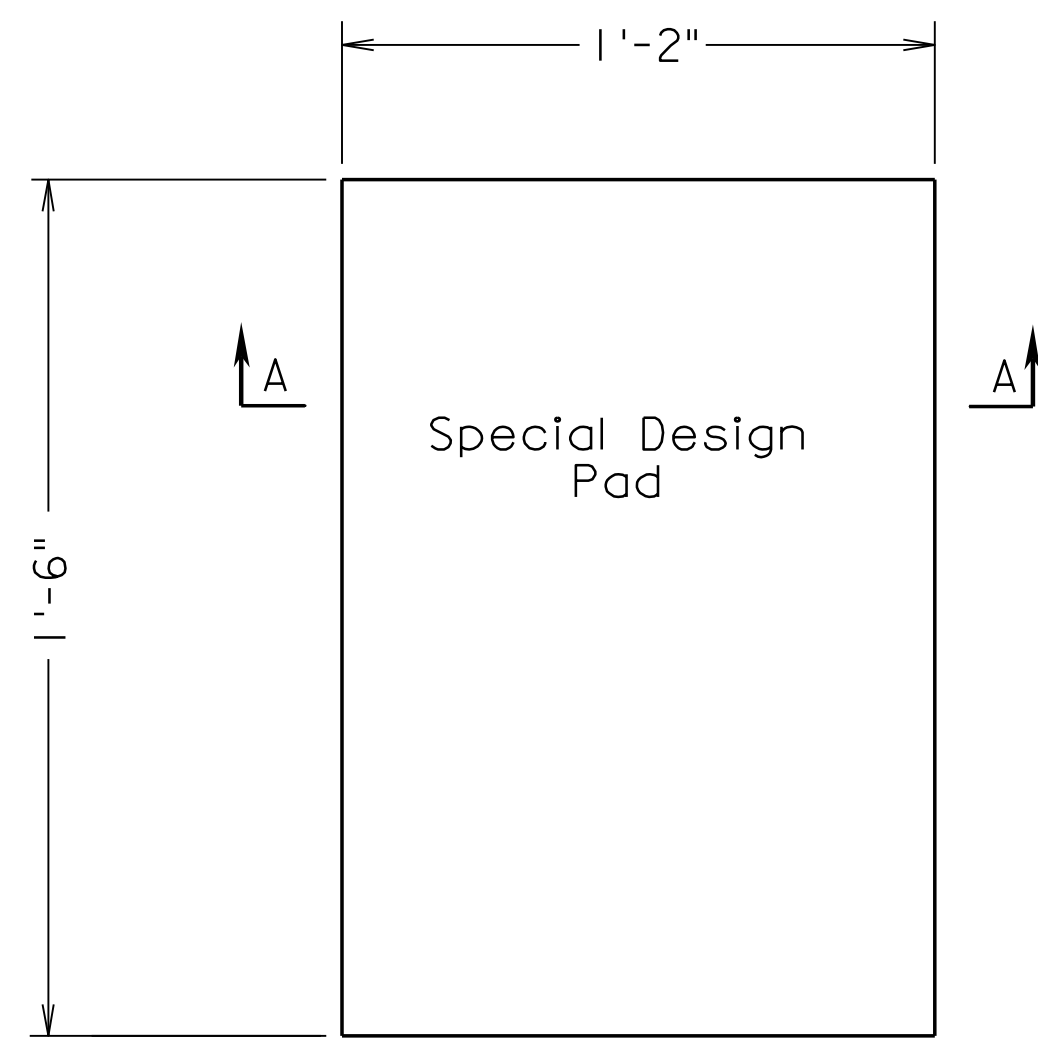
WASHER Z1

ANCHOR BOLT DETAIL

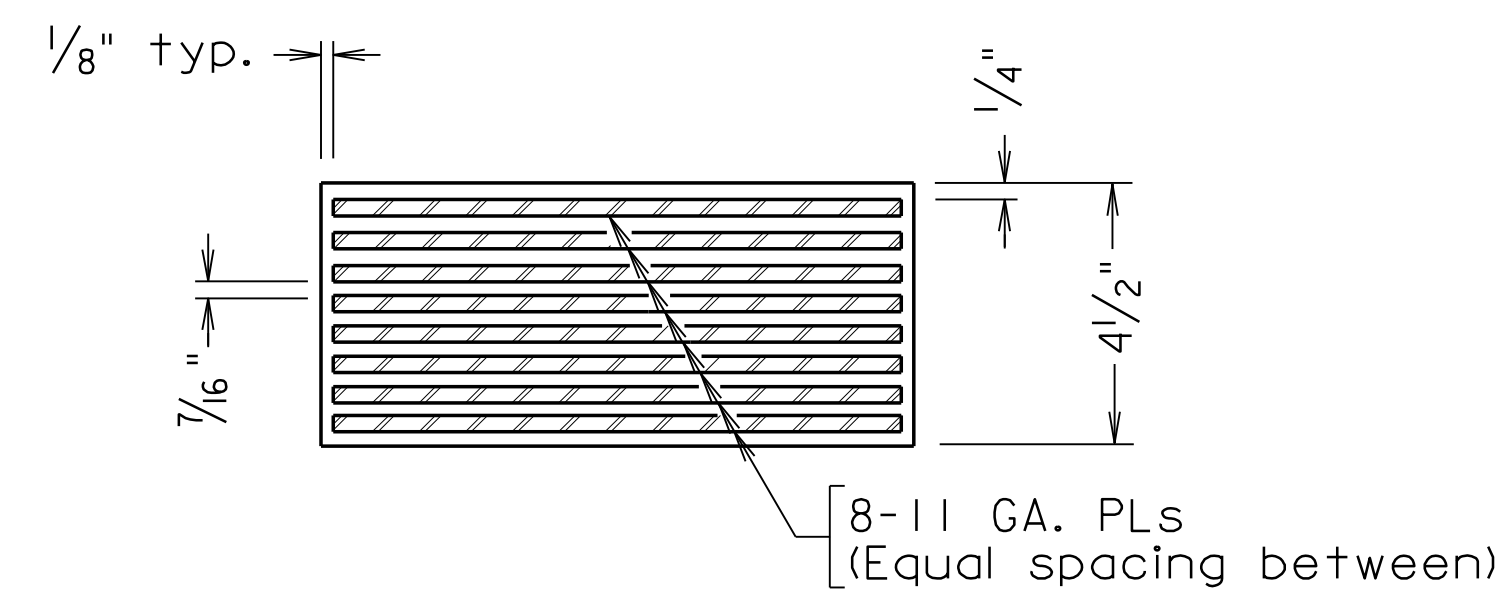


SECTION H

Note: Existing sole plate to be removed using the "carbon arc jet" or other approved method. Care shall be taken not to damage the existing bottom flange. Bottom flange shall be ground to allow proper fit of sole plate.



Special Design Pad

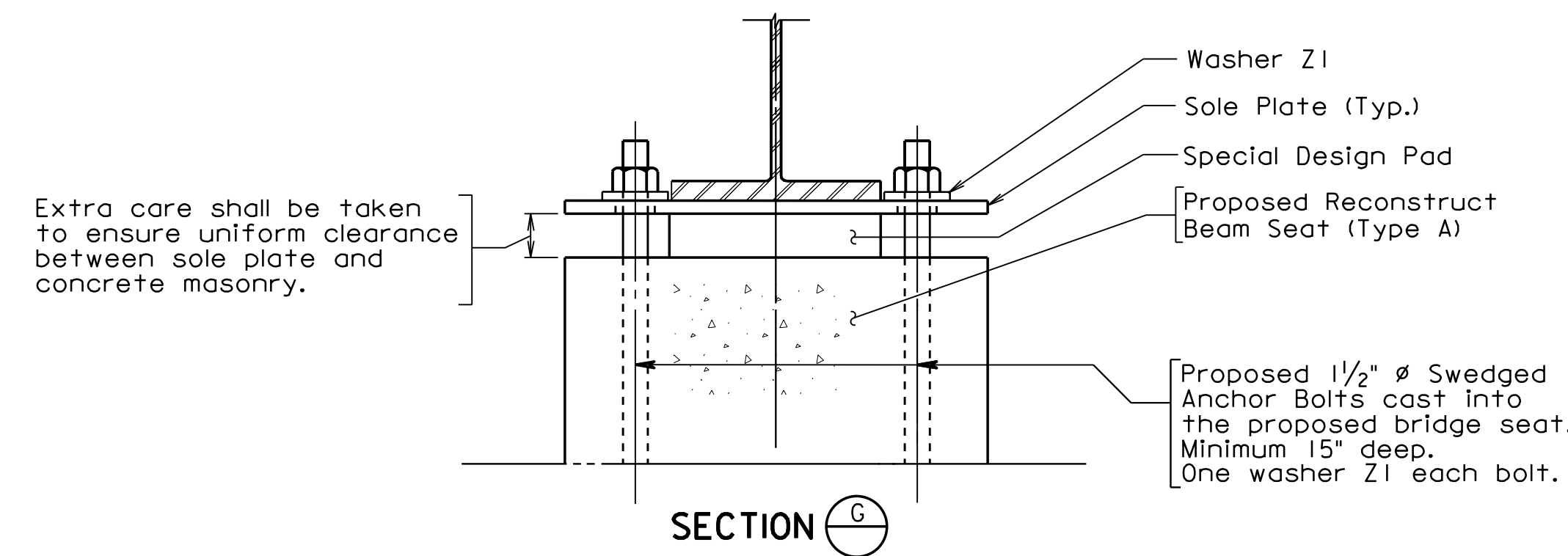


SECTION A-A

LAMINATED ELASTOMERIC BEARING

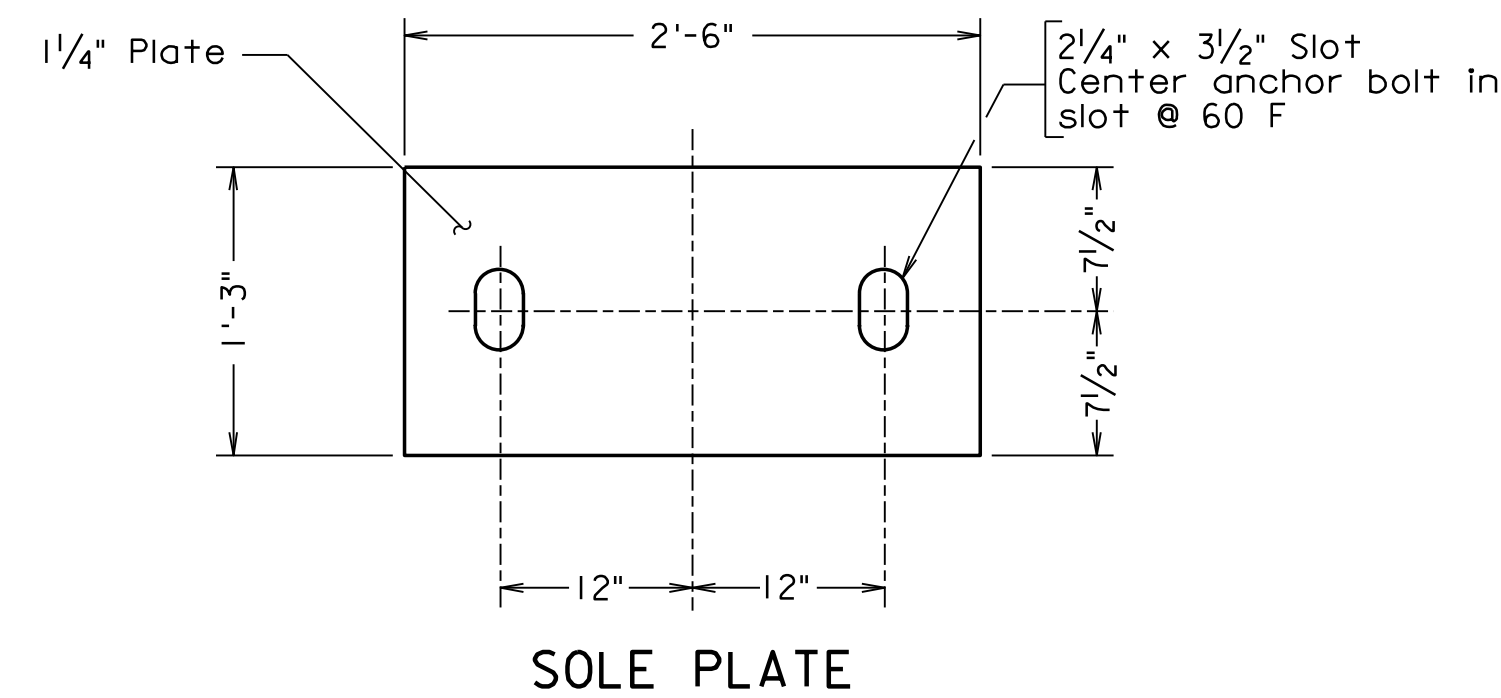
Scale: Not to Scale

Elastomeric bearings shall be molded as a single unit.
Material: Elastomer - 50 durometer hardness.
Shim - ASTM A36 or A570 mild steel.



SECTION G

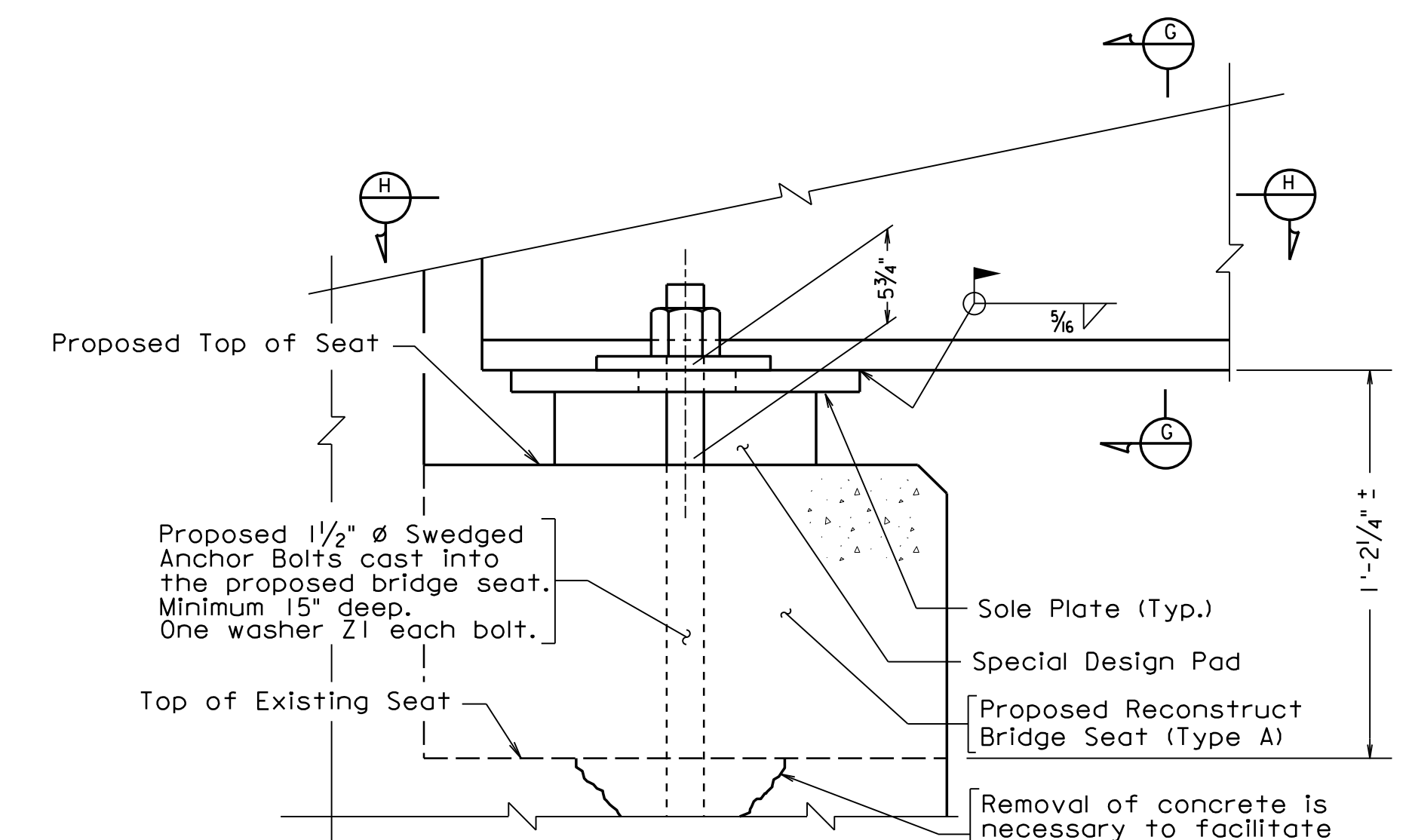
Extra care shall be taken to ensure uniform clearance between sole plate and concrete masonry.



SOLE PLATE

BEARING DETAILS

Scale: Not to Scale



EXPANSION ASSEMBLY ELEVATION
(Abutment Shown)

**RECONSTRUCT BEARING
(BEARING REPLACEMENT)**

Scale: Not to Scale

Item	Quantity
Laminated Elastomeric Bearing	20
Sole Plate	20
Anchor Bolt	40
Washer Z1	40

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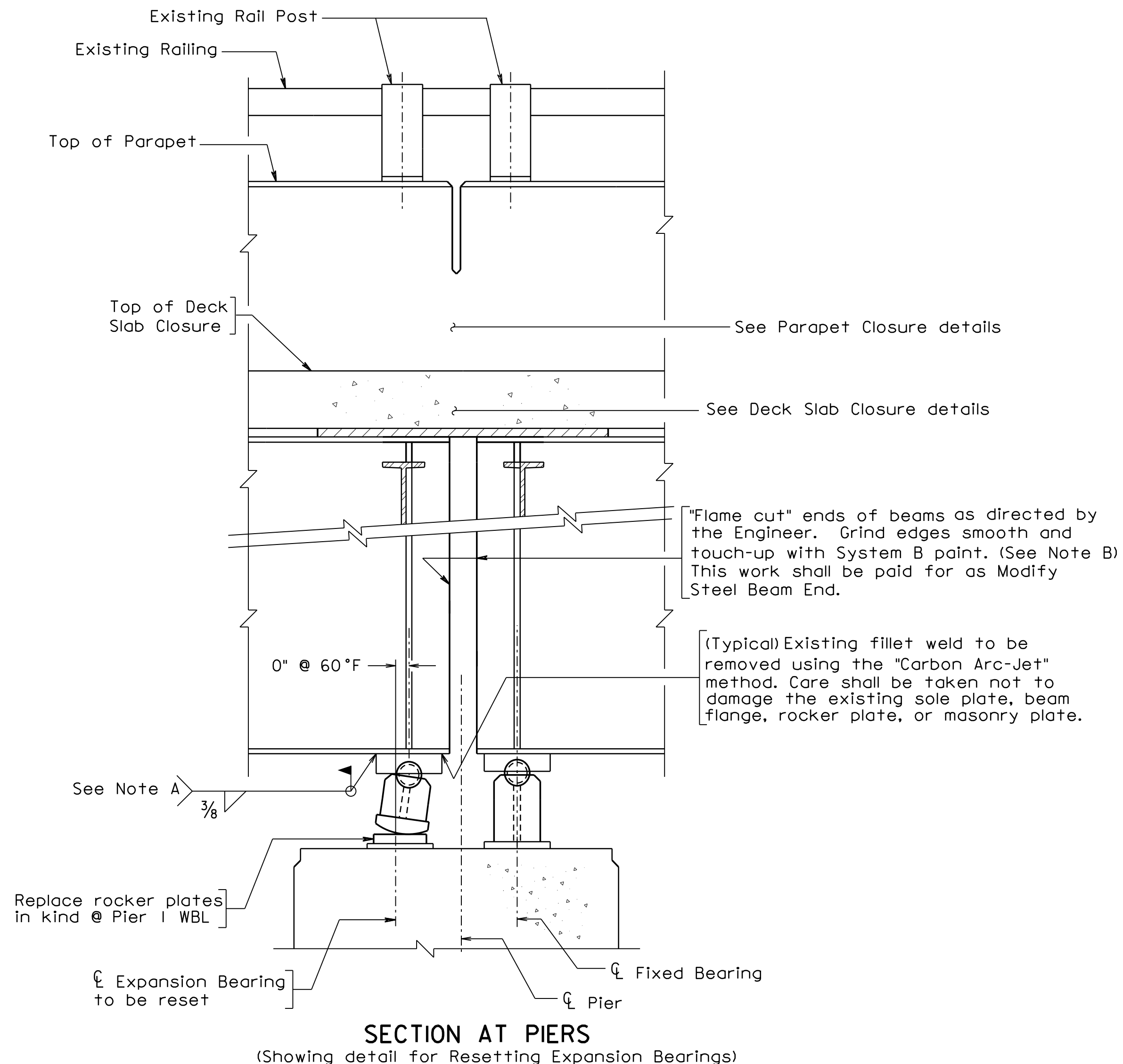
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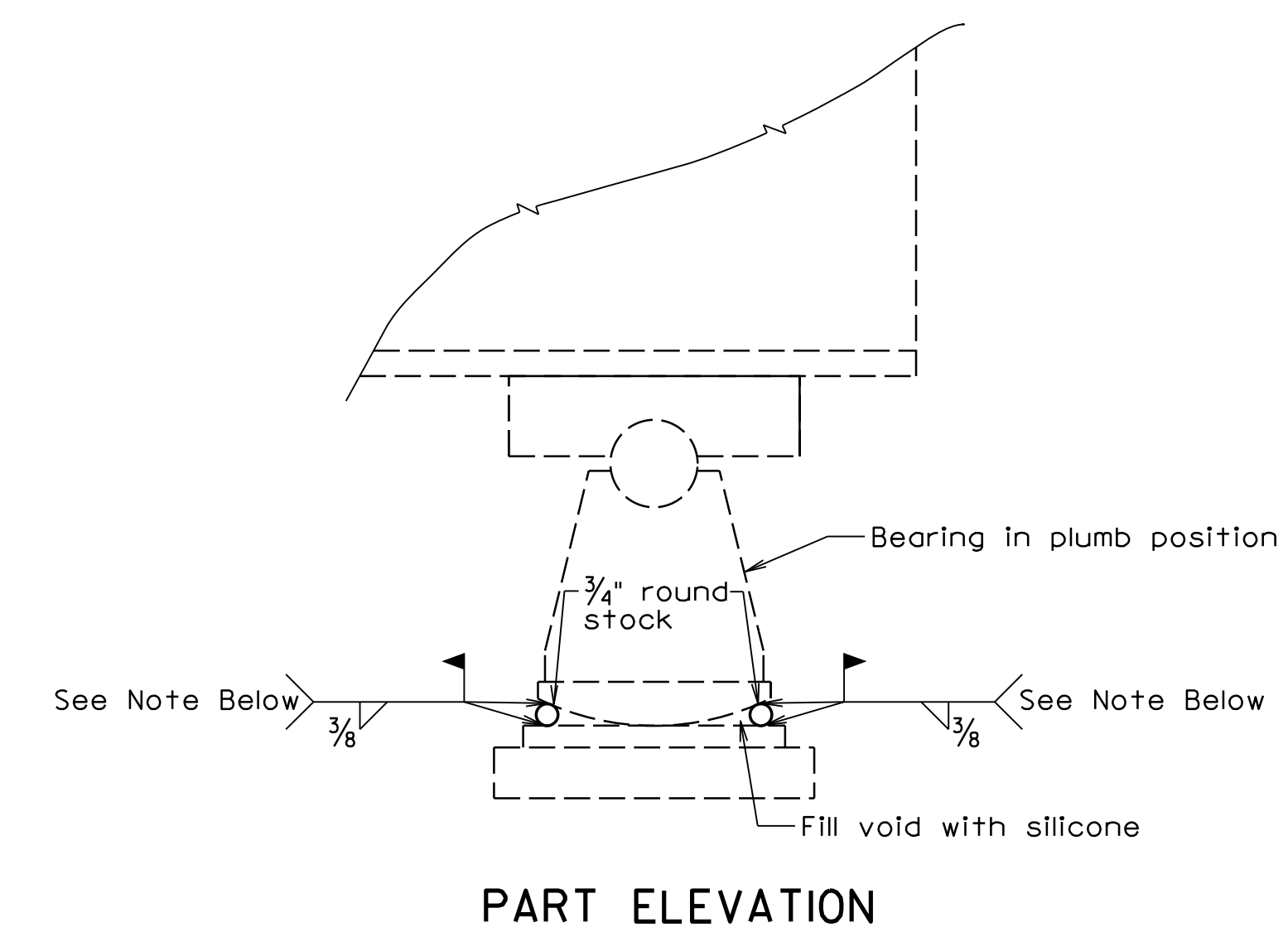
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Note:
 Note A: All Bearing Resetting shall be performed prior to performing deck closures, (Type C Patching Modified) or Parapet Closures.
 Note B: Expansion bearings shall be reset by repositioning the sole plate in relation to the anchor bolts.
 Note C: General Surface Preparation shall be performed in accordance with Section 411.04, Method 4 of the Specifications.
 Note D: All surfaces shall be prepared in accordance with Section 411.05 (b) 1 in locations where coatings are disturbed by repairs. In locations where new steel members are used to repair existing structures Section 411.05 (b) 4 shall be used.



RESET EXPANSION BEARING



MODIFY EXPANSION BEARING (Pier 4 only)

Note E: The bid item Modify Expansion Bearing shall be for changing a bearing from Expansion to Fixed. This shall be accomplished by welding a 3/4" dia. round stock (as shown in the detail Expansion Bearing Modification) locking the bearing in a fixed position. Touch up paint shall be System B and may be brush applied. General Surface Preparation shall be performed in accordance with Section 411.04, Method 4 of the Specifications. This work shall be done in accordance with Section 413.02 of the Specifications.

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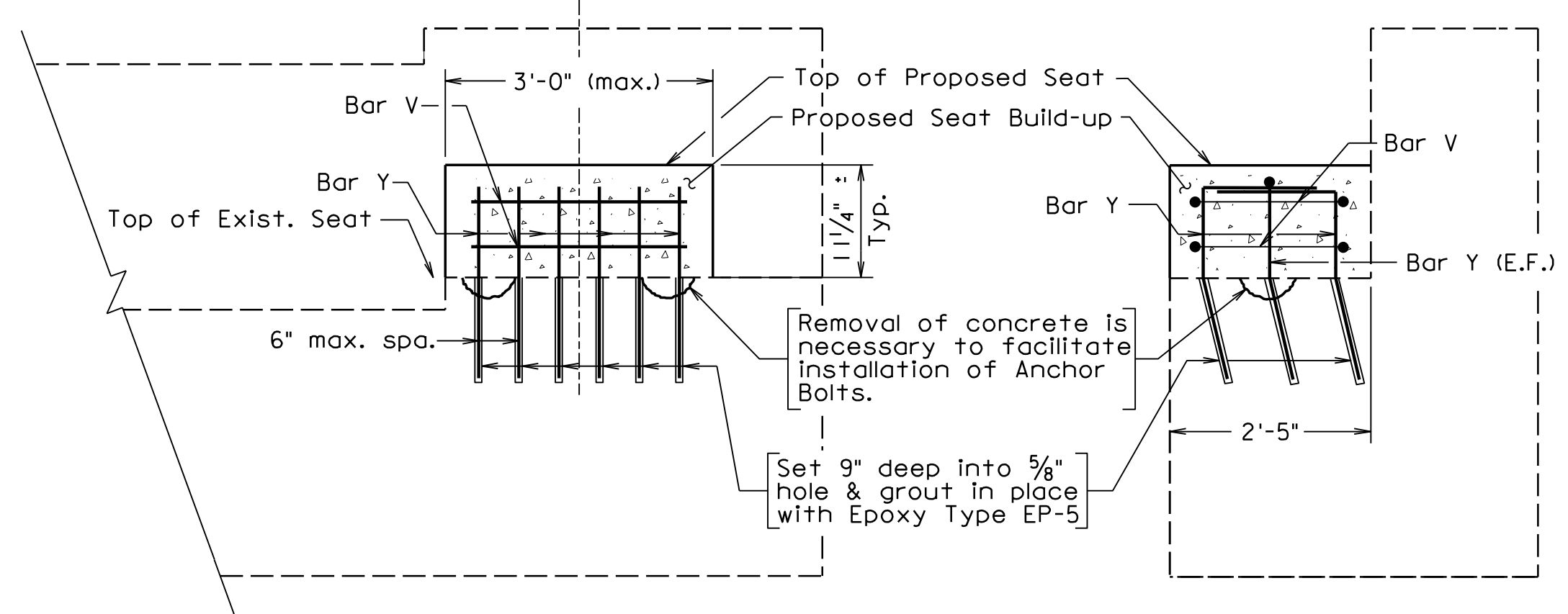
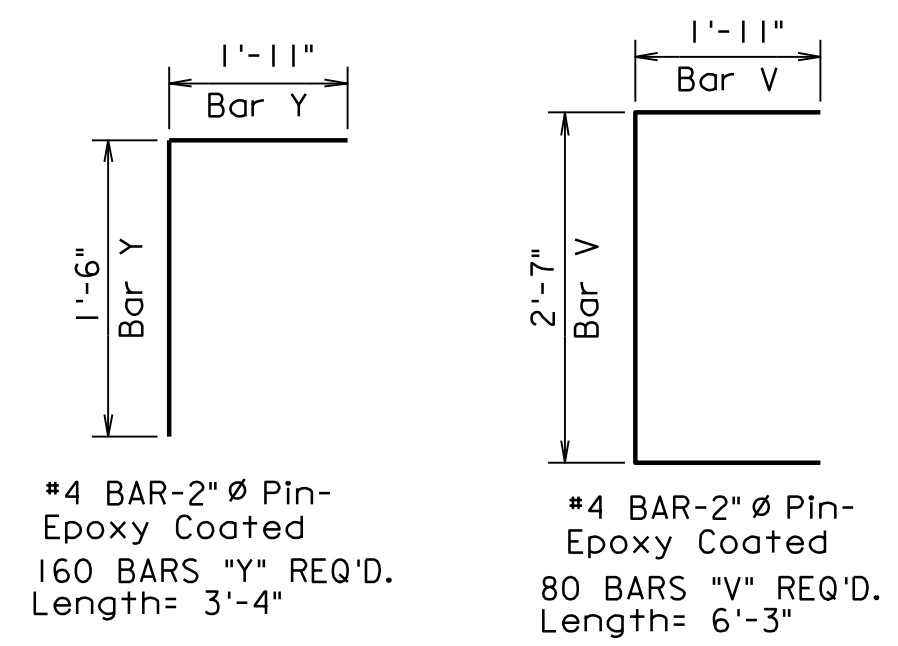
VDOT S&B DIVISION
 STAUNTON, VA
 STRUCTURAL ENGINEER

Scale: Not to scale

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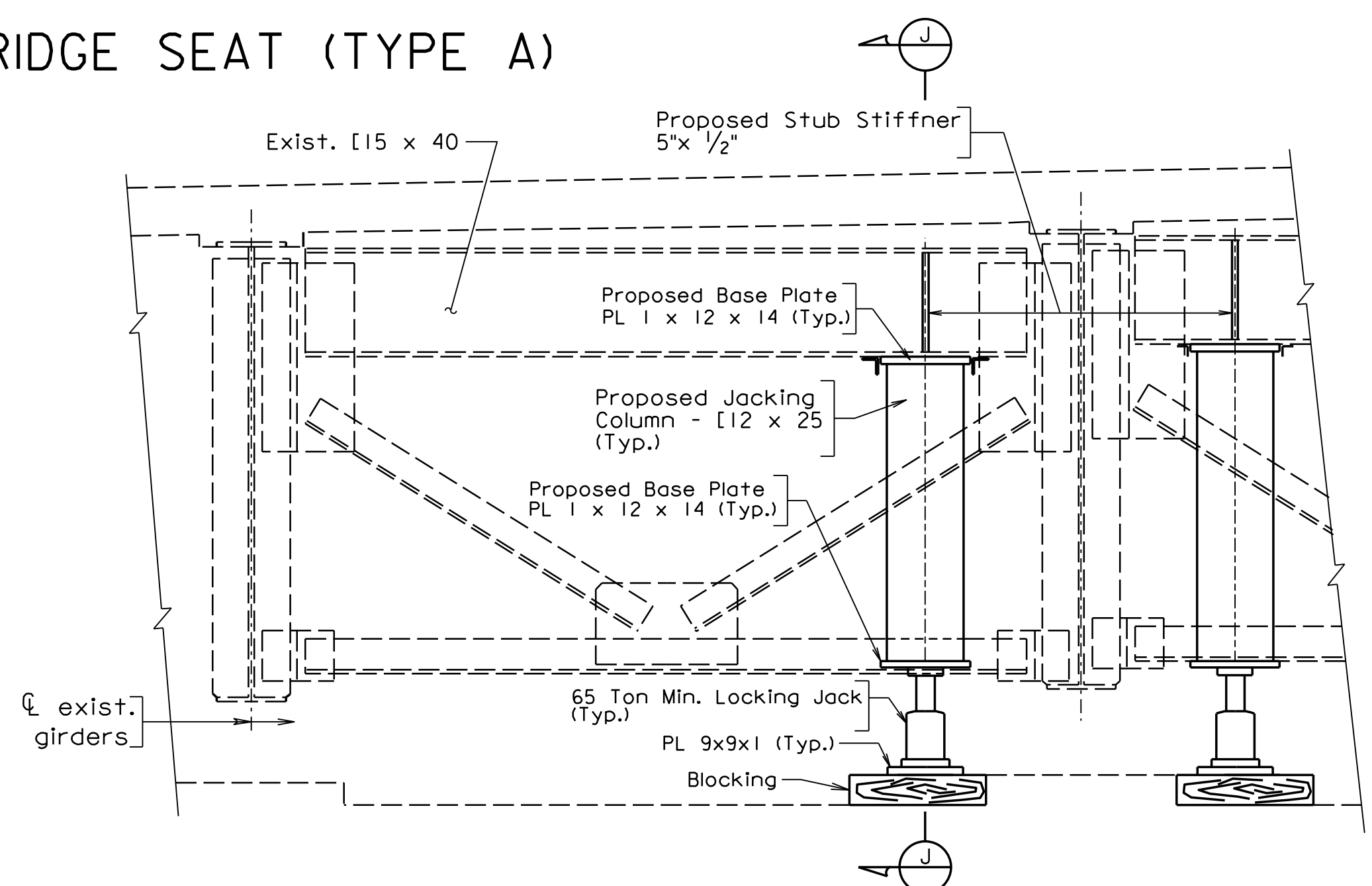
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BEARING DETAILS (2)			
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RECONSTRUCT BEAM SEAT (TYPE A) (Typical)

RECONSTRUCT BRIDGE SEAT (TYPE A)

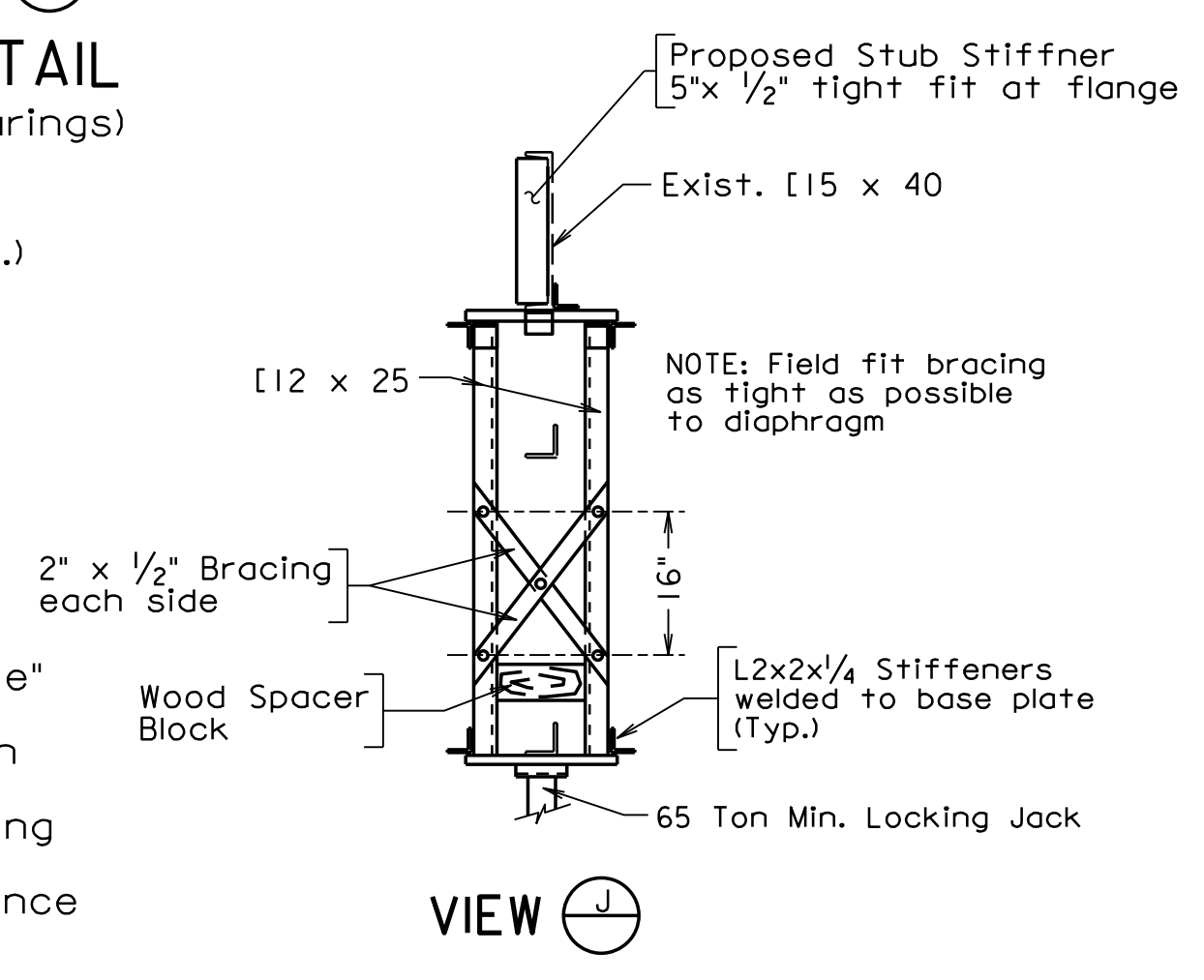


SUGGESTED JACKING DETAIL (For Modifying and Replacing of Bearings)

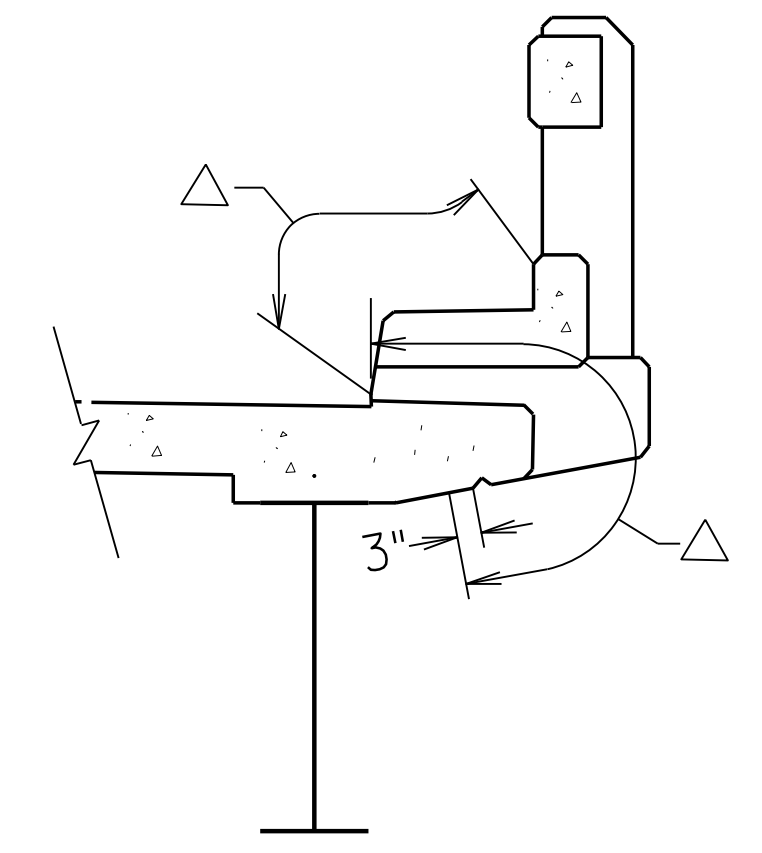
Bearing Assembly not shown. (Details may vary per bridge site.)

Note: Stub stiffeners are to remain in place after resetting of bearings. Stiffeners, welds and areas damaged during welding to be primed and painted (may be brush applied) with System B paint. General surface preparation shall be performed in accordance with Section 411.04, Method 4 of the Specifications.

Note: Pressure of jack is to be applied so as to "neutralize" load on bearing while modifying and/or resetting bearings and bridge seat reconstruction. Lifting the span more than 1/4" will not be allowed. Contractor shall submit proposed jacking scheme (if different than shown) and size of jacking plates for review by the Engineer. Jacking shall be performed at a minimum of three adjacent beam ends at once to help "distribute" loads.



SUGGESTED JACKING DETAIL



△ Denotes limits of Waterproofing (or as directed by the Engineer).

Application rates of aggregate and epoxy material for Waterproofing as specified in Section 416.03 of the Specifications shall be modified for vertical and overhead surfaces. Epoxy application rates shall depend upon natural retention without flow, sag or drip. Aggregate application rates shall depend upon natural retention as the material is "splashed" onto the "wet" epoxy. Remove all loose material and sandblast all areas where Waterproofing is to be applied. Waterproofing may be applied directly over existing coal tar epoxy after any delaminated and unsound areas of coal tar epoxy have been removed.

WATERPROOFING

NOTES FOR RECONSTRUCT BEARING AND RECONSTRUCT BRIDGE SEAT (TYPE A):

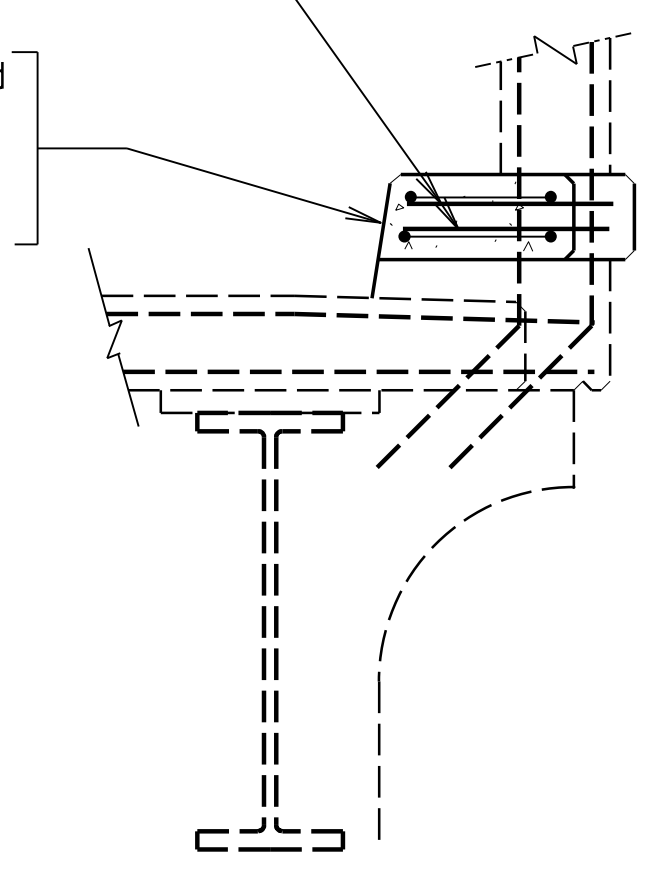
- 1) After removal of existing bearing assembly (including removal of existing sole plate), welding of the new sole plate and Bridge Seat Reconstruction are completed, concrete surfaces and bottom of the sole plate are to be prepared in accordance with Section 408.03(g.) of the Specifications.
- 2) The sole plate, jacking stiffener plates and any portions of diaphragms damaged during welding shall be painted using System B paint. Brush Painting will be allowed.
- 3) The cost of preparing, painting, spot painting, environmental protection and disposal of waste materials and any associated costs shall be included in other bid items.
- 4) Unless otherwise permitted by the Engineer, jacking for replacement of bearing assembly will be allowed only while the traffic is on the lane opposite of bearing replacement.
- 5) Blocking, wedging and jacking for temporary support shall be applied in a manner to lift beams not to exceed 1/4" to allow installation of bearing pads. The Contractor's plan shall be submitted for review by the Engineer 14 calendar days prior to work taking place.
- 6) Existing sole plate shall be removed using the "carbon arc jet" or other approved method. Care shall be taken to not damage the existing bottom flange. Bottom flange shall be ground to allow proper fit of sole plate.

SEQUENCE FOR RECONSTRUCT BEARING AND RECONSTRUCT BRIDGE SEAT (TYPE A):

- a.) Restrict traffic to one side of bridge and perform bearing replacement.
- b.) Loosen anchor bolts approximately 1/2" on bearings under traffic.
- c.) Position blocking and jacks as shown in Suggested Jacking Detail and lift the superstructure not to exceed 1/4" to allow removal of existing bearing. The contractor shall ensure that the beams are returned to their original position by the use of tattletales, reference marks or other means.
- d.) Remove existing sole and masonry plates. Caution shall be taken not to damage existing beam flanges during this phase.
- e.) Remove concrete on existing bridge seat to allow proper positioning of proposed Anchor Bolts. Install dowels and forms for bridge seat reconstruction.
- f.) Position and weld proposed sole plate to beam flange positioned in accordance with Section 408.03(g) of the Specifications.
- g.) Install Anchor Bolts to desired final position. Place concrete for bridge seat.
- h.) Prepare bearing areas and bottom of sole plate with epoxy grit in accordance with Section 408.03(g) of the Specifications.
- i.) Place bearing pads and remove jacking hardware and blocking.
- j.) Switch traffic to opposite side of bridge and repeat procedure.

Existing reinforcing steel shall be preserved and maintained through the recast sections.

Existing curb to be removed and recast to the existing dimensions as directed by the Engineer.



REPLACE CONCRETE CURB

RECONSTRUCT BEARING AND RECONSTRUCT BRIDGE SEAT (TYPE A)

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION			
STRUCTURE AND BRIDGE DIVISION			
BEARING, SEAT, CURB, WATERPROOFING, AND JACKING DETAILS			
△	Sheet Number	6-12-14	
No.	Description	Date	Designed: IK..... Date Drawn: IK..... Checked: DWH.....
Revisions		May 2014	Plan No. Sheet No. 9 of 9

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