

Chapter 03 - Superstructure

SECTION 08

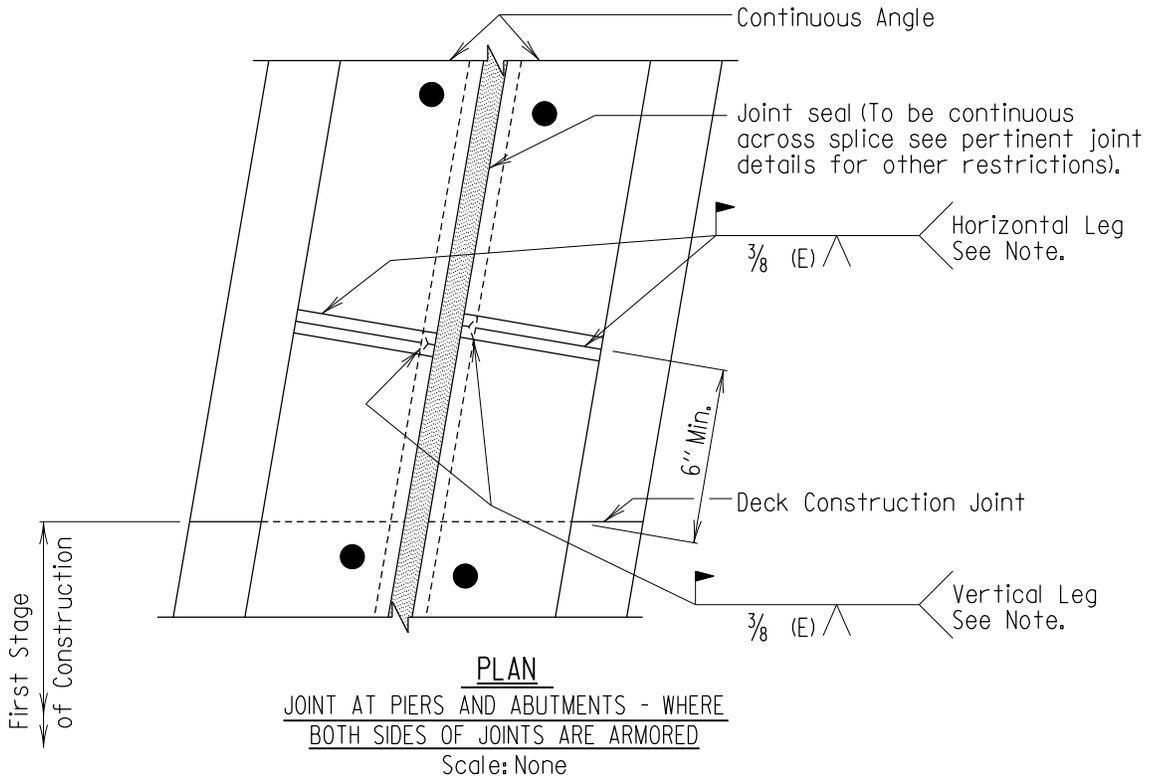
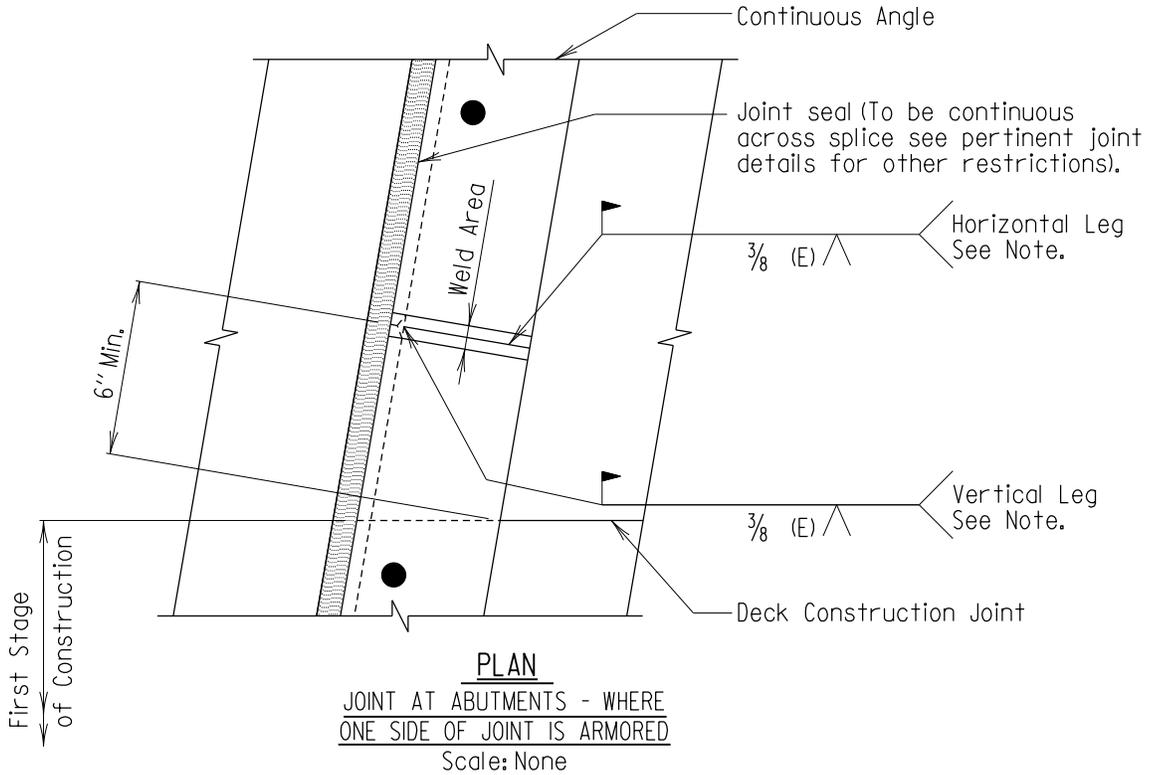
**BRIDGE DECK  
JOINTS  
(SUP-JT)**

## Chapter 03 - Superstructure

### Section 08 – Bridge Deck Joints

#### SUB-SECTION 01

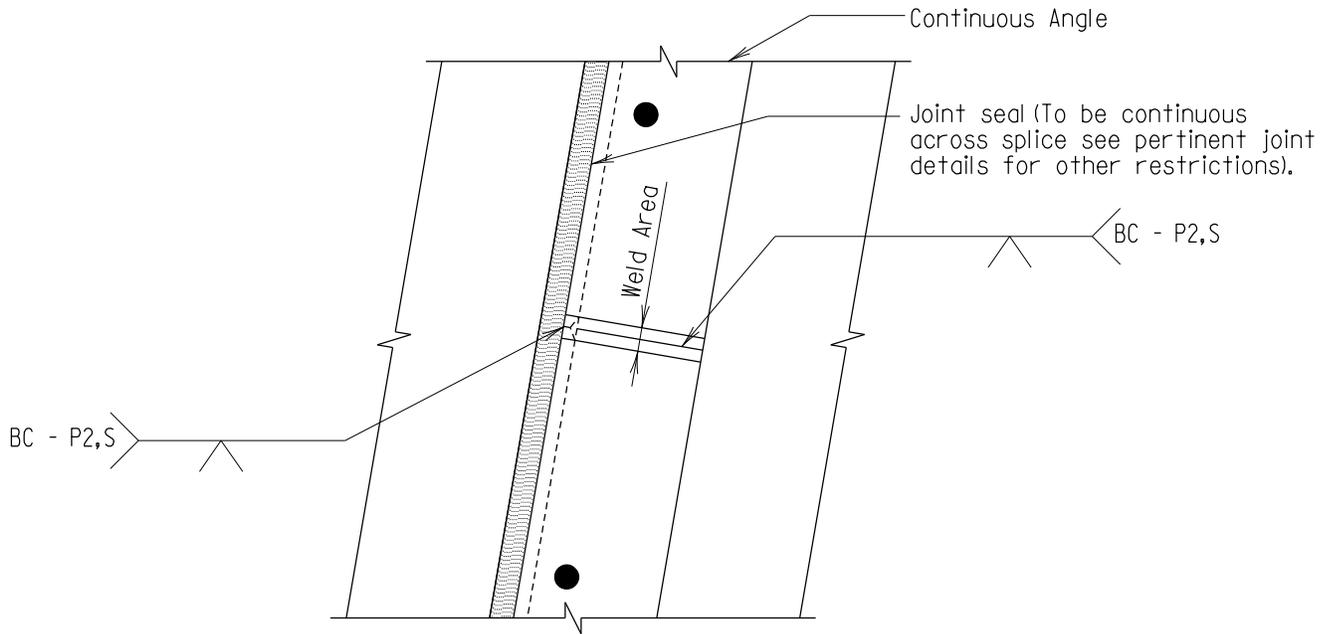
# JOINT CONSTRUCTION DETAILS (SUP-JT(JC))



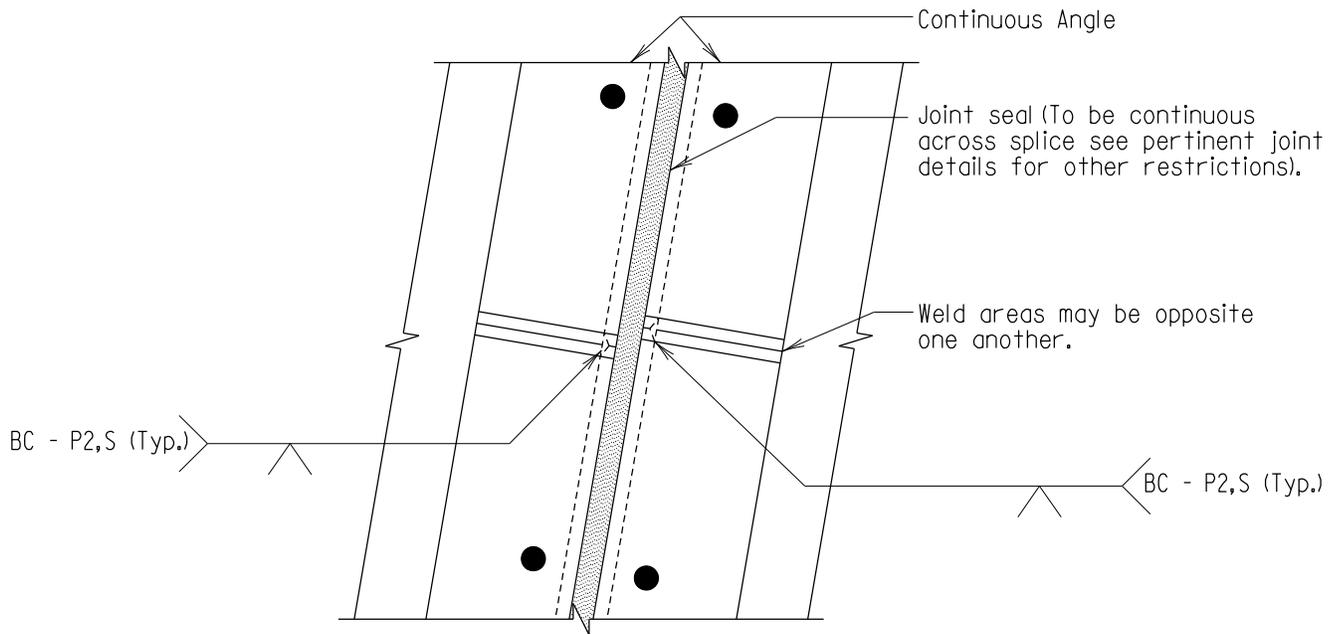
Notes:  
 The minimum effective throat (E) shall be determined by the angle thickness as follows:  
 Min. E =  $\frac{3}{16}$ " for thicknesses over  $\frac{1}{4}$ " to  $\frac{1}{2}$ " incl.  
 Min. E =  $\frac{1}{4}$ " for thicknesses over  $\frac{1}{2}$ " to  $\frac{3}{4}$ " incl.

APPROVAL
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 01/09/2011
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
<b>ROADWAY JOINT ANGLE SPLICES FOR SEQUENTIAL CONSTRUCTION</b>
DETAIL NO. SUP-JT(JC)-101
SHEET <u>1</u> OF <u>1</u>



PLAN  
 JOINT AT ABUTMENTS - WHERE  
 ONE SIDE OF JOINT IS ARMORED  
 Scale: None



PLAN  
 JOINT AT PIERS AND ABUTMENTS - WHERE  
 BOTH SIDES OF JOINTS ARE ARMORED  
 Scale: None

Note:  
 Whenever possible the need for this splice should be limited. Preferably, the minimum spacing between joints shall be 40'. If there are breaks in the crown or if the joint is skewed; splices may be made at all breaks in slope and may follow the direction of centerline of bridge instead of being perpendicular to center line of bearing.

APPROVAL
<i>E.S. Fudman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/16/2011
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES	
ROADWAY JOINT ANGLE SHOP SPLICES FOR NON-SEQUENTIAL CONSTRUCTION	
DETAIL NO. SUP-JT(JC)-102	SHEET <u>1</u> OF <u>1</u>

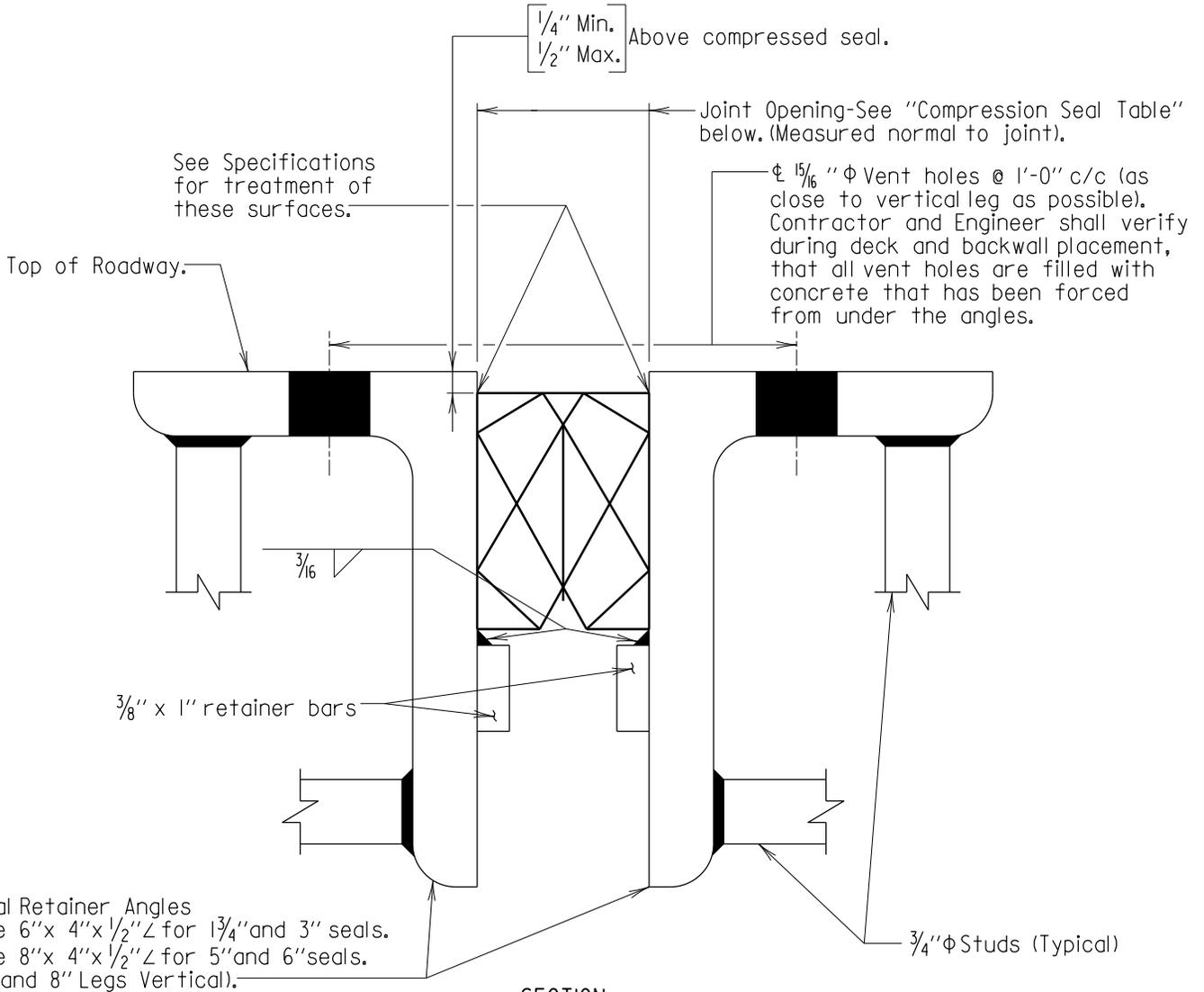
SUPER-JOINTS

## Chapter 03 - Superstructure

### Section 08 – Bridge Deck Joints

#### SUB-SECTION 02

# JOINT SEAL DETAILS (SUP-JT(JS))



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

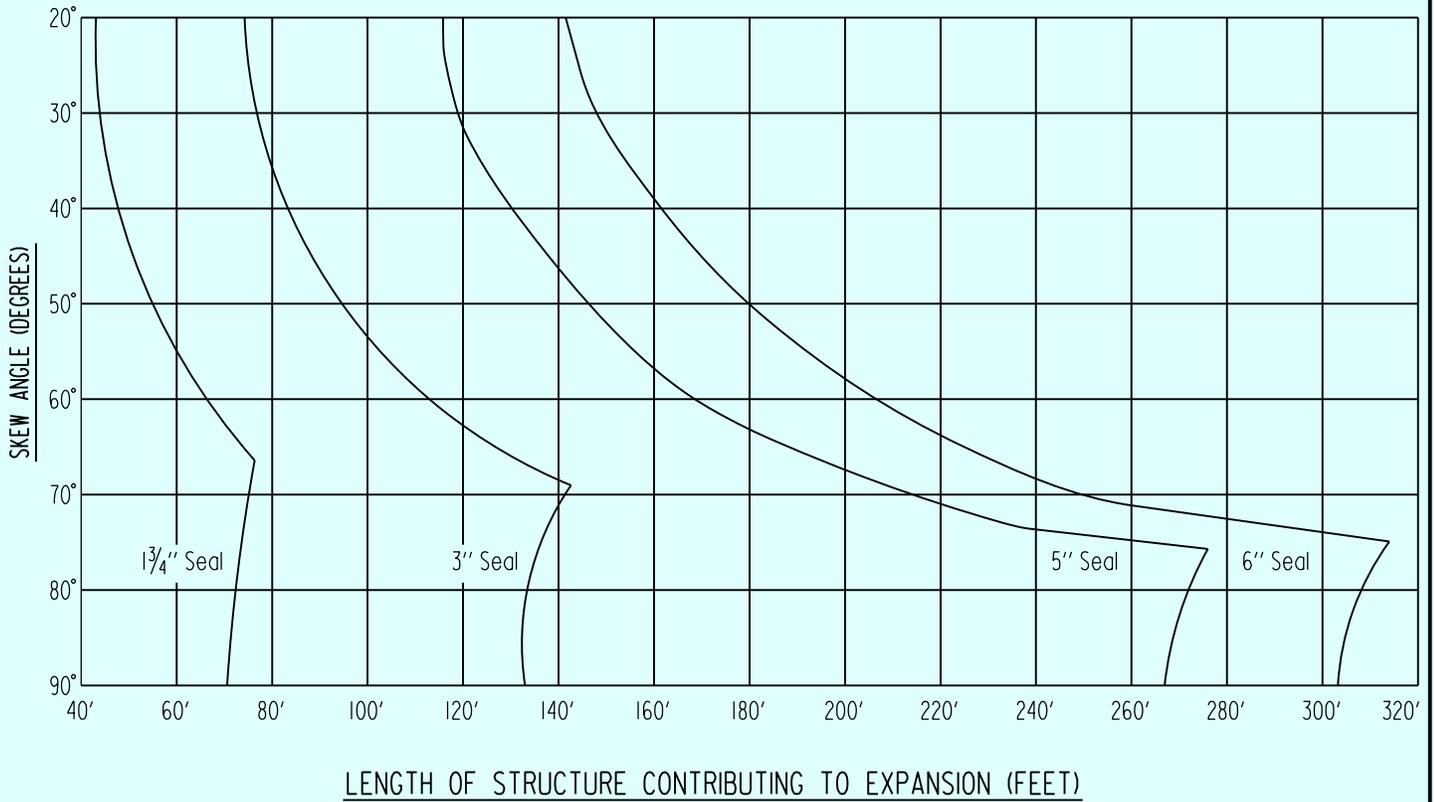
COMPRESSION SEAL TABLE								
Location	Uncompressed Seal Width	Joint Opening @						Movement Rating
		40° F	50° F	60° F	70° F	80° F	90° F	
	1 3/4"			1 1/8"				0.66"
	3"			1 5/16"				1.25"
	5"			3"				2.50"
	6"			3 5/8"				2.85"

**Note:**

- The 1 3/4" and 3" seals to be one piece for full length of seal (no joints).
- The 5" and 6" seals may have one shop splice per joint, if the length of joint exceeds 50'. Splice shall be at least 15' from gutter line.

APPROVAL
<i>E.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/24/2015
VERSION
1.0

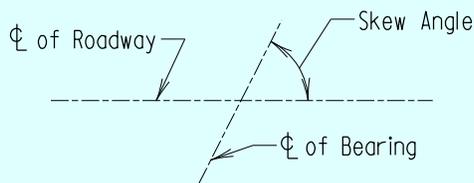
STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
COMPRESSION SEAL JOINT AND RETAINING ANGLE DETAIL
DETAIL NO. SUP-JT(JS)-101
SHEET <u>1</u> OF <u>1</u>



**PREFORMED COMPRESSION SEALS**

Seal Width	Total Allow Movement	Joint Opening @ 60°F
1 3/4"	0.66"	1 1/8"
3"	1.25"	1 5/16"
5"	2.50"	3"
6"	2.85"	3 5/8"

Note:  
Seal opening at 60°F based on a temperature variation of 0°F to 120°F.



**SKREW ANGLE**

Scale: None

**\* FOR OFFICE USE ONLY \***

APPROVAL
<i>L.S. Freedom</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 10/01/1982
VERSION
1.0

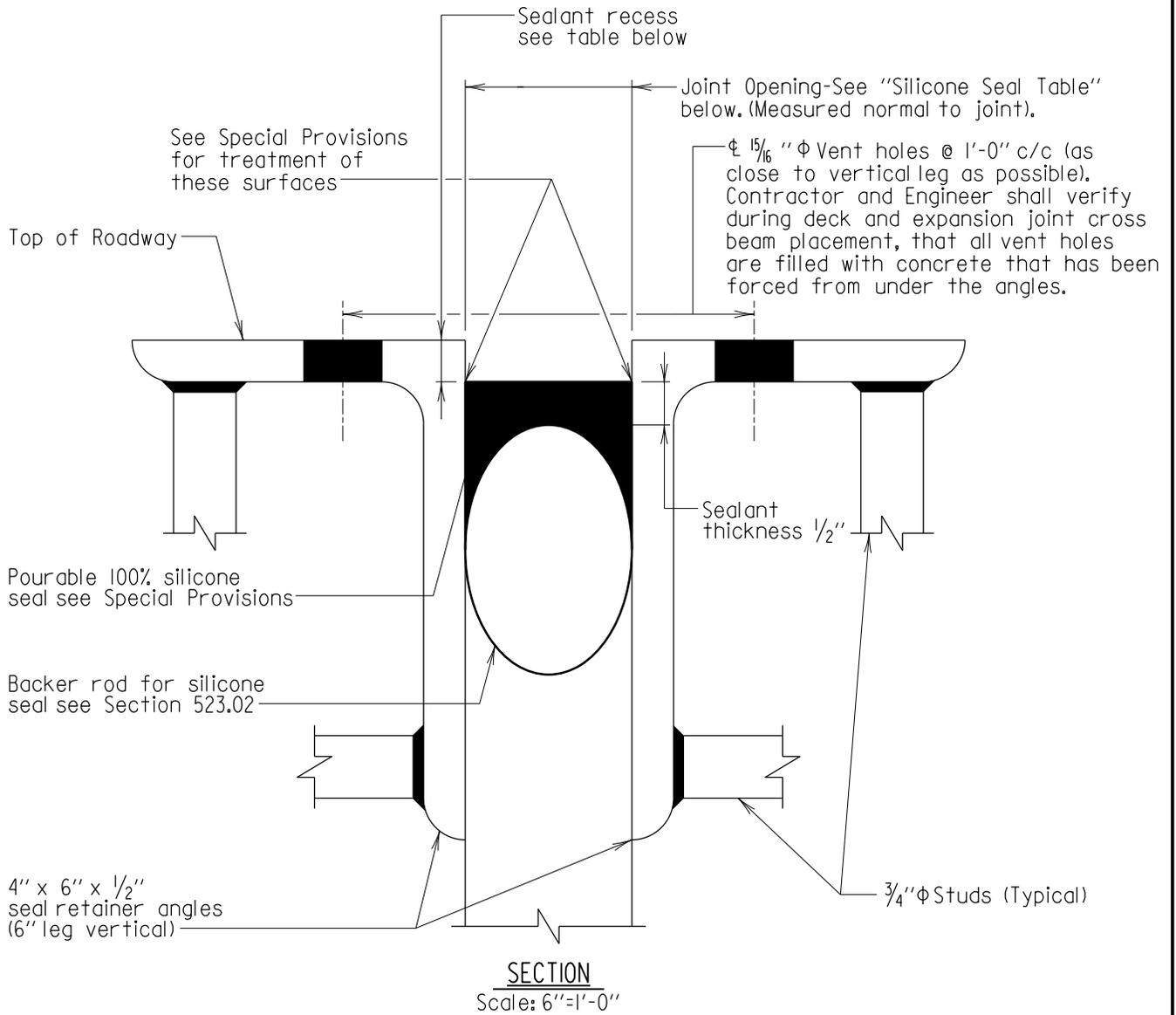
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DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES

**PREFORMED COMPRESSION SEAL SELECTION CHART**

DETAIL NO. SUP-JT(JS)-102

SHEET 1 OF 1

SUPER - ROADWAY JOINTS



SILICONE SEAL TABLE

Location	Max. length contributing to expansion*		Sealant Recess	Joint Opening Minimum	Joint Opening Maximum	Joint Opening @						
	Steel beam	Concrete beam				40° F	50° F	60° F	70° F	75° F	80° F	90° F
	150'	185'	1/2"	1/2"	2"					1"		
	225'	275'	1/2"	3/4"	3"					1 1/2"		
	300'	370'	1/2"	1"	4"					2"		
	375'	460'	1/2"	1 1/4"	5"					2 1/2"		
	450'	555'	5/8"	1 1/2"	6"					3"		

- Notes:
- These lengths do not need to be adjusted for skew angle.
  - Joint area to be thoroughly cleaned in accordance with joint manufacturers recommendations just prior to placing of seal.

APPROVAL
<i>E.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 03/07/2013
VERSION
1.0

STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES

SILICONE SEAL JOINT AND  
RETAINER ANGLE DETAIL

DETAIL NO. SUP-JT(JS)-201

SHEET 1 OF 1

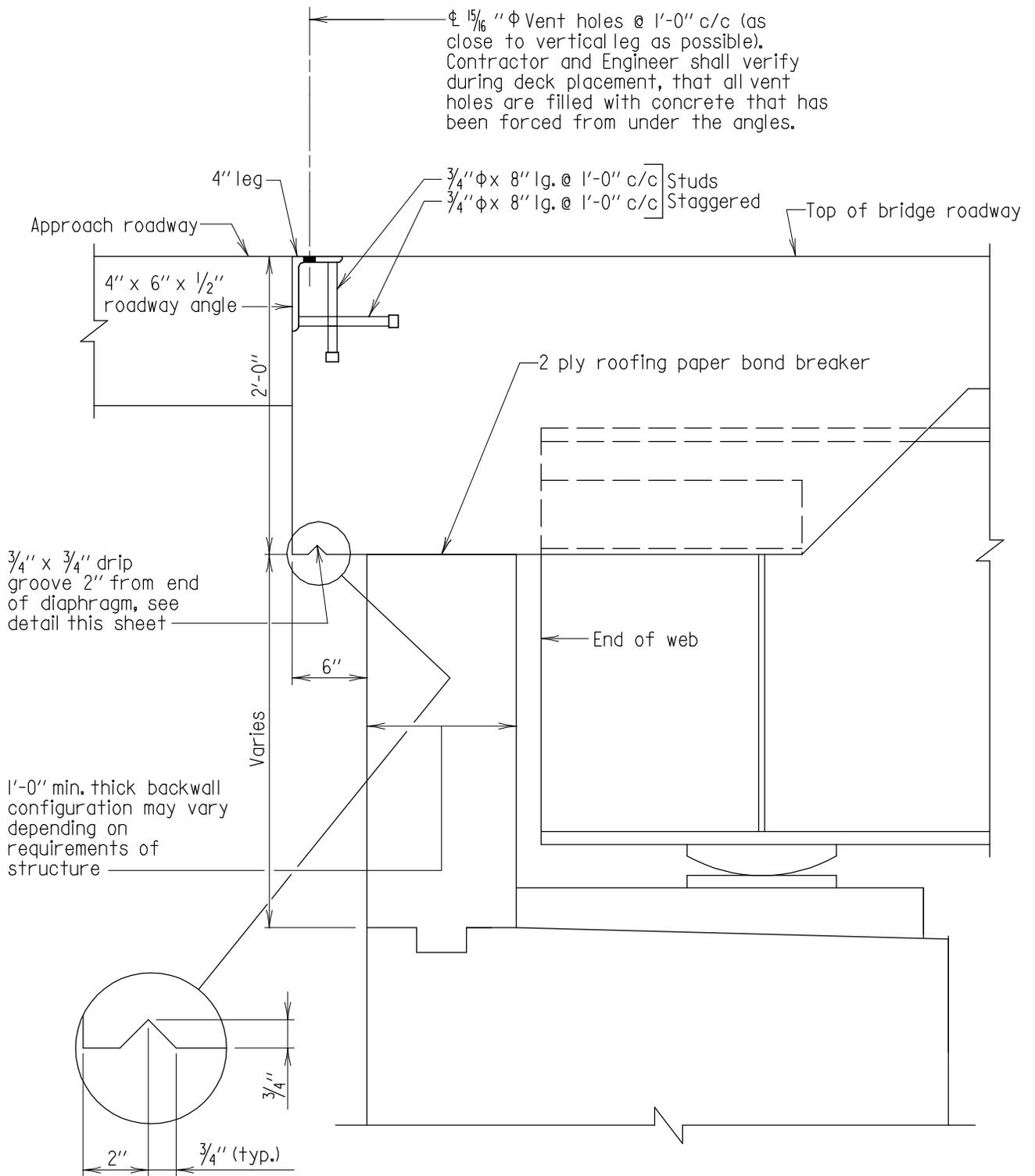
SUPER-JOINTS

## Chapter 03 - Superstructure

### Section 08 – Bridge Deck Joints

#### SUB-SECTION 03

# FIXED JOINT DETAILS (SUP-JT(FIX))



$\phi 15/16$  "  $\phi$  Vent holes @ 1'-0" c/c (as close to vertical leg as possible). Contractor and Engineer shall verify during deck placement, that all vent holes are filled with concrete that has been forced from under the angles.

4" leg  
 4" x 6" x 1/2" roadway angle  
 2'-0"  
 3/4"  $\phi$  x 8" lg. @ 1'-0" c/c Studs  
 3/4"  $\phi$  x 8" lg. @ 1'-0" c/c Staggered  
 Top of bridge roadway

2 ply roofing paper bond breaker

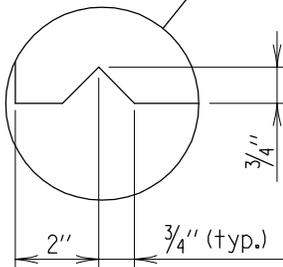
3/4" x 3/4" drip groove 2" from end of diaphragm, see detail this sheet

6"

End of web

Varies

1'-0" min. thick backwall configuration may vary depending on requirements of structure



DRIP GROOVE DETAIL

Scale: 3" = 1'-0"

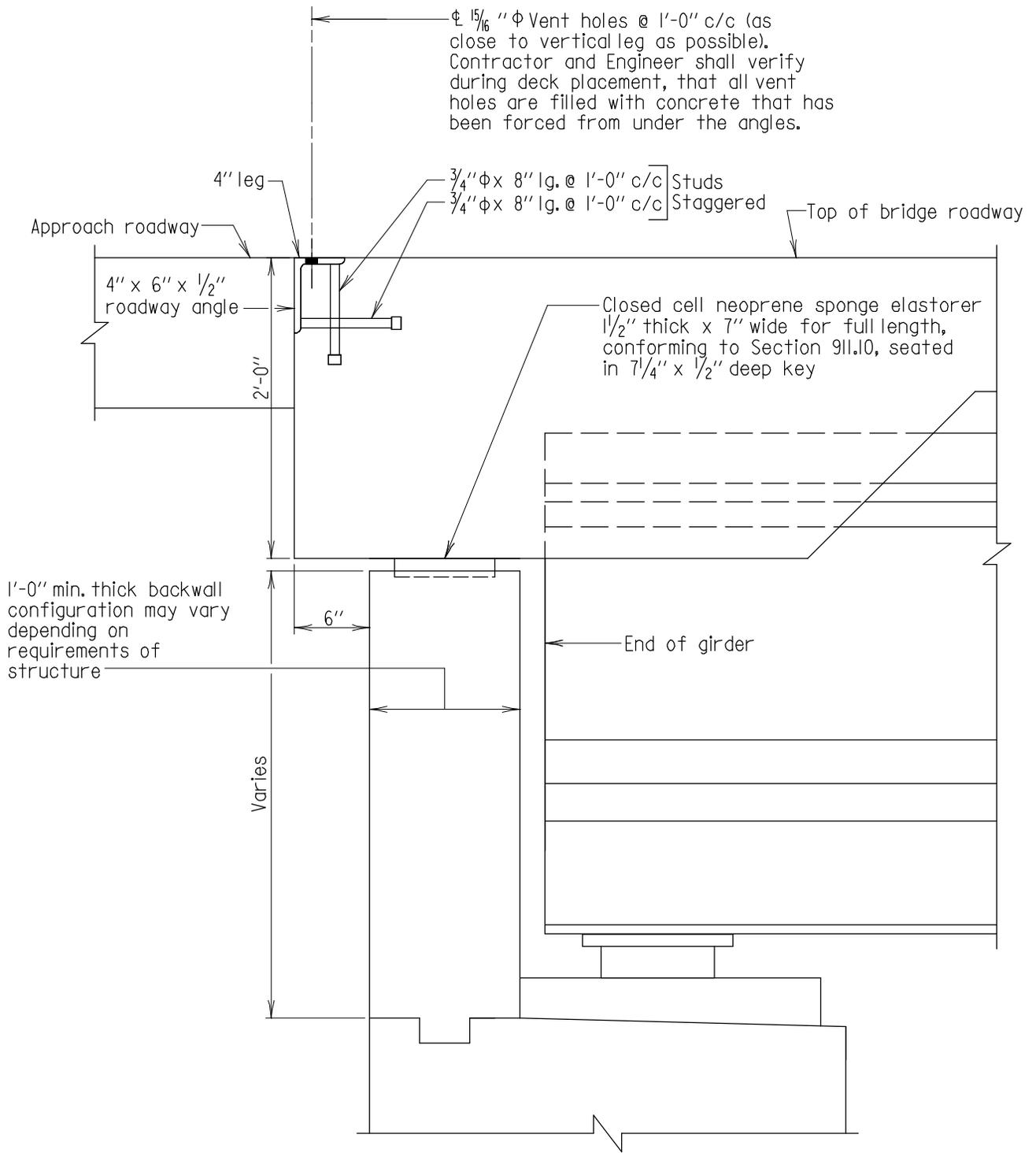
SECTION

Scale: 1" = 1'-0"

APPROVAL
<i>L.S. Fisher</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 03/18/2014
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES ROADWAY JOINT AT ABUTMENTS CARRYING STEEL GIRDERS WITH STEEL FIXED BEARINGS OR STEEL EXPANSION BEARINGS WITH LENGTH CONTRIBUTING TO EXPANSION $\leq$ 70 FEET
DETAIL NO. SUP-JT(FIX)-101
SHEET <u>1</u> OF <u>1</u>

SUPER-JOINTS



SECTION  
Scale: 1" = 1'-0"

APPROVAL
<i>Gene C. [Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 02/24/2017
VERSION
1.0

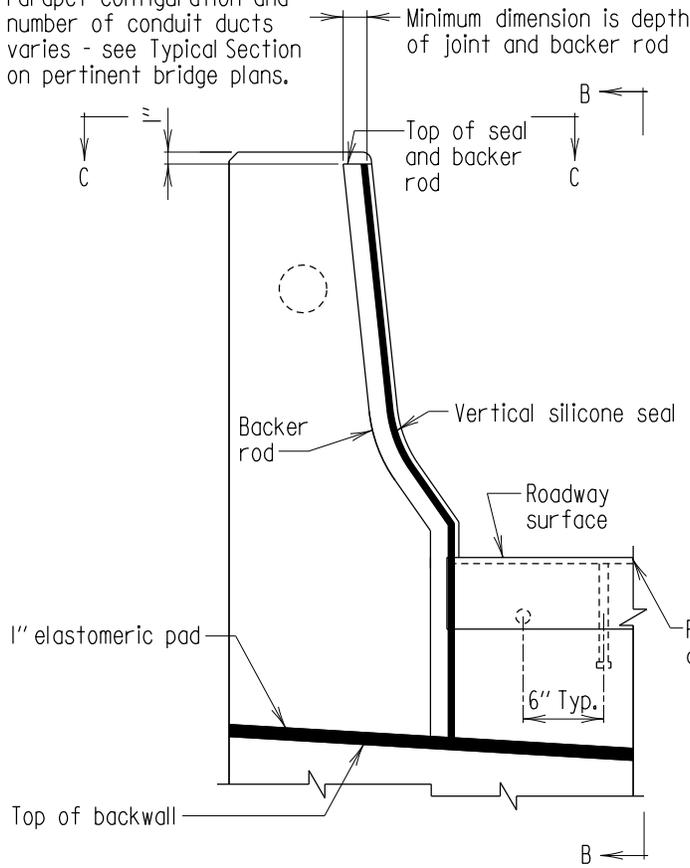
STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF STRUCTURES  
 ROADWAY JOINT AT ABUTMENTS CARRYING PRESTRESSED  
 CONCRETE GIRDERS WITH ELASTOMERIC FIXED BEARINGS  
 OR EXPANSION BEARINGS WITH LENGTH CONTRIBUTING TO  
 EXPANSION  $\leq$  70 FT.

DETAIL NO. SUP-JT(FIX)-201

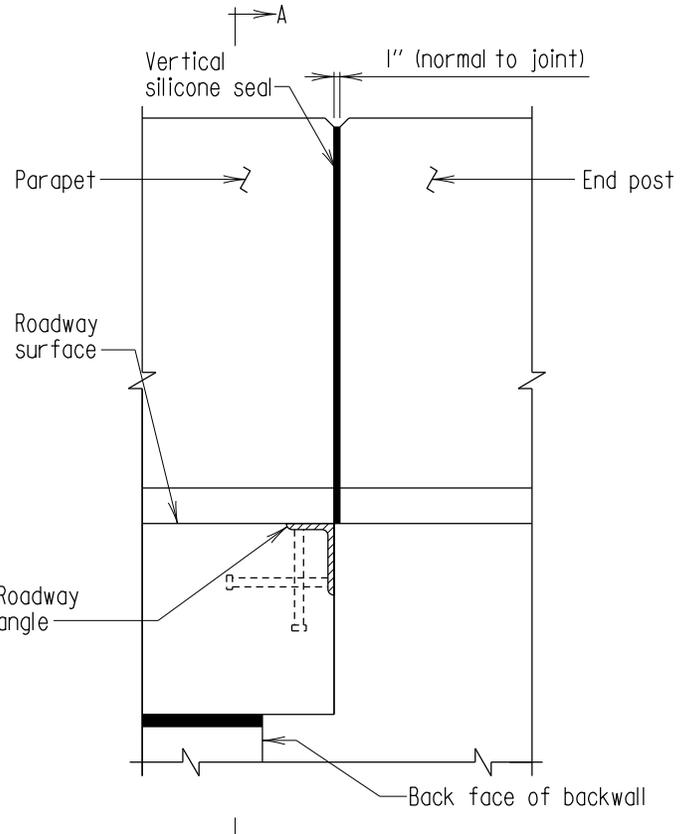
SHEET 1 OF 1

**Note:**

Parapet configuration and number of conduit ducts varies - see Typical Section on pertinent bridge plans.

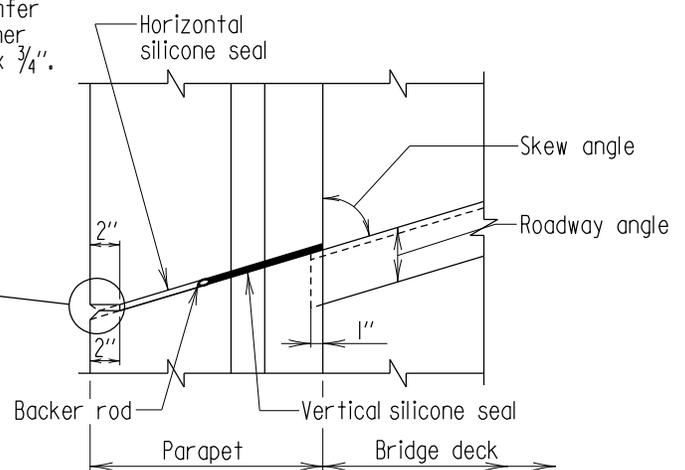
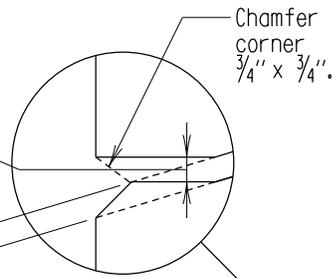


**ELEVATION - SECTION A-A**  
Scale:  $\frac{3}{4}'' = 1'-0''$



**VIEW B-B**  
Scale:  $\frac{3}{4}'' = 1'-0''$

If skew angle is less than 70°, joints shall be formed normal to outside face of superstructure thus, otherwise this.



**VIEW C-C**  
Scale:  $\frac{3}{4}'' = 1'-0''$

**Note:**

1. All studs shall  $\frac{3}{4}'' \phi$ -8" long
2. Section A-A & B-B shown 90° skew.
3. Roadway angle to be painted ASTM A 709 Grade 36.
4. Joint area to be thoroughly cleaned in accordance with joint manufacturer's recommendations just prior to placing of seal.
5. F-Shape barrier is for illustrative purposes only. See plans for barrier type.

**42'' PARAPET**

SUPER - ROADWAY JOINTS

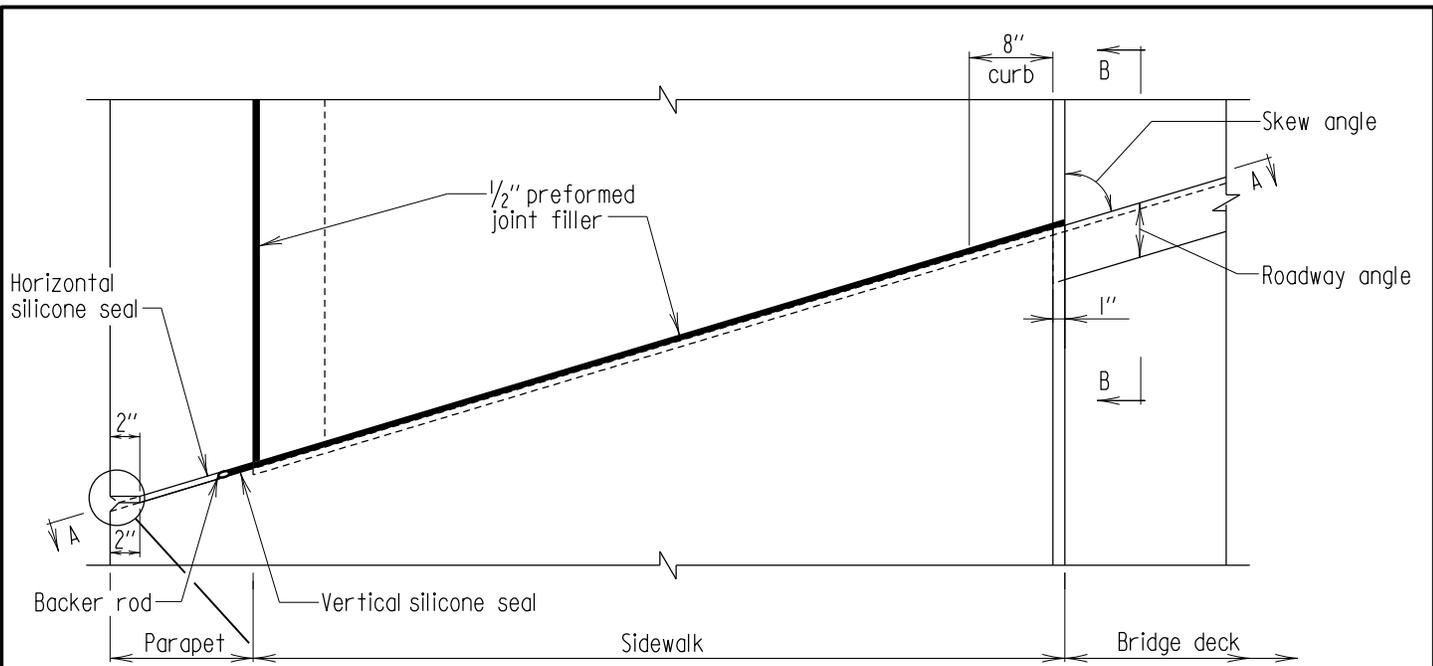
APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 08/16/2019
VERSION
1.02

STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES

**FULL HEIGHT ROADWAY JOINT FOR 42'' F-SHAPE AND SINGLE SLOPE PARAPET FOR BRIDGES WITH FIXED BEARINGS OR EXPANSION BEARINGS WITH LENGTH CONTRIBUTING TO EXPANSION  $\leq$  70 FT.**

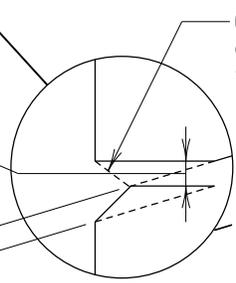
DETAIL NO. SUP-JT(FIX)-301

SHEET    OF



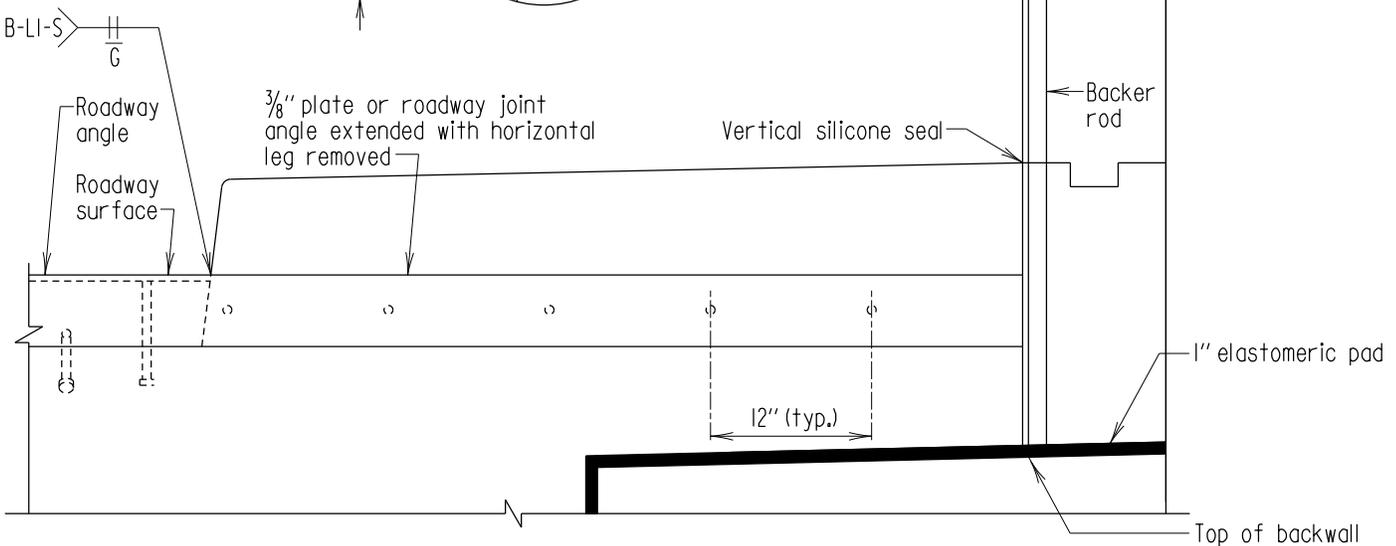
**PLAN**  
Scale: 3/4" = 1'-0"

If skew angle is less than 70°, joints shall be formed normal to outside face of superstructure thus, otherwise this.



**Note:** Sidewalk configuration and number of conduit ducts varies - see Typical Section on pertinent bridge plans.

Top of seal and backer rod  
Minimum dimension is depth of joint and backer rod



**ELEVATION - SECTION A-A**  
Scale: 3/4" = 1'-0"

- Notes:
- All studs shall 3/4"φ-8" long
  - Section A-A & B-B shown 90° skew.
  - Roadway angle to be painted ASTM A 709 Grade 36.
  - Joint area to be thoroughly cleaned in accordance with joint manufacturer's recommendations just prior to placing of seal.
  - For View B-B see sheet 2 of 2.

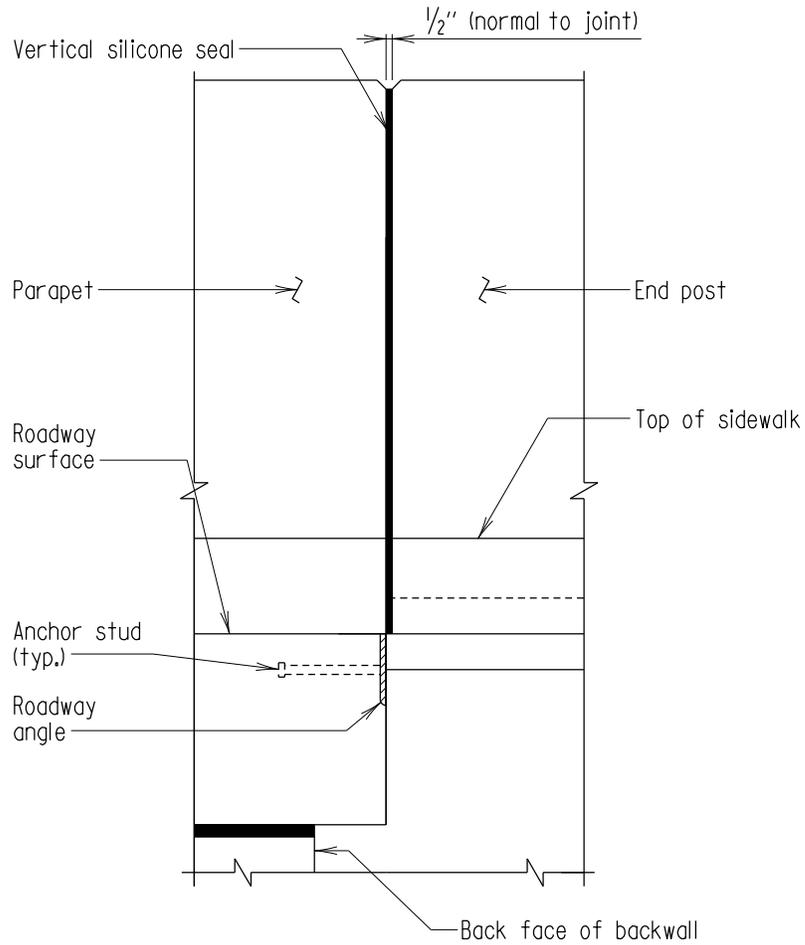
APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 07/25/2019
VERSION
2.00

STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES  
**FULL HEIGHT ROADWAY JOINT  
AT SIDEWALKS FOR BRIDGES WITH  
FIXED BEARINGS OR EXPANSION BEARINGS WITH  
LENGTH CONTRIBUTING TO EXPANSION ≤ 70 FT.**

DETAIL NO. SUP-JT(FIX)-401

SHEET 1 OF 2

SUPER BRIDGE DECK JOINTS



VIEW B-B  
 Scale:  $\frac{3}{4}'' = 1'-0''$

APPROVAL
<i>R. C. [Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 07/25/2019
VERSION
2.00

STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF STRUCTURES  
**FULL HEIGHT ROADWAY JOINT  
 AT SIDEWALKS FOR BRIDGES WITH  
 FIXED BEARNINGS OR EXPANSION BEARINGS WITH  
 LENGTH CONTRIBUTING TO EXPANSION  $\leq$  70 FT.**

DETAIL NO. SUP-JT(FIX)-401

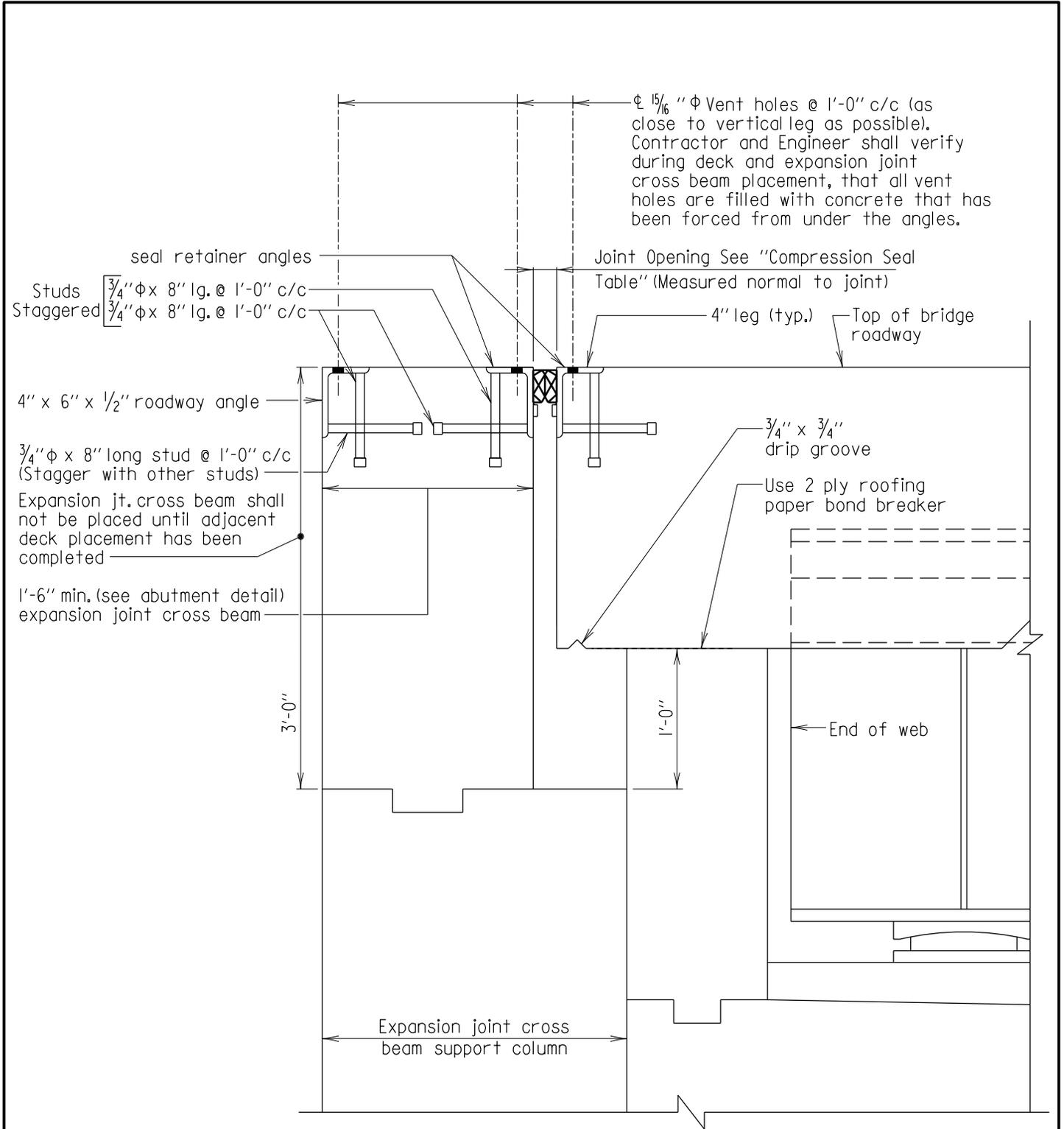
SHEET 2 OF 2

Chapter 03 - Superstructure

Section 08 – Bridge Deck Joints

SUB-SECTION 04

**EXPANSION JOINT  
DETAILS  
(SUP-JT(EXP))**



**SECTION**

Scale: 1" = 1'-0"

- Notes:
1. New bridge details shown.
  2. See Det. No. SUP-JT(JS)-101 for additional details.
  3. Joint area to be thoroughly cleaned in accordance with joint manufacturer's recommendations just prior to placing of seal.

APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 04/03/2018
VERSION
1.01

STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF STRUCTURES  
**ROADWAY JOINTS AT ABUTMENTS  
 CARRYING STEEL GIRDERS WITH  
 STEEL EXPANSION BEARINGS  
 LENGTH CONTRIBUTING TO EXPANSION > 70 FEET**

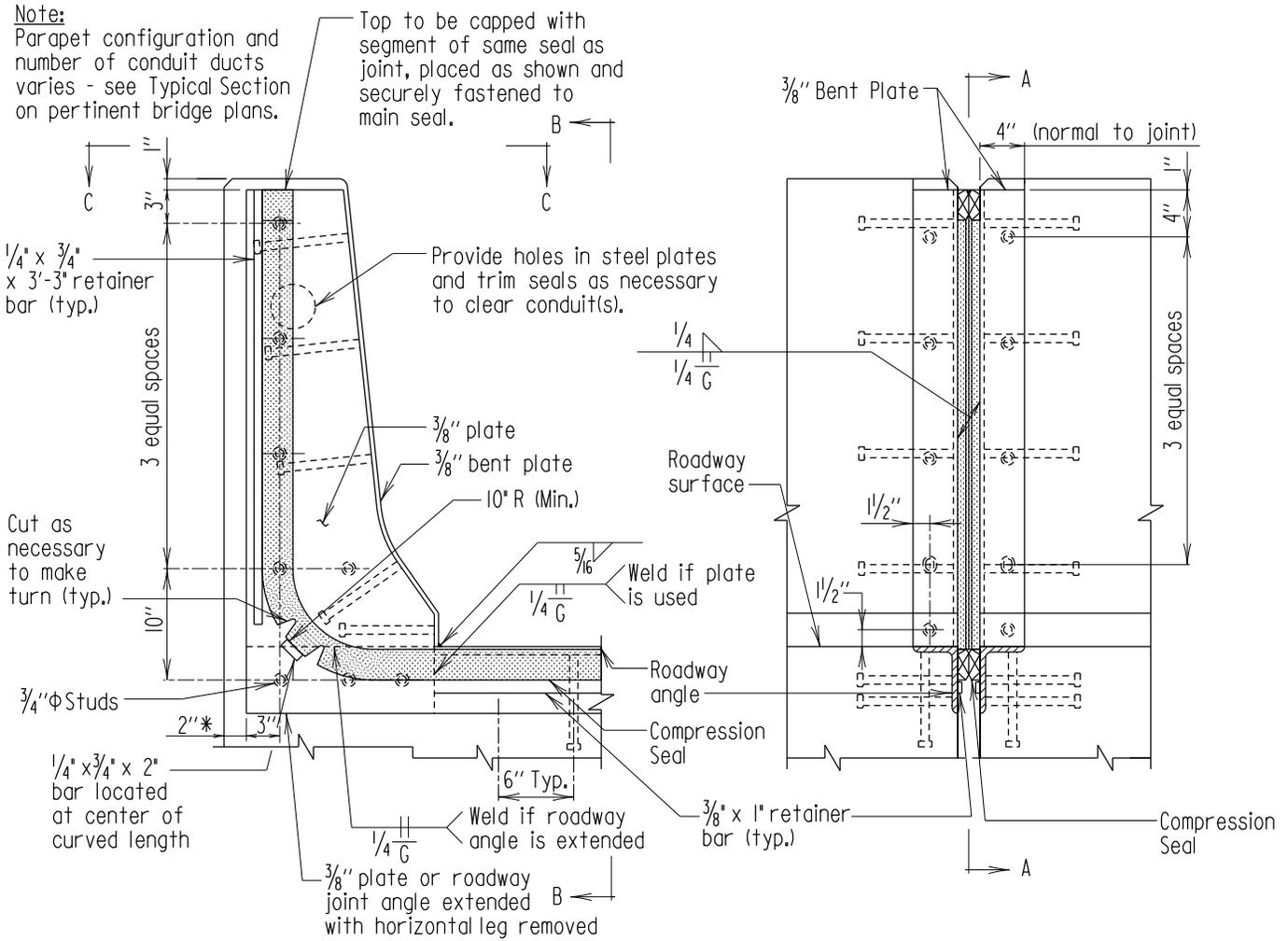
DETAIL NO. SUP-JT(EXP)-101

SHEET   1   OF   1  

SUPER-ROADWAY JOINTS

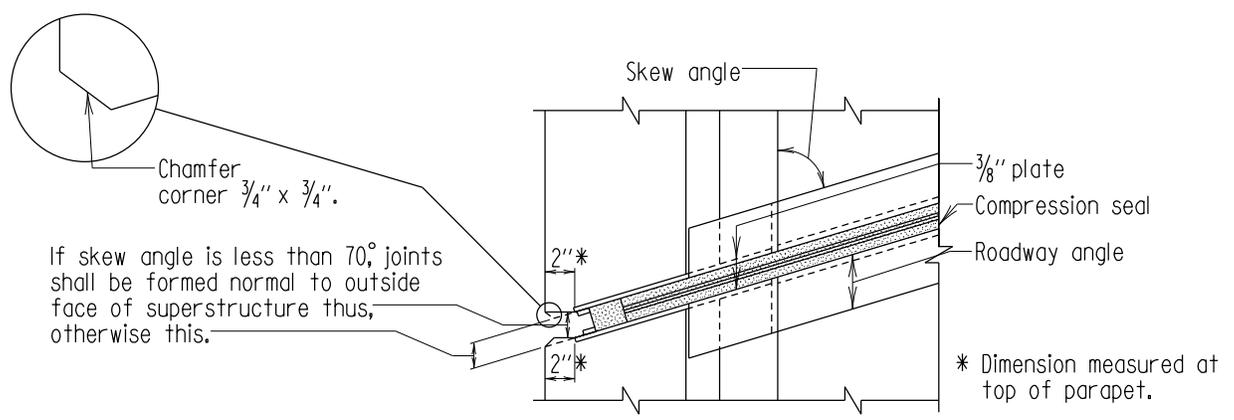


**Note:**  
Parapet configuration and number of conduit ducts varies - see Typical Section on pertinent bridge plans.



**ELEVATION - SECTION A-A**  
Scale: 3/4" = 1'-0"

**VIEW B-B**  
Scale: 3/4" = 1'-0"



**VIEW C-C**  
Scale: 3/4" = 1'-0"

- Note:**
- All studs shall 3/4"φ-8" long
  - Section A-A & B-B shown 90° skew.
  - Roadway angles and plate to be painted ASTM A 709 Grade 36.
  - Joint area to be thoroughly cleaned in accordance with joint manufacturer's recommendations just prior to placing of seal.
  - F-Shape barrier is for illustrative purposes only. See plans for barrier type.

**42' PARAPET**

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DATE: 07/25/2019
VERSION
1.01

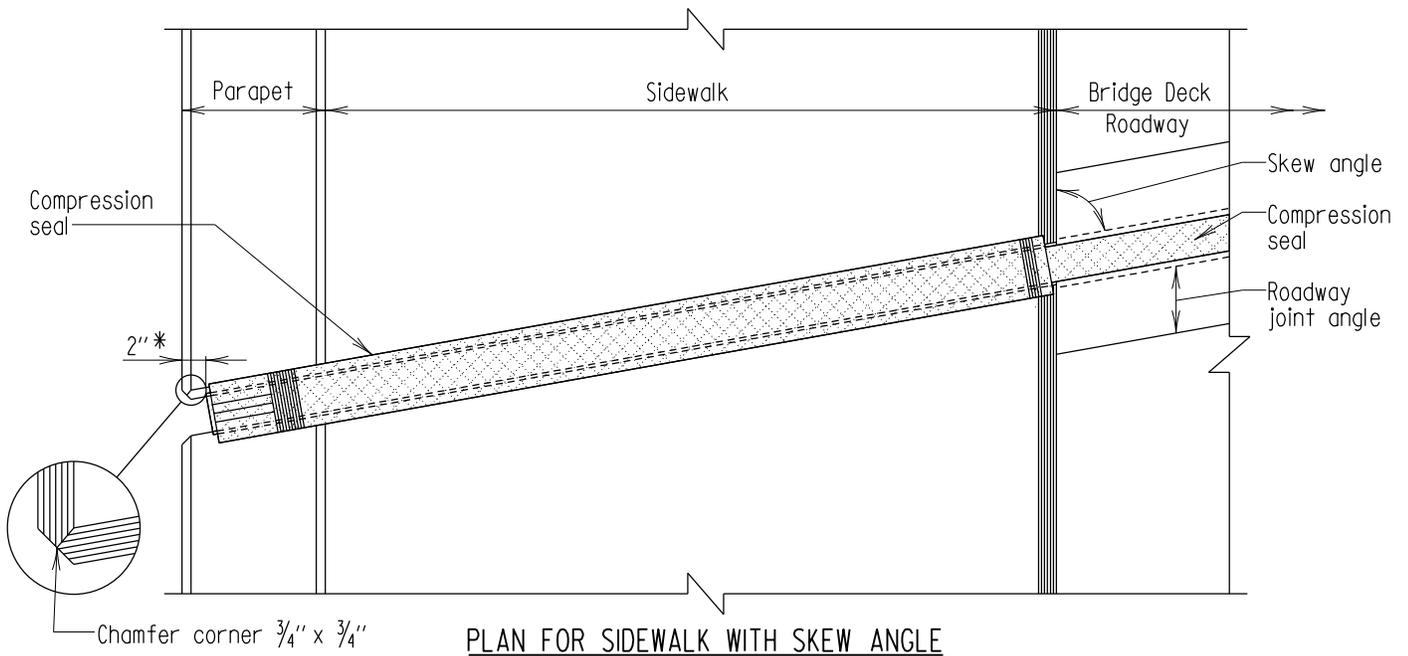
STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES

**FULL HEIGHT ROADWAY JOINT  
FOR 42" F-SHAPE AND SINGLE SLOPE PARAPET  
FOR BRIDGES WITH EXPANSION BEARINGS WITH  
LENGTH CONTRIBUTING TO EXPANSION > 70 FT.**

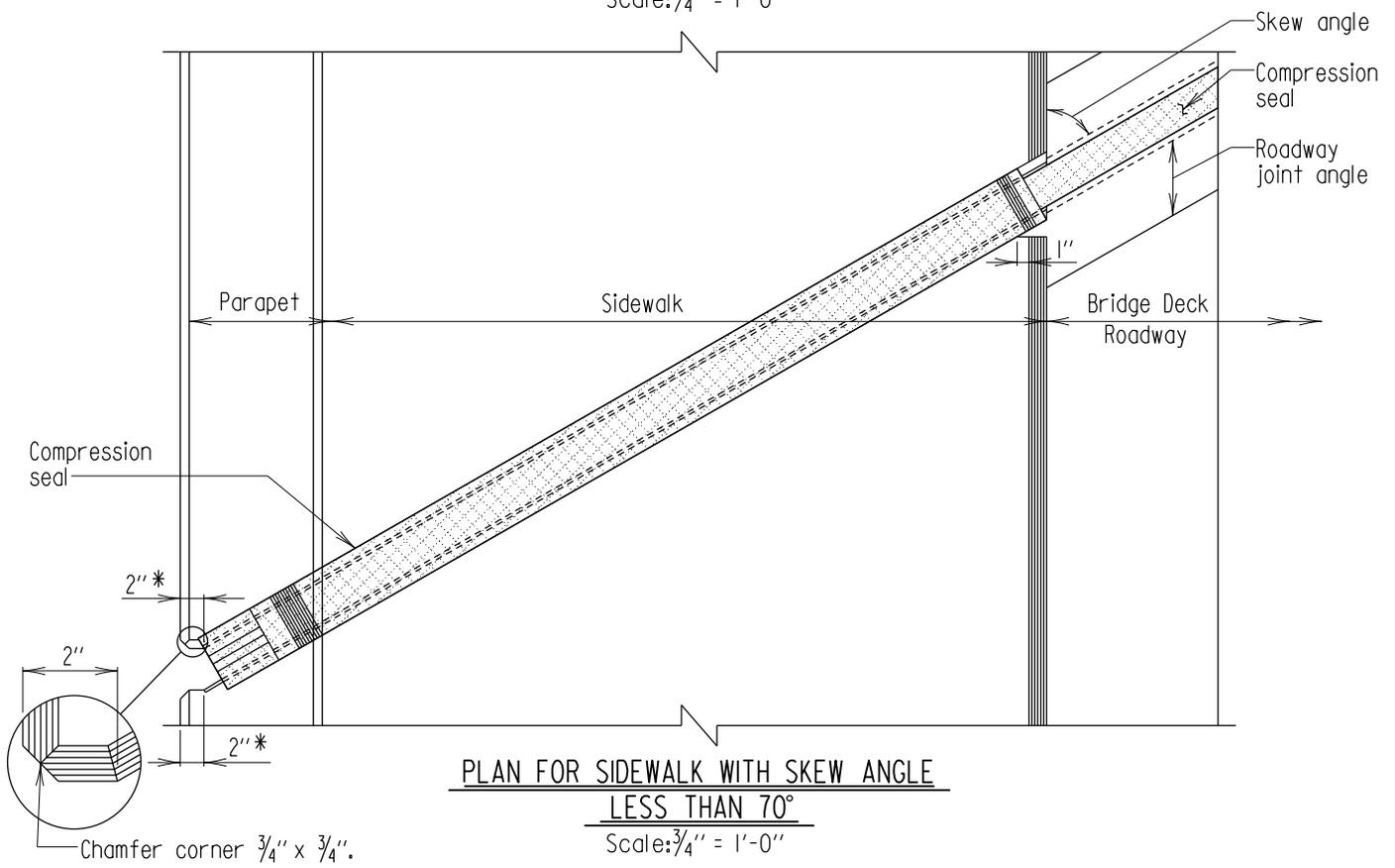
DETAIL NO. SUP-JT(EXP)-301

SHEET    OF   

SUPER - ROADWAY JOINTS



**PLAN FOR SIDEWALK WITH SKEW ANGLE  
70° OR GREATER**  
Scale:  $\frac{3}{4}'' = 1'-0''$



**PLAN FOR SIDEWALK WITH SKEW ANGLE  
LESS THAN 70°**  
Scale:  $\frac{3}{4}'' = 1'-0''$

\* Dimension measured at top of parapet.

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DATE: 07/25/2019
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2.00

STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
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OFFICE OF STRUCTURES  
**FULL HEIGHT COMPRESSION  
SEAL ROADWAY JOINT AT SIDEWALK  
FOR BRIDGES WITH EXPANSION BEARINGS WITH  
LENGTH CONTRIBUTING TO EXPANSION > 70 FEET**

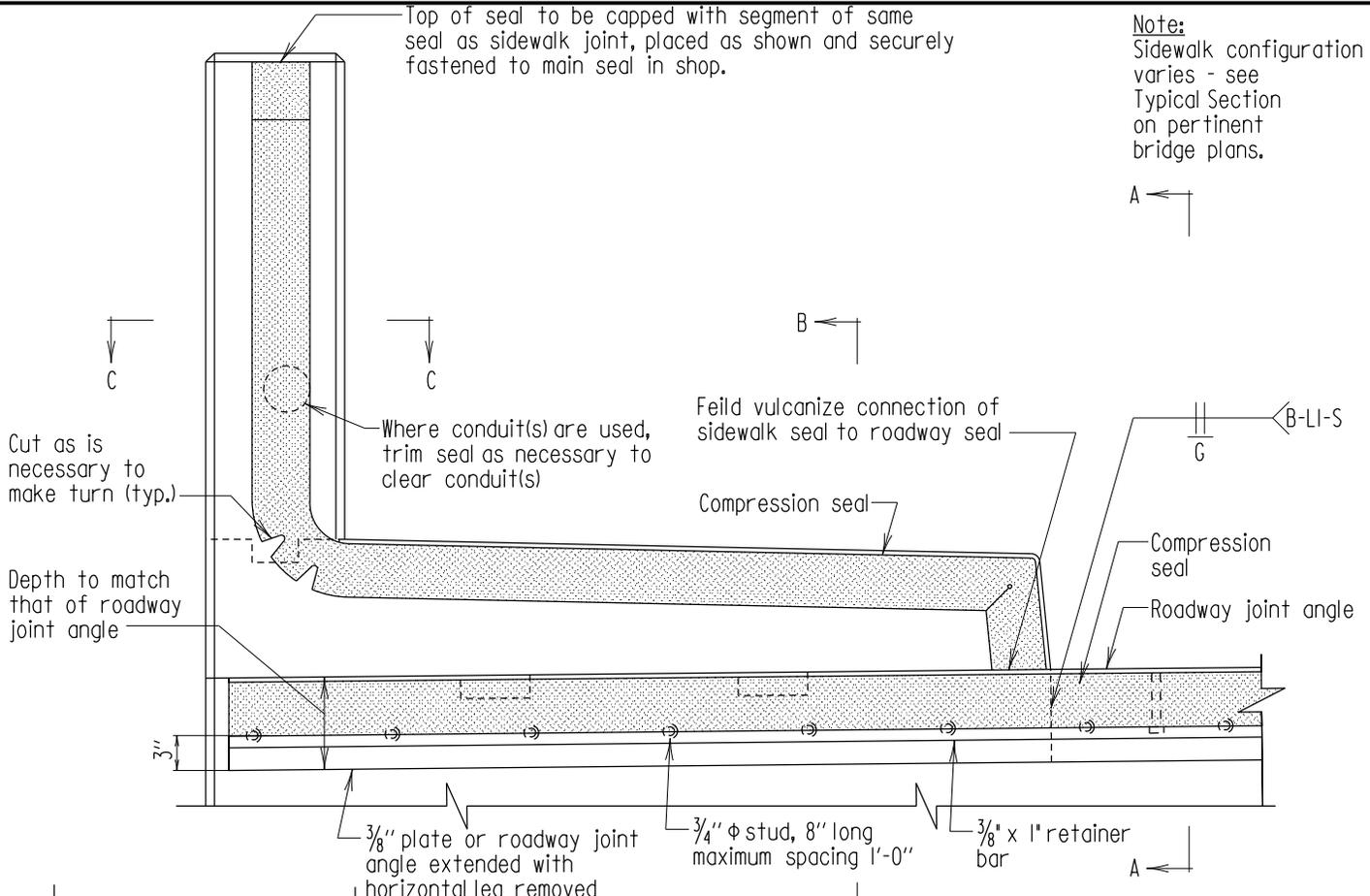
DETAIL NO. SUP-JT(EXP)-40I

SHEET 1 OF 2

SUPER-ROADWAY JOINTS

Top of seal to be capped with segment of same seal as sidewalk joint, placed as shown and securely fastened to main seal in shop.

**Note:**  
Sidewalk configuration varies - see Typical Section on pertinent bridge plans.

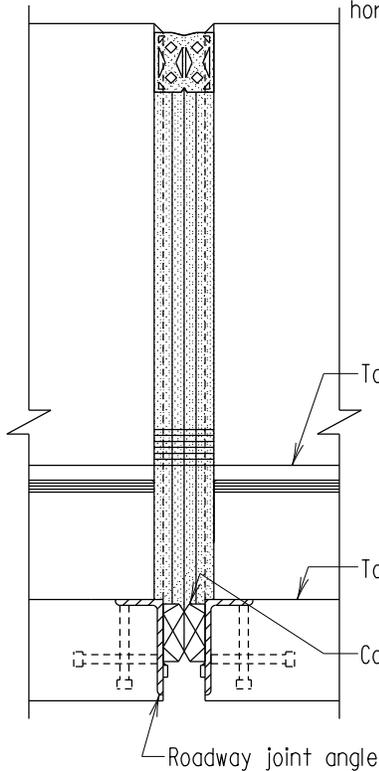


**SIDEWALK ELEVATION**

Scale:  $\frac{3}{4}'' = 1'-0''$

\* For this width, Sections B-B and C-C shall be modified to eliminate the  $\frac{3}{8}''$  lip both sides and provide a  $\frac{1}{4}''$  lip one side of the joint.

Roadway Compression Seal Size	$1\frac{1}{8}''$	$1\frac{3}{4}''$	3"	5"	6"
Sidewalk Compression Seal Size	$1\frac{3}{4}''$	3"	5"	6"	6"*

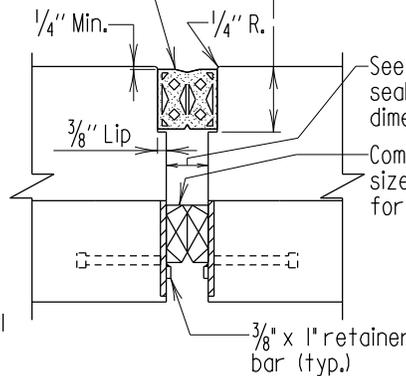


**SECTION A-A**

Scale:  $\frac{3}{4}'' = 1'-0''$

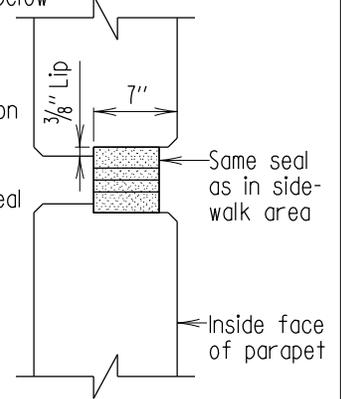
For sidewalk seal size see table above.

Depth depends on seal size, should be such that when seal is in place it is  $\frac{1}{4}''$  below sidewalk surface.



**SECTION B-B**

Scale:  $\frac{3}{4}'' = 1'-0''$



**SECTION C-C**

Scale:  $\frac{3}{4}'' = 1'-0''$

- Note:**
- All sections shown for 90 skew.
  - All steel to be A.S.T.M. A 709, Grade 36 for painting specifications see Section 460.
  - Joint area to be thoroughly cleaned in accordance with joint manufacturer's recommendations just prior to placing of seal.

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DATE: 07/25/2019
VERSION
2.00

STATE OF MARYLAND  
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STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES  
**FULL HEIGHT COMPRESSION  
SEAL ROADWAY JOINT AT SIDEWALK  
FOR BRIDGES WITH EXPANSION BEARINGS WITH  
LENGTH CONTRIBUTING TO EXPANSION > 70 FT.**

DETAIL NO. SUP-JT(EXP)-40I

SHEET 2 OF 2

SUPER-ROADWAY JOINTS

## Chapter 03 - Superstructure

### Section 08 – Bridge Deck Joints

#### SUB-SECTION 05

# FINGER JOINT DETAILS (SUP-JT(FJ))

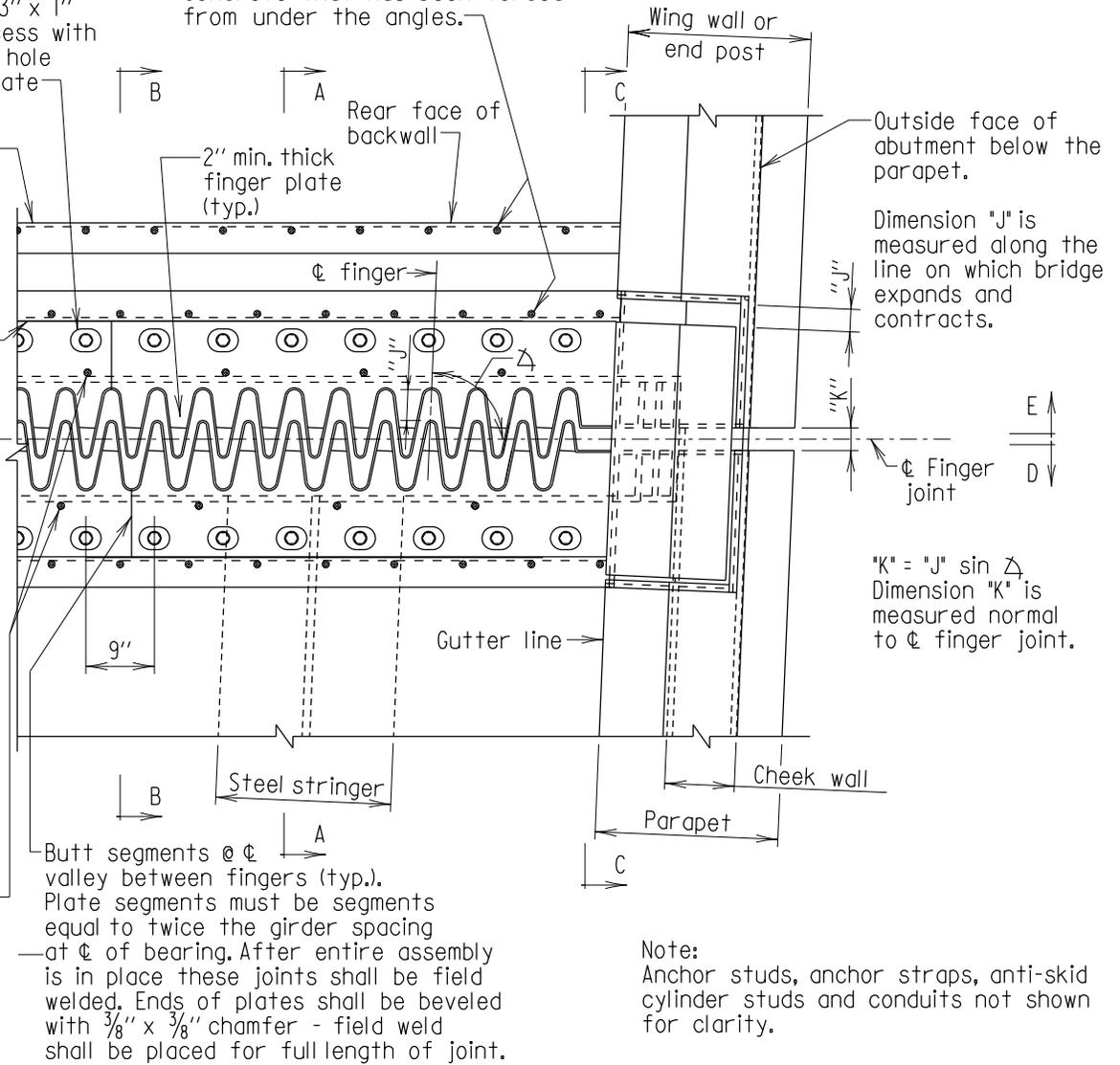
1"  $\phi$  ASTM Type 304 A stainless steel hex. head bolt with stainless steel lock washer @ 9" c/c in 4" x 3" x 1" deep slotted recess with 2" x 1/16" slotted hole (typ.) in finger plate

6" x 4" x 1/2" roadway angle

4" x 3" x 1/2" roadway angle (typ.)

1/16"  $\phi$  vent holes through the angle and finger plate located at every third tooth (in center of tooth). Contractor and Engineer shall verify during deck and backwall placement, that all vent holes are filled with concrete that has been forced from under the angles.

1/16"  $\phi$  Vent holes @ 1'-0" c/c (as close to vertical leg as possible) (typ.). Contractor and Engineer shall verify during deck and backwall placement, that all vent holes are filled with concrete that has been forced from under the angles.

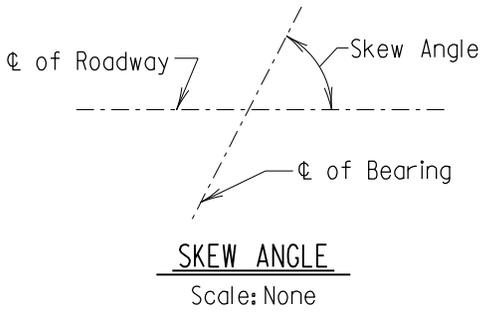


Butt segments @  $\phi$  valley between fingers (typ.). Plate segments must be segments equal to twice the girder spacing at  $\phi$  of bearing. After entire assembly is in place these joints shall be field welded. Ends of plates shall be beveled with 3/8" x 3/8" chamfer - field weld shall be placed for full length of joint.

Note: Anchor studs, anchor straps, anti-skid cylinder studs and conduits not shown for clarity.

**PLAN AT ROADWAY LEVEL**  
Scale: 1/2" = 1'-0"

Note:  $\phi$  finger is parallel to the direction of superstructure movement.



- Notes:
1. For dimensions "J" & "K" and finger plate thickness see Sheet No. 21 of 21.
  2. For SECTIONS A-A, B-B, C-C, D-D & E-E see Sheet Nos. 3, 4, 5, 6, 7, 8, 9 & 10 of 21.

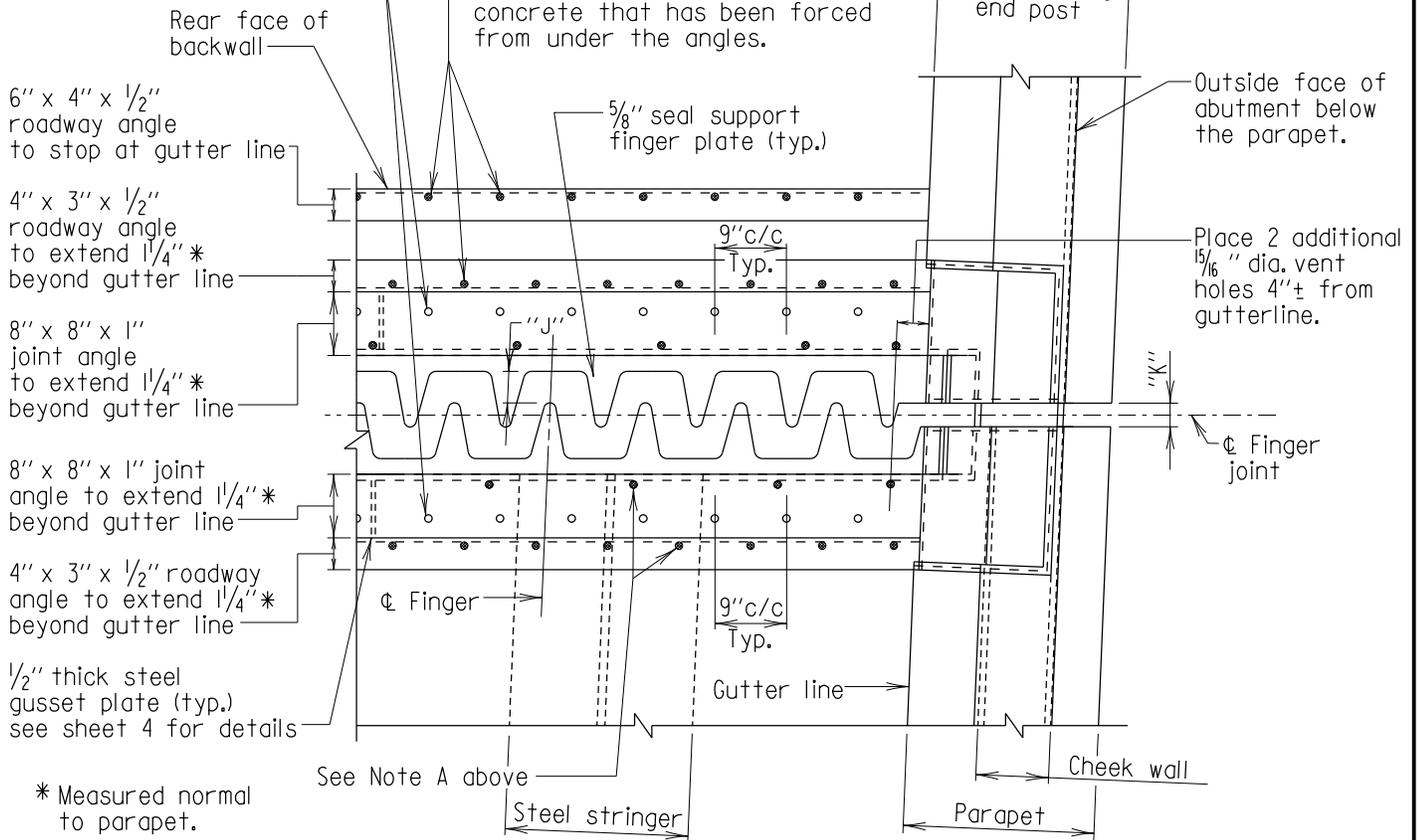
APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/11/2019
VERSION
2.00

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES	
<b>FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°</b>	
DETAIL NO. SUP-JT(FJ)-101	SHEET <u>1</u> OF 21

SUPER-ROADWAY JOINTS

1/16" φ holes @ 9" c/c for 1" φ finger plate bolts (typ.). Weld 2 - 1" φ ASTM A 325 hex. nuts to the underside of the joint angle (see sheet 3 for details).

Note A: 1 5/16" φ Vent holes @ 1'-0" c/c (as close to vertical leg as possible) (typ.). Contractor and Engineer shall verify during deck and backwall placement, that all vent holes are filled with concrete that has been forced from under the angles.



Note:  
Anchor studs, anchor straps & conduits not shown for clarity.  
φ finger is parallel to the direction of superstructure movement. Dimension "J" is measured along φ finger.

PLAN WITH ROADWAY FINGER PLATES, PARAPET SLIDING PLATE AND FOAM SEAL REMOVED

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

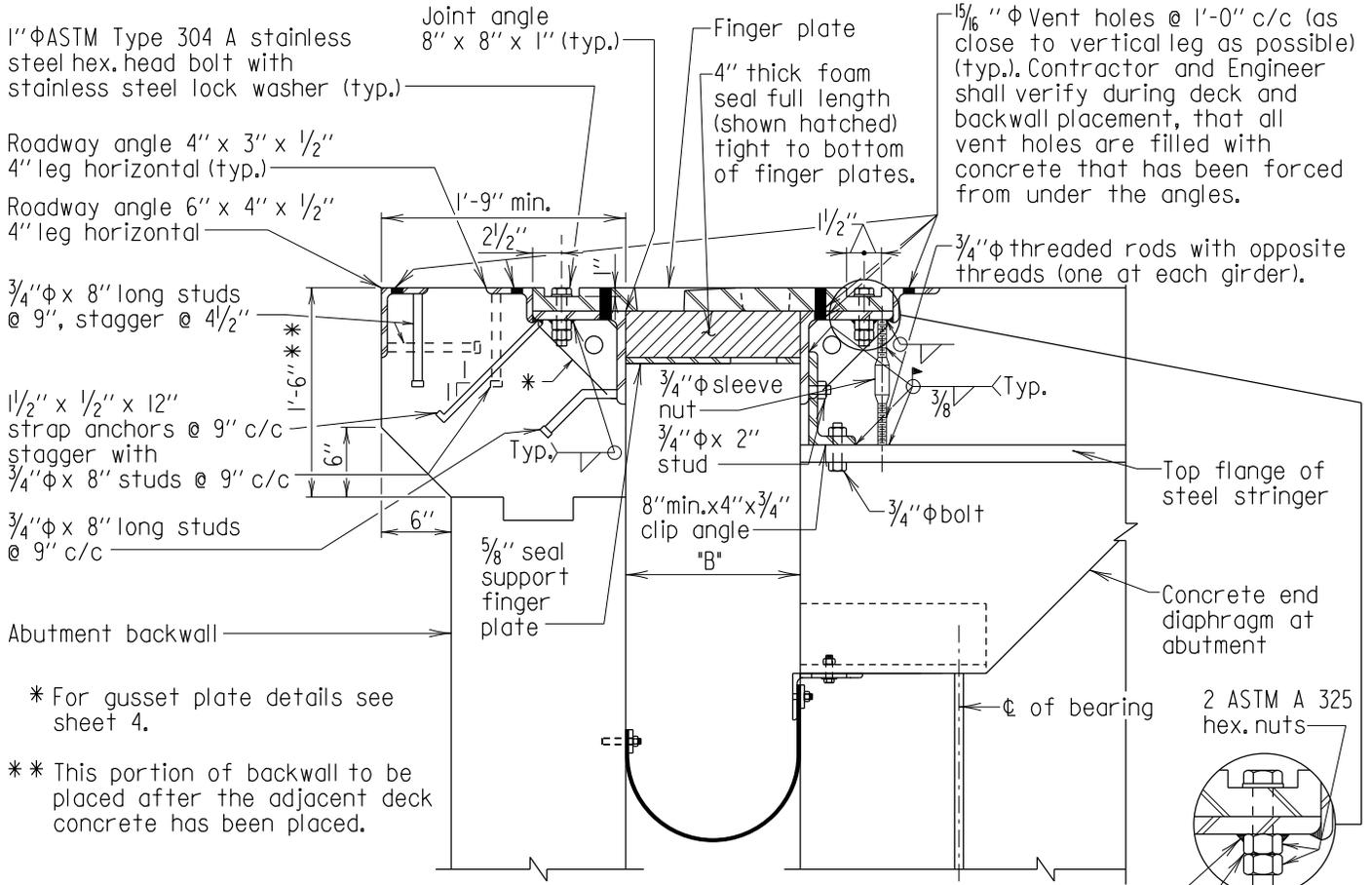
Notes:

- All details not indicated are the same as Plan at Roadway Level on Sheet No. 1 of 21.
- For dimensions "J" & "K" see Sheet No. 21 of 21.

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STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES	
FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°	
DETAIL NO. SUP-JT(FJ)-101	SHEET 2 OF 21

SUPER-ROADWAY JOINTS



1"  $\Phi$  ASTM Type 304 A stainless steel hex. head bolt with stainless steel lock washer (typ.)

Roadway angle 4" x 3" x 1/2" 4" leg horizontal (typ.)

Roadway angle 6" x 4" x 1/2" 4" leg horizontal

3/4"  $\Phi$  x 8" long studs @ 9", stagger @ 4 1/2"

1 1/2" x 1/2" x 12" strap anchors @ 9" c/c stagger with 3/4"  $\Phi$  x 8" studs @ 9" c/c

3/4"  $\Phi$  x 8" long studs @ 9" c/c

Abutment backwall

\* For gusset plate details see sheet 4.

\*\* This portion of backwall to be placed after the adjacent deck concrete has been placed.

Joint angle 8" x 8" x 1" (typ.)

Finger plate

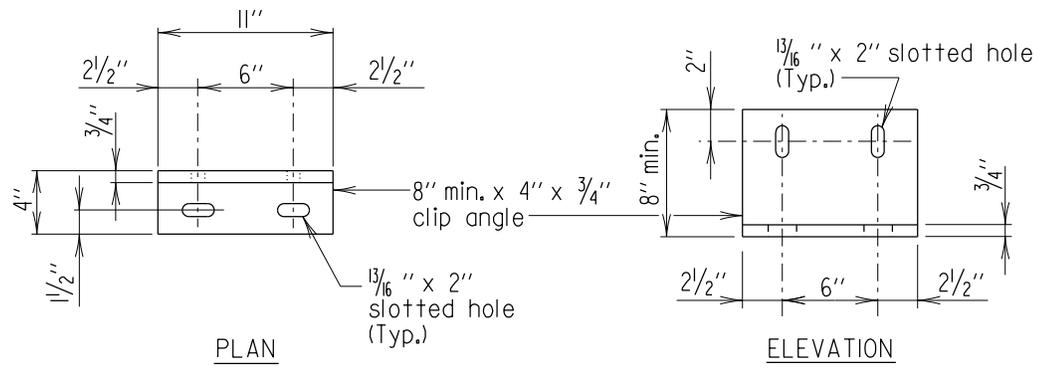
4" thick foam seal full length (shown hatched) tight to bottom of finger plates.

1 5/16"  $\Phi$  Vent holes @ 1'-0" c/c (as close to vertical leg as possible) (typ.). Contractor and Engineer shall verify during deck and backwall placement, that all vent holes are filled with concrete that has been forced from under the angles.

3/4"  $\Phi$  threaded rods with opposite threads (one at each girder).

**SECTION A-A**  
**TYPICAL SECTION AT STRINGERS**

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



**CLIP ANGLE DETAILS**

Scale: 1" = 1'-0"

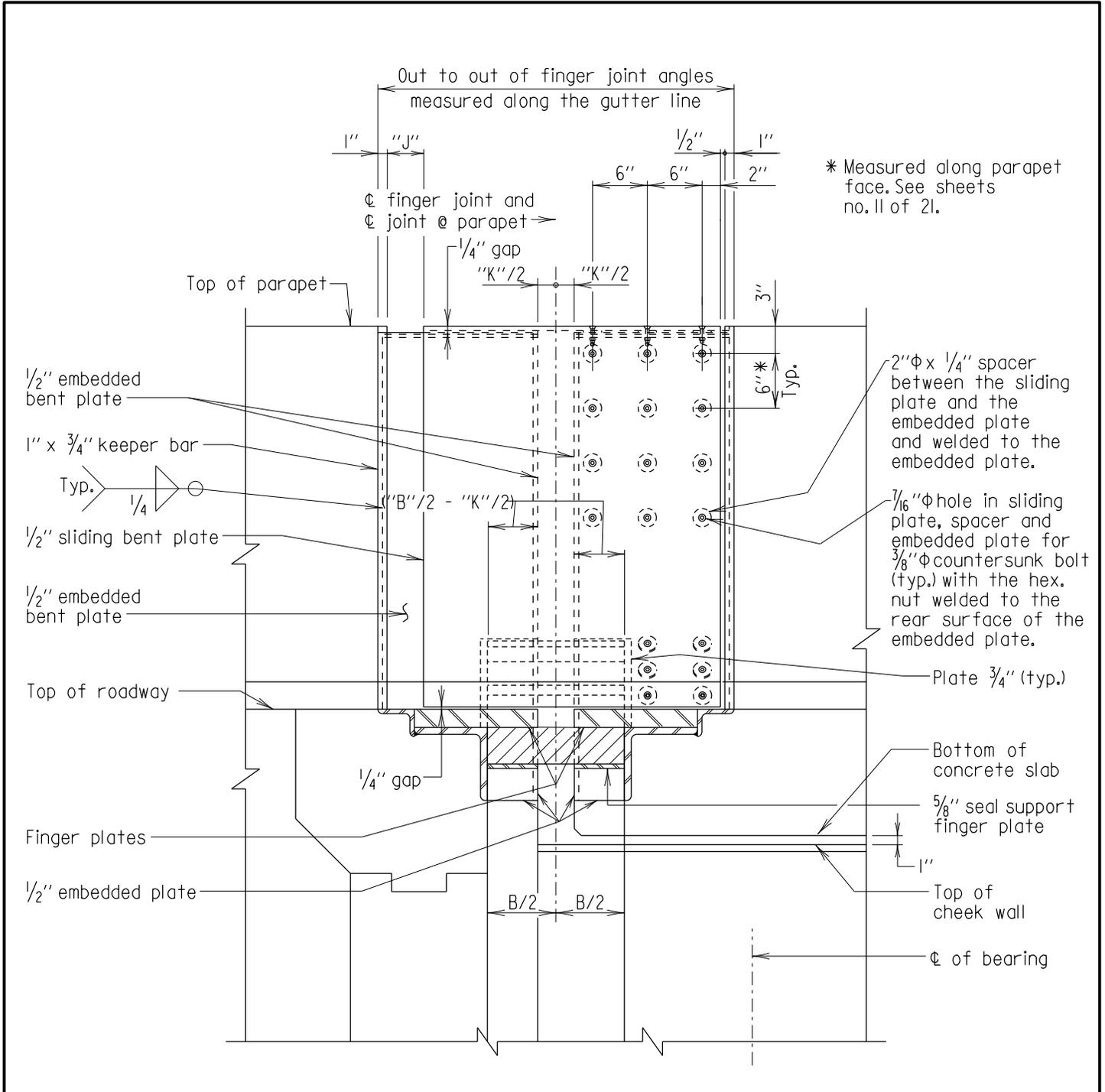
- Notes:
1. Finger joint to be fabricated, assembled and shipped to the job site fully assembled.
  2. The fully assembled joint shall be installed, bolted and welded into its final position.
  3. During concrete deck placement: "CONCRETE MUST APPEAR AT THE TOP OF THE FINGER PLATE INDICATING THAT CONCRETE HAS FILLED THE VOID AREA".
  4. For material specifications and requirements, see Special Provisions.
  5. For finger plate thickness and dimension "B", see Sheet no. 21 of 21.
  6. For details of drainage trough, see SUP-JT(DT)-102.

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STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°
DETAIL NO. SUP-JT(FJ)-101
SHEET 3 OF 21

SUPER-ROADWAY JOINTS





**SECTION C-C**  
 Scale: 3/4" = 1'-0"

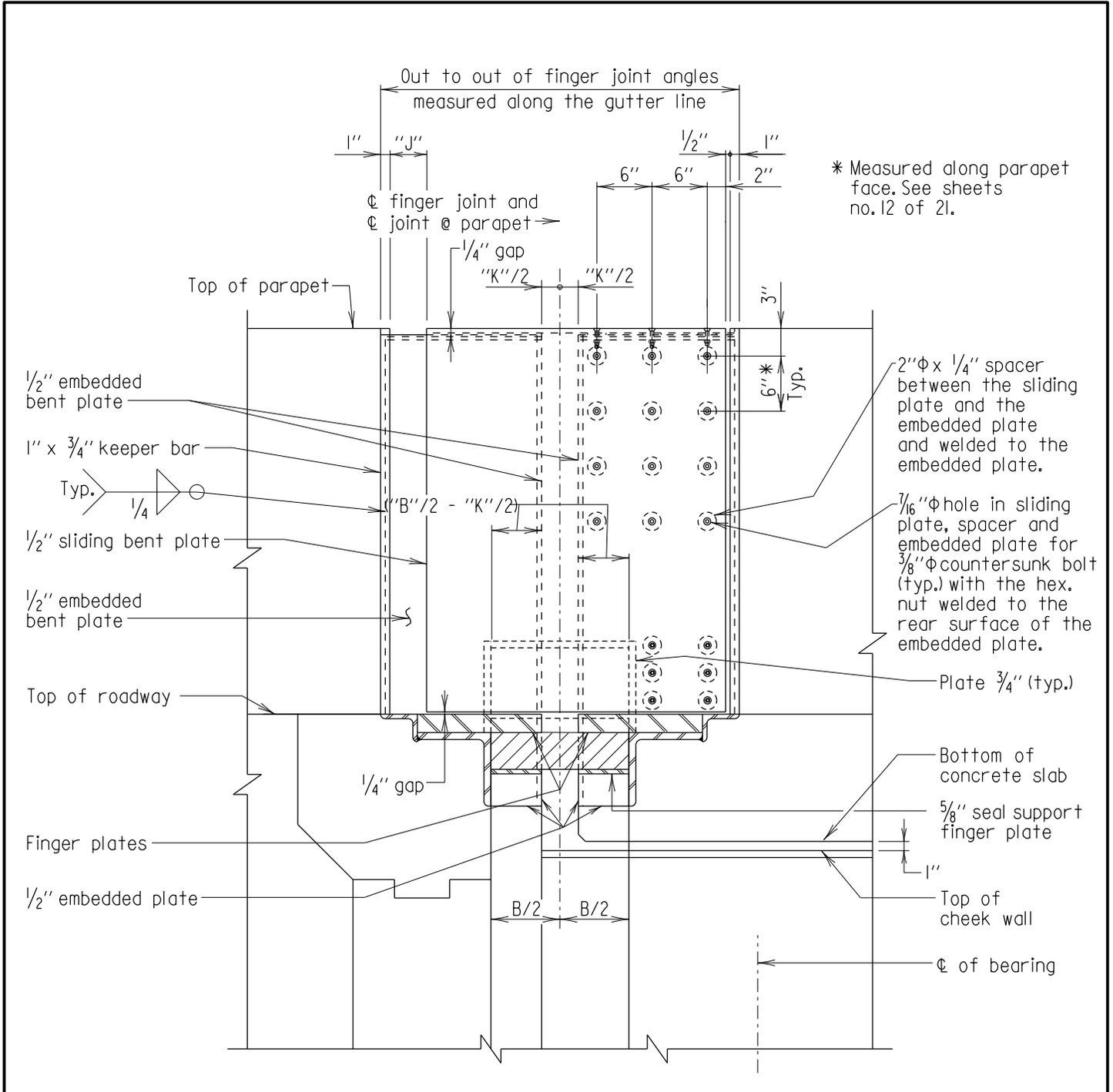
Note:  
 For dimensions "B", "K", & "J" see Sheet  
 No. 21 of 21.

**F-SHAPE PARAPET APPLICATION**

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DATE: 09/11/2019
VERSION
2.00

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
<b>FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE          SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS          WITH SKEW ANGLES BETWEEN 50° AND 90°</b>
DETAIL NO. SUP-JT(FJ)-101
SHEET <u>5</u> OF 21

SUPER-ROADWAY JOINTS



\* Measured along parapet face. See sheets no.12 of 21.

**SECTION C-C**

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

Note:  
For dimensions "B", "K", & "J" see Sheet No. 21 of 21.

**SINGLE SLOPE PARAPET APPLICATION**

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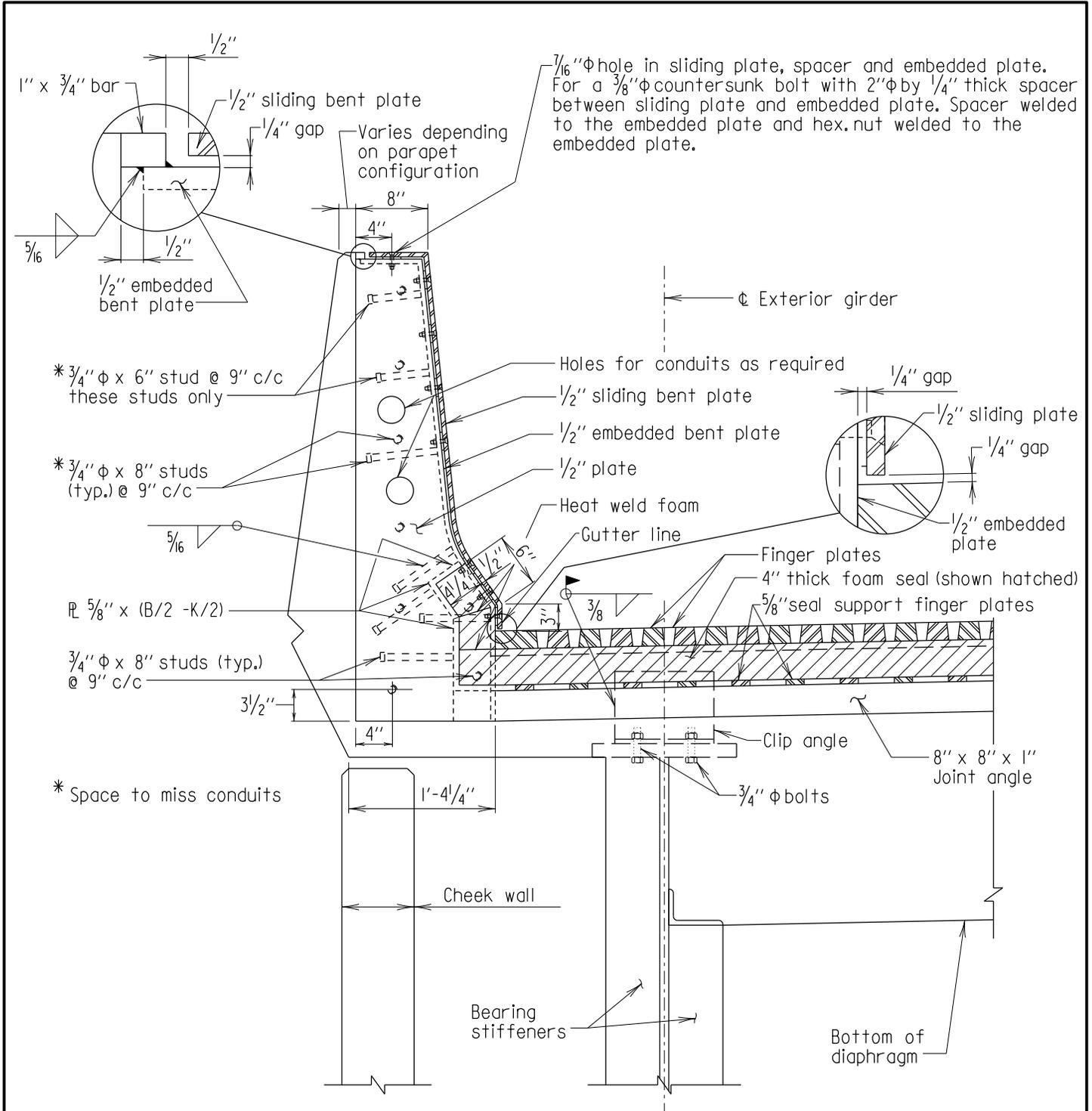
STATE OF MARYLAND  
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STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES

FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°

DETAIL NO. SUP-JT(FJ)-101

SHEET 6 OF 21

SUPER-ROADWAY JOINTS



**SECTION D-D**  
Scale: 3/4" = 1'-0"

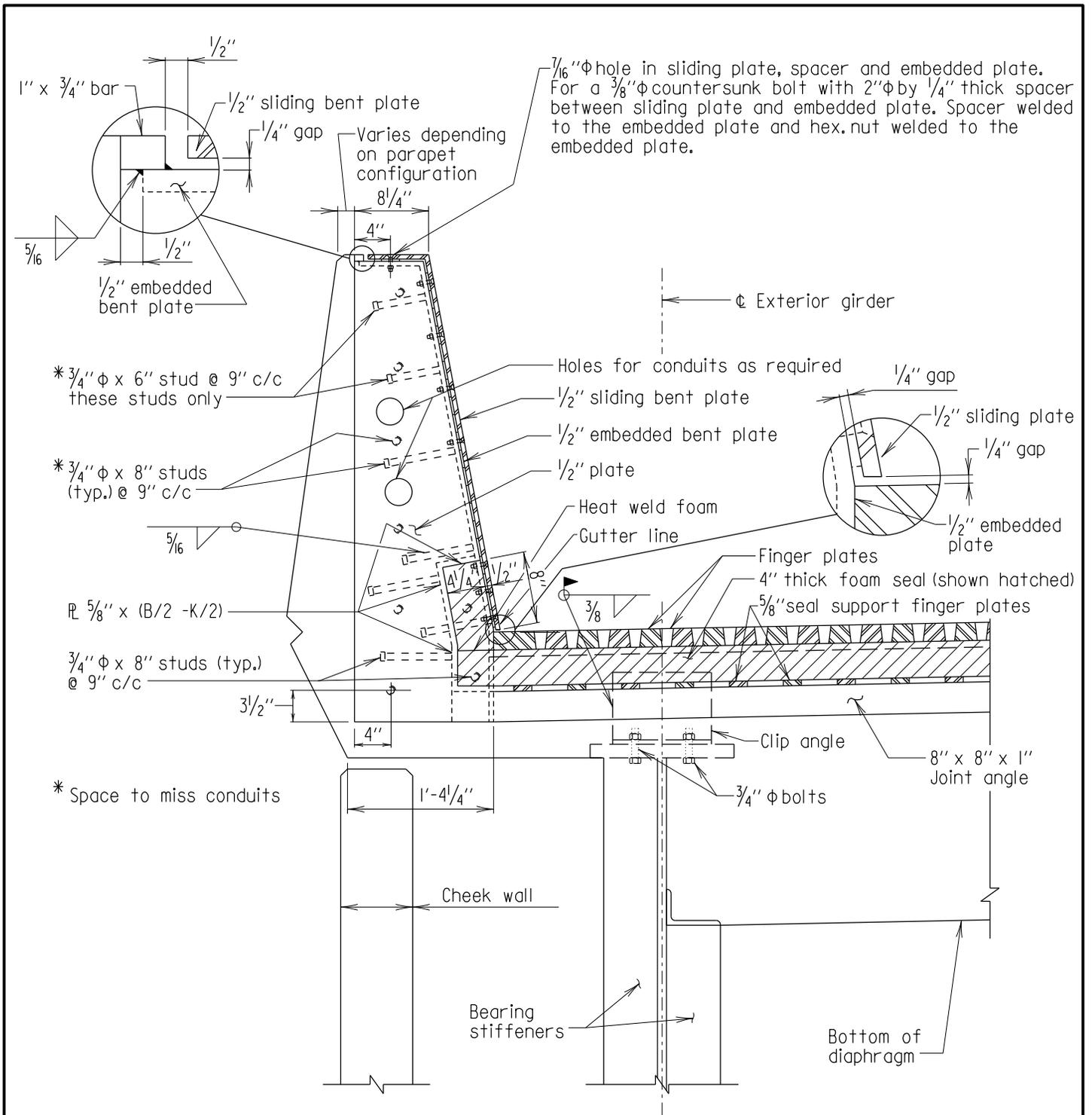
**F-SHAPE PARAPET APPLICATION**

Notes:  
1. Diamond back parapet shown, for exact parapet dimensions and configuration see Typical Section.

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FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°	
DETAIL NO. SUP-JT(FJ)-101	SHEET 7 OF 21

SUPER-ROADWAY JOINTS



7/16"  $\phi$  hole in sliding plate, spacer and embedded plate.  
 For a 3/8"  $\phi$  countersunk bolt with 2"  $\phi$  by 1/4" thick spacer  
 between sliding plate and embedded plate. Spacer welded  
 to the embedded plate and hex. nut welded to the  
 embedded plate.

Note:  
 Drainage trough not shown  
 for clarity.

**SECTION D-D**  
 Scale: 3/4" = 1'-0"

**SINGLE SLOPE PARAPET APPLICATION**

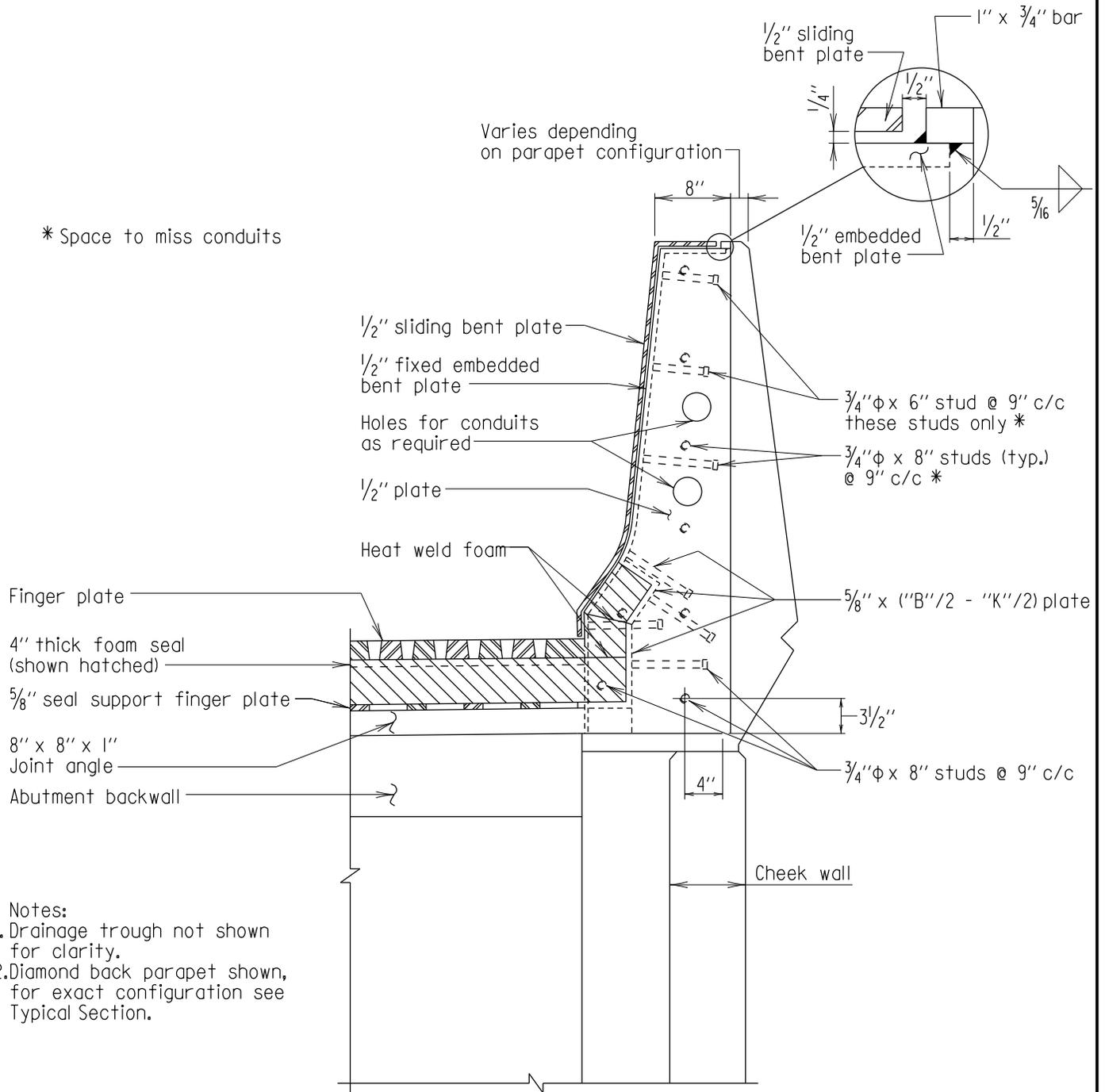
Notes:  
 1. Diamond back parapet shown, for  
 exact parapet dimensions and  
 configuration see Typical Section.

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FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°	
DETAIL NO. SUP-JT(FJ)-101	SHEET 8 OF 21

SUPER-ROADWAY JOINTS

\* Space to miss conduits



- Notes:
1. Drainage trough not shown for clarity.
  2. Diamond back parapet shown, for exact configuration see Typical Section.

**SECTION E-E**

Scale:  $\frac{3}{4}'' = 1'-0''$

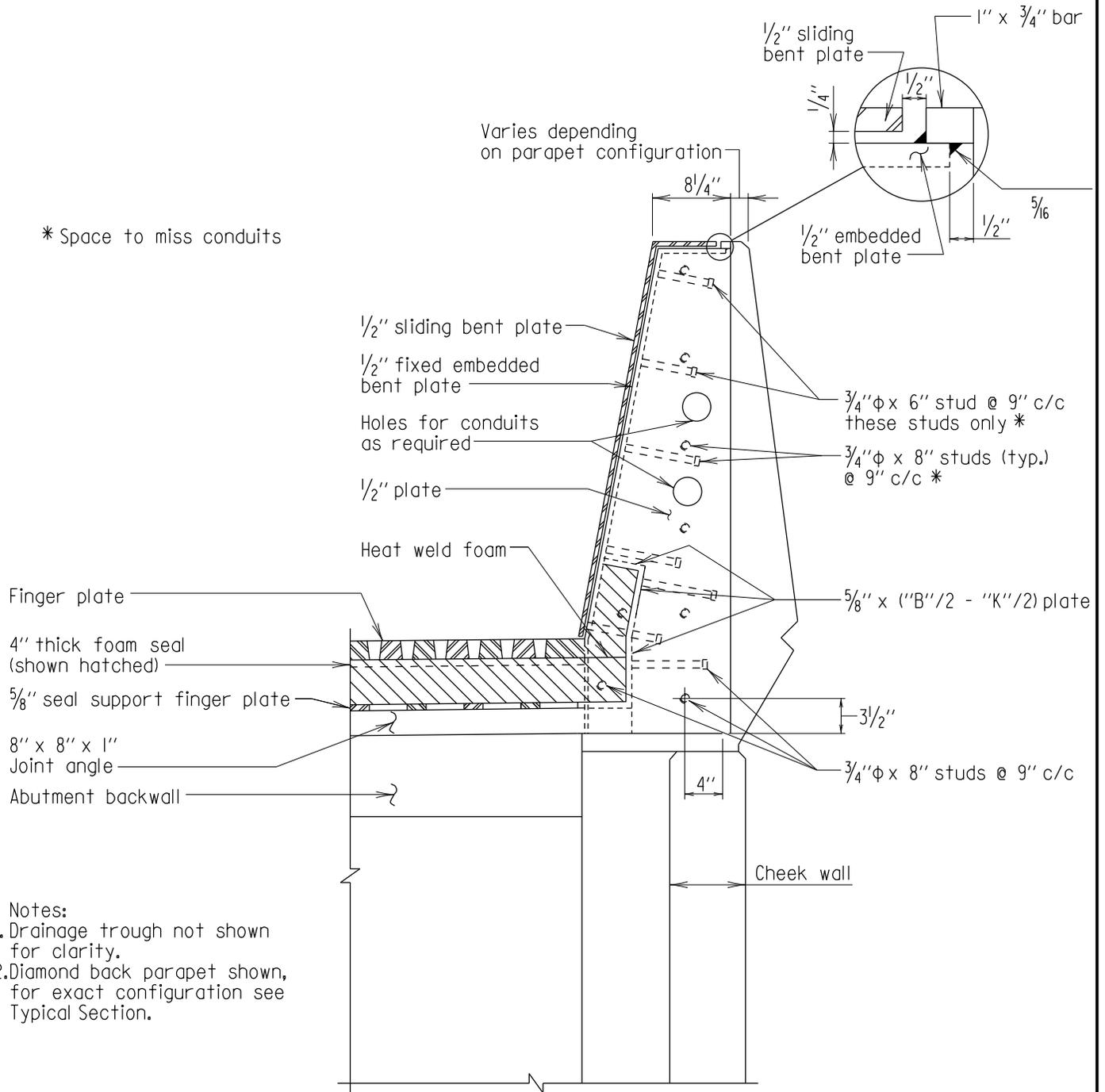
**F-SHAPE PARAPET APPLICATION**

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FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°	
DETAIL NO. SUP-JT(FJ)-101	SHEET <u>9</u> OF <u>21</u>

SUPER-ROADWAY JOINTS

\* Space to miss conduits



- Notes:
1. Drainage trough not shown for clarity.
  2. Diamond back parapet shown, for exact configuration see Typical Section.

**SECTION E-E**

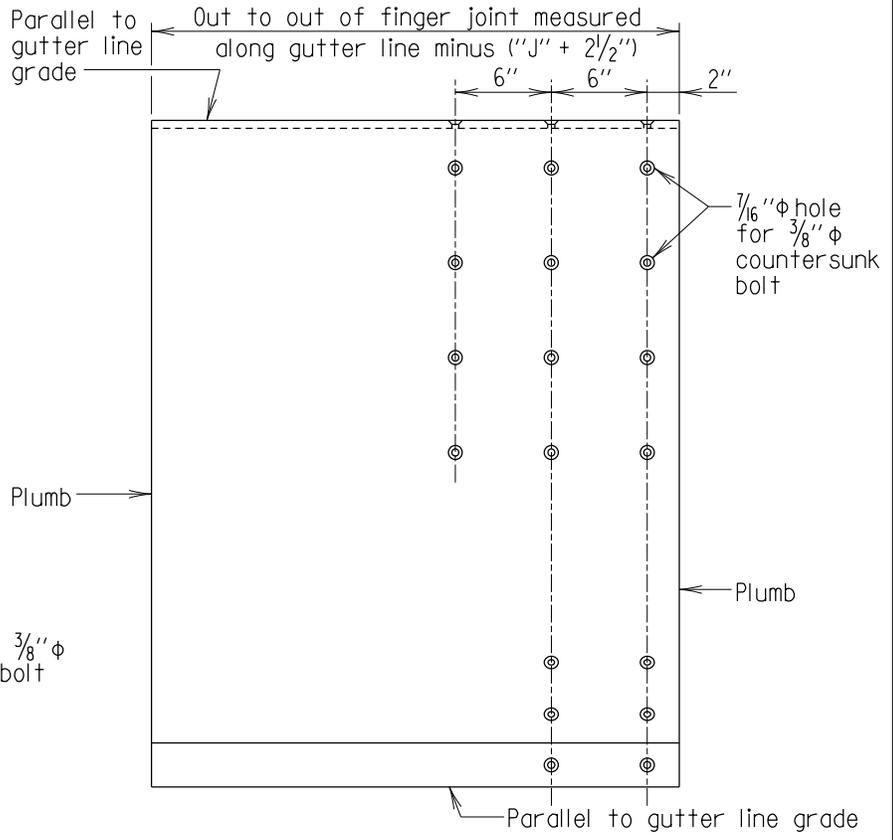
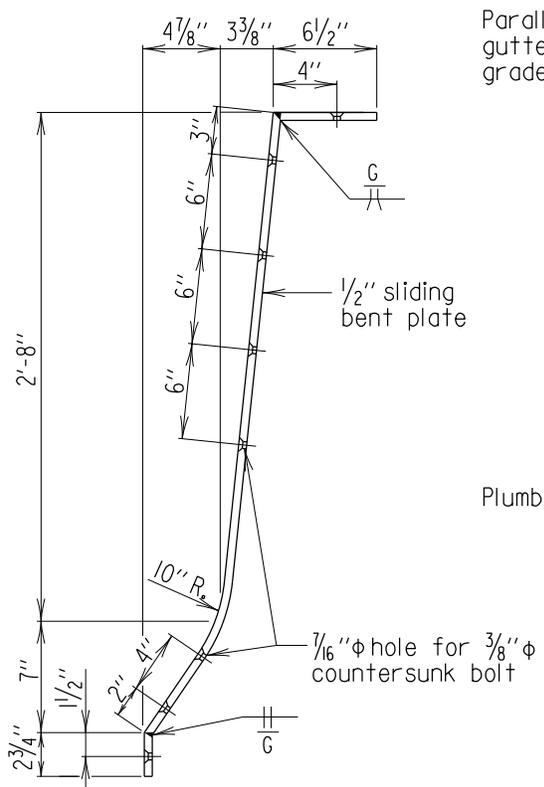
Scale:  $\frac{3}{4}'' = 1'-0''$

**SINGLE SLOPE PARAPET APPLICATION**

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FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°	
DETAIL NO. SUP-JT(FJ)-101	SHEET 10 OF 21

SUPER-ROADWAY JOINTS



END VIEW

FRONT VIEW

SLIDING PLATE

Scale: 1" = 1'-0"

F-SHAPE PARAPET APPLICATION

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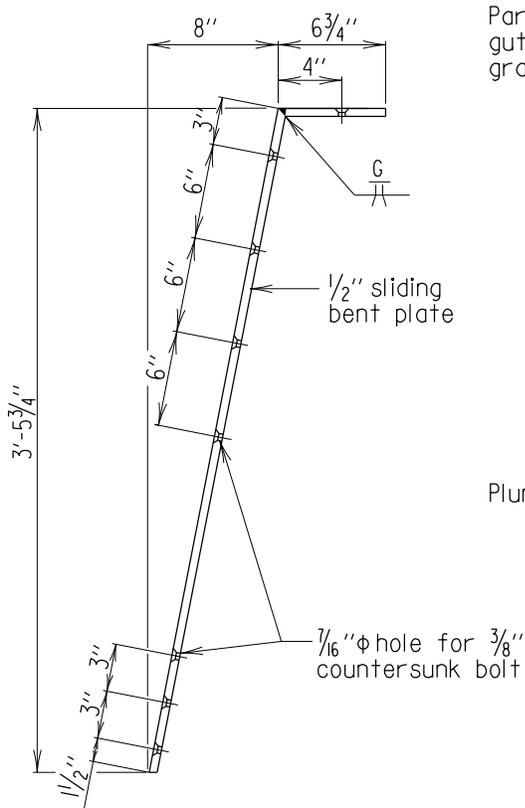
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STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES

FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE  
SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS  
WITH SKEW ANGLES BETWEEN 50° AND 90°

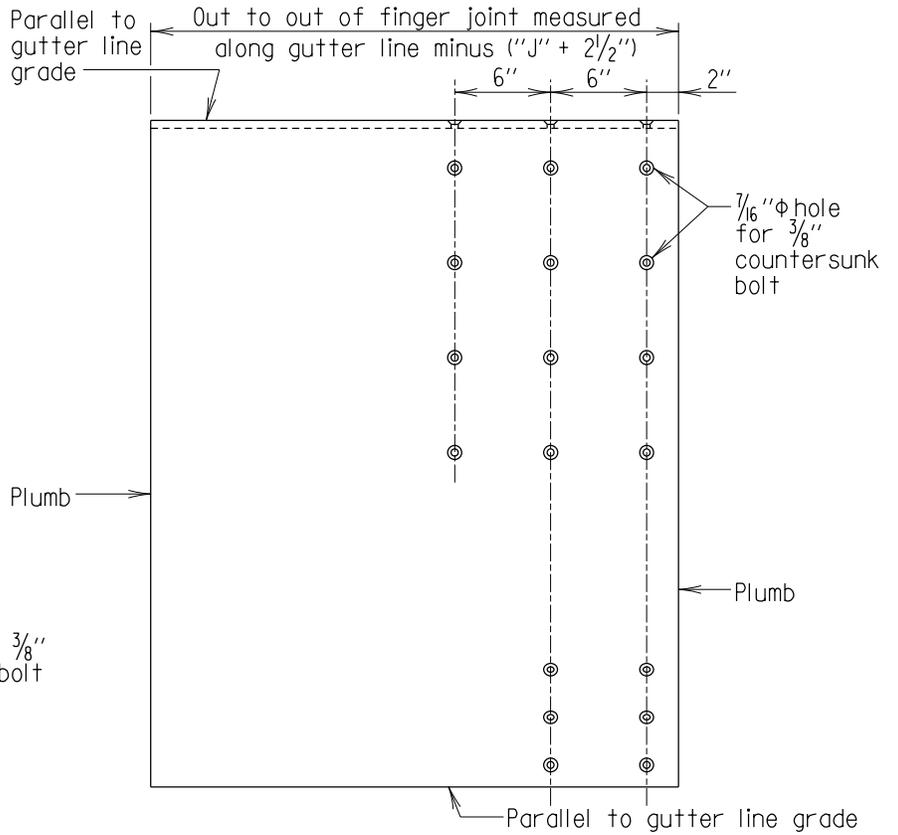
DETAIL NO. SUP-JT(FJ)-101

SHEET 11 OF 21

SUPER-ROADWAY JOINTS



END VIEW



FRONT VIEW

SLIDING PLATE

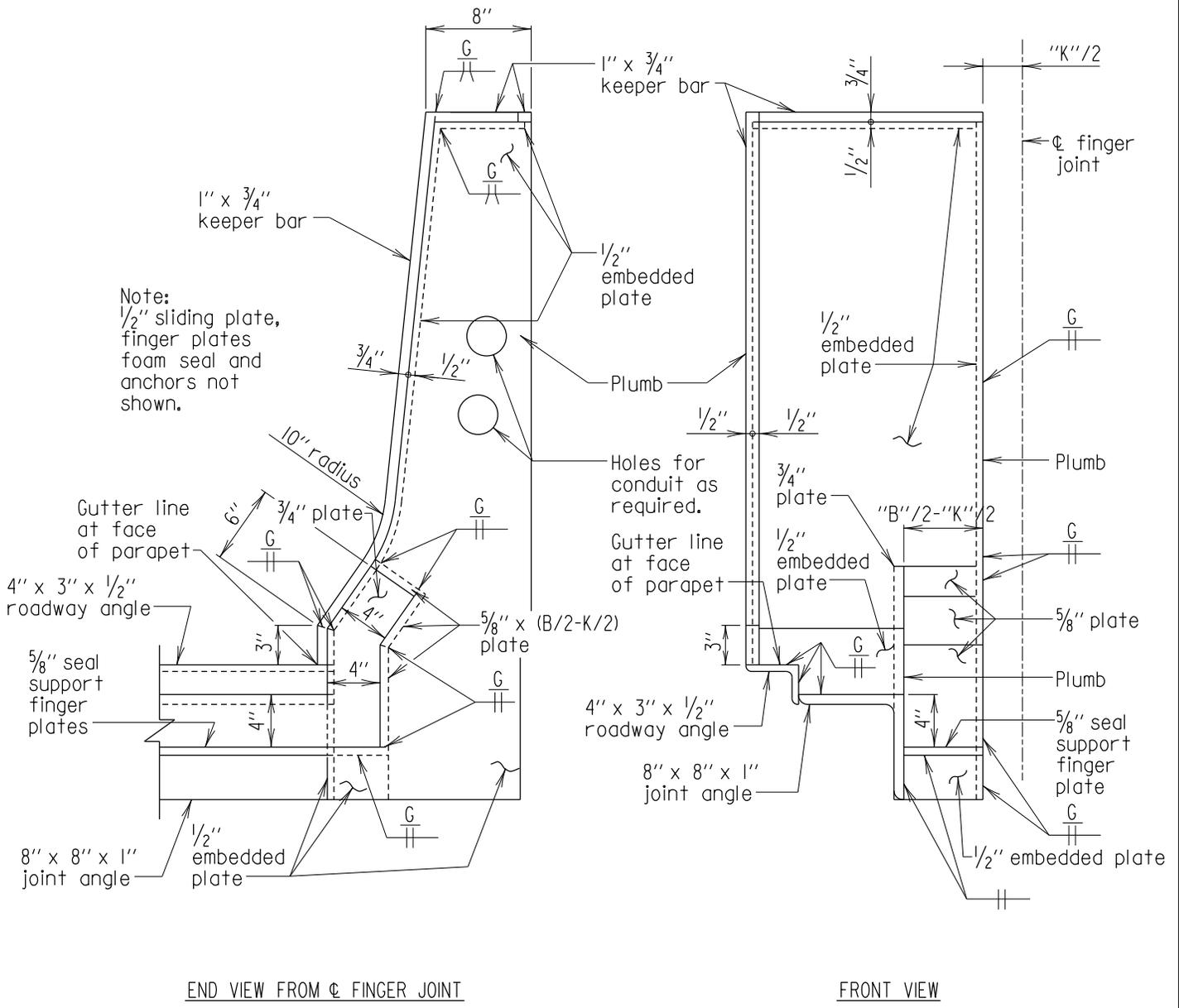
Scale: 1" = 1'-0"

SINGLE SLOPE PARAPET APPLICATION

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<i>R. C. Dwyer</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/11/2019
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FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°	
DETAIL NO. SUP-JT(FJ)-101	SHEET 12 OF 21

SUPER-ROADWAY JOINTS



END VIEW FROM  $\phi$  FINGER JOINT

FRONT VIEW

EMBEDDED PLATE - EXPANSION END

Scale: 1" = 1'-0"

F-SHAPE PARAPET APPLICATION

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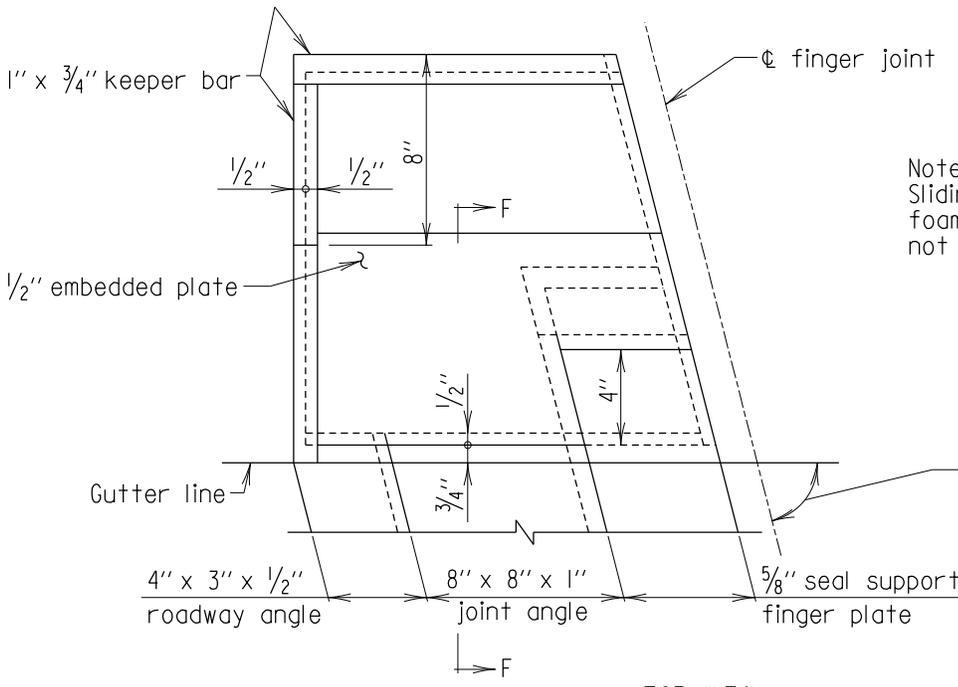
FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE  
SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS  
WITH SKEW ANGLES BETWEEN 50° AND 90°

DETAIL NO. SUP-JT(FJ)-101

SHEET 13 OF 21

SUPER-ROADWAY JOINTS

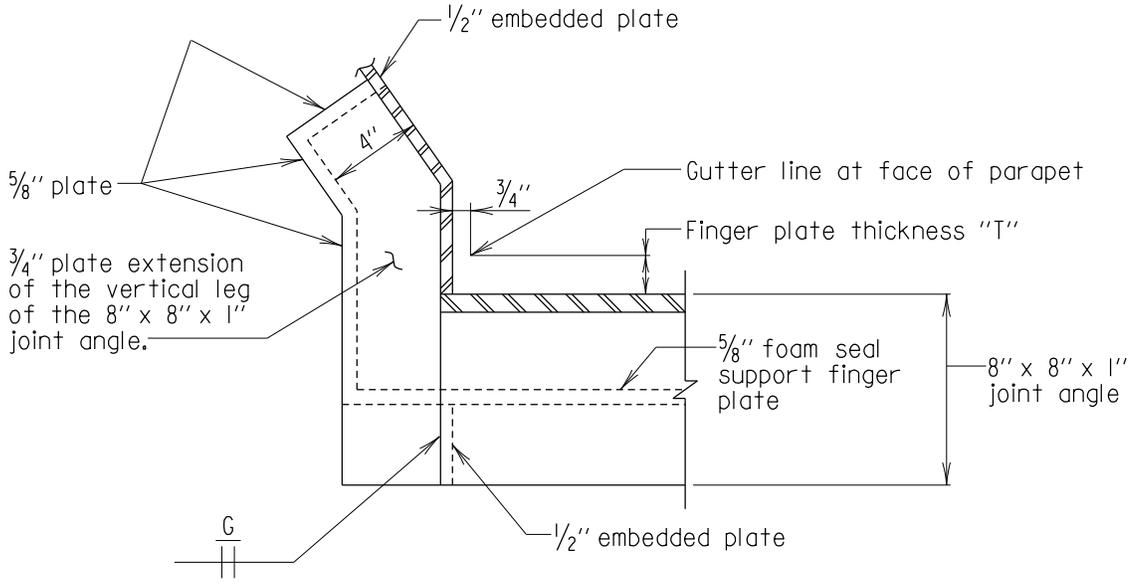




Note:  
Sliding plate, finger plate  
foam seal and anchors  
not shown.

Δ = For straight bridges the  
line of movement is parallel  
to the parapet. For curved  
bridges the line of movement  
may not be parallel to the  
parapet.

TOP VIEW  
EMBEDDED PLATE - EXPANSION END  
Scale: 1/2" = 1'-0"



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

F-SHAPE PARAPET APPLICATION

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DATE: 09/11/2019
VERSION
2.00

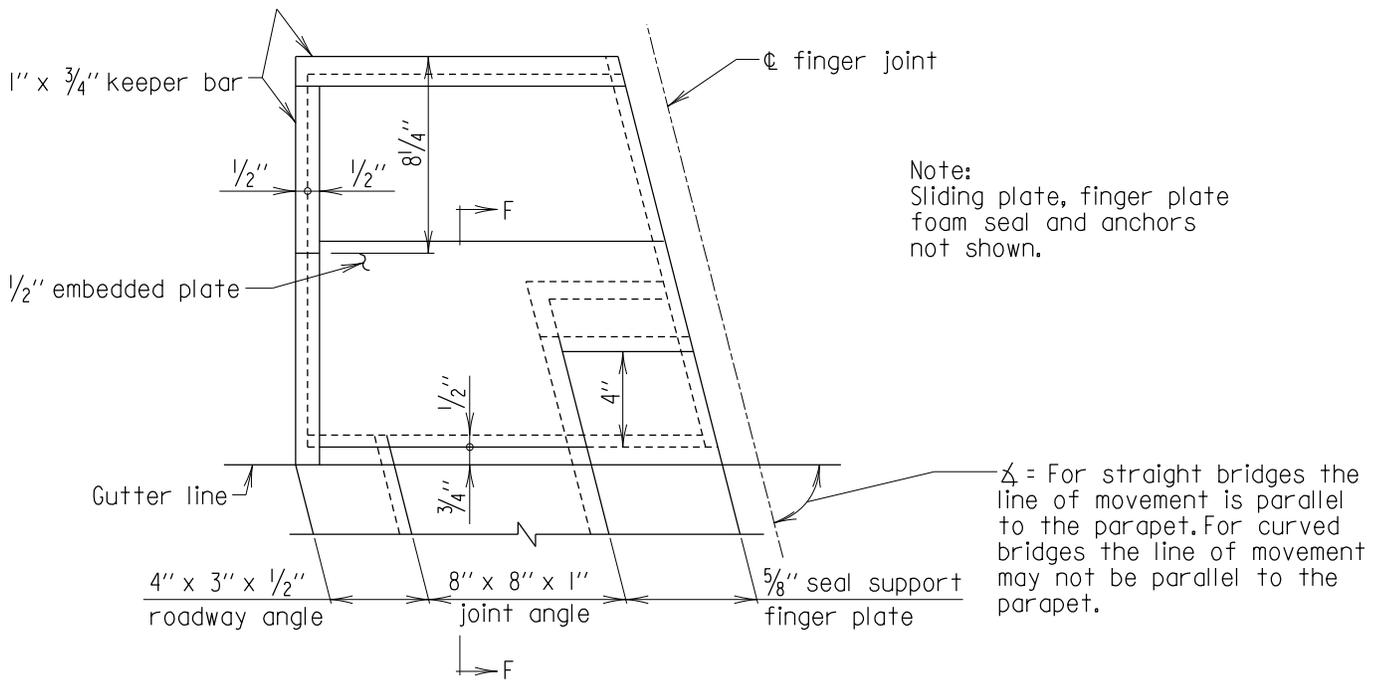
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FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE  
SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS  
WITH SKEW ANGLES BETWEEN 50° AND 90°

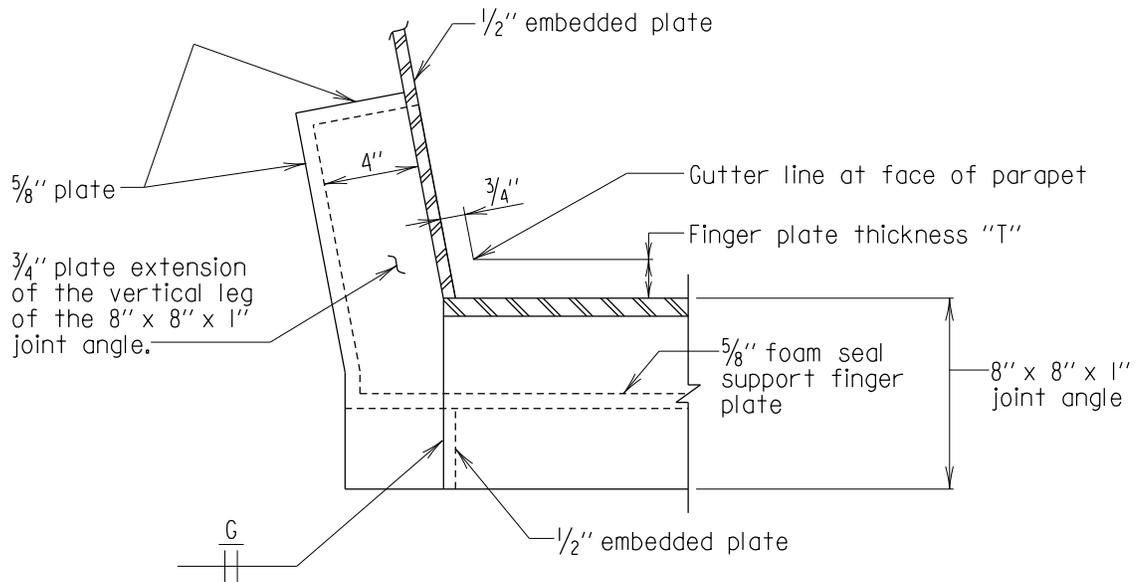
DETAIL NO. SUP-JT(FJ)-101

SHEET 15 OF 21

SUPER-ROADWAY JOINTS



TOP VIEW  
EMBEDDED PLATE - EXPANSION END  
 Scale: 1/2" = 1'-0"



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

## SINGLE SLOPE PARAPET APPLICATION

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VERSION
2.00

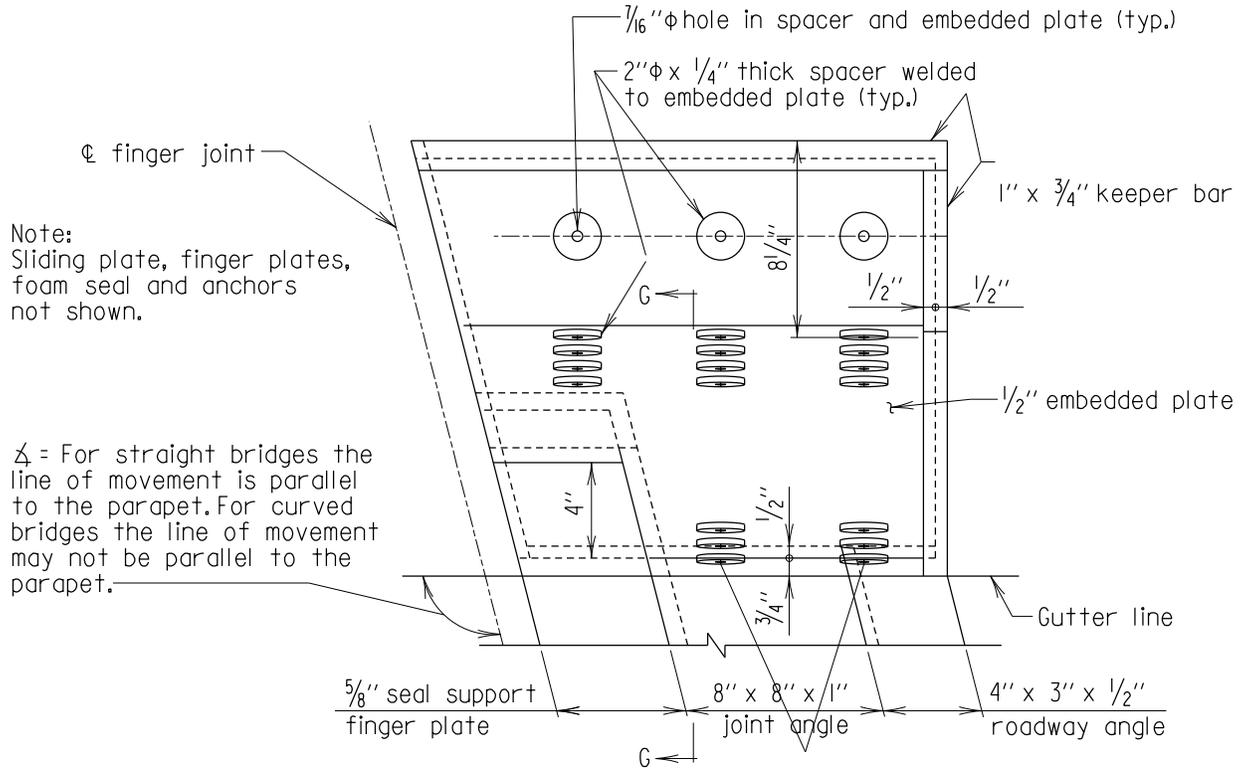
STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°
DETAIL NO. SUP-JT(FJ)-101
SHEET 16 OF 21

SUPER-ROADWAY JOINTS



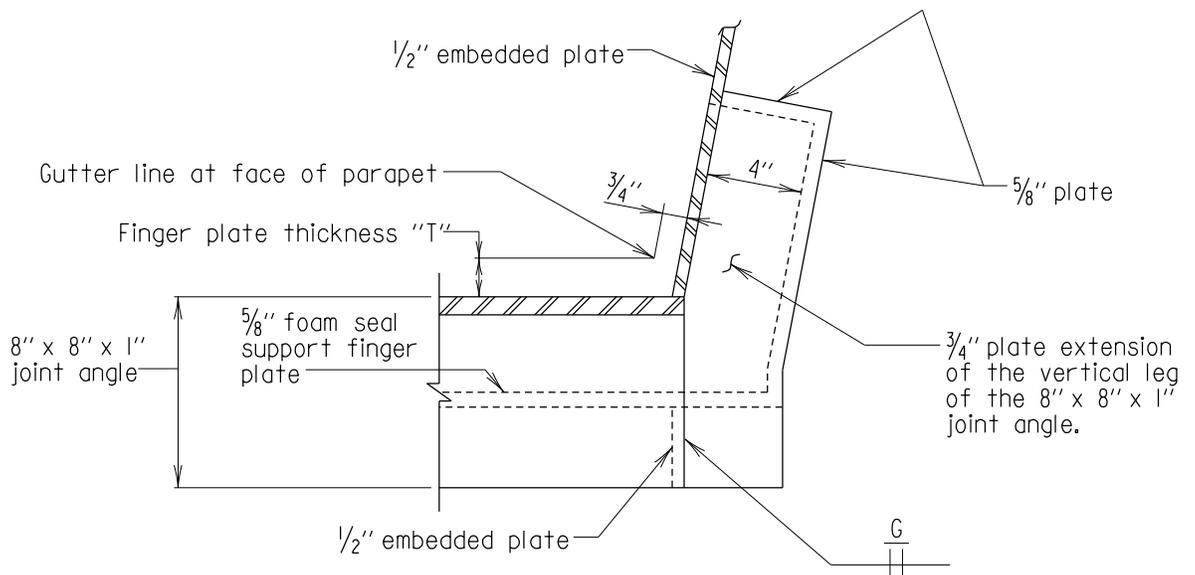






TOP VIEW  
EMBEDDED PLATE - FIXED END

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



SECTION G-G

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

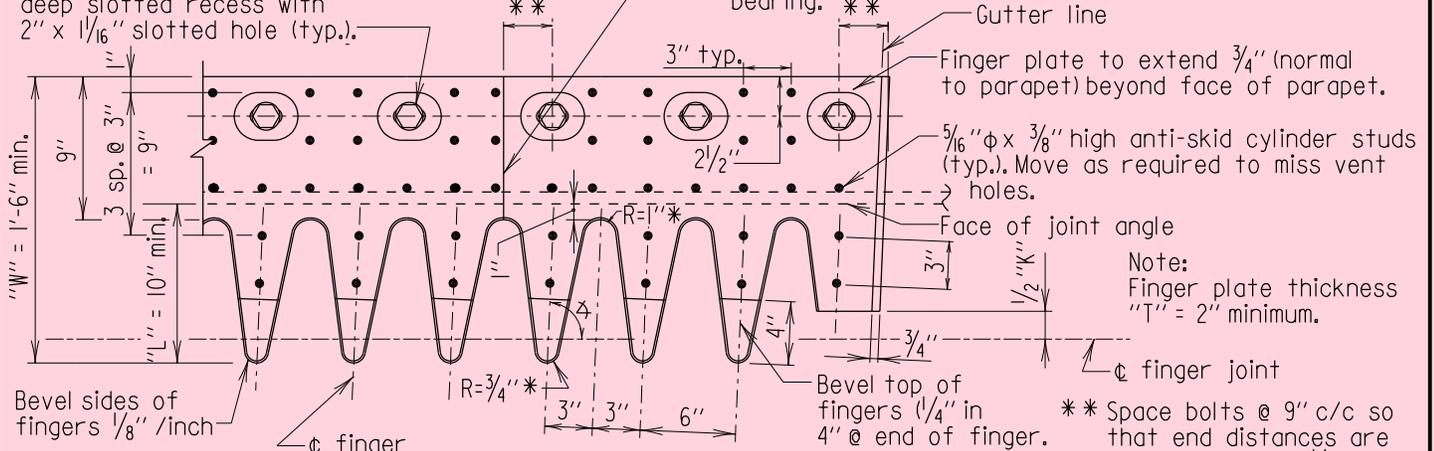
**SINGLE SLOPE PARAPET APPLICATION**

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 DIRECTOR OFFICE OF STRUCTURES DATE: 09/11/2019
VERSION
2.00

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
<b>FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°</b>
DETAIL NO. SUP-JT(FJ)-101
SHEET 20 OF 21

1"  $\Phi$  ASTM Type 304 A stainless steel hex. head bolt with stainless steel lock washer @ 9" c/c in 4" x 3" x 1" deep slotted recess with 2" x 1/16" slotted hole (typ.).

$\Phi$  joint between segments, butt and weld segments at  $\Phi$  valley between fingers. Locate joints as near as possible to a lane line. Plate segments must be equal to twice the girder spacing at  $\Phi$  of bearing. \*\*



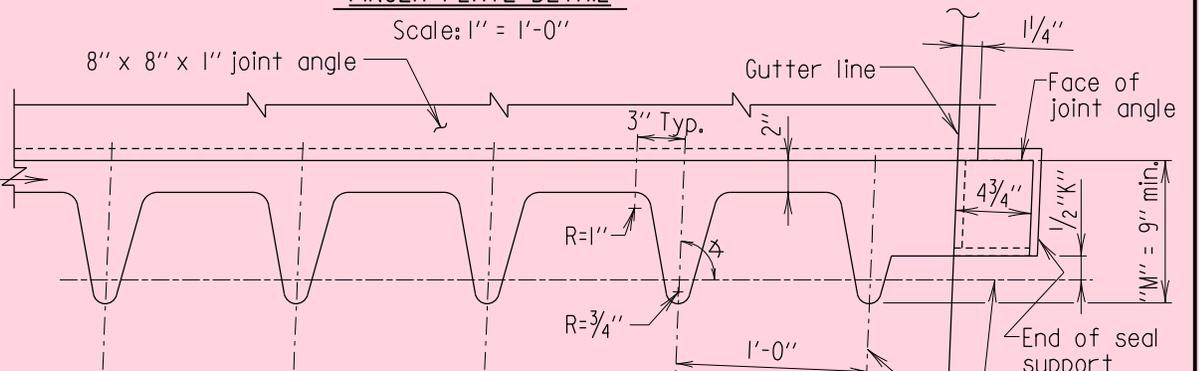
**FINGER PLATE DETAIL**

Scale: 1" = 1'-0"

Note: Finger plate thickness "T" = 2" minimum.  
 \*\* Space bolts @ 9" c/c so that end distances are equal (3" min. to 7 1/2" max.)

Bevel sides of fingers 1/8" /inch  
 \* at bottom of finger plate

5/8" seal support finger plate



**SEAL SUPPORT FINGER PLATE DETAIL**

Scale: 1" = 1'-0"

JOINT OPENING TABLE (INCHES)							
LOCATION OF JOINT		JOINT OPENING AT					
		40° F.	50° F.	60° F.	70° F.	80° F.	90° F.
	J						
	K						
	B						

"J" = Finger plate opening along  $\Phi$  of finger (See Sheet No.1 of 21)

"K" = Finger plate opening normal to  $\Phi$  of joint (See Sheet No.1 of 21)

"B" = Joint opening between joint angles normal to  $\Phi$  of joint (See Sheet No.3 of 21)

" $\Delta$ " = Skew Angle of straight bridges, angle along which the bridge expands, and contracts for curved bridges.

"T" = \_\_\_\_\_

"L" = \_\_\_\_\_

"M" = L - l" = \_\_\_\_\_

"W" = \_\_\_\_\_

" $\Delta$ " = \_\_\_\_\_

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DATE: 09/11/2019
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**FINGER JOINT DETAILS (42" F-SHAPE AND SINGLE SLOPE PARAPET) FOR BRIDGES WITH STEEL STRINGERS WITH SKEW ANGLES BETWEEN 50° AND 90°**

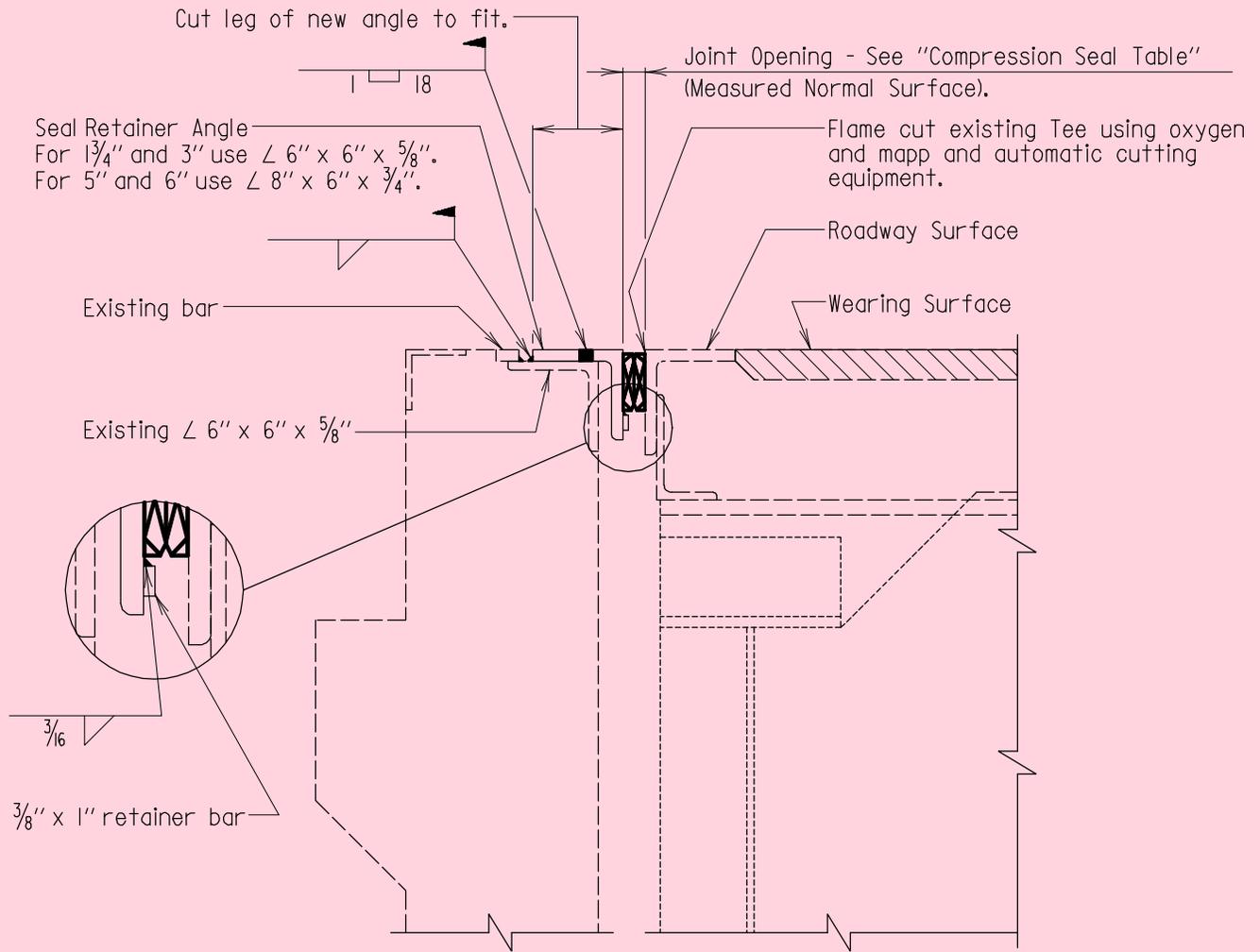
DETAIL NO. SUP-JT(FJ)-101 SHEET 21 OF 21

Chapter 03 - Superstructure

Section 08 – Bridge Deck Joints

SUB-SECTION 06

**MODIFIED JOINT  
DETAILS  
(SUP-JT(MJ))**



SECTION  
Scale: 1"=1'-0"

COMPRESSION SEAL TABLE							
Location	Uncompressed Seal Width	Joint Opening @					
		40°F	50°F	60°F	70°F	80°F	90°F
	1 3/4"			1 1/8"			
	3"			1 5/16"			
	5"			3"			
	6"			3 5/8"			

Note:

1. Existing Structure shown dashed.
2. Existing anchorage system for joint not shown.
3. Existing slabs to remain.
4. The 1 3/4" and 3 in. seals to be one piece for full length of seal (no joints).
5. The 5 and 6 in. seals may have one shop splice per joint, if the length of joint exceeds 50 ft. Splice shall be at least 15 ft. from gutter line.
6. Location of holes for plug welds to be verified in field.

APPROVAL
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 01/07/2002
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
MODIFIED EXISTING BRIDGE DECK EXPANSION JOINT AT ABUTMENTS
DETAIL NO. SUP-JT(MJ)-101
SHEET <u>  </u> OF <u>  </u>

SUPER-ROADWAY JOINTS

Joint Opening - See "Compression Seal Table"  
(Measured Normal Surface).

Flame cut existing Tee using oxygen and mapp and automatic cutting equipment.

Roadway Surface

Wearing Surface

Cut leg of new angle to fit.

Seal Retainer Angle  
For 1 3/4" and 3" use ∠ 6" x 6" x 5/8".  
For 5" and 6" use ∠ 8" x 6" x 3/4".

Stagger welds in 1'-0" segments so as to reduce heat concentrations.

Existing bar

Existing angle

3/8" x 1" retainer bar

3/16"

SECTION  
Scale: 1"=1'-0"

COMPRESSION SEAL TABLE							
Location	Uncompressed Seal Width	Joint Opening @					
		40°F	50°F	60°F	70°F	80°F	90°F
	1 3/4"			1 1/8"			
	3"			1 5/16"			
	5"			3"			
	6"			3 5/8"			

Note:

- Existing Structure shown dashed.
- Existing anchorage system for joint not shown.
- Existing slabs to remain.
- The 1 3/4" and 3" seals to be one piece for full length of seal (no joints).
- The 5" and 6" seals may have one shop splice per joint, if the length of joint exceeds 50'. Splice shall be at least 15' from gutter line.

<b>APPROVAL</b>
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 01/07/2002
<b>VERSION</b>
1.0

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OFFICE OF STRUCTURES

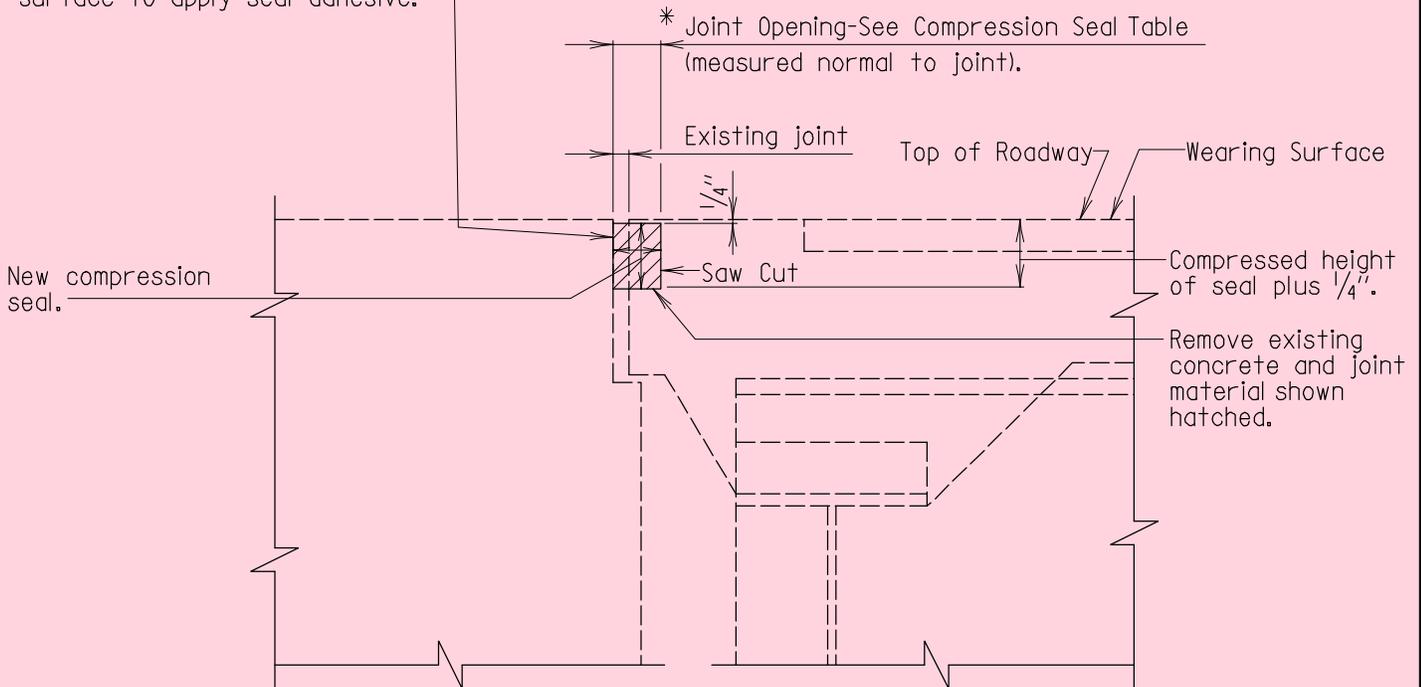
MODIFIED EXISTING BRIDGE DECK  
EXPANSION JOINT AT PIERS

DETAIL NO. SUP-JT(MJ)-102

SHEET    OF   

SUPER-ROADWAY JOINTS

If this edge is rough or deteriorated (to be determined by the Engineer) saw cut to provide a smooth surface (Saw cut a maximum of 1/2" width).\*  
 If existing surface is to remain, without cutting, it shall be abrasive blasted to provide a good clean surface to apply seal adhesive.



\* Prior to ordering joint material each joint shall be evaluated to determine width of saw cutting required. If at 60° F or below the joint opening is 2" or less (measured perpendicular to center of joint) the 3" seal may be used. For openings greater than above, contact Office of Bridge Development. If the larger differential is required, the Contractor will be paid the difference in cost of material between the two seals being compared.

SECTION  
 Scale: 1" = 1'-0"

COMPRESSION SEAL TABLE								
Location	Uncompressed Seal Width	Joint Opening @						Movement Rating
		40° F	50° F	60° F	70° F	80° F	90° F	
	1 3/4"			1 1/8"				0.66"
	3"			1 5/16"				1.25"
	5"			3"				2.50"
	6"			3 5/8"				2.85"

Note:

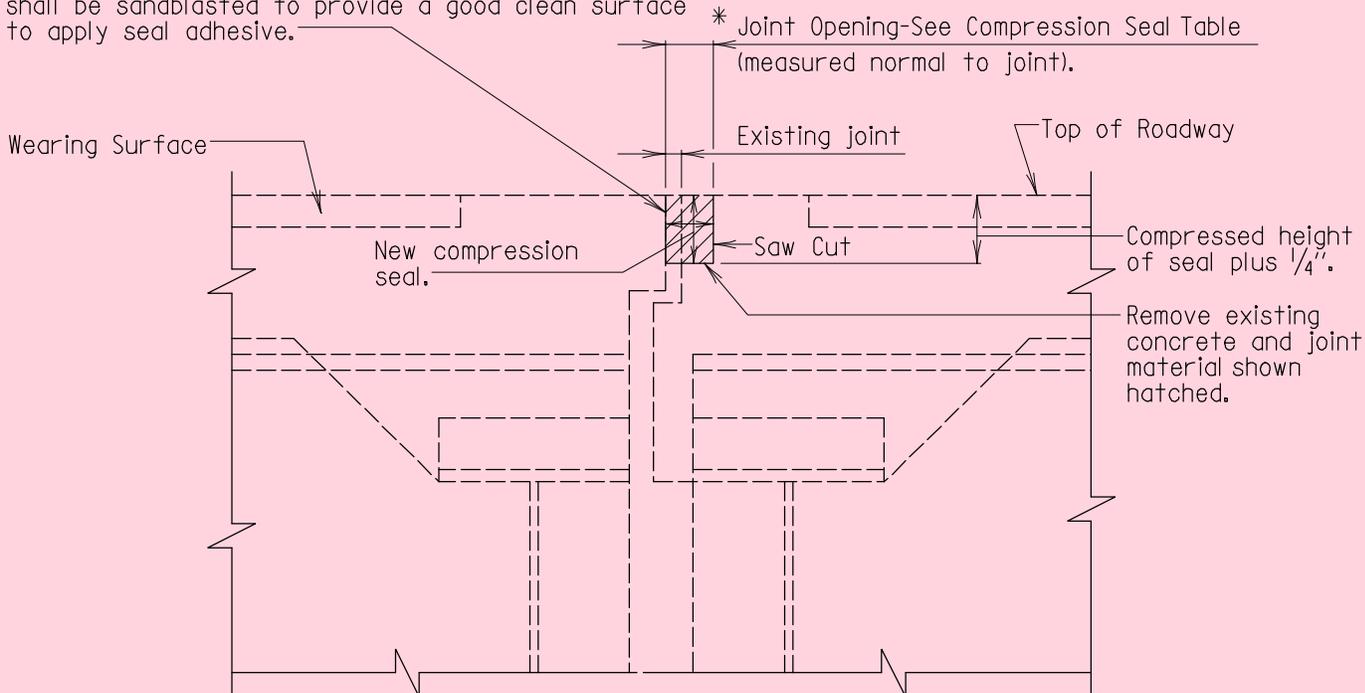
1. Existing Structure shown dashed.
2. Existing slab to remain.
3. The 1 3/4" and 3" seals to be one piece for full length of seal (no joints).
4. The 5" and 6" seals to have one shop splice per joint, if the length of joint exceeds 50'. Splice shall be at least 15' from gutter line.
5. Joint area shall be thoroughly cleaned just prior to placing seal.

APPROVAL
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 01/22/2001
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
MODIFIED EXISTING BRIDGE DECK NON-ARMORED EXPANSION JOINT AT ABUTMENTS
DETAIL NO. SUP-JT(MJ)-201
SHEET <u>  </u> OF <u>  </u>

SUPER-ROADWAY JOINTS

If this edge is rough or deteriorated (to be determined by the Engineer) saw cut to provide a smooth surface (Saw cut a maximum of 1/2" width).  
 If existing surface is to remain, without cutting, it shall be sandblasted to provide a good clean surface to apply seal adhesive.



\* Prior to ordering joint material each joint shall be evaluated to determine width of saw cutting required. If at 60° F or below the joint opening is 2" or less (measured perpendicular to center of joint) the 3" seal may be used. For openings greater than above, contact Office of Bridge Development. If the larger seal is required, the Contractor will be paid the differential in cost of material between the two seals being compared.

SECTION  
 Scale: 1" = 1'-0"

COMPRESSION SEAL TABLE								
Location	Uncompressed Seal Width	Joint Opening @						Movement Rating
		40° F	50° F	60° F	70° F	80° F	90° F	
	1 3/4"			1 1/8"				0.66"
	3"			1 5/16"				1.25"
	5"			3"				2.50"
	6"			3 5/8"				2.85"

Note:

1. Existing Structure shown dashed.
2. Existing slab to remain.
3. The 1 3/4" and 3" seals to be one piece for full length of seal (no joints).
4. The 5" and 6" seals may have one shop splice per joint, if the length of joint exceeds 50'. Splice shall be at least 15' from gutter line.
5. Joint area shall be thoroughly cleaned just prior to placing seal.

APPROVAL  
*L.S. Friedman* DIRECTOR  
 OFFICE OF STRUCTURES  
 DATE: 11/17/1997

VERSION  
 1.0

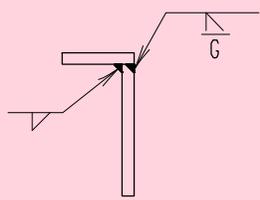
STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF STRUCTURES

MODIFIED EXISTING BRIDGE DECK  
 NON-ARMORED EXPANSION JOINT AT PIERS

DETAIL NO. SUP-JT(MJ)-202

SHEET    OF   

SUPER-ROADWAY JOINTS



Minimum plate size,  $\frac{3}{8}$ ".

**ALTERNATE TO WALKWAY ANGLE**

Scale: None

Field vulcanize seal at gutter line, and field weld roadway and walkway angles, with  $\frac{5}{16}$ " fillet weld.

Roadway Seal

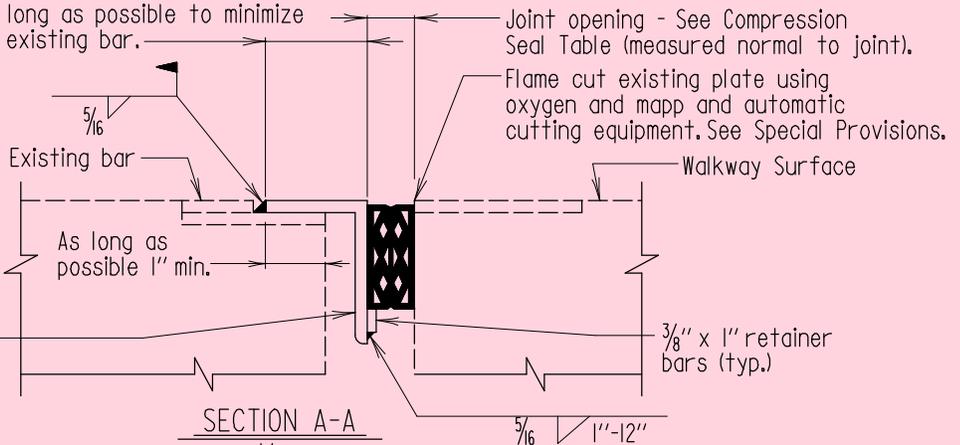
Extend leg of new roadway angle and seal 9" past gutter line.

**SECTION**

Scale: 1" = 1'-0"

Cut leg of new angle to fit. Angle to run across top of walkway and bend down face of curb. Leg to be as long as possible to minimize gap between weld and existing bar.

$\angle 6'' \times 6'' \times \frac{3}{8}$ " for  $1\frac{3}{4}$ " and 3" seal  
 $\angle 8'' \times 6'' \times \frac{1}{2}$ " for 5" and 6" seal  
 If angle of sufficient size cannot be furnished, see detail above.



**SECTION A-A**  
Scale: 1/2" = 1'-0"

COMPRESSION SEAL TABLE							
Location	Uncompressed Seal Width	Joint Opening @					Movement Rating
		40°F	50°F	60°F	70°F	80°F	
	1 $\frac{3}{4}$ "			1 $\frac{1}{8}$ "			0.66"
	3"			1 $\frac{5}{16}$ "			1.25"
	5"			3"			2.50"
	6"			3 $\frac{5}{8}$ "			2.85"

Note:

- Existing structure shown dashed.
- Existing anchorage system for joint, not shown.
- Existing slab to remain.
- All gutter line splices of seal, if possible, to be shop fabricated. All others may be field splices.
- Joint area shall be thoroughly cleaned just prior to placing of seal.

<b>APPROVAL</b>
<i>L.S. Fisher</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 11/17/1997
<b>VERSION</b>
1.0

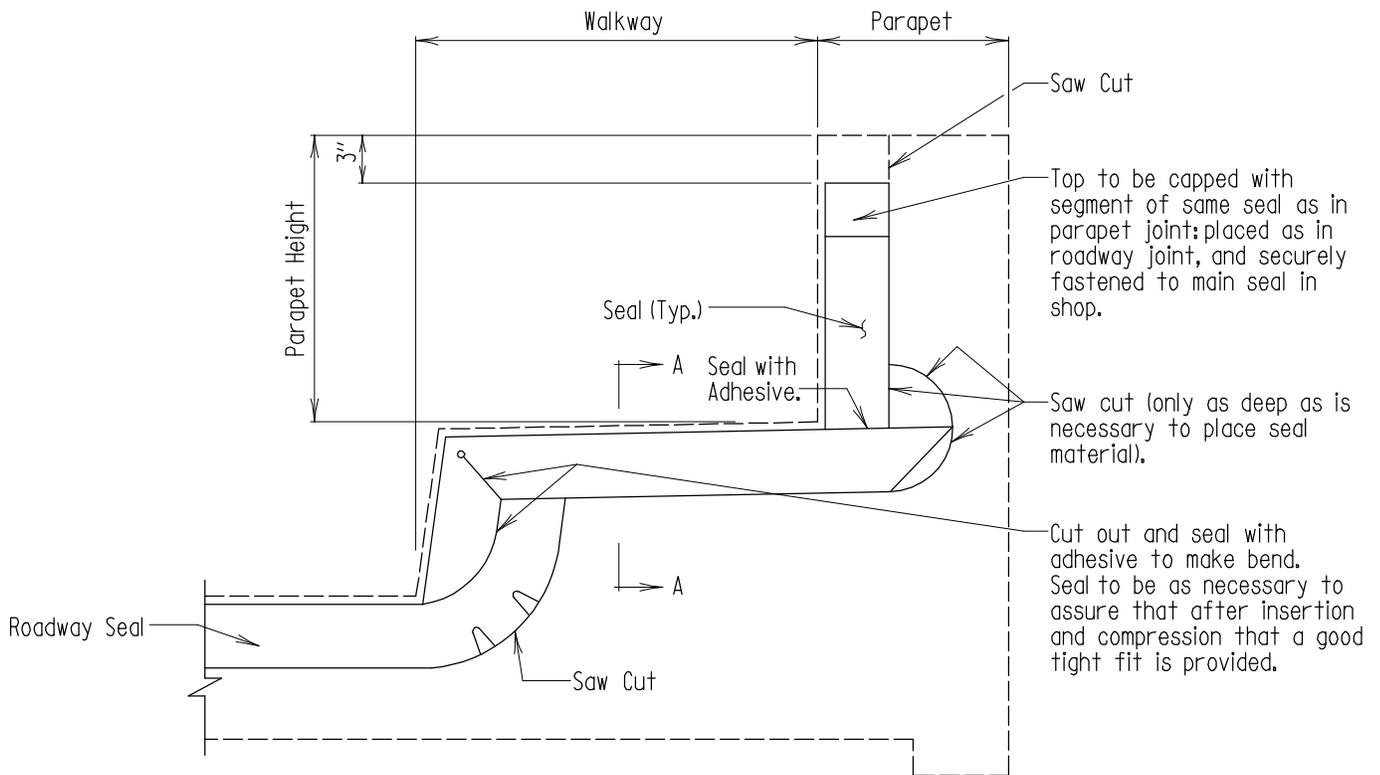
STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF STRUCTURES

MODIFIED EXISTING BRIDGE  
 ARMORED JOINT AT WALKWAY

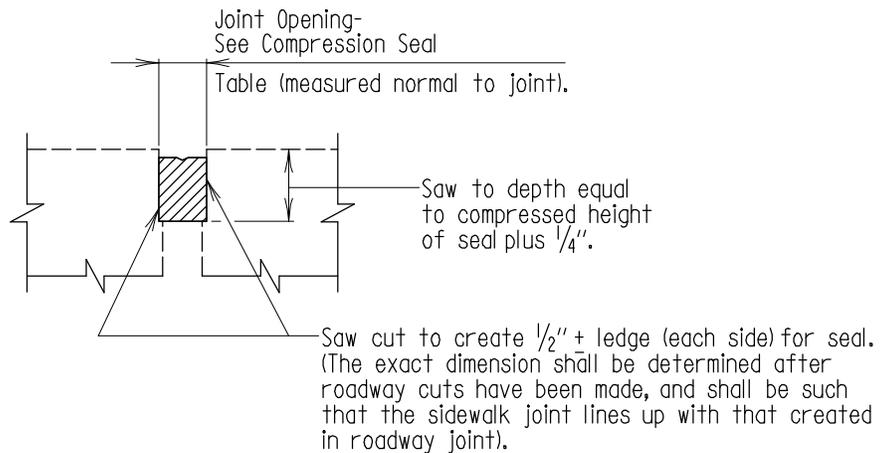
DETAIL NO. SUP-JT(MJ)-301

SHEET    OF   

SUPER-ROADWAY JOINTS



SECTION  
Scale: 1" = 1'-0"



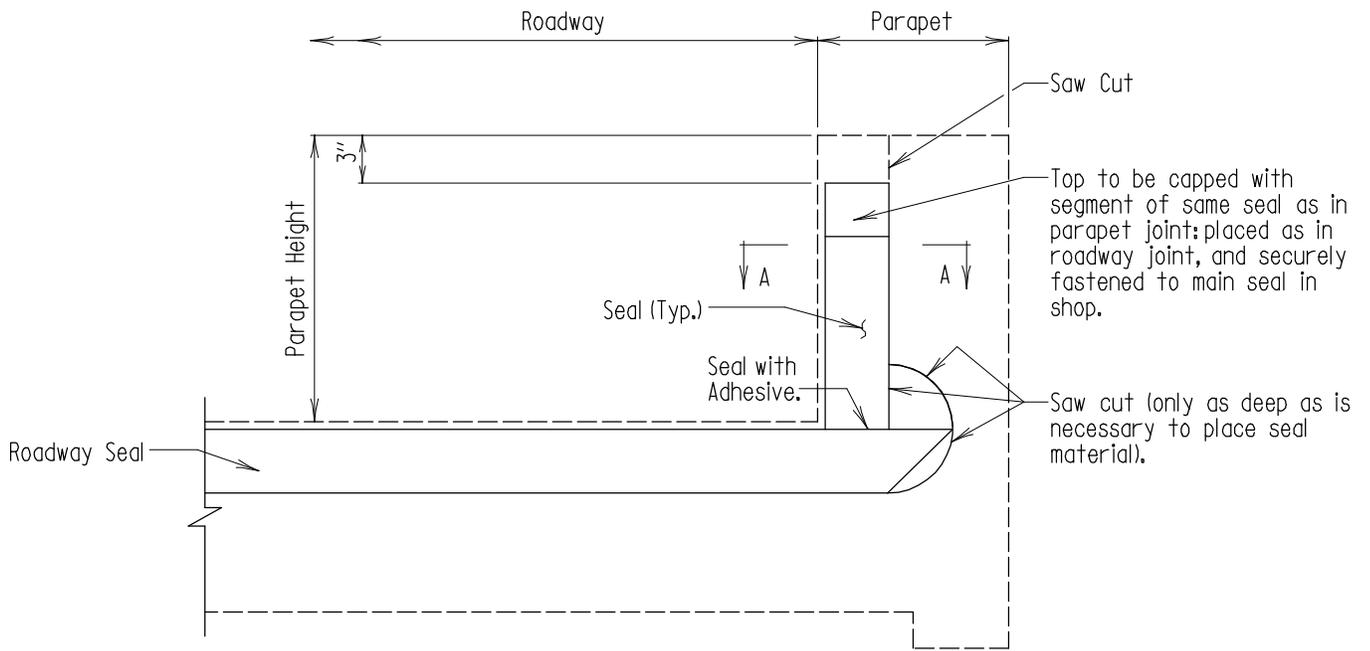
SECTION A-A  
Scale: 1" = 1'-0"

Note:

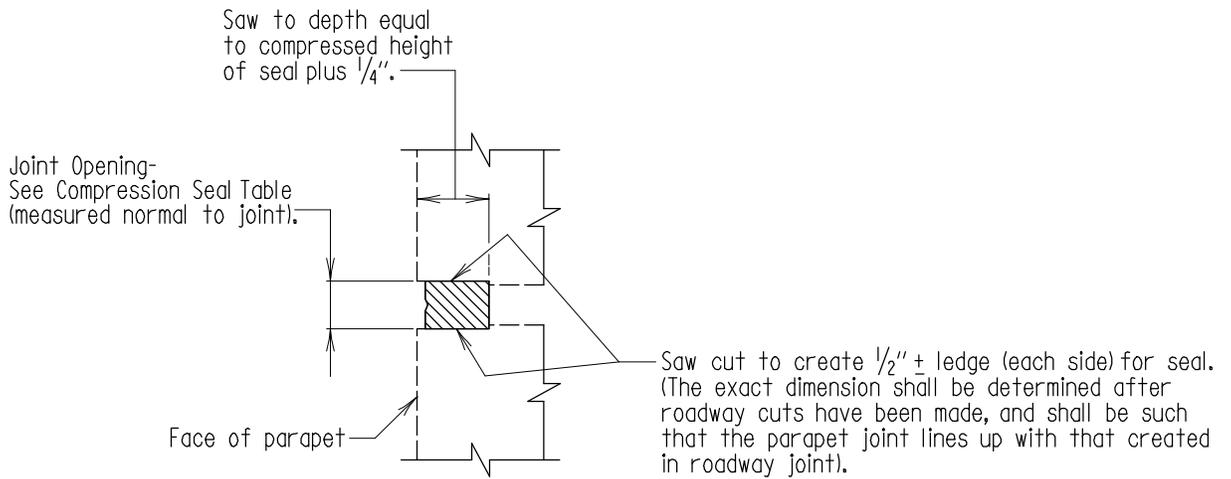
1. Existing structure shown dashed.
2. Existing slab to remain.
3. All gutter line splices of seal, if possible, shall be shop fabricated. All others may be field splices.
4. Joint area shall be thoroughly cleaned just prior to placing of seal.

APPROVAL
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/09/1982
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
MODIFIED EXISTING BRIDGE NON-ARMORED JOINT AT WALKWAY
DETAIL NO. SUP-JT(MJ)-302
SHEET <u>  1  </u> OF <u>  1  </u>



SECTION  
Scale: 1" = 1'-0"



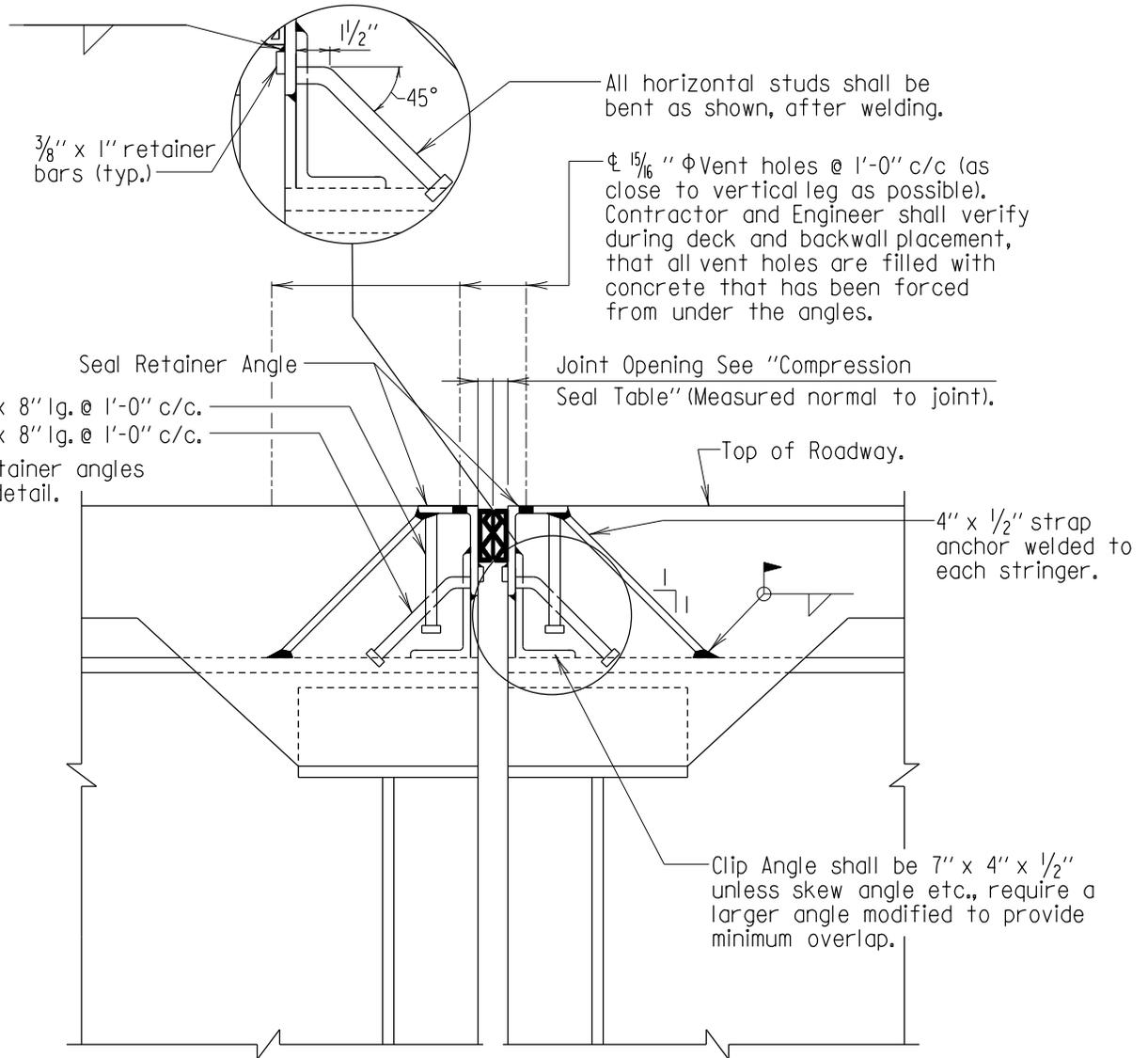
SECTION A-A  
Scale: 1" = 1'-0"

Note:

1. Existing structure shown dashed.
2. Existing slab to remain.
3. All gutter line splices of seal, if possible, shall be shop fabricated. All others may be field splices.
4. Joint area shall be thoroughly cleaned just prior to placing of seal.

APPROVAL
<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 06/21/1994
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
MODIFIED EXISTING BRIDGE NON-ARMORED JOINT AT PARAPET (NO WALKWAY)
DETAIL NO. SUP-JT(MJ)-303
SHEET <u>  </u> OF <u>  </u>



**SECTION**

Scale: 1" = 1'-0"

**Notes:**

1. New bridge details shown.
2. See Detail No. SUP-SS(DR)-101 showing special attachment of new clip angle.
3. Compression seal to be placed after joint angles are set, and deck is placed.
4. Ship and erect seal retaining angles as a unit.

APPROVAL
<i>E.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 07/19/2006
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
<b>COMPRESSION SEAL ROADWAY JOINT AT PIERS</b>
DETAIL NO. SUP-JT(MJ)-401
SHEET <u>  1  </u> OF <u>  1  </u>

SUPER-ROADWAY JOINTS

Chapter 03 - Superstructure

Section 08 – Bridge Deck Joints

SUB-SECTION 07

**DRAINAGE  
TROUGH DETAILS  
(SUP-JT(DT))**

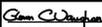
GENERAL NOTES

Specifications: Latest Specifications and Special Provisions for materials and construction. Latest AASHTO Standard Specifications for Highway Bridges for design.

Materials: Drainage trough shall conform to 911.11.  
 Fusion bonded epoxy powder coatings for steel shall conform to 917.02.  
 Catch basins shall be fiberglass conforming to 921.11.\*  
 Downspouts shall be PVC.  
 Stainless steel bolts shall conform to ASTM A 193, Identification Symbol B 8, Type 304.

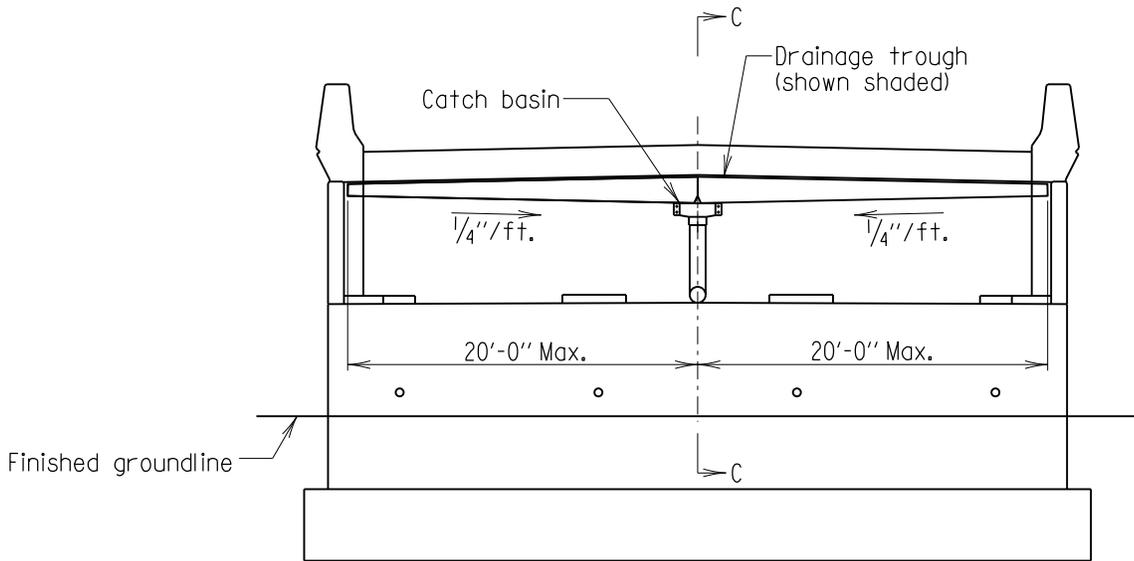
Measurement and Payment: Catch basins, downspouts, troughs, etc. will be measured and paid for as specified in 460.04.

\* Contractor may substitute stainless steel (10 gauge min.) or galvanized steel (10 gauge min.) catch basins in lieu of fiberglass, at no additional cost to the Administration.

APPROVAL
 DIRECTOR OFFICE OF STRUCTURES  DATE: 09/11/2019
VERSION
1.01

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DRAINAGE TROUGH CATCH BASIN GENERAL NOTES
DETAIL NO. SUP-JT(DT)-101
SHEET <u>1</u> OF <u>5</u>

SUPER-ROADWAY JOINTS

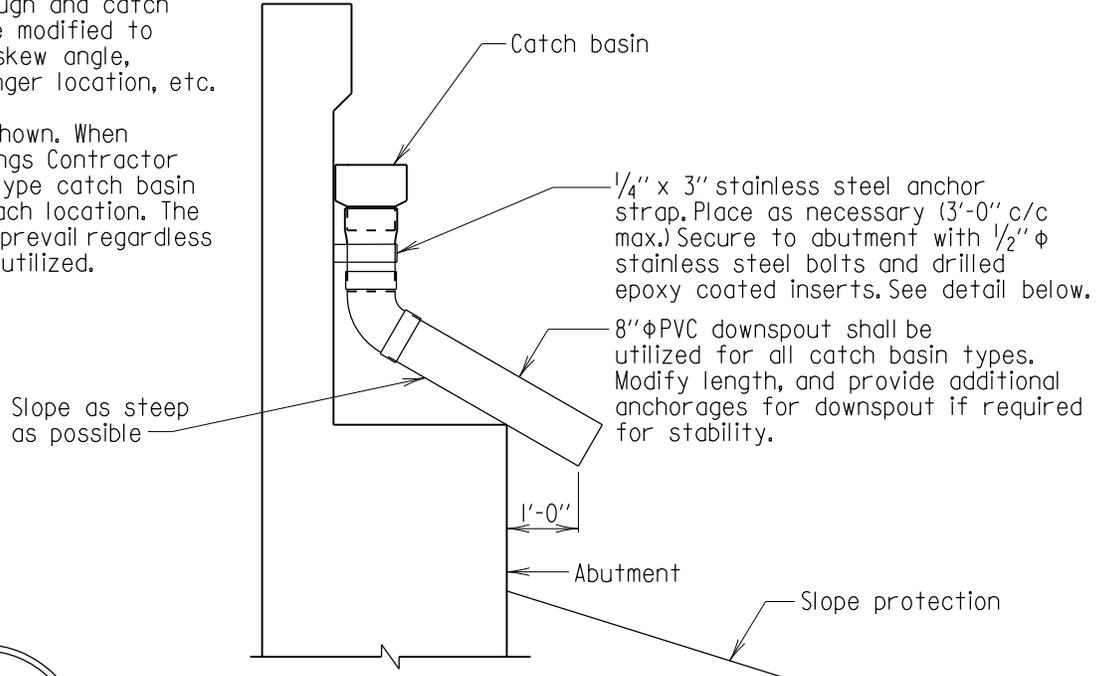


**DRAINAGE TROUGH LAYOUT**

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

Note:  
Actual layout of trough and catch basin may need to be modified to accommodate bridge skew angle, super elevation, stringer location, etc.

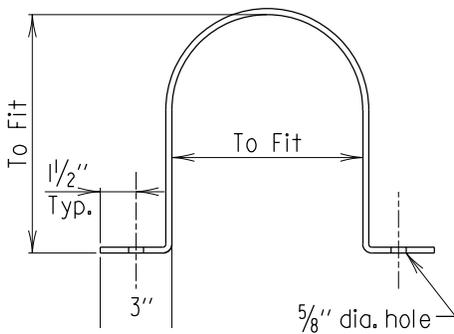
Catch Basin Type A shown. When preparing shop drawings Contractor shall indicate which type catch basin is appropriate for each location. The Contract price shall prevail regardless of catch basin type utilized.



**SECTION C-C**

Scale: 3/8" = 1'-0"

Note:  
Designer shall detail exact location of troughs and downspouts on Contract Drawings.



**ANCHOR STRAP DETAIL**

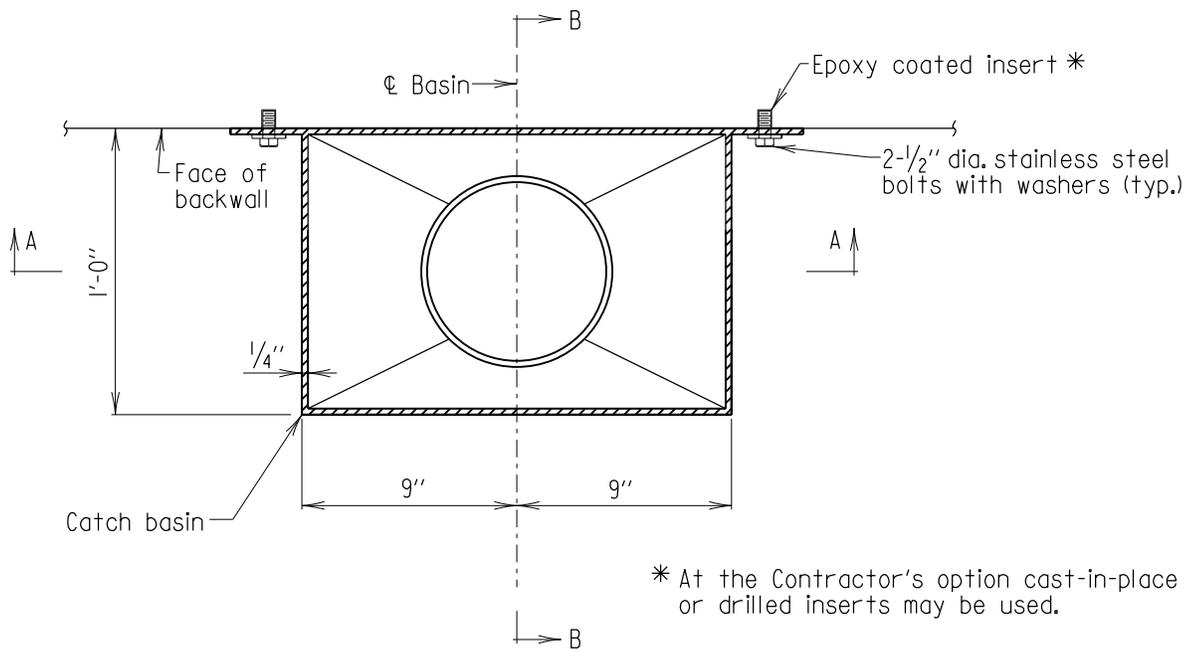
Scale: 1/2" = 1'-0"

Note:  
F-Shape barrier is for illustrative purposes only. See plans for barrier type.

APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/11/2019
VERSION
1.01

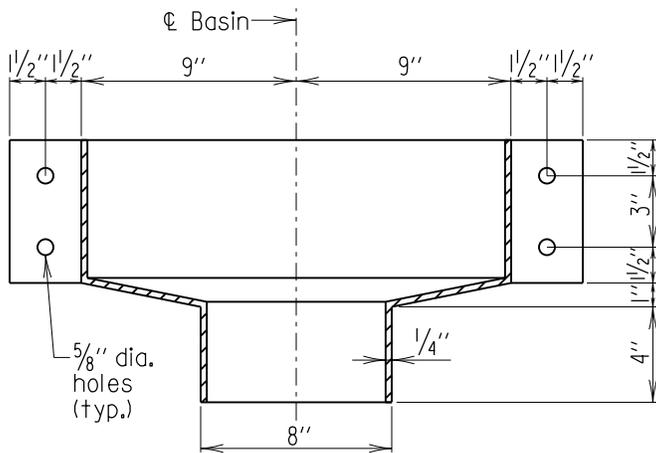
STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
<b>DRAINAGE TROUGH CATCH BASIN CATCH BASIN LOCATION DETAILS</b>
DETAIL NO. SUP-JT(DT)-101
SHEET 2 OF 5

SUPER-ROADWAY JOINTS



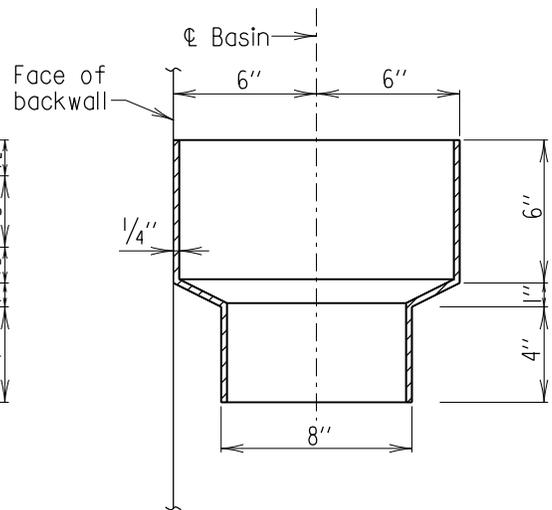
**DRAINAGE TROUGH CATCH BASIN**

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



**SECTION A-A**

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

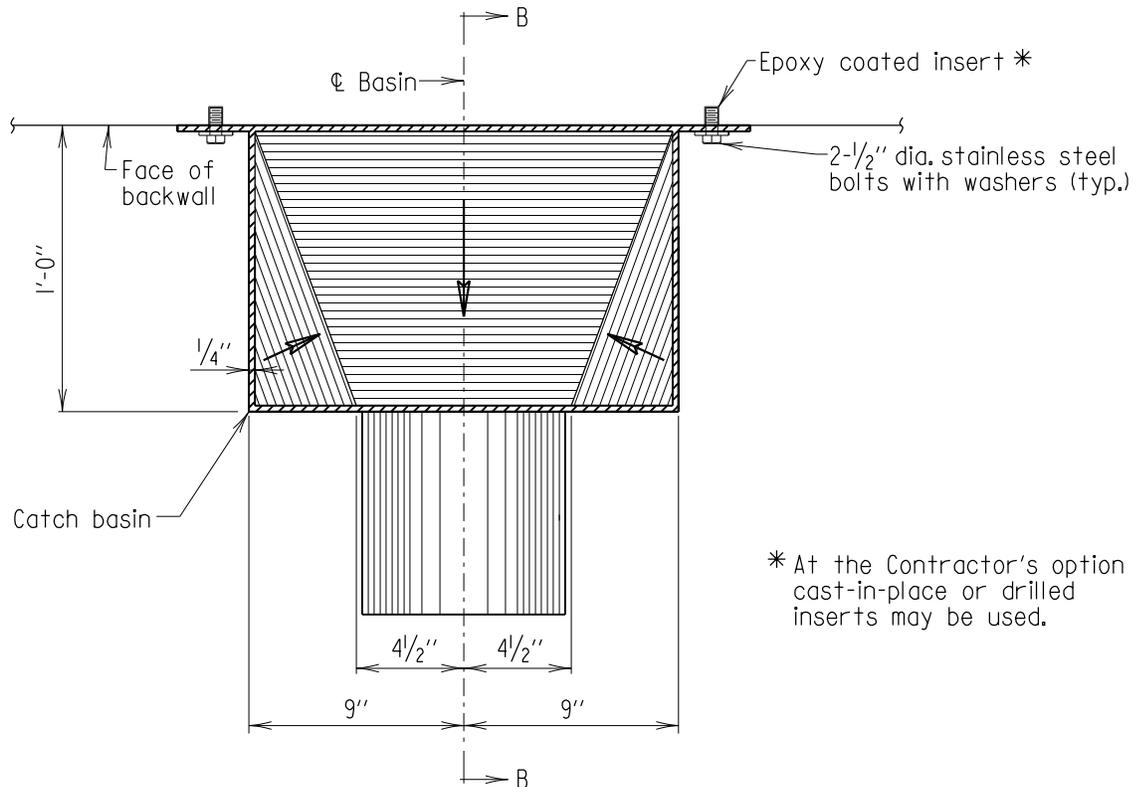


**SECTION B-B**

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

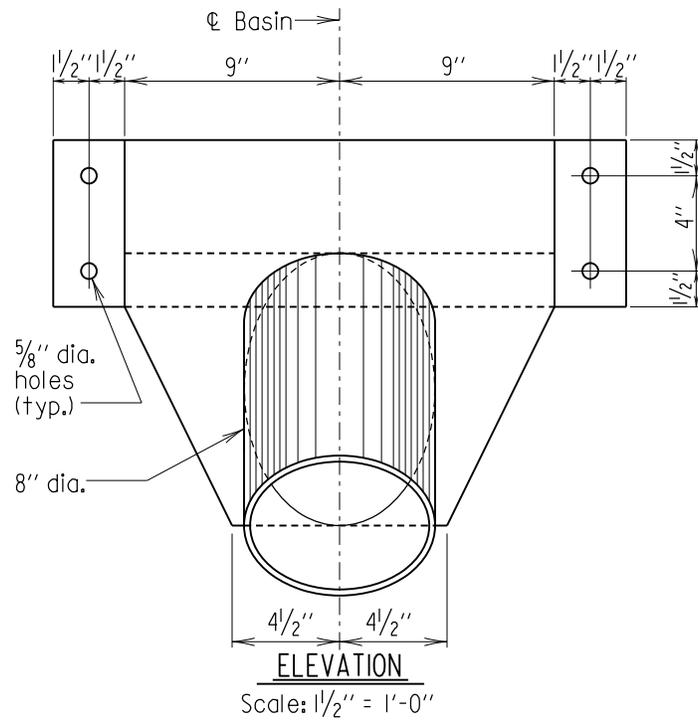
APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/11/2019
VERSION
1.01

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES	
<b>DRAINAGE TROUGH CATCH BASIN - TYPE A DETAILS</b>	
DETAIL NO. SUP-JT(DT)-101	SHEET <u>3</u> OF <u>5</u>

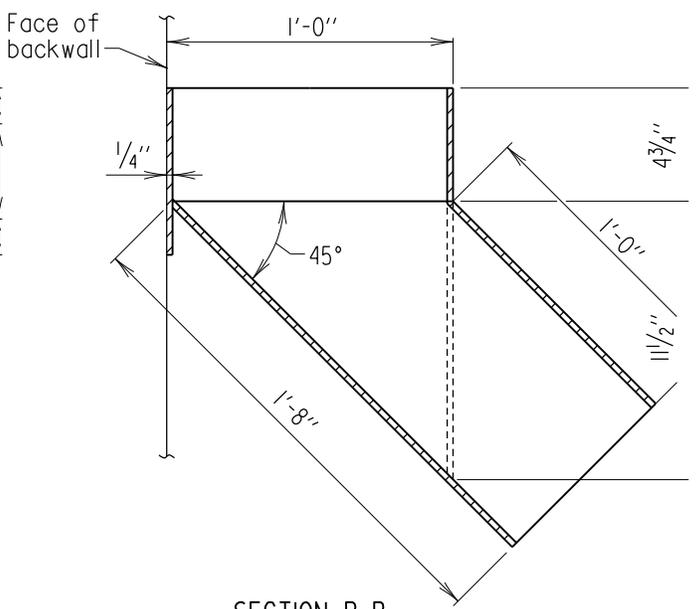


\* At the Contractor's option cast-in-place or drilled inserts may be used.

**DRAINAGE TROUGH CATCH BASIN**  
Scale: 1/2" = 1'-0"



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



**SECTION B-B**  
Scale: 1/2" = 1'-0"

APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/11/2019
VERSION
1.01

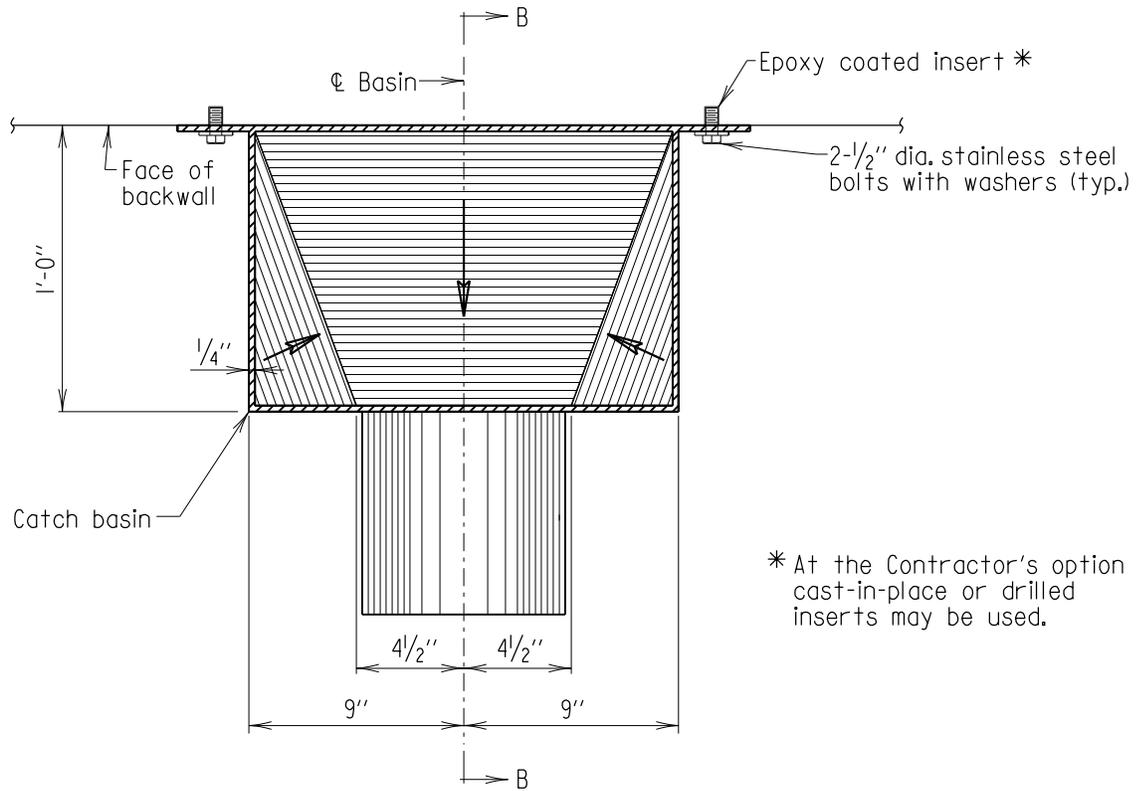
STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF STRUCTURES

**DRAINAGE TROUGH CATCH BASIN - TYPE B  
DETAILS**

DETAIL NO. SUP-JT(DT)-101

SHEET 4 OF 5

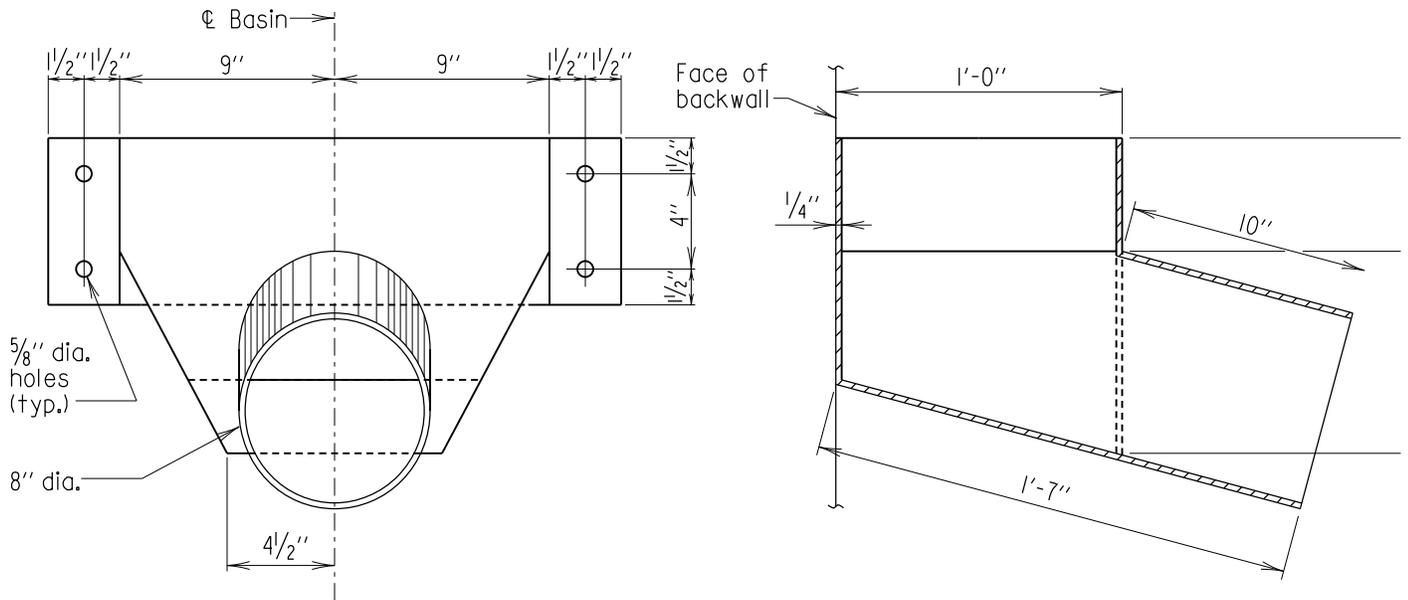
SUPER-ROADWAY JOINTS



\* At the Contractor's option cast-in-place or drilled inserts may be used.

**DRAINAGE TROUGH CATCH BASIN**

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



**ELEVATION**

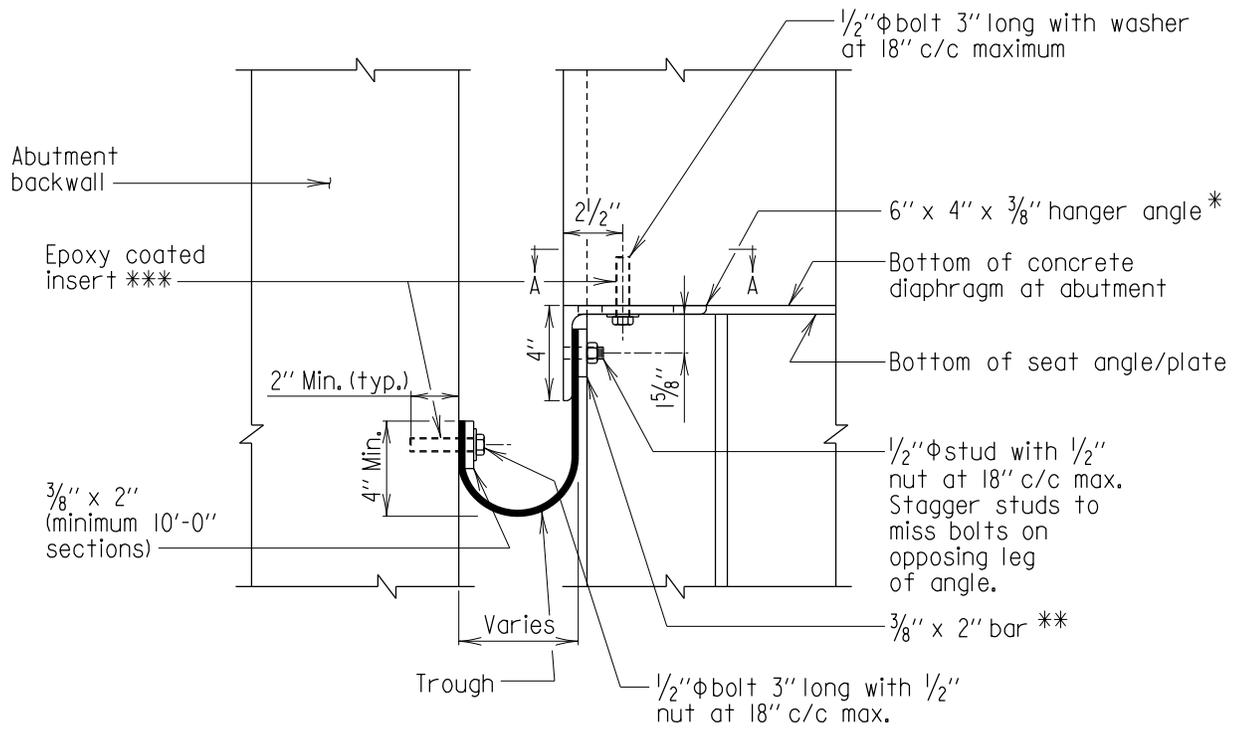
Scale: 1/2" = 1'-0"

**SECTION B-B**

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

APPROVAL
<i>R. C. [Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/11/2019
VERSION
1.01

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES	
<b>DRAINAGE TROUGH CATCH BASIN - TYPE C DETAILS</b>	
DETAIL NO. SUP-JT(DT)-101	SHEET <u>5</u> OF <u>5</u>



\* 6"x4"x 3/8" hanger angle extends from seat angle/plate to seat angle/plate of adjacent stringer. Extend vertical leg of angle beyond exterior stringer to support trough. See Section A-A.

\*\* Bar discontinuous at stringer web. See Section A-A.

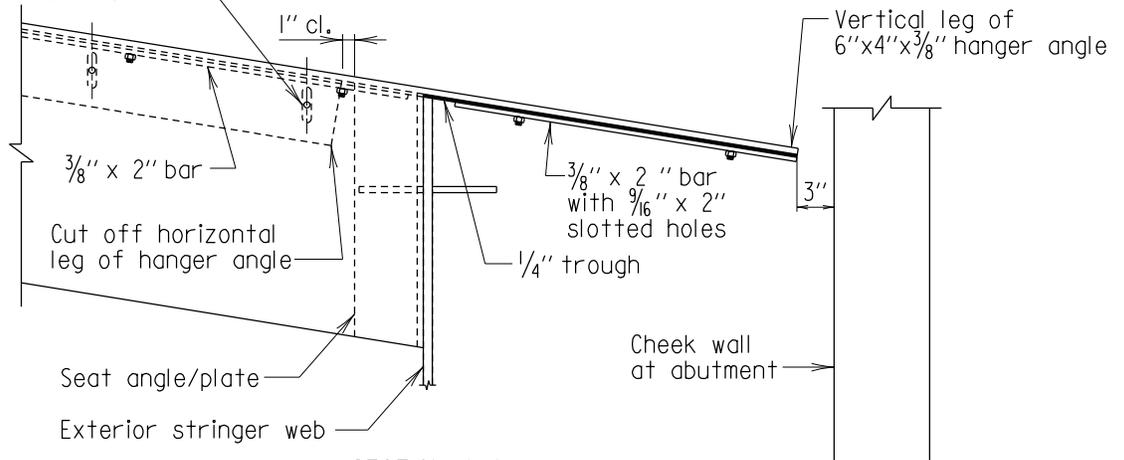
\*\*\* At the Contractor's option drilled anchor inserts or cast-in-place studs may be used. No additional compensation will be allowed for either of these options.

**SECTION**

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

After trough is in place move 6" x 4" hanger angles back to tighten trough against stringer web.

9/16" x 3" slot (spaced 1'-6" c/c max.) centered in 6" leg of angle (typ.).



**SECTION A-A**

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

**Notes:**

1. All angles and bar plates shall be unpainted ASTM A 709 Grade 36 galvanized steel. At the Contractor's option, fiberglass conforming to 92I.11 may be substituted for the steel hanger angle. No additional compensation will be allowed for this option.
2. All bolts, studs, and nuts shall be unpainted ASTM A 709 Grade 36 galvanized steel.
3. Trough material shall conform to 91I.11.
4. Holes in trough material shall be drilled in the field.

APPROVAL
<i>[Signature]</i> DIRECTOR OFFICE OF STRUCTURES
DATE: 09/16/2019
VERSION
1.0

STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
<b>NEOPRENE TROUGH DETAILS FOR ROADWAY JOINTS AT ABUTMENTS</b>
DETAIL NO. SUP-JT(DT)-102
SHEET <u>1</u> OF <u>1</u>

SUPER-ROADWAY JOINTS