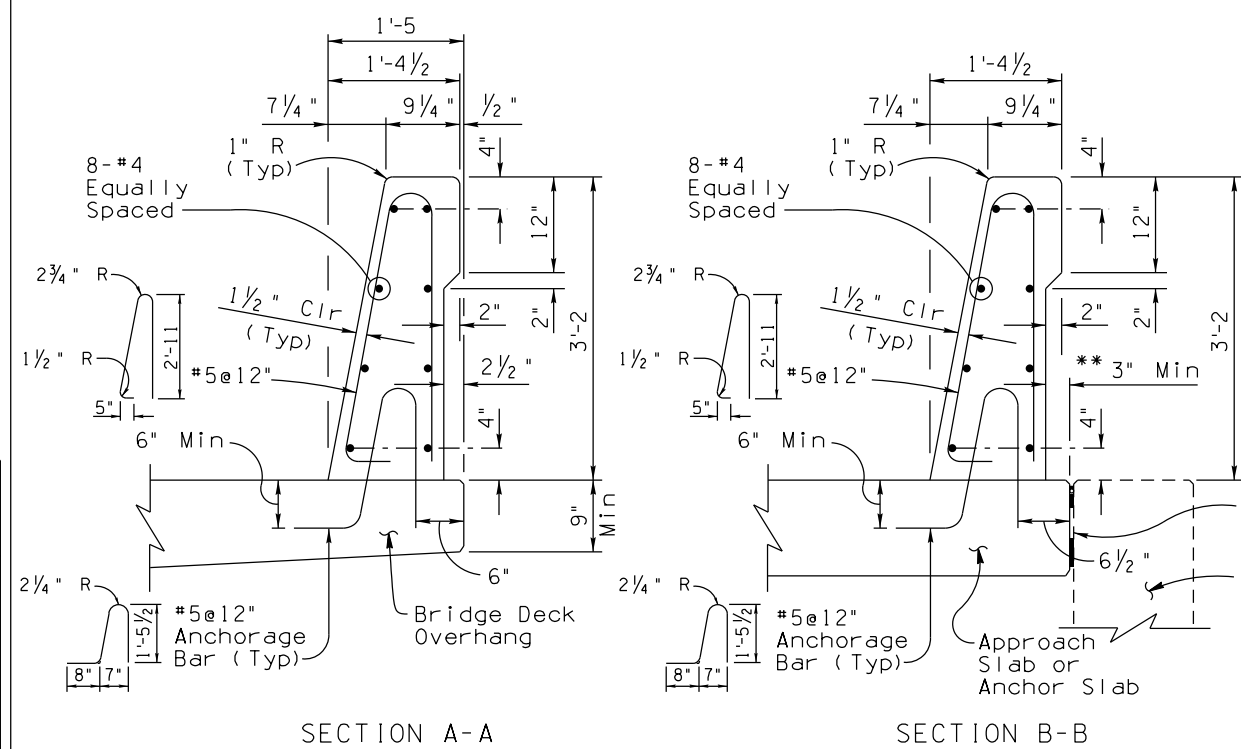
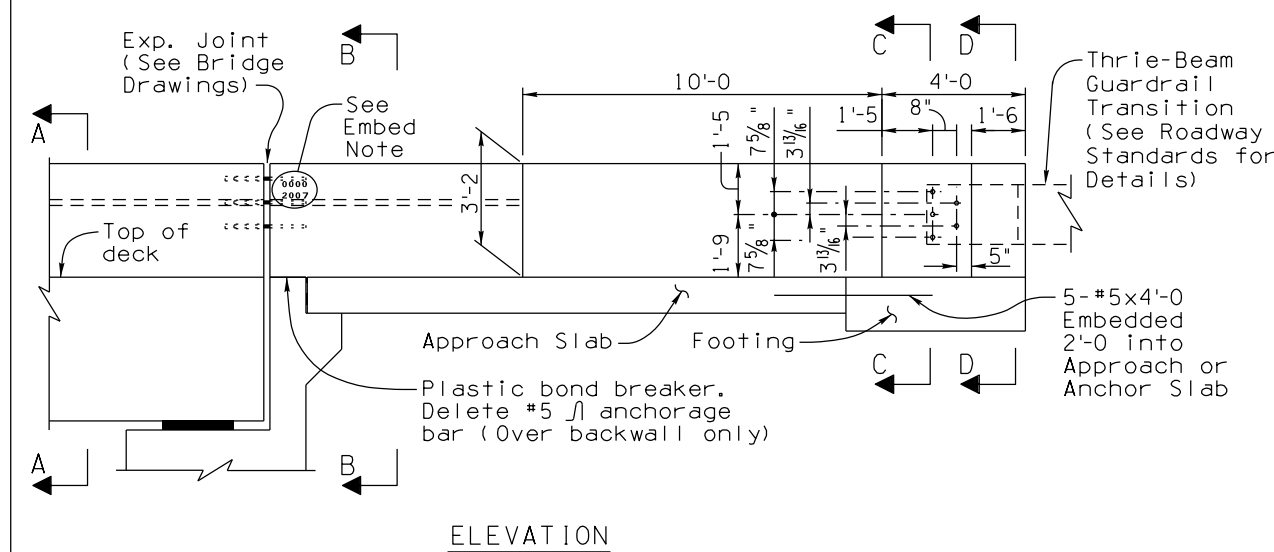
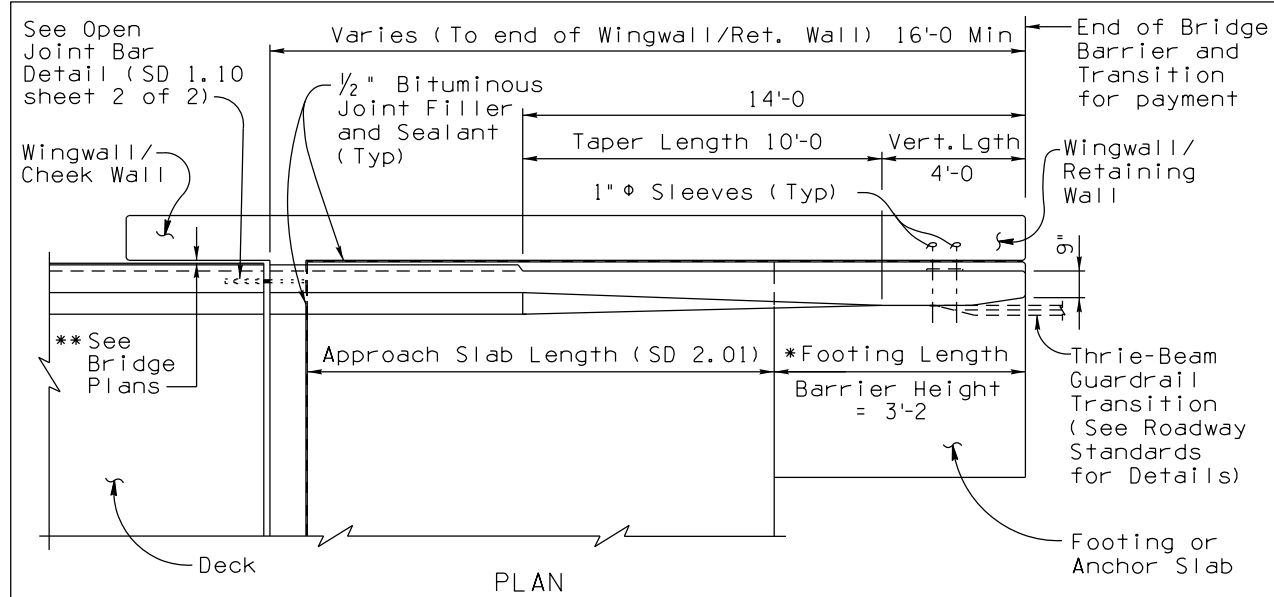
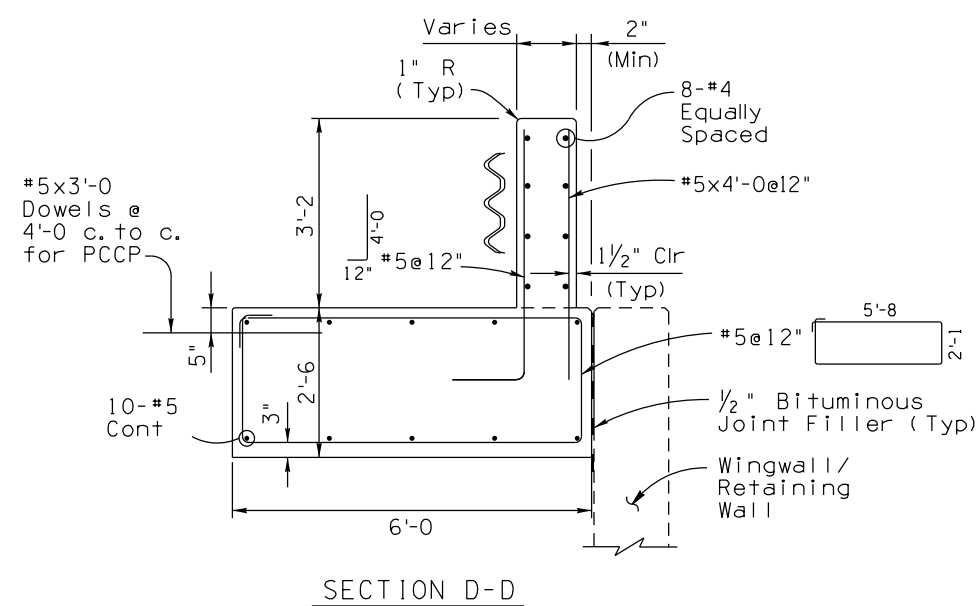
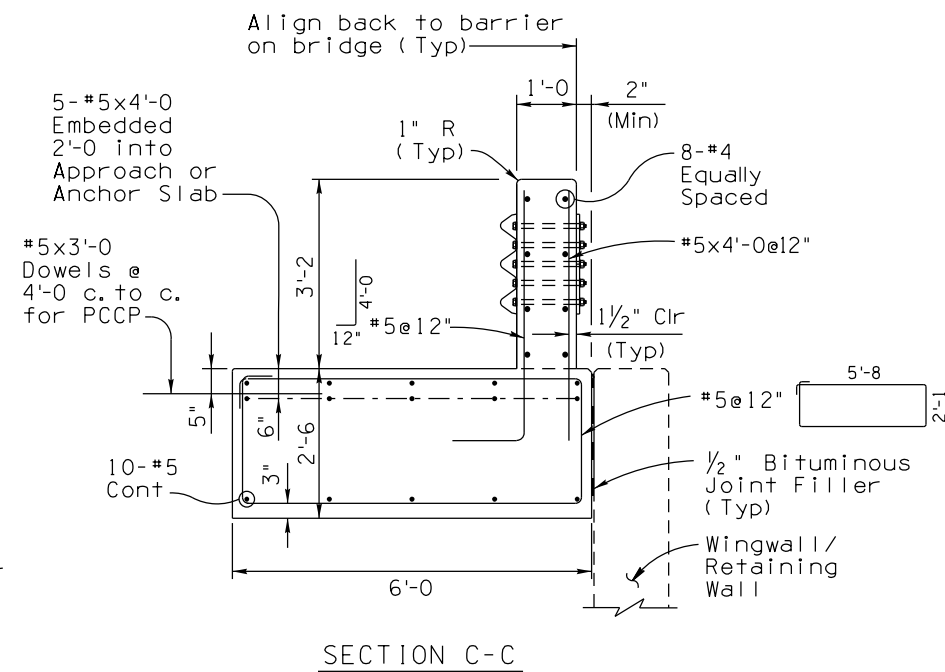


PRIOR DISTRIBUTION DATE	12/17
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- * When using barrier on footing beyond the approach slab, the minimum Length of the barrier footing shall be 5'-0.
- * When concrete barrier on footing is being used for other applications, the minimum length of barrier on footing shall be 20'-0.



**** A 1" bituminous joint filler thickness is assumed at the cheek wall. Verify the thickness from the bridge plans.**

Item	38" Single Slope Bridge Concrete Barrier and Transition
Item No.	6011150
Measurement	Linear Foot

STANDARDS ENGINEER	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
A. ALZUBI		
RECOMMENDED FOR APPROVAL	38" SINGLE SLOPE BRIDGE CONCRETE BARRIER AND TRANSITION	DRAWING NO. SD 1.10 (1 of 2)
GROUP MANAGER		
D. EBERHART		
APPROVED		
STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION	01/20 DATE	

GENERAL NOTES:

Construction Specification - Arizona Department
of Transportation Standard Specifications for
Road and Bridge Construction, latest edition.

Design Specifications - AASHTO LRFD Bridge
Design Specifications, 8th Edition 2017.

This barrier has been successfully evaluated by full-scale crash test to meet MASH 16 requirements for Test Level 4.

Design Loads:

Dynamic Load (For barrier Design) = 80^k

Dynamic load is based on NCHRP 20-07(395)
MASH Equivalency of NCHRP Report 350 -
Approved Bridge Railings.

Equivalent Static Load (For footing design) = 28^k

Footing design is based on NCHRP Report 663.

All Concrete shall be Class "S" ($f'_c = 4000$ psi).

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60. All reinforcing shall be epoxy coated at locations above an elevation of 4000 feet.

All bends and hooks shall meet the requirements of AASHTO LRFD Article 5.10. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

Concrete barriers on continuous superstructures shall have 1/2" bituminous joint filler in open joints over piers.

Embed 1/2", Bridge Number and Year Built, using 1 1/2" w x 2" h number impressions in concrete, located as shown at the approach end of the outside lane.

Anchorage bars are included in the pay item for the barrier (Item No. 6011150).

Omit bridge barrier transition when concrete barrier is continuous beyond the bridge.

Dimensions shall not be scaled from drawings.

AC OVERLAY NOTE:

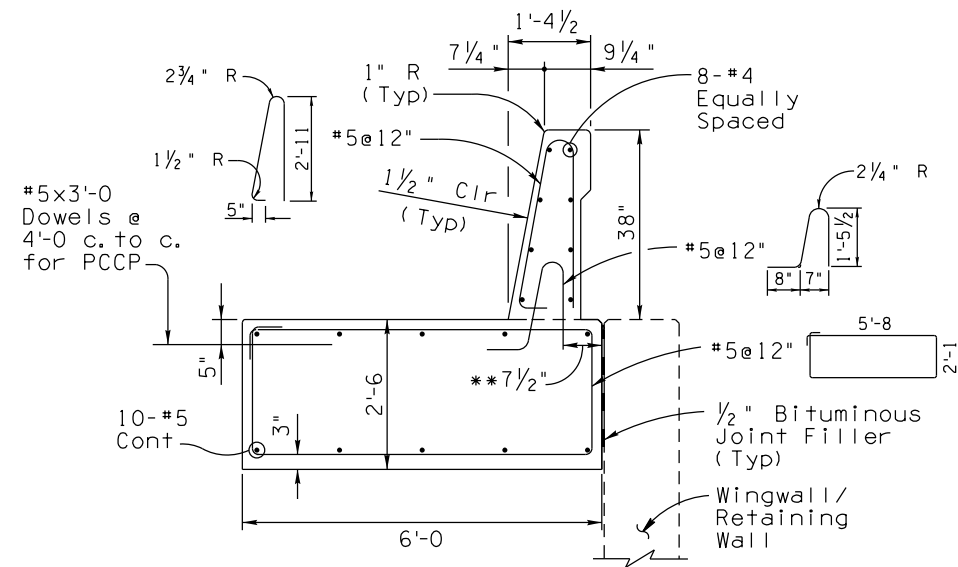
This barrier was designed to allow for the concrete deck to receive an AC overlay with a thickness not exceeding 2 inches.

Note to Designer:
The information presented in this Standard Drawing has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within this inner border line shall not be altered.

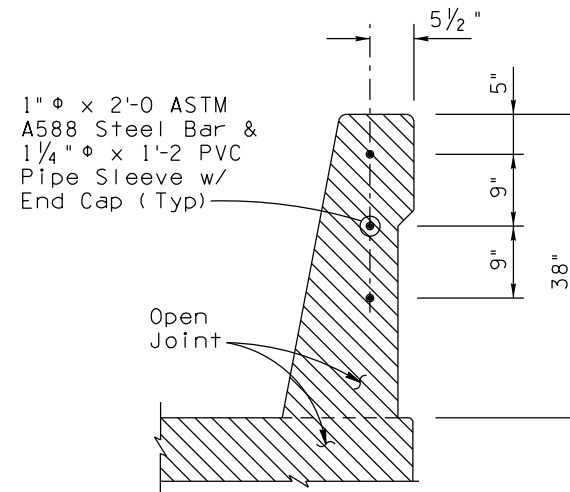
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PRIOR DISTRIBUTION DATE

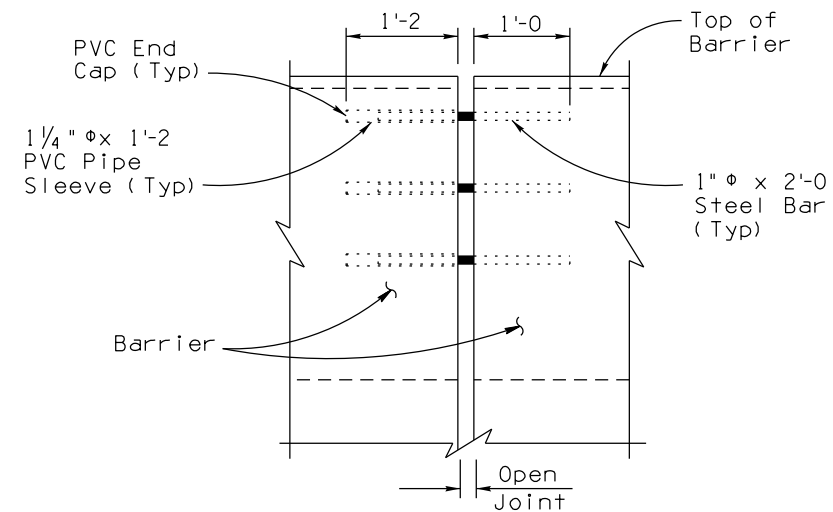
**Varies at
taper length



Continuous Barrier On Footing
BARRIER HEIGHT = 38"

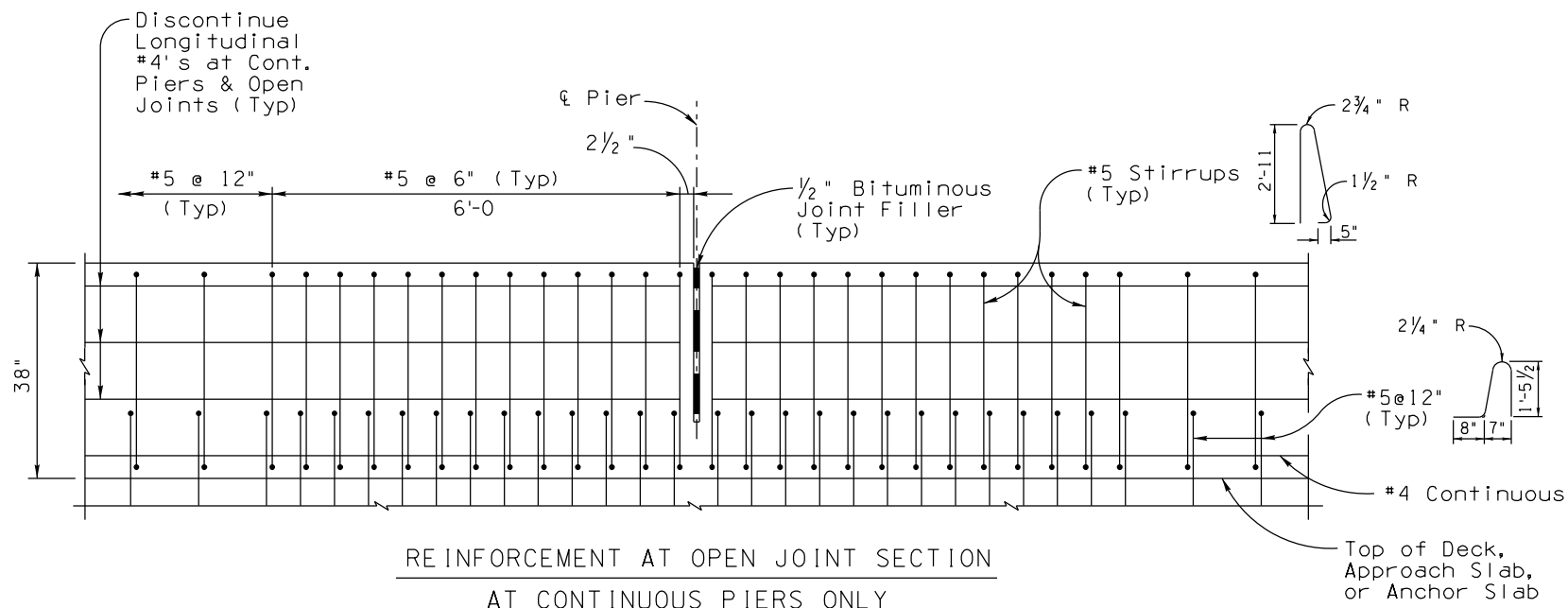


SECTION

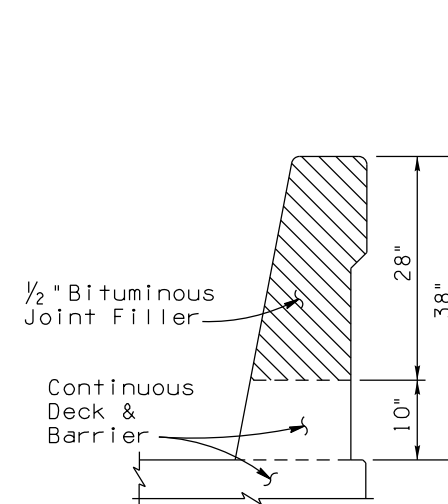


ELEVATION

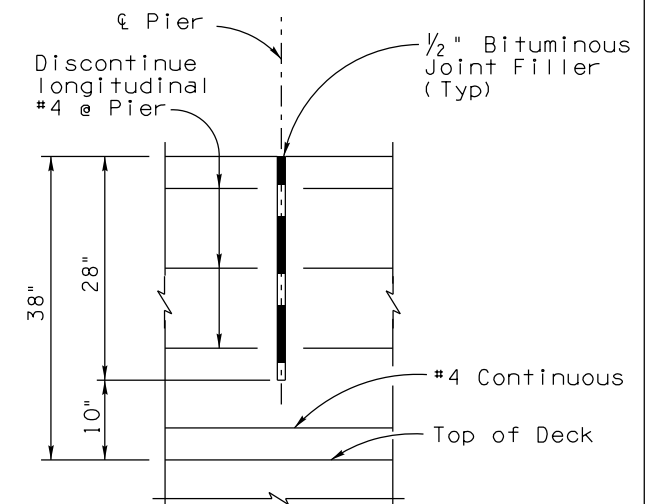
OPEN JOINT DETAILS AT EXPANSION JOINTS



REINFORCEMENT AT OPEN JOINT SECTION
AT CONTINUOUS PIERS ONLY



SECTION

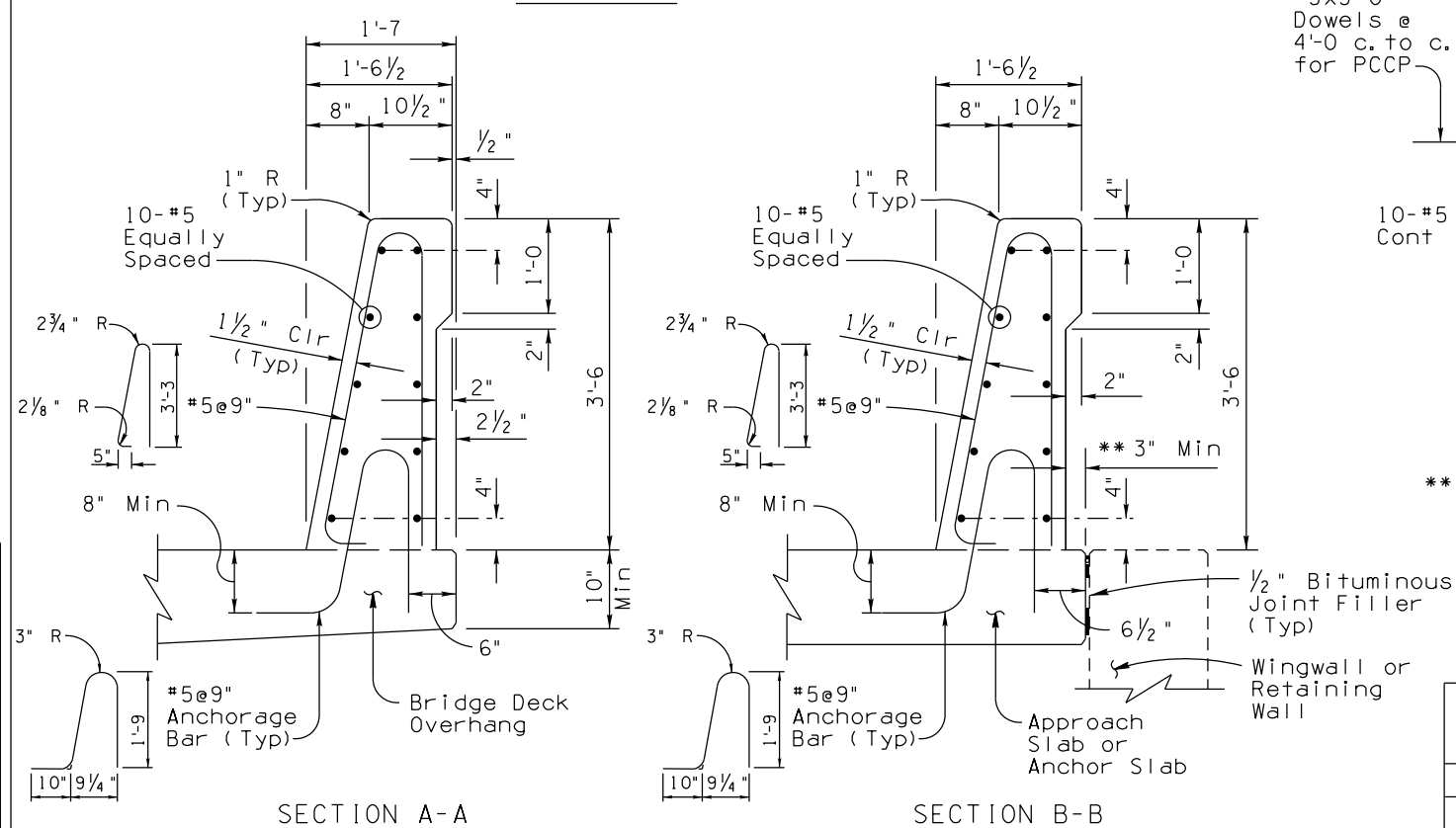
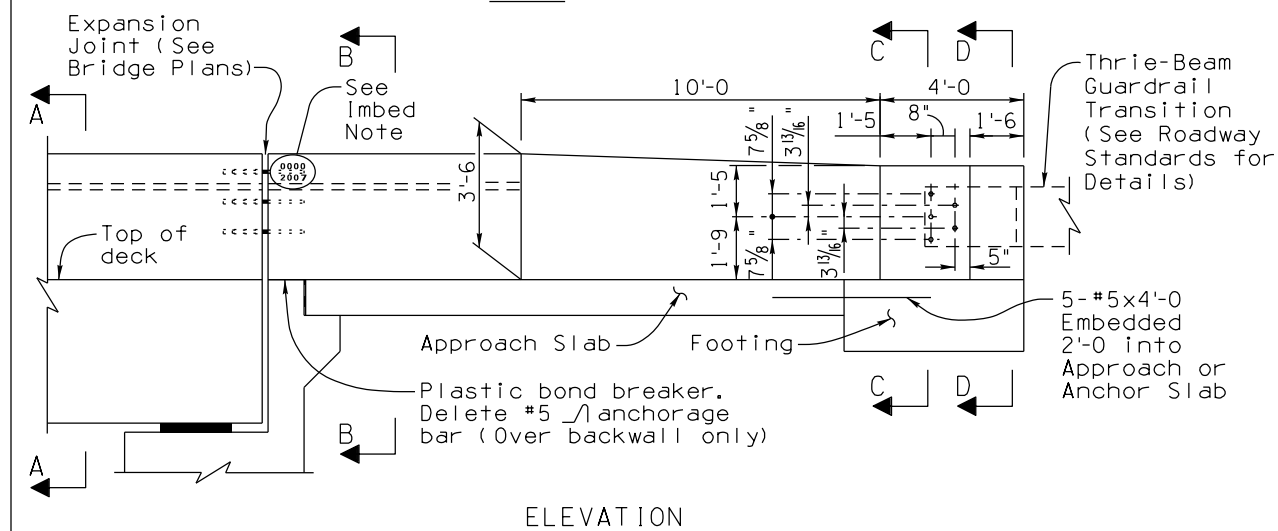
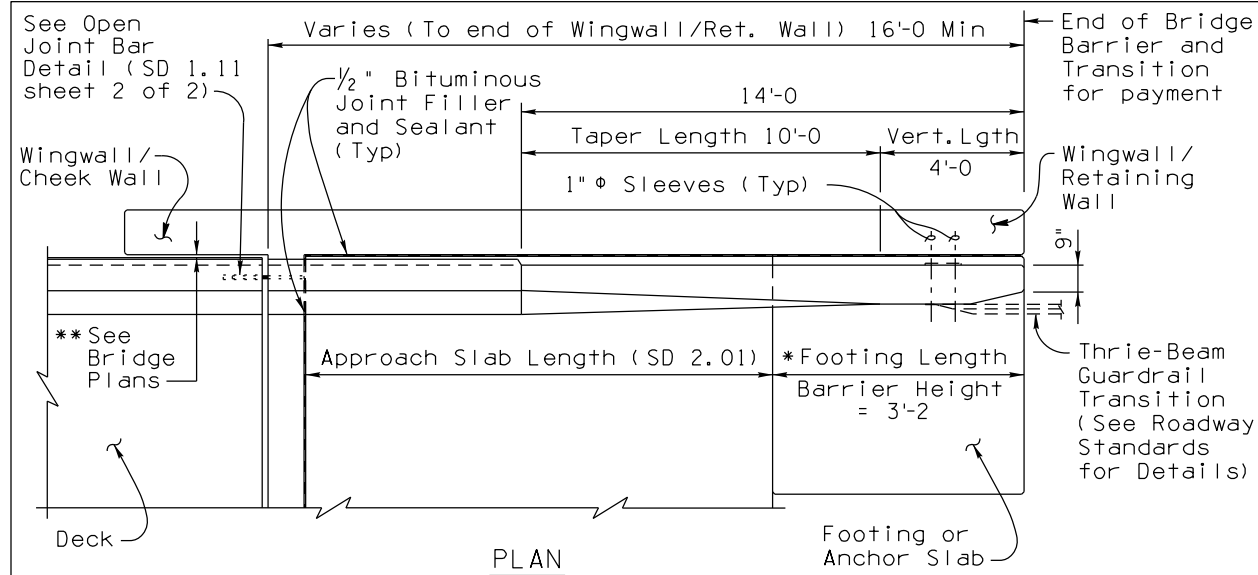


ELEVATION

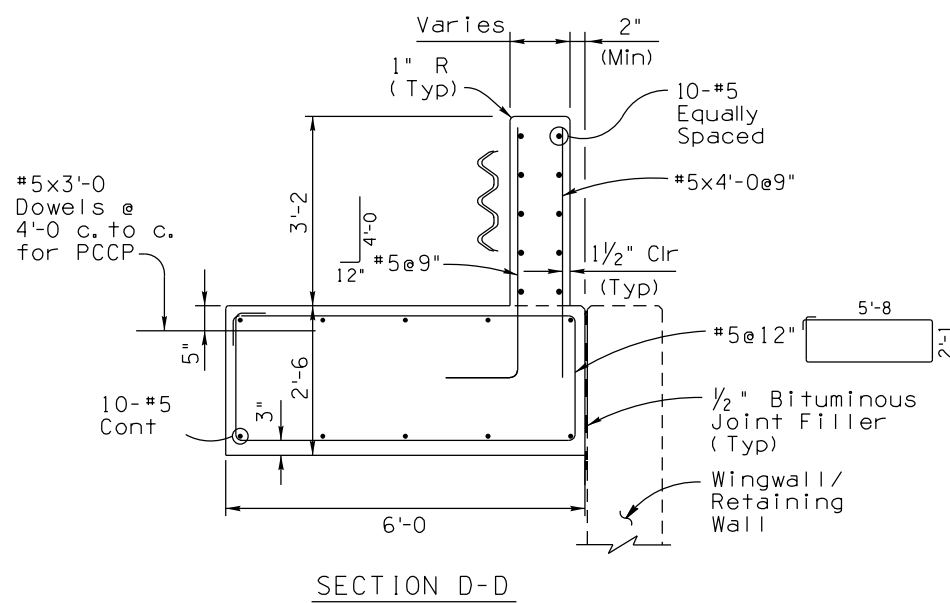
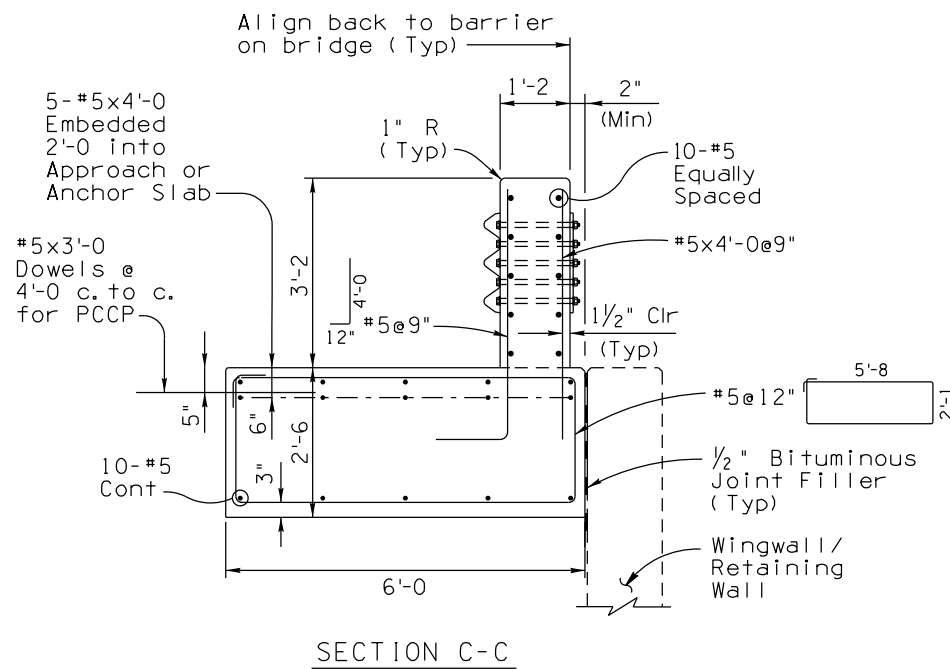
OPEN JOINT DETAILS AT CONTINUOUS PIERS ONLY

STANDARDS ENGINEER A. ALZUBI		ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
RECOMMENDED FOR APPROVAL GROUP MANAGER D. EBERHART			
APPROVED		38" SINGLE SLOPE BRIDGE CONCRETE BARRIER AND TRANSITION	DRAWING NO. SD 1.10 (2 of 2)
STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION			
		05/21 DATE	

PRIOR DISTRIBUTION DATE	12/17
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- * When using barrier on footing beyond the approach slab, the minimum Length of the barrier footing shall be 5'-0.
- * When concrete barrier on footing is being used for other applications, the minimum length of barrier on footing shall be 20'-0.



**** A 1" bituminous joint filler thickness is assumed at the cheek wall. Verify the thickness from the bridge plans.**

Item	42" Single Slope Bridge Concrete Barrier and Transition
Item No.	6011151
Measurement	Linear Foot

STANDARDS ENGINEER	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
A. ALZUBI		
RECOMMENDED FOR APPROVAL	42" SINGLE SLOPE BRIDGE CONCRETE BARRIER AND TRANSITION	DRAWING NO. SD 1.11 (1 of 2)
GROUP MANAGER		
D. EBERHART		
APPROVED		
STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION	01/20 DATE	

GENERAL NOTES:

Construction Specification - Arizona Department
of Transportation Standard Specifications for
Road and Bridge Construction, latest edition.

Design Specifications - AASHTO LRFD Bridge
Design Specifications, 8th Edition 2017.

This barrier has been evaluated and approved to be of equal strength to barriers with like geometry, which were successfully crash tested to meet MASH 16 requirements for Test Level 5.

Design Loads:

Dynamic Load (For barrier Design) = 160^k

Dynamic load is based on NCHRP 20-07(395)
MASH Equivalency of NCHRP Report 350 -
Approved Bridge Railings.

Equivalent Static Load (For footing design) = 28^k

Footing design is based on NCHRP Report 663.

All Concrete shall be Class "S" ($f'_c = 4000$ psi).

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60. All reinforcing shall be epoxy coated at locations above an elevation of 4000 feet.

All bends and hooks shall meet the requirements of AASHTO LRFD Article 5.10. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

Concrete barriers on continuous superstructures shall have $\frac{1}{2}$ " bituminous joint filler in open joints over piers.

Embed 1/2", Bridge Number and Year Built, using 1 1/2" w x 2" h number impressions in concrete, located as shown at the approach end of the outside lane.

Anchorage bars are included in the pay item for the barrier (Item No. 6011151).

Omit bridge barrier transition when concrete barrier is continuous beyond the bridge.

Dimensions shall not be scaled from drawings.

AC OVERLAY NOTE:

No AC overlay will be allowed on the bridge deck when the 42" single slope concrete barrier is used.

[illegible]

1" Φ x 2'-0" ASTM
A588 Steel Bar &
1 1/4" Φ x 1'-2" PVC
Pipe Sleeve w/
End Cap (Typ)

Open Joint

6 1/2"

8"

10"

10"

Diagram illustrating the cross-section of a barrier assembly. The assembly consists of a central vertical section (Barrier) flanked by two side sections (PVC End Cap). The total width of the assembly is 1'-2". The central barrier section has a width of 1'-0". The side sections (PVC End Cap) have a width of 1'-2" each. The barrier is constructed from 1" Φ x 2'-0" Steel Bar (Typ). The top of the barrier is labeled "Top of Barrier". The bottom of the barrier is labeled "Open Joint". The barrier is supported by a 1 1/4" Φ x 1'-2" PVC Pipe Sleeve (Typ). The barrier is shown with a dashed line indicating the top of the barrier.

Discontinue Longitudinal #5's at Cont. Piers & Open Joints (Typ)

#5 @ 9" (Typ)

#5 @ 6" (Typ) 6'-0"

2 1/2"

1/2" Bituminous Joint Filler (Typ)

#5 Stirrups (Typ)

3'-3"

2 3/4" R

2 1/8" R

5"

3" R

#5 @ 9" (Typ)

10" 9 1/4"

#5 Continuous

Top of Deck, Approach Slab, or Anchor Slab

REINFORCEMENT AT OPEN JOINT SECTION

1/2" Bituminous Joint Filler

Continuous Deck & Barrier

32"

10"

Discontinue longitudinal #5 @ Pier

4" Pier

32"

10"

1/2" Bituminous Joint Filler (Typ)

#5 Continuous

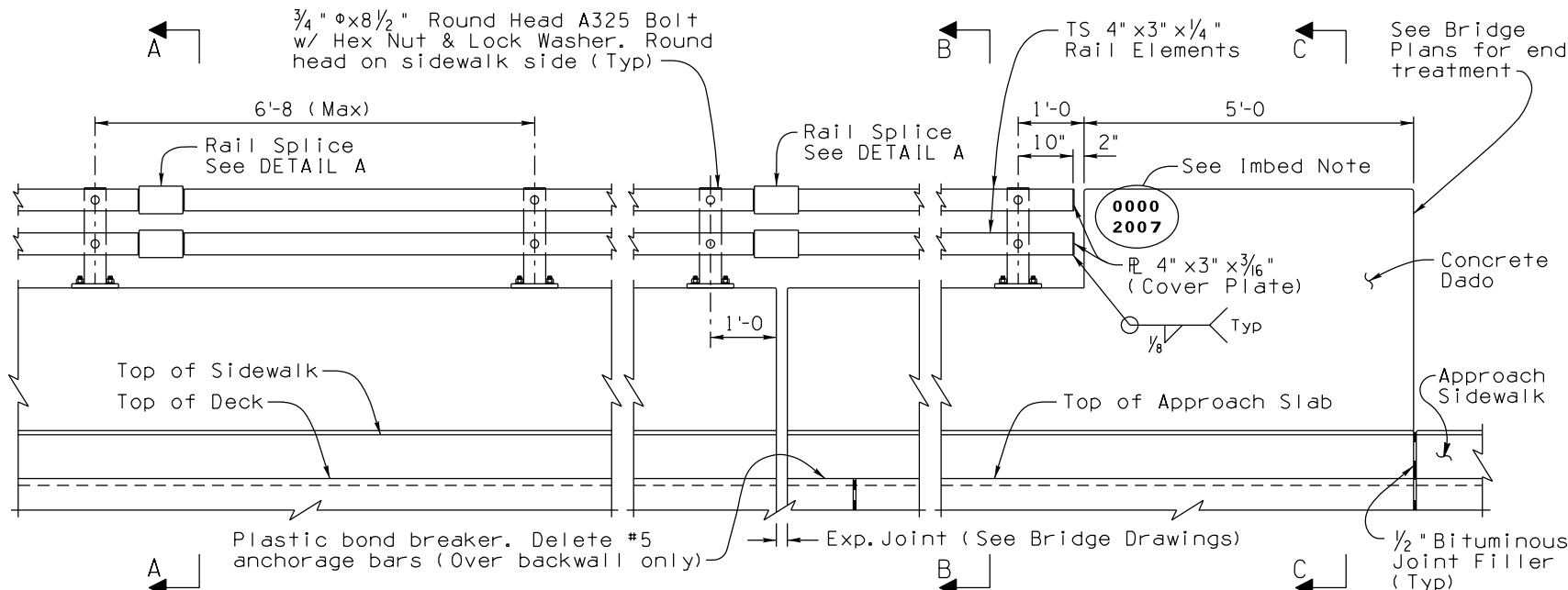
Top of Deck

STANDARDS ENGINEER A. ALZUBI		ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
RECOMMENDED FOR APPROVAL GROUP MANAGER D. EBERHART			
APPROVED		42" SINGLE SLOPE BRIDGE CONCRETE BARRIER AND TRANSITION	DRAWING NO. SD 1.11 (2 of 2)
STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION 05/21 DATE			

Note to Designer:
The information presented in this Standard Drawing has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

03/09

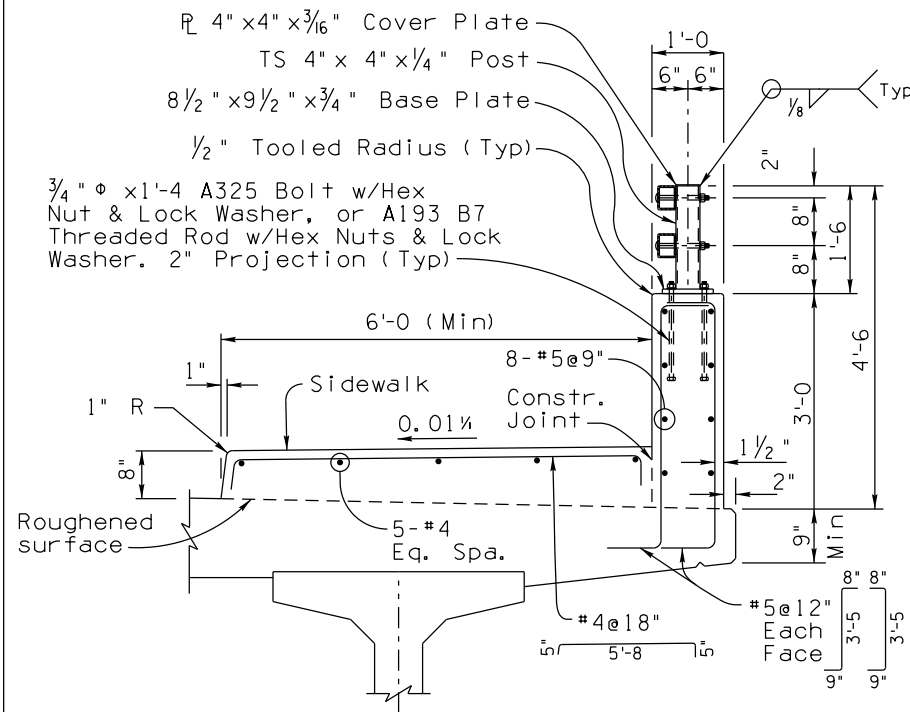
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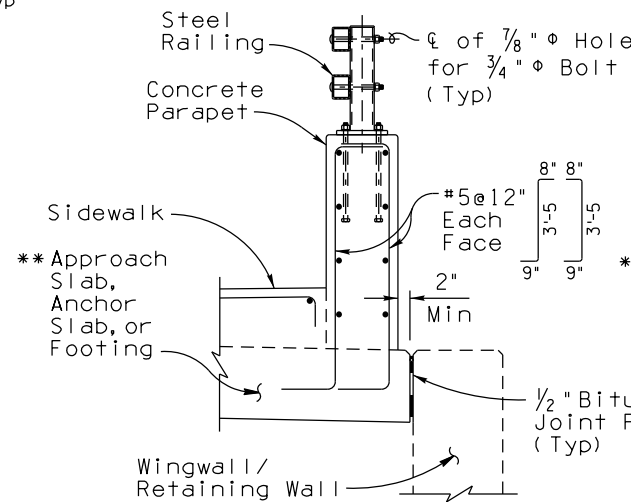
TYPICAL PANEL ELEVATION

ELEVATION AT EXP. JT.

ELEVATION AT END POST

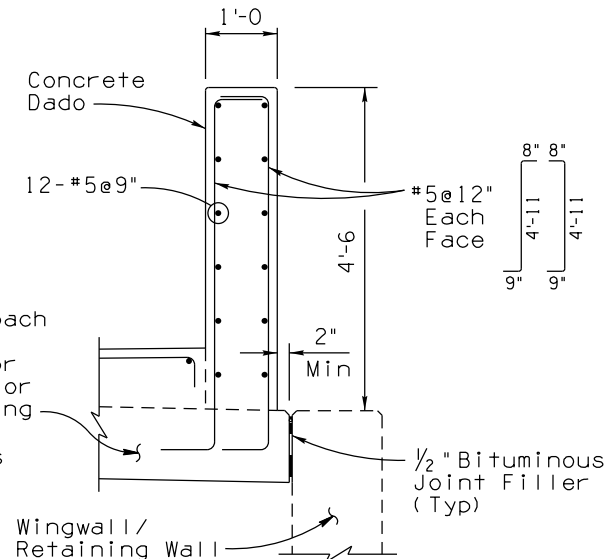


SECTION A-A



SECTION B-B

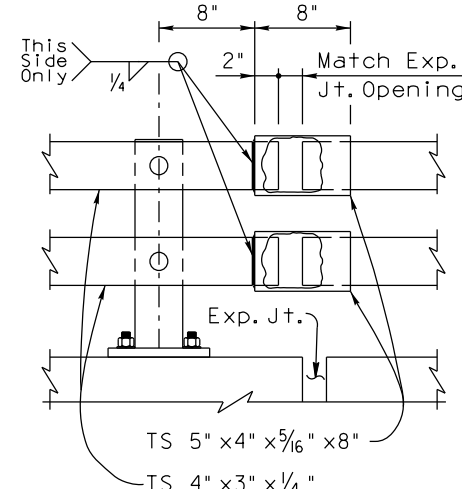
** See SD 1.10 for footing details



SECTION C-C

NOTE:

For rail splices not at expansion joints, provide 1 inch gap and weld both ends of splice tube



DETAIL A
(Exp. Splice Shown)

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, latest Edition.

Design Specifications - AASHTO LRFD Bridge Design Specifications, 8th Edition 2017.

This barrier has been evaluated and approved to be of equal strength to barriers with like geometry, which were successfully crash tested to meet MASH 16 requirements for Test Level 4.

Design Loads:

Dynamic Load (For barrier Design) = 80^k

Dynamic load is based on NCHRP 20-07(395) MASH Equivalency of NCHRP Report 350 - Approved Bridge Railings.

Equivalent Static Load (For footing design) = 28^k

Footing design is based on NCHRP Report 663.

All Concrete shall be Class "S" (f'c = 4000 psi).

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60. All reinforcing shall be epoxy coated at locations above EL.4000 ft.

All bends and hooks shall meet the requirements of AASHTO LRFD Article 5.10. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 1 1/2 inch clear cover unless noted otherwise.

Structural tubing (TS) shall be ASTM A500 Grade B. All other structural steel shall conform to ASTM A36 unless noted otherwise.

All welding shall conform to the requirements of the American Welding Society, ANSI/AASHTO/ AWS D1.5 Bridge Welding Code, latest Edition.

Concrete parapets on continuous superstructures shall have 1/2" bituminous joint filler in open joints over piers.

Imbed 1/2", Bridge Number and Year Built, using 1 1/2" w x 2" h number impressions in concrete, located as shown at the approach end of the outside lane.

Labor and materials for railing, parapet, dado, anchorage bars, sidewalk and PEDESTRIAN FENCE (SD 1.13) are included in the pay item (Item No. 6011132).

Dimensions shall not be scaled from drawings.

Item	Combination Pedestrian-Traffic Bridge Railing
Item No.	6011132
Measurement	Linear Foot

RAILING NOTES:

See Bridge Plans for rail layout, elevation, joint locations and rail end treatments.

All exposed steel edges shall be ground smooth. All structural steel rail assembly components shall be galvanized after fabrication in accordance with ASTM A123. All galvanizing that has been damaged in handling, transportation or welding shall be repaired by the application of a paste compound of an approved zinc powder and flux.

All post bolt heads shall be on sidewalk side. All bolts, nuts and washers shall be galvanized in accordance with the requirements of ASTM A153.

For fence attachment details, see SD 1.13. (Lower rail tube is not required with fence).

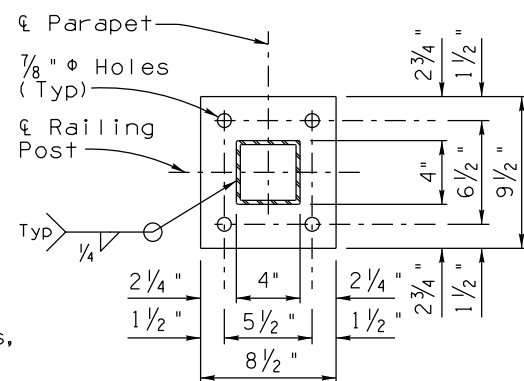
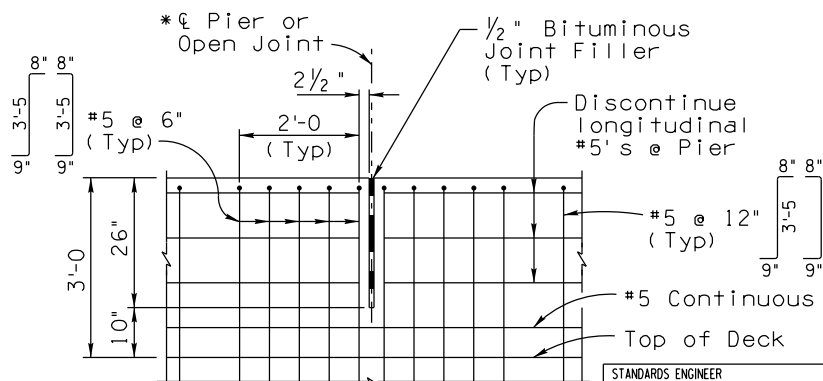


PLATE DETAIL

* Parapet Stirrups Reinforcement at expansion joints is similar to stirrup reinforcement near open joints at continuous piers



OPEN JOINT SECTION
AT CONTINUOUS PIERS ONLY

STANDARDS ENGINEER A. ALZUBI RECOMMENDED FOR APPROVAL GROUP MANAGER	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
APPROVED D. EBERHART STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION	COMBINATION PEDESTRIAN-TRAFFIC BRIDGE RAILING	DRAWING NO. SD 1.12
01/20 DATE		

ATE



NOTE:
Weld cover plate to top of rail post after installing fence post



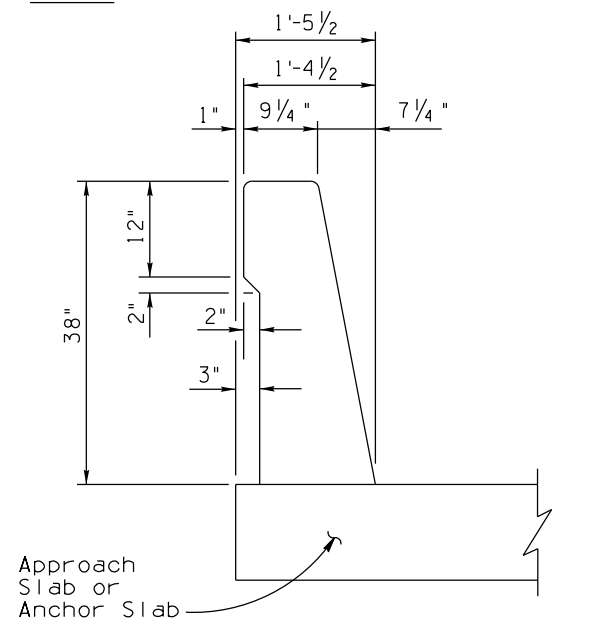
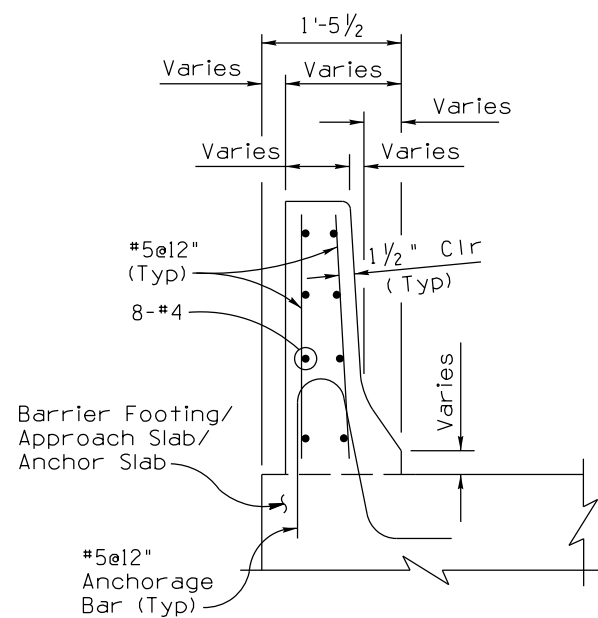
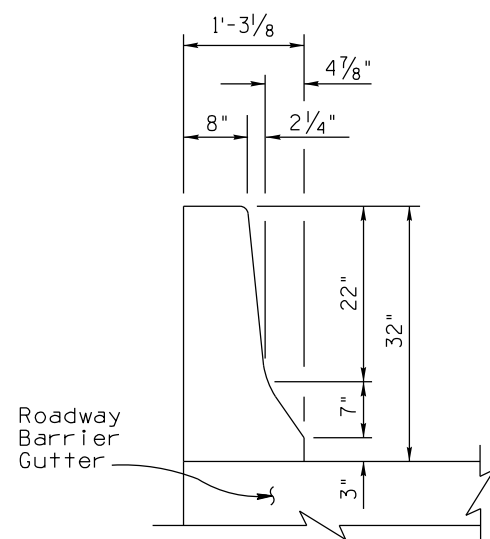
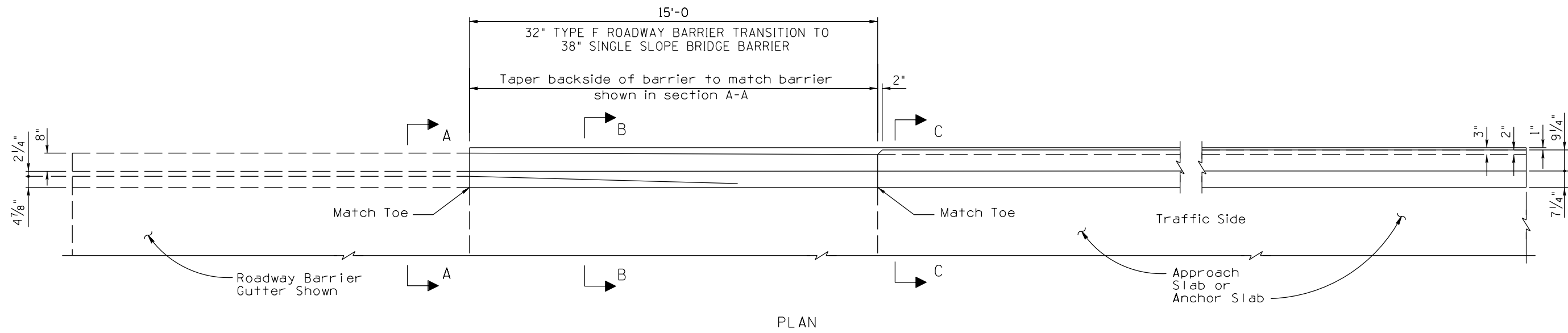
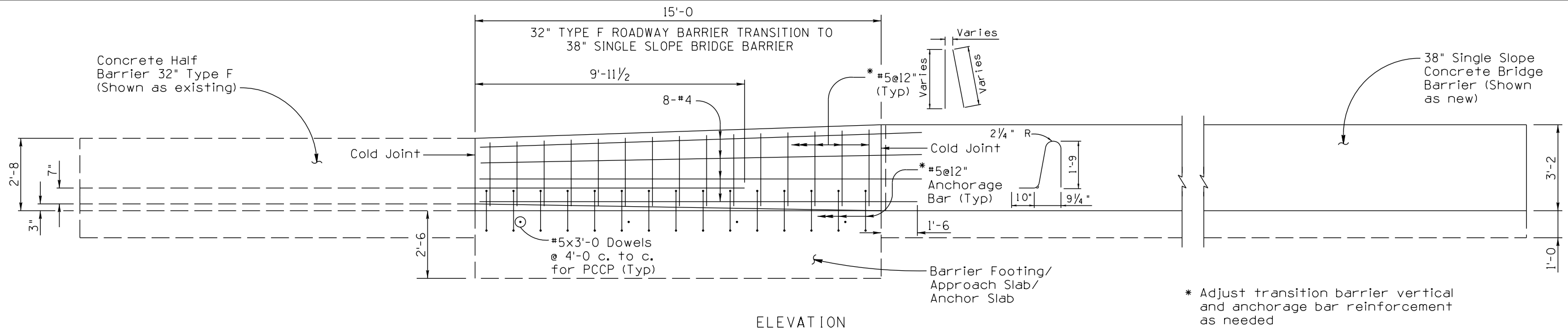
SECTION G-G



STANDARDS ENGINEER A. ALZUBI	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
RECOMMENDED FOR APPROVAL GROUP MANAGER D. EBERHART		
APPROVED	PEDESTRIAN FENCE FOR BRIDGE RAILING SD 1.12	DRAWING NO. SD 1.13
STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION		
01/20 DATE		

Note to Designer:
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PRIOR DISTRIBUTION DATE

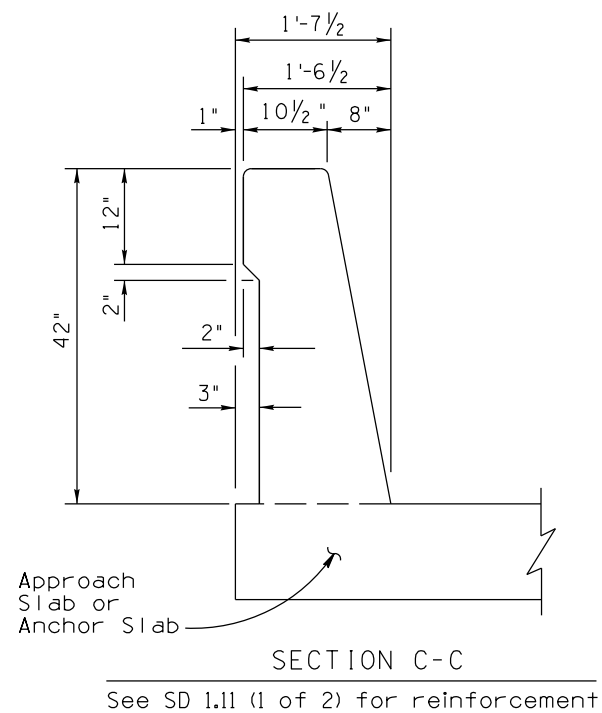
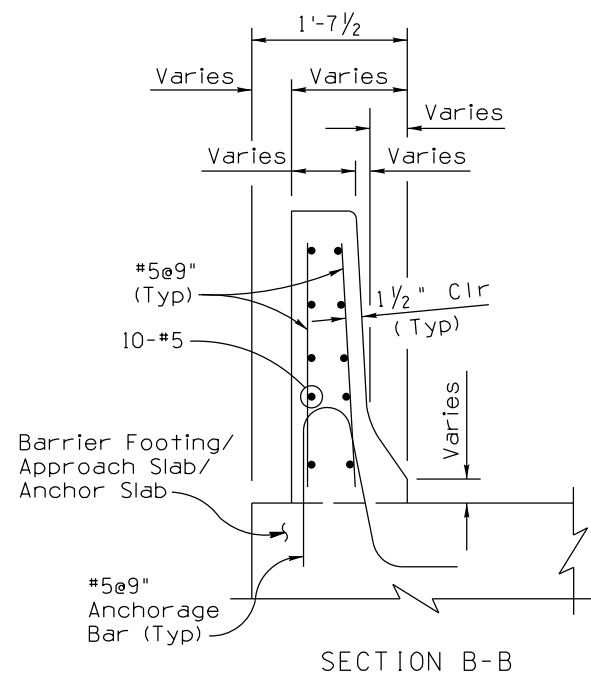
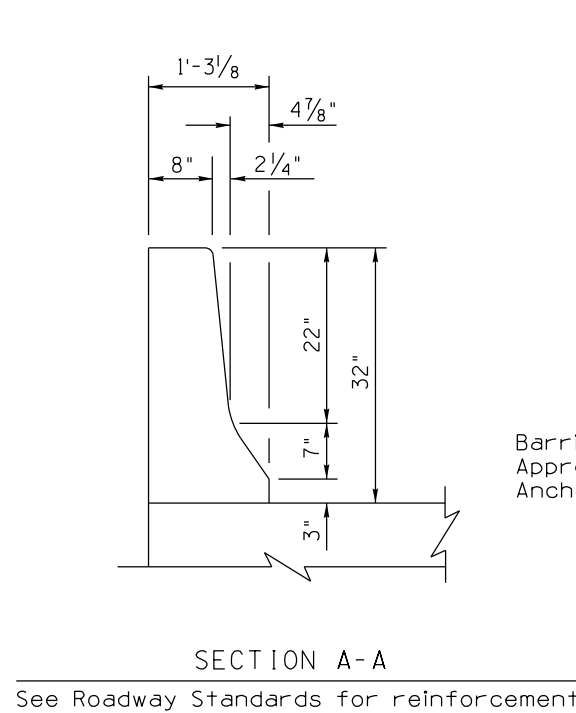
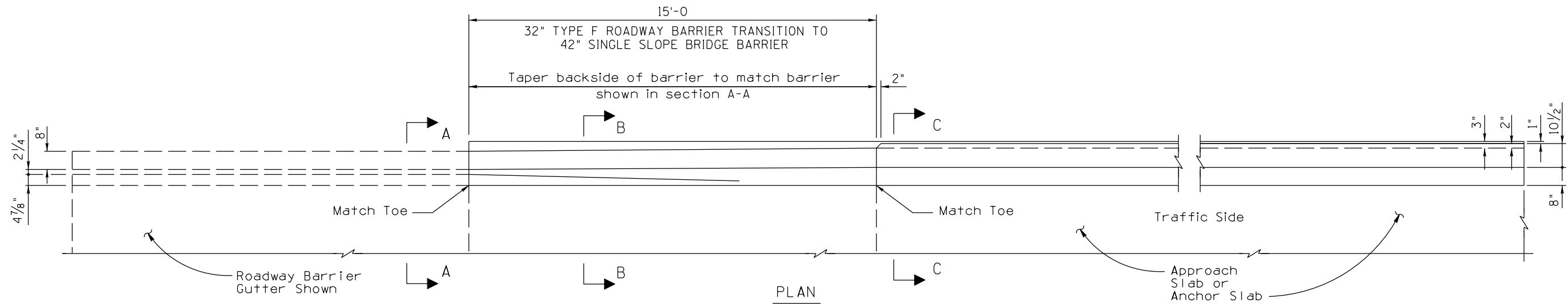
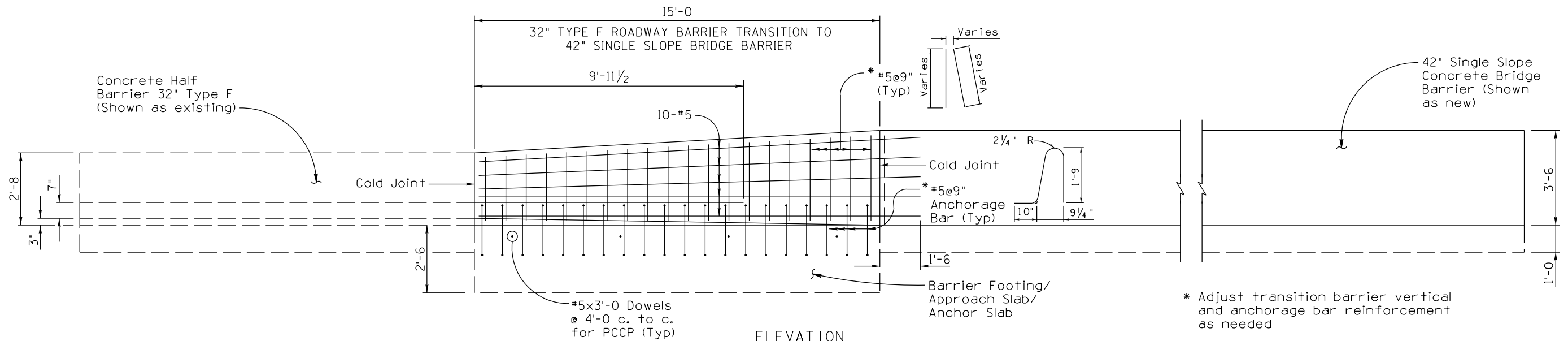


Item	32" Type F Roadway Barrier Transition To 38" Single Slope Bridge Barrier		
Item No.	6011142		
Measurement	Linear Foot		

STANDARDS ENGINEER A. ALZUBI RECOMMENDED FOR APPROVAL GROUP MANAGER D. EBERHART APPROVED STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING		
	32" TYPE F ROADWAY BARRIER TRANSITION TO 38" SINGLE SLOPE BRIDGE BARRIER		DRAWING NO.
			SD 1.20

Note to Designer:
The information presented in this Standard Drawing has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

PRIOR DISTRIBUTION DATE

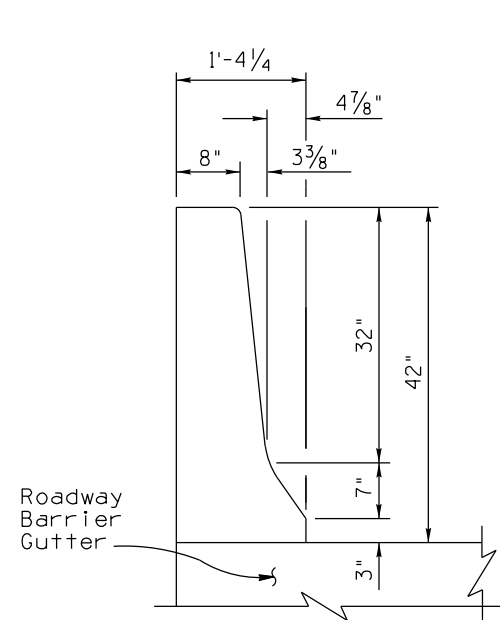
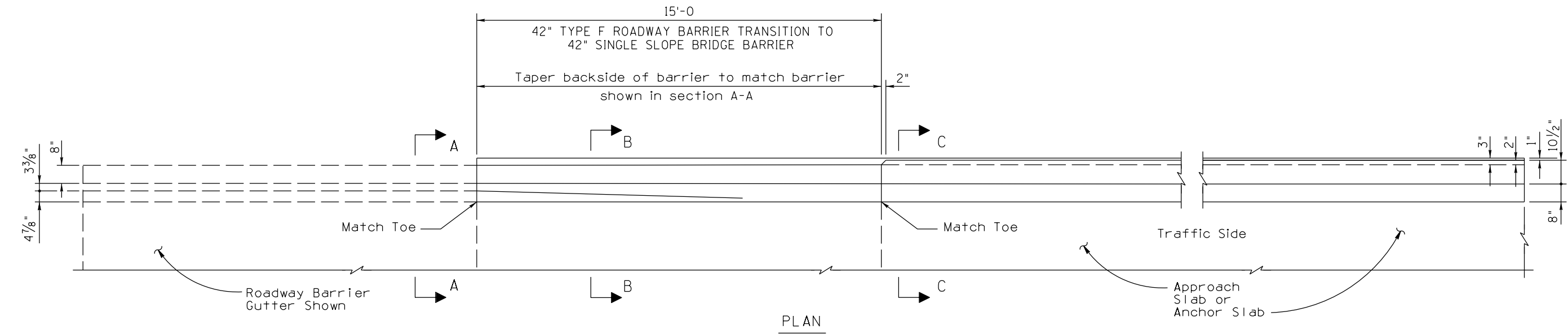
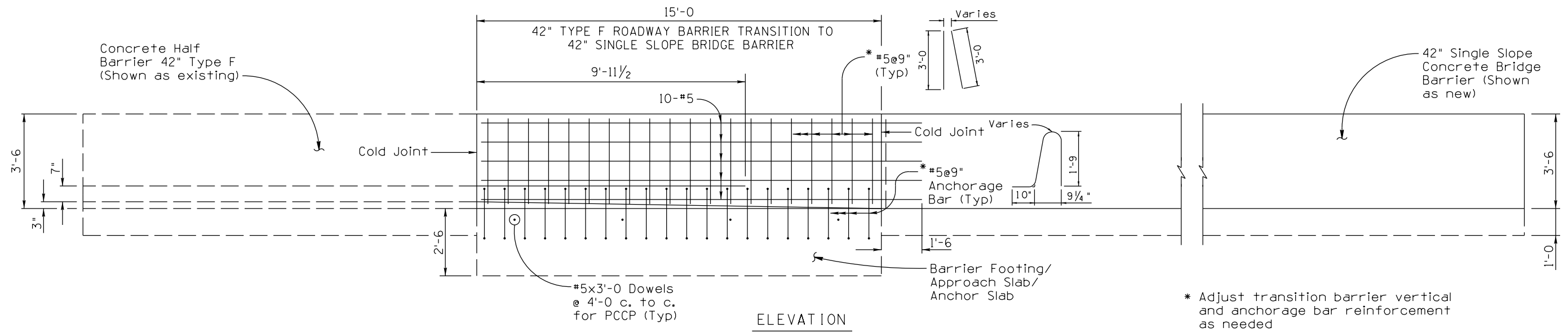


Item	32" Type F Roadway Barrier Transition To 42" Single Slope Bridge Barrier		
Item No.	6011143		
Measurement	Linear Foot		

STANDARDS ENGINEER A. ALZUBI RECOMMENDED FOR APPROVAL GROUP MANAGER D. EBERHART APPROVED STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING		
	32" TYPE F ROADWAY BARRIER TRANSITION TO 42" SINGLE SLOPE BRIDGE BARRIER		DRAWING NO. SD 1.21
	01/20 DATE		

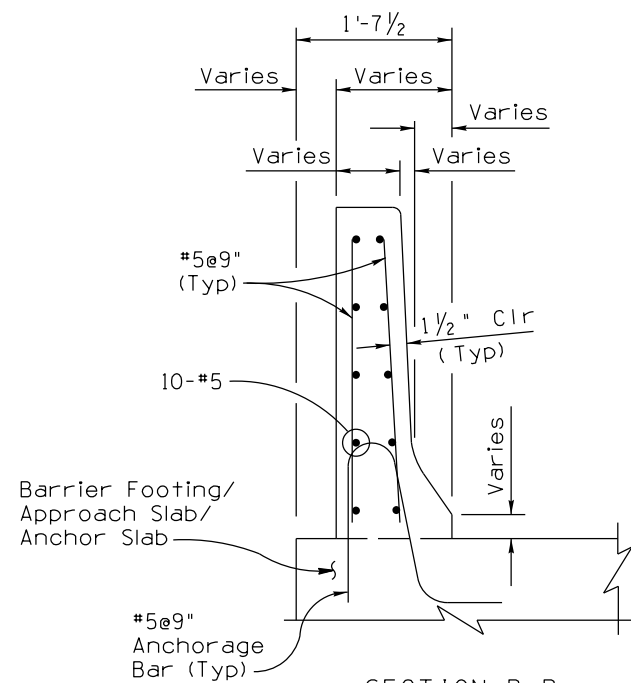
Note to Designer:
The information presented in this Standard Drawing has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

PRIOR DISTRIBUTION DATE

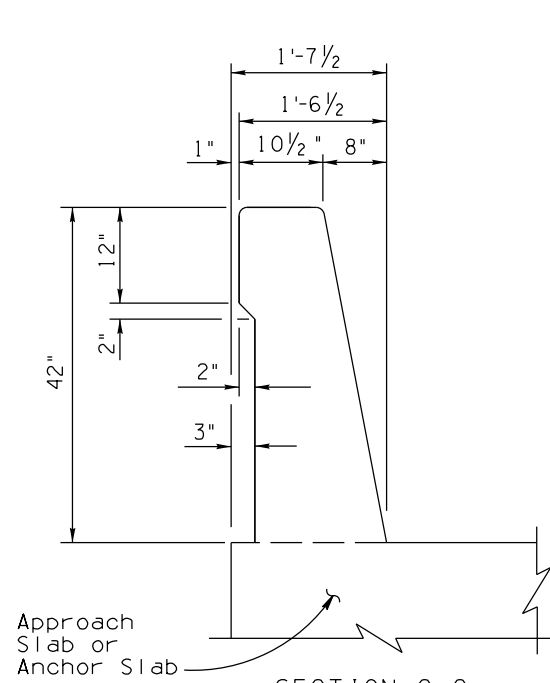


SECTION A-A

See Roadway Standards for reinforcement



SECTION B-B



SECTION C-C

See SD 1.11 (1 of 2) for reinforcement

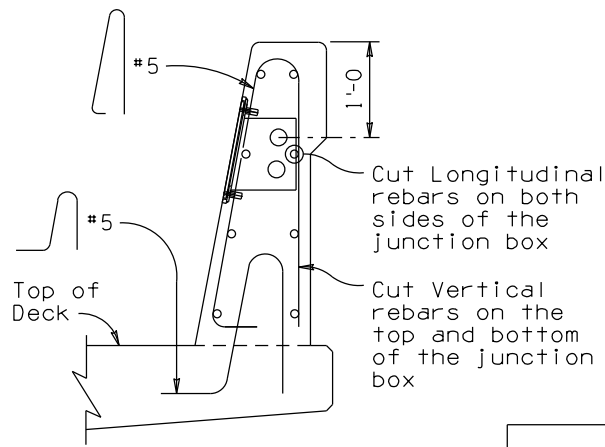
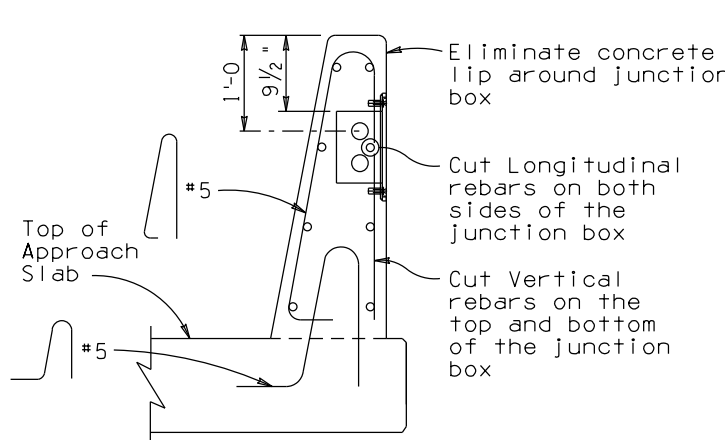
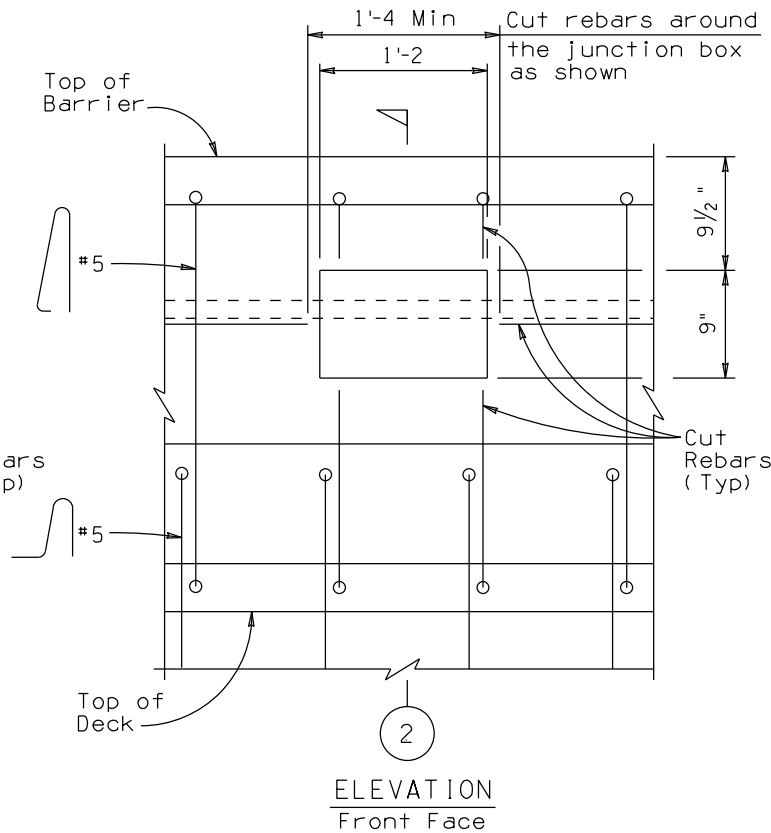
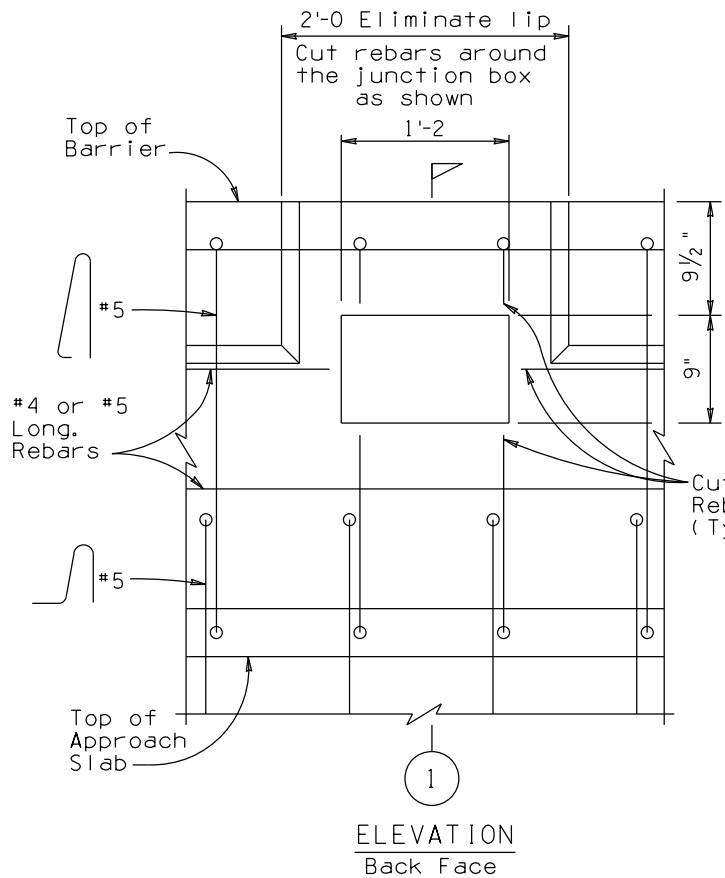
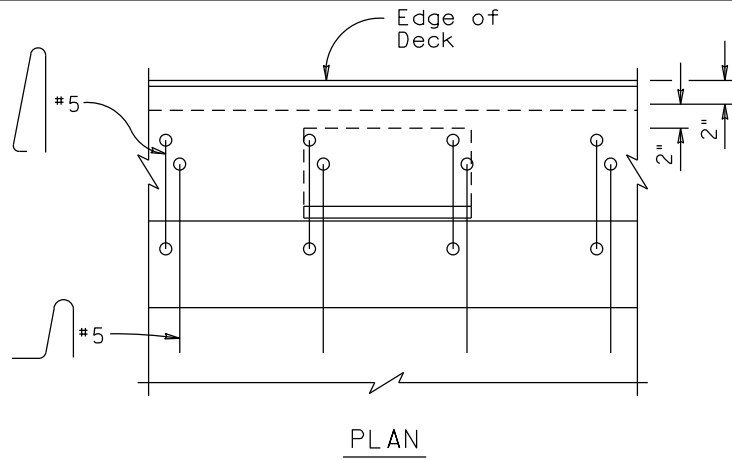
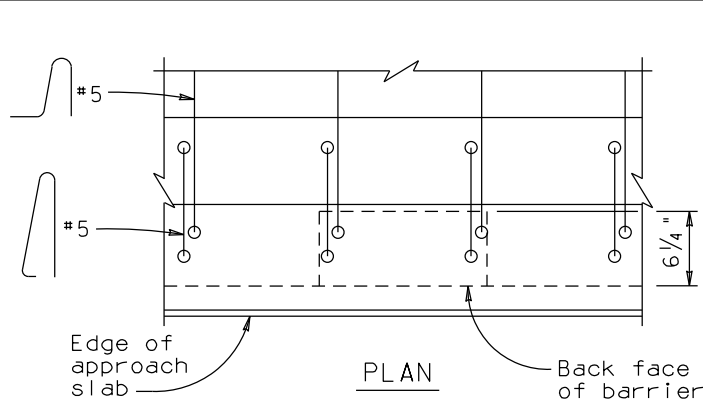
Item	42" Type F Roadway Barrier Transition To 42" Single Slope Bridge Barrier
Item No.	6011144
Measurement	Linear Foot

STANDARDS ENGINEER A. ALZUBI RECOMMENDED FOR APPROVAL GROUP MANAGER D. EBERHART APPROVED STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION 01/20 DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING 42" TYPE F ROADWAY BARRIER TRANSITION TO 42" SINGLE SLOPE BRIDGE BARRIER	DRAWING NO. SD 1.22
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Note to Designer:
The information presented in this Standard Drawing has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

04/10

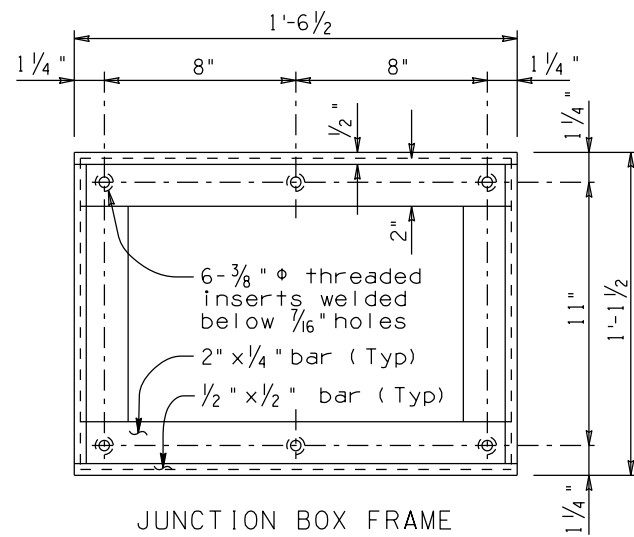
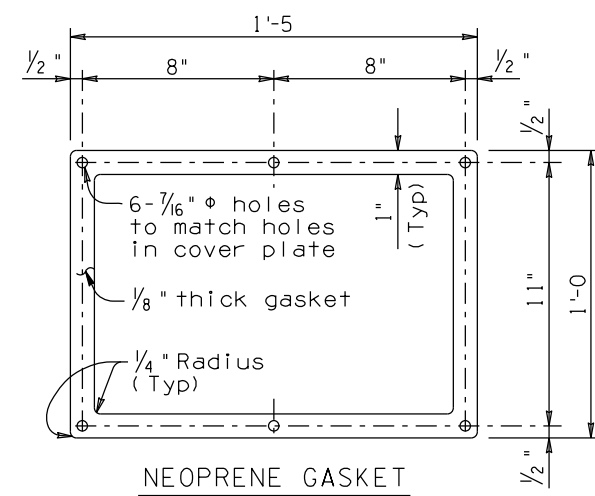
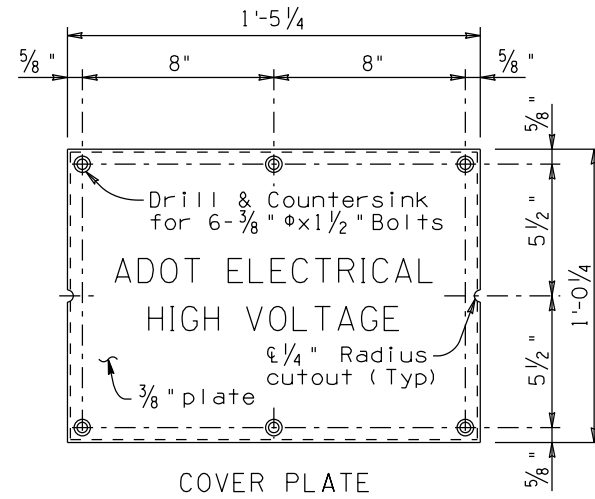
PRIOR DISTRIBUTION DATE



TYPE I JUNCTION BOX
At Approach Transition 1

TYPE II JUNCTION BOX
On Bridge 2

Item	Item No.	Measurement
Type I Junction Box	7320475	Each
Type II Junction Box	7320476	Each



GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, latest Edition.

Design Specifications - AASHTO LRFD Bridge Design Specifications, 8th Edition 2017.

Structural steel shall conform to ASTM A36.

All bolts shall conform to ASTM A307. Threaded inserts shall be loop type (U.N.C. thread).

All bolts, nuts and washers shall be galvanized in accordance with ASTM A153. All other steel shall be galvanized after fabrication in accordance with ASTM A123.

Chamfer all bottom edges of cover plate 1/8" x 45°.

Cover plate shall have 1" letters embedded 1/8" to say: "ADOT ELECTRICAL HIGH VOLTAGE".

All welding shall conform to the requirements of the American Welding Society, ANSI/AASHTO/AWS D1.5 Bridge Welding Code, latest Edition.

Dimensions shall not be scaled from drawings.

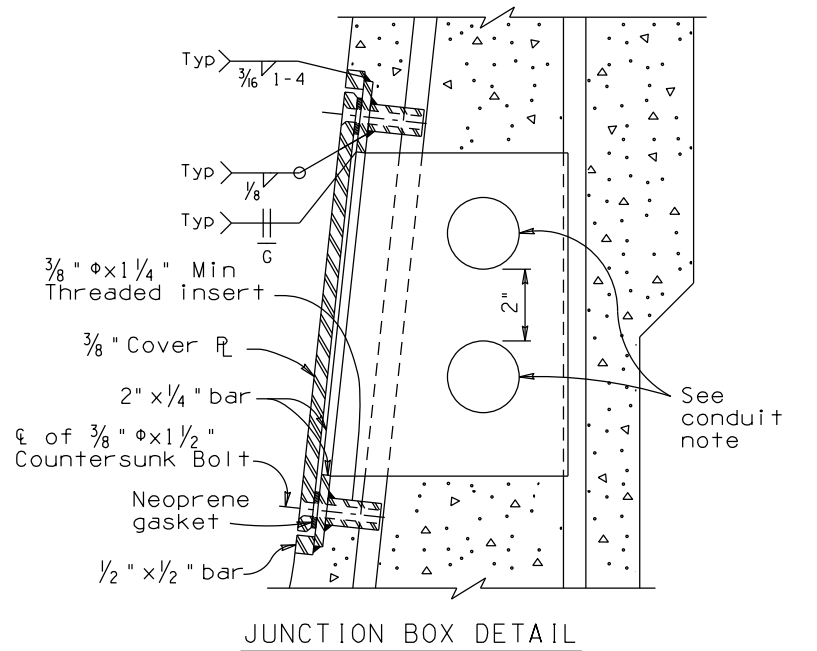
Conduit placement in bridge barrier requires pre-approval by Bridge Group.

JUNCTION BOX NOTE:

Junction Box is shown for 38" Single Slope Bridge Concrete Barrier. Details are similar for the 42" Single Slope Barrier.

CONDUIT NOTE:

A maximum of three 2-inch or two 3-inch diameter conduits will be allowed. No other configurations will be allowed.



STANDARDS ENGINEER A. ALZUBI RECOMMENDED FOR APPROVAL GROUP MANAGER D. EBERHART APPROVED STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
	BARRIER JUNCTION BOX	DRAWING NO.
		SD 1.30