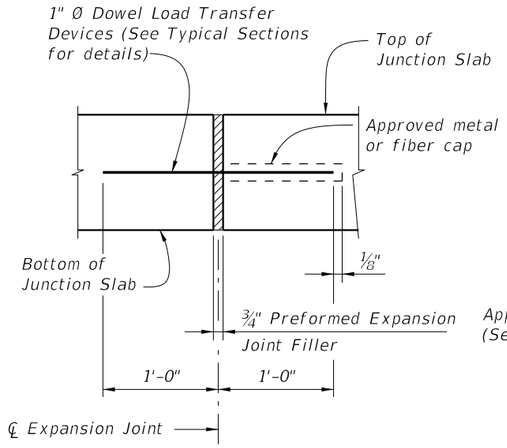
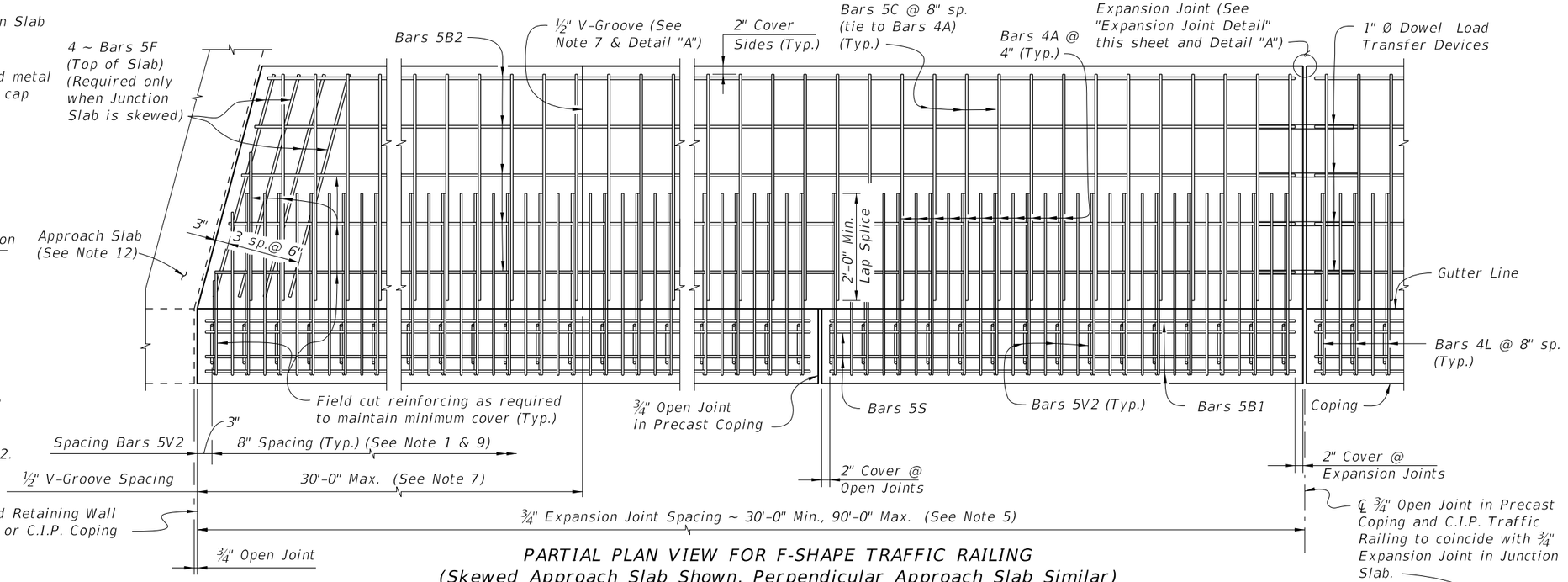


EXPANSION JOINT DETAIL

(Junction Slab expansion joints are to coincide with ¾" open joints in Traffic Railing)

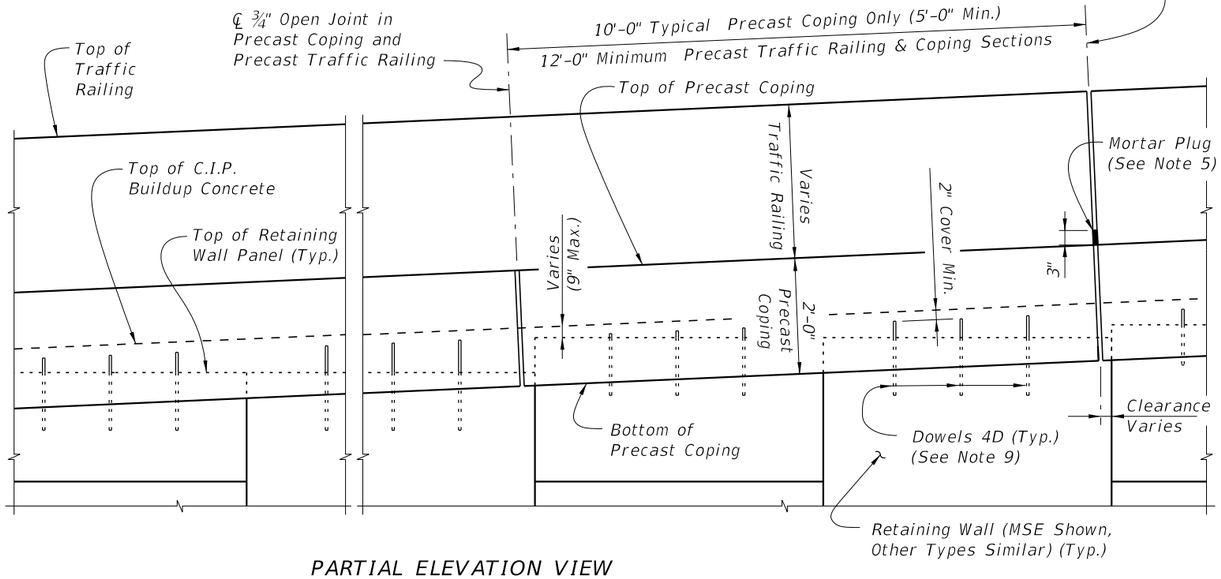
CROSS REFERENCE: For Detail "A", see Sheet 2.



PARTIAL PLAN VIEW FOR F-SHAPE TRAFFIC RAILING
(Skewed Approach Slab Shown, Perpendicular Approach Slab Similar)
(Precast Coping Shown, C.I.P. Coping Similar) (Traffic Railing not Shown for Clarity)

JUNCTION SLAB NOTES:

1. *APPLICATIONS: This junction slab is only applicable for a TL-4 crash test rating. For TL-5 crash test rating increase Expansion Joint Spacing to 60'-0" minimum and provide Bars 5C at 6" spacing within 6'-0" of Open Joints for precast coping with the 42" F-Shape Traffic Railing.*
2. *CONSTRUCTION REQUIREMENTS: Construct the Junction Slab level transversely and expansion joints plumb; do not construct the junction slab or C.I.P. coping perpendicular to the roadway surface. Slip forming is not permitted.*
3. *Provide Class II concrete for moderately aggressive environments or Class IV for moderate or extremely aggressive environments.*
4. *Dowel Load Transfer Devices will be ASTM A 36 smooth round bar and hot-dip galvanized in accordance with Specification Section 962. Install Dowel Load Transfer Devices in accordance with Specification Section 350.*
5. *Construct ¾" Expansion Joints in junction slabs and C.I.P. copings plumb and perpendicular or radial to the Gutter Line. Provide at 90'-0" maximum intervals as shown. Provide 3"x3" Mortar plugs in open joints at the base of traffic railings to contain runoff.*
6. *Provide and install Preformed Expansion Joint Filler in accordance with Specification Section 932.*
7. *Construct ½" V-Grooves in junction slabs and C.I.P. copings plumb and provide at 30'-0" maximum intervals as shown. Space V-Grooves equally between ¾" Expansion Joints and/or Begin or End Junction Slab. V-Groove locations are to coincide with V-Groove locations in the Traffic Railing.*
8. *Shoulder or Roadway Pavement is required on top of the junction slab for its entire length on the traffic side of the Traffic Railing. See Typical Sections on Sheet Nos. 2 and 3 for details.*
9. *Spacing shown is along the Gutter Line.*
10. *On MSE Walls provide, Dowel Bars 4D and extend to 7" above the top of retaining wall panel. Field cut as necessary to maintain 2" minimum cover to the top of the buildup concrete. See Wall Company Drawings for number and spacing of Dowel Bars 4D.*
11. *Work this Index with the following:*
    Index No. 420 – Traffic Railing – (32" F-Shape)
    Index No. 425 – Traffic Railing – (42" F-Shape).
12. *The following Indexes contain details of the intersection of the retaining wall at approach slabs:*
    Index No. 20900 – Approach Slabs (Flexible Pavement Approaches)
    Index No. 20910 – Approach Slabs (Rigid Pavement Approaches)



PARTIAL ELEVATION VIEW
(Precast Coping and Junction Slab Reinforcing not Shown for Clarity)
(Precast Coping Shown, C.I.P. Coping Similar)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/11	GJM	New Index No. & Title (Previously Index No. 5300, Sheet 5 of 19) Changed junction slab Note 1, 5, 8, & 10. Added Note 3 and Precast Traffic Railing option.			

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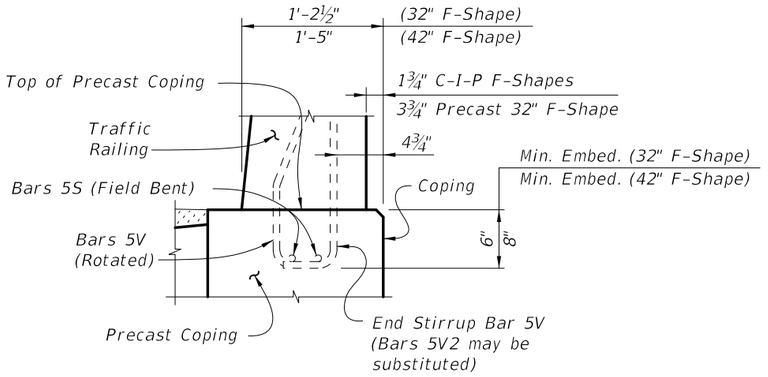
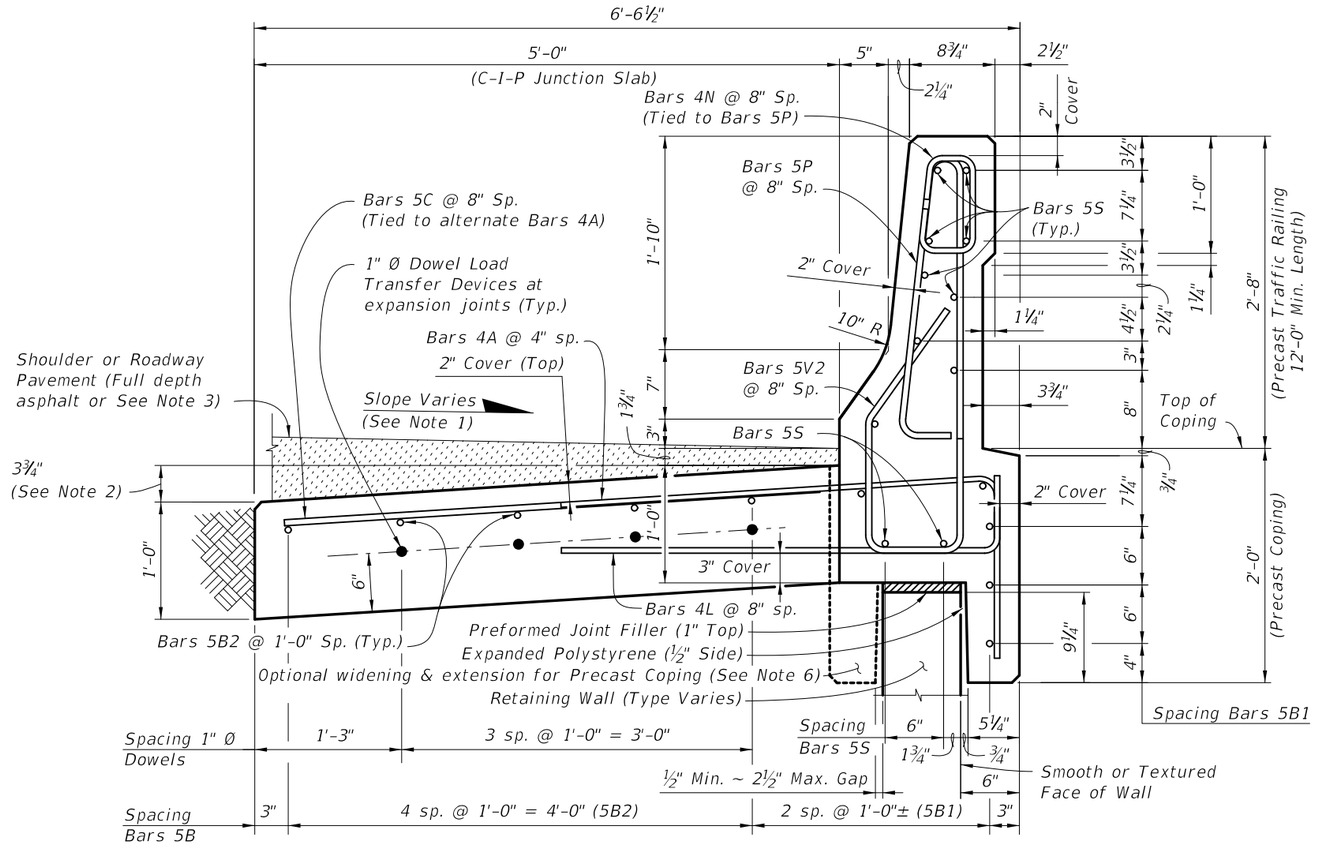


PARTIAL END VIEW OF TRAFFIC RAILING END TRANSITION FOR GUARDRAIL ATTACHMENT (Showing Bars 5V and Bars 5S) (Precast Coping Shown, C.I.P. Coping Similar)

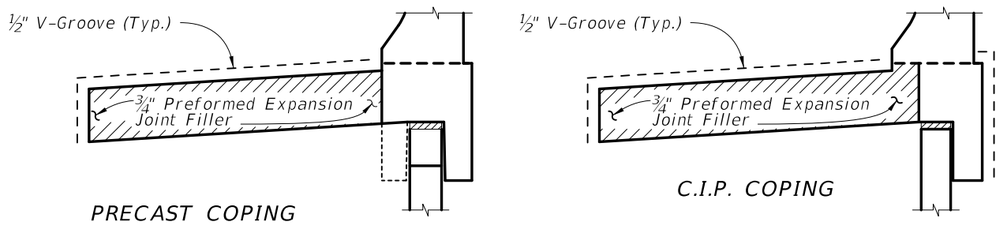
NOTE: See Index No. 420 and Index No. 425, Detail "A" for details.

ESTIMATED QUANTITIES FOR PRECAST COPING		
ITEM	UNIT	QUANTITY
Concrete (Precast Coping Only)	CY/FT	0.079
Concrete (Precast Barrier & Coping)	CY/FT	0.165
Concrete (C.I.P. Junction Slab)	CY/FT	0.185
Reinforcing Steel (Precast Coping & Traffic Railing)	LB/FT	52.17
Reinforcing Steel (C.I.P. Junction Slab) (Typ.)	LB/FT	12.52
Additional Reinf. @ Expansion Joints	LB	21.36

(The above concrete quantities are based on a max. superelevation of 6.25% and a 32" F-Shape Traffic Railing.



TYPICAL SECTION THRU PRECAST 32" F-SHAPE TRAFFIC RAILING, COPING & C-I-P JUNCTION SLAB



DETAIL "A"

(Showing Locations of ½" V-Grooves and ¾" Preformed Expansion Joint Filler)

JUNCTION SLAB NOTES:

1. *Match Cross Slope of Travel Lane or Shoulder.*
2. *The 3¾" dimension corresponds to a maximum superelevation of 6.25%. For steeper superelevations increase this dimension to match roadway superelevation.*
3. *For Rigid Pavement (Concrete), Junction Slab may be thickened to match finish grade.*
4. *Minimum length of Junction Slab between expansion joints is 30'-0".*
5. *At the Contractor's option, mechanical couplers may be used to splice reinforcing. Complete details, including reinforcement lengths are required in the Shop Drawings. Mechanical couplers shall develop 125% of the bar yield strength.*
6. *Contractor to maintain stability of precast coping/traffic railing prior to junction slab completion.*

F-SHAPE TRAFFIC RAILINGS

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/11	SJN	New Index No. & Title (Previously Index No. 5300, Sheet 6 of 19) Changed Junction Slab; Added Precast Traffic Railing.			

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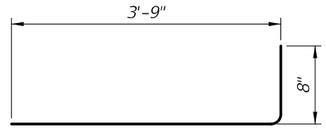
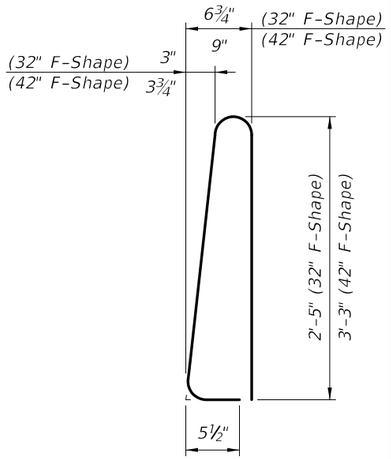
REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

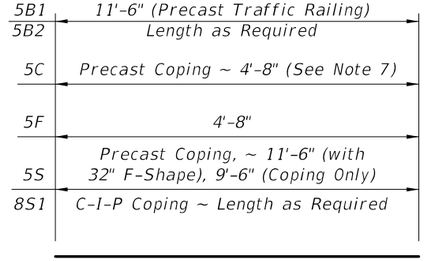
MARK	SIZE	LENGTH		
		PRECAST COPING & 32" F-SHAPE	COPING	
			C-I-P	Precast
A	4	5'-4"	7'-9"	5'-4"
B1	5	11'-6"	N/A	9'-6"
B2	5	AS REQD.	AS REQD.	AS REQD.
C	5	4'-8"	N/A	4'-8"
F	5	4'-8"	4'-8"	4'-8"
L	4	4'-5"	4'-5"	4'-5"
N	4	2'-6"	N/A	N/A
P	5	5'-7"	5'-7"	5'-7"
S	5	11'-6"	AS REQD.	9'-6"
S1	8	N/A	AS REQD.	9'-6"
V2	5	5'-10"	5'-10"	5'-10"
1" Ø Dowel	Smooth Bar	2'-0"	2'-0"	2'-0"



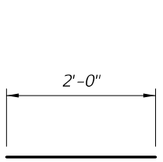
BARS 4L



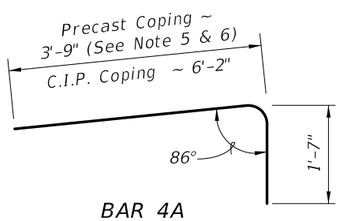
STIRRUP BAR 5P



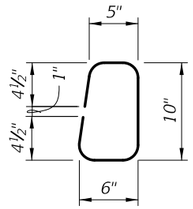
BARS 5B, 5C, 5F & 5S



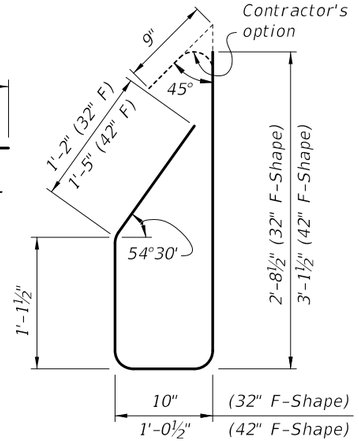
1" Ø DOWEL



BAR 4A



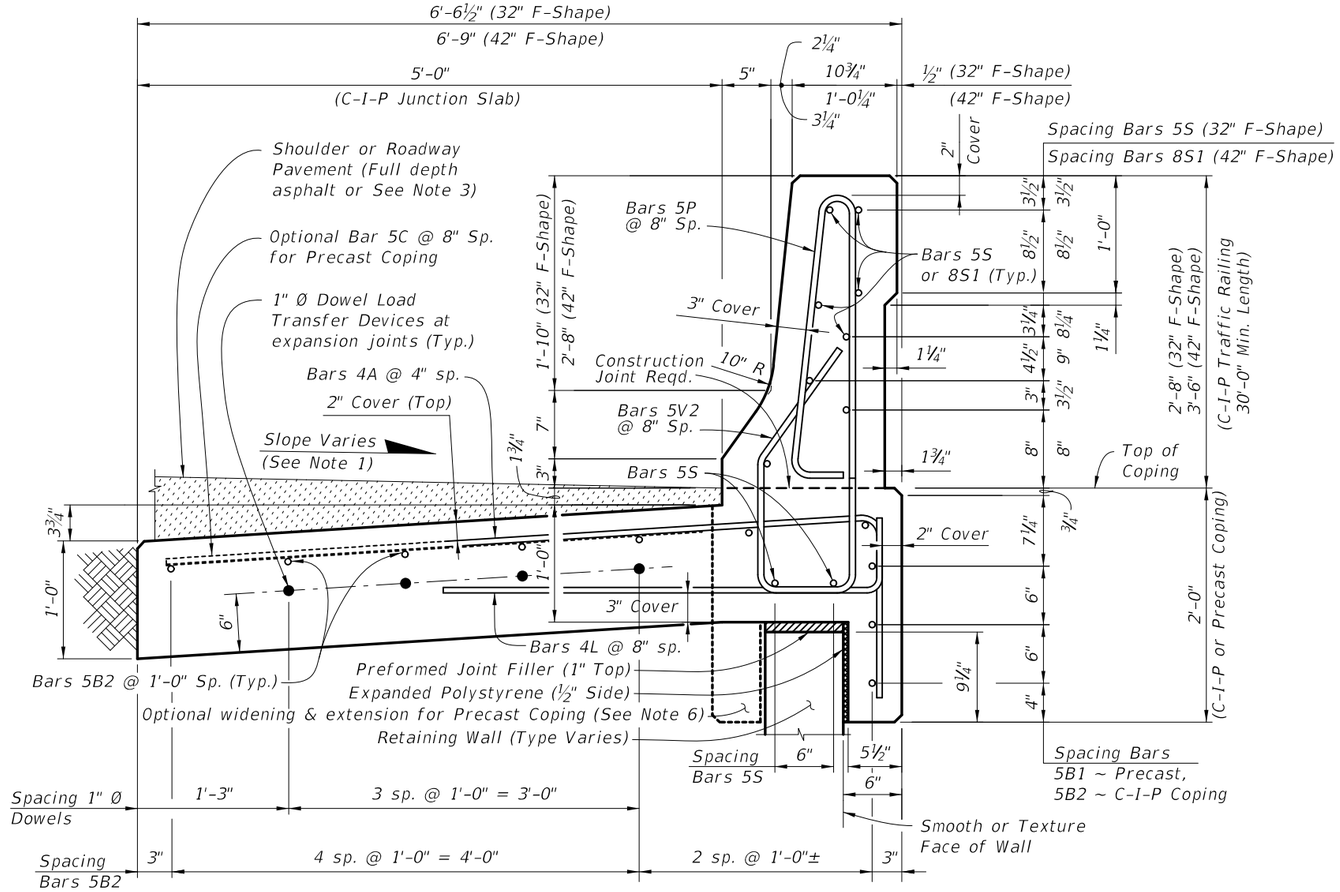
STIRRUP BAR 4N



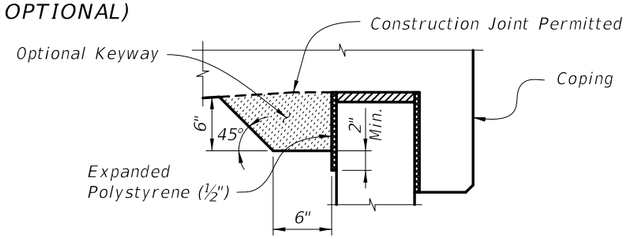
STIRRUP BAR 5V2

REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at expansion and open joints will have a 2" minimum cover.
3. Lap splices for Bars 5B & 5S will be a minimum of 2'-0".
4. For Precast Copings only, lap splice Bars 4A with Bars 5C. Lap splices will be a minimum of 2'-0".
5. The Contractor may use either full length Bars 4A or lap splice with Bars 5C at alternate Bars 4A for C-I-P Copings.
6. Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 1'-4½" (32" F-Shape) or 1'-7" (42" F-Shape).
7. Dimension shown is for lap splice option. For mechanical coupler option, this dimension is 4'-8".
8. The Contractor may use Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement will conform to ASTM A 497.



TYPICAL SECTION THRU C-I-P TRAFFIC RAILING & JUNCTION SLAB (PRECAST COPING OPTIONAL)



OPTIONAL C-I-P JUNCTION SLAB KEYWAY

ESTIMATED QUANTITIES FOR C.I.P. COPING		
ITEM	UNIT	QUANTITY
Concrete (Traffic Railing not Included)	CY/FT	0.264
Reinforcing Steel (Typical) excluding Bars 5V2 and 5S (Typ.)	LB/FT	30.39
Additional Reinf. @ Expansion Joint	LB/FT	21.36

(The above concrete quantities are based on a max. superelevation of 6.25%, beneath a 32" F-Shape Traffic Railing).

JUNCTION SLAB NOTES:

1. Match Cross Slope of Travel Lane or Shoulder.
2. The 3¾" dimension corresponds to a maximum superelevation of 6.25%. For steeper superelevations increase this dimension to match roadway superelevation.
3. For Rigid Pavement (Concrete), Junction Slab may be thickened to match finish grade.
4. Minimum length of Junction Slab between expansion joints is 30'-0".
5. See Index No. 420 & 425 for additional Traffic Railing Details.
6. Contractor to maintain stability of precast coping prior to junction slab completion.

F-SHAPE TRAFFIC RAILINGS

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/11	SJN	New Index No. & Title (Previously Index No. 5300, Sheet 7 of 19). Changed junction slab.			

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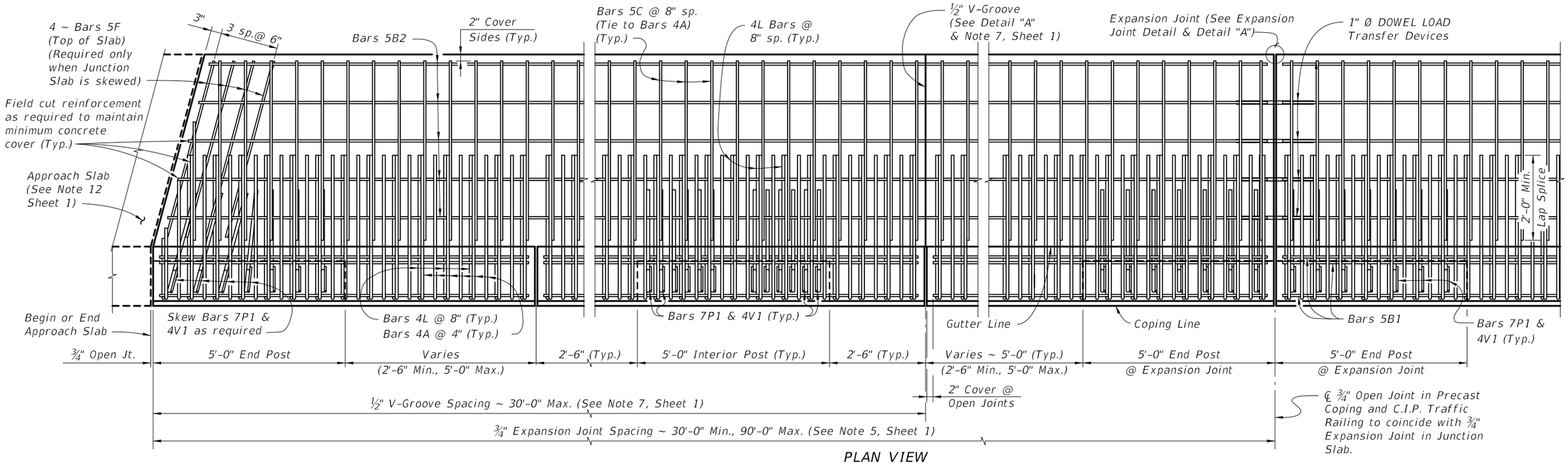
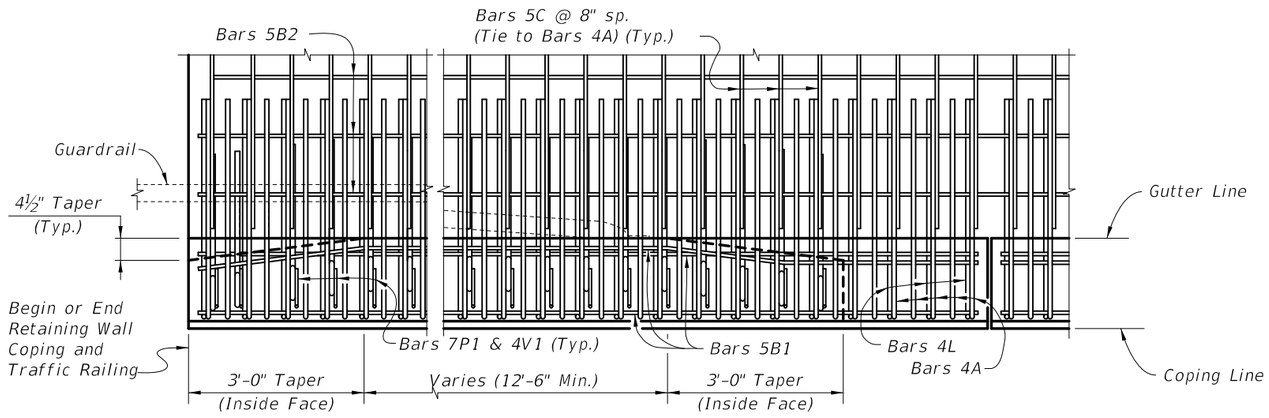
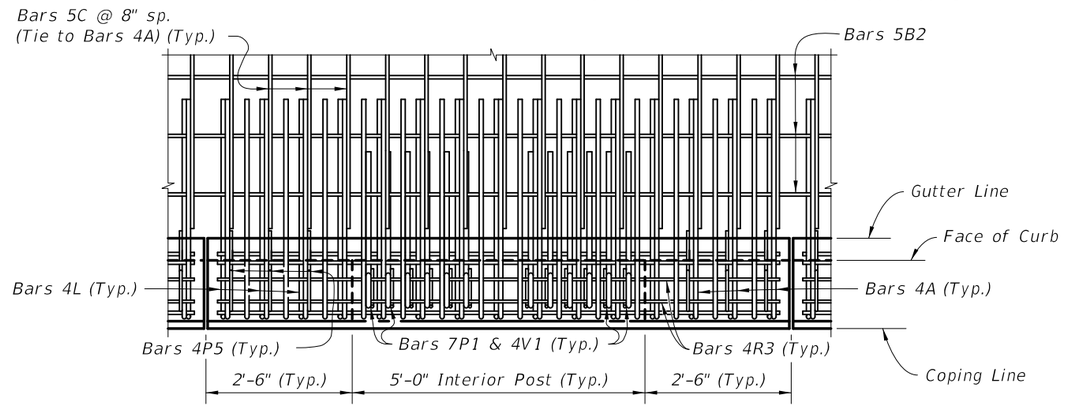


PLAN VIEW
(Skewed Approach Slab shown, Perpendicular Approach Slab similar)
(Precast Coping shown, C.I.P. Coping similar)
(Traffic Railing reinforcement not shown, except for Bars 7P1 & 4V1)

CROSS REFERENCES:
1. *For Detail "A" see Sheet 2.*
2. *For "Expansion Joint Detail" see Sheet 1.*
3. *For "Junction Slab Notes" see Sheet 1.*



PARTIAL PLAN VIEW OF GUARDRAIL TRANSITION AT BEGIN OR END RETAINING WALL
(Precast Coping shown, C.I.P. Coping similar)
(Traffic Railing reinforcement not shown, except for Bars 7P1 & 4V1)



PARTIAL PLAN VIEW OF COPING WITH CURB
(Precast Coping shown, C.I.P. Coping similar)
(Traffic Railing reinforcement not shown, except for Bars 4P5, 4R3, 7P1 & 4V1)

CORRAL SHAPE TRAFFIC RAILINGS

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/11	SJN	New Index No. & Title (Previously Index No. 5300, Sheet 8 of 19); Changed Junction Slab.			

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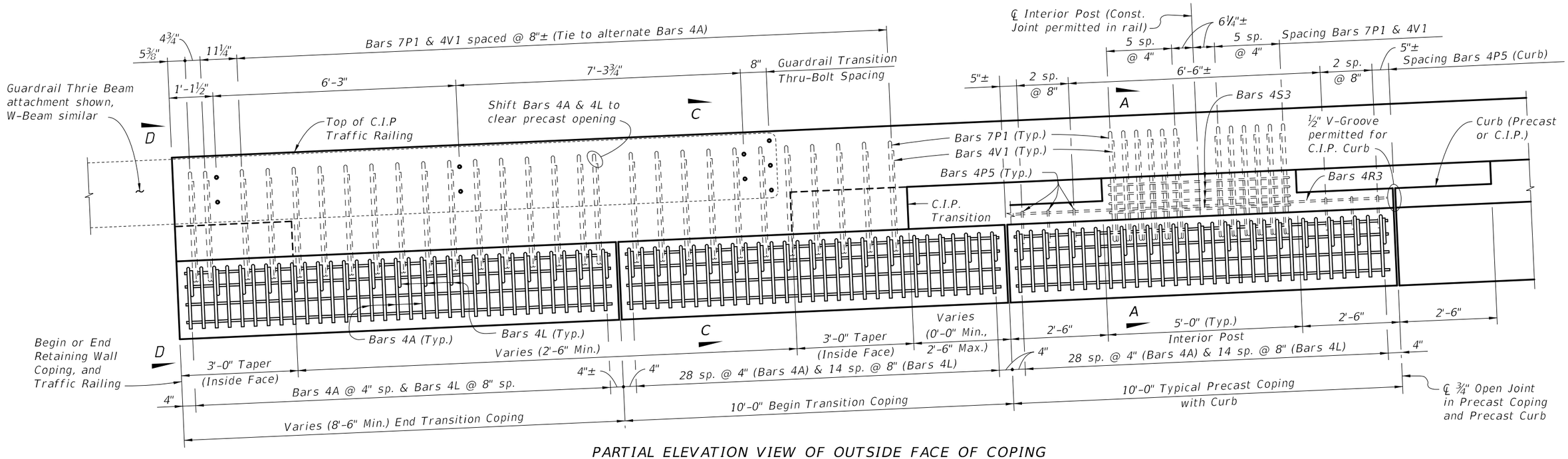
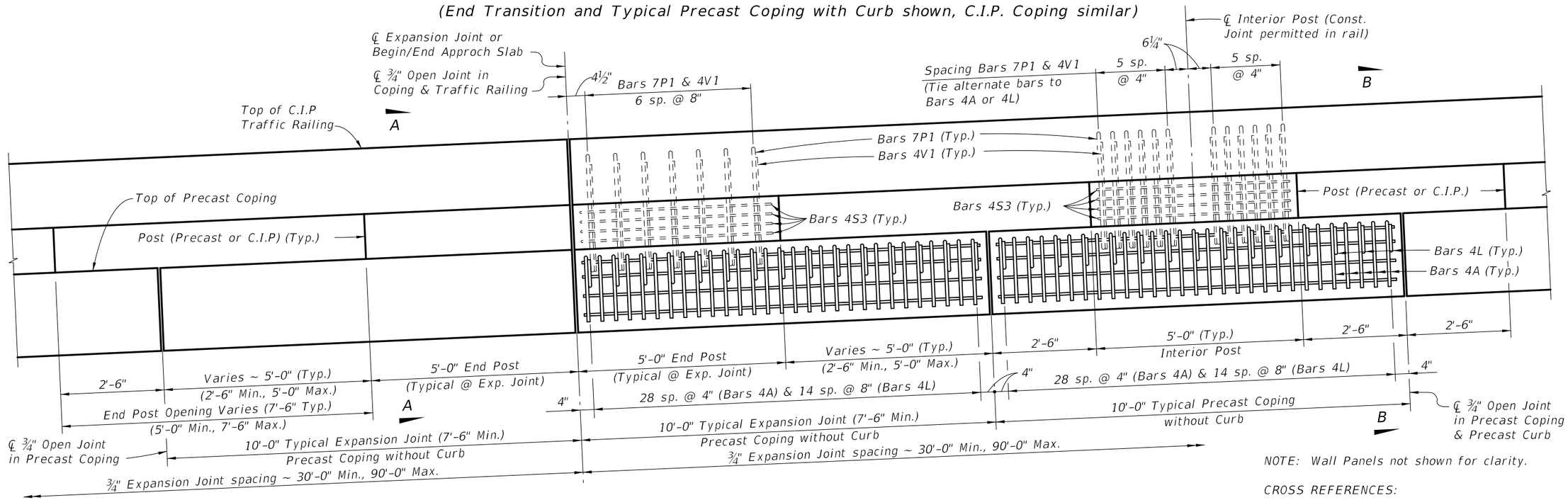


PARTIAL ELEVATION VIEW OF OUTSIDE FACE OF COPING
(End Transition and Typical Precast Coping with Curb shown, C.I.P. Coping similar)



PARTIAL ELEVATION VIEW OF OUTSIDE FACE OF COPING
(Precast Coping at Expansion Joint and Typical Precast Coping without Curb shown, C.I.P. Coping similar)

NOTE: Wall Panels not shown for clarity.

CROSS REFERENCES:
1. *For Sections A-A, B-B, C-C & D-D, see Sheet 6.*
2. *For Junction Slab Notes, see Sheet 1.*

CORRAL SHAPE TRAFFIC RAILINGS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/11	SJN	New Index No. & Title (Previously Index No. 5300, Sheet 9 of 19); Changed coping reinforcing.			

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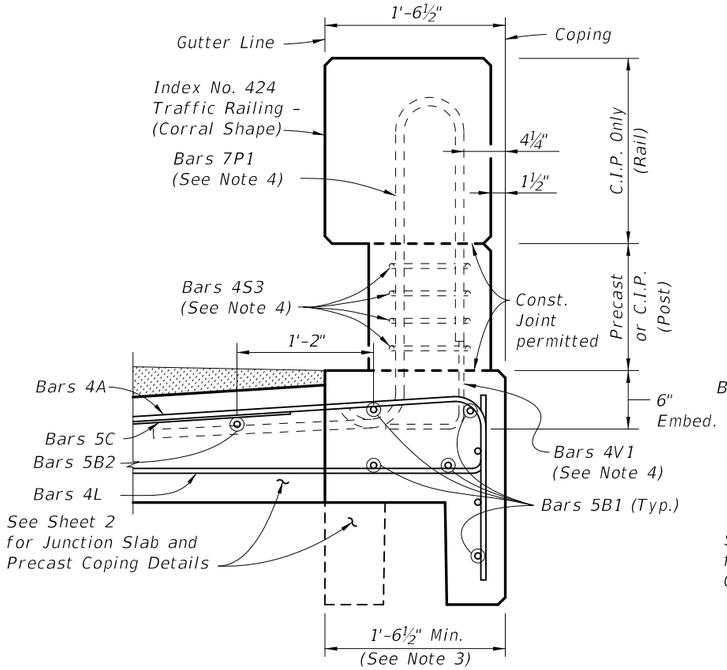
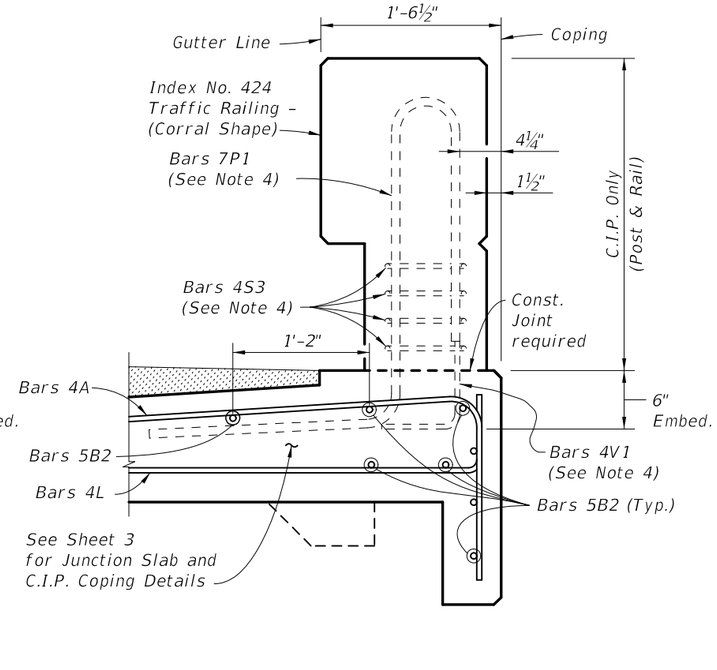
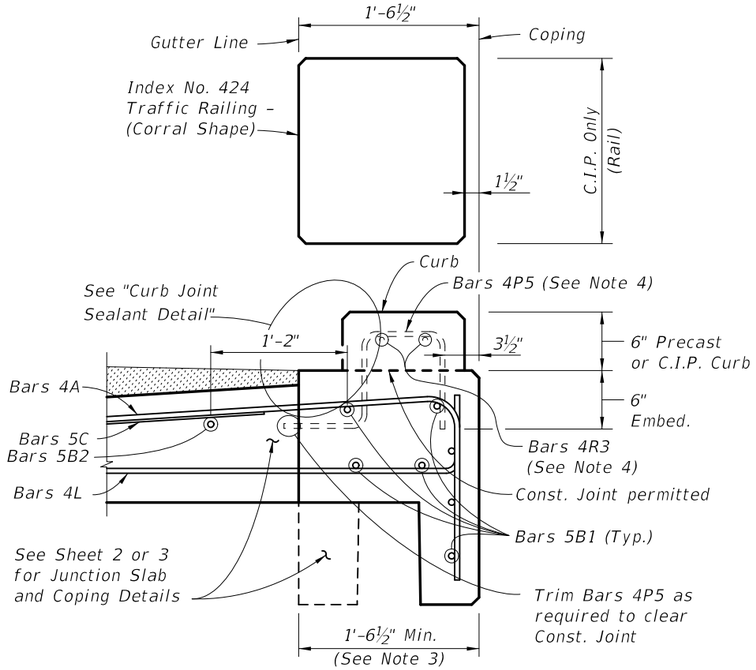


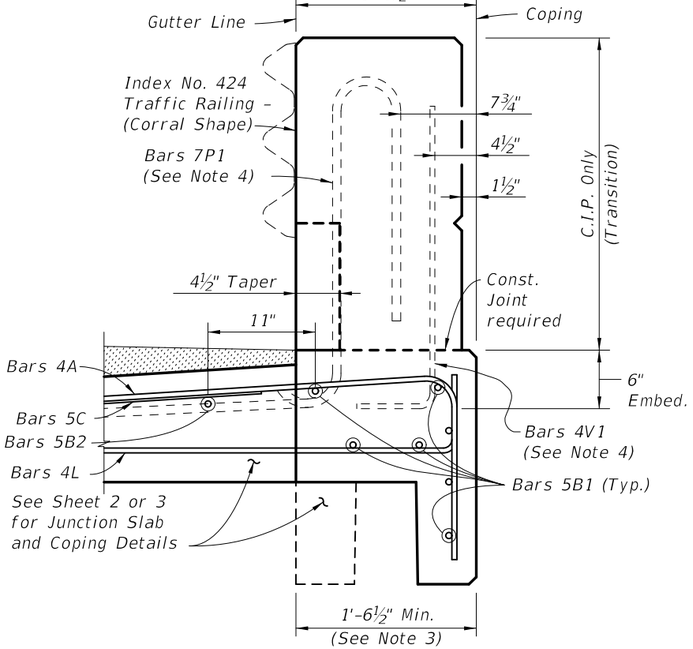
SECTION A-A
(TYPICAL SECTION PRECAST COPING WITHOUT CURB)



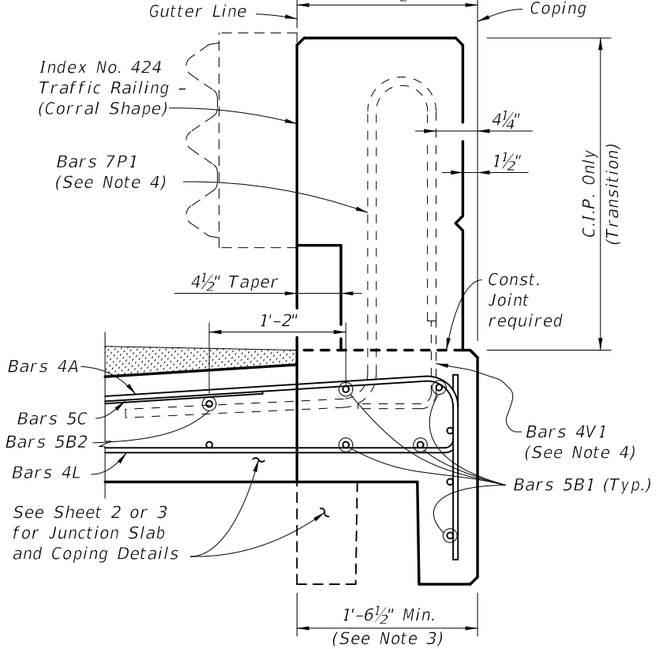
SECTION A-A
(TYPICAL SECTION C.I.P. COPING WITHOUT CURB)



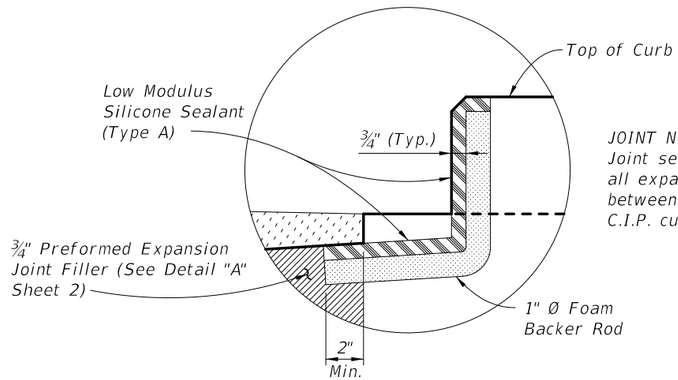
SECTION B-B
(TYPICAL SECTION WITH CURB)
(Precast Coping Shown, C.I.P. Coping Similar)



SECTION C-C
(TYPICAL SECTION TRANSITION COPING)
(Precast Coping shown, C.I.P. Coping similar)



END VIEW D-D
(TYPICAL SECTION TRANSITION COPING)
(Precast Coping shown, C.I.P. Coping similar)



JOINT NOTE:
Joint sealant required at all expansion joints and between precast and C.I.P. curb openings.

CURB JOINT SEALANT DETAIL

NOTES:
1. See Sheets 2 & 3 for Junction Slab and additional Coping details.
2. Slip Forming of C.I.P. Traffic Railiing is not permitted.
3. Actual width varies depending on type of Retaining Wall used.
4. See Index No. 424 for Traffic Railing details and Bars 7P1, 4P5, 4R3, 4S3 & 4V1. Bars 5R2 and 5U are not required in Retaining Wall Coping.

CORRAL SHAPE TRAFFIC RAILINGS

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
01/01/11	SJN	New Index No. & Title (Previously Index No. 5300, Sheet 10 of 19). Changed Junction Slab.			

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