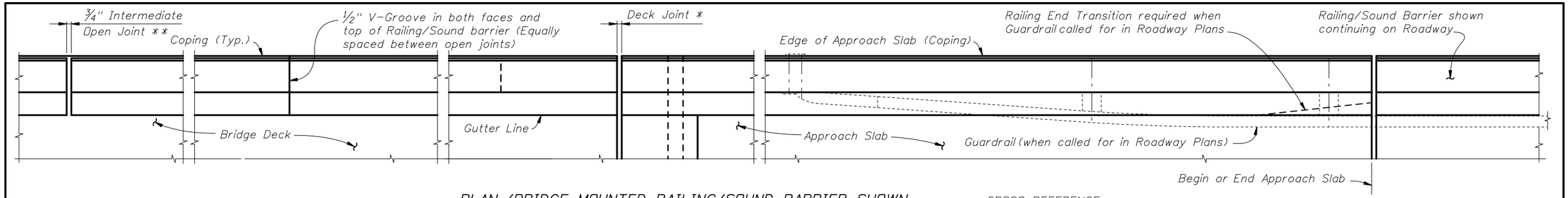
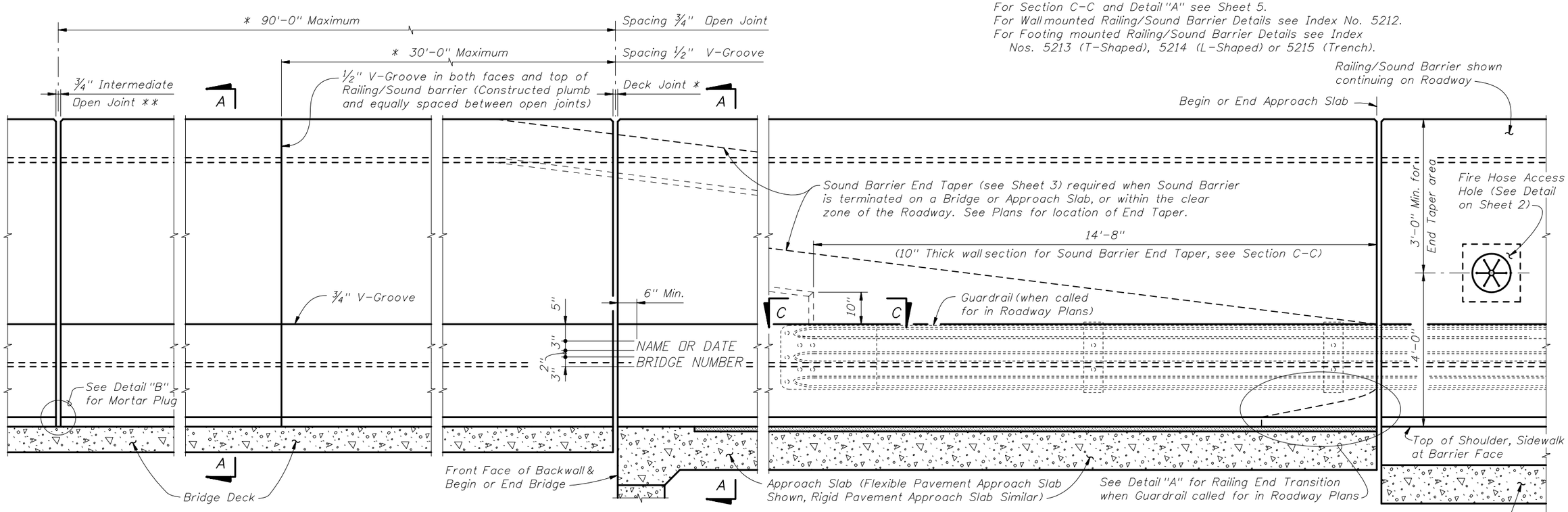


PLAN (BRIDGE MOUNTED RAILING/SOUND BARRIER SHOWN, WALL OR FOOTING MOUNTED RAILING/SOUND BARRIER SIMILAR) (Reinforcing Steel not shown for clarity)

CROSS REFERENCE:
For Detail "B" and V-Groove Lettering Detail see Sheet 2.
For Section A-A see Sheet 4.
For Section C-C and Detail "A" see Sheet 5.
For Wall mounted Railing/Sound Barrier Details see Index No. 5212.
For Footing mounted Railing/Sound Barrier Details see Index Nos. 5213 (T-Shaped), 5214 (L-Shaped) or 5215 (Trench).



ELEVATION OF INSIDE FACE OF RAILING/SOUND BARRIER (BRIDGE MOUNTED RAILING/SOUND BARRIER SHOWN, WALL OR FOOTING MOUNTED RAILING/SOUND BARRIER SIMILAR) (Reinforcing Steel not shown for clarity)

* On Bridges see Superstructure and Approach Slab Sheets for actual dimensions and joint orientation. Open Railing/Sound Barrier Joints at Deck Expansion Joint locations shall match the dimensions of the Deck Joint. For treatment of Railing/Sound Barrier walls on skewed bridges see Index No. 490. Deck Joint at Begin Bridge or End Bridg shown, Deck Joint at ℄ Pier or Intermediate Bent, Junction Slab or Footing similar.

** ¾" Intermediate Open Joints shall be constructed plumb and provided at :
(1) – Substructure supports where superstructure slab is continuous.
(2) – Midspan where span length exceeds 90 ft.
(3) – Intermediate locations (equally spaced) between midspan and substructure supports where span length exceeds 180 ft.
(4) – Construction Joints for Junction Slabs and Footings

INSTRUCTIONS TO DESIGNER:
FORM LINERS : Form liners providing a textured finish are permitted on the outside face of the Traffic Railing Barrier/Soundwall with the following provisions: (1) The maximum amplitude of the form liner on the lower 2'-8" section shall be limited to 1" depth; (2) Any form liner used above 2'-8", must provide a thickened concrete section to maintain 2" cover. Full details of this thickened section and the form liner shall be provided in the plans. Form liners on the inside face of the Traffic Railing Barrier/Soundwall are not recommended.
END TAPER LOCATION : When the Soundwall terminates on the bridge, the End Taper shall be located at an open joint. When the Soundwall terminates on the Approach Slab, the End Taper shall terminate at Begin or End Approach Slab as shown above.

TRAFFIC RAILING/SOUND BARRIER NOTES

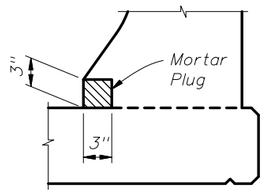
This railing has been structurally evaluated to be equivalent or greater in strength to a safety shape/sound barrier combination railing which has been crash tested to NCHRP Report 350 TL-4 Criteria. The Transverse Design Force for the design of bridge deck overhang shall be 54 kips applied horizontally at 3'-6" height above the deck.

CONSTRUCTION REQUIREMENTS : The Traffic Railing/Sound Barrier and joints shall be constructed plumb, they shall not be constructed perpendicular to the roadway surface. Slip forming is not permitted.

CONCRETE AND REINFORCING STEEL : For Railing/Sound Barrier on bridges see General Notes. For Wall and Footing mounted Railing/Sound Barrier, concrete shall be Class II for slightly aggressive environments and Class IV for moderately or extremely aggressive environments. All reinforcing steel shall be Grade 60.

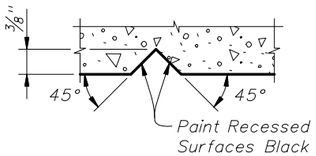
NAME, DATE AND BRIDGE NUMBER : For Railing/Sound Barrier on bridges, the Name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driver's right side when approaching the bridge. The Date shall be placed on the driver's left side when approaching the bridge. The Date shall be the year the bridge is constructed. For a major widening the date shall be the year of the widening. Black plastic letters and figures 3" in height may be used, as approved by the Engineer, in lieu of the letters and figures formed by ⅜" V-Grooves. V-Grooves shall be formed by preformed letters and figures.

MARKERS : For Railing/Sound Barrier on bridges, Elevation Markers shall be placed on top of the Traffic Railing/Sound Barrier or Bridge Deck at the end bents as directed by the Engineer. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor. The cost of installing the markers shall be included in the Contract Unit Price for the Railing/Sound Barrier.



DETAIL "B" - SECTION AT INTERMEDIATE OPEN JOINT

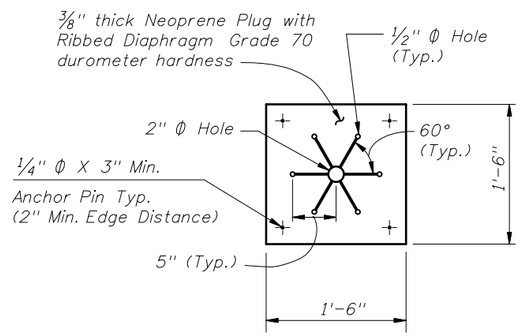
NOTE:
At Intermediate Open Joints, the lower 3" portion of the open joint shall be plugged by filling it with mortar in accordance with Section 400 of the Specifications.



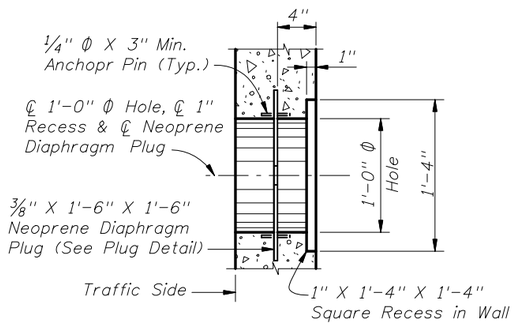
SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

ESTIMATED TRAFFIC RAILING/SOUND BARRIER QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete (Railing)	CY/LF	0.104
Concrete (Sound Barrier)	CY/LF	0.145
Reinforcing Steel (Typical)	LB/LF	78.57
Additional Reinf. @ Open Joint	LB	430.24

(The above quantities are based on the bridge mounted typical section, 2% deck cross slope and railing on low side of deck.)



NEOPRENE DIAPHRAGM PLUG DETAIL



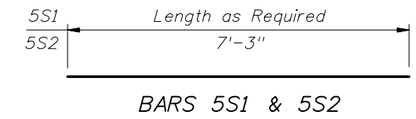
TYPICAL SECTION FIRE HOSE ACCESS DETAIL

NOTE:
Fire hose access holes are required at or near fire hydrant locations. Field cut reinforcement as required to maintain 2" minimum cover at access holes. Locate fire hose access holes a minimum of 10'-0" from ¾" open joints when possible.

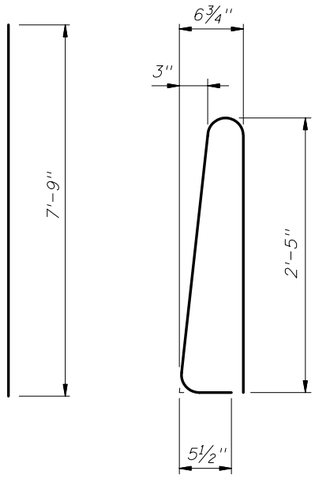
REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
P	5	5'-7"
R	5	7'-9"
S1	5	As Reqd.
S2	5	7'-3"
V (Bridge and Wall)	5	5'-1"
V (Footing)	5	7'-7"

BRIDGE CROSS-SLOPE		LOW GUTTER		HIGH GUTTER	
		ØA	ØB	ØA	ØB
BRIDGE MOUNTED	0% to 2%	90°	90°	90°	90°
	2% to 6%	93°	87°	87°	93°
	6% to 10%	96°	84°	84°	96°
WALL & FOOTING MOUNTED		90°	90°	90°	90°

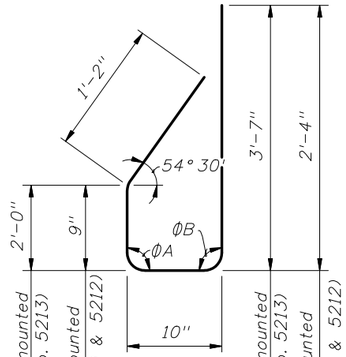


BARS 5S1 & 5S2

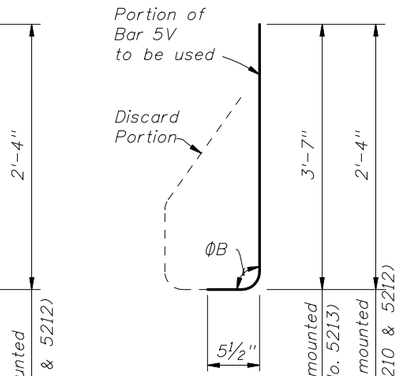


BAR 5R (Field Cut for End Taper)

STIRRUP BAR 5P



STIRRUP BAR 5V

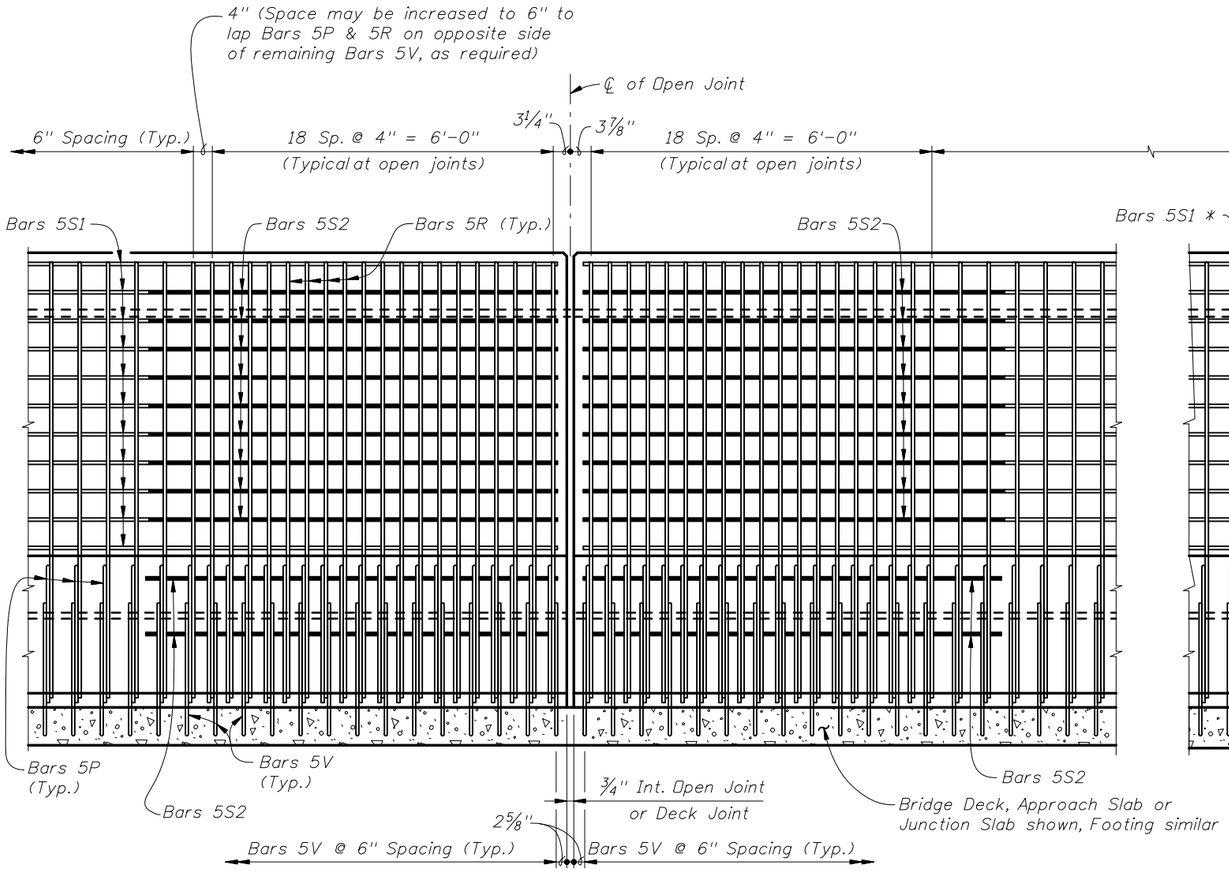


END STIRRUP BAR 5V To Be Field Cut (One Required per Railing End Transition)

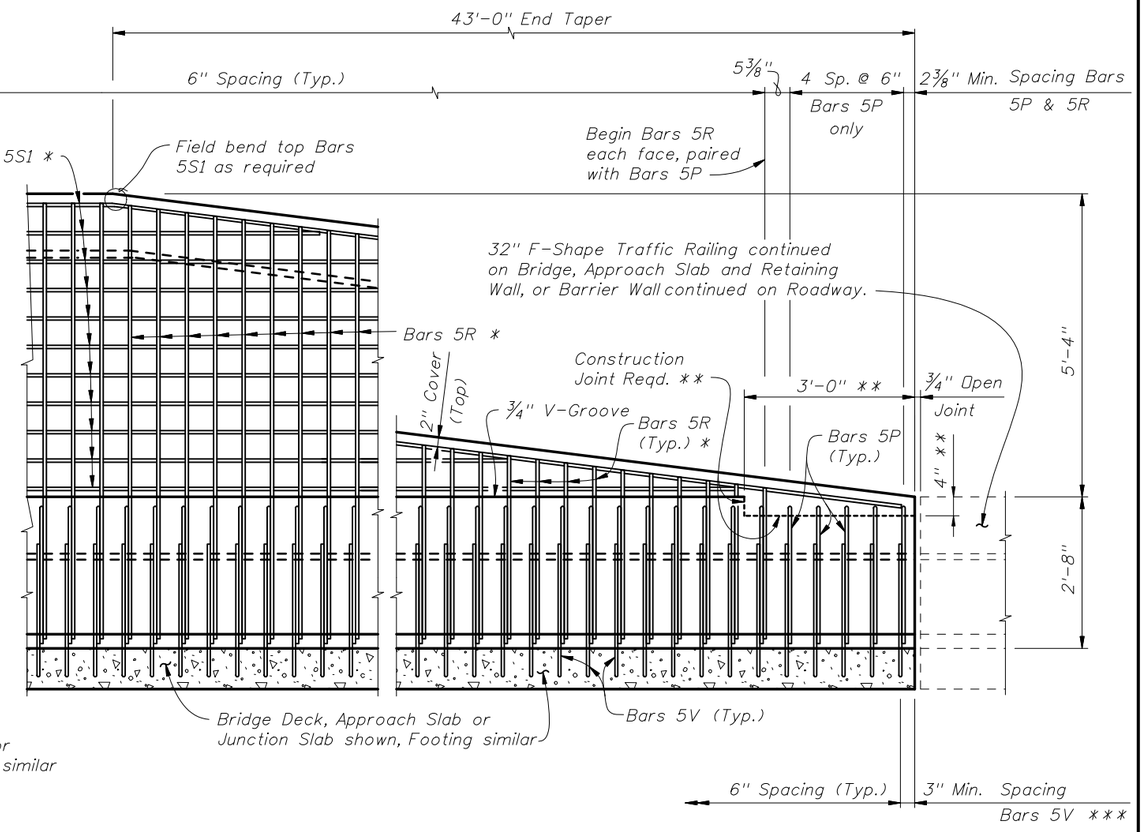
REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints shall have a 2" minimum cover.
3. Bars 5S1 may be continuous or spliced at the construction joints. Lap splices for Bars 5S1 shall be a minimum of 2'-2".
4. The Contractor may use Welded Wire Fabric when approved by the Engineer. Welded Wire Fabric shall conform to ASTM A 497.
5. Bars 5R shall be one continuous bar. No mechanical couplers or lap splices are permitted.
6. See Index Nos. 5214 and 5215 for Bars 5V and 5T in L-shaped and Trench footings.

CROSS REFERENCE:
For locations of Detail "B", see Sheet 1.

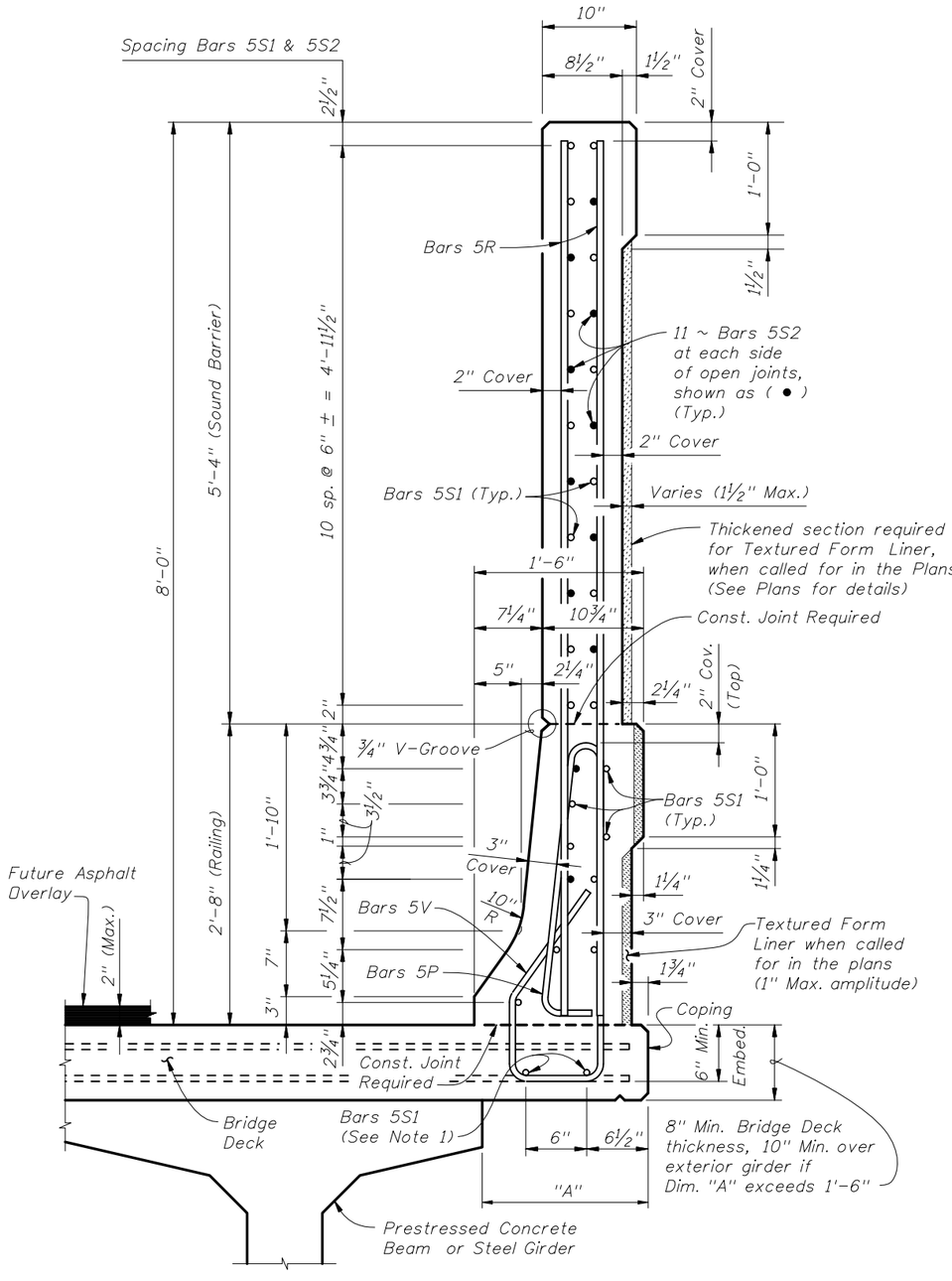


ELEVATION OF RAILING/SOUND BARRIER REINFORCING STEEL
(INTERMEDIATE OPEN JOINT SHOWN, DECK JOINT SIMILAR)
(Bars 5S1 in Barrier not shown for clarity)



ELEVATION OF RAILING/SOUND BARRIER END TAPER (ADJACENT TO TRAFFIC RAILING
SHOWN, GUARDRAIL ATTACHMENT SIMILAR SEE DETAIL "A" BELOW)
(Bars 5S1 in Railing not shown for clarity)

NOTES:
* Field Cut Bars 5R & 5S1 to maintain clearance.
** Terminate ¾" V-groove at construction joint & cast top of railing with End Taper.
*** Bar spacing shown for Bars 5V applies only to bridge mounted Railing/Sound Barrier. See Index No. 5212 for spacing of Bars 5V in junction slabs and Index Nos. 5213 (T-Shaped), 5214 (L-Shaped) or 5215 (Trench) for Bars 5V spacing in footings.



SECTION A-A
TYPICAL SECTION THRU TRAFFIC RAILING/SOUND BARRIER
(Section Thru Bridge Deck Shown, Section Thru Approach Slab, Junction Slab or Footing Similar)

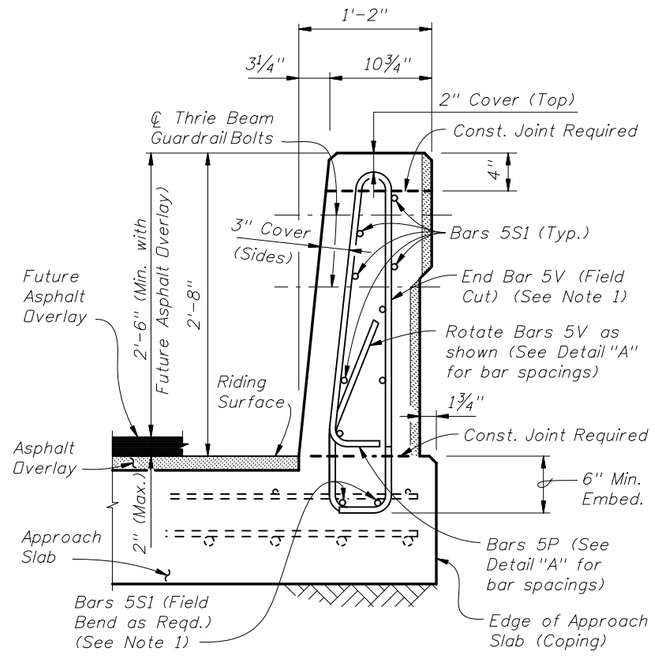
INSTRUCTIONS TO DESIGNER:

For Bridge Decks up to a maximum thickness of 9", the two Bars 5S1 placed in the Bridge Deck may substitute for the longitudinal deck steel located within the limits of Bars 5V, provided that the total area of longitudinal deck steel beneath the barrier, as required by calculation, is not reduced. Show these bars on the Superstructure Sheets with the deck steel.

NOTES:

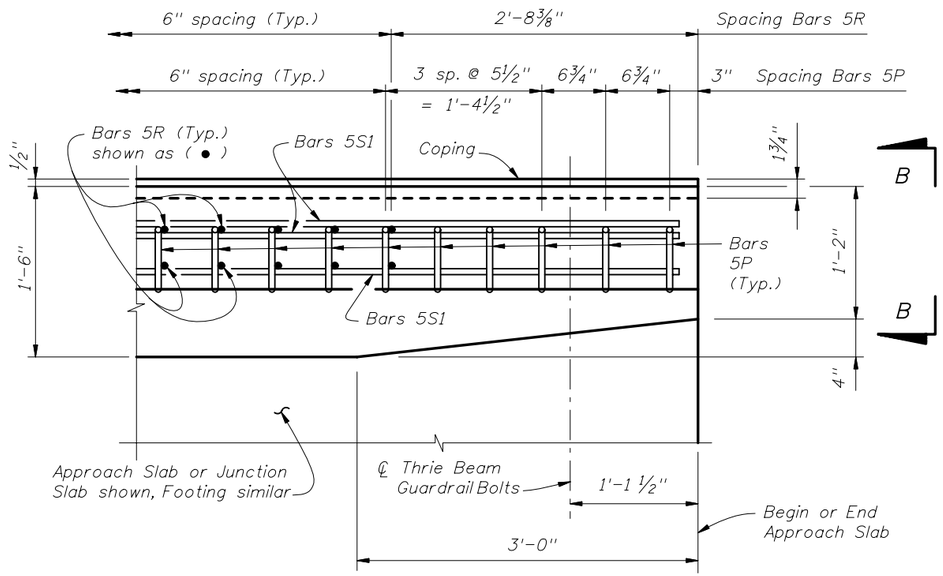
1. Bottom Bars 5S1 and End Bar 5V are not present in L-Shaped (Index No. 5214) or Trench (Index No. 5215) Footings. For Bridge Mounted installations, see the Superstructure Sheets for Deck Steel. Omit Bars 5S1 if not specifically shown on the Superstructure Sheets.

CROSS REFERENCE:
For locations of Section A-A see Sheet 1.
For location of View B-B, see Sheet 5.

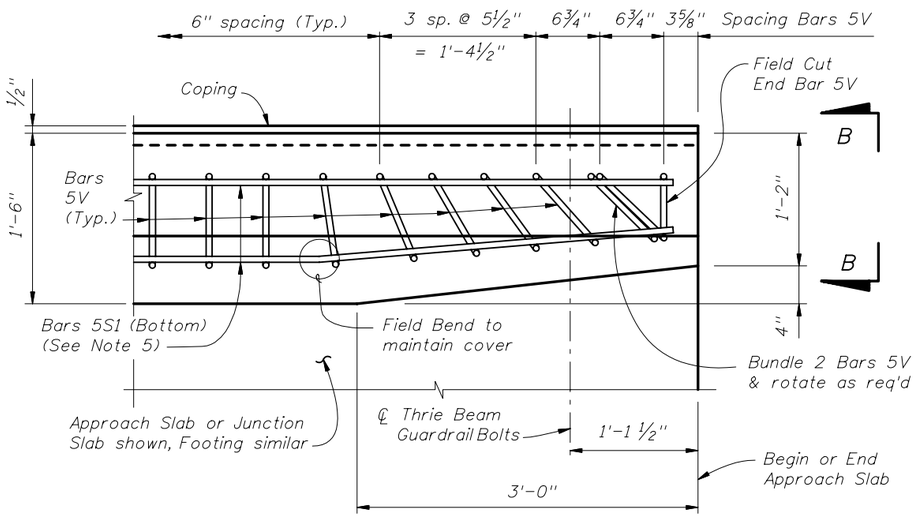


VIEW B-B
END VIEW OF RAILILNG END TRANSITION FOR GUARDRAIL ATTACHMENT AT END OF APPROACH SLAB
(Flexible Pavement Approach Slab Shown, Rigid Pavement Approach Slab, Junction Slab or Footing Similar)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	2008 FDOT Design Standards	Last Revision 07/01/07	Sheet No. 4 of 5
	TRAFFIC RAILING/SOUND BARRIER (8'-0")		Index No. 5210



PLAN - RAILING END TRANSITION
(Showing Bars 5P, 5R, and Bars 5S1) (Bars 5V, Soundwall & Reinforcement not shown for Clarity)

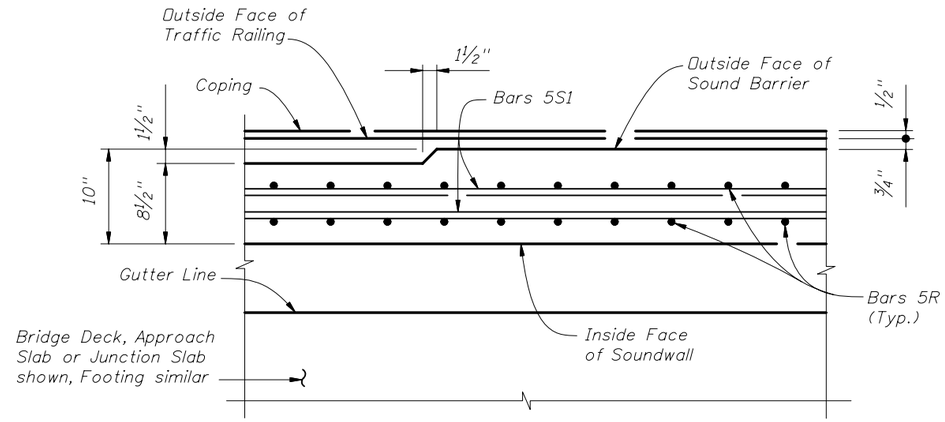


PLAN - RAILING END TRANSITION
(Showing Bars 5V and Bars 5S1) (Bars 5P, 5R, Soundwall & Reinforcement not shown for Clarity)

DETAIL "A"

DETAIL "A" NOTES:

1. Rotate Bars 5P & 5V in Railing End Transition to maintain cover. Begin placing Railing Bars 5P and 5V at the railing end and proceed toward the guardrail (thrie beam) terminal connector to ensure placement of guardrail bolt holes. Pair Bars 5R with Bars 5P as shown. Clearance of Bars 5P, 5R & 5V to guardrail bolt holes shall be checked to prevent cutting of bars if holes are to be drilled. Shift bars locally where conflicts occur.
2. For Guardrail connection details see Design Standards Index No. 400.
3. Omit Railiing End Transition if a 32" F-Shape Traffic Railing is used beyond the End Taper. See the Plan Sheets. If Railing End Transition is omitted, space Bars 5P, 5R & 5V at 6" as shown above (Typ.).
4. For L-Shaped (Index No. 5214) and Trench (Index No. 5215) footings, Bars 5V and 5T replace Bars 5V as shown at left. Details and bar spacing shown apply except that it is not necessary to rotate Bars 5V and 5T to maintain cover and there is no field cut End Bar 5V.
5. Bottom Bars 5S1 are not present in L-Shaped or Trench Footings.



SECTION C-C
THRU SOUNDWALL END TAPER

CROSS REFERENCE:
For location of Detail "A" see Sheet 1.
For location of Section C-C see Sheet 1.
For View B-B see Sheet 4.