TRAFFIC RAILING NOTES

This Traffic Railing Retrofit has been structurally evaluated to be equivalent or greater in strength to a design which has been successfully crash tested previously and approved for a NCHRP Report 350 Test Level 4 rating.

CONCRETE: Concrete for the Traffic Railing (Vertical Face Retrofit) and replacement curb sections shall be Class IV. Concrete for Transition Blocks shall be Class II (Bridge Deck).

REINFORCING STEEL: Reinforcing steel shall be ASTM A615, Grade 60, except Expansion Dowel Bar B which shall be ASTM A36 smooth round bar hot-dip galvanized in accordance with the Specifications.

EXPANSION SLEEVE ASSEMBLY: Pipe sleeve shall be ASTM D2241 PVC pipe, SDR13.5. End Cap shall be ASTM D2466 PVC socket fitting, Schedule 40. End of Sleeve assembly at railing open joint shall be sealed with silicone to prevent concrete intrusion during railing casting. A compressible expanded polystyrene plug is required in the opposite end of the assembly for correct dowel positioning during railing casting. Correct dowel positioning is required in order to provide for thermal movement of the deck.

ADHESIVE-BONDED ANCHORS AND DOWELS: Adhesive Bonding Material Systems for Anchors and Dowels shall comply with Specification Section 937 and be installed in accordance with Specification Section 416.

BRIDGES ON CURVED ALIGNMENTS: The details presented in these Standards are shown for bridges on tangent alignments. Details for bridges on horizontally curved alignments are similar.

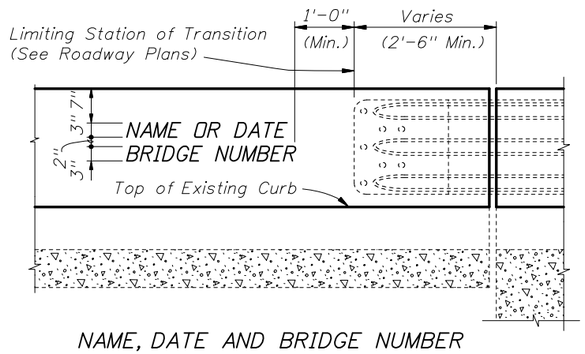
NAME, DATE AND BRIDGE NUMBER: The Name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driver's right side when approaching the bridge. The Date shall be placed on the driver's left side when approaching the bridge. The Date shall be the year the bridge was constructed. Letters and figures may be 3" tall black plastic as approved by the Engineer or ⅜" V-Grooves. V-Grooves shall be formed by preformed letters and figures.

ELEVATION MARKERS: Elevation Markers shall be placed on the top surface of the end bents as directed by the Engineer when portions of the existing traffic railing carrying existing elevation markers are removed. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor.

SURFACE FINISH: Unless otherwise shown in the Plans, place a Class 5 Applied Finish Coating on the top and sides of the Traffic Railing (Vertical Face Retrofit).

REFLECTIVE RAILING MARKERS: Reflective Railing Markers shall conform to Section 993 of the Specifications. Install markers 6" below the top of the Traffic Railing at the spacings shown in the table below. Reflector color (white or yellow) shall conform to the color of the near edgeline.

PAYMENT: Payment will be made under Traffic Railing (Vertical Face Retrofit) which shall include all materials and labor required to construct the railing. The Transition Blocks and Curbs, Reflective Railing Markers and installation of Elevation Markers, where required, will not be paid for directly but shall be considered as incidental work.

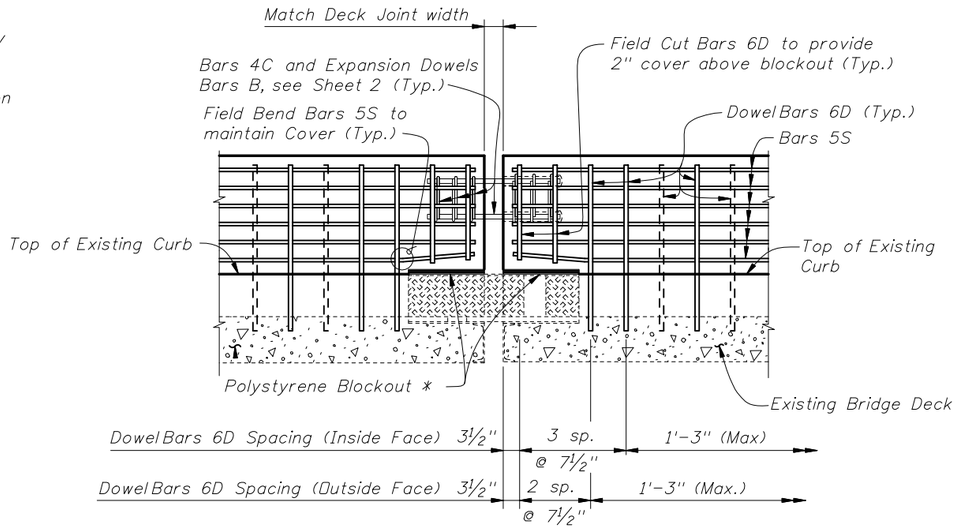


NAME, DATE AND BRIDGE NUMBER LETTERING DETAIL

REFLECTIVE RAILING MARKER SPACING	
Distance - Edge of Travel Lane to Face of Railing	Spacing (Ft.)
< 4'	40'
4' to 8'	80'
> than 8'	None Required

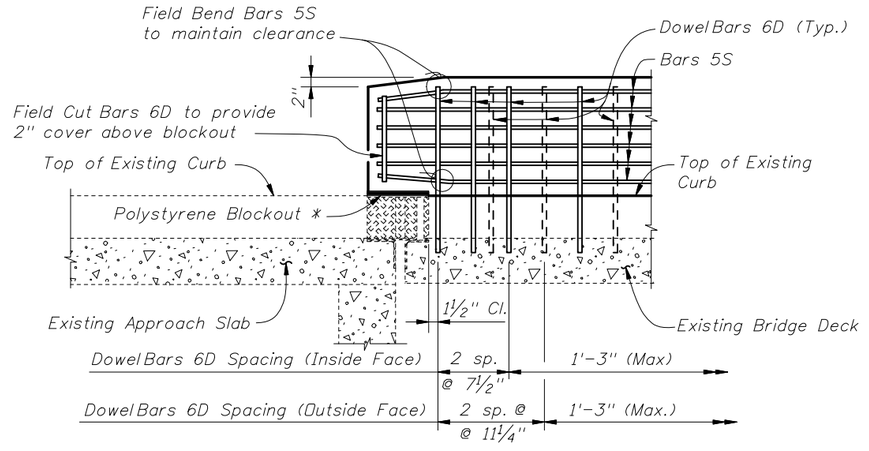
ESTIMATED TRAFFIC RAILING QUANTITIES			
ITEM	UNIT	QUANTITY	
		9" Curb	Increment
Concrete	CY/Ft.	0.064	0.003 per in. height
Reinforcing Steel	Lb./Ft.	13.27	0.10 per in. length

(Quantities are based on a 9" curb, no curb cross slope and 1'-0" embedment length of Bars 6D. If the curb height or embedment length differs from that shown, increase or decrease quantity by the given per inch increment.)



PARTIAL ELEVATION OF RAILING SHOWING INTERIOR FINGER/SLIDING PLATE JOINT
(Beam/Girder, Intermediate Bent or Pier not shown for clairty)

* Place 1" thick polystyrene blockout over limits of bridge deck expansion joint full width to the end of the Traffic Railing to allow for thermal movement. Seal Forms to prevent mortar leakage into the expansion joint.



PARTIAL ELEVATION OF RAILING SHOWING SLIDING PLATE JOINT AT BEGIN OR END BRIDGE
(Scheme 1 shown, Schemes 2, 3 and 4 similar)
(Guardrail Transition or continuation of Traffic Railing not show for clarity)

2008 FDOT Design Standards

TRAFFIC RAILING - (VERTICAL FACE RETROFIT) GENERAL NOTES & DETAILS

Last Revision 07/01/07

Sheet No. 1 of 2

Index No. 480

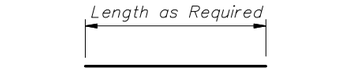
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

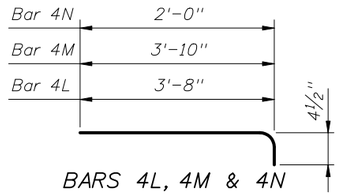
MARK	SIZE	LENGTH	INDEX NO.	NOTE NOS.
A	4	AS REQD.	482 ONLY	3
B	1" Ø	2'-0"	481 THRU 483	2 & 5
C	4	2'-0"	481 THRU 483	1, 2 & 3
D	6	AS REQD.	481 THRU 483	2 & 3
L	4	4'-1"	481 THRU 483	1 & 3
M	4	4'-3"	482 ONLY	1 & 3
N	4	2'-5"	482 ONLY	1 & 3
S	5	AS REQD.	481 THRU 483	2, 3 & 4

REINFORCING STEEL NOTES:
1. All bar dimensions in the bending diagrams are out to out.
2. The reinforcement for the railing on a retaining wall shall be the same as detailed for a bridge deck.
3. All reinforcing steel in the Vertical Face Retrofit Railing shall have a 2" minimum cover.
4. Bars 5S may be continuous or spliced at the construction joints. Bar splices for Bars 5S shall be a minimum of 2'-0".
5. Expansion Dowel Bars B shall be ASTM A36 smooth round bar and hot-dip galvanized in accordance with the Specifications.

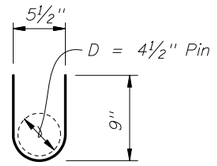
BENDING DIAGRAM



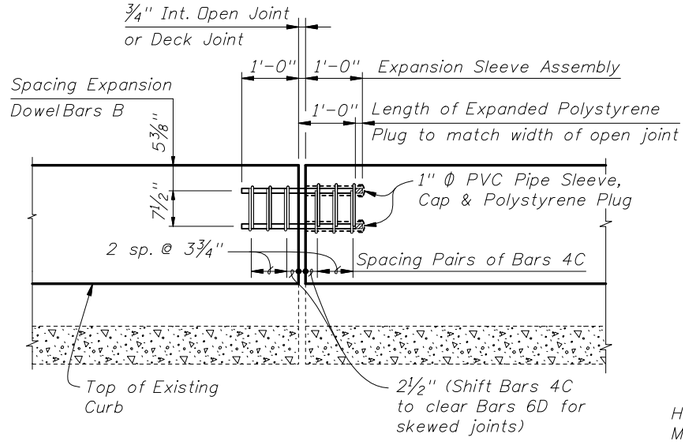
BARS 4A, B, 6D & 5S



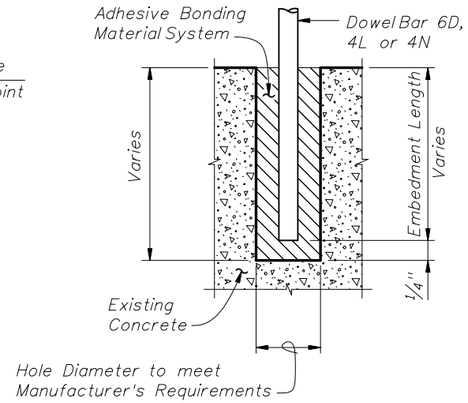
BARS 4L, 4M & 4N



BARS 4C
(12 required per open joint)



OPEN JOINT EXPANSION DOWEL DETAIL
(Railing Reinforcing Not Shown For Clarity)

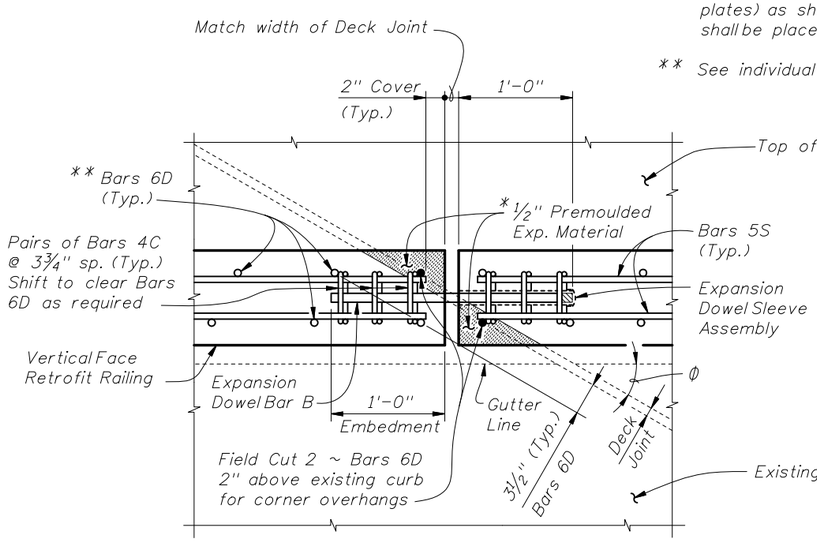


DOWEL DETAIL

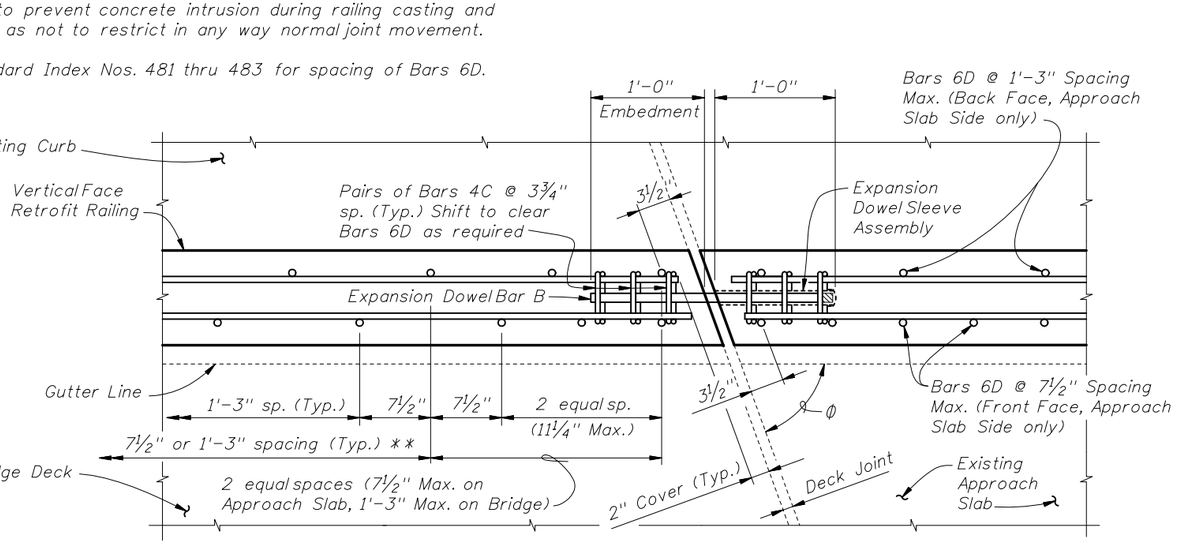
Dowel Installation Notes:
1. Shift dowel holes to clear if the existing reinforcement is encountered.
2. See individual Standards Index Nos. 481 thru 483 for required embedment length of Bars 6D, 4L or 4N.

* ½" Premoulded Expansion Material at top of Existing Curb shall extend beyond the joint material (Silicone, poured rubber, armored neoprene seal or sliding plates) as shown to prevent concrete intrusion during railing casting and shall be placed so as not to restrict in any way normal joint movement.

** See individual Standard Index Nos. 481 thru 483 for spacing of Bars 6D.



PARTIAL PLAN OF RAILING (SKEW ANGLE Ø LESS THAN 70°)
(Skewed Deck Joint at Begin or End Bridge Shown, Skewed Deck Joint at Intermediate Pier or Bent Similar)



PARTIAL PLAN OF RAILING (SKEW ANGLE Ø = 70° OR GREATER)
(Skewed Deck Joint at Begin or End Bridge Shown, Skewed Deck Joint at Intermediate Pier or Bent Similar)

SKEW DETAIL

2008 FDOT Design Standards

TRAFFIC RAILING - (VERTICAL FACE RETROFIT) GENERAL NOTES & DETAILS

Last Revision	Sheet No.
07/01/07	2 of 2

Index No. 480