NOTES

A. DESIGN SPECIFICATIONS:
1. AASHTO LRFD Specifications for Highway Bridges.
2. FDOT Structures Manual (Current Edition).
3. Florida Department of Transportation's Plans Preparation Manual, Volume 1 (Current Edition).

B. DESIGN CRITERIA:
The Precast Sound Barriers are pre-designed and based on the criteria in the Structures Manual, Volume 1.

C. CONCRETE AND GROUT:
1. Concrete Class and Compressive Strength:
   a. Cast-in-Place Collars: Class IV (f'c = 5500 psi)
   b. Precast Panels, Collars and Post Caps: Class IV (f'c = 5500 psi)
   c. Posts: Class IV (f'c = 5500 psi)
2. Grout for Auger Cast Piling:
   a. Maximum Working Compressive Strength = 2200 psi
   b. Minimum 28 Day Strength = 5500 psi
3. Minimum Compressive Strength for Form Removal and Handling of Posts and Panels:
   a. 2,500 psi for horizontally cast post and panels.
   b. 2,000 psi for vertically cast panels or when tilt-up form tables are used for horizontally cast panels.

D. REINFORCING STEEL:
1. In addition to the requirements of Specification Section 415, tie post and pile stirrups at the following locations as a minimum:
   a. Post Stirrups – Tie at all four corner bars and at every third interior bar intersection.
   b. Pile Stirrups – Tie to the main vertical reinforcing at alternate intersections for circular configurations and for rectangular configurations at the four corners and at every third interior bar intersection.

E. SURFACE FINISHES:
1. See SOUND BARRIER DATA TABLES in the Plans for project requirements.

F. PILING:
Construct Auger Cast Piling in accordance with the Plans and Specification Section 455.

G. UTILITIES:
Field verify the locations of all overhead and underground utilities shown in the Wall Control Drawings.

H. NEOPRENE PADS AND RESILIENT PADS:
1. Neoprene Pads for Panel Bearing Points Between the Stacked Panels:
   The Neoprene pads for the panel bearing points shall be Plain Pads, Grade 50 durometer hardness in accordance with Specifications Sections 932-2.1.
2. Neoprene Pads for Collar Bearing Points:
   Neoprene Pads shall be Fiber Reinforced Pads, with a durometer hardness between Grade 50 and Grade 80, in accordance with Specification Section 932-2.1. Plain Pads may be substituted for Fiber Reinforced Pads when sufficient bearing area is available on the concrete collar, as follows:
   a. 10' post spacing: 4" x 4" x ½" Plain Pads, Grade 50 durometer hardness.
   b. 20' post spacing and < 18' wall height: 4" x 4" x ½" Plain Pads, Grade 50 durometer hardness.
   c. 20' post spacing and ≥ 18' wall height: 4" x 5" x ½" Plain Pads, Grade 50 durometer hardness.

I. CASTING TOLERANCES:
1. Overall Height & Width: +/- ¼"
2. Thickness: +/- ¼"
3. Plane of side mold: +/- 1/16"
4. Openings: +/- ½"
5. Out of Square: ⅛" per 6 ft., but not more than ⅜" total along any side
6. Warping: 1/16" per foot distance to nearest corner
7. Bowing: 1/240 panel dimension
8. Surface Smoothness for Type "A" (Smooth) Surface Texture Option: +/- 1/16" along a 10 ft. straightedge.

J. SOUND BARRIER WALL NOTES:
1. Distance between piles shall be a maximum of 20 ft. from centerline to centerline. This Index allows for either 10 or 20 ft. post spacing. The typical panel system depicted is based on 20 ft. post spacing.
2. Walls greater than 12 ft. in height shall consist of 2 or 3 stacked panels (upper and lower), each less than 12 ft. in height. The height of the upper panel shall be a minimum 8 ft. or greater as necessary to accomodate any graphics (if applicable). The lower panel(s) shall be a minimum of 4 ft. in height. Walls equal to or less than 12 ft. in height shall consist of either a single panel or 2 stacked panels with the upper panel sized to accomodate graphics (if applicable).
3. Horizontal panel joints shall be located outside of the graphics (if applicable). Horizontal panel joints shall be held at a constant elevation for a given wall, where possible.
4. Posts shall be "H" type cross-section with panels installed from above.
5. Shimming of wall panels above the pile collar, beneath the bearing pads is permitted up to a maximum of 1½" height. Shims must be either stainless steel (Type 304 or 316) or engineered polymer (copolymer or multipolymer) plastic. Plastic shims must have a minimum compressive strength of 8,000 psi without any fractures. Stacking of shims is permitted as follows:
   a. For shimming height of 1" or less, provide up to 4 ~ ¼" shims;
   b. For shimming heights greater than 1", use a minimum ¾" thick single shim and up to 3 ~ ¼" shims.
   Stacked shim plates must be bonded together with a compatible epoxy adhesive.

K. COST SAVINGS INITIATIVE PROPOSAL (CSIP) OR CONTRACTOR REDESIGN:
1. In no case will CSIP or Contractor Redesigns be allowed for concrete sound barriers.

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LAST REVISION	REVISION	DESCRIPTION:				
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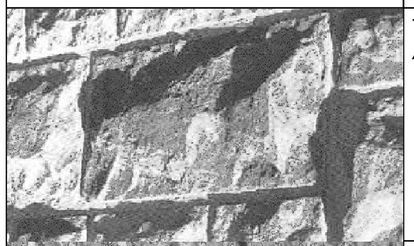
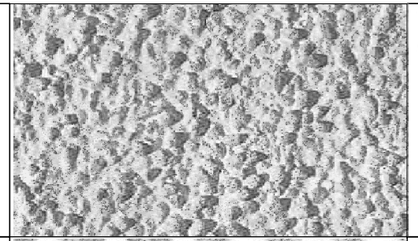
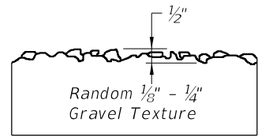


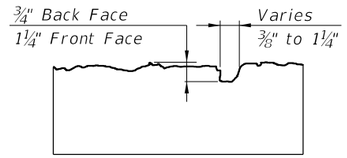
Type "A"
SMOOTH

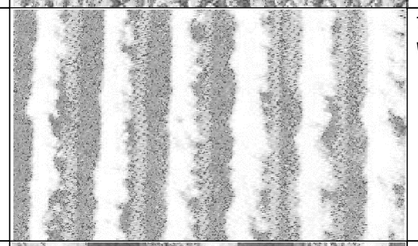


Type "F"
PEA GRAVEL

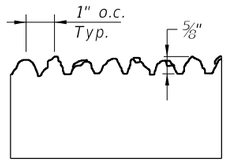


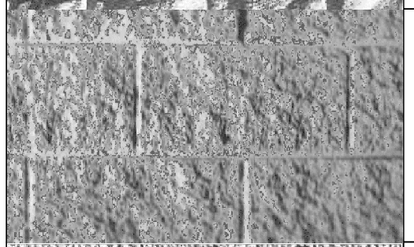
Type "B"
ASHLAR STONE



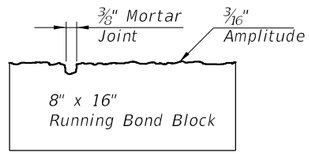


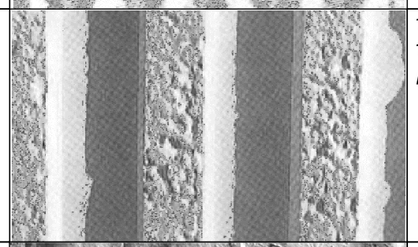
Type "G"
VERTICAL FRACTURED FIN



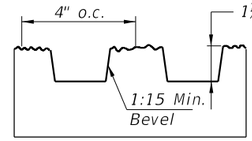


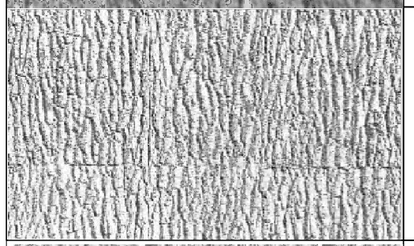
Type "C"
SPLIT FACE RUNNING BOND BLOCK



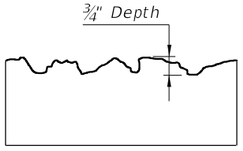


Type "H"
TRAPEZOID VERTICAL FINS W/ FRACTURED FACE (COLORADO DRAG AGGREGATE)

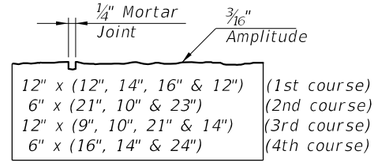


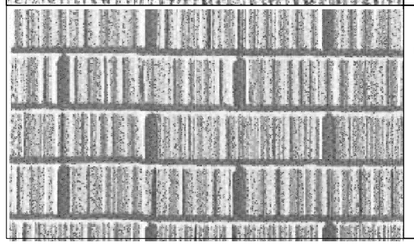


Type "D"
FRACTURED GRANITE

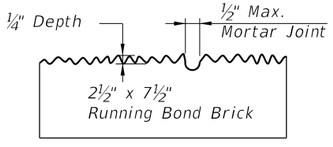


Type "I"
CUT CORAL BLOCK (RUNNING BOND)





Type "E"
WIRE-CUT BRICK



NOTES:

1. Surfaces shall be formed, rolled, or pressed using form liners in accordance with the Plans and Specifications (Class 3 Surface Finish).

2. See Sound Barrier Data Tables for project aesthetic requirements.

TEXTURE OPTIONS

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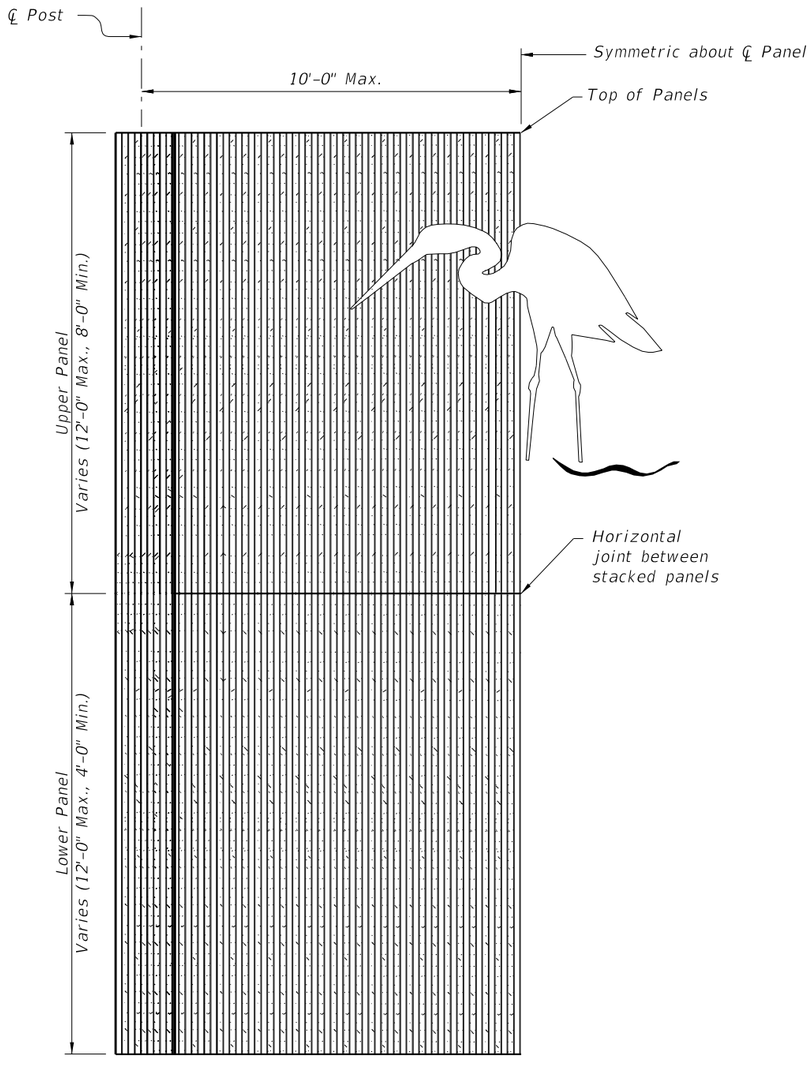
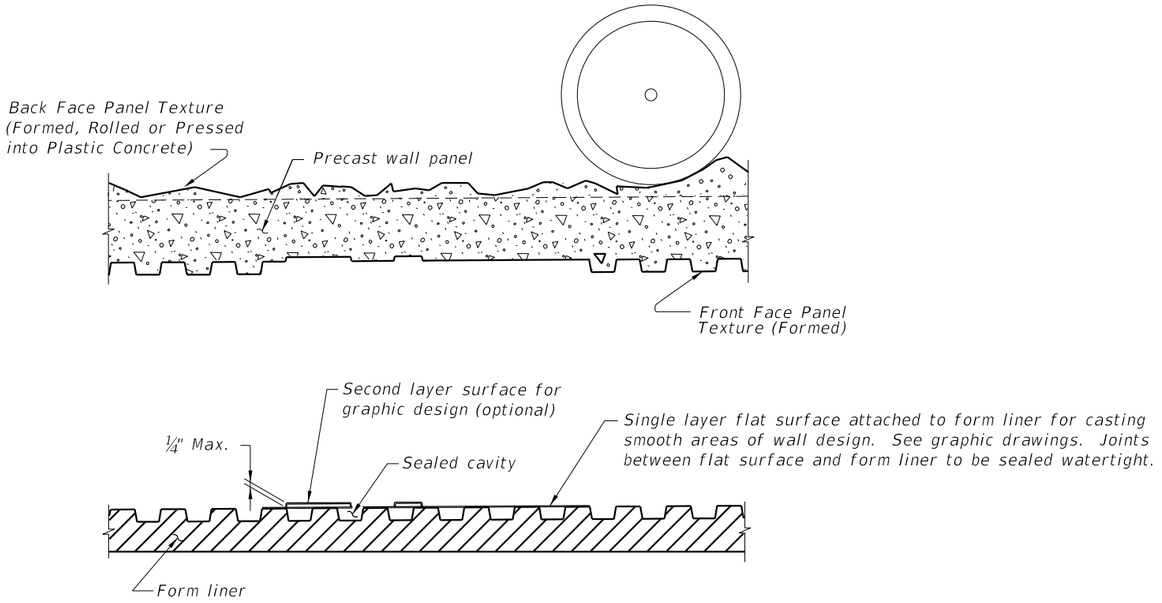
01/01/12			FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	5200	2



HALF ELEVATION
(Front Face Panel Texture Type "H" and Front Face Post Texture Type "H" Shown.)
(Graphic Type SE-2 Shown.)
(Two stacked panels shown, 3 stacked panels similar)

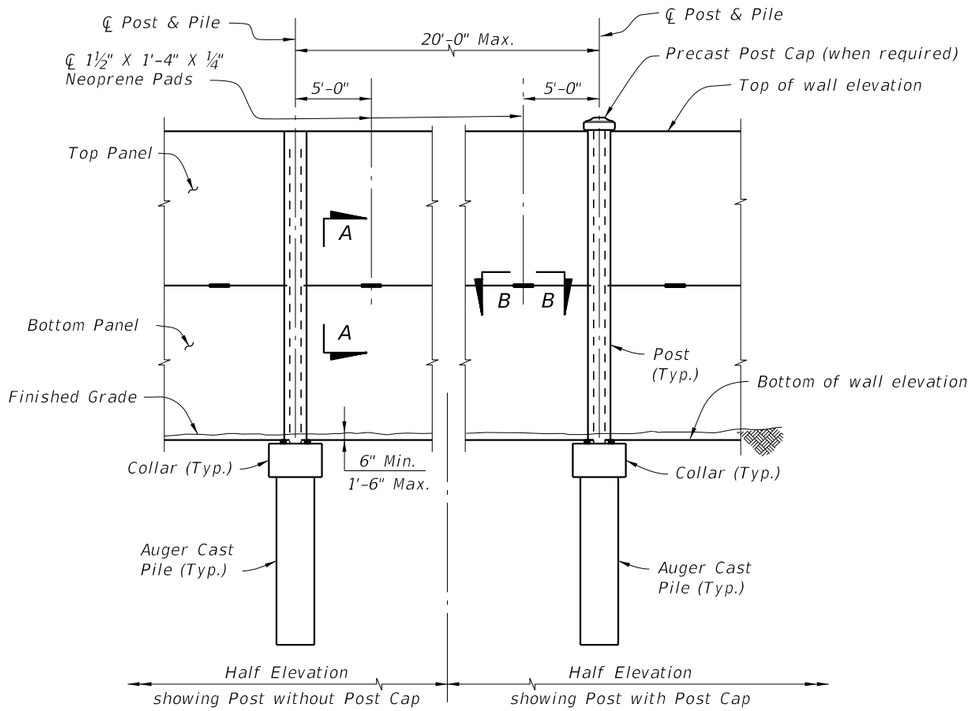


TYPICAL FORMING DETAIL
(Front Face Panel Texture Type "H" shown)
(Back Face Panel Texture Type "D" shown)

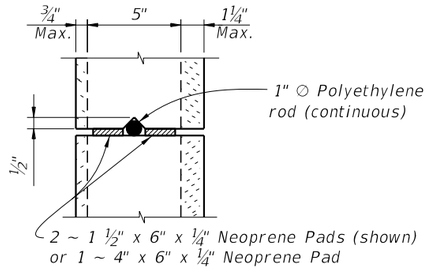
NOTES:

1. Contractor shall submit specific form liner samples for approval by the Engineer.
2. Textures and graphics shown are for demonstration purposes only. See Sound Barrier Data Tables for project specific texture and graphic requirements.

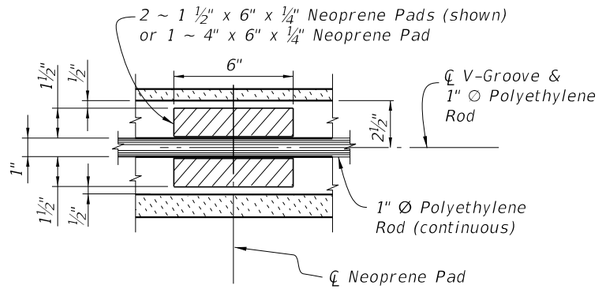
GRAPHICS & TEXTURE DETAILS



TYPICAL ELEVATION



SECTION A-A



SECTION B-B

TYPICAL DETAILS

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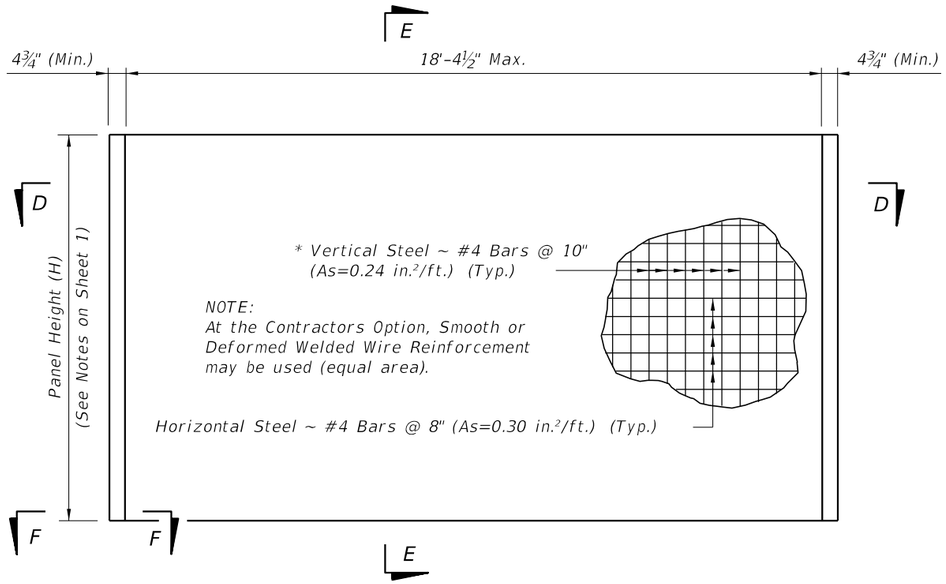
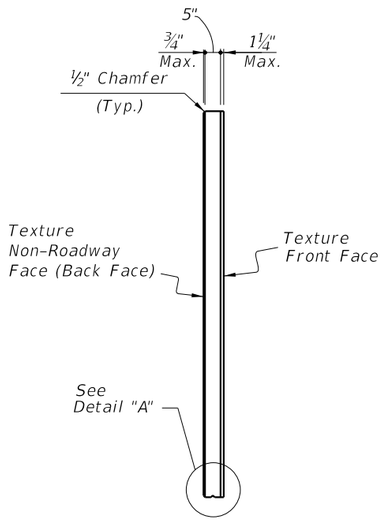
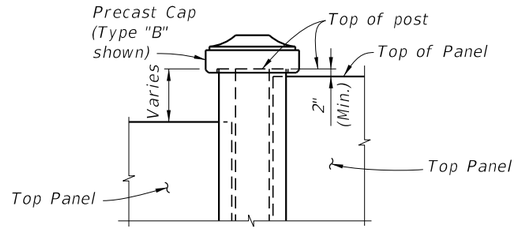


TYPICAL PANEL ELEVATION

* In lieu of utilizing the pick up points below, panels may be cast vertically or cast horizontally then tilted upright using tilt-tables prior to lifting from form. In this case, the vertical steel may be reduced to #4 Bars @ 1'-3" (As=0.15 in.²/ft.).

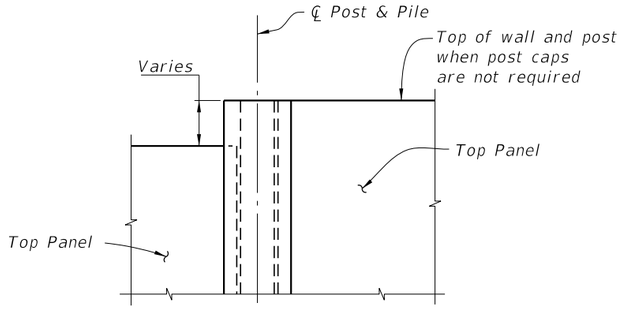


SECTION E-E

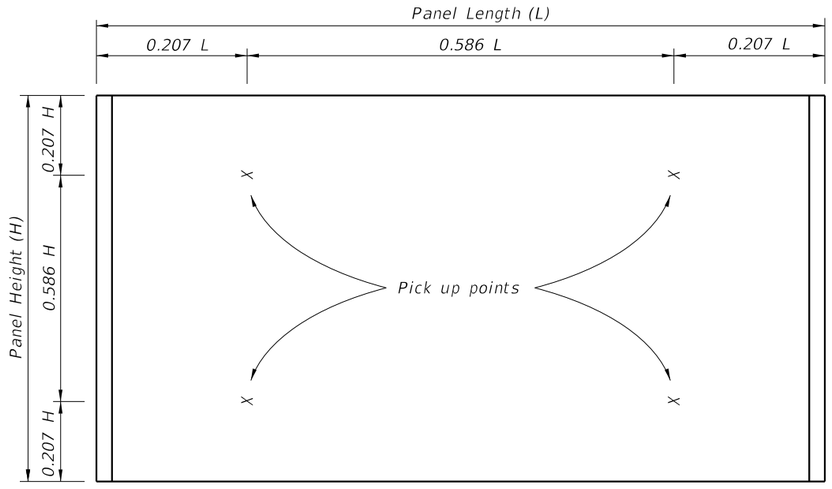


PRECAST POST CAP DETAIL

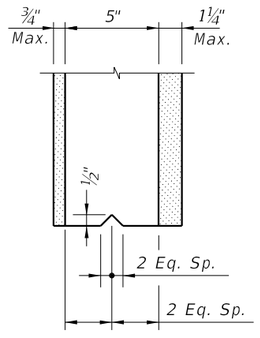
NOTE: See plans for Post Cap requirements.
See Sheet 13 for Post Cap details.



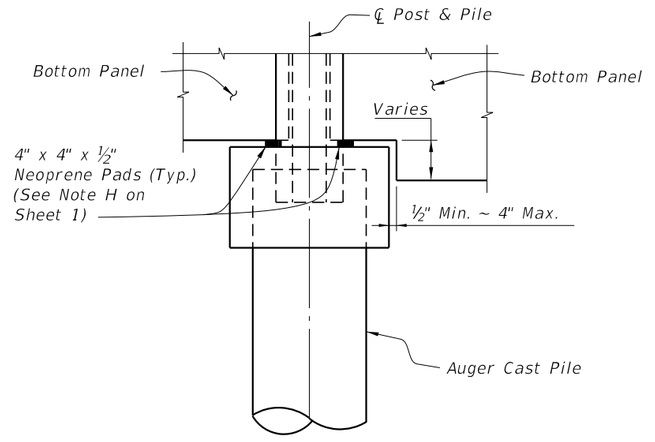
ELEVATION STEP AT TOP OF WALL



REQUIRED PICK UP POINTS FOR PANELS
(Panels shall be rotated about long axis only)



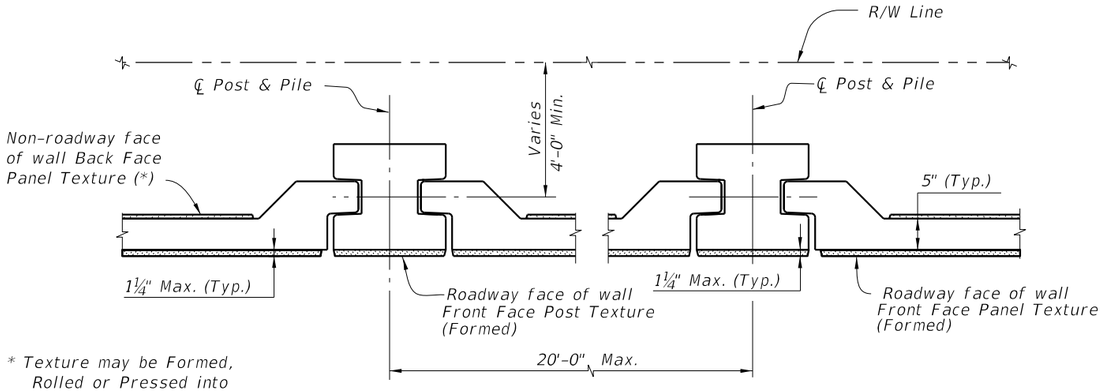
DETAIL "A"



ELEVATION STEP AT BOTTOM OF WALL

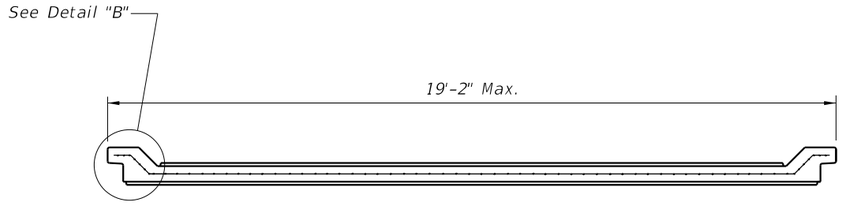
TYPICAL PANEL DETAILS

LAST REVISION	REVISION	DESCRIPTION:		FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	INDEX NO.	SHEET NO.
01/01/11						5200	5

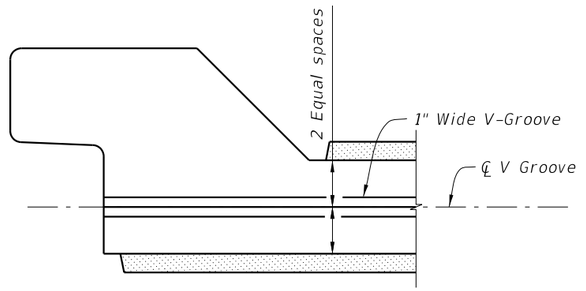


* Texture may be Formed, Rolled or Pressed into Plastic Concrete.

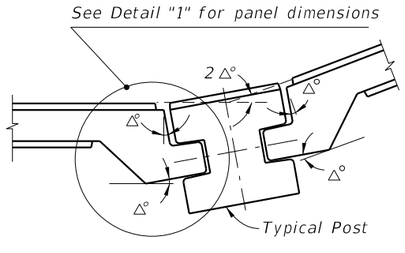
PLAN



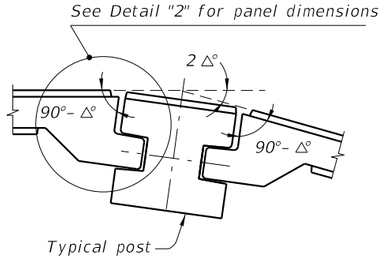
SECTION D-D



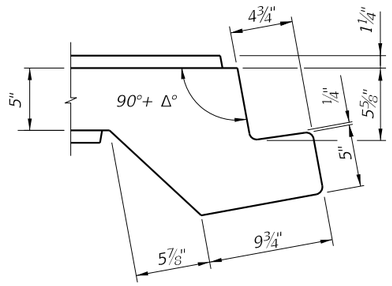
SECTION F-F



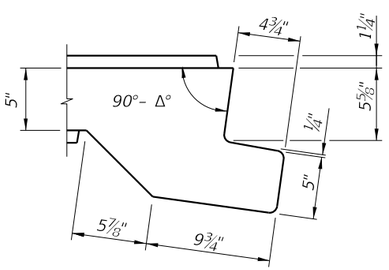
CASE 1
(Interior Angle)



CASE 2
(Exterior Angle)



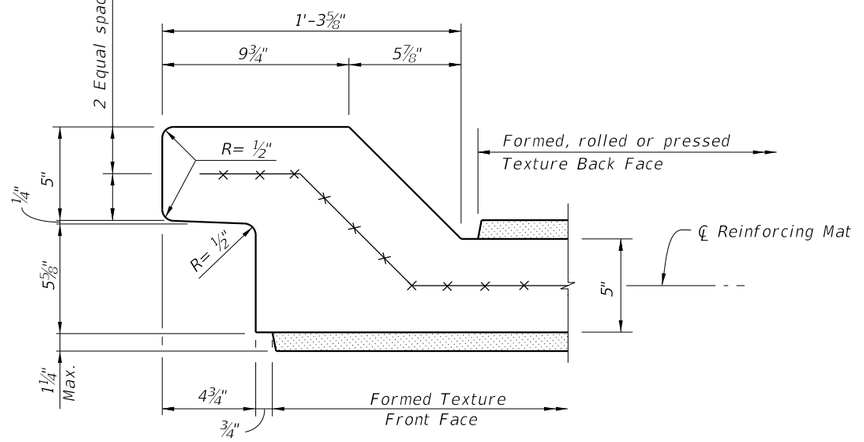
DETAIL "1"



DETAIL "2"

PIVOTING POINT DETAILS

NOTE: The shop drawings shall include specific pivoting point details of panel ends at locations where the deflection angle (2Δ) between panels exceeds 7°.



DETAIL "B"
(Typical both ends)

FLUSH PANEL END DETAILS

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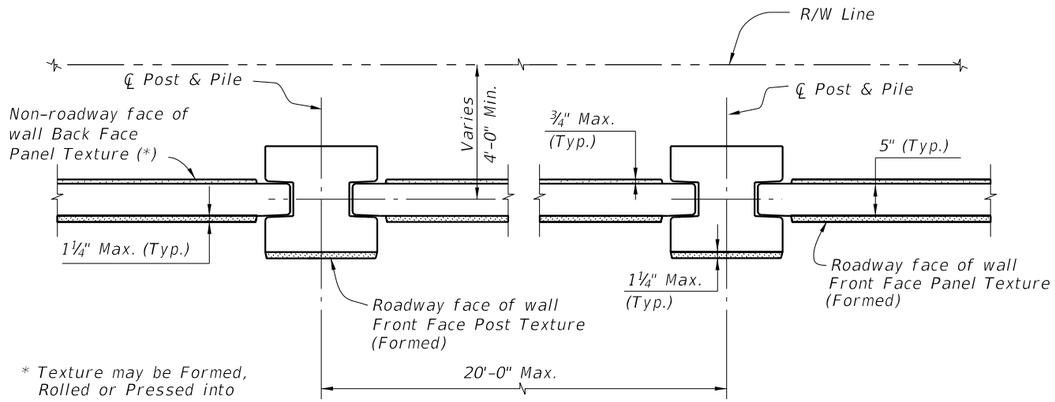
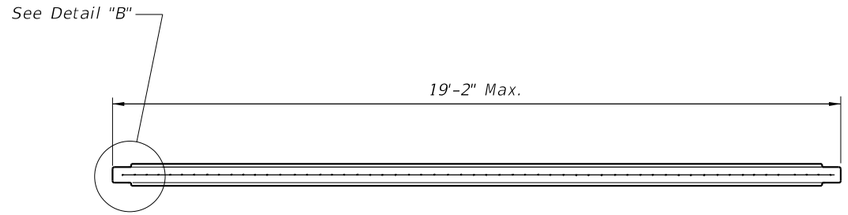
01/01/11						5200	6

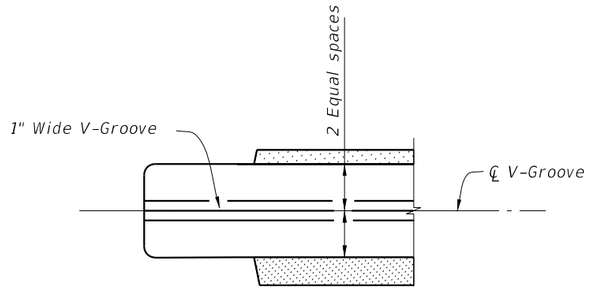


* Texture may be Formed, Rolled or Pressed into Plastic Concrete.

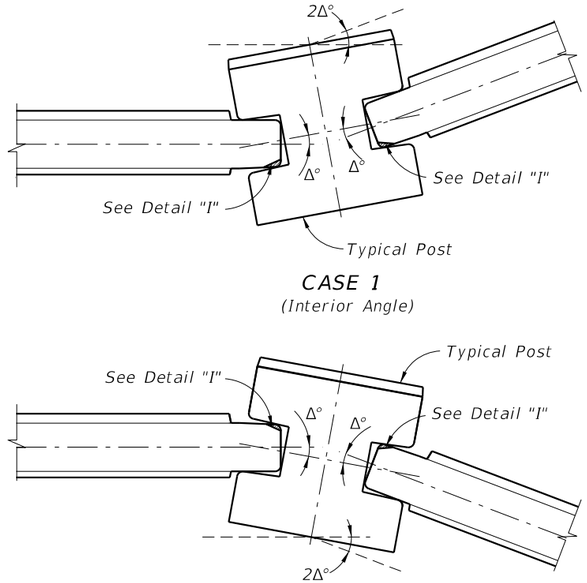
PLAN



SECTION D-D

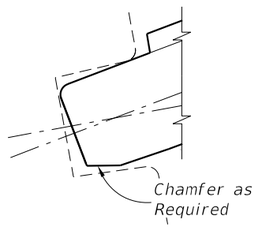


SECTION F-F



CASE 1
(Interior Angle)

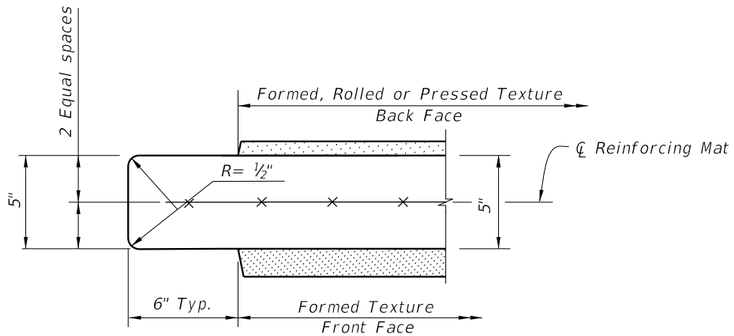
CASE 2
(Exterior Angle)



DETAIL "I"
(Back Face Chamfer Shown
Front Face Chamfer Similar)

NOTE:
The shop drawings shall include specific pivoting point details of panel ends at locations where the deflection angle (2Δ°) between panels exceeds 20°.

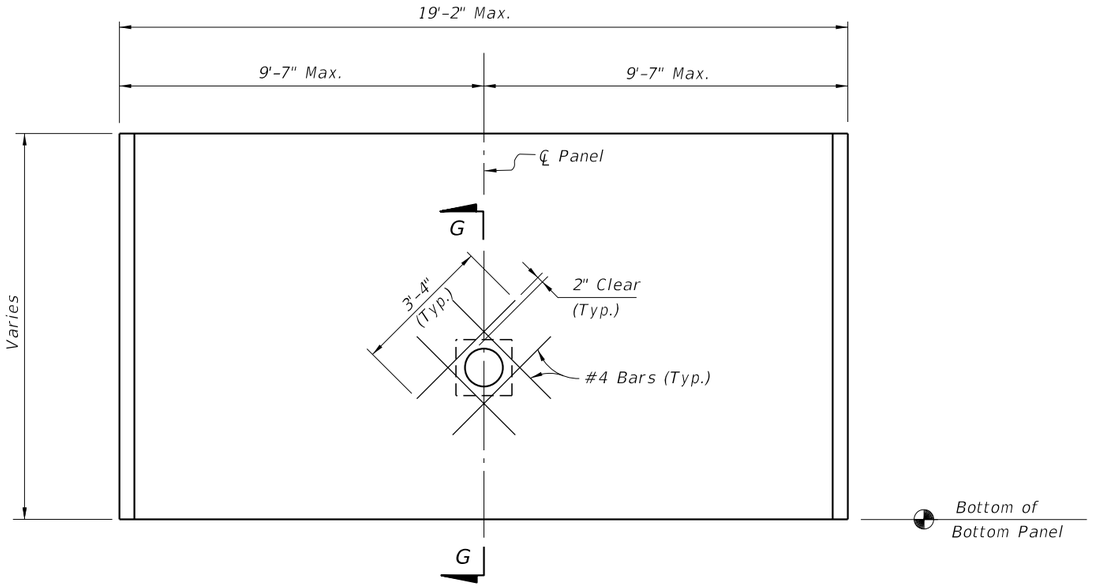
PIVOTING POINT DETAILS



DETAIL "B"
(Typical both ends)

RECESSED PANEL END DETAILS

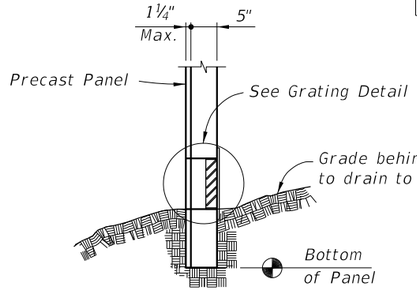
LAST REVISION	REVISION	DESCRIPTION:				
01/01/11			FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	INDEX NO. 5200	SHEET NO. 7



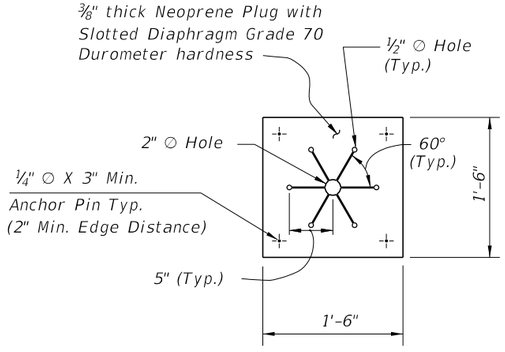
FIRE HOSE ACCESS HOLE TYPICAL DETAIL
(Front Face of Wall Shown)
(Flush Panel Option Shown
Recessed Panel Option Similar)

NOTE: Fire Hose Access Point to be located at or near fire hydrants

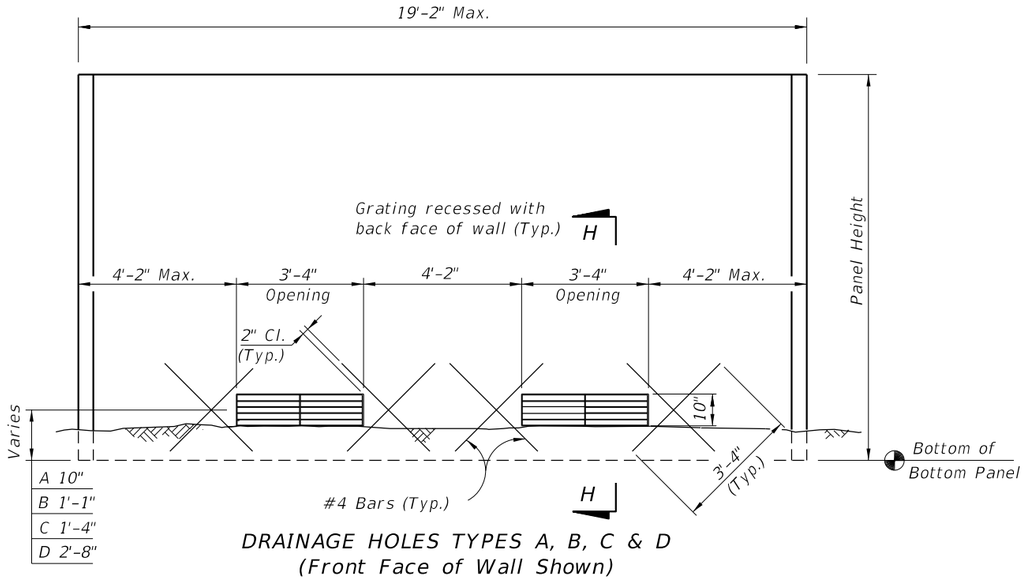
SECTION G-G
(Flush Panel Option Shown
Recessed Panel Option Similar)



SECTION H-H
(Flush Panel Option Shown
Recessed Panel Option Similar)

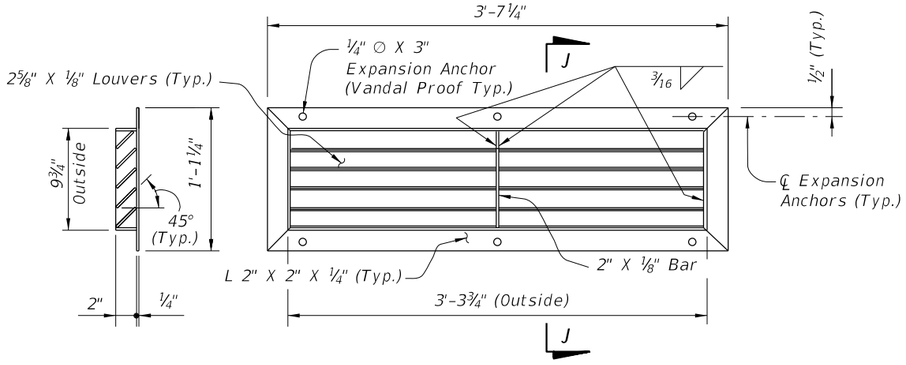


PLUG DETAIL



DRAINAGE HOLES TYPES A, B, C & D
(Front Face of Wall Shown)
(Flush Panel Option Shown
Recessed Panel Option Similar)

NOTE: Hole Types A, B, C and D refer to distance from bottom of panel to center of opening. See Wall Control Drawings.



SECTION J-J

GRATING DETAIL

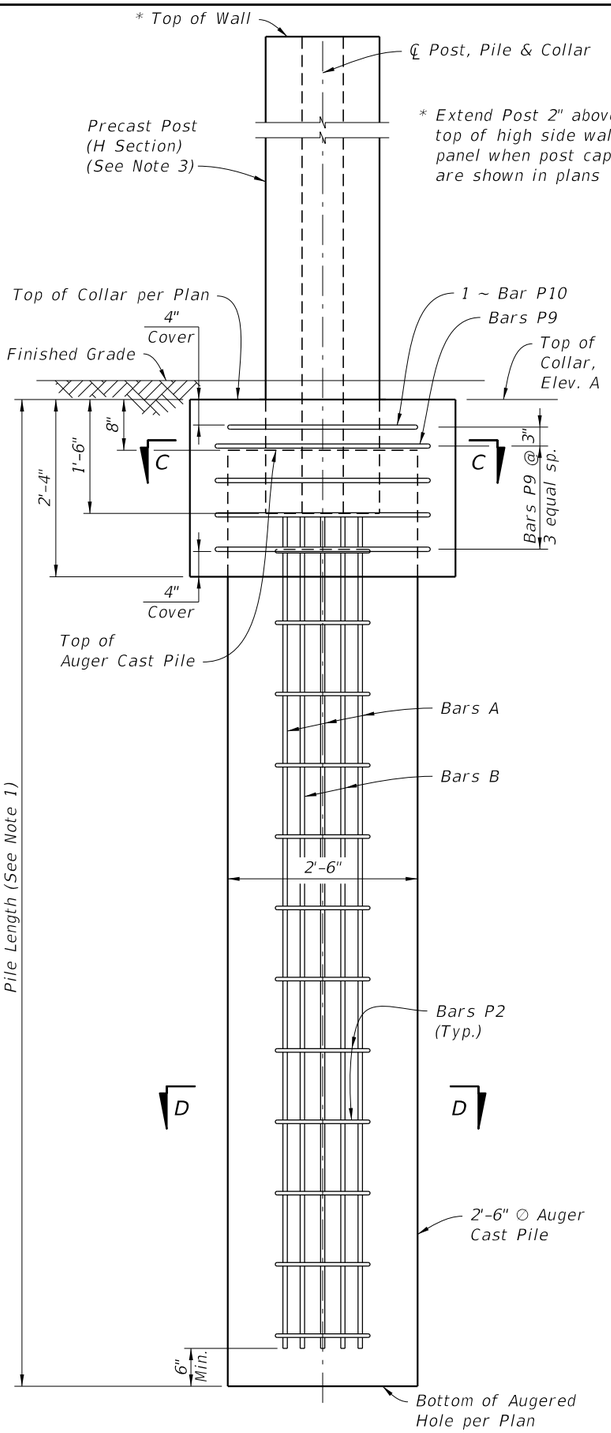
NOTES:
Grating shall be ASTM A 36 steel and shall be hot dip galvanized after assembly in accordance with ASTM Specification A 123.

Expansion anchors shall be in accordance with ASTM A 307 (Galvanized).

Welding shall be in accordance with the current edition of the ANSI/AWS D1.1 Welding Code.

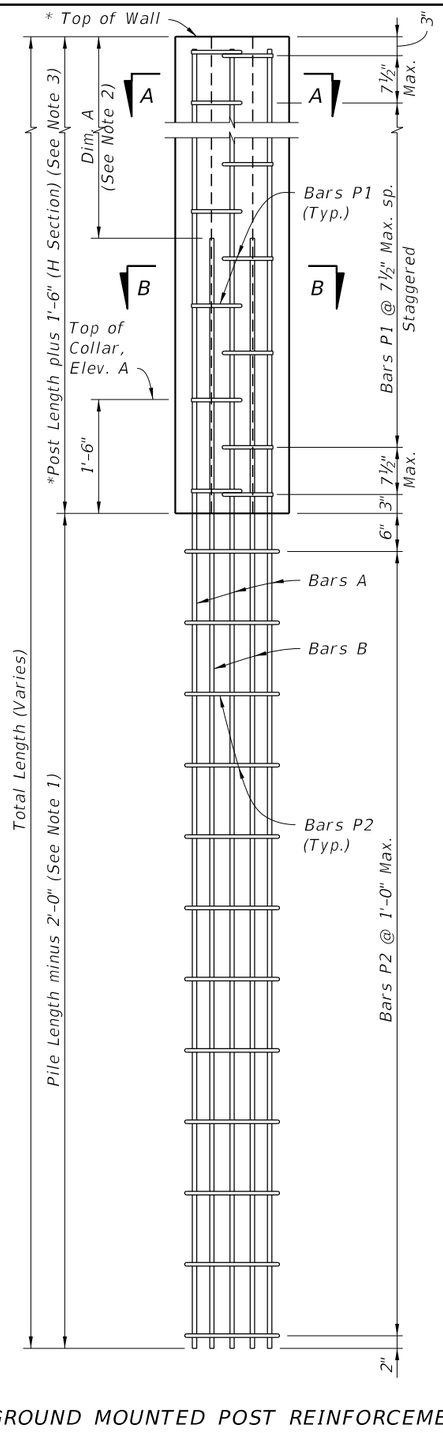
FIRE HOSE ACCESS HOLE & DRAINAGE DETAILS

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	INDEX NO.	SHEET NO.
01/01/11					5200	8



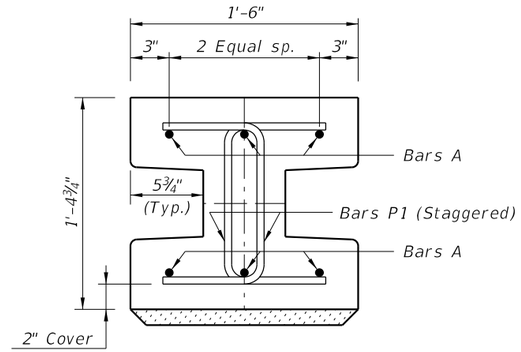
POST IN AUGERED HOLE

(Standard 'H' Post Shown, 45° & 90° Corner Posts Similar)



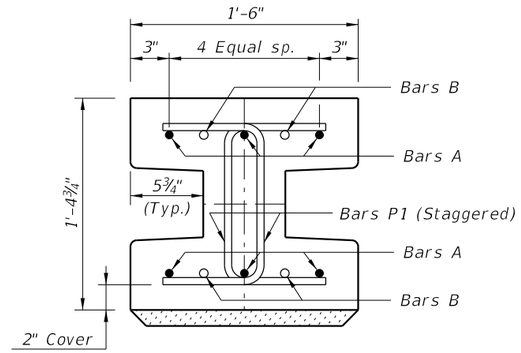
GROUND MOUNTED POST REINFORCEMENT

(Prior to placement in augered hole)



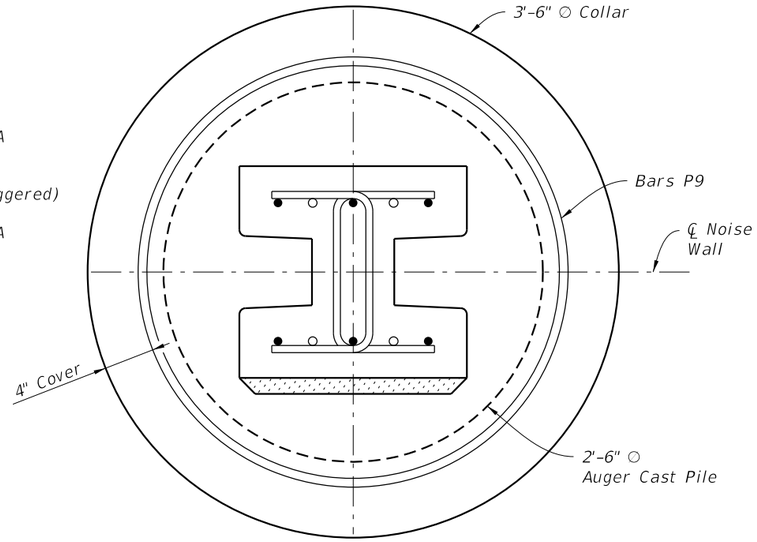
SECTION A-A

(H Section)

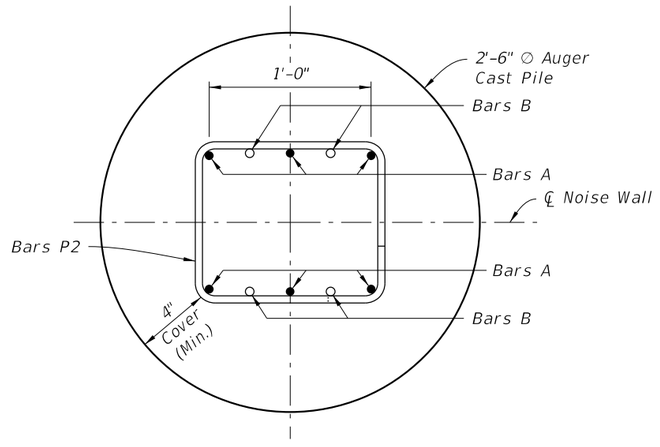


SECTION B-B

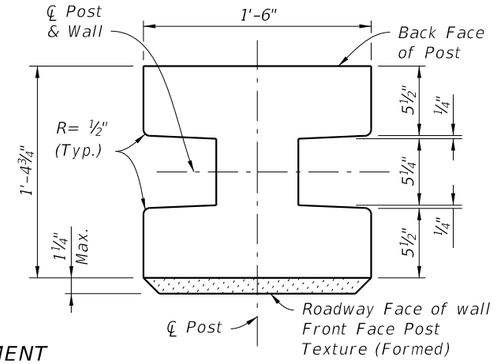
(H Section)



SECTION C-C



SECTION D-D



TYPICAL POST SECTION

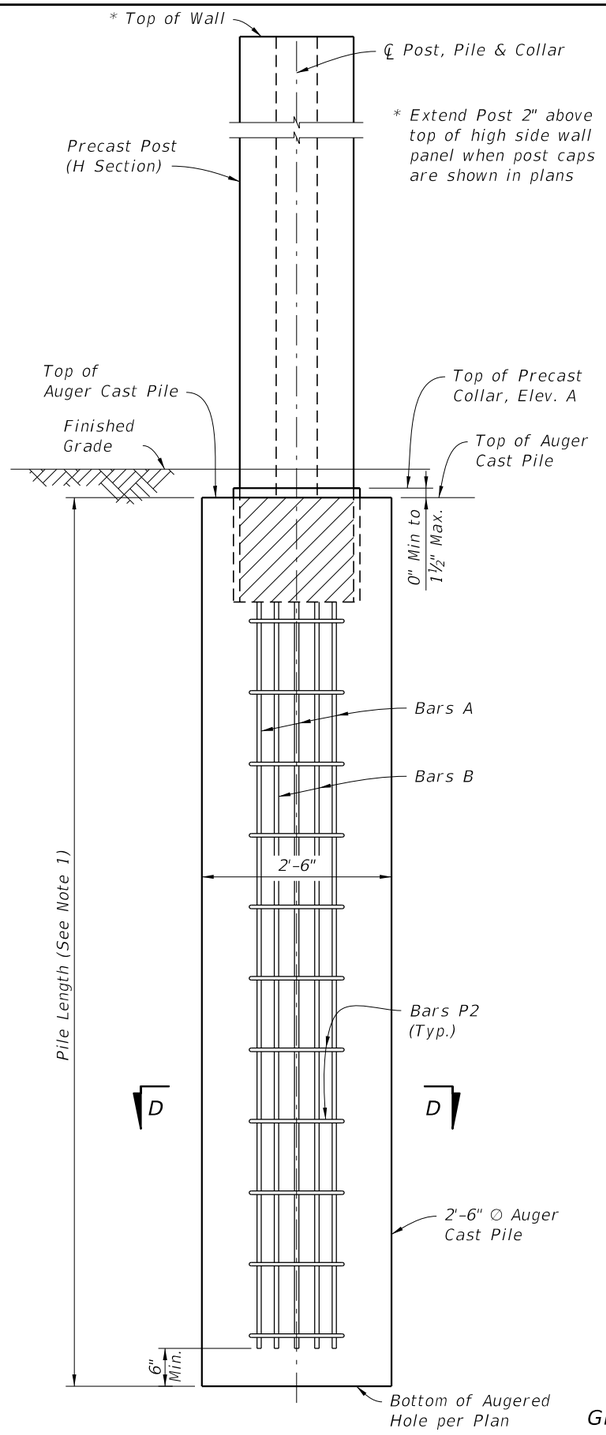
(H Section)

NOTES:

1. For Table of Reinforcing Steel Sizes and Post & Pile Lengths, see Sheet Nos. 15 & 16.
2. For Dim. A, see Sheet Nos. 15 & 16.
3. For Precast Collar Option, see Sheet No. 10.

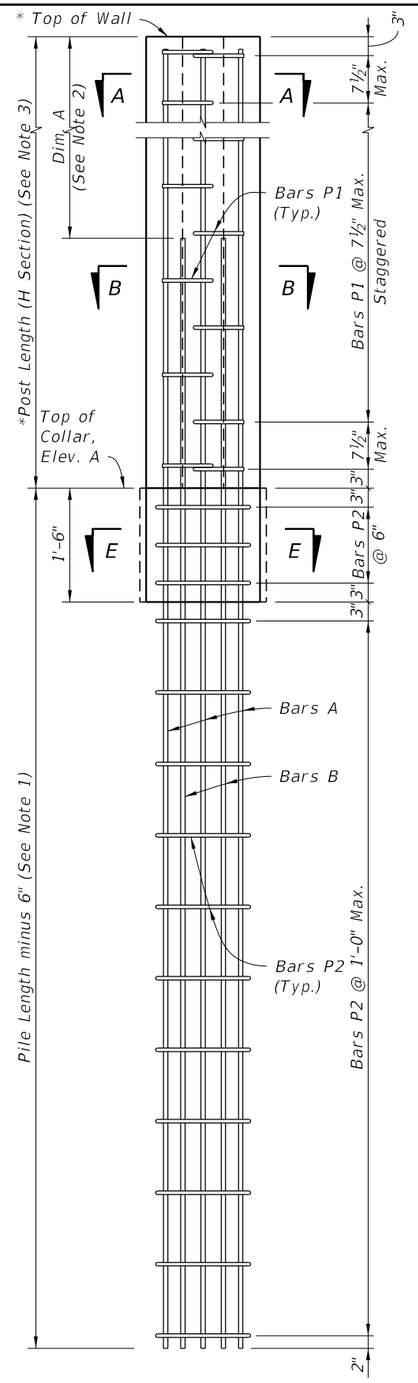
PILE & POST REINFORCING STEEL (CAST-IN-PLACE COLLAR OPTION)

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
01/01/12			FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	5200	9



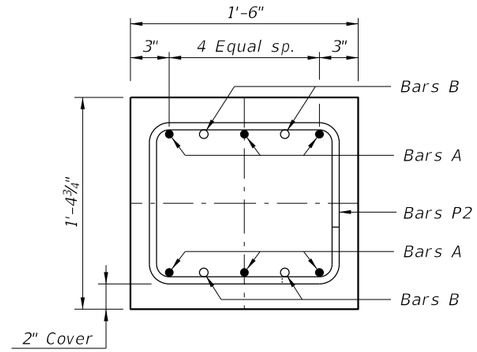
PRECAST COLLAR IN AUGER CAST PILE

(Standard 'H' Post Shown, 45° & 90° Corner Posts Similar)



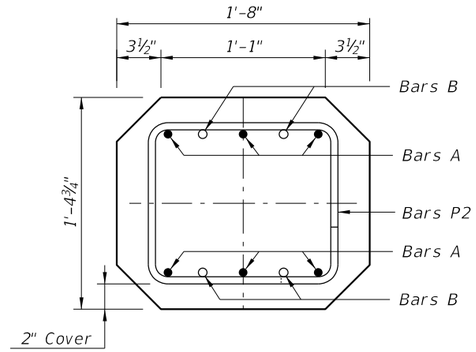
GROUND MOUNTED POST REINFORCEMENT

(Prior to placement in augered hole)



SECTION E-E

(Rectangular Precast Collar)



SECTION E-E

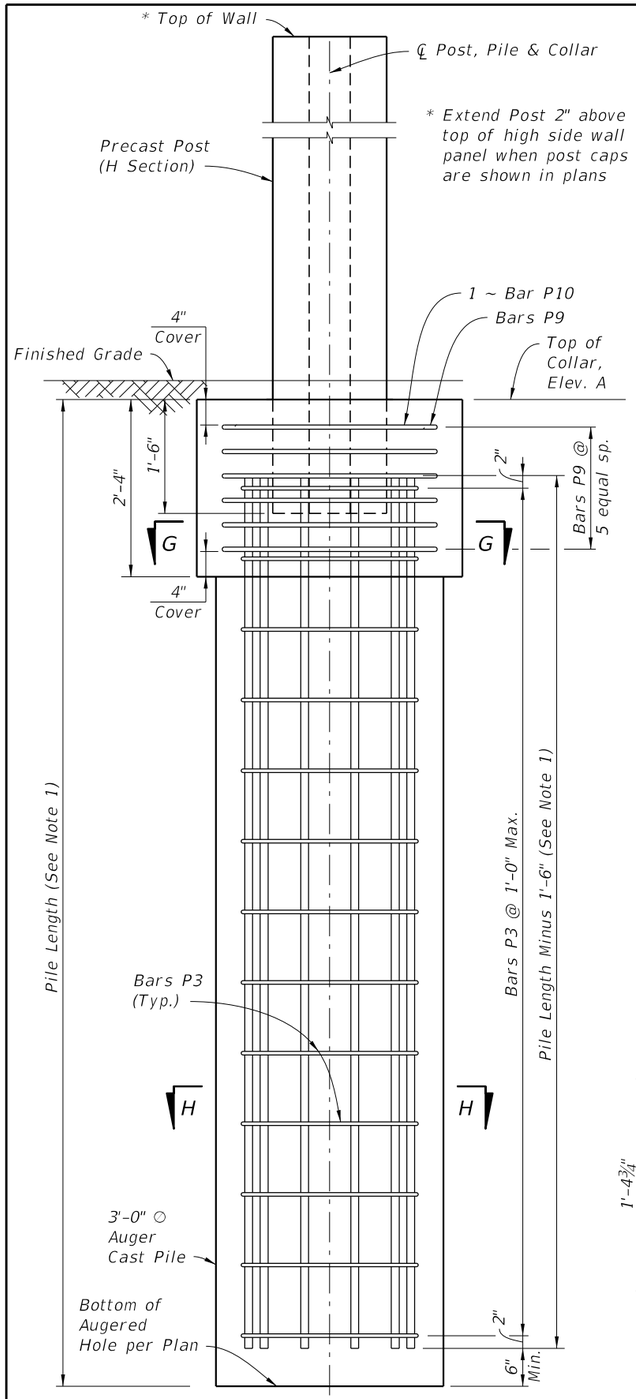
(Octagonal Precast Collar)

NOTES:

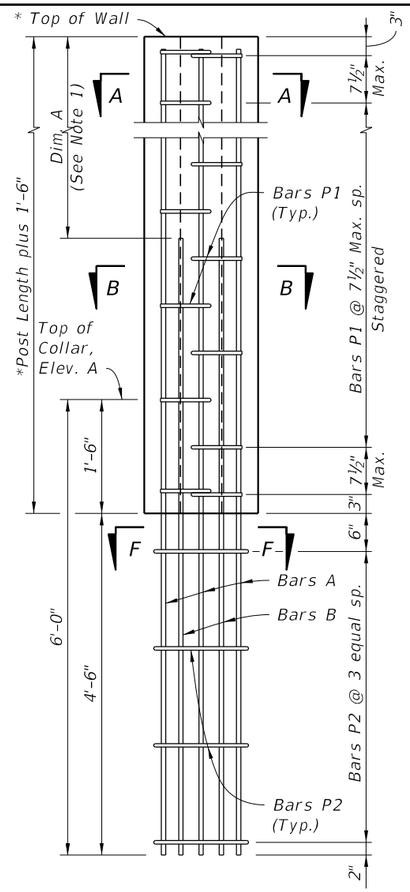
1. For Table of Reinforcing Steel Sizes and Post & Pile Lengths, see Sheet Nos. 15 & 16.
2. For Dim A, see Sheet Nos. 15 & 16.
3. For Sections A-A, B-B & D-D see Sheet No. 9.

PILE & POST REINFORCING STEEL (PRECAST COLLAR OPTION)

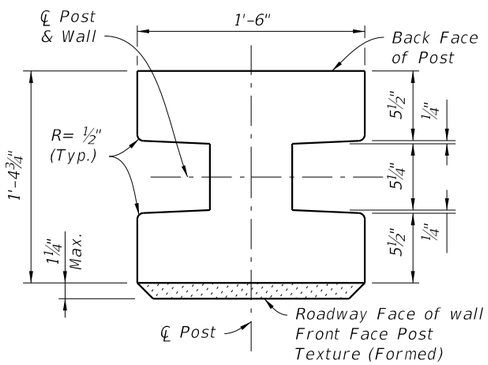
LAST REVISION	REVISION	DESCRIPTION:				
01/01/12			FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	INDEX NO. 5200	SHEET NO. 10



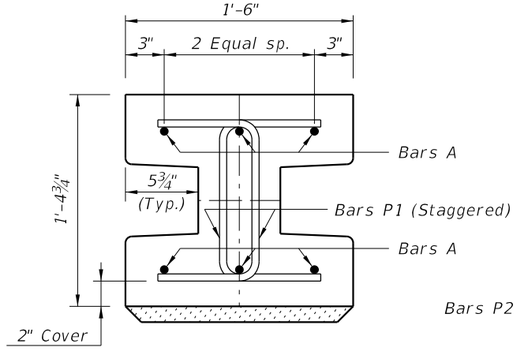
POST IN AUGERED HOLE
(Post reinforcing steel not shown for clarity)
(Standard 'H' Post Shown, 45° & 90° Corner Posts Similar)



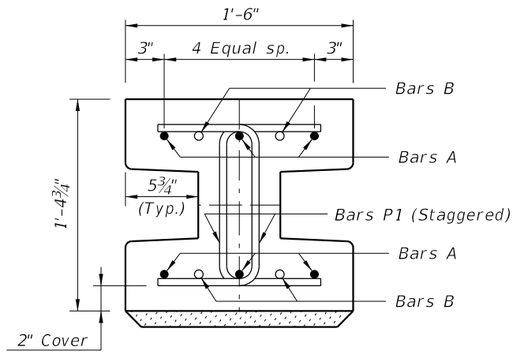
POST REINFORCEMENT
(Prior to placement in augered pile)



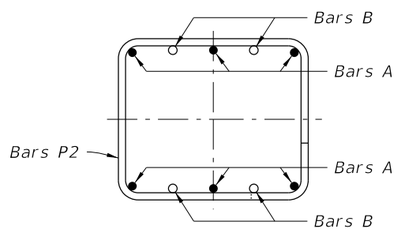
TYPICAL POST SECTION
(H Section)



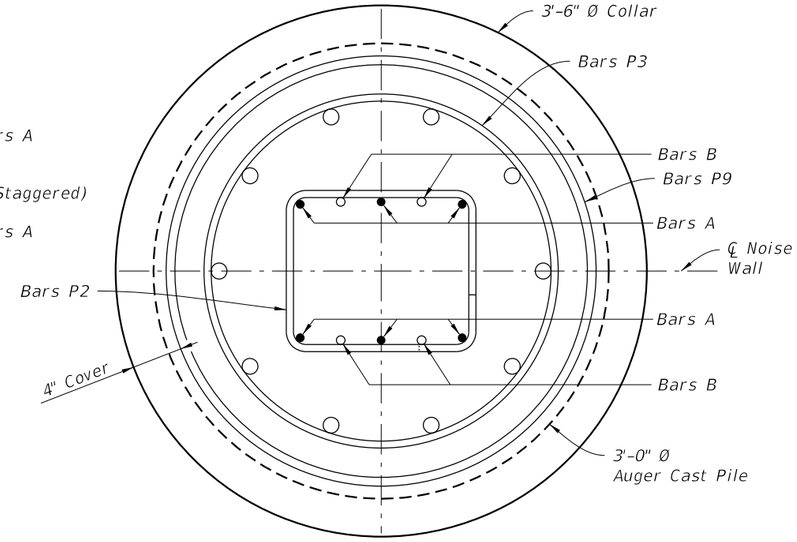
SECTION A-A
(H Section)



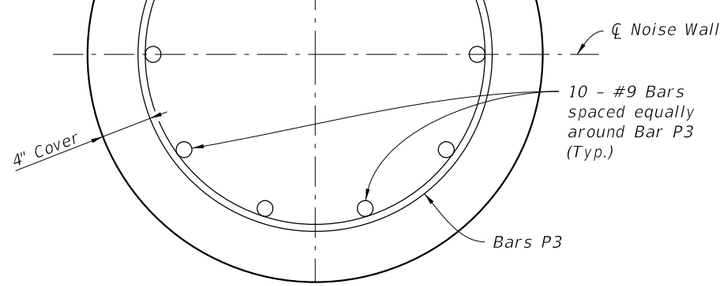
SECTION B-B
(H Section)



SECTION F-F
(Modified H Section)



SECTION G-G



SECTION H-H

NOTES:
1. For Post and Pile Lengths, Table of Reinforcing Steel, and Dim. A see Sheet 15 or 16.

2. For Precast Collar Option see Sheet 12.

C-I-P COLLAR FOR PILE/POST CONNECTION: LOW CLEARANCE OPTION

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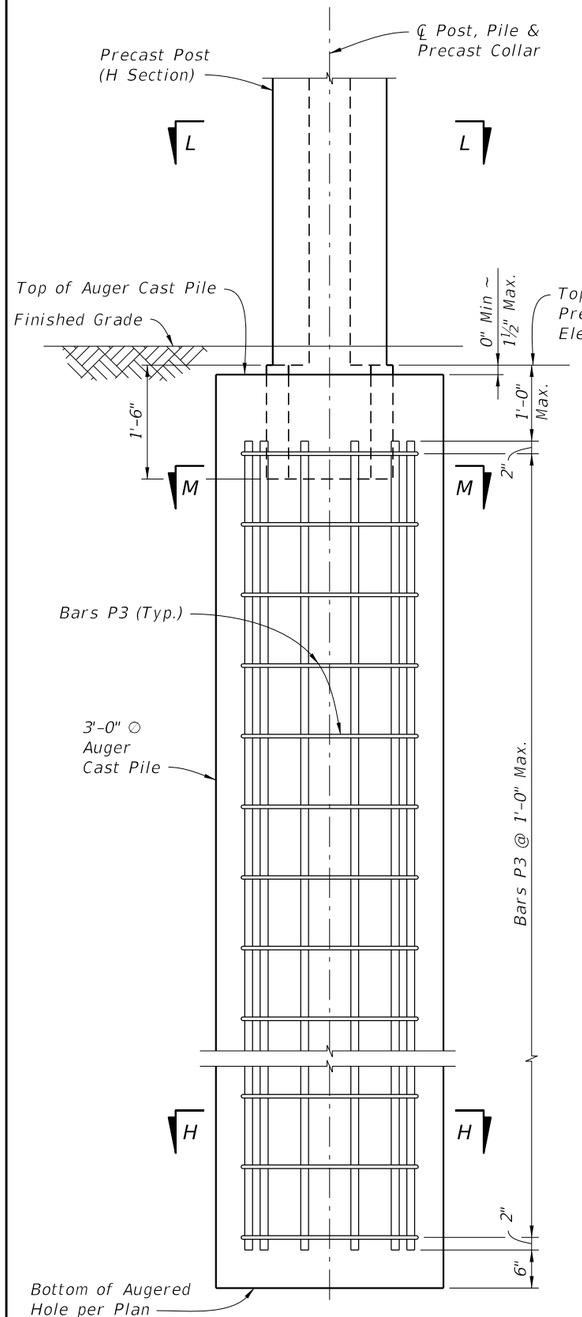
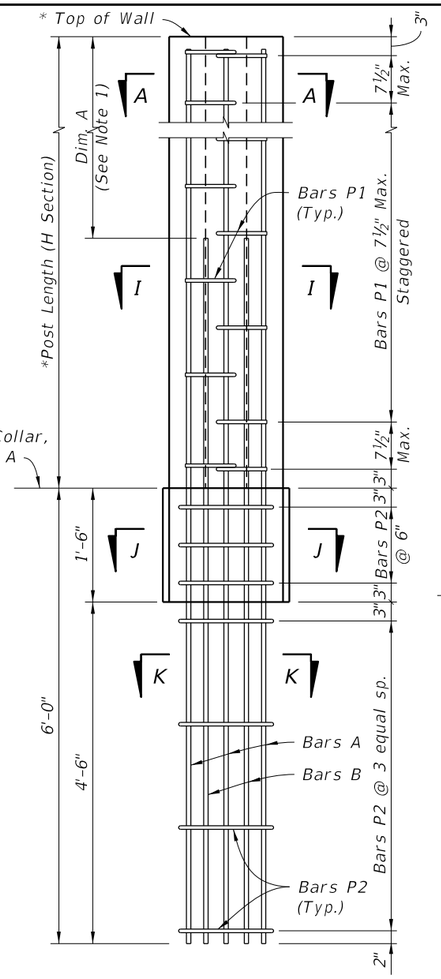
LAST REVISION	REVISION	DESCRIPTION:				
01/01/12			FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	INDEX NO. 5200	SHEET NO. 11



PRECAST COLLAR IN AUGER CAST PILE
(Collar and Post reinforcing steel not shown)



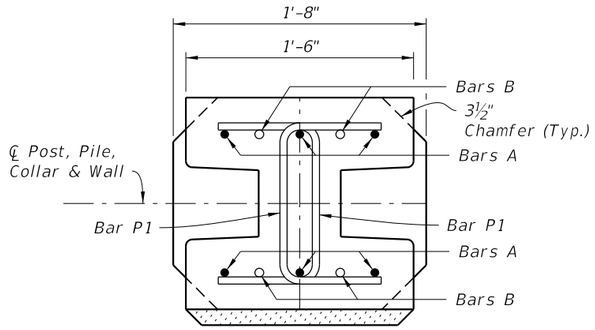
PRECAST COLLAR AND POST REINFORCEMENT
(Prior to placement in augered pile)

NOTES:

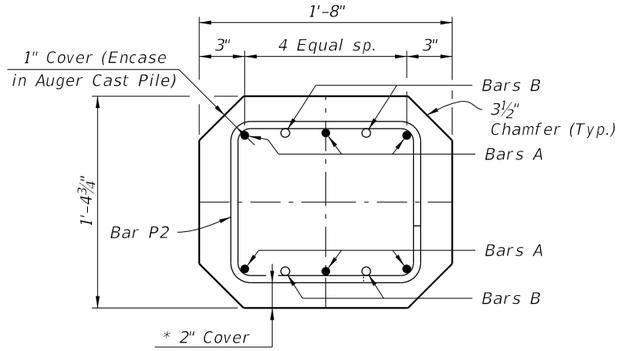
1. For Post and Pile Lengths, Table of Reinforcing Steel and Dim. A see Sheet 15 or 16.

2. For C-I-P Collar Option and Section H-H, see Sheet 11.

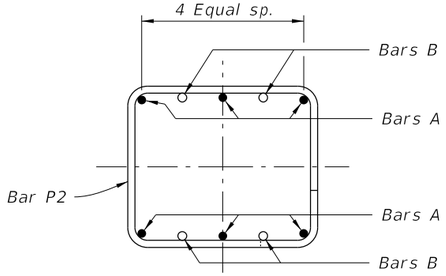
* Extend Post 2" above top of high side wall panel when post caps are shown in plans.



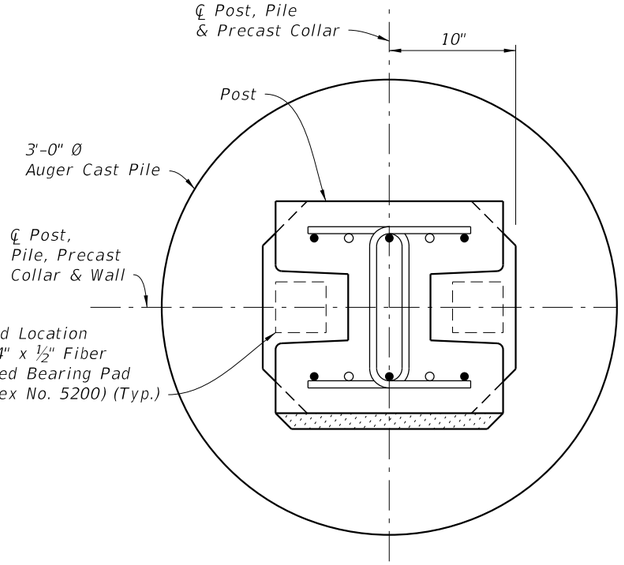
SECTION I-I



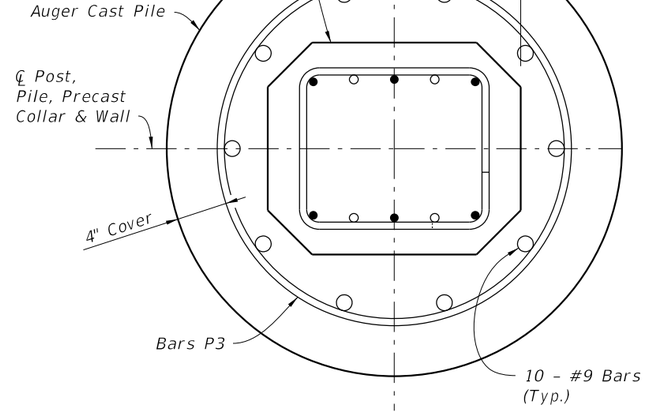
SECTION J-J



SECTION K-K



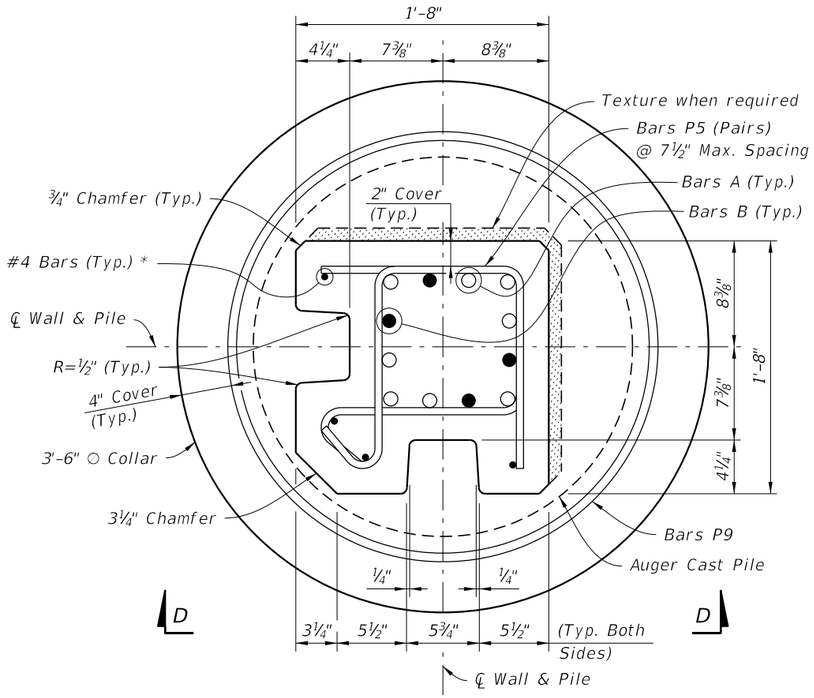
SECTION L-L



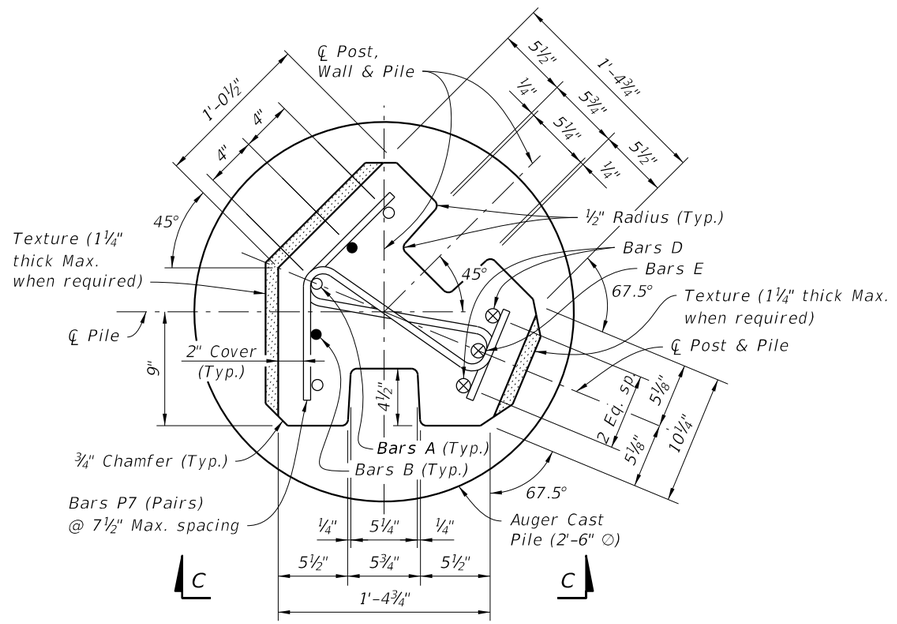
SECTION M-M

PRECAST COLLAR FOR PILE/POST CONNECTION: LOW CLEARANCE OPTION

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
01/01/12			FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	5200	12



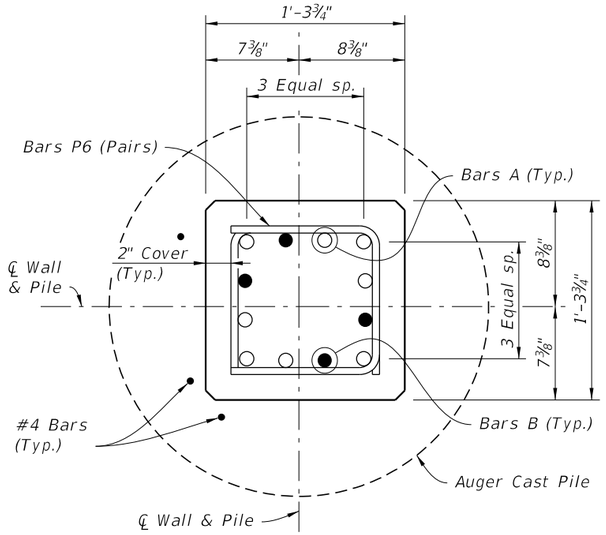
SECTION A-A
TYPICAL SECTION ABOVE PILE



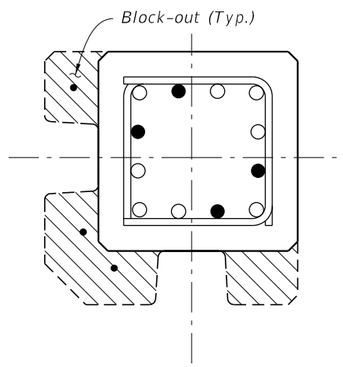
SECTION A-A
TYPICAL SECTION ABOVE PILE

NOTES:

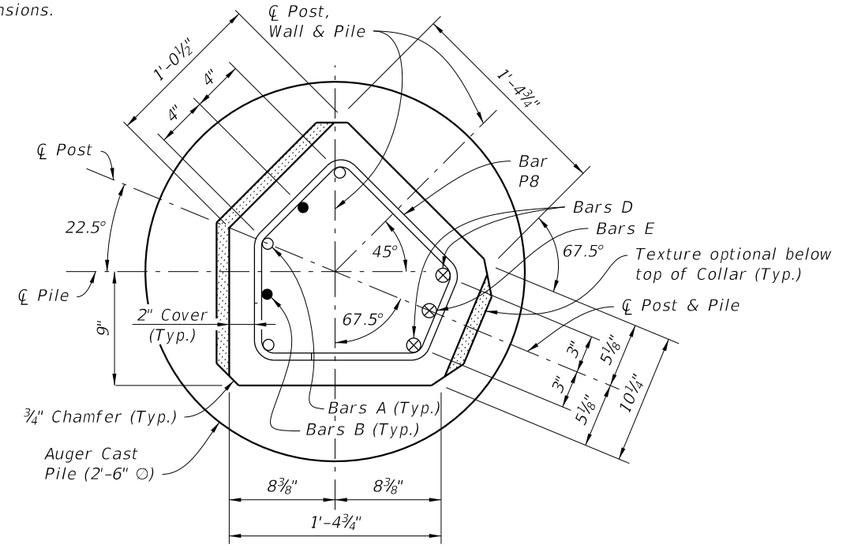
1. *Use 3'-6" CIP Collar for all 90° corner posts, Bars P10 not required for 90° corner pile collar.*
2. *For Post & Pile Lengths, see Sheet Nos. 15 & 16.*
3. *For Table of Reinforcing Steel, see Sheet Nos. 15 & 16.*
4. *Reduce standard panel length or adjust post spacing by 3½" at each 90° Corner Post to accommodate the Special Post dimensions.*



SECTION B-B
(Modified Base Section)



SECTION C-C
(Showing 1'-0" Block-out)



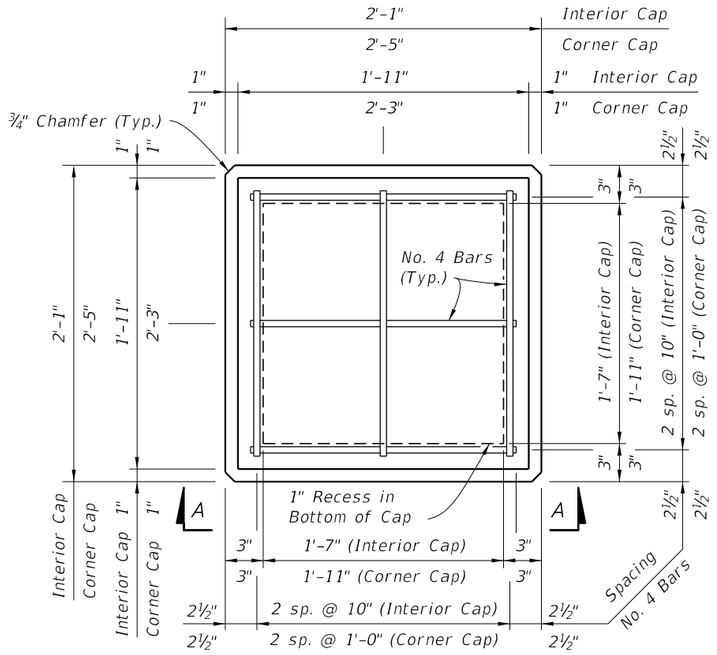
SECTION B-B
PRECAST COLLAR SECTION

90° CORNER POST

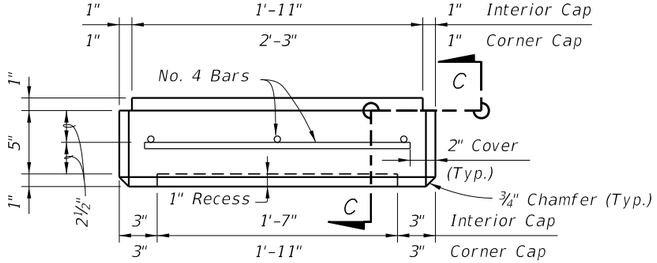
45° CORNER POST

SPECIAL CORNER POSTS

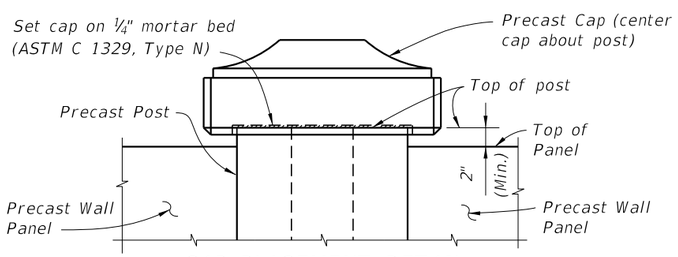
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
01/01/12			FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	5200	13



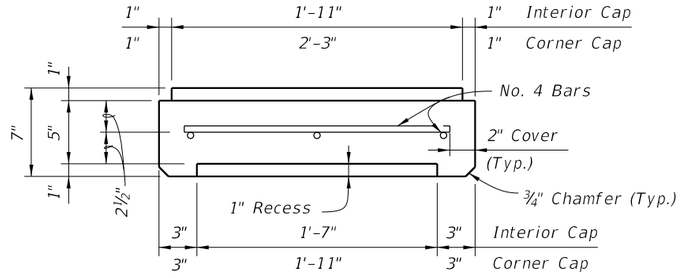
PLAN VIEW
(Type "A" Cap Shown, Type "B" & "C" Caps Similar)



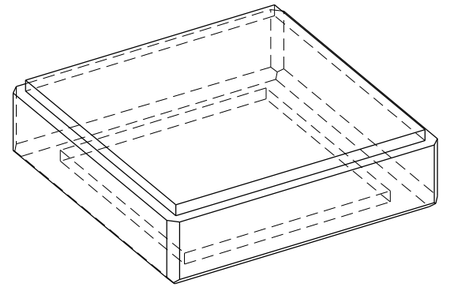
VIEW A-A SHOWN, VIEW B-B SIMILAR
(Type "A" Cap Shown, Type "B" & "C" Caps Similar)



CAP PLACEMENT DETAIL
(Type "B" Cap Shown, Type "A" & "C" Caps Similar)

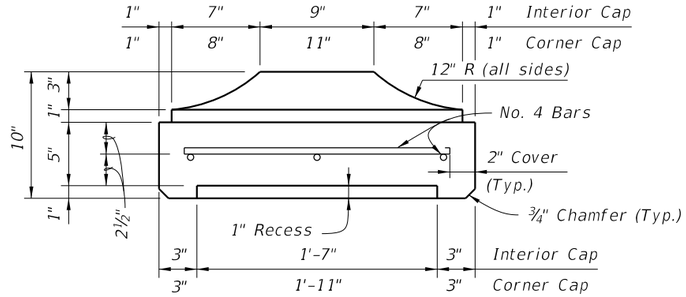


SECTION C-C

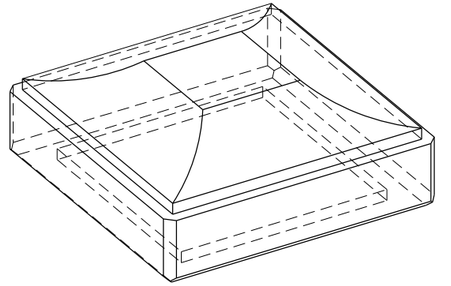


PICTORIAL VIEW

TYPE "A" CAP DETAILS

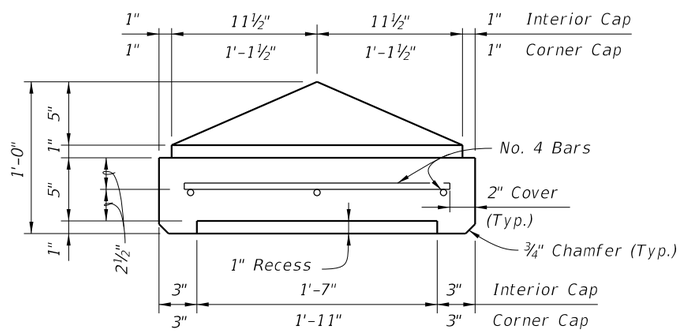


SECTION C-C

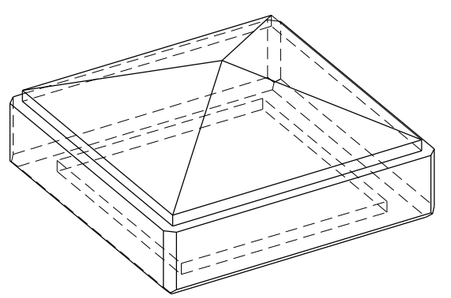


PICTORIAL VIEW

TYPE "B" CAP DETAILS



SECTION C-C



PICTORIAL VIEW

TYPE "C" CAP DETAILS

PRECAST POST CAPITAL

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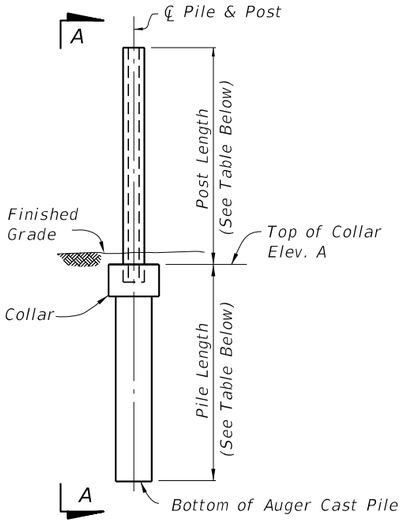
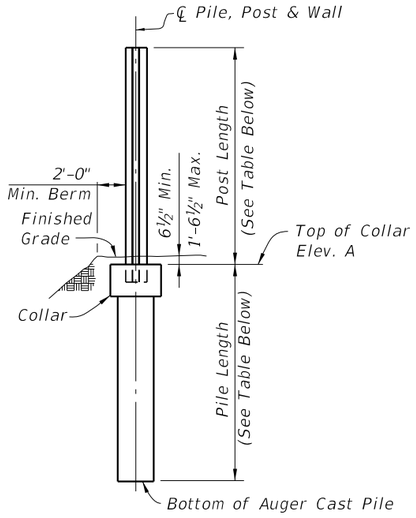


PILE/POST ELEVATION



VIEW A-A

NOTES:

Bars P1, P2, P3, P5, P6 P7 & P8 are #4 bars.

Bars P5 & P6 are only used in 90° Corner Posts.

Bars P7, P8, D & E are only used in 45° Corner Posts.

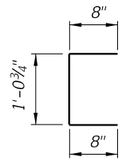
Bars P9 & P10 are used in the C-I-P Collar Options, and are #5 bars.

For Bar Designations, see Sheet Nos. 9 - 12.

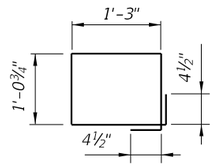
BAR BENDING DETAILS

All bar dimensions in bending diagrams are out-to-out. All bars not shown in the bending diagrams are straight.

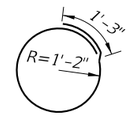
POST & PILE (#4 Bars)



BAR P1
Bar Length = 2'-5"

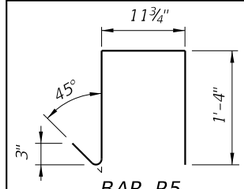


BAR P2
Bar Length = 5'-5"

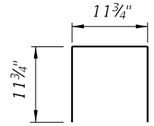


BAR P3
Bar Length = 8'-7"

90° CORNER POST & PILE (#4 Bars)

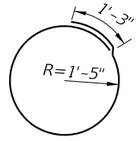


BAR P5
Bar Length = 4'-0"

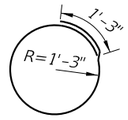


BAR P6
Bar Length = 2'-11¼"

CAST-IN-PLACE COLLAR (#5 Bars)

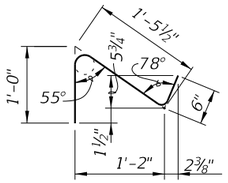


BAR P9
Bar Length = 10'-2"

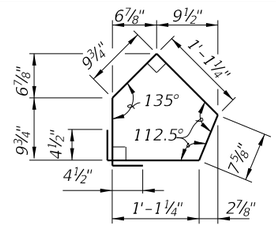


BAR P10
Bar Length = 9'-2"

45° CORNER POST & PILE (#4 Bars)



BAR P7 (POST)
Bar Length = 2'-8"



BAR P8 (PILE)
Bar Length = 5'-0¼"

TABLE 1 - WIND SPEED = 110 MPH

POST AND PILE DIMENSIONS										TABLE OF REINFORCING STEEL												
WALL TYPE	POST LENGTH WITHOUT CAP	POST LENGTH WITH CAP	PILE LENGTH								PILE/POST REINFORCING											
			N = 10 to 40 Med. Dense Granular Soil				N = 4 to 9 Loose Granular Soil				10'-0" POST SPACING						20'-0" POST SPACING					
			10'-0" POST SPACING		20'-0" POST SPACING		10'-0" POST SPACING		20'-0" POST SPACING		BARS A	BARS B		BARS D	BARS E		BARS A	BARS B		BARS D	BARS E	
			30" ∅	36" ∅	30" ∅	36" ∅	30" ∅	36" ∅	30" ∅	36" ∅	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'
A1	12'-0½"	12'-2½"	10	10	14	13	11	10	14	13	#4	#4	11'-5"	#4	#4	11'-5"	#4	#4	8'-5"	#5	#5	9'-2"
B1	13'-0½"	13'-2½"	11	10	14	13	11	10	15	14	#4	#4	12'-5"	#4	#4	11'-5"	#5	#5	11'-2"	#5	#5	9'-2"
C1	14'-0½"	14'-2½"	11	10	15	14	12	11	15	14	#4	#4	13'-5"	#4	#4	11'-5"	#5	#5	11'-2"	#6	#6	10'-9"
D1	15'-0½"	15'-2½"	12	11	16	14	12	11	16	15	#4	#4	13'-5"	#4	#4	11'-5"	#5	#5	11'-2"	#6	#6	10'-9"
E1	16'-0½"	16'-2½"	12	11	16	15	13	12	17	15	#4	#4	13'-5"	#5	#5	14'-2"	#6	#6	12'-9"	#7	#7	12'-4"
F1	17'-0½"	17'-2½"	13	12	17	15	13	12	17	16	#4	#4	13'-5"	#5	#5	14'-2"	#6	#6	12'-9"	#7	#7	12'-4"
G1	18'-0½"	18'-2½"	13	12	17	16	13	13	18	17	#5	#5	16'-2"	#5	#5	14'-2"	#6	#6	12'-9"	#8	#8	13'-10"
H1	19'-0½"	19'-2½"	13	13	18	17	14	13	18	17	#5	#5	16'-2"	#6	#6	15'-9"	#7	#7	14'-4"	#8	#8	13'-10"
I1	20'-0½"	20'-2½"	14	13	18	17	14	13	19	18	#5	#5	16'-2"	#6	#6	15'-9"	#7	#7	14'-4"	#8	#8	13'-10"
J1	21'-0½"	21'-2½"	14	13	19	17	15	14	19	18	#5	#5	16'-2"	#6	#6	15'-9"	#7	#7	14'-4"	#9	#9	15'-4"
K1	22'-0½"	22'-2½"	15	14	19	18	15	14	20	19	#6	#6	18'-9"	#7	#7	18'-4"	#8	#8	15'-10"	#9	#9	15'-4"

PILE DEPTH & REINFORCING SUMMARY

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	PRECAST SOUND BARRIERS	INDEX NO.	SHEET NO.
01/01/12					5200	15

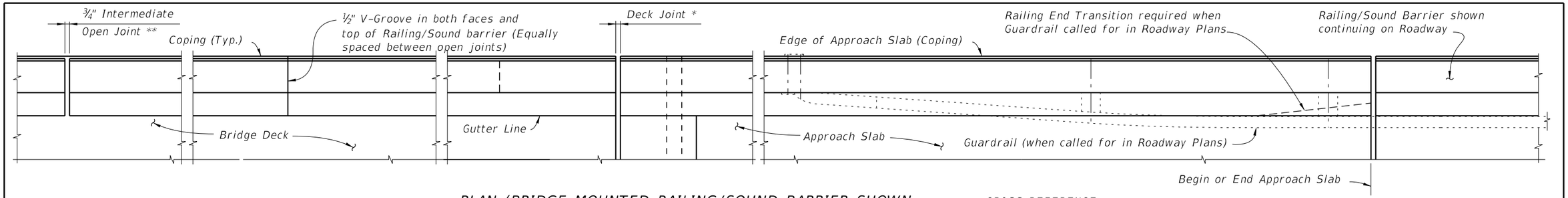
TABLE 2 - WIND SPEED = 130 MPH

POST AND PILE DIMENSIONS										TABLE OF REINFORCING STEEL												
WALL TYPE	POST LENGTH WITHOUT CAP	POST LENGTH WITH CAP	PILE LENGTH								PILE/POST REINFORCING											
			N = 10 to 40 Med. Dense Granular Soil				N = 4 to 9 Loose Granular Soil				10'-0" POST SPACING						20'-0" POST SPACING					
			10'-0" POST SPACING		20'-0" POST SPACING		10'-0" POST SPACING		20'-0" POST SPACING		BARS A	BARS B		BARS D	BARS E		BARS A	BARS B		BARS D	BARS E	
			30" ∅	36" ∅	30" ∅	36" ∅	30" ∅	36" ∅	30" ∅	36" ∅	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'
A2	12'-0½"	12'-2½"	12	11	16	15	12	11	16	15	#4	#4	11'-5"	#4	#4	9'-5"	#5	#5	9'-2"	#6	#6	8'-9"
B2	13'-0½"	13'-2½"	12	12	16	15	13	12	17	16	#4	#4	11'-5"	#5	#5	12'-2"	#5	#5	9'-2"	#6	#6	8'-9"
C2	14'-0½"	14'-2½"	13	12	17	16	13	12	18	16	#4	#4	11'-5"	#5	#5	12'-2"	#6	#6	10'-9"	#7	#7	10'-4"
D2	15'-0½"	15'-2½"	13	13	18	16	14	13	18	17	#4	#4	11'-5"	#5	#5	12'-2"	#6	#6	10'-9"	#7	#7	10'-4"
E2	16'-0½"	16'-2½"	14	13	19	17	14	13	19	18	#5	#5	13'-2"	#6	#6	13'-9"	#7	#7	12'-4"	#8	#8	11'-10"
F2	17'-0½"	17'-2½"	14	13	19	18	15	14	20	18	#5	#5	13'-2"	#6	#6	13'-9"	#7	#7	12'-4"	#8	#8	11'-10"
G2	18'-0½"	18'-2½"	15	14	20	18	15	14	20	19	#5	#5	13'-2"	#6	#6	13'-9"	#8	#8	13'-10"	#9	#9	12'-4"
H2	19'-0½"	19'-2½"	15	14	20	19	16	15	21	20	#6	#6	15'-9"	#7	#7	15'-4"	#8	#8	13'-10"	#9	#10	11'-7"
I2	20'-0½"	20'-2½"	16	15	21	19	16	15	22	20	#6	#6	15'-9"	#7	#7	15'-4"	#8	#8	12'-10"	#10	#10	13'-7"
J2	21'-0½"	21'-2½"	16	15	22	20	17	16	22	21	#6	#6	15'-9"	#7	#7	15'-4"	#9	#9	14'-4"	#10	#11	12'-10"
K2	22'-0½"	22'-2½"	17	16	22	21	17	16	23	21	#7	#7	17'-4"	#8	#8	16'-10"	#9	#9	14'-4"	#11	#11	13'-10"

TABLE 3 - WIND SPEED = 150 MPH

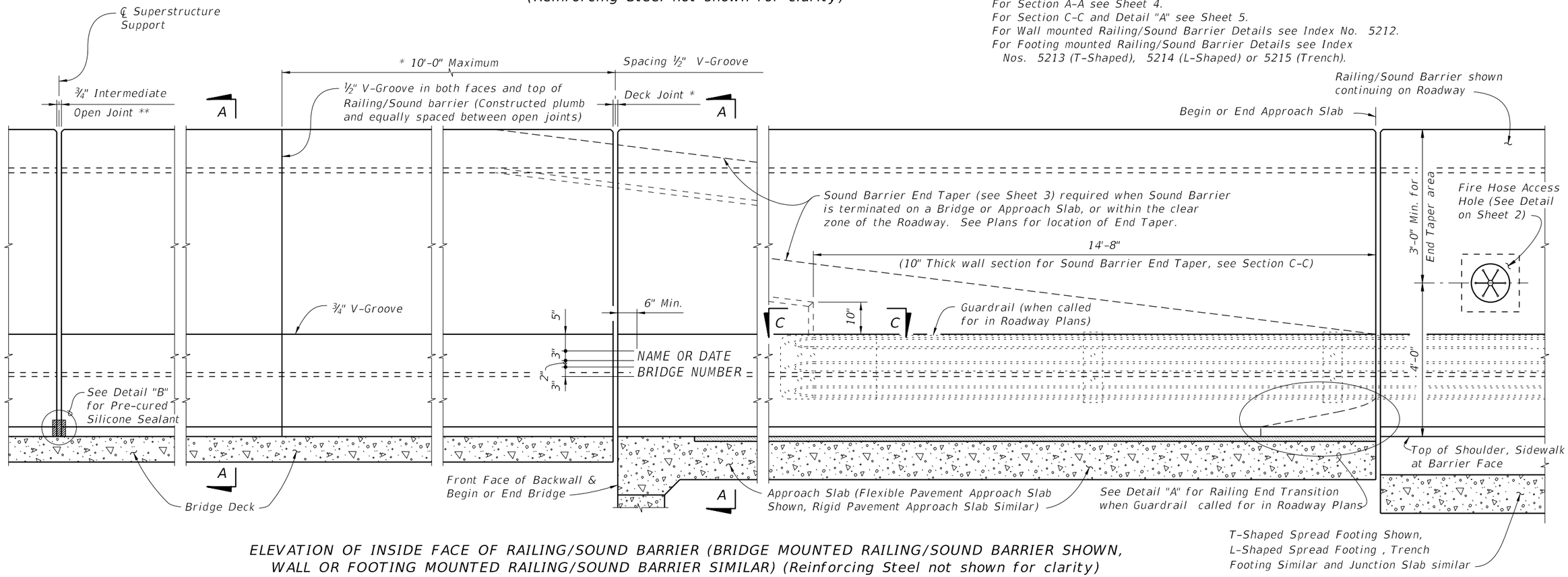
POST AND PILE DIMENSIONS										TABLE OF REINFORCING STEEL												
WALL TYPE	POST LENGTH WITHOUT CAP	POST LENGTH WITH CAP	PILE LENGTH								PILE/POST REINFORCING											
			N = 10 to 40 Med. Dense Granular Soil				N = 4 to 9 Loose Granular Soil				10'-0" POST SPACING						20'-0" POST SPACING					
			10'-0" POST SPACING		20'-0" POST SPACING		10'-0" POST SPACING		20'-0" POST SPACING		BARS A	BARS B		BARS D	BARS E		BARS A	BARS B		BARS D	BARS E	
			30" ○	36" ○	30" ○	36" ○	30" ○	36" ○	30" ○	36" ○	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'	SIZE	SIZE	DIM 'A'
A3	12'-0½"	12'-2½"	13	12	18	16	14	13	18	17	#4	#4	9'-5"	#5	#5	10'-2"	#6	#6	8'-9"	#6	#7	7'-4"
B3	13'-0½"	13'-2½"	14	13	19	17	14	13	19	18	#4	#4	9'-5"	#5	#5	10'-2"	#6	#6	8'-9"	#7	#7	8'-4"
C3	14'-0½"	14'-2½"	14	13	19	18	15	14	20	19	#5	#5	11'-2"	#6	#6	11'-9"	#7	#7	10'-4"	#8	#8	9'-10"
D3	15'-0½"	15'-2½"	15	14	20	19	16	14	21	19	#5	#5	11'-2"	#6	#6	11'-9"	#7	#7	10'-4"	#8	#9	9'-4"
E3	16'-0½"	16'-2½"	16	14	21	19	16	15	22	20	#5	#5	11'-2"	#6	#6	11'-9"	#8	#8	10'-10"	#9	#9	10'-4"
F3	17'-0½"	17'-2½"	16	15	22	20	17	16	22	21	#6	#6	13'-9"	#7	#7	13'-4"	#8	#8	10'-10"	#9	#10	9'-7"
G3	18'-0½"	18'-2½"	17	16	22	21	17	16	23	21	#6	#6	12'-9"	#7	#7	13'-4"	#9	#9	12'-4"	#10	#10	11'-7"
H3	19'-0½"	19'-2½"	17	16	23	21	18	17	24	22	#6	#6	12'-9"	#8	#8	14'-10"	#9	#9	12'-4"	#11	#11	11'-9"
I3	20'-0½"	20'-2½"	18	17	24	22	18	17	25	23	#7	#7	15'-4"	#8	#8	14'-10"	#9	#10	11'-7"	#11	#14	10'-0"
J3	21'-0½"	21'-2½"	18	17	24	23	19	18	25	23	#7	#7	15'-4"	#9	#9	16'-4"	–	–	–	–	–	–
K3	22'-0½"	22'-2½"	19	17	25	23	19	18	26	24	#8	#8	16'-10"	#9	#9	16'-4"	–	–	–	–	–	–

PILE DEPTH & REINFORCING SUMMARY



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. 420. Deck Joint at Begin Bridge or End Bridge 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) – Superstructure supports where slab is continuous.
(2) – Construction Joints for Junction Slabs and Footings.

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LAST REVISION	REVISION	DESCRIPTION:				
01/01/11			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER (8'-0")	INDEX NO. 5210	SHEET NO. 1

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 Name shall be as shown in the General Notes in the Structures Plans. The Date shall be the year the bridge is completed. For a widening when the existing railing is removed, use both the existing date and 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 3/8" V-Grooves. V-Grooves shall be formed by preformed letters and figures.

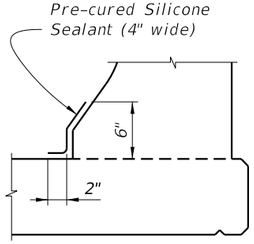
MARKERS : For Railing/Sound Barrier on bridges, Elevation Markers shall be placed on top of the Traffic Railing/Sound Barrier or Bridge Deck at the end bents as directed by the Engineer. Markers are to be furnished by the Florida Department of Transportation and installed by the Contractor. The cost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

REFLECTIVE RAILING MARKERS : Reflective Railing Markers shall meet Specification Section 993. Install markers 2'-4" above the riding surface at the spacing shown in the table below. Reflector color (white or yellow) shall match the color of the near edgeline. The cost of the reflective markers shall be included in the Contract Unit Price for the Railing/Sound Barrier.

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

INTERMEDIATE JOINT SEAL NOTES:

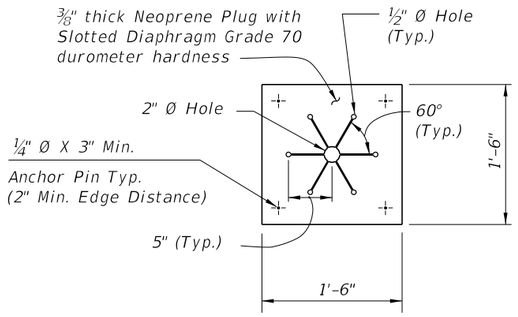
1. At Intermediate Open Joints, seal the lower 6" portion of the open joint with Pre-cured Silicone Sealant in accordance with Specification Section 932.
2. Apply sealant prior to any Class V finish coating and remove all curing compound and loose material from the surface prior to application of bonding agent.
3. The cost of the Pre-cured Silicone Sealant shall be included in the Contract Unit Price for the Traffic Railing.



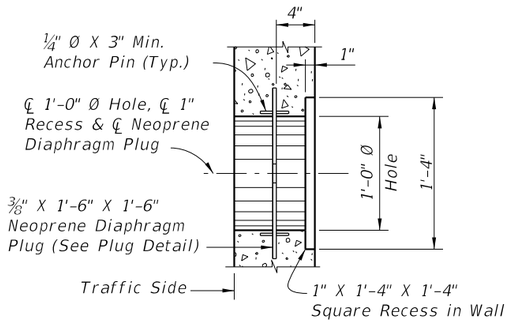
DETAIL "B" - SECTION AT INTERMEDIATE OPEN JOINT

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



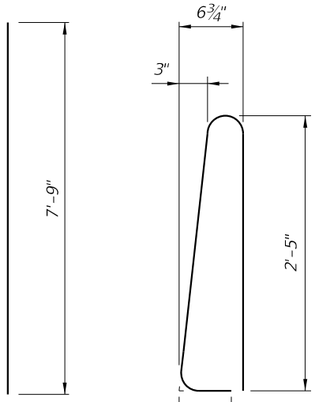
TYPICAL SECTION
FIRE HOSE ACCESS DETAIL

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 3/4" open joints when possible.

REINFORCING STEEL BENDING DIAGRAMS

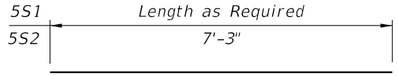
BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
P	5	5'-7"
R	5	7'-9"
S1	5	As Reqd.
S2	5	7'-3"
V (Bridge and Wall)	5	5'-1"
V (Footing)	5	7'-7"

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°

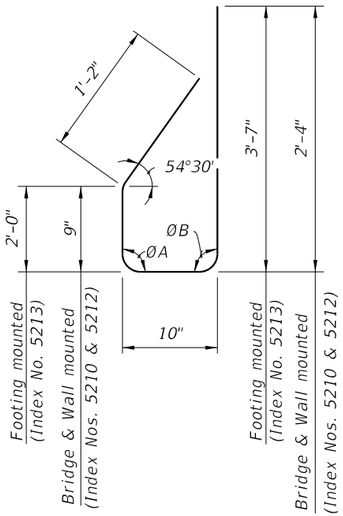


BAR 5R (Field Cut for End Taper)

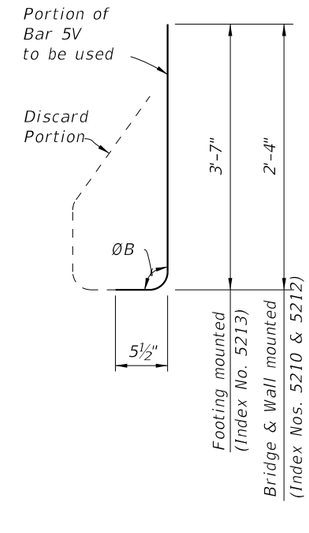
STIRRUP BAR 5P



BARS 5S1 & 5S2



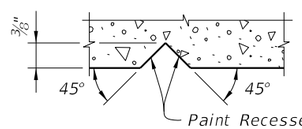
STIRRUP BAR 5V



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

REINFORCING STEEL NOTES:

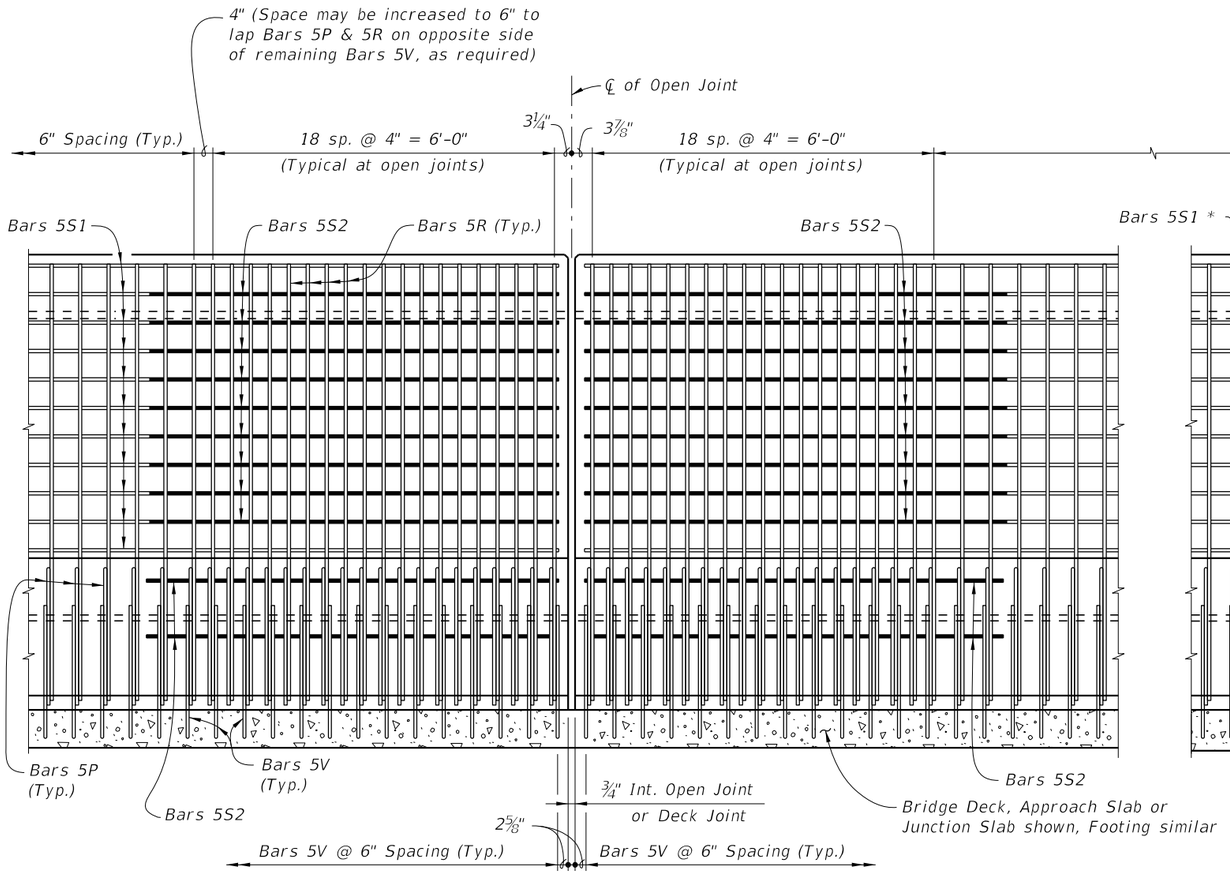
1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints shall have a 2" minimum cover.
3. Bars 5S1 may be continuous or spliced at the construction joints. Lap splices for Bars 5S1 shall be a minimum of 2'-2".
4. The Contractor may use Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement 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.



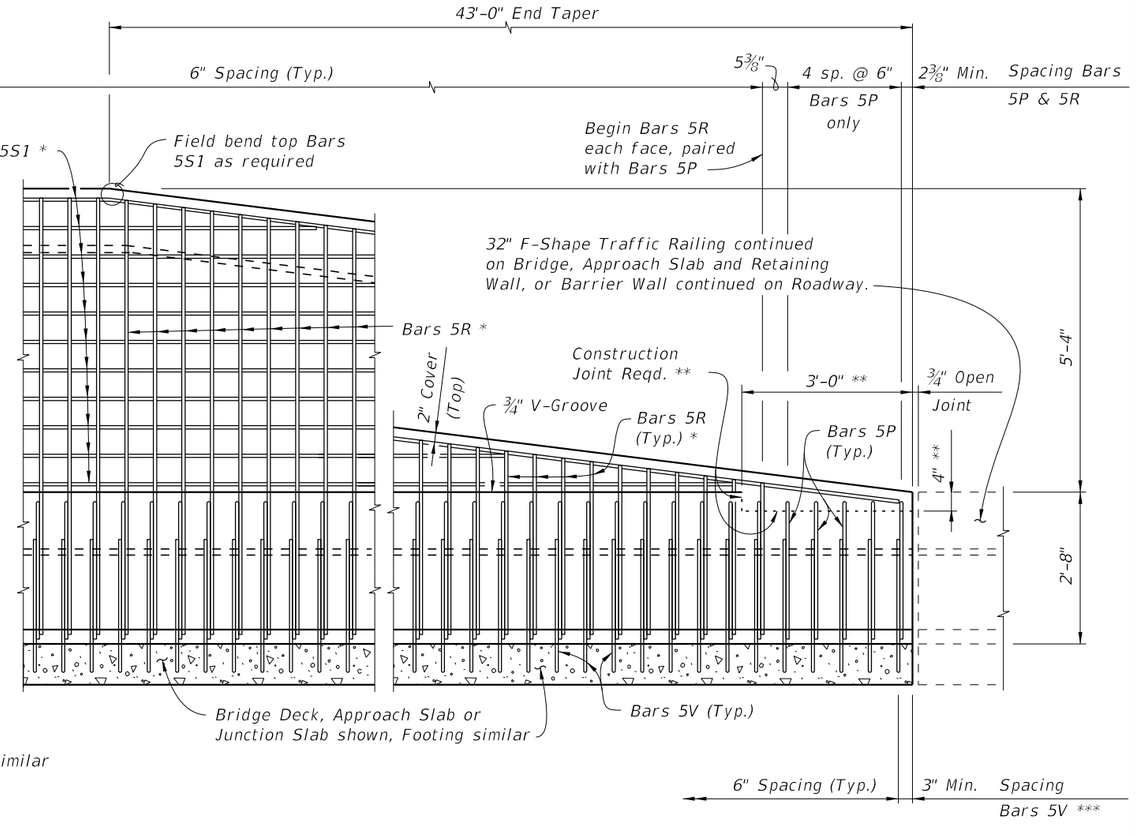
SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

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

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
01/01/11			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER (8'-0")	5210	2



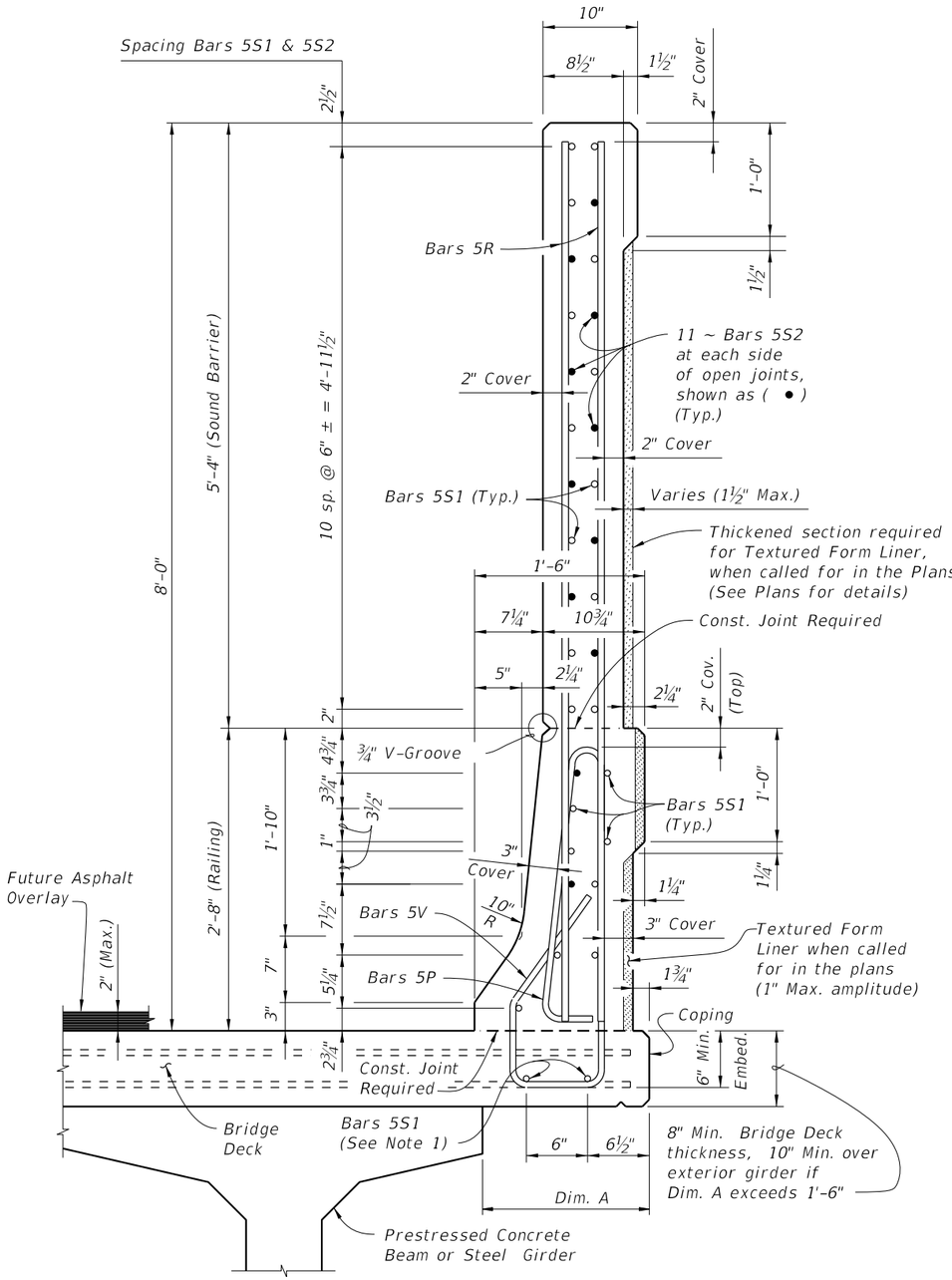
ELEVATION OF RAILING/SOUND BARRIER REINFORCING STEEL
(INTERMEDIATE OPEN JOINT SHOWN, DECK JOINT SIMILAR)
(Bars 5S1 in Barrier not shown for clarity)



ELEVATION OF RAILING/SOUND BARRIER END TAPER (ADJACENT TO TRAFFIC RAILING SHOWN, GUARDRAIL ATTACHMENT SIMILAR SEE DETAIL "A", SHEET 5)
(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.

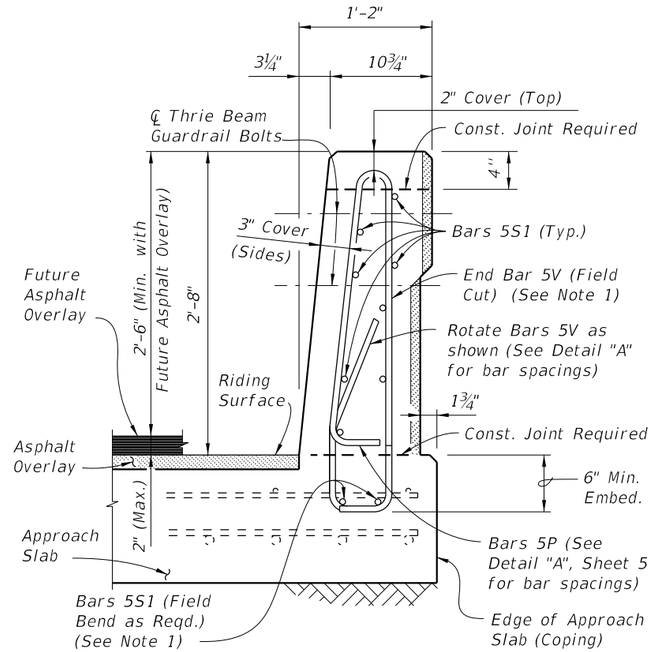
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/07			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER (8'-0")	5210	3



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

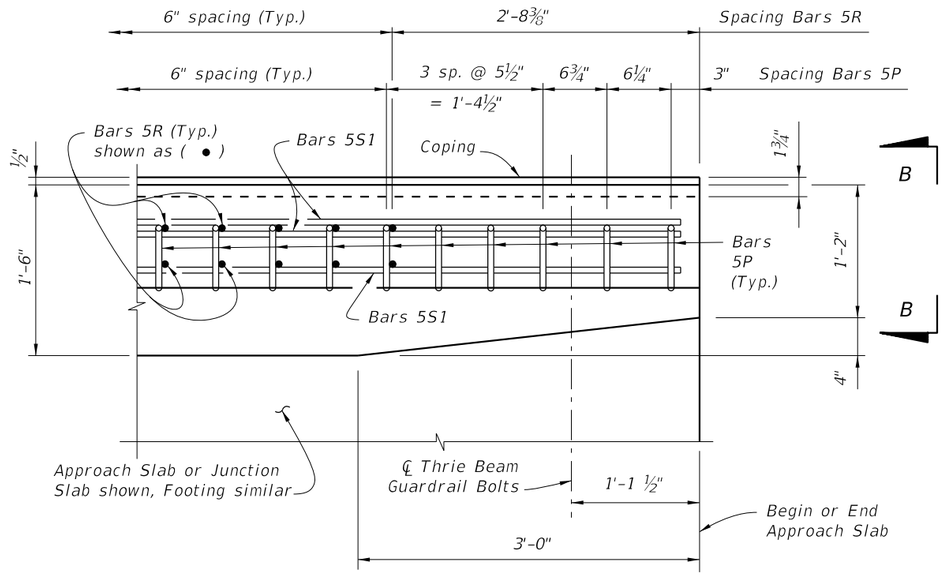
NOTES:
1. Bottom Bars 5S1 and End Bar 5V are not present in L-Shaped (Index No. 5214) or Trench (Index No. 5215) Footings. For Bridge Mounted installations, see the Superstructure Sheets for Deck Steel. Omit Bars 5S1 if not specifically shown on the Superstructure Sheets.

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

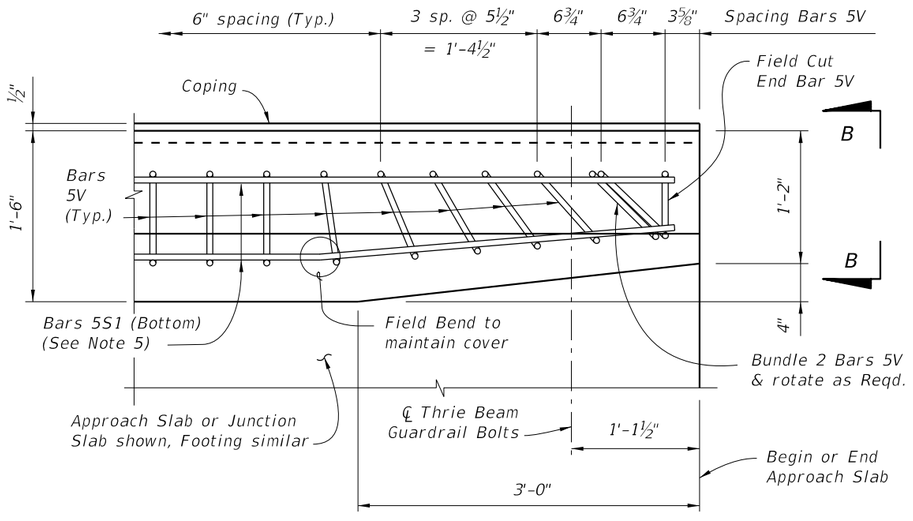


VIEW B-B
END VIEW OF RAILILNG END TRANSITION FOR GUARDRAIL ATTACHMENT AT END OF APPROACH SLAB
(Flexible Pavement Approach Slab Shown, Rigid Pavement Approach Slab, Junction Slab or Footing Similar)

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
01/01/11			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER (8'-0")	5210	4



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

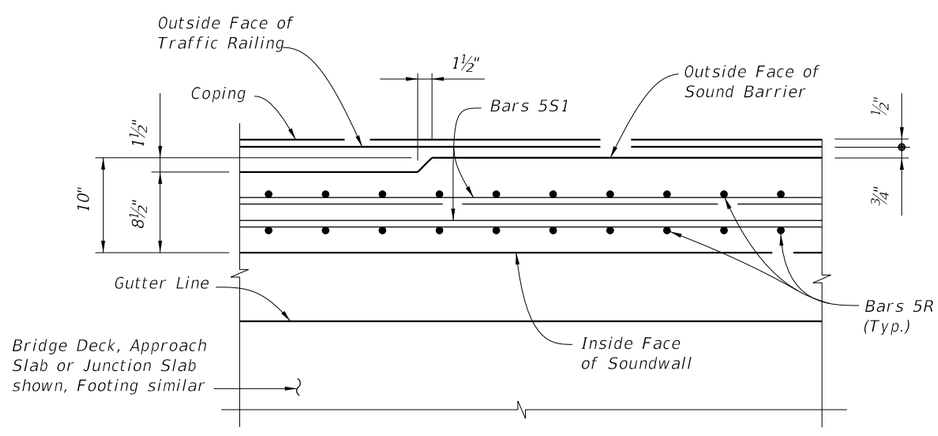


PLAN - RAILING END TRANSITION
(Showing Bars 5V and Bars 5S1) (Bars 5P, 5R,
Soundwall & Reinforcement not shown for Clarity)

DETAIL "A"

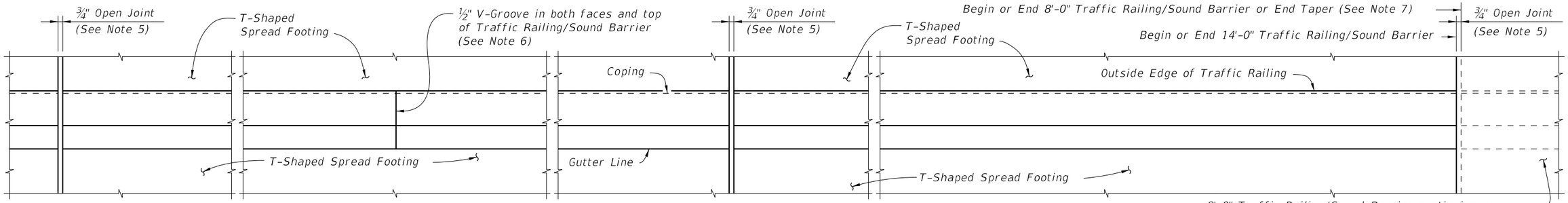
DETAIL "A" NOTES:

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 Raililng 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.*



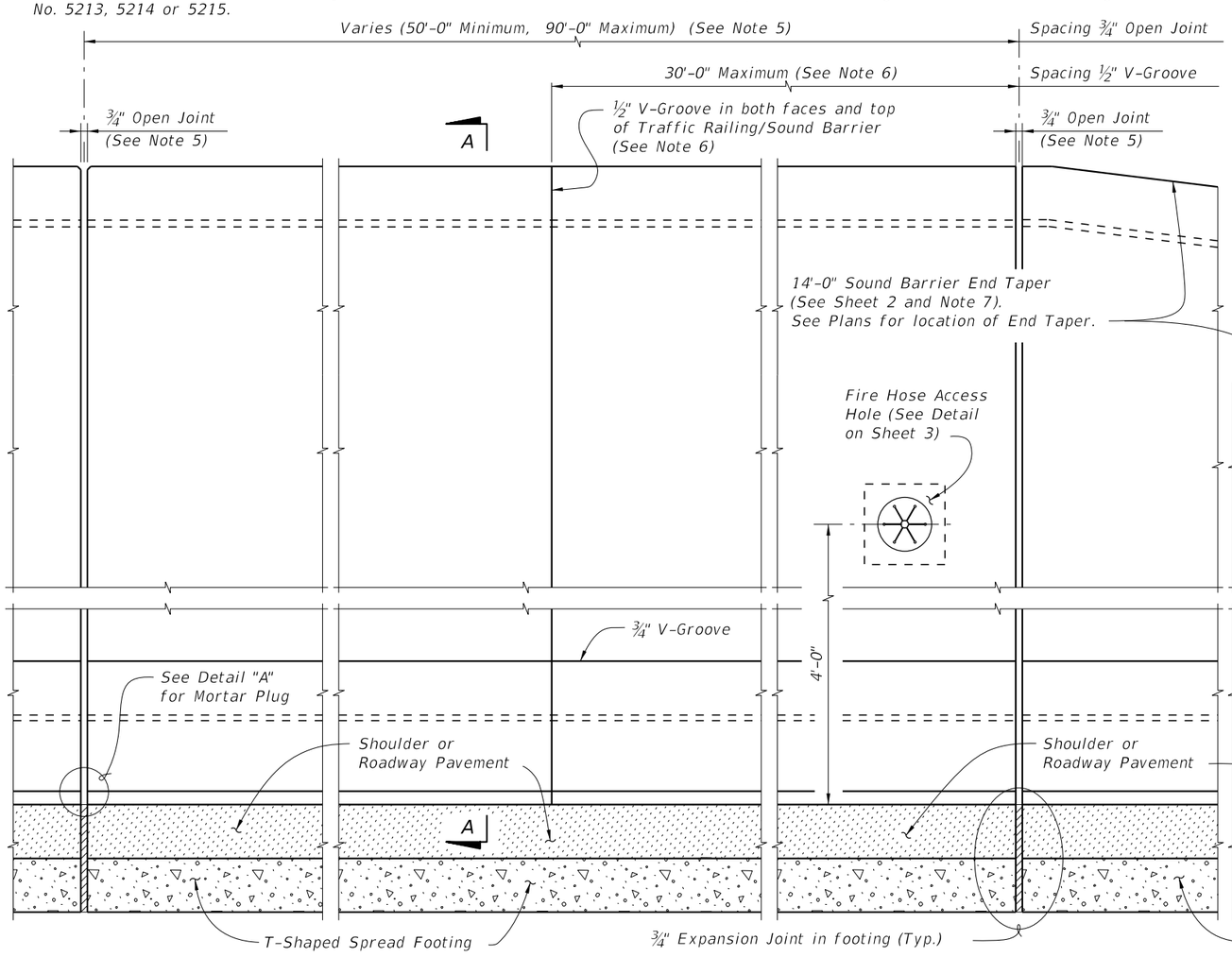
SECTION C-C
THRU SOUNDWALL END TAPER

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.



CROSS REFERENCE:
For Section A-A, Detail "A" and Estimated Quantities, see Sheet 3.
For Expansion Joint Detail in Footing, see Index No. 5213, 5214 or 5215.

PLAN (Reinforcing Steel not shown for clarity)
(T-Shaped Spread Footing Shown, L-Shaped Spread Footing and Trench Footing Similar)



ELEVATION OF INSIDE FACE OF TRAFFIC RAILING/SOUND BARRIER
(Reinforcing Steel not shown for clarity)
(T-Shaped Spread Footing Shown, L-Shaped Spread Footing and Trench Footing Similar)

TRAFFIC RAILING/SOUND BARRIER NOTES

1. 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.
2. CONSTRUCTION REQUIREMENTS: Construct the Traffic Railing/Sound Barrier and joints plumb; do not construct the Traffic Railing/Sound Barrier perpendicular to the roadway surface. Slip forming is not permitted.
3. CONCRETE: Use Class II concrete for slightly aggressive environments. Use Class IV concrete for moderately or extremely aggressive environments. Concrete will be in accordance with Specification Section 346.
4. REINFORCING STEEL: Provide Grade 60 reinforcing steel in accordance with Specification Section 931.
5. Construct ¾" Open Joints plumb and perpendicular or radial to Gutter Line. Provide at 90'-0" maximum intervals as shown. ¾" Open Joint locations are to coincide with ¾" Expansion Joints in footings.
6. Construct ½" V-Grooves plumb and provide at 30'-0" maximum intervals as shown. Space V-Grooves equally between ¾" Open Joints and/or Begin or End Traffic Railing/Sound Barrier. V-Groove locations are to coincide with V-Groove locations in footings.
7. 14'-0" Sound Barrier End Taper is required when Railing/Sound Barrier is adjacent to an 8'-0" Traffic Railing/Sound Barrier and may be used when an 8'-0" Traffic Railing/Sound Barrier End Taper is provided (see Index No. 5210 for details). See Roadway Plans for Traffic Railing/Sound Barrier End Treatment.
8. Work this Standard Drawing with Index No. 5210 - Traffic Railing/Sound Barrier (8'-0") and one or more of the following:
   a. Index No. 5213 - Traffic Railing/Sound Barrier T-Shaped Spread Footing,
   b. Index No. 5214 - Traffic Railing/Sound Barrier L-Shaped Spread Footing or
   c. Index No. 5215 - Traffic Railing/Sound Barrier Trench Footing.

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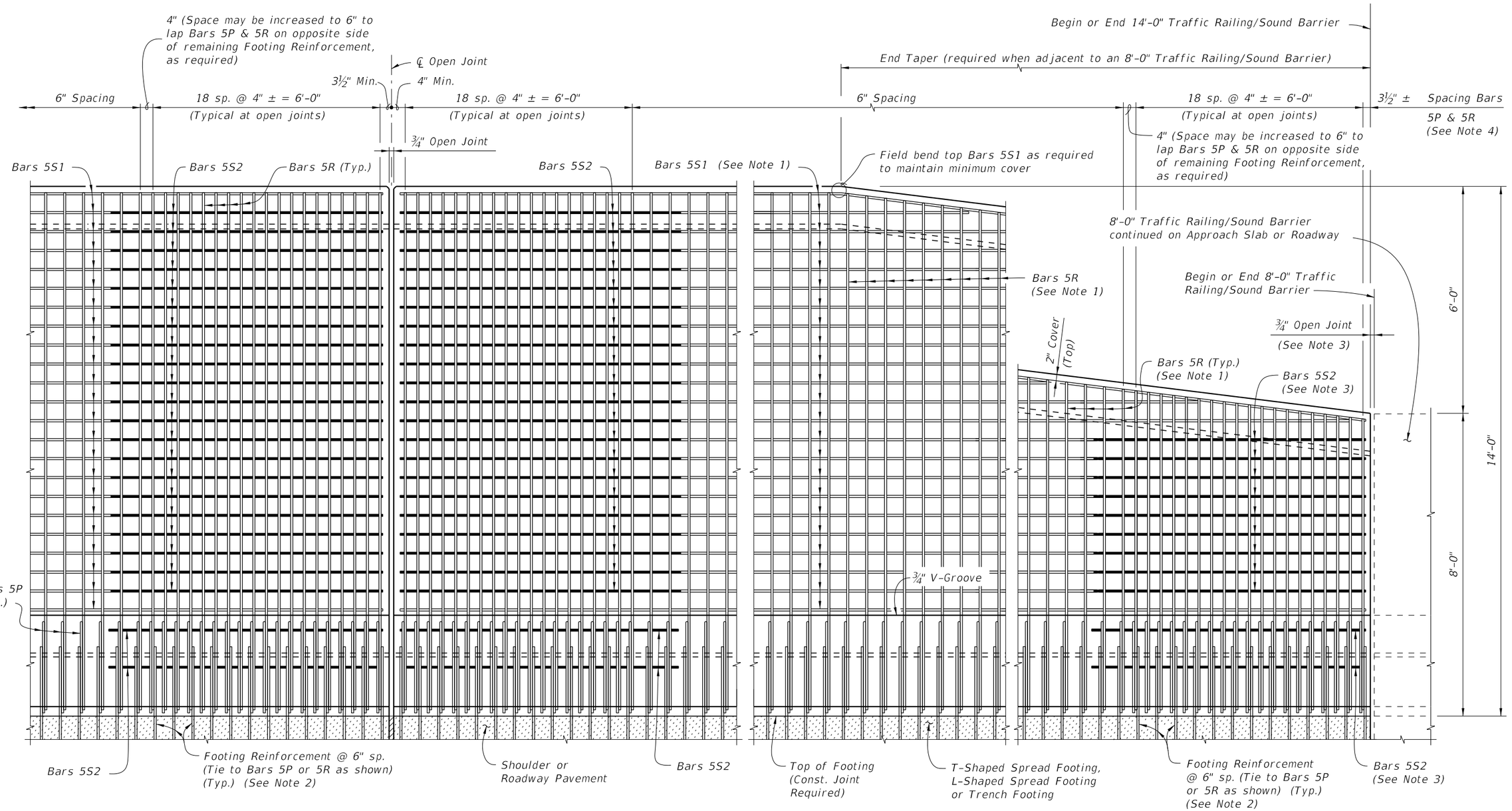
LAST REVISION	REVISION	DESCRIPTION:				
07/01/07			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER (14'-0")	INDEX NO. 5211	SHEET NO. 1

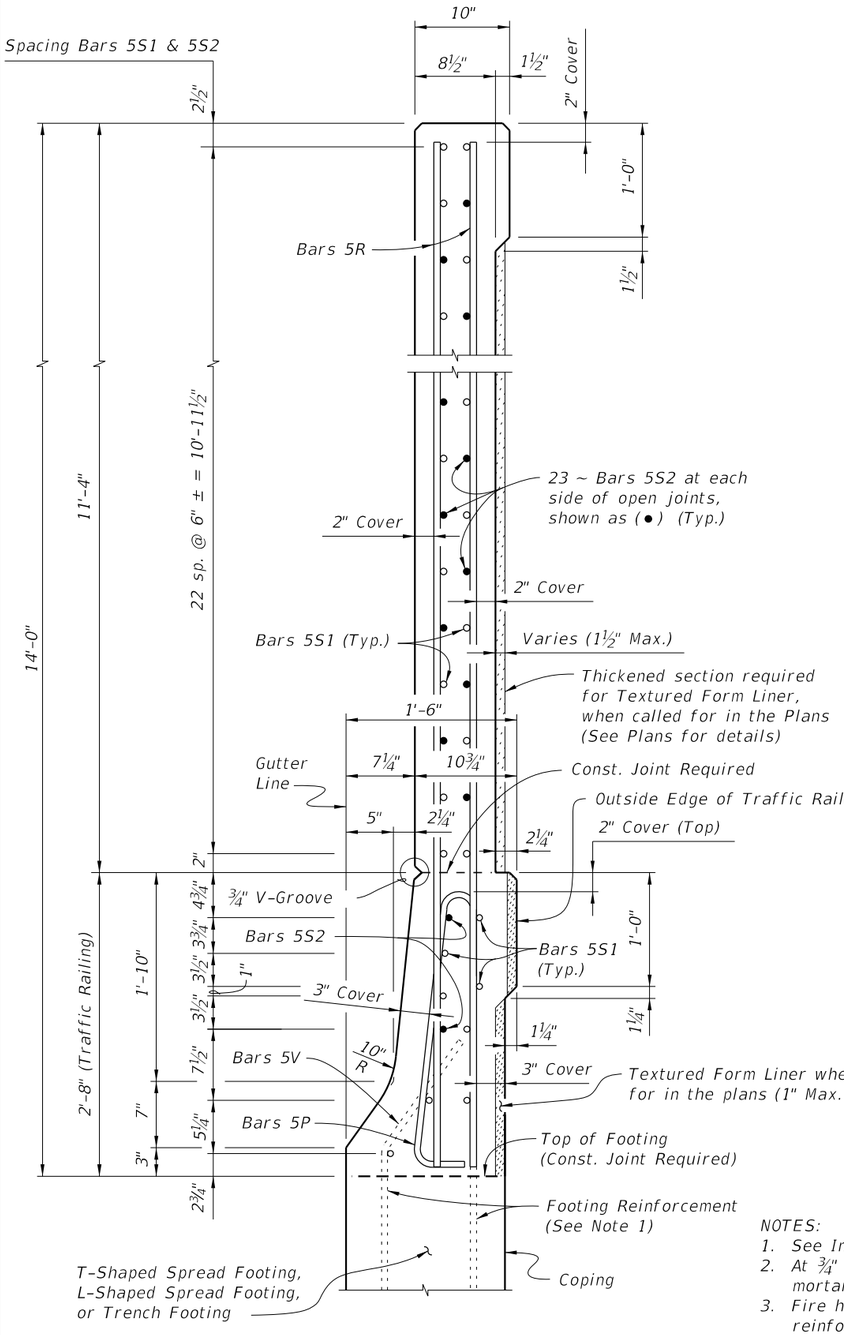


ELEVATION OF TRAFFIC RAILING/SOUND BARRIER REINFORCING STEEL
(Bars 5S1 in Railing not shown for clarity)

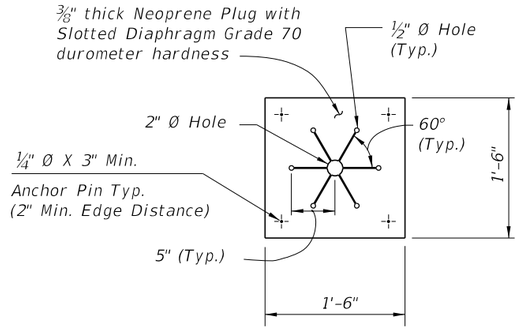
ELEVATION OF TRAFFIC RAILING/SOUND BARRIER END TAPER
(Bars 5S1 in Railing not shown for clarity)

NOTES:
1. Field Cut Bars 5R & 5S1 in Sound Barrier End Taper as required to maintain minimum cover.
2. See Index Nos. 5213, 5214 and 5215 for footing reinforcement.
3. ¾" Open Joint may be omitted when 8'-0" Railing/Sound Barrier End Taper is adjacent to a 14'-0" Traffic Railing/Sound Barrier End Taper as shown on Sheet 1. See Index No. 5210 for reinforcement details and spacing. Bars 5S2 are not required when ¾" Open Joint is omitted.
4. Bar spacing shown is along the Gutter Line.

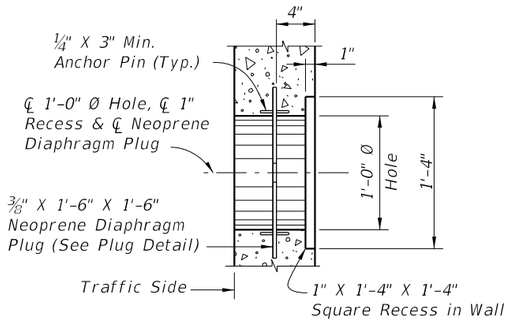
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/05			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER (14'-0")	5211	2



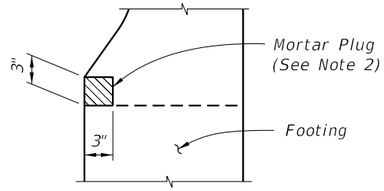
SECTION A-A
TYPICAL SECTION THRU TRAFFIC RAILING/SOUND BARRIER



NEOPRENE DIAPHRAGM PLUG DETAIL



TYPICAL SECTION
FIRE HOSE ACCESS DETAIL



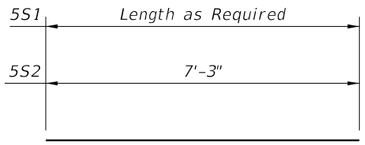
DETAIL "A" -
SECTION AT OPEN JOINT

NOTES:
1. See Index Nos. 5213, 5214 and 5215 for footing reinforcement.
2. At ¾" Open Joints, plug the lower 3" portion of the open joint by filling it with mortar in accordance with Specification Section 400.
3. 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 at least 10'-0" from ¾" open joints when possible.

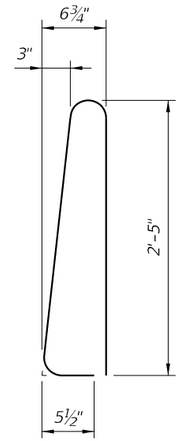
REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

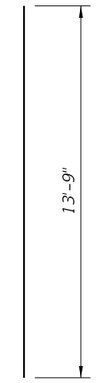
MARK	SIZE	LENGTH
P	5	5'-7"
R	5	13'-9"
S1	5	AS REQD.
S2	5	7'-3"



BARS 5S1 & 5S2



STIRRUP
BAR 5P



BAR 5R
(Field Cut for End Taper)

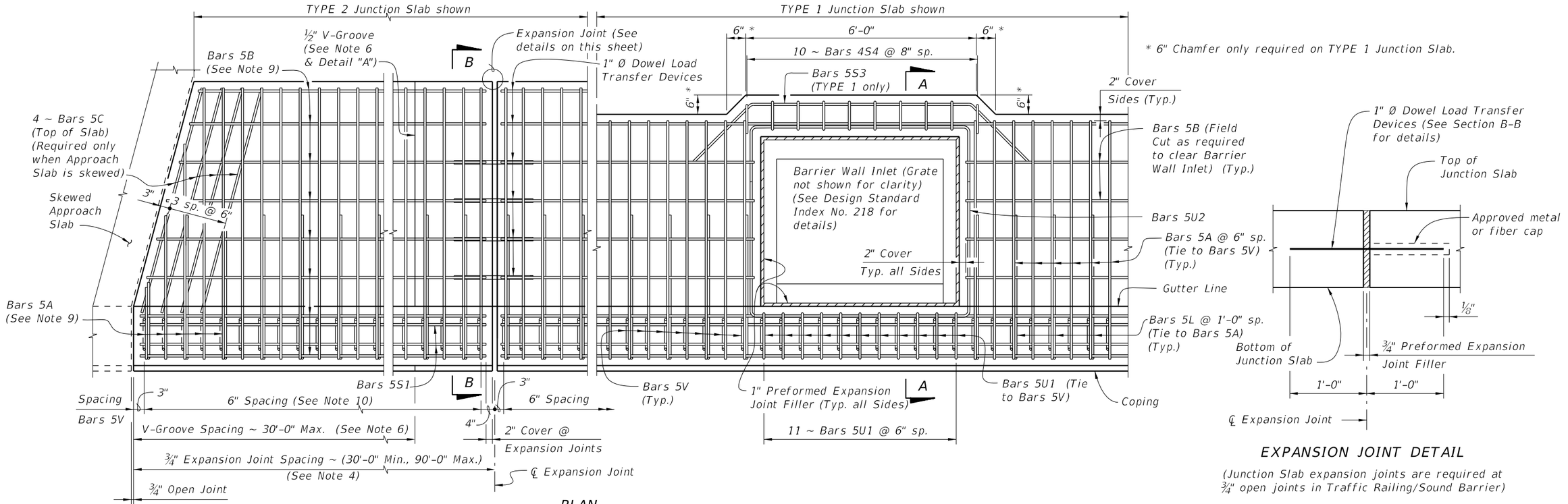
REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints will have a 2" minimum cover.
3. Bars 5R may be continuous or spliced at construction joints. Lap splices for Bars 5R and 5S1 will be a minimum of 2'-2".
4. The Contractor may use Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement will conform to ASTM A 497.

ESTIMATED TRAFFIC RAILING BARRIER/SOUNDWALL QUANTITIES

ITEM	UNIT	QUANTITY
Concrete (Traffic Railing)	CY/FT	0.104
Concrete (Sound Barrier, excluding any thickening)	CY/FT	0.302
Reinforcing Steel (Railing/Sound Barrier) (Typical, excluding Footing Reinforcement)	LB/FT	103.43
Additional Reinf. @ Open Joint (Railing/Sound Barrier)	LB	761.91

CROSS REFERENCE:
For locations of Section A-A and Detail "A", see Sheet 1.

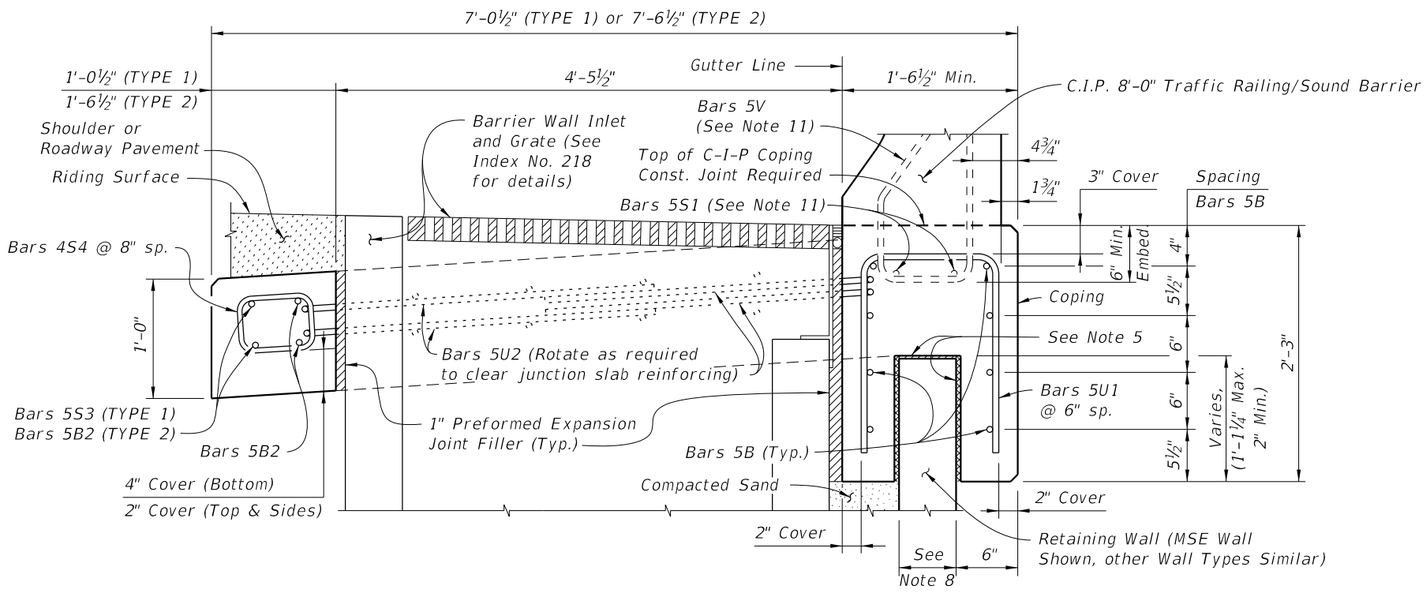


PLAN

JUNCTION SLAB ADJACENT TO SKEWED APPROACH SLAB AND WITH BARRIER WALL INLET

EXPANSION JOINT DETAIL

(Junction Slab expansion joints are required at ¾" open joints in Traffic Railing/Sound Barrier)



SECTION A-A

SECTION THRU JUNCTION SLAB, BARRIER WALL INLET AND RETAINING WALL

(TYPE 1 Junction Slab Shown, TYPE 2 Similar)

NOTES

1. *CONSTRUCTION REQUIREMENTS:* Construct the Junction Slab level transversely and expansion joints plumb; do not construct the junction slab perpendicular to the roadway surface. Slip forming is not permitted.
2. *CONCRETE:* Use Class II concrete for slightly aggressive environments. Use Class IV concrete for moderately or extremely aggressive environments. Concrete will be in accordance with Specification Section 346.
3. *REINFORCING STEEL:* Provide Grade 60 reinforcing steel in accordance with Specification Section 931. 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.
4. *EXPANSION JOINTS:* Construct ¾" Expansion Joints plumb and perpendicular or radial to Gutter Line. Provide at 90'-0" maximum intervals as shown.
5. Provide two layers of 30 Lb. Roofing Felt on top and Expanded Polystyrene (½" thick) on sides.
6. *V-GROOVES:* Construct ½" V-Grooves 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 Railing/Sound Barrier.
7. *FILL REQUIREMENTS:* Shoulder or Roadway Pavement or Fill is required on top of the junction slab for its entire length on the traffic side of the Railing/Sound Barrier. See Section B-B for details.
8. Actual location & width vary depending on type of Retaining Wall used.
9. Field cut Bars 5A and 5B as required to maintain minimum cover for skewed Approach Slab.
10. Spacing shown is along the Gutter Line.
11. See Index No. 5210 for Bars 5V and 5S1. See Plans for Junction Slab width (TYPE).
12. Work this Index with the following:
    Index No. 5210 – Traffic Railing/Sound Barrier (8'-0").

CROSS REFERENCE:

For Section B-B and Detail "A", see Sheet 2.

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER (8'-0") JUNCTION SLAB	INDEX NO.	SHEET NO.
01/01/12					5212	1

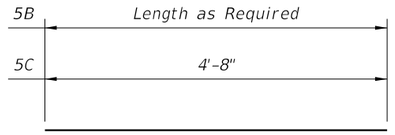
REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

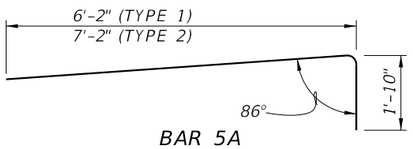
MARK	SIZE	LENGTH	
		TYPE 1	TYPE 2
A	5	8'-0"	9'-0"
B	5	AS REQ'D.	AS REQ'D.
C	5	4'-8"	5'-8"
L	5	4'-5"	4'-5"
S3	5	10'-0"	N/A
S4	4	3'-1"	4'-0"
U1	5	4'-9"	4'-9"
U2	5	12'-10"	12'-10"
DOWEL	1" Ø Smooth Bar	2'-0"	2'-0"

REINFORCING STEEL NOTES:

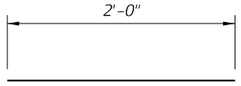
1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints will have a 2" minimum cover.
3. Lap splices for Bars 5B will be a minimum of 2'-0".
4. The Contractor may use Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement will conform to ASTM A 497.



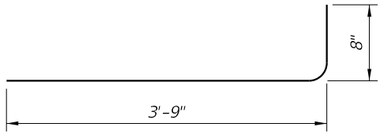
BARS 5B & 5C



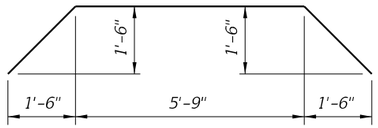
BAR 5A



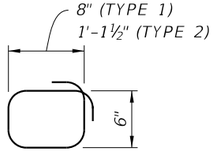
1" Ø DOWEL



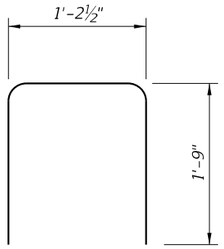
BAR 5L



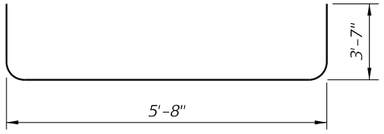
BAR 5S3 (TYPE 1 only)



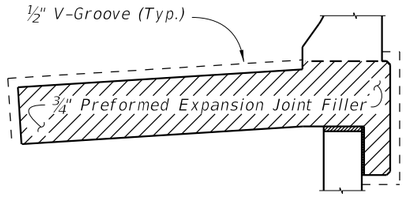
BAR 4S4



BAR 5U1

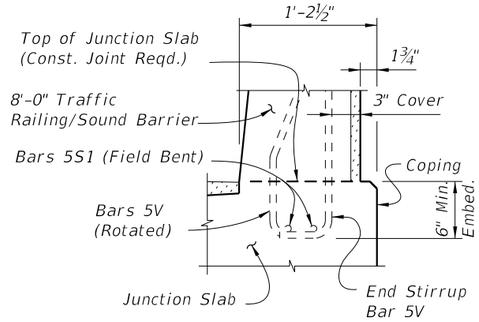


BAR 5U2



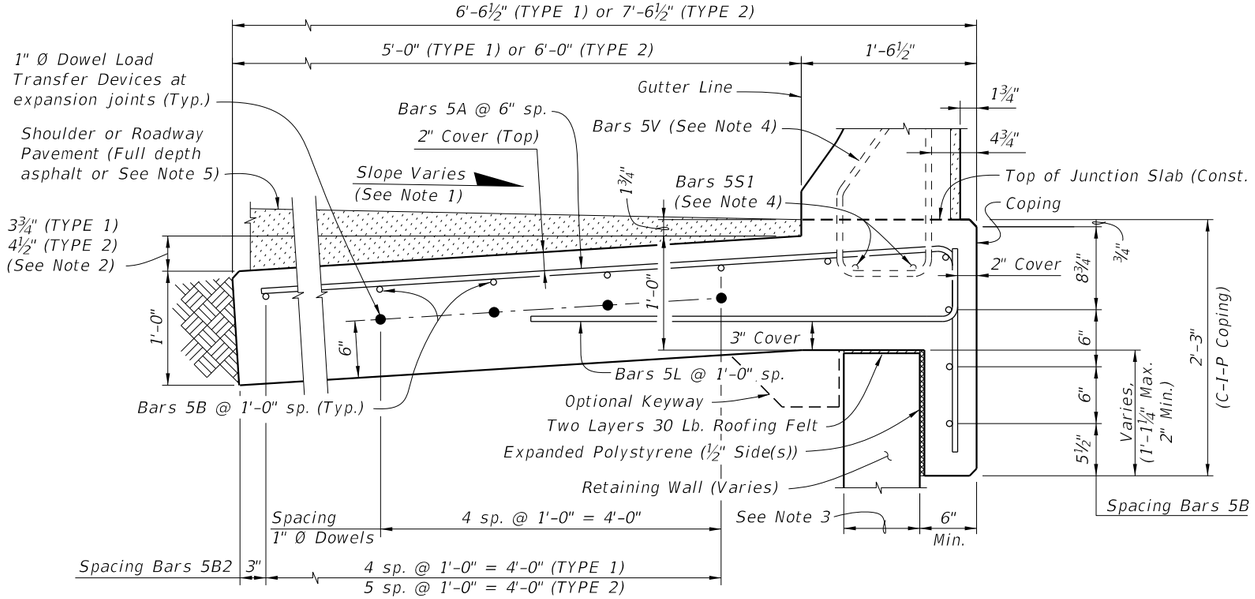
DETAIL "A"

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



PARTIAL END VIEW OF RAILING END TRANSITION FOR GUARDRAIL ATTACHMENT (Showing Bars 5V and Bars 5S1)

NOTE: See Index No. 5210, Detail "A" for details.



SECTION B-B

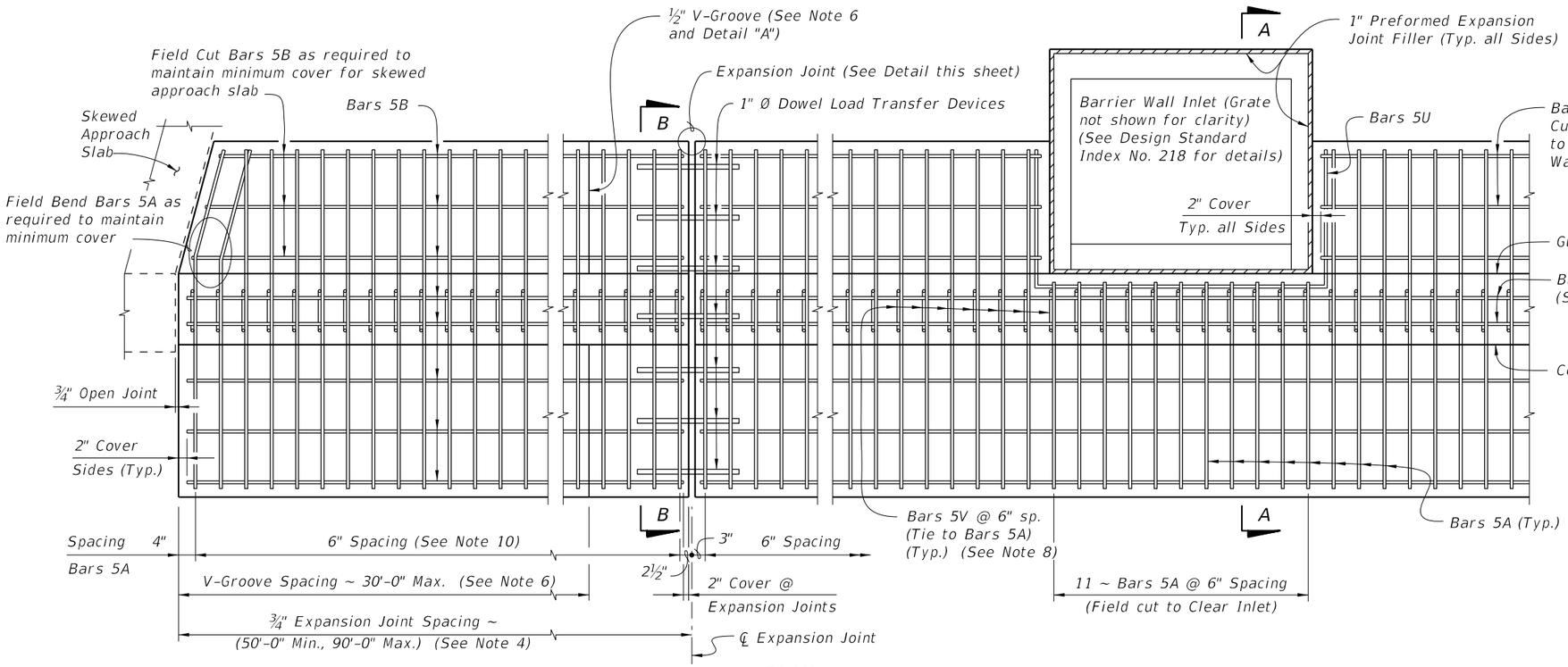
TYPICAL SECTION THRU JUNCTION SLAB AND RETAINING WALL

ESTIMATED JUNCTION SLAB QUANTITIES

ITEM	UNIT	QUANTITY	
		TYPE 1	TYPE 2
Concrete (Junction Slab)	CY/FT	0.268	0.305
Reinforcing Steel (Typical)	LB/FT	30.91	34.04
Additional Reinf. @ Expansion Joint	LB	21.36	21.36

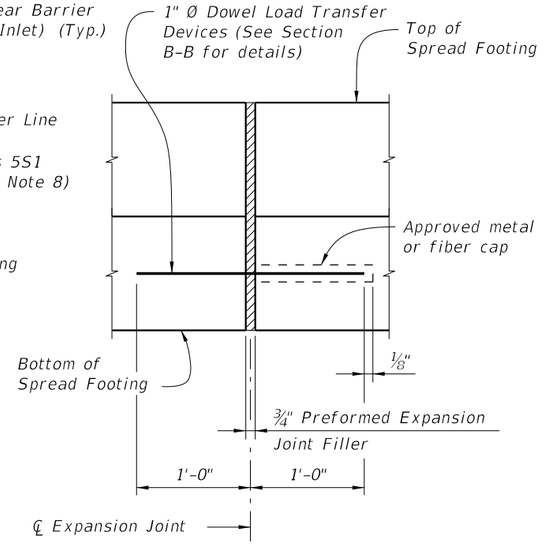
NOTES:
1. Match Cross Slope of Travel Lane or Shoulder.
2. The 3¾" & 4½" dimensions correspond to a maximum superelevation of 6.25%. For superelevations exceeding 6.25%, increase this dimension as required to match roadway superelevation.
3. Actual width varies depending on type of Retaining Wall used.
4. See Index No. 5210 for Bars 5V and 5S1.
5. For Rigid Pavement (Concrete), Junction Slab may be thickened to match finished grade.

CROSS REFERENCE:
For location of Section B-B, see Sheet 1.



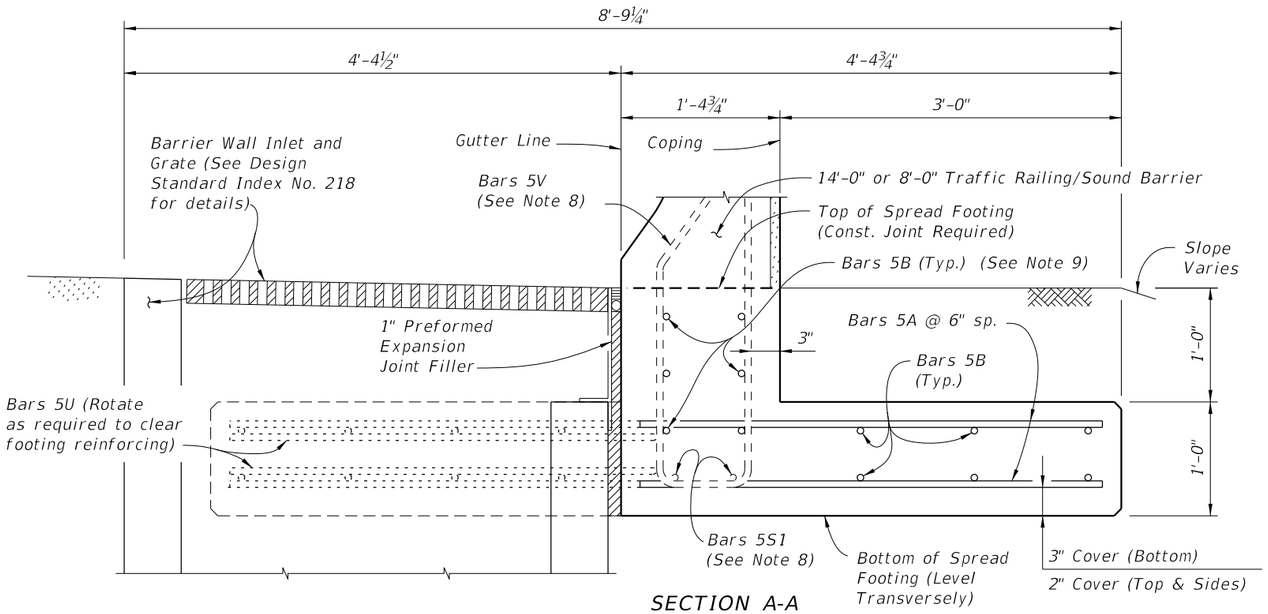
PLAN

SPREAD FOOTING ADJACENT TO SKEWED APPROACH SLAB AND WITH BARRIER WALL INLET



EXPANSION JOINT DETAIL

(Spread Footing expansion joints are required at ¾" open joints in Traffic Railing/Sound Barrier)



SECTION A-A

SECTION THRU SPREAD FOOTING AND BARRIER WALL INLET

(Bars 5P, 5R and 5S1 in Traffic Railing/Sound Barrier not shown for clarity)

NOTES

1. CONSTRUCTION REQUIREMENTS: Construct the Spread Footing level transversely and expansion joints plumb; do not construct the spread footing perpendicular to the roadway surface. Slip forming is not permitted.
2. CONCRETE: Use Class II concrete for slightly aggressive environments. Use Class IV concrete for moderately or extremely aggressive environments. Concrete will be in accordance with Specification Section 346.
3. REINFORCING STEEL: Provide Grade 60 reinforcing steel in accordance with Specification Section 931. 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.
4. Construct ¾" Expansion Joints plumb and perpendicular or radial to Gutter Line. Provide at 90'-0" maximum intervals as shown.
5. Provide and install Preformed Expansion Joint Filler in accordance with Specification Section 932.
6. Construct ½" V-Grooves plumb and provide at 30'-0" maximum intervals as shown. Space V-Grooves equally between ¾" Expansion Joints and/or Begin or End Spread Footing. V-Groove locations are to coincide with V-Groove locations in the Railing/Sound Barrier.
7. FILL REQUIREMENTS: Shoulder or Roadway Pavement or Fill is required on top (1'-0" minimum depth) for the entire length of the spread footing on both sides of the Railing/Sound Barrier. See Section B-B for details.
8. See Index No. 5210 for Bars 5V and 5S1.
9. Place 6 ~ Bars 5B inside Stirrup Bars 5V as shown.
10. Spacing shown is along the Gutter Line.
11. Work this Standard Drawing with one or both of the following:
    a. Index No. 5210 – Traffic Railing/Sound Barrier (8'-0").
    b. Index No. 5211 – Traffic Railing/Sound Barrier (14'-0").

CROSS REFERENCE:
For Section B-B and Detail "A", see Sheet No. 2.

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/05			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER T-SHAPED SPREAD FOOTING	5213	1

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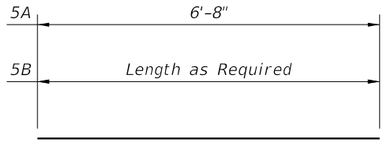
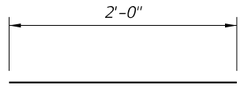
REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

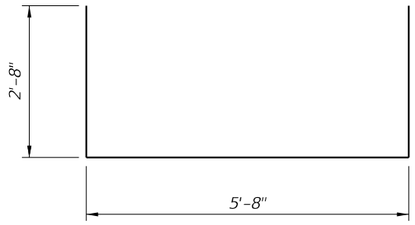
MARK	SIZE	LENGTH
A	5	6'-8"
B	5	AS REQD.
U	5	11'-0"
DOWEL	1" Ø Smooth Bar	2'-0"



BARS 5A & 5B



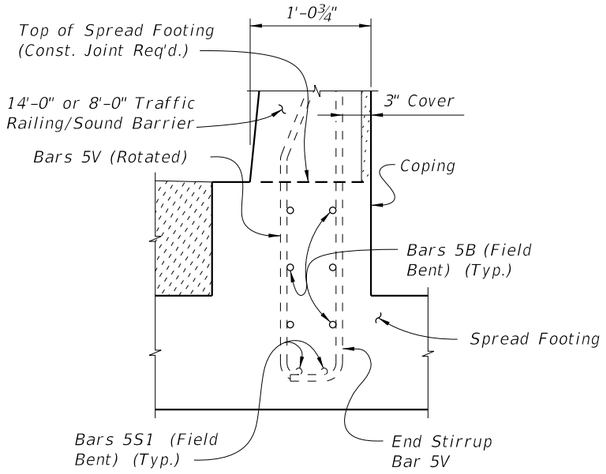
1" Ø DOWEL



BAR 5U

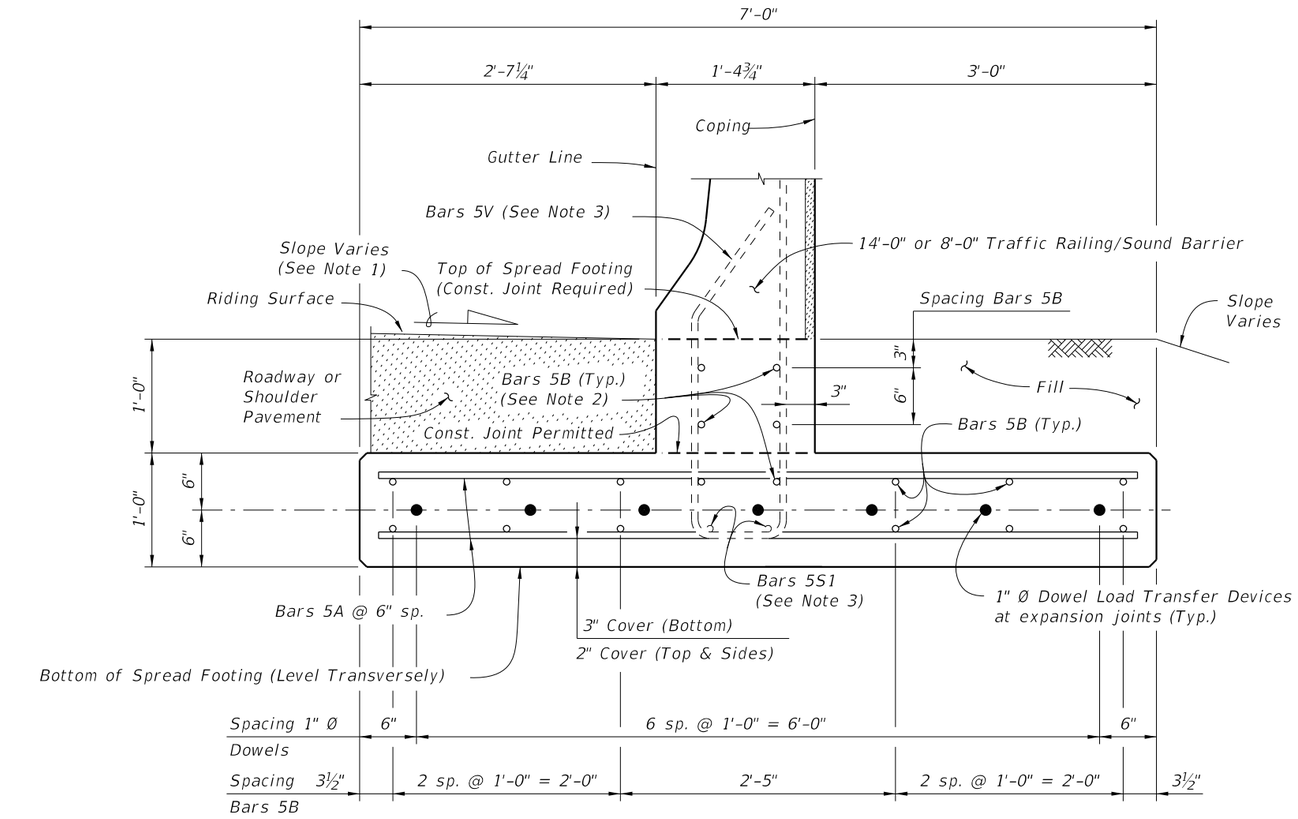
REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints will have a 2" minimum cover.
3. Lap splices for Bars 5B will be a minimum of 2'-2".
4. The Contractor may use Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement will conform to ASTM A 497.



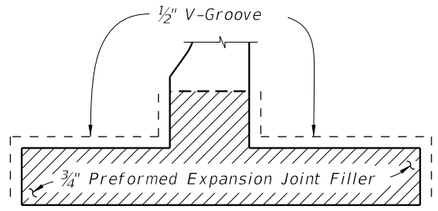
PARTIAL END VIEW OF RAILING END TRANSITION FOR GUARDRAIL ATTACHMENT
(Showing Bars 5V, Bars 5S1 and Bars 5B inside of Stirrup Bars 5V)

NOTE: See Index No. 5210, Detail "A" for details.



SECTION B-B
TYPICAL SECTION THRU SPREAD FOOTING
(Bars 5P, 5R and 5S1 in Traffic Railing/Sound Barrier not shown for clarity)

NOTES:
1. Match Cross Slope of Travel Lane or Shoulder.
2. Place 6 ~ Bars 5B inside Stirrup Bars 5V as shown.
3. See Index No. 5210 for Bars 5V and Bars 5S1.



DETAIL "A"

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

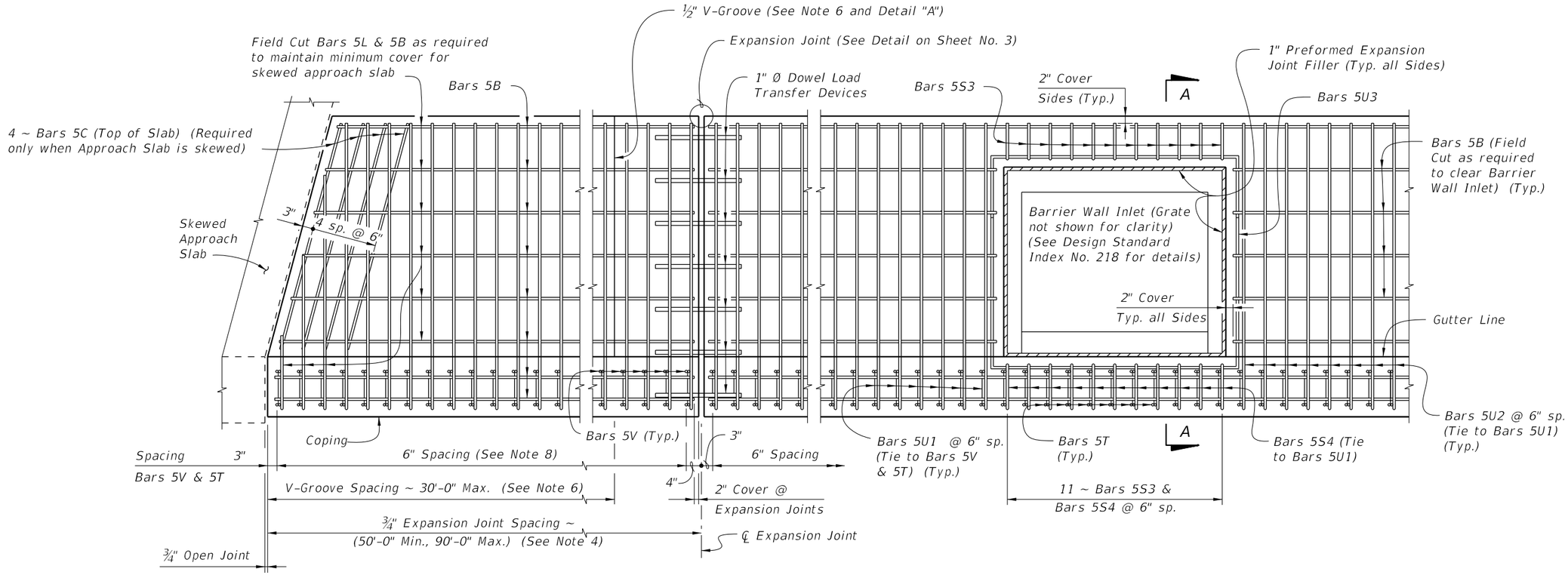
ESTIMATED T-SHAPED SPREAD FOOTING QUANTITIES

ITEM	UNIT	QUANTITY
Concrete (Footing)	CY/FT	0.311
Reinforcing Steel (Typical)	LB/FT	51.80
Additional Reinf. @ Expansion Joint	LB	37.38

Note: The reinforcing steel quantity accounts for the difference between the shorter Stirrup Bars 5V for junction slabs or bridges and the longer Stirrup Bars 5V for spread footings.

CROSS REFERENCE:
For location of Section B-B, see Sheet 1.

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/05			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER T-SHAPED SPREAD FOOTING	5213	2



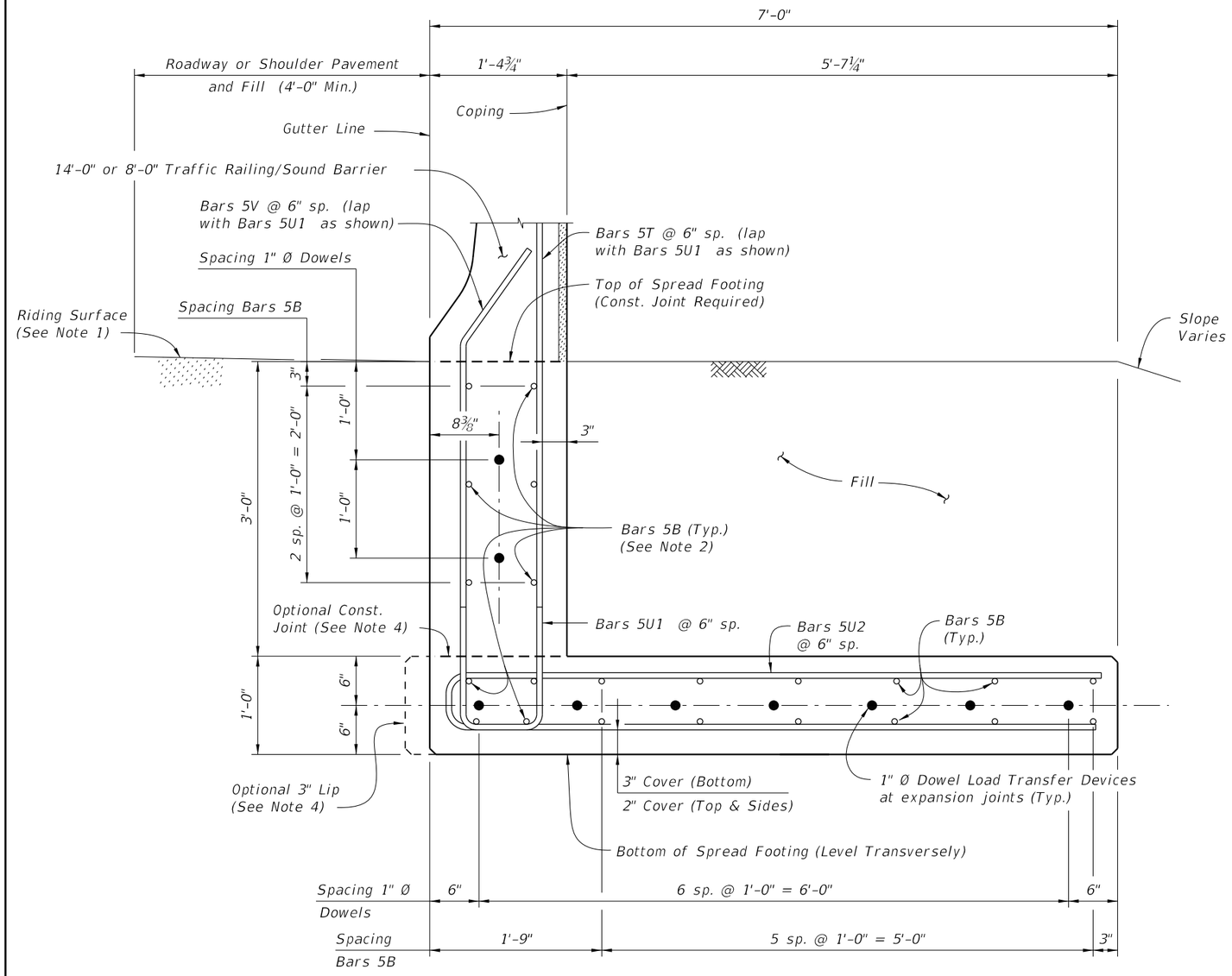
PLAN - OPTION B
SPREAD FOOTING ADJACENT TO SKEWED APPROACH SLAB AND WITH BARRIER WALL INLET
(Option A Similar)

NOTES

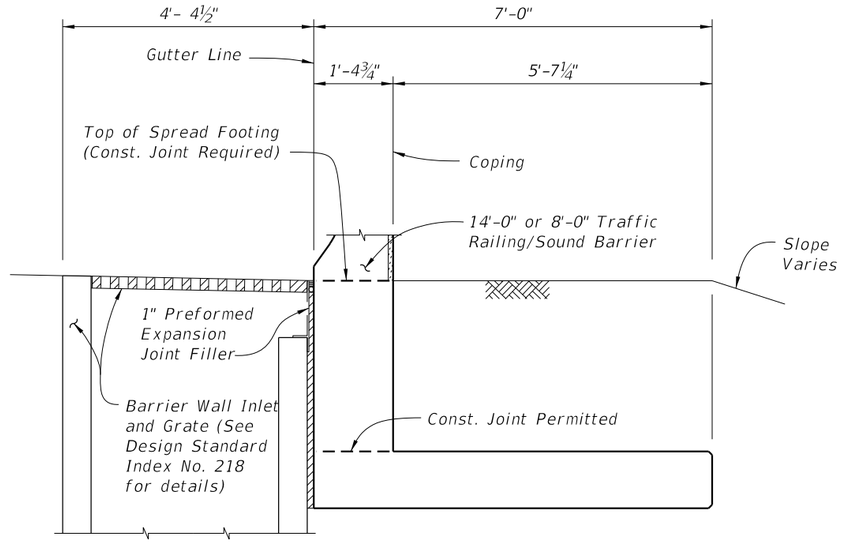
1. CONSTRUCTION REQUIREMENTS: Construct the Spread Footing level transversely and expansion joints plumb; do not construct the spread footing perpendicular to the roadway surface. Slip forming is not permitted.
2. CONCRETE: Use Class II concrete for slightly aggressive environments. Use Class IV concrete for moderately or extremely aggressive environments. Concrete will be in accordance with Specification Section 346.
3. REINFORCING STEEL: Provide Grade 60 reinforcing steel in accordance with Specification Section 931. 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.
4. Construct ¾" Expansion Joints plumb and perpendicular or radial to Gutter Line. Provide at 90'-0" maximum intervals as shown.
5. Provide and install Preformed Expansion Joint Filler in accordance with Specification Section 932.
6. Construct ½" V-Grooves plumb and provide at 30'-0" maximum intervals as shown. Space V-Grooves equally between ¾" Expansion Joints and/or Begin or End Spread Footing. V-Groove locations are to coincide with V-Groove locations in the Railing/Sound Barrier.
7. FILL REQUIREMENTS: Shoulder or Roadway Pavement and Fill is required on the traffic side of the spread footing for a distance of 4'-0" and the full length of the spread footing (3'-0" minimum depth) on the backside of the spread footing for Option A. Fill is required for a distance of 4'-0" on the backside of the spread footing and the full length of the spread footing (3'-0" minimum depth) on the traffic side of the spread footing for Option B. See Typical Sections on Sheet Nos. 2 and 3 for details.
8. Spacing shown is along the Gutter Line.
9. Work this Standard Drawing with one or both of the following:
   a. Index No. 5210 – Traffic Railing/Sound Barrier (8'-0").
   b. Index No. 5211 – Traffic Railing/Sound Barrier (14'-0").

CROSS REFERENCE:
For Detail "A", see Sheet 3.
For Section A-A and Estimated Quantities, see Sheet 4.

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/05			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER L-SHAPED SPREAD FOOTING	5214	1



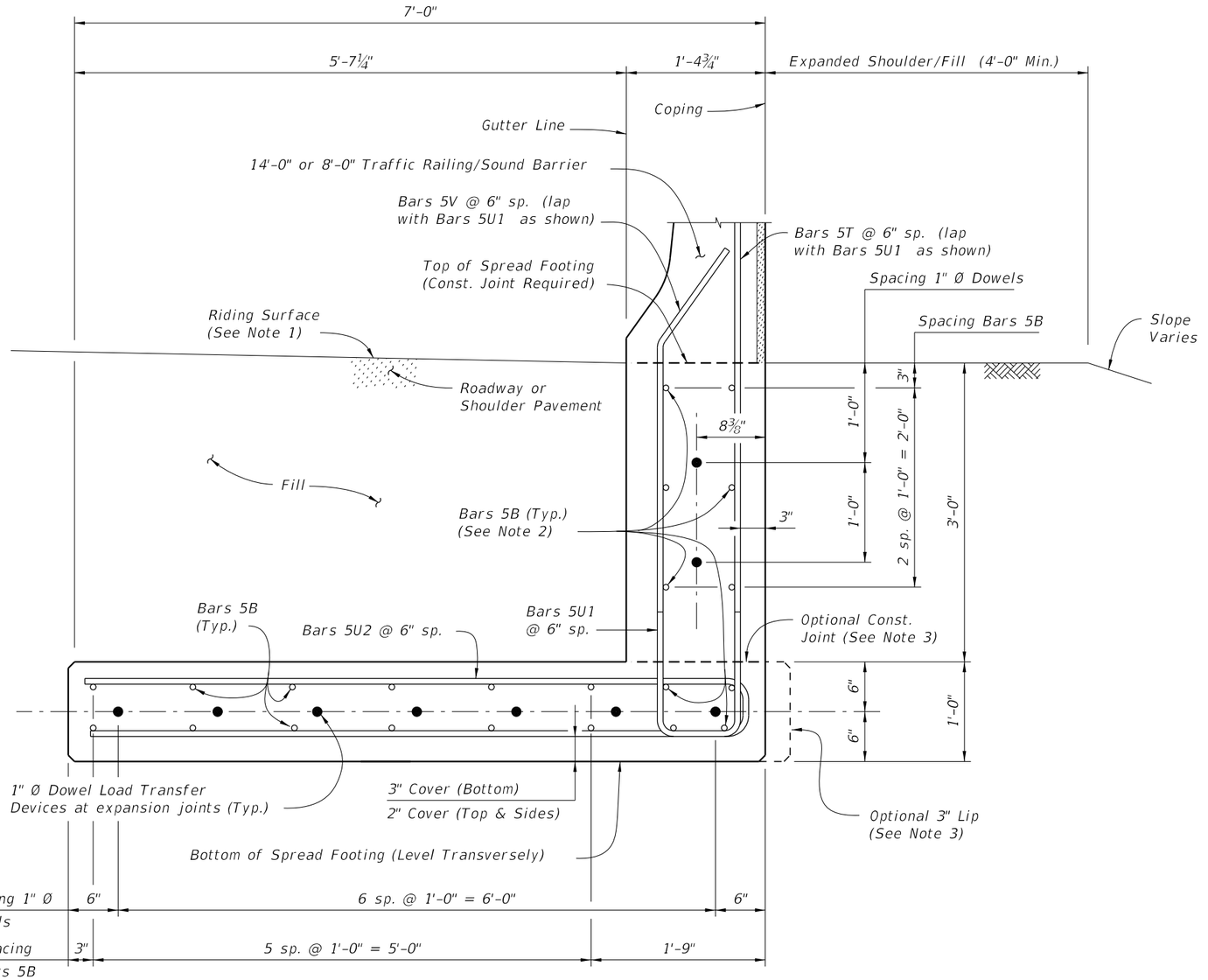
TYPICAL SECTION THRU SPREAD FOOTING - OPTION A
(Bars 5P, 5R and 5S1 in Traffic Railing/Sound Barrier not shown for clarity)



TYPICAL SECTION THRU SPREAD FOOTING AND BARRIER WALL INLET - OPTION A
(Reinforcing Steel not shown for clarity (See Note 3))

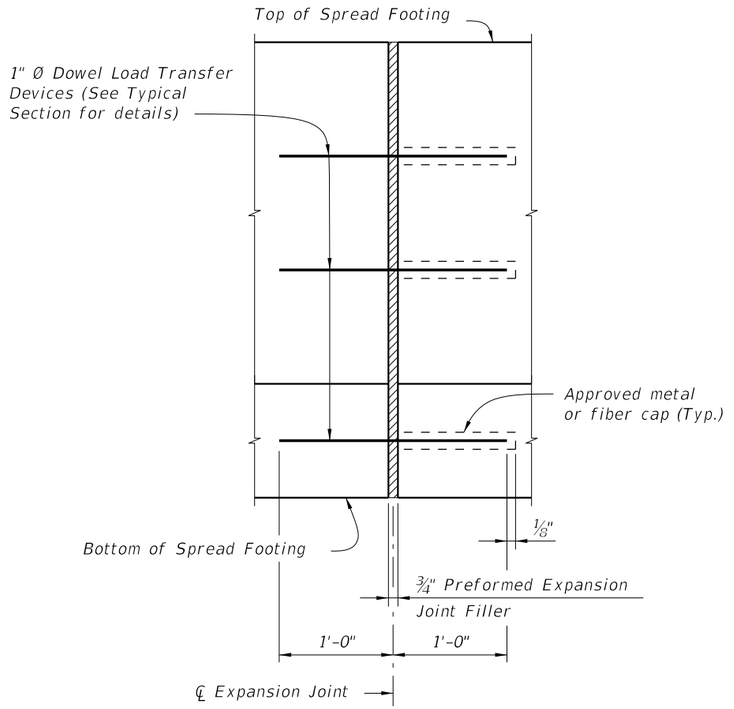
NOTES:
1. Match Cross Slope of Travel Lane or Shoulder.
2. Place 10 ~ Bars 5B inside Bars 5U1 as shown.
3. For Reinforcing Steel spacing, see Typical Section Thru Spread Footing – Option A this Sheet.
4. Provide 3" lip when optional construction joint is used.

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/05			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER L-SHAPED SPREAD FOOTING	5214	2



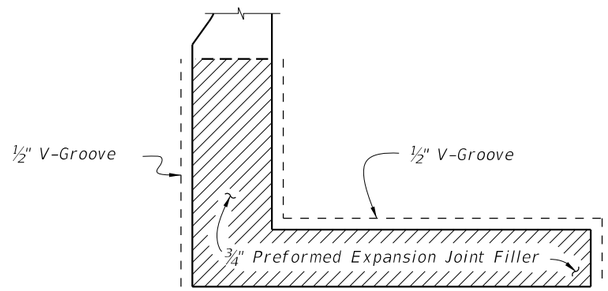
TYPICAL SECTION THRU SPREAD FOOTING - OPTION B
(Bars 5P, 5R and 5S1 in Traffic Railing/Sound Barrier not shown for clarity)

NOTES:
1. Match Cross Slope of Travel Lane or Shoulder.
2. Place 10 ~ Bars 5B inside Bars 5U1 as shown.
3. Provide 3" lip when optional construction joint is used.



EXPANSION JOINT DETAIL

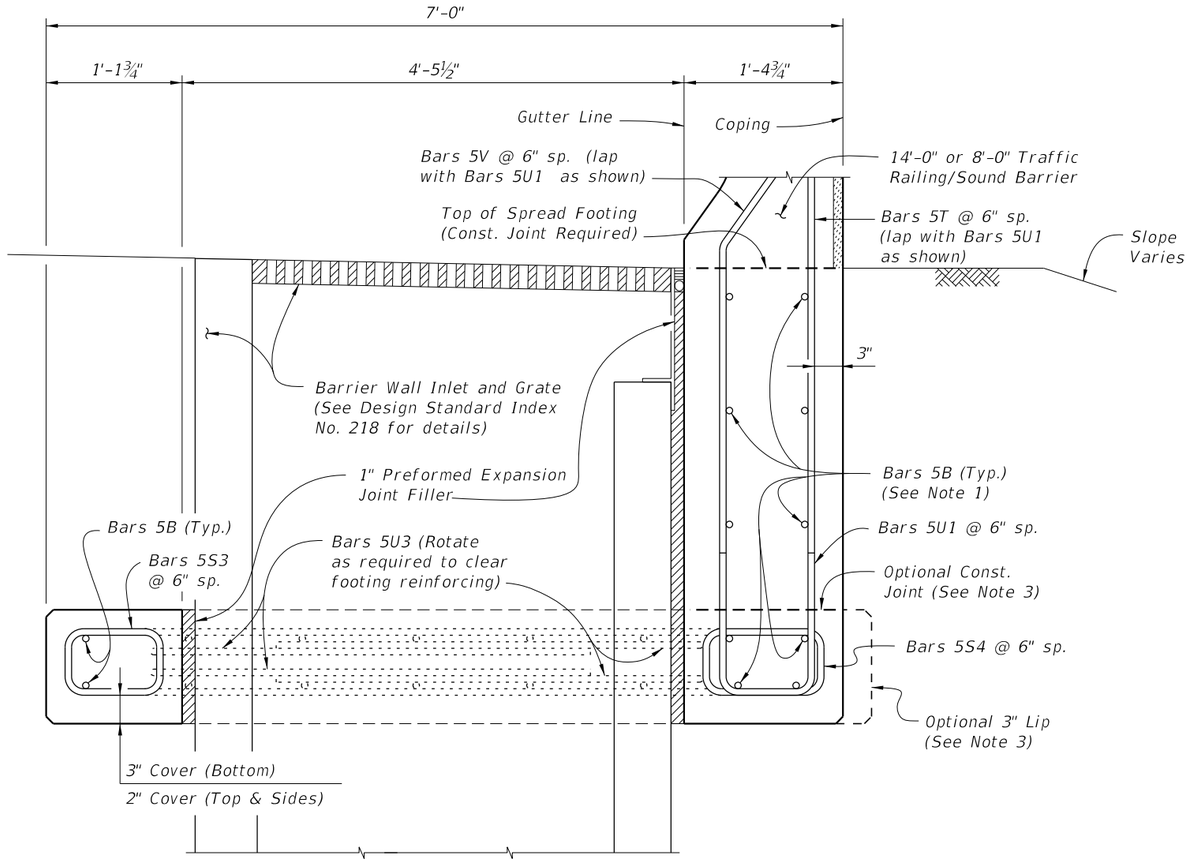
(Spread Footing expansion joints are required at ¾" open joints in Traffic Railing/Sound Barrier)



DETAIL "A"
(Option A Shown, Option B Similar)

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

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/05			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER L-SHAPED SPREAD FOOTING	5214	3



SECTION A-A
TYPICAL SECTION THRU SPREAD FOOTING AND BARRIER WALL INLET - OPTION B
(Bars 5P, 5R and 5S1 in Traffic Railing/Sound Barrier not shown for clarity)

NOTES:
1. Place 10 ~ Bars 5B inside Bars 5U1 as shown.
2. For Reinforcing Steel spacing, see Typical Section Thru Spread Footing – Option B on Sheet 3.
3. Provide 3" lip when optional construction joint is used.

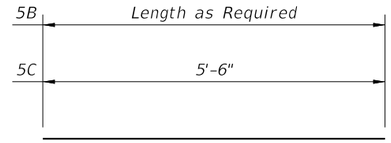
ESTIMATED L-SHAPED SPREAD FOOTING QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete (Footing)	CY/FT	0.414
Reinforcing Steel (Typical)	LB/FT	85.53
Additional Reinf. @ Expansion Joint	LB	48.06

(Subtract 12.69 lb/ft from typical reinforcing steel quantity shown on Index No. 5210 to account for the absence of Stirrup Bars 5V and 5S1 in L-Shaped Spread Footings.)

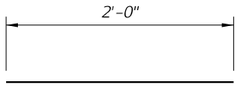
CROSS REFERENCE:
For location of Section A-A, see Sheet 1.

REINFORCING STEEL BENDING DIAGRAMS

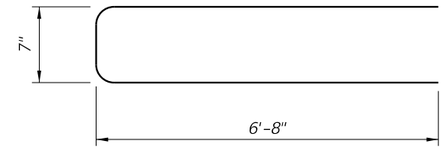
BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
B	5	AS REQD.
C	5	5'-6"
S3	5	3'-10"
S4	5	4'-3"
T	5	4'-3"
U1	5	8'-0"
U2	5	13'-11"
U3	5	12'-10"
V	5	3'-10"
DOWEL	1" Ø Smooth Bar	2'-0"



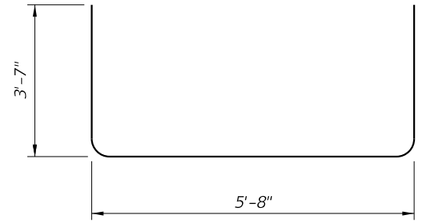
BARS 5B & 5C



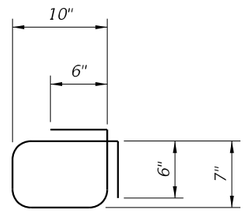
1" Ø DOWEL



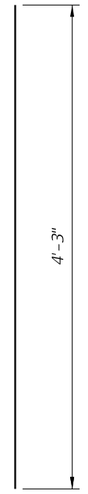
BAR 5U2

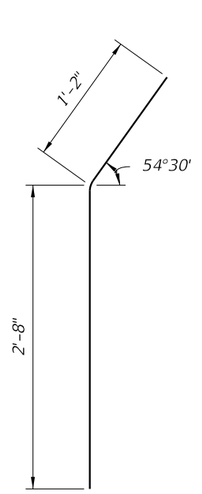


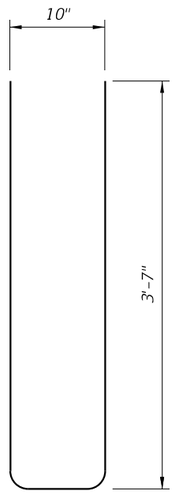
BAR 5U3



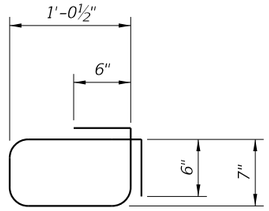
BAR 5S3







BAR 5U1



BAR 5S4

BAR 5T

BAR 5V

REINFORCING STEEL NOTES:

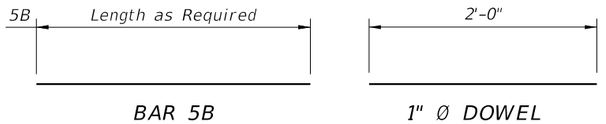
1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints will have a 2" minimum cover.
3. Lap splices for Bars 5B will be a minimum of 2'-2".
4. Lap splices Bars 5T and 5V with 5U1 will be a minimum of 2'-2".
5. The Contractor may use Welded Wire Fabric when approved by the Engineer. Welded Wire Fabric will conform to ASTM A 497.

LAST REVISION	REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER L-SHAPED SPREAD FOOTING	INDEX NO.	SHEET NO.
07/05/11					5214	4

REINFORCING STEEL BENDING DIAGRAMS

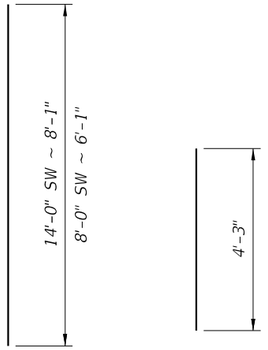
BILL OF REINFORCING STEEL

MARK	SIZE	LENGTH
A (8'-0" SW)	5	6'-1"
A (14'-0" SW)	5	8'-1"
B	5	AS REQD.
T	5	4'-3"
V	5	3'-10"
DOWEL	1" Ø Smooth Bar	2'-0"



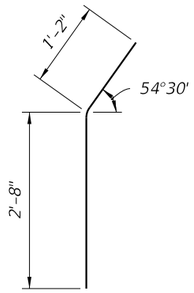
BAR 5B

1" Ø DOWEL



BAR 5A

BAR 5T



BAR 5V

REINFORCING STEEL NOTES:

1. All bar dimensions in the bending diagrams are out to out.
2. All reinforcing steel at the open joints will have a 2" minimum cover.
3. Lap splices for Bars 5B will be a minimum of 2'-2".
4. Lap splices Bars 5T and 5V with 5U1 will be a minimum of 2'-2".
5. The Contractor may use Welded Wire Reinforcement when approved by the Engineer. Welded Wire Reinforcement will conform to ASTM A 497.

NOTES

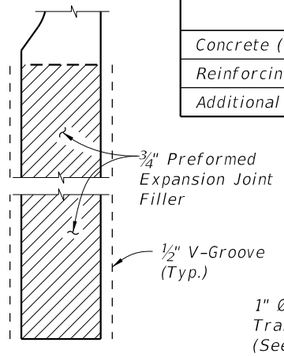
1. CONSTRUCTION REQUIREMENTS: Construct the Trench Footing and expansion joints plumb; do not construct the Trench Footing perpendicular to the roadway surface. Slip forming is not permitted.
2. CONCRETE: Use Class II concrete for slightly aggressive environments. Use Class VI concrete for moderately or extremely aggressive environments. Concrete will be in accordance with Specification Section 346.
3. REINFORCING STEEL: Provide Grade 60 reinforcing steel in accordance with Specification Section 931. 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.
4. Construct ¾" Expansion Joints plumb and perpendicular or radial to Gutter Line. Provide at 90'-0" maximum intervals as shown.
5. Provide and install Preformed Expansion Joint Filler in accordance with Specification Section 932.
6. Construct ½" V-Grooves plumb and provide at 30'-0" maximum intervals as shown. Space V-Grooves equally between ¾" Expansion Joints and/or Begin or End Trench Footing. V-Groove locations are to coincide with V-Groove locations in the Railing/Sound Barrier.
7. FILL REQUIREMENTS: Fill is required a distance of 4'-0" on both sides for the entire depth of the trench footing. See Typical Section for details.
8. Match Cross Slope of Travel Lane or Shoulder.
9. Spacing shown is along the Gutter Line.
10. Work this Standard Drawing with one or both of the following:
    a. Index No. 5210 – Traffic Railing/Sound Barrier (8'-0").
    b. Index No. 5211 – Traffic Railing/Sound Barrier (14'-0").

LEGEND: SW = Traffic Railing Barrier/Soundwall

ESTIMATED TRENCH FOOTING QUANTITIES

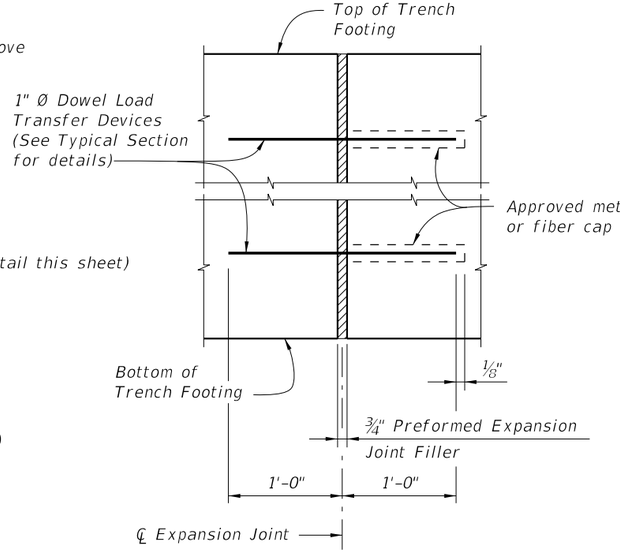
ITEM	UNIT	QUANTITY	
		8'-0" SW	14'-0" SW
Concrete (Footing)	CY/FT	0.336	0.439
Reinforcing Steel (Typical)	LB/FT	56.84	69.36
Additional Reinf. @ Expansion Joint	LB	32.04	42.72

(Subtract 12.69 lb/ft from typical reinforcing steel quantity shown on Index No. 5210 to account for the absence of Stirrup Bars 5V and 5S1 in Trench Footings.)



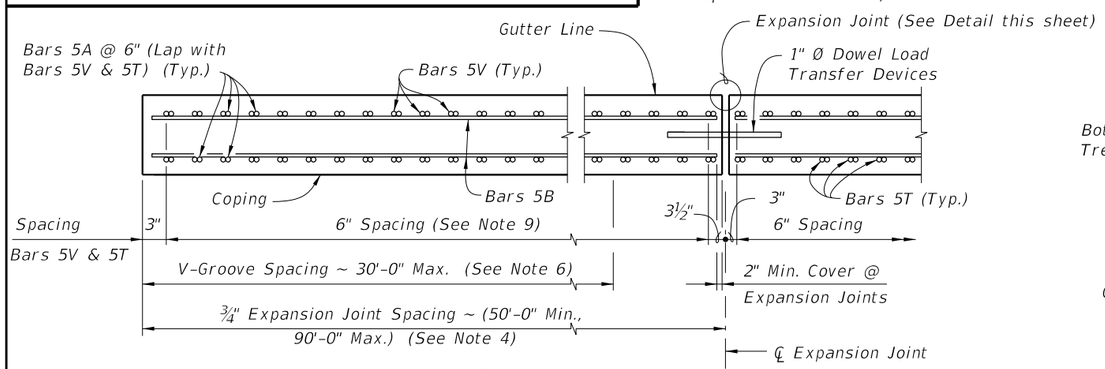
DETAIL "A"

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

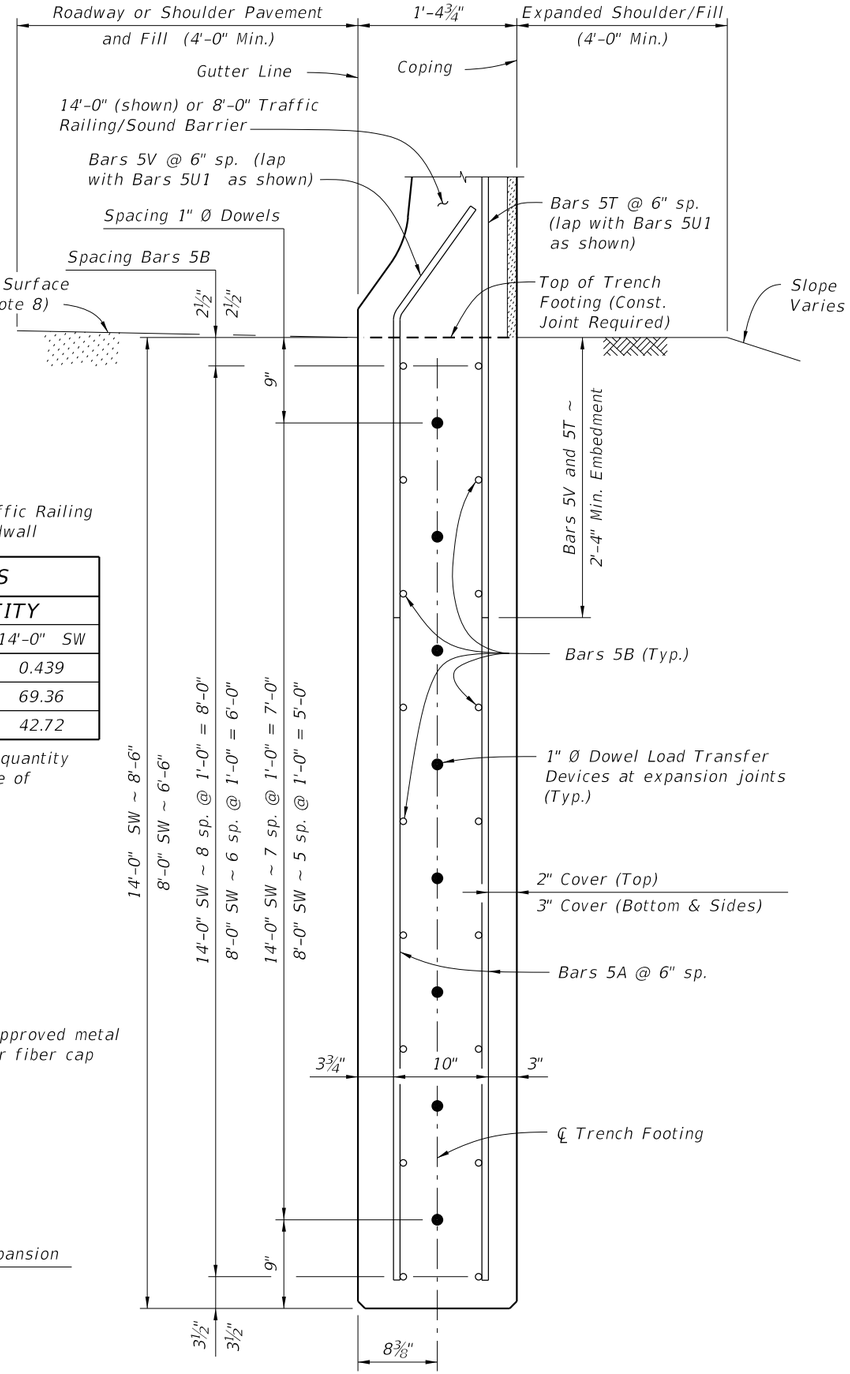


EXPANSION JOINT DETAIL

(Trench Footing expansion joints are required at ¾" open joints in Traffic Railing/Sound Barrier)



PLAN



TYPICAL SECTION THRU TRENCH FOOTING

(Bars 5P, 5R and 5S1 in Traffic Railing Barrier/Soundwall not shown for clarity)

LAST REVISION	REVISION	DESCRIPTION:				
07/01/05			FDOT DESIGN STANDARDS FY 2012/2013	TRAFFIC RAILING/SOUND BARRIER TRENCH FOOTING	INDEX NO. 5215	SHEET NO. 1