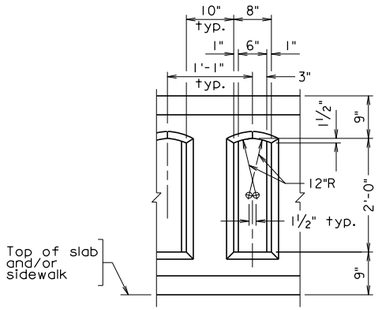
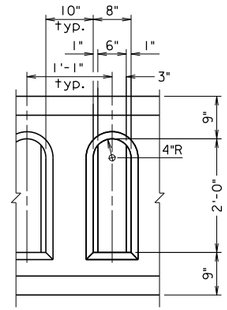
| STATE | FEDERAL AID ROUTE | FEDERAL AID PROJECT | STATE ROUTE | STATE PROJECT | SHEET NO. |
|---|---|---|---|---|---|
| VA. | — | | | | |




TYPE A

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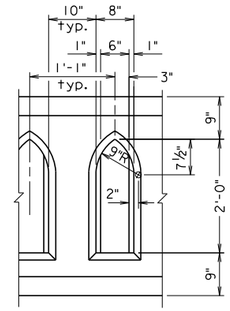
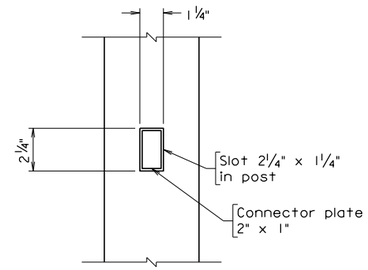
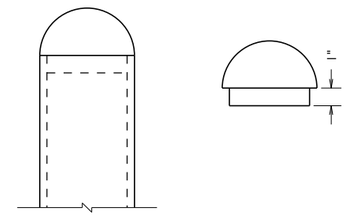



TYPE C

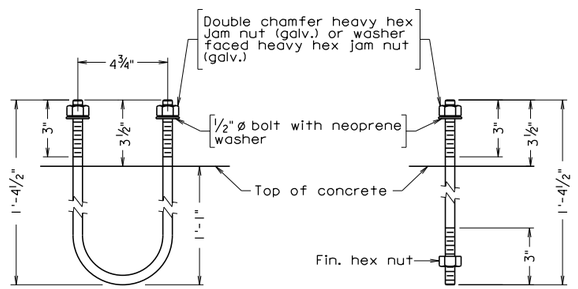
WINDOW TYPES
Scale: ¾" = 1'-0"




POST DETAIL



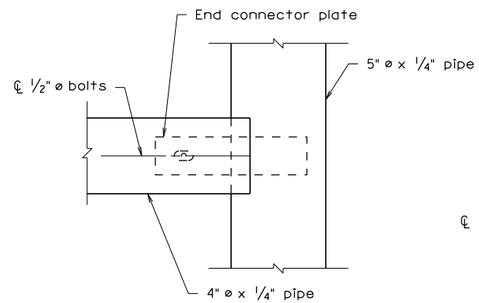

CAP DETAIL
Scale: 1" = 1'-0"



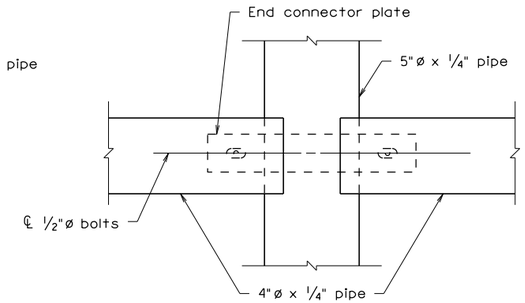

U-TYPE ANCHOR BOLT

ANCHOR BOLT

ANCHOR BOLTS




END CONNECTION DETAIL - ELEVATION

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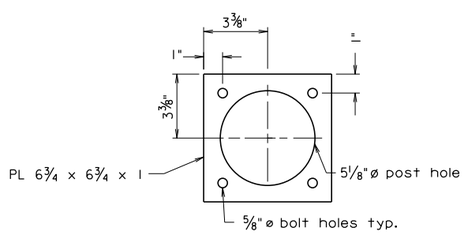
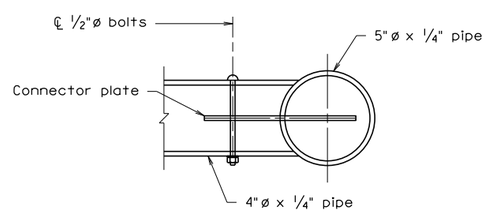
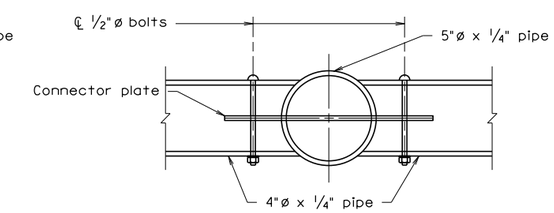



ANCHOR PLATE




END CONNECTION DETAIL - PLAN

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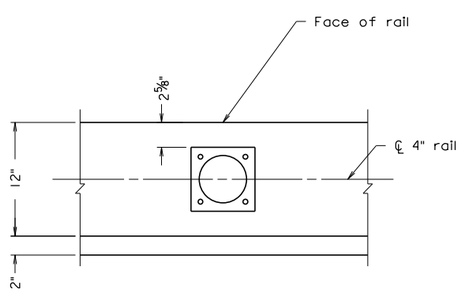
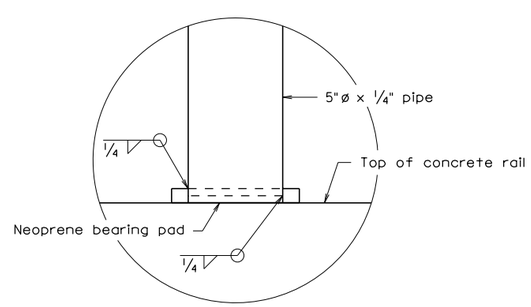
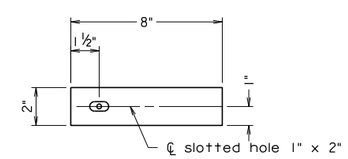


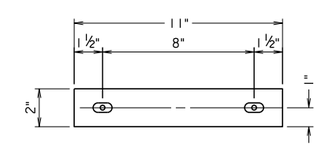

POST DETAIL - PLAN
Scale: 1½" = 1'-0"




DETAIL A




END CONNECTOR PLATE DETAILS




CONNECTOR PLATE DETAILS

Notes:

Plan dimensions shown are measured in the respective horizontal and vertical planes.

The Contractor shall determine all dimensions and details necessary for installation.

All concrete shall be Low Shrinkage Class A4 Modified.

All bevels for concrete shall be ¾".

The reinforcing steel shown has been detailed based on a standard ¼" per foot cross slope and for an 8½" slab depth. The Contractor shall adjust the reinforcing steel as required for other cross slopes and slab depths.

All reinforcing steel shall be Corrosion Resistant Reinforcing Steel, Class __.

For details and reinforcing schedule, see sheet ___.

Railing, posts, end caps, connector plates and base plates shall be aluminum with an anodized bronze finish conforming to ASTM B580, Type C. The color and finish appearance shall be established or approved by the Engineer prior to any work being performed.

Anchor bolts shall be AASTHO M314 Grade 55 with supplemental requirements of S1. Anchor bolt nuts shall be ASTM A563 and washers shall be ASTM F844.

All steel shall be hot dip galvanized.

Posts shall be seated on neoprene pads ⅛" minimum thickness, having a nominal durometer hardness of 60. Pads shall conform to post base dimensions.

Cut bottom of posts to match cross slope before welding so that posts will be vertical. Steel shims may be used for adjusting post alignment, maximum thickness of shim build-up not to exceed ⅛". Where more tilting of the post is required, the concrete shall be grounded down.

Drain holes shall be ½" diameter and shall be provided in rails approximately half-way between posts except at open joints near pier(s). Drain holes shall be provided at each end of rail.

Anchor bolts may be set normal to profile grade but may require beveled washers.

Barrier delineator size, color, and spacing shall be in accordance with the Specifications.

Spacing of grooves for U-back wings shall be approximately 8'-0". Maximum spacing of grooves in pedestal shall be limited to 3 x post spacing, shall be centered between posts and shall be no closer than 10'-0" to joints.

Bid item for railing shall include rails, rail posts, bearing pads, bolts, anchor assemblies, sleeves, barrier delineators, grounding materials and other associated metal parts as shown on the plans. Also included are concrete noted in the plans and reinforcing steel indicated in the reinforcing steel schedule.

br411 3.dgn

05-18-2016

BR411-3

Sealed and Signed by:
Prasad L. Nallapaneni
Lic. No. 033003
On the date of
May 18, 2016

A copy of the original sealed and signed standard drawing is on file in the Central Office.

VDOT S&B DIVISION
RICHMOND, VA
STRUCTURAL ENGINEER

| No. | Description | Date |
|---|---|---|
| | Revisions | |

Scale: 3" = 1'-0" unless otherwise noted.

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COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

TEXAS C411 RAILING
MISCELLANEOUS DETAILS

Designed: S&B..DIV
Drawn: ...S&B..DIV
Checked: S&B..DIV

Date

Plan No. BR411-3

Sheet No.

**CAST-IN-PLACE CONCRETE RAILING**

**TEXAS C411**

**NOTES TO DESIGNER:**

Include this standard when using either the BR411-1 or BR411-2 standard.

**ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD:**

NOTES:

Complete corrosion resistant reinforcing steel note by adding Class I, II or III. For additional information on corrosion resistant reinforcing steel (CRR), see Structure and Bridge Division Instructional and Informational Memorandum (current IIM-S&B-81).

Complete note for terminal wall.

TITLE BLOCK:

Replace standard designation with plan number.