SECTION C-C (RAILS NOT SHOWN)

POST "A" DETAILS FOR SPECIAL HEIGHT BICYCLE RAILING ON CONCRETE PARAPETS (INDEX NO. 820)

ALTERNATE ANCHOR BOLT DETAIL "A"
(Concrete Parapet Shown. Traffic Railings Similar)

2 - 7/8" x 11" Anchor Bolts threaded full length with hex nuts and washers set in drilled holes (diameter per manufacturer’s recommendation, with an Adhesive Bonding System in accordance with Sections 436 and 937 of the Specifications. Expansion Anchors are not permitted. Cutting of reinforcing steel is permitted for drilled hole installation.

NOTE: After nuts have been tightened, the bolt threads shall be deformed to prevent removal of nuts. Tack welding of nuts to anchor bolts, to prevent theft, is permitted. Coat deformed or tack welded threads with a galvanizing compound in accordance with Section 562 of the Specifications.

SECTION D-D (RAILS NOT SHOWN)

POST "B" DETAILS FOR SPECIAL HEIGHT BICYCLE RAILING ON TRAFFIC RAILINGS (INDEX NO. 423 AND 821) AND POST "B" DETAILS FOR PEDESTRIAN/BICYCLE RAILING ON CONCRETE PARAPETS (INDEX NO. 820)

SECTION E-E (RAIL NOT SHOWN)

POST "C" DETAILS FOR PEDESTRIAN/BICYCLE RAILING ON TRAFFIC RAILINGS (INDEX NO. 423 AND 821)

CROSS REFERENCES:
For Post "A" and Post "B" spacing see Index No. 820
For Post "B1" & Post "C" spacing see Index Nos. 423 or 821.
For Rail Details see Index Sheet 2.
For Railing Notes and Tapered End Transition Details see Sheet 3.
DESCRIPTION:

**SPICE INSERT BAR DETAIL (TYPE 1)**

* Use of either Type 1 or Type 2 Splice Insert Bars is at the option of the Contractor.

**RAIL SPICE ASSEMBLY DETAIL (TYPICAL AT BRIDGE EXPANSION JOINTS AND RAIL SPICE LOCATIONS)**

**RAIL CLAMP BAR DETAIL**

- Drill & tap hole to accept 3/8" Stainless Steel Fasteners

**SEE SHEET 3.**

**For Rail Notes and Tapered End Transition Details, See Sheet 3.**

**INDEX NO.**

**1/01/12**

**BRIDGE ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS**

**LAST REVISION**

**DESCRIPTION:**

- CROSS REFERENCE:
- For Rail Notes and Tapered End Transition Details, See Sheet 3.
PARTIAL PLAN OF TAPERED END TRANSITIONS
(Single Rail Shown, Double or Triple Rail Similar)

COMPOUND MITER TRANSITION (OPTION 2)

ELEVATION OF TAPERED END TRANSITION
(Single Rail Shown, Double or Triple Rail Similar)

RAIL INSTALLATION: Set Rail Posts normal to Profile Grade longitudinally and vertical transversely. Post spacings shall be at least 4'-0" maximum center. Posts shall be uniformly spaced with reasonable consistency. Set Posts on 1⁄2" thick resilient or neoprene pads in accordance with Specification Section 392.  The pad dimension shall be the same as the post base plate. Provide rail expansion joint in panels between posts on either side of Bridge Expansion Joints. Rail expansion joints shall be similar to rail splice with provision for movement equal to 1.5 times the bridge joint opening plus the expected joint movement. Take care to ensure rails are set with the proper openings. Remove any burrs or sharp edges on rails and posts to prevent injury.

RAIL SPLICES: Rails shall be continuous over a minimum of 3 posts, except those lengths less than 12' need only be continuous over 2 posts. Space splices at 40'-0" maximum centers. Splice all rails in any railing section about equal to 1.5 times the bridge joint opening or 1" greater than the expected joint movement. Take care to ensure the same center line.

RAIL END CAP: ASTM B26 sand cast aluminum alloy 356.0-F.

ANCHOR BOLTS: Anchor bolts shall be in accordance with ASTM A36 or ASTM F1554, Grade 36. Anchor Bolts, Nuts, and Washers shall be hot dip galvanized in accordance with Specification Section 962.

STAINLESS STEEL FASTENERS: 3/8" Hex Cap Screws and Washers shall be ASTM F-593, alloy group 2 (316).

RESILIENT AND NEOPRENE PADS: Resilient and Neoprene Pads shall be in accordance with Section 932. The pad dimension shall be the same as the post base plate. Provide rail expansion joint in panels between posts on either side of Bridge Expansion Joints. Rail expansion joints shall be similar to rail splice with provision for movement equal to 1.5 times the bridge joint opening or 1" greater than the expected joint movement. Take care to ensure the same center line.

SHOPS DRAWINGS: Submit typical details for straight alignments and complete details for end terminations or curved alignments with radii < 40, including post and expansion joint locations of the proposed railing for the Engineer's approval prior to fabrication.

CROSS REFERENCE:
For Post Details see Sheet 1.
For Rail Details see Sheet 2.