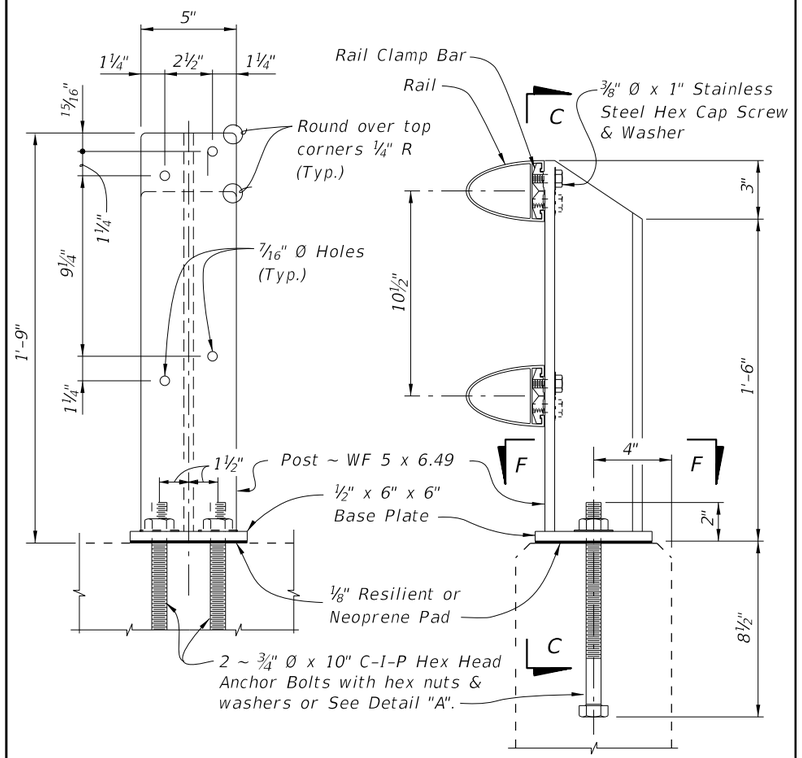
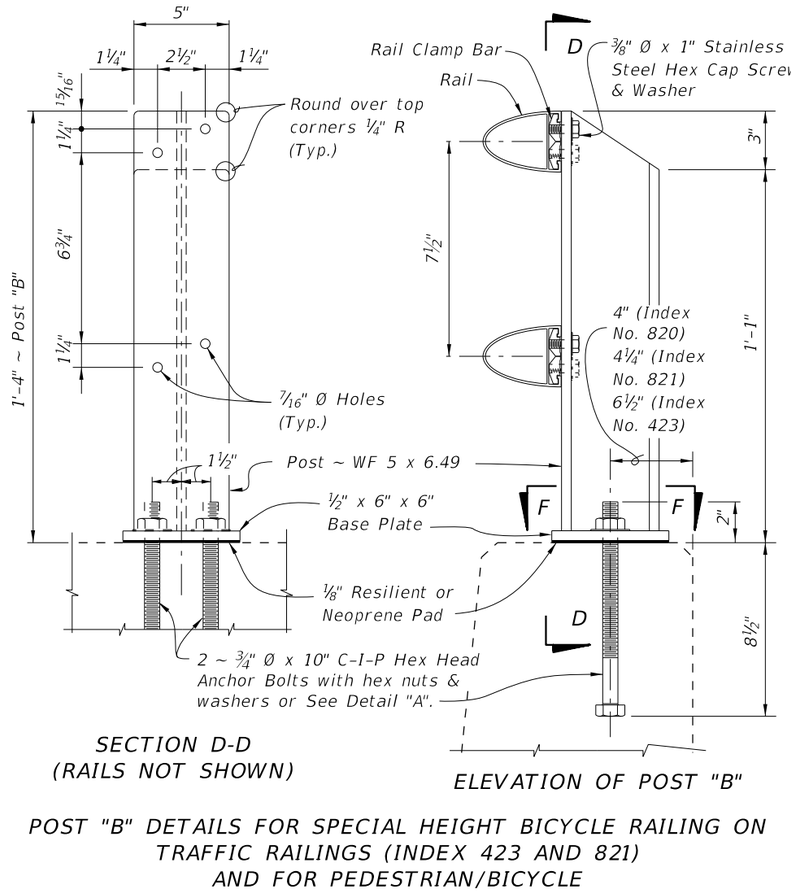


SECTION C-C
(RAILS NOT SHOWN)

ELEVATION
OF POST "D"

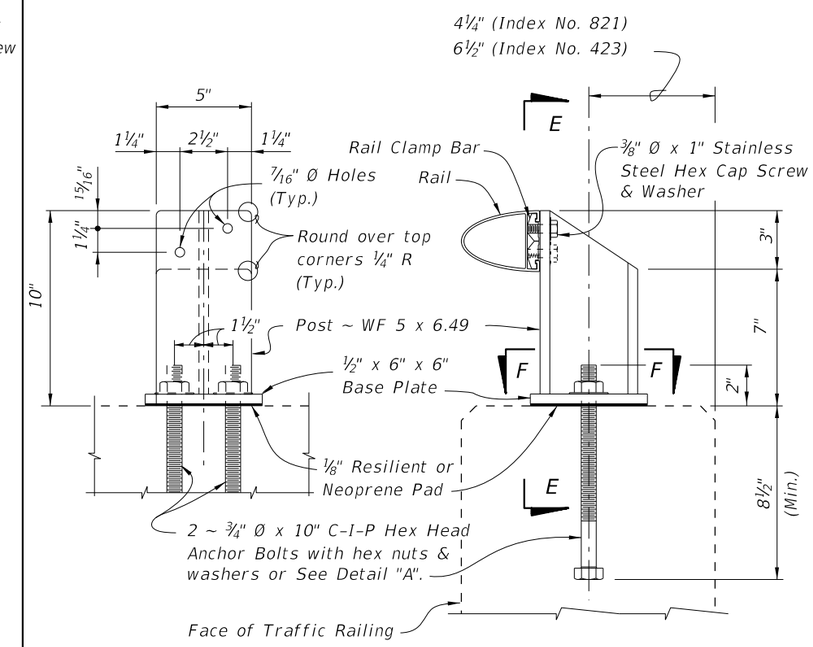
POST "D" DETAILS FOR SPECIAL HEIGHT BICYCLE RAILING
ON CONCRETE PARAPET (INDEX 820)



SECTION D-D
(RAILS NOT SHOWN)

ELEVATION OF POST "B"

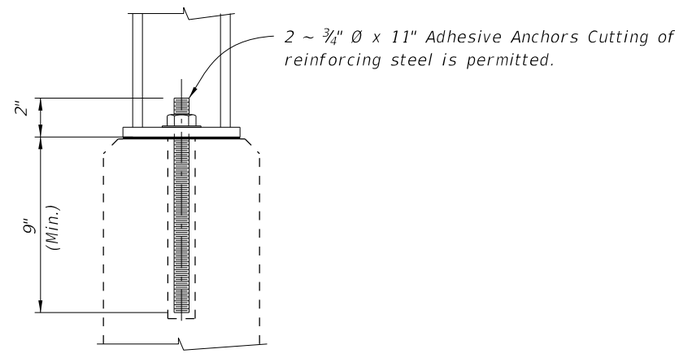
POST "B" DETAILS FOR SPECIAL HEIGHT BICYCLE RAILING ON
TRAFFIC RAILINGS (INDEX 423 AND 821)
AND FOR PEDESTRIAN/BICYCLE
RAILING ON CONCRETE PARAPETS (INDEX 820)



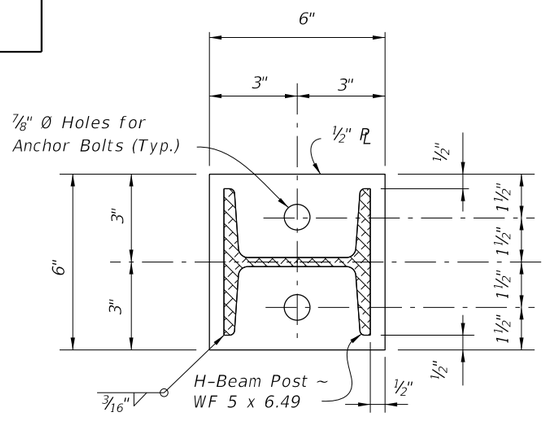
SECTION E-E
(RAIL NOT SHOWN)

ELEVATION
OF POST "C"

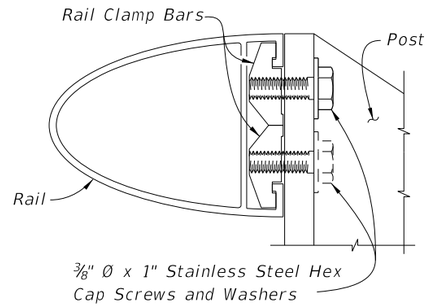
POST "C" DETAILS FOR PEDESTRIAN/BICYCLE RAILING
ON TRAFFIC RAILINGS (INDEX 423 AND 821)



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



SECTION F-F
BASE PLATE DETAIL



RAIL TO POST CONNECTION DETAIL

CROSS REFERENCES:

For Post "B" and Post "D" spacing see Index 820.

For Post "B" & Post "C" spacing see Index 423 or 821.

For Rail Details see Sheet 2.

For Railing Notes and Tapered End Transition Details see Sheet 3.

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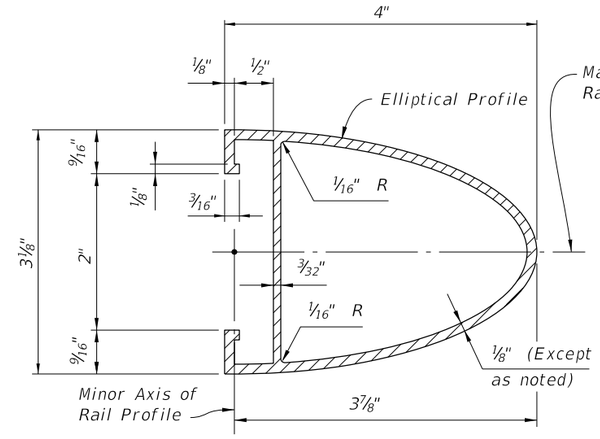
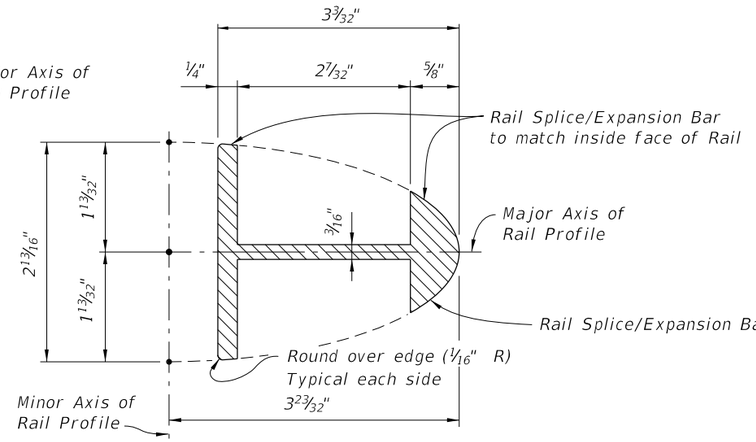
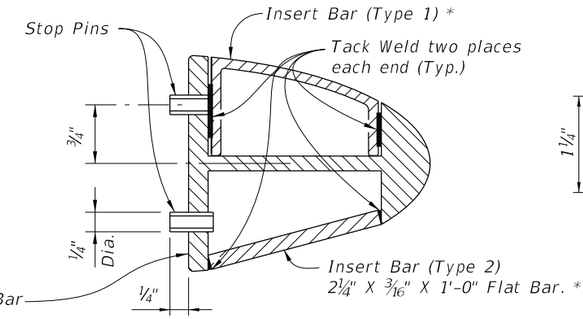
11/01/16			FY 2017-18 DESIGN STANDARDS	BRIDGE ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS	INDEX NO. 822 / SHEET NO. 1 of 3



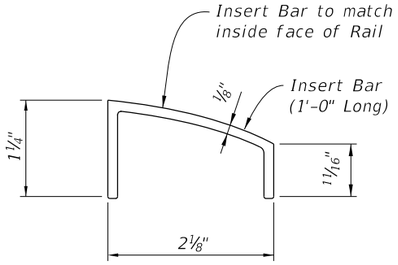
SECTION A-A
TYPICAL SECTION THRU RAIL



SECTION B-B - RAIL SPLICE/EXPANSION BAR
(Rail not shown for clarity)

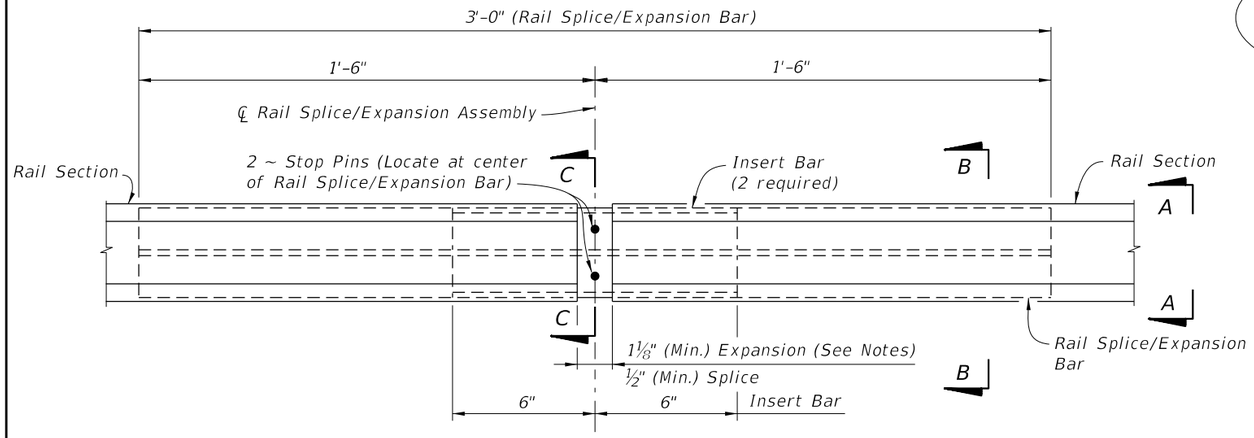


SECTION C-C
RAIL SPICE/EXPANSION
BAR ASSEMBLY

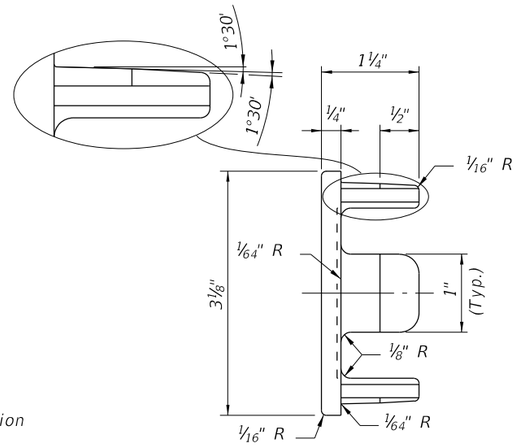


INSERT BAR DETAIL (TYPE 1)

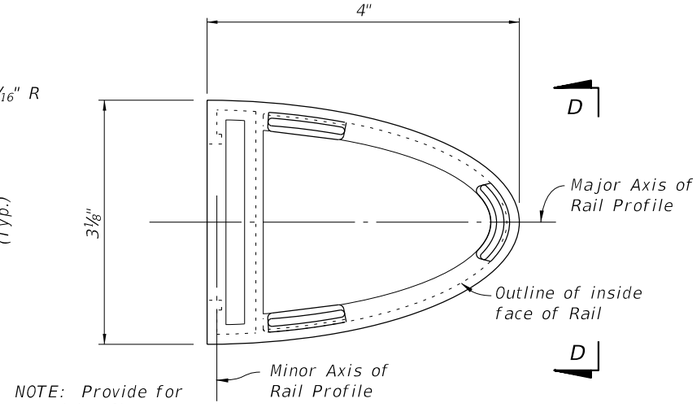
* Use of either Type 1 or Type 2 Insert Bars is at the option of the Contractor.



RAIL SPLICE/EXPANSION ASSEMBLY DETAIL



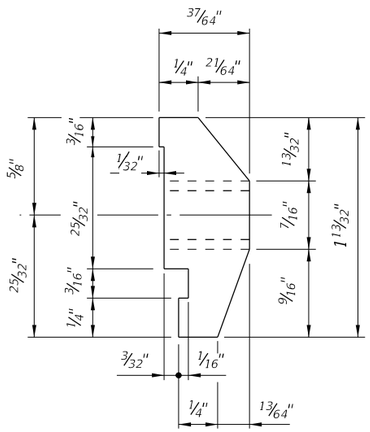
VIEW D-D



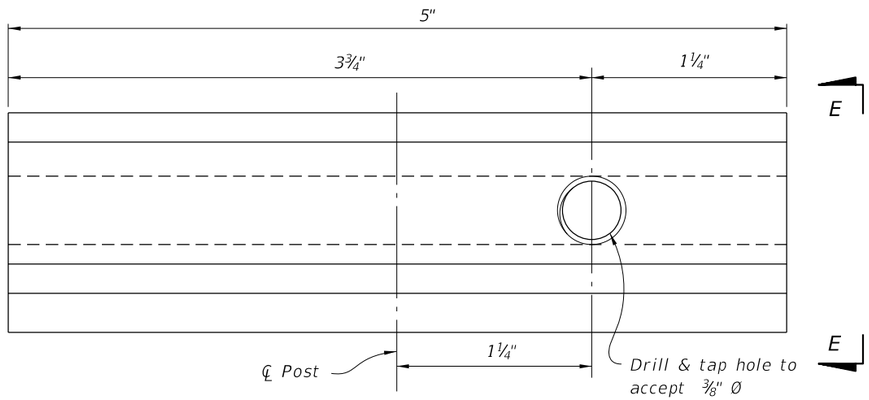
NOTE: Provide for drive fit.

RAIL END CAP DETAIL

CROSS REFERENCE:
For Notes and Tapered End Transition Details, See Sheet 3.



VIEW E-E



RAIL CLAMP BAR DETAIL

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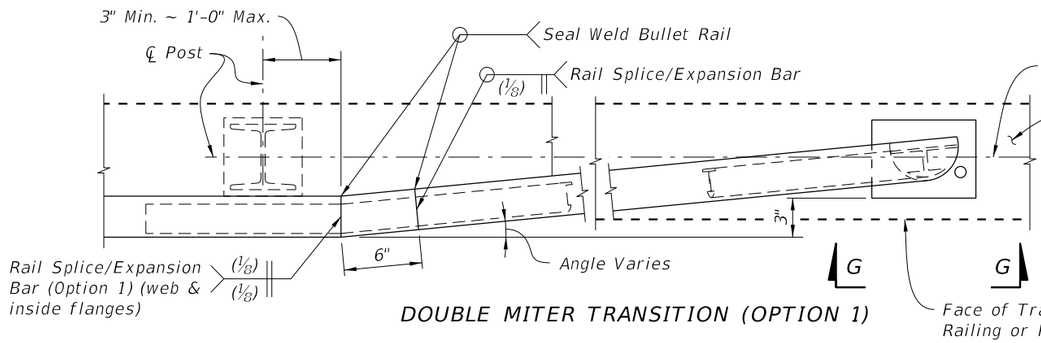
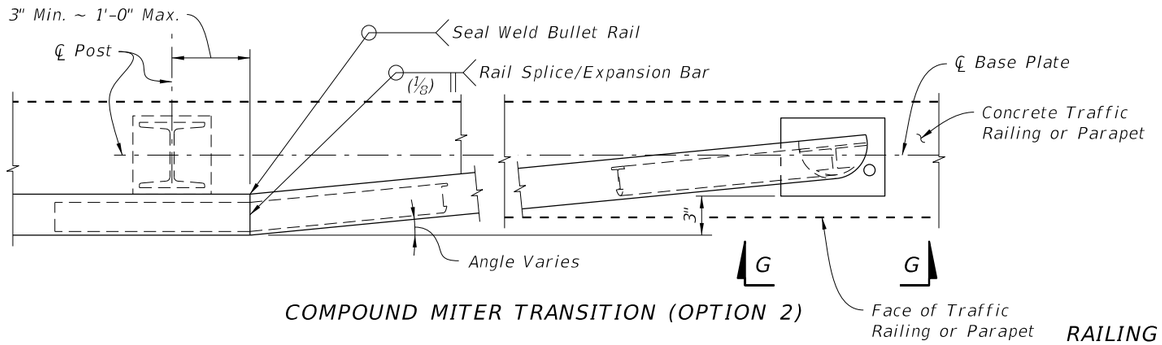
07/01/14			FY 2017-18 DESIGN STANDARDS	BRIDGE ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS	822	2 of 3

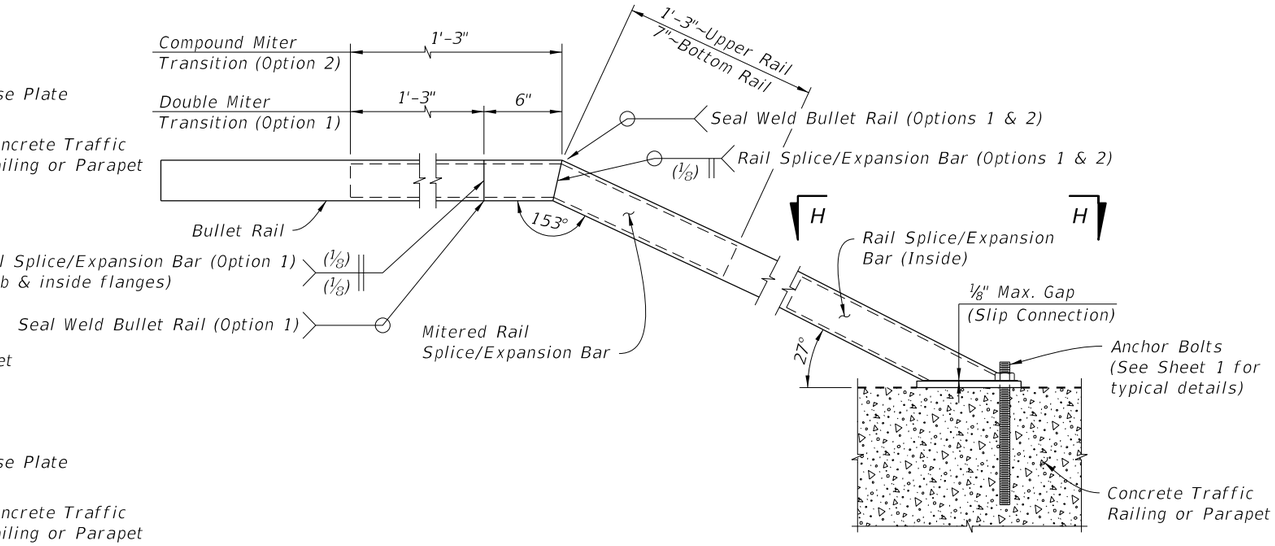


DOUBLE MITER TRANSITION (OPTION 1)

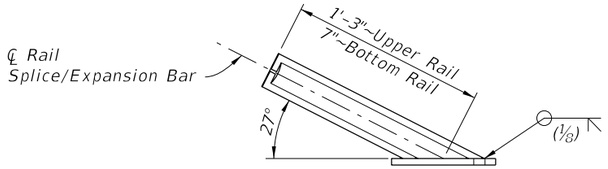


COMPOUND MITER TRANSITION (OPTION 2)

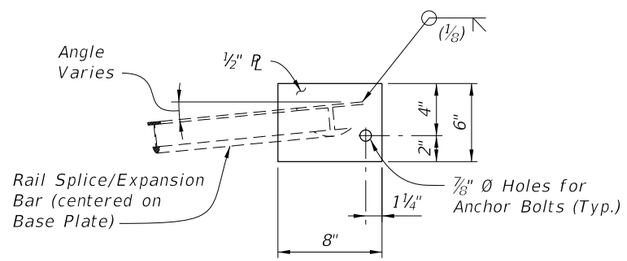
PARTIAL PLAN OF TAPERED END TRANSITIONS
(Single Rail Shown, Double or Triple Rail Similar)



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



VIEW G-G TRANSITION BASE PLATE
(Bullet Rail not shown for Clarity)



VIEW H-H TRANSITION BASE PLATE
(Bullet Rail not shown for Clarity)

RAILING NOTES:

1. Work this Index with Index 423, 820 and 822 and Specification Section 515.
2. Shop Drawings: Submit shop drawings prior to fabrication.
   a. Include post and rail splice/expansion assembly location for curved alignments with radii < 40 feet and for all end terminations.
3. Materials:
   a. Supply Aluminum materials In accordance with Specification Section 965 and the following:
      Wrought Aluminum Post: ASTM B221, Alloy 6061-T6 or 6351-T5
      Rail End Cap: ASTM B26 sand cast aluminum alloy 356.0-F
      Plate and Bars: ASTM B209 Alloy 6061-T6
      Rails: ASTM B221 Alloy 6061-T6 or 6351-T5.
      Stop Pins: Press-fit aluminum or stainless steel pins or tubes
   b. Stainless Steel Fasteners: ASTM F-593, Alloy Group 2 (316).
4. Layout:
   a. Posts shall be uniformly spaced with reasonable consistency.
   b. Tapered End Transitions are required at the terminus of the approach ends of Bullet Railing mounted on a Traffic Railing. Bullet Railings on concrete parapets shielded by a traffic railing do not require Tapered End Transitions unless noted otherwise in the Plans.
   c. Adjust post spacing's to avoid parapet obstacles, such as armor expansion plates, by 9 inches minimum.
   d. Rails shall be continuous over a minimum of 3 posts, except that lengths less than 12 feet need only be continuous over 2 posts.
   e. Space splices at 40 feet maximum. Splice all rails in a given railing section at about the same center line.
   f. Provide rail expansion assemblies in panels between posts on either side of a bridge expansion joint. Rail expansion assemblies are similar to the rail splice assemblies with increased space at the expansion assembly to allow for movement equal to 1.5 times the bridge joint opening or 1" greater than the expected joint movement.
5. Installation:
   a. Set rails near bridge expansion joints to allow for expected movement.
   b. Cutting of reinforcing steel is permitted for post installed anchors.
6. Payment: Includes the full cost of installed bullet railing. Cost of the Concrete Parapet or Traffic Railing is separate.

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11/01/16					822	3 of 3