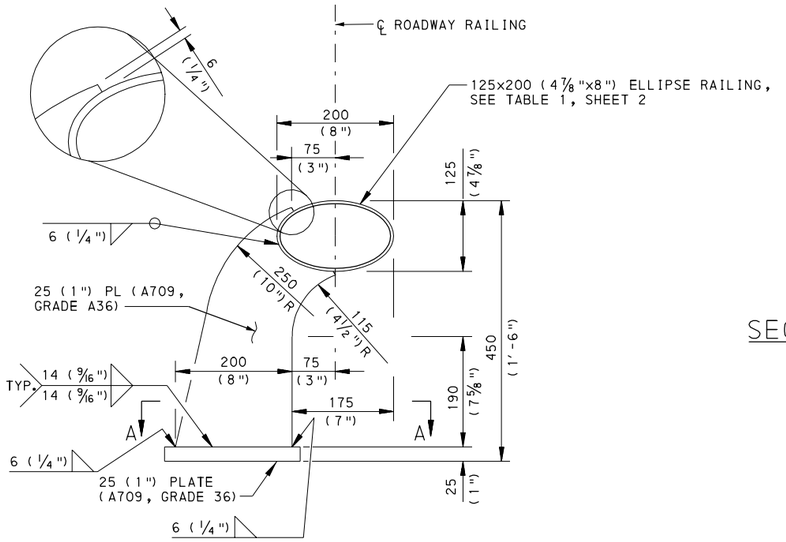
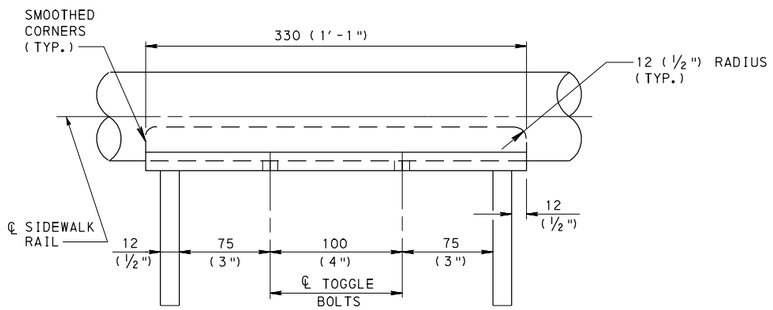
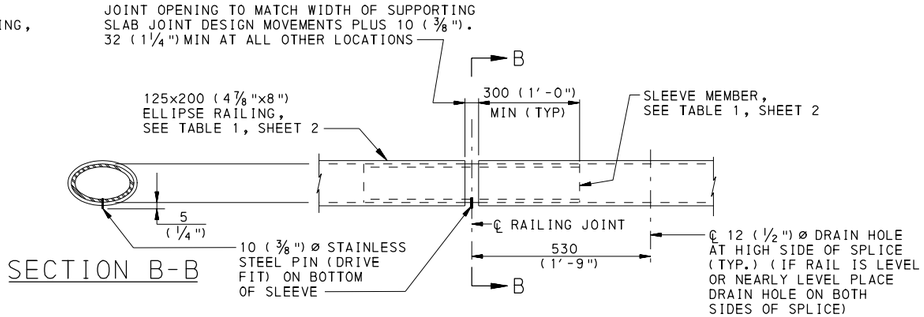


ELEVATION-POST
(TYPICAL)



SECTION C-C

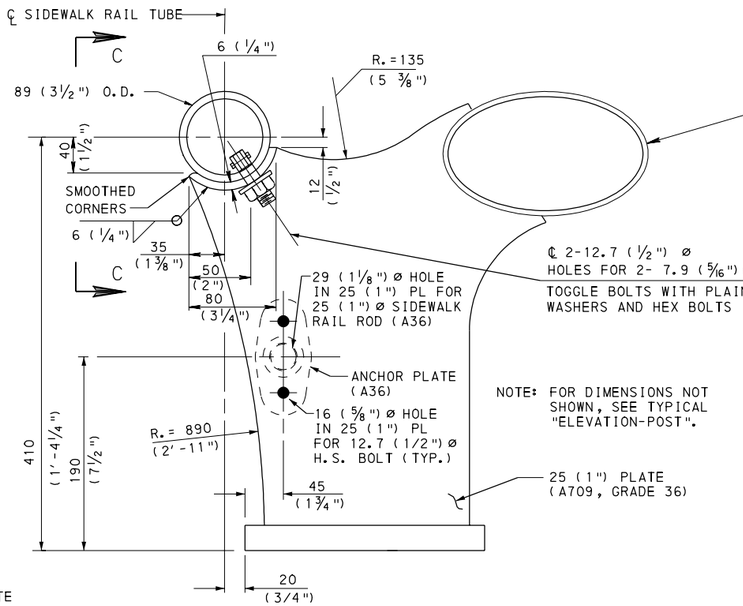


SECTION B-B

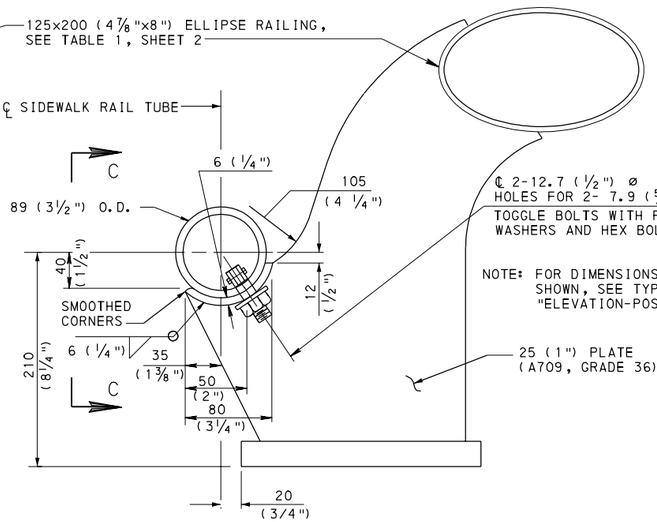
ELLIPSE RAILING SPLICE

NOTES:

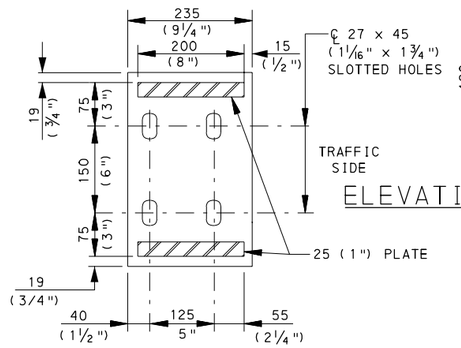
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN ( ) PARENTHESES.
2. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PUBLICATION 408.
3. GALVANIZE ALL RAILING COMPONENTS (AFTER FABRICATION) IN ACCORDANCE WITH SECTION 1105.02(s), PUBLICATION 408 UNLESS OTHERWISE SHOWN ON THE PLANS.
4. COAT ALL SURFACES OF THE BASE PLATE IN CONTACT WITH CONCRETE WITH CAULKING COMPOUND PRIOR TO ERECTION. AFTER ERECTION AND ALIGNMENT, SEAL OPENINGS BETWEEN THE METAL SURFACES AND THE CONCRETE WITH CAULKING COMPOUND MEETING THE REQUIREMENTS OF SECTION 705, PUBLICATION 408.
5. OTHER SECTIONS OF EQUAL OR GREATER STRENGTH ARE ACCEPTABLE FOR SLEEVES.
6. THE MAJOR AND MINOR DIAMETERS OF THE RAIL MEMBER MAY VARY +/- 5 mm (0.1875 INCHES) FROM PLAN DIMENSION. HOWEVER, THE DIFFERENCE BETWEEN THE OUTSIDE DIAMETERS OF THE SLEEVE AND THE INSIDE DIAMETERS OF THE RAIL SHALL NOT EXCEED 3 mm (0.125 INCHES) ALONG THE MAJOR OR MINOR AXIS. GAPS EXCEEDING THIS AMOUNT UP TO 6 mm (0.25 INCHES) ARE PERMISSIBLE ALONG THE 45° AXES OF THE SLEEVES.
7. PLACE POST AND POST ANCHOR BOLTS NORMAL TO GRADE AND RAILS PARALLEL TO GRADE.
8. FOR SIDEWALK RAIL TUBE SPLICE DETAILS, SEE SHEET BC-720M.



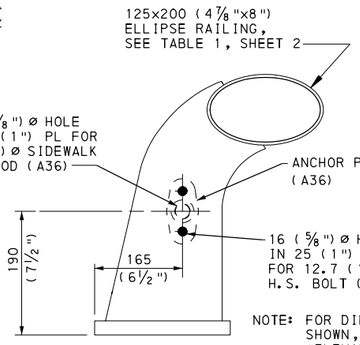
ELEVATION-RAISED SIDEWALK POST



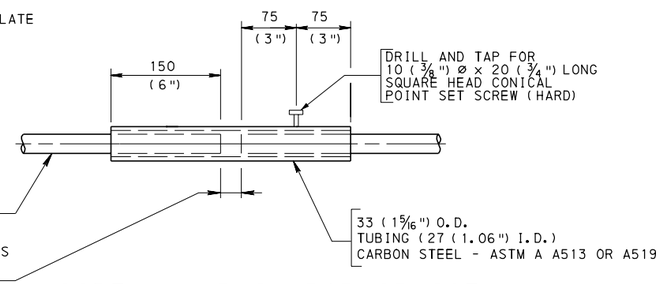
ELEVATION-SIDEWALK POST



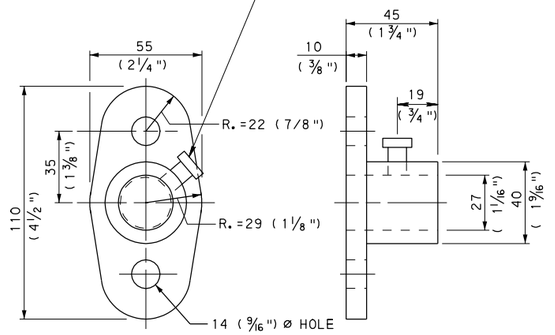
SECTION A-A



ELEVATION-ALTERNATE SIDEWALK POST



SIDEWALK RAIL ROD SPLICE



FRONT SIDE

ANCHOR PLATE DETAIL

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

STANDARD

PA HT BRIDGE BARRIER MISCELLANEOUS DETAILS

BC-720M	ALUMINUM OR STEEL BRIDGE HAND RAILING
REFERENCE DRAWINGS	

RECOMMENDED JAN. 21, 2003	RECOMMENDED JAN. 21, 2003	RECOMMENDED JAN. 21, 2003	SHEET 1 OF 5
R. Scott Christ — CHIEF BRIDGE ENGINEER	Dean A. Sch — DIR., BUREAU OF DESIGN	Gary F. Hoffman — CHIEF ENG., HWY. ADMIN.	BC-707M

OS-2 (4-01)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
www.dot.state.pa.us

October 25, 2005

Mr. James A. Cheatham, P.E.
Division Administrator
Federal Highway Administration
228 Walnut Street, Room 536
Harrisburg, PA 17101-1720

RE: PENNDOT Bridge Standard BC-707M
PA HT Bridge Barrier
FHWA Acceptance of PENNDOT Tube Rail Specification

Dear Mr. Cheatham:

In response to PENNDOT discussions with William Williams, P.E., of your staff, PENNDOT now requests your formal review and approval of re-submitted proposed PA HT Rail Tube specification entitled "PA HT – Bridge Barrier Railing." (See attached.)

This specification was originally submitted as part of our standards clearance transmittal and final acceptance submissions made earlier this year. As per FHWA request, PENNDOT has since reviewed the attached proposed PA HT Bridge Rail Specification with Industry, and the new proposed process includes excerpts from current American Petroleum Institute (API) Standards.

Upon approval, this proposed specification is to be inserted into the current PENNDOT construction manual, Specifications Publication 408 Change Number 6.

With this approval, PENNDOT will add annotations appropriate to this new specification into the existing BC-707M PA HT Bridge Barrier standard.

PENNDOT will be pleased to discuss this proposed specification with your staff, if desired. If you have any questions or comments, please contact Mr. Bryan Spangler, P.E., Bridge Quality Assurance Division, at (717) 783-5347.

Approved:

OCT 31 2005
(Date)

for Division Administrator
Federal Highway Administration

Sincerely,

for M. G. Patel, P.E.
Chief Engineer for
Highway Administration

Enclosure

SECTION 1087—PA HT BRIDGE BARRIER RAILING

1087.1 DESCRIPTION— This work is the construction of a PA HT Bridge Barrier Railing. The Fabricator of the railing must be listed in Publication 35, Bulletin 15 Approved Construction Materials as an approved fabricator of HT Bridge Barrier Railing.

1087.2 MATERIAL— Unless otherwise specified, galvanize steel materials as specified in Section 1105.02(s). Before fabrication, submit shop drawings as specified in Section 105.02(d) for review and acceptance.

(a) Railing.

- Steel Rails. ASTM A 53/A 53M, Type E or S, Grade B, or A.P.I. 5LX52 PSL2, subsequently extruded or cold-pressed into desired elliptical shape.

  Alternate: Pipe rail may also be produced continuously off a pipe mill in an elliptical shape in accordance with the chemical, mechanical, and testing requirements of API 5L Grade X52 PSL 2 seamless or electric resistance welded, except as modified below:

  The inside flash for elliptical pipe used in a SLEEVE application is not required to be removed.

  Eddy current testing of the weld line in accordance with the latest edition of ASTM E309, calibrated to 1/8th inch drilled hole, is acceptable.
  Standard Operating procedure is as follows:

  1. Drill reference holes in the weld-line area during production for calibration. This area shall be passed through the inspection system at production speeds. Signal levels shall be adjusted to provide a suitable signal-to-noise ratio for the material being inspected.

  2 Signal level shall be adjusted to produce a minimum of 75% deflection on the strip chart recorder. The phase setting is adjusted, so signals are in between gate settings.

  3. The marking system shall be adjusted to spray any signal exceeding referenced hole calibration height of 75%.

  Documentation of Standard Operating Procedure will be maintained to include daily verification checks.

  Flattening test of the elliptical shape (sample shall be cut from the leading and trailing end of each coil) with the weld line located between the 10 o'clock and 2 o'clock position is acceptable. Flattening test shall be done to 1/3 rd of the original outside diameter without the weld opening.

  Hydrostatic testing is not required for the elliptical pipe.

  Pipe ends shall be square cut.

- Steel Rail Sleeve Member. ASTM A 53/A 53M, Type E or S, Grade B; ASTM A 36/A 36M or ASTM A 500, Grade B, or A.P.I - 5LX52, PSL 2, subsequently extruded or cold pressed into the desired shape. Acceptable Alternate; See Steel Rails above.
- Sidewalk Rail Tubes. Section 1022.2(a)
- Toggle Bolts for Sidewalk Rail Tube. Section 1022.2(b)
- Sidewalk Rail Rod. ASTM A 36/A 36M
- Sidewalk Rail Rod Splice. ASTM A 513 or A 519
- Railing Posts and Base Plates. Section 1105.02(a)2
- Test Requirements for Post Welds. All welds on all posts will be visually inspected. In addition, at least 10% of the posts in a lot as defined in AWS DI.5-2002, Section 6.7.1.2(2))c), will be inspected as follows: Magnetic particle testing will be performed over the full length of the welds on all posts inspected. If unacceptable discontinuities are found in any of the welds tested, an additional 10% of the posts in the same lot will be inspected. If unacceptable discontinuities are found in any of the welds tested in the second group of posts, all of the remaining posts in the lot will be inspected.

• Miscellaneous. Section 1105.02(a)2
Certify as specified in Section 106.03(b)3.
(b) Anchor Bolts, Nuts, and Washers. Section 1105.02(c), galvanized as specified in Section 1105.02(s).
(c) Caulking Compound. Section 705.8.

1087.3 CONSTRUCTION—As shown on the Standard Drawings, the Contract Drawings, and as follows:
Before erection, use caulking compound and thoroughly coat surfaces of posts in contact with concrete. After erection and alignment, use caulking compound and seal openings between metal surfaces and concrete.
Remove blemishes and scratches from exposed surfaces. For areas that have been damaged, exposing base metal, repair galvanizing in accordance with ASTM A780.
Place joints, as indicated.
Do not open bridge to traffic until bridge railing is placed.

1087.4 MEASUREMENT AND PAYMENT—Meter (Linear Foot), measured from end to end of barrier railing.