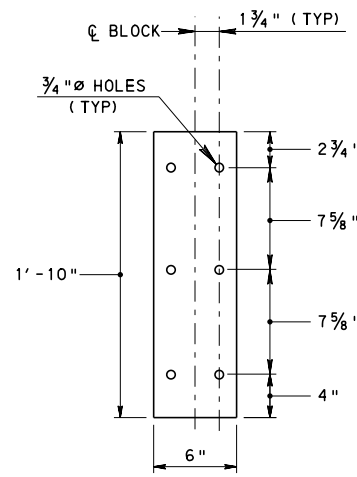


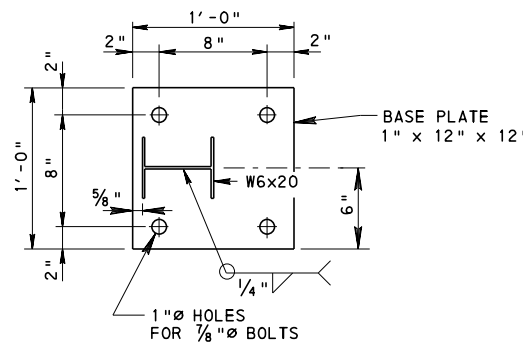
GENERAL NOTES:

1. PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH PUBLICATION 408.
2. PROVIDE RAILING TUBES CONFORMING TO ASTM A500 OR A501, GRADE AS SPECIFIED BASED ON PROVIDED WALL THICKNESS.
3. PROVIDE RAILING POSTS CONFORMING TO AASHTO M270 (ASTM A709) GRADE 50 OR ASTM A992. PROVIDE BASE PLATES CONFORMING TO AASHTO M270 (ASTM A709) GRADE 50.
4. ALL RAILING COMPONENTS SHALL BE GALVANIZED (AFTER FABRICATION) ACCORDING TO PUBLICATION 408, SECTION 1105.02(s) UNLESS OTHERWISE SHOWN ON THE PLANS. GALVANIZE RAIL TUBES, POSTS, AND BASE PLATES ACCORDING TO ASTM A123. GALVANIZE ALL HARDWARE ACCORDING TO ASTM A153 OR B695.
5. THE RAILING TUBES ARE SHOP BENT OR FABRICATED TO FIT HORIZONTAL CURVE WHEN RADIUS IS LESS THAN 1,500 FEET.
6. STEEL TUBE TOLERANCES:
 - A. STRAIGHTNESS: THE PERMISSIBLE VARIATION FOR STRAIGHTNESS SHALL BE $\frac{1}{8}$ " TIMES THE NUMBER OF FEET OF THE TOTAL LENGTH DIVIDED BY 5.
 - B. TWIST: SPECIFIED DIMENSION OF THE LONGEST SIDE IN INCHES FROM OVER 4" TO 6" INCLUSIVE: 0.087" MAX TWIST IN THE FIRST 3 FEET AND IN EACH ADDITIONAL 3 FEET.

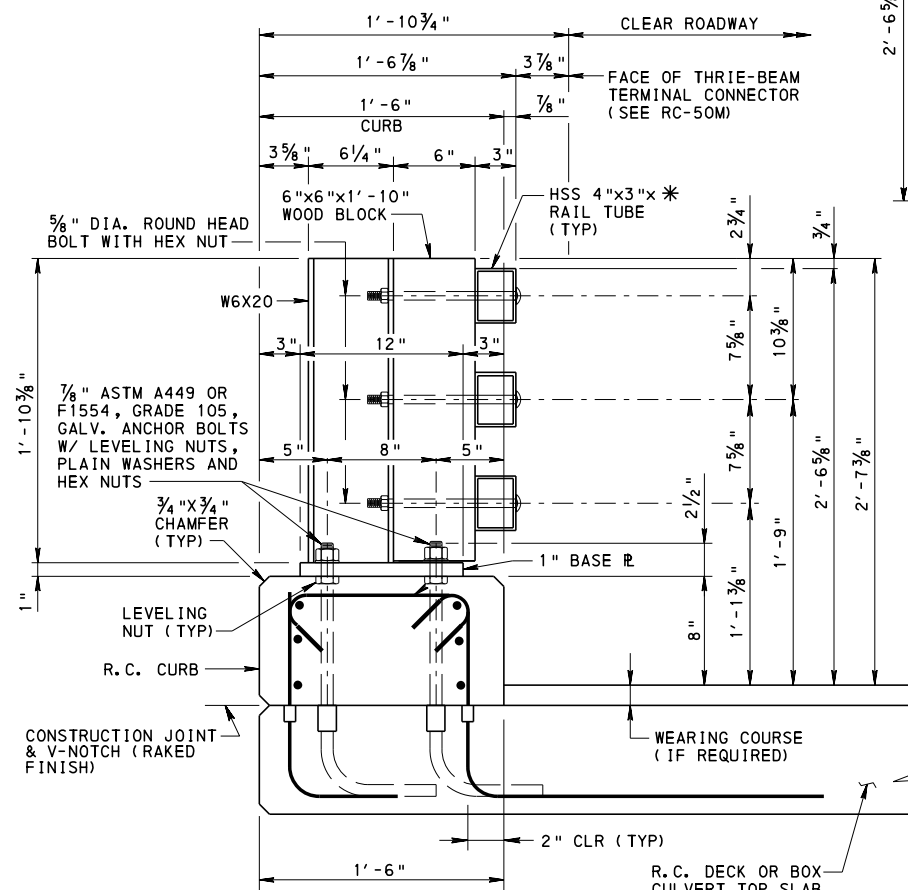
NOTE: TWIST IS MEASURED BY HOLDING DOWN ONE END OF SQUARE OR RECTANGULAR TUBE ON A FLAT SURFACE PLATE WITH THE BOTTOM SIDE OF THE TUBE PARALLEL TO THE SURFACE PLATE AND NOTING THE HEIGHT DIFFERENCE BETWEEN THE TWO CORNERS AT THE OPPOSITE END OF THE BOTTOM SIDE OF THE TUBE.
7. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF AASHTO/AWS BRIDGE WELDING CODE D1.5, EXCEPT USE AASHTO/AWS STRUCTURAL WELDING CODE D1.1 FOR WELDING NOT COVERED IN D1.5.
8. FOR ANCHOR BOLTS, USE $\frac{7}{8}$ " DIA. BOLTS CONFORMING TO ASTM A449 OR ASTM F1554, GRADE 105 KSI. USE ASTM A563, GRADE DH HEAVY HEX NUTS. USE ONE ASTM F436M WASHER AT THE TOP.
9. FOR RAIL TUBE TO POST CONNECTION, USE $\frac{5}{8}$ " DIA. ROUND HEAD BOLTS CONFORMING TO ASTM A307. USE ASTM A563, GRADE A HEX NUTS.
10. BOLT TIGHTENING PROCEDURES ARE AS FOLLOWS:
 - A. SNUG TIGHTEN ALL ANCHOR BOLTS. TIGHTEN THE NUTS AN ADDITIONAL $\frac{1}{3}$ TURN USING A WRENCH.
 - B. SNUG TIGHTEN THE RAIL TO POST BOLT.
11. PROVIDE EPOXY COATED MECHANICAL SPLICES IN ACCORDANCE WITH PUBLICATION 408, SECTION 1002.2(c).
12. PROVIDE WOOD BLOCKS IN ACCORDANCE WITH PUBLICATION 408, SECTION 1109.04.
13. ONE OR MORE 6'-3" MAXIMUM POST SPACINGS MAY BE REDUCED TO 3'-0" MINIMUM IN ORDER TO MAINTAIN APPROPRIATE SPACING DIMENSIONS FROM THE END OF RAIL AND EXPANSION JOINTS.
14. LOCATE RAIL SPLICES AT EXPANSION JOINTS AND AT OTHER LOCATIONS WHERE NECESSARY. PROVIDE RAILS AS LONG AS PRACTICAL, WITH A MINIMUM OF THREE POSTS BETWEEN SPLICES, UNLESS OTHERWISE REQUIRED FOR EXPANSION.
15. PROVIDE RAIL TUBES CONTINUOUS OVER NOT LESS THAN TWO RAILING POSTS. NO WELDED BUTT SPLICES WILL BE ALLOWED IN THE RAIL TUBE SECTIONS.
16. PLACE POST AND POST ANCHOR BOLTS NORMAL TO GRADE AND RAILS PARALLEL TO GRADE.
17. COAT ALL SURFACES OF THE BASE PLATE IN CONTACT WITH CONCRETE WITH CAULKING COMPOUND PRIOR TO ERECTION. AFTER ERECTION AND ALIGNMENT, SEAL OPENINGS BETWEEN METAL SURFACES AND THE CONCRETE WITH CAULKING COMPOUND MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 705.7(b).
18. DO NOT USE DEFLECTION JOINTS WITH PA 3-RAIL BRIDGE BARRIERS.
19. PROVIDE POST SPACINGS ON THE PLANS.
20. THE PA 3-RAIL BRIDGE BARRIER IS DESIGNATED AS MASH TL-3.
21. FOR GUIDE RAIL TRANSITION TO PA 3-RAIL BRIDGE BARRIER, SEE RC-50M.



WOOD BLOCK DETAIL

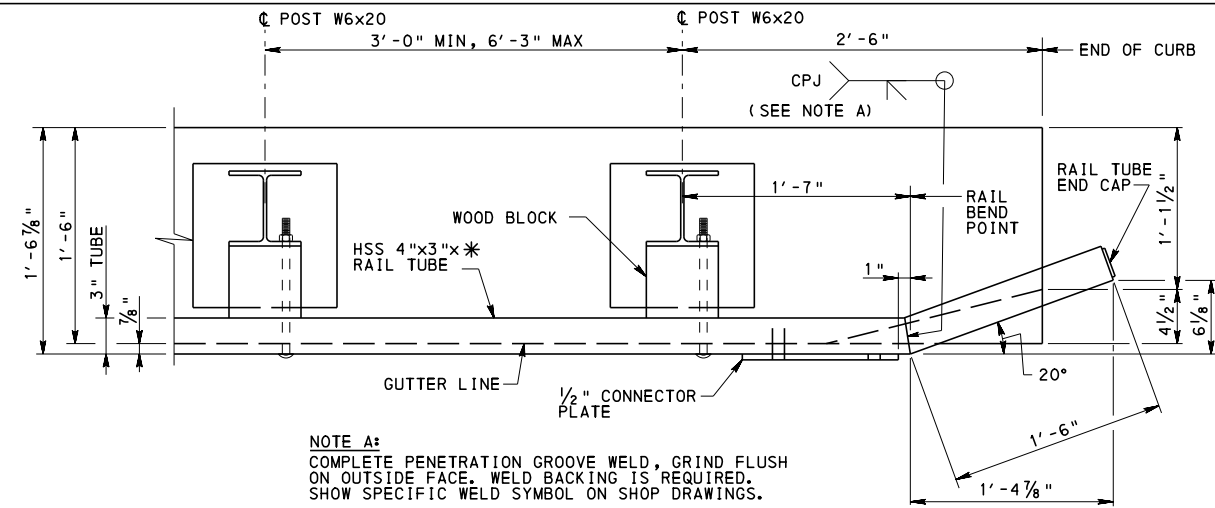


BASE PLATE DETAIL

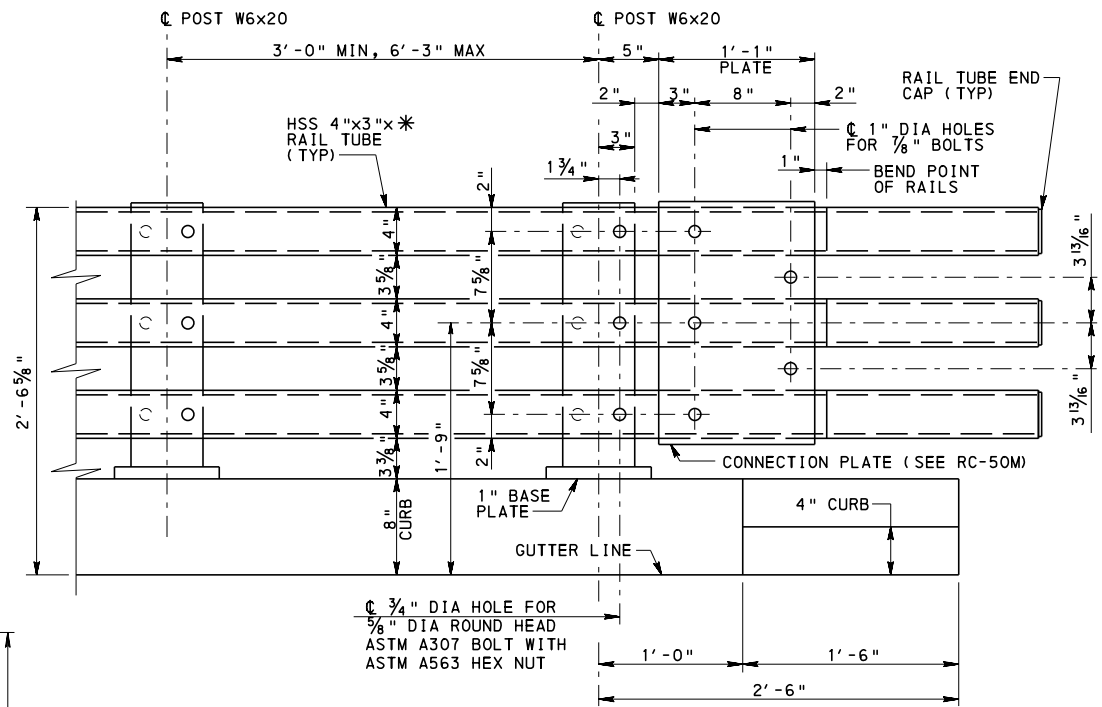


BARRIER SECTION

DECK / SLAB REINFORCEMENT NOT SHOWN FOR CLARITY



PLAN



ELEVATION

PA 3-RAIL BRIDGE BARRIER

(GUIDE RAIL AND ANCHOR BOLTS OMITTED FOR CLARITY) (WITH CURB SHOWN, WITHOUT CURB SIMILAR)

TUBE MEMBERS			
RAIL TUBE		SPLICE TUBE	
MATERIAL	THICKNESS	MATERIAL	THICKNESS
A500 GR. C	0.188"	A500 GR. C	0.188"
A500 GR. B	0.25"	A500 GR. B	0.25"
A500 GR. A OR A501	0.313"	A500 GR. A OR A501	0.25"

TUBE RAIL SPECIFICATIONS

NOTE: PRIOR TO CONSTRUCTING CURB AND DECK, ANCHOR BOLTS SHALL BE INSTALLED WITH EITHER A TEMPLATE OR ACTUAL POST W/ BASEPLATE INSTALLED TO ENSURE PROPER ANCHOR BOLT ALIGNMENT AND PLACEMENT.

* FOR TUBE THICKNESS, SEE TUBE RAIL SPECIFICATIONS TABLE.

RC-50M	GUIDE RAIL TO BRIDGE BARRIER TRANSITIONS
BC-734M	ANCHOR SYSTEMS
REFERENCE DRAWINGS	

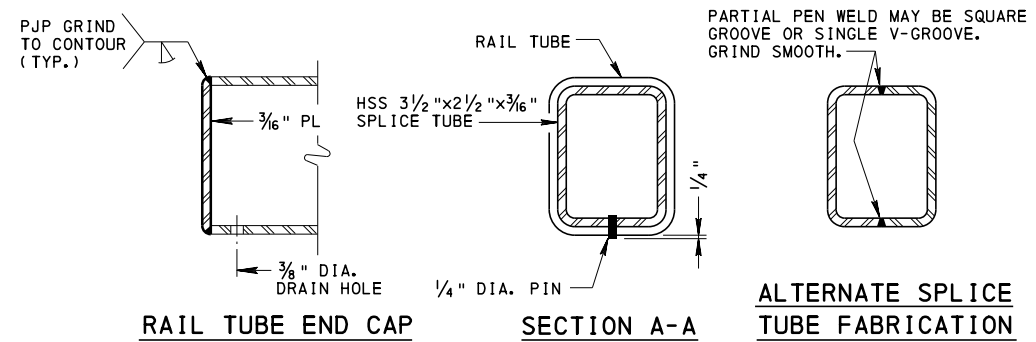
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGE

STANDARD

PA 3-RAIL BRIDGE BARRIER
MISCELLANEOUS DETAILS

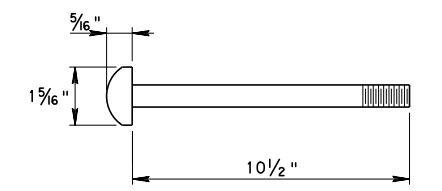
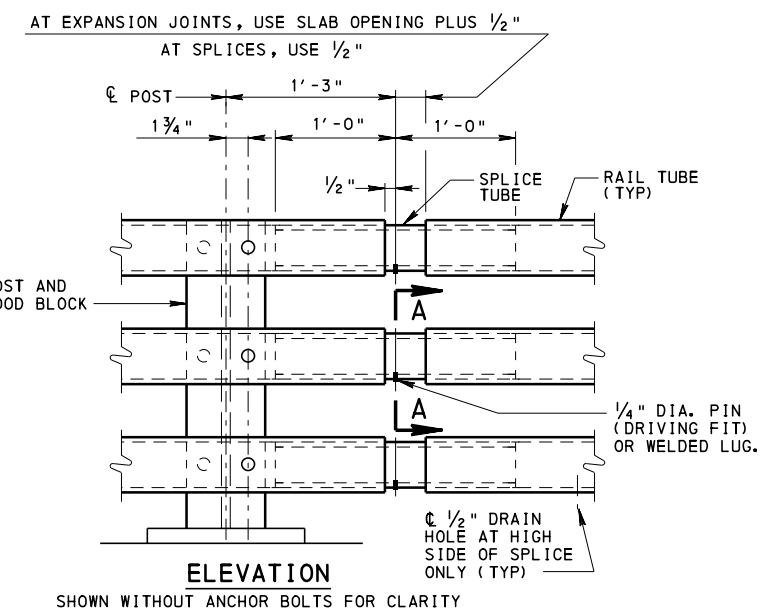
RECOMMENDED FEB. 14, 2023 <i>L. W. Gray</i> CHIEF BRIDGE ENGINEER	RECOMMENDED FEB. 14, 2023 <i>Gavin E. Gray</i> CHIEF ENGINEER, HIGHWAY ADMIN.	SHEET 1 OF 2 BC-706M
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CHANGE 5



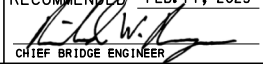
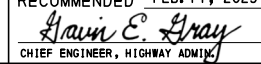
ALTERNATE SPLICE TUBE FABRICATION
 REQUIRED IF RAIL THICKNESS IS 0.25" OR 0.313".

NOTE:
 THE DIFFERENCE BETWEEN THE OUTSIDE DIMENSIONS OF THE SLEEVE AND THE INSIDE DIMENSIONS OF THE RAIL SHALL NOT EXCEED 1/8" ALONG EITHER AXIS.



RAIL TO POST BOLT
 5/16" ROUND HEAD BOLT

TUBE SPLICE DETAILS

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGE		
STANDARD		
PA 3-RAIL BRIDGE BARRIER MISCELLANEOUS DETAILS		
RECOMMENDED FEB. 14, 2023  CHIEF BRIDGE ENGINEER	RECOMMENDED FEB. 14, 2023  CHIEF ENGINEER, HIGHWAY ADMIN.	SHEET 2 OF 2 BC-706M