

NOTES

STRUCTURAL CONCRETE INSERT

EACH STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULE SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".
- B. 1 - ¾" Ø x 1⅝" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø x 1⅝" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE STRUCTURAL CONCRETE INSERT DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A ⅞" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

EACH METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

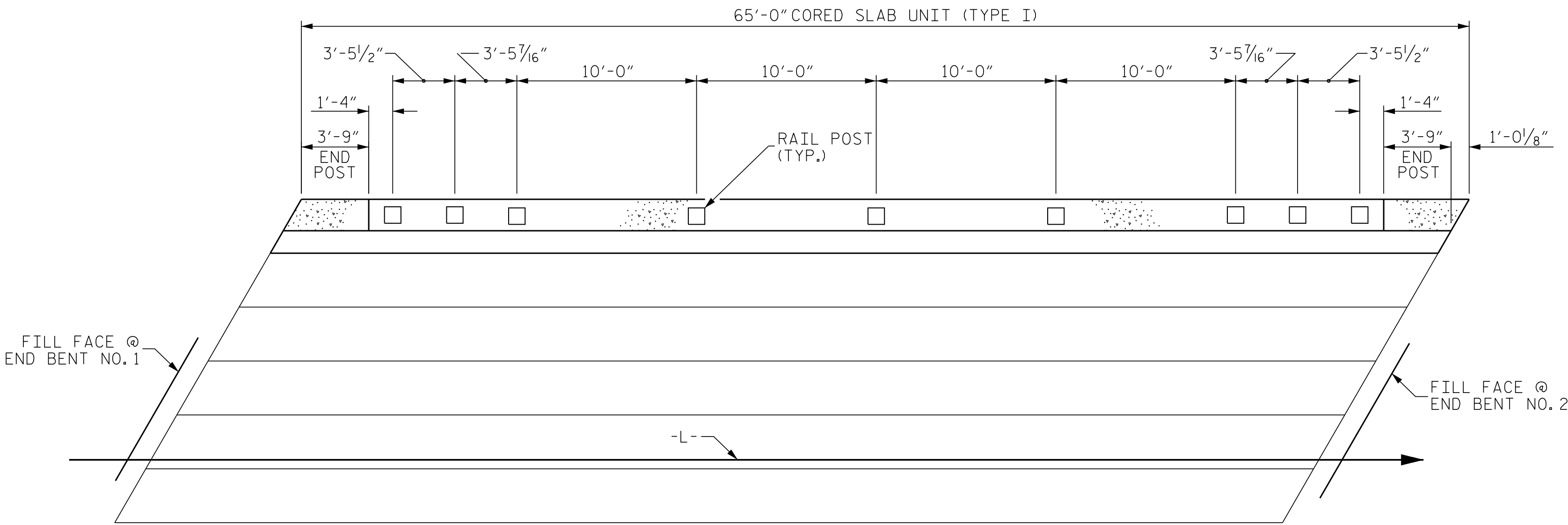
- A. ½" METAL BRACKET PLATE AND ¼" METAL RAIL INSERT TUBE SHALL CONFORM TO ASTM A36 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO ASTM A123.

¾" STRUCTURAL CONCRETE INSERTS SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾" Ø x 1⅝" BOLT WITH 2" O.D. WASHER IN PLACE. THE ¾" Ø x 1⅝" BOLT SHALL HAVE N. C. THREADS.

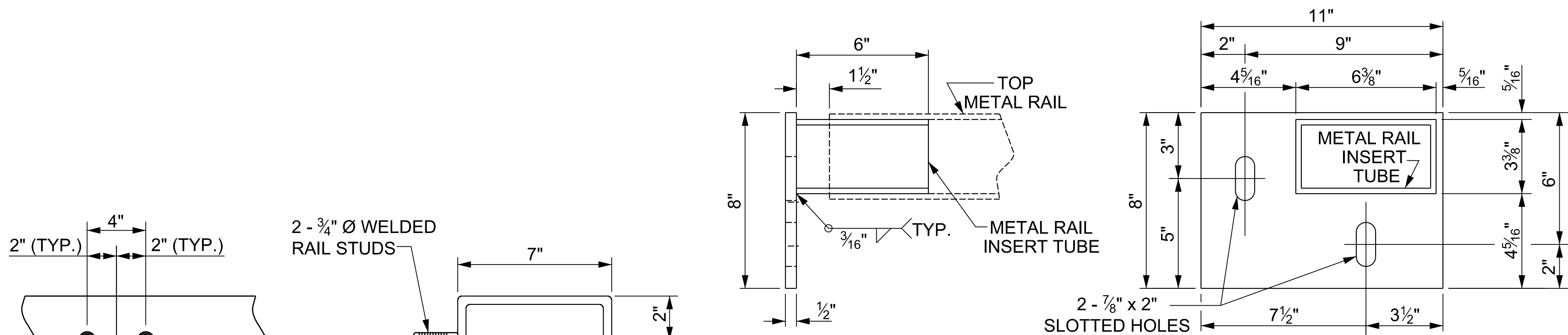
THE ¾" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE ¾" STRUCTURAL CONCRETE INSERT, THE ½" BRACKET PLATES, AND THE RAIL INSERT TUBES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE ¾" Ø x 1⅝" BOLTS WITH WASHERS SHALL BE REPLACED WITH ¾" Ø x 6½" BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE ¾" Ø x 1⅝" BOLTS SHALL APPLY TO THE ¾" Ø x 6½" BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

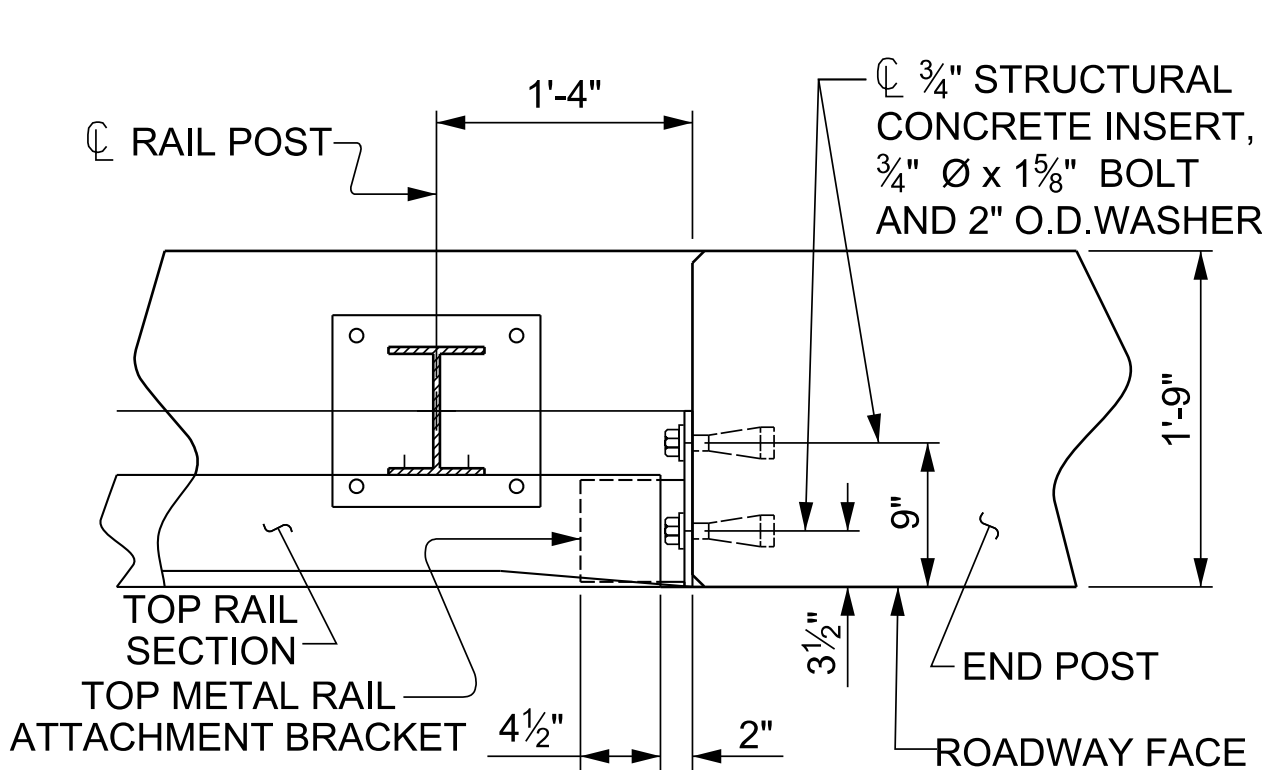


PLAN OF RAIL POST SPACINGS

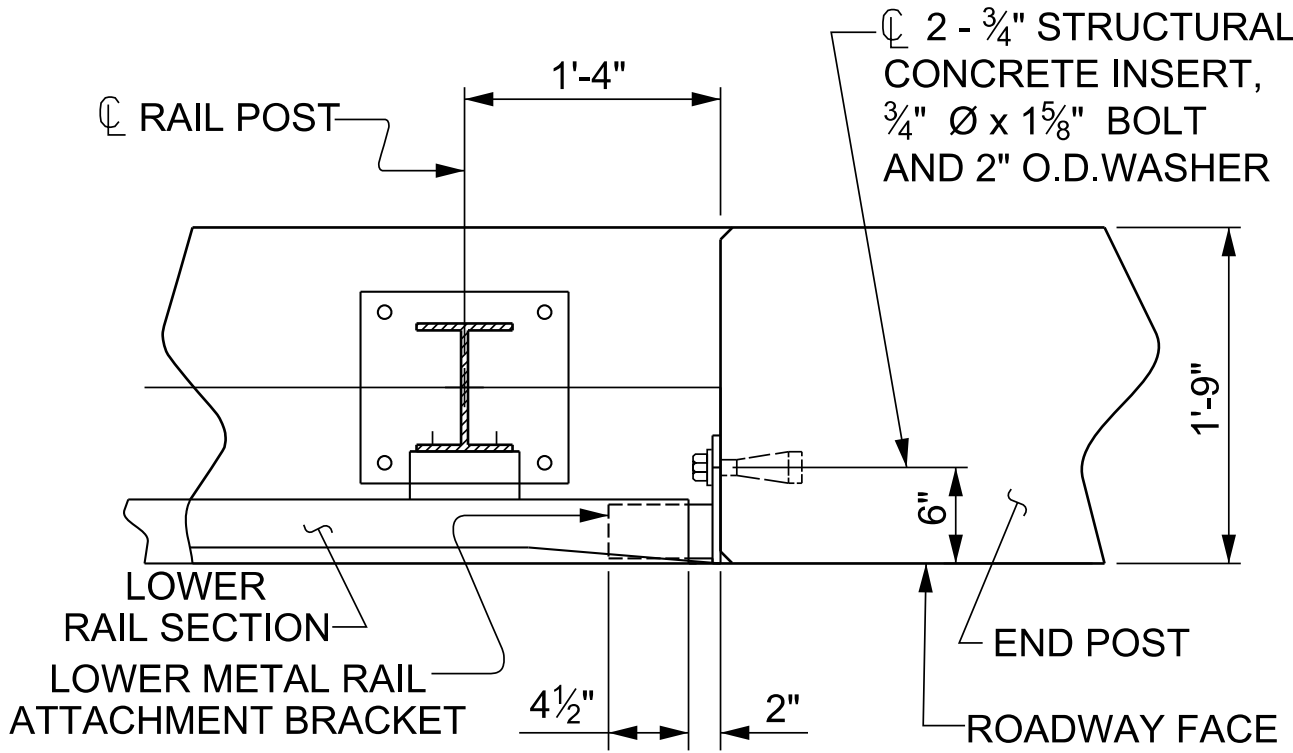


TOP METAL RAIL ATTACHMENT BRACKET

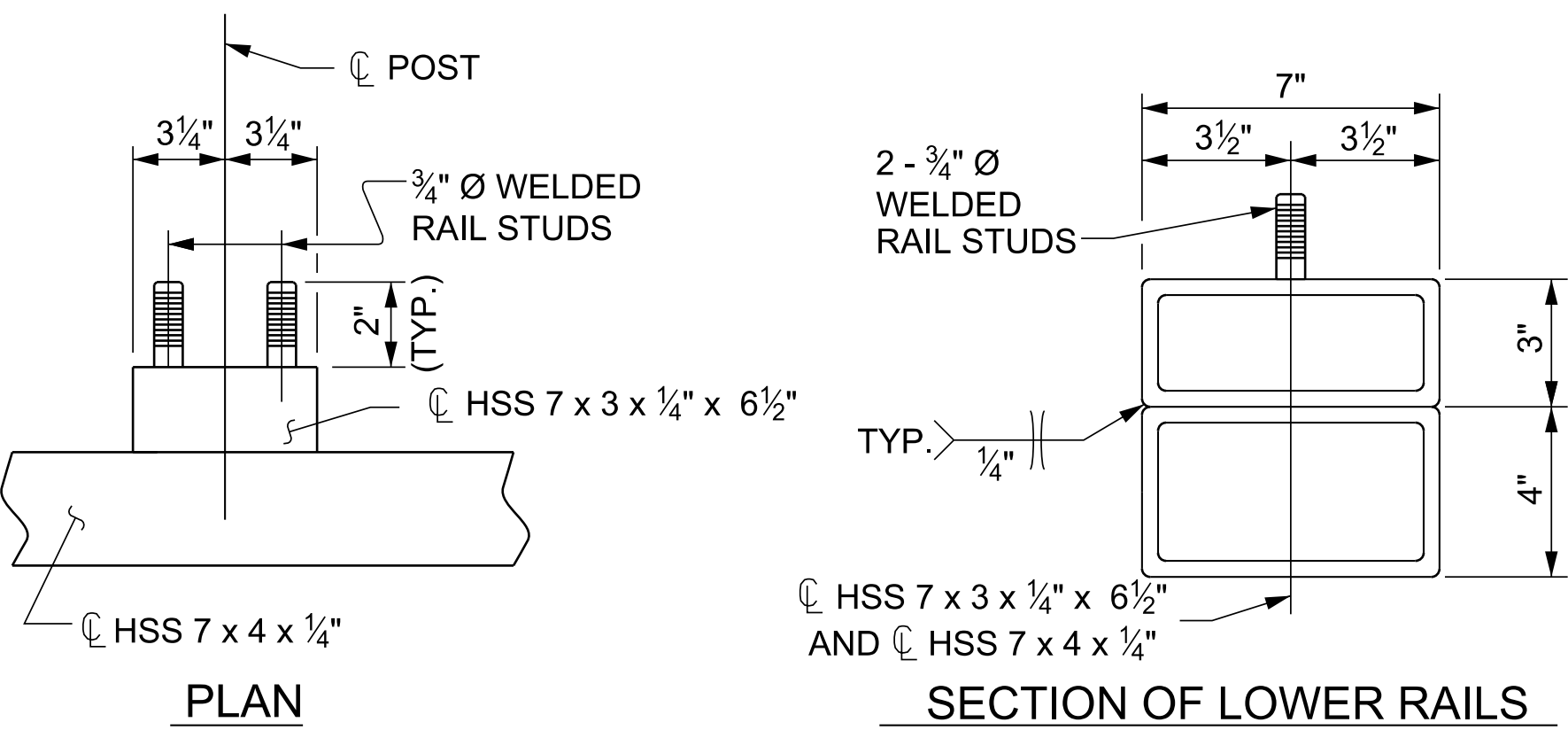
THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM ¼" PLATES.



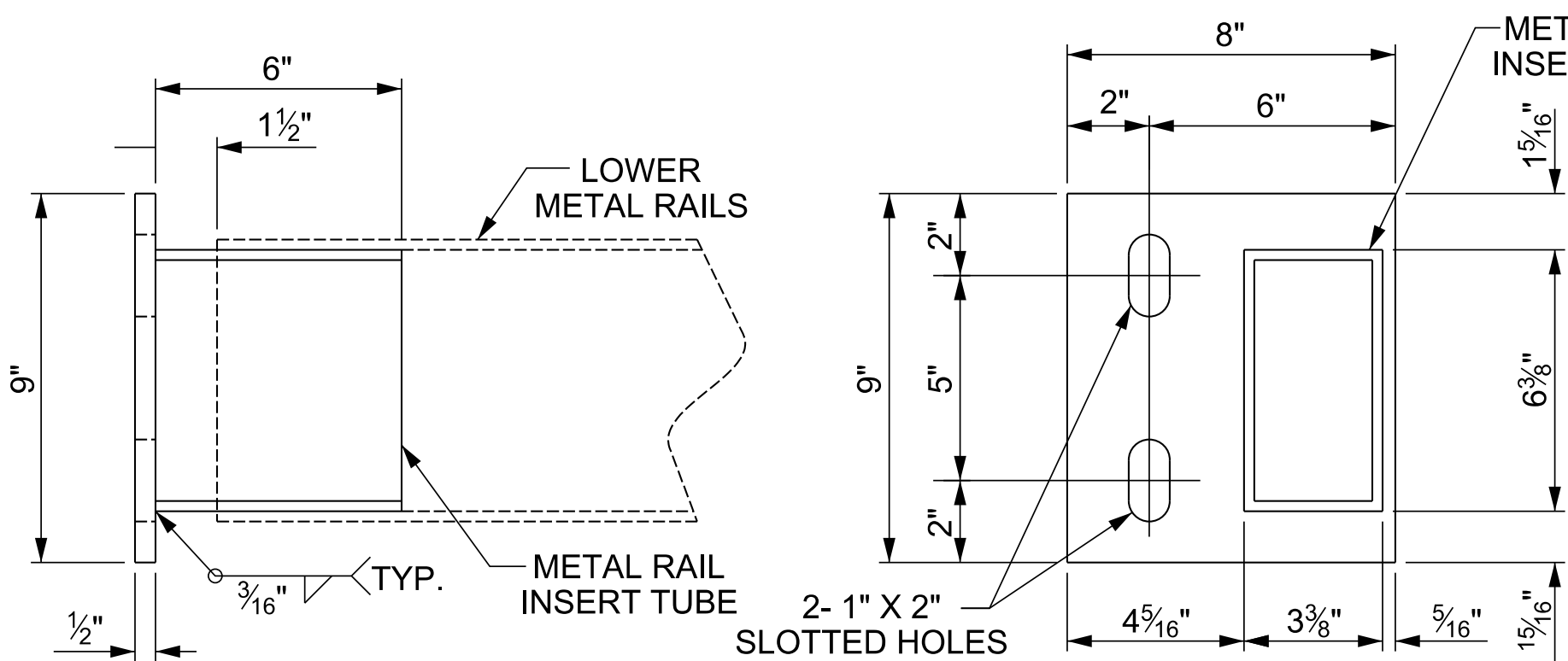
PLAN - TOP RAIL AND END POST



PLAN - LOWER RAILS AND END POST

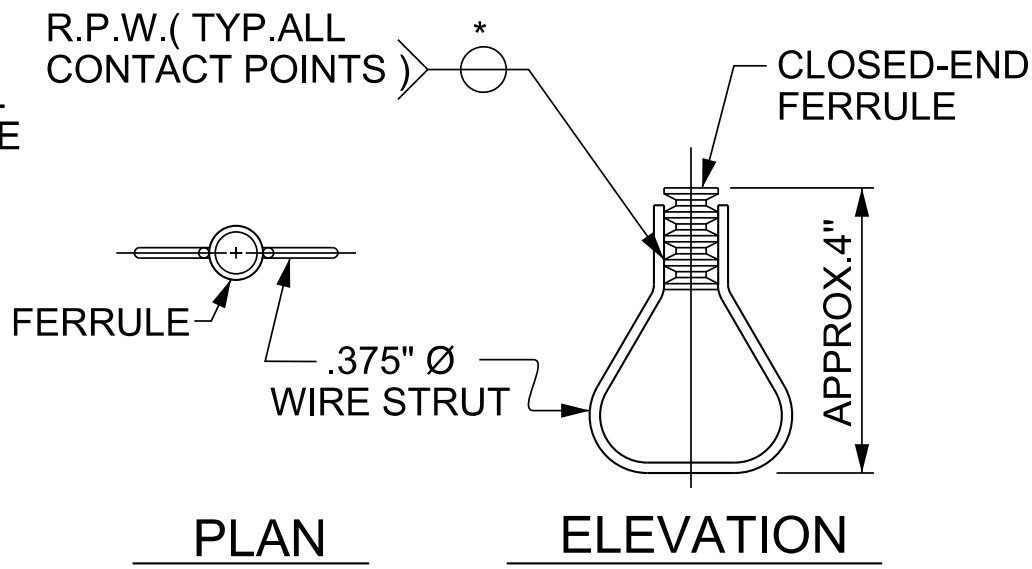


SECTION OF LOWER RAILS
RAIL STUD DETAILS



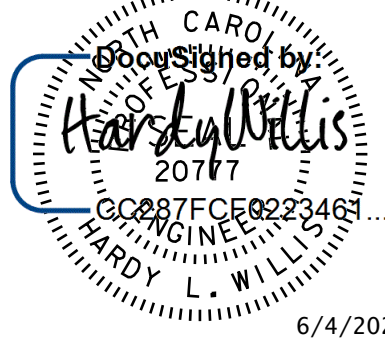
LOWER METAL RAILS ATTACHMENT BRACKET

THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM ¼" PLATES.



STRUCTURAL CONCRETE
INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



PROJECT NO. B-5929
HENDERSON COUNTY
STATION: 13+45.76 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

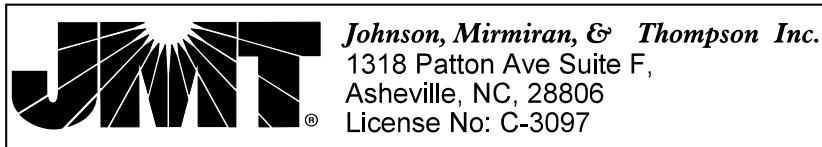
STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR 42" OREGON RAIL

REVISIONS					SHEET NO. S-9
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 25
2			4		

STD. NO. BMR11

ASSEMBLED BY : WC	DATE : 6-2017
CHECKED BY : RTS	DATE : 7-2017
DRAWN BY : RWW 7/14	REV. 12/17 MAA/THC
CHECKED BY : TMG 7/14	REV. 10/23 BNB/SNM

5/29/2026
*****DCN*****
RMoore2



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED