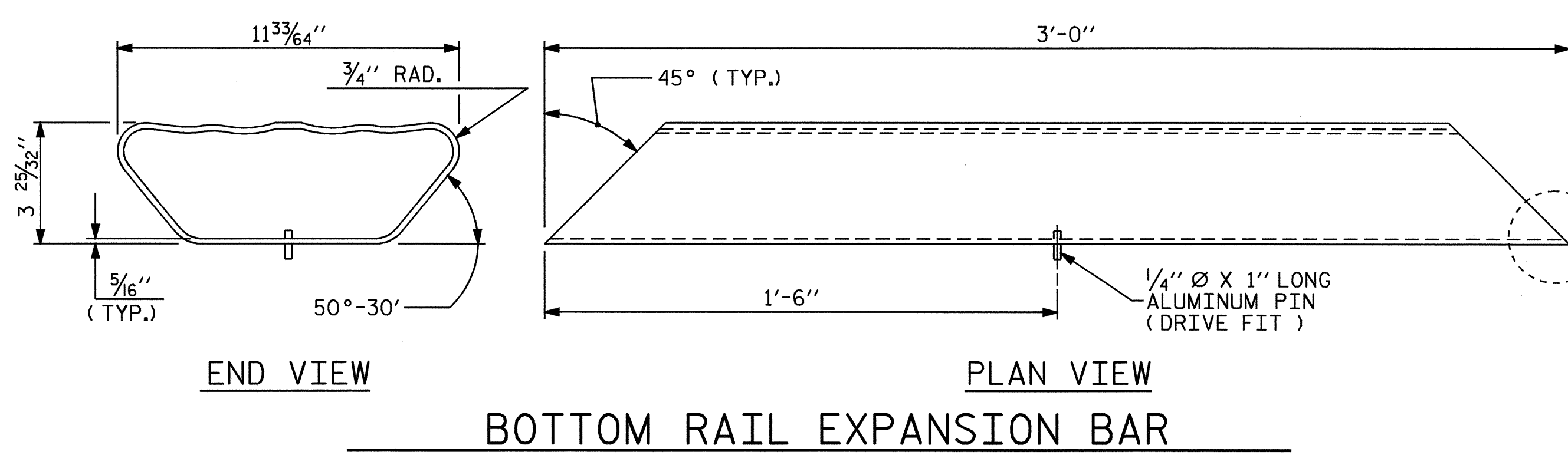
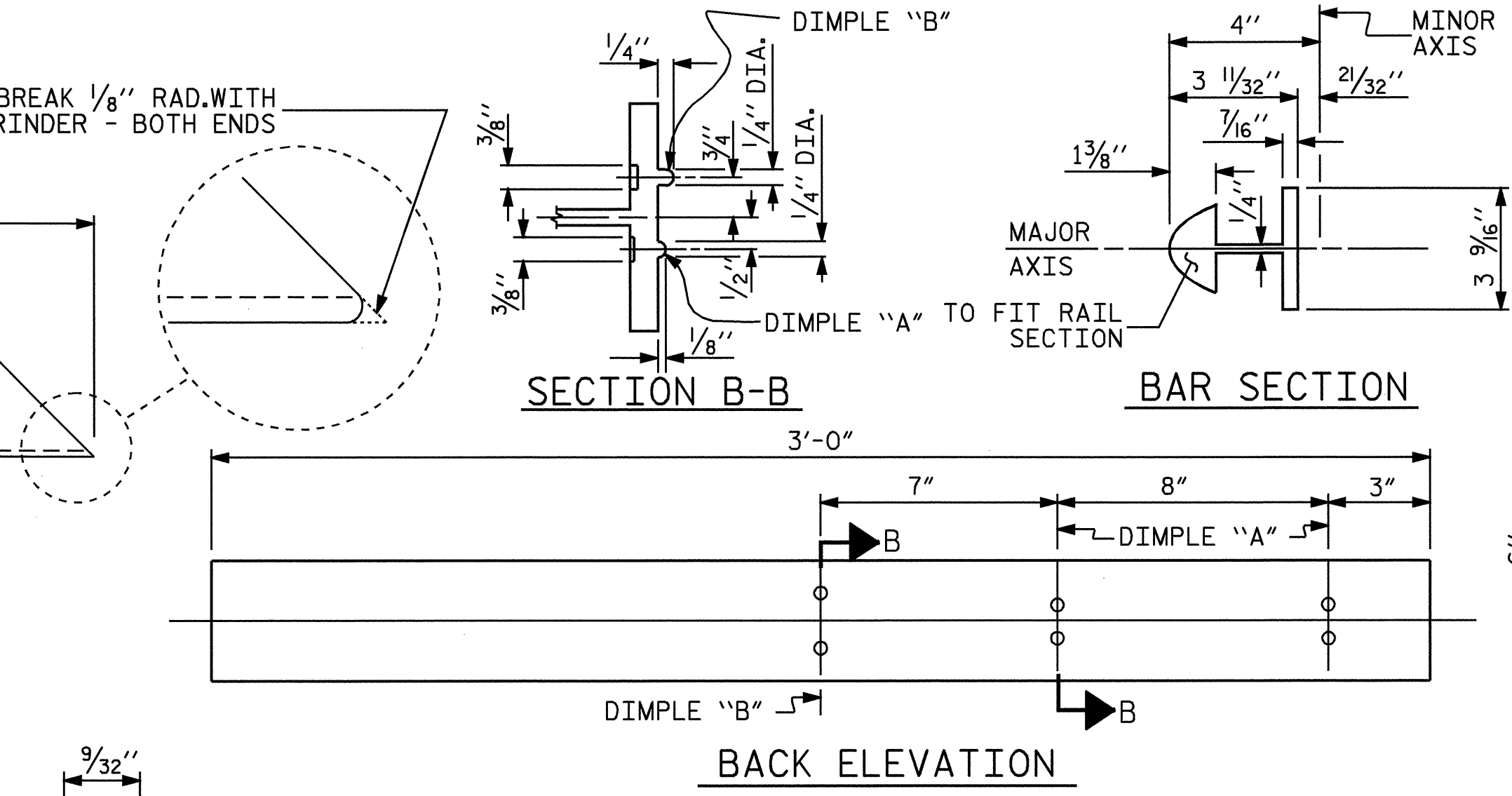


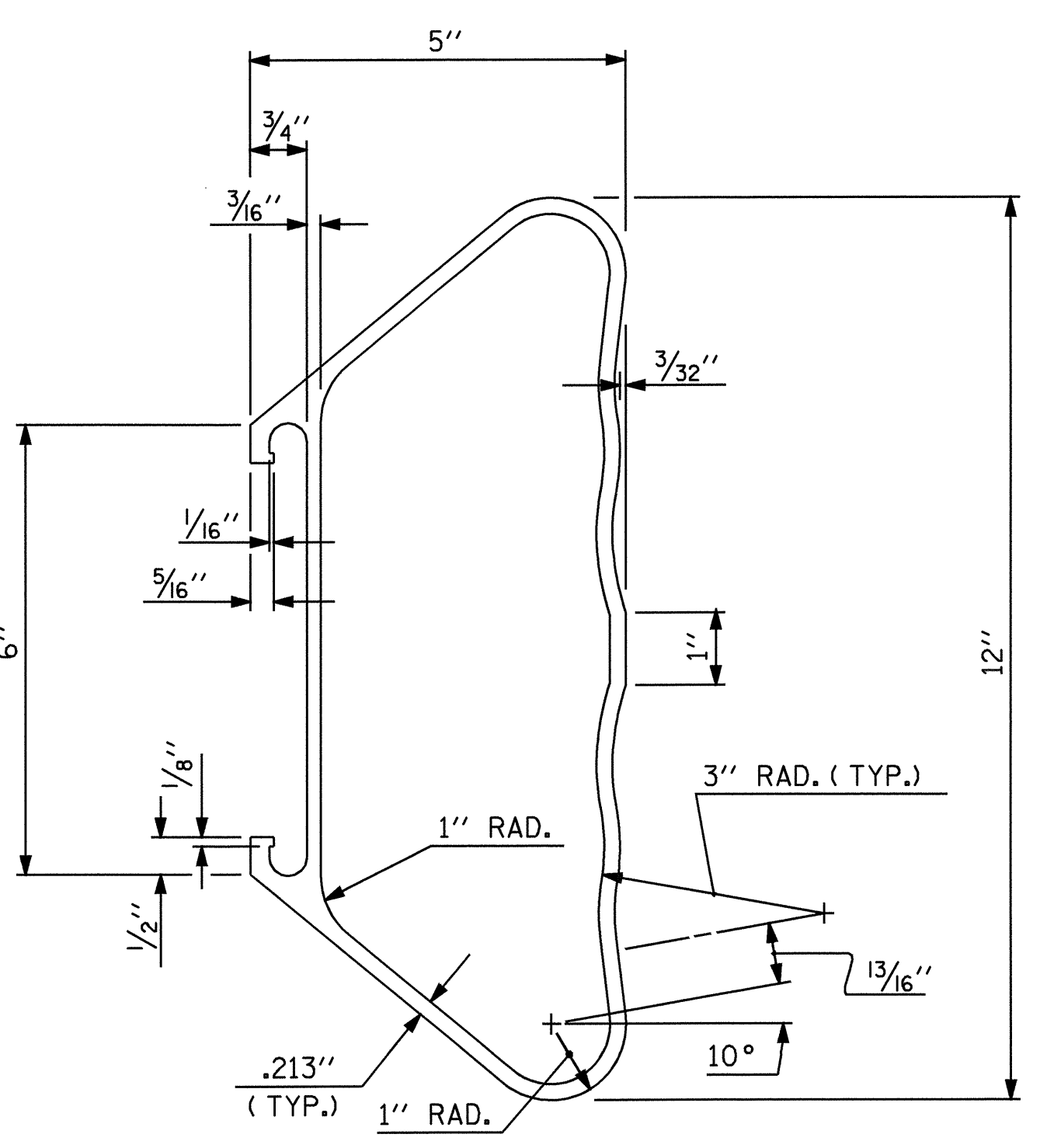
5-BOLT METAL RAIL ANCHOR ASSEMBLY
(36 ASSEMBLIES REQUIRED)



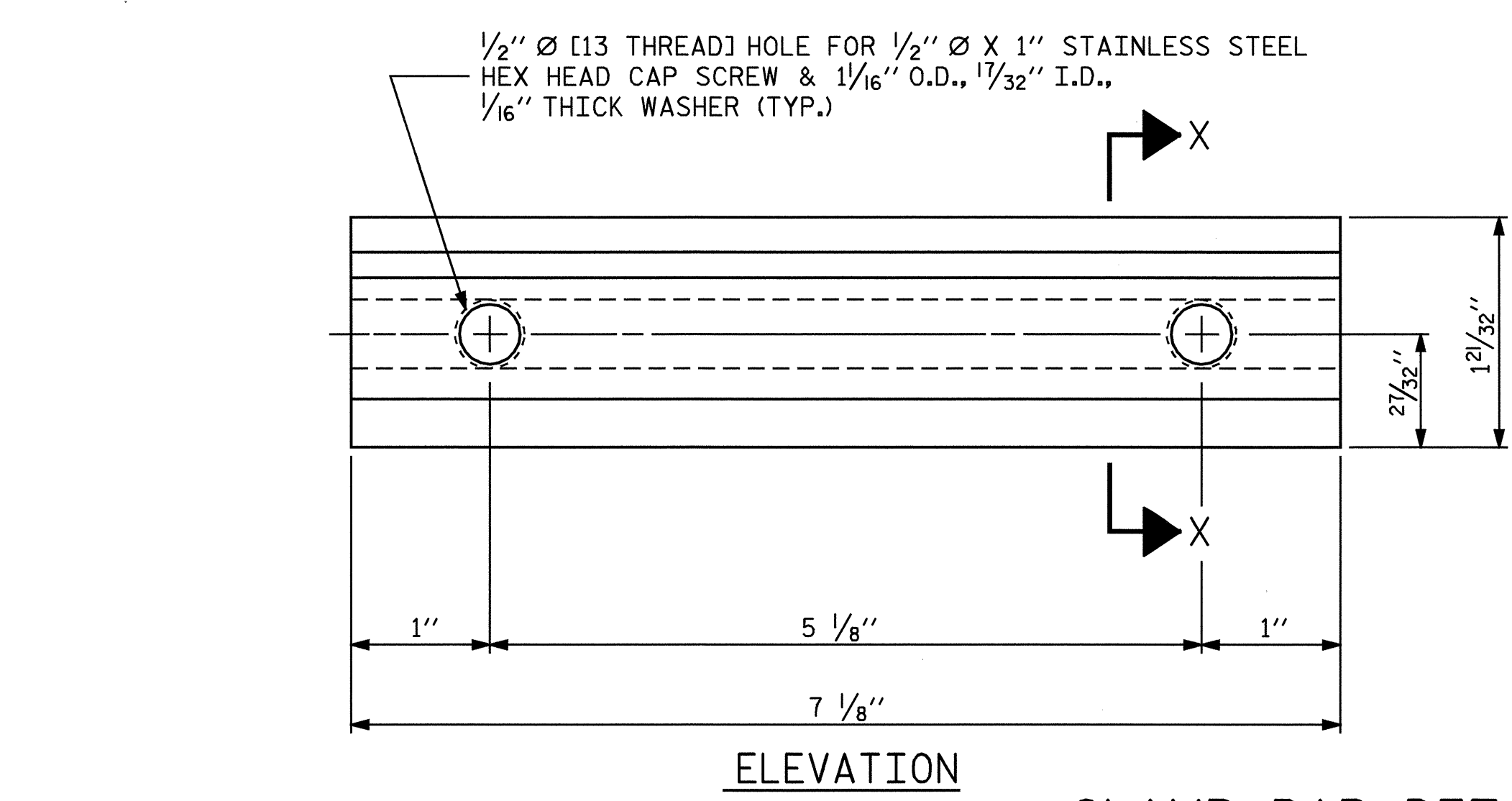
BOTTOM RAIL EXPANSION BAR



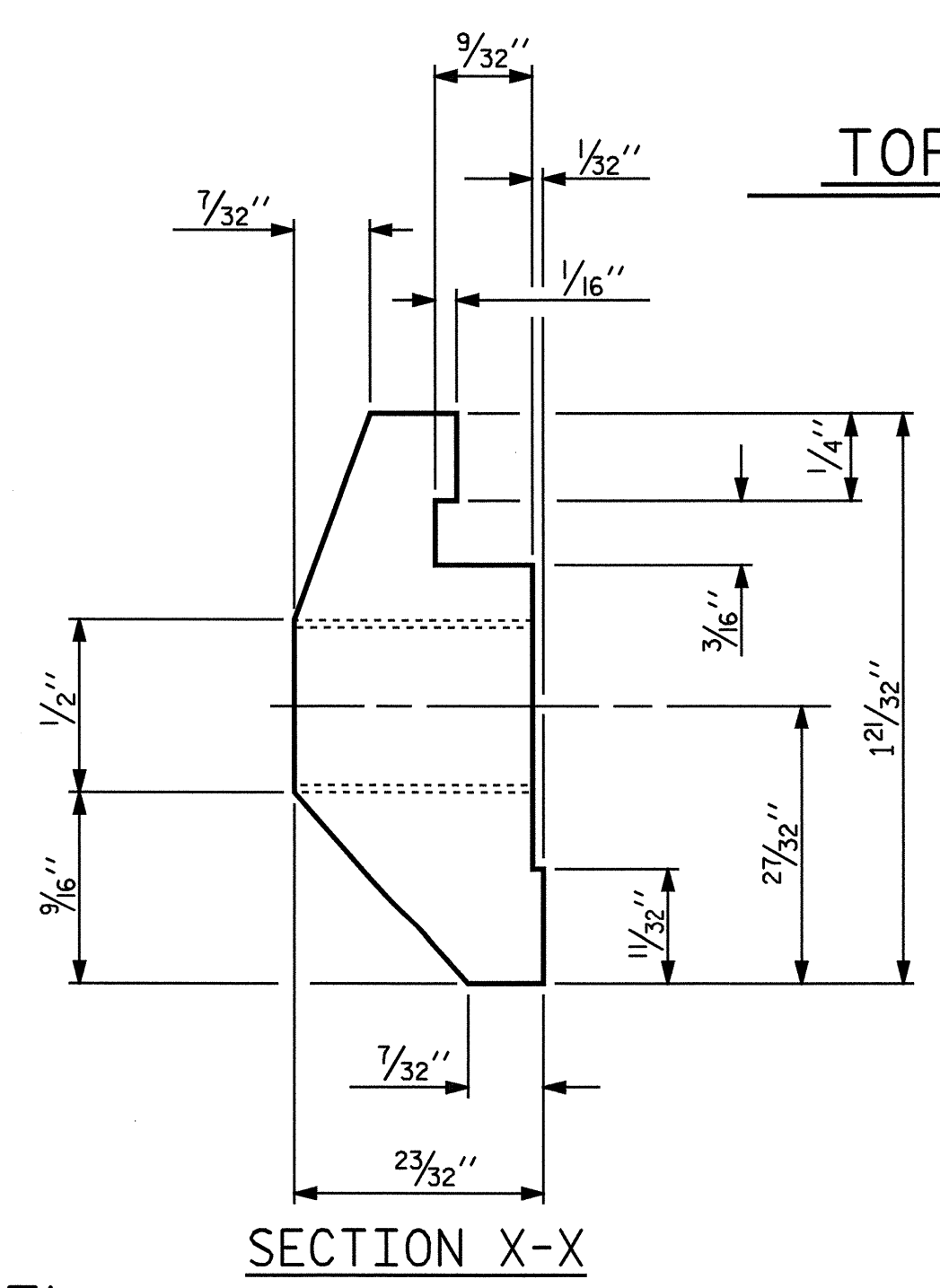
TOP & MIDDLE RAIL EXPANSION BAR



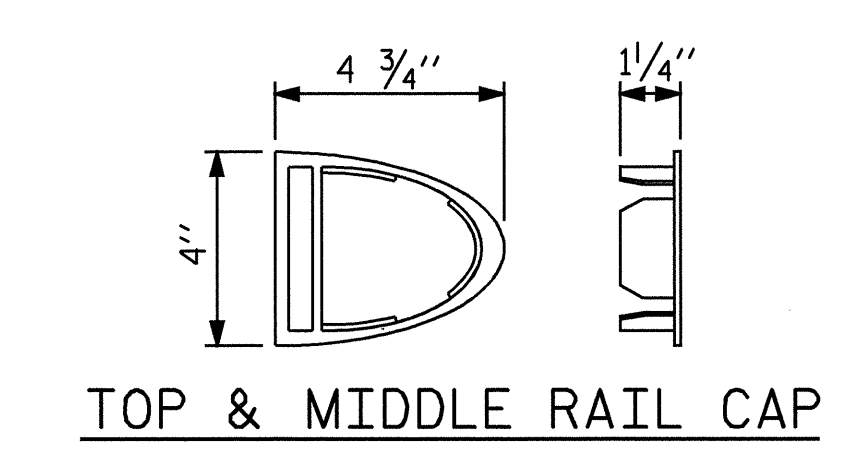
BOTTOM RAIL SECTION



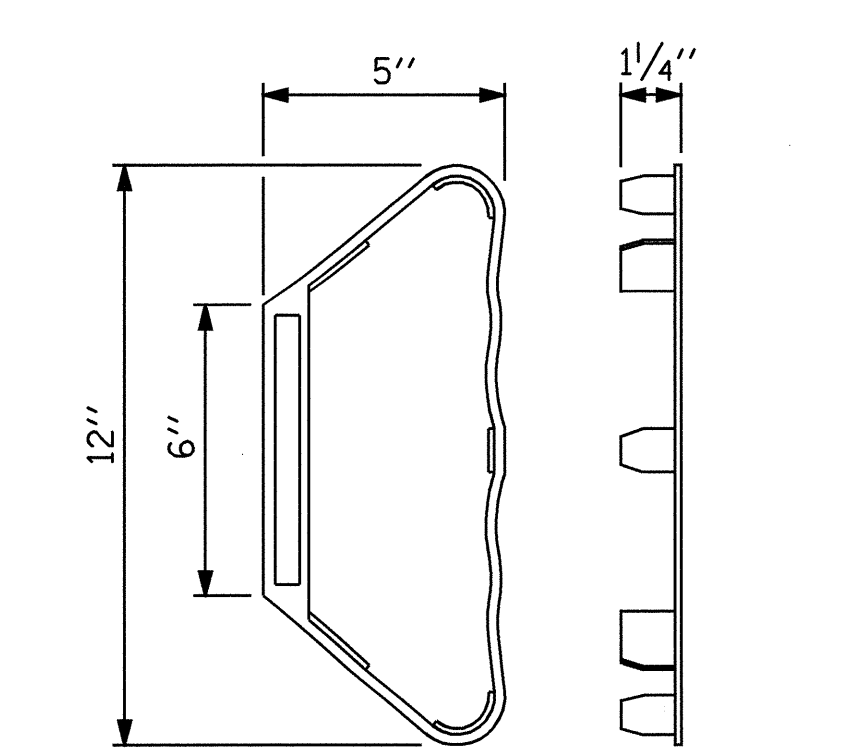
CLAMP BAR DETAIL
(6 REQUIRED PER POST)



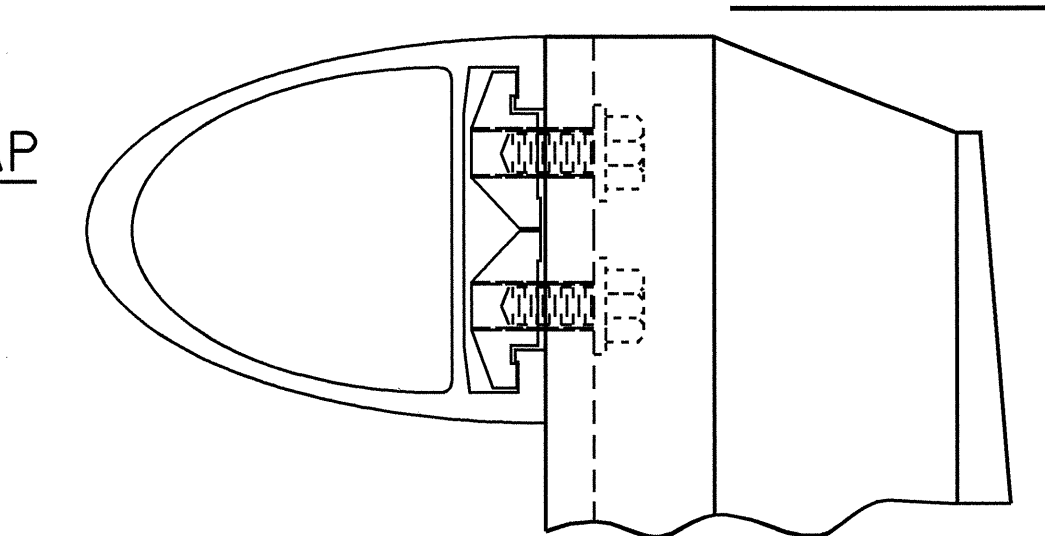
SECTION X-X



TOP & MIDDLE RAIL CAP



BOTTOM RAIL CAP



CLAMP ASSEMBLY
TOP RAIL SHOWN
(MIDDLE & BOTTOM RAIL ARE SIMILAR)



- NOTES**
STRUCTURAL CONCRETE ANCHOR ASSEMBLY
- THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES AND 1 1/4" FOR 5/8" FERRULES.
 - 3 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
 - 2 - 5/8" Ø X 2 1/4" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 5/8" Ø X 2 1/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
 - WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/6" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
 - THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
 - THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
 - BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

TOP & MIDDLE RAIL SECTION

PROJECT NO. **B-3450**
DURHAM COUNTY
STATION: **22+37.00 -L-**

SHEET 4 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
3 BAR METAL RAIL					
FEBRUARY 1988					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					53

ASSEMBLED BY : A.L.MEADOWS	DATE : 8/28/02
CHECKED BY : T.A.HARRIS	DATE : 9/13/02
DRAWN BY : JMB	1/88
CHECKED BY : GGH	1/88
REV. 10/17/00	LES/RDR
REV. 7/10/01	RWW/LES
REV. 5/7/03	RWW/JTE