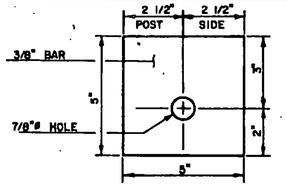
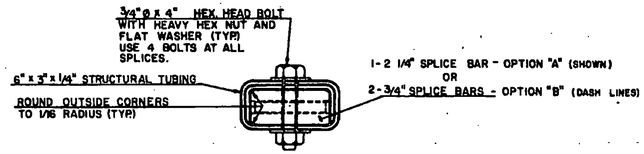
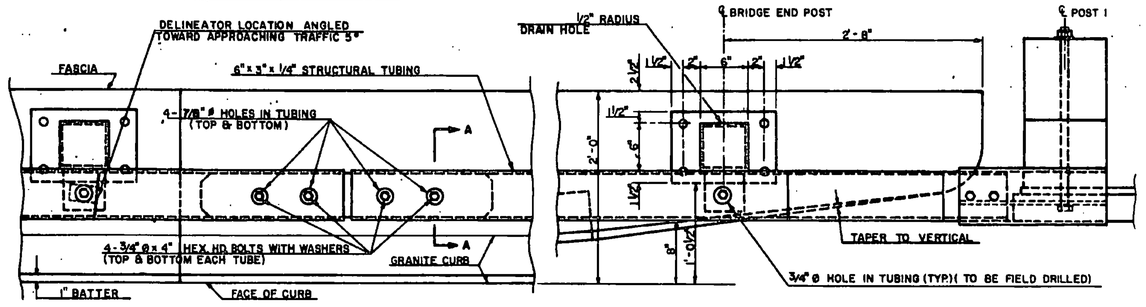


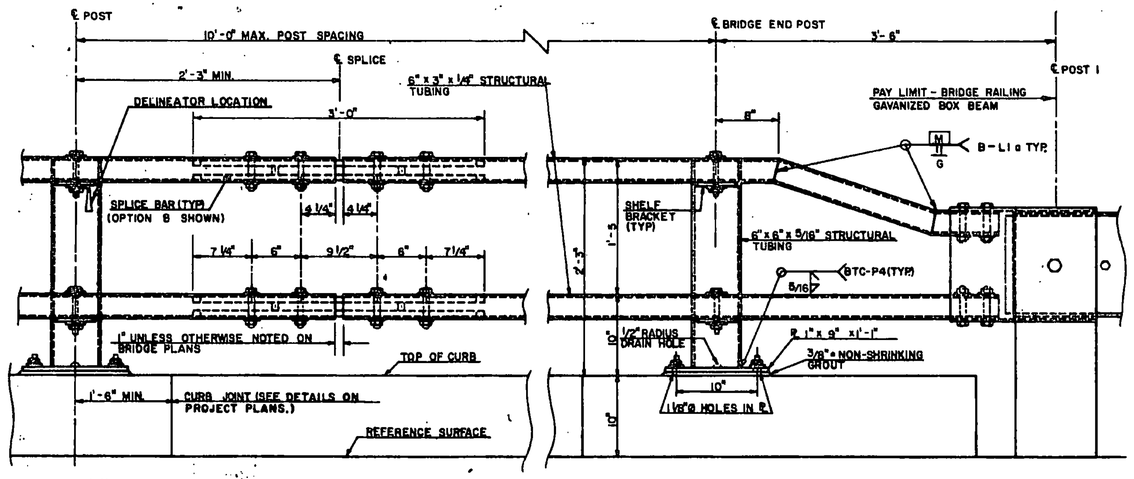
SHELF BRACKET DETAIL



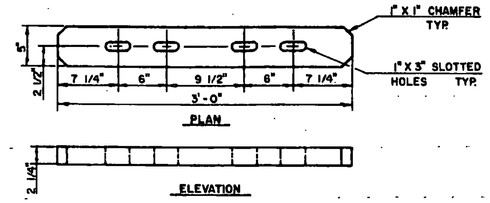
SECTION A-A



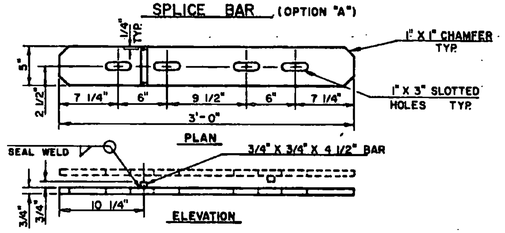
PLAN OF BOX BEAM BRIDGE RAIL



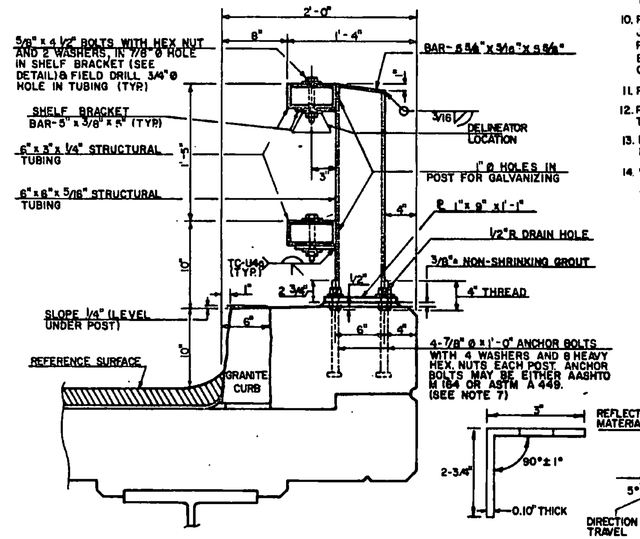
ELEVATION OF BOX BEAM BRIDGE RAIL



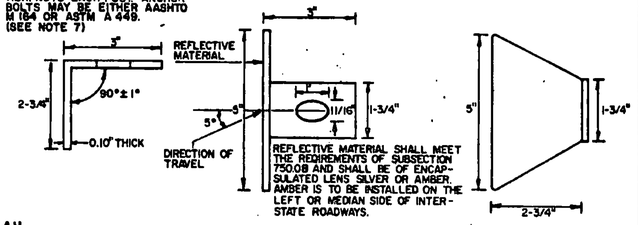
SPLICE BAR (OPTION "A")



SPLICE BAR (OPTION "B")



TYPICAL SECTION OF BOX BEAM BRIDGE RAIL



THIS REFLECTORIZED ALUMINUM DELINEATOR IS TO BE ERECTED EVERY 30 FEET OR CLOSEST POST. DELINEATOR SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.

NOTES

1. RAILING IS DESIGNED IN ACCORDANCE WITH THE 1989 AASHTO SPECIFICATIONS.
2. ALL PLATES, BARS, AND ANGLES SHALL BE ASTM A 36 STEEL. UNLESS OTHERWISE SPECIFIED, ALL BOLTS SHALL BE ASTM A 307. STRUCTURAL STEEL TUBING SHALL BE ASTM A 500 COLD-FORMED GRADE B AS MODIFIED IN SECTION 732.03(a).
3. ALL BOX BEAM BRIDGE RAILING, COMPONENTS, ANCHOR BOLTS AND ATTACHMENT HARDWARE SHALL BE GALVANIZED TO ASTM A-123 AFTER FABRICATION.
4. THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING WELDING PROCEDURES, TO THE STRUCTURES DIVISION. FOR APPROVAL IN ACCORDANCE WITH THE PROVISIONS OF SECTION 506.04 - SHOP DRAWINGS. ALL WELDING SHALL CONFORM WITH SECTION 506.10.
5. PROCEDURE QUALIFICATION FOR ALL WELDS SHALL BE PERFORMED AND APPROVED PRIOR TO FABRICATION. WELDER QUALIFICATION WILL BE REQUIRED FOR EACH PROCEDURE. PROCEDURE AND WELDER QUALIFICATION ACCEPTANCE SHALL BE APPROVED BY RADIOGRAPHIC TESTING.
6. THE RAIL SYSTEM SHALL BE CONTINOUS WITH EACH TUBE SECTION ATTACHED TO A MINIMUM OF TWO POSTS. ALL JOINTS SHALL BE SPLICED AS DETAILED, WITH ALL SPLICE CONNECTIONS IN THE SAME PANEL LOCATED ONE DIRECTLY ABOVE THE OTHER.
7. ALL POSTS SHALL BE SET NORMAL TO GRADE. NUTS PLACED IN CONCRETE ARE TO BE ROTATED WITHIN 24 HOURS AFTER CONCRETE IS PLACED TO BREAK BOND BETWEEN NUT AND CONCRETE. NUTS SHALL THEN BE USED TO ALIGN THE POSTS BOTH HORIZONTALLY AND VERTICALLY. AFTER FINAL POSITION HAS BEEN APPROVED, ALL VOIDS BETWEEN THE BASE PLATE AND CONCRETE SURFACE SHALL BE GROUTED WITH NON-SHRINK GROUT CONFORMING WITH SECTION 707.03, MORTAR, TYPE IV.
8. ANCHOR BOLTS SHALL BE PRECAST IN THE CURB SECTION, AND CONFORM WITH THE REQUIREMENTS OF SECTION 714.07.
9. FOR RADII LESS THAN 950 FEET, THE BEAM RAIL SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
10. RAILING JOINT SPLICES SHALL BE PROVIDED FOR ALL SUPERSTRUCTURE JOINTS. THE RAIL JOINT OPENING SHALL BE 1 INCH OR CAPABLE OF PROVIDING THE MOVEMENT SPECIFIED. SPLICE PLATE DETAILS SHALL BE MODIFIED AS REQUIRED FOR JOINTS REQUIRING MORE THAN 2 INCHES OF TOTAL MOVEMENT.
11. REFER TO PROJECT PLANS FOR CURB DETAILS.
12. REFER TO STANDARD SB-R4B-82 FOR GUARD RAIL APPROACH SECTION - TYPE I & TYPE II DETAILS.
13. DELINEATORS SHALL BE MOUNTED AS SHOWN ON DETAILS. PAYMENT SHALL BE SUBSIDIARY TO OTHER ITEMS.
14. WALL THICKNESS OF THE 6" x 6" STRUCTURAL TUBING FOR THE RAIL POST SHALL BE 5/16" INCH MINIMUM, 3/8" INCH, OR 1/2" INCH THICKNESS TUBING MAY BE SUBSTITUTED AT THE OPTION OF THE FABRICATOR.

REVISIONS AND CORRECTIONS

1 REVISION DELINEATORS ADDED D.A.R. 6-16-82
2 REVISION CHANGED LOCATION OF DELINEATORS D.A.R. 8-22-83
3. REVISED NOTE # 12 TO INCLUDE TYPE II AND REVISED ANCHORAGE CONNECTOR AND SPLICE BAR. R. HAUPT 9/7/83
4. REVISED HOLE DIMENSION IN SHELF BRACKET, ADD DIMENSION TO POST NO. 1, AND ADD NOTE NO. 14. R.S.H. 12-13-84
5. REVISED WELD FOR TOP RAIL. 3-28-86. M.C.C.
6. REVISED POST CAP. 12-15-88. R.P.G.
7. REVISED FOR 1988 SPECIFICATIONS. 5-15-89. R.P.G.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FINAL PLAN APPROVAL REQUIRED.

APPROVED:

DECEMBER 28, 1981
DATE

CHIEF OF DESIGN

STRUCTURES ENGINEER

DIRECTOR OF ENGINEERING AND CONSTRUCTION

BRIDGE RAILING GALVANIZED BOX BEAM

VERMONT AGENCY OF TRANSPORTATION

STANDARD SB-R4A-82