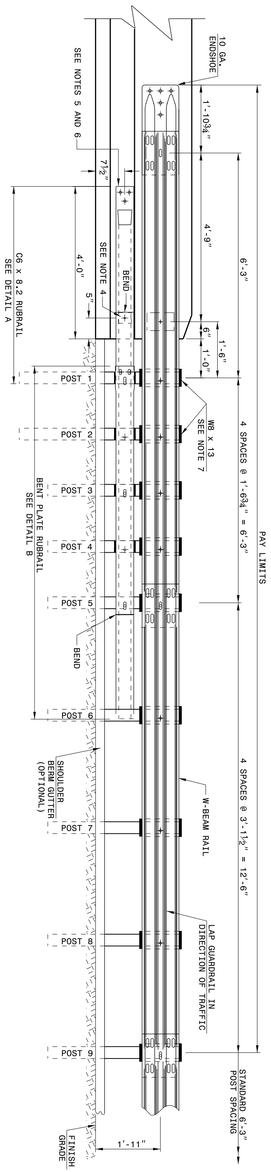
PROJECT REFERENCE NO.	SHEET NO.
R-2514C	2C-2

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

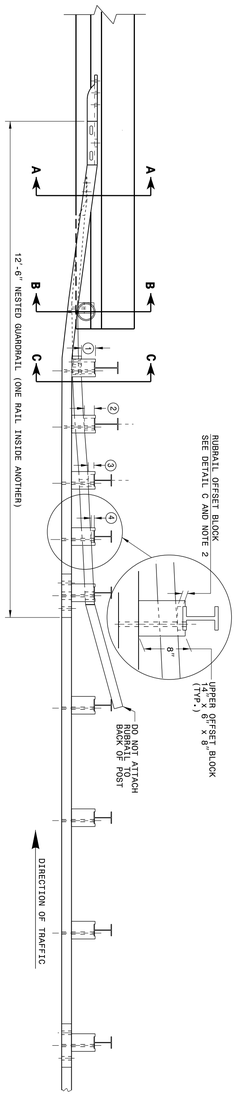
ENGLISH DETAIL DRAWING FOR
GUARDRAIL ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

SHEET 4 OF 7
862D03

ELEVATION



PLAN



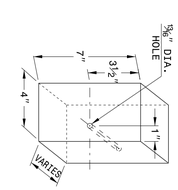
GENERAL NOTES:
1) THROUGHOUT THIS DETAIL, ALL REFERENCES TO RUBRAIL REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS THROUGH 4 ARE OFFSET VERTICALLY AND GROUPED WITH 5/8", BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED WITH A 5/8" x 4½" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 6" CHEMICALLY ANCHORED HEADED ANCHOR BOLT AND RECTANGULAR PLATE WASHER.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE ¾" x 3" LAG BOLT WITH FLAT WASHER.
5) SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
6) ANCHORAGE: FOR EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1/2".
   (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04). A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01).
   (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, DETAILED ON THE STRUCTURE PLANS. INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
   (c) AT THE BEGINNING OF BRIDGE RAIL, SHOP FABRICATE THE W8 x 18, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.
7) POSTS 1 AND 2 ARE W8 x 18, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

GUARDRAIL ANCHOR UNIT TYPE B-77

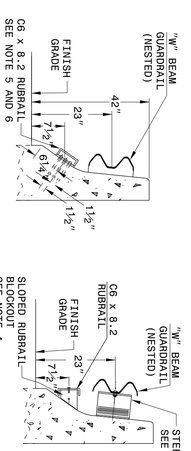
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

SHEET 5 OF 7
862D03

SECTION A-A



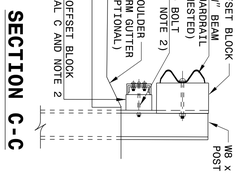
SECTION B-B



RUBRAIL BLOCKS 7" HIGH x 4" WIDE			
POST	THICKNESS	BOLT LENGTH	
①	4½"	9"	
②	3½"	5"	*
③	2"	6"	
④	1"	3"	*

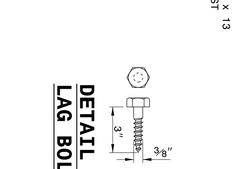
* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACHED TO BLOCK. RUBRAIL NOT ATTACHED TO POST 4.

SECTION C-C



FRONT SIDE

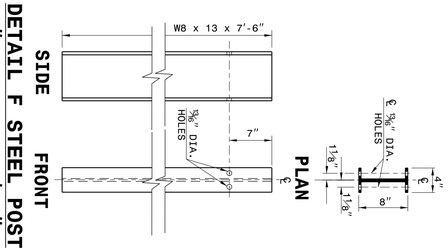
DETAIL D
SLOPED RUBRAIL BLOCKOUT



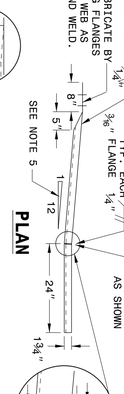
DETAIL E
LAG BOLT

SIDE FRONT

DETAIL F STEEL POST
"W8 X 13 X 7'-6"

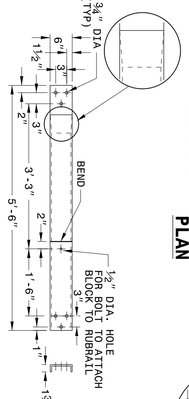


DETAIL C
RUBRAIL BLOCKOUT



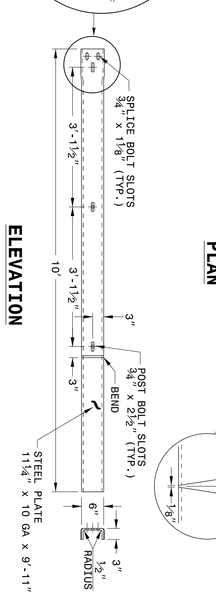
PLAN

DETAIL A
C6 x 8.2 RUBRAIL

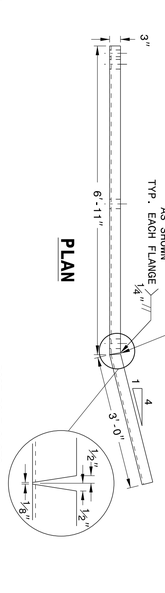


ELEVATION

DETAIL B
BENT PLATE RUBRAIL



PLAN



GUARDRAIL ANCHOR UNIT TYPE B-77

$$$$$$SYSTIME$$$$$$
$$$$$$ASTIME$$$$$$
$$$$$$USERNAME$$$$$$

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
3/25/2015
DocuSigned by: Joel Howerton

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY:	J HOWERTON	DATE: 06-22-12
MODIFIED BY:		DATE:
CHECKED BY:		DATE:
FILE SPEC.:		

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