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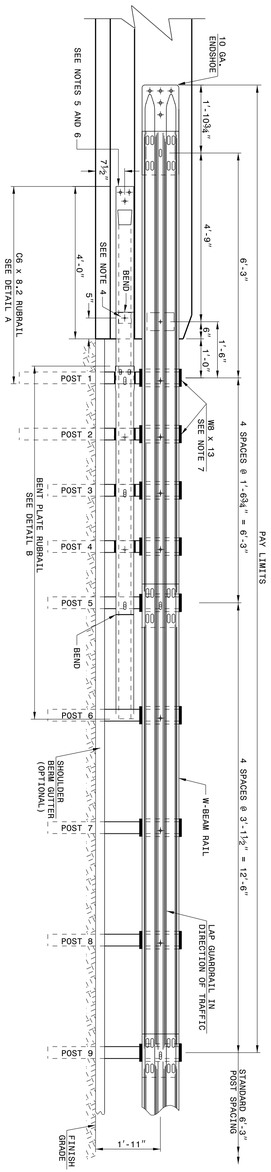
PROJECT REFERENCE NO.	SHEET NO.
R-5605	2C-4

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

SHEET 4 OF 7
862D03

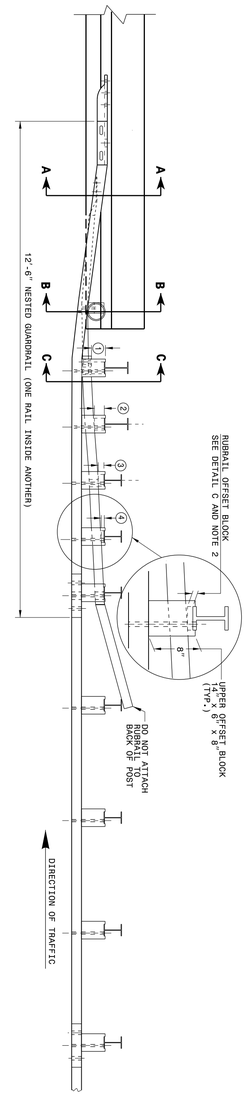
ENGLISH DETAIL DRAWING FOR
GUARDRAIL ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

ELEVATION



GENERAL NOTES:
1) THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET VERTICALLY AND GROUPED WITH 5⅛" 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 5⅛" 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 5⅛" x 4½" BUTTONHEAD BOLT AND WASHER. ATTACH TUBE TO RUBRAIL ELEMENT ONLY. USE ⅜" x 3" LAG BOLT WITH FLAT WASHER.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT WITH THE SLOPED SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
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:
   (a) FOR EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE ⅝" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1½".
   (b) 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). INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
   (c) FOR BRIDGE RAIL, ANCHOR RUBRAIL DETAILED ON THE STRUCTURE PLANS.
7) POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

PLAN



GUARDRAIL ANCHOR UNIT TYPE B-77

SEAL
022966
ENGINEER
Joel S. Howerton
Joel S. Howerton
449E8E25522144F...
1/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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.: _____

ENGLISH DETAIL DRAWING FOR
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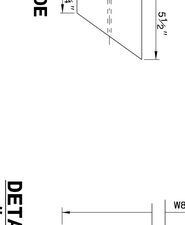
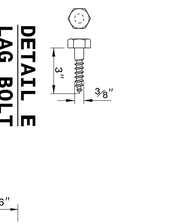
SHEET 5 OF 7
862D03

SECTION A-A



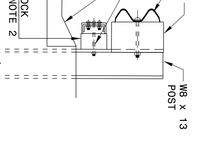
SECTION B-B



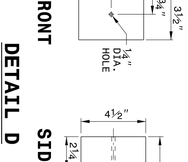
RUBRAIL BLOCKS 7" HIGH x 4" WIDE			
POST	THICKNESS	BOLT LENGTH	
①	4½"	9"	
②	3½"	5" *	
③	2"	6"	
④	1"	3" *	

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

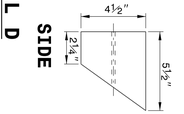
SECTION C-C



DETAIL C
RUBRAIL BLOCKOUT

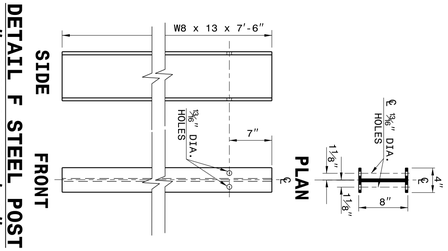


DETAIL D
SLOPED RUBRAIL BLOCKOUT

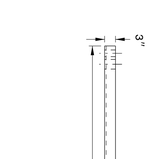


DETAIL E
LAG BOLT

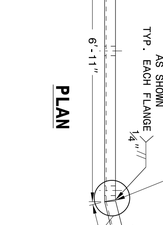
FRONT SIDE
DETAIL F STEEL POST
"W8 X 13 X 7'-6"



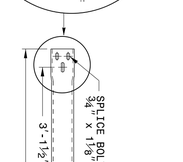
DETAIL C
RUBRAIL BLOCKOUT



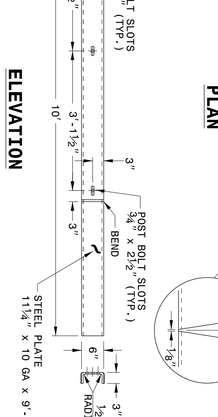
PLAN



ELEVATION
DETAIL A
C6 x 8.2 RUBRAIL



ELEVATION
DETAIL B
BENT PLATE RUBRAIL



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