PROJECT REFERENCE NO.	SHEET NO.
B-5121/B-5317	2C-13

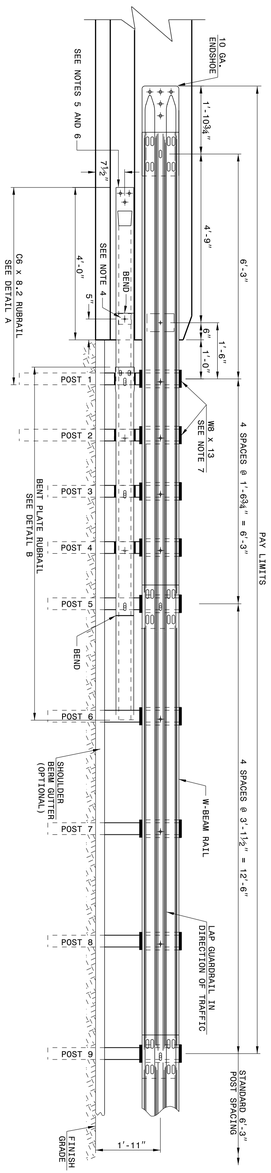
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

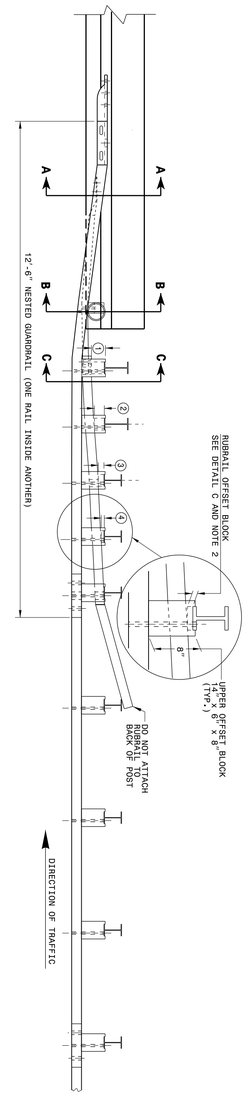
ENGLISH DETAIL DRAWING FOR
GUARDRAIL ANCHOR UNIT

SHEET 4 OF 7
862D03

ELEVATION



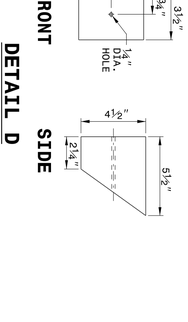
PLAN



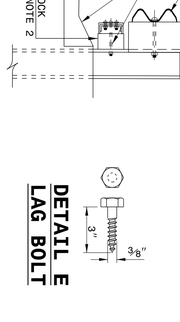
GENERAL NOTES:

1) THIS INSTALLATION REQUIRES AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET FOR ELEMENT CLEARANCE 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 A 5⅛" x 6" BUTTONHEAD BOLT AND WASHER PLATE. RUBRAIL IS ATTACHED TO RAIL 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 EDGE AT THE TOP. SHAPE AND ATTACH FLUSH WITH THE SLOPED RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND AT TOE OF THE BARRIER OR BRIDGE RAIL.
5) SHOP FABRICATE THE C6 x 8.2 RUBRAIL AND NEW OR EXISTING BARRIERS. ANCHOR RUBRAIL USING THREE 5⅛" x 6" CHEMICALLY ANCHORED
6) ANCHORAGE:
   (a) FOR EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS. ANCHOR RUBRAIL USING THREE 5⅛" x 6" BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS ½". ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04).
   (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING 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 WITH SIDEWALK, DETAILED ON THE STRUCTURE PLANS.
7) POSTS 1 AND 2 ARE W6 x 15, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

SECTION A-A



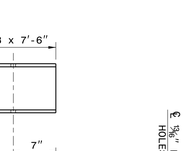
SECTION B-B



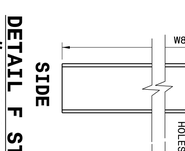
RUBRAIL BLOCKS 7" HIGH x 4" WIDE			
POST	THICKNESS	BOLT	LENGTH
①	4½"	5⅛"	9"
②	3¼"	5⅛"	5" *
③	2"	5⅛"	6"
④	1"	5⅛"	3" *

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

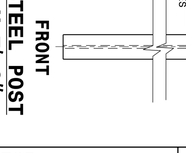
SECTION C-C



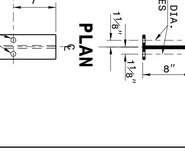
DETAIL C
RUBRAIL BLOCKOUT



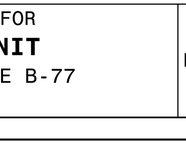
FRONT SIDE



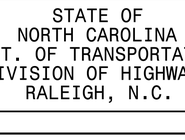
DETAIL D
SLOPED RUBRAIL BLOCKOUT



DETAIL E
LAG BOLT



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

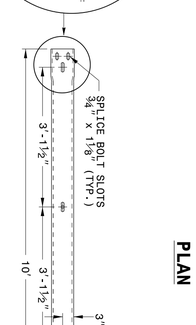


ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

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

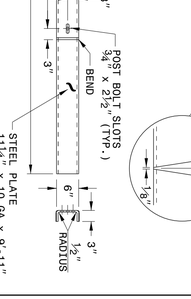
SHEET 5 OF 7
862D03

DETAIL A
C6 x 8.2 RUBRAIL

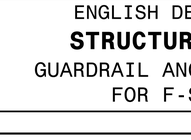


PLAN

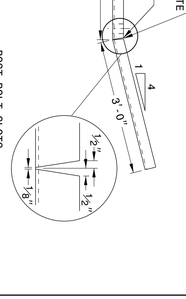
DETAIL B
BENT PLATE RUBRAIL



ELEVATION



PLAN



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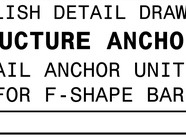

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

SHEET 5 OF 7
862D03

3/3/2016

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by:
Joel Howerton
873F3D17DCDC45F...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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