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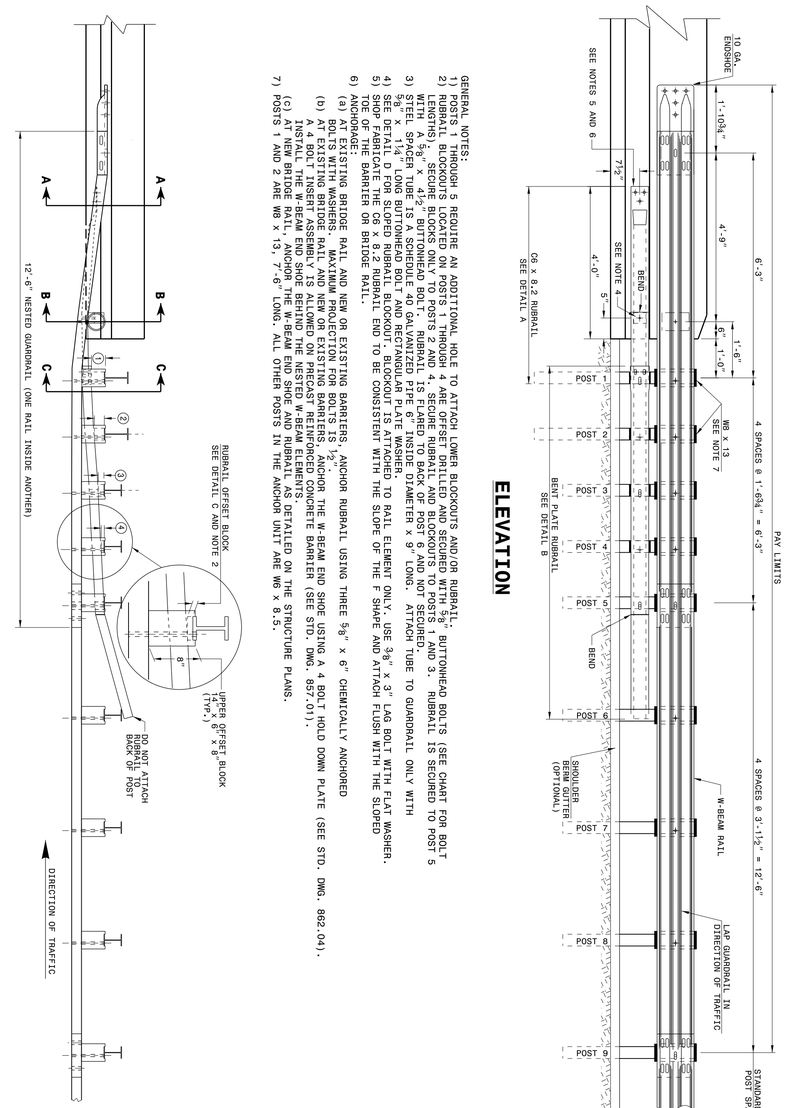
PROJECT REFERENCE NO.	SHEET NO.
B-5119	2C-1

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



GENERAL NOTES:
1) POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS THROUGH 4 ARE OFFSET VERTICALLY AND SECURED 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 TO POST 5 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 TYPICAL LONG BUTTONHEAD BOLT, WASHER, AND NUT.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" 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:
(a) ATTACH 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".
(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) TYPICAL RUBRAIL ANCHORAGE 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.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel Howerton
DocuSigned by: Joel Howerton
8D9D0A7D9D0A4DF...
12/22/2014

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

SEE TITLE BLOCK

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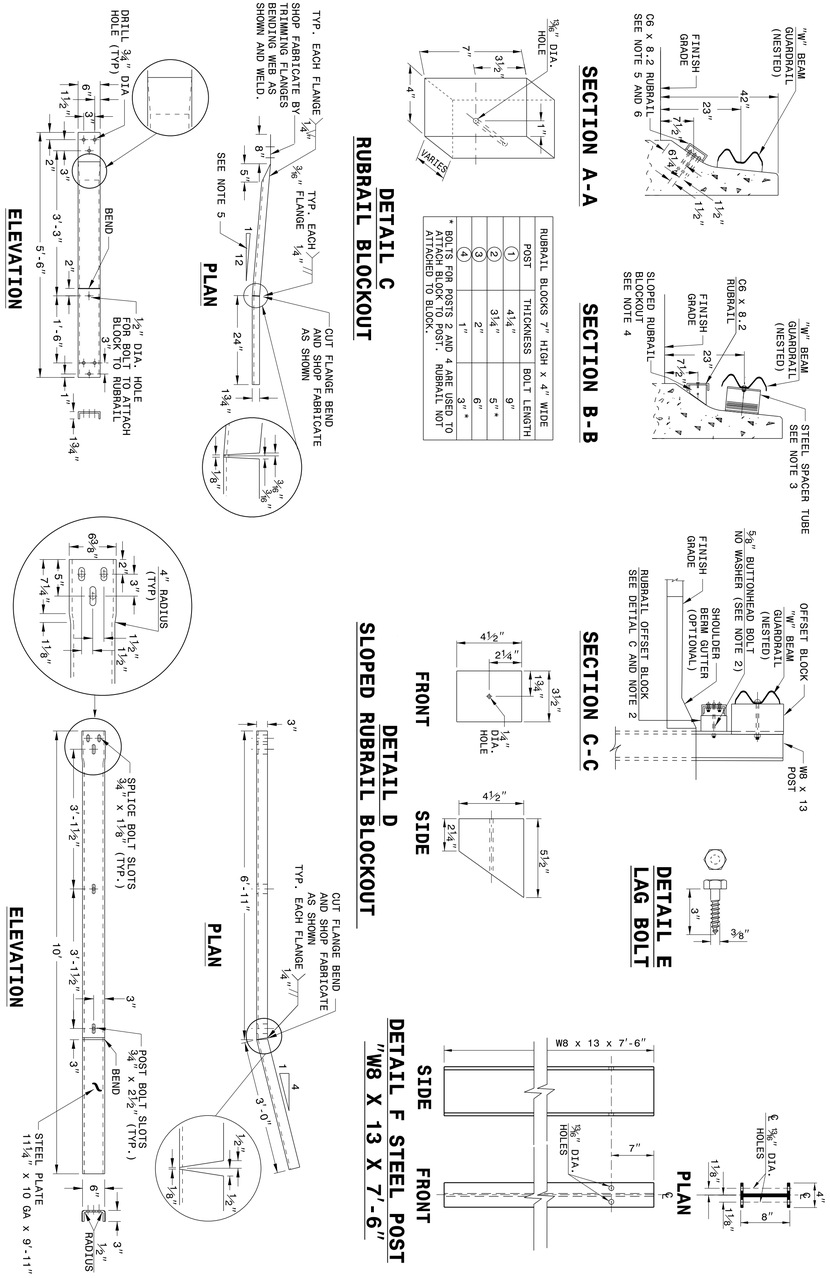
FILE SPEC.:

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

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

SHEET 5 OF 7
862D03



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

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

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STRUCTURE ANCHOR UNIT
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FOR F-SHAPE BARRIER

SHEET 5 OF 7
862D03

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

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