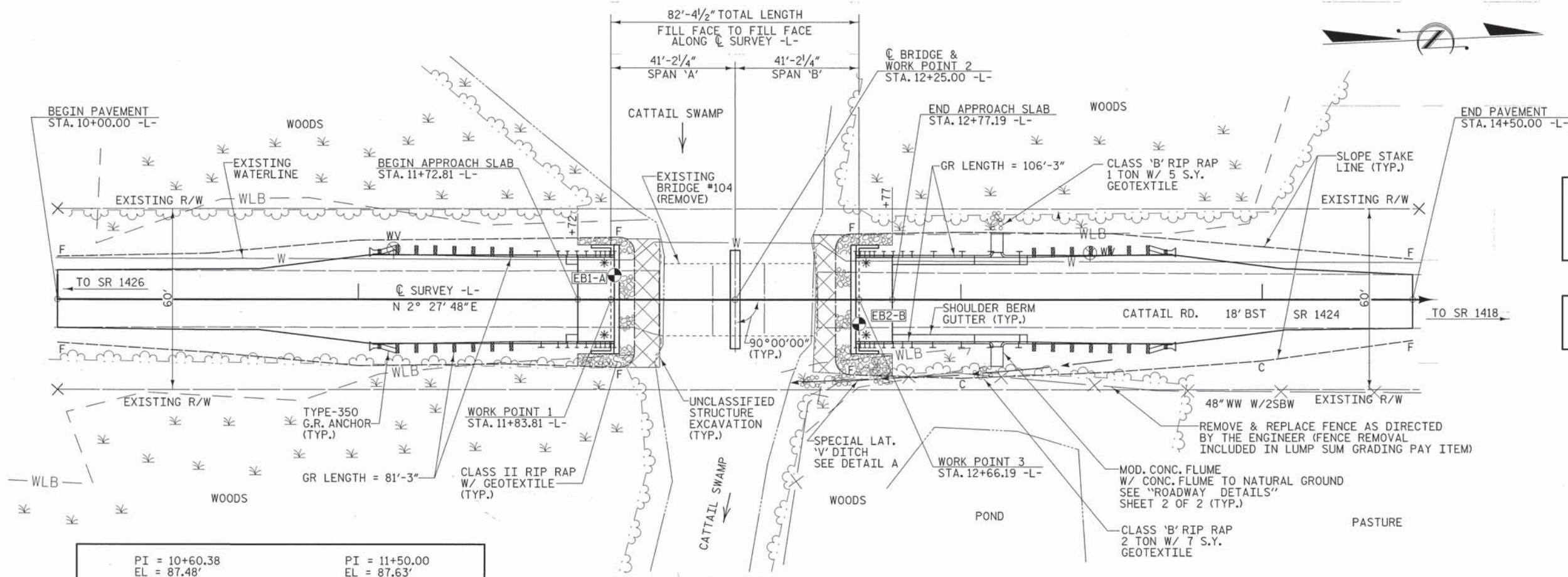


CONTRACT # DD000091 WBS # 45350.3.8



PI = 10+60.38 EL = 87.48' VC = 115' K = 119 D.S. = 55 mph (-)0.8123% (+)0.1564%	PI = 11+50.00 EL = 87.63' VC = 60' K = 132 D.S. = 55 mph (+)0.1564% (-)0.3000%
PI = 13+00.00 EL = 87.18' VC = 70' K = 114 D.S. = 55 mph (-)0.3000% (-)0.9132%	PI = 13+90.00 EL = 86.35' VC = 110' K = 117 D.S. = 55 mph (-)0.9132% (-)0.0230%

GRADE DATA
-L- (SR 1424)

PLAN
SCALE: 1" = 20'

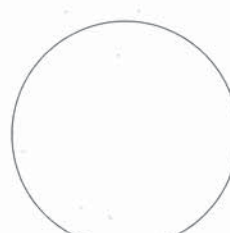
● DENOTES GEO-TECH BORE HOLE LOCATIONS.
 * DENOTES TYPE III GUARDRAIL CONNECTION REQ'D. SEE "GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL" SHEET.
 NOTE: GUARDRAIL LENGTHS AS SHOWN INCLUDE ANCHOR UNITS.
 U.O.N. - UNLESS OTHERWISE NOTED
 FOR PAVEMENT LAYOUT & R/W LAYOUT SEE "ROADWAY DETAILS" SHEET 1 OF 2.

EXISTING BRIDGE No. 104
24'-0" CLEAR ROADWAY
SPANS: 1 @ 17'-7"; 1 @ 17'-3"; 1 @ 17'-7"
REIN. CONC. DECK ON I-BEAMS
END BENTS & INT. BENTS:
REIN. CONC. CAP ON TIMBER PILES

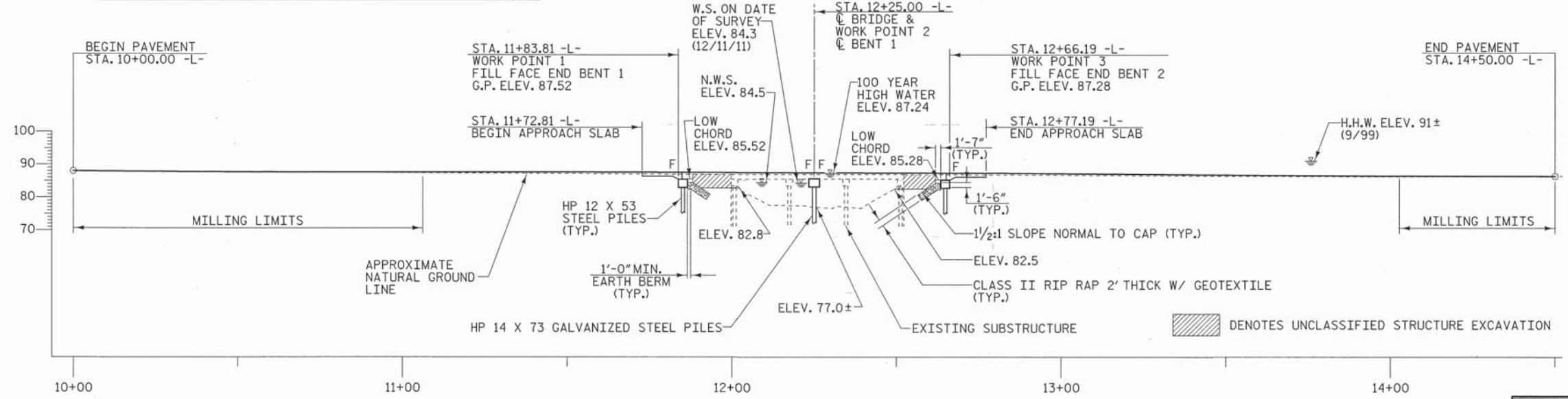
TBM: BM#1
RR SPIKE IN BASE OF 12" RIVER BIRCH
30.27' LEFT OF -L- STA. 13+49.30
ELEV. 85.64

EXISTING UTILITIES TO BE RELOCATED BY OTHERS.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-
 REPLACES BRIDGE NO. 104 SHEET 1 OF 2



NOTE: THE APPROXIMATE NATURAL GROUND ELEVATIONS ARE ALONG THE EDGE OF THE BRIDGE ON THE UPSTREAM SIDE.

PROFILE ALONG Q SURVEY
SCALE: 1" = 20'
F = FIXED END



PLANS PREPARED BY:



MULKEY ENGINEERS & CONSULTANTS
 10101 BELL BLVD. SUITE 200
 FARMERS BRANCH, TX 75440
 WWW.MULKEYINC.COM
 NO. LICENSE NO. 0-1021

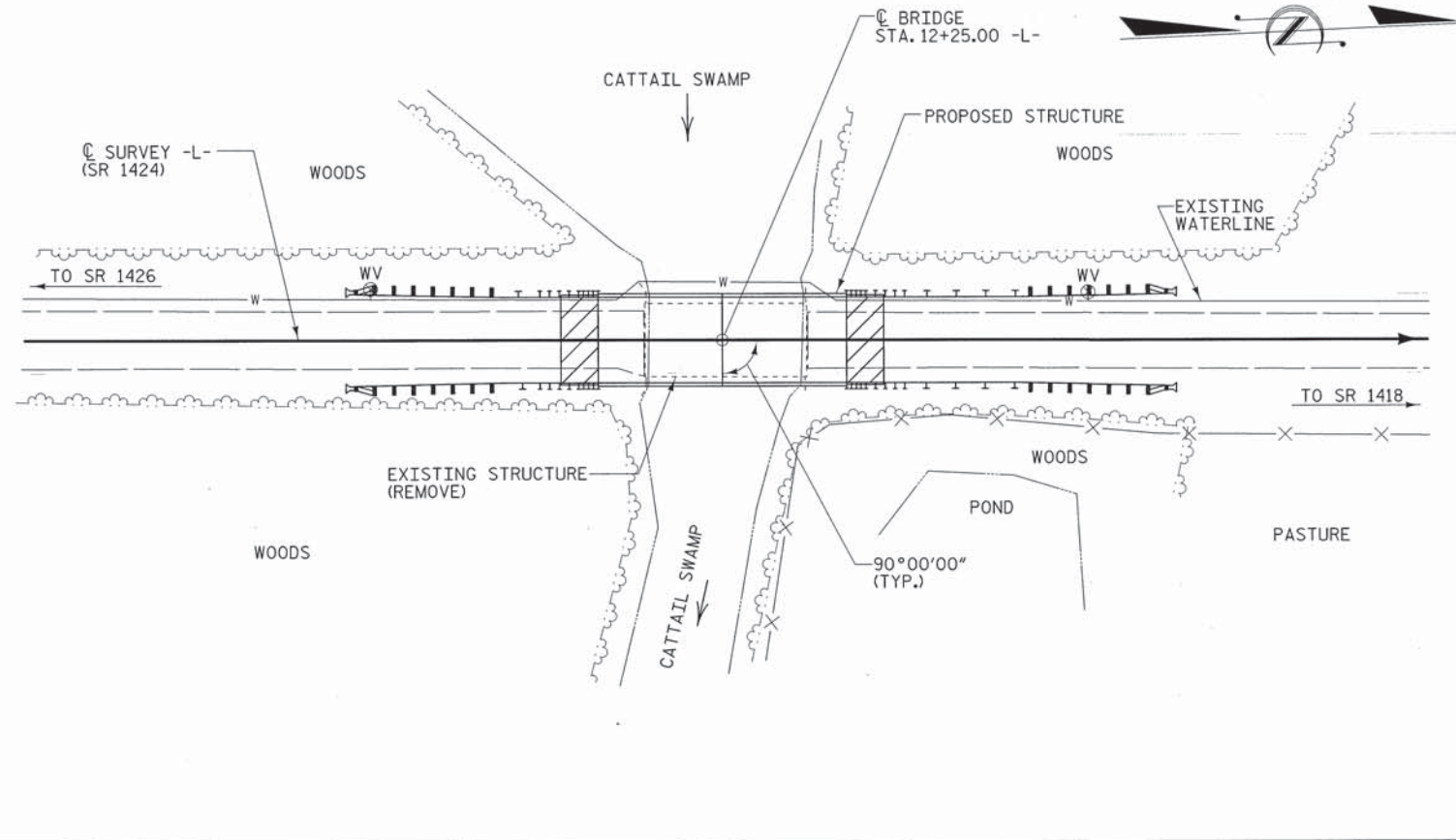
DRAWN BY: W. B. ALLEN DATE: 3/13
 CHECKED BY: W. A. DAVIS DATE: 3/13

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

TOTAL SHEETS: 27

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR THE DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THE MATERIAL SHOWN ON SHEET 1 IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE."
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".
 THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
 FOR PILES SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO.1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE.
 DRIVE PILES AT END BENT NO.1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
 PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.
 DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.
 FOR INTERIOR BENT NO.1, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT NO.1 SHEET FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.
 INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 43.0 FT.
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 65.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 45 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.1 AND 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.
 IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40 TO 60 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.
 TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PILE DRIVING ANALYZER TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION.
 ADT = 240 FOR YEAR 2009.
 ROADWAY APPROACH EMBANKMENT SHALL BE WIDENED AS NECESSARY FOR GUARDRAIL INSTALLATION.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 NO DECK DRAINS REQUIRED.
 DEWATERING OF FORMS MAY BE REQUIRED TO CONSTRUCT THE END BENTS AND BENT CAPS.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	HP 14 X 73 GALVANIZED STEEL PILES	PILE REDRIVES
	LUMP SUM	EACH	LUMP SUM	CU. YARDS	LUMP SUM	LBS.	NO.	LIN. FT.	NO.
SUPERSTRUCTURE	LUMP SUM				LUMP SUM				
END BENT 1			LUMP SUM	12.9		1963	5	300	3
BENT 1				9.9		1959		7	490
END BENT 2			LUMP SUM	12.9		1963	5	300	3
TOTAL	LUMP SUM	1	LUMP SUM	35.7	LUMP SUM	5885	10	600	7

TOTAL BILL OF MATERIAL

	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLABS
	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	NO.
SUPERSTRUCTURE	160.25			LUMP SUM	20
END BENT 1		70	78		
BENT 1					
END BENT 2		65	72		
TOTAL	160.25	135	150	LUMP SUM	20

HYDROGRAPHIC DATA:

DESIGN DISCHARGE - 1300 CFS
 FREQUENCY OF DESIGN FLOOD - 25 YEAR
 DESIGN HIGH WATER ELEVATION - 85.5
 DRAINAGE AREA - 14.8 SQ. MI.
 BASE DISCHARGE (Q 100) - 1900 CFS
 BASE HIGH WATER ELEVATION - 87.24

OVERTOPPING FLOOD DATA:

OVERTOPPING DISCHARGE - 1550 CFS
 FREQUENCY OF OVERTOPPING FLOOD - 50 YEAR -
 OVERTOPPING FLOOD ELEVATION - 86.37

OVERTOPPING OCCURS AT ROADWAY STA. -L- 14+42.29 AT LOW POINT. ELEV. = 86.37

PROJECT NO. **BD-5104G**
WILSON COUNTY
 STATION: **12+25.00 -L-**

REPLACES BRIDGE NO. 104 SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON SR 1424
 OVER CATTAIL SWAMP
 BETWEEN SR 1426 & SR 1418
 27'-10" CLEAR ROADWAY - 90°SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : **W. B. ALLEN** DATE : **6/13**
 CHECKED BY : **W. A. DAVIS** DATE : **6/13**

7/1/2013 10:34:27 AM R:\S\Structures\B05046.SD_00_02.dgn

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(InV)	N/A	1	1.15	--	1.75	0.279	1.32	A	EL	19.5	0.547	1.35	A	EL	1.95	0.80	0.279	1.15	A	EL	19.500		
	HL-93(OPr)	N/A	--	1.71	--	1.35	0.279	1.71	A	EL	19.5	0.547	1.75	A	EL	1.95	N/A	--	--	--	--	--		
	HS-20(InV)	36.000	2	1.43	51.590	1.75	0.279	1.65	A	EL	19.5	0.547	1.57	A	EL	1.95	0.80	0.279	1.43	A	EL	19.500		
	HS-20(OPr)	36.000	--	2.04	73.444	1.35	0.279	2.14	A	EL	19.5	0.547	2.04	A	EL	1.95	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.66	35.884	1.40	0.279	3.82	A	EL	19.5	0.547	4.22	A	EL	1.95	0.80	0.279	2.66	A	EL	19.500	
		SNGARBS2	20.000	--	2.19	43.899	1.40	0.279	3.15	A	EL	15.6	0.547	3.14	A	EL	1.95	0.80	0.279	2.19	A	EL	19.500	
		SNAGRIS2	22.000	--	2.17	47.637	1.40	0.279	3.07	A	EL	15.6	0.547	2.97	A	EL	1.95	0.80	0.279	2.17	A	EL	15.600	
		SNCOTTS3	27.250	--	1.33	36.206	1.40	0.279	1.91	A	EL	19.5	0.547	2.12	A	EL	1.95	0.80	0.279	1.33	A	EL	19.500	
		SNAGGRS4	34.925	--	1.20	41.765	1.40	0.279	1.72	A	EL	19.5	0.547	1.86	A	EL	1.95	0.80	0.279	1.20	A	EL	19.500	
		SNS5A	35.550	--	1.16	41.352	1.40	0.279	1.67	A	EL	19.5	0.547	1.94	A	EL	1.95	0.80	0.279	1.16	A	EL	19.500	
		SNS6A	39.950	--	1.11	44.215	1.40	0.279	1.59	A	EL	19.5	0.547	1.81	A	EL	1.95	0.80	0.279	1.11	A	EL	19.500	
	TTST	SNS7B	42.000	3	1.06	44.331	1.40	0.279	1.52	A	EL	19.5	0.547	1.85	A	EL	1.95	0.80	0.279	1.06	A	EL	19.500	
		TNAGRIT3	33.000	--	1.36	44.941	1.40	0.279	1.96	A	EL	19.5	0.547	2.12	A	EL	1.95	0.80	0.279	1.36	A	EL	19.500	
		TNT4A	33.075	--	1.38	45.623	1.40	0.279	1.98	A	EL	19.5	0.547	2.02	A	EL	1.95	0.80	0.279	1.38	A	EL	19.500	
		TNT6A	41.600	--	1.17	48.667	1.40	0.279	1.68	A	EL	19.5	0.547	1.98	A	EL	1.95	0.80	0.279	1.17	A	EL	19.500	
		TNT7A	42.000	--	1.20	50.379	1.40	0.279	1.72	A	EL	19.5	0.547	1.82	A	EL	1.95	0.80	0.279	1.20	A	EL	19.500	
		TNT7B	42.000	--	1.23	51.509	1.40	0.279	1.76	A	EL	19.5	0.547	1.76	A	EL	1.95	0.80	0.279	1.23	A	EL	19.500	
		TNAGRIT4	43.000	--	1.19	51.304	1.40	0.279	1.71	A	EL	19.5	0.547	1.68	A	EL	1.95	0.80	0.279	1.19	A	EL	19.500	
TNAGT5A	45.000	--	1.10	49.684	1.40	0.279	1.59	A	EL	19.5	0.547	1.75	A	EL	1.95	0.80	0.279	1.10	A	EL	19.500			
TNAGT5B	45.000	--	1.07	48.279	1.40	0.279	1.54	A	EL	19.5	0.547	1.59	A	EL	1.95	0.80	0.279	1.07	A	EL	19.500			

NOTES:

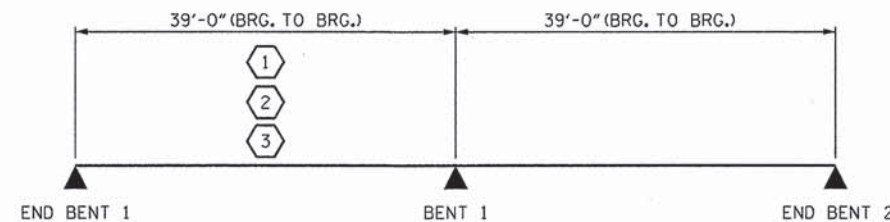
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER	
EL - EXTERIOR LEFT GIRDER	
ER - EXTERIOR RIGHT GIRDER	



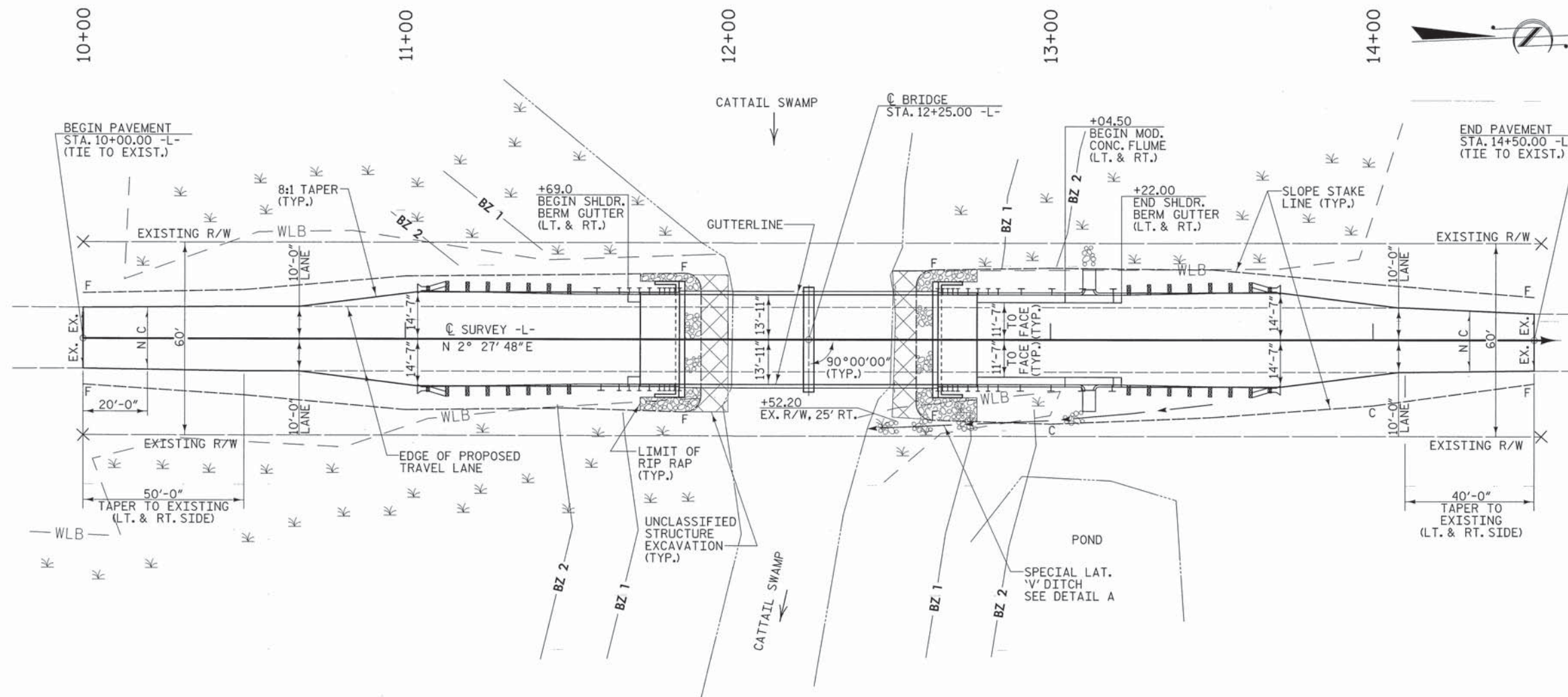
LRFR SUMMARY

PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-



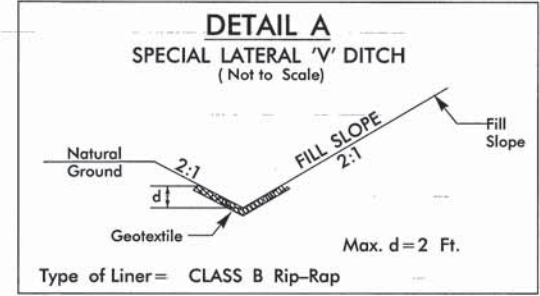
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD					
LRFR SUMMARY FOR					
PRESTRESSED					
CONCRETE GIRDERS					
(NON-INTERSTATE TRAFFIC)					
REVISIONS					SHEET NO. 3
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		
TOTAL SHEETS					27

DRAWN BY: B.L. GREEN DATE: 4/25/13
 CHECKED BY: K.P. SEDAI DATE: 5/17/13
 DESIGN ENGINEER OF RECORD: B.L. GREEN DATE: 6/20/13



PAVEMENT LAYOUT DETAIL

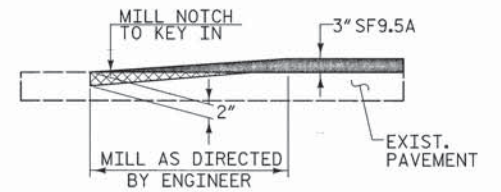
SCALE: 1" = 20'



FROM STA. 12+45 TO STA. 12+77

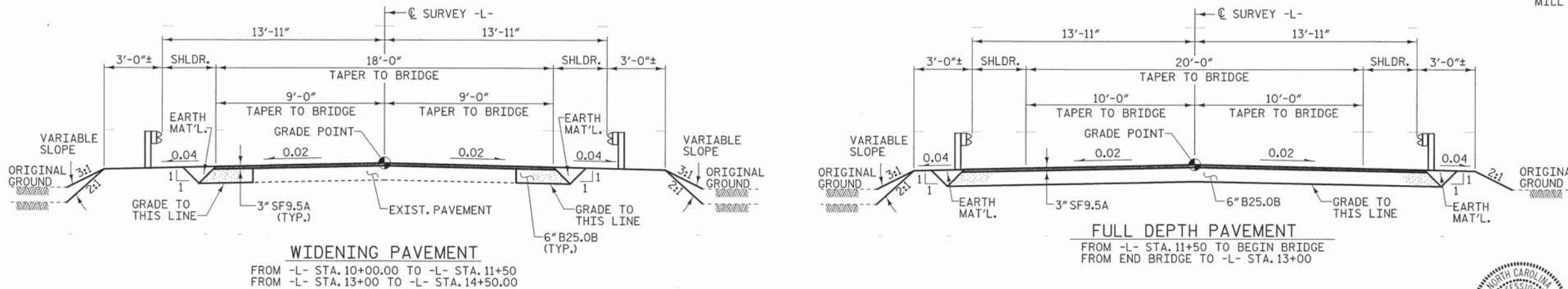
DATUM DESCRIPTION

THE COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS BD-5104G-2" WITH NAD 1983/2007 STATE PLANE GRID COORDINATES OF NORTHING: 740578.465(ft) EASTING: 2354559.833(ft) ELEVATION: 86.38(ft)
 GROUND DISTANCES IN FIELD WERE USED TO DETERMINE COORDINATES FOR "GPS BD-5104G-1" AND "GPS BD-5104G-3"
 LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS BD-5104G-2" TO -L- STATION 10+00.00 IS S 06° 40' 12.6" W 191.67'
 VERTICAL DATUM USED IS NAVD 88



MILLING DETAIL

MILL EXISTING PAVEMENT AT THE FOLLOWING LOCATIONS
 -L- STA. 10+00.00 TO STA. 11+07+/-
 -L- STA. 14+02+/- TO STA. 14+50.00



TYPICAL ROADWAY SECTION

WITHIN CONSTRUCTION LIMITS

PROJECT NO. **BD-5104G**

WILSON COUNTY

STATION: **12+25.00 -L-**

REPLACES BRIDGE NO. 104 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ROADWAY DETAILS

27'-10" CLEAR ROADWAY - 90° SKEW

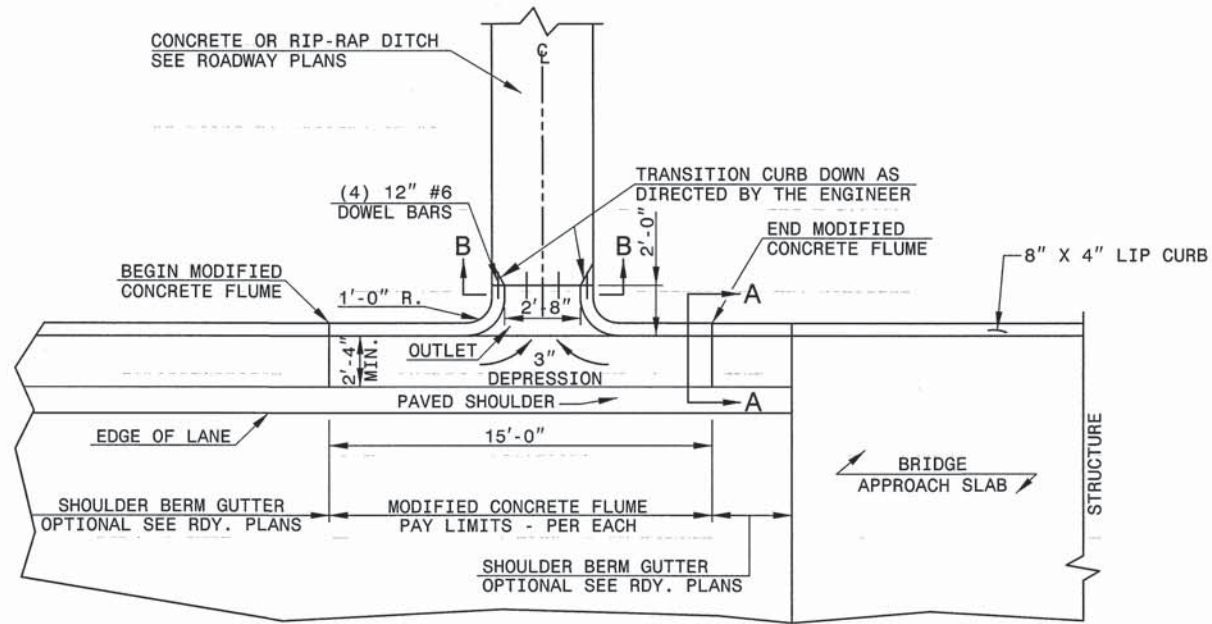
NO.		BY:		DATE:		SHEET NO.
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1				3		4
2				4		



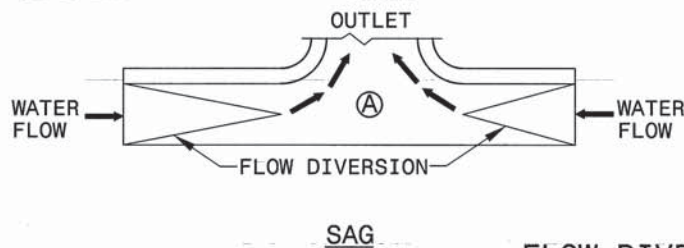
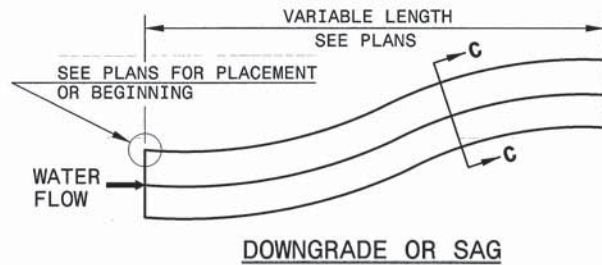
PLANS PREPARED BY:
MULKEY ENGINEERS & CONSULTANTS
 1010 BOX 32127
 RALEIGH, N.C. 27606
 (919) 851-1918 FAX
 WWW.MULKEYINC.COM
 NO LICENSE NO. 0-1021

DRAWN BY: **W. B. ALLEN** DATE: **3/13**
 CHECKED BY: **W. A. DAVIS** DATE: **3/13**

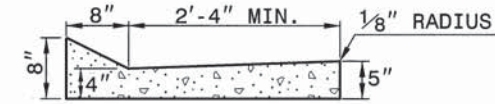
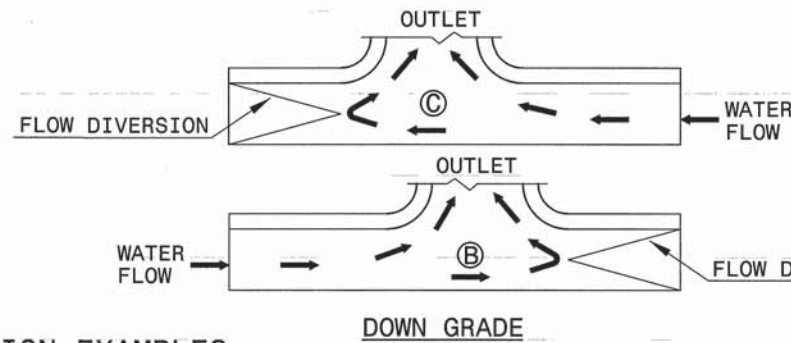
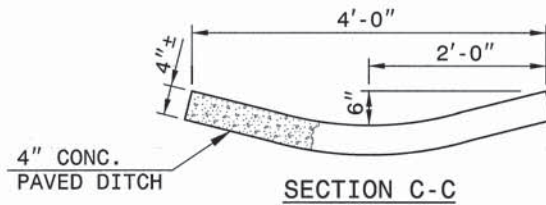
MODIFIED CONCRETE FLUME WITH CONCRETE OR RIP-RAP DITCH



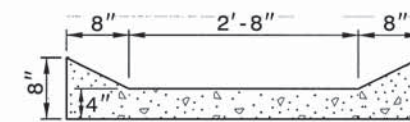
PLAN VIEW



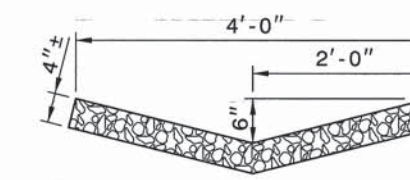
FLOW DIVERSION EXAMPLES



SECTION A-A



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

MODIFIED CONCRETE FLUME WITH CONCRETE OR RIP-RAP DITCH

PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

REPLACES BRIDGE NO. 104 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ROADWAY DETAILS

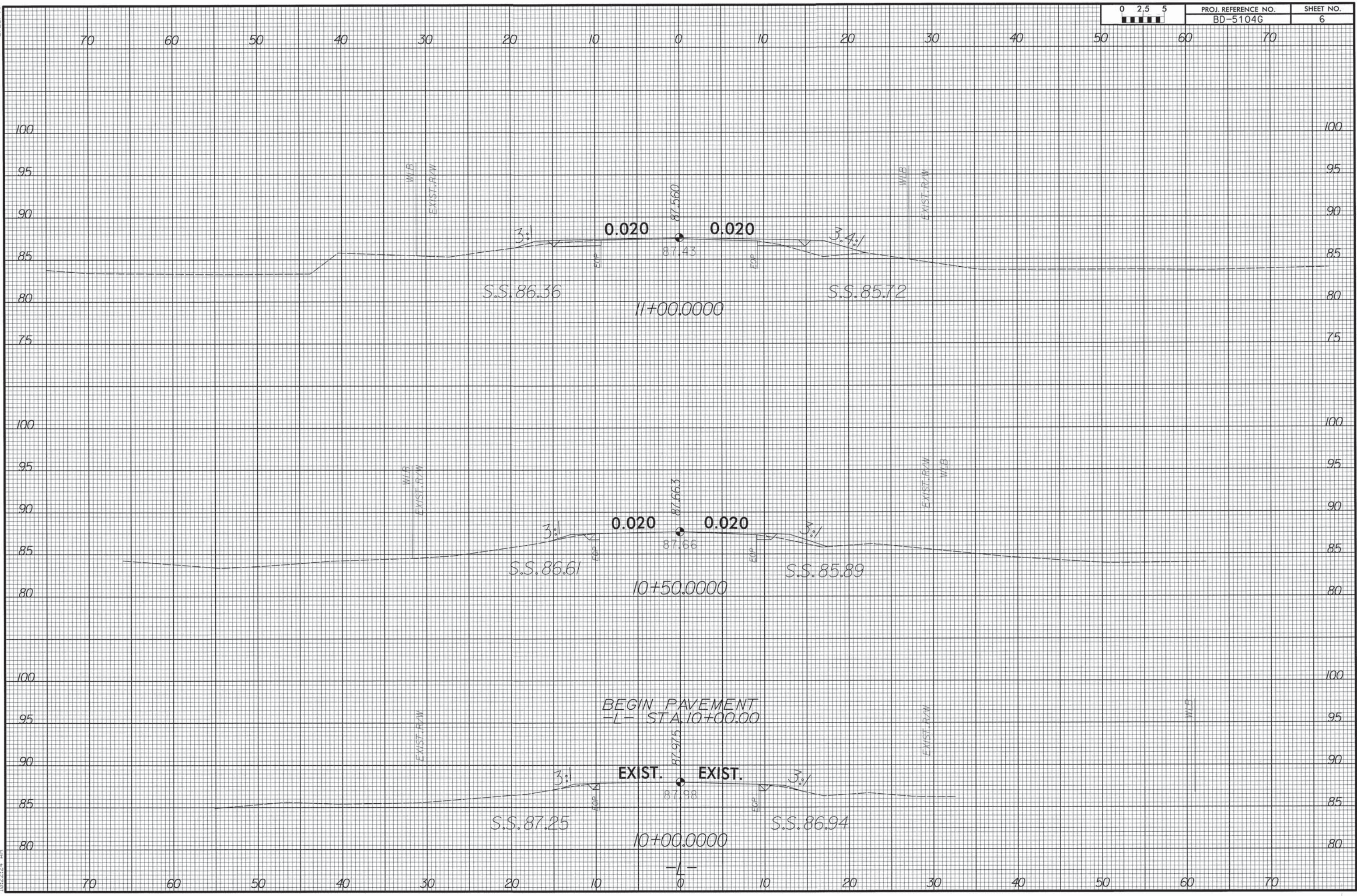
27'-10" CLEAR ROADWAY - 90° SKEW

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					5
					27



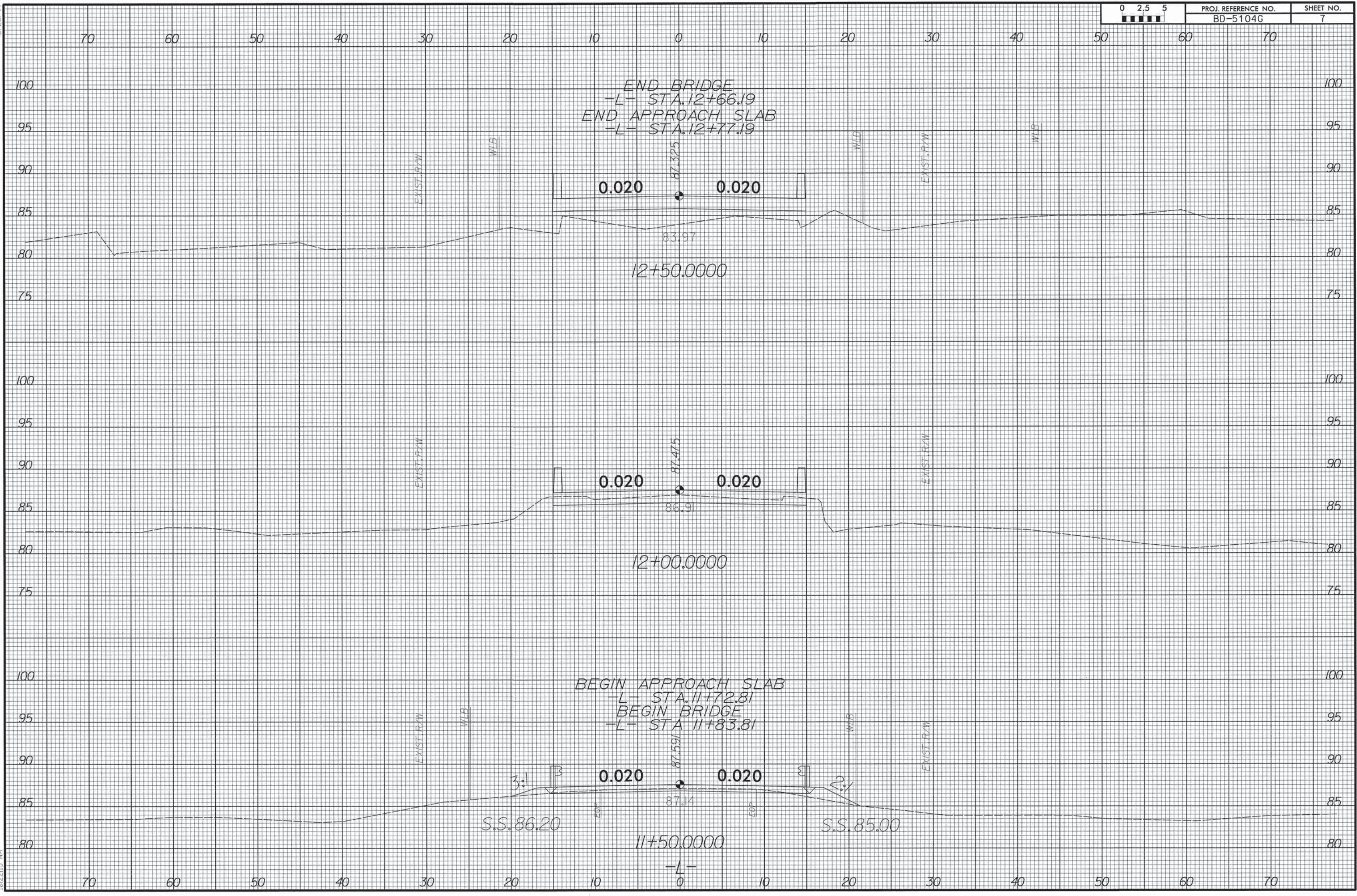
DRAWN BY: W. B. ALLEN DATE: 3/13
 CHECKED BY: W. A. DAVIS DATE: 3/13

8/23/99



7/1/2013 10:55:29 AM \\XSC\BDS104G_xpl.dgn

8/23/99



END BRIDGE
 -L- STA. 12+66.19
 END APPROACH SLAB
 -L- STA. 12+77.19

0.020 0.020

87.325

83.97

12+50.0000

0.020 0.020

87.415

86.91

12+00.0000

BEGIN BRIDGE
 -L- STA. 11+72.81
 BEGIN APPROACH SLAB
 -L- STA. 11+83.81

0.020 0.020

87.591

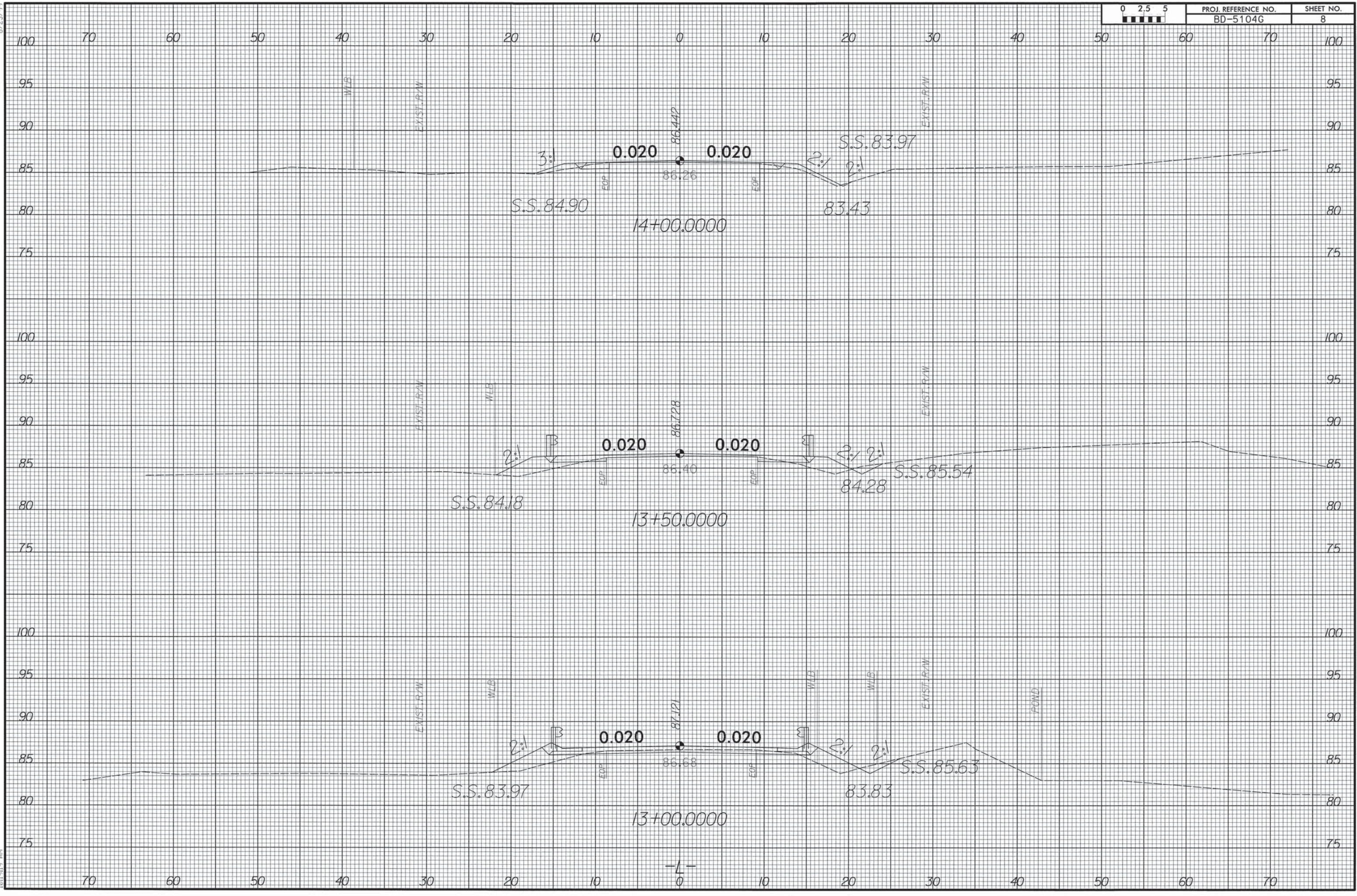
87.14

S.S. 86.20

11+50.0000

S.S. 85.00

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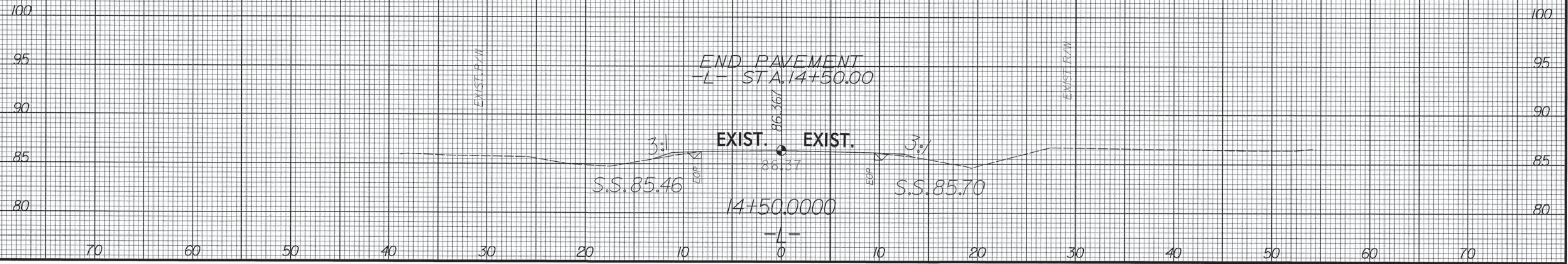


8/23/99

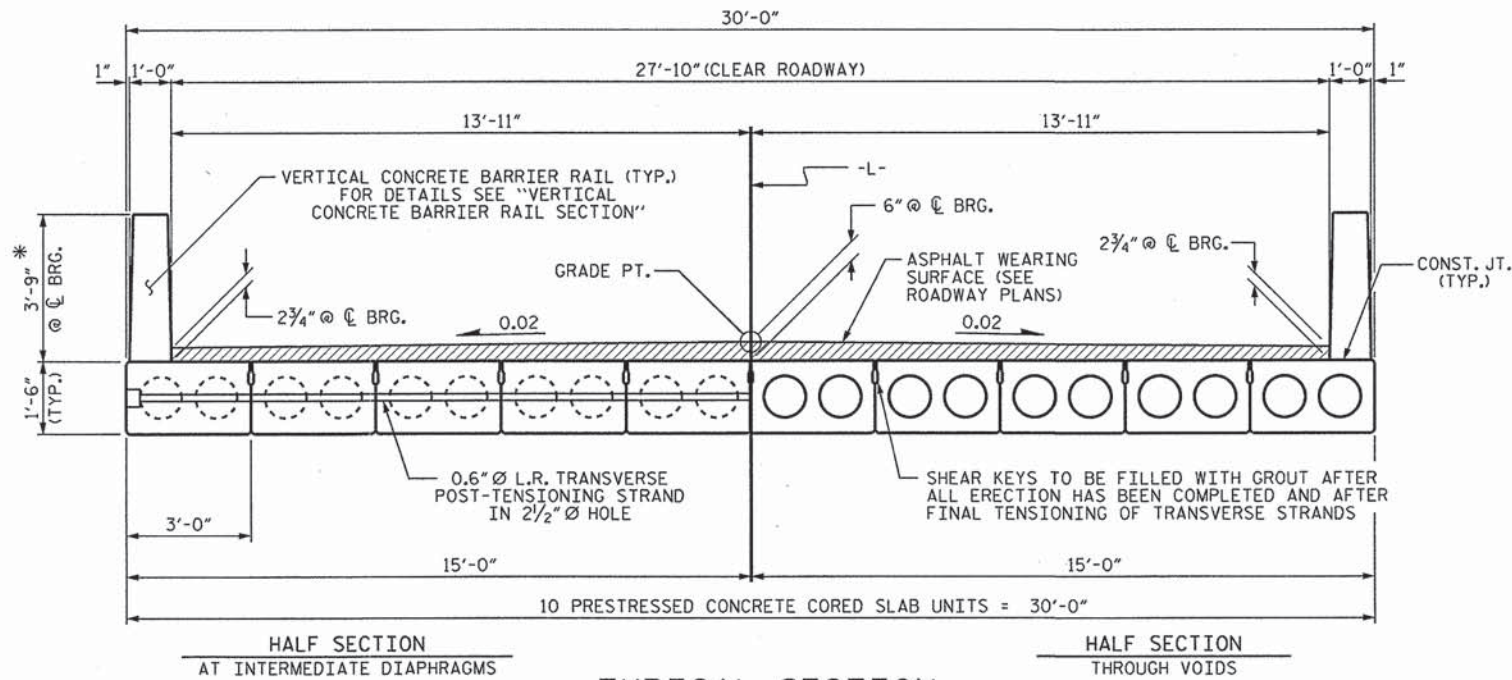


PROJ. REFERENCE NO.	SHEET NO.
BD-5104G	9

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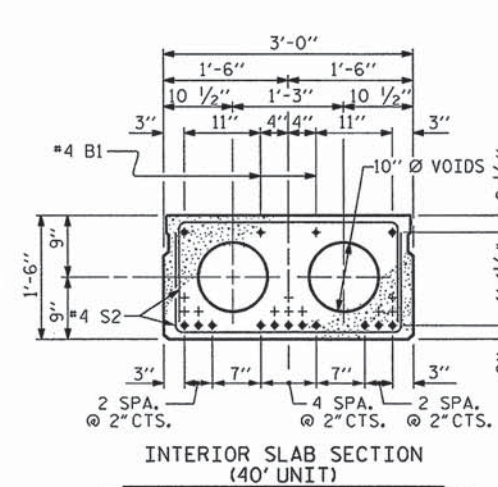


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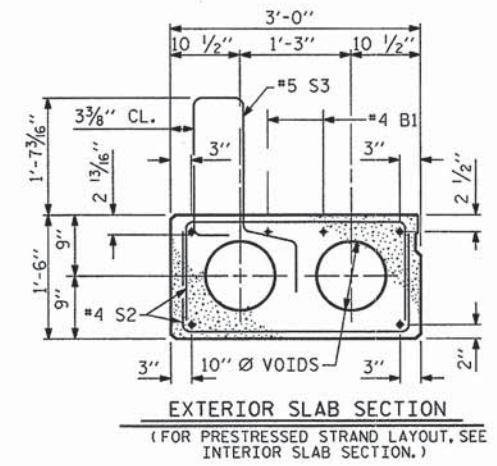


TYPICAL SECTION

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

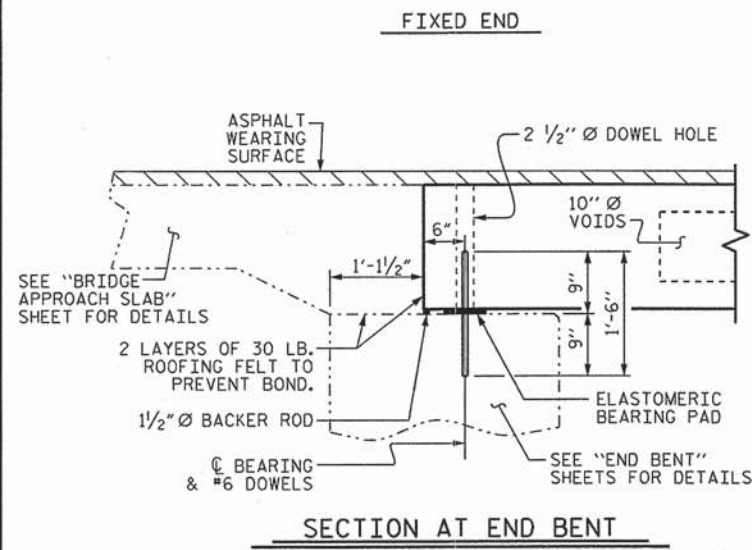


INTERIOR SLAB SECTION (40' UNIT)
(13 STRANDS REQUIRED)

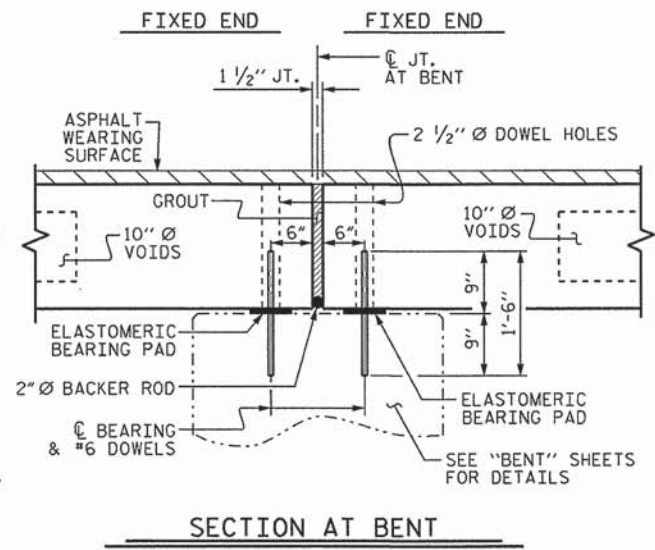


EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

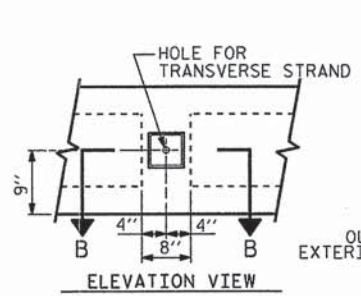
0.6" Ø LOW RELAXATION STRAND LAYOUT



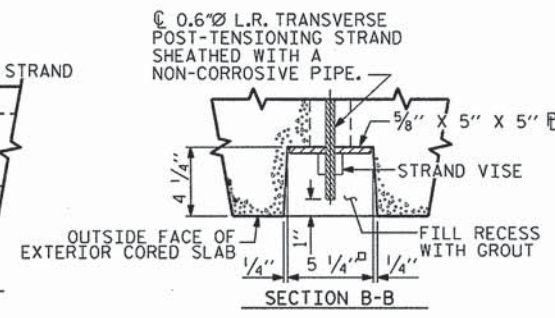
SECTION AT END BENT



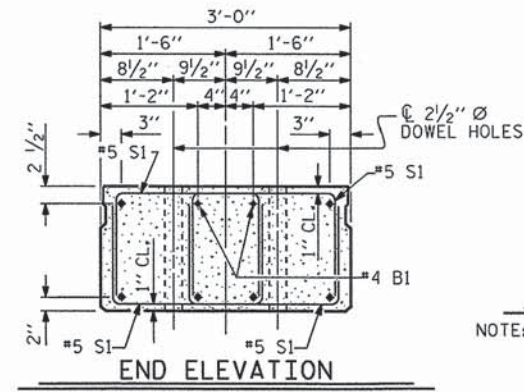
SECTION AT BENT



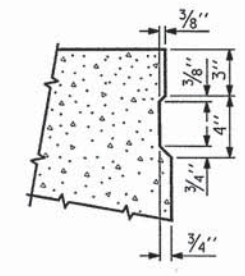
ELEVATION VIEW



GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



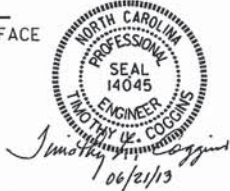
END ELEVATION
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES (STRAND LAYOUT NOT SHOWN)
INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

DRAWN BY : B. L. GREEN DATE : 4/25/13
CHECKED BY : K. P. SEDAI DATE : 5/17/13
DESIGN ENGINEER OF RECORD : B. L. GREEN DATE : 6/20/13

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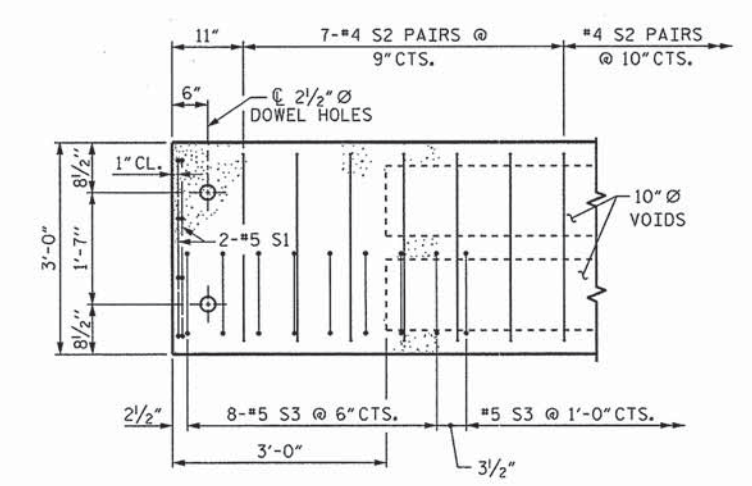
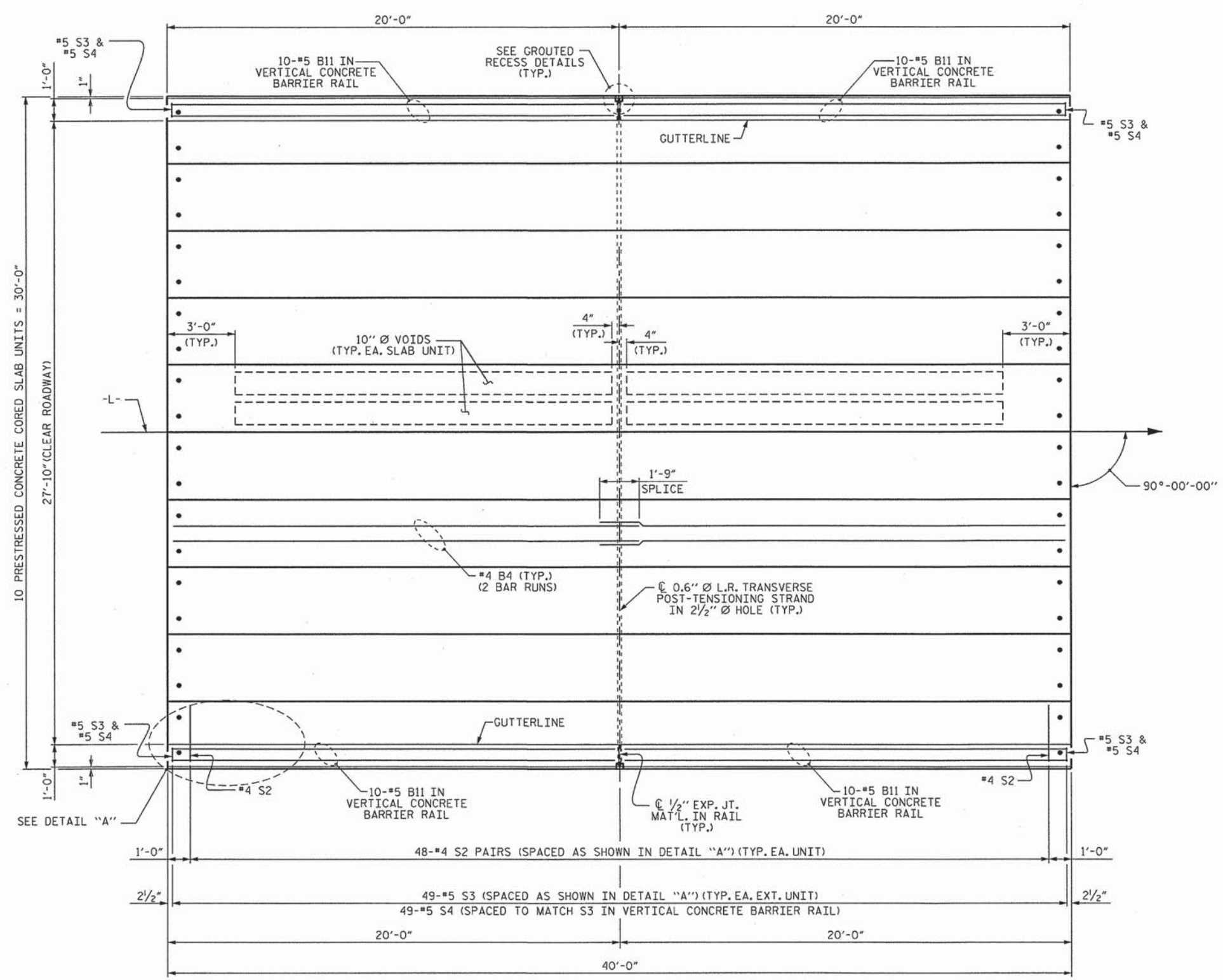


PROJECT NO. BD-5104G
WILSON COUNTY
STATION: 12+25.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 10
					TOTAL SHEETS 27

(SHT 1) STD. NO. PCS1



DETAIL "A"
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**PLAN OF 40' UNIT
 27'-10" CLEAR ROADWAY
 90° SKEW**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	11	
1			3			TOTAL SHEETS 27	
2			4				



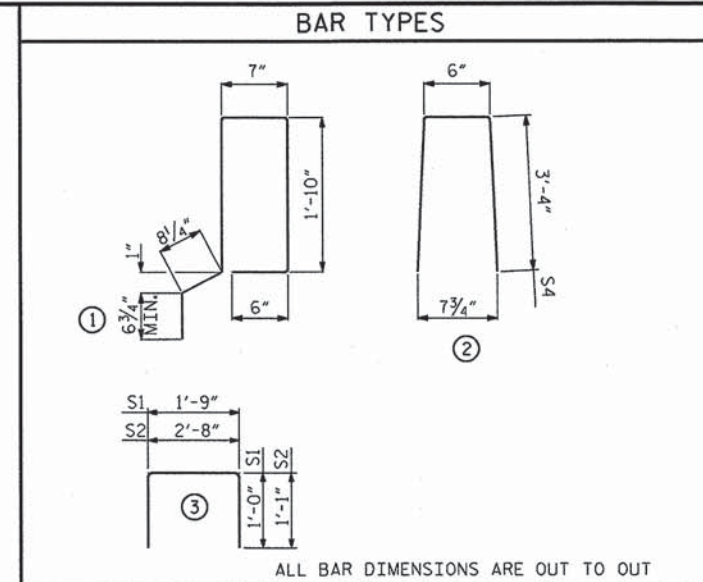
DRAWN BY: B. L. GREEN DATE: 4/25/13
 CHECKED BY: K. P. SEDAT DATE: 5/17/13
 DESIGN ENGINEER OF RECORD: B. L. GREEN DATE: 6/20/13

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DEAD LOAD DEFLECTION AND CAMBER	
40' CORED SLAB UNIT	3'-0" x 1'-6"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1/4" ↑

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
40' UNIT						
* B11	40	80	#5	STR	19'-7"	1634
* S4	98	196	#5	2	7'-2"	1465
* EPOXY COATED REINFORCING STEEL			LBS.		3099	
CLASS AA CONCRETE			CU.YDS.		21.0	
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.		160.25	



BILL OF MATERIAL FOR ONE CORED SLAB SECTION							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B4	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	3'-9"	31	3'-9"	31
S2	96	#4	3	4'-10"	310	4'-10"	310
* S3	49	#5	1	6'-0"	307		
REINFORCING STEEL				LBS.		396	
* EPOXY COATED REINFORCING STEEL				LBS.		307	
5000 P.S.I. CONCRETE				CU.YDS.		5.3	
0.6" Ø L.R. STRANDS				No.		13	

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS, A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

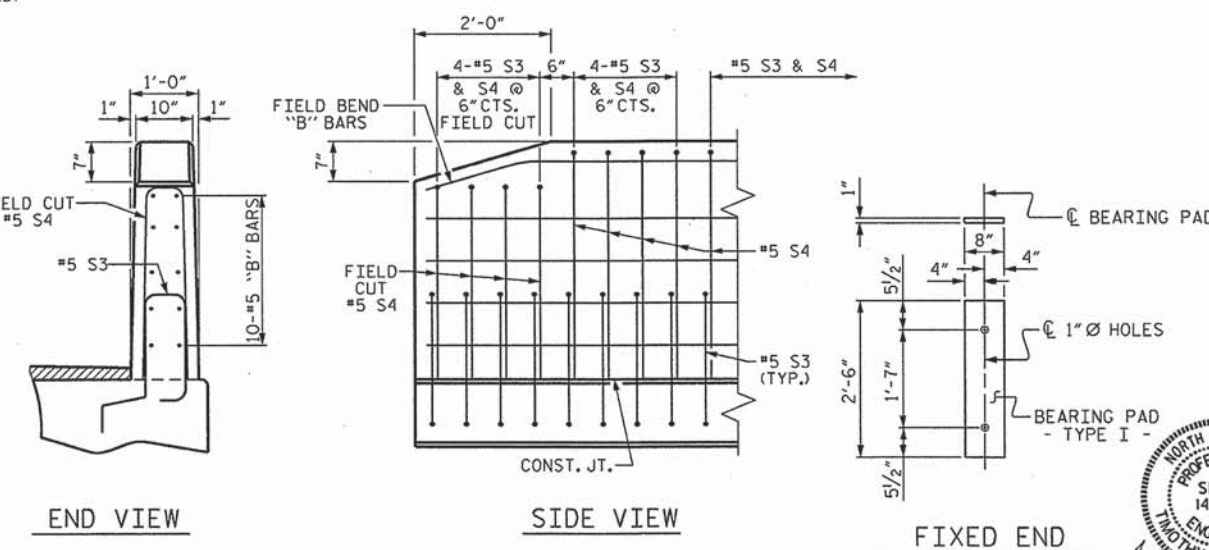
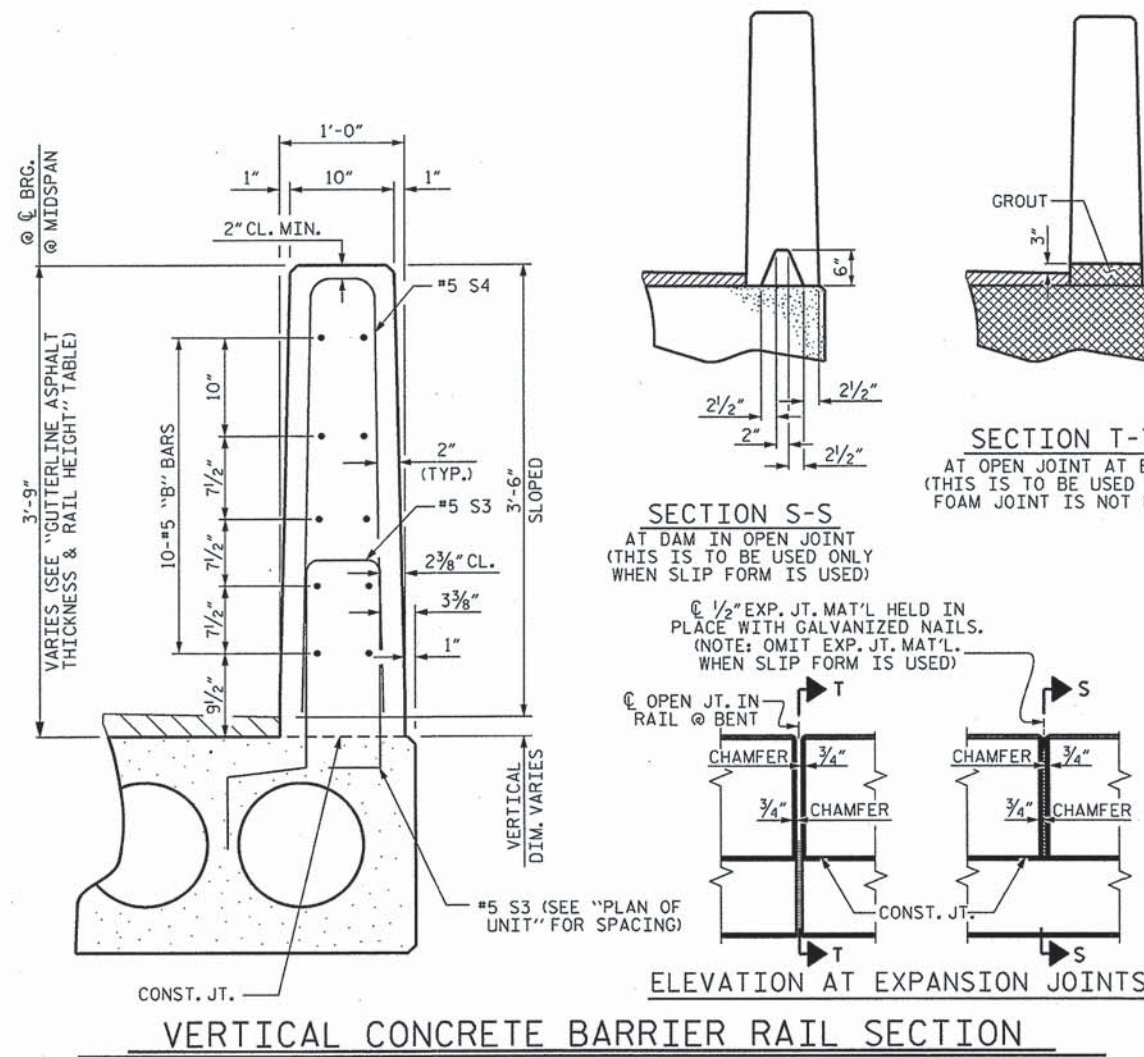
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
40' UNITS	1 1/2"	3'-7 1/2"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
40' UNITS	4000

CORED SLABS REQUIRED		
	NUMBER	LENGTH/TOTAL LENGTH
EXTERIOR C.S.	4	40'-0" / 160'-0"
INTERIOR C.S.	16	40'-0" / 640'-0"
TOTAL	20	800'-0"

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-6"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW



DRAWN BY: B.L. GREEN DATE: 4/25/13
 CHECKED BY: K.P. SEDAT DATE: 5/17/13
 DESIGN ENGINEER OF RECORD: B.L. GREEN DATE: 6/20/13

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS 27

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

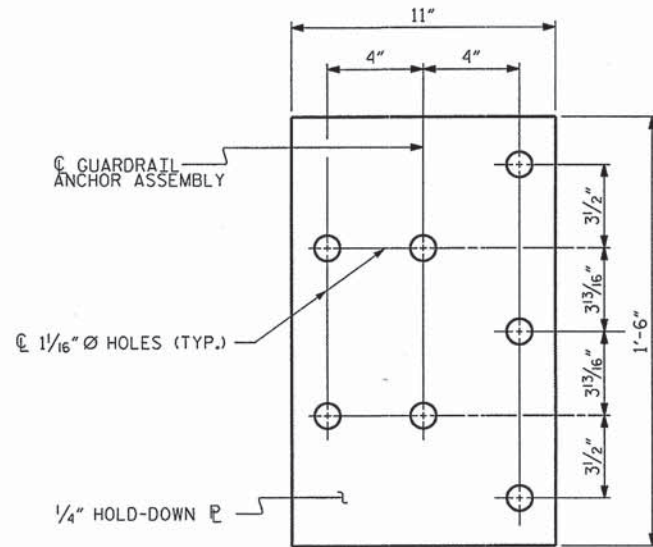
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

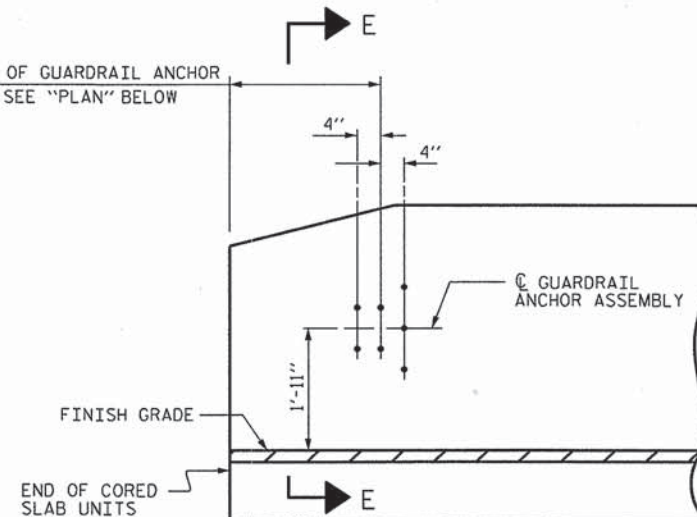
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

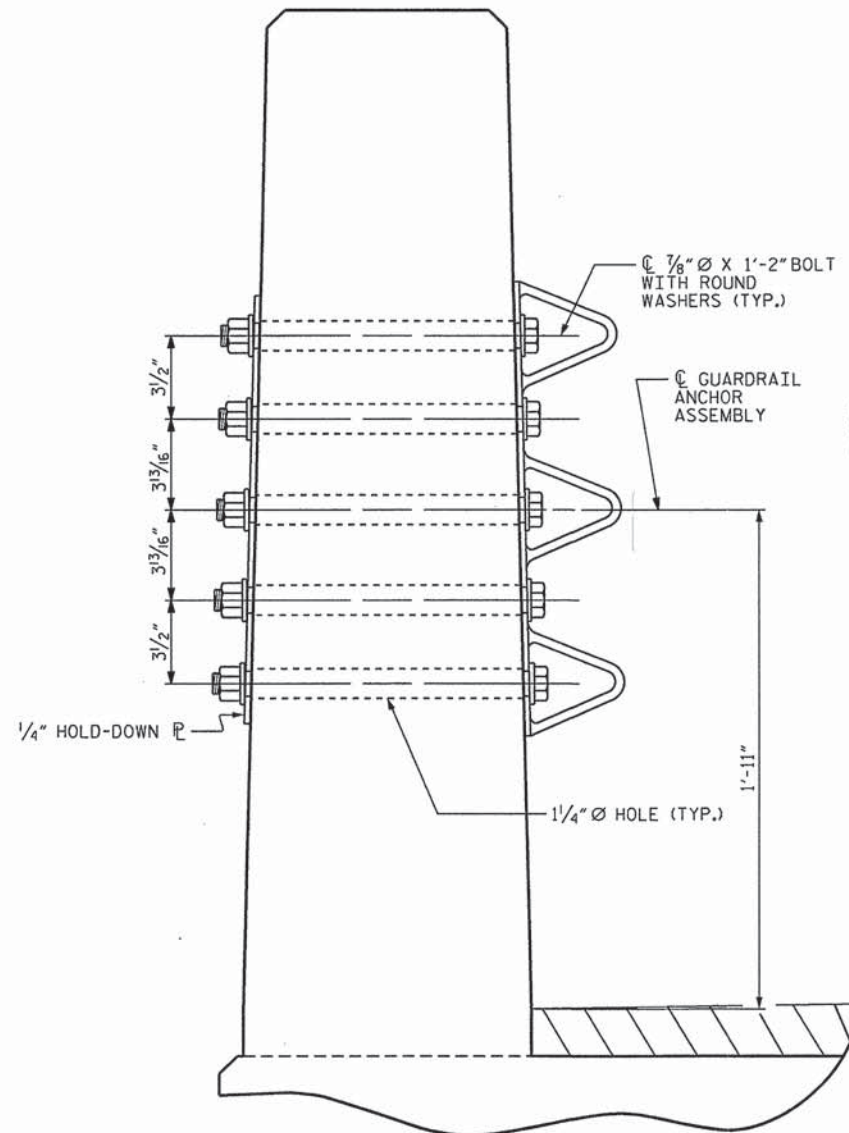


PLAN

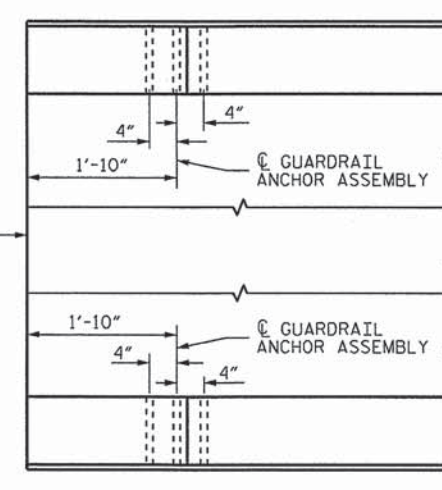
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



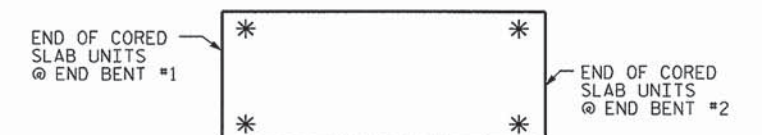
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL



DRAWN BY: B. L. GREEN DATE: 4/25/13
 CHECKED BY: K. P. SEDAI DATE: 5/21/13
 DESIGN ENGINEER OF RECORD: B. L. GREEN DATE: 6/20/13

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REVISIONS						SHEET NO. 13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

(SHT 1) STD. NO. GRA3

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

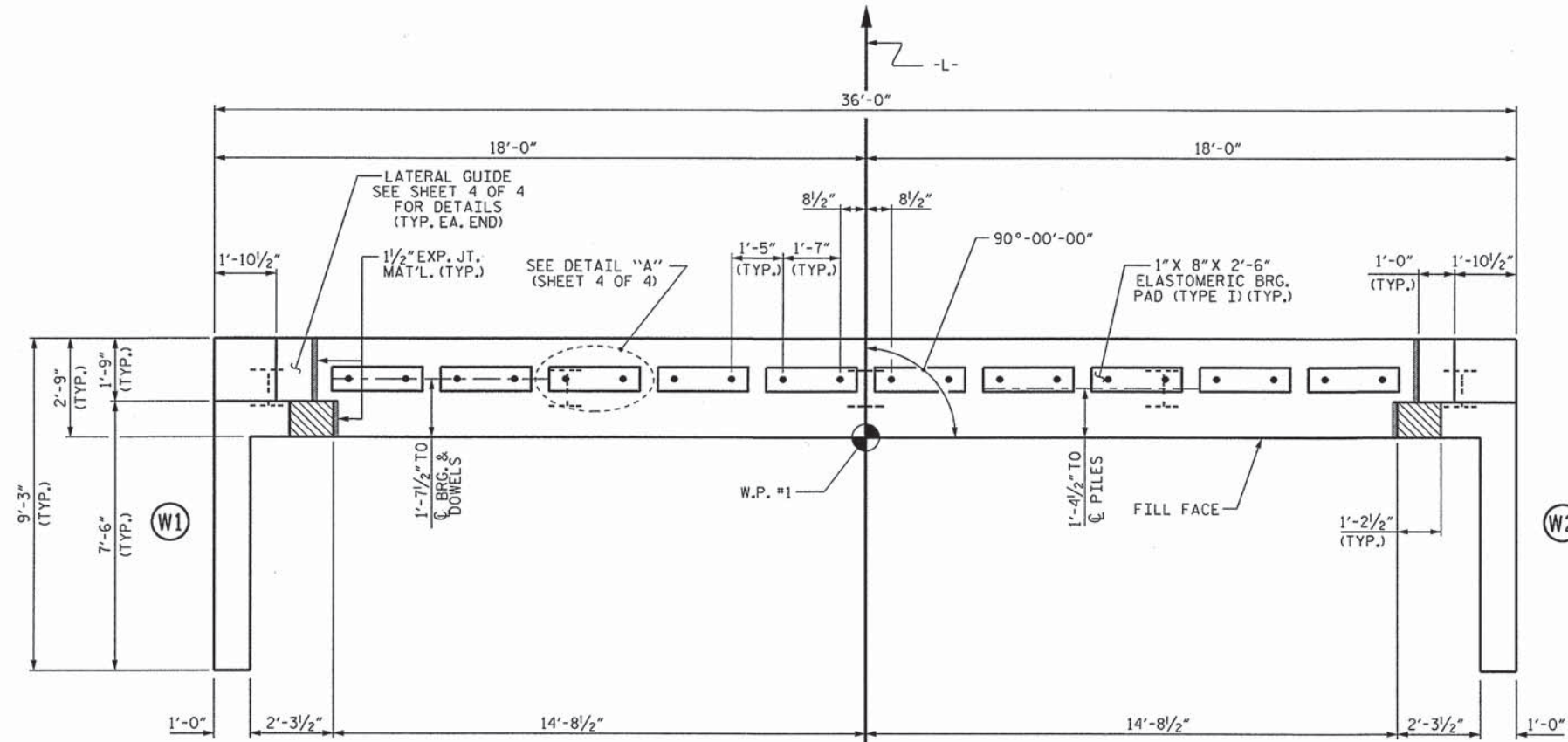
THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

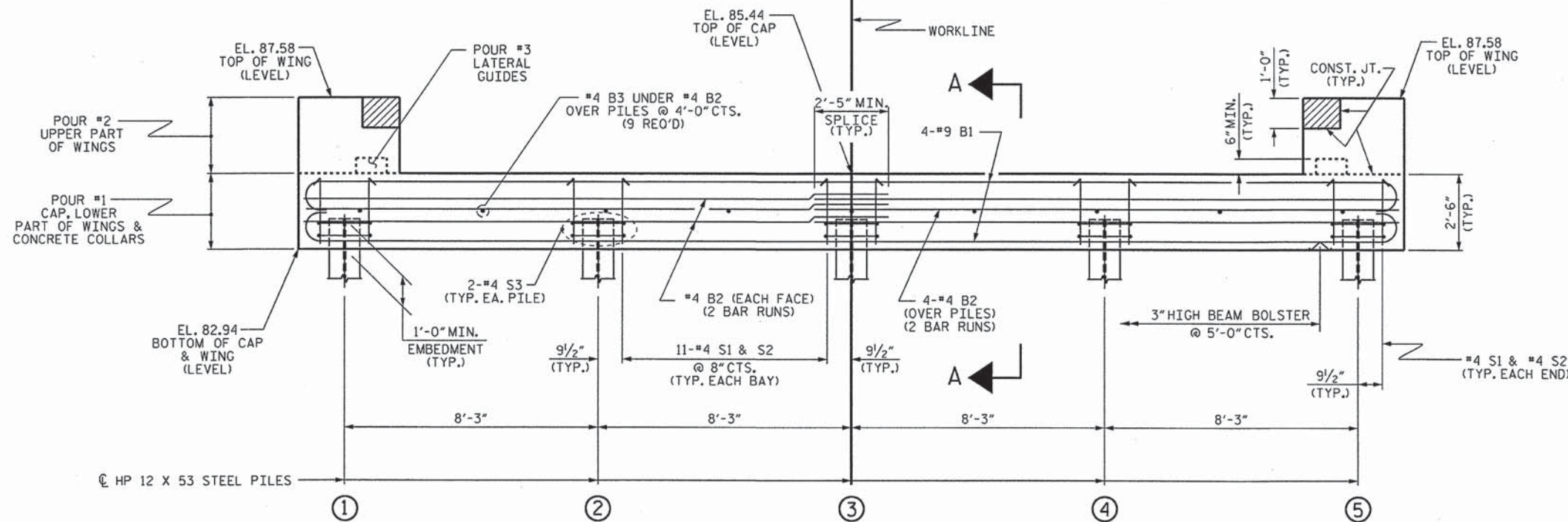
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BD-5104G
WILSON COUNTY
STATION: 12+25.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1



DRAWN BY : B. L. GREEN DATE : 4/25/13
CHECKED BY : K. P. SEDAI DATE : 5/21/13
DESIGN ENGINEER OF RECORD: B. L. GREEN DATE : 5/20/13

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	14
1			3			TOTAL SHEETS
2			4			27

STD. NO. EB_30_90S

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

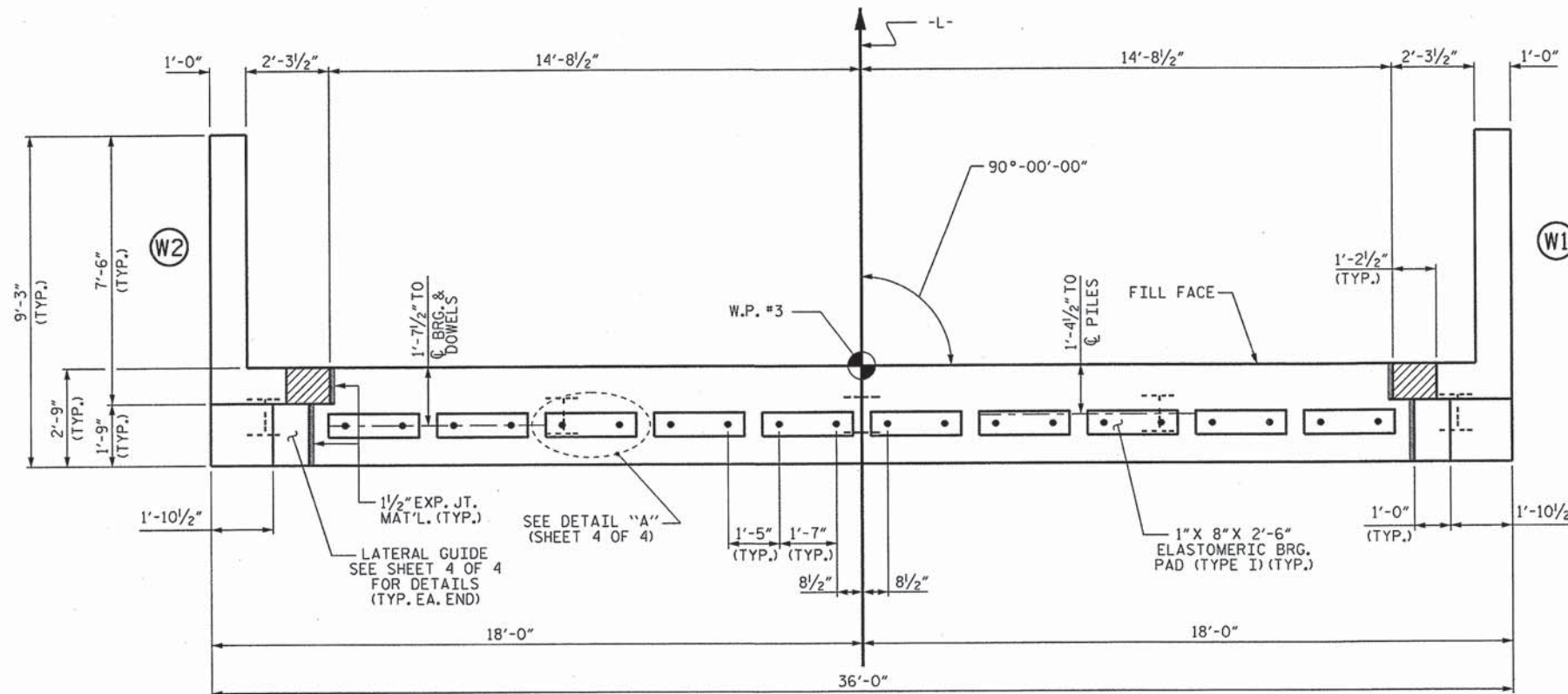
THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

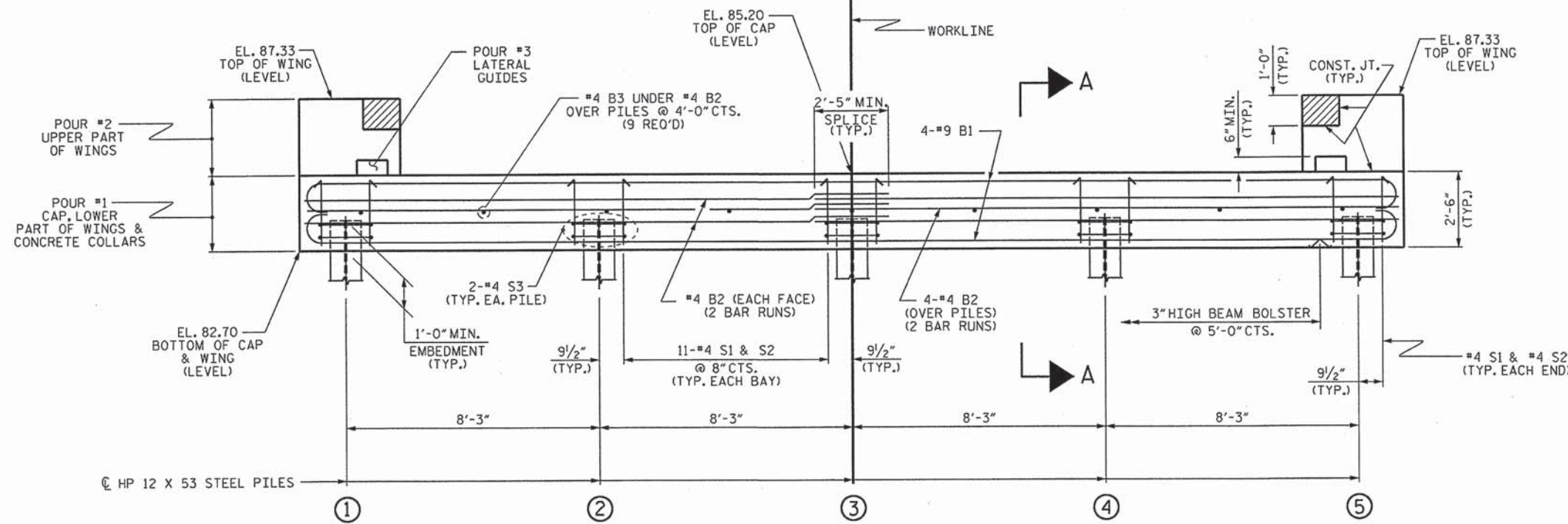
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 4. CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

SHEET 2 OF 4

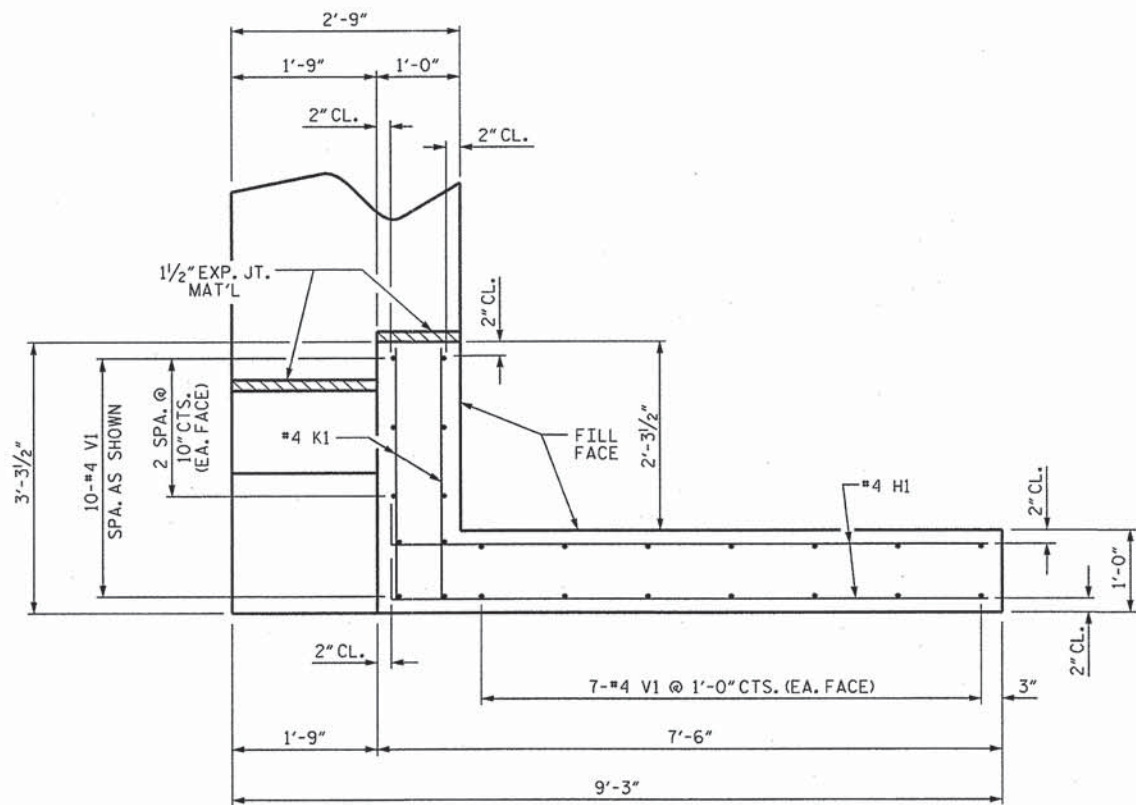
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 2



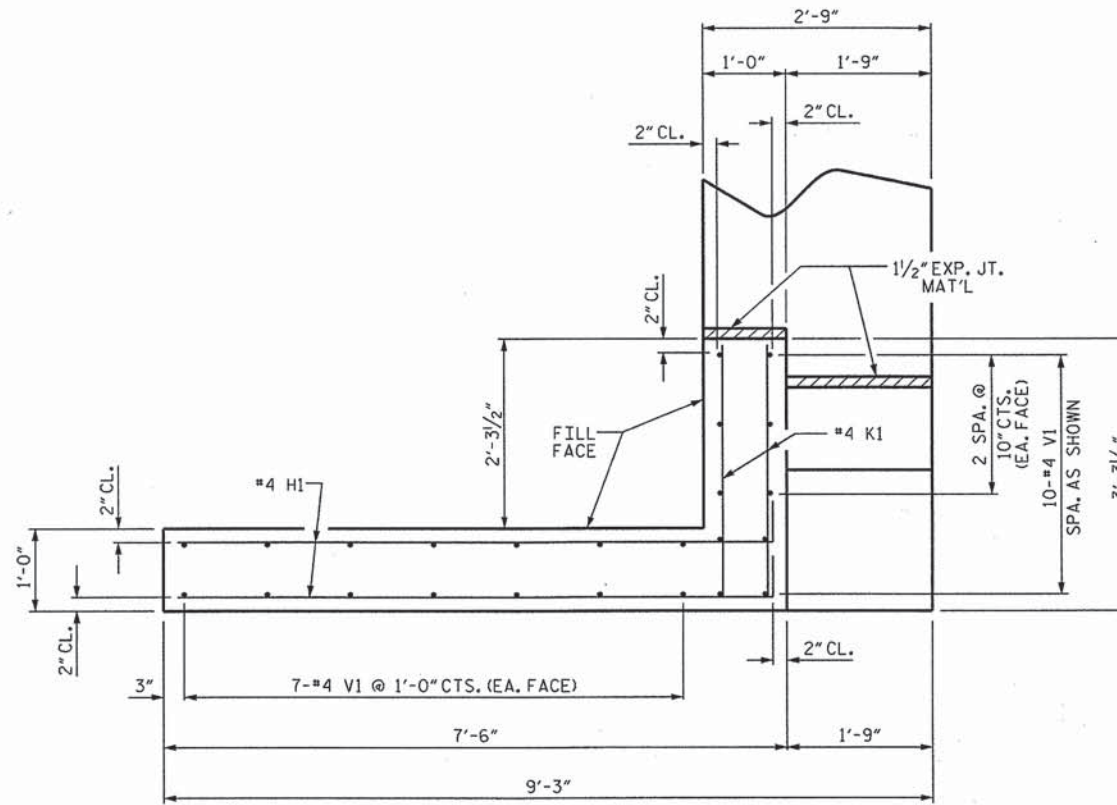
DRAWN BY: B.L. GREEN DATE: 4/25/13
 CHECKED BY: K.P. SEDAT DATE: 5/21/13
 DESIGN ENGINEER OF RECORD: B.L. GREEN DATE: 6/20/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			TOTAL SHEETS
2			4			27

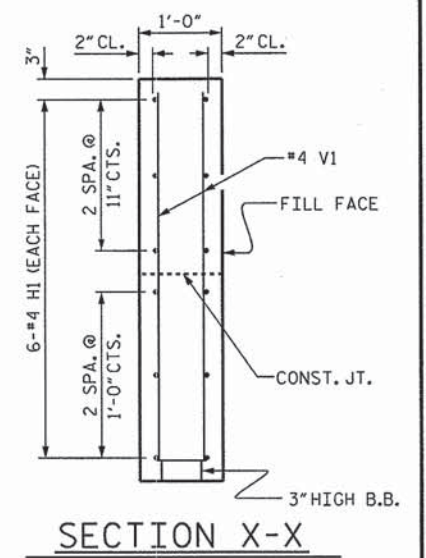
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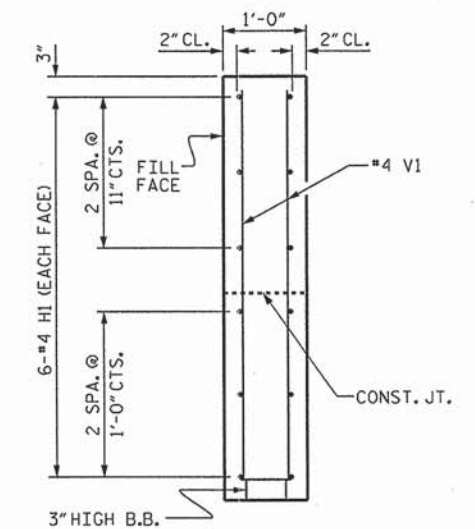
PLAN OF WING (W1)



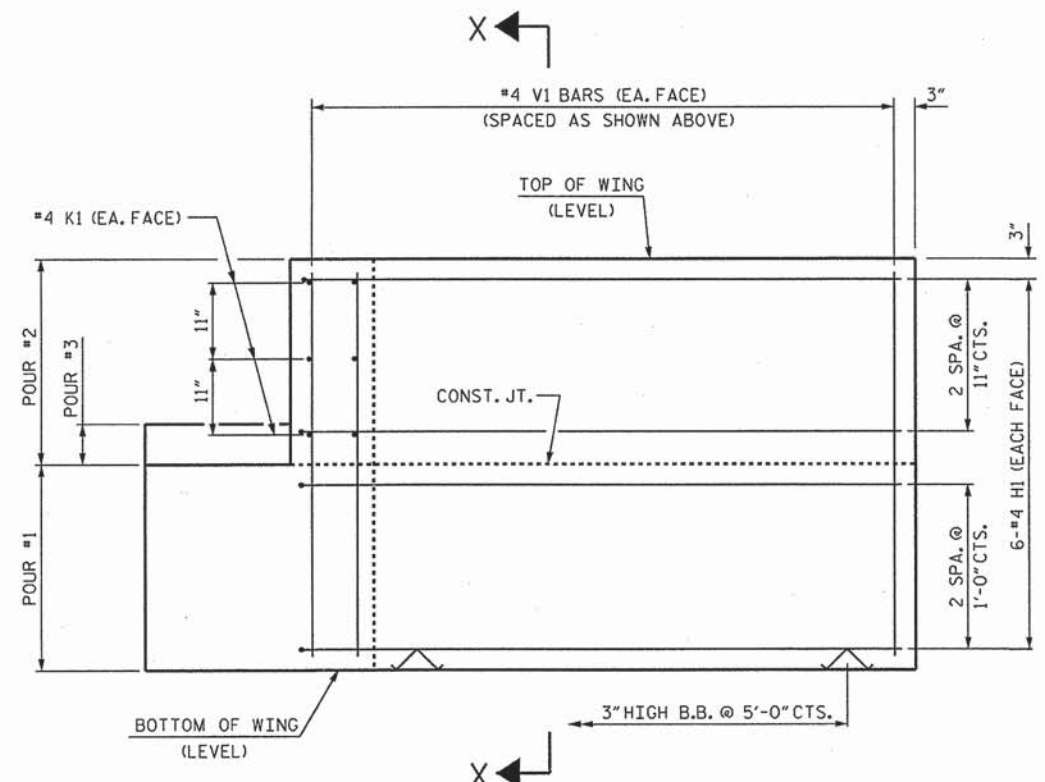
PLAN OF WING (W2)



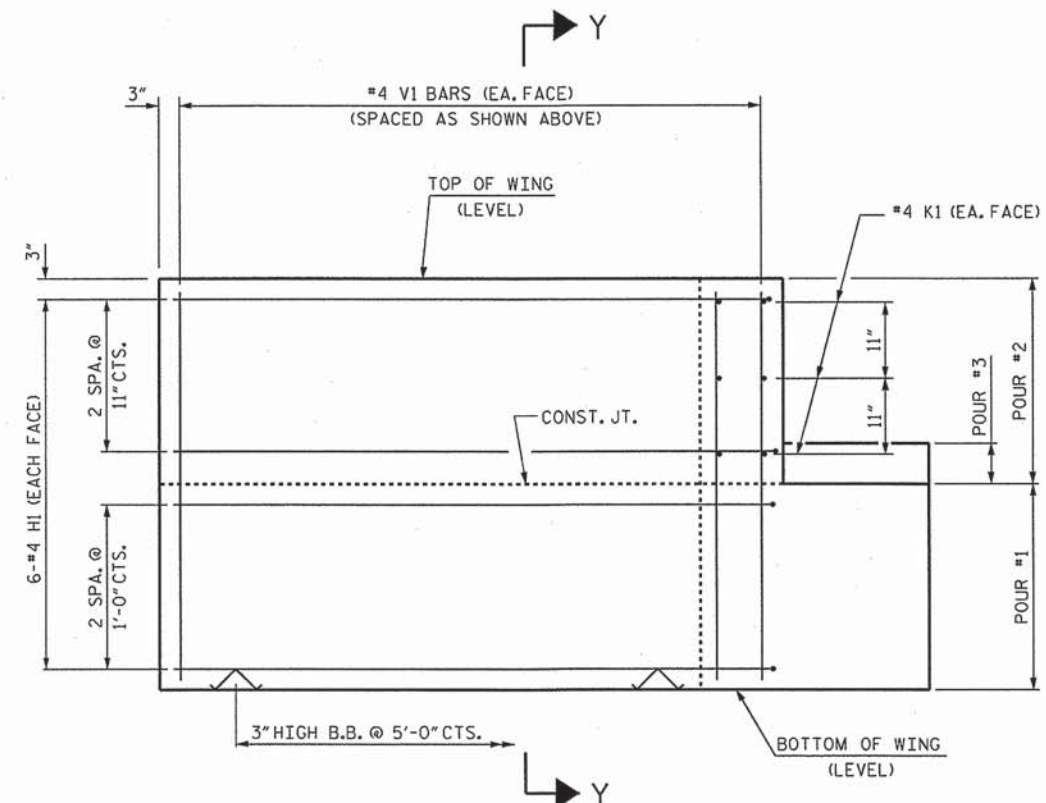
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

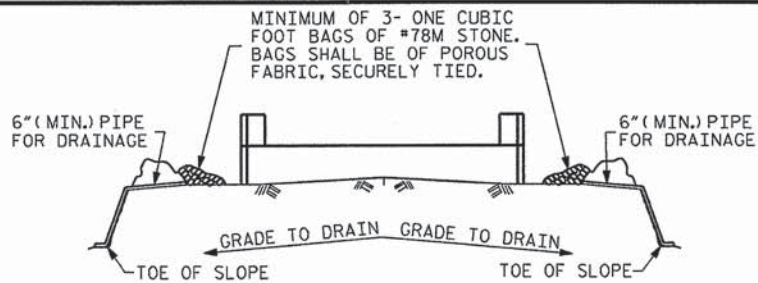
DRAWN BY : B. L. GREEN DATE : 4/25/13
 CHECKED BY : K. P. SEDAT DATE : 5/22/13
 DESIGN ENGINEER OF RECORD : B. L. GREEN DATE : 6/20/13



PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

SHEET 3 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT
 WING DETAILS

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	27
1			3			16
2			4			

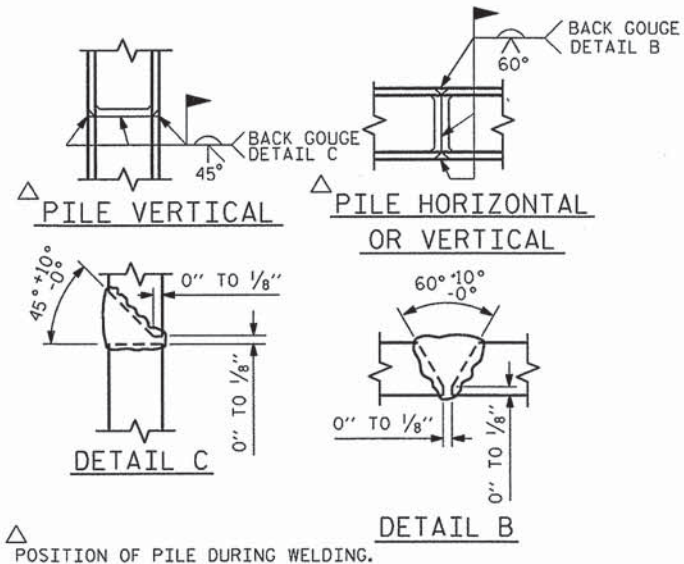


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

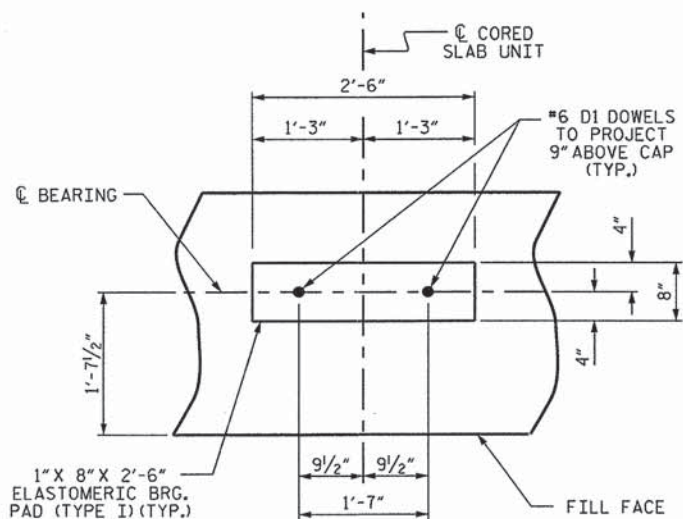
TEMPORARY DRAINAGE AT END BENT



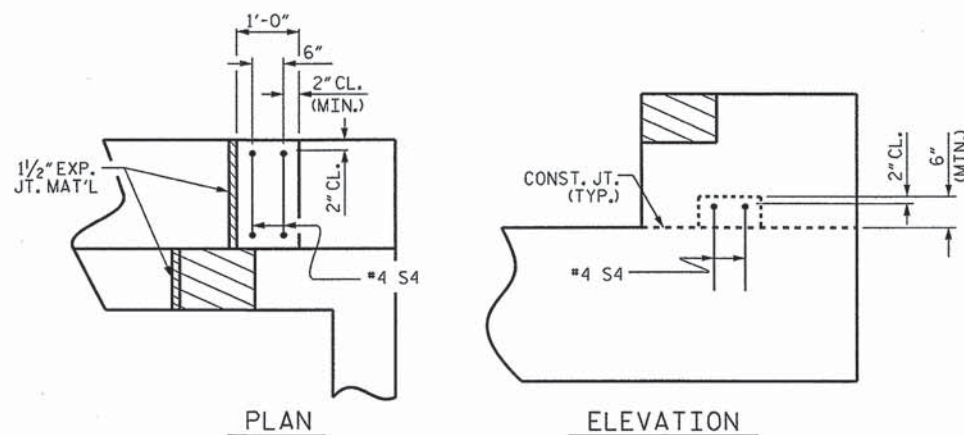
PILE SPLICE DETAILS

BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#9	1	38'-0"	1034	
B2	#4	STR	19'-1"	204	
B3	#4	STR	2'-5"	15	
D1	#6	STR	1'-6"	45	
H1	#4	2	7'-10"	126	
K1	#4	STR	2'-11"	23	
S1	#4	3	7'-5"	228	
S2	#4	4	3'-2"	97	
S3	#4	5	6'-6"	43	
S4	#4	6	4'-5"	12	
V1	#4	STR	4'-3"	136	
REINFORCING STEEL (FOR ONE END BENT)				1963 LBS.	
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				11.2 C.Y.	
POUR #2 UPPER PART OF WINGS				1.6 C.Y.	
POUR #3 LATERAL GUIDES				0.1 C.Y.	
TOTAL CLASS A CONCRETE				12.9 C.Y.	

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES	NO: 5	HP 12 X 53 STEEL PILES	NO: 5
LIN. FT.= 300		LIN. FT.= 300	
PILE REDRIVES 3 EA.		PILE REDRIVES 3 EA.	

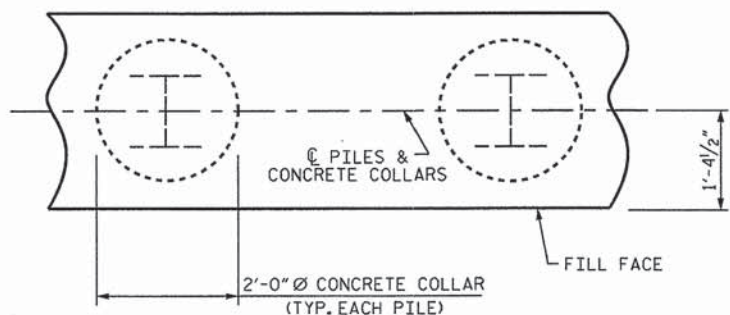


(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



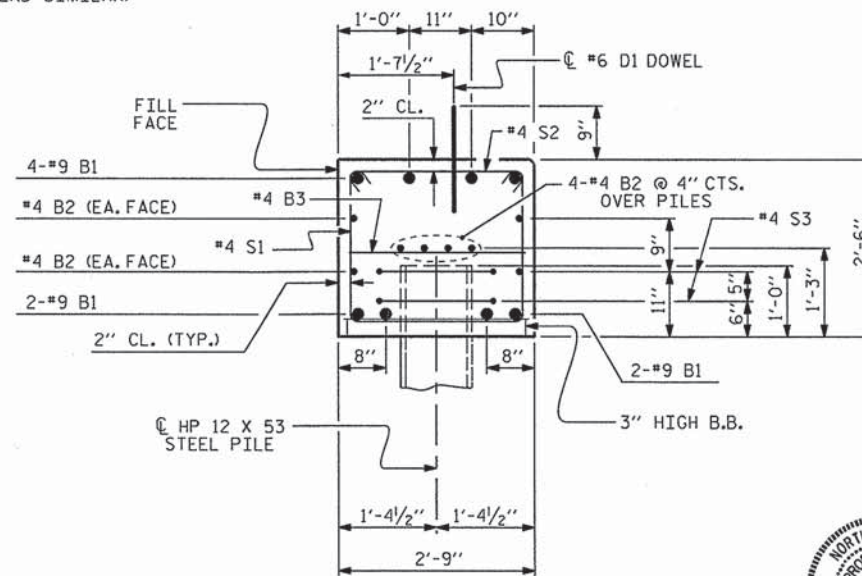
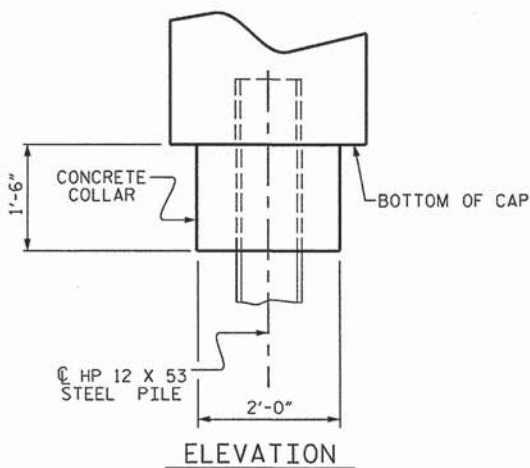
LATERAL GUIDE DETAILS

(RIGHT LATERAL GUIDE SHOWN, LEFT END SIMILAR)



CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			17
2			4			27

DRAWN BY: B. L. GREEN DATE: 4/25/13
 CHECKED BY: K. P. SEDAT DATE: 5/22/13
 DESIGN ENGINEER OF RECORD: B. L. GREEN DATE: 5/20/13

NOTES

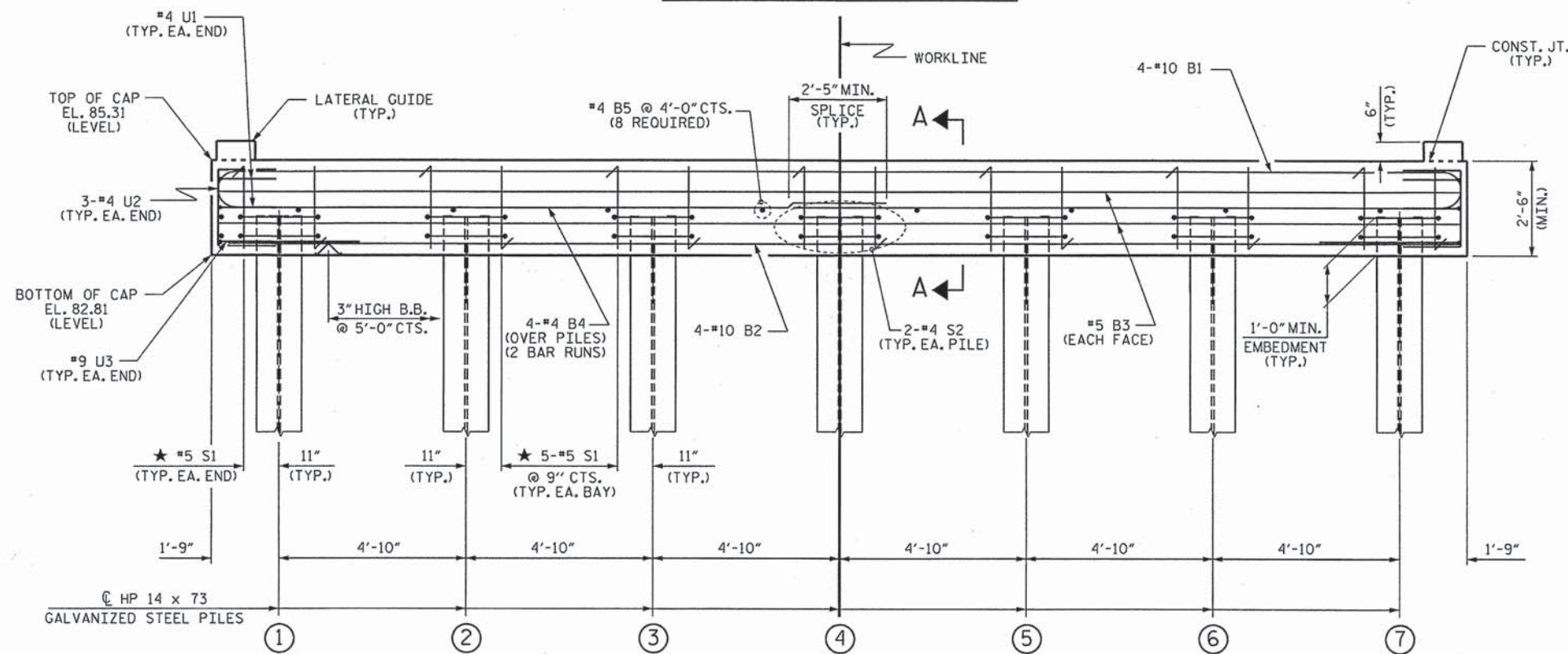
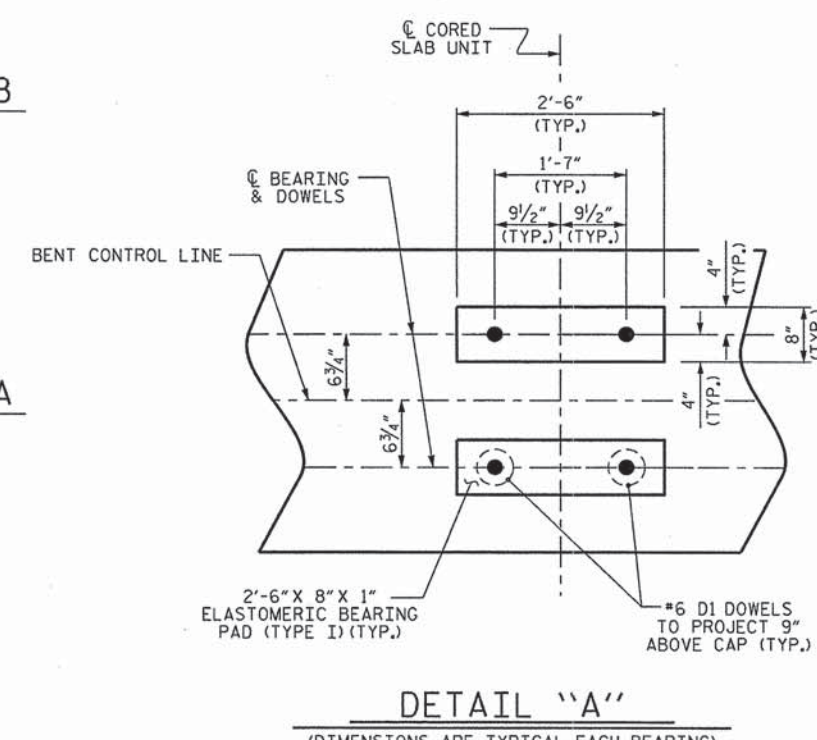
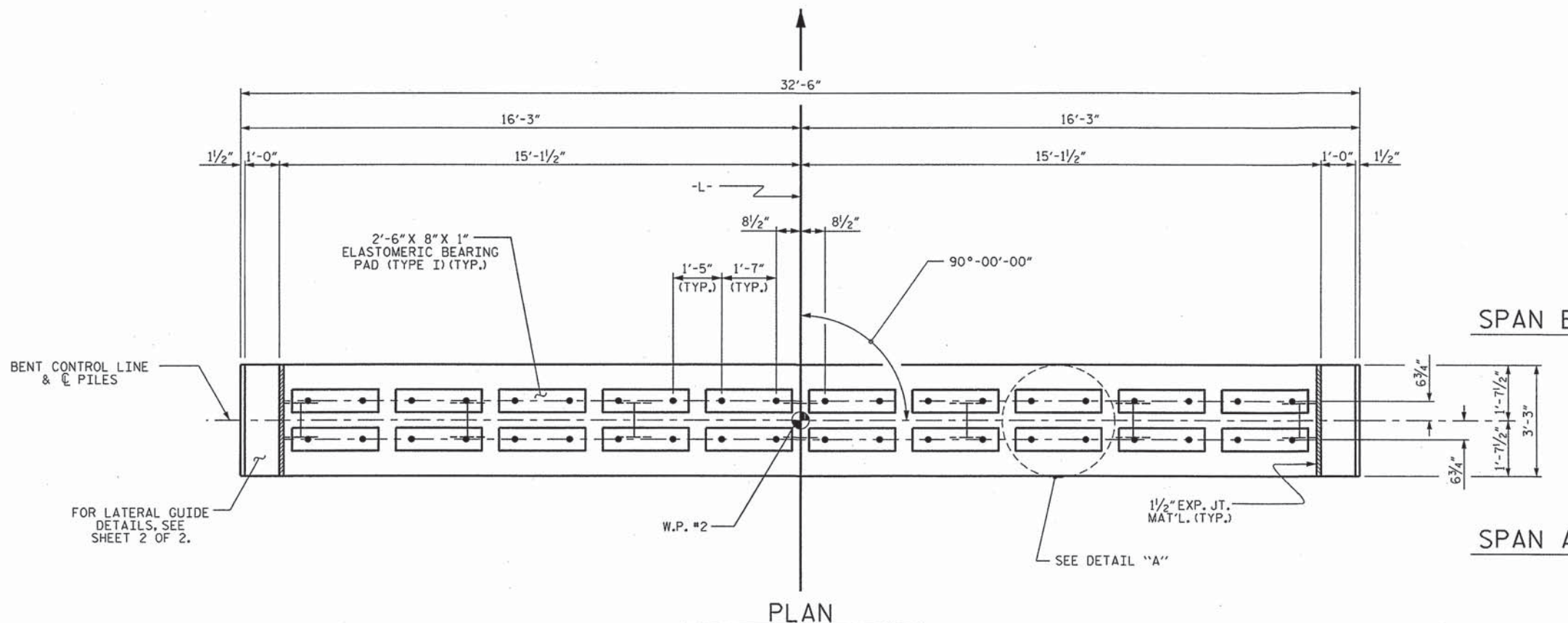
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 27.0 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDE IF APPROVED BY THE ENGINEER.



ELEVATION
FOR SECTION A-A, SEE SHEET 2 OF 2

PROJECT NO. BD-5104G
WILSON COUNTY
STATION: 12+25.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

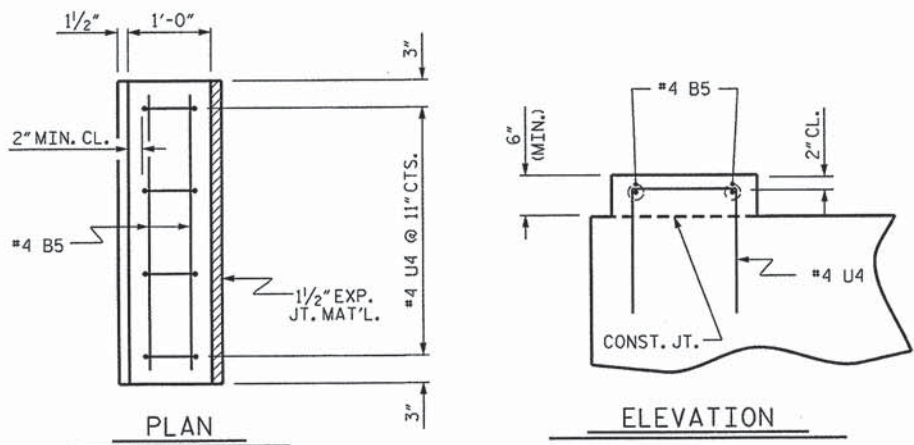
SUBSTRUCTURE
BENT No. 1



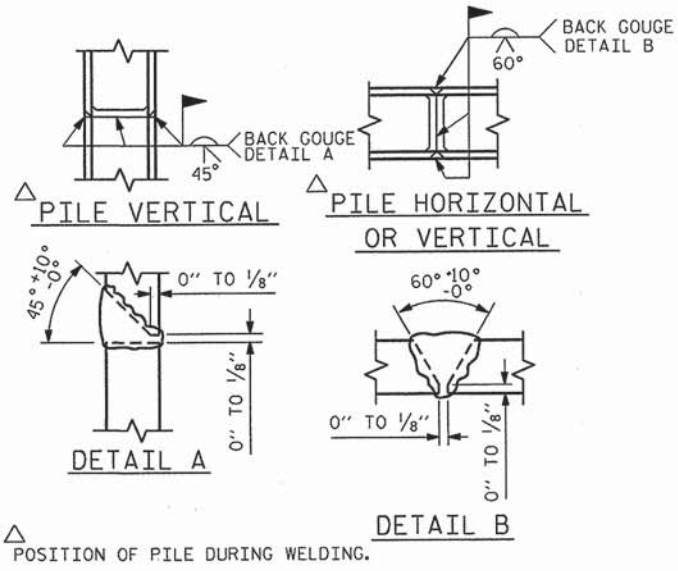
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	18	
1			3			TOTAL SHEETS	
2			4			27	

DRAWN BY : B. L. GREEN DATE : 4/25/13
CHECKED BY : K. P. SEDAI DATE : 5/23/13
DESIGN ENGINEER OF RECORD: B. L. GREEN DATE : 6/20/13

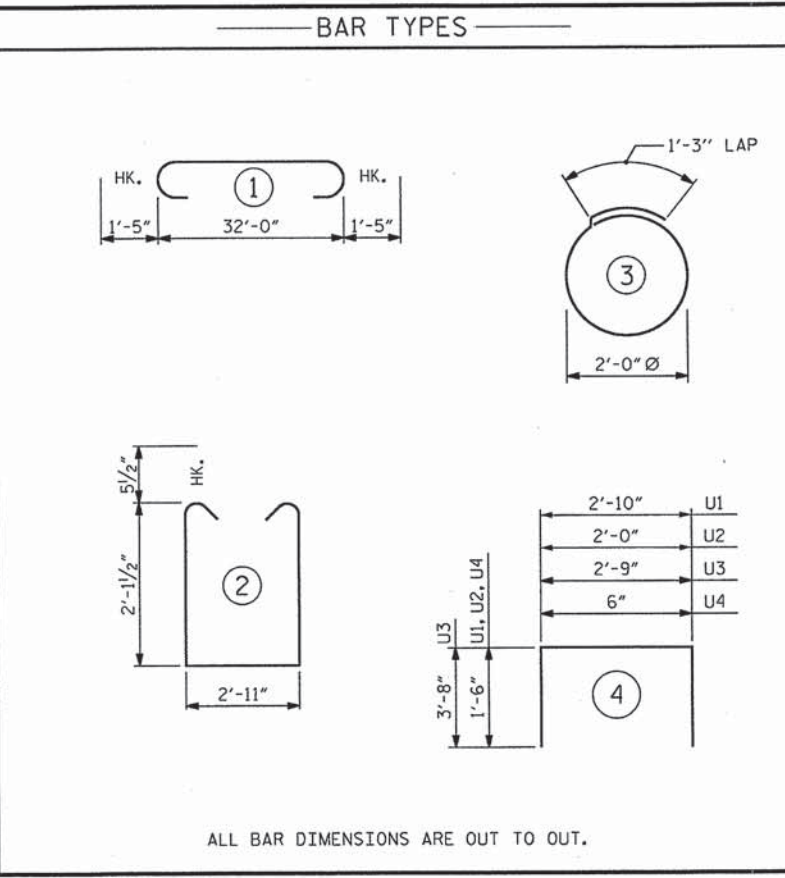
21-JUN-2013 13:00
S:\DPC\Tim\Division 4 LIBR\BD-5104G\bgreen\ncbds\BD-5104G.SD_CS.dgn
tcoggins



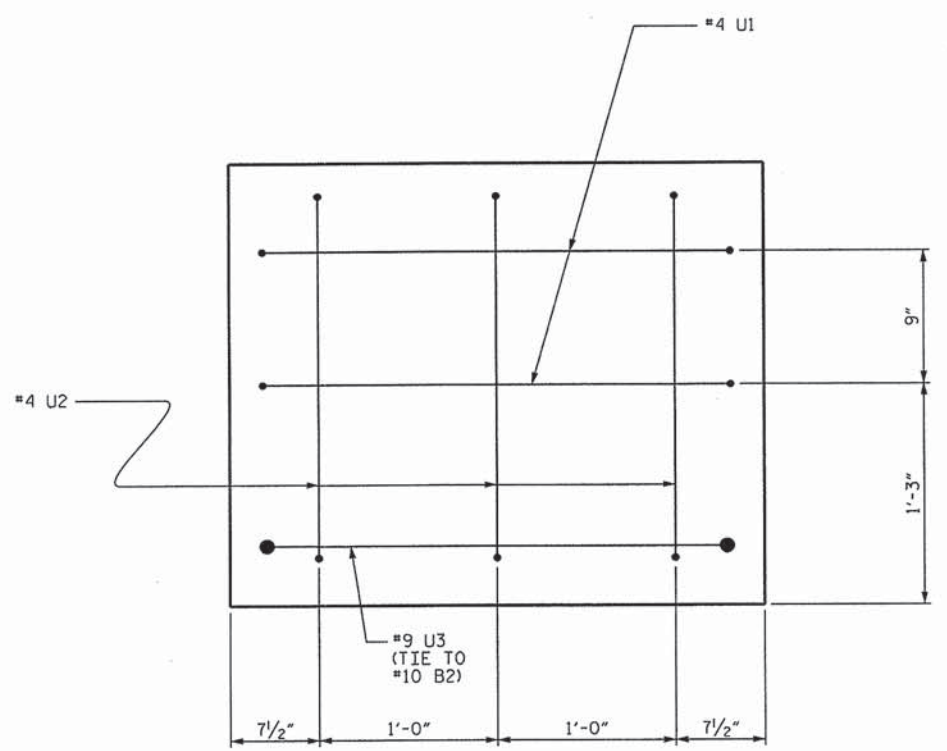
LATERAL GUIDE DETAILS
(LEFT LATERAL GUIDE SHOWN, RIGHT SIDE SIMILAR)



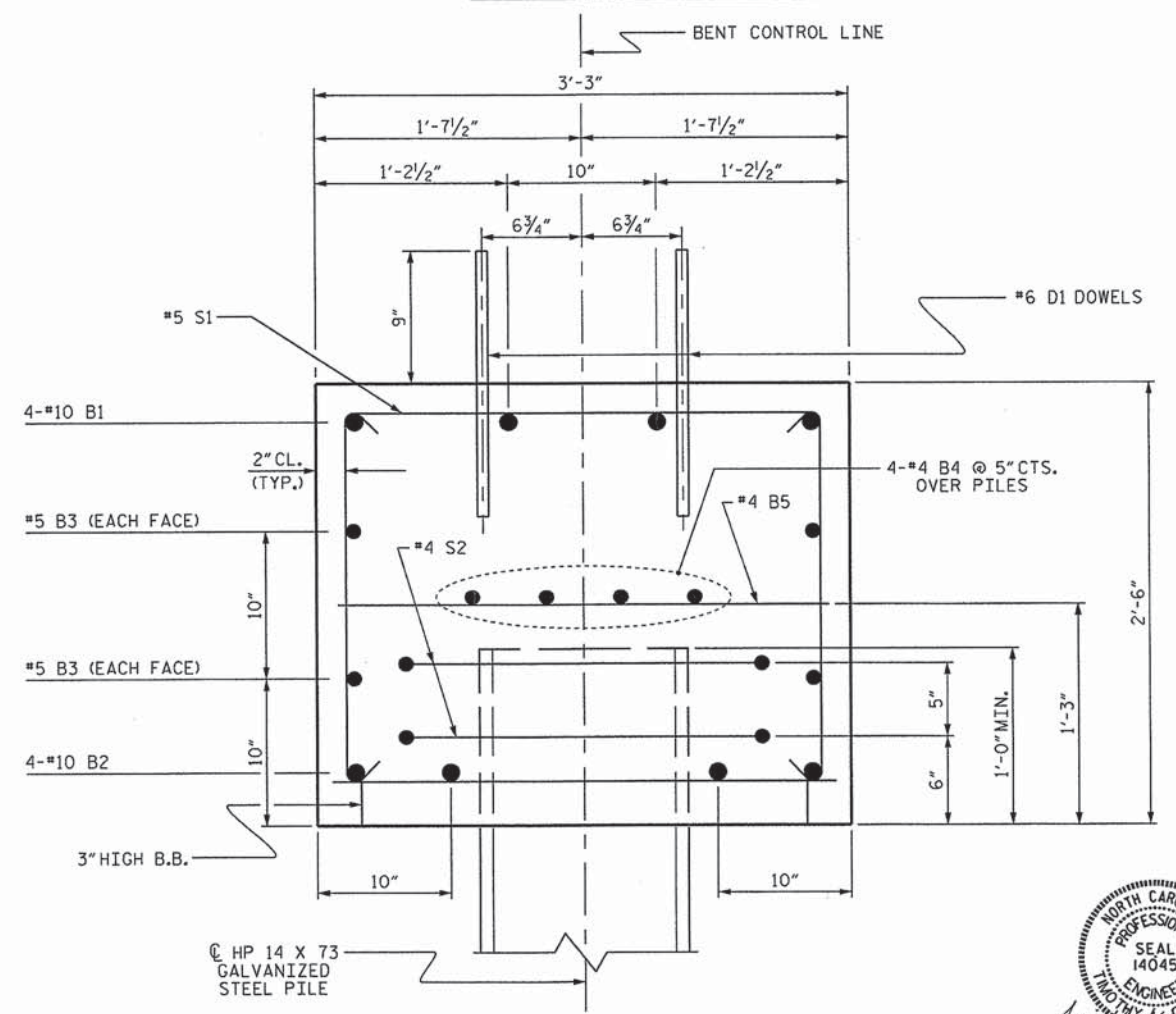
PILE SPLICE DETAILS



BILL OF MATERIAL					
FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	34'-10"	600
B2	4	#10	STR	32'-2"	554
B3	4	#5	STR	32'-2"	134
B4	8	#4	STR	17'-4"	93
B5	12	#4	STR	2'-11"	23
D1	40	#6	STR	1'-6"	90
S1	32	#5	2	8'-1"	270
S2	14	#4	3	7'-7"	71
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	8	#4	4	3'-6"	19
REINFORCING STEEL (FOR ONE BENT)				1959 LBS	
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #1 (CAP)				9.8 C.Y.	
POUR #2 (LATERAL GUIDES)				0.1 C.Y.	
TOTAL CLASS A CONCRETE				9.9 C.Y.	
HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)					
No. 7				LIN. FT. = 490	
PILE REDRIVES				4 EA.	



END OF CAP VIEW
(TYPICAL BOTH ENDS)



SECTION A-A

PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

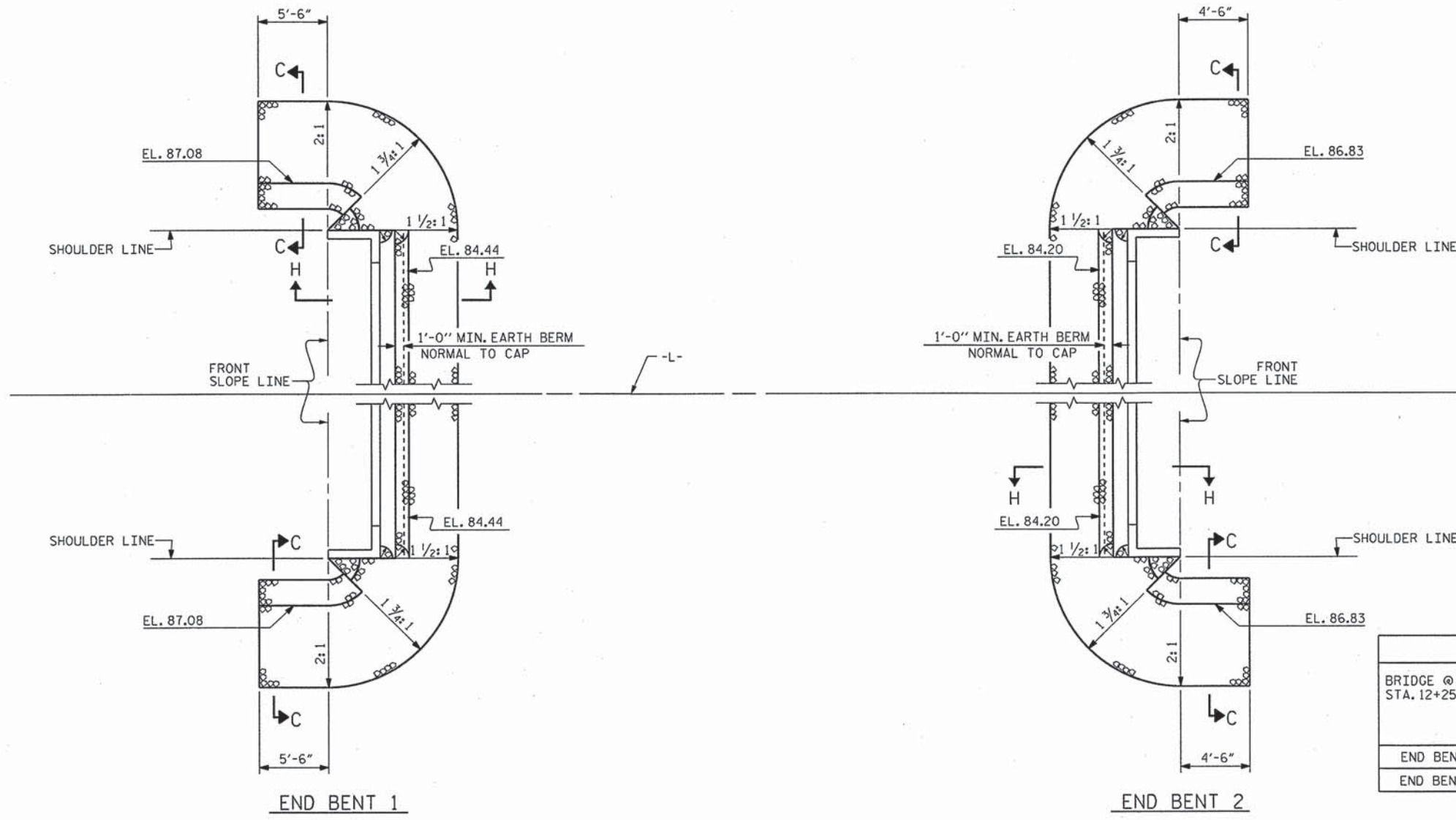
SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 1



DRAWN BY: B. L. GREEN DATE: 4/25/13
 CHECKED BY: K. P. SEDA DATE: 5/23/13
 DESIGN ENGINEER OF RECORD: B. L. GREEN DATE: 6/20/13

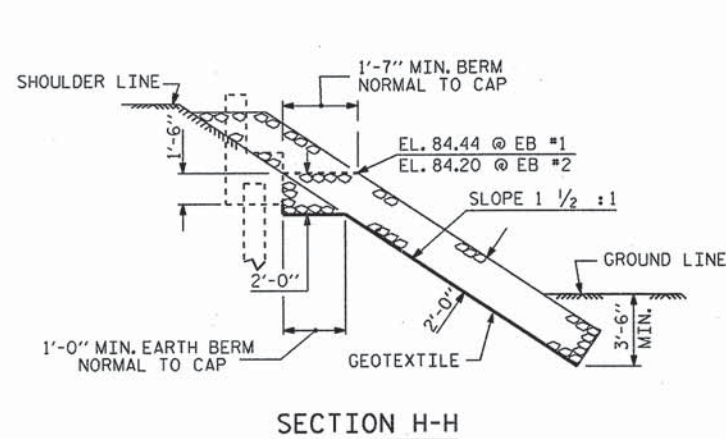
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	19
1			3			TOTAL SHEETS
2			4			27

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

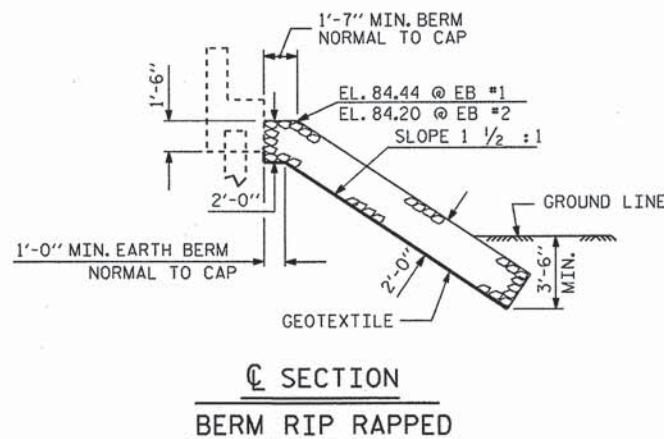


ESTIMATED QUANTITIES		
BRIDGE @ STA. 12+25.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	70	78
END BENT 2	65	72

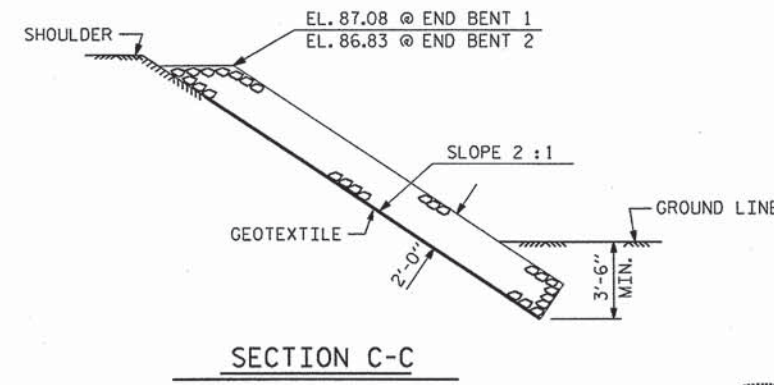
PLAN



SECTION H-H



SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. BD-5104G
WILSON COUNTY
STATION: 12+25.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
= RIP RAP DETAILS =



DRAWN BY : B. L. GREEN DATE : 4/25/13
CHECKED BY : K. P. SEDA DATE : 5/22/13
DESIGN ENGINEER OF RECORD: B. L. GREEN DATE : 6/20/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	20
1			3			TOTAL SHEETS
2			4			27

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

*78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

*78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED, SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
*B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016

REINFORCING STEEL LBS. 1266

*EPOXY COATED REINFORCING STEEL LBS. 926

CLASS AA CONCRETE C.Y. 16.3

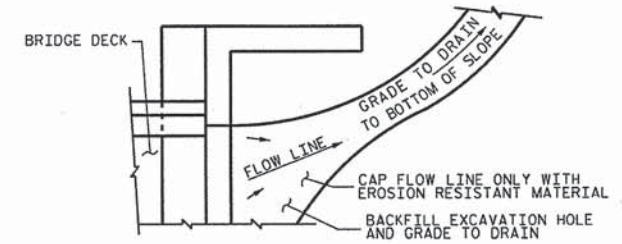
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
*B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016

REINFORCING STEEL LBS. 1266

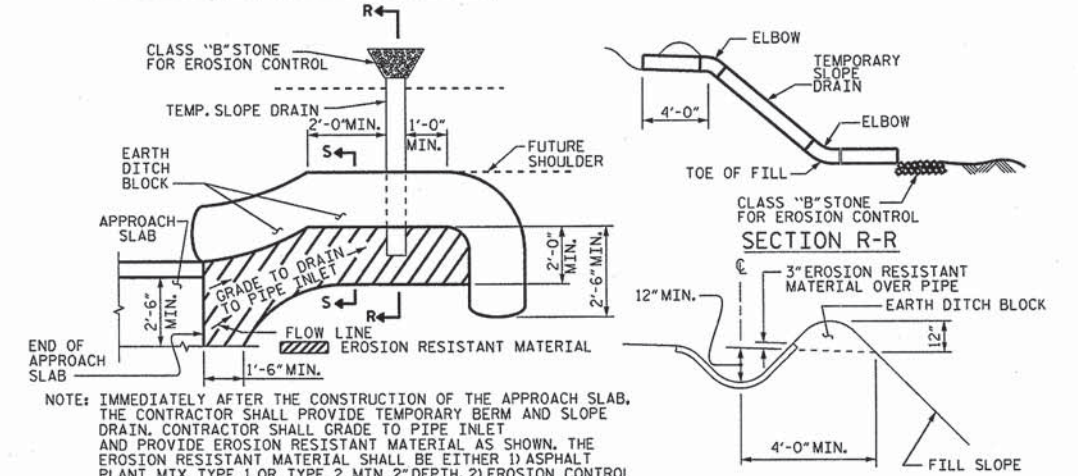
*EPOXY COATED REINFORCING STEEL LBS. 926

CLASS AA CONCRETE C.Y. 16.3



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

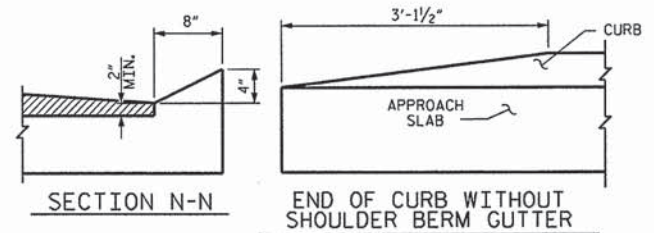


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



CURB DETAILS

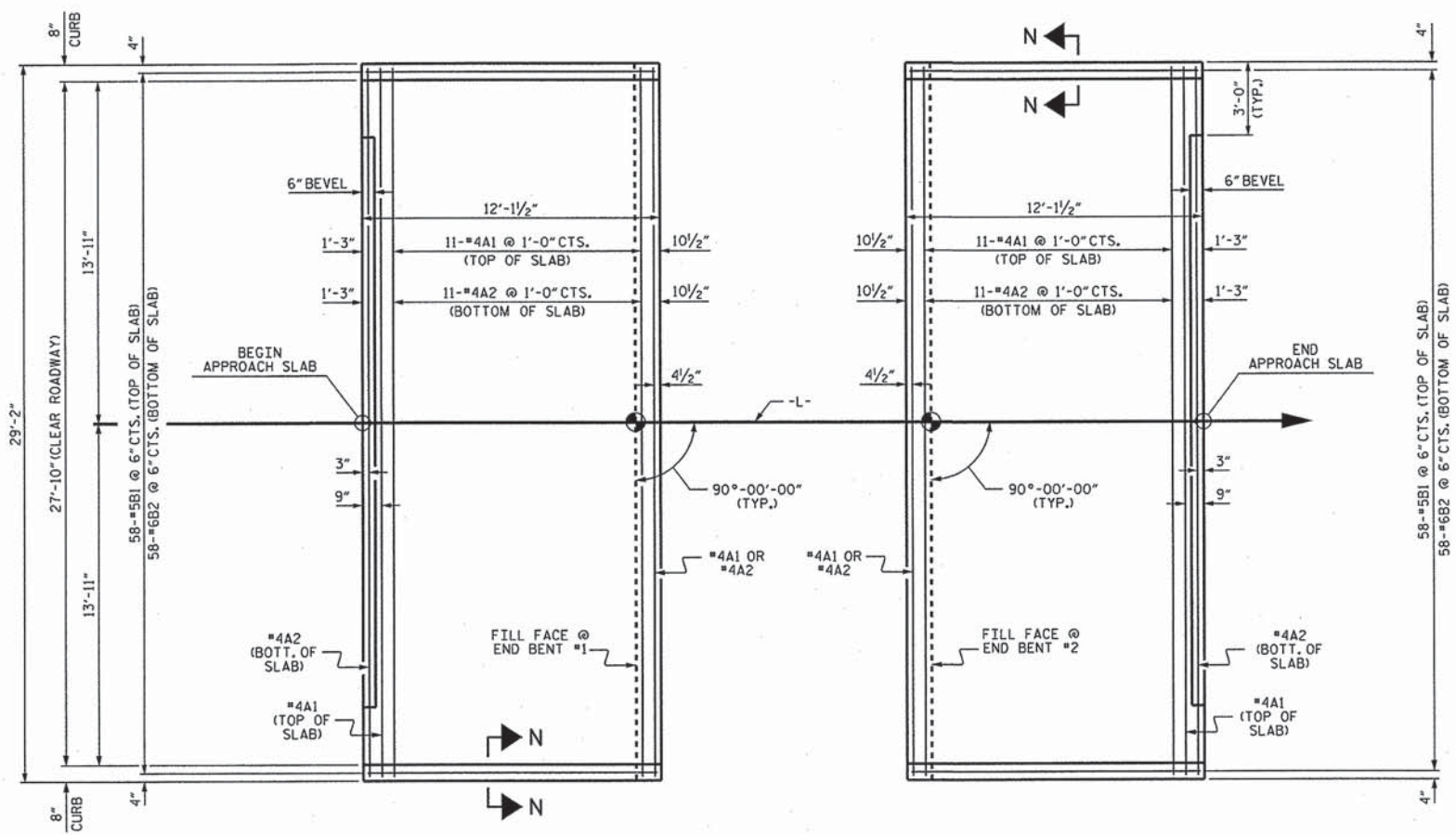
SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



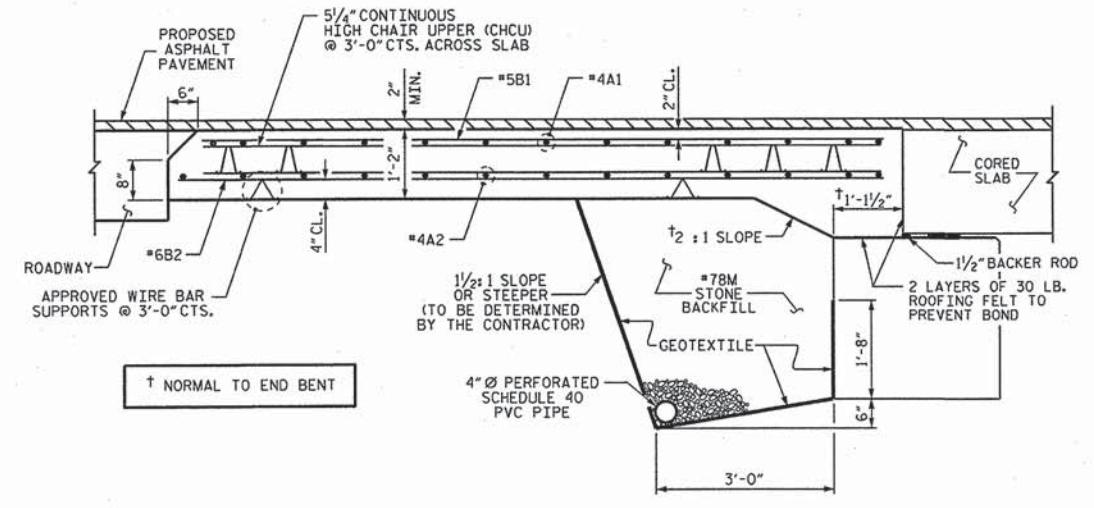
PROJECT NO. BD-5104G
WILSON COUNTY
 STATION: 12+25.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 90° SKEW**

REVISIONS						SHEET NO. 21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			



PLAN @ END BENT #1 **PLAN @ END BENT #2**
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

DRAWN BY: B. L. GREEN DATE: 4/25/13
 CHECKED BY: K. P. SEDAI DATE: 5/22/13
 DESIGN ENGINEER OF RECORD: B. L. GREEN DATE: 6/20/13

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

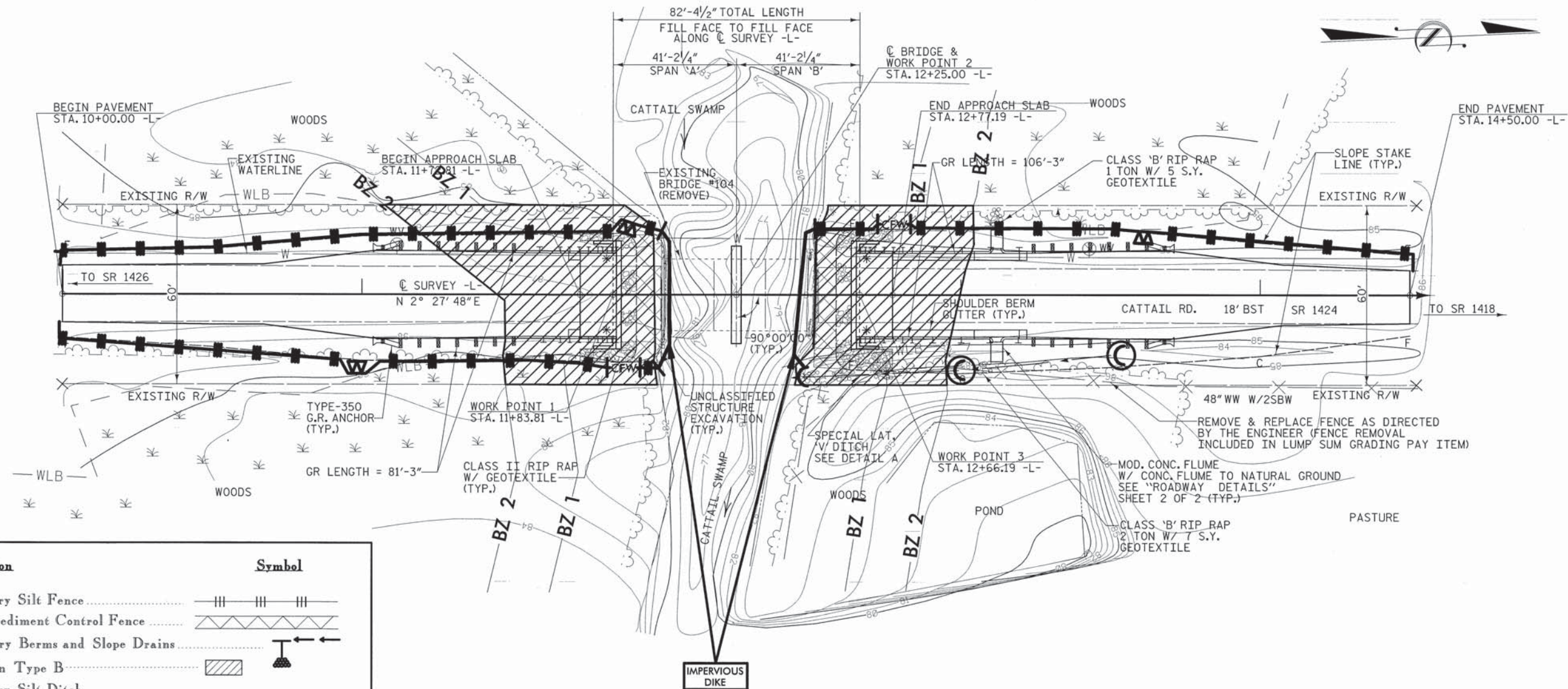
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

EROSION CONTROL PLAN

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Coir Fiber Wattle / Coir Fiber Wattle Segment	
	Wattle with Polyacrylamide (PAM)	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

2012 STANDARD DRAWINGS	
1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

PROJECT NO. BD-5104G
WILSON COUNTY
STATION: 12+25.00 -L-

REPLACES BRIDGE NO. 104
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BRIDGE ON SR 1424
OVER CATTAIL SWAMP
BETWEEN SR 1426
& SR 1418
27'-10" CLEAR ROADWAY - 90°SKEW

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

TOTAL SHEETS: 27

8/9/2013 10:55 PM RA:\Structures\Erosion Control\BD5104G_S01_EC.dwg

PROJECT REFERENCE NO. BD-5104G	SHEET NO. 24
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

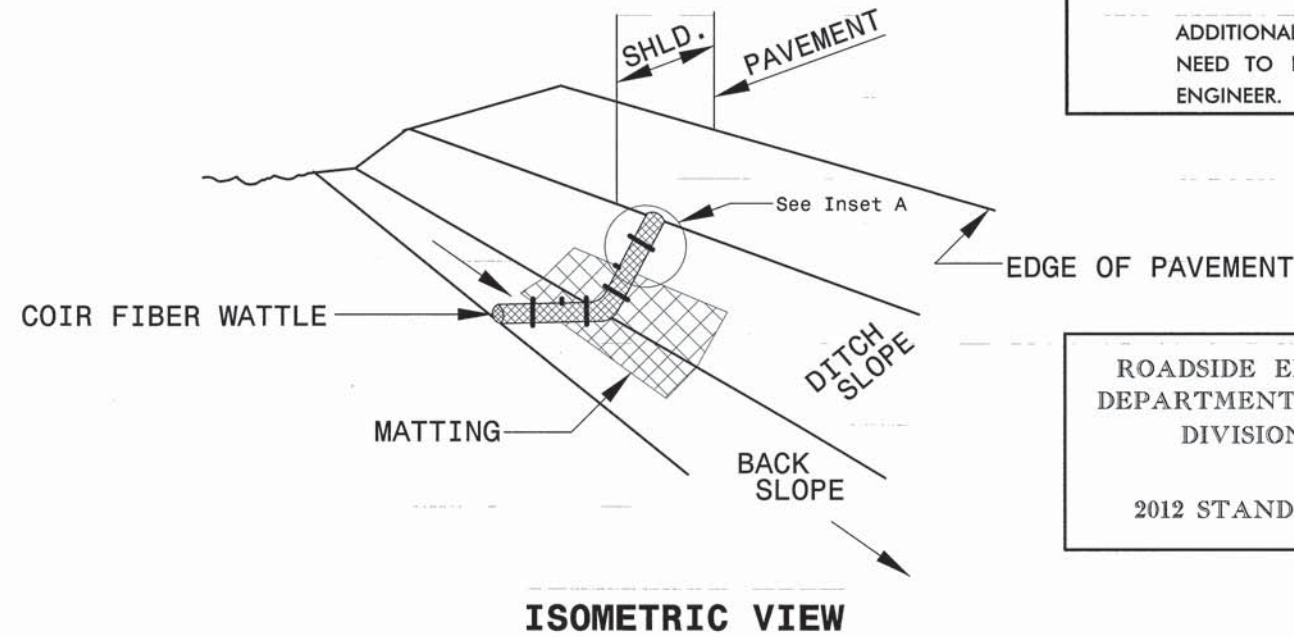
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

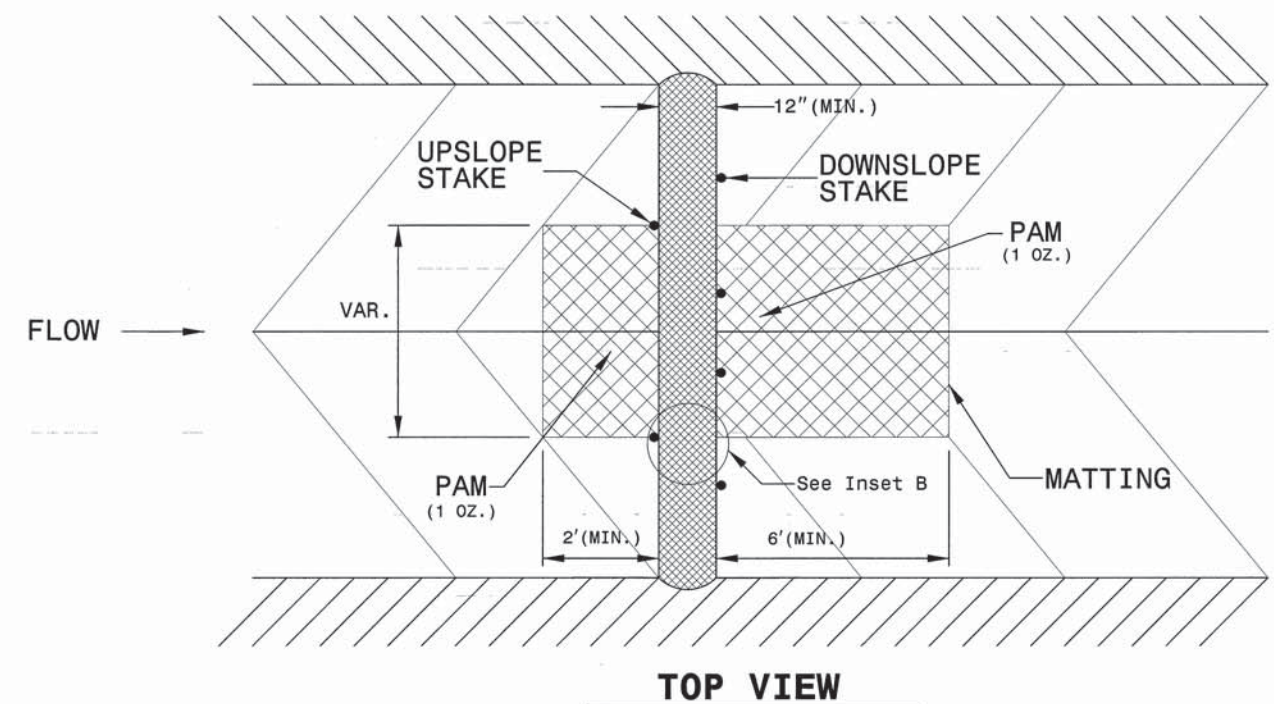
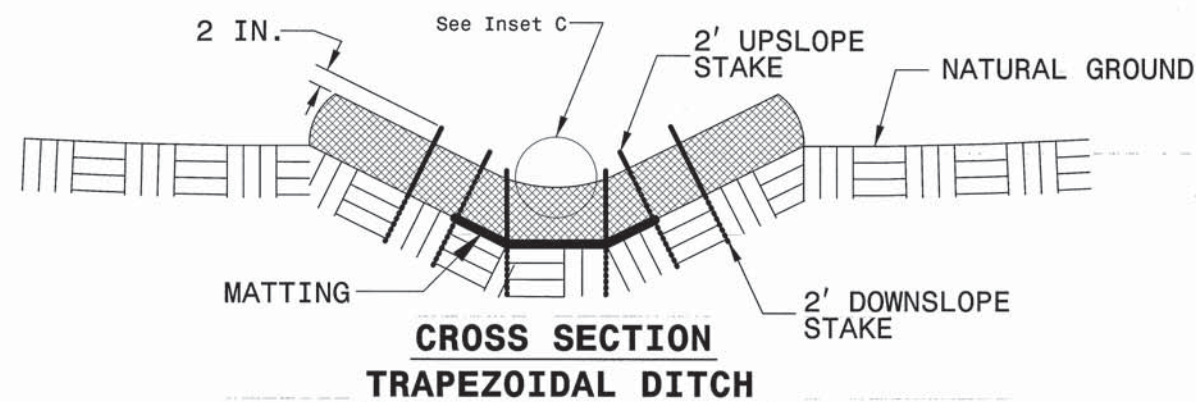
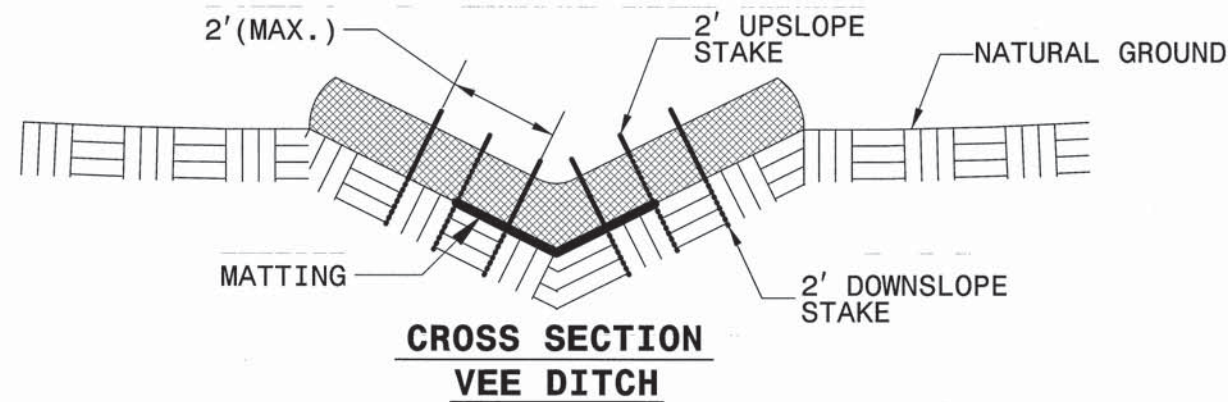
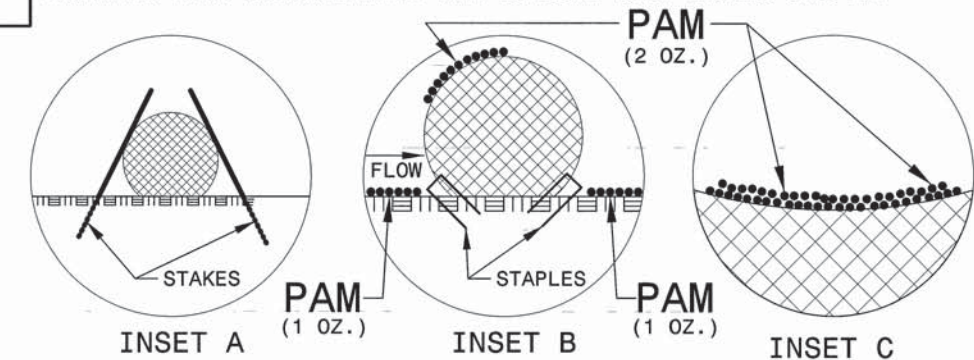
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



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2012 STANDARD SPECIFICATIONS



PROJECT REFERENCE NO. BD-5104G	SHEET NO. 25
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

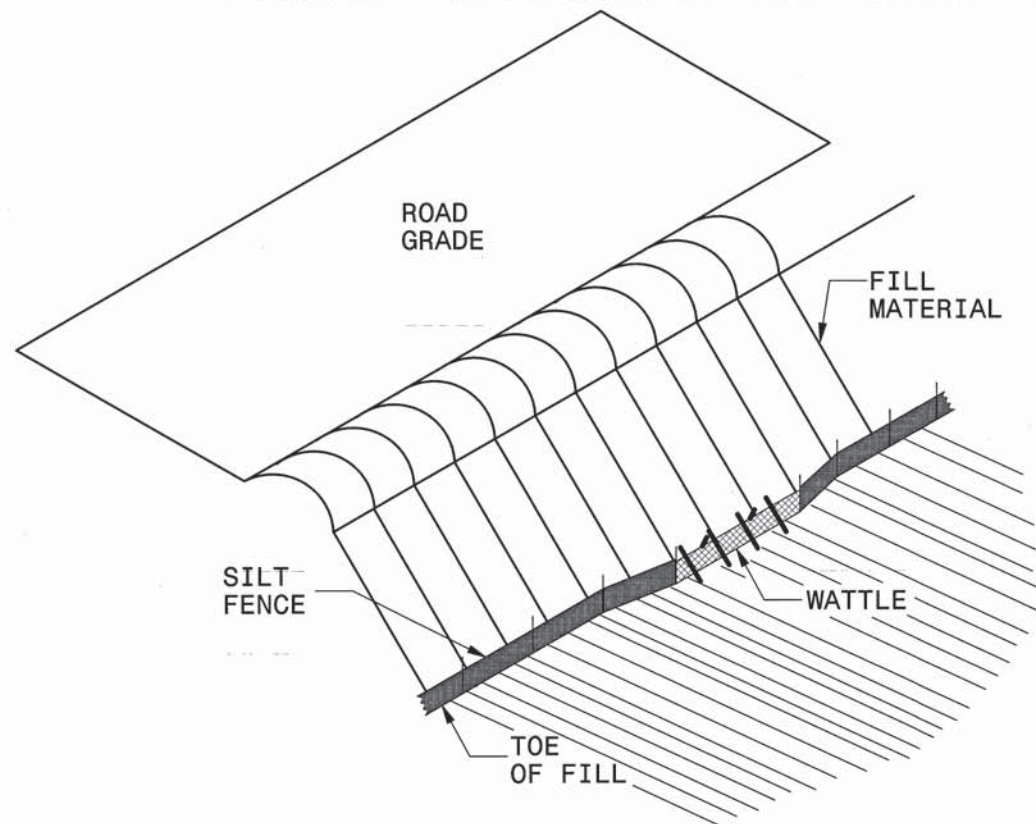
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

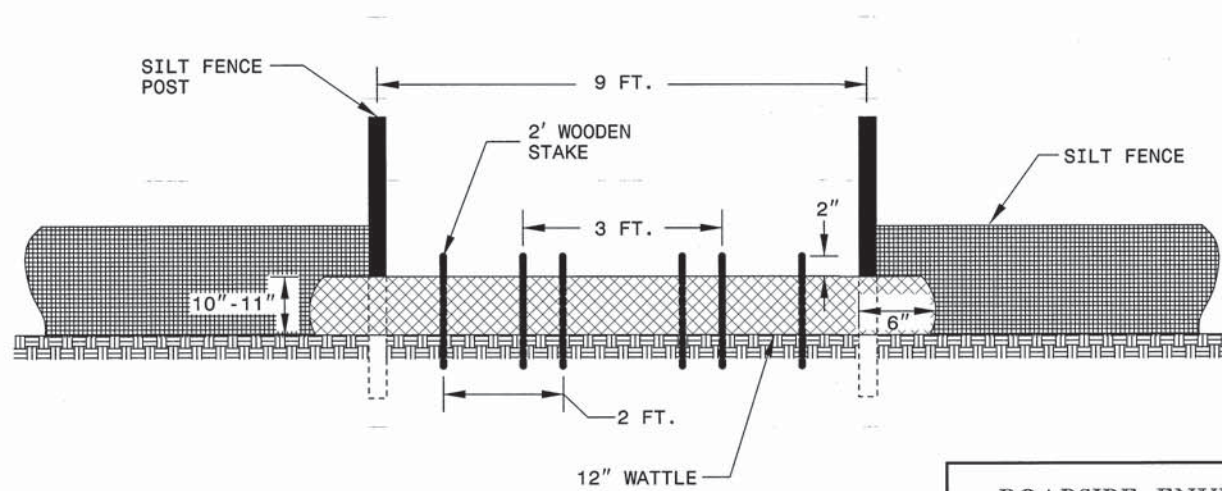
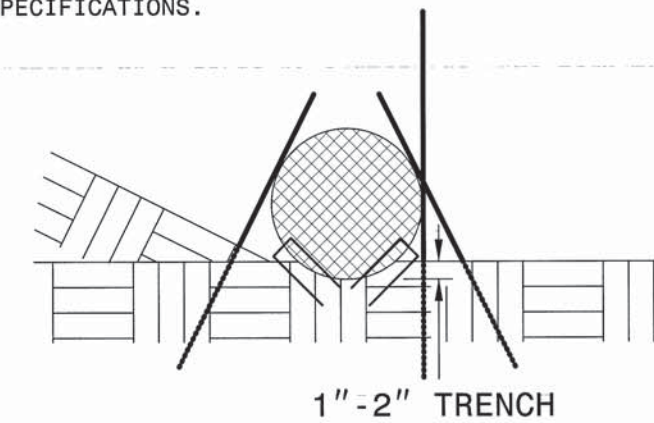
WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

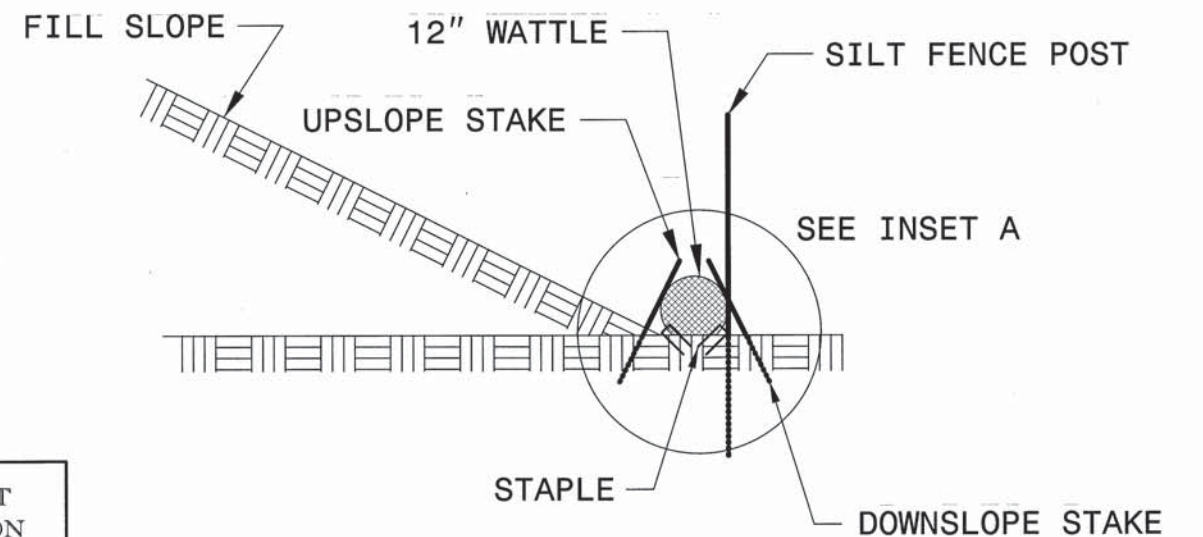


ISOMETRIC VIEW

INSET A



VIEW FROM SLOPE



SIDE VIEW

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DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>BD-5104G</i>	SHEET NO. <i>26</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

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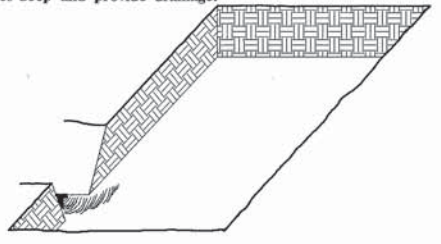
2012 STANDARD SPECIFICATIONS

PLANTING DETAILS

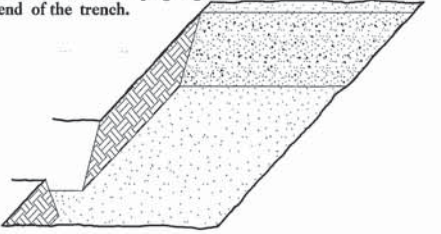
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

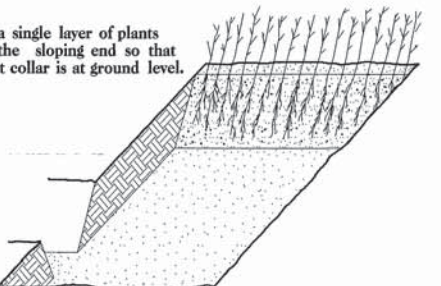
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



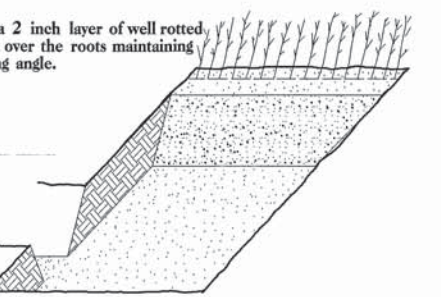
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

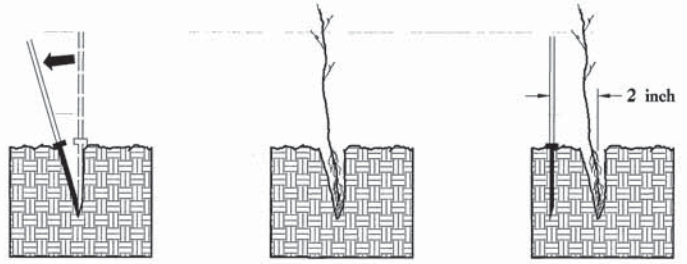


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

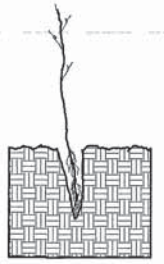


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

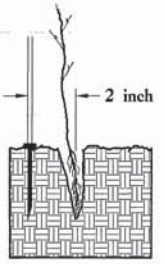
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.



2. Remove planting bar and place seedling at correct depth.



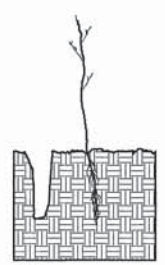
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
25% LIRIODENDRON TULIPIFERA	YELLOW POPLAR	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25% QUERCUS ALBA	WHITE OAK	12 in - 18 in BR

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2012 STANDARD SPECIFICATIONS

REFORESTATION DETAIL SHEET

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