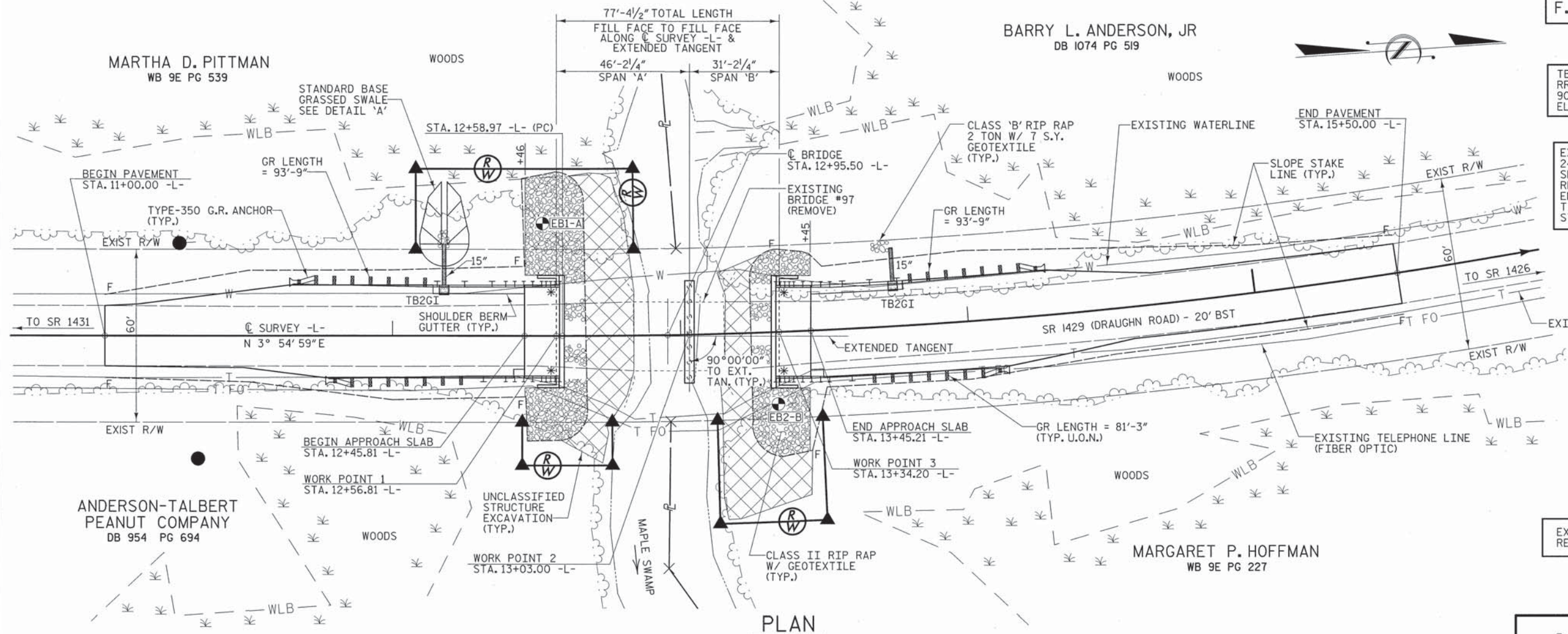


CONTRACT # DD00073 WBS # 45350.3.15

F.A. PROJECT NO.: BRZ-1429(8)

BARRY L. ANDERSON, JR
DB 1074 PG 519



TBM
RR SPIKE IN BASE OF 20" PINE
90.16' LEFT OF -L- STA. 12+66.72
ELEV. 65.65

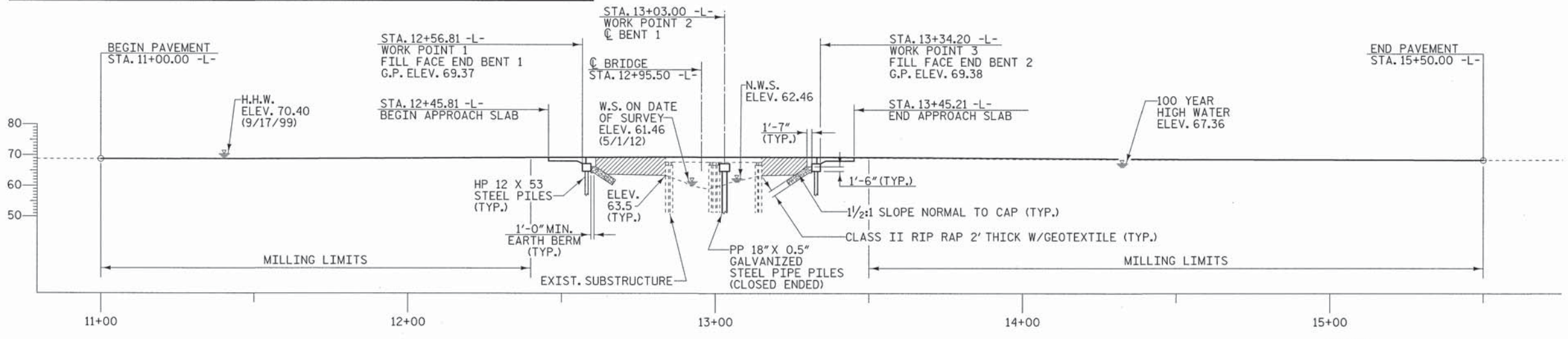
EXISTING BRIDGE No. 97
24'-0" CLEAR ROADWAY
SPANS: 1 @ 15'-7 1/2"; 1 @ 15'-2 1/2"
REINF. CONC. FLOOR ON TIMBER JOISTS
END BENTS & BENT:
TIMBER & STEEL CAPS ON TIMBER &
STEEL H-PILES

EXISTING UTILITIES TO BE
RELOCATED BY OTHERS.

I HEREBY CERTIFY THESE PLANS
ARE THE AS-BUILT PLANS

Table with 3 columns of vertical curve data: PI, EL, VC, K, D.S.

Legend for symbols and notes regarding geo-tech bore holes, guardrail connections, and milling limits.



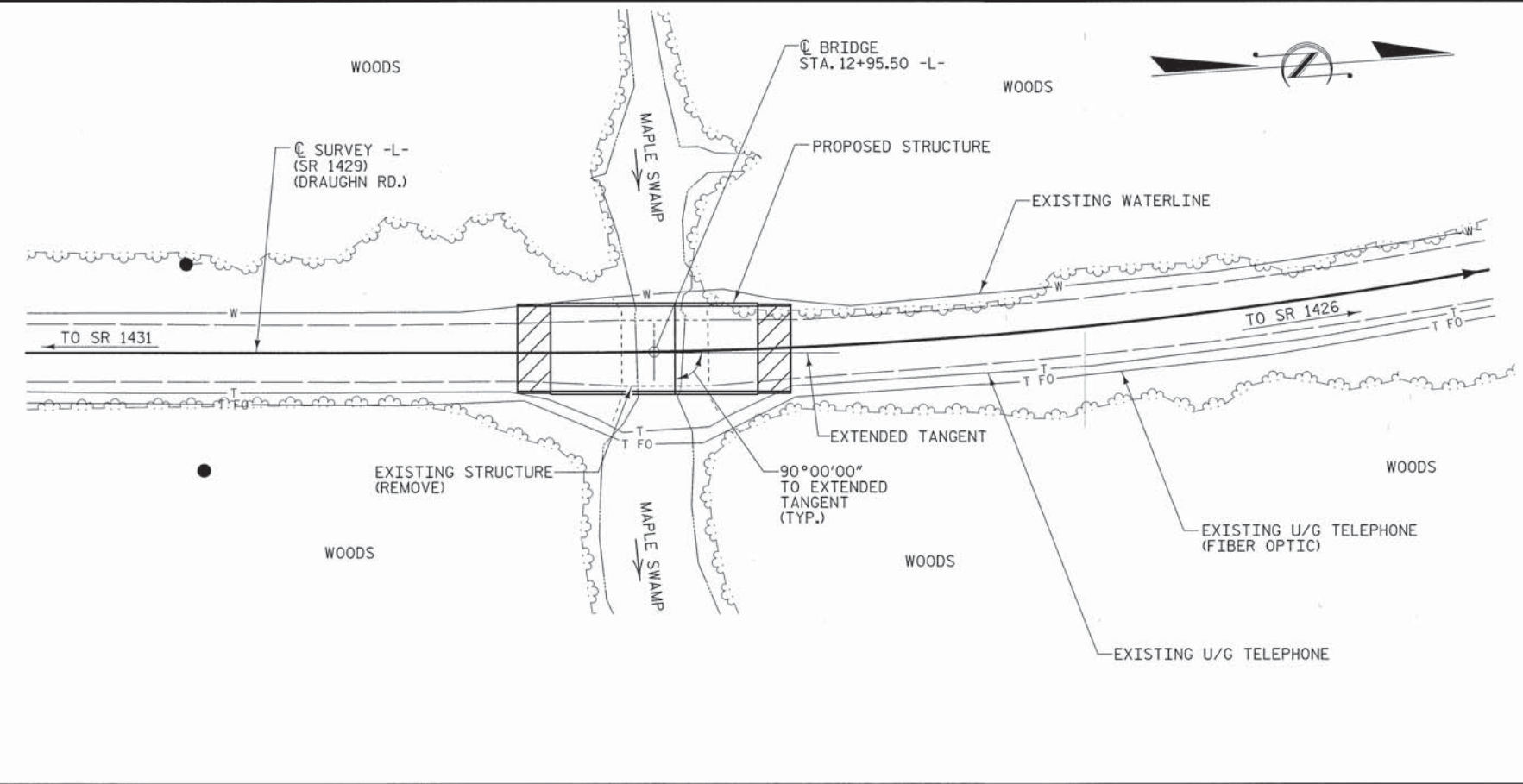
PROJECT NO. BD-5104N
EDGECOMBE COUNTY
STATION: 12+95.50 -L-

REPLACES BRIDGE NO. 97
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
BRIDGE ON SR 1429
OVER MAPLE SWAMP
BETWEEN SR 1431
& SR 1426
30'-10" CLEAR ROADWAY - 90° SKEW

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



Revisions table with columns for NO., BY, DATE, NO., BY, DATE, and a total sheets count of 29.



LOCATION SKETCH

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.
 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 SPLICED 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 ARE DESIGNED FOR A FACTORED RESISTANCE OF 65 TONS PER PILE.
 DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 110 TONS PER PILE.
 PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.
 PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 55 TONS PER PILE.
 DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE.
 FOR INTERIOR BENT 1, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT 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 18.0 FT.
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 43.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 PIPE PILE PLATES ARE REQUIRED FOR STEEL PIPE PILES AT BENT NO.1. USE PIPE PILE PLATES WITH A DIAMETER EQUAL TO THE PIPE PILE DIAMETER. FOR PIPE PILE PLATES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 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 = 540 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.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 NO DECK DRAINS REQUIRED.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

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	PP 18 X 0.5 GALVANIZED STEEL PILES	PIPE PILE PLATES	PILE REDRIVES	
	LUMP SUM	EACH	LUMP SUM	CU. YARDS	LUMP SUM	LBS.	NO. LIN. FT.	NO. LIN. FT.	EACH	EACH	
SUPERSTRUCTURE	LUMP SUM				LUMP SUM						
END BENT 1			LUMP SUM	14.3		2127	7 385				4
BENT 1				10.3		2102		7 385	7		4
END BENT 2			LUMP SUM	14.3		2127	7 385				4
TOTAL	LUMP SUM	1	LUMP SUM	38.9	LUMP SUM	6356	14 770	7 385	7		12

TOTAL BILL OF MATERIAL						
	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	NO. LIN. FT.	
SUPERSTRUCTURE	150.25			LUMP SUM	22	825.00
END BENT 1		213	237			
BENT 1						
END BENT 2		174	193			
TOTAL	150.25	387	430	LUMP SUM	22	825.00

HYDROGRAPHIC DATA:
 DESIGN DISCHARGE - 750 CFS
 FREQUENCY OF DESIGN FLOOD - 25 YEAR
 DESIGN HIGH WATER ELEVATION - 66.6
 DRAINAGE AREA - 6.6 SQ. MI.
 BASE DISCHARGE (Q 100) - 1200 CFS
 BASE HIGH WATER ELEVATION - 67.36

OVERTOPPING FLOOD DATA:
 OVERTOPPING DISCHARGE - 1700+ CFS
 FREQUENCY OF OVERTOPPING FLOOD - 500 YEAR +
 OVERTOPPING FLOOD ELEVATION - 68.8

OVERTOPPING OCCURS AT ROADWAY STA. -L- 10+80 ± AT HIGH SIDE OF SHOULDER.

PROJECT NO. **BD-5104N**
 EDGECOMBE COUNTY
 STATION: **12+95.50 -L-**
 REPLACES BRIDGE NO. 97



STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION		RALEIGH	
LOCATION SKETCH & TOTAL BILL OF MATERIAL					
30'-10" CLEAR ROADWAY - 90°SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 2
					TOTAL SHEETS 29

DRAWN BY : **W. B. ALLEN** DATE : **5/13**
 CHECKED BY : **L. K. AUSTIN** DATE : **5/13**

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

LOAD FACTORS:

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

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.

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			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.088	--	1.75	0.277	1.34	45'	EL	22	0.539	1.23	45'	EL	2.2	0.80	0.277	1.09	45'	EL	22		
	HL-93(0pr)	N/A	--	1.590	--	1.35	0.277	1.74	45'	EL	22	0.539	1.59	45'	EL	2.2	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.336	48.104	1.75	0.277	1.65	45'	EL	22	0.539	1.45	45'	EL	2.2	0.80	0.277	1.34	45'	EL	22		
	HS-20(0pr)	36.000	--	1.882	67.763	1.35	0.277	2.14	45'	EL	22	0.539	1.88	45'	EL	2.2	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.611	35.252	1.40	0.277	4.02	45'	EL	22	0.539	4.01	45'	EL	2.2	0.80	0.277	2.61	45'	EL	22	
		SNGARBS2	20.000	--	2.108	42.166	1.40	0.277	3.25	45'	EL	22	0.539	2.94	45'	EL	2.2	0.80	0.277	2.11	45'	EL	22	
		SNAGRIS2	22.000	--	2.067	45.466	1.40	0.277	3.15	45'	EL	17.6	0.539	2.77	45'	EL	2.2	0.80	0.277	2.07	45'	EL	22	
		SNCOTTS3	27.250	--	1.304	35.527	1.40	0.277	2.01	45'	EL	22	0.539	2.01	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		SNAGGRS4	34.925	--	1.150	40.181	1.40	0.277	1.77	45'	EL	22	0.539	1.74	45'	EL	2.2	0.80	0.277	1.15	45'	EL	22	
		SNS5A	35.550	--	1.121	39.841	1.40	0.277	1.73	45'	EL	22	0.539	1.79	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
	TTST	SNS6A	39.950	--	1.056	42.175	1.40	0.277	1.63	45'	EL	22	0.539	1.67	45'	EL	2.2	0.80	0.277	1.06	45'	EL	22	
		SNS7B	42.000	3	1.006	42.268	1.40	0.277	1.55	45'	EL	22	0.539	1.68	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22	
		TNAGRIT3	33.000	--	1.296	42.759	1.40	0.277	2.00	45'	EL	22	0.539	1.96	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		TNT4A	33.075	--	1.309	43.305	1.40	0.277	2.02	45'	EL	22	0.539	1.88	45'	EL	2.2	0.80	0.277	1.31	45'	EL	22	
		TNT6A	41.600	--	1.099	45.712	1.40	0.277	1.69	45'	EL	22	0.539	1.83	45'	EL	2.2	0.80	0.277	1.10	45'	EL	22	
		TNT7A	42.000	--	1.120	47.043	1.40	0.277	1.73	45'	EL	22	0.539	1.69	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
		TNT7B	42.000	--	1.166	48.975	1.40	0.277	1.80	45'	EL	22	0.539	1.61	45'	EL	2.2	0.80	0.277	1.17	45'	EL	22	
TNAGRIT4	43.000	--	1.111	47.757	1.40	0.277	1.71	45'	EL	22	0.539	1.55	45'	EL	2.2	0.80	0.277	1.11	45'	EL	22			
TNAGT5A	45.000	--	1.033	46.505	1.40	0.277	1.59	45'	EL	22	0.539	1.59	45'	EL	2.2	0.80	0.277	1.03	45'	EL	22			
TNAGT5B	45.000	--	1.009	45.408	1.40	0.277	1.56	45'	EL	22	0.539	1.47	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22			

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

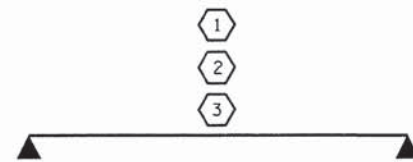
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. BD-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 45' CORED SLAB UNIT
 90° SKEW
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			3
2			4			TOTAL SHEETS 29

ASSEMBLED BY : M.M. AHMED DATE : 4-17-13
 CHECKED BY : REZA KOUICHEKI DATE : 4-23-13
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

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			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.037	--	1.75	0.283	1.83	30'	EL	14.5	0.574	1.04	30'	EL	1.45	0.80	0.283	1.58	30'	EL	14.5		
	HL-93(0pr)	N/A	--	1.344	--	1.35	0.283	2.38	30'	EL	14.5	0.574	1.34	30'	EL	1.45	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.183	42.587	1.75	0.283	2.53	30'	EL	11.6	0.574	1.18	30'	EL	1.45	0.80	0.283	2.20	30'	EL	11.6		
	HS-20(0pr)	36.000	--	1.533	55.205	1.35	0.283	3.28	30'	EL	11.6	0.574	1.53	30'	EL	1.45	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.895	39.081	1.40	0.283	5.18	30'	EL	14.5	0.574	2.89	30'	EL	1.45	0.80	0.283	3.56	30'	EL	14.5	
		SNGARBS2	20.000	--	2.240	44.792	1.40	0.283	4.53	30'	EL	11.6	0.574	2.24	30'	EL	1.45	0.80	0.283	3.15	30'	EL	11.6	
		SNAGRIS2	22.000	--	2.157	47.463	1.40	0.283	4.60	30'	EL	11.6	0.574	2.16	30'	EL	1.45	0.80	0.283	3.20	30'	EL	11.6	
		SNCOTTS3	27.250	--	1.462	39.849	1.40	0.283	2.60	30'	EL	14.5	0.574	1.46	30'	EL	1.45	0.80	0.283	1.79	30'	EL	14.5	
		SNAGGRS4	34.925	--	1.346	46.999	1.40	0.283	2.50	30'	EL	14.5	0.574	1.35	30'	EL	1.45	0.80	0.283	1.72	30'	EL	14.5	
		SNS5A	35.550	--	1.427	50.733	1.40	0.283	2.42	30'	EL	14.5	0.574	1.43	30'	EL	1.45	0.80	0.283	1.67	30'	EL	14.5	
		SNS6A	39.950	--	1.341	53.59	1.40	0.283	2.29	30'	EL	14.5	0.574	1.34	30'	EL	1.45	0.80	0.283	1.58	30'	EL	14.5	
	SNS7B	42.000	--	1.369	57.505	1.40	0.283	2.23	30'	EL	14.5	0.574	1.37	30'	EL	1.45	0.80	0.283	1.53	30'	EL	14.5		
	TTST	TNAGRIT3	33.000	--	1.593	52.58	1.40	0.283	2.97	30'	EL	14.5	0.574	1.59	30'	EL	1.45	0.80	0.283	2.04	30'	EL	14.5	
		TNT4A	33.075	--	1.483	49.043	1.40	0.283	2.82	30'	EL	14.5	0.574	1.48	30'	EL	1.45	0.80	0.283	1.94	30'	EL	14.5	
		TNT6A	41.600	--	1.433	59.622	1.40	0.283	2.56	30'	EL	14.5	0.574	1.43	30'	EL	1.45	0.80	0.283	1.76	30'	EL	14.5	
		TNT7A	42.000	--	1.363	57.264	1.40	0.283	2.64	30'	EL	14.5	0.574	1.36	30'	EL	1.45	0.80	0.283	1.82	30'	EL	14.5	
		TNT7B	42.000	--	1.331	55.915	1.40	0.283	2.49	30'	EL	14.5	0.574	1.33	30'	EL	1.45	0.80	0.283	1.72	30'	EL	14.5	
		TNAGRIT4	43.000	--	1.287	55.356	1.40	0.283	2.58	30'	EL	14.5	0.574	1.29	30'	EL	1.45	0.80	0.283	1.78	30'	EL	14.5	
TNAGT5A		45.000	--	1.381	62.151	1.40	0.283	2.50	30'	EL	14.5	0.574	1.38	30'	EL	1.45	0.80	0.283	1.72	30'	EL	14.5		
TNAGT5B	45.000	3	1.212	54.54	1.40	0.283	2.41	30'	EL	11.6	0.574	1.21	30'	EL	1.45	0.80	0.283	1.66	30'	EL	11.6			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	Y _{oc}	Y _{ow}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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
FOR SPAN 'B'

PROJECT NO. BD-5104N
EDGEcombe COUNTY
STATION: 12+95.50 -L-

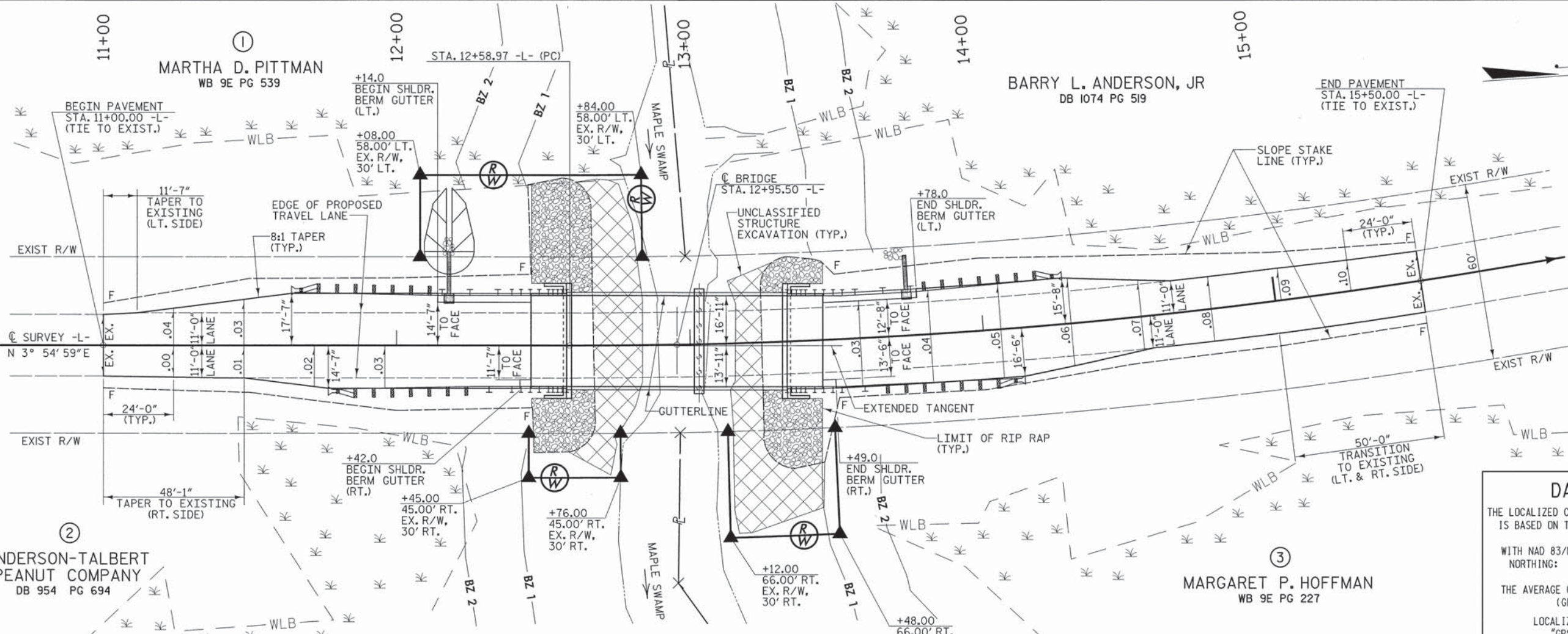


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
30' CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	4
1			3			TOTAL SHEETS
2			4			29

ASSEMBLED BY : M.M. AHMED DATE : 4-17-13
CHECKED BY : REZA KOUCHEKI DATE : 4-23-13
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10



PAVEMENT LAYOUT DETAIL
SCALE: 1" = 20'

HORIZONTAL CURVE DATA

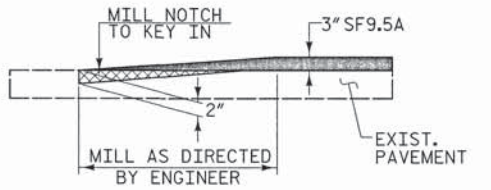
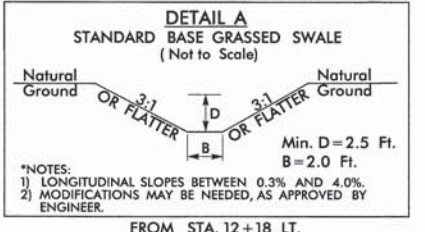
PI STA.	14+21.52
Δ	9° 39' 12.7" (LT)
D	2° 58' 35.1"
L	324.34'
T	162.55'
R	1,925.00'

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 837114.70(ft) EASTING: 2423547.81(ft) ELEVATION: 69.58(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999969685

LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO -L- STATION 11+00.00 IS
S 08° 35' 21.8" W 178.91'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

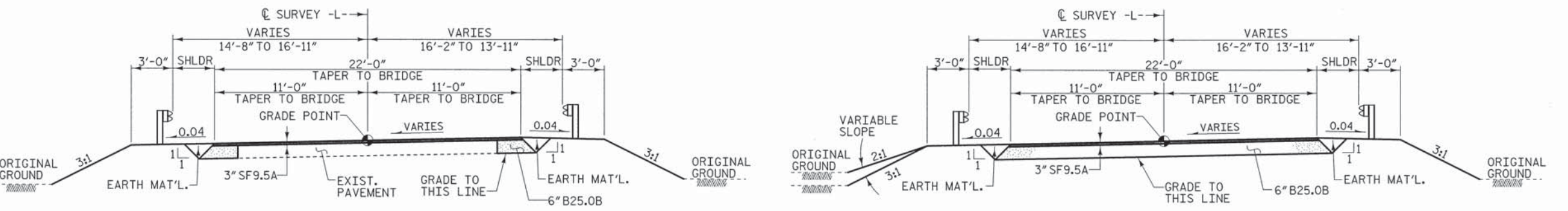


MILLING DETAIL

MILL EXISTING PAVEMENT AT THE FOLLOWING LOCATIONS
-L- STA. 11+00.00 TO STA. 12+40+/-
-L- STA. 13+50+/- TO STA. 15+50.00

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL AREA	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
1	MARTHA D. PITTMAN	36.18 AC	2112 SF		36.13 AC			
2	ANDERSON-TALBERT PEANUT COMPANY	43.13 AC	470 SF	43.12 AC				
3	MARGARET P. HOFFMAN	48 AC	1329 SF	47.97 AC				



TYPICAL ROADWAY SECTION
WITHIN CONSTRUCTION LIMITS

PROJECT NO. BD-5104N
EDGECOMBE COUNTY
STATION: 12+95.50 -L-

REPLACES BRIDGE NO. 97

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ROADWAY DETAILS

30'-10" CLEAR ROADWAY - 90° SKEW

REVISIONS

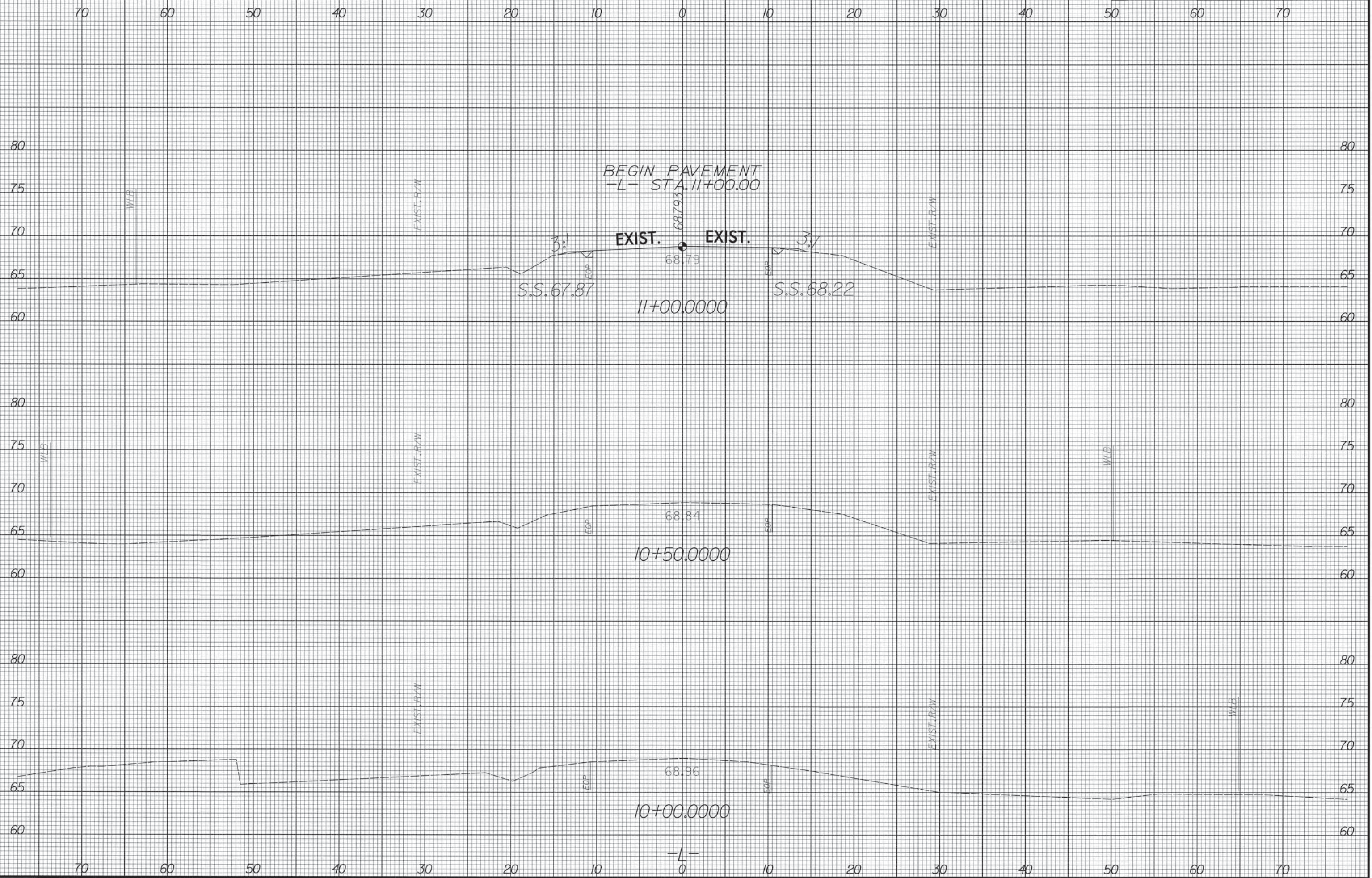
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 5
TOTAL SHEETS 29

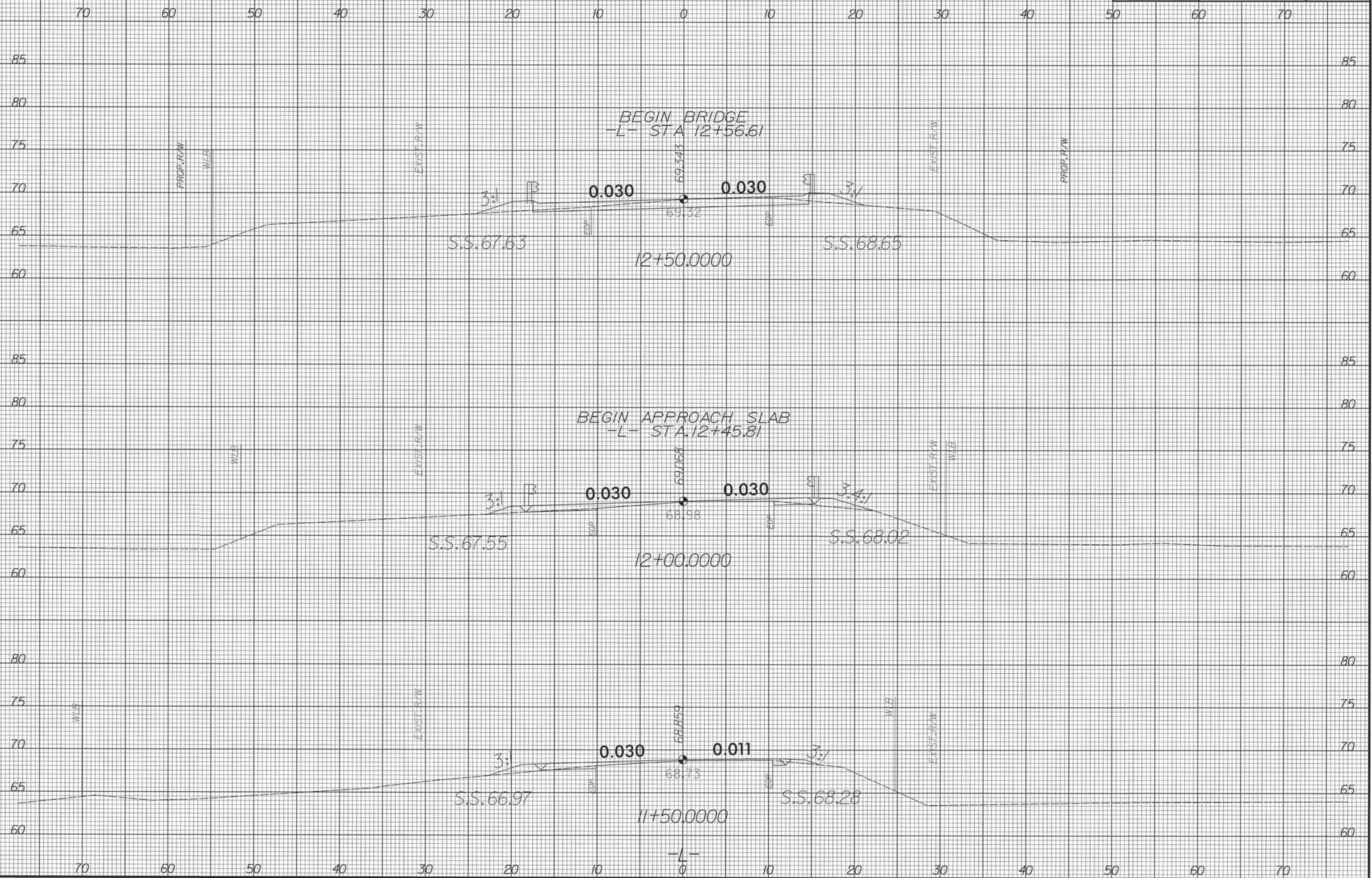
DRAWN BY: W. B. ALLEN DATE: 3/13
CHECKED BY: W. A. DAVIS DATE: 3/13



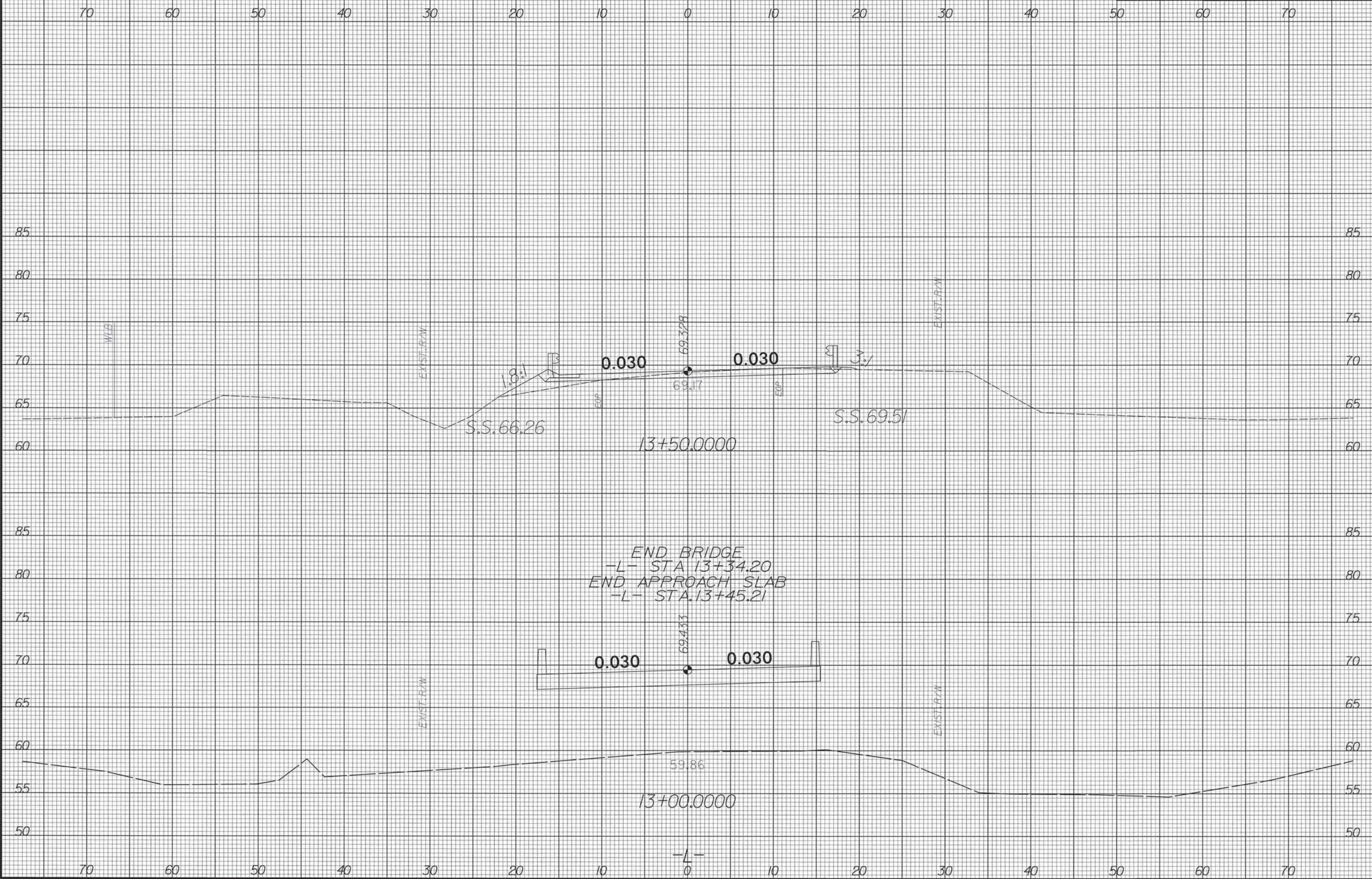
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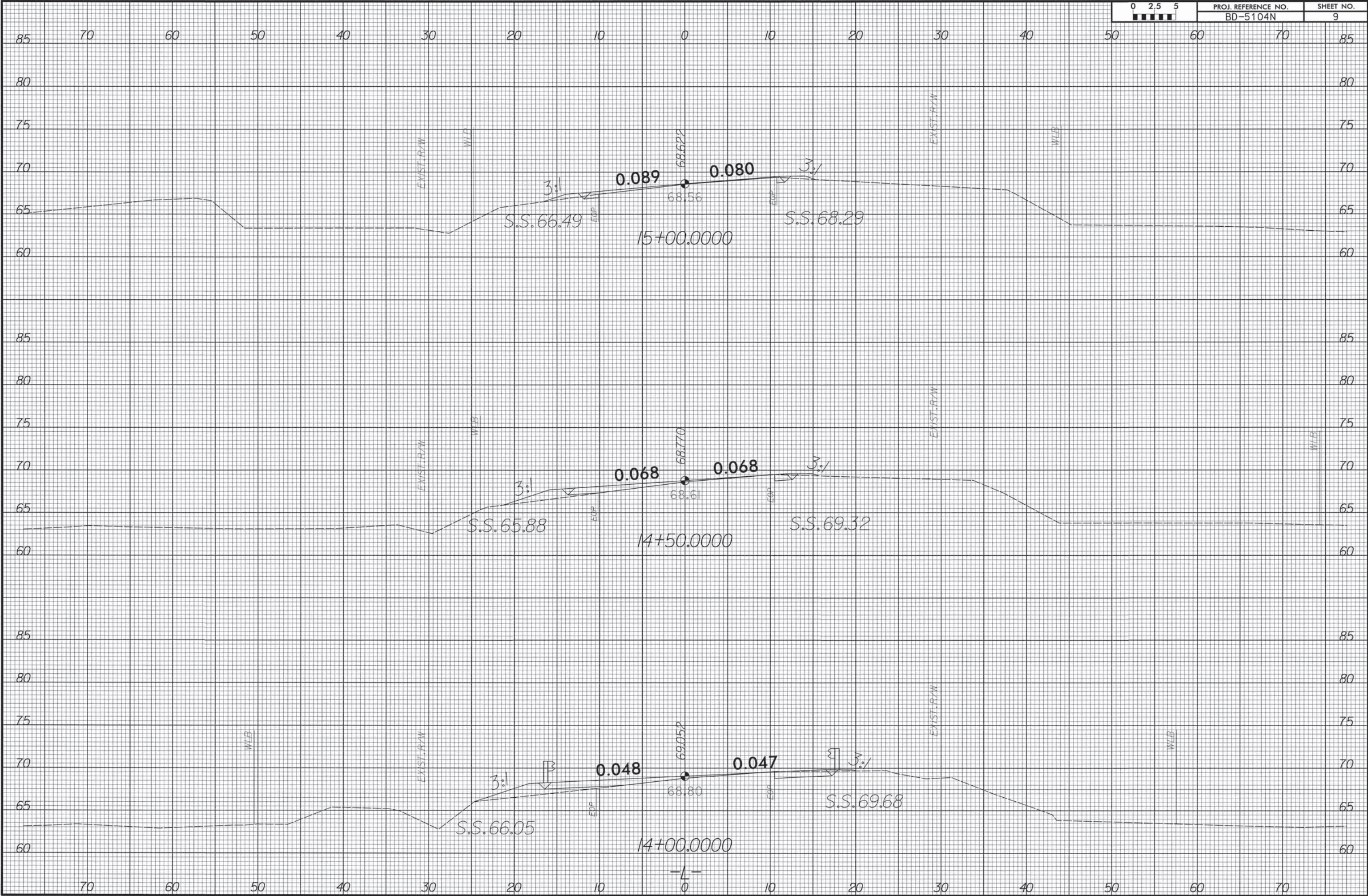


8/23/99



5/31/2013
R:\5000\proj\XSC\B05104N_xpl.dgn
2:02:33 PM





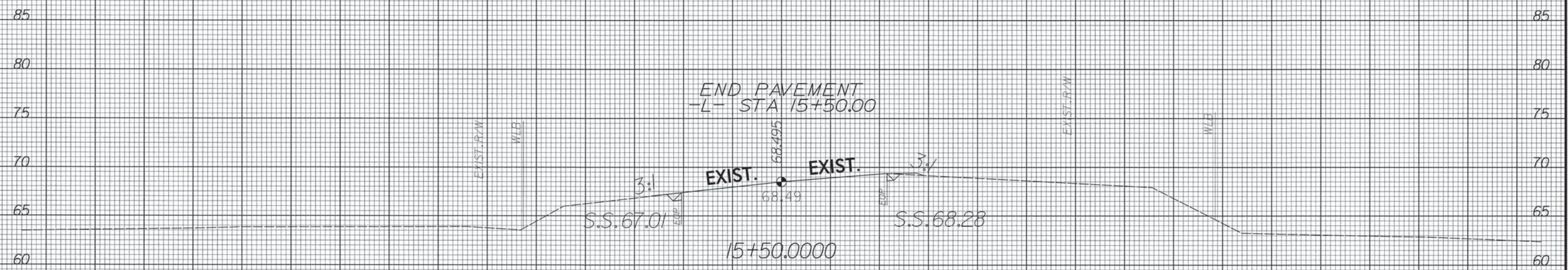
8/23/99



PROJ. REFERENCE NO.
BD-5104N

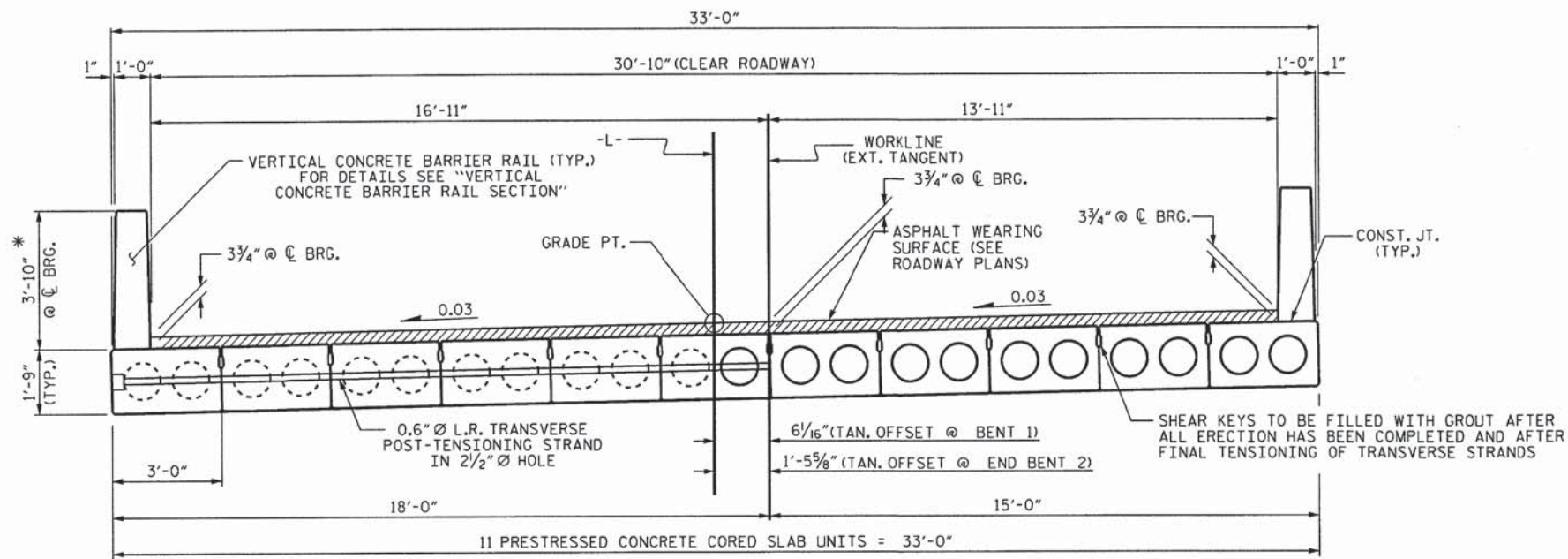
SHEET NO.
10

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70



70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

5/21/2013
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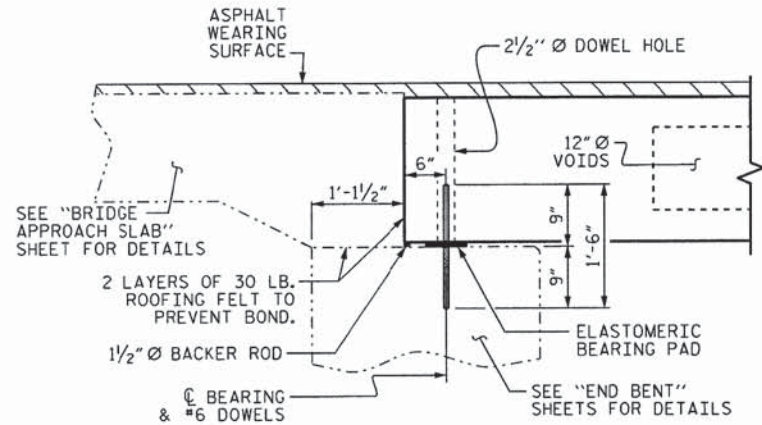


TYPICAL SECTION

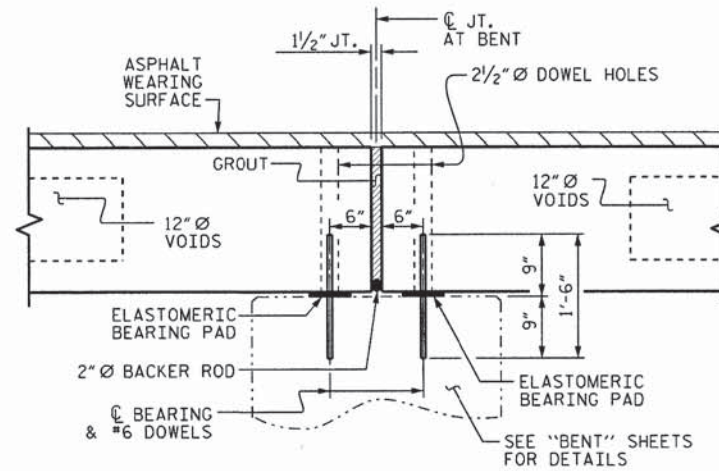
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

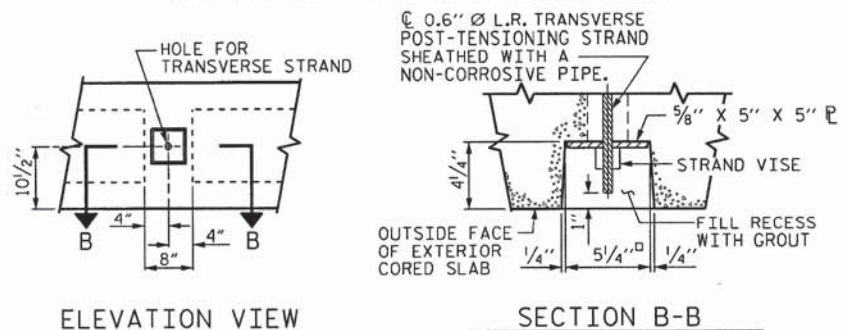
FIXED END **FIXED END**



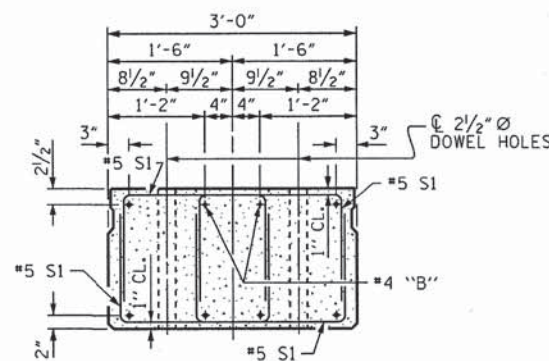
SECTION AT END BENT



SECTION AT BENT

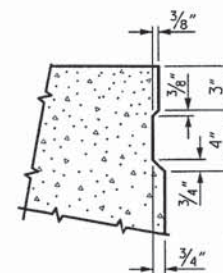


GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



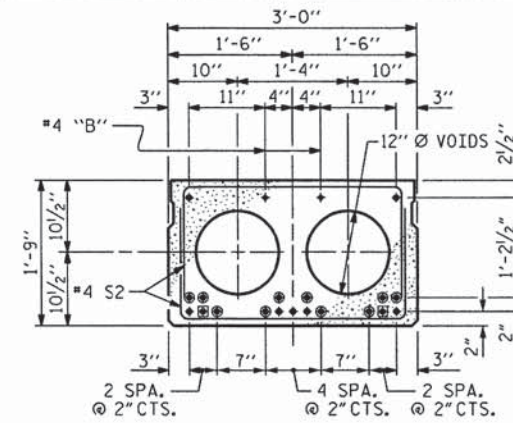
END ELEVATION

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



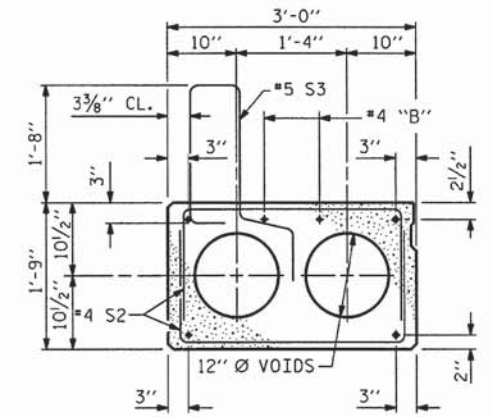
SHEAR KEY DETAIL

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



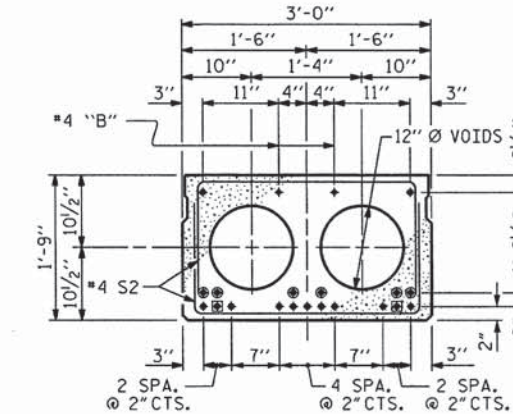
INTERIOR SLAB SECTION (30' UNIT)

(9 STRANDS REQUIRED)



EXT. SLAB SECTION

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



INTERIOR SLAB SECTION (45' UNIT)

(13 STRANDS REQUIRED)

- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. BD-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-

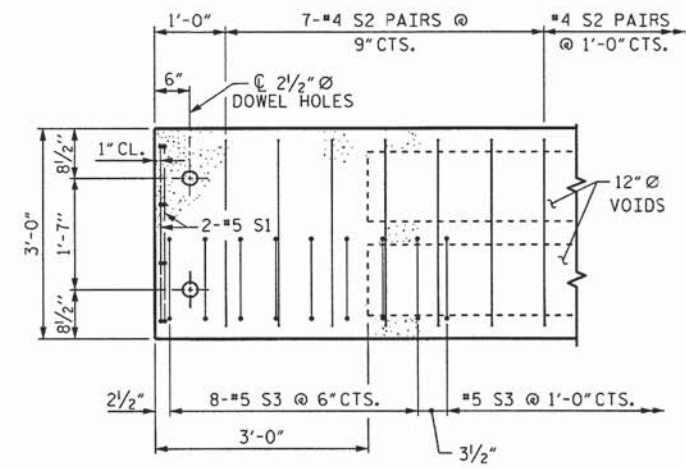
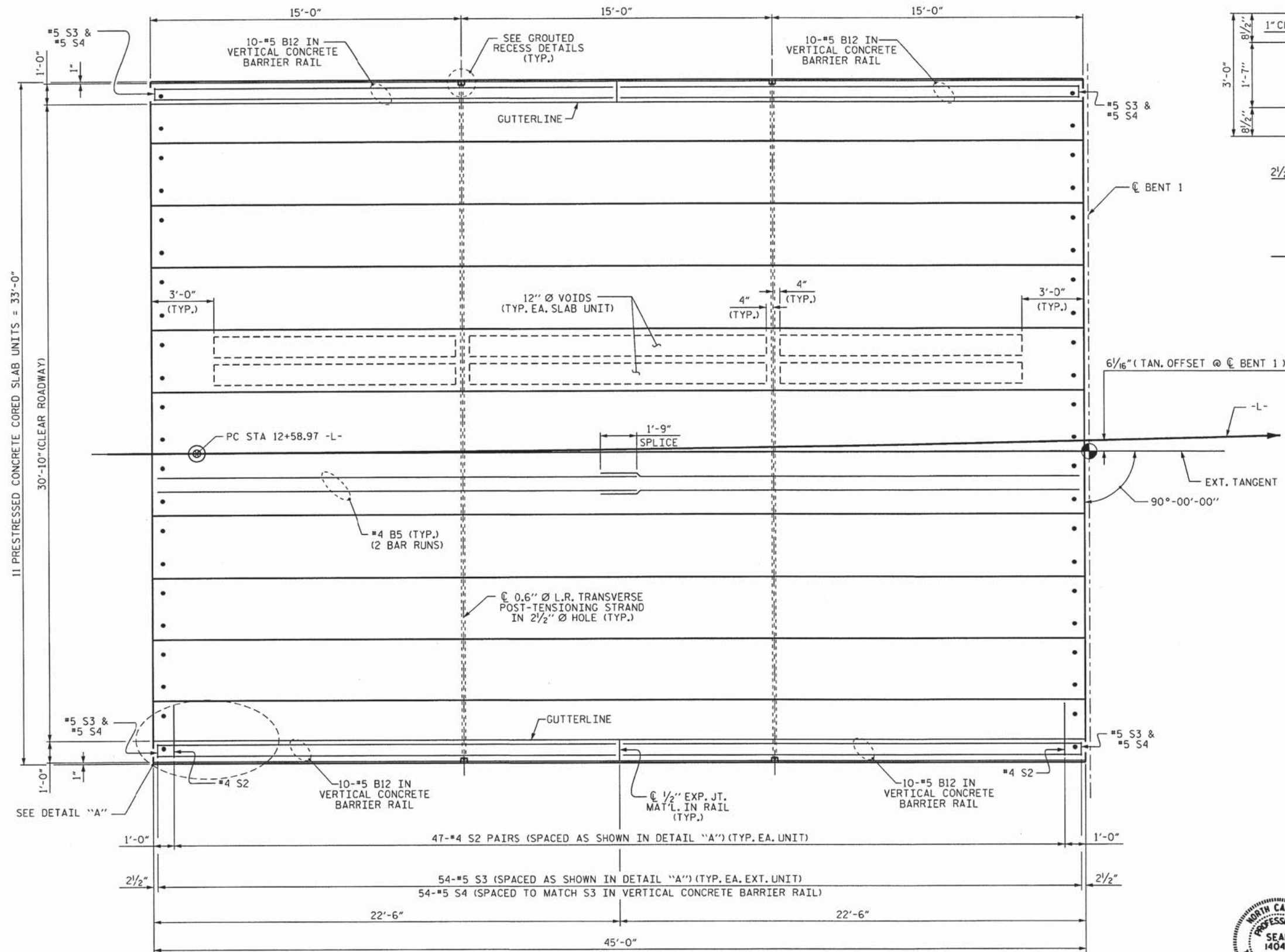
SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	11	
1			3			TOTAL SHEETS 29	
2			4				

ASSEMBLED BY: M.M. AHMED DATE: 4-9-13
 CHECKED BY: REZA KOUICHEKI DATE: 4-25-13
 DRAWN BY: DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY: BCH 6/09



DETAIL "A"

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

PLAN OF UNIT
NO DECK DRAINS REQUIRED

PROJECT NO. BD-5104N
EDGEcombe COUNTY
STATION: 12+95.50 -L-

SHEET 2 OF 4

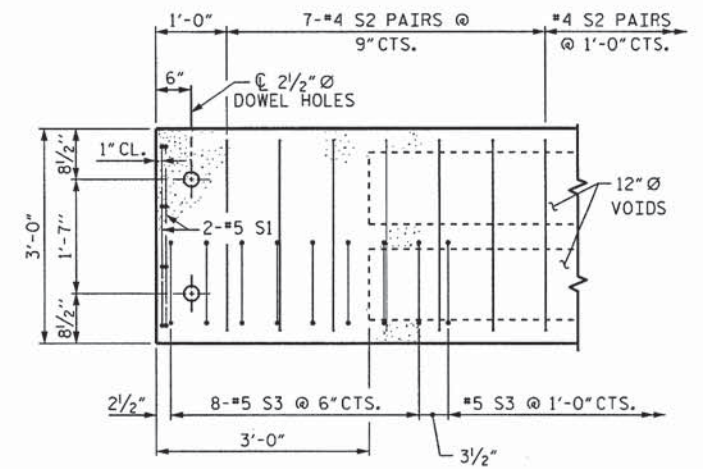
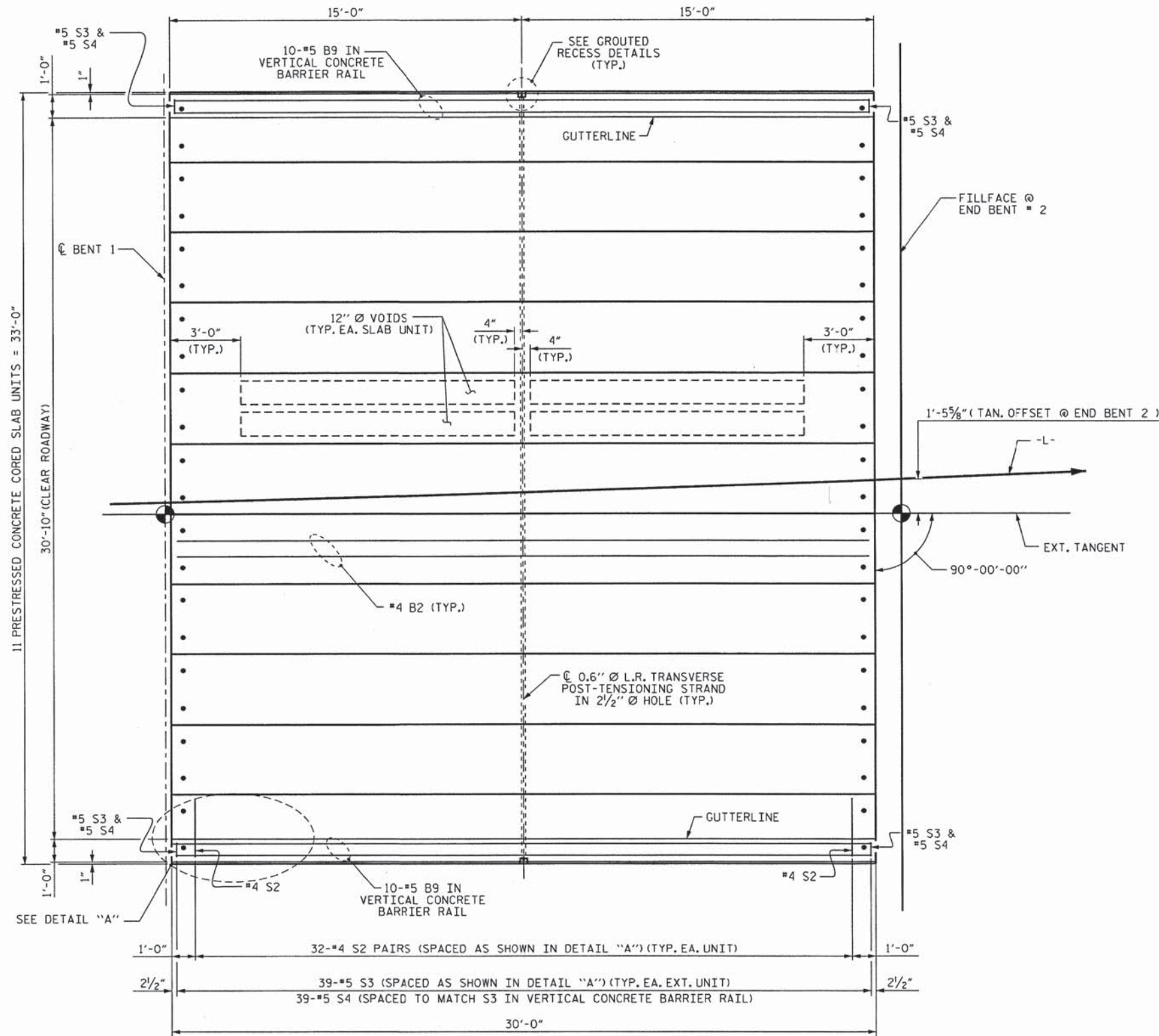
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 45' UNIT
30'-10" CLEAR ROADWAY
90° SKEW



REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	12	
1			3			TOTAL SHEETS 29	
2			4				

ASSEMBLED BY : M.M. AHMED DATE : 4-9-13
CHECKED BY : REZA KOUCHEKI DATE : 4-25-13
DRAWN BY : DGE 3/09 REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09



DETAIL "A"

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

PLAN OF UNIT
NO DECK DRAINS REQUIRED

PROJECT NO. BD-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 30' UNIT
 30'-10" CLEAR ROADWAY
 90° SKEW



ASSEMBLED BY : M.M. AHMED	DATE : 4-9-13
CHECKED BY : REZA KOUCHEKI	DATE : 4-25-13
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	

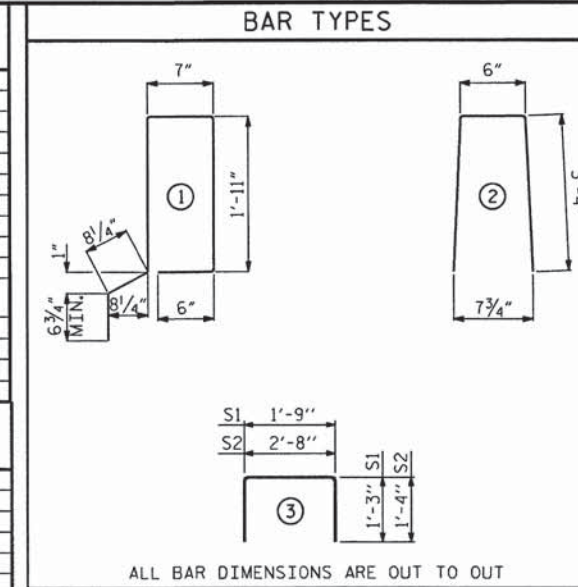
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	13	
1			3			TOTAL SHEETS 29	
2			4				

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
45' UNIT						
*B12	40	40	#5	STR	22'-1"	921
*S4	108	108	#5	2	7'-2"	807
*EPOXY COATED REINFORCING STEEL					LBS.	1728
CLASS AA CONCRETE					CU.YDS.	11.8
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.	90.13

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
30' UNIT						
*B9	20	20	#5	STR	29'-7"	617
*S4	78	78	#5	2	7'-2"	583
*EPOXY COATED REINFORCING STEEL					LBS.	1200
CLASS AA CONCRETE					CU.YDS.	7.9
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.	60.12

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	94	#4	3	5'-4"	335	5'-4"	335
*S3	54	#5	1	6'-2"	347		
REINFORCING STEEL				LBS.	432		432
*EPOXY COATED REINFORCING STEEL				LBS.	347		
6500 P.S.I. CONCRETE				CU. YDS.	6.5		6.5
0.6" Ø L.R. STRANDS				No.	13		13

BILL OF MATERIAL FOR ONE 30' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	2	#4	STR	29'-8"	40	29'-8"	40
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	64	#4	3	5'-4"	228	5'-4"	228
*S3	39	#5	1	6'-2"	251		
REINFORCING STEEL				LBS.	303		303
*EPOXY COATED REINFORCING STEEL				LBS.	251		
5000 P.S.I. CONCRETE				CU. YDS.	4.4		4.4
0.6" Ø L.R. STRANDS				No.	9		9



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 NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS 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.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL 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.

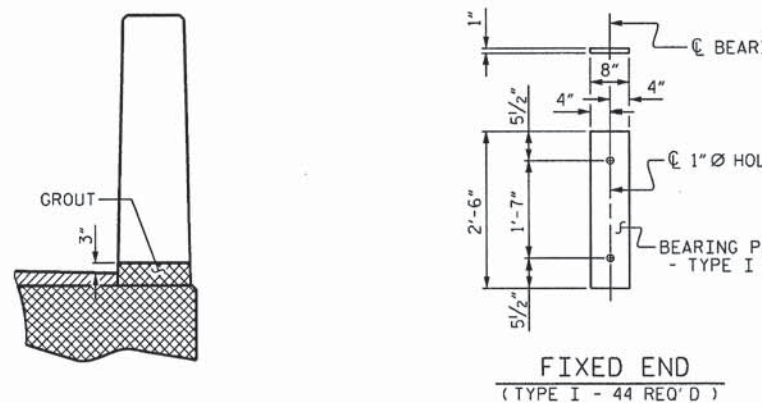
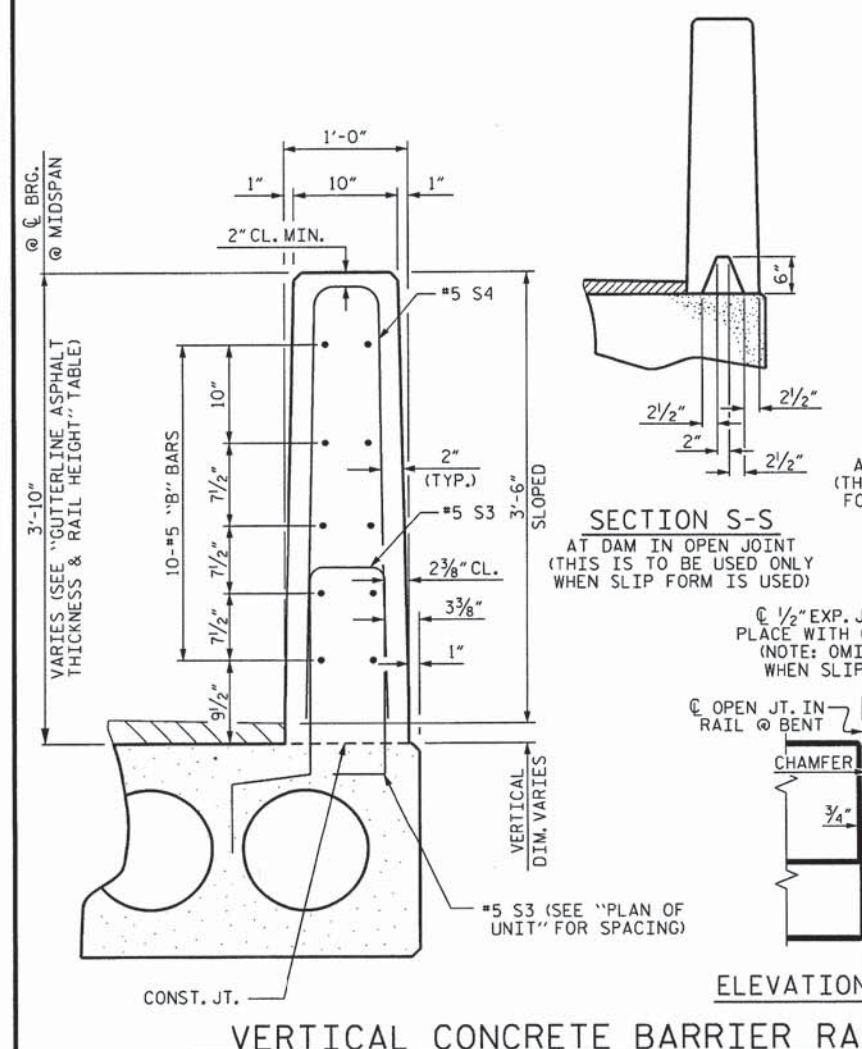
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED 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.

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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
30'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	SUPERED SECTION	
30' UNITS	3 3/8"	3'-9 5/8"
45' UNITS	2 5/8"	3'-8 7/8"



DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
45' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	1/8" ↑

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
30' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/2" ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	3/8" ↓

** INCLUDES FUTURE WEARING SURFACE

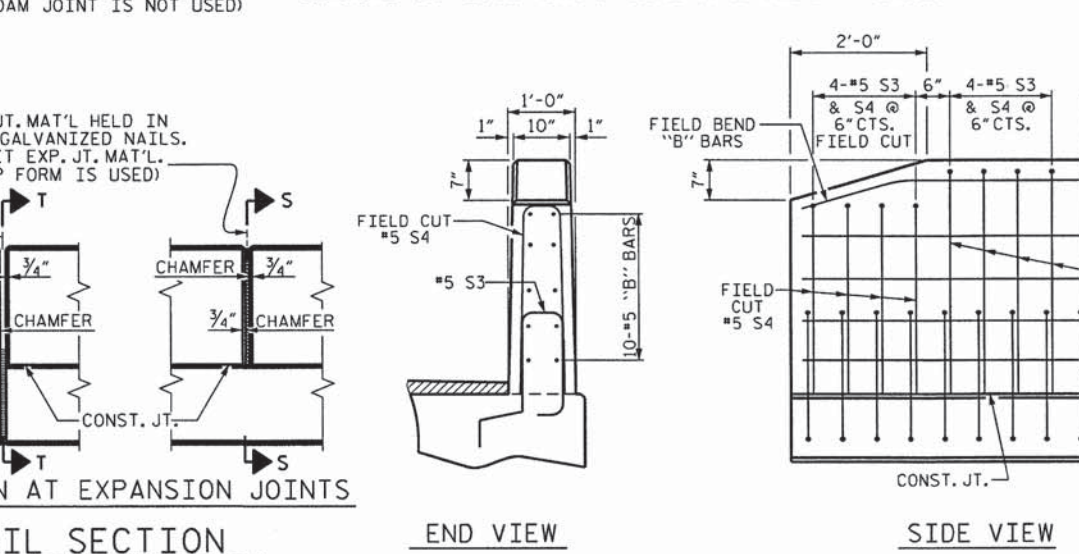
CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
45' UNIT			
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	9	45'-0"	405'-0"
TOTAL	11		495'-0"

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
30' UNIT			
EXTERIOR C.S.	2	30'-0"	60'-0"
INTERIOR C.S.	9	30'-0"	270'-0"
TOTAL	11		330'-0"

SECTION T-T AT OPEN JOINT AT BENT (THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)

SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.



CONCRETE RELEASE STRENGTH	
UNIT	PSI
30' & 45' UNITS	4000

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-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					14
					TOTAL SHEETS 29

ASSEMBLED BY: M.M. AHMED DATE: 4-10-13
 CHECKED BY: REZA KOUICHEKI DATE: 4-29-13
 DRAWN BY: DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY: BCH 6/09

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" 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 1/8" 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.)

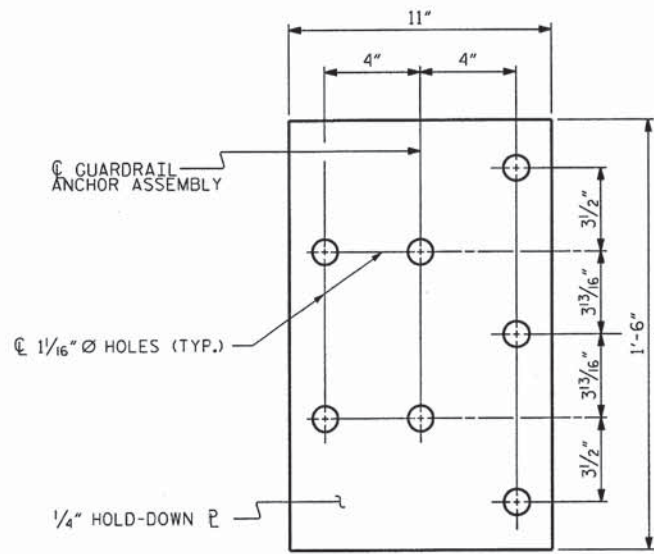
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

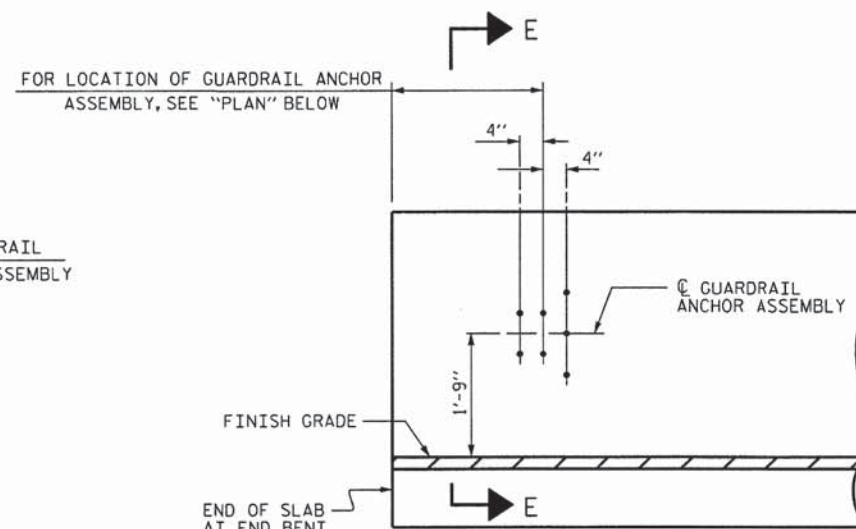
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

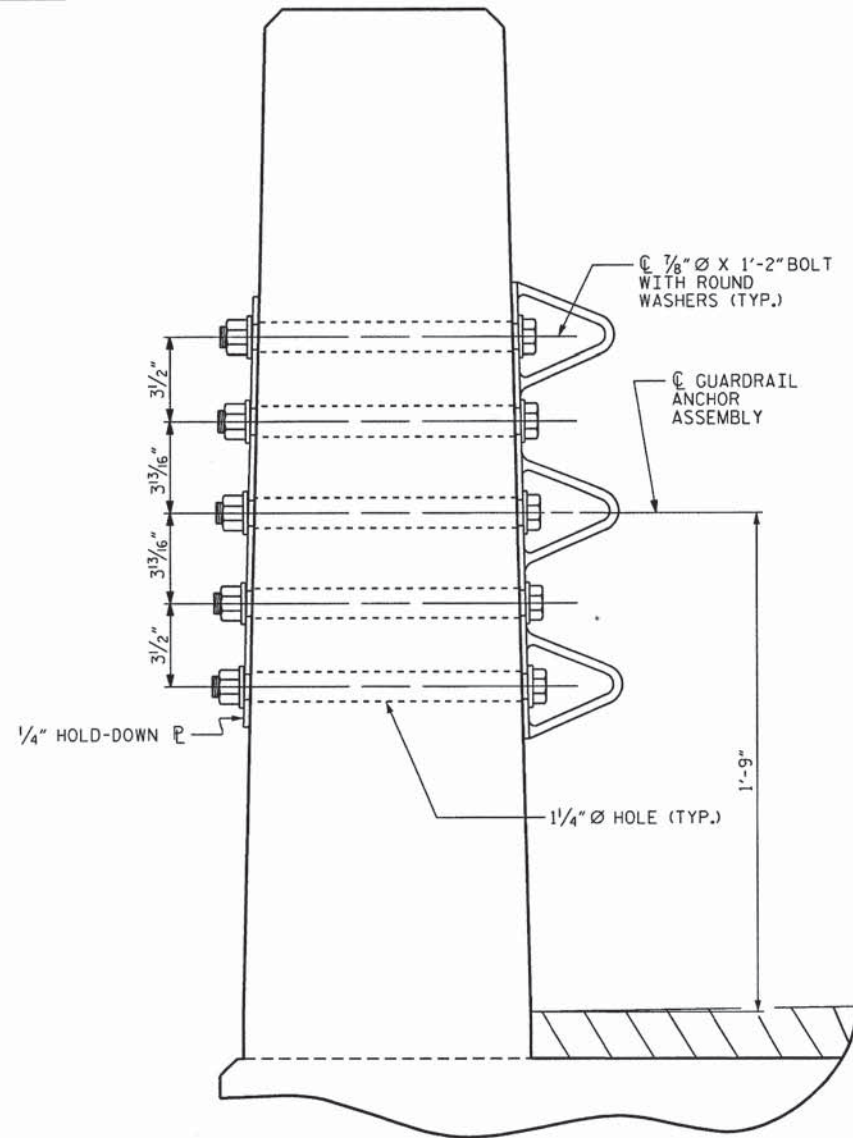
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



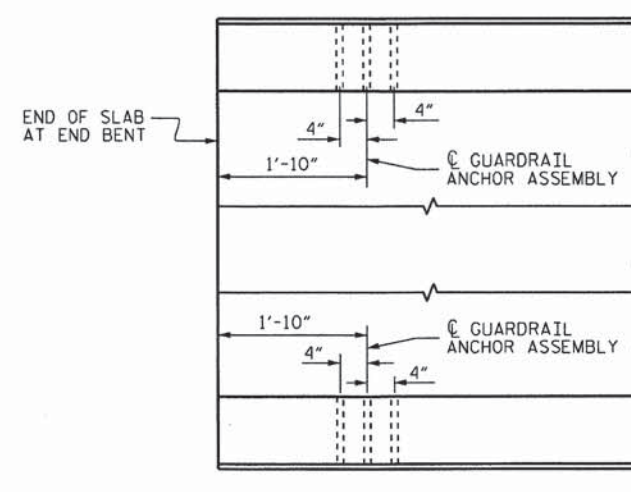
PLAN



ELEVATION



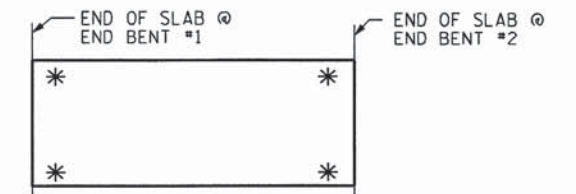
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-



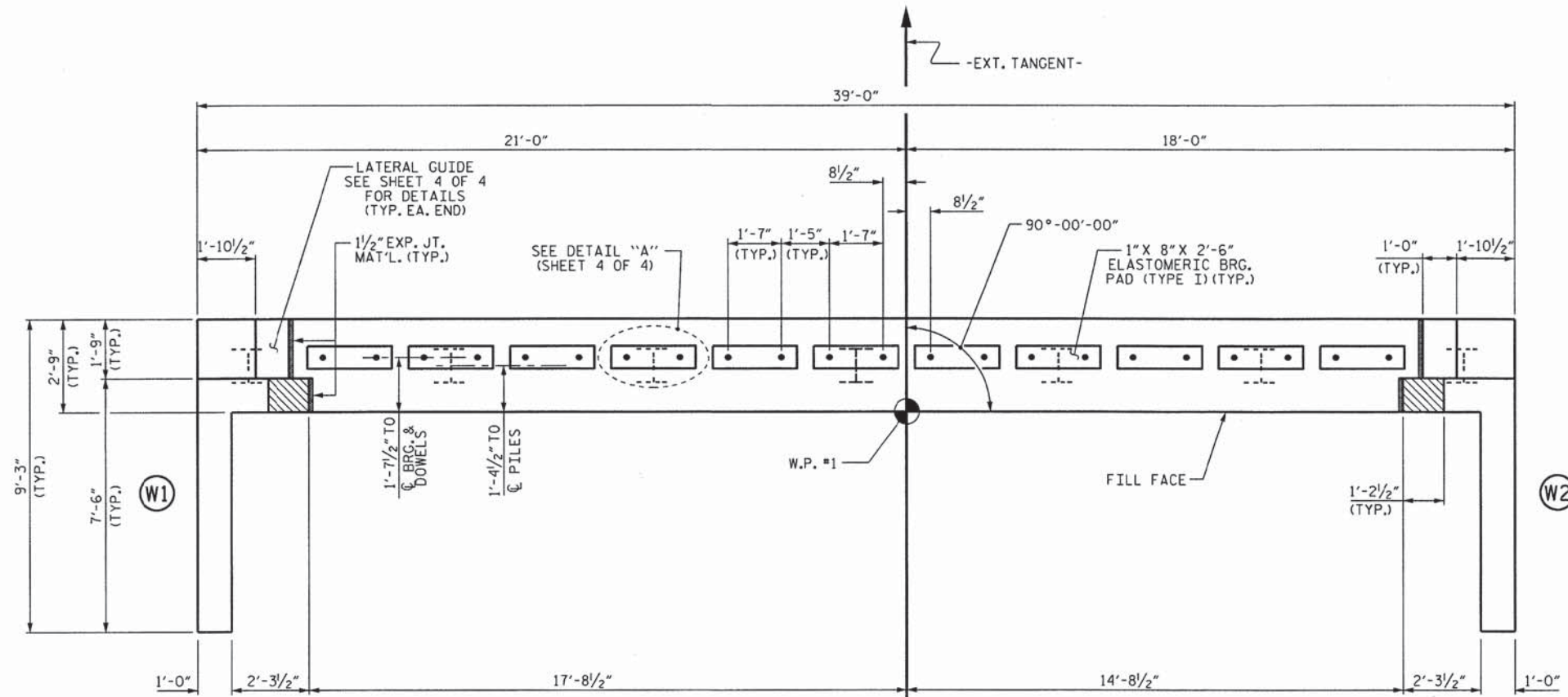
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			TOTAL SHEETS
2			4			29

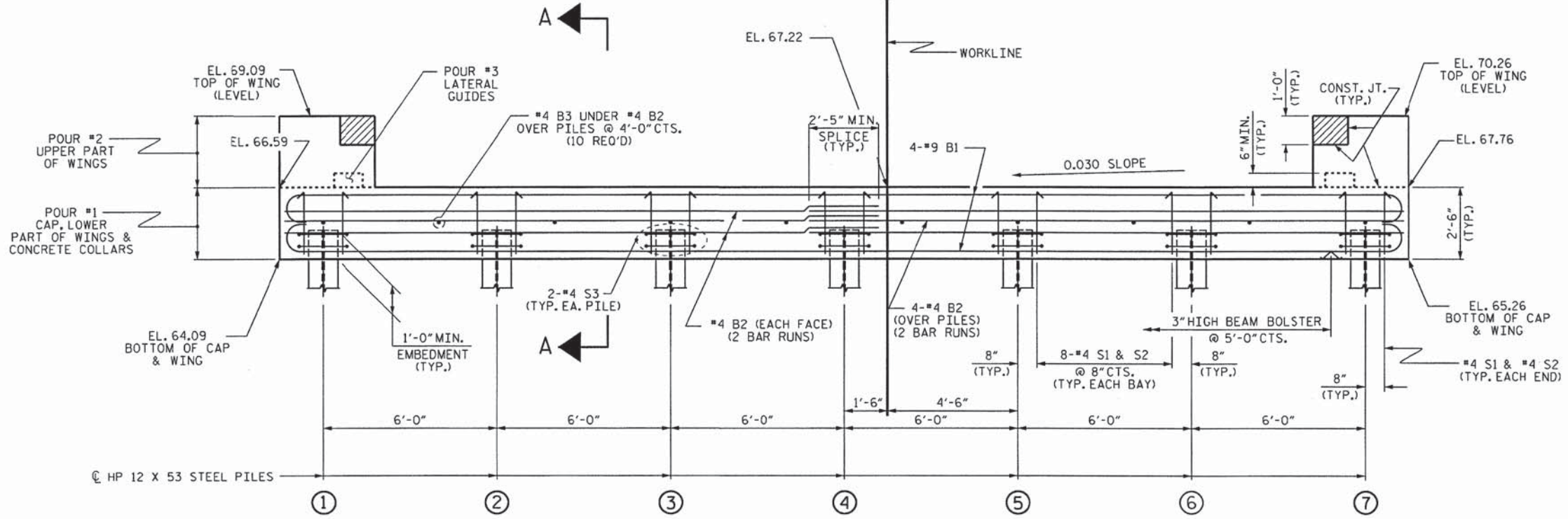
(SHT 1) STD. NO. GRA3

ASSEMBLED BY: M.M. AHMED DATE: 4-10-13
 CHECKED BY: REZA KOUCHEKI DATE: 4-29-13
 DRAWN BY: MAA 5/10
 CHECKED BY: CM 5/10

ADDED 5/6/10
 REV. 0/1/11 MAA/GM
 REV. 2/5/11 MAA/GM



PLAN



ELEVATION

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.

TOP OF PILE ELEVATIONS	
①	65.15
②	65.33
③	65.51
④	65.69
⑤	65.87
⑥	66.05
⑦	66.23

PROJECT NO. BD-5104N
EDGECOMBE COUNTY
 STATION: 12+95.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

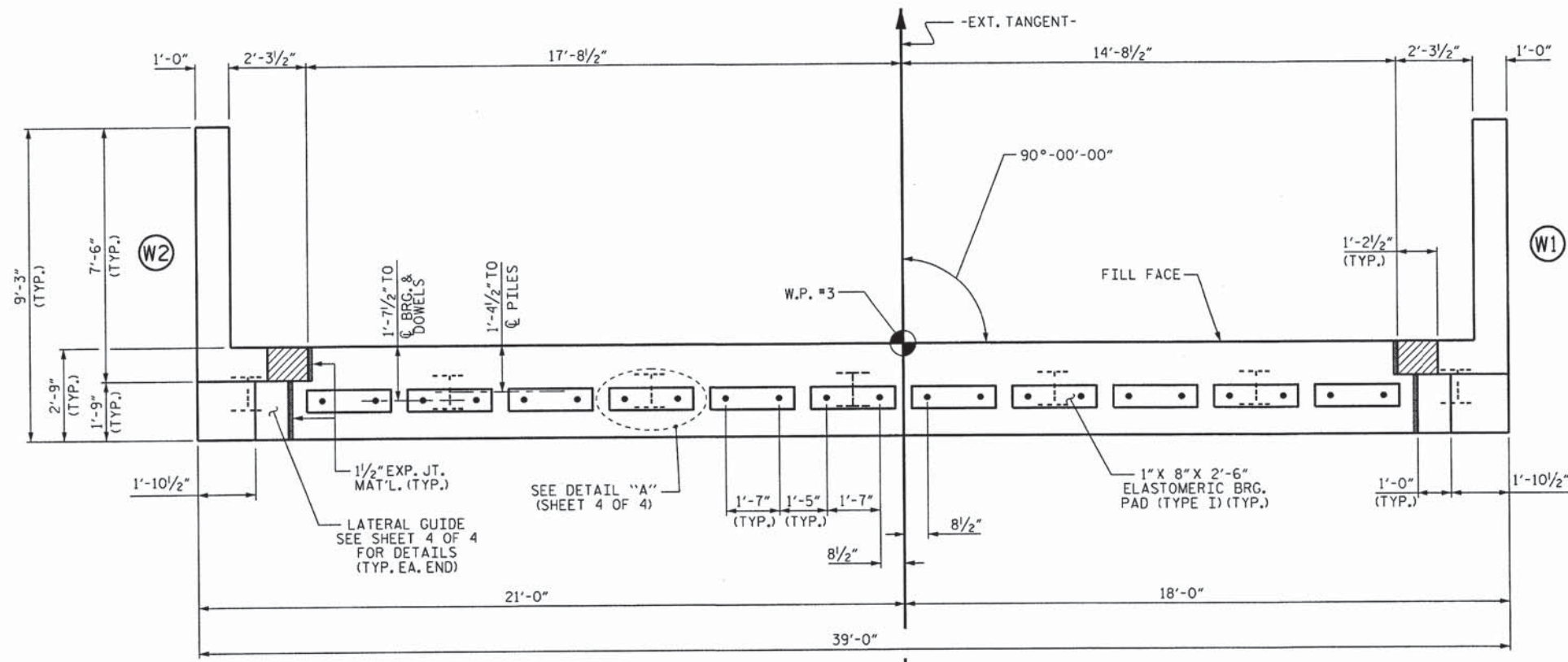
SUBSTRUCTURE
 END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			16
2			4			29

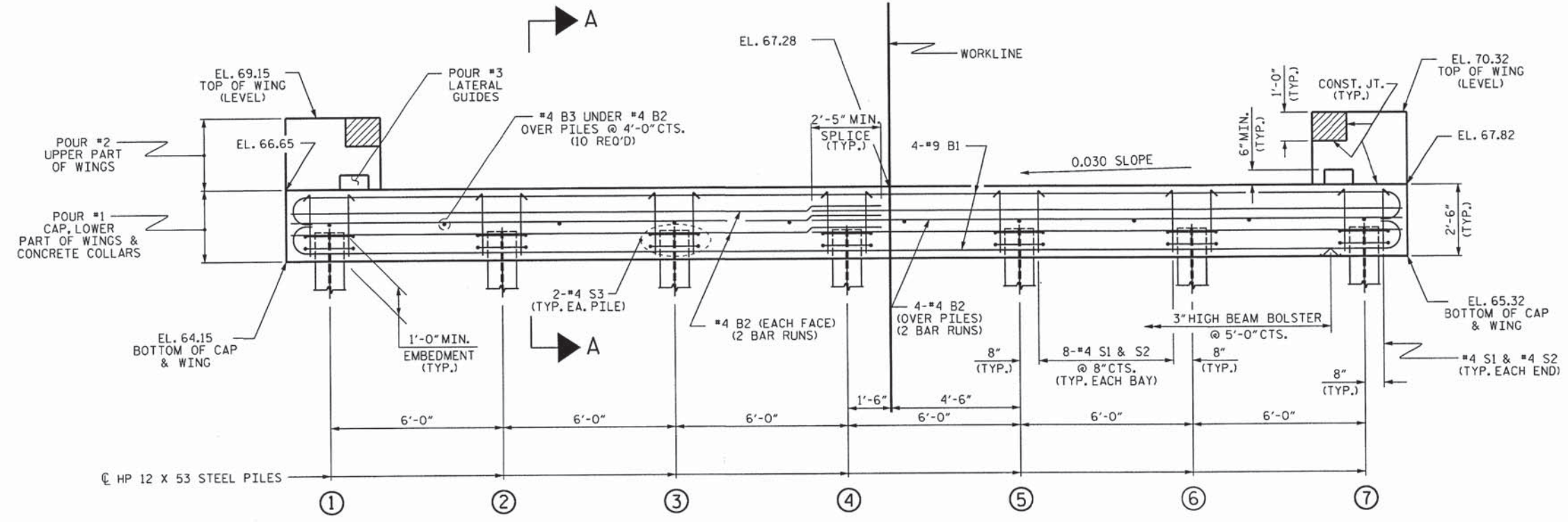


ASSEMBLED BY: M.M. AHMED DATE: 4-15-13
 CHECKED BY: REZA KOUCHEKI DATE: 4-29-13
 DRAWN BY: DGE 02/10
 CHECKED BY: MKT 02/10

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.



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.

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.

TOP OF PILE ELEVATIONS	
①	65.21
②	65.39
③	65.57
④	65.75
⑤	65.93
⑥	66.11
⑦	66.29

PROJECT NO. BD-5104N
EDGEcombe COUNTY
STATION: 12+95.50 -L-

SHEET 2 OF 4

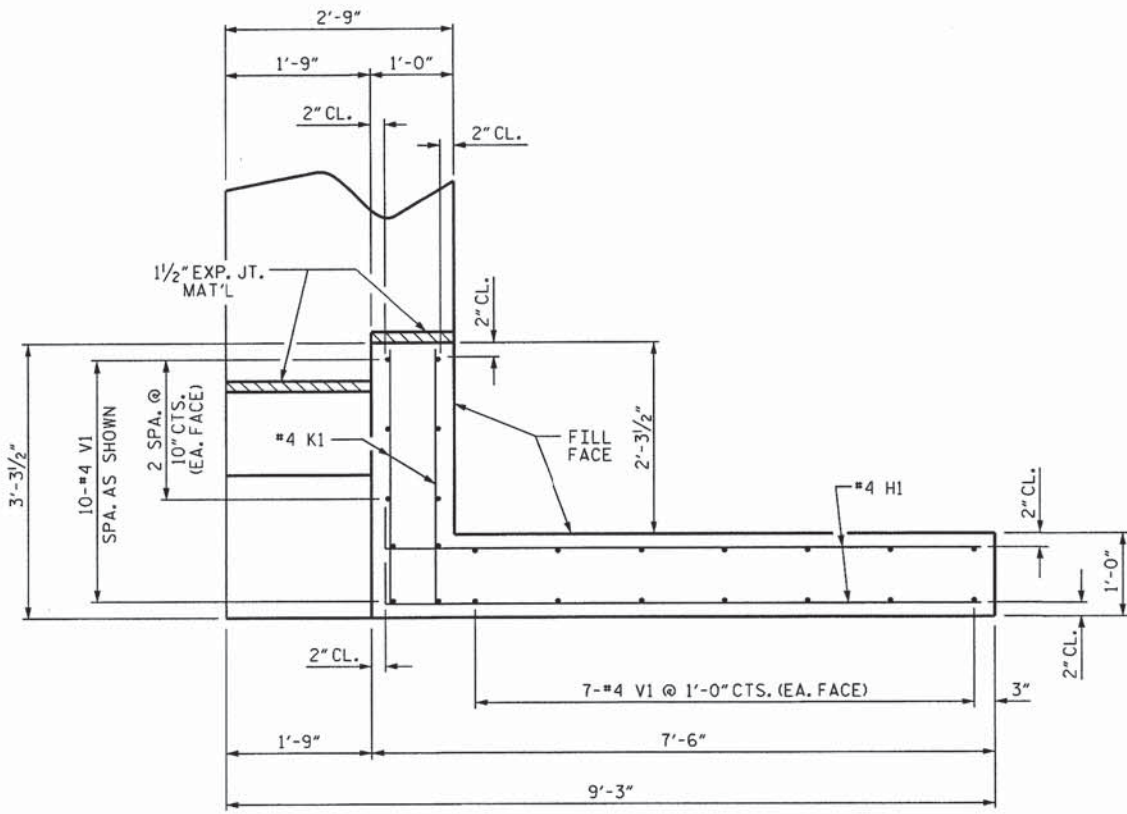
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

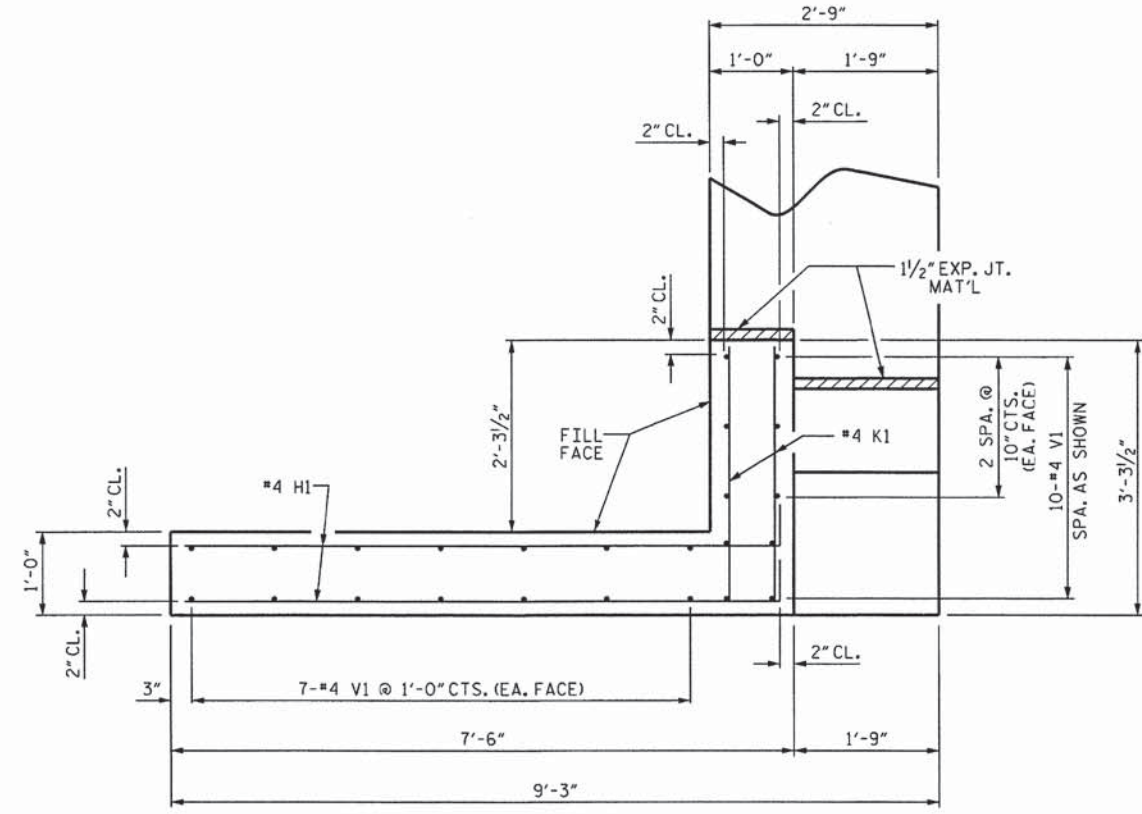


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	17
1			3			TOTAL SHEETS 29
2			4			

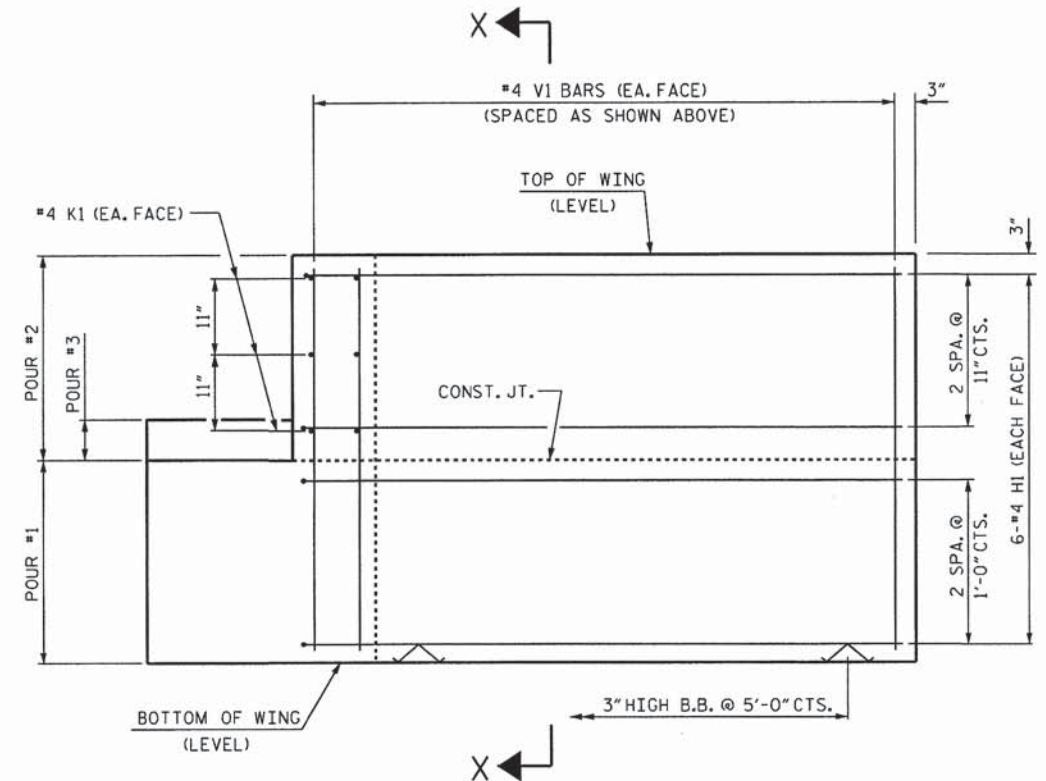
ASSEMBLED BY: M.M. AHMED DATE: 4-16-13
CHECKED BY: REZA KOUCHEKI DATE: 4-29-13
DRAWN BY: DGE 02/10
CHECKED BY: MKT 02/10



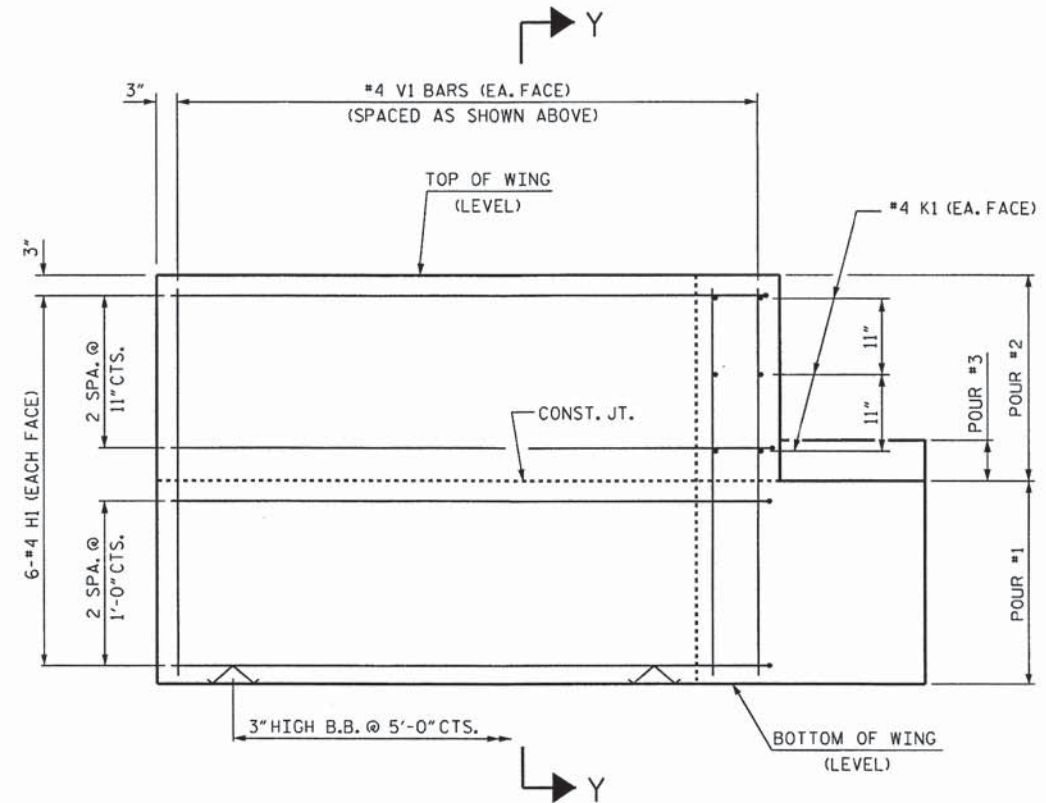
PLAN OF WING (W1)



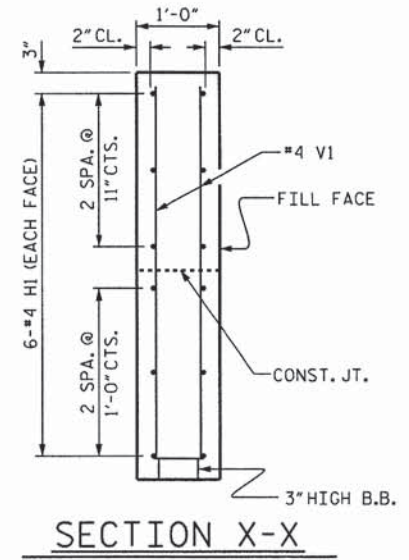
PLAN OF WING (W2)



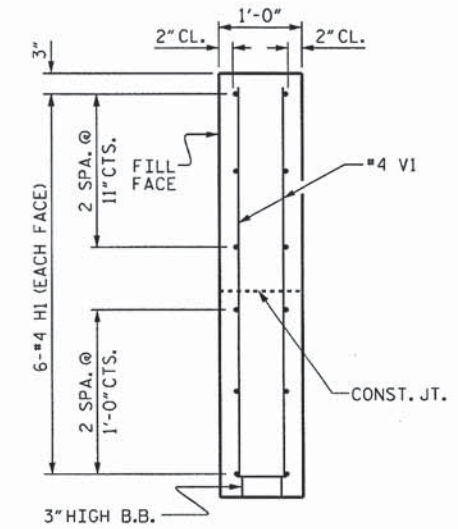
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X

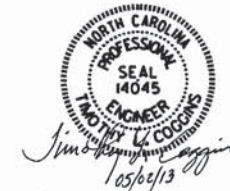


SECTION Y-Y

WING DETAILS

ASSEMBLED BY : M.M. AHMED DATE : 4-17-13
 CHECKED BY : REZA KOUCHEKI DATE : 4-29-13
 DRAWN BY : DCE 02/10
 CHECKED BY : MKT 02/10

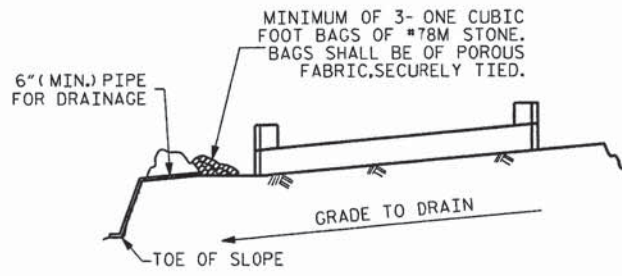
02-MAY-2013 12:23
 S:\DPG1\Tim\Division 4 LEBR\BD-5104N\mno\B05104N.sm.Draft.standards.01.dgn



PROJECT NO. BD-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 18
					TOTAL SHEETS 29

STD. NO. EB_33_90S

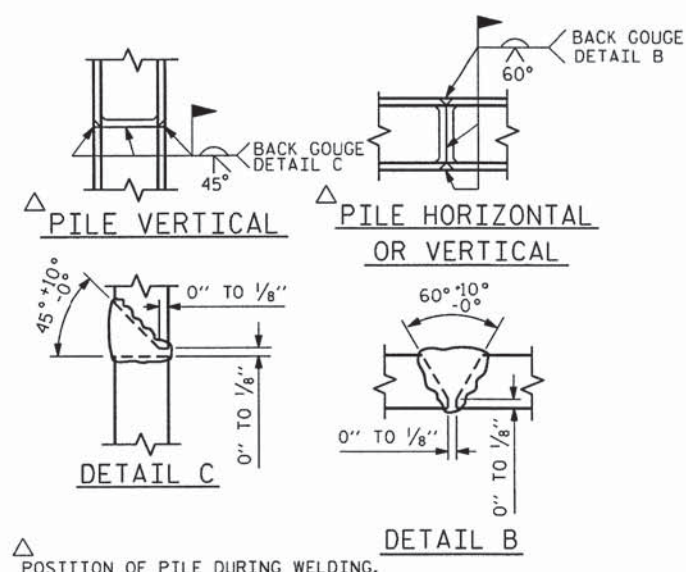


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

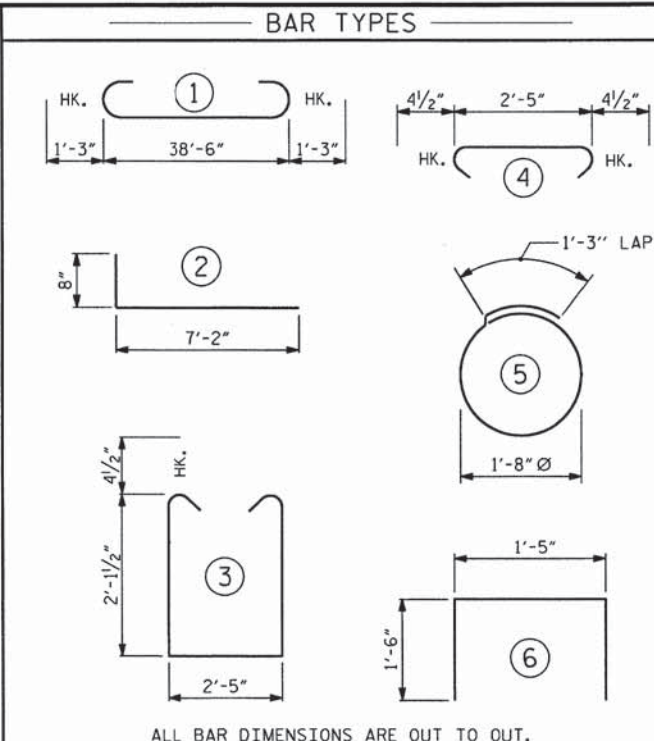
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

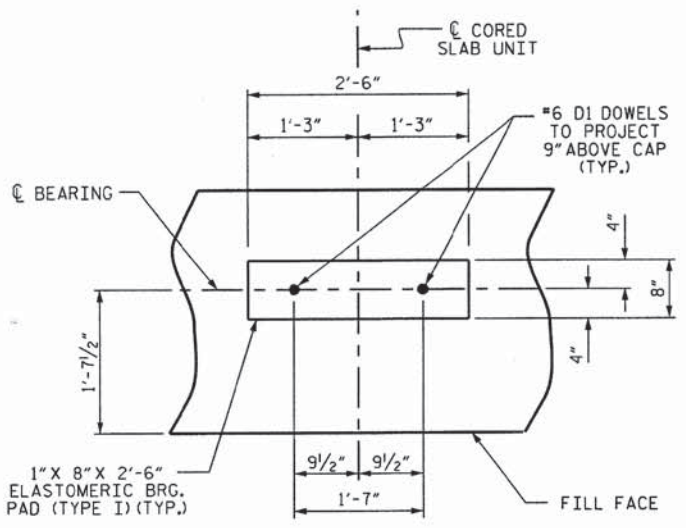


PILE SPLICE DETAILS

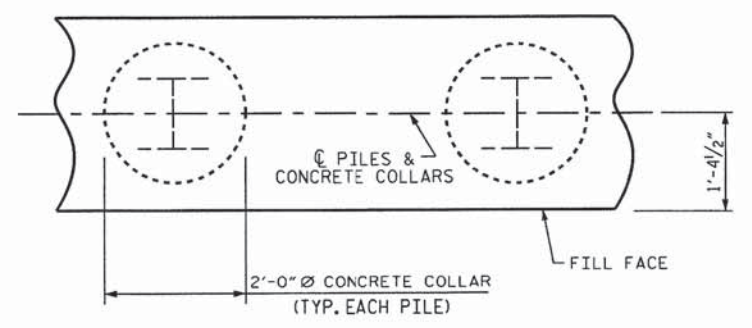
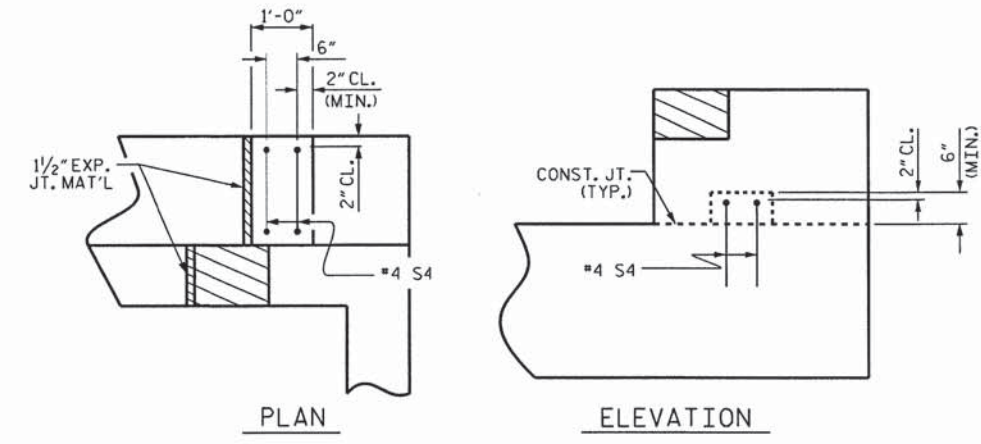


BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#9	1	41'-0"	1115	
B2	#4	STR	20'-7"	220	
B3	#4	STR	2'-5"	16	
D1	#6	STR	1'-6"	50	
H1	#4	2	7'-10"	126	
K1	#4	STR	2'-11"	23	
S1	#4	3	7'-5"	248	
S2	#4	4	3'-2"	106	
S3	#4	5	6'-6"	61	
S4	#4	6	4'-5"	12	
V1	#4	STR	4'-8"	150	
REINFORCING STEEL (FOR ONE END BENT)				2127	LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				12.4	C.Y.
POUR #2 UPPER PART OF WINGS				1.8	C.Y.
POUR #3 LATERAL GUIDES				0.1	C.Y.
TOTAL CLASS A CONCRETE				14.3	C.Y.

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES	385 LIN. FT.	HP 12 X 53 STEEL PILES	385 LIN. FT.
NO: 7		NO: 7	
PILE REDRIVES	4 EA	PILE REDRIVES	4 EA

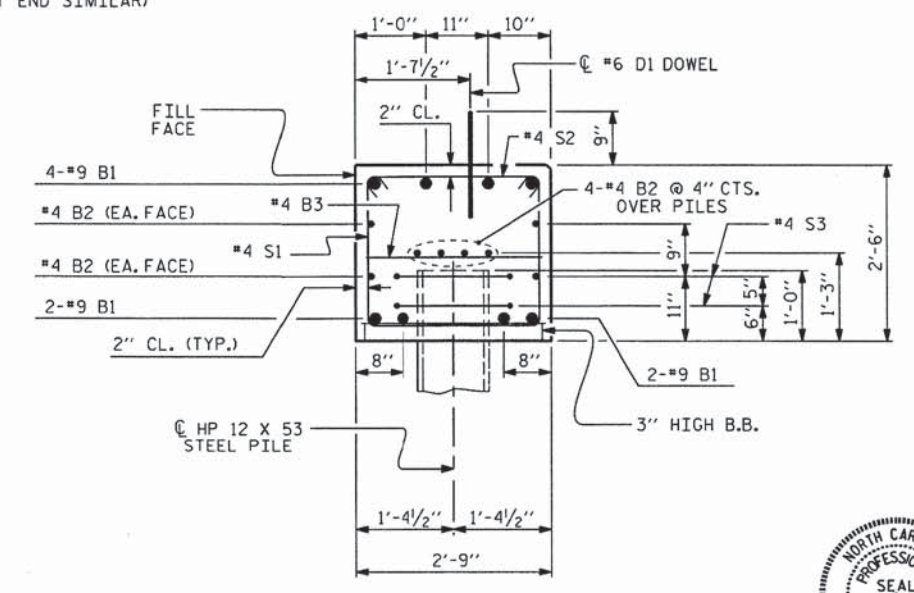
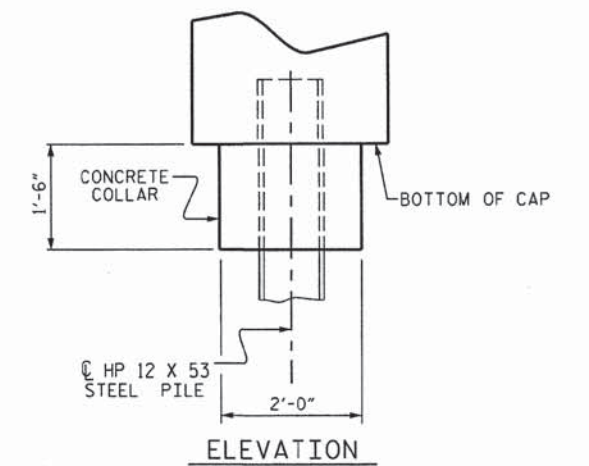


(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



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-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

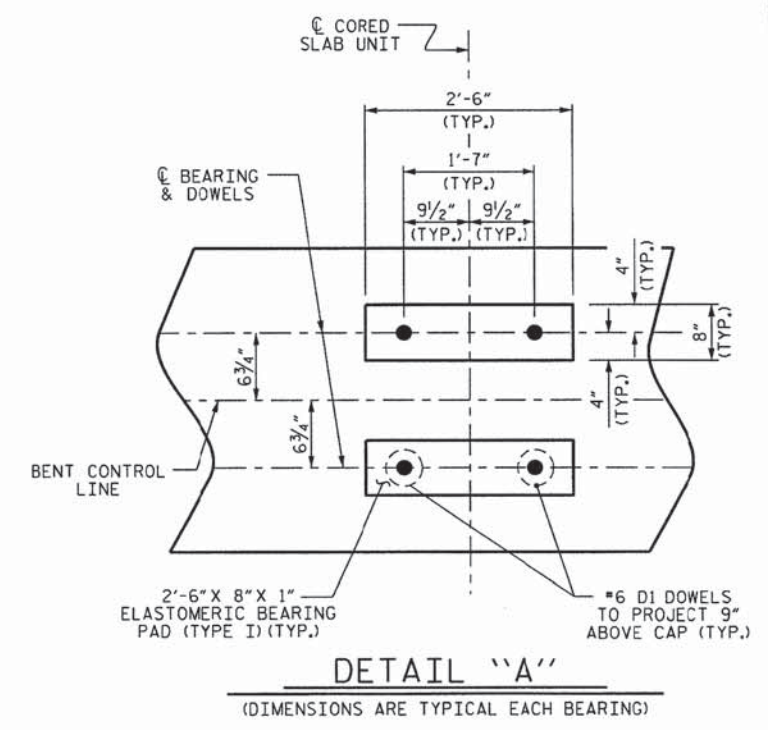
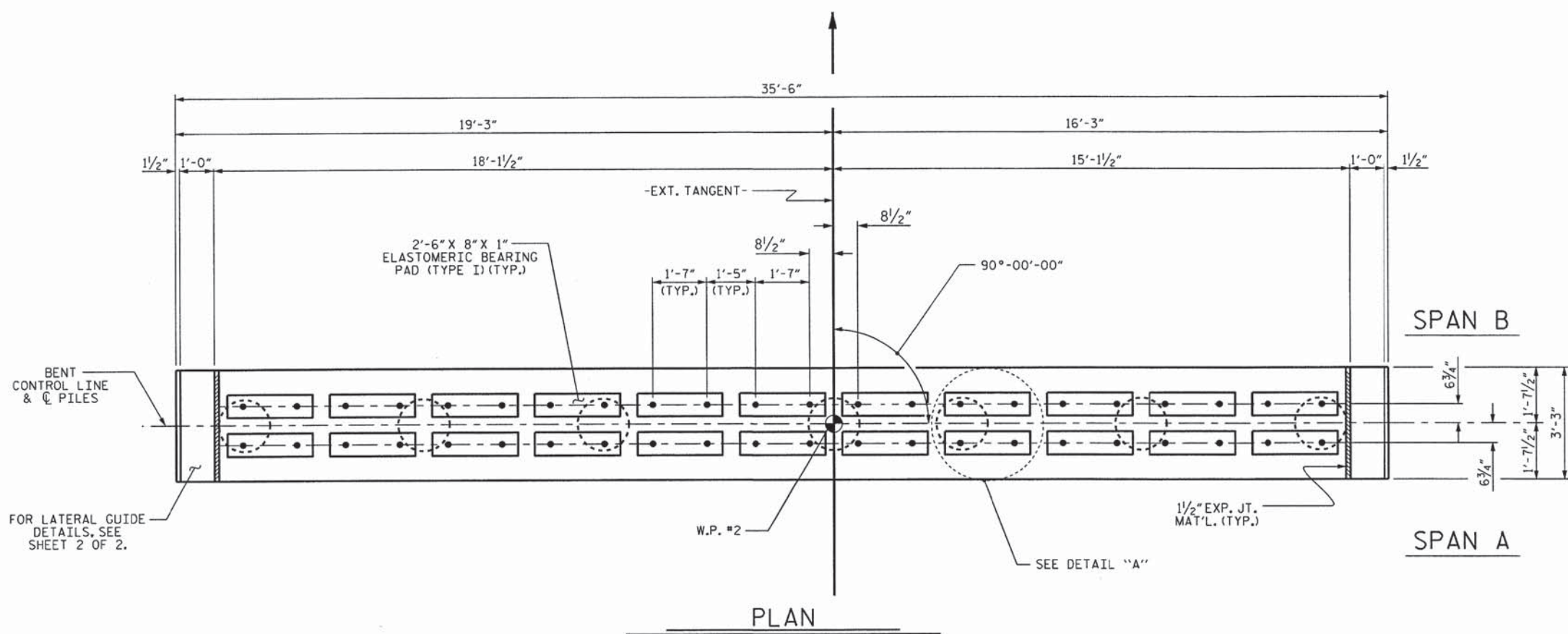
SUBSTRUCTURE
 END BENT No. 1 & 2
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	19
1			3			TOTAL SHEETS 29
2			4			

ASSEMBLED BY: M.M. AHMED DATE: 4-17-13
 CHECKED BY: REZA KOUCHEKI DATE: 4-29-13
 DRAWN BY: DGE 02/10
 CHECKED BY: MKT 02/10

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.
- FOR ADDITIONAL REINFORCING STEEL IN PP 18 x 0.50 GALVANIZED STEEL PILES, SEE SHEET 3 OF 3.
- GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 30.0 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.



TOP OF PILE ELEVATIONS

①	65.30
②	65.47
③	65.52
④	65.78
⑤	65.94
⑥	66.10
⑦	66.25

PROJECT NO. BD-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT No. 1**



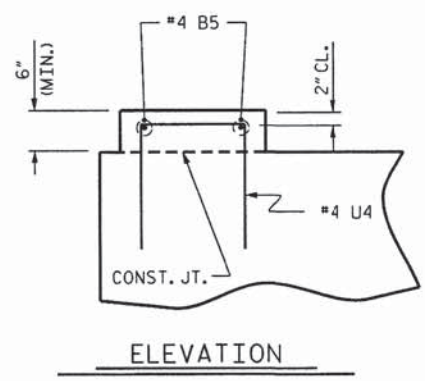
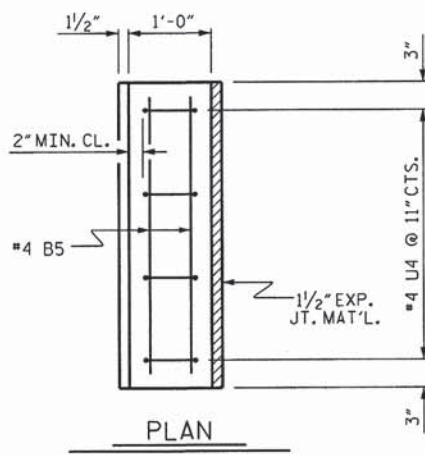
REVISIONS

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

SHEET NO. 20
 TOTAL SHEETS 29

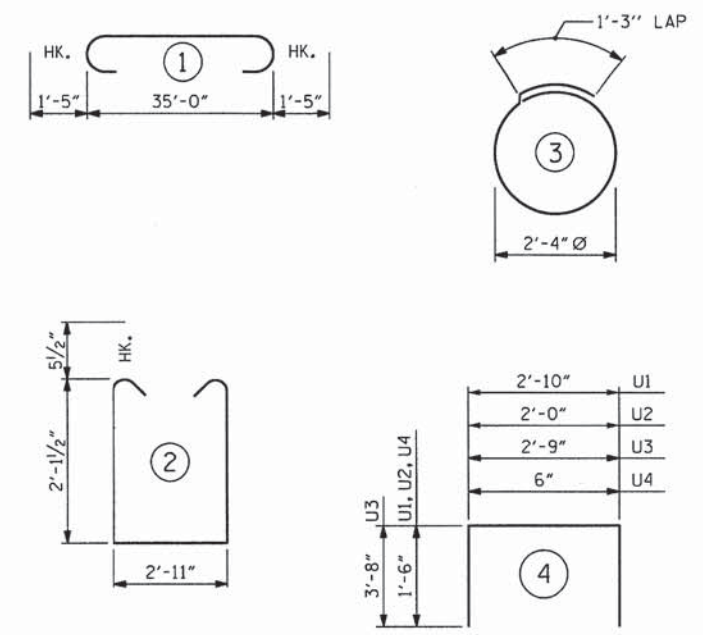
ASSEMBLED BY : M.M. AHMED DATE : 4-23-13
 CHECKED BY : REZA KOUCHEKI DATE : 4-30-13
 DRAWN BY : DCE 06/10
 CHECKED BY : MKT 06/10

ELEVATION
 FOR SECTION A-A, SEE SHEET 2 OF 3



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

BAR TYPES



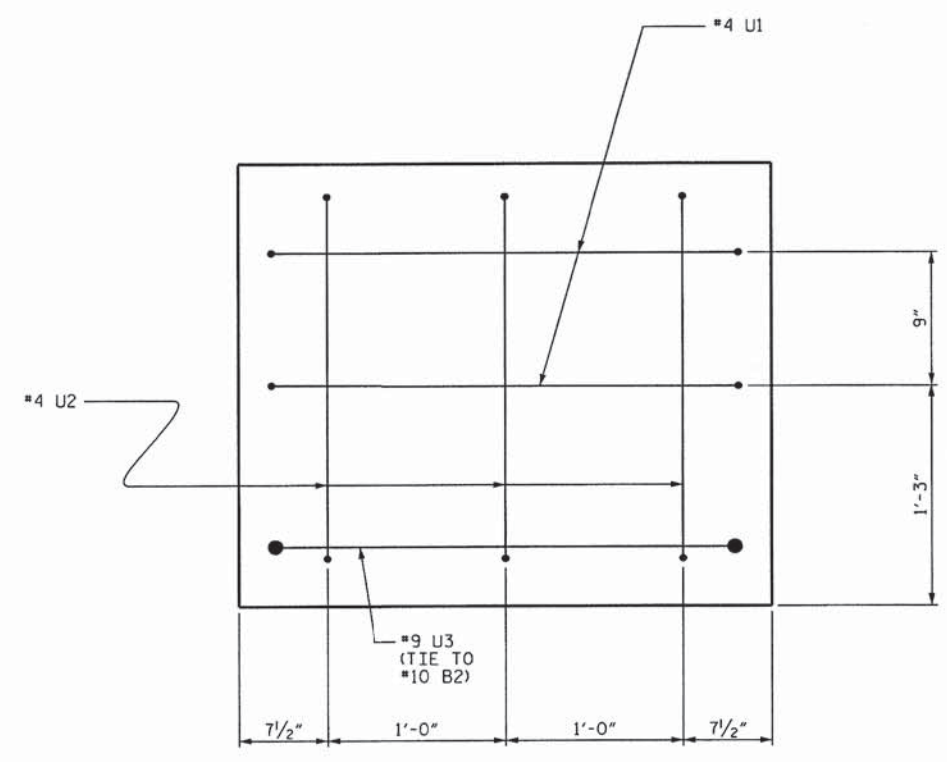
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

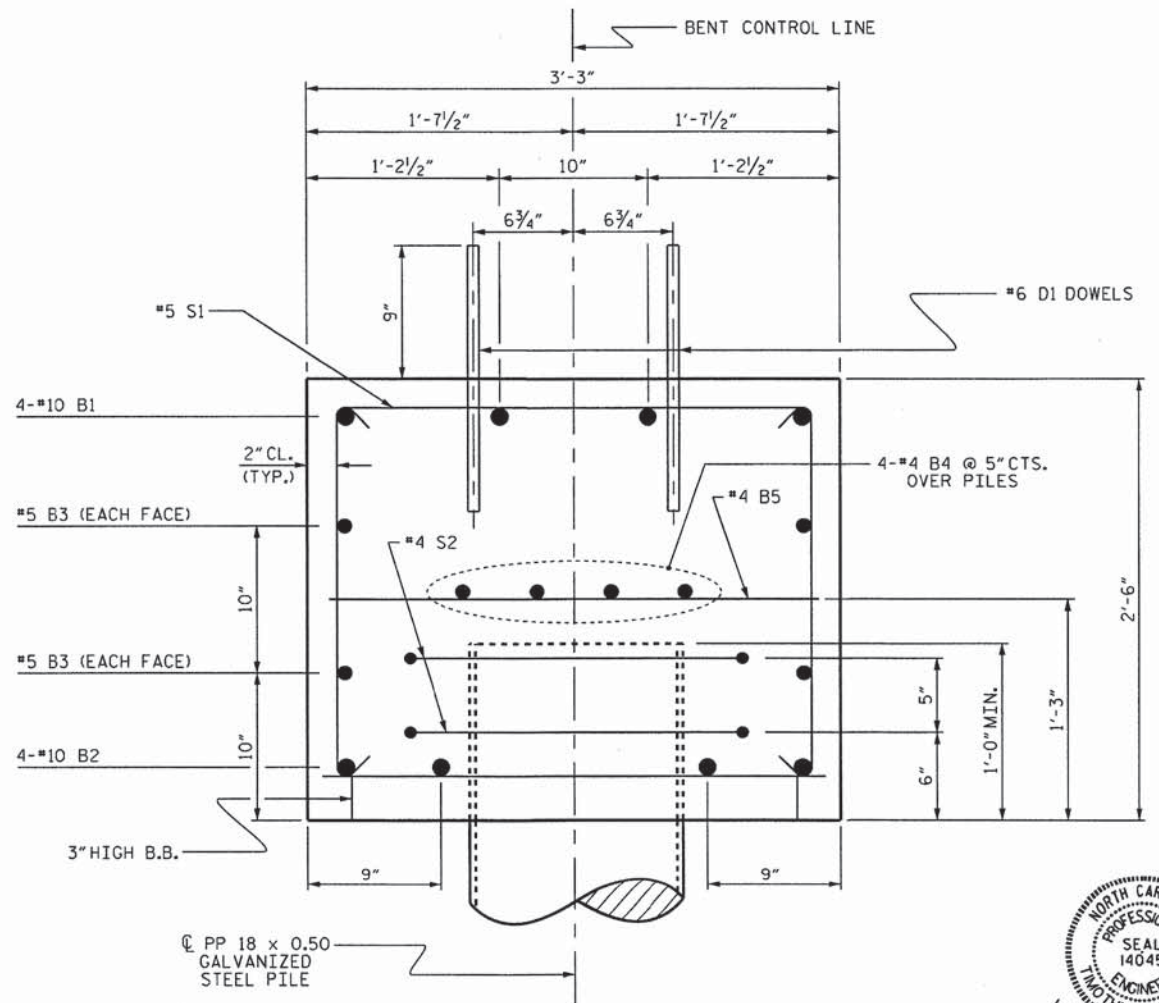
FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37'-10"	651
B2	4	#10	STR	35'-2"	605
B3	4	#5	STR	35'-2"	147
B4	8	#4	STR	18'-10"	101
B5	13	#4	STR	2'-11"	25
D1	44	#6	STR	1'-6"	99
S1	32	#5	2	8'-1"	270
S2	14	#4	3	8'-7"	80
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)				2102 LBS	
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
POUR #1 (CAP)				▲ 10.2 C.Y.	
POUR #2 (LATERAL GUIDES)				0.1 C.Y.	
TOTAL CLASS A CONCRETE				10.3 C.Y.	
PP 18 x 0.50 GALVANIZED STEEL PILES (FOR ONE BENT)					
No. 7				385 LIN. FT.	
PIPE PILE PLATES				No. = 7	
PILE REDRIVES				4 EA.	

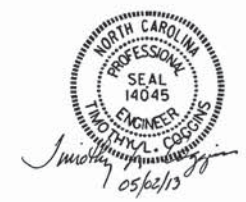
▲ CONCRETE DISPLACED BY THE PP 18 x 0.50 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.



END OF CAP VIEW
(TYPICAL BOTH ENDS)



SECTION A-A



PROJECT NO. BD-5104N
EDGEcombe COUNTY
STATION: 12+95.50 -L-

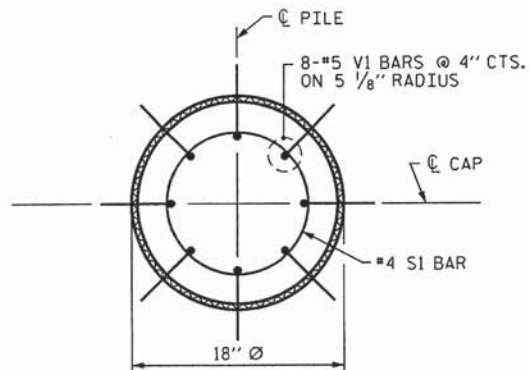
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

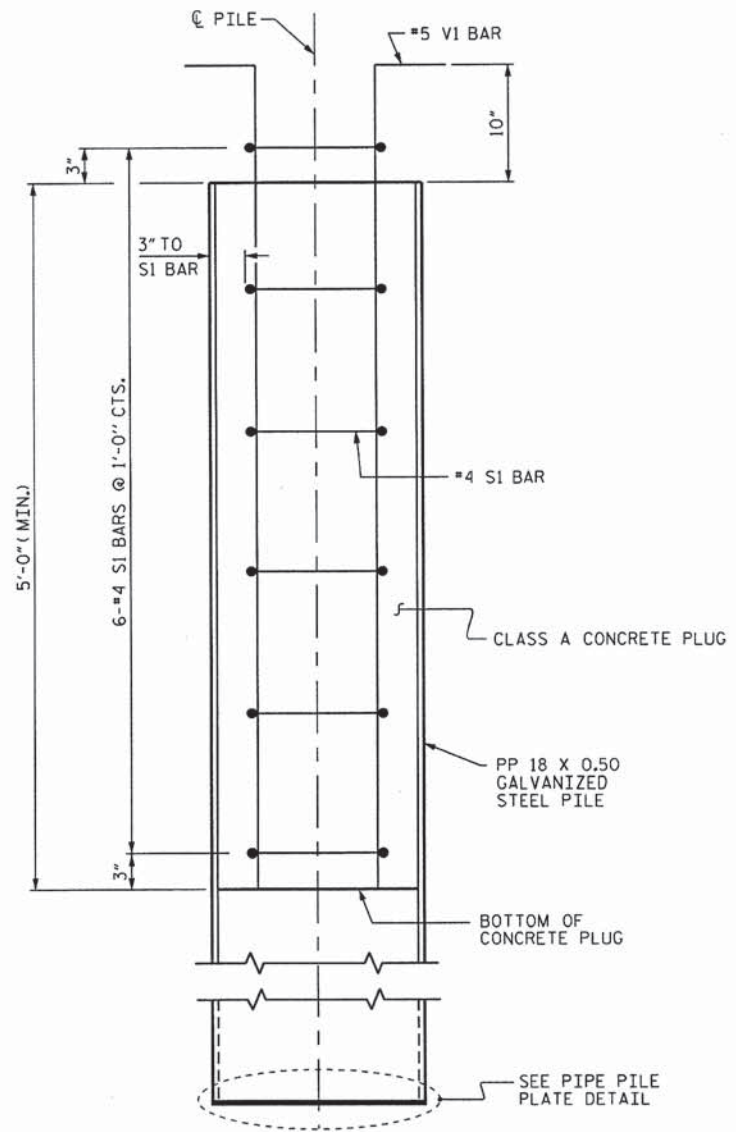
SUBSTRUCTURE
BENT No. 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	21
1			3			TOTAL SHEETS 29
2			4			

DRAWN BY : M.M. AHMED DATE : 4-23-13
CHECKED BY : REZA KOUCHEKI DATE : 4-30-13
DRAWN BY : DCE 06/10
CHECKED BY : MKT 06/10

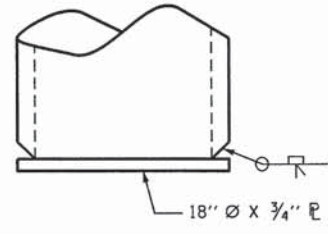


PLAN

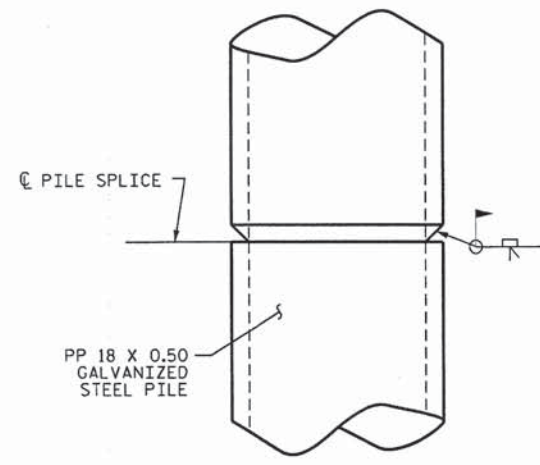


ELEVATION

PP 18 X 0.50 GALVANIZED STEEL PILE
(CLOSED END)



PIPE PILE PLATE DETAIL



PIPE PILE SPLICE DETAIL

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

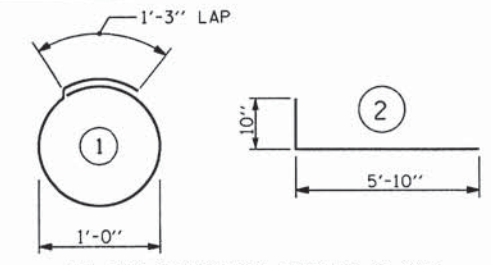
THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 18 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE
PP 18 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	4'-5"	18
V1	8	#5	2	6'-8"	56
REINFORCING STEEL =					74 lbs

CLASS A CONCRETE
5'-0" MINIMUM PLUG 0.3 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

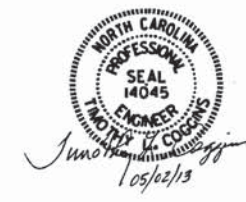
PROJECT NO. BD-5104N
EDGEcombe COUNTY
STATION: 12+95.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

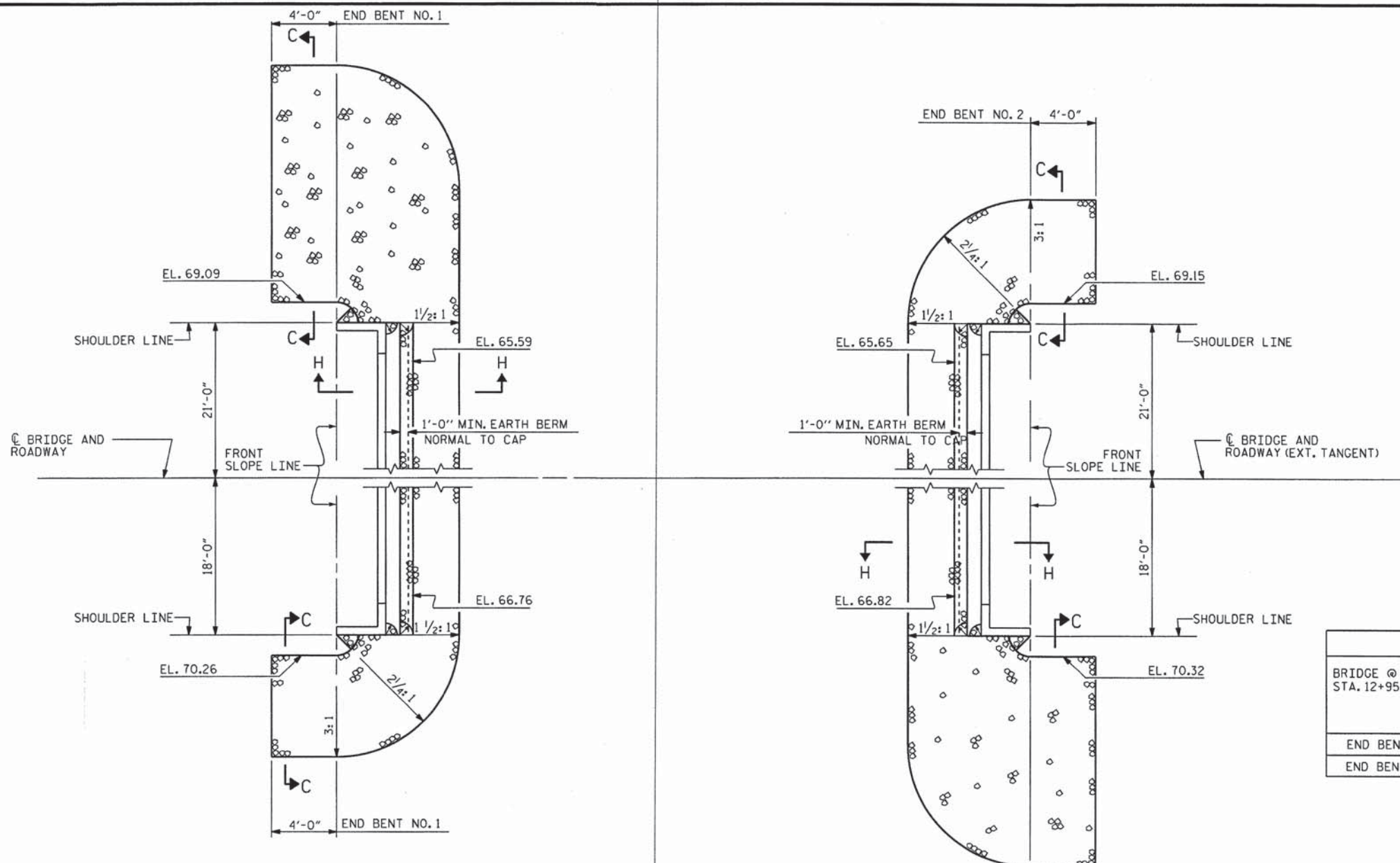
STANDARD
18" STEEL PIPE PILE

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	22	
1			3			TOTAL SHEETS	
2			4			29	



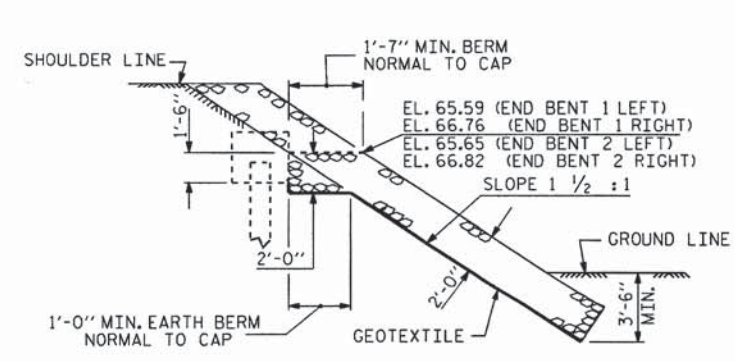
ASSEMBLED BY: M.M. AHMED DATE: 4-23-13
CHECKED BY: REZA KOUCHEKI DATE: 4-23-13
DRAWN BY: RWW 1/01 REV. 10/1/05 LBG/TLA
CHECKED BY: LES 1/01 REV. 5/1/06R MAA/KMM
REV. 10/1/11 MAA/GM

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

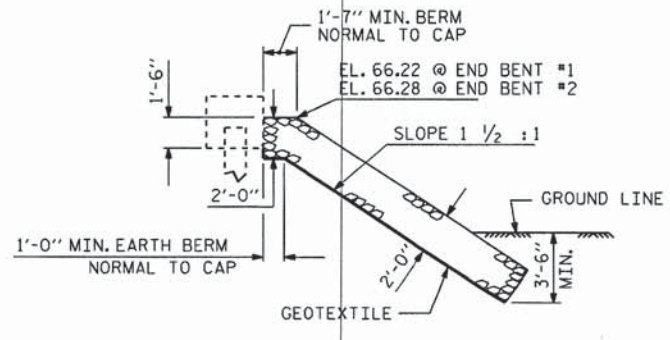


ESTIMATED QUANTITIES		
BRIDGE @ STA. 12+95.50 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	213	237
END BENT 2	174	193

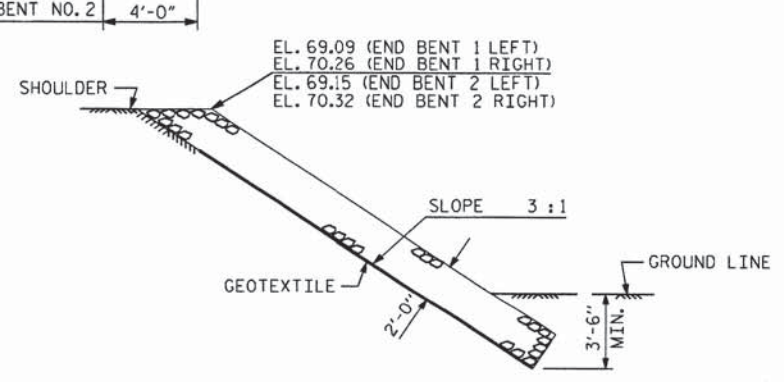
SHOULDER RIP RAP IS HIGHER THAN BERM RIP RAP



SECTION H-H



SECTION C-C
BERM RIP RAPPED



SECTION C-C

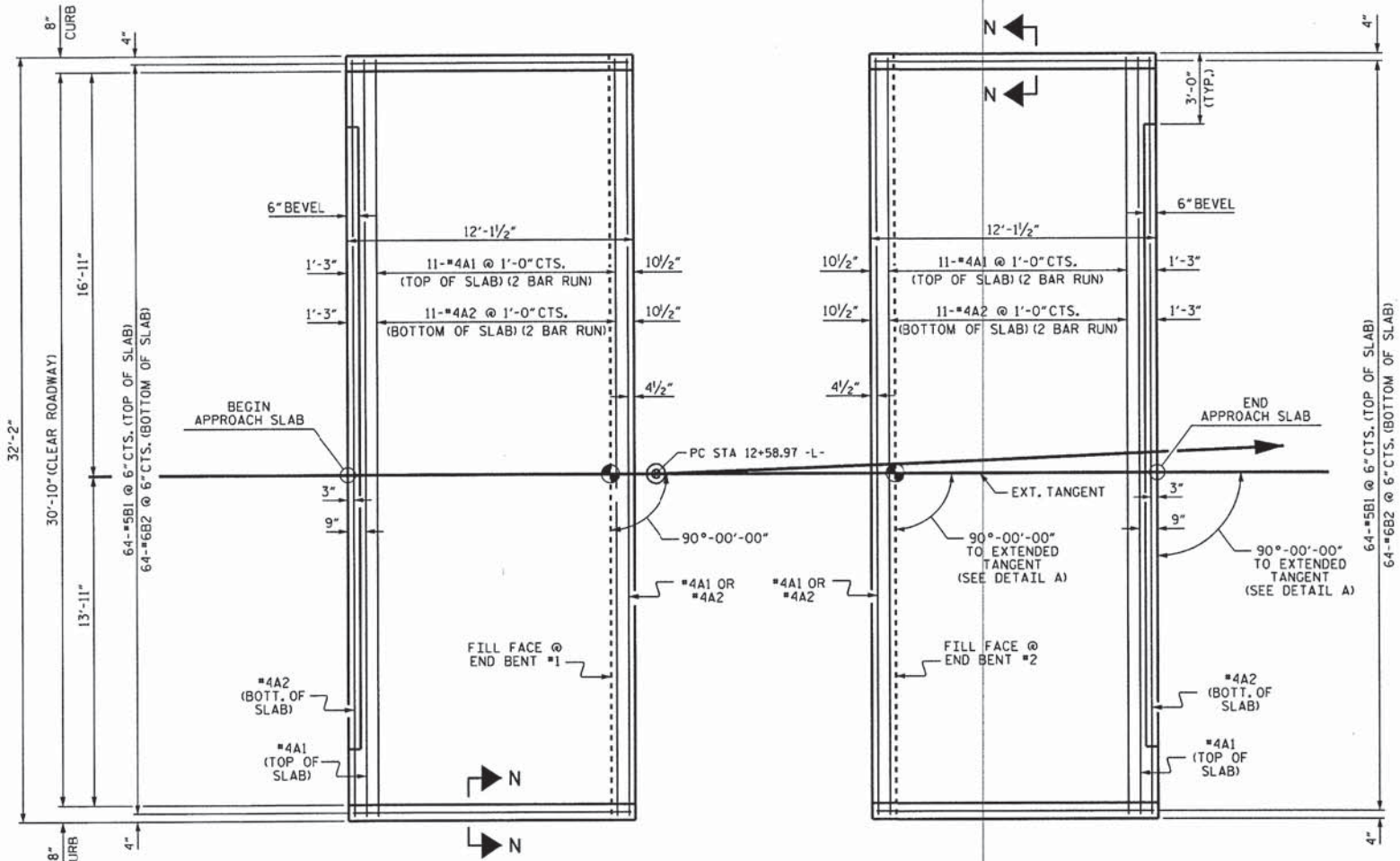
PROJECT NO. BD-5104N
EDGEcombe COUNTY
STATION: 12+95.50 -L-

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

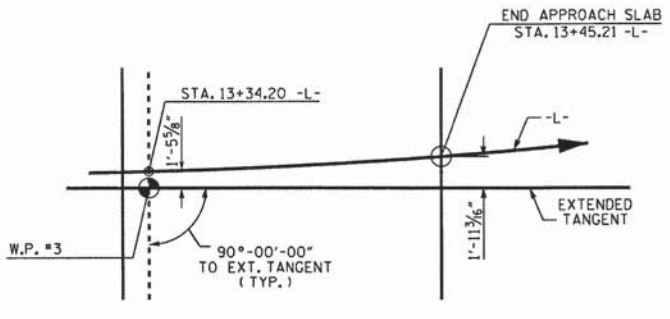


ASSEMBLED BY : M.M. AHMED DATE : 4-19-13
CHECKED BY : REZA KOUCHEKI DATE : 4-30-13
DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84 REV. 10/1/11 MAA/GM
REV. 12/21/11 MAA/GM

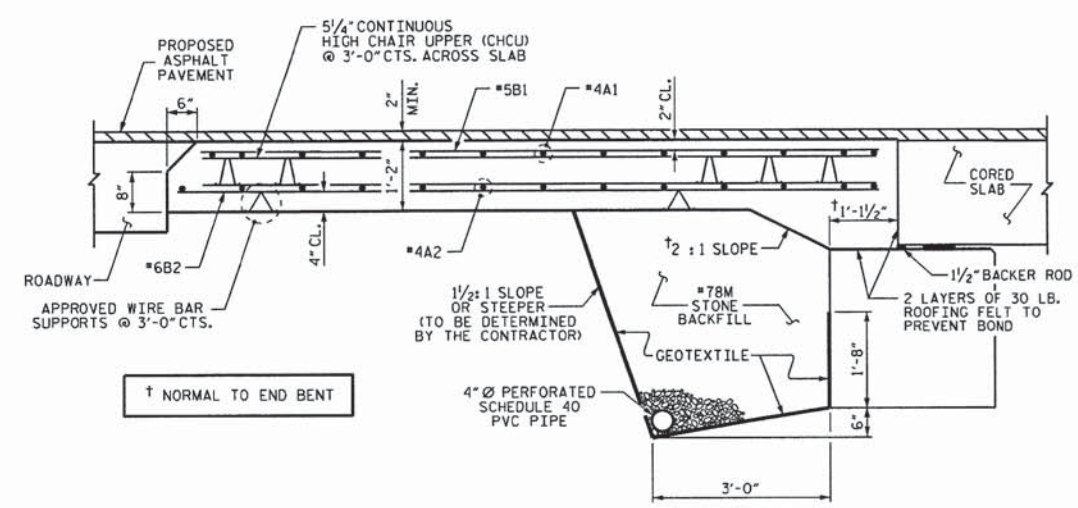
REVISIONS						SHEET NO. 23
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 29
2			4			



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



DETAIL A

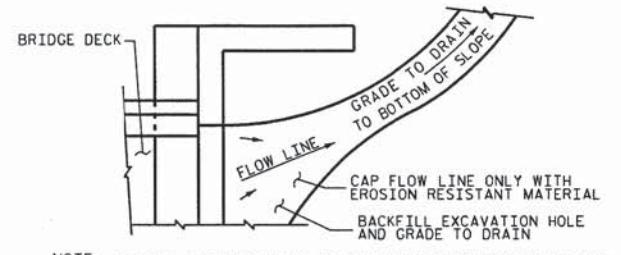


SECTION THRU SLAB

ASSEMBLED BY: M.M. AHMED DATE: 4-17-13
 CHECKED BY: REZA KOUCHEKI DATE: 4-30-13
 DRAWN BY: SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY: BCH 5-09

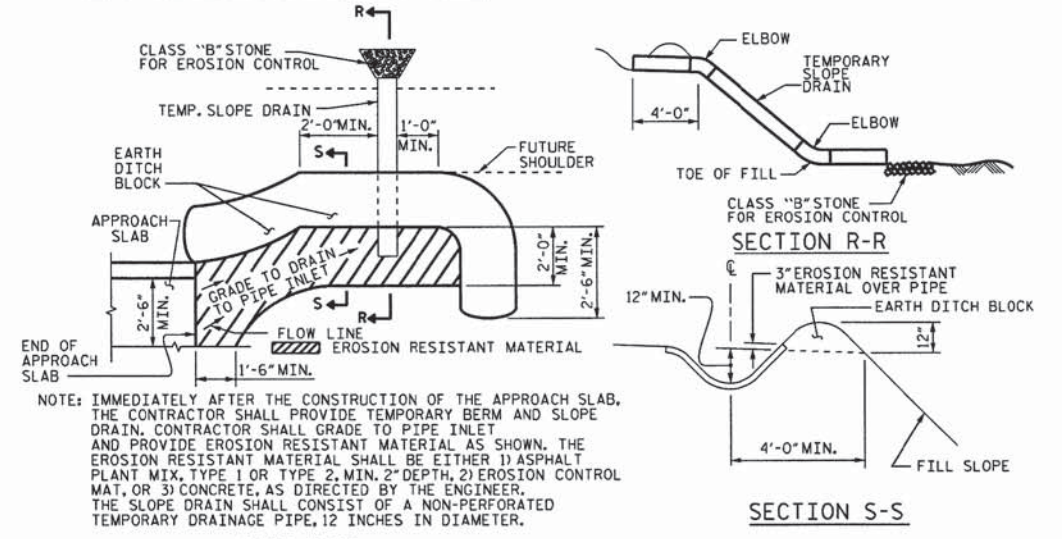
NOTES

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.



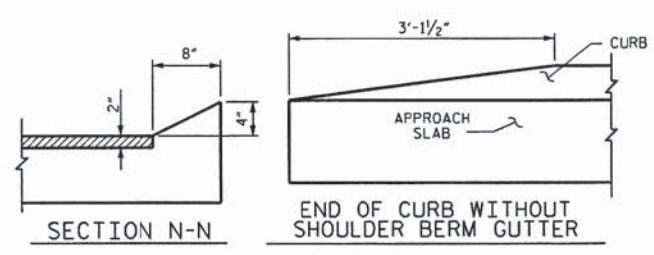
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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\"/>

PLAN VIEW
 TEMPORARY BERM AND SLOPE DRAIN DETAILS
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N
 SECTION S-S
 END OF CURB WITHOUT SHOULDER BERM GUTTER
 CURB DETAILS

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



BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
*EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	18.6
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
*EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	18.6

PROJECT NO. BD-5104N
EDGEcombe COUNTY
 STATION: 12+95.50 -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						TOTAL SHEETS
NO.	BY	DATE	NO.	BY	DATE	24
1			3			29
2			4			

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. FINISHES 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.

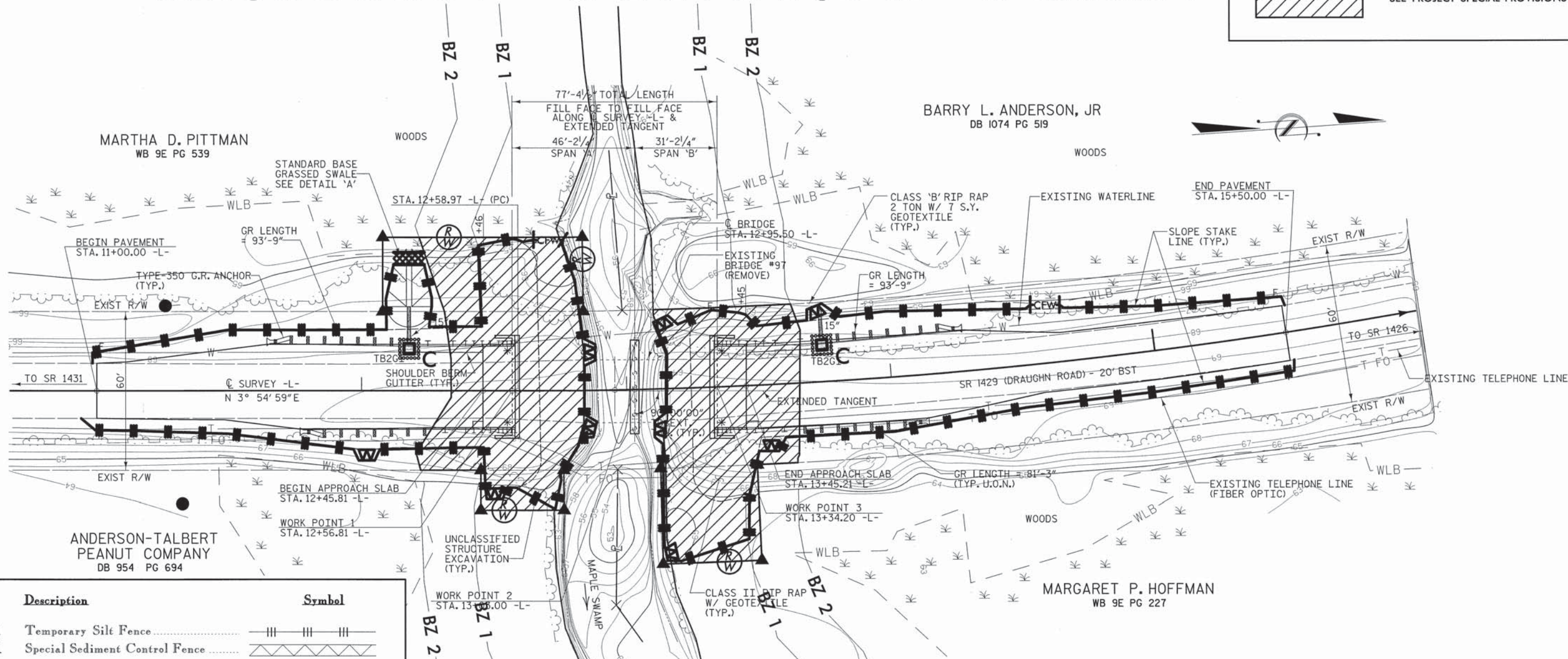
SPECIAL NOTES:

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



BARRY L. ANDERSON, JR
DB 1074 PG 519



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 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.

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	

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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-5104N
EDGEcombe COUNTY
STATION: 12+95.50 -L-

REPLACES BRIDGE NO. 97
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BRIDGE ON SR 1429
OVER MAPLE SWAMP
BETWEEN SR 1431
& SR 1426
30'-10" CLEAR ROADWAY - 90° SKEW

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

EC-1
TOTAL SHEETS
29

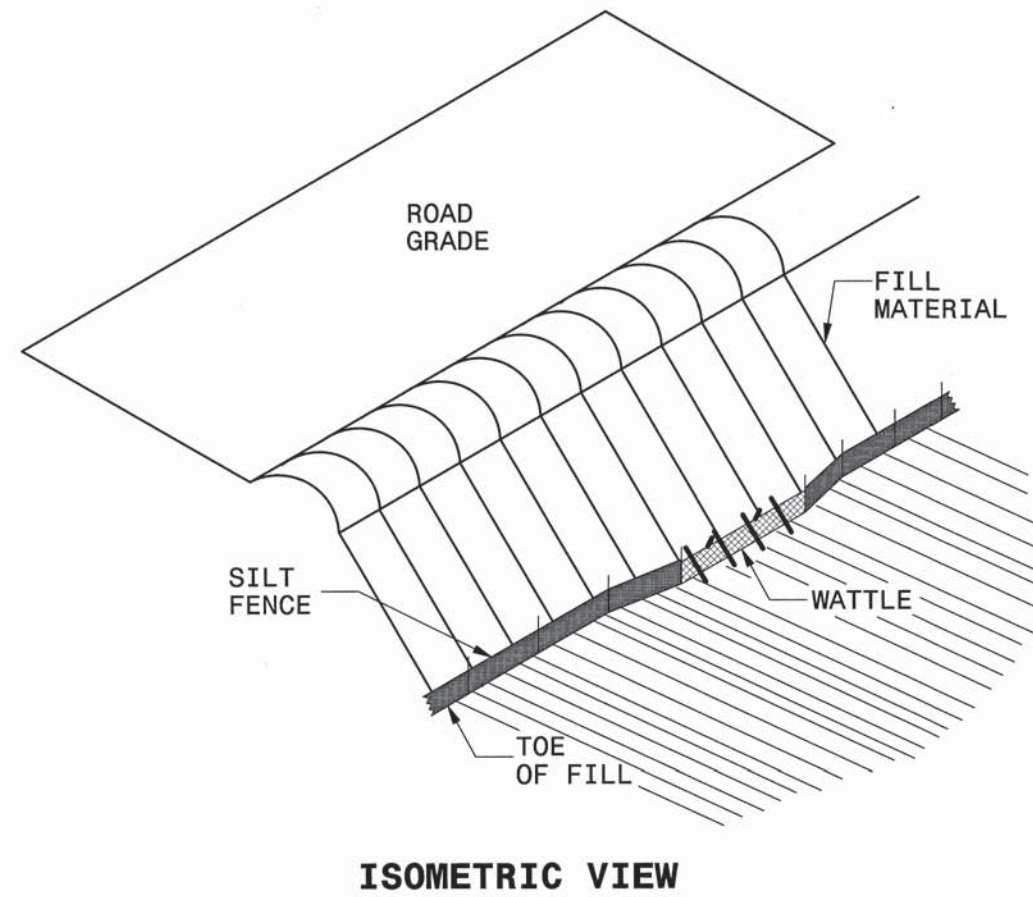
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SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. BD-5104N	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

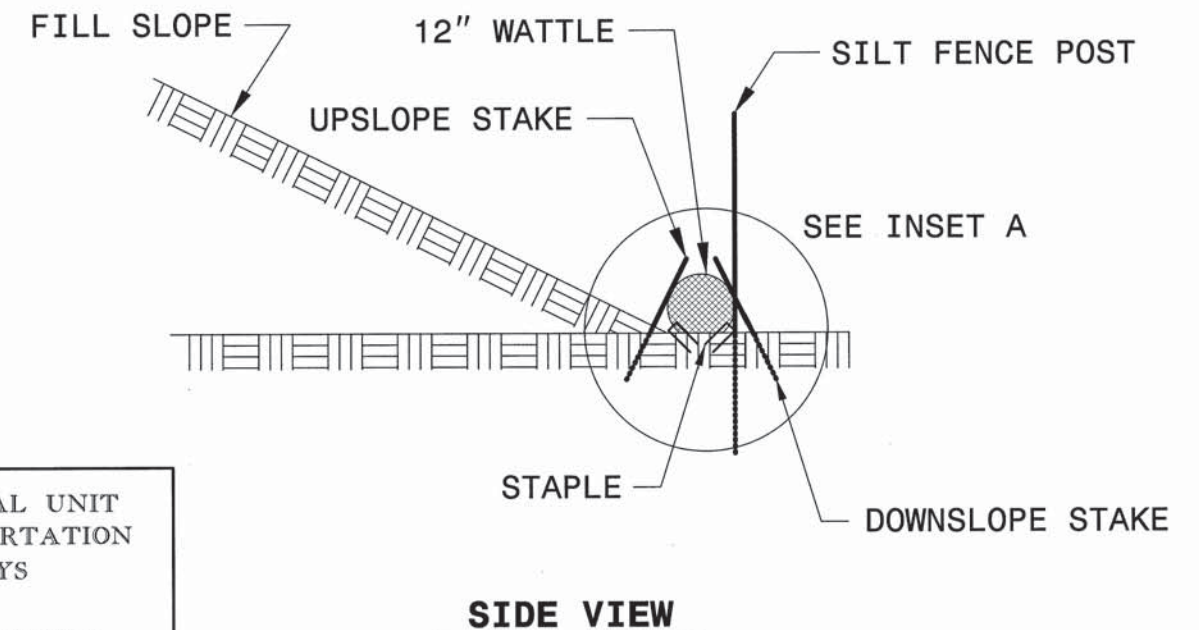
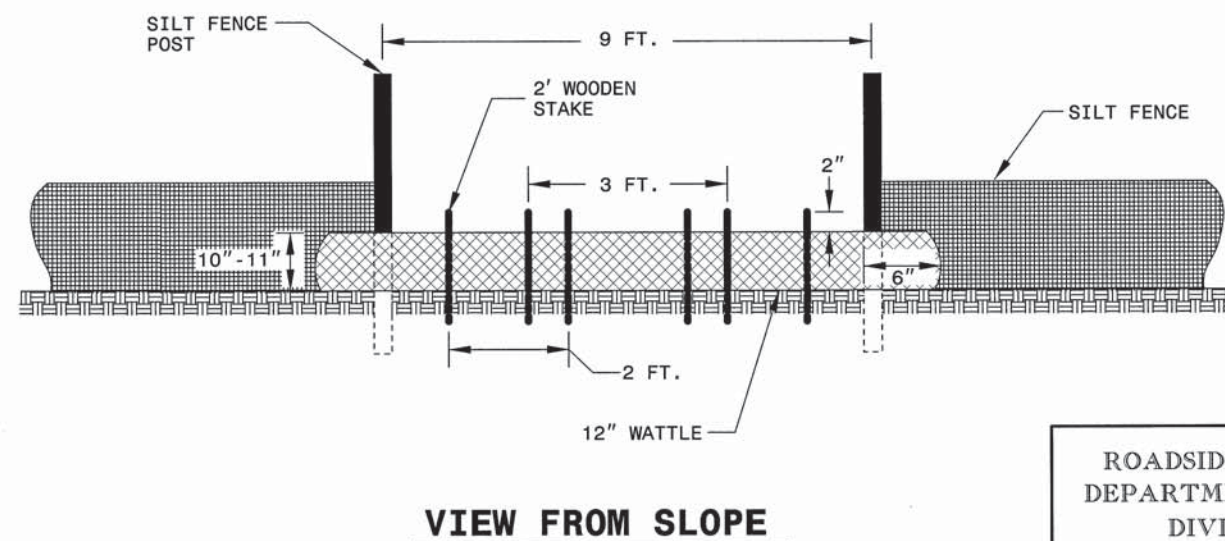
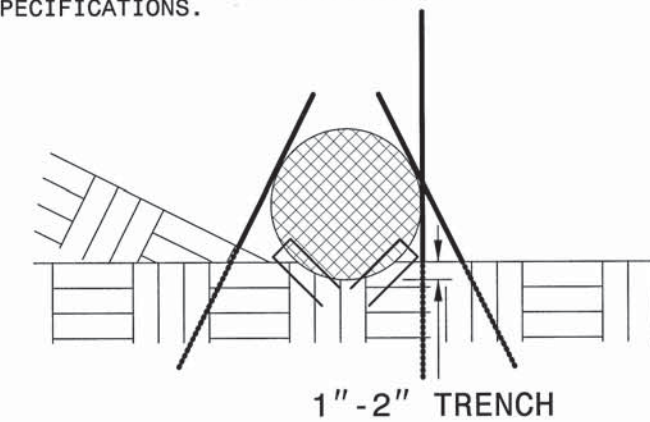
ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.



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.

INSET A



ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
2012 STANDARD SPECIFICATIONS

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>BD-5104N</i>	SHEET NO. <i>EC-3</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.

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.

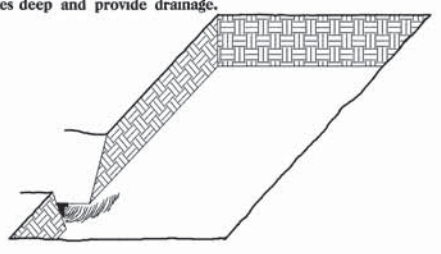
2012 STANDARD SPECIFICATIONS

PLANTING DETAILS

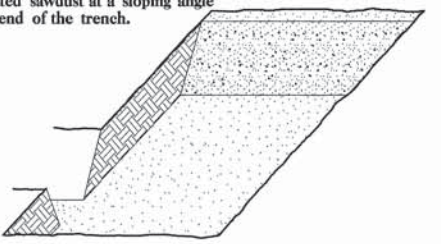
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

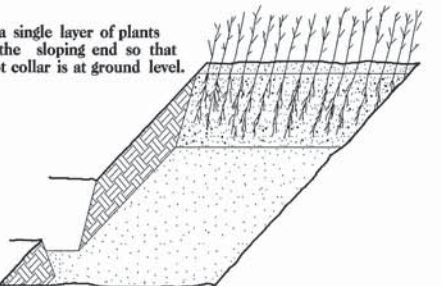
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



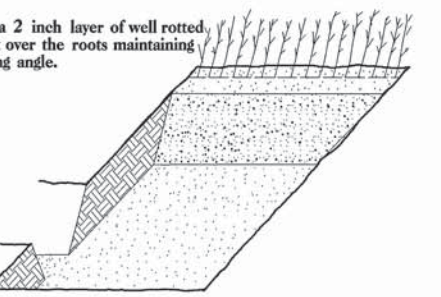
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

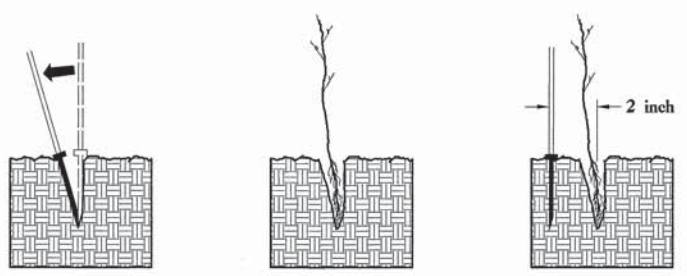


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.



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

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

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT