

09.02.2026

TIP PROJECT: B-5995

CONTRACT: C204742

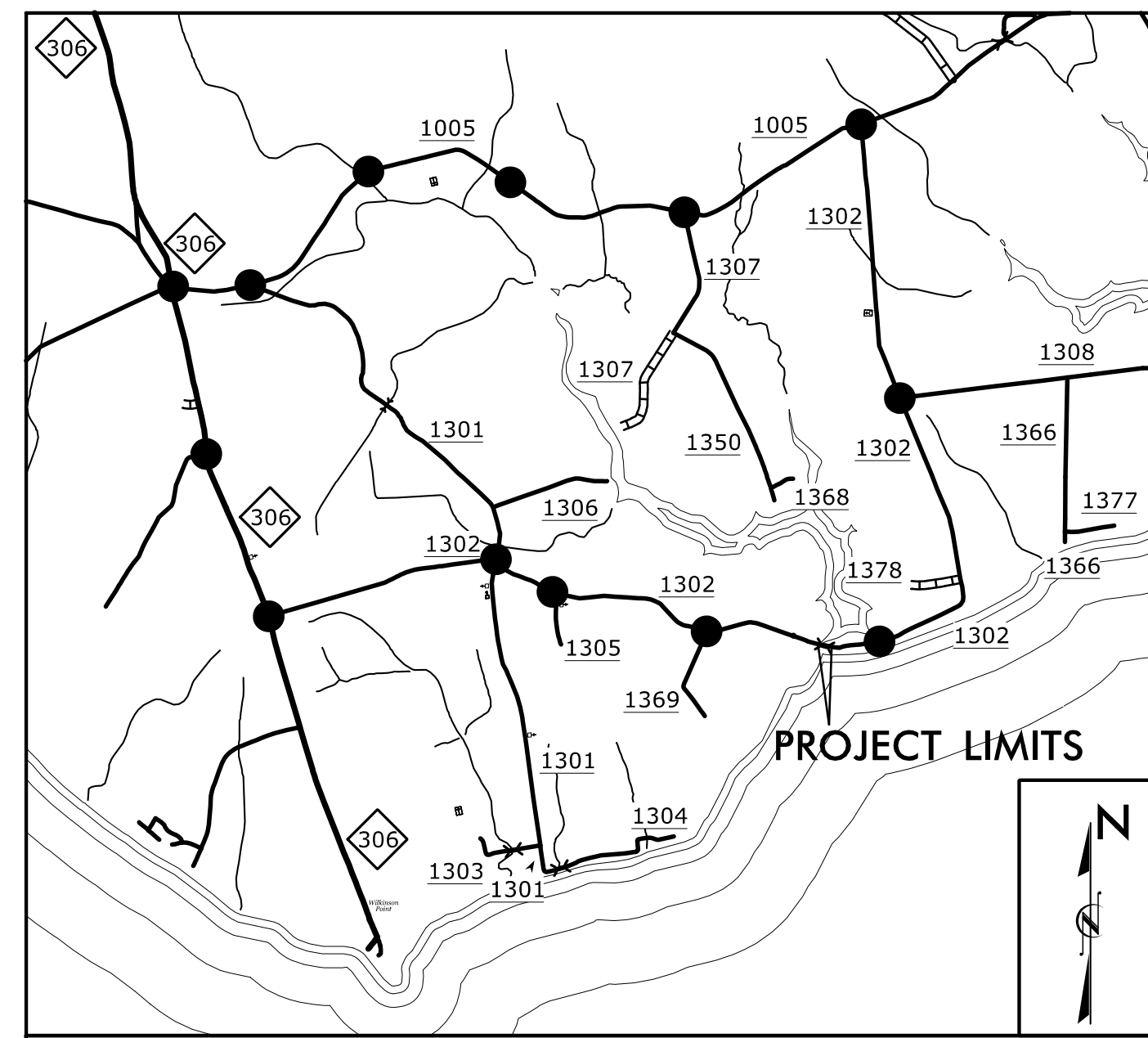
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAMLICO COUNTY

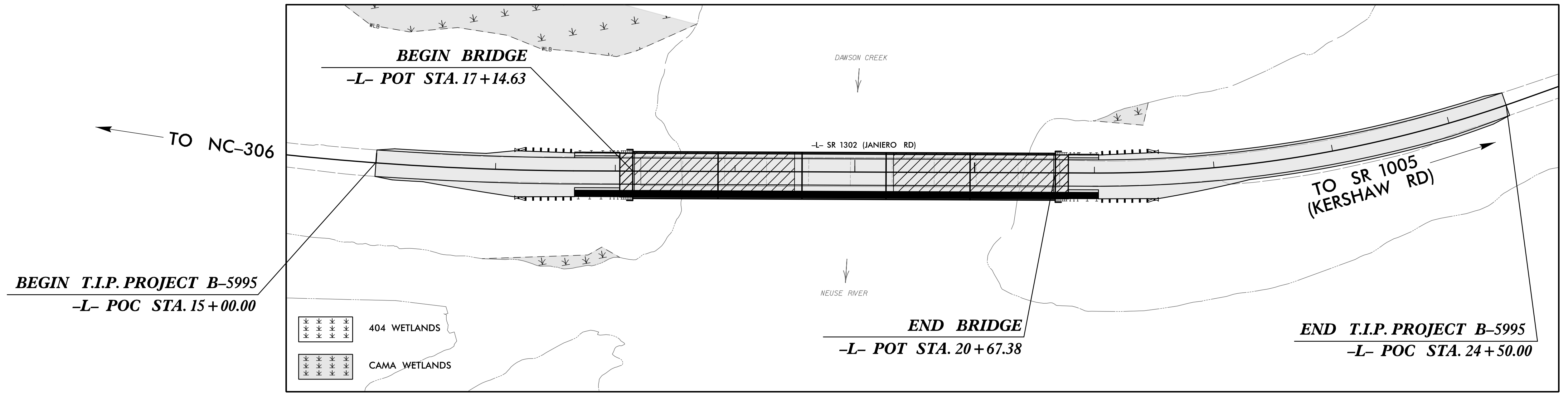
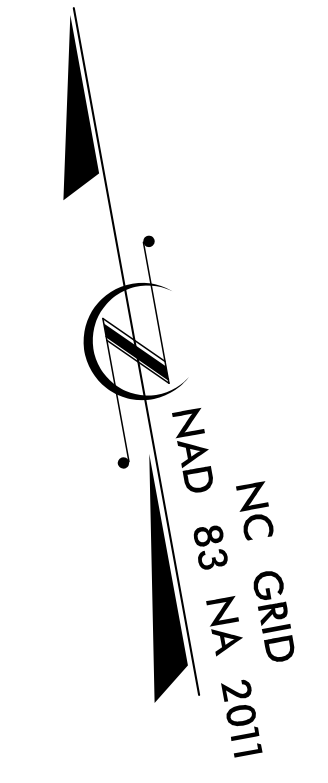
**LOCATION: REPLACE BRIDGE NO. 57 OVER DAWSON CREEK
ON SR 1302 (JANIERO RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5995	S-0	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48190.1.1	BRZ-1302(083)	PE	
48190.2.1	BRZ-1302(083)	ROW/UTIL	
48190.3.1	BRZ-1302(083)	CONSTRUCTION	



VICINITY MAP ● — ● — ● **OFFSITE DETOUR**



STRUCTURE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2026 =	400
ADT 2046 =	800
K =	10 %
D =	60 %
T =	6 % *
V =	50 MPH
* TTST =	2% DUAL 4%
FUNC CLASS =	MINOR COLLECTOR
SUB REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT B-5995 =	0.113 MILES
LENGTH OF STRUCTURE T.I.P. PROJECT B-5995 =	0.067 MILES
TOTAL LENGTH OF T.I.P. PROJECT B-5995 =	0.180 MILES

PREPARED IN THE OFFICE OF:
HNTB
HNTB NORTH CAROLINA, P.C.
4000 Center at North Hills St
Suite 500
Raleigh, North Carolina 27609
NC License No: C-1554
FOR NCDOT DIVISION 2

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 10, 2022

LETTING DATE:
JUNE 16, 2026

ROY H. TELLIER, PE
PROJECT ENGINEER

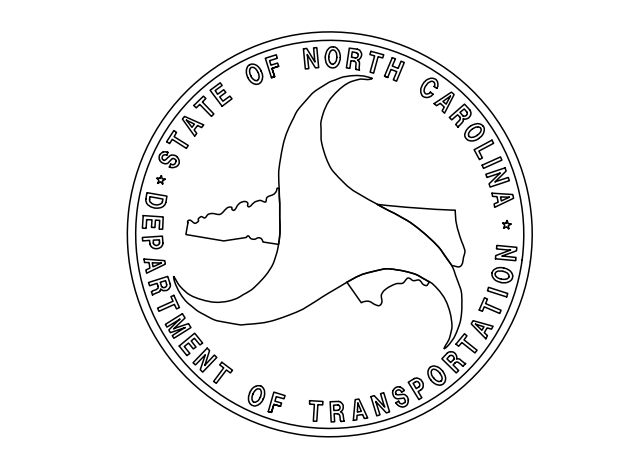
MICHAEL C. AMAN, PE
NCDOT CONTACT

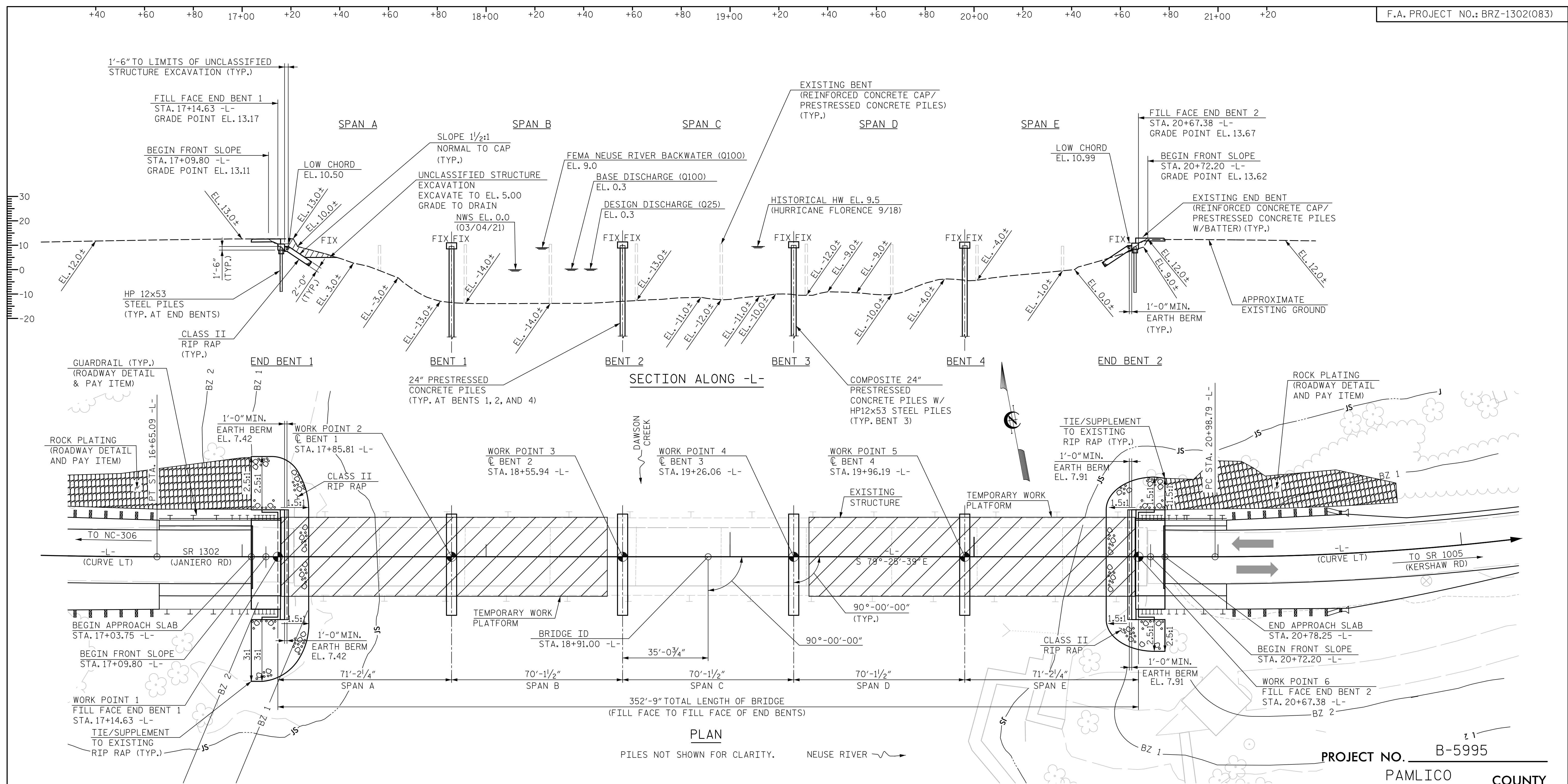
STRUCTURES ENGINEER

Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27812 3/9/2026

Signed by: **David W. Hawkins** P.E.

SIGNATURE: _____ P.E.

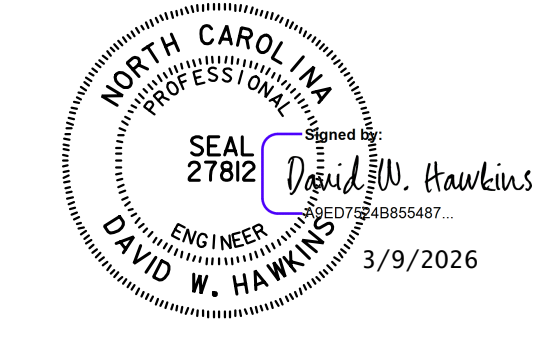




PROJECT NO. **B-5995**
PAMLICO COUNTY
 STATION: **18+91.00 -L-**

SHEET 1 OF 2 REPLACES BRIDGE NO. 0057

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR
 BRIDGE ON SR 1302 OVER
 DAWSON CREEK BETWEEN
 NC-306 AND SR 1005



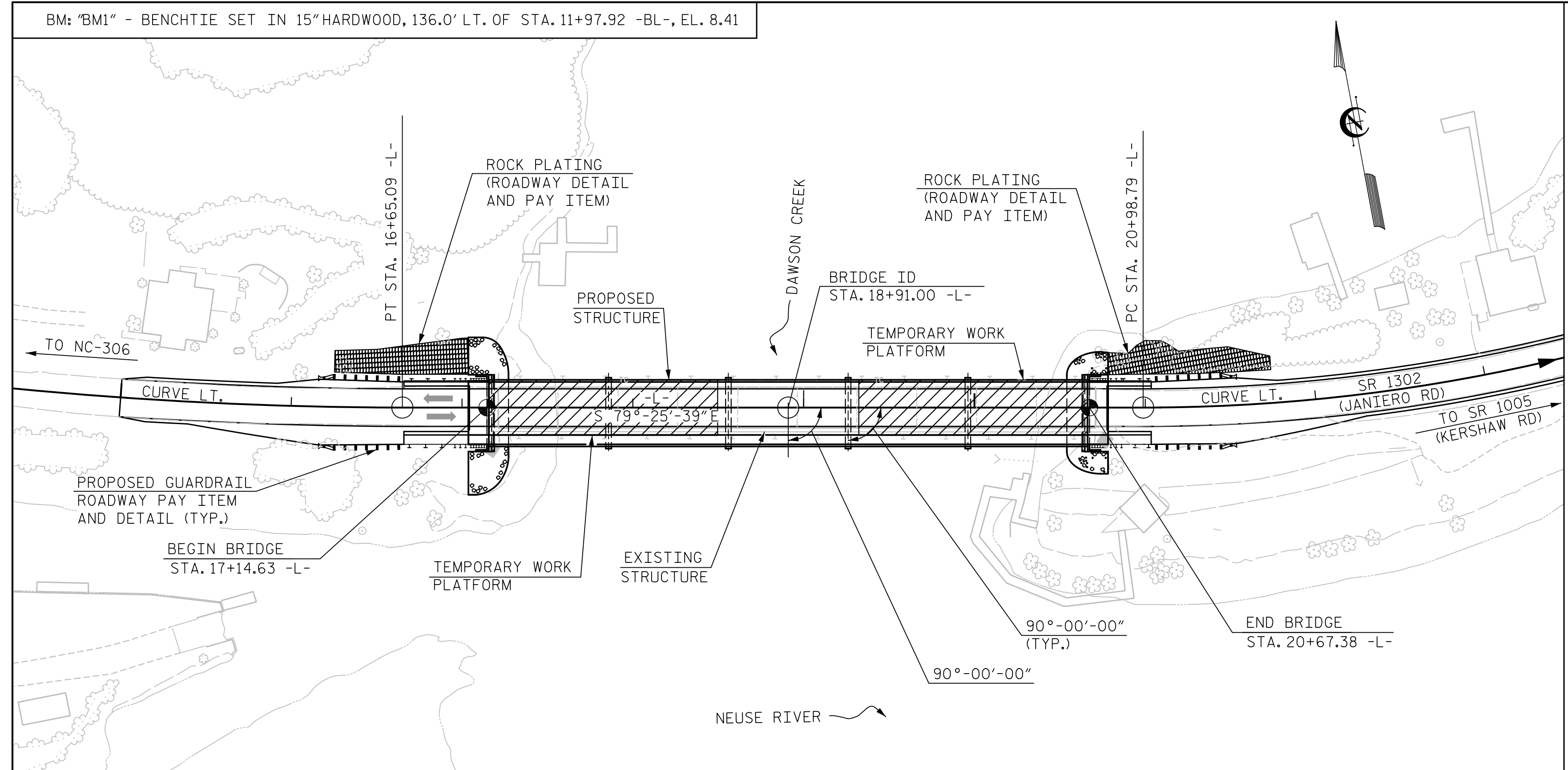
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-1
1			3			TOTAL SHEETS
2			4			25

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



LOCATION SKETCH
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STATION 18+91.00 -L-	REMOVAL OF EXISTING STRUCTURE AT STATION 18+91.00 -L-	ASBESTOS ASSESSMENT	DYNAMIC PILE TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 18+91.00 -L-	CLASS AA CONCRETE	BRIDGE APPROACH SLABS AT STATION 18+91.00 -L-	EPOXY COATED REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR 24" P/S CONC. PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	24" PRESTRESSED CONC. PILES	
	LUMP SUM	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	EACH	NO.	LIN. FT.
SUPERSTRUCTURE	---	---	---	---	---	59.7	LUMP SUM	2,508	---	---	---	---
END BENT 1	---	---	---	---	LUMP SUM	16.0	---	2,281	---	7	---	---
BENT 1	---	---	---	---	---	14.8	---	2,898	8	---	8	840
BENT 2	---	---	---	---	---	14.8	---	2,898	8	---	8	840
BENT 3	---	---	---	---	---	14.8	---	2,898	8	---	8	480
BENT 4	---	---	---	---	---	14.8	---	2,898	8	---	8	480
END BENT 2	---	---	---	---	---	16.0	---	2,281	---	7	---	---
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	4	LUMP SUM	150.9	LUMP SUM	18,662	32	14	32	2,640

TOTAL BILL OF MATERIAL

	HP 12x53 STEEL PILES	PREDRILLING FOR PILES	PILE REDRIVES	TWO BAR METAL RAIL	1'-2"x2'-9 3/16" CONCRETE PARAPET	1'-2"x3'-4 7/8" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x2'-0" PRESTRESSED CONCRETE CORED SLABS	
	NO.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE	---	---	---	---	686.00	350.50	---	---	LUMP SUM	65	4,550
END BENT 1	7	665	---	---	---	---	195	215	---	---	---
BENT 1	---	---	68	---	---	---	---	---	---	---	---
BENT 2	---	---	276	---	---	---	---	---	---	---	---
BENT 3	8	56	---	---	---	---	---	---	---	---	---
BENT 4	---	---	128	---	---	---	---	---	---	---	---
END BENT 2	7	490	---	---	---	---	135	150	---	---	---
TOTAL	22	1,211	472	24	686.00	350.50	330	365	LUMP SUM	65	4,550

NOTE: SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND fy = 60ksi.

SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

GENERAL DRAWING 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.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

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.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

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 AT STATION 18+91.00 -L-."

ALL METALIZED SURFACES SHALL RECEIVE A SEAL COATING AS SPECIFIED IN TABLE 2 OF THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT CAPS AND BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

ALL BAR SUPPORTS USED IN THE PARAPET, SIDEWALK, AND BENT CAPS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE 24" PRESTRESSED CONCRETE PILES, END BENT CAPS AND BENT CAPS SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30,000 FT-LBS PER BLOW TO 60,000 WILL BE REQUIRED TO DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 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 59,500 FT-LBS PER BLOW TO 107,500 WILL BE REQUIRED TO DRIVE PILES AT BENT NO. 1 THROUGH 4. 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.

SPODDING MAY BE USED INSTEAD OF PREDRILLING AT BENT NO. 1, 2, AND 4.

FOR BENT NO. 3 AND BENT NO. 4, PERFORM DPT AT THE RIGHT SIDE OF BENT NO. 3 AND AT THE LEFT SIDE OF BENT NO. 4.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 19'-3" LEFT OF CENTERLINE ROADWAY AND A DISTANCE OF 25'-9" RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING TEN SPAN STRUCTURE WITH SPAN LENGTHS OF 35'-0", WITH 5 LINES W27X84 I-BEAMS WITH A 32'-5" OUT TO OUT DECK WIDTH ON REINFORCED CONCRETE DECK AND REINFORCED CONCRETE CAPS/PRESTRESSED CONCRETE PILES SHALL BE REMOVED. IN ADDITION, ANY PILES REMAINING FROM PREVIOUS BRIDGE CONSTRUCTION OR MAINTENANCE OPERATIONS SHALL BE REMOVED AND INCLUDED IN THE LUMP SUM PAY ITEM FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 18+91.00 -L-".

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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."

THE SCOUR CRITICAL ELEVATION FOR BENTS NO. 1 THRU 4 IS SHOWN ON S-3. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

HORIZONTAL DIRECTIONAL DRILLING OF THE PROPOSED WATER LINE SHALL TAKE PLACE AFTER DRIVING BRIDGE PILES, AS DIRECTED BY THE ENGINEER, SEE UTILITY PLANS.

UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF THE WATERWAY BOTTOM TO ENSURE THAT ALL CONSTRUCTION WASTE MATERIALS HAVE BEEN COMPLETELY REMOVED. CERTIFICATION WILL BE REQUIRED IN WRITING BY A LICENSED ENGINEER OR LICENSED SURVEYOR THAT THE WATERWAYS HAVE NOT BEEN IMPAIRED AND THAT ALL CONSTRUCTION RELATED DEBRIS HAS BEEN CLEARED FROM IT. THE CERTIFICATION SHALL INCLUDE THE ACTUAL METHOD(S) USED TO CONDUCT THE INSPECTION. THE CONTRACTOR SHALL REMOVE ANY BRIDGE RELATED DEBRIS, RESULTING FROM THE CURRENT OR PRIOR WORK OR OCCURRENCES, DISCOVERED DURING THIS SURVEY. FOR NAVIGATIONAL CLEARANCE VERIFICATION AND WATERWAY INSPECTION, SEE SPECIAL PROVISIONS.

FOR VERTICAL CLEARANCE GAGES, SEE SPECIAL PROVISIONS.

FOR WORK IN, OVER OR ADJACENT TO NAVIGABLE WATERS, SEE SPECIAL PROVISIONS.

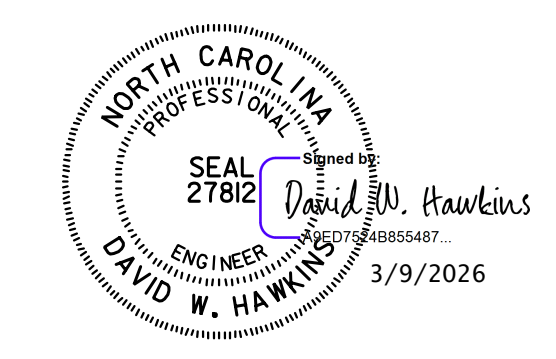
FOR MAINTENANCE OF WATER TRAFFIC, SEE SPECIAL PROVISIONS.

FOR NAVIGATIONAL LIGHTING SYSTEM, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR
 BRIDGE ON SR 1302 OVER
 DAWSON CREEK BETWEEN
 NC-306 AND SR 1005

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 2

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-2
1			3			TOTAL SHEETS
2			4			25

3/5/2026
 JWE
 \MOI_003_B5995_SML_002_002_680057 - With Work Bridge.dgn

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1 (Piles 1-7)	7	176	8.92	95			295							
Bent 1 (Piles 1-8)	8	295	9.66	105	-25	-47 (PSC)	470		8.5	-22.00	34			
Bent 2 (Piles 1-8)	8	295	10.09	105	-24	-55 (PSC)	455		34.5	-47.00	34			
Bent 3 (Piles 1-8)	8	295	10.19	60 (PSC) & 10 (HP)	-21	-31 (PSC) & -41 (HP)	450	24						
Bent 4 (Piles 1-8)	8	295	9.96	60	-15	-35 (PSC)	455		16	-18.00	34			
End Bent 1 (Piles 1-7)	7	176	9.41	70			295							
TOTAL QUANTITY:								24	472					

* $RDR = \frac{\text{Factored Resistance} + \text{Factored Drag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \text{Nominal Drag Load Resistance} + \text{Nominal Resistance from Scourable Material}$

** Predrilling for Piles is required for Bent No. 1, 2 and 4 with a predrilling length and at the Contractor's option, spudding may be used.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1 (Piles 1-7)	176			0.60		
Bent 1 (Piles 1-8)	295		16	0.70		25
Bent 2 (Piles 1-8)	295		16	0.70		8
Bent 3 (Piles 1-8)	295		13	0.70		9
Bent 4 (Piles 1-8)	295		8	0.70		21
End Bent 2 (Piles 1-7)	176			0.60		

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
End Bent 1	100	1
End Bent 2	75	
Bent 1	110	1
Bent 2	110	
Bent 3	60' (PSC) & 10' (HP)	1
Bent 4	60	1
TOTAL QUANTITY:		4

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT
Bent 1 & Bent 2	EST
Bent 3 & Bent 4	DPT

* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.


PROJECT NO. 48190.1.1 (B-5995)

PAMLICO COUNTY

STATION: 18+91.00 -L-

NOTES:

- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Thein Tun Zan, #030943) on 01-16-2026.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

 <p>Signed by: <i>David W. Hawkins</i> ASCE# 1504855487</p> <p>SIGNATURE DATE</p>	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-3
	<h2>PILE FOUNDATION TABLES</h2>						
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		NO.	BY:	DATE:	NO.	BY:	DATE:
		1			3		
		2			4		

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

LOAD TYPE	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								
						LIVE-LOAD FACTORS (γ LL)	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)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	①	1.22	-	1.75	0.22	1.22	70'	EL	34.5	0.23	3.02	70'	EL	1.6	0.80	0.22	1.41	70'	EL	34.5		
	HL-93 (OPERATING)	N/A		1.58	-	1.35	0.22	1.58	70'	EL	34.5	0.23	3.95	70'	EL	1.6	N/A	-	-	-	-	-		
	HS-20 (INVENTORY)	36.000	②	1.58	56.88	1.75	0.22	1.58	70'	EL	34.5	0.23	3.84	70'	EL	1.6	0.80	0.22	1.83	70'	EL	34.5		
	HS-20 (OPERATING)	36.000		2.04	73.44	1.35	0.22	2.04	70'	EL	34.5	0.23	5.01	70'	EL	1.6	N/A	-	-	-	-	-		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH		4.10	55.35	1.4	0.22	4.40	70'	EL	34.5	0.23	11.66	70'	EL	1.6	0.80	0.22	4.10	70'	EL	34.5		
		SNGARBS2	20.000		3.07	61.40	1.4	0.22	3.30	70'	EL	34.5	0.23	8.25	70'	EL	1.6	0.80	0.22	3.07	70'	EL	34.5	
		SNAGRIS2	22.000		2.92	64.24	1.4	0.22	3.13	70'	EL	34.5	0.23	7.65	70'	EL	1.6	0.80	0.22	2.92	70'	EL	34.5	
		SNCOTTS3	27.250		2.04	55.59	1.4	0.22	2.19	70'	EL	34.5	0.23	5.77	70'	EL	1.6	0.80	0.22	2.04	70'	EL	34.5	
		SNAGGRS4	34.925		1.71	59.72	1.4	0.22	1.84	70'	EL	34.5	0.23	4.76	70'	EL	1.6	0.80	0.22	1.71	70'	EL	34.5	
		SNS5A	35.550		1.67	59.36	1.4	0.22	1.80	70'	EL	34.5	0.23	4.82	70'	EL	1.6	0.80	0.22	1.67	70'	EL	34.5	
		SNS6A	39.950		1.54	61.52	1.4	0.22	1.65	70'	EL	34.5	0.23	4.39	70'	EL	1.6	0.80	0.22	1.54	70'	EL	34.5	
	SNS7B	42.000		1.47	61.74	1.4	0.22	1.57	70'	EL	34.5	0.23	4.30	70'	EL	1.6	0.80	0.22	1.47	70'	EL	34.5		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.88	62.04	1.4	0.22	2.02	70'	EL	34.5	0.23	5.24	70'	EL	1.6	0.80	0.22	1.88	70'	EL	34.5	
		TNT4A	33.075		1.89	62.51	1.4	0.22	2.03	70'	EL	34.5	0.23	5.11	70'	EL	1.6	0.80	0.22	1.89	70'	EL	34.5	
		TNT6A	41.600		1.54	64.06	1.4	0.22	1.66	70'	EL	34.5	0.23	4.58	70'	EL	1.6	0.80	0.22	1.54	70'	EL	34.5	
		TNT7A	42.000		1.55	65.10	1.4	0.22	1.67	70'	EL	34.5	0.23	4.49	70'	EL	1.6	0.80	0.22	1.55	70'	EL	34.5	
		TNT7B	42.000		1.61	67.62	1.4	0.22	1.73	70'	EL	34.5	0.23	4.20	70'	EL	1.6	0.80	0.22	1.61	70'	EL	34.5	
		TNAGRIT4	43.000		1.53	65.79	1.4	0.22	1.64	70'	EL	34.5	0.23	4.07	70'	EL	1.6	0.80	0.22	1.53	70'	EL	34.5	
TNAGT5A		45.000		1.44	64.80	1.4	0.22	1.55	70'	EL	34.5	0.23	4.04	70'	EL	1.6	0.80	0.22	1.44	70'	EL	34.5		
TNAGT5B	45.000	③	1.42	63.90	1.4	0.22	1.53	70'	EL	34.5	0.23	3.86	70'	EL	1.6	0.80	0.22	1.42	70'	EL	34.5			
EMERGENCY VEHICLE (EV)	EV2	28.750		2.17	62.38	1.3	0.22	2.52	70'	EL	34.5	0.23	6.21	70'	EL	1.6	0.80	0.22	2.17	70'	EL	34.5		
	EV3	43.000	④	1.42	61.06	1.3	0.22	1.64	70'	EL	34.5	0.23	4.15	70'	EL	1.6	0.80	0.22	1.42	70'	EL	34.5		

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:

- EVALUATION OF EMERGENCY VEHICLES WITH MULTIPLE LANES LOADED CONSISTED OF 2 EMERGENCY VEHICLES IN ADJACENT LANES.
-
-
-

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

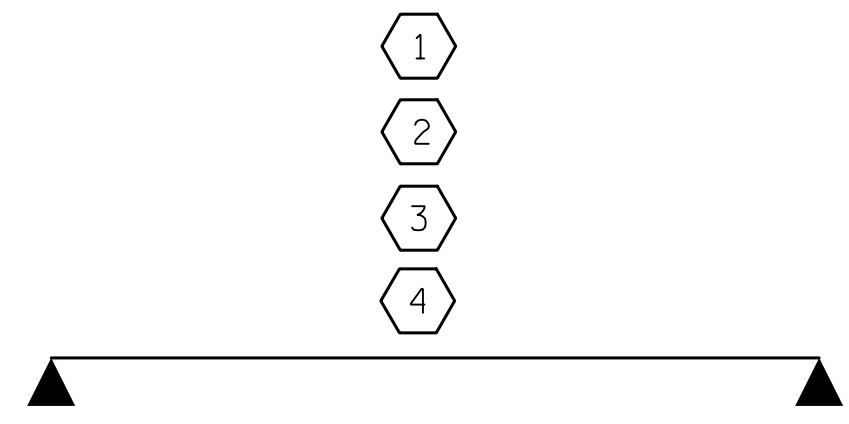
③ LEGAL LOAD RATING **

④ EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

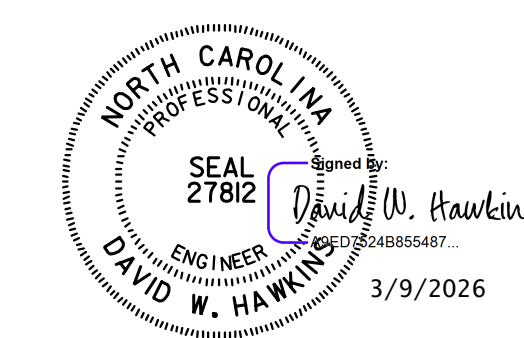
GIRDER LOCATION

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



LRFR SUMMARY
FOR SPANS A THRU E

PROJECT NO. B-5995
PAMLICO COUNTY
STATION: 18+91.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

ASSEMBLED BY: M. WRIGHT	DATE: 6/22
CHECKED BY: P. BARBER	DATE: 6/22
DRAWN BY: CVC 6/10	REV. BY: BNB/AKP 06/23
CHECKED BY: DNS 6/10	

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

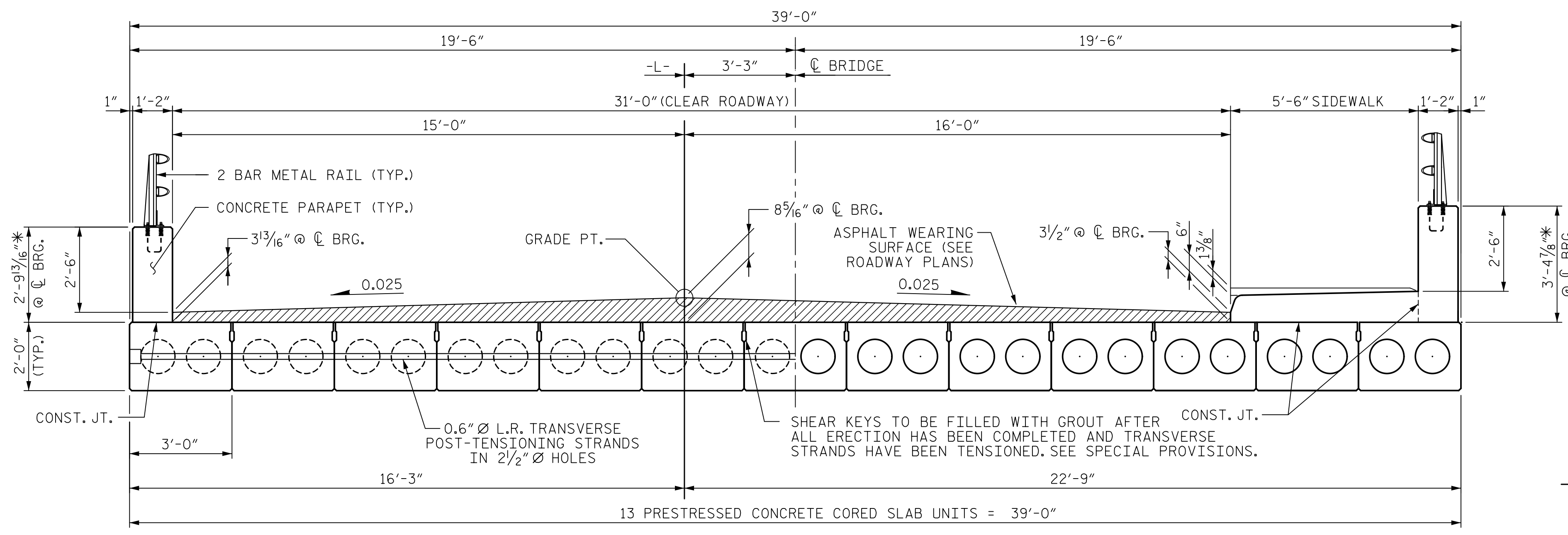
HNTB HNTB NORTH CAROLINA, P.C.
NC License No. C-1654
4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
CHECKED BY: D. HAWKINS DATE: 11/25
DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 4

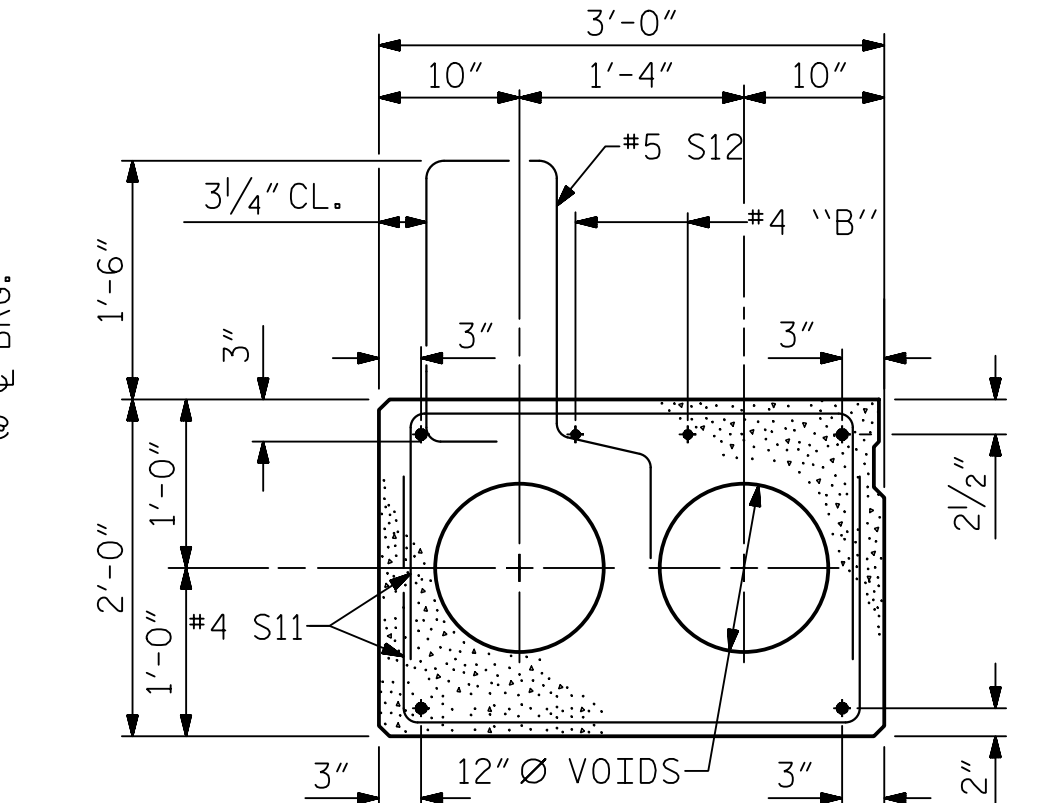
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS 25

2/11/2026 10:49:57 AM \\work001\proj\6606 2015 Eastern Region Division On-Call\B-5995_BROST_Pamlico County\Structures\Drawings\1_DOT_B5995_SKI_LRFR01_004_660057.dgn



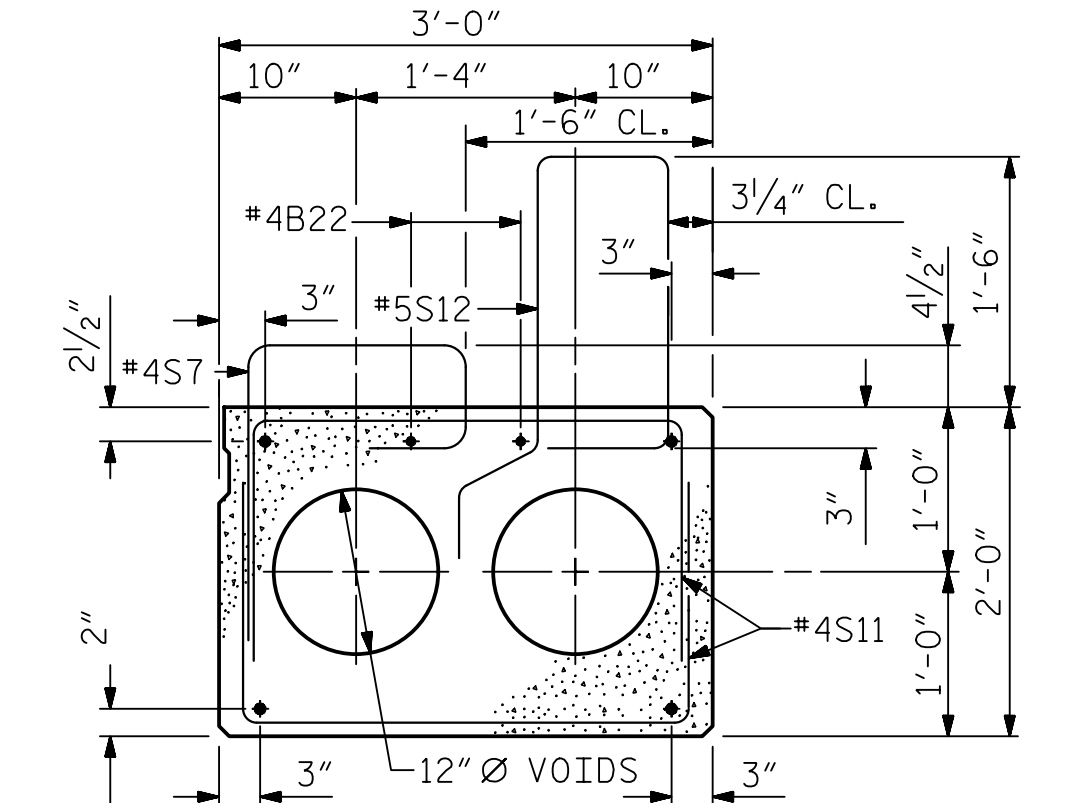
HALF SECTION AT INTERMEDIATE DIAPHRAGMS
HALF SECTION THROUGH VOIDS
TYPICAL SECTION

* - THE MAXIMUM PARAPET HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE CUTTERLINE. FOR PARAPET HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "SECTION THRU PARAPET" AND "SECTION THRU SIDEWALK/PARAPET" DETAIL ON SHEET 3 OF 3.



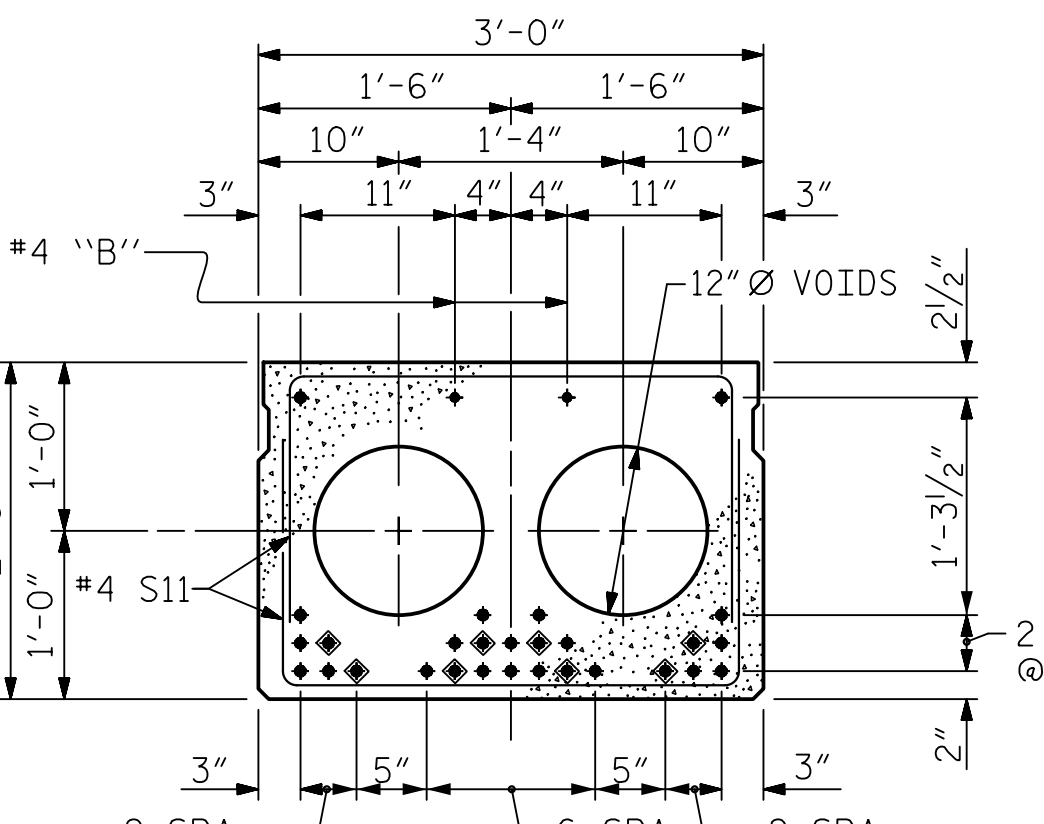
EXTERIOR SLAB SECTION - TYPE A

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



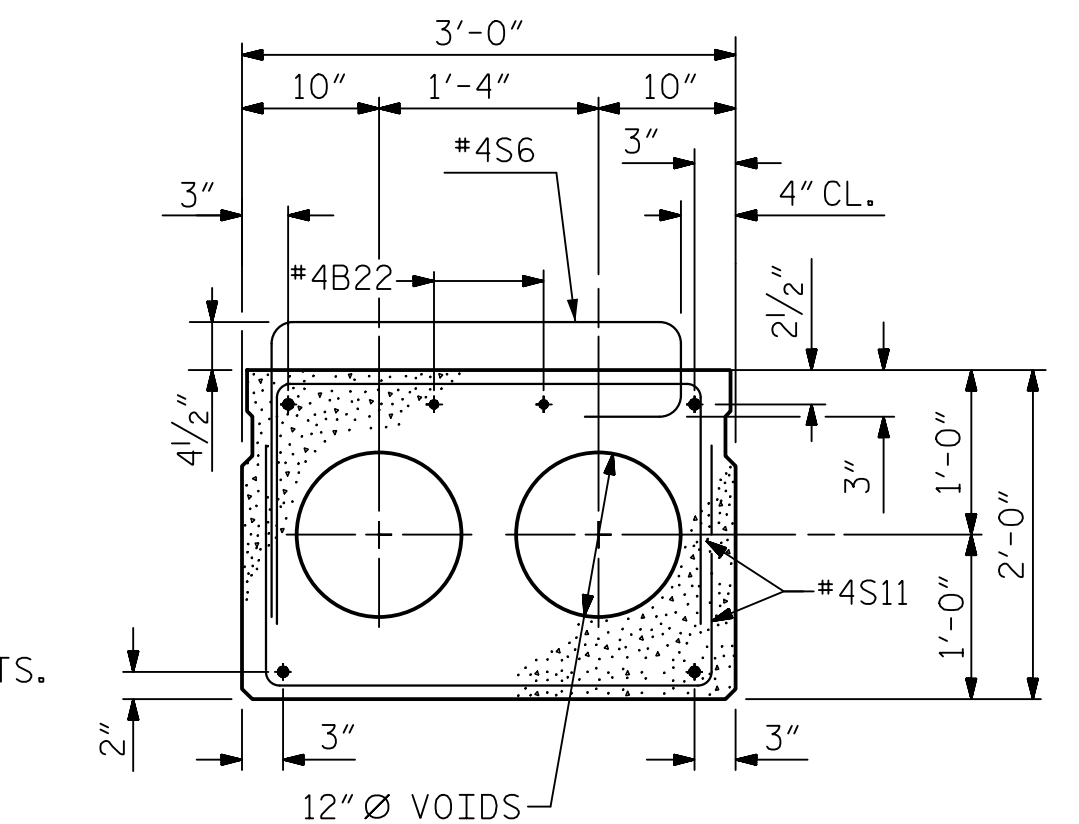
EXTERIOR SLAB SECTION - TYPE D

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



INTERIOR SLAB SECTION - TYPE B

(28 STRANDS REQUIRED)



INTERIOR SLAB SECTION - TYPE C

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

0.6" Ø LOW RELAXATION STRAND LAYOUT

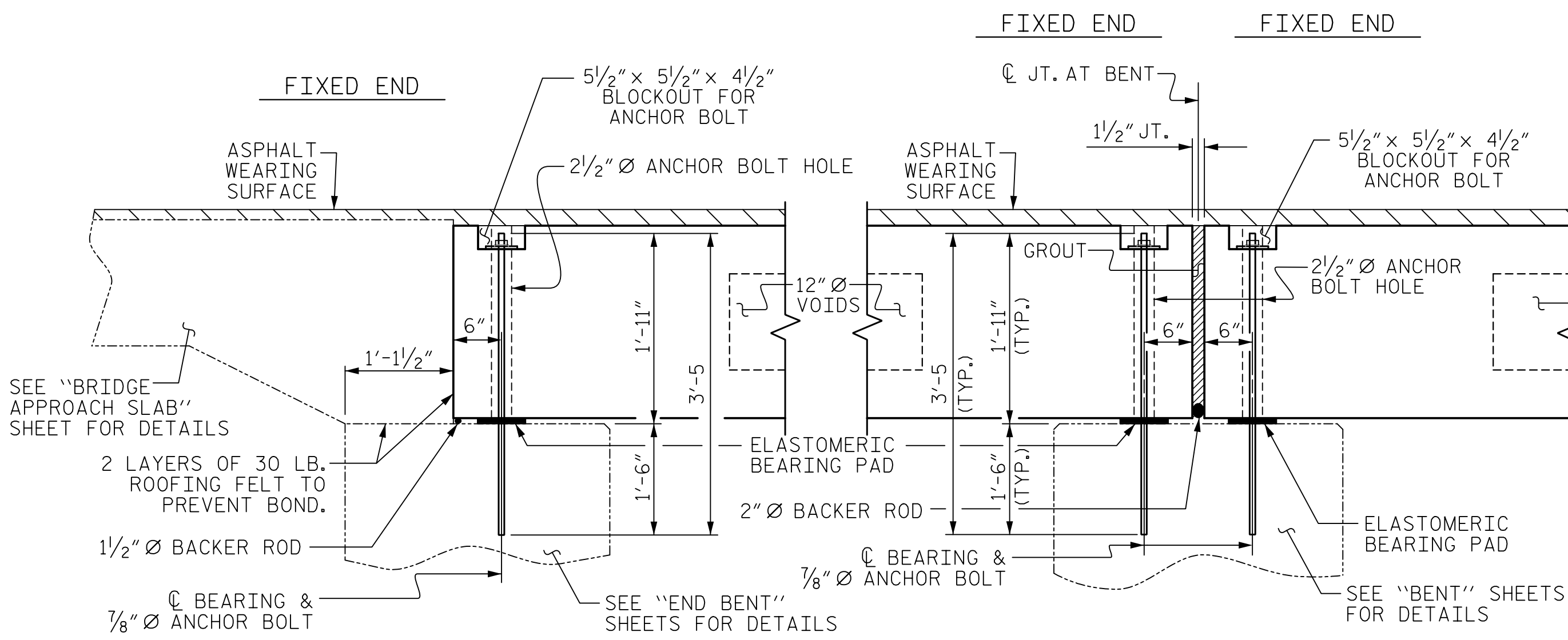
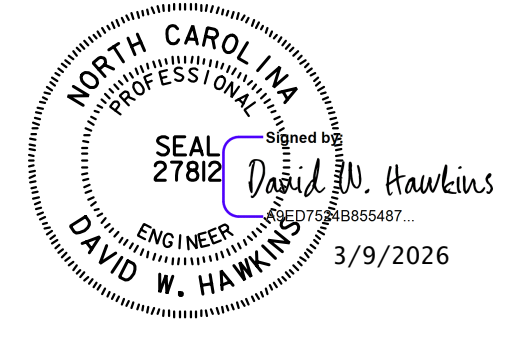
◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

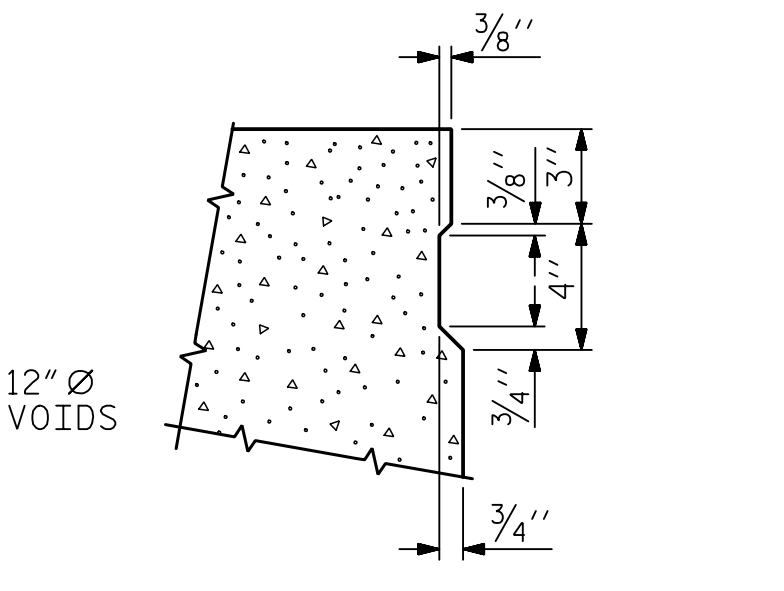
PROJECT NO. B-5995
PAMLICO COUNTY
STATION: 18+91.00 -L-

SHEET 1 OF 3

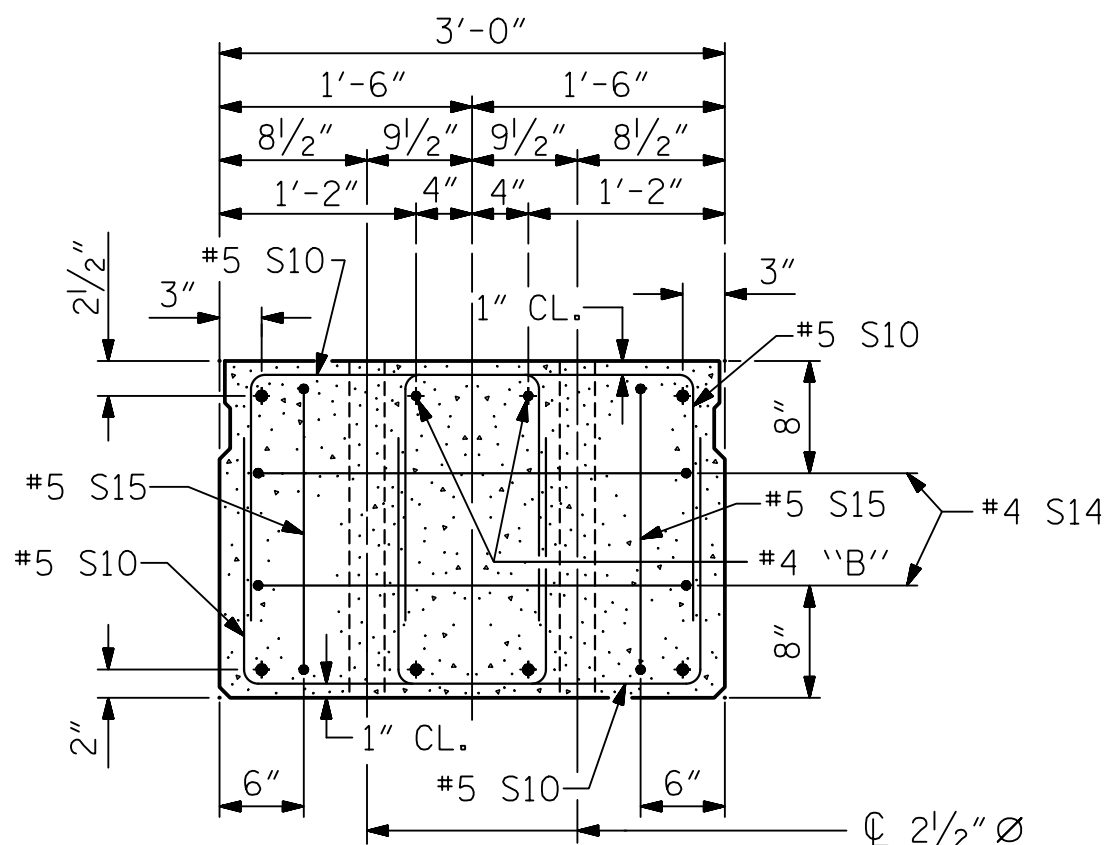
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE CORED SLAB UNIT



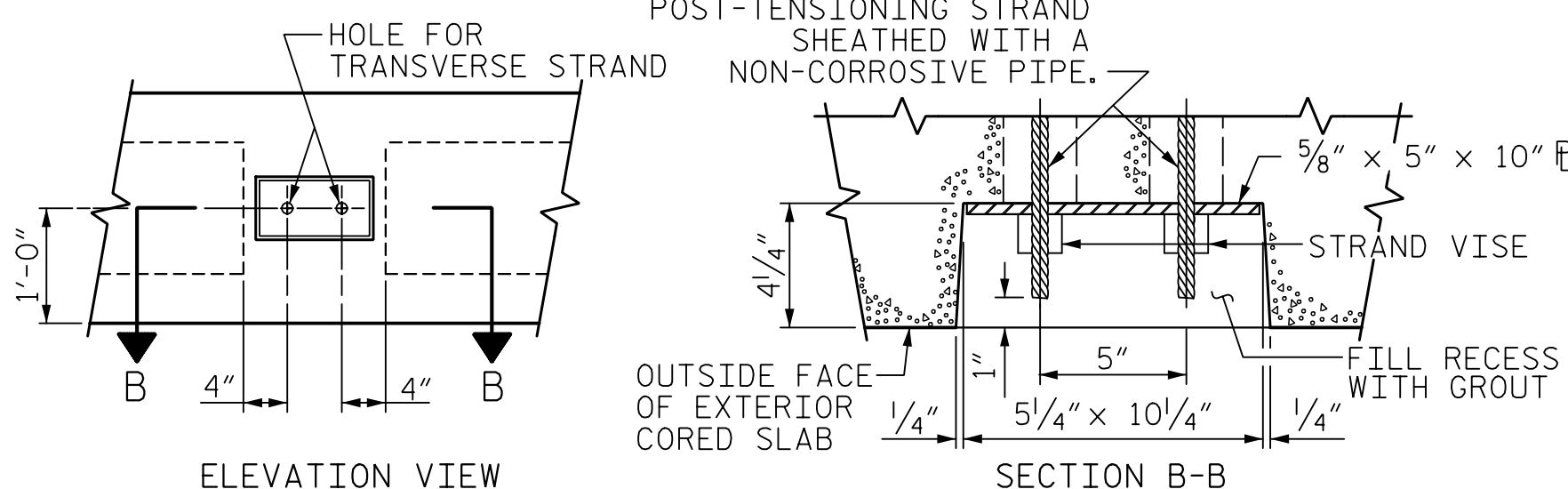
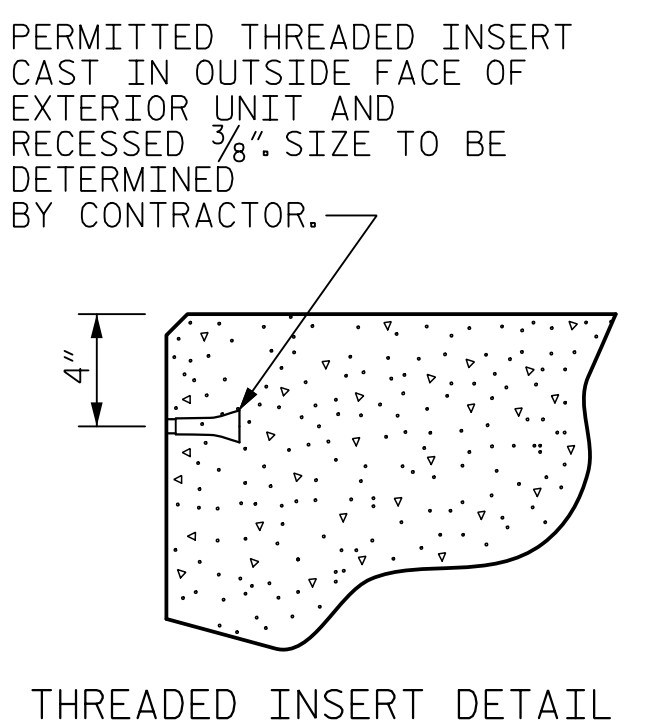
SECTION AT END BENT SECTION AT BENT



NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR 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.



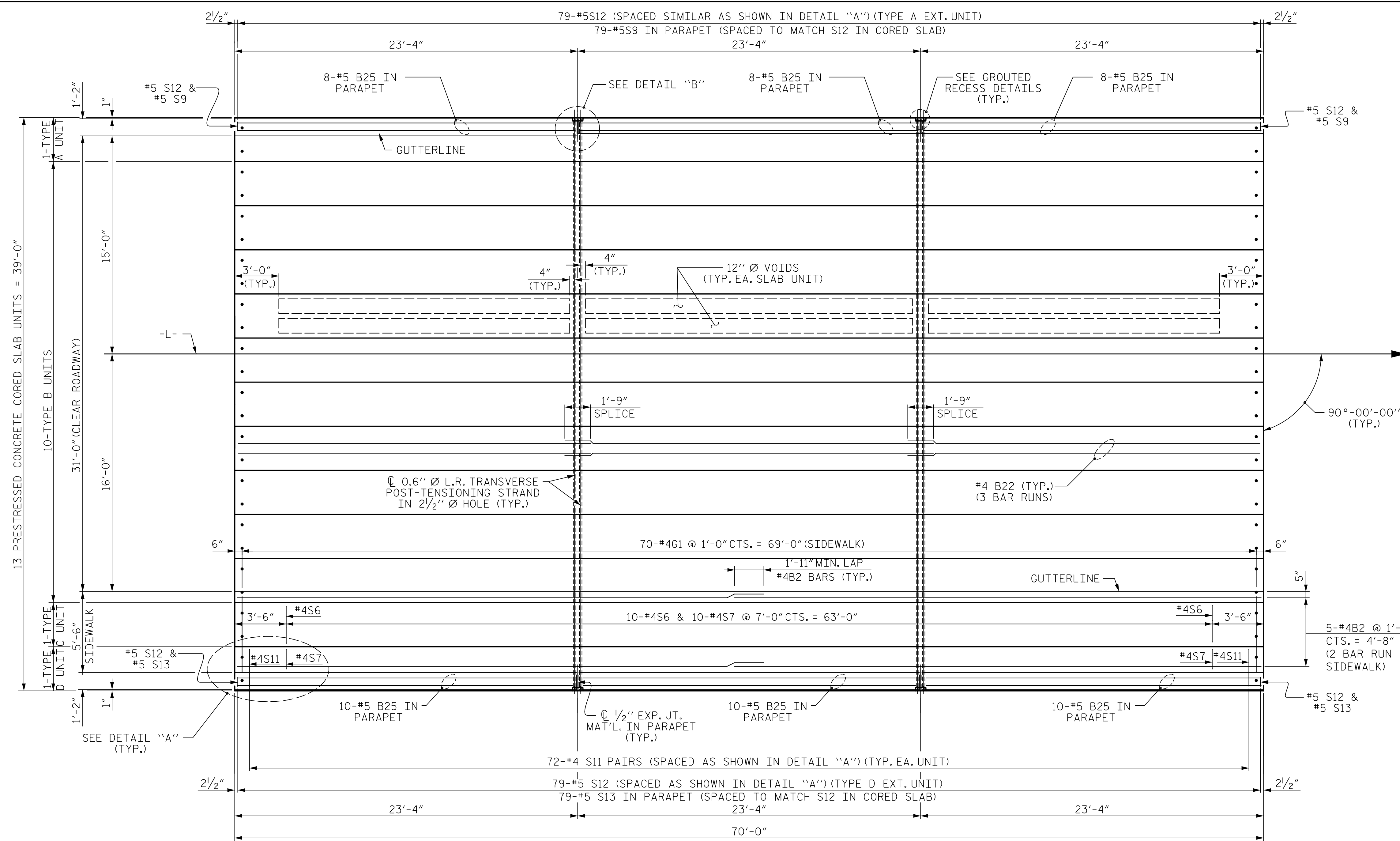
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : MAA 6/10	REV. 8/14
CHECKED BY : MKT 7/10	MAA/TMG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB HNTB NORTH CAROLINA, P.C.		NC License No. C-1554		4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609	
DRAWN BY :	M. WRIGHT	DATE :	11/25	DWG. NO. 5	SHEET NO. S-5
CHECKED BY :	D. HAWKINS	DATE :	11/25		
DESIGN ENGINEER OF RECORD :	D. HAWKINS	DATE :	11/25		

REVISIONS						SHEET NO. S-5
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 25
2			4			



NOTES

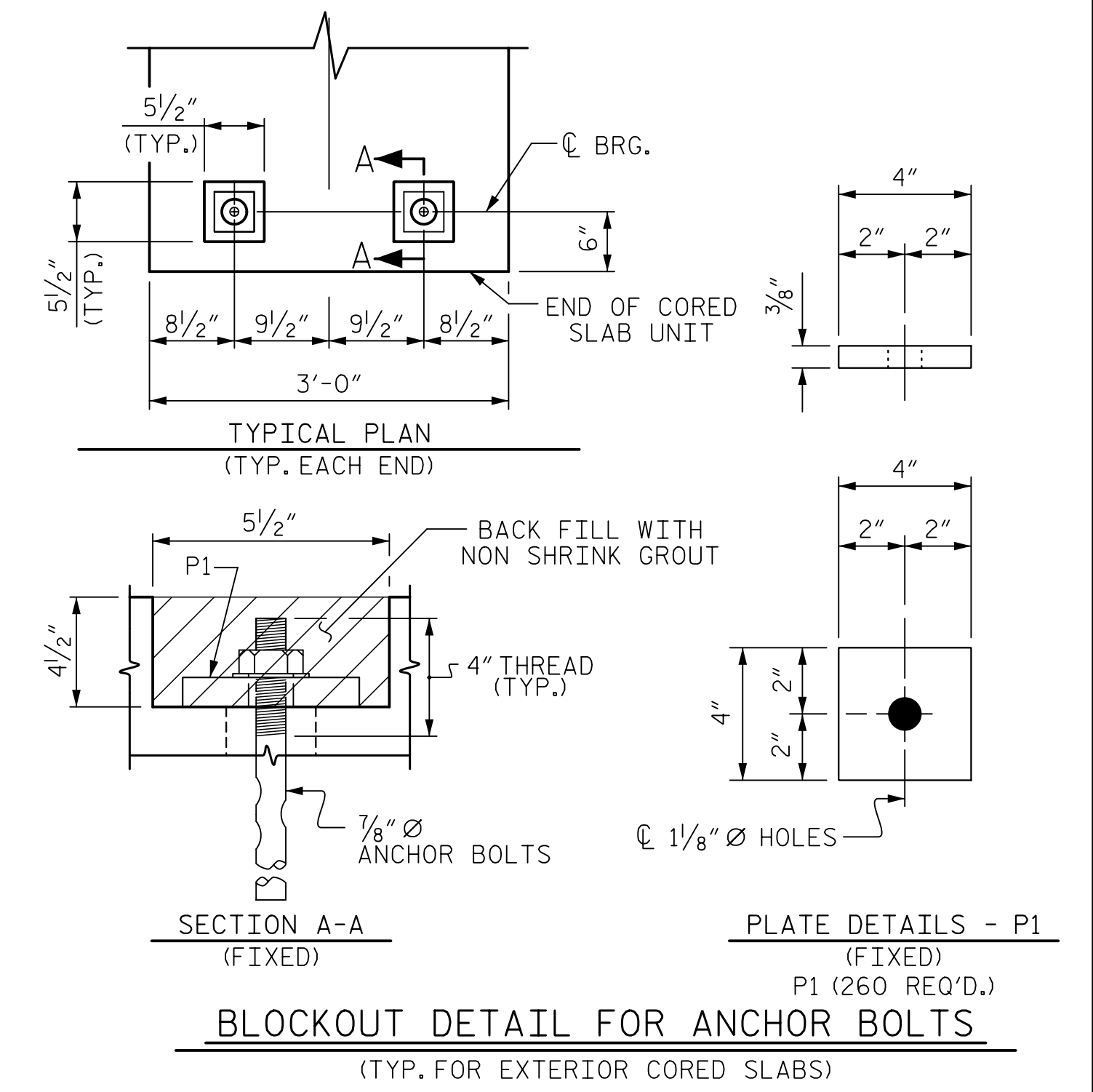
ALL REINFORCING STEEL IN THE SIDEWALK SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT C BENTS AND AT A SPACING OF 8FT. TO 10FT. BETWEEN C BENTS. NO CONTRACTION JOINT WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

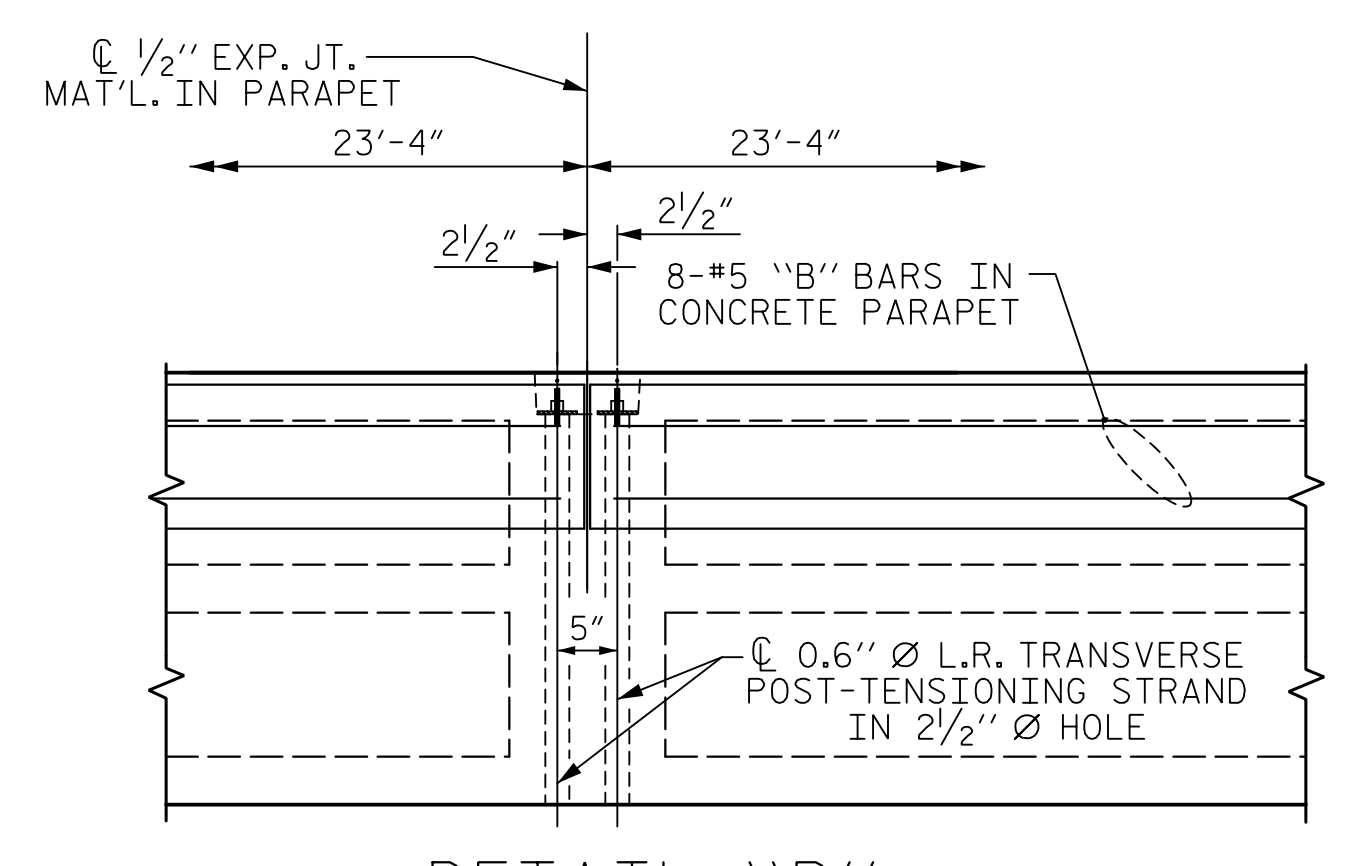
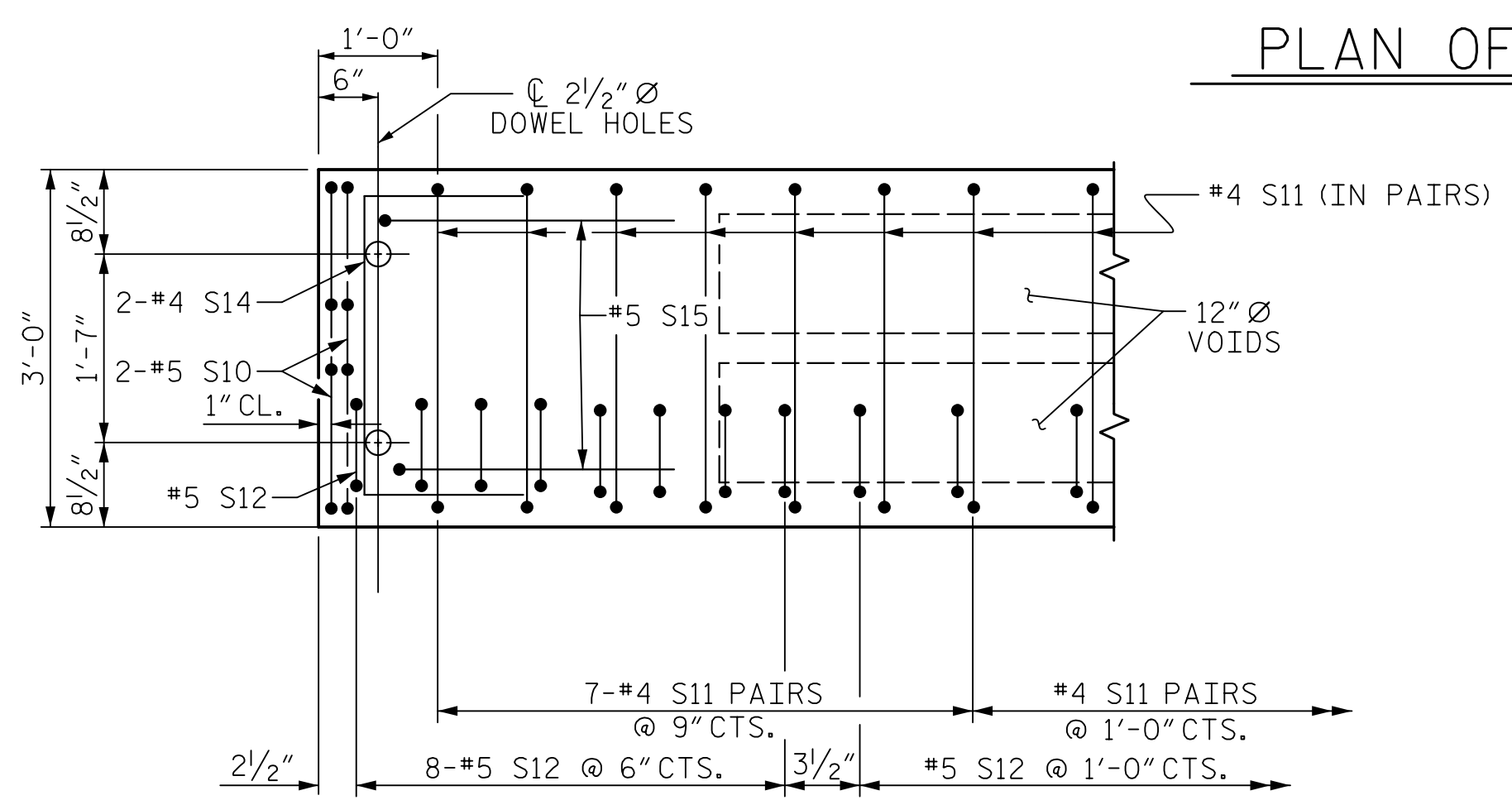
AT ALL FIXED ENDS OF CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS, NUTS FOR ANCHOR BOLTS SHALL BE FINGER-TIGHTENED AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2 1/2" Ø ANCHOR BOLT HOLES AT FIXED ENDS OF CORED SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT TO THE BOTTOM OF THE ANCHOR BOLT BLOCKOUT PRIOR TO INSTALLING THE ANCHOR PLATES, WASHERS, AND NUTS.

THE ANCHOR BOLT BLOCKOUTS IN CORED SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT PRIOR TO PLACEMENT OF THE WEARING SURFACE.



PLAN OF UNIT



DETAIL "A"

(TYPICAL EACH END OF UNIT)
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

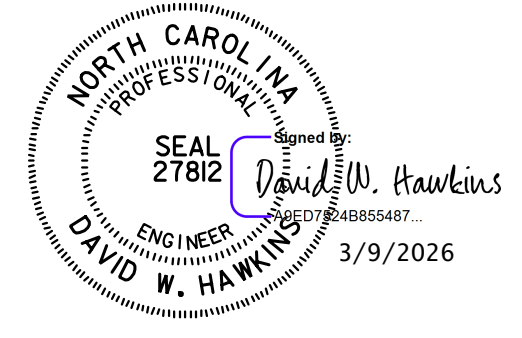
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 70' UNIT
 31'-0" CLEAR ROADWAY
 90° SKEW



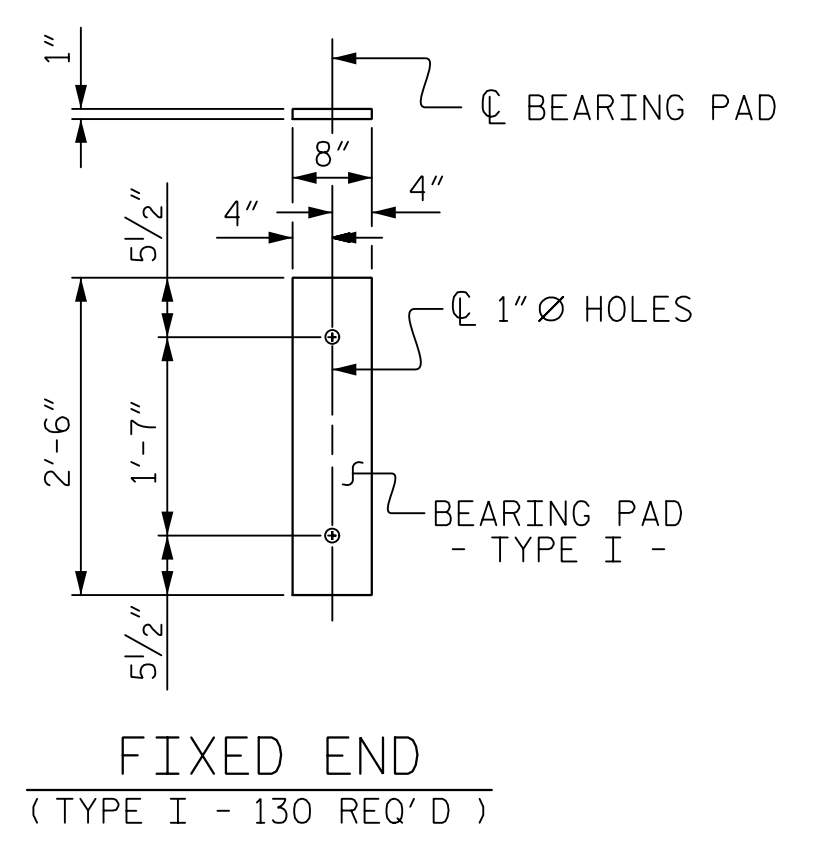
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1854
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 6

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-6
1			3			TOTAL SHEETS
2			4			25

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ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

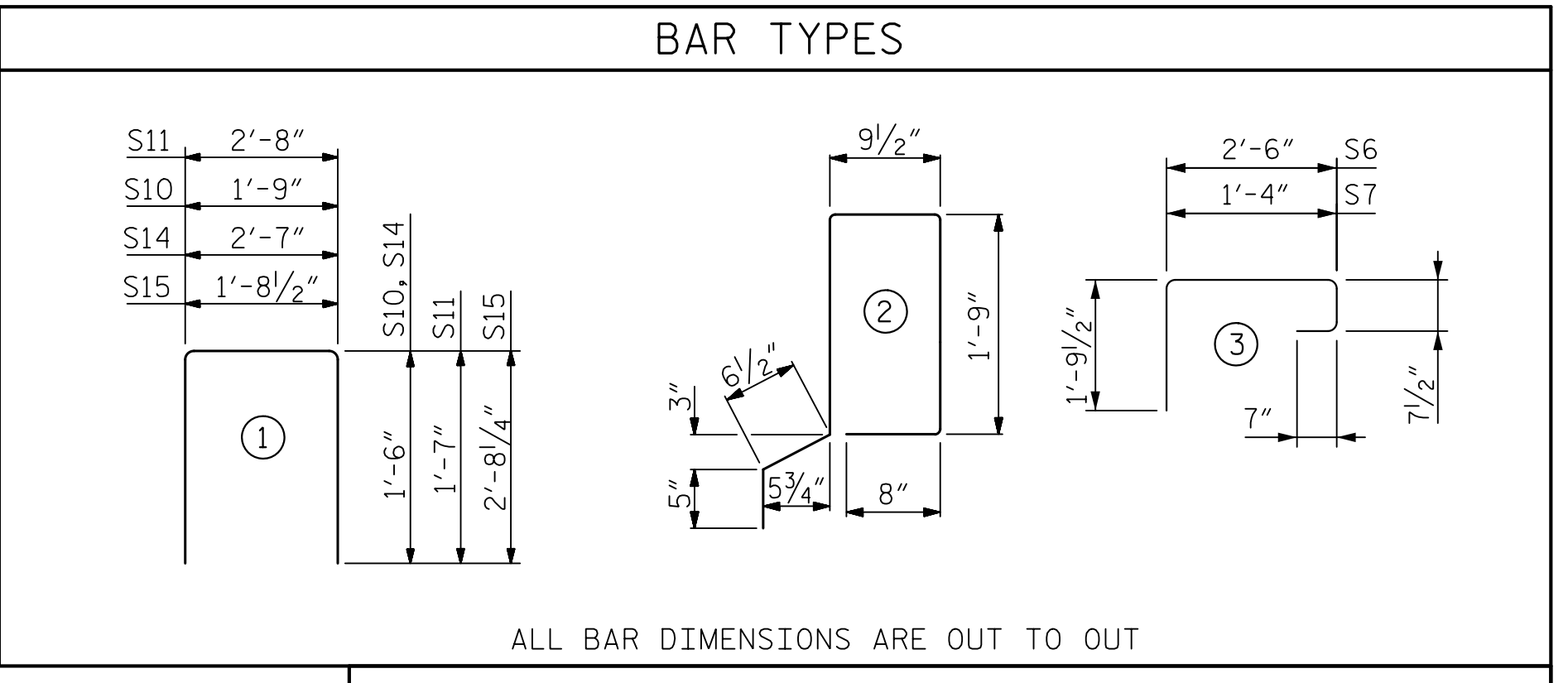
GUTTERLINE OVERLAY THICKNESS & PARAPET/SIDEWALK HEIGHT			
	WEARING SURFACE THICKNESS @ MID-SPAN	PARAPET HEIGHT @ MID-SPAN	SIDEWALK HEIGHT @ MID-SPAN
70' UNITS (LEFT SIDE)	3/16"	2'-9/16"	N/A
70' UNITS (RIGHT SIDE)	2 3/4"	3'-4 1/8"	8 3/4"

BASED ON PREDICTED CAMBER AND DEFLECTIONS AND THEORETICAL GRADE LINE ELEVATIONS.

CORED SLABS REQUIRED			
70' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S. TYPE A	5	70'-0"	350'-0"
INTERIOR C.S. TYPE B	50	70'-0"	3,500'-0"
INTERIOR C.S. TYPE C	5	70'-0"	350'-0"
EXTERIOR C.S. TYPE D	5	70'-0"	350'-0"
TOTAL	65		4,550'-0"

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

** INCLUDES FUTURE WEARING SURFACE



BILL OF MATERIAL FOR ONE CORED SLAB SECTION

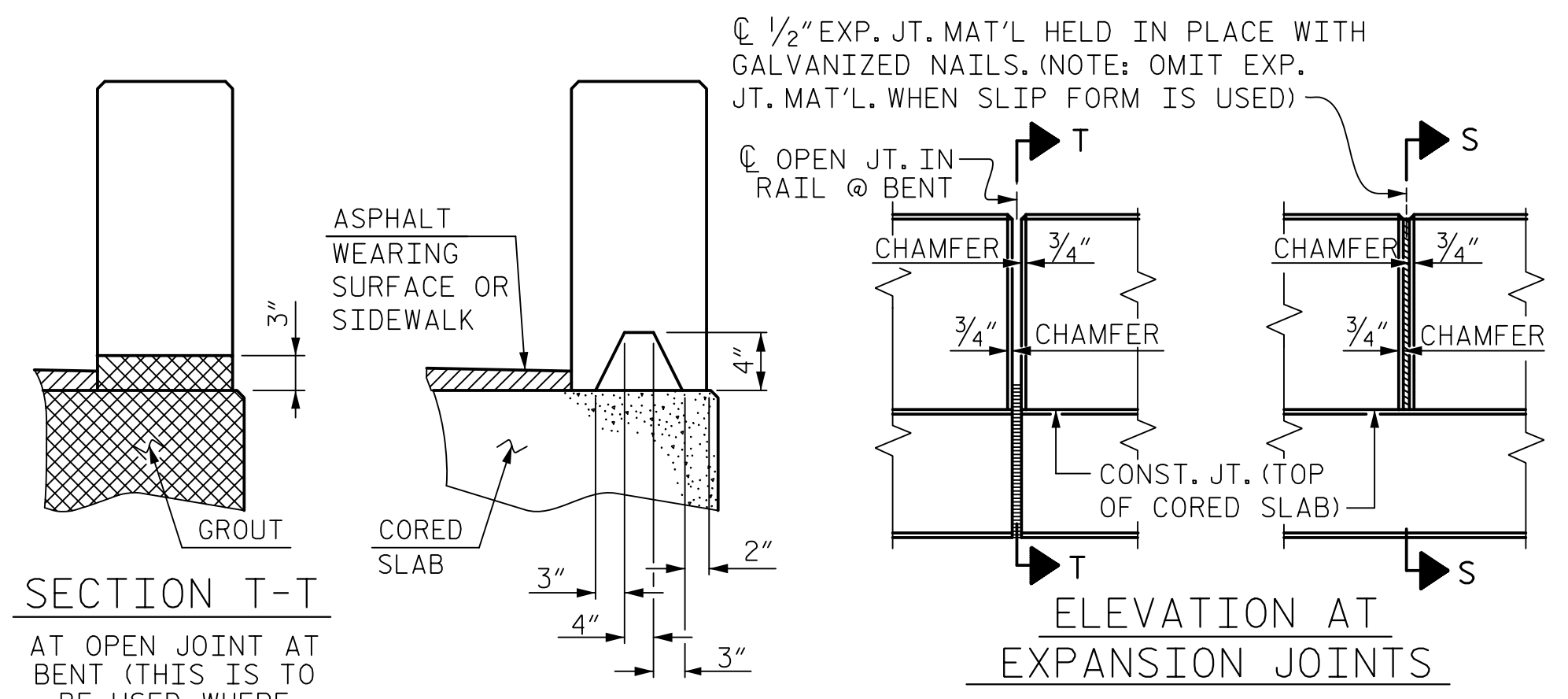
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
B22 (ALL UNITS)	6	#4	STR	24'-6"	98
* S6 (UNIT C)	10	#4	3	5'-6"	37
* S7 (UNIT D)	10	#4	3	4'-4"	29
S10 (ALL UNITS)	8	#5	1	4'-9"	40
S11 (ALL UNITS)	144	#4	1	5'-10"	561
* S12 (UNITS A & D)	79	#5	2	5'-11"	488
S14 (ALL UNITS)	4	#4	1	5'-7"	15
S15 (ALL UNITS)	4	#5	1	7'-1"	30
REINFORCING STEEL (EACH UNIT TYPE)				LBS.	744
* EPOXY COATED REINFORCING STEEL				LBS.	488
TYPE A EXTERIOR CORE UNIT				LBS.	37
TYPE C INTERIOR CORE UNIT				LBS.	517
TYPE D EXTERIOR CORE UNIT				LBS.	
7,000 P.S.I. CONCRETE (EACH UNIT TYPE)				CU. YDS.	11.8
0.6" Ø L.R. STRANDS (EACH UNIT TYPE)				No.	28

BILL OF MATERIAL FOR SIDEWALK ON BRIDGE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B2	50	#4	STR	35'-10"	1,197
* G1	350	#4	STR	5'-0"	1,169
* EPOXY COATED REINFORCING STEEL				LBS.	2,366
CLASS AA CONCRETE				CU. YDS.	56.1

CONCRETE RELEASE STRENGTH

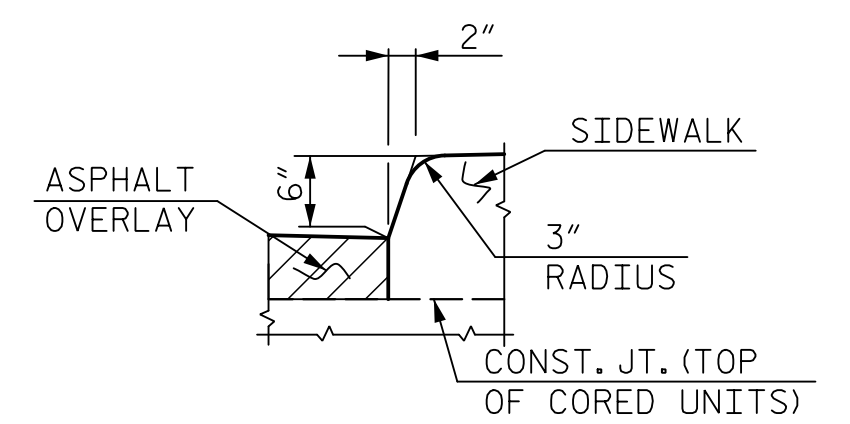
UNIT	PSI
70' UNITS	5500



ELEVATION AT EXPANSION JOINTS

GRADE 270 STRANDS

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

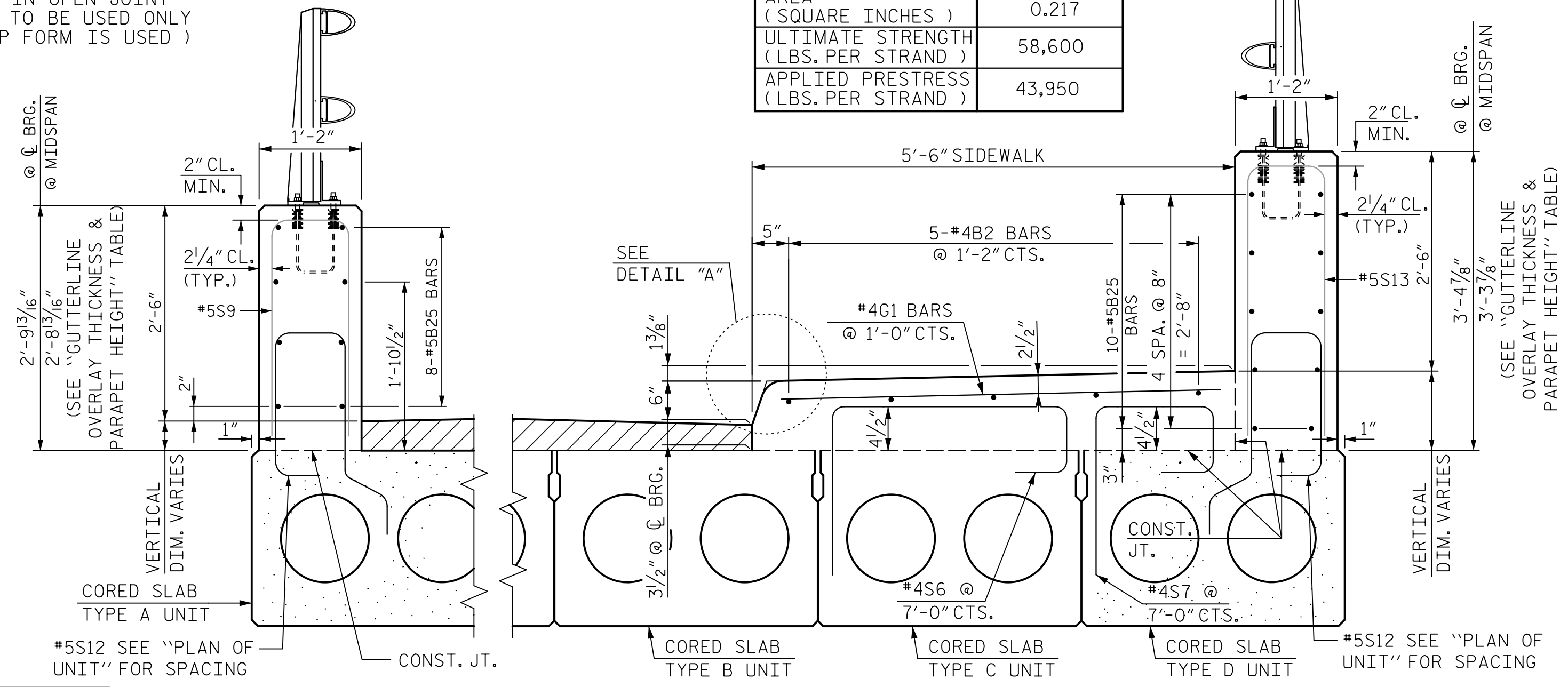


PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PAYMENT FOR THE SIDEWALK REINFORCEMENT SHALL BE INCLUDED IN THE BID PRICE FOR "EPOXY COATED REINFORCING STEEL."

PAYMENT FOR THE SIDEWALK CONCRETE SHALL BE INCLUDED IN THE BID PRICE FOR "CLASS AA CONCRETE."

NOTE:
FOR END POST REINFORCING DETAILS AND PARAPET BILL OF MATERIAL, SEE SHEET "RAIL POST SPACING AND END OF RAIL DETAILS FOR ONE OR TWO BAR METAL RAILS".



SECTION THRU PARAPET (LEFT SIDE SHOULDER)

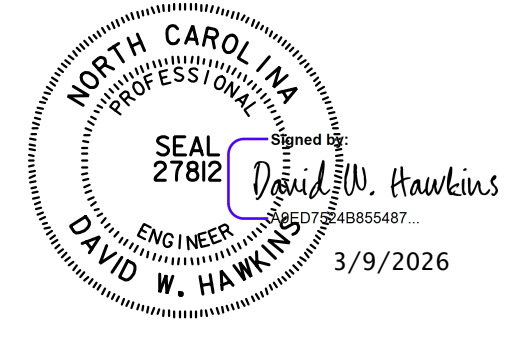
SECTION THRU SIDEWALK/PARAPET (RIGHT SIDE)

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : MAA 6/10	REV. 5/18
CHECKED BY : MKT 7/10	MAA/THC

HNTB HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY : M. WRIGHT DATE : 11/25
CHECKED BY : D. HAWKINS DATE : 11/25
DESIGN ENGINEER OF RECORD : D. HAWKINS DATE : 11/25

DWG. NO. 7



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 GROUDED 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 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF SLAB SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1 1/2" ABOVE THE TOP OF DOWELS AND THEN WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. THE 12" WIDE BOND BREAKING TAPE SHALL BE CENTERED OVER THE JOINT AND CONFORM TO THE REQUIREMENTS OF TYPE N BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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 SIDEWAYS. 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 PARAPETS 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.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUDED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUDED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

POST-TENSIONING SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PROJECT NO. B-5995
PAMLICO COUNTY
STATION: 18+91.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-0"
PRESTRESSED CONCRETE CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-7
1			3			TOTAL SHEETS
2			4			25

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NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

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

PAY LENGTH = 686.00 LIN. FT.

PROJECT NO. B-5995

PAMLICO COUNTY

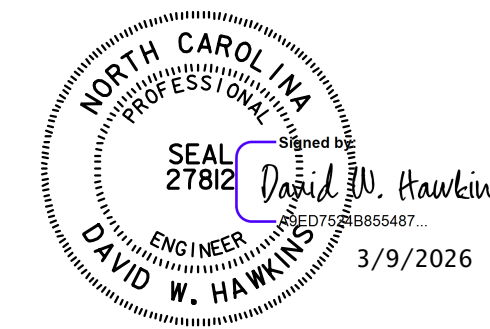
STATION: 18+91.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

2 BAR METAL RAIL

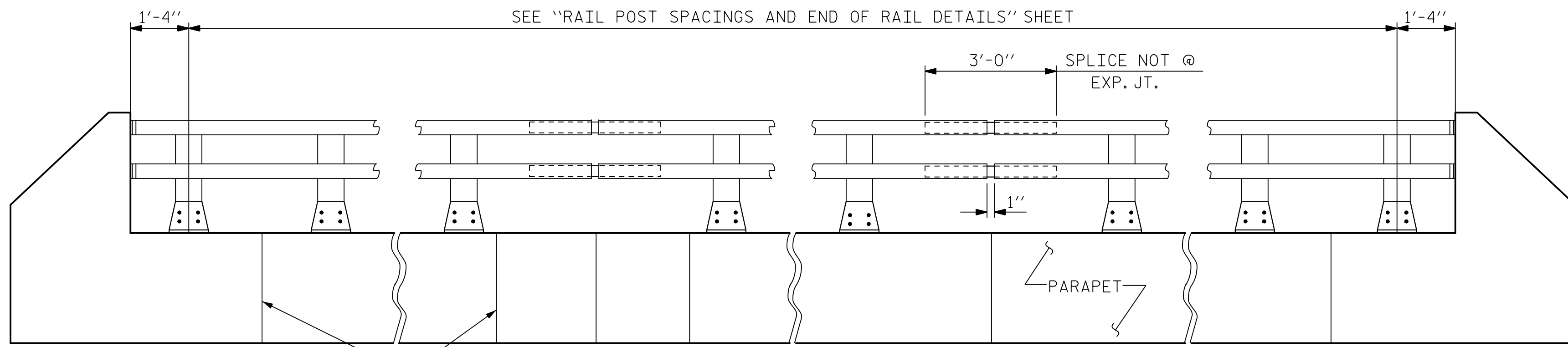


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4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT	DATE: 11/25	DWG. NO. 8
CHECKED BY: D. HAWKINS	DATE: 11/25	
DESIGN ENGINEER OF RECORD: D. HAWKINS	DATE: 11/25	

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			25

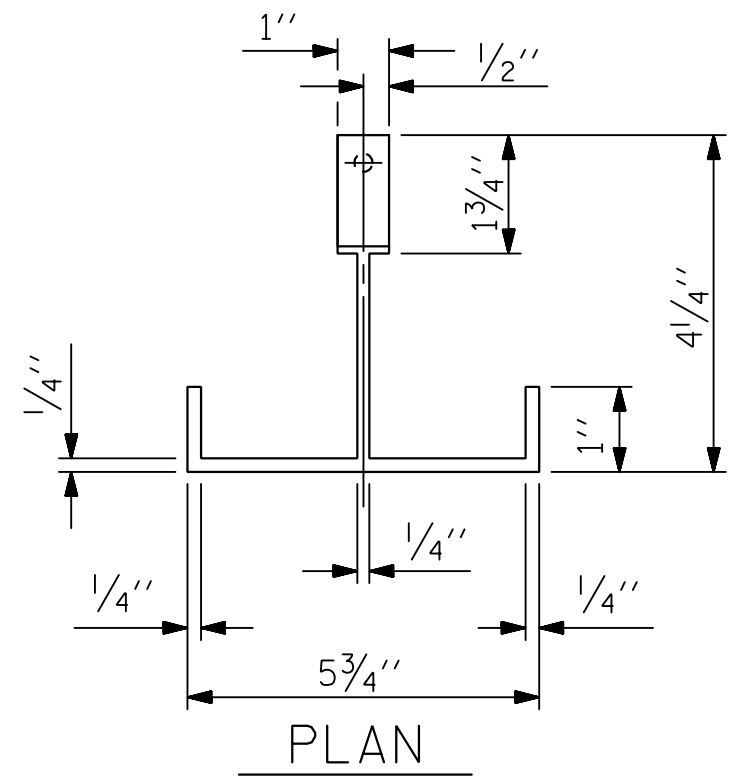
STD. NO. BMR3 (SHT 1)



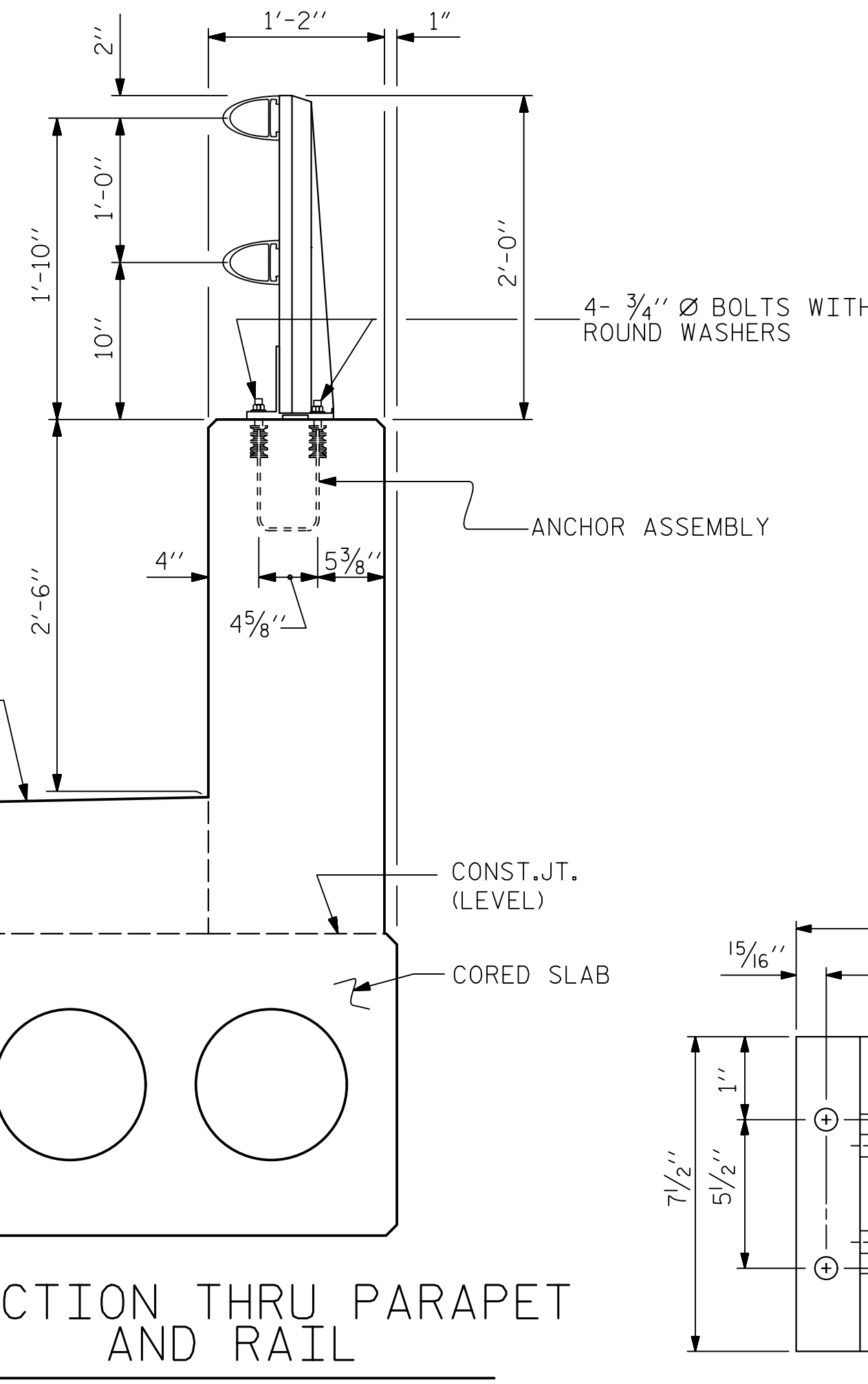
TOOLED CONTRACTION JT.
(SEE NOTES)

ELEVATION

NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.

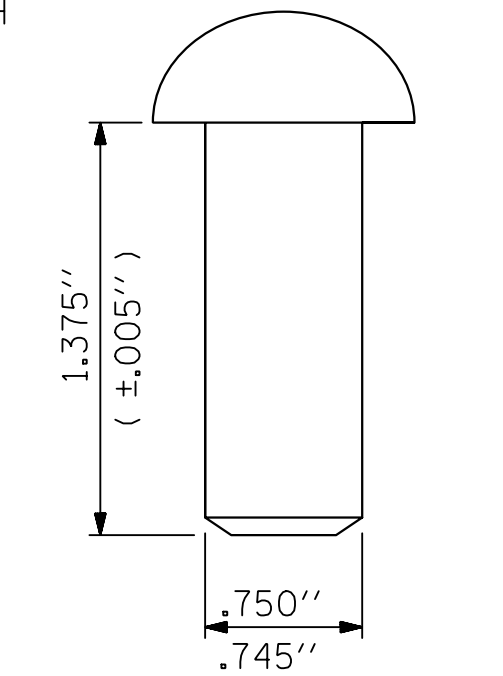


PLAN

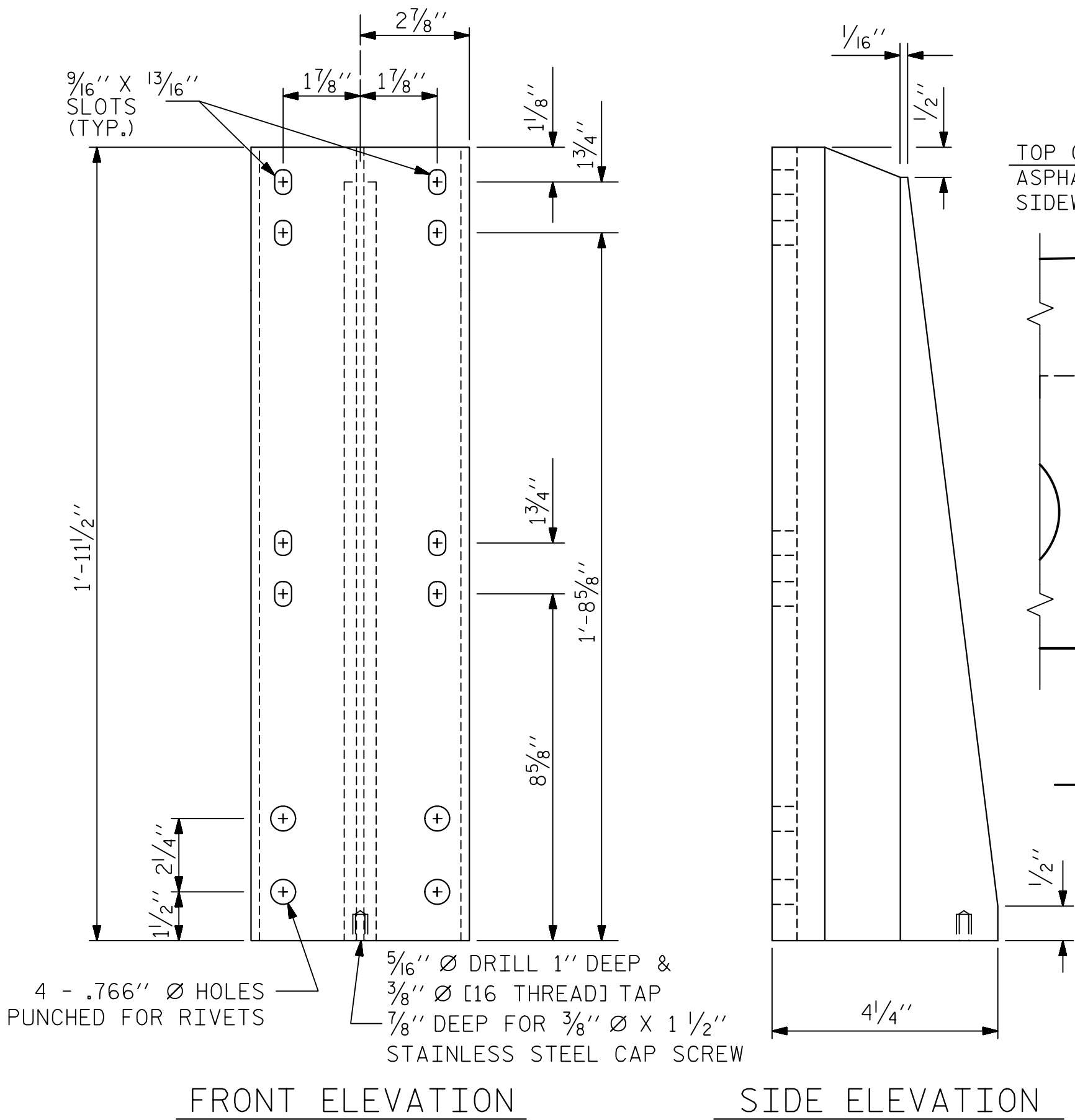


SECTION THRU PARAPET AND RAIL

RIVET DETAIL



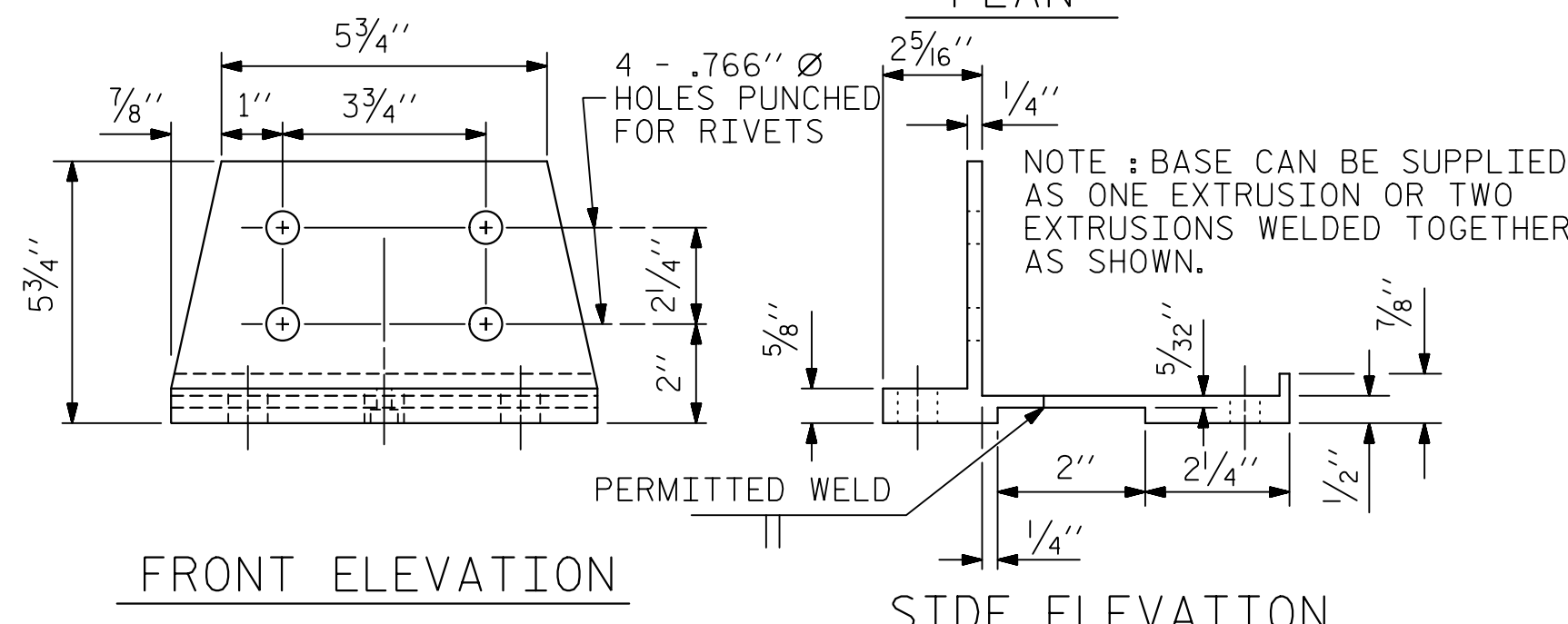
PLAN



FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY: M. WRIGHT	DATE: 6/22
CHECKED BY: P. BARBER	DATE: 6/22
DRAWN BY: EEM 6/94	REV. 10/1/11 MAA/GM
CHECKED BY: RGW 6/94	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

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NOTES

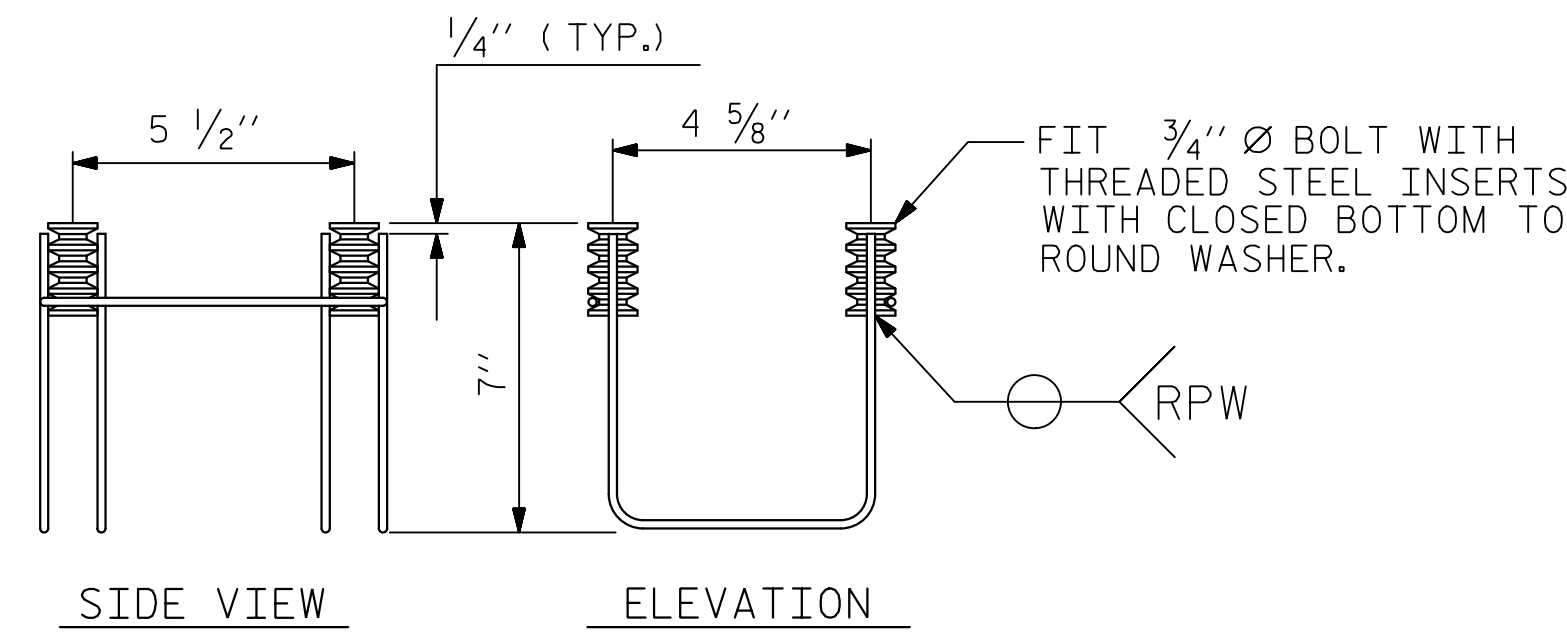
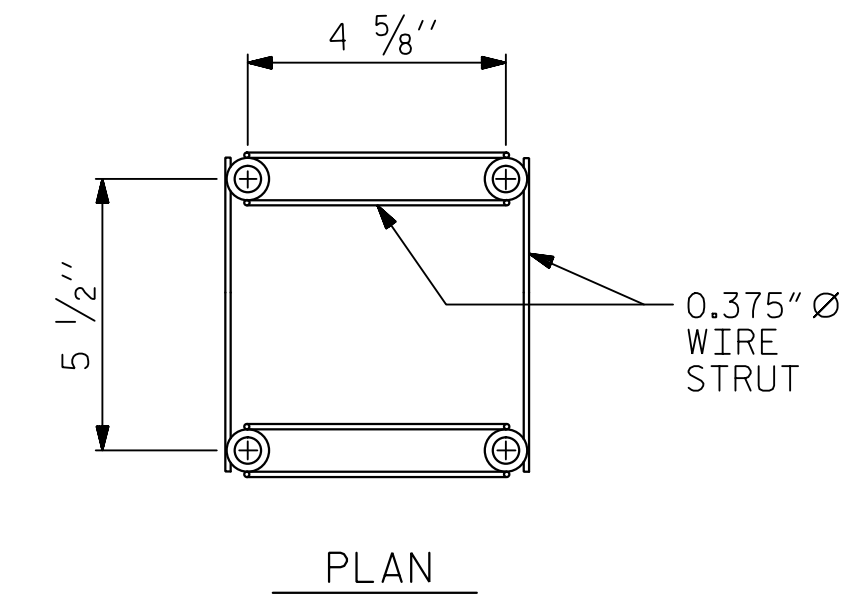
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLY TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

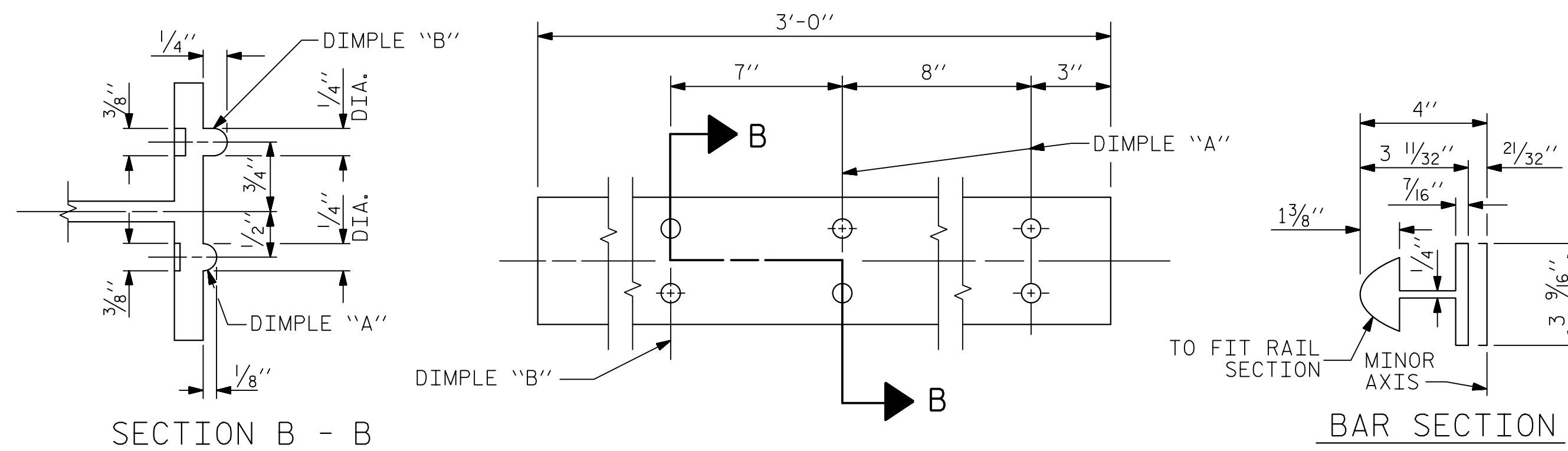
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

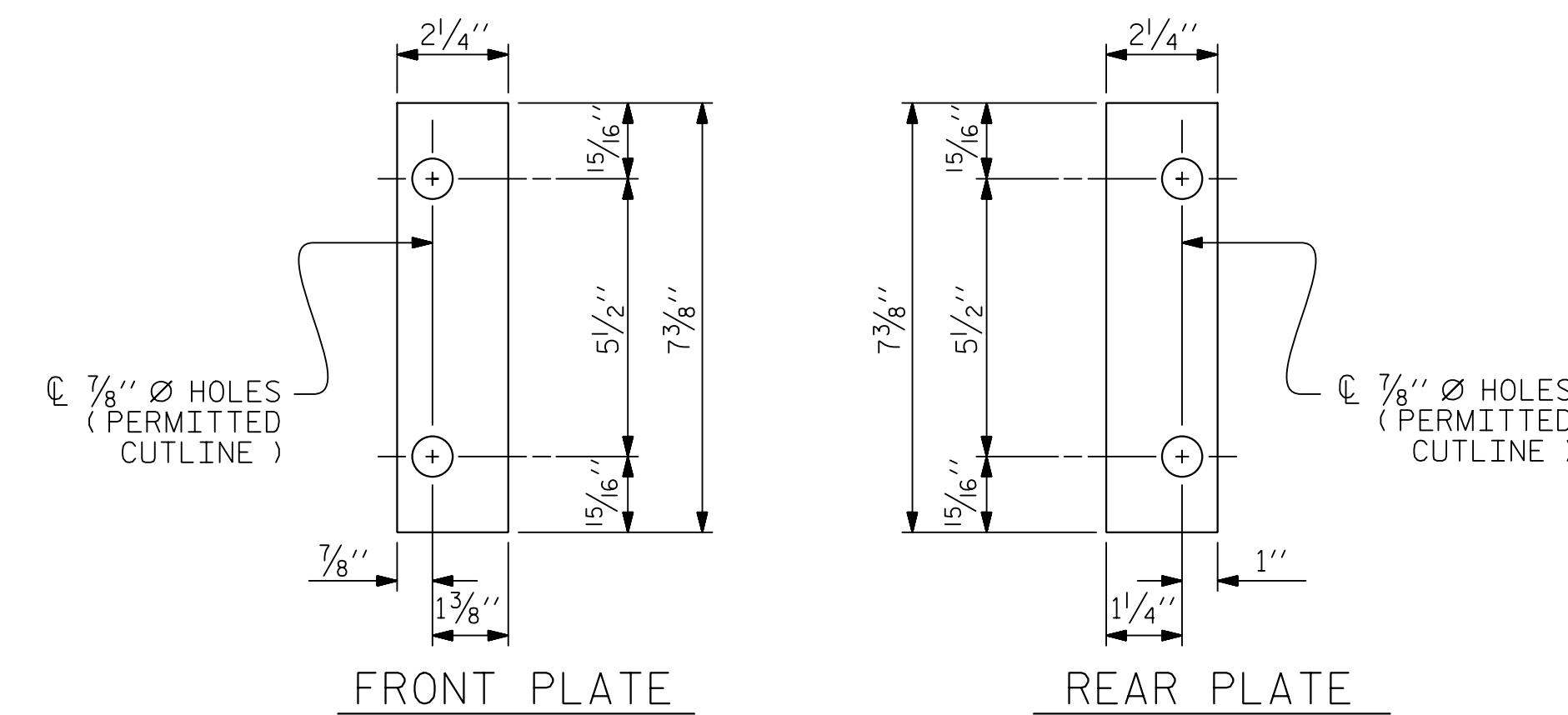


4-BOLT METAL RAIL ANCHOR ASSEMBLY

(124 ASSEMBLIES REQUIRED)

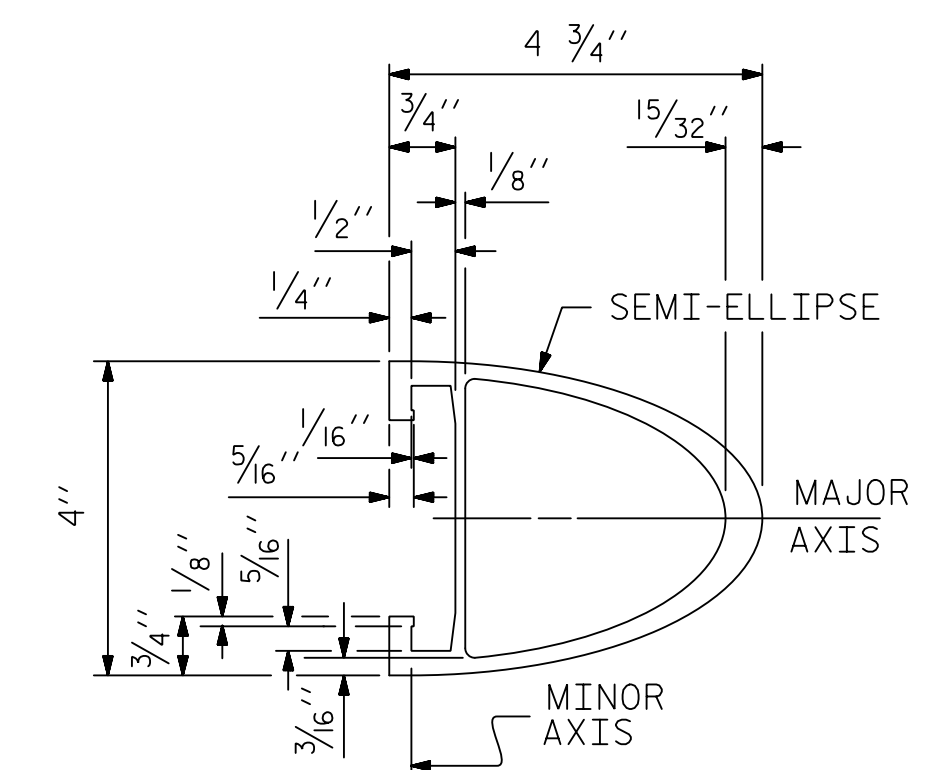


EXPANSION BAR DETAILS

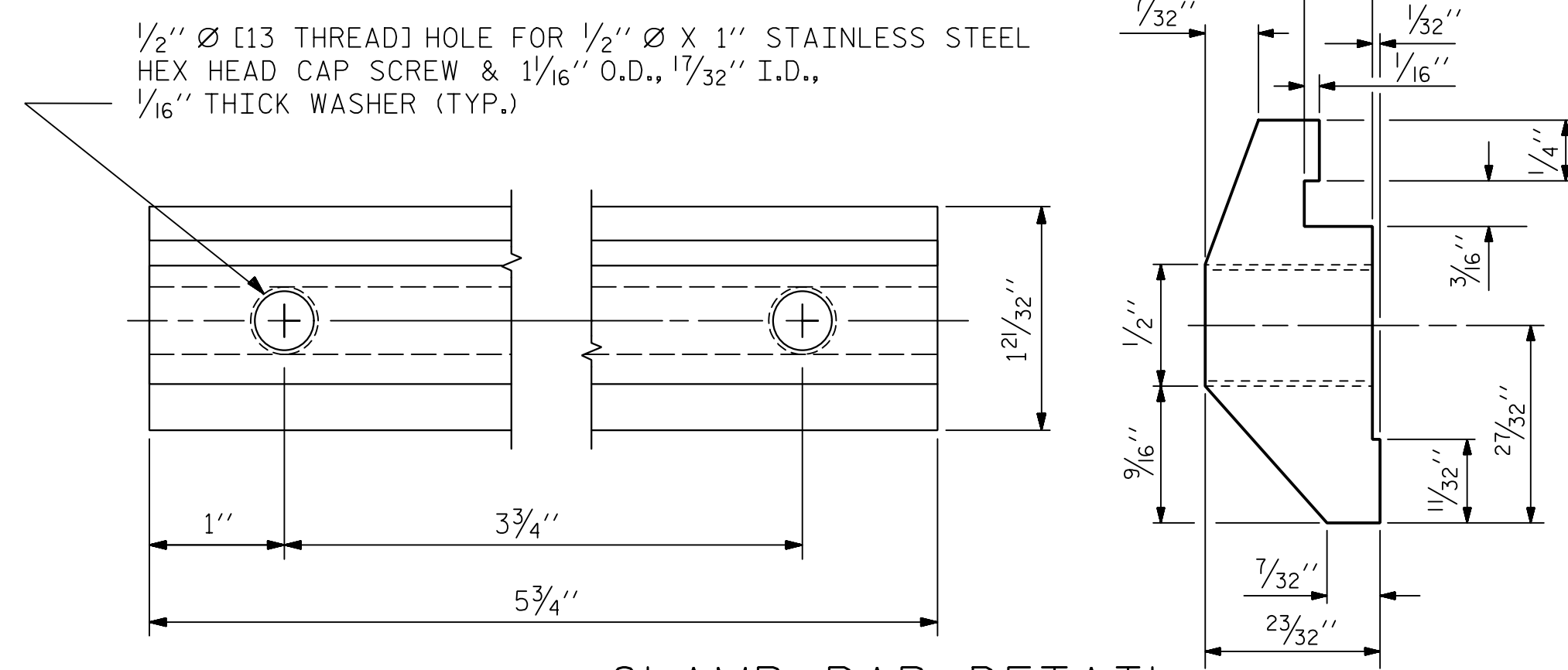


SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

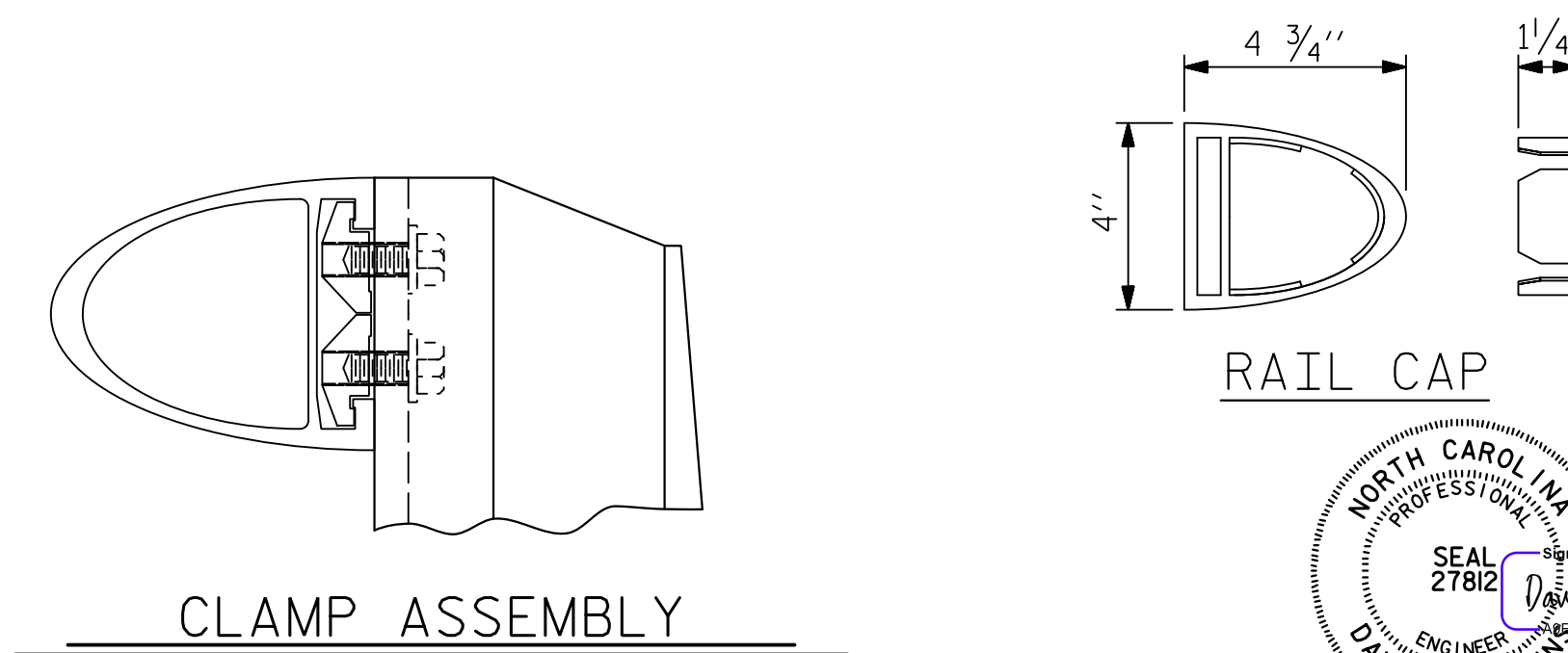


RAIL SECTION



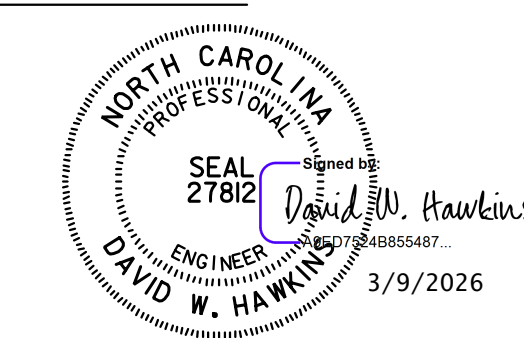
CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY

RAIL CAP



PROJECT NO. B-5995

PAMLICO COUNTY

STATION: 18+91.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

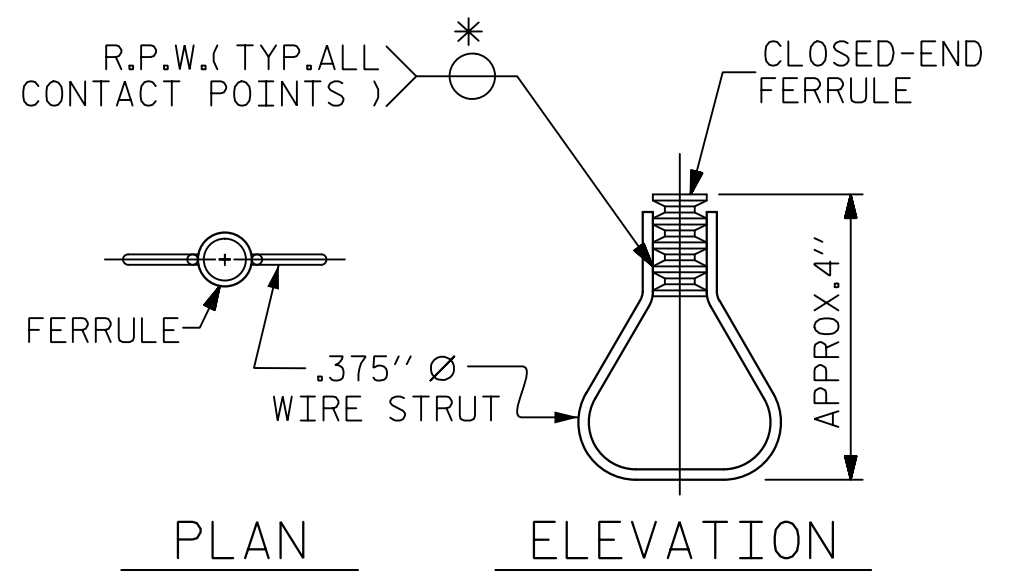
STANDARD
2 BAR METAL RAIL

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : EEM 6/94	REV. 5/1/06R KMM/GM
CHECKED BY : RGW 6/94	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY : M. WRIGHT	DATE : 11/25	DWG. NO. 9			
CHECKED BY : D. HAWKINS	DATE : 11/25				
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25				

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-9
1			3			TOTAL SHEETS
2			4			25

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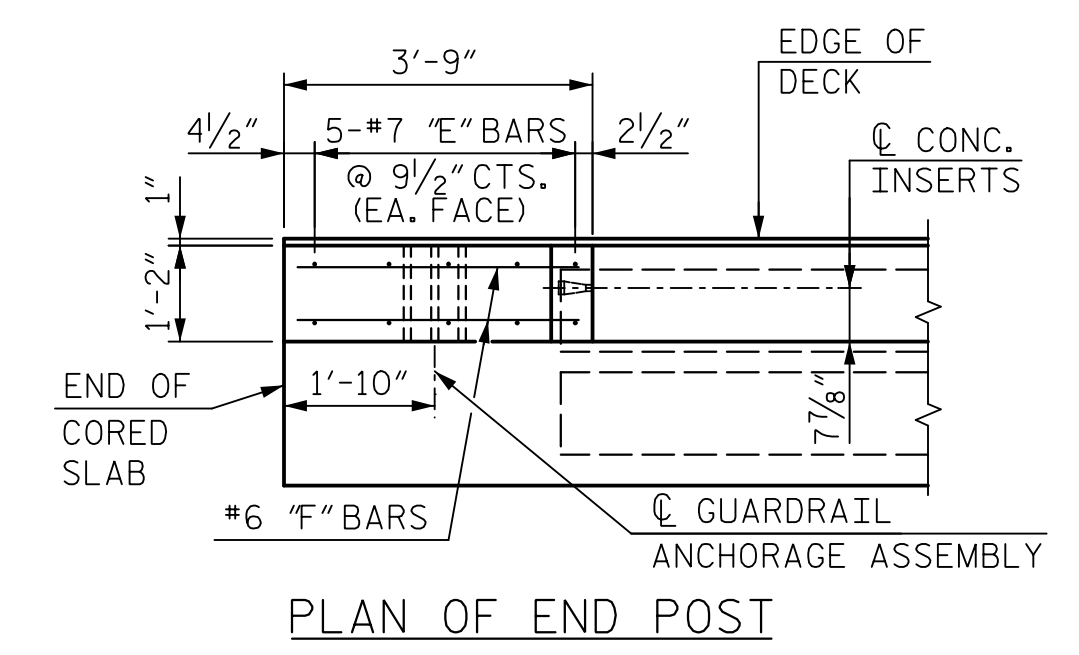


SEE SHEET 2 OF 2 FOR PLAN.

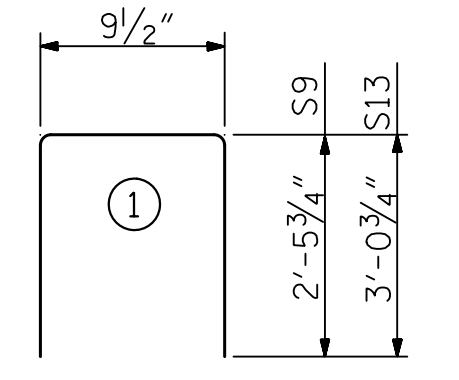
PLAN OF RAIL POST SPACINGS

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



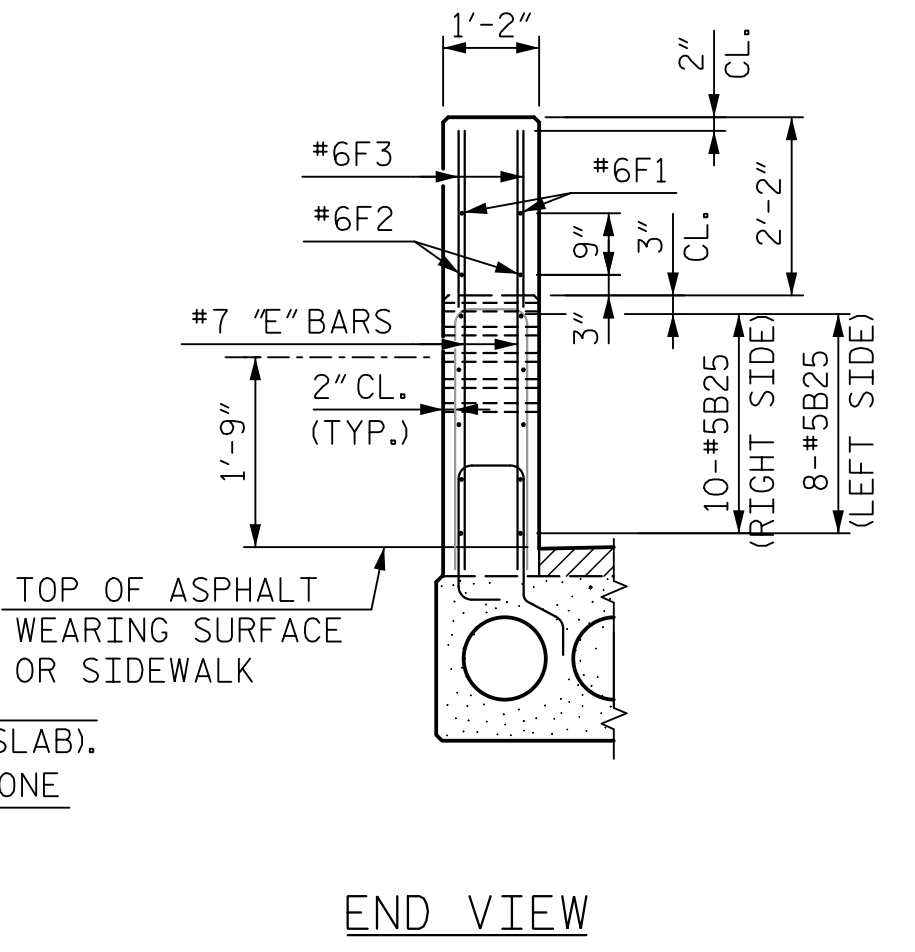
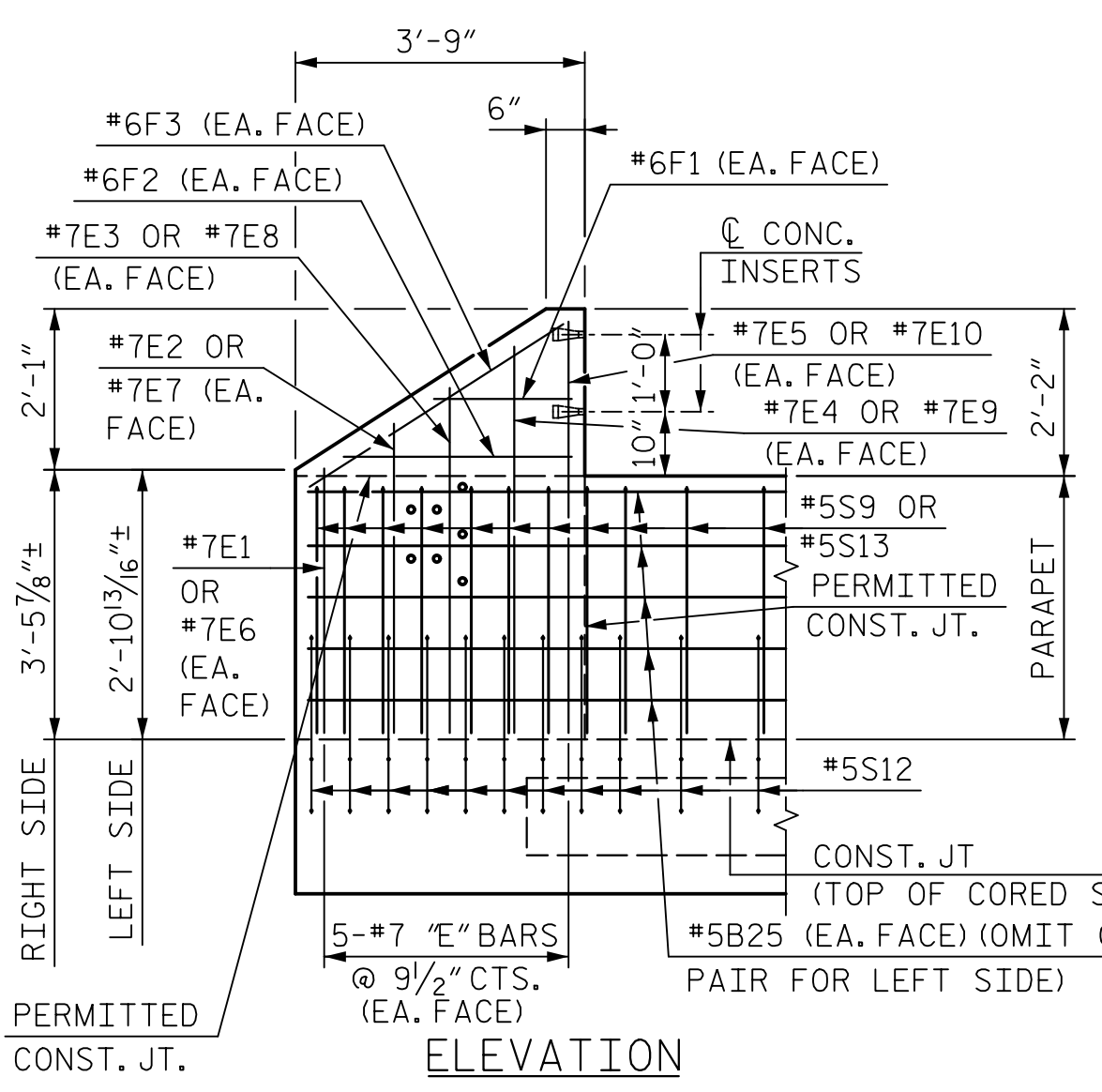
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR PARAPET & END POSTS

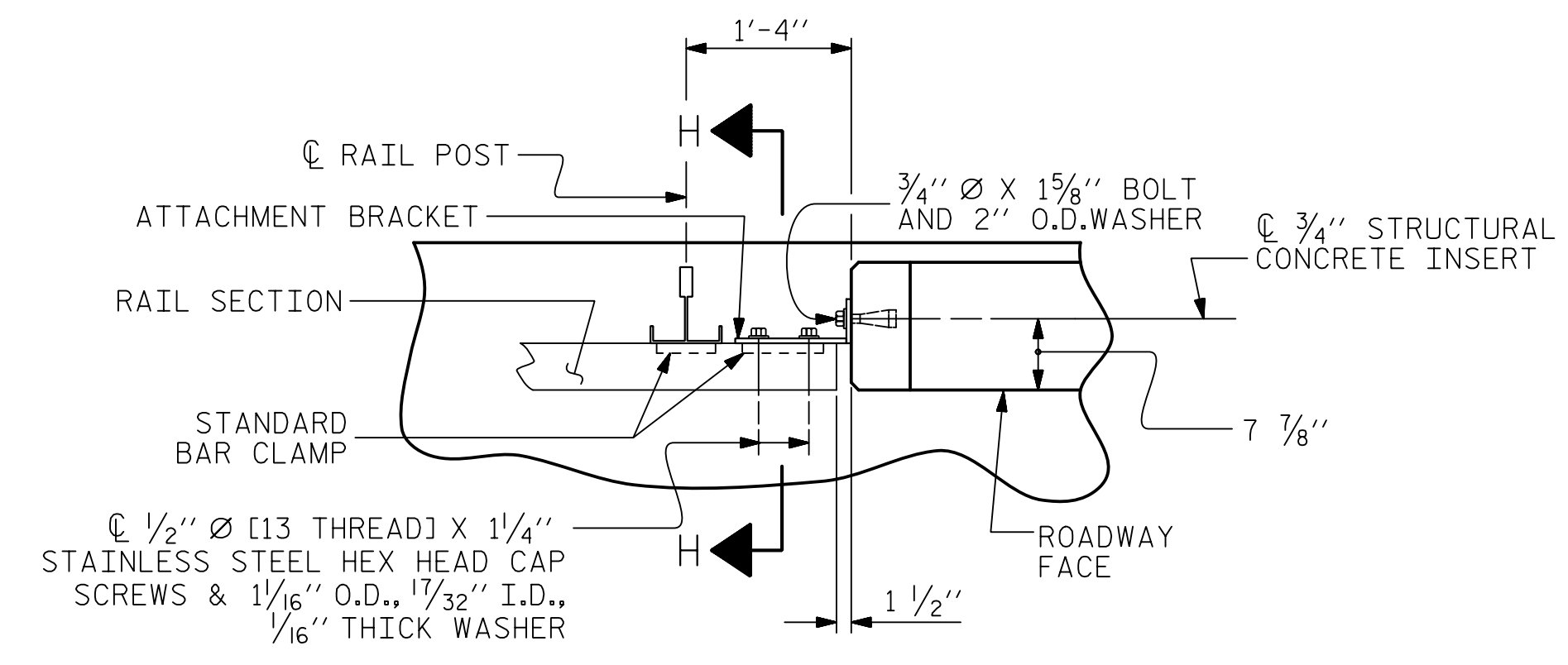
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B25	270	# 5	STR	22'-11"	6,454
* E1	4	# 7	STR	2'-10"	23
* E2	4	# 7	STR	3'-4"	27
* E3	4	# 7	STR	3'-10"	31
* E4	4	# 7	STR	4'-4"	35
* E5	4	# 7	STR	4'-8"	38
* E6	4	# 7	STR	3'-5"	28
* E7	4	# 7	STR	4'-0"	33
* E8	4	# 7	STR	4'-5"	36
* E9	4	# 7	STR	5'-0"	41
* E10	4	# 7	STR	5'-3"	43
* F1	8	# 6	STR	1'-9"	21
* F2	8	# 6	STR	2'-11"	35
* F3	8	# 6	STR	3'-10"	46
* S9	395	#5	1	5'-9"	2,369
* S13	395	#5	1	6'-11"	2,850
* EPOXY COATED REINFORCING STEEL				LBS.	12,110
CLASS AA CONCRETE				CU. YDS. (LT)	42.1
				CU. YDS. (RT)	51.0
TOTAL LIN. FT. OF 1'-2" X 2'-9 13/16" CONCRETE PARAPET (LEFT)					350.50'
TOTAL LIN. FT. OF 1'-2" X 3'-4 7/8" CONCRETE PARAPET (RIGHT)					350.50'



- ### NOTES
- STRUCTURAL CONCRETE INSERT
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1/2".
 - 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

- ### NOTES
- METAL RAIL TO END POST CONNECTION
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
 - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
 - STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.
- THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.
- THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
- THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN - RAIL AND END POST

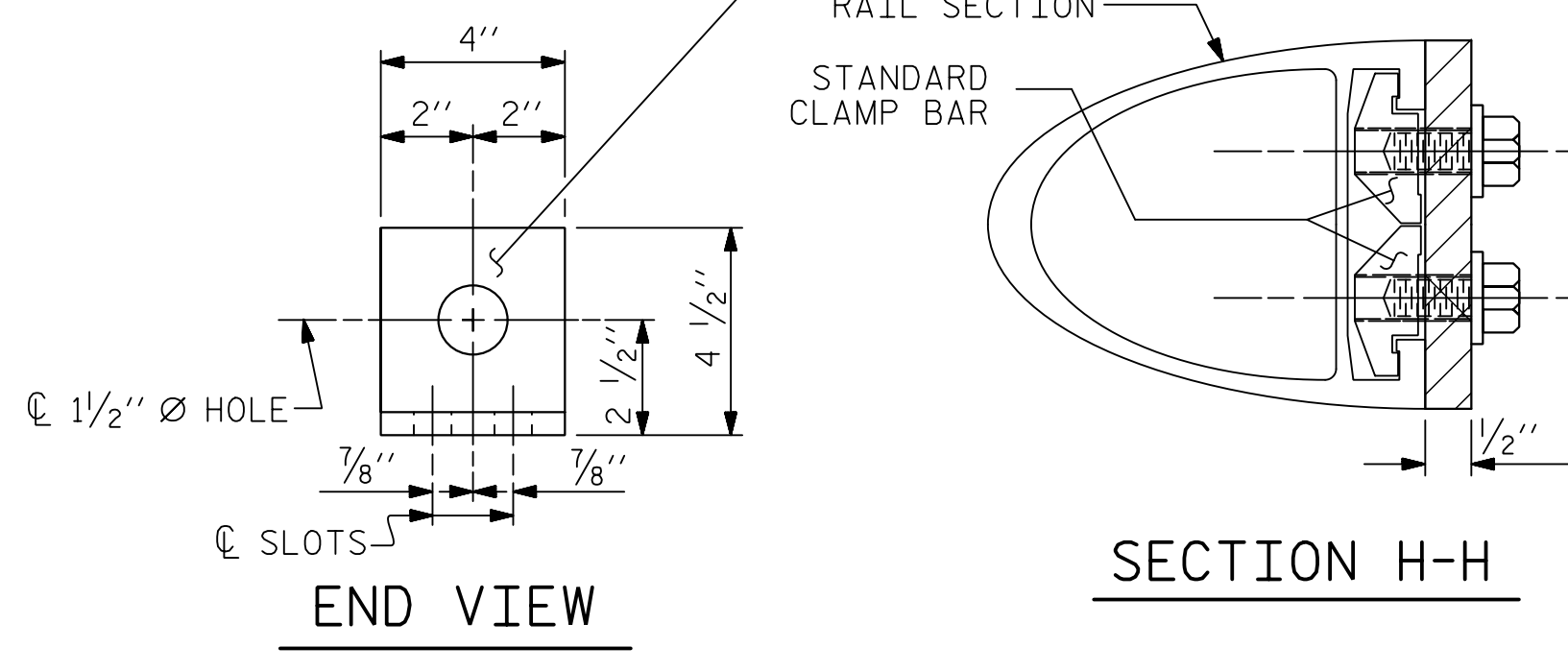
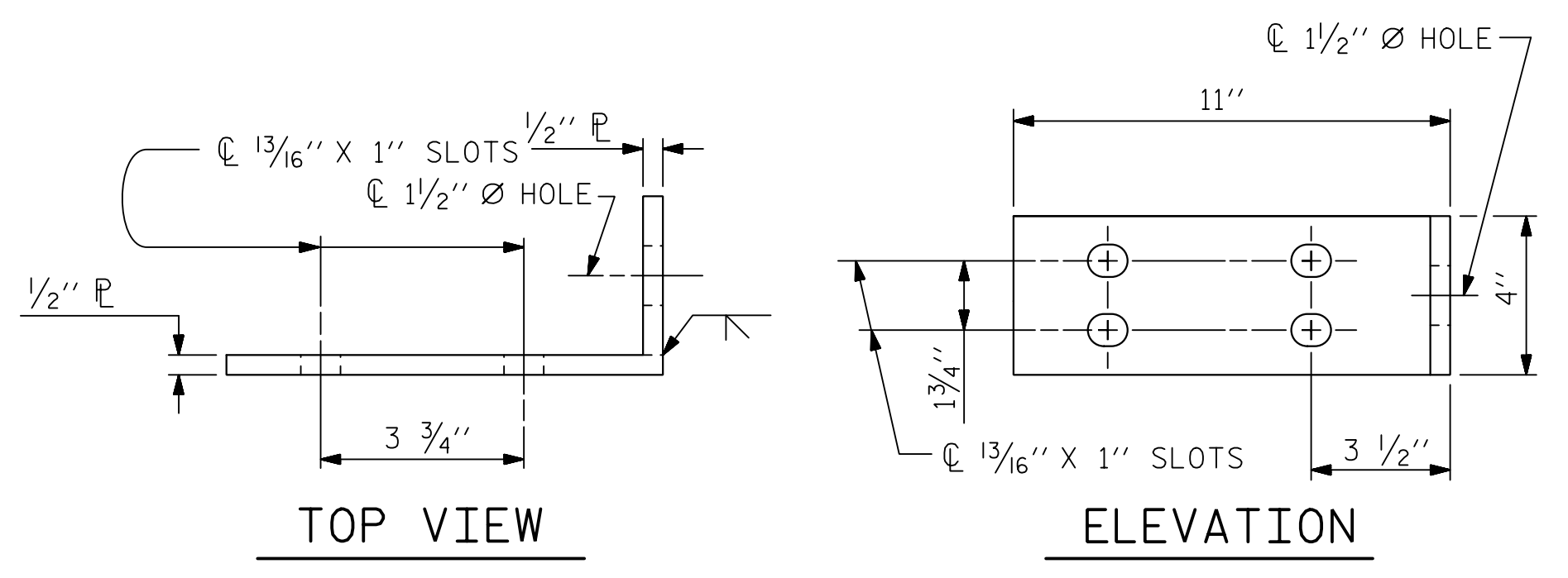
PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 1 OF 2

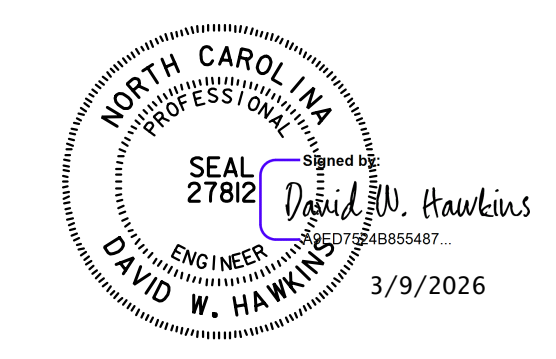
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
RAIL POST SPACINGS
 AND
END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-10
1			3			TOTAL SHEETS
2			4			25

ANGLE TO BE MADE FROM
 1/2" X 4" X 11" PLATE AND
 1/2" X 4" X 4" PLATE



SECTION H-H

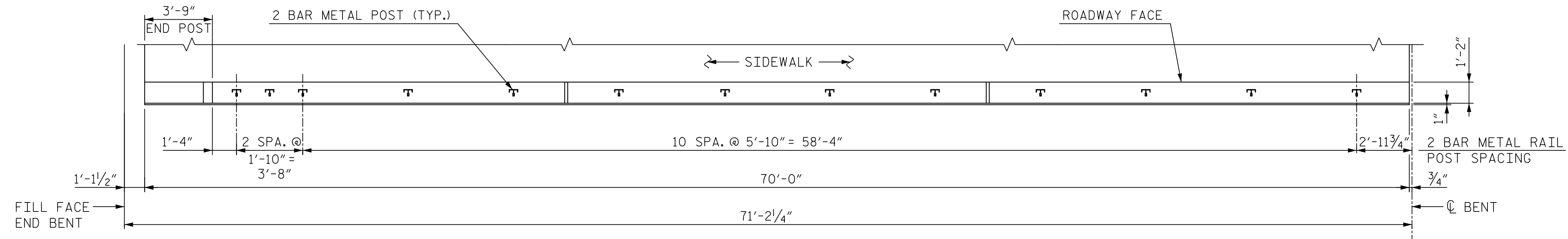


ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : FCJ 1/88	REV. 5/17/06 TLA/GM
CHECKED BY : CRK 3/89	REV. 10/11/11 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

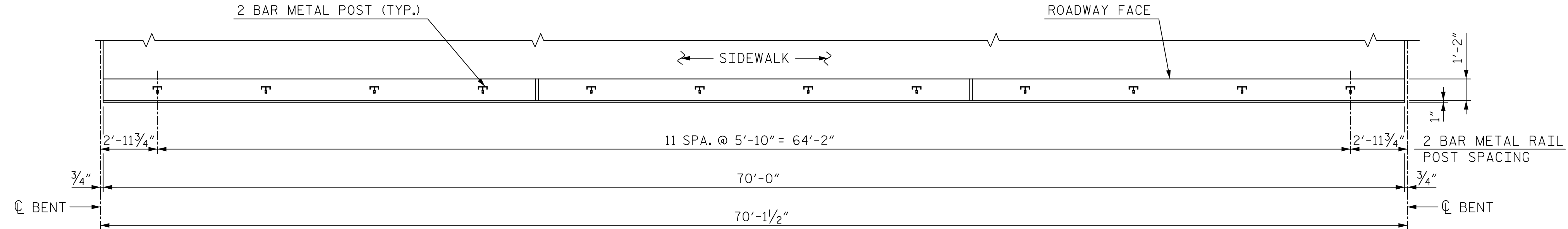
HNTB HNTB NORTH CAROLINA, P.C.	
NC License No. C-1554	
4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609	
DRAWN BY : M. WRIGHT	DATE : 11/25
CHECKED BY : D. HAWKINS	DATE : 11/25
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25
DWG. NO. 10	

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PLAN OF RAIL POST SPACINGS AT SPAN A OR E

RIGHT SIDE PLAN SHOWN. LEFT SIDE OPPOSITE HAND.



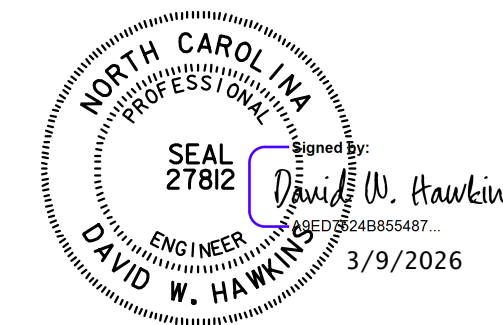
PLAN OF RAIL POST SPACINGS AT SPAN B, C, OR D

RIGHT SIDE PLAN SHOWN. LEFT SIDE OPPOSITE HAND.

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS



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 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

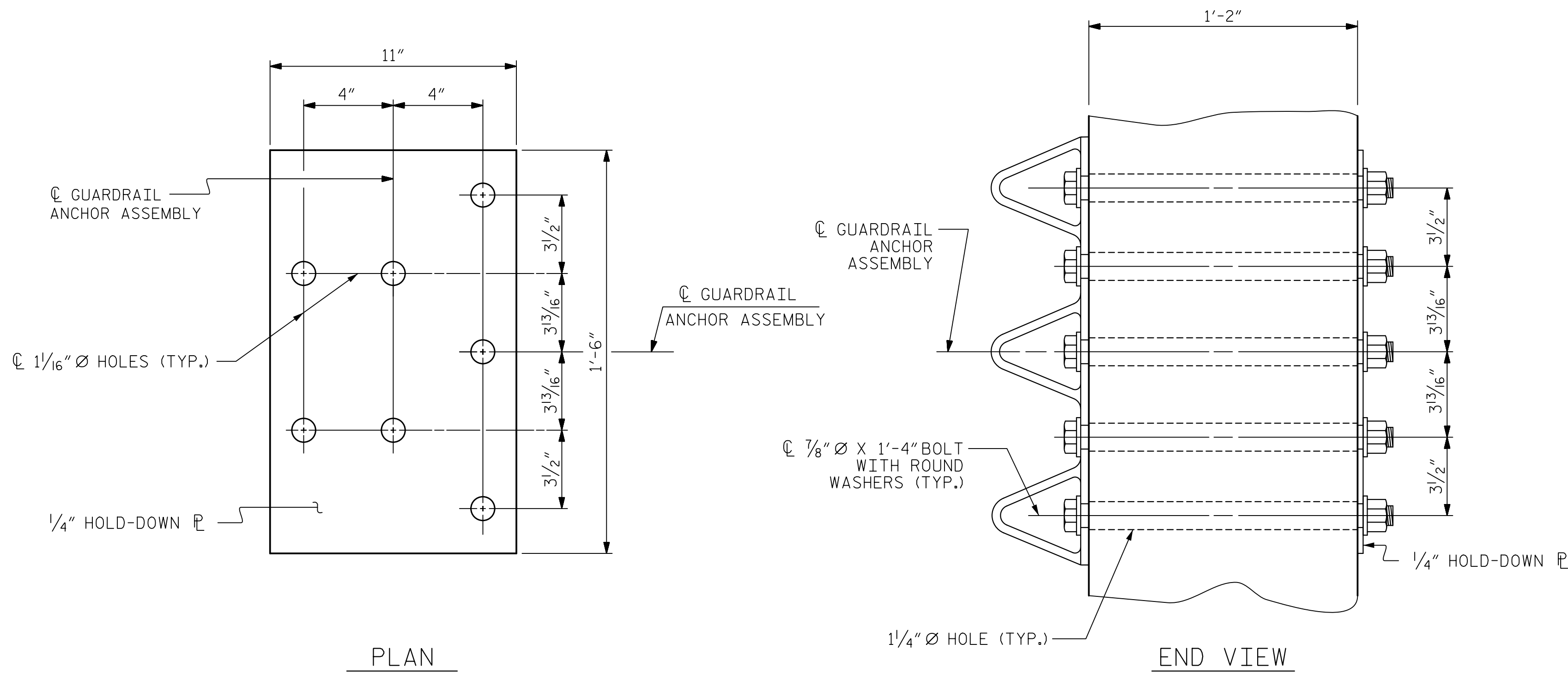
DWG. NO. 11

**DOCUMENT NOT CONSIDERED FINAL
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-11
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : FCJ 1/88	REV. 5/1/06 TLA/GM
CHECKED BY : CRK 3/89	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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GUARDRAIL ANCHOR ASSEMBLY DETAILS

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 THE PARAPET. 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 ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

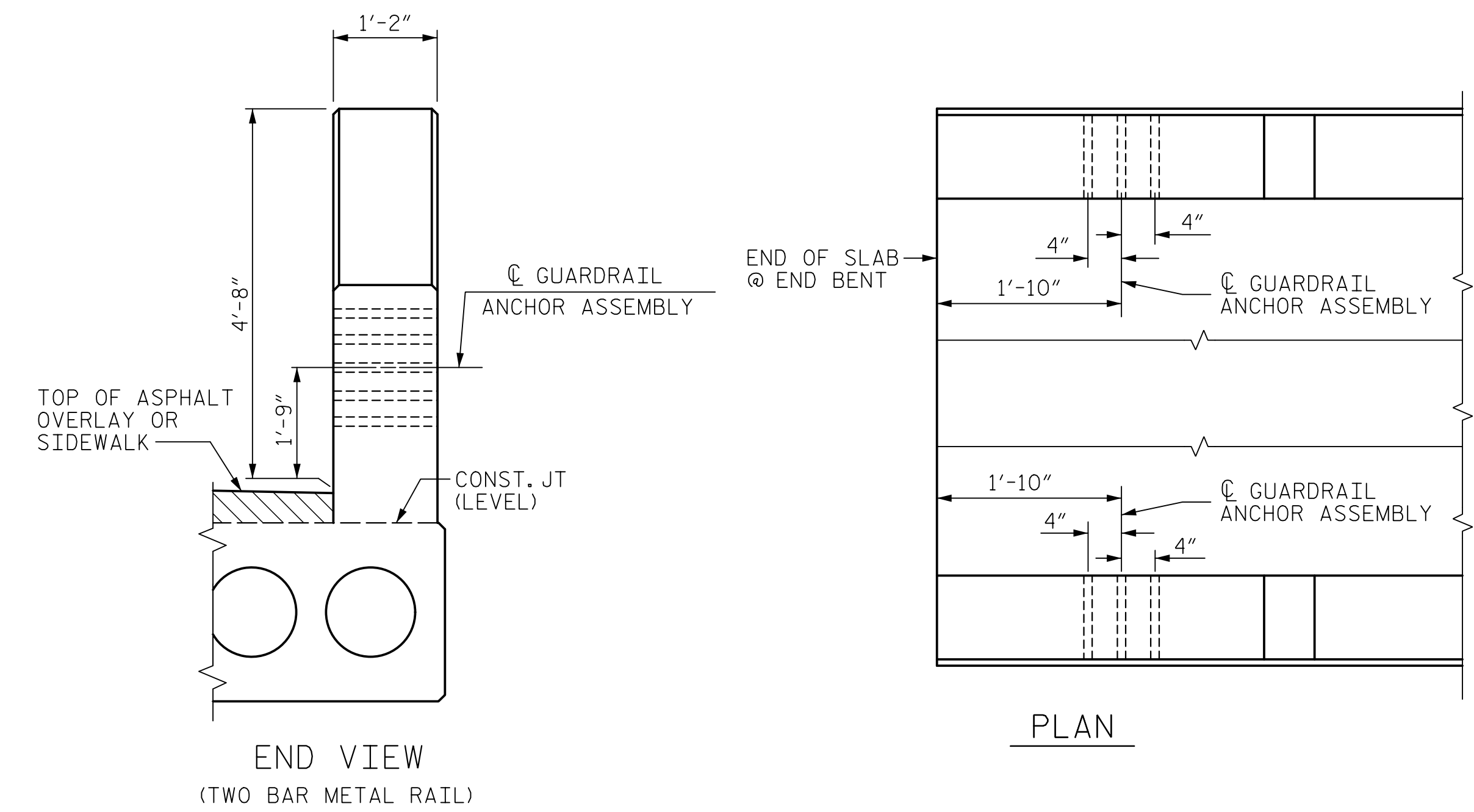
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 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.



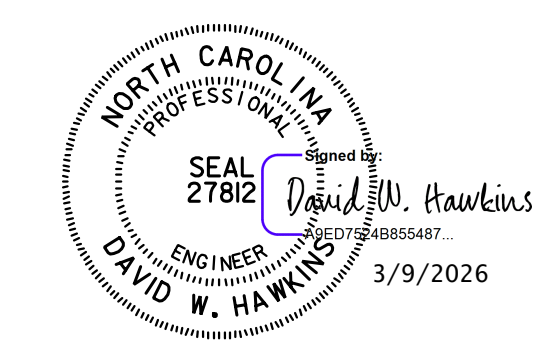
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMG
CHECKED BY : CM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

HNTB HNTB NORTH CAROLINA, P.C.		NC License No. C-1654	
4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609			
DRAWN BY : M. WRIGHT	DATE : 11/25	DWG. NO. 12	SHEET NO. S-12
CHECKED BY : D. HAWKINS	DATE : 11/25		
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25		

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

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 UNLESS ALL SIGNATURES COMPLETED**

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NOTES

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

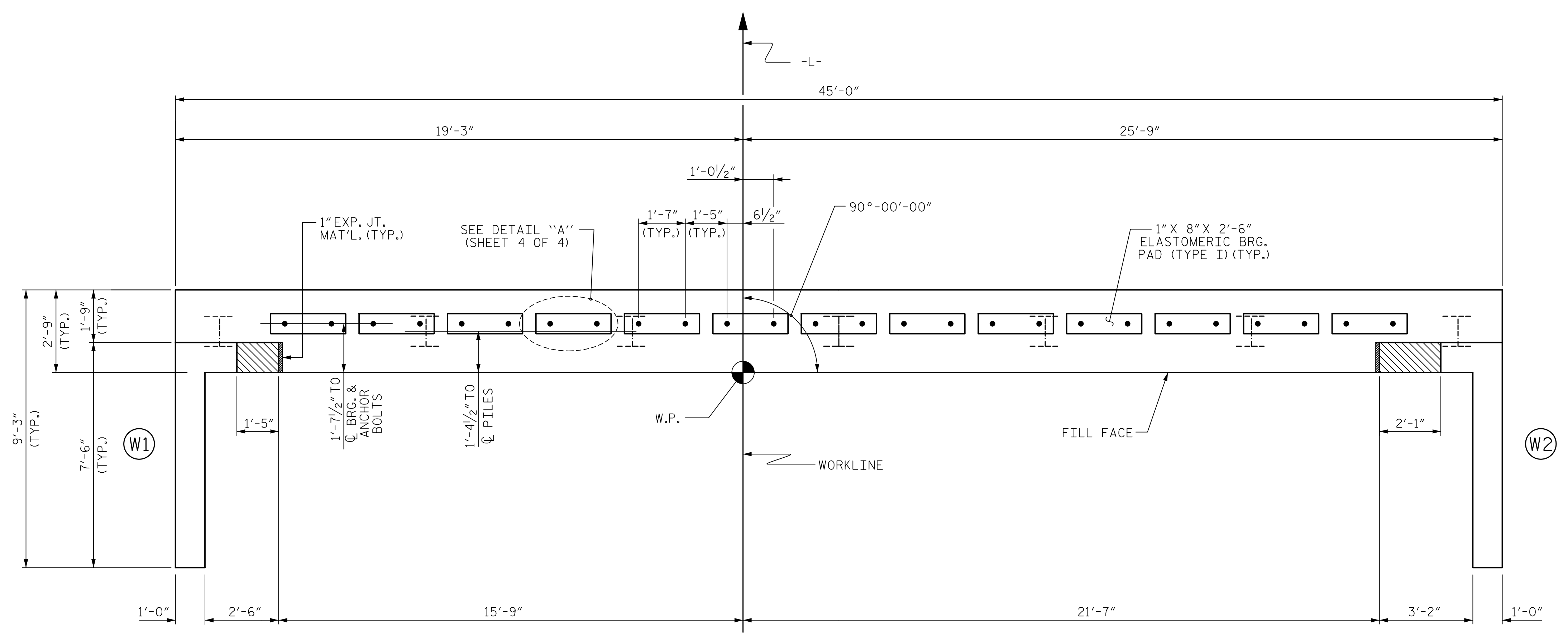
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET RAIL IS CAST IF SLIP FORMING IS USED.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

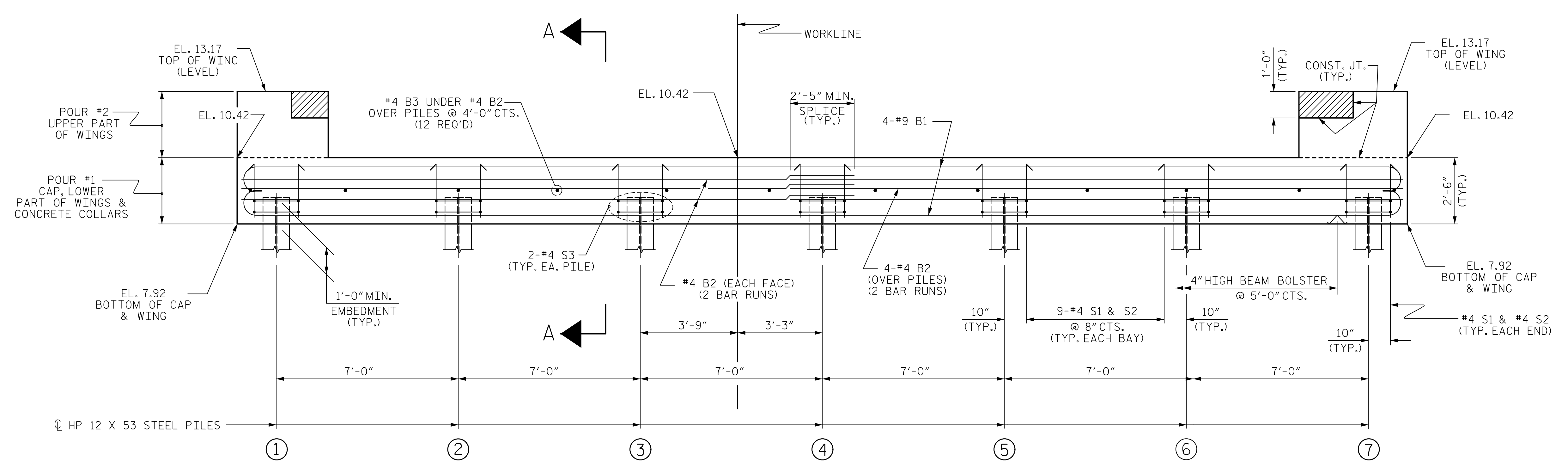
ALL BAR SUPPORTS USED IN THE END BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN END BENT NO. 1 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
FOR WING DETAILS, SEE SHEET 3 OF 4.

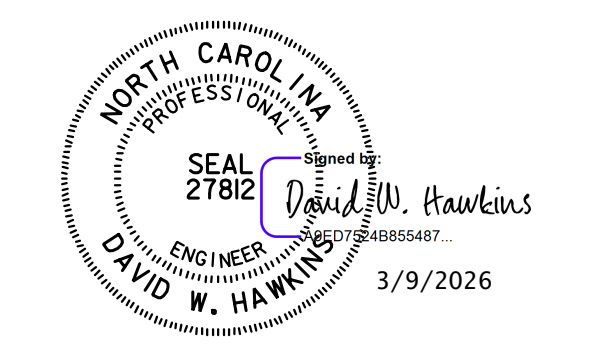


PLAN



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.



PROJECT NO. B-5995
PAMLICO COUNTY
STATION: 18+91.00 -L-

SHEET 1 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT No. 1

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : DGE 01/10	REV. 4/15 MAA/TMG
CHECKED BY : MKT 01/10	

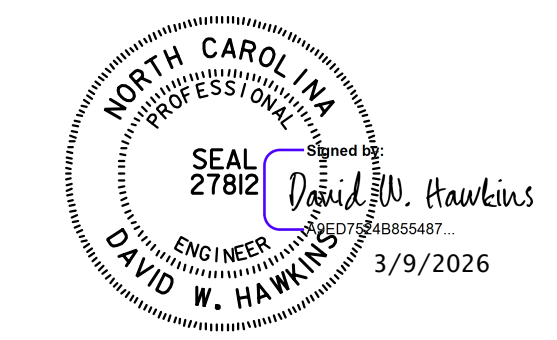
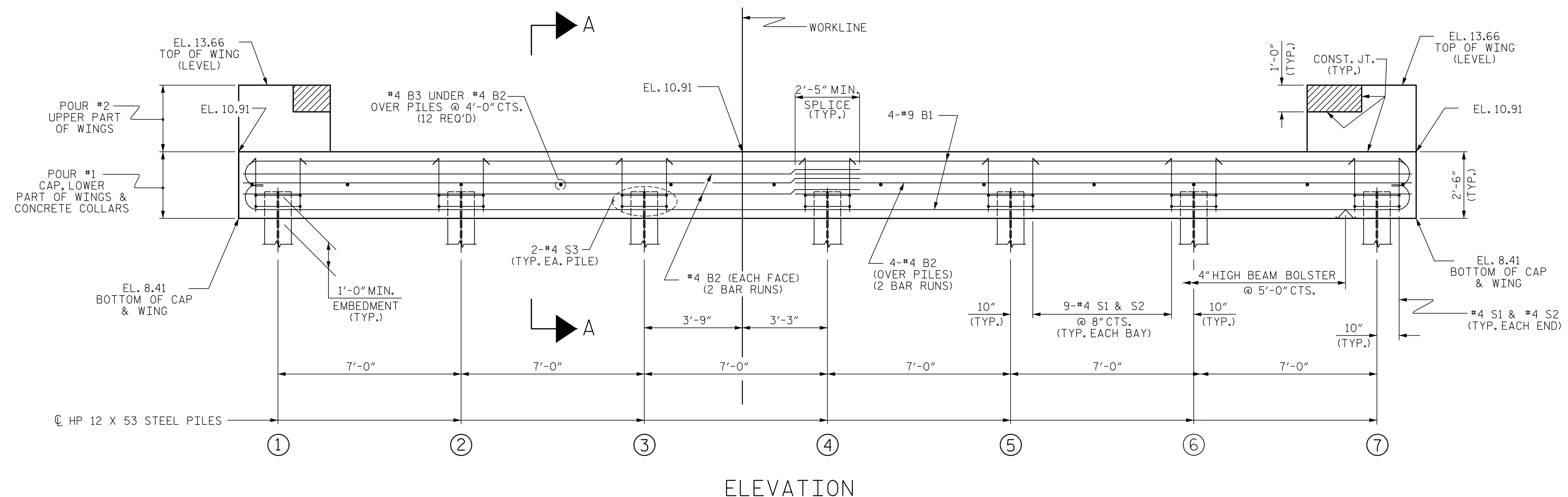
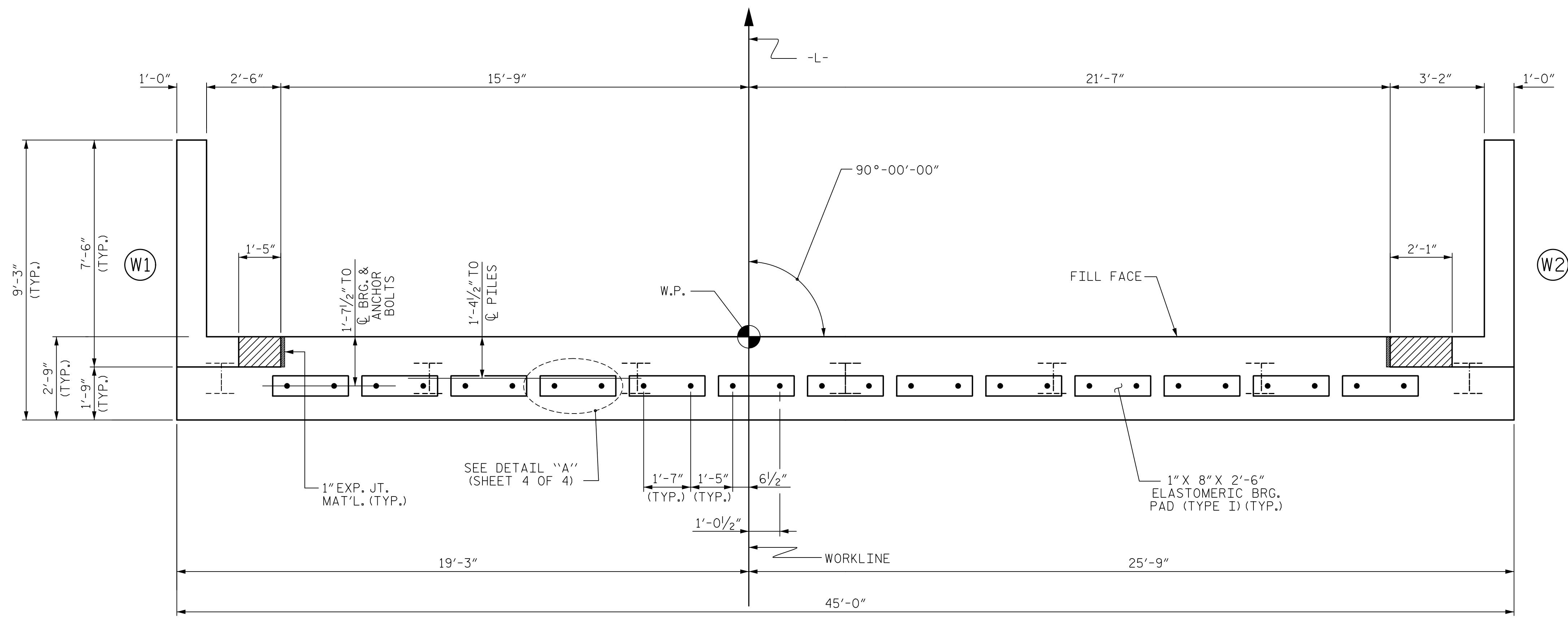
HNTB HNTB NORTH CAROLINA, P.C.	
NC License No. C-1654	
4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609	
DRAWN BY : M. WRIGHT	DATE : 11/25
CHECKED BY : D. HAWKINS	DATE : 11/25
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25
DWG. NO. 13	

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-13
1			3			TOTAL SHEETS
2			4			25

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NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET RAIL IS CAST IF SLIP FORMING IS USED.
- CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT CAPS AND SHALL CONTAIN CALCIUM NITRIDE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ALL BAR SUPPORTS USED IN THE END BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- THE CONCRETE IN END BENT NO. 2 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.
- FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
- FOR WING DETAILS, SEE SHEET 3 OF 4.



PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 2

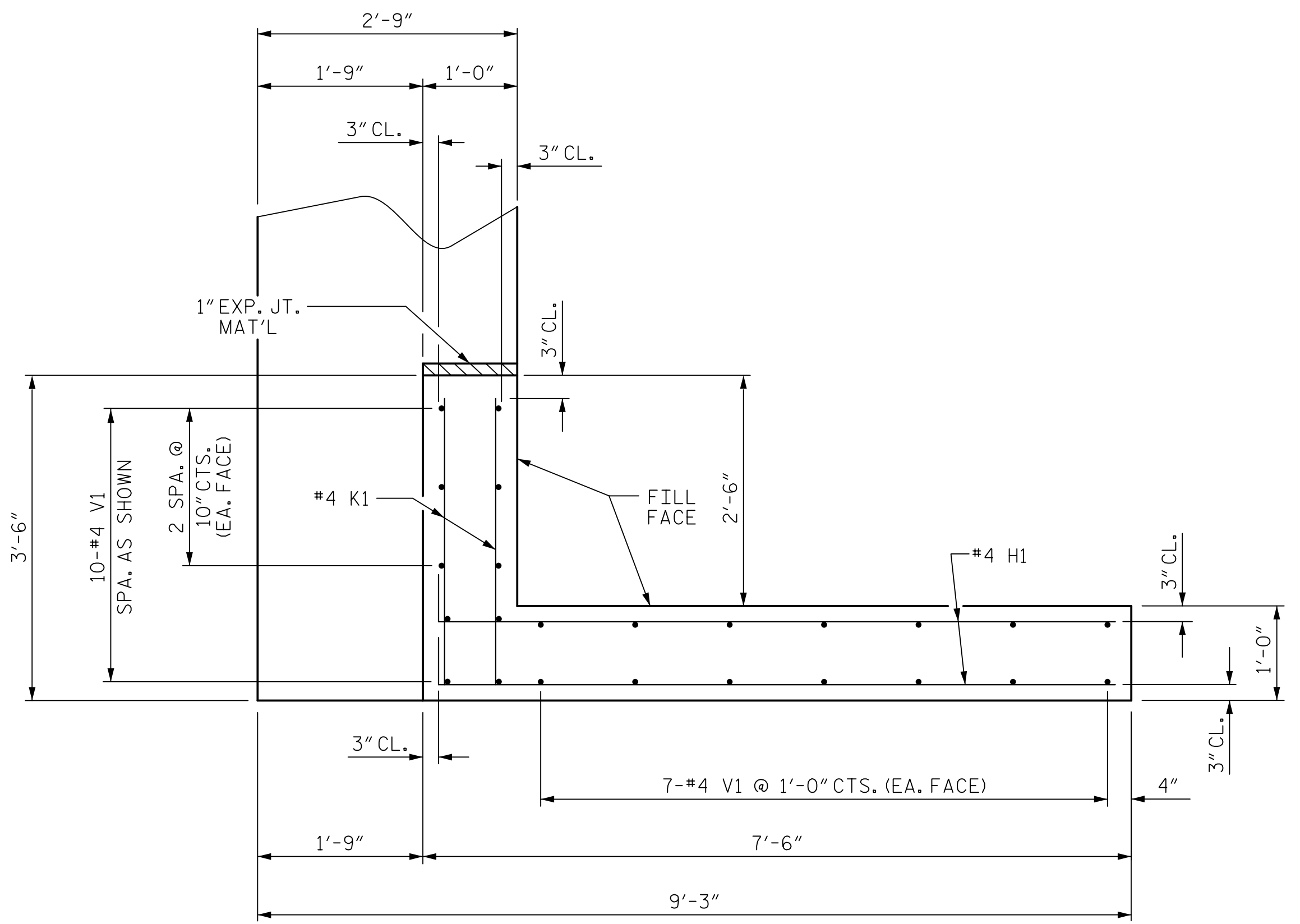
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : DGE 01/10	REV. 4/15 MAA/TMG
CHECKED BY : MKT 01/10	

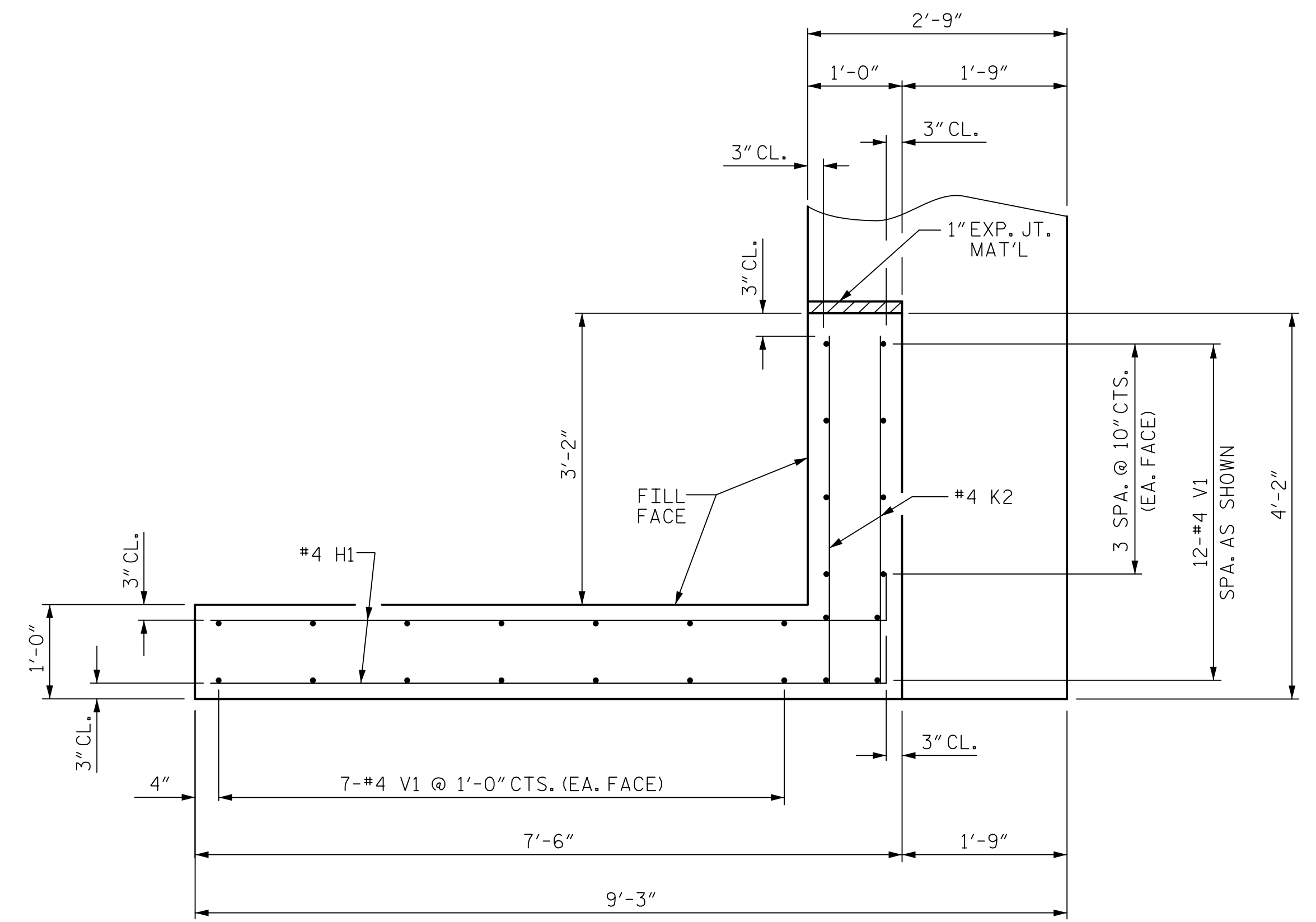
HNTB HNTB NORTH CAROLINA, P.C.		NC License No. C-1654	
4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609			
DRAWN BY : M. WRIGHT	DATE : 11/25	DWG. NO. 14	SHEET NO. S-14
CHECKED BY : D. HAWKINS	DATE : 11/25		
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 25
2			4			

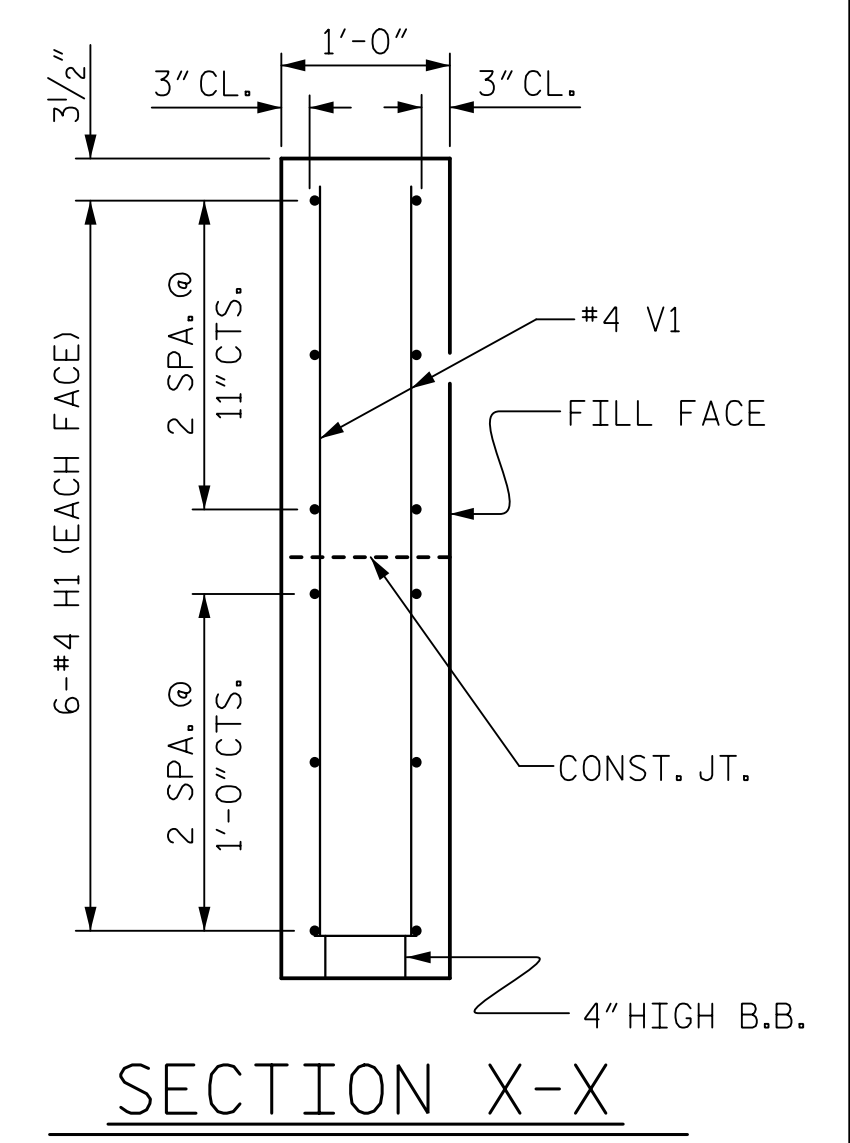
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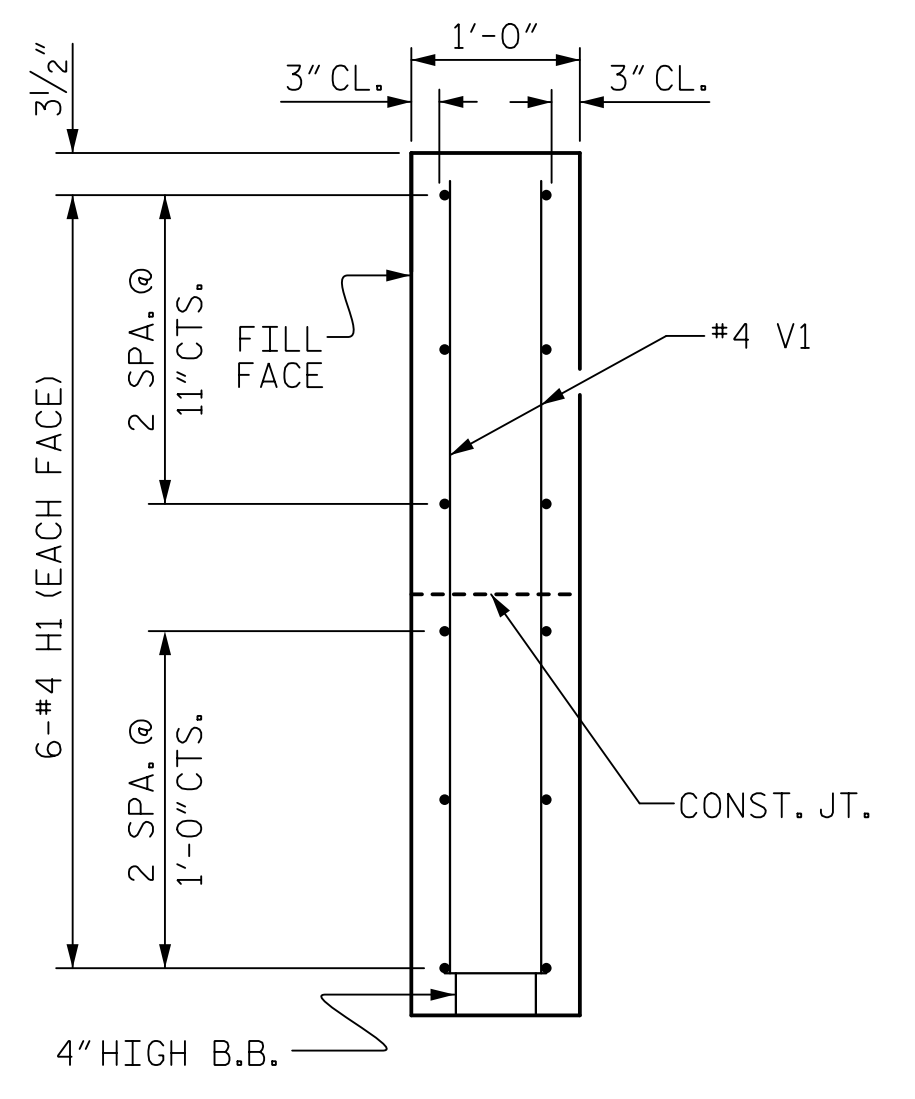
PLAN OF WING (W1)



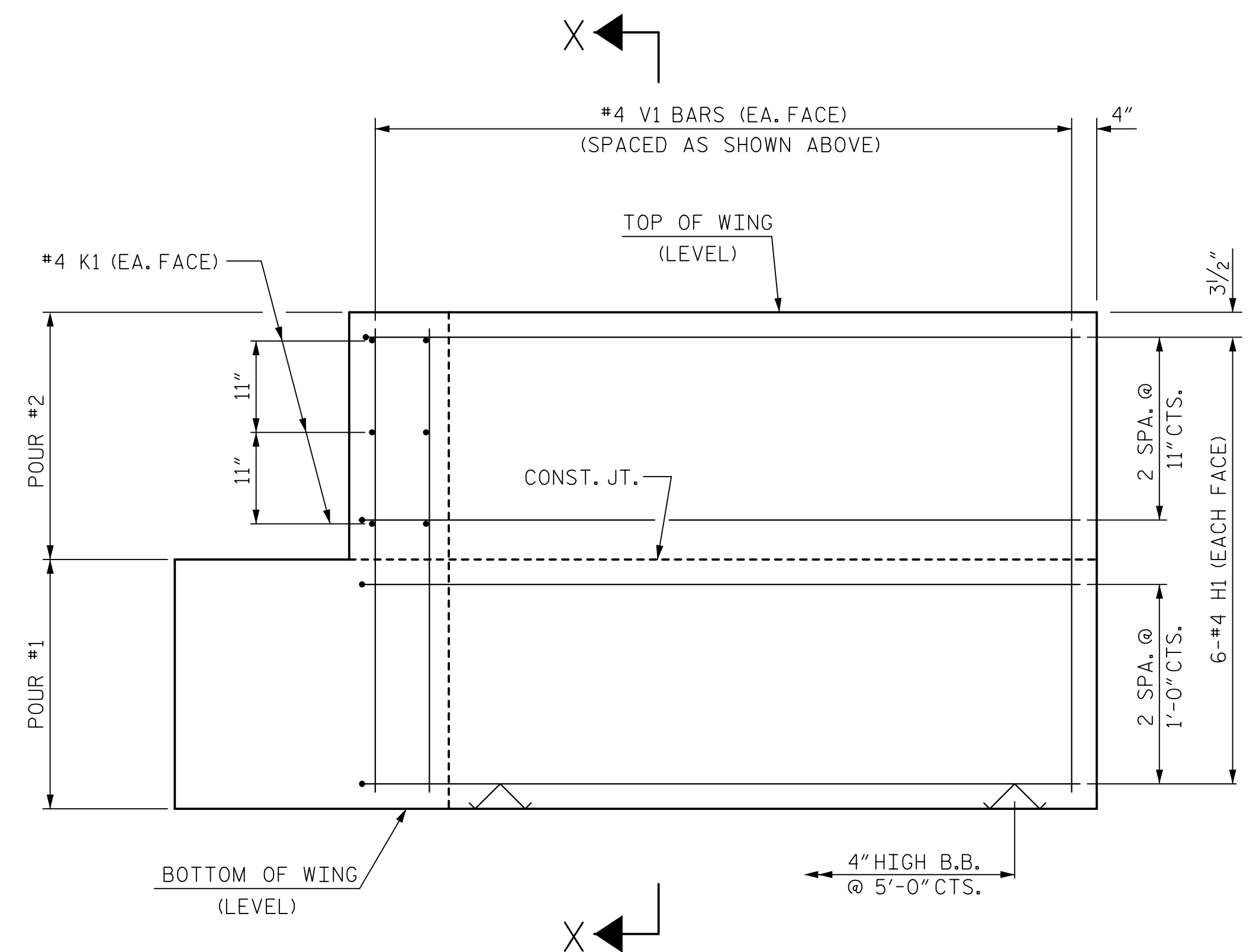
PLAN OF WING (W2)



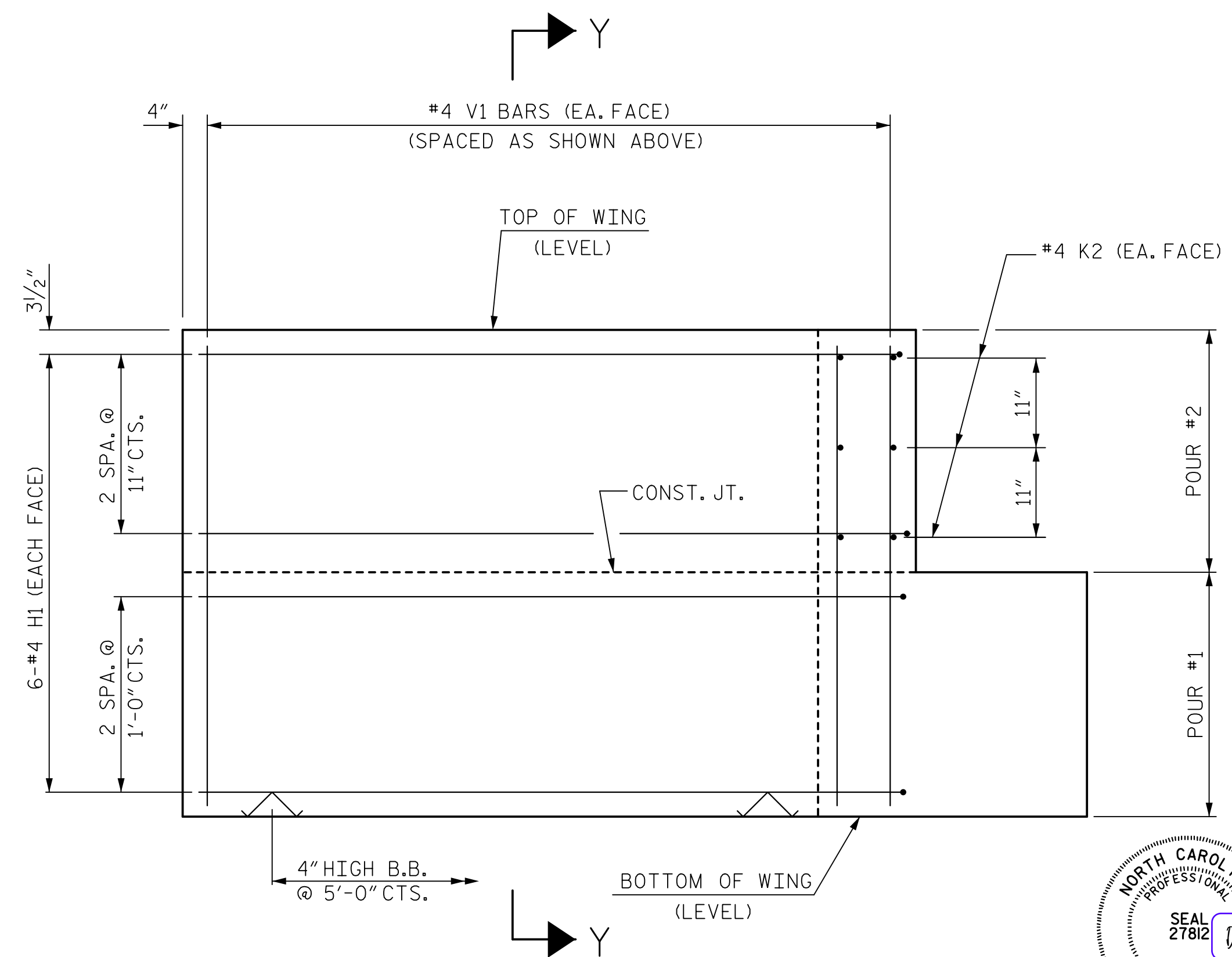
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

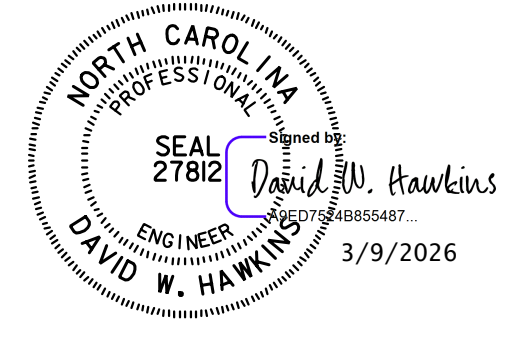
WING DETAILS

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT
 WING DETAILS



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 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

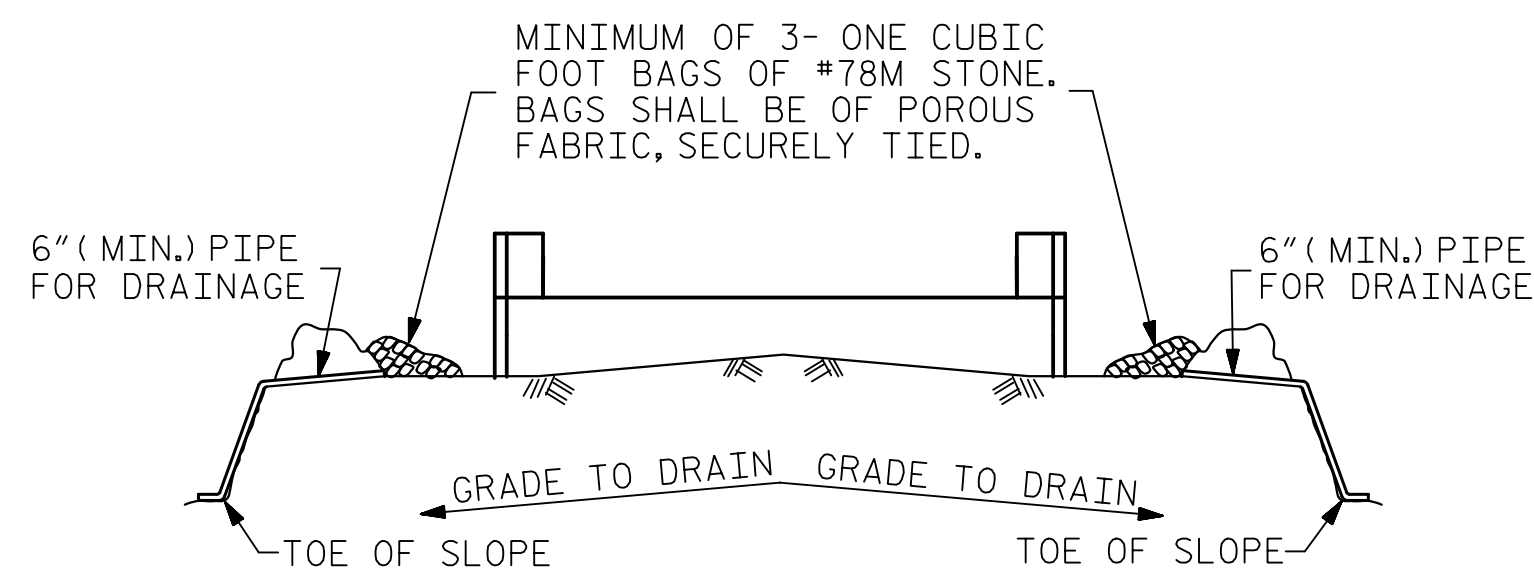
DWG. NO. 15

DOCUMENT NOT CONSIDERED FINAL
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-15
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY: M. WRIGHT	DATE: 6/22
CHECKED BY: P. BARBER	DATE: 6/22
DRAWN BY: DGE 02/10	REV. 4/15
CHECKED BY: MKT 02/10	MAA/TMG

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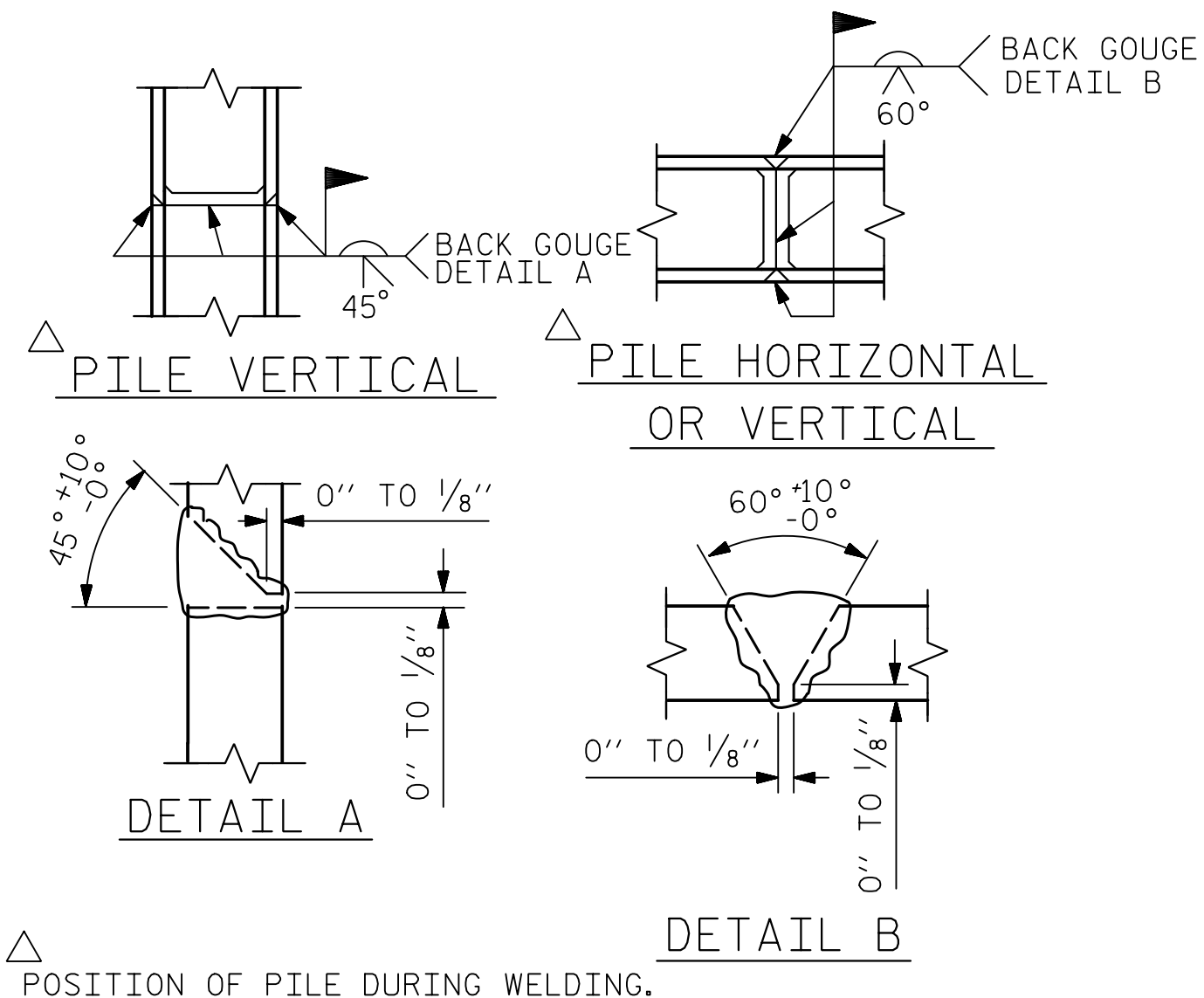


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

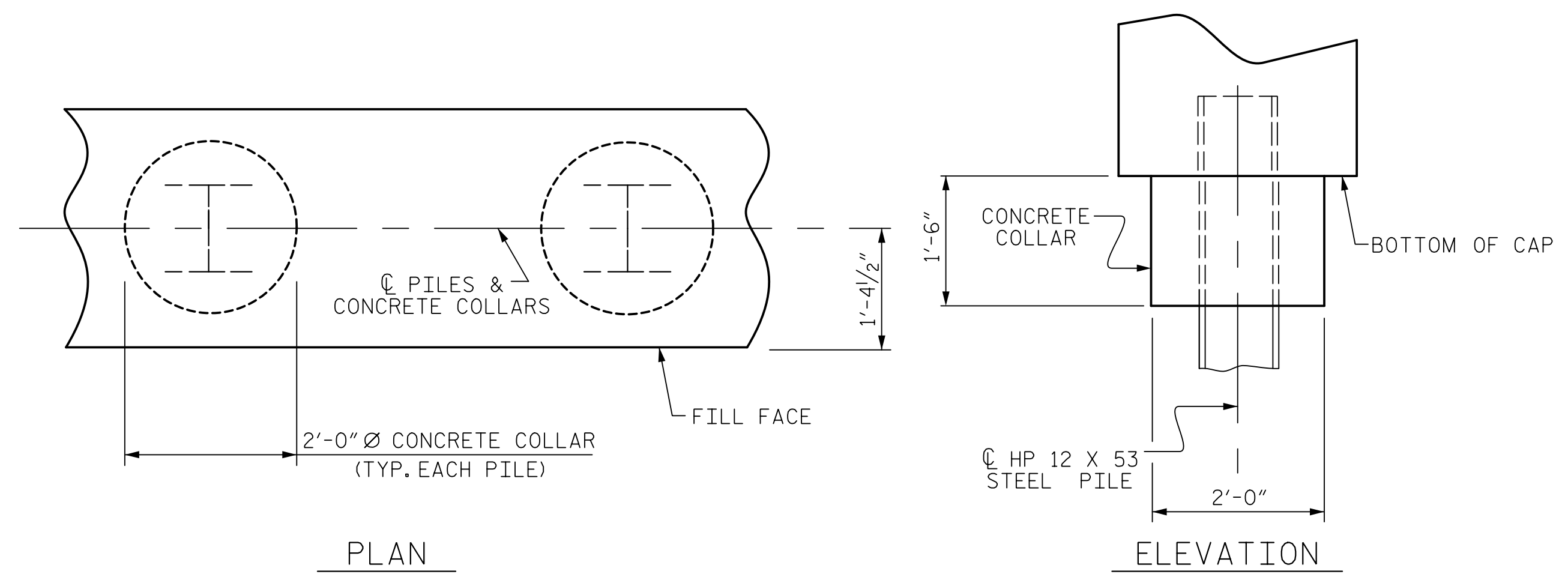
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



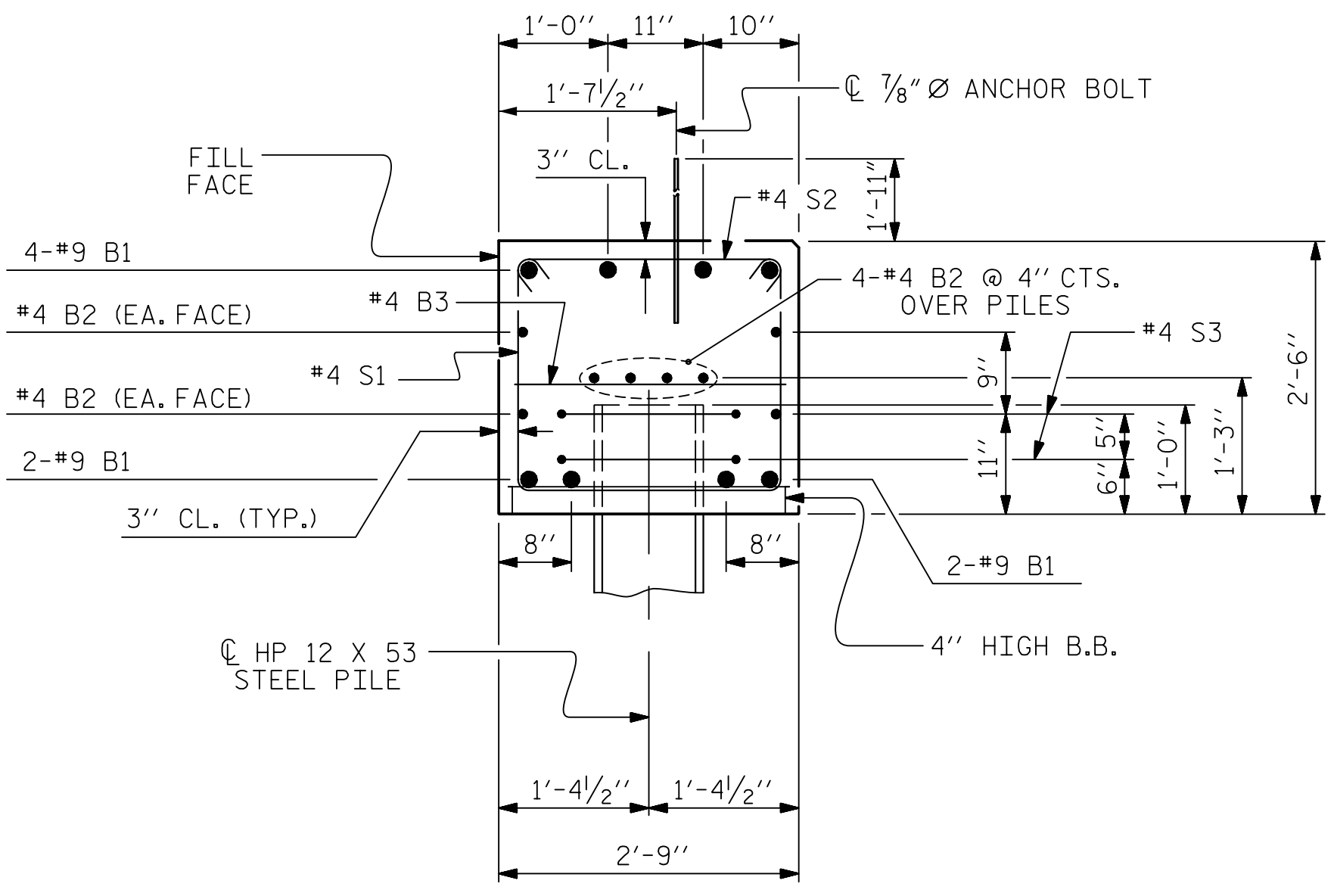
PILE SPLICE DETAILS

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	46'-10"	1,274
B2	16	#4	STR	23'-6"	251
B3	12	#4	STR	2'-3"	18
H1	24	#4	2	7'-8"	123
K1	6	#4	STR	3'-0"	12
K2	6	#4	STR	3'-8"	15
S1	56	#4	3	6'-11"	259
S2	56	#4	4	3'-0"	112
S3	14	#4	5	6'-6"	61
V1	50	#4	STR	4'-8"	156
				EPOXY COATED REINFORCING STEEL (FOR ONE END BENT)	2,281 LBS.
				CLASS AA CONCRETE BREAKDOWN (FOR ONE END BENT)	
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					13.9 C.Y.
POUR #2 UPPER PART OF WINGS					2.1 C.Y.
TOTAL CLASS AA CONCRETE					16.0 C.Y.



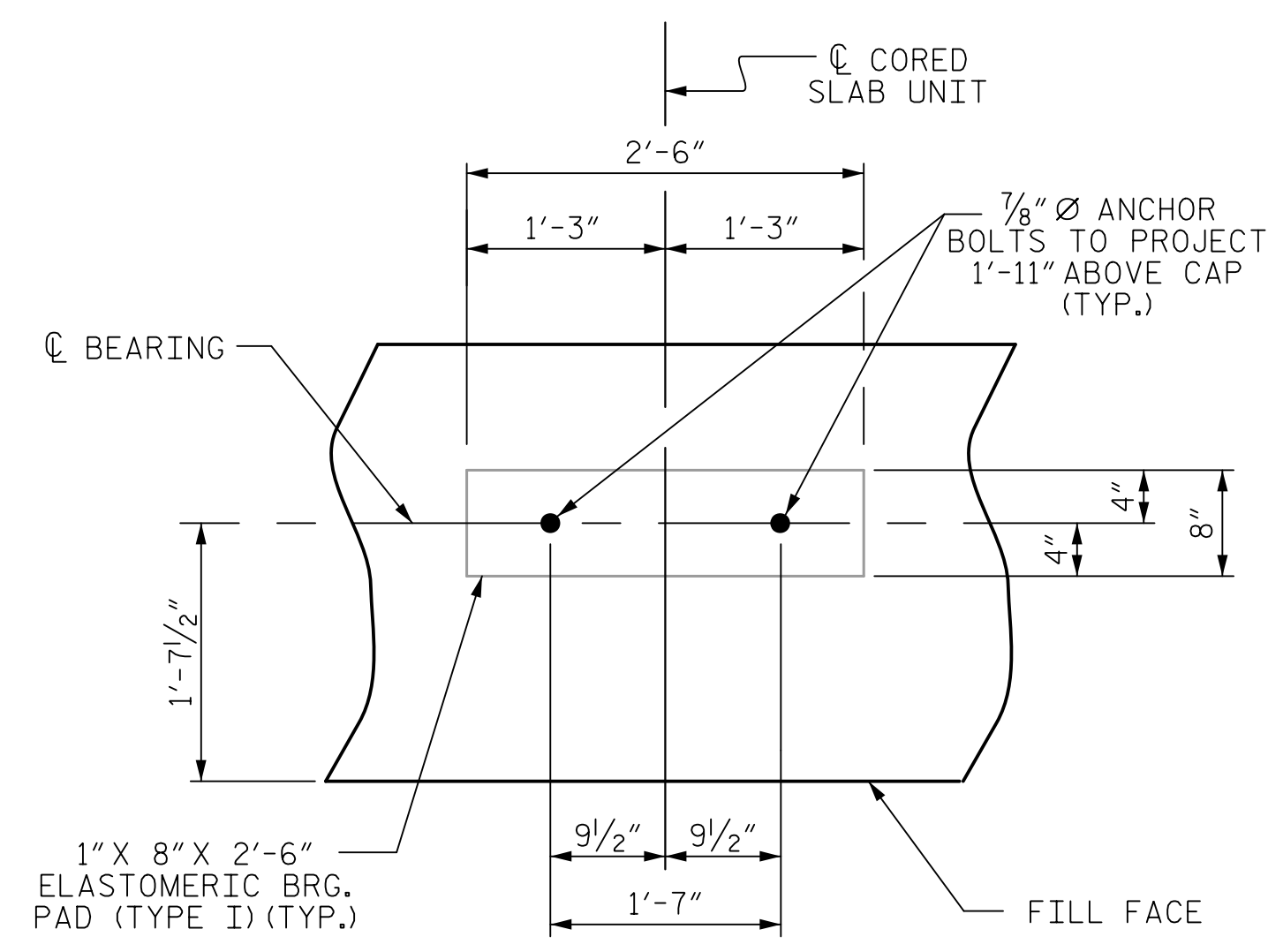
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



NOTES: ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



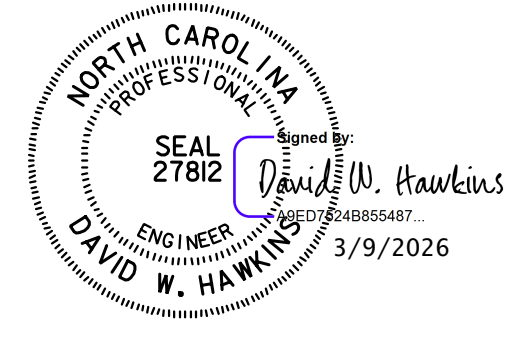
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1 & 2
 DETAILS



HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DESIGNED BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 16

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-16
1			3			TOTAL SHEETS
2			4			25

2/11/2025 10:59:29 AM \\work\00\proj\6606_2015_Eastern Region Division On-Call\B-5995_BROST_Pamlico County\Structures\Drawings\1_03_1_B5995_SMU_EC4_016_680057.dwg

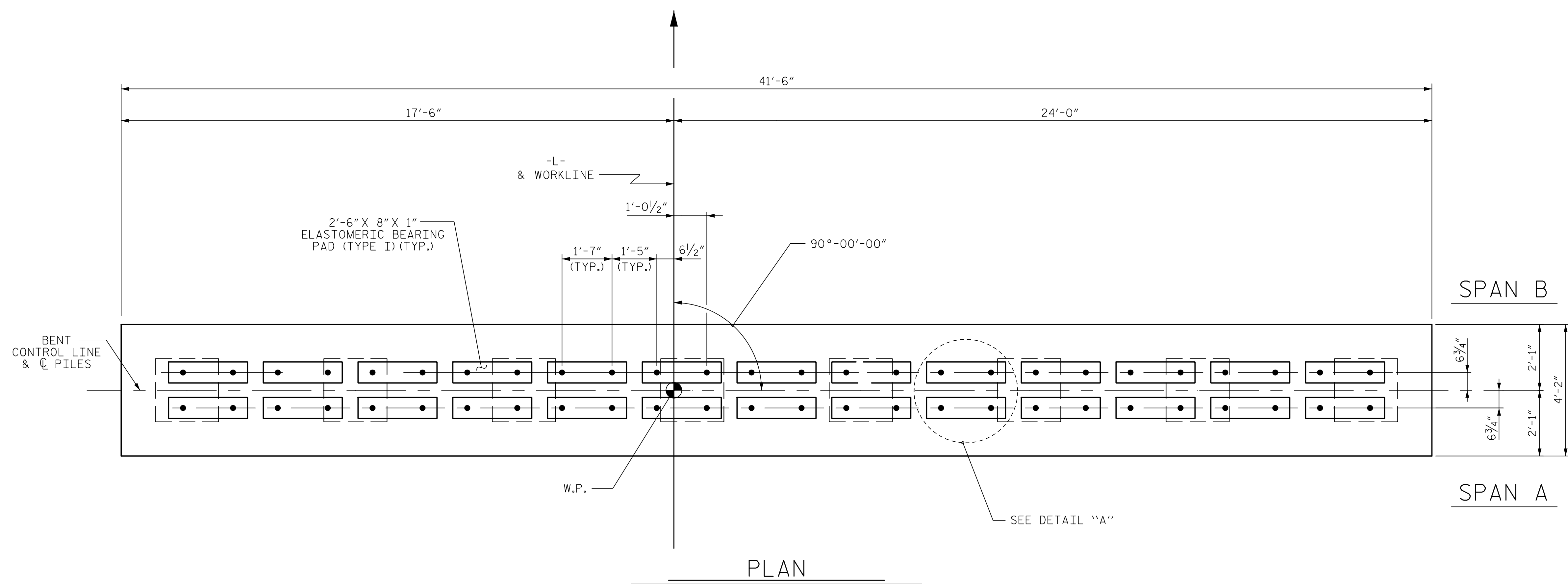
NOTES

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

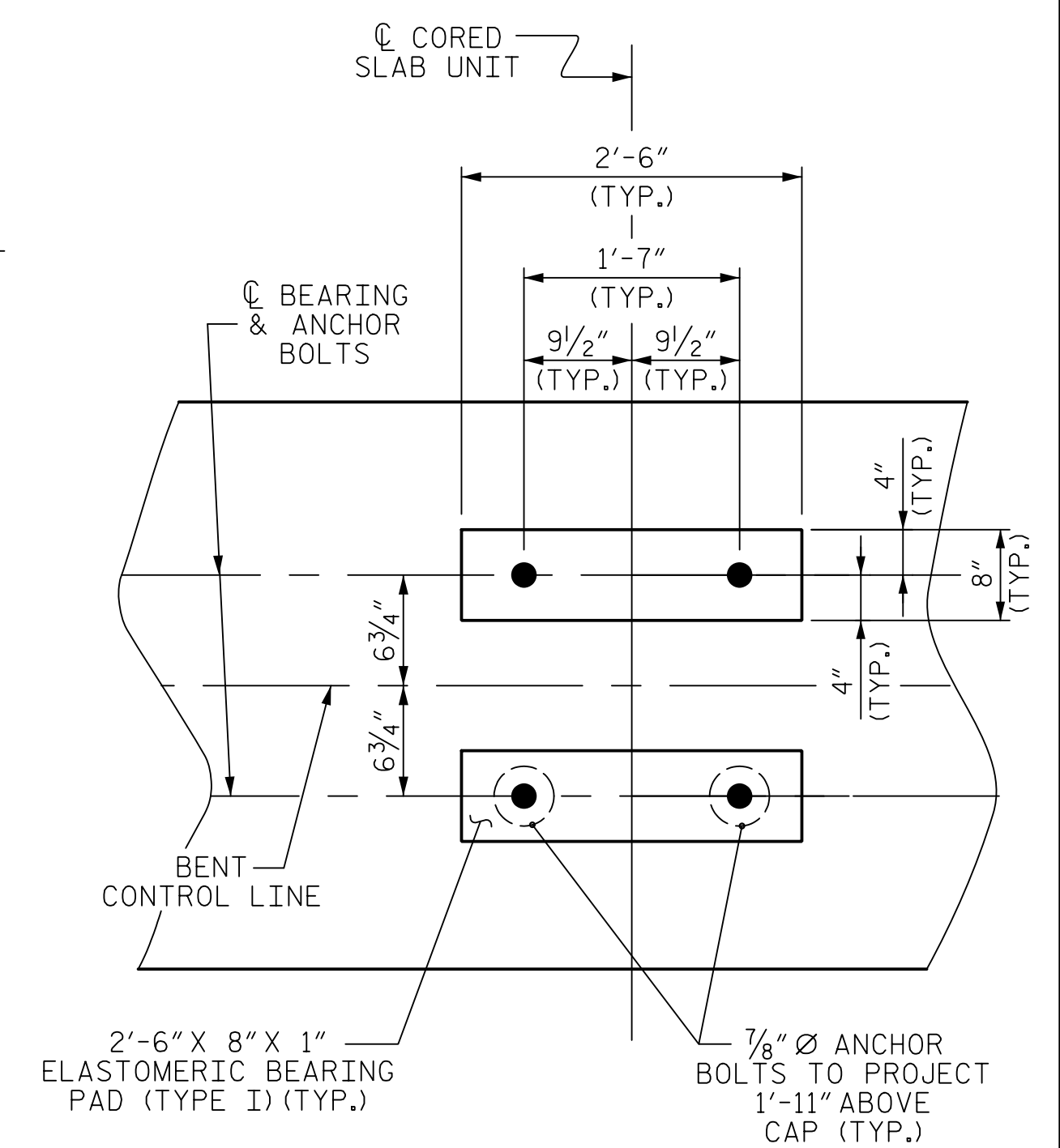
ALL BAR SUPPORTS USED IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE BENT CAP OF BENT NO.1 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

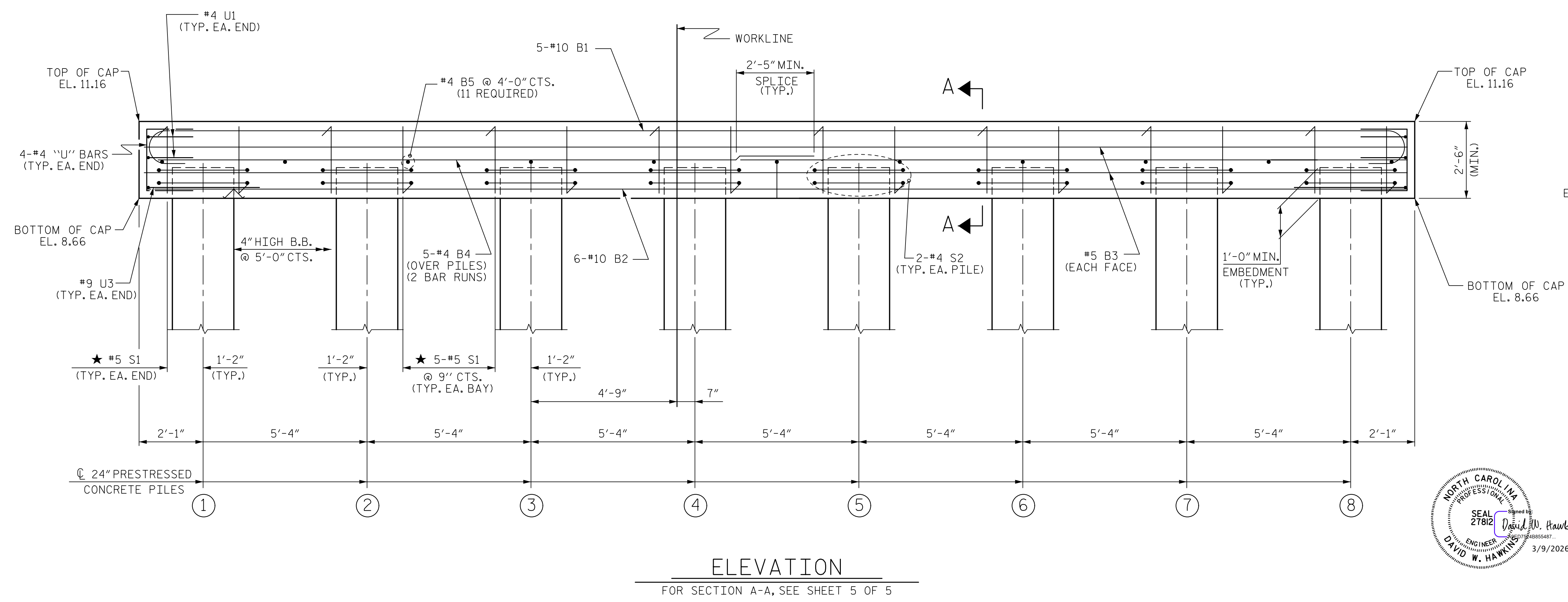


SPAN B

SPAN A



(DIMENSIONS ARE TYPICAL EACH BEARING)

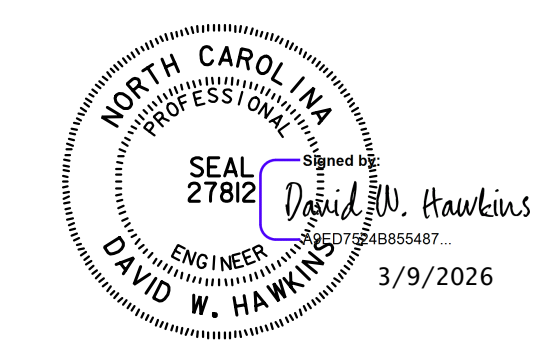


PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 1



ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : DGE 06/10	REV. 6/17
CHECKED BY : MKT 06/10	MAA/THC

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 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DWG. NO. 17

DRAWN BY	M. WRIGHT	DATE	11/25
CHECKED BY	D. HAWKINS	DATE	11/25
DESIGN ENGINEER OF RECORD	D. HAWKINS	DATE	11/25

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-17
1			3			TOTAL SHEETS
2			4			25

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

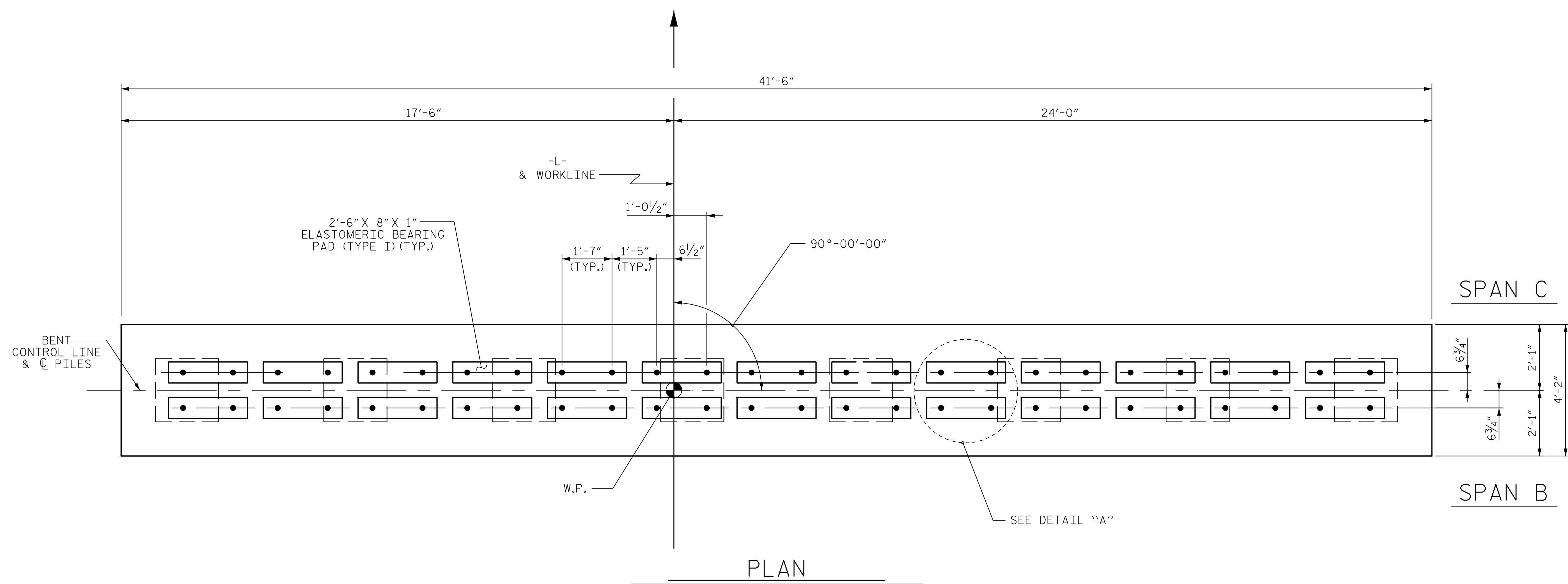
NOTES

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

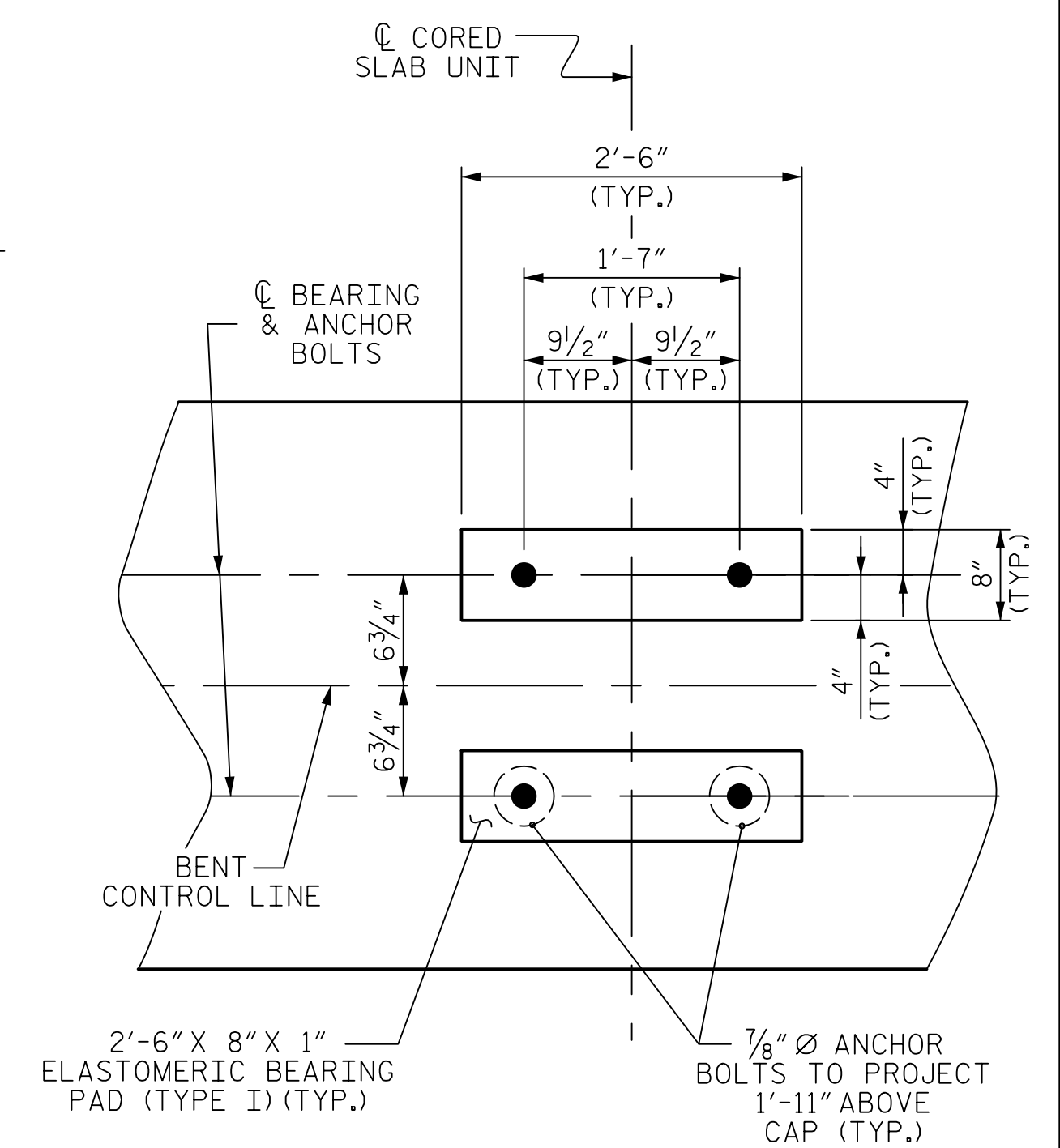
ALL BAR SUPPORTS USED IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE BENT CAP OF BENT NO. 2 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

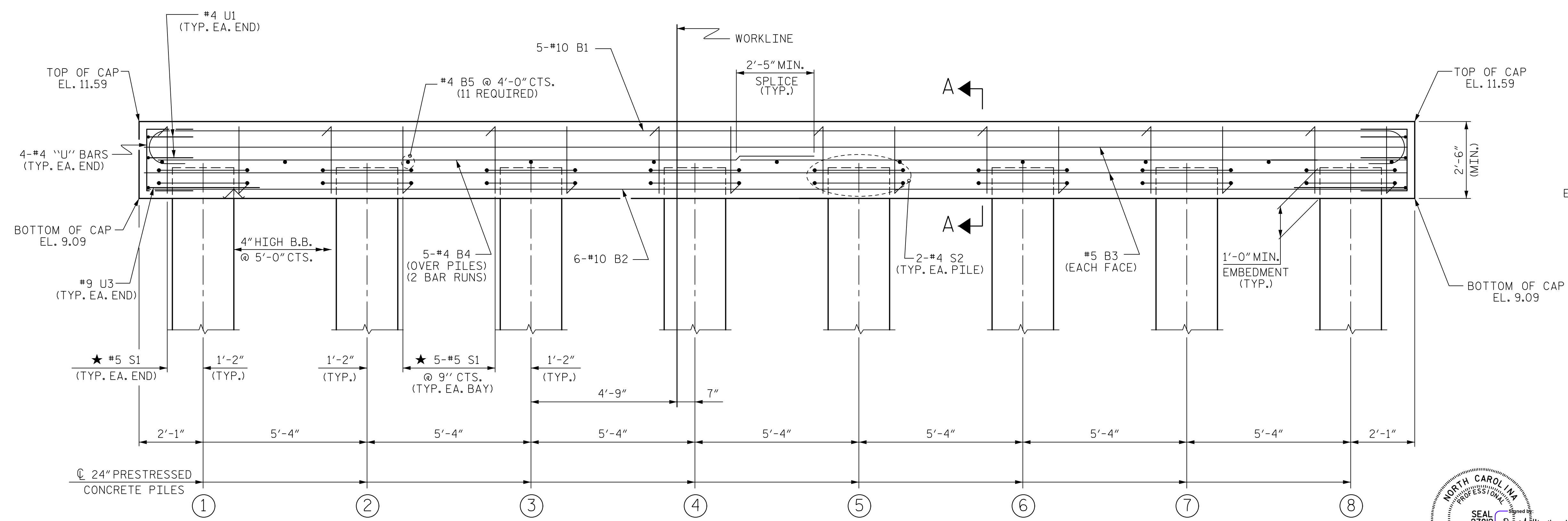


SPAN C

SPAN B



(DIMENSIONS ARE TYPICAL EACH BEARING)



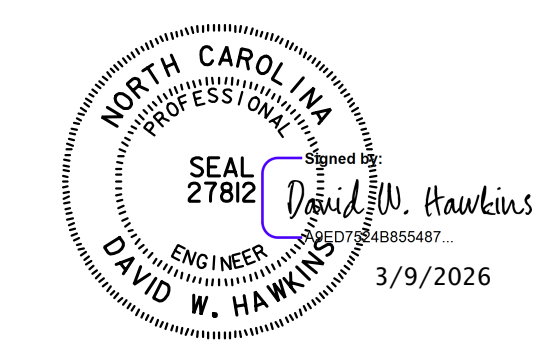
FOR SECTION A-A, SEE SHEET 5 OF 5

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 2



ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : DGE 06/10	REV. 6/17
CHECKED BY : MKT 06/10	MAA/THC

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 18

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

TOTAL SHEETS: 25

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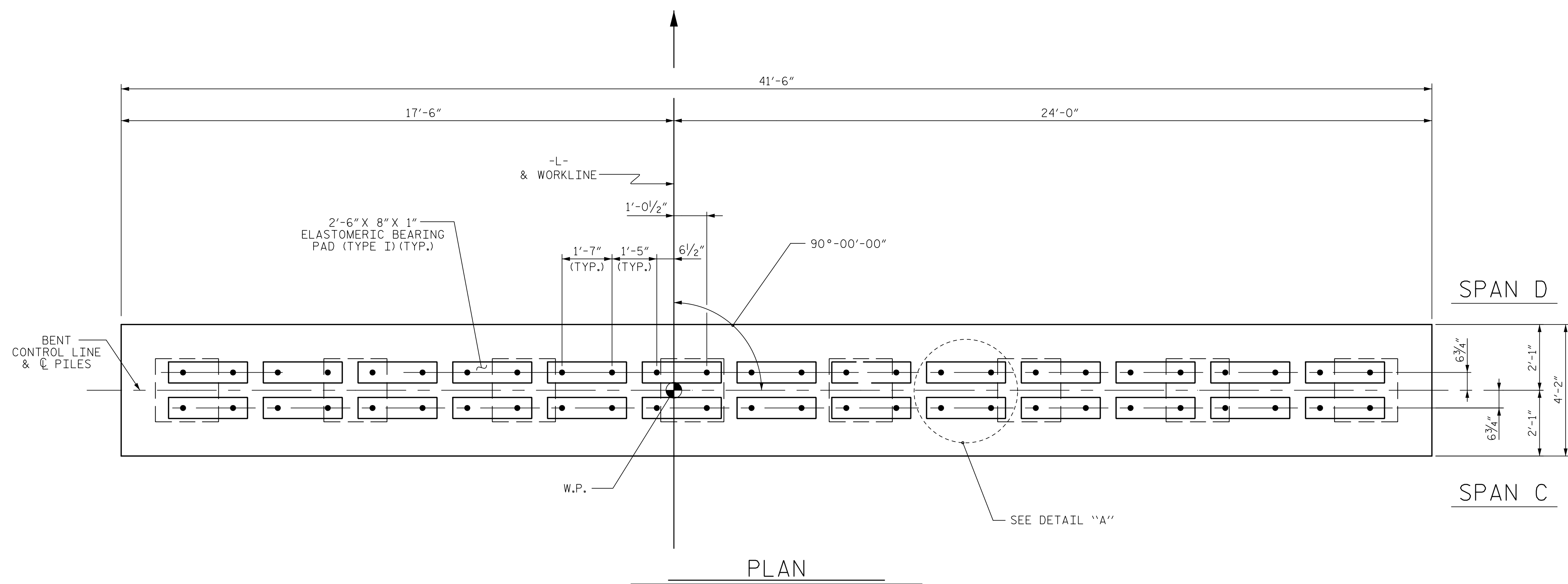
NOTES

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BAR SUPPORTS USED IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

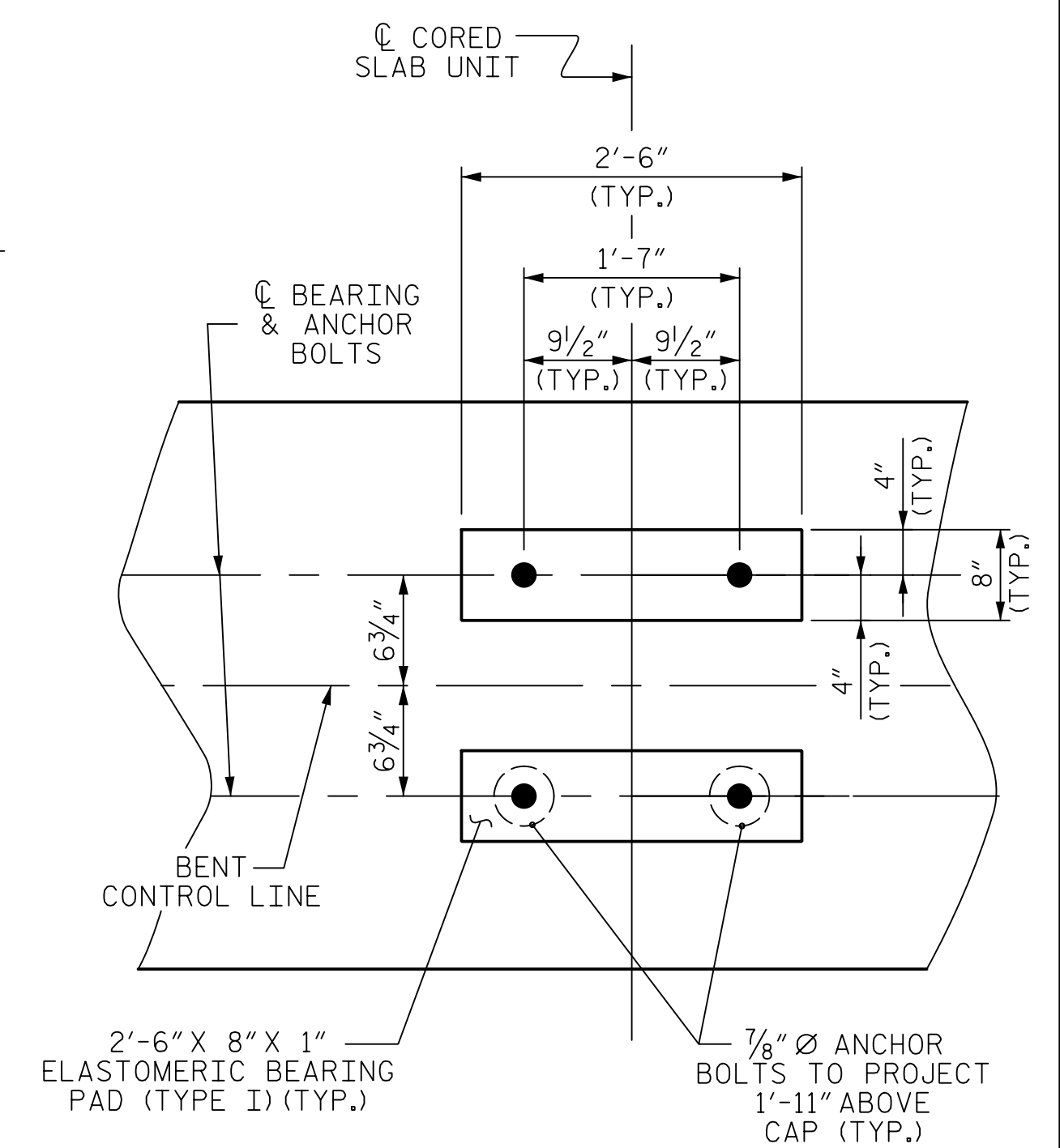
THE CONCRETE IN THE BENT CAP OF BENT NO. 3 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.



SPAN D

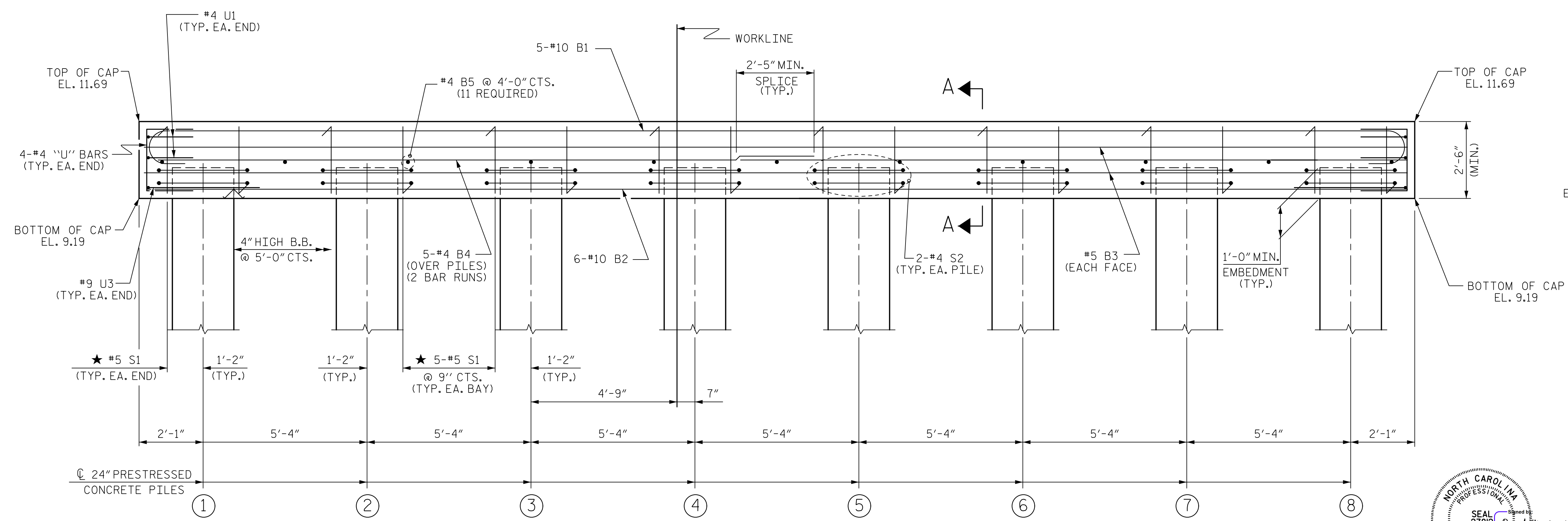
SPAN C

PLAN



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)



ELEVATION

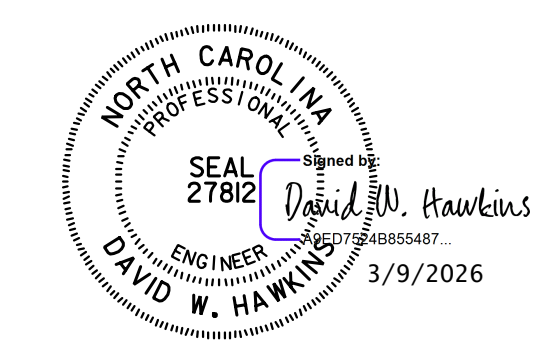
FOR SECTION A-A, SEE SHEET 5 OF 5

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 3



ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : DGE 06/10	REV. 6/17 MAA/THC
CHECKED BY : MKT 06/10	

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DRAWN BY : M. WRIGHT	DATE : 11/25
CHECKED BY : D. HAWKINS	DATE : 11/25
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25

DWG. NO. 19

**DOCUMENT NOT CONSIDERED FINAL
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-19
1			3			TOTAL SHEETS
2			4			25

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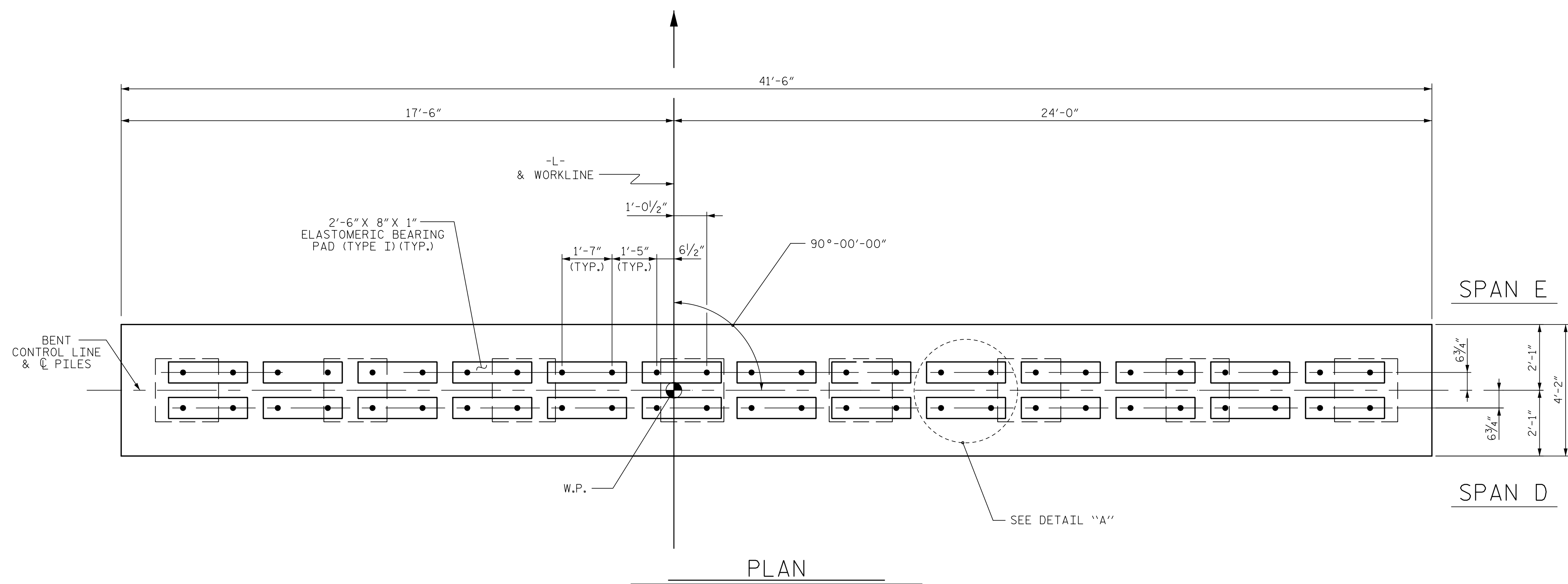
NOTES

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BAR SUPPORTS USED IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

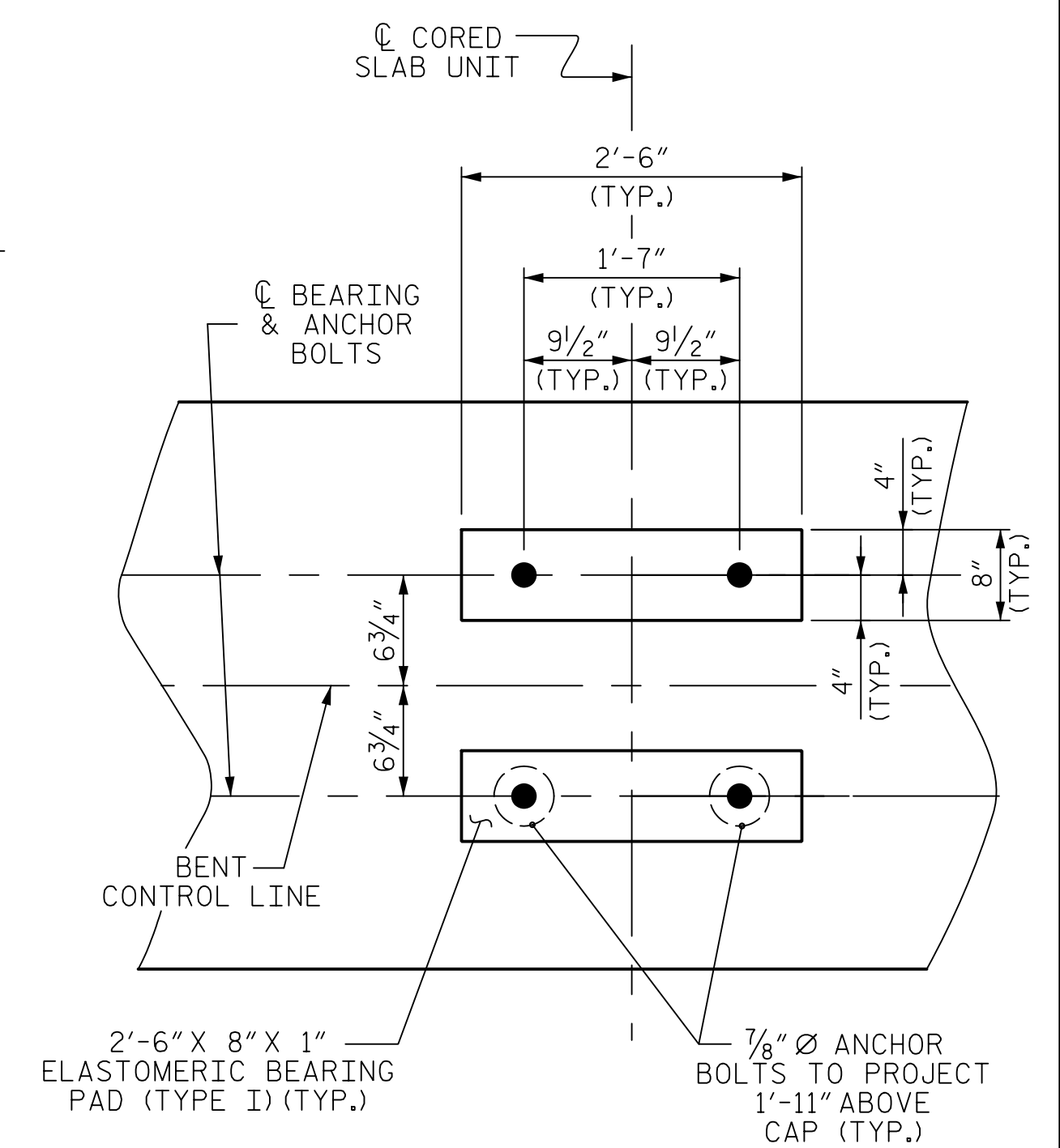
THE CONCRETE IN THE BENT CAP OF BENT NO. 4 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.



SPAN E

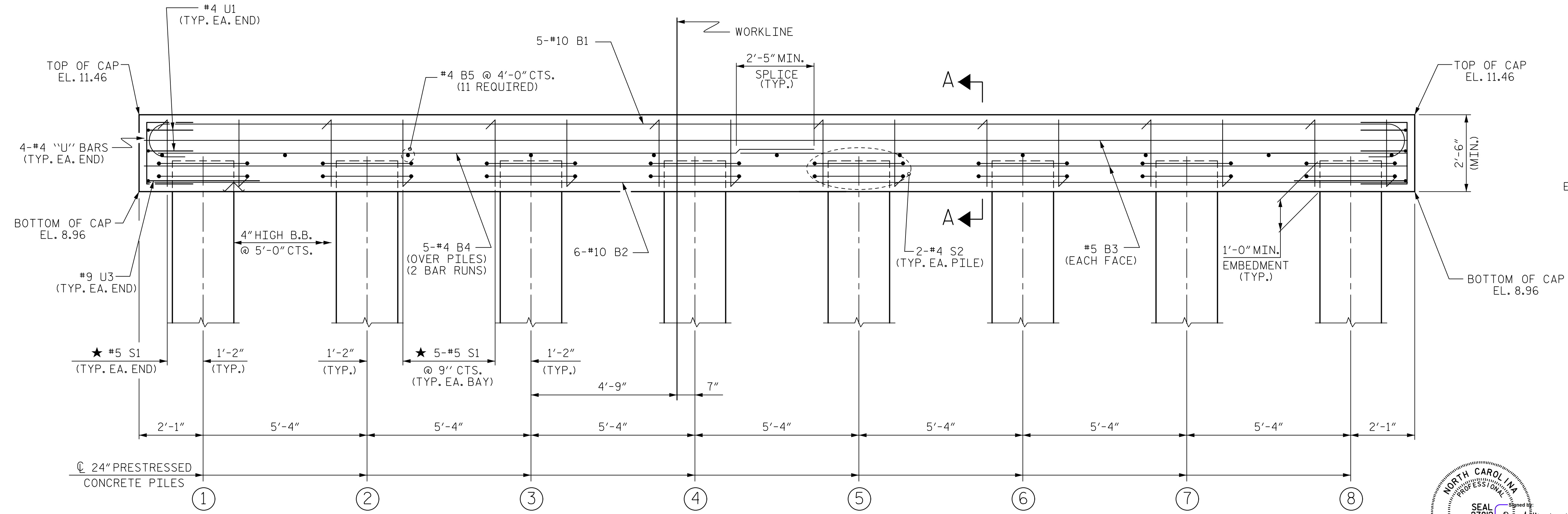
SPAN D

PLAN



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)



ELEVATION

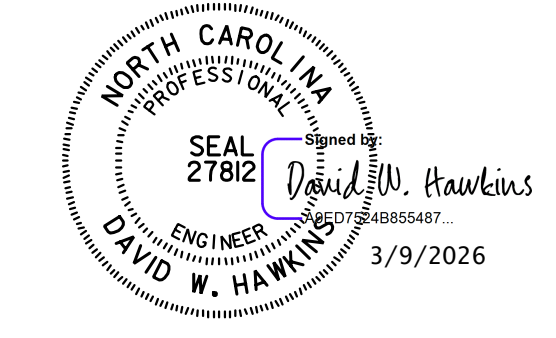
FOR SECTION A-A, SEE SHEET 5 OF 5

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 4



ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : DGE 06/10	REV. 6/17
CHECKED BY : MKT 06/10	MAA/THC

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 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

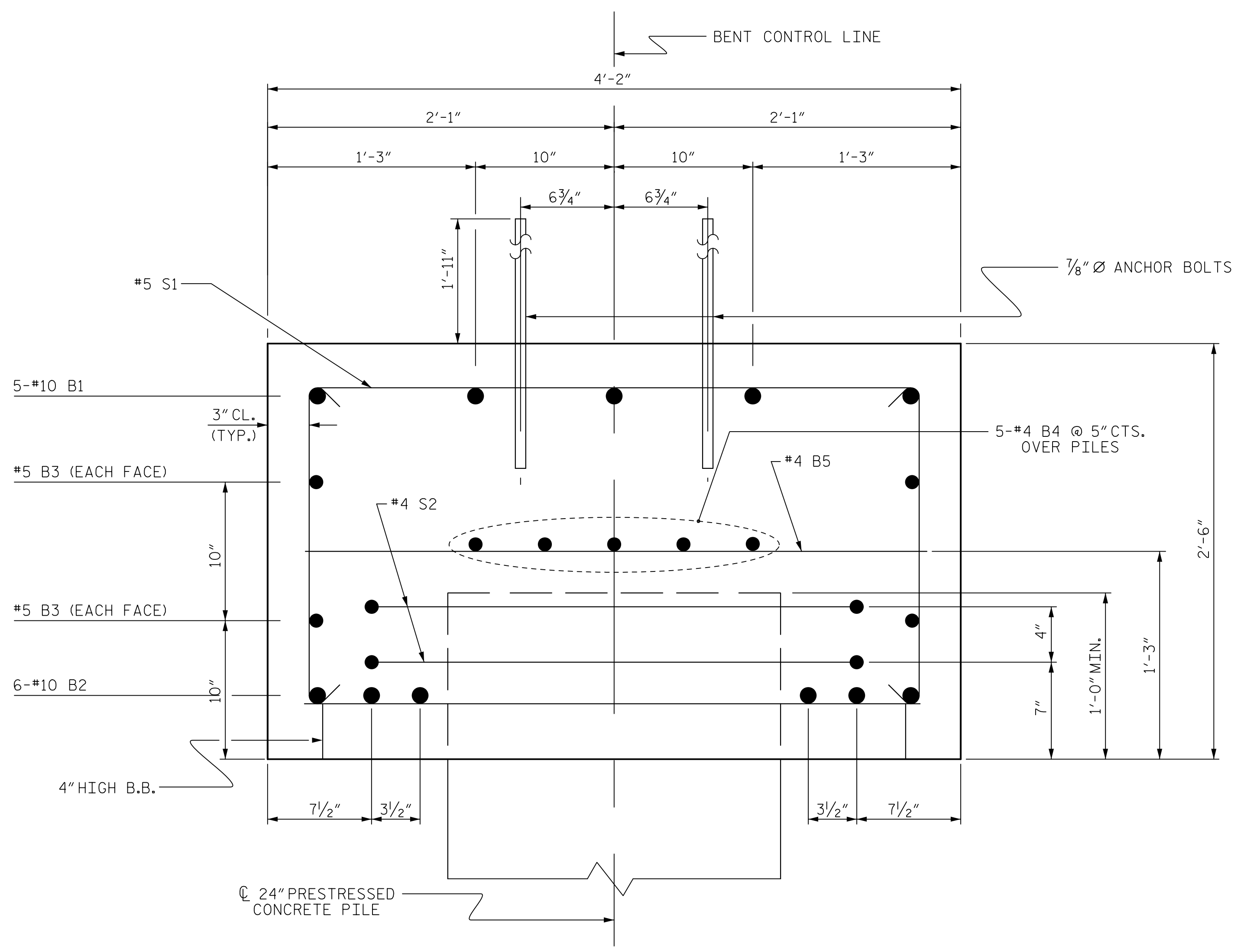
DRAWN BY : M. WRIGHT	DATE : 11/25
CHECKED BY : D. HAWKINS	DATE : 11/25
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25

DWG. NO. 20

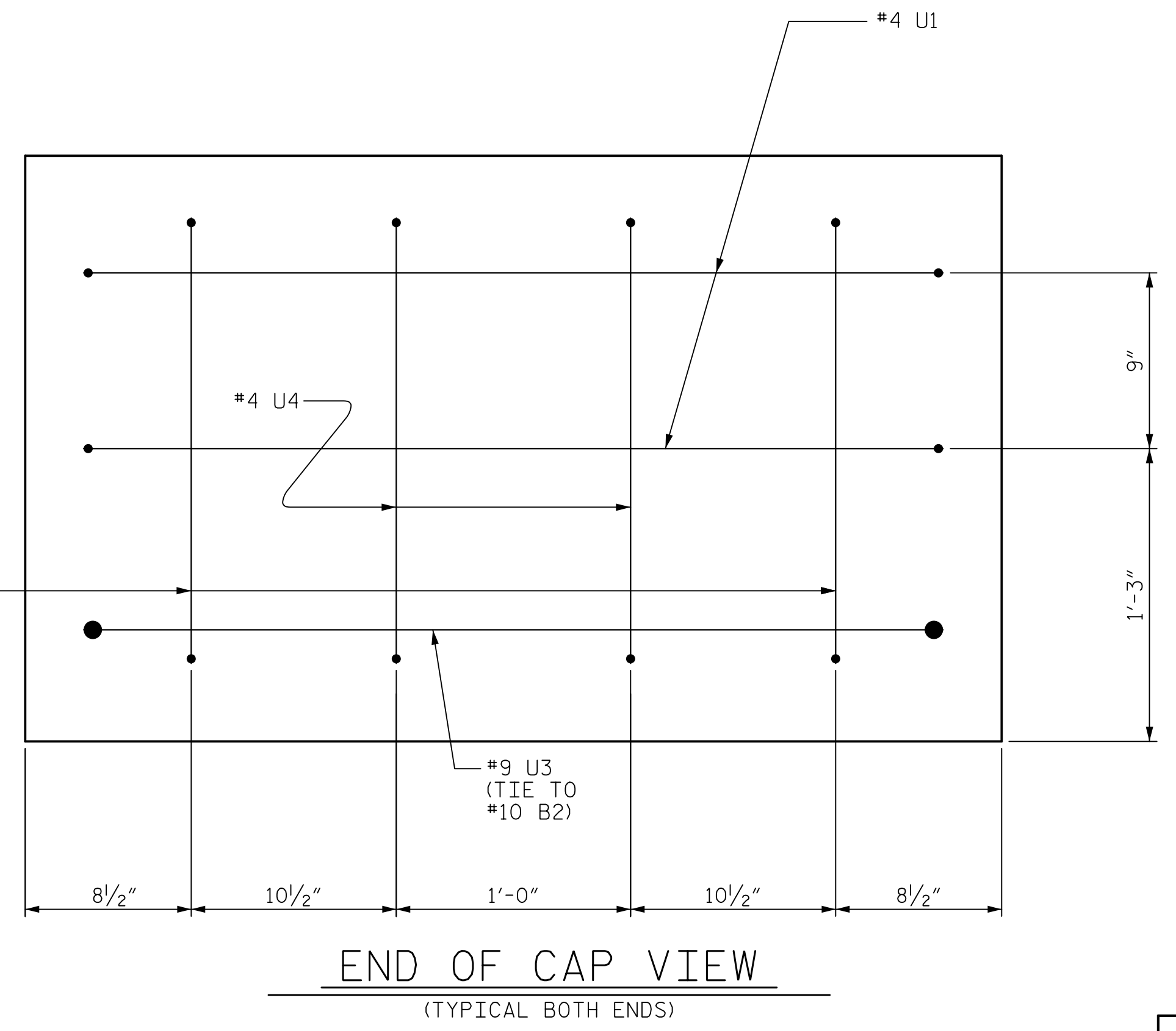
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-20
1			3			TOTAL SHEETS
2			4			25

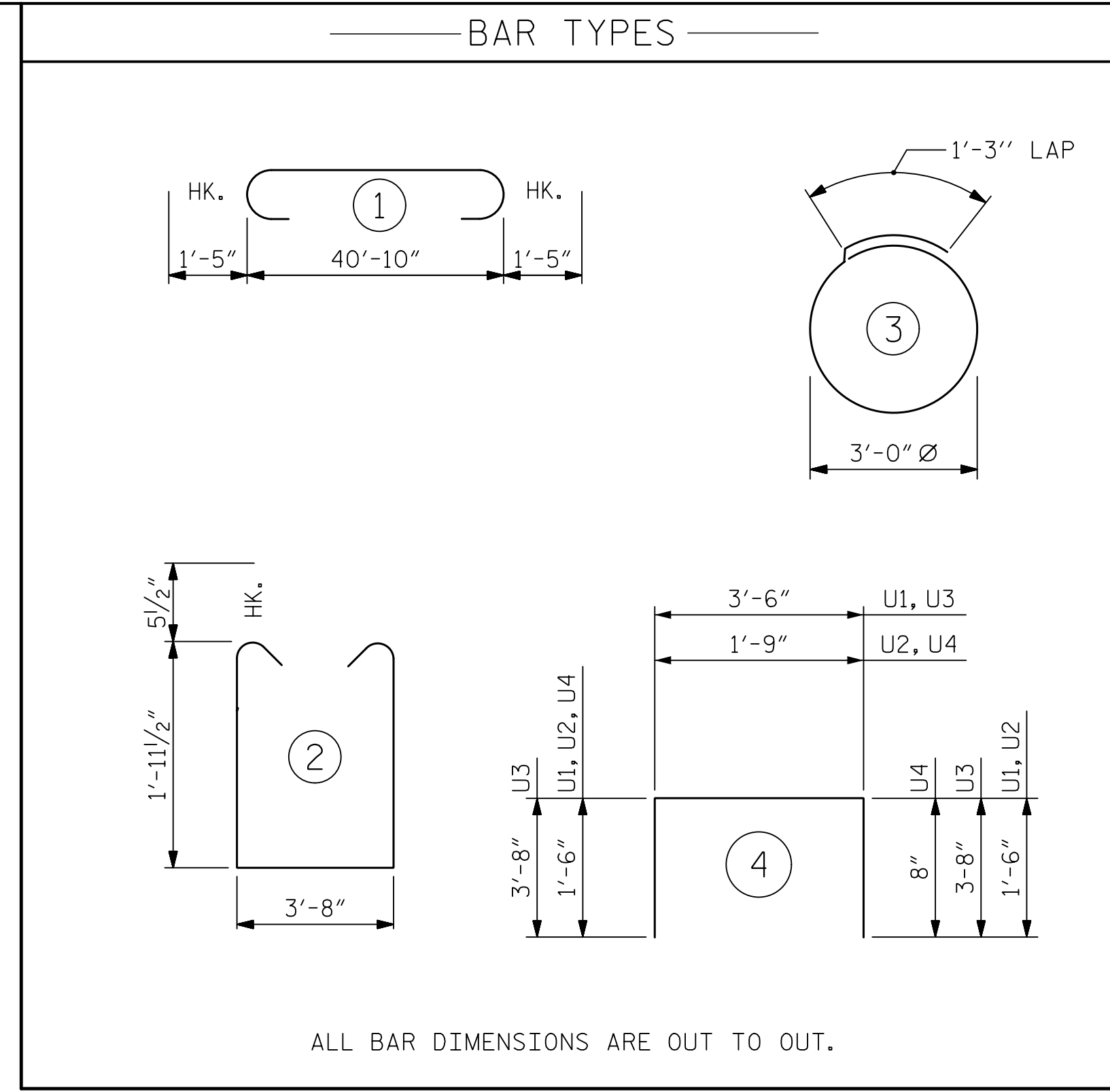
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SECTION A-A



END OF CAP VIEW
(TYPICAL BOTH ENDS)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#10	1	43'-8"	939
B2	6	#10	STR	41'-0"	1,059
B3	4	#5	STR	41'-0"	171
B4	10	#4	STR	21'-9"	145
B5	11	#4	STR	3'-8"	27
S1	37	#5	2	8'-6"	328
S2	16	#4	3	10'-9"	115
U1	4	#4	4	6'-6"	17
U2	4	#4	4	4'-9"	13
U3	2	#9	4	10'-10"	74
U4	4	#4	4	3'-11"	10
EPOXY COATED REINFORCING STEEL (FOR ONE BENT)					2,898 LBS
CLASS AA CONCRETE BREAKDOWN (FOR ONE BENT)					
TOTAL CLASS AA CONCRETE					▲ 14.8 C.Y.

▲ CONCRETE DISPLACED BY THE 24" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

NOTES: ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

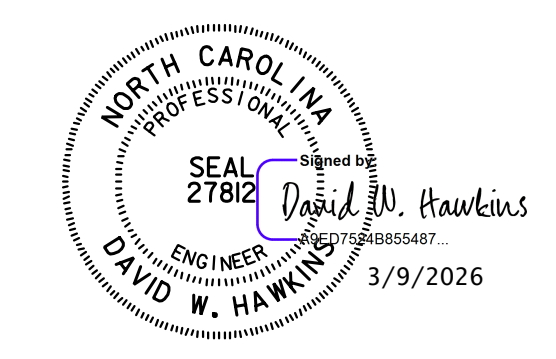
NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT No. 1, 2, 3, & 4
 DETAILS



HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1654
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 21

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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

TOTAL SHEETS: 25

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ASSEMBLED BY: M. WRIGHT	DATE: 6/22
CHECKED BY: P. BARBER	DATE: 6/22
DRAWN BY: DGE 05/10	REV. 6/17
CHECKED BY: MKT 05/10	MAA/THC

NOTES

PRESTRESSED CONCRETE STRENGTH : $f'_c = 7,500$ PSI
 BUILD-UP CONCRETE STRENGTH : $f'_c = 7,500$ PSI
 STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
0.6"	270 L.R.	0.217	58,600* PER STRAND	43,940* PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES, STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

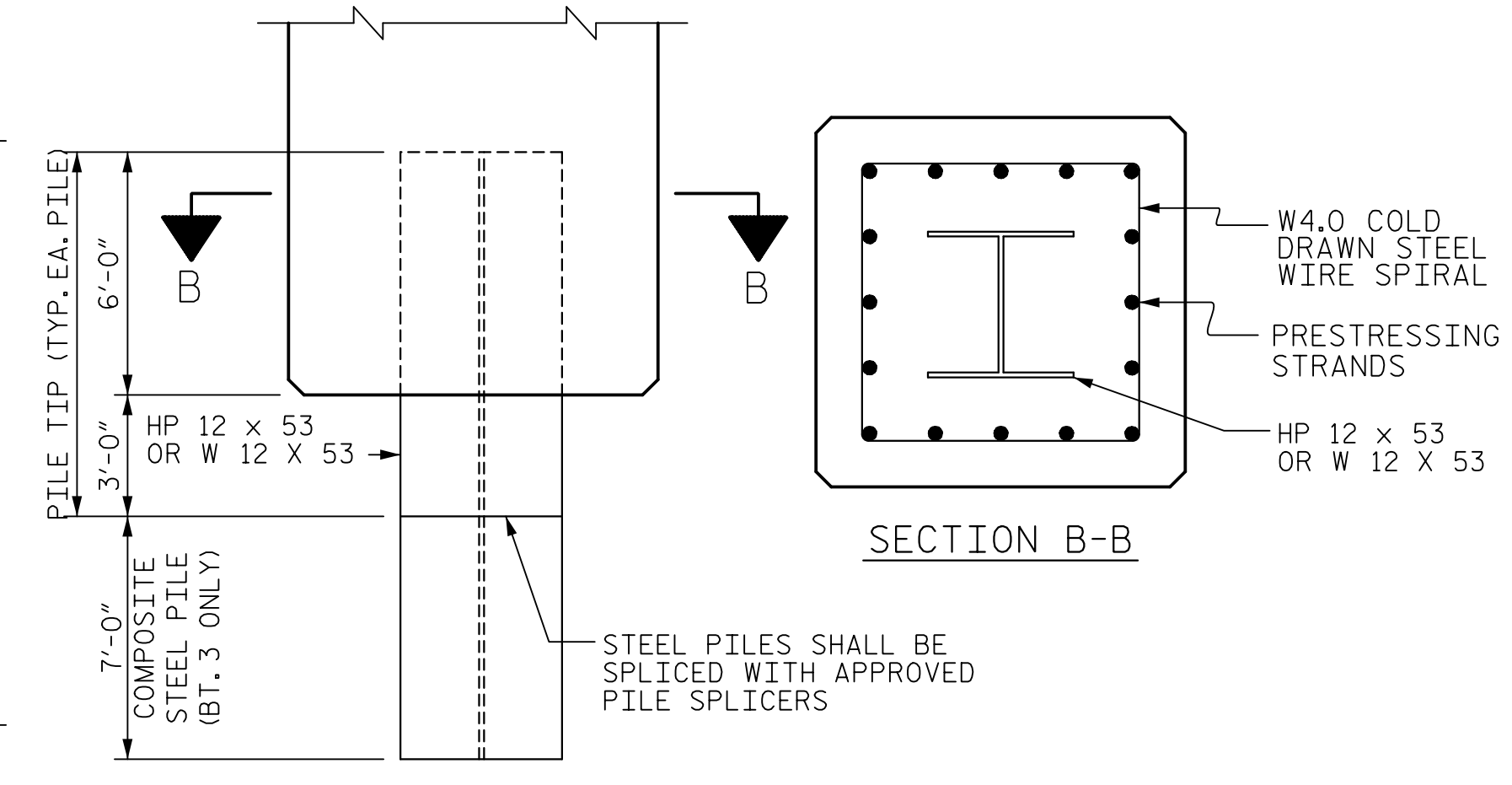
DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

PRESTRESSED PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE PILES OF BENT NO. 1, 2, 3, AND 4 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.



ELEVATION PILE TIP DETAILS

FOR 24" SQUARE PRESTRESSED CONCRETE PILE

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSIVE STRENGTH: $f'_c = 5,000$ PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN 1/2" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

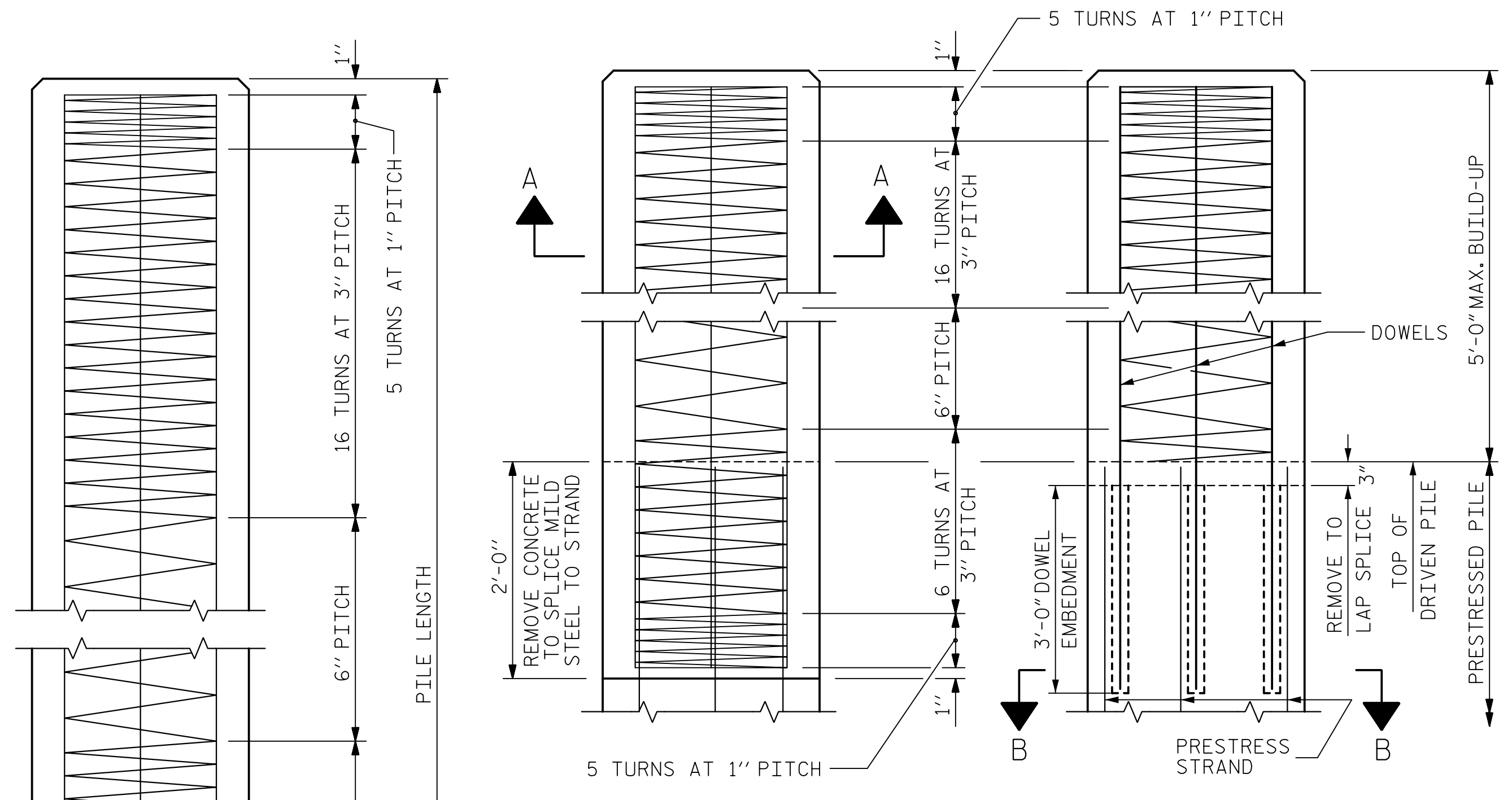
FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.

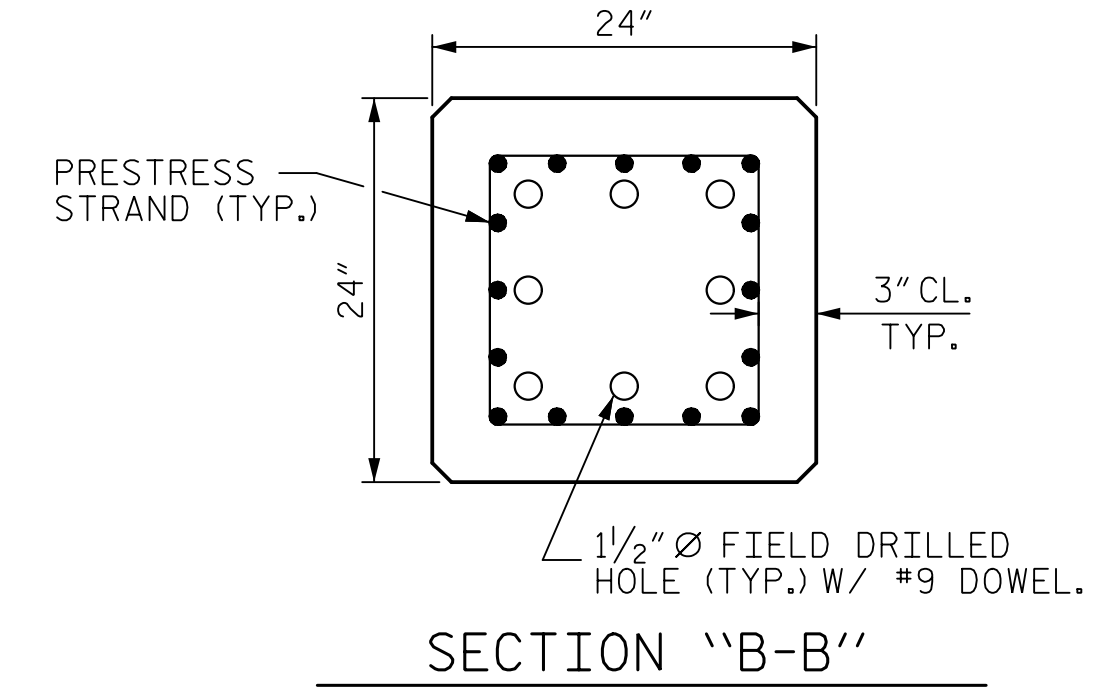
QUANTITIES FOR ONE 24" SQUARE PILE

LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP		TWO POINT PICK-UP		THREE POINT PICK-UP	
			0.3L	0.7L	0.207L	0.586L	0.145L	0.355L
25'-0"	3.69	7.47	7'-6"	17'-6"				
30'-0"	4.43	8.97	9'-0"	21'-0"				
35'-0"	5.17	10.46	10'-6"	24'-6"				
40'-0"	5.91	11.96	12'-0"	28'-0"				
45'-0"	6.64	13.45	13'-6"	31'-6"				
50'-0"	7.38	14.95	15'-0"	35'-0"				
55'-0"	8.12	16.44	16'-6"	38'-6"				
60'-0"	8.86	17.94	18'-0"	42'-0"				
65'-0"	9.60	19.43	19'-6"	45'-6"				
70'-0"	10.33	20.93	21'-0"	49'-0"				
75'-0"	11.07	22.42			15'-6 1/2"	43'-11"		
80'-0"	11.81	23.92			16'-6 1/2"	46'-11"		
85'-0"	12.55	25.41			17'-7"	49'-10"		
90'-0"	13.29	26.91			18'-7 1/2"	52'-9"		
95'-0"	14.03	28.40			19'-8"	55'-8"		
100'-0"	14.76	29.90			20'-8 1/2"	58'-7"		
105'-0"	15.50	31.39					15'-3"	37'-3"
110'-0"	16.24	32.89					15'-11 1/2"	39'-0 1/2"
115'-0"	16.98	34.38					16'-8"	40'-10"
120'-0"	17.72	35.87					17'-5"	42'-7"



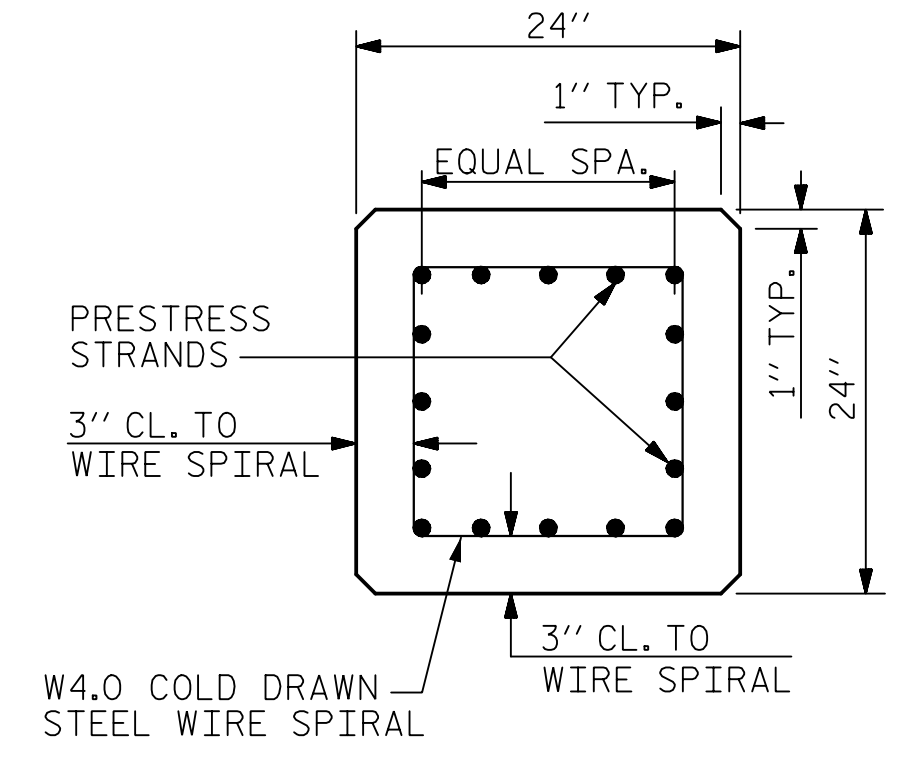
BUILD-UP AND SPIRAL REINFORCING

OPTIONAL BUILD-UP WITH DOWELS

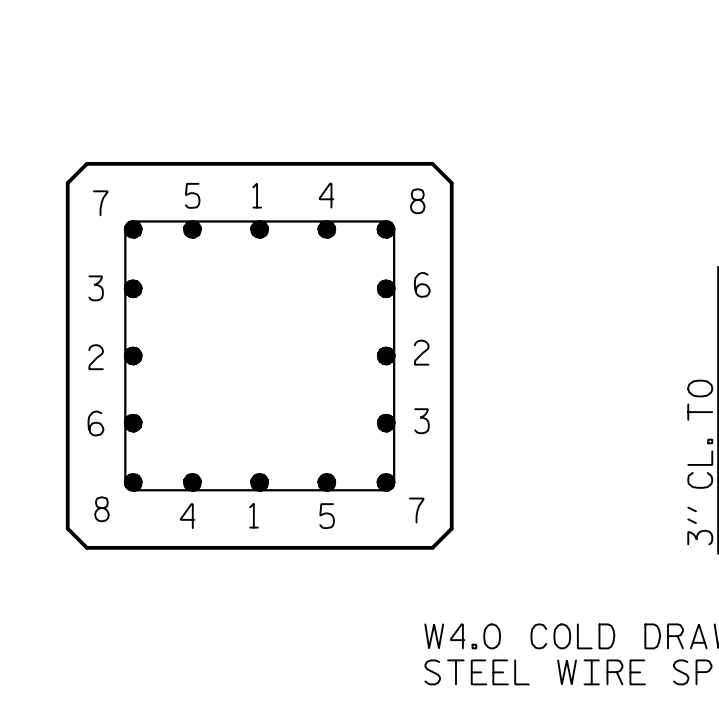


SECTION "B-B"

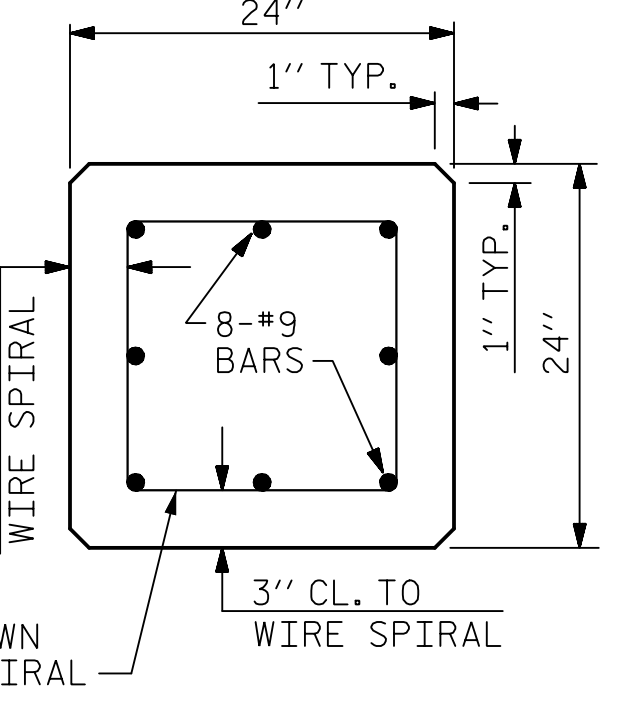
(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP MAY BE CONSTRUCTED WITH DOWELS.)



TYPICAL SECTION

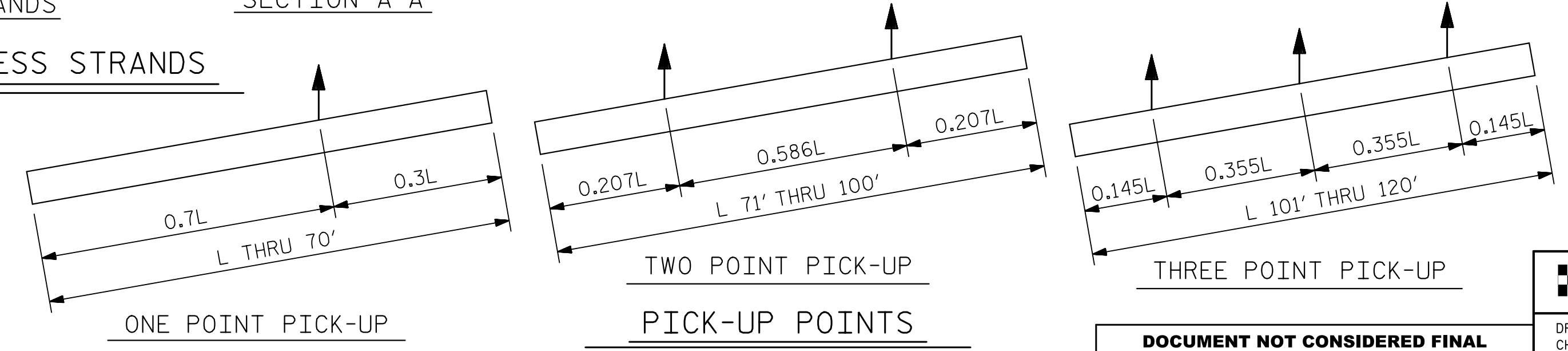


TYPICAL PATTERN FOR BURNING STRANDS



SECTION A-A

0.6" Ø GRADE 270 L.R. PRESTRESS STRANDS



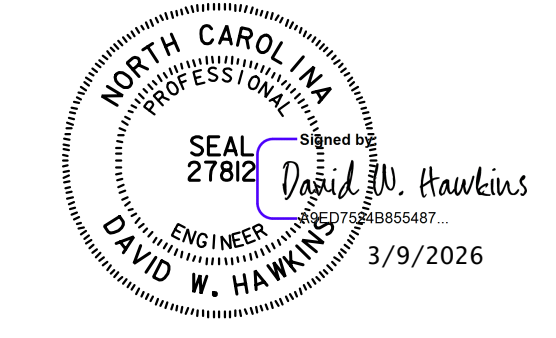
PICK-UP POINTS

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : WJH 1/89	REV. 12/14 MAA/TMC
CHECKED BY : CRK 3/89	REV. 12/17 MAA/THC
	REV. 12/20 BNB/THC

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1854
 4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DESIGNED BY: M. WRIGHT DATE: 11/25
 CHECKED BY: D. HAWKINS DATE: 11/25
 DESIGN ENGINEER OF RECORD: D. HAWKINS DATE: 11/25

DWG. NO. 22



PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

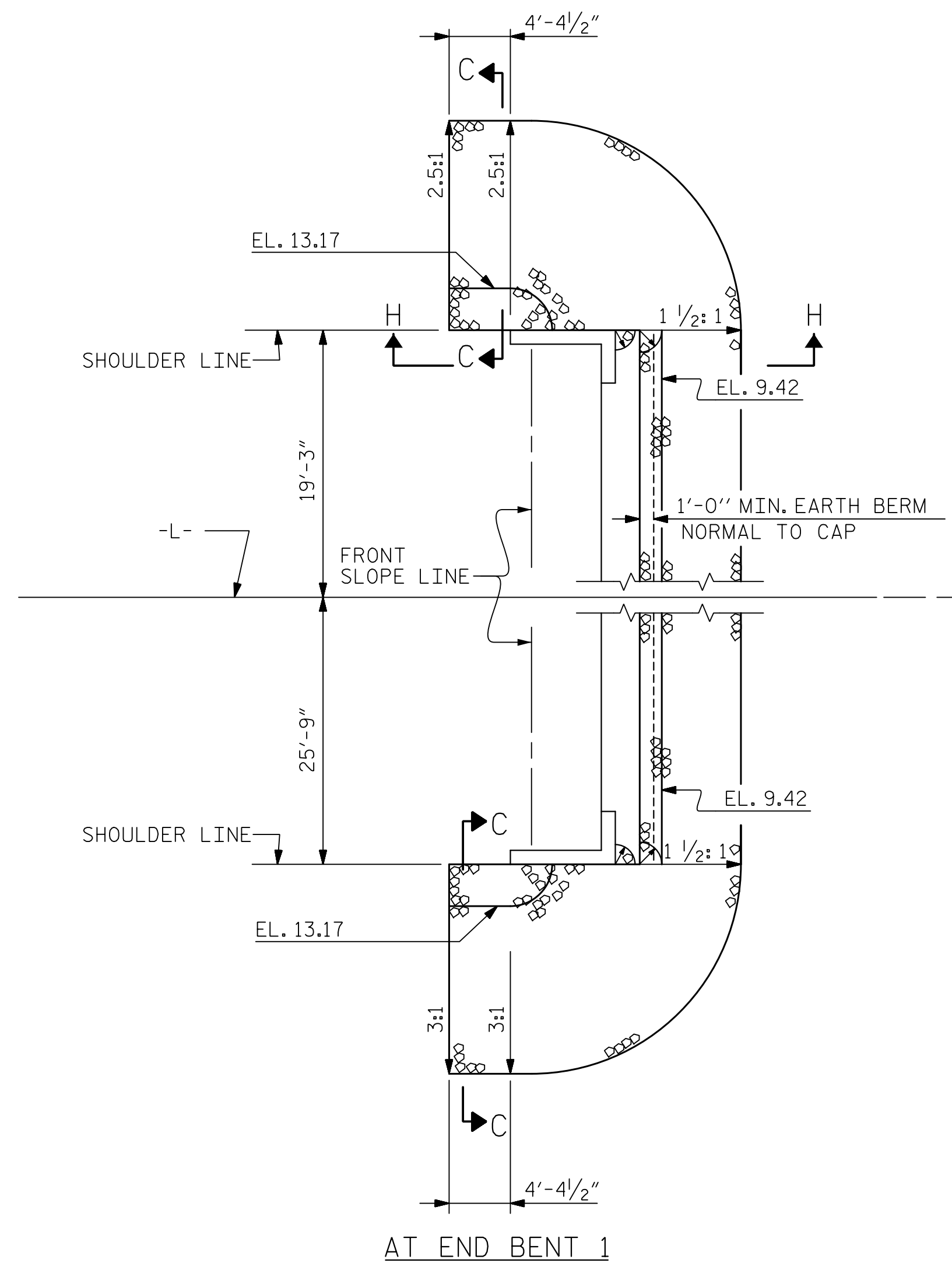
STANDARD
 24" PRESTRESSED
 CONCRETE PILE

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

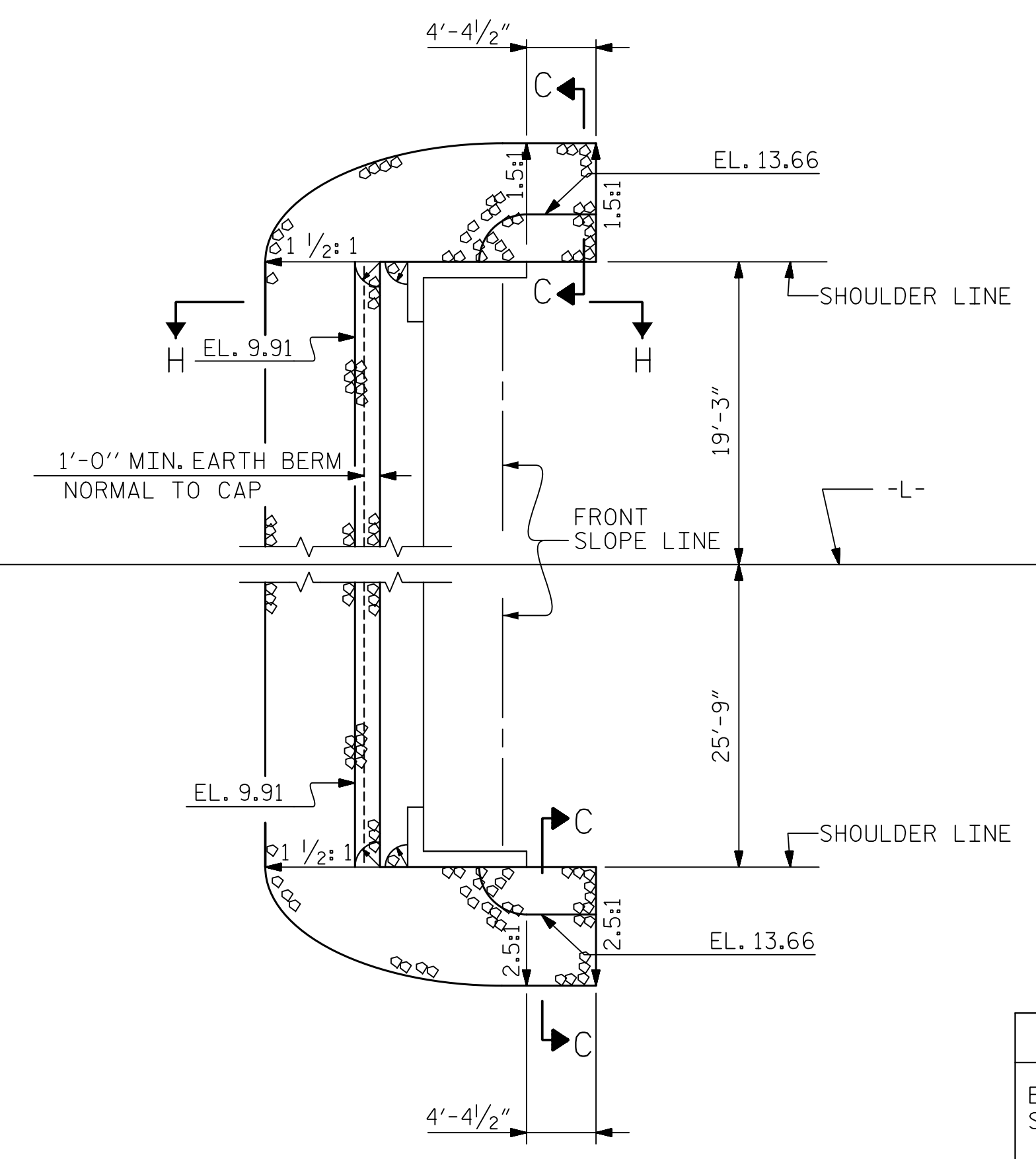
S-22
 TOTAL SHEETS
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NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



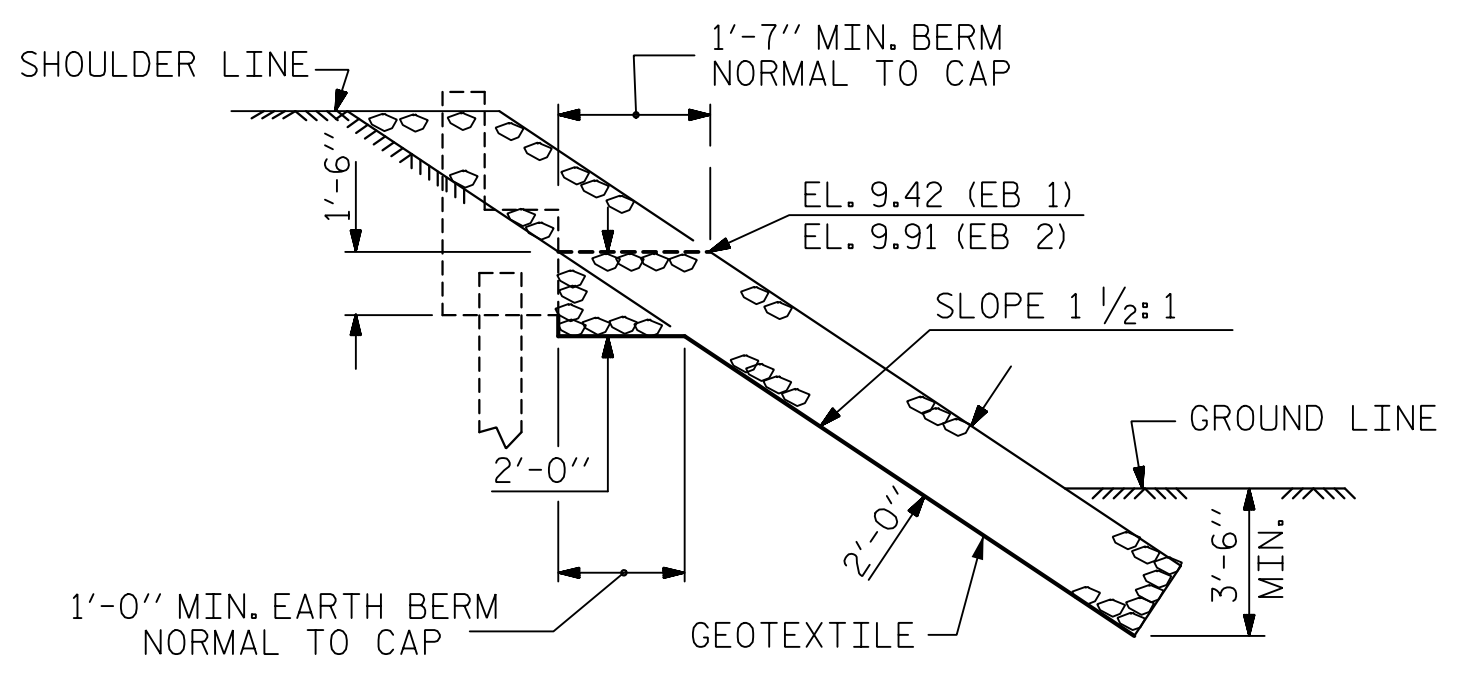
AT END BENT 1



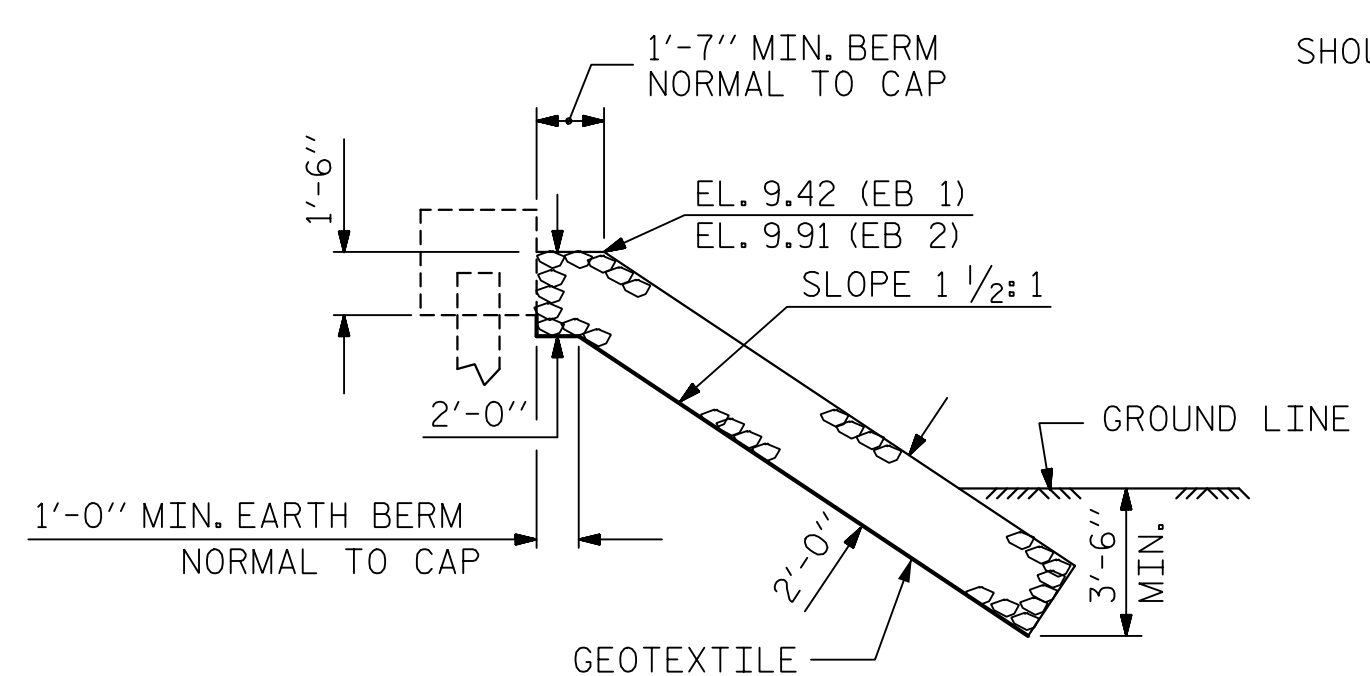
AT END BENT 2

PLAN OF RIP RAP

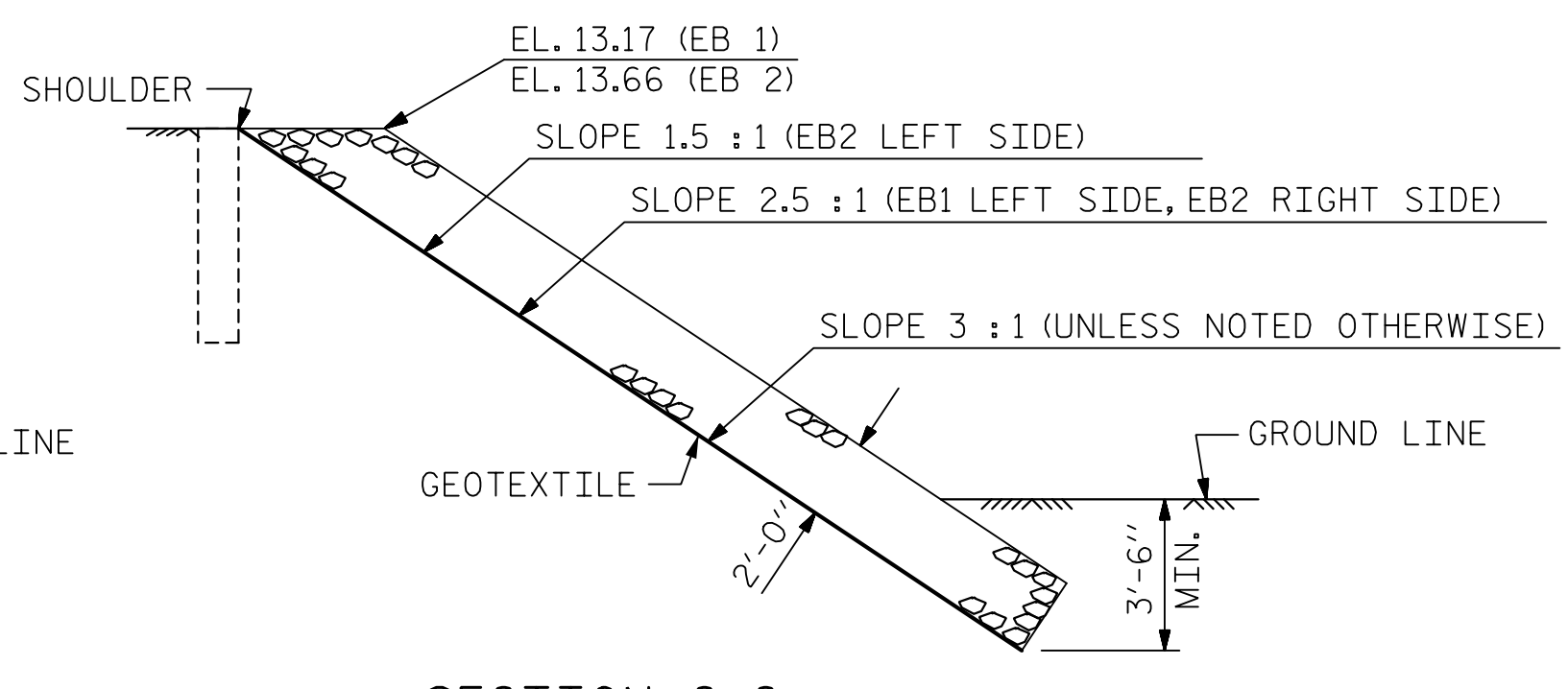
ESTIMATED QUANTITIES		
BRIDGE @ STA. 18+91.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	195	215
END BENT 2	135	150



SECTION H-H

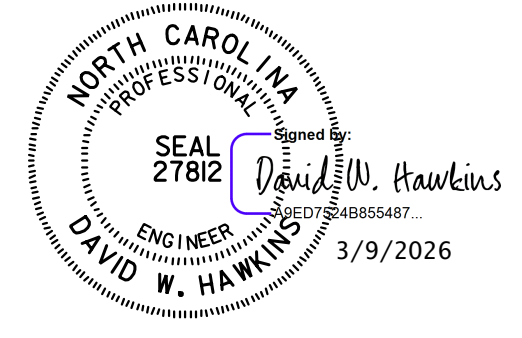


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-5995
PAMLICO COUNTY
STATION: 18+91.00 -L-



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

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : REK 1/84	REV. 10/1/II MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/II MAA/GM
	REV. 12/17 MAA/THC

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4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609

DRAWN BY : M. WRIGHT	DATE : 11/25
CHECKED BY : D. HAWKINS	DATE : 11/25
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25

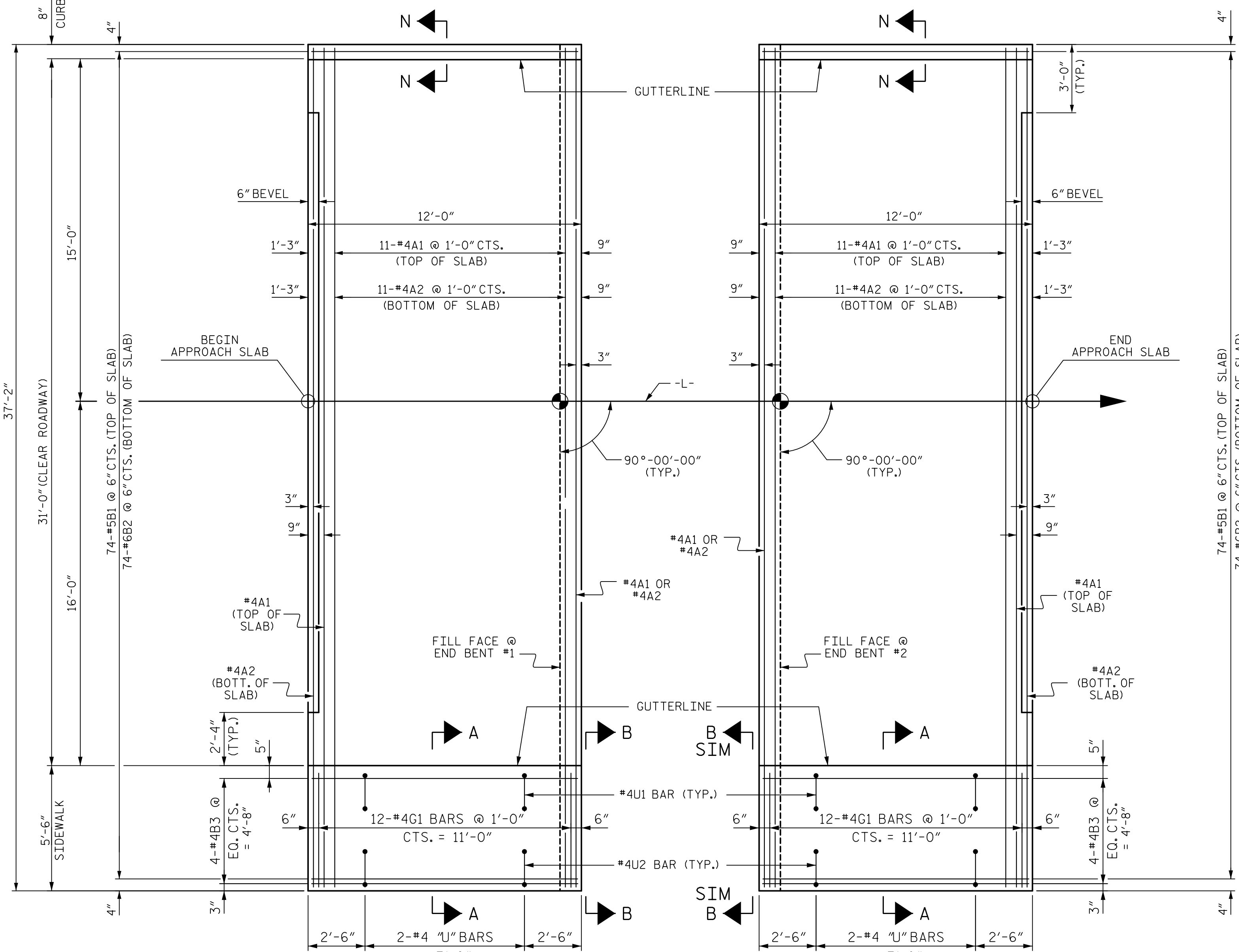
DWG. NO. 23

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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-23
1			3			TOTAL SHEETS
2			4			25

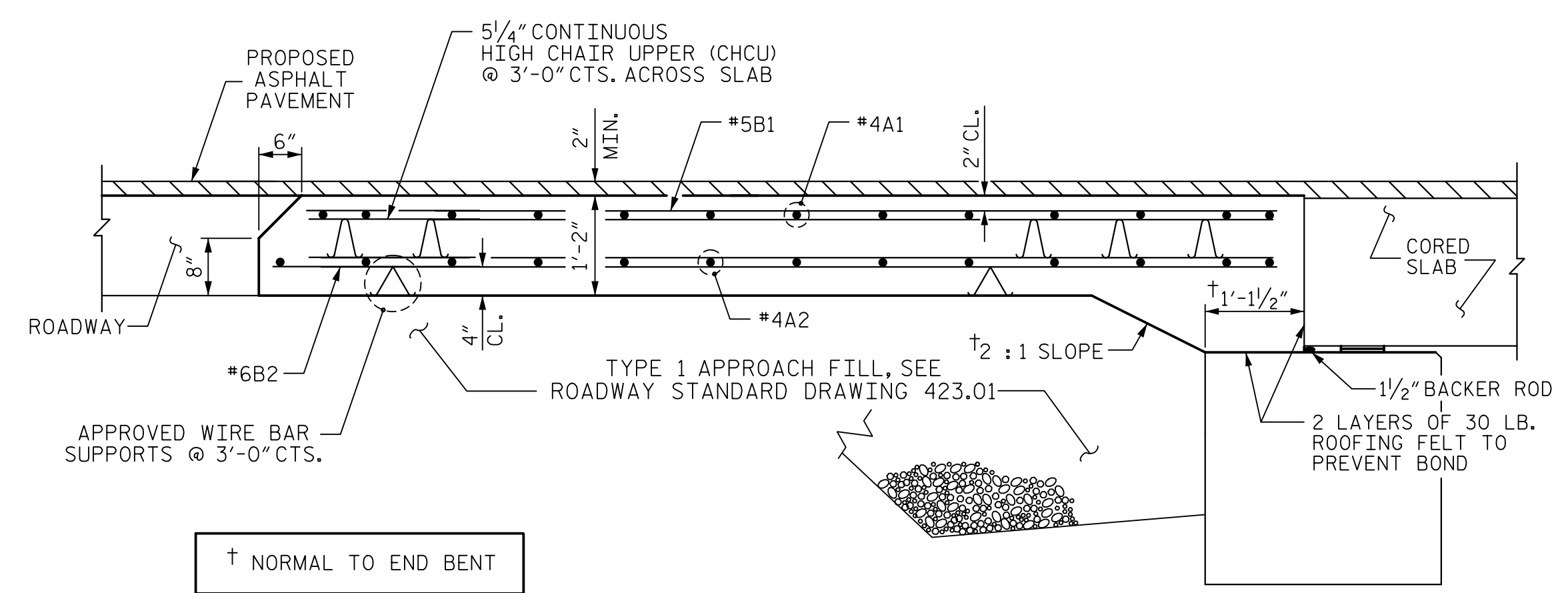
2/11/2026 1:00:31 PM \\work\00\proj\hcs\6606 2015 Eastern Region Division On-Call\B-5995_BROST_Pamlico County\Structures\Drawings\1_045_B5995_SKU\PROJ_023_680057.dgn

12/15/2025 8:49:55 AM \\work\00\proj\16564606_2015_Eastern_Region_Division_Or-Calf-B-5995_BRO57_Pamlico_CountyStructures\pnm\401_DRF_B5995_S1\ASO1_024_L680057.dgn



PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : SHS/MAA 5-09	REV. 12-17 MAA/THC
CHECKED BY : BCH 5-09	REV. 08-19 BNB/THC

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

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

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL 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.

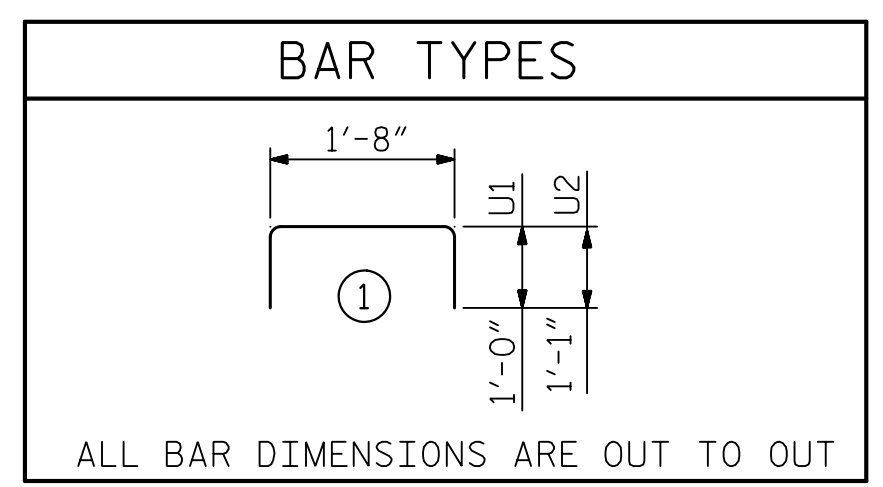
THE CONTRACTOR SHALL ADD A SINGLE LAYER OF TYPE 4 OR TYPE 5 GEOTEXTILE ONE FOOT BELOW THE APPROACH SLAB FOR THE FULL WIDTH OF THE APPROACH FILL. COST OF THE GEOTEXTILE SHALL BE CONSIDERED INCIDENTAL.

PAYMENT FOR SIDEWALK EPOXY COATED REINFORCEMENT SHALL BE INCLUDED IN THE BID PRICE FOR "EPOXY COATED REINFORCING STEEL."

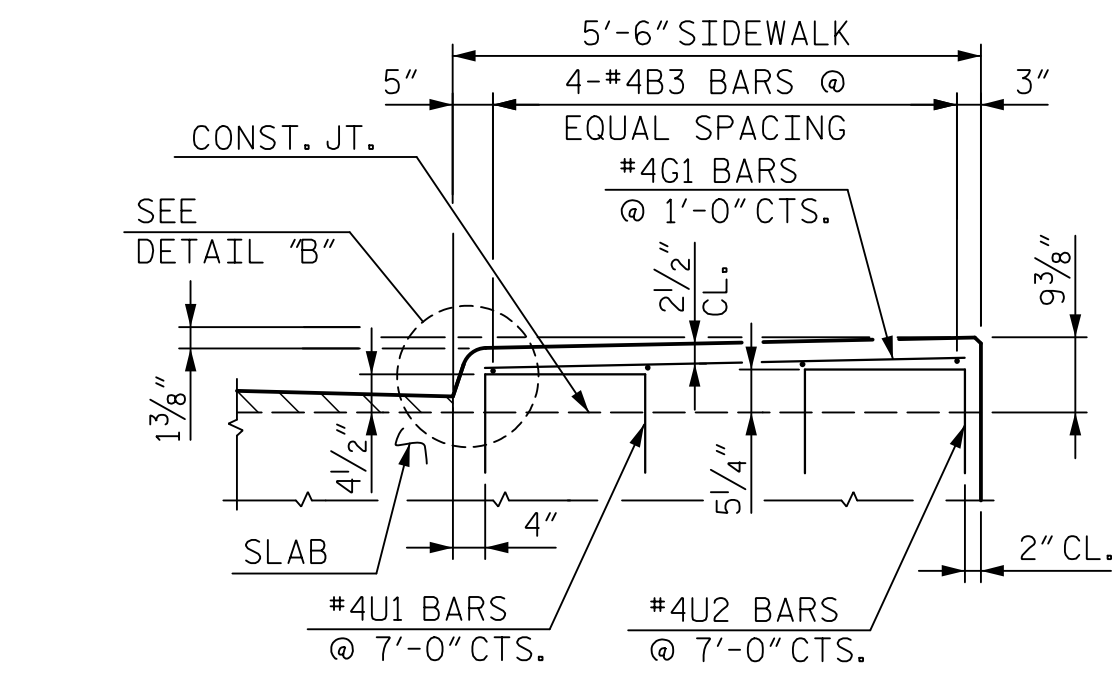
PAYMENT FOR SIDEWALK CONCRETE SHALL BE INCLUDED IN THE BID PRICE FOR "CLASS AA CONCRETE."

BILL OF MATERIAL													
APPROACH SLAB **					SIDEWALK **								
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	13	#4	STR	36'-10"	320	*B3	4	#4	STR	11'-8"	31		
A2	13	#4	STR	36'-10"	320	*G1	12	#4	STR	5'-0"	40		
*B1	74	#5	STR	11'-2"	862								
B2	74	#6	STR	11'-8"	1,297								
*U1	2	#4	1	3'-8"	5								
*U2	2	#4	1	3'-10"	5								
REINFORCING STEEL					LBS.	1,617	* EPOXY COATED REINFORCING STEEL					LBS.	71
* EPOXY COATED REINFORCING STEEL					LBS.	1,192	CLASS AA CONCRETE						
CLASS AA CONCRETE					C. Y.	22.0	SIDEWALK					C. Y.	1.8

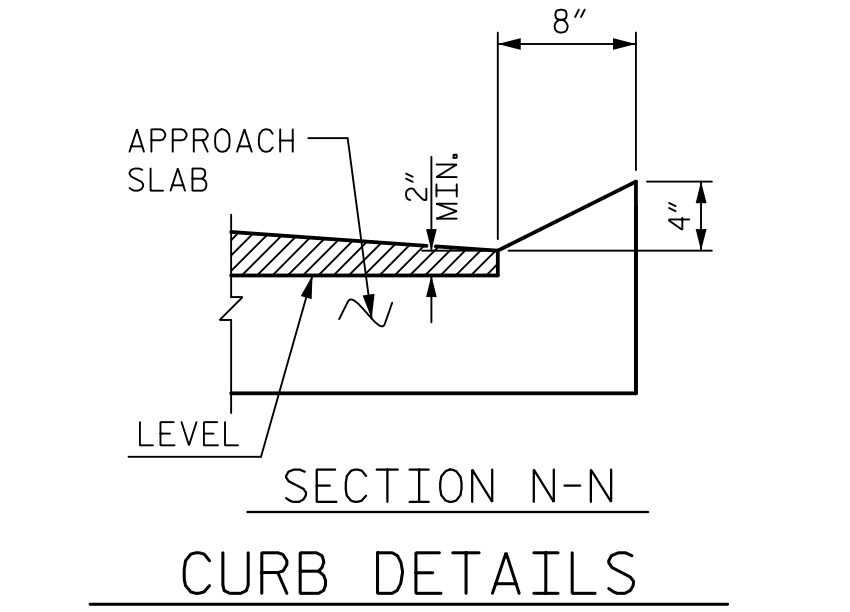
** ONE SIDEWALK OR ONE APPROACH SLAB



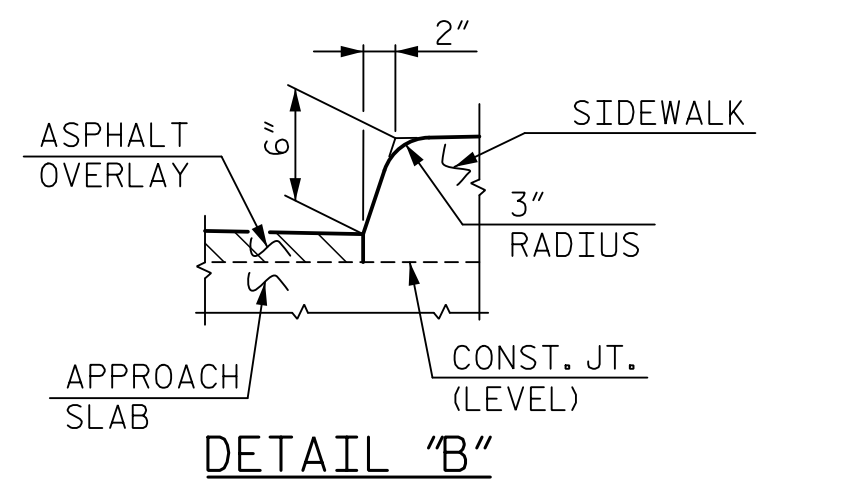
ALL BAR DIMENSIONS ARE OUT TO OUT



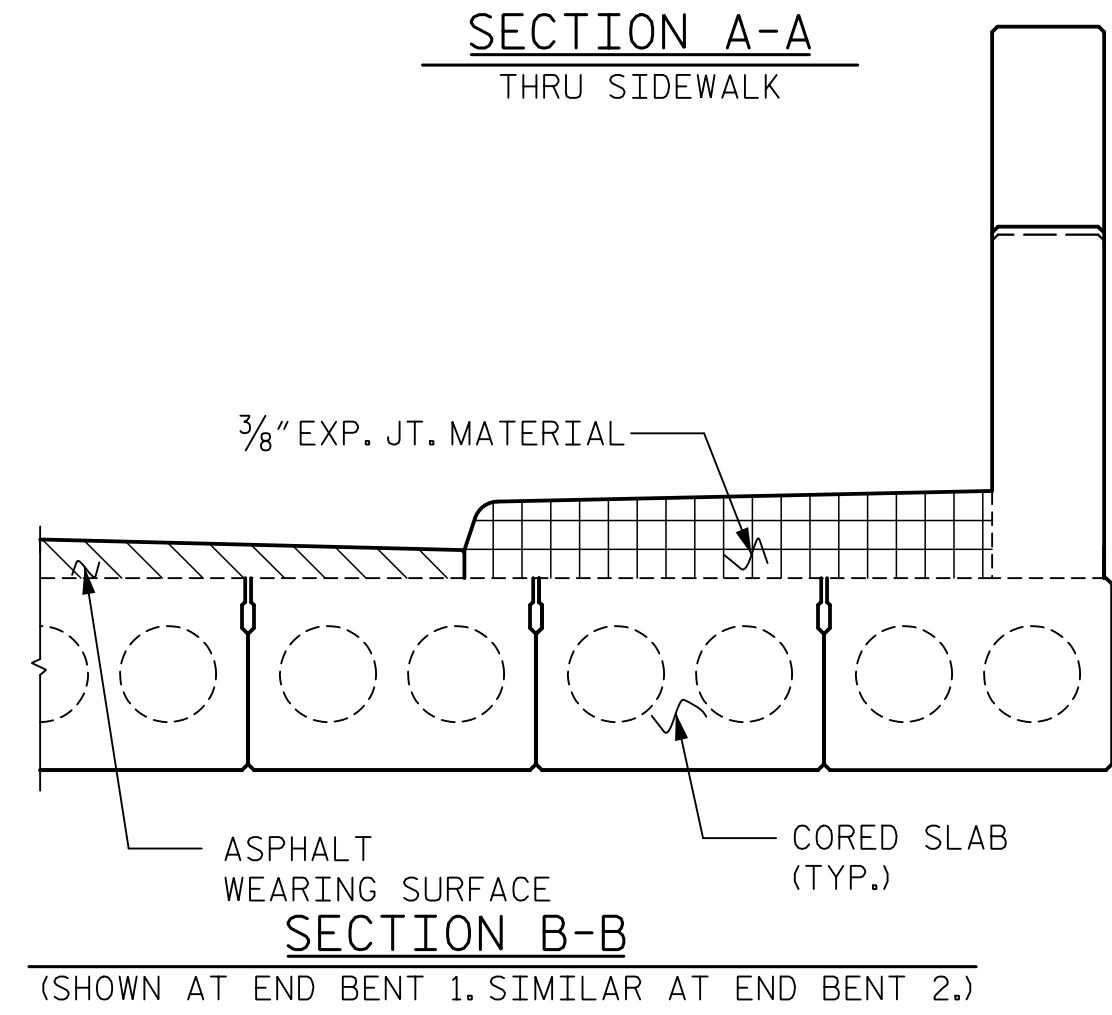
SECTION A-A THRU SIDEWALK



SECTION N-N CURB DETAILS



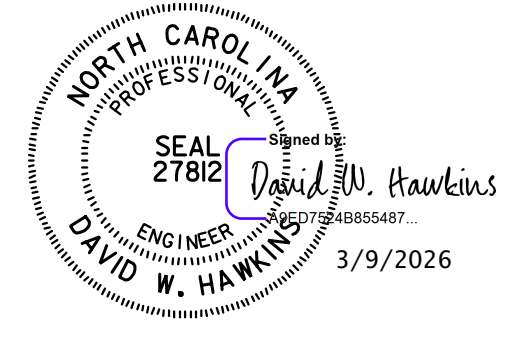
DETAIL "B"



SECTION B-B (SHOWN AT END BENT 1, SIMILAR AT END BENT 2.)

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 1 OF 2

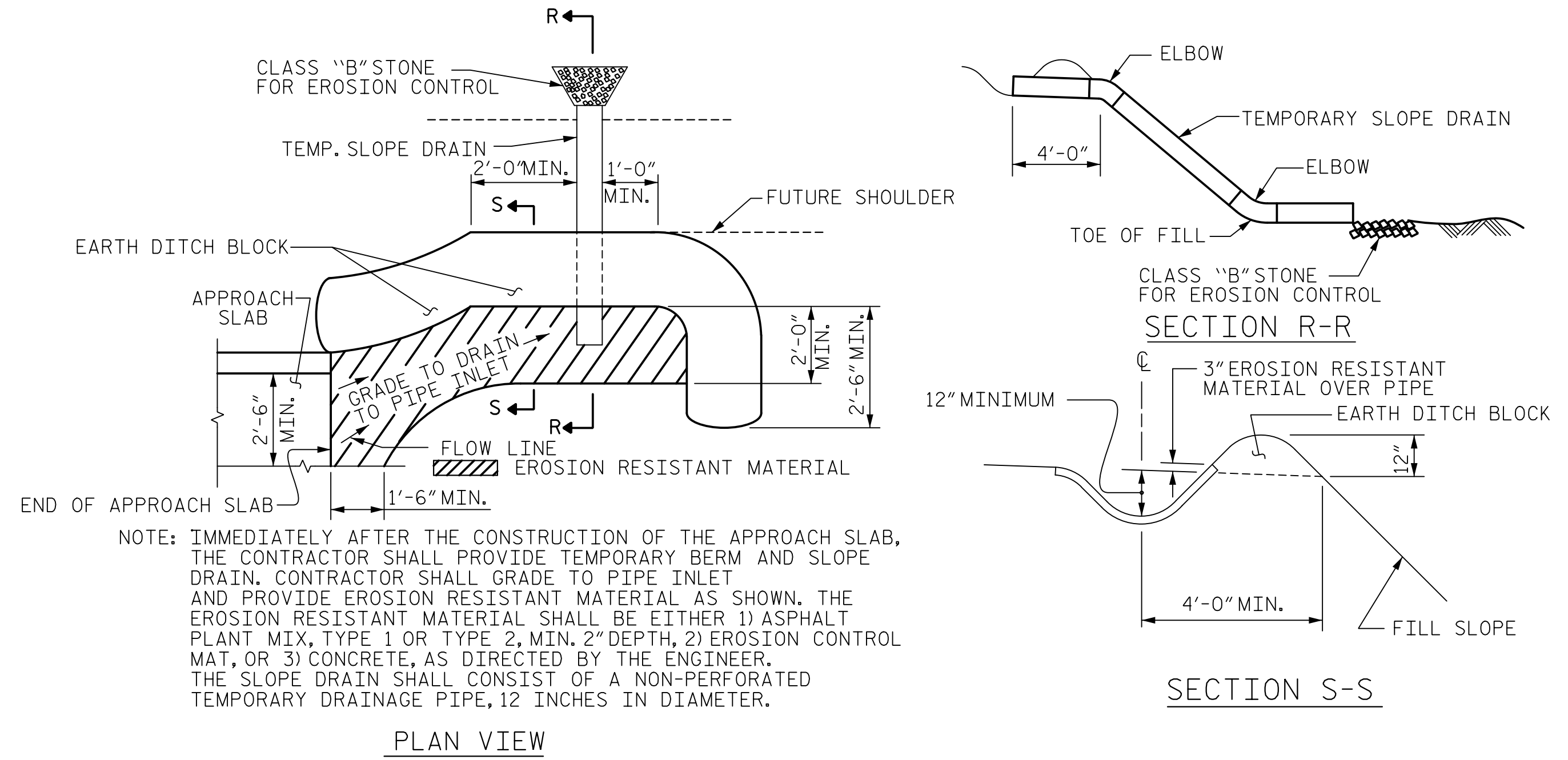


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 90° SKEW

HNTB HNTB NORTH CAROLINA, P.C.		NC License No. C-1654	
4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609			
DRAWN BY : M. WRIGHT	DATE : 11/25	DWG. NO. 24	
CHECKED BY : D. HAWKINS	DATE : 11/25		
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25		

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

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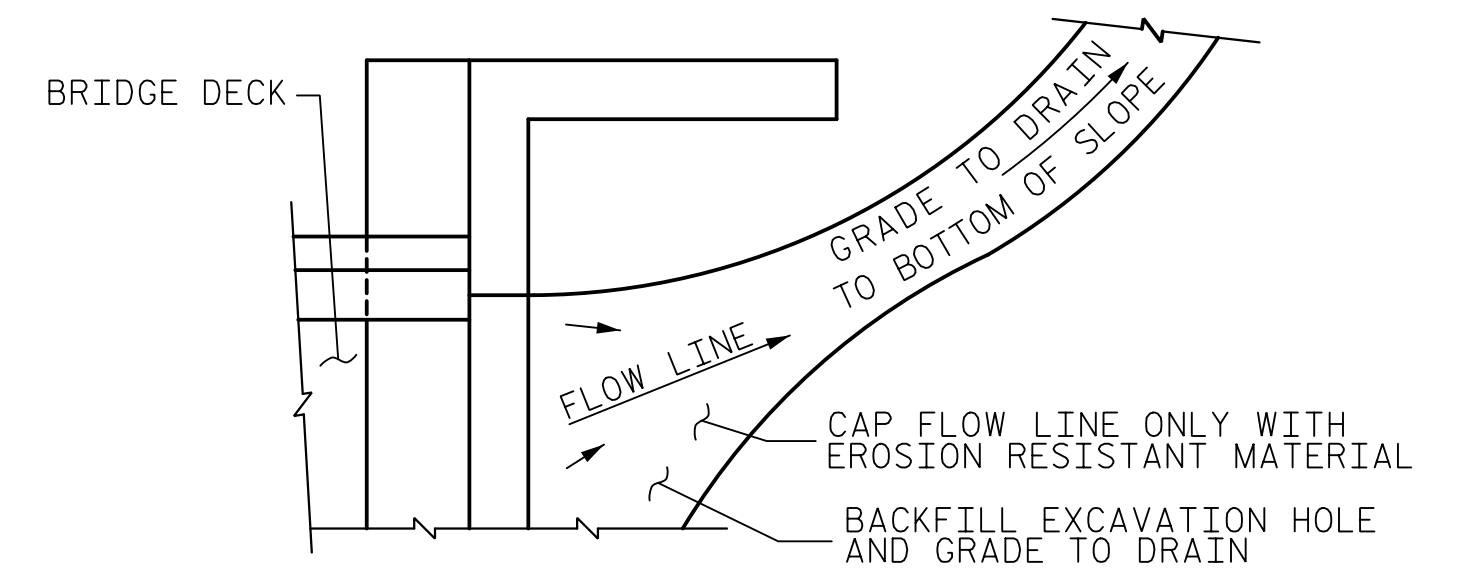


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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)

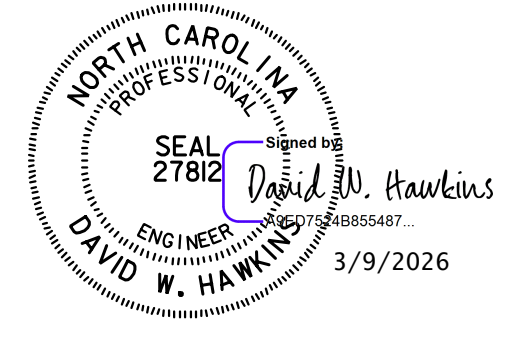


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-5995
PAMLICO COUNTY
 STATION: 18+91.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS

ASSEMBLED BY : M. WRIGHT	DATE : 6/22
CHECKED BY : P. BARBER	DATE : 6/22
DRAWN BY : FCJ 11/88	REV. 6/13 MAA/GM
CHECKED BY : ARB 11/88	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

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4000 Center at North Hills St., Suite 500, Raleigh, N.C. 27609			
DRAWN BY : M. WRIGHT	DATE : 11/25	DWG. NO. 25	SHEET NO. S-25
CHECKED BY : D. HAWKINS	DATE : 11/25		
DESIGN ENGINEER OF RECORD : D. HAWKINS	DATE : 11/25		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 25
2			4			

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE.....	SEE AASHTO
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 AASHTO
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 2024 "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" 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. FINS 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.