

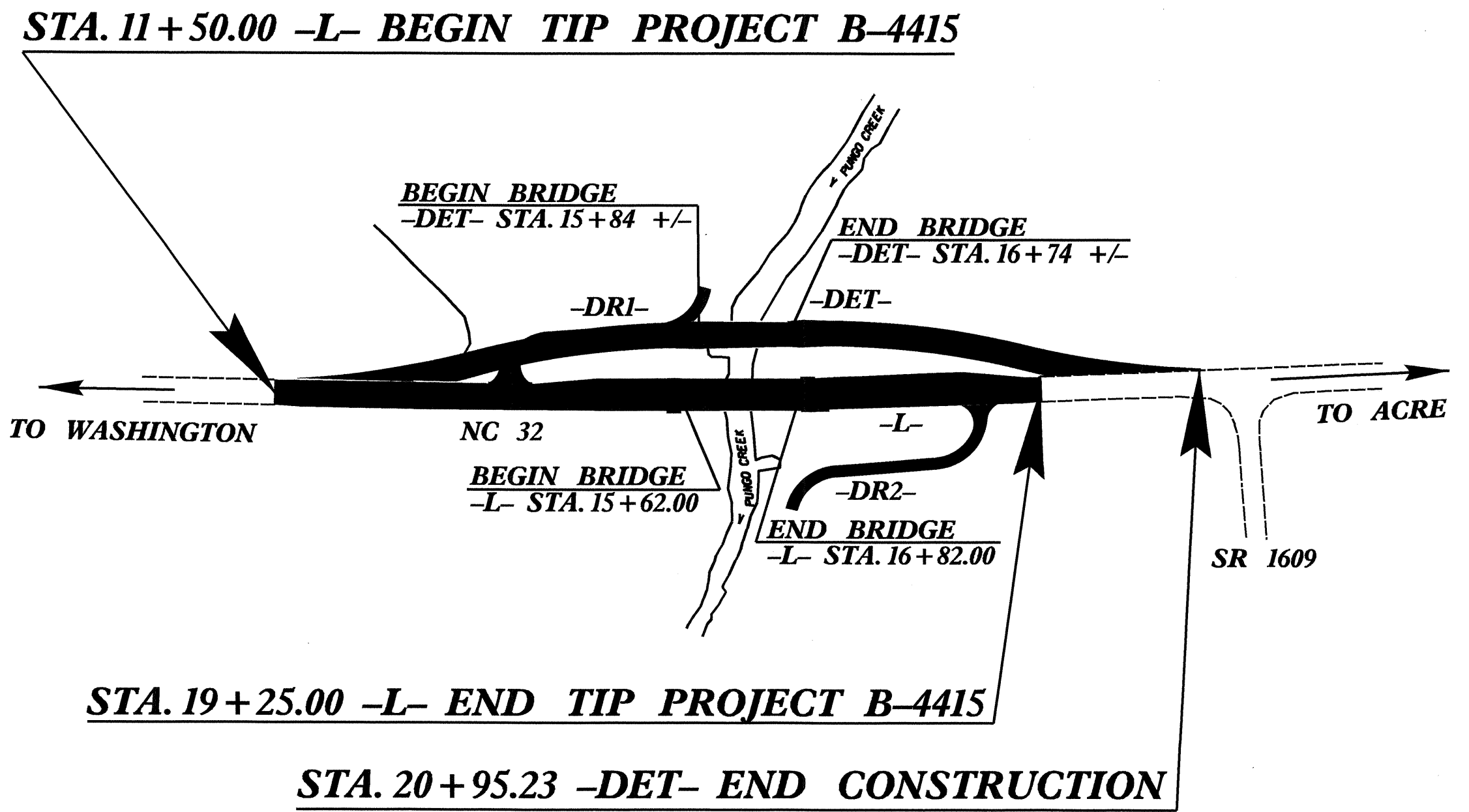
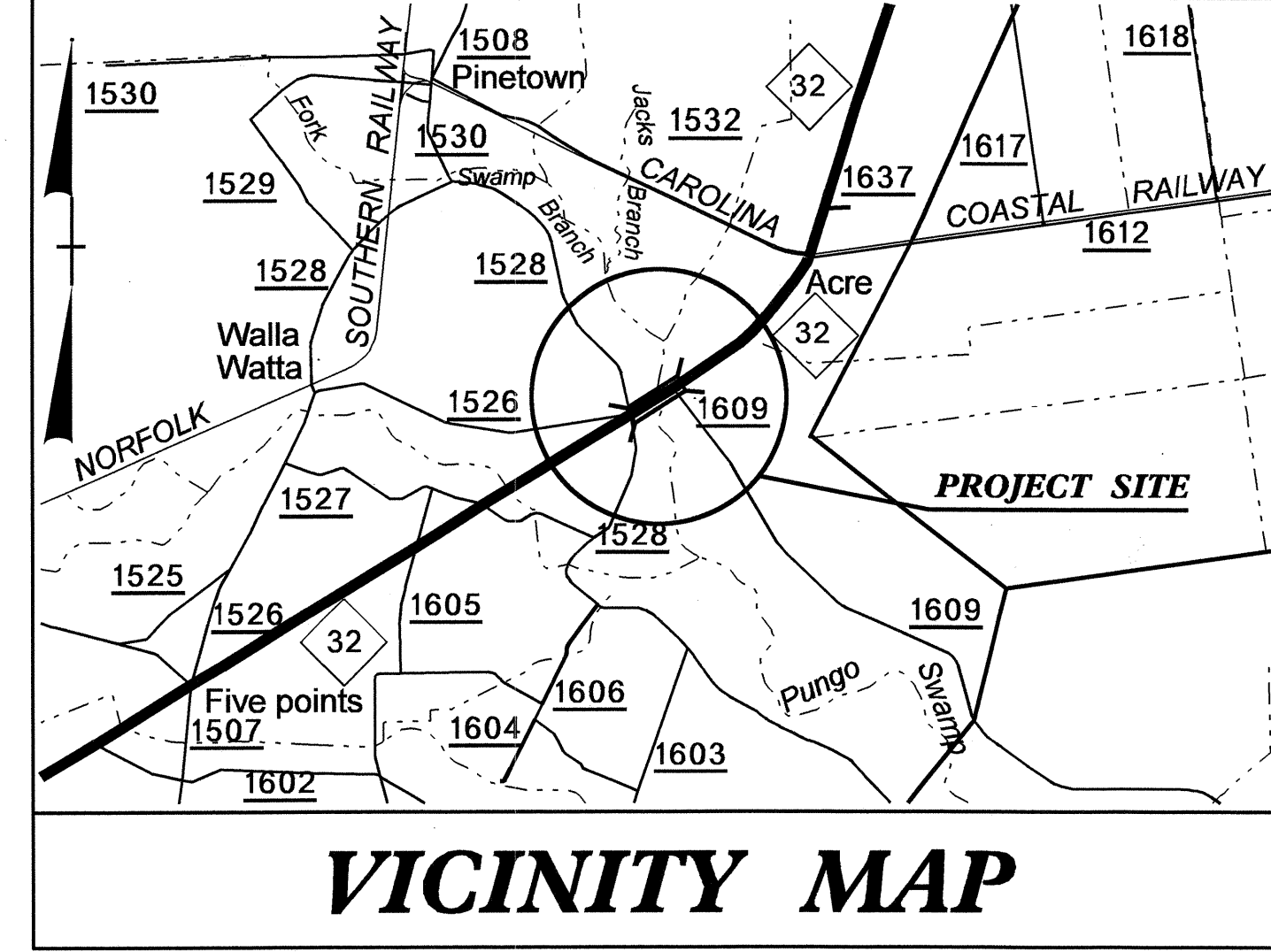
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4415		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33691.1.1	BRSTP-32(5)	P.E.	
33691.2.1	BRSTP-32(5)	ROW, UTIL.	
33691.3.1	BRSTP-32(5)	CONSTRUCTION	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

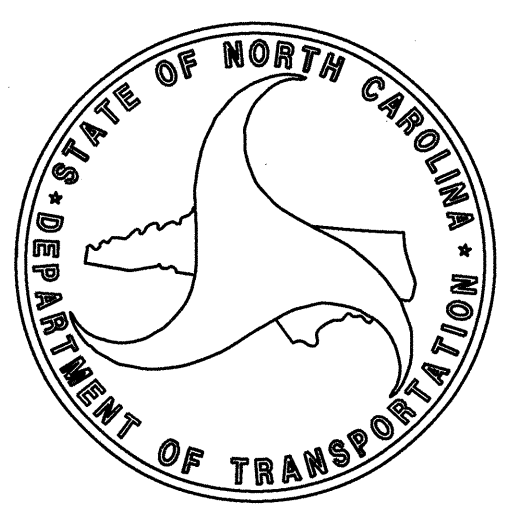
BEAUFORT COUNTY

LOCATION: BRIDGE NO. 21 OVER PUNGO CREEK ON NC 32

TYPE OF WORK: GRADING, DRAINAGE, GUARDRAIL, PAVING,
AND STRUCTURE



STRUCTURE



DESIGN DATA

ADT 2010 =	3,869
ADT 2030 =	6,100
DHV =	10%
D =	60%
T =	4% *
V =	60 MPH
V (DETOUR) =	50 MPH
FUNC CLASS =	RURAL MAJOR COLLECTOR
* (TTST 1% + DUAL 3%)	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4415	=	0.124 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4415	=	0.023 MILES
TOTAL LENGTH OF TIP PROJECT B-4415	=	0.147 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC, 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
NOVEMBER 15, 2011

B.C. HUNT, PE
PROJECT ENGINEER
V.A. PATEL, PE
PROJECT DESIGN ENGINEER

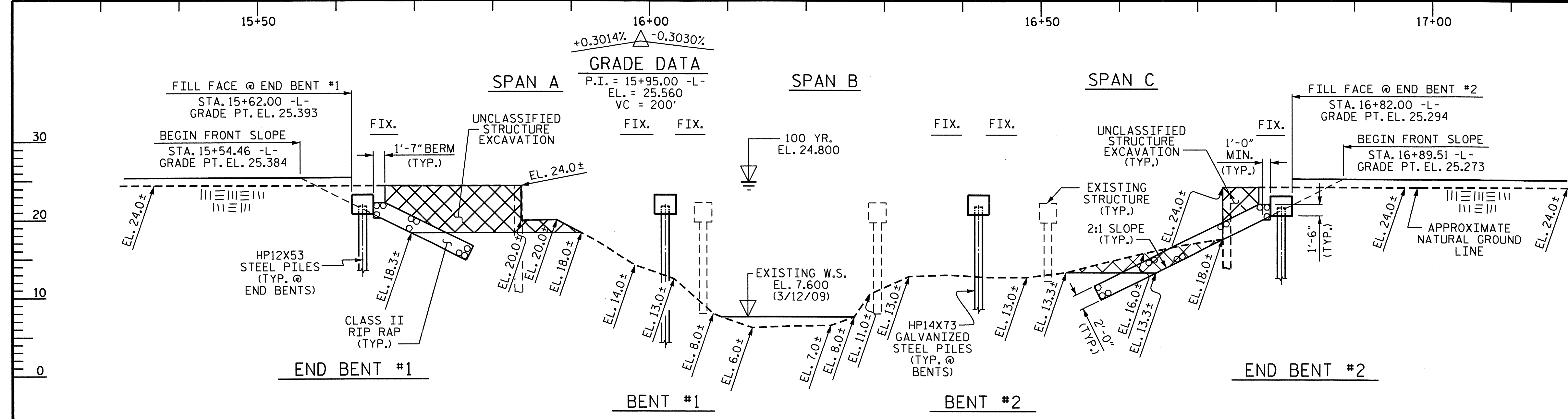
STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.,
RALEIGH, NC 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

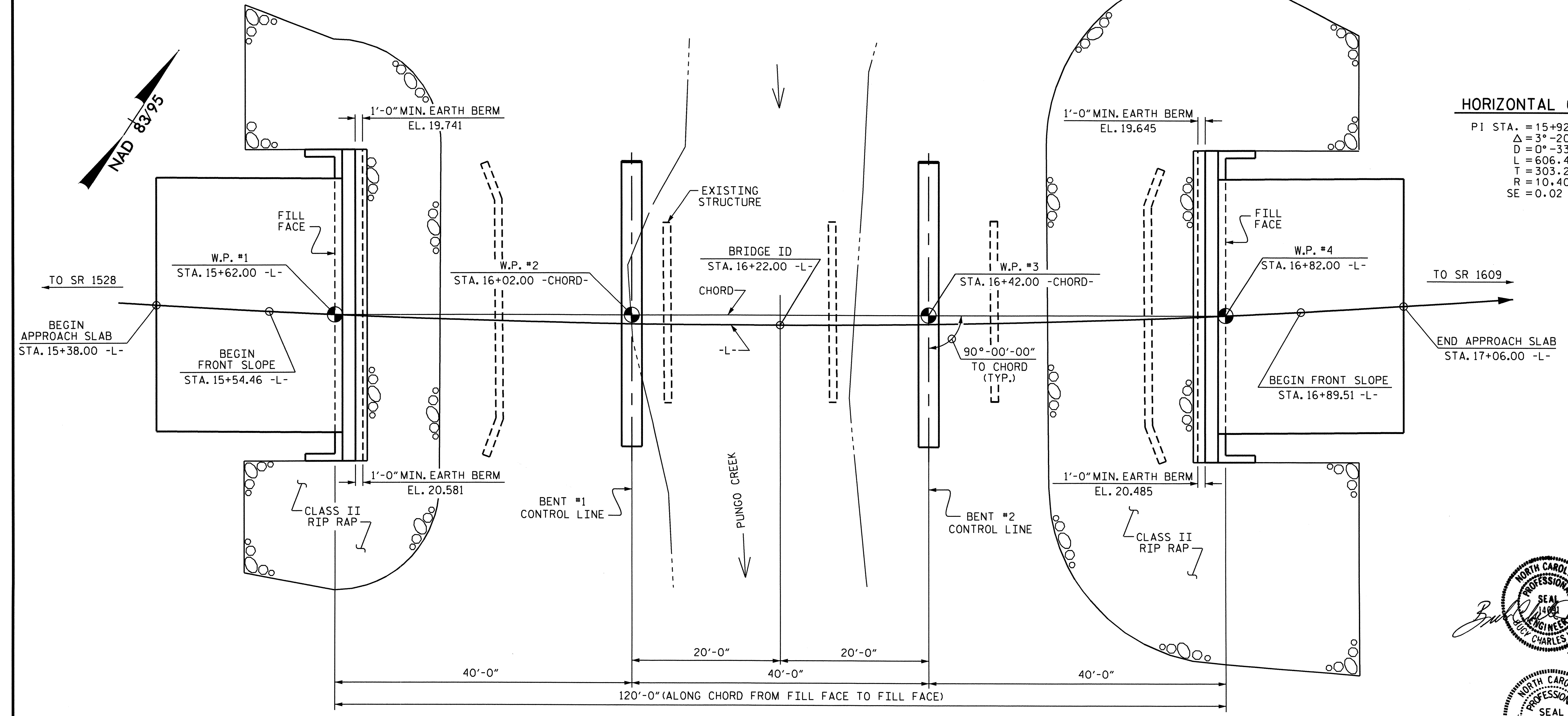
TIP PROJECT: B-4415

CONTRACT: C202727

27-JUN-2011 07:55
\$\$\$\$\$\$\$\$\$\$\$\$\$DGN\$\$\$\$\$\$\$\$\$\$\$\$\$
VPATEL



SECTION ALONG -L-



PLAN

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY

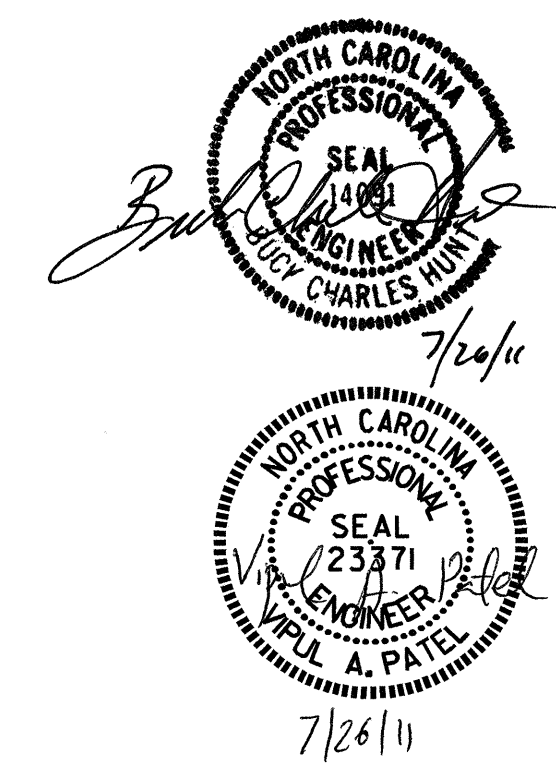
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-4415
 BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 21

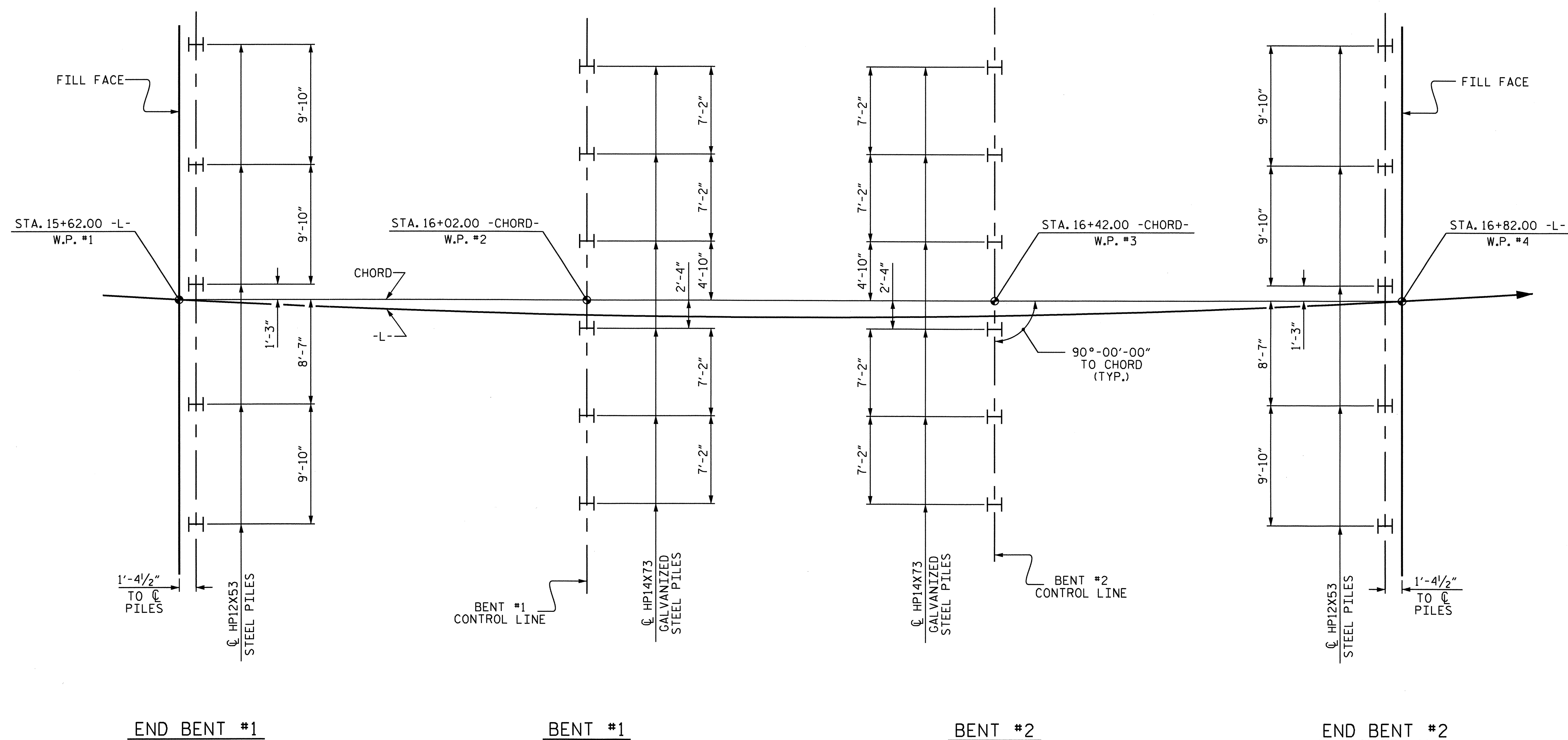
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 PUNGO CREEK / ACRE SWAMP
 ON NC 32 BETWEEN
 SR 1528 AND SR 1609



DRAWN BY: J.P. ADAMS DATE: 11/29/10
 CHECKED BY: R.G. EMERSON DATE: 01/11

REVISIONS						SHEET NO. S-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 24
2			4			



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES

NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

PILES AT BENT NO.1 AND BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE.

DRIVE PILES AT BENT NO.1 AND BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 275 TONS PER PILE AND 295 TONS PER PILE, RESPECTIVELY. THE REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO.1 AND BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN -21.000.

SCOUR CRITICAL ELEVATIONS FOR BENT NO.1 AND BENT NO.2 ARE ELEVATION 0.000 AND 1.000, RESPECTIVELY. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PILE DRIVING ANALYZER, SEE PILES SPECIAL PROVISION.

GALVANIZED STEEL PILES ARE REQUIRED AT BENT NO.1 AND BENT NO.2 IN ACCORDANCE WITH THE PILES PROVISION.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 70 - 105 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1 AND BENT NO.2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-

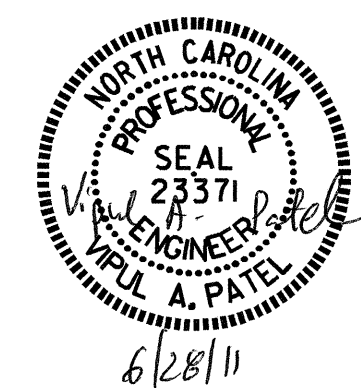
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

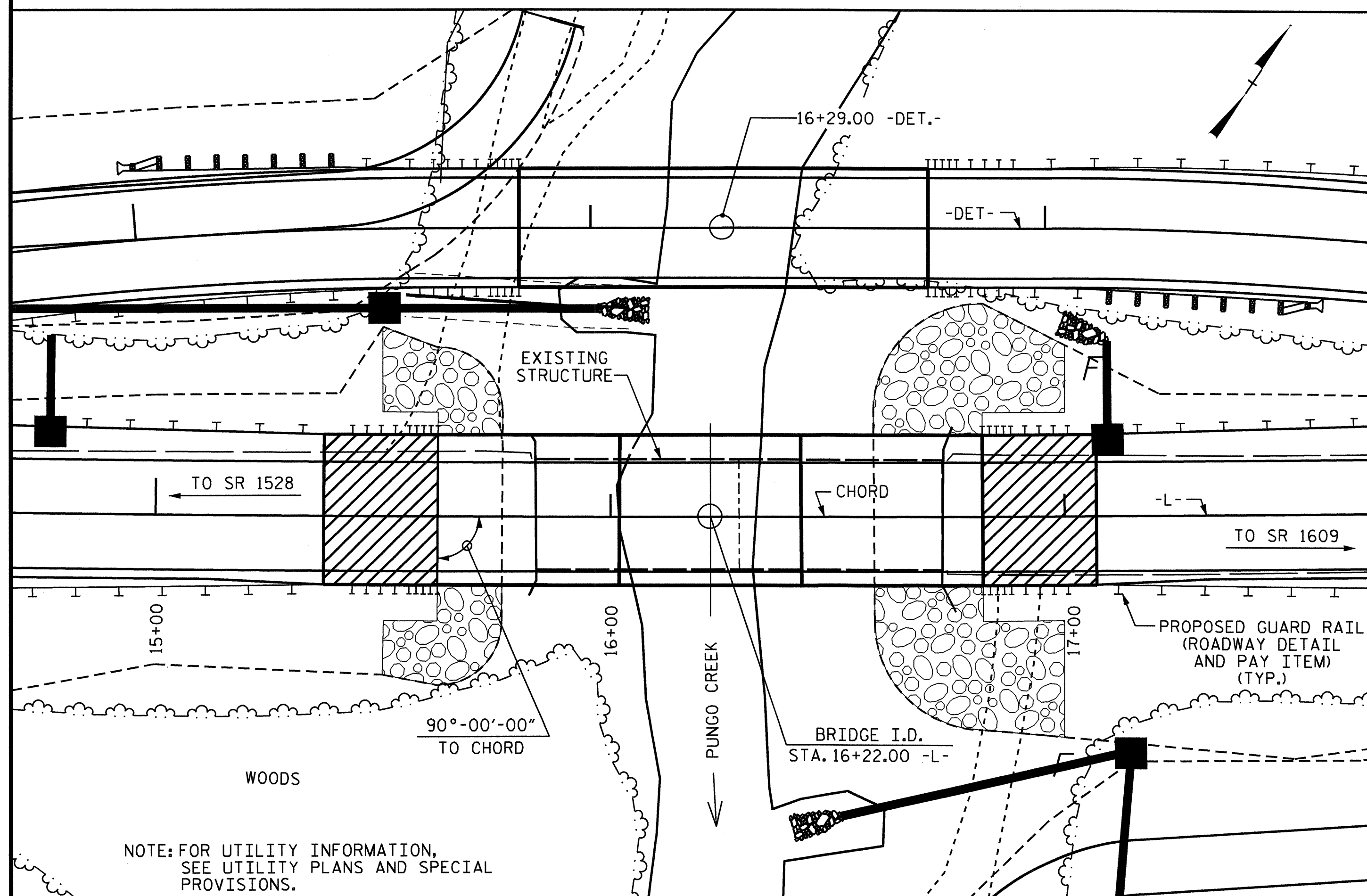
FOR BRIDGE OVER
 PUNGO CREEK / ACRE SWAMP
 ON NC 32 BETWEEN
 SR 1528 AND SR 1609

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			24



DRAWN BY : J.P. ADAMS DATE : 11/29/10
 CHECKED BY : R.G. EMERSON DATE : 01/11

BM: BL-3 = #5 REBAR WITH ALUMINUM TRAVERSE CAP 17' LT. OF STA. 21+41.60 -L-, ELEV. = 24.020



LOCATION SKETCH

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 4 SPANS (1 @ 23'-3", 1 @ 22'-3", 1 @ 21'-9", & 1 @ 23'-9") OF A REINFORCED CONCRETE DECK ON 6 LINES OF CONTINUOUS STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 24.9 FT. ON TIMBER CAP AND PILES AT END BENTS AND BENTS (STEEL CRUTCH BENTS AT BENTS 1 THRU 3) AND LOCATED AT PROPOSED SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 16+22.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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.

NOTES

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, 'EVALUATING SCOUR AT BRIDGES', MAY, 2001.

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 BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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 16+22.00 -L-."

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

FOR INTERIOR BENTS, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT PRICE FOR GALVANIZED STEEL PILES.

HYDRAULIC DATA

DESIGN DISCHARGE = 3,305 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YRS.
 DESIGN HIGH WATER ELEVATION = 24.000
 DRAINAGE AREA = 36.9 SQ.MI.
 BASIC DISCHARGE (100) = 4,190 C.F.S.
 BASIC HIGH WATER ELEVATION = 24.800

OVERTOPPING DATA

OVERTOPPING DISCHARGE = 2,950 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 25± YRS.
 OVERTOPPING FLOOD ELEVATION = 23.200

TOTAL BILL OF MATERIAL

	CONSTRUCTION MAINTENANCE, & REMOVAL TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL
	LUMP SUM	LUMP SUM	EACH	EACH	LUMP SUM	SO. FT.	SO. FT.	CU. YDS.	LUMP SUM	LBS.
SUPERSTRUCTURE						3836	4891		LUMP SUM	
END BENT #1								15.1		2167
BENT #1								10.8		1760
BENT #2								10.8		1760
END BENT #2								15.1		2167
TOTAL	LUMP SUM	LUMP SUM	1	1	LUMP SUM	3836	4891	51.8	LUMP SUM	7854

TOTAL BILL OF MATERIAL

	HP 12x53 STEEL PILES		HP 14x73 GALVANIZED STEEL PILES		PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SO. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						235.50			LUMP SUM	LUMP SUM	36	1410.02
END BENT #1	5	275			3		145	160				
BENT #1			6	480	3							
BENT #2			6	480	3							
END BENT #2	5	325			3		310	345				
TOTAL	10	600	12	960	12	235.50	455	505	LUMP SUM	LUMP SUM	36	1410.02

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 PUNGO CREEK / ACRE SWAMP
 ON NC 32 BETWEEN
 SR 1528 AND SR 1609



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.P. ADAMS DATE : 11/29/10
 CHECKED BY : R.G. EMERSON DATE : 01/11

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.071	--	1.75	0.277	1.42	B	EL	19.438	0.538	1.07	B	EL	1.944	0.80	0.277	1.15	B	EL	19.438		
	HL-93(Opr)	N/A	--	1.389	--	1.35	0.277	1.84	B	EL	19.438	0.538	1.39	B	EL	1.944	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.253	45.098	1.75	0.277	1.78	B	EL	19.438	0.538	1.25	B	EL	1.944	0.80	0.277	1.45	B	EL	19.438		
	HS-20(Opr)	36.000	--	1.624	58.46	1.35	0.277	2.31	B	EL	19.438	0.538	1.62	B	EL	1.944	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.674	36.1	1.4	0.277	4.12	B	EL	19.438	0.538	3.36	B	EL	1.944	0.80	0.277	2.67	B	EL	19.438	
		SNGARBS2	20.000	--	2.213	44.267	1.4	0.277	3.39	B	EL	15.55	0.538	2.5	B	EL	1.944	0.80	0.277	2.21	B	EL	19.438	
		SNAGRIS2	22.000	--	2.185	48.071	1.4	0.277	3.31	B	EL	15.55	0.538	2.36	B	EL	1.944	0.80	0.277	2.19	B	EL	15.55	
		SNCOTTS3	27.250	--	1.337	36.426	1.4	0.277	2.06	B	EL	19.438	0.538	1.69	B	EL	1.944	0.80	0.277	1.34	B	EL	19.438	
		SNAGGRS4	34.925	--	1.204	42.043	1.4	0.277	1.85	B	EL	19.438	0.538	1.48	B	EL	1.944	0.80	0.277	1.20	B	EL	19.438	
		SNS5A	35.550	--	1.171	41.625	1.4	0.277	1.8	B	EL	19.438	0.538	1.54	B	EL	1.944	0.80	0.277	1.17	B	EL	19.438	
		SNS6A	39.950	--	1.114	44.521	1.4	0.277	1.72	B	EL	19.438	0.538	1.44	B	EL	1.944	0.80	0.277	1.11	B	EL	19.438	
	SNS7B	42.000	3	1.063	44.638	1.4	0.277	1.64	B	EL	19.438	0.538	1.47	B	EL	1.944	0.80	0.277	1.06	B	EL	19.438		
	TTST	TNAGRIT3	33.000	--	1.371	45.255	1.4	0.277	2.11	B	EL	19.438	0.538	1.69	B	EL	1.944	0.80	0.277	1.37	B	EL	19.438	
		TNT4A	33.075	--	1.389	45.944	1.4	0.277	2.14	B	EL	19.438	0.538	1.61	B	EL	1.944	0.80	0.277	1.39	B	EL	19.438	
		TNT6A	41.600	--	1.179	49.026	1.4	0.277	1.81	B	EL	19.438	0.538	1.57	B	EL	1.944	0.80	0.277	1.18	B	EL	19.438	
		TNT7A	42.000	--	1.209	50.759	1.4	0.277	1.86	B	EL	19.438	0.538	1.45	B	EL	1.944	0.80	0.277	1.21	B	EL	19.438	
		TNT7B	42.000	--	1.235	51.856	1.4	0.277	1.9	B	EL	19.438	0.538	1.4	B	EL	1.944	0.80	0.277	1.23	B	EL	19.438	
		TNAGRIT4	43.000	--	1.202	51.696	1.4	0.277	1.85	B	EL	19.438	0.538	1.34	B	EL	1.944	0.80	0.277	1.20	B	EL	19.438	
TNACT5A		45.000	--	1.112	50.056	1.4	0.277	1.71	B	EL	19.438	0.538	1.39	B	EL	1.944	0.80	0.277	1.11	B	EL	19.438		
TNACT5B	45.000	--	1.081	48.632	1.4	0.277	1.66	B	EL	19.438	0.538	1.27	B	EL	1.944	0.80	0.277	1.08	B	EL	19.438			

LOAD FACTORS:

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

NOTES:

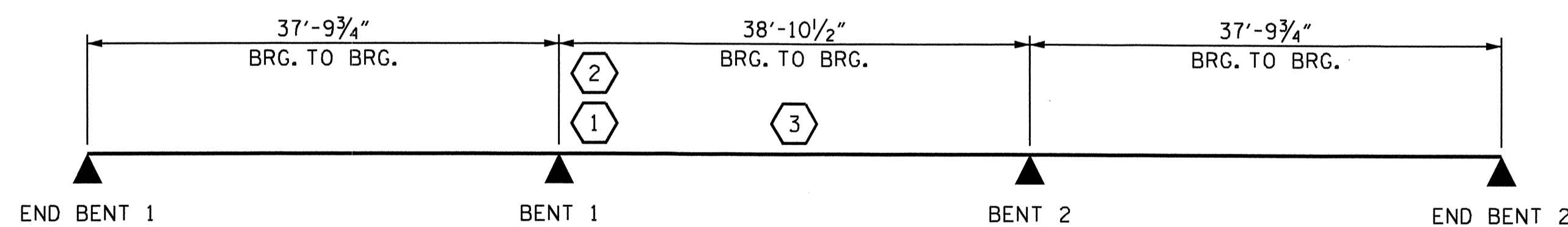
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

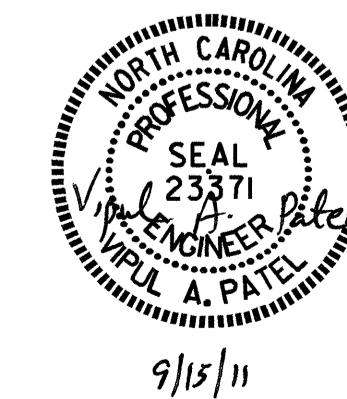
- 1.
- 2.
- 3.
- 4.

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



LRFR SUMMARY

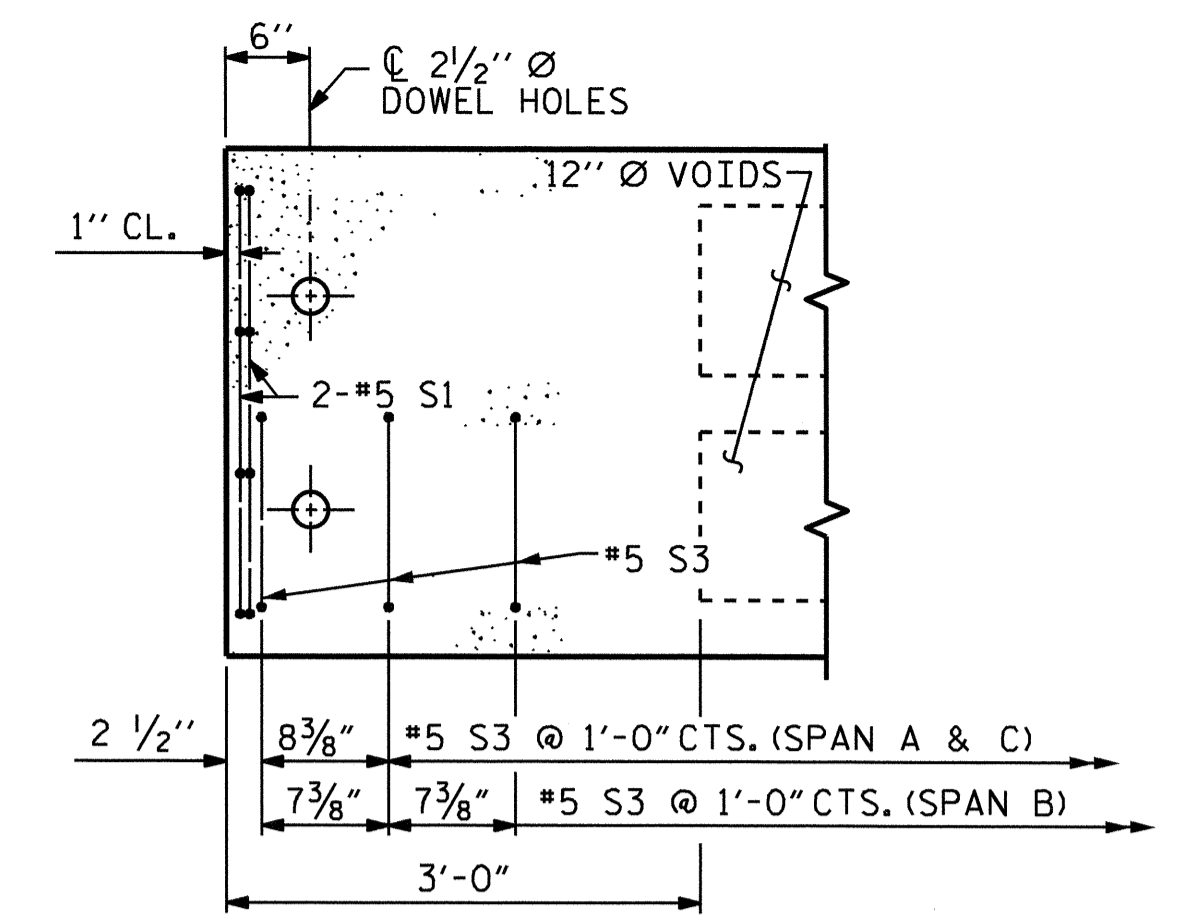
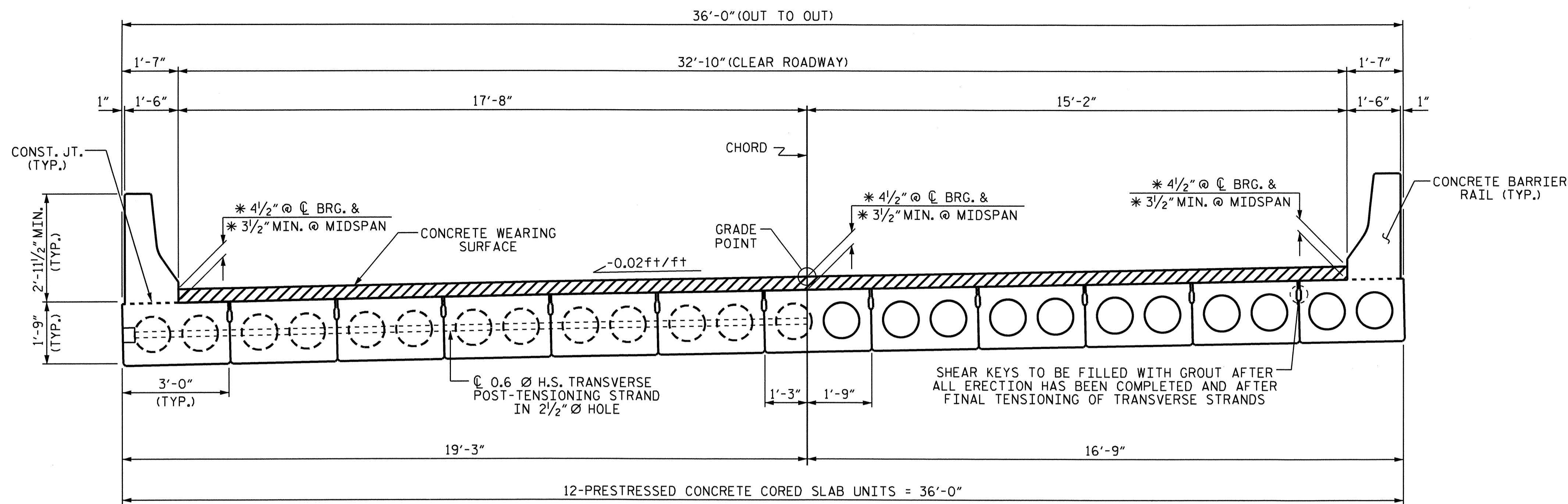
PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

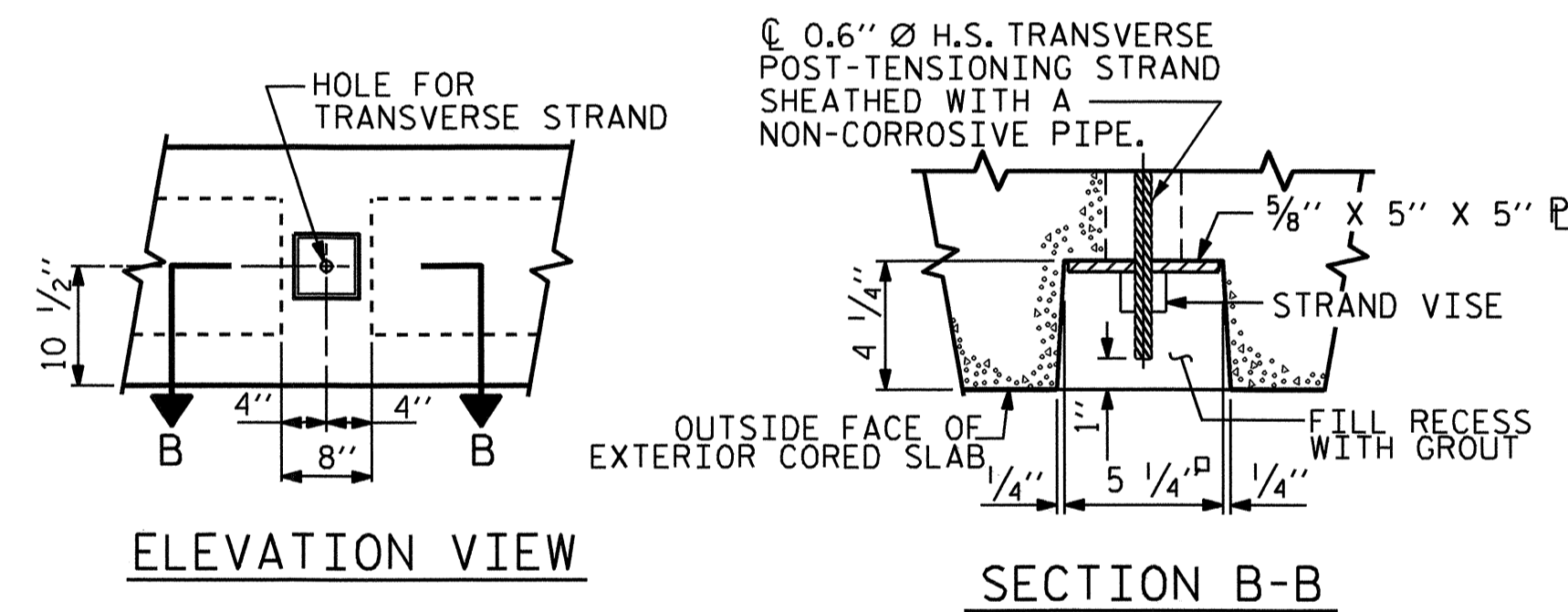
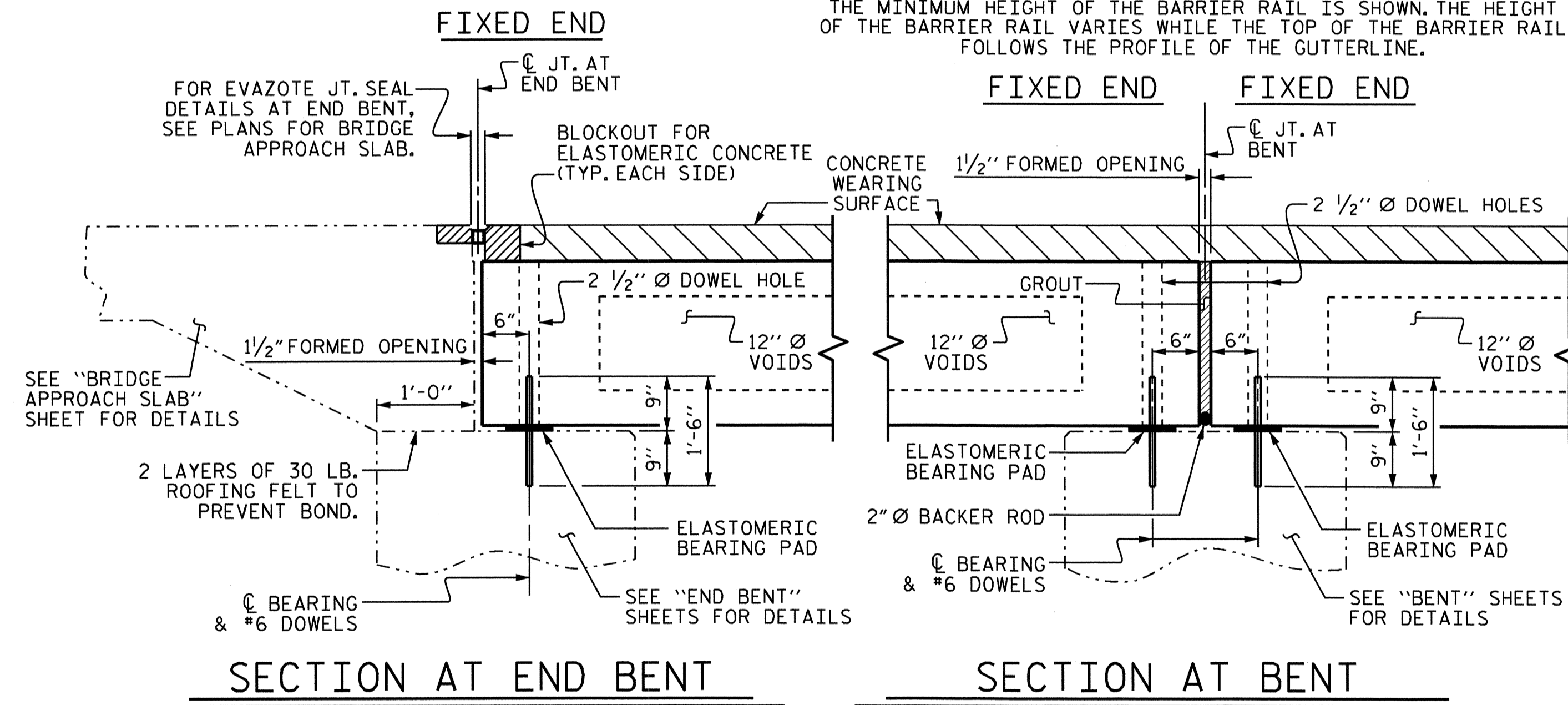
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : GMG	DATE : 12/17/10
CHECKED BY : RLC	DATE : 12/10
DRAWN BY : MAA 1/08	REV. 11/12/08R MAA/GM
CHECKED BY : GM/DI 2/08	

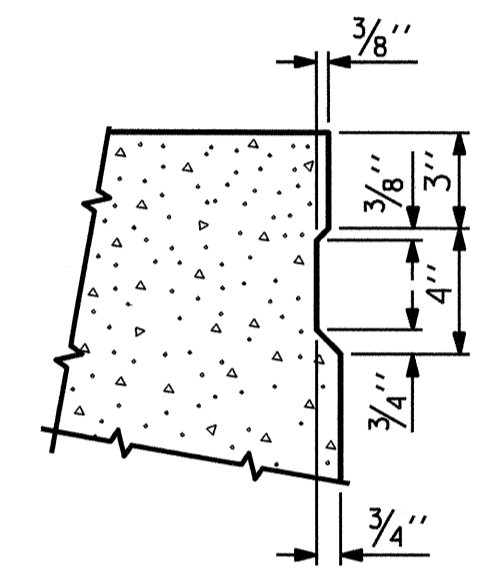


PART PLAN-EXTERIOR SECTION
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.

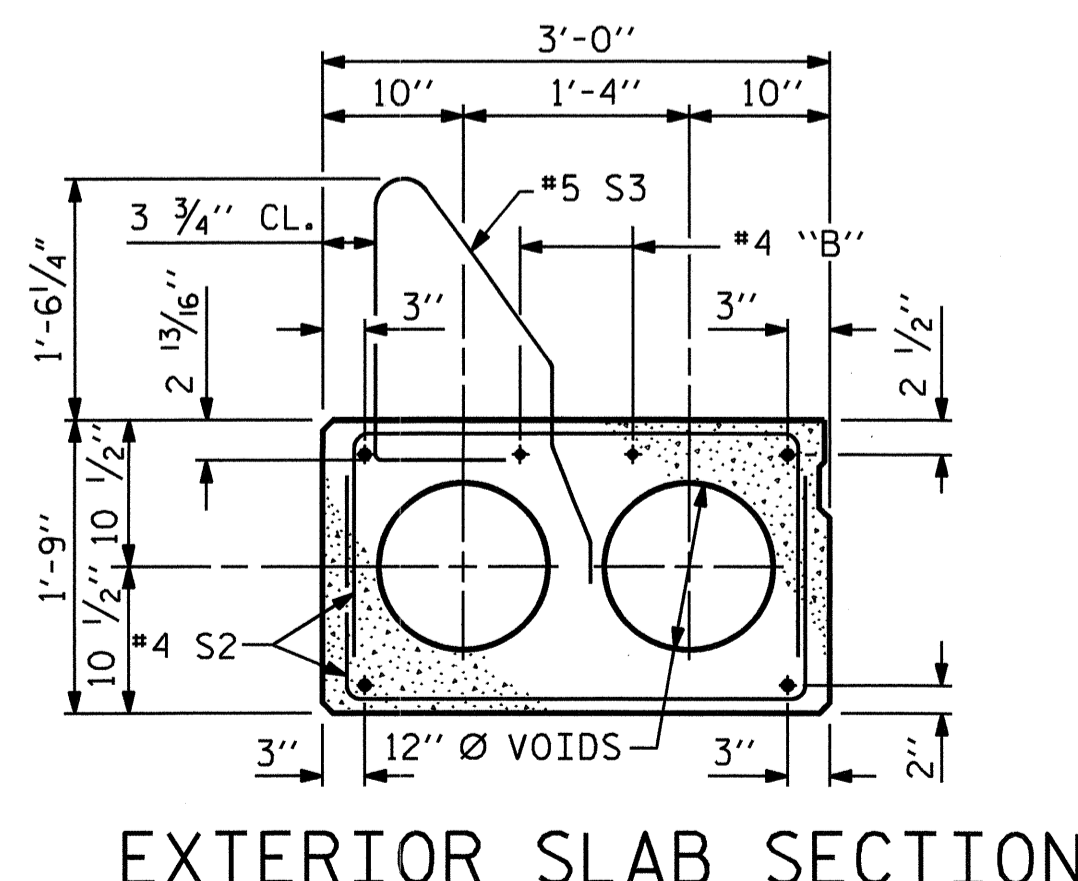
TYPICAL SECTION
* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS. THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.



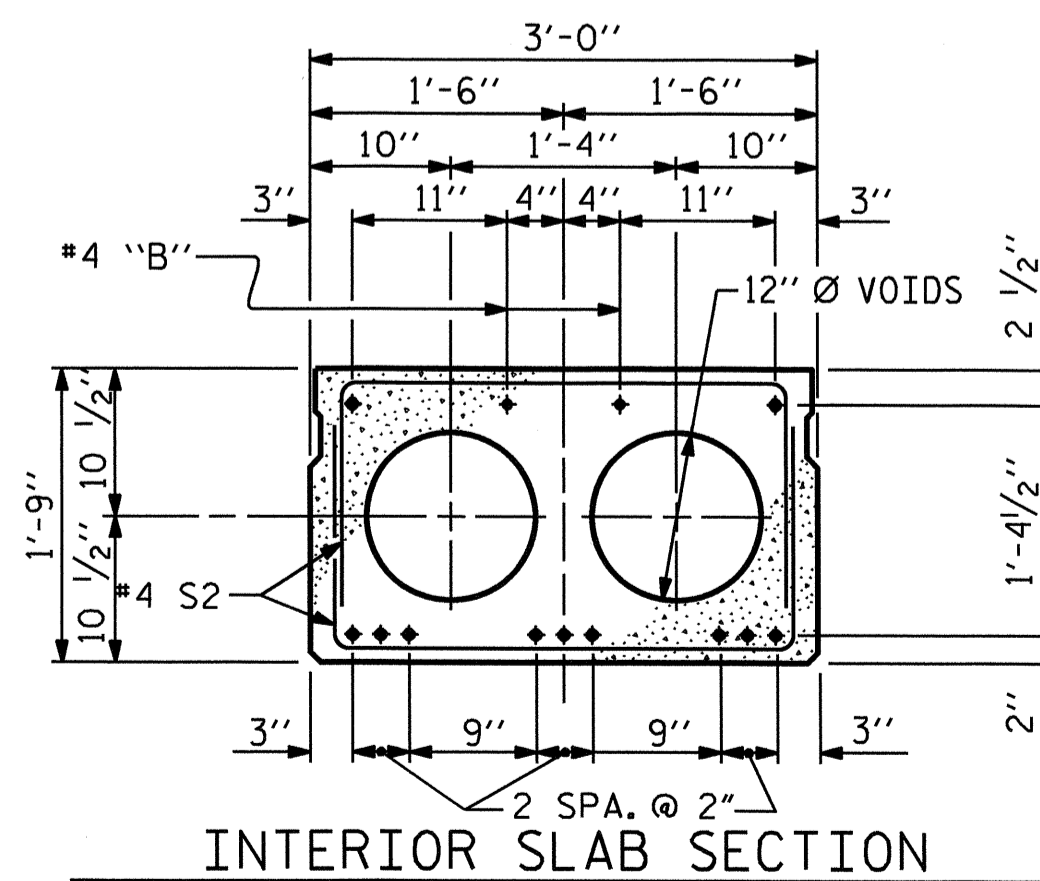
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



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

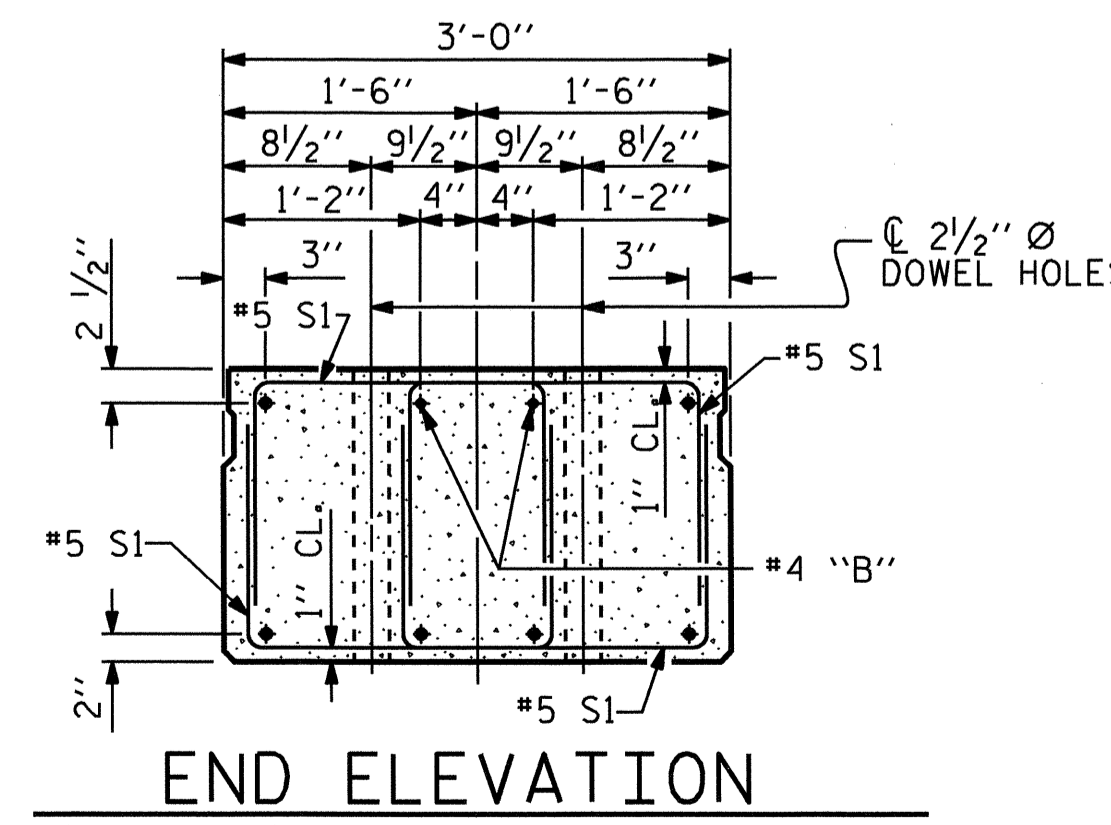


EXTERIOR SLAB SECTION



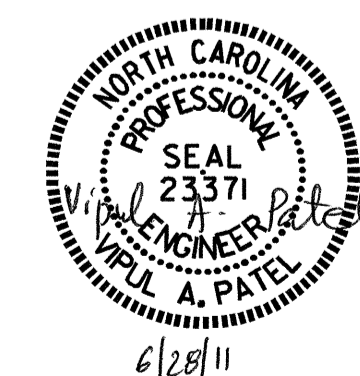
INTERIOR SLAB SECTION (11 STRANDS)

0.6" Ø LOW RELAXATION STRAND LAYOUT



END ELEVATION

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



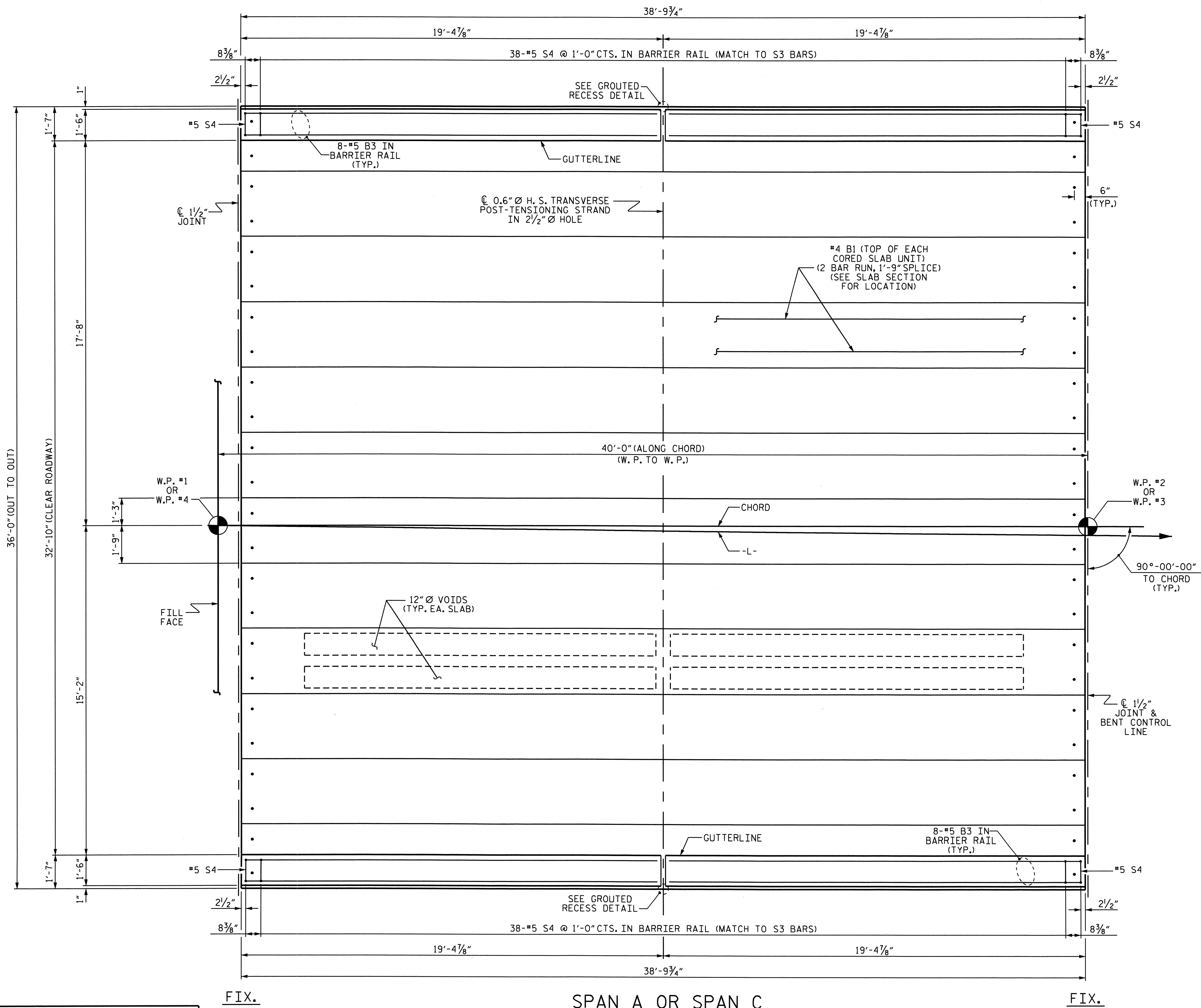
PROJECT NO. B-4415
BEAUFORT COUNTY
STATION: 16+22.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD					
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-5
					TOTAL SHEETS 24

ASSEMBLED BY : R. G. EMERSON	DATE : 09/09
CHECKED BY : J. P. ADAMS	DATE : 11/09
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM

27-JUN-2011 07:57
R:\Structures\Plans\B-4415.SD.CS.dgn
vpatel

STD. NO. PCS2



PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-



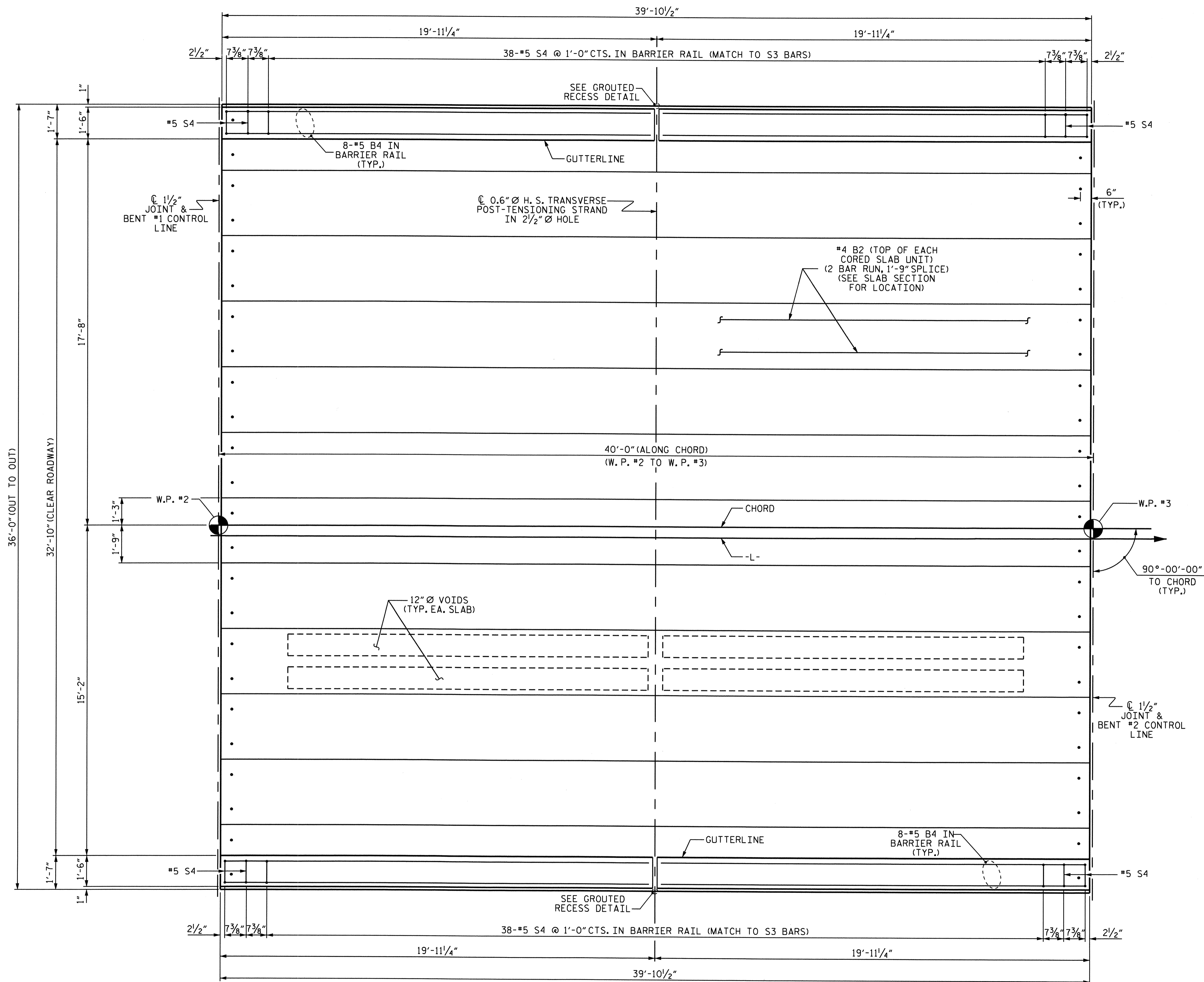
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 (SPAN A OR SPAN C)

DRAWN BY : R. G. EMERSON DATE : 09/09
 CHECKED BY : J. P. ADAMS DATE : 11/09

27-JUN-2011 08:02
 R:\Structures\Plans\B-4415.SD.CS.dgn
 vpatel

SPAN A OR SPAN C
 (SPAN A SHOWN, SPAN C SIMILAR BY ROTATION)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			24



36'-0" (OUT TO OUT)
32'-10" (CLEAR ROADWAY)

1 1/2" JOINT & BENT #1 CONTROL LINE

W.P. #2

1 1/2" JOINT & BENT #2 CONTROL LINE

FIX.

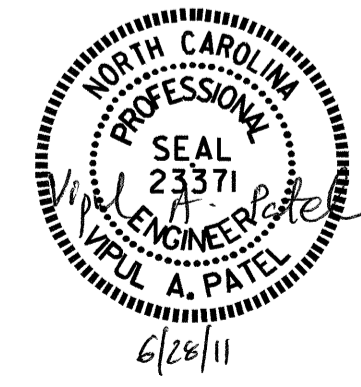
SPAN B

FIX.

DRAWN BY : R. G. EMERSON DATE : 09/09
CHECKED BY : J. P. ADAMS DATE : 11/09

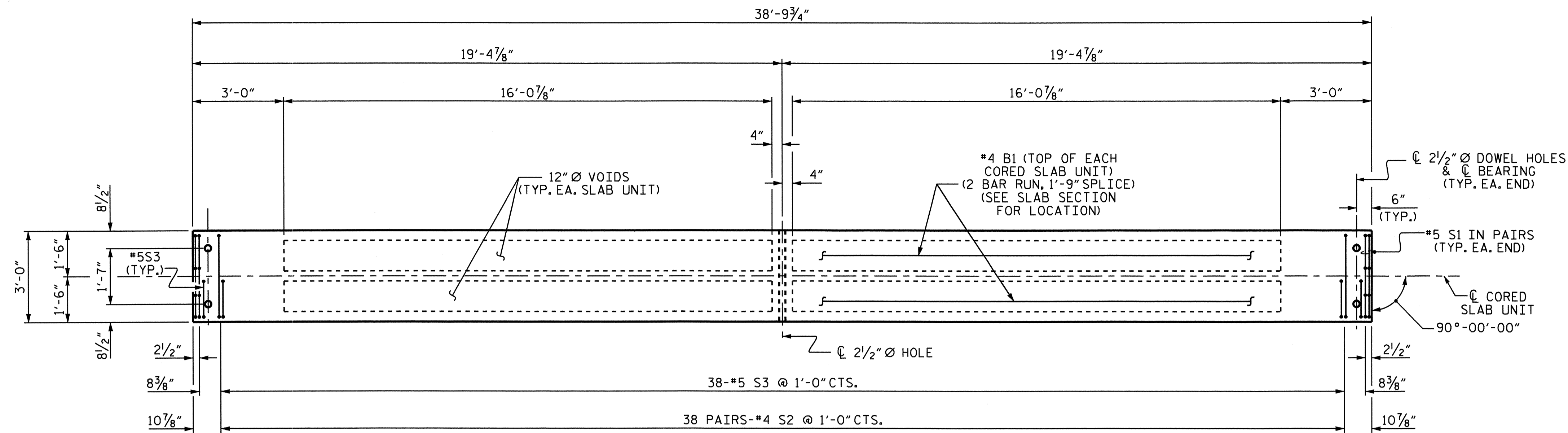
27-JUN-2011 08:02
R:\Structures\Plans\B-4415.SD.CS.dgn
vpote1

PROJECT NO. B-4415
BEAUFORT COUNTY
STATION: 16+22.00 -L-



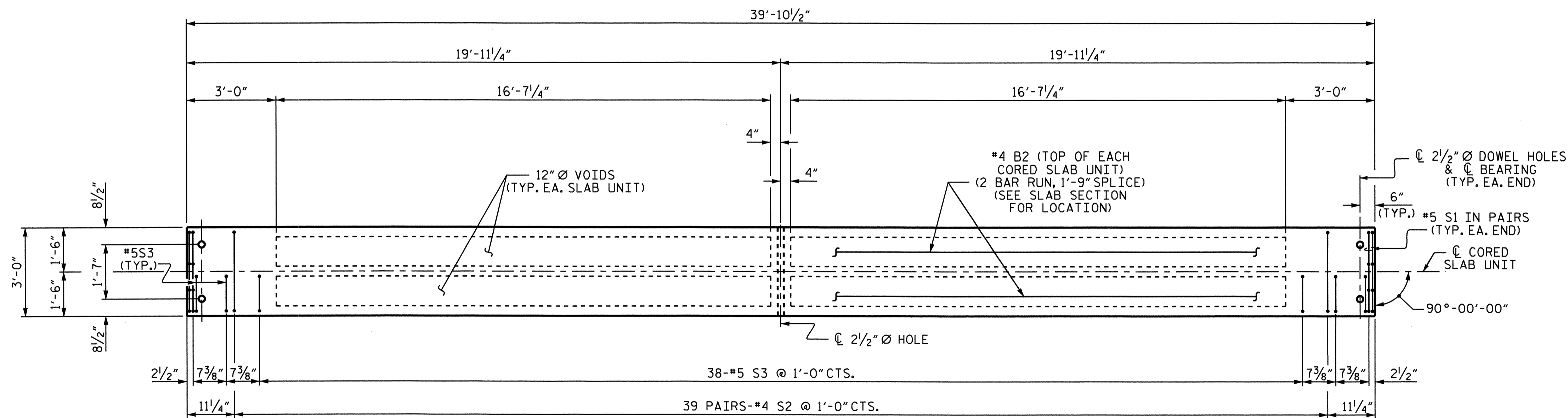
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN
(SPAN B)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			24



PLAN OF CORED SLAB UNIT-SPAN A OR SPAN C

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.
FOR #5 S1 BARS, SEE PART PLAN-EXTERIOR SECTION.



PLAN OF CORED SLAB UNIT-SPAN B

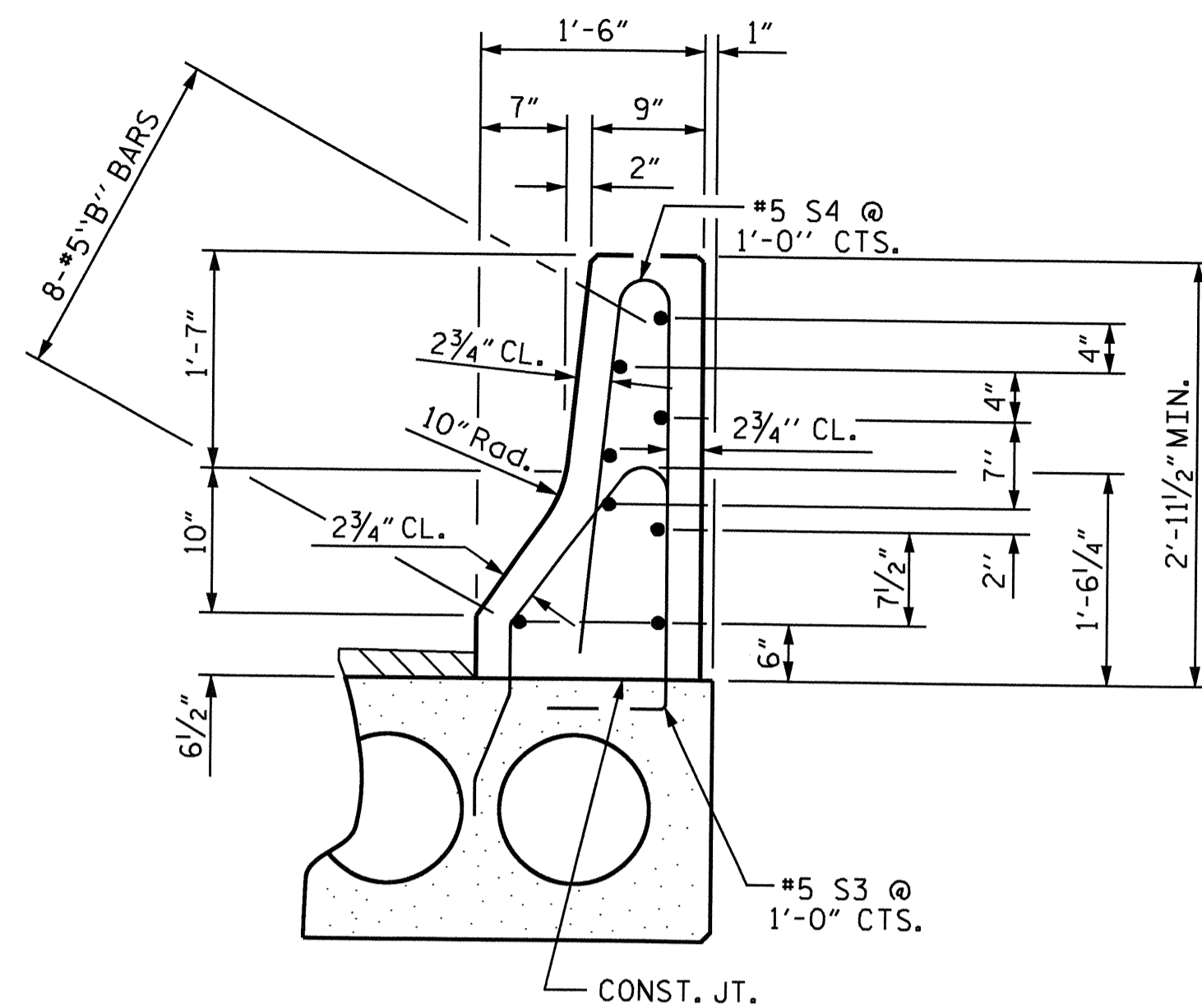
EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.
FOR #5 S1 BARS, SEE PART PLAN-EXTERIOR SECTION.

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-



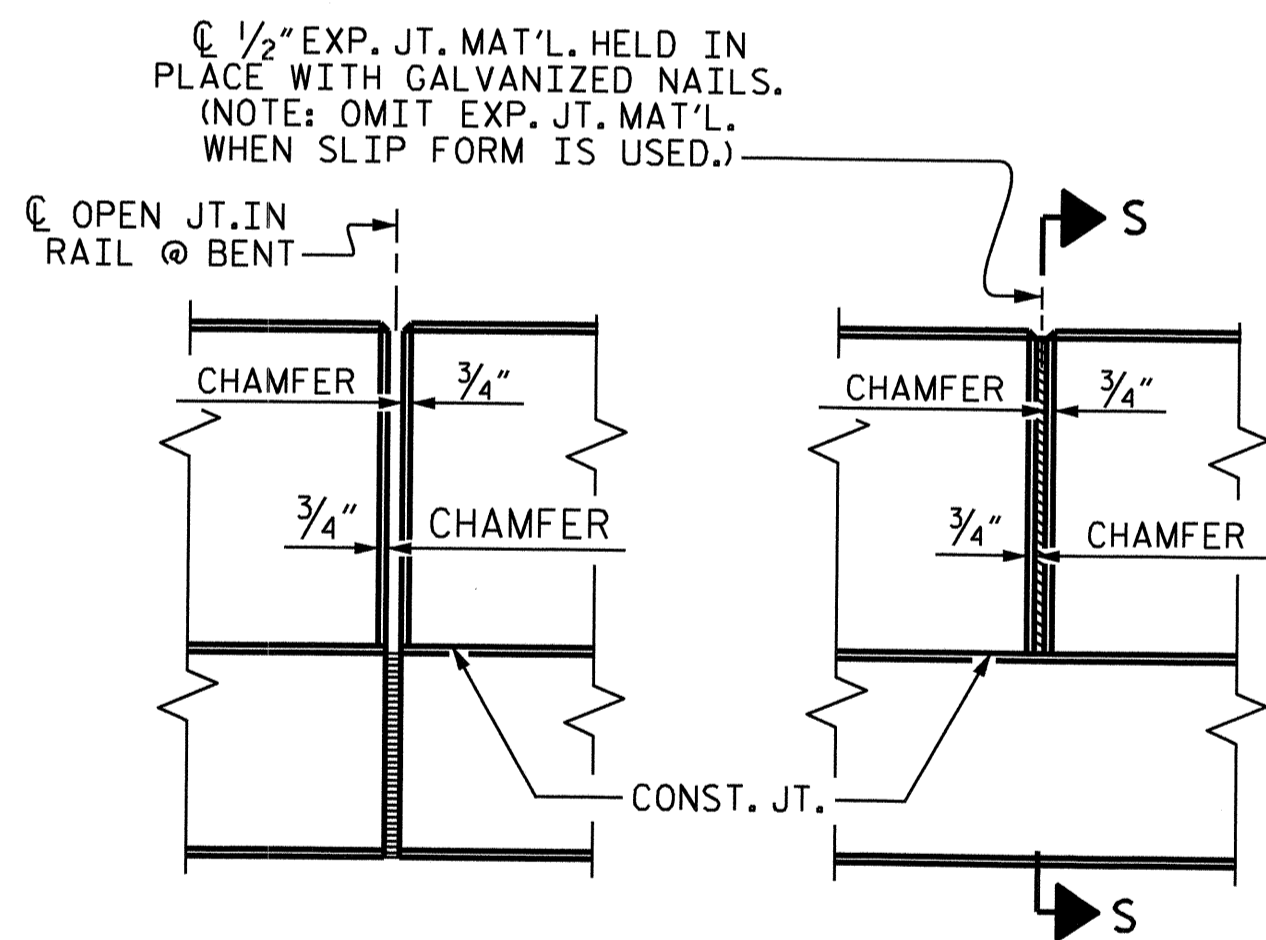
STATE OF NORTH CAROLINA						SHEET NO. S-8
DEPARTMENT OF TRANSPORTATION RALEIGH						
SUPERSTRUCTURE						
PLAN OF CORED SLAB UNIT						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			
TOTAL SHEETS 24						

DRAWN BY : R. G. EMERSON DATE : 09/09
 CHECKED BY : J. P. ADAMS DATE : 11/09

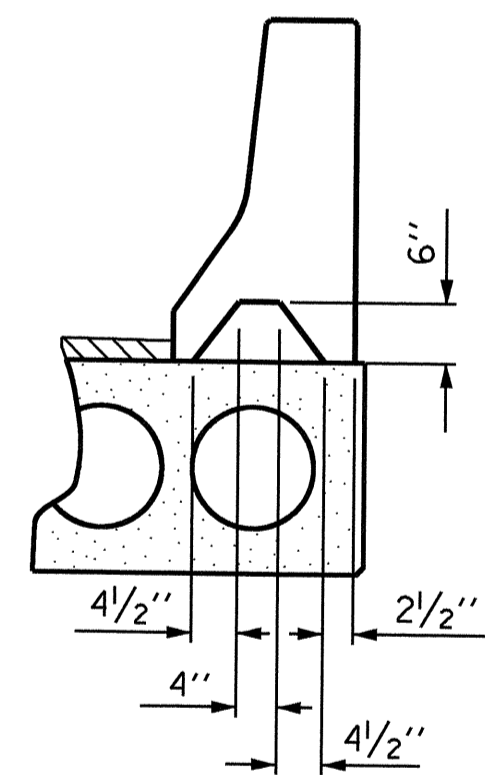


SECTION THRU RAIL

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.



ELEVATION AT EXPANSION JOINTS

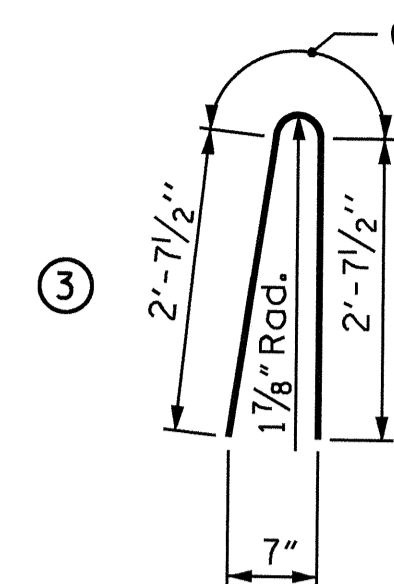


SECTION S-S

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

BARRIER RAIL DETAILS

BAR TYPE



BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
*B3	32		32	64	#5	STR.	19'-0"	1268
*B4		32		32	#5	STR.	19'-7"	654
*S4	80	84	80	244	#5	3	5'-9"	1463
* EPOXY COATED REINFORCING STEEL								3385 LBS.
CLASS AA CONCRETE								27.4 CU.YDS.
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL								235.50 LIN. FT.

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BARRIER RAIL
 DETAILS**

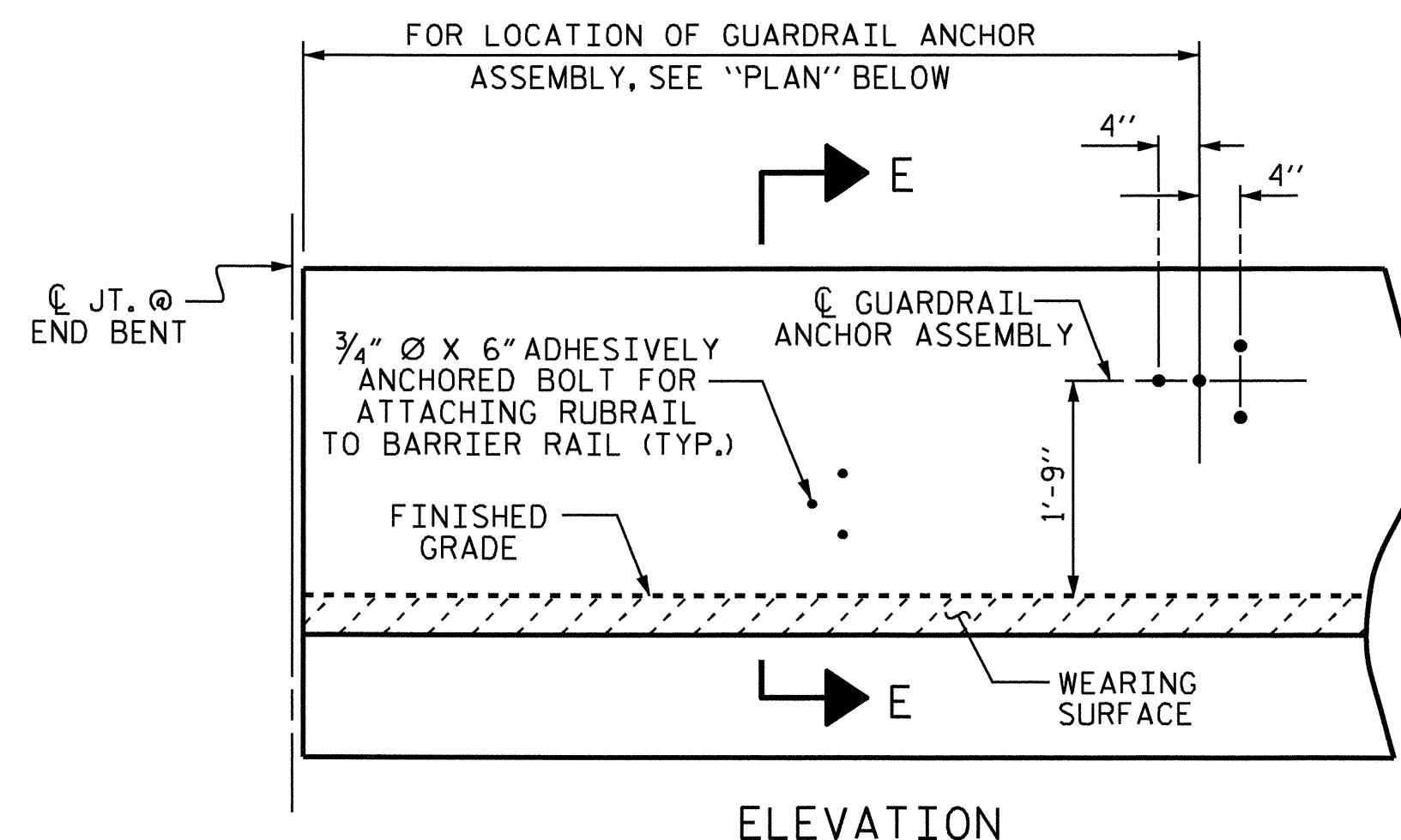
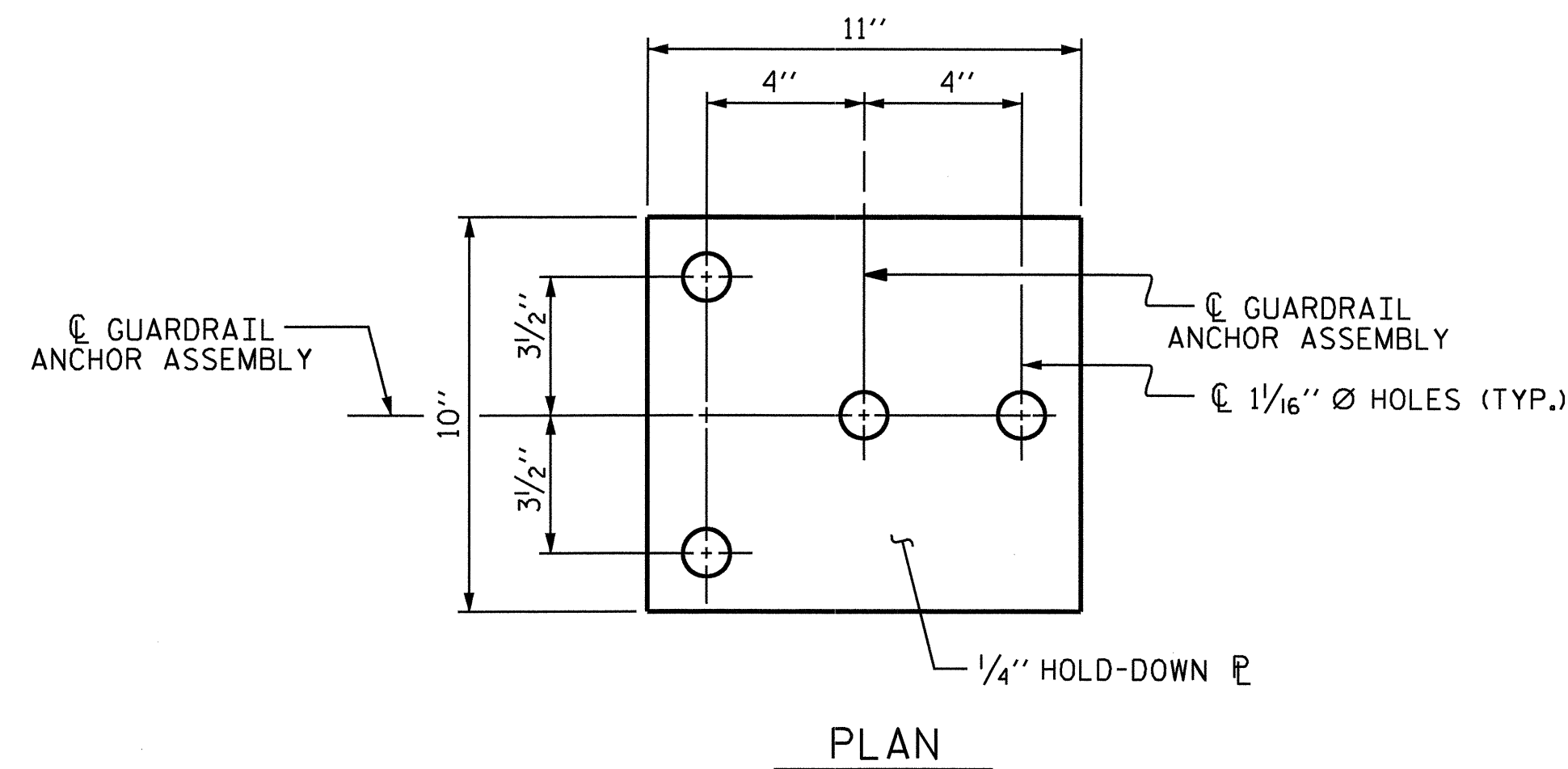
DRAWN BY : R. G. EMERSON DATE : 09/09
 CHECKED BY : J. P. ADAMS DATE : 11/09

27-JUN-2011 08:00
 R:\Structures\Plans\B-4415_SD_CS.dgn
 vpatel

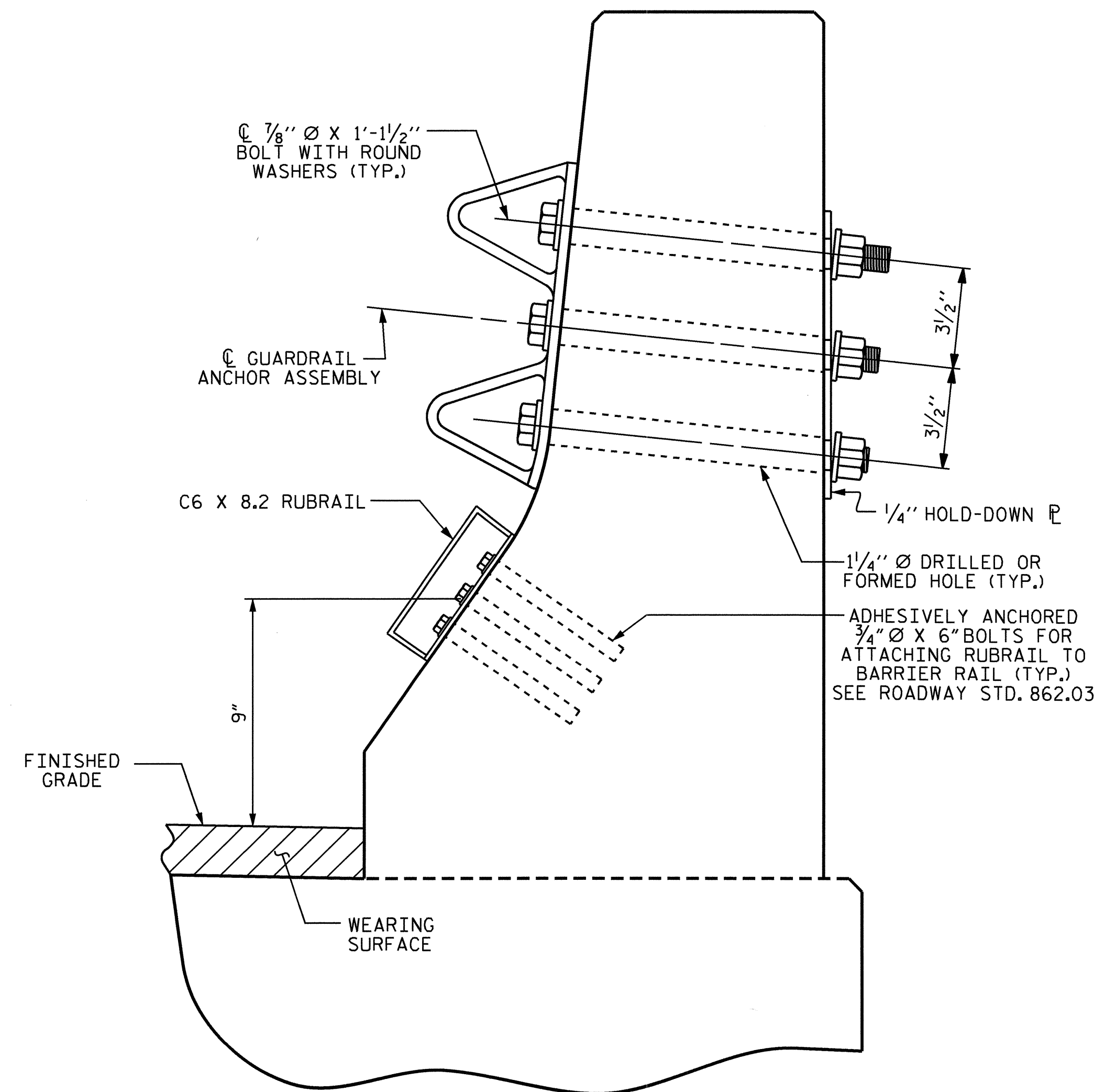
REVISIONS

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

SHEET NO.
S-9
 TOTAL SHEETS
24

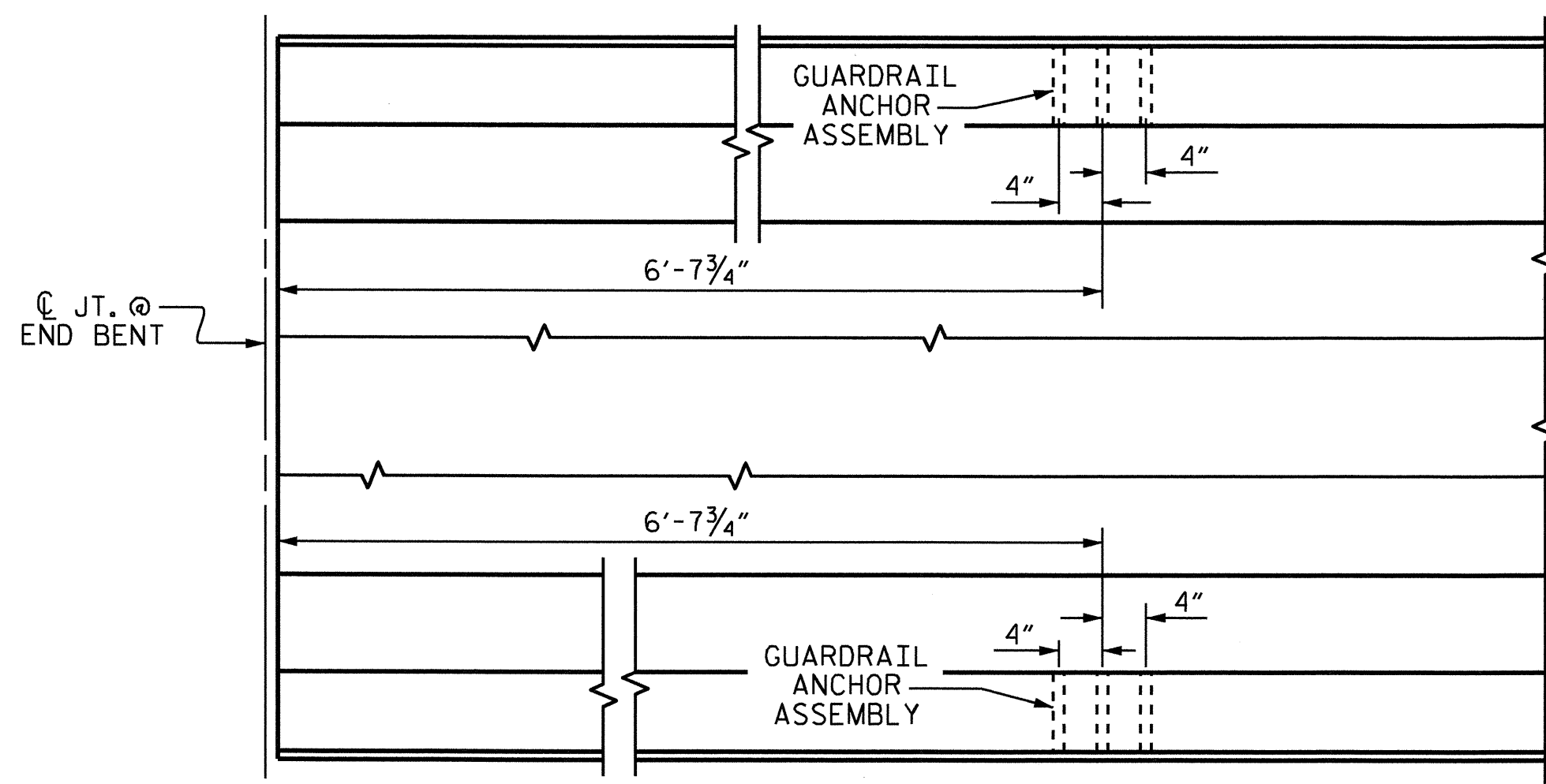


FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

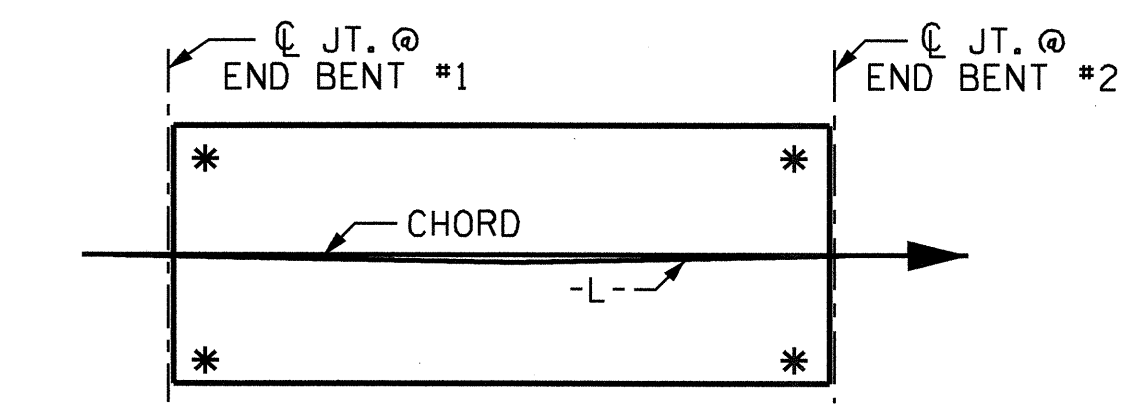
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



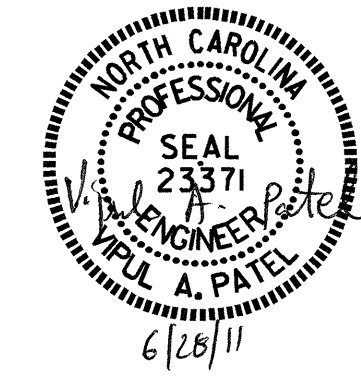
SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 1/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.
- THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
- THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

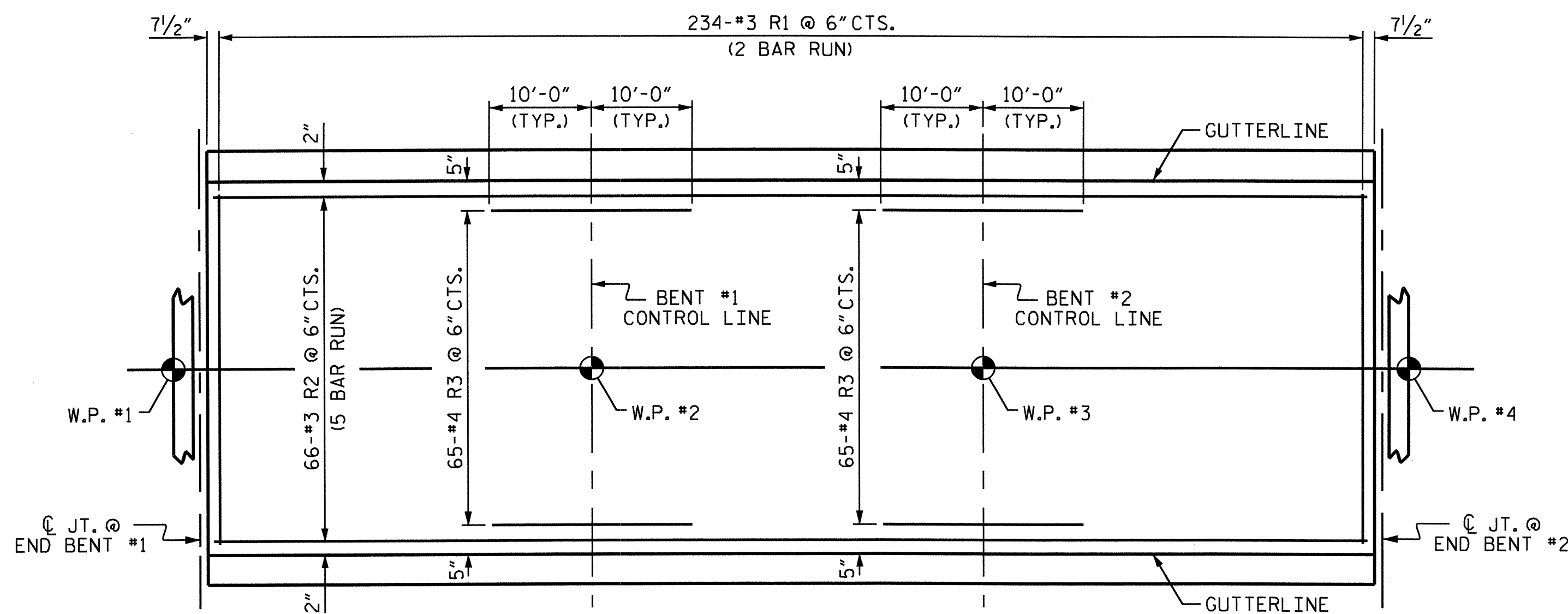
PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-



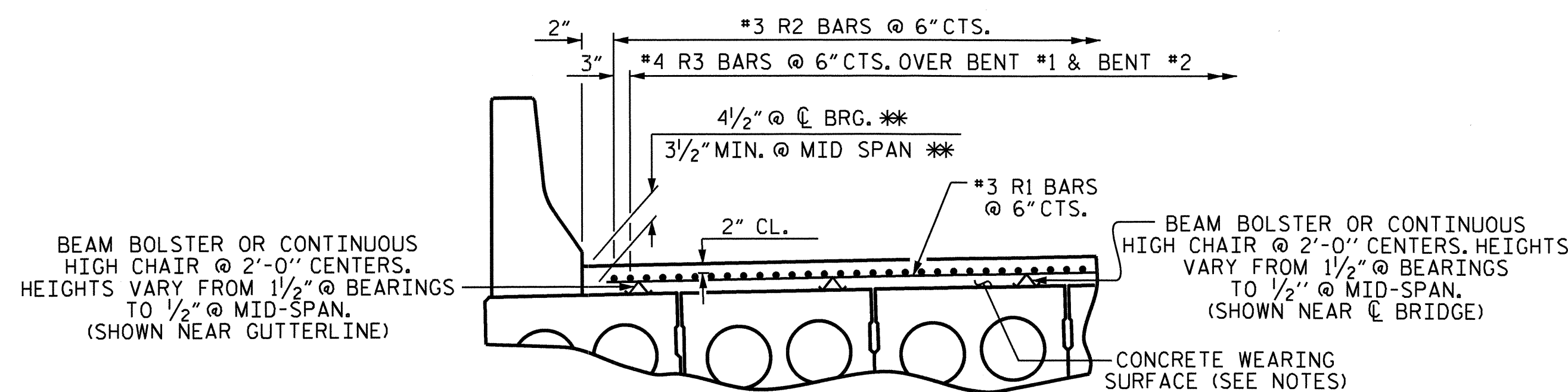
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-10
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL						
REVISIONS						TOTAL SHEETS 24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : R. G. EMERSON	DATE : 10/09
CHECKED BY : J. P. ADAMS	DATE : 11/09
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

27-JUN-2011 08:00
 R:\Structures\Plans\B-4415.SD_CS.dgn
 vpc:rl



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

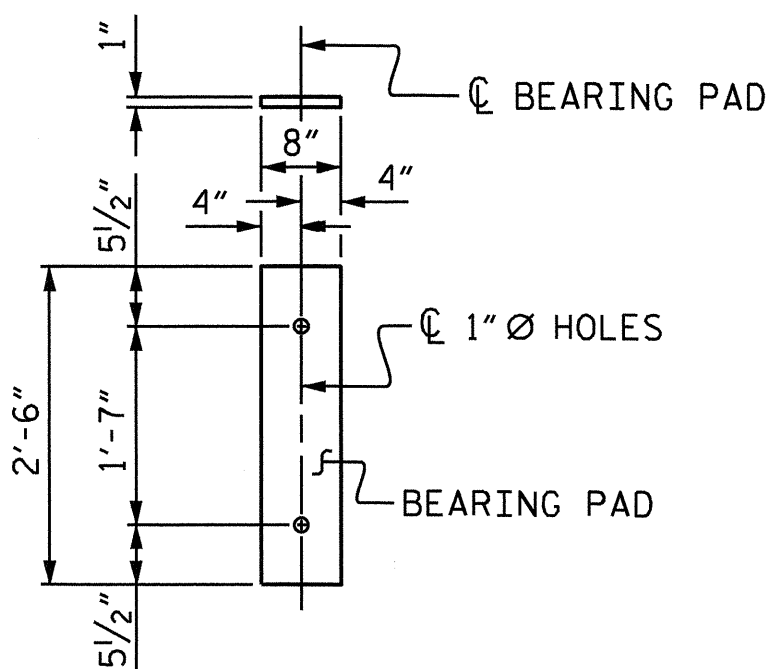


REINFORCING FOR CONCRETE WEARING SURFACE

** BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	468	#3	STR	16'-11"	2977
*R2	330	#3	STR	24'-6"	3040
*R3	130	#4	STR	20'-0"	1737
* EPOXY COATED REINFORCING STEEL				LBS.	7767
CONCRETE WEARING SURFACE				SO. FT.	3836

SPLICE LENGTH CHART	
BAR SIZE	EPOXY COATED
#3	1'-3"

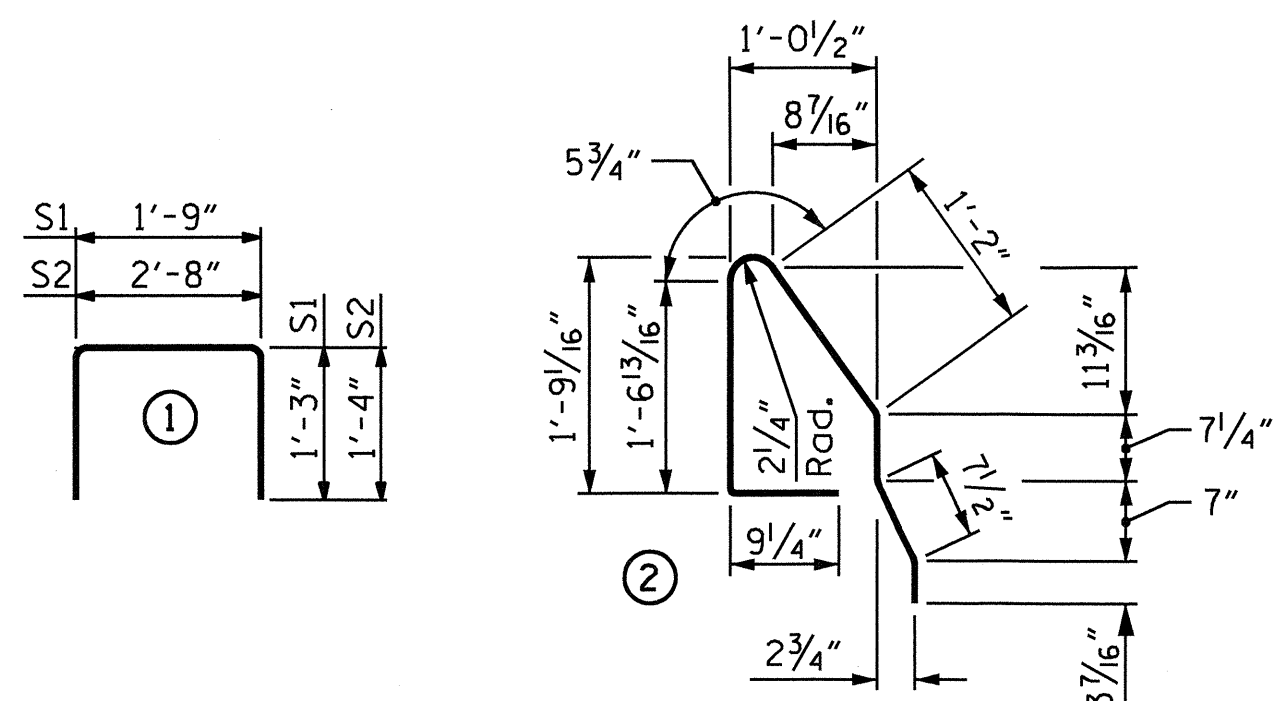


FIXED (72 REQ'D.)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN A OR SPAN C				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	20'-2"	54	20'-2"	54
S1	8	#5	1	4'-3"	35	4'-3"	35
S2	76	#4	1	5'-4"	271	5'-4"	271
* S3	40	#5	2	5'-6"	229		

REINFORCING STEEL	360 LBS.	360 LBS.
* EPOXY COATED REINFORCING STEEL	229 LBS.	
5,000 P.S.I. CONCRETE	5.7 CU. YDS.	5.7 CU. YDS.
0.6" Ø L.R. STRANDS	No. 11	No. 11

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN B				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	20'-8"	55	20'-8"	55
S1	8	#5	1	4'-3"	35	4'-3"	35
S2	78	#4	1	5'-4"	278	5'-4"	278
* S3	42	#5	2	5'-6"	241		

REINFORCING STEEL	368 LBS.	368 LBS.
* EPOXY COATED REINFORCING STEEL	241 LBS.	
5,000 P.S.I. CONCRETE	5.9 CU. YDS.	5.9 CU. YDS.
0.6" Ø L.R. STRANDS	No. 11	No. 11

CORED SLABS REQUIRED

SPAN	NUMBER	LENGTH	TOTAL LENGTH
SPAN A			
EXTERIOR C.S.	2	38'-9 3/4"	77.63
INTERIOR C.S.	10	38'-9 3/4"	388.13
TOTAL	12	38'-9 3/4"	465.76
SPAN B			
EXTERIOR C.S.	2	39'-10 1/2"	79.75
INTERIOR C.S.	10	39'-10 1/2"	398.75
TOTAL	12	39'-10 1/2"	478.50
SPAN C			
EXTERIOR C.S.	2	38'-9 3/4"	77.63
INTERIOR C.S.	10	38'-9 3/4"	388.13
TOTAL	12	38'-9 3/4"	465.76
TOTAL LENGTH SPANS A, B, & C			1410.02

GRADE 270 STRANDS

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

DEAD LOAD DEFLECTION AND CAMBER

	SPAN A	SPAN B	SPAN C
	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	13/16" ↑	13/16" ↑	13/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	1/8" ↓	1/8" ↓	1/8" ↓
FINAL CAMBER	11/16" ↑	11/16" ↑	11/16" ↑

GROOVING BRIDGE FLOORS

APPROACH SLABS	1415	SO.FT.
BRIDGE DECK	3476	SO.FT.
TOTAL	4891	SO.FT.

NOTES

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

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

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

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

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

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE 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.

WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

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 4,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE STRANDS SHALL BE 0.6" Ø AND TENSIONED TO 43,950 POUNDS.

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

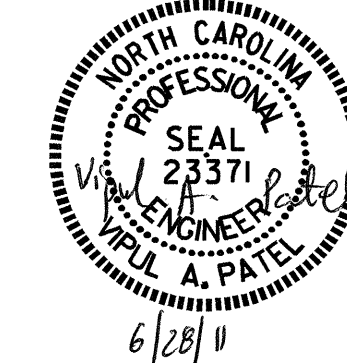
PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE #3 AND #4 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4415

BEAUFORT COUNTY

STATION: 16+22.00 -L-

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



REVISIONS

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

SHEET NO.

S-11
TOTAL SHEETS
24

ASSEMBLED BY : R. G. EMERSON DATE : 10/09
CHECKED BY : J. P. ADAMS DATE : 11/09

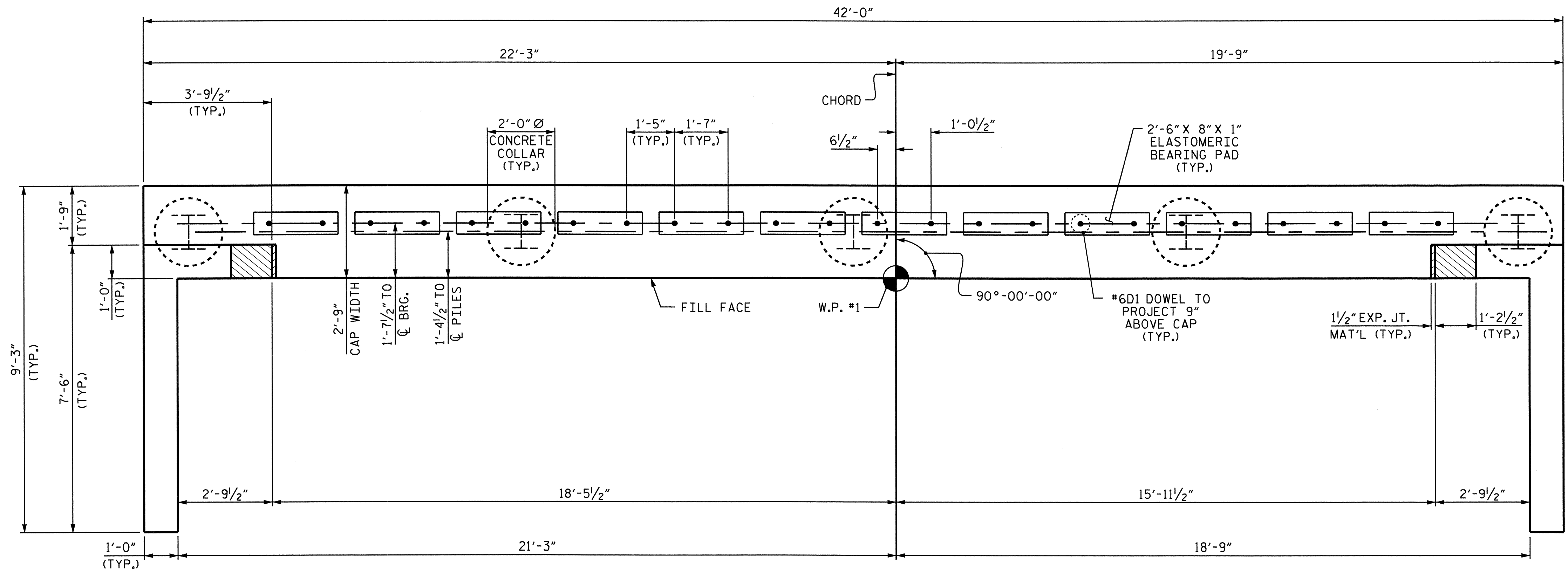
DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
CHECKED BY : FCJ 5/89 REV. 5/1/03RRR RWW/JTE
REV. 5/1/06R TLA/GM

NOTES

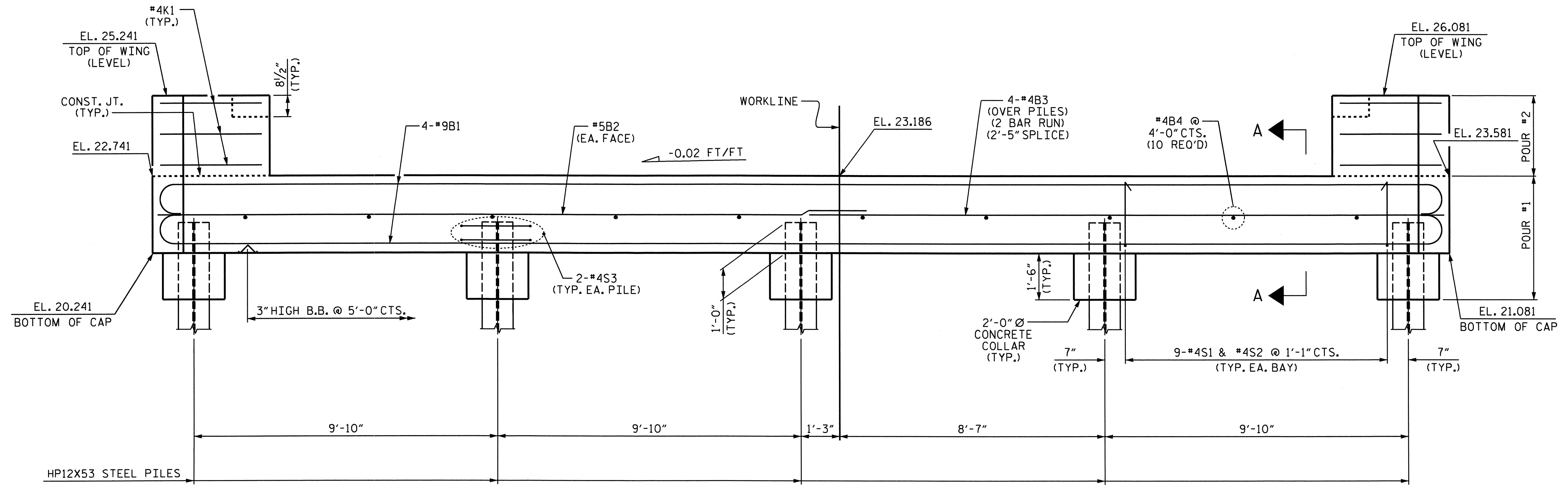
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
①	21.268
②	21.464
③	21.661
④	21.858
⑤	22.054

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

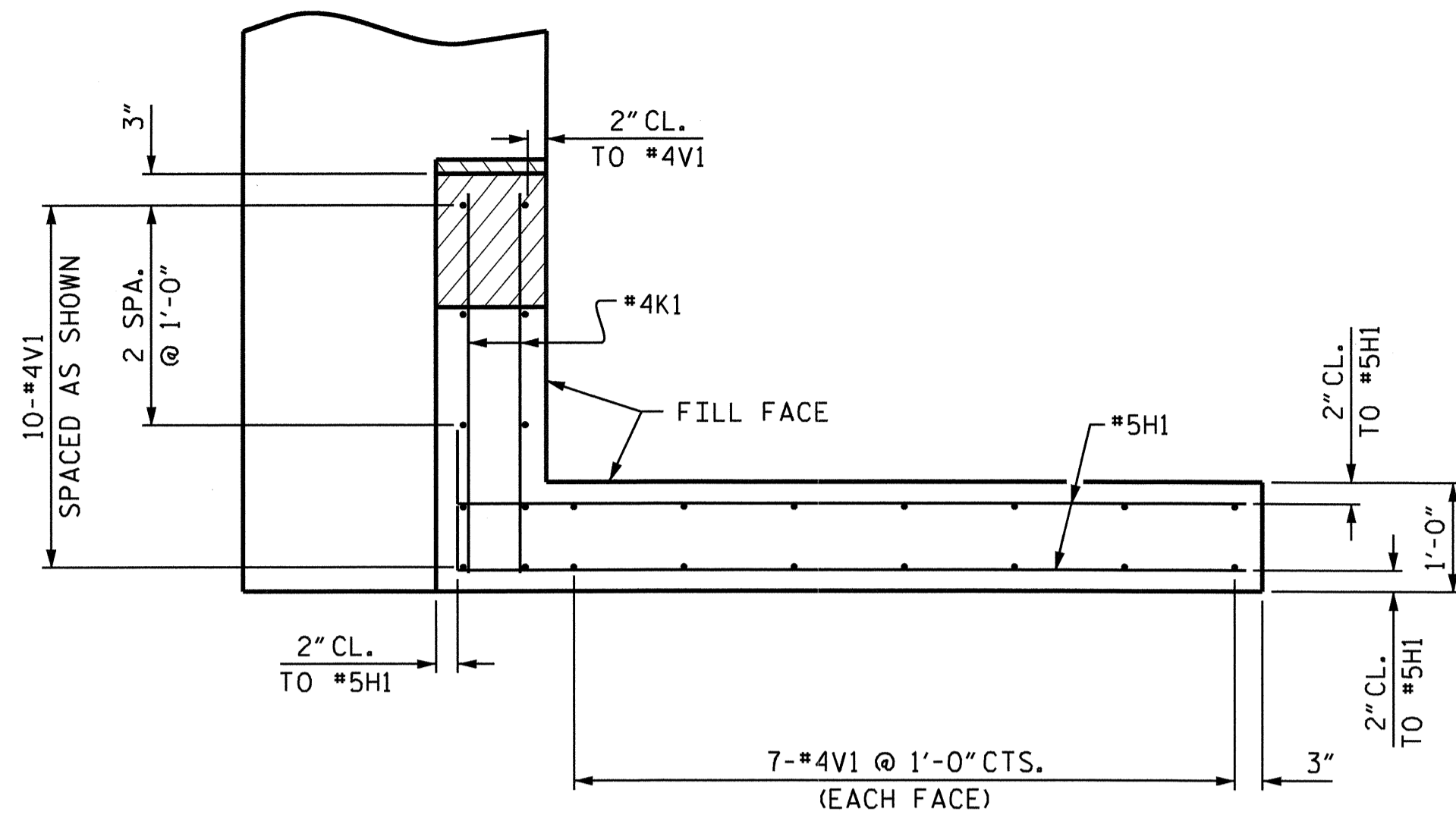
SUBSTRUCTURE
 END BENT #1



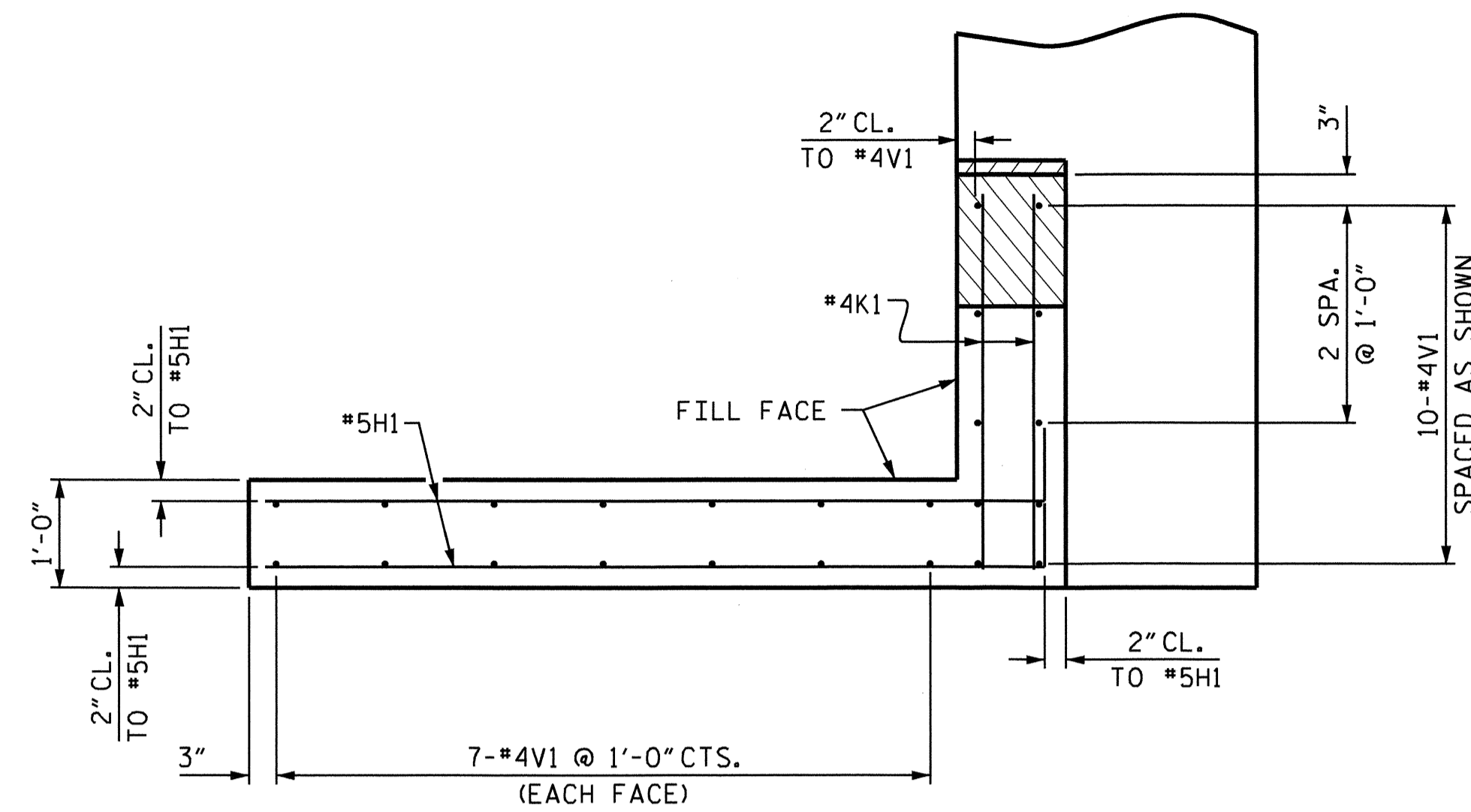
DRAWN BY: J.P. ADAMS DATE: 9/28/10
 CHECKED BY: R.G. EMERSON DATE: 11/9/10

27-JUN-2011 08:04
 R:\Structures\Plans\B-4415.SD.E*.dgn
 vpatel

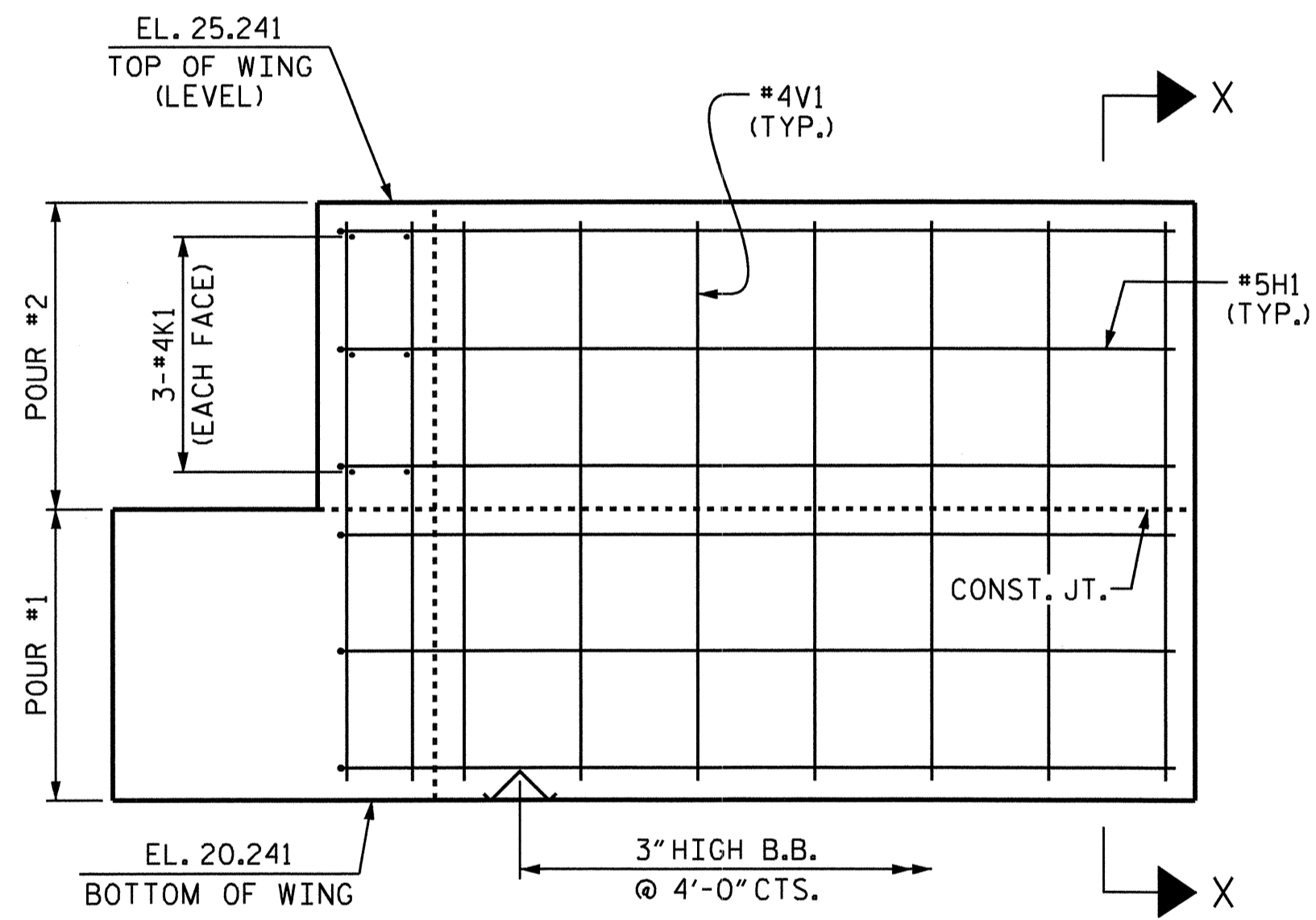
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			24



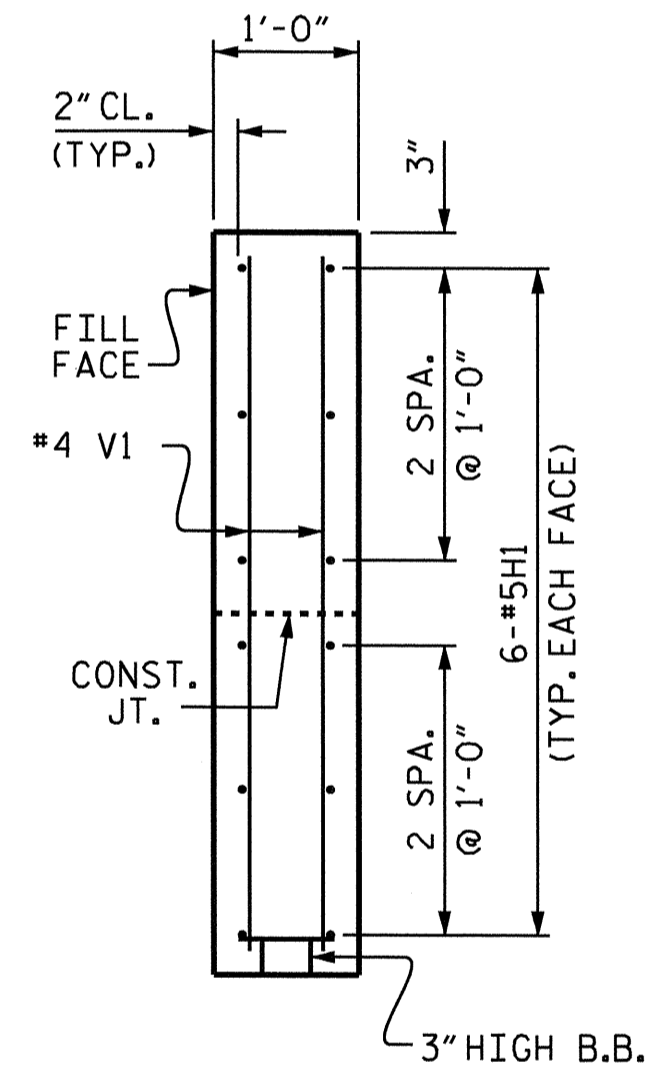
PLAN OF LEFT WING



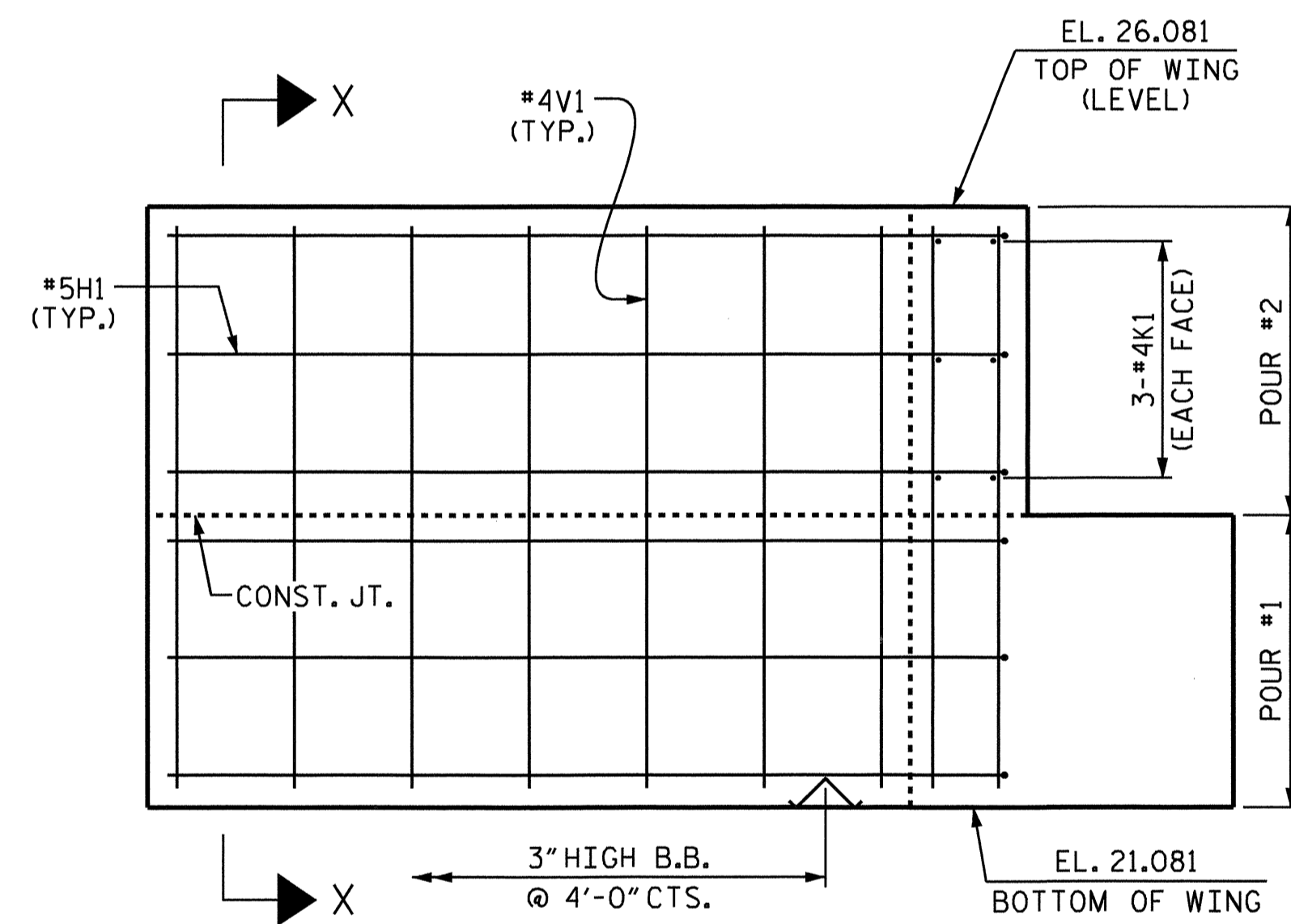
PLAN OF LEFT WING



ELEVATION OF LEFT WING



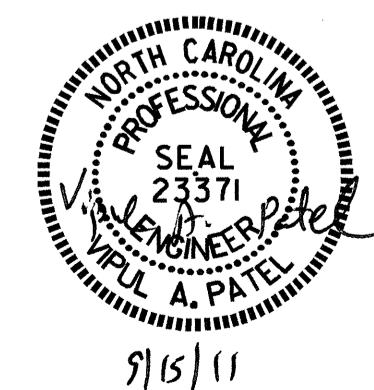
SECTION X-X



ELEVATION OF RIGHT WING

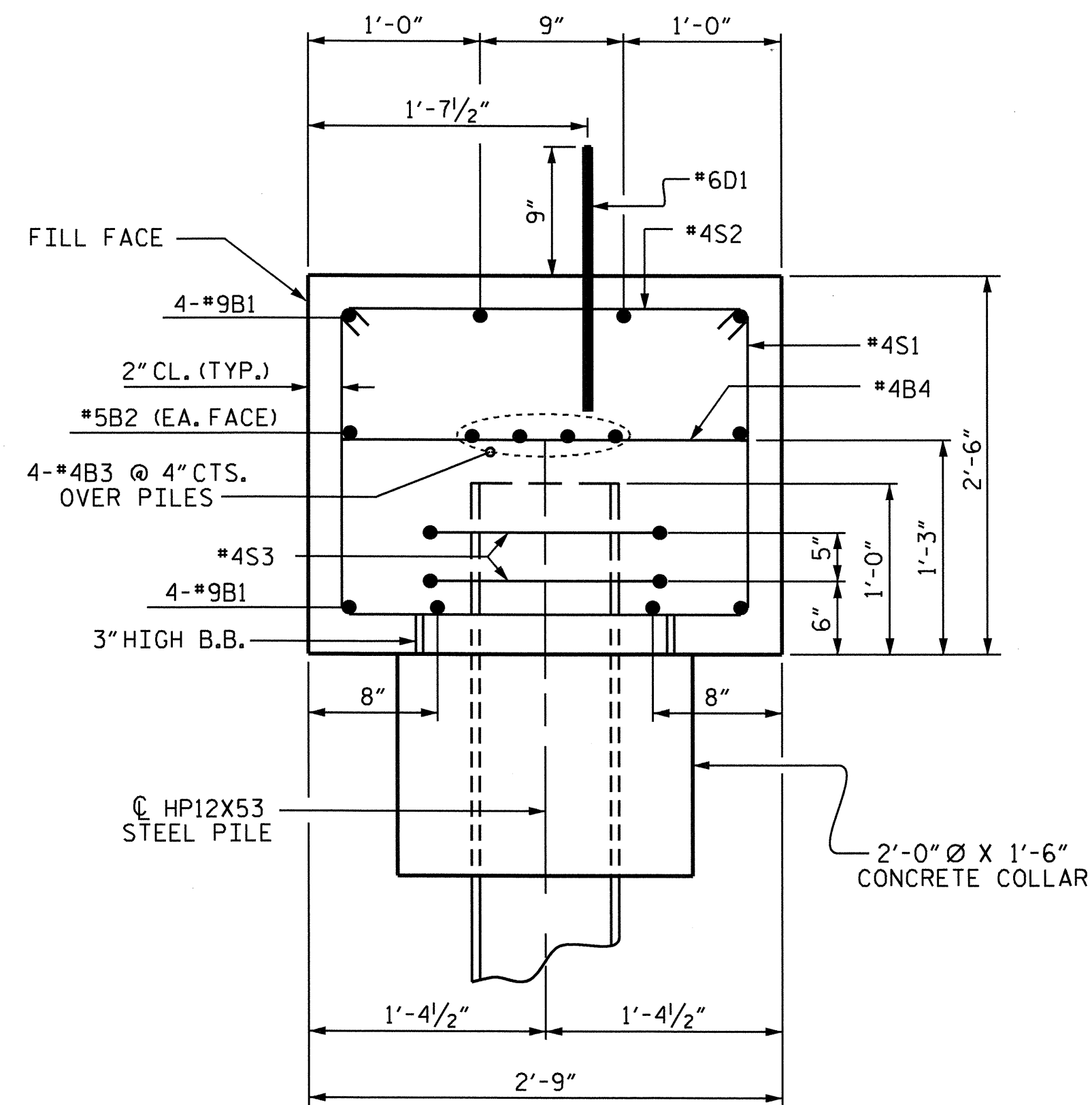
DRAWN BY : J.P. ADAMS DATE : 9/28/10
 CHECKED BY : R.G. EMERSON DATE : 11/9/10

15-SEP-2011 08:35
 R:\Structures\Plans\B-4415_SD.E*.dgn
 vpotel

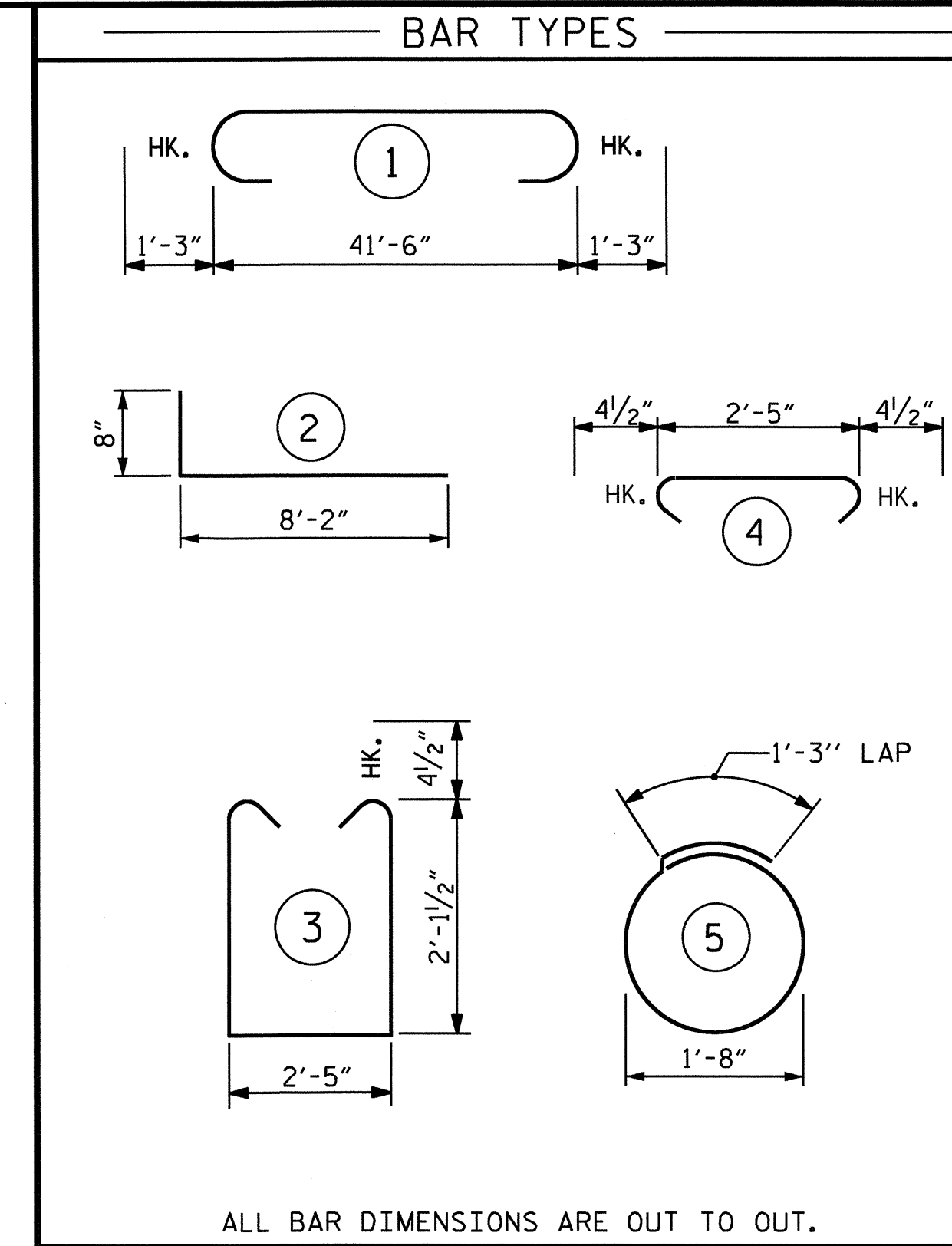


PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					24



SECTION A-A

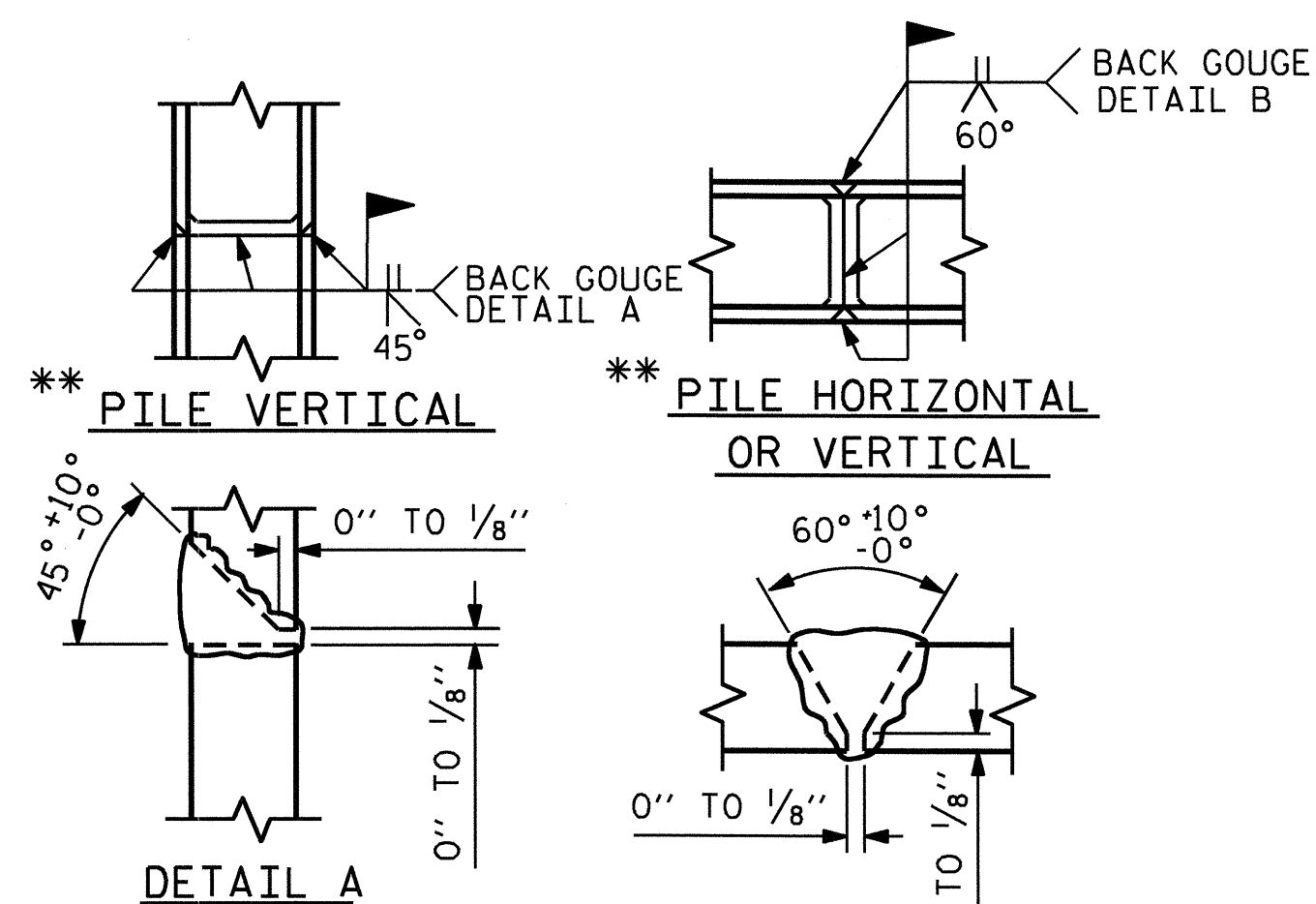


ALL BAR DIMENSIONS ARE OUT TO OUT.

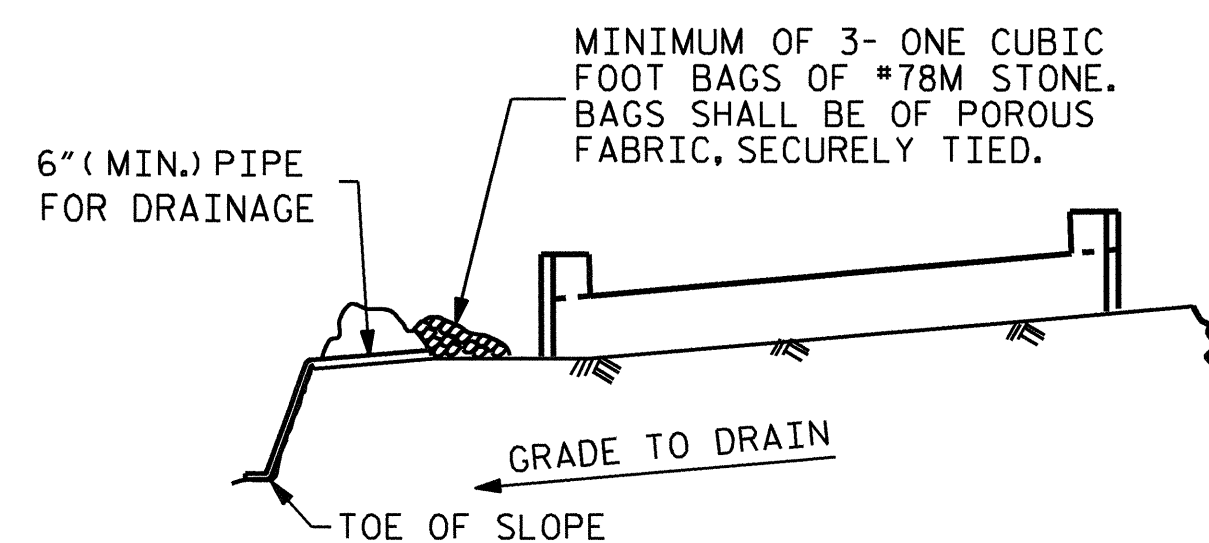
BILL OF MATERIAL
END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		44'-0"	1197
B2	2	#5	STR	41'-8"	87
B3	8	#4	STR	22'-1"	118
B4	10	#4	STR	2'-5"	16
D1	24	#6	STR	1'-6"	54
H1	24	#5	2	8'-10"	221
K1	12	#4	STR	3'-5"	27
S1	36	#4	3	7'-5"	178
S2	36	#4	4	3'-2"	76
S3	10	#4	5	6'-6"	43
V1	48	#4	STR	4'-8"	150

TOTAL REINFORCING STEEL LBS.	2167
CLASS A CONCRETE BREAKDOWN	
POUR #1 (CAP, COLLAR & LOWER WINGS)	13.0 C.Y.
POUR #2 (UPPER WINGS)	2.1 C.Y.
TOTAL CLASS A CONCRETE	15.1 C.Y.
HP12X53 STEEL PILES NO. 5	275 LIN. FT.
PILE REDRIVES:	3 EA.



PILE SPLICE DETAILS



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

PROJECT NO. B-4415
BEAUFORT COUNTY
STATION: 16+22.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #1



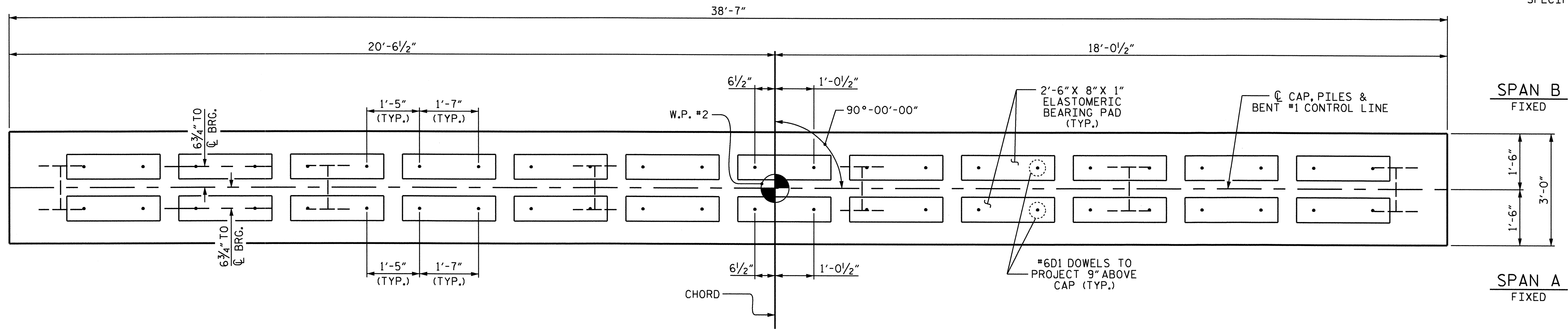
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS 24
2			4			

DRAWN BY: J.P. ADAMS DATE: 9/28/10
CHECKED BY: R.G. EMERSON DATE: 11/9/10

NOTES

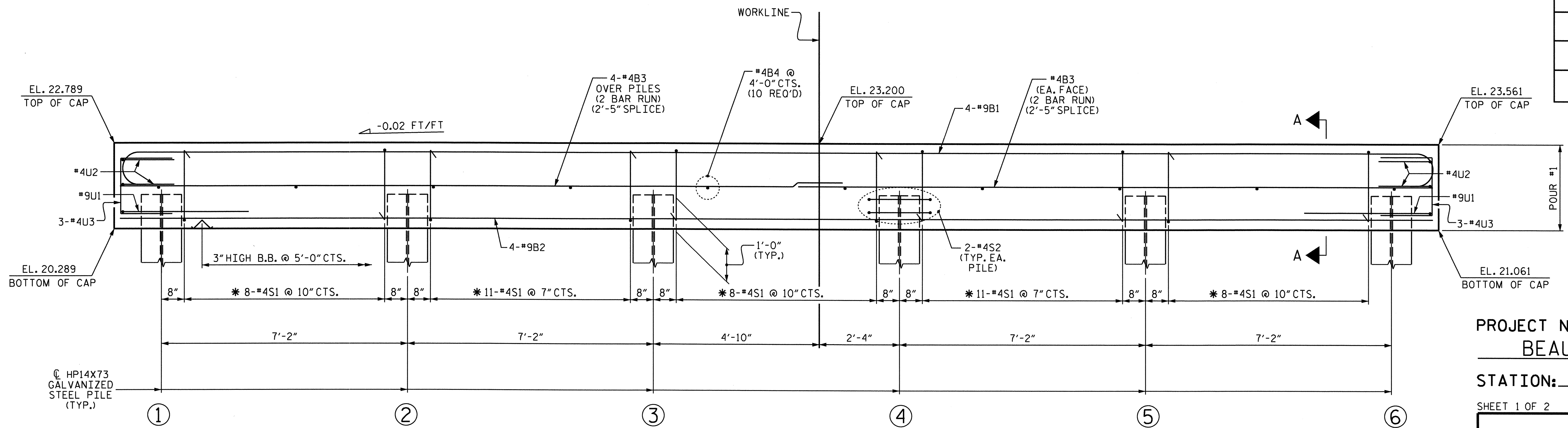
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

GALVANIZE THE TOP 30 FEET OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



PLAN

TOP OF PILE ELEVATIONS	
①	21.317
②	21.460
③	21.603
④	21.747
⑤	21.890
⑥	22.033



ELEVATION

* INVERT ALTERNATE STIRRUPS

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

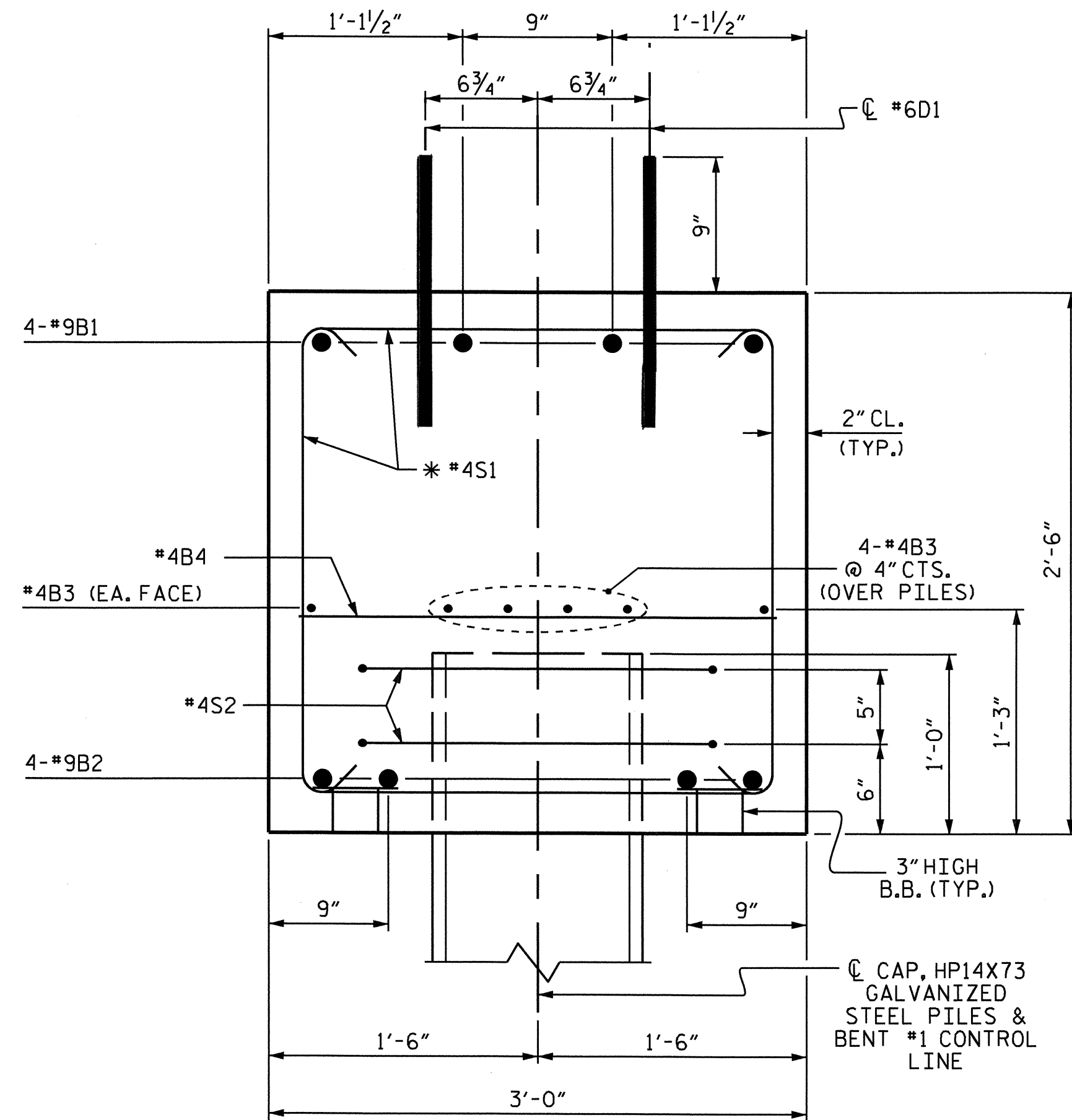
SUBSTRUCTURE
 BENT #1



DRAWN BY: J.P. ADAMS DATE: 9/23/10
 CHECKED BY: R.G. EMERSON DATE: 11/10/10

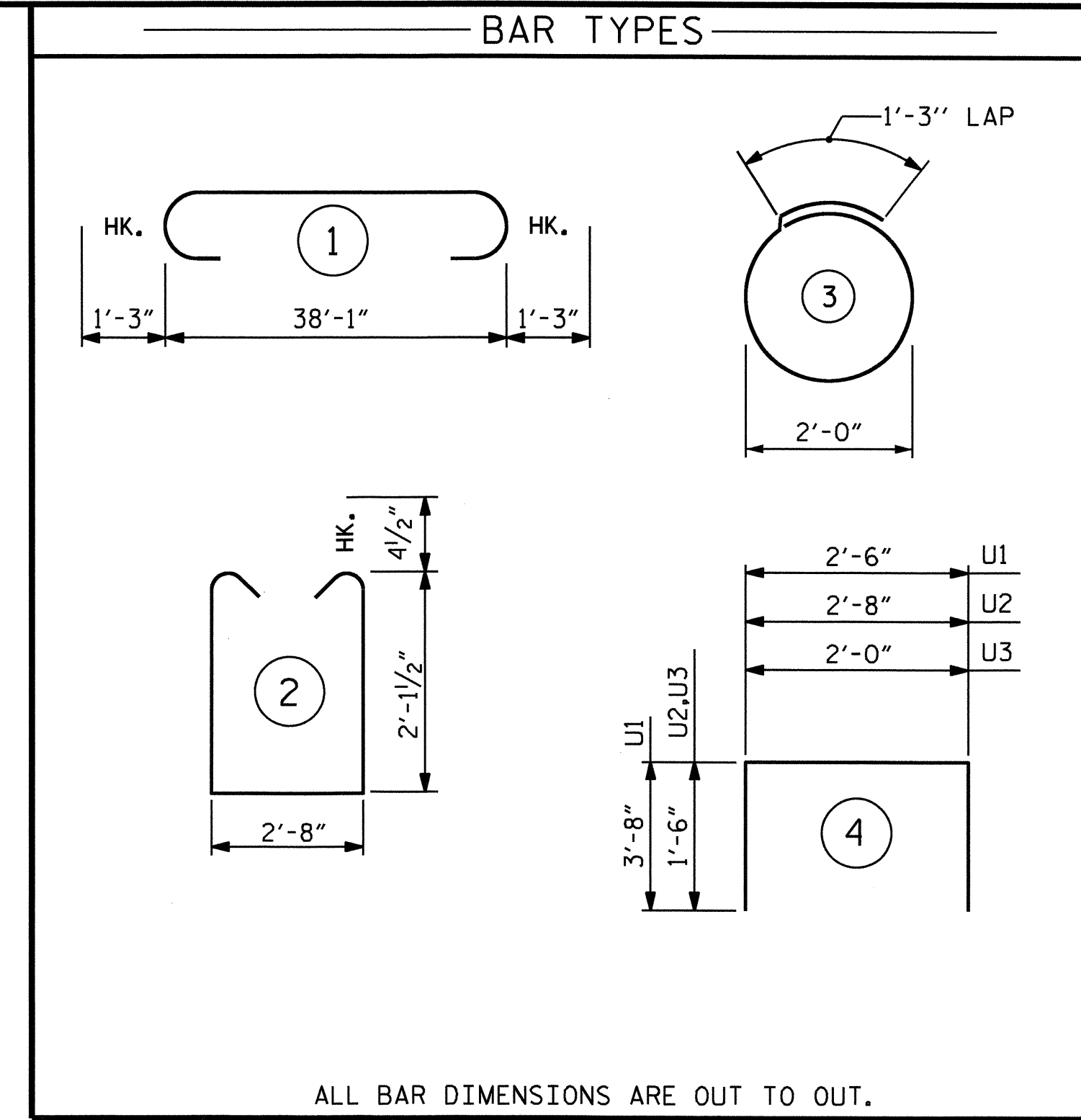
27-JUN-2011 08:07
 R:\Structures\Plans\B-4415.SD.B*.dgn
 vpatel

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			24



SECTION A-A

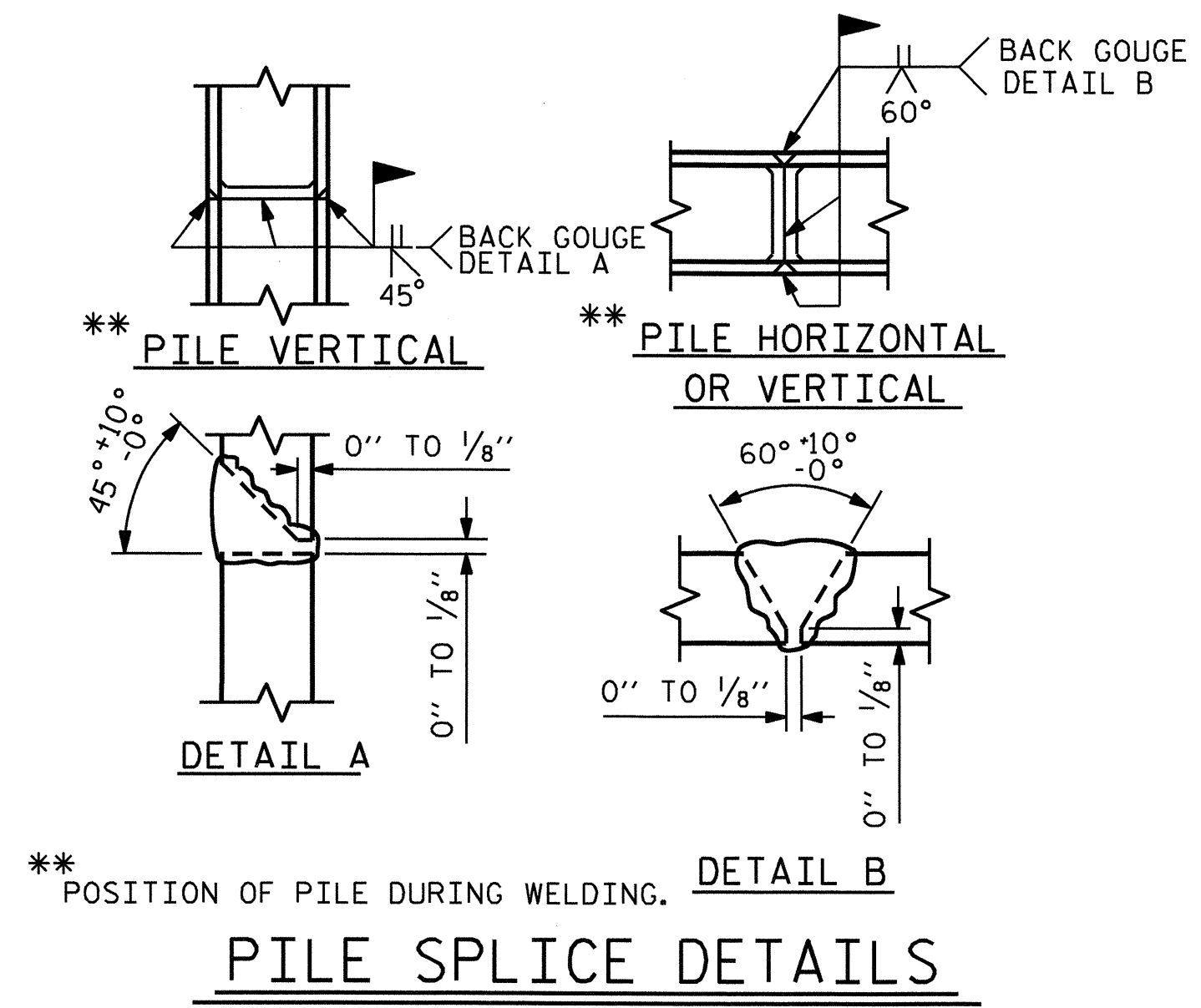
(* INVERT ALTERNATE STIRRUPS)



ALL BAR DIMENSIONS ARE OUT TO OUT.

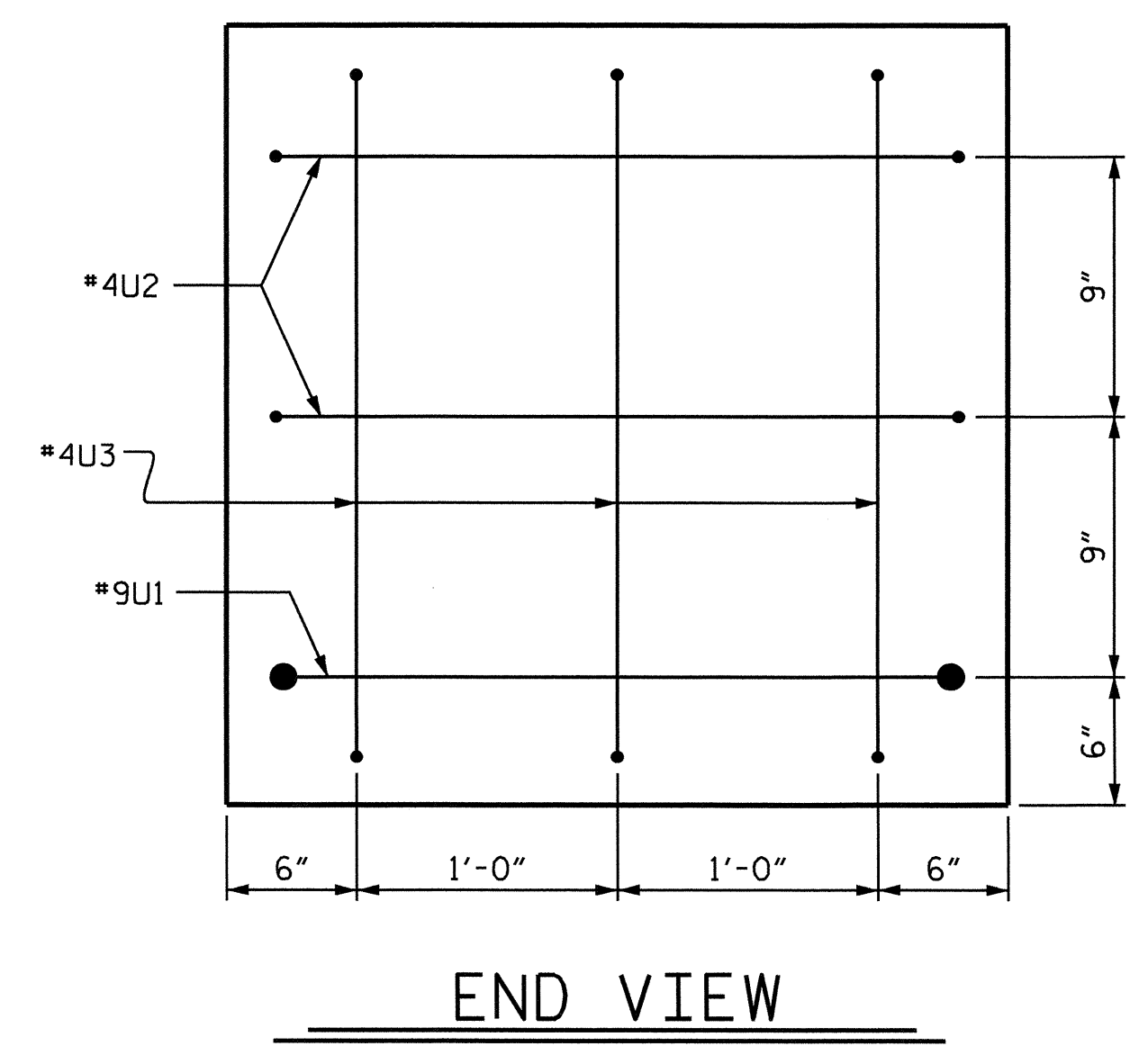
BILL OF MATERIAL BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	40'-7"	552
B2	4	#9	STR	38'-3"	520
B3	12	#4	STR	20'-4"	163
B4	10	#4	STR	2'-8"	18
D1	48	#6	STR	1'-6"	108
S1	46	#4	2	7'-8"	236
S2	12	#4	3	7'-7"	61
U1	2	#9	4	9'-10"	67
U2	4	#4	4	5'-8"	15
U3	6	#4	4	5'-0"	20
TOTAL REINFORCING STEEL LBS.					1760
TOTAL CLASS A CONCRETE					10.8 C.Y.
HP14X73 GALVANIZED STEEL PILES					
NO. 6					480 LIN. FT.
PILE REDRIVES					3 EA.



** POSITION OF PILE DURING WELDING.

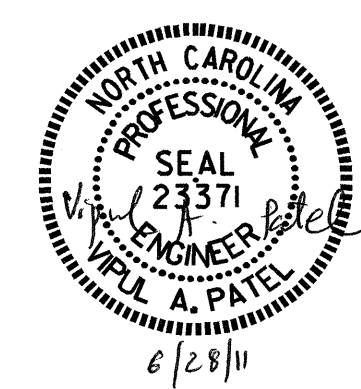
PILE SPLICE DETAILS



END VIEW

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-16
					TOTAL SHEETS 24

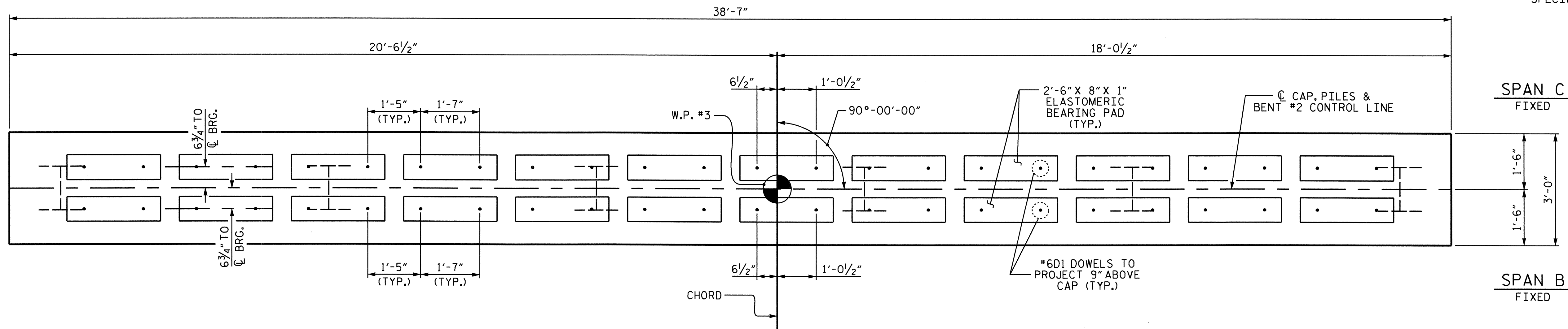


DRAWN BY : J.P. ADAMS DATE : 9/23/10
 CHECKED BY : R.G. EMERSON DATE : 11/10/10

NOTES

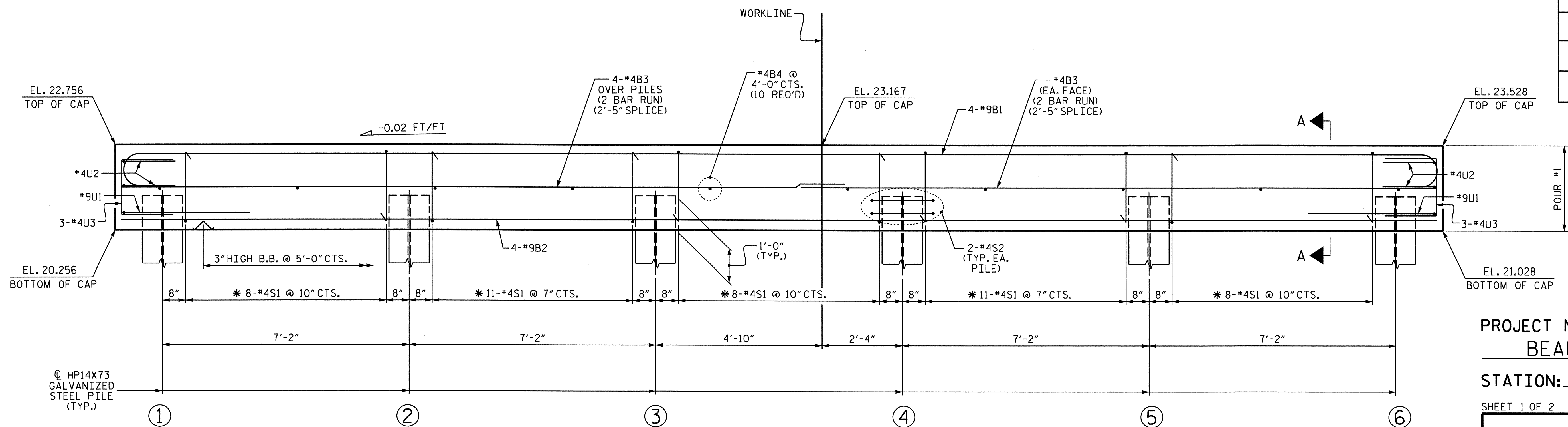
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

GALVANIZE THE TOP 30 FEET OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



PLAN

TOP OF PILE ELEVATIONS	
①	21.284
②	21.427
③	21.570
④	21.714
⑤	21.857
⑥	22.000



ELEVATION

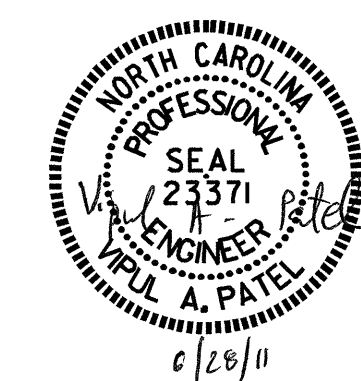
* INVERT ALTERNATE STIRRUPS

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

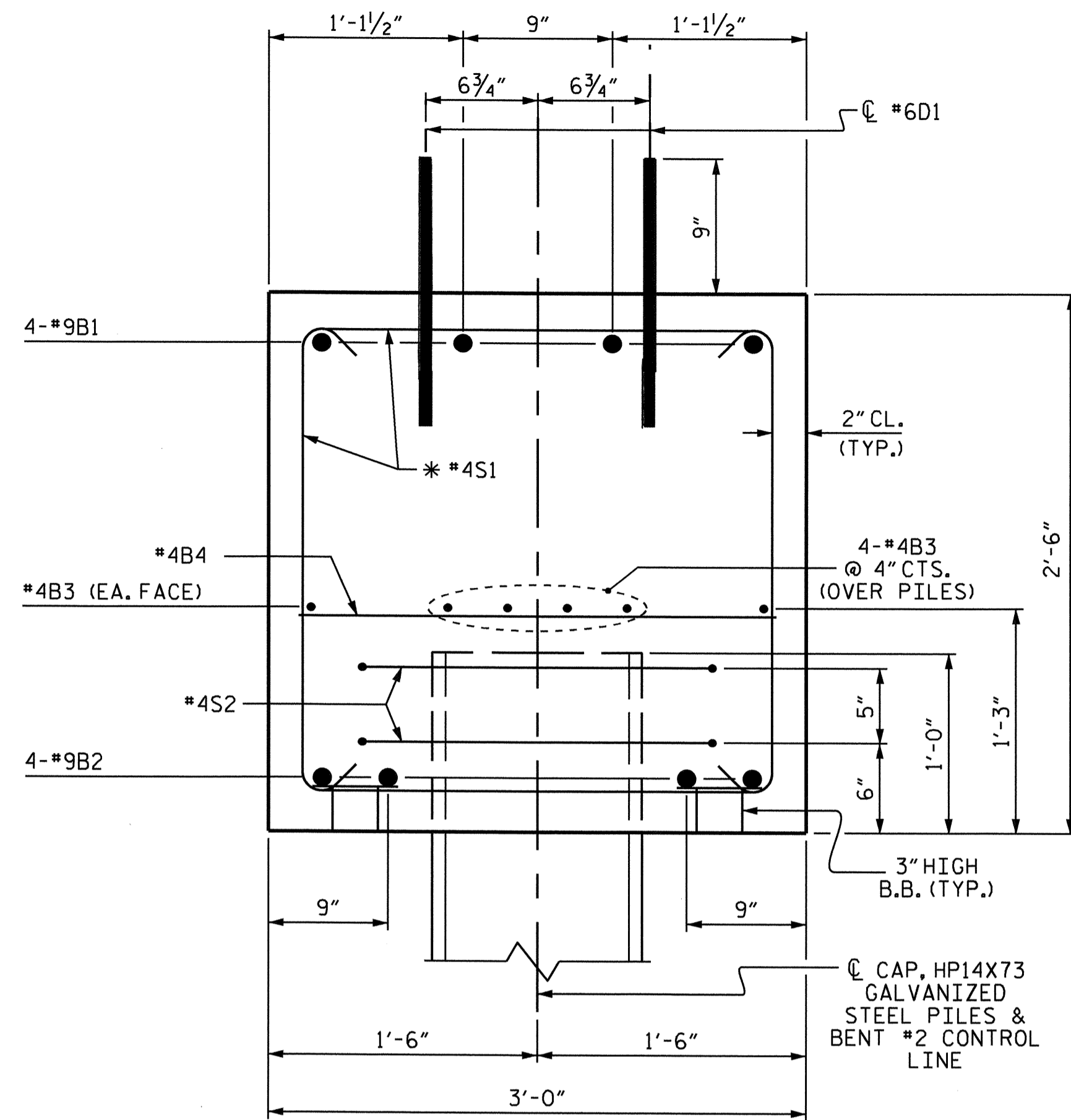
SUBSTRUCTURE
 BENT #2



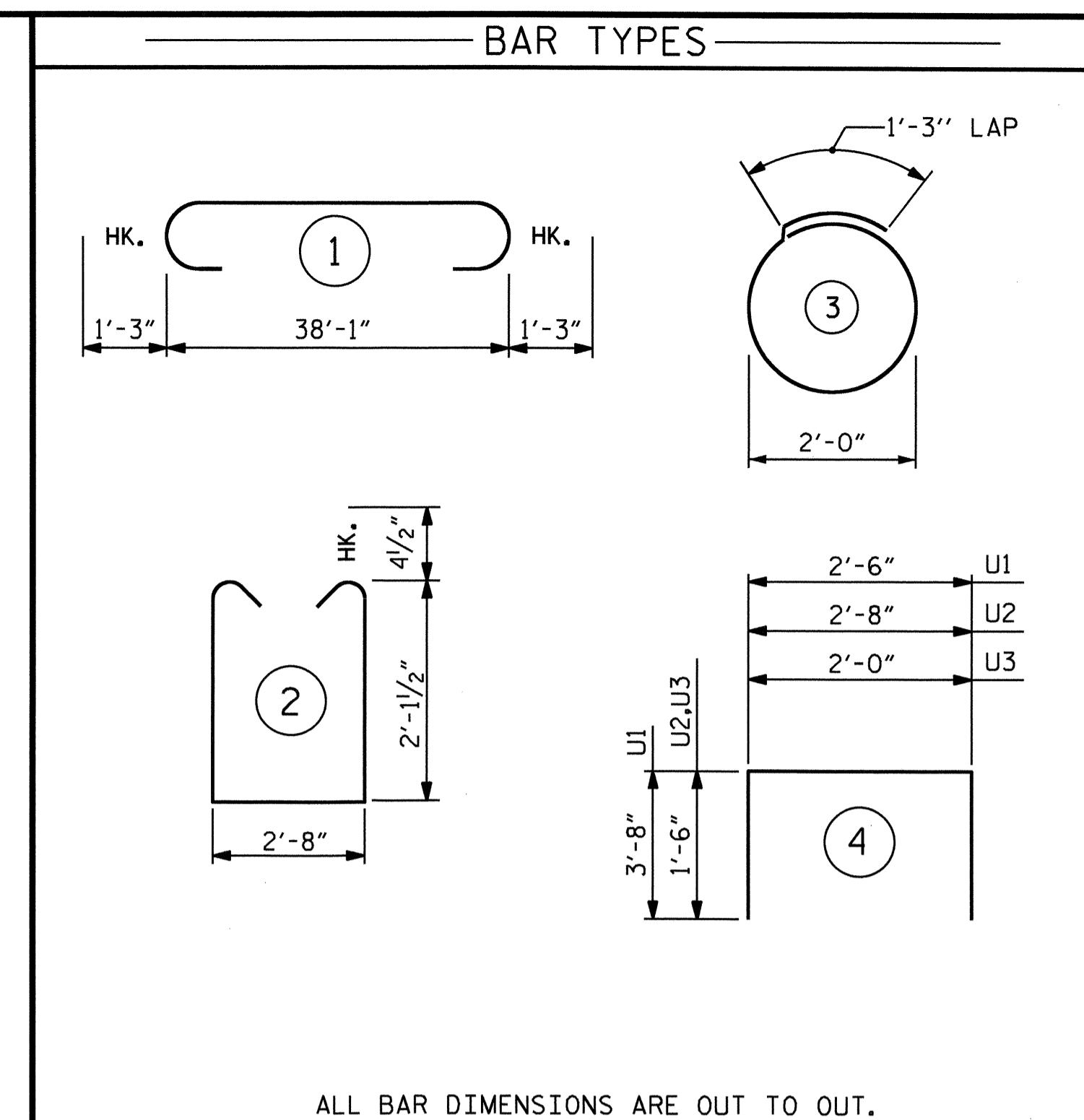
DRAWN BY : J.P. ADAMS DATE : 9/23/10
 CHECKED BY : R.G. EMERSON DATE : 11/10/10

27-JUN-2011 08:07
 R:\Structures\Plans\B-4415.SD.B*.dgn
 vpatel

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			24



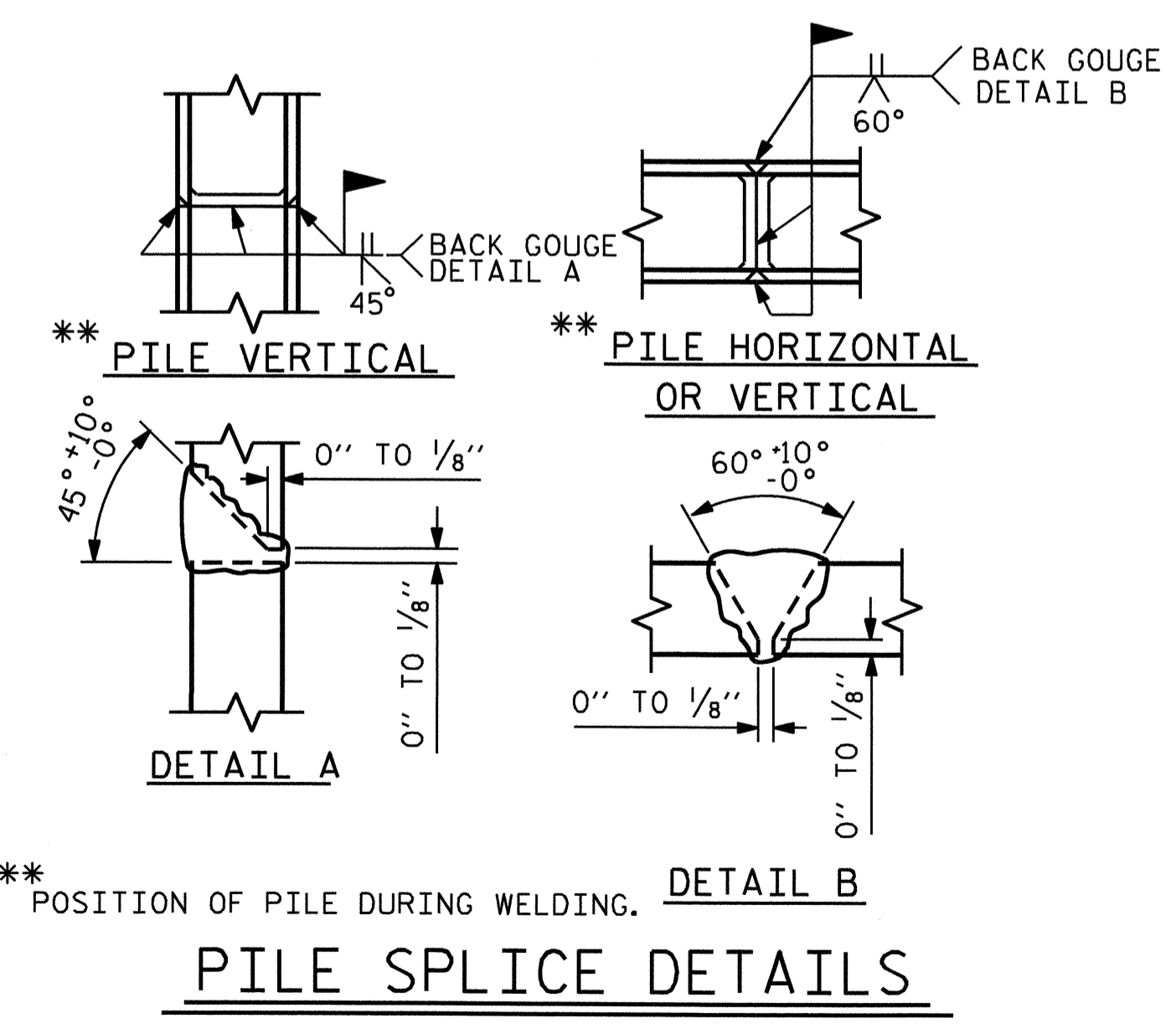
SECTION A-A
 (* INVERT ALTERNATE STIRRUPS)



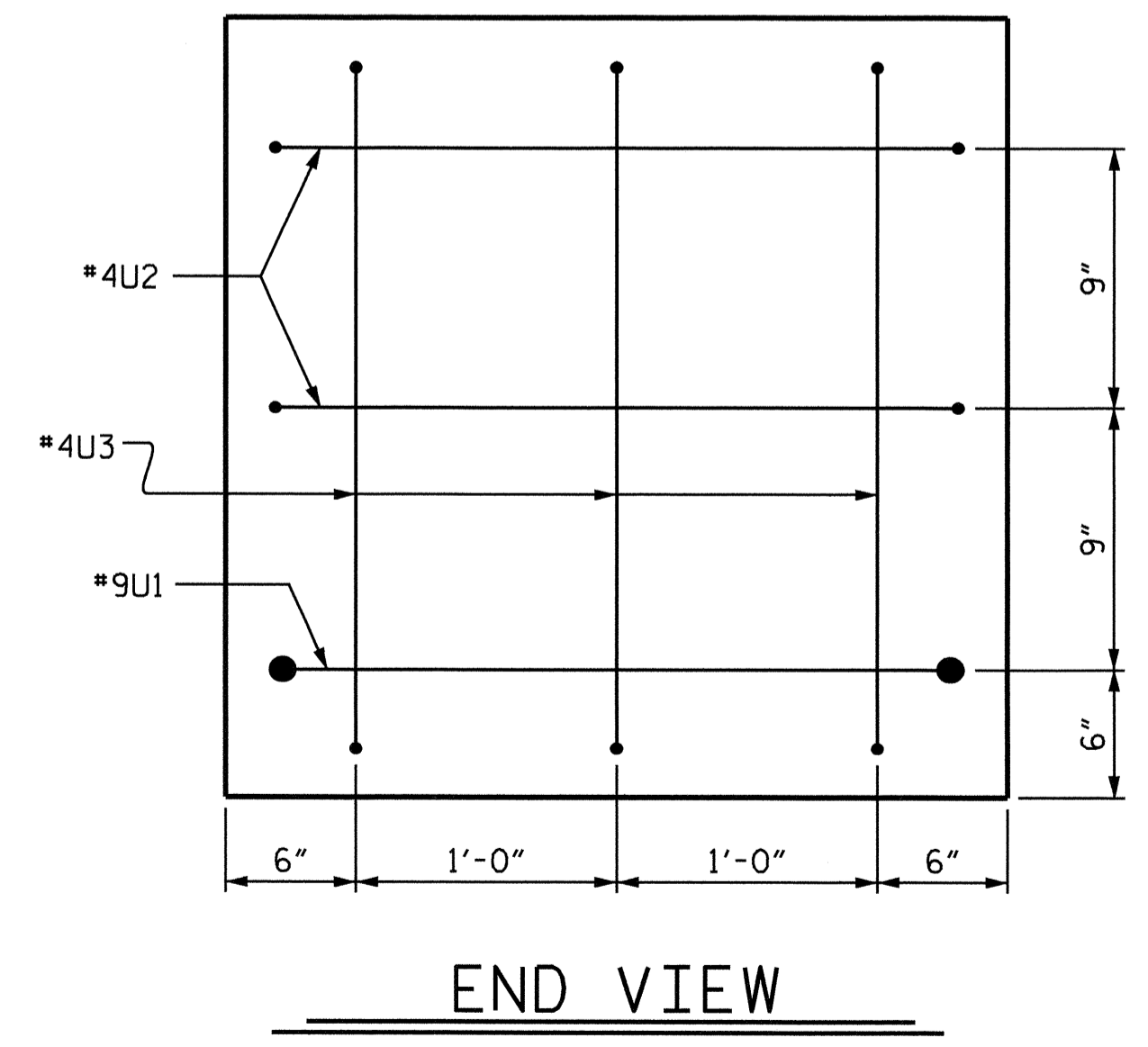
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9		40'-7"	552
B2	4	#9	STR	38'-3"	520
B3	12	#4	STR	20'-4"	163
B4	10	#4	STR	2'-8"	18
D1	48	#6	STR	1'-6"	108
S1	46	#4	2	7'-8"	236
S2	12	#4	3	7'-7"	61
U1	2	#9	4	9'-10"	67
U2	4	#4	4	5'-8"	15
U3	6	#4	4	5'-0"	20
TOTAL REINFORCING STEEL LBS.					1760
TOTAL CLASS A CONCRETE					10.8 C.Y.
HP14X73 GALVANIZED STEEL PILES					
NO. 6					480 LIN. FT.
PILE REDRIVES					3 EA.



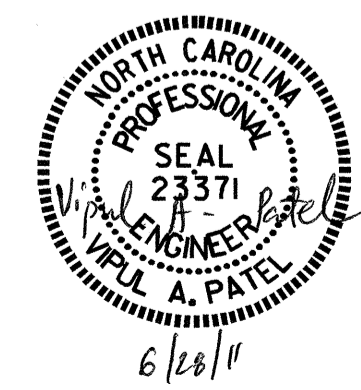
PILE SPLICE DETAILS
 ** POSITION OF PILE DURING WELDING.



END VIEW

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT #2



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

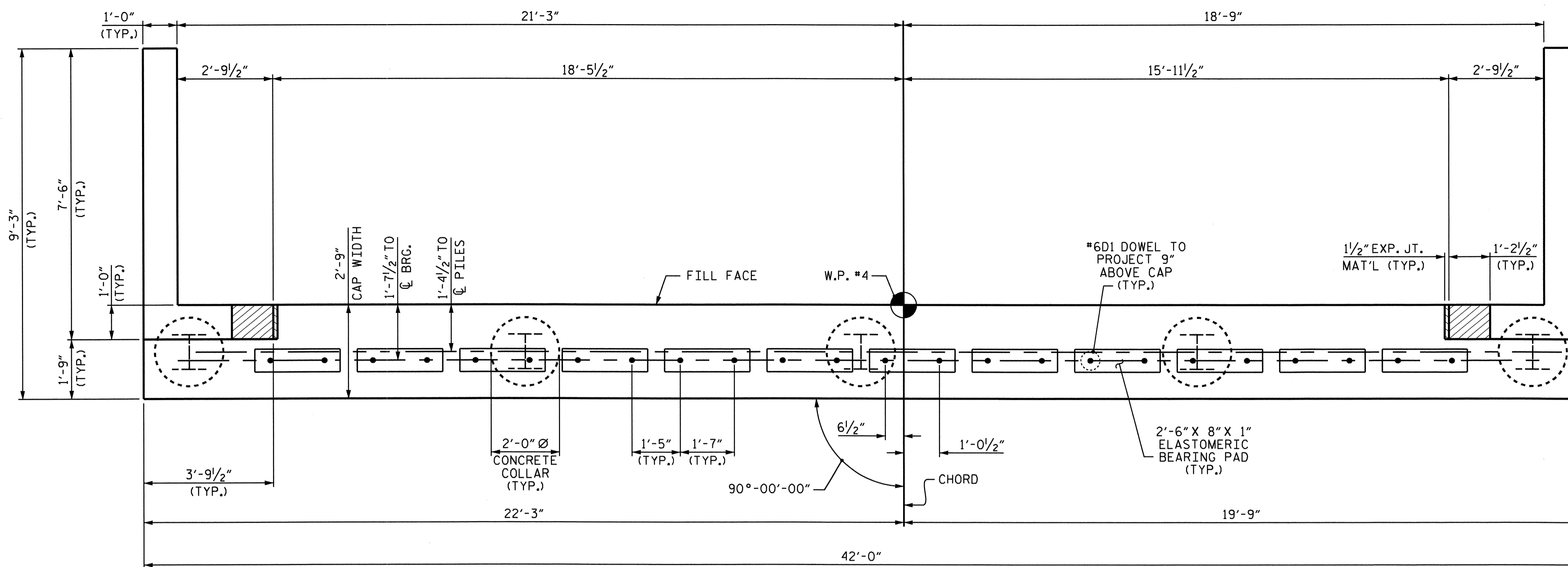
DRAWN BY: J.P. ADAMS DATE: 9/23/10
 CHECKED BY: R.G. EMERSON DATE: 11/10/10

NOTES

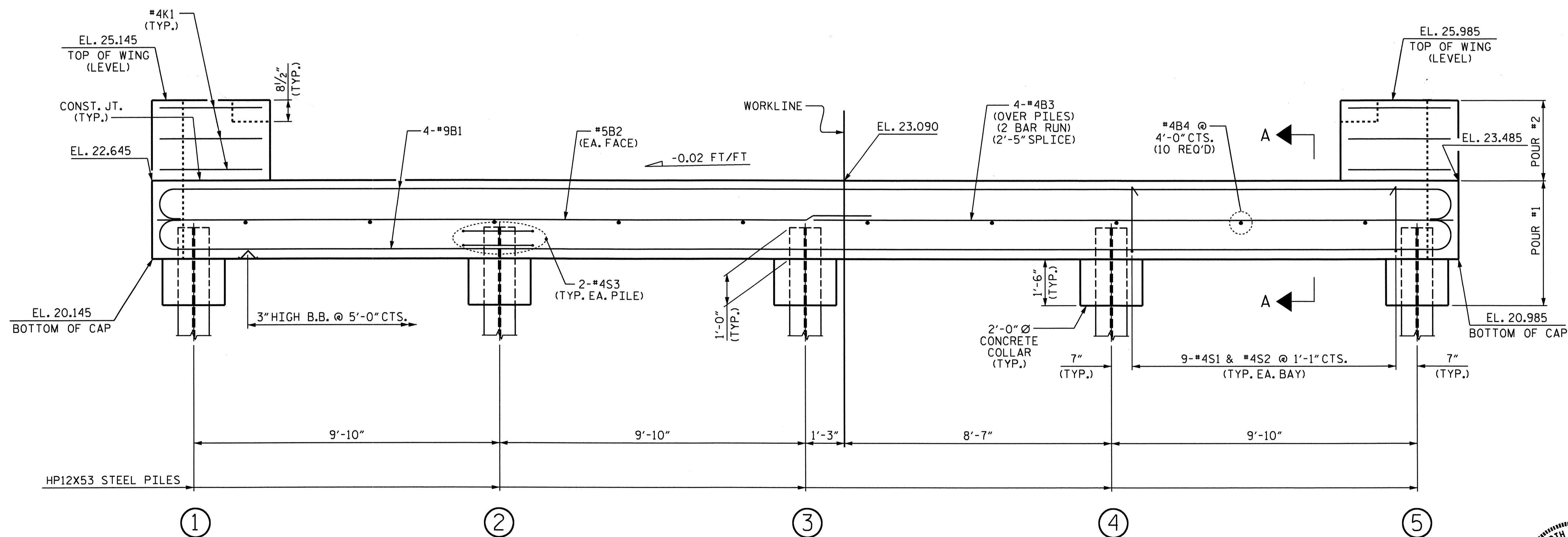
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN



ELEVATION

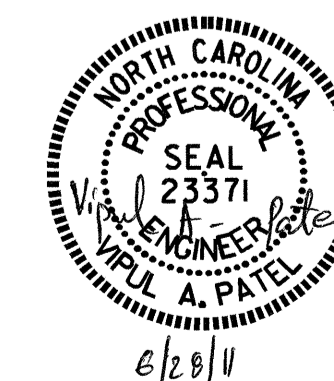
TOP OF PILE ELEVATIONS	
①	21.172
②	21.368
③	21.565
④	21.762
⑤	21.958

PROJECT NO. B-4415
 BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2



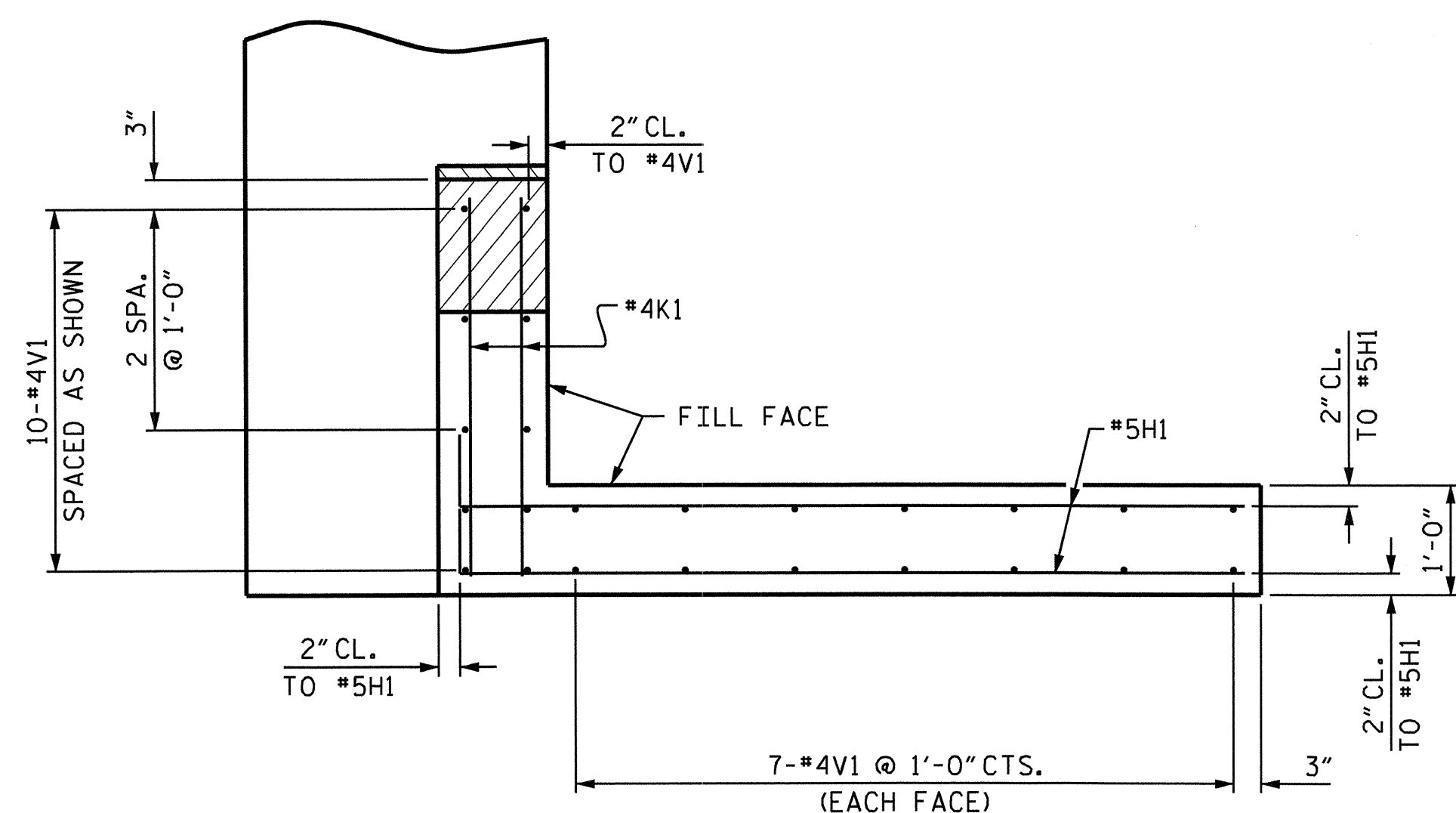
DRAWN BY: J.P. ADAMS DATE: 9/28/10
 CHECKED BY: R.G. EMERSON DATE: 11/9/10

27-JUN-2011 08:05
 R:\Structures\Plans\B-4415.SD.E*.dgn
 vpatel

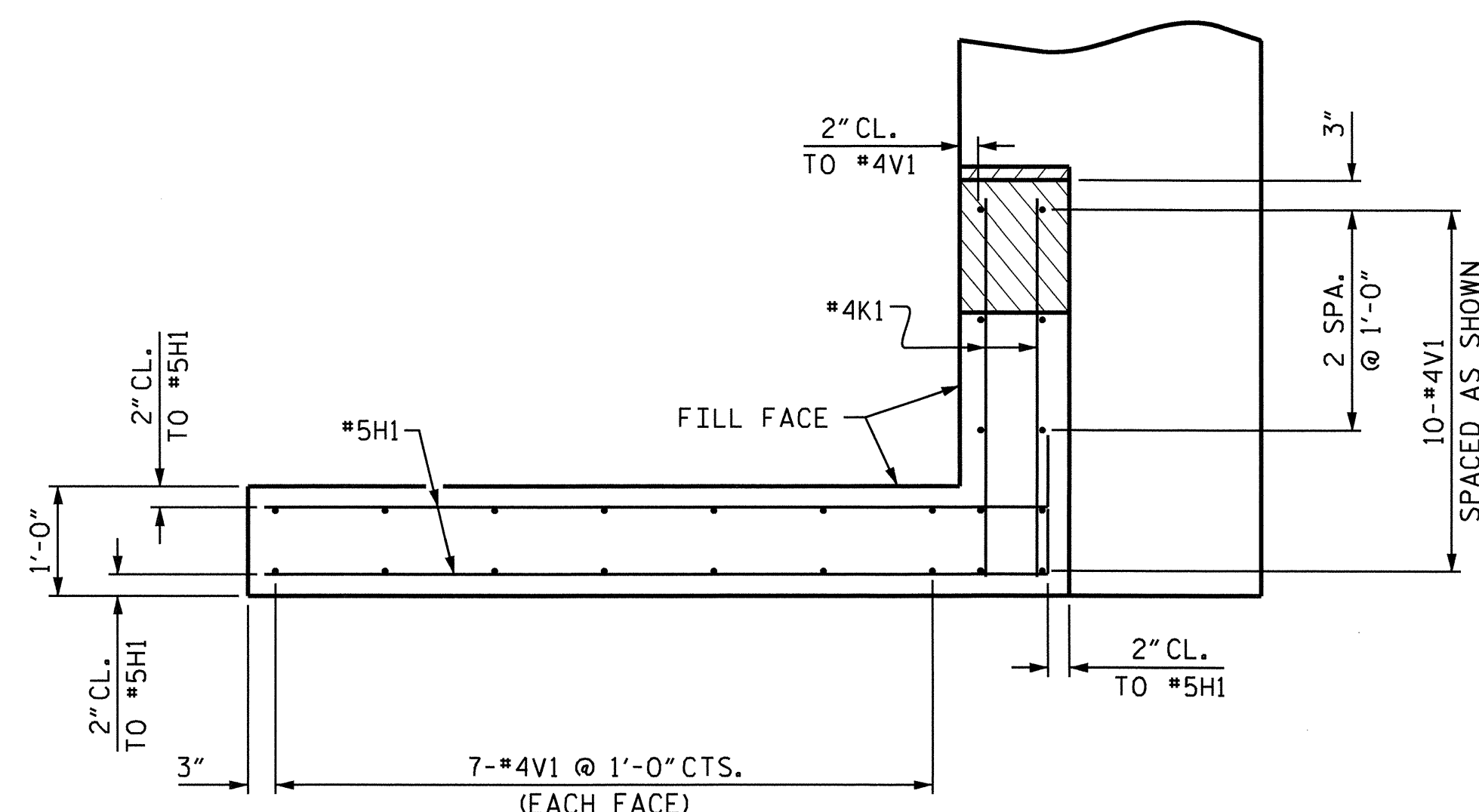
REVISIONS

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

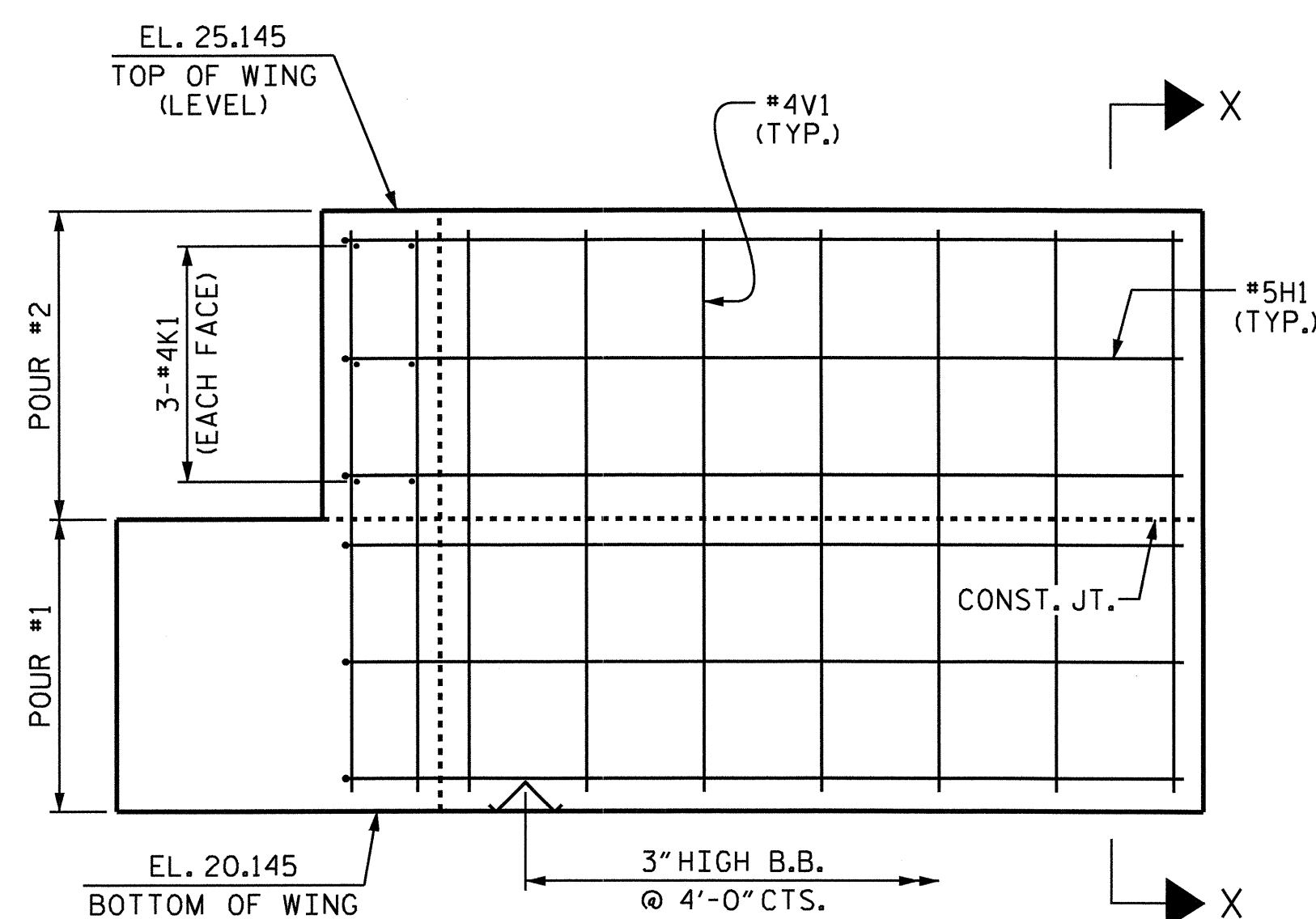
SHEET NO.
 S-19
 TOTAL SHEETS
 24



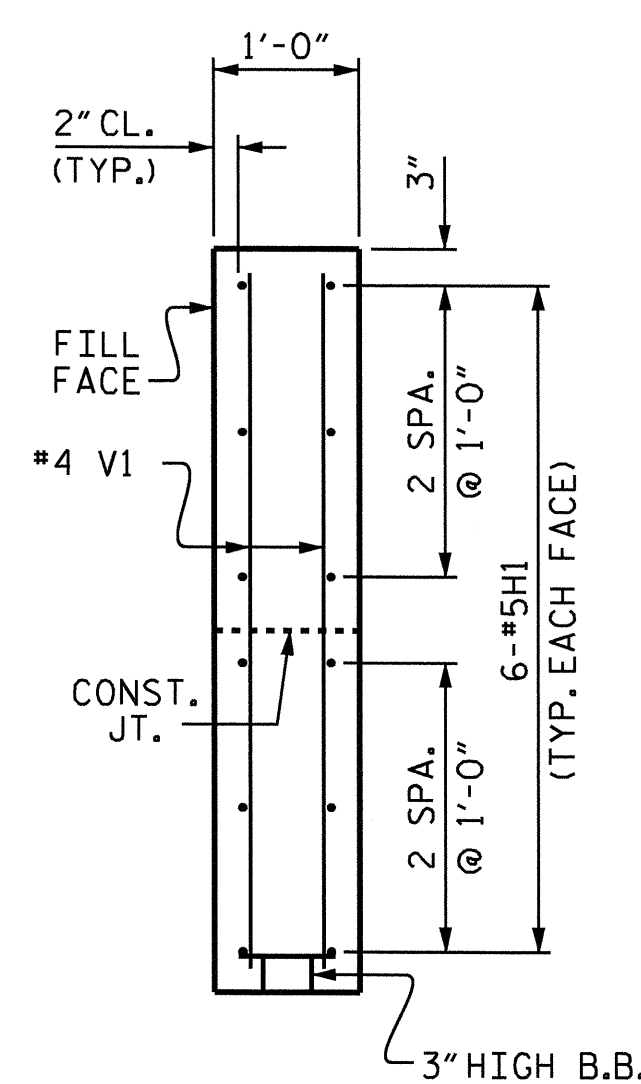
PLAN OF LEFT WING



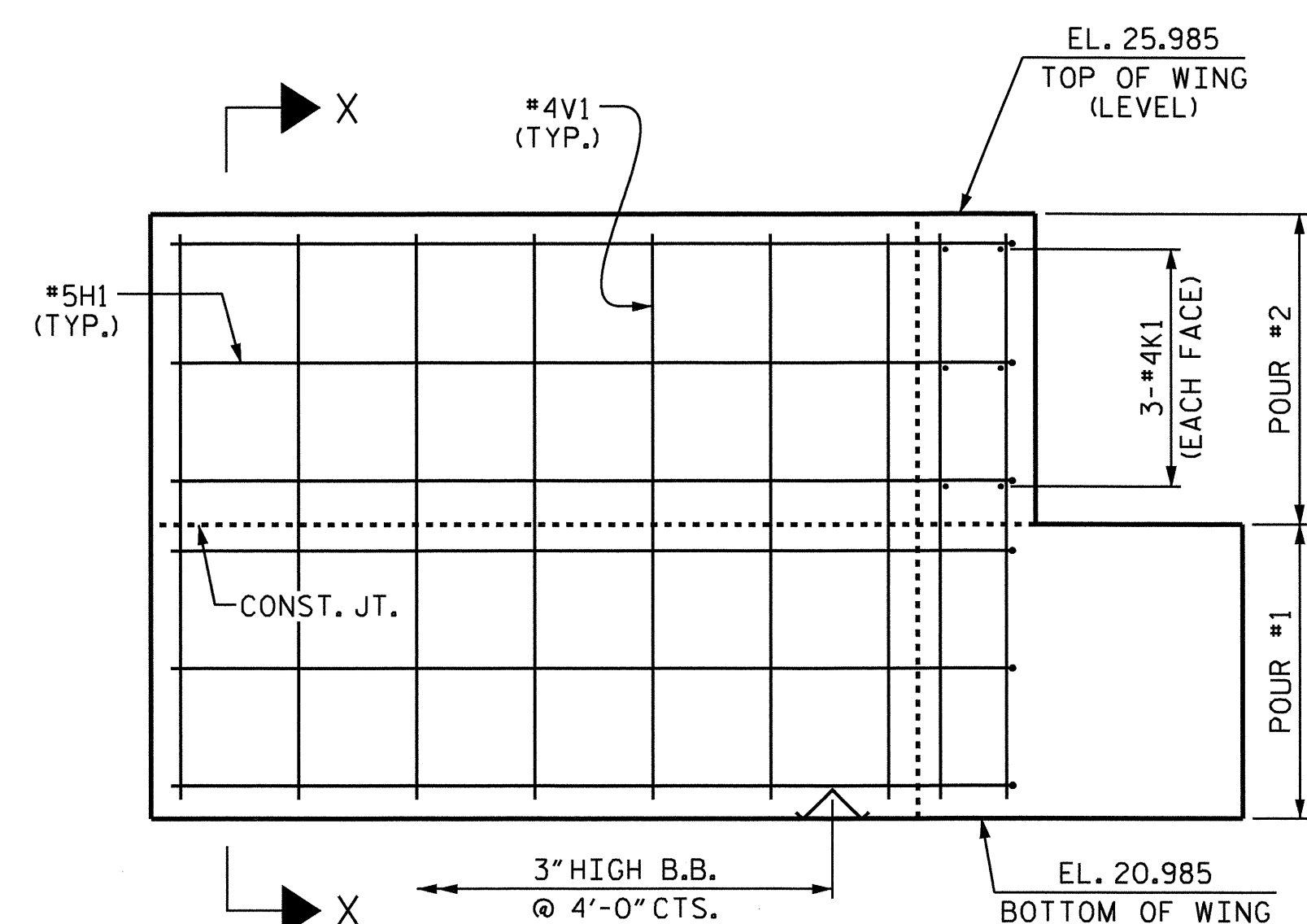
PLAN OF LEFT WING



ELEVATION OF LEFT WING



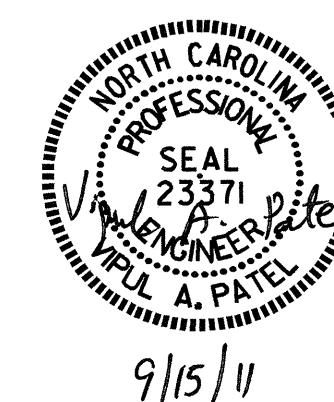
SECTION X-X



ELEVATION OF RIGHT WING

DRAWN BY : J.P. ADAMS DATE : 9/28/10
 CHECKED BY : R.G. EMERSON DATE : 11/9/10

15-SEP-2011 08:19
 R:\Structures\Plans\B-4415.SD.E*.dgn
 vpatel



PROJECT NO. B-4415
 BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 2 OF 3

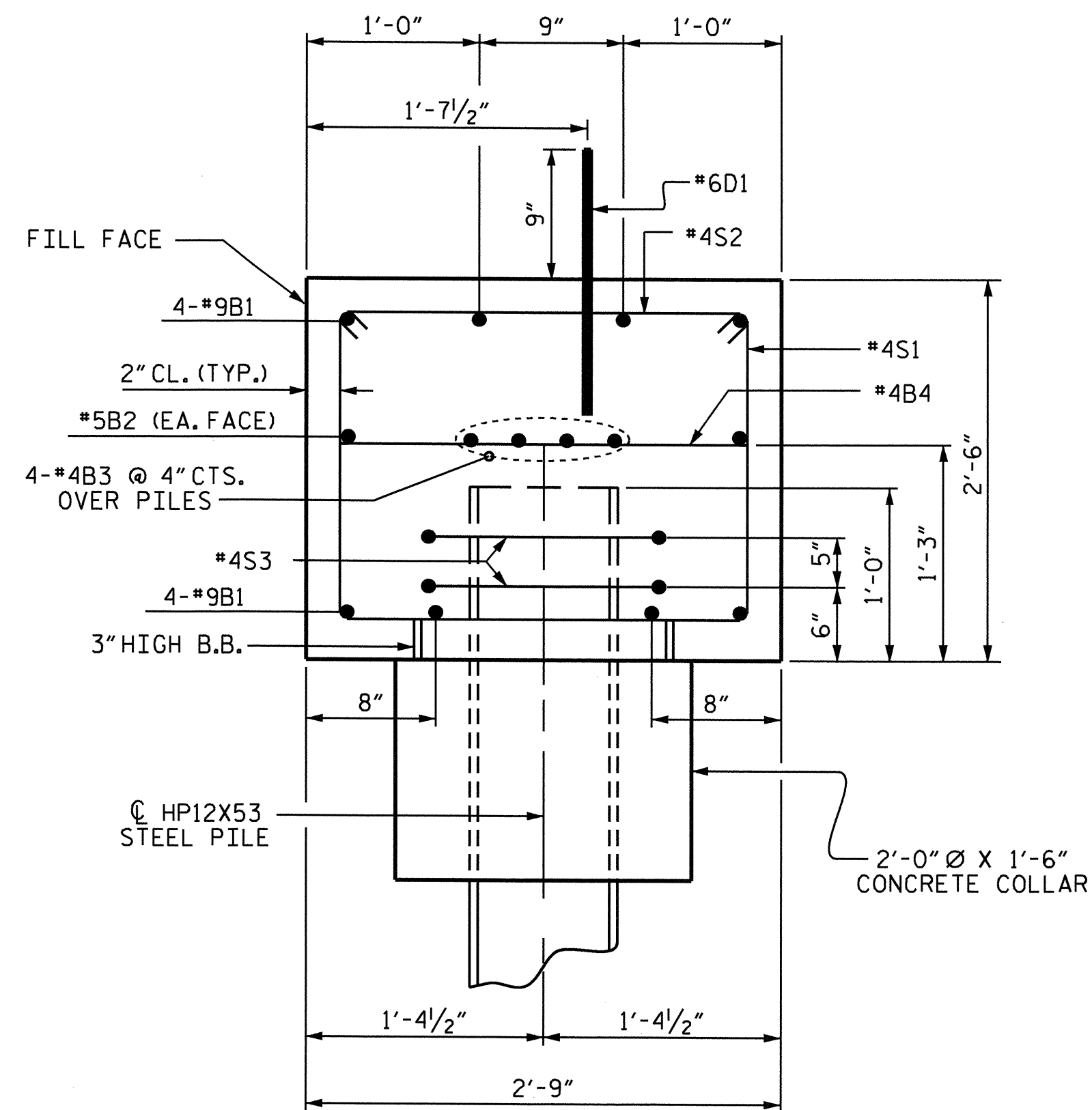
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

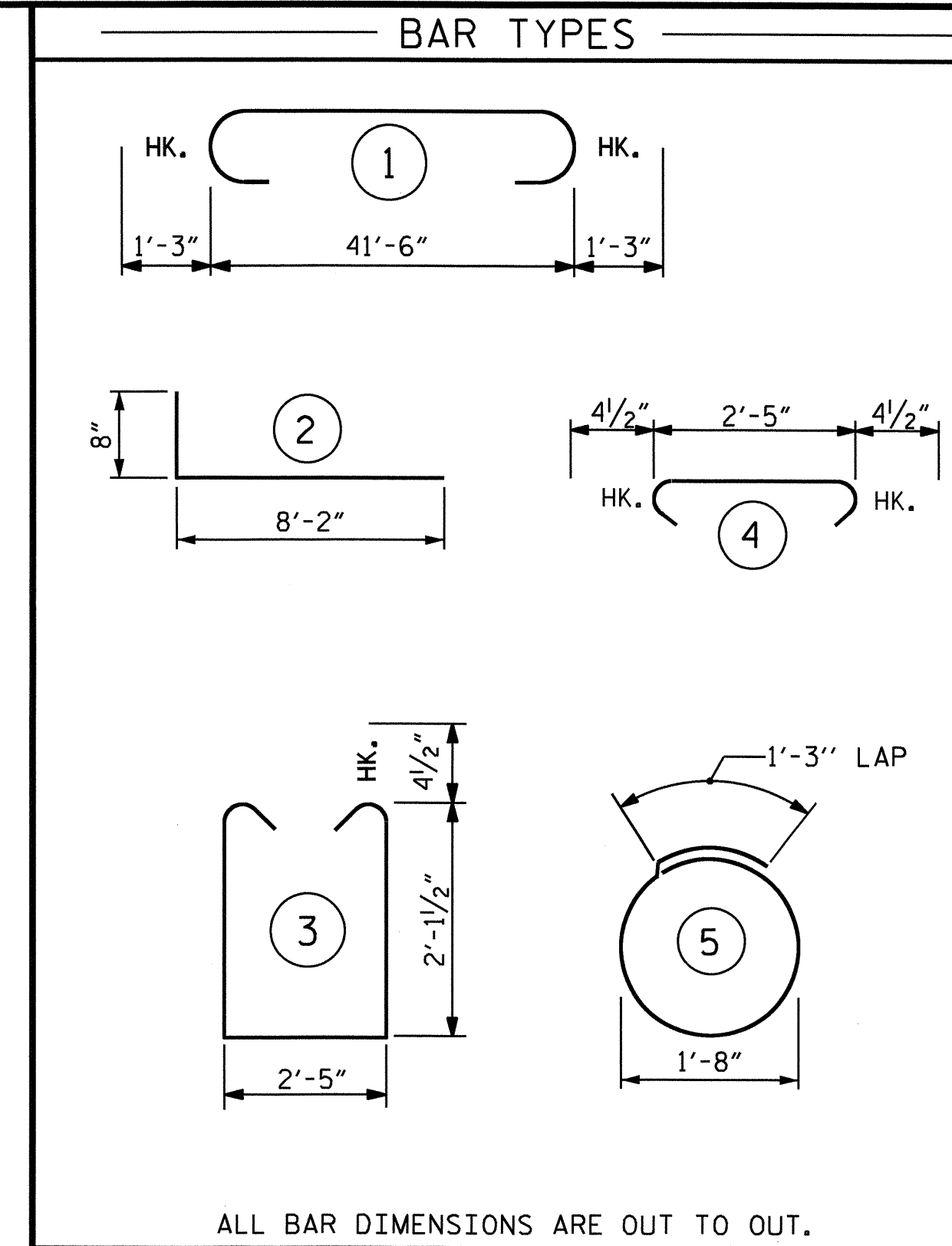
REVISIONS

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

SHEET NO.
 S-20
 TOTAL SHEETS
 24

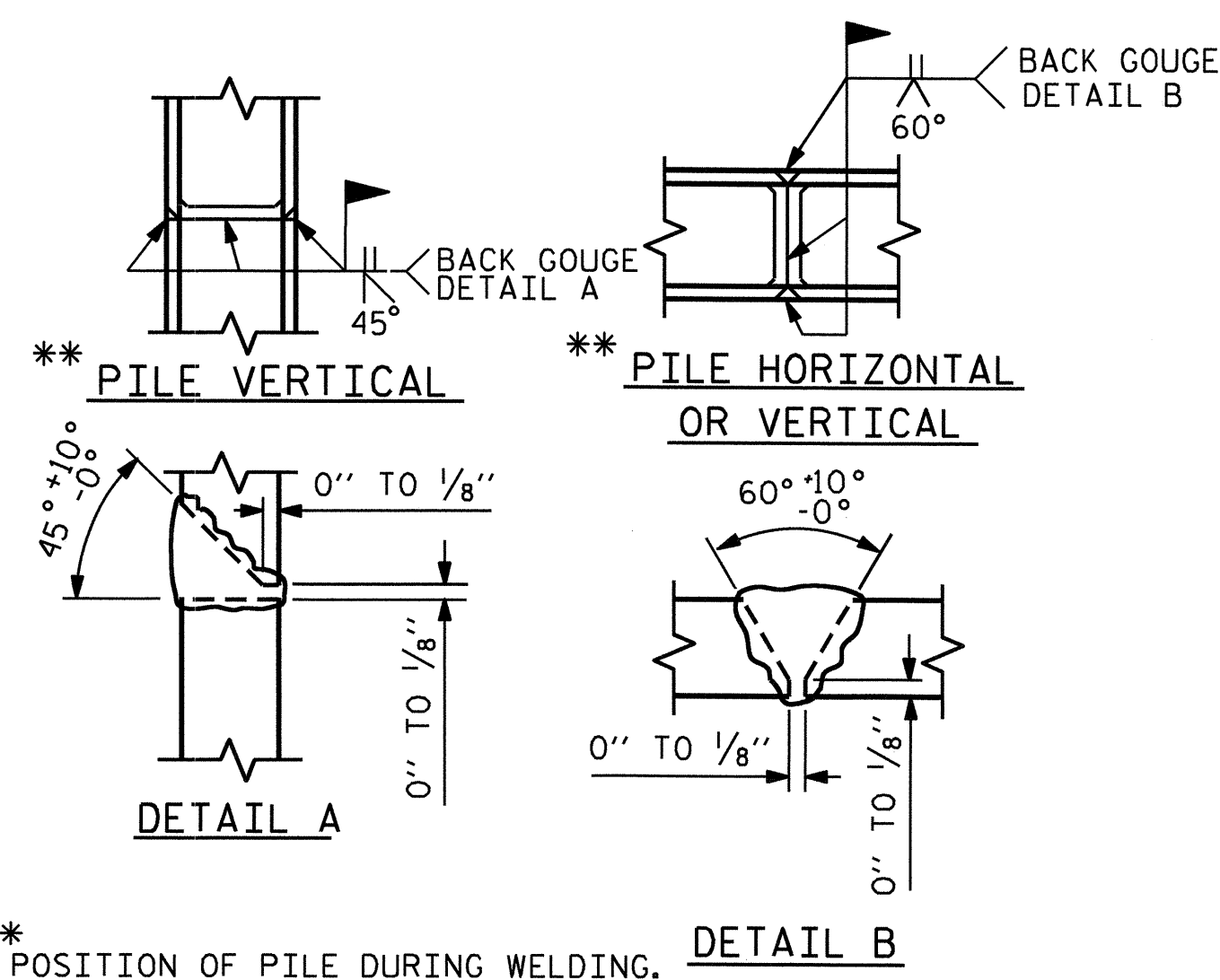


SECTION A-A

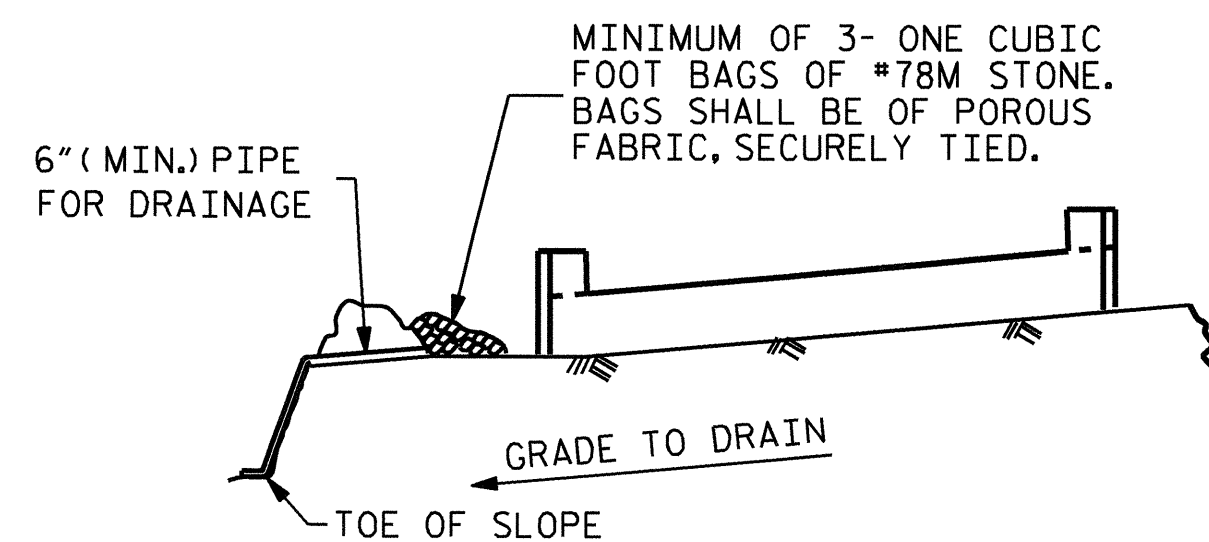


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		44'-0"	1197
B2	2	#5	STR	41'-8"	87
B3	8	#4	STR	22'-1"	118
B4	10	#4	STR	2'-5"	16
D1	24	#6	STR	1'-6"	54
H1	24	#5		8'-10"	221
K1	12	#4	STR	3'-5"	27
S1	36	#4		7'-5"	178
S2	36	#4		3'-2"	76
S3	10	#4		6'-6"	43
V1	48	#4	STR	4'-8"	150
TOTAL REINFORCING STEEL LBS.					2167
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, COLLAR & LOWER WINGS)					13.0 C.Y.
POUR #2 (UPPER WINGS)					2.1 C.Y.
TOTAL CLASS A CONCRETE					15.1 C.Y.
HP12X53 STEEL PILES					
NO. 5					325 LIN. FT.
PILE REDRIVES:					3 EA.



PILE SPLICE DETAILS



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.

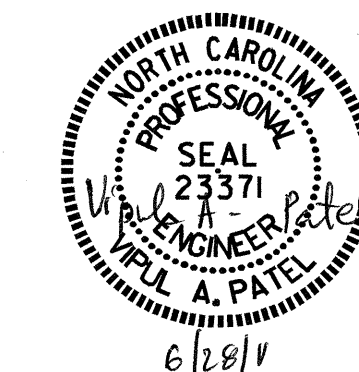
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-

SHEET 3 OF 3

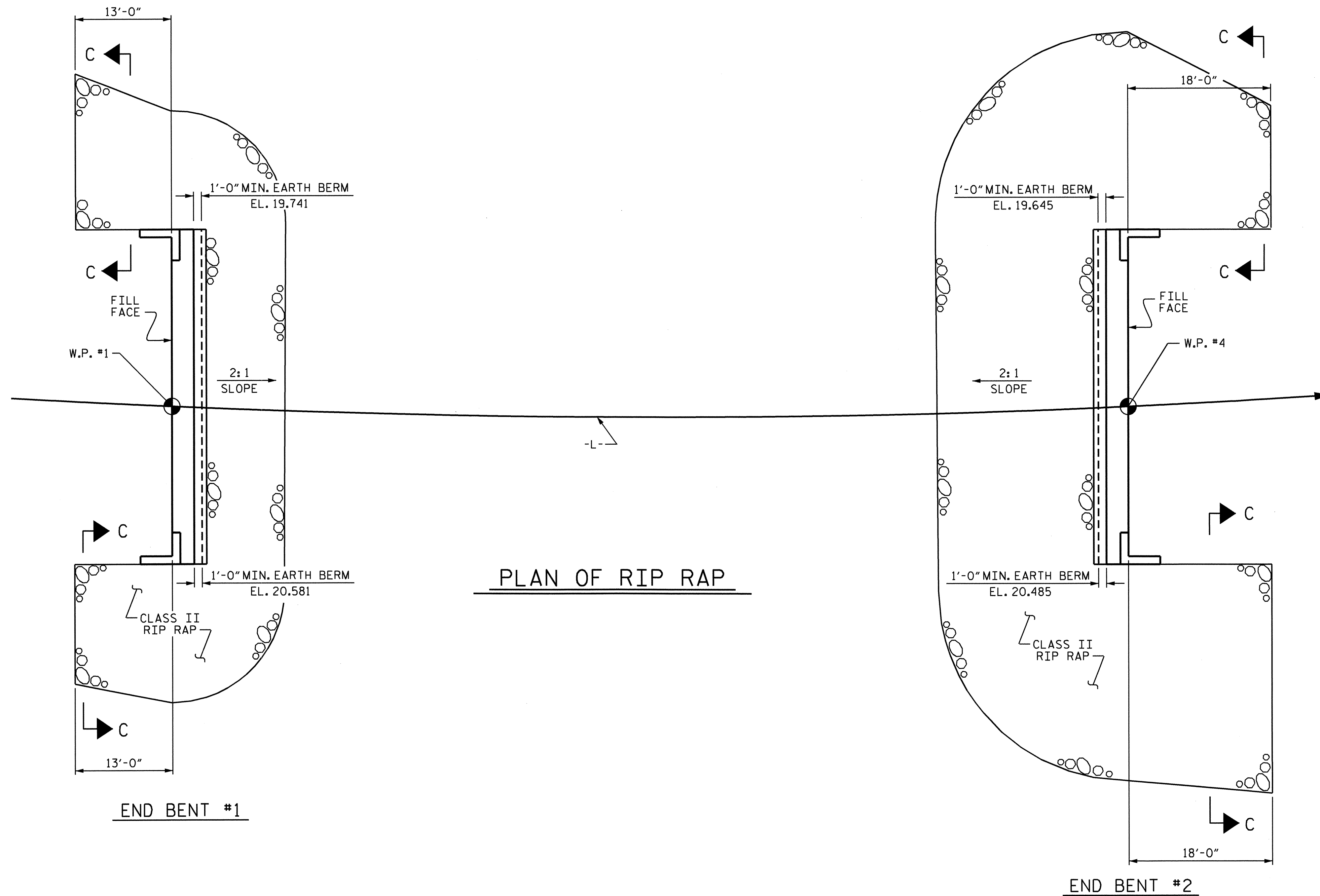
STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
END BENT #2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					24



DRAWN BY: J.P. ADAMS DATE: 9/28/10
 CHECKED BY: R.G. EMERSON DATE: 11/9/10

27-JUN-2011 08:15
 R:\Structures\Plans\B-4415.SD.E*.dgn
 vpatel

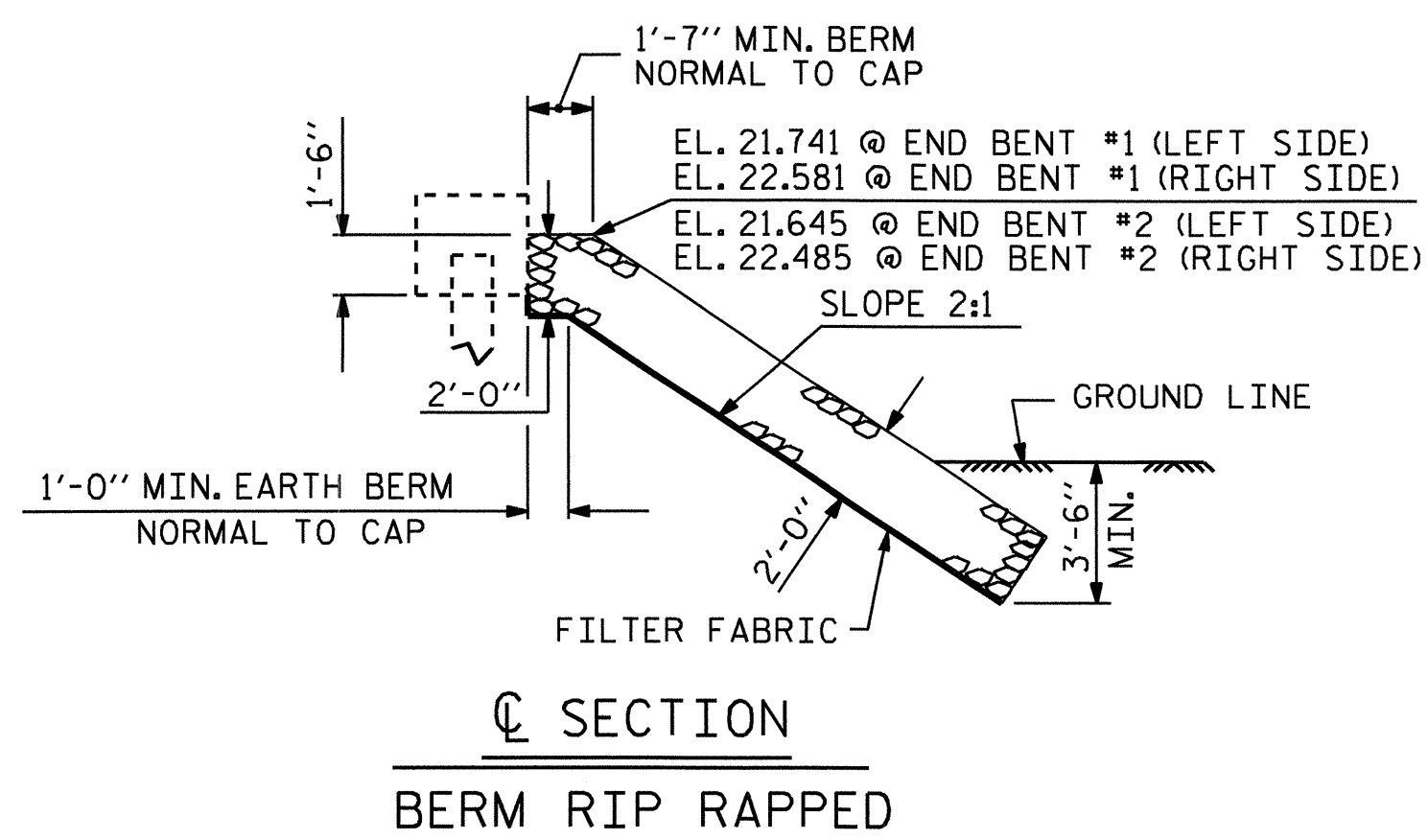
ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+22.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	145	160
END BENT #2	310	345



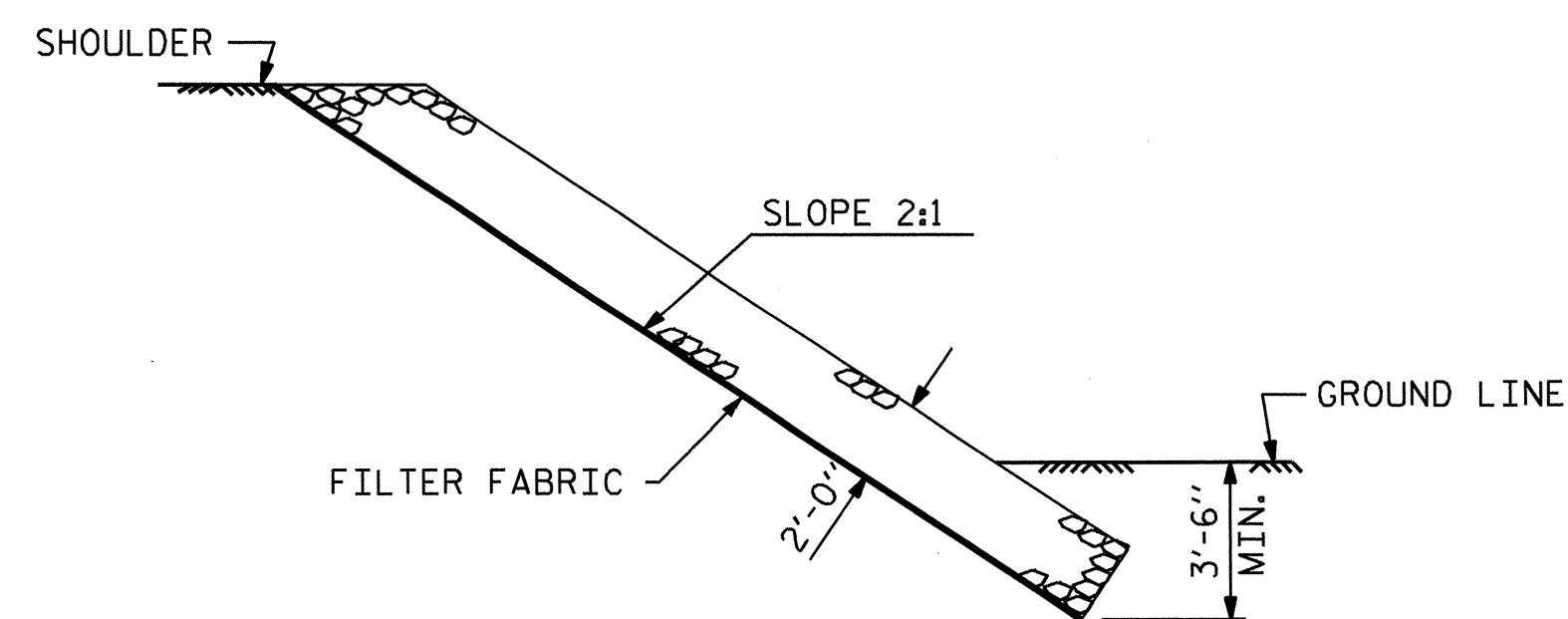
PLAN OF RIP RAP

END BENT #1

END BENT #2



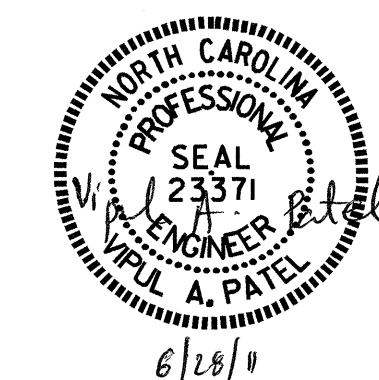
SECTION BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4415
BEAUFORT COUNTY
 STATION: 16+22.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

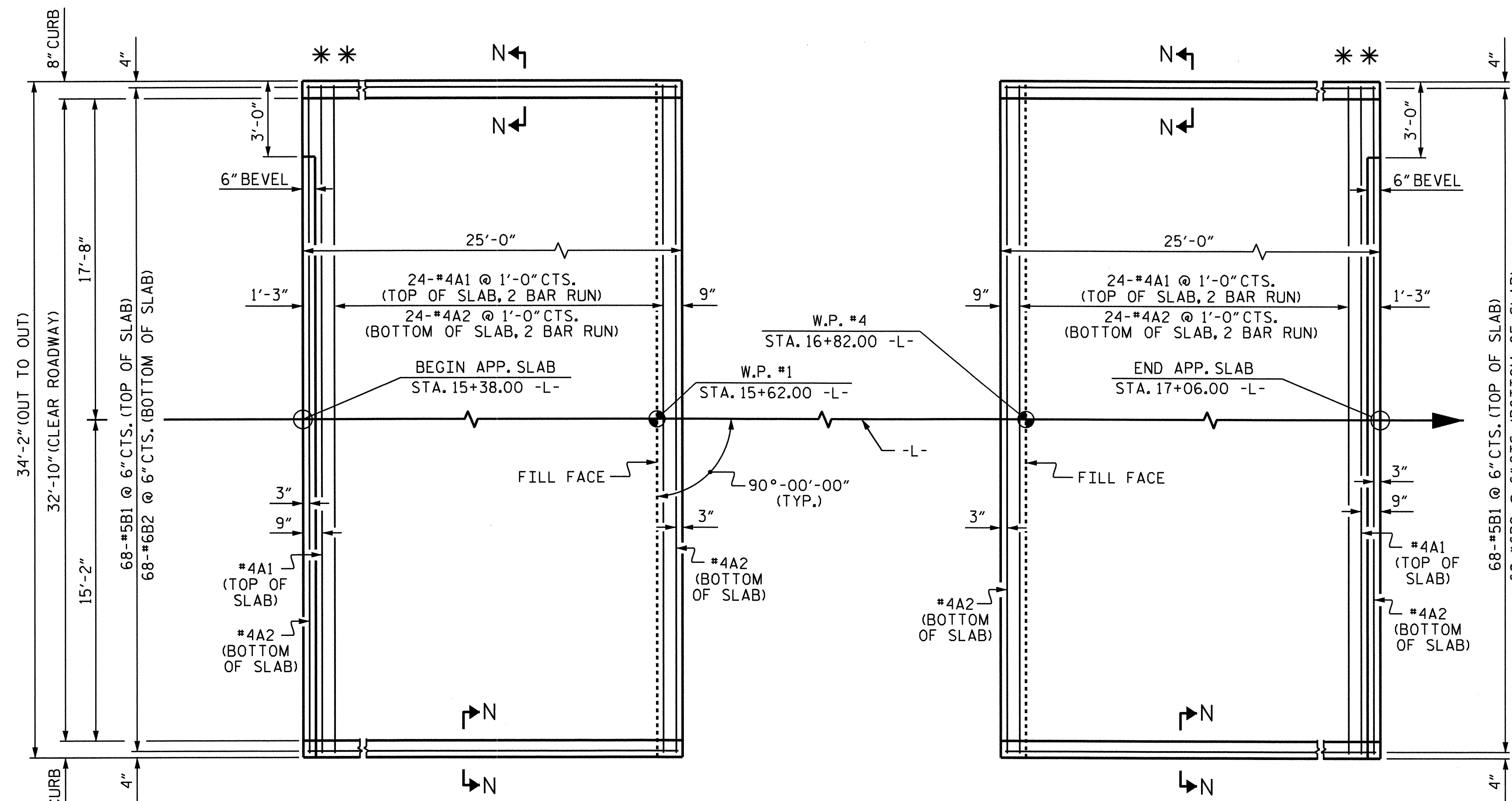


ASSEMBLED BY : J.P. ADAMS	DATE : 11/29/10
CHECKED BY : R.G. EMERSON	DATE : 12/10
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06R TLA/GM

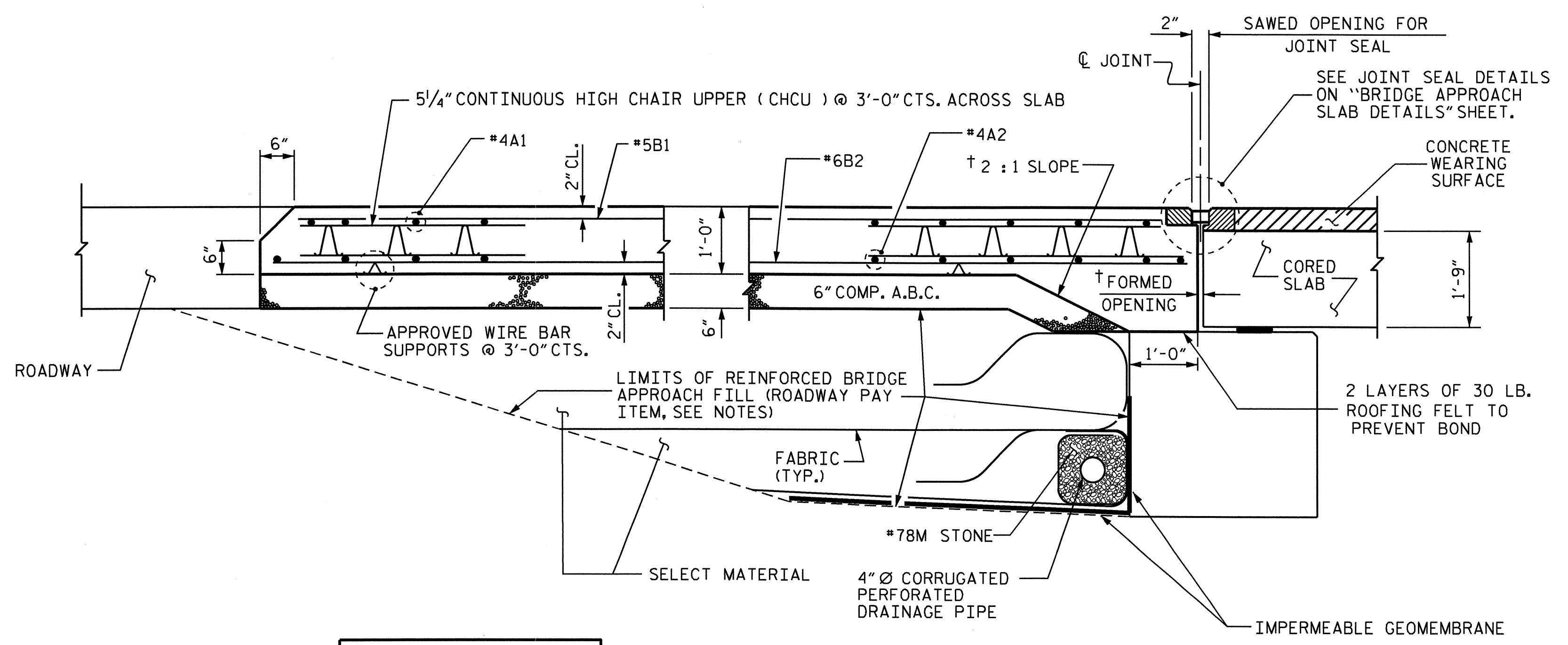
27-JUN-2011 08:09
 R:\Structures\Plans\B-4415_SD.RR.dgn
 vpatel

STD. NO. RR2

SHEET NO.
 S-22
 TOTAL SHEETS
 24

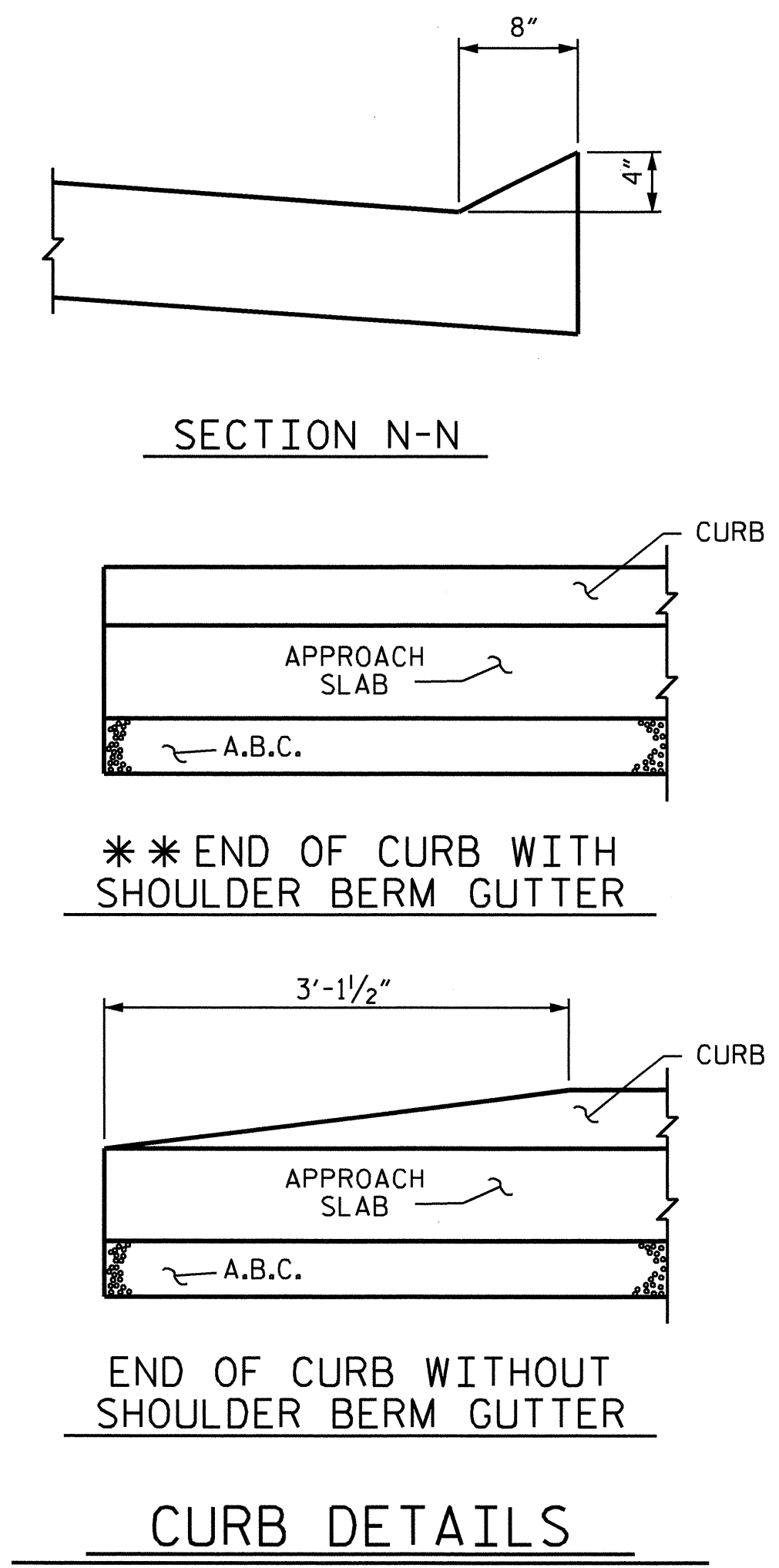


PLAN @ END BENT #1
 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

SECTION THRU SLAB



CURB DETAILS

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25,0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

THE JOINT SHALL BE SAWED AFTER THE CASTING OF THE BARRIER RAIL.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQUIRED)

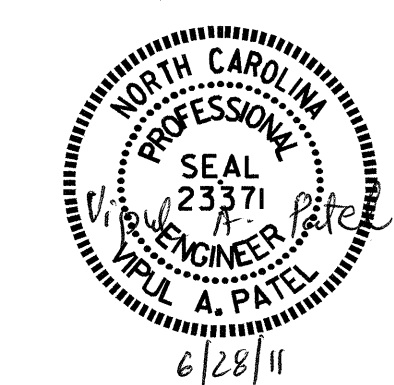
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	17'-11"	598
A2	52	#4	STR	17'-10"	619
*B1	68	#5	STR	23'-8"	1679
B2	68	#6	STR	24'-8"	2519
REINFORCING STEEL				LBS.	3138
*EPOXY COATED REINFORCING STEEL				LBS.	2277
CLASS AA CONCRETE				C. Y.	34.6

SPLICE CHART

*#4A1	2'-0"
*#4A2	1'-9"

ASSEMBLED BY : J.P. ADAMS	DATE : 10/27/09
CHECKED BY : R.G. EMERSON	DATE : 11/4/09
DRAWN BY : FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY : EGA 6/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM

27-JUN-2011 08:10
 R:\Structures\Plans\B-4415.SD.AS.dgn
 vpatel



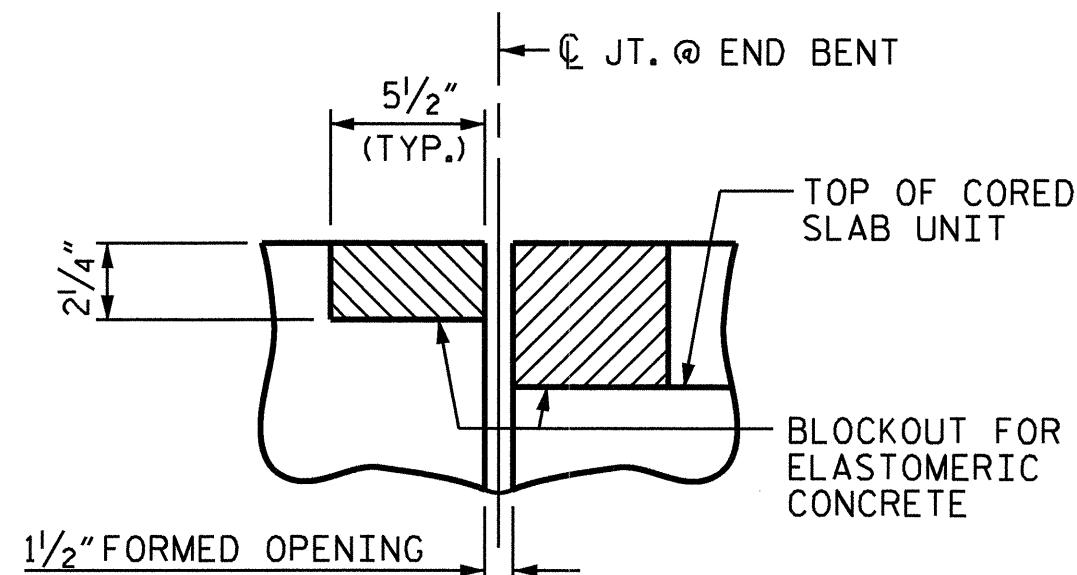
PROJECT NO. B-4415
 BEAUFORT COUNTY
 STATION: 16+22.00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB

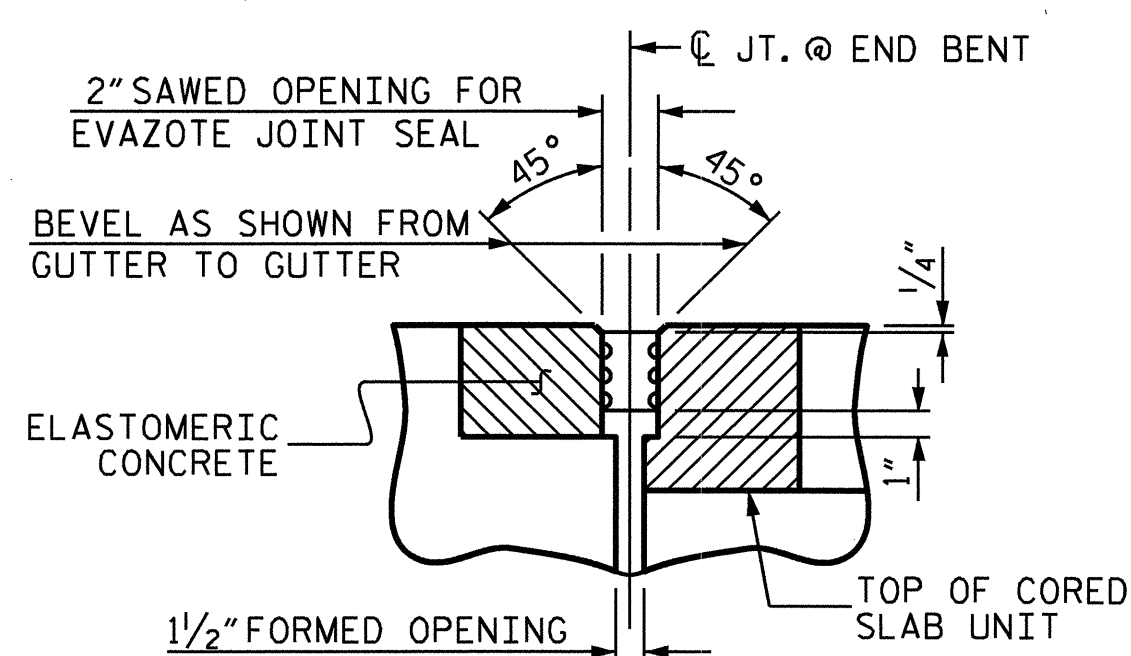
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS 24

STD. NO. BAS7

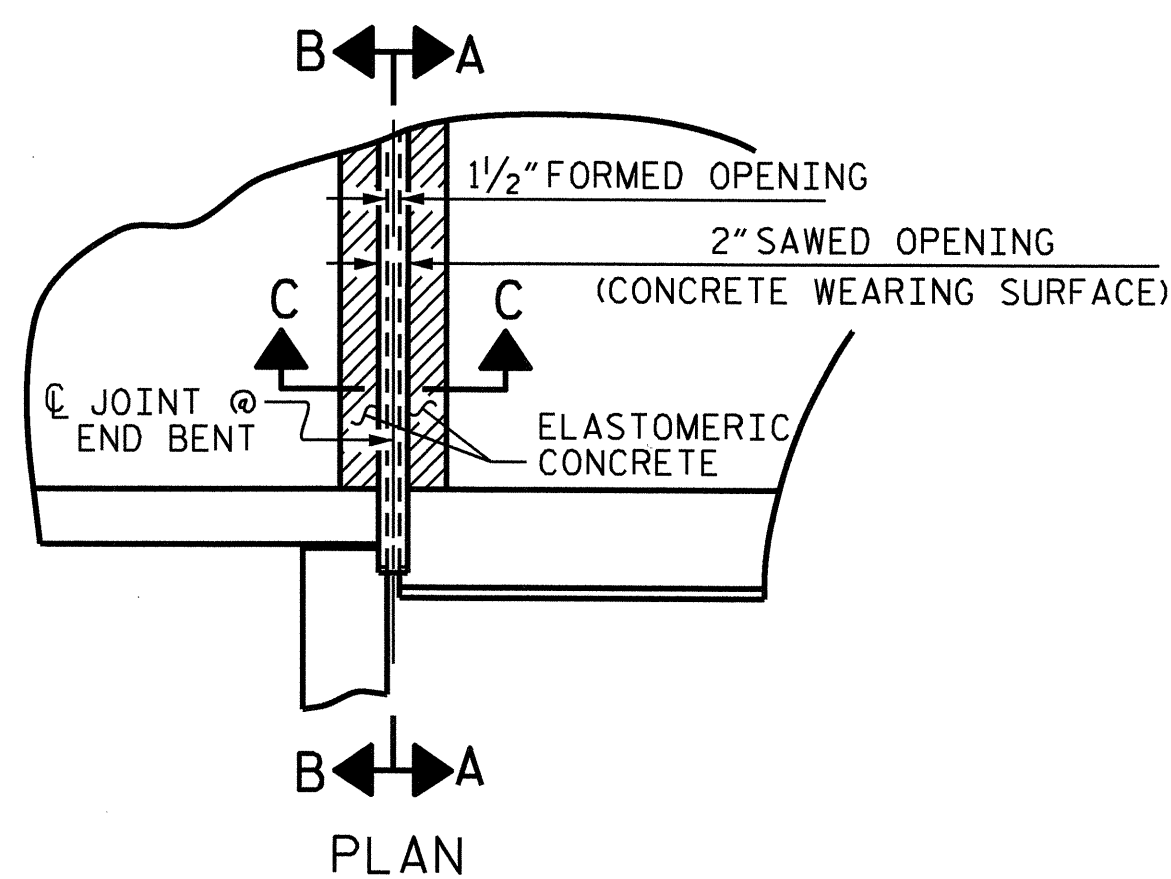


SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)

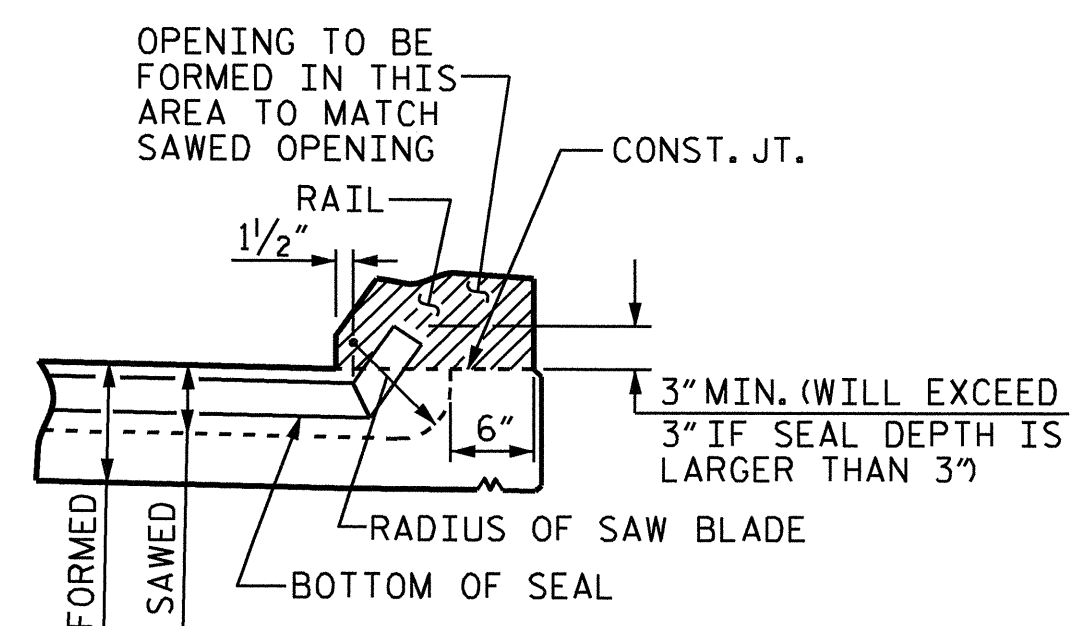


SECTION C-C
EVAZOTE JOINT SEAL

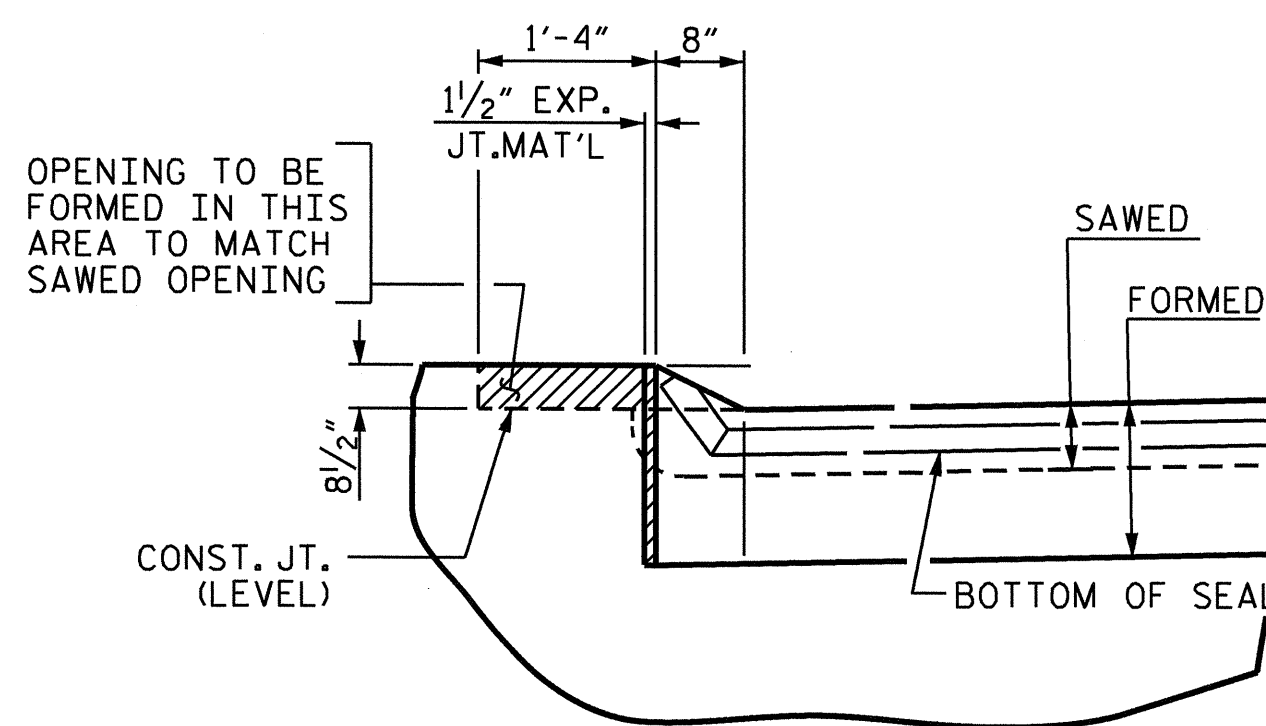
ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE (CU. FT.)
1	8.5
2	8.5
TOTAL	17.0



PLAN



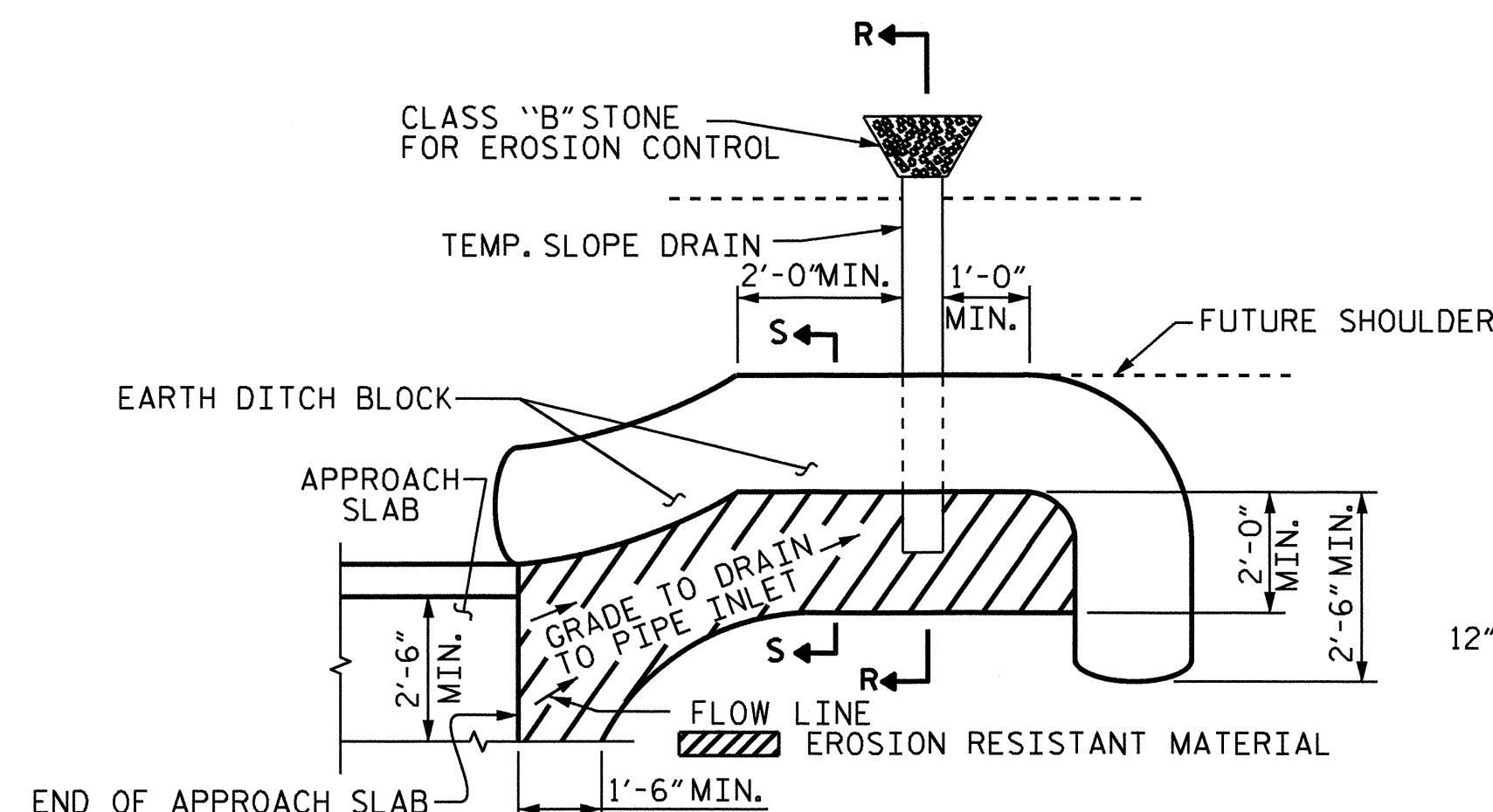
SECTION A-A



SECTION B-B

JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.
THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

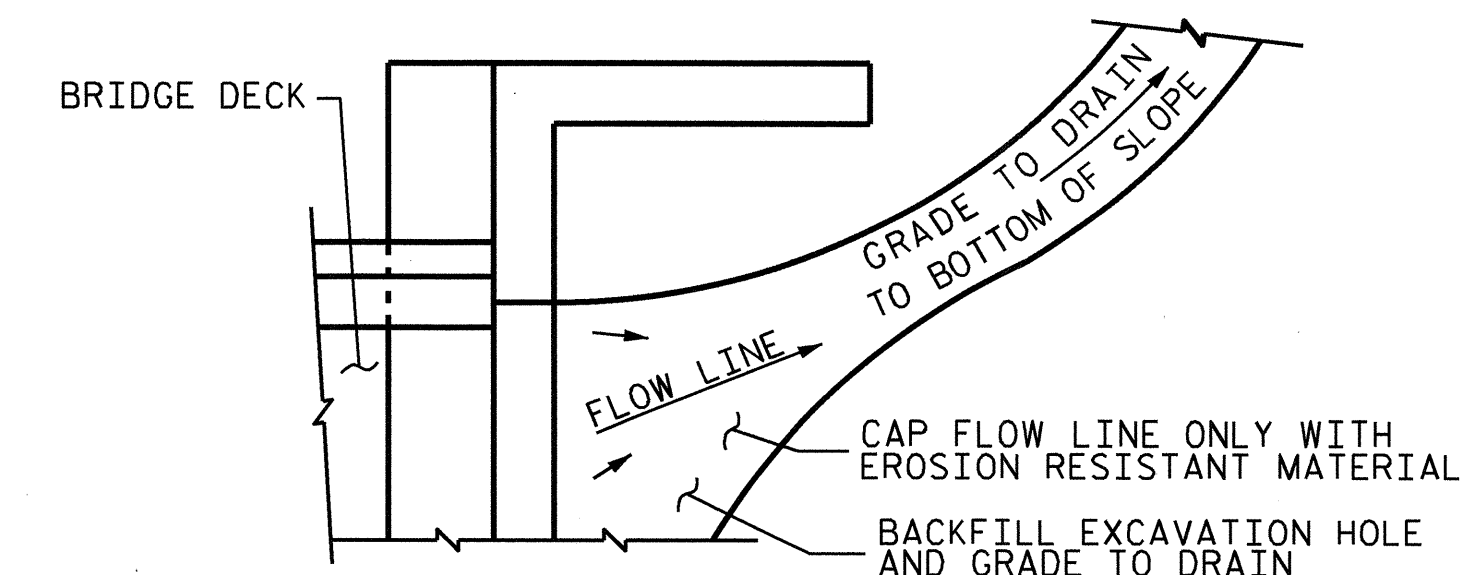


PLAN VIEW

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.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

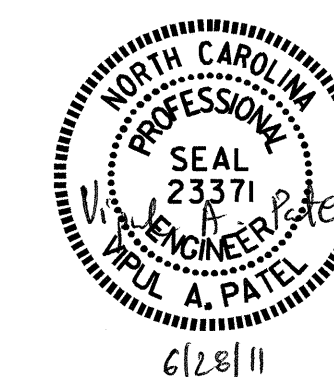


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4415
BEAUFORT COUNTY
STATION: 16+22.00 -L-

SHEET 2 OF 2



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

ASSEMBLED BY : J.P. ADAMS	DATE : 10/27/09
CHECKED BY : R.G. EMERSON	DATE : 11/4/09
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

27-JUN-2011 08:10
R:\Structures\Plans\B-4415.SD.A5.dgn
vpatel

REVISIONS						SHEET NO. S-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 24
2			4			

STD. NO. BAS10

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "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 STEEL ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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.

ENGLISH

JANUARY, 1990

STD. NO. SN