

05/08/99

TIP PROJECT: B-4413

C202658

CONTRACT:

STRUCTURE

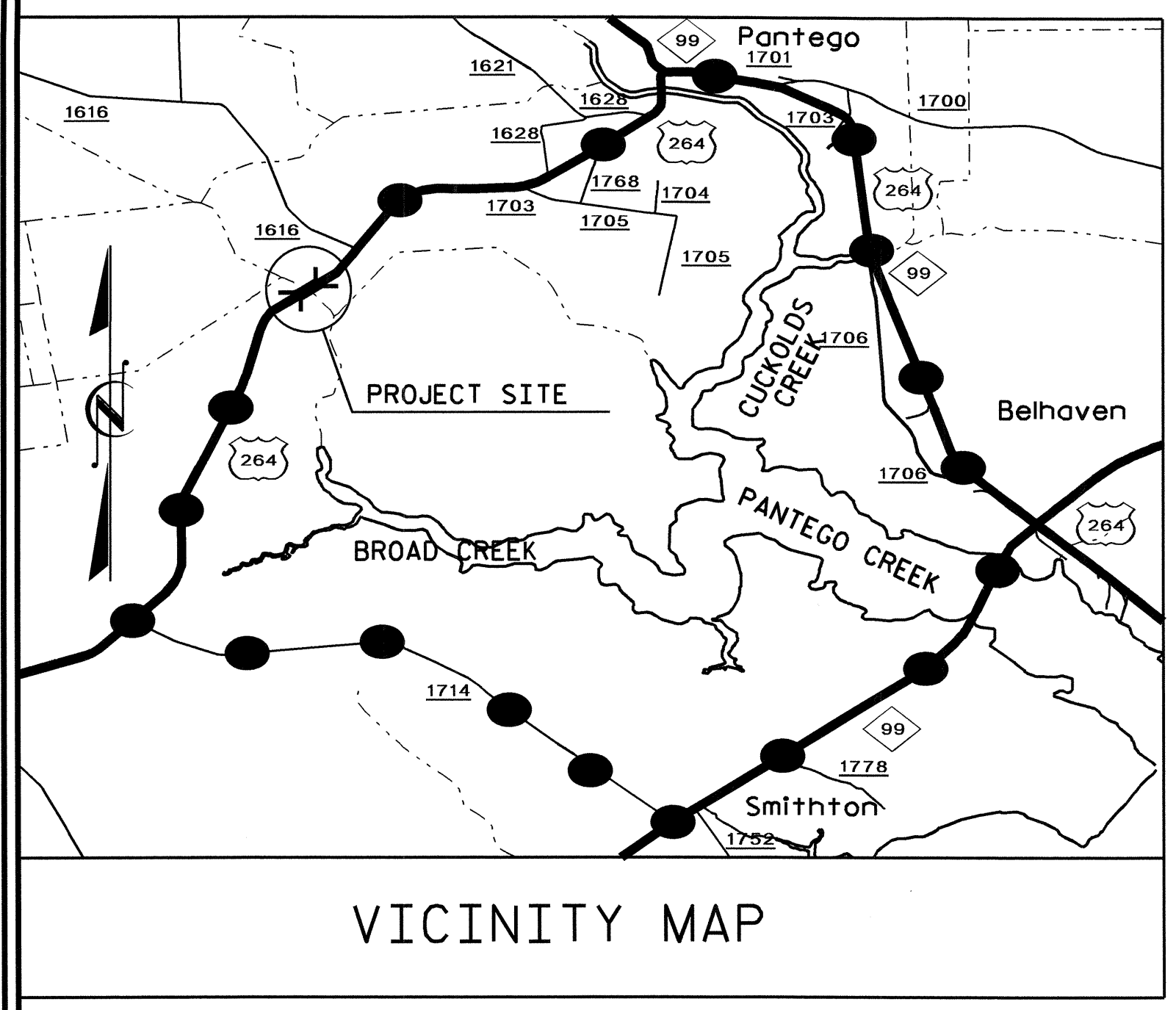
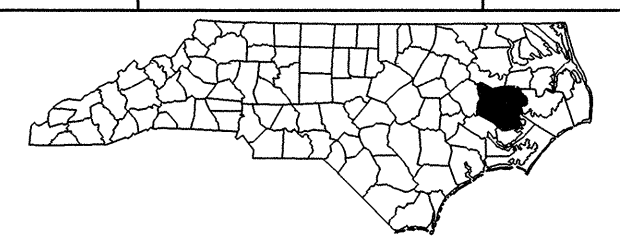
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

LOCATION: BRIDGE NO. 51 OVER BROAD CREEK ON US 264

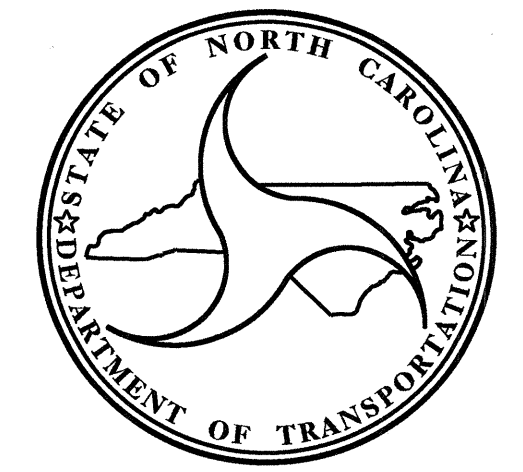
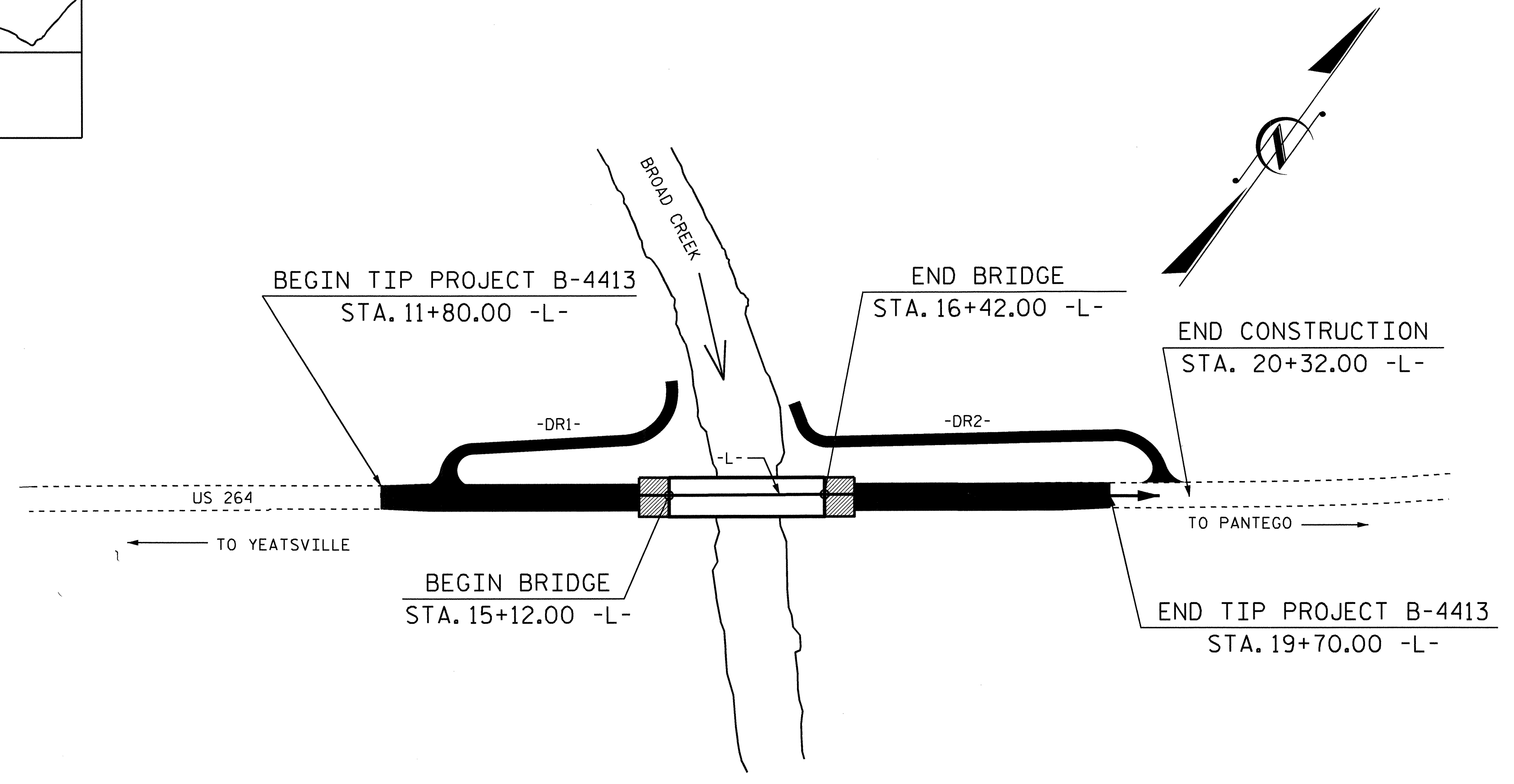
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4413		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33690.1.1	BRSTP-0264(24)	PE	
33690.2.1	BRSTP-0264(24)	ROW, UTIL	
33690.3.1	BRSTP-0264(24)	CONSTRUCTION	



VICINITY MAP

●●●●● OFFSITE DETOUR



DESIGN DATA

ADT 2010 = 3,792
ADT 2030 = 6,100
DHV = 10 %
D = 60 %
* T = 7 %
V = 60 MPH
* TTST 3% DUAL 4%

FUNCTIONAL CLASSIFICATION
RURAL MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4413 = 0.125 MILES
LENGTH STRUCTURE TIP PROJECT B-4413 = 0.025 MILES
TOTAL LENGTH TIP PROJECT B-4413 = 0.150 MILES

PLANS PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 16, 2012

Q. H. NGUYEN, P.E.
PROJECT ENGINEER

MARC G. CHEEK, P.E.
PROJECT DESIGN ENGINEER

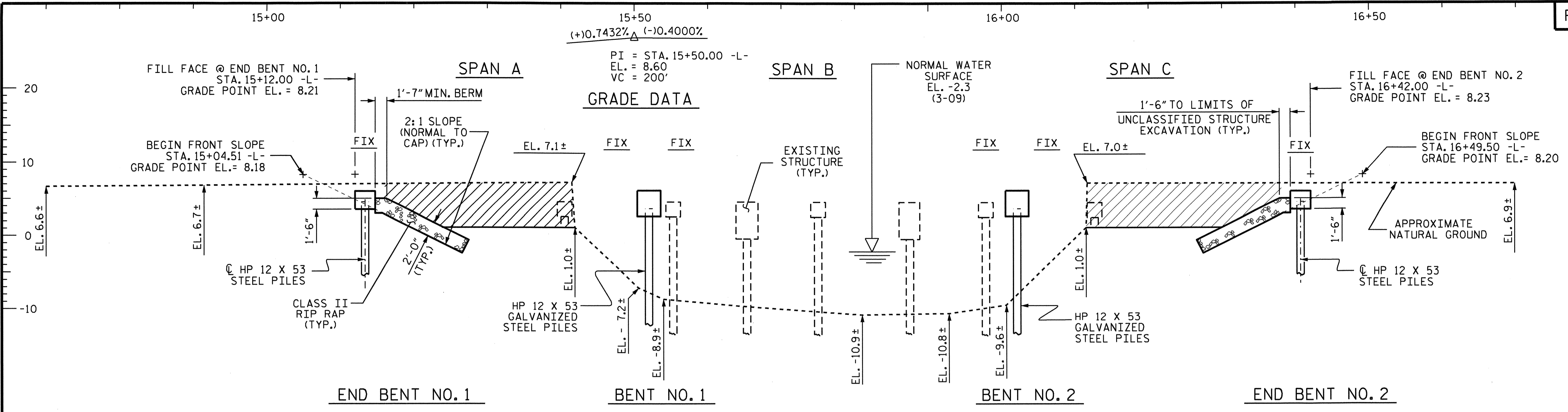
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DRIVE
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

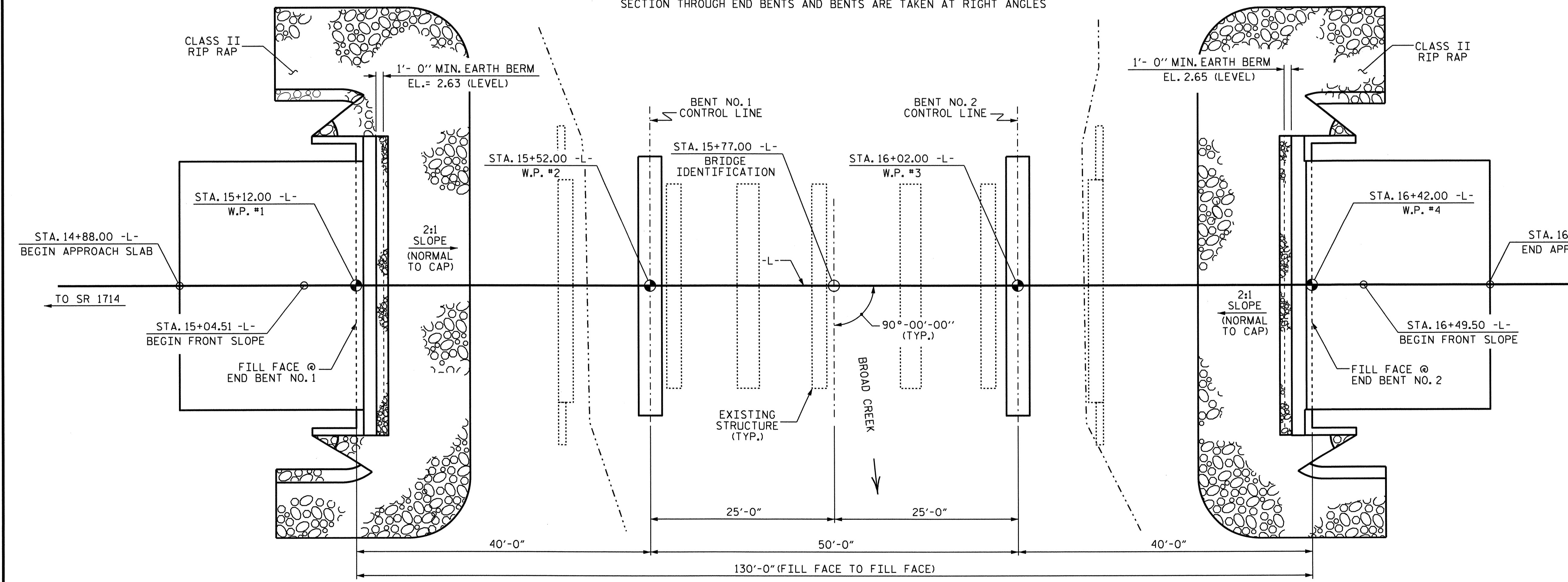
STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

25-APR-2012 10:53
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mpoole



SECTION ALONG -L-
SECTION THROUGH END BENTS AND BENTS ARE TAKEN AT RIGHT ANGLES



PLAN
PILES ARE NOT SHOWN IN PLAN VIEW.

PROJECT NO. B-4413
 BEAUFORT COUNTY
 STATION: 15+77.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE #51

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON US 264
 OVER BROAD CREEK BETWEEN
 SR 1714 AND SR 1616

DRAWN BY : A.L. FIGUEROA DATE : 01-19-11
 CHECKED BY : M.G. CHEEK DATE : 01-21-11

09-MAY-2012 10:36
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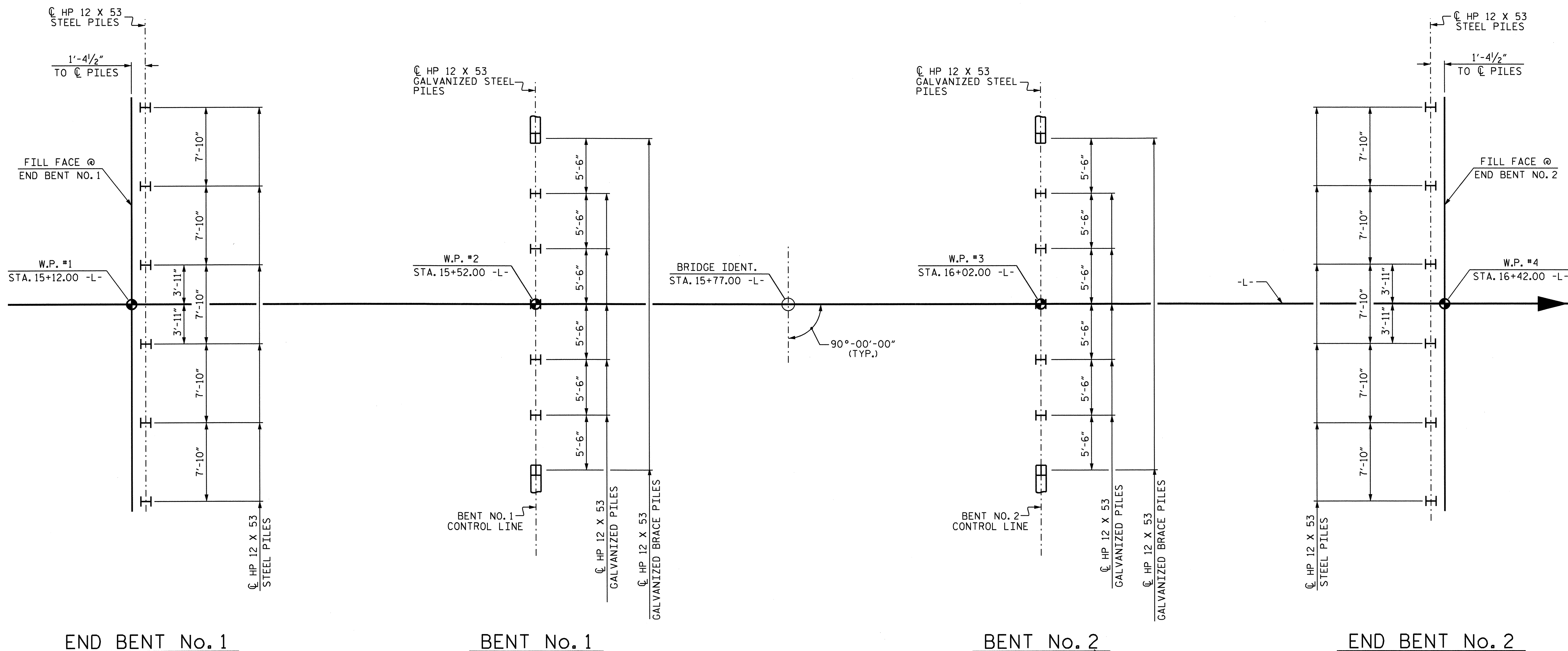


Quang H. Nguyen 8-21-12



Michael G. Cheek 8-21-12

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



FOUNDATION LAYOUT

ALL END BENT PILES ARE HP 12 X 53 STEEL PILES.
 ALL BENT PILES ARE HP 12 X 53 GALVANIZED PILES.
 DIMENSIONS LOCATING PILES ARE SHOWN TO THE
 PILE CENTERLINE AT THE BOTTOM OF THE CAP.
 BENT BRACE PILES ARE BATTERED 1/2:12.

NOTES

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 70 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

PILES AT BENT NO.1 AND BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE AND 180 TONS PER PILES RESPECTIVELY. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAW OR SCOUR.

INSTALL PILES AT BENT NO.1 AND BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN -30.0 FEET.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 AND BENT NO.2 IS ELEVATION -14.0 FEET. 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 CRITERIA, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

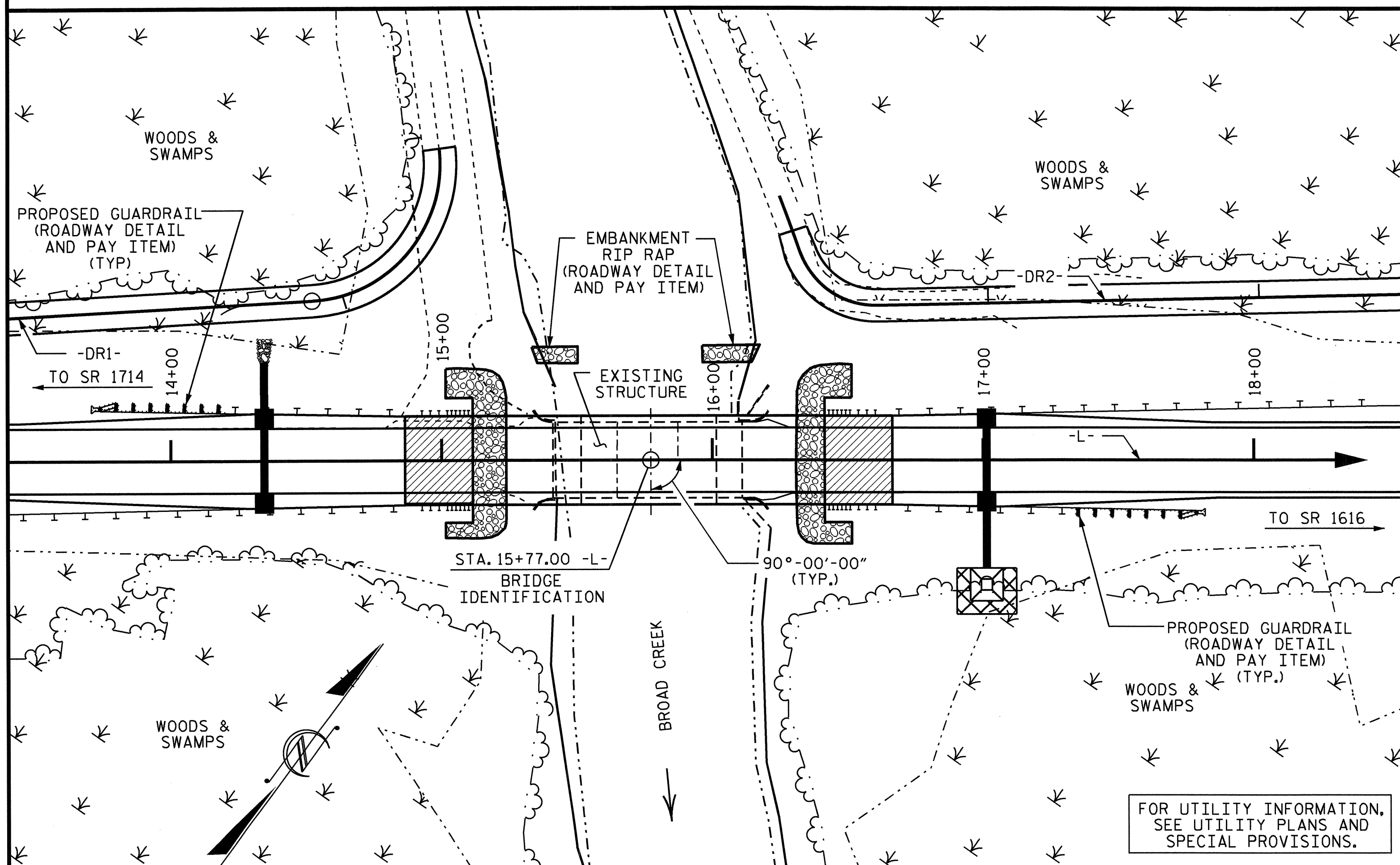
GENERAL DRAWING
 FOR BRIDGE ON US 264
 OVER BROAD CREEK BETWEEN
 SR 1714 AND SR 1616



DRAWN BY : A.L. FIGUEROA DATE : 01-19-11
 CHECKED BY : M.G. CHEEK DATE : 01-21-11

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

BENCHMARK No. 100: A 30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS, BASE ON NCDOT NCGS BEA-7 , BL STA. 17+61.60 -L-, LEFT 6.0', EL. 7.5.



LOCATION SKETCH

NOTES

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 6 SPAN STRUCTURE (1 @ 12'-8", 1 @ 10'-6" 1 @ 10'-3", 1 @ 12'-2" 1 @ 10'-6", 1 @ 12'-7") CONSISTING OF A REINFORCED CONCRETE DECK ON CONTINUOUS I-BEAMS WITH A 4" ASPHALT WEARING SURFACE, AND A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE AND TIMBER BENTS AND END BENTS AND TIMBER CRUTCH BENTS SHALL BE REMOVED.

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, EXCEPT THAT PILING FROM THE EXISTING BRIDGE, AS WELL AS ANY REMNANT PILING FROM PREVIOUS BRIDGES, SHALL BE REMOVED IN THEIR ENTIRETY. IN THE EVENT THAT A PILING BREAKS DURING REMOVAL AND CANNOT BE REMOVED IN ITS ENTIRETY, THE PILING MAY BE CUT OFF FLUSH WITH THE BED OF THE WATER BODY AND THE NCDOT SHALL BE NOTIFIED OF EACH OCCURRENCE WITHIN ONE WORKING DAY.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FEET 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.

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 SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO THE 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".

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.

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 UNIT PRICE FOR GALVANIZED STEEL PILES.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

HYDRAULIC DATA

DESIGN DISCHARGE = 2,800 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YRS.
 DESIGN HIGH WATER ELEVATION = 2.8
 DRAINAGE AREA = 33.1 SQ. MI
 BASIC DISCHARGE (0100) = 3,400 C.F.S.
 BASIC HIGH WATER ELEVATION = 3.6

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 4,100 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 100 YRS.+
 OVERTOPPING FLOOD ELEVATION = 4.5

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	HP 12 X 53 GALVANIZED STEEL PILES	PILE REDRIVES	PDA TESTING	CONCRETE BARRIER RAIL	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	LUMP SUM	SO. FT.	SO. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	NO.	NO.	EACH	NO.	NO.	NO.	NO.	NO.
SUPERSTRUCTURE	LUMP SUM		4194	5189		LUMP SUM						255.50				1530.00
END BENT NO. 1		LUMP SUM			15.2		2072	6	390	3			199	221		
BENT NO. 1					10.8		1833			4						
BENT NO. 2					10.8		1833			4						
END BENT NO. 2		LUMP SUM			15.2		2072	6	330	3			199	221		
TOTAL	LUMP SUM	LUMP SUM	4194	5189	52.0	LUMP SUM	7810	12	720	14	1	255.50	398	442	LUMP SUM	1530.00

PROJECT NO. B-4413

BEAUFORT COUNTY

STATION: 15+77.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON US 264
 OVER BROAD CREEK BETWEEN
 SR 1714 AND SR 1616



DRAWN BY: A.L. FIGUEROA DATE: 01-19-11
 CHECKED BY: M.G. CHEEK DATE: 01-21-11

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

LOAD FACTORS:

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

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						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	1.12	--	1.75	0.272	1.17	B	EL	24.438	0.520	1.26	B	EL	2.444	0.80	0.272	1.12	B	EL	24.438		
	HL-93(0pr)	N/A	--	1.52	--	1.35	0.272	1.52	B	EL	24.438	0.520	1.64	B	EL	2.444	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.39	50.04	1.75	0.272	1.45	B	EL	24.438	0.520	1.51	B	EL	2.444	0.80	0.272	1.39	B	EL	24.438		
	HS-20(0pr)	36.000	--	1.88	67.68	1.35	0.272	1.88	B	EL	24.438	0.520	1.96	B	EL	2.444	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.64	35.64	1.4	0.272	3.70	B	EL	24.438	0.520	4.26	B	EL	2.444	0.80	0.272	2.83	B	EL	24.438	
		SNGARBS2	20.000	--	2.21	44.20	1.4	0.272	2.92	B	EL	24.438	0.520	3.10	B	EL	2.444	0.80	0.272	2.23	B	EL	24.438	
		SNAGRIS2	22.000	--	2.17	47.74	1.4	0.272	2.84	B	EL	24.438	0.520	2.91	B	EL	2.444	0.80	0.272	2.17	B	EL	24.438	
		SNCOTTS3	27.250	--	1.32	35.97	1.4	0.272	1.84	B	EL	24.438	0.520	2.13	B	EL	2.444	0.80	0.272	1.41	B	EL	24.438	
		SNAGGRS4	34.925	--	1.20	41.91	1.4	0.272	1.60	B	EL	24.438	0.520	1.82	B	EL	2.444	0.80	0.272	1.23	B	EL	24.438	
		SNS5A	35.550	--	1.16	41.24	1.4	0.272	1.56	B	EL	24.438	0.520	1.87	B	EL	2.444	0.80	0.272	1.20	B	EL	24.438	
		SNS6A	39.950	--	1.11	44.34	1.4	0.272	1.46	B	EL	24.438	0.520	1.73	B	EL	2.444	0.80	0.272	1.12	B	EL	24.438	
	SNS7B	42.000	--	1.06	44.52	1.4	0.272	1.39	B	EL	24.438	0.520	1.73	B	EL	2.444	0.80	0.272	1.07	B	EL	24.438		
	TTST	TNAGRIT3	33.000	--	1.37	45.21	1.4	0.272	1.79	B	EL	24.438	0.520	2.04	B	EL	2.444	0.80	0.272	1.37	B	EL	24.438	
		TNT4A	33.075	--	1.38	45.64	1.4	0.272	1.81	B	EL	24.438	0.520	1.97	B	EL	2.444	0.80	0.272	1.38	B	EL	24.438	
		TNT6A	41.600	--	1.15	47.84	1.4	0.272	1.51	B	EL	24.438	0.520	1.89	B	EL	2.444	0.80	0.272	1.15	B	EL	24.438	
		TNT7A	42.000	--	1.17	49.14	1.4	0.272	1.53	B	EL	24.438	0.520	1.76	B	EL	2.444	0.80	0.272	1.17	B	EL	24.438	
		TNT7B	42.000	--	1.22	51.24	1.4	0.272	1.59	B	EL	24.438	0.520	1.67	B	EL	2.444	0.80	0.272	1.22	B	EL	24.438	
		TNAGRIT4	43.000	--	1.16	49.88	1.4	0.272	1.51	B	EL	24.438	0.520	1.61	B	EL	2.444	0.80	0.272	1.16	B	EL	24.438	
TNAGT5A		45.000	--	1.08	48.60	1.4	0.272	1.41	B	EL	24.438	0.520	1.63	B	EL	2.444	0.80	0.272	1.08	B	EL	24.438		
TNAGT5B	45.000	3	1.06	47.70	1.4	0.272	1.38	B	EL	24.438	0.520	1.52	B	EL	2.444	0.80	0.272	1.06	B	EL	24.438			

NOTES:

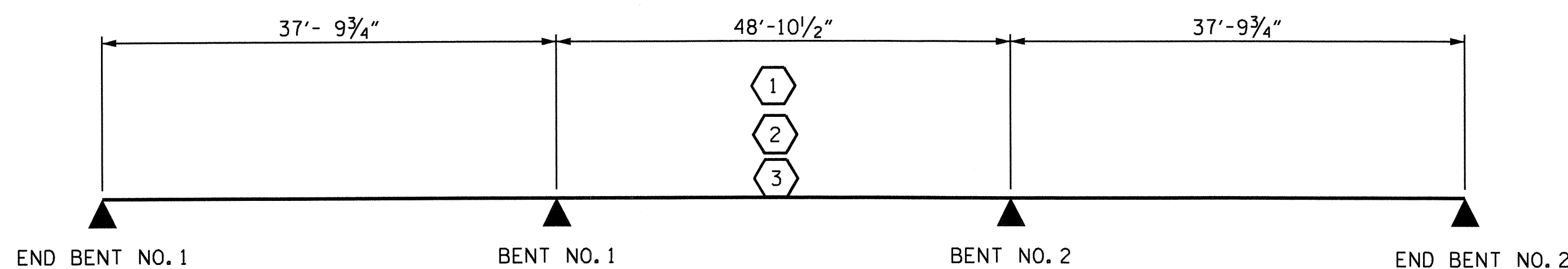
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

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-
-
-

#	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

NOTE: SPAN DIMENSIONS ARE FROM ϕ BEARING TO ϕ BEARING

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-

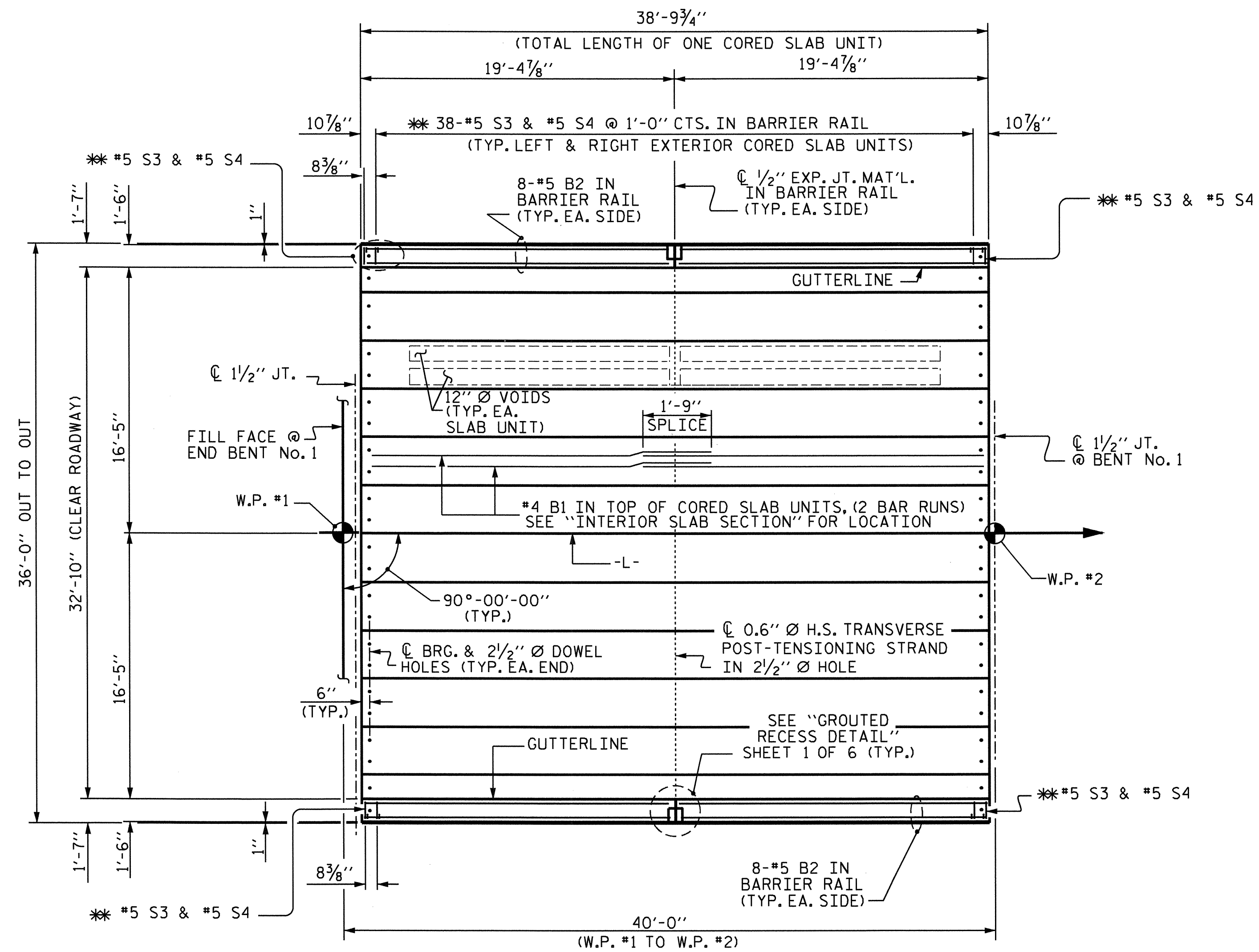
ASSEMBLED BY : B. MATHEW	DATE : 4-27-11
CHECKED BY : M.G. CHEEK	DATE : 6-10-11
DRAWN BY : MAA 1/08	REV. 11/12/OBR MAA/GM
CHECKED BY : GM/DI 2/08	

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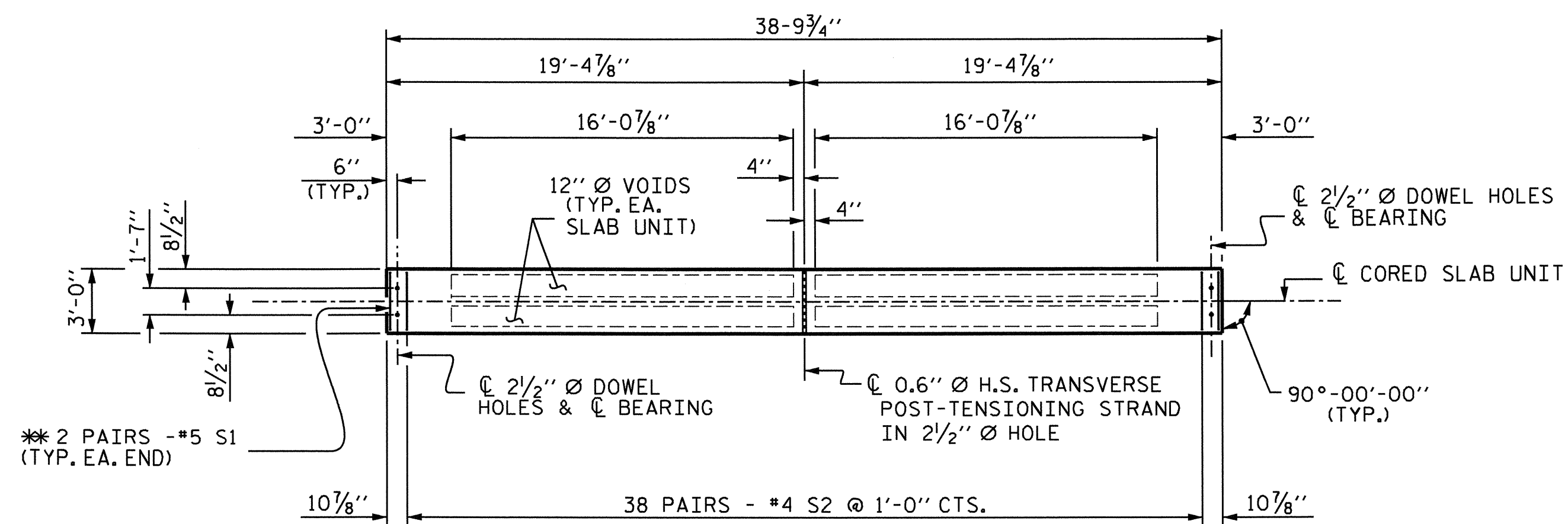
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-4
					TOTAL SHEETS 20

STD. NO. LRFR1



PLAN OF SPAN A

** FOR PLACEMENT OF S3 & S4 BARS, SEE "PART PLAN - EXTERIOR SECTION" SHEET 1 OF 6.



PLAN OF INTERIOR CORED SLAB UNIT - SPAN A

(INTERIOR SLAB UNIT SHOWN, EXTERIOR SLAB UNIT SIMILAR, SEE "PLAN OF SPAN A" FOR ADDITIONAL REINFORCEMENT IN EXTERIOR SLAB UNITS DUE TO BARRIER RAIL)

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

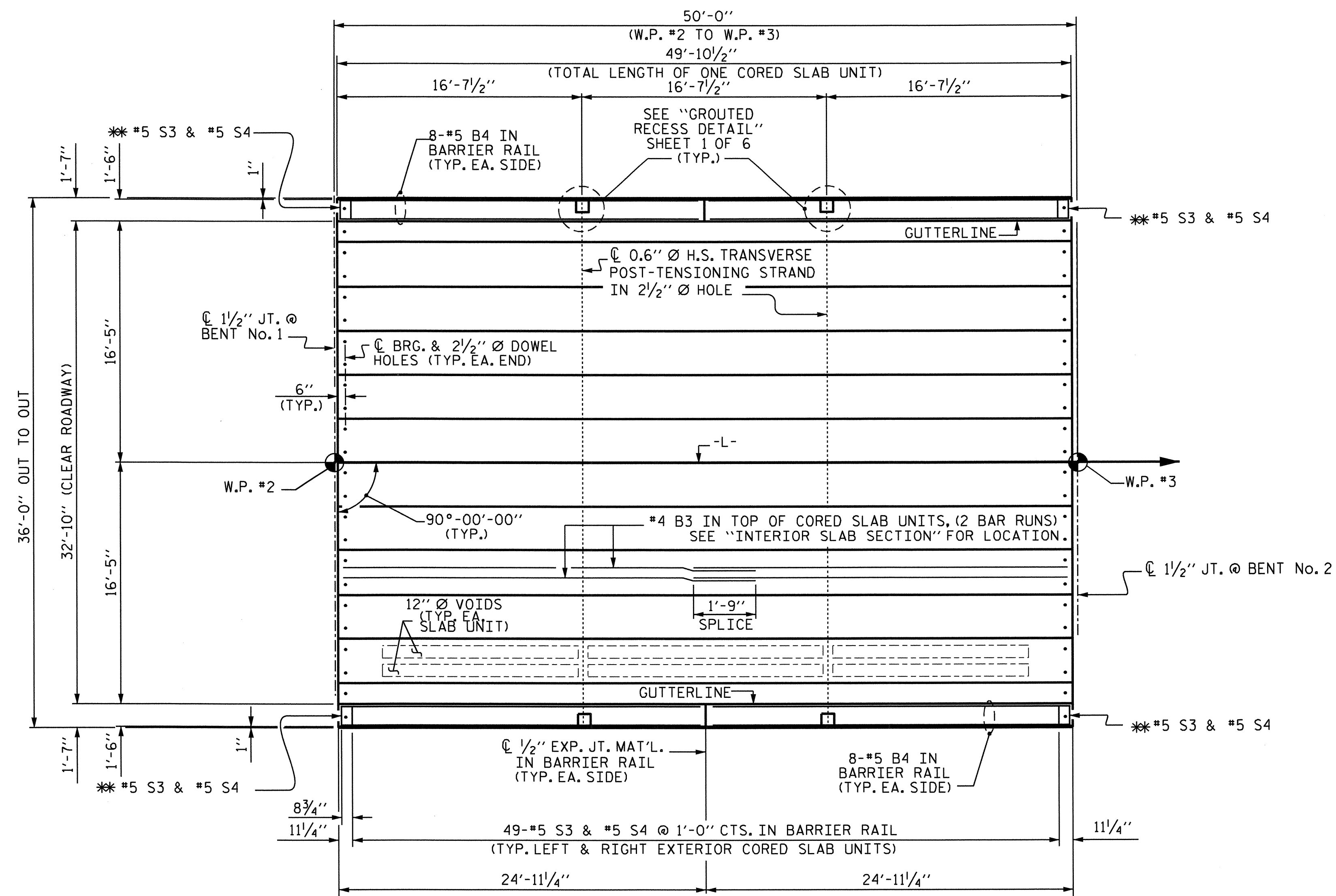
SUPERSTRUCTURE
 PLAN OF SPAN A



DRAWN BY: M. POOLE DATE: 09/09
 CHECKED BY: A. L. FIGUEROA DATE: 5/17/10

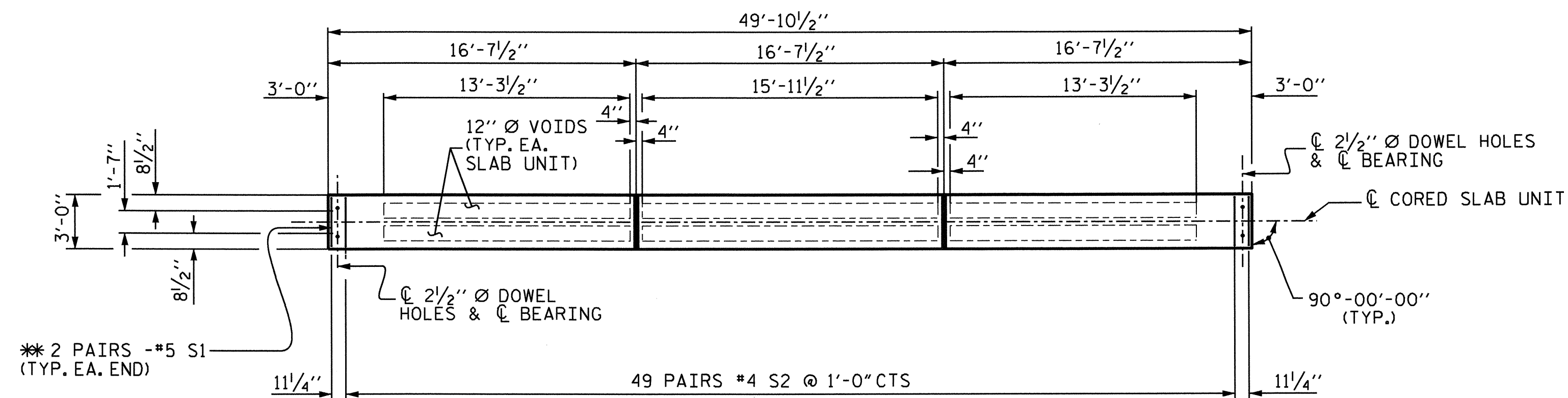
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 mpoole

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			20



PLAN OF SPAN B

** FOR PLACEMENT OF S3 & S4 BARS, SEE "PART PLAN - EXTERIOR SECTION" SHEET 1 OF 6.



PLAN OF INTERIOR CORED SLAB UNIT - SPAN B

(INTERIOR SLAB UNIT SHOWN, EXTERIOR SLAB UNIT SIMILAR, SEE "PLAN OF SPAN B" FOR ADDITIONAL REINFORCEMENT IN EXTERIOR SLAB UNITS DUE TO BARRIER RAIL)

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: _____
 SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

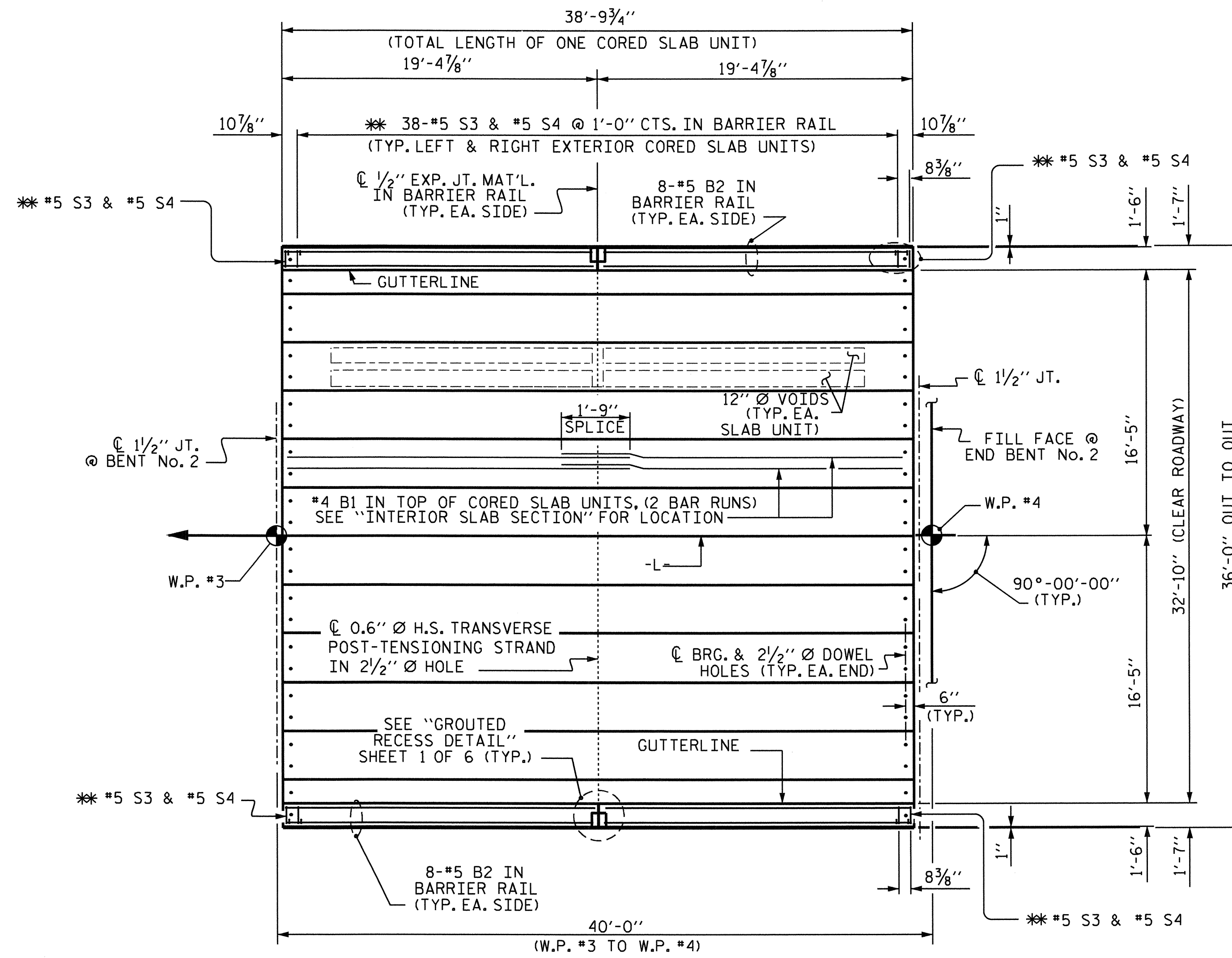
SUPERSTRUCTURE
 PLAN OF SPAN B



DRAWN BY: M. POOLE DATE: 09/09
 CHECKED BY: A. L. FIGUEROA DATE: 5/17/10

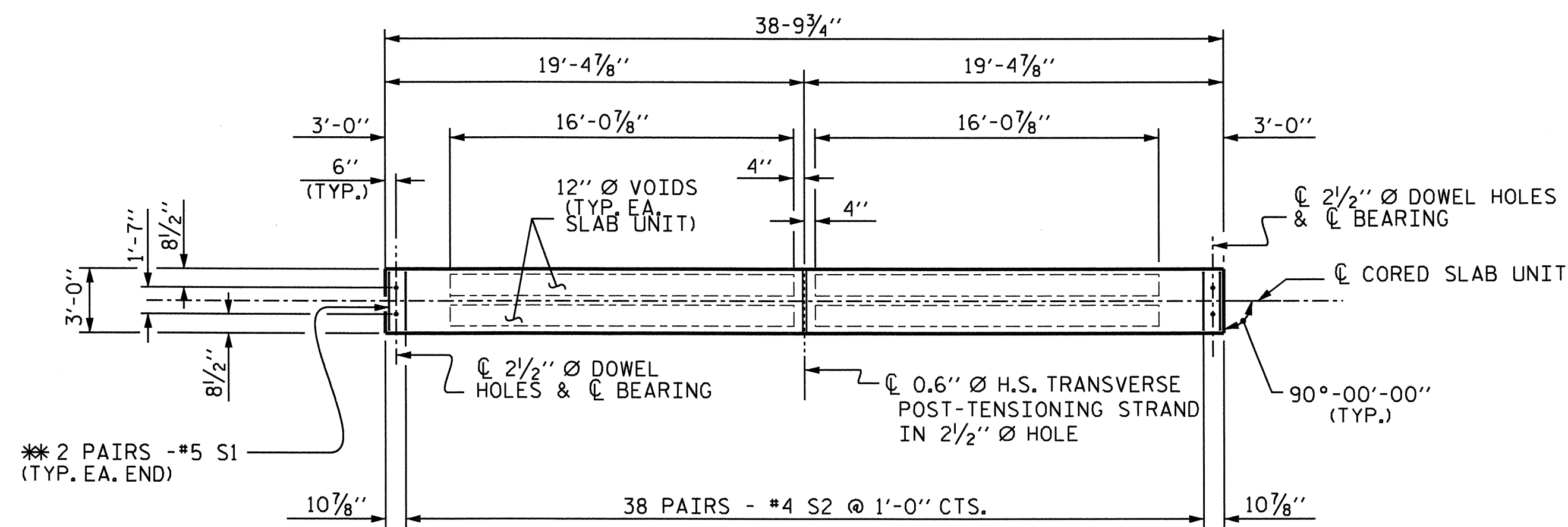
09-MAY-2012 11:00
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 mpoole

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			20



PLAN OF SPAN C

** FOR PLACEMENT OF S3 & S4 BARS, SEE "PART PLAN - EXTERIOR SECTION" SHEET 1 OF 6.



PLAN OF INTERIOR CORED SLAB - SPAN C

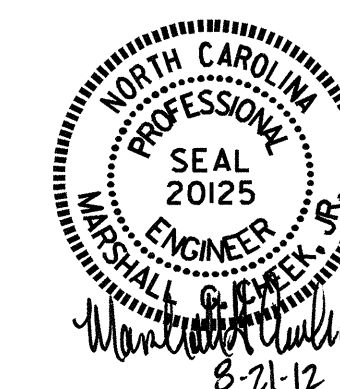
(INTERIOR SLAB UNIT SHOWN, EXTERIOR SLAB UNIT SIMILAR, SEE "PLAN OF SPAN C" FOR ADDITIONAL REINFORCEMENT IN EXTERIOR SLAB UNITS DUE TO BARRIER RAIL)

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

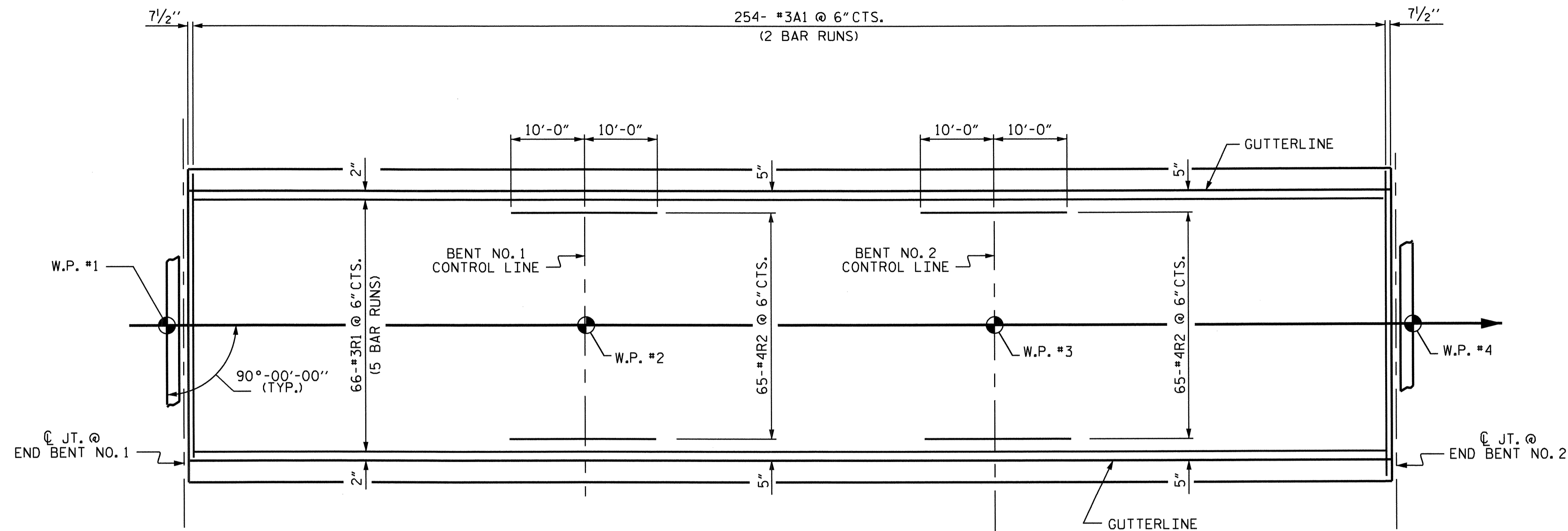
SUPERSTRUCTURE
 PLAN OF SPAN C



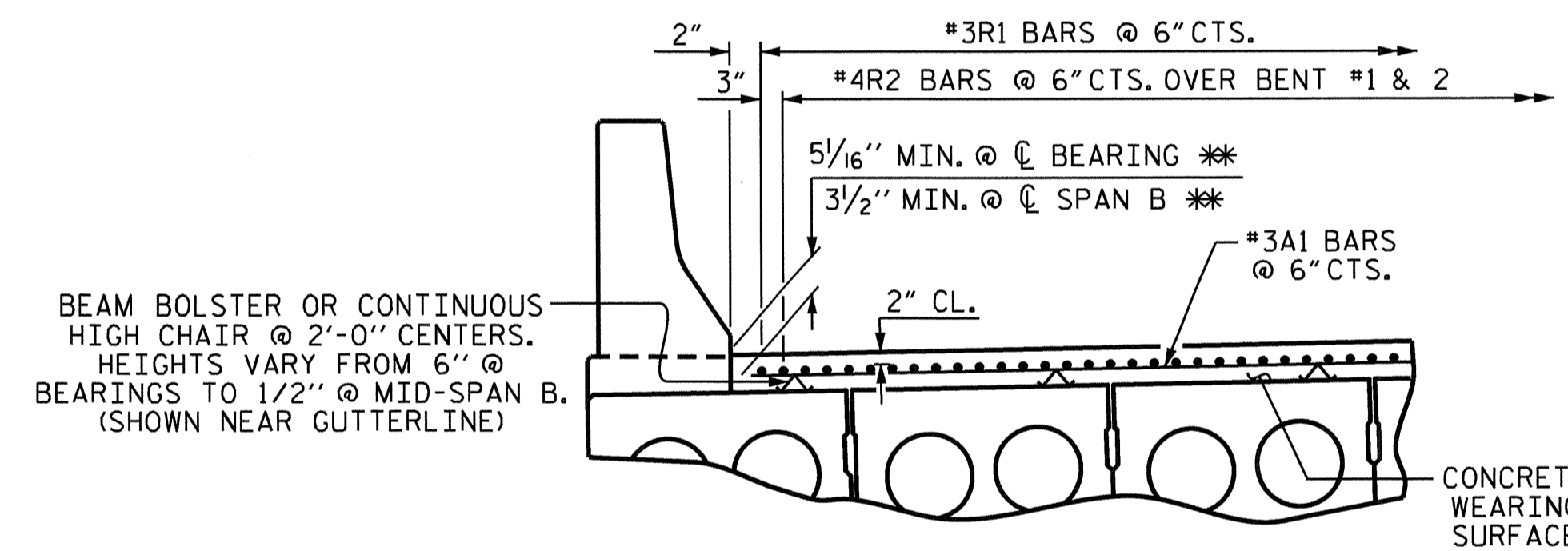
DRAWN BY: M. POOLE DATE: 09/09
 CHECKED BY: A. L. FIGUEROA DATE: 5/17/10

09-MAY-2012 10:59
 R:\Structures\Final Plans\B-4413.SD.04.CS.dgn
 mpoole

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			20



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
*A1	508	#3	STR	17'-0"	3247
*R1	330	#3	STR	26'-6"	3288
*R2	130	#4	STR	20'-0"	1737
* EPOXY COATED REINFORCING STEEL					LBS. 8272
CONCRETE WEARING SURFACE					SO. FT. 4194

* THESE BARS ARE EPOXY COATED.

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

NOTES

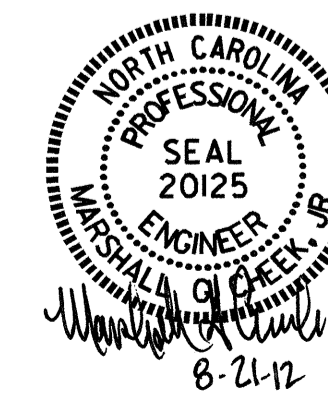
PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE #3 & #4 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

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 STATION: 15+77.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 1'-9"
 PRESTRESSED
 CONCRETE CORED
 SLAB UNIT



DRAWN BY : M. POOLE DATE : 04/11
 CHECKED BY : M.G. CHEEK DATE : 04/13/11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 20
2			4			

NOTES

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

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

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

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

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. 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, 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 TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISHED.

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 4000 PSI FOR SPANS A AND C, AND 4400 PSI FOR SPAN B.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

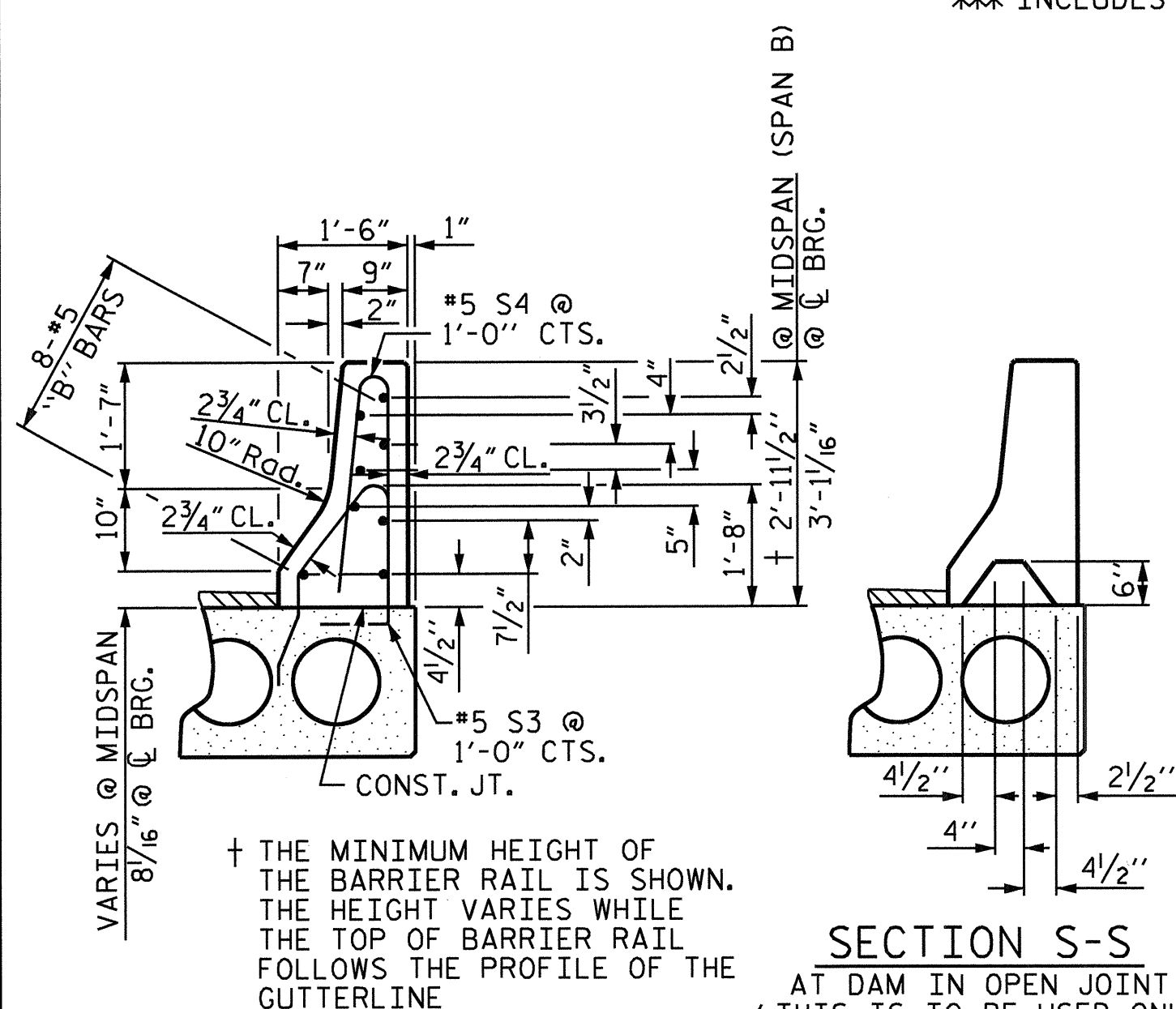
CORED SLABS REQUIRED SPANS A OR C			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	38'-9 3/4"	77'-7 1/2"
INTERIOR C.S.	10	38'-9 3/4"	388'-1 1/2"
TOTAL	12		465'-9"

CORED SLABS REQUIRED SPAN B			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	49'-10 1/2"	99'-9"
INTERIOR C.S.	10	49'-10 1/2"	498'-9"
TOTAL	12		598'-6"

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

DEAD LOAD DEFLECTION AND CAMBER	
SPANS A & C	
CAMBER (SLAB ALONE IN PLACE)	0.6" L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ***	1 3/16" ↑
FINAL CAMBER	3/16" ↓
SPAN B	
CAMBER (SLAB ALONE IN PLACE)	0.6" L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ***	2 3/16" ↑
FINAL CAMBER	7/16" ↓
	1 3/4" ↑

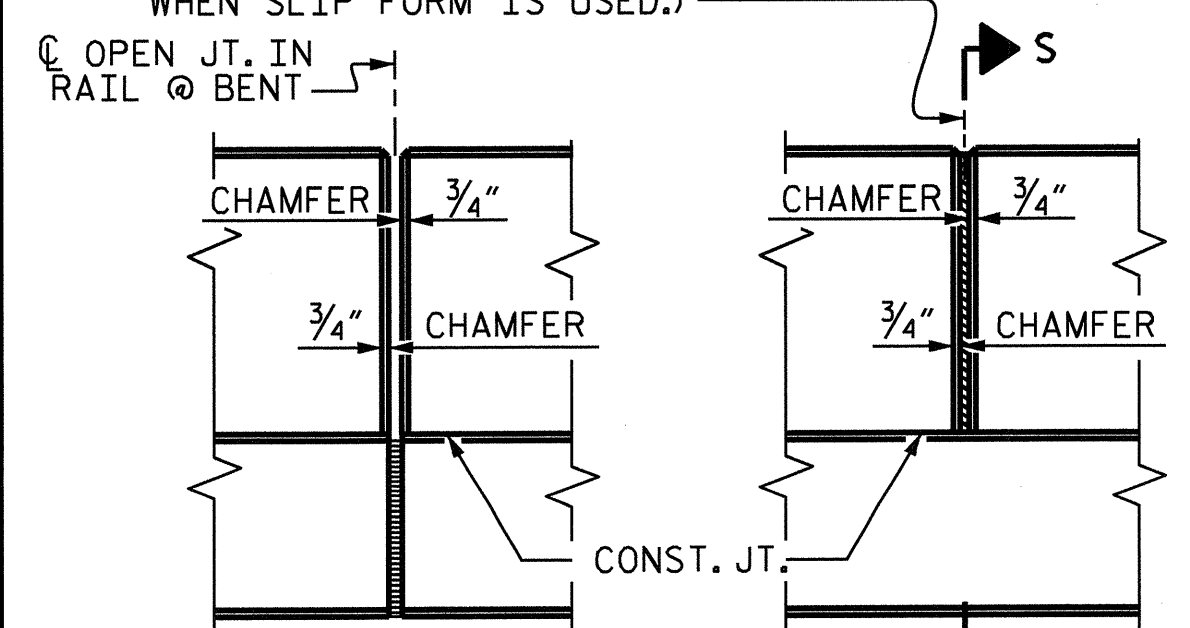
*** INCLUDES FUTURE WEARING SURFACE



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

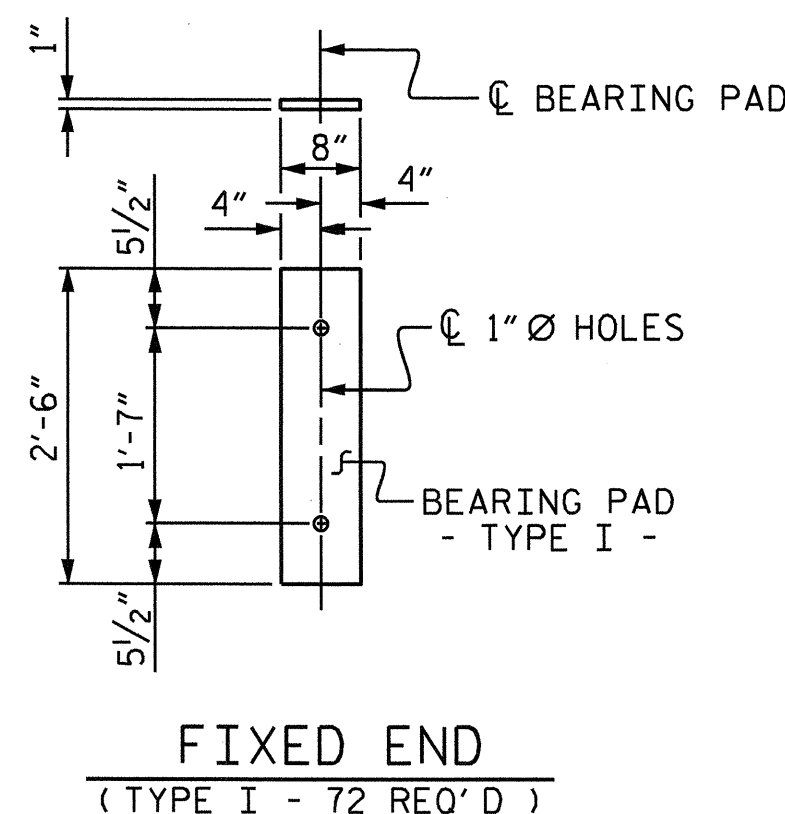
SECTION THRU RAIL

1/2" EXP. JT. MAT'L. HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)



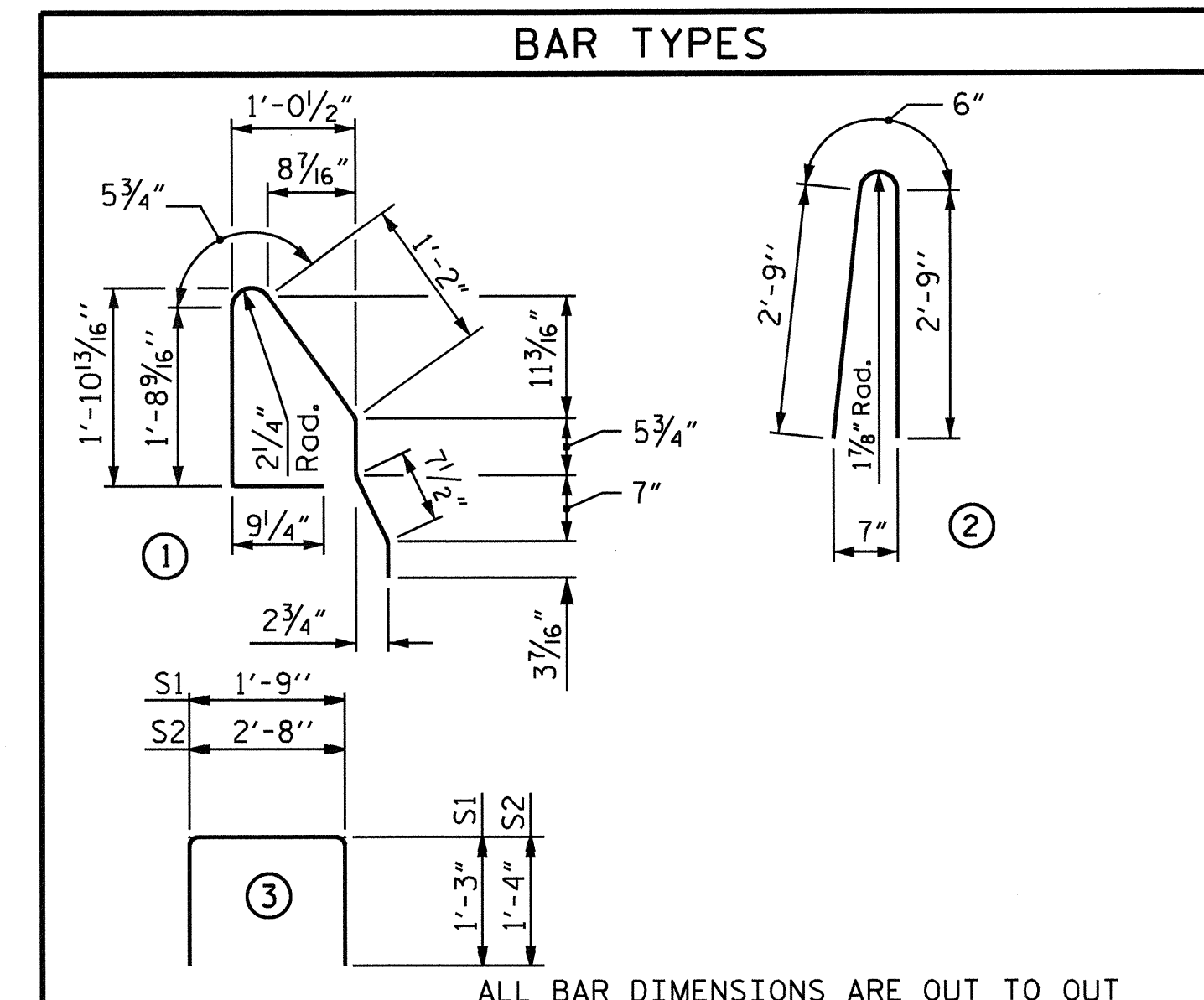
ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS

GROOVING BRIDGE FLOORS	
APPROACH SLAB	1415 SQ. FT.
CONCRETE OVERLAY	3774 SQ. FT.
TOTAL	5189 SQ. FT.



ELASTOMERIC BEARING DETAILS

ELASTOMER IN BEARINGS SHALL BE 50 DUROMETER HARDNESS.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

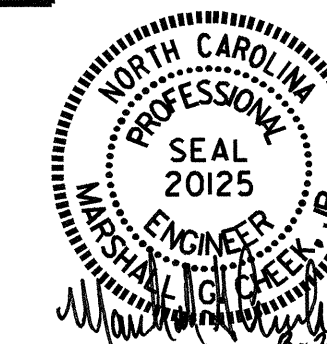
SPAN A & C							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	20'-3"	54	20'-3"	54
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	76	#4	3	5'-4"	271	5'-4"	271
* S3	40	#5	1	5'-10"	243		
REINFORCING STEEL				LBS.	360		360
* EPOXY COATED REINFORCING STEEL				LBS.	243		
5000 P.S.I. CONCRETE				CU. YDS.	5.7		5.7
0.6" Ø L.R. STRANDS				No. 13			
SPAN B							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	25'-10"	69	25'-10"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	98	#4	3	5'-4"	349	5'-4"	349
* S3	51	#5	1	5'-10"	310		
REINFORCING STEEL				LBS.	453		453
* EPOXY COATED REINFORCING STEEL				LBS.	310		
5500 P.S.I. CONCRETE				CU. YDS.	7.2		7.2
0.6" Ø L.R. STRANDS				No. 17			

* THESE BARS ARE EPOXY COATED

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL								
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
* B2	32		32	64	#5	STR	19'-0"	1268
* B4		32		32	#5	STR	24'-7"	820
* S4	80	102	80	262	#5	2	6'-0"	1640
* EPOXY COATED REINFORCING STEEL							3728 LBS.	
CLASS AA CONCRETE							25.0 CU. YDS.	
CONCRETE BARRIER RAIL							255.50 LIN. FT.	

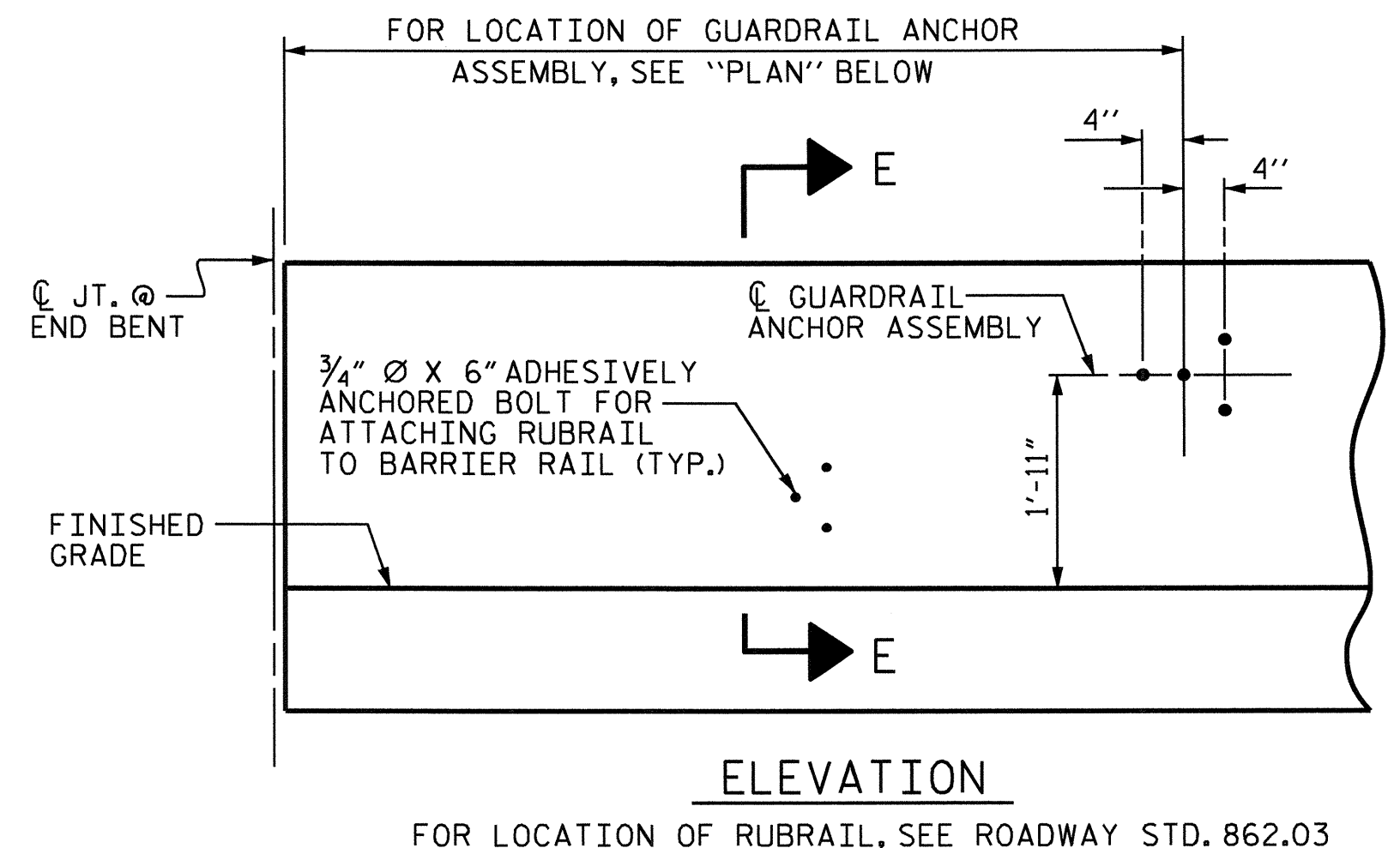
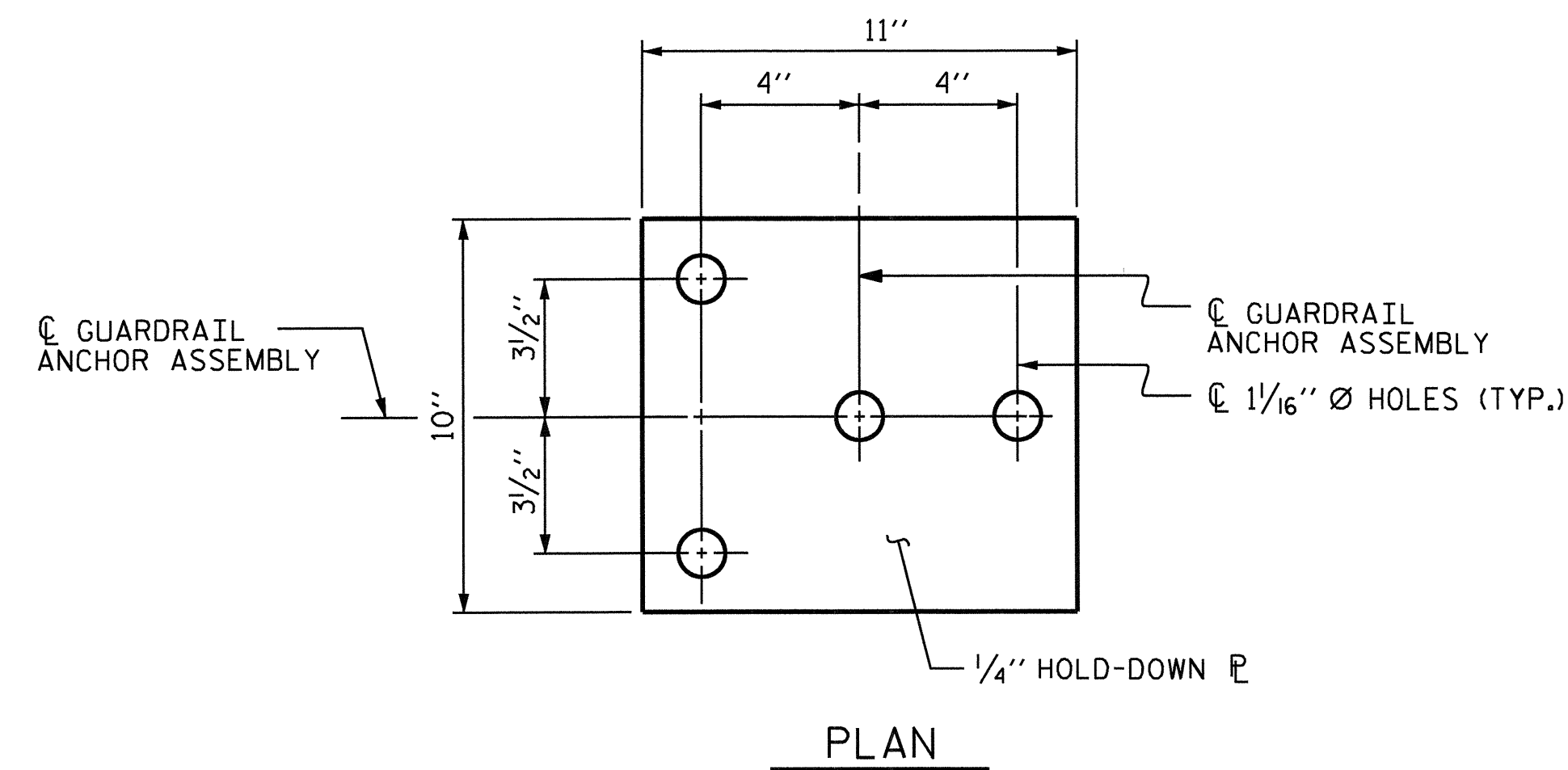
PROJECT NO. B-4413
BEAUFORT COUNTY
STATION: 15+77.00 -L-
SHEET 6 OF 6

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

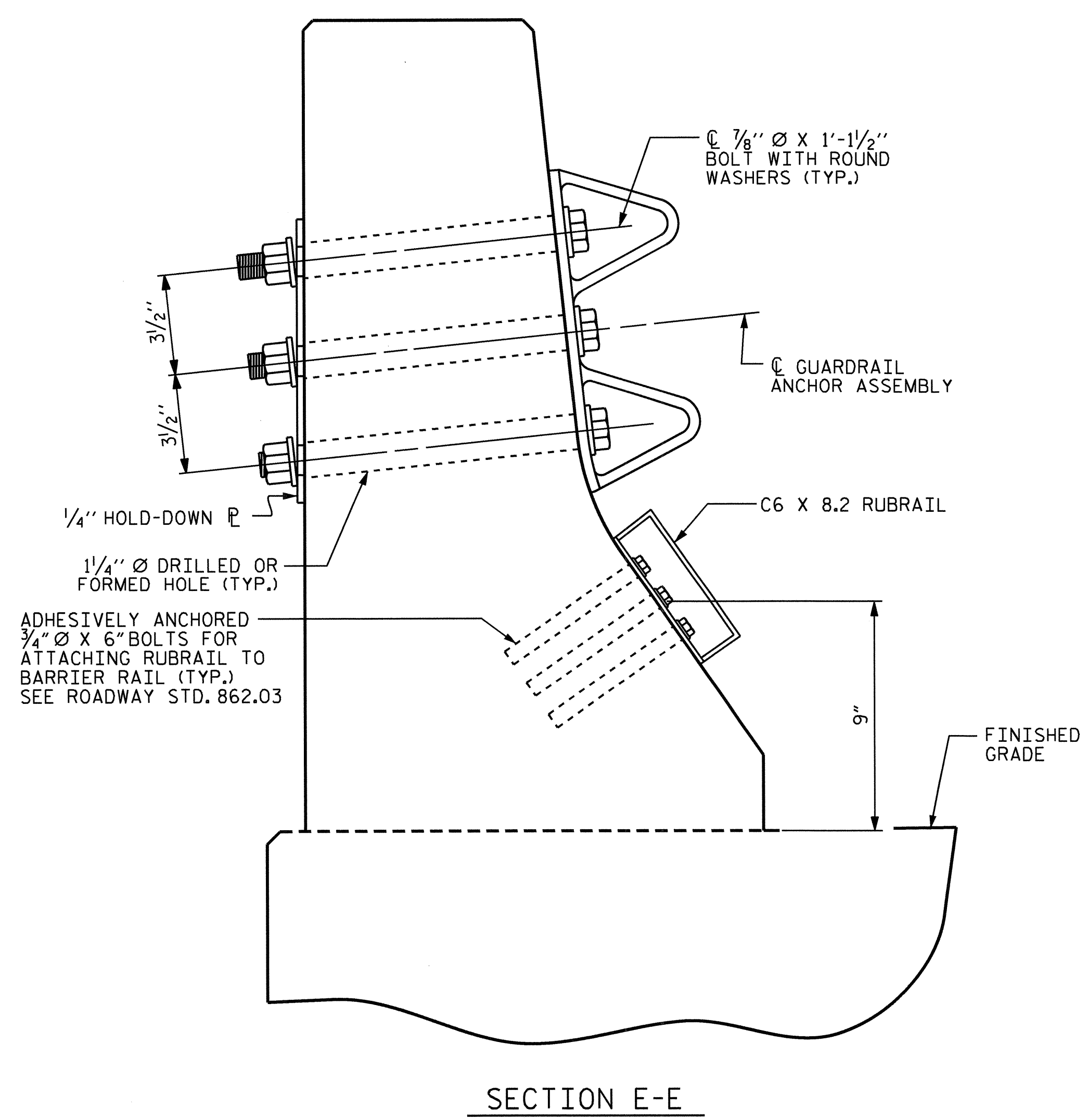


REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 20
2			4			

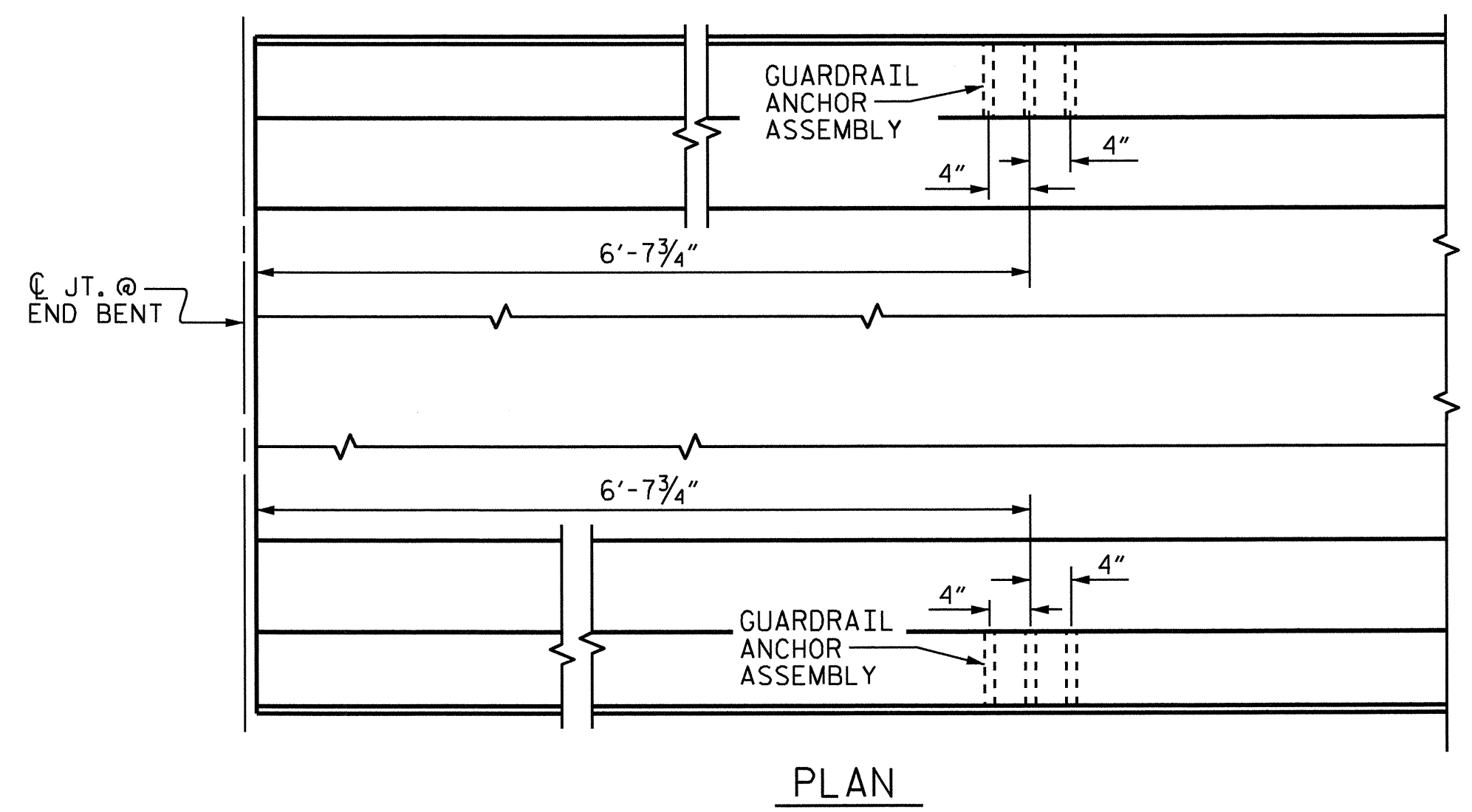
ASSEMBLED BY : M. POOLE	DATE : 09/09
CHECKED BY : A.L. FIGUEROA	DATE : 5/17/10
DRAWN BY : WJH 4/89	REV. 5/7/03RRR RWW/JTE
CHECKED BY : FCJ 5/89	REV. 5/1/06R TLA/GM
	REV. 10/1/11 MAA/GM



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT NO. 1 SHOWN, END BENT NO. 2 SIMILAR.

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 7/8" 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 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

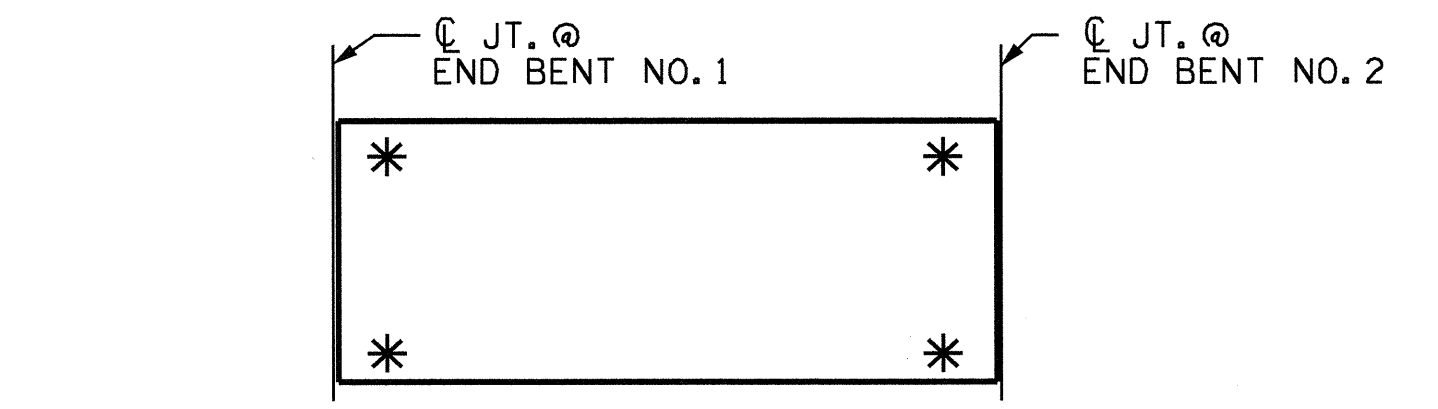
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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.

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 STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-

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



ASSEMBLED BY : A.L. FIGUEROA	DATE : 01-24-11
CHECKED BY : M.G. CHEEK	DATE : 01-24-11
DRAWN BY : TLA 5/06	ADDED 5/1/06RR KMM/GM
CHECKED BY : CM 5/06	REV. 10/1/11 MAA/GM

REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 20
2			4			

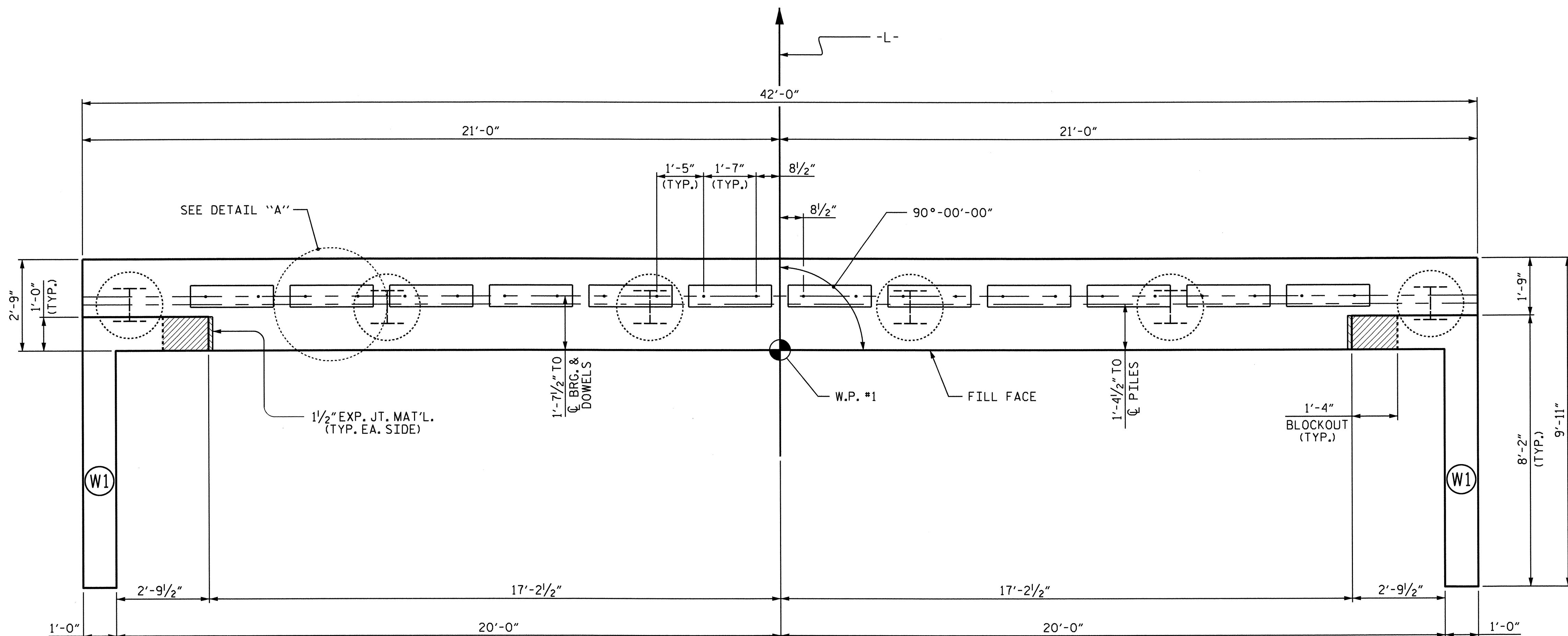
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

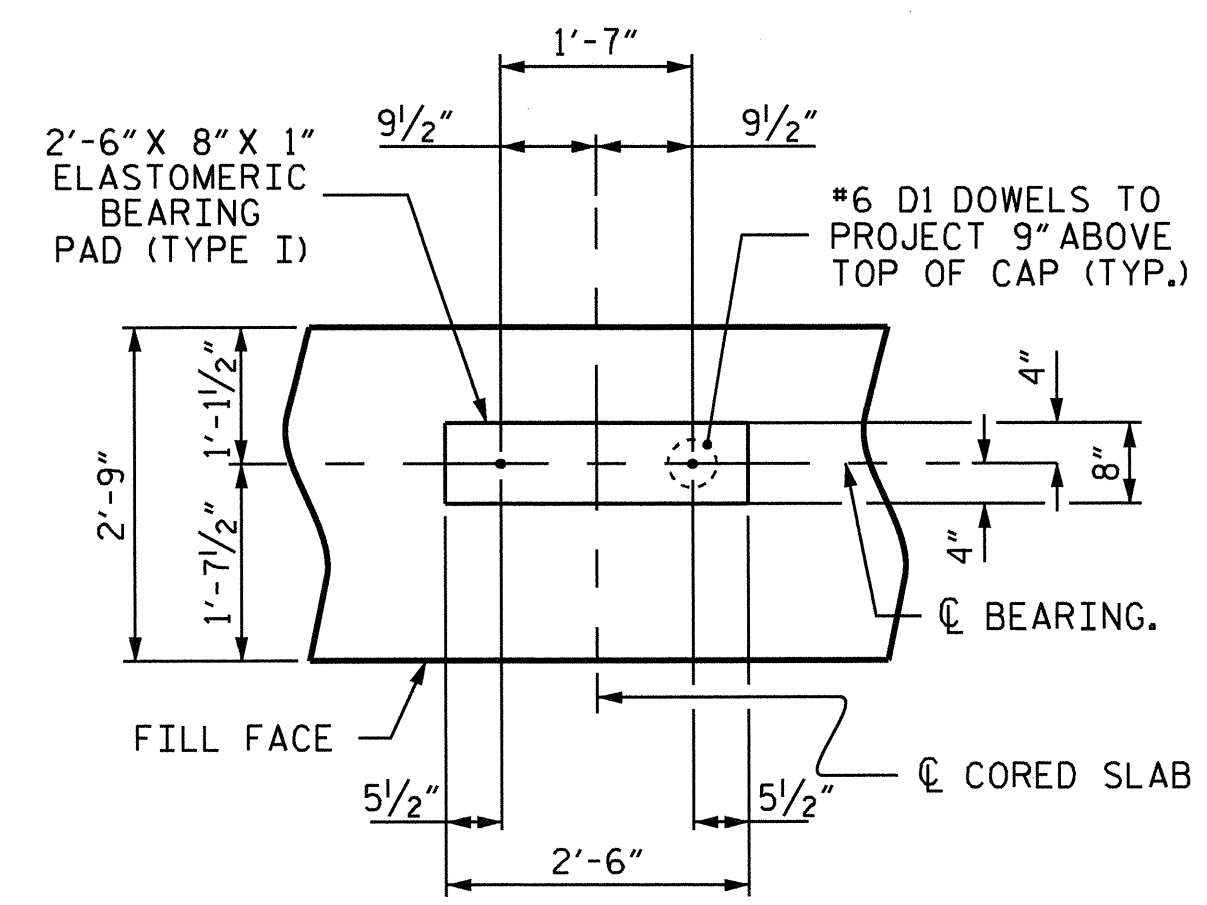
FOR SECTION A-A, SEE SHEET 2 OF 2.

FOR PILE SPlice DETAILS SEE SHEET 2 OF 2.

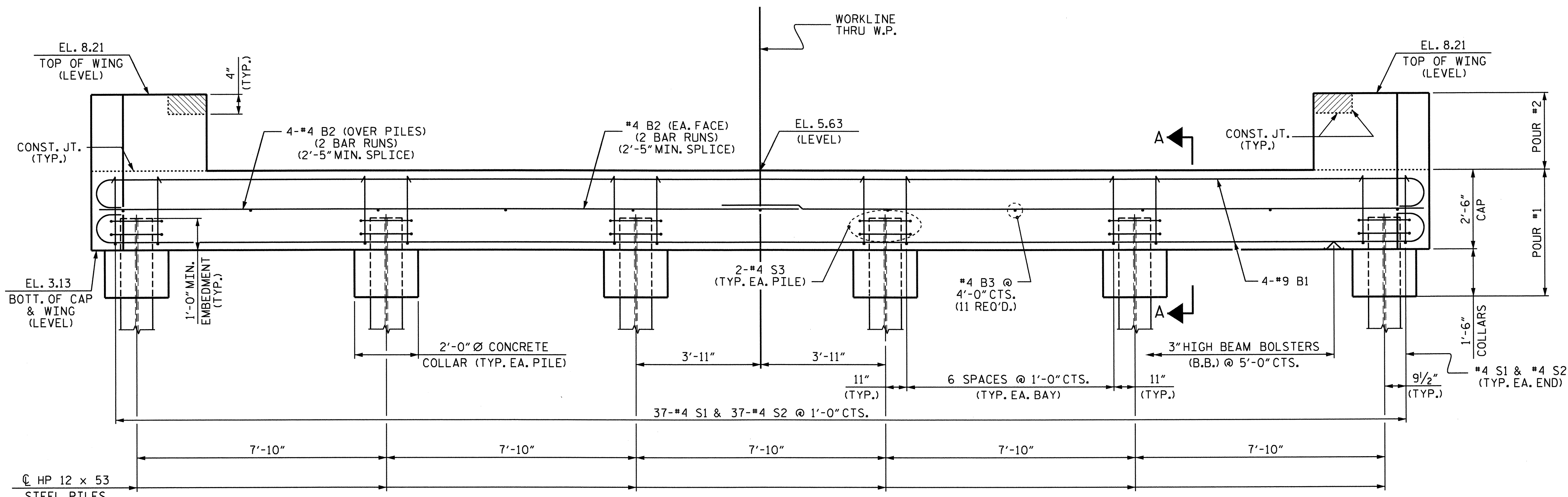
CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



PLAN



DETAIL "A"
(TYP. EA. CORED SLAB UNIT)



ELEVATION

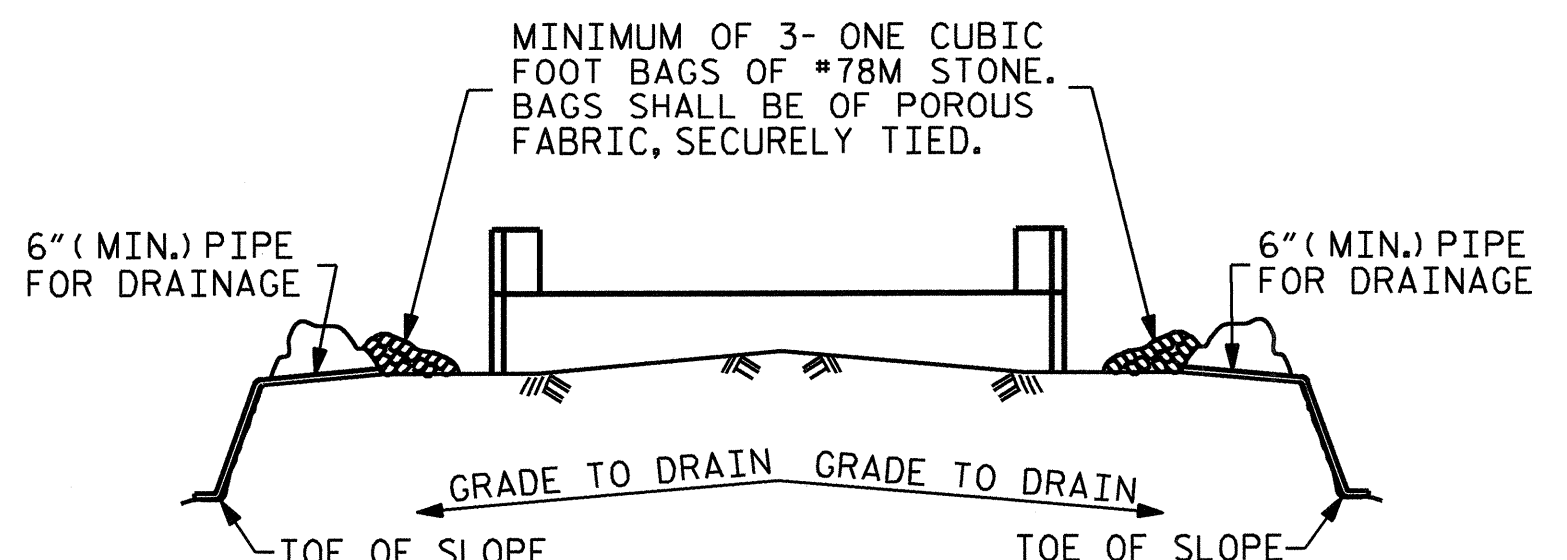
PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT NO. 1



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			20

DRAWN BY: A.L. FIGUEROA DATE: 08-18-10
 CHECKED BY: J. LAMBERT DATE: 01-04-11

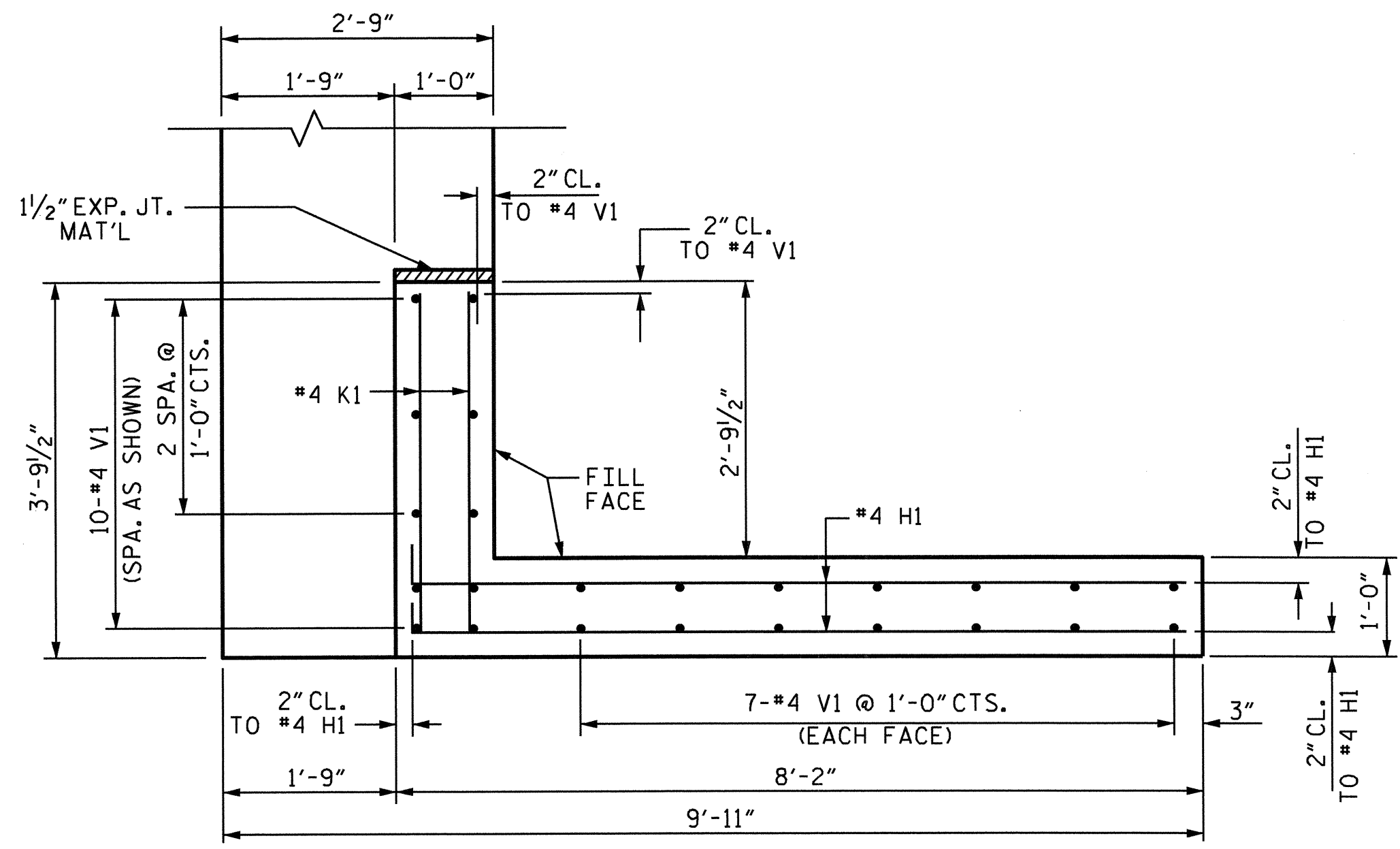


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

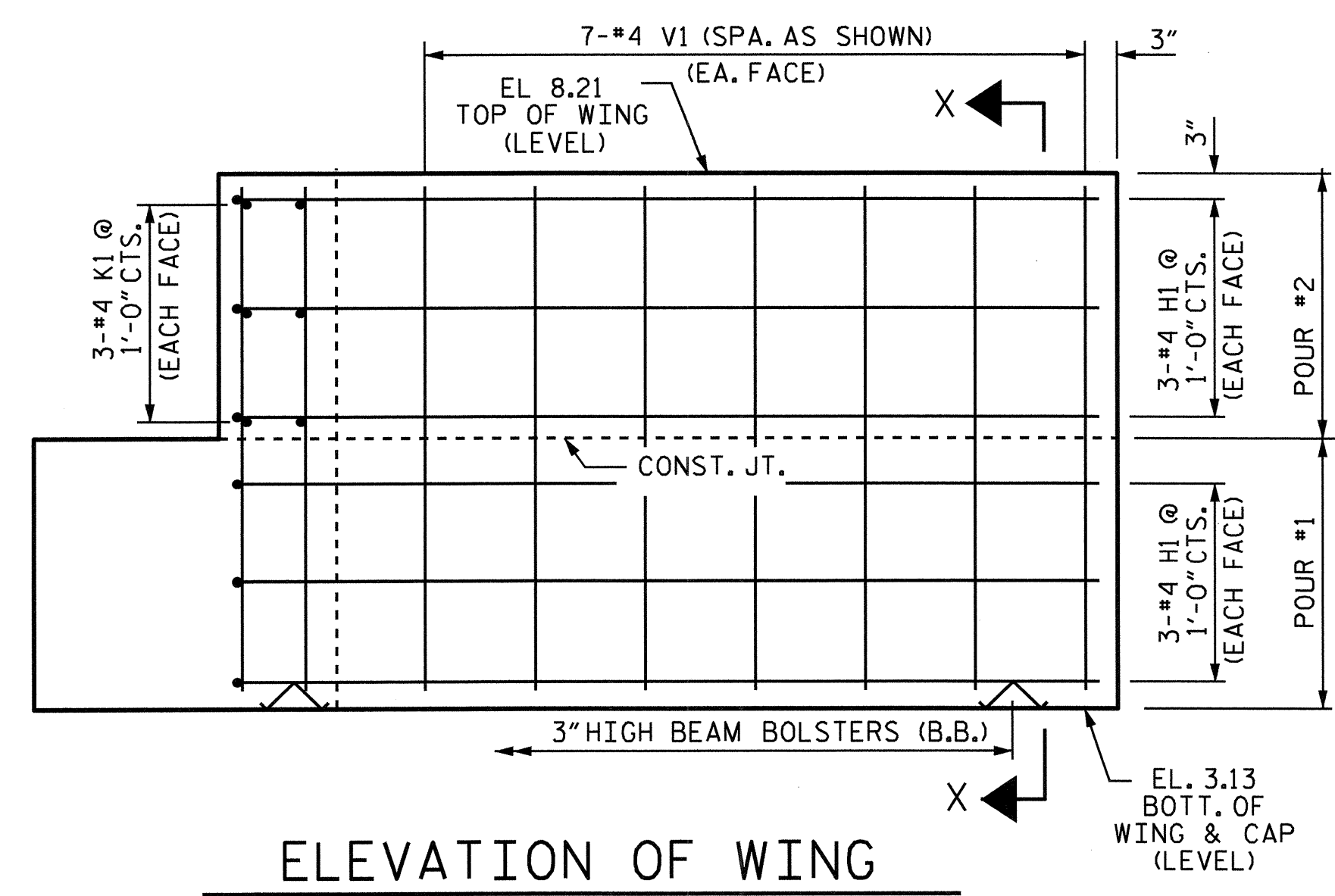
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

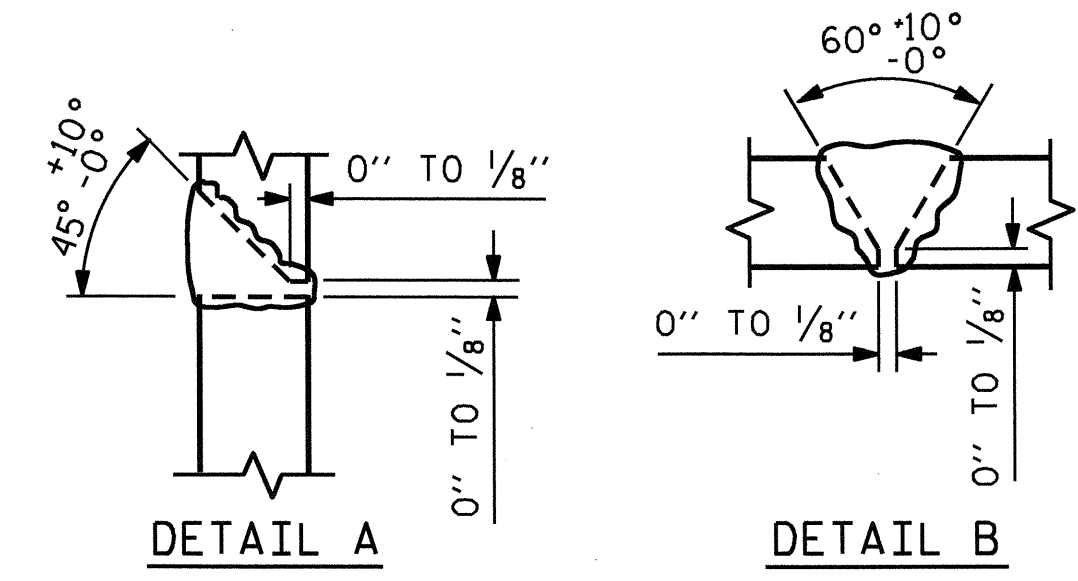
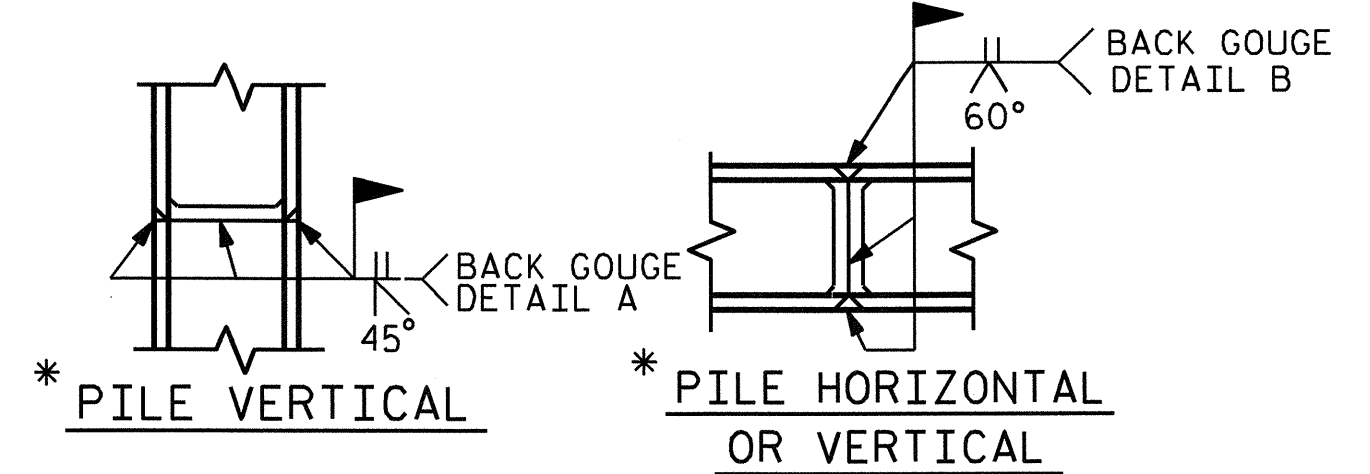
TEMPORARY DRAINAGE AT END BENT



PLAN OF WING



ELEVATION OF WING

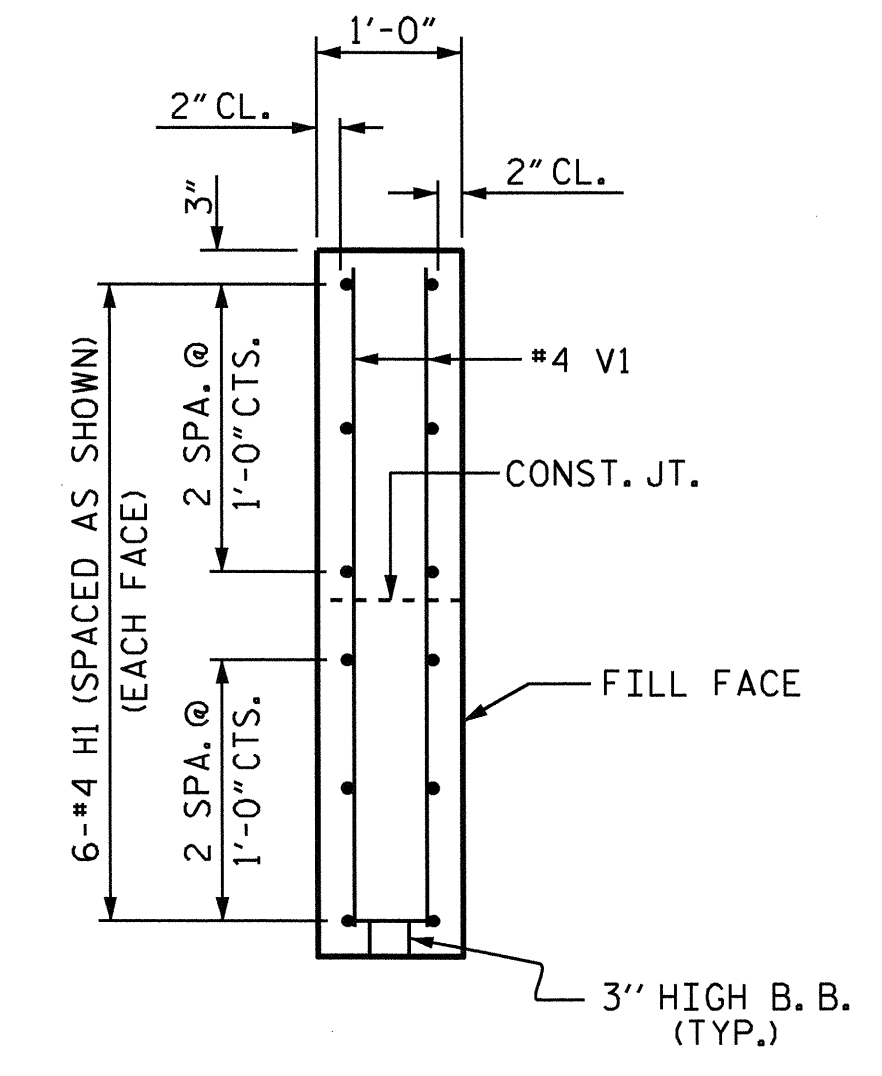


* POSITION OF PILE DURING WELDING.

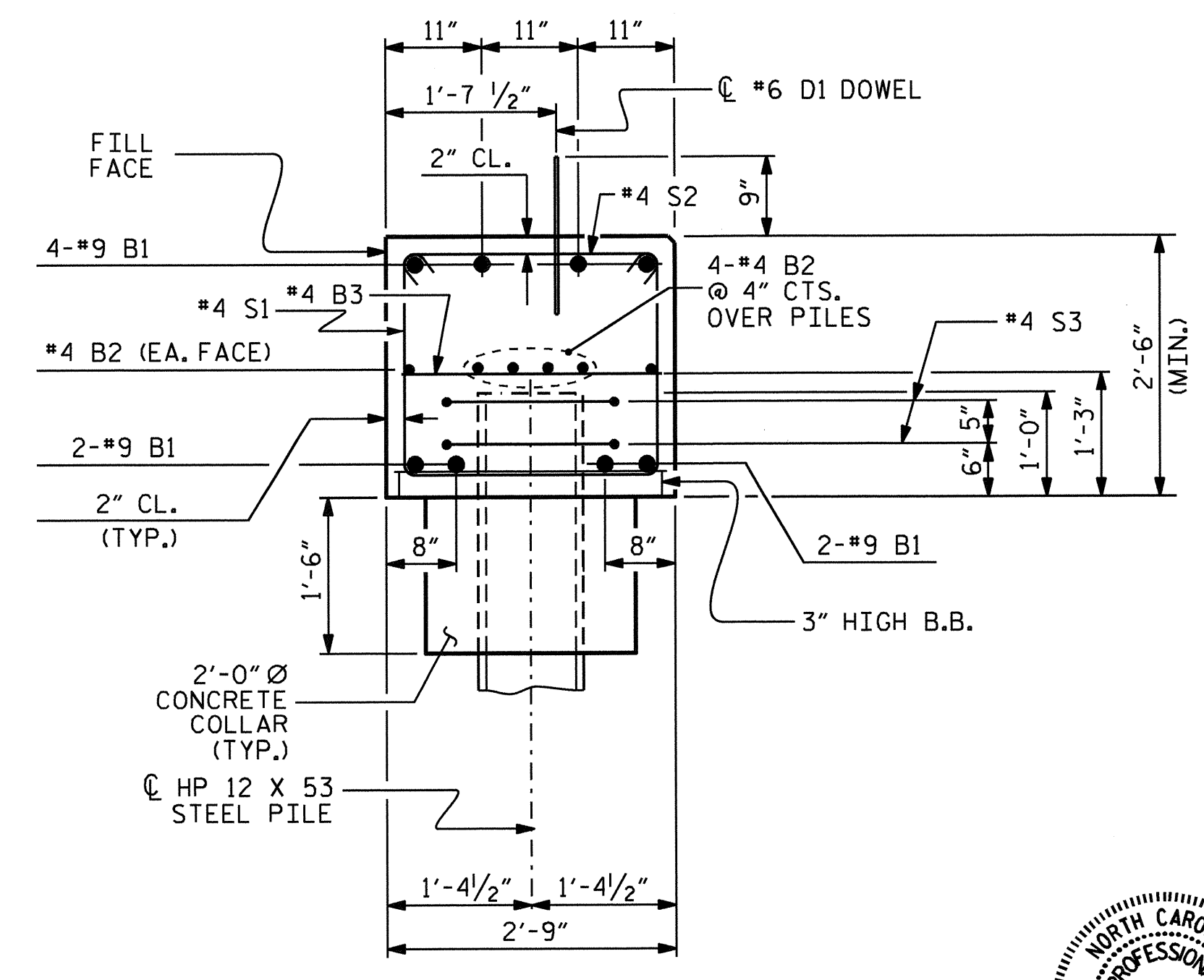
PILE SPLICE DETAILS

BILL OF MATERIAL					
END BENT NO. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	44'-0"	1197
B2	12	#4	STR	22'-1"	177
B3	11	#4	STR	2'-5"	18
D1	24	#6	STR	1'-6"	54
H1	24	#4	5	8'-6"	136
K1	12	#4	STR	3'-5"	27
S1	37	#4	2	7'-5"	183
S2	37	#4	3	3'-2"	78
S3	12	#4	4	6'-6"	52
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL					= 2,072 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1: COLLARS, CAP & LOWER PORTION OF WINGS					13.1 C.Y.
POUR #2: UPPER PORTION OF WINGS					2.1 C.Y.
TOTAL CLASS A CONCRETE					15.2 C.Y.
HP 12 X 53 STEEL PILES					
NO. 6					390 LIN. FT.
PILE REDRIVES					3 EA.

ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION X-X



SECTION A-A

PROJECT NO. B-4413

BEAUFORT COUNTY

STATION: 15+77.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT NO. 1



DRAWN BY: A.L. FIGUEROA DATE: 08-18-10

CHECKED BY: J. LAMBERT DATE: 01-04-11

09-MAY-2012 10:49
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			20

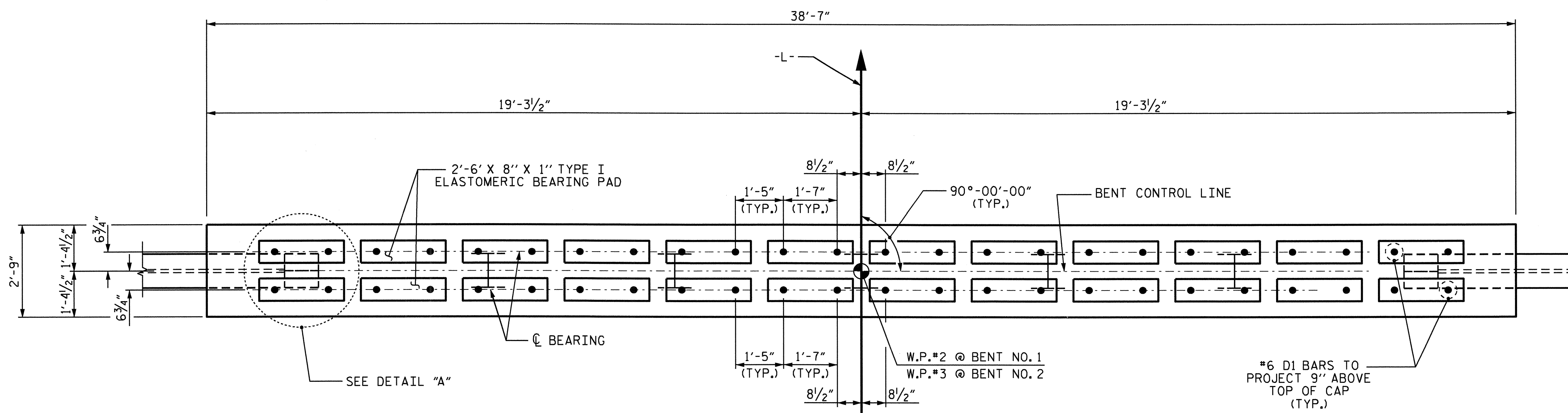
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

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

FOR PILE SPLICE DETAILS SEE SHEET 2 OF 2.

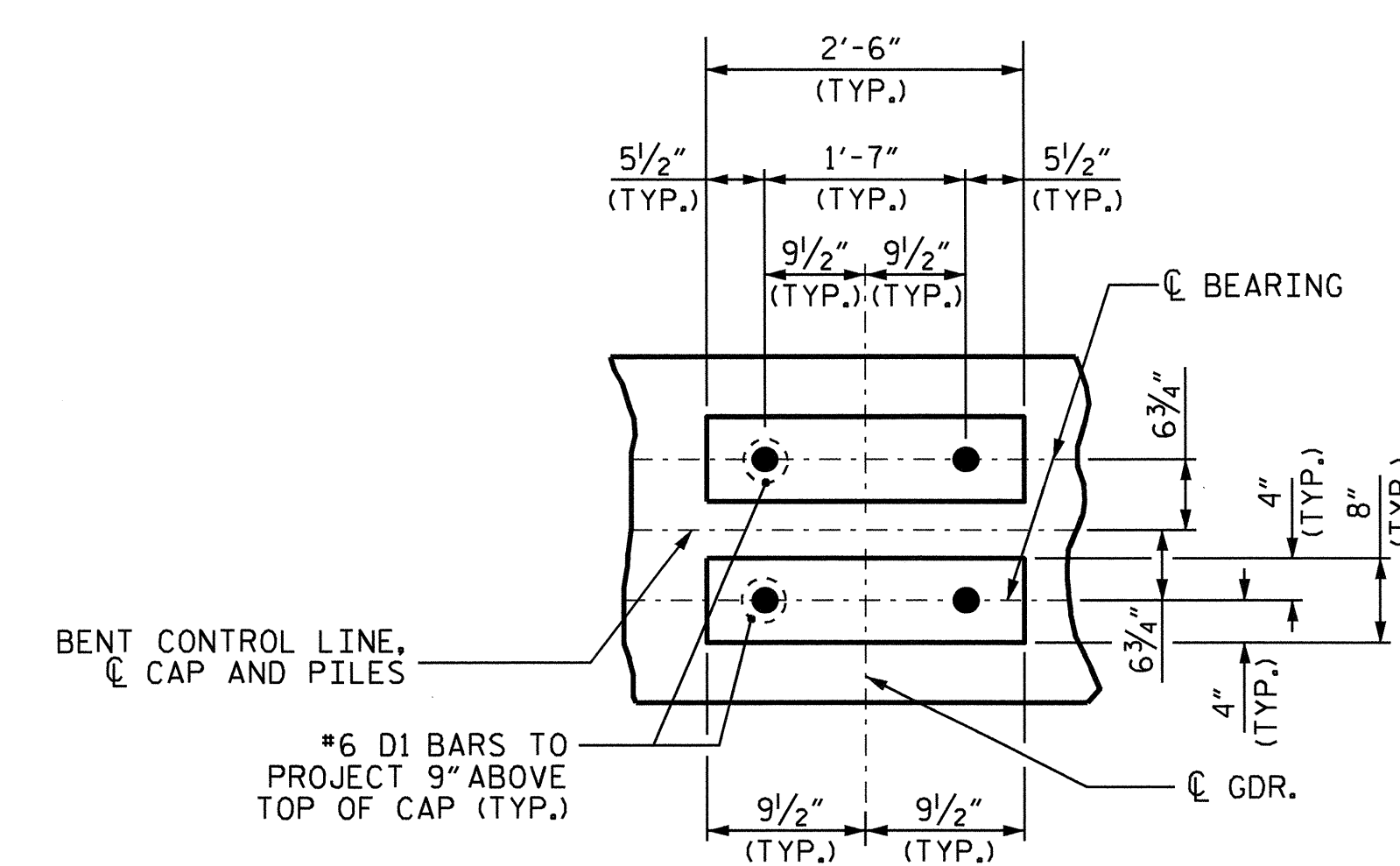
GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 35 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



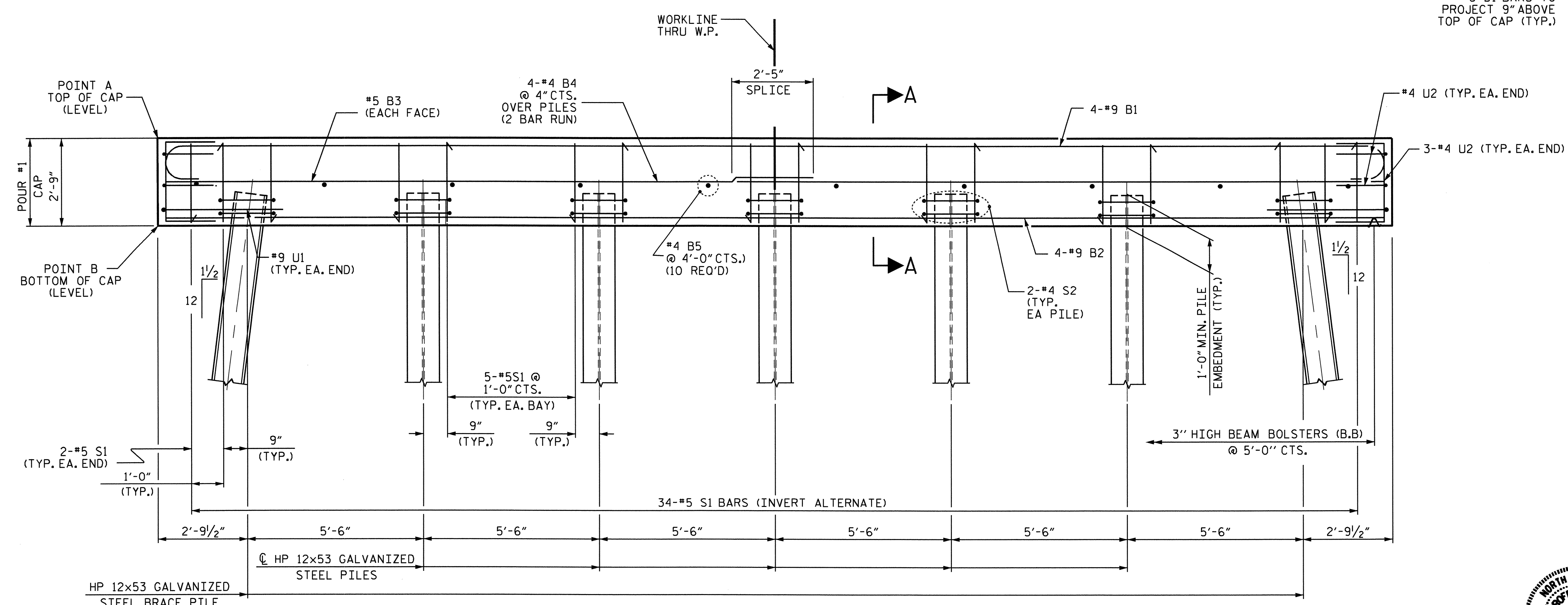
CAP ELEVATIONS

POINT	BENT NO. 1 ELEVATION	BENT NO. 2 ELEVATION
A	EL. 5.74	EL. 5.74
B	EL. 2.99	EL. 2.99

PLAN



DETAIL "A"



ELEVATION

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-

SHEET 1 OF 2

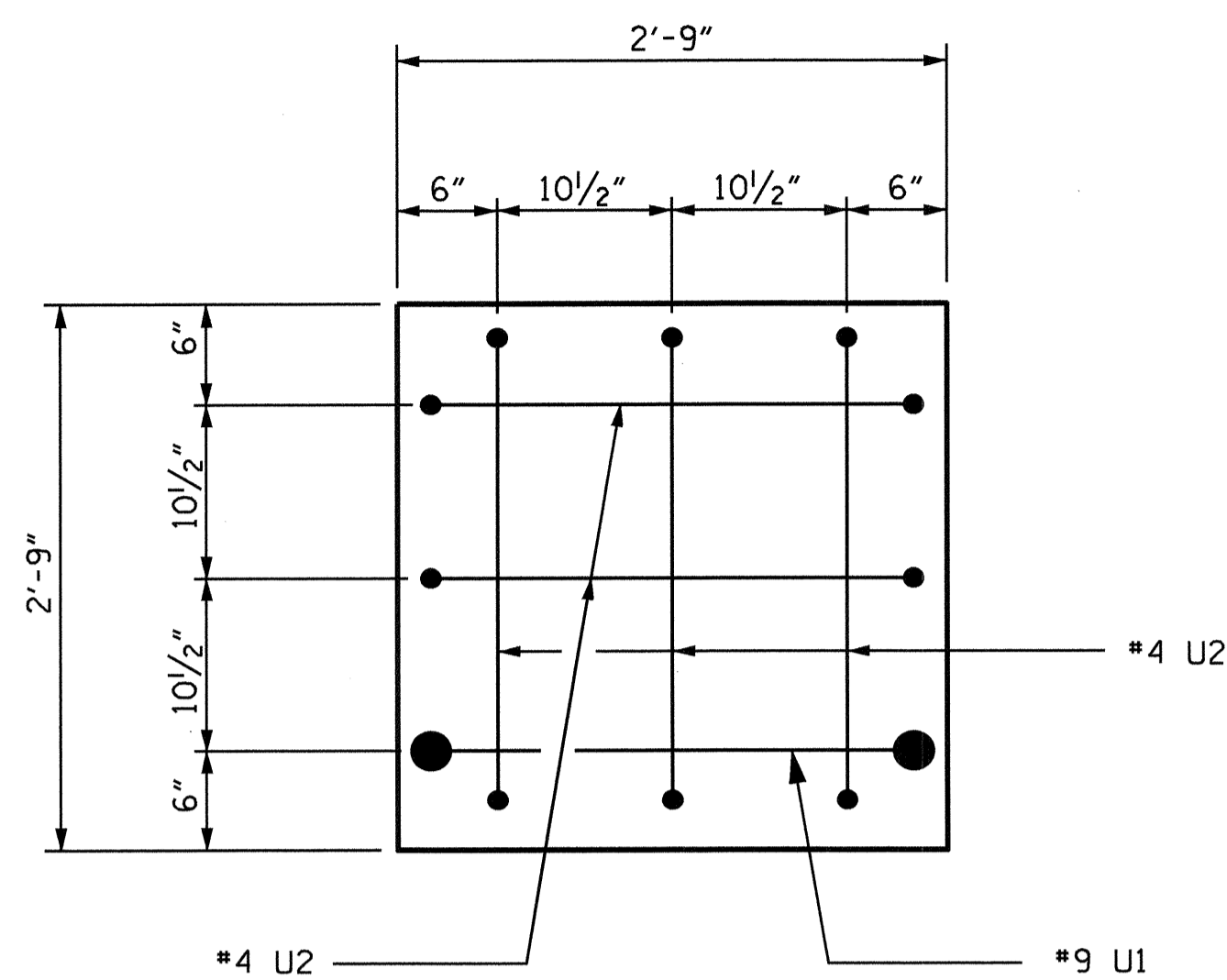
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT NO. 1 & NO. 2**

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 20
2			4			

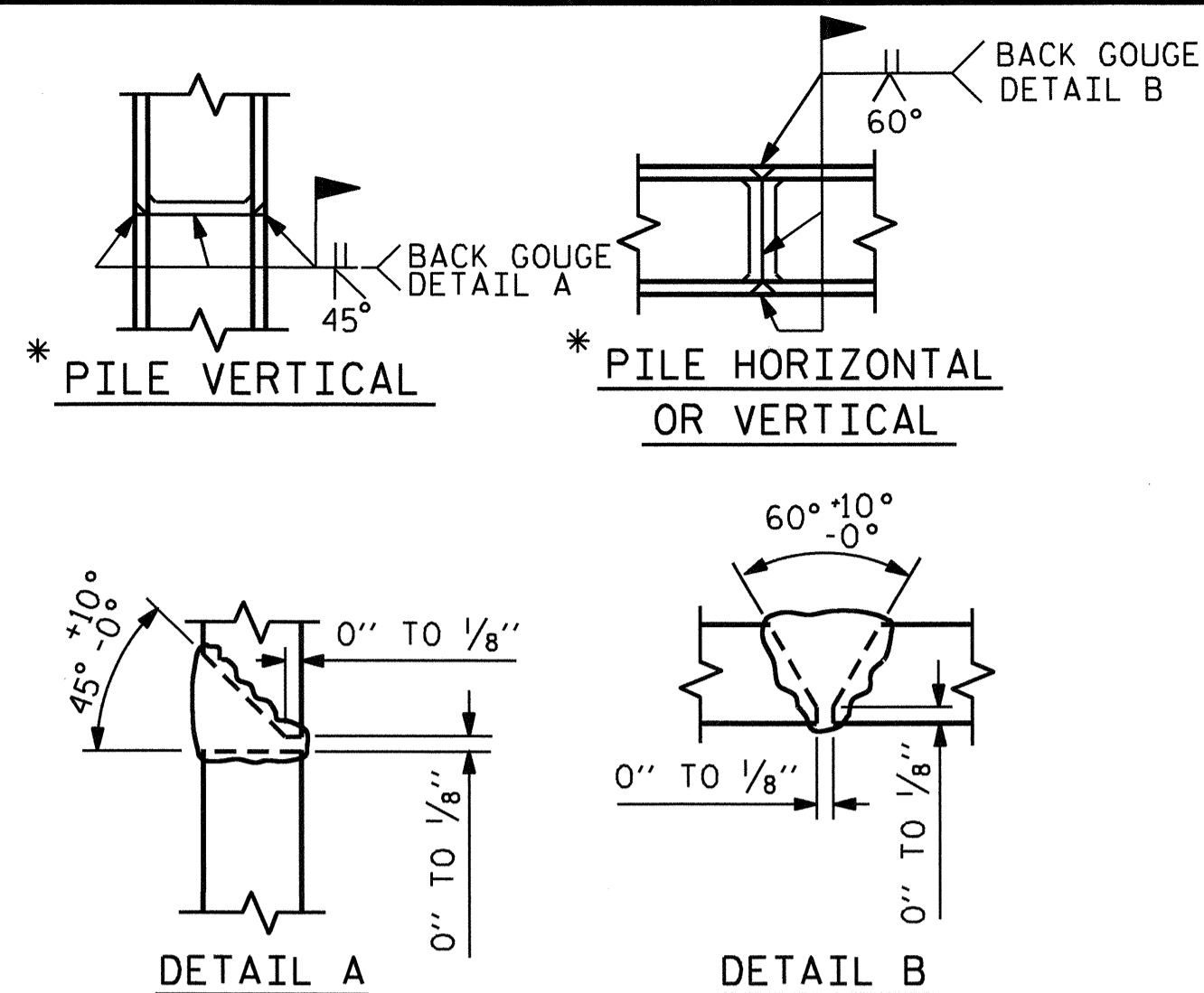


DRAWN BY: A.L. FIGUEROA DATE: 01-13-11
 CHECKED BY: A. SORSENGINH DATE: 01-24-11



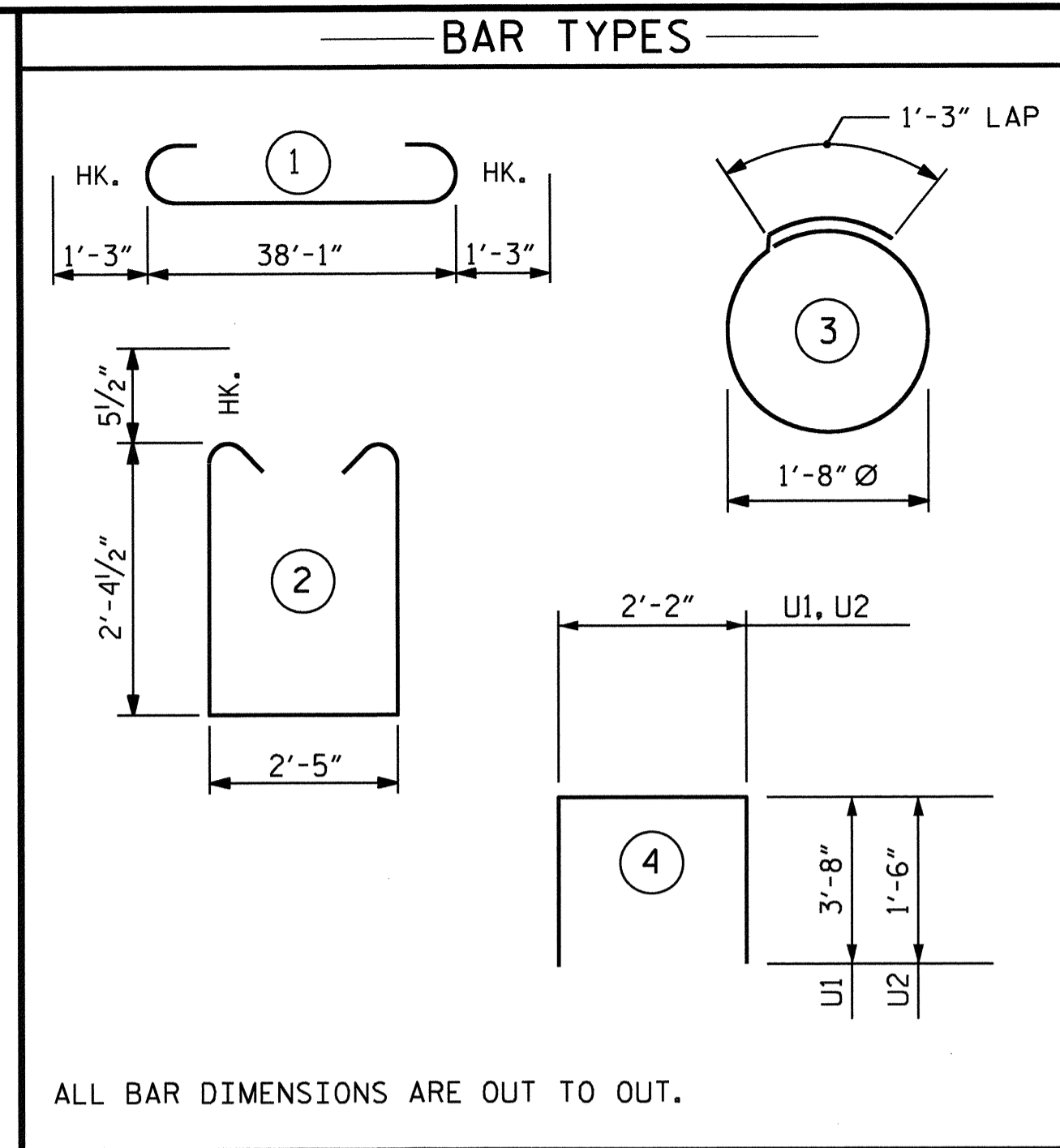
END VIEW

2" MIN. CONCRETE COVER FROM END OF CAP
 REQUIRED FOR ALL #4 U2 AND #9 U1 BARS.
 #4 U2 MAY SHIFTED UP TO 2" TO CLEAR "B" BARS.



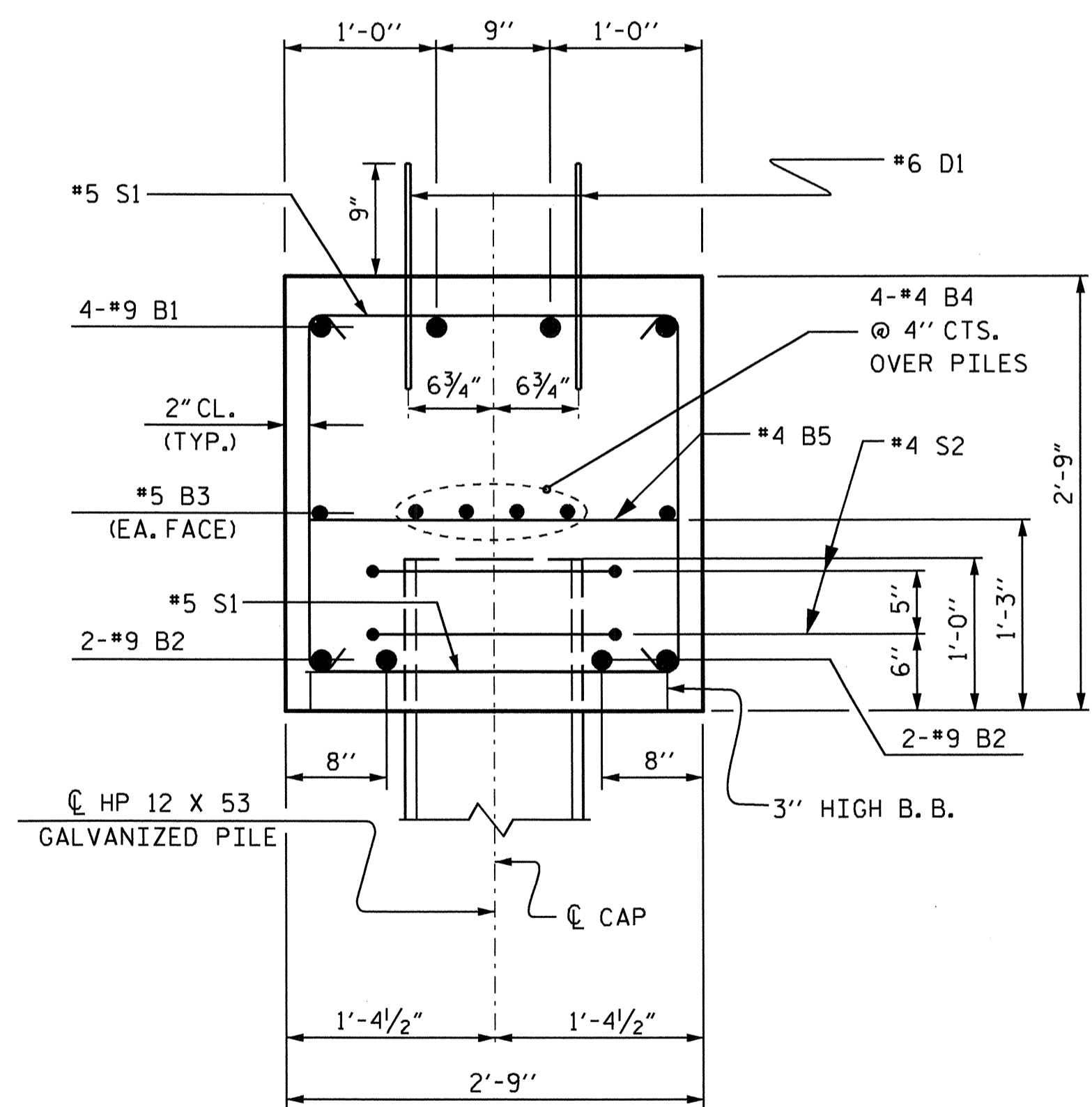
PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
FOR ONE BENT (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	40'-7"	552
B2	4	#9	STR	38'-3"	520
B3	2	#5	STR	38'-3"	80
B4	8	#4	STR	20'-4"	109
B5	10	#4	STR	2'-5"	16
D1	48	#6	STR	1'-6"	108
S1	34	#5	2	8'-1"	287
S2	14	#4	3	6'-6"	61
U1	2	#9	4	9'-6"	65
U2	10	#4	4	5'-2"	35
REINFORCING STEEL					= 1,833 LBS
CLASS A CONCRETE					
POUR #1: BENT CAP					10.8 C.Y.
TOTAL CLASS A CONCRETE					10.8 C.Y.
HP 12 X 53 GALVANIZED PILES					
NO. 7					490 LIN. FT.
PILE REDRIVES					4 EA.



SECTION A-A

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT NO. 1 & NO. 2



DRAWN BY: A. L. FIGUEROA DATE: 01-13-11
 CHECKED BY: A. SORSENGINH DATE: 01-24-11

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	20
2			4				

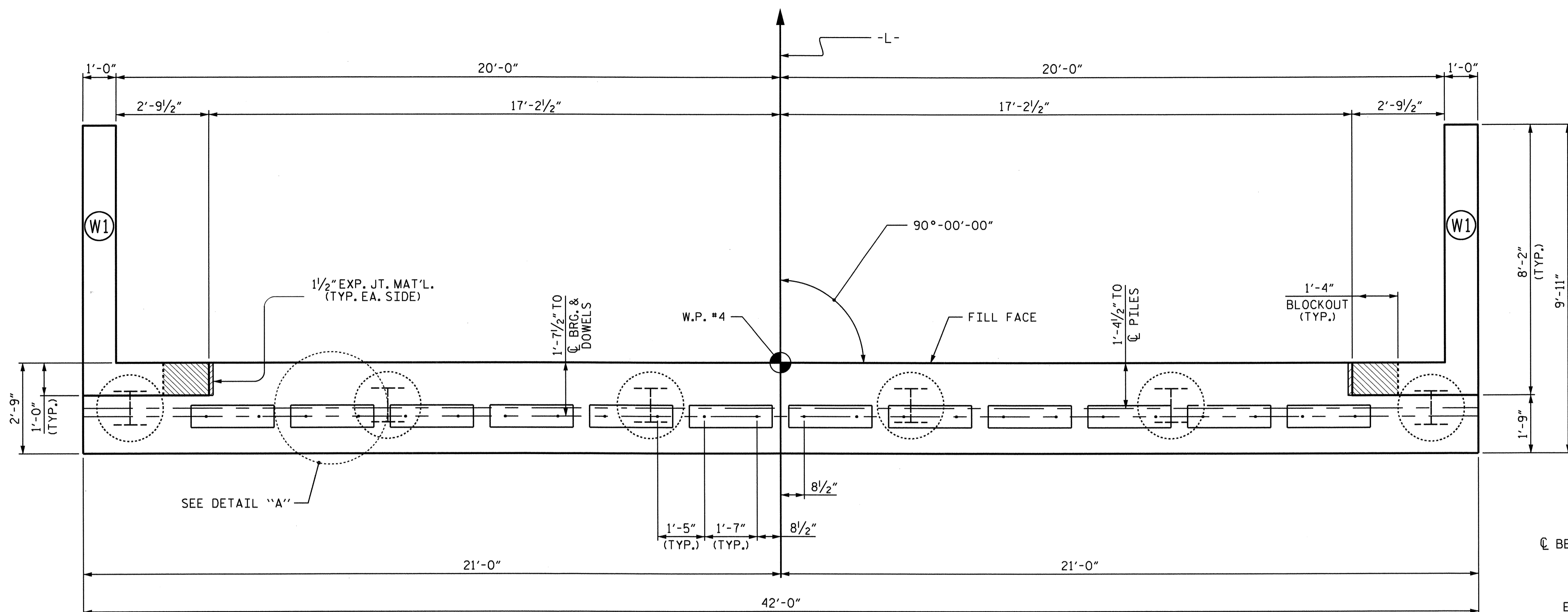
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

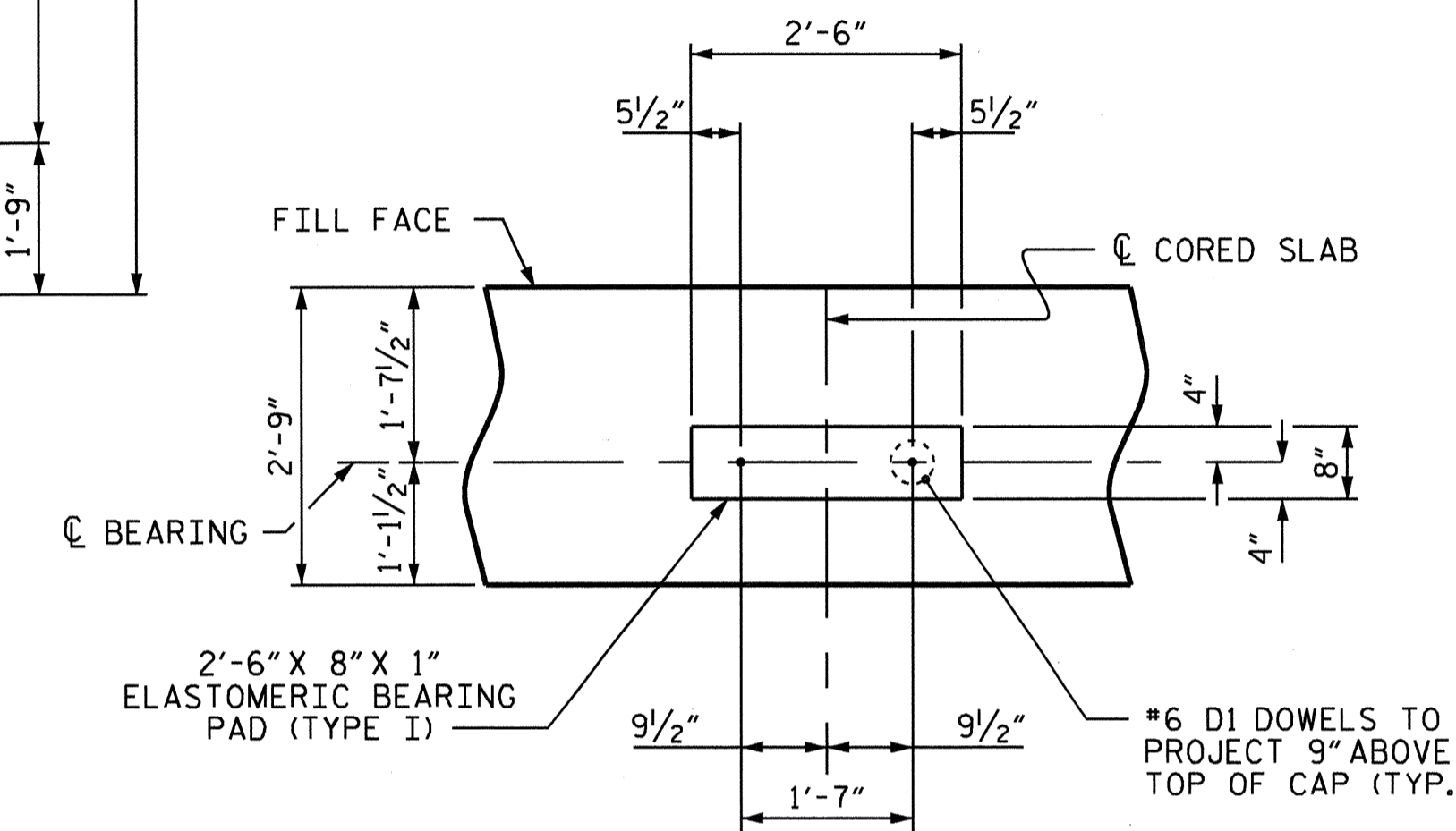
FOR SECTION A-A, SEE SHEET 2 OF 2.

FOR PILE SPLICE DETAILS SEE SHEET 2 OF 2.

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

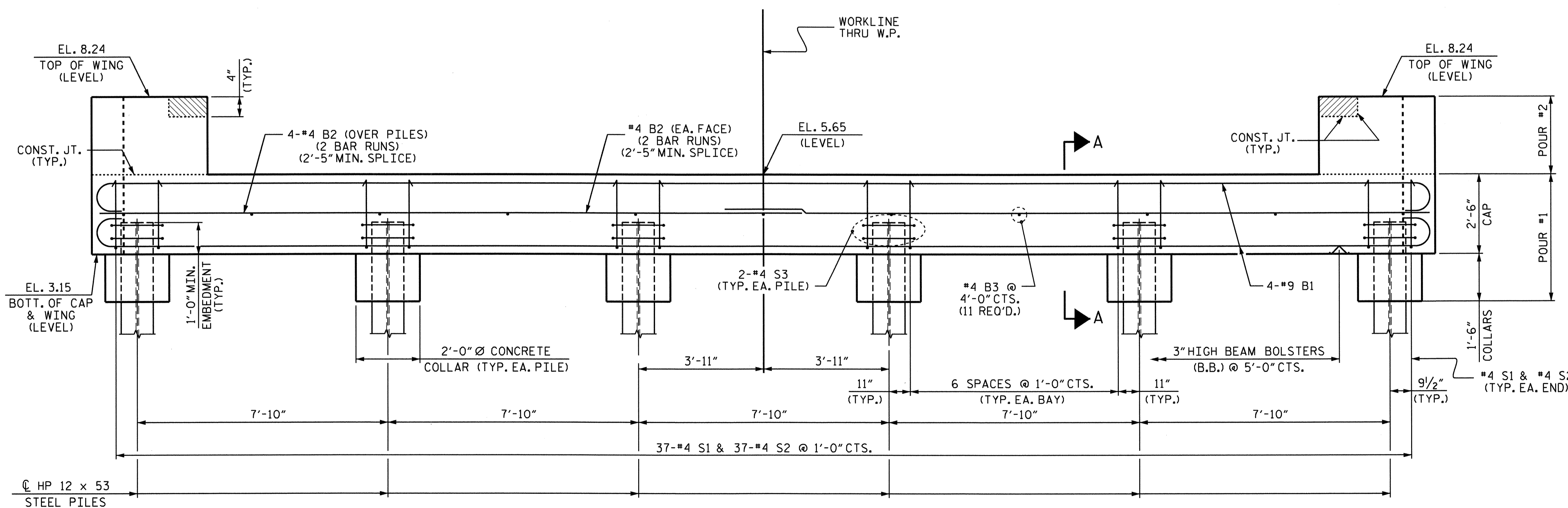


PLAN



DETAIL "A"

(TYP. EA. CORED SLAB UNIT)



ELEVATION

PROJECT NO. B-4413

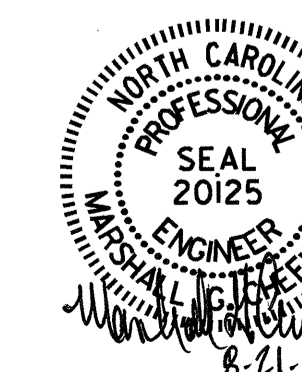
BEAUFORT COUNTY

STATION: 15+77.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

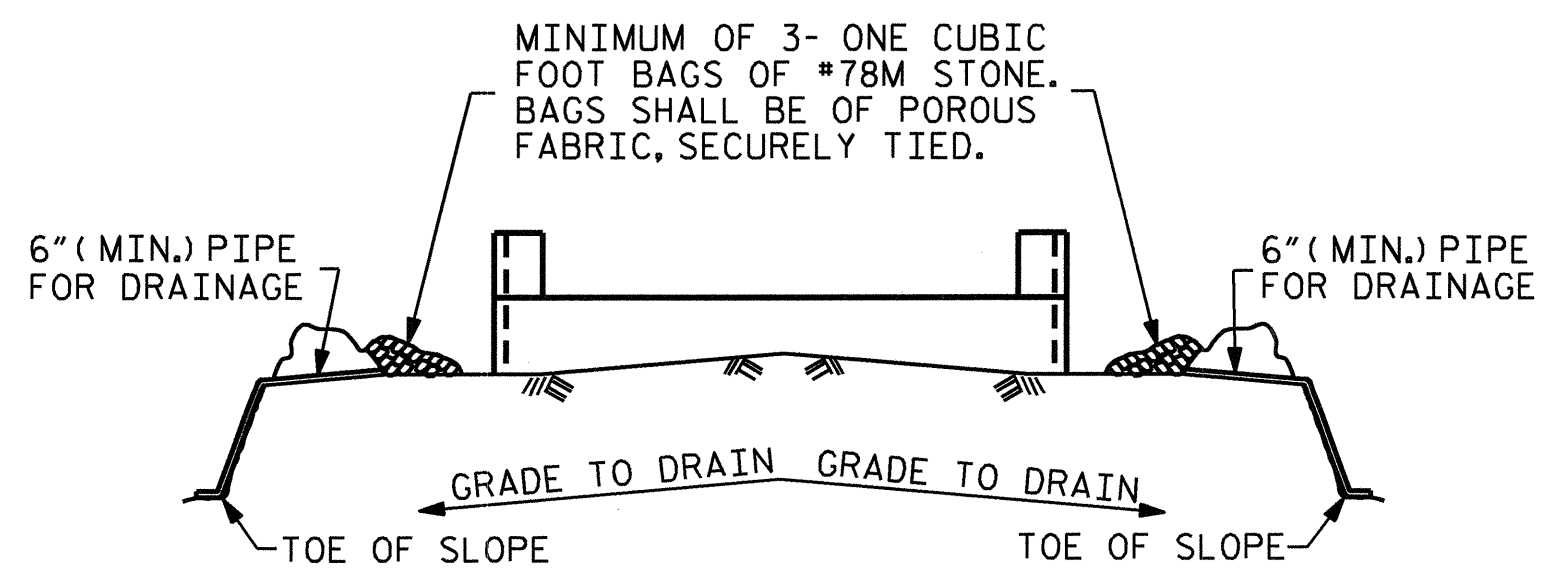
SUBSTRUCTURE
END BENT NO. 2



DRAWN BY: A.L. FIGUEROA DATE: 08-18-10
CHECKED BY: J. LAMBERT DATE: 01-04-11

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			20

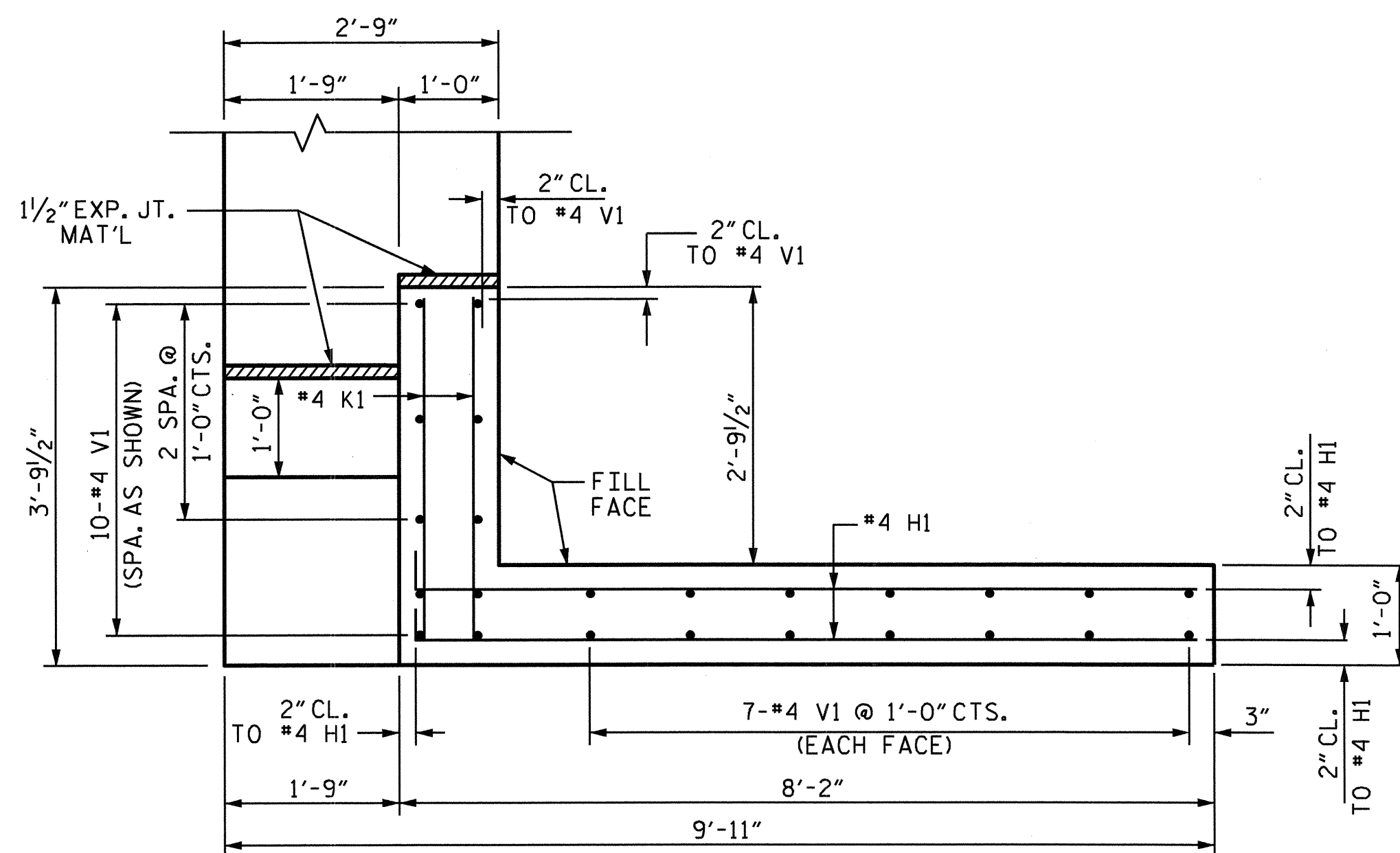


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

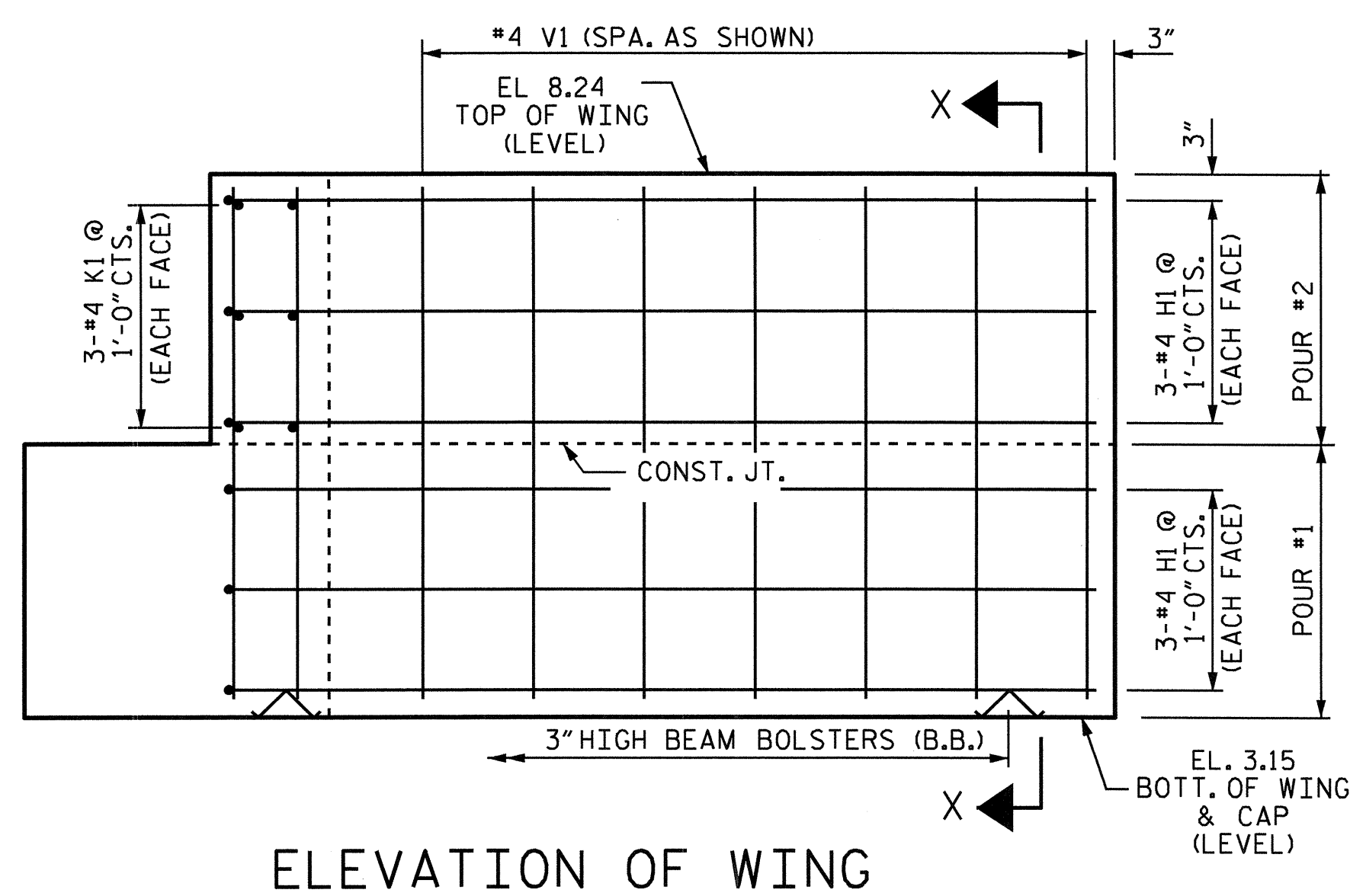
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

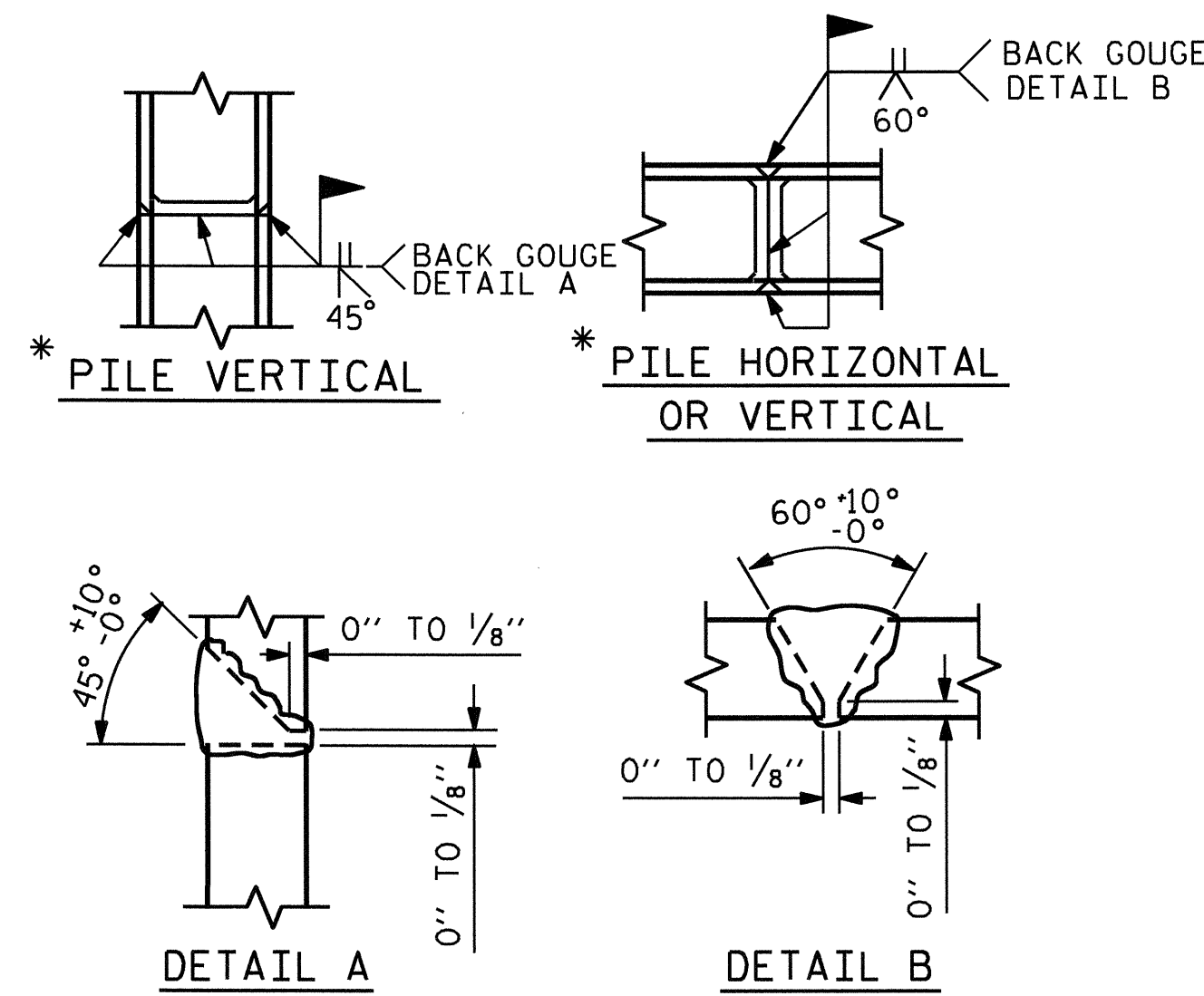
TEMPORARY DRAINAGE AT END BENT



PLAN OF WING



ELEVATION OF WING

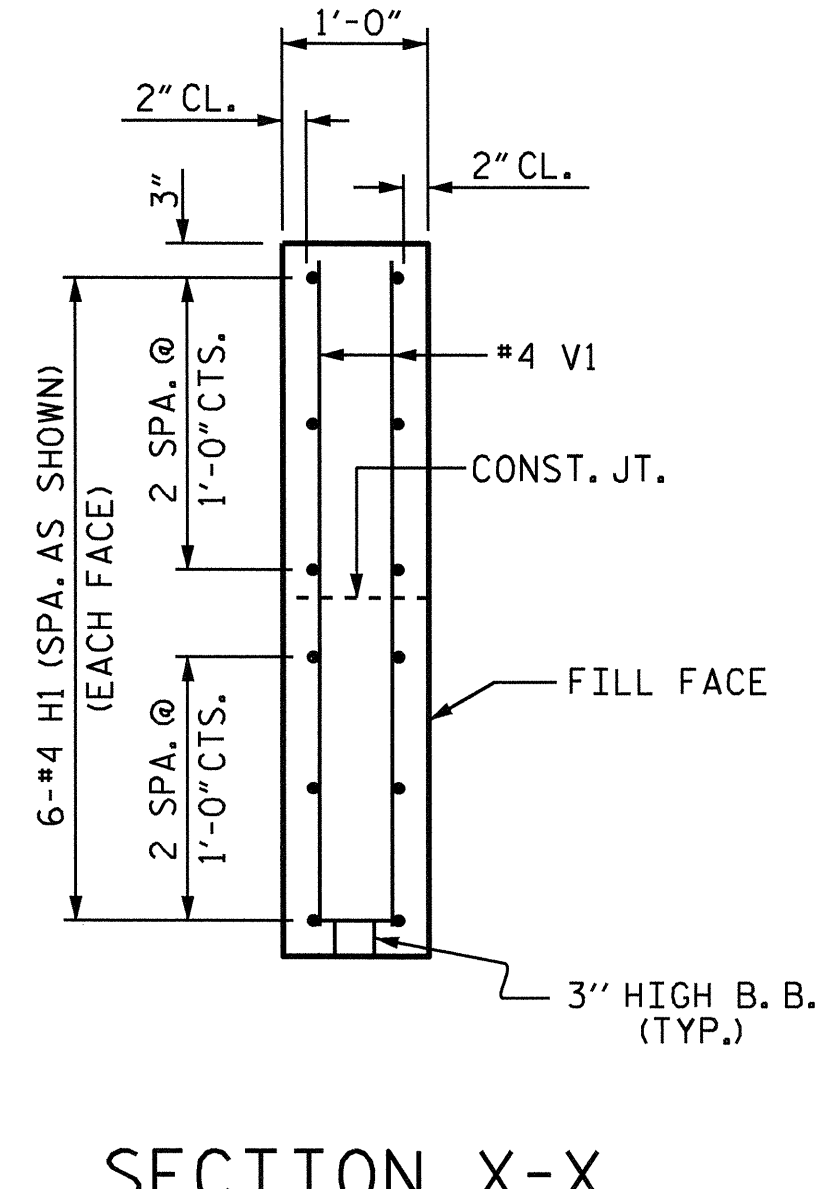
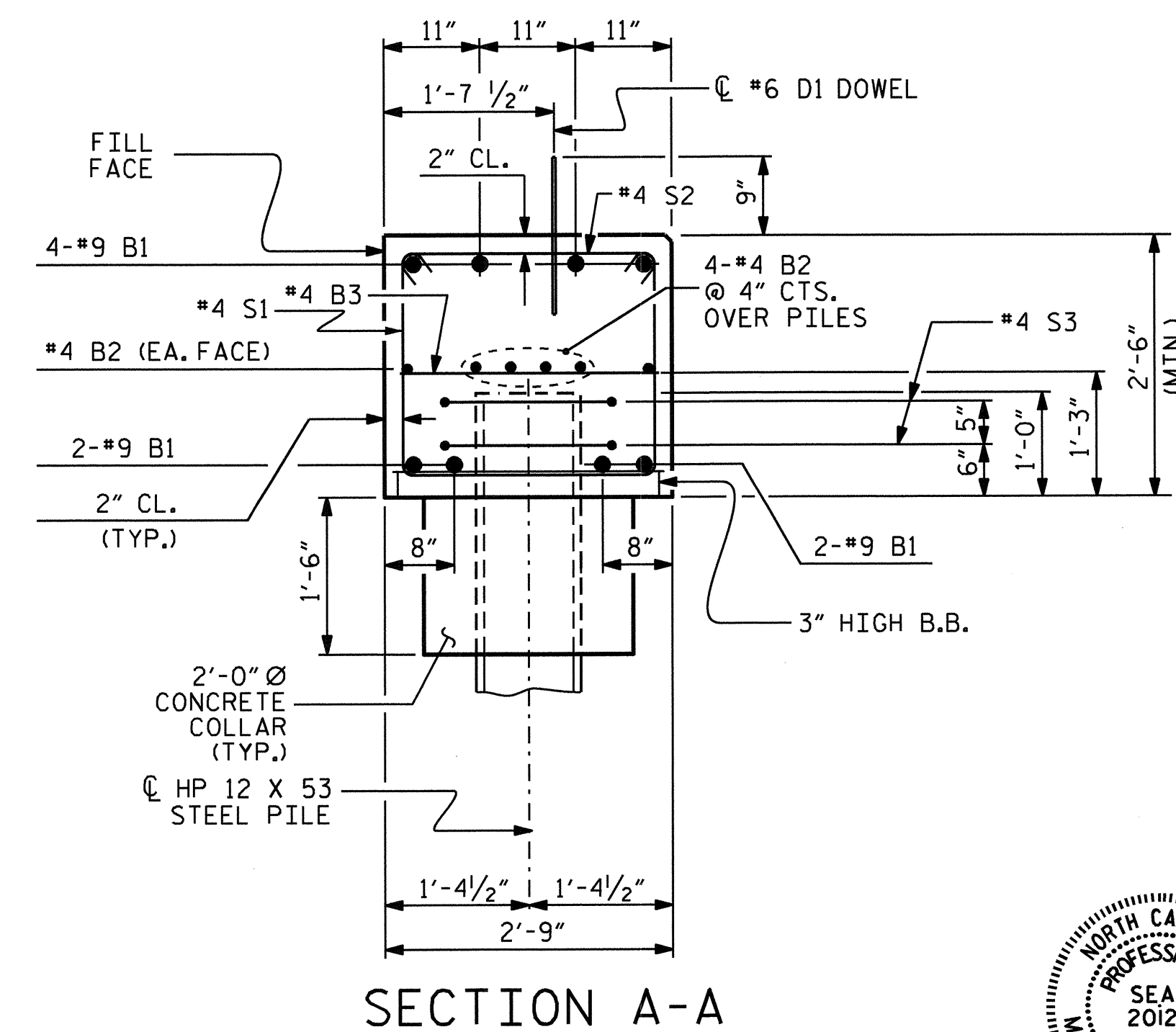


* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BILL OF MATERIAL					
END BENT NO. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	44'-0"	1197
B2	12	#4	STR	22'-1"	177
B3	11	#4	STR	2'-5"	18
D1	24	#6	STR	1'-6"	54
H1	24	#4	5	8'-6"	136
K1	12	#4	STR	3'-5"	27
S1	37	#4	2	7'-5"	183
S2	37	#4	3	3'-2"	78
S3	12	#4	4	6'-6"	52
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL				=	2,072 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1: COLLARS, CAP & BOTTOM PART OF WINGS					13.1 C.Y.
POUR #2: UPPER PART OF WINGS					2.1 C.Y.
TOTAL CLASS A CONCRETE					15.2 C.Y.
HP 12 X 53 STEEL PILES NO. 6					330 LIN. FT.
PILE REDRIVES					3 EA.

ALL BAR DIMENSIONS ARE OUT TO OUT.



PROJECT NO. B-4413

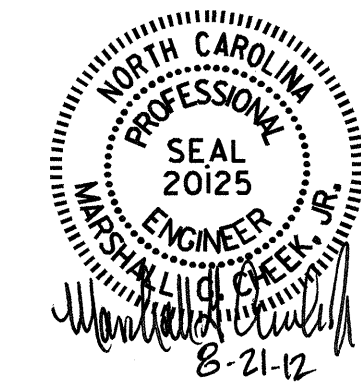
BEAUFORT COUNTY

STATION: 15+77.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

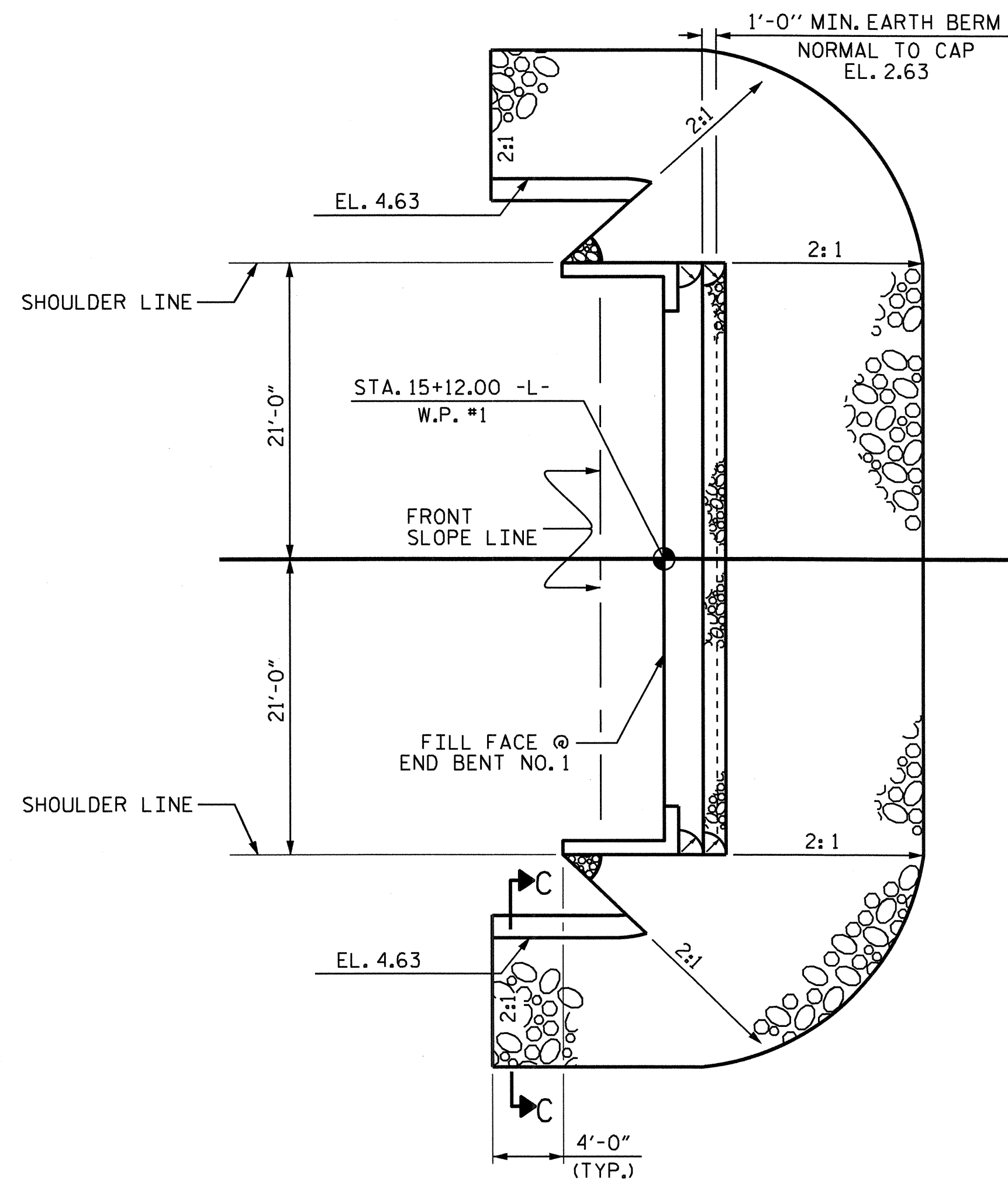
SUBSTRUCTURE
END BENT NO. 2



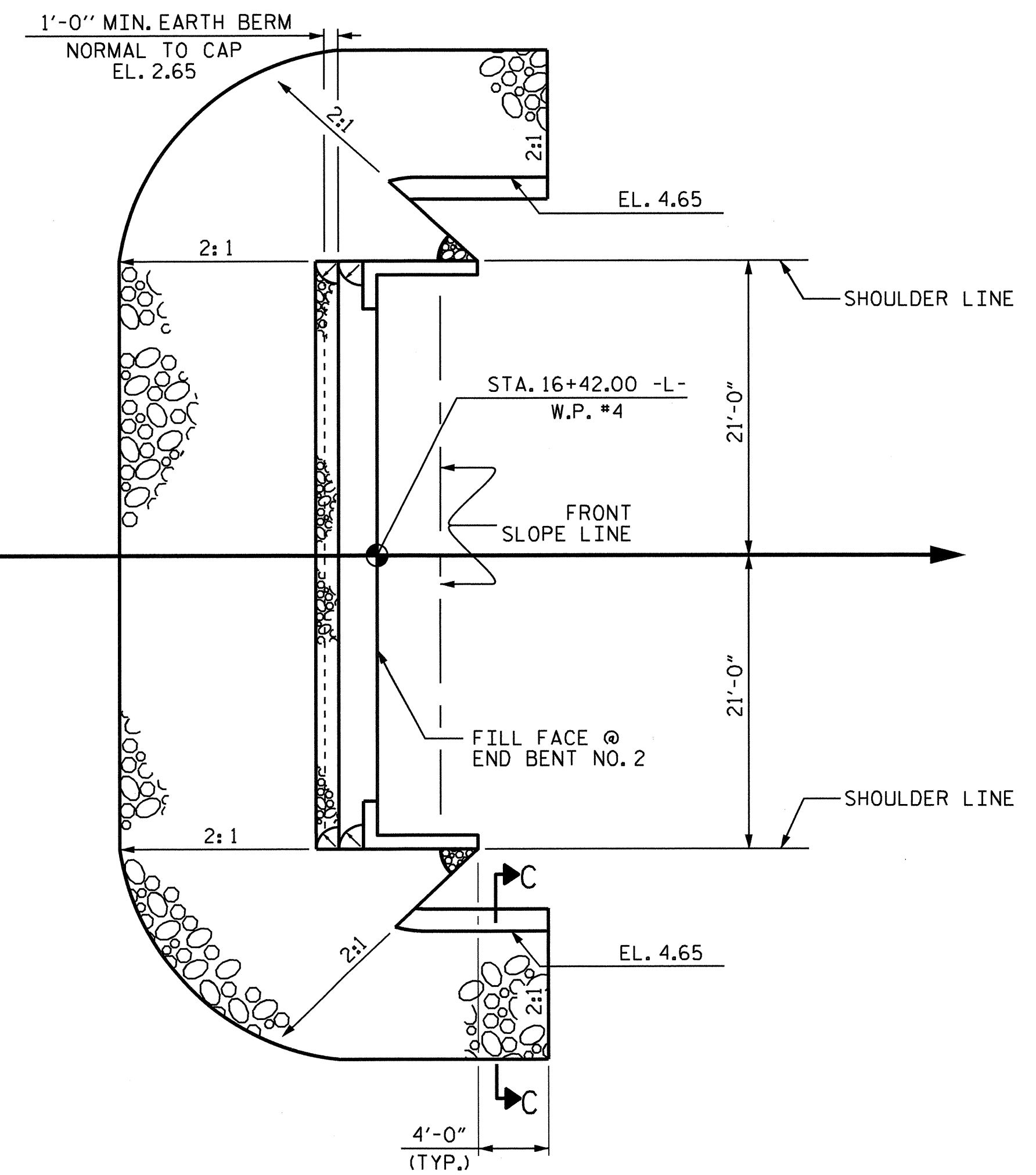
DRAWN BY: A. L. FIGUEROA DATE: 08-18-10
CHECKED BY: J. LAMBERT DATE: 01-04-11

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			20

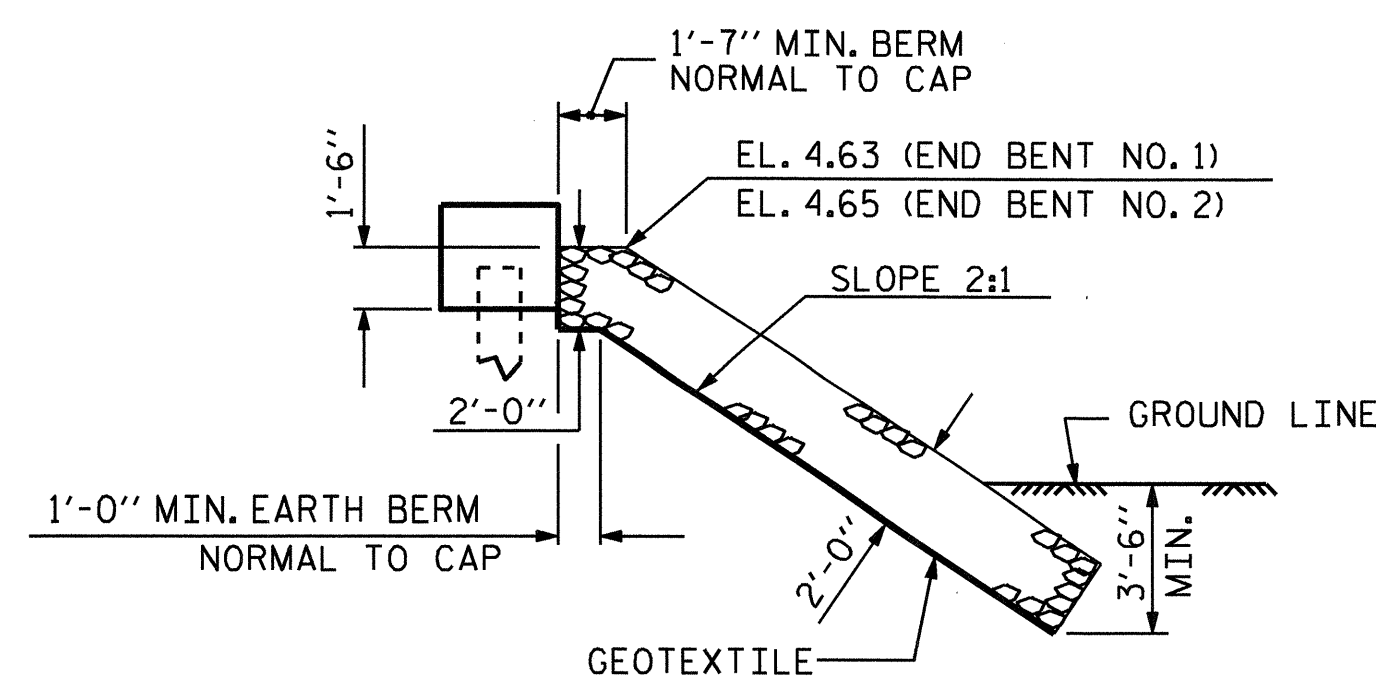


END BENT NO. 1

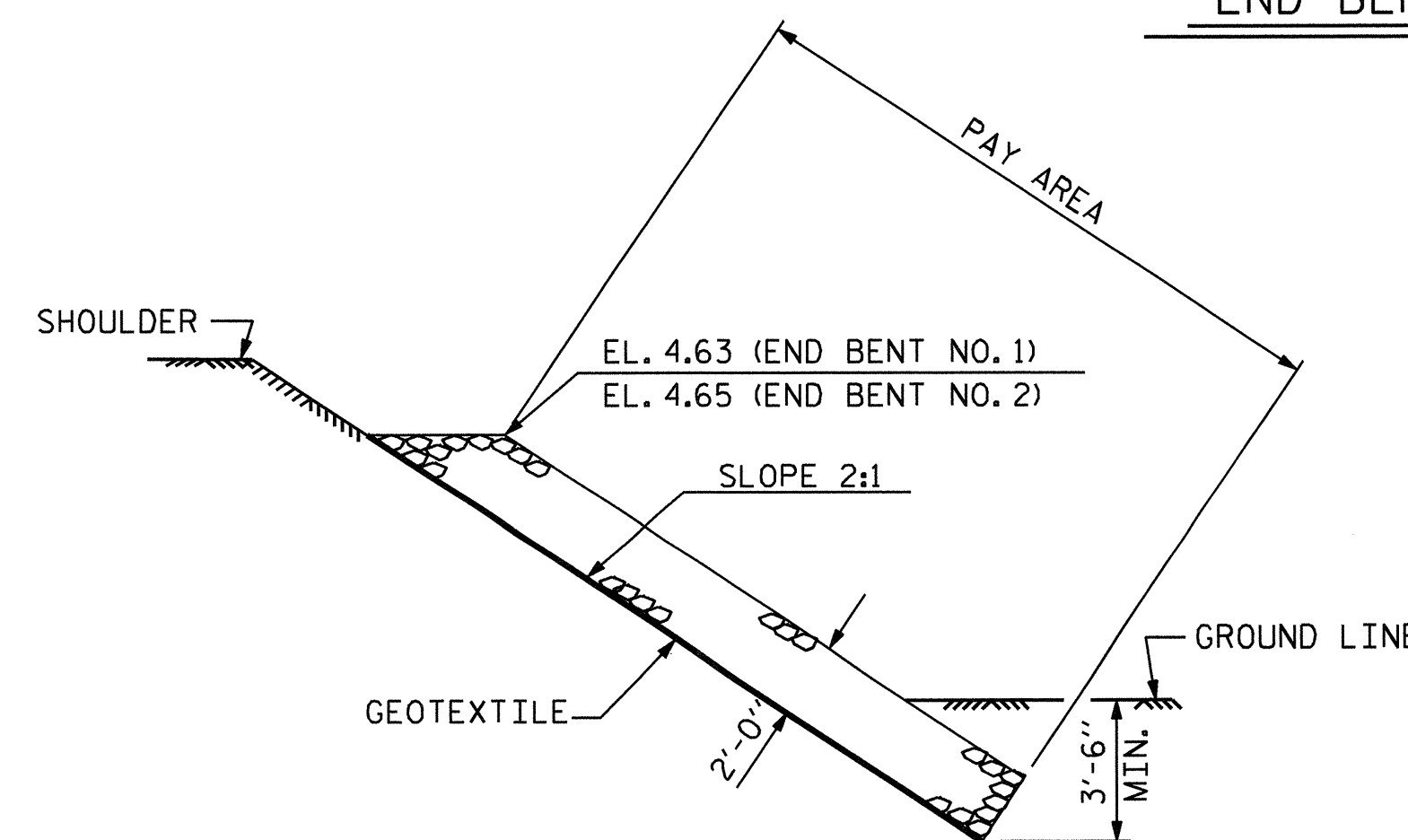


END BENT NO. 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+77.00 -L-	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT NO. 1	199	221
END BENT NO. 2	199	221



SECTION C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4413
BEAUFORT COUNTY
 STATION: 15+77.00 -L-

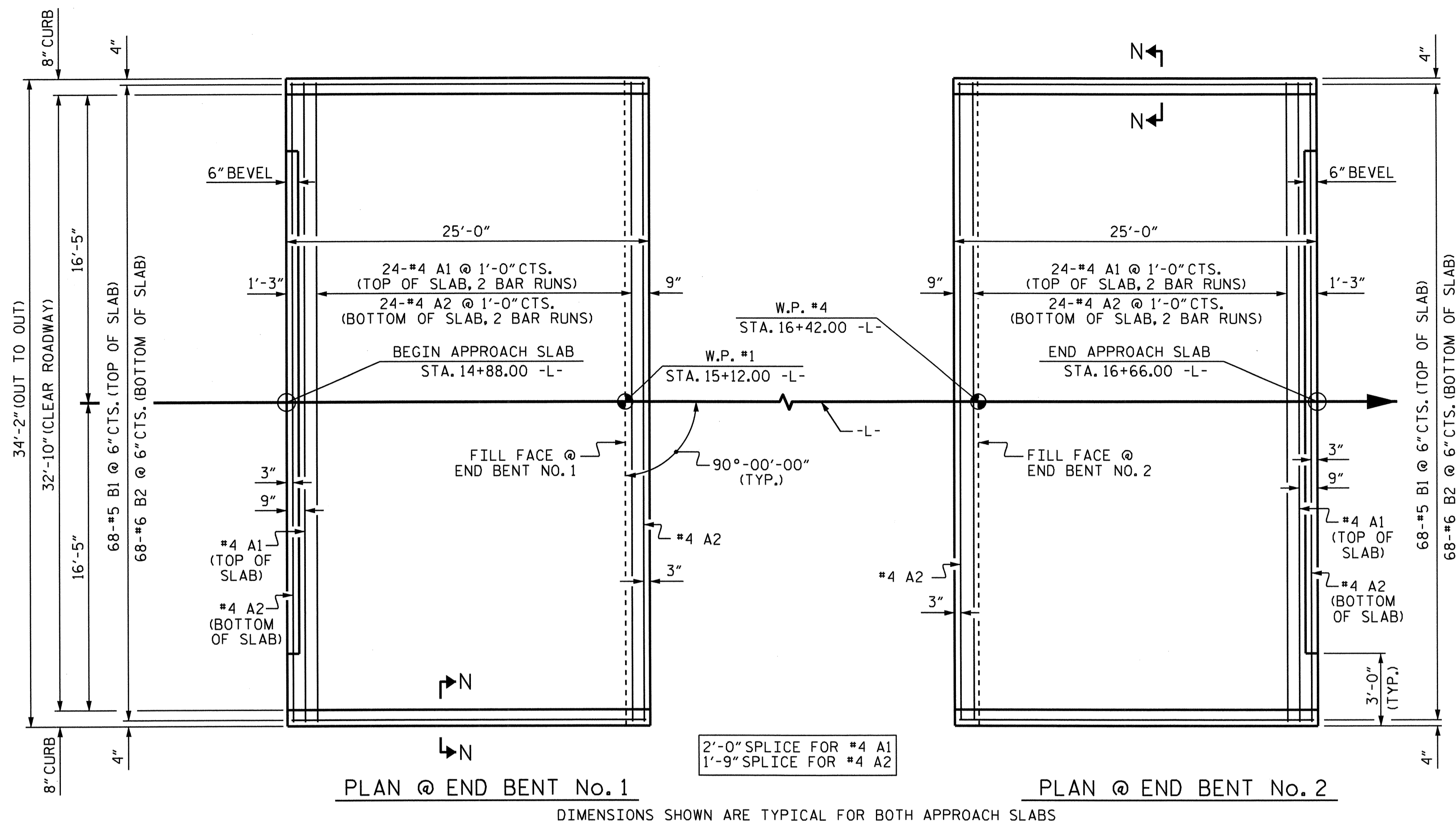
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 RIP RAP DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
1			3			TOTAL SHEETS 20	
2			4				



DRAWN BY: A.L. FIGUEROA DATE: 09/08/10
 CHECKED BY: D. HODGE DATE: 02-08-11
 DRAWN BY: FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY: ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM



PLAN @ END BENT No. 1

PLAN @ END BENT No. 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 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.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

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

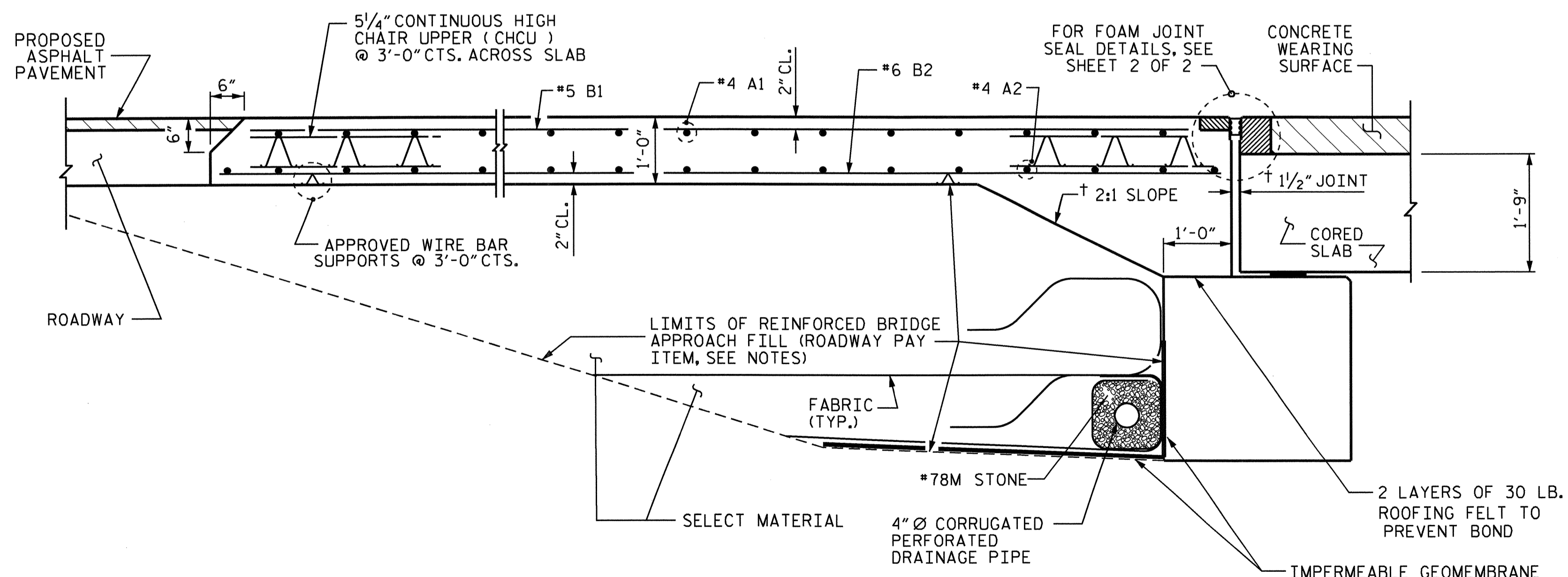
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

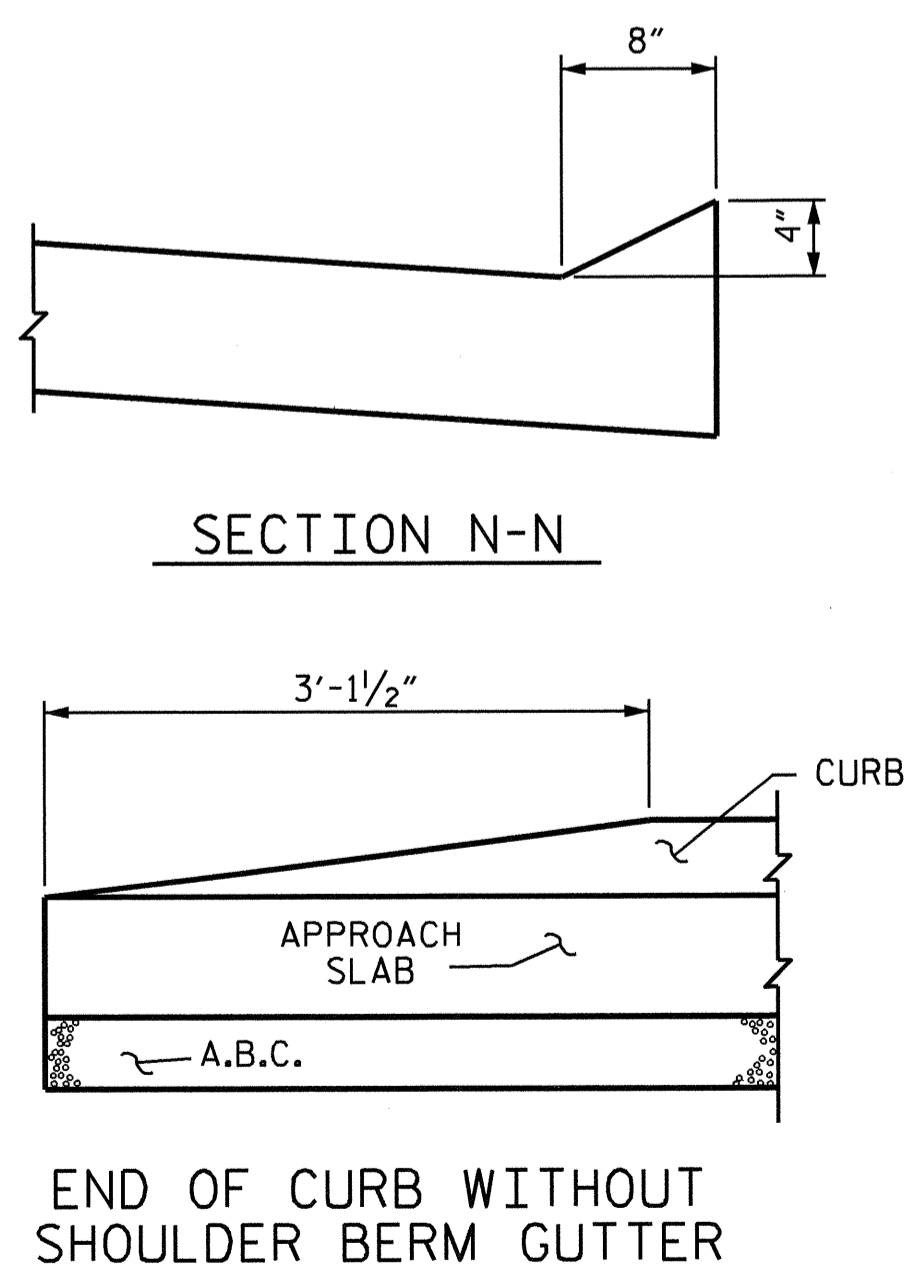
APPROACH SLAB GROOVING IS REQUIRED. PAYMENT FOR APPROACH SLAB GROOVING IS INCLUDED IN THE "GROOVING BRIDGE FLOORS" PAY ITEM.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL					
APPROACH SLAB AT EB No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	17'-11"	598
A2	52	#4	STR	17'-10"	619
* B1	68	#5	STR	24'-0"	1702
B2	68	#6	STR	24'-8"	2519
REINFORCING STEEL				LBS.	3138
* EPOXY COATED REINFORCING STEEL				LBS.	2300
CLASS AA CONCRETE				C. Y.	33.4
APPROACH SLAB AT EB No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	17'-11"	598
A2	52	#4	STR	17'-10"	619
* B1	68	#5	STR	24'-0"	1702
B2	68	#6	STR	24'-8"	2519
REINFORCING STEEL				LBS.	3138
* EPOXY COATED REINFORCING STEEL				LBS.	2300
CLASS AA CONCRETE				C. Y.	33.4



SECTION THRU SLAB



CURB DETAILS

PROJECT NO. B-4413
 BEAUFORT COUNTY
 STATION: 15+77.00 -L-

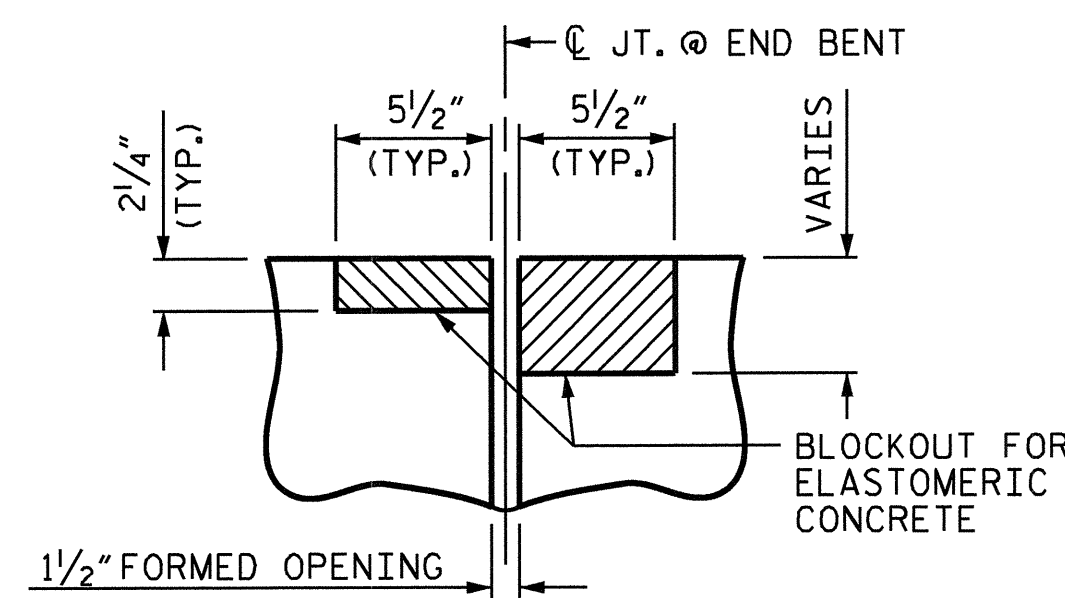
SHEET 1 OF 2

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

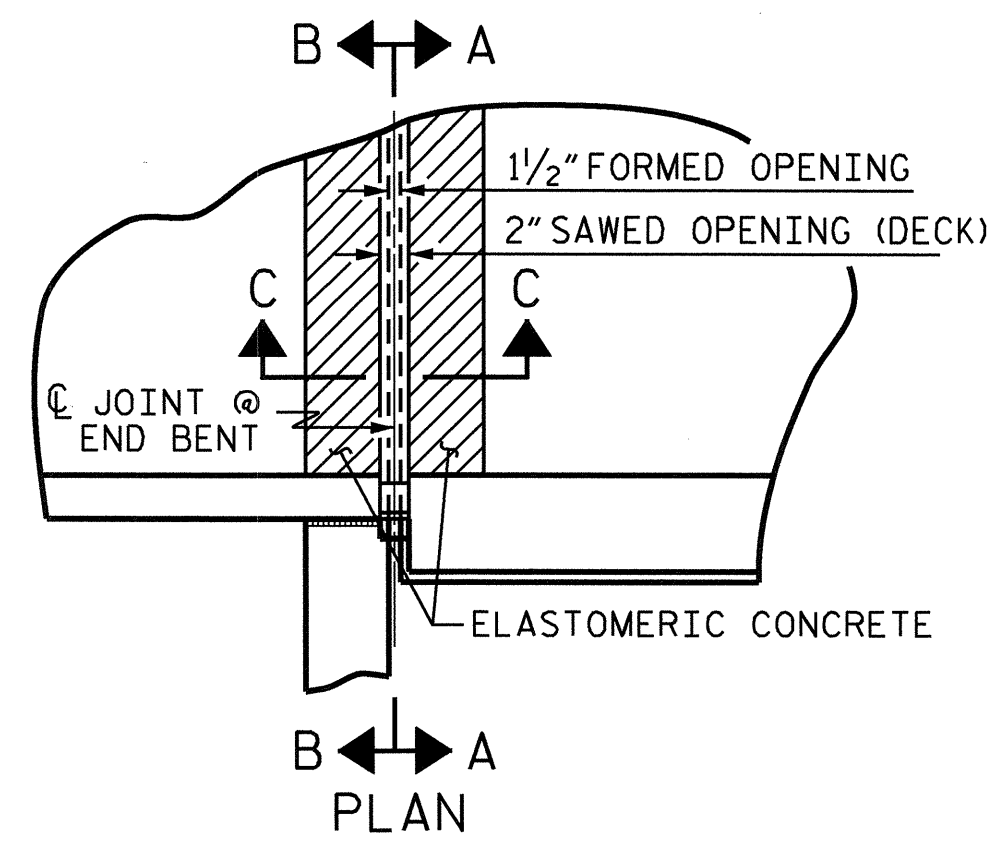
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS 20
2			4			



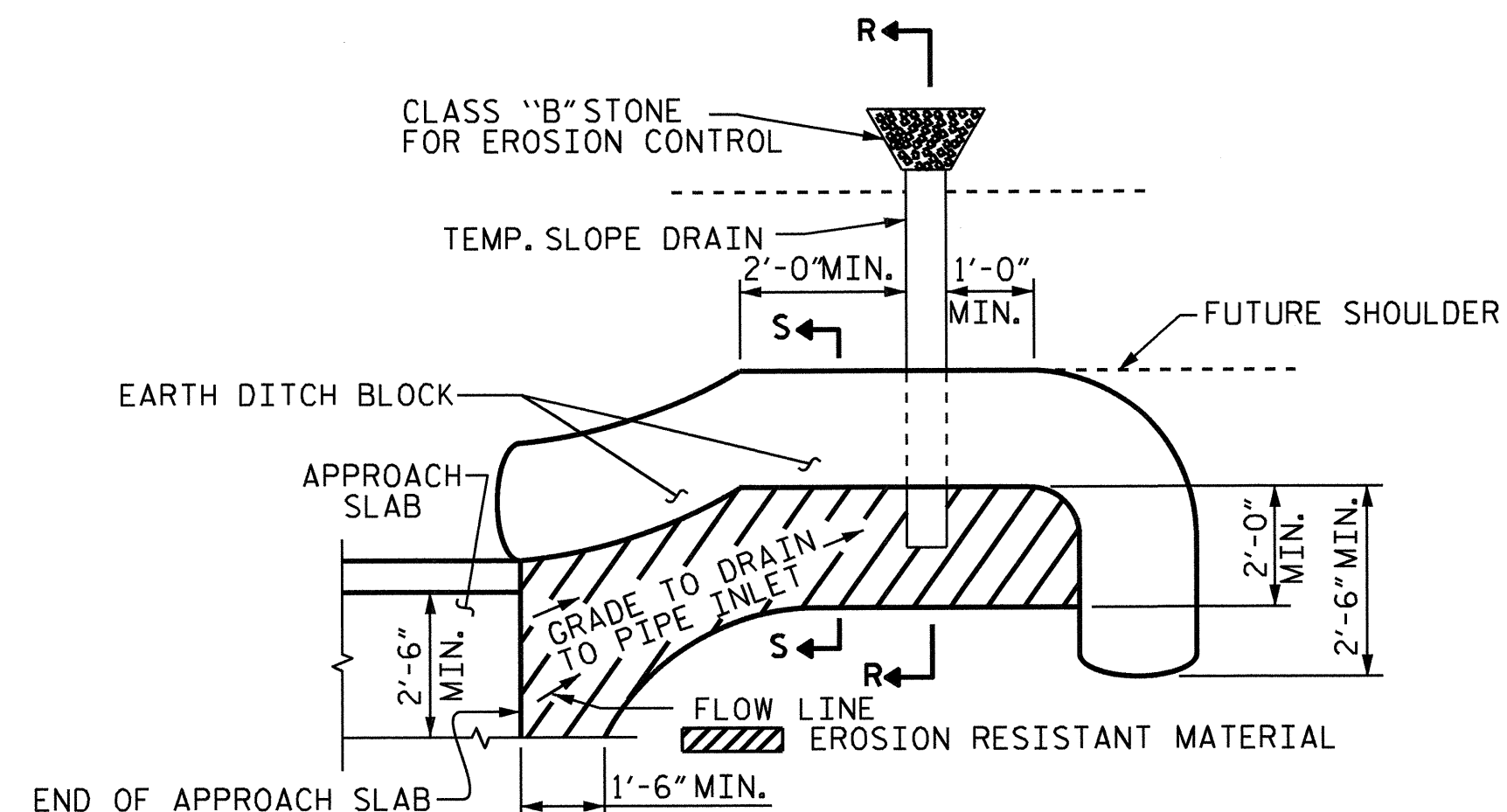
ASSEMBLED BY : A.L.FIGUEROA	DATE : 8/17/10
CHECKED BY : J.LAMBERT	DATE : 9/08/10
DRAWN BY : FCJ 6/87	REV. 5/1/06RR KMM/GM
CHECKED BY : EGA 6/87	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM



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

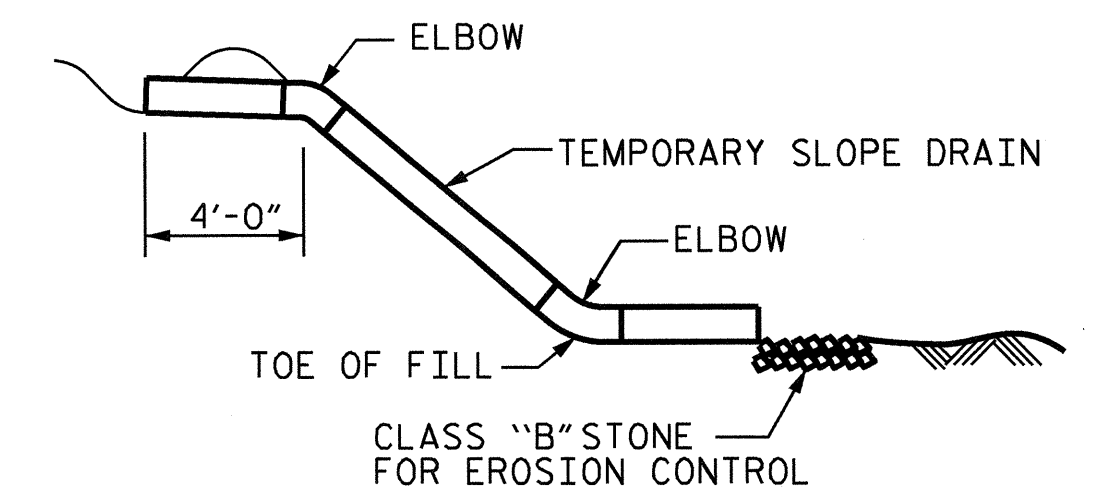


PLAN

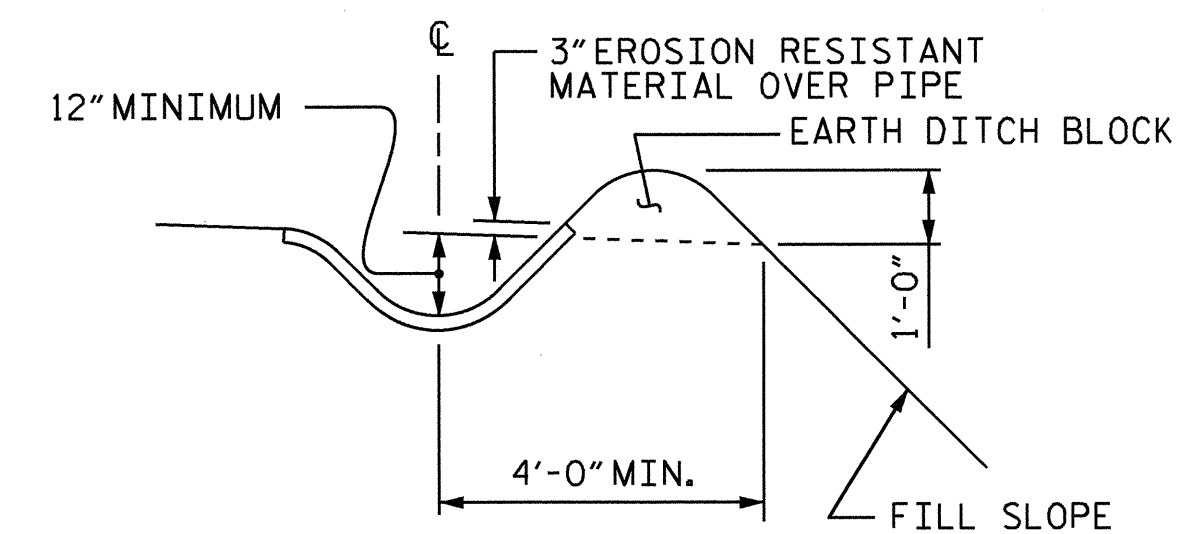


PLAN VIEW

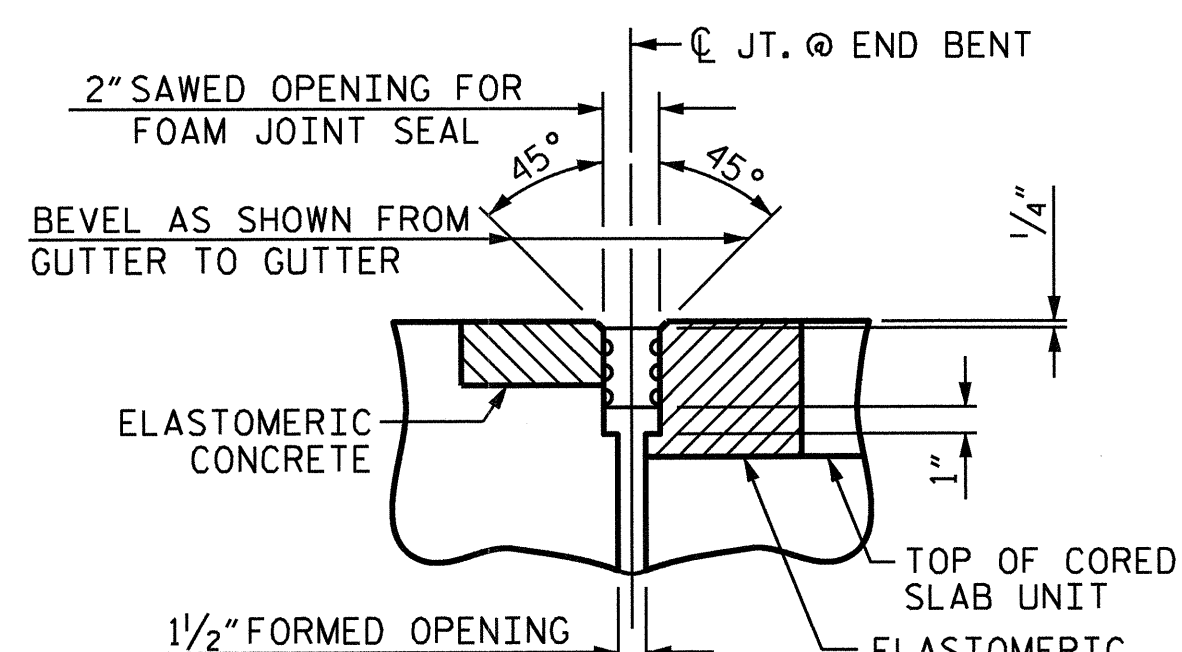
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



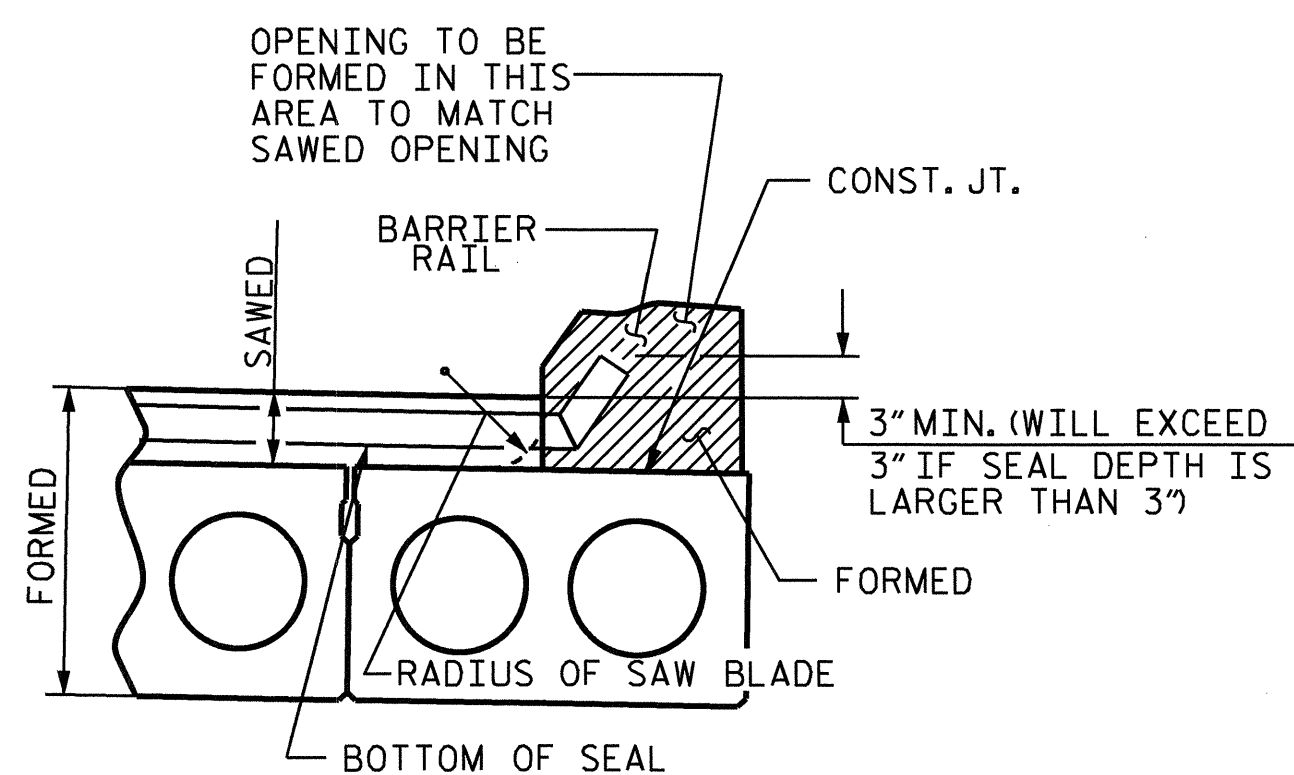
SECTION R-R



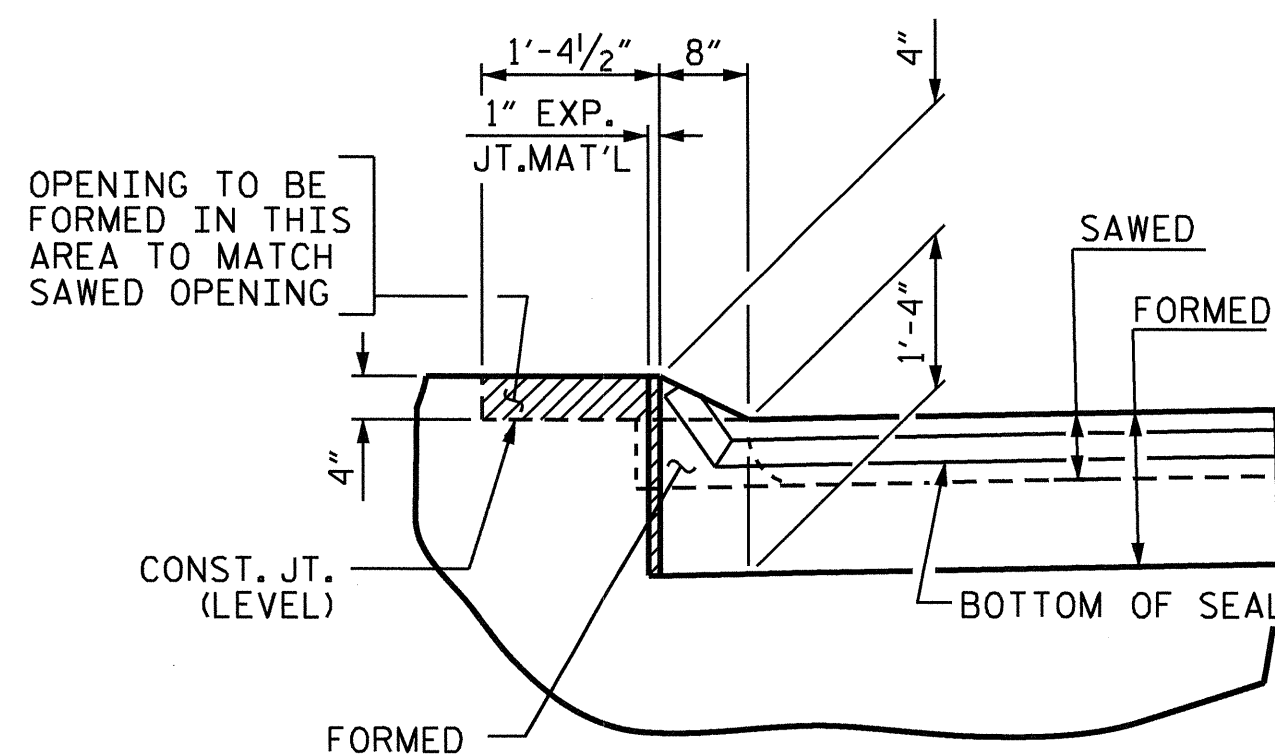
SECTION S-S



SECTION C-C
FOAM JOINT SEAL
(FIXED)



SECTION A-A



SECTION B-B

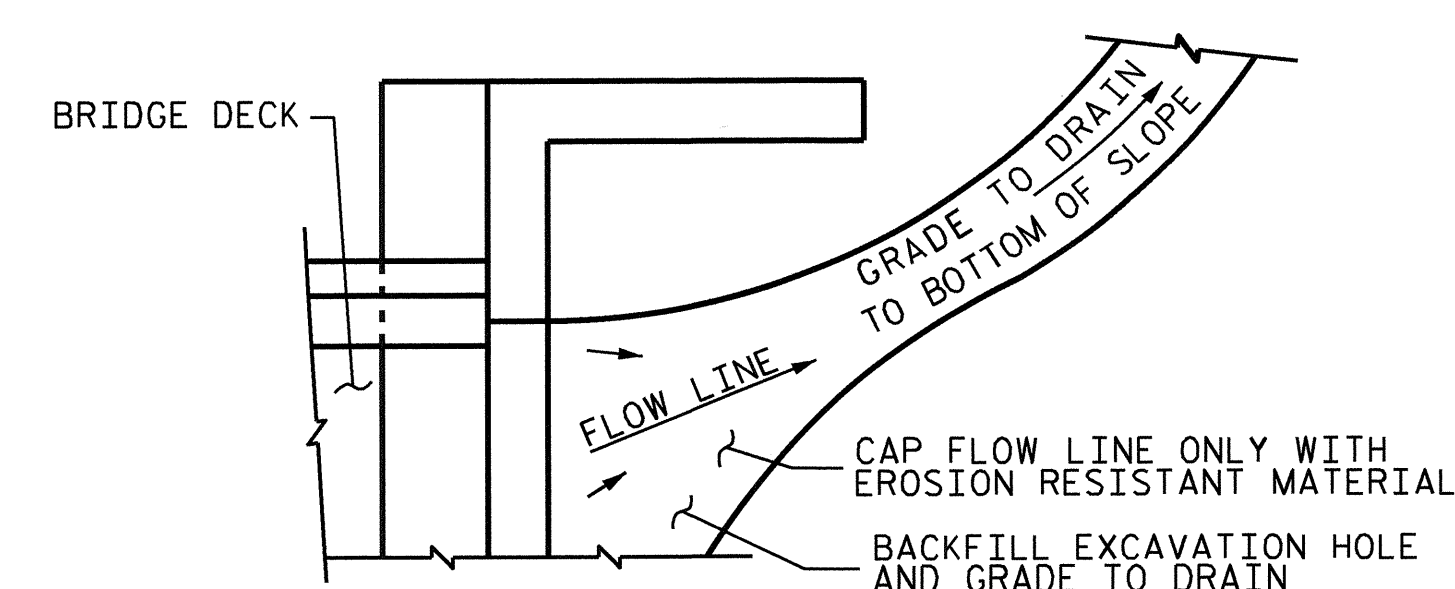
ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	9.5
2	9.5
TOTAL	19.0

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

JOINT SEAL DETAILS @ END BENT

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED AS SHOWN IN DETAILS ABOVE.

TEMPORARY BERM AND SLOPE DRAIN DETAILS



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-4413
BEAUFORT COUNTY
STATION: 15+77.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
DETAILS

ASSEMBLED BY : A.L.FIGUEROA	DATE : 8/17/10
CHECKED BY : J. LAMBERT	DATE : 9/08/10
DRAWN BY : FCJ 11/88	REV. 7/10/01 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06RR MAR/KMM



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

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 ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

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