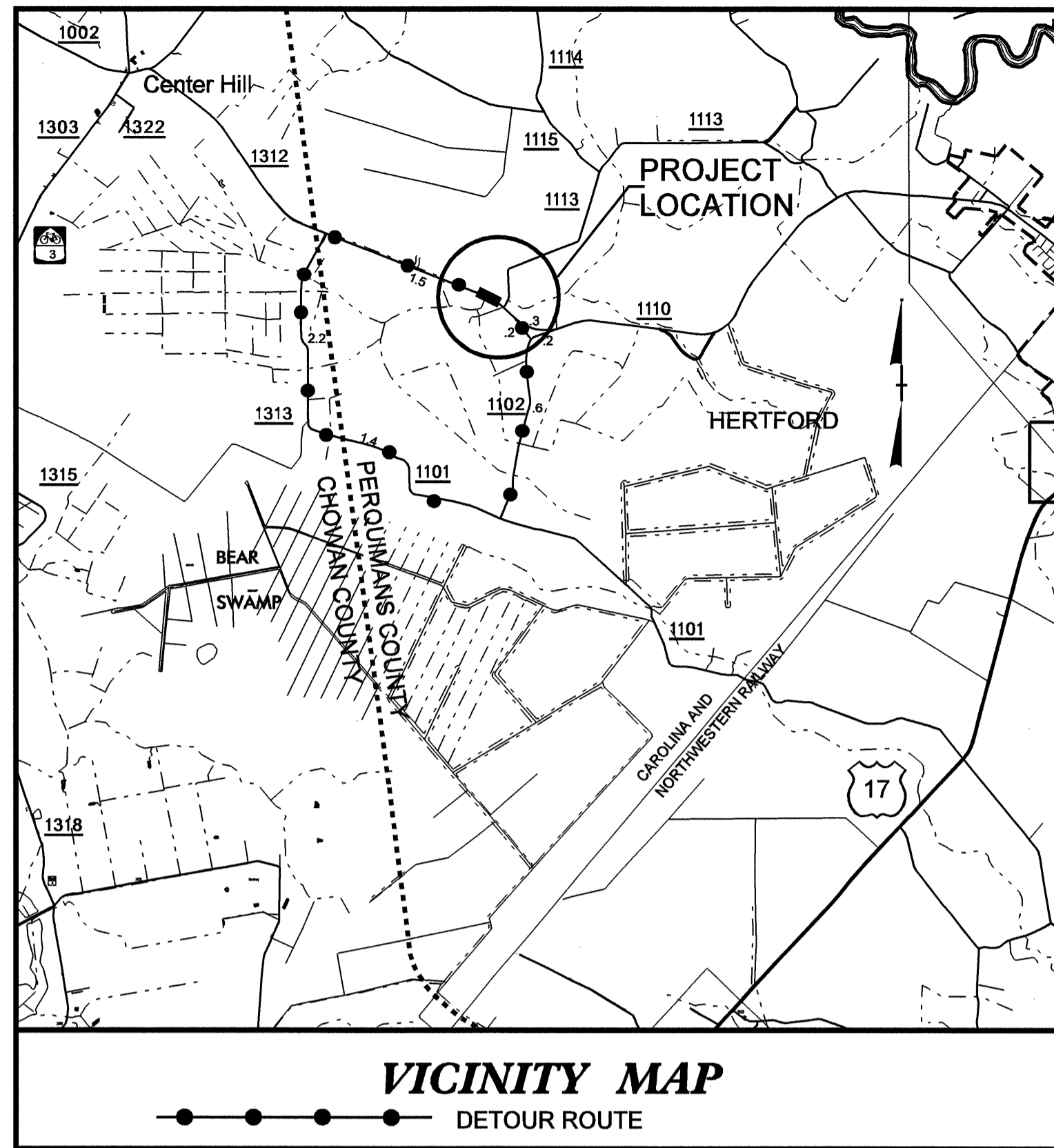


CONTRACT: C201808 TIP NO: B-4226



VICINITY MAP

DETOUR ROUTE

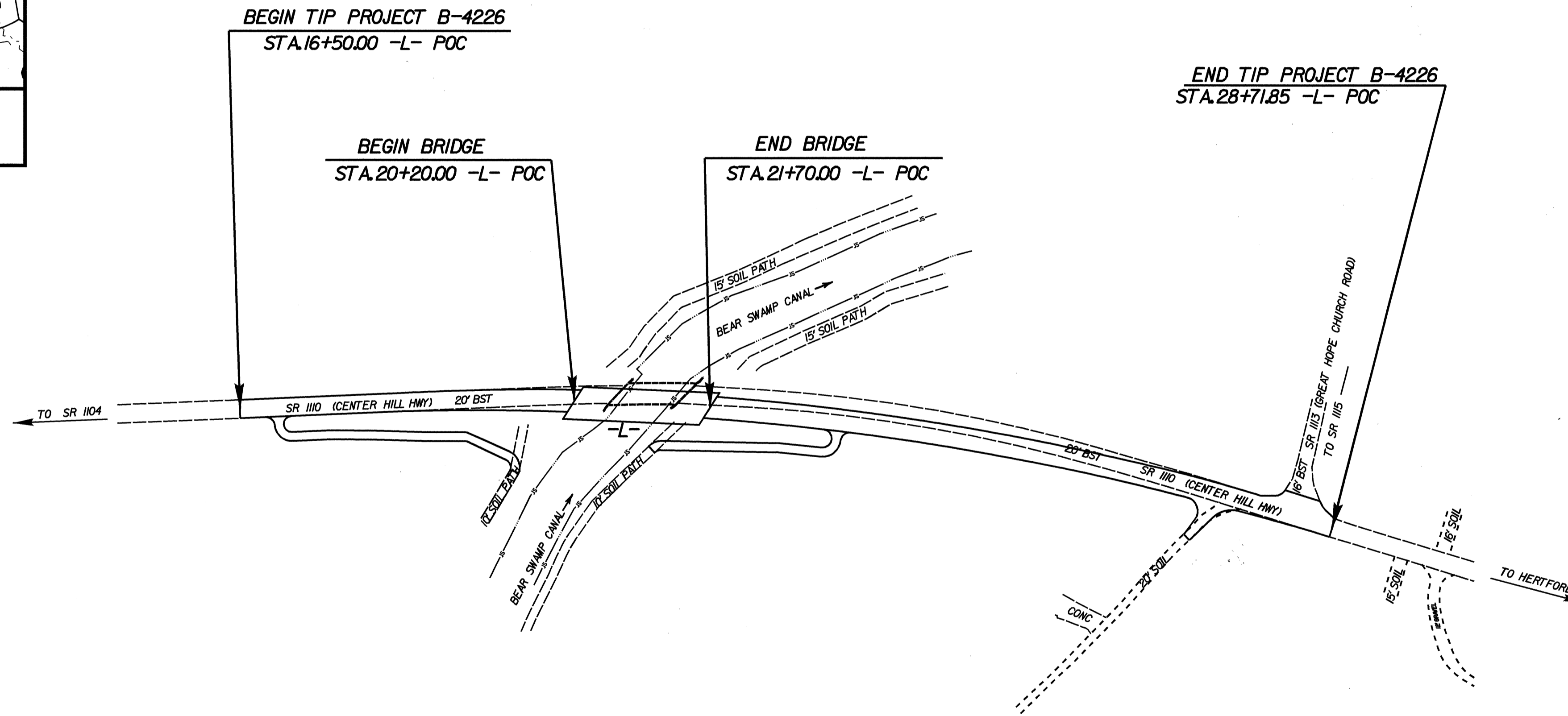
NEAREST SHIPPING POINT: HERTFORD ON CA RAILROAD  
11 MILES FROM BRIDGE

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

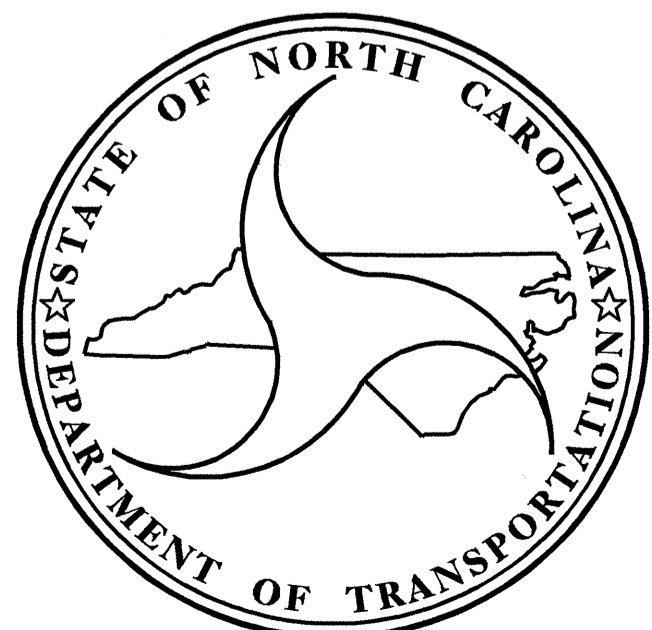
# PERQUIMANS COUNTY

LOCATION: BRIDGE 62 OVER BEAR SWAMP CANAL ON SR 1110  
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4226		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33570.1.1	BRZ-1110(4)	PE	
33570.2.1	BRZ-1110(4)	RW, UTIL	
33570.3.1	BRZ-1110(4)	CONST.	



STRUCTURE



**DESIGN DATA**

ADT 2002 =	1200
ADT 2025 =	2100
DHV =	10 %
D =	60 %
T =	3 %*
V =	60 MPH
FUNC. CLASS. =	RURAL MINOR COLLECTOR
* TTST 1	DUAL 2

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4226 =	0.203 MI
LENGTH STRUCTURE TIP PROJECT B-4226 =	0.028 MI
TOTAL LENGTH TIP PROJECT B-4226 =	0.231 MI

Prepared In the Office of:

**DIVISION OF HIGHWAYS**

2006 STANDARD SPECIFICATIONS

LETTING DATE :	J. M. BAILEY, P.E. PROJECT ENGINEER
MARCH 18, 2008	B. D. KLAPPENBACH, P.E. PROJECT DESIGN ENGINEER

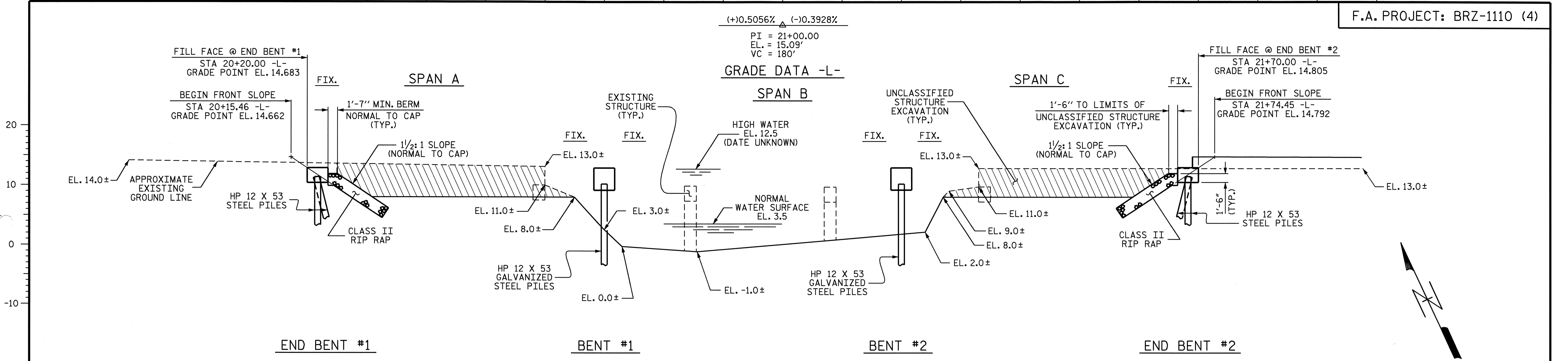
STRUCTURE DESIGN UNIT  
1000 BIRCH RIDGE DR.  
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER  
DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

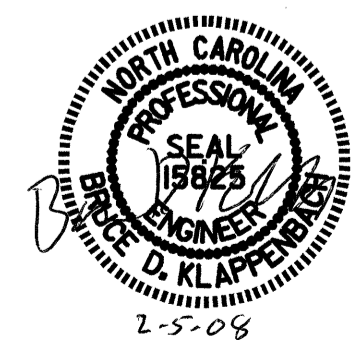
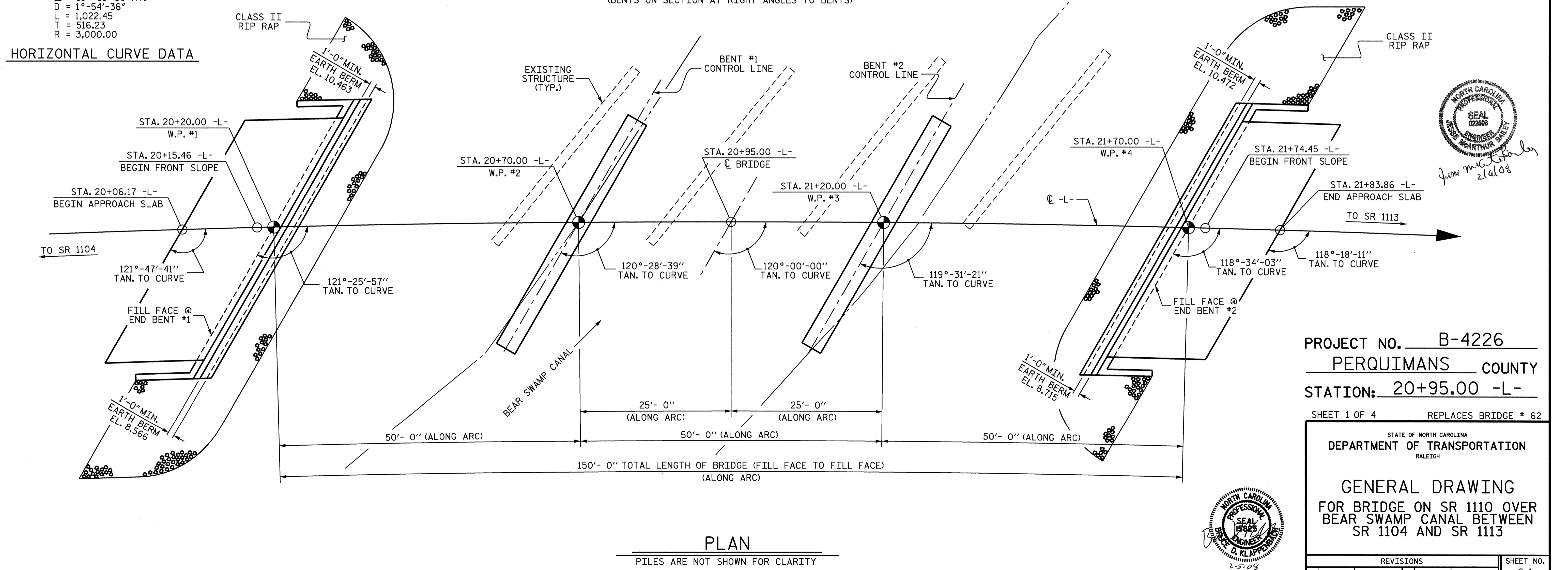
APPROVED  
DIVISION ADMINISTRATOR

DATE



**HORIZONTAL CURVE DATA**

PI STA. = 23+40.76 -L-  
 Δ = 19°-31'-39" RT.  
 D = 1°-54'-36"  
 L = 1,022.45  
 T = 516.23  
 R = 3,000.00



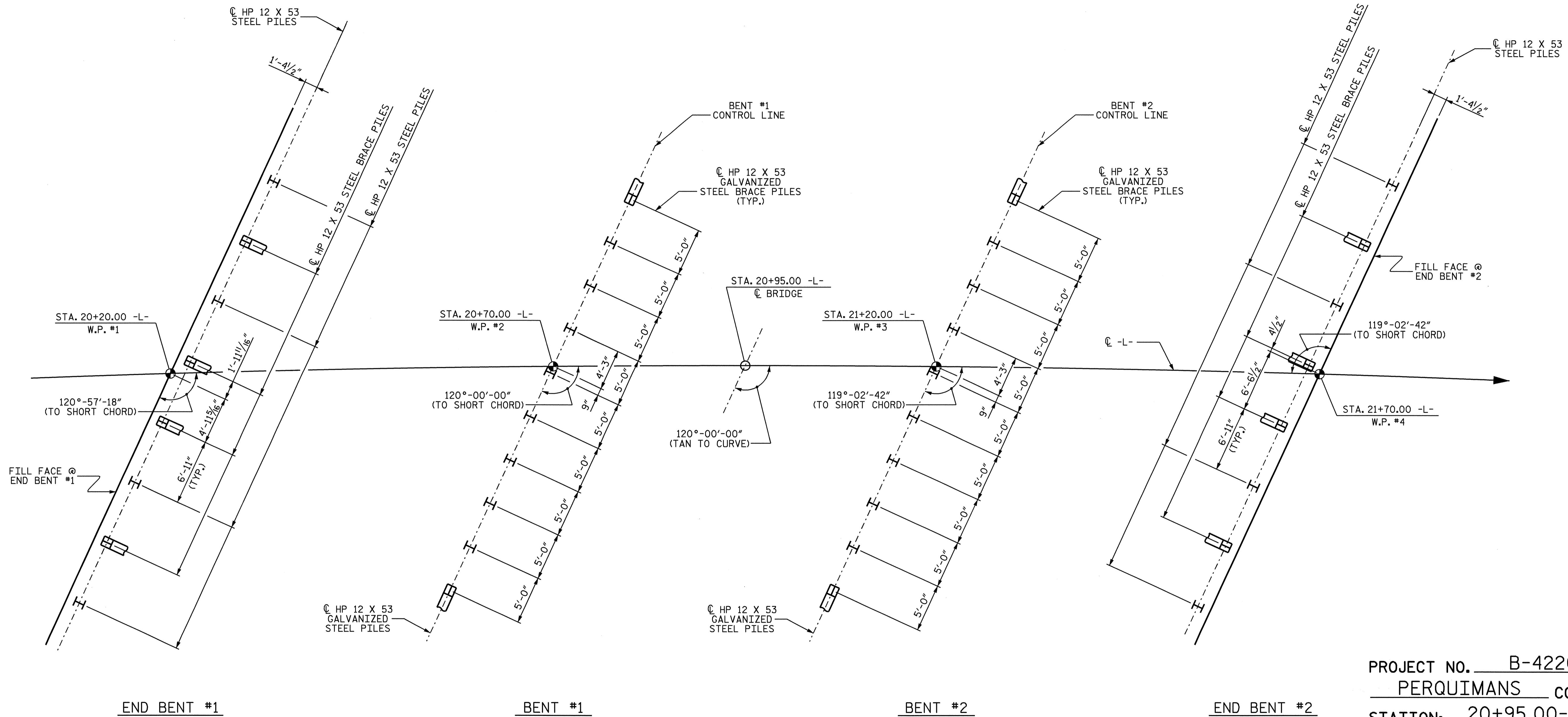
PROJECT NO. B-4226  
 PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-  
 SHEET 1 OF 4      REPLACES BRIDGE # 62

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON SR 1110 OVER  
 BEAR SWAMP CANAL BETWEEN  
 SR 1104 AND SR 1113

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

DRAWN BY : A. SORSENGINH      DATE : 11-6-07  
 CHECKED BY : CR. YARBROUGH      DATE : 12/07



**FOUNDATION LAYOUT**

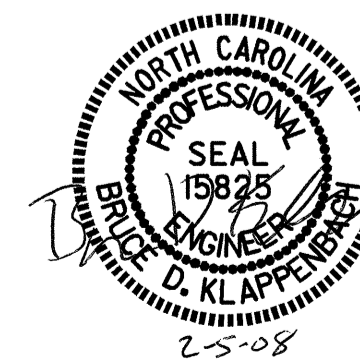
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.  
 BRACE PILES AT END BENT #1 AND #2 ARE BATTERED 3 : 12  
 BRACE PILES AT BENT #1 AND #2 ARE BATTERED 1/2 : 12

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00-L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE ON SR 1110 OVER  
 BEAR SWAMP CANAL BETWEEN  
 SR 1104 AND SR 1113



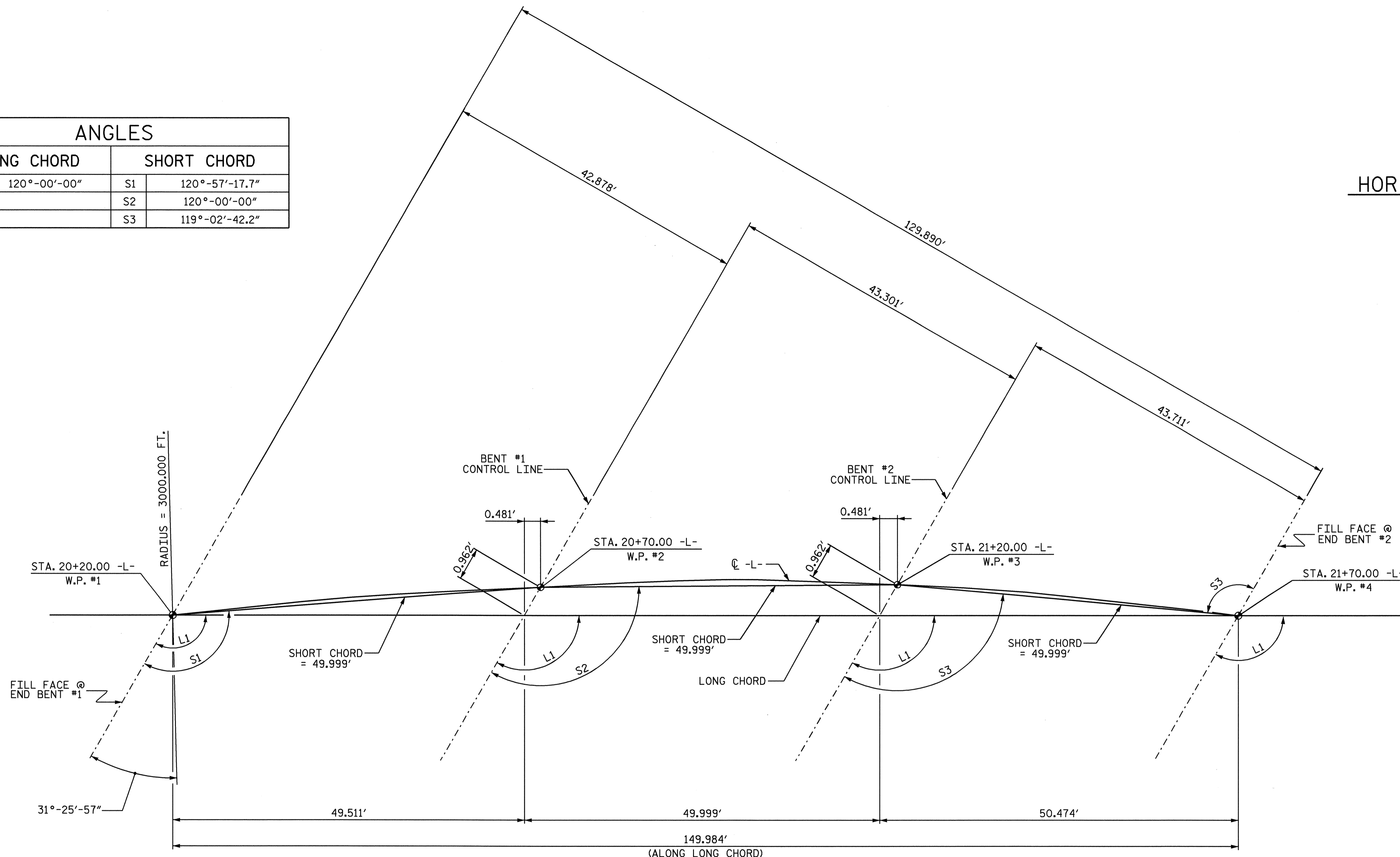
DRAWN BY : A. SORSENGINH DATE : 7/30/07  
 CHECKED BY : CR. YARBROUGH DATE : 12/07

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

ANGLES			
LONG CHORD		SHORT CHORD	
L1	120°-00'-00"	S1	120°-57'-17.7"
		S2	120°-00'-00"
		S3	119°-02'-42.2"

**HORIZONTAL CURVE DATA**

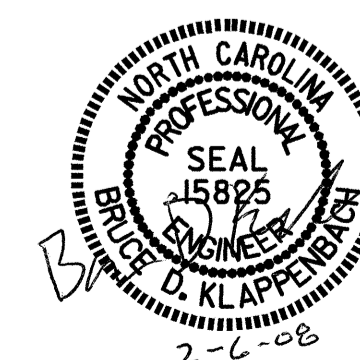
PI = 23+40.76 -L-  
 $\Delta$  = 19°-31'-38.8" RT.  
D = 1°-54'-35.5"  
L = 1,022.45'  
T = 516.23'  
R = 3,000.00'



**LONG CHORD LAYOUT**  
NOTE: ALL BENTS ARE PARALLEL.

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
STATION: 20+95.00 -L-

SHEET 3 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**  
FOR BRIDGE ON SR 1110 OVER  
BEAR SWAMP CANAL BETWEEN  
SR 1104 AND SR 1113

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

DRAWN BY : A. SORSENGINH DATE : 7/31/07  
CHECKED BY : CR. YARBROUGH DATE : 12/07

BENCH MARK: RR SPIKE IN BASE OF 20" CYPRESS 41' RIGHT OF -L- STA. 22+71.00, EL. 8.84, DATUM NAVD 88

**NOTES**

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

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

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

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS @ 25', WITH A REINFORCED CONCRETE DECK WITH 1/4" OF ASPHALT WEARING SURFACE ON 6 LINES OF 18" I-BEAMS, WITH A CLEAR ROADWAY WIDTH OF 24'-0", ON TIMBER CAPS AND TIMBER PILES AT THE END BENTS AND INTERIOR BENTS (STEEL CRUTCHES AT THE INTERIOR BENTS) LOCATED AT THE SAME LOCATION AS THE PROPOSED STRUCTURE, SHALL BE REMOVED. SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE AT STATION 20+95.00 -L-. THE BRIDGE IS PRESENTLY NOT POSTED.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED 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.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

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.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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

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 20+95.00 -L-".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO.1 AND END BENT NO.2 IS 50 TONS PER PILE.

DRIVE PILES AT BENT NO.1 AND BENT NO.2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ANY ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

ALLOWABLE BEARING CAPACITY FOR PILES AT BENT NO.1 AND BENT NO.2 IS 50 TONS PER PILE.

DRIVE PILES AT BENT NO.1 AND BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN -28 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 AND BENT NO.2 IS ELEVATION -12 FT. 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. SEE PILE DRIVING ANALYZER SPECIAL PROVISION.

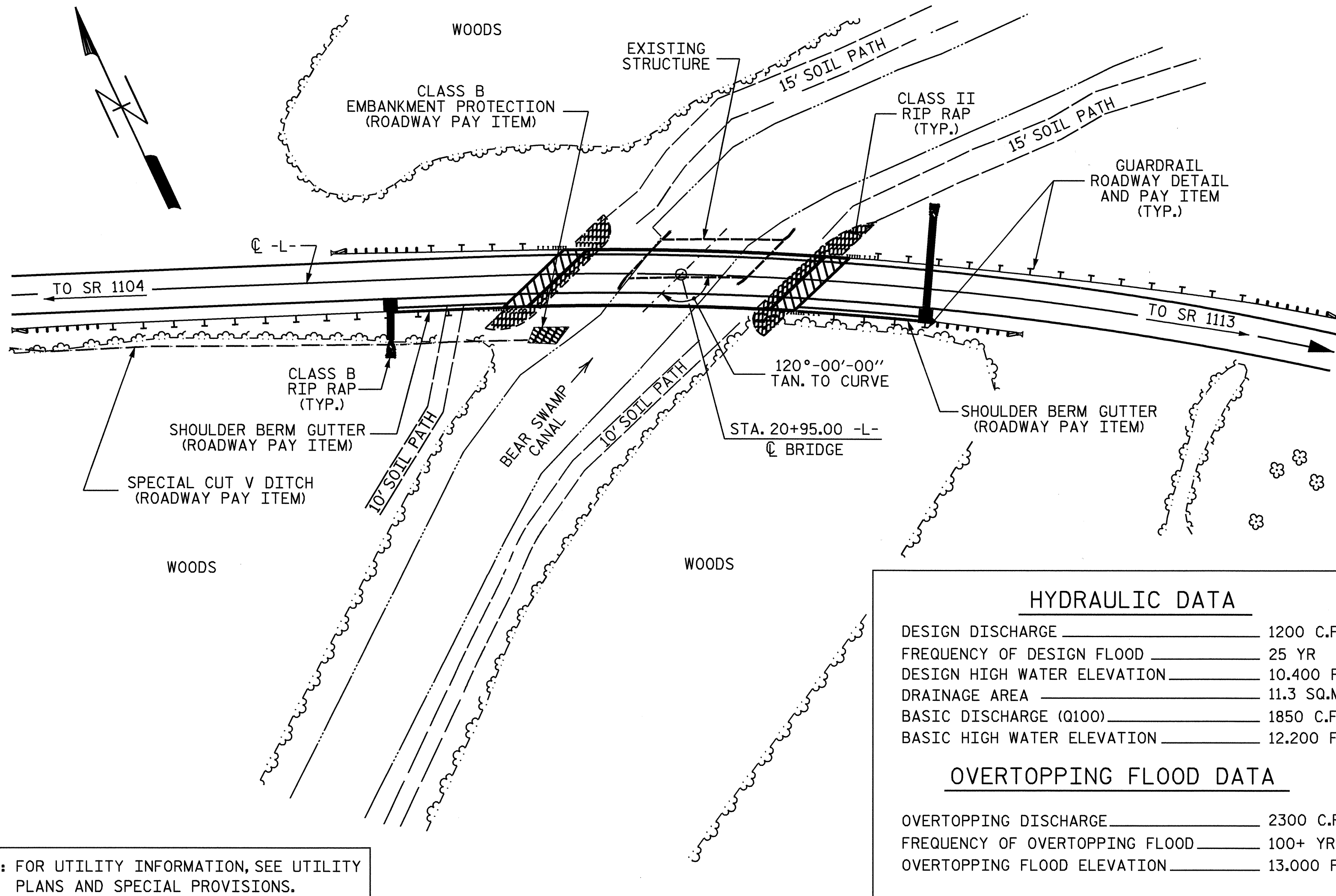
PILE RESTRIKES FOR LRFD MAY BE REQUIRED FOR PILES AT BENT NO.1 OR BENT NO.2. SEE PILE RESTRIKES FOR LRFD SPECIAL PROVISION.

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

FOR CRANE SAFETY, SEE SPECIAL PROVISION.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISION.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

**TOTAL BILL OF MATERIAL**

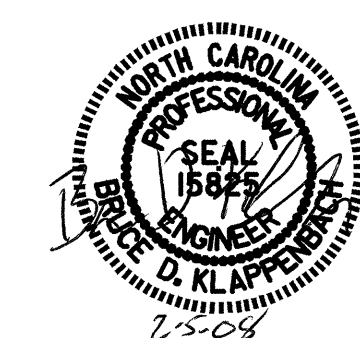
	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	HP 12 X 53 GALVANIZED STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB				
	LUMP SUM	EACH	EACH	CU. YDS.	CU. YDS.	LUMP SUM	LB	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YD.	LUMP SUM	NO.	LIN. FT.	
SUPERSTRUCTURE																			
END BENT NO. 1				475	15.8		2582	8	560								39	1912.29	
BENT NO. 1					12.7		2258												
BENT NO. 2					12.7		2258												
END BENT NO. 2				385	15.8		2580	8	280										
TOTAL	LUMP SUM	1	1	860	57.0	LUMP SUM	9678	16	840	20	1150	20	294.70	241	267	LUMP SUM	39	1912.29	

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 4 OF 4

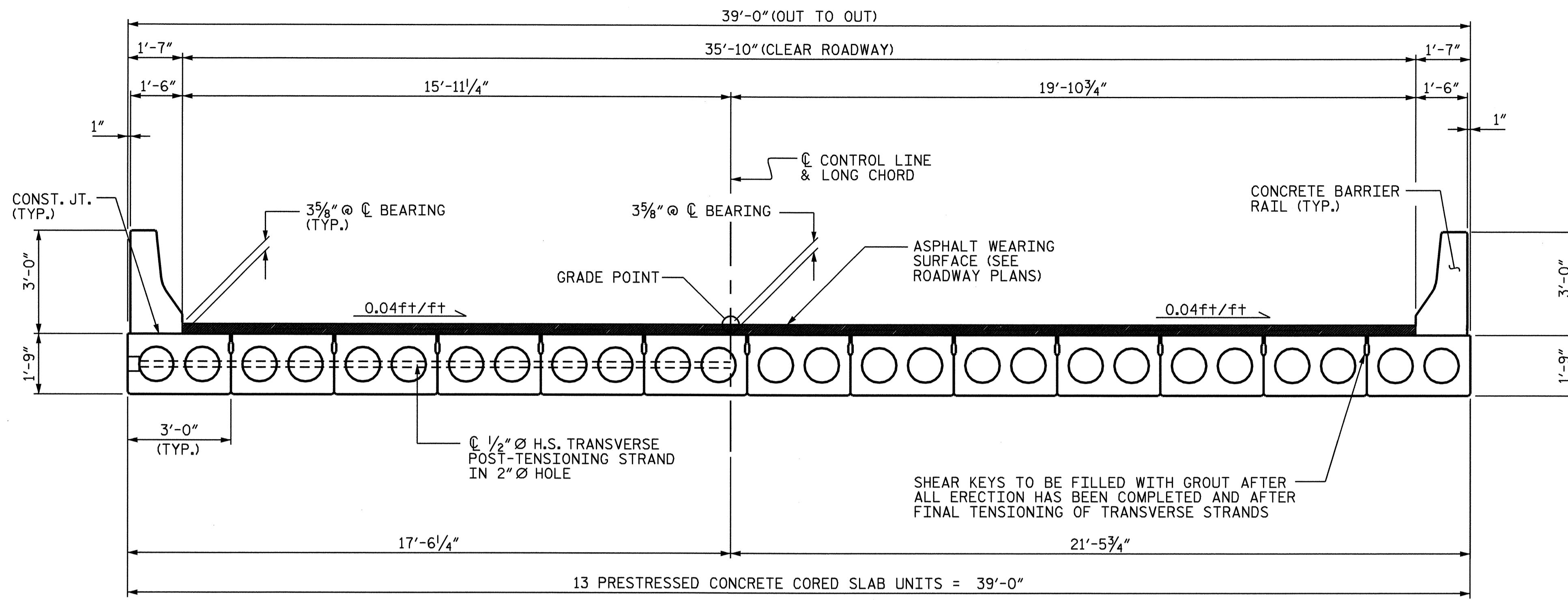
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE ON SR 110 OVER  
 BEAR SWAMP CANAL BETWEEN  
 SR 1104 AND SR 1113

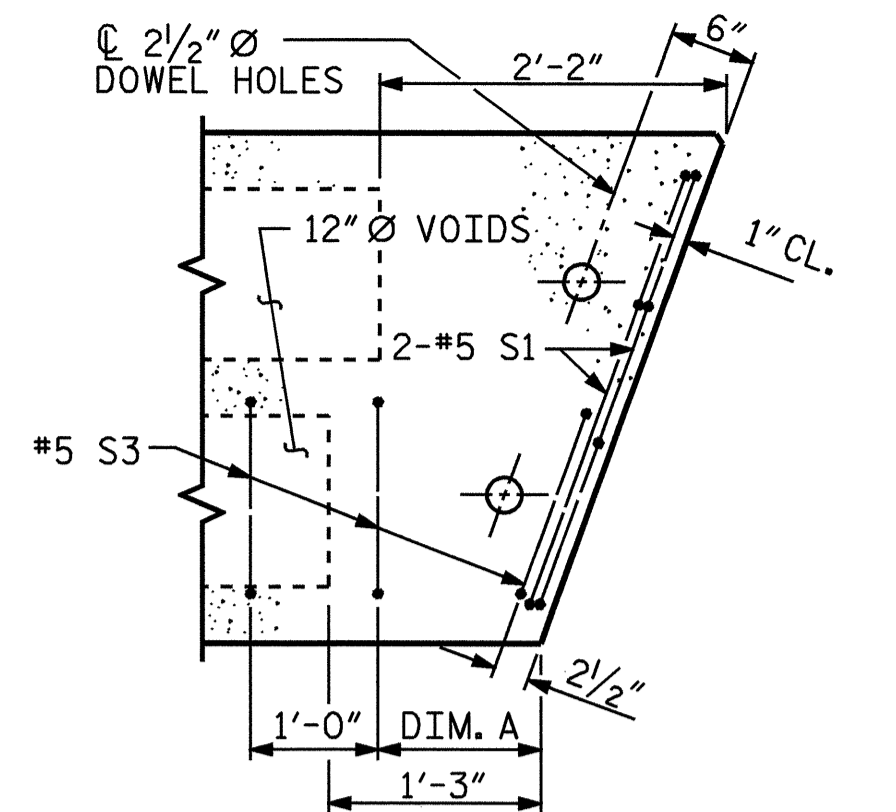


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			27

DRAWN BY: A. SORSENGINH DATE: 11-6-07  
 CHECKED BY: CR. YARBROUGH DATE: 12/07

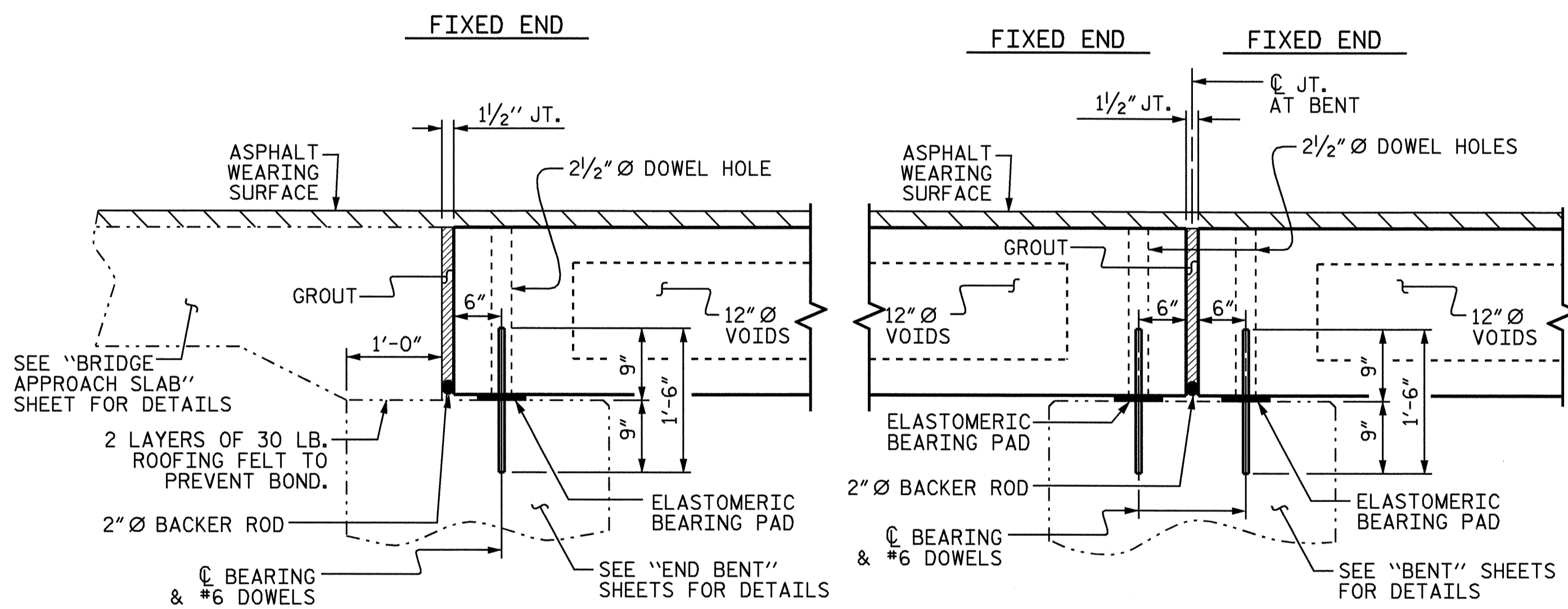


TYPICAL SECTION



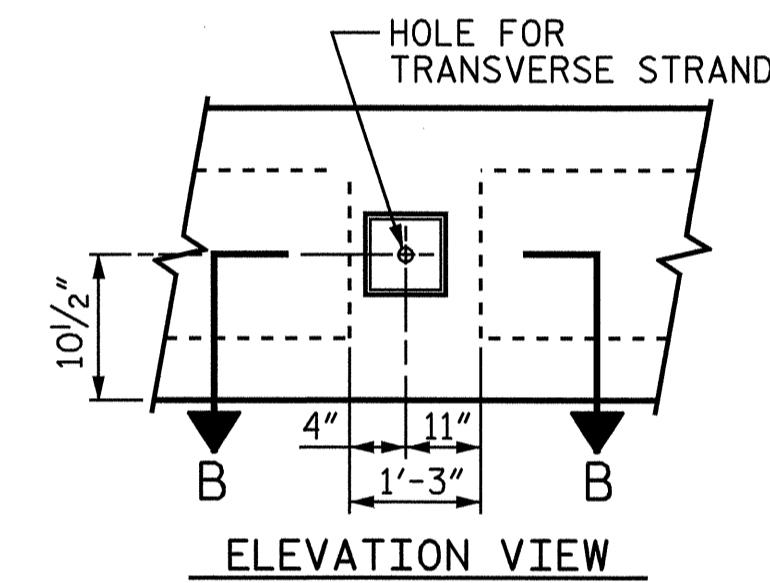
PART PLAN-EXTERIOR SECTION

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

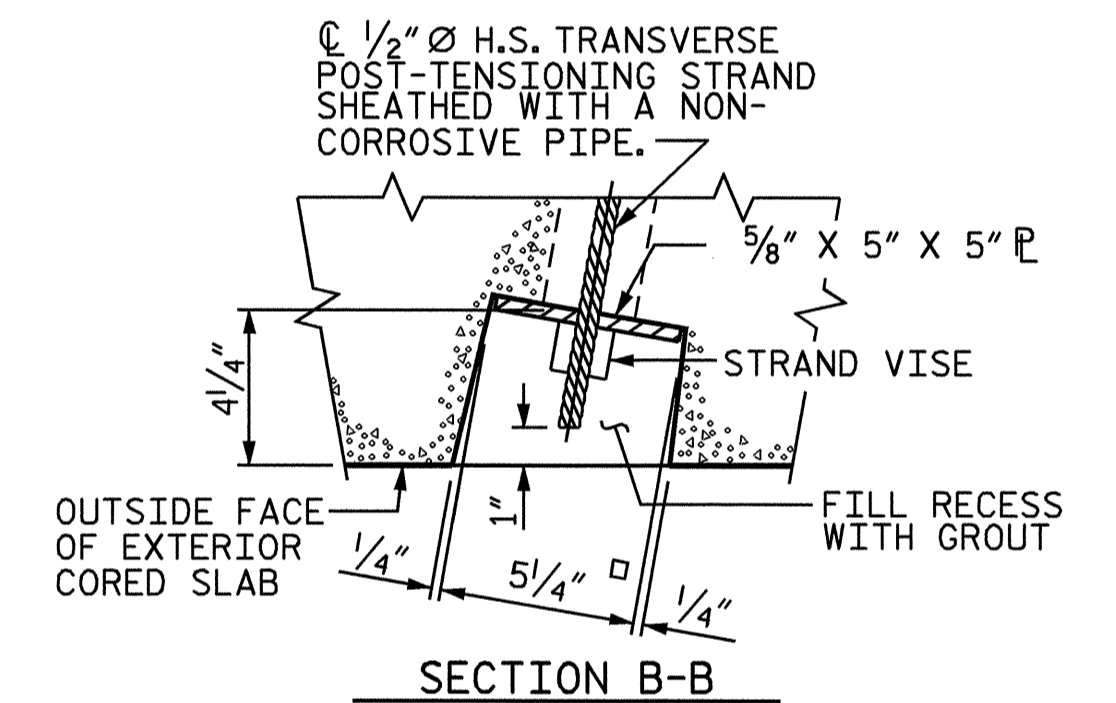


SECTION AT END BENT

SECTION AT BENT

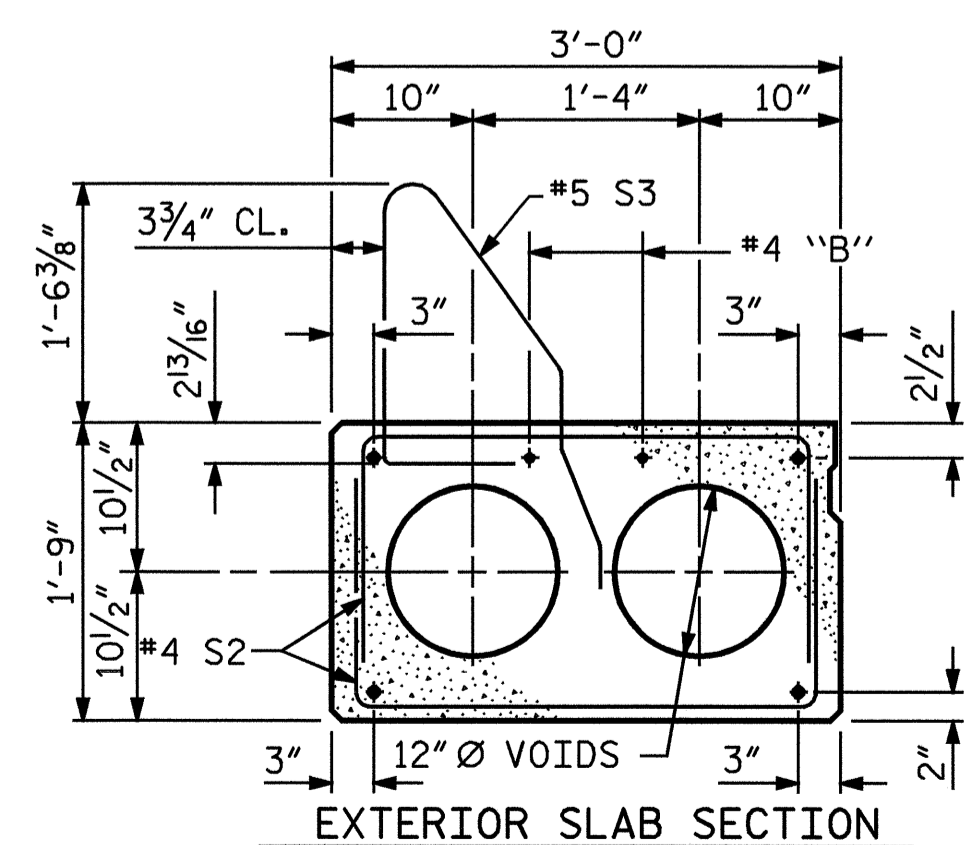


ELEVATION VIEW



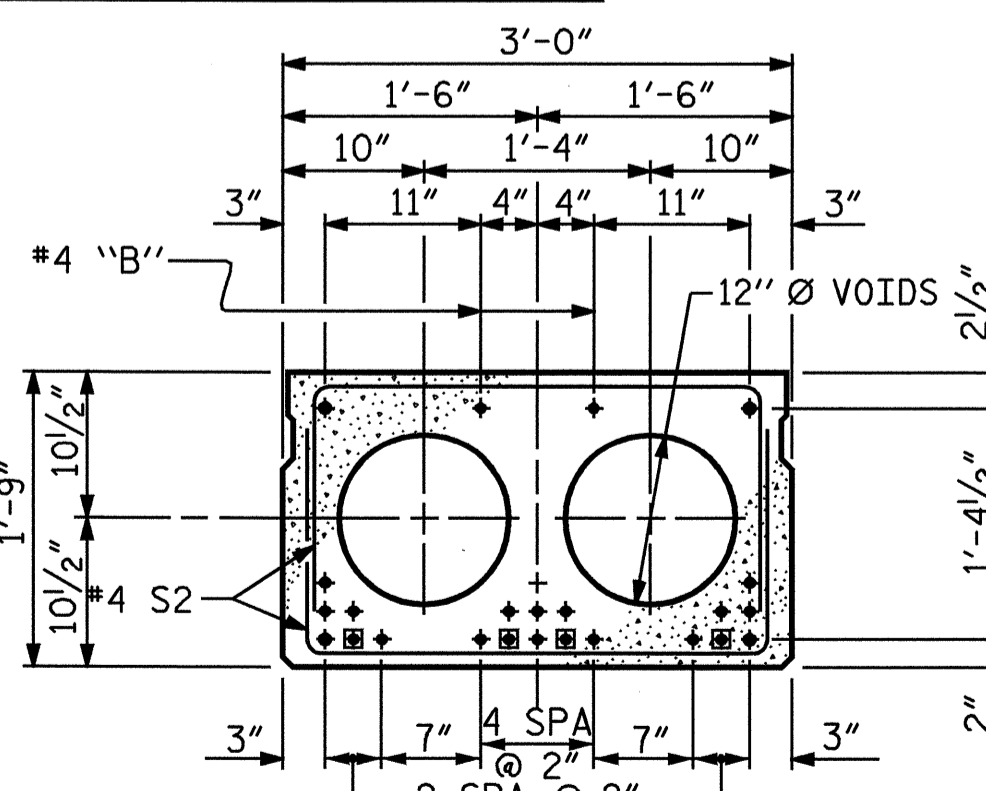
SECTION B-B

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

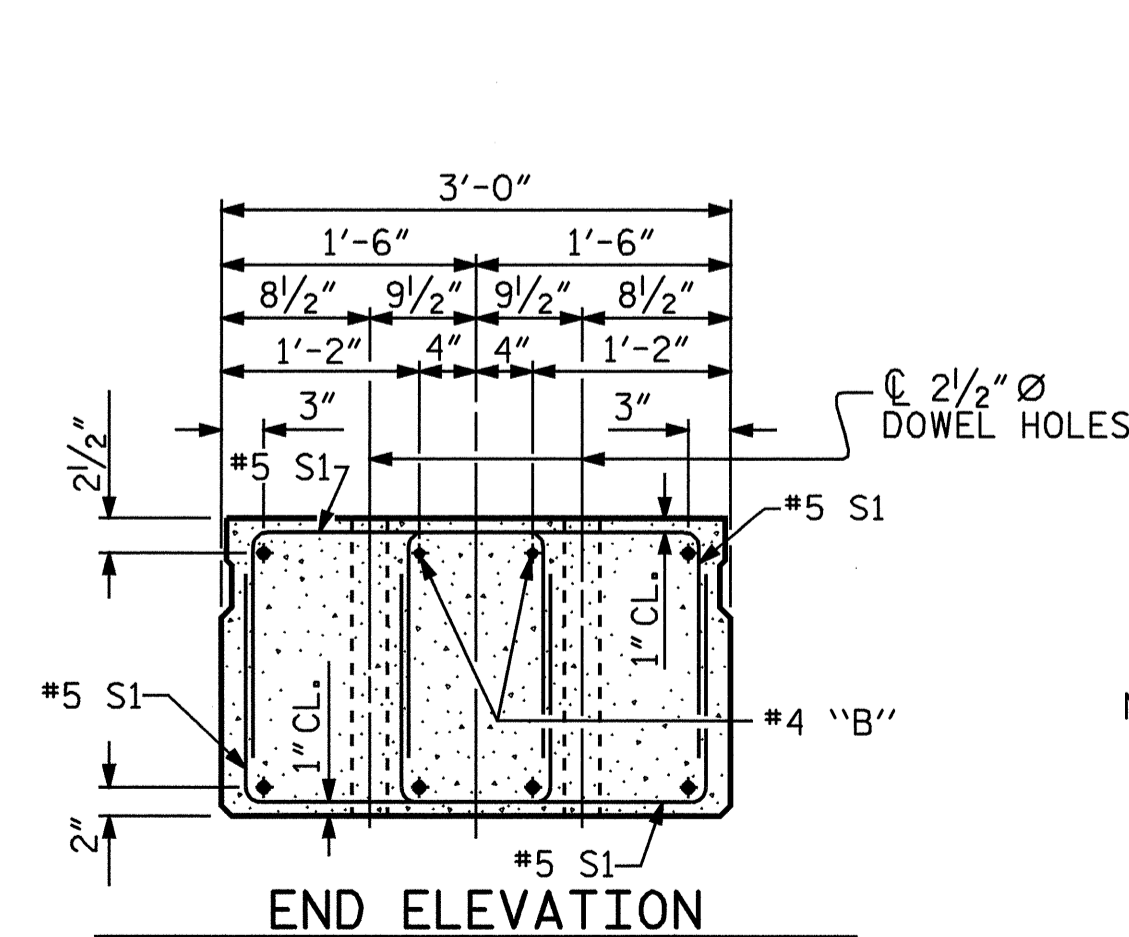


EXTERIOR SLAB SECTION

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

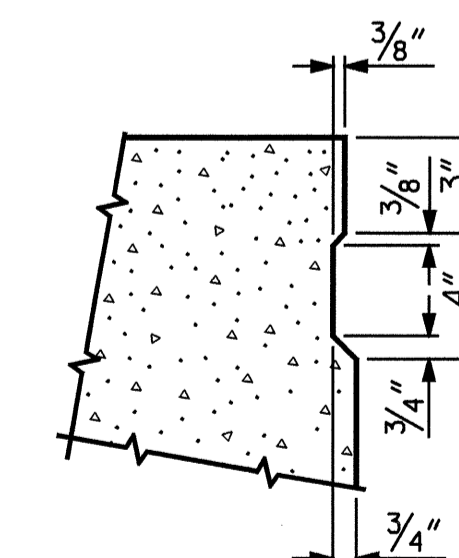


INTERIOR SLAB SECTION  
1/2" Ø LOW RELAXATION STRAND LAYOUT



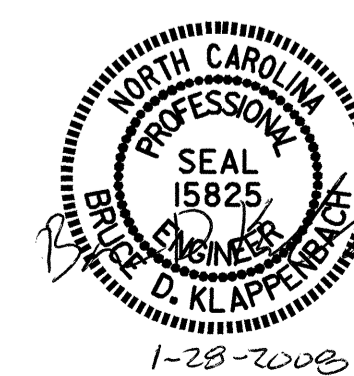
END ELEVATION

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.



SHEAR KEY DETAIL

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



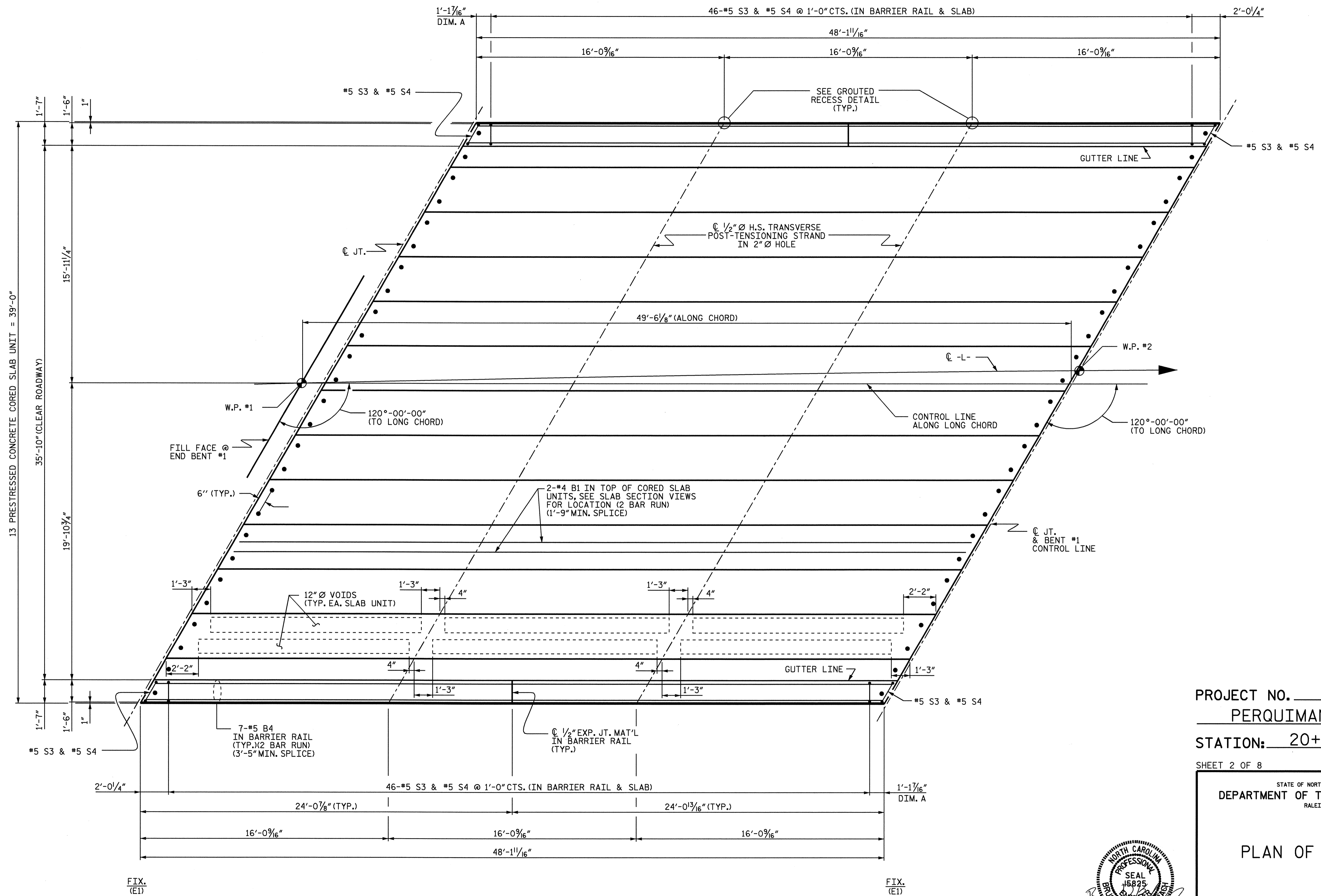
PROJECT NO. B-4226  
PERQUIMANS COUNTY  
STATION: 20+95.00 -L-

SHEET 1 OF 8

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

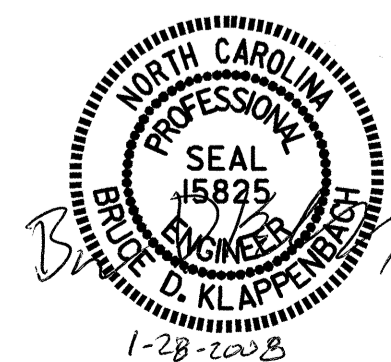
REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

ASSEMBLED BY: C.R. YARBROUGH	DATE: 04/07
CHECKED BY: M.G. SHAIKH	DATE: 11/07
DRAWN BY: WJH	4/89
CHECKED BY: FCJ	5/89
REV. 10/17/00	RWW/LES
REV. 7/10/01RR	RWW/LES
REV. 5/1/06	TLA/GM



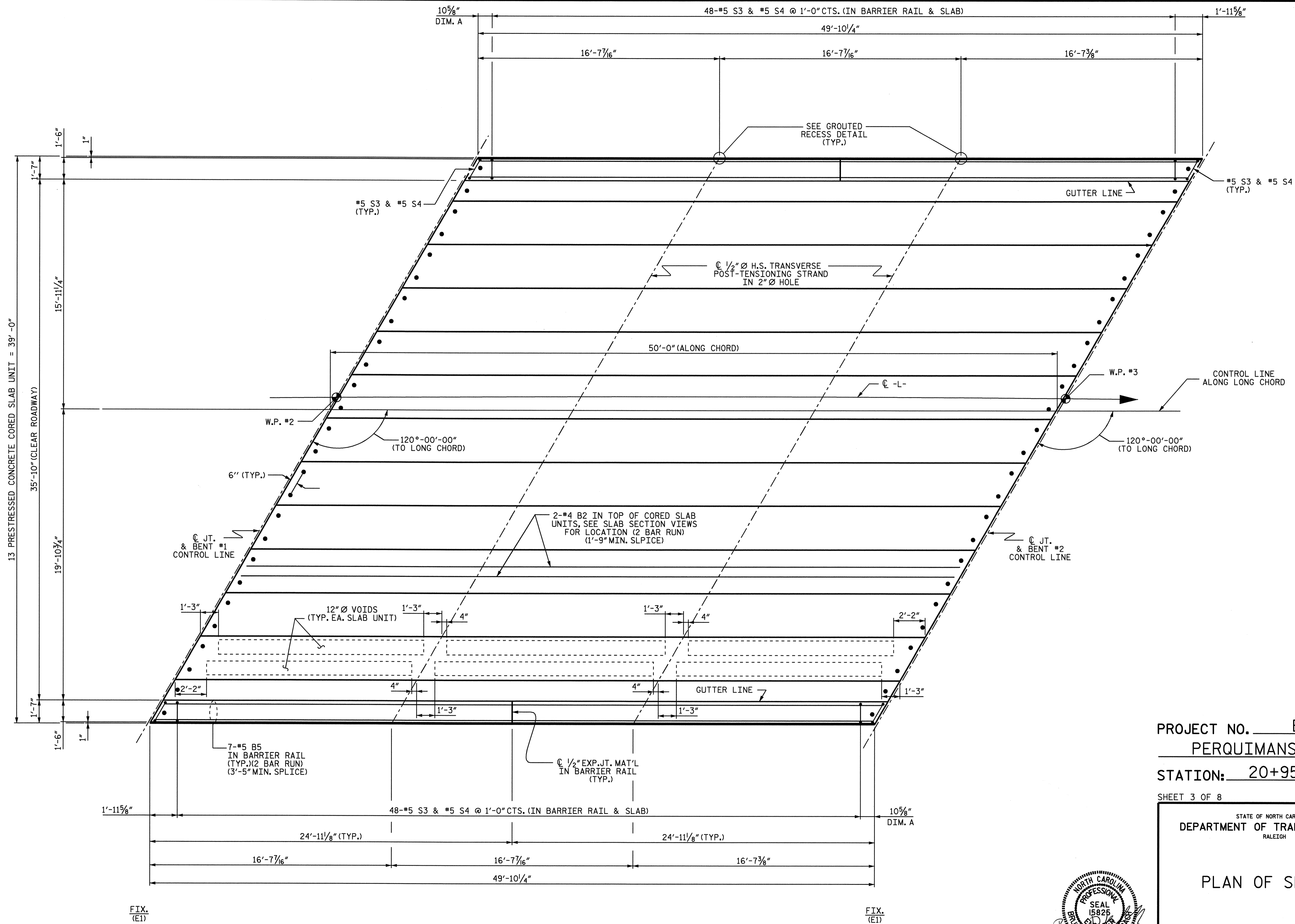
**PLAN OF SPAN A**

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-  
 SHEET 2 OF 8



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
PLAN OF SPAN A						S-6
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	27
1			3			
2			4			

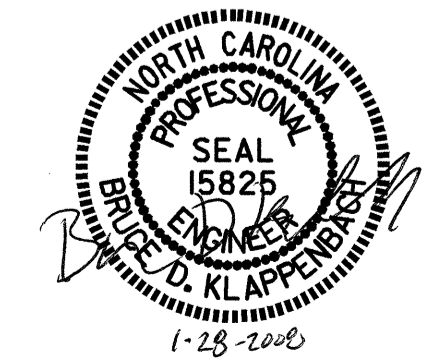
DRAWN BY: C.R. YARBROUGH DATE: 04/07  
 CHECKED BY: M.G. SHAIKH DATE: 11/07



PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-  
 SHEET 3 OF 8

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPAN B



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

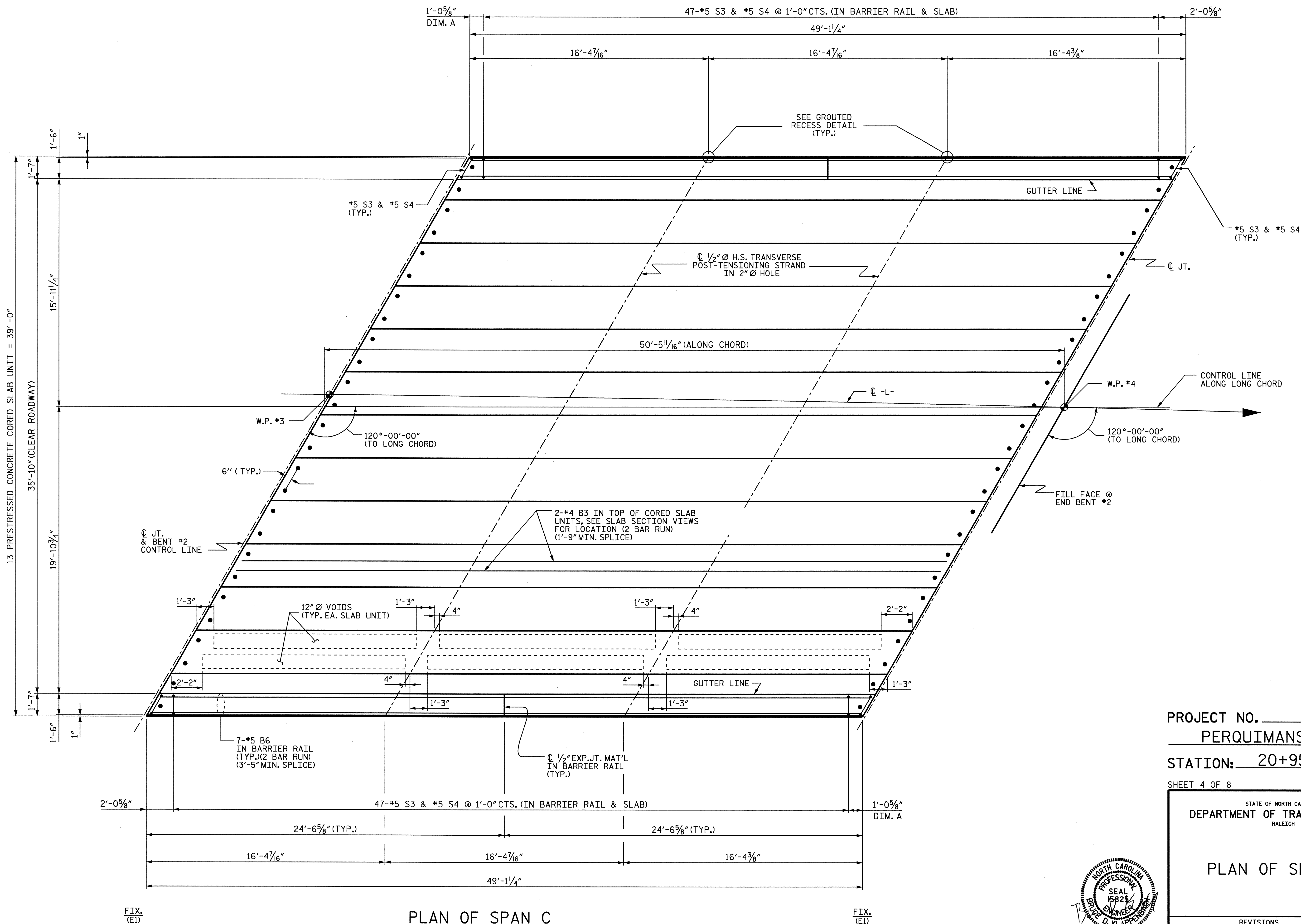
TOTAL SHEETS: 27

DRAWN BY: C.R. YARBROUGH DATE: 04/07  
 CHECKED BY: M.G. SHAIKH DATE: 11/07

PLAN OF SPAN B

25-JAN-2008 15:51  
 Z:\structures\yayarbrough\B-4226.sd.os.dgn  
 cyarbrough

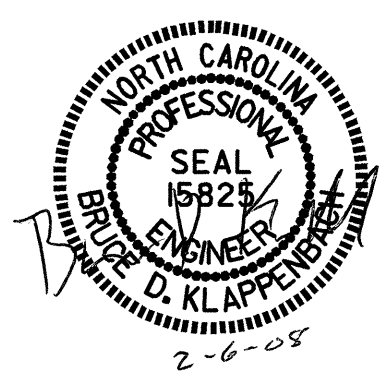




**PLAN OF SPAN C**

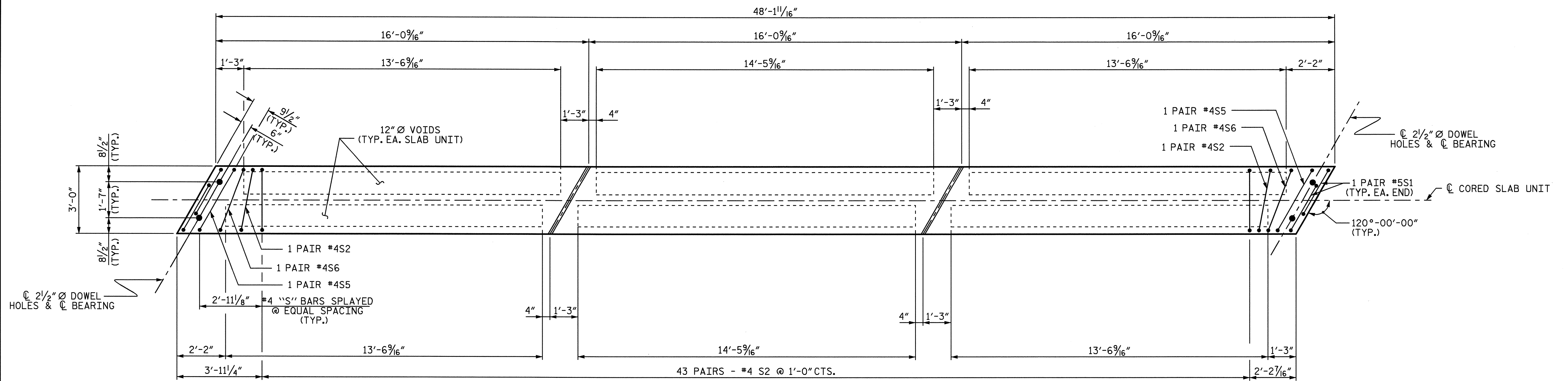
PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-  
 SHEET 4 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPAN C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-8
					TOTAL SHEETS 27

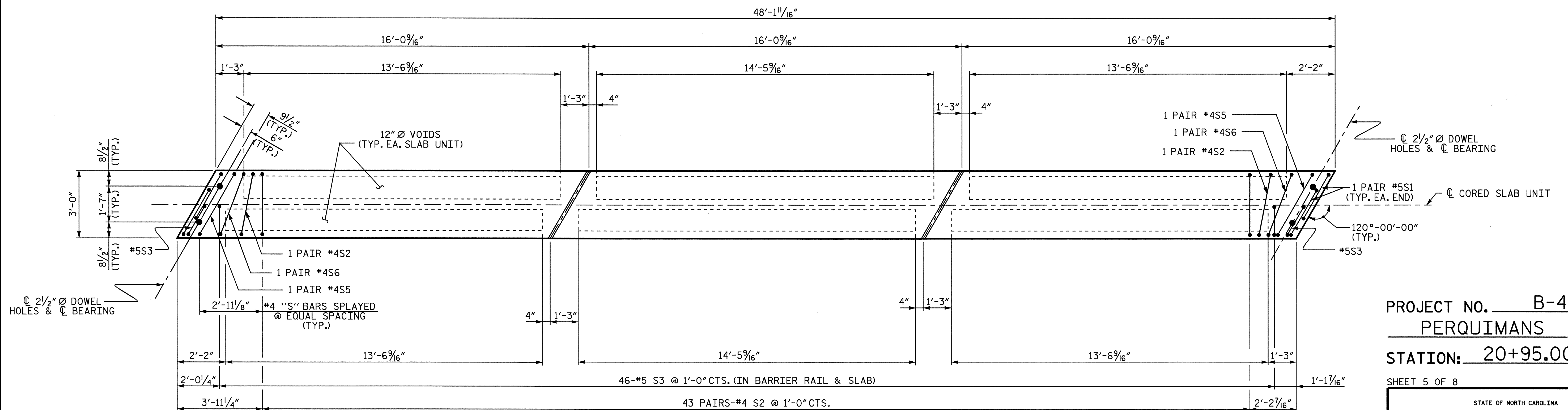


DRAWN BY: C.R. YARBROUGH DATE: 04/07  
 CHECKED BY: M.G. SHAIKH DATE: 11/07

06-FEB-2008 09:52  
 r:\structures\cyarborough\b-4226\_sd.cs.dgn  
 cyarborough



PLAN OF INTERIOR SLAB-SPAN A



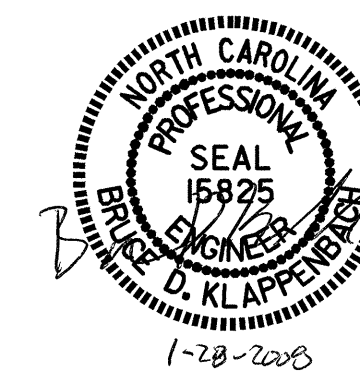
PLAN OF EXTERIOR SLAB-SPAN A

PROJECT NO. B-4226  
 PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 5 OF 8

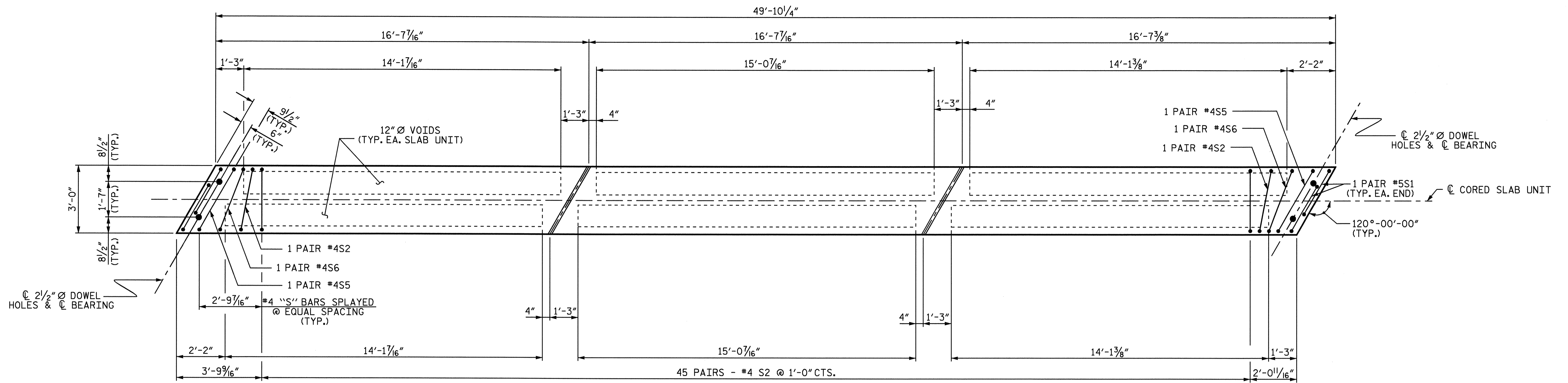
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

CORED SLAB UNIT  
 DETAILS  
 PLAN OF SPAN A

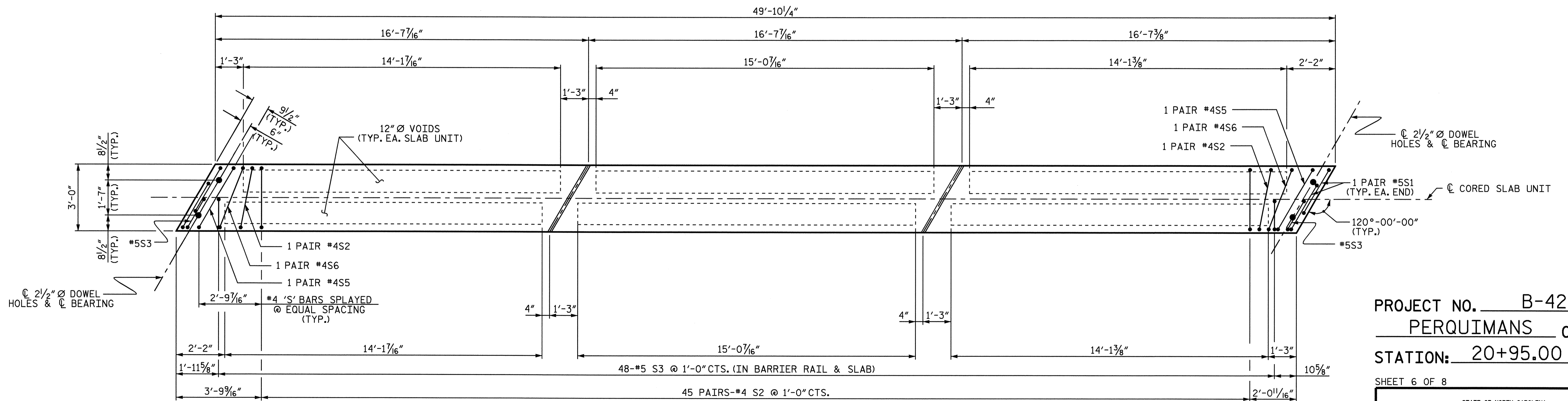


DRAWN BY: C.R. YARBROUGH DATE: 05/07  
 CHECKED BY: M.G. SHAIKH DATE: 11/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			27



PLAN OF INTERIOR SLAB-SPAN B

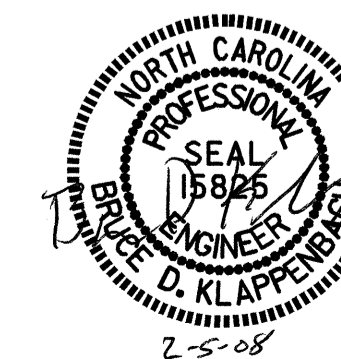


PLAN OF EXTERIOR SLAB-SPAN B

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-  
 SHEET 6 OF 8

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

CORED SLAB UNIT  
 DETAILS  
 PLAN OF SPAN B

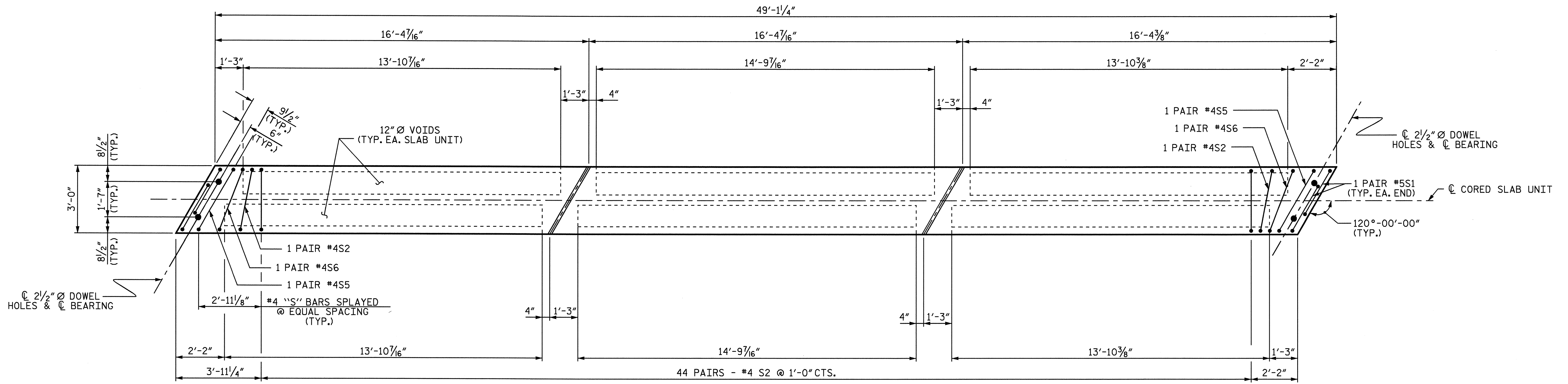


DRAWN BY : C.R. YARBROUGH DATE : 05/07  
 CHECKED BY : M.G. SHAIKH DATE : 11/07

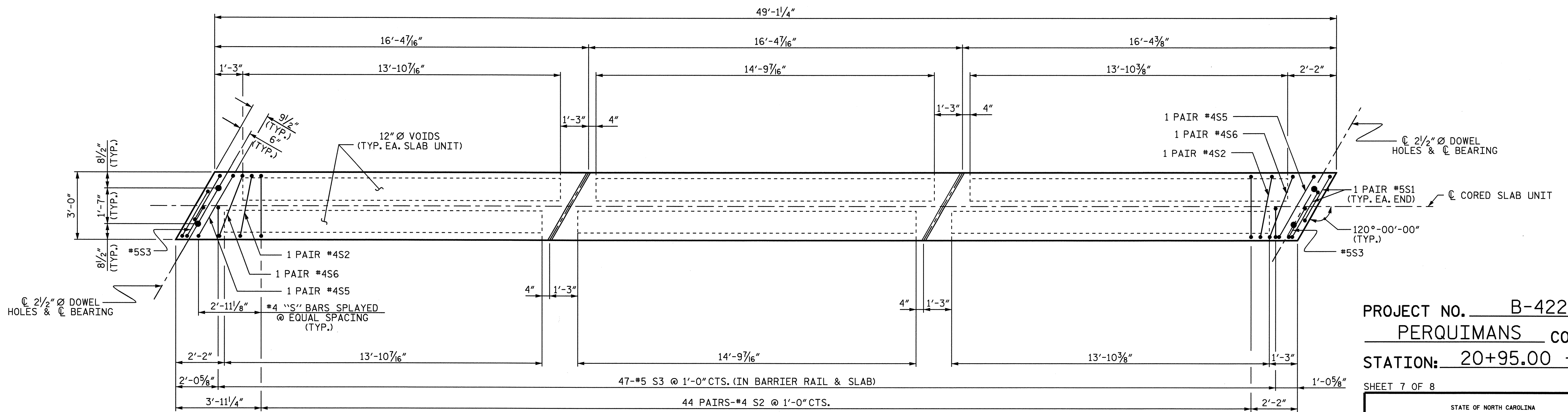
05-FEB-2008 14:36  
 r:\structures\cyarborough\b-4226.sd.cs.dgn  
 cyarborough

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

TOTAL SHEETS: 27



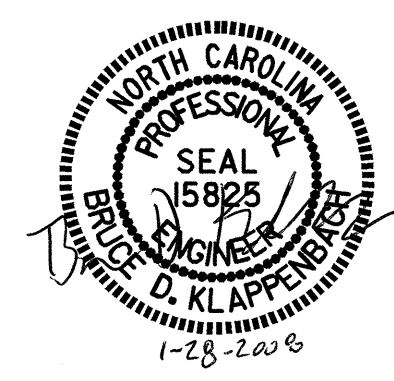
PLAN OF INTERIOR SLAB-SPAN C



PLAN OF EXTERIOR SLAB-SPAN C

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-  
 SHEET 7 OF 8

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 CORED SLAB UNIT  
 DETAILS  
 PLAN OF SPAN C

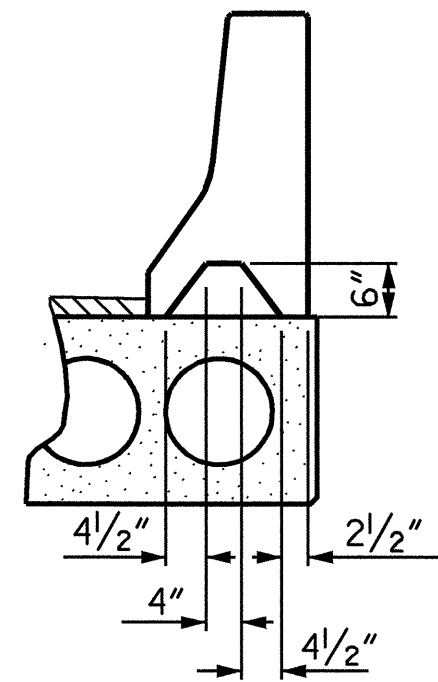
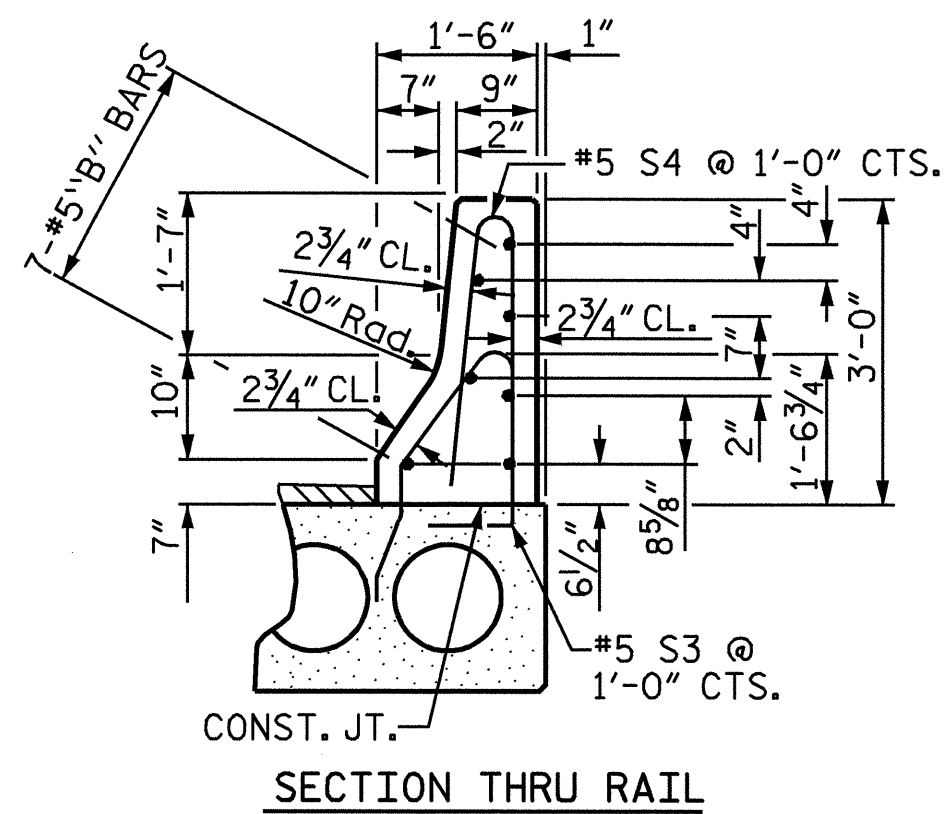


DRAWN BY: C.R. YARBROUGH DATE: 05/07  
 CHECKED BY: M.G. SHAIKH DATE: 11/07

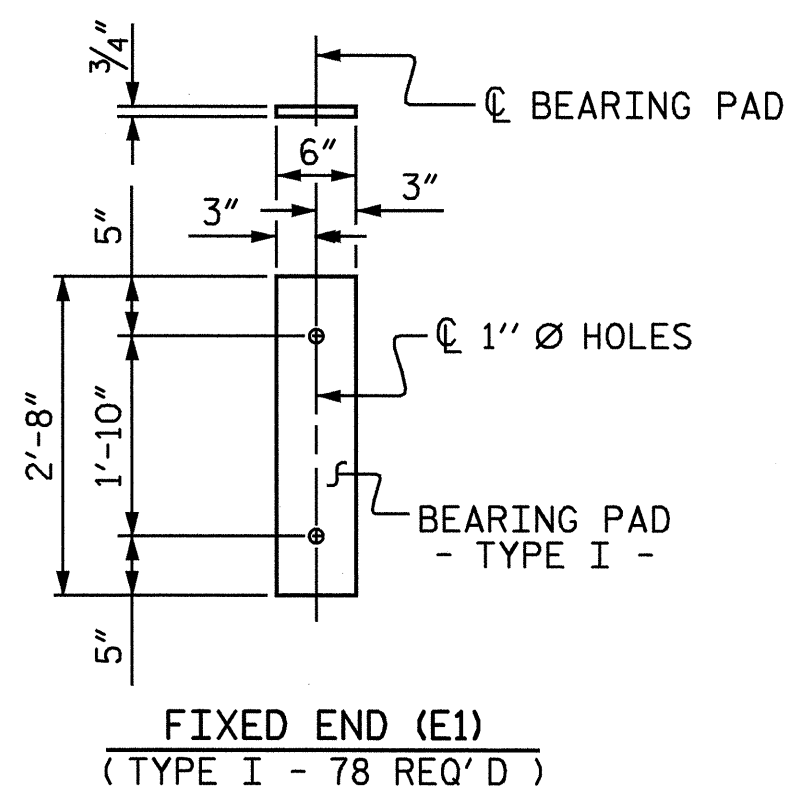
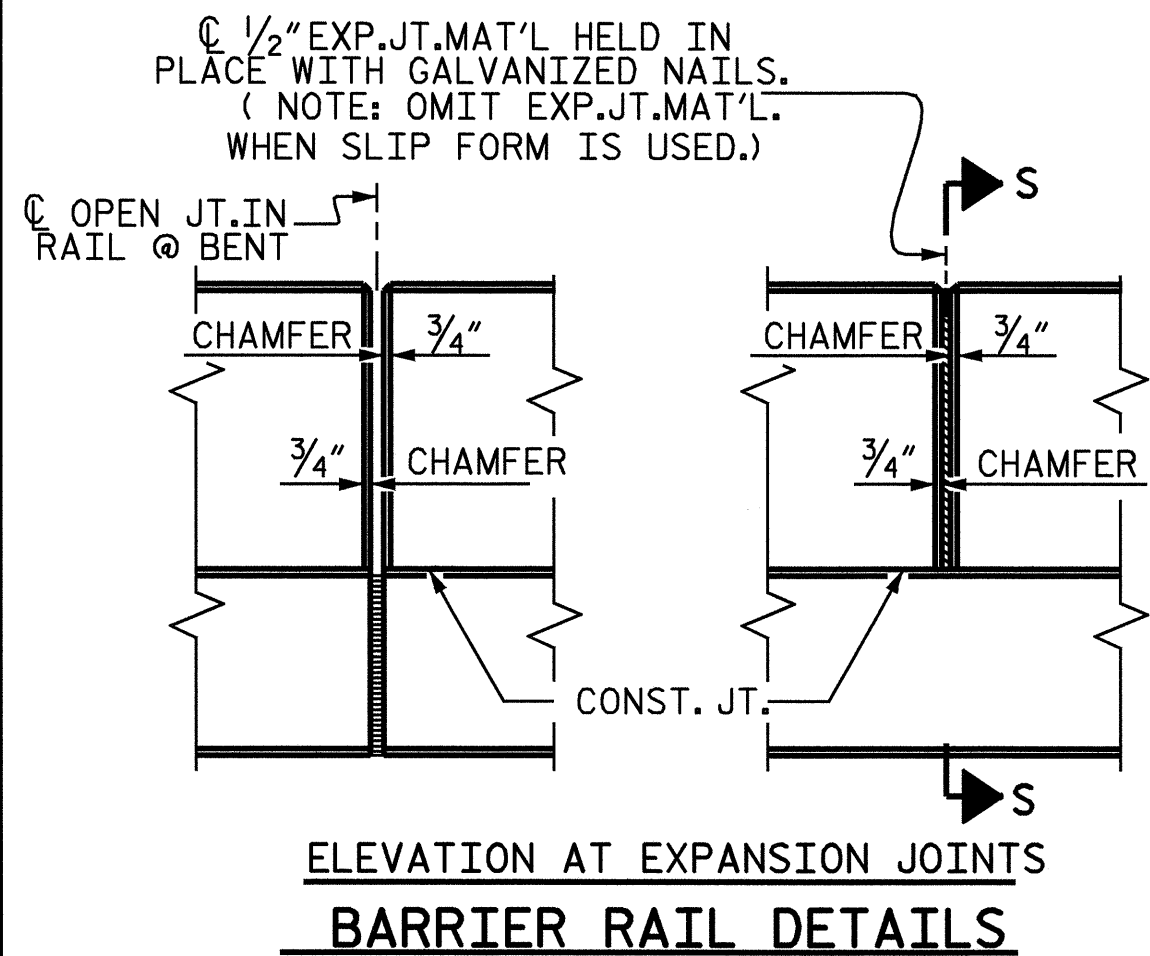
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			27

25-JAN-2008 15:52  
 z:\structures\cyarborough\b-4226.sd.cs.dgn  
 cyarborough

GRADE 270 STRANDS	
AREA ( SQUARE INCHES )	1/2" Ø L.R.
ULTIMATE STRENGTH ( LBS. PER STRAND )	41,300
APPLIED PRESTRESS ( LBS. PER STRAND )	30,980



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



ELASTOMERIC BEARING DETAILS

DEAD LOAD DEFLECTION AND CAMBER		
	INTERIOR	EXTERIOR
	3'-0" x 1'-9"	3'-0" x 1'-9"
	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND
CAMBER ( SLAB ALONE IN PLACE )	1 1/16" ↑	1 1/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/4" ↓	1/4" ↓
FINAL CAMBER	1 1/16" ↑	1 1/16" ↑

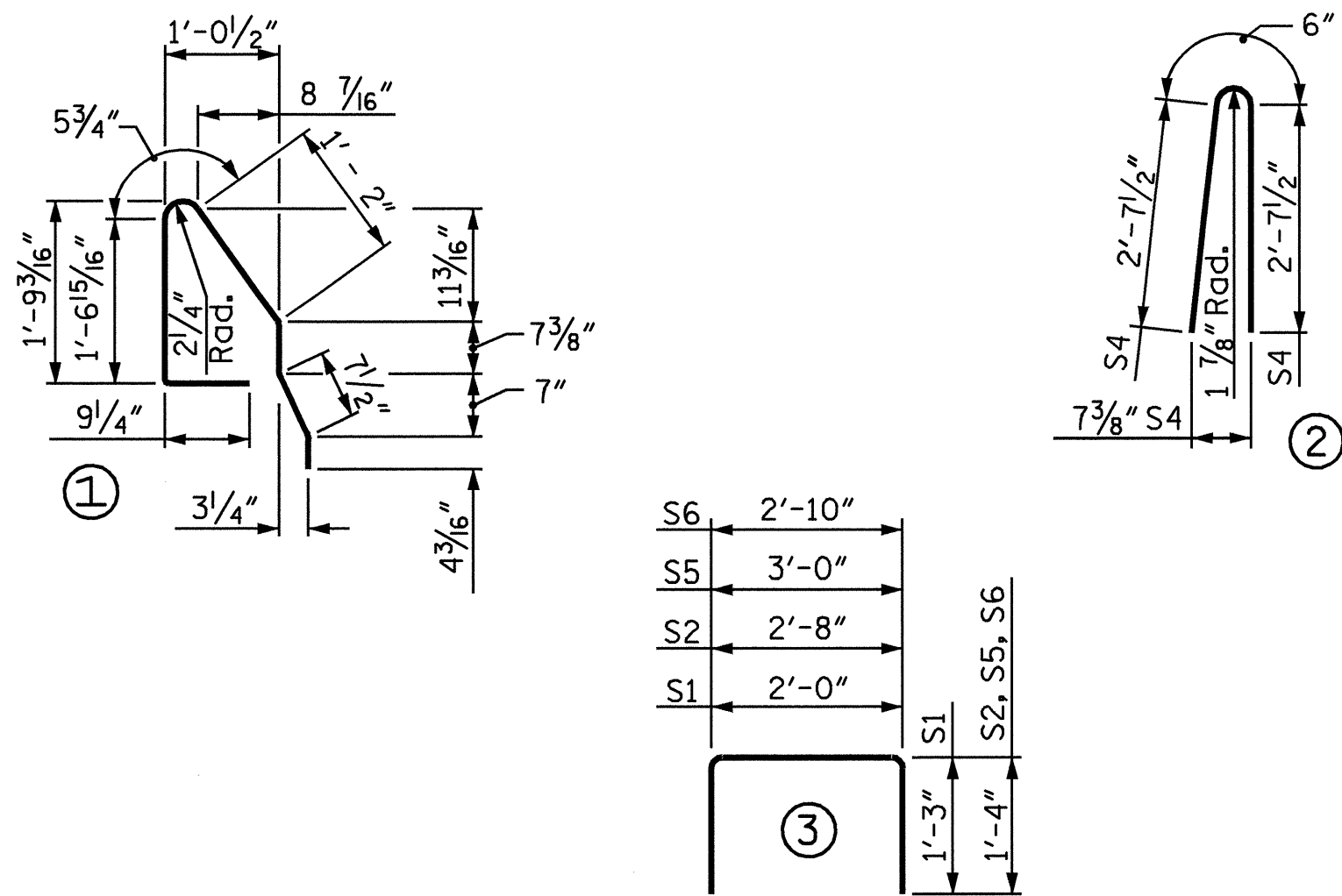
\*\* INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED							
	SPAN 'A'		SPAN 'B'		SPAN 'C'		TOTAL LENGTH
UNIT TYPE	NUMBER	LENGTH	NUMBER	LENGTH	NUMBER	LENGTH	
INTERIOR	11	48'-1 1/16"	11	49'-10 1/4"	11	49'-1 1/4"	
EXTERIOR	2	48'-1 1/16"	2	49'-10 1/4"	2	49'-1 1/4"	
TOTAL	13	625'-9 5/16"	13	648'-1 1/4"	13	638'-4 1/4"	1912'-3 1/16"

ASSEMBLED BY : C.R. YARBROUGH DATE : 04/07  
 CHECKED BY : M.G. SHAIKH DATE : 11/07  
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES  
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE  
 REV. 5/1/06 TLA/GM

25-JAN-2008 15:52  
 z:\structure\es\yayarbrough\B-4226.sd.cs.dgn  
 cyarbrough

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB UNIT SPAN A

BAR	SIZE	TYPE	INTERIOR			EXTERIOR		
			NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT
B1	#4	STR	4	24'-10"	66	4	24'-10"	66
S1	#5	3	8	4'-6"	38	8	4'-6"	38
S2	#4	3	90	5'-4"	321	90	5'-4"	321
*S3	#5	1				48	5'-7"	280
S5	#4	3	4	5'-8"	15	4	5'-8"	15
S6	#4	3	4	5'-6"	15	4	5'-6"	15
REINFORCING STEEL LB.					455			455
*EPOXY COATED REINF. STEEL LB.								280
5000 PSI CONCRETE CU.FT					6.9			7.0
1/2" Ø L.R. STRANDS NO.					22			22

BILL OF MATERIAL FOR ONE CORED SLAB UNIT SPAN B

BAR	SIZE	TYPE	INTERIOR			EXTERIOR		
			NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT
B2	#4	STR	4	25'-8"	69	4	25'-8"	69
S1	#5	3	8	4'-6"	38	8	4'-6"	38
S2	#4	3	94	5'-4"	335	94	5'-4"	335
*S3	#5	1				50	5'-7"	291
S5	#4	3	4	5'-8"	15	4	5'-8"	15
S6	#4	3	4	5'-6"	15	4	5'-6"	15
REINFORCING STEEL LB.					472			472
*EPOXY COATED REINF. STEEL LB.								291
5000 PSI CONCRETE CU.FT					7.2			7.2
1/2" Ø L.R. STRANDS NO.					22			22

BILL OF MATERIAL FOR ONE CORED SLAB UNIT SPAN C

BAR	SIZE	TYPE	INTERIOR			EXTERIOR		
			NO	LENGTH	WEIGHT	NO	LENGTH	WEIGHT
B3	#4	STR	4	25'-4"	68	4	25'-4"	68
S1	#5	3	8	4'-6"	38	8	4'-6"	38
S2	#4	3	92	5'-4"	328	92	5'-4"	328
*S3	#5	1				49	5'-7"	285
S5	#4	3	4	5'-8"	15	4	5'-8"	15
S6	#4	3	4	5'-6"	15	4	5'-6"	15
REINFORCING STEEL LB.					464			464
*EPOXY COATED REINF. STEEL LB.								285
5000 PSI CONCRETE CU.FT					7.1			7.1
1/2" Ø L.R. STRANDS NO.					22			22

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL								
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C					
*B4	56			56	5	STR	13'-7"	793
*B5		56		56	5	STR	14'-1"	823
*B6			56	56	5	STR	13'-10"	808
*S4	96	100	98	294	5	2	5'-9"	1763
EPOXY COATED REINF. STEEL LB. = 4187								
CLASS AA CONCRETE C.YDS. = 34.9								
TOTAL CONCRETE BARRIER RAIL (FT) = 294.70								

NOTES

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

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

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

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

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF 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.

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.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

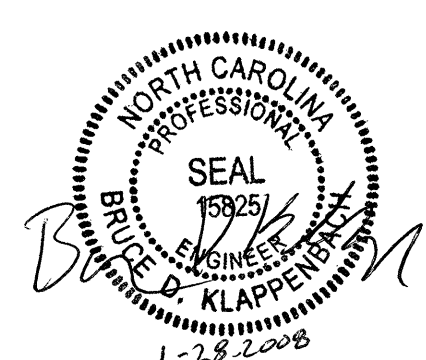
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

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.

PROJECT NO. B-4226  
 PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 8 OF 8



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		

STD. NO. PCS3

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.)

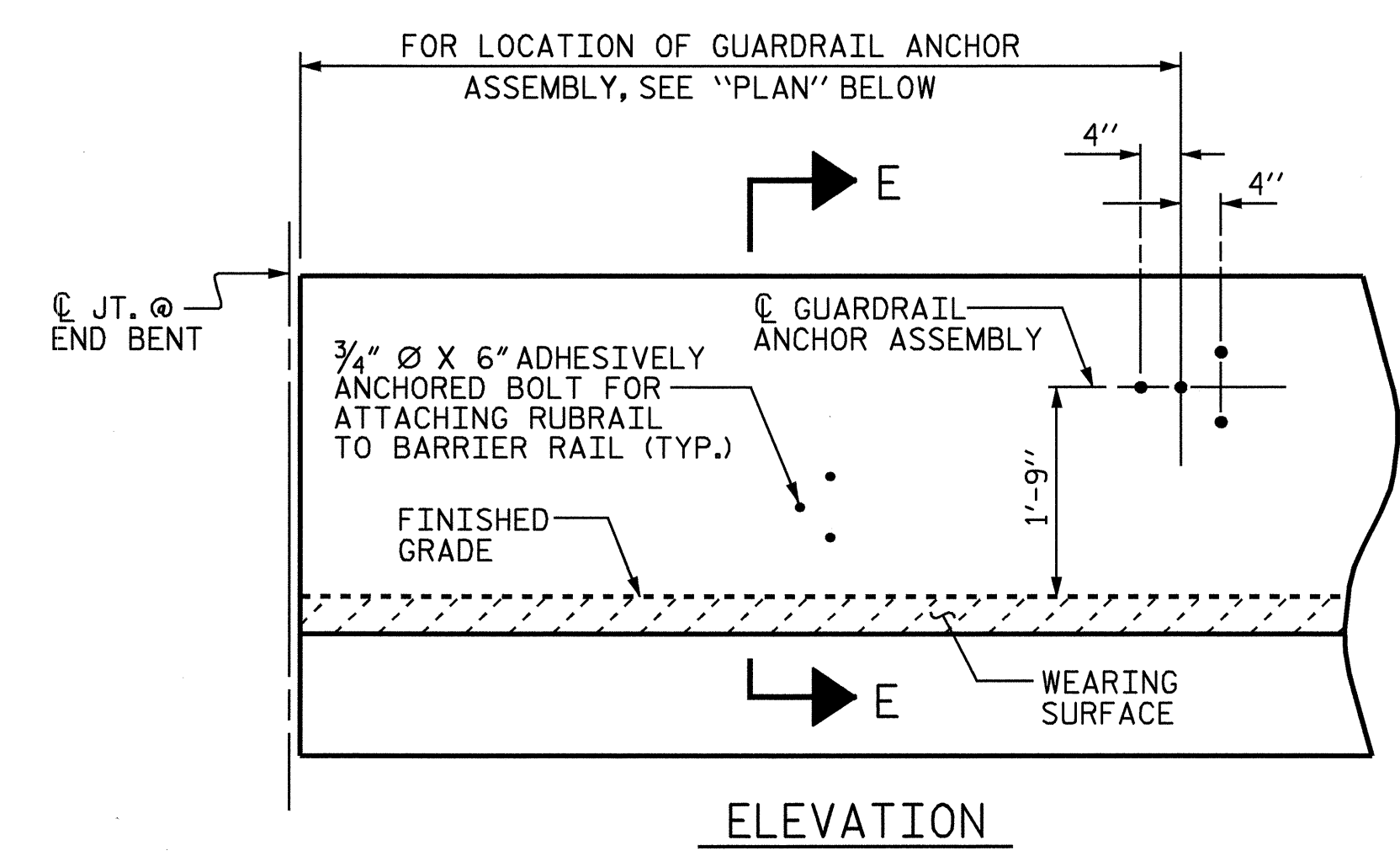
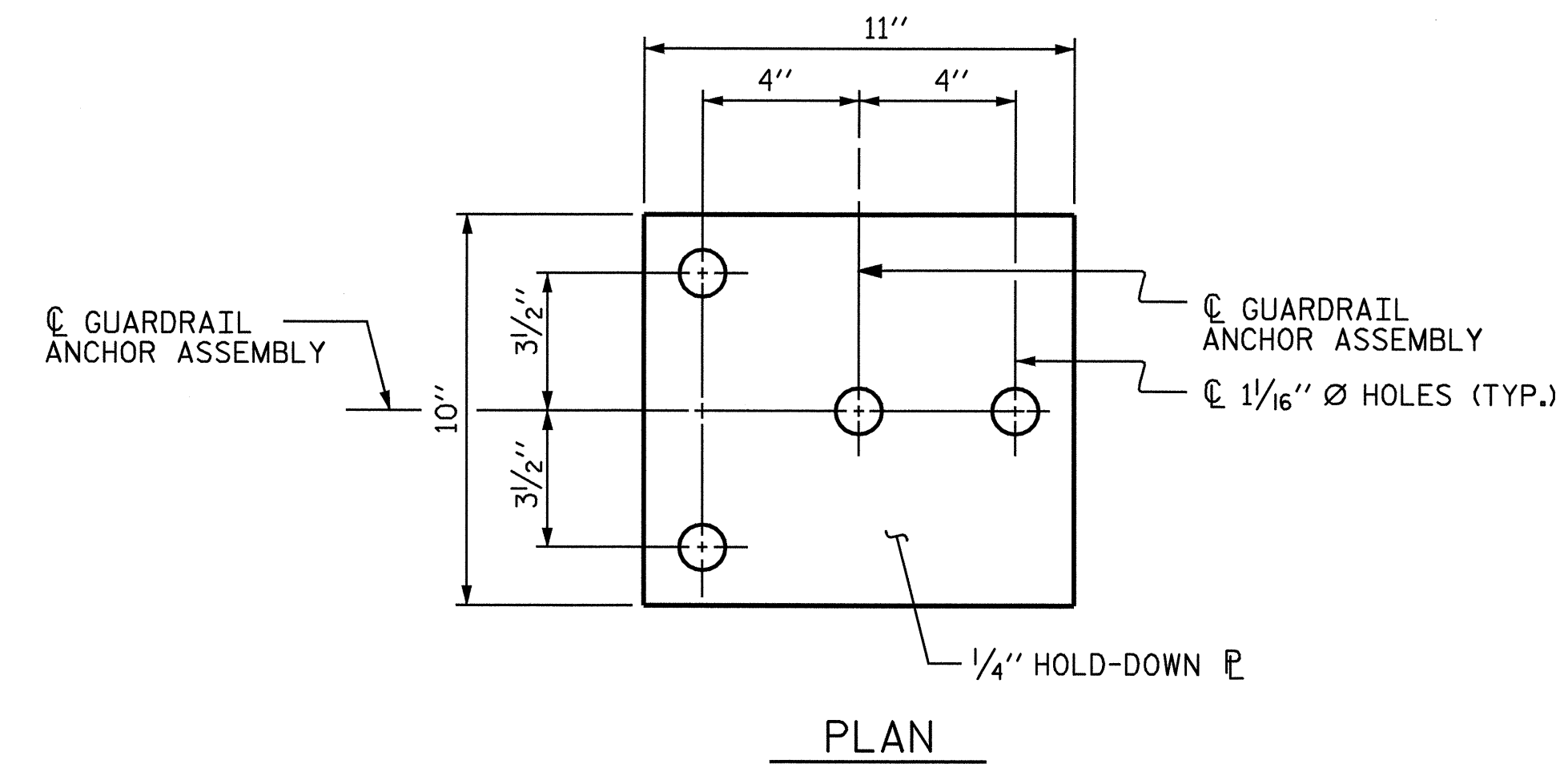
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

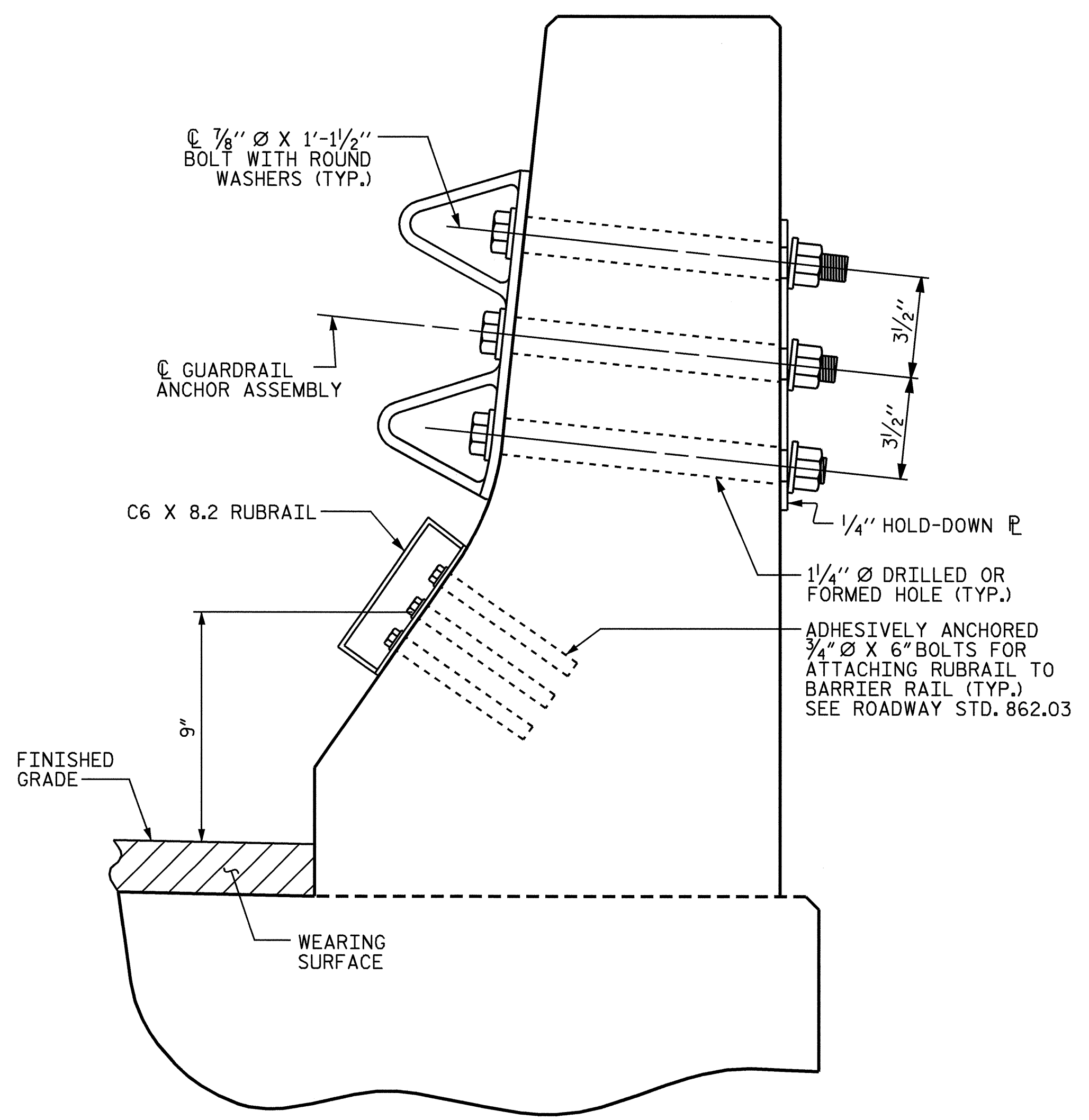
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 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.

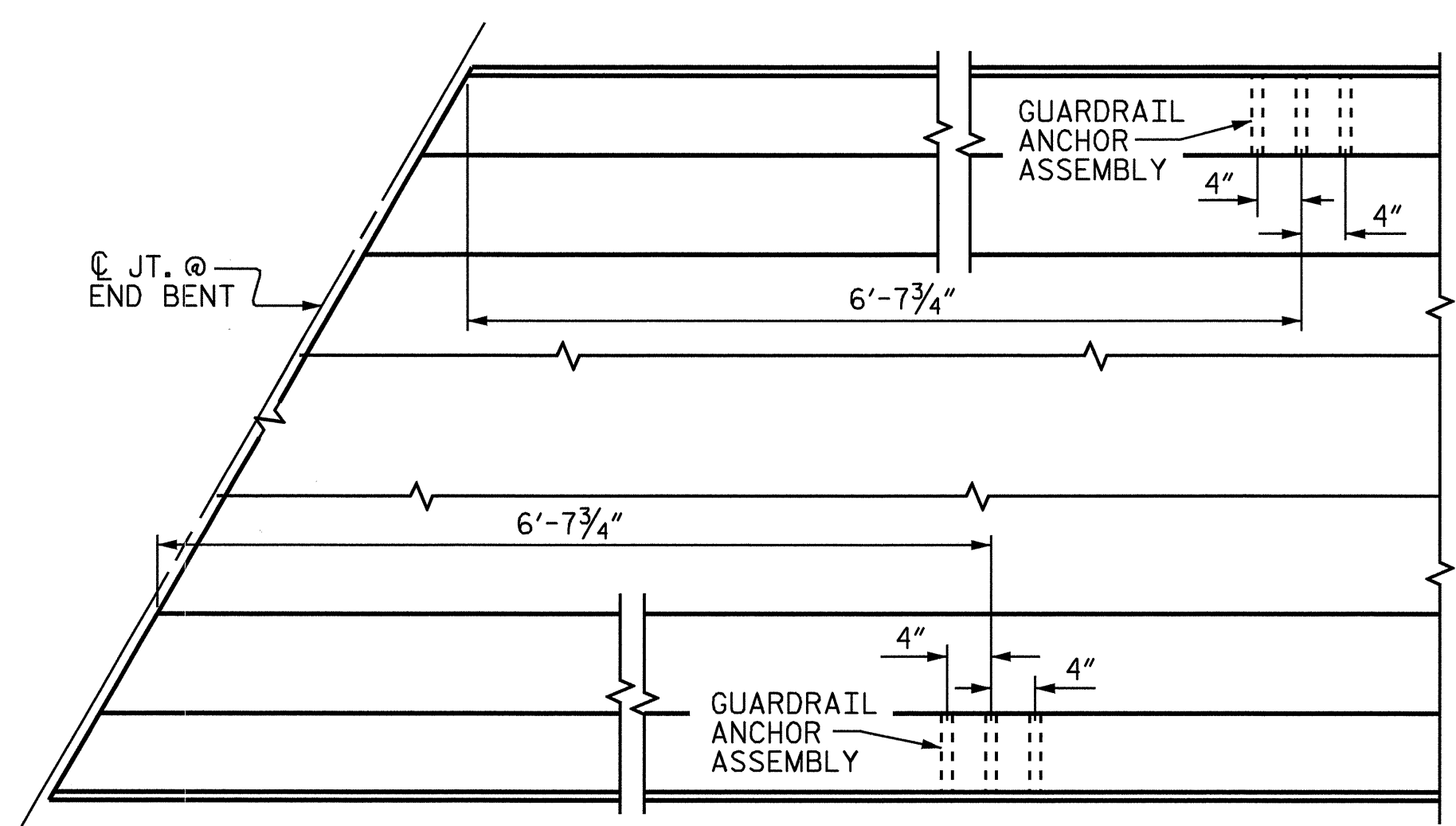


FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

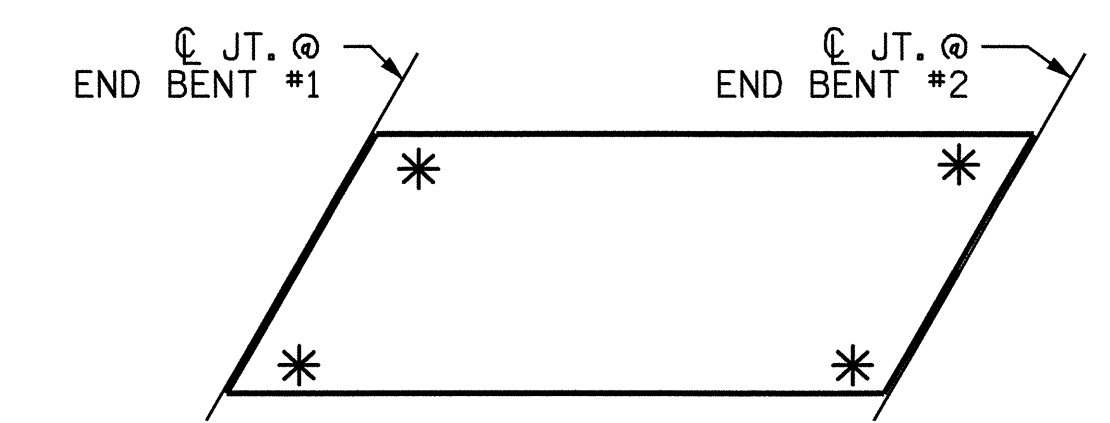
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

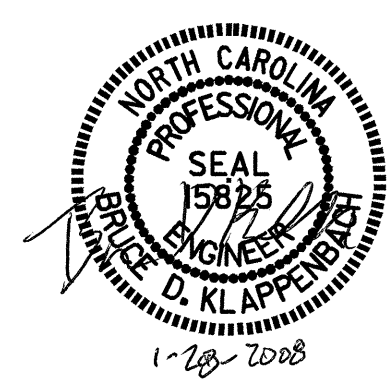


SKETCH SHOWING POINTS OF ATTACHMENTS

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4226  
 PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

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



ASSEMBLED BY : C.R. YARBROUGH	DATE : 04/07
CHECKED BY : M.G. SHAIKH	DATE : 11/07
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

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

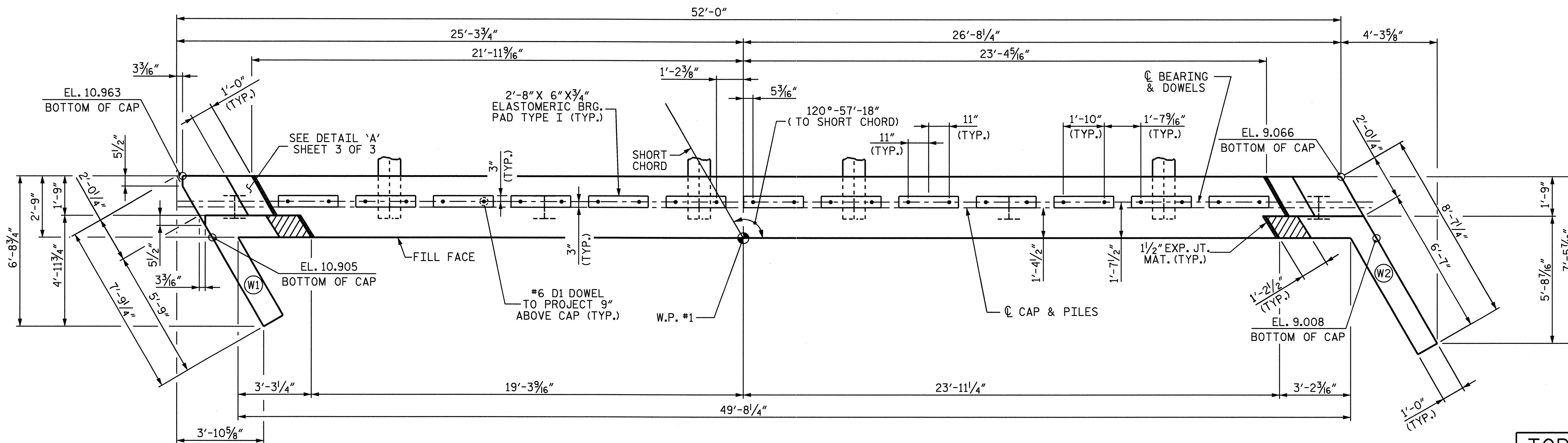
**NOTES**

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

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

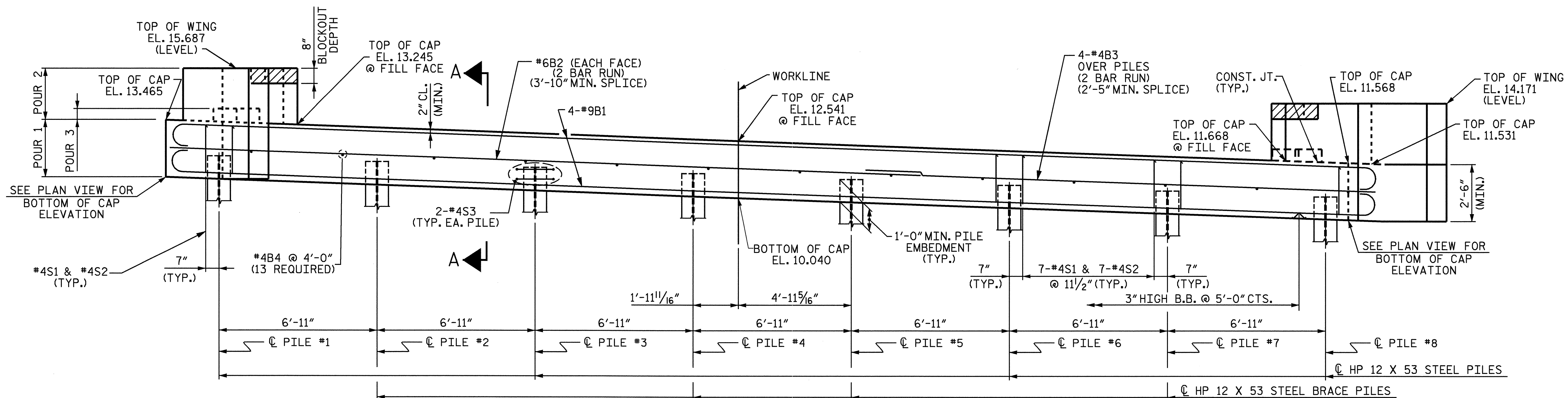
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4"Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

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



**PLAN**

TOP OF PILE ELEVATIONS	
PILE #	ELEVATION
1	EL. 11.887
2	EL. 11.635
3	EL. 11.382
4	EL. 11.130
5	EL. 10.878
6	EL. 10.626
7	EL. 10.373
8	EL. 10.121



**ELEVATION**

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 END BENT #1**

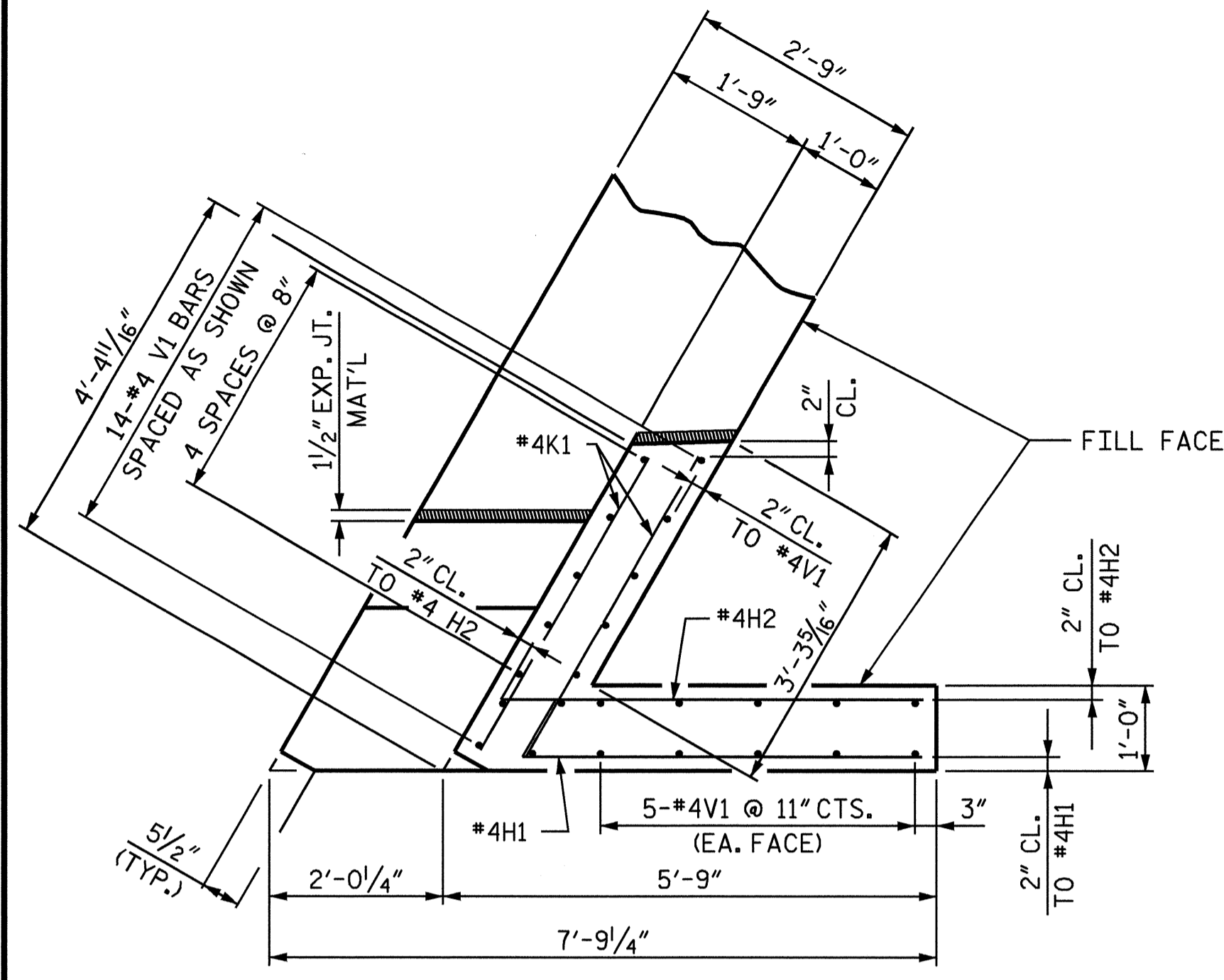
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			27



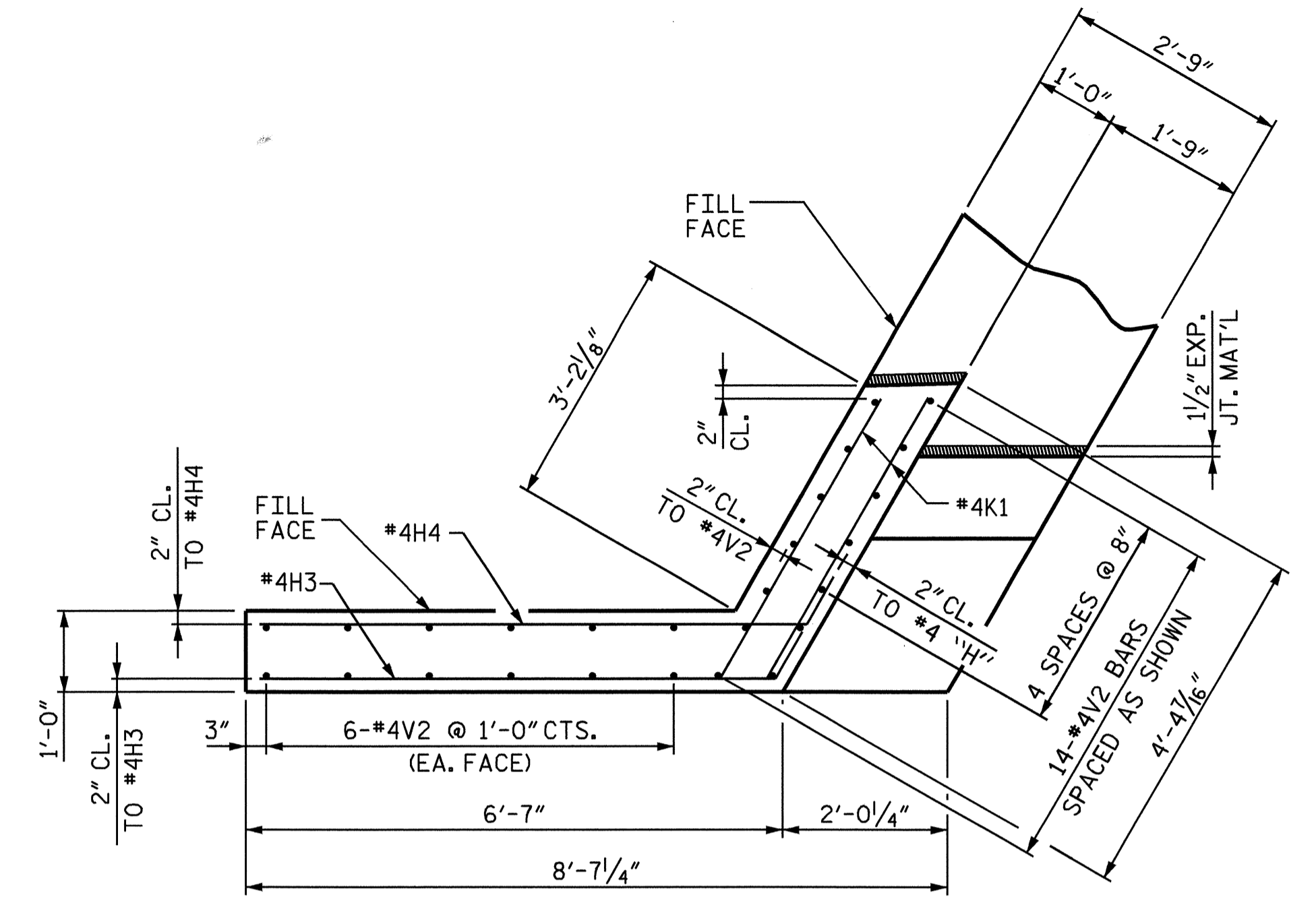
DRAWN BY : C.R. YARBROUGH DATE : 08/07  
 CHECKED BY : M.G. SHAIKH DATE : 12/07

05-FEB-2008 14:37  
 r:\structures\cyarborough\b-4226.sd.e\*.dgn  
 cyarborough

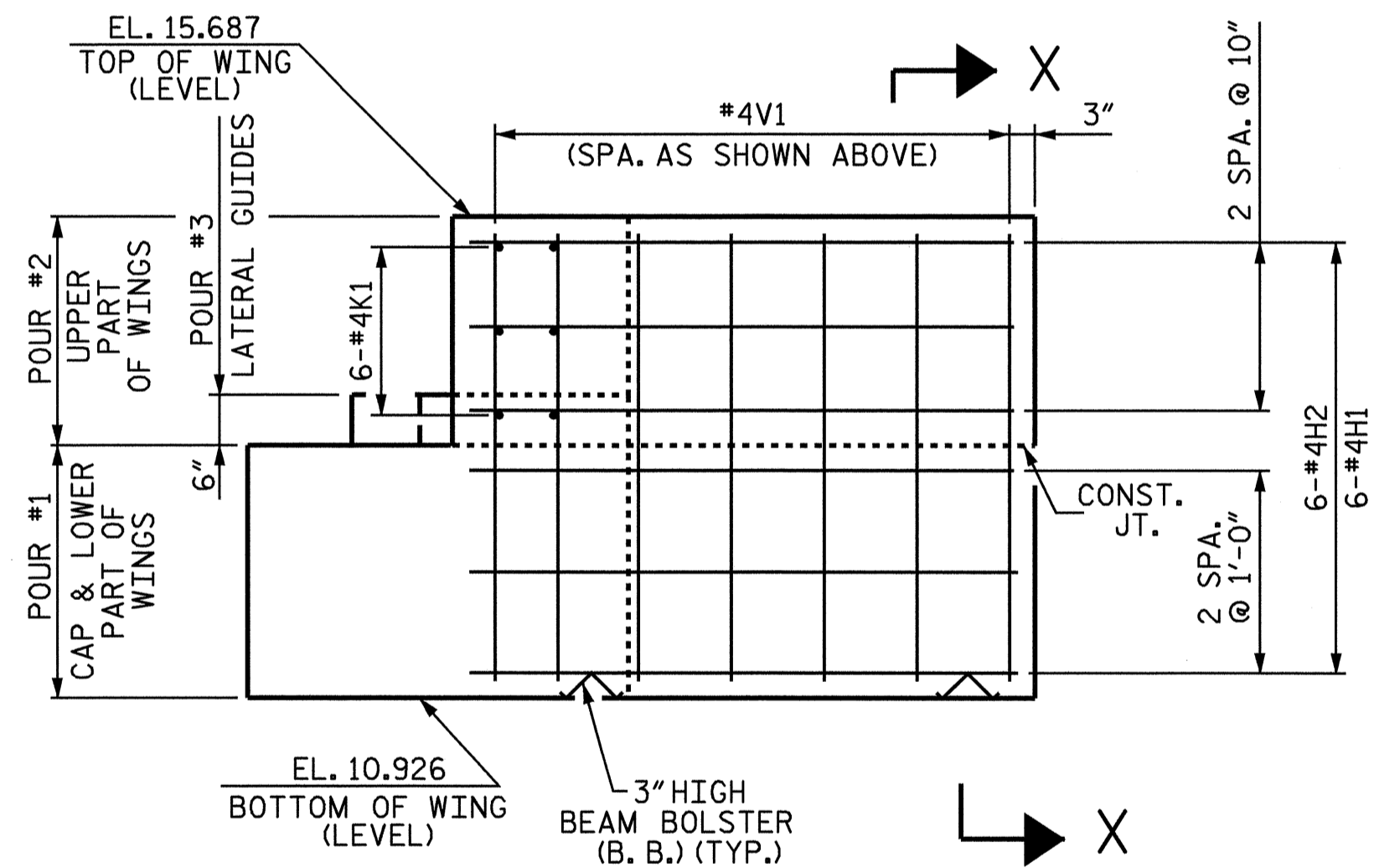
NCBDS



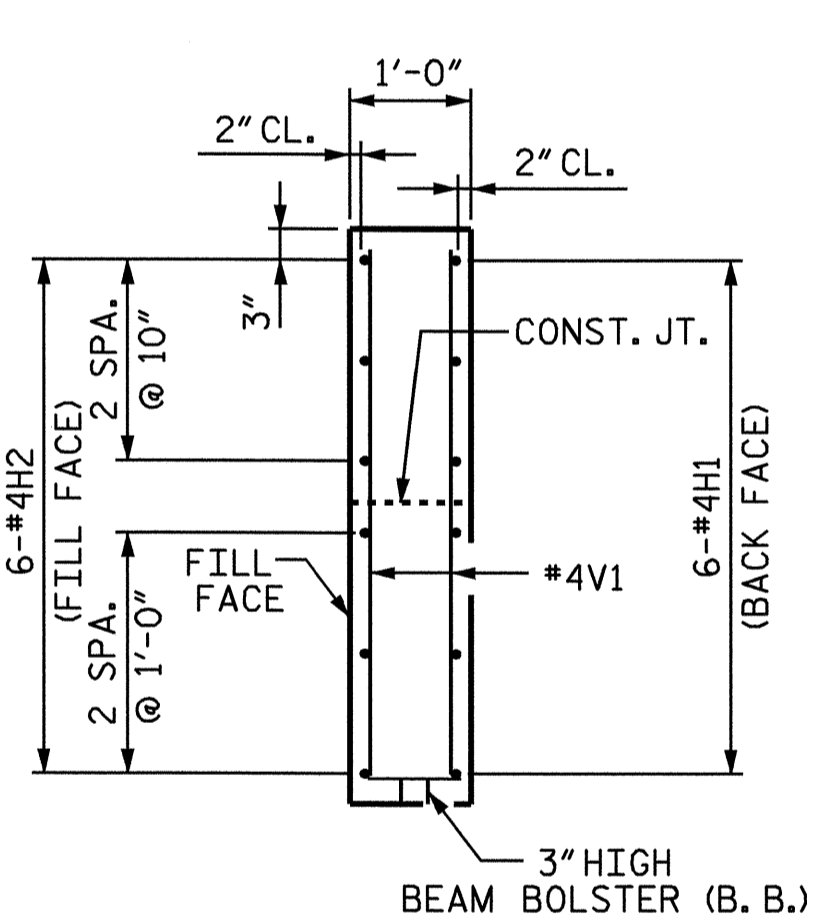
PLAN OF LEFT WING (W1)



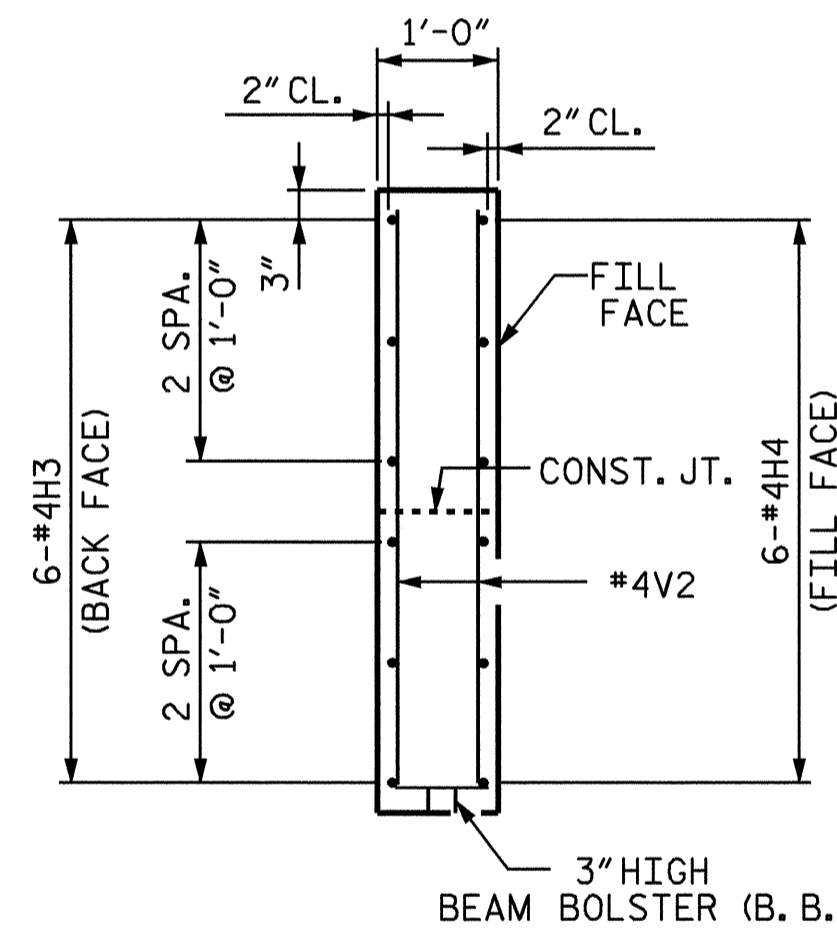
PLAN OF RIGHT WING (W2)



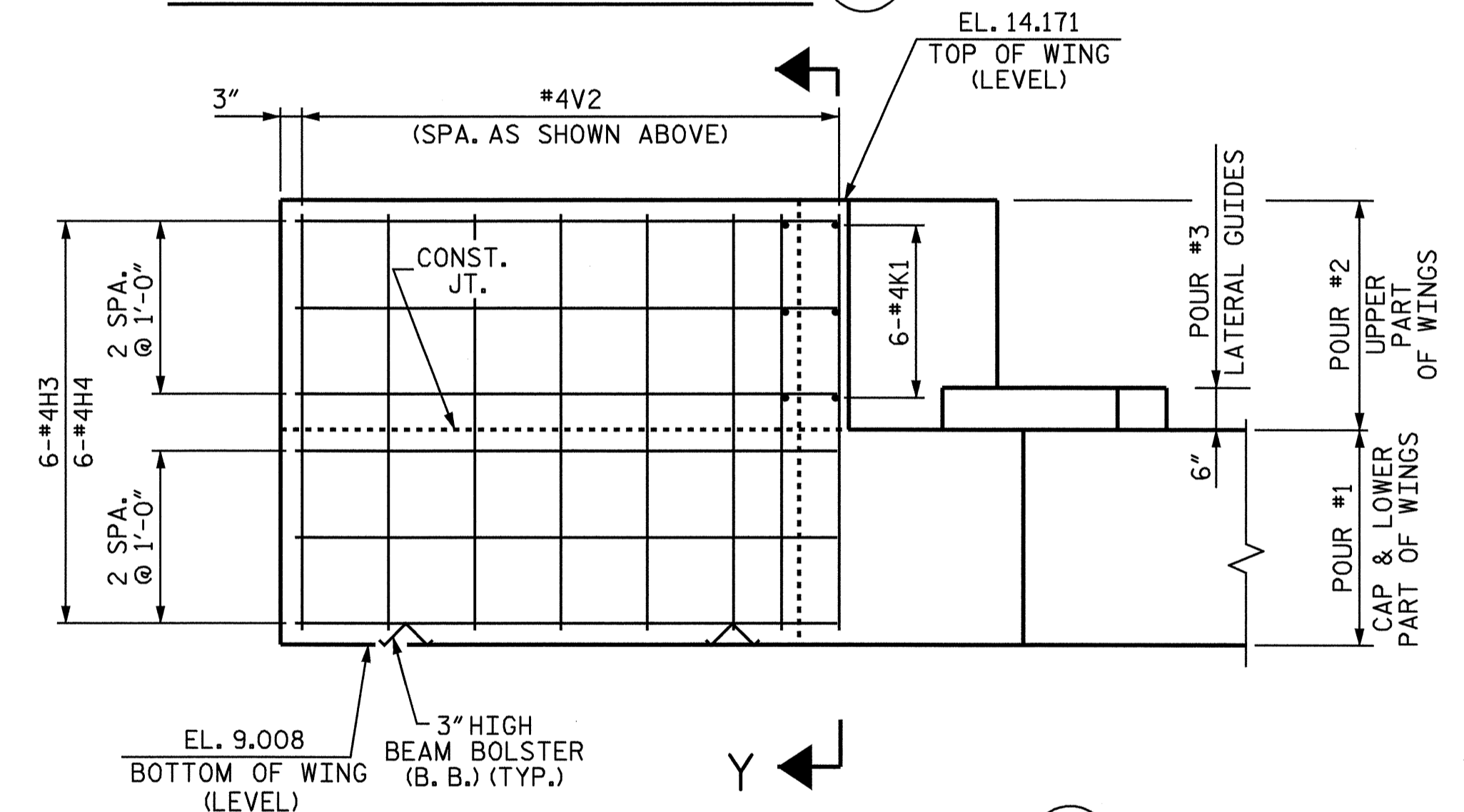
ELEVATION OF LEFT WING (W1)



SECTION X-X

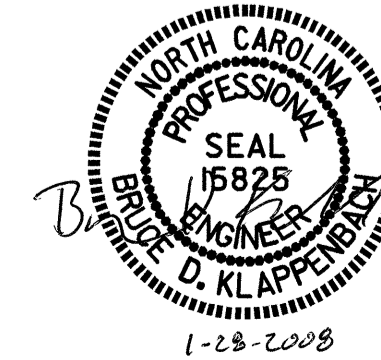


SECTION Y-Y



ELEVATION OF RIGHT WING (W2)

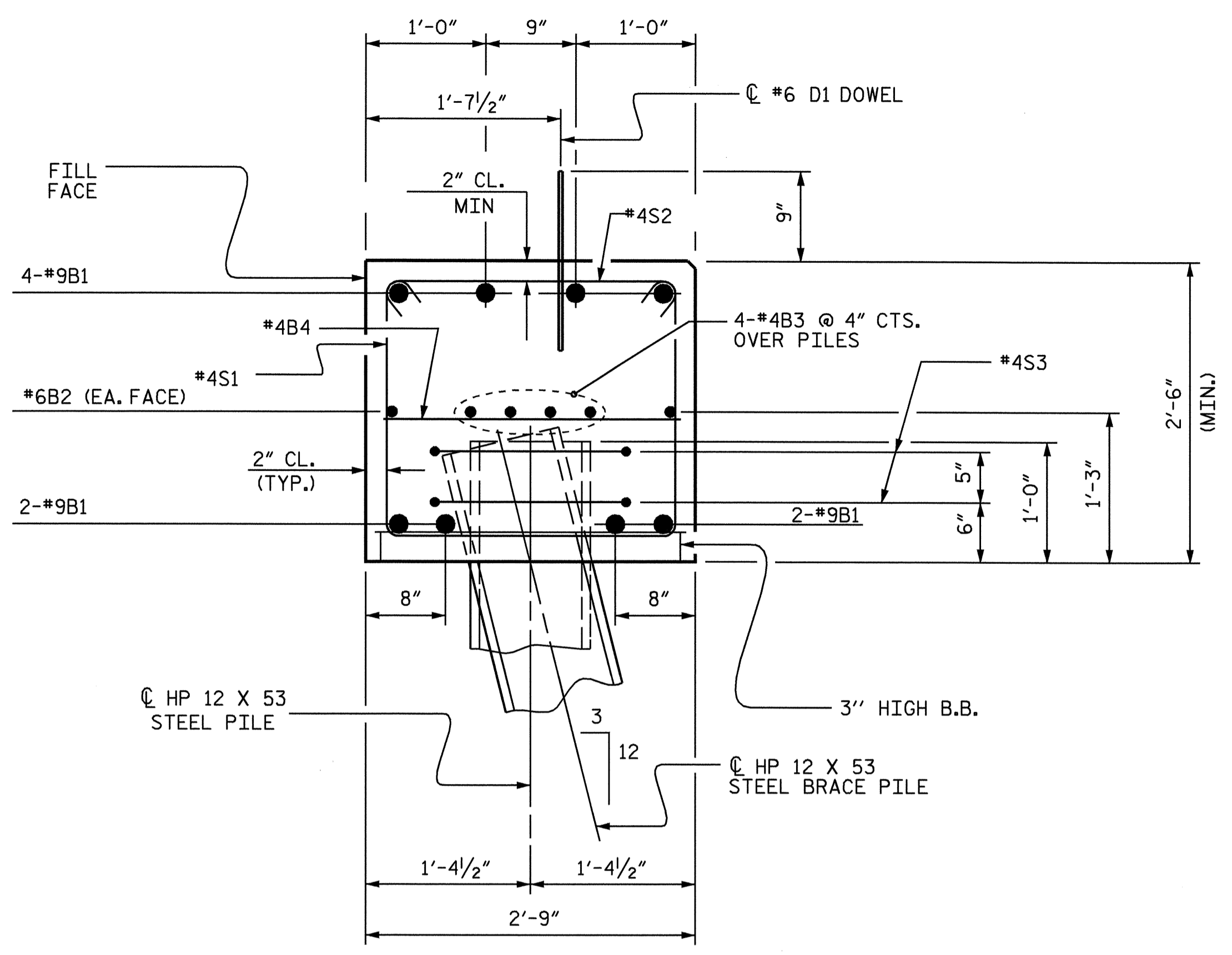
DRAWN BY: C.R. YARBROUGH DATE: 08/07  
CHECKED BY: M.G. SHAIKH DATE: 12/07



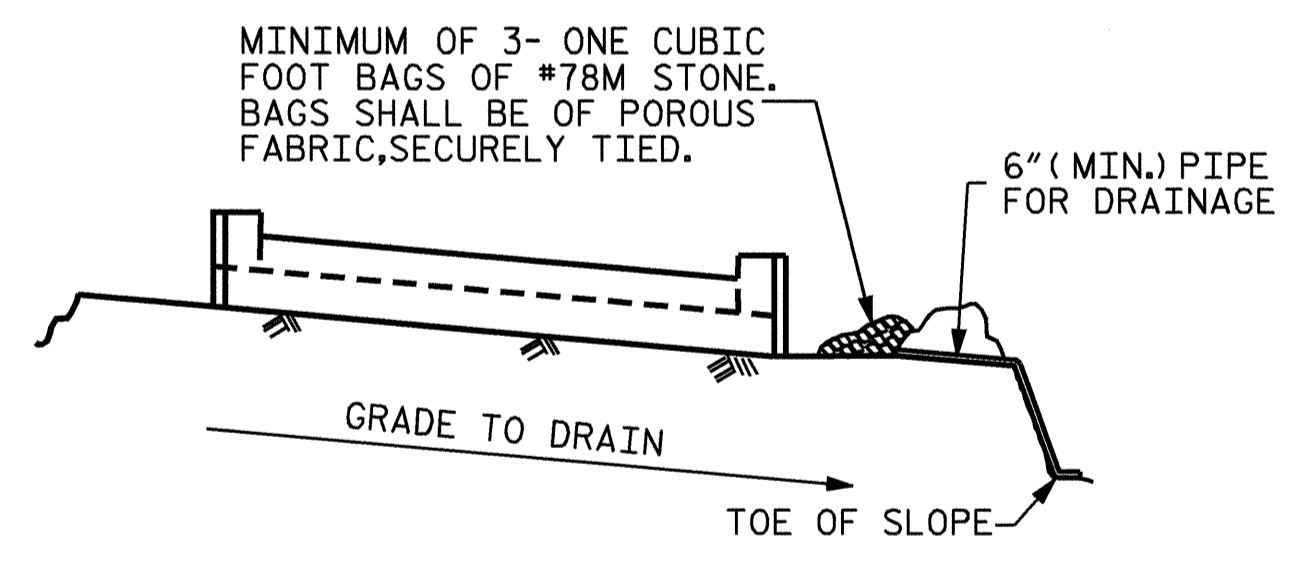
PROJECT NO. B-4226  
PERQUIMANS COUNTY  
STATION: 20+95.00 -L-  
SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-15
					TOTAL SHEETS 27





SECTION A-A



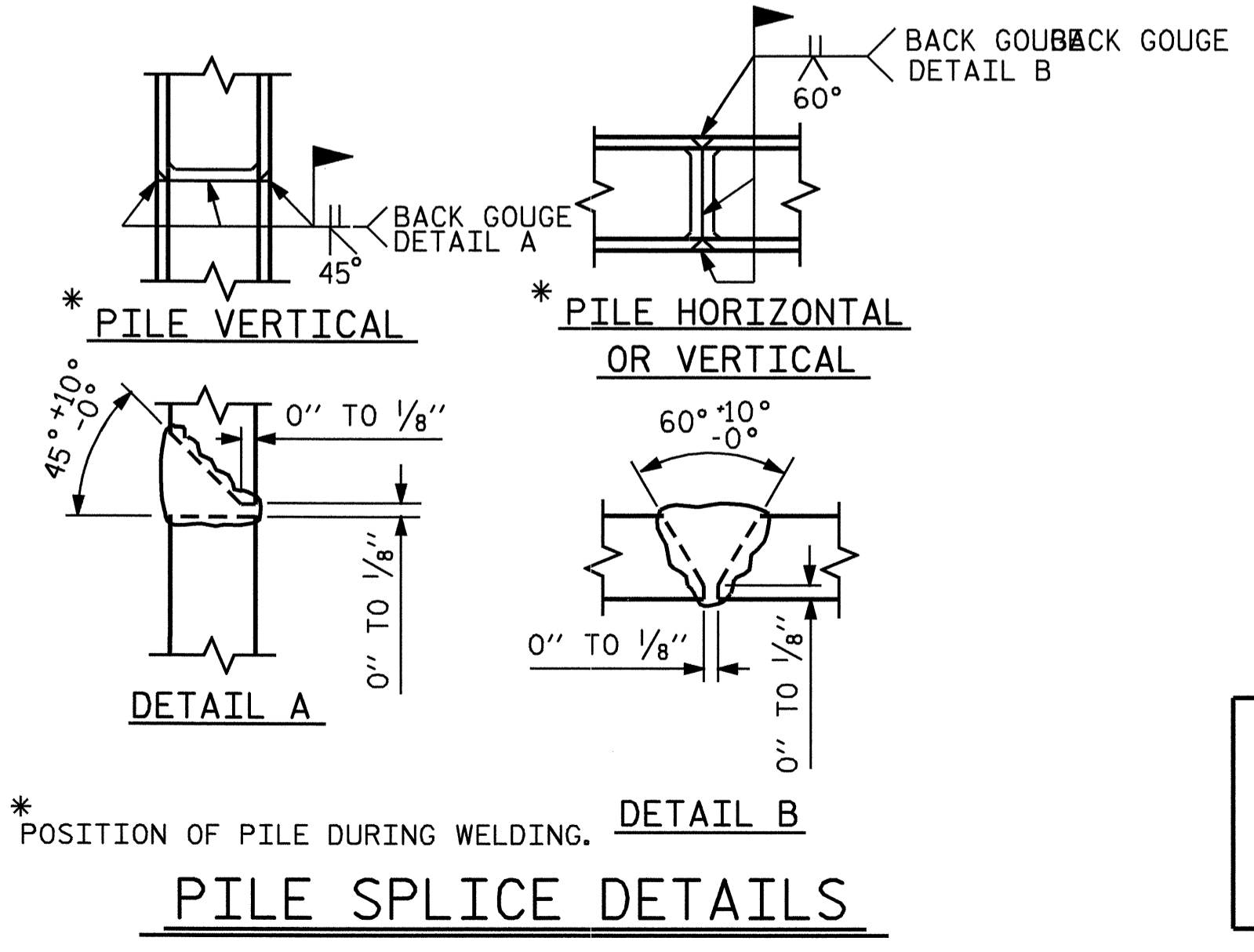
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

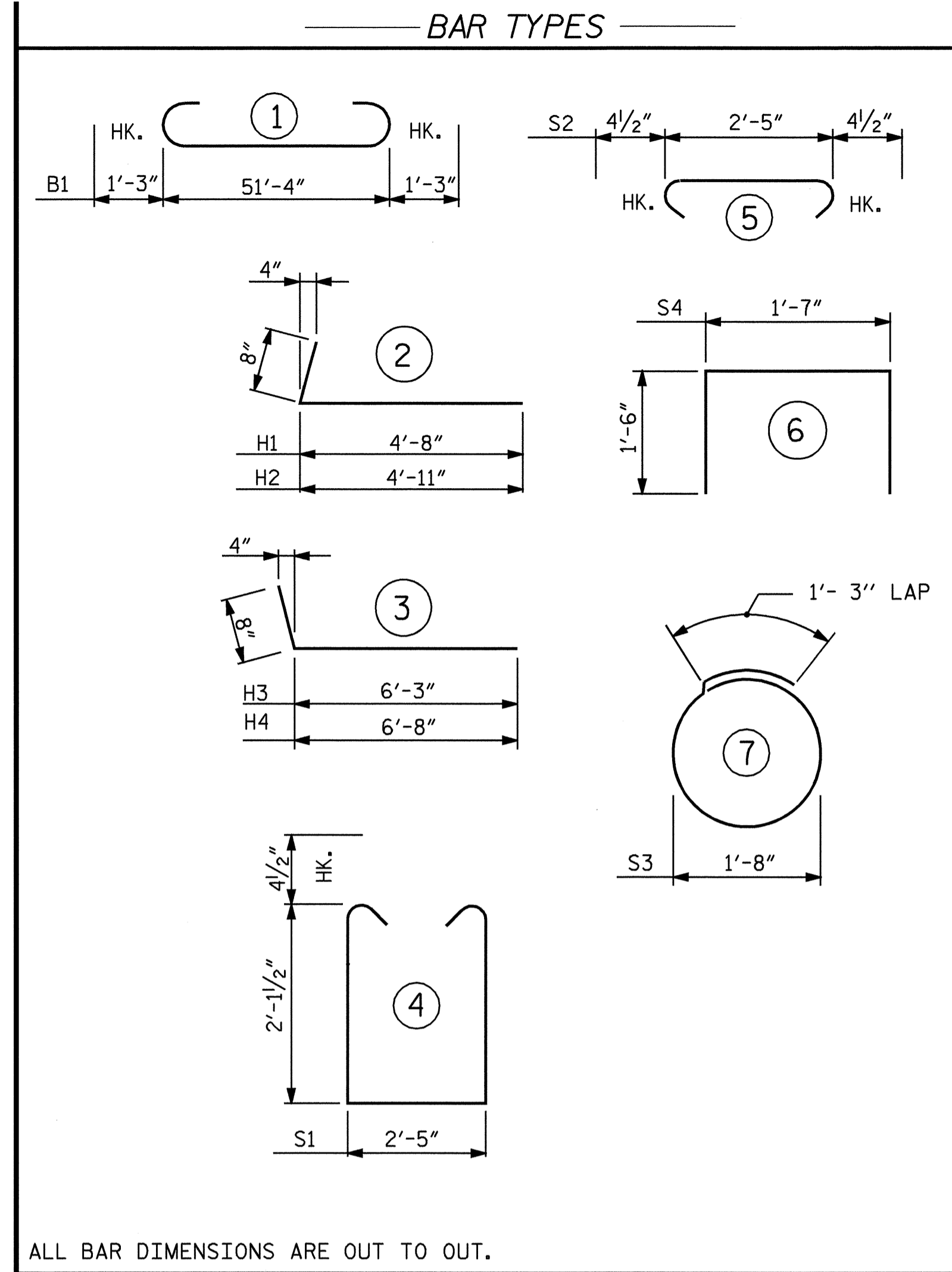
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETEIORATED AND LOST THEIR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

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

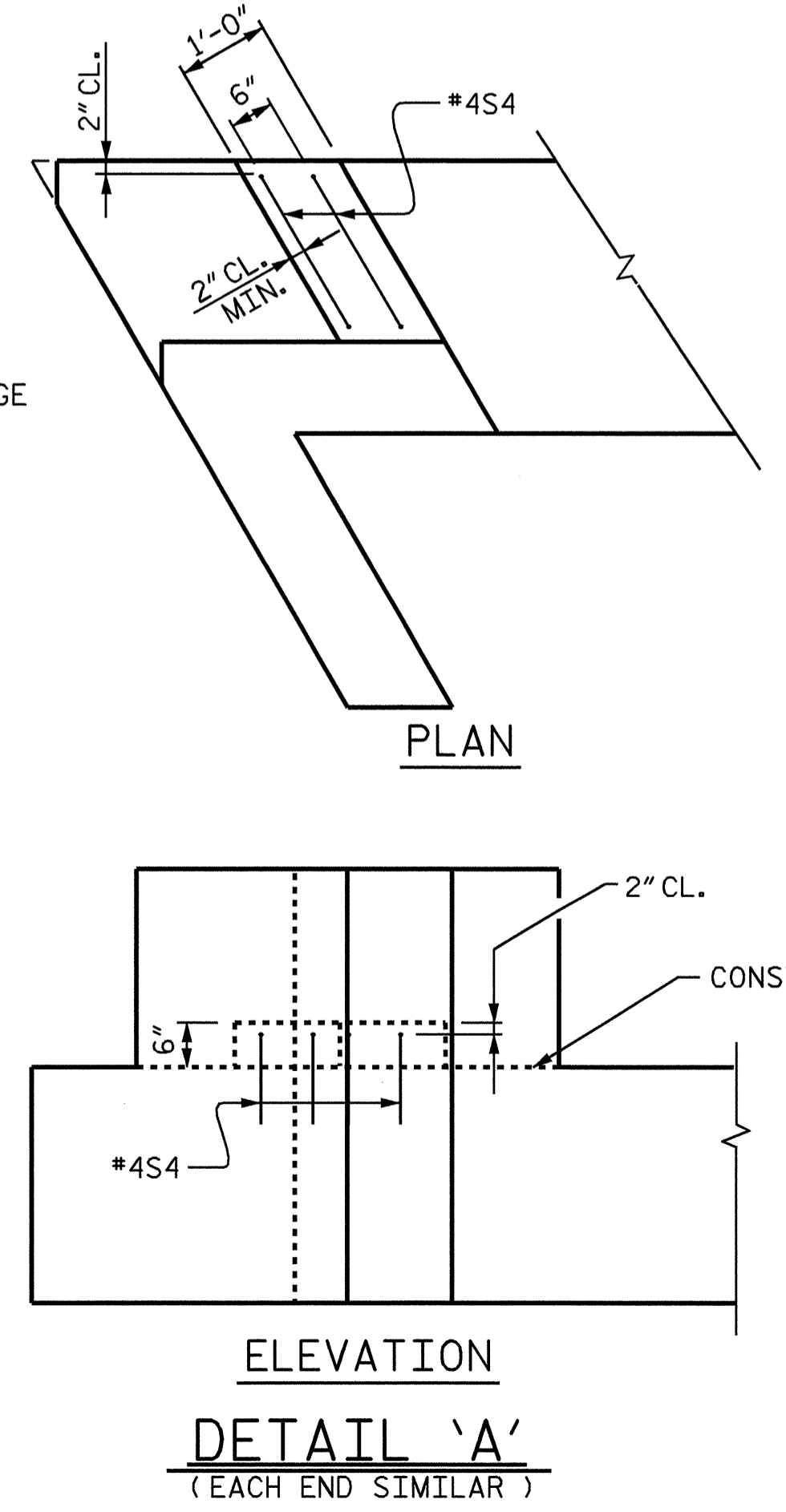
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.



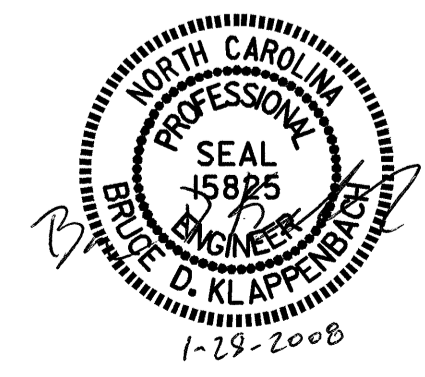
DETAIL 'A'  
(EACH END SIMILAR)

**BILL OF MATERIAL**

END BENT NO. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	53'-10"	1464
B2	4	#6	STR	27'-9"	167
B3	8	#4	STR	27'-1"	145
B4	13	#4	STR	2'-5"	21
D1	26	#6	STR	1'-6"	59
H1	6	#4	2	5'-4"	21
H2	6	#4	2	5'-7"	22
H3	6	#4	3	6'-11"	28
H4	6	#4	3	7'-4"	29
S1	51	#4	4	7'-5"	253
S2	51	#4	5	3'-2"	108
S3	16	#4	7	6'-6"	69
S4	4	#4	6	4'-7"	12
K1	12	#4	STR	3'-11"	31
V1	24	#4	STR	4'-5"	71
V2	26	#4	STR	4'-9"	82
REINFORCING STEEL					= 2582 LBS.
CLASS A CONCRETE					
POUR #1 CAP AND LOWER PART OF WINGS				CU. YDS.	14.1
POUR #2 UPPER PART OF WINGS				CU. YDS.	1.6
POUR #3 LATERAL GUIDES				CU. YDS.	0.1
TOTAL				CU. YDS.	15.8
HP 12x53 STEEL PILES					
NO.	8	LIN. FT.	560		

PROJECT NO. B-4226  
 PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-  
 SHEET 3 OF 3

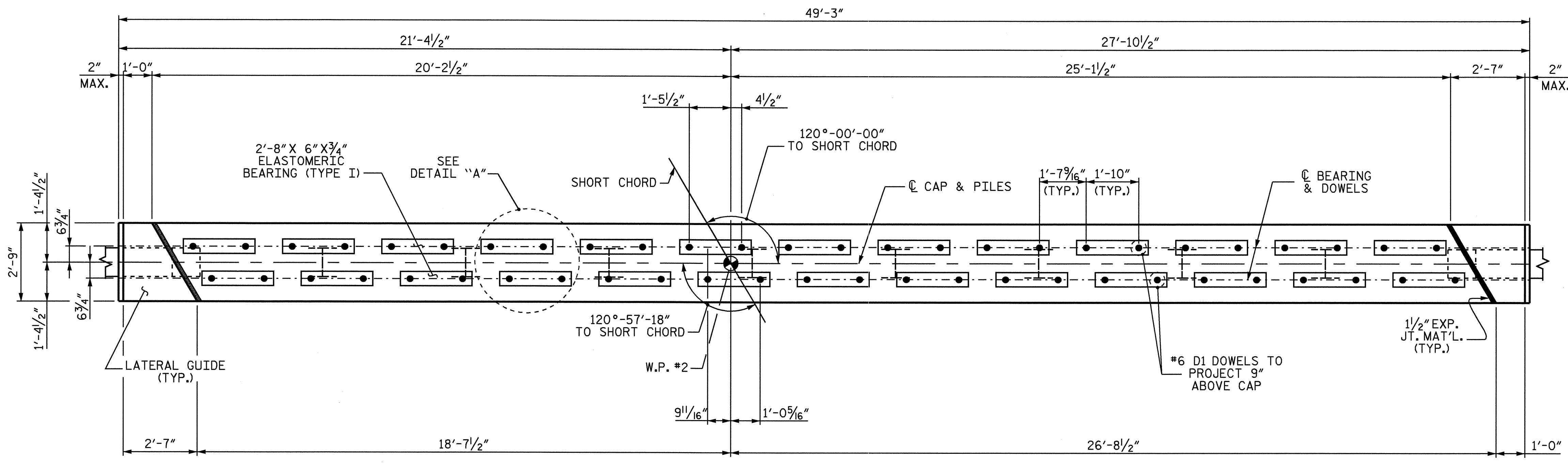
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT #1



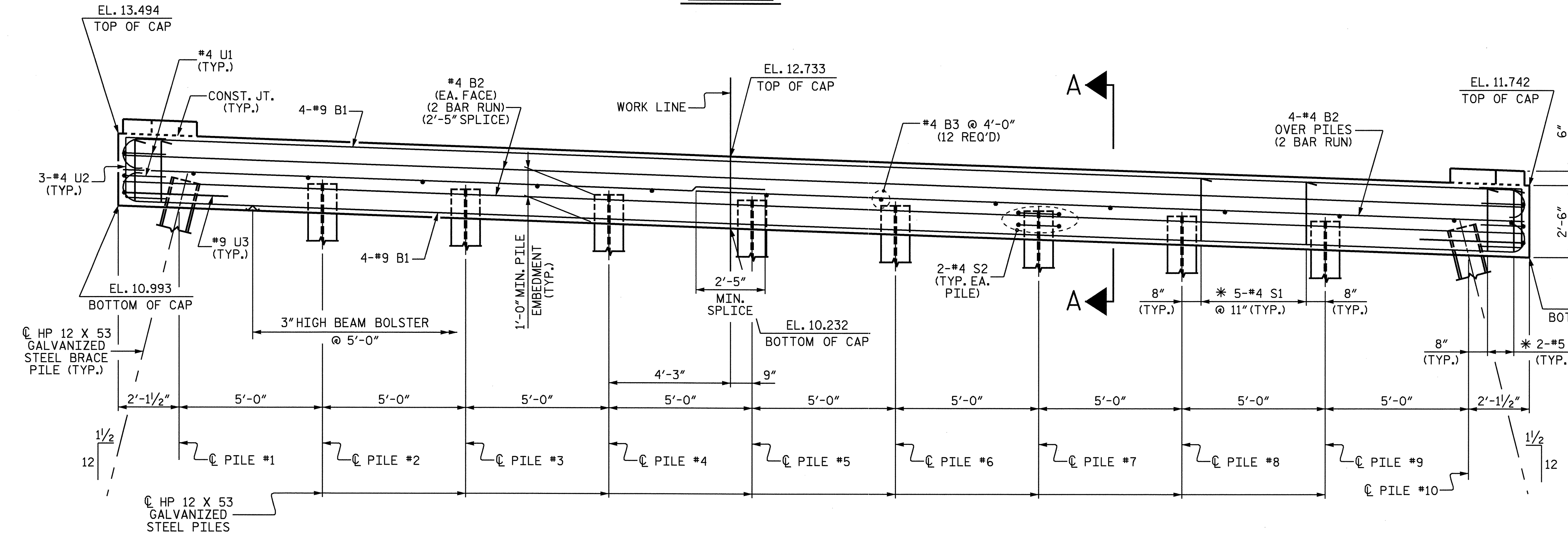
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS	
2			4			27	

**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 D1 DOWELS.  
 THE LATERAL GUIDE SHALL NOT BE POURED UNTIL THE CORED SLAB UNITS ARE IN PLACE.



**PLAN**



**ELEVATION**

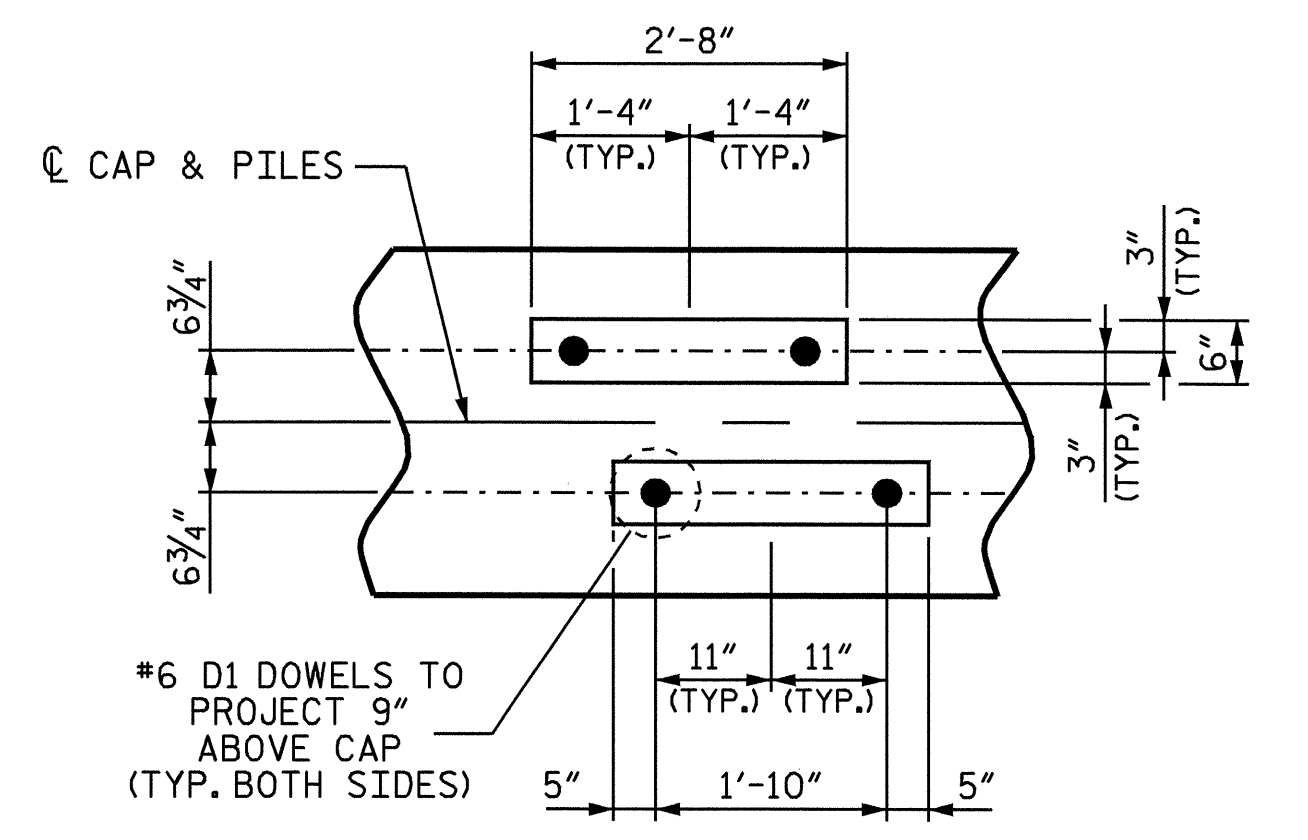
\* INVERT ALTERNATE STIRRUPS

**TOP OF PILE ELEVATIONS**

PILE	ELEVATION
1	11.935
2	11.757
3	11.579
4	11.401
5	11.223
6	11.045
7	10.867
8	10.689
9	10.511
10	10.333

SPAN B

SPAN A



**DETAIL A**

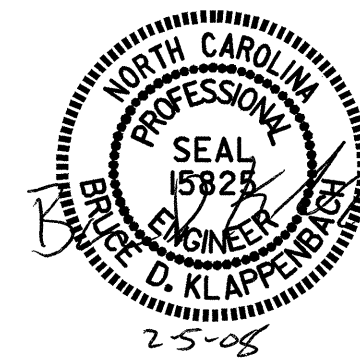
PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 1 OF 2

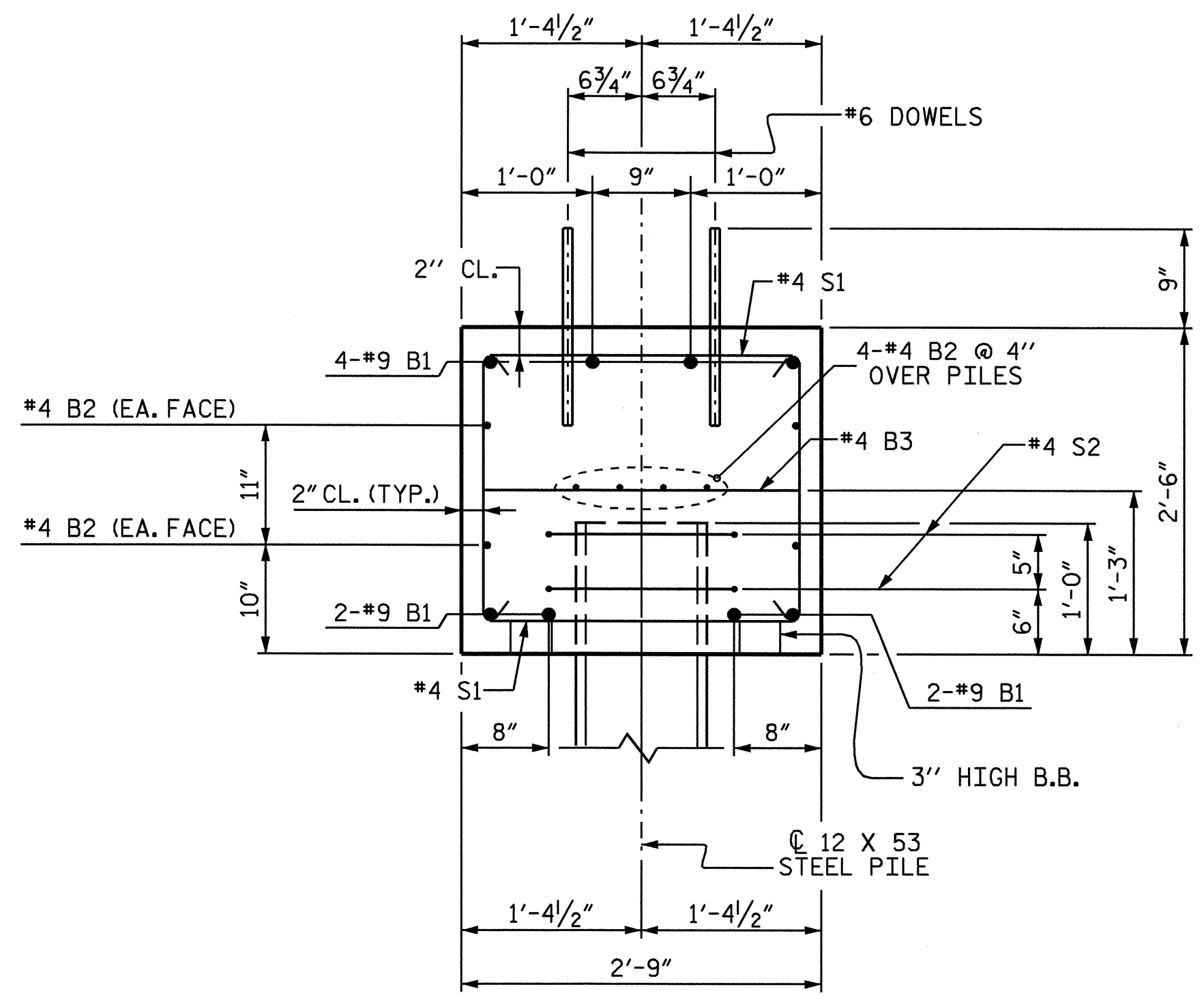
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 BENT #1**

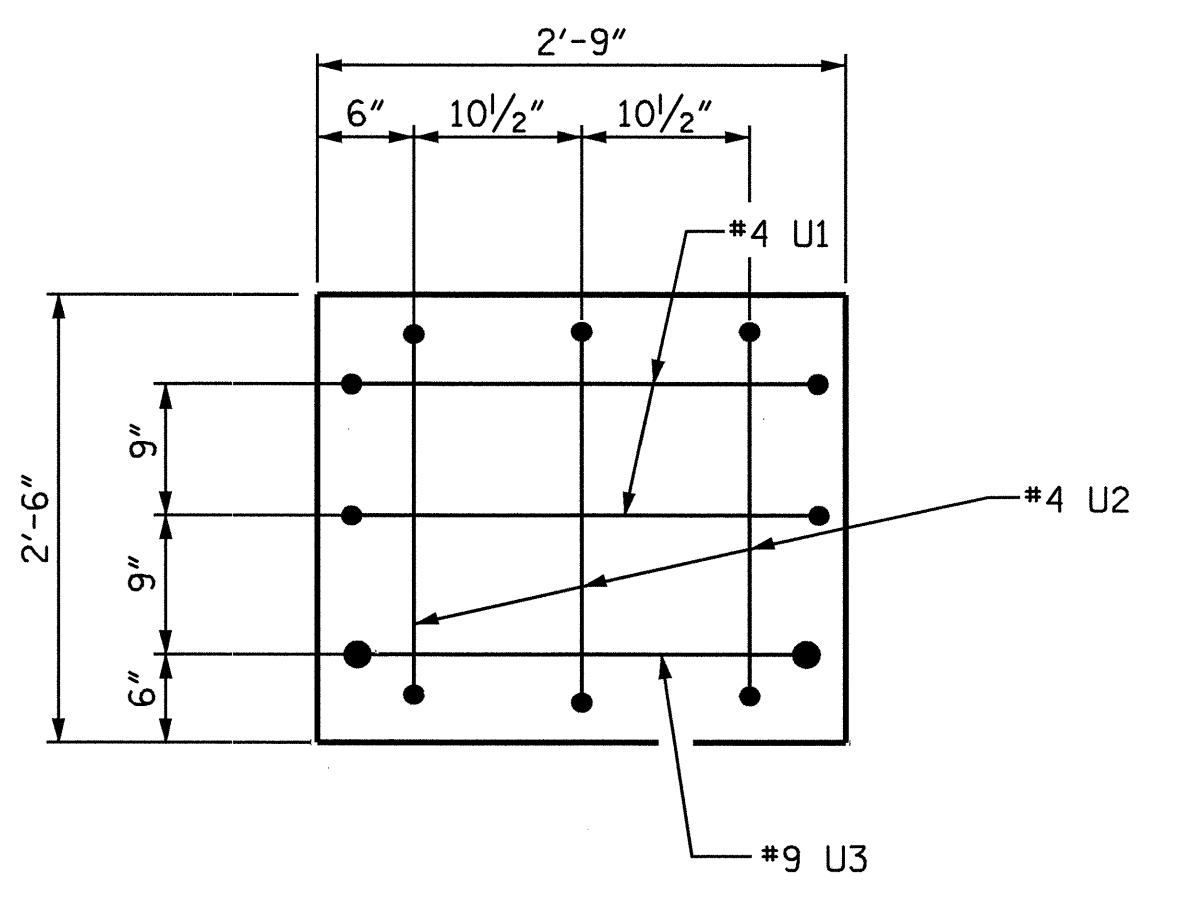
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			27



DRAWN BY : A. SORSENGINH DATE : 7-26-07  
 CHECKED BY : M. G. SHAIKH DATE : 10/25/07

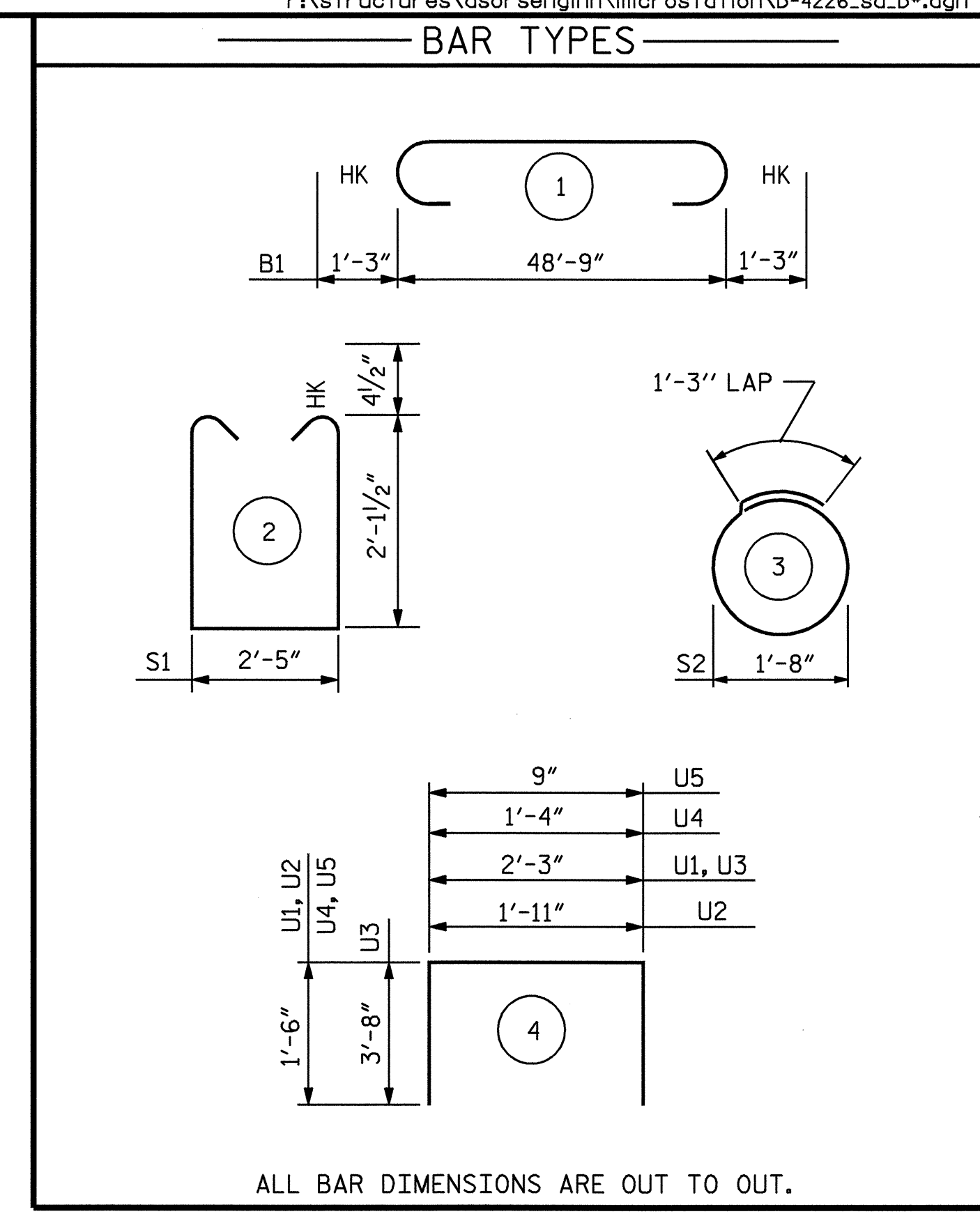


SECTION A-A



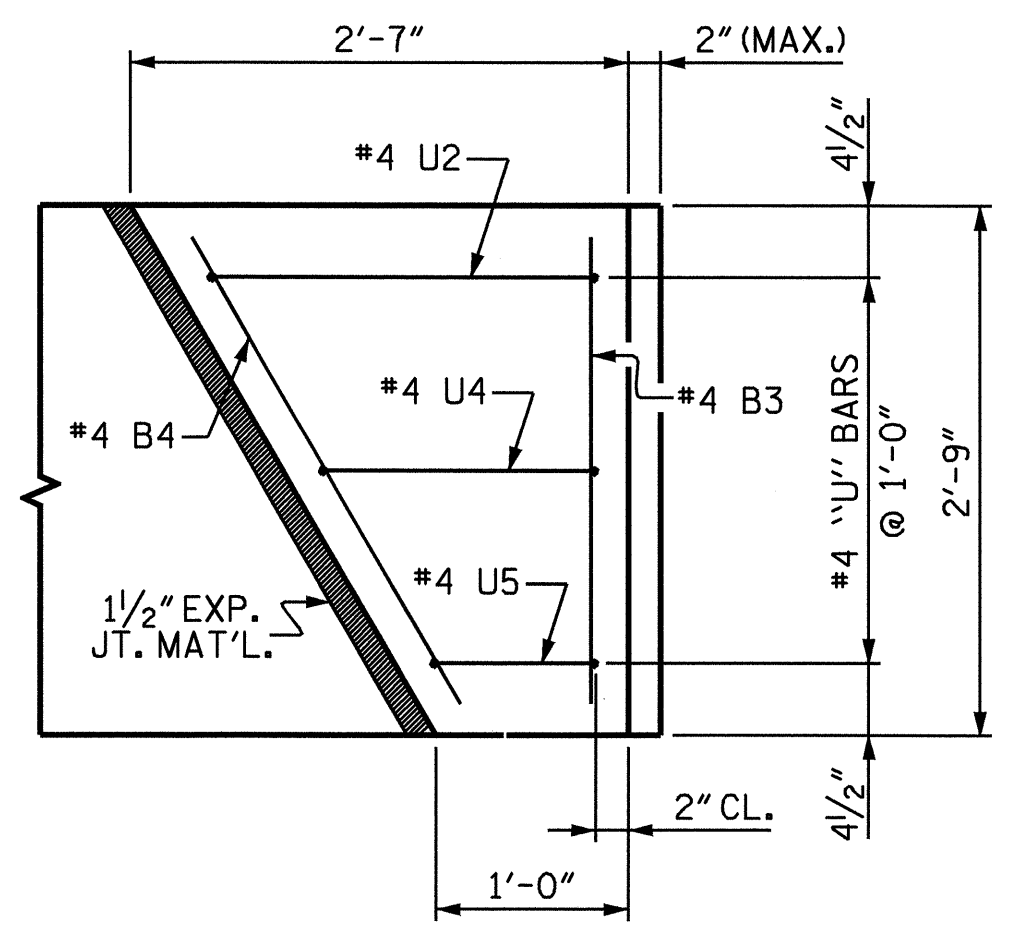
END VIEW

2" MIN. CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL #4 U1, #4 U2 AND #9 U3 BARS.  
#4 U1 AND #4 U2 MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.

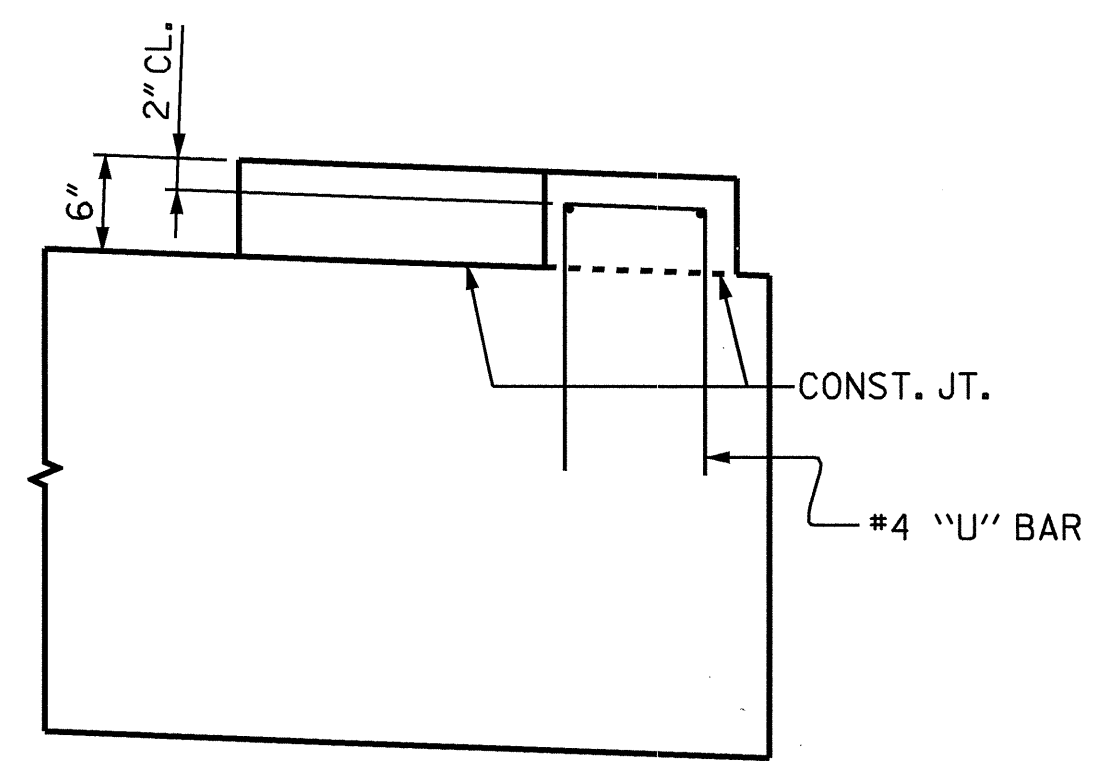


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	51'-3"	1394
B2	16	#4	STR	25'-8"	274
B3	14	#4	STR	2'-5"	23
B4	2	#4	STR	2'-9"	4
D1	52	#6	STR	1'-6"	117
S1	49	#4	2	7'-5"	243
S2	20	#4	3	6'-6"	87
U1	4	#4	4	5'-3"	14
U2	8	#4	4	4'-11"	26
U3	2	#9	4	9'-7"	65
U4	2	#4	4	4'-4"	6
U5	2	#4	4	3'-9"	5
REINFORCING STEEL				=	2258 LBS
CLASS A CONCRETE					
POUR #1 CAP					12.5 CU. YDS.
POUR #2 LATERAL GUIDE					0.2 CU. YDS.
TOTAL CLASS A CONCRETE					12.7 CU. YDS.
HP 12 X 53 GALVANIZED STEEL PILES					
NO. 10					LIN. FT. 600

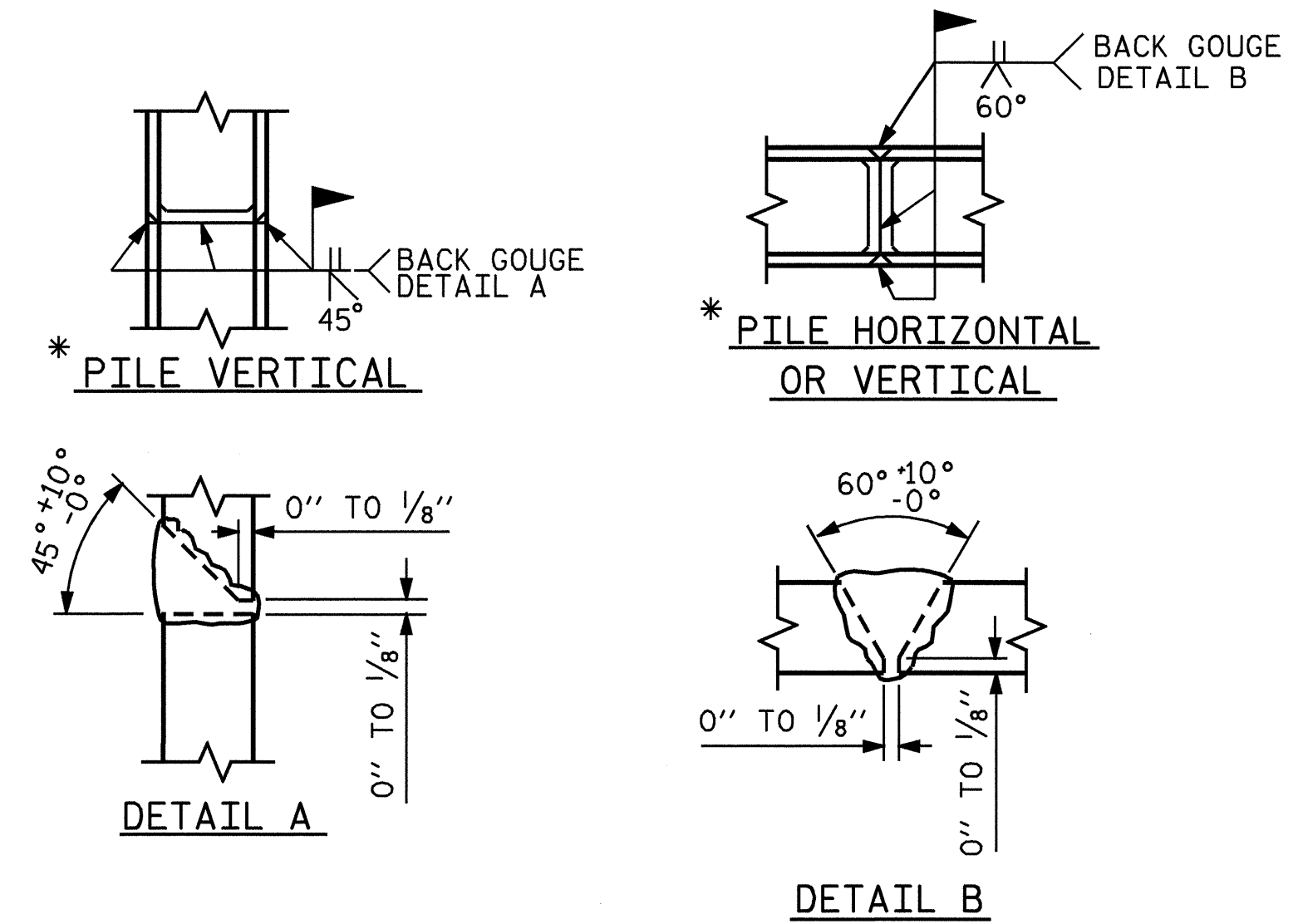


PLAN



ELEVATION

LATERAL GUIDE DETAIL



PILE SPLICE DETAILS

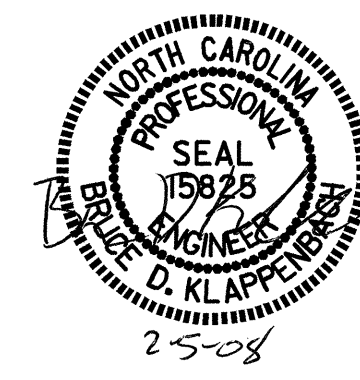
\* POSITION OF PILE DURING WELDING.

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
STATION: 20+95.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT #1

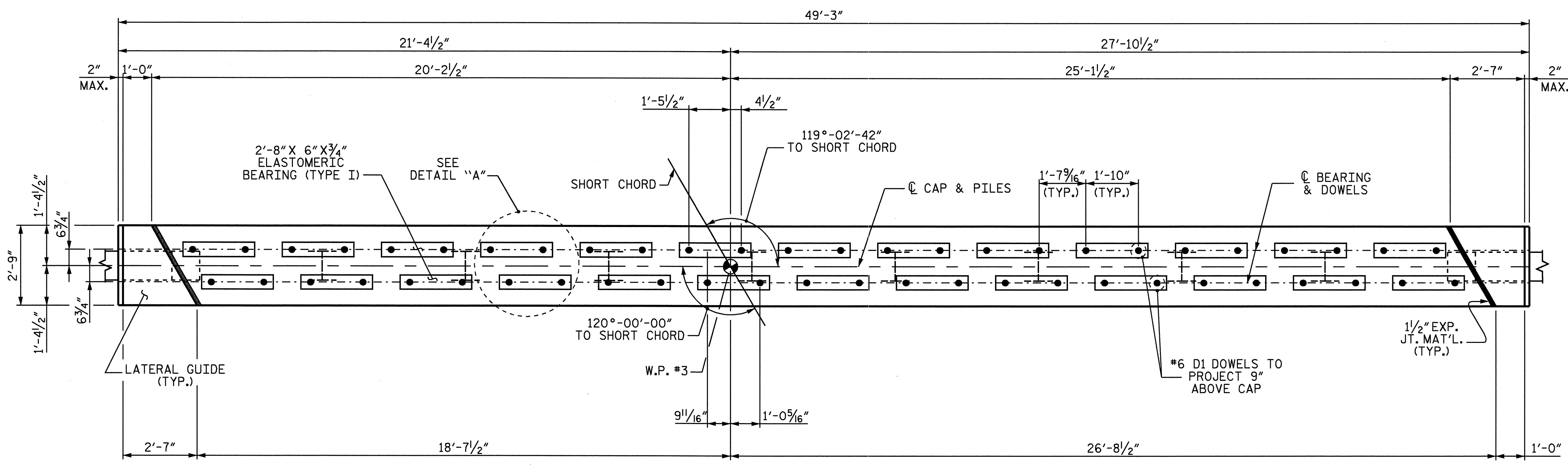


DRAWN BY : A. SORSENGINH DATE : 7-27-07  
CHECKED BY : M. G. SHAIKH DATE : 10/25/07

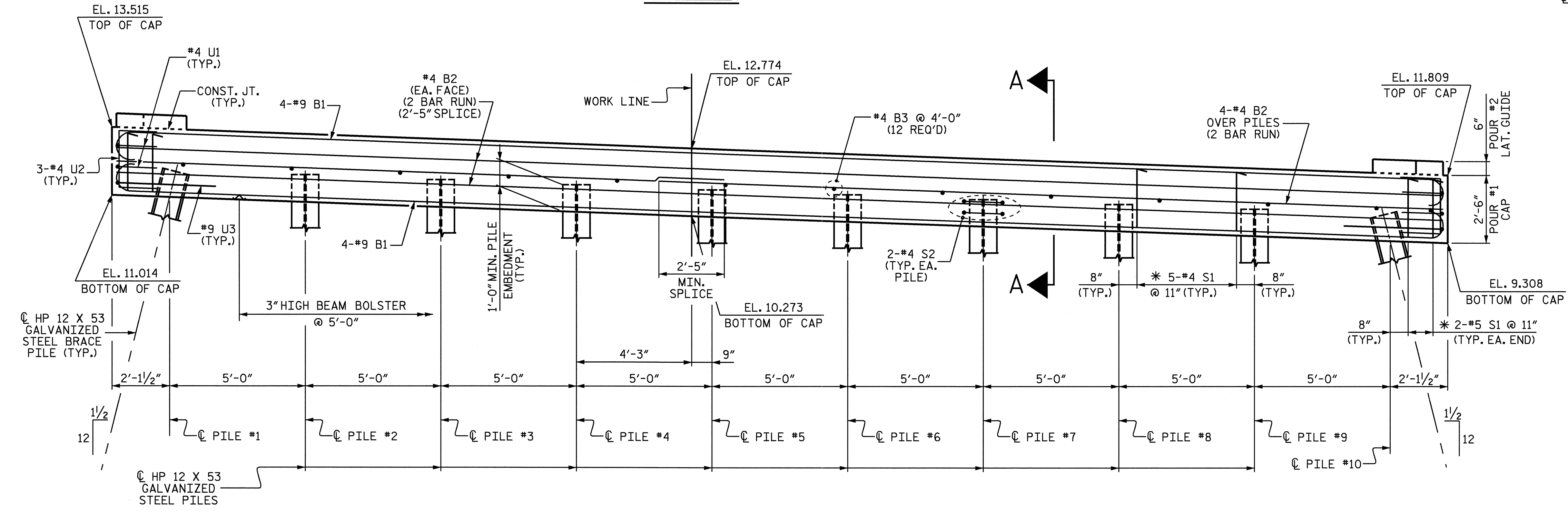
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
1			3			TOTAL SHEETS	
2			4			27	

**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 D1 DOWELS.  
 THE LATERAL GUIDE SHALL NOT BE POURED UNTIL THE CORED SLAB UNITS ARE IN PLACE.



**PLAN**



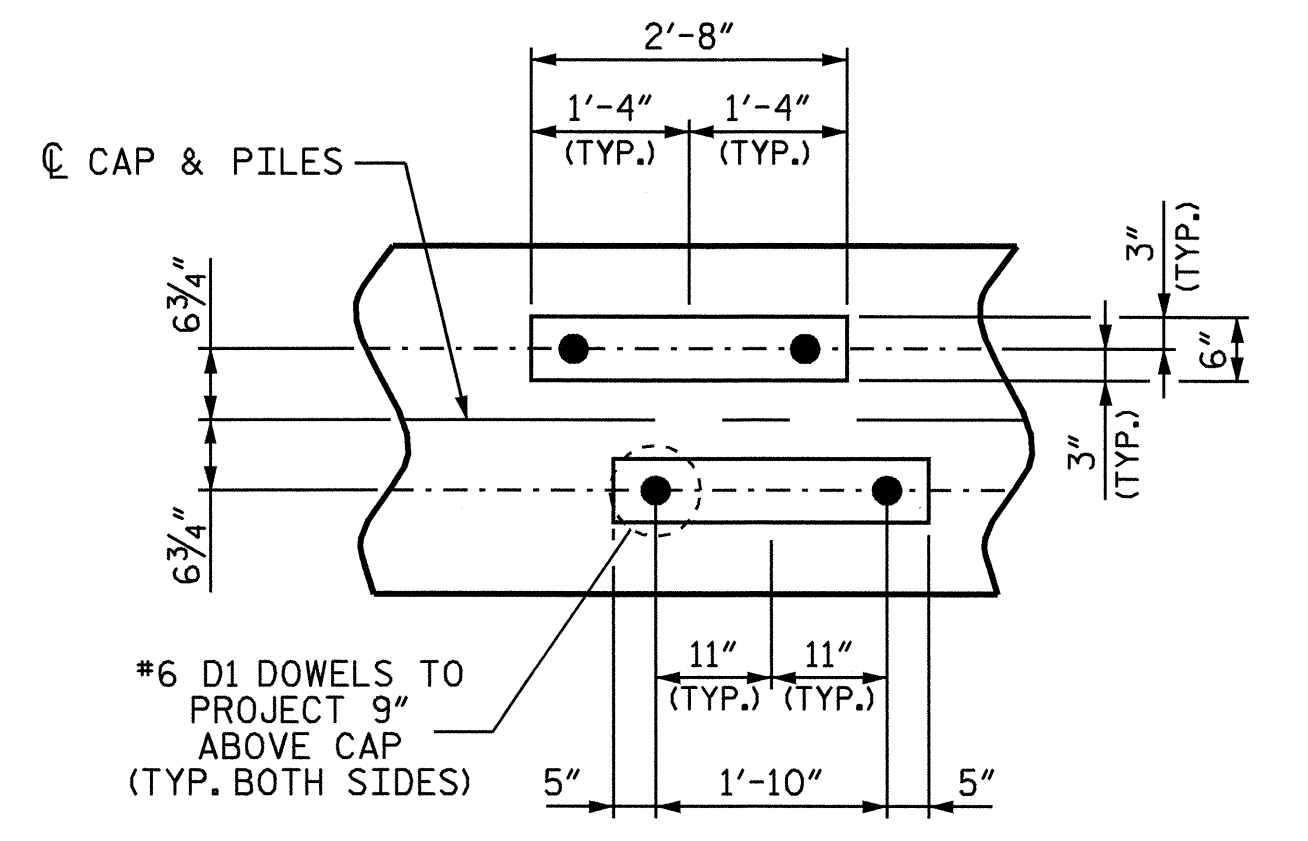
**ELEVATION**

\* INVERT ALTERNATE STIRRUPS

PILE	ELEVATION
1	11.958
2	11.785
3	11.612
4	11.439
5	11.266
6	11.093
7	10.920
8	10.747
9	10.574
10	10.401

SPAN C

SPAN B



**DETAIL A**

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

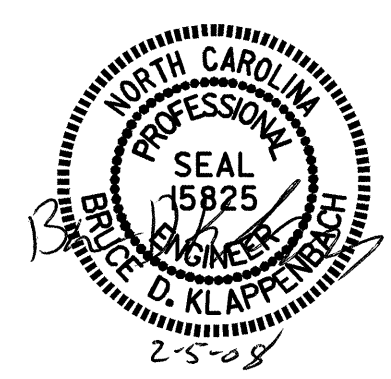
SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

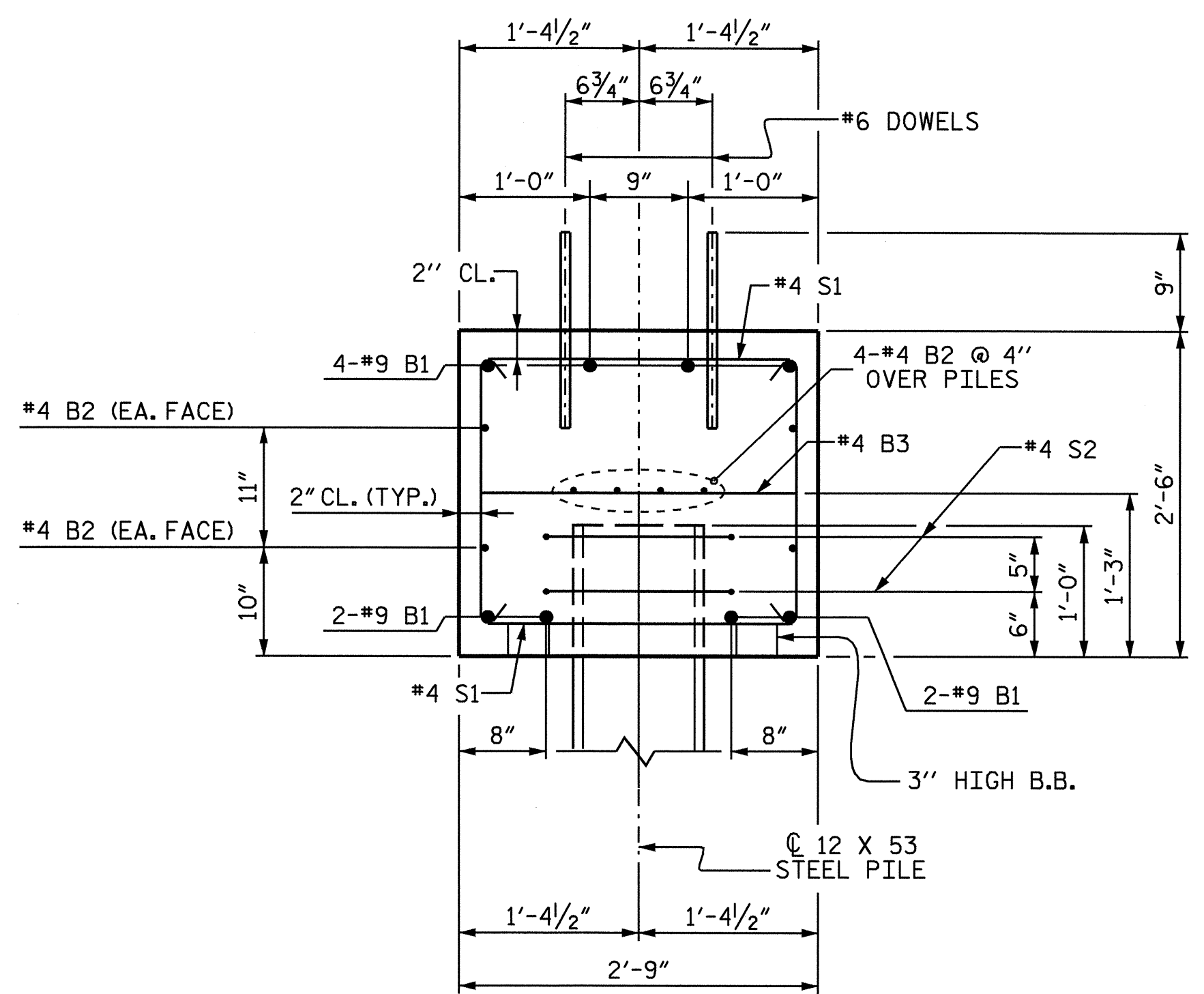
**SUBSTRUCTURE BENT #2**

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

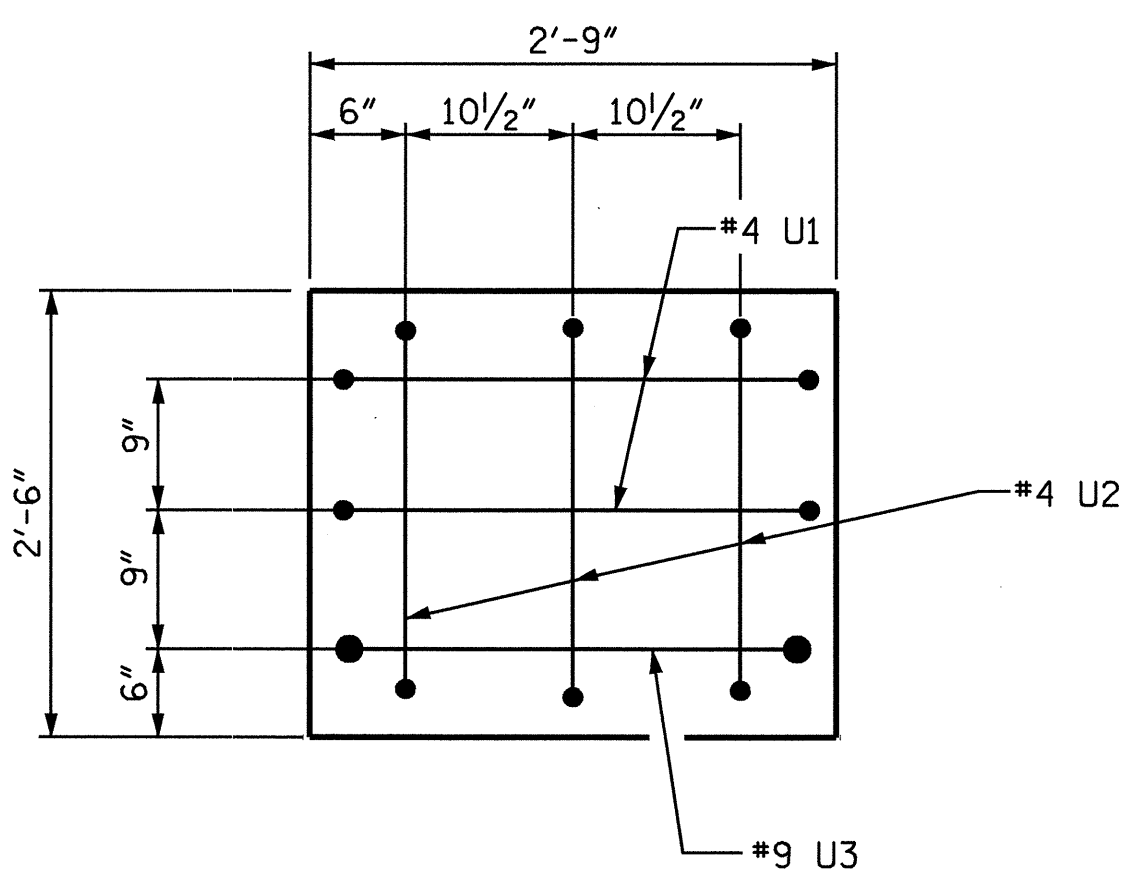
TOTAL SHEETS: 27



DRAWN BY : A. SORSENGINH DATE : 7-26-07  
 CHECKED BY : M. G. SHAIKH DATE : 10/25/07

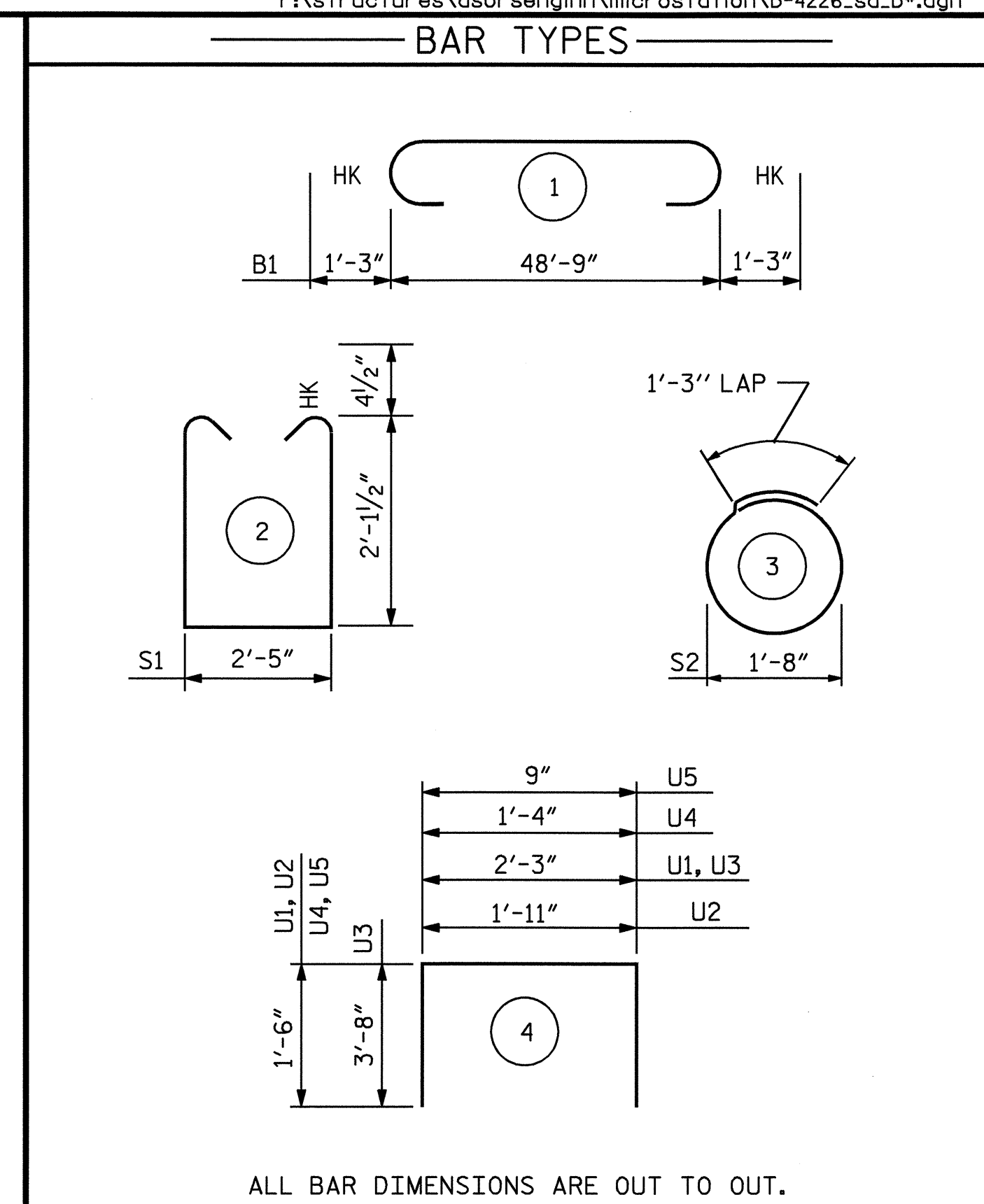


SECTION A-A



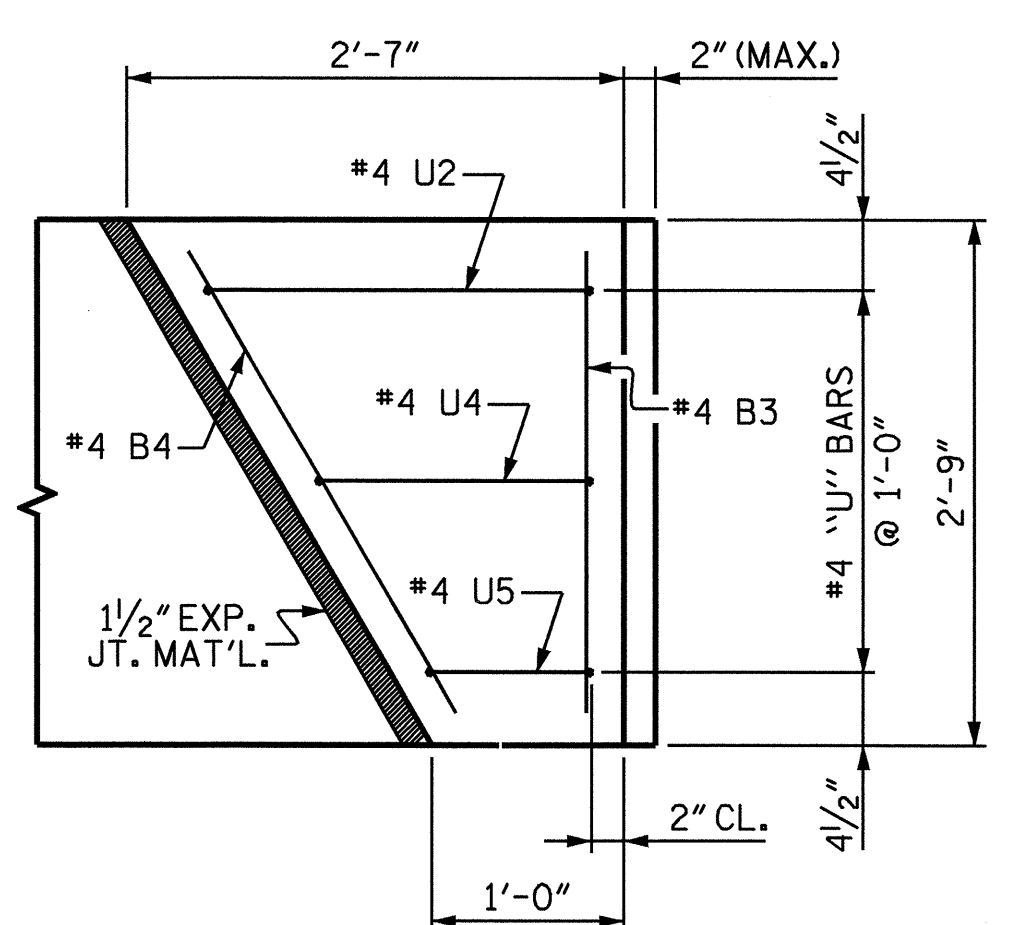
END VIEW

2" MIN. CONCRETE COVER FROM END OF CAP  
REQUIRED FOR ALL #4 U1, #4 U2 AND #9 U3 BARS.  
#4 U1 AND #4 U2 MAY BE SHIFTED UP TO 2" TO  
CLEAR "B" BARS.

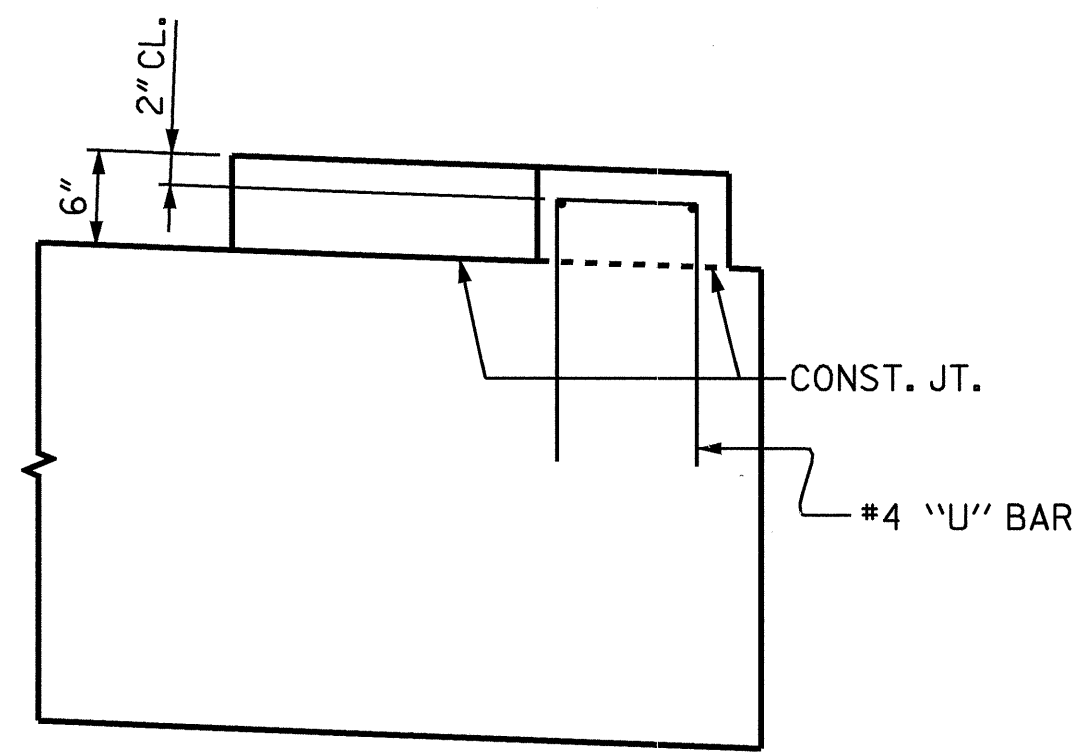


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	51'-3"	1394
B2	16	#4	STR	25'-8"	274
B3	14	#4	STR	2'-5"	23
B4	2	#4	STR	2'-9"	4
D1	52	#6	STR	1'-6"	117
S1	49	#4	2	7'-5"	243
S2	20	#4	3	6'-6"	87
U1	4	#4	4	5'-3"	14
U2	8	#4	4	4'-11"	26
U3	2	#9	4	9'-7"	65
U4	2	#4	4	4'-4"	6
U5	2	#4	4	3'-9"	5
REINFORCING STEEL =					2258 LBS
CLASS A CONCRETE					
POUR #1 CAP					12.5 CU. YDS.
POUR #2 LATERAL GUIDE					0.2 CU. YDS.
TOTAL CLASS A CONCRETE					12.7 CU. YDS.
HP 12 X 53 GALVANIZED STEEL PILES					
NO. 10					LIN. FT. 550

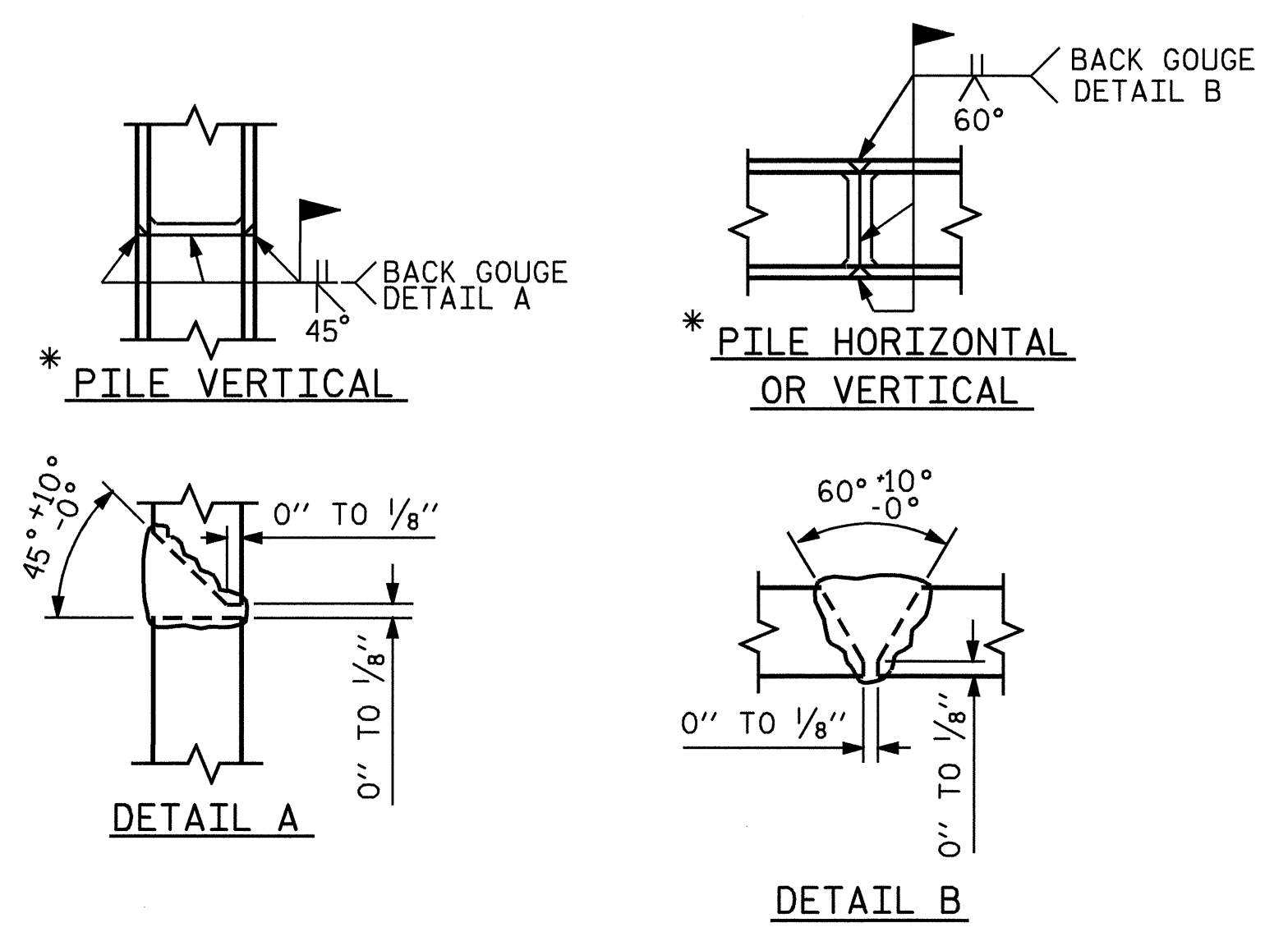


PLAN



ELEVATION

LATERAL GUIDE DETAIL



PILE SPLICE DETAILS

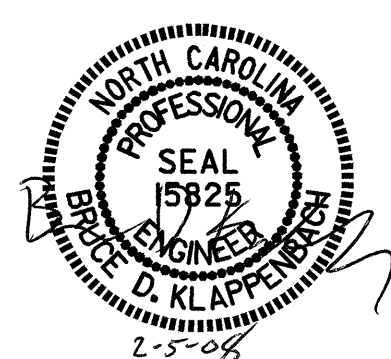
\* POSITION OF PILE DURING WELDING.

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 2 OF 2

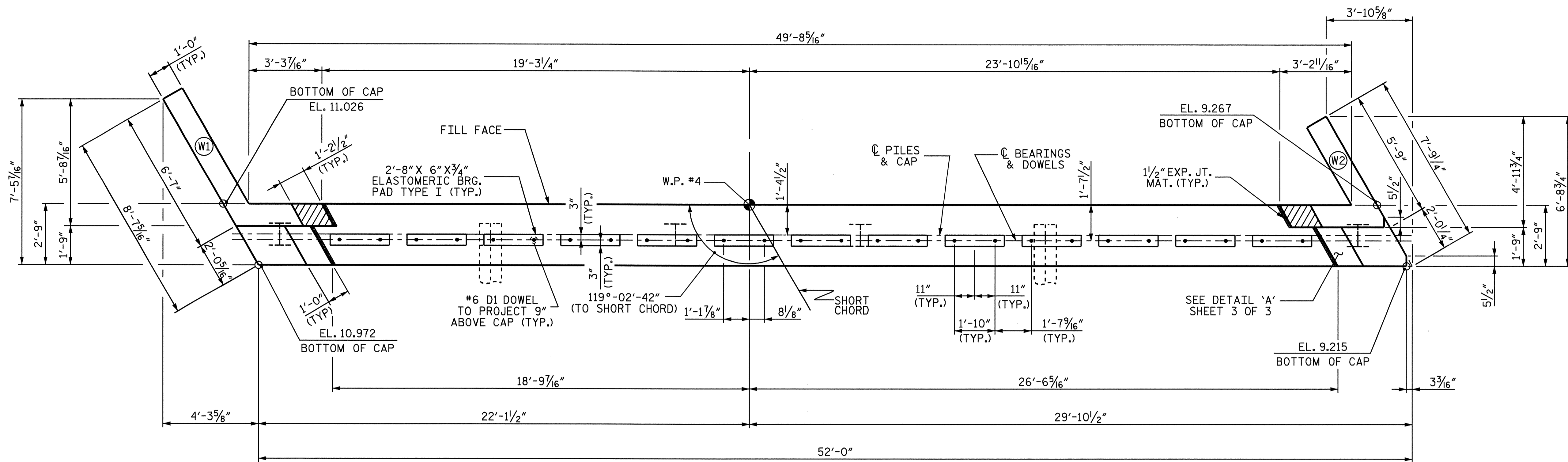
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 BENT #2**



DRAWN BY : A. SORSENGINH DATE : 7-27-07  
 CHECKED BY : M. G. SHAIKH DATE : 10/25/07

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



**PLAN**

**NOTES**

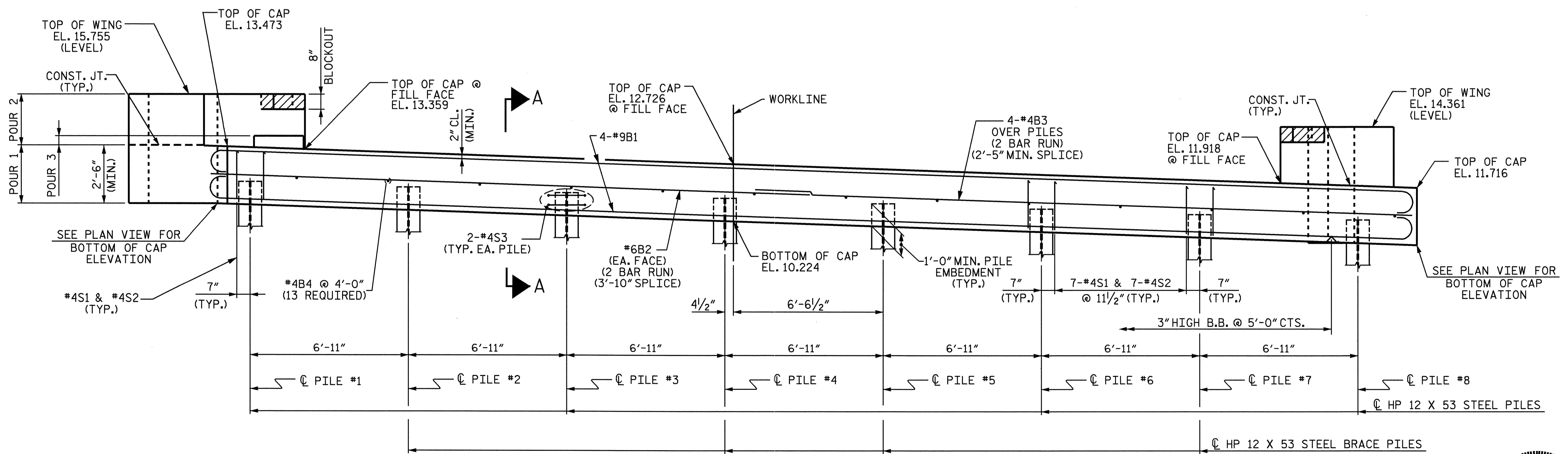
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" Ø 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.

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

TOP OF PILE ELEVATIONS	
PILE #	ELEVATION
1	EL. 11.955
2	EL. 11.721
3	EL. 11.488
4	EL. 11.254
5	EL. 11.020
6	EL. 10.786
7	EL. 10.553
8	EL. 10.319



**ELEVATION**

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

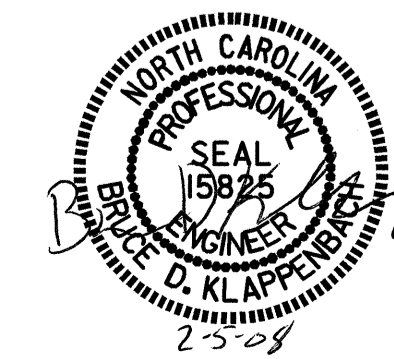
SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 END BENT #2**

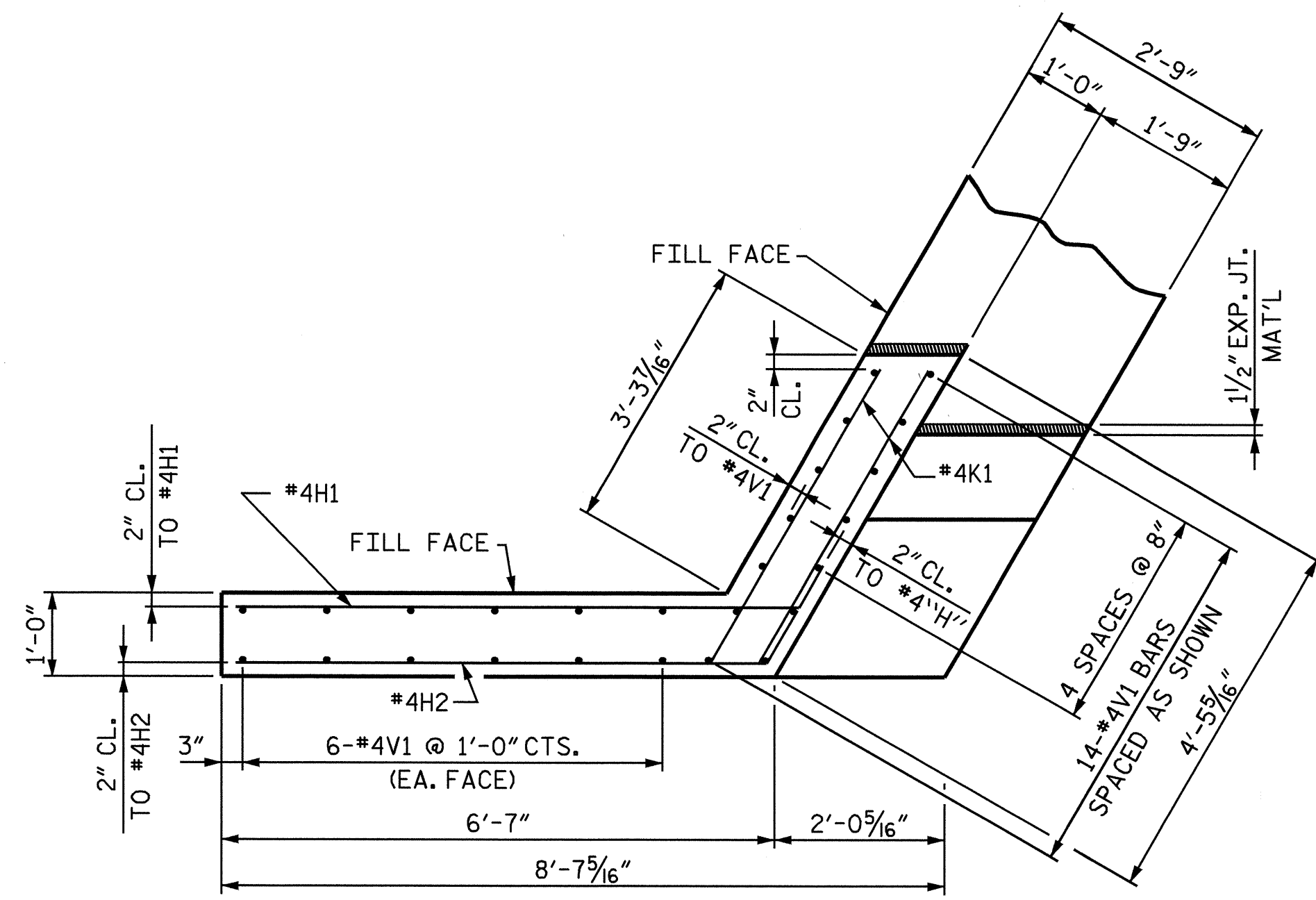
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

S-21  
 TOTAL SHEETS  
 27

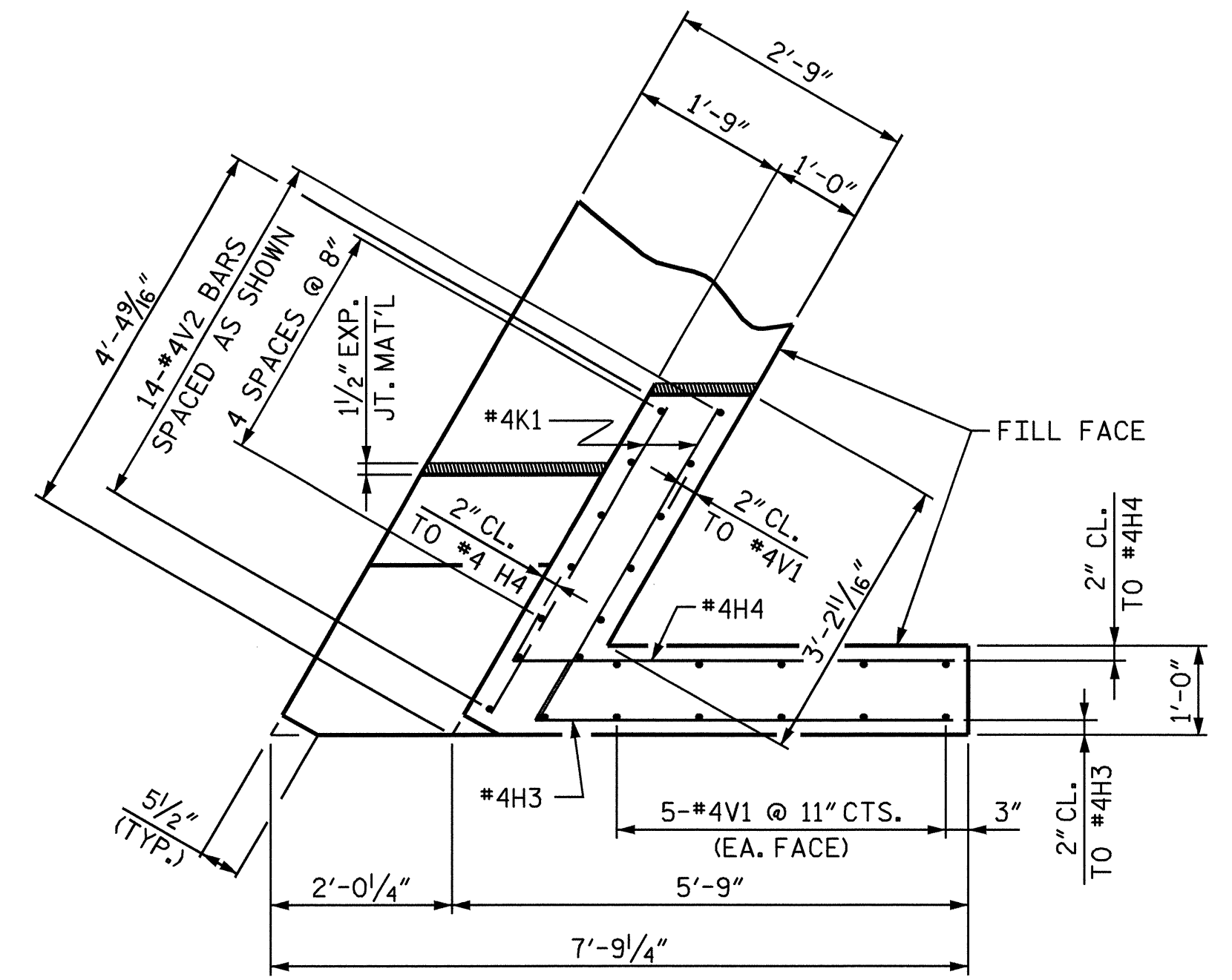


DRAWN BY: C.R. YARBROUGH DATE: 08/07  
 CHECKED BY: M.G. SHAIKH DATE: 12/07

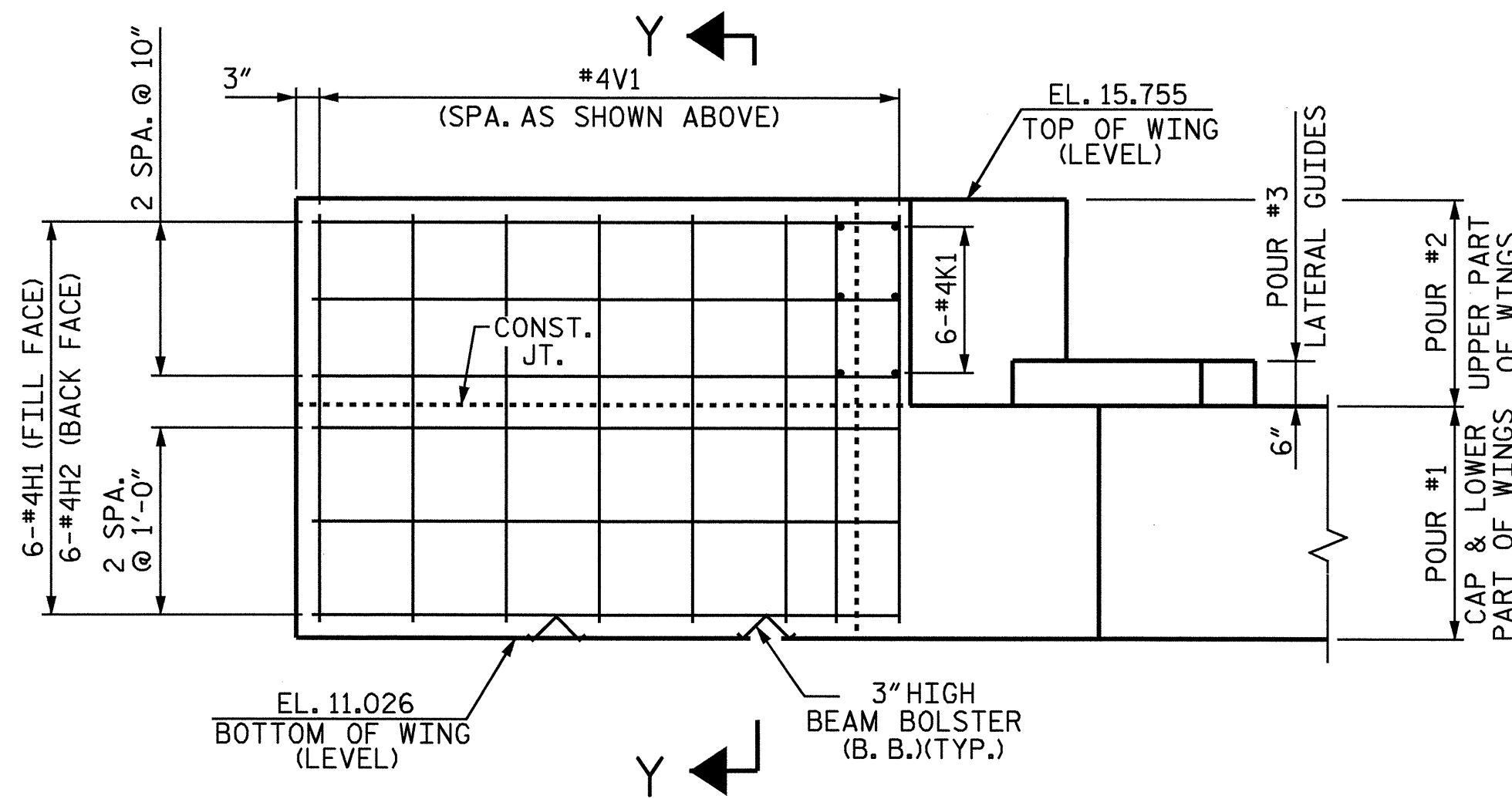
05-FEB-2008 14:44  
 r:\structures\cyarborough\b-4226.sd.e\*.dgn  
 cyarborough



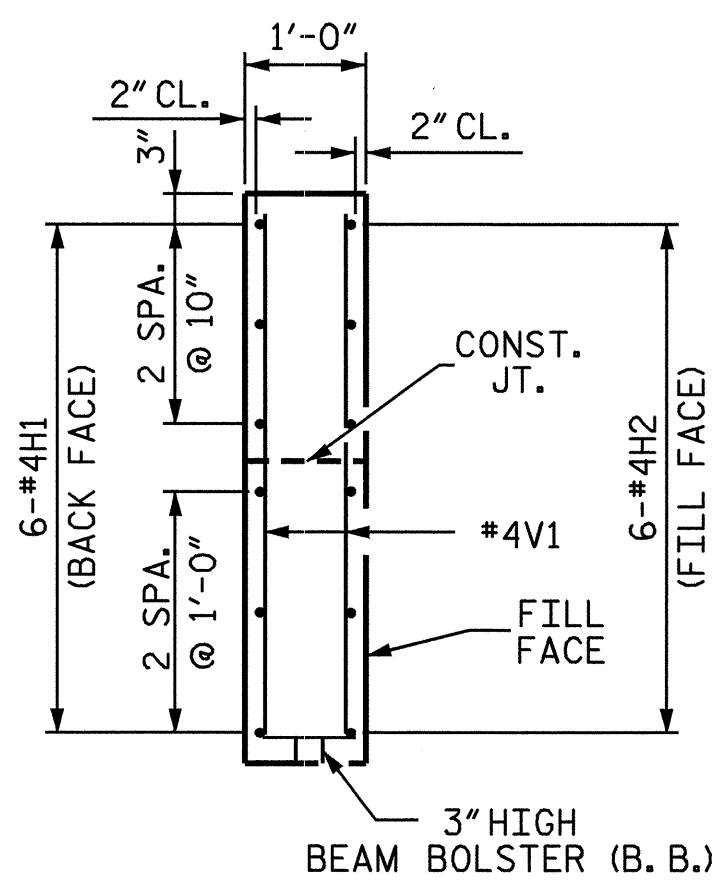
PLAN OF LEFT WING (W1)



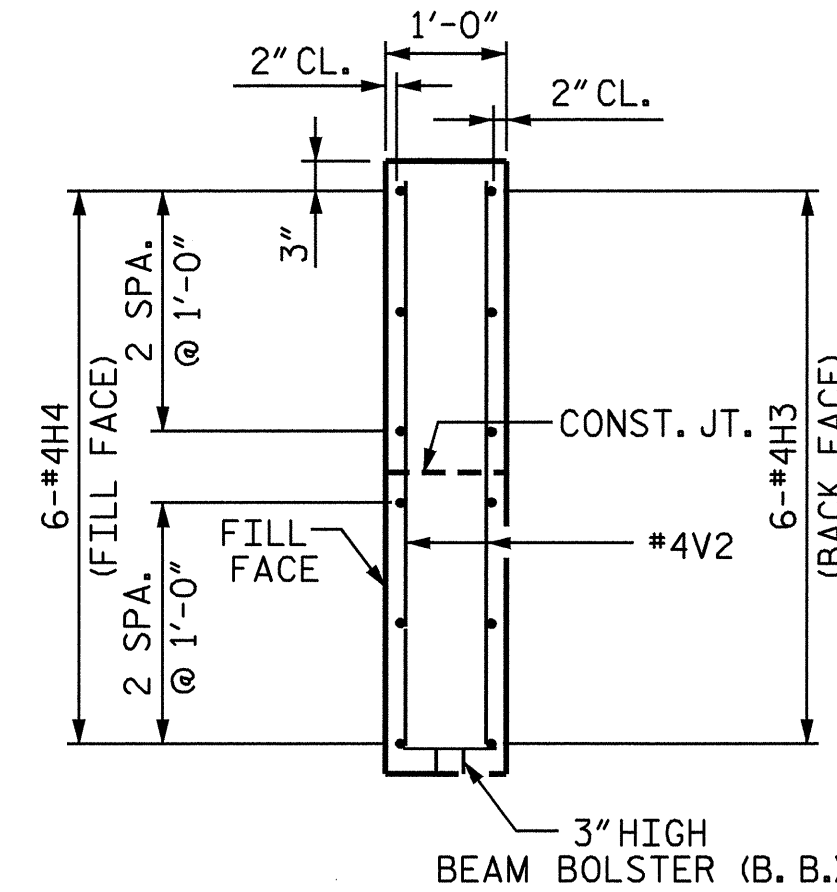
PLAN OF RIGHT WING (W2)



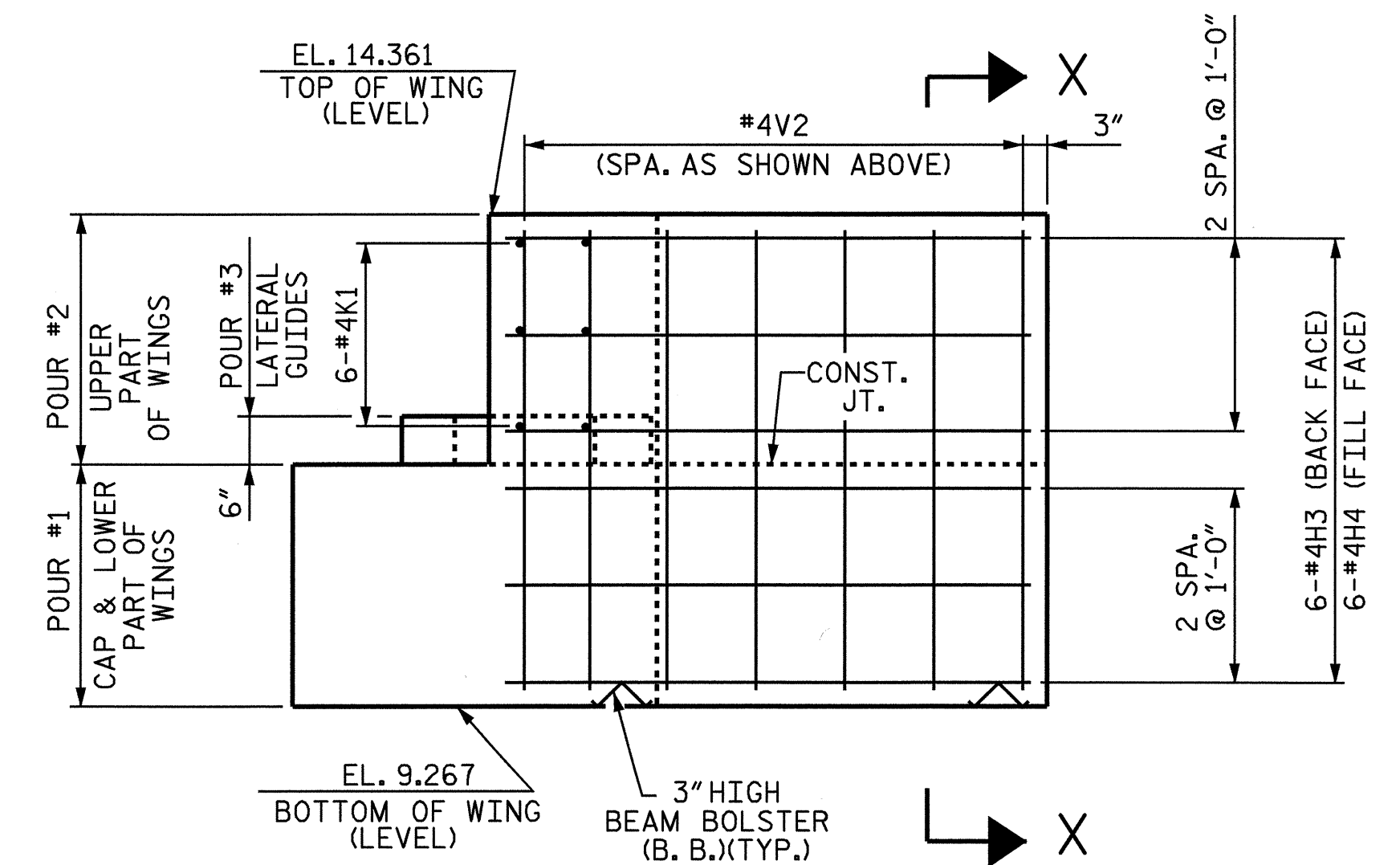
ELEVATION OF LEFT WING (W1)



SECTION Y-Y



SECTION X-X



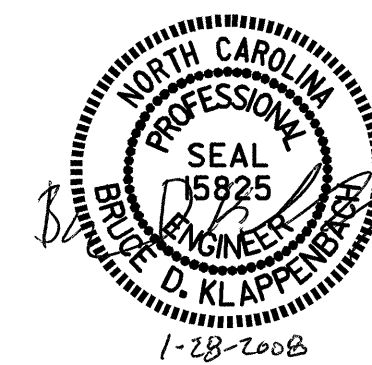
ELEVATION OF RIGHT WING (W2)

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

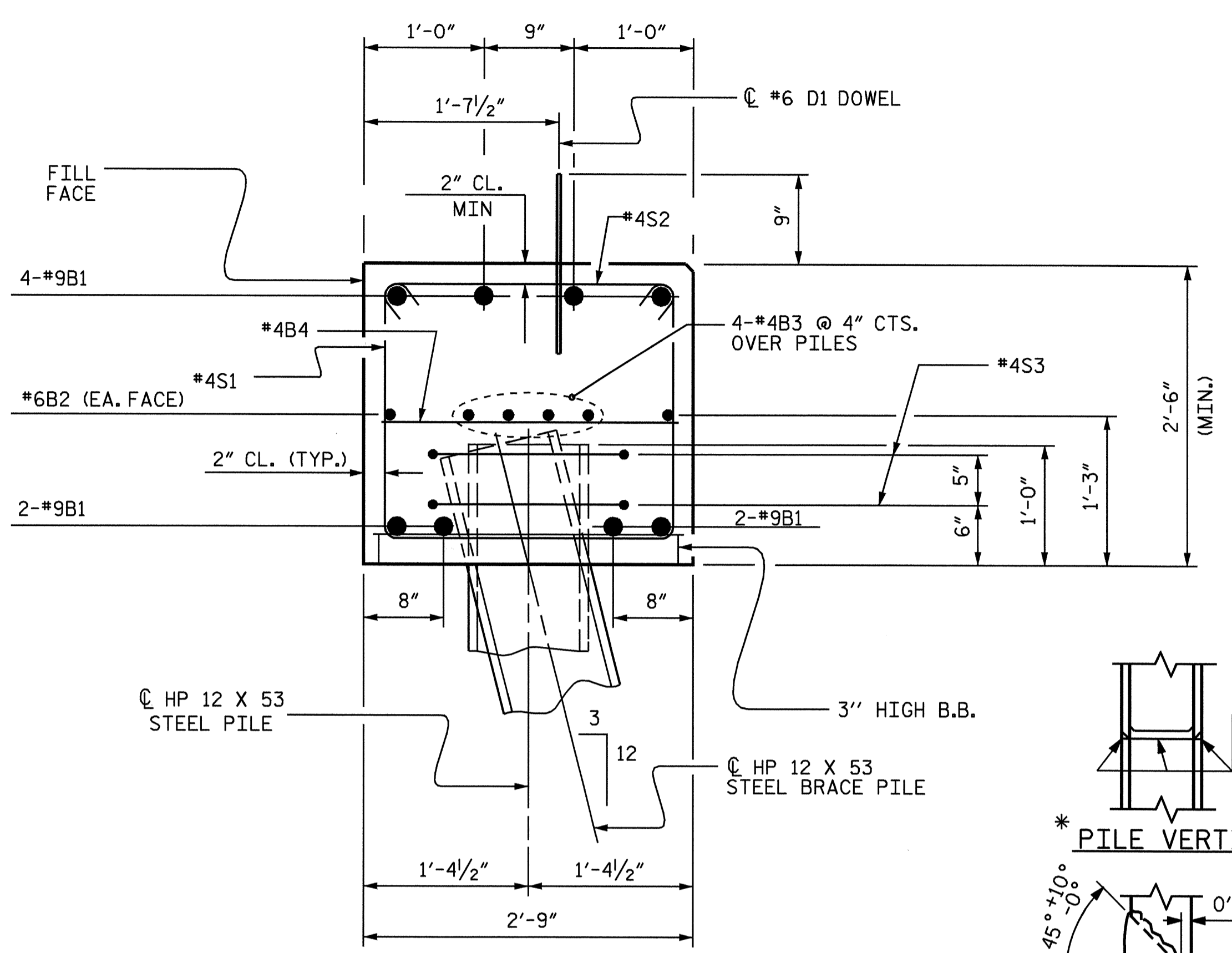
SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

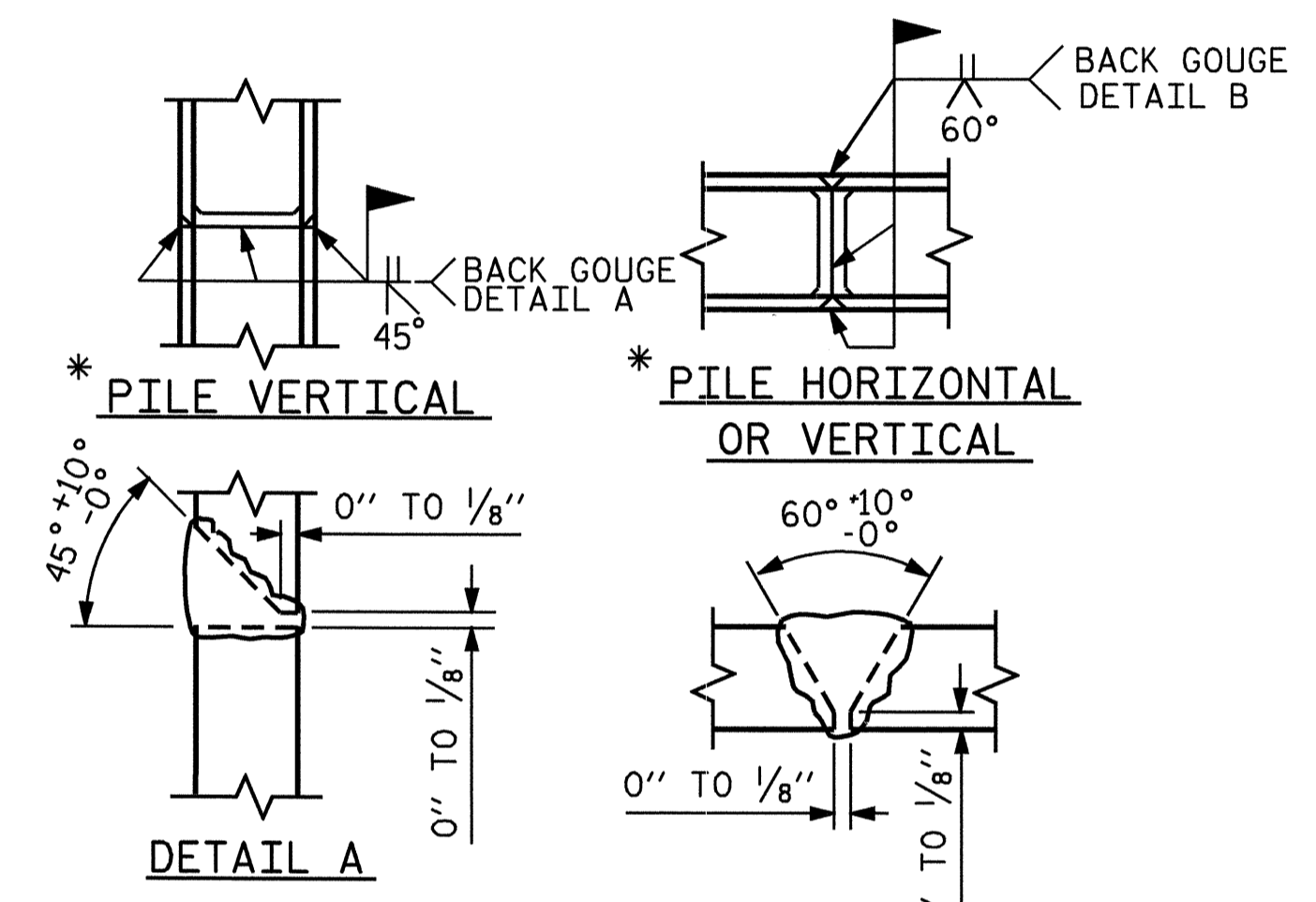
SUBSTRUCTURE  
 END BENT #2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-22
2			4			TOTAL SHEETS 27

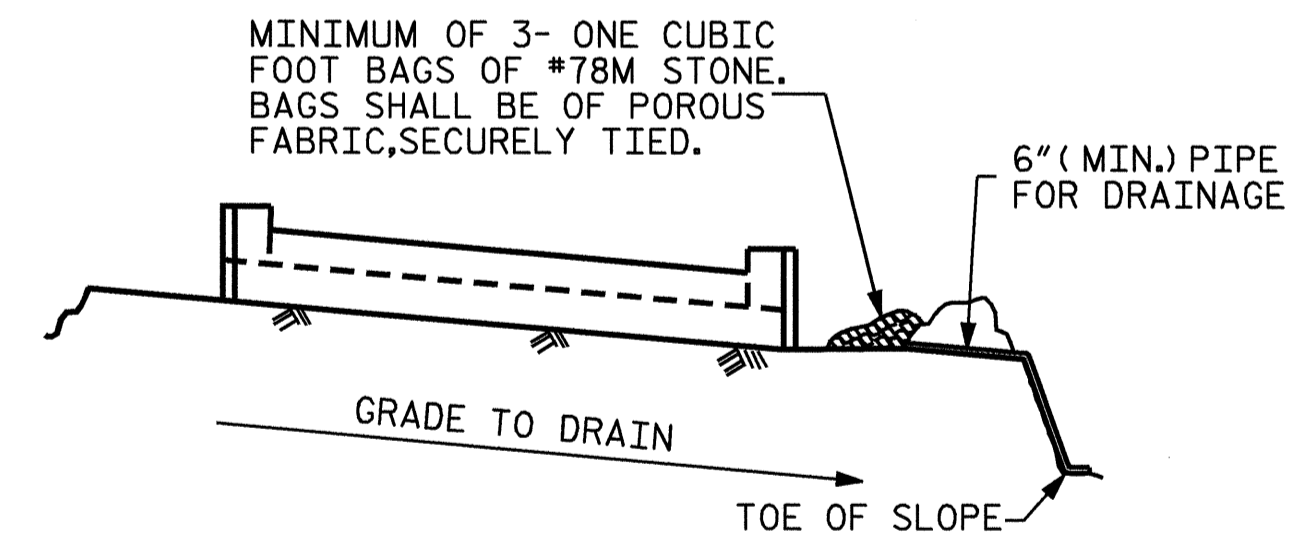


SECTION A-A



\* POSITION OF PILE DURING WELDING. DETAIL B

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.

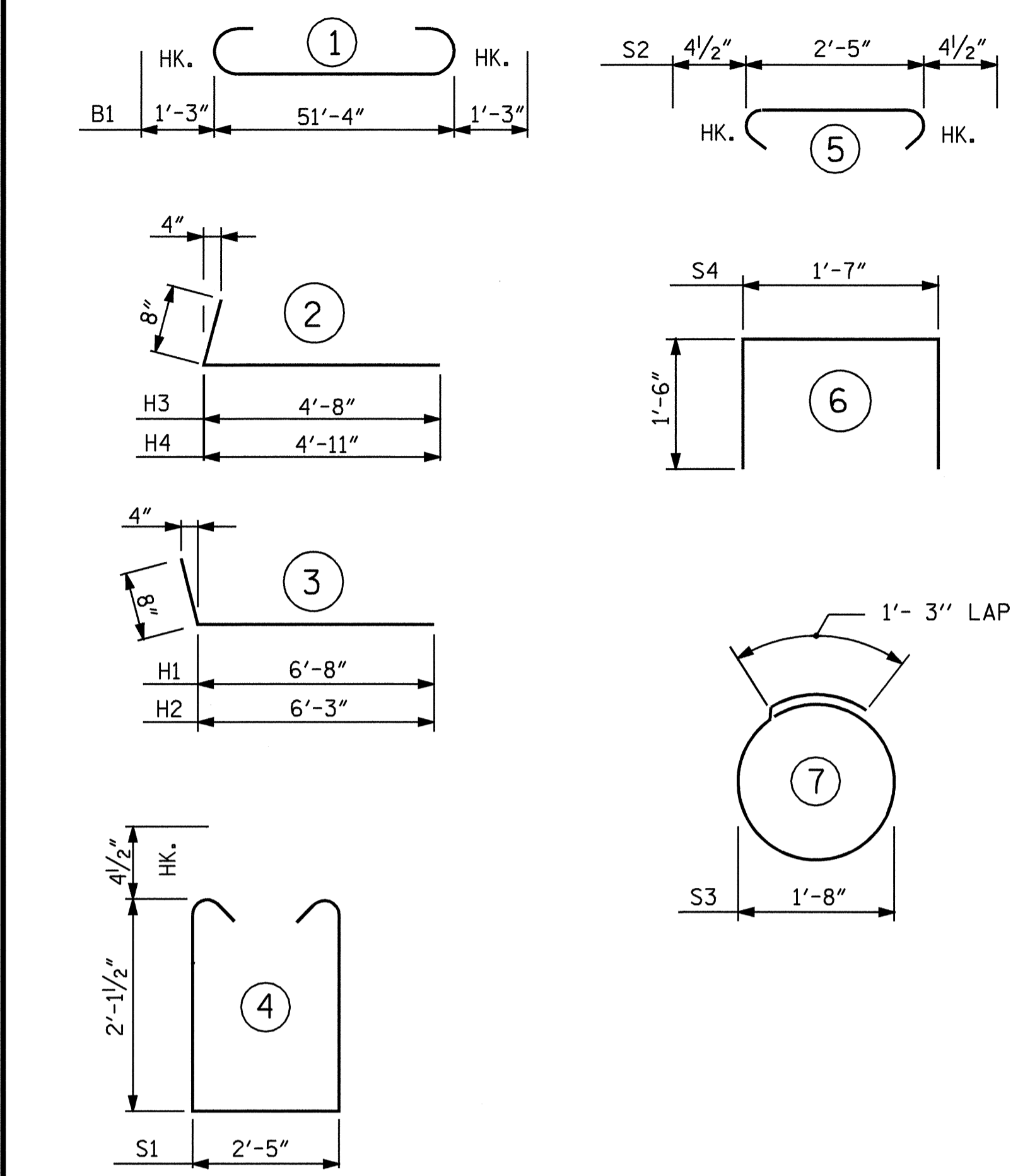
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

DRAWN BY : C.R. YARBROUGH DATE : 08/07  
 CHECKED BY : M.G. SHAIKH DATE : 12/07

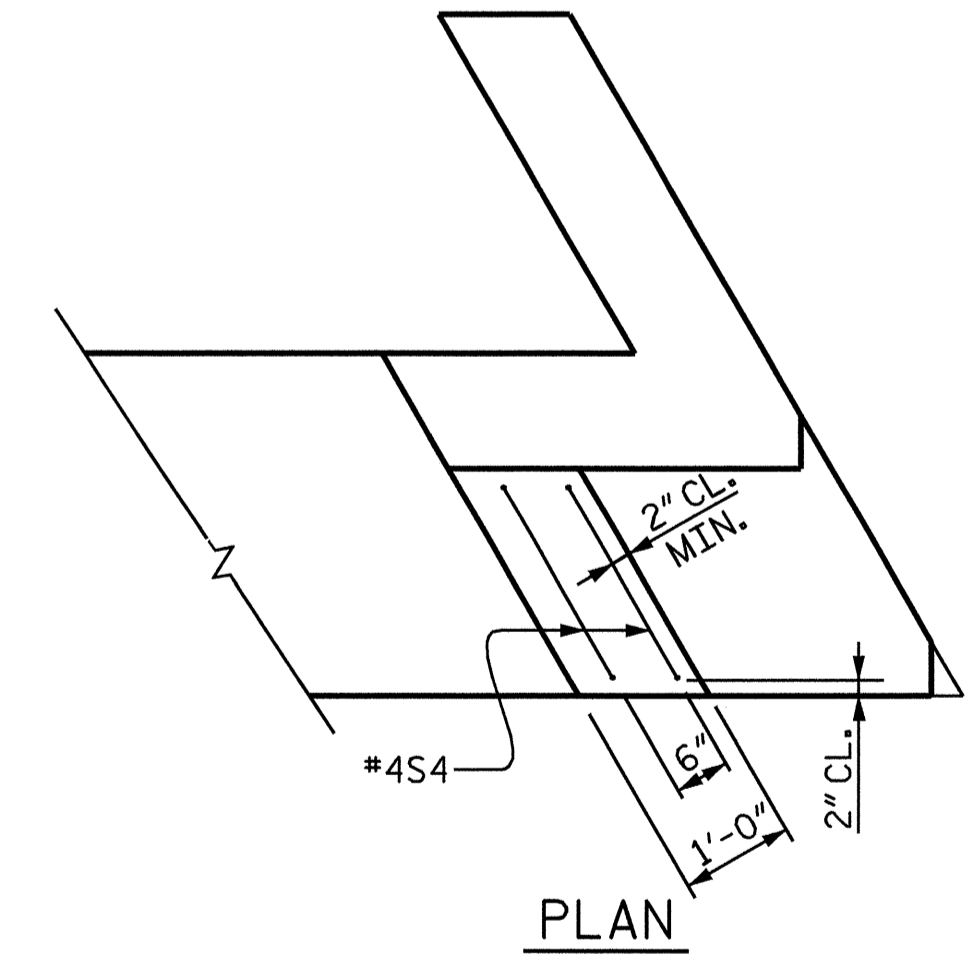
BAR TYPES



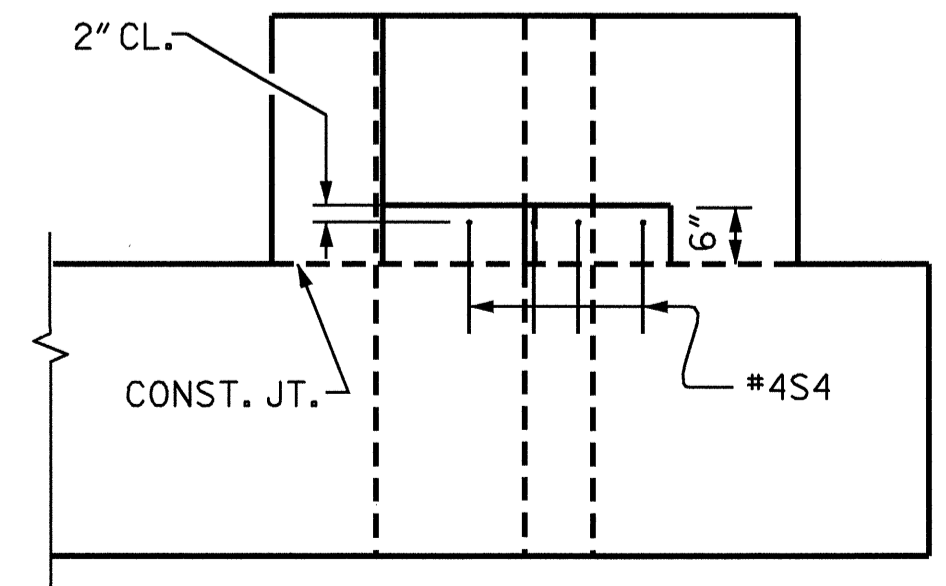
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT NO. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	53'-10"	1464
B2	4	#6	STR	27'-9"	167
B3	8	#4	STR	27'-1"	145
B4	13	#4	STR	2'-5"	21
D1	26	#6	STR	1'-6"	59
H1	6	#4	3	7'-4"	29
H2	6	#4	3	6'-11"	28
H3	6	#4	2	5'-4"	21
H4	6	#4	2	5'-7"	22
S1	51	#4	4	7'-5"	253
S2	51	#4	5	3'-2"	108
S3	16	#4	7	6'-6"	69
S4	4	#4	6	4'-7"	12
K1	12	#4	STR	3'-11"	31
V1	26	#4	STR	4'-4"	75
V2	24	#4	STR	4'-9"	76
REINFORCING STEEL				= 2580 LBS.	
CLASS A CONCRETE					
POUR #1 CAP AND LOWER PART OF WINGS				CU. YDS.	14.1
POUR #2 UPPER PART OF WINGS				CU. YDS.	1.6
POUR #3 LATERAL GUIDES				CU. YDS.	0.1
TOTAL				CU. YDS.	15.8
HP 12x53 STEEL PILES					
NO.		8		LIN. FT.	280



PLAN



ELEVATION

DETAIL 'A'

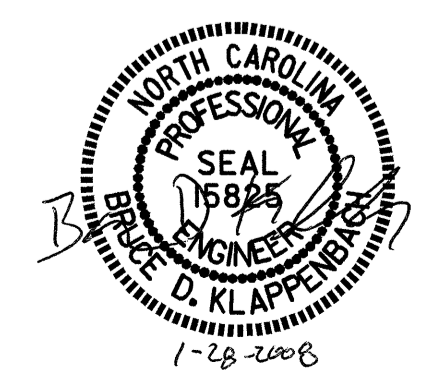
(EACH END SIMILAR)

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 3 OF 3

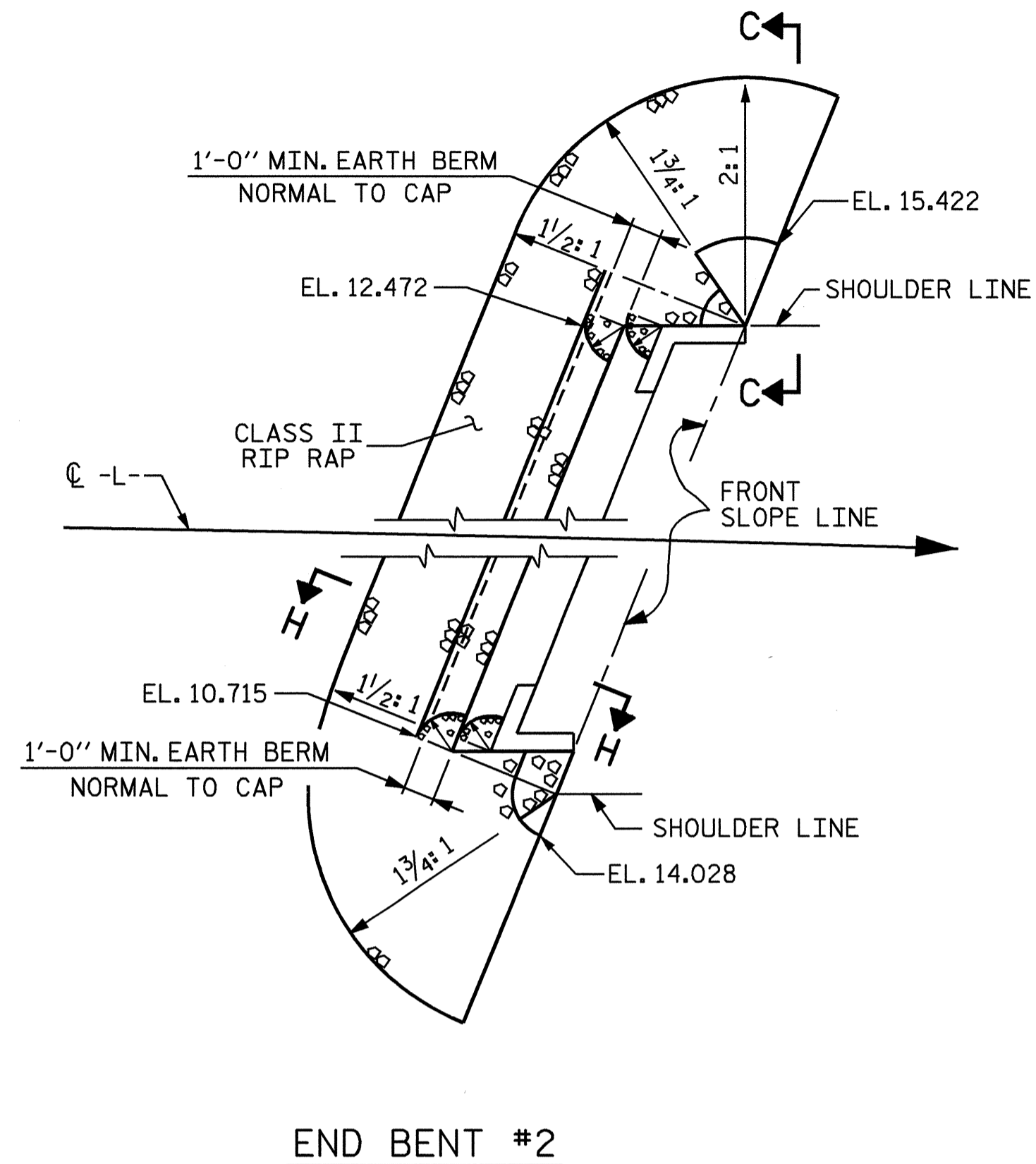
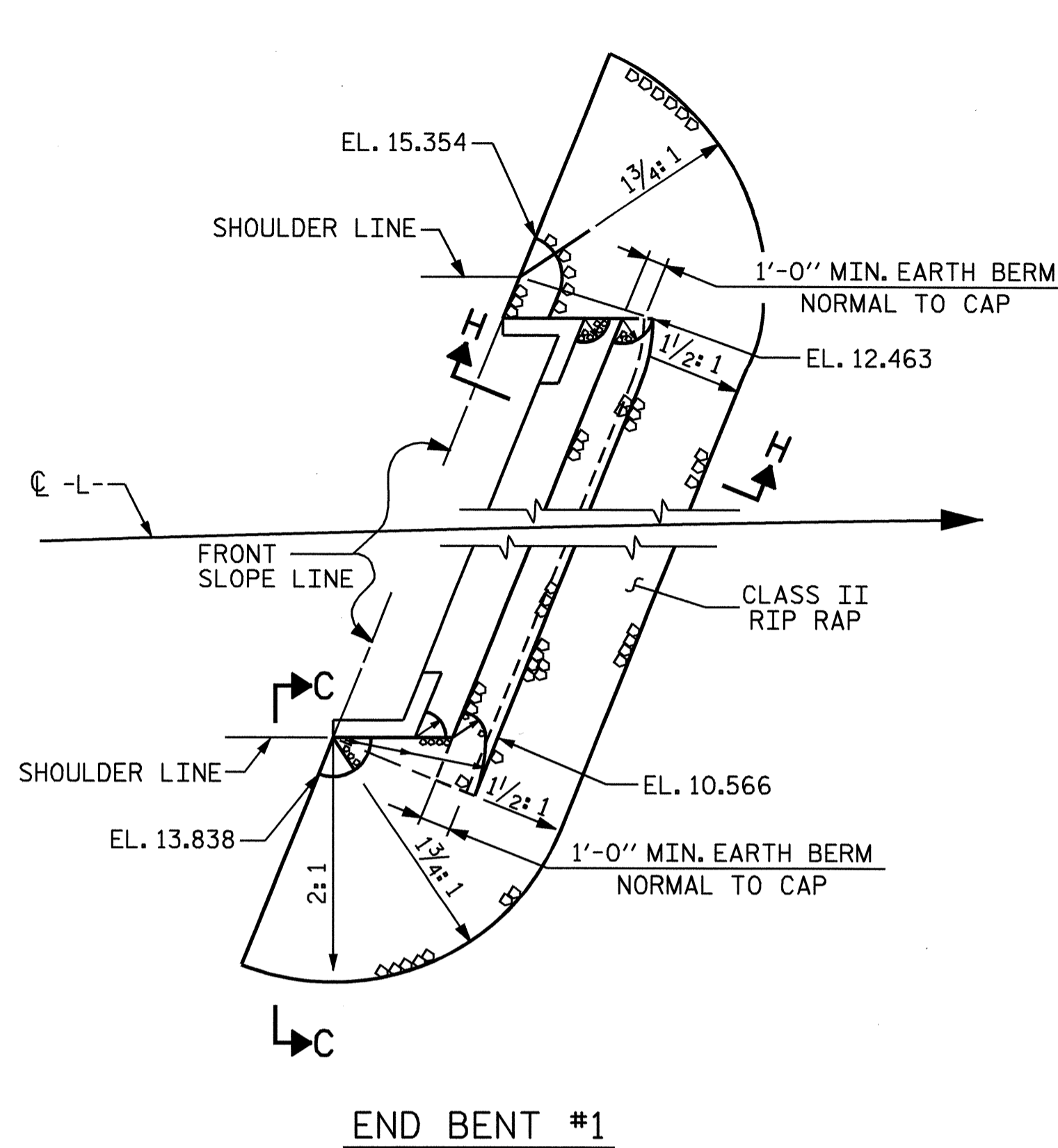
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
END BENT #2



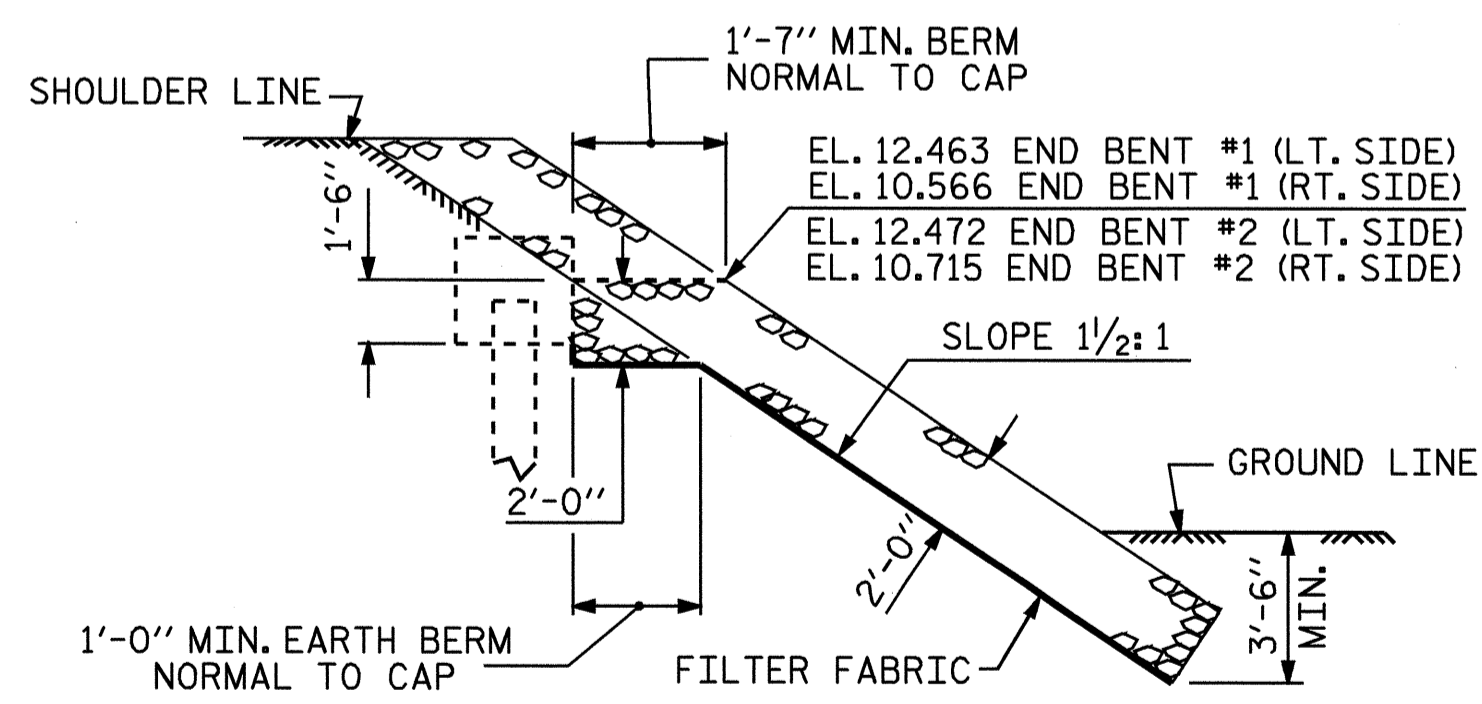
REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			



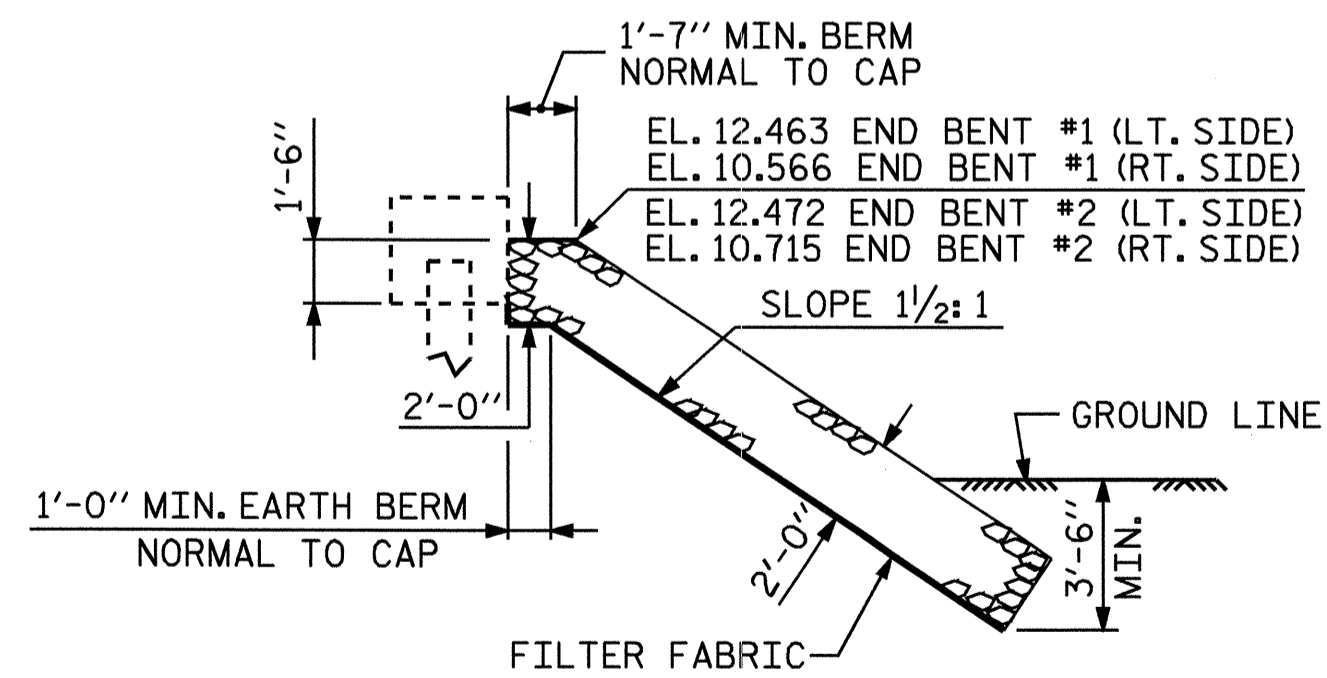


**PLAN**

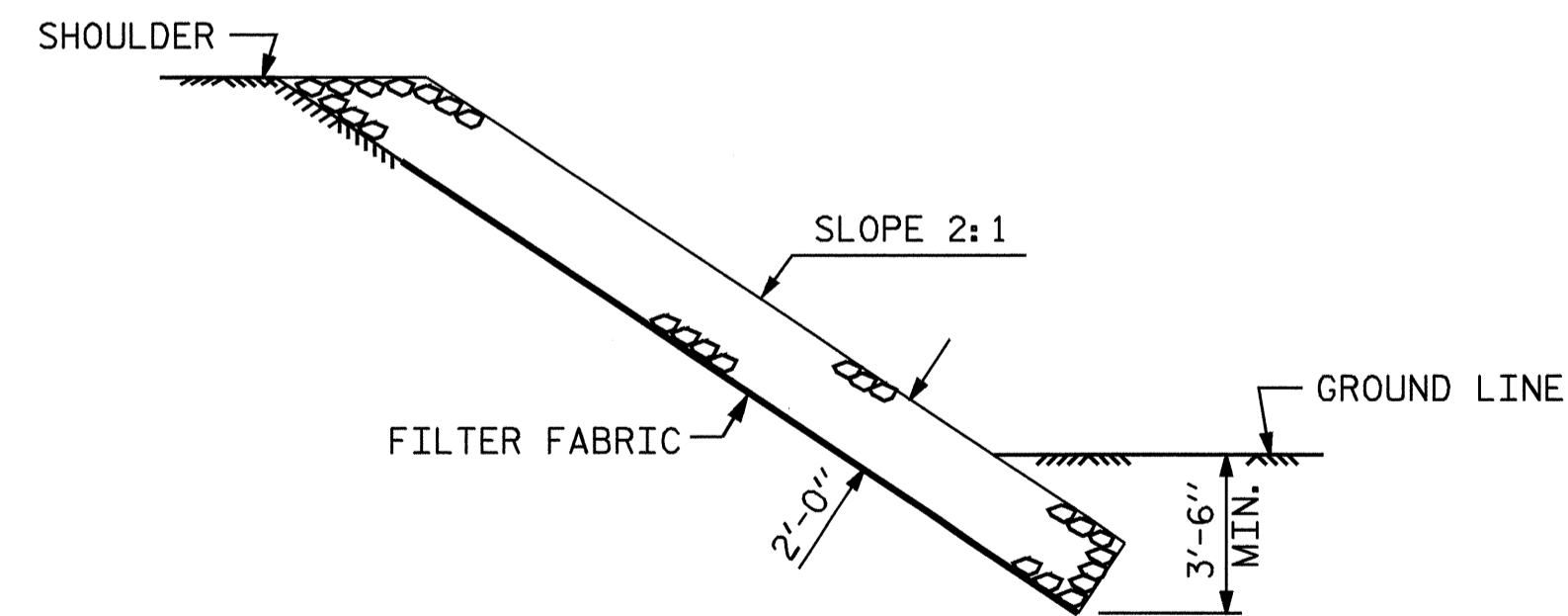
ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+95.00 -L-	CLASS II RIP RAP	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	121	134
END BENT 2	120	133
TOTAL	241	267



**SECTION H-H**



**SECTION C-C**



**SECTION C-C**

**BERM RIP RAPPED**

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

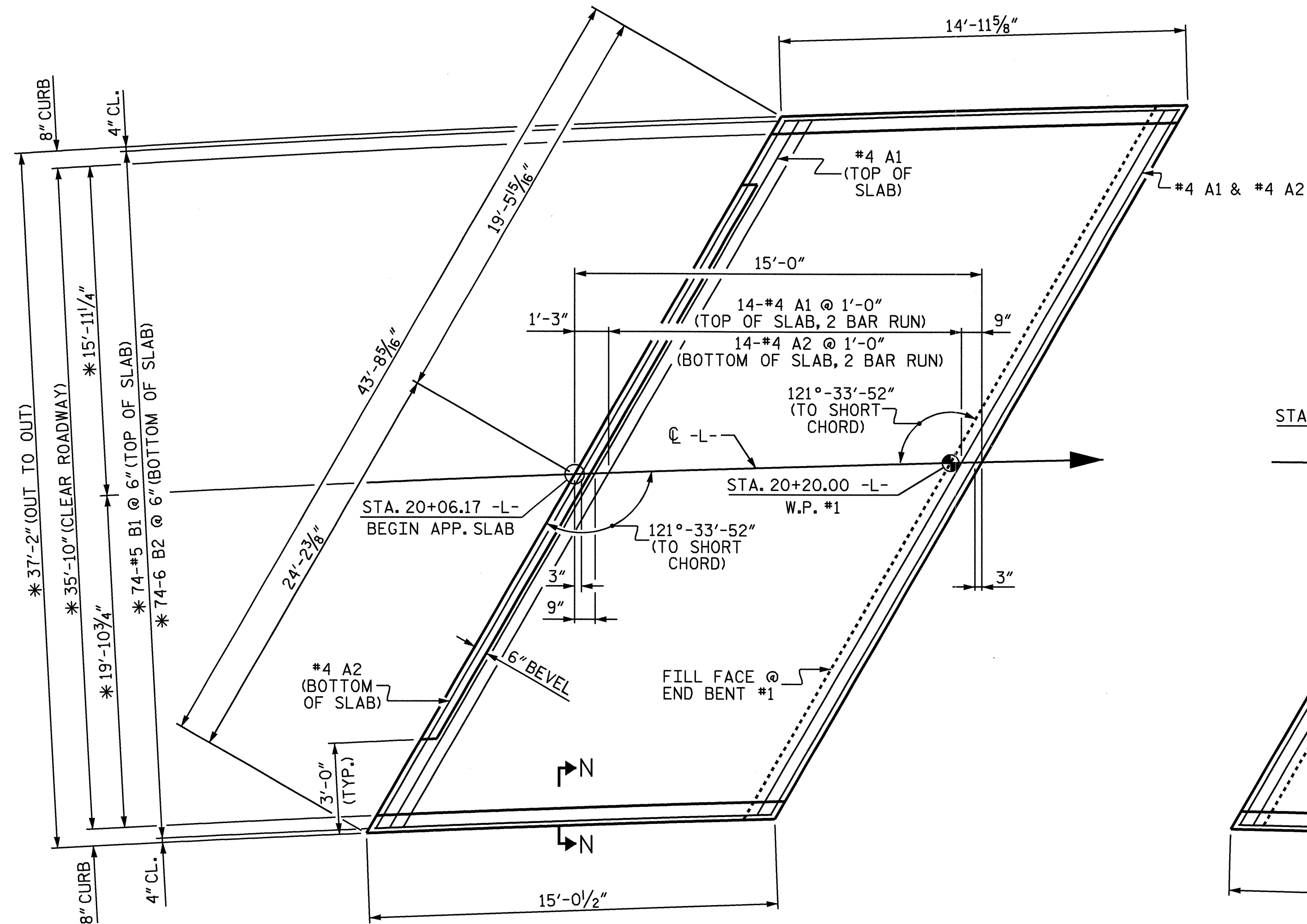
**— RIP RAP DETAILS —**

REVISIONS						SHEET NO. S-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

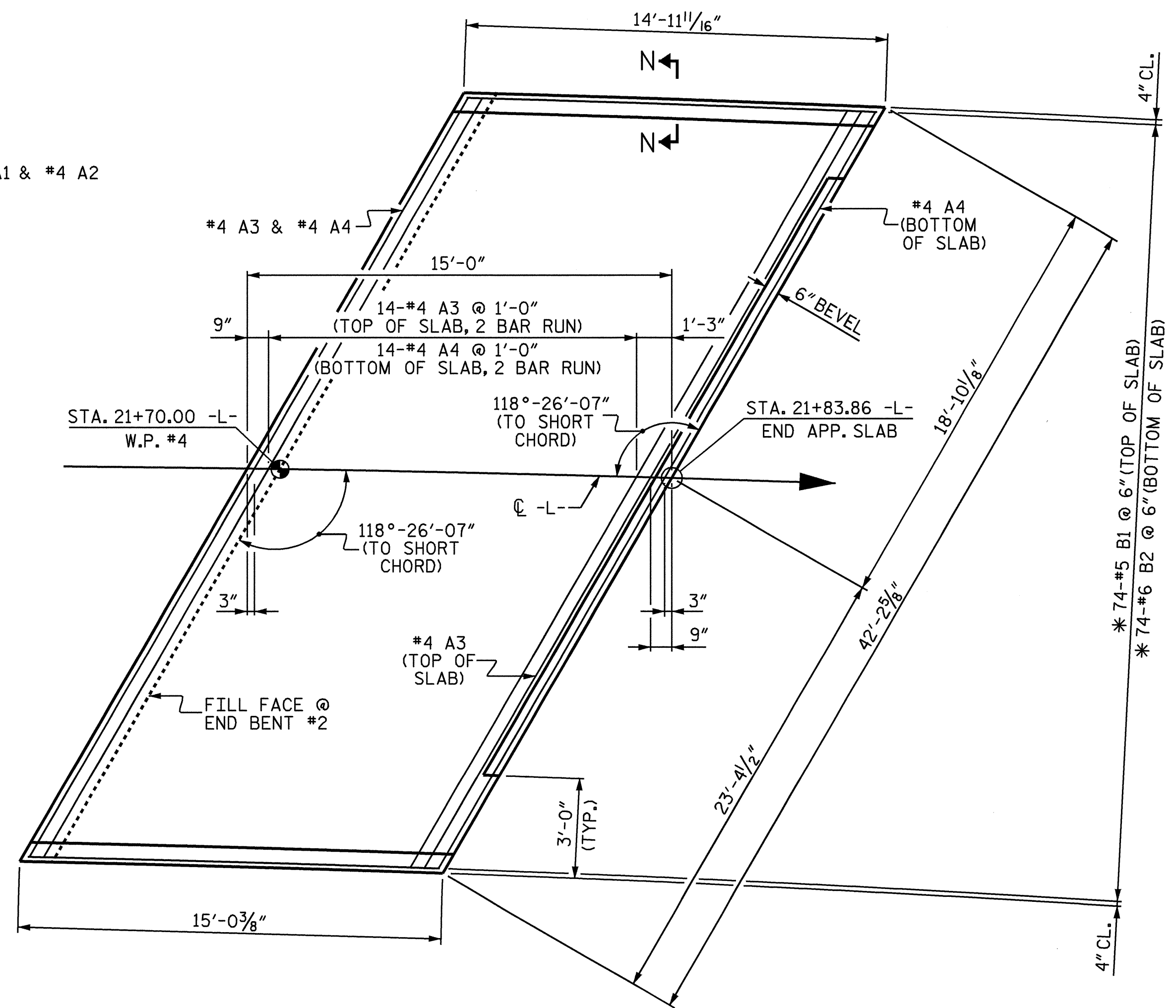


ASSEMBLED BY : A. SORSENGIH DATE : 6/14/07  
 CHECKED BY : C. R. YARBROUGH DATE : 12/7/07  
 DRAWN BY : REK 1/84 REV. 8/16/99 RWW/LES  
 CHECKED BY : RDU 1/84 REV. 10/17/00 RWW/LES  
 REV. 5/1/06 TLA/GM

05-FEB-2008 15:45  
 r:\structures\asorsengih\microstation\b-4226\_sd.rr.dgn  
 asorsengih



PLAN @ END BENT #1



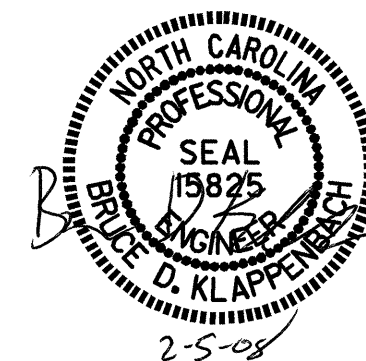
PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS  
 \*DIMENSIONS ARE TO CIRCLES CONCENTRIC WITH C-L-

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 1 OF 3

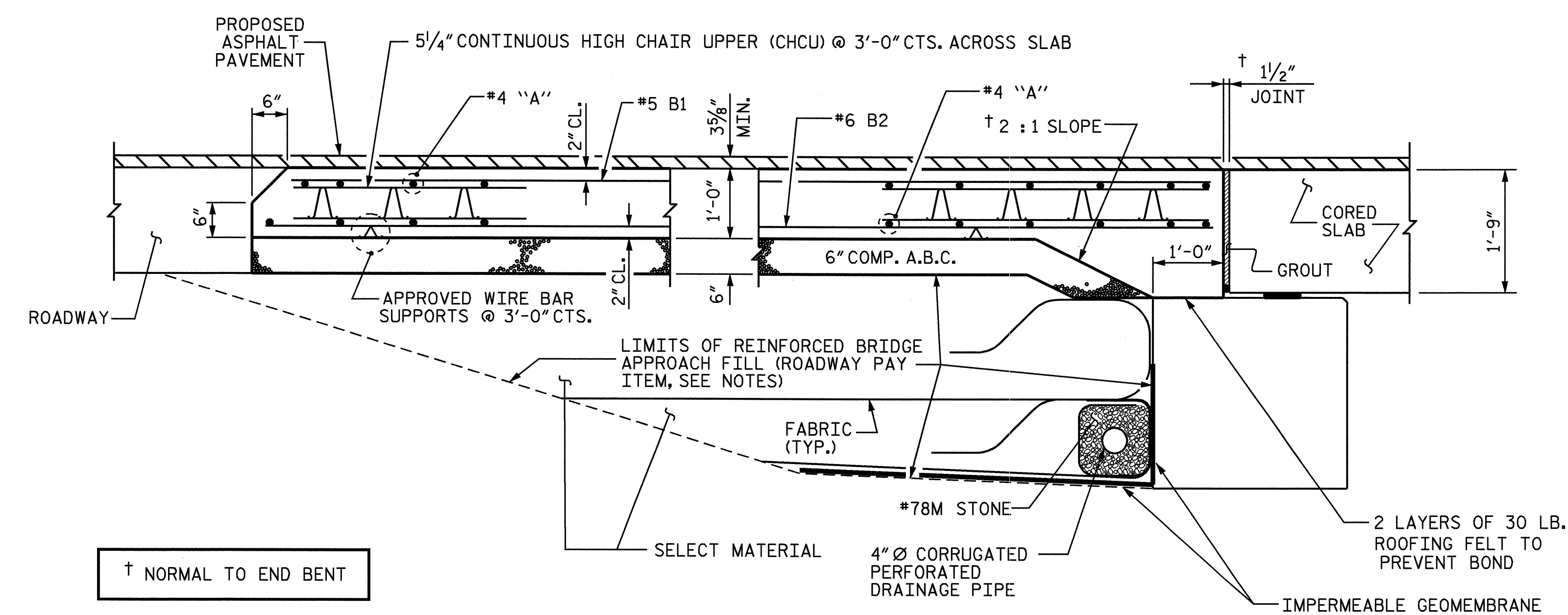
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB



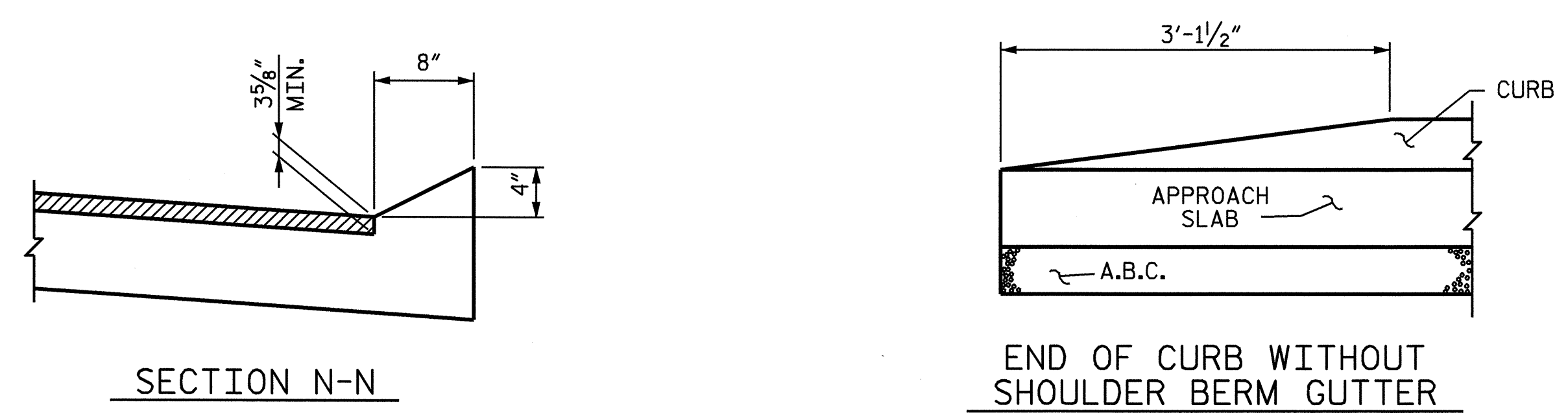
ASSEMBLED BY : A. SORSENGINH	DATE : 11/13/07
CHECKED BY : C.R. YARBROUGH	DATE : 11/16/07
DRAWN BY : FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY : EGA 6/87	REV. 5/1/03R RWN/JTE
	REV. 5/1/06 TLA/GM

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-25
1			3		TOTAL SHEETS
2			4		27

BILL OF MATERIAL													
APPROACH SLAB AT END BENT #1						APPROACH SLAB AT END BENT #2							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	32	#4	STR	22'-7"	483	*A3	32	#4	STR	21'-11"	468		
A2	32	#4	STR	22'-6"	481	A4	32	#4	STR	21'-10"	467		
*B1	74	#5	STR	14'-0"	1081	*B1	74	#5	STR	14'-0"	1081		
B2	74	#6	STR	14'-7"	1621	B2	74	#6	STR	14'-7"	1621		
REINFORCING STEEL					LBS.	2102	REINFORCING STEEL					LBS.	2088
*EPOXY COATED REINFORCING STEEL					LBS.	1564	*EPOXY COATED REINFORCING STEEL					LBS.	1549
CLASS AA CONCRETE					C. Y.	23.0	CLASS AA CONCRETE					C. Y.	22.9



**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 1'-0" OUTSIDE OF EACH EDGE OF 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 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 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 JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

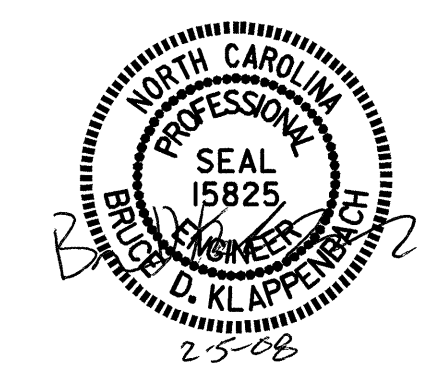
APPROACH SLAB GROOVING IS NOT REQUIRED.

ARC OFFSETS FOR THE LEFT AND RIGHT SIDES OF THE APPROACH AT END BENT #1 AND END BENT #2 ARE NEGLIGIBLE.

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

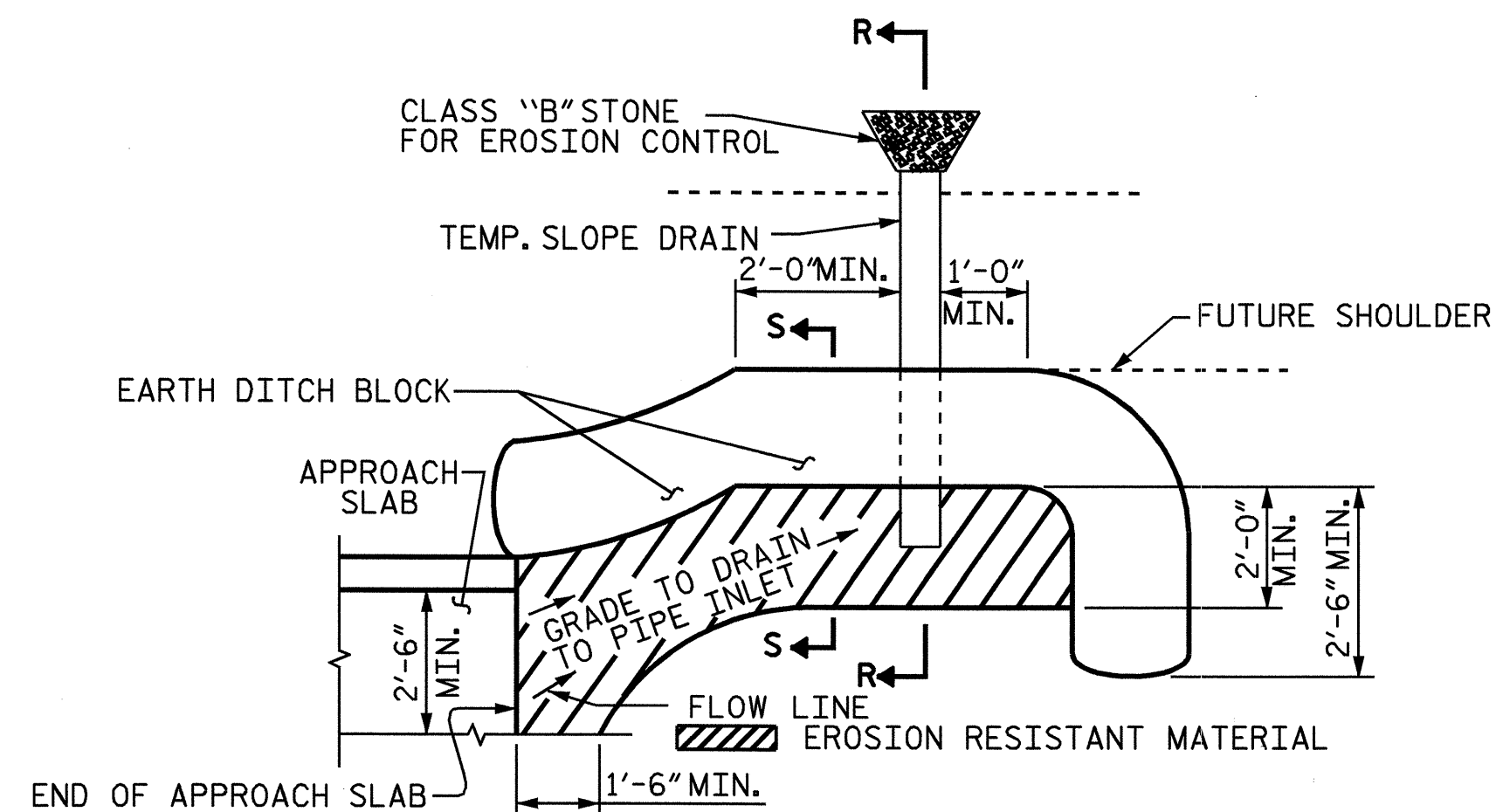
SHEET 2 OF 3

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



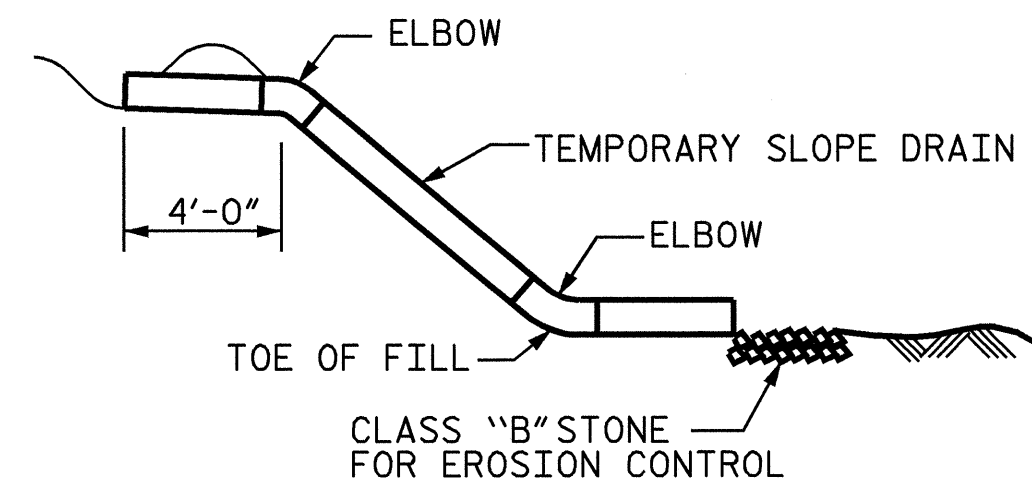
ASSEMBLED BY :	A. SORSENGINH	DATE :	11/13/07
CHECKED BY :	C.R. YARBROUGH	DATE :	11/16/07
DRAWN BY :	FCJ 6/87	REV. 7/10/01	LES/RDR
CHECKED BY :	EGA 6/87	REV. 5/7/03R	RWW/JTE
		REV. 5/1/06	TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			27

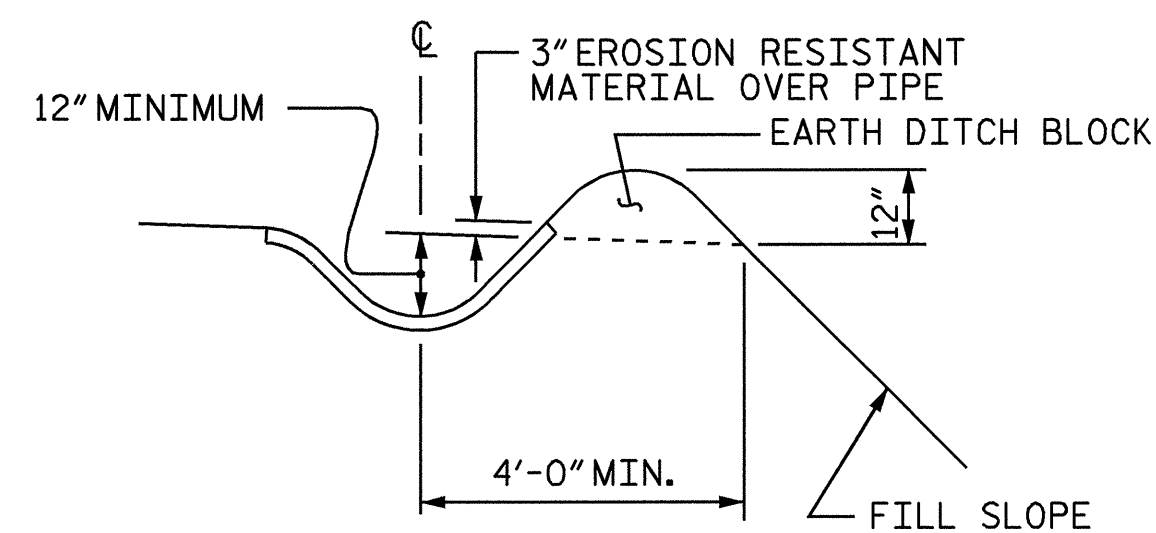


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



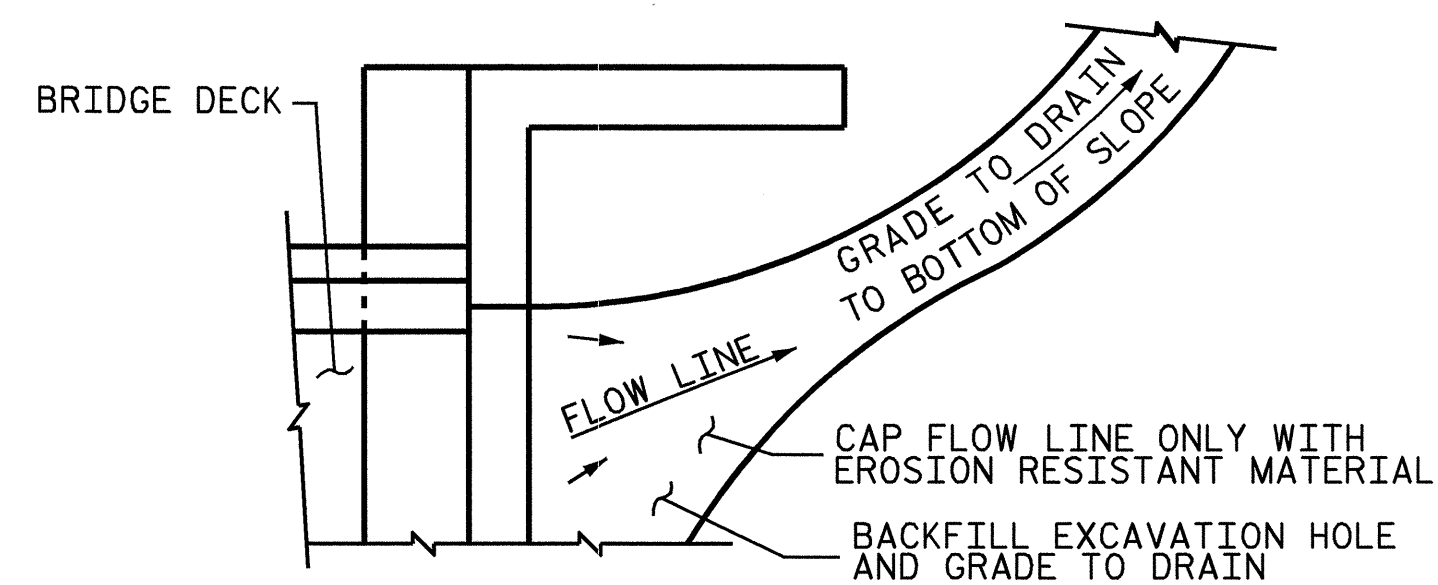
SECTION R-R



SECTION S-S

### 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.

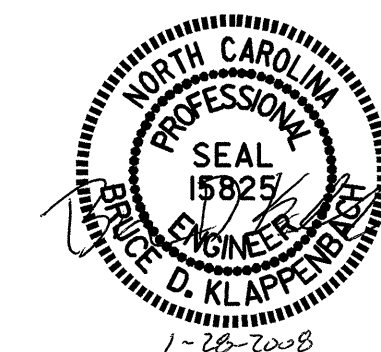
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4226  
PERQUIMANS COUNTY  
 STATION: 20+95.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 BRIDGE APPROACH  
 SLAB DETAILS



ASSEMBLED BY : A. SORSENGINH	DATE : 11/13/07
CHECKED BY : C.R. YARBROUGH	DATE : 11/16/07
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LJS
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

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

## 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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

### 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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

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

### HANDRAILS AND POSTS:

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

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

### SPECIAL NOTES:

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

# ENGLISH

JANUARY, 1990

STD. NO. SN