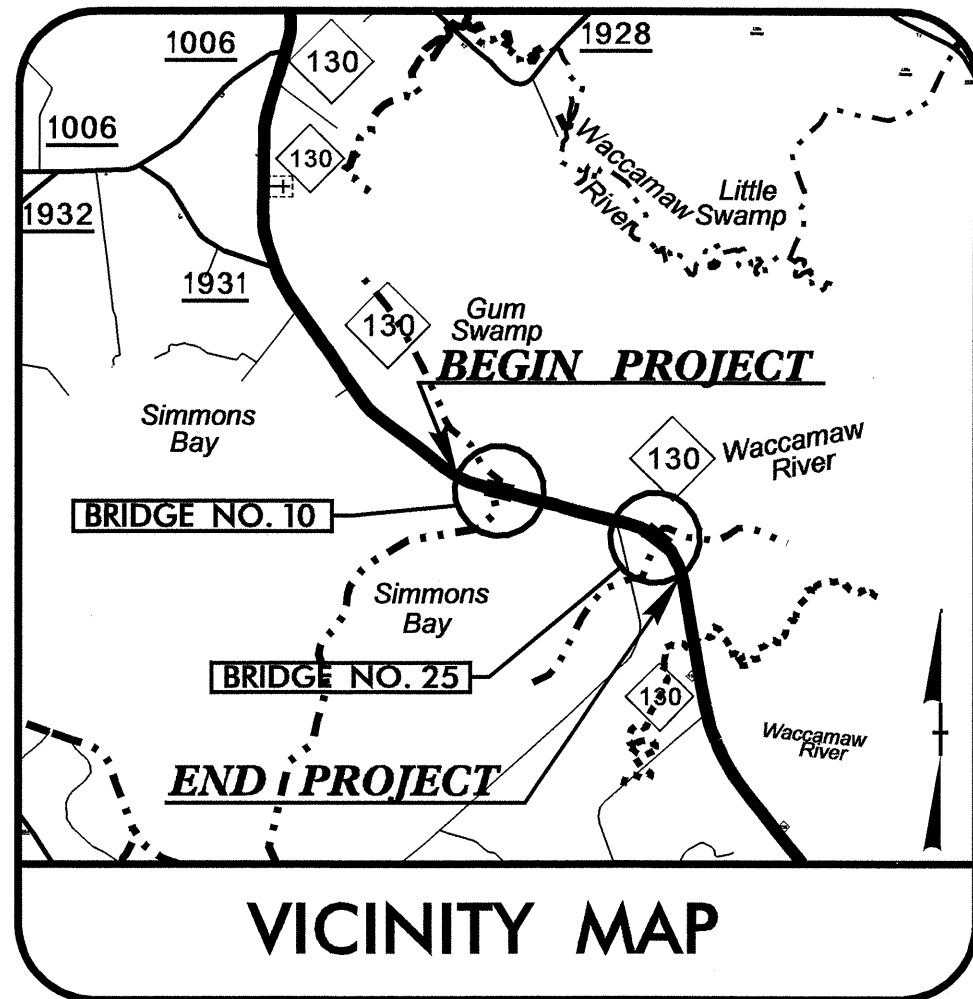


TIP PROJECT: B-4077 / B-4078

CONTRACT: C201962

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4077/B-4078		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33439.1.1	BRSTP-130 (2)	B-4077 (P.E.)	
33439.2.1	BRSTP-130 (2)	B-4077 (RW & UTIL.)	
33440.1.1	BRSTP-0130 (4)	B-4078 (P.E.)	
33440.2.1	BRSTP-0130 (4)	B-4078 (RW & UTIL.)	
33439.3.1	BRSTP-130 (4)	B-4077 (CONST.)	
33439.3.1	BRSTP-130 (6)	B-4078 (CONST.)	

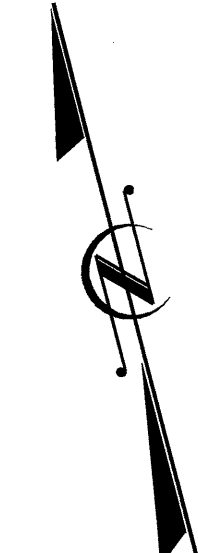
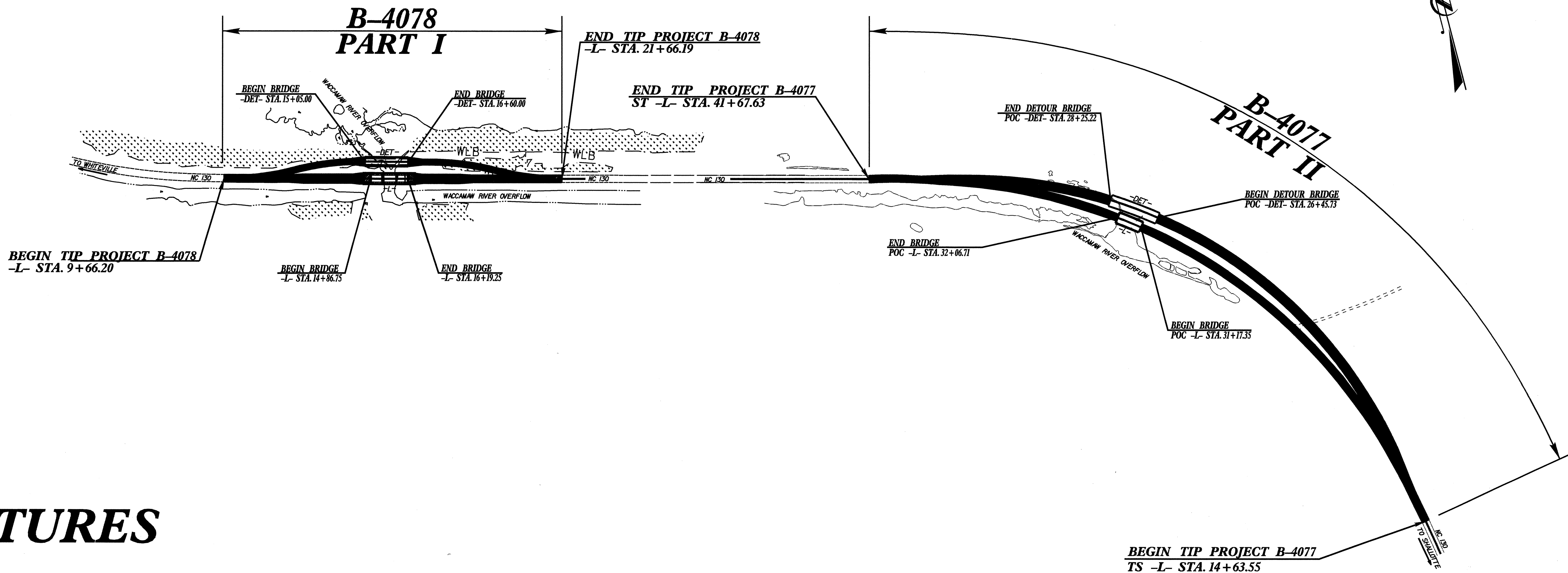


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

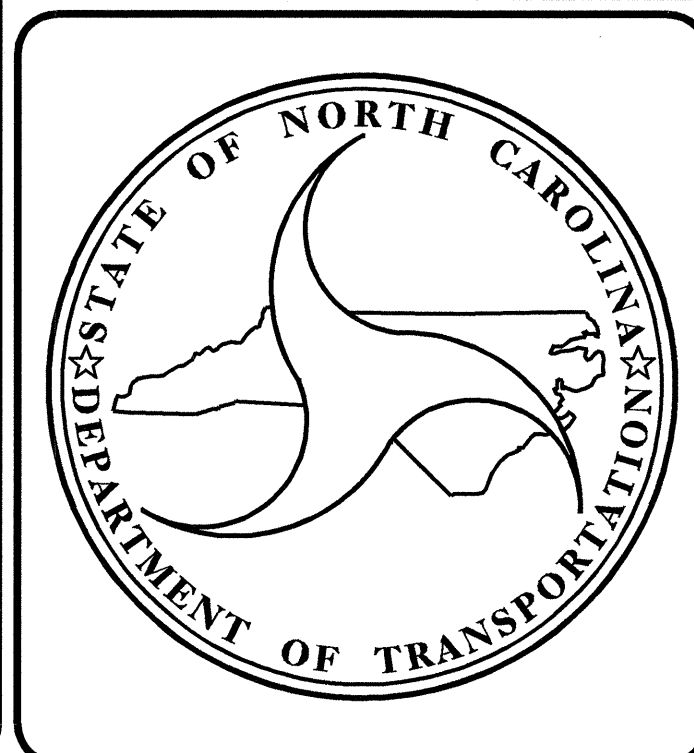
LOCATION: BRIDGE NO.10 & BRIDGE NO.25 OVER WACCAMAW RIVER OVERFLOW ON NC 130

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL,
THERMOPLASTIC PAVEMENT MARKINGS,
SNOW PLOWABLE PAVEMENT MARKERS AND STRUCTURES**



STRUCTURES

** DESIGN EXCEPTION REQUIRED FOR HORIZONTAL STOPPING SIGHT DISTANCE.



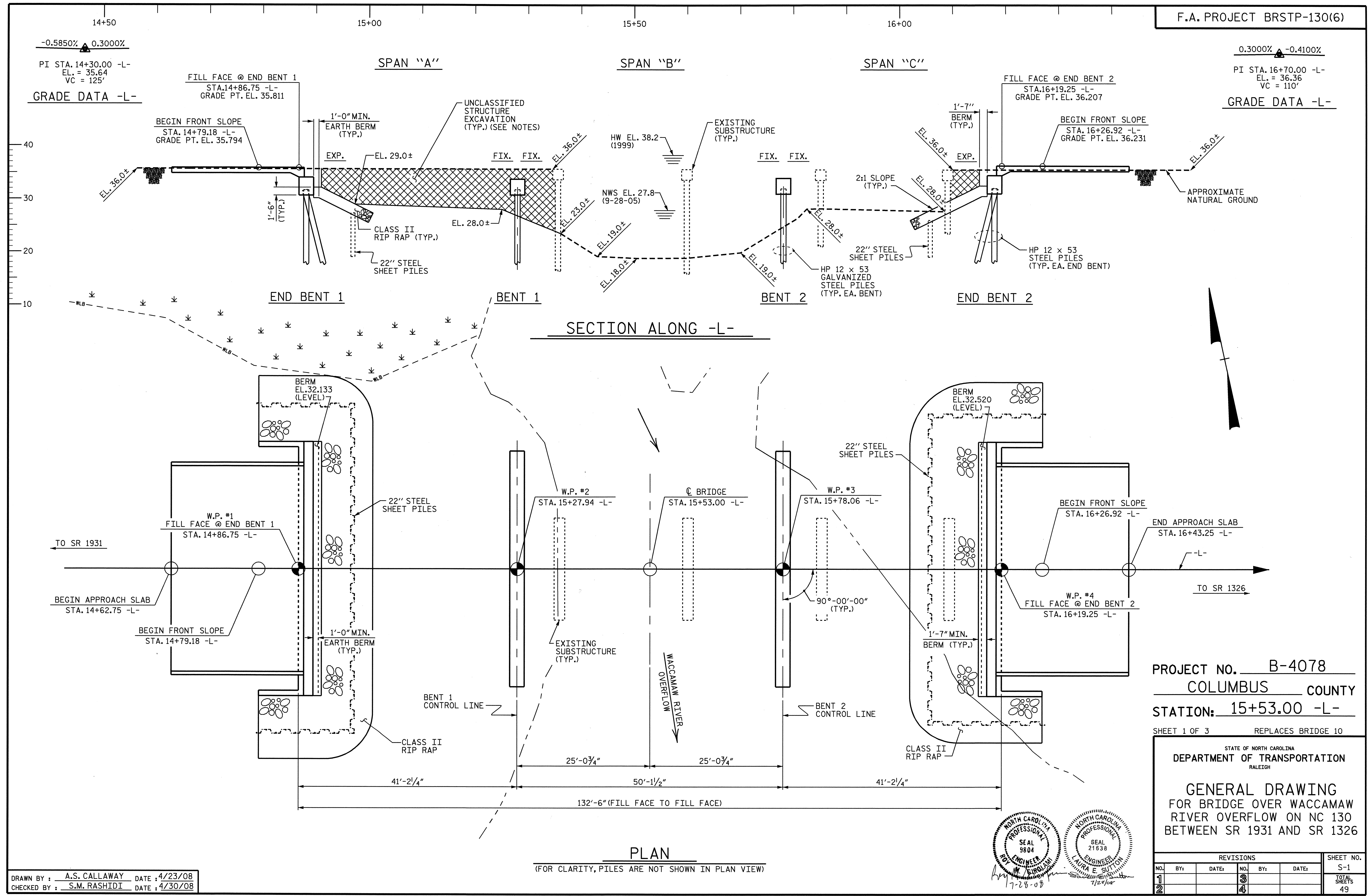
DESIGN DATA	
ADT 2008	= 5000
ADT 2028	= 9000
DHV	= 13 %
D	= 60 %
T	= 7 % *
** V	= 60 MPH
FUNC CLASS: RURAL MINOR ARTERIAL	
* TTST	4% DUAL 3%

PROJECT LENGTH	
Length Roadway TIP Project B-4077/B-4078	= 0.697 Miles
Length Structure TIP Project B-4077/B-4078	= 0.042 Miles
Total Length TIP Project B-4077/B-4078	= 0.739 Miles

Prepared In the Office of:	
DIVISION OF HIGHWAYS	
2006 STANDARD SPECIFICATIONS	
LETTING DATE: SEPT. 16, 2008	ROY M. GIROLAMI, P.E. <small>PROJECT ENGINEER</small>
	LAURA E. SUTTON, P.E. <small>PROJECT DESIGN ENGINEER</small>
	DAVID ANDERSON, P.E. <small>PROJECT DESIGN ENGINEER</small>

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

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA
P.E. STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED DIVISION ADMINISTRATOR
DATE



SECTION ALONG -L-

PLAN

(FOR CLARITY, PILES ARE NOT SHOWN IN PLAN VIEW)

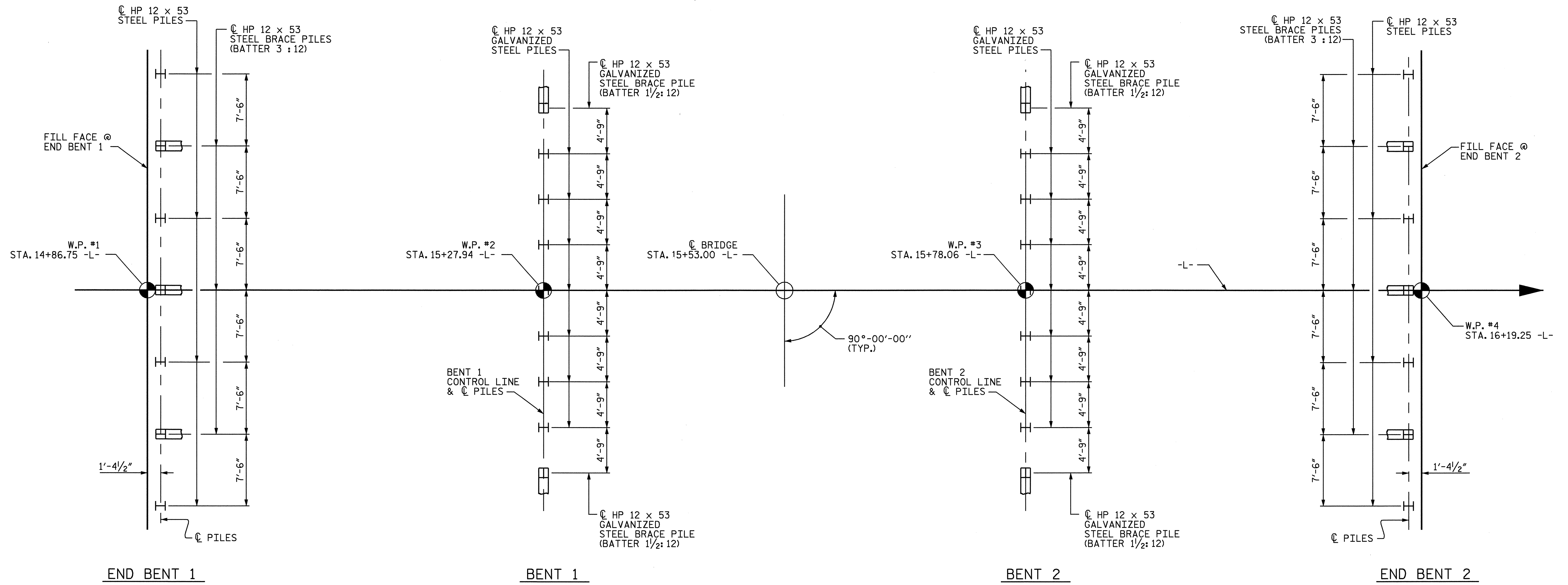
PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE 10

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE OVER WACCAMAW RIVER OVERFLOW ON NC 130 BETWEEN SR 1931 AND SR 1326					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 49

DRAWN BY: A.S. CALLAWAY DATE: 4/23/08
 CHECKED BY: S.M. RASHIDI DATE: 4/30/08

16-JUN-2008 13:53
 R:\Structures\scallaway\Microstation\b4078.ed.gd.01.dgn
 lsutton

NORTH CAROLINA PROFESSIONAL SEAL 21838
 ENGINEER LAURA E. SUTTON
 1/22/08



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE TO PILE CENTERLINE.

NOTES

DRIVE PILES AT END BENT 1 AND END BENT 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.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 1 AND END BENT 2 IS 60 TONS PER PILE.

DRIVE PILES AT BENT 1 AND BENT 2 TO A REQUIRED BEARING CAPACITY OF 135 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.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENT 1 AND BENT 2 IS 60 TONS PER PILE.

DRIVE PILES AT BENT 1 AND BENT 2 TO A TIP ELEVATION OF NO HIGHER THAN -4 FT.

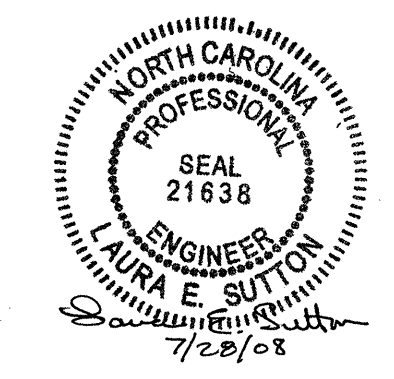
THE SCOUR CRITICAL ELEVATION FOR BENT 1 AND BENT 2 IS ELEVATION 16 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 2 OF 3

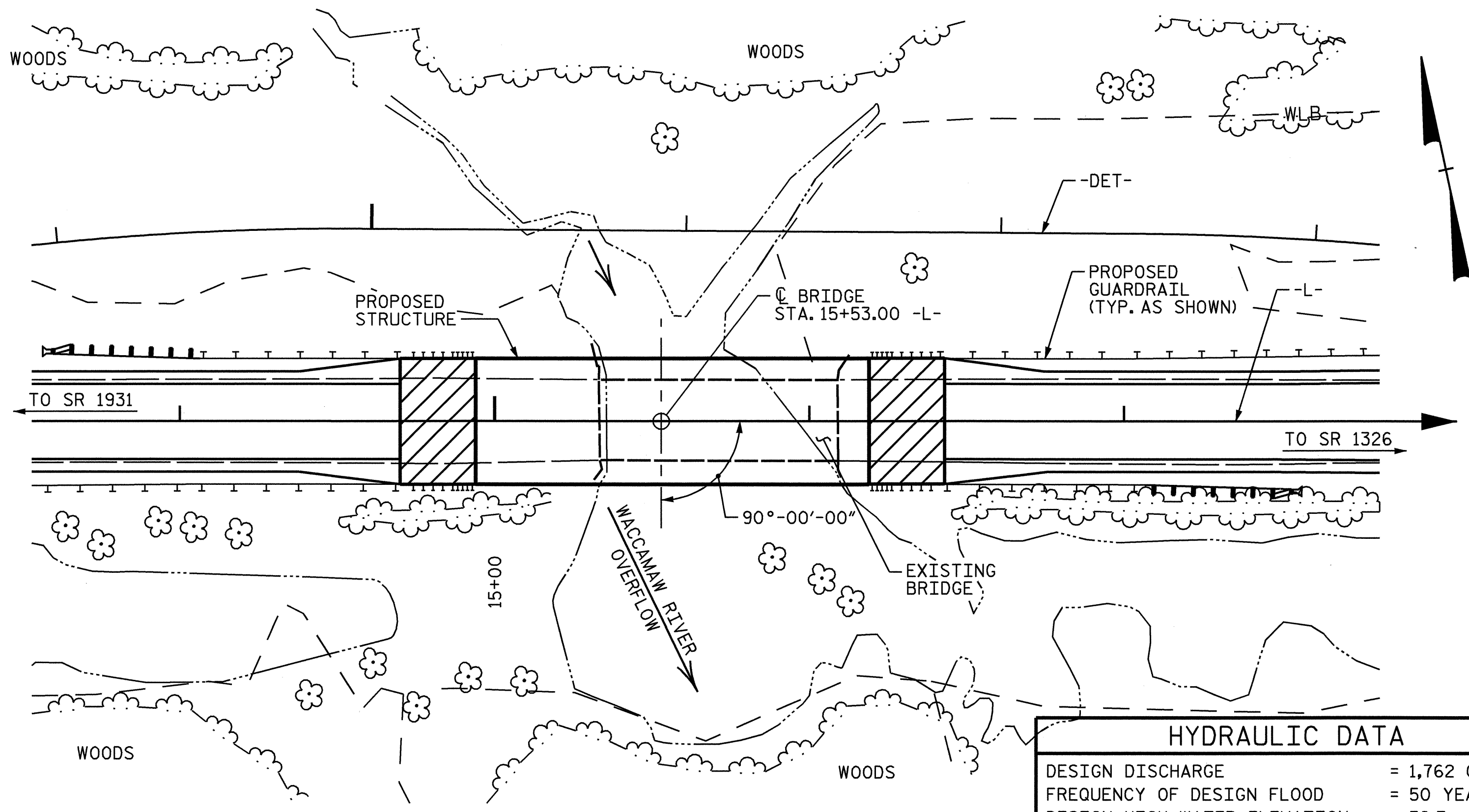
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER WACCAMAW
 RIVER OVERFLOW ON NC 130
 BETWEEN SR 1931 AND SR 1326



DRAWN BY : A.S. CALLAWAY DATE : 4/23/08
 CHECKED BY : S.M. RASHIDI DATE : 4/30/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			49



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 1,762 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YEARS
DESIGN HIGH WATER ELEVATION	= 32.7
DRAINAGE AREA	= 680 SQ. MI.
BASIC DISCHARGE (Q100)	= 2,587 CFS
BASIC HIGH WATER ELEVATION	= 33.2

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 3,026 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YEARS
OVERTOPPING FLOOD ELEVATION	= 34.8

NOTES:

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

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS (1 @ 25.7', 2 @ 25.2') WITH A CLEAR ROADWAY WIDTH OF 28.0' AND HAVING A CONCRETE DECK SUPPORTED ON I-BEAMS ON TIMBER CAPS ON TIMBER PILES SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 15+53.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE BRIDGE RAILS ON THE TEMPORARY STRUCTURE SHALL BE DESIGNED FOR THE AASHTO LRFD TEST LEVEL 3 (TL-3) CRASH TEST CRITERIA. FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 45 FT. RIGHT AND 35 FT. LEFT 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.

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

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.

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 SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

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 15+53.00 -L-".

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 PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY STRUCTURE	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	22" STEEL SHEET PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS			
	LUMP SUM	LUMP SUM	CU. YDS.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	SQ. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE				5,022	6,322							260.75						42	1820.00	
END BENT 1			542			16.8		2,468	7	280		750		122	135					
BENT 1						12.3		2,278			9	450								
BENT 2						12.3		2,278			9	360								
END BENT 2			26			16.9		2,472	7	280		723		128	142					
TOTAL	LUMP SUM	LUMP SUM	568	5,022	6,322	58.3	LUMP SUM	9,496	14	560	18	810	1,473	260.75	250	277	LUMP SUM	LUMP SUM	42	1820.00

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 3 OF 3

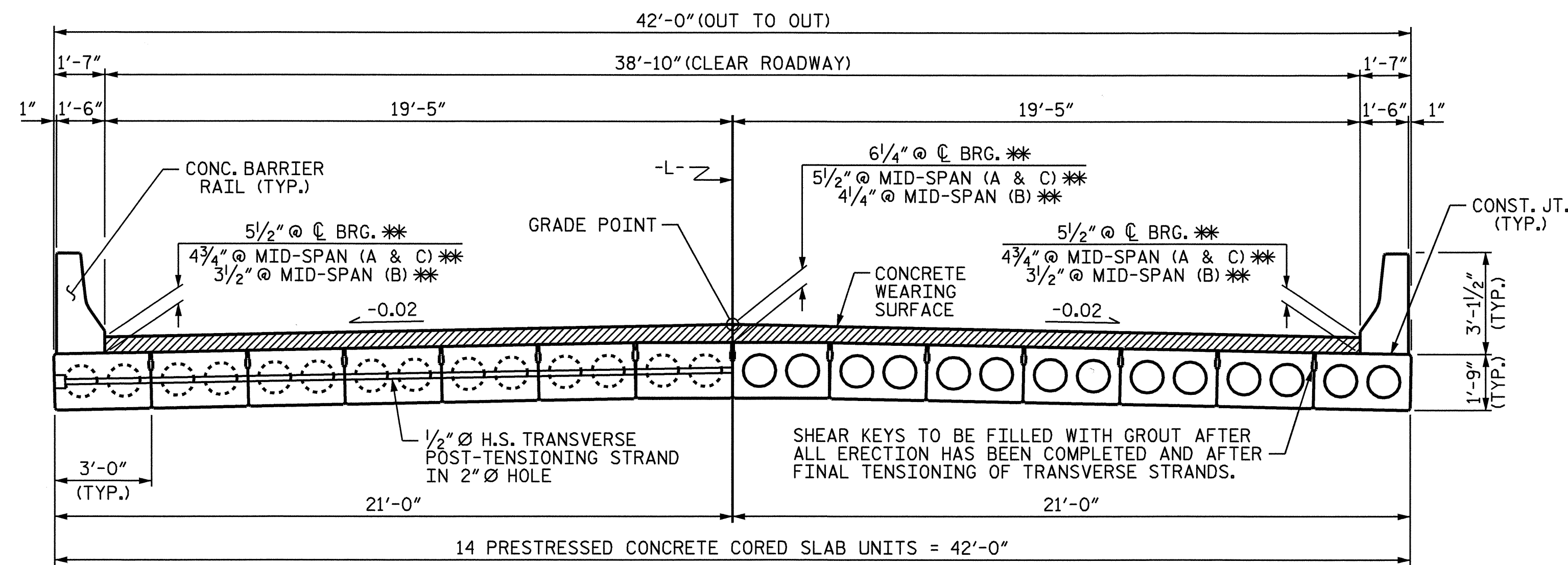
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER WACCAMAW
 RIVER OVERFLOW ON NC 130
 BETWEEN SR 1931 AND SR 1326



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			49

DRAWN BY: A.S. CALLAWAY DATE: 4/23/08
 CHECKED BY: S.M. RASHIDI DATE: 4/30/08



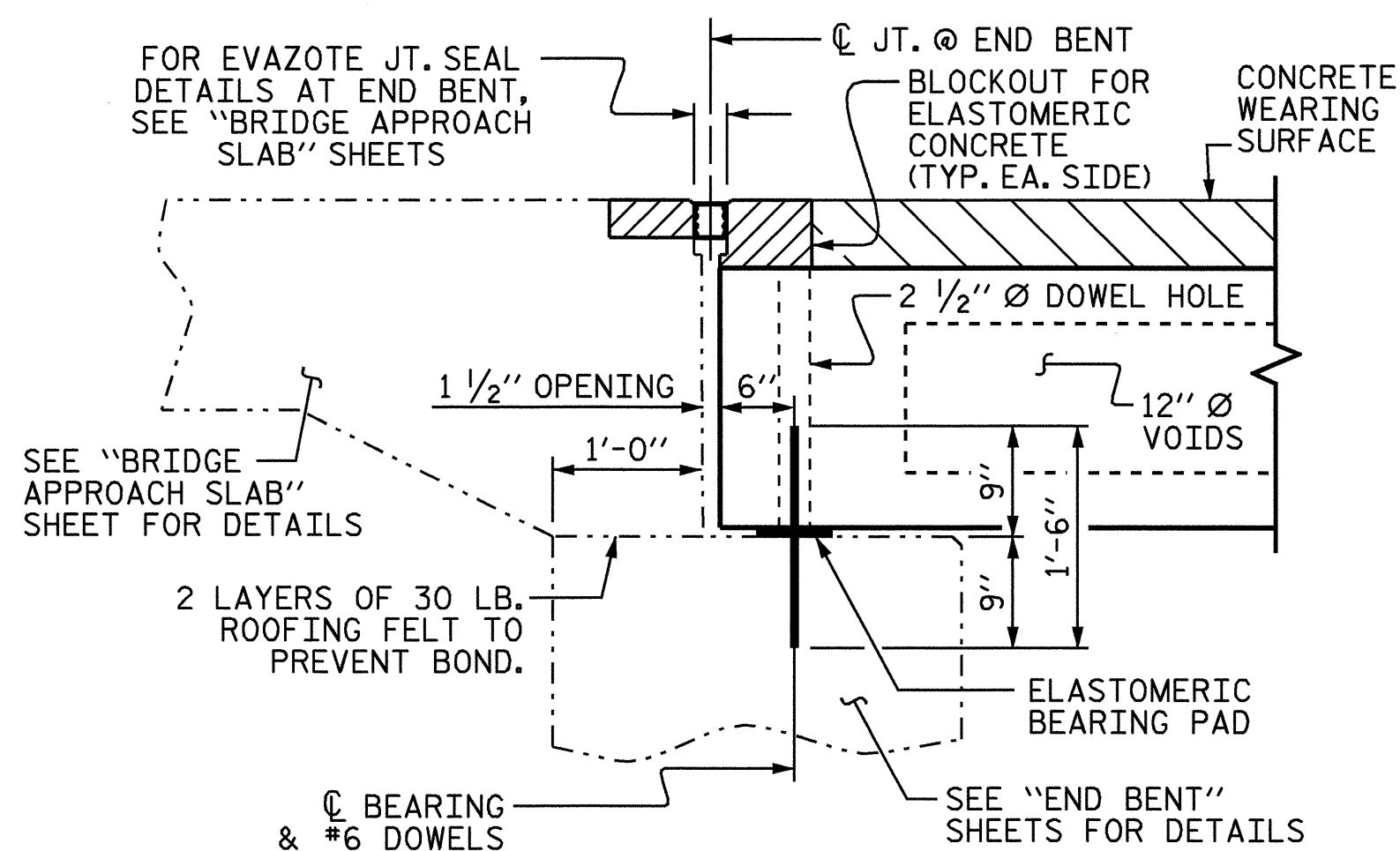
HALF SECTION AT INTERMEDIATE DIAPHRAGMS
HALF SECTION THROUGH VOIDS

TYPICAL SECTION

**BASED ON THE PREDICTED FINAL CAMBER & THEORETICAL GRADE LINE ELEVATIONS. SEE SHEET 5 OF 6 FOR CONCRETE WEARING SURFACE DETAILS.

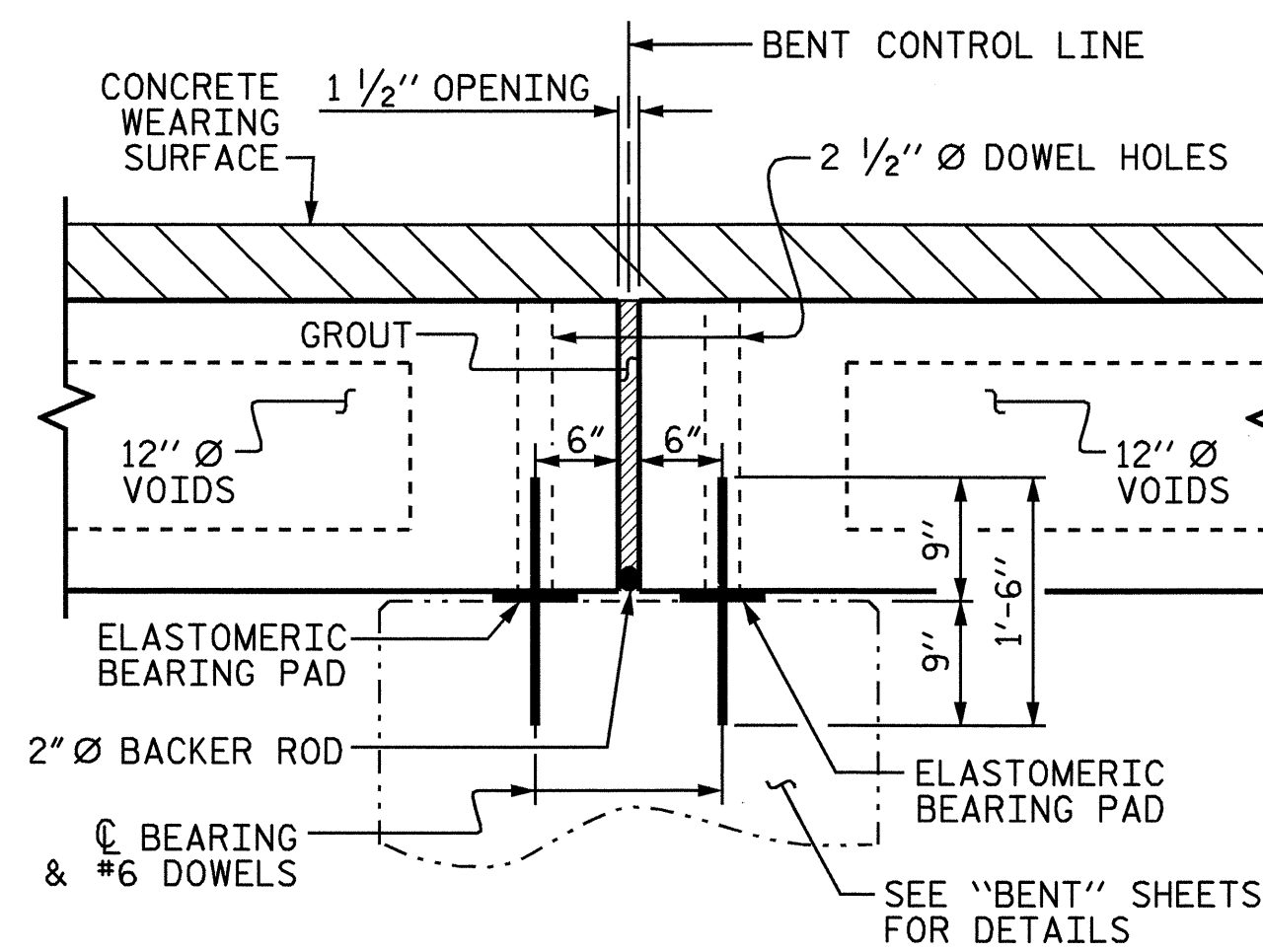
CORED SLAB UNITS ARE SLOPED, SEE SUBSTRUCTURE SHEETS FOR DETAILS.

EXPANSION END

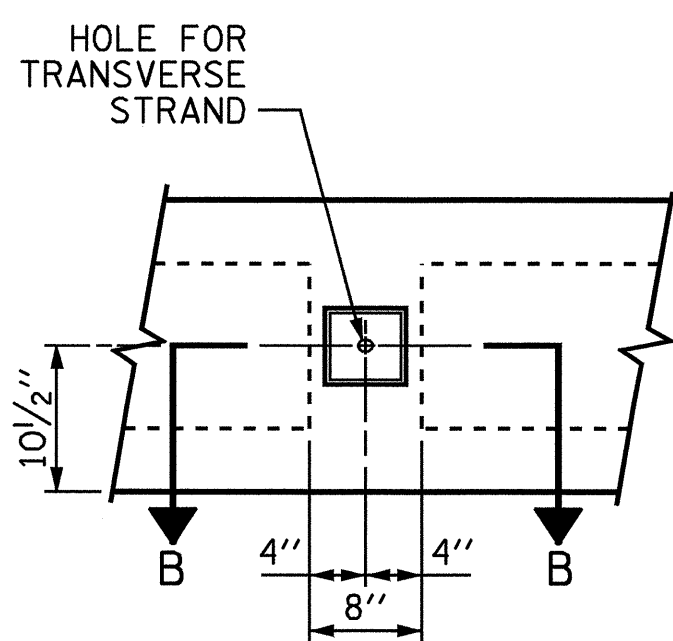


SECTION AT END BENT

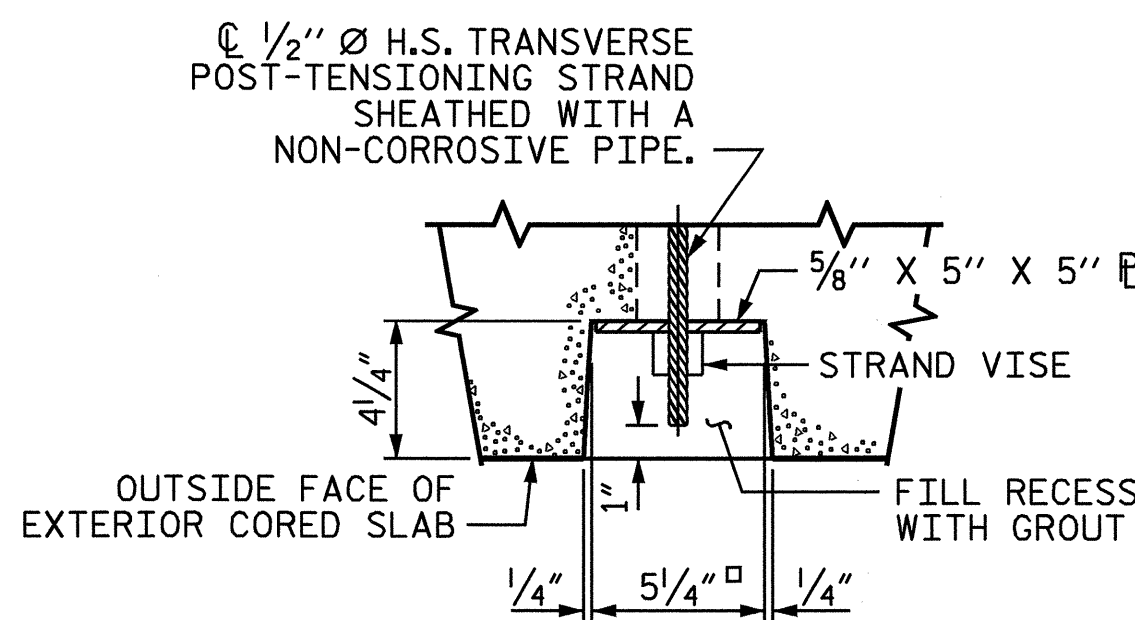
FIXED END **FIXED END**



SECTION AT BENT

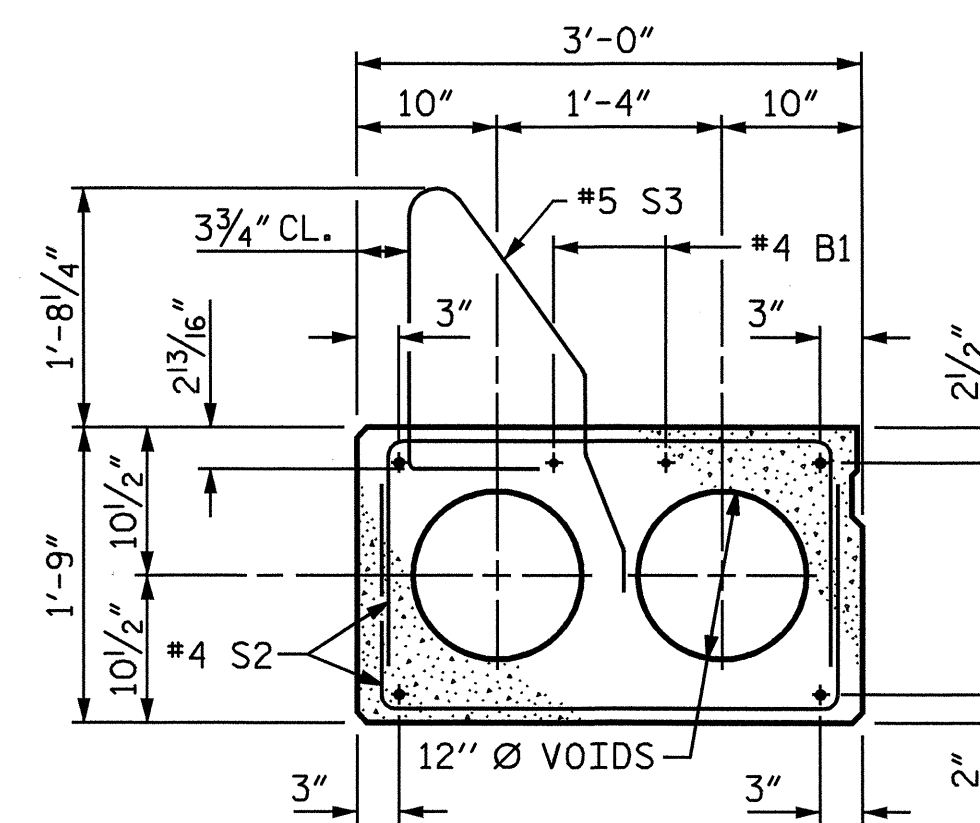


ELEVATION VIEW

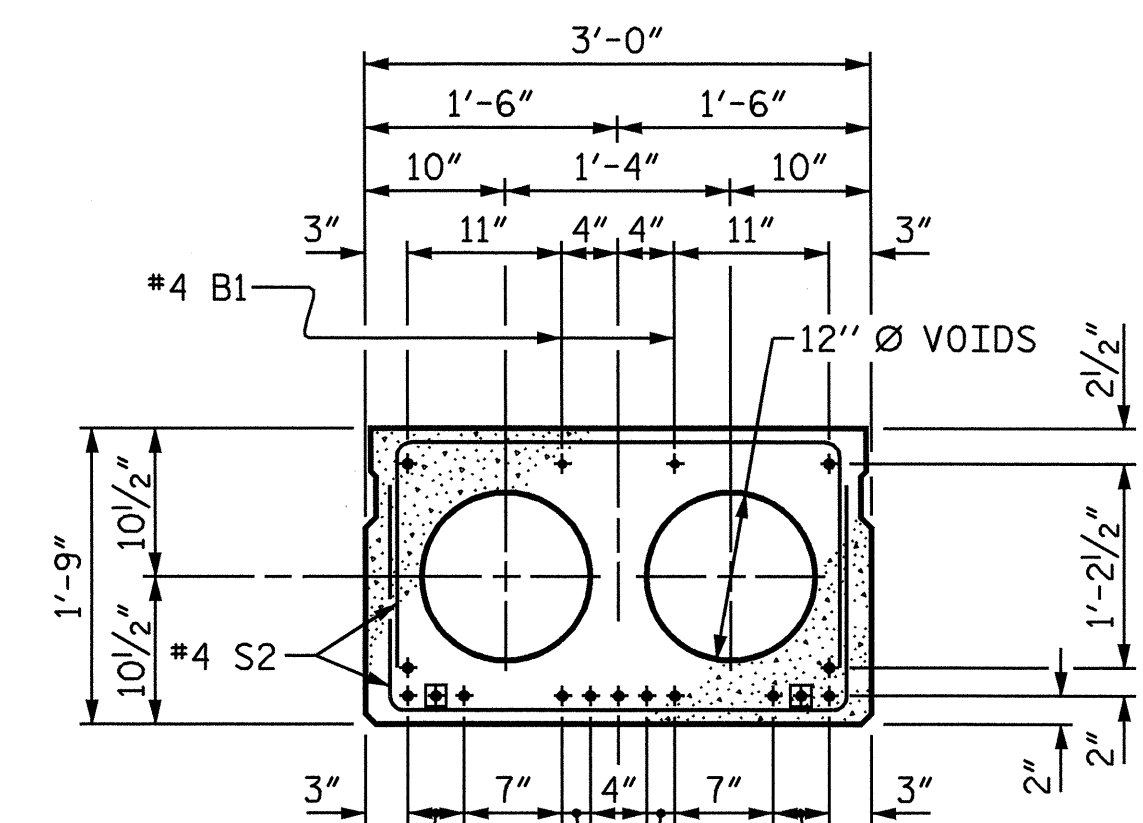


SECTION B-B

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



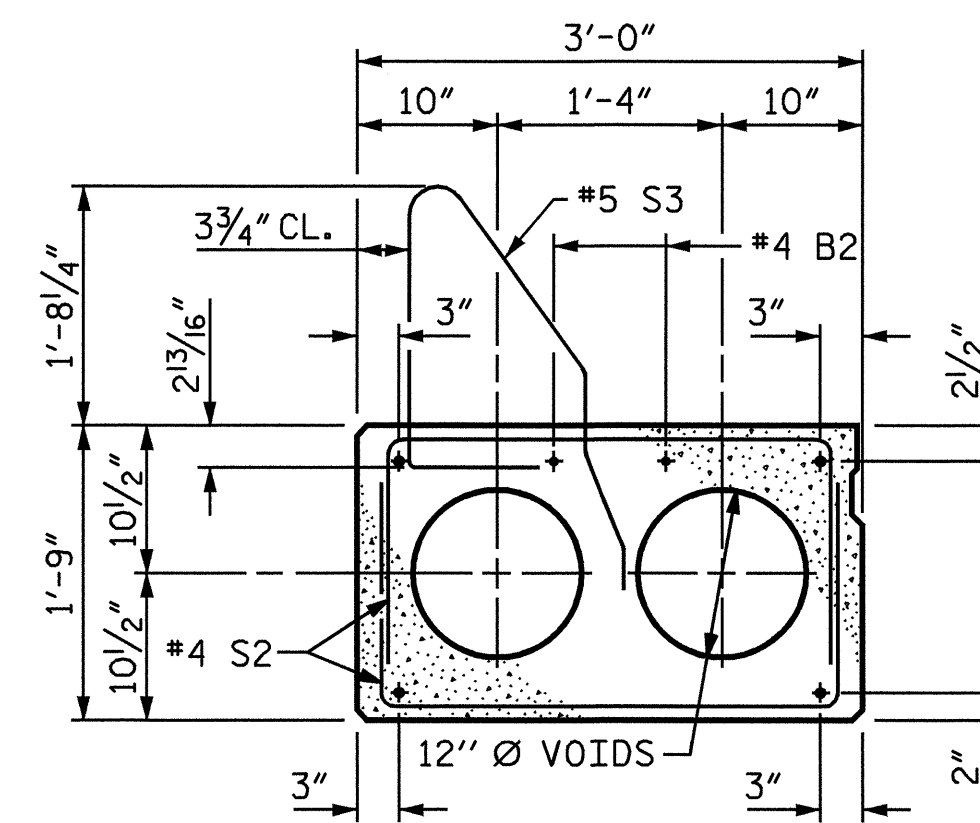
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



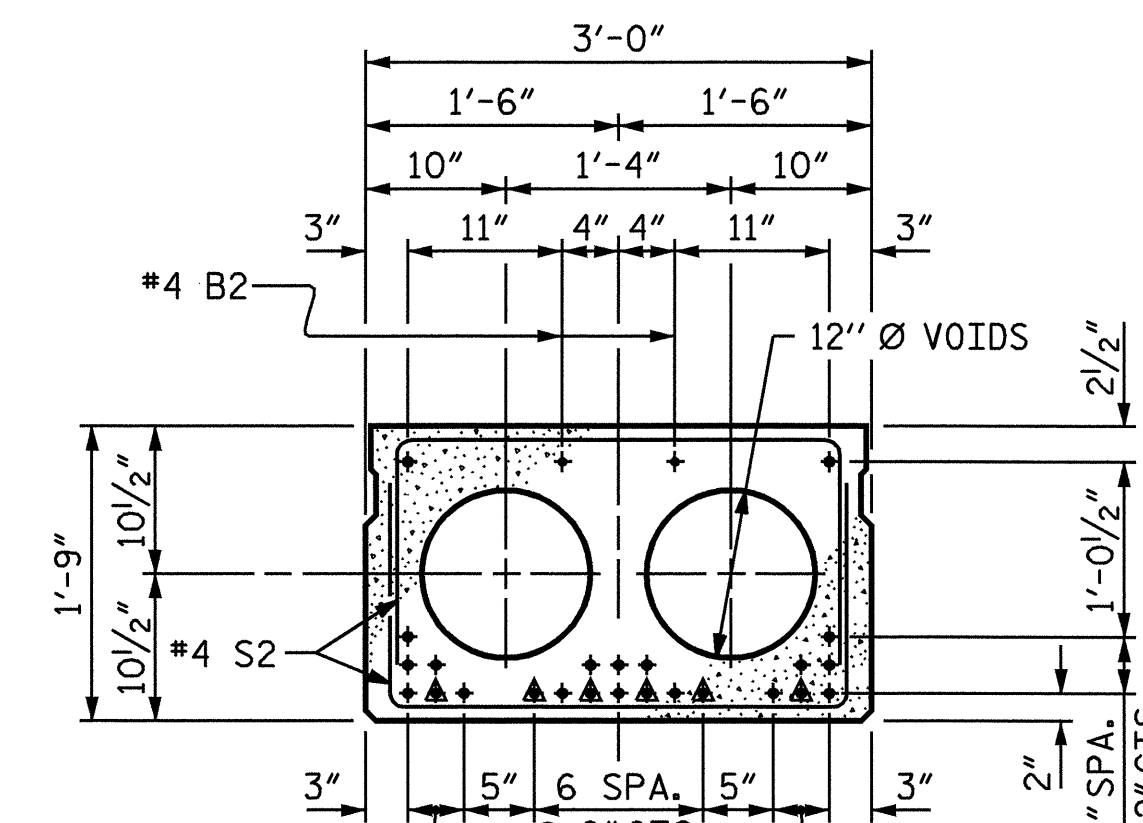
INTERIOR SLAB SECTION
1/2" Ø LOW RELAXATION STRAND LAYOUT
15 STRANDS

SPANS A & C

▲ THE BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF THE CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



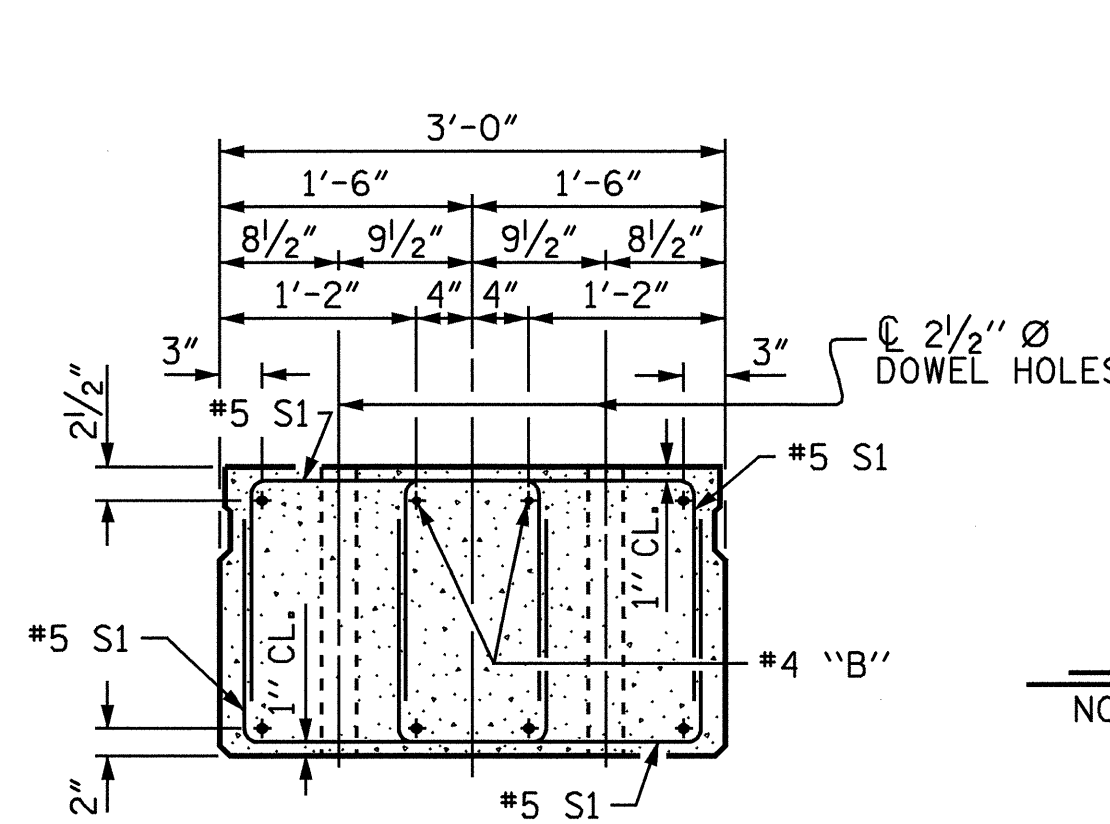
EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



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

SPAN B

▲ THE BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-9" FROM END OF THE CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



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.

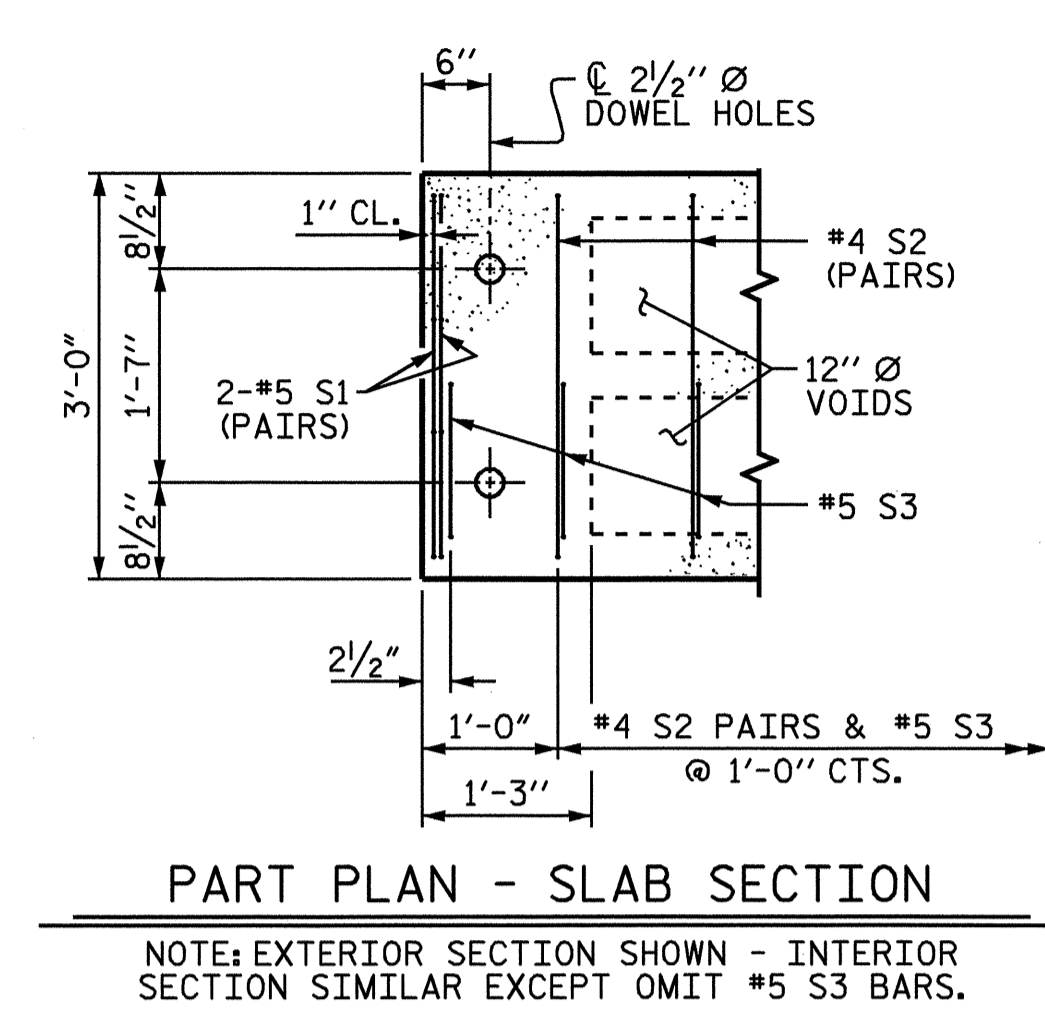
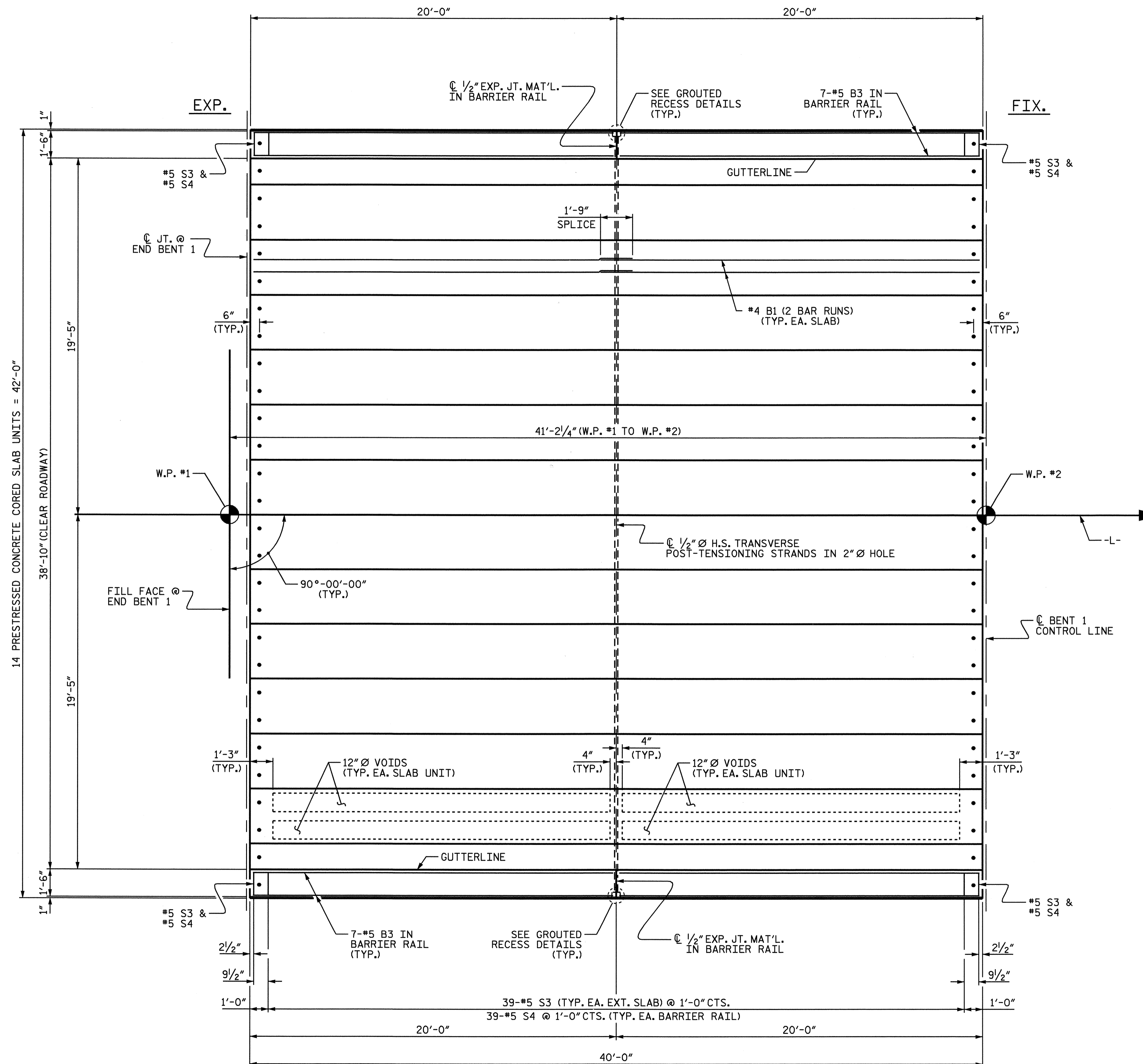


PROJECT NO. B-4078
COLUMBUS COUNTY
STATION: 15+53.00 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT						S-4
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	49
1			3			
2			4			

ASSEMBLED BY : E.C. LOCKLEAR	DATE : 5-30-07
CHECKED BY : A.S. CALLAWAY	DATE : 6-4-07
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"

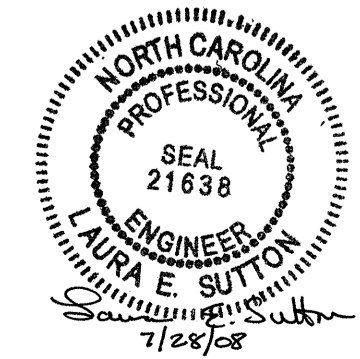
PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 2 OF 6

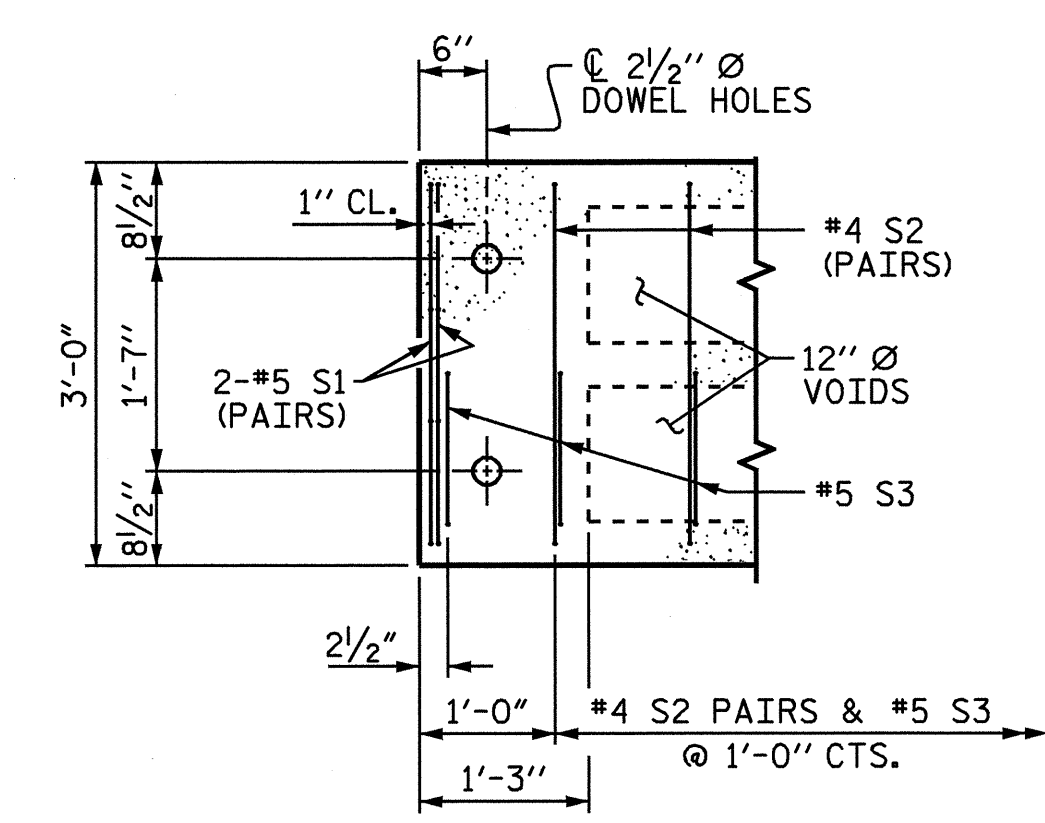
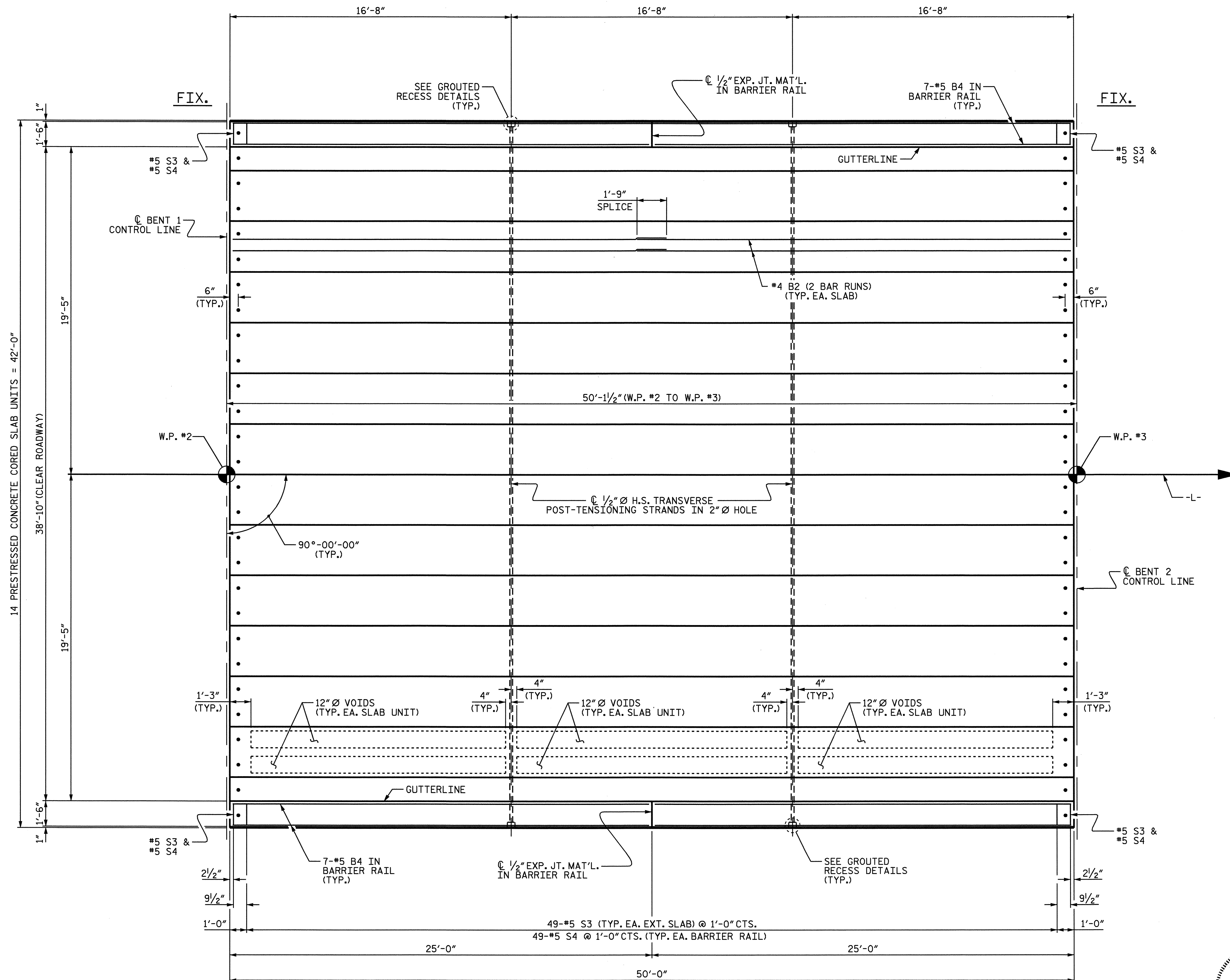
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPANS
 SPAN A**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			49



DRAWN BY: E.C. LOCKLEAR DATE: 5-30-07
 CHECKED BY: A.S. CALLAWAY DATE: 6-4-07



PART PLAN - SLAB SECTION

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

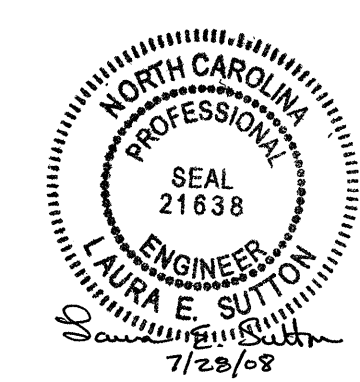
PLAN OF SPAN "B"

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 3 OF 6

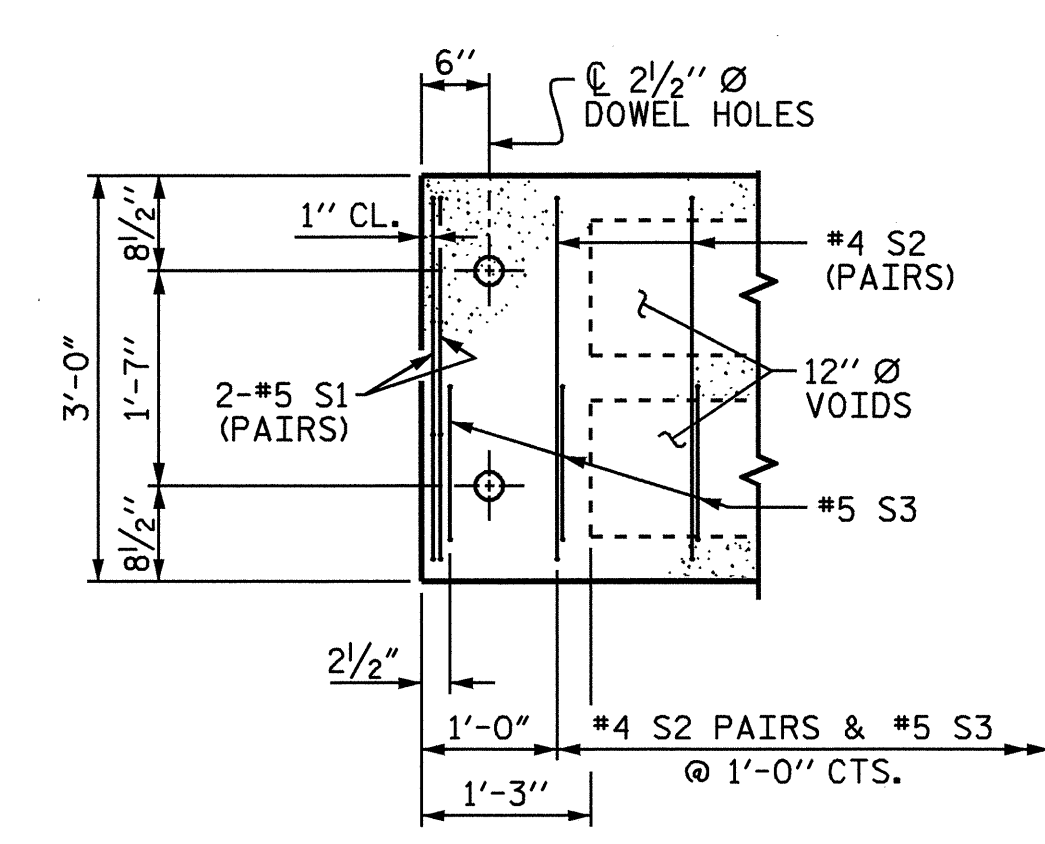
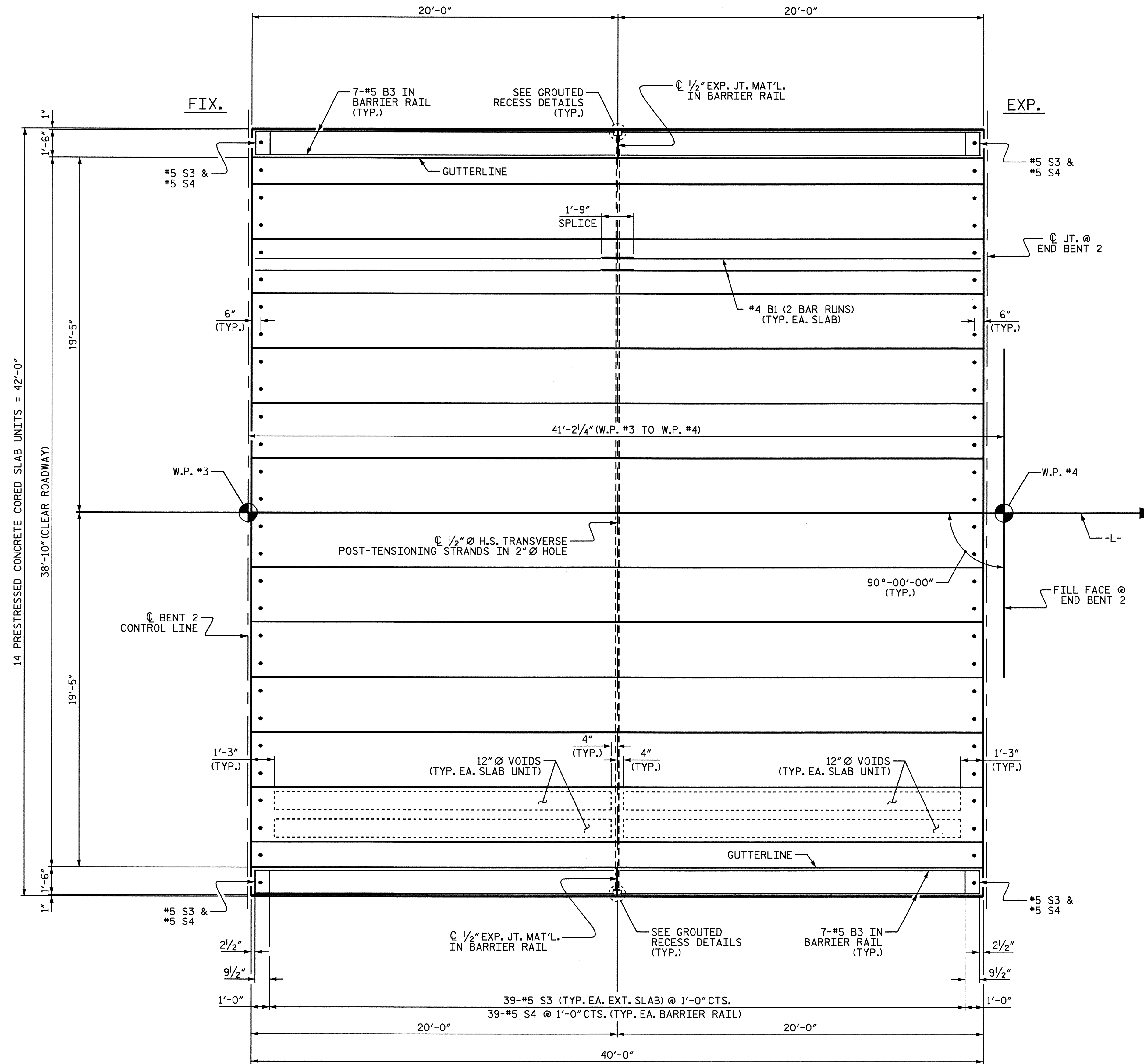
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPANS
 SPAN B



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			49

DRAWN BY : E.C. LOCKLEAR DATE : 5-30-07
 CHECKED BY : A.S. CALLAWAY DATE : 6-4-07



PART PLAN - SLAB SECTION
 NOTE: EXTERIOR SECTION SHOWN - INTERIOR SECTION SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF SPAN "C"

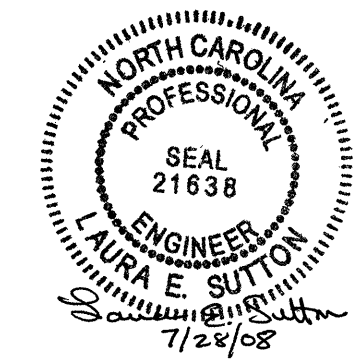
PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 4 OF 6

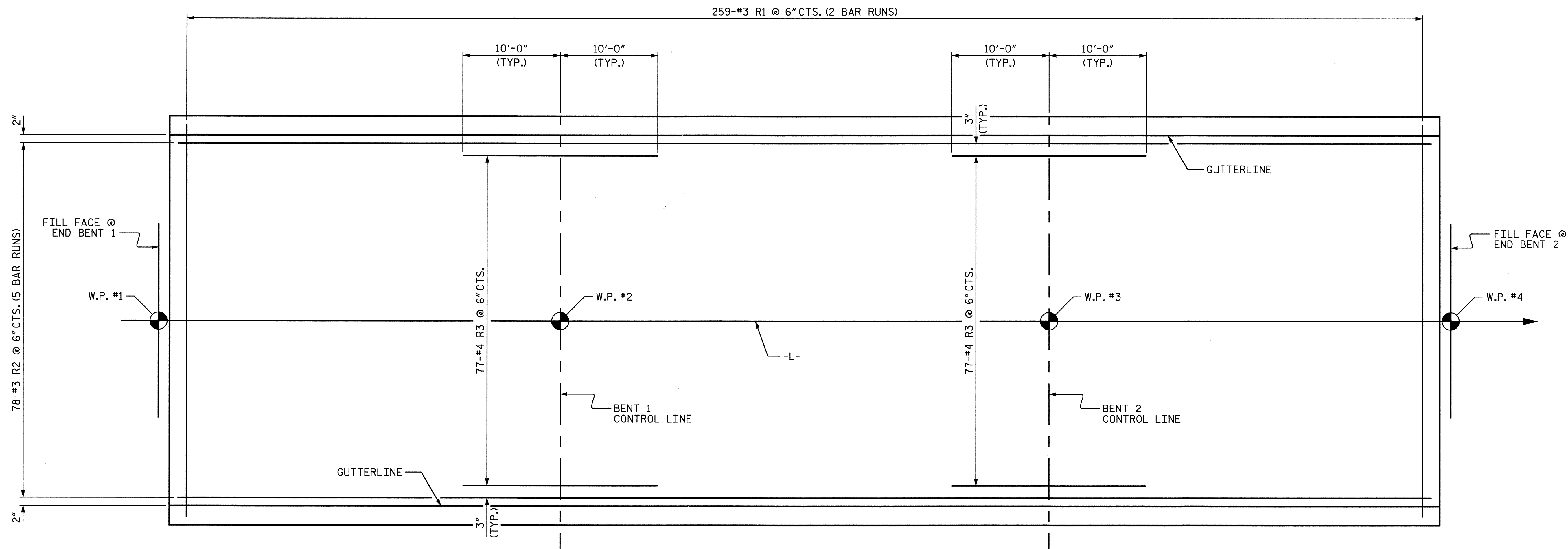
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPANS
 SPAN C**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			49

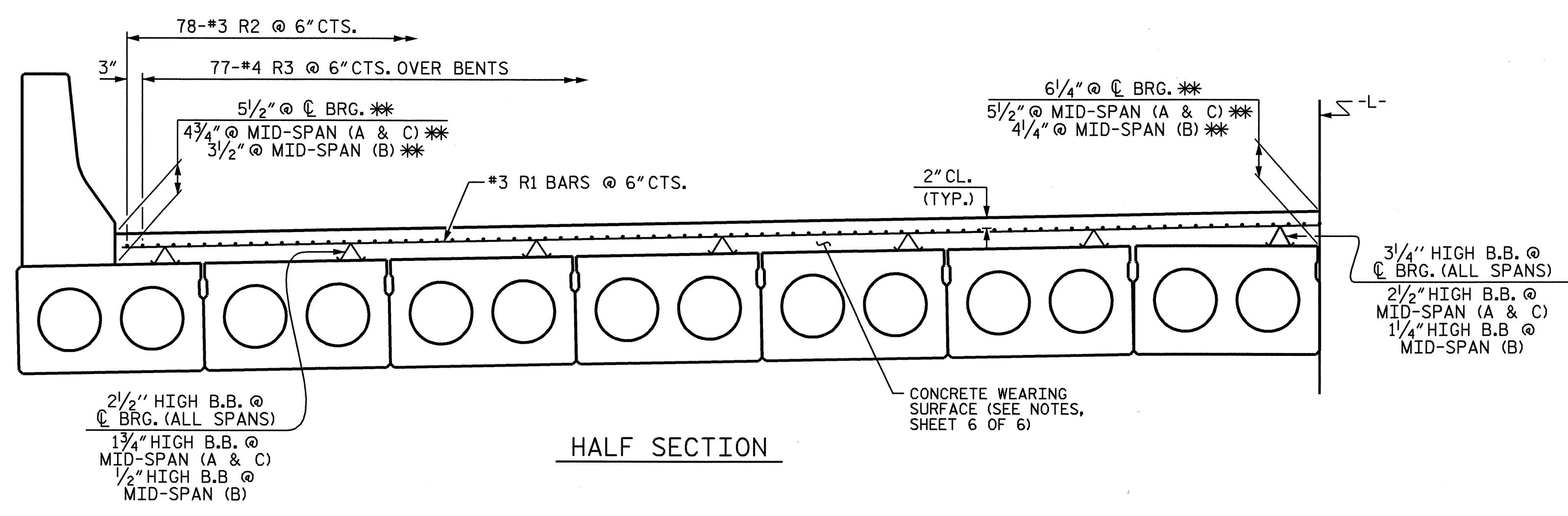


DRAWN BY: E.C. LOCKLEAR DATE: 5-30-07
 CHECKED BY: A.S. CALLAWAY DATE: 6-4-07



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

SPLICE LENGTH CHART		
BAR SIZE	EPOXY COATED	UNCOATED
#3	1'-6"	—



REINFORCING FOR CONCRETE WEARING SURFACE

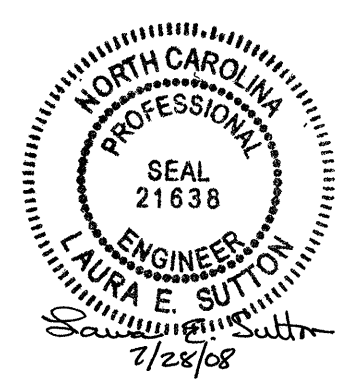
* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	518	#3	STR	20'-0"	3895
*R2	390	#3	STR	27'-0"	3959
*R3	154	#4	STR	20'-0"	2057
*EPOXY COATED REINFORCING STEEL				LBS.	9,911
CONCRETE WEARING SURFACE				SQ. FT.	5,022

GROOVING BRIDGE FLOORS	
APPROACH SLABS	1,700 SQ.FT.
CONCRETE WEARING SURFACE	4,622 SQ.FT.
TOTAL	6,322 SQ.FT.

PROJECT NO. B-4078
 COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 5 OF 6

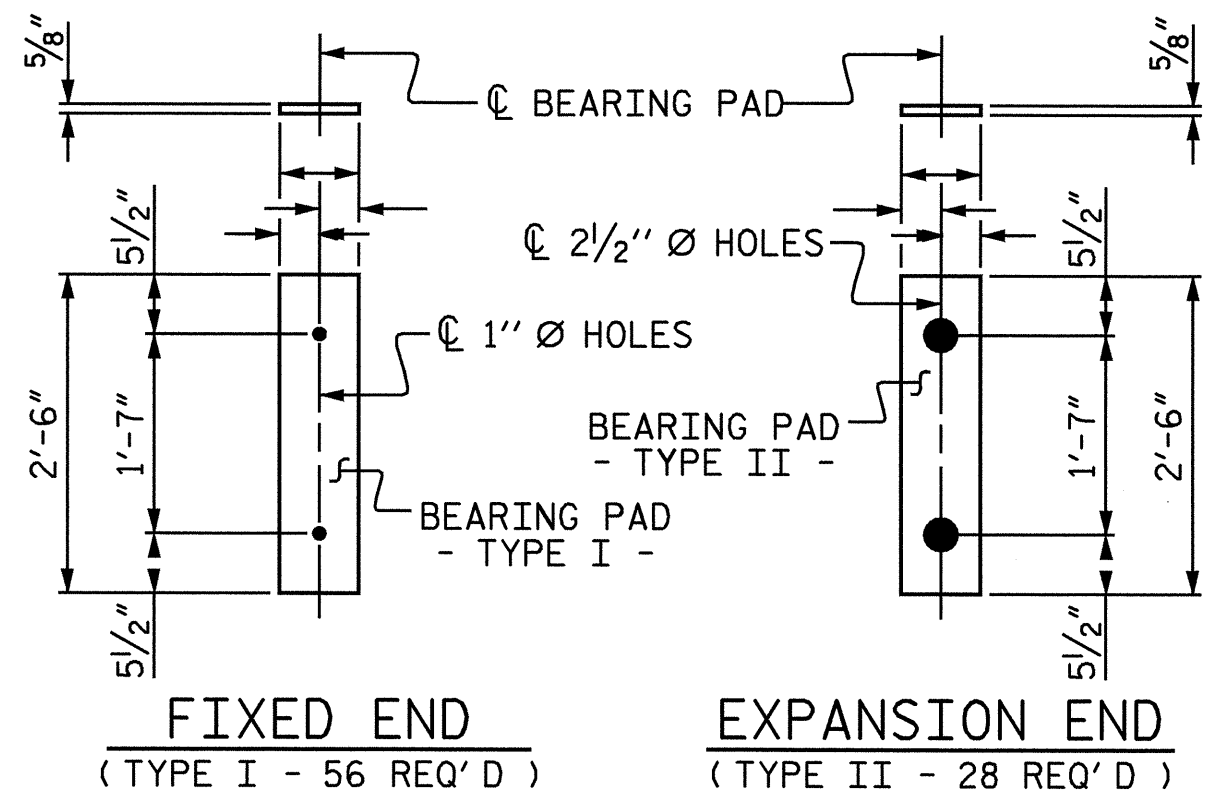


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			49	

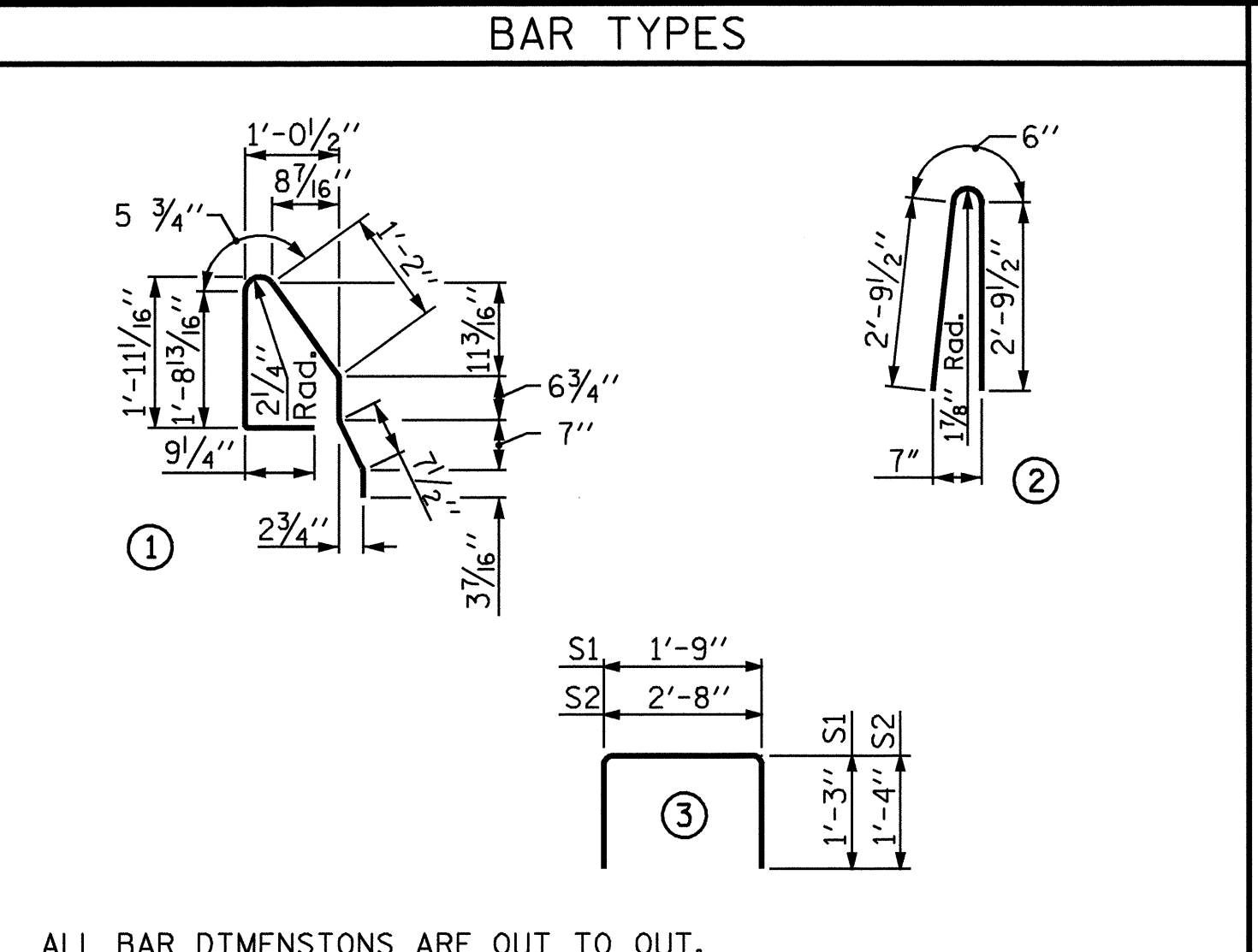
DRAWN BY: E.C. LOCKLEAR DATE: 5-30-07
 CHECKED BY: A.S. CALLAWAY DATE: 6-4-07



ELASTOMERIC BEARING DETAILS

GRADE 270 STRANDS	
	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

CORED SLAB UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A			
EXTERIOR C.S.	2	40'-0"	80'-0"
INTERIOR C.S.	12	40'-0"	480'-0"
SPAN B			
EXTERIOR C.S.	2	50'-0"	100'-0"
INTERIOR C.S.	12	50'-0"	600'-0"
SPAN C			
EXTERIOR C.S.	2	40'-0"	80'-0"
INTERIOR C.S.	12	40'-0"	480'-0"
TOTAL	42	—	1820'-0"

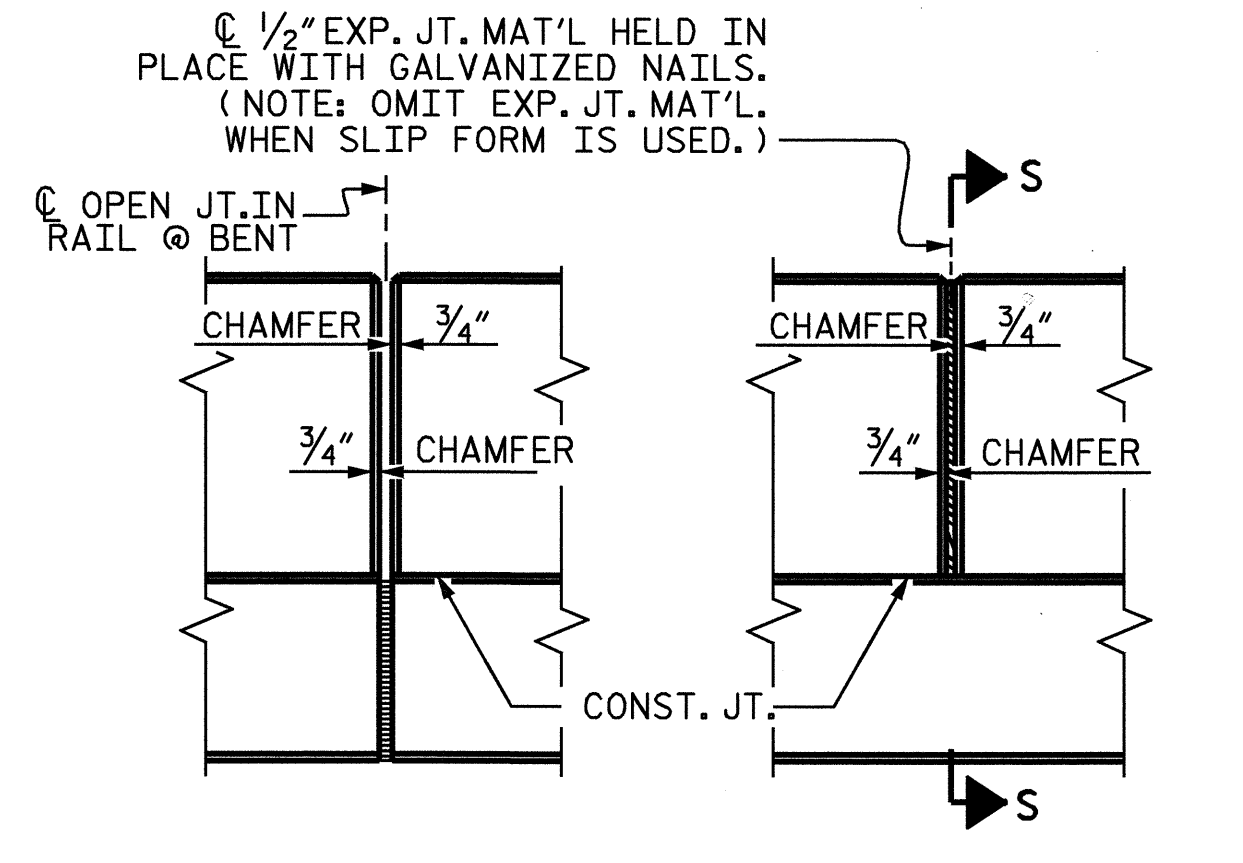
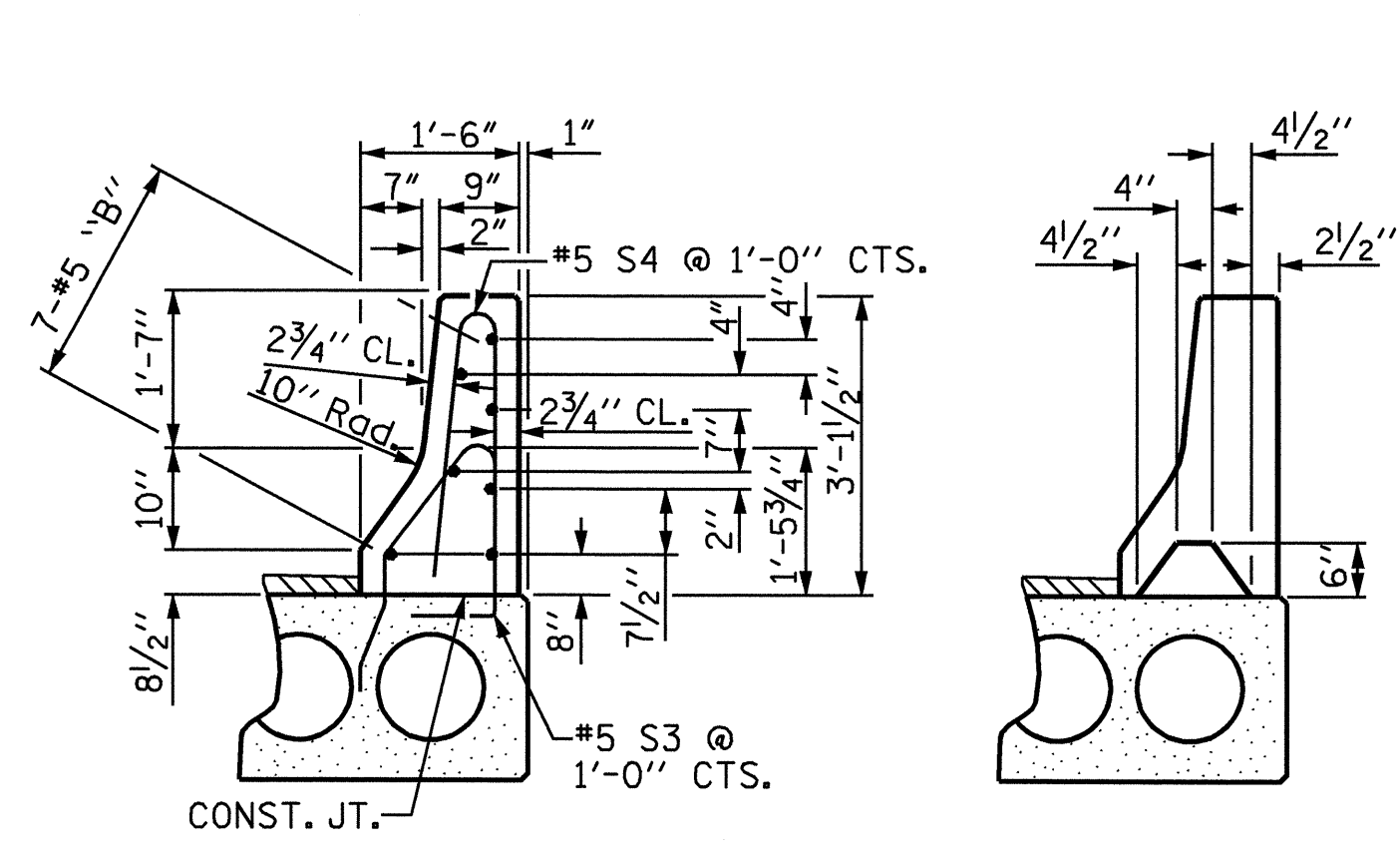


BILL OF MATERIAL FOR ONE CORED SLAB SECTION (SPANS A & C)

BAR	NO.	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	78	#4	3	5'-4"	278	5'-4"	278
*S3	41	#5	1	5'-10"	249	—	—
REINFORCING STEEL				LBS.	368	LBS.	368
*EPOXY COATED REINFORCING STEEL				LBS.	249	—	—
5000 P.S.I. CONCRETE				CU. YDS.	5.6	CU. YDS.	5.6
1/2" Ø L.R. STRANDS				NO.	15	NO.	15

BILL OF MATERIAL FOR ONE CORED SLAB SECTION (SPAN B)

BAR	NO.	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	25'-9"	69	25'-9"	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	LBS.	453
*EPOXY COATED REINFORCING STEEL				LBS.	310	—	—
6000 P.S.I. CONCRETE				CU. YDS.	7.0	CU. YDS.	6.9
1/2" Ø L.R. STRANDS				NO.	24	NO.	24



BARRIER RAIL DETAILS

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL										
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT		
	SPAN A	SPAN B	SPAN C							
*B3	28	—	28	56	#5	STR	19'-7"	1144		
*B4	—	28	—	28	#5	STR	24'-7"	718		
*S4	82	102	82	266	#5	2	6'-1"	1688		
*EPOXY COATED REINFORCING STEEL									LBS.	3,550
CLASS AA CONCRETE									CU.YDS.	32.7
TOTAL CONCRETE BARRIER RAIL									LIN. FT.	260.75

ASSEMBLED BY : E.C. LOCKLEAR DATE : 5-30-07
 CHECKED BY : A.S. CALLAWAY DATE : 6-4-07
 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

NOTES

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

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

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF SLAB SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN 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, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 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.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE REINFORCING STEEL 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.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3/16".

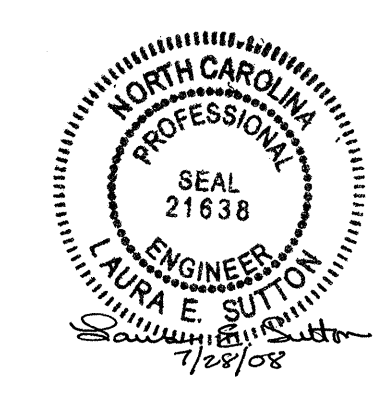
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 6 OF 6

DEAD LOAD DEFLECTION AND CAMBER		
	3'-0" x 1'-9" 1/2" Ø L.R. STRAND	
	SPANS A & C	SPAN B
CAMBER (SLAB ALONE IN PLACE)	15/16"	2 7/16"
DEFLECTION DUE TO CONCRETE WEARING SURFACE	1/8"	1/4"
FINAL CAMBER	13/16"	2 3/16"



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			S-9
2			4			TOTAL SHEETS 49

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 1/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

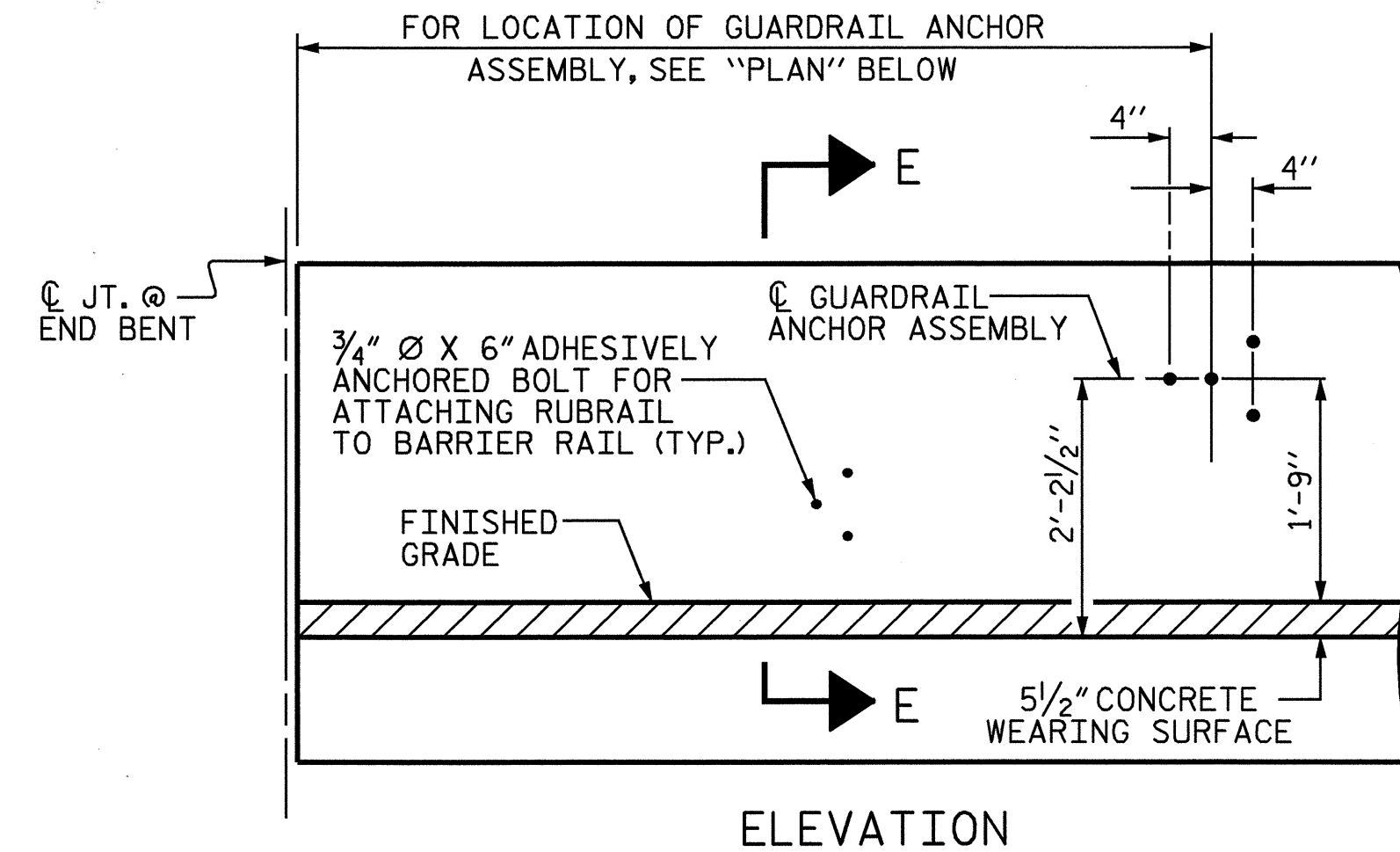
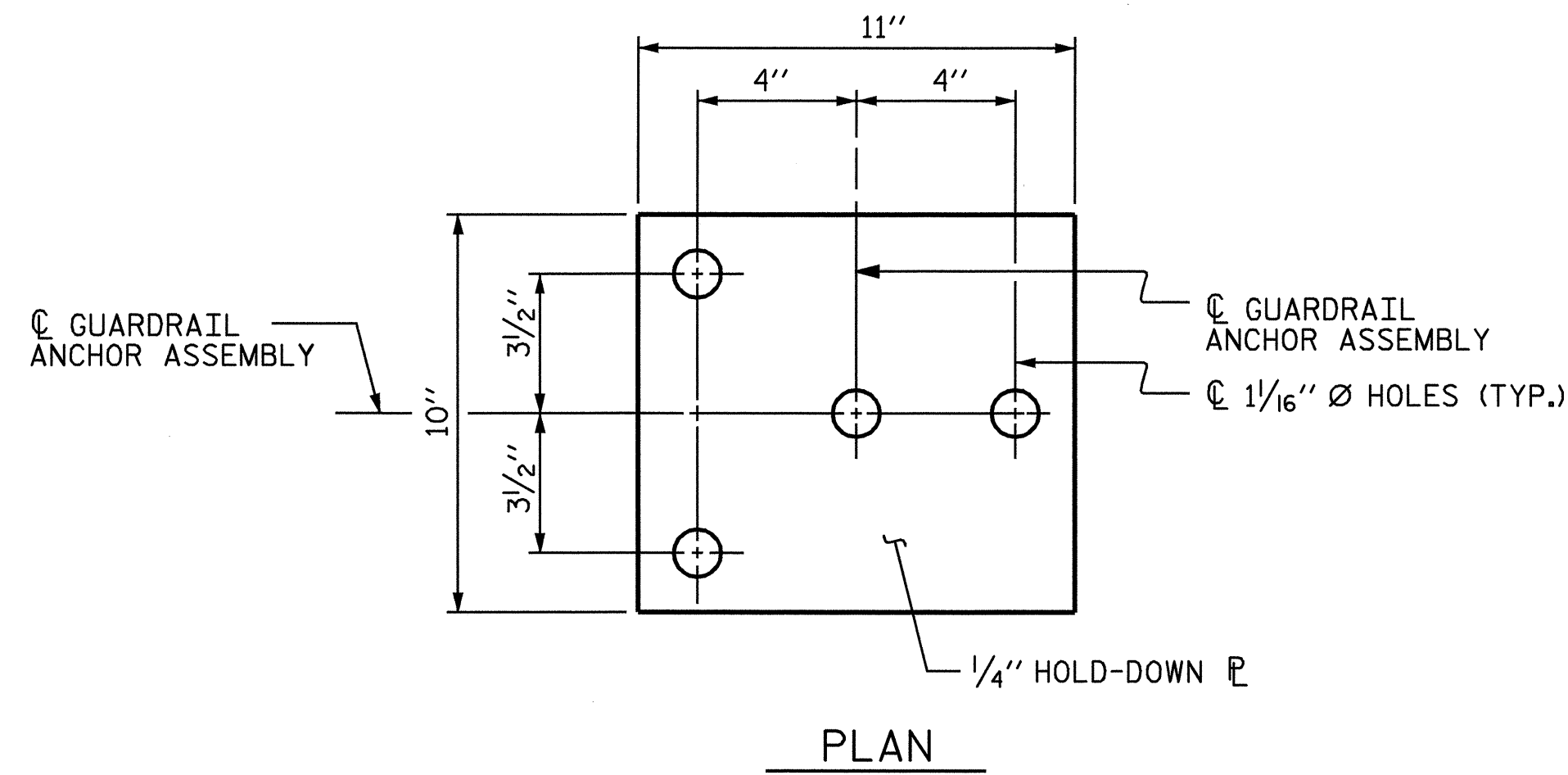
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

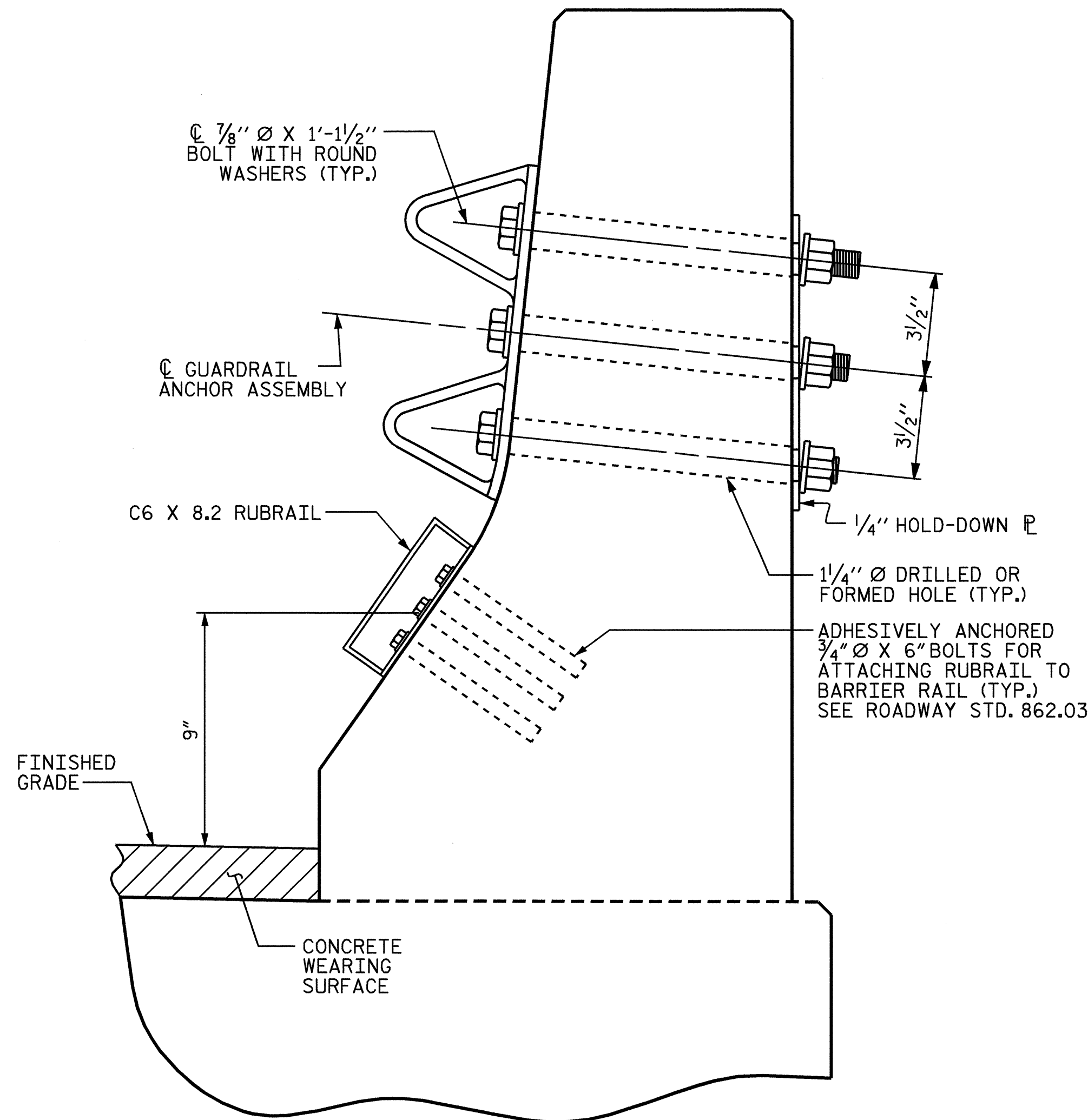
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

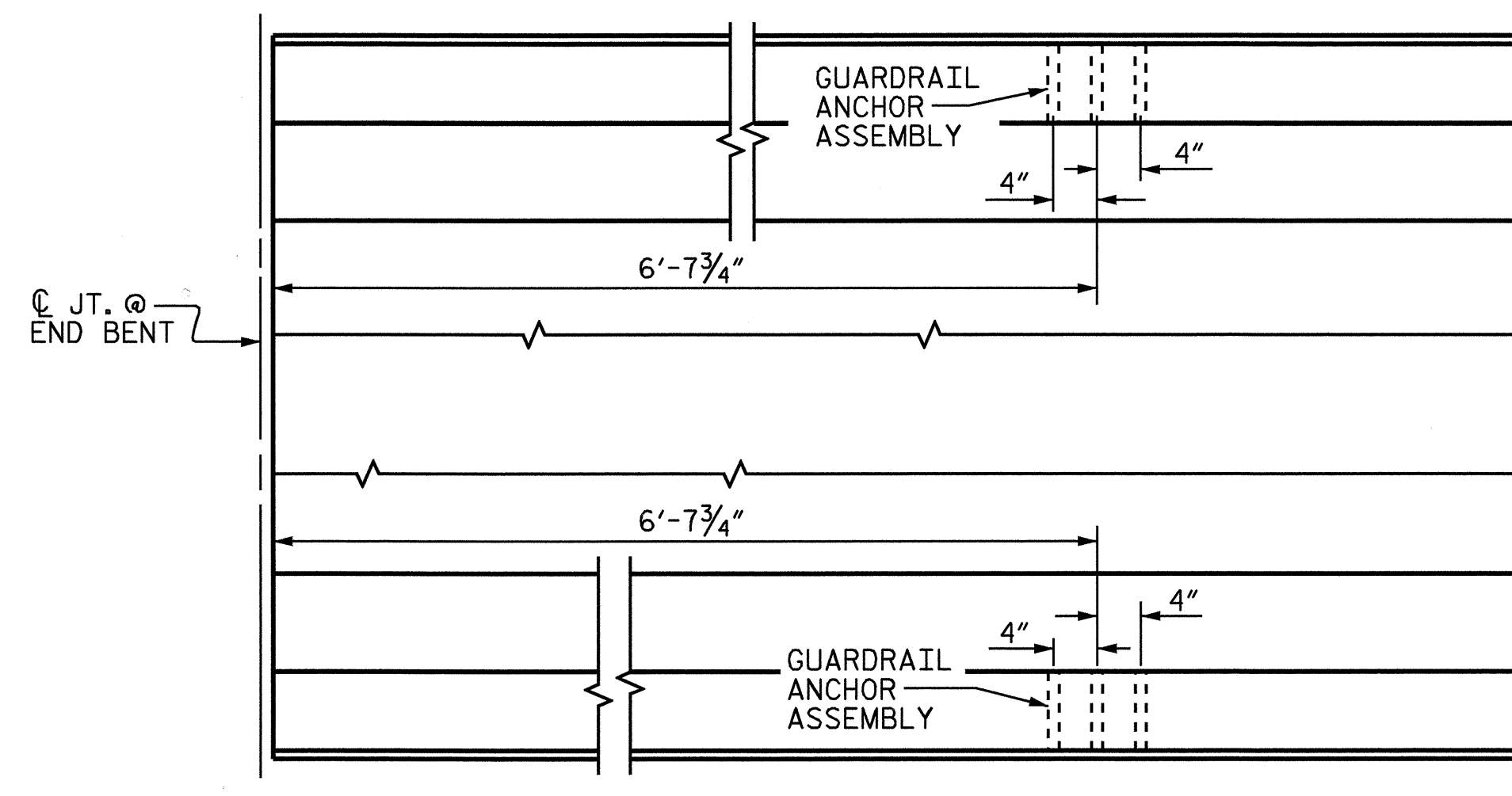


FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

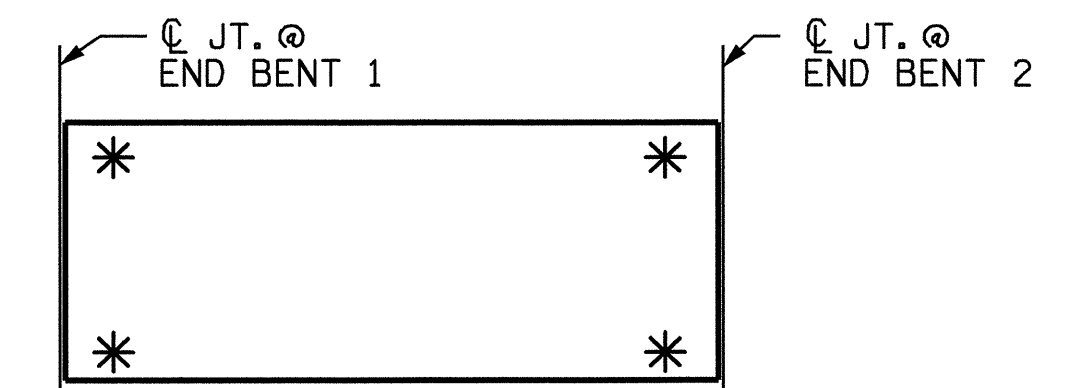
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

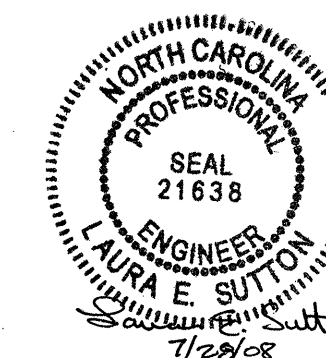


SKETCH SHOWING POINTS OF ATTACHMENTS

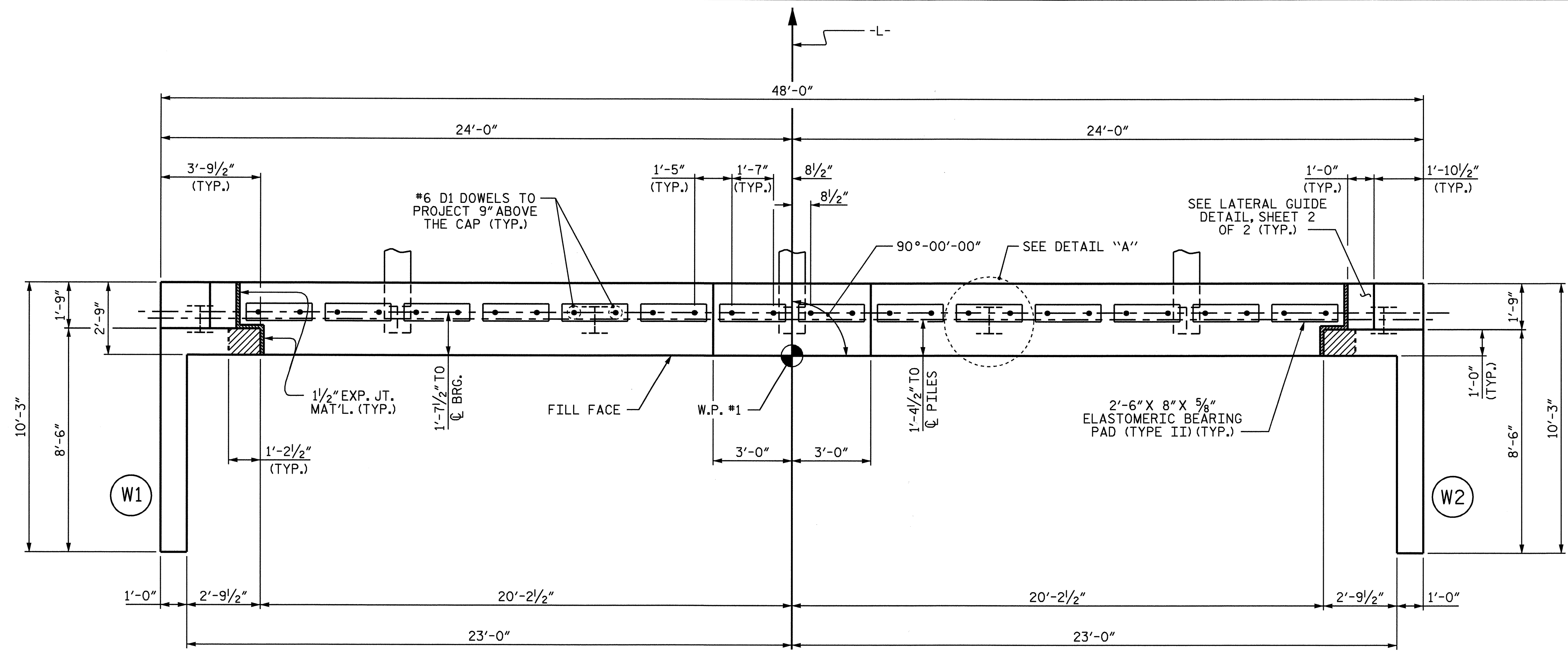
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

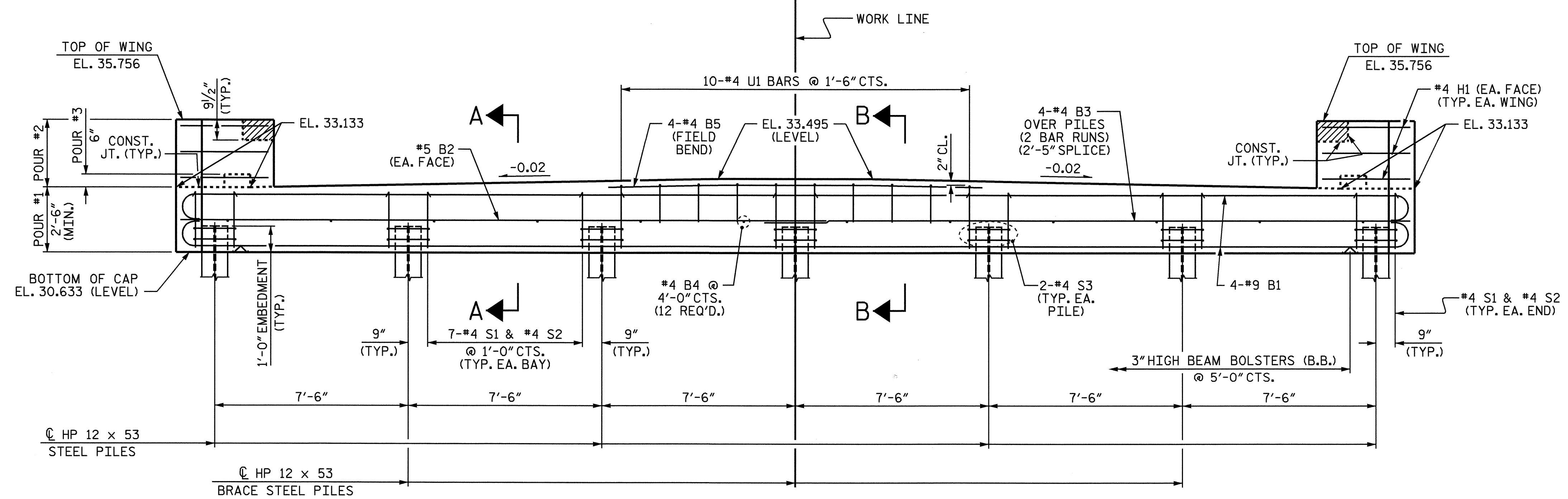
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL					
SHEET NO.					
S-10					
TOTAL SHEETS					
49					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



ASSEMBLED BY : E.C. LOCKLEAR DATE : 5-30-07
 CHECKED BY : A.S. CALLAWAY DATE : 6-04-07
 DRAWN BY : TLA 5/06
 CHECKED BY : GM 5/06



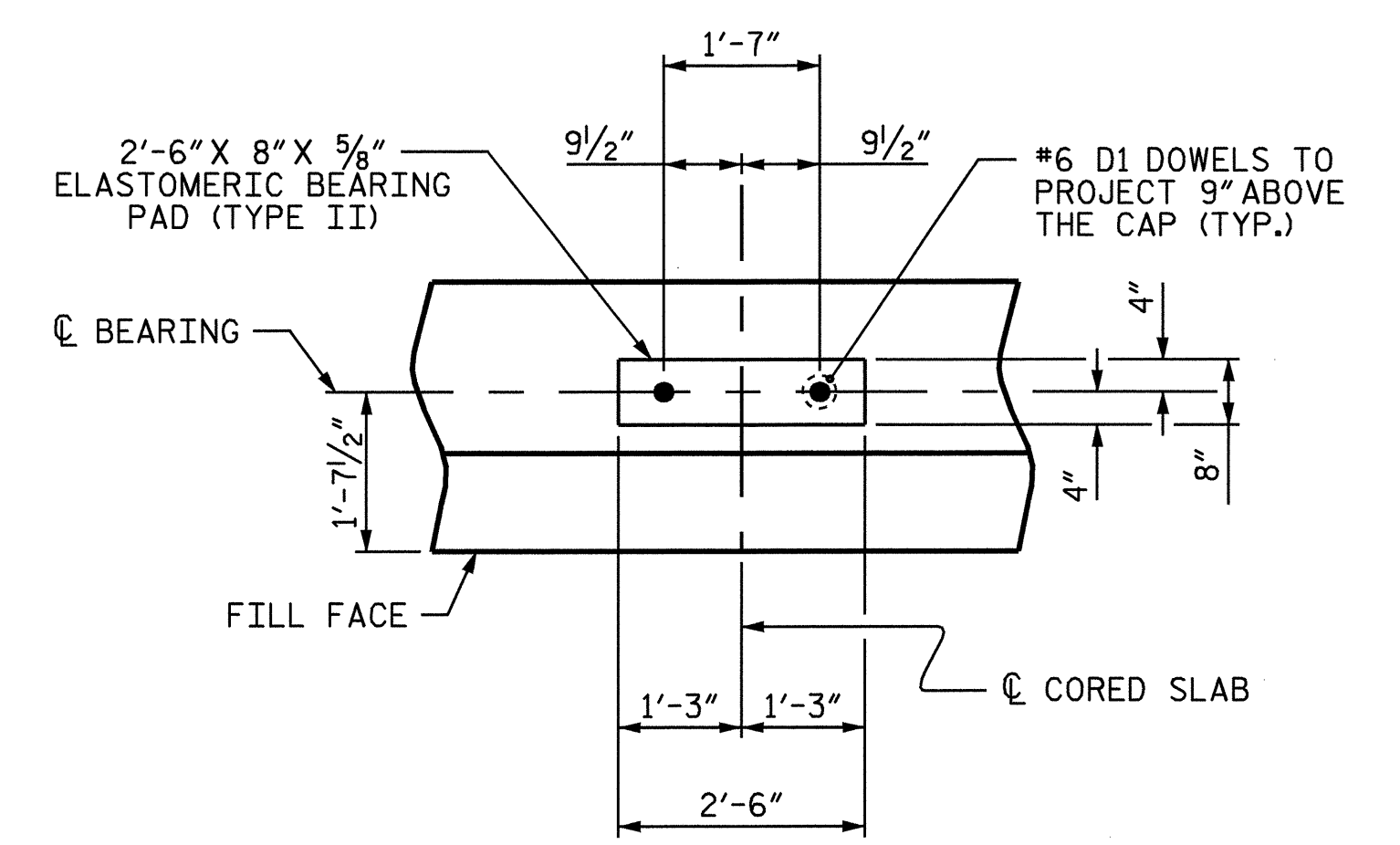
PLAN



ELEVATION

NOTES

- STIRRUPS AND U1 BARS 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 THE CORED SLAB UNITS ARE IN PLACE.
- THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE CONCRETE WEARING SURFACE AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR PILE SPLICE DETAILS, SEE END BENT 2.



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

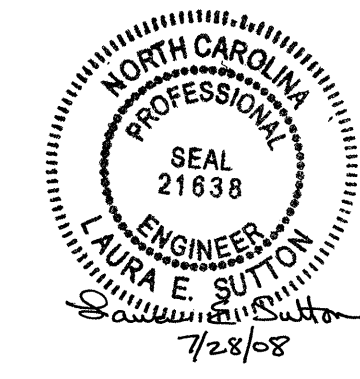
PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 1 OF 2

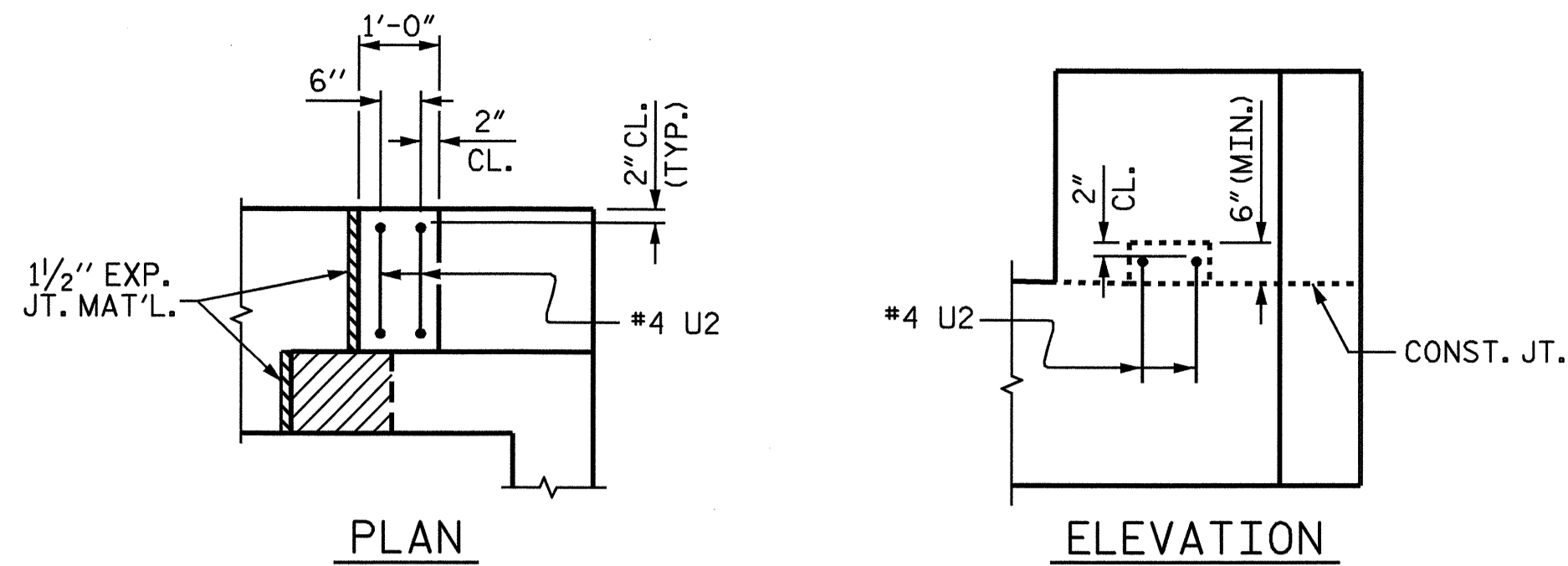
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

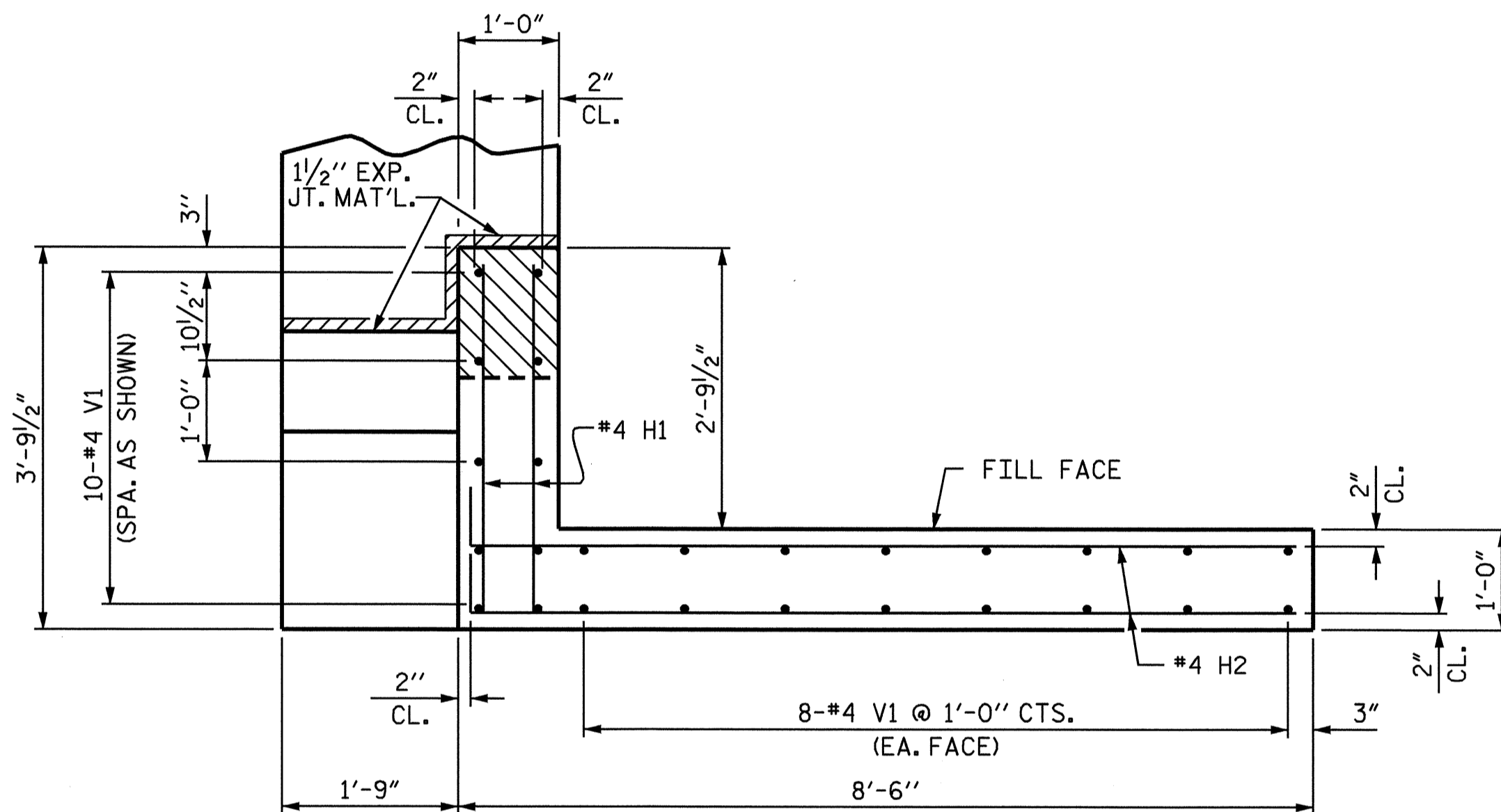
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	
2			4			49	



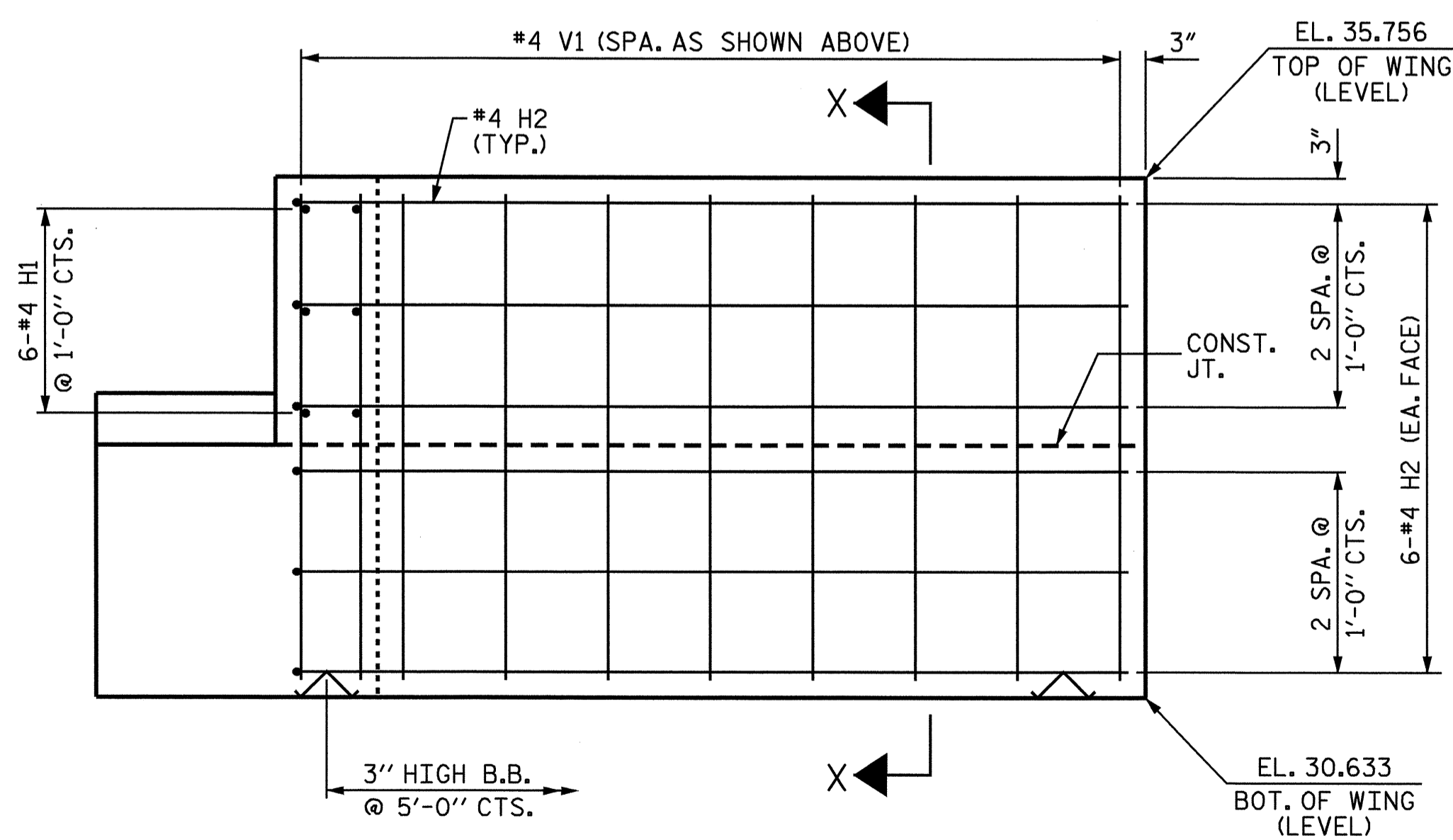
DRAWN BY: L.E. SUTTON DATE: 5/02/08
 CHECKED BY: S.M. RASHIDI DATE: 5/12/08



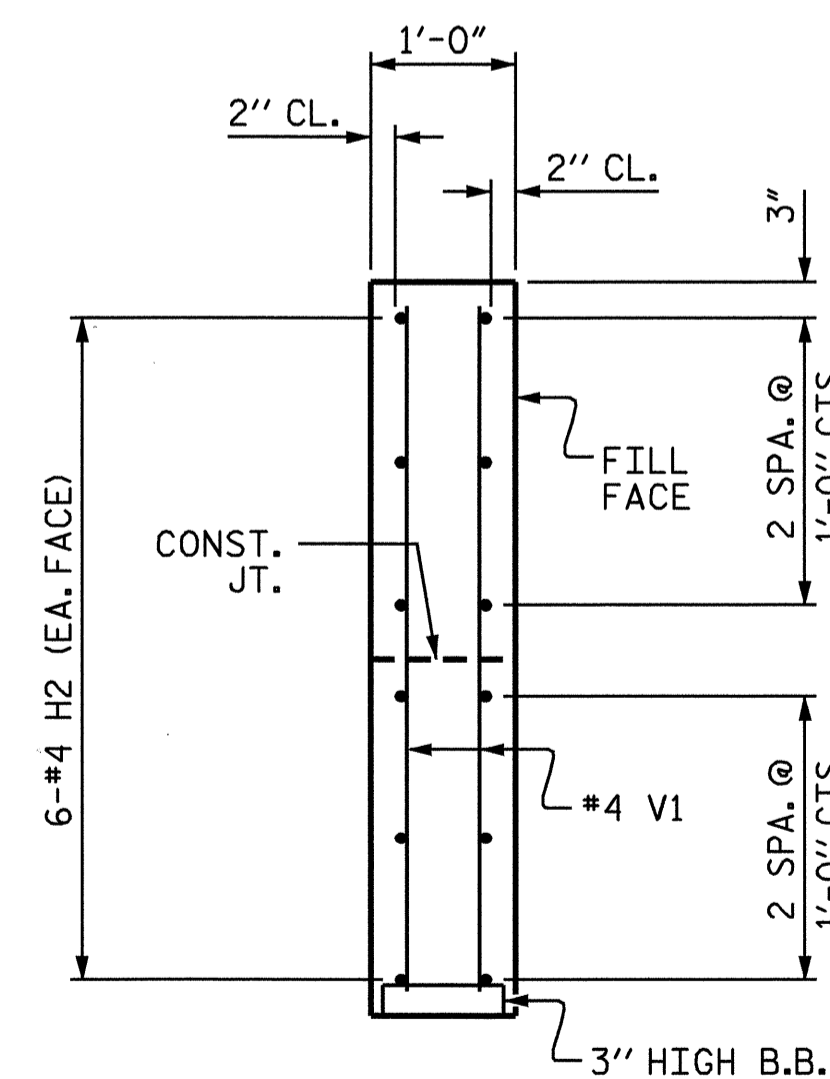
LATERAL GUIDE DETAILS
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)



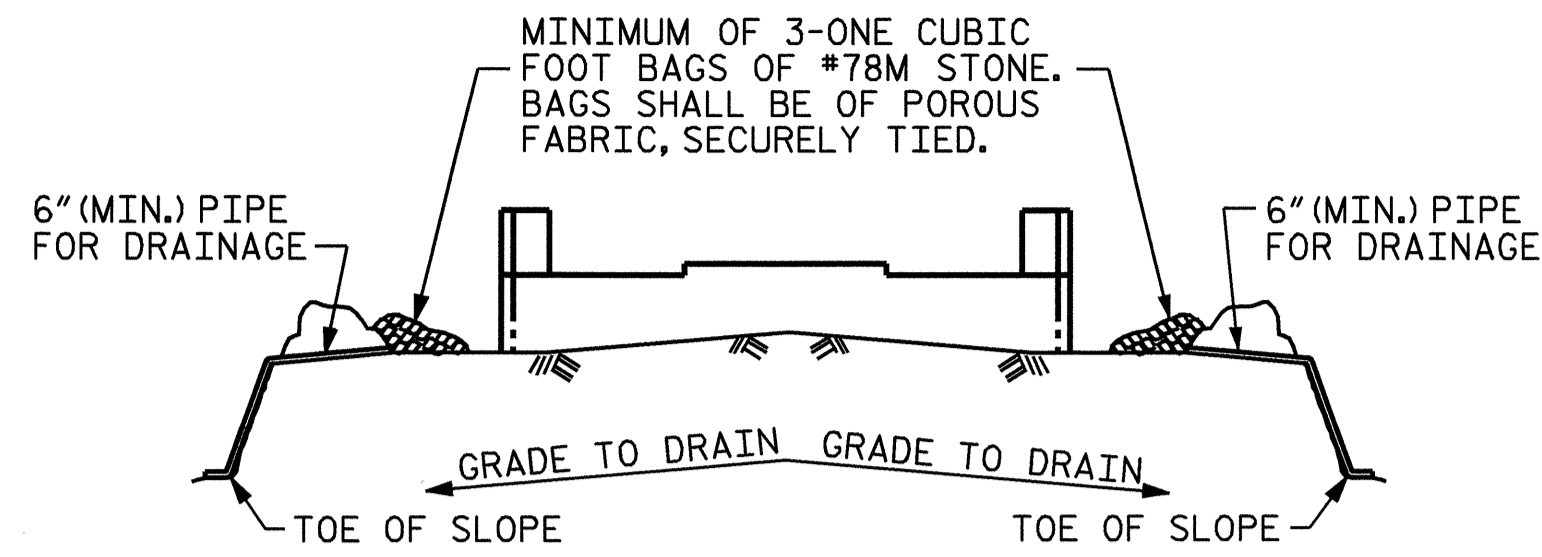
PLAN OF WING (W1)
(WING W2 SIMILAR)



ELEVATION OF WING (W1)
(WING W2 SIMILAR)



SECTION X-X



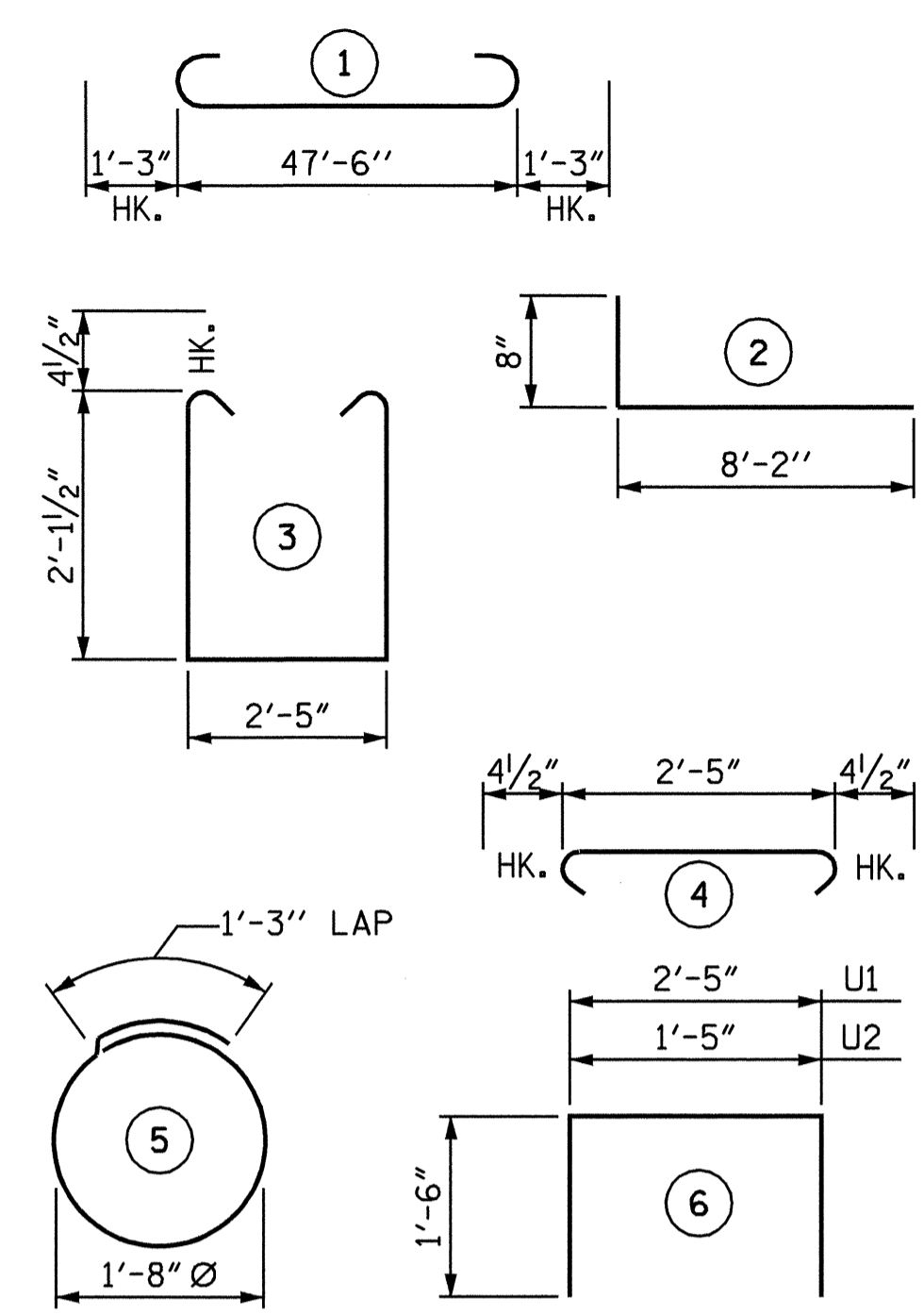
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

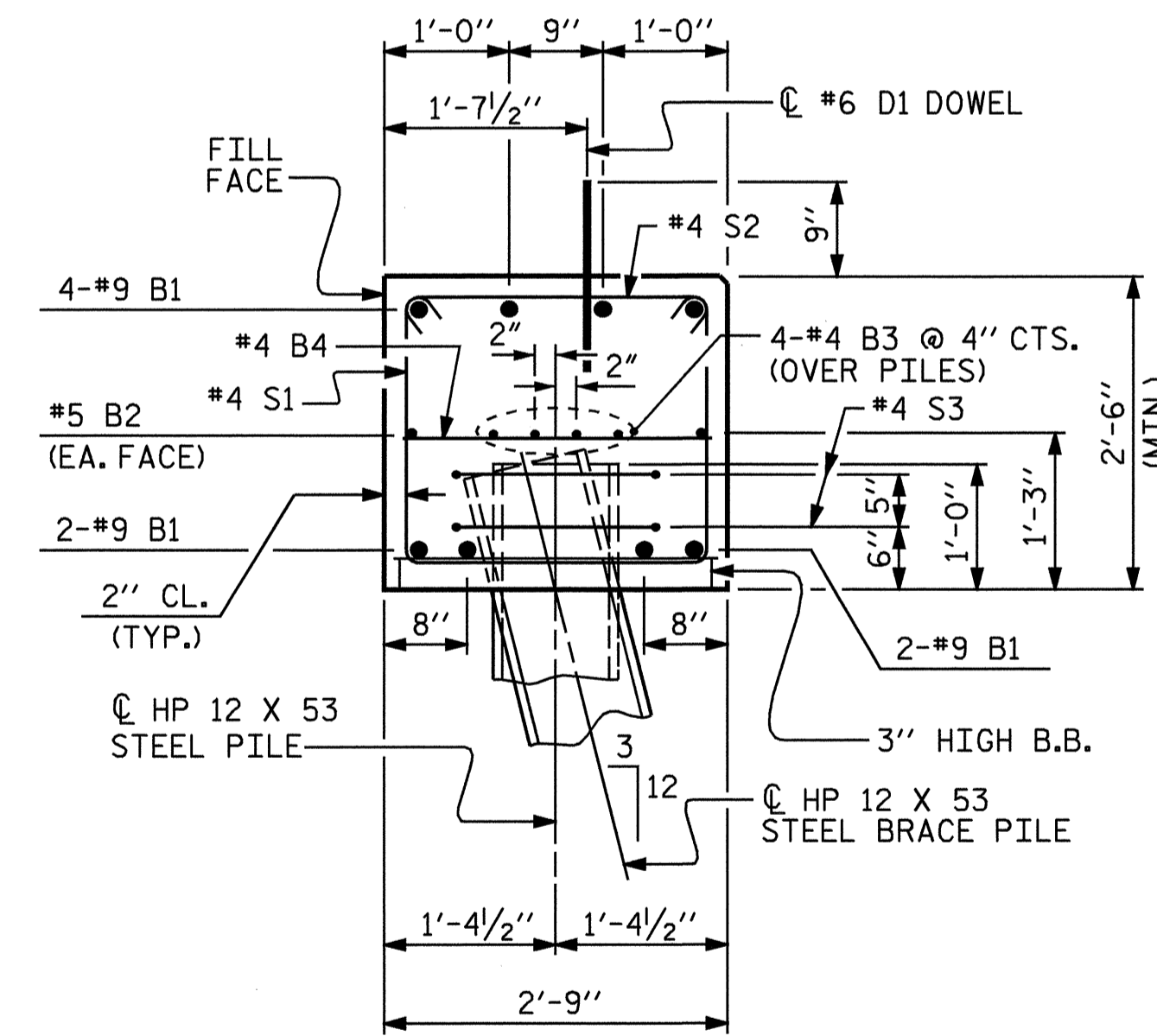
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

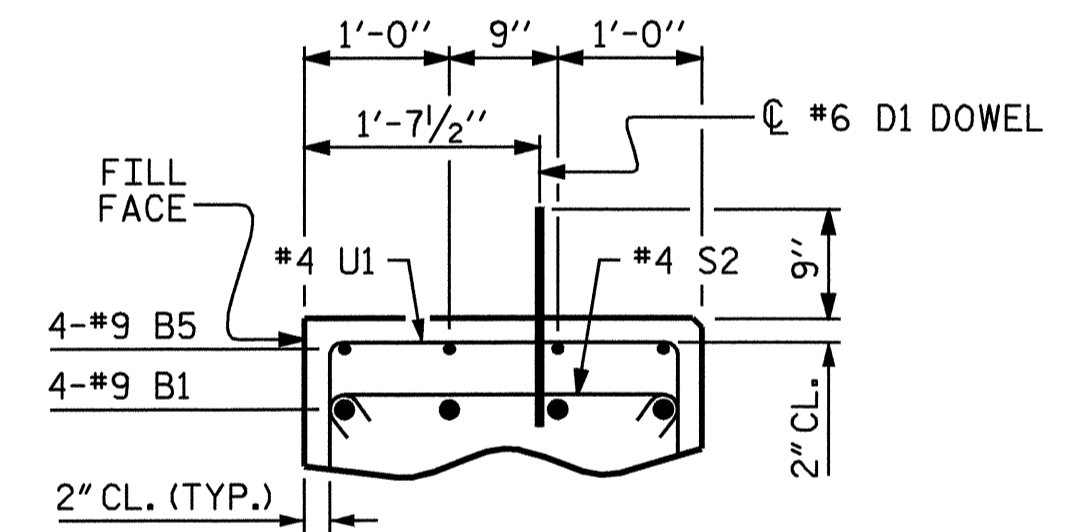
BAR TYPES		BILL OF MATERIAL				
		END BENT 1				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9		50'-0"	1360	
B2	2	#5	STR	47'-8"	99	
B3	8	#4	STR	25'-1"	134	
B4	12	#4	STR	2'-5"	19	
B5	4	#4	STR	14'-6"	39	
D1	28	#6	STR	1'-6"	63	
H1	12	#4	STR	3'-5"	27	
H2	24	#4	2	8'-10"	142	
S1	44	#4	3	7'-5"	218	
S2	44	#4	4	3'-2"	93	
S3	14	#4	5	6'-6"	61	
U1	10	#4	6	5'-5"	36	
U2	4	#4	6	4'-5"	12	
V1	52	#4	STR	4'-9"	165	
REINFORCING STEEL				LBS.	2,468	
CLASS A CONCRETE BREAKDOWN :						
POUR #1 - CAP & LOWER WINGS				CU. YDS.	14.5	
POUR #2 - UPPER WINGS				CU. YDS.	2.2	
POUR #3 - LATERAL GUIDES				CU. YDS.	0.1	
TOTAL				CU. YDS.	16.8	
HP 12 x 53 STEEL PILES				NO. = 7	LIN. FT. 280	



ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION A-A

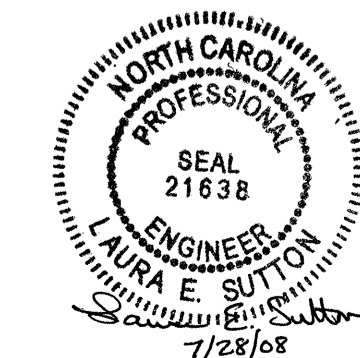


PART SECTION B-B

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 2 OF 2

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-12
					TOTAL SHEETS 49



DRAWN BY: L.E. SUTTON DATE: 5/05/08
 CHECKED BY: S.M. RASHIDI DATE: 5/12/08

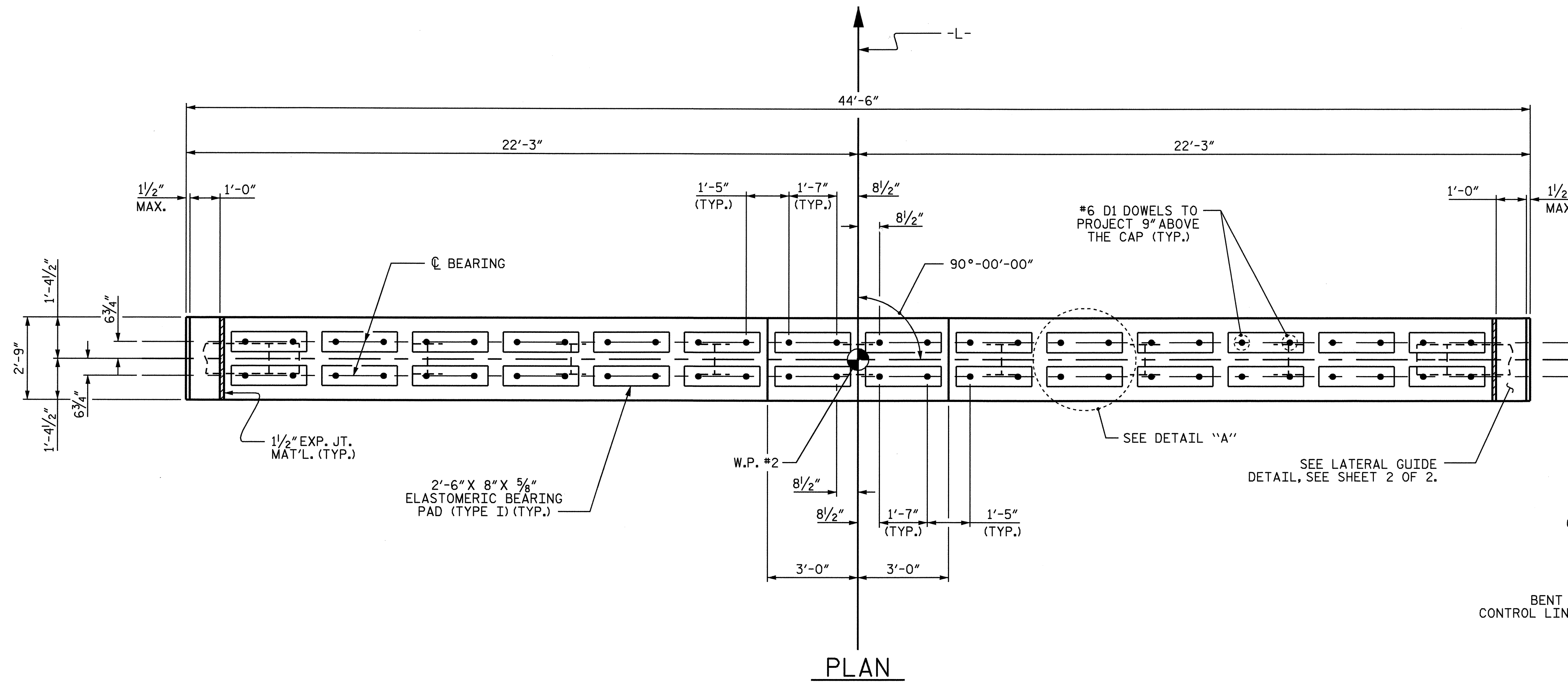
NOTES

STIRRUPS AND U1 BARS 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 THE CORED SLAB UNITS ARE IN PLACE.

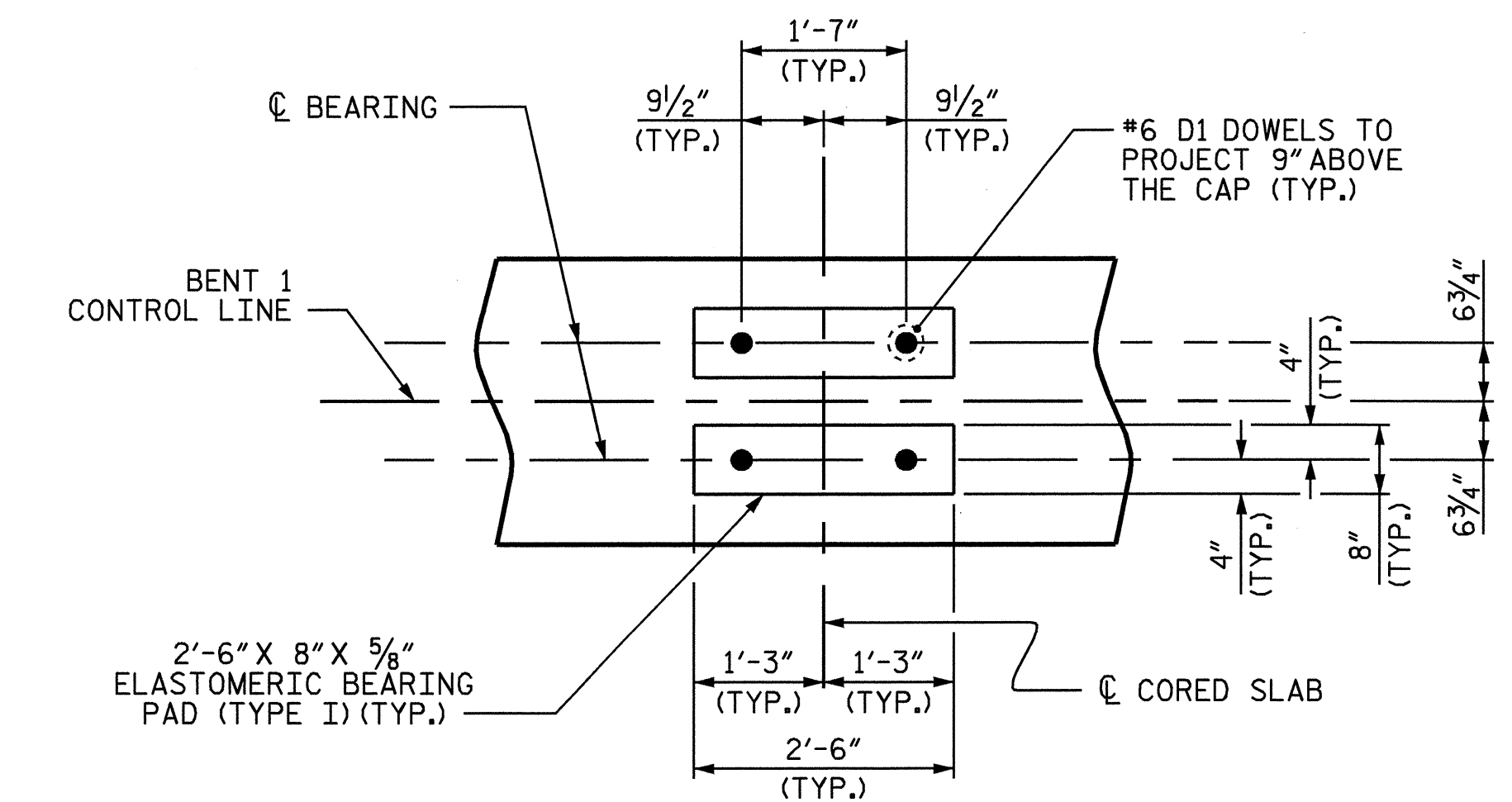
THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

FOR PILE SPLICE DETAILS, SEE END BENT 2.

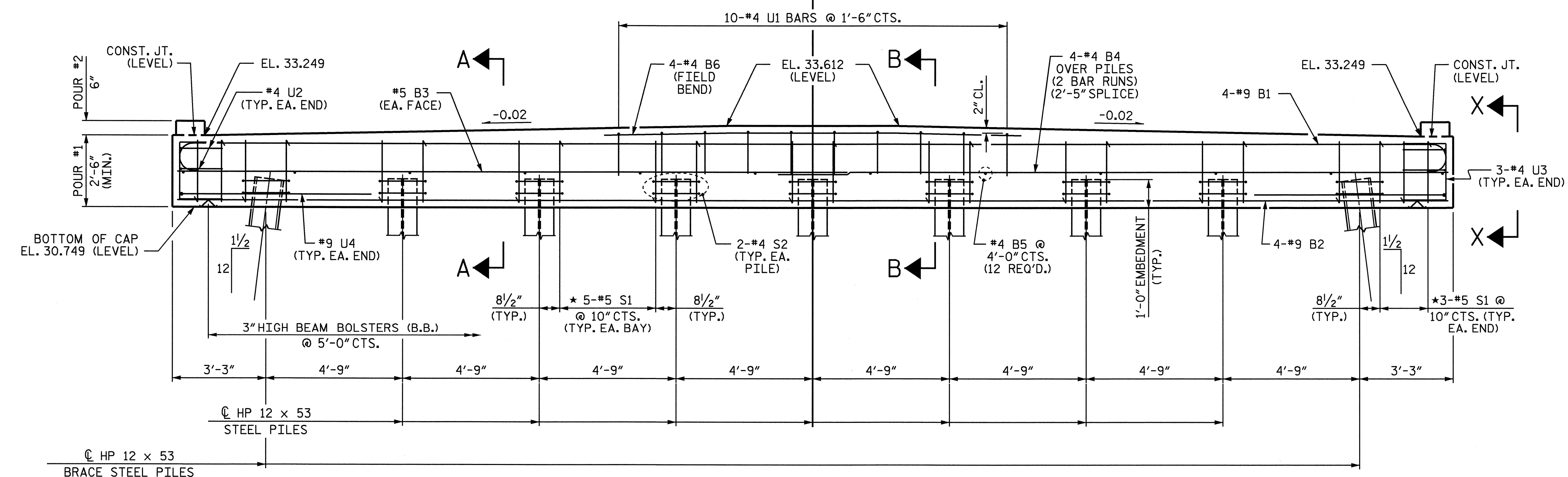


SPAN "B"

SPAN "A"



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



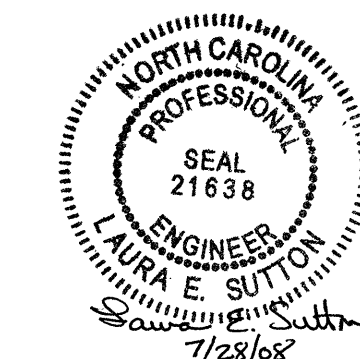
ELEVATION

* INVERT ALTERNATE STIRRUPS AS SHOWN.

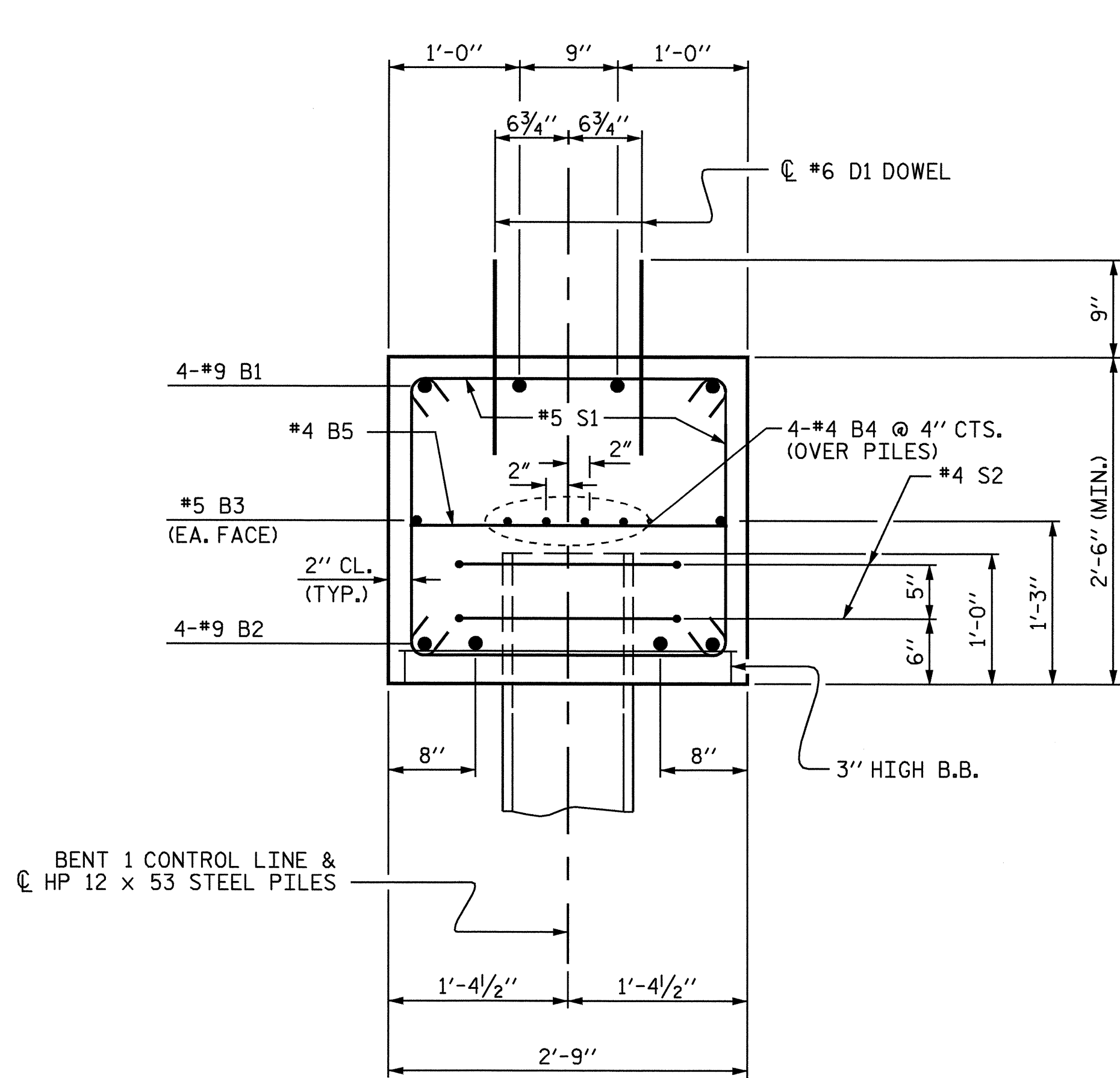
PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 1 OF 2

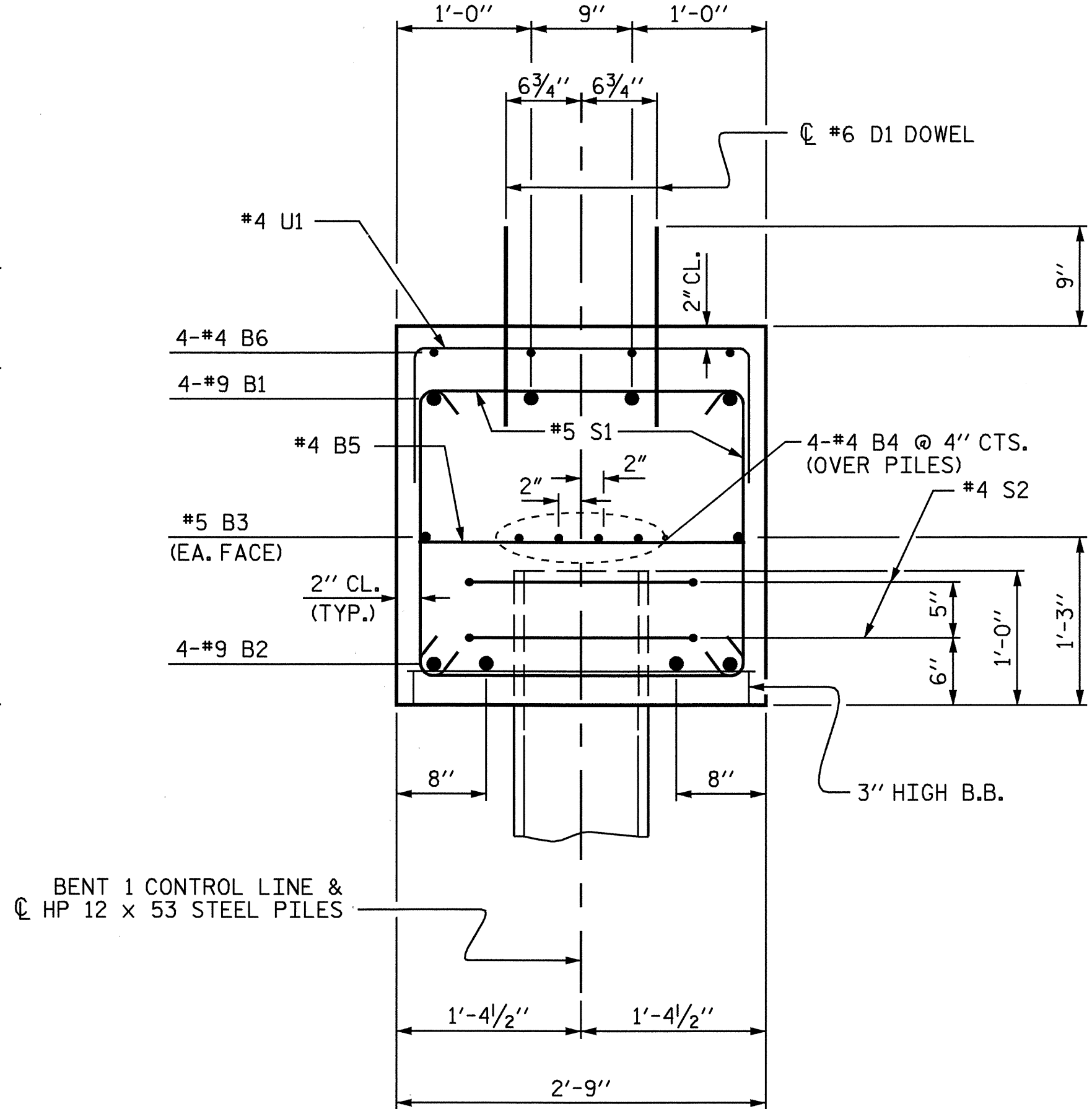
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-13 TOTAL SHEETS 49



DRAWN BY: L.E. SUTTON DATE: 5/01/08
 CHECKED BY: S.M. RASHIDI DATE: 5/13/08



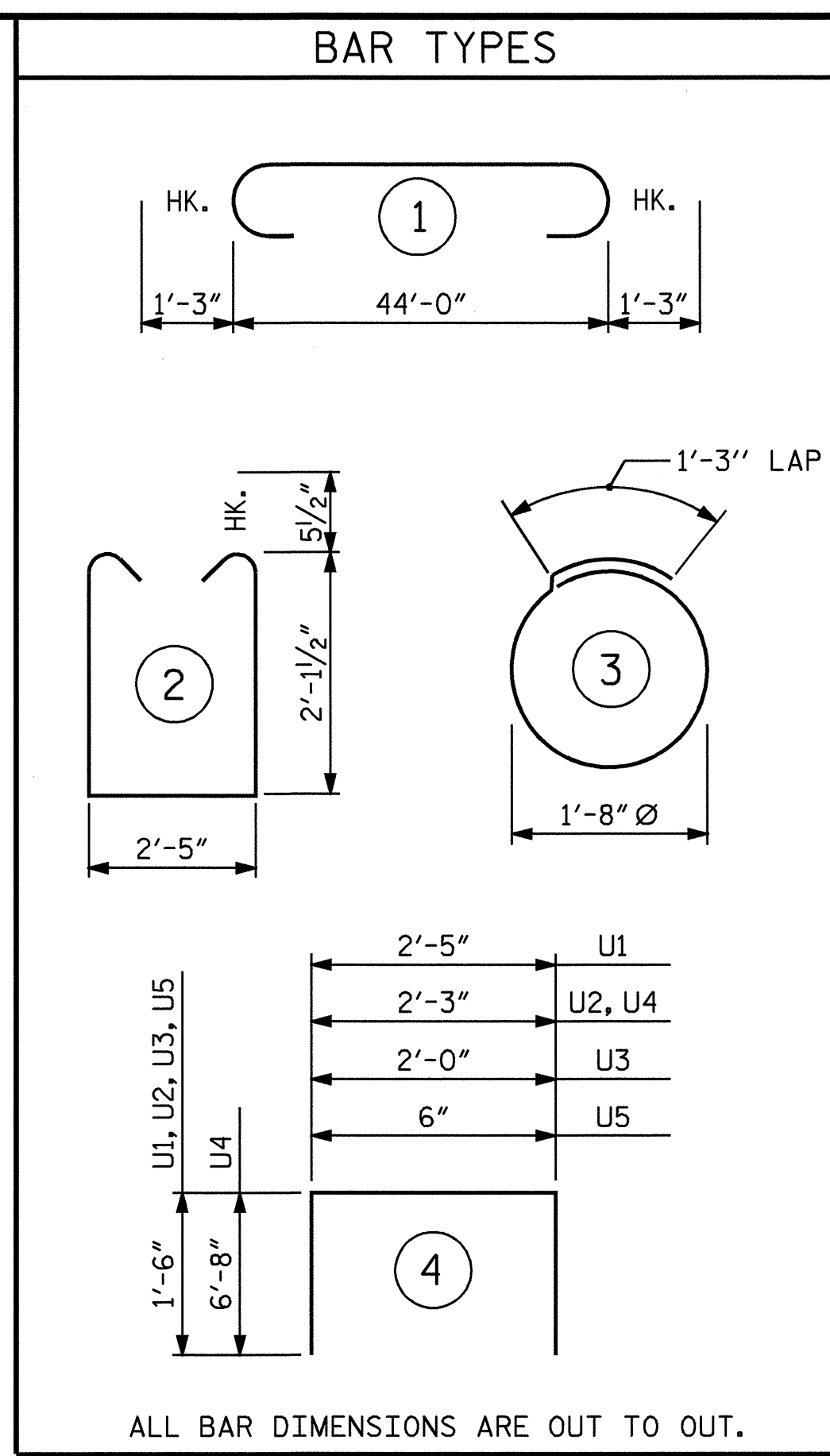
SECTION A-A



SECTION B-B

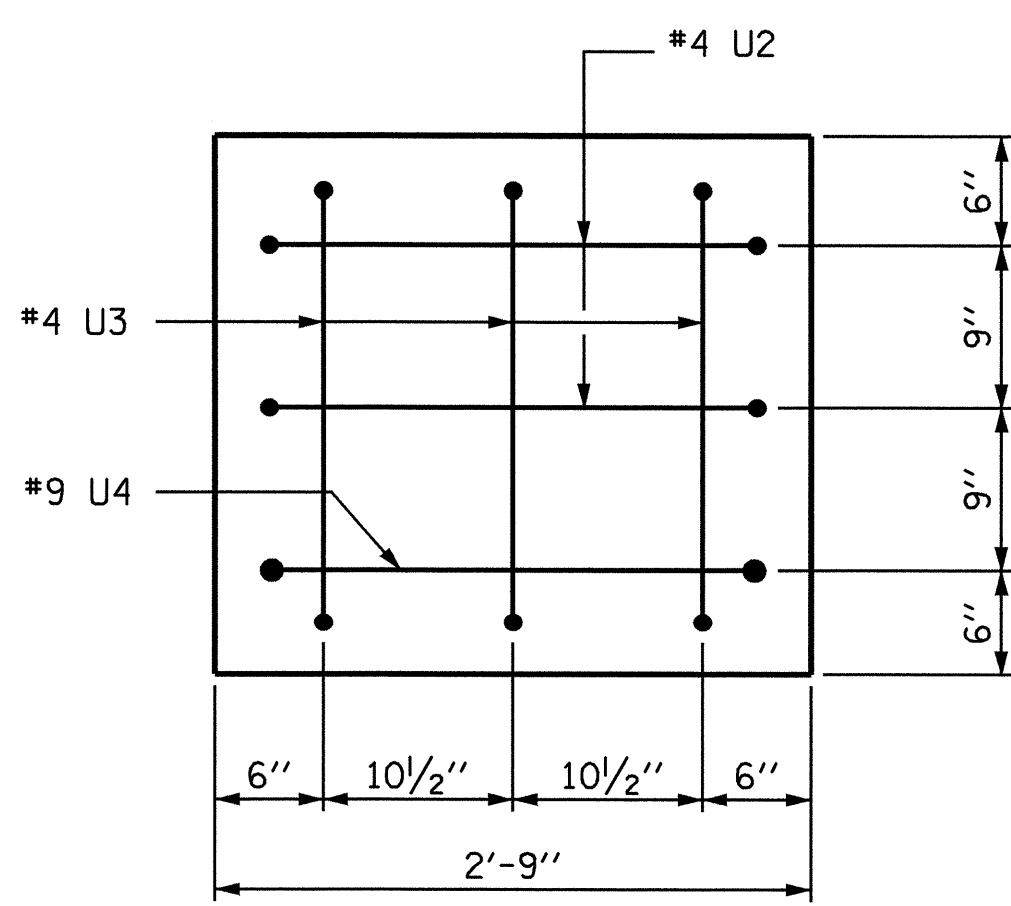
BENT 1 CONTROL LINE & HP 12 x 53 STEEL PILES

BENT 1 CONTROL LINE & HP 12 x 53 STEEL PILES

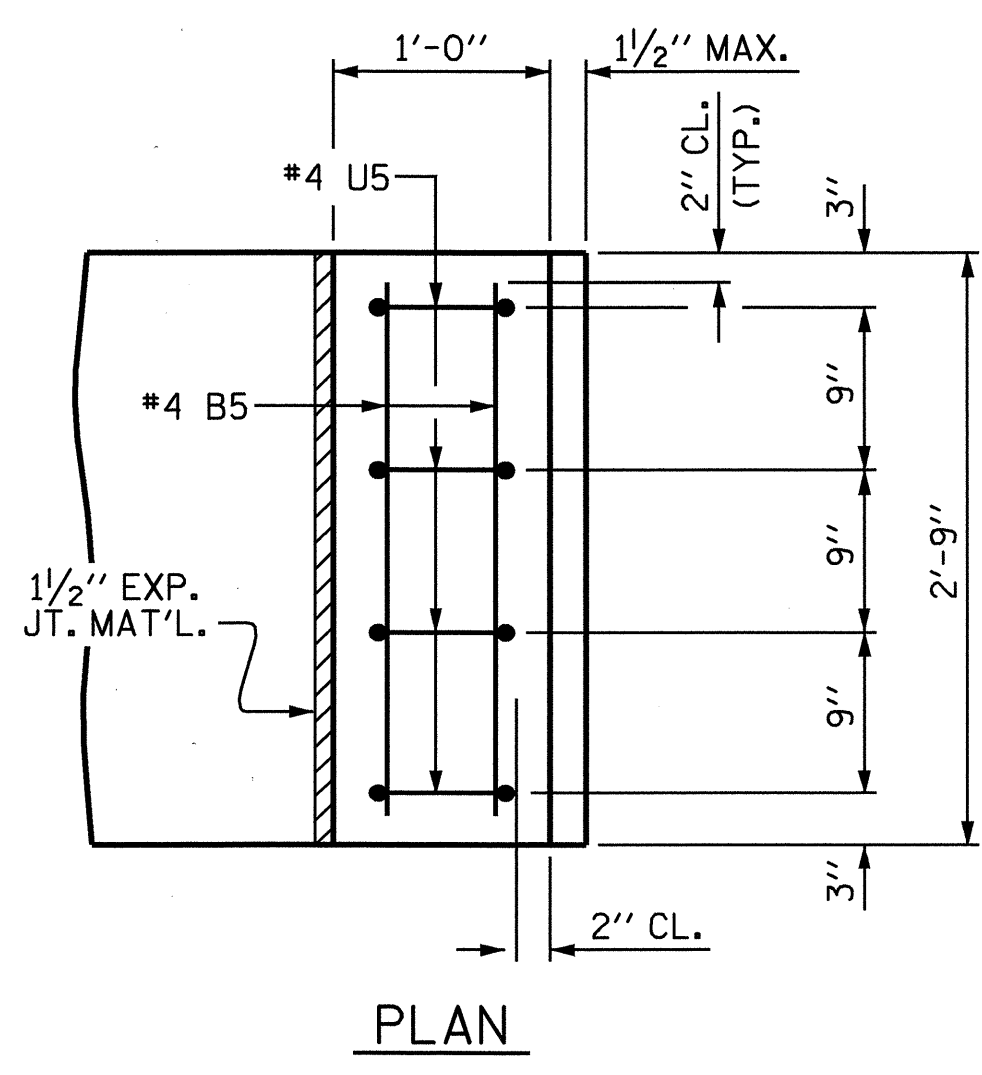


ALL BAR DIMENSIONS ARE OUT TO OUT.

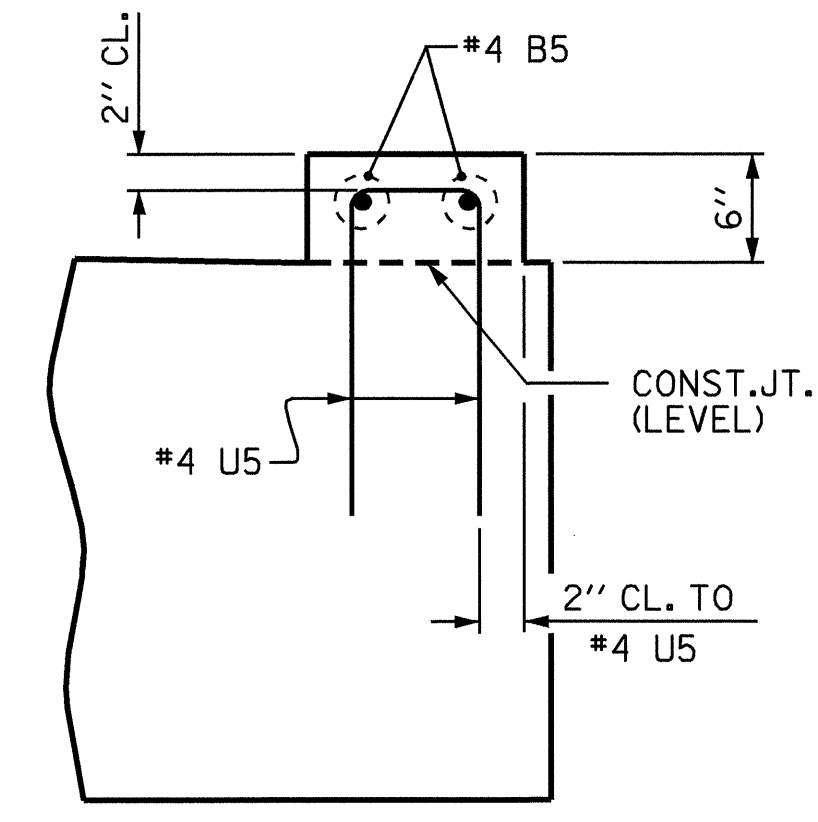
BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9		46'-6"	632
B2	4	#9	STR	44'-2"	601
B3	2	#5	STR	44'-2"	92
B4	8	#4	STR	23'-4"	125
B5	16	#4	STR	2'-5"	26
B6	4	#4	STR	14'-6"	39
D1	56	#6	STR	1'-6"	126
S1	46	#5	2	7'-7"	364
S2	18	#4	3	6'-6"	78
U1	10	#4	4	5'-5"	36
U2	4	#4	4	5'-3"	14
U3	6	#4	4	5'-0"	20
U4	2	#9	4	15'-7"	106
U5	8	#4	4	3'-6"	19
REINFORCING STEEL			LBS.	2,278	
CLASS A CONCRETE BREAKDOWN :					
POUR #1 - CAP				CU. YDS.	12.2
POUR #2 - LATERAL GUIDES				CU. YDS.	0.1
TOTAL				CU. YDS.	12.3
HP 12 x 53 GALVANIZED STEEL PILES					
NO. = 9				LIN. FT.	450



VIEW X-X
(TYP. BOTH ENDS)



PLAN



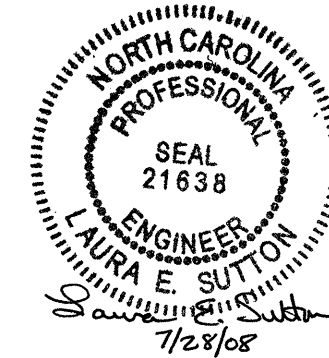
ELEVATION

LATERAL GUIDE DETAIL

PROJECT NO. B-4078
COLUMBUS COUNTY
STATION: 15+53.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 1



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

SHEET NO.	
S-14	TOTAL SHEETS
49	

DRAWN BY: L.E. SUTTON DATE: 5/01/08
CHECKED BY: S.M. RASHIDI DATE: 5/13/08

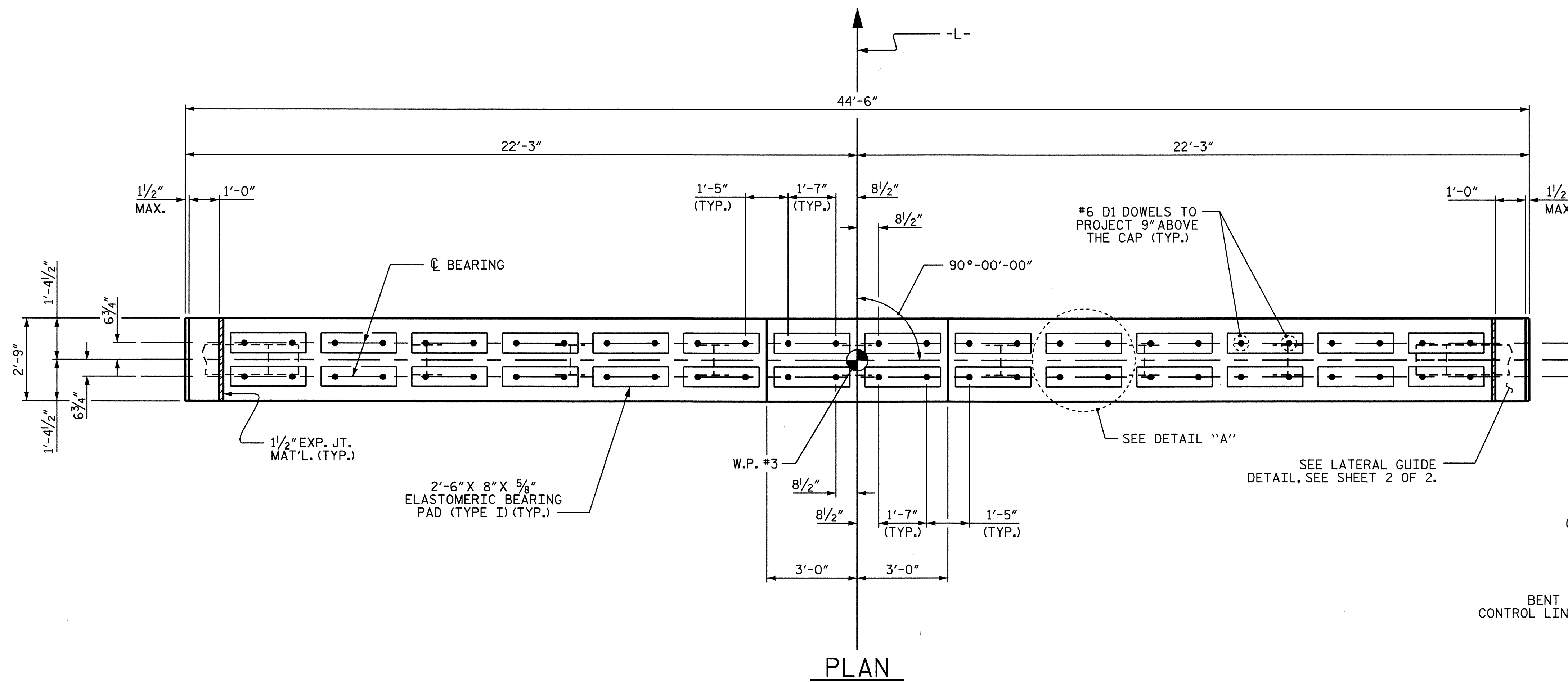
NOTES

STIRRUPS AND U1 BARS 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 THE CORED SLAB UNITS ARE IN PLACE.

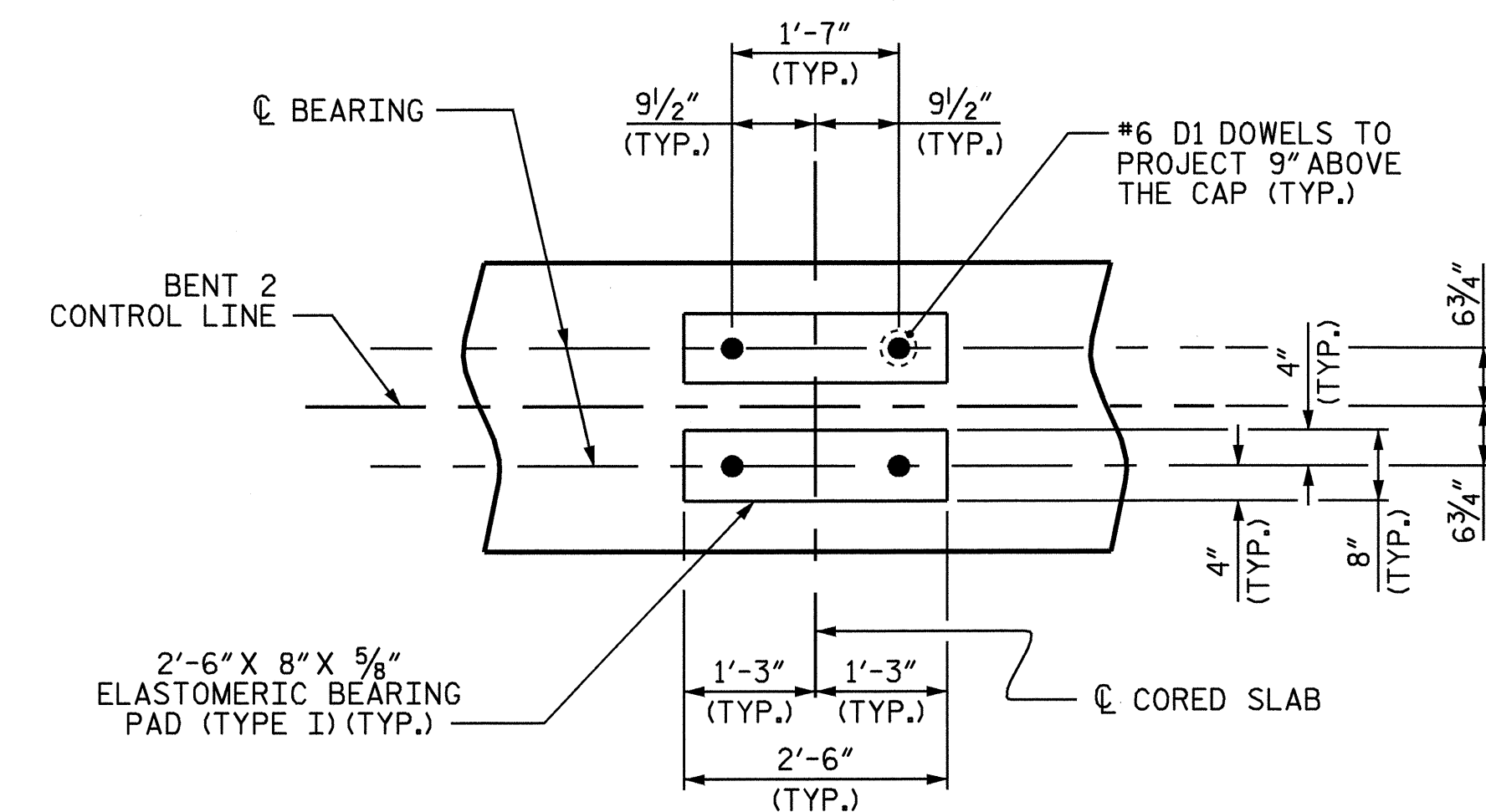
THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

FOR PILE SPLICE DETAILS, SEE END BENT 2.

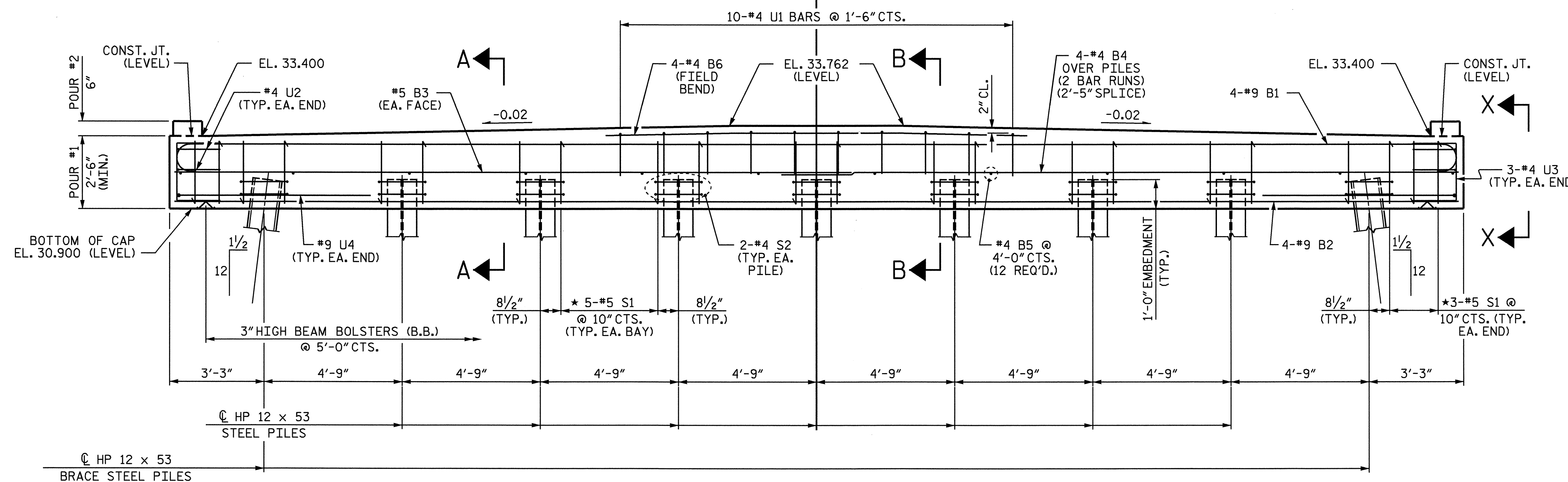


SPAN "C"

SPAN "B"



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



ELEVATION

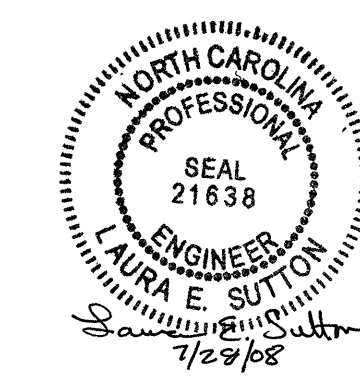
* INVERT ALTERNATE STIRRUPS AS SHOWN.

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 1 OF 2

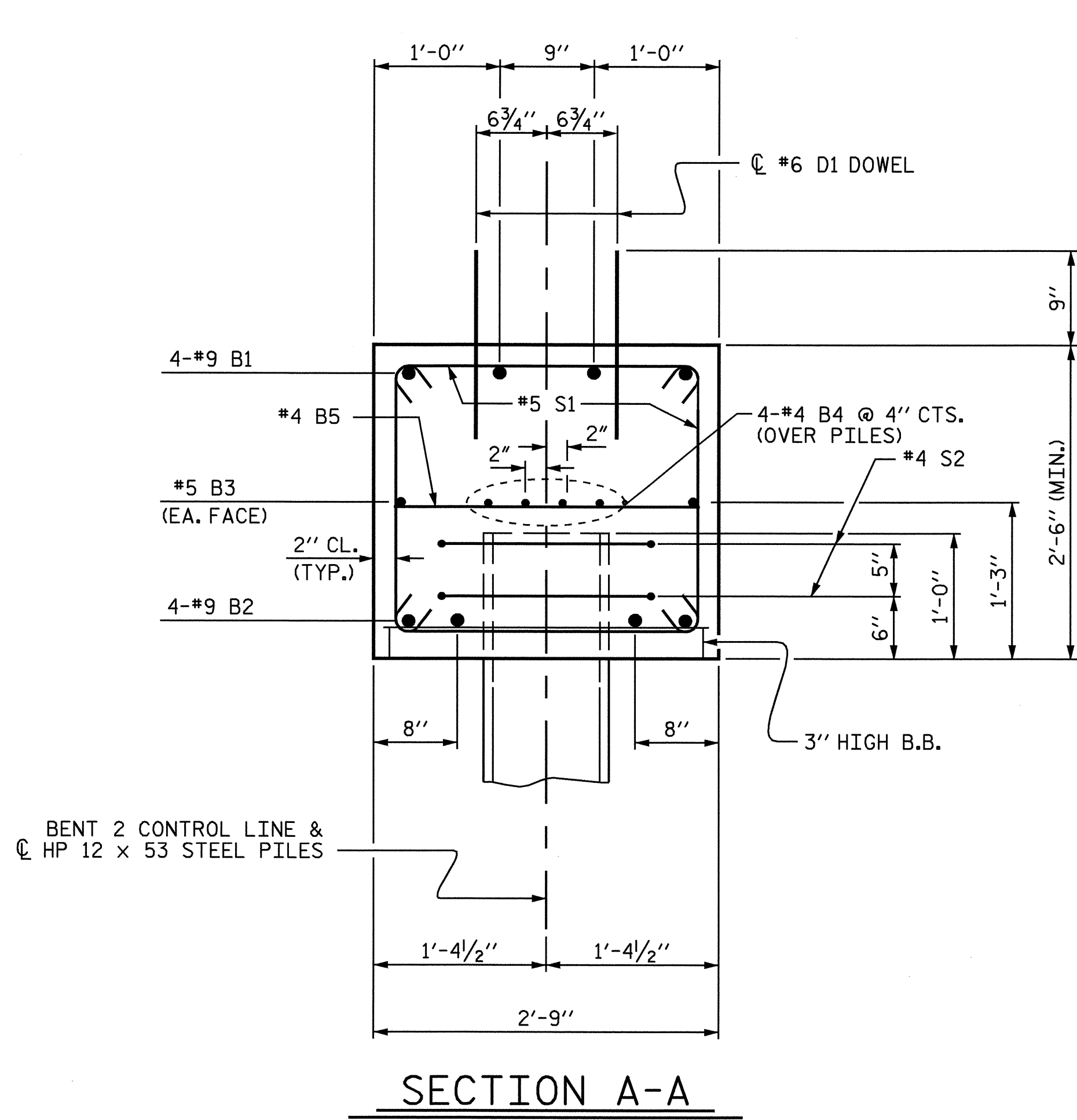
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT 2**

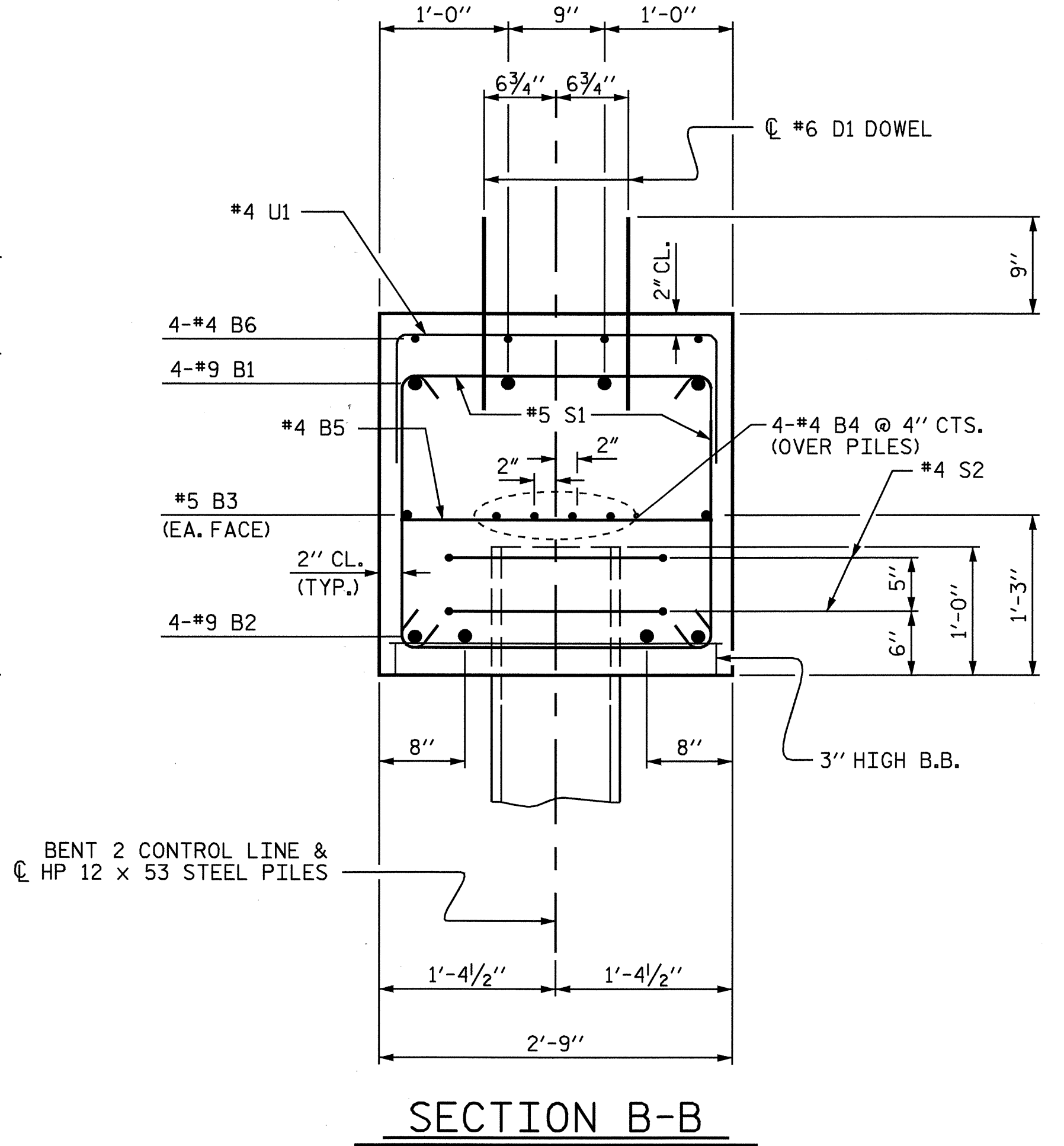


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL	49
2			4				

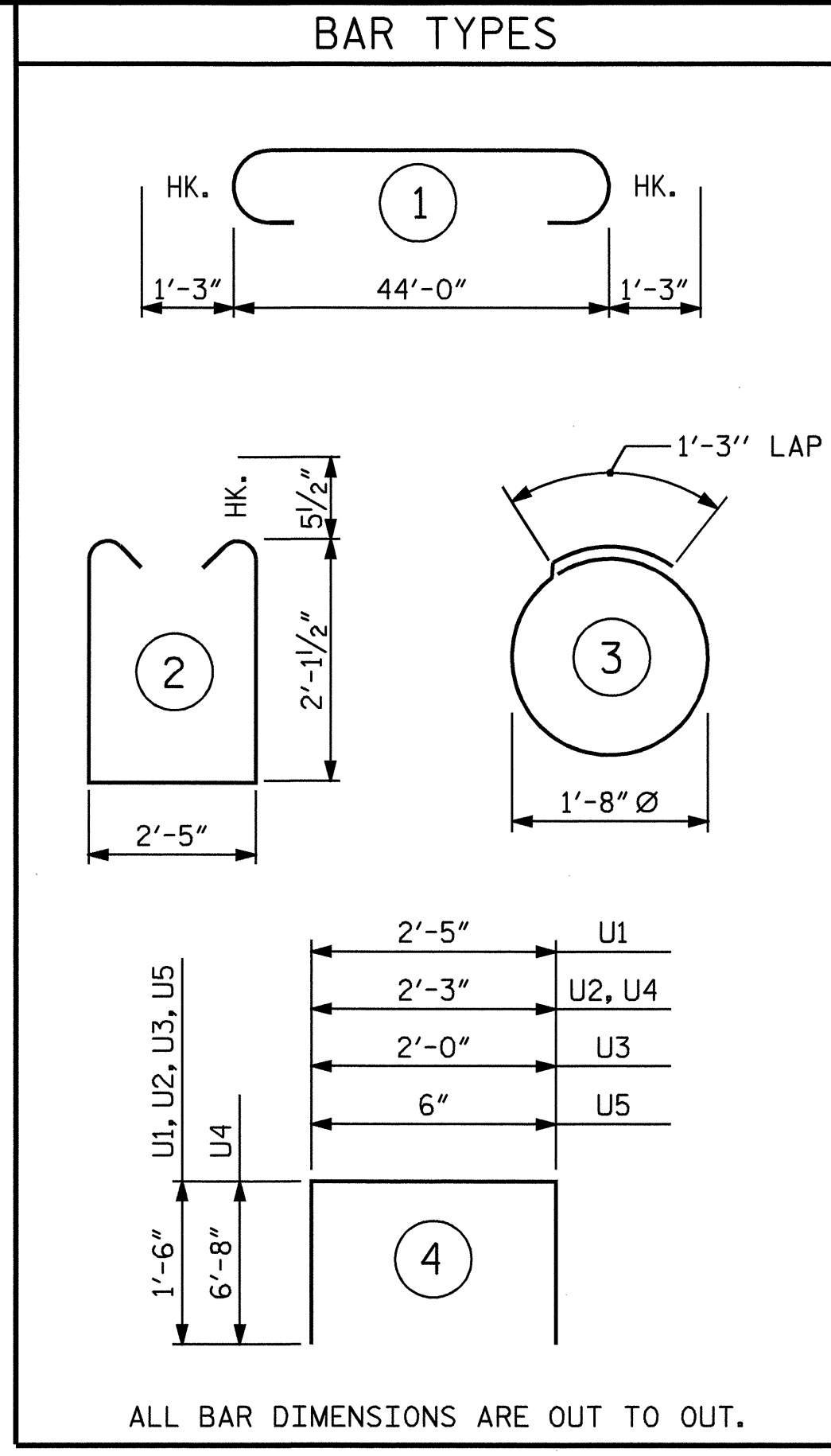
DRAWN BY: L.E. SUTTON DATE: 5/01/08
 CHECKED BY: S.M. RASHIDI DATE: 5/13/08



SECTION A-A

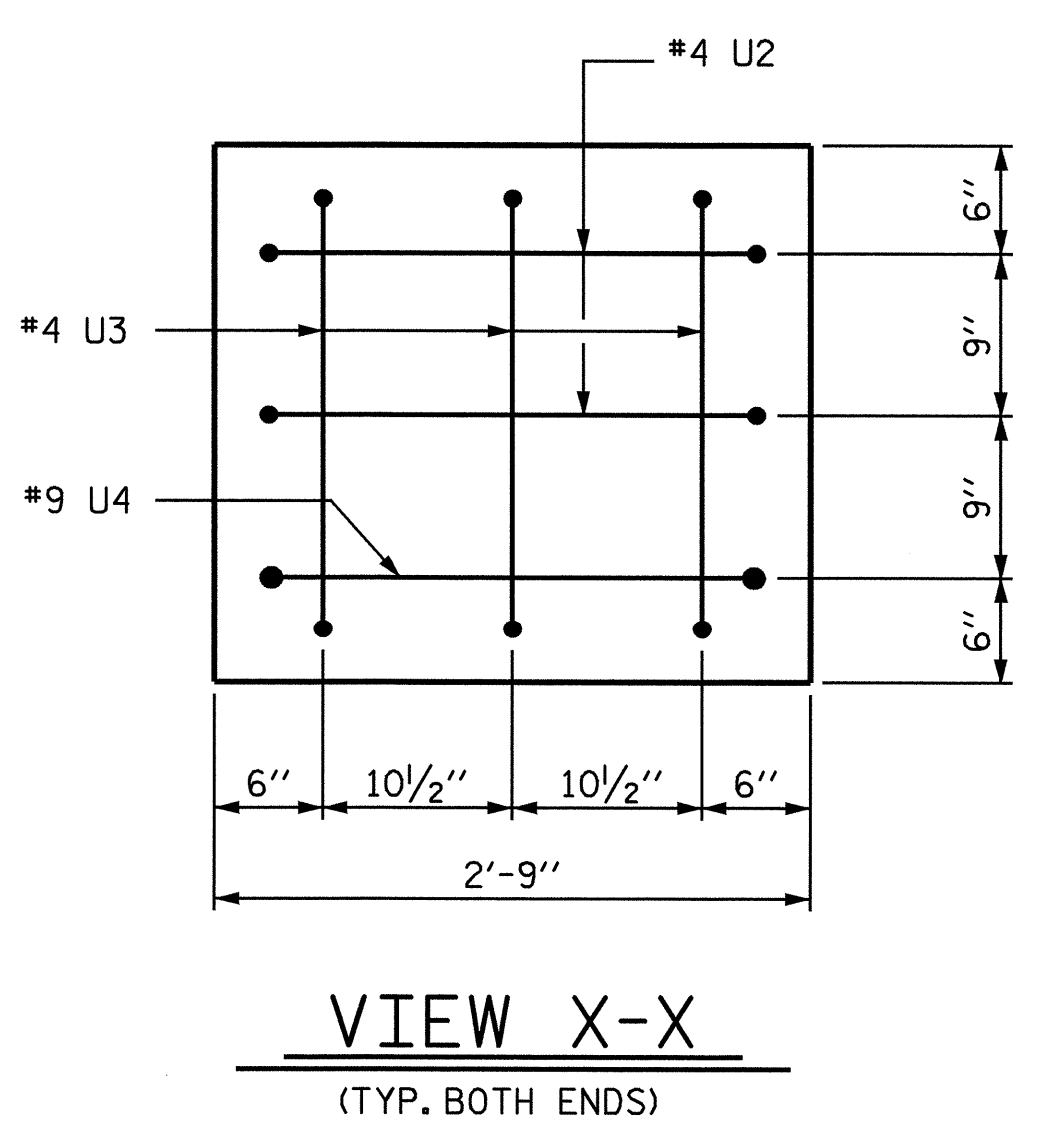


SECTION B-B

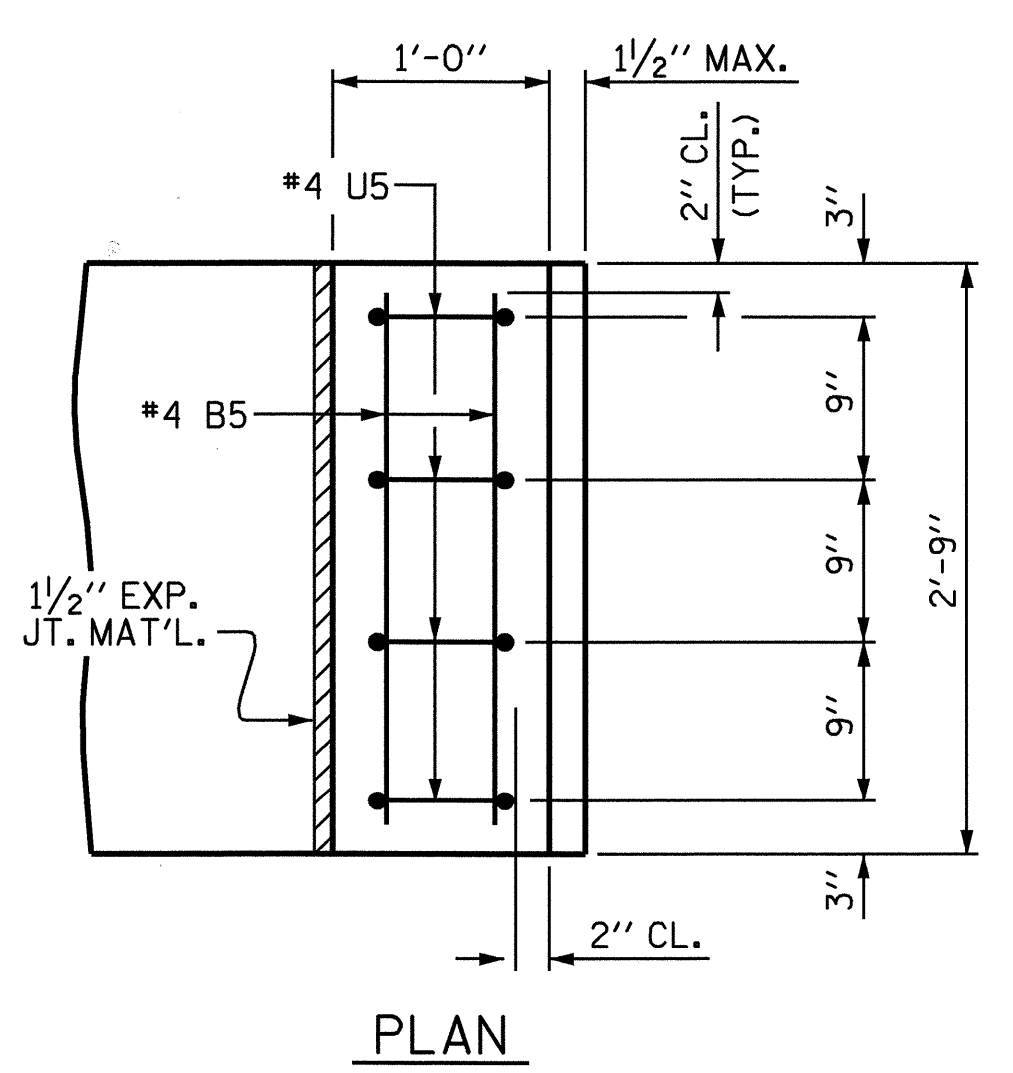


ALL BAR DIMENSIONS ARE OUT TO OUT.

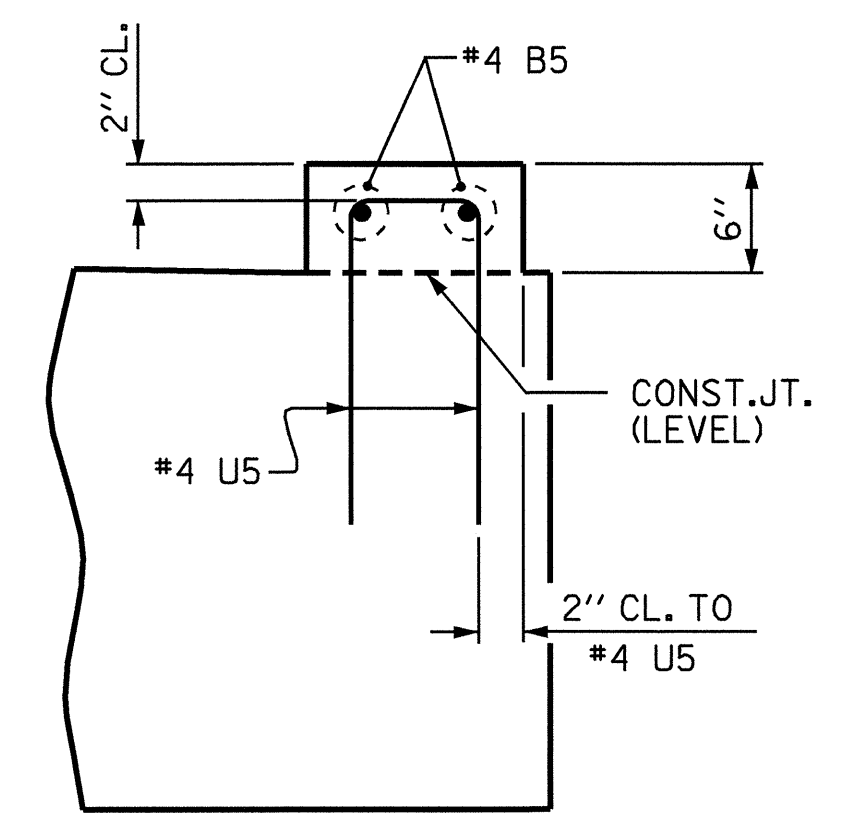
BILL OF MATERIAL					
BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	46'-6"	632
B2	4	#9	STR	44'-2"	601
B3	2	#5	STR	44'-2"	92
B4	8	#4	STR	23'-4"	125
B5	16	#4	STR	2'-5"	26
B6	4	#4	STR	14'-6"	39
D1	56	#6	STR	1'-6"	126
S1	46	#5	2	7'-7"	364
S2	18	#4	3	6'-6"	78
U1	10	#4	4	5'-5"	36
U2	4	#4	4	5'-3"	14
U3	6	#4	4	5'-0"	20
U4	2	#9	4	15'-7"	106
U5	8	#4	4	3'-6"	19
REINFORCING STEEL					LBS. 2,278
CLASS A CONCRETE BREAKDOWN :					
POUR #1 - CAP				CU. YDS.	12.2
POUR #2 - LATERAL GUIDES				CU. YDS.	0.1
TOTAL				CU. YDS.	12.3
HP 12 x 53 GALVANIZED STEEL PILES					
NO. = 9				LN. FT.	360



VIEW X-X
(TYP. BOTH ENDS)



PLAN



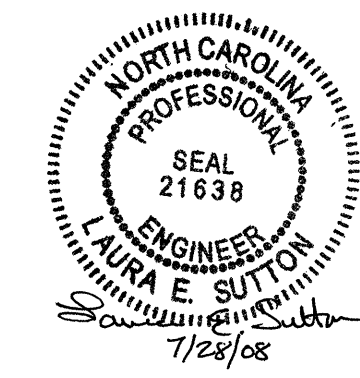
ELEVATION

LATERAL GUIDE DETAIL

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-
 SHEET 2 OF 2

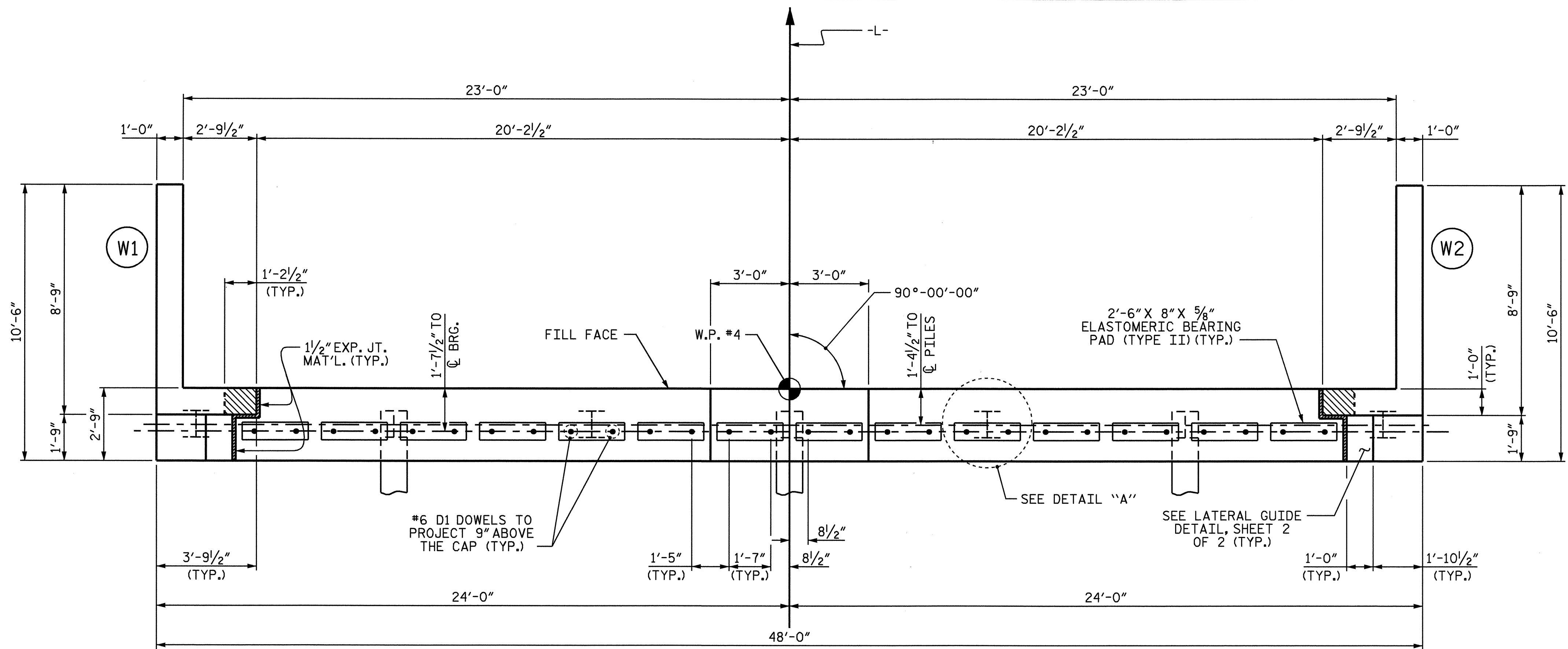
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2

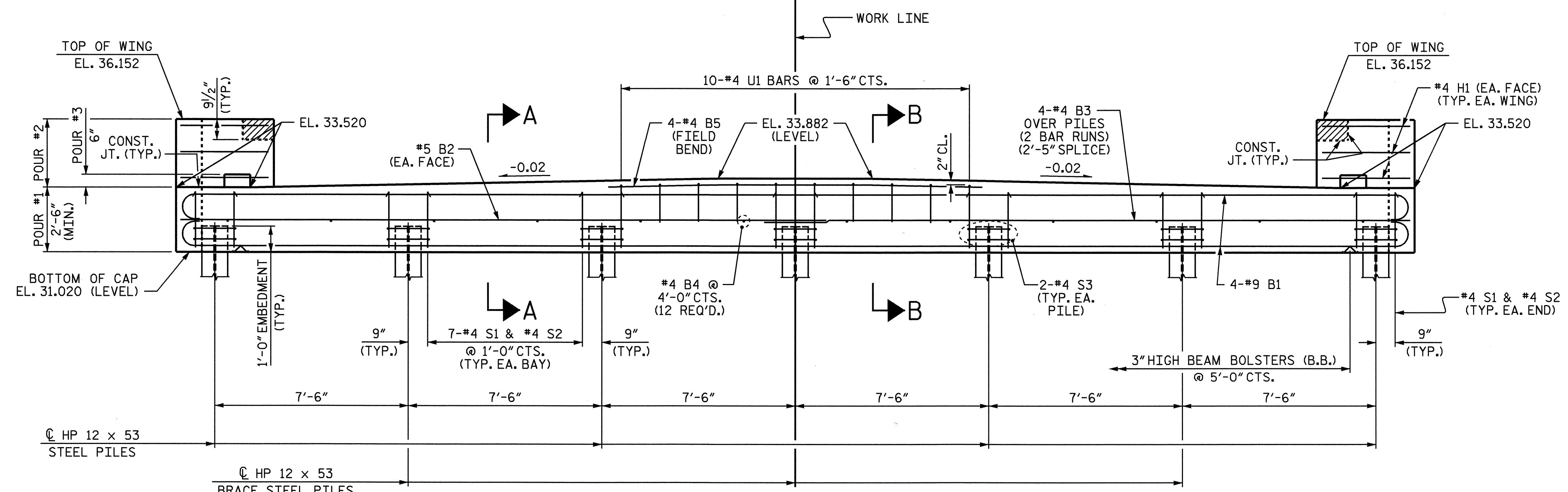


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			TOTAL SHEETS 49

DRAWN BY : L.E. SUTTON DATE : 5/01/08
 CHECKED BY : S.M. RASHIDI DATE : 5/13/08



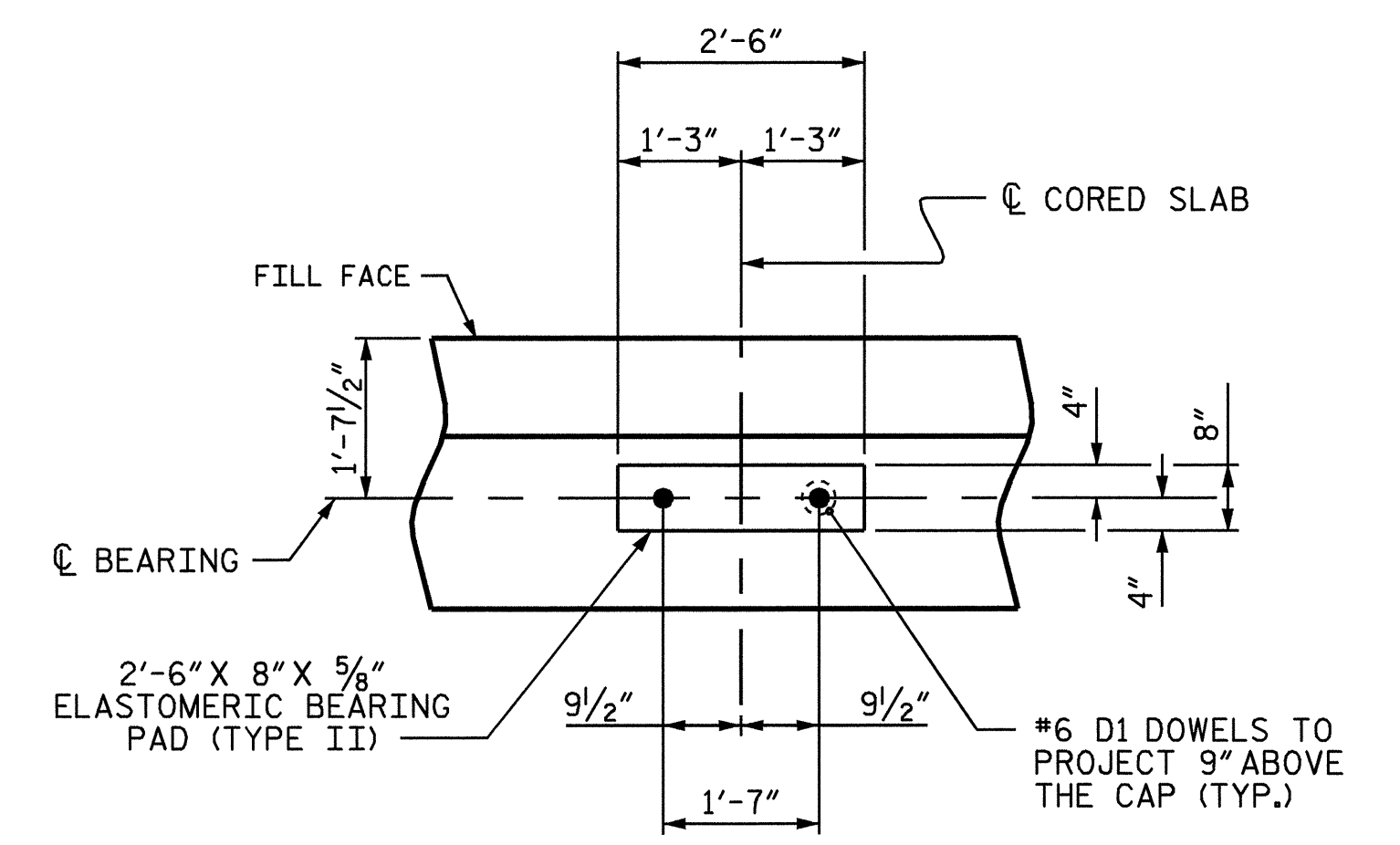
PLAN



ELEVATION

NOTES

- STIRRUPS AND U1 BARS 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 THE CORED SLAB UNITS ARE IN PLACE.
- THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE CONCRETE WEARING SURFACE AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR TEMPORARY DRAINAGE AT END BENT, SEE END BENT 1.



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

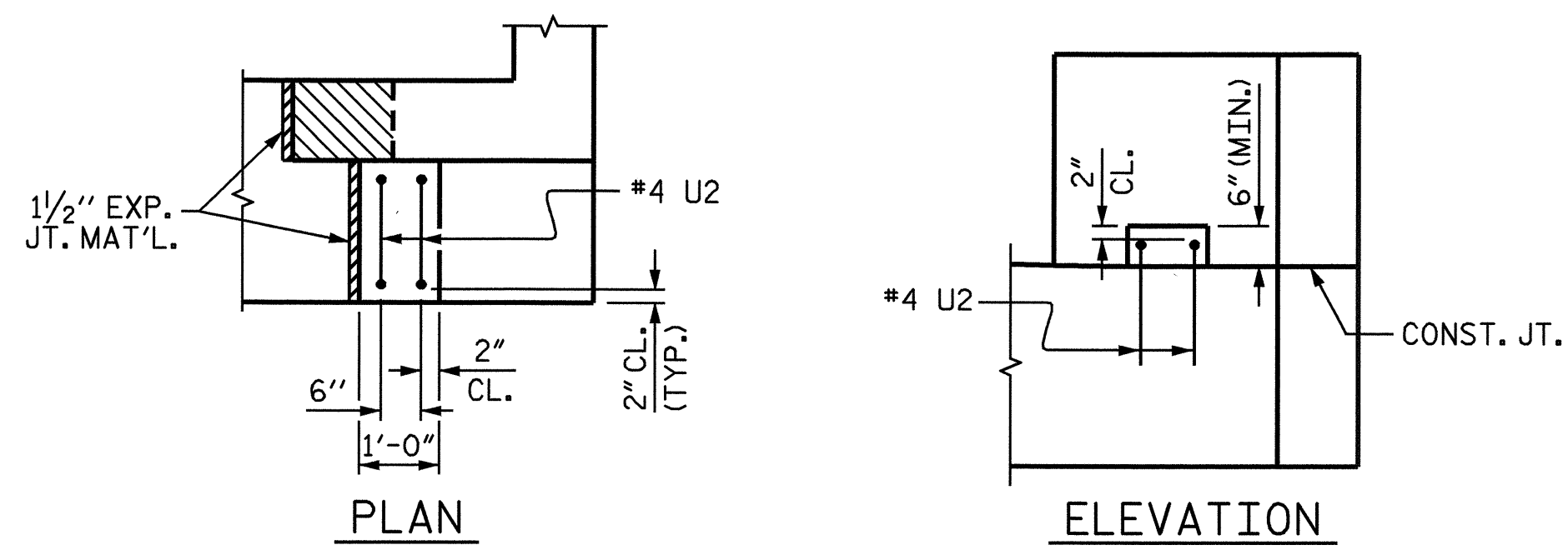
PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 1 OF 2

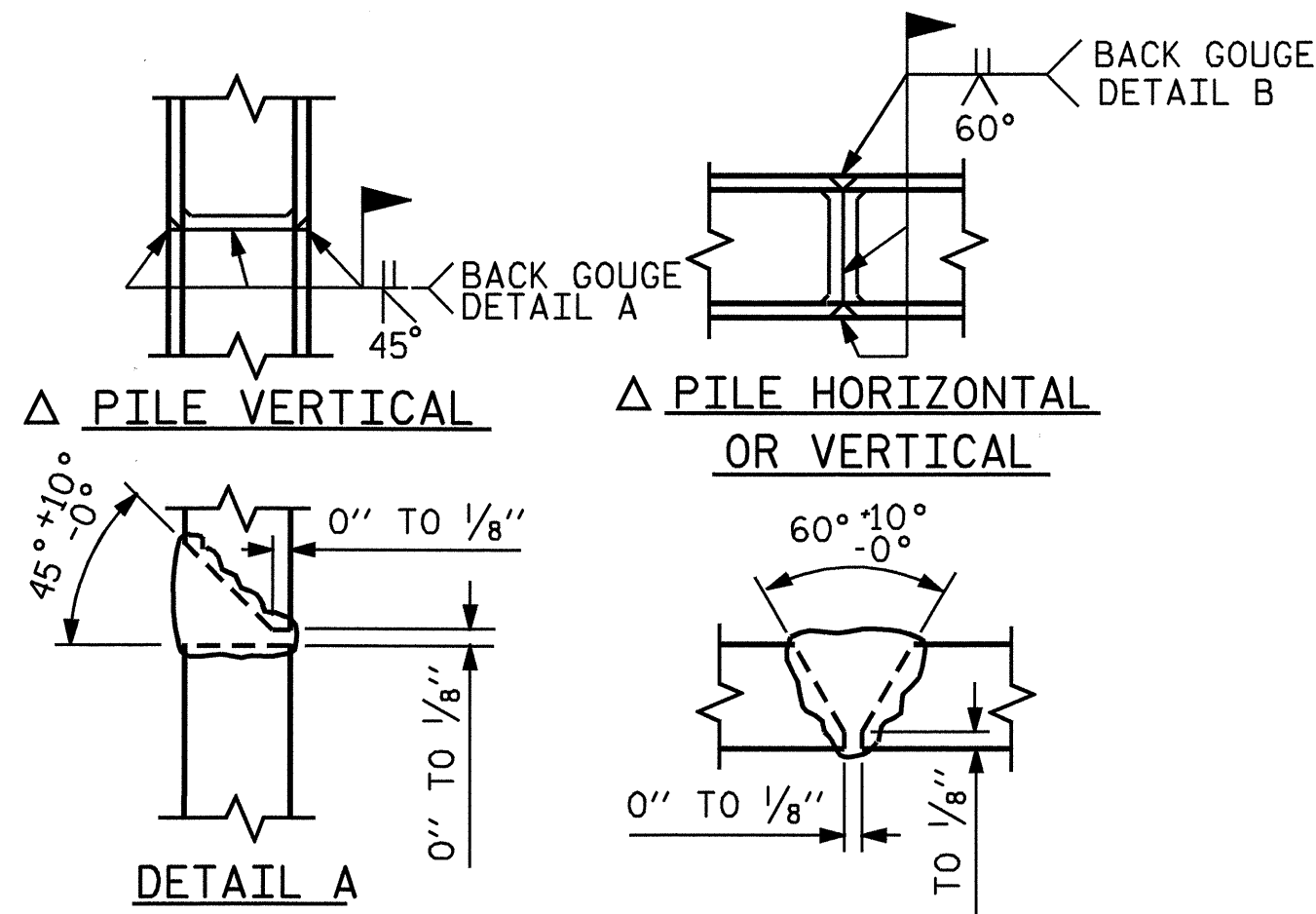
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-17
					TOTAL SHEETS 49



DRAWN BY: L.E. SUTTON DATE: 5/05/08
 CHECKED BY: S.M. RASHIDI DATE: 5/12/08

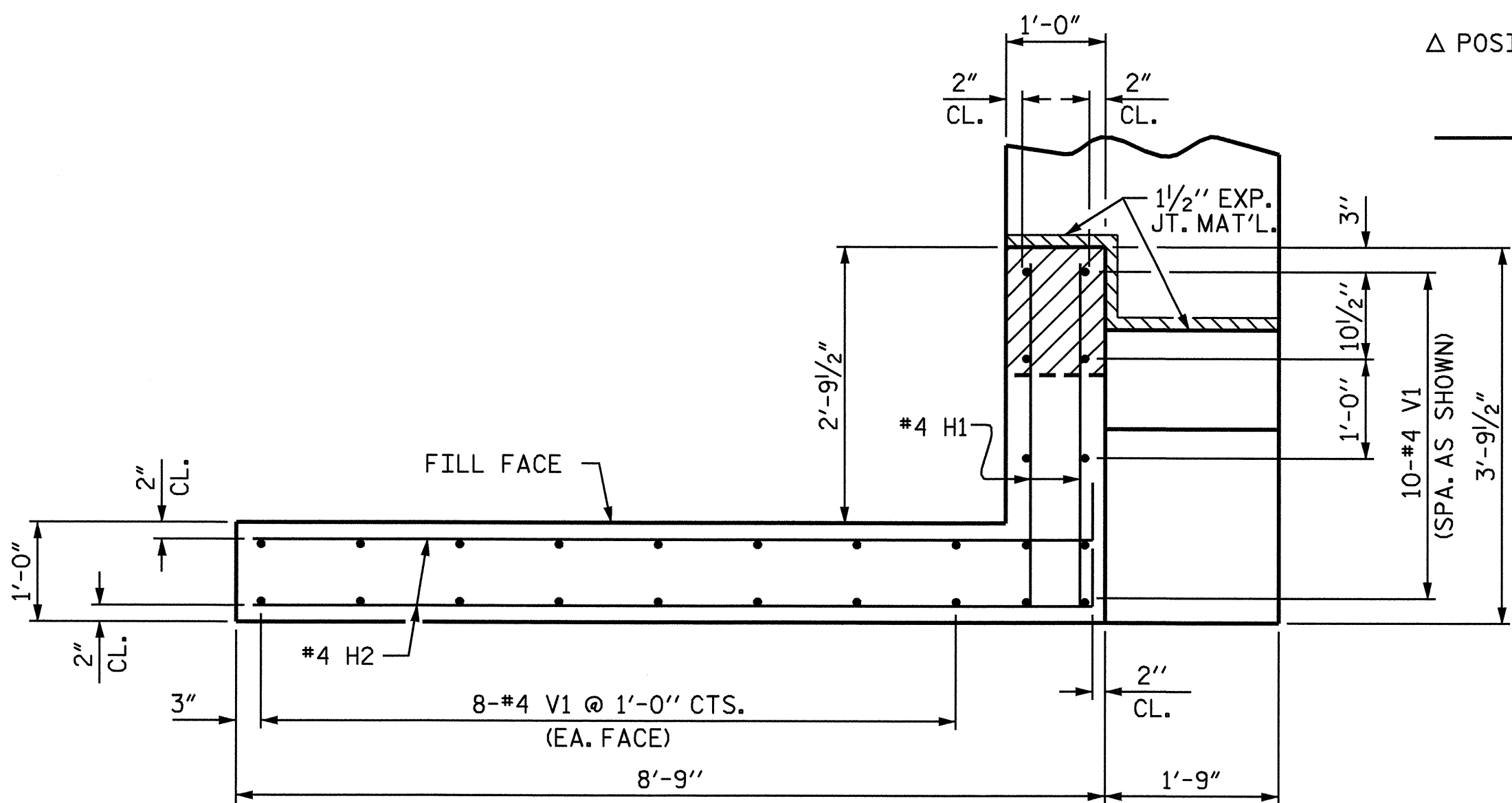


LATERAL GUIDE DETAILS
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

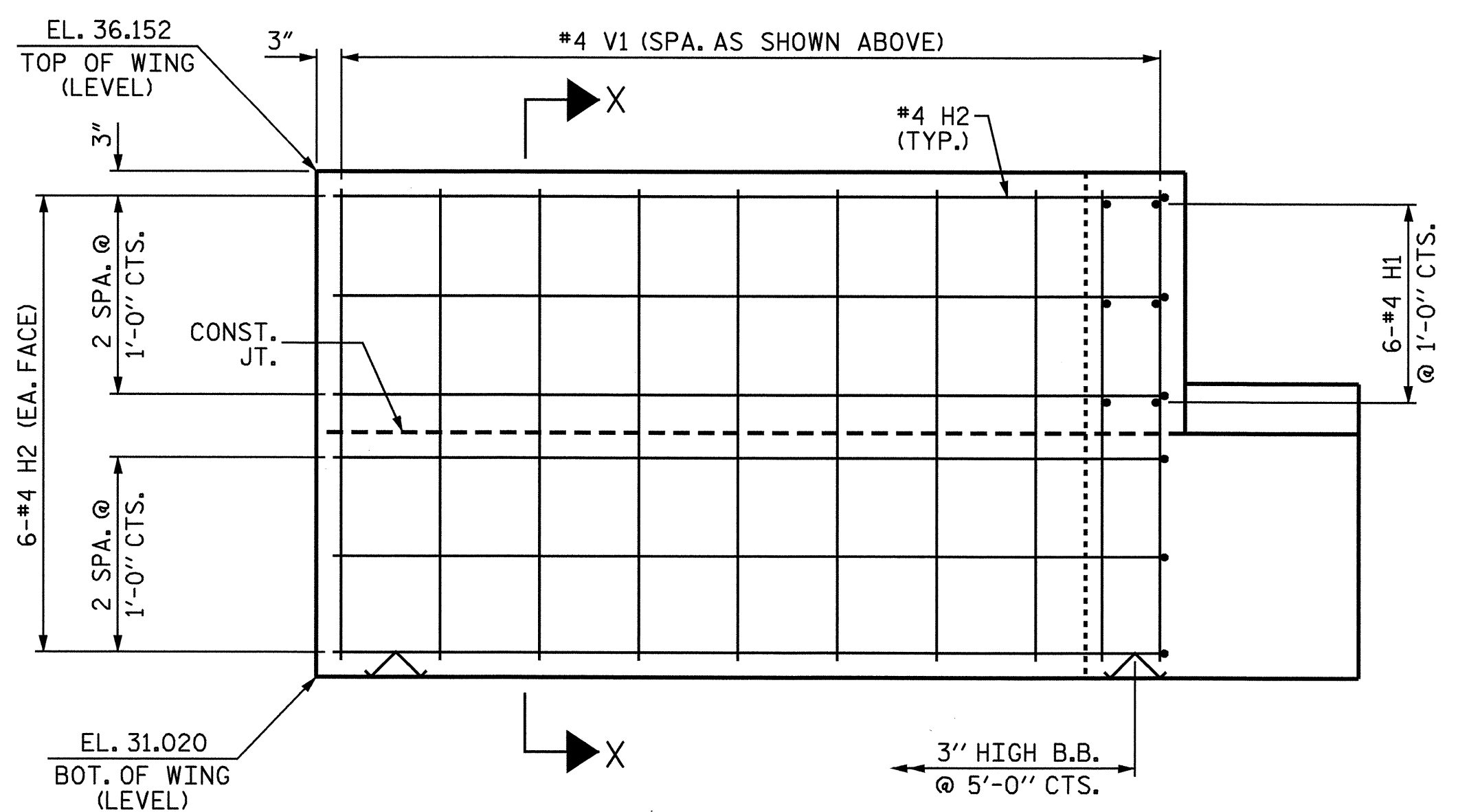


PILE SPLICE DETAILS
△ POSITION OF PILE DURING WELDING.

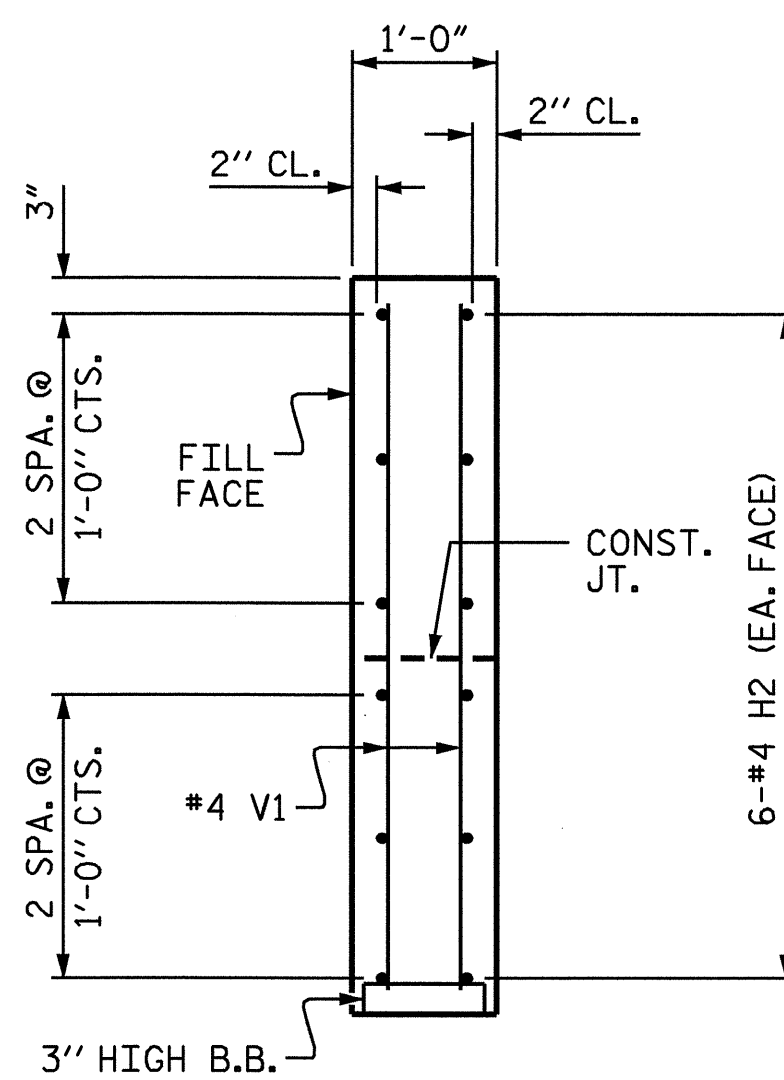
BAR TYPES					BILL OF MATERIAL							
					END BENT 2							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	50'-0"	1360	D1	28	#6	STR	1'-6"	63	
B2	2	#5	STR	47'-8"	99	H1	12	#4	STR	3'-5"	27	
B3	8	#4	STR	25'-1"	134	H2	24	#4	2	9'-1"	146	
B4	12	#4	STR	2'-5"	19	S1	44	#4	3	7'-5"	218	
B5	4	#4	STR	14'-6"	39	S2	44	#4	4	3'-2"	93	
						S3	14	#4	5	6'-6"	61	
						U1	10	#4	6	5'-5"	36	
						U2	4	#4	6	4'-5"	12	
						V1	52	#4	STR	4'-9"	165	
REINFORCING STEEL										LBS.	2,472	
CLASS A CONCRETE BREAKDOWN :												
POUR #1 - CAP & LOWER WINGS										CU. YDS.	14.5	
POUR #2 - UPPER WINGS										CU. YDS.	2.3	
POUR #3 - LATERAL GUIDES										CU. YDS.	0.1	
TOTAL										CU. YDS.	16.9	
HP 12 x 53 STEEL PILES										NO. = 7	LIN. FT.	280



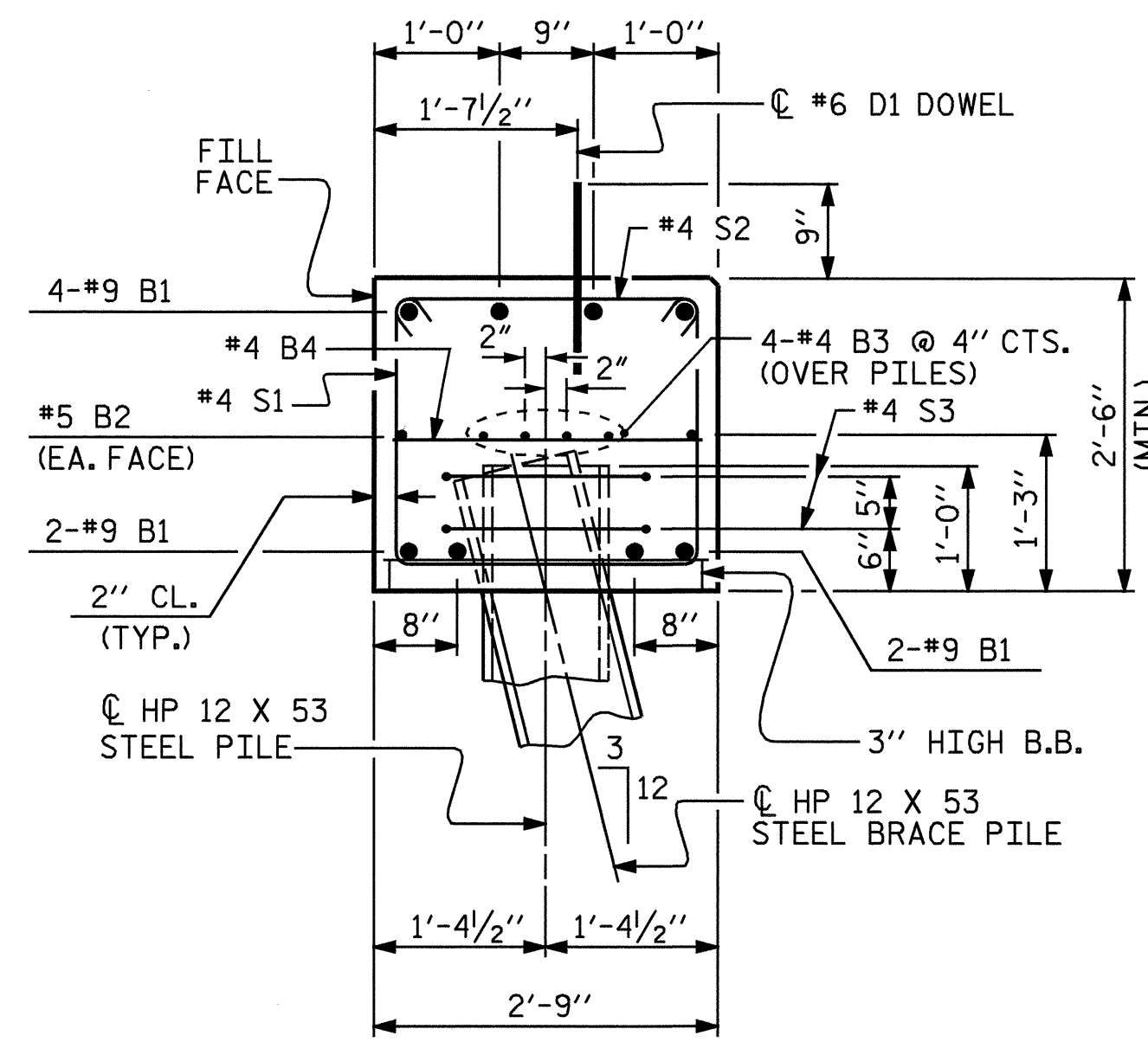
PLAN OF WING (W1)
(WING W2 SIMILAR)



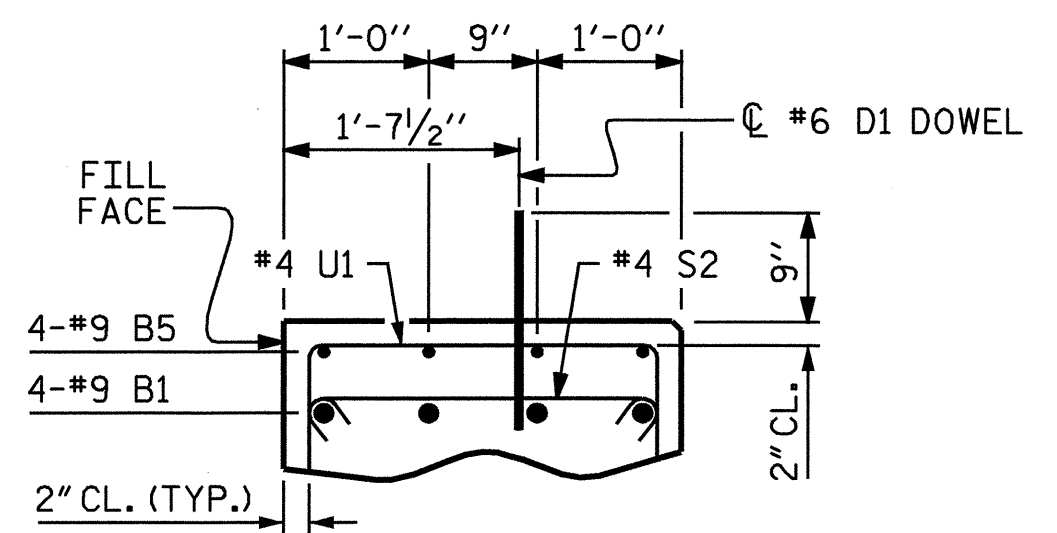
ELEVATION OF WING (W1)
(WING W2 SIMILAR)



SECTION X-X



SECTION A-A



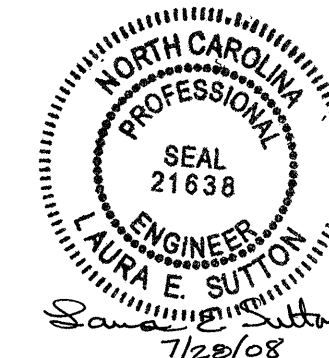
PART SECTION B-B

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

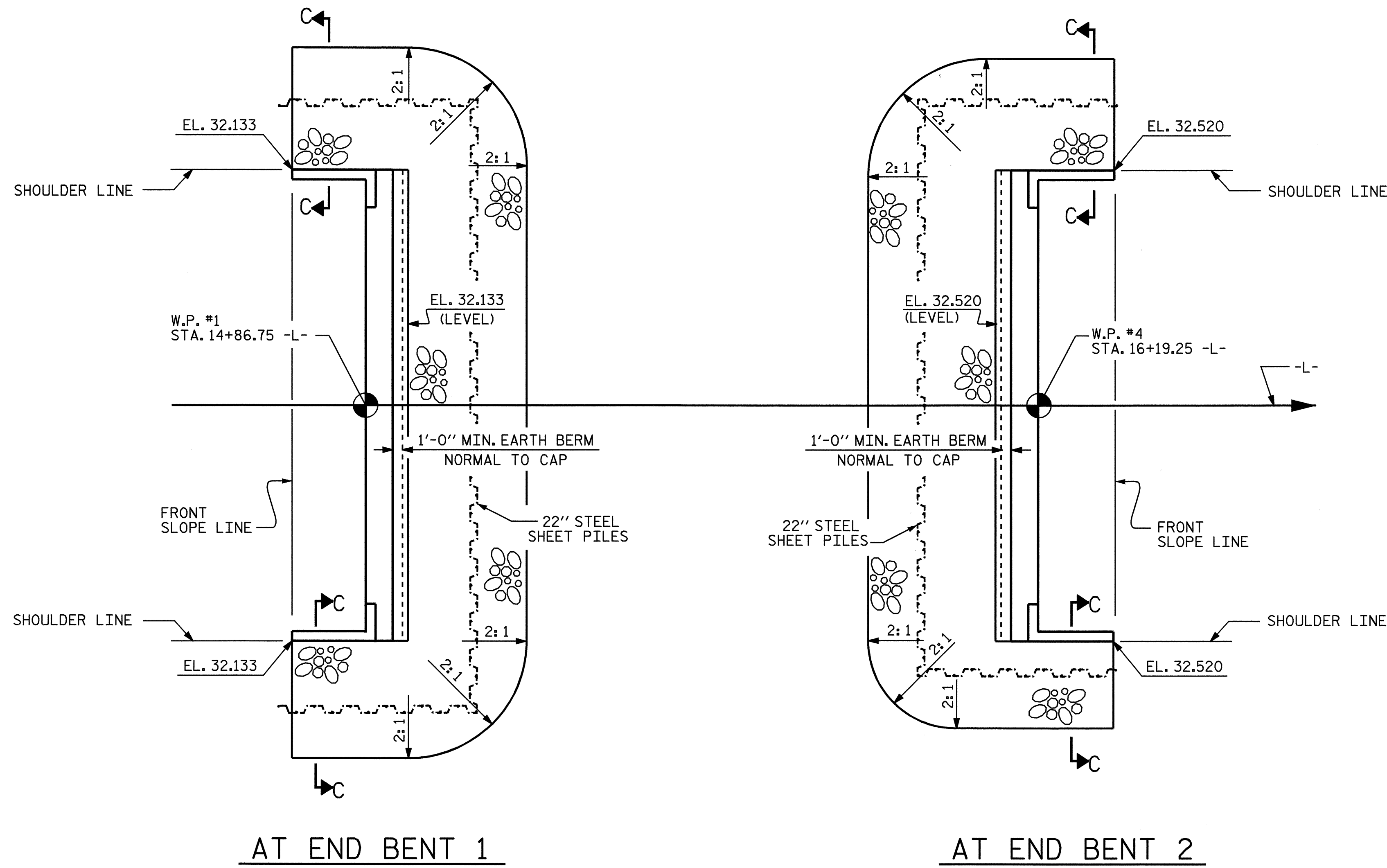


DRAWN BY: L.E. SUTTON DATE: 5/05/08
 CHECKED BY: S.M. RASHIDI DATE: 5/12/08

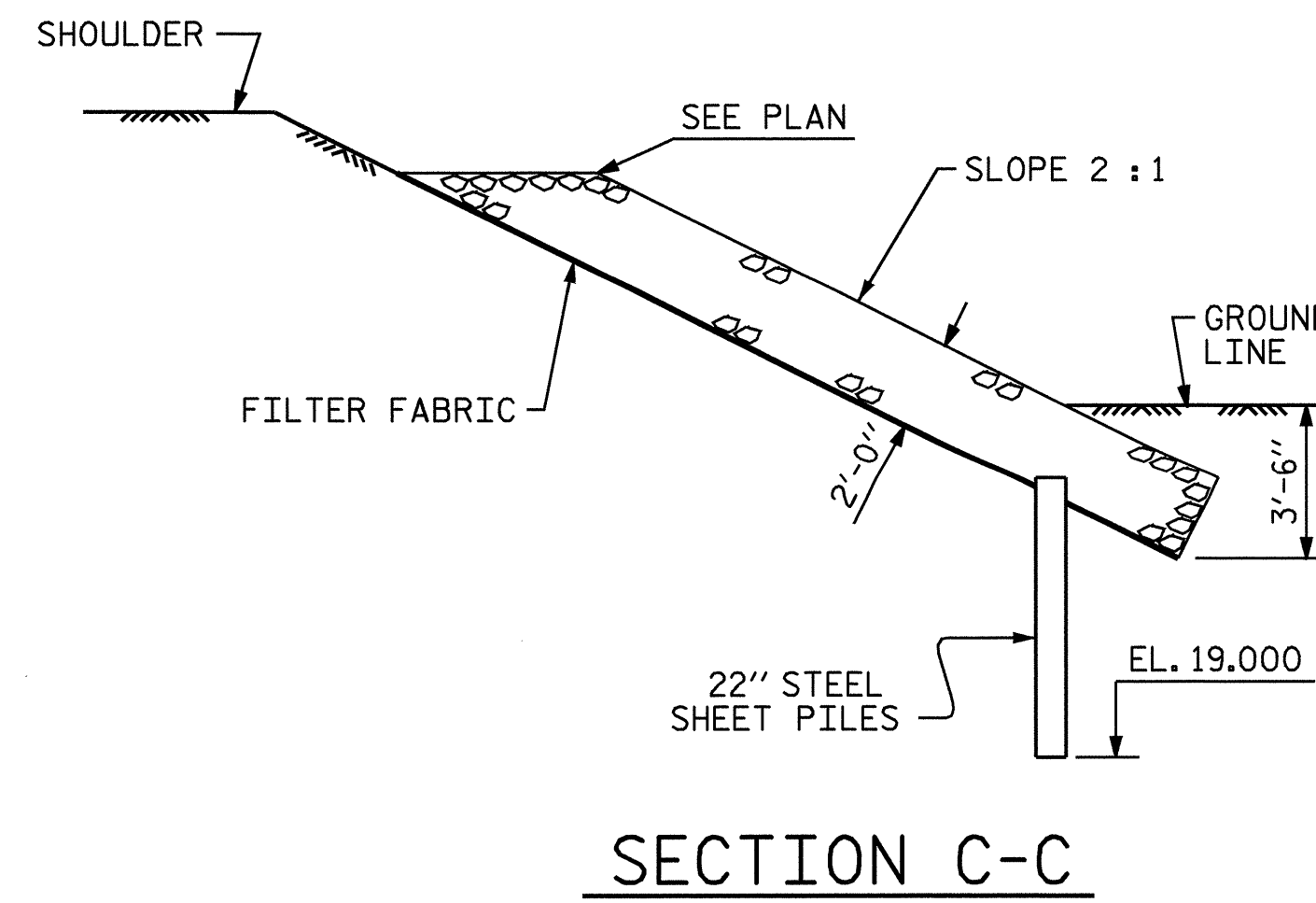
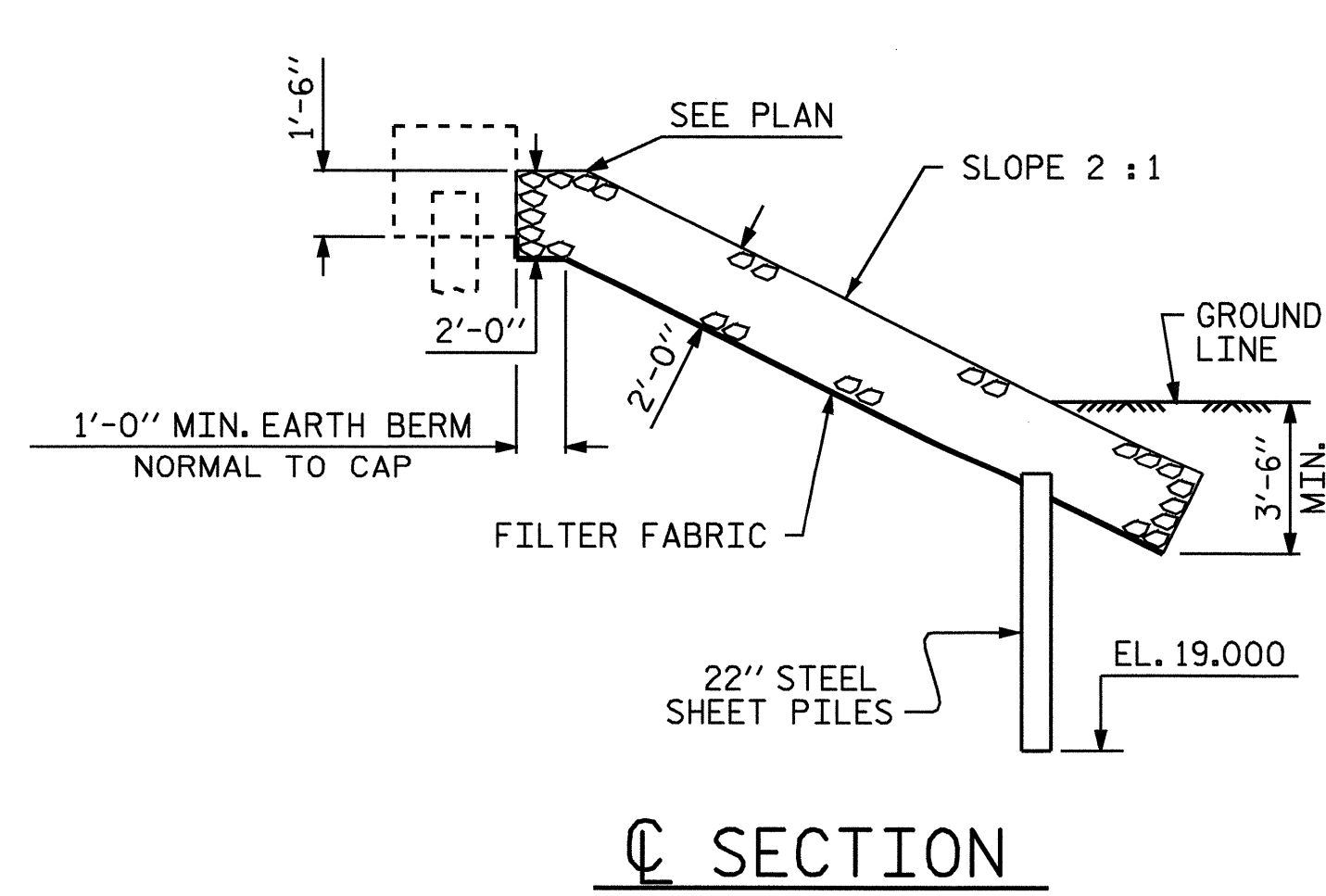
25-JUL-2008 14:44
 RA Structures\Sutton\B4078.sd.e*01.dgn
 LSUTTON

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			49

NOTES:
 STEEL SHEET PILES ARE REQUIRED FOR SLOPE
 STABILIZATION. SEE SPECIAL PROVISIONS.



ESTIMATED QUANTITIES			
BRIDGE @ STA. 15+53.00 -L-	22" STEEL SHEET PILES	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	SQ. FT.	TONS	SQUARE YARDS
END BENT 1	750	122	135
END BENT 2	723	128	142



PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

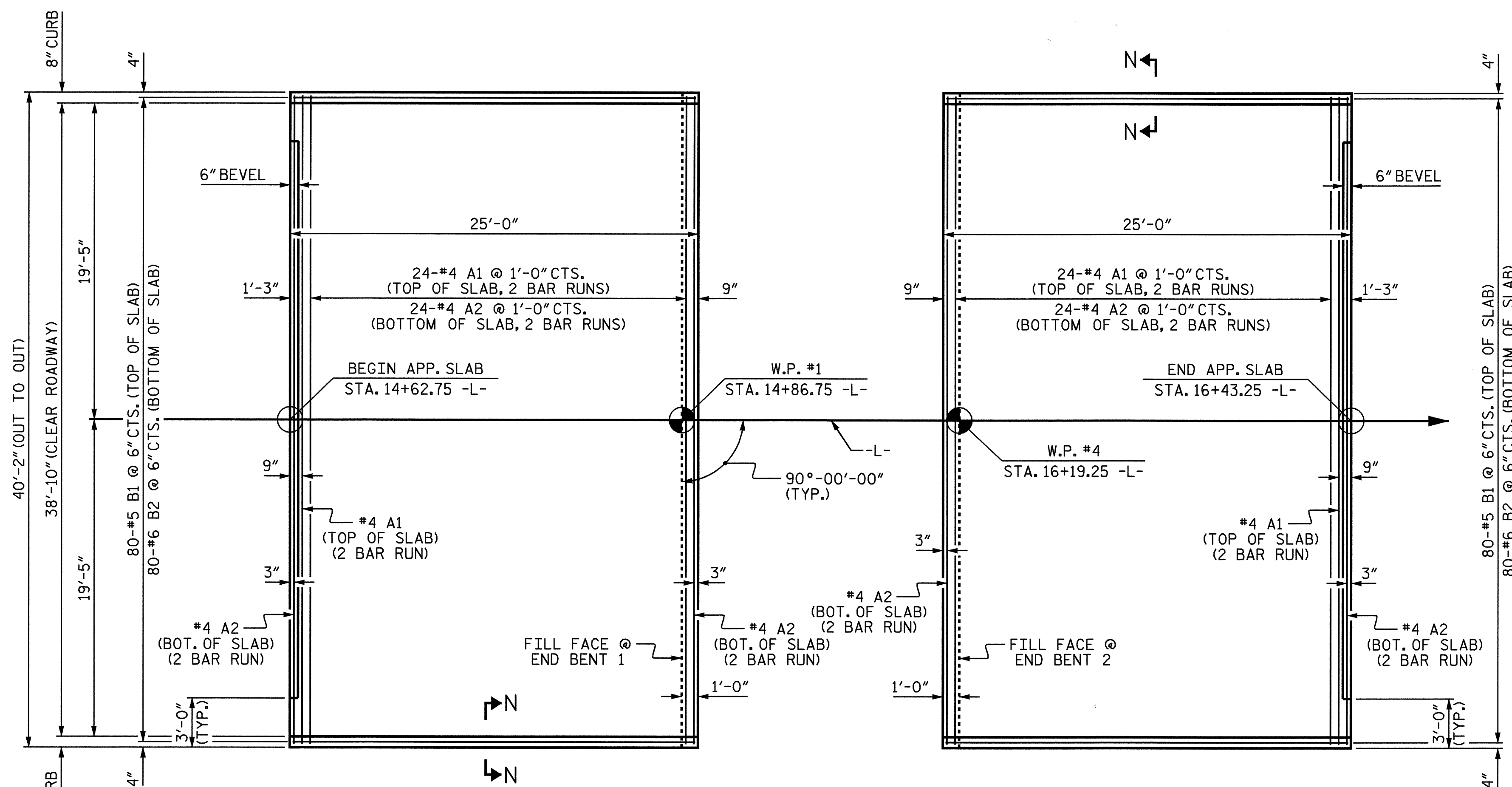
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS



ASSEMBLED BY : A.S. CALLAWAY DATE : 4/29/08
 CHECKED BY : W.F. PARKER DATE : 5/6/08
 DRAWN BY : FCJ 2/88
 CHECKED BY : ARB 8/88

REV. 8/16/99 RWW/LES
 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			49



PLAN @ END BENT 1

PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

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

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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

WITH EVAZOTE JOINT SEAL
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3 1/16".

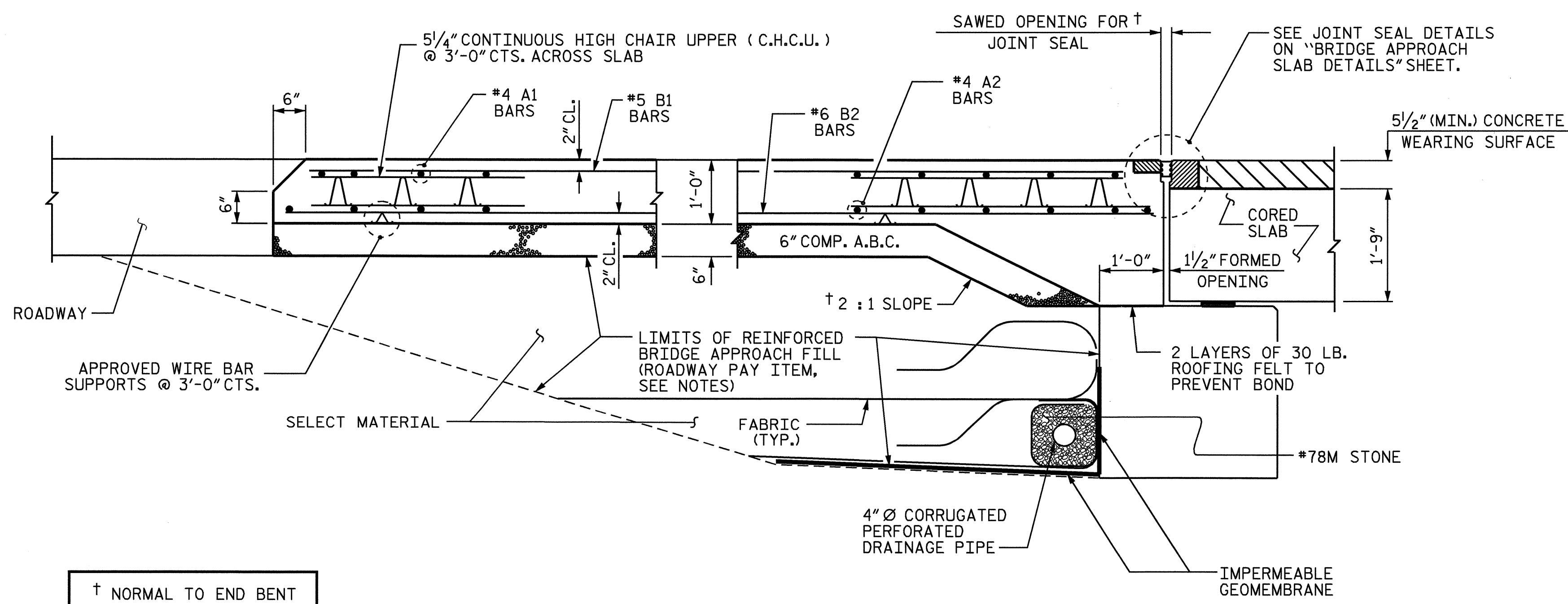
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

WITH CONCRETE WEARING SURFACE
APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

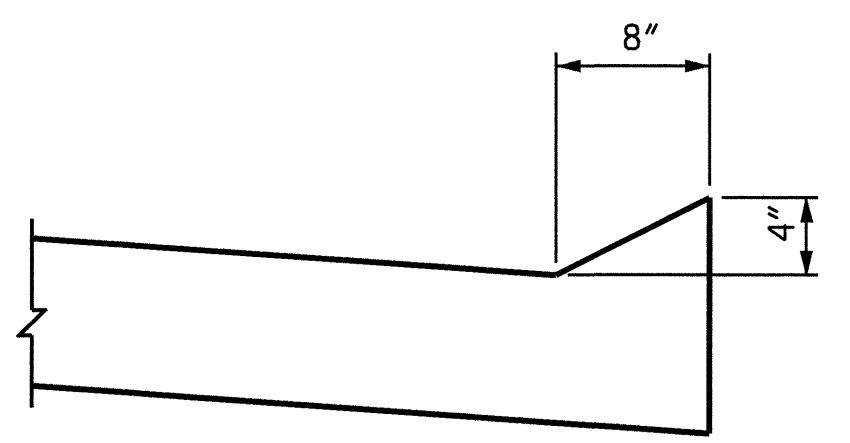
THE JOINT SHALL BE SAWS AFTER THE CASTING OF THE BARRIER RAIL.

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	20'-11"	699
A2	52	#4	STR	20'-10"	724
*B1	80	#5	STR	23'-9"	1982
B2	80	#6	STR	24'-8"	2964
REINFORCING STEEL				LBS.	3,688
*EPOXY COATED REINFORCING STEEL				LBS.	2,681
CLASS AA CONCRETE				CU. YDS.	41.2
APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	20'-11"	699
A2	52	#4	STR	20'-10"	724
*B1	80	#5	STR	23'-9"	1982
B2	80	#6	STR	24'-8"	2964
REINFORCING STEEL				LBS.	3,688
*EPOXY COATED REINFORCING STEEL				LBS.	2,681
CLASS AA CONCRETE				CU. YDS.	41.2

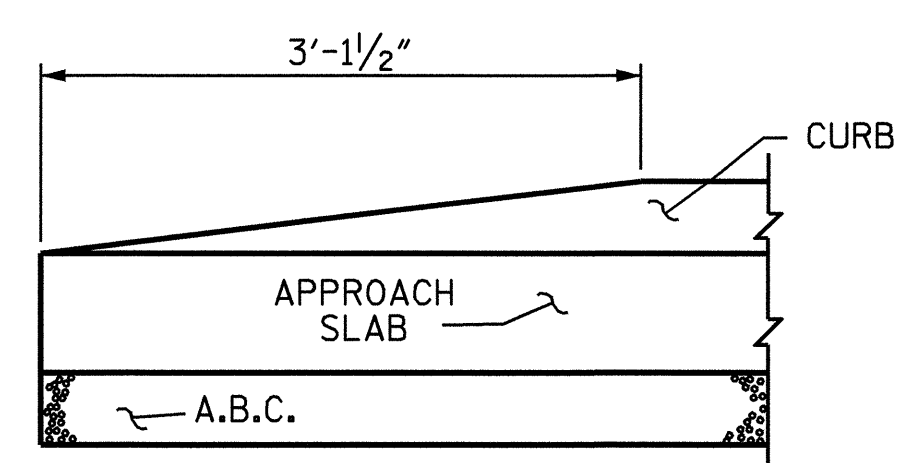
SPLICE CHART		
BAR	SIZE	SPLICE
A1	#4	2'-0"
A2	#4	1'-9"



SECTION THRU SLAB



SECTION N-N

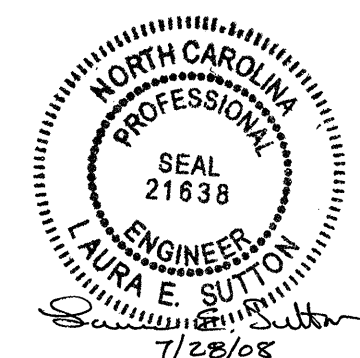


END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

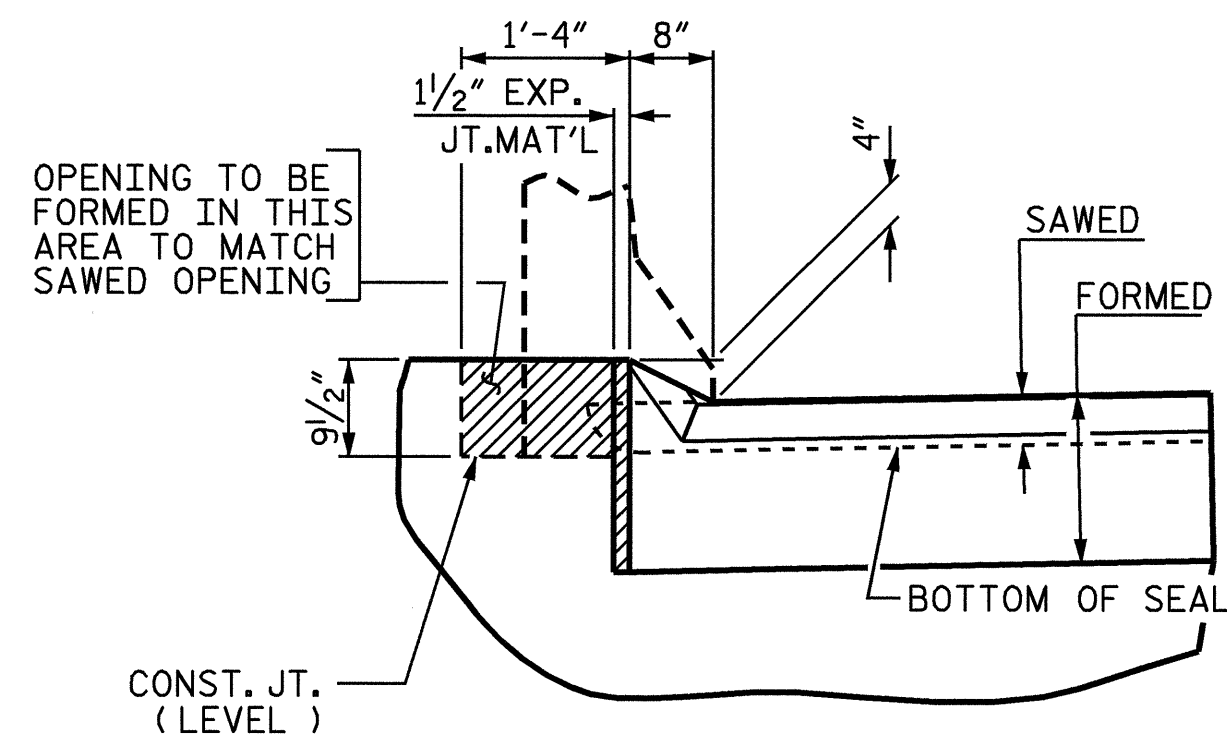
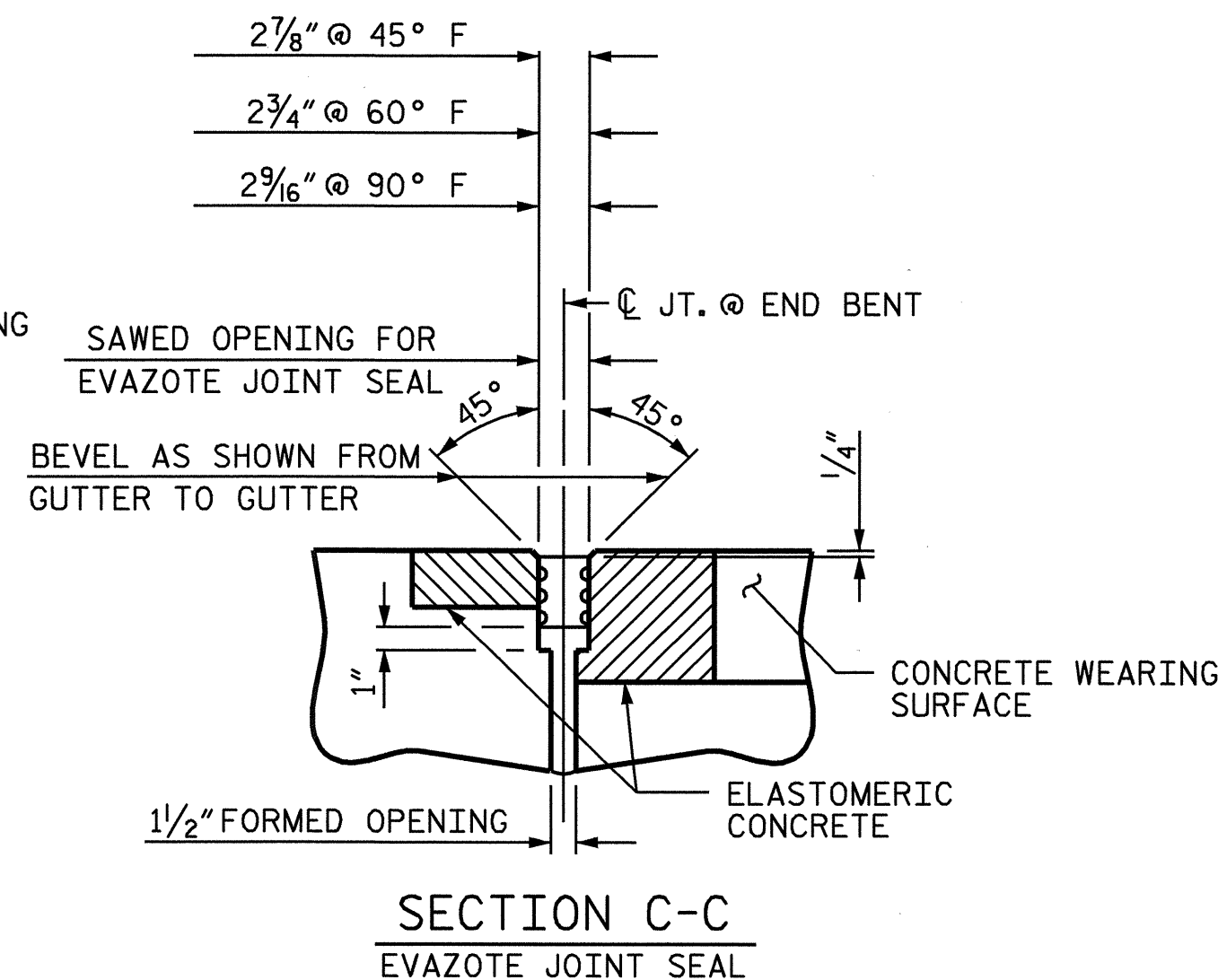
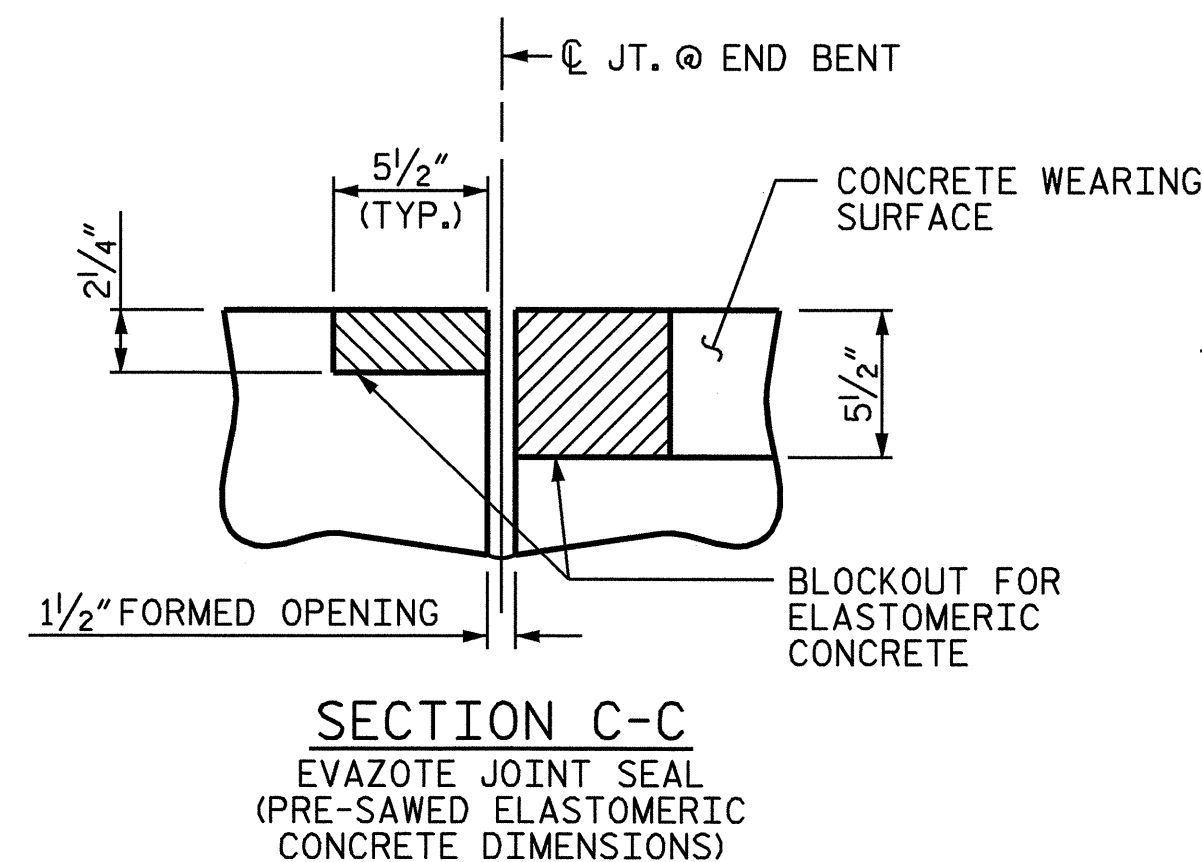
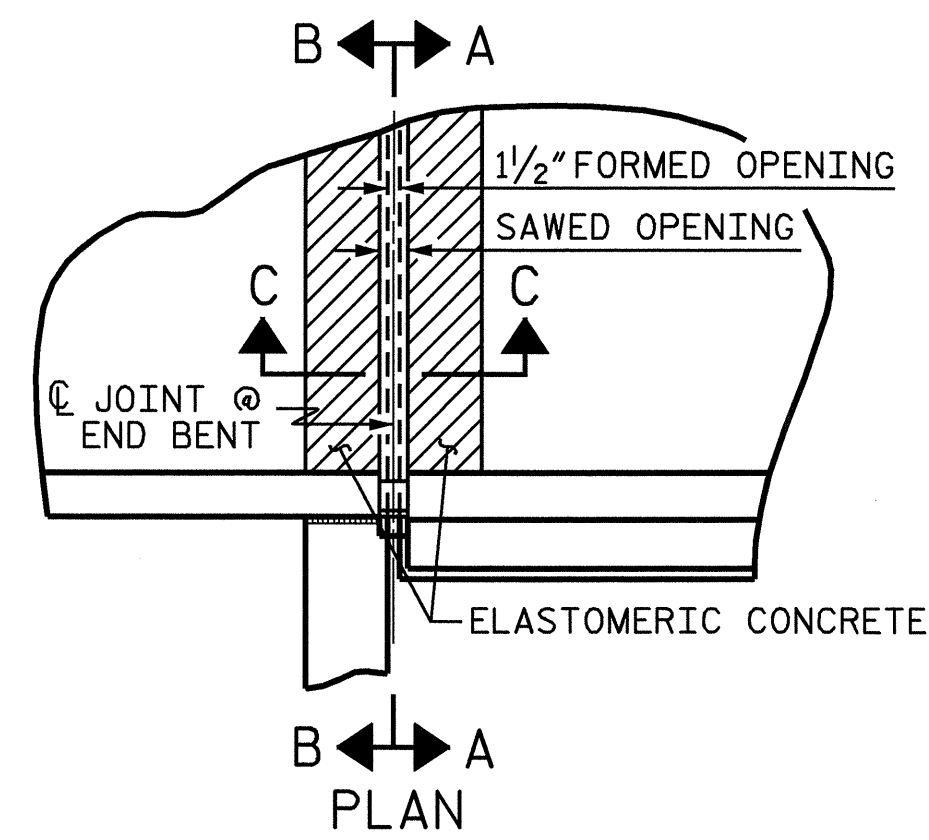
PROJECT NO. B-4078
COLUMBUS COUNTY
STATION: 15+53.00 -L-

SHEET 1 OF 2
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB

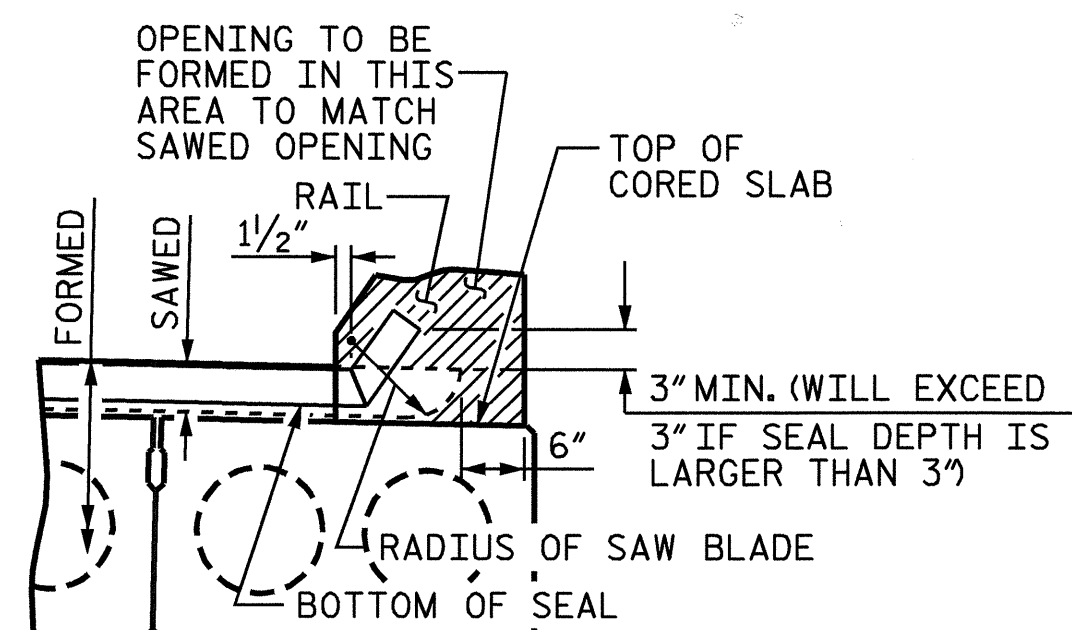


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			TOTAL SHEETS 49	
2			4				

ASSEMBLED BY: L.E. SUTTON	DATE: 4/25/08
CHECKED BY: W.F. PARKER	DATE: 4/30/08
DRAWN BY: FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY: EGA 6/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM



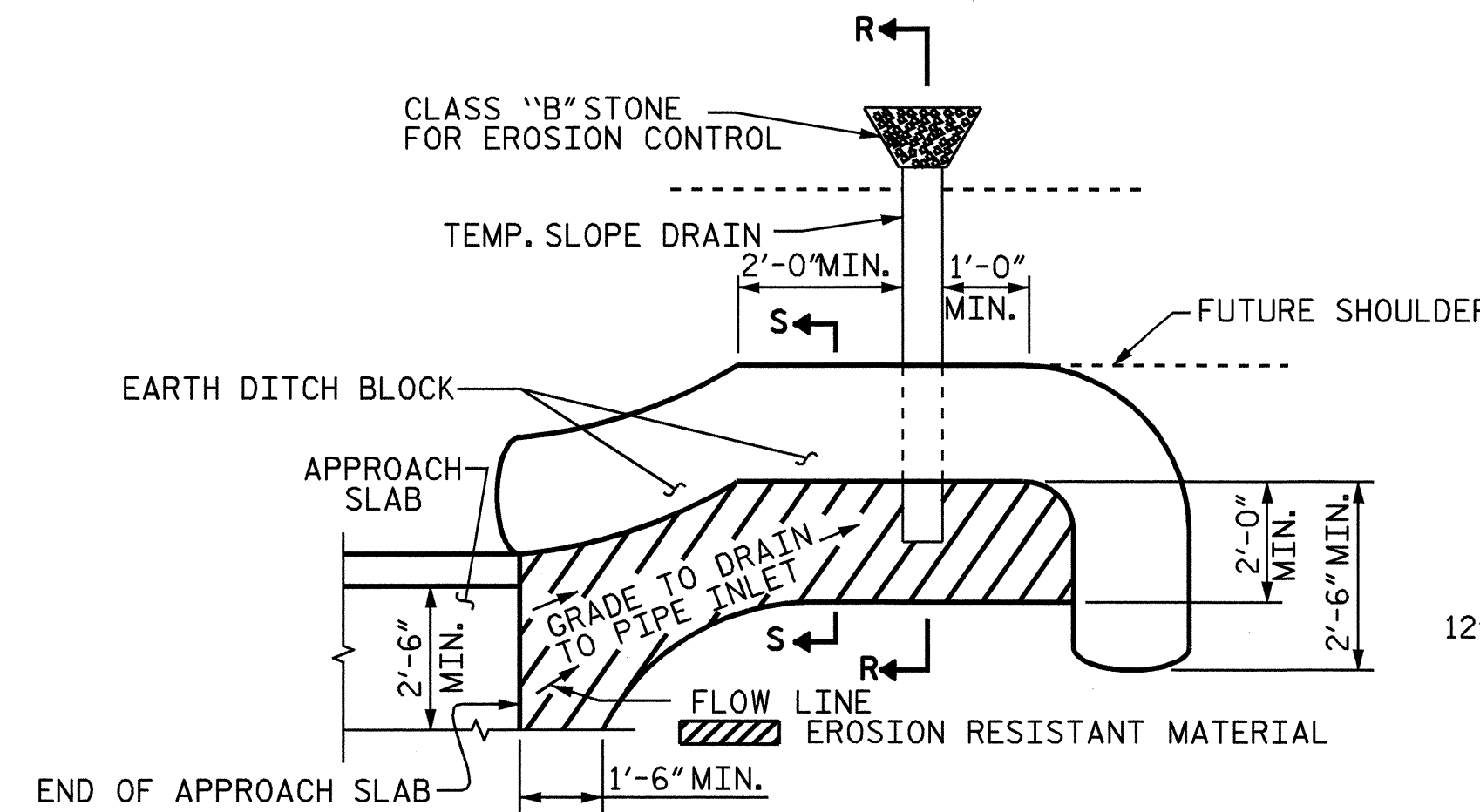
SECTION B-B



SECTION A-A

JOINT SEAL DETAILS @ END BENT

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

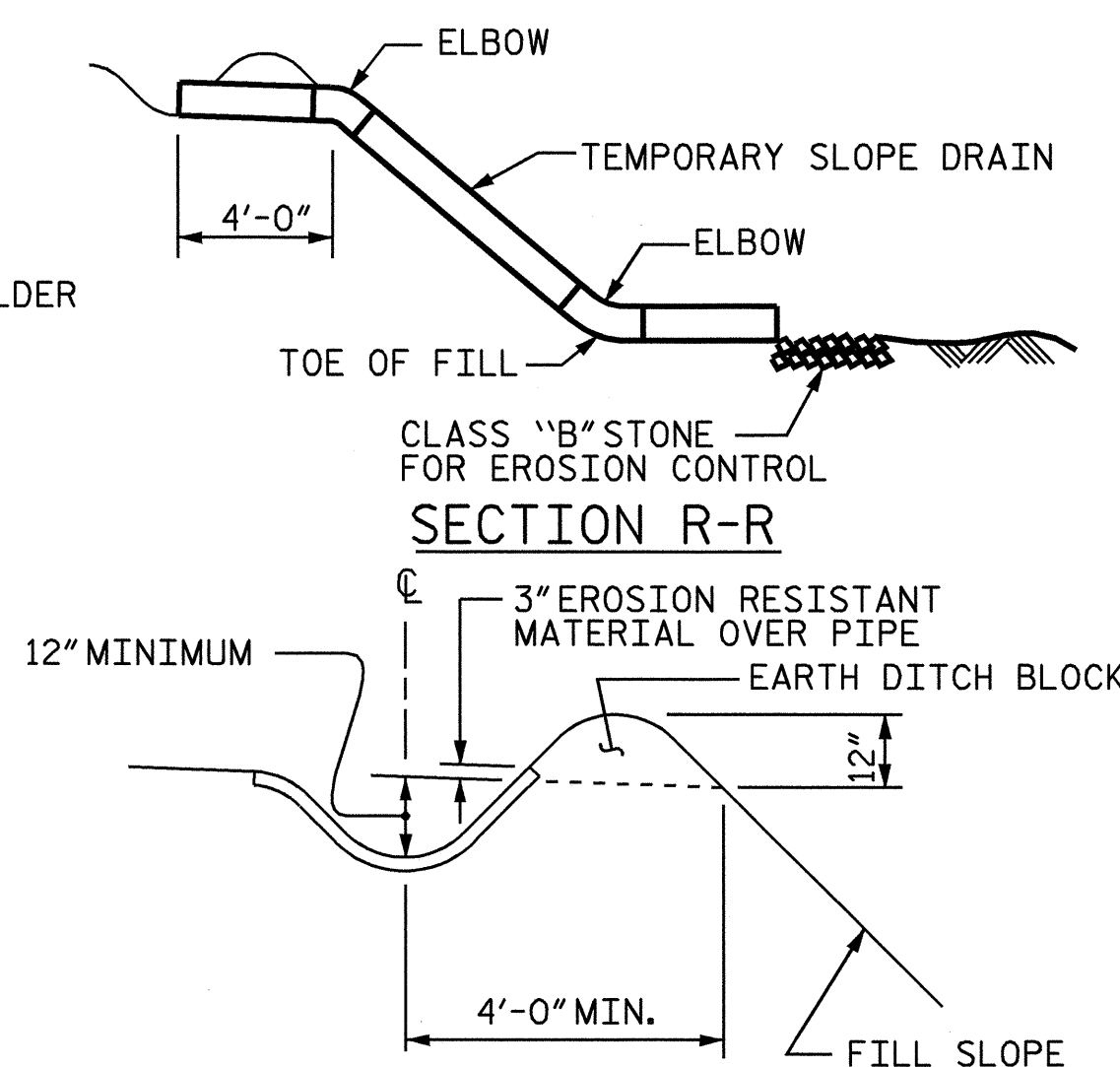


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

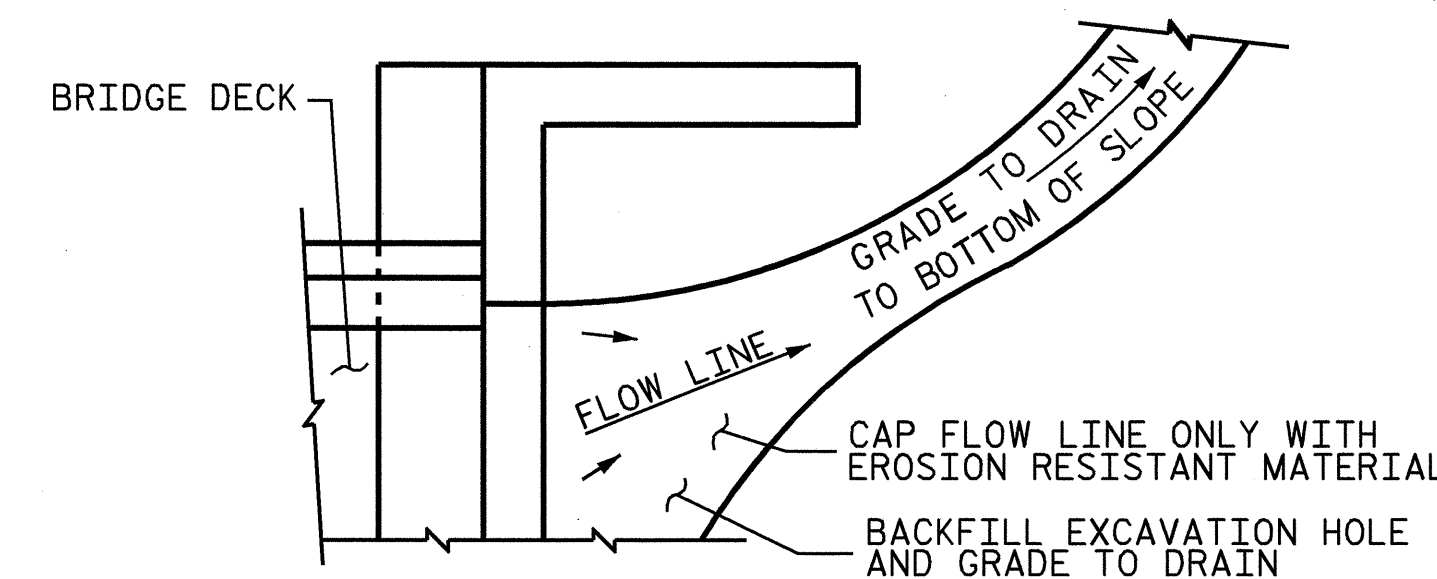
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION S-S



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

ELASTOMERIC CONCRETE	
END BENT	ELASTOMERIC CONCRETE ** (CU. FT.)
1	11.5
2	11.5
TOTAL	23.0

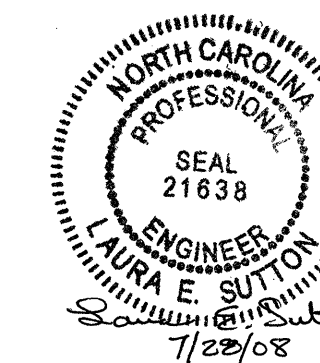
** BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. B-4078
COLUMBUS COUNTY
 STATION: 15+53.00 -L-

SHEET 2 OF 2

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

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	
2			4			49	



ASSEMBLED BY : L.E. SUTTON	DATE : 4/25/08
CHECKED BY : W.F. PARKER	DATE : 4/30/08
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/17/03 RWW/JTE
	REV. 5/1/06R MAA/KMM