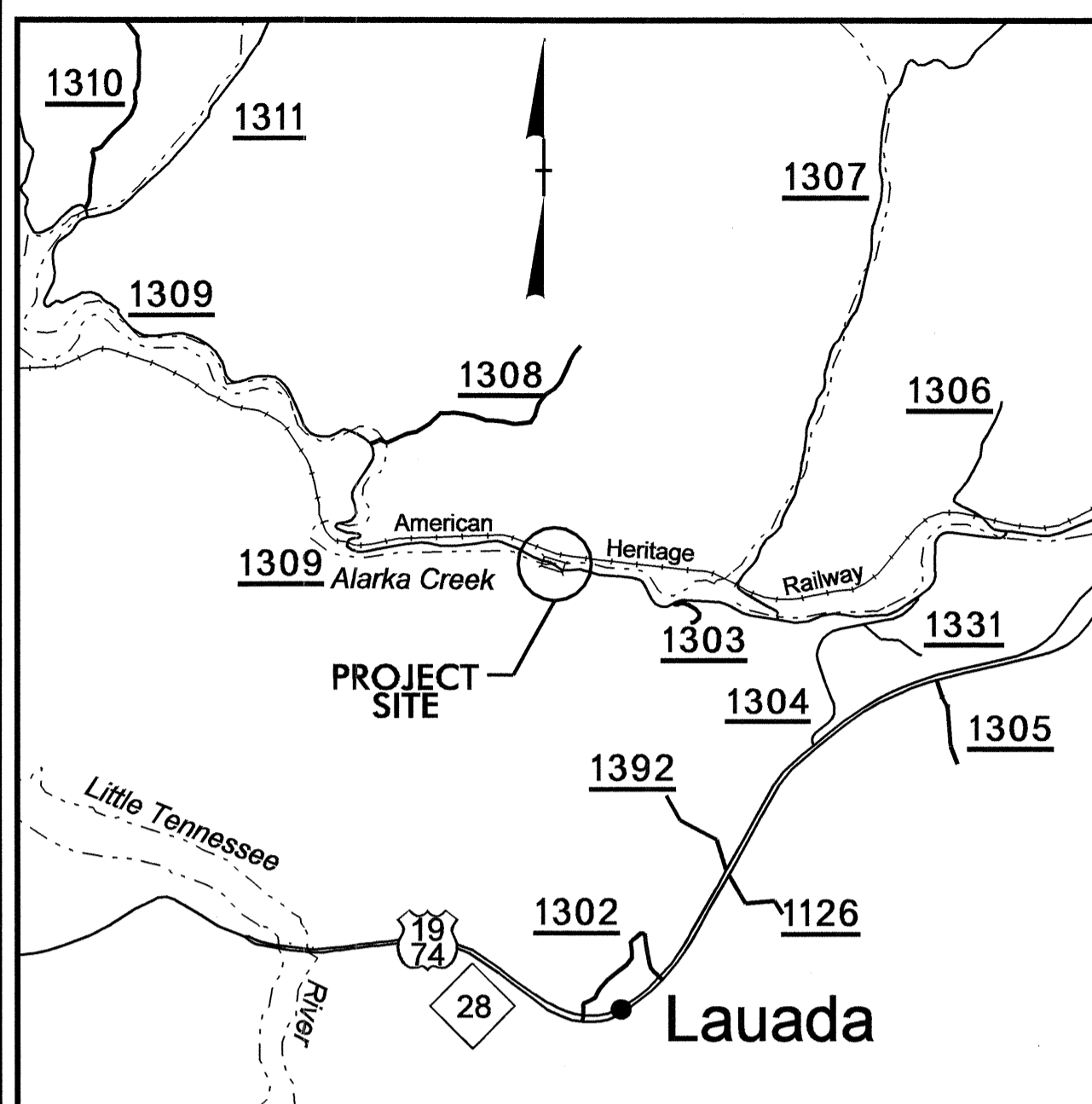


CONTRACT: C201426 TIP PROJECT: B-3701



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

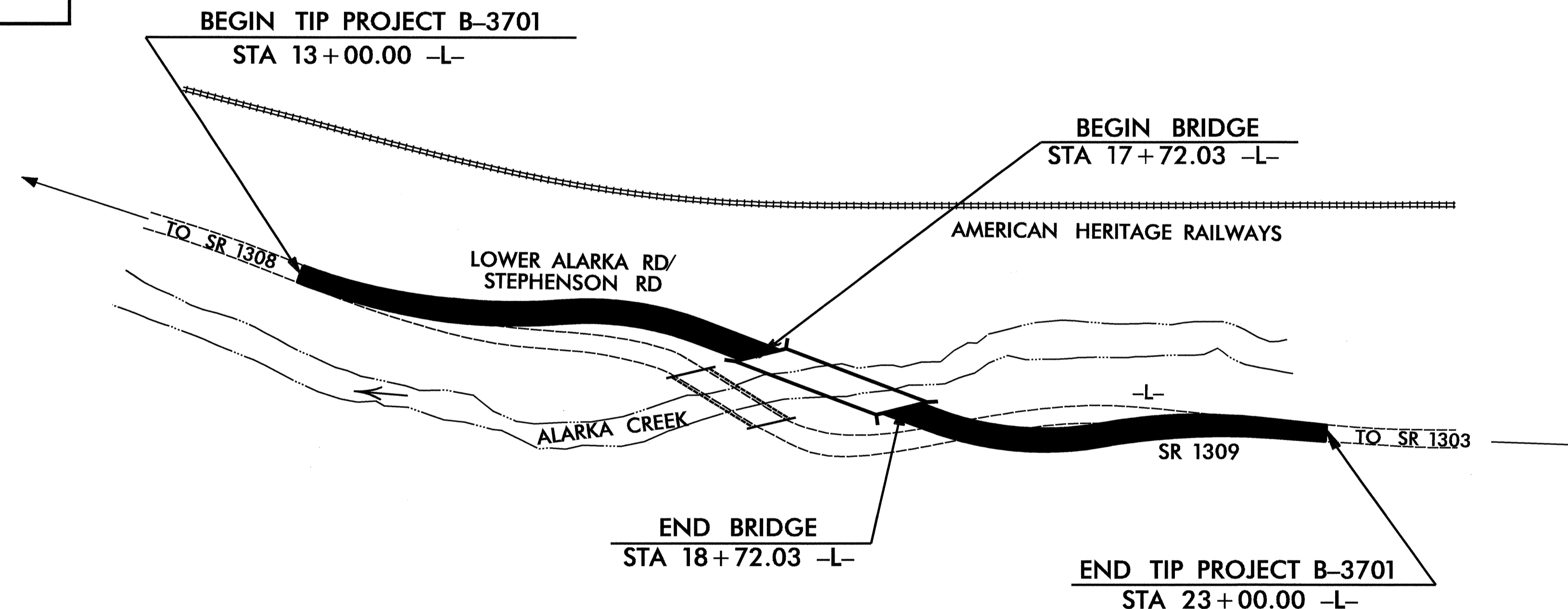
SWAIN COUNTY

**LOCATION: BRIDGE NO. 106 OVER ALARKA CREEK ON SR 1309
(LOWER ALARKA RD/STEPHENSON BRANCH RD)**

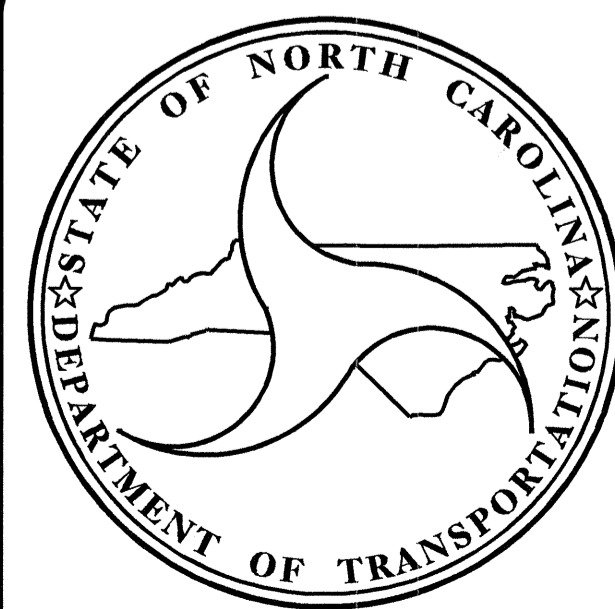
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, AND
RETAINING WALLS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3701		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33241.1.1	BRZ-1309(2)	PE	
33241.2.1	BRZ-1309(2)	R/W, UTILI.	
33241.3.1	BRZ-1309(2)	CONST.	

**STRUCTURE &
WALLS**



**DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED.



DESIGN DATA

ADT 2006 =	608
ADT 2026 =	916
DHV =	14 %
D =	65 %
T =	3 % *
V =	30 MPH**
* TTST 1 %	DUAL 2 %
POSTED =	55 MPH (STAT.)
FUNC. CLASS =	RURAL MINOR COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-3701	=	0.170 MILES
LENGTH OF STRUCTURE TIP PROJECT B-3701	=	0.019 MILES
TOTAL LENGTH OF TIP PROJECT B-3701	=	0.189 MILES

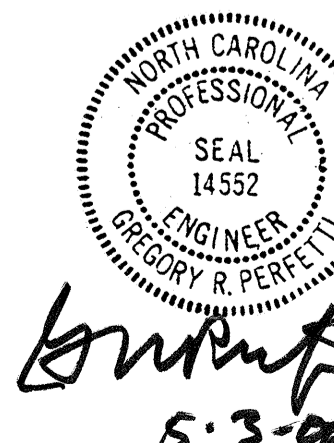
Prepared In the Office of:

DIVISION OF HIGHWAYS

2002 STANDARD SPECIFICATIONS

LETTING DATE: JUNE 20, 2006	JOHN C. FRYE, P.E. PROJECT ENGINEER
	BRIAN C. HANKS, 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 _____ P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

1800
1790
1780
1770
1760

FILL FACE @ END BENT 1
STA. 17+72.03 -L-
GRADE POINT EL. 1791.955

EXP.

SPAN A

FIX

FILL FACE @ END BENT 2
STA. 18+72.03 -L-
GRADE POINT EL. 1793.683

+1.7277% +4.8600%

PI STA. = 19+50.00 -L-
EL. = 1795.03
VC = 100.00

GRADE DATA

EL. 1784±
EL. 1782±
APPROXIMATE NATURAL
GROUNDLINE

EL. 1783±
18" STEEL SHEET PILE
3'-0" Ø DRILLED PIER

END BENT 1

TEMPORARY
WORKPAD
CLASS II
RIP RAP

2004
HIGH WATER
EL. 1784

NWS
EL. 1775.4

EL. 1774±

EL. 1775±

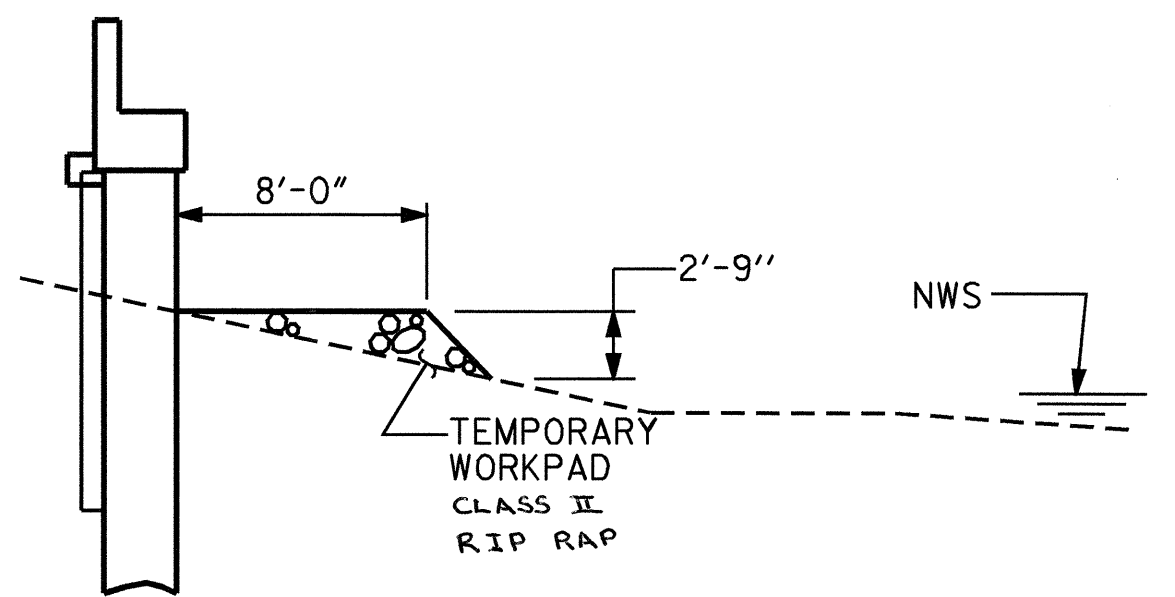
END BENT 2

18" STEEL SHEET PILE
3'-0" Ø DRILLED PIER

EL. 1793±

EL. 1792±

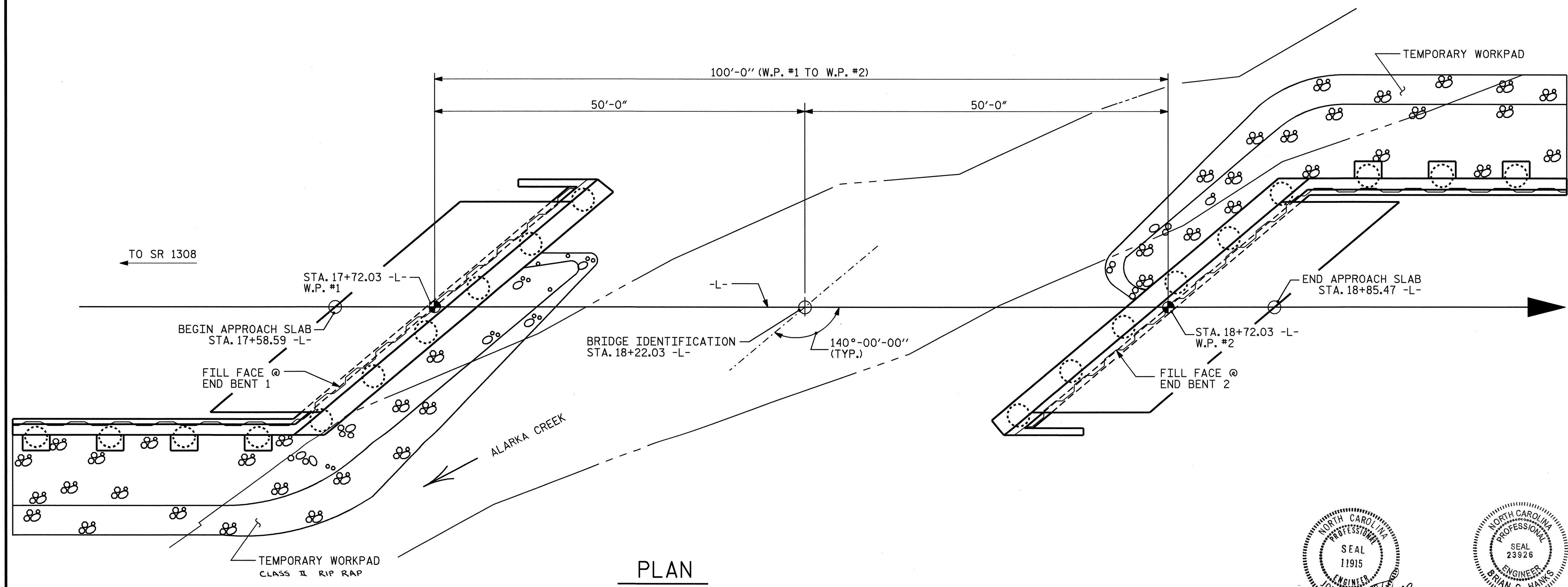
EL. 1791±



TEMPORARY WORKPAD FOR
CONSTRUCTION OF PROPOSED BRIDGE

SECTION ALONG -L-

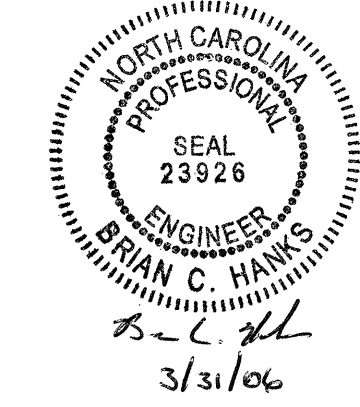
(SECTION TAKEN AT RIGHT ANGLES TO END BENTS)



PLAN

DRAWN BY : QT NGUYEN DATE : 3-05
CHECKED BY : KW ALFORD DATE : 4-05

27-MAR-2006 14:11
FASTSTRUCT\B3701\B-3701\Brdge\B3A4DA\A.DGN
dely



PROJECT NO. B-3701
SWAIN COUNTY
STATION: 18+22.03 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 106

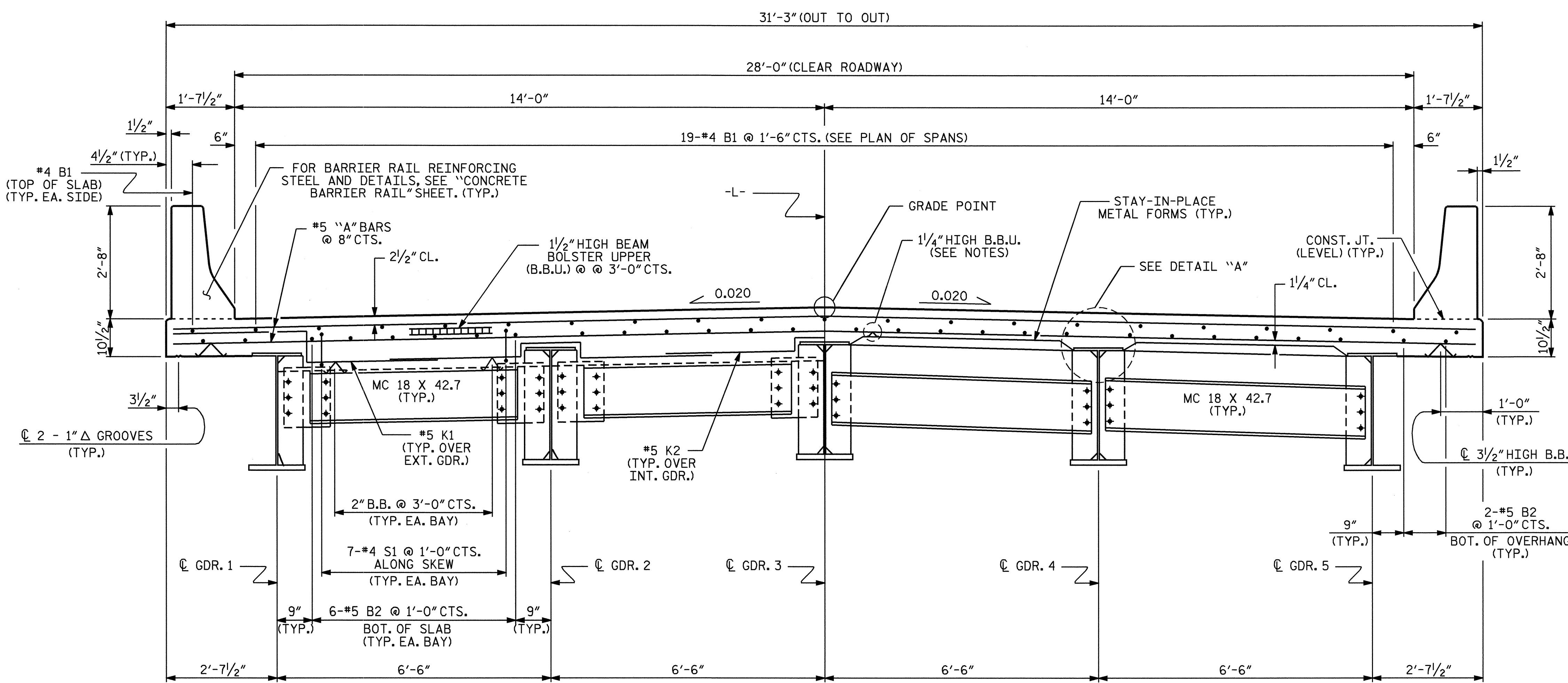
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER ALARKA CREEK
ON SR 1309 BETWEEN SR 1308
AND SR 1303

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

NOTES

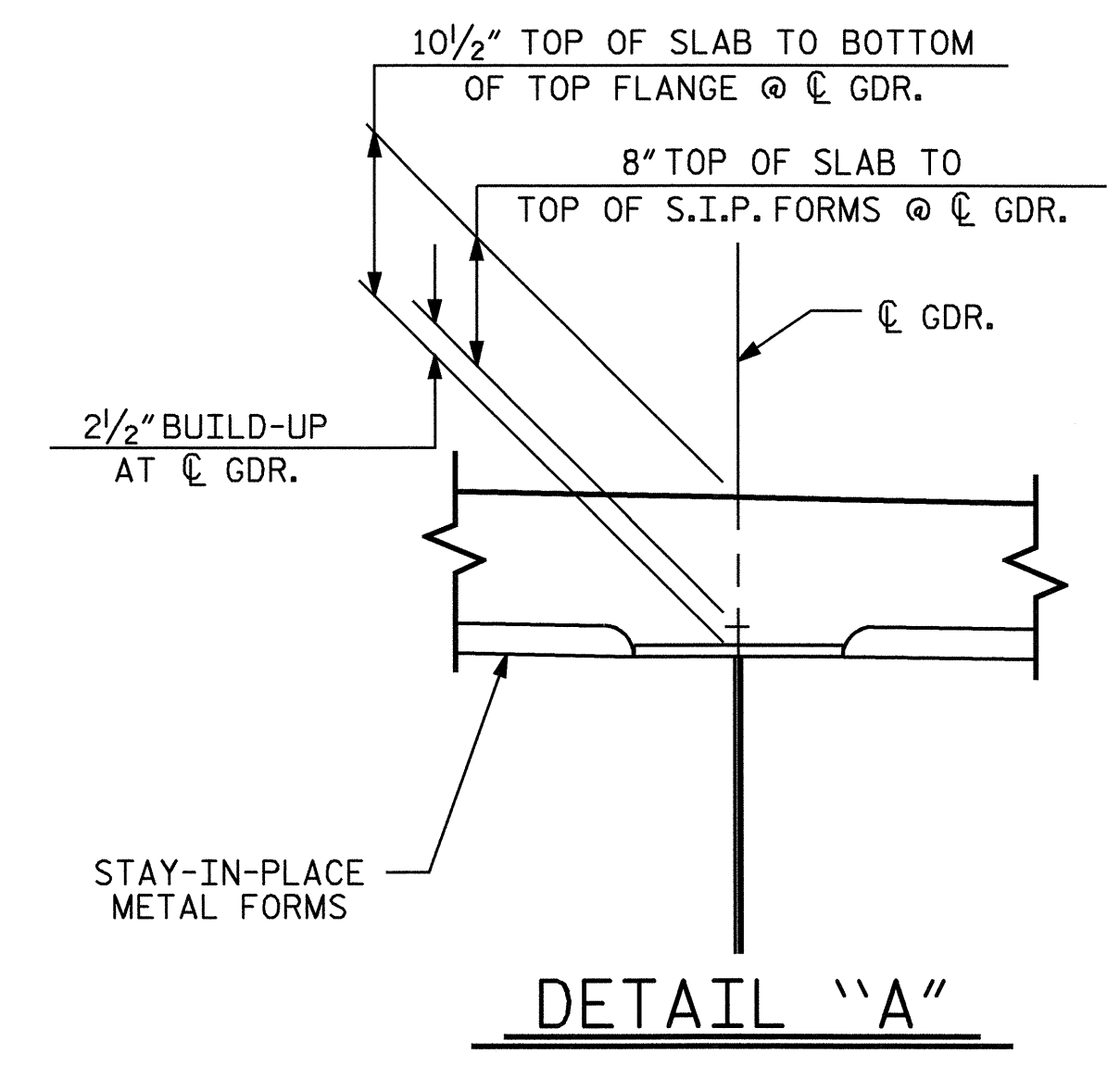
PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE STAY-IN-PLACE METAL FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN STAY-IN-PLACE METAL FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE STAY-IN-PLACE METAL FORM WORKING DRAWINGS.

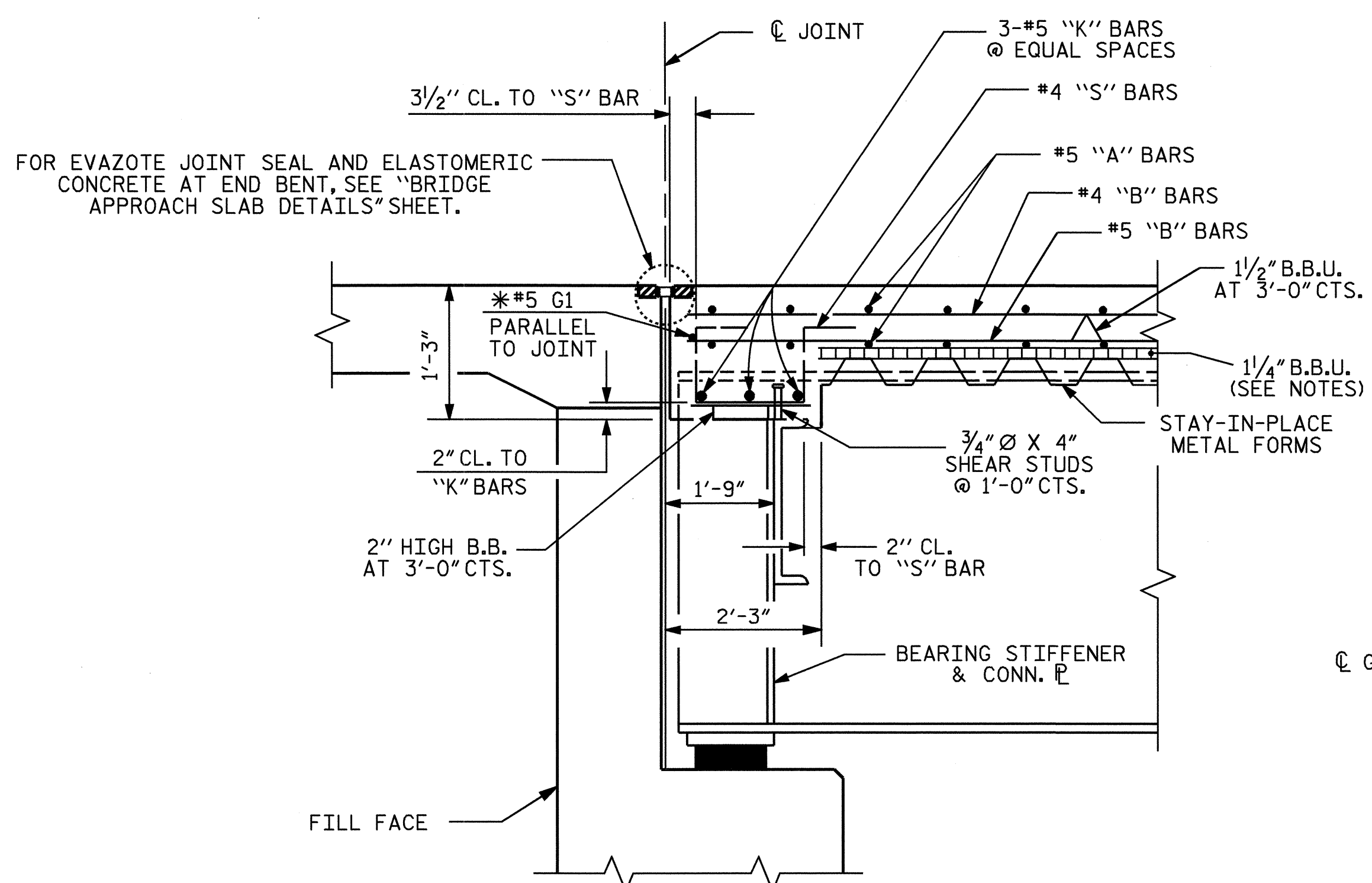


PART TYPICAL SECTION
SHOWING END BENT DIAPHRAGMS

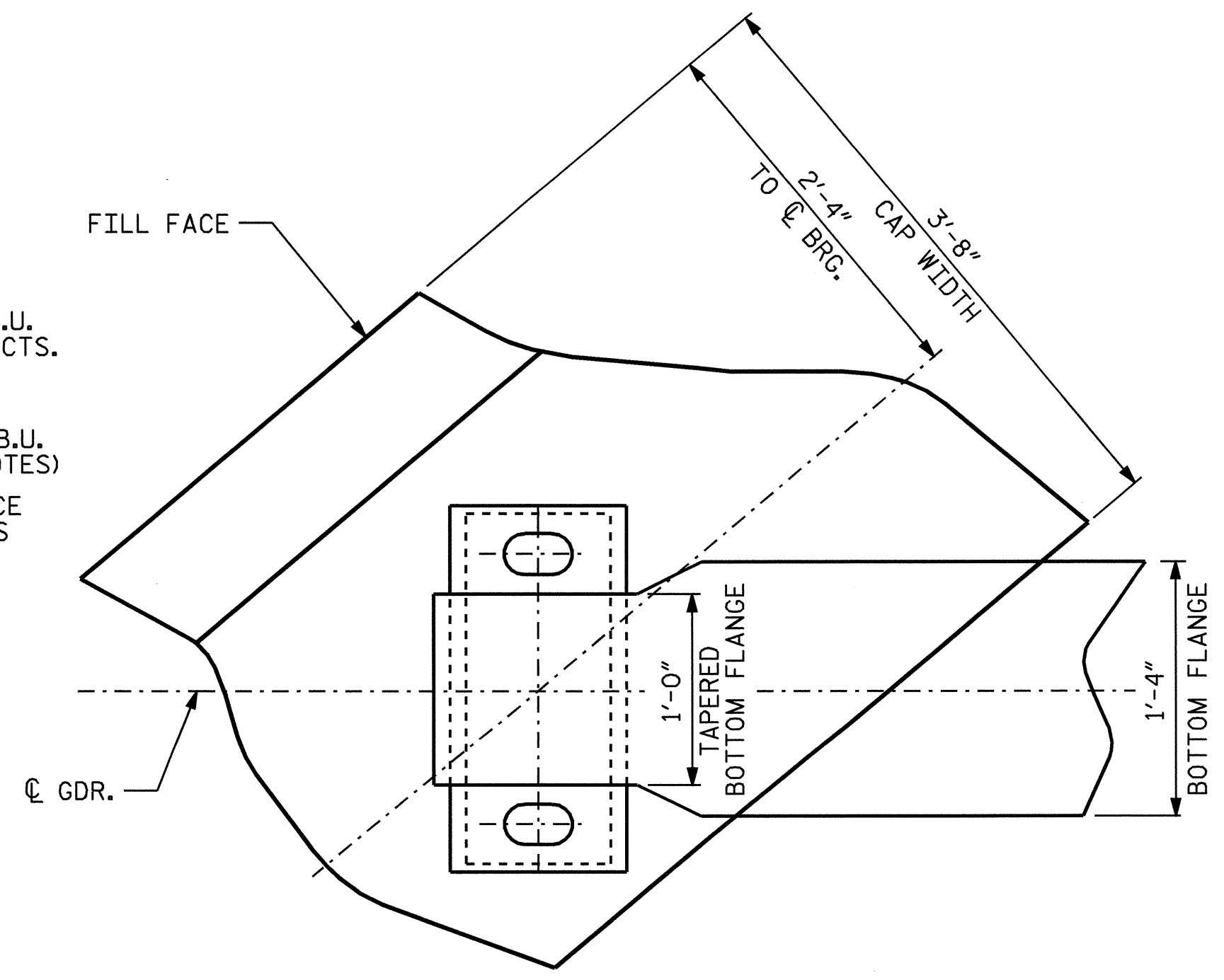
PART TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS



DETAIL "A"



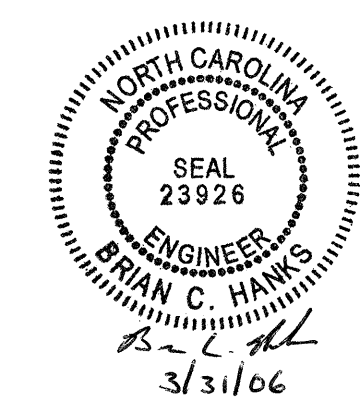
SECTION @ END BENT



PLAN OF GIRDER @ END BENT

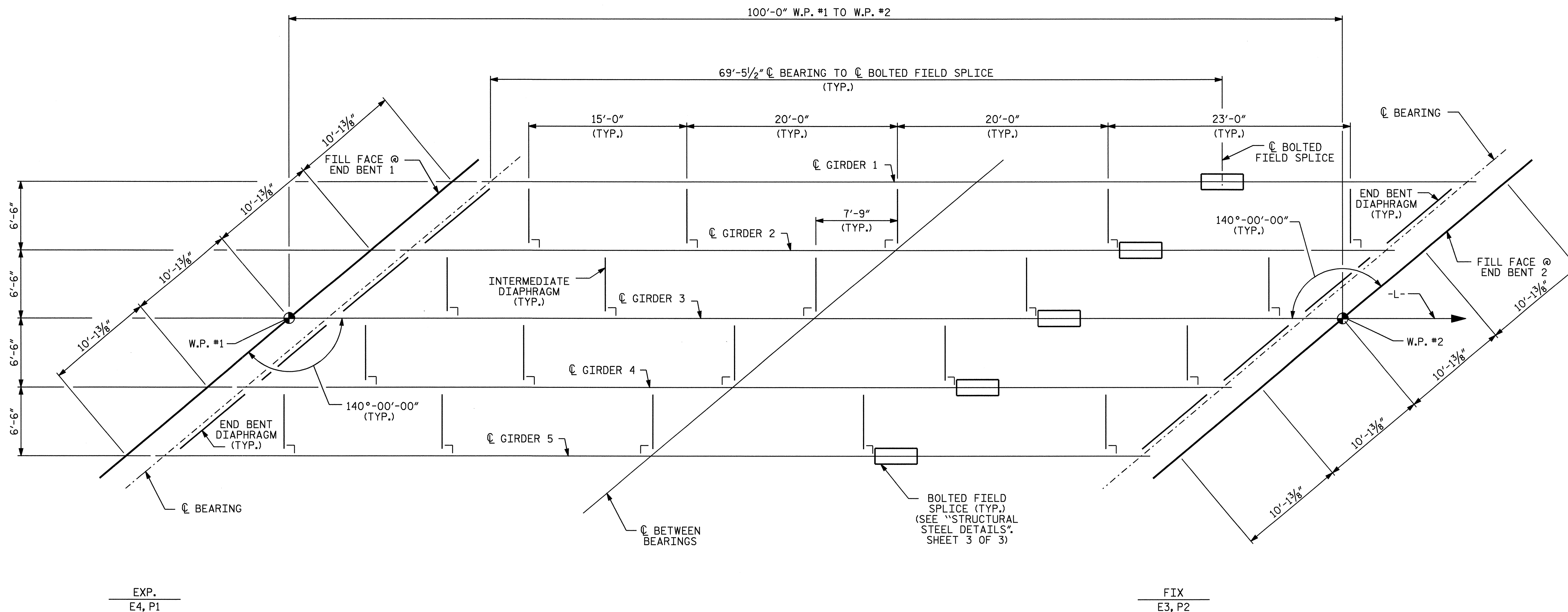
PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION AND DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-4 TOTAL SHEETS 26



DRAWN BY: D. G. ELY DATE: 6/6/05
 CHECKED BY: A. B. NAIK DATE: 7/7/05

* #5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DIAPHRAGM AND REINFORCING STEEL.



FRAMING PLAN

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			26



DRAWN BY: D. G. ELY DATE: 6/13/05
 CHECKED BY: A. B. NAIK DATE: 7/7/05

27-MAR-2006 13:15
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 dely

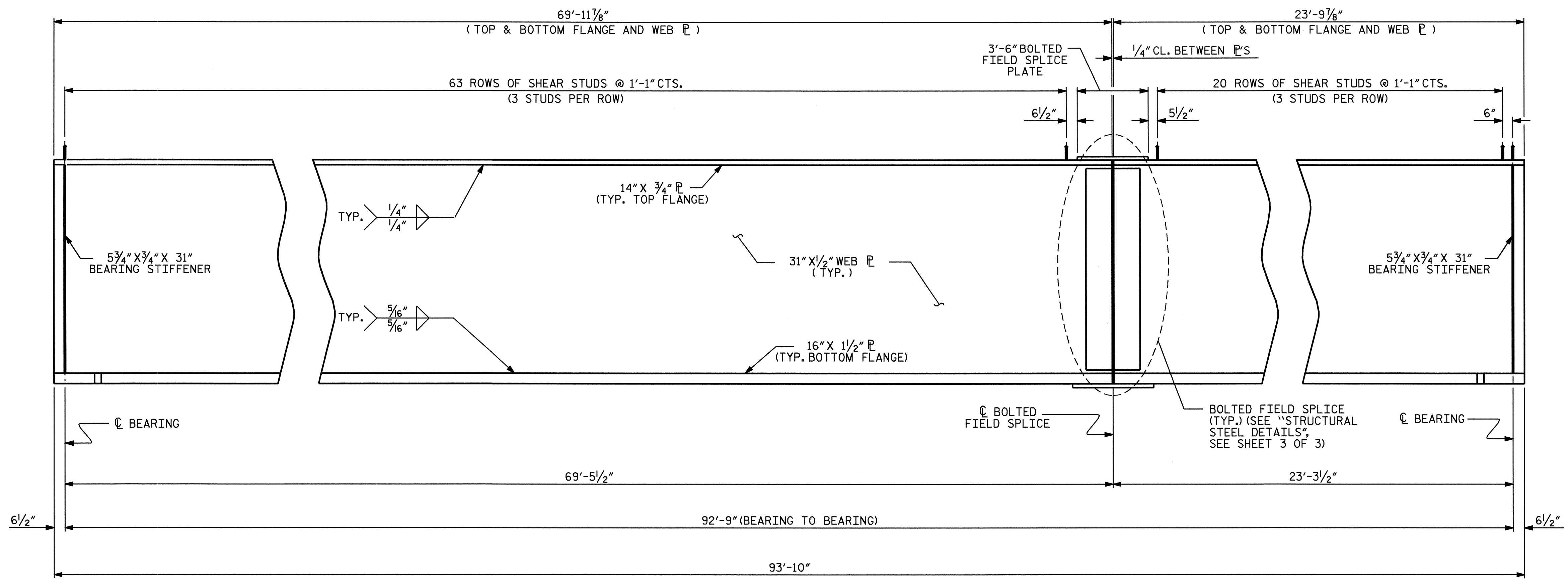
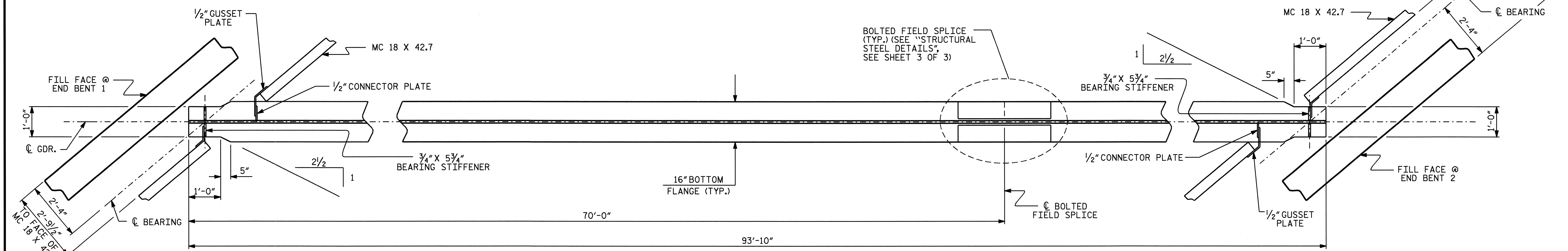
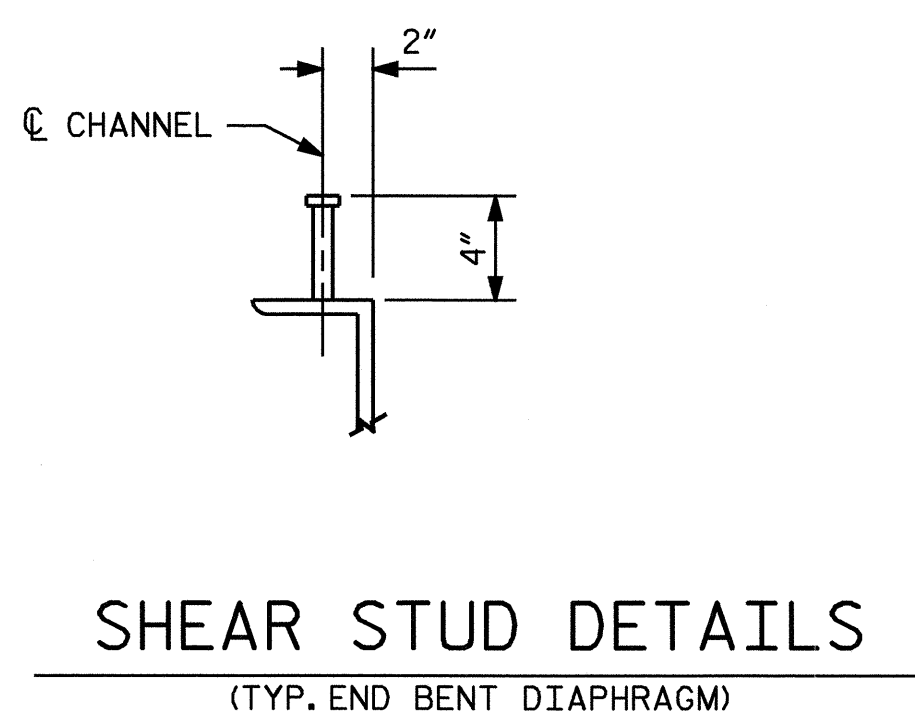


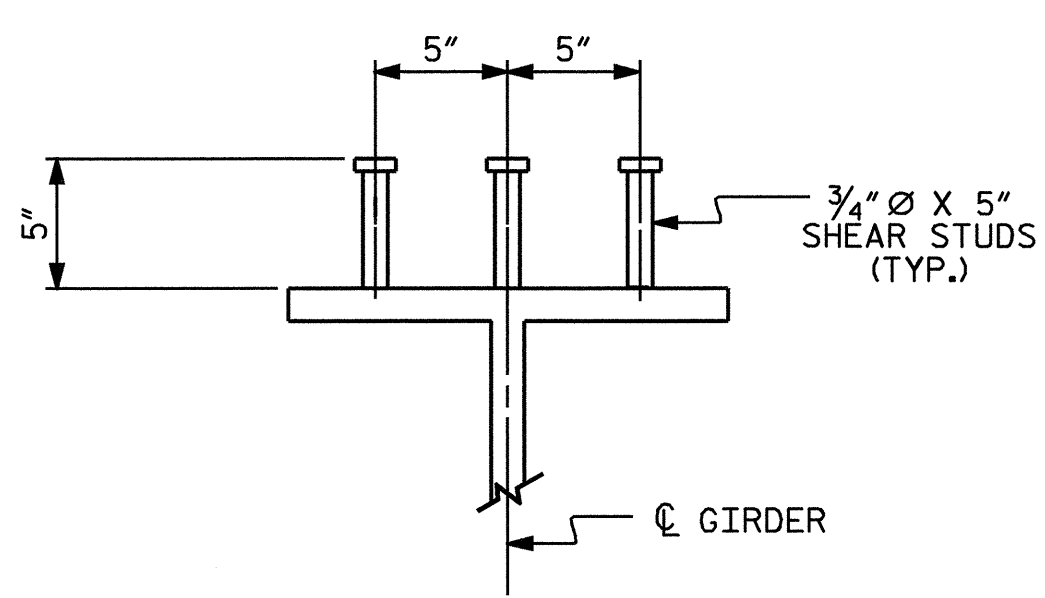
PLATE GIRDER ELEVATION



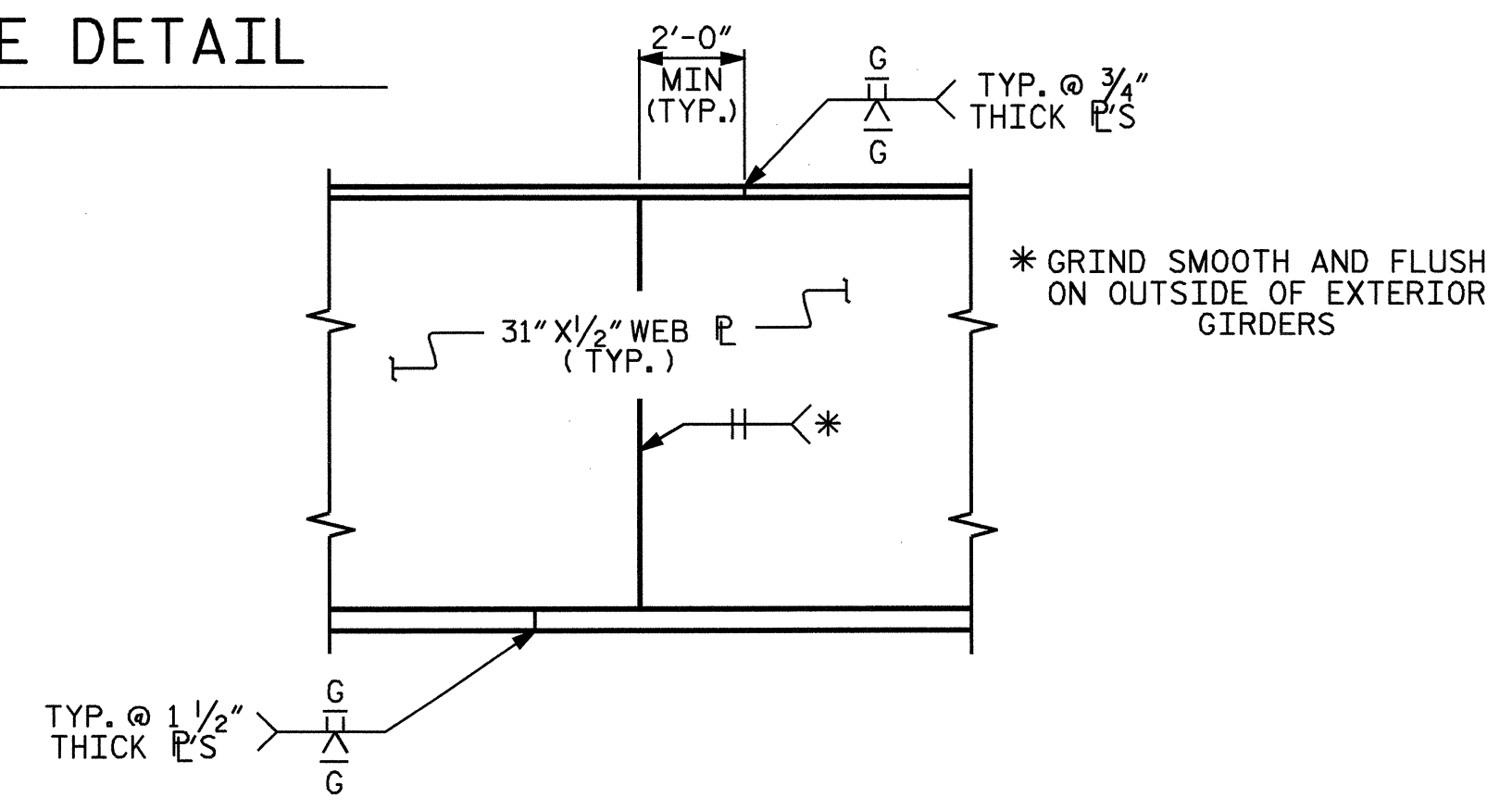
BOTTOM FLANGE DETAIL



SHEAR STUD DETAILS
(TYP. END BENT DIAPHRAGM)



SHEAR STUD DETAILS
(TYP. EA. GIRDER)



PERMISSIBLE SHOP FLANGE & WEB SPLICE

PROJECT NO. B-3701
 SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-7
2			4			26



DRAWN BY: D. G. ELY DATE: 6/13/05
 CHECKED BY: A. B. NAIK DATE: 7/7/05

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES, BOTTOM FLANGE SPLICE PLATES AND WEB SPLICE PLATES FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

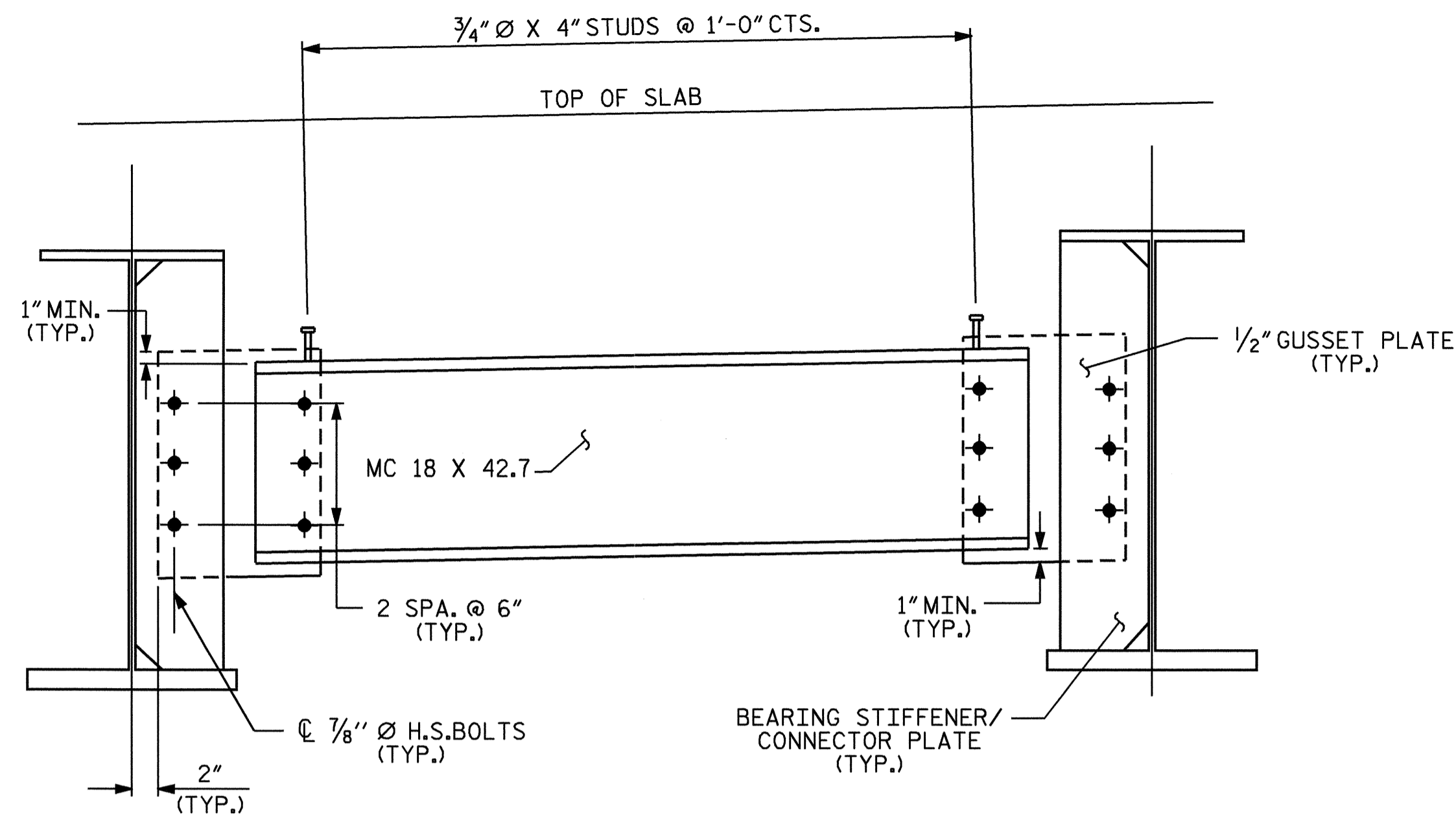
TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-10 OF THE STANDARD SPECIFICATIONS.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

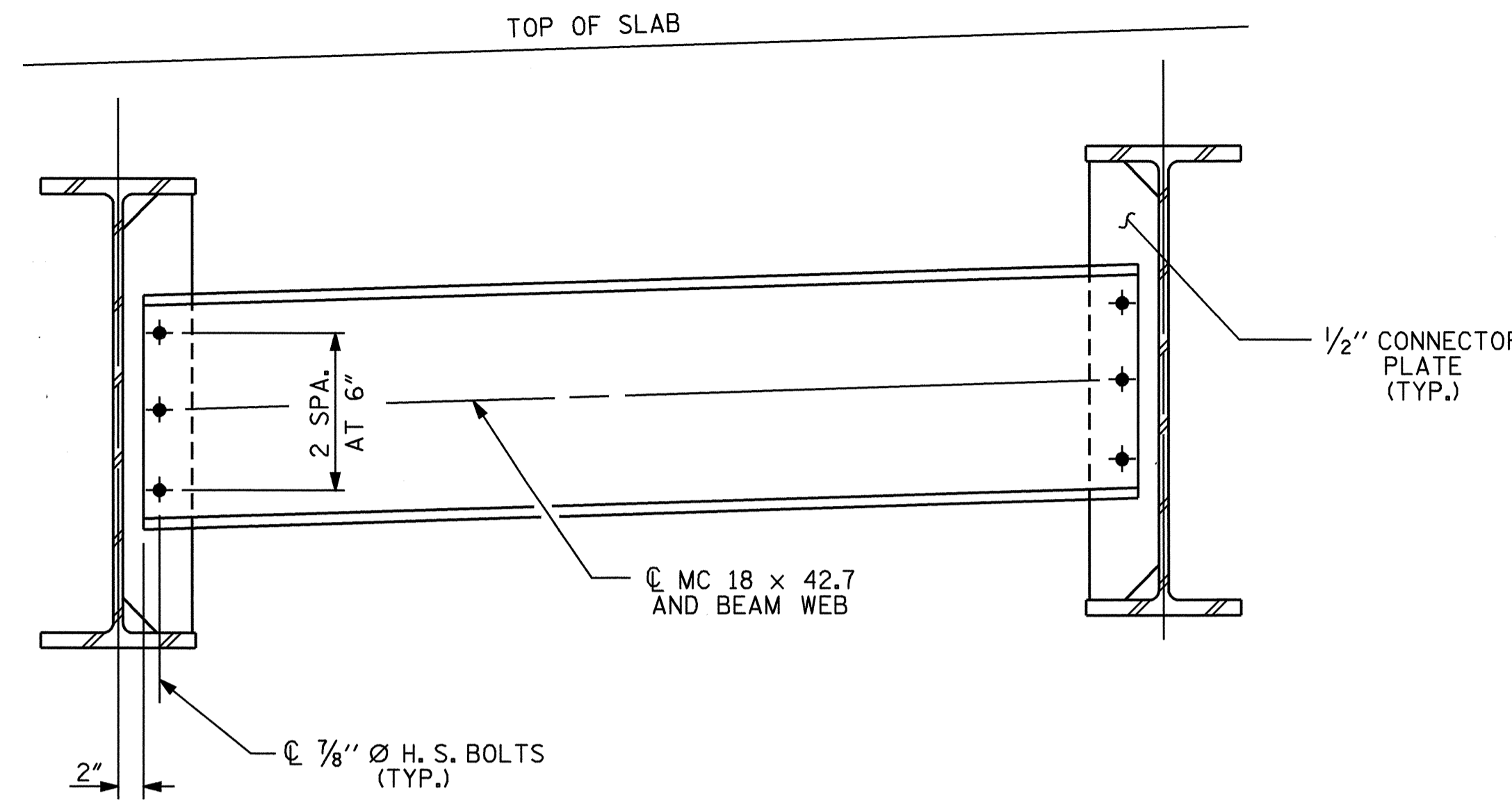
END OF BEAMS AND GIRDERS SHALL BE PLUMB.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

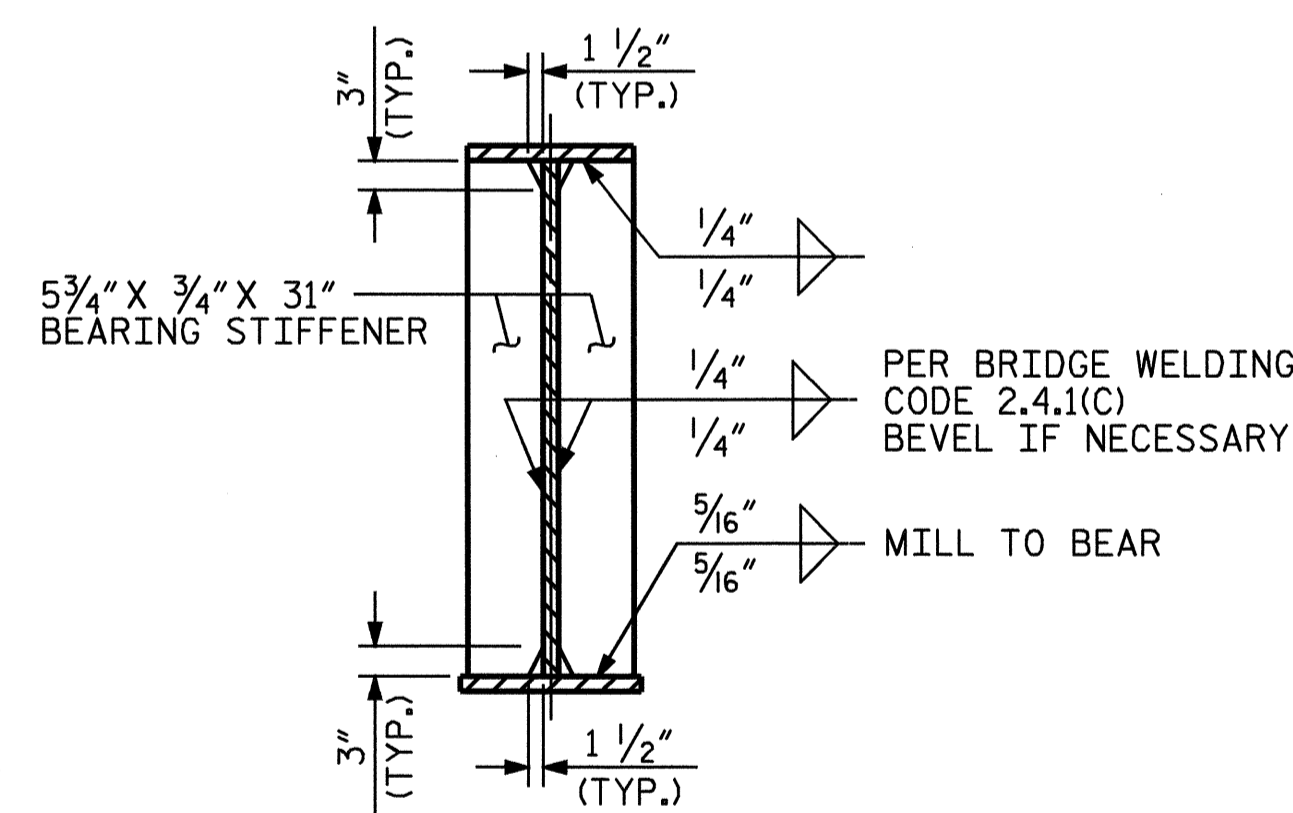
BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.



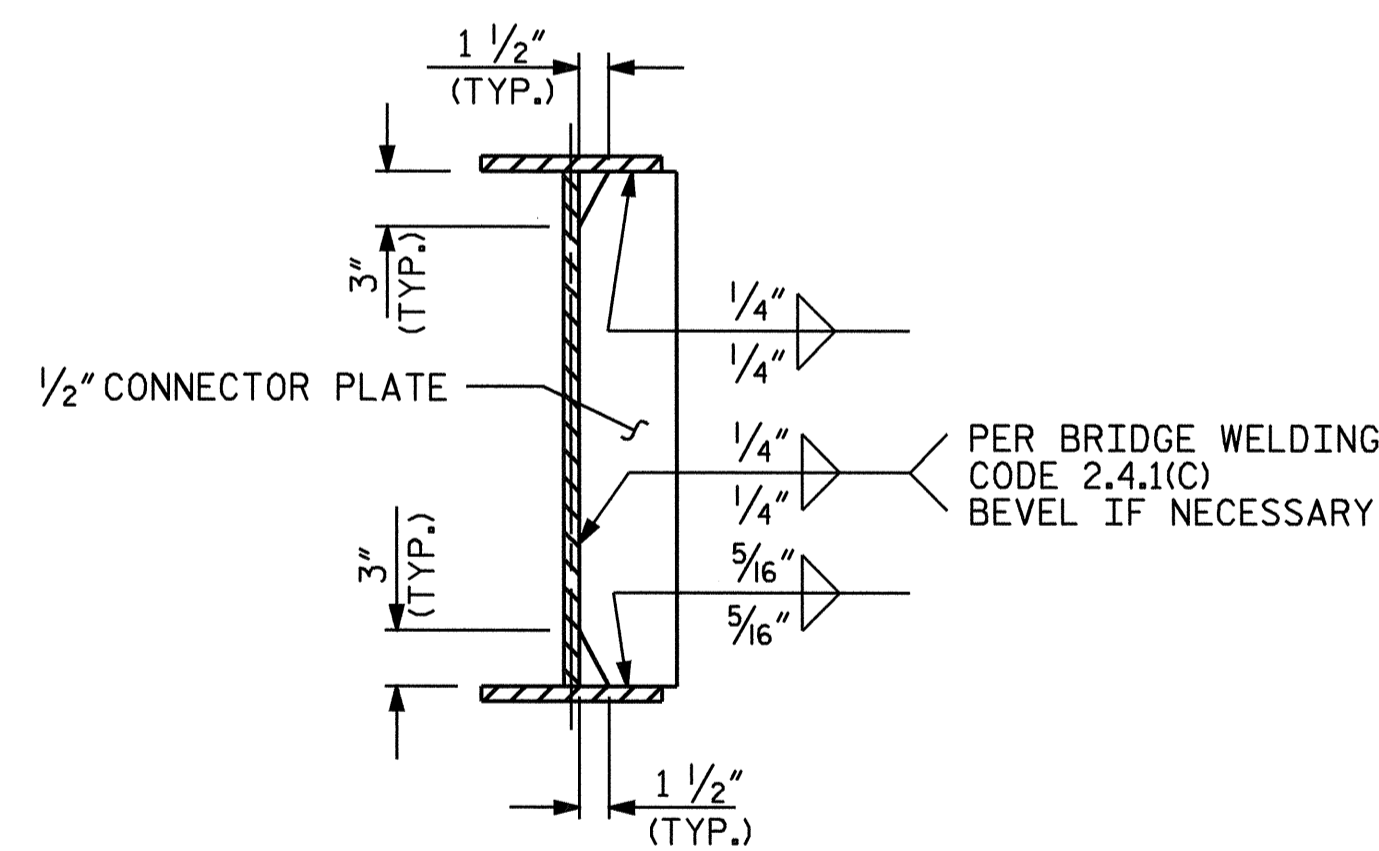
END BENT DIAPHRAGM



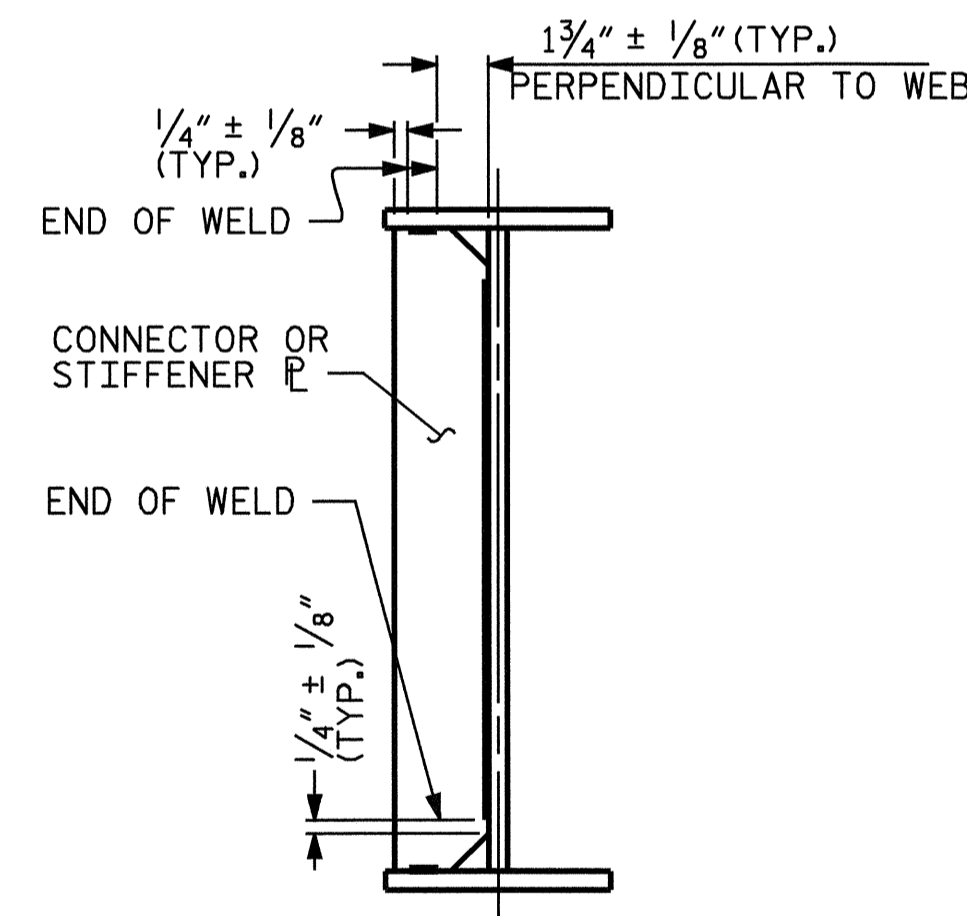
TYPICAL INTERMEDIATE DIAPHRAGM



BEARING STIFFENER

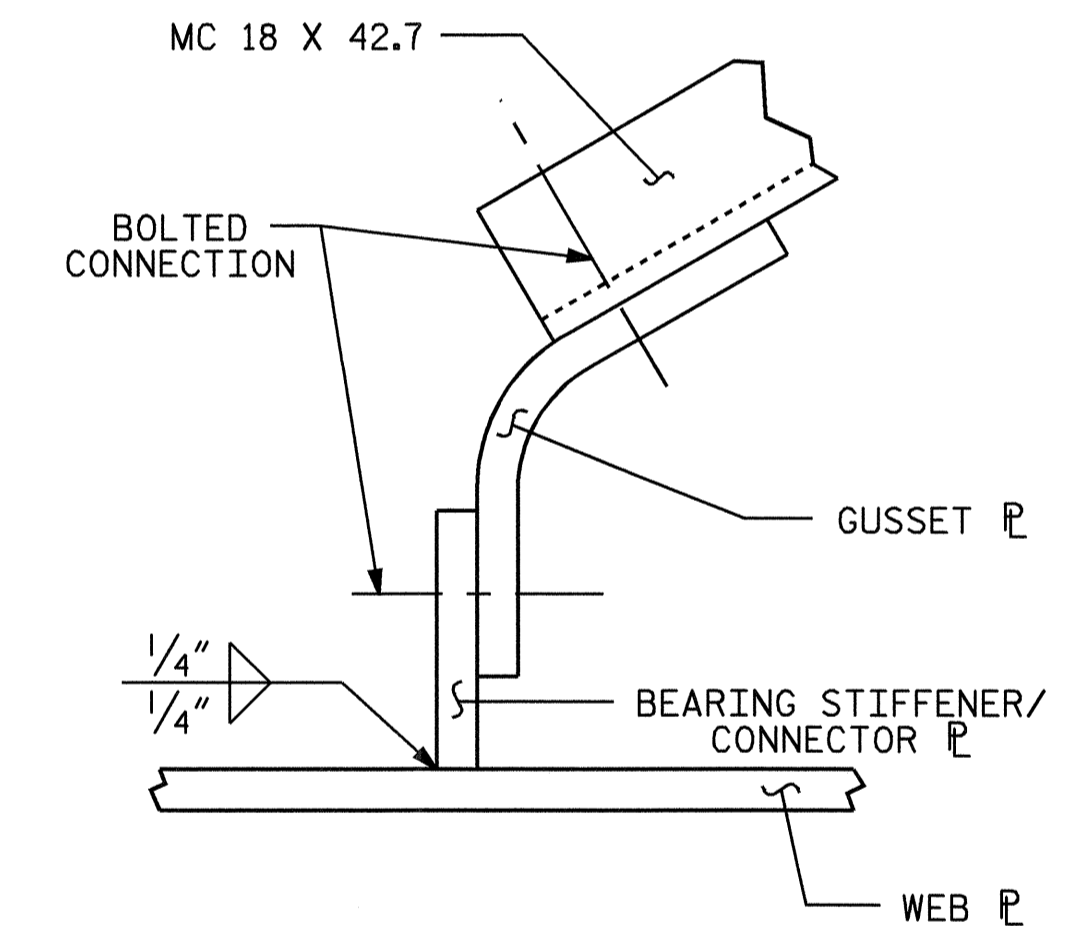


CONNECTOR PLATE DETAILS



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS



BENT GUSSET PLATE DETAIL

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

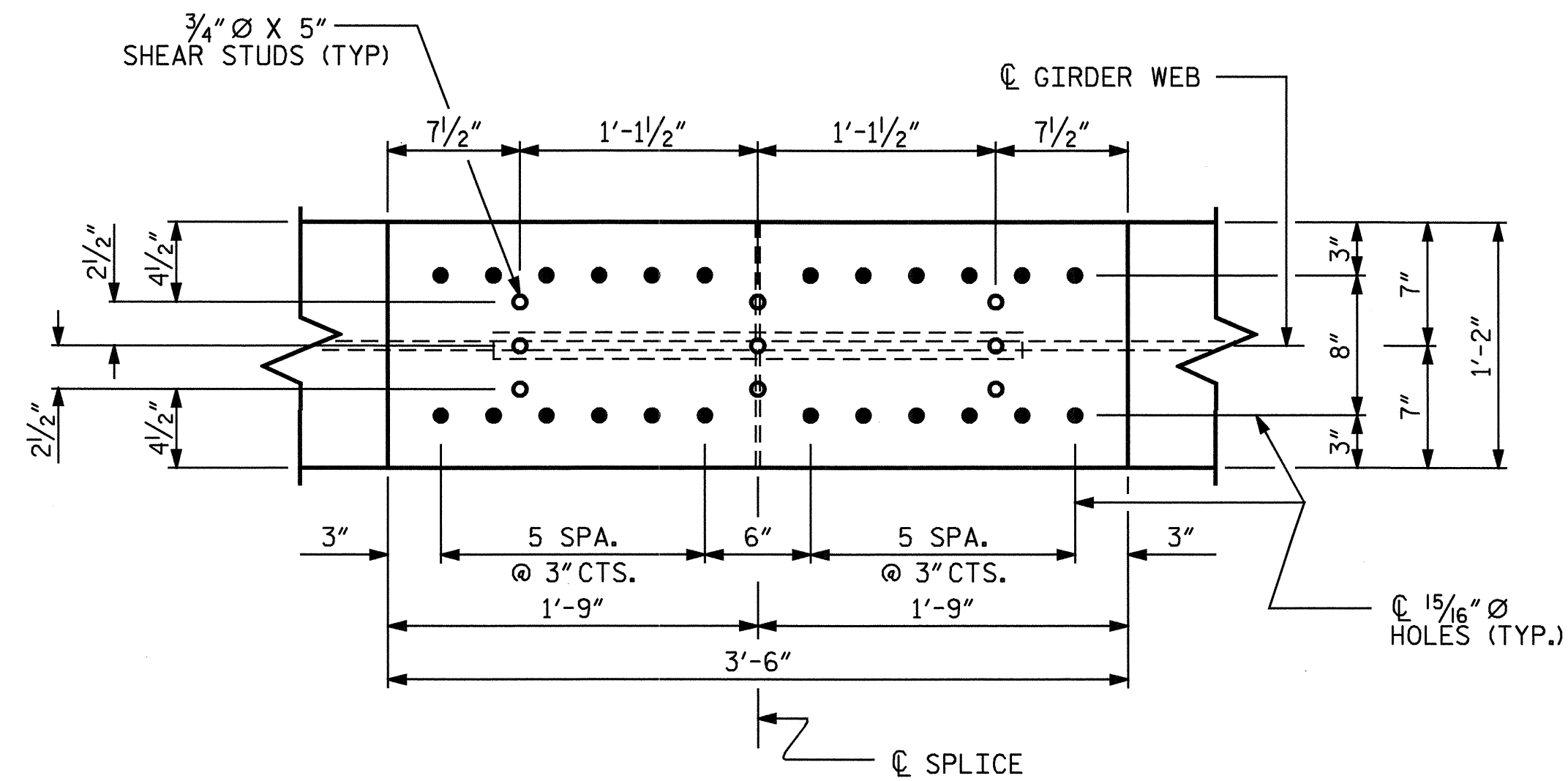
SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			26	

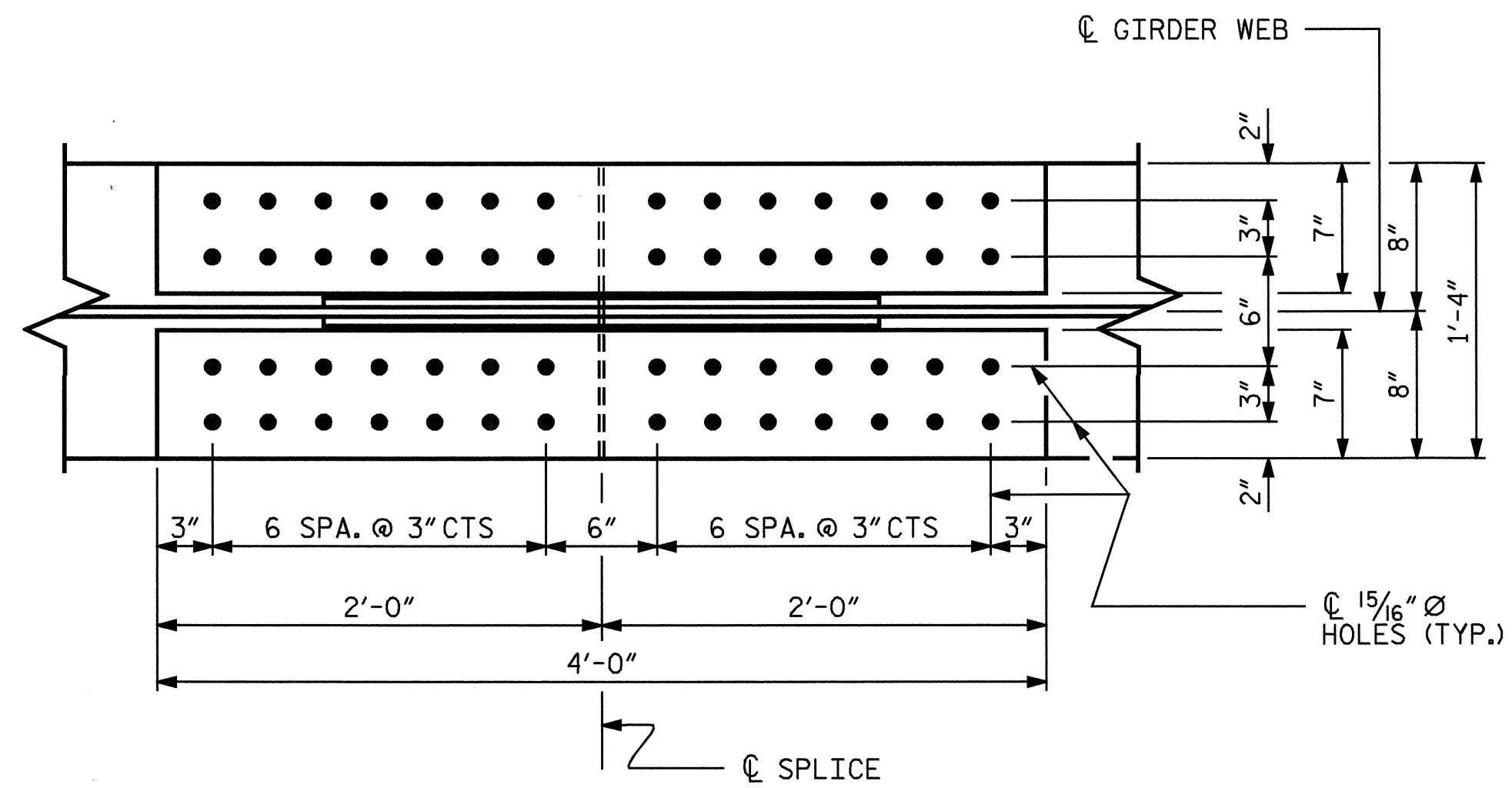


DRAWN BY : D. G. ELY DATE : 6/2/05
 CHECKED BY : A. B. NAIK DATE : 7/7/05

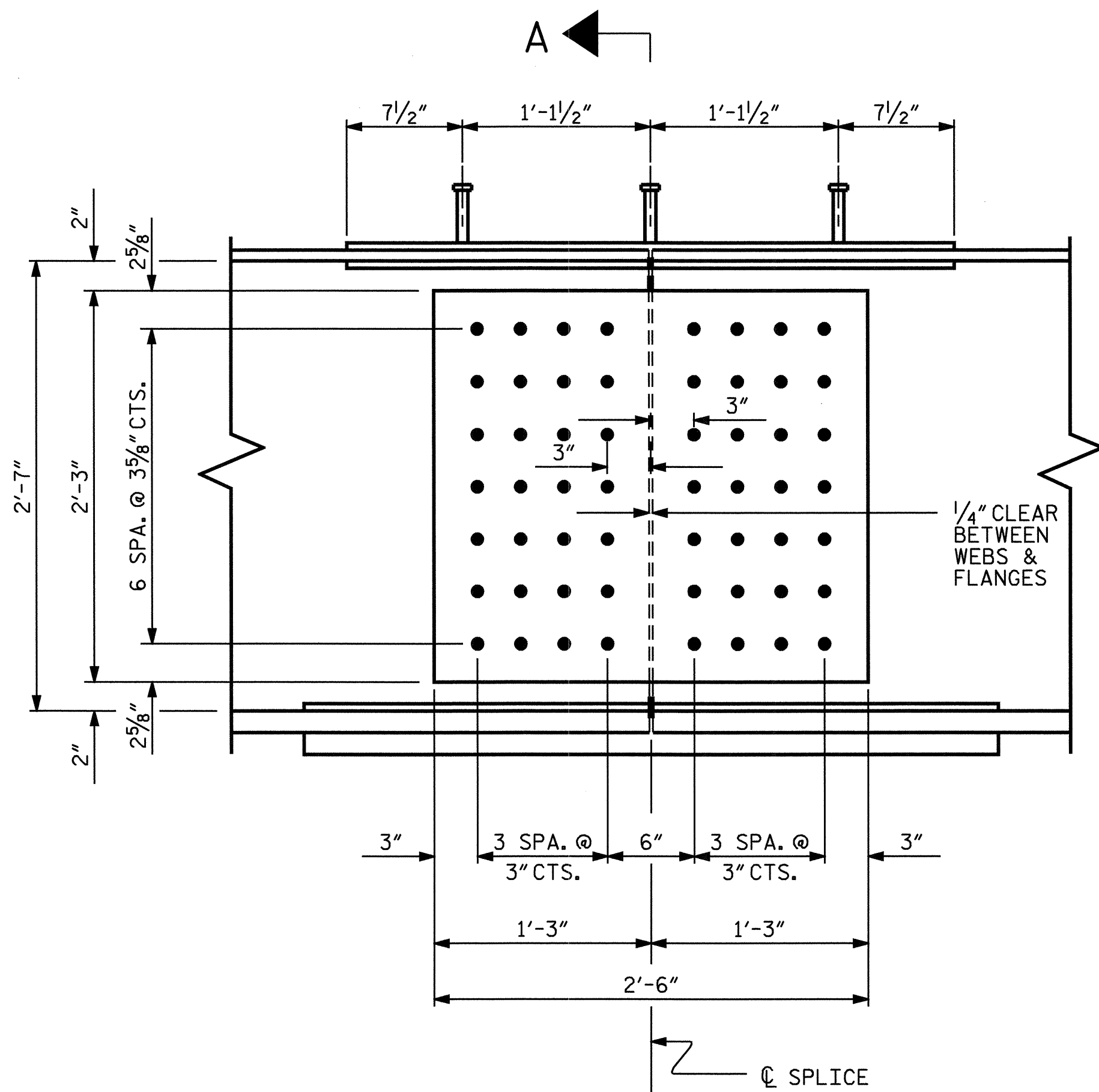
27-MAR-2006 13:16
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 dely



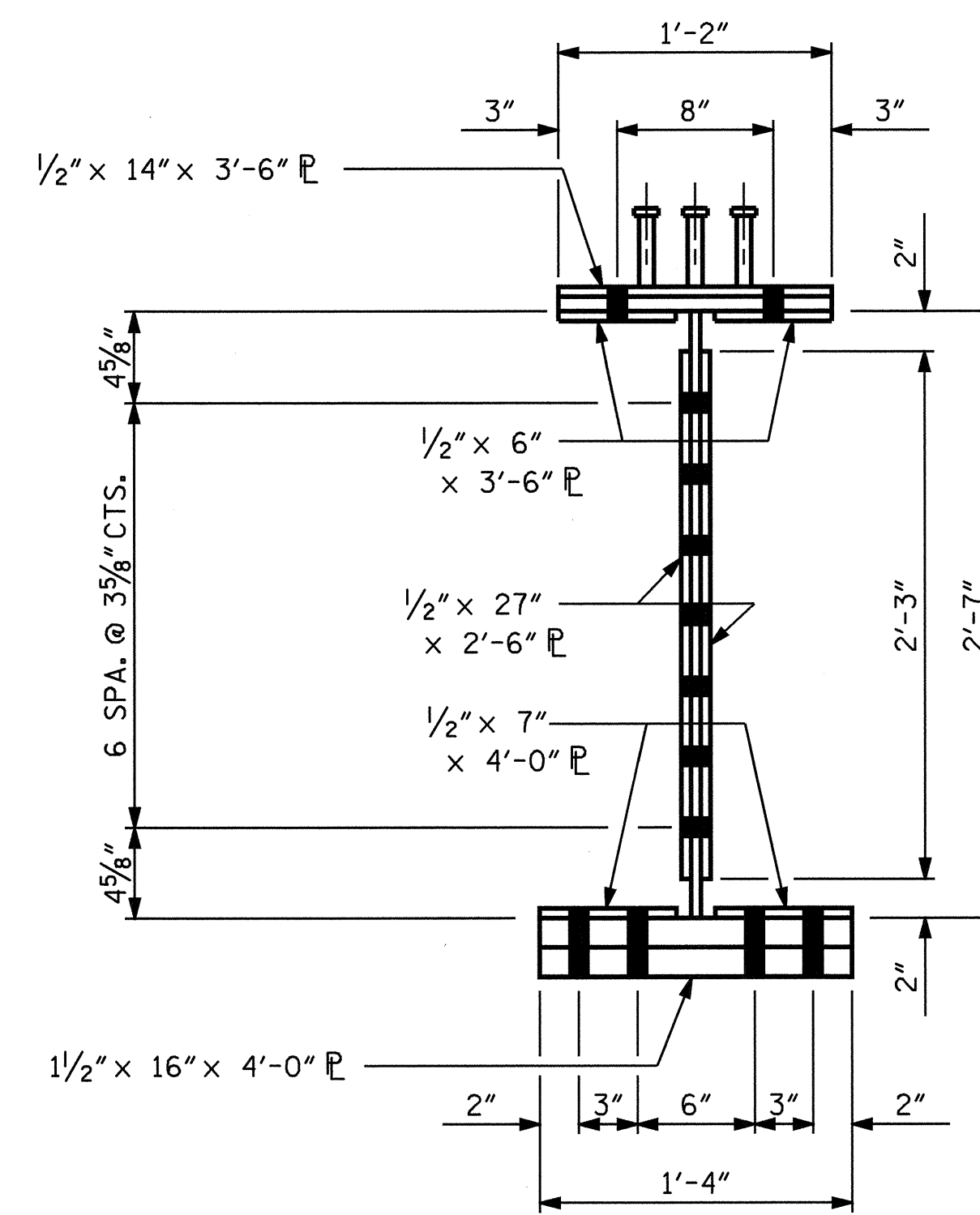
PLAN (TOP OF TOP FLANGE)



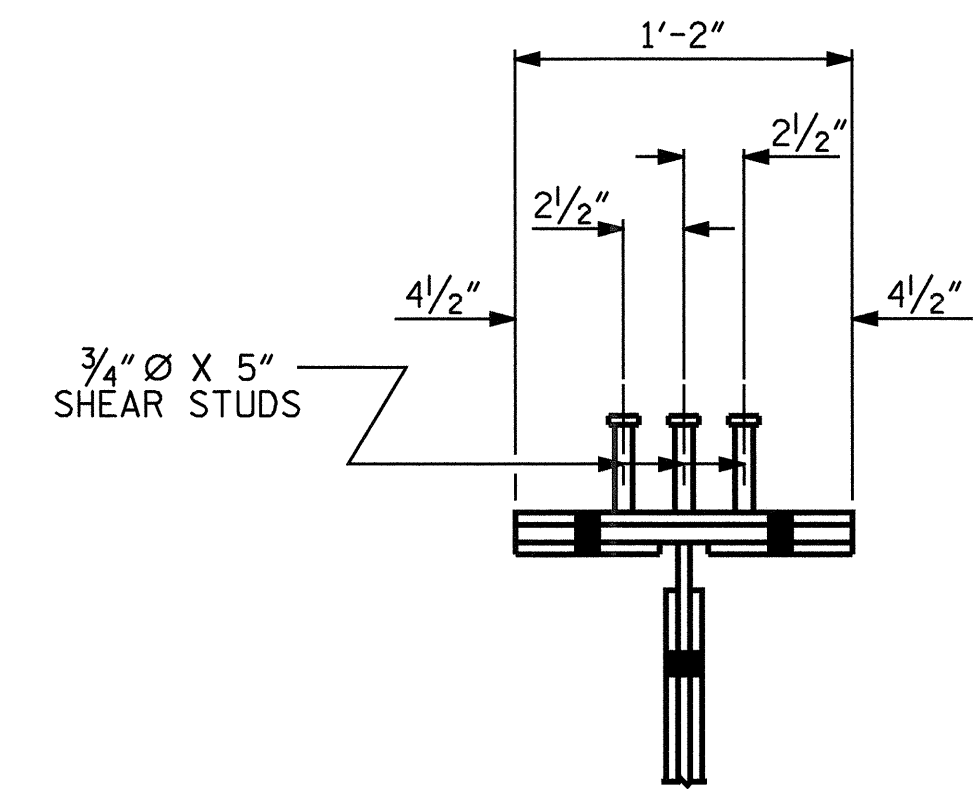
PLAN (TOP OF BOTTOM FLANGE)



ELEVATION



SECTION A-A



SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

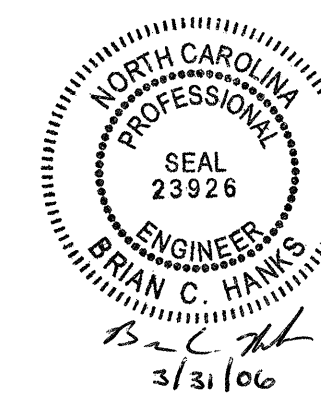
BOLTED FIELD SPLICE DETAILS

PROJECT NO. B-3701
 SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL
 STEEL DETAILS



DRAWN BY: D. G. ELY DATE: 6/13/05
 CHECKED BY: A. B. NAIK DATE: 7/11/05

27-MAR-2006 13:17
 FA:STRUCT\B3701\B-3701.dwg\B3701.dwg
 dely

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	26
1			3			
2			4			

SHEET NO.
 S-9

NOTES

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.
 AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

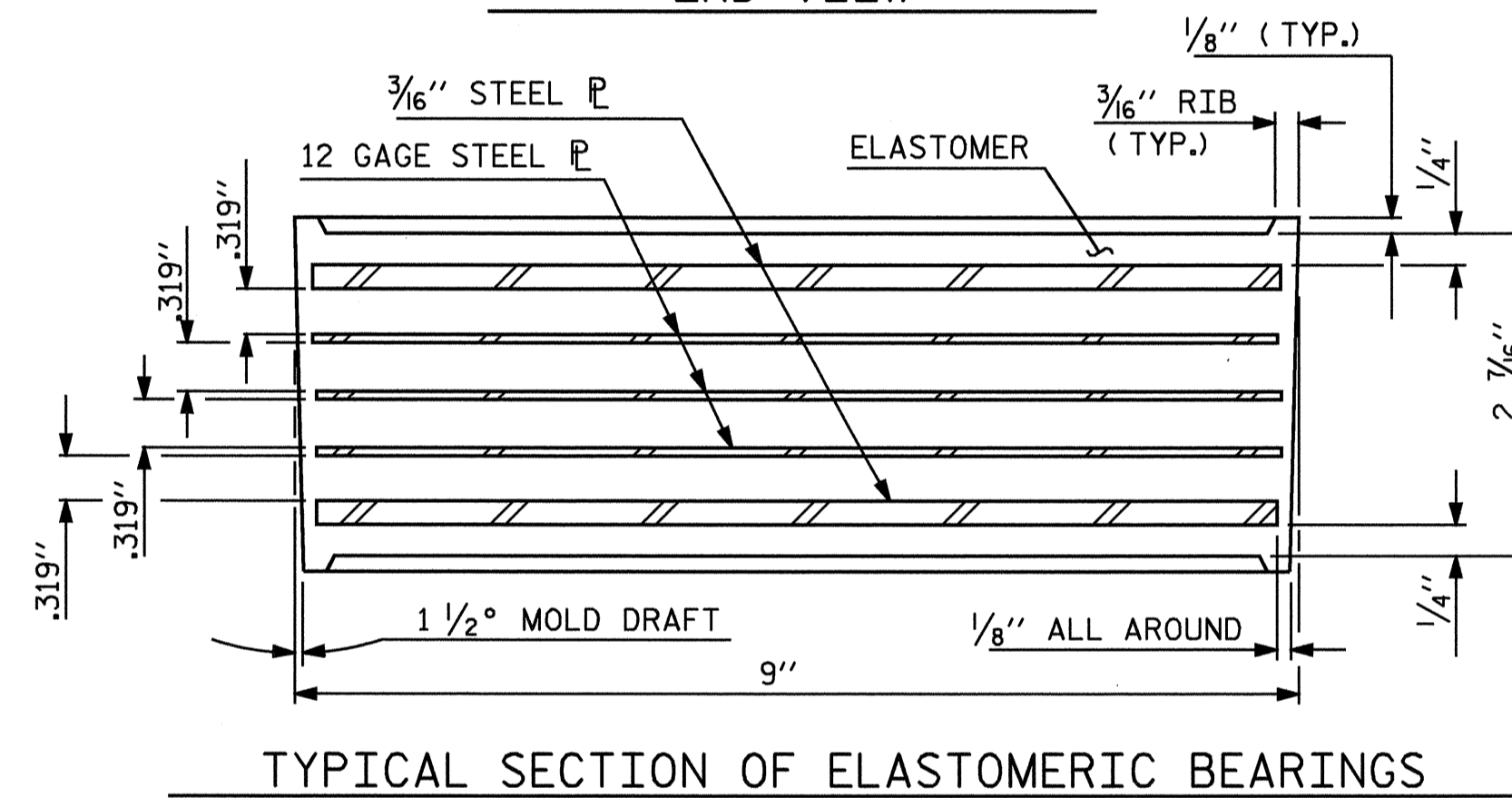
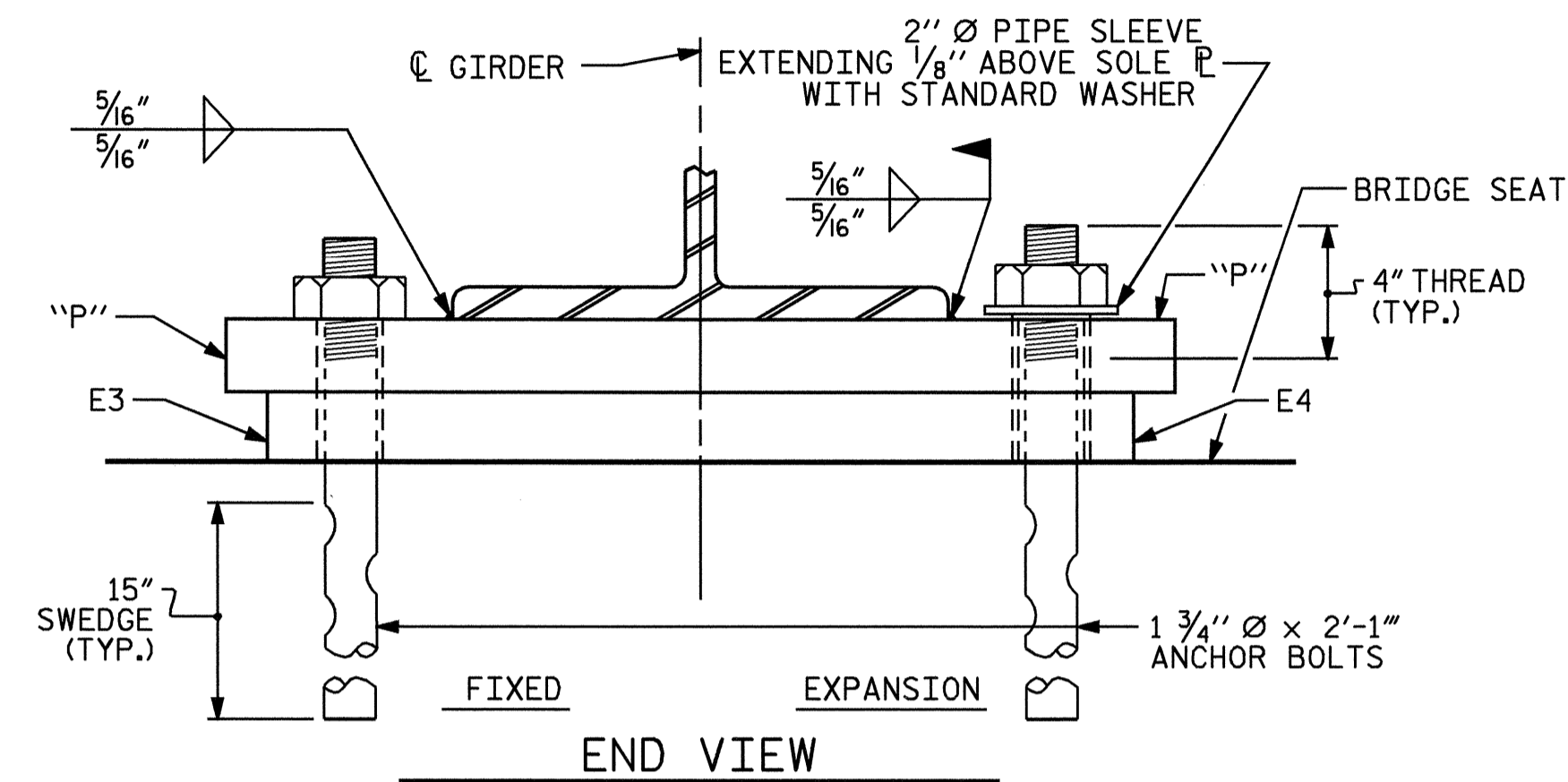
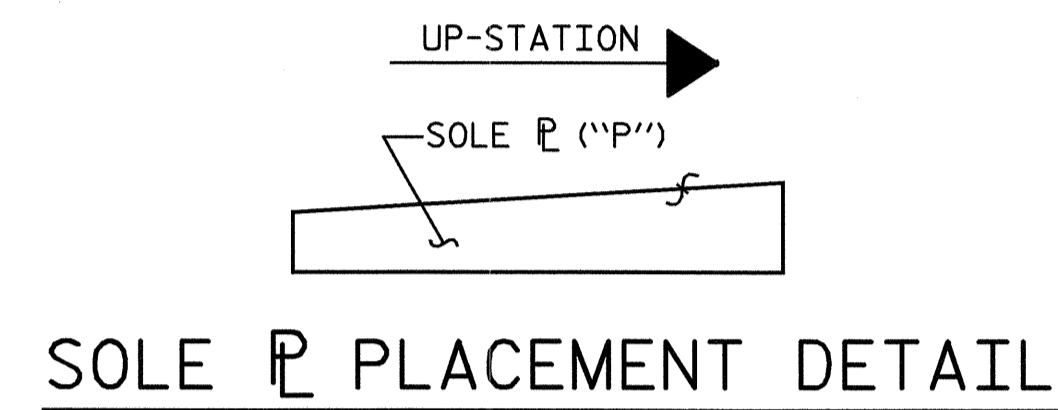
THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

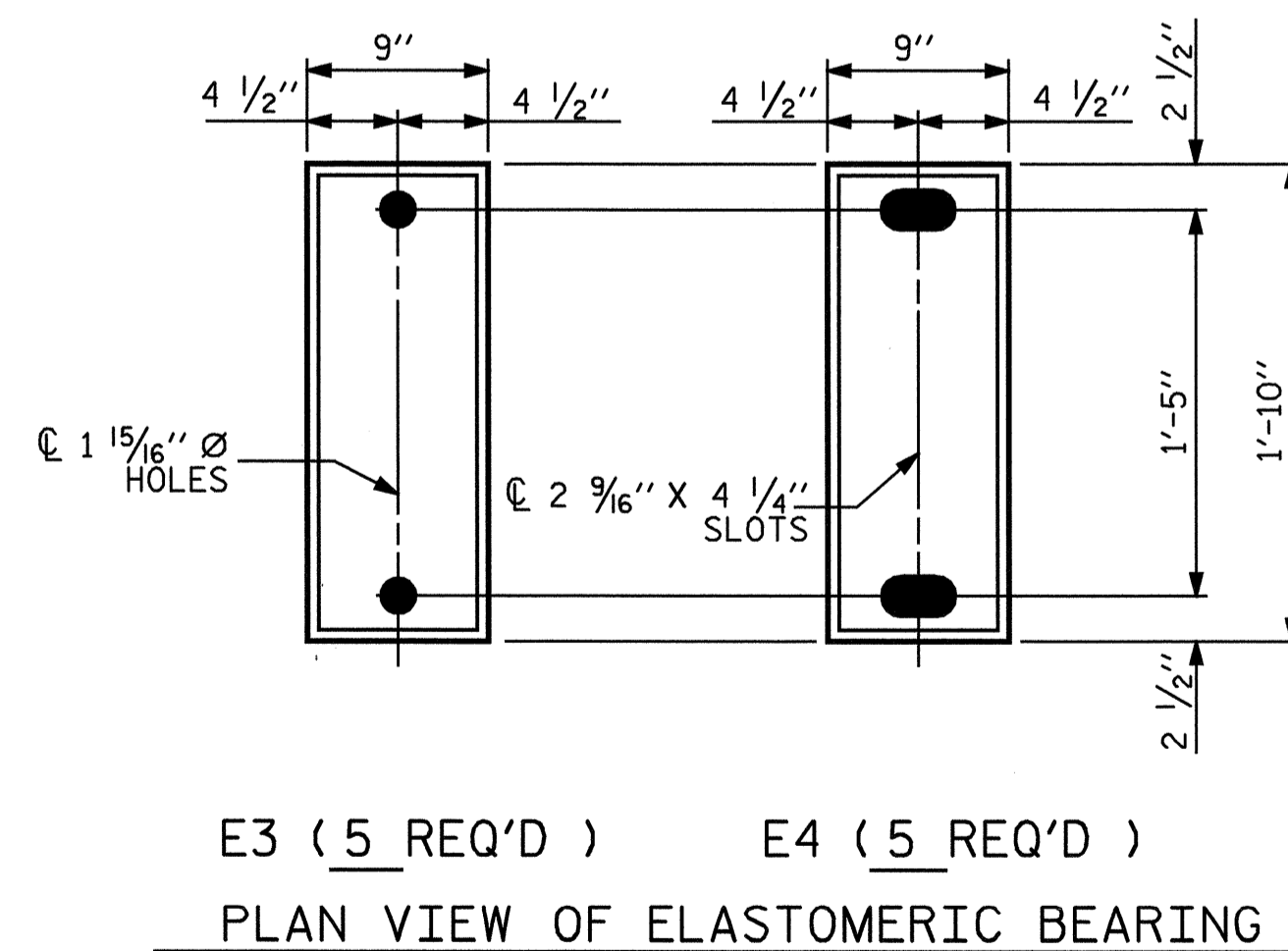
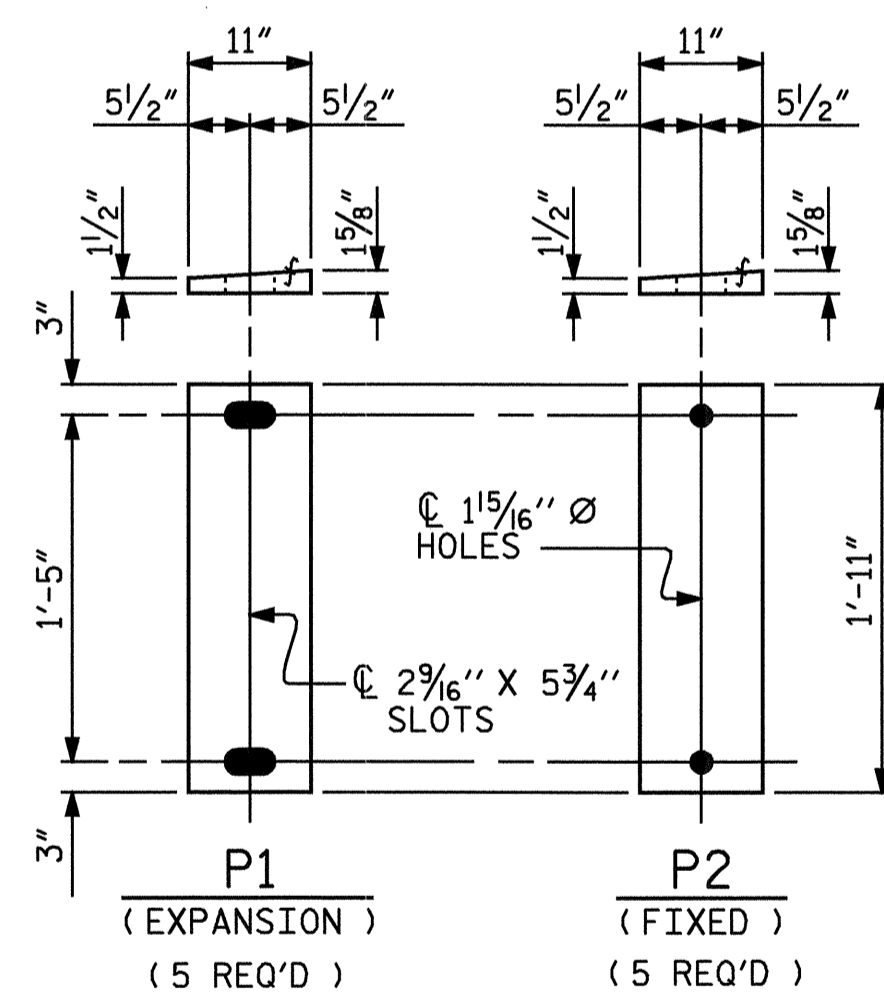
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

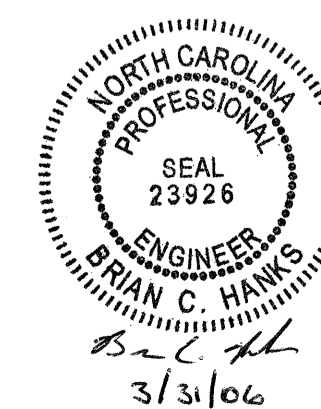
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



-LOAD RATINGS-	
	MAX.D.L.+L.L.
TYPE II	119 K



PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELASTOMERIC BEARING DETAILS

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	26
1			3			
2			4			

SHEET NO. S-10

ASSEMBLED BY : D. G. ELY DATE : 6/22/05
 CHECKED BY : A. B. NAIK DATE : 7/7/05

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

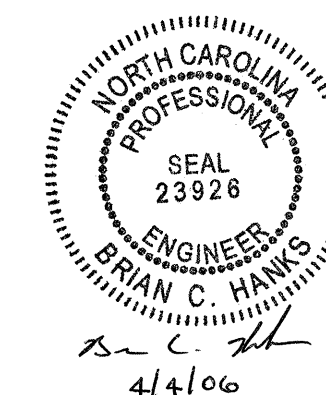
TENTH POINTS	GIRDERS #1 & #5											GIRDERS #2, #3 & #4										
	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.	BRG.	.1	.2	.3	.4	.5	.6	.7	.8	.9	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	0.030	0.058	0.079	0.092	0.097	0.092	0.079	0.058	0.030	0	0	0.030	0.058	0.079	0.092	0.097	0.092	0.079	0.058	0.030	0
* DEFLECTION DUE TO WEIGHT OF SLAB	0	0.101	0.197	0.272	0.320	0.336	0.320	0.272	0.197	0.101	0	0	0.095	0.186	0.258	0.303	0.319	0.303	0.258	0.186	0.095	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0	0	0.013	0.024	0.033	0.038	0.040	0.038	0.033	0.024	0.013	0
TOTAL DEAD LOAD DEFLECTION	0	0.144	0.280	0.385	0.452	0.475	0.452	0.385	0.280	0.144	0	0	0.138	0.268	0.370	0.433	0.456	0.433	0.370	0.268	0.138	0
REQUIRED CAMBER	0	1 3/4"	3 3/8"	4 5/8"	5 7/16"	5 11/16"	5 7/16"	4 5/8"	3 3/8"	1 3/4"	0	0	1 11/16"	3 1/4"	4 7/16"	5 3/16"	5 1/2"	5 3/16"	4 7/16"	3 1/4"	1 11/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " REQUIRED CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

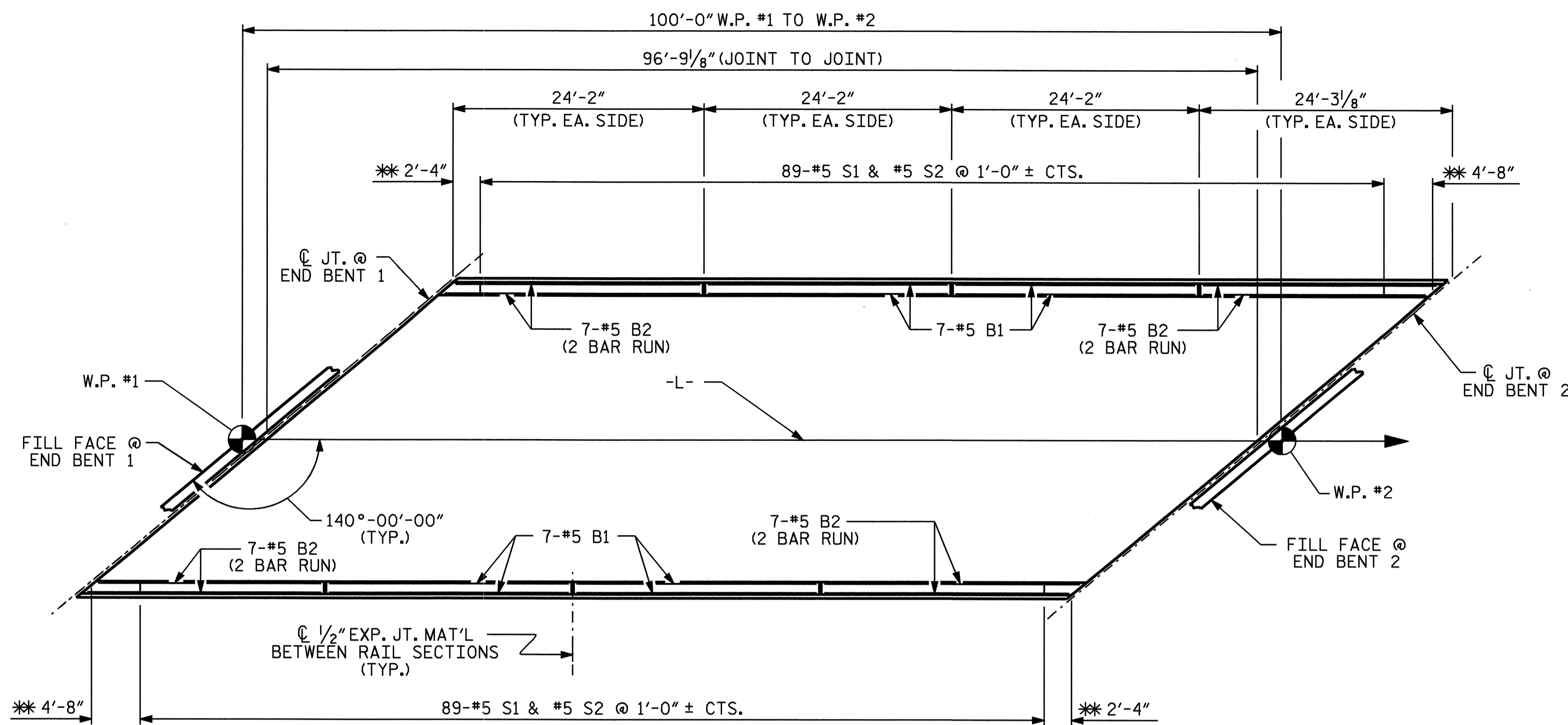
SUPERSTRUCTURE
 DEAD LOAD
 DEFLECTIONS



DRAWN BY : D. G. ELY DATE : 6/22/05
 CHECKED BY : A. B. NAIK DATE : 7/11/05

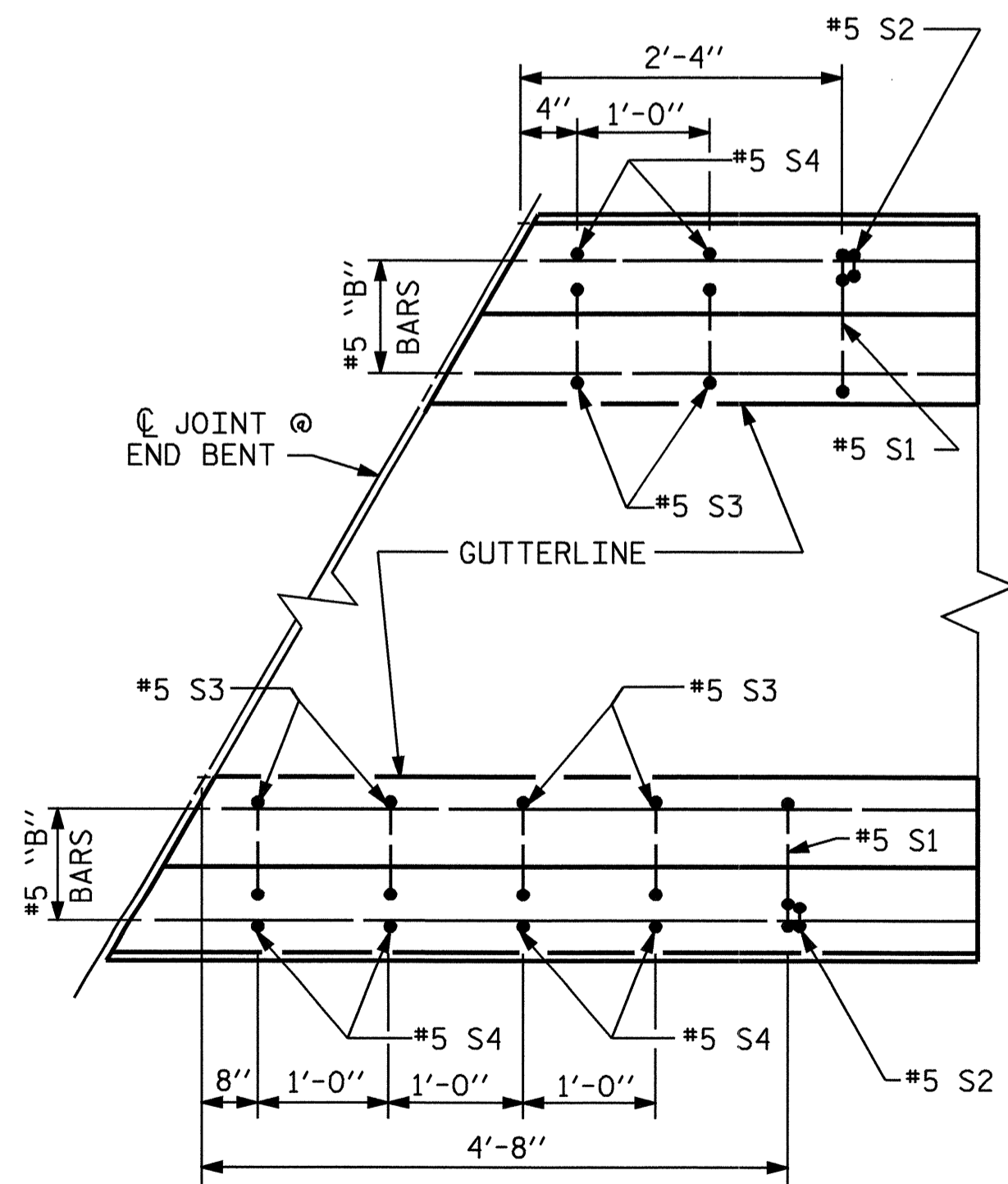
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 bhanks

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			26

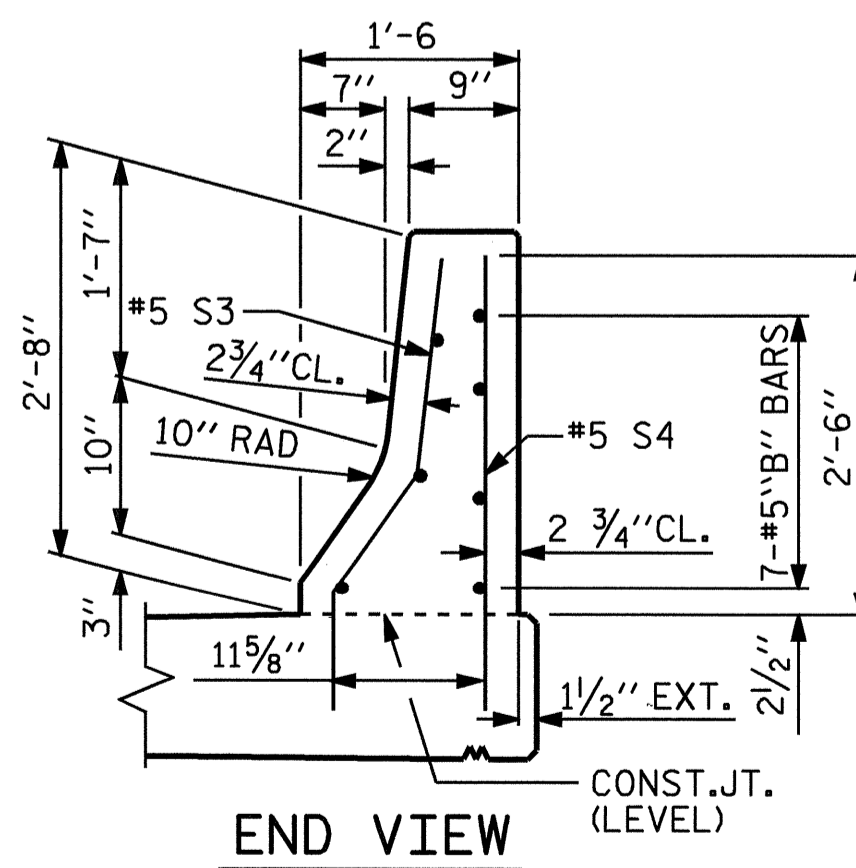


PLAN OF BARRIER RAIL

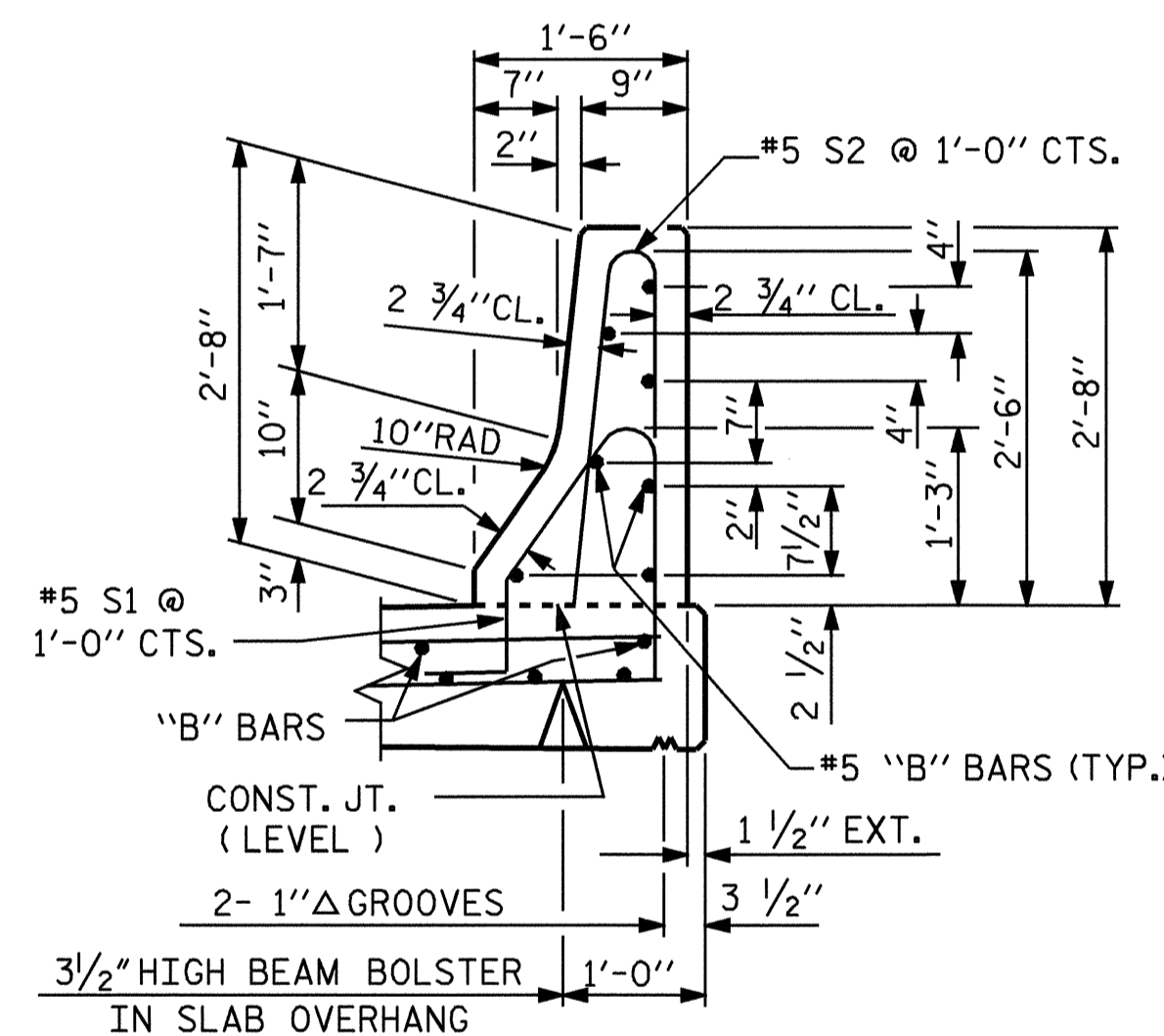
** SEE "END OF RAIL DETAILS - PLAN VIEW" FOR ADDITIONAL REINFORCING STEEL.



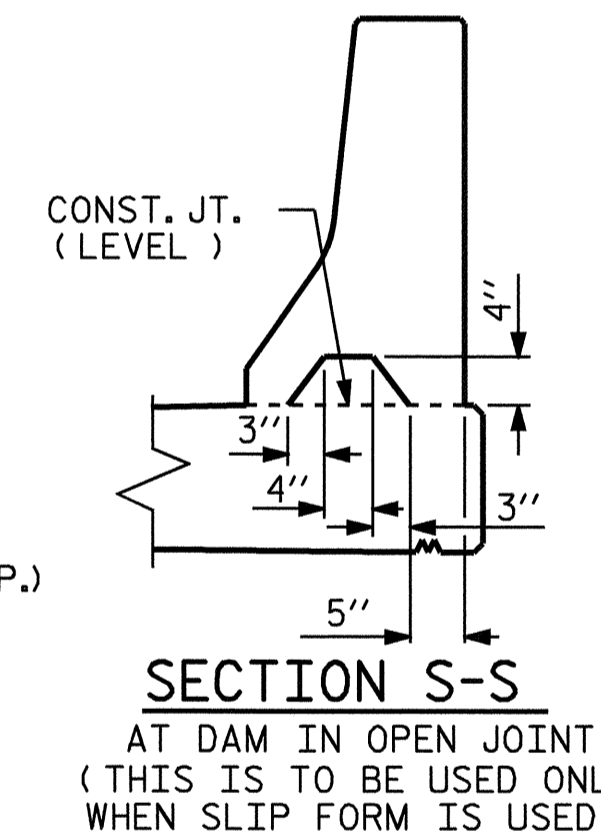
PLAN



END VIEW



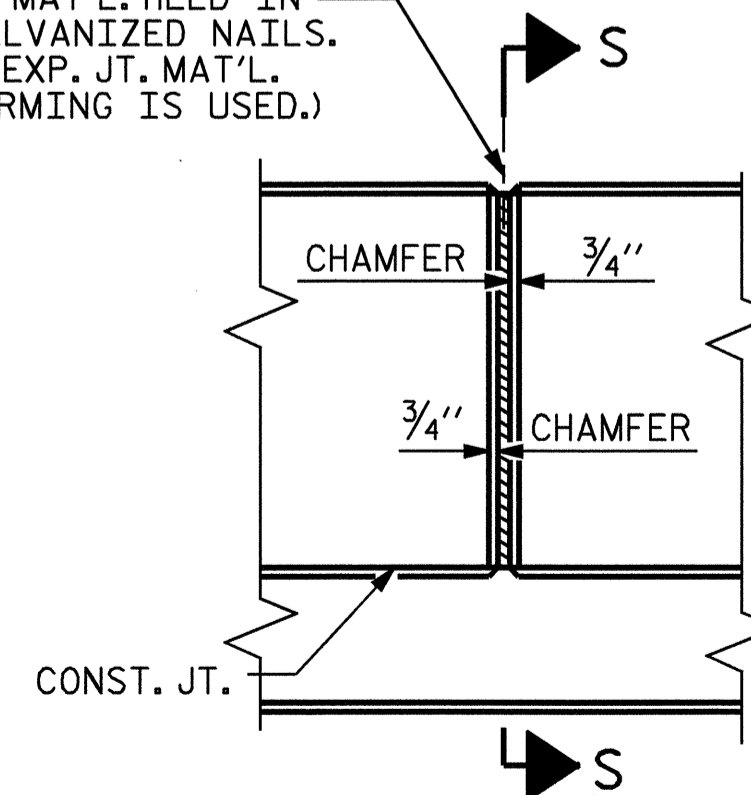
SECTION THRU RAIL



SECTION S-S

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

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



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

NOTES

THE BARRIER RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

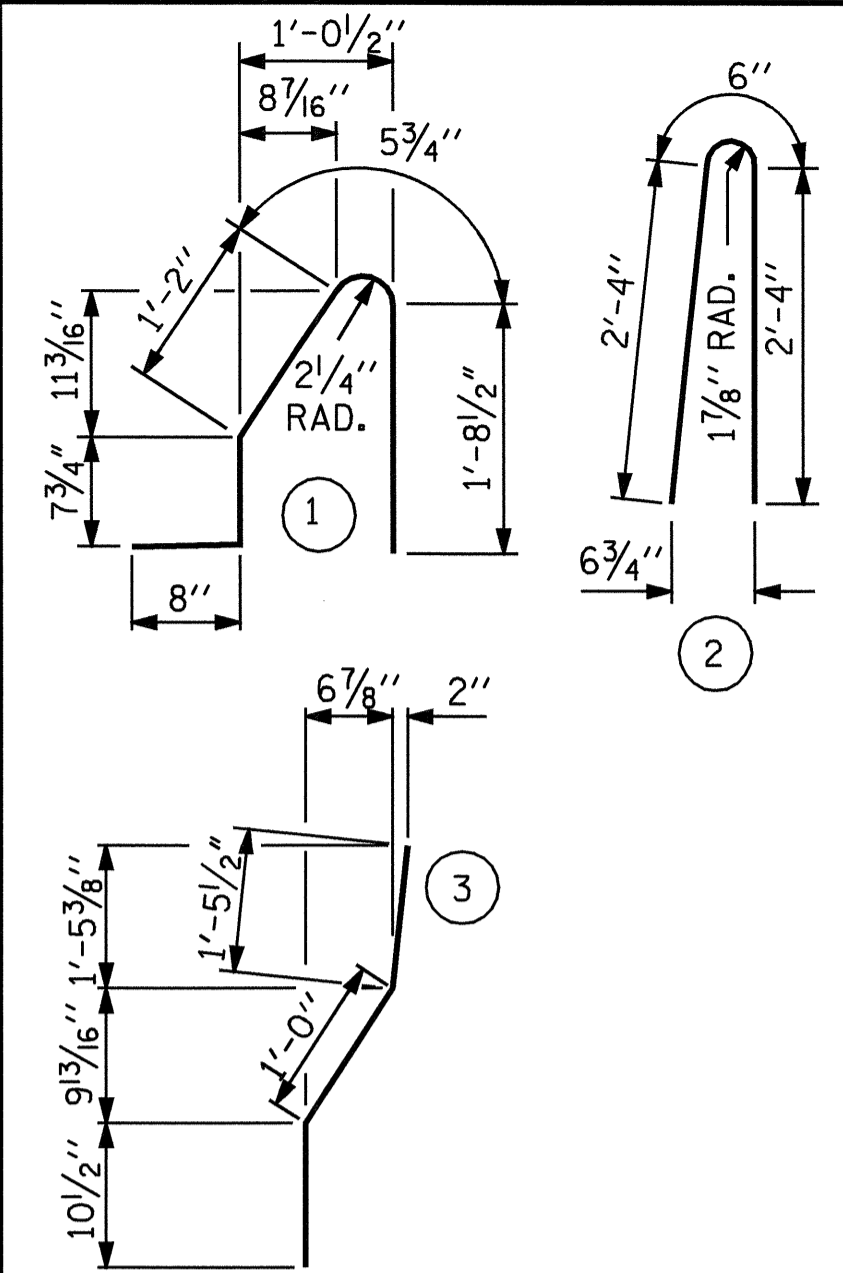
THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

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. THE 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.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR	23'-9"	694
* B2	56	#5	STR	13'-8"	798
* S1	178	#5	1	4'-8"	866
* S2	178	#5	2	5'-2"	959
* S3	12	#5	3	3'-4"	42
* S4	12	#5	STR	3'-2"	40
* EPOXY COATED REINFORCING STEEL					3399 LBS.
CLASS AA CONCRETE					19.4 CU. YDS.
CONCRETE BARRIER RAIL					193.52 LIN. FT.

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**STANDARD
 CONCRETE
 BARRIER RAIL**



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			26

STD. NO. CBRI

ASSEMBLED BY :	D. G. ELY	DATE :	6/24/05
CHECKED BY :	A. B. NAIK	DATE :	7/11/05
DRAWN BY :	ARB 5/87	REV. B/16/99	RWW/LES
CHECKED BY :	SJD 9/87	REV. 10/17/00	RWW/LES
		REV. 5/7/03R	RWW/JTE

END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

GROOVING BRIDGE FLOORS

APPROACH SLABS	650	SQ.FT.
BRIDGE DECK	2370	SQ.FT.
TOTAL	3020	SQ.FT.

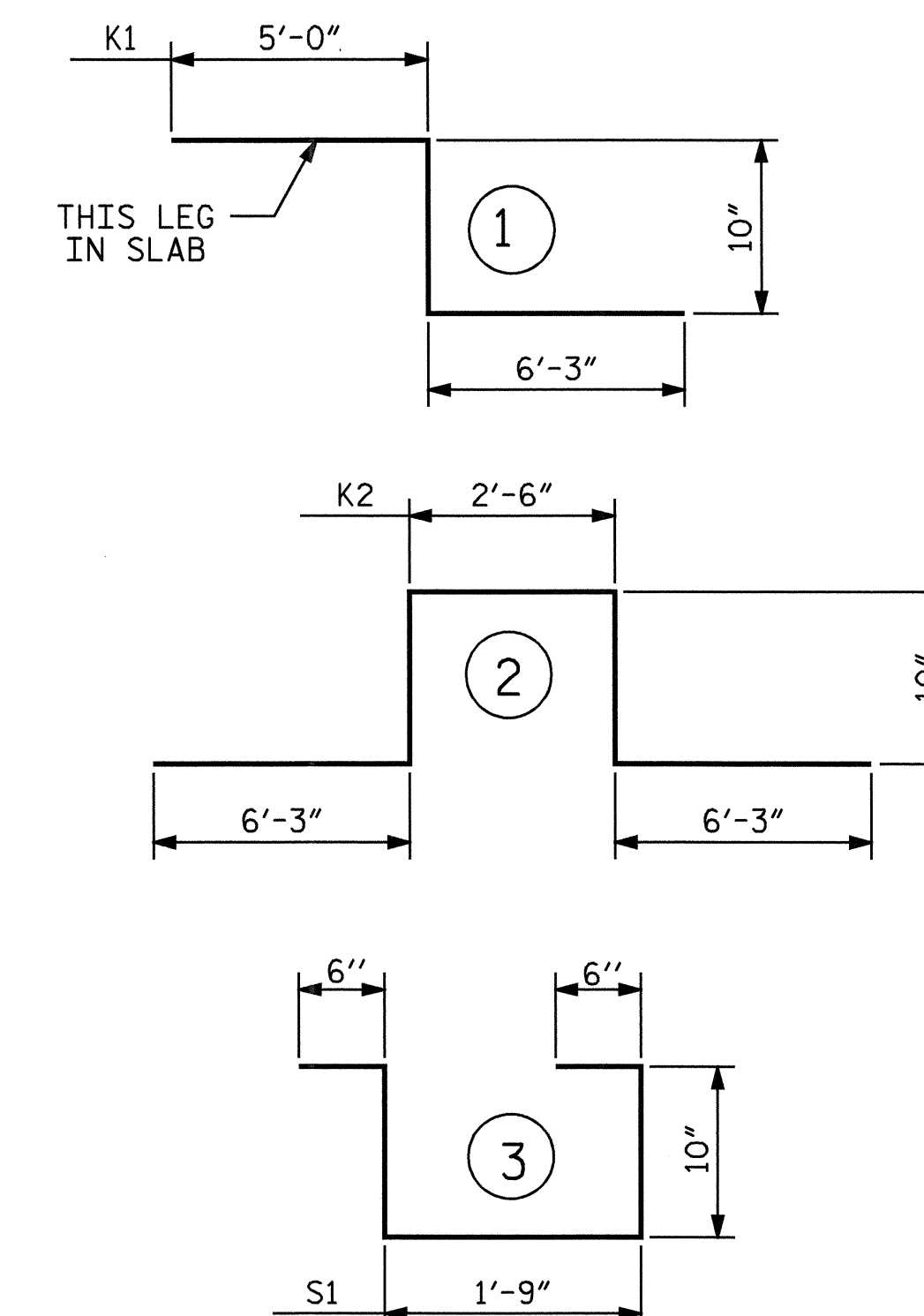
SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU.YDS.)	(LBS.)	(LBS.)
SPAN "A"	91.0	7585	6848
TOTALS**	91.0	7585	6848

*QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

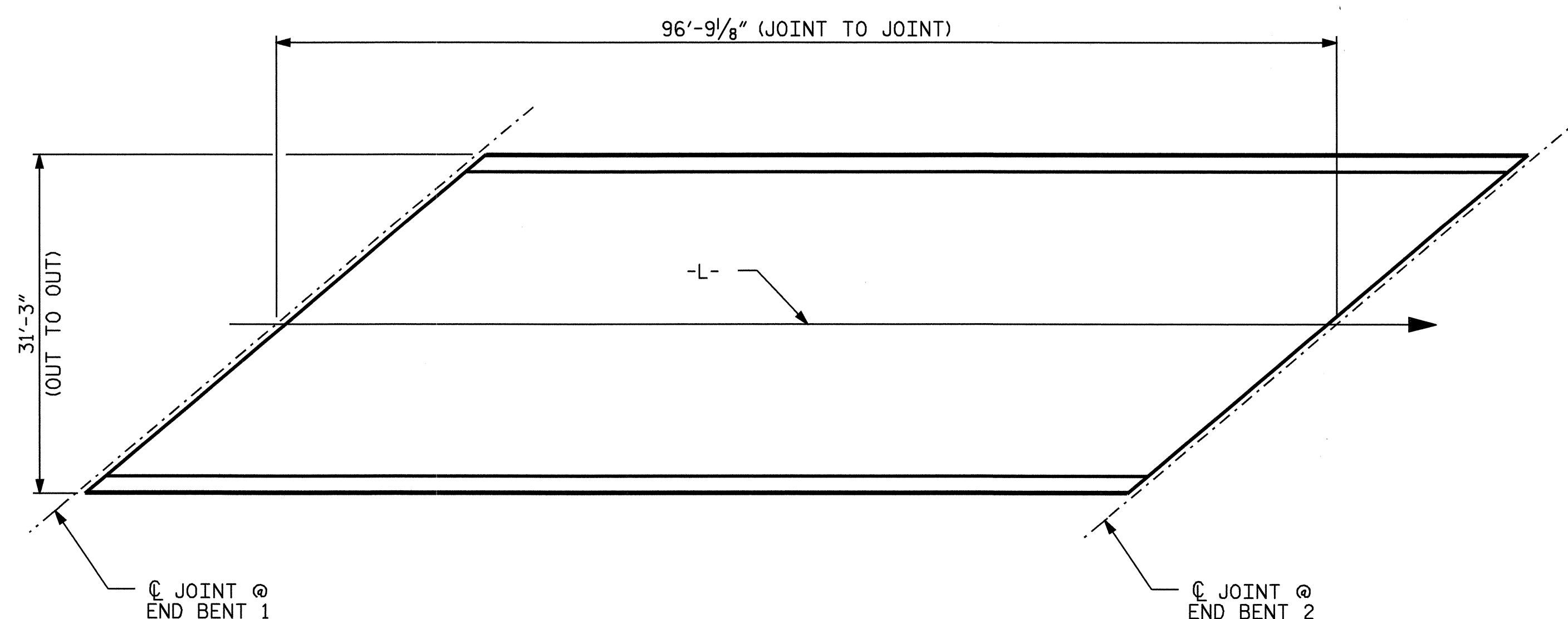
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	89	5	STR	30'-11"	2870
A2	89	5	STR	30'-11"	2870
* A3	6	6	STR	10'-0"	90
* A101	4	5	STR	30'-0"	125
* A102	4	5	STR	28'-11"	121
* A103	4	5	STR	27'-9"	116
* A104	4	5	STR	26'-8"	111
* A105	4	5	STR	25'-6"	106
* A106	4	5	STR	24'-5"	102
* A107	4	5	STR	23'-4"	97
* A108	4	5	STR	22'-2"	92
* A109	4	5	STR	21'-2"	88
* A110	4	5	STR	19'-11"	83
* A111	4	5	STR	18'-10"	79
* A112	4	5	STR	17'-8"	74
* A113	4	5	STR	16'-7"	69
* A114	4	5	STR	15'-6"	65
* A115	4	5	STR	14'-4"	60
* A116	4	5	STR	13'-3"	55
* A117	4	5	STR	12'-1"	50
* A118	4	5	STR	11'-0"	46
* A119	4	5	STR	9'-10"	41
* A120	4	5	STR	8'-9"	37
* A121	4	5	STR	7'-8"	32
* A122	4	5	STR	6'-6"	27
* A123	4	5	STR	5'-5"	23
* A124	4	5	STR	4'-3"	18
A201	4	5	STR	30'-0"	125
A202	4	5	STR	28'-11"	121
A203	4	5	STR	27'-9"	116
A204	4	5	STR	26'-8"	111
A205	4	5	STR	25'-6"	106
A206	4	5	STR	24'-5"	102
A207	4	5	STR	23'-4"	97
A208	4	5	STR	22'-2"	92
A209	4	5	STR	21'-2"	88
A210	4	5	STR	19'-11"	83
A211	4	5	STR	18'-10"	79
A212	4	5	STR	17'-8"	74
A213	4	5	STR	16'-7"	69
A214	4	5	STR	15'-6"	65
A215	4	5	STR	14'-4"	60
A216	4	5	STR	13'-3"	55
A217	4	5	STR	12'-1"	50
A218	4	5	STR	11'-0"	46
A219	4	5	STR	9'-10"	41
A220	4	5	STR	8'-9"	37
A221	4	5	STR	7'-8"	32
A222	4	5	STR	6'-6"	27
A223	4	5	STR	5'-5"	23
A224	4	5	STR	4'-3"	18
* B1	84	4	STR	25'-7"	1436
B2	112	5	STR	25'-8"	2998
* G1	4	5	STR	25'-4"	106
* K1	12	5	1	12'-1"	151
* K2	18	5	2	16'-8"	313
* S1	56	4	3	4'-5"	165
REINFORCING STEEL - LBS.					7585
* EPOXY COATED REINFORCING STEEL - LBS.					6848

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 3,023.7)

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			26

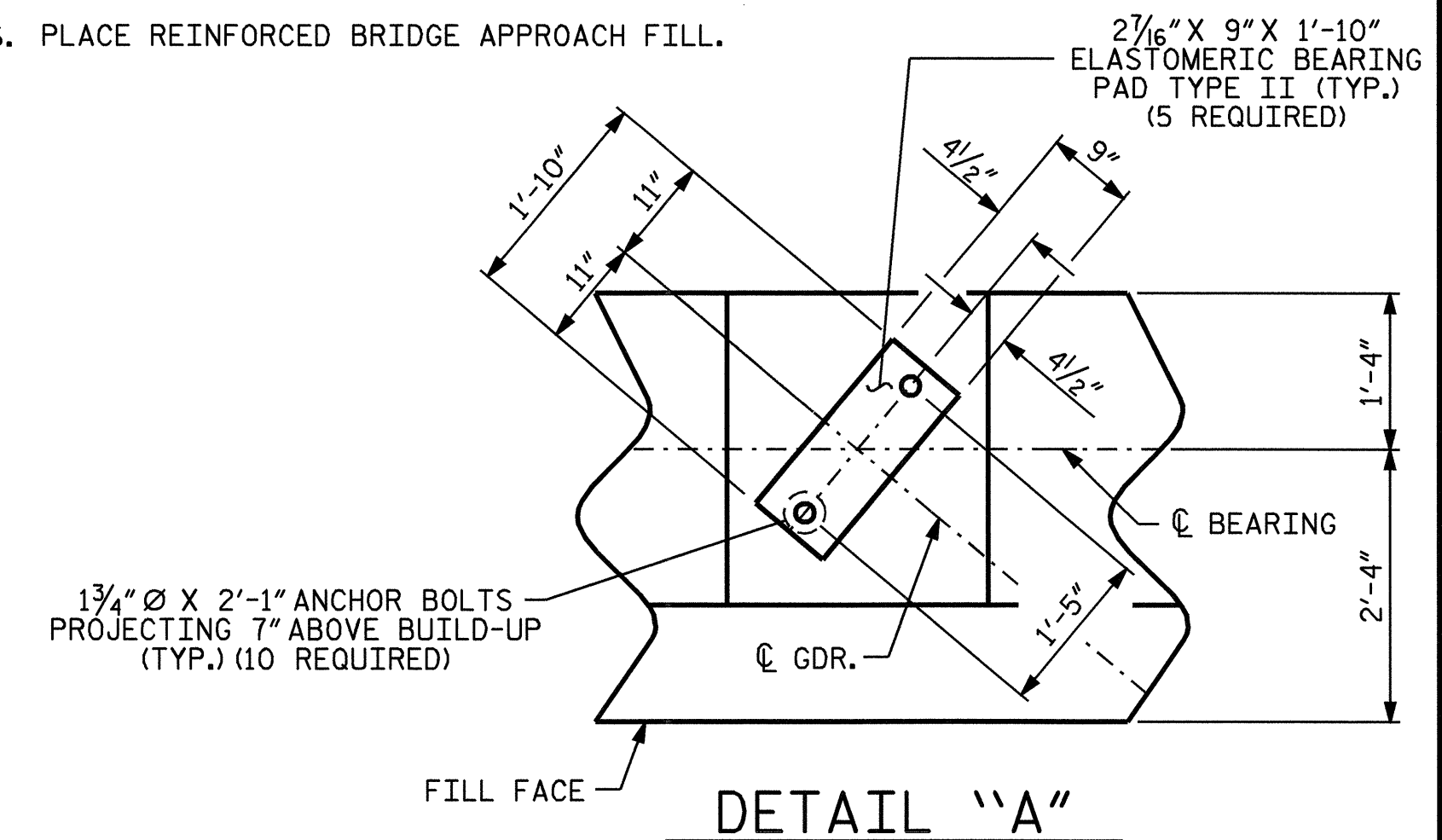
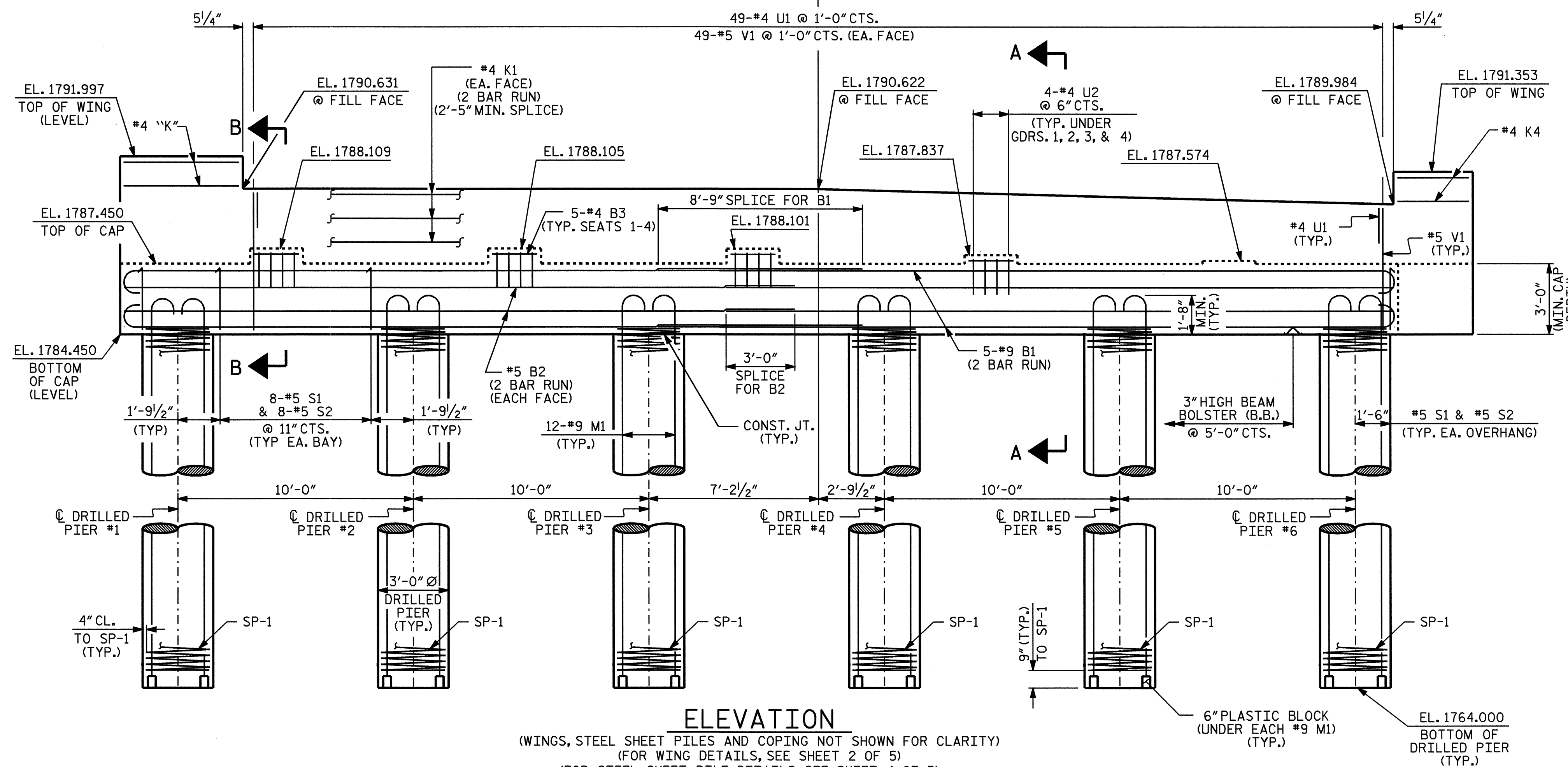
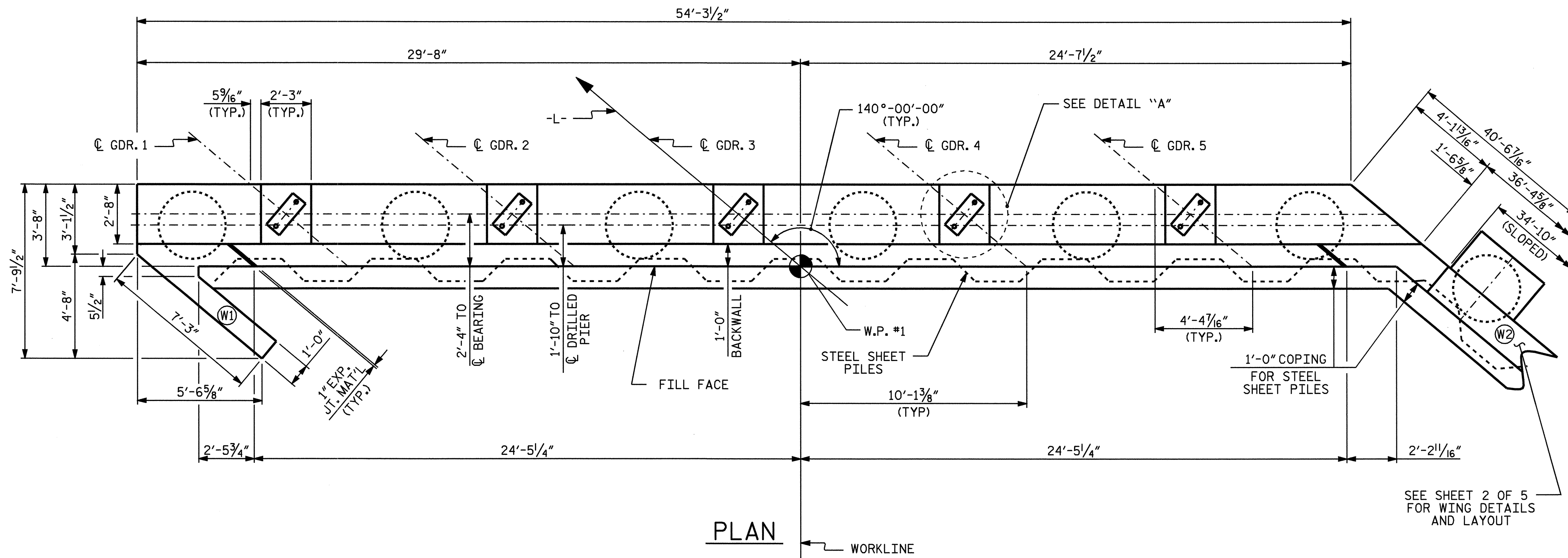
ASSEMBLED BY : D. G. ELY DATE : 6/24/05
 CHECKED BY : A. B. NAIK DATE : 7/7/05

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIERS WILL NOT BE PERMITTED.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3'-0" EXTRA LENGTH.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- 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.
- STEEL SHEET PILES SHALL BE AASHTO M270 GRADE 50 AND GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. STEEL SHEET PILES SHALL HAVE A MINIMUM SECTION MODULUS OF 45.3 CUBIC INCHES. STEEL SHEET PILES SHALL HAVE A NOMINAL DEPTH NO GREATER THAN 1 FOOT.
- FOR SELECT BACKFILL MATERIAL, SEE SPECIAL PROVISIONS.
- PERMANENT STEEL CASING SHALL END AT THE CONSTRUCTION JOINT AT THE BOTTOM OF THE CAP.

CONSTRUCTION SEQUENCE

- EXCAVATE TRENCH AND PLACE PERMANENT STEEL CASING. TRENCH SHALL BE EXCAVATED WHERE SHEET PILING IS REQUIRED. BACKFILL TRENCH WITH SELECT BACKFILL MATERIAL CLASS VI (#57 STONE), SEE DETAIL ON SHEET 5 OF 5.
- CONSTRUCT DRILLED PIERS.
- DRIVE STEEL SHEET PILES.
- CONSTRUCT SHEET PILE COPING AND END BENT CAP.
- BACKFILL WITH #57 STONE. SEE DETAIL ON SHEET 5 OF 5.
- PLACE REINFORCED BRIDGE APPROACH FILL.



PROJECT NO. B-3701
 SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 1 OF 5

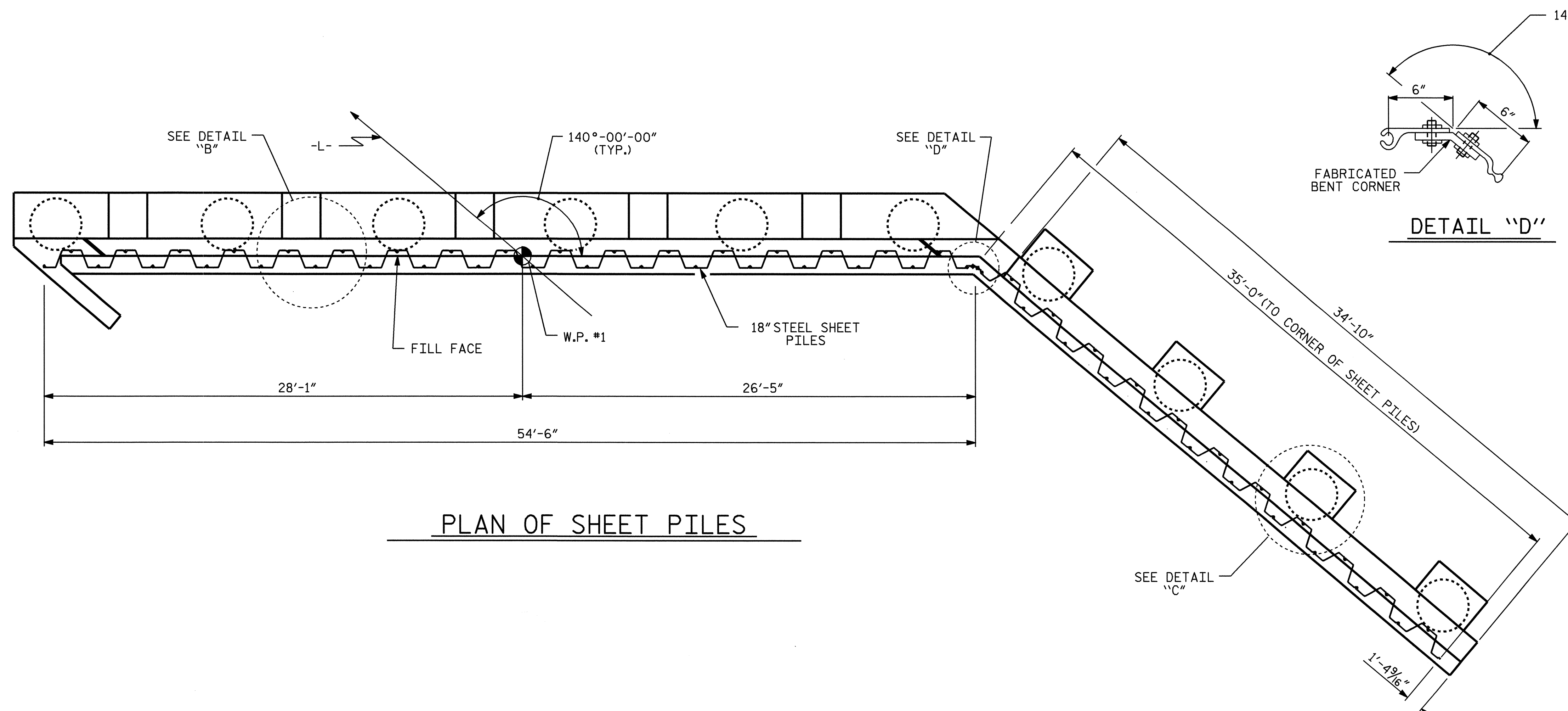
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 1**

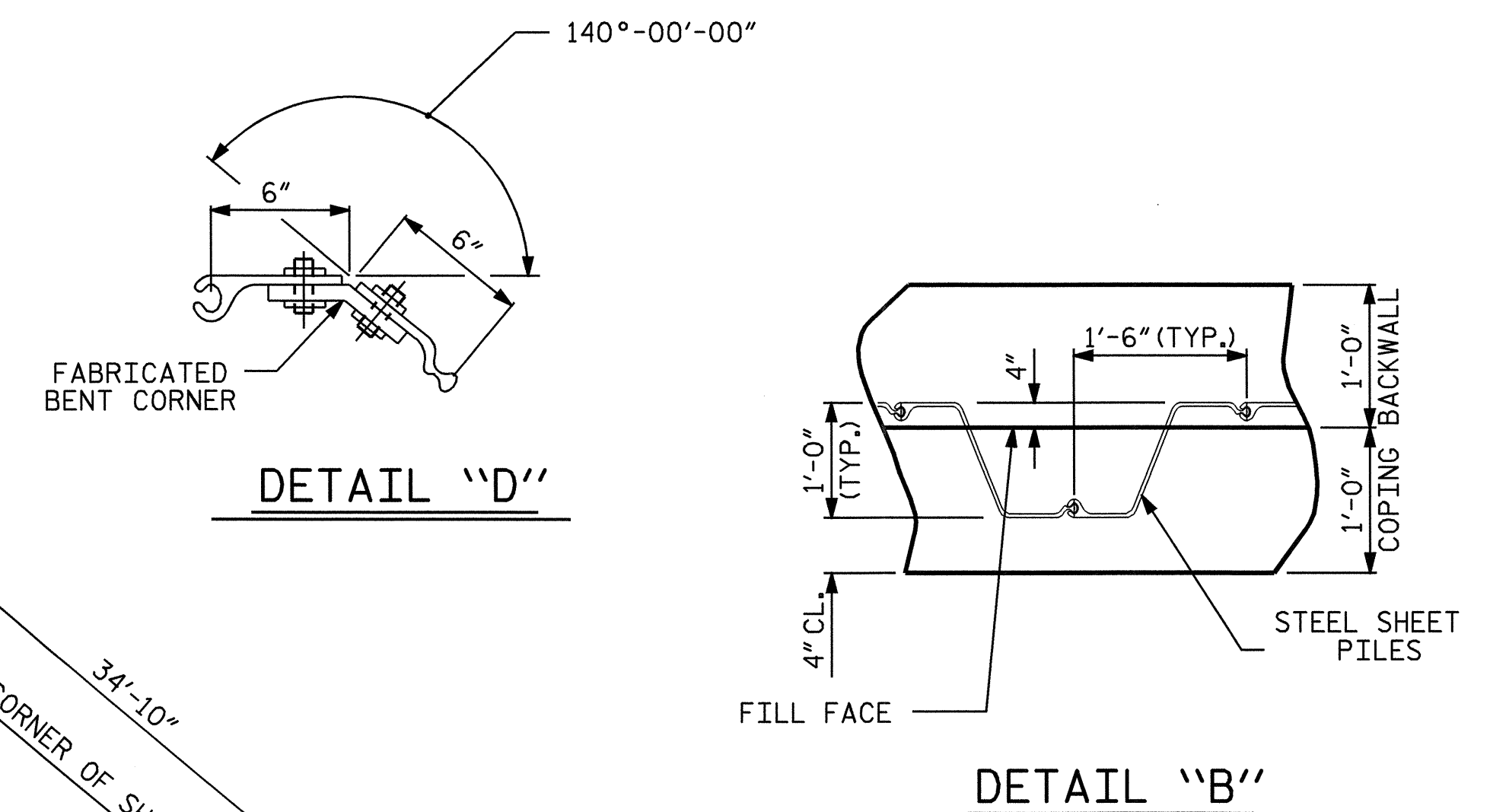


REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 26
2			4			

DRAWN BY: D. G. ELY DATE: 7/28/05
 CHECKED BY: A. B. NAIK DATE: 9/13/05

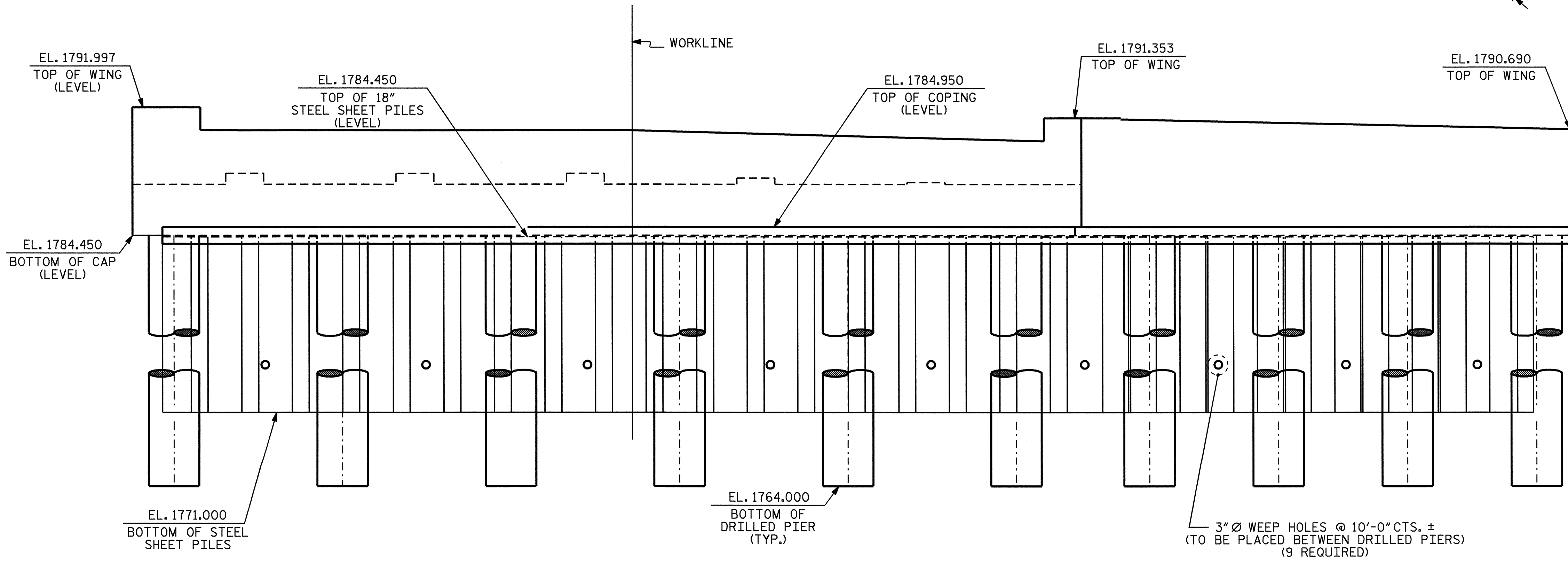


PLAN OF SHEET PILES



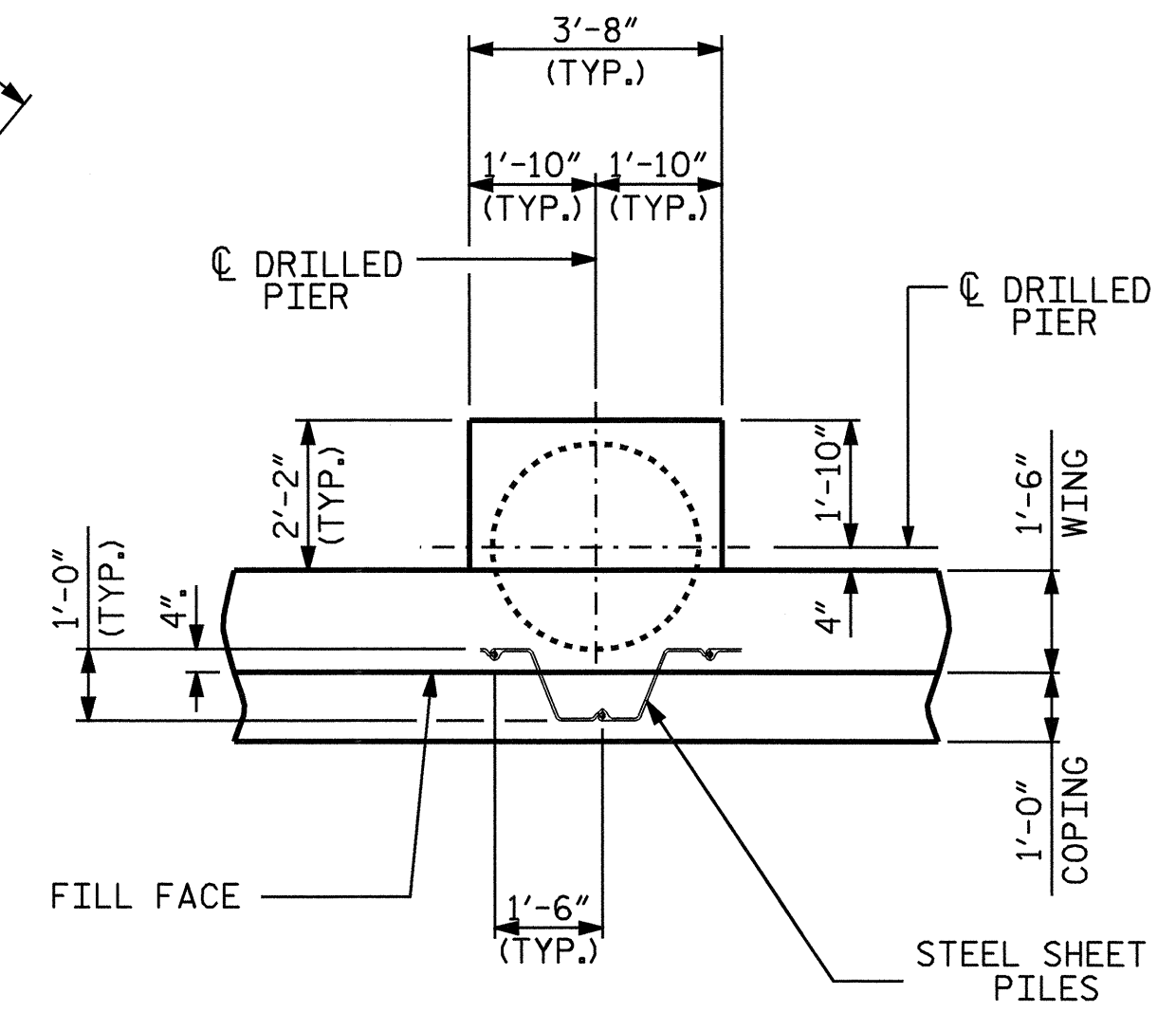
DETAIL "D"

DETAIL "B"



ELEVATION OF SHEET PILES

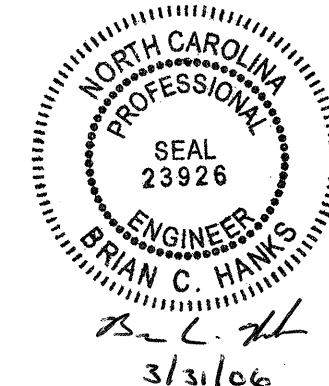
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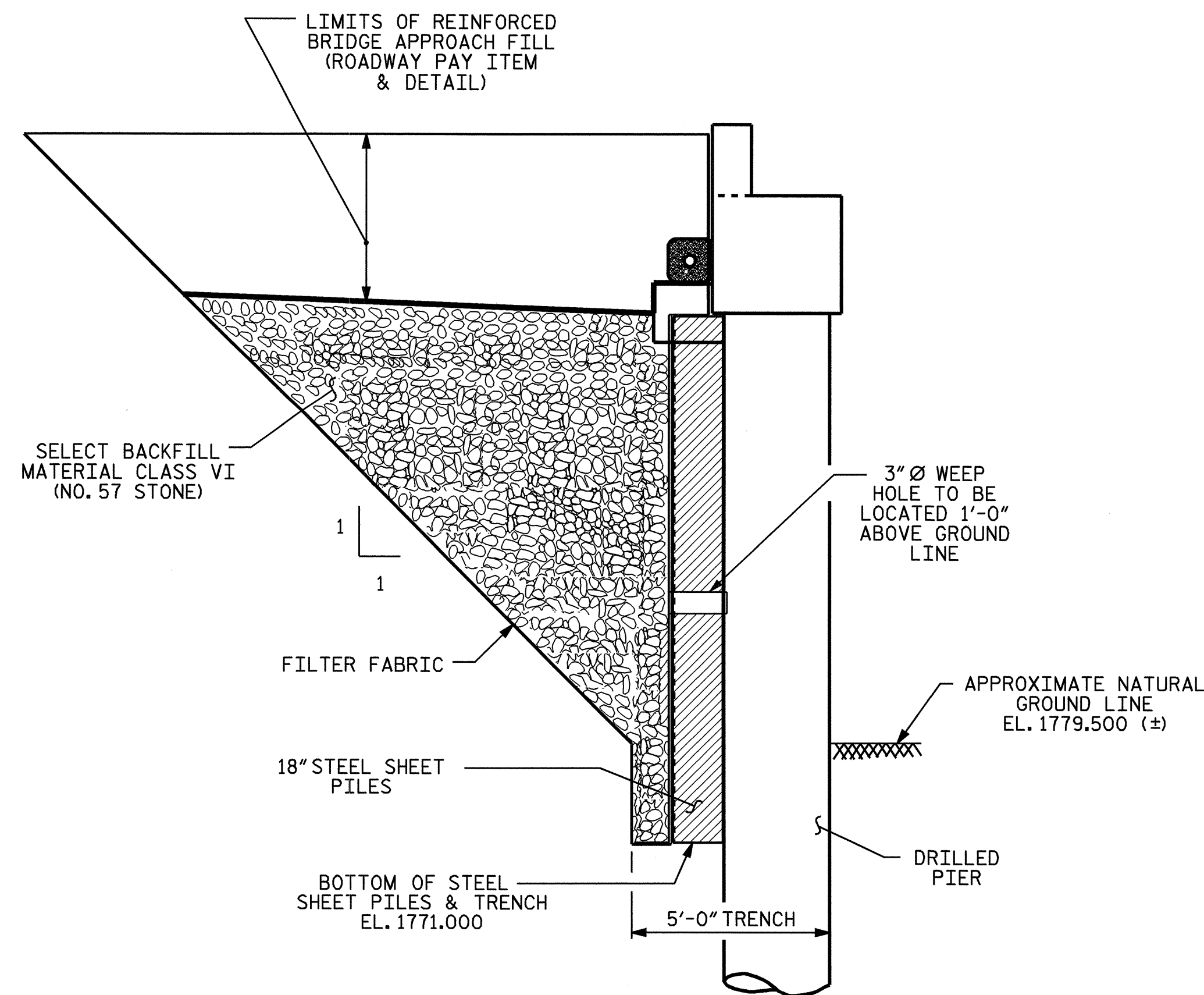
DETAIL "C"

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-
 SHEET 4 OF 5

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-17
					TOTAL SHEETS 26

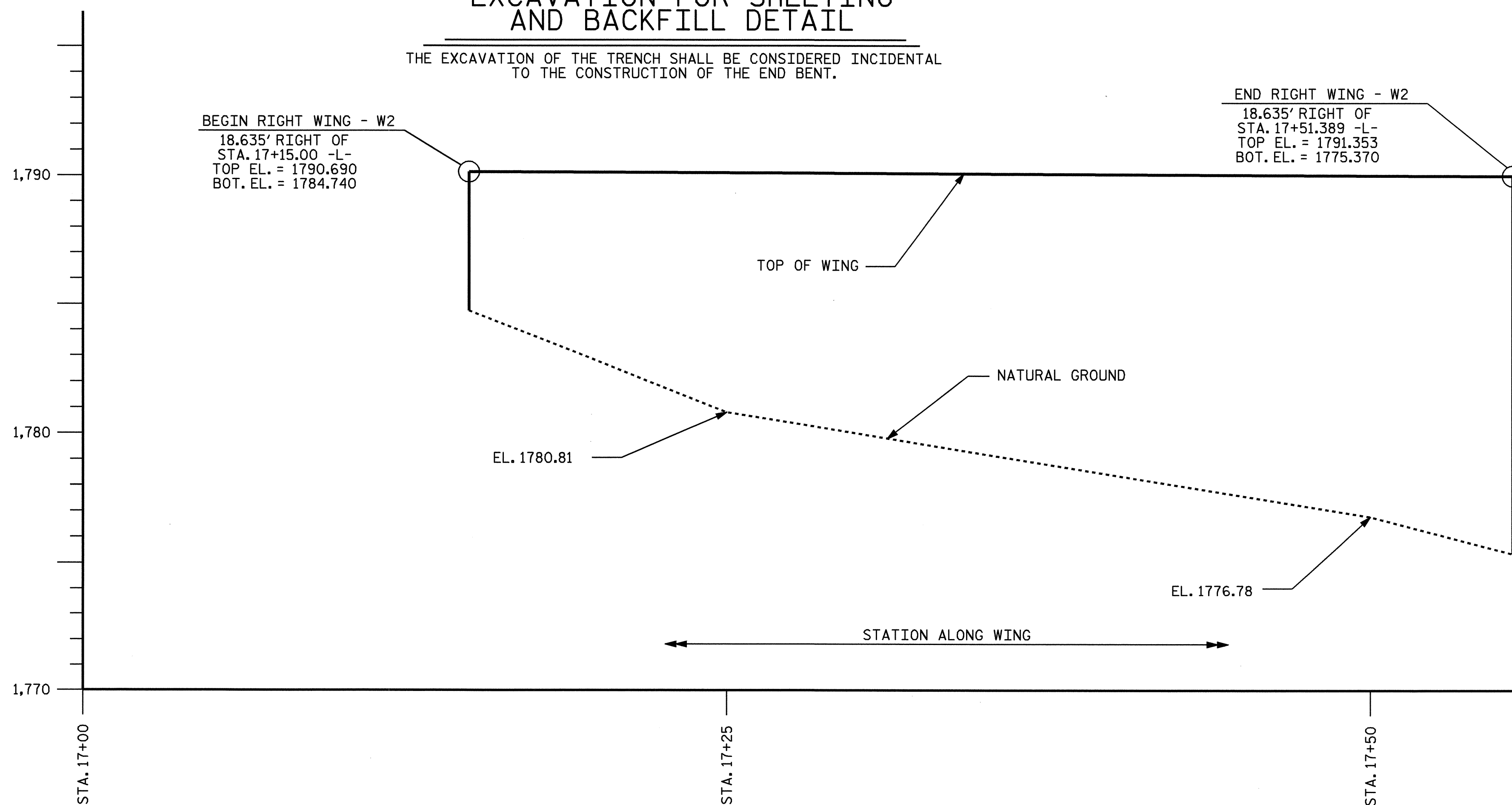


DRAWN BY : D. G. ELY DATE : 9/21/05
 CHECKED BY : A. B. NAIK DATE : 10/26/05



EXCAVATION FOR SHEETING AND BACKFILL DETAIL

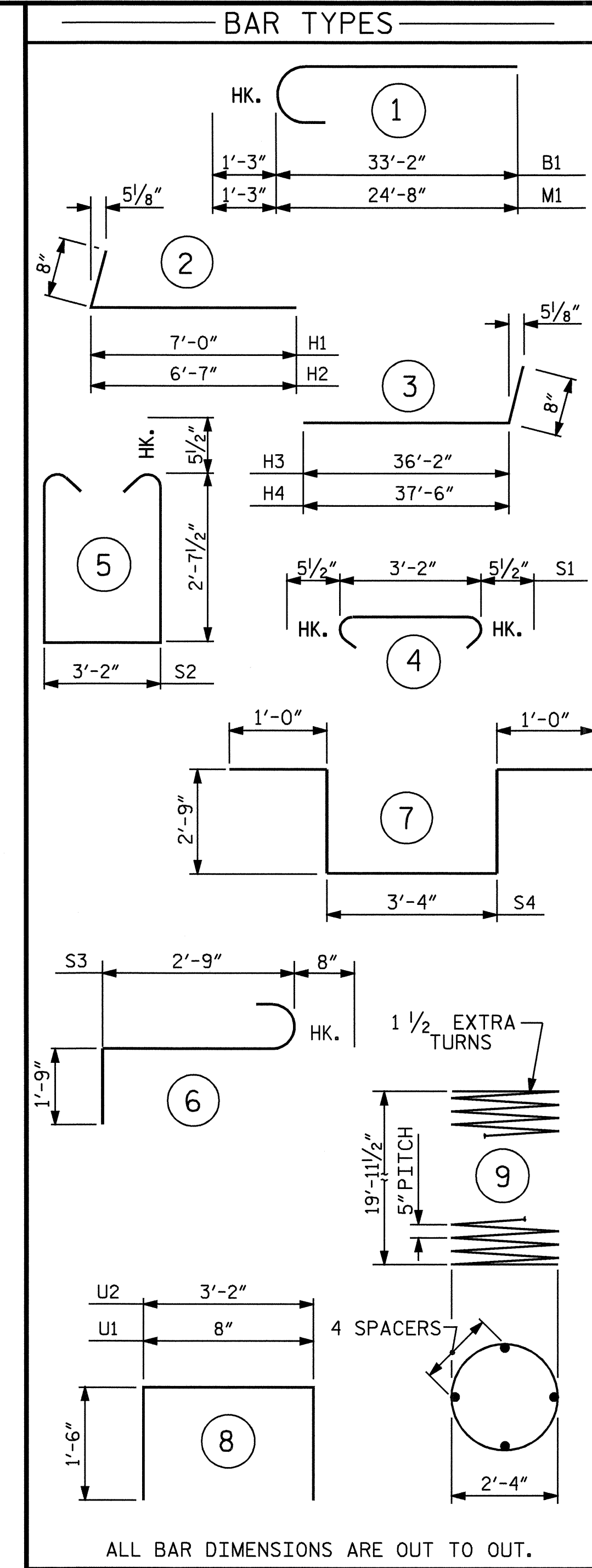
THE EXCAVATION OF THE TRENCH SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE END BENT.



ELEVATION RIGHT WING - W2
(VIEWING FRONT FACE)

DRILLED PIER QUANTITIES			
DRILLED PIER CONCRETE			
POUR #1 (DRILLED PIERS)	CY	53.5	
3'-0" Ø DRILLED PIER NOT IN SOIL	LIN FT.	70.0	
3'-0" Ø DRILLED PIER IN SOIL	LIN FT.	134.5	
3'-0" Ø PERMANENT STEEL CASING	LIN FT.	134.5	
CSL TUBES	LIN FT.	918	
CROSSHOLE SONIC LOGGING	EACH	1	
SID INSPECTION	EACH	1	

CONCRETE QUANTITIES			
CLASS 'A' CONCRETE BREAKDOWN			
POUR #2: CAP, LOWER PART OF WINGS, & COPING	CY	37.2	
POUR #3: BACKWALL & UPPER PART OF WINGS	CY	14.3	
TOTAL	CY	51.5	



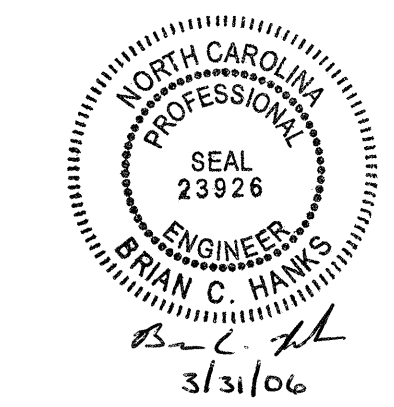
ALL BAR DIMENSIONS ARE OUT TO OUT.

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL						
END BENT 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	20	#9	1	34'-5"	2340	
B2	8	#5	STR	30'-3"	252	
B3	20	#4	STR	1'-11"	26	
H1	8	#6	2	7'-8"	92	
H2	8	#6	2	7'-3"	87	
H3	8	#7	3	36'-10"	602	
H4	8	#7	3	38'-2"	624	
K1	12	#4	STR	30'-0"	240	
K2	2	#4	STR	4'-0"	5	
K3	2	#4	STR	3'-10"	5	
K4	4	#4	STR	4'-0"	11	
M1	120	#9	1	25'-11"	10,574	
S1	42	#5	4	4'-1"	179	
S2	42	#5	5	9'-4"	409	
S3	16	#6	6	5'-2"	124	
S4	8	#6	7	10'-10"	130	
U1	49	#4	8	3'-8"	120	
U2	16	#4	8	6'-2"	66	
V1	98	#5	STR	5'-2"	528	
V2	23	#4	STR	7'-2"	110	
V3	10	#5	STR	5'-10"	61	
V4	10	#5	STR	5'-11"	62	
V5	10	#5	STR	6'-0"	63	
V6	10	#5	STR	6'-1"	63	
V7	10	#5	STR	6'-3"	65	
V8	10	#5	STR	6'-4"	66	
V9	10	#5	STR	6'-5"	67	
V10	13	#5	STR	6'-6"	88	
REINFORCING STEEL				17,059	LBS	
SP-1	10	**	9	358'-2"	3736	
SPIRAL COLUMN REINFORCING STEEL					LBS.	3736
18" STEEL SHEET PILES				FT ²	1250	
SELECT BACKFILL MATERIAL CLASS VI					TONS	140

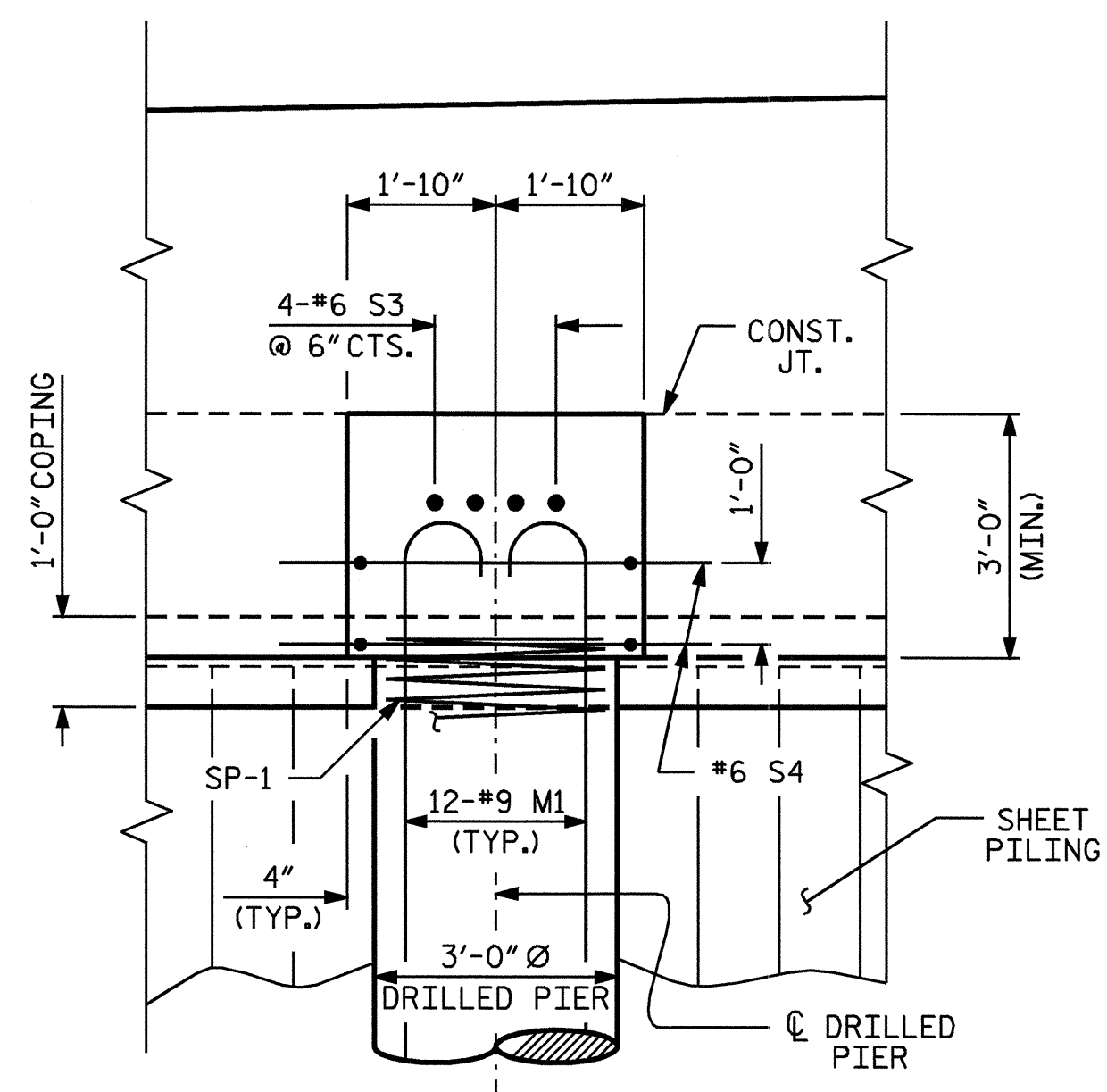
PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 5 OF 5
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

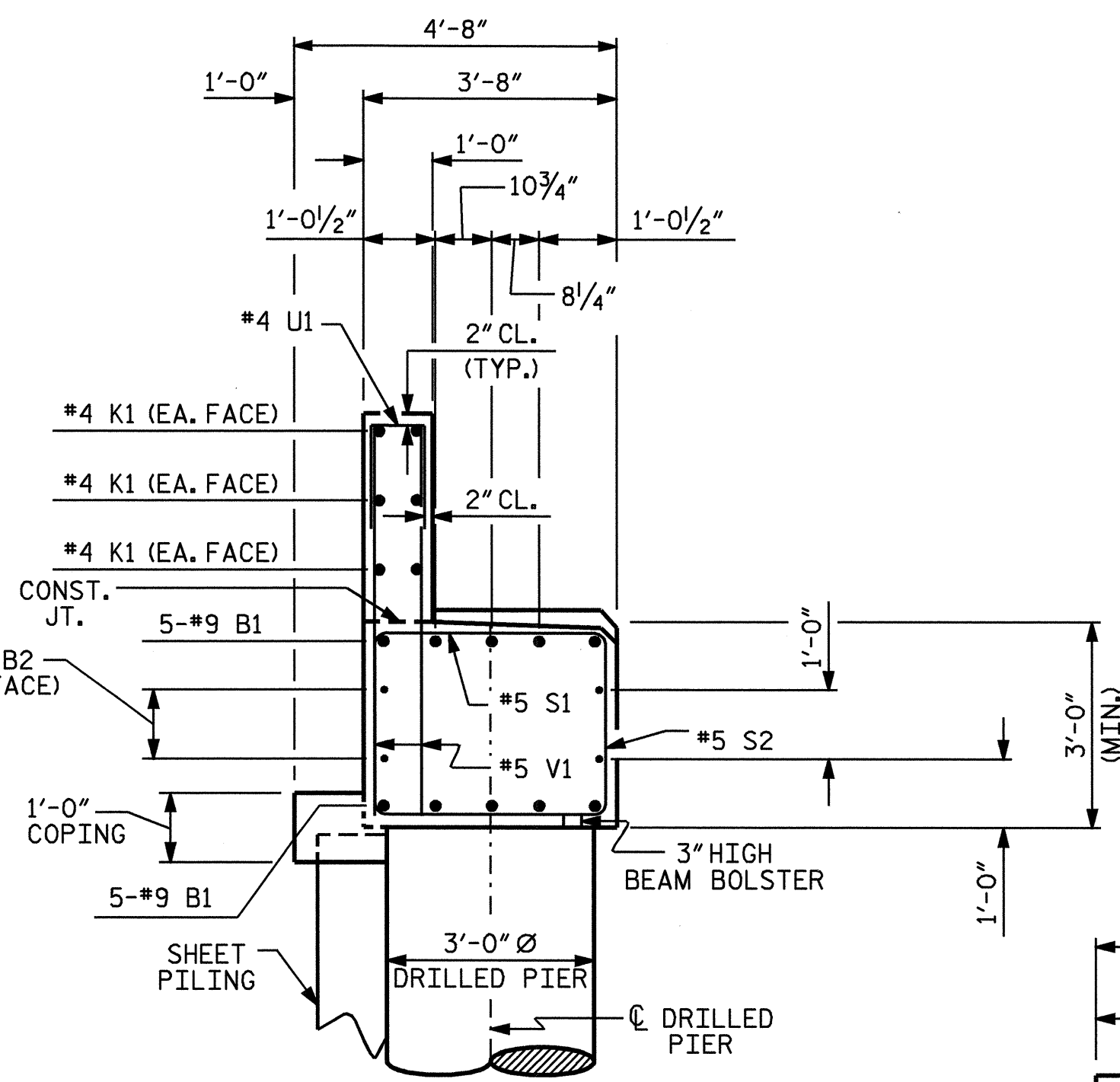


DRAWN BY: D. G. ELY DATE: 7/28/05
 CHECKED BY: A. B. NAIK DATE: 10/26/05

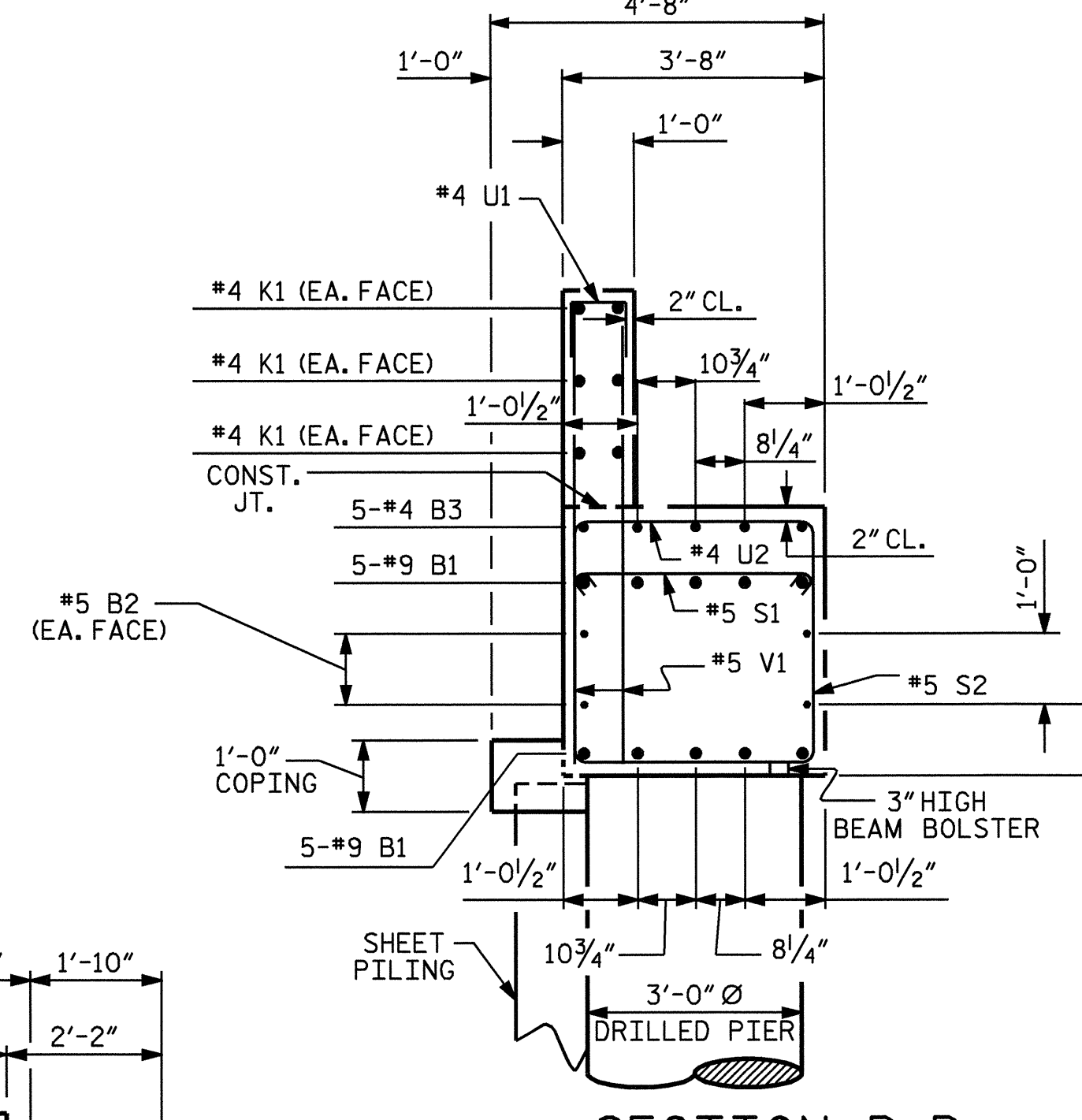
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			26



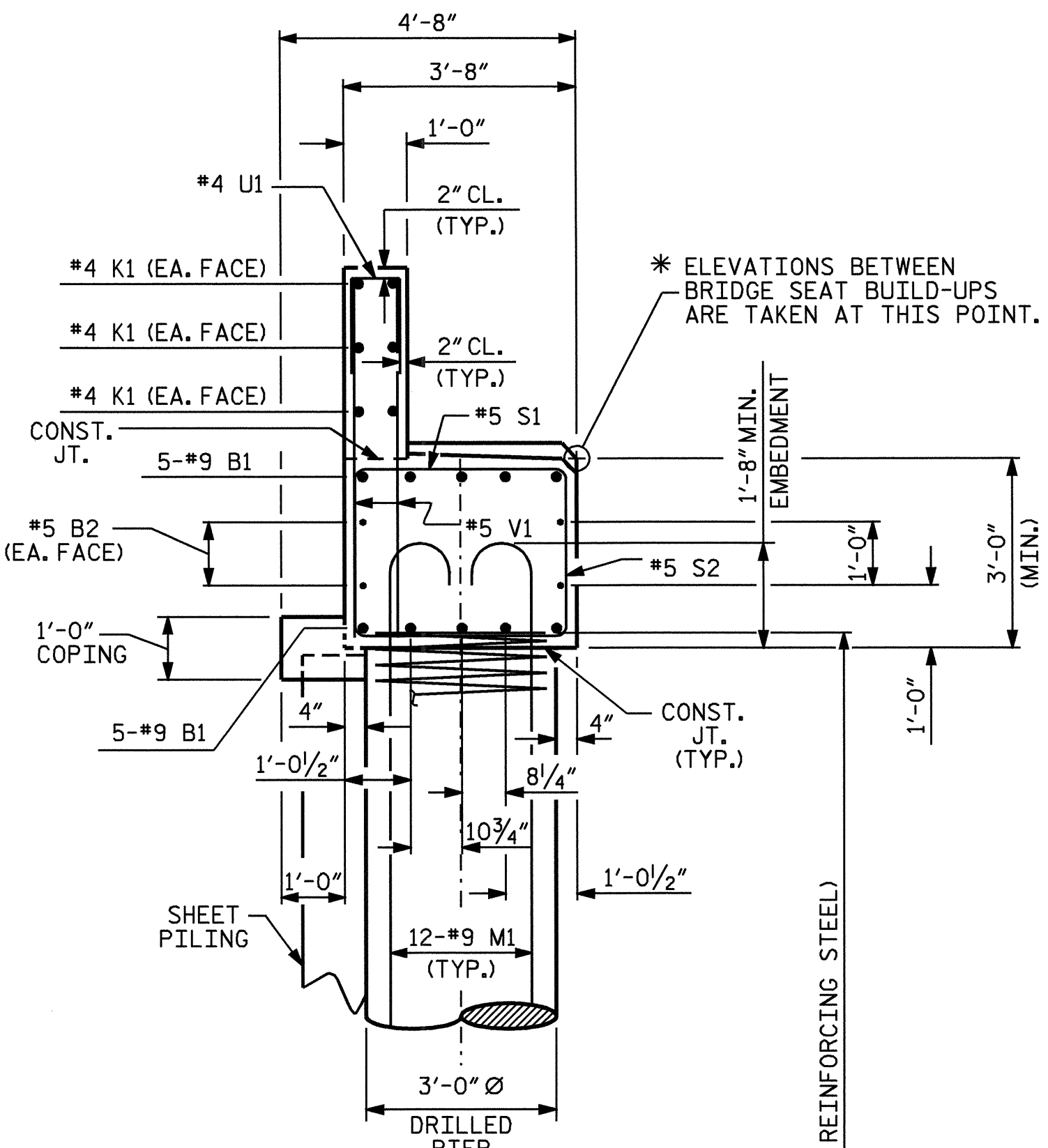
SECTION D-D



SECTION A-A

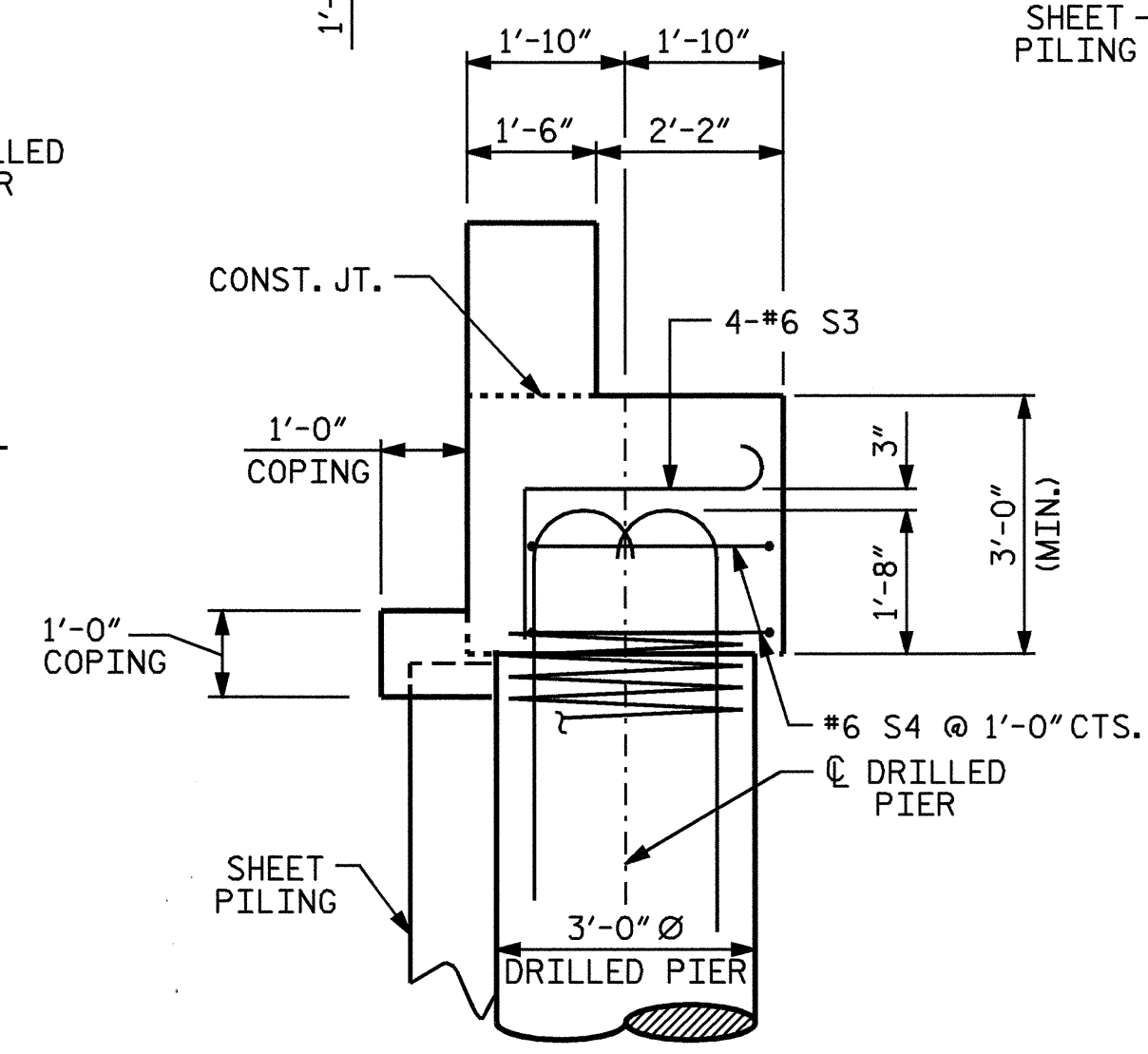


SECTION B-B

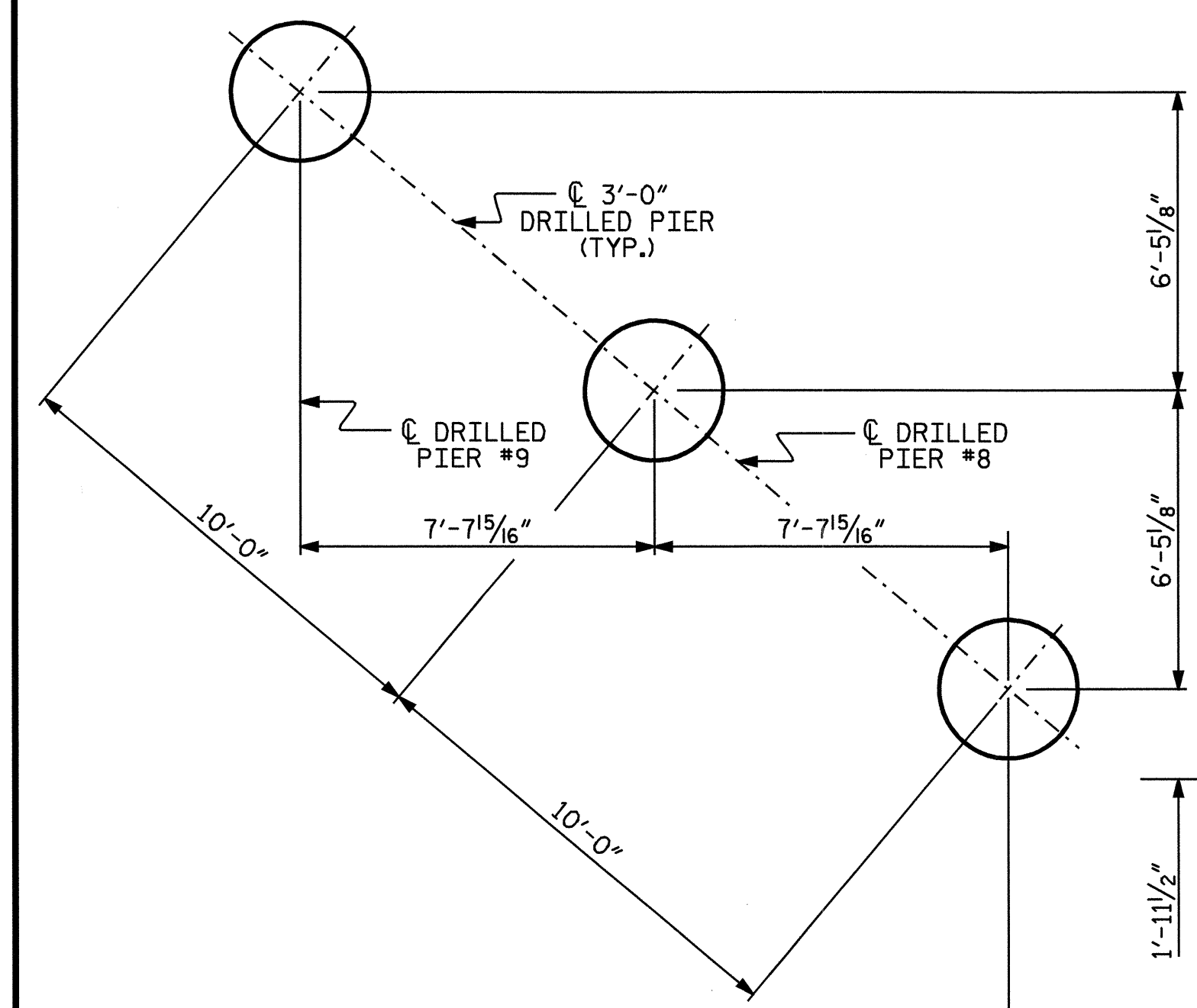


SECTION THRU CAP

INFORMATION GIVEN IS TYPICAL FOR EACH DRILLED PIER UNDER THE CAP



SECTION C-C



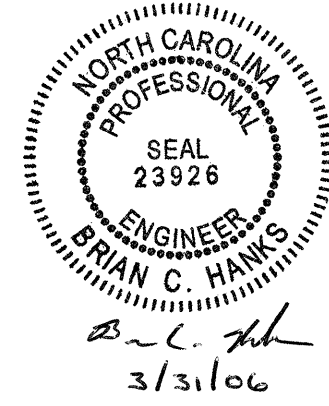
PLAN OF DRILLED PIERS

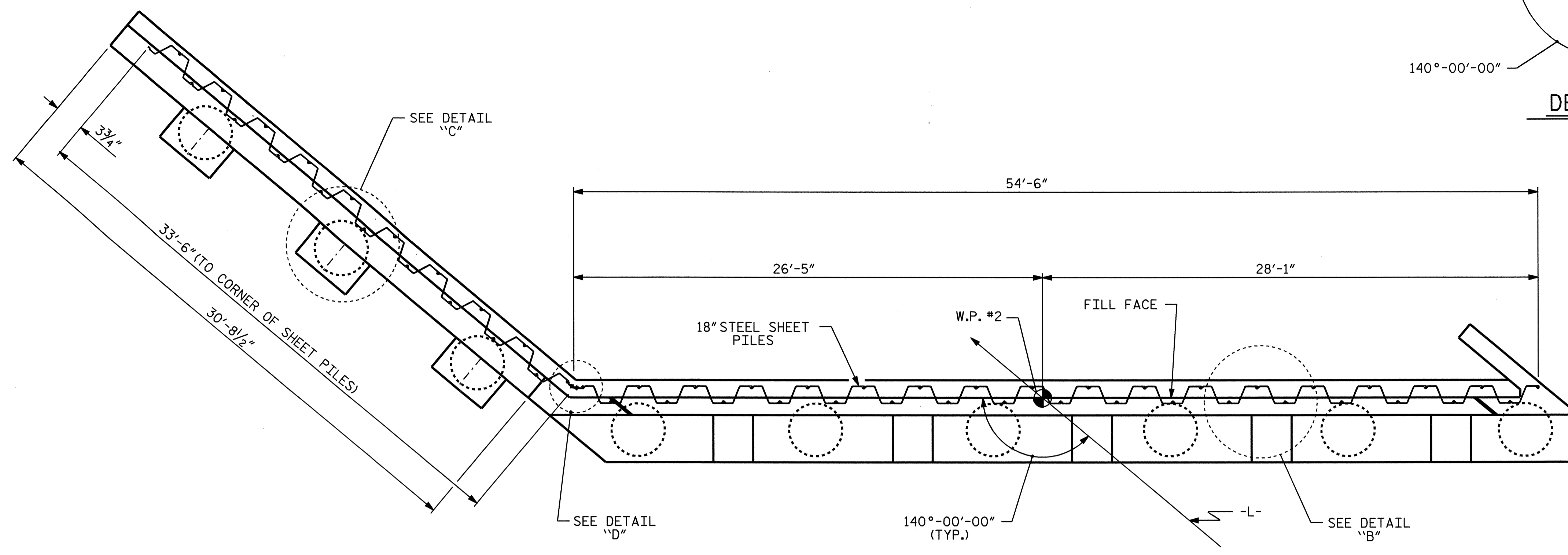
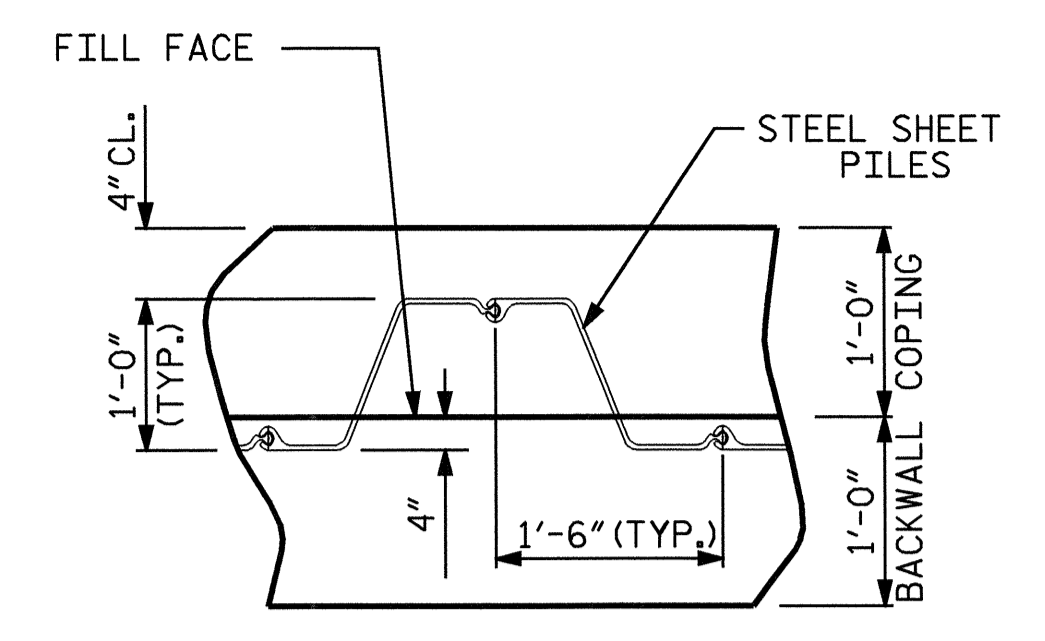
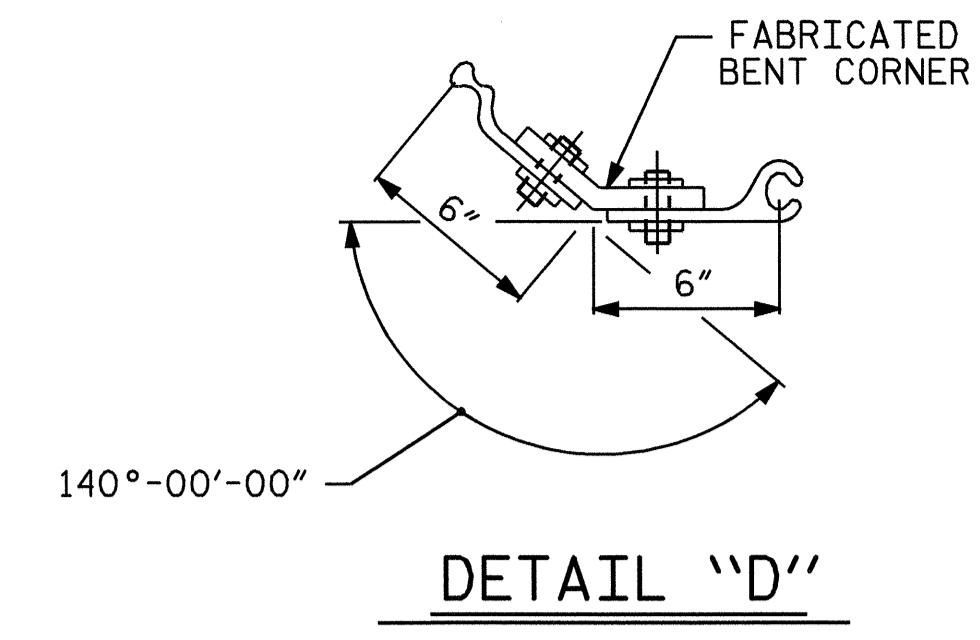
PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 3 OF 5

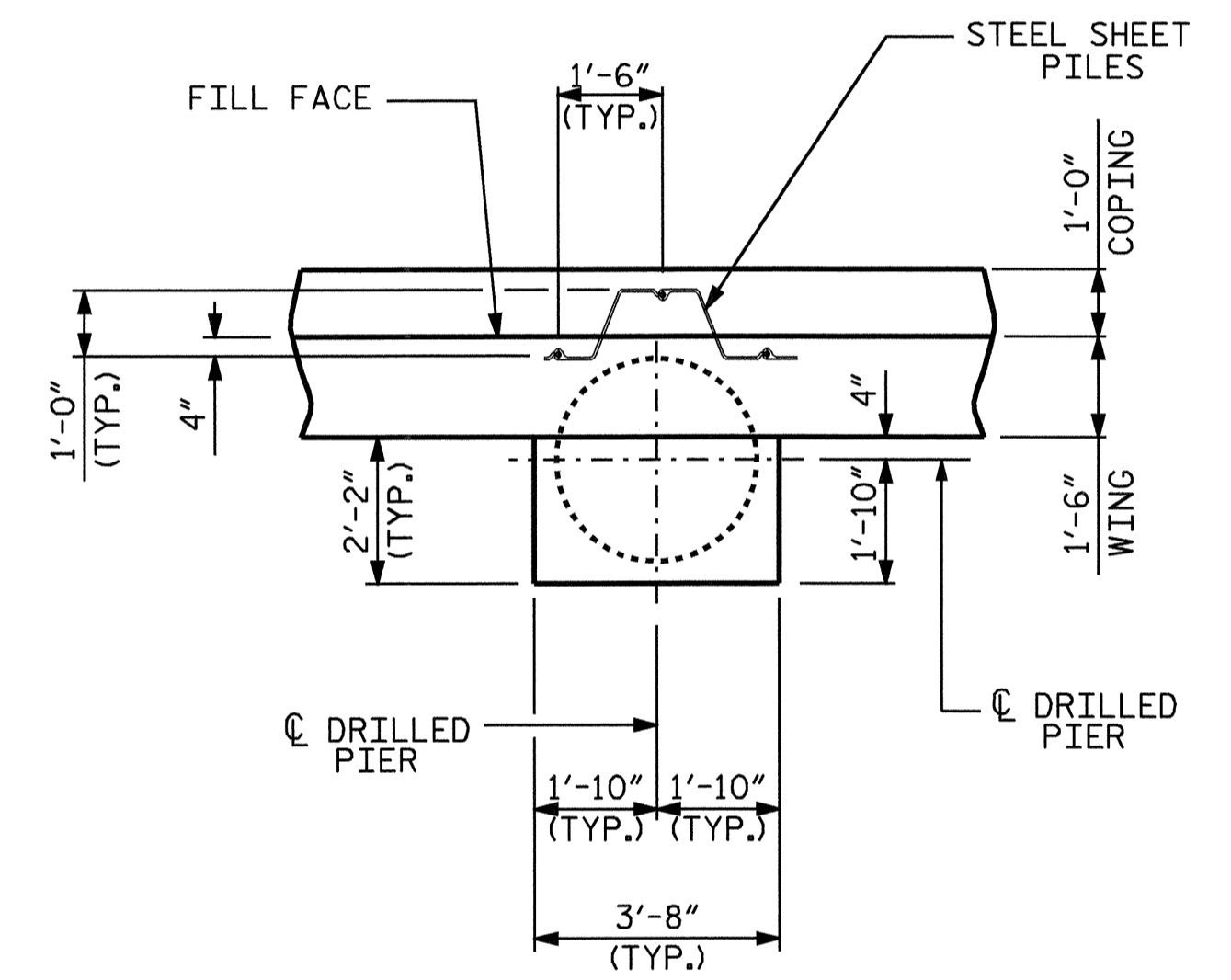
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	
2			4			26	

DRAWN BY : D. G. ELY DATE : 7/28/05
 CHECKED BY : A. B. NAIK DATE : 9/16/05

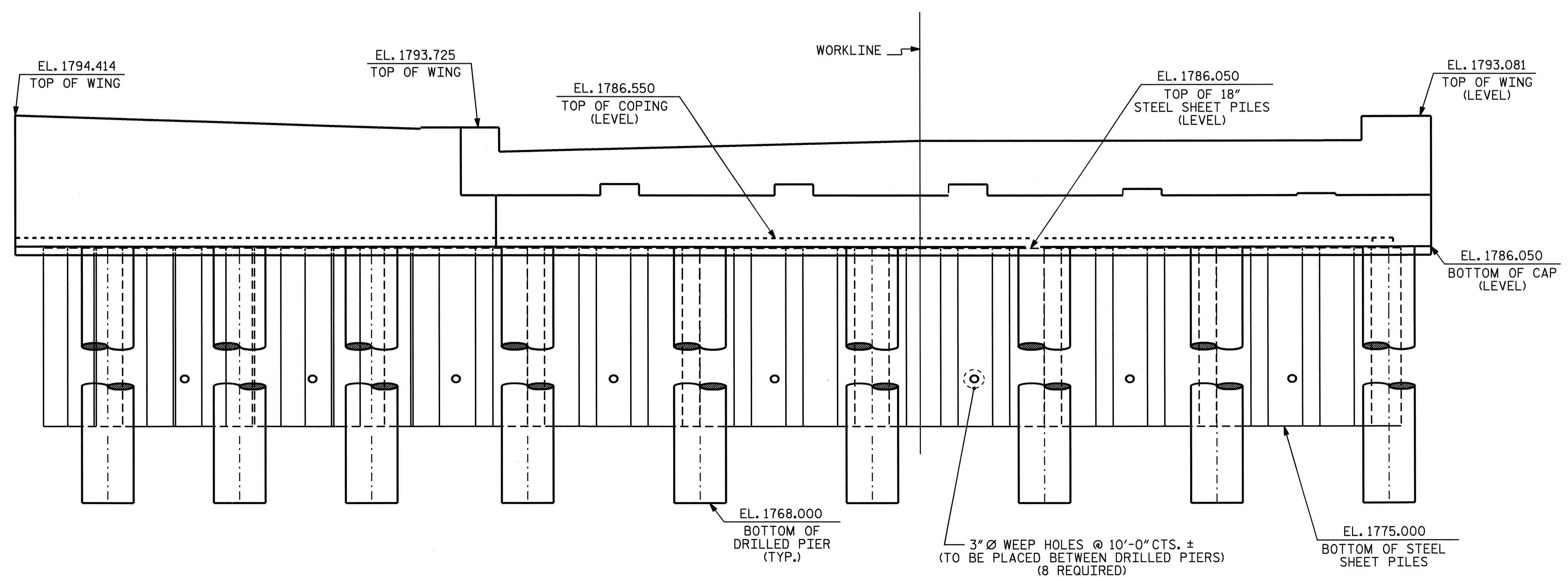




PLAN OF SHEET PILES



DETAIL "C"



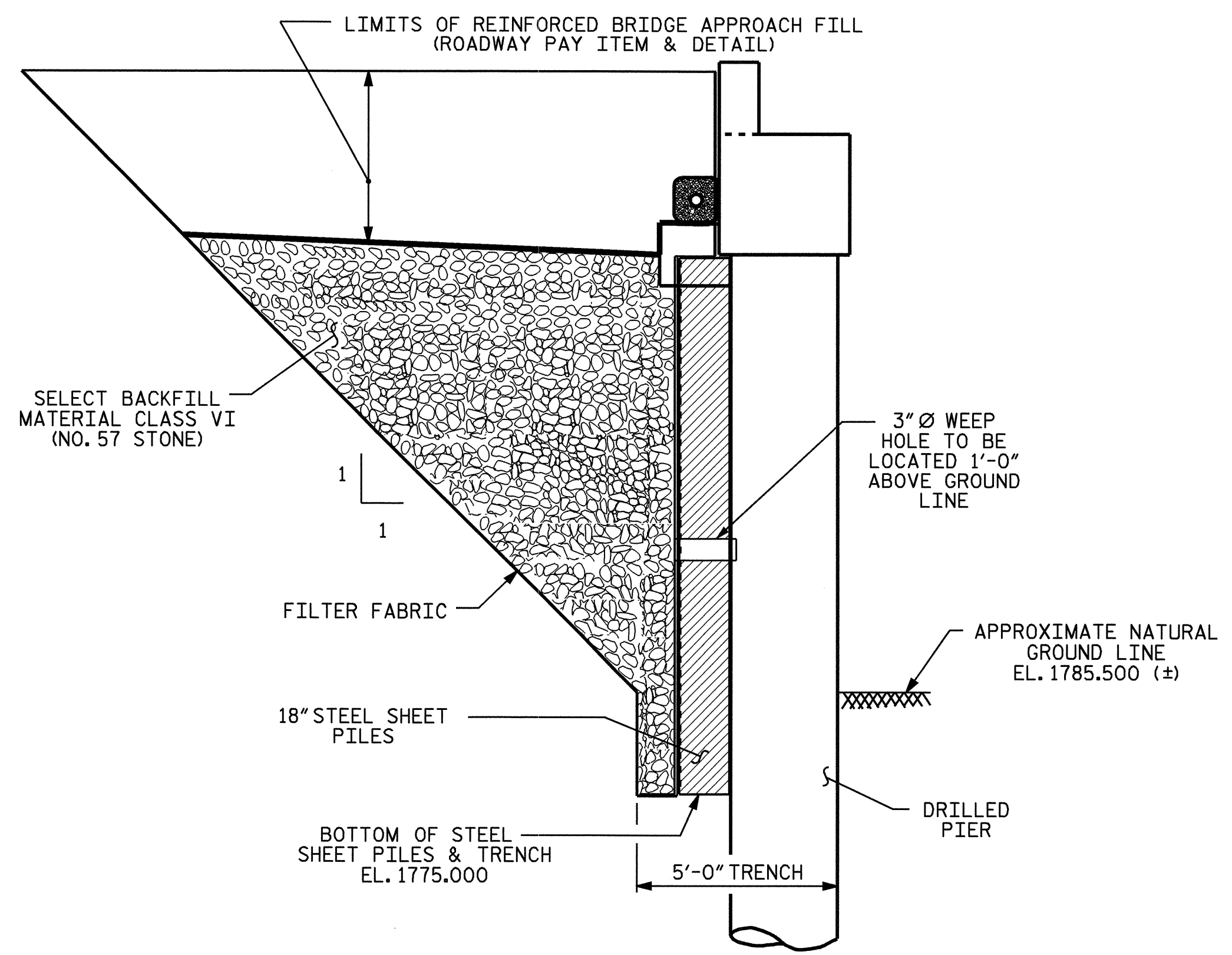
ELEVATION OF SHEET PILES
(RIGHT WING NOT SHOWN FOR CLARITY)

PROJECT NO. B-3701
SWAIN COUNTY
STATION: 18+22.03 -L-
SHEET 4 OF 5

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-22
					TOTAL SHEETS 26

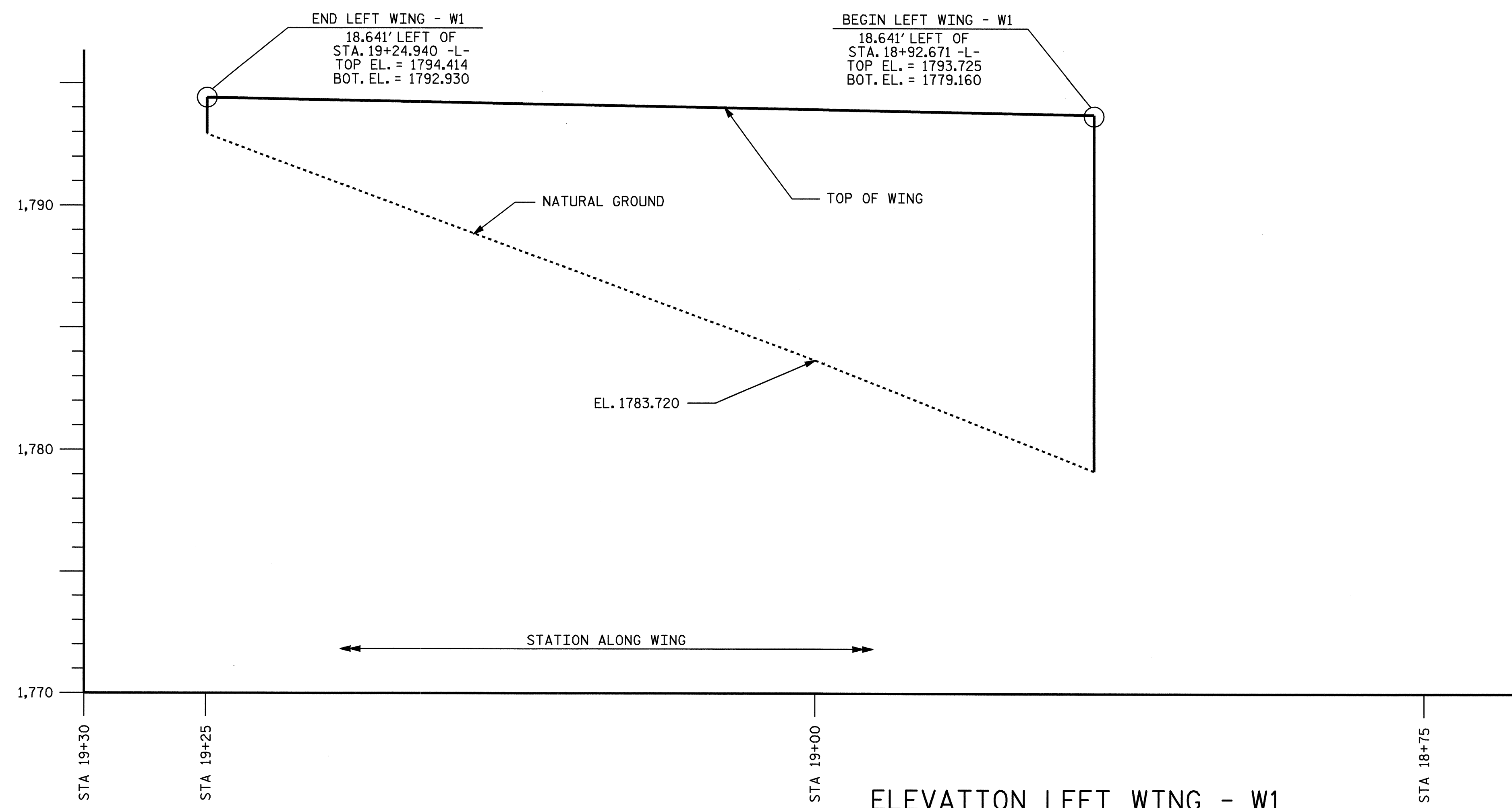


DRAWN BY : D. G. ELY DATE : 9/21/05
CHECKED BY : A. B. NAIK DATE : 10/26/05



EXCAVATION FOR SHEETING AND BACKFILL DETAIL

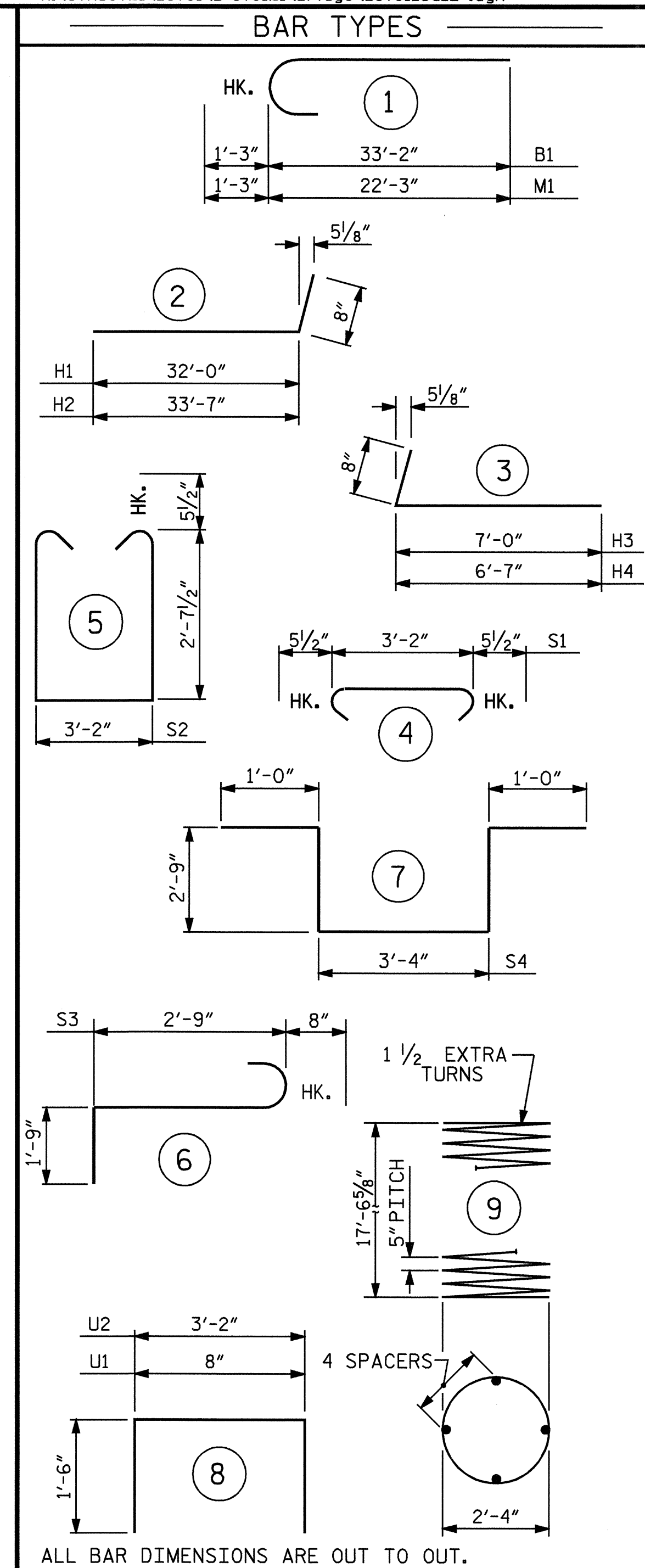
THE EXCAVATION OF THE TRENCH SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE END BENT.



ELEVATION LEFT WING - W1
(VIEWING FRONT FACE)

DRILLED PIER QUANTITIES			
DRILLED PIER CONCRETE			
POUR #1 (DRILLED PIERS)	CY		42.5
3'-0" Ø DRILLED PIER NOT IN SOIL		LIN FT.	63.0
3'-0" Ø DRILLED PIER IN SOIL		LIN FT.	99.5
3'-0" Ø PERMANENT STEEL CASING		LIN FT.	99.5
CSL TUBES		LIN FT.	740
CROSSHOLE SONIC LOGGING	EACH		1
SID INSPECTION	EACH		1

CONCRETE QUANTITIES			
CLASS 'A' CONCRETE BREAKDOWN			
POUR #2: CAP, LOWER PART OF WINGS, & COPING	CY		35.5
POUR #3: BACKWALL & UPPER PART OF WINGS	CY		17.1
TOTAL	CY		52.6



ALL BAR DIMENSIONS ARE OUT TO OUT.

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL

END BENT 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	20	#9	1	34'-5"	2340	
B2	8	#5	STR	30'-3"	252	
B3	20	#4	STR	1'-11"	26	
H1	9	#7	2	32'-8"	601	
H2	9	#7	2	34'-3"	630	
H3	8	#5	3	7'-8"	64	
H4	8	#5	3	7'-3"	60	
K1	12	#4	STR	30'-0"	240	
K2	2	#4	STR	4'-0"	5	
K3	2	#4	STR	3'-10"	5	
K4	4	#4	STR	4'-0"	11	
M1	108	#9	1	23'-6"	8629	
S1	42	#5	4	4'-1"	179	
S2	42	#5	5	9'-4"	409	
S3	12	#6	6	5'-2"	93	
S4	6	#6	7	10'-10"	98	
U1	49	#4	8	3'-8"	120	
U2	16	#4	8	6'-2"	66	
V1	98	#5	STR	5'-4"	545	
V2	23	#5	STR	7'-4"	176	
V3	10	#5	STR	7'-6"	78	
V4	10	#5	STR	7'-7"	79	
V5	10	#5	STR	7'-8"	80	
V6	10	#5	STR	7'-10"	82	
V7	10	#5	STR	7'-11"	83	
V8	23	#4	STR	6'-8"	102	
REINFORCING STEEL				15,053	LBS	
SP-1	9	**	9	315'-2"	2958	
SPIRAL COLUMN REINFORCING STEEL					LBS.	2958
18" STEEL SHEET PILE				FT ²	1020	
SELECT BACKFILL MATERIAL CLASS VI					TONS	70

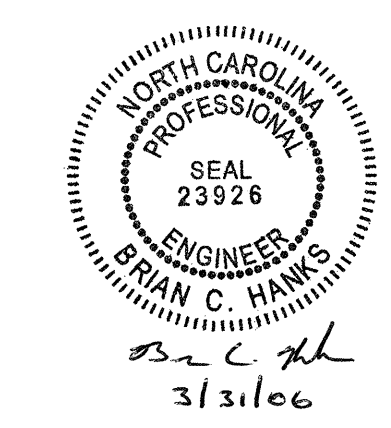
PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 5 OF 5

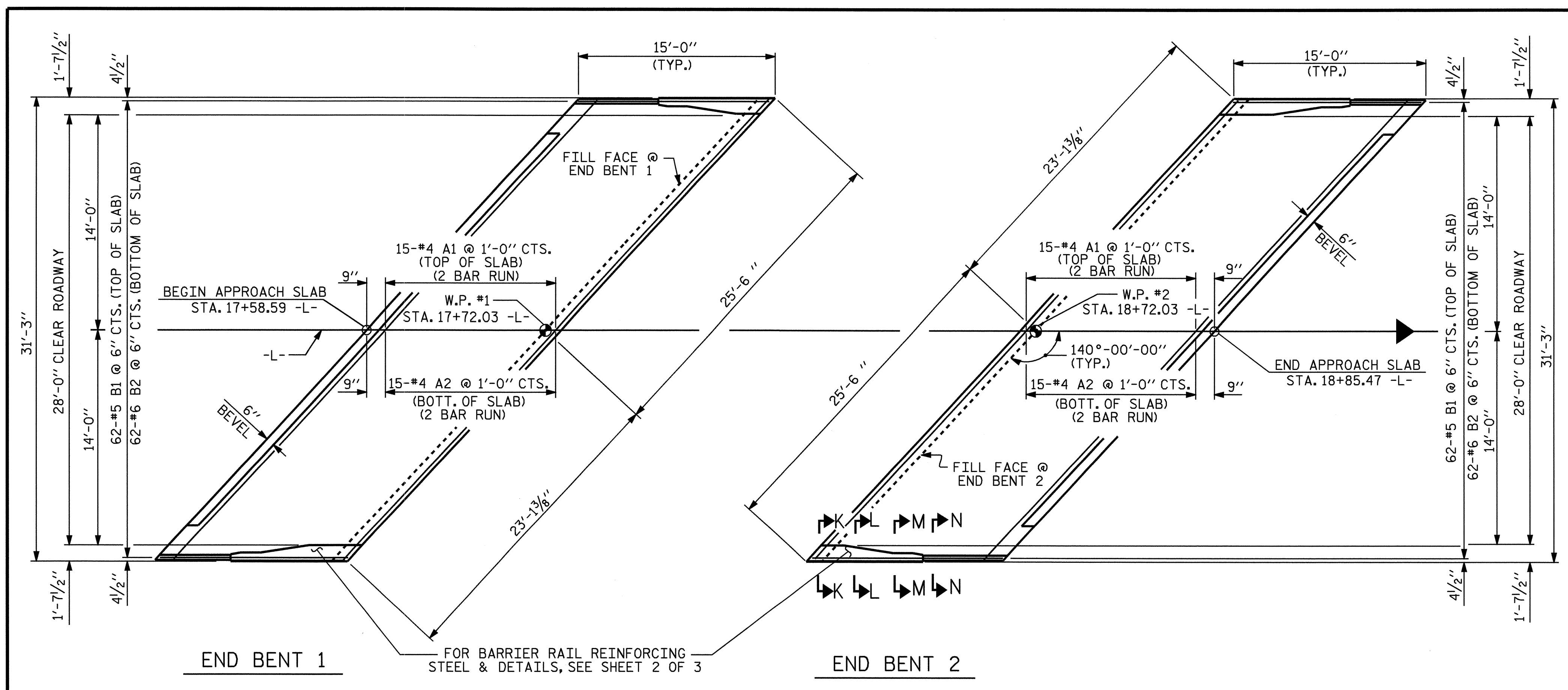
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 2**

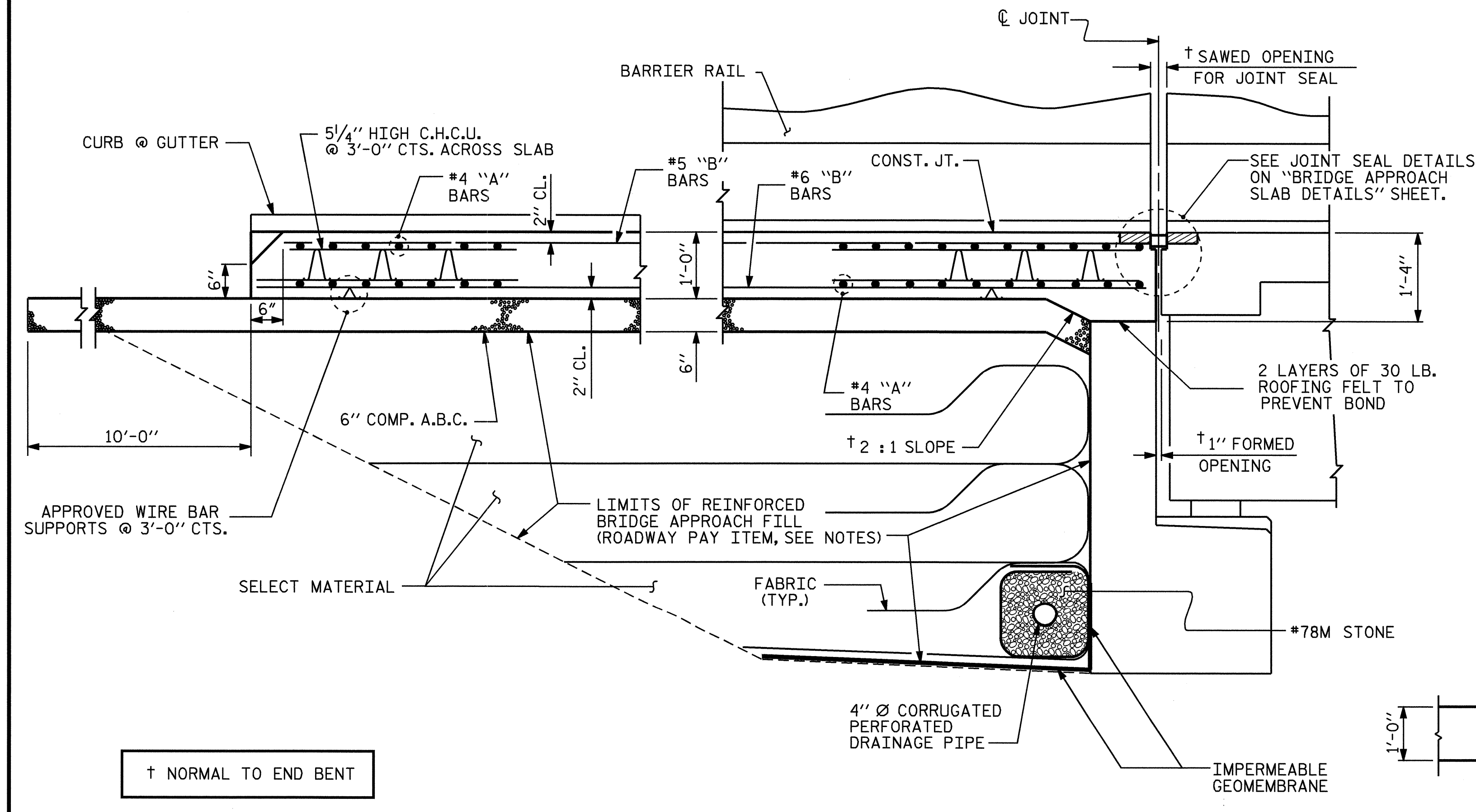
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS 26	
2			4				



DRAWN BY : D. G. ELY DATE : 7/28/05
 CHECKED BY : A. B. NAIK DATE : 10/26/05



PLAN OF APPROACH SLAB



SECTION THRU SLAB

ASSEMBLED BY : QT NGUYEN DATE : 7-05
 CHECKED BY : KW ALFORD DATE : 8-05
 DRAWN BY : LES 8/01 REV. 5/7/03R RWW/JTE
 CHECKED BY : RDR 8/01

27-MAR-2006 13:25
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 dely

NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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 EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF 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 EXTEND 1'-0" BEYOND 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 EXTEND 1'-0" BEYOND 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.

THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

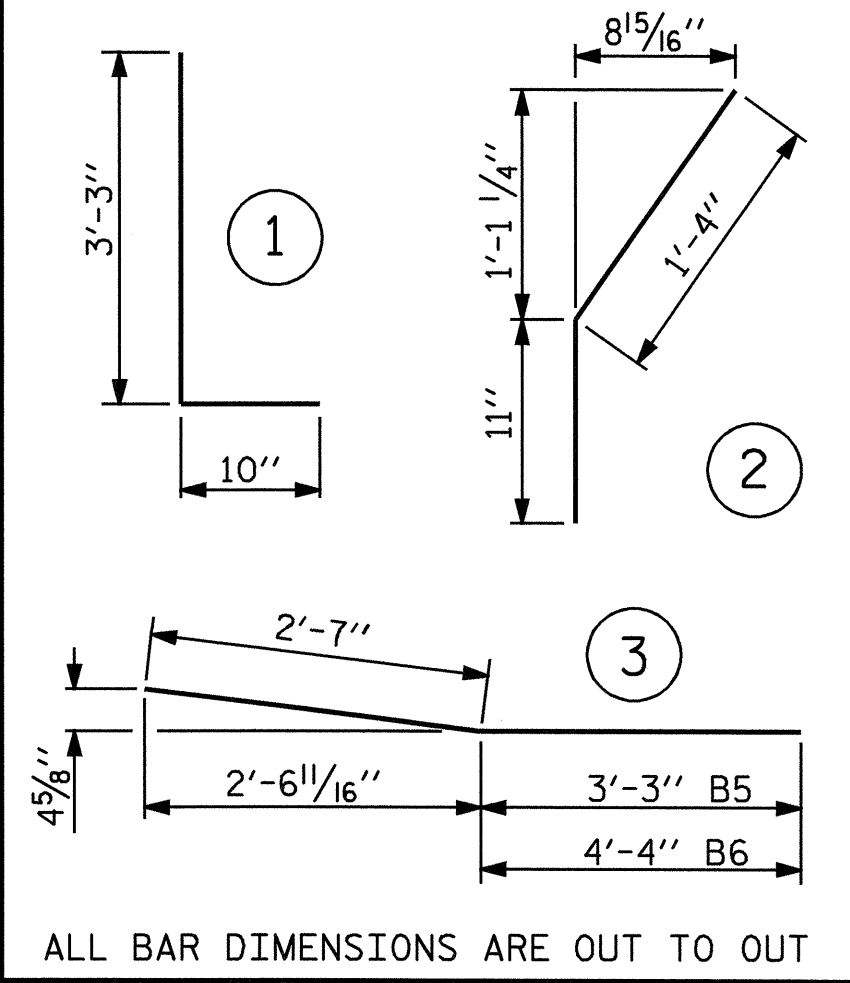
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

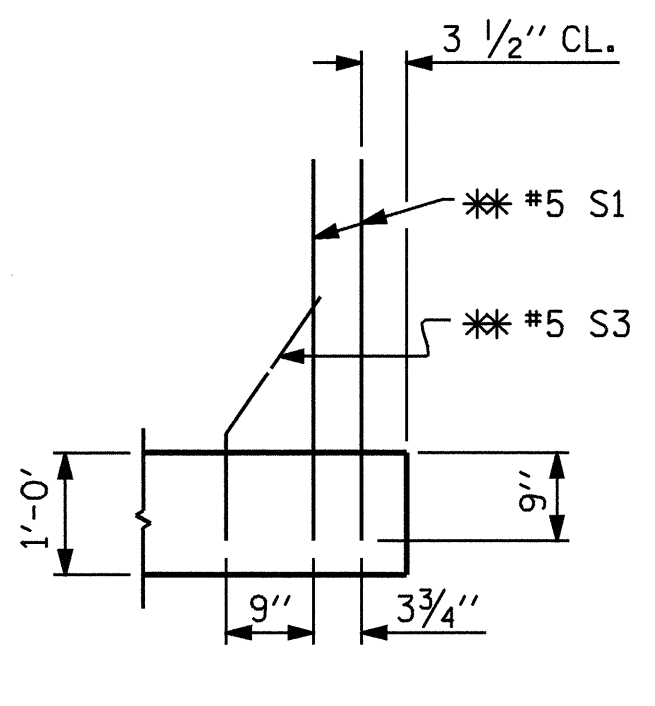
FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	25'-2"	504
A2	30	#4	STR	25'-1"	503
*B1	62	#5	STR	13'-8"	884
B2	62	#6	STR	14'-5"	1343
*B3	7	#5	STR	11'-8"	86
*B4	7	#5	STR	10'-9"	79
*B5	1	#5	3	5'-10"	6
*B6	1	#5	3	6'-11"	7
*S1	56	#5	STR	3'-3"	190
*S2	40	#5	1	4'-1"	170
*S3	20	#5	2	2'-3"	47
REINFORCING STEEL					LBS. 1846
*EPOXY COATED REINFORCING STEEL					LBS. 1973
CLASS AA CONCRETE BREAKDOWN					
POUR 1 SLAB AND CURB					C. Y. 17.9
POUR 2 RAIL					C. Y. 2.2
CLASS AA CONCRETE					C. Y. 20.1

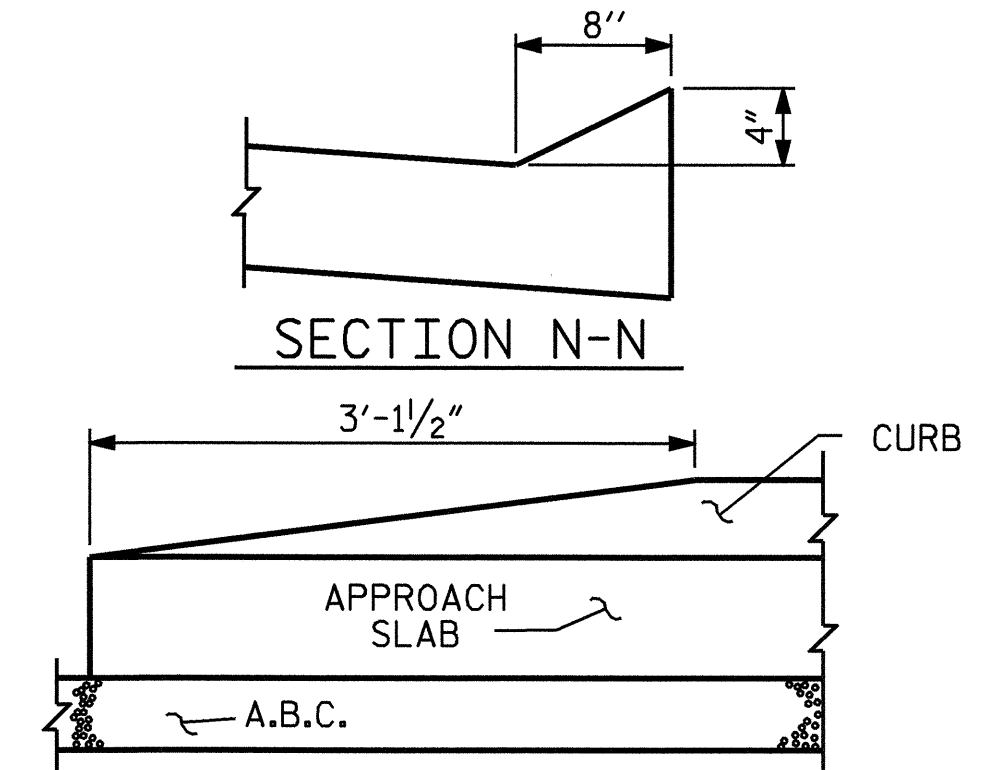
BAR TYPES



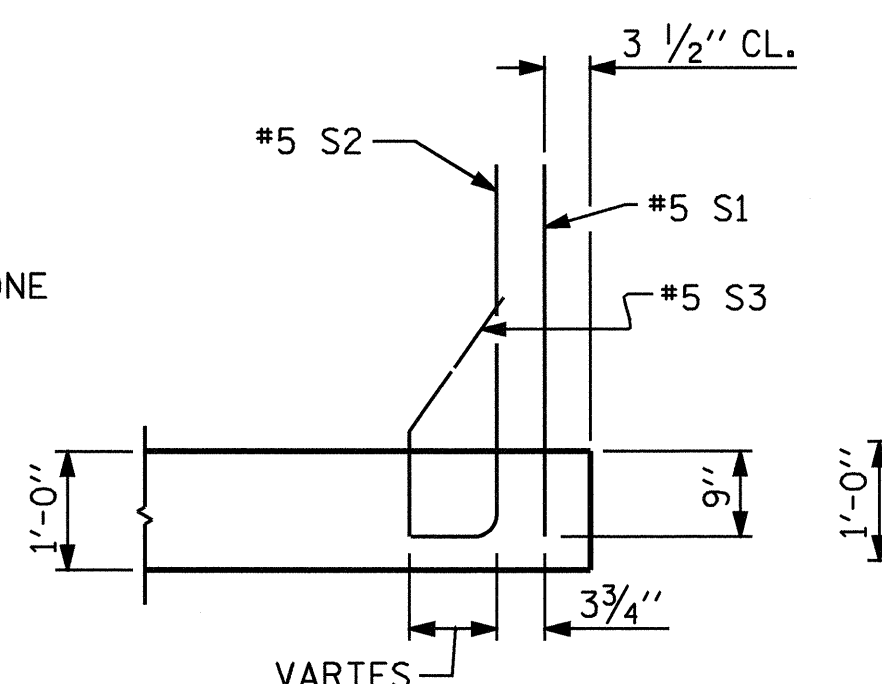
ALL BAR DIMENSIONS ARE OUT TO OUT



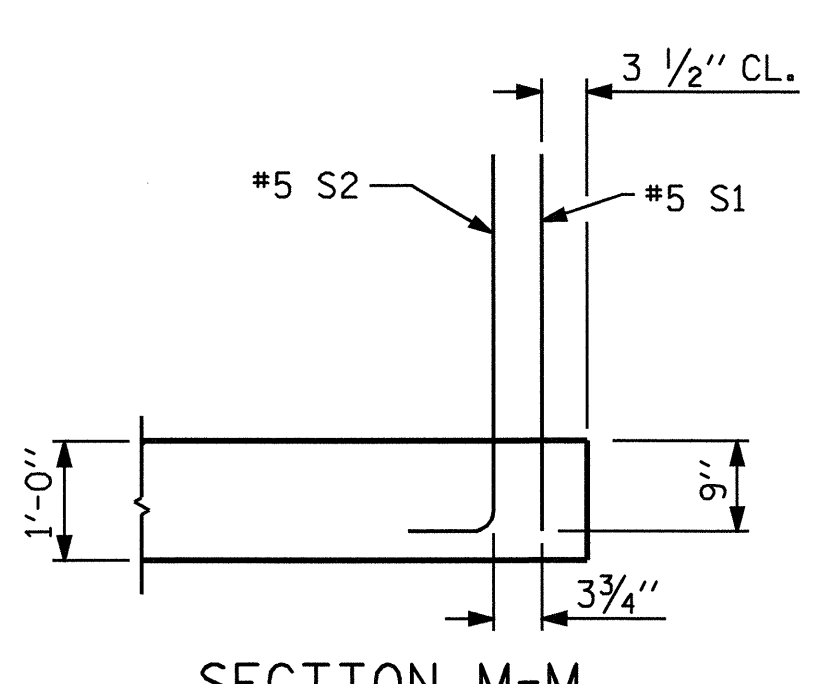
SECTION K-K
* ADHESIVELY ANCHORED



SECTION N-N
END OF CURB WITHOUT SHOULDER BERM GUTTER



SECTION L-L
VARIES



SECTION M-M

PROJECT NO. B-3701
 SWAIN COUNTY
 STATION: 18+22.03 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT WITH BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			26



STD. NO. BAS5

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

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

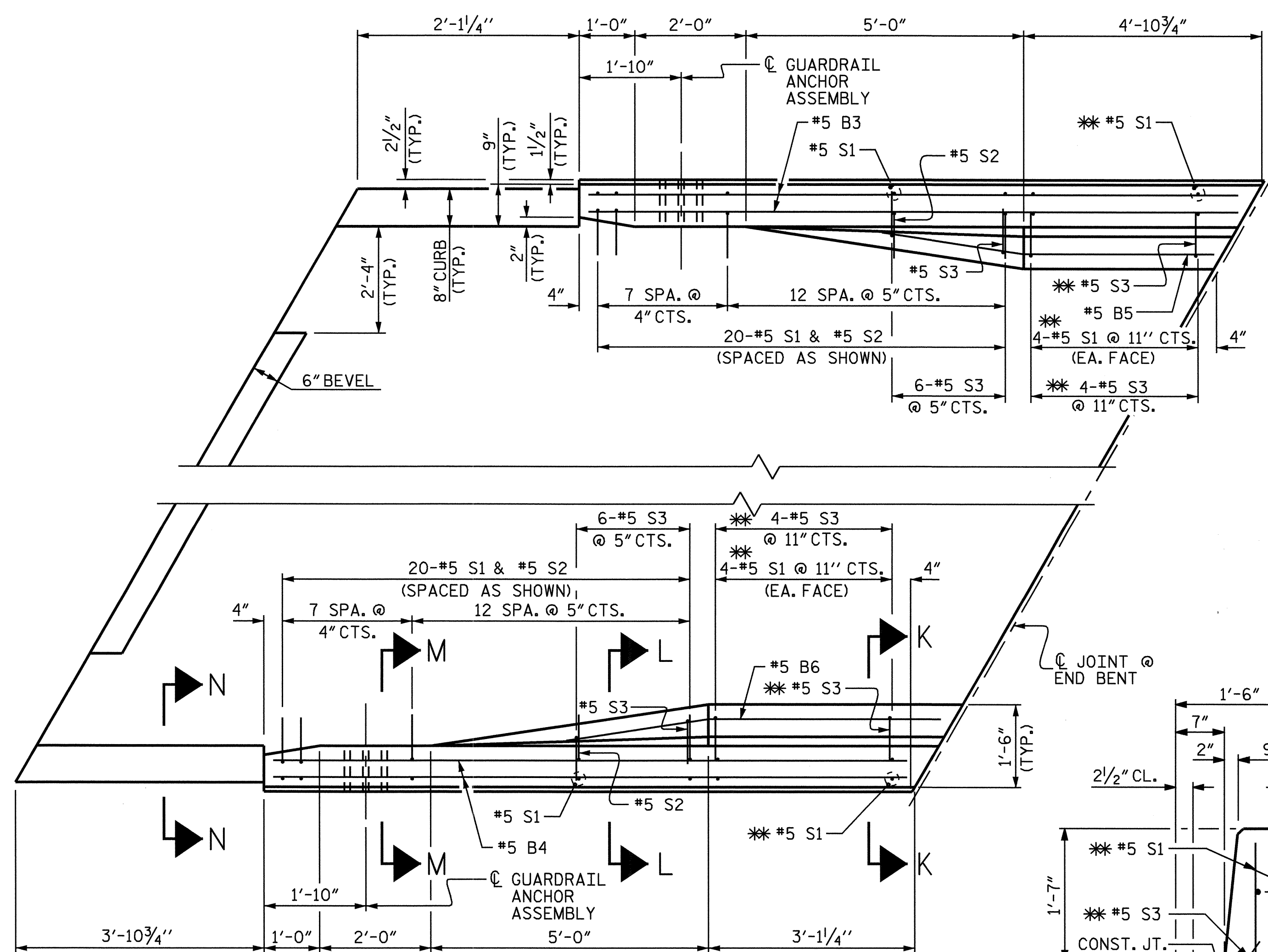
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307, THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

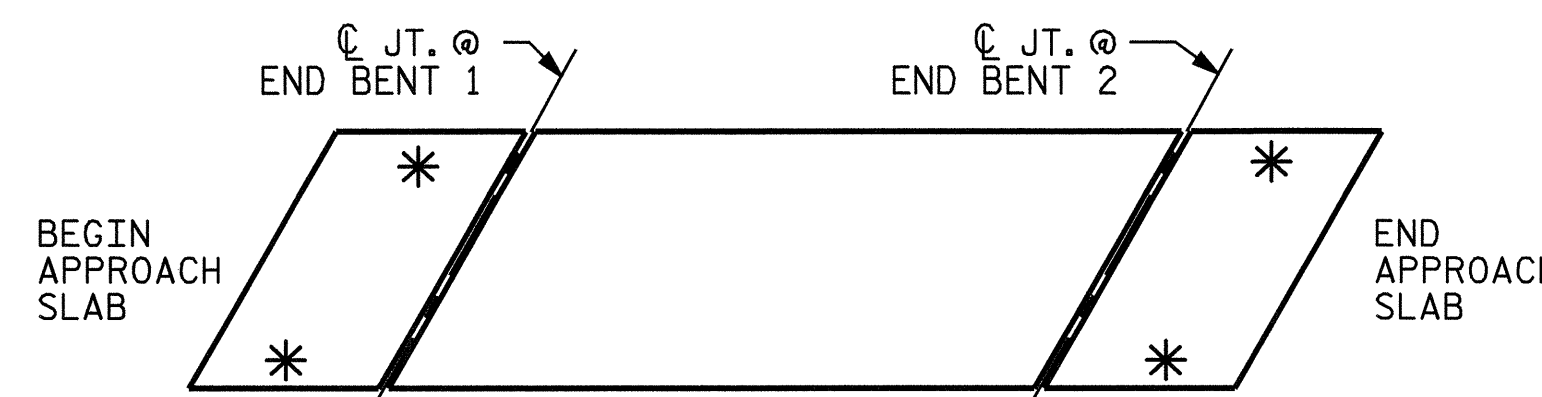
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED, ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE #5 S1 AND #5 S3 BARS SHALL BE INSTALLED, WHERE NOTED ON THE PLANS, USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #5 S1 AND #5 S3 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



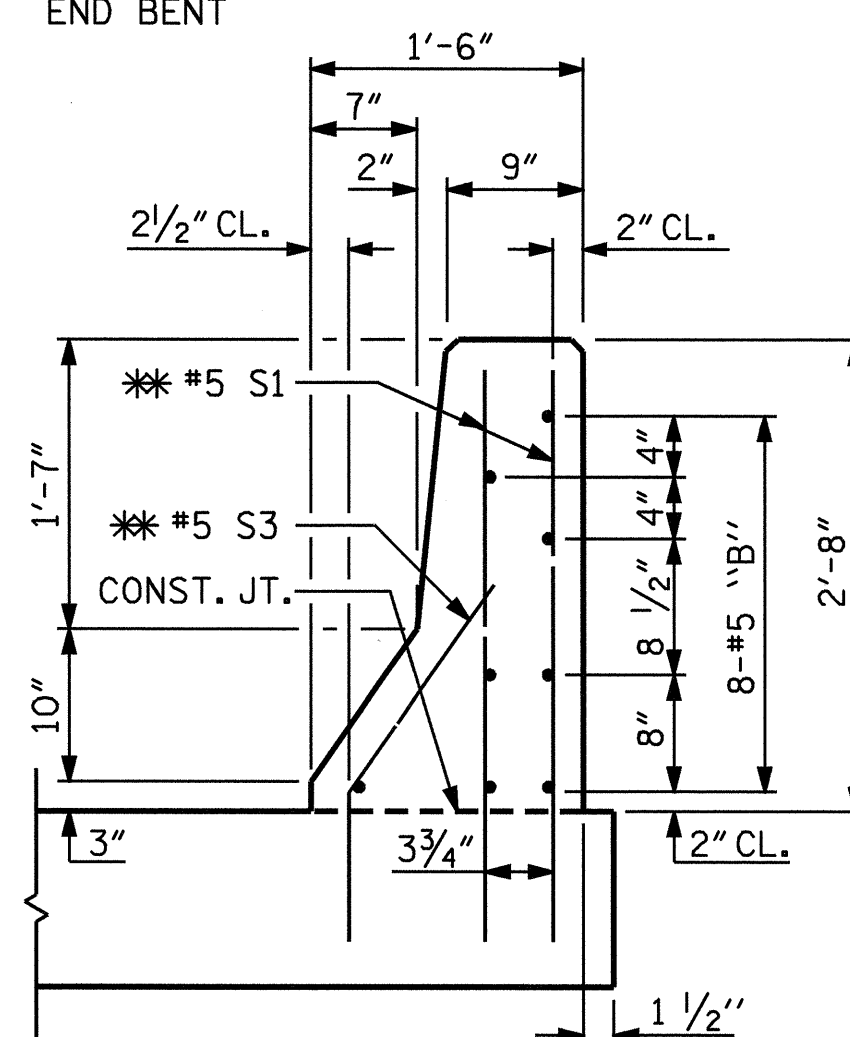
PLAN

BEGIN APPROACH SLAB SHOWN, END APPROACH SLAB SIMILAR



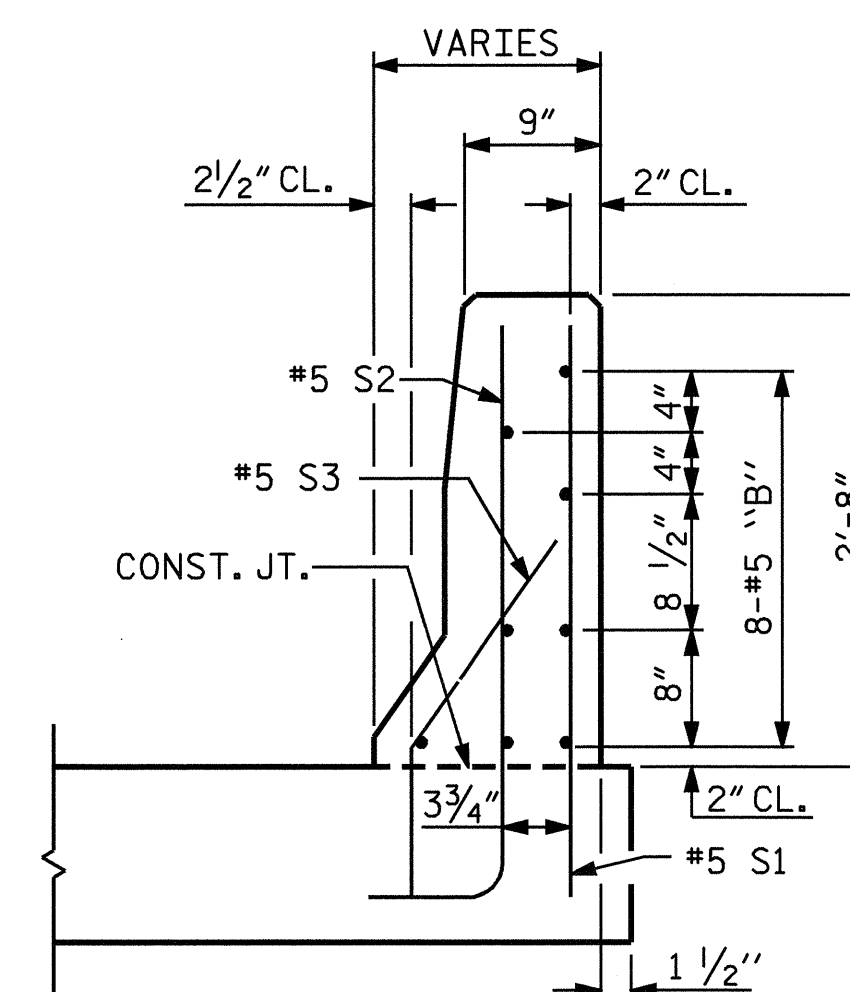
SKETCH SHOWING POINTS OF ATTACHMENT

* INDICATES POINTS OF ATTACHMENT

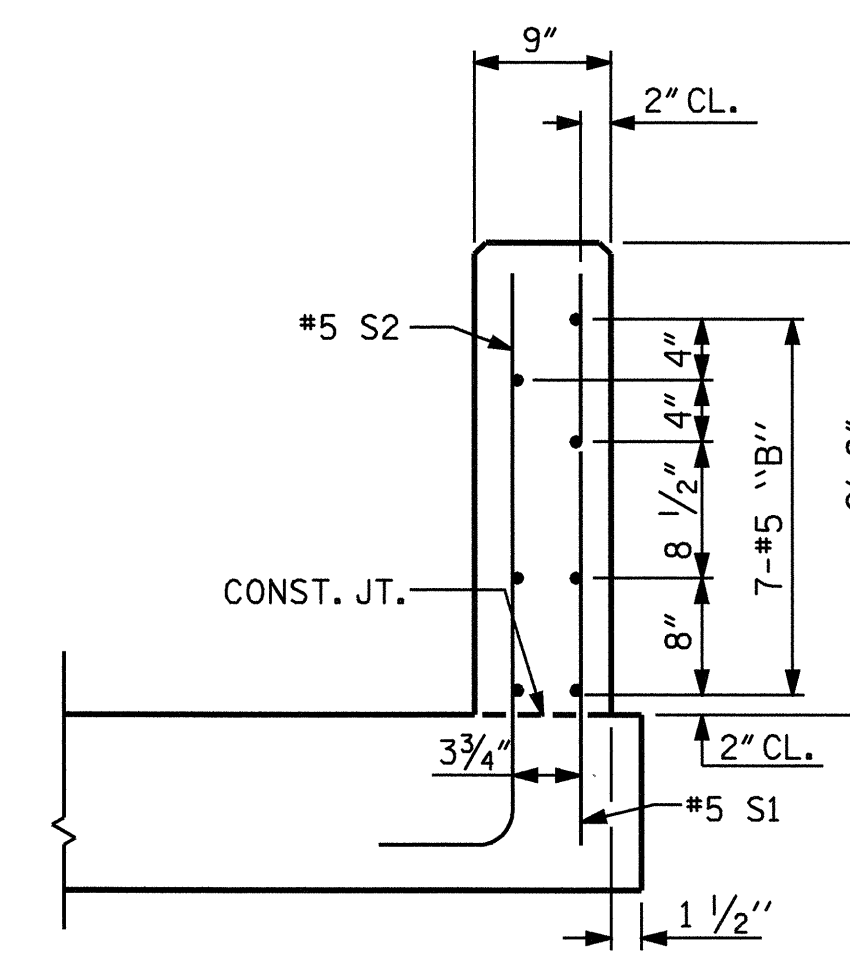


SECTION K-K

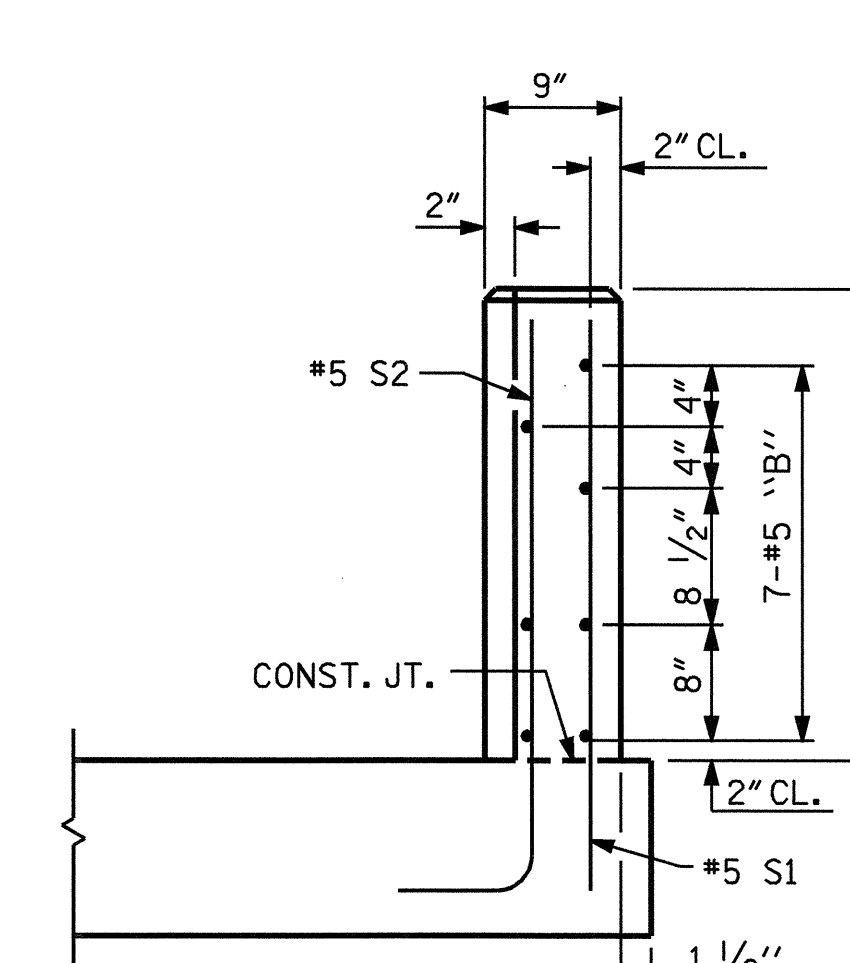
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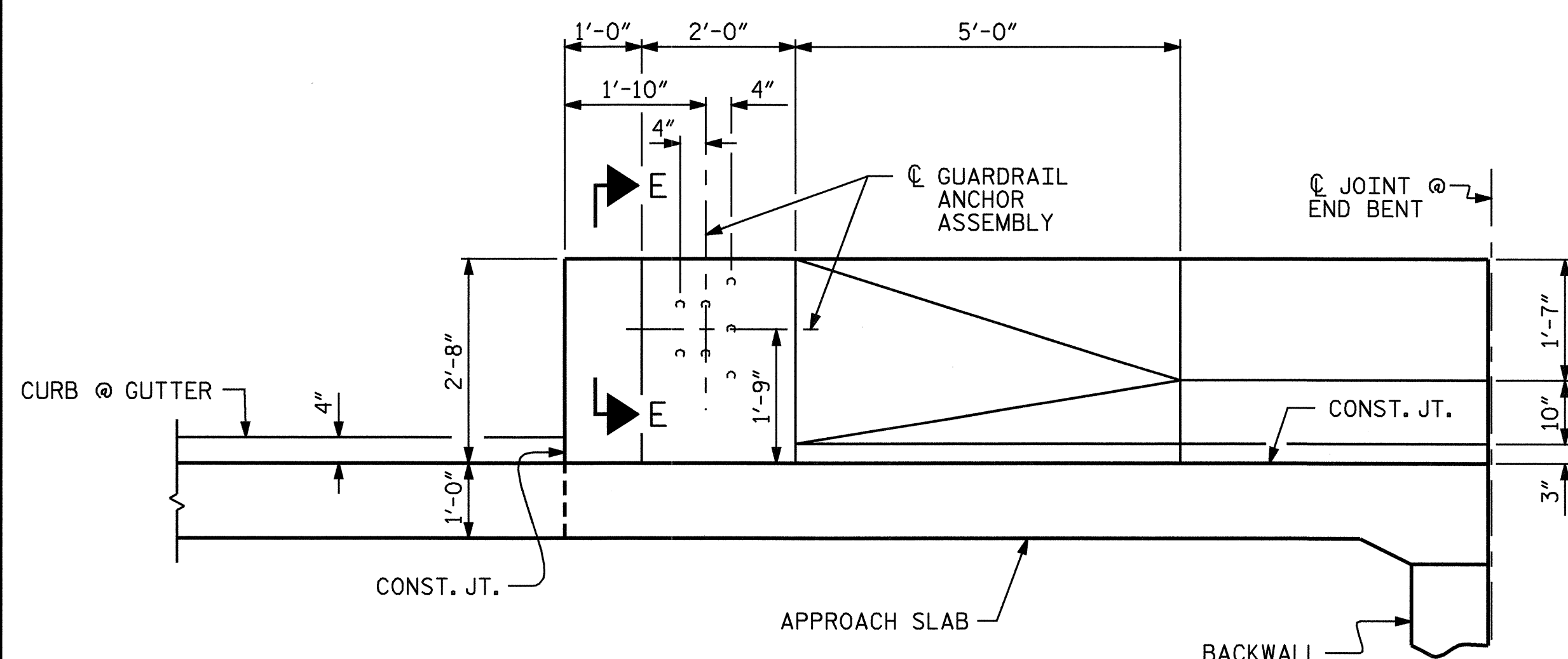
SECTION L-L



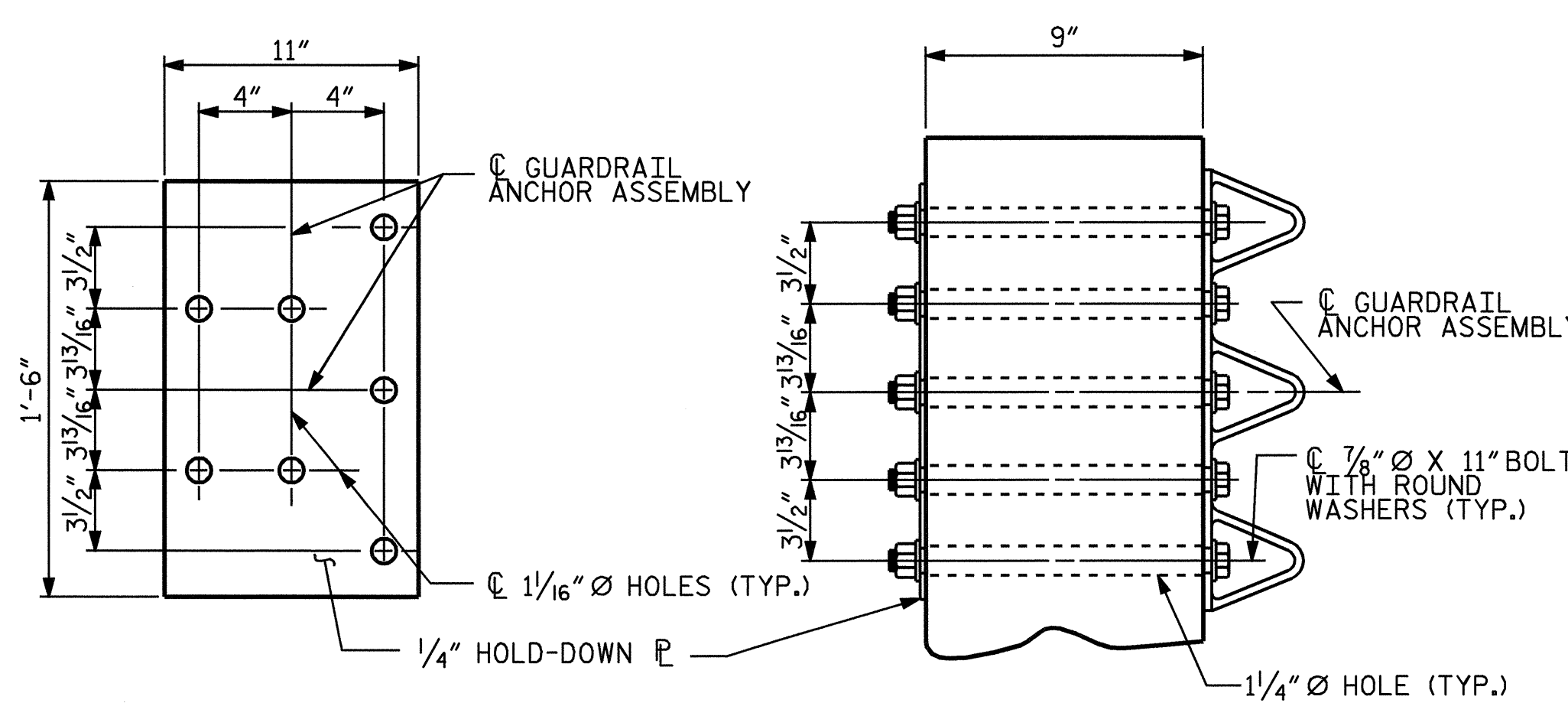
SECTION M-M



END VIEW



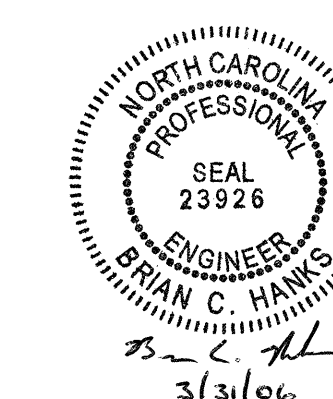
ELEVATION



PLAN

SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PROJECT NO. B-3701
SWAIN COUNTY
STATION: 18+22.03 -L-

SHEET 2 OF 3

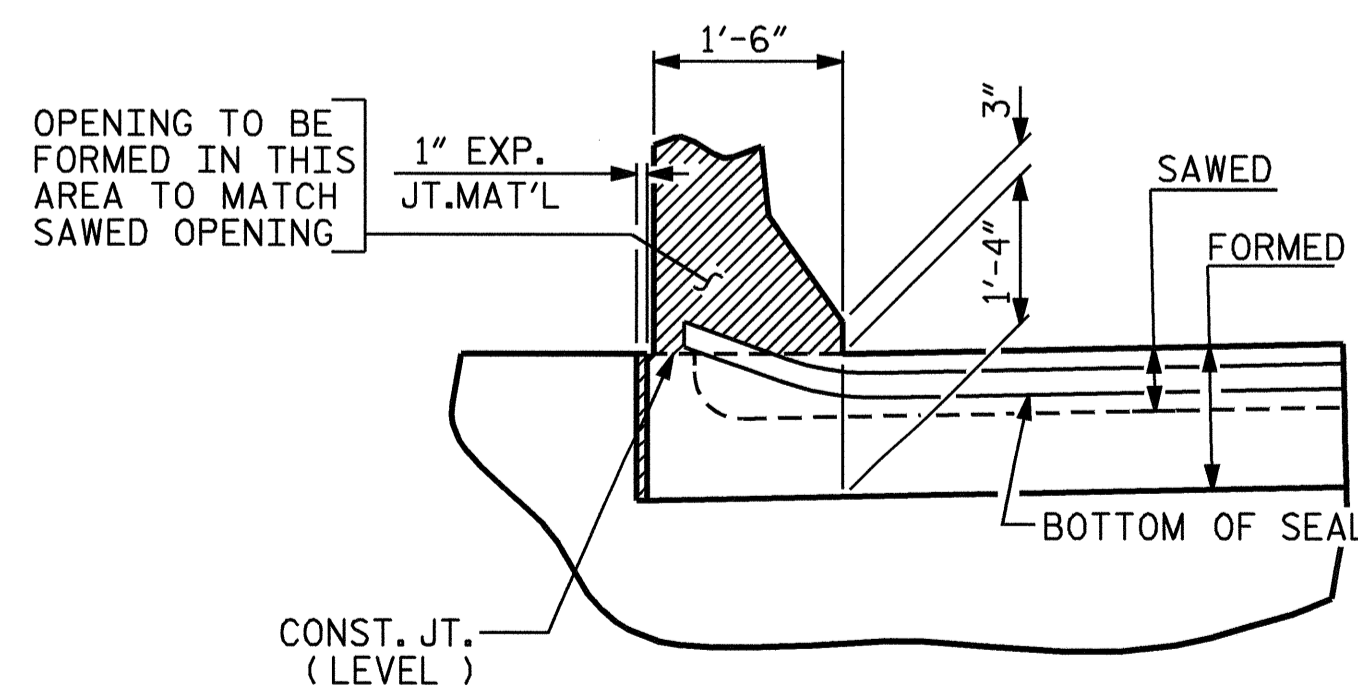
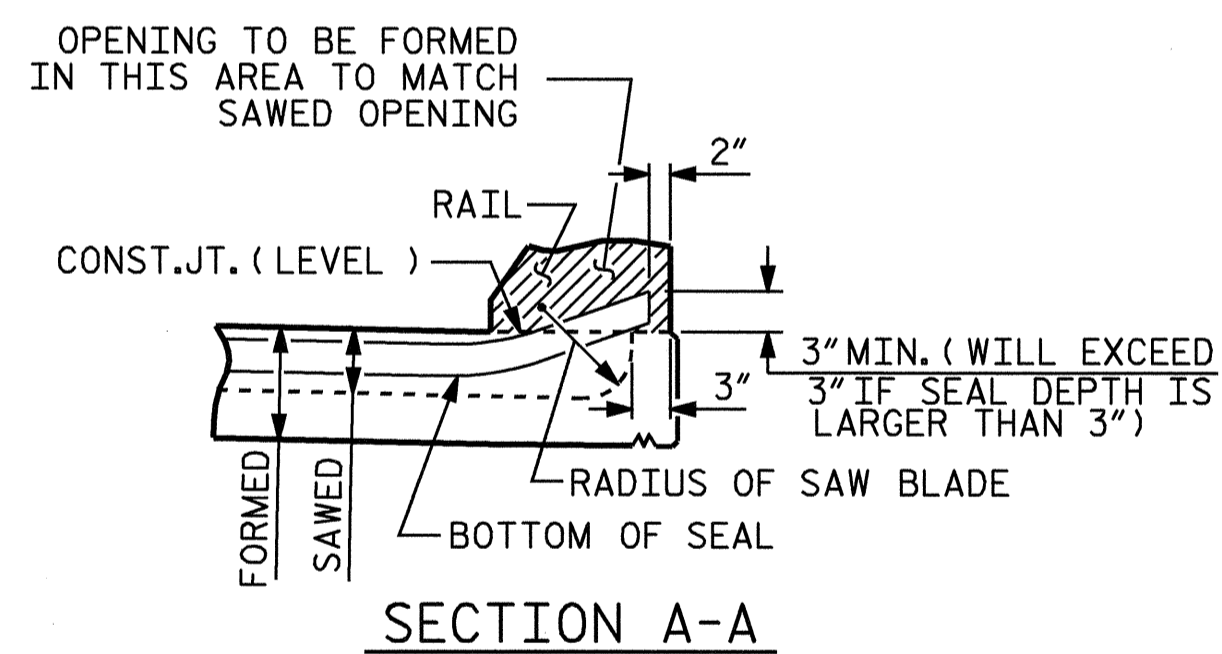
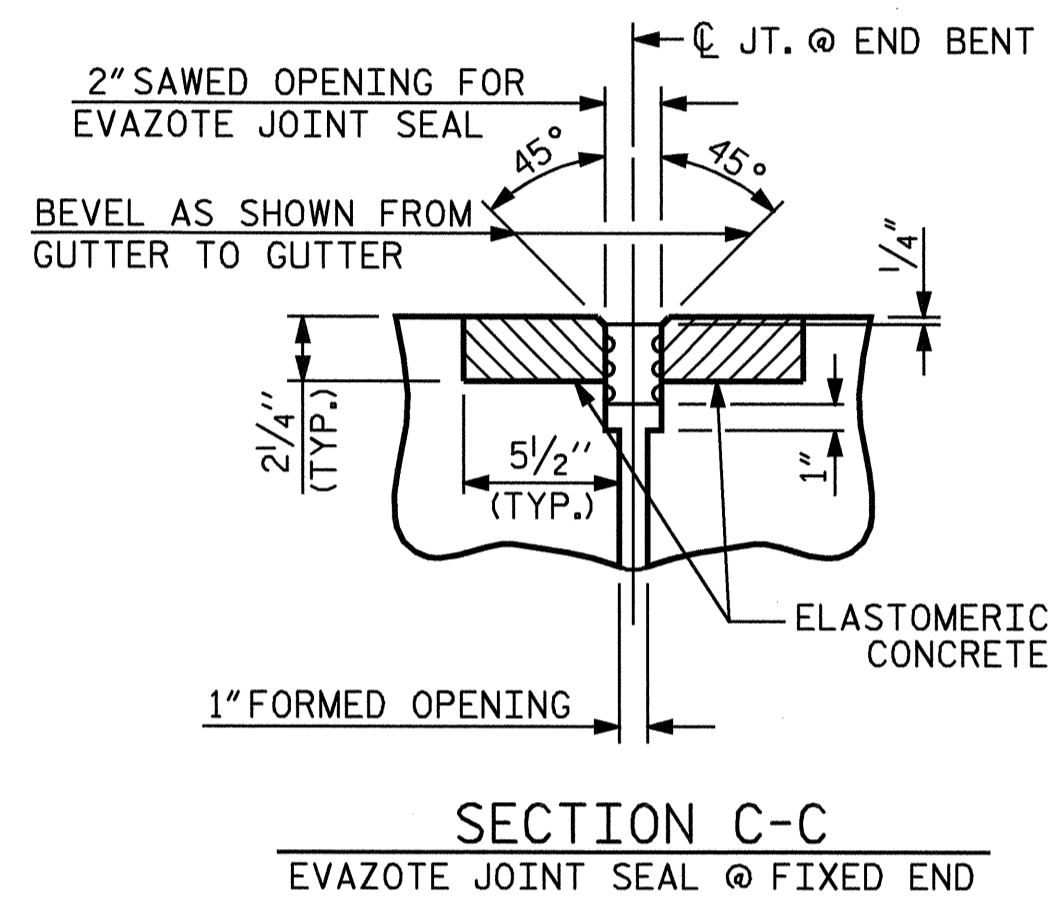
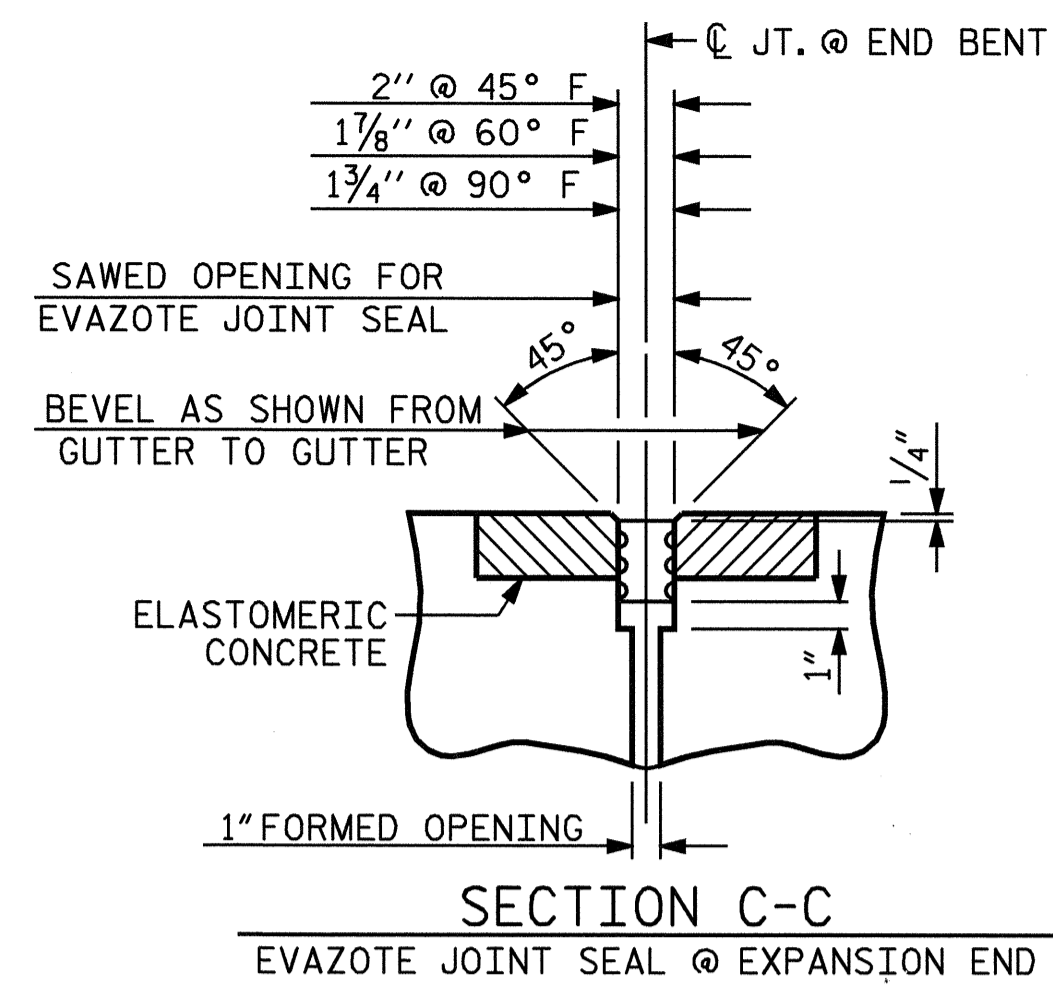
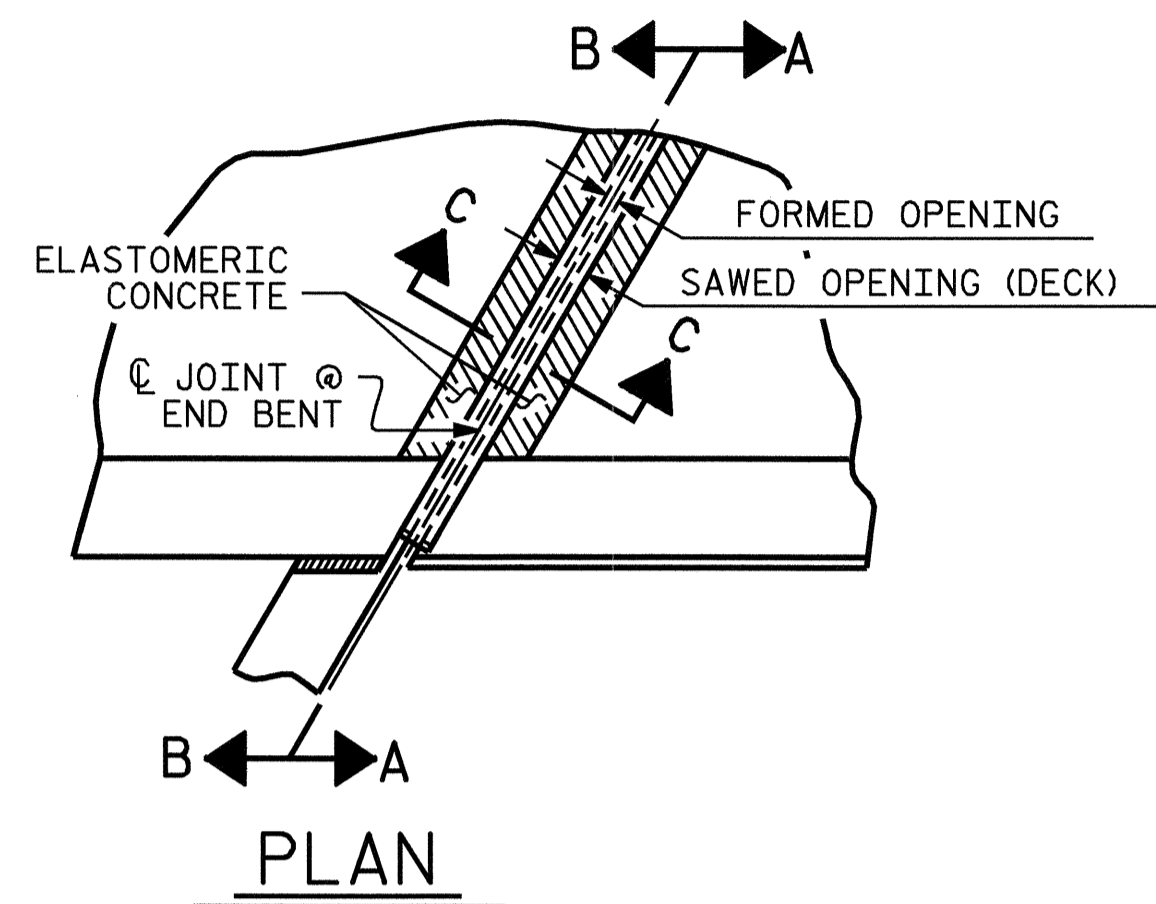
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
DETAILS FOR FLEXIBLE
PAVEMENT WITH BARRIER RAIL

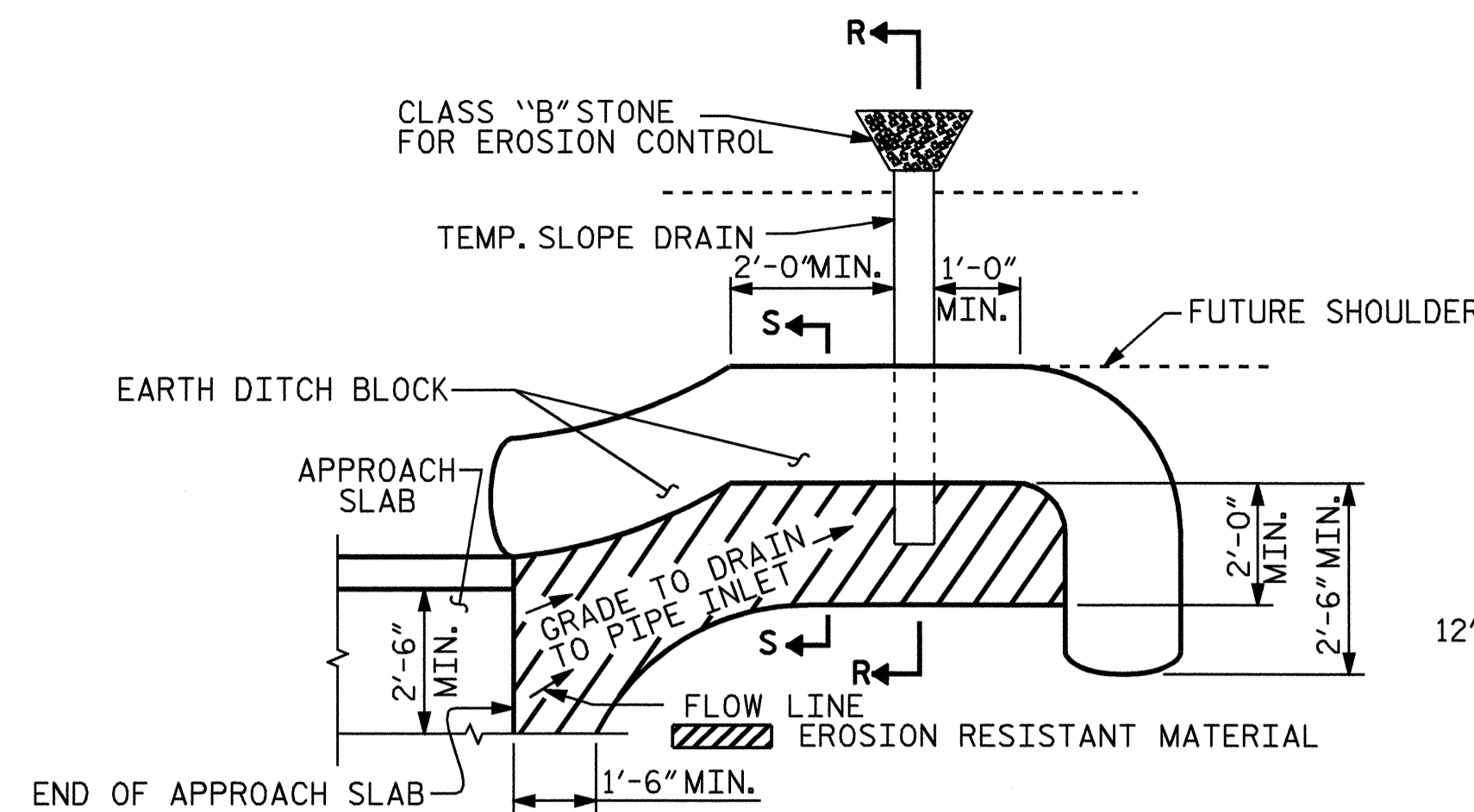
ASSEMBLED BY : QT NGUYEN DATE : 7-05
CHECKED BY : KW ALFORD DATE : 8-05
DRAWN BY : LES 8/01 REV. 5/7/03R RWW/JTE
CHECKED BY : RDR 8/01

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25	
1			3			TOTAL SHEETS 26	
2			4				

STD. NO. BAS6



JOINT SEAL DETAILS @ END BENT
(FOR BARRIER RAIL)

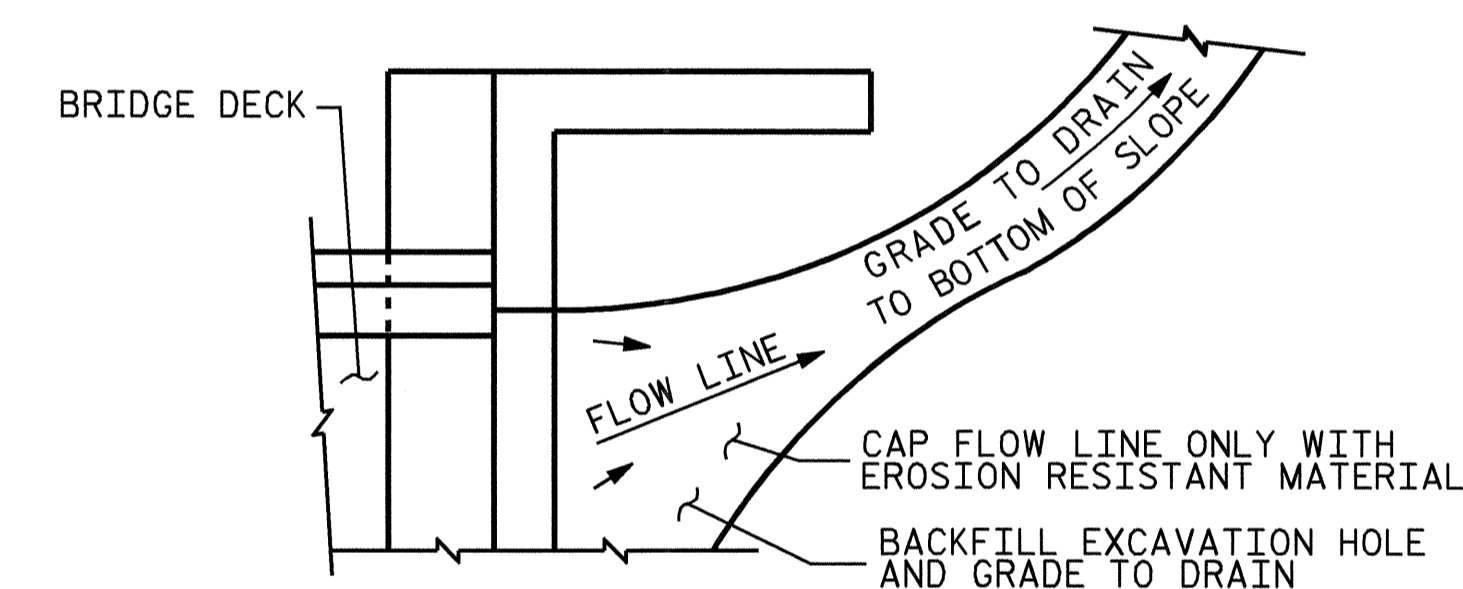
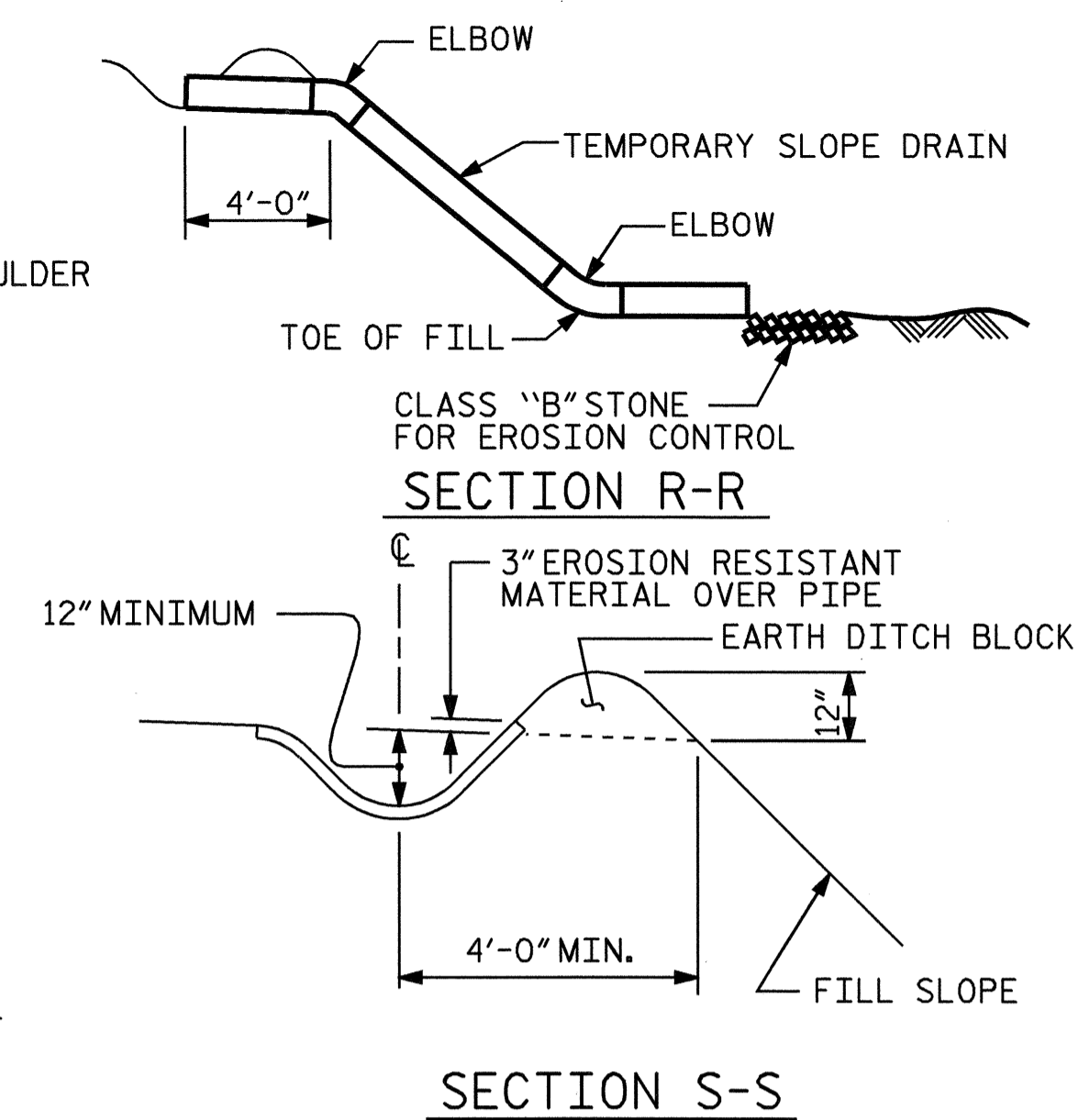


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

(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

ELASTOMERIC CONCRETE	
END BENT NO.	CUBIC FEET *
1	7.5
2	7.5

* BASED ON THE MINIMUM BLOCKOUT SHOWN

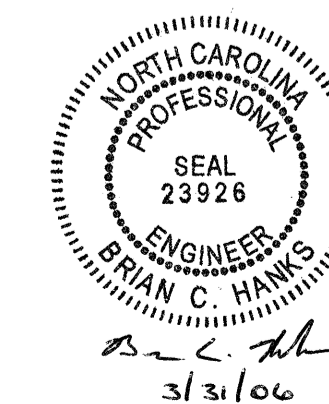
PROJECT NO. B-3701
SWAIN COUNTY
STATION: 18+22.03 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH
SLAB DETAILS

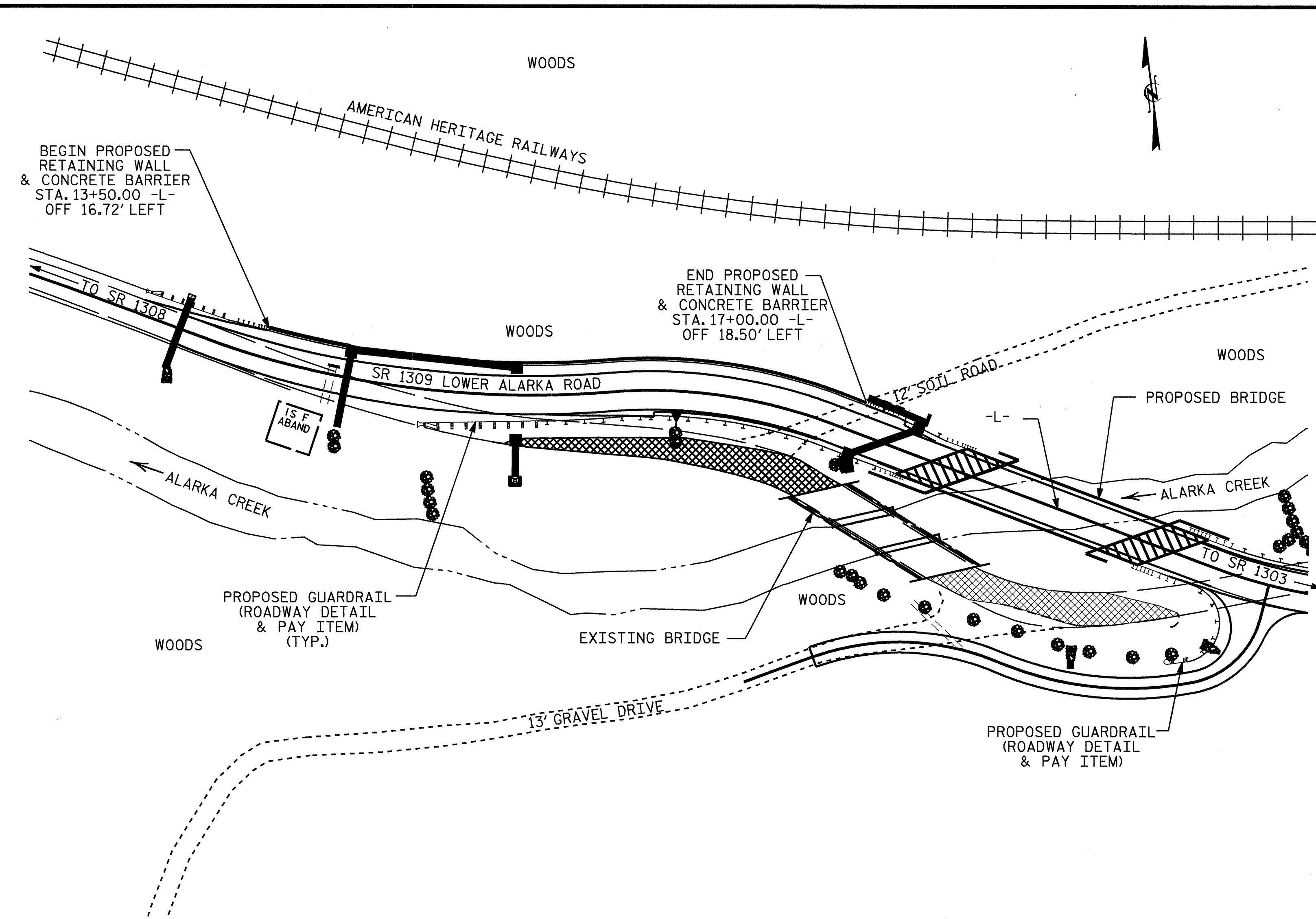
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			26



ASSEMBLED BY :	QT NGUYEN	DATE :	7-05
CHECKED BY :	KW ALFORD	DATE :	8-05
DRAWN BY :	FCJ	11/88	REV. 8/16/99 MAB/LES
CHECKED BY :	ARB	11/88	REV. 10/17/00 RWW/LES
			REV. 5/7/03 RWW/JTE

BM #3: 8" NAIL IN BASE OF 10" SYCAMORE 132.25' RIGHT OF STA. 17+02.89 -L-
 EL. 1795.02

F.A. PROJECT NO. BRZ-1309(2)

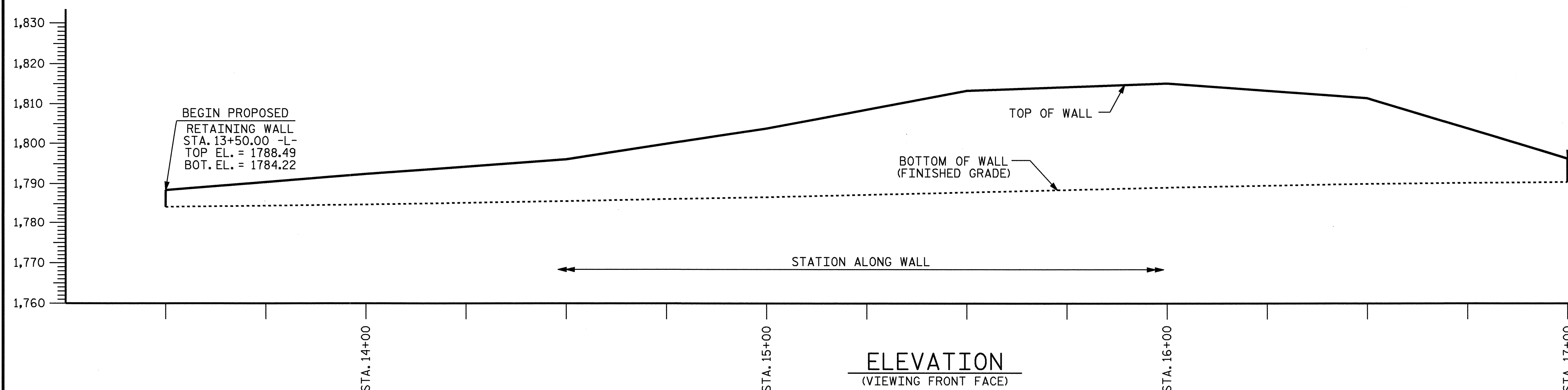


LOCATION SKETCH

RETAINING WALL ELEVATIONS				
-L- STA	OFFSET FROM C (LEFT)	ELEV @ TOP OF WALL	ELEV @ BOTTOM OF WALL	* WALL HEIGHT
13+50.00	16.72	1788.49	1784.22	4.27
14+00.00	17.61	1792.48	1784.82	7.66
14+50.00	18.50	1796.09	1785.65	10.44
15+00.00	18.50	1803.79	1786.64	17.15
15+50.00	18.50	1813.31	1787.87	25.44
16+00.00	18.50	1815.15	1789.12	26.03
16+50.00	18.50	1811.45	1790.01	21.44
17+00.00	18.50	1796.37	1790.48	5.89

* NOTE: WALL HEIGHT DOES NOT INCLUDE EMBEDMENT DEPTH

TOTAL BILL OF MATERIAL	
	SQ. FT.
SOIL NAIL RETAINING WALL	5662



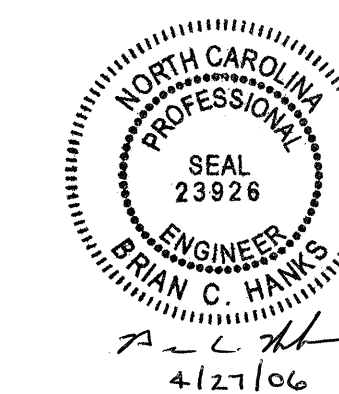
END PROPOSED
 RETAINING WALL
 STA. 17+00.00 -L-
 TOP EL. = 1796.37
 BOT. EL. = 1790.48

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 13+50.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SOIL NAIL
 RETAINING WALL
 DETAILS



DRAWN BY : D. G. ELY DATE : 9/27/05
 CHECKED BY : B. C. HANKS DATE : 1/25/06

27-APR-2006 09:28
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 kalford

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

WALL #1

NOTES

IN ELEVATION VIEW, SHOW THE TOP OF WALL (SOLID LINE), AND THE BOTTOM OF WALL (SOLID LINE). SHOW ELEVATIONS FOR THE TOP OF WALL AT VERTICAL BREAK POINTS, AND AT NO GREATER THAN 50 FOOT INTERVALS. LABEL WHETHER THE ELEVATION VIEW IS FRONT FACE OR BACK FACE.

FINAL PLANS MUST BE ON REPRODUCIBLE SHEETS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.

THE RESIDENT ENGINEER WILL SCHEDULE A PRECONSTRUCTION CONFERENCE WITH REPRESENTATIVES FROM THE CONTRACTOR, THE RETAINING WALL SYSTEM SUPPLIER, AND THE GEOTECHNICAL ENGINEERING UNIT TO DISCUSS DETAILS AND INSPECTION OF THE RETAINING WALL PRIOR TO ANY WORK BEING PERFORMED AT THE SITE.

SEE ROADWAY PLANS FOR CROSS SECTIONS AND TYPICAL SECTIONS.

BEFORE BEGINNING RETAINING WALL DESIGN, SURVEY ALL EXISTING GROUND ELEVATIONS SHOWN ON THE PLANS AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT BEGIN WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE HAS BEEN APPROVED.

FOR WALL DESIGN CRITERIA AND DETAILS, SEE SPECIAL PROVISIONS.

PLANS, WORKING DRAWINGS, SOIL REINFORCEMENT, AND DESIGN CALCULATIONS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND APPROVAL. SEE SPECIAL PROVISIONS.

ALL NAIL BARS FOR THE SOIL NAIL RETAINING WALLS SHALL BE ENCAPSULATED FOR CORROSION PROTECTION.

CONCRETE LEVELING PADS FOR THE CAST-IN-PLACE WALL AND THE DRAINAGE DITCHES BEHIND THE WALLS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALLS.

THE WALLS SHALL BE DESIGNED TO MEET THE LATEST FHWA REPORT NO. SA-96-069 AND THE LATEST AASHTO DESIGN CRITERIA AND ITS INTERIM, SEE THE SPECIAL PROVISIONS, AND THE PLANS.

PLANS SUBMITTED FOR REVIEW SHALL INCLUDE THE FOLLOWING: PLAN VIEW, ELEVATION VIEW, TYPICAL SECTIONS AND DRAINAGE DETAILS.

ALL NAILS SHALL TERMINATE IN THE ROCK ZONE.

BLASTING MAY BE NEEDED TO CONSTRUCT THE WALL FACE. A TEST BLAST MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. SEE BLASTING ROADWAY SPECIAL PROVISION.

IF BLASTING IS REQUIRED, THE FINAL EXCAVATION FACE SHOULD BE WITHIN 6 INCHES OF THE BACK OF WALL LOCATION INDICATED IN THE PLANS. SEE THE SOIL NAIL RETAINING WALL SPECIAL PROVISION SECTION 8.0D.

SEE SECTION 107-9 IN STANDARD SPECIFICATIONS FOR COORDINATION WITH RAILWAY REQUIREMENTS.

THE SOIL NAIL RETAINING WALLS SHALL BE DESIGNED WITH THE FOLLOWING SOIL PARAMETERS:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE, $\gamma = 120$ PCF
 UNIT WEIGHT OF SOIL BELOW WATER TABLE, $\gamma = 60$ PCF
 FRICTION ANGLE $\phi = 30^\circ$ COHESION $c = 0.0$ PSF

ROCK PARAMETERS:

UNIT WEIGHT OF ROCK, $\gamma = 140$ PCF
 FRICTION ANGLE $\phi = 30^\circ$ COHESION $c = 300.0$ PSF

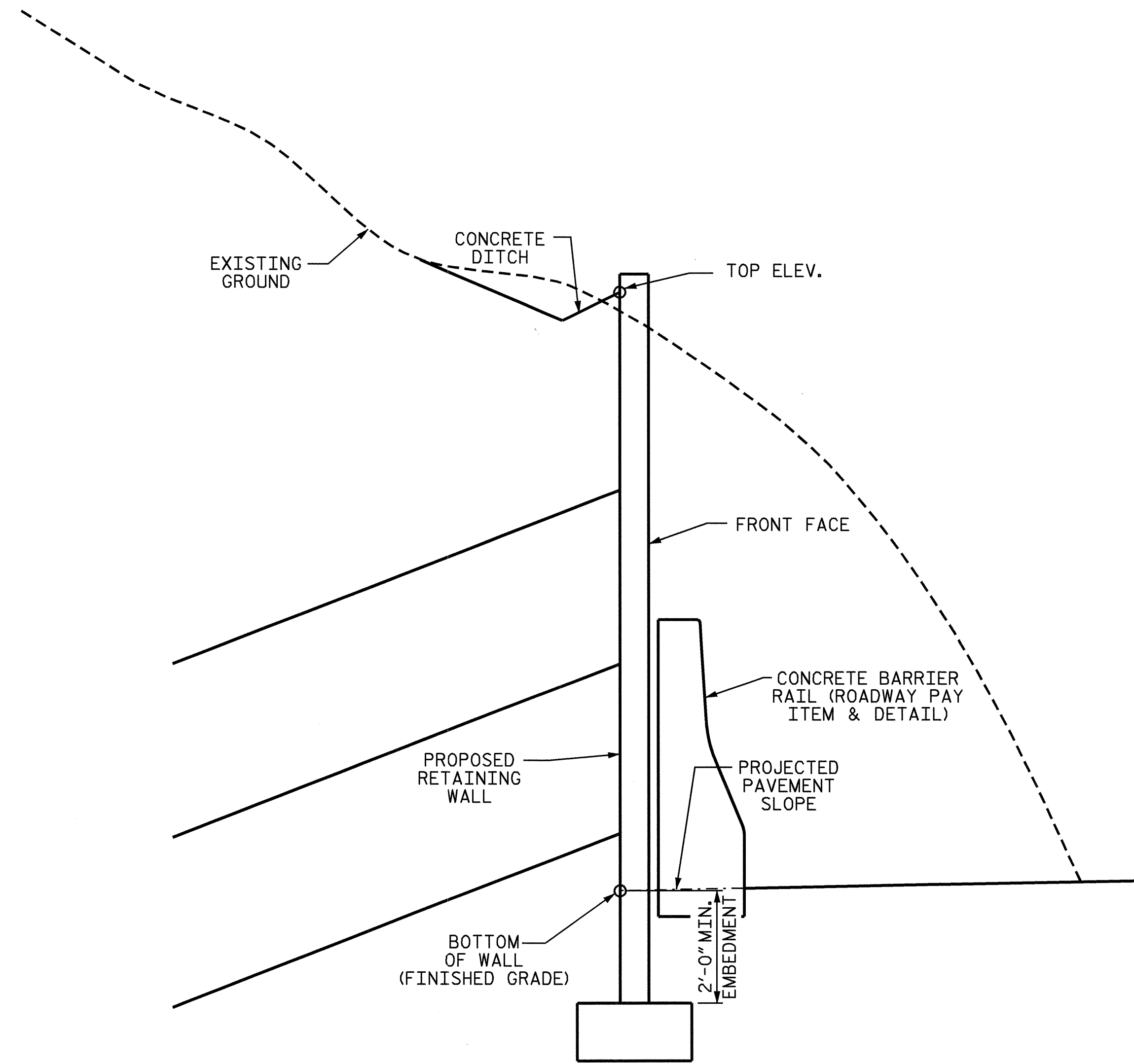
THE OFFSET FOR WALL LAYOUT TO FRONT FACE OR BACK FACE OF WALL NEEDS TO BE GIVEN WITH STATIONING INCREASING FROM LEFT TO RIGHT ON PLAN SHEETS.

PROPER CONSIDERATION SHALL BE GIVEN TO THE DRAINAGE SYSTEMS BEHIND THE WALL AT STATION 13+50.00 -L-. SEE ROADWAY DRAINAGE PLANS FOR DETAILS.

PROVIDE PAVED DRAINAGE DITCH ON TOP OF THE WALLS.

BOTTOM OF WALL ELEVATIONS ARE FINISHED GRADE ELEVATIONS AND THESE ELEVATIONS DO NOT INCLUDE EMBEDMENT FOR THE SOIL NAIL WALLS.

ALL STRUCTURE EXCAVATION AND BACKFILL NECESSARY FOR THE CONSTRUCTION OF THE PERMANENT SOIL NAIL RETAINING WALLS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALLS.



SOIL NAIL WALL TYPICAL SECTION

(NOT TO SCALE)

PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 13+50.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SOIL NAIL
 RETAINING WALL
 DETAILS



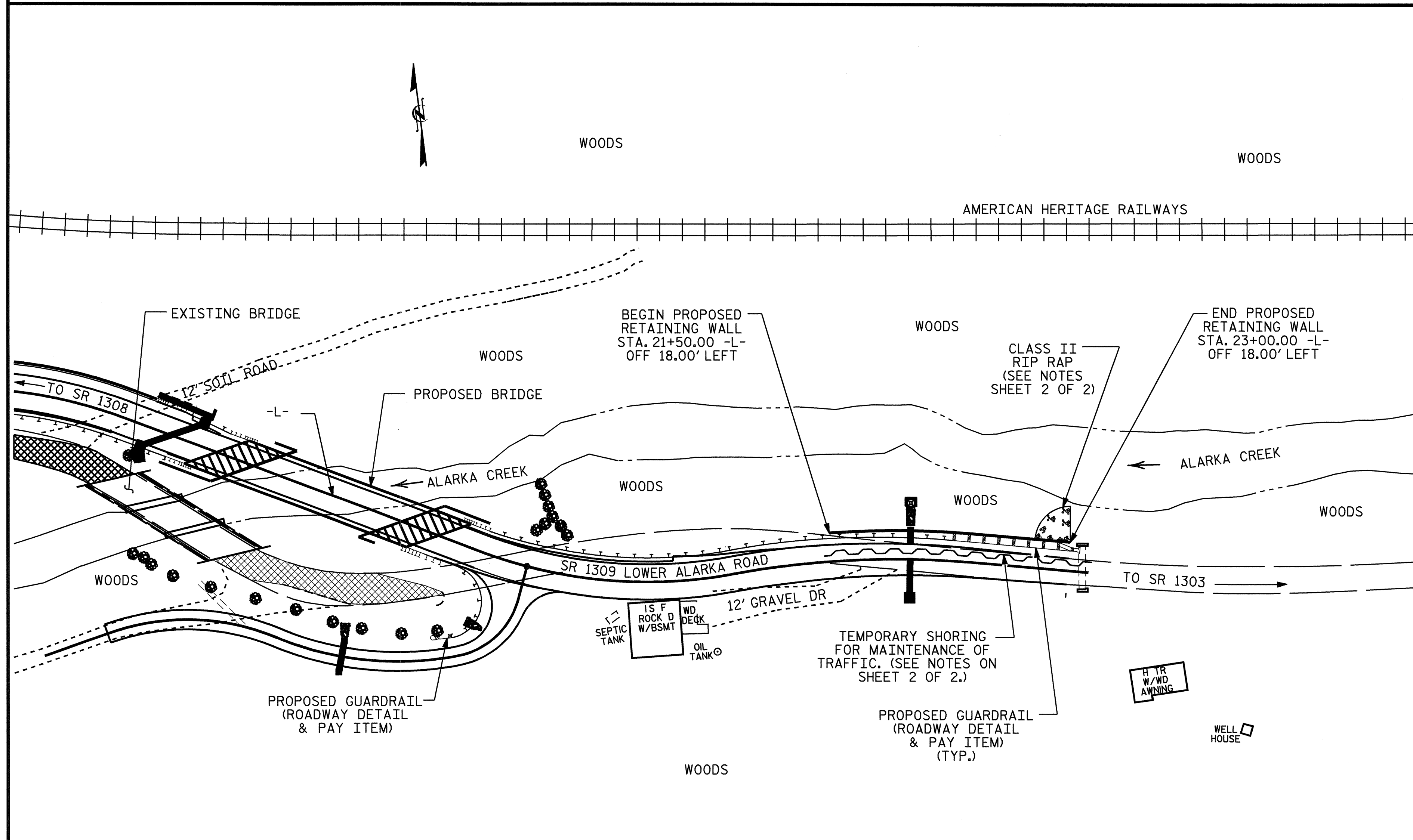
DRAWN BY : D. G. ELY DATE : 1/24/05
 CHECKED BY : B. C. HANKS DATE : 1/25/06

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

BM #3: 8" NAIL IN BASE OF 10" SYCAMORE 132.25' RIGHT OF STA. 17+02.89 -L-. EL. 1795.02

F.A. PROJECT NO. BRZ-1309(2)

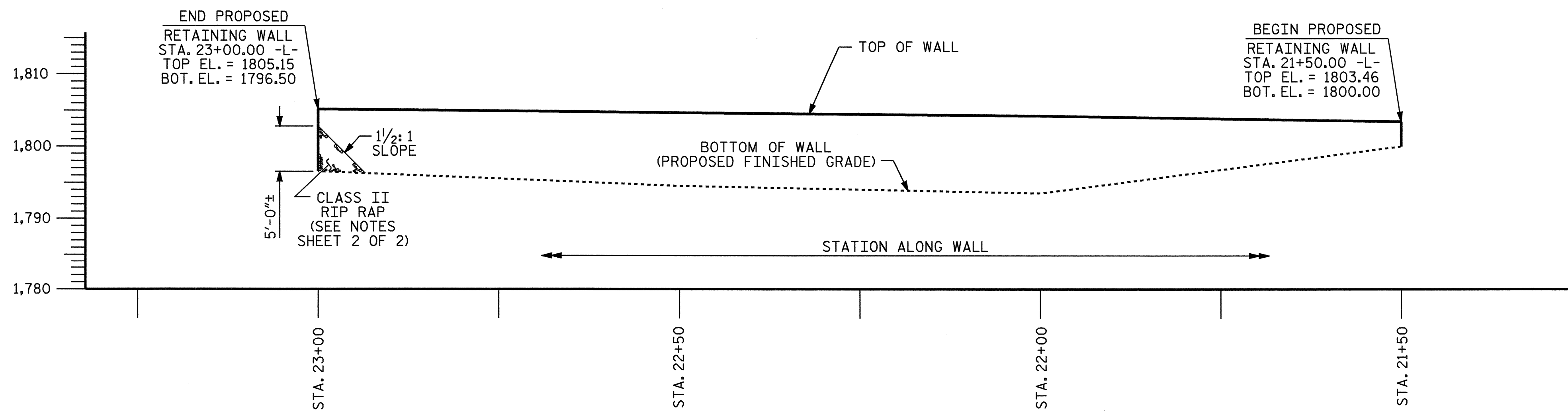


LOCATION SKETCH

RETAINING WALL ELEVATIONS				
-L- STA	OFFSET FROM C (LEFT)	ELEV @ TOP OF WALL	ELEV @ BOTTOM OF WALL	* WALL HEIGHT
21+50.00	18.00	1803.46	1800.00	3.46
22+00.00	18.00	1804.26	1793.50	10.76
22+50.00	18.00	1804.67	1794.50	10.17
23+00.00	18.00	1805.15	1796.50	8.65

* NOTE: WALL HEIGHT DOES NOT INCLUDE EMBEDMENT DEPTH.

TOTAL BILL OF MATERIAL	
	SQ. FT.
MSE RETAINING WALL	1350



ELEVATION
(VIEWING FRONT FACE)

DRAWN BY: D. G. ELY DATE: 9/27/05
CHECKED BY: B. C. HANKS DATE: 1/25/06

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PROJECT NO. B-3701
SWAIN COUNTY
STATION: 21+50.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

MSE RETAINING
WALL DETAILS

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

NOTES

SUBMIT COMPLETE WORKING DRAWINGS, ERECTION PLANS AND DESIGN CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO BEGINNING THE "MSE" WALL. SEE MSE RETAINING WALLS SPECIAL PROVISION.

DESIGN THE MSE WALL TO MEET ALL THE CRITERIA OF THE LATEST VERSION OF AASHTO ALLOWABLE STRENGTH DESIGN STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITS INTERIMS.

THE SERVICE LIFE OF THE MSE WALL SHALL BE 100 YEARS.

ALL WALL BACKFILL MATERIAL WITHIN THE REINFORCED ZONE MUST BE #57 WASHED CRUSHED STONE. SEE SECTION 1005 OF THE STANDARD SPECIFICATIONS FOR #57 STONE.

USE THE FOLLOWING MATERIAL PARAMETERS IN THE WALL DESIGN:

- A. #57 STONE: UNIT WEIGHT=110 pcf, $\phi=34^\circ$, C=0
- B. RETAINED MATERIAL: UNIT WEIGHT=120 pcf, $\phi=30^\circ$, C=0
- C. ALL OTHER EARTH MATERIAL AROUND WALL: UNIT WEIGHT=120 pcf, $\phi=30^\circ$, C=0
- D. ALLOWABLE BEARING PRESSURE = 2.0 tsf

THE TOP OF WALL ELEVATION IS WHERE THE FINISHED GRADE BEHIND THE MSE WALL INTERSECTS THE BACK OF THE WALL. SHOW A DETAIL LABELING THE TOP OF WALL.

IN ELEVATION VIEW, SHOW THE TOP OF WALL (SOLID LINE), THE EXISTING GROUND LINE (LARGE DASHED LINE), THE PROPOSED GROUND LINE (SMALL DASHED LINE), AND THE BOTTOM OF WALL (SOLID LINE). SHOW ELEVATIONS FOR THE TOP OF WALL AT VERTICAL BREAK POINTS, AND AT NO GREATER THAN 50 FOOT INTERVALS. LABEL WHETHER THE ELEVATION VIEW IS FRONT FACE OR BACK FACE.

DESIGN THE CONCRETE BARRIER COPING WITH A MOMENT SLAB FOR TRAFFIC IMPACT IN ACCORDANCE WITH AASHTO. CONCRETE BARRIER COPING WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALL.

SHOW A DETAIL FOR FABRIC AND SOIL ABOVE THE #57 STONE WHERE APPROPRIATE.

CONSTRUCT BACKSLOPES AS INDICATED ON STRUCTURE DRAWINGS. BACKSLOPES ARE TO BE CONSTRUCTED OF CLASS II RIP RAP AS INDICATED.

SHOW THE LIMITS OF SOIL REINFORCEMENT AND THE #57 STONE.

THE PANELS SHALL HAVE A PLAIN GRAY FINISH.

A MINIMUM 5 FOOT BENCH IS REQUIRED IN FRONT OF THE WALL. GRADE BENCH WITH A MINIMUM SLOPE OF 0.02% TO CARRY WATER AWAY FROM THE WALL.

SHOW ELEVATIONS OF TOP OF LEVELING PAD.

A MINIMUM PANEL EMBEDMENT OF 2 (TWO) FEET BELOW THE PROPOSED GROUND LINE IS REQUIRED.

SHOW THE REQUIRED BEARING PRESSURE OF THE WALL ON PLANS.

DRAINAGE MUST BE AWAY FROM THE WALL AT THE TOP AND BOTTOM.

SHOW DETAILS IN THE PLANS FOR SKEWING REINFORCING STRIPS OR MATS AROUND ANY OBSTRUCTIONS, SUCH AS GUARDRAILS, PAVED DITCHES, PAVEMENT STRUCTURES, AND DRAINAGE STRUCTURES. SOIL REINFORCING MUST NOT BE IN CONTACT WITH ANY OBSTRUCTIONS.

FINAL PLANS MUST BE ON REPRODUCIBLE SHEETS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.

THE LEVELING PAD SHALL BE CAST-IN-PLACE AND MADE CONTINUOUS AT STEPS.

CONSTRUCT JOINTS IN THE COPING IN ACCORDANCE WITH ARTICLE 825-10 OF THE STANDARD SPECIFICATIONS. LOCATE JOINTS IN ALL EXPOSED FACES OF THE COPING, AT 10 FEET MAXIMUM CENTERS, TO COINCIDE WITH PANEL JOINTS. EVERY THIRD JOINT SHALL BE AN EXPANSION JOINT. STOP REINFORCING STEEL 2" OF EITHER SIDE OF EXPANSION JOINTS. OTHER JOINTS SHALL BE GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH.

USE PANELS WITH A FLAT SURFACE ON THE FRONT FACE.

INCLUDE THE FOLLOWING ON PLANS SUBMITTED FOR REVIEW:

- PLAN VIEW, ELEVATION VIEWS, TYPICAL SECTIONS, LEVELING PAD STEP DETAIL, PANEL AND COPING DETAILS, AND OBSTRUCTION AVOIDANCE DETAILS.

NOTE ON CONTRACTOR'S WORKING DRAWINGS: VERIFY BEARING CAPACITY OF THE WALL FOUNDATION SOILS IN THE FIELD.

RELOCATE ALL UTILITIES PRIOR TO CONSTRUCTION OF THE MSE WALL. SEE UTILITY PLANS.

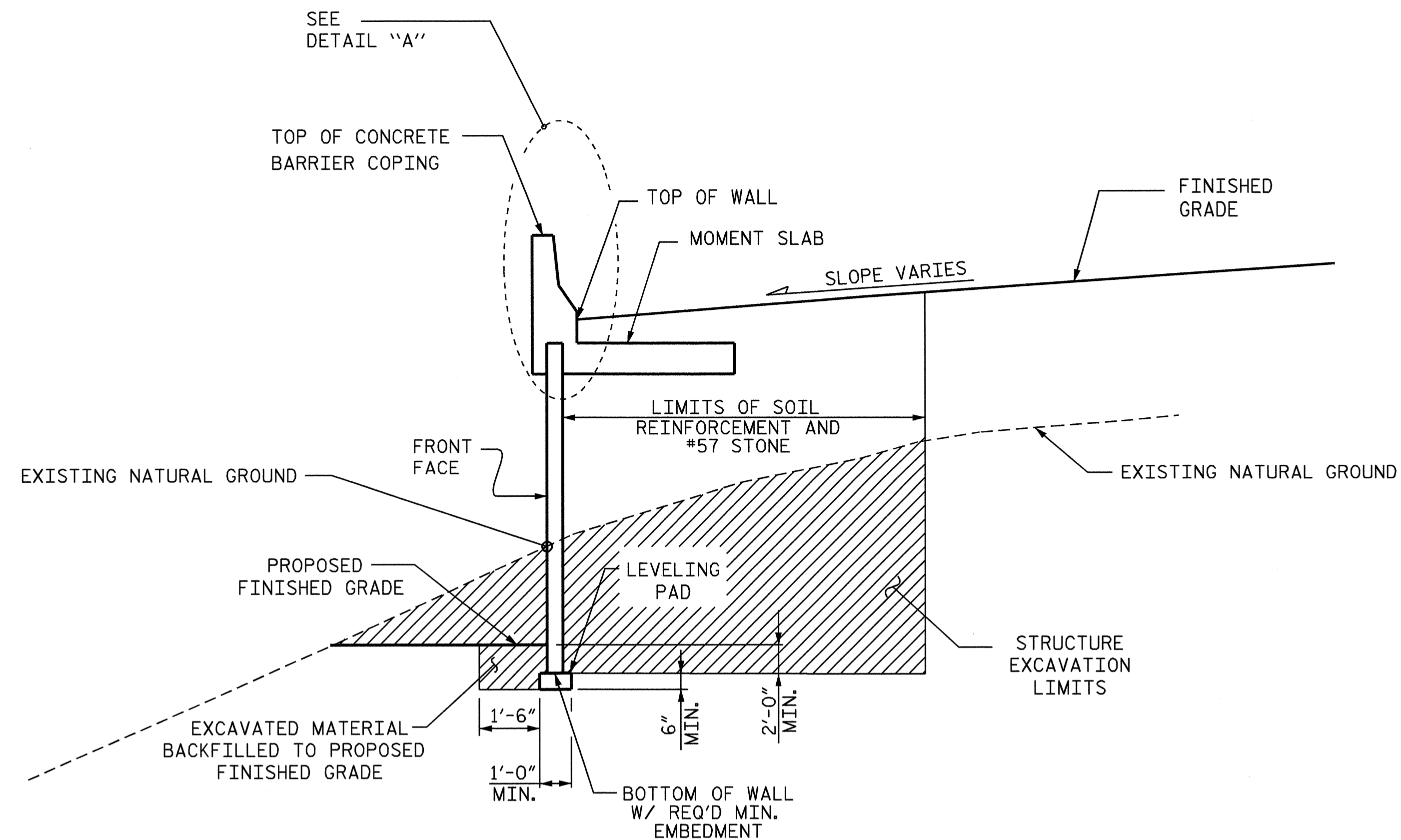
ALL EXCAVATION FOR THE CONSTRUCTION OF THE MSE WALL WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALL.

THE RESIDENT ENGINEER WILL SCHEDULE A PRECONSTRUCTION CONFERENCE WITH REPRESENTATIVES FROM THE CONTRACTOR, THE RETAINING WALL SYSTEM SUPPLIER, AND THE GEOTECHNICAL ENGINEERING UNIT TO DISCUSS DETAILS AND INSPECTION OF THE RETAINING WALL PRIOR TO ANY WORK BEING PERFORMED AT THE SITE.

MSE WALL SHALL BE DESIGNED FOR OBSTRUCTIONS SUCH AS DRAINAGE STRUCTURES OR UTILITIES. SEE ROADWAY PLANS AND UTILITY PLANS.

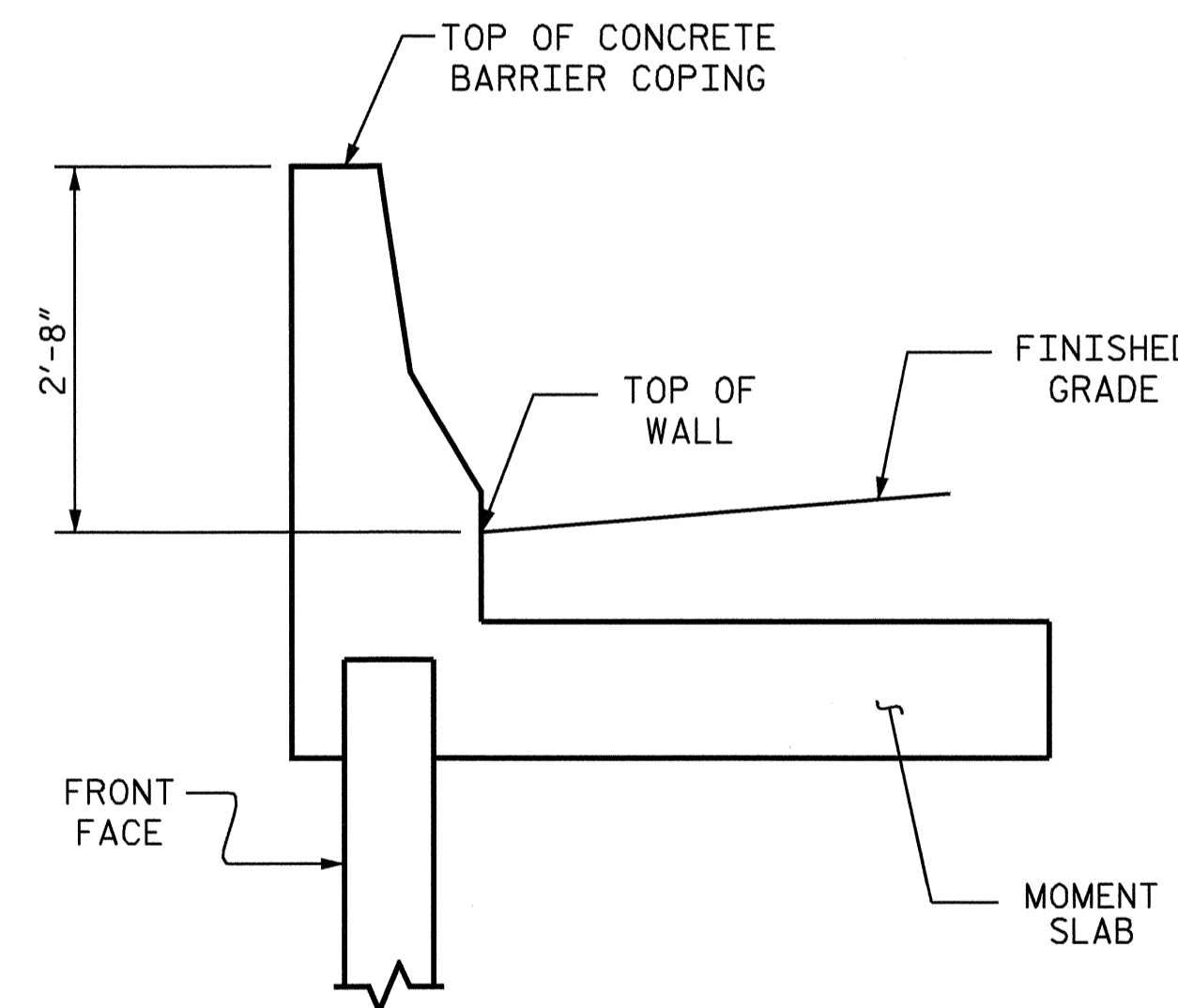
CLASS II RIP RAP USED TO CONSTRUCT THE BACKSLOPES SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALL.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

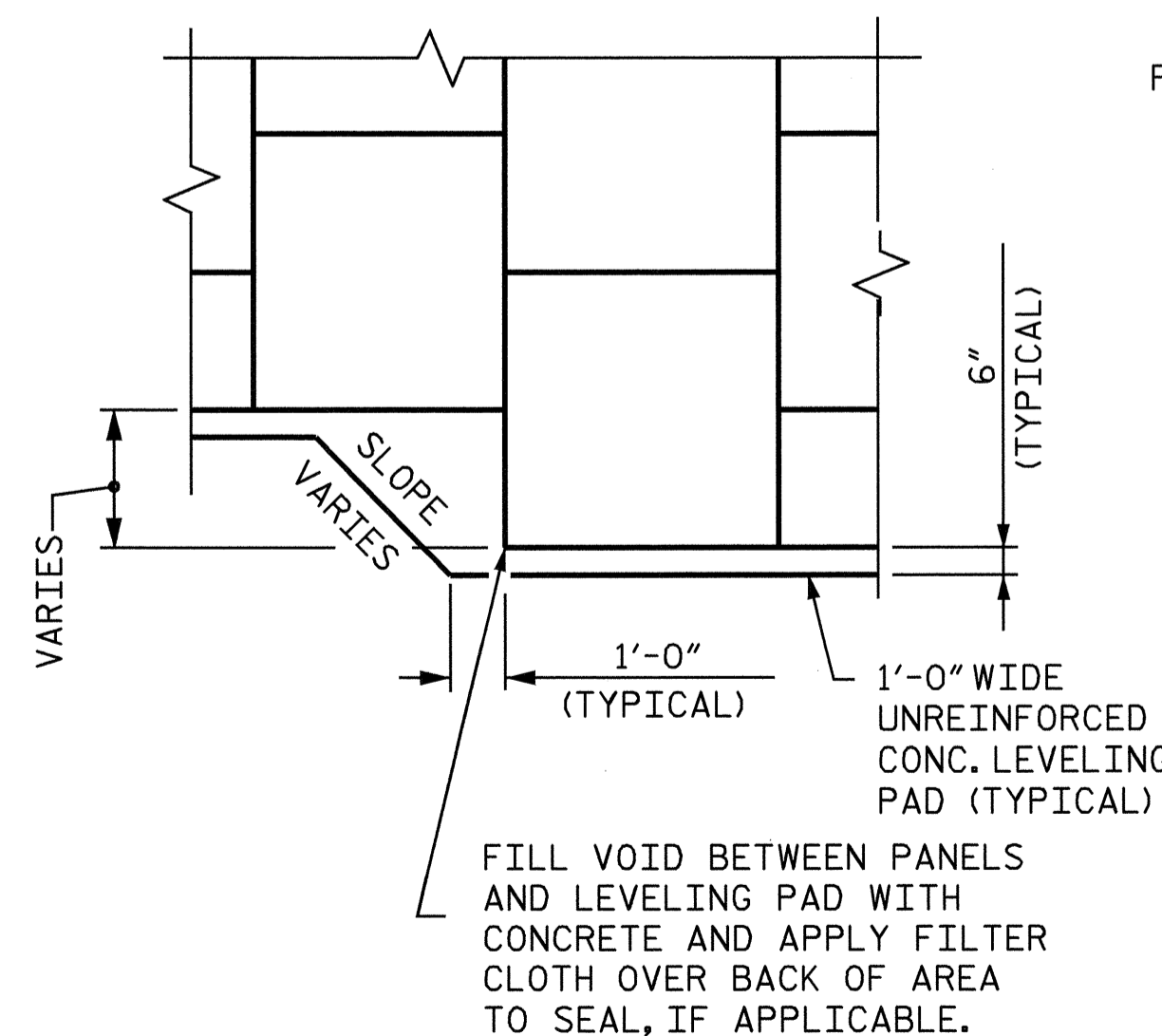


SECTION THRU WALL

(NOT TO SCALE)



DETAIL "A"



**TYPICAL LEVELING PAD
STEP DETAIL**

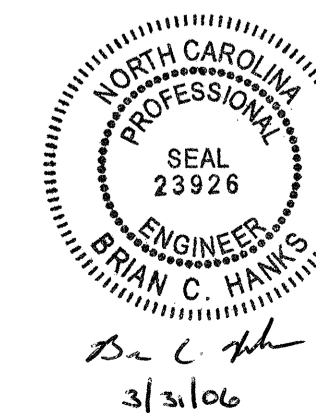
PROJECT NO. B-3701
SWAIN COUNTY
 STATION: 21+50.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**MSE RETAINING
 WALL DETAILS**

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



DRAWN BY : D. G. ELY DATE : 1/24/06
 CHECKED BY : B. C. HANKS DATE : 1/30/06

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN