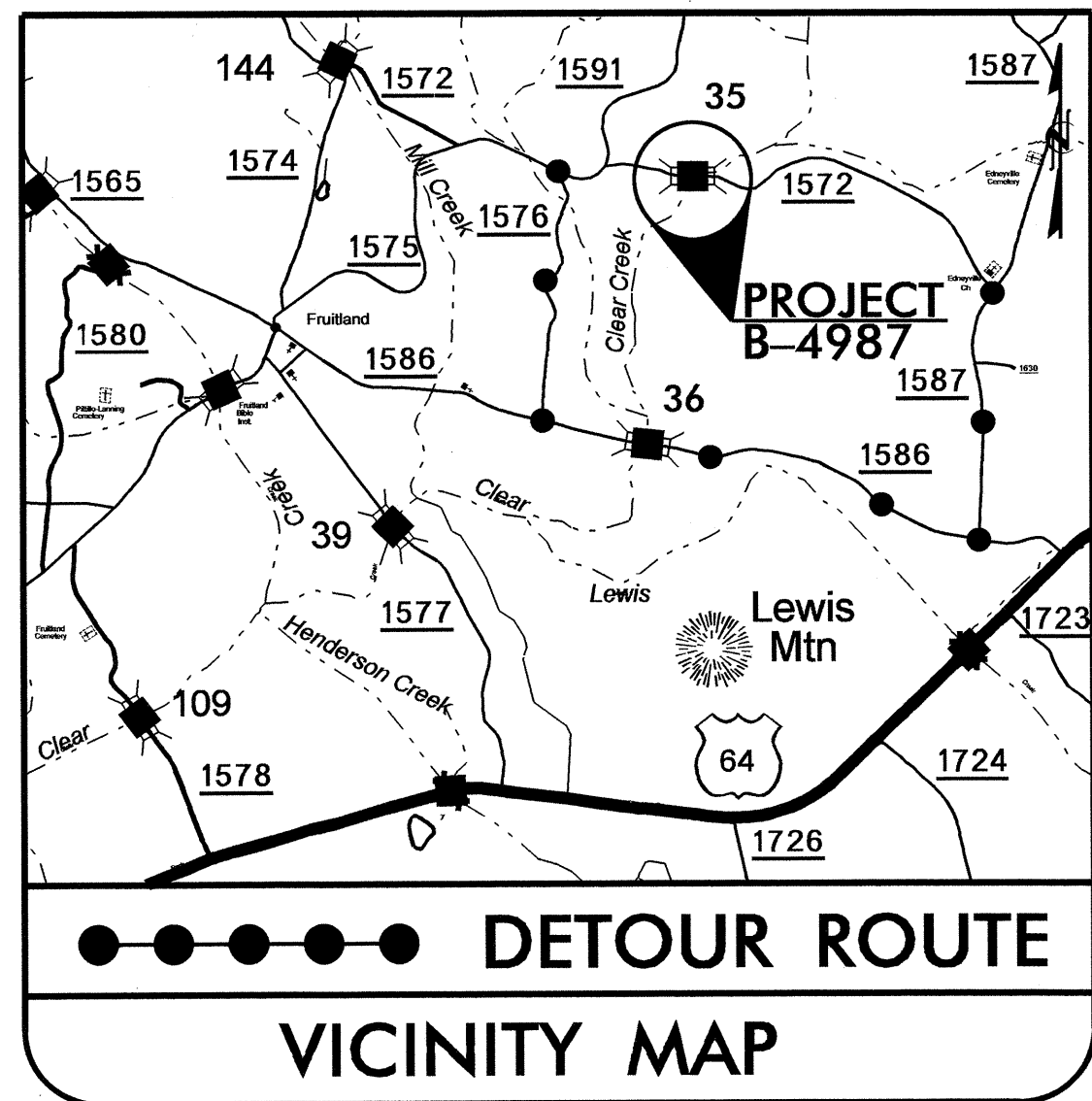


09-NOV-2012 11:34
 \$\$\$\$\$\$DGN\$\$\$\$\$\$
 iduggins

TIP PROJECT: B-4987

CONTRACT: C203042

STRUCTURE



STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

HENDERSON COUNTY

**LOCATION: BRIDGE NO. 35 OVER CLEAR CREEK
ON SR 1572 (APPLE VALLEY RD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4987		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40157.1.1	BRZ-1572(2)	P.E.	
40157.2.1	BRZ-1572(2)	RAW, UTIL	
40157.3.1	BRZ-1572(2)	CONST	



BEGIN TIP PROJECT B-4987
-L- STA. 10 + 50.00

END TIP PROJECT B-4987
-L- STA. 14 + 00.00

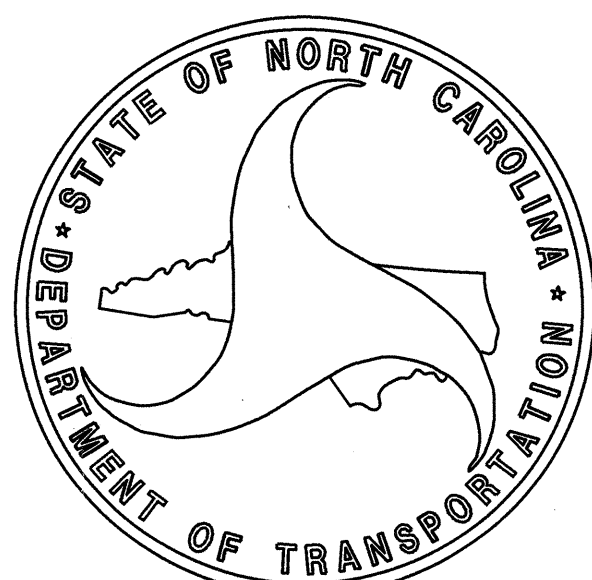
TO SR 1573

SR-1572 (APPLE VALLEY RD)

BEGIN BRIDGE
-L- 12 + 17.83

END BRIDGE
-L- 12 + 85.17

TO US 64



DESIGN DATA

ADT 2010 =	408
ADT 2035 =	800
DHV =	12 %
D =	60 %
T =	9 % *
V =	35 MPH
* TTST =	1 DUAL 8
FUNC CLASS =	LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4987 =	0.053 mi.
LENGTH OF STRUCTURE TIP PROJECT B-4987 =	0.013 mi.
TOTAL LENGTH OF TIP PROJECT B-4987 =	.066 mi.

Prepared In the Office of:

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE:
February 19, 2013

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

JOHN R. DUGGINS JR., P.E.
PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

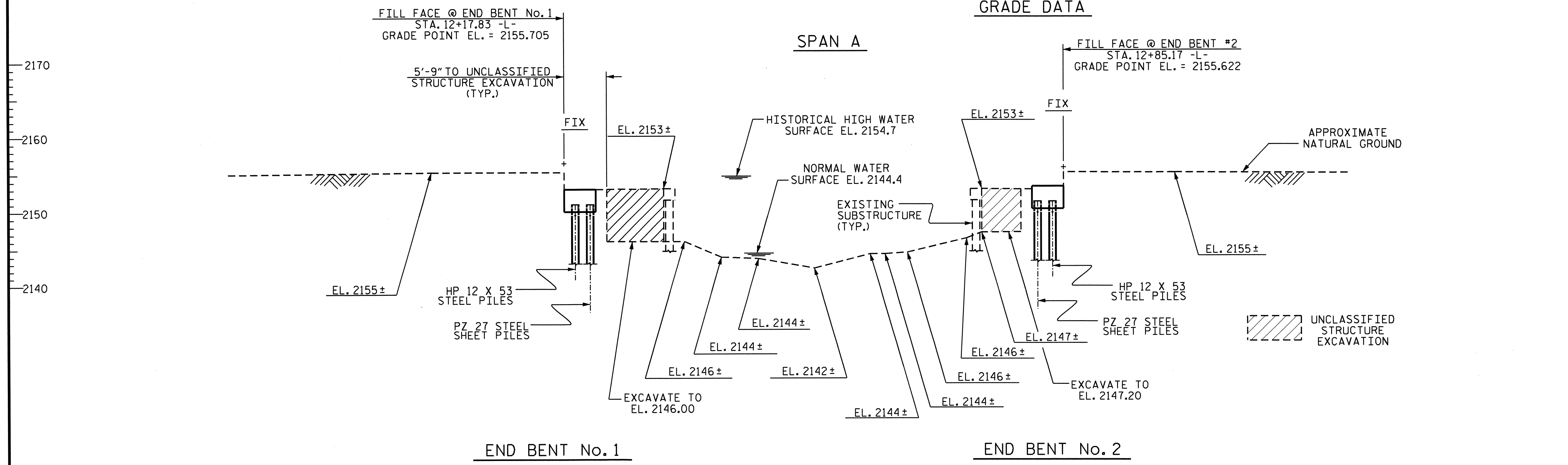
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

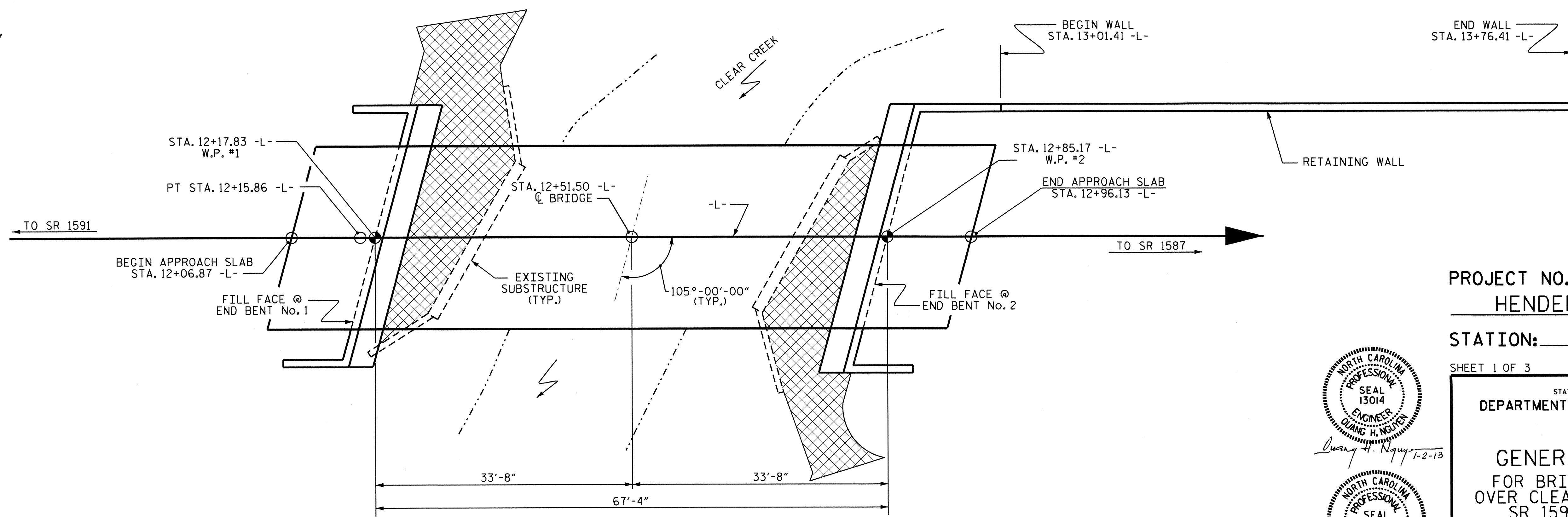
APPROVED: DIVISION ADMINISTRATOR

11+50 12+00 12+50 13+00 13+50

GRADE DATA
 (+)0.3571% (-)1.2600%
 PI = STA. 12+80.00
 EL. = 2,155.93'
 VC = 140'



HORIZONTAL CURVE DATA
 PI STA. = 11+08.00 -L-
 $\Delta = 5^{\circ}-09'-12.0$ (LT.)
 $D = 2^{\circ}-23'-14.4''$
 $L = 215.86'$
 $T = 108.00'$
 $R = 2400.00'$



I HEREBY CERTIFY
 THESE PLANS ARE
 THE AS-BUILT PLANS

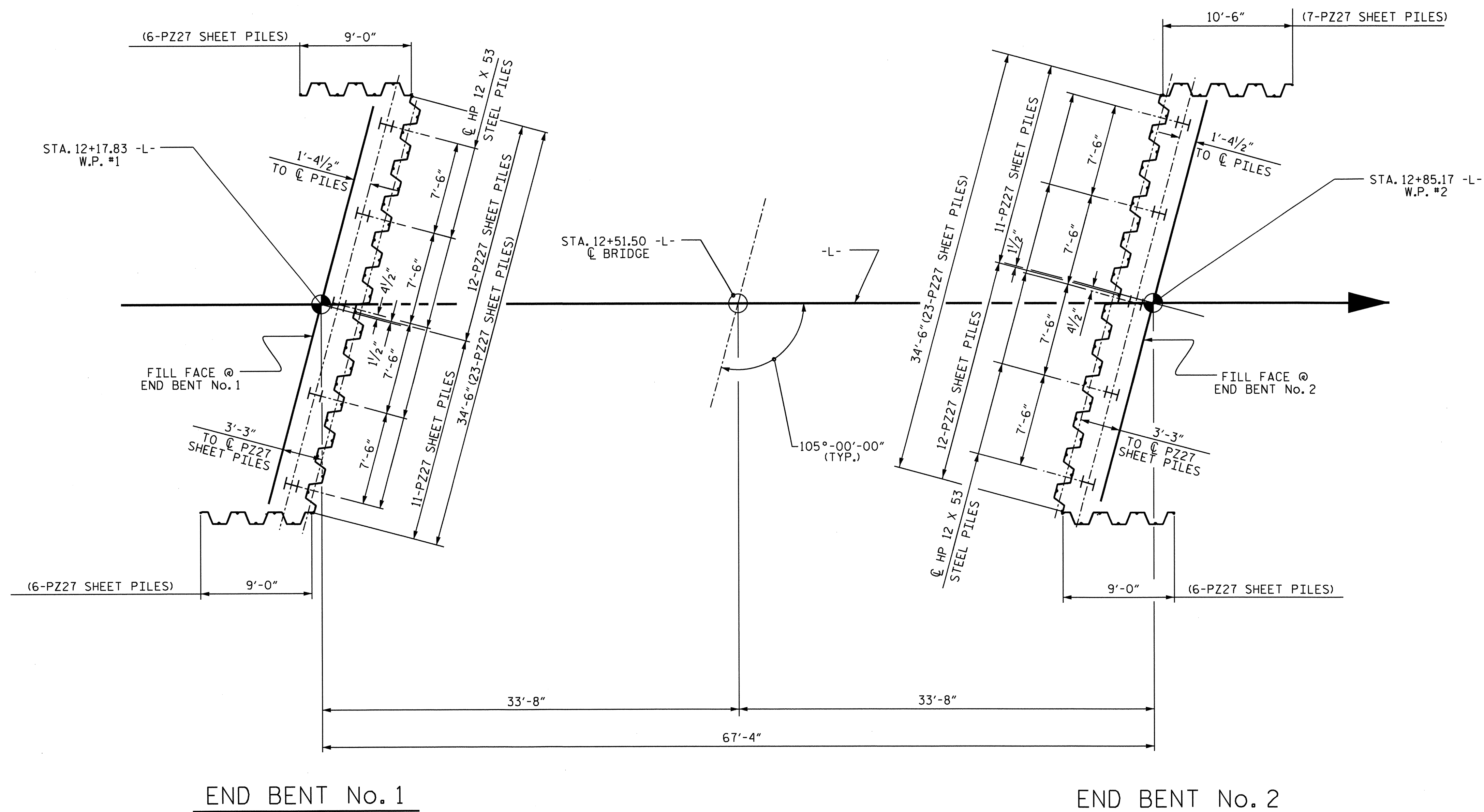
PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: 12+51.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 35

STATE OF NORTH CAROLINA
 PROFESSIONAL ENGINEER
 SEAL 13014
 QUANG H. NGUYEN
 1-2-13

STATE OF NORTH CAROLINA
 PROFESSIONAL ENGINEER
 SEAL 15779
 JOHN R. DUGGINS, JR.
 12/28/12

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

DRAWN BY : S.W. PEARCE DATE : 8/12
 CHECKED BY : J.R. DUGGINS DATE : 9/12



END BENT No. 1

END BENT No. 2

FOUNDATION LAYOUT

DIMENSIONS LOCATING STEEL PILES ARE TO THE PILE CENTERLINE AT BOTTOM OF CAP

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
 PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
 PZ-27 SHEET PILES ARE TO BE PLACED IN FRONT OF HP12x53 PILES AT END BENT NO. 1.
 SHEET PILES ARE INSTALLED TO AN ELEVATION OF 2135.0 FT AT END BENT NO. 1.
 PZ-27 SHEET PILES ARE TO BE PLACED IN FRONT OF HP12x53 PILES AT END BENT NO. 2.
 SHEET PILES ARE INSTALLED TO AN ELEVATION OF 2135.0 FT AT END BENT NO. 2.

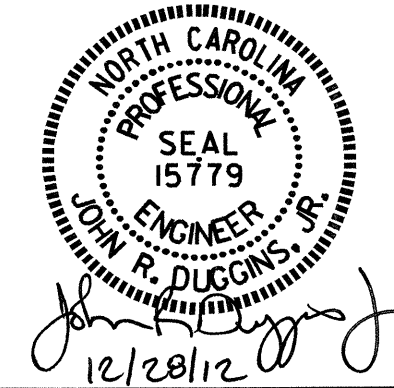
PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: 12+51.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

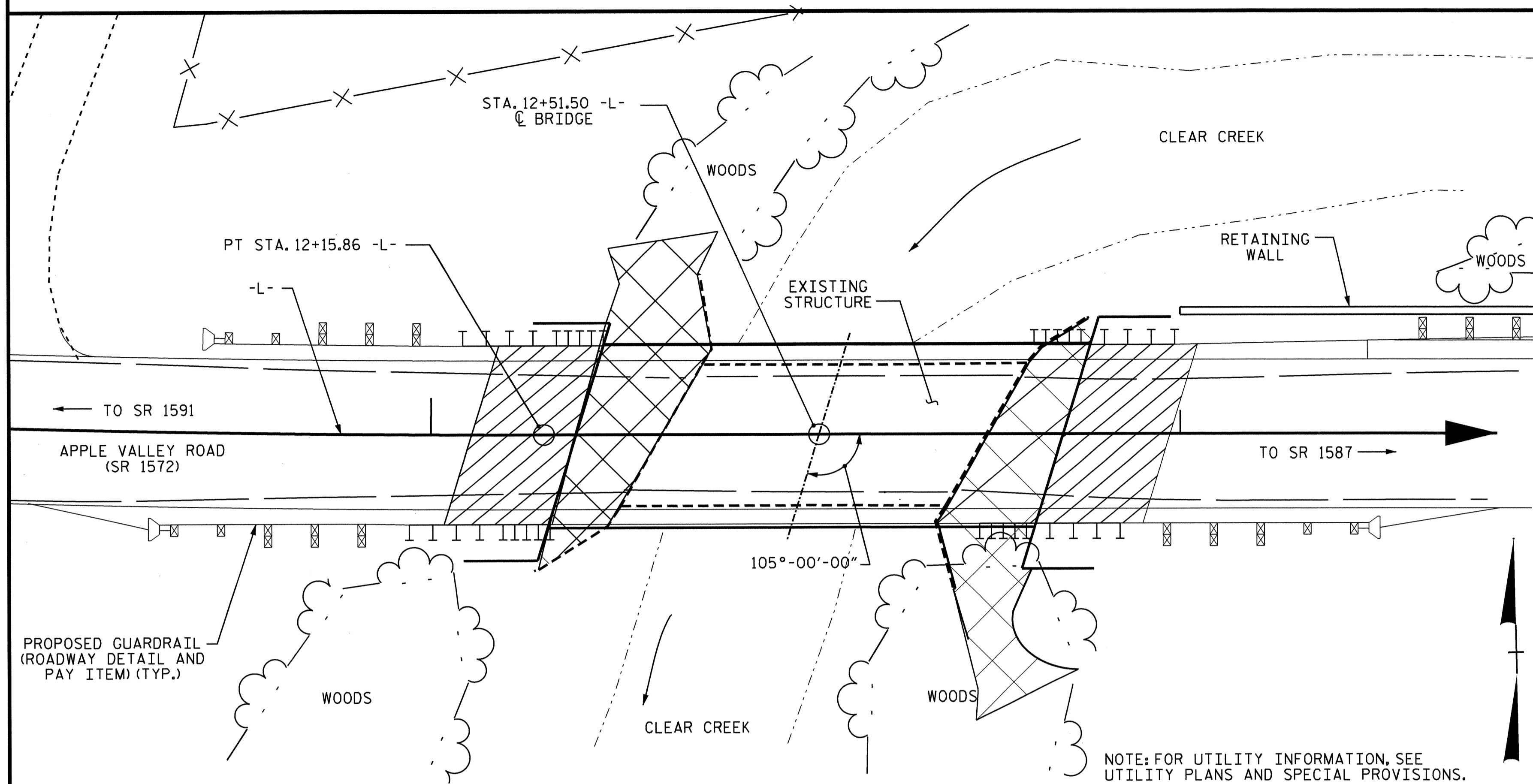
GENERAL DRAWING
 FOR BRIDGE ON SR 1572
 OVER CLEAR CREEK BETWEEN
 SR 1591 AND SR 1587

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



DRAWN BY : S. PEARCE DATE : 8/12
 CHECKED BY : W.J. HARRIS DATE : 9/12

BM #2 - 8" RAILROAD SPIKE IN BASE OF 18" PINE TREE 79.35' RT. OF -BL- STA. 14+03. EL. 2178.23', NAVD 1988



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THE EXISTING STRUCTURE CONSISTING OF ONE SPAN @ 44'-2" WITH A TIMBER FLOOR ON STEEL I-BEAMS SUPERSTRUCTURE WITH A CLEAR ROADWAY WIDTH OF 17'-4" ON A SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER POST AND SILLS END BENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 16' RIGHT AND 30' LEFT AT END BENT #1 AND 30' RIGHT AND 16' LEFT AT END BENT #2 FROM THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH 'HEC 18-EVALUATING SCOUR AT BRIDGES'.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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 12+51.50 -L-'

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR 18" STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

TOTAL BILL OF MATERIAL												
	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	18" STEEL SHEET PILES	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	LIN. FT.	LUMP SUM	NO.	LIN. FT.	SO. FT.
SUPERSTRUCTURE				LUMP SUM				130.26	LUMP SUM	9	585.00	
END BENT NO.1		LUMP SUM	19.8		2407	5	250					895
END BENT NO.2		LUMP SUM	19.8		2407	5	250					920
TOTAL	LUMP SUM	LUMP SUM	39.6	LUMP SUM	4814	10	500	130.26	LUMP SUM	9	585.00	1815

HYDRAULIC DATA

DESIGN DISCHARGE = 2,700 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 25 YRS.
 DESIGN HIGH WATER ELEVATION = 2152.9 FT.
 DRAINAGE AREA = 14.0 SQ. MI
 BASE DISCHARGE (0100) = 3,880 C.F.S.
 BASE HIGH WATER ELEVATION = 2154.9 FT.

OVERTOPPING FLOOD DATA

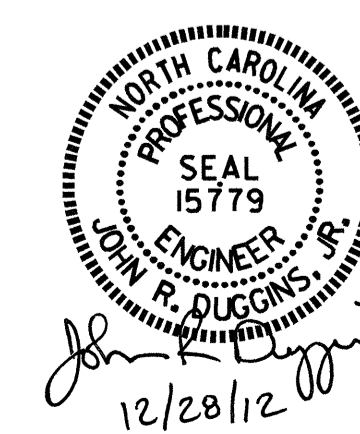
OVERTOPPING DISCHARGE = 8,500 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD ... = 500 YRS.+
 OVERTOPPING FLOOD ELEVATION = 2154.7 FT.

PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: 12+51.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1572
 OVER CLEAR CREEK BETWEEN
 SR 1591 AND SR 1587



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

DRAWN BY : S. PEARCE DATE : 8/12
 CHECKED BY : J.R. DUGGINS DATE : 8/12

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.03	--	1.75	0.269	1.06	65'	EL	31.982	0.608	1.05	65'	EL	3.198	0.80	0.269	1.03	65'	EL	31.982		
	HL-93(0pr)	N/A	--	1.362	--	1.35	0.269	1.38	65'	EL	31.982	0.608	1.36	65'	EL	3.198	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.296	46.666	1.75	0.269	1.36	65'	EL	31.982	0.608	1.3	65'	EL	3.198	0.80	0.269	1.32	65'	EL	31.982		
	HS-20(0pr)	36.000	--	1.68	60.493	1.35	0.269	1.76	65'	EL	31.982	0.608	1.68	65'	EL	3.198	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.898	39.127	1.4	0.269	3.74	65'	EL	31.982	0.608	3.82	65'	EL	3.198	0.80	0.269	2.90	65'	EL	31.982	
		SNGARBS2	20.000	--	2.194	43.878	1.4	0.269	2.83	65'	EL	31.982	0.608	2.73	65'	EL	3.198	0.80	0.269	2.19	65'	EL	31.982	
		SNAGRIS2	22.000	--	2.092	46.029	1.4	0.269	2.7	65'	EL	31.982	0.608	2.54	65'	EL	3.198	0.80	0.269	2.09	65'	EL	31.982	
		SNCOTTS3	27.250	--	1.443	39.328	1.4	0.269	1.86	65'	EL	31.982	0.608	1.91	65'	EL	3.198	0.80	0.269	1.44	65'	EL	31.982	
		SNAGGRS4	34.925	--	1.219	42.576	1.4	0.269	1.57	65'	EL	31.982	0.608	1.59	65'	EL	3.198	0.80	0.269	1.22	65'	EL	31.982	
		SNS5A	35.550	--	1.191	42.349	1.4	0.269	1.54	65'	EL	31.982	0.608	1.62	65'	EL	3.198	0.80	0.269	1.19	65'	EL	31.982	
		SNS6A	39.950	--	1.098	43.884	1.4	0.269	1.42	65'	EL	31.982	0.608	1.48	65'	EL	3.198	0.80	0.269	1.10	65'	EL	31.982	
	TTST	SNS7B	42.000	--	1.046	43.944	1.4	0.269	1.35	65'	EL	31.982	0.608	1.46	65'	EL	3.198	0.80	0.269	1.05	65'	EL	31.982	
		TNAGRIT3	33.000	--	1.341	44.258	1.4	0.269	1.73	65'	EL	31.982	0.608	1.76	65'	EL	3.198	0.80	0.269	1.34	65'	EL	31.982	
		TNT4A	33.075	--	1.349	44.604	1.4	0.269	1.74	65'	EL	31.982	0.608	1.71	65'	EL	3.198	0.80	0.269	1.35	65'	EL	31.982	
		TNT6A	41.600	--	1.108	46.092	1.4	0.269	1.43	65'	EL	31.982	0.608	1.56	65'	EL	3.198	0.80	0.269	1.11	65'	EL	31.982	
		TNT7A	42.000	--	1.116	46.888	1.4	0.269	1.44	65'	EL	31.982	0.608	1.52	65'	EL	3.198	0.80	0.269	1.12	65'	EL	31.982	
		TNT7B	42.000	--	1.162	48.806	1.4	0.269	1.5	65'	EL	31.982	0.608	1.42	65'	EL	3.198	0.80	0.269	1.16	65'	EL	31.982	
		TNAGRIT4	43.000	--	1.1	47.307	1.4	0.269	1.42	65'	EL	31.982	0.608	1.37	65'	EL	3.198	0.80	0.269	1.10	65'	EL	31.982	
TNAGT5A	45.000	--	1.035	46.568	1.4	0.269	1.33	65'	EL	31.982	0.608	1.37	65'	EL	3.198	0.80	0.269	1.03	65'	EL	31.982			
TNAGT5B	45.000	3	1.02	45.907	1.4	0.269	1.32	65'	EL	31.982	0.608	1.3	65'	EL	3.198	0.80	0.269	1.02	65'	EL	31.982			

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

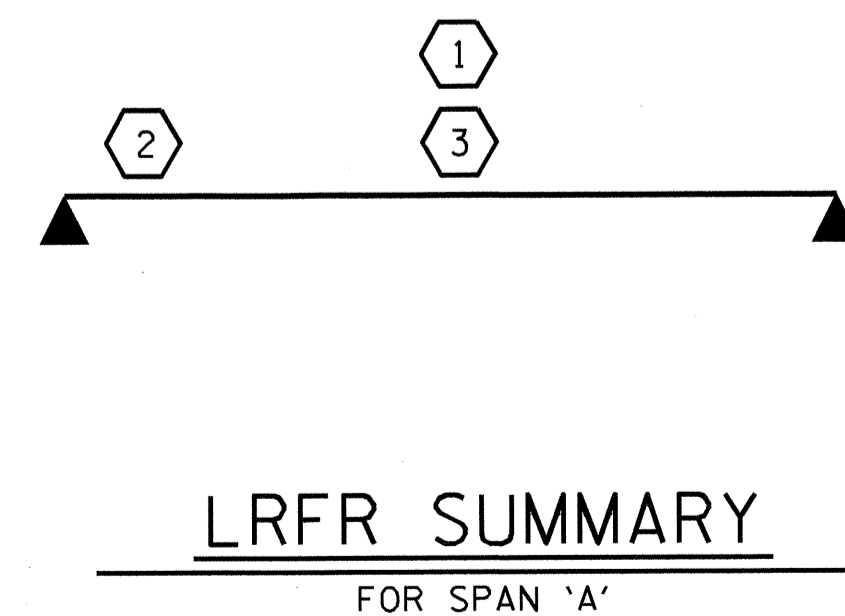
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

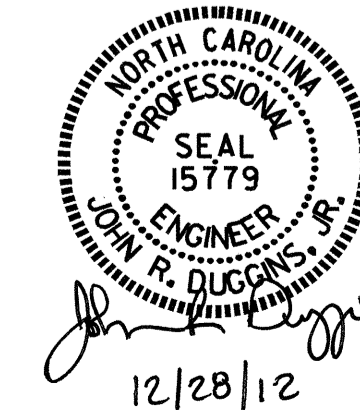
GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



PROJECT NO. B-4987
HENDERSON COUNTY
STATION: 12+51.50 -L-

ASSEMBLED BY : V. NGUYEN DATE : 8/12
CHECKED BY : S. PEARCE DATE : 8/12
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10



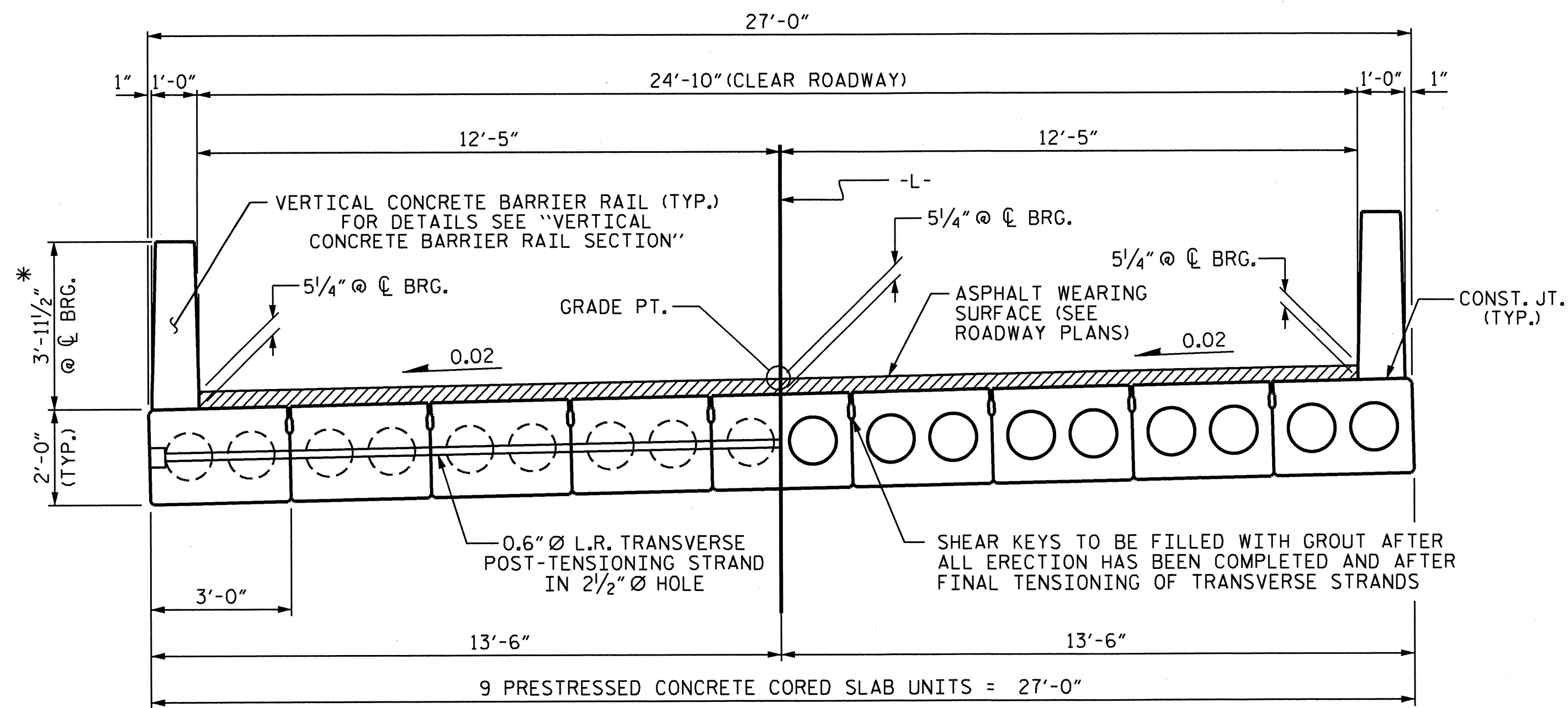
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
65' CORED SLAB UNIT
75° SKEW & 105° SKEW
(NON-INTERSTATE TRAFFIC)

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

12/28/12

STD. NO. 24LRFR1_75&105S_65L

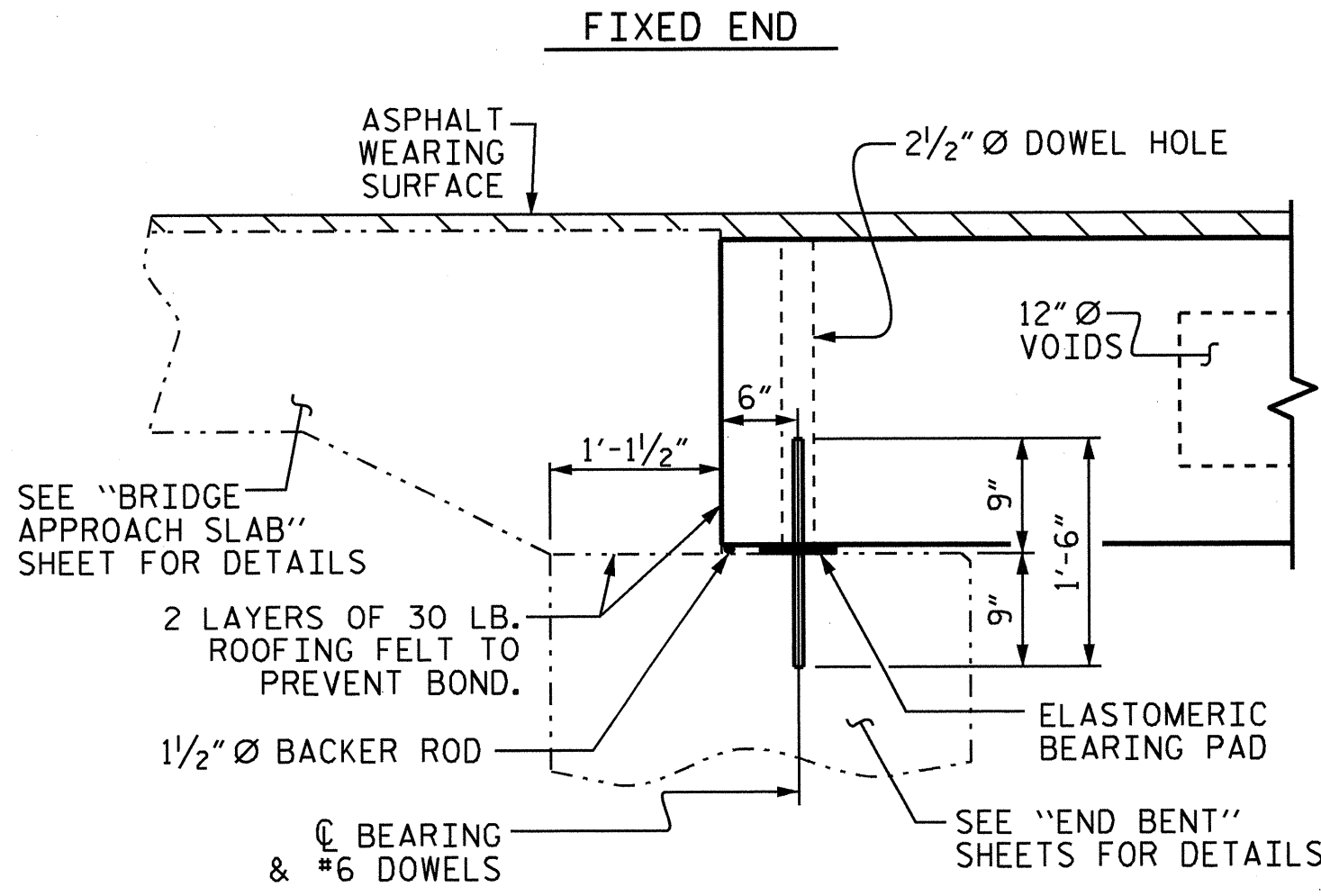


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

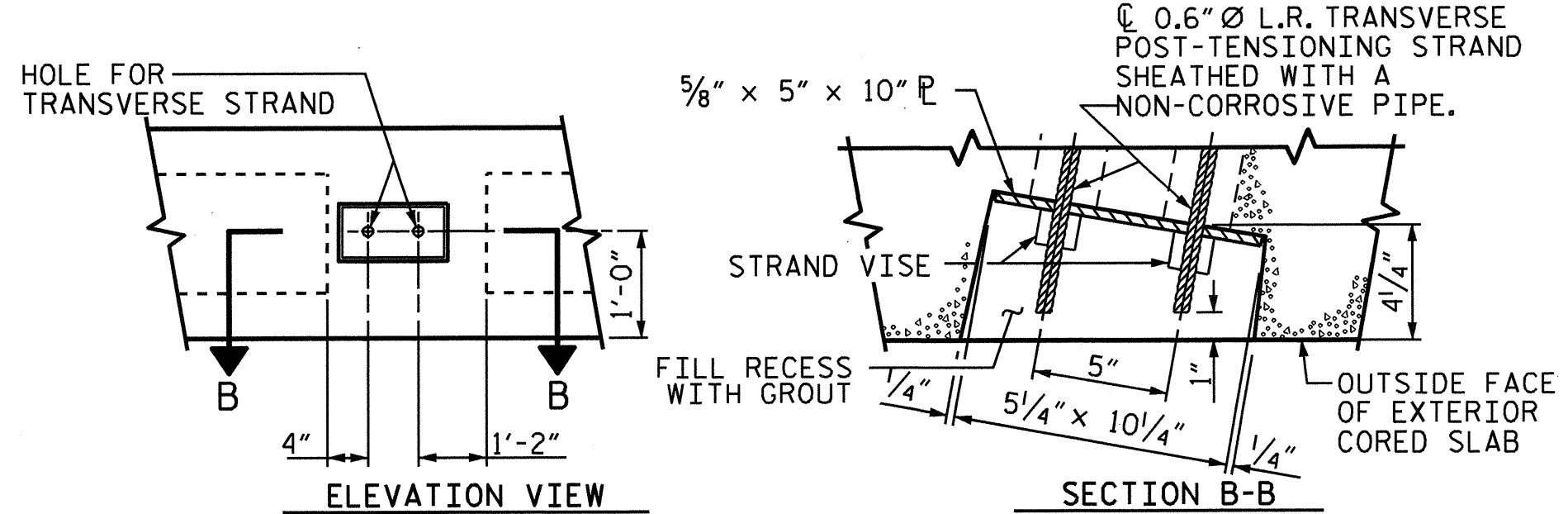
HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

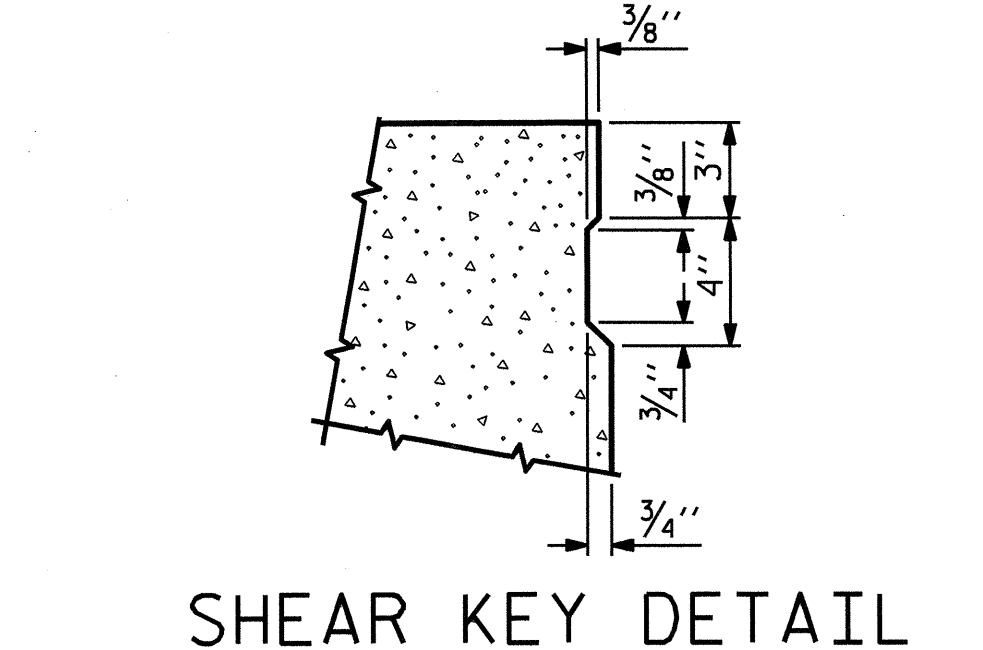
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



SECTION AT END BENT

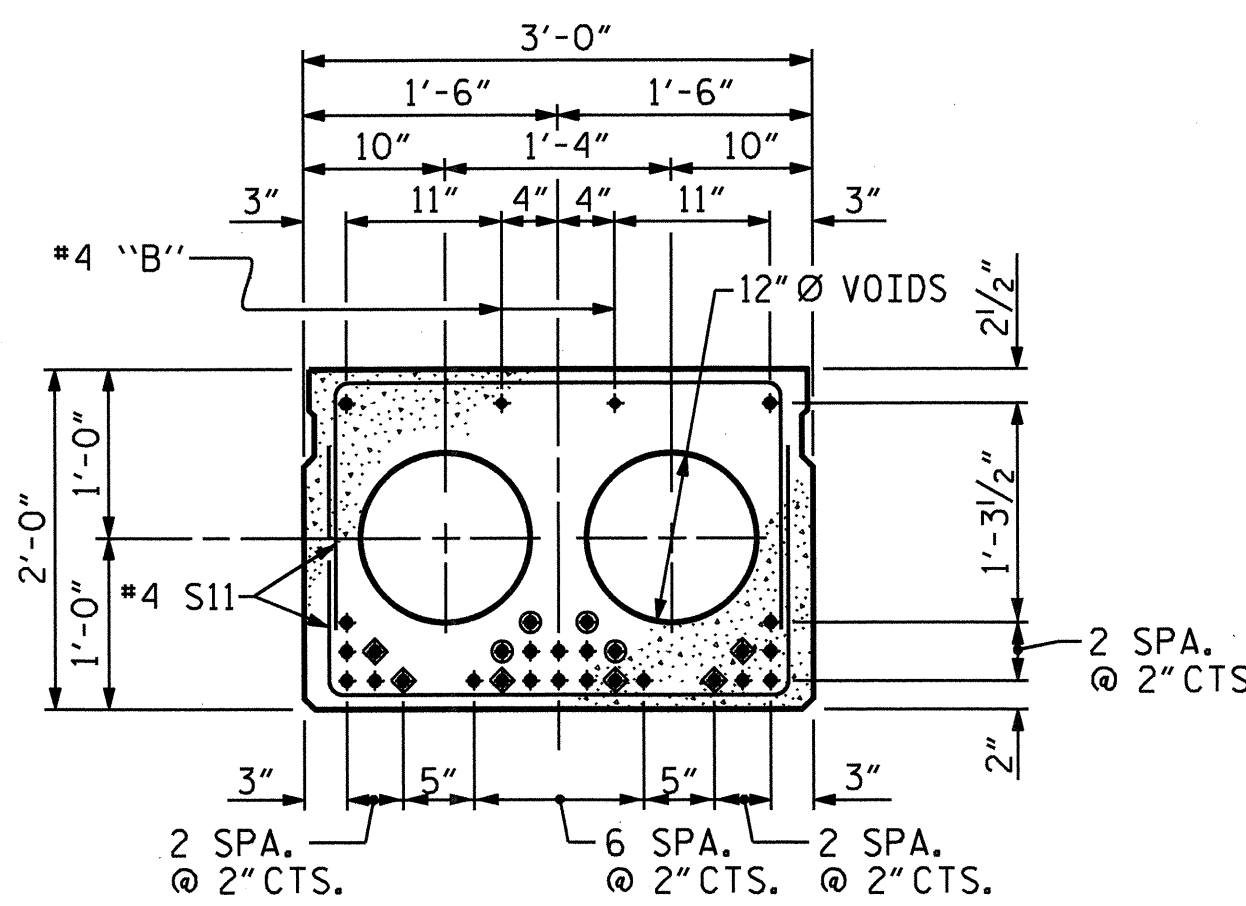


GRAUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



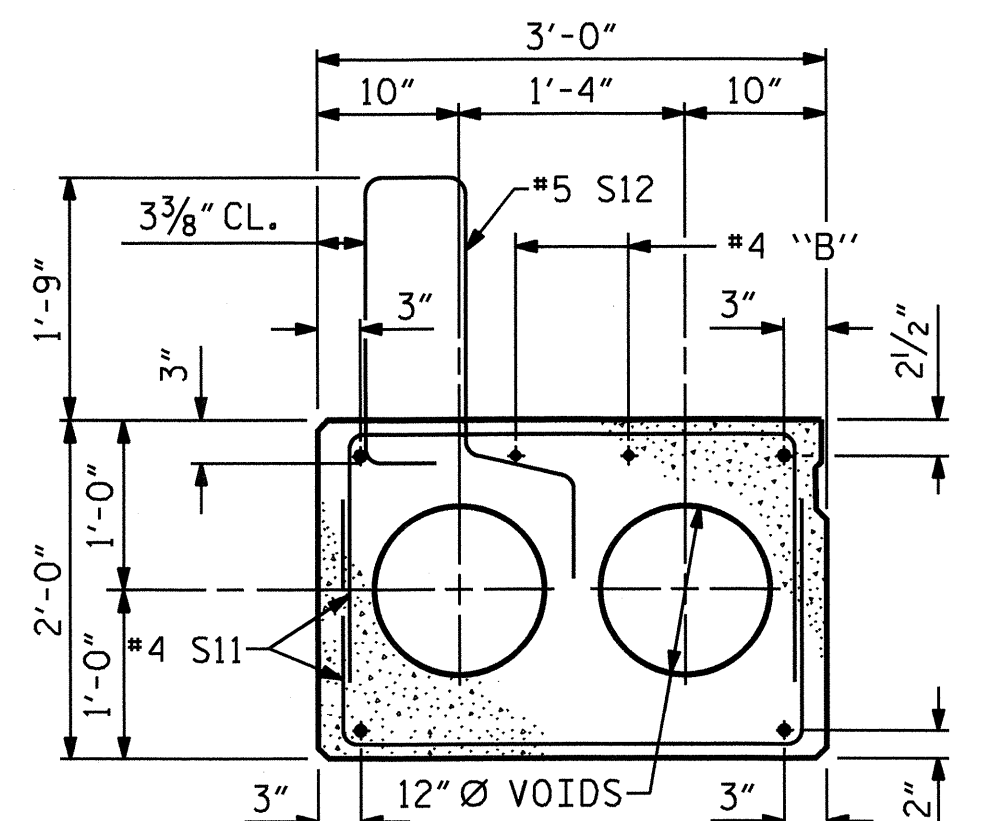
SHEAR KEY DETAIL

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



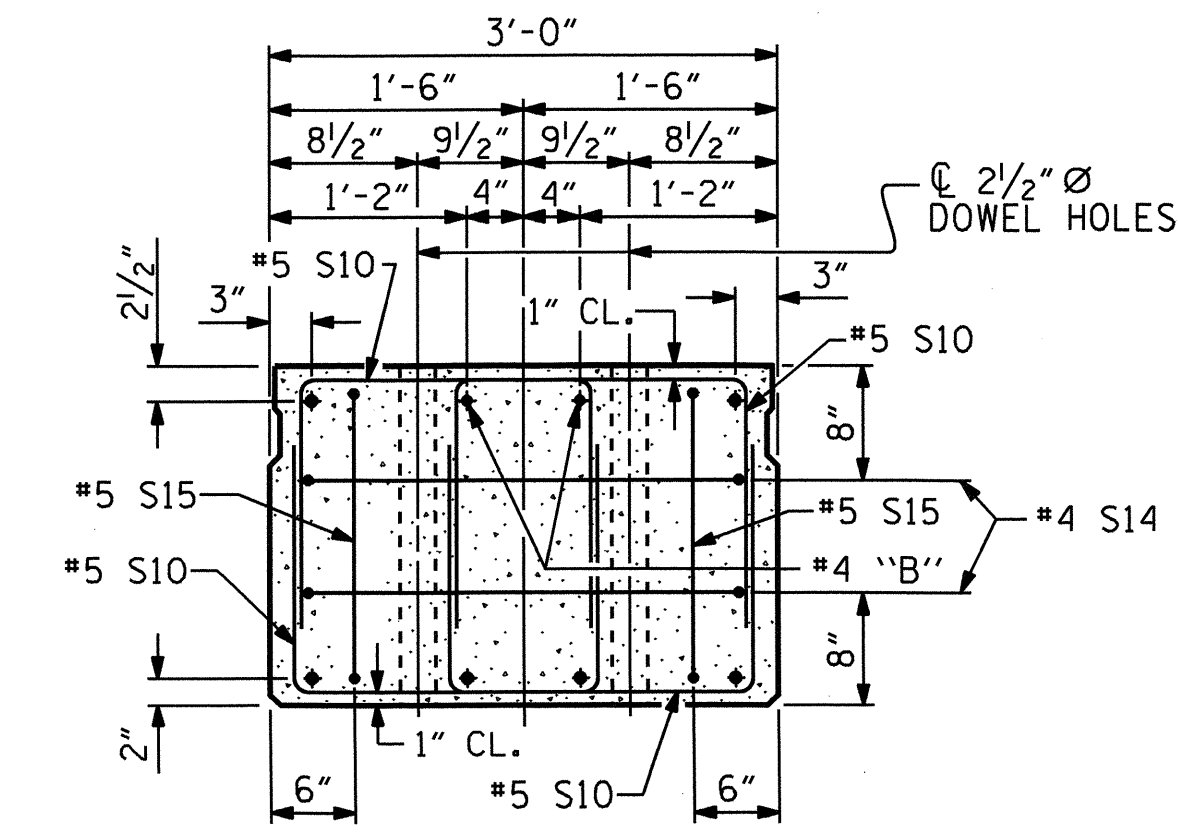
INTERIOR SLAB SECTION 65' UNIT
(24 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT



EXTERIOR SLAB SECTION

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



END ELEVATION

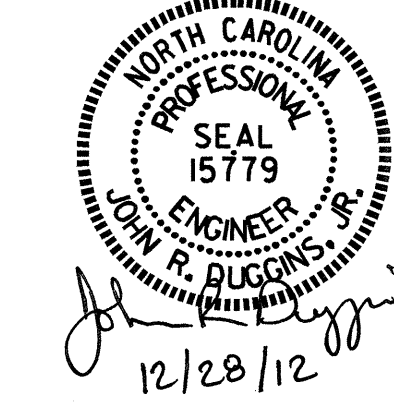
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

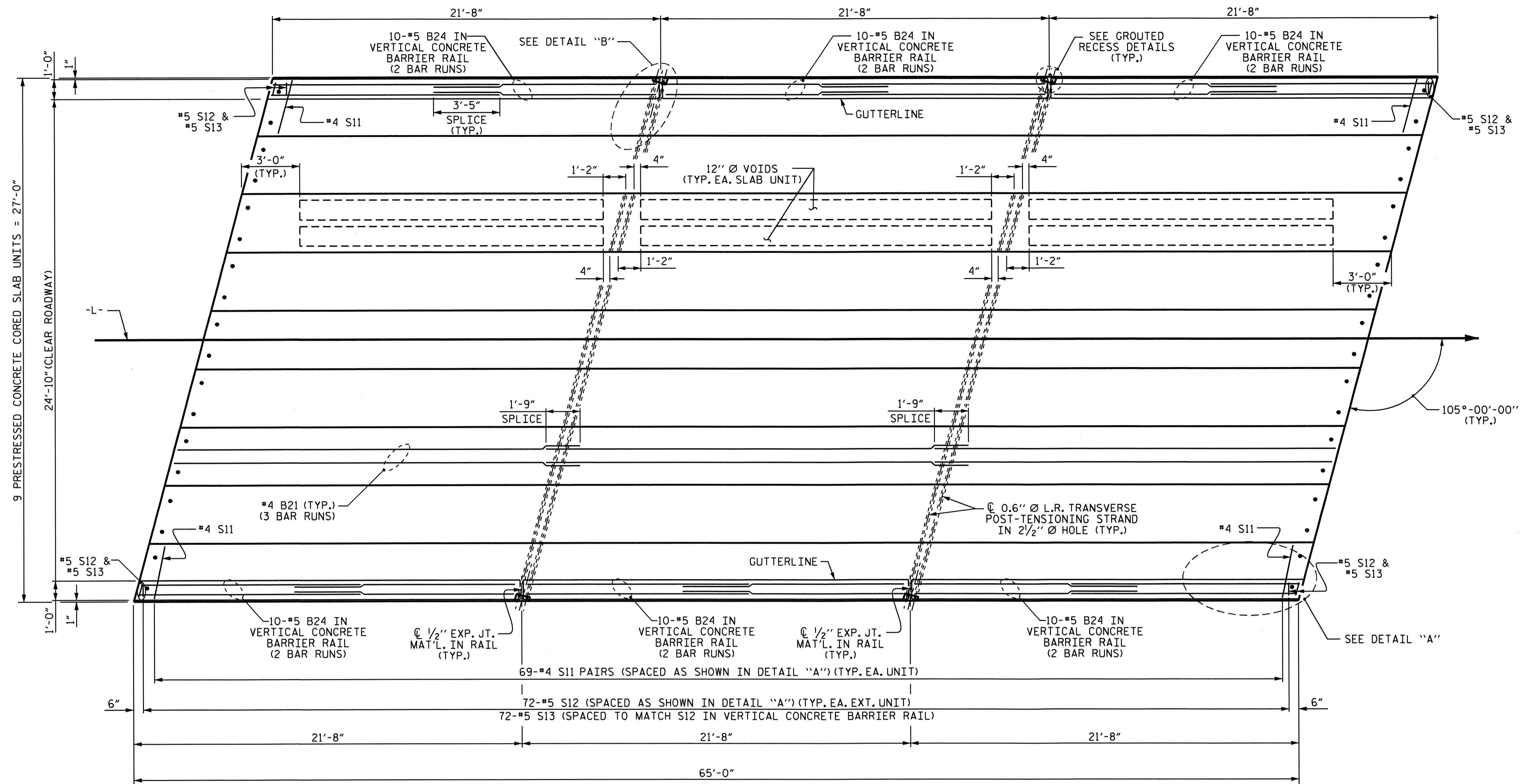
PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: 12+51.50 -L-

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT

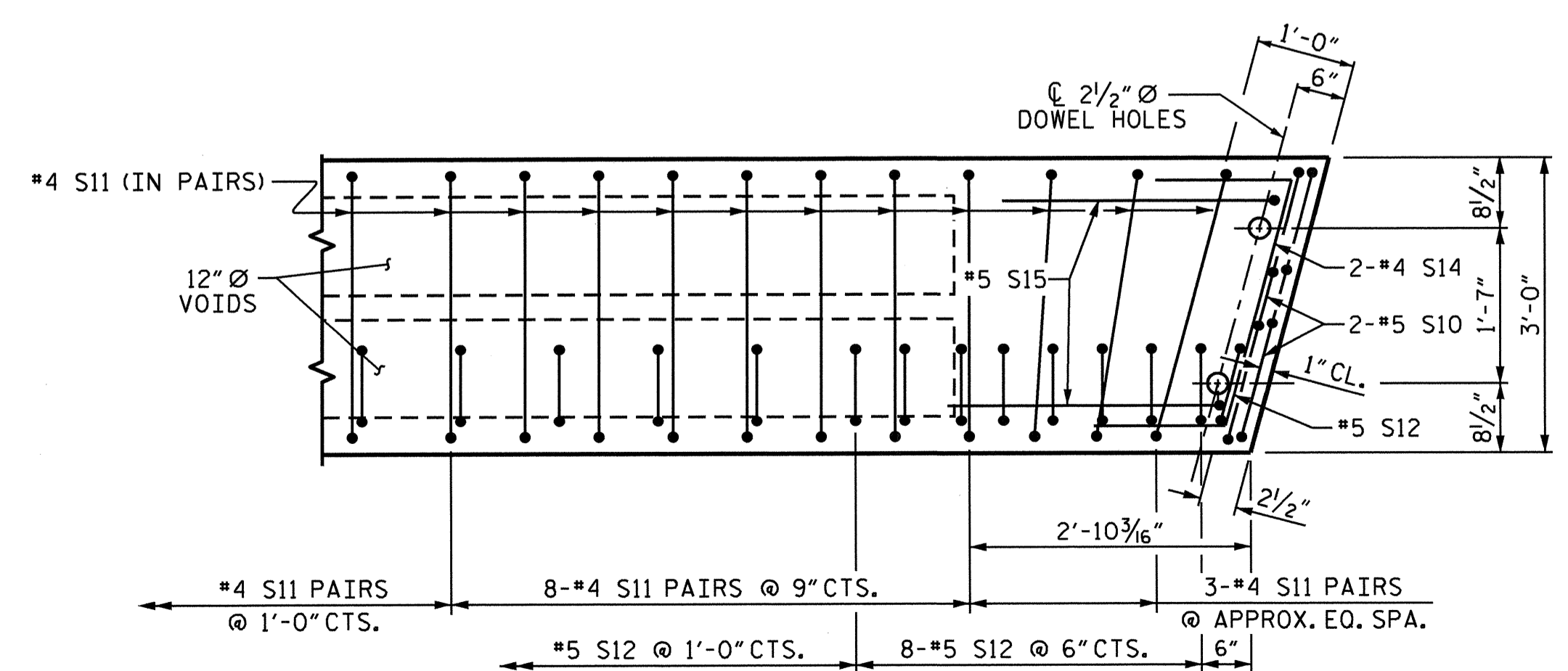


ASSEMBLED BY : V. NGUYEN	DATE : 8/12
CHECKED BY : S. PEARCE	DATE : 8/12
DRAWN BY : MAA 6/10	
CHECKED BY : MKT 7/10	

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			13	

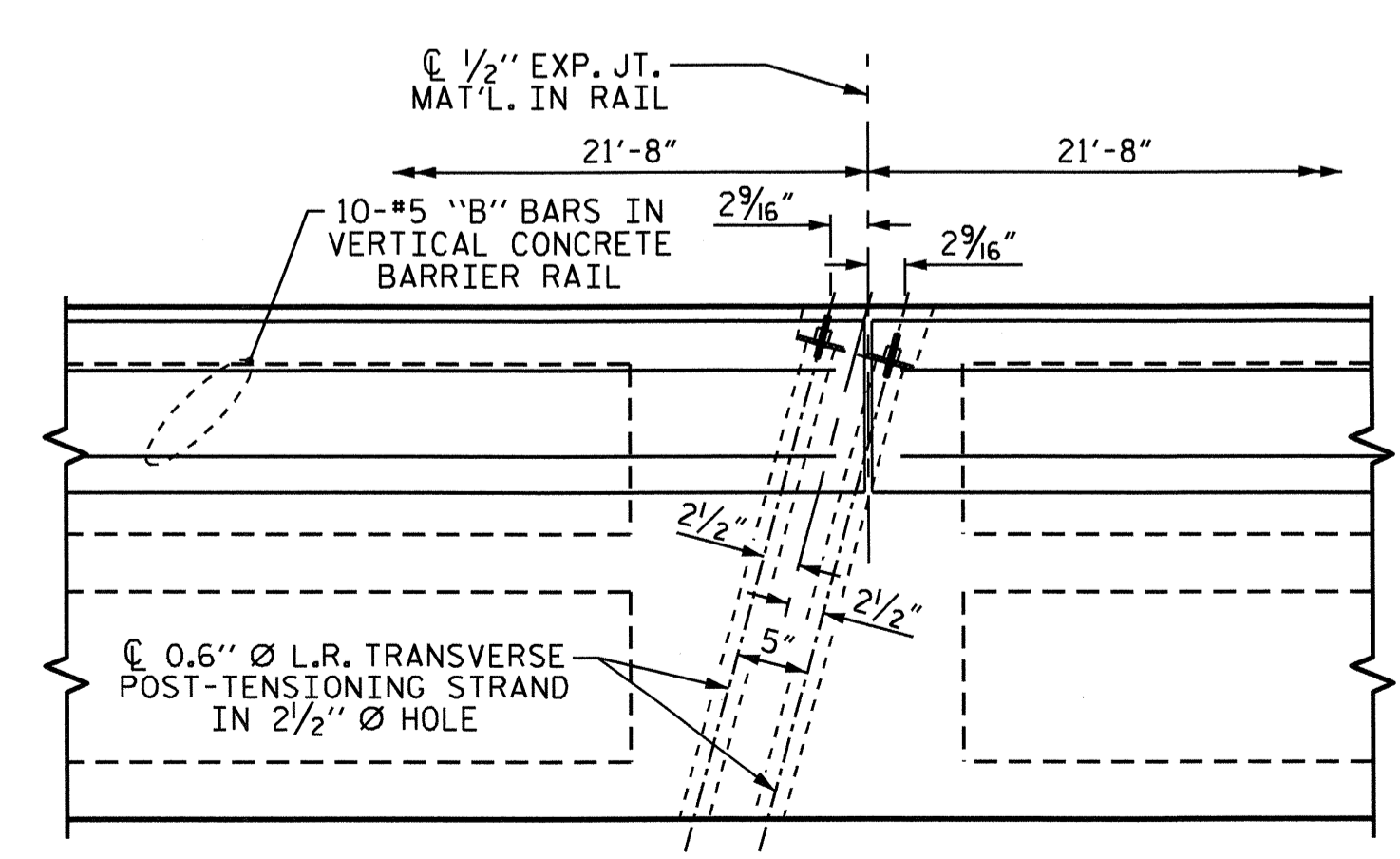


PLAN OF UNIT



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

ASSEMBLED BY : V. NGUYEN DATE : 8/12
 CHECKED BY : S. PEARCE DATE : 8/12
 DRAWN BY : MAA 6/10
 CHECKED BY : MKT 7/10

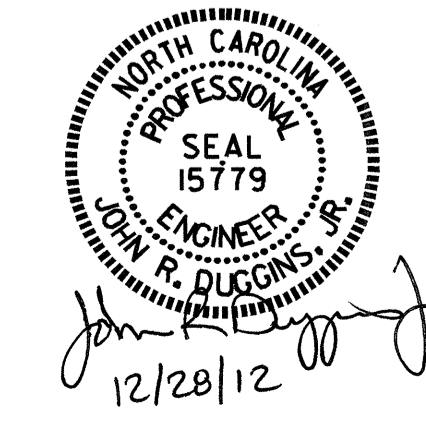
28-DEC-2012 11:52
 R:\Structures\Plans\final_plans\B-4987.sd.cs.dgn
 Jduggins

PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: 12+51.50 -L-

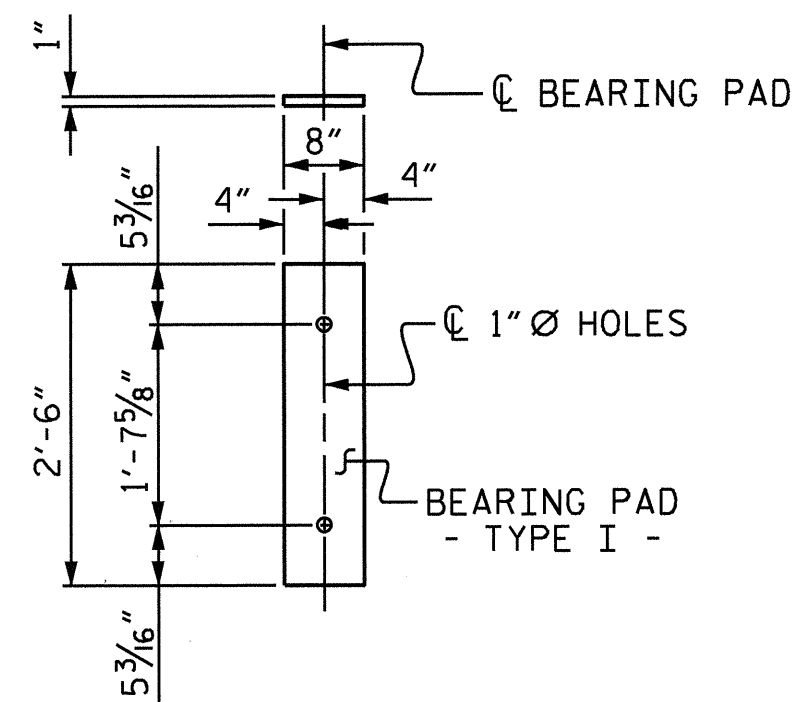
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 65' UNIT
 24'-10" CLEAR ROADWAY
 105° SKEW



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			13



FIXED END
(TYPE I - 18 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

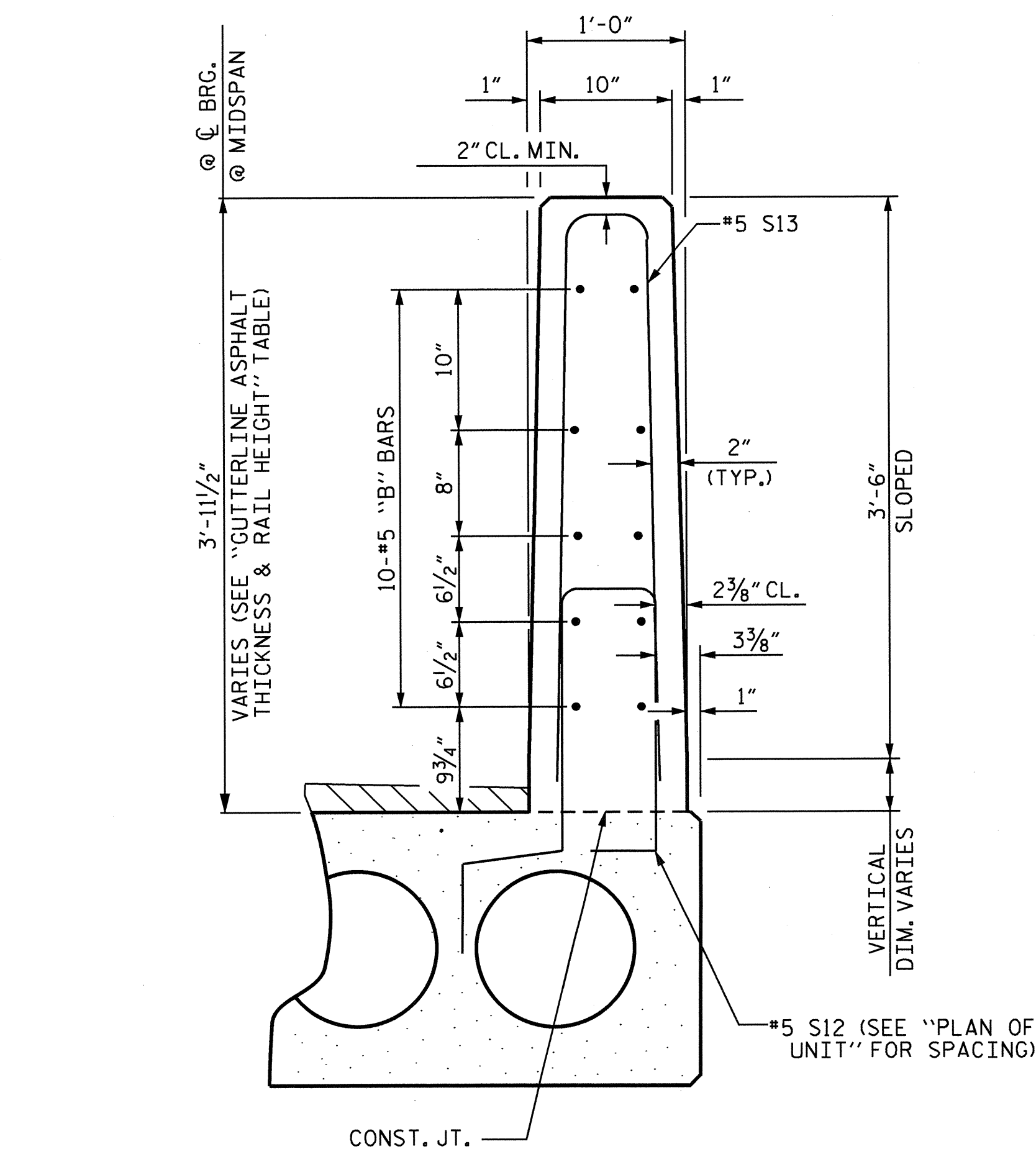
GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
65' UNIT			
EXTERIOR C.S.	2	65'-0"	130'-0"
INTERIOR C.S.	7	65'-0"	455'-0"
TOTAL	9		585'-0"

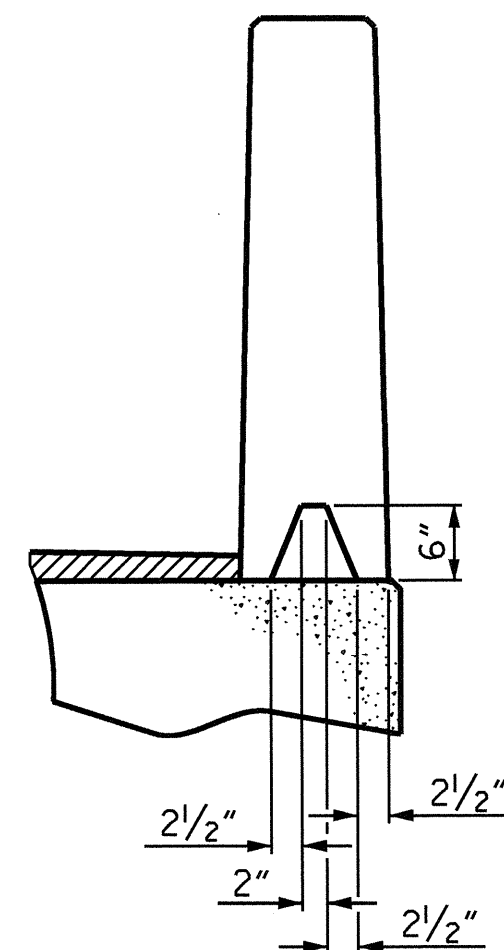
DEAD LOAD DEFLECTION AND CAMBER	
65' CORED SLAB UNIT	3'-0" x 2'-0"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3 3/8" ↑
FINAL CAMBER	1/2" ↓
	2 7/8" ↑

** INCLUDES FUTURE WEARING SURFACE

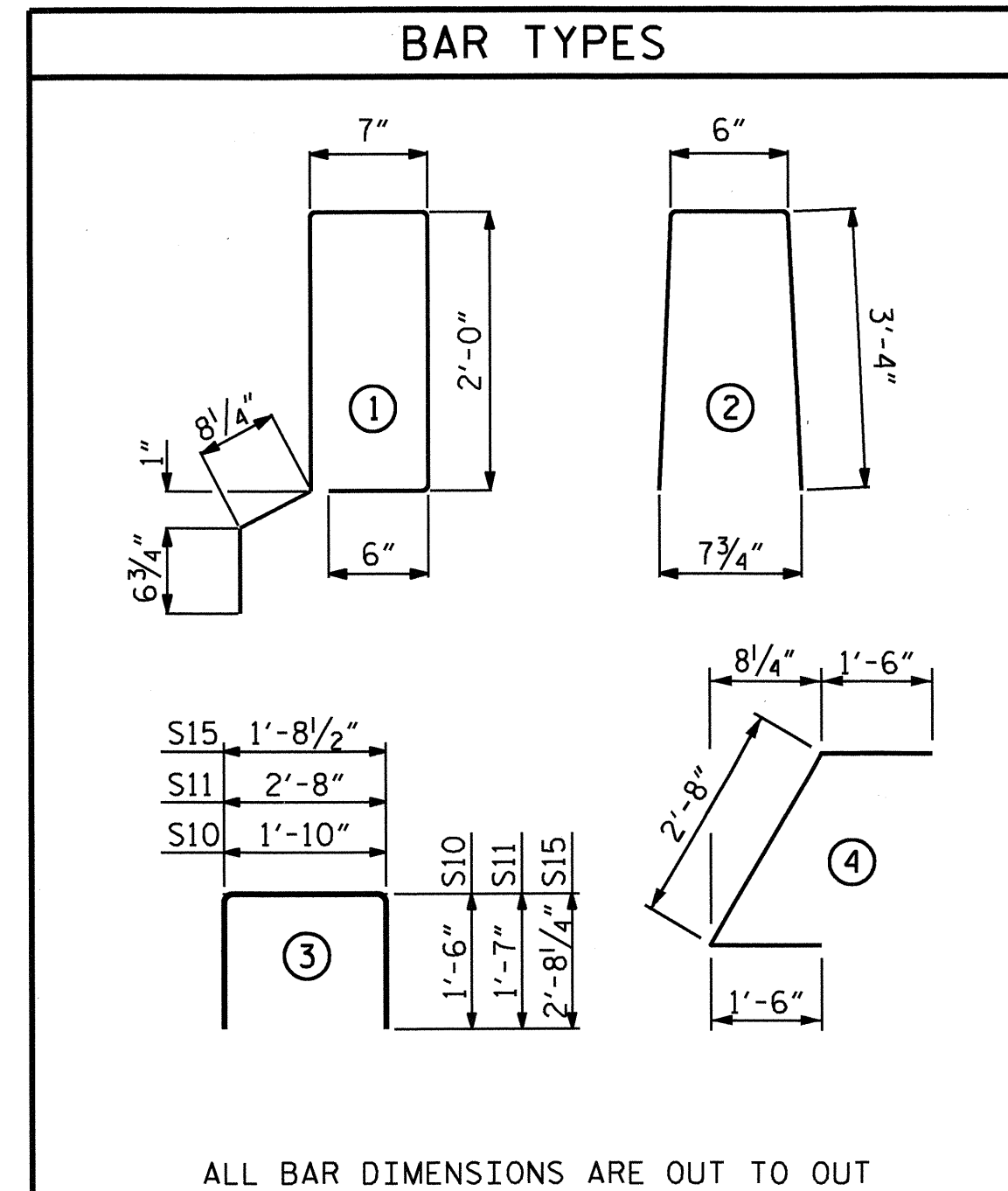
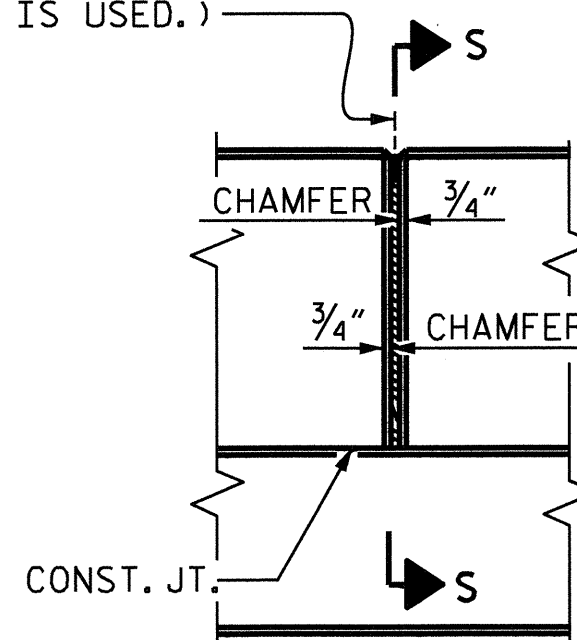
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BAR PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
65' UNIT						
*B24	120	120	#5	STR	12'-10"	1606
*S13	148	148	#5	2	7'-2"	1106
* EPOXY COATED REINFORCING STEEL					LBS.	2712
CLASS AA CONCRETE					CU. YDS.	17.6
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.	130.26



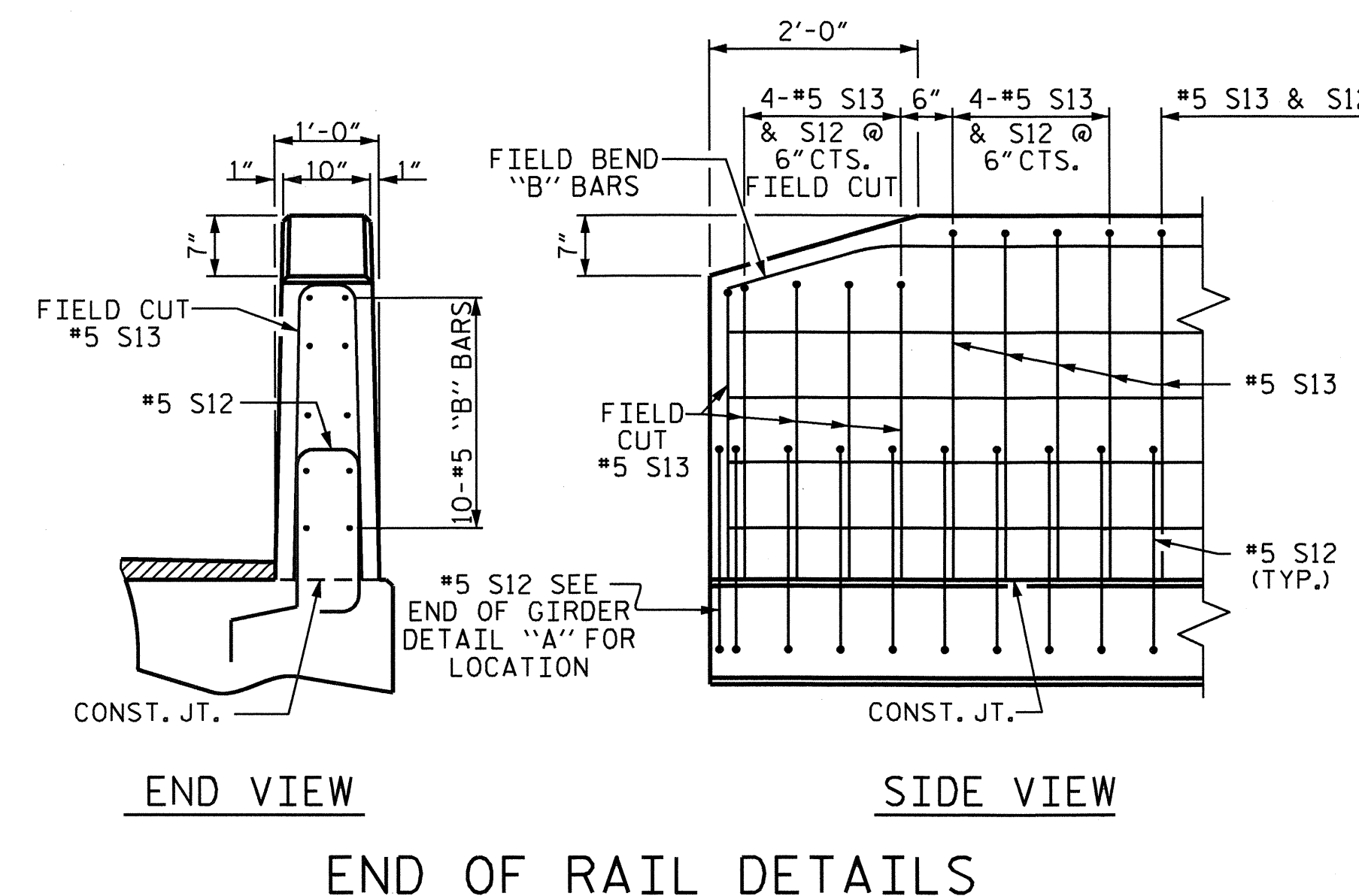
VERTICAL CONCRETE BARRIER RAIL DETAILS



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



BILL OF MATERIAL FOR ONE 65' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B21	6	#4	STR	22'-10"	92	22'-10"	92
S10	8	#5	3	4'-10"	40	4'-10"	40
S11	138	#4	3	5'-10"	538	5'-10"	538
*S12	74	#5	1	6'-4"	489		
S14	4	#4	4	5'-8"	15	5'-8"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	715		715
* EPOXY COATED REINFORCING STEEL				LBS.	489		
6000 P.S.I. CONCRETE				CU. YDS.	11.2		11.2
0.6" Ø L.R. STRANDS				No.	24		24



GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
65' UNITS	2 3/8"	3'-8 5/8"

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 BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE 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 THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

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

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

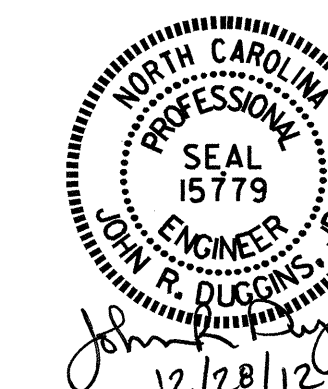
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

CONCRETE RELEASE STRENGTH	
UNIT	PSI
65' UNITS	4800

PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: 12+51.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 13
2			4			

ASSEMBLED BY : V. NGUYEN	DATE : 8/12
CHECKED BY : S. PEARCE	DATE : 8/12
DRAWN BY : MAA 6/10	REV. 12/11 MAA/AAC
CHECKED BY : MKT 7/10	

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.)

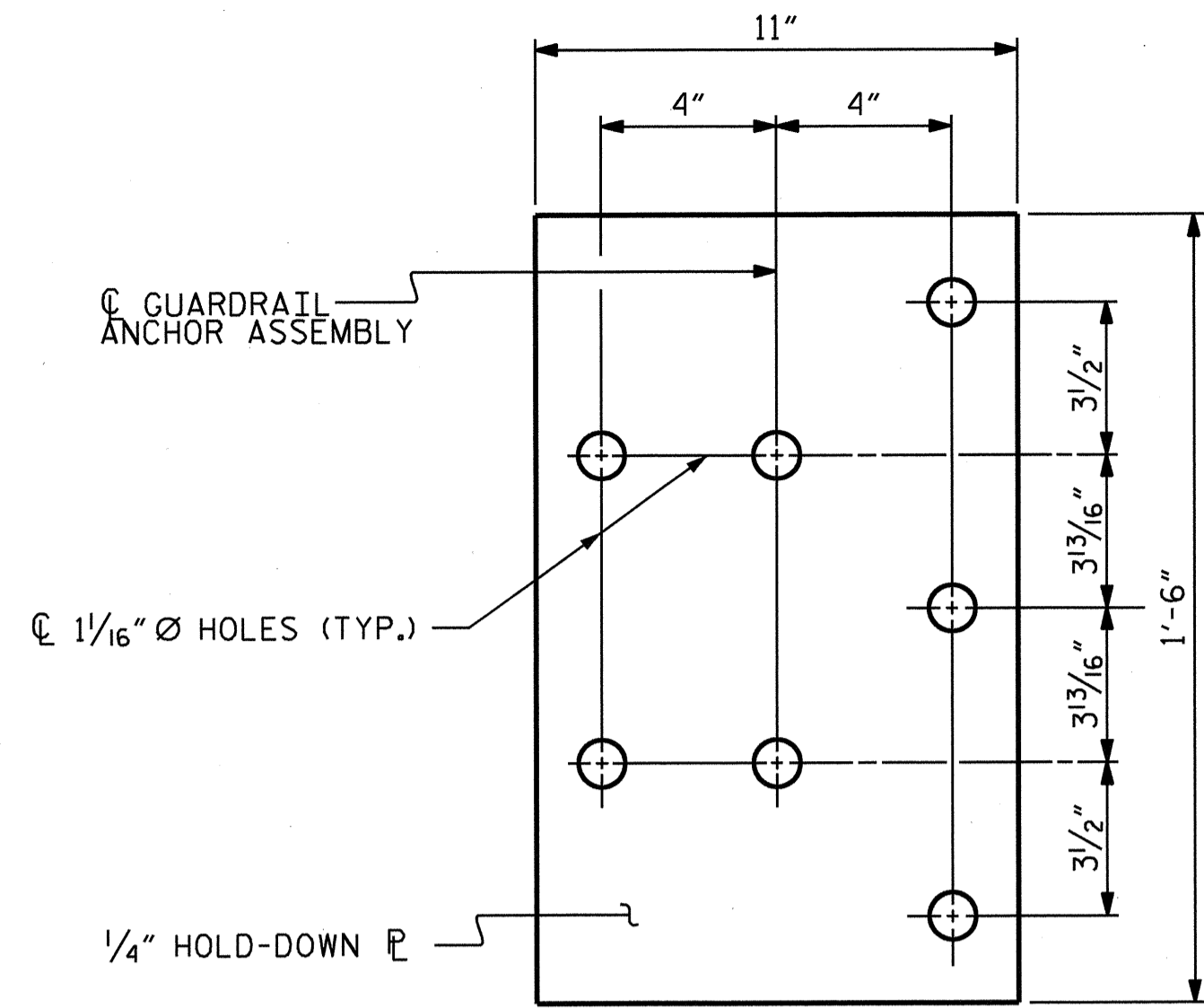
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 VERTICAL CONCRETE BARRIER RAIL.

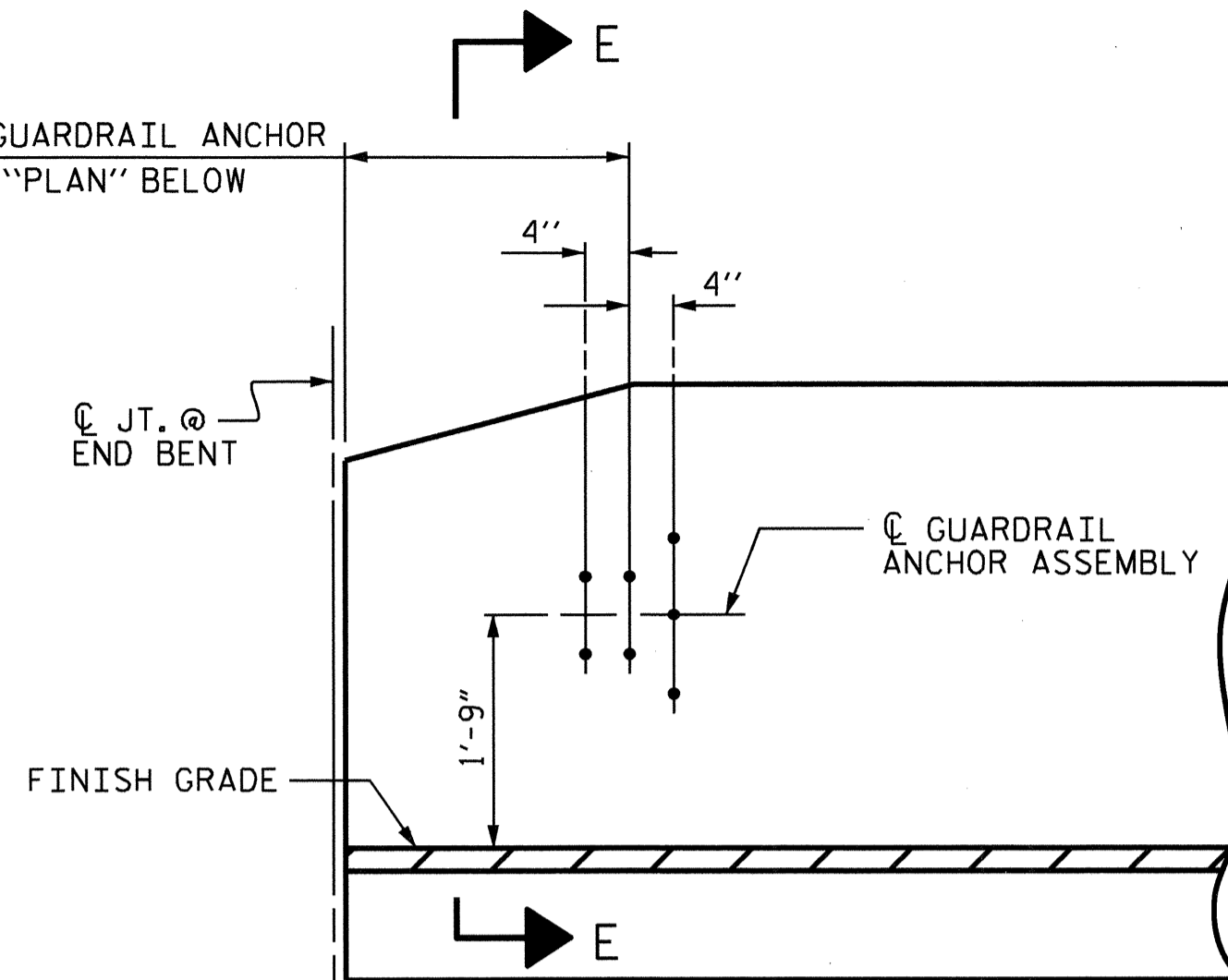
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

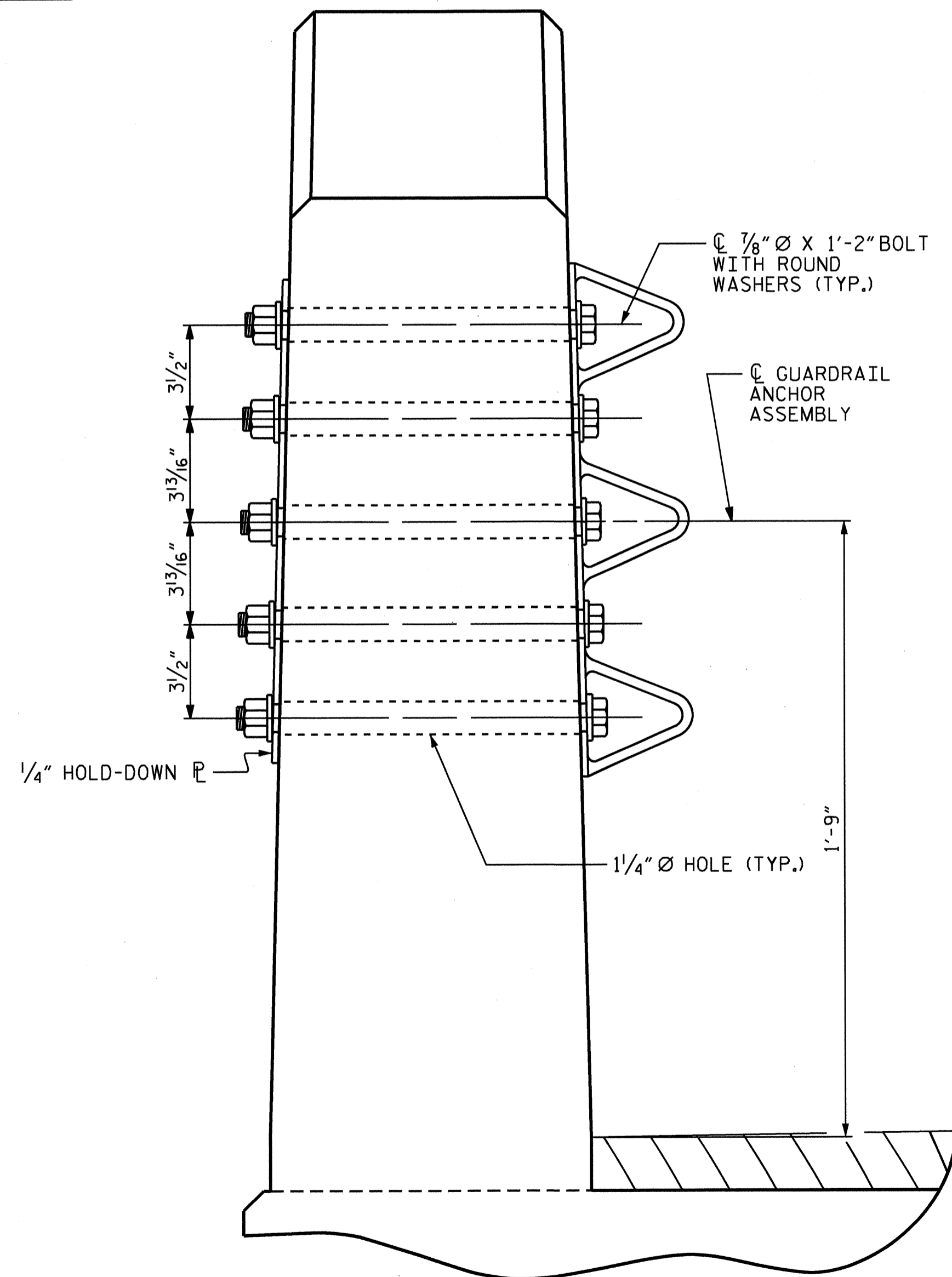


PLAN

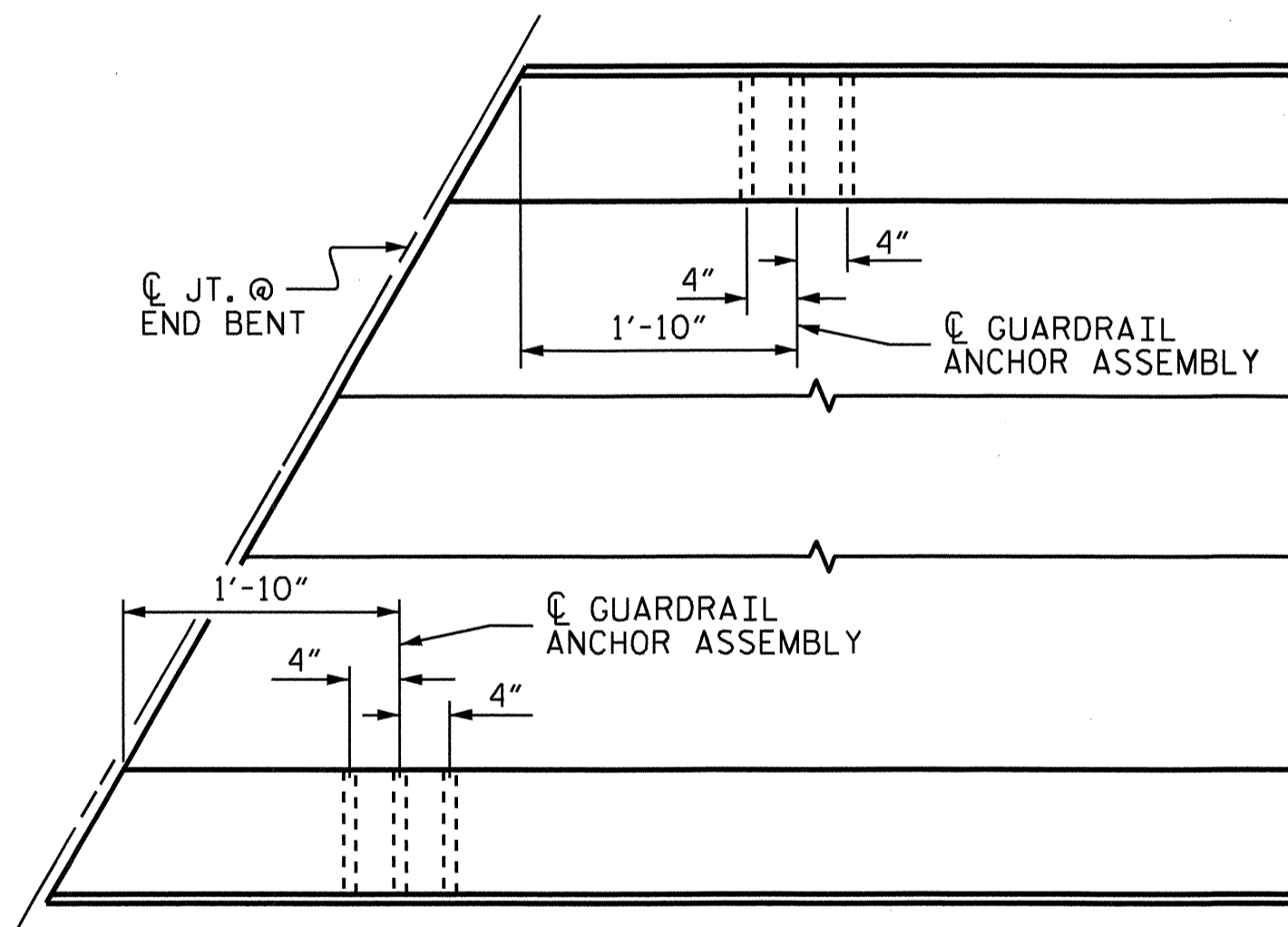
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



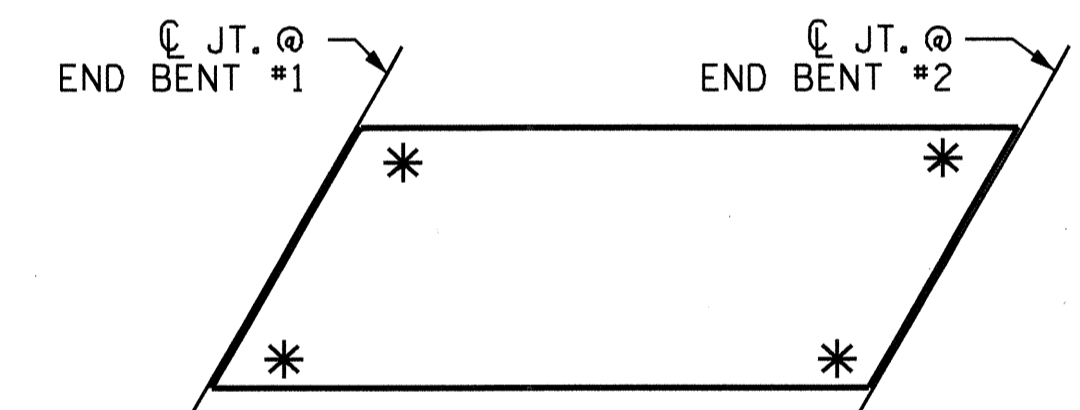
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

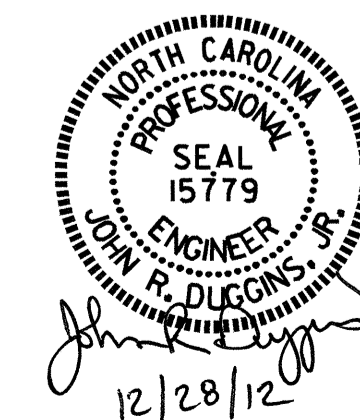


SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: 12+51.50-L-

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



ASSEMBLED BY : S. PEARCE	DATE : 8/12
CHECKED BY : J. DUGGINS	DATE : 8/12
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11
	REV. 12/5/11

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

SHEET NO.	S-8
TOTAL SHEETS	13

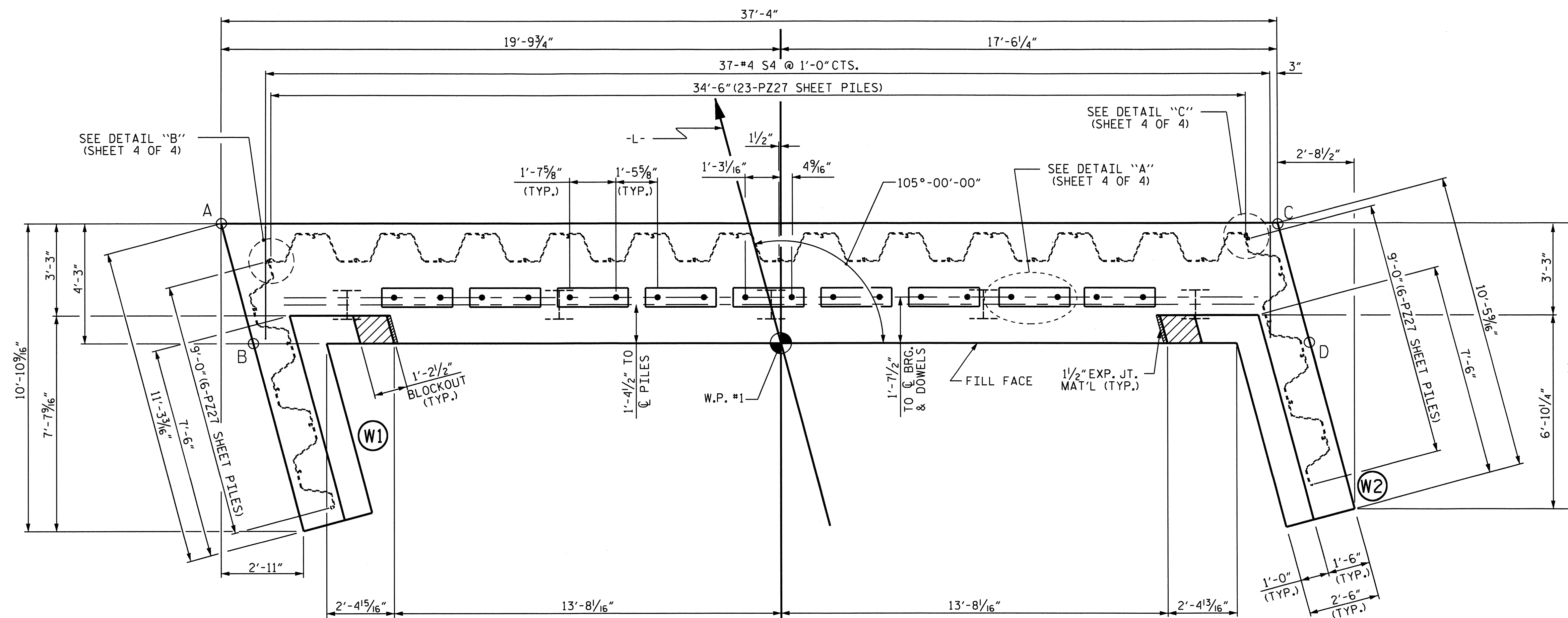
NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

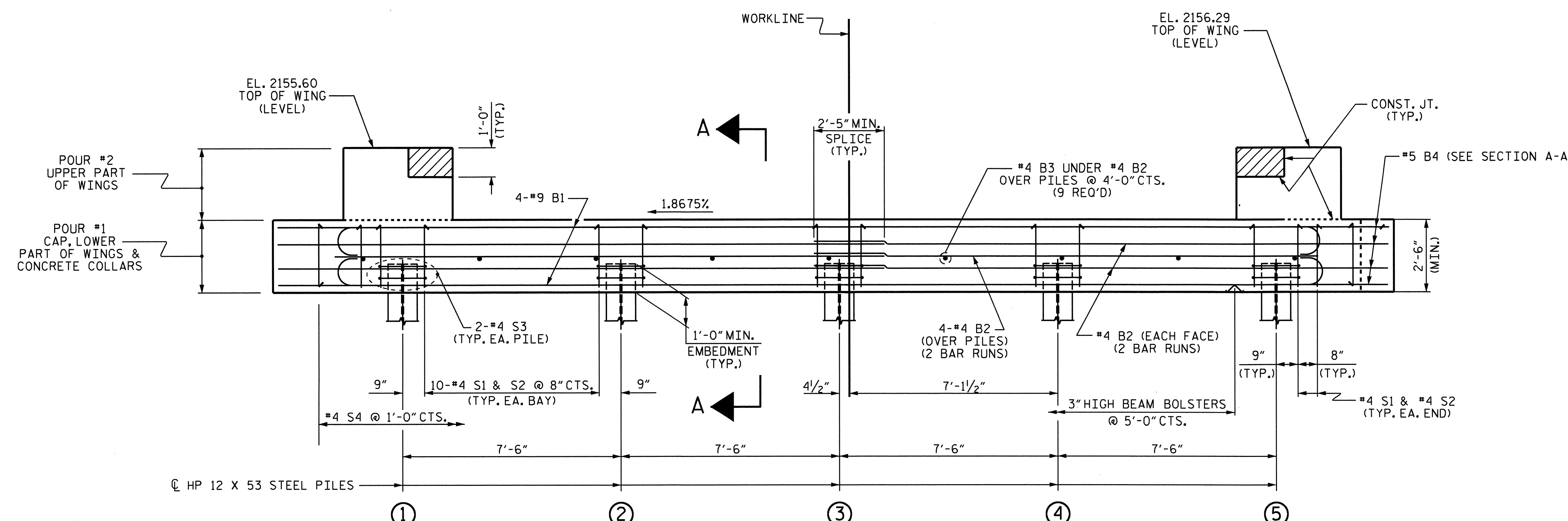
FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

ELEVATIONS OF NOTED POINTS		
	TOP OF CAP	BOTTOM OF CAP
POINT A	2152.83	2150.33
POINT B	2152.85	2150.35
POINT C	2153.52	2151.02
POINT D	2153.54	2151.04

TOP OF PILE ELEVATIONS	
①	2151.41
②	2151.55
③	2151.69
④	2151.83
⑤	2151.97



ELEVATION

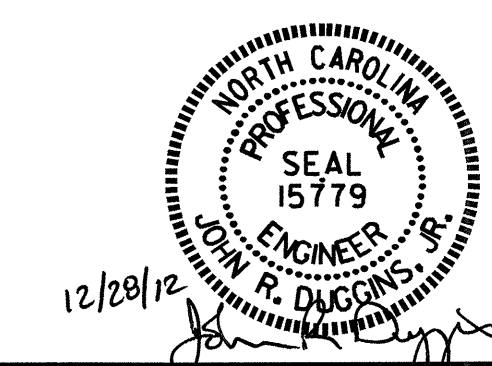
WINGS AND SHEET PILES NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 4.

PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: STA. 12+51.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-9	
SUBSTRUCTURE END BENT #1						TOTAL SHEETS 13	
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			13	

ASSEMBLED BY : V. NGUYEN DATE : 8/12
 CHECKED BY : S. PEARCE DATE : 8/12
 DRAWN BY : DGE 03/10
 CHECKED BY : MKT 03/10



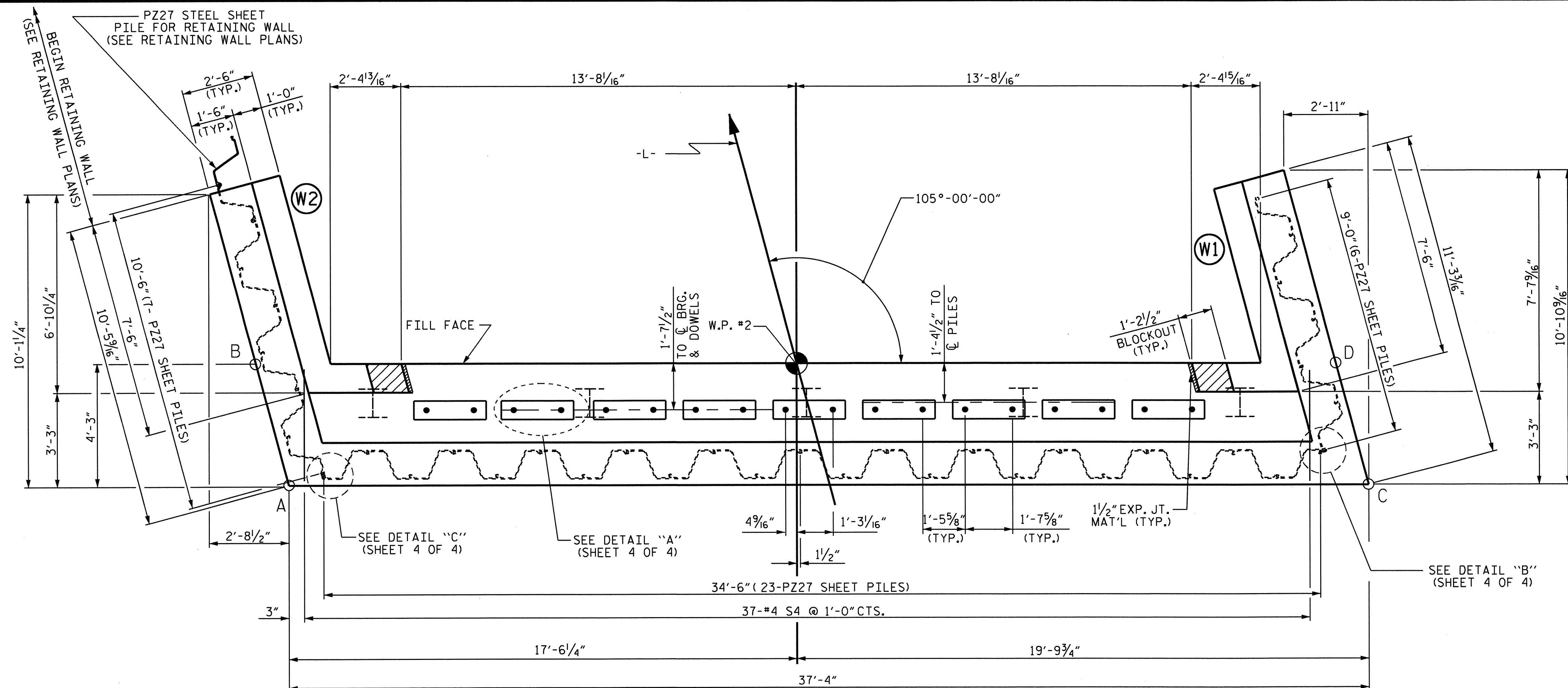
NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

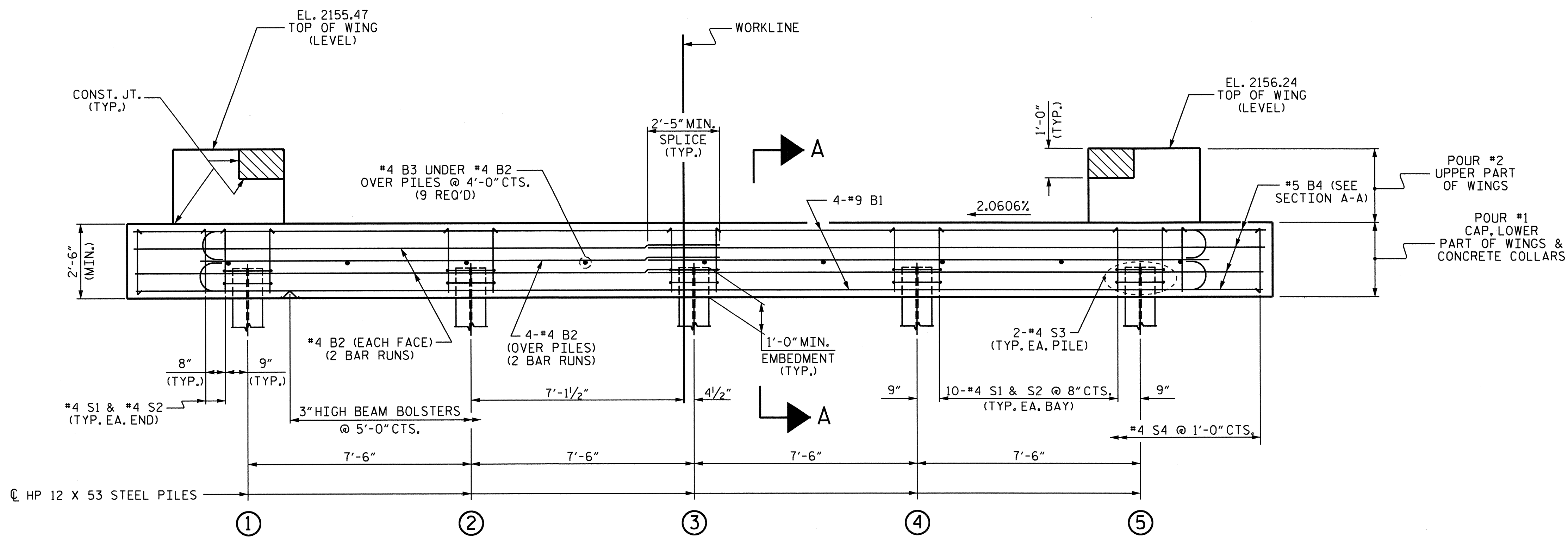
FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

	TOP OF CAP	BOTTOM OF CAP
POINT A	2152.74	2150.24
POINT B	2152.72	2150.22
POINT C	2153.51	2151.01
POINT D	2153.49	2150.99

①	2151.34
②	2151.49
③	2151.64
④	2151.79
⑤	2151.94



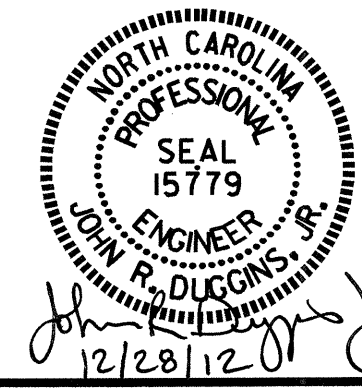
ELEVATION

WINGS AND SHEET PILES NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 4.

PROJECT NO. B-4987
HENDERSON COUNTY
 STATION: STA. 12+51.50 -L-

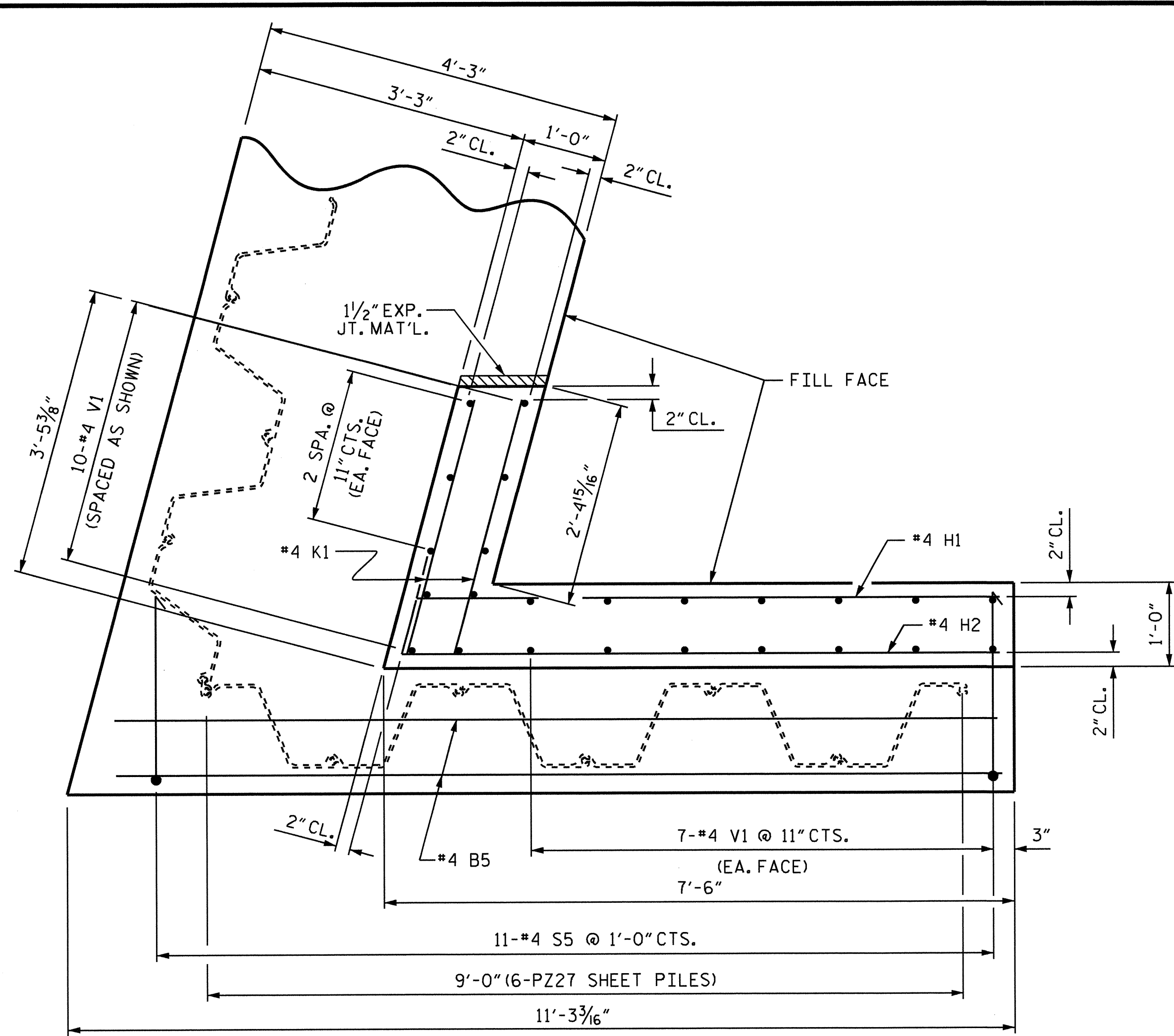
SHEET 2 OF 4

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

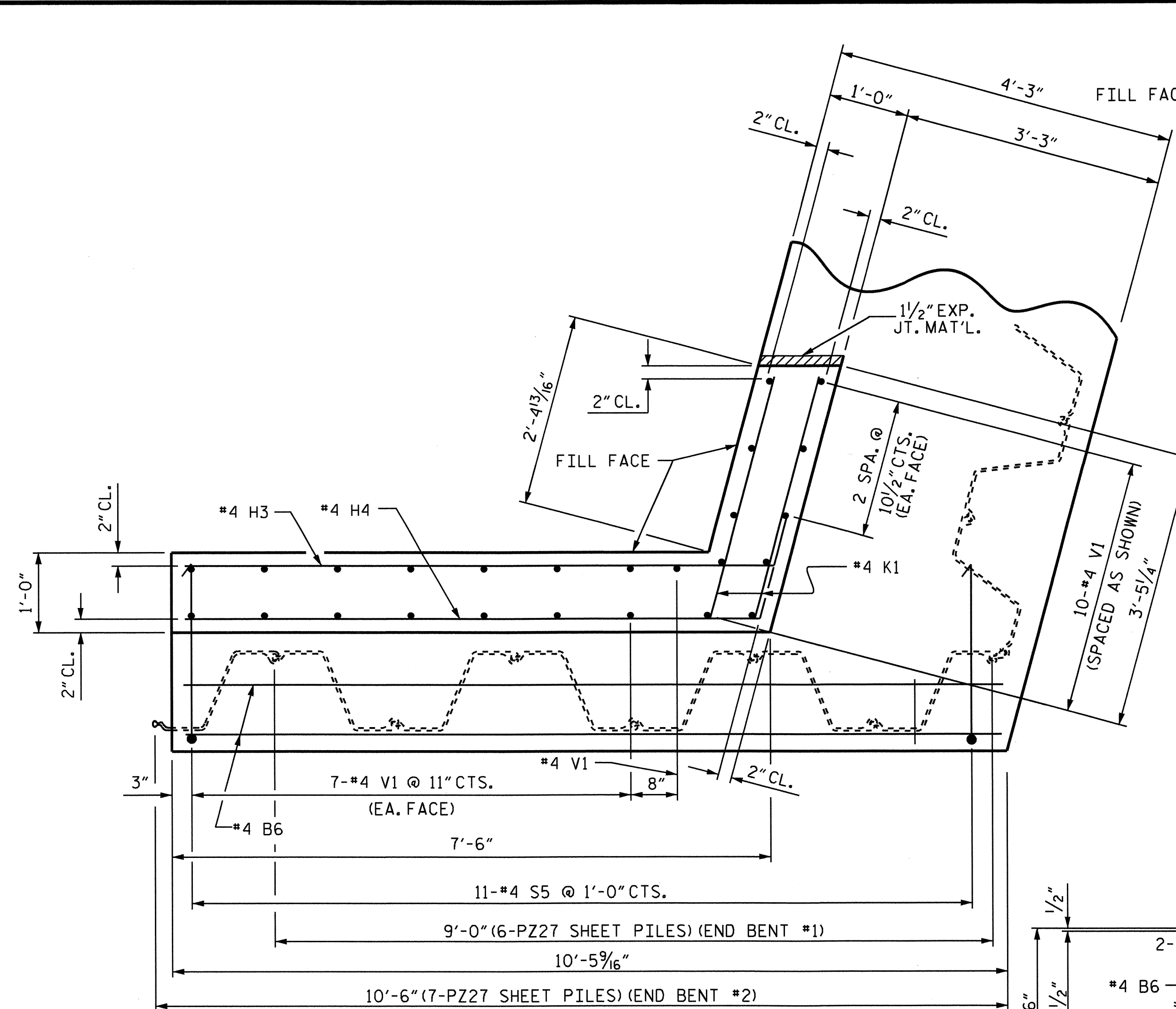


ASSEMBLED BY : V. NGUYEN DATE : 8/12
 CHECKED BY : S. PEARCE DATE : 8/12
 DRAWN BY : DGE 03/10
 CHECKED BY : MKT 03/10

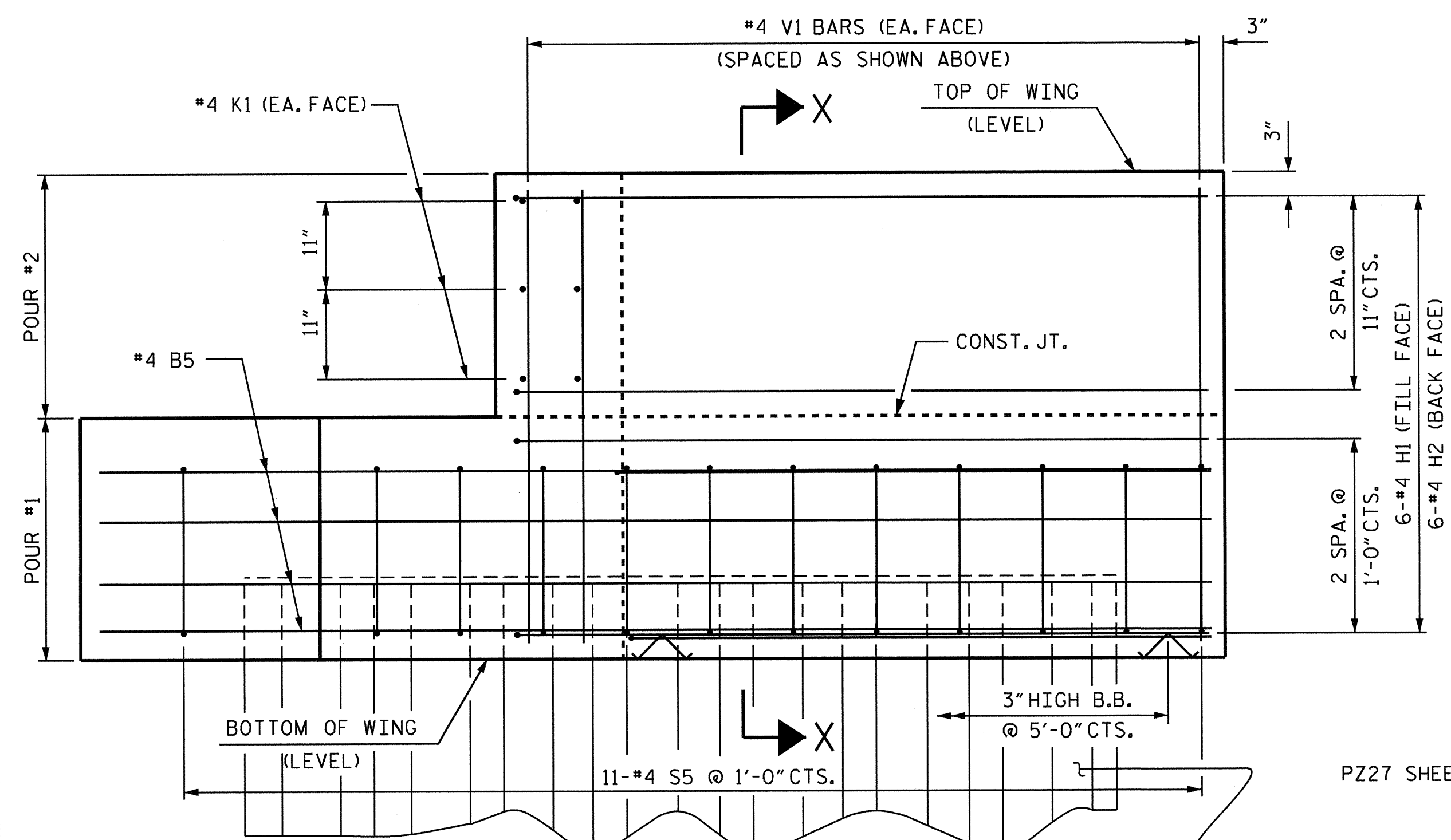
REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			



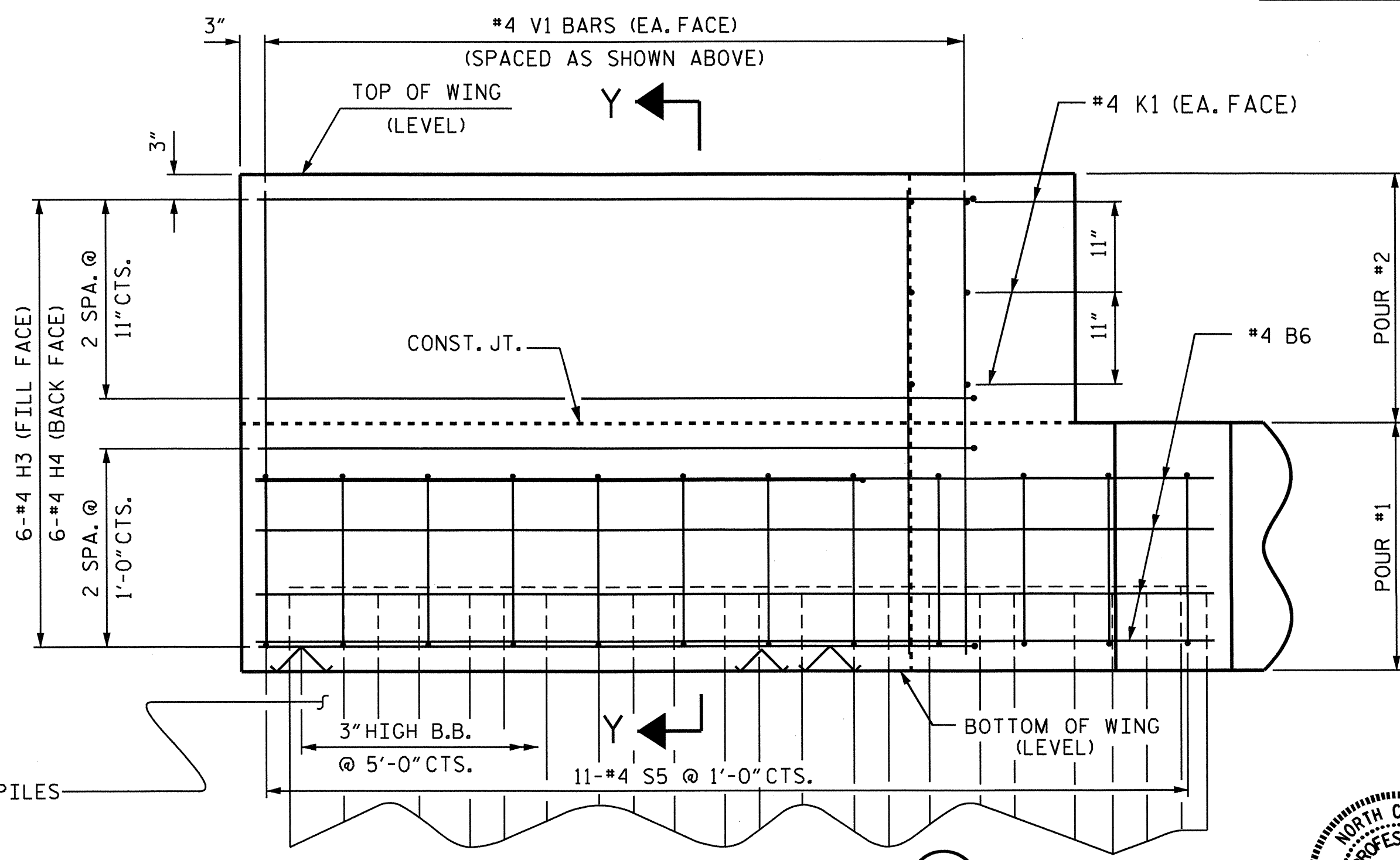
PLAN OF WING (W1)



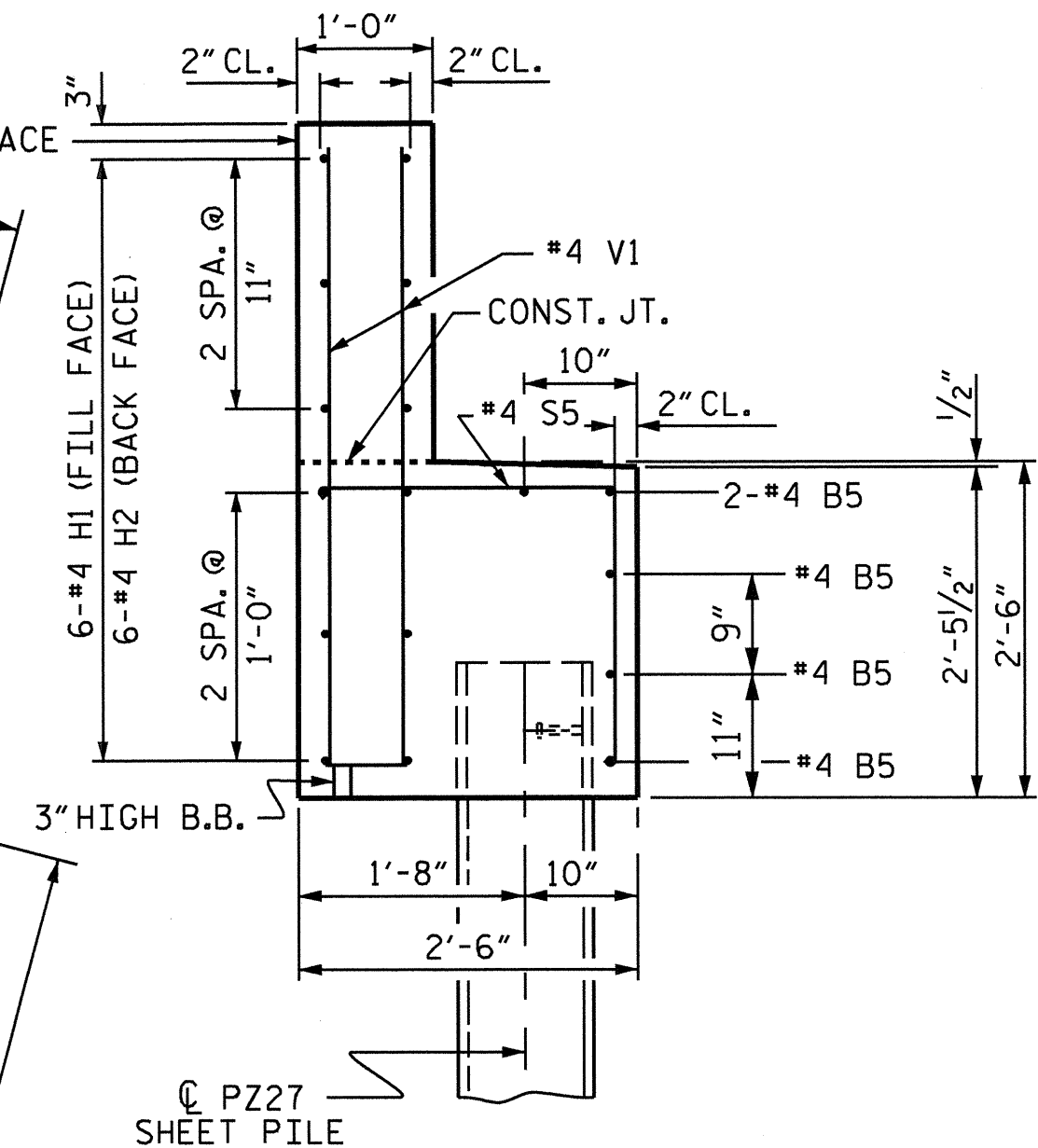
PLAN OF WING (W2)



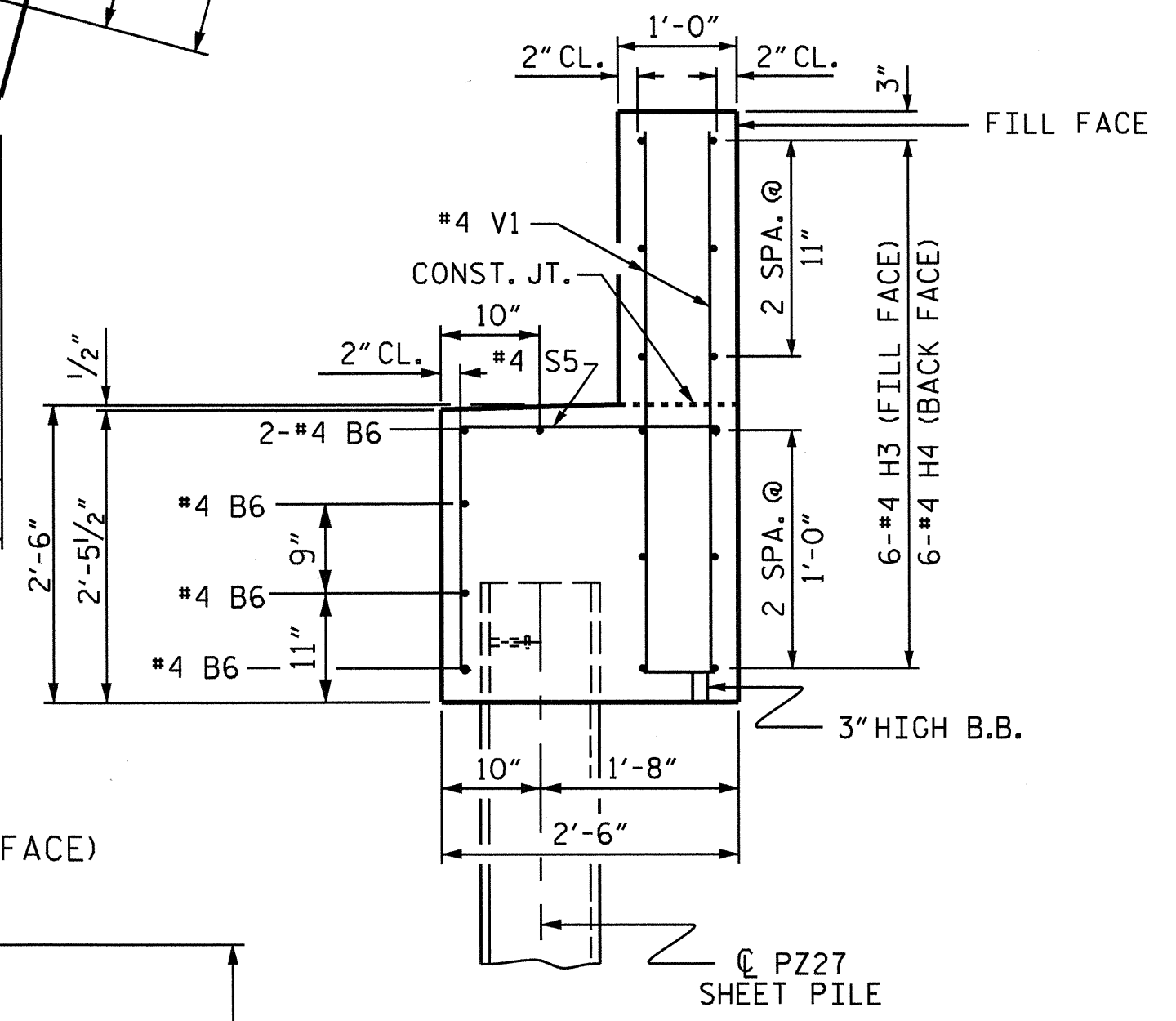
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X

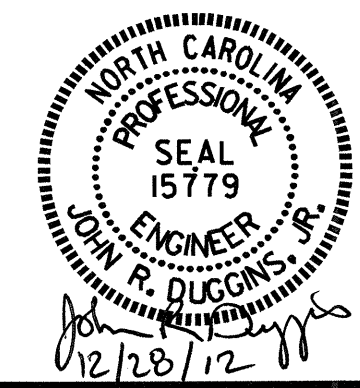


SECTION Y-Y

PROJECT NO. B-4987
 HENDERSON COUNTY
 STATION: STA. 12+51.50 -L-

SHEET 3 OF 4

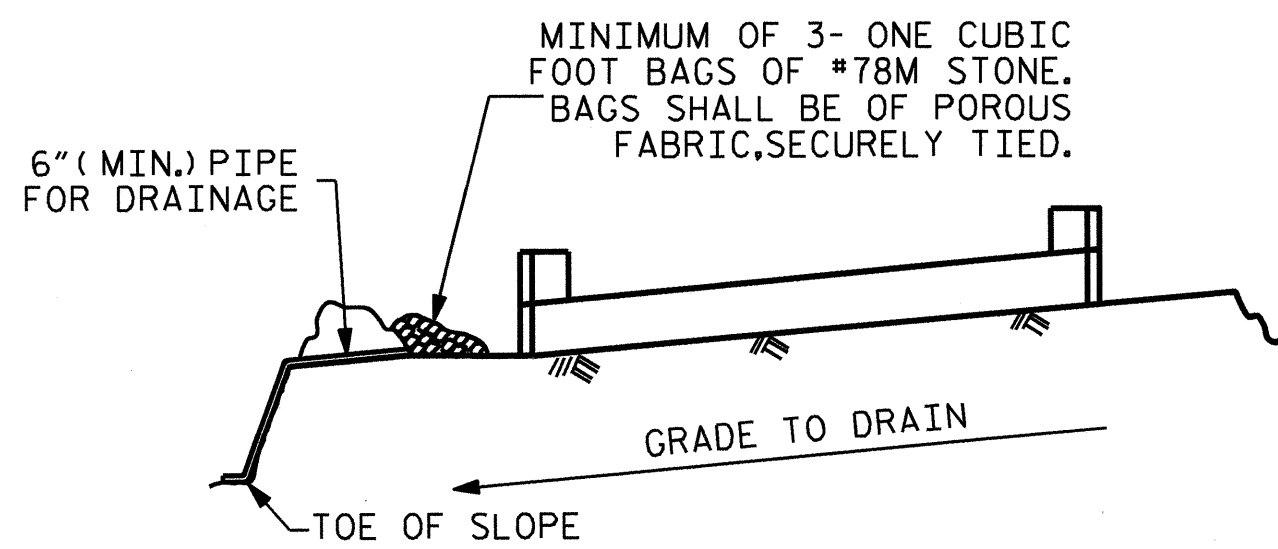
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



ASSEMBLED BY : V. NGUYEN DATE : 8/12
 CHECKED BY : S. PEARCE DATE : 8/12
 DRAWN BY : DGE 03/10
 CHECKED BY : MKT 03/10

WING DETAILS

SHEET NO. S-11
 TOTAL SHEETS 13

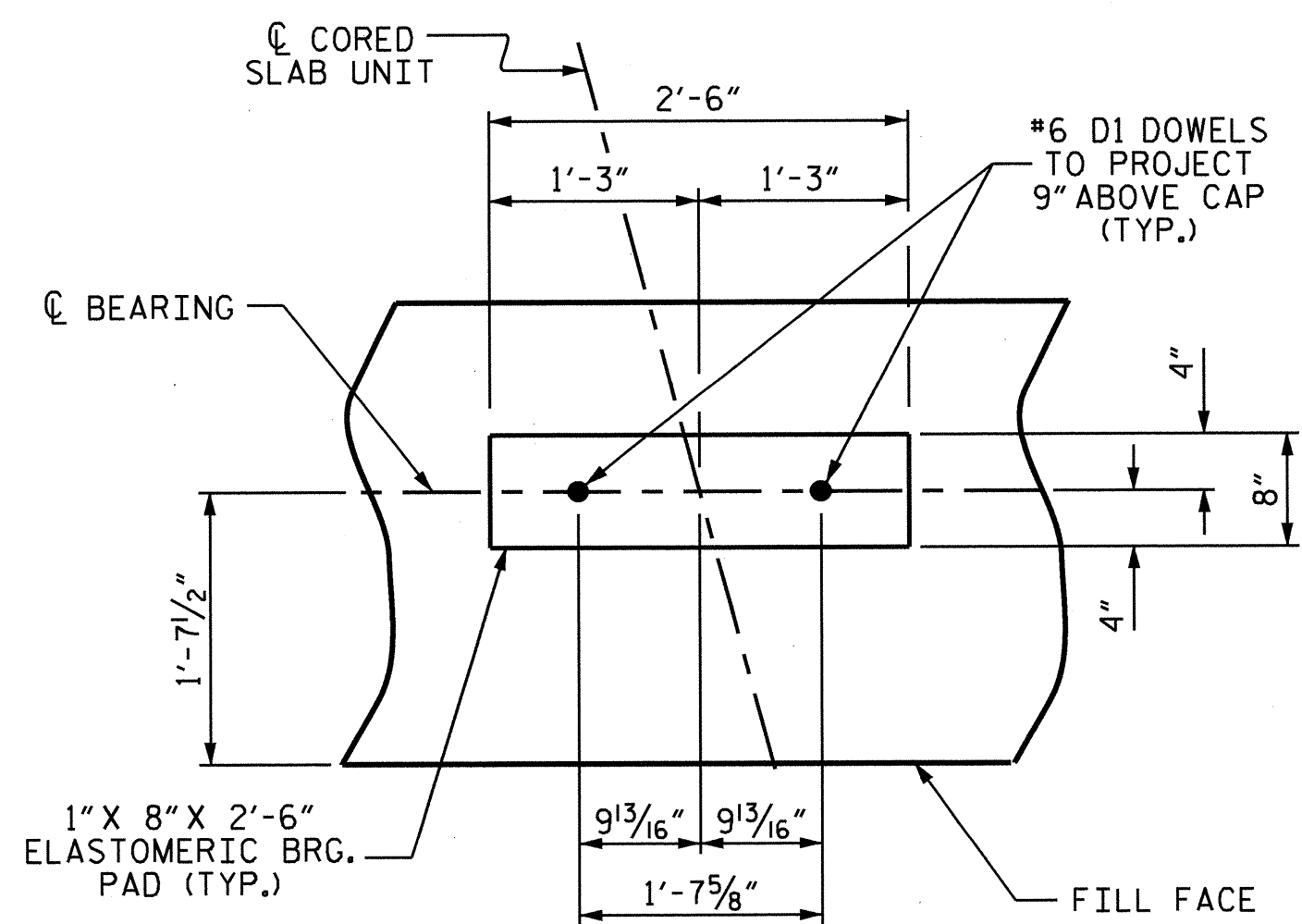


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

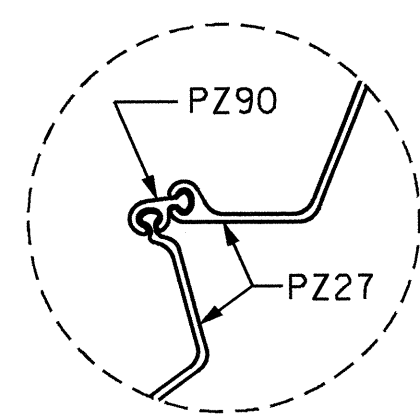
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

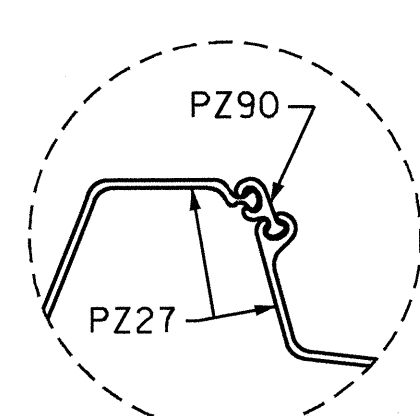


DETAIL "A"

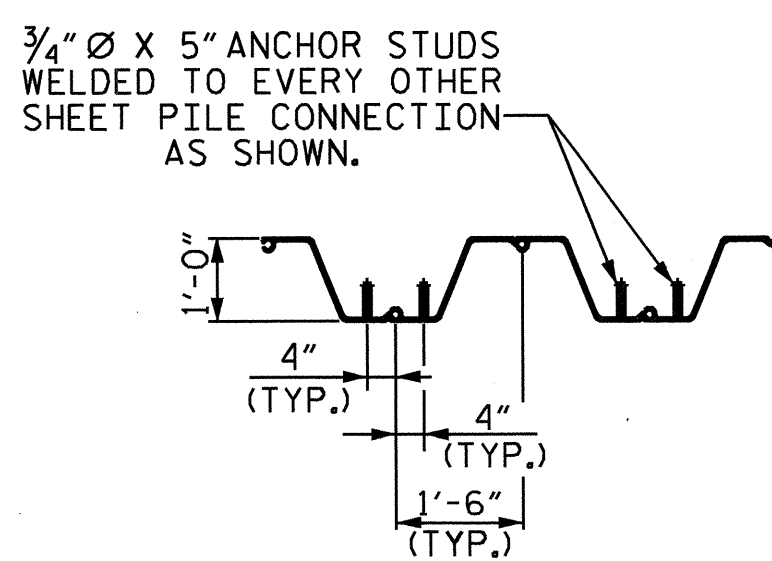
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



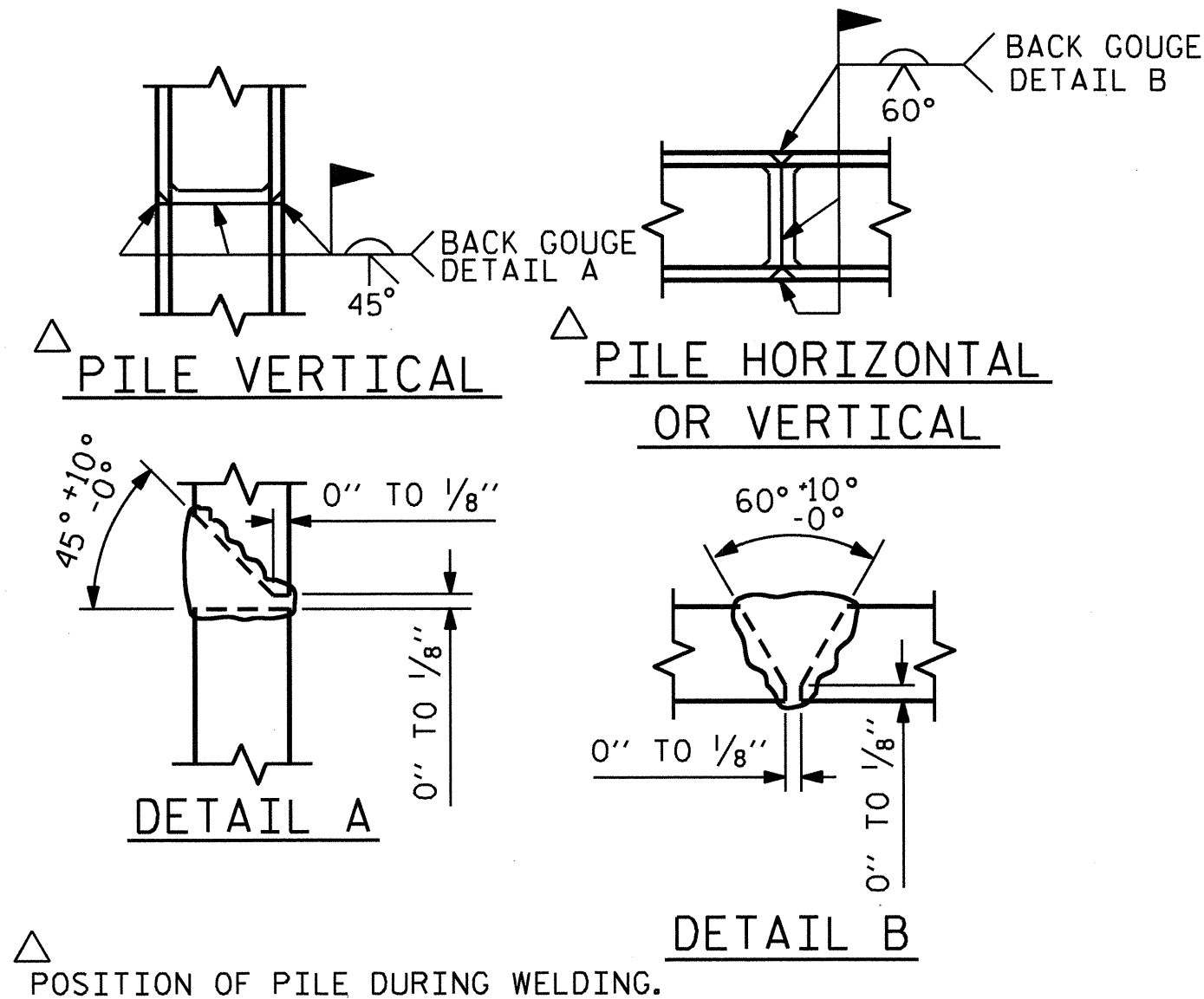
DETAIL "B"



DETAIL "C"



ANCHOR STUD DETAIL



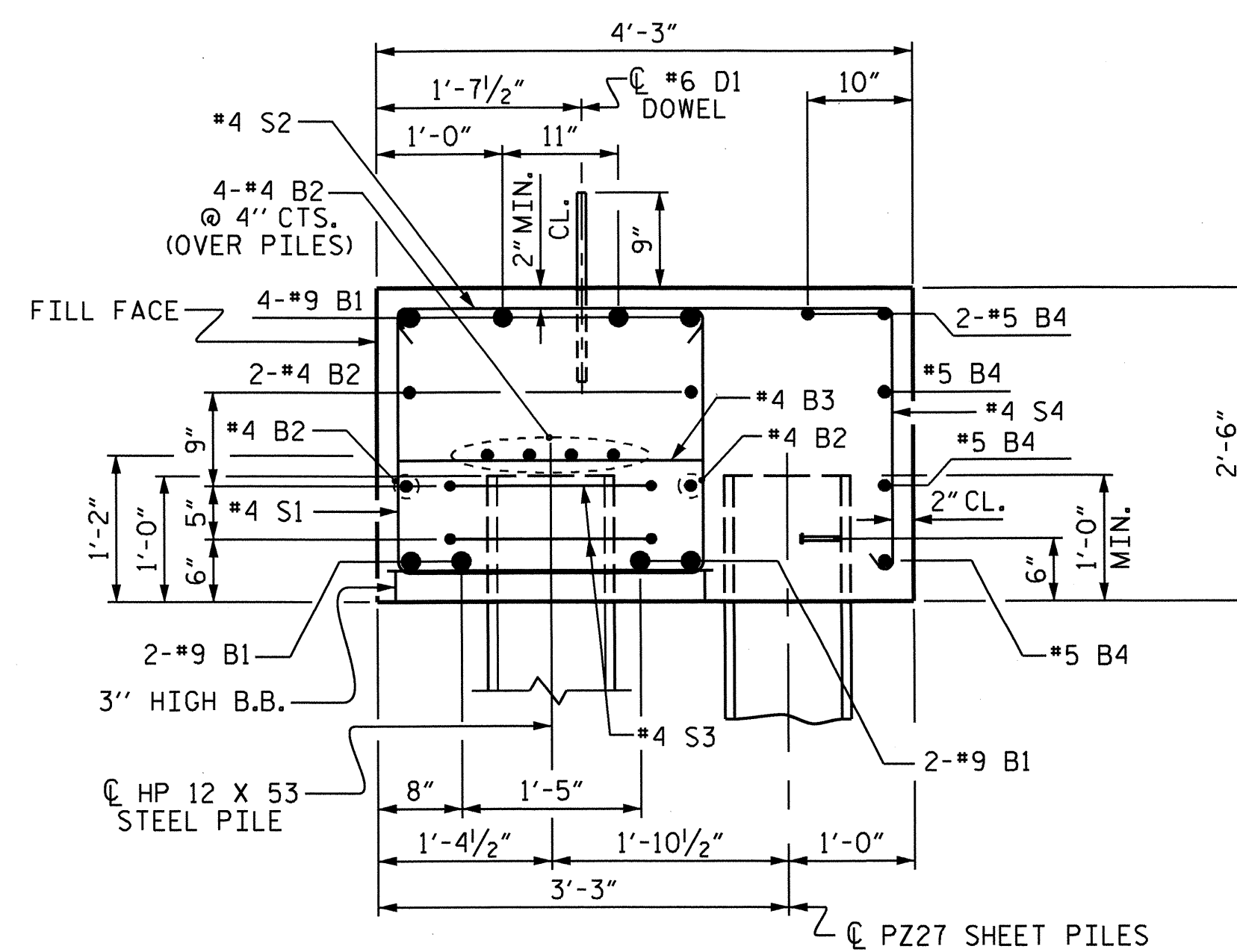
PILE SPLICE DETAILS

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	36'-3"	986
B2	16	#4	STR	18'-2"	194
B3	9	#4	STR	2'-5"	15
B4	5	#5	STR	37'-0"	193
B5	5	#4	STR	10'-8"	36
B6	5	#4	STR	10'-2"	34
D1	18	#6	STR	1'-6"	41
H1	6	#4	2	7'-7"	30
H2	6	#4	2	7'-9"	31
H3	6	#4	3	8'-0"	32
H4	6	#4	3	7'-10"	31
K1	12	#4	STR	3'-1"	25
S1	44	#4	4	7'-5"	218
S2	44	#4	5	3'-2"	93
S3	10	#4	6	6'-6"	43
S4	37	#4	7	6'-10"	169
S5	22	#4	7	5'-1"	75
V1	49	#4	STR	4'-11"	161
REINFORCING STEEL (FOR ONE END BENT)					2407 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS					17.7 C.Y.
POUR #2 UPPER PART OF WINGS					2.1 C.Y.
TOTAL CLASS A CONCRETE					19.8 C.Y.

BAR TYPES	
<p>1</p>	<p>2</p>
<p>3</p>	<p>4</p>
<p>5</p>	<p>6</p>
<p>7</p>	

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 5 LIN. FT. = 250	NO: 5 LIN. FT. = 250
18" STEEL SHEET PILES	18" STEEL SHEET PILES
No. PZ27 = 35	No. PZ27 = 36
No. PZ90 = 2	No. PZ90 = 2
TOTAL No. = 37	TOTAL No. = 38
895 SQ. FT.	920 SQ. FT.

ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION A-A

PROJECT NO. B-4987
 HENDERSON COUNTY
 STATION: 12+51.50 -L-

SHEET 4 OF 4

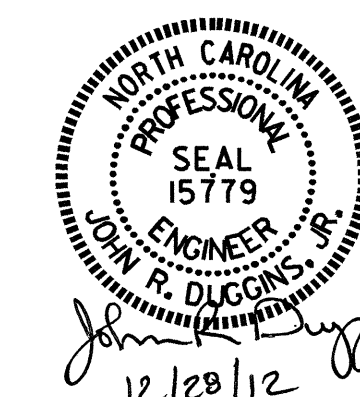
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

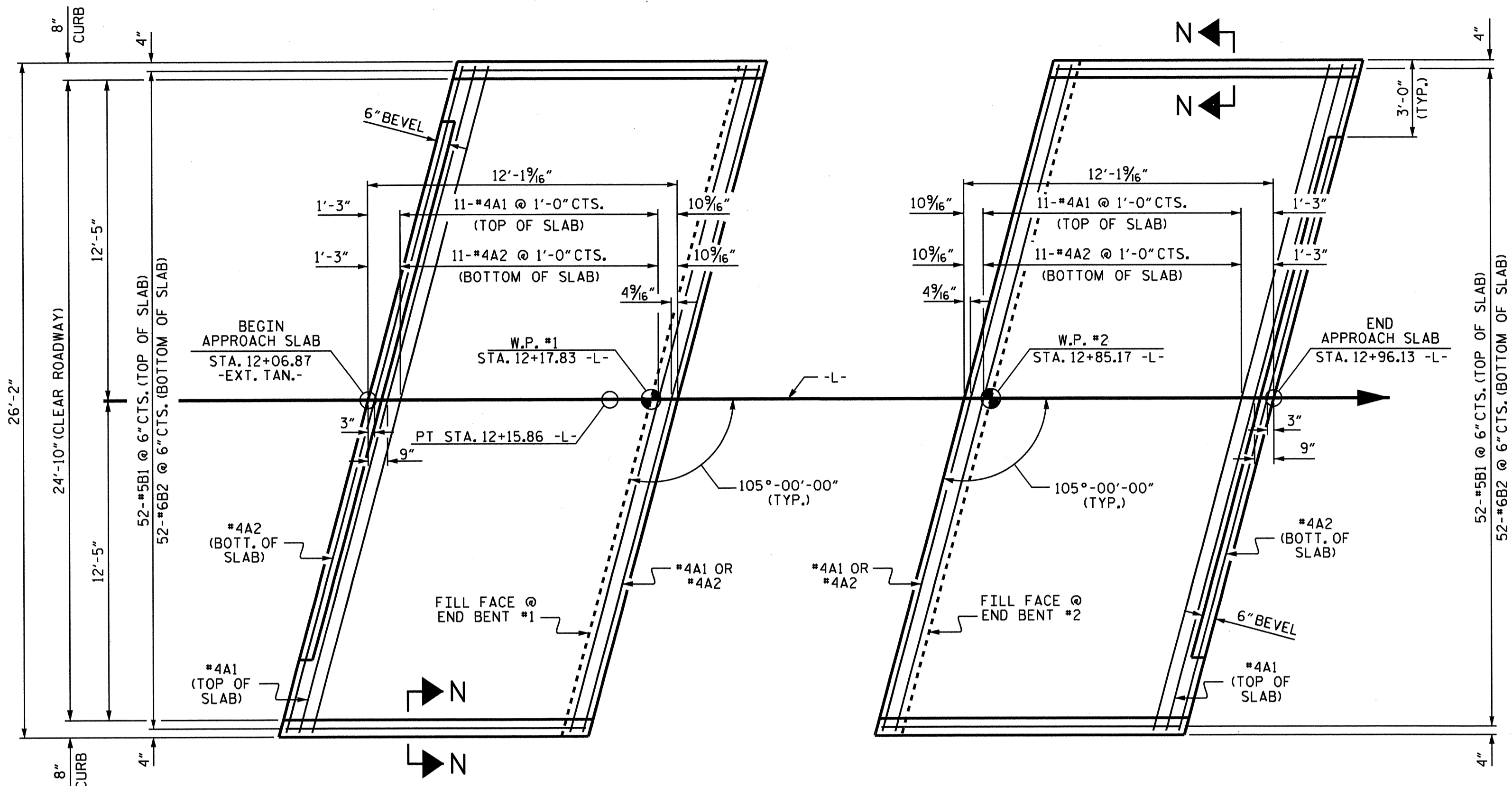
SUBSTRUCTURE

END BENT #1 & #2
 DETAILS

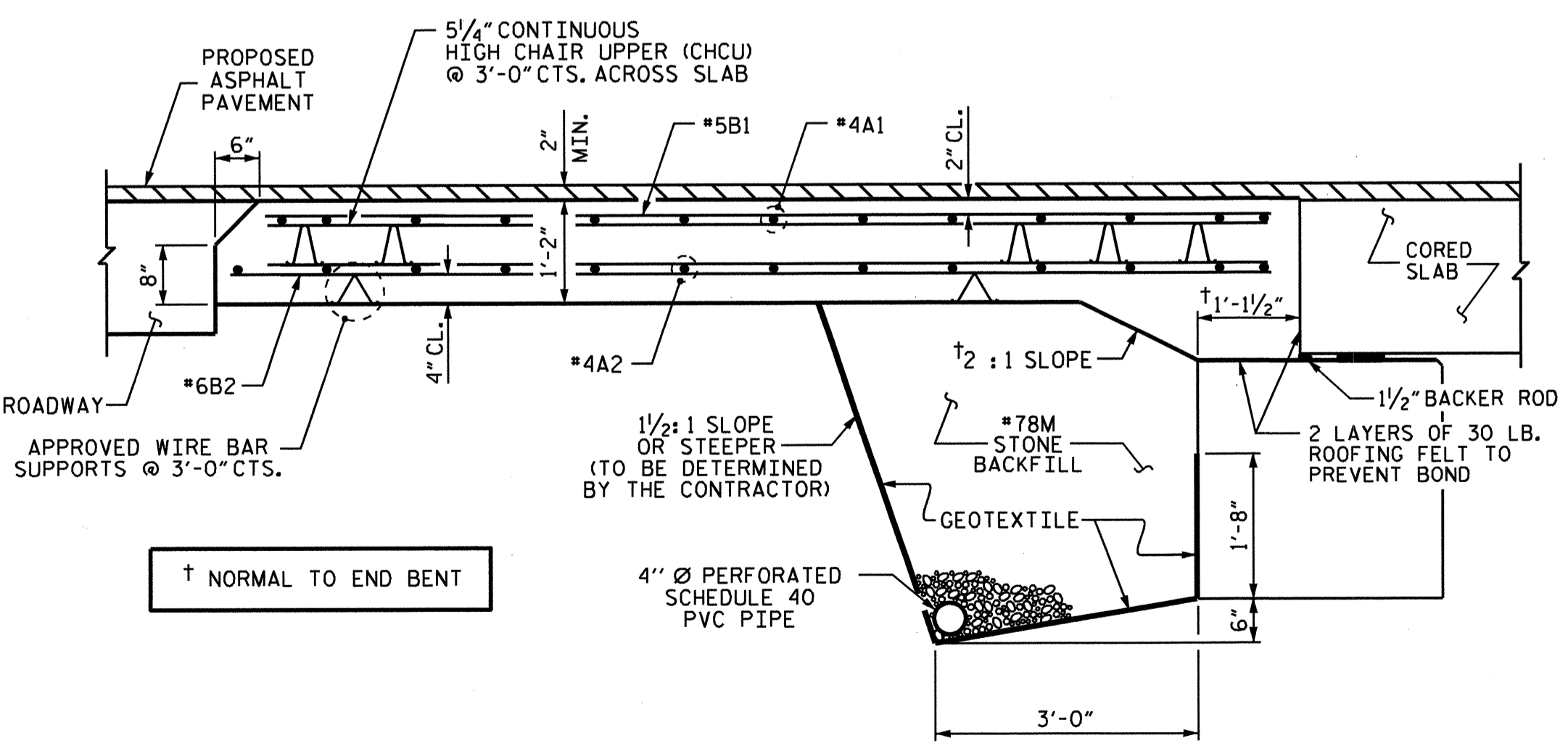
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS	13
2			4				

ASSEMBLED BY : V. NGUYEN DATE : 8/12
 CHECKED BY : S. PEARCE DATE : 8/12
 DRAWN BY : DGE 03/10
 CHECKED BY : MKT 03/10





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

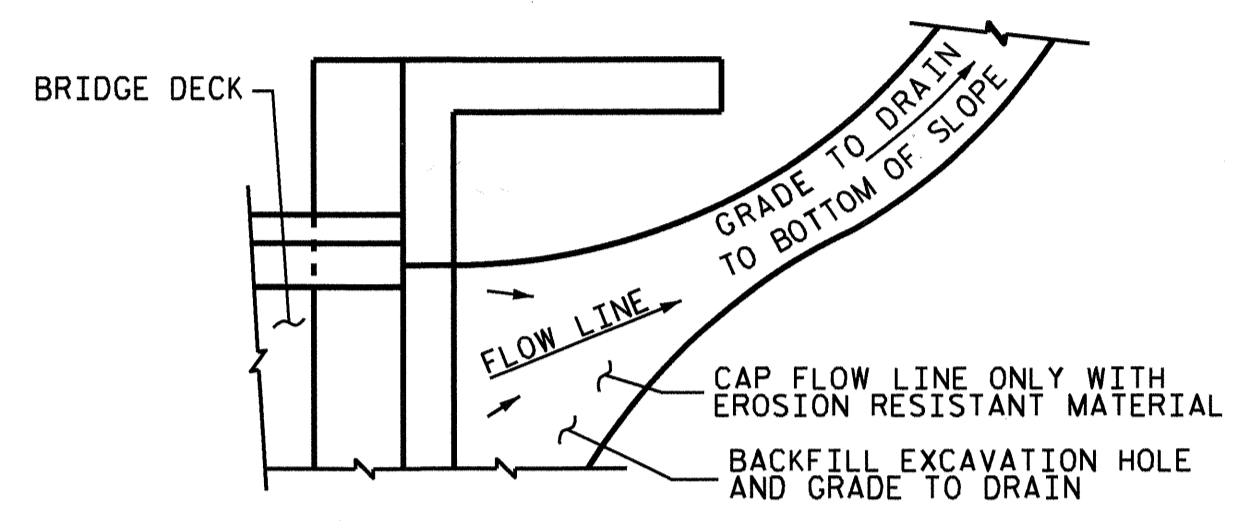


SECTION THRU SLAB

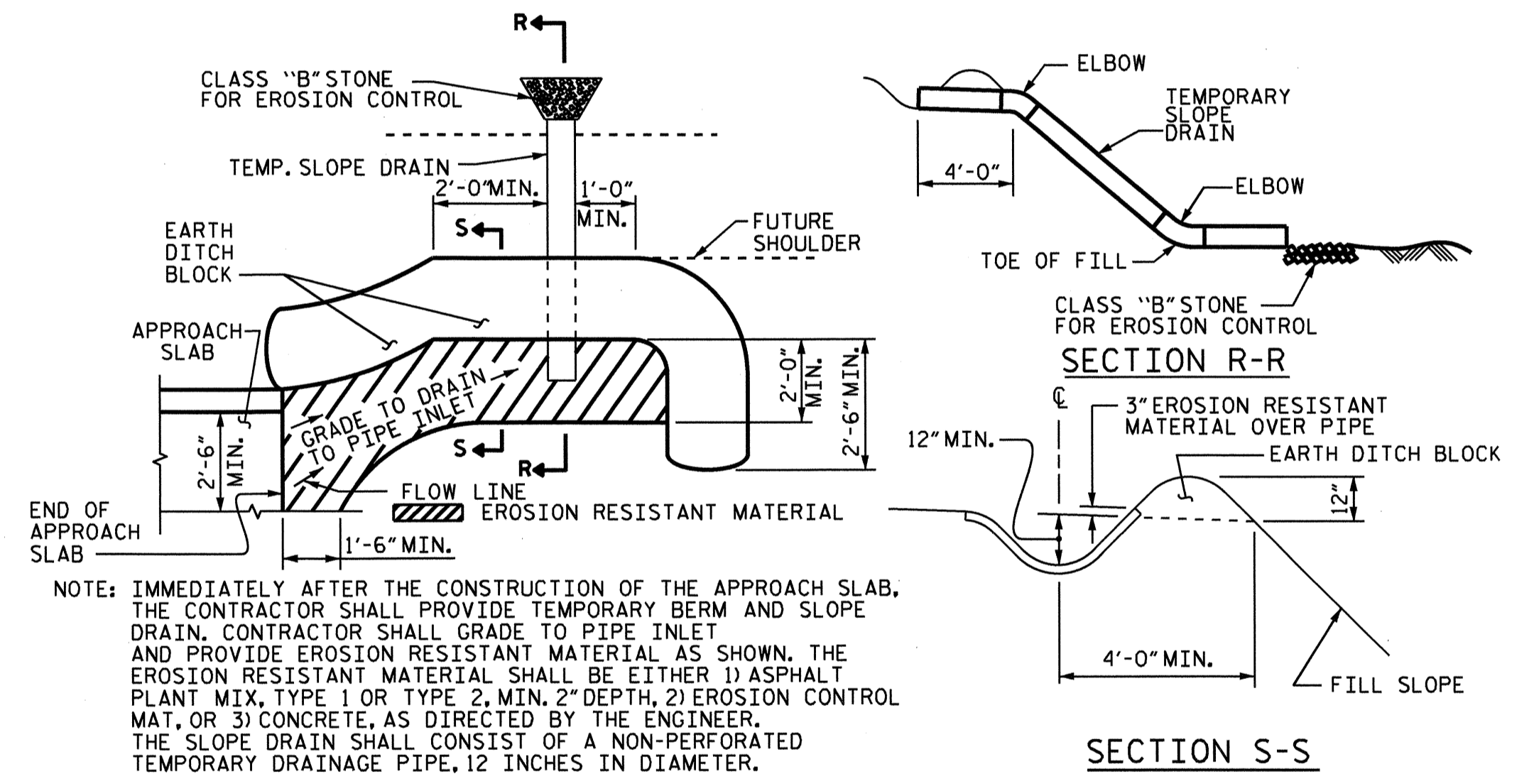
SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

NOTES

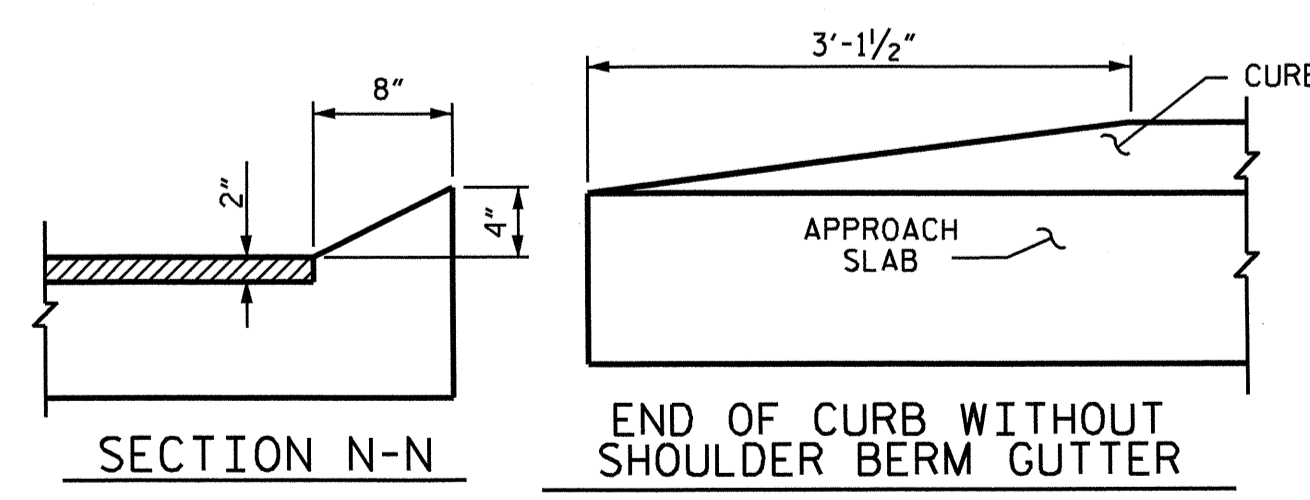
FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.
 GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.
 #78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.
 #78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.
 FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.
 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.
 APPROACH SLAB GROOVING IS NOT 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



TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



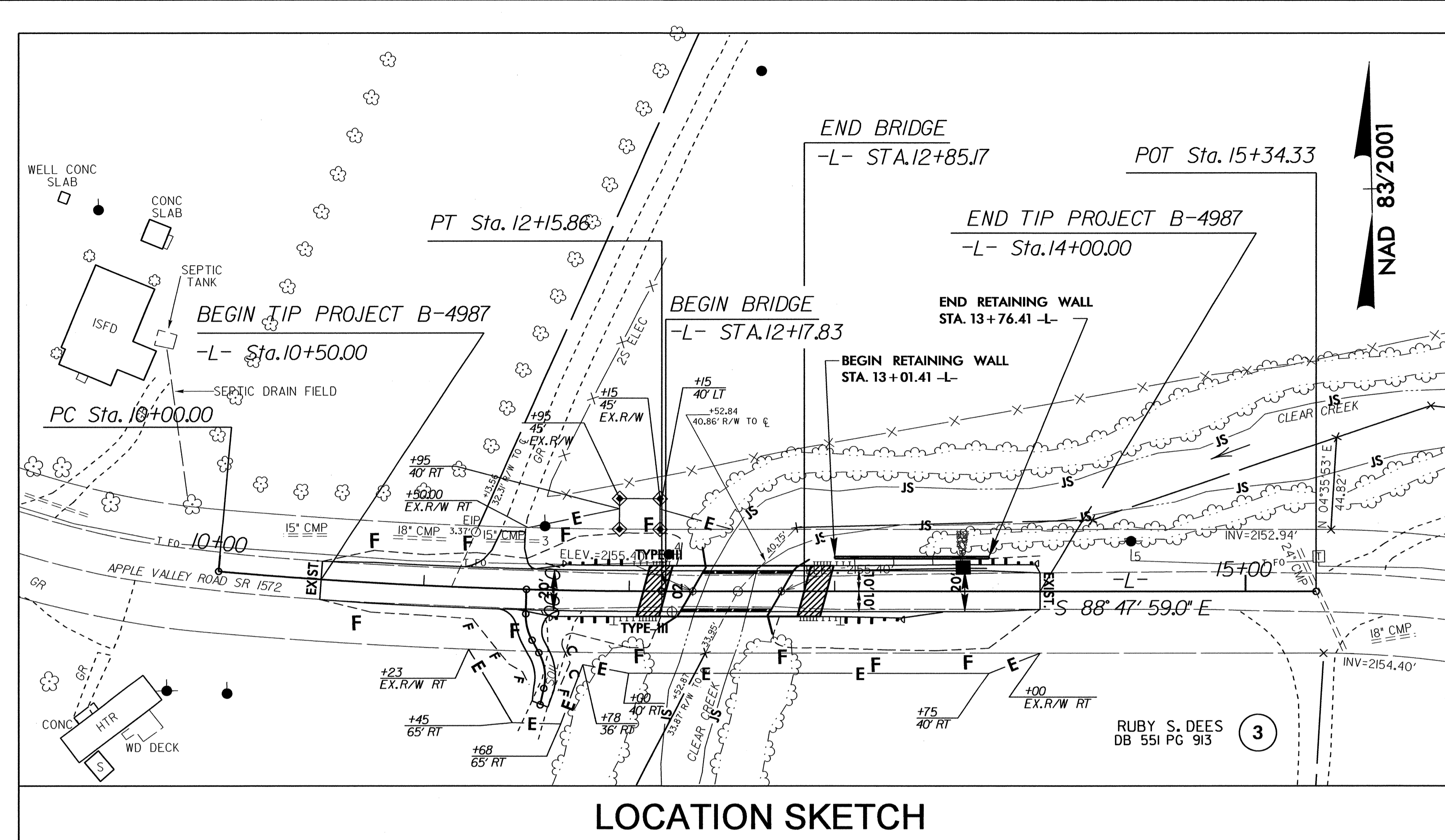
END OF CURB WITHOUT SHOULDER BERM GUTTER

PROJECT NO. B-4987
 HENDERSON COUNTY
 STATION: 12+51.50-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 105° SKEW

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

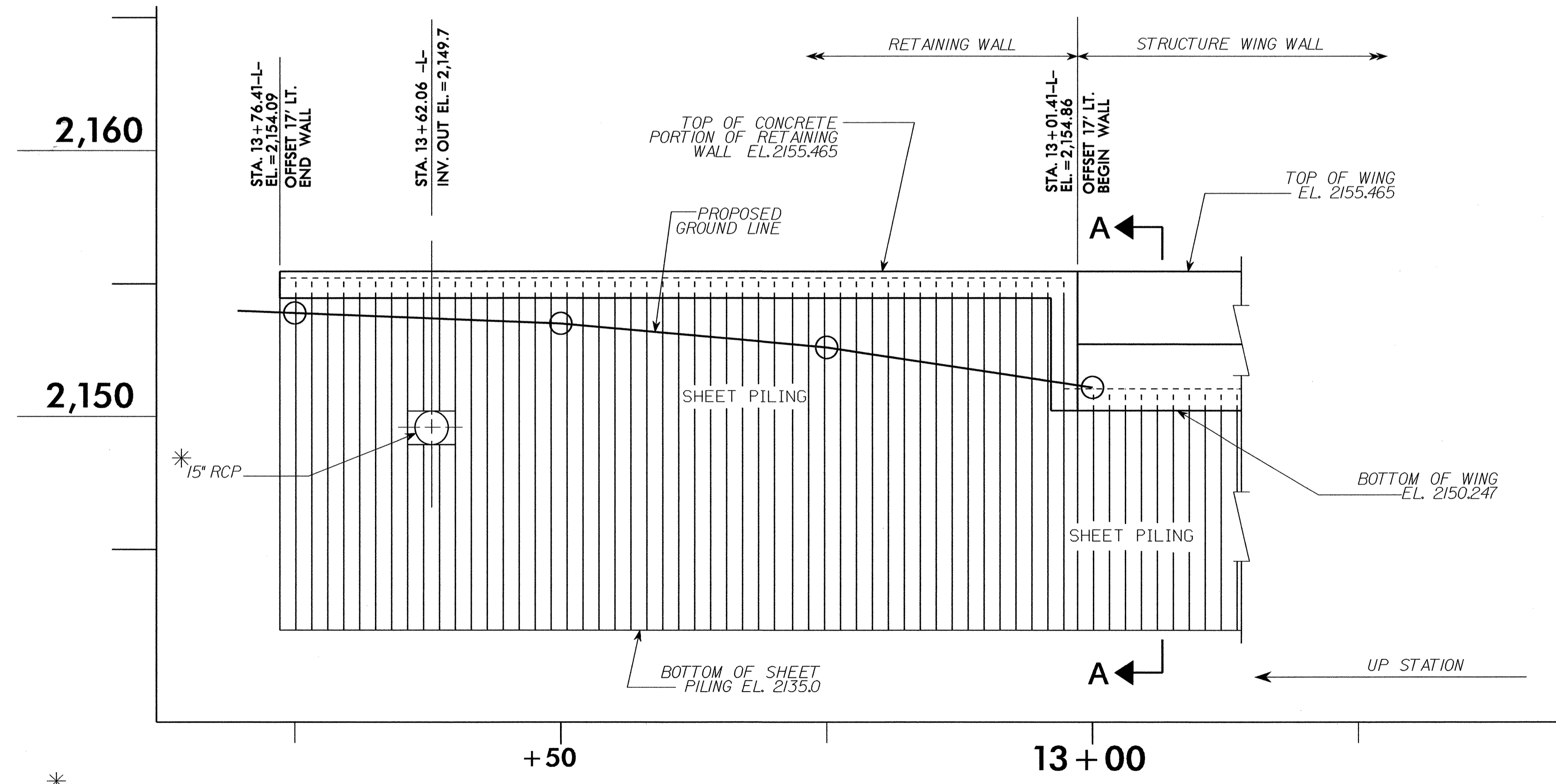
ASSEMBLED BY: V. NGUYEN DATE: 8/12
 CHECKED BY: S. PEARCE DATE: 8/12
 DRAWN BY: SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY: BCH 5-09



LOCATION SKETCH

PAY ITEMS	
SHEET PILE RETAINING WALL	192 SQ. FT.

FOR ADDITIONAL QUANTITY ESTIMATES, SEE SHEET 3 OF 4.



WALL ENVELOPE
LOOKING AT FRONT FACE OF WALL

PROJECT NO.: B-4987
HENDERSON COUNTY
STATION: 13+01.41-L- TO 13+76.41-L-
SHEET 1 OF 4

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACT OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH


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

PREPARED BY: EJS
REVIEWED BY: SCC
DATE: 11/2012
DATE: 12/2012

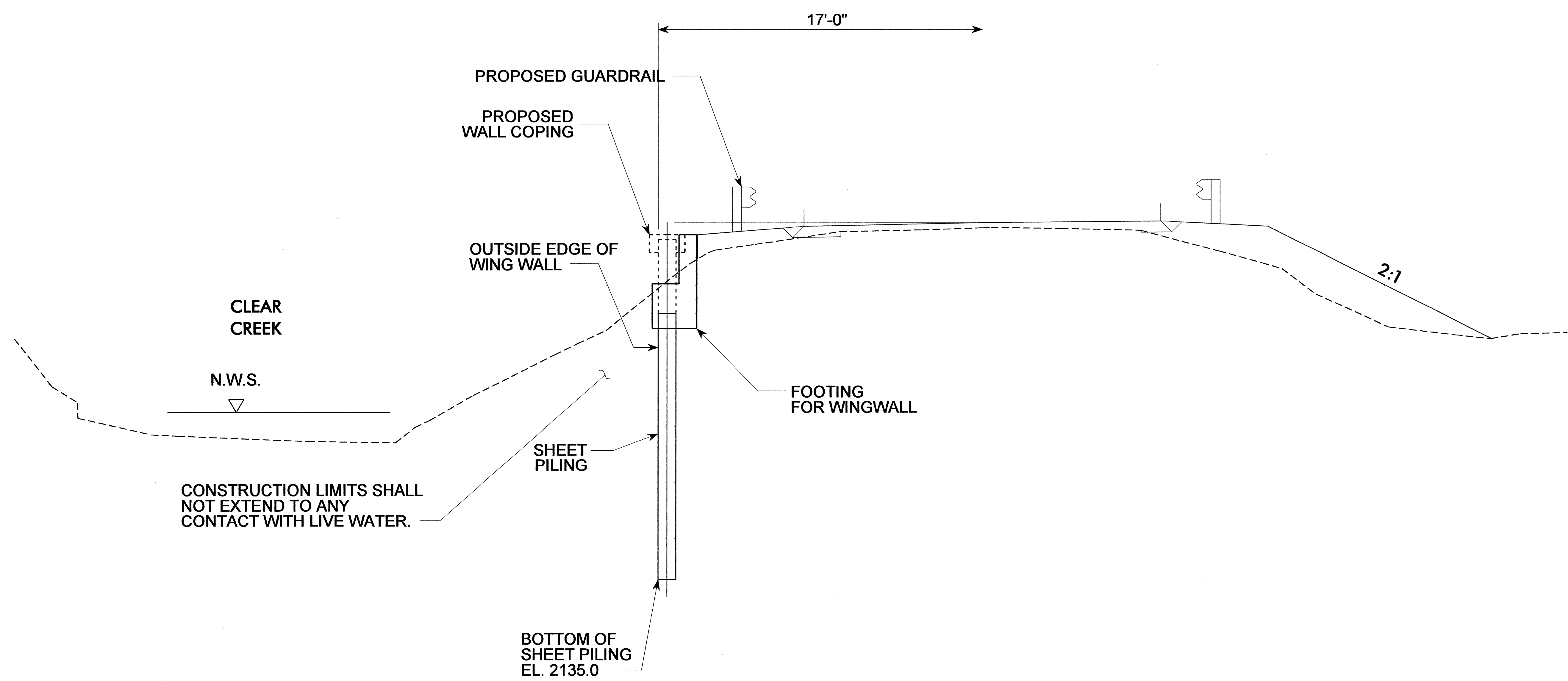
*ACTUAL LOCATION TO BE VERIFIED BY THE CONTRACTOR

GEOTECHNICAL ENGINEER

ENGINEER



Signature: *C. Clark* Date: 12/12/12



SECTION A-A

SHEET PILING RETAINING WALL

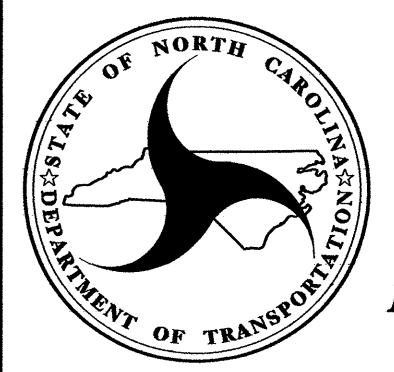
PROJECT NO.: B-4987
 HENDERSON COUNTY
 STATION: 13+01.41 -L- TO 13+76.41 -L-
 SHEET 2 OF 4

PREPARED BY: EJS	DATE: 11/2012
REVIEWED BY: SCC	DATE: 12/2012

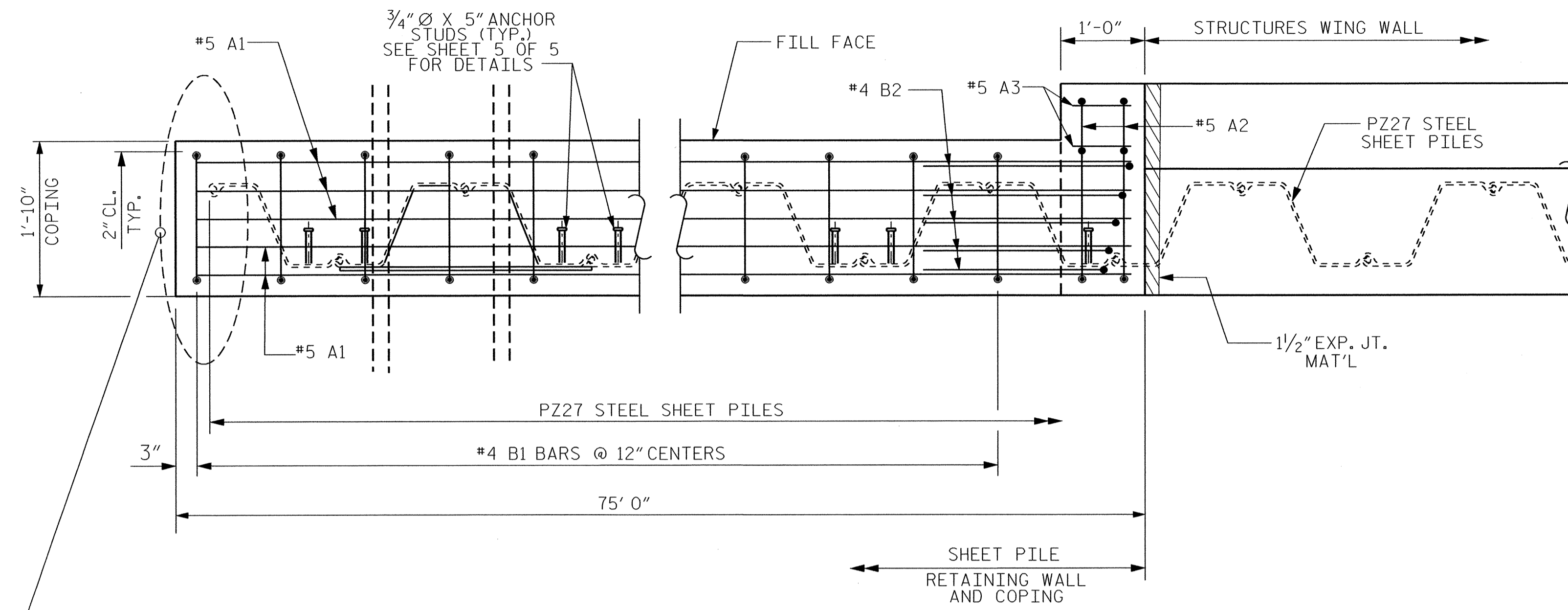
GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACT OFFICE

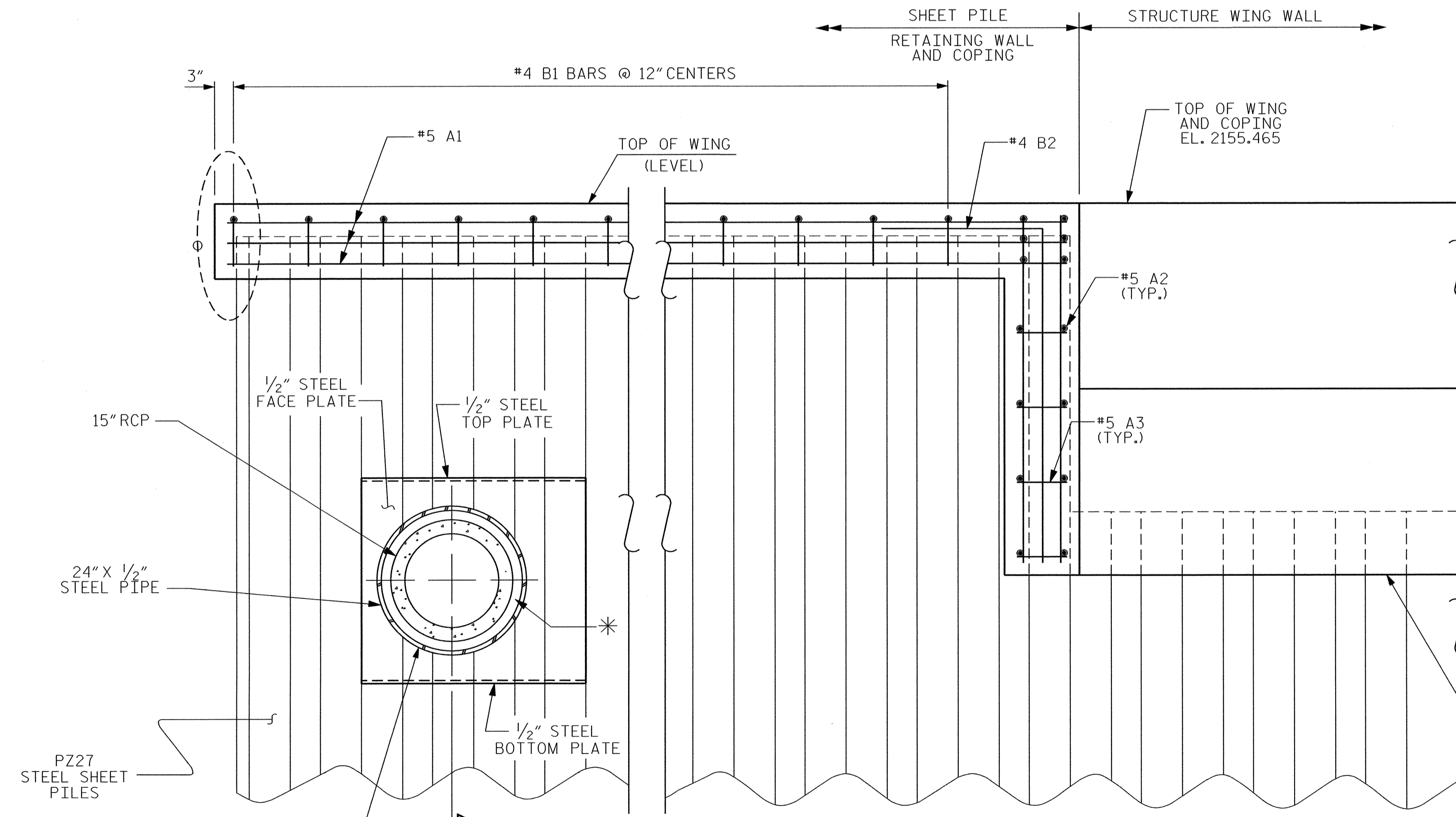
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH



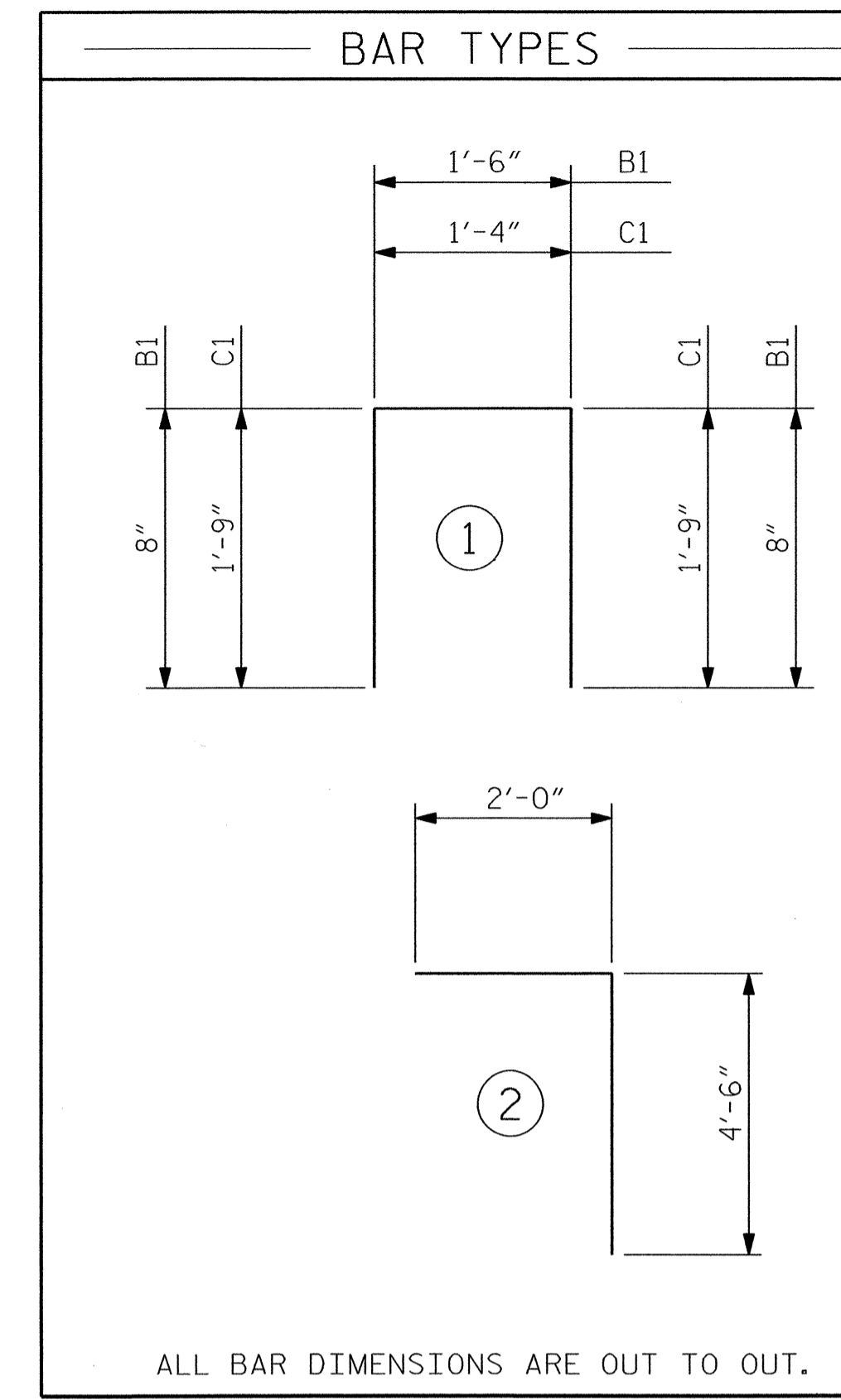
SHEET PILE WALL CONSTRUCTION DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
SHEET NO. W-2					TOTAL SHEETS 4



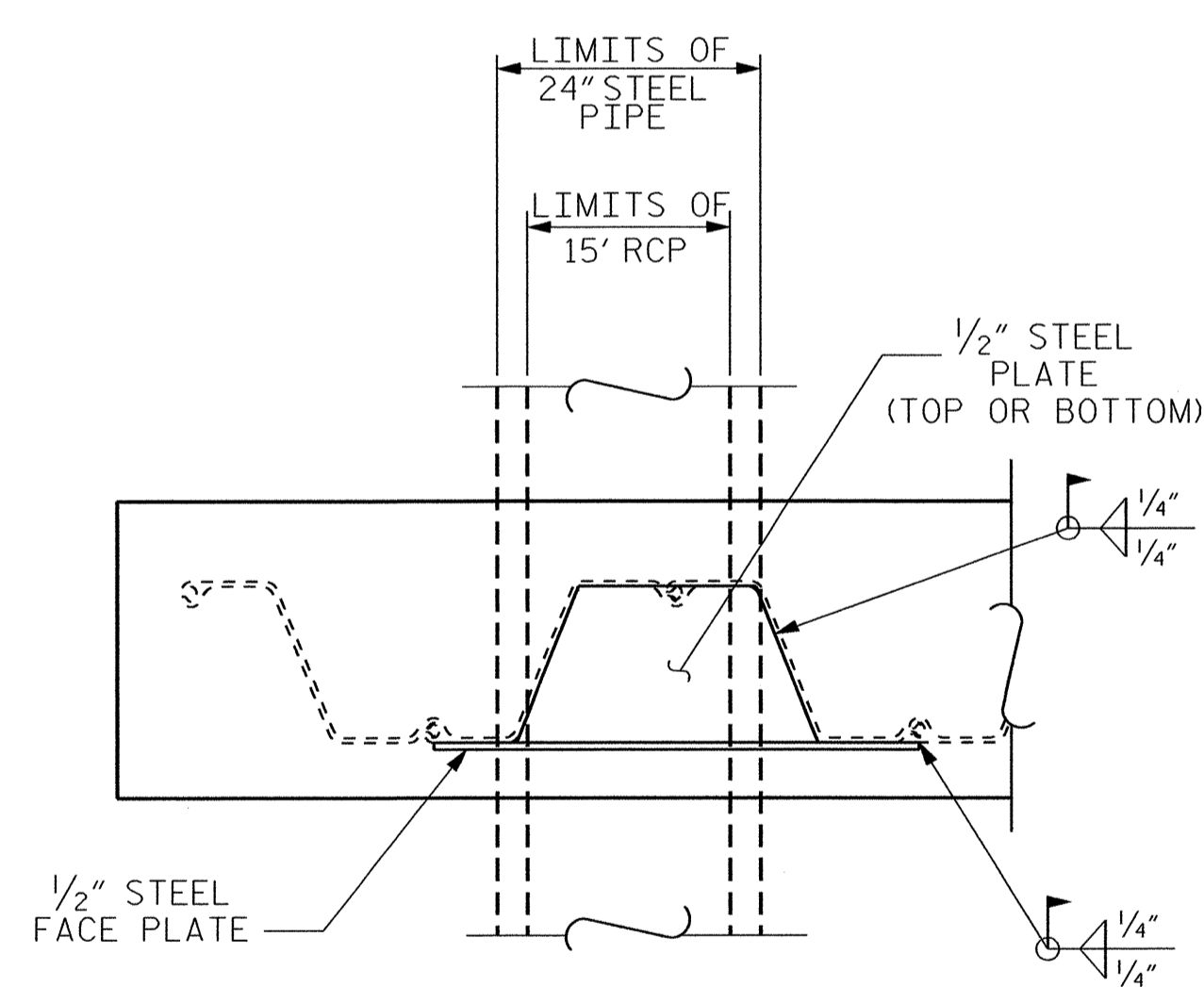
PLAN



ELEVATION



ALL BAR DIMENSIONS ARE OUT TO OUT.



PIPE THRU SHEET PILING

GEOTECHNICAL ENGINEER

ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 29869 ENGINEER

Signature: *S. C. ...* Date: *11/11/12*

*** ESTIMATED QUANTITIES**

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	18	#5 STR	38'-10"	729
A2	14	#5 STR	2'-2"	32
A3	8	#5 STR	8"	6
B1	75	#4	1 2'-10"	142
B2	5	#4	2 6'-6"	22
C1	2	#5	1 4'-10"	10

REINFORCING STEEL 941 LBS.

CLASS A CONCRETE BREAKDOWN

WALL COPING AND WING WALL TO RETAINING WALL TRANSITION 5.5 C.Y.

TOTAL CLASS A CONCRETE 5.5 C.Y.

18" STEEL SHEET PILES
NO. PZ27 = 50

TOTAL NO. = 50 1520 SQ. FT.

1/2" STEEL PLATE .8 CU. FT. = 392 LBS.

* ESTIMATED QUANTITIES ARE FOR BIDDING PURPOSES ONLY AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO BIDDING.

PROJECT NO.: B-4987
 HENDERSON COUNTY
 STATION: 13+01.41-L- TO 13+76.41-L-
 SHEET 3 OF 4

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACT OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH


SHEET PILE WALL CONSTRUCTION DETAILS

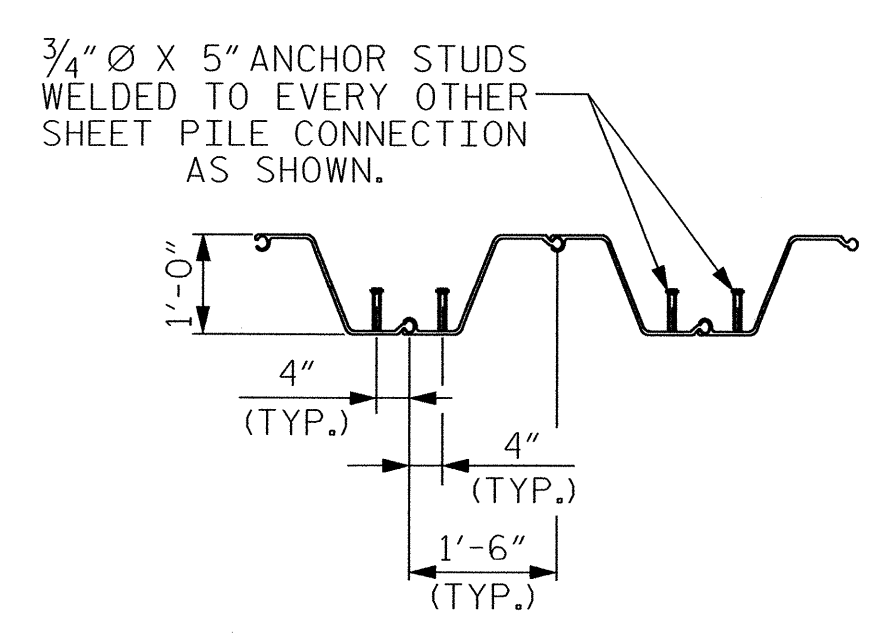
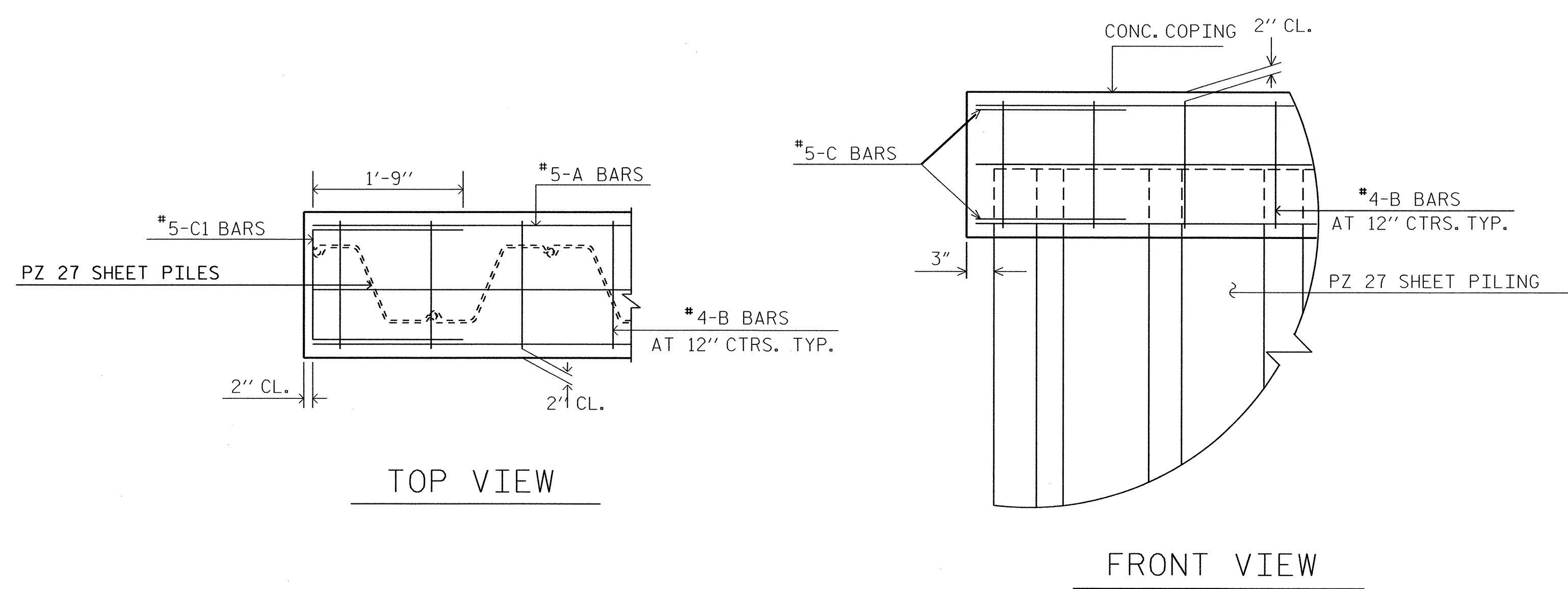
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-3
2			4			TOTAL SHEETS 4

PREPARED BY: EJS DATE: 11/2012
 REVIEWED BY: SCC DATE: 12/2012

STA. 13+62.06 -L-
 INV. OUT EL. = 2,149.7

* GROUT VOID BETWEEN PIPES AS DIRECTED BY THE ENGINEER

GEOTECHNICAL ENGINEER  S. C. Clark SIGNATURE 11/14/12 DATE	ENGINEER SIGNATURE DATE
---	---



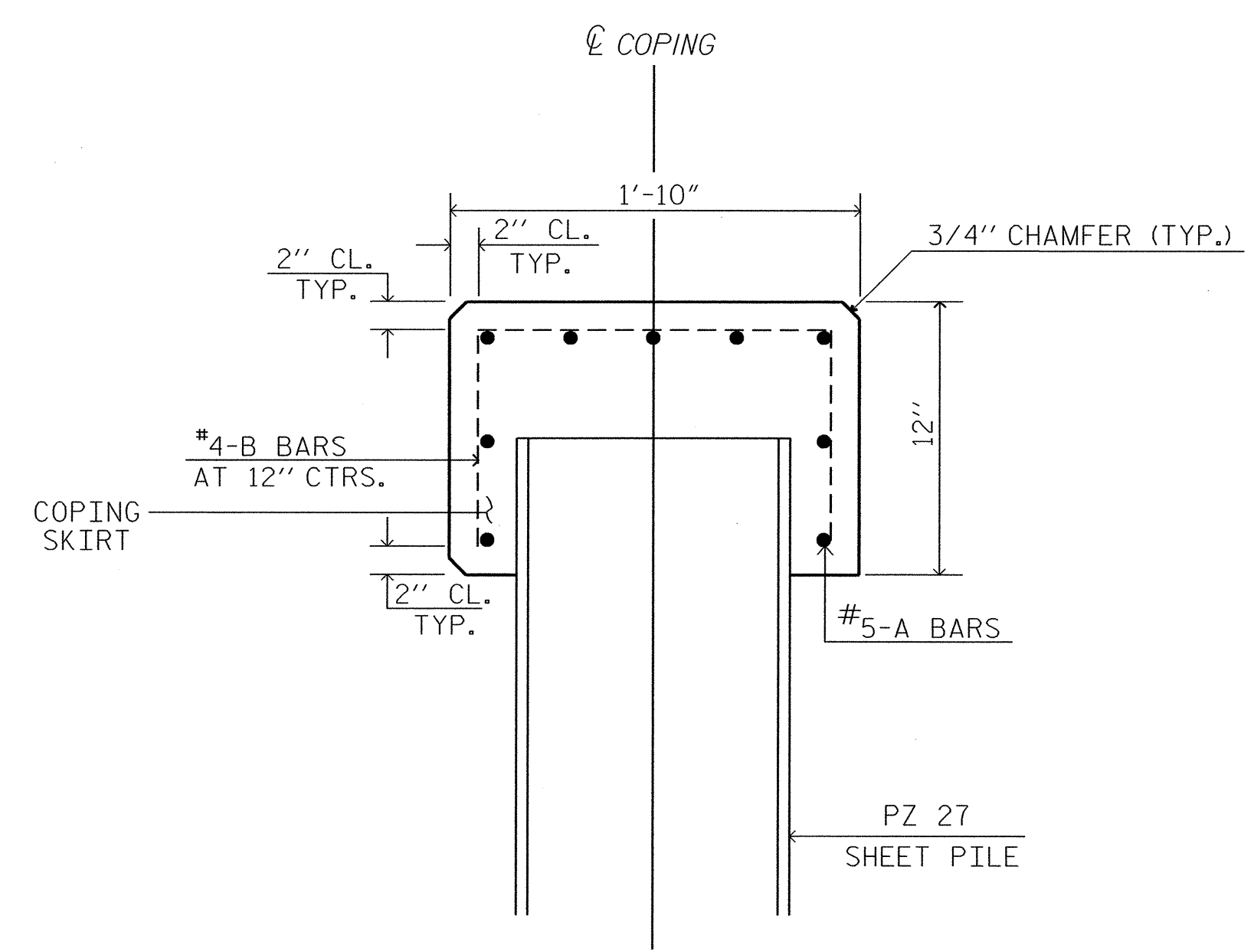
ANCHOR STUD DETAIL

END OF COPING DETAILS

N. T. S.

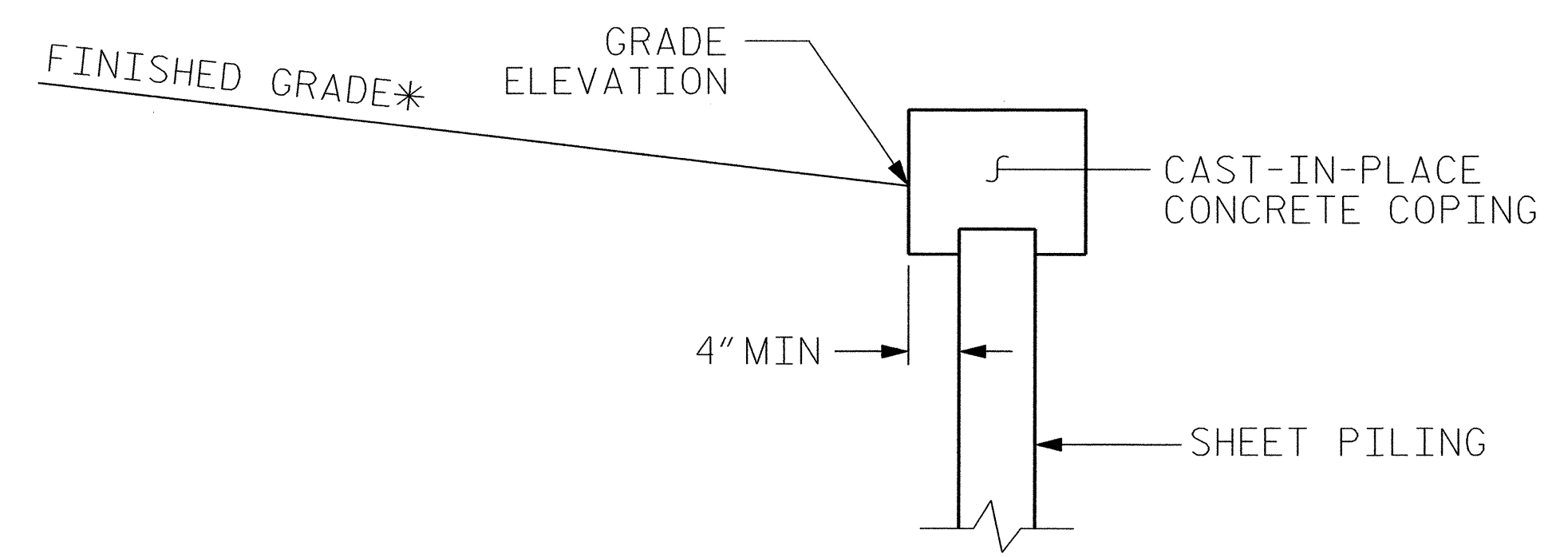
NOTES

- FOR SHEET PILE RETAINING WALLS, SEE SECTION 452 OF THE STANDARD SPECIFICATIONS
- FIELD ADJUSTMENT OF BARS MAY BE NECESSARY FOR PLACEMENT IN COPING.
- ALL REINFORCING SHALL BE GRADE 60 AS DESCRIBED IN SECTION 1070 OF THE STANDARD SPECIFICATIONS.
- FOR SHEET PILE RETAINING WALLS AND CAST-IN-PLACE COPING, SEE SECTION 452 OF THE STANDARD SPECIFICATIONS.
- ALL SHEET PILES TO BE PZ27
- SHEET PILES ARE TO BE INSTALLED TO ELEVATIONS SHOWN IN THE TABLE. TIP ELEVATIONS BETWEEN STATIONS ARE TO BE INTERPRETED AS A STRAIGHT LINE BETWEEN STATED TIP ELEVATIONS.
- SHEET PILES ARE TO BE INSTALLED PLUMB (+/- 1% OF FULL INSTALLED LENGTH) ALONG THE FRONT FACE AND LEADING EDGES.
- STEEL SHEET PILES SHALL BE EMBEDDED A MINIMUM OF 0'-9" INTO COPING.
- A PIPE PENETRATION IS TO BE CONSTRUCTED USING 1/2" STEEL FACE PLATE, DEPENDING ON LOCATION, IS TO BE OF ADEQUATE SIZE TO SPAN ADJACENT SHEETING "FLATS" AS SHOWN IN THE DETAILS OR AS DIRECTED BY THE ENGINEER.
- THE PIPE PENETRATION IS TO BE CONSTRUCTED USING A690 STEEL COMPONENTS CONSISTING OF A 24" STEEL PIPE SLEEVE AND SHOP FABRICATED 1/2" PLATE STEEL FOR THE TOP AND BOTTOM PLATES. ALL CONNECTIONS ARE TO BE WELDED AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- THE PIPE PENETRATION WILL BE CONSIDERED INCIDENTAL TO THE WALL. NO ADDITIONAL PAYMENT WILL BE MADE. THE SHEET PILE BID PRICE WILL INCLUDE ALL MATERIALS, FABRICATION WELDING, EXCAVATION AND BACKFILL, AS REQUIRED, AND ANY INCIDENTALS REQUIRED TO PERFORM THE WORK.
- THE MINIMUM EMBEDMENT ELEVATION FOR RETAINING WALL INCLUDES EMBEDMENT FOR SCOUR.
- WRAP FILL SLOPES AROUND WALL ENDS AS DIRECTED BY THE ENGINEER.



FULL COPING DETAIL

N. T. S.



COPING DETAILS

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: B-4987
HENDERSON COUNTY
STATION: 13+01.41-L- TO 13+76.41-L-
 SHEET 4 OF 4

PREPARED BY: EJS	DATE: 11/2012
REVIEWED BY: SCC	DATE: 12/2012

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
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 CONTRACT OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

