

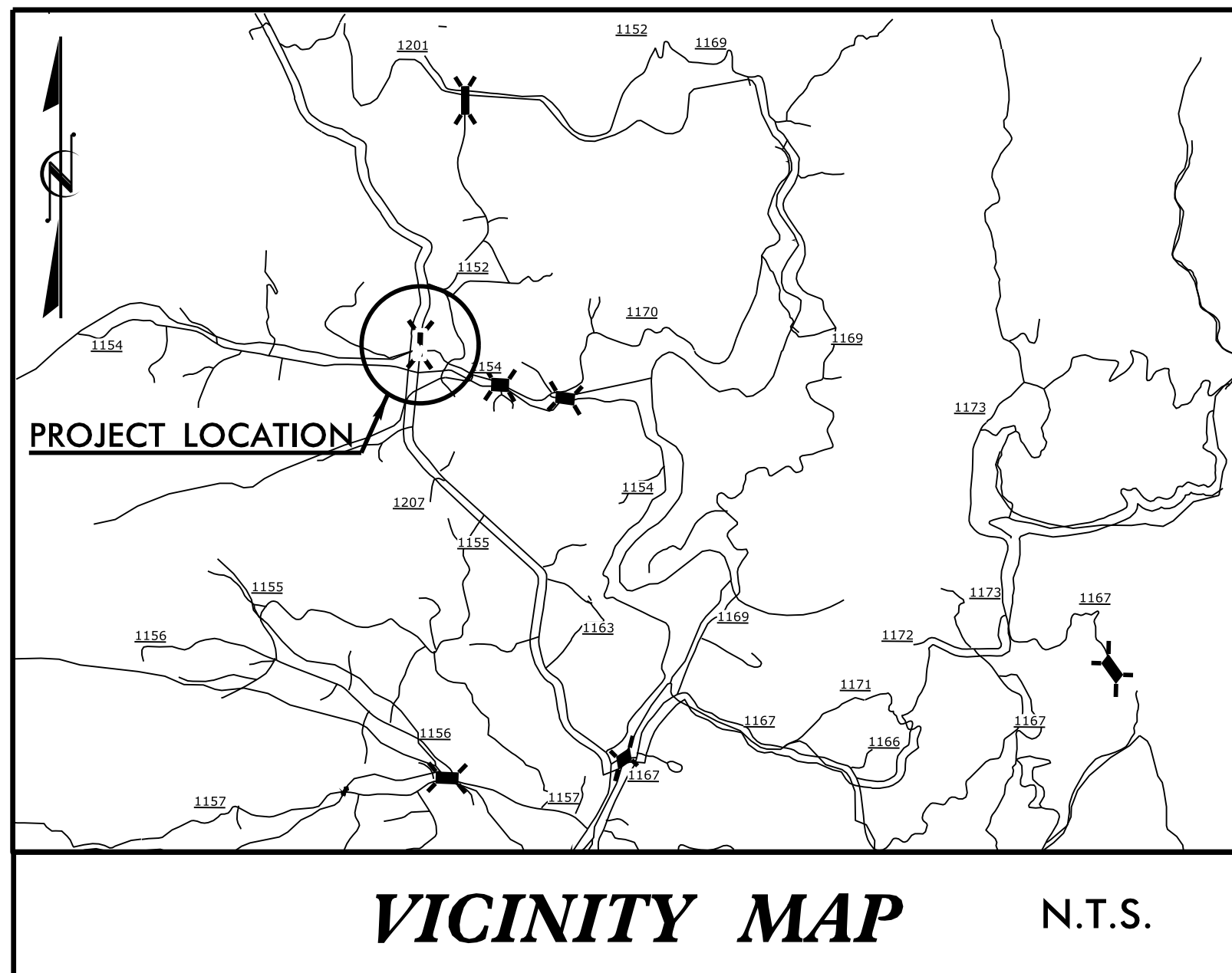
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**This file or an individual page
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TIP PROJECT: B-5864

CONTRACT: C204061

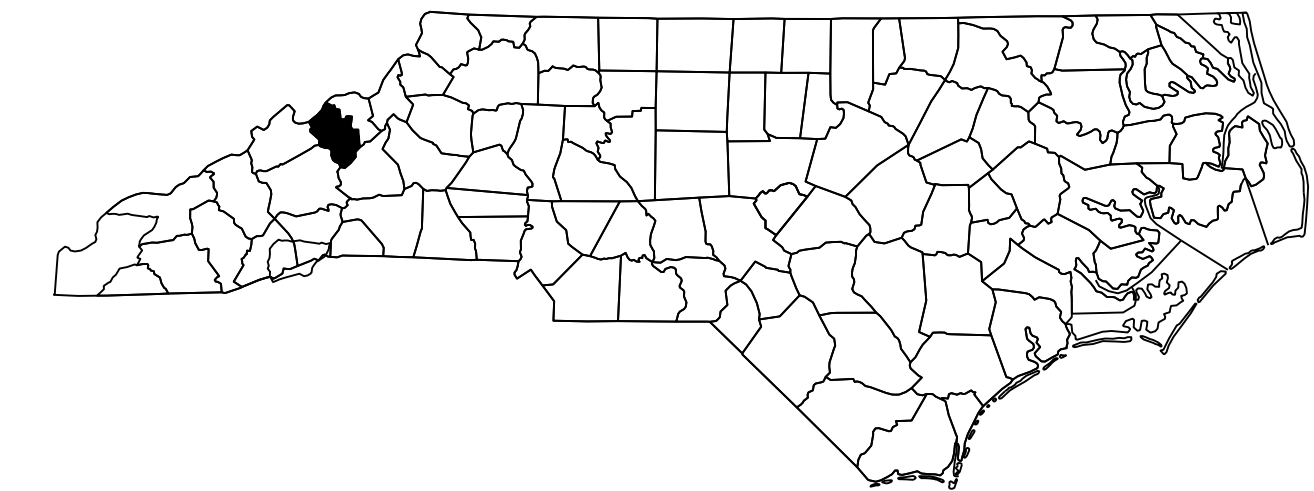


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

YANCEY COUNTY

LOCATION: BRIDGE NO. 49 OVER BROWN CREEK ON NC 80
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5864		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48058.1.1	BRSTP-0080(6)	P.E.	
48058.2.2		R/W & UTILITIES	
48058.3.2		CONST.	



BEGIN TIP PROJECT B-5864
STA. 10 + 40.00 -L-

BEGIN BRIDGE
STA. 13 + 94.88 -L-

END BRIDGE
STA. 14 + 47.13 -L-

BEGIN APPROACH SLAB
STA. 13 + 81.00 -L-

END APPROACH SLAB
STA. 14 + 61.00 -L-

END TIP PROJECT B-5864
STA. 18 + 25.00 -L-

← **TO BUSICK**

TO MICAVILLE →

BEGIN DETOUR BRIDGE
STA. 14 + 12.50 -DET-

END DETOUR BRIDGE
STA. 14 + 67.50 -DET-

BEGIN DETOUR CONSTRUCTION
STA. 10 + 36.71 -DET-

END DETOUR CONSTRUCTION
STA. 18 + 24.07 -DET-

STRUCTURE

DESIGN DATA

ADT (2018) = 2,600
ADT (2038) = 2,900
K = 9 %
D = 70 %
T = 4 % **
* V = 50 MPH
** (TTST 1 %, DUAL 3 %)
FUNC CLASS = MAJOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5864 = 0.139 MILES
LENGTH STRUCTURE TIP PROJECT B-5864 = 0.010 MILES
TOTAL LENGTH TIP PROJECT B-5864 = 0.149 MILES

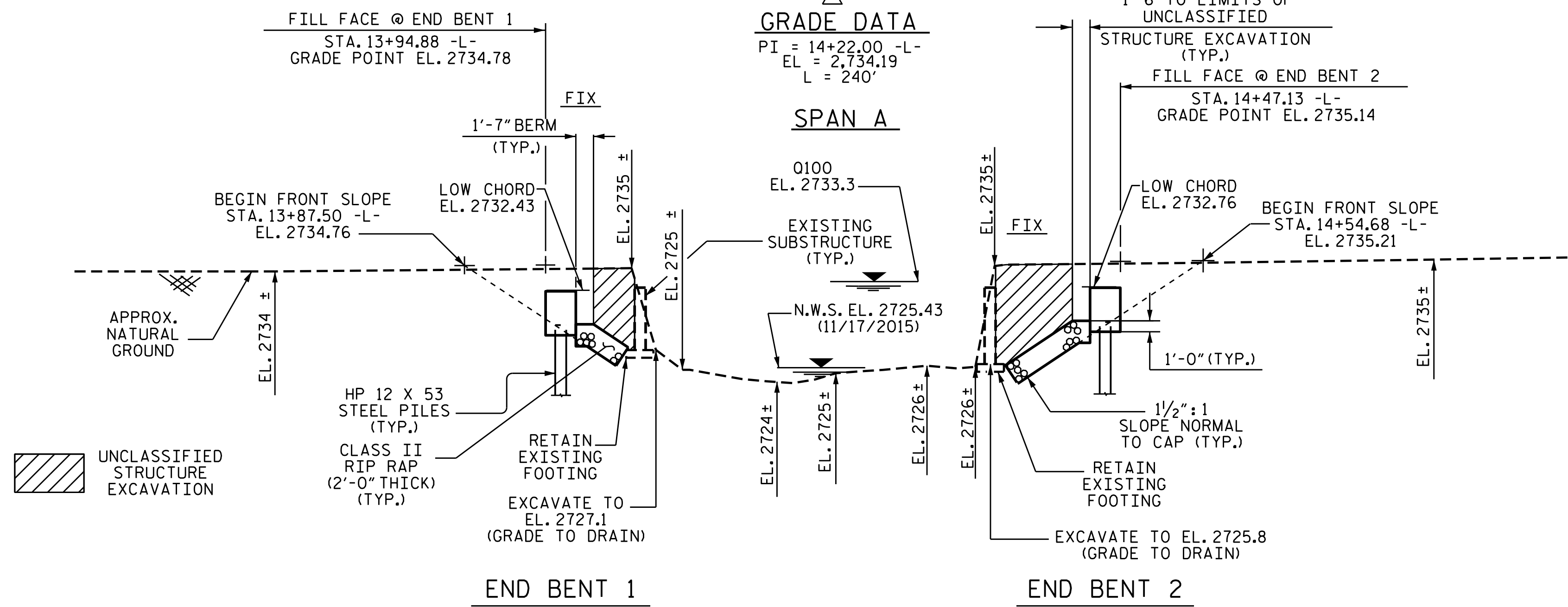
Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS
LETTING DATE: JANUARY 16, 2018

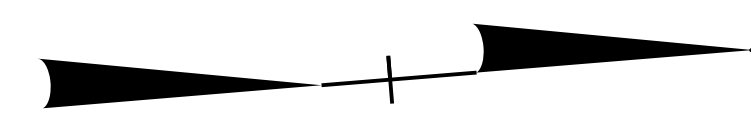
A. KEITH PASCHAL, P.E.
PROJECT ENGINEER

AMBER M. LEE, P.E.
PROJECT DESIGN ENGINEER

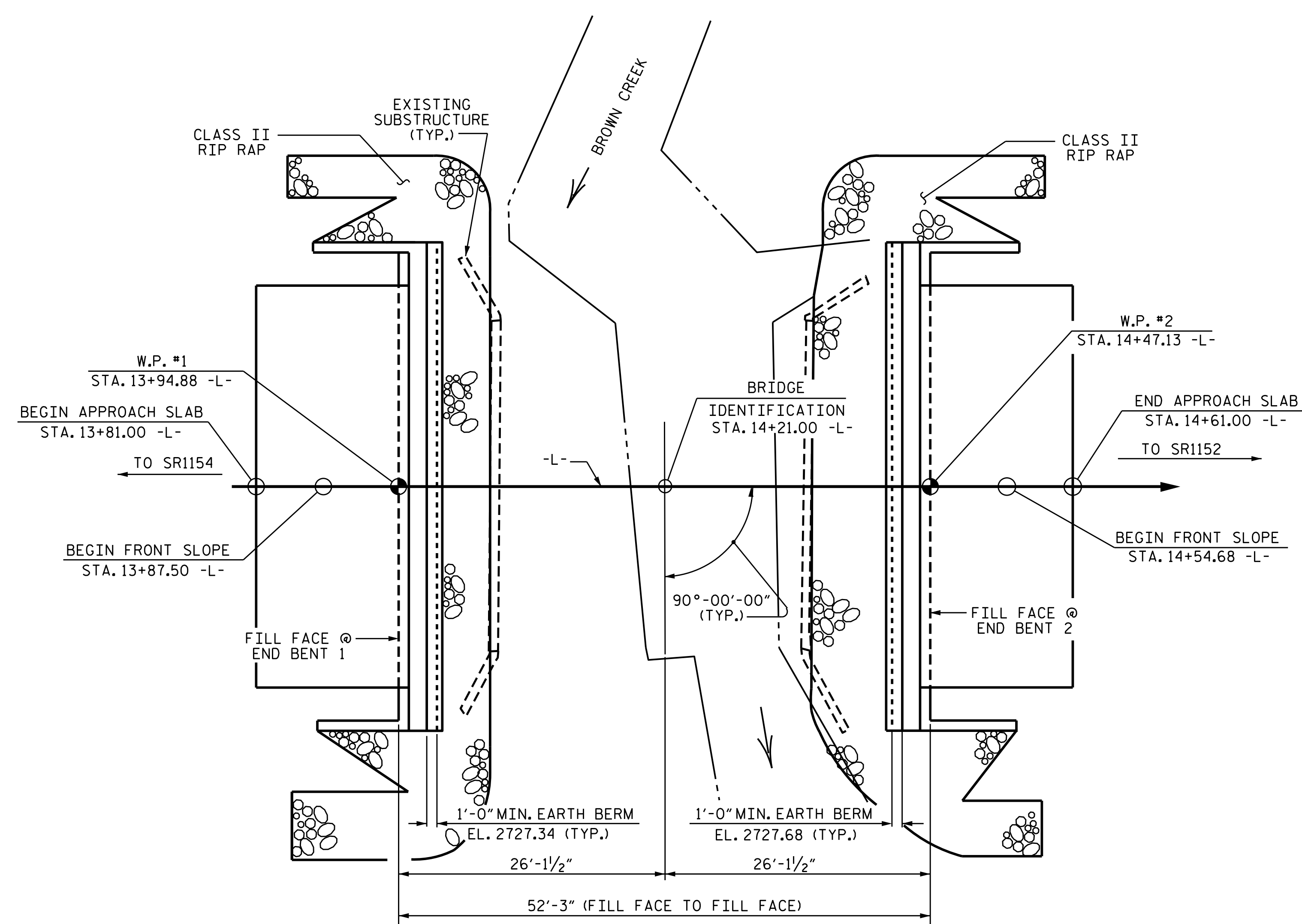
13+50 14+00 14+50 15+00



SECTION ALONG -L-



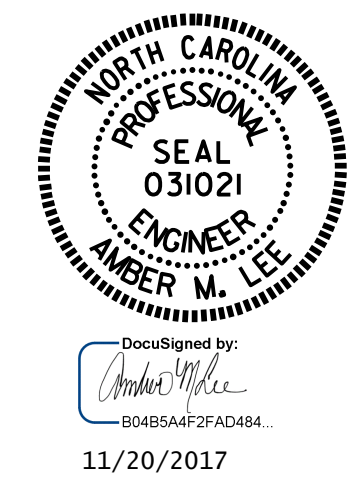
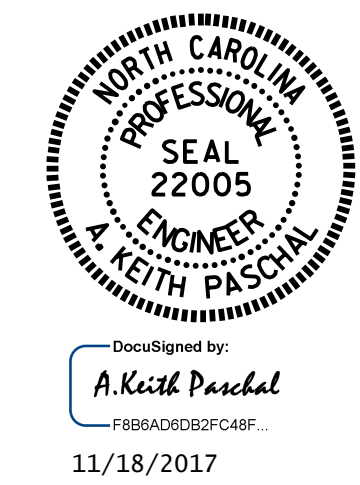
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN

PILES ARE NOT SHOWN FOR CLARITY

DRAWN BY : H. T. BARBOUR DATE : 4-10-17
 CHECKED BY : A.M. LEE DATE : 10-9-2017



PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

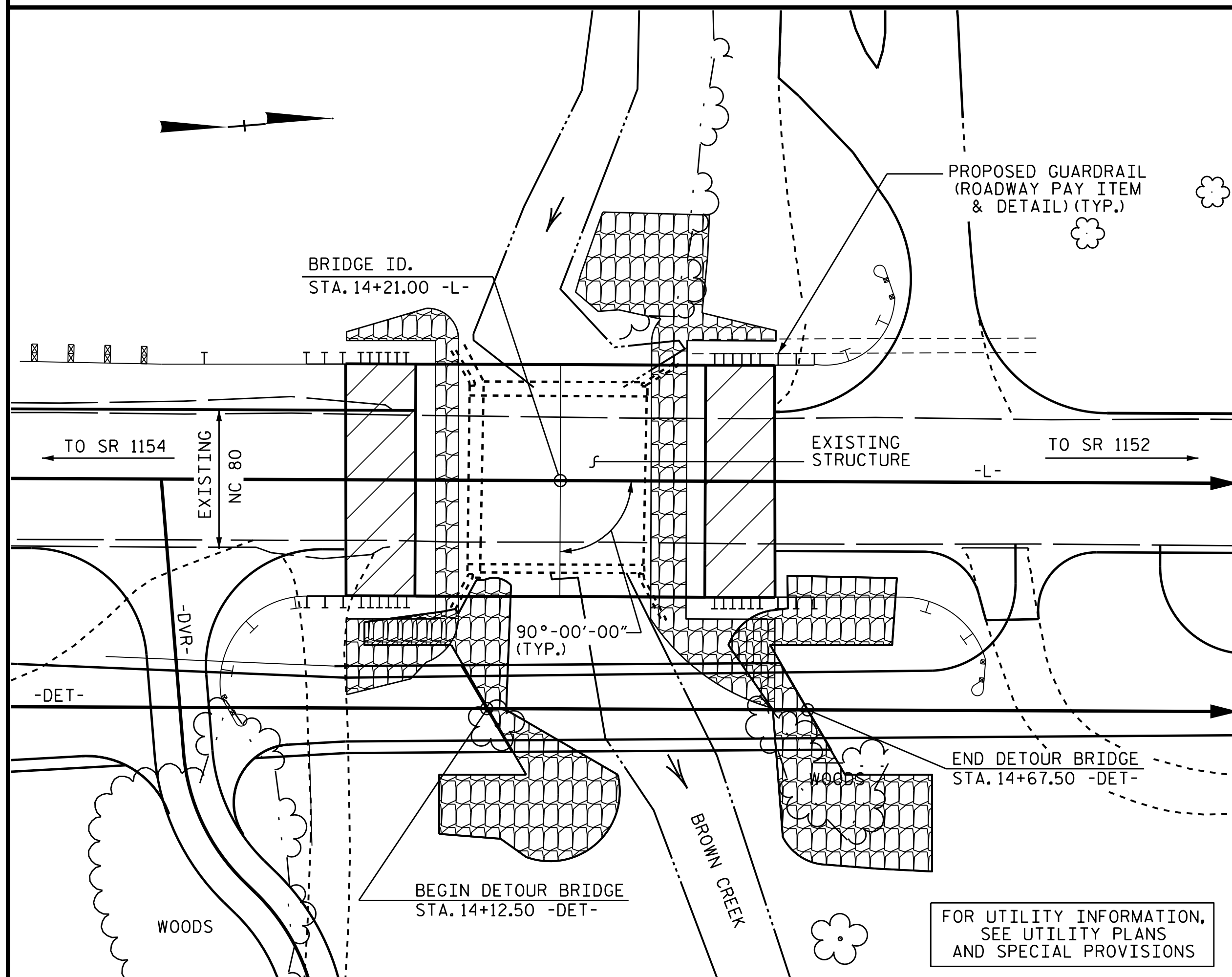
SHEET 1 OF 2 REPLACES BRIDGE No. 49

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 BROWN CREEK
 ON NC 80 BETWEEN
 SR 1154 AND SR 1152

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

B.M. #1: 8" SPIKE IN 36" POPLAR STA. 14+29.00 -L-, 35' LEFT, EL. 2731.76



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 30'-6", WITH A CLEAR ROADWAY WIDTH OF 29'-3" AND A 9" ASPHALT FLOOR ON REINFORCED CONCRETE SPANDREL ARCH WIDENED EACH SIDE WITH REINFORCED CONCRETE FLOOR ON 3 LINES OF 12" I-BEAMS @ VARIABLE CTS., WITH REINFORCED CONCRETE ABUTMENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS NOT PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT LEFT AND 30 FT RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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 14+21.00 -L-."

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

FOR 42" OREGON RAIL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STA. 14+40.00 -DET- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE.....950 C.F.S.
 FREQUENCY OF DESIGN FLOOD.....50 YEARS
 DESIGN HIGH WATER ELEVATION.....2732.8
 DRAINAGE AREA.....2.6 SQ. MI.
 BASE DISCHARGE(Q100).....1100 C.F.S.
 BASE HIGH WATER ELEVATION.....2733.3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE.....2120 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD.....500 + YRS.
 OVERTOPPING FLOOD ELEVATION.....2734.7
 SAG @ STA. 13+55.31 -L-

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 80 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 133 TONS PER PILE.

PILE EXCAVATION IS REQUIRED TO INSTALL THE PILES AT END BENT 1. EXCAVATE HOLES AT PILE LOCATIONS TO 2721 FT (LT) AND 2718 FT (RT), RESPECTIVELY. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATION.

CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION.

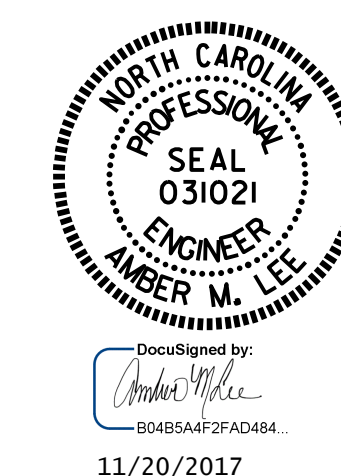
STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SET UP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	ASBESTOS ASSESSMENT	42" OREGON RAIL			
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EA.	NO.	LIN. FT.	EA.	TONS	SO. YDS.	LUMP SUM	NO.	LIN. FT.	LUMP SUM	LIN. FT.	
SUPERSTRUCTURE							LUMP SUM								LUMP SUM	14	700.00		100.00	
END BENT NO. 1			28	35	LUMP SUM	25.4		3104	7	7	90		105	115						
END BENT NO. 2					LUMP SUM	25.4		3104	7	7	110	7	120	135						
TOTAL	LUMP SUM	LUMP SUM	28	35	LUMP SUM	50.8	LUMP SUM	6208	14	14	200	7	225	250	LUMP SUM	14	700.00	LUMP SUM	100.00	

PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 BROWN CREEK
 ON NC 80 BETWEEN
 SR 1154 AND SR 1152

DRAWN BY : H. T. BARBOUR DATE : 4-10-17
 CHECKED BY : A. M. LEE DATE : 10-9-17

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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

LOAD FACTORS:

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

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			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.394	--	1.75	0.276	1.57	50'	EL	24.5	0.531	1.39	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5		
	HL-93(0pr)	N/A	--	1.807	--	1.35	0.276	2.03	50'	EL	24.5	0.531	1.81	50'	EL	2.45	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.667	60.007	1.75	0.276	1.95	50'	EL	24.5	0.531	1.67	50'	EL	2.45	0.80	0.276	1.79	50'	EL	24.5		
	HS-20(0pr)	36.000	--	2.161	77.787	1.35	0.276	2.52	50'	EL	24.5	0.531	2.16	50'	EL	2.45	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.635	49.079	1.40	0.276	4.95	50'	EL	24.5	0.531	4.70	50'	EL	2.45	0.80	0.276	3.64	50'	EL	24.5	
		SNGARBS2	20.000	--	2.871	57.420	1.40	0.276	3.91	50'	EL	24.5	0.531	3.42	50'	EL	2.45	0.80	0.276	2.87	50'	EL	24.5	
		SNAGRIS2	22.000	--	2.778	61.109	1.40	0.276	3.78	50'	EL	19.6	0.531	3.21	50'	EL	2.45	0.80	0.276	2.78	50'	EL	24.5	
		SNCOTTS3	27.250	--	1.814	49.418	1.40	0.276	2.47	50'	EL	24.5	0.531	2.36	50'	EL	2.45	0.80	0.276	1.81	50'	EL	24.5	
		SNAGGRS4	34.925	--	1.577	55.063	1.40	0.276	2.15	50'	EL	24.5	0.531	2.01	50'	EL	2.45	0.80	0.276	1.58	50'	EL	24.5	
		SNS5A	35.550	--	1.537	54.657	1.40	0.276	2.09	50'	EL	24.5	0.531	2.07	50'	EL	2.45	0.80	0.276	1.54	50'	EL	24.5	
		SNS6A	39.950	--	1.438	57.430	1.40	0.276	1.96	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5	
	SNS7B	42.000	--	1.370	57.540	1.40	0.276	1.87	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.37	50'	EL	24.5		
	TTST	TNAGRIT3	33.000	--	1.761	58.118	1.40	0.276	2.40	50'	EL	24.5	0.531	2.25	50'	EL	2.45	0.80	0.276	1.76	50'	EL	24.5	
		TNT4A	33.075	--	1.777	58.759	1.40	0.276	2.42	50'	EL	24.5	0.531	2.17	50'	EL	2.45	0.80	0.276	1.78	50'	EL	24.5	
		TNT6A	41.600	--	1.480	61.558	1.40	0.276	2.01	50'	EL	24.5	0.531	2.08	50'	EL	2.45	0.80	0.276	1.48	50'	EL	24.5	
		TNT7A	42.000	--	1.502	63.087	1.40	0.276	2.05	50'	EL	24.5	0.531	1.94	50'	EL	2.45	0.80	0.276	1.50	50'	EL	24.5	
		TNT7B	42.000	--	1.566	65.773	1.40	0.276	2.13	50'	EL	24.5	0.531	1.84	50'	EL	2.45	0.80	0.276	1.57	50'	EL	24.5	
		TNAGRIT4	43.000	--	1.486	63.902	1.40	0.276	2.02	50'	EL	24.5	0.531	1.77	50'	EL	2.45	0.80	0.276	1.49	50'	EL	24.5	
TNAGT5A		45.000	--	1.388	62.470	1.40	0.276	1.89	50'	EL	24.5	0.531	1.80	50'	EL	2.45	0.80	0.276	1.39	50'	EL	24.5		
TNAGT5B	45.000	3	1.360	61.206	1.40	0.276	1.85	50'	EL	24.5	0.531	1.68	50'	EL	2.45	0.80	0.276	1.36	50'	EL	24.5			

NOTES:

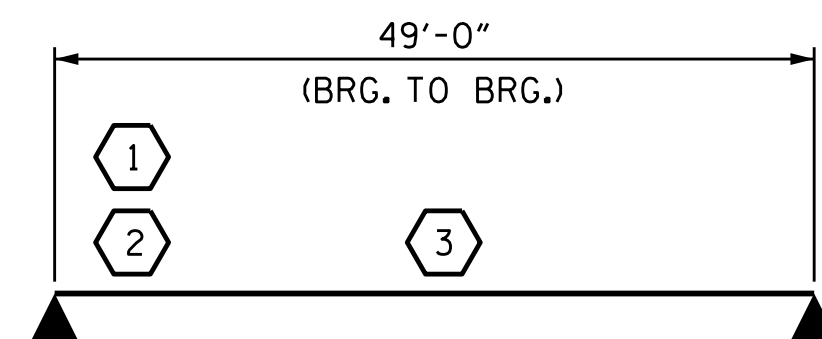
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

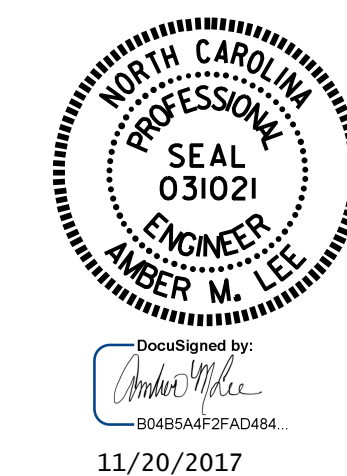
- 1.
- 2.
- 3.
- 4.

#	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	



LRFR SUMMARY
FOR SPAN 'A'

PROJECT NO. B-5864
YANCEY COUNTY
STATION: 14+21.00 -L-



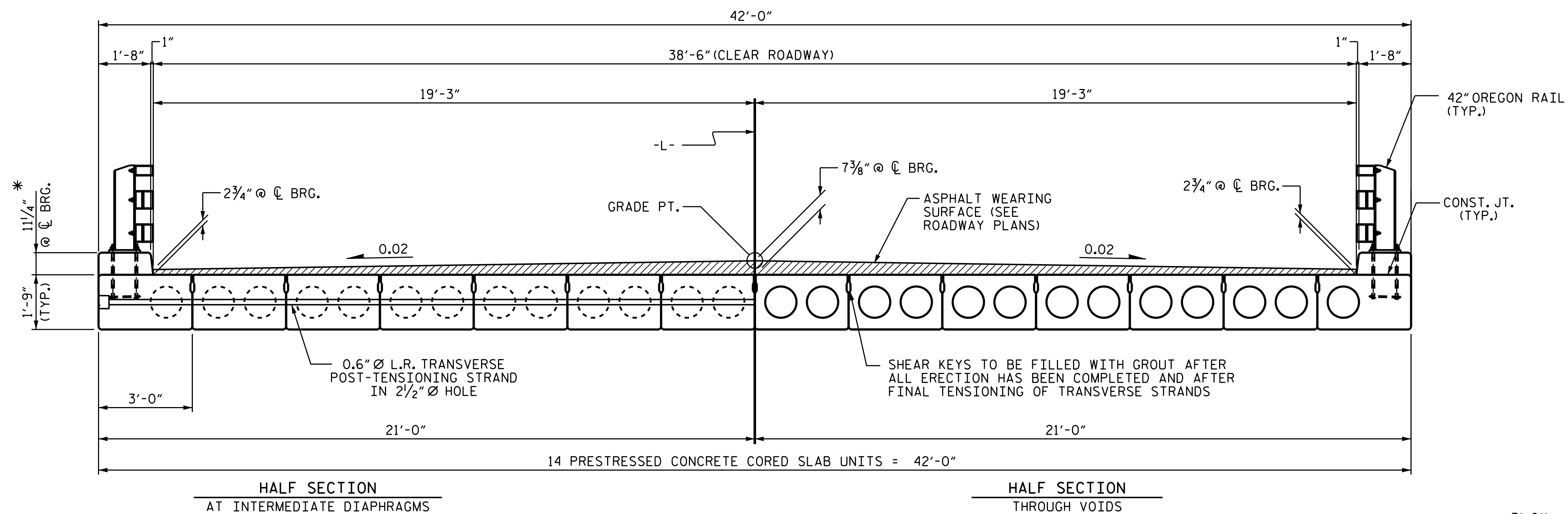
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
50' CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

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

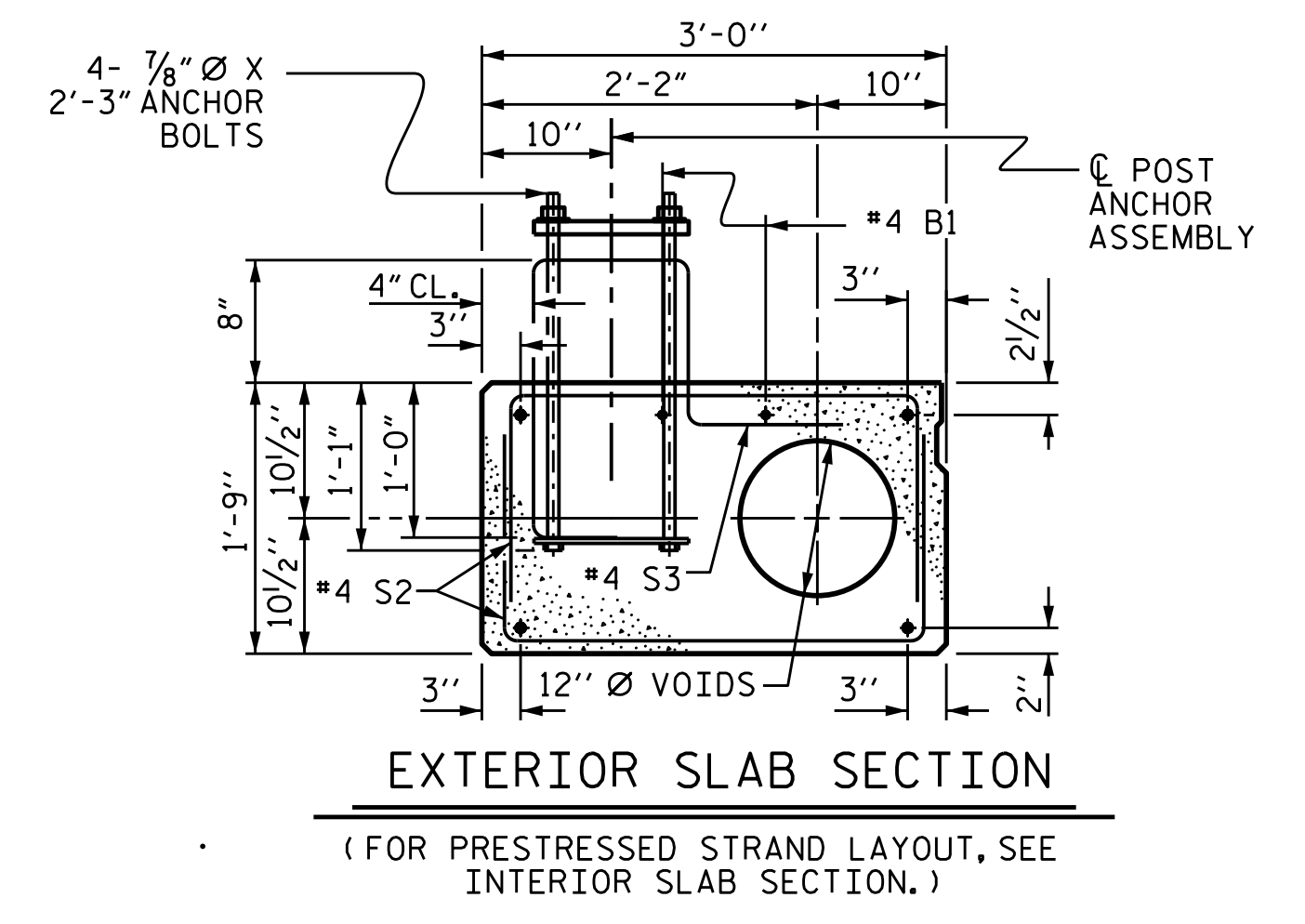
ASSEMBLED BY : E. K. POPE DATE : 1/12/17
CHECKED BY : H. A. LOCKLEAR DATE : 1/25/17
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

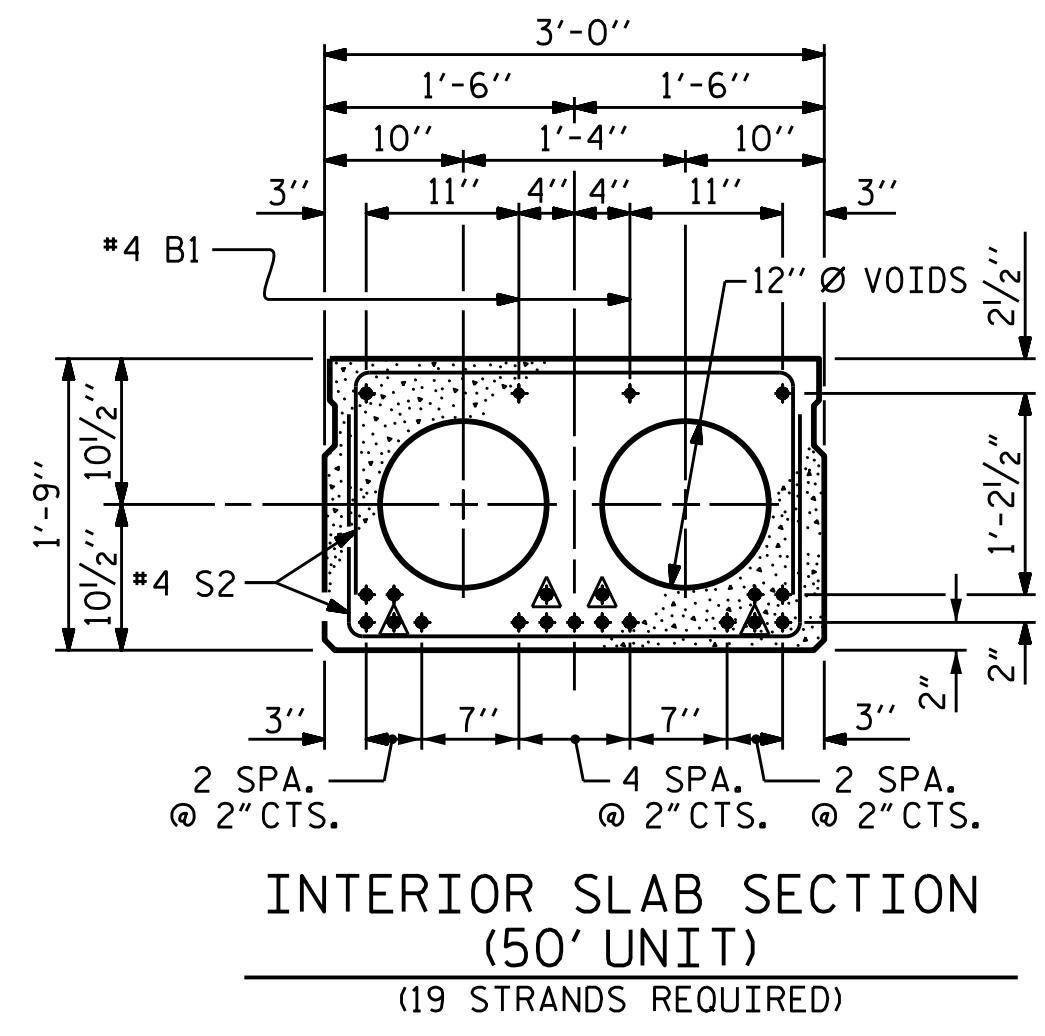


HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 TYPICAL SECTION
 HALF SECTION THROUGH VOIDS

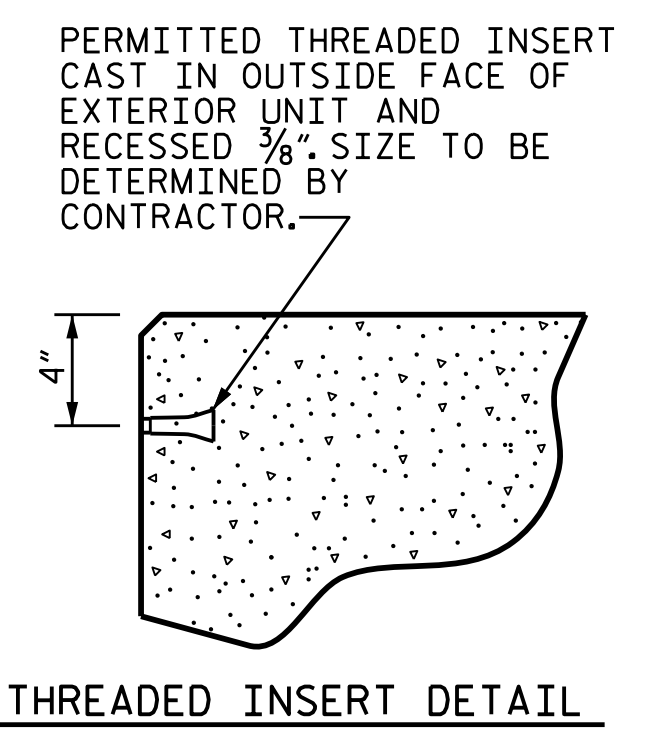
* - THE MAXIMUM CURB HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE CURB AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE CURB FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR "GUTTERLINE ASPHALT THICKNESS & CURB HEIGHT" DETAILS, SEE SHEET 4 OF 4.



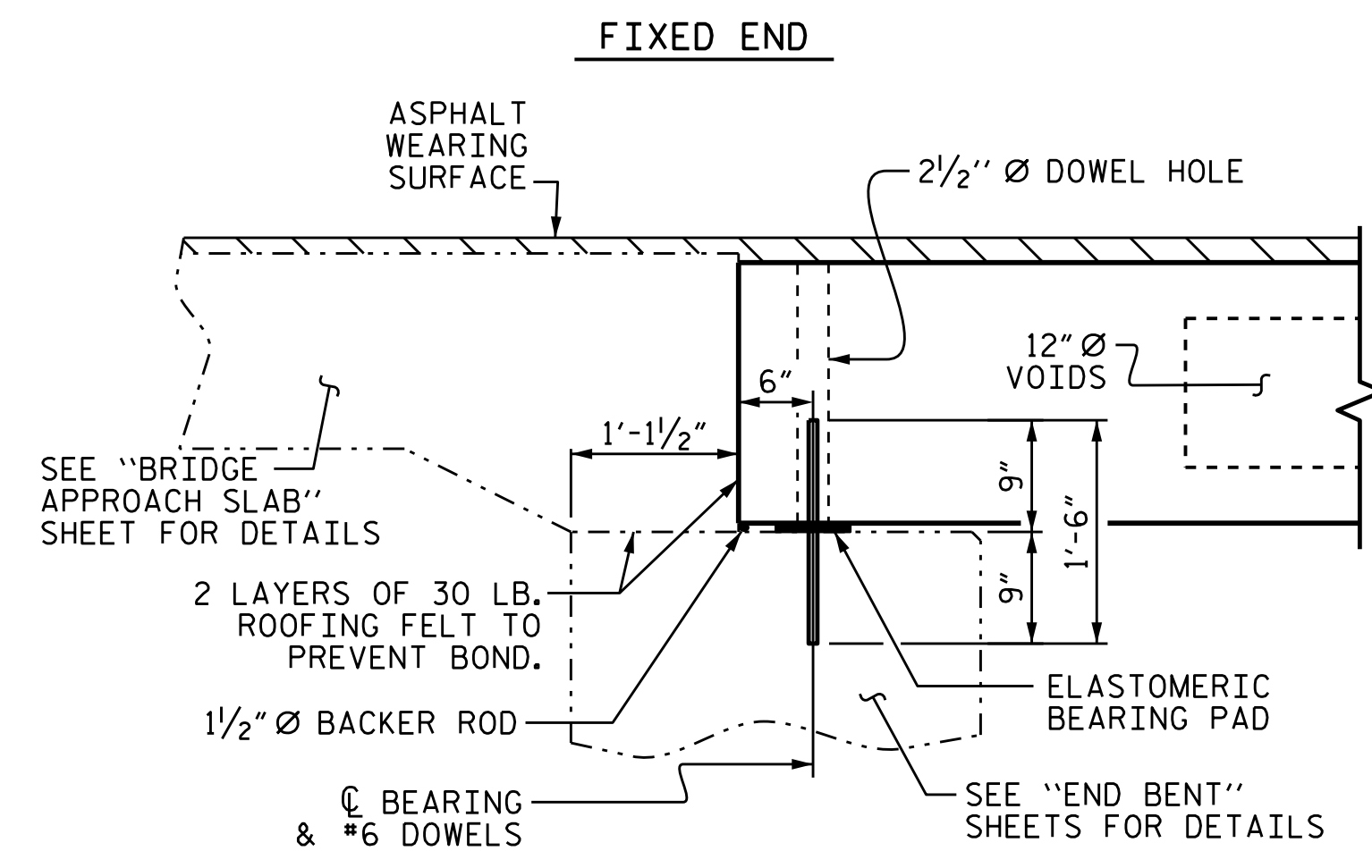
EXTERIOR SLAB SECTION
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (50' UNIT)
 (19 STRANDS REQUIRED)



THREADED INSERT DETAIL

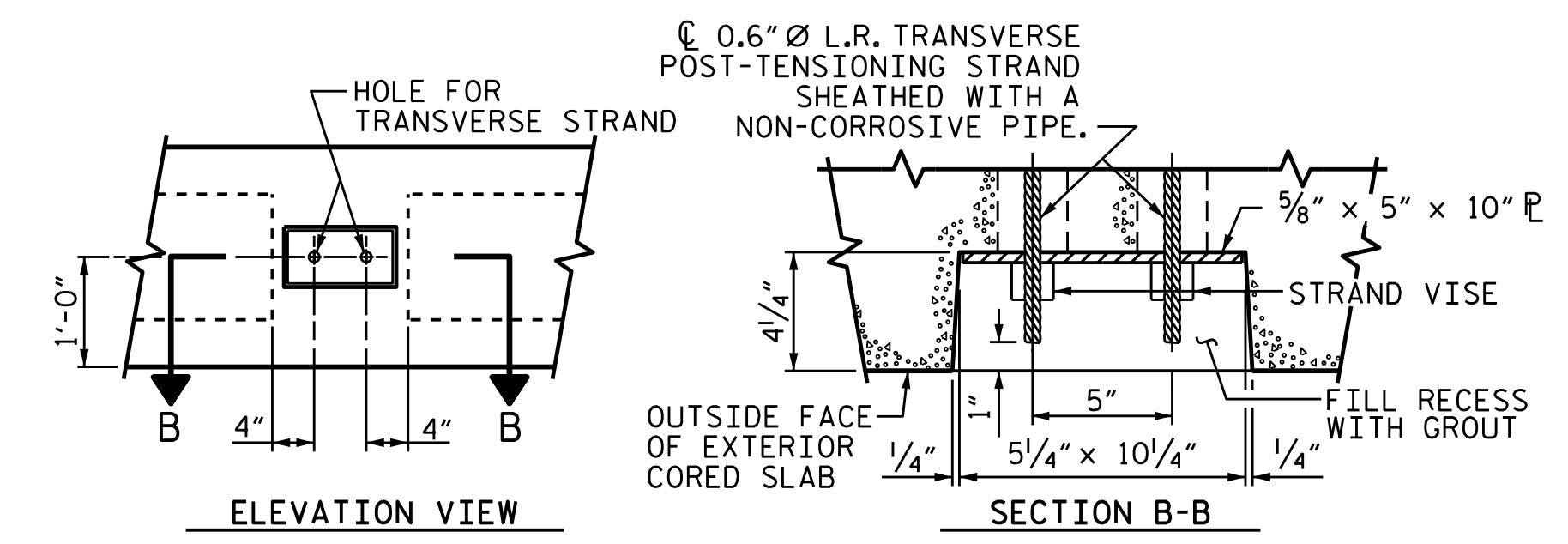


SECTION AT END BENT

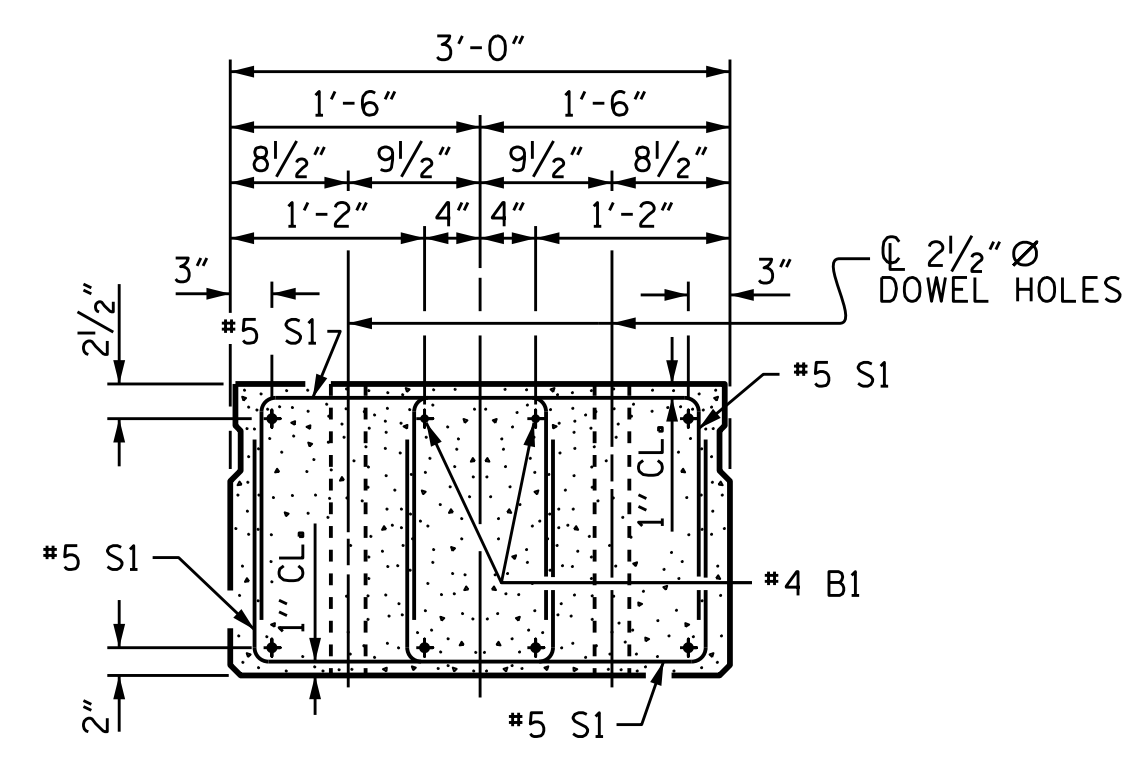
0.6" Ø LOW RELAXATION STRAND LAYOUT

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

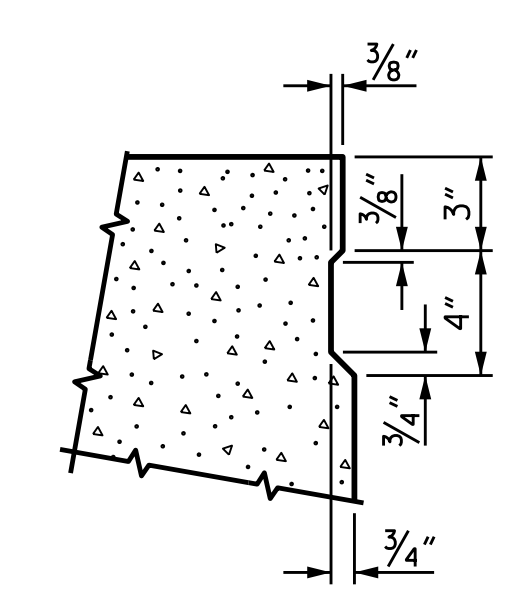


GROUTED RECESS AT END OF POST-TENSION STRAND CORED SLABS



END ELEVATION

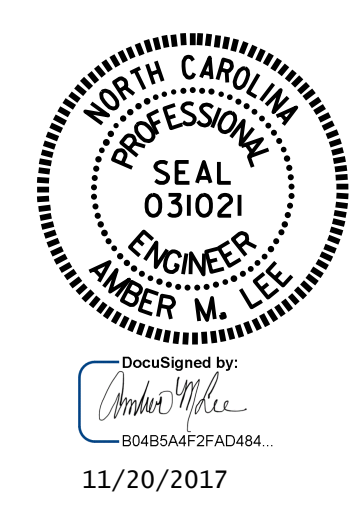
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



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

PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

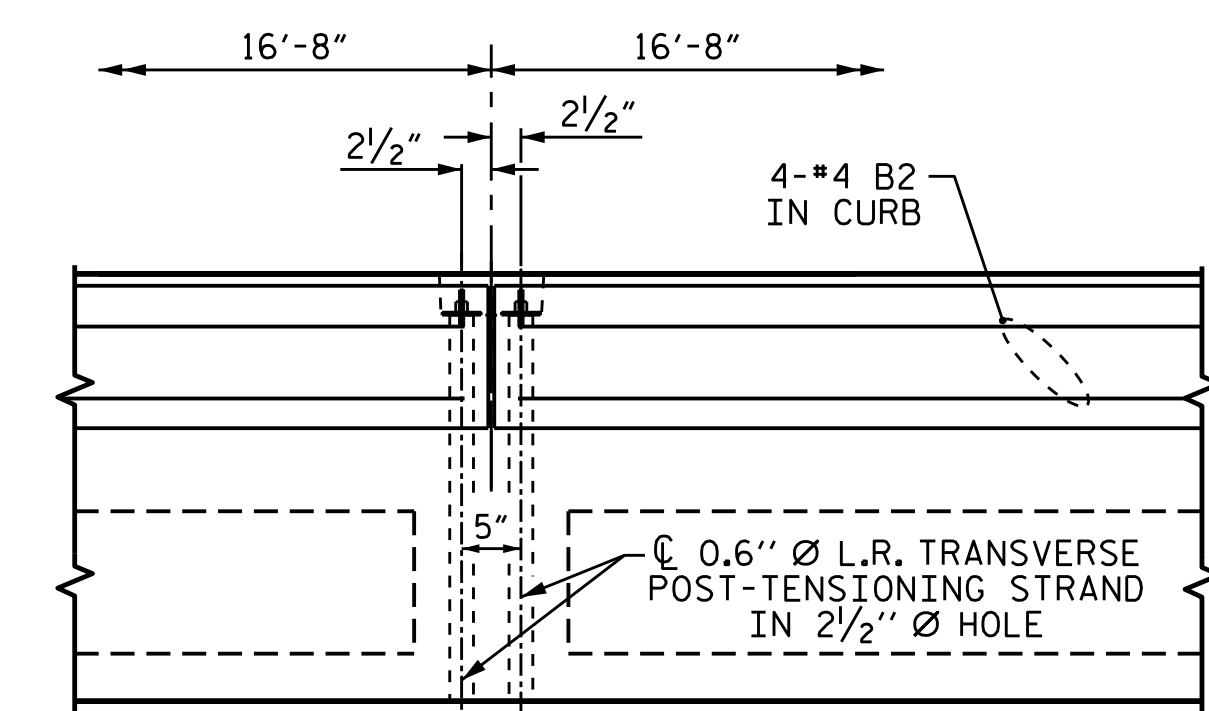
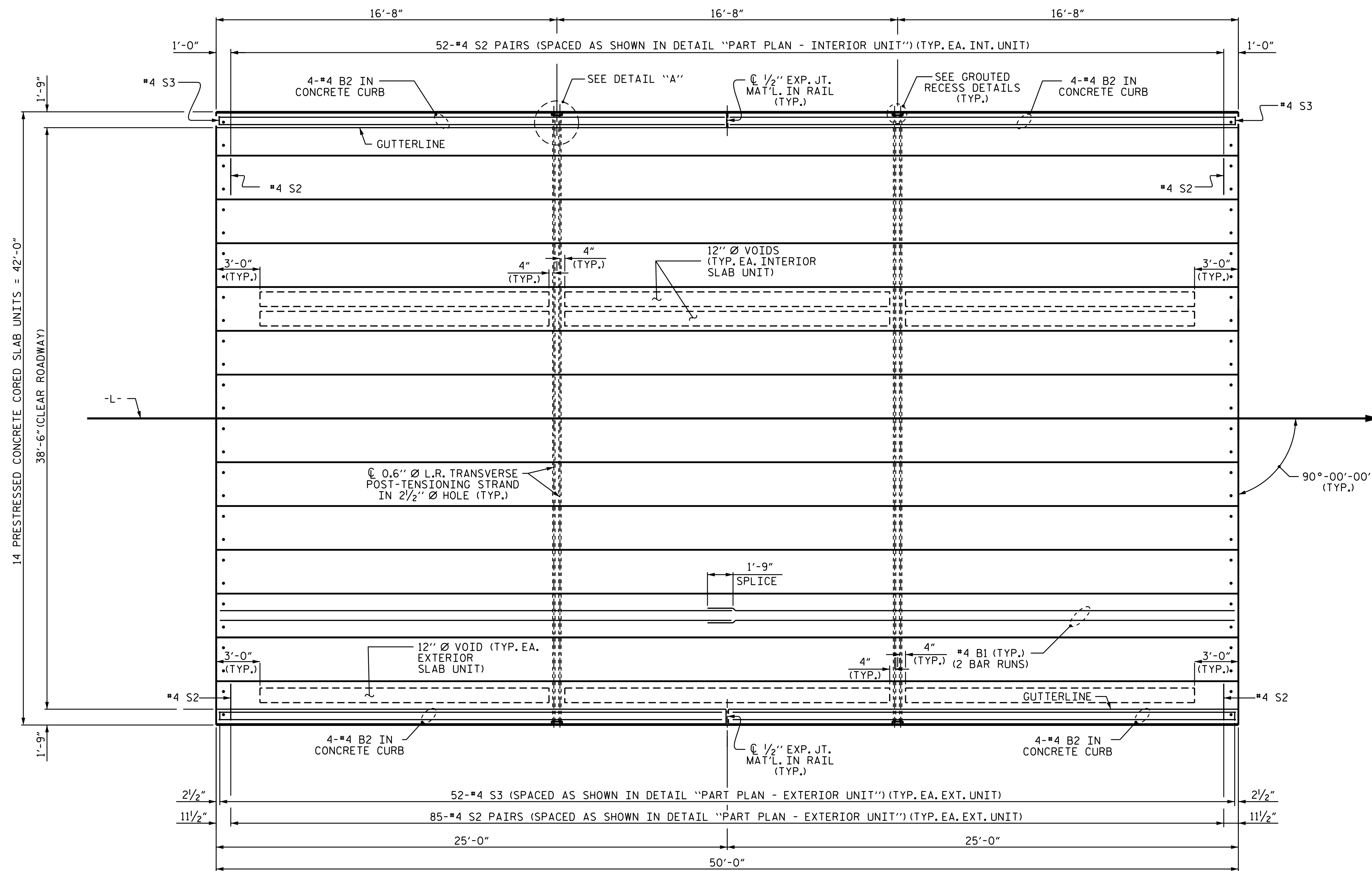
SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

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

ASSEMBLED BY : E. K. POPE	DATE : 1/12/17
CHECKED BY : H. A. LOCKLEAR	DATE : 1/25/17
DRAWN BY : DGE	5/09
CHECKED BY : BCH	6/09
REV. 9/14	MAA/TMG

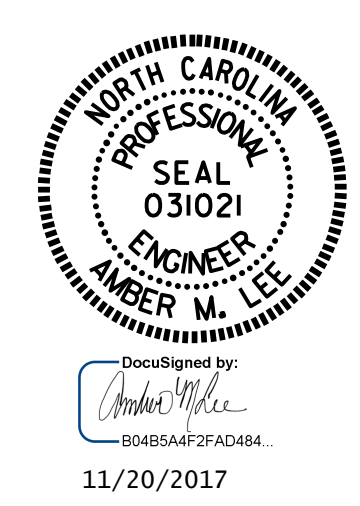


DETAIL "A"
 *4 S2 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PLAN OF UNIT

PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

SHEET 2 OF 4

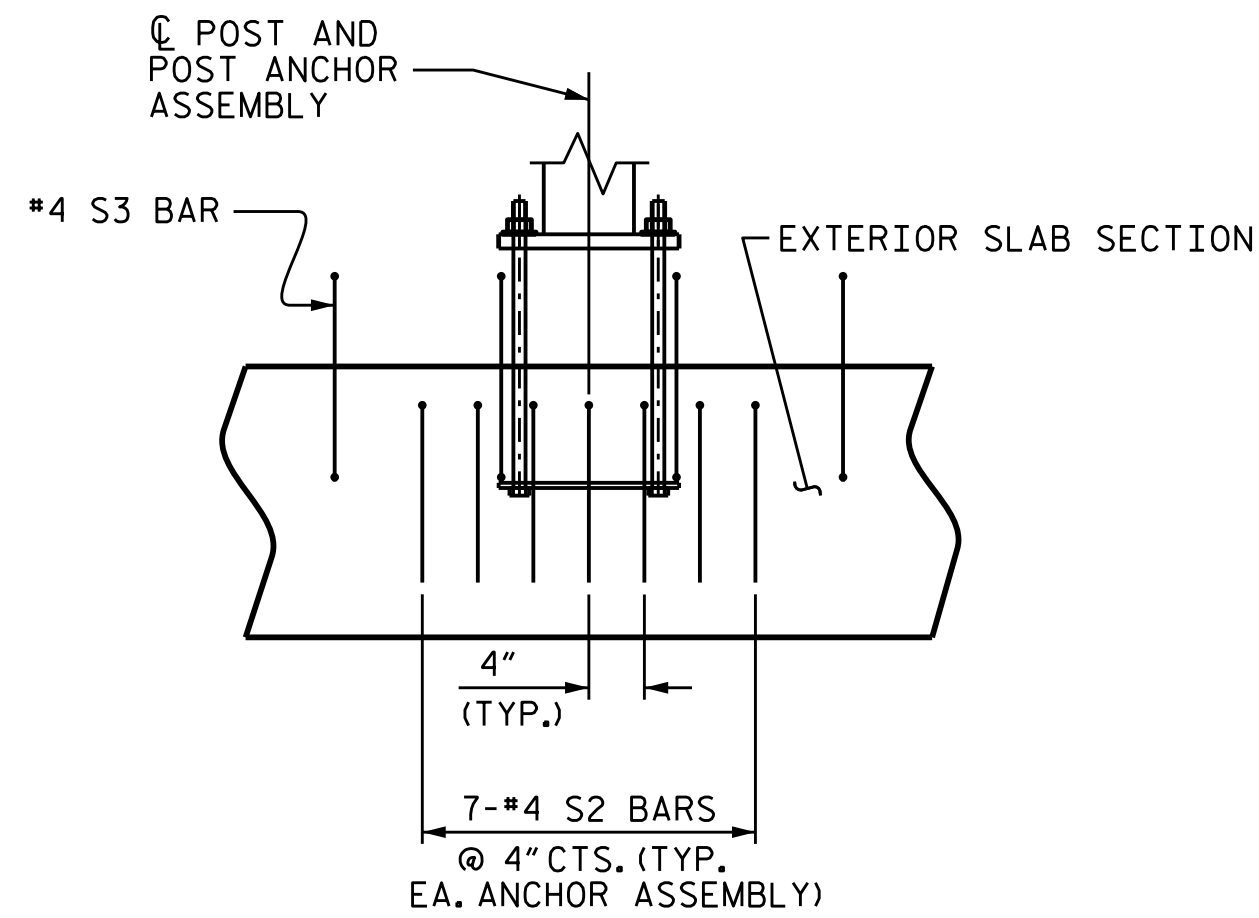


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
PLAN OF 50' UNIT
38'-6" CLEAR ROADWAY
90° SKEW

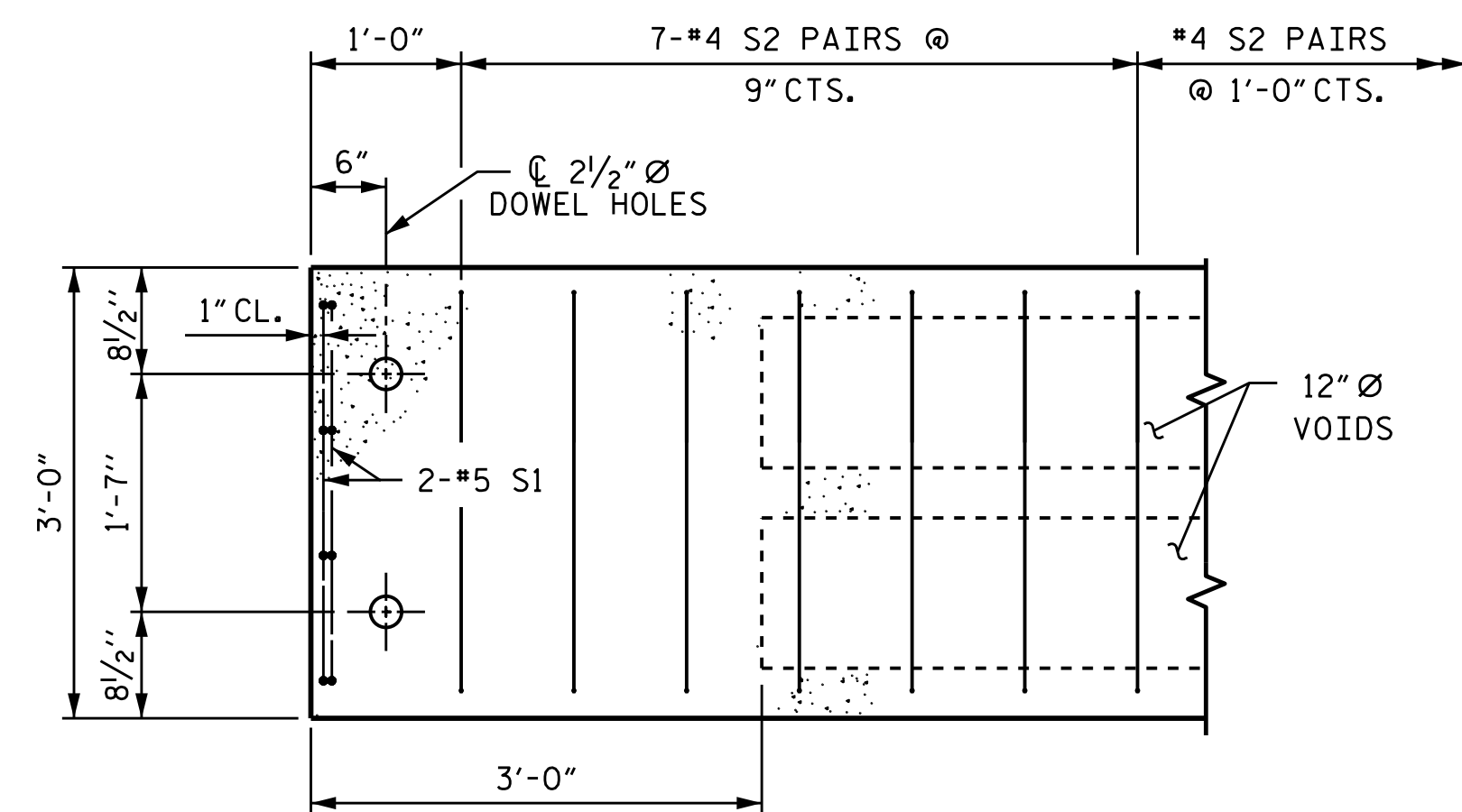
ASSEMBLED BY :	E. K. POPE	DATE :	1/12/17
CHECKED BY :	H. A. LOCKLEAR	DATE :	1/25/17
DRAWN BY :	MAA	6/10	REV. 12/5/11
CHECKED BY :	MKT	7/10	REV. 8/14

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:	DESCRIPTION		BY:	DATE:	DESCRIPTION	
1				3				S-5
2				4				

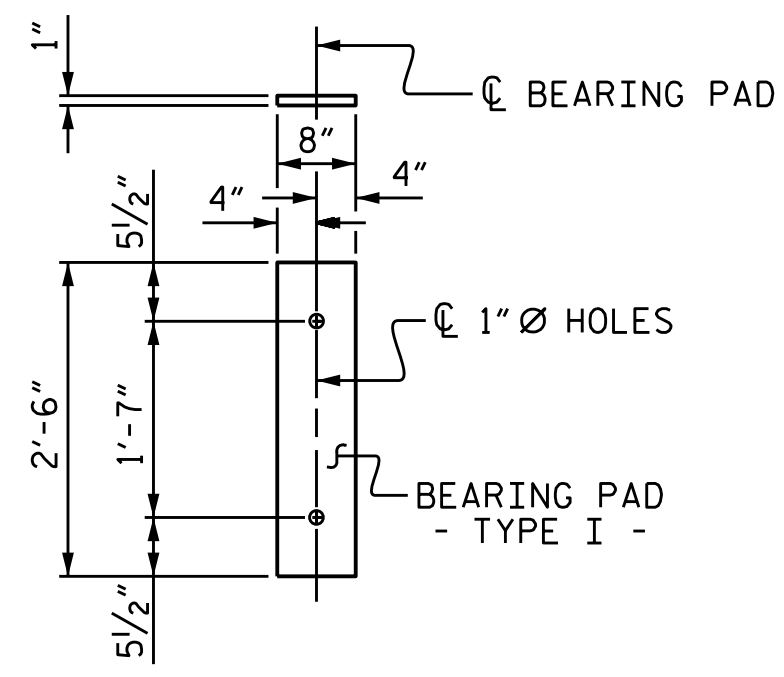
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



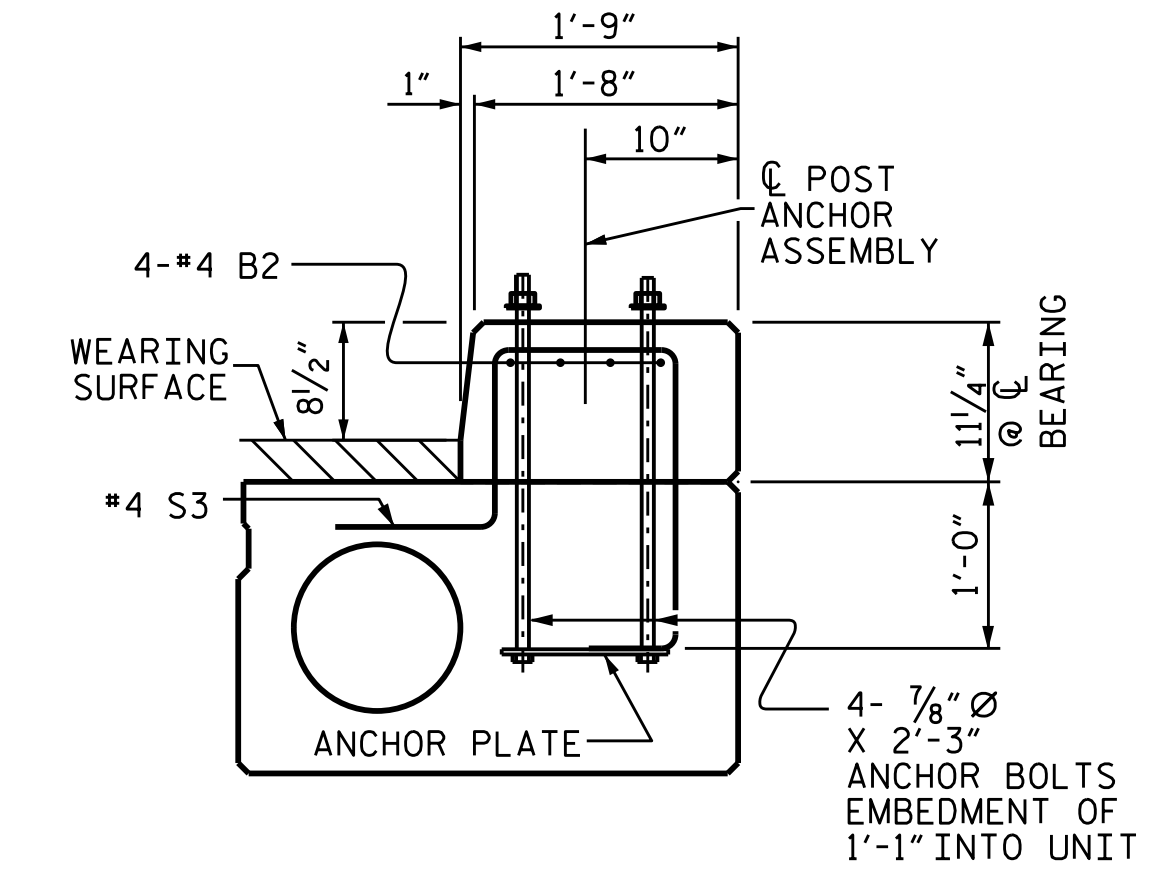
SIDE VIEW AT POST LOCATION
(SHOWING ADDITIONAL S2 BARS AT EACH POST ASSEMBLY)



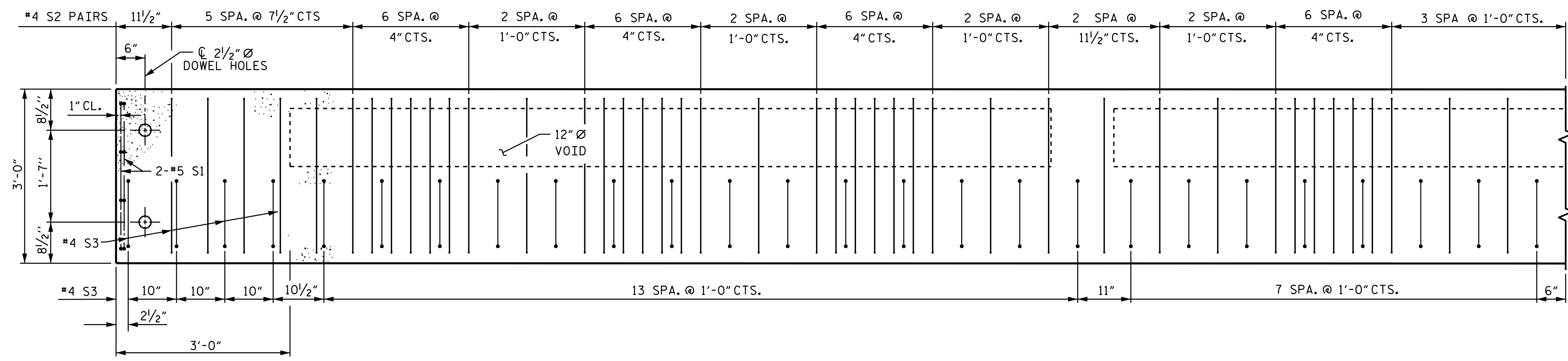
PART PLAN - INTERIOR UNIT
NOTE: TYPICAL EACH END OF UNIT



ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

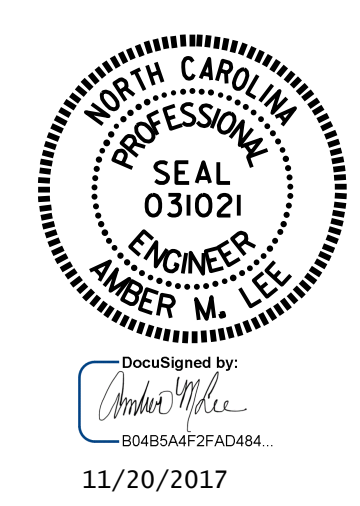


OREGON RAIL CURB SECTION



PART PLAN - EXTERIOR UNIT
NOTE: HALF OF CORED SLAB SHOWN, OTHER HALF IS SYMMETRICAL.

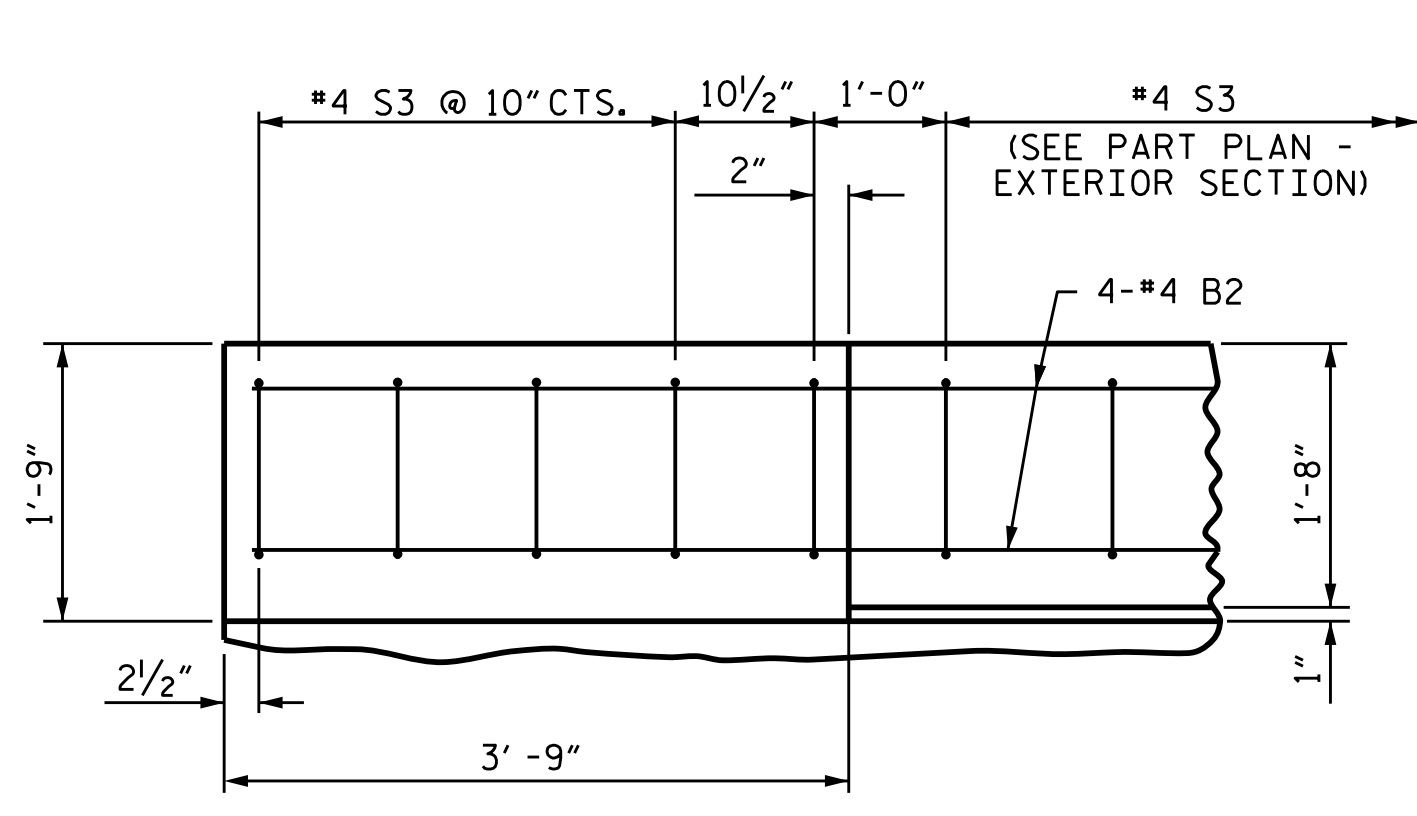
PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-
 SHEET 3 OF 4



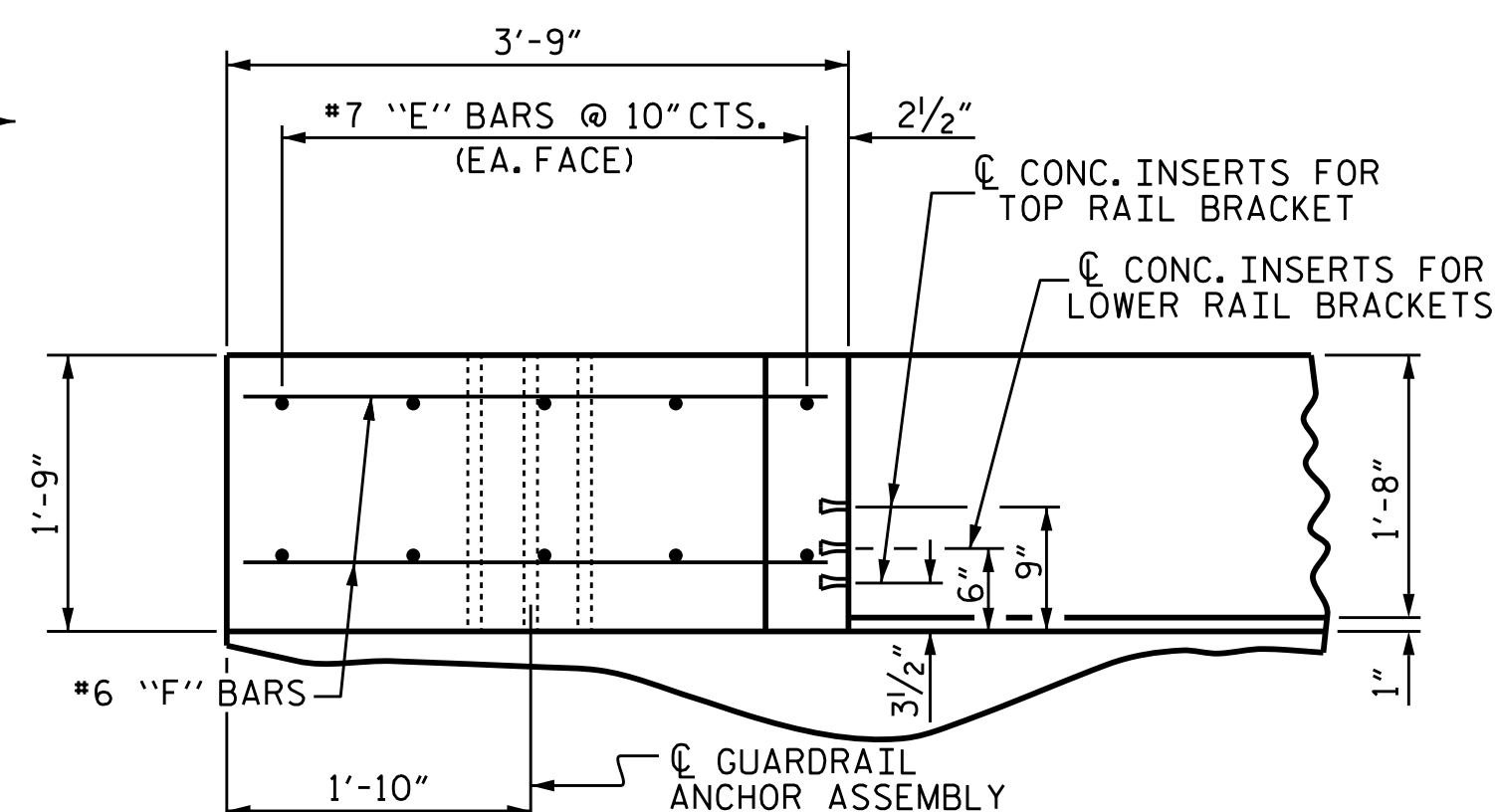
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

DRAWN BY : E. K. POPE DATE : 1/12/17
 CHECKED BY : H. A. LOCKLEAR DATE : 1/25/17

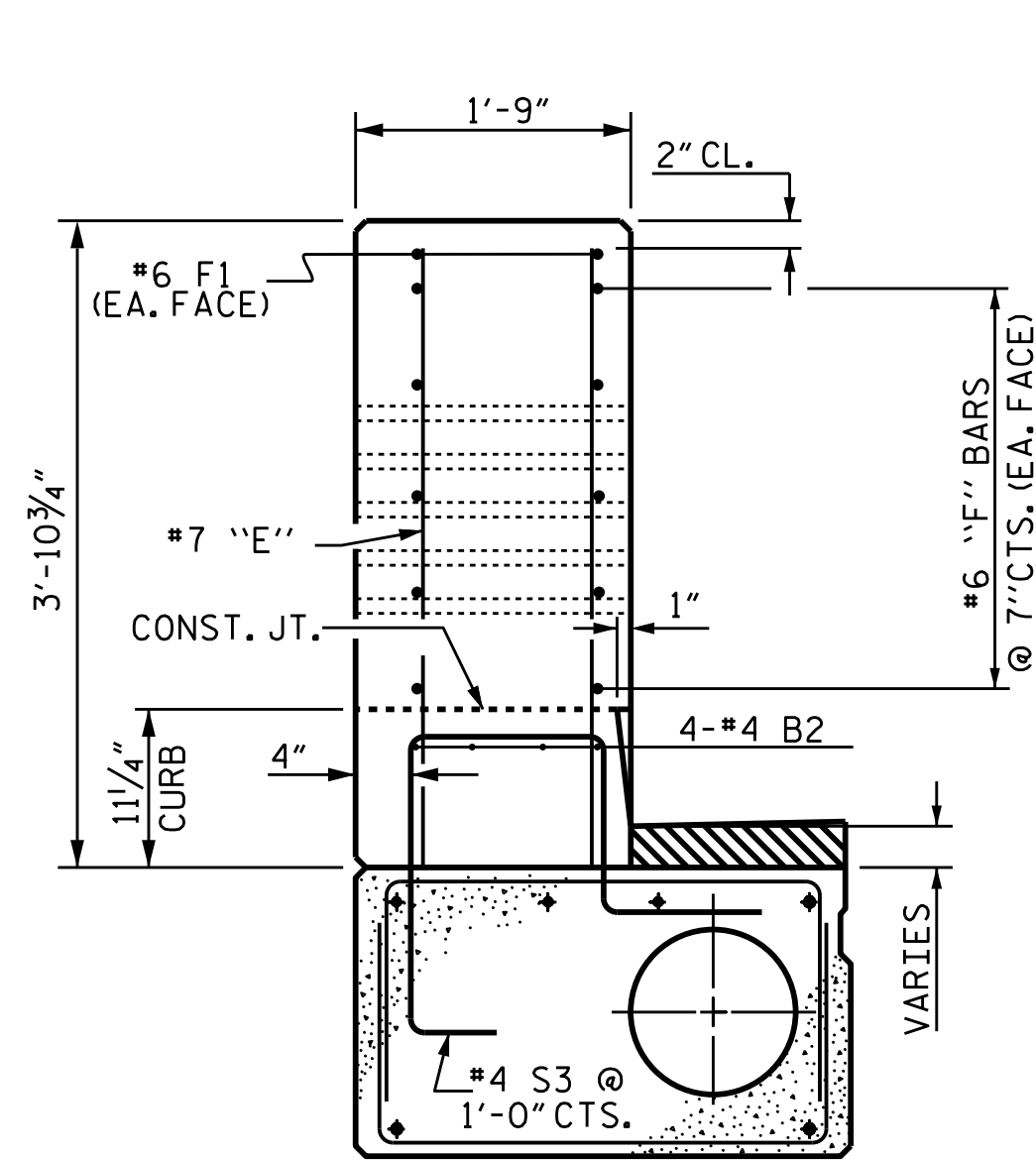
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			16



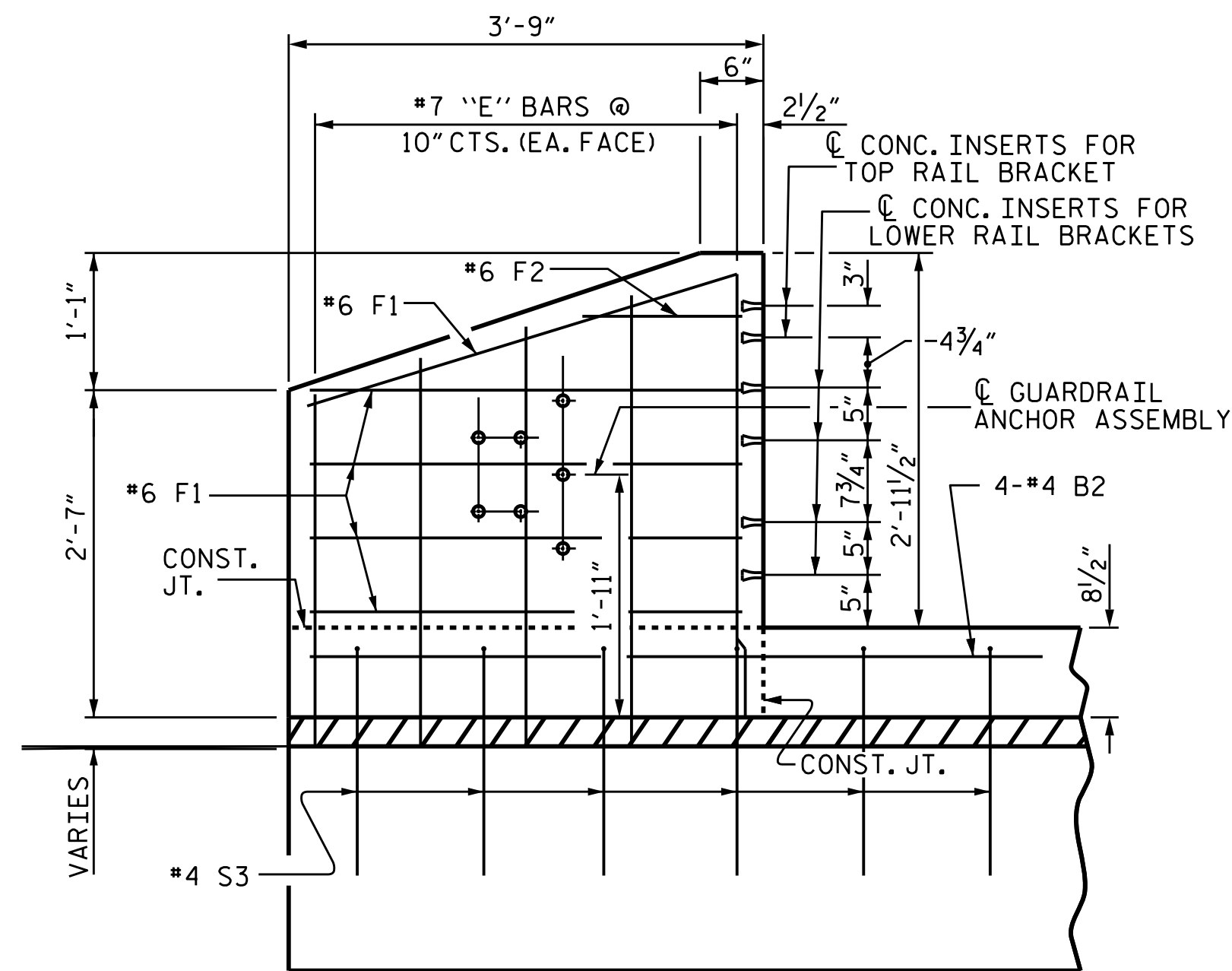
PLAN OF CURB



PLAN OF END POST



END VIEW



ELEVATION

CURB AND END POST FOR 42" OREGON RAIL

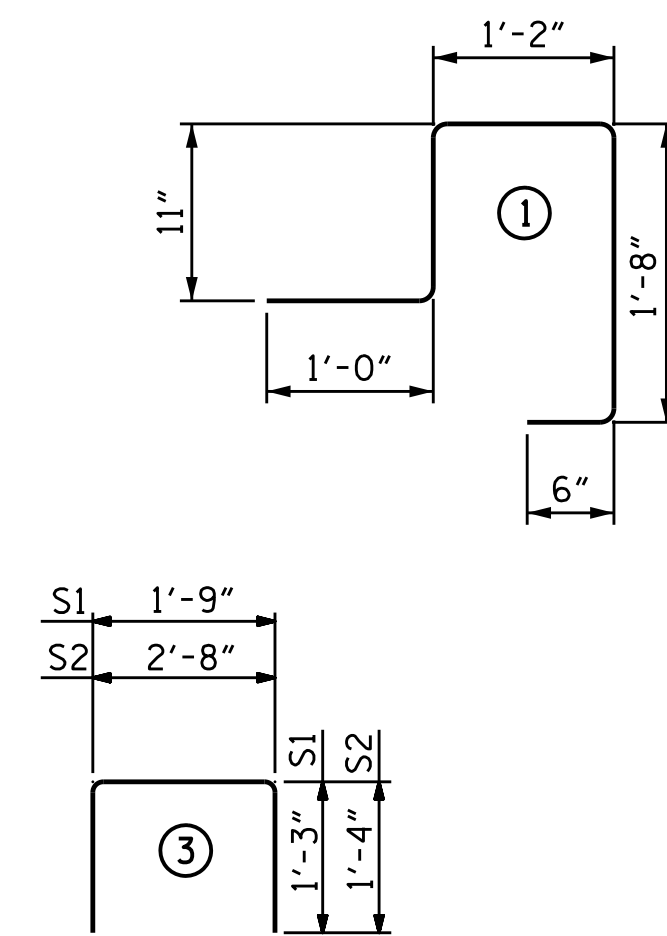
DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
50' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1 1/8" ↑

** INCLUDES FUTURE WEARING SURFACE

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

GUTTERLINE ASPHALT THICKNESS & CURB HEIGHT		
	ASPHALT OVERLAY THICKNESS	CURB HEIGHT
	@ MID-SPAN	@ MID-SPAN
50' UNITS	1 5/8"	10 1/8"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
			LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	25'-9"	69	69
S1	8	#5	3	4'-3"	35	35
S2	170	#4	3	5'-4"	606	
S2	104	#4	3			371
*S3	52	#4	1	5'-3"	182	
REINFORCING STEEL			LBS.	710		475
*EPOXY COATED REINFORCING STEEL			LBS.	182		
6500 P.S.I. CONCRETE			CU. YDS.	8.5		7.3
0.6" Ø L.R. STRANDS			No.	19		19

BILL OF MATERIAL FOR CURB & END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	16	#4	STR	24'-8"	264
*E1	8	#7	STR	2'-8"	44
*E2	8	#7	STR	3'-0"	49
*E3	8	#7	STR	3'-3"	53
*E4	8	#7	STR	3'-6"	57
*E5	8	#7	STR	3'-8"	60
*F1	40	#6	STR	3'-5"	205
*F2	8	#6	STR	1'-3"	15
*EPOXY COATED REINFORCING STEEL			LBS.	747	
CLASS AA CONCRETE			CU. YDS.	8.5	
TOTAL LIN. FT. OF CONCRETE CURB					100.00

CORED SLABS REQUIRED

50' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	50'-0"	100'-0"
INTERIOR C.S.	12	50'-0"	600'-0"
TOTAL	14		700'-0"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
50' UNITS	4900

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.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL 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 CURB AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN CURB EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF CURB SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

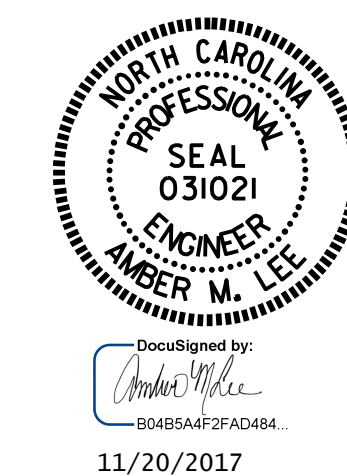
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

THE COST OF THE METAL RAIL ANCHOR ASSEMBLY CAST WITH THE CORED SLAB SECTIONS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

SHEET 4 OF 4

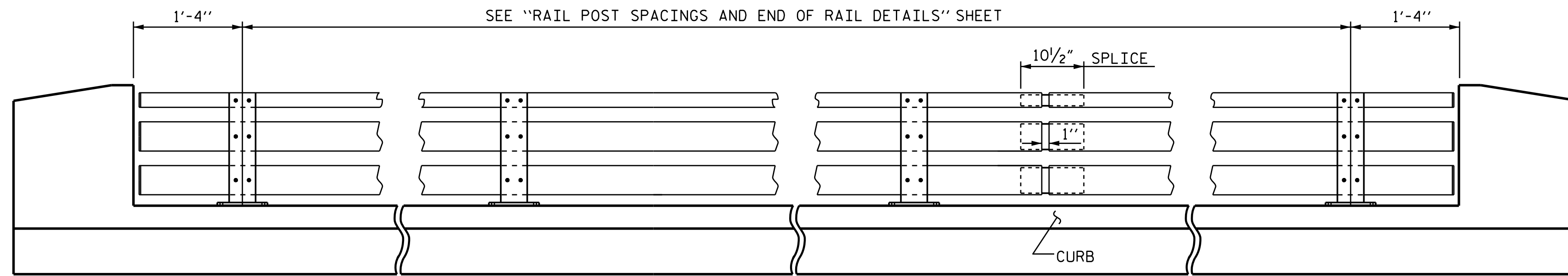


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 16
2			4			

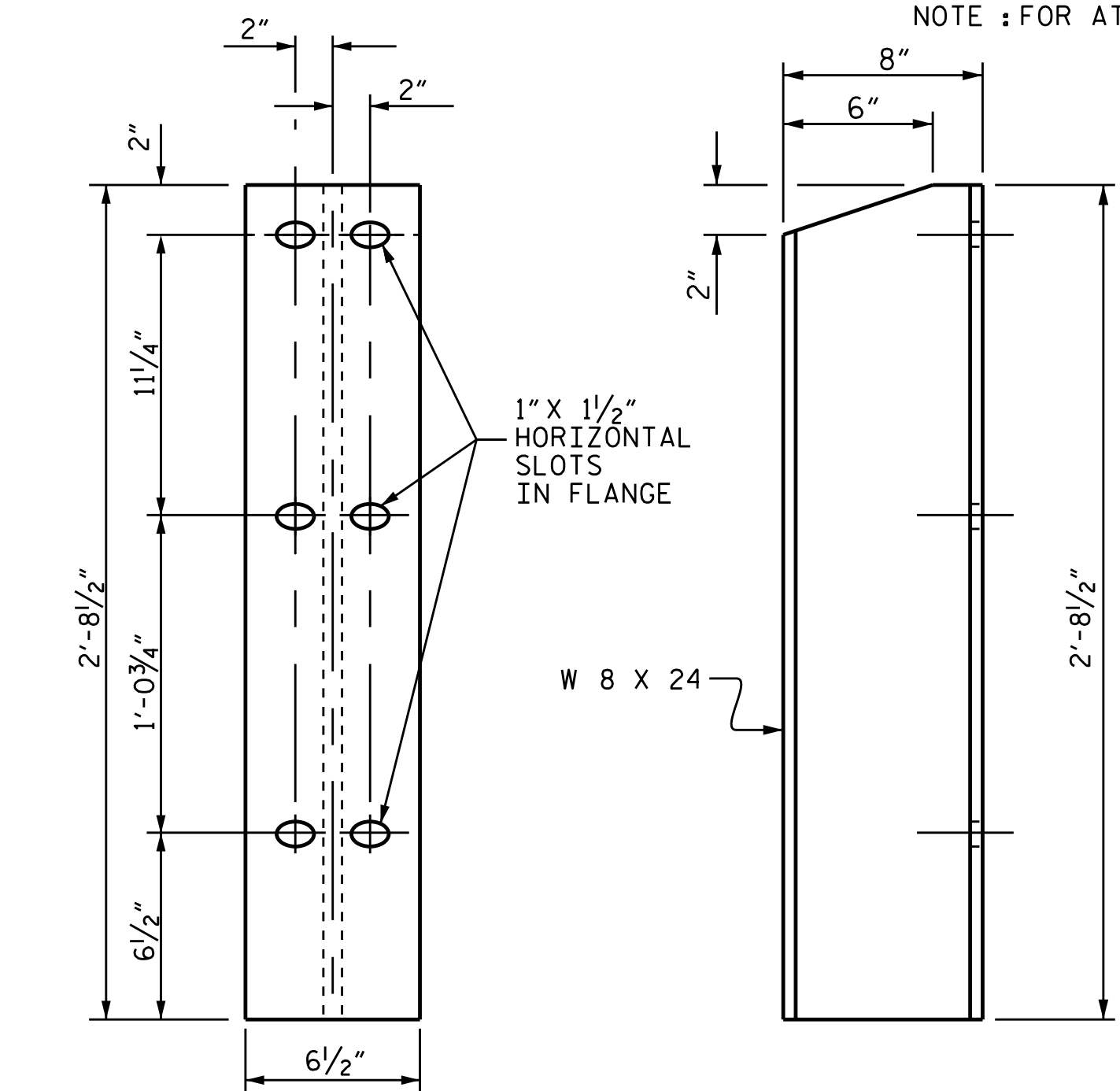
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : E. K. POPE DATE : 1/12/17
 CHECKED BY : H. A. LOCKLEAR DATE : 1/25/17
 DRAWN BY : WJH 4/89 REV. 10/12 MAA/GM
 CHECKED BY : FCJ 5/89 REV. 6/13 MAA/GM
 REV. 1/15 RWW/TMG

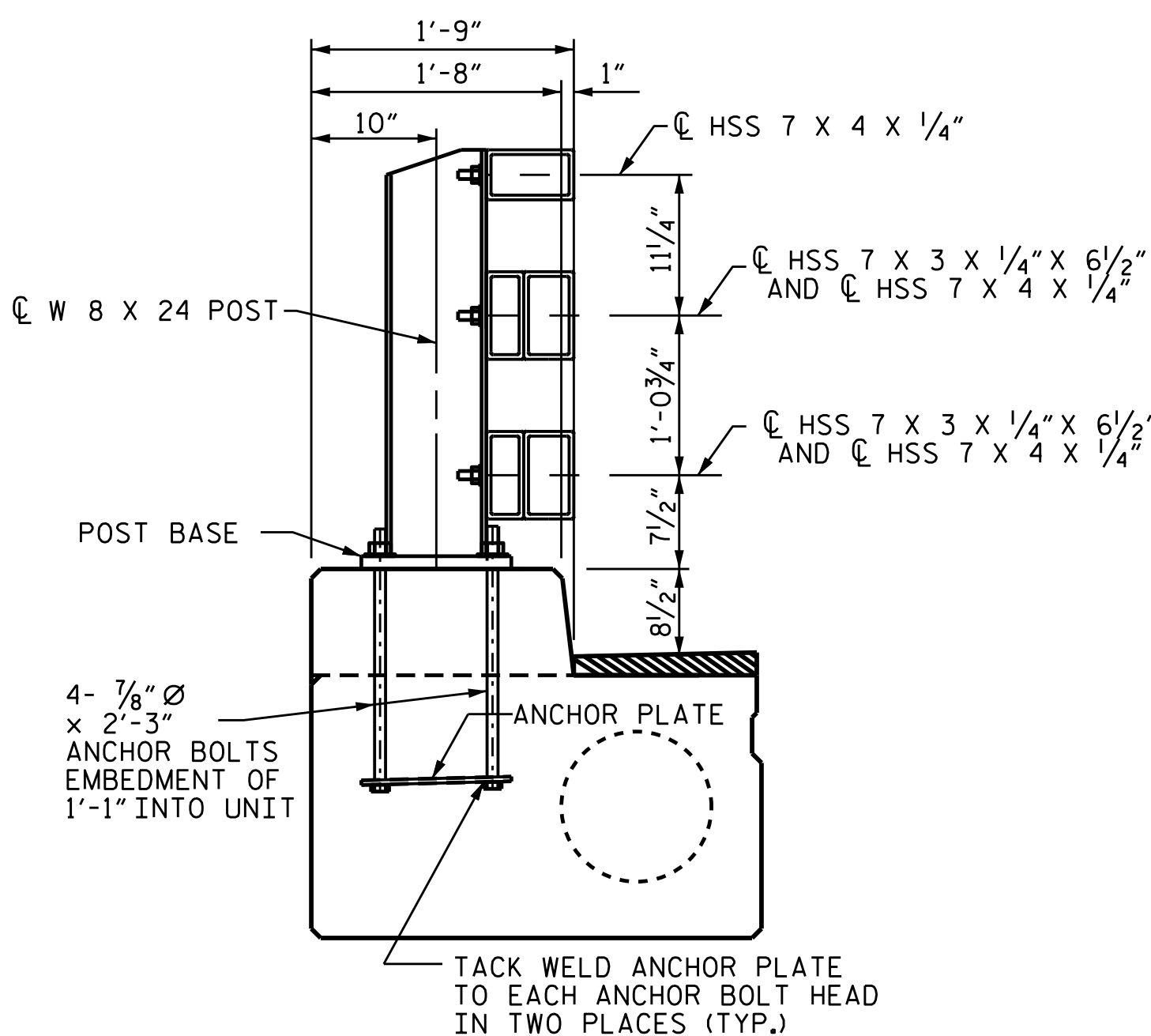


ELEVATION

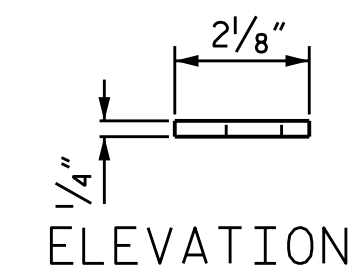
NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR11.



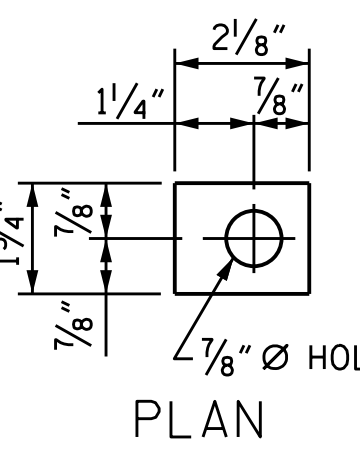
FRONT ELEVATION SIDE ELEVATION
DETAILS OF POST



SECTION THRU RAIL

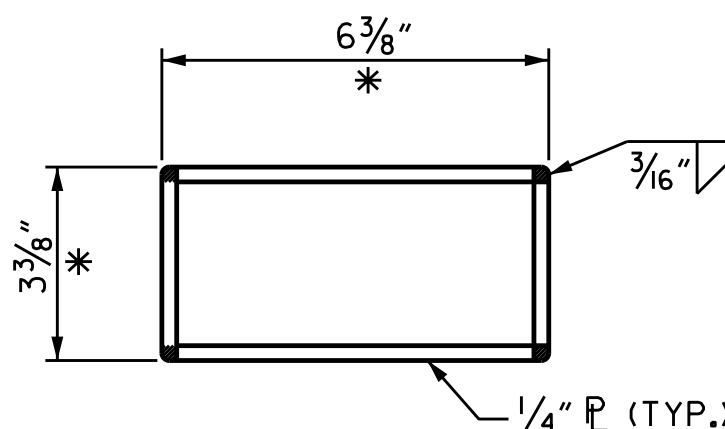


ELEVATION



PLAN

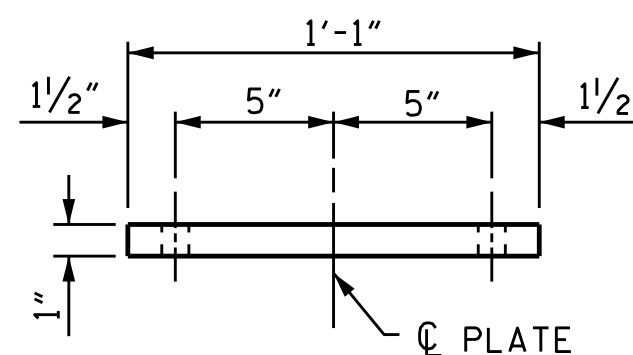
PLATE WASHER



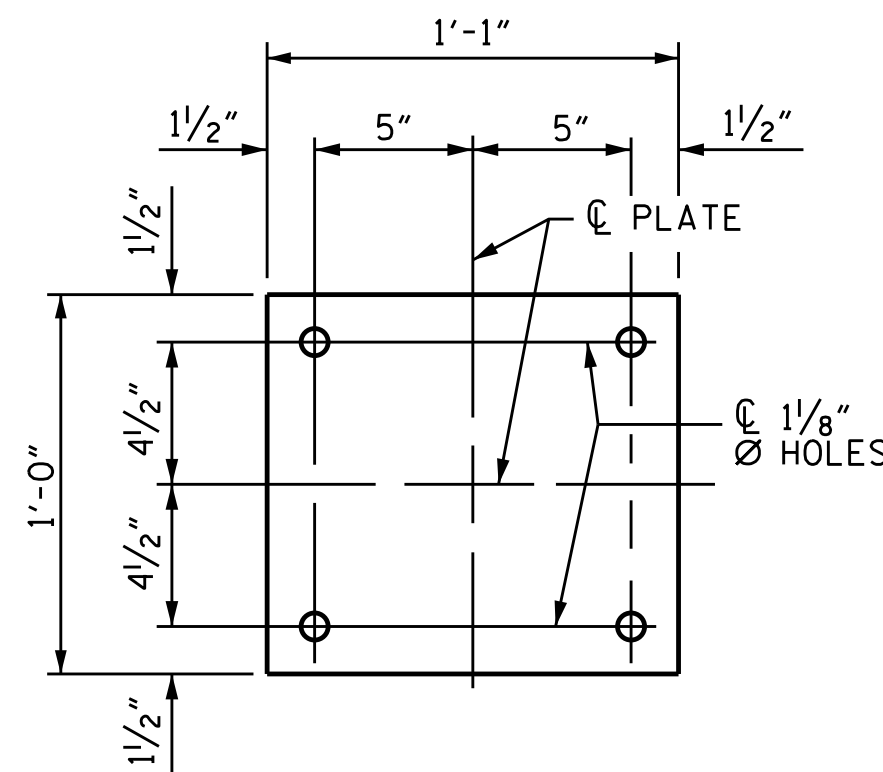
RAIL SPLICE DETAILS

* - DIMENSION AFTER GRINDING RADIUS ON CORNERS TO MATCH INSIDE OF METAL RAIL. GRIND ALL EDGES PRIOR TO GALVANIZING TO ASSURE FIT.

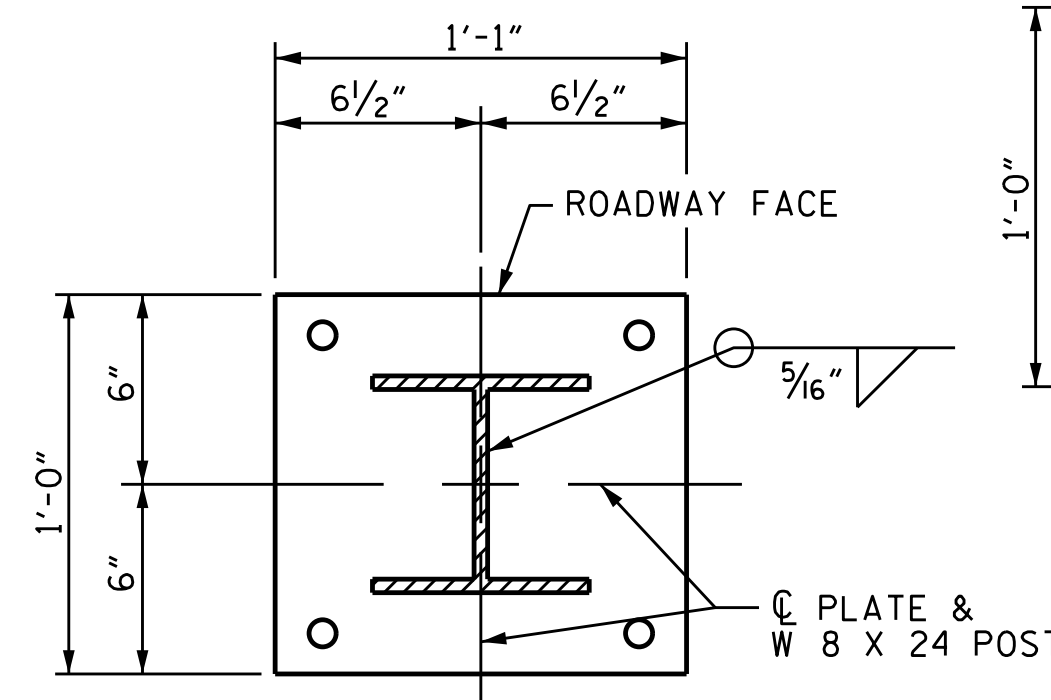
** - 1\"/>



FRONT ELEVATION

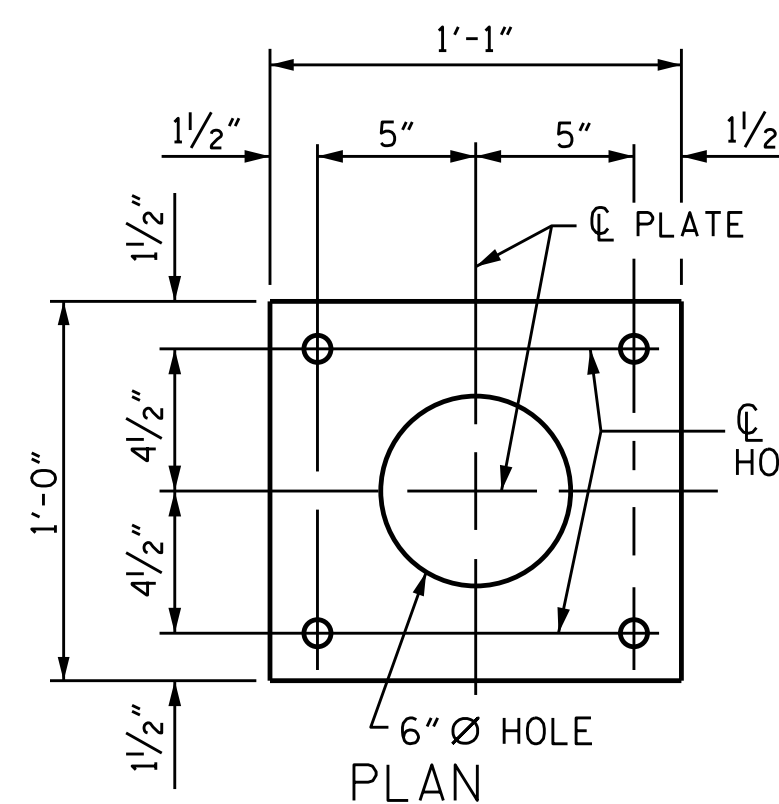


PLAN

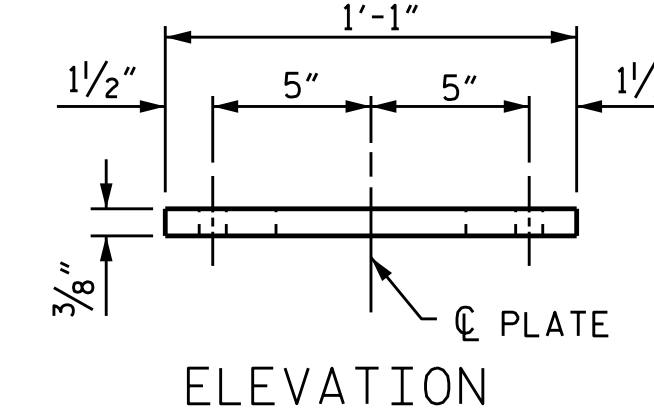


POST ATTACHMENT DETAIL

POST BASE DETAILS



ANCHOR PLATE DETAILS



ELEVATION

NOTES

METAL RAIL SHALL BE GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS. ALUMINUM RAIL WILL NOT BE AN OPTION.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, ANCHOR PLATES, AND RAIL SPLICE TUBES: AASHTO M270 GRADE 36 STRUCTURAL STEEL-GALVANIZED TO AASHTO M111.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

RAILS: ASTM A500 GRADE B - GALVANIZED TO AASHTO M111.

WELDED RAIL STUDS: ASTM A108-GALVANIZED TO AASHTO M111.

HIGH STRENGTH ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 105. HEAVY HEX NUTS SHALL CONFORM TO ASTM A563 DH, AND WASHERS TO ASTM F436, TYPE 1. NUTS AND WASHERS SHALL BE GALVANIZED TO AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR11.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

GROOVED CONTRACTION JOINTS, 1/2\"/>

THE RAIL SECTIONS SHALL BE ATTACHED TO THE POSTS BY TWO THREADED 3/4\"/>

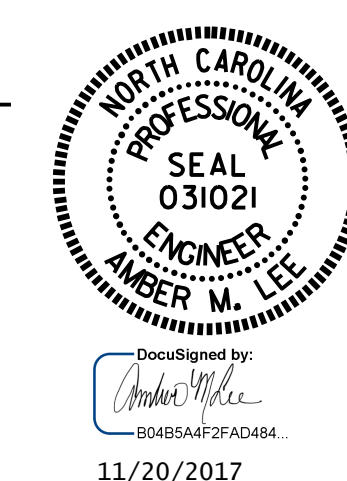
FOR 42\"/>

PAY LENGTH: 100.00 LIN. FT.

PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

SHEET 1 OF 2

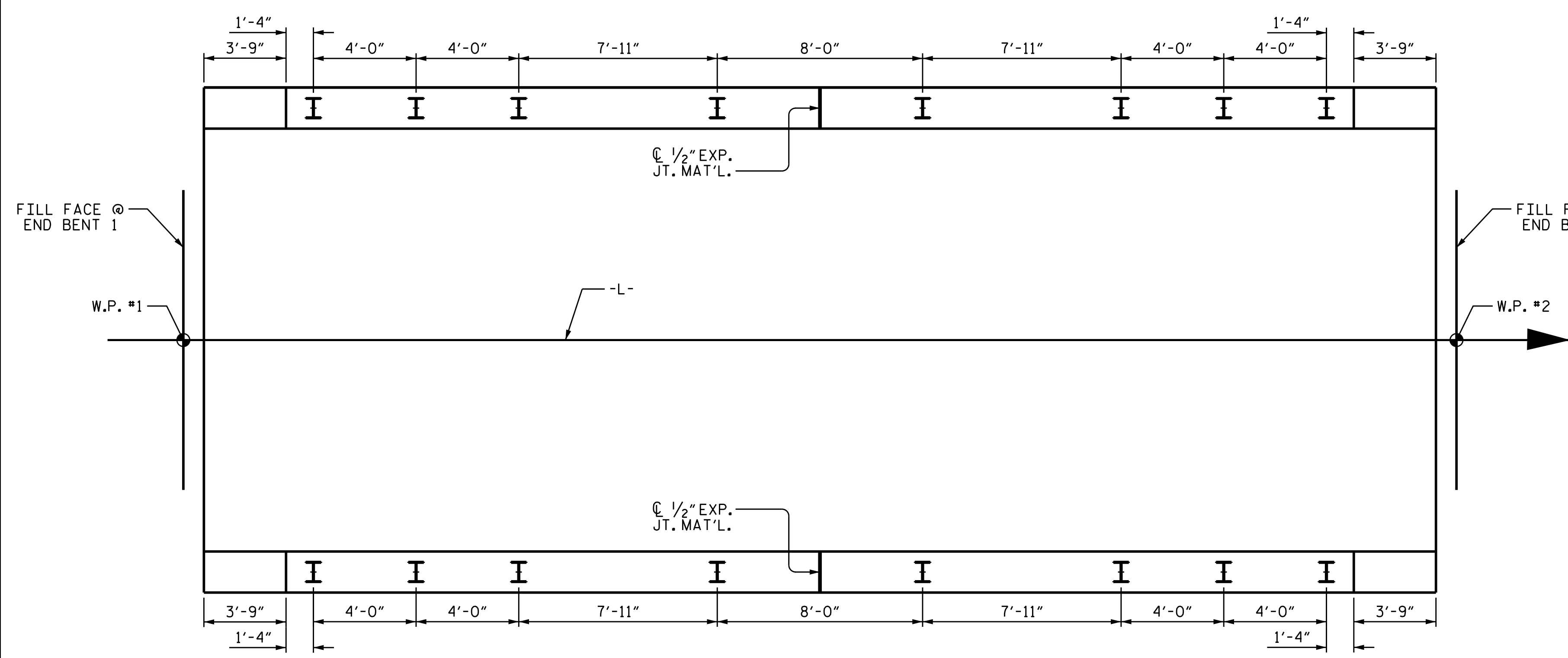
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 42\"/>



ASSEMBLED BY: E. K. POPE DATE: 1/12/17
 CHECKED BY: H. A. LOCKLEAR DATE: 1/25/17
 DRAWN BY: RWW 7/14 ADDED: /15
 CHECKED BY: TMG 7/14

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			16



PLAN OF RAIL POST SPACINGS

NOTES
 STRUCTURAL CONCRETE INSERT

EACH STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- FERRULE SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF 1 1/2".
- 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- WIRE STRUT SHOWN IN THE STRUCTURAL CONCRETE INSERT DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES
 METAL RAIL TO END POST CONNECTION

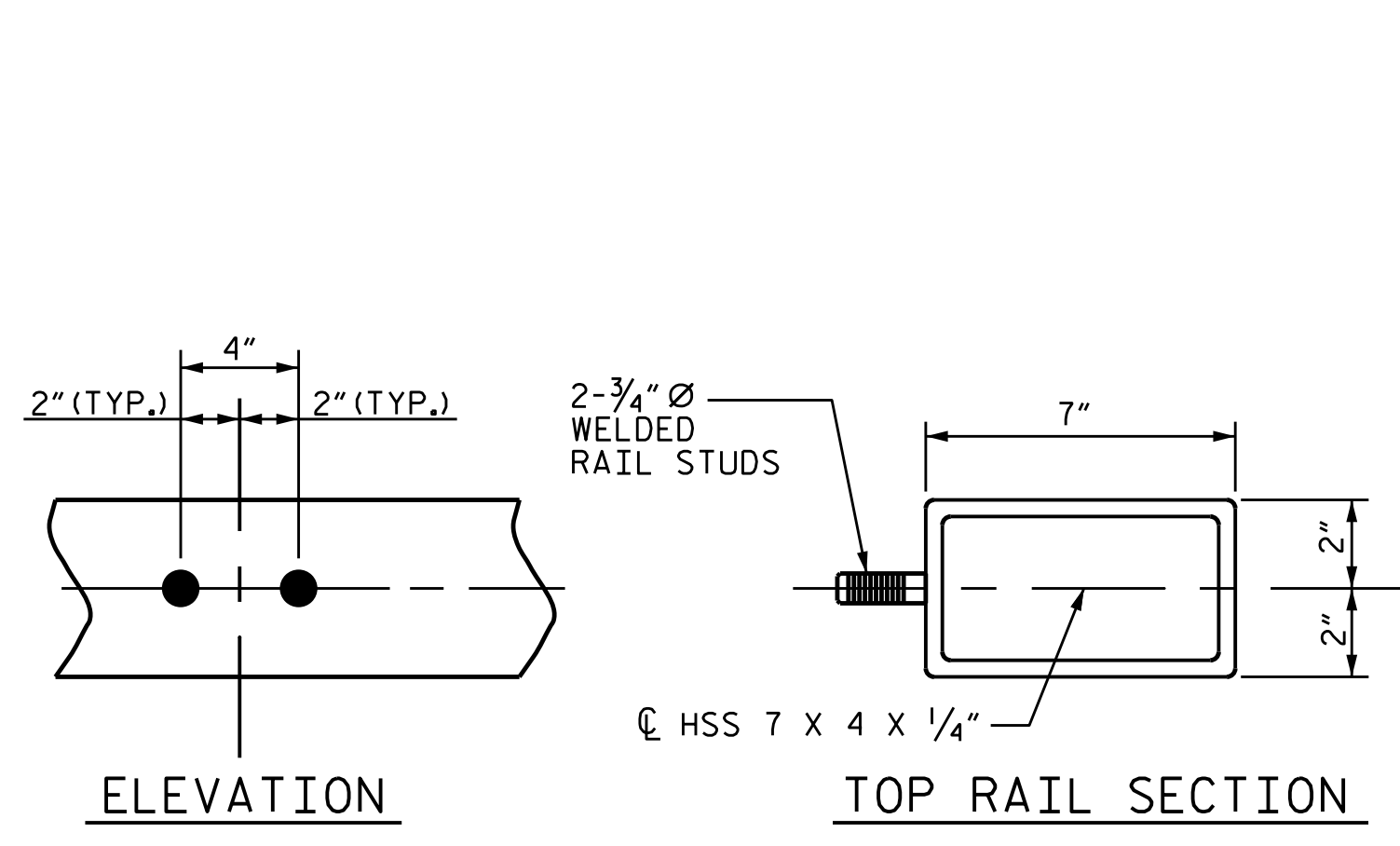
EACH METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- 1/2" METAL BRACKET PLATE AND 1/4" METAL RAIL INSERT TUBE SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO AASHTO M111.
- 3/4" STRUCTURAL CONCRETE INSERTS SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.

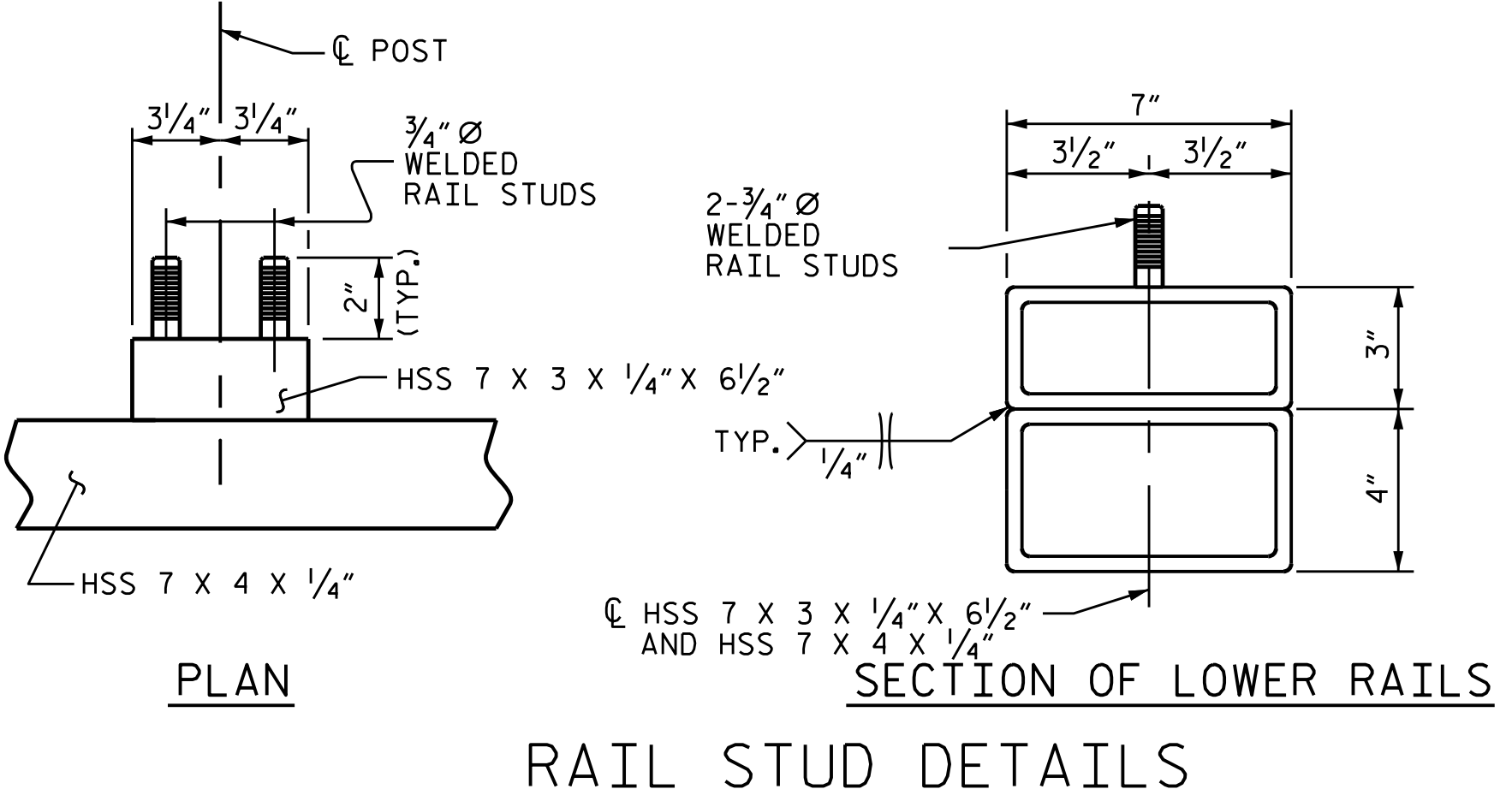
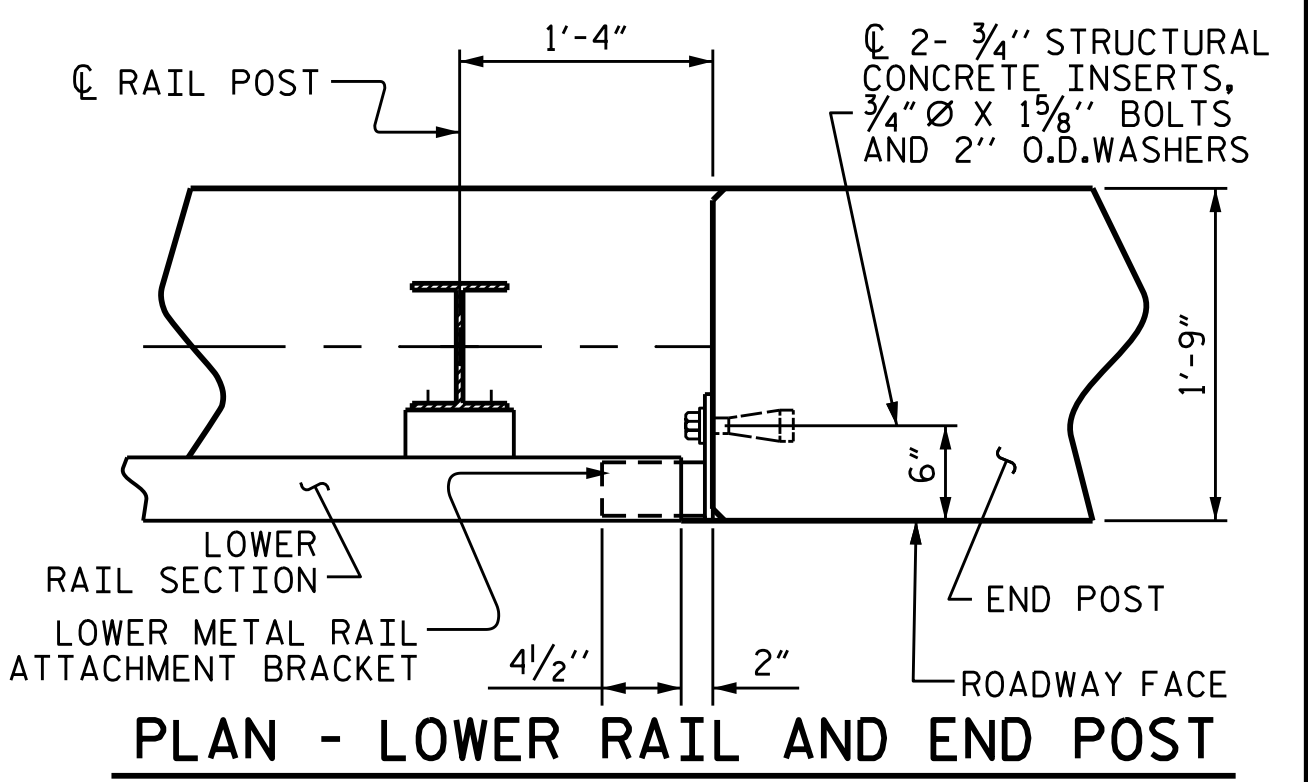
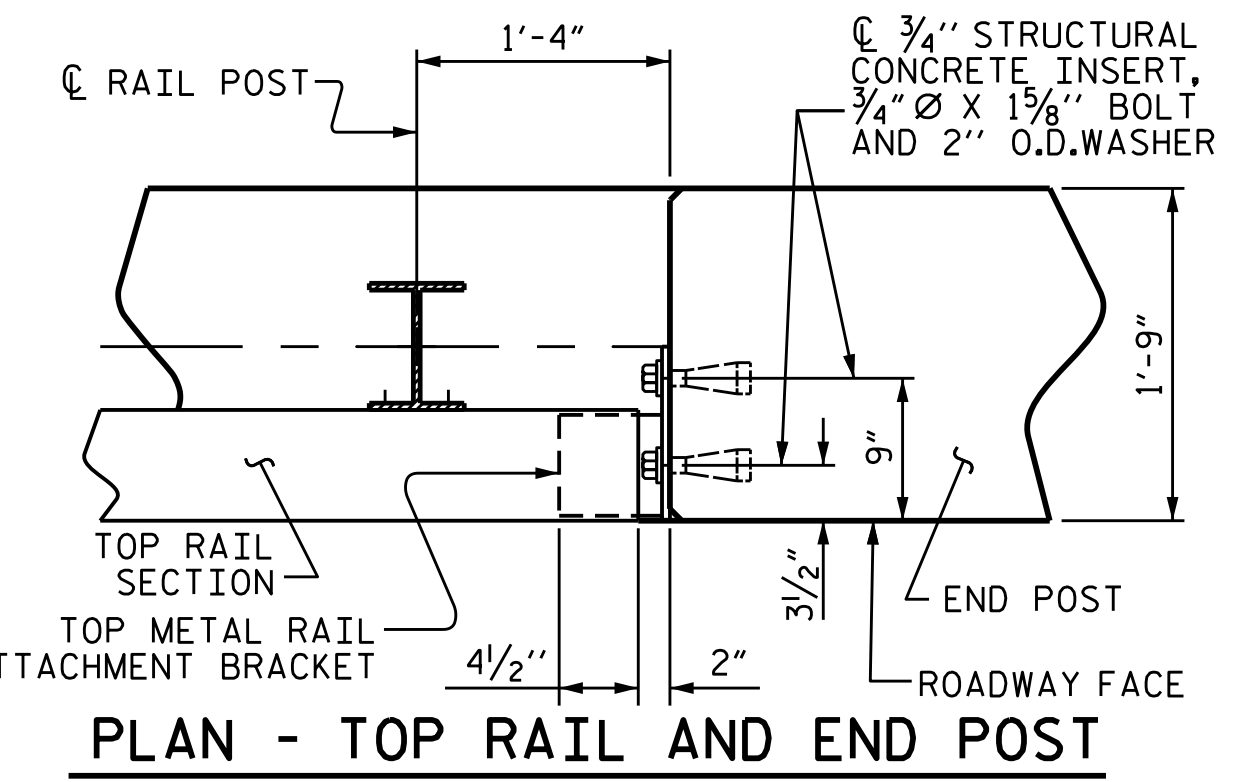
THE 3/4" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT, THE 1/2" BRACKET PLATES, AND THE RAIL INSERT TUBES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

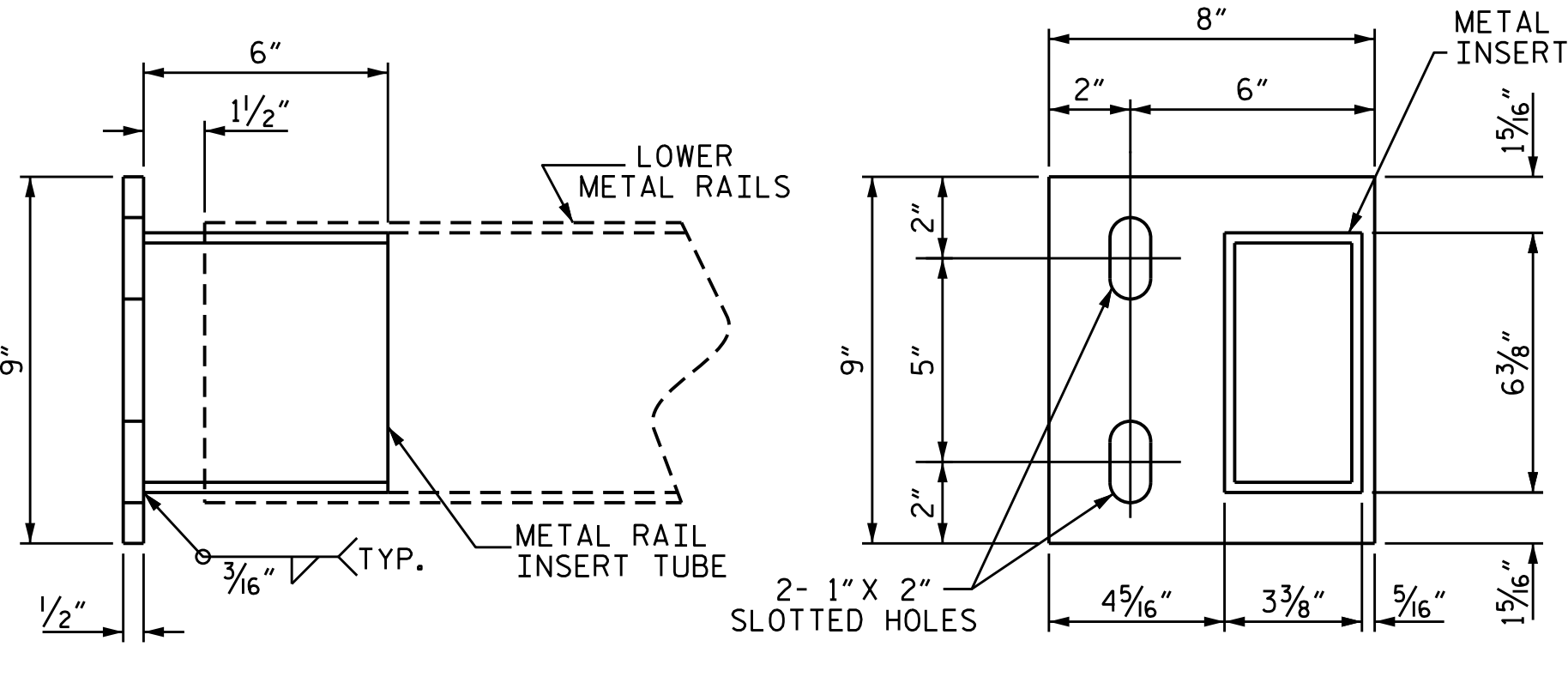
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLTS WITH WASHERS SHALL BE REPLACED WITH 3/4" Ø X 6 1/2" BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLTS SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



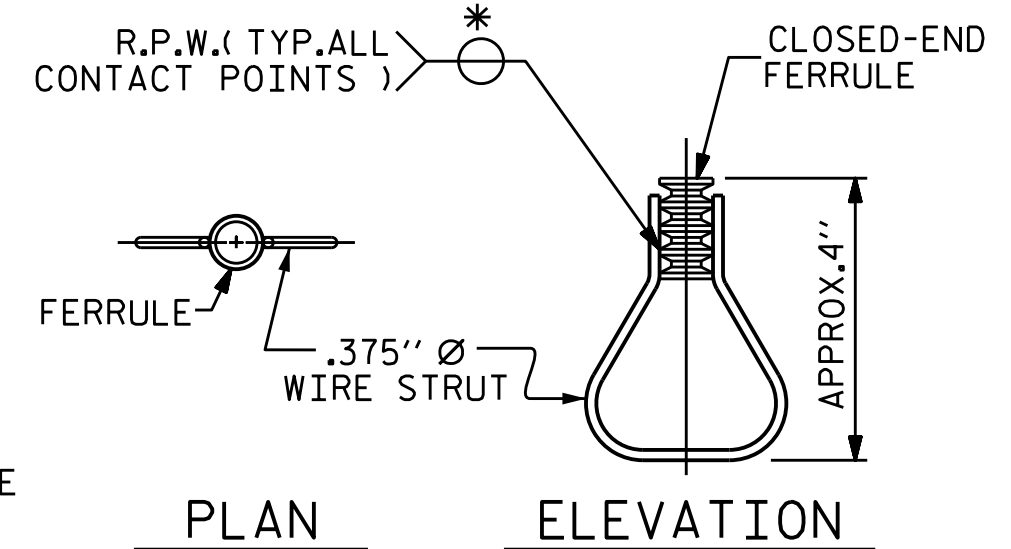
TOP METAL RAIL ATTACHMENT BRACKET
 THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM 1/4" PLATES.



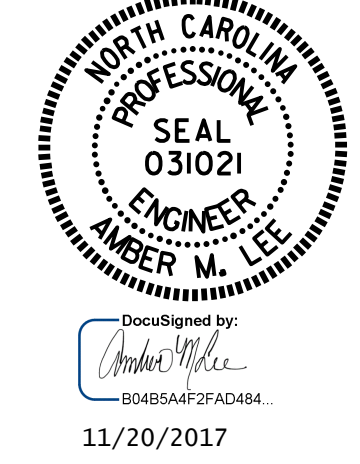
RAIL STUD DETAILS



LOWER METAL RAILS ATTACHMENT BRACKET
 THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM 1/4" PLATES.



STRUCTURAL CONCRETE INSERT
 * EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



PROJECT NO. B-5864
 YANCEY COUNTY
 STATION: 14+21.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR 42" OREGON RAIL

ASSEMBLED BY : E. K. POPE	DATE : 1/12/17
CHECKED BY : H. A. LOCKLEAR	DATE : 1/25/17
DRAWN BY : RWW	7/14
CHECKED BY : TMG	7/14
ADDED	1/15

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 16
2			4			

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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.

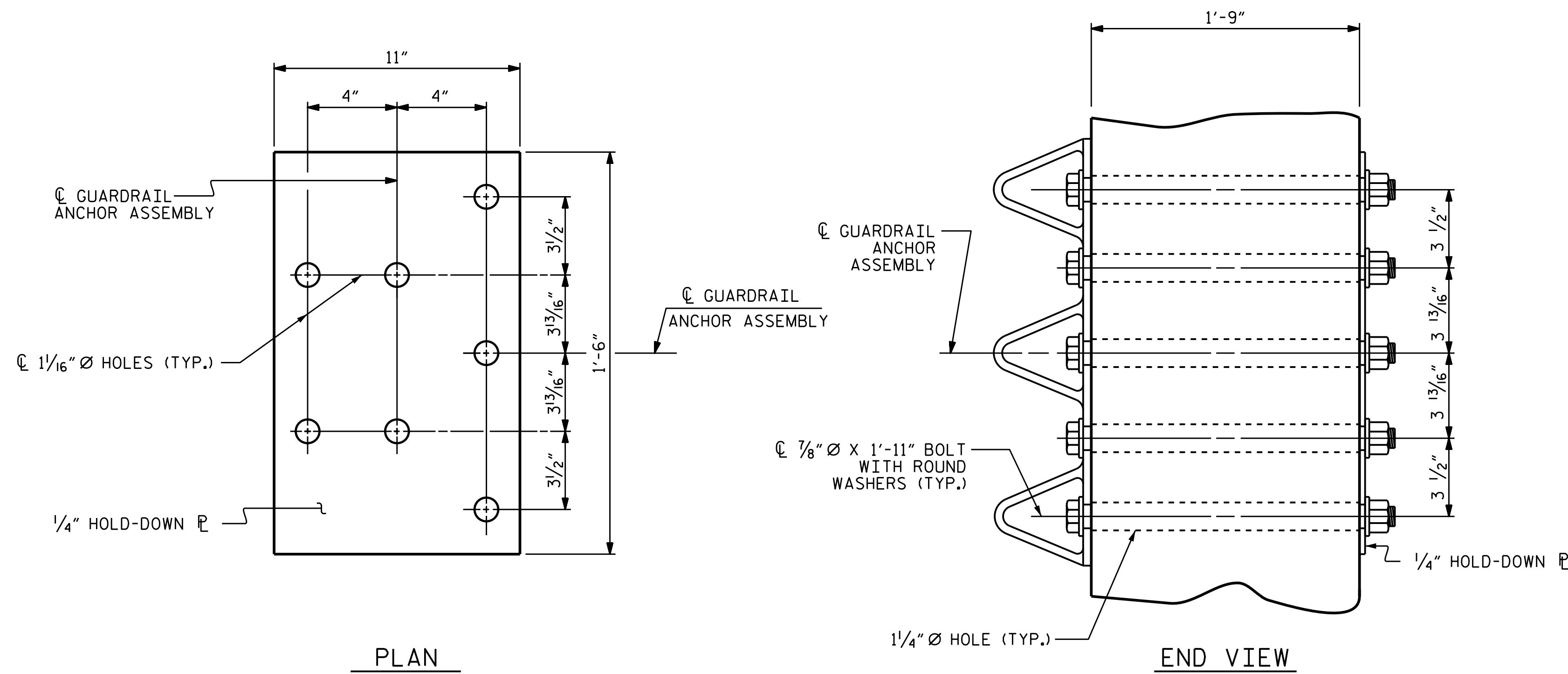
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST 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.

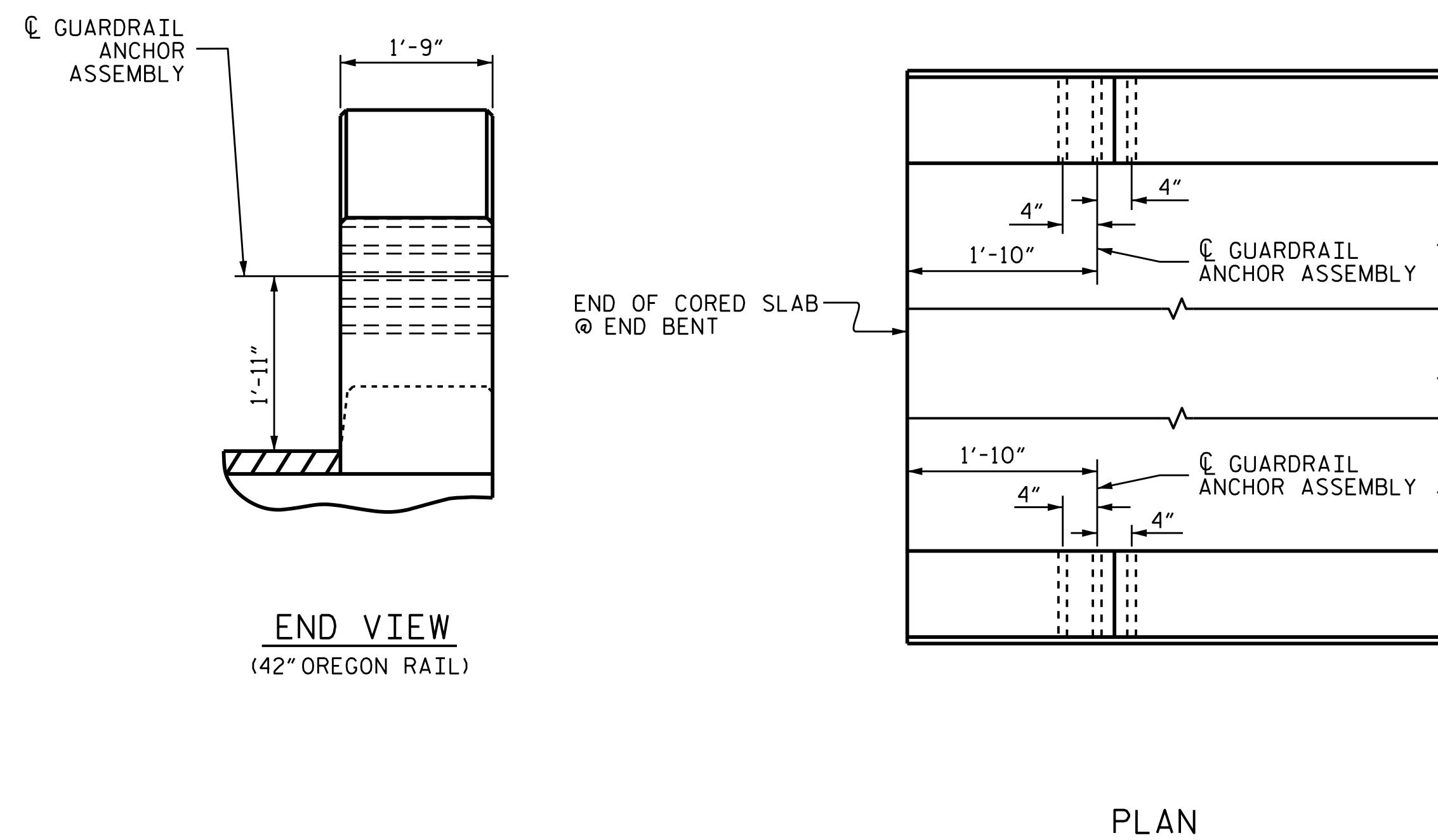


GUARDRAIL ANCHOR ASSEMBLY DETAILS



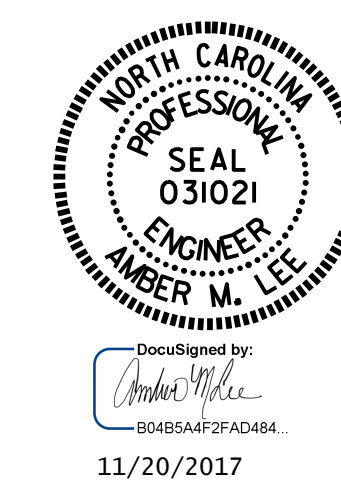
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL TUBE RAILS

ASSEMBLED BY :	E. K. POPE	DATE :	1/12/17
CHECKED BY :	H. A. LOCKLEAR	DATE :	1/25/17
DRAWN BY :	MAA 5/10	REV. 12/5/11	MAA/GM
CHECKED BY :	GM 5/10	REV. 6/13	MAA/GM
		REV. 1/15	MAA/TMG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			16

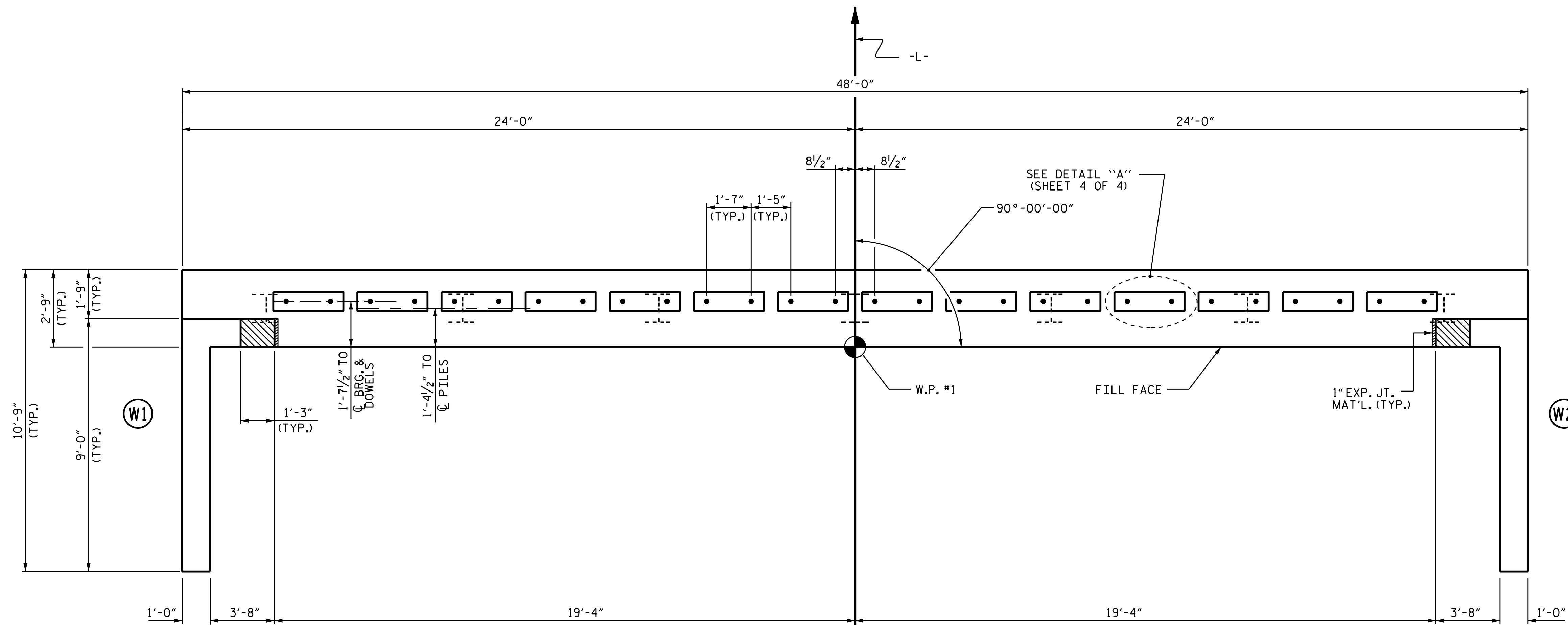
NOTES

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

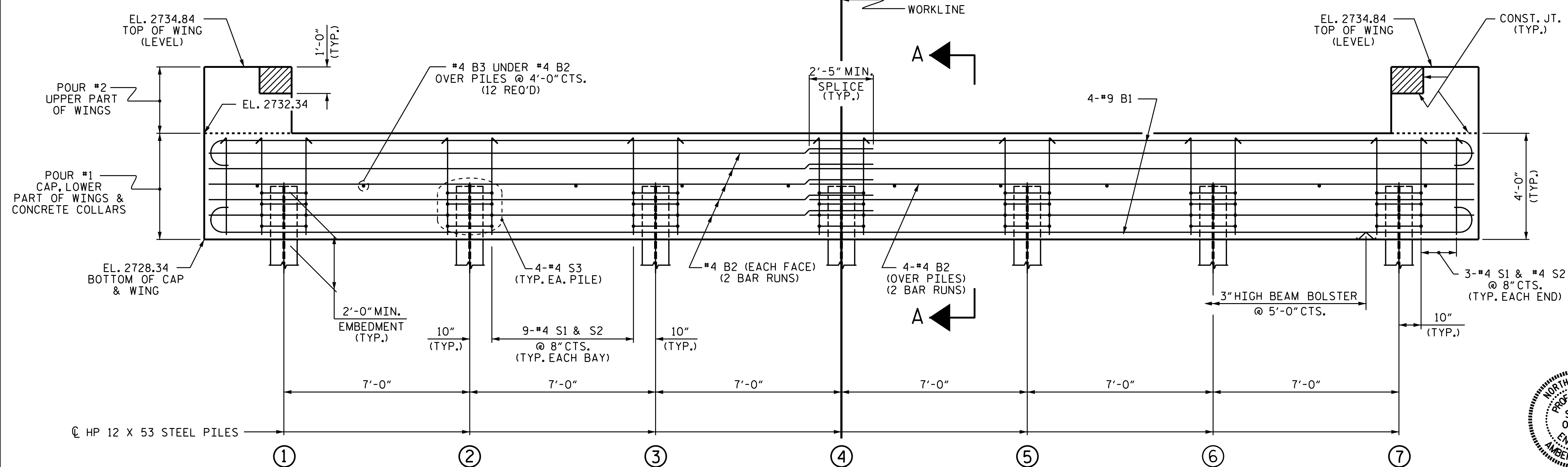
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CURB AND END POST FOR 42" OREGON RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

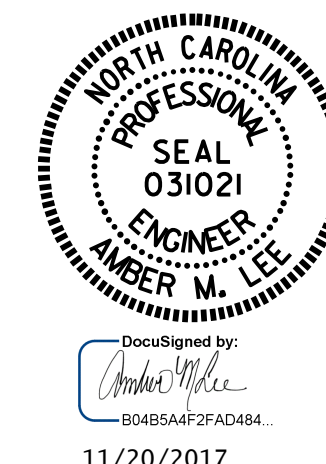


ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. B-5864
YANCEY COUNTY
STATION: 14+21.00 -L-
SHEET 1 OF 4

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



ASSEMBLED BY : E. K. POPE DATE : 1/17/12
CHECKED BY : H. A. LOCKLEAR DATE : 1/25/17
DRAWN BY : WJH 12/11
CHECKED BY : AAC 12/11
REV. 4/15 MAA/TMG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS 16	
2			4				

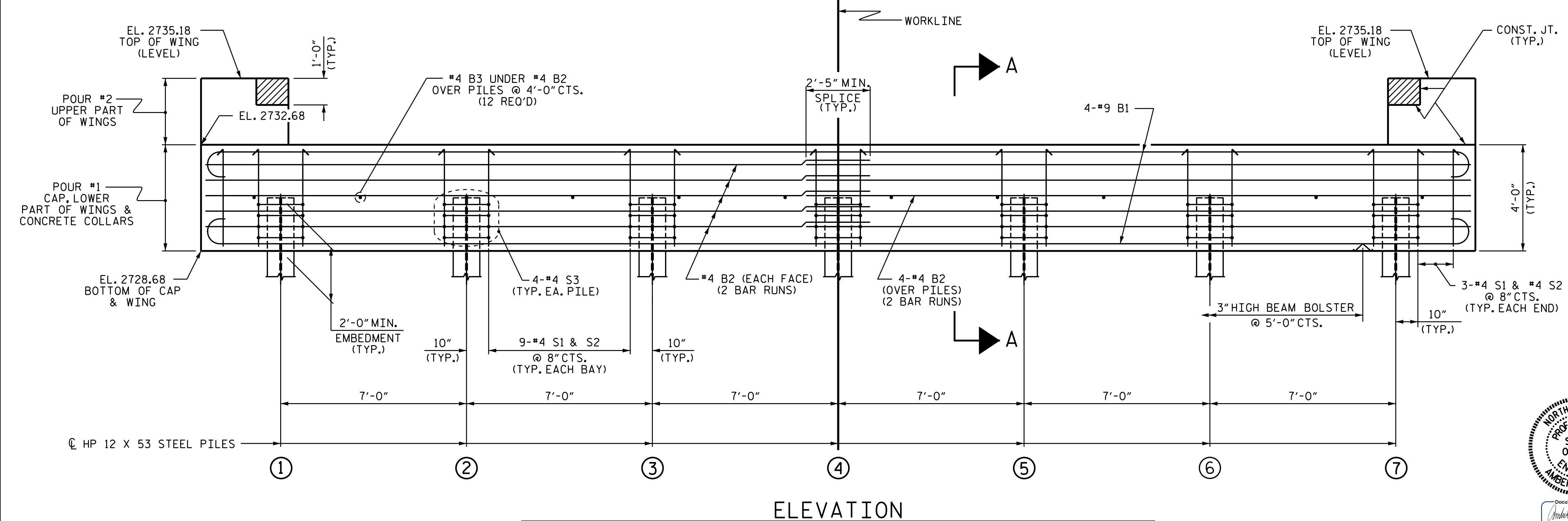
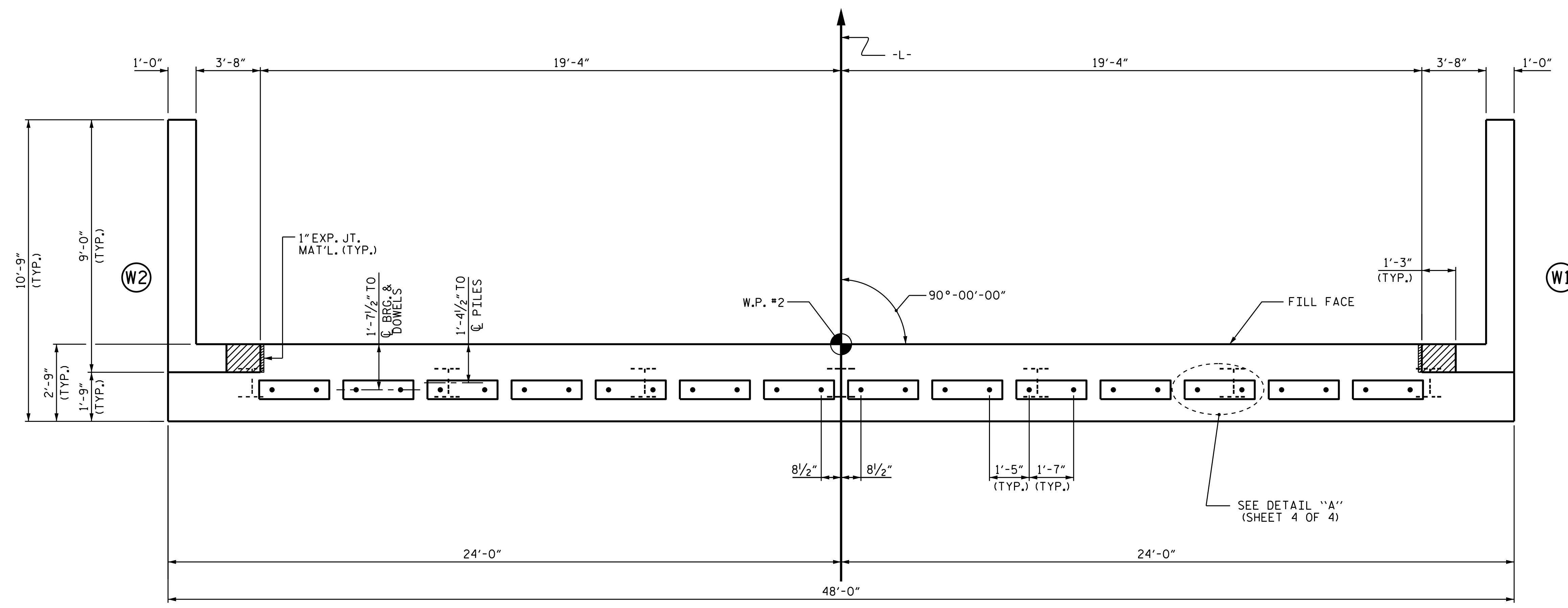
NOTES

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

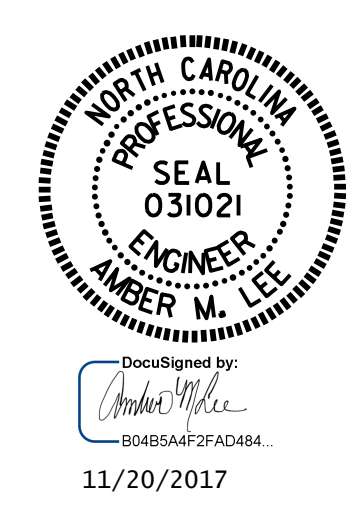
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CURB AND END POST FOR 42" OREGON RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PROJECT NO. B-5864
 YANCEY COUNTY
 STATION: 14+21.00 -L-
 SHEET 2 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

ASSEMBLED BY : E. K. POPE DATE : 1/12/17
 CHECKED BY : H. A. LOCKLEAR DATE : 1/25/17

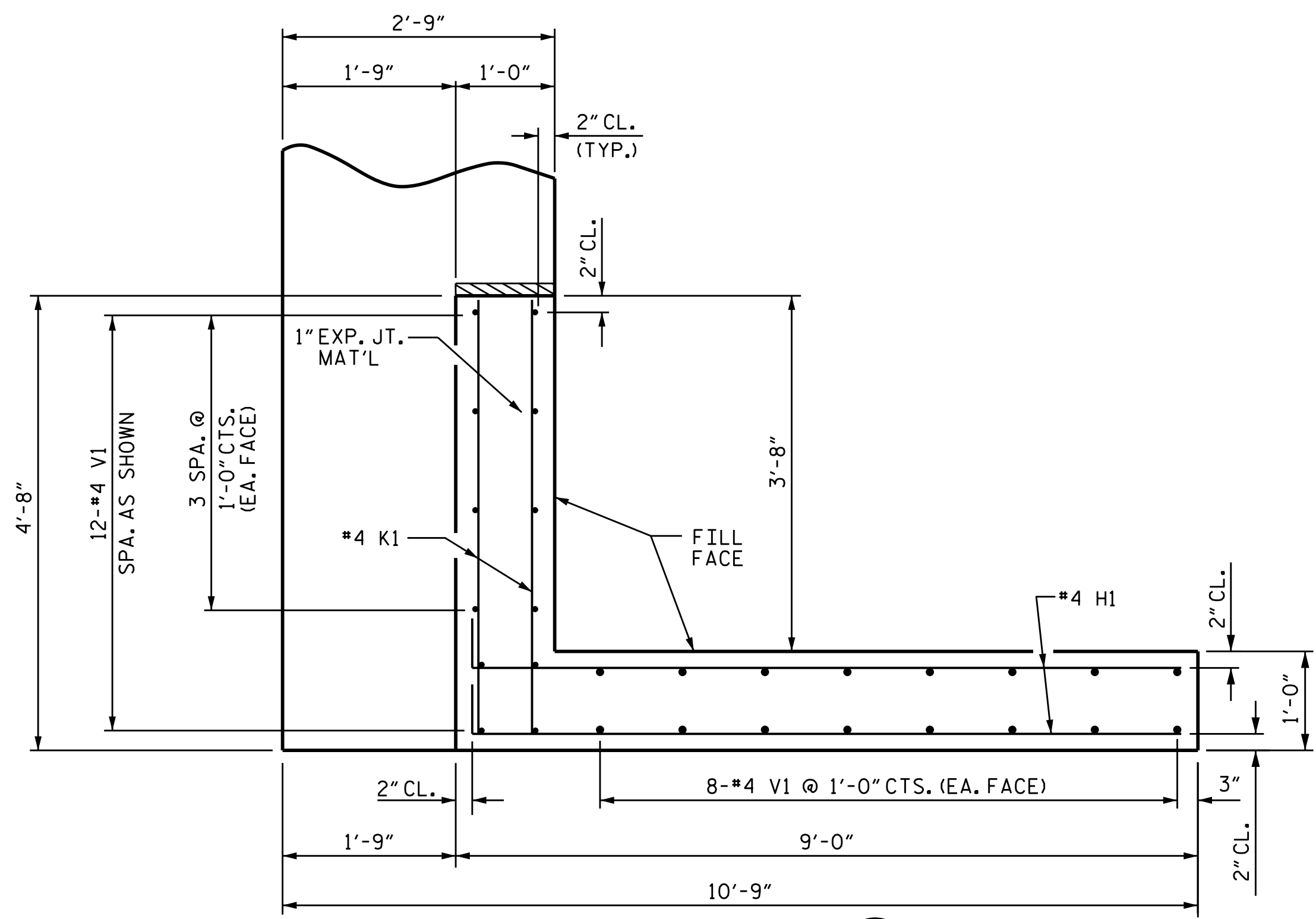
DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11

REV. 4/15 MAA/TMG

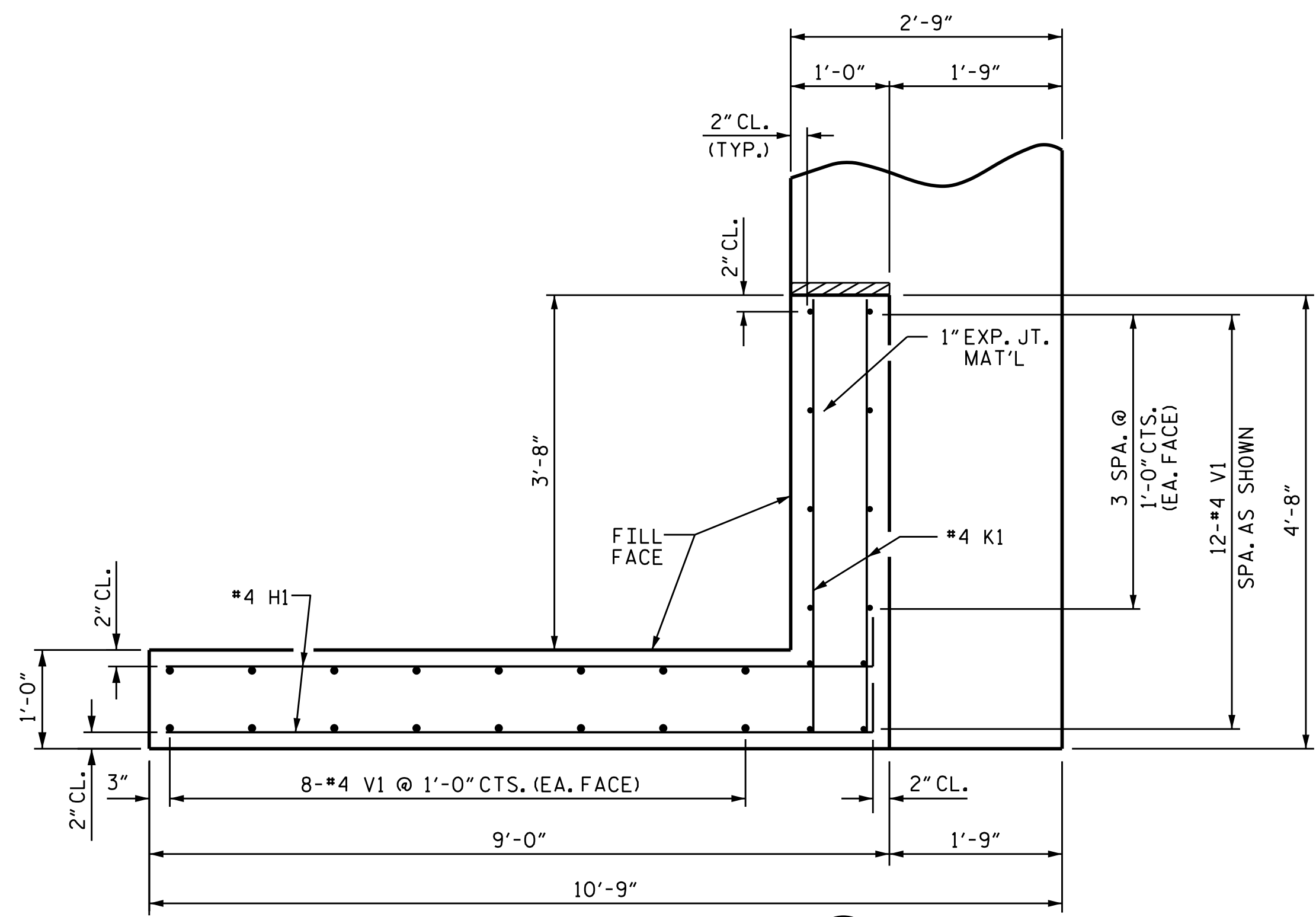
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

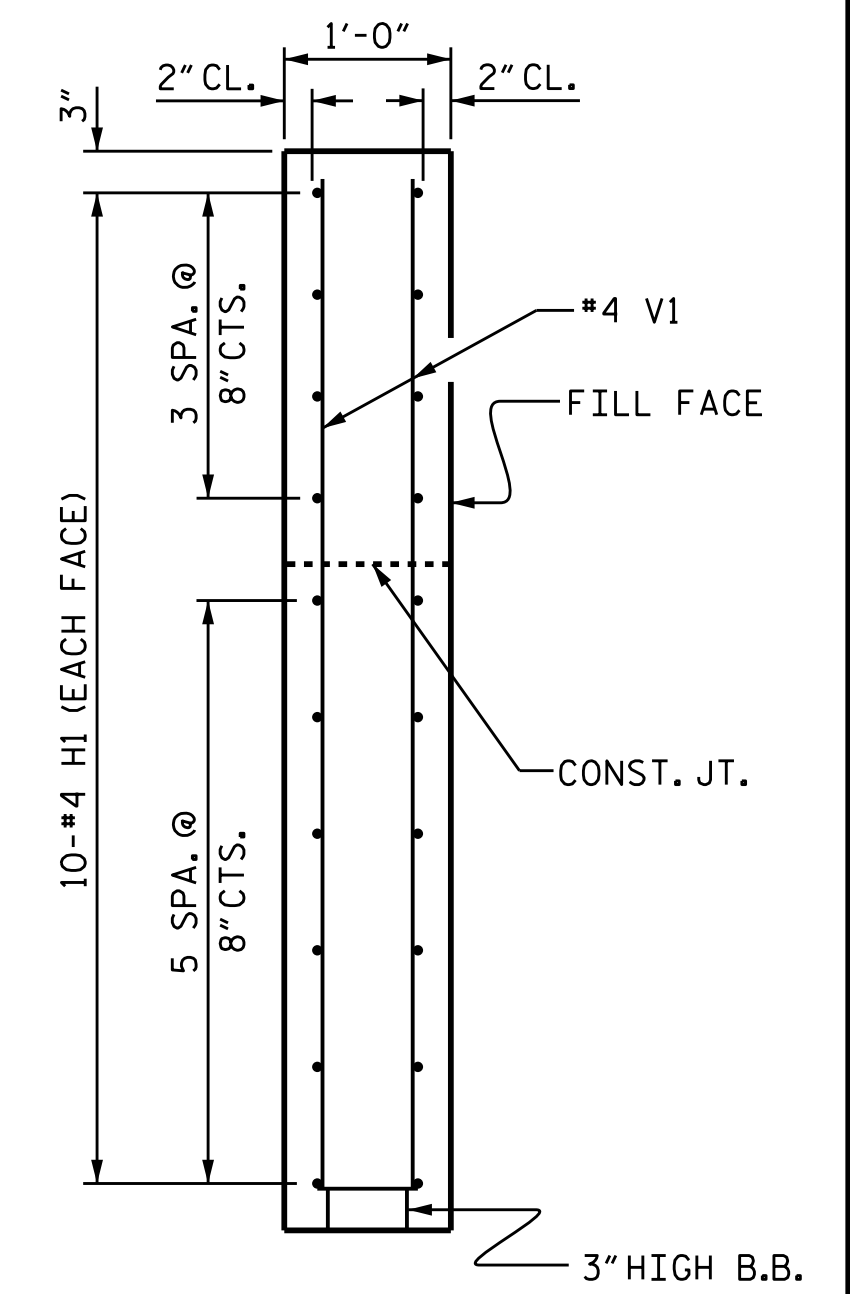
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS 16
2			4			



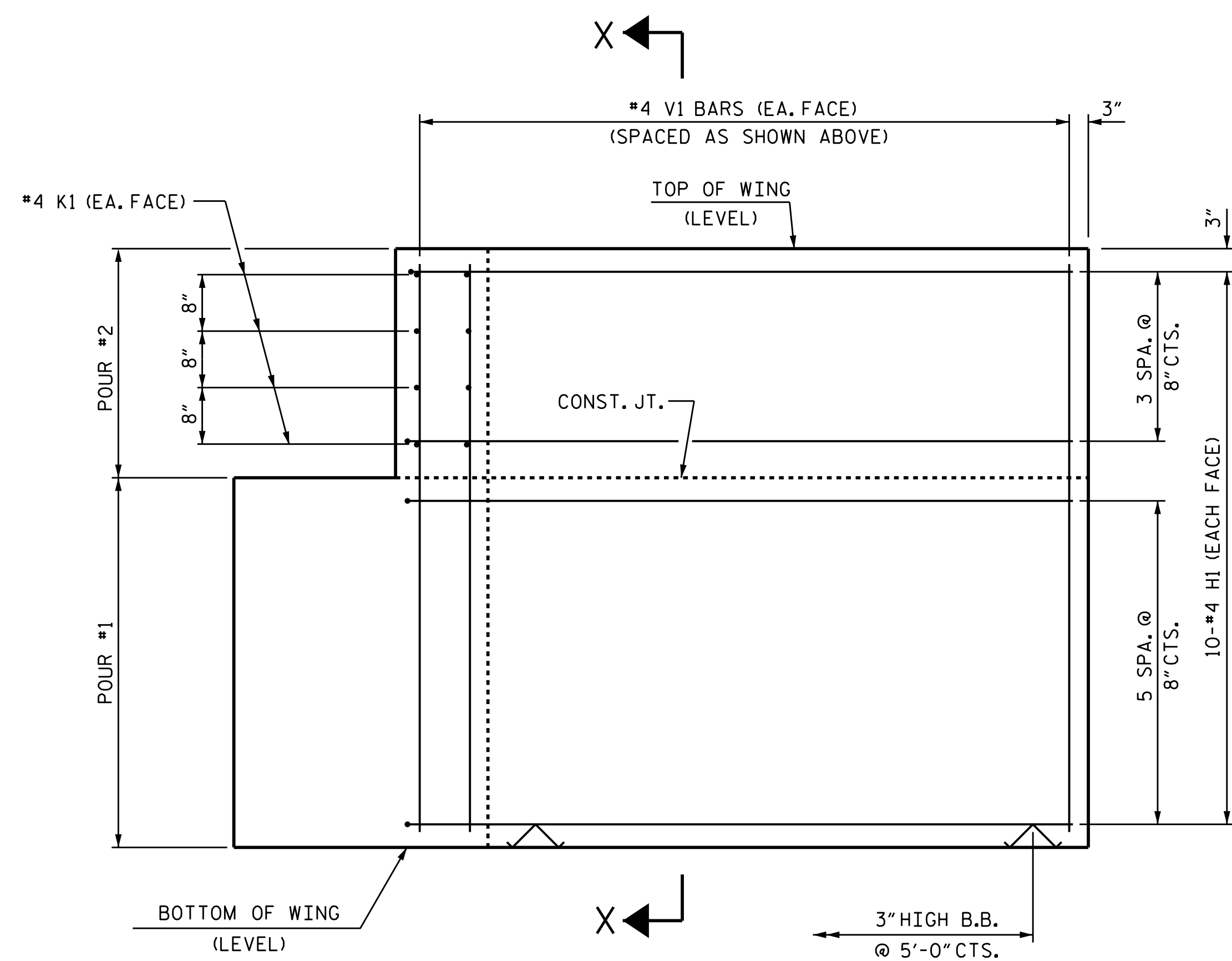
PLAN OF WING (W1)



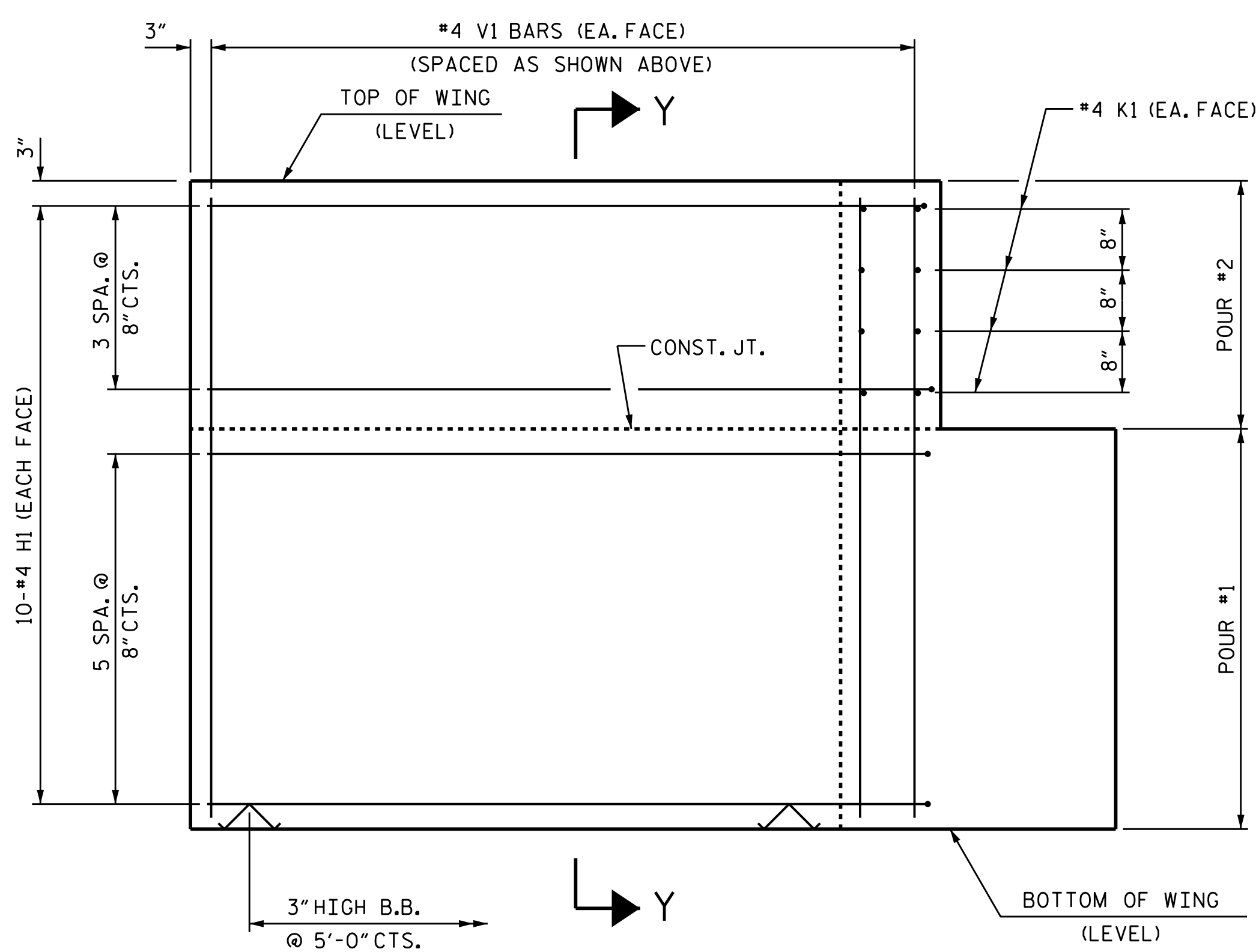
PLAN OF WING (W2)



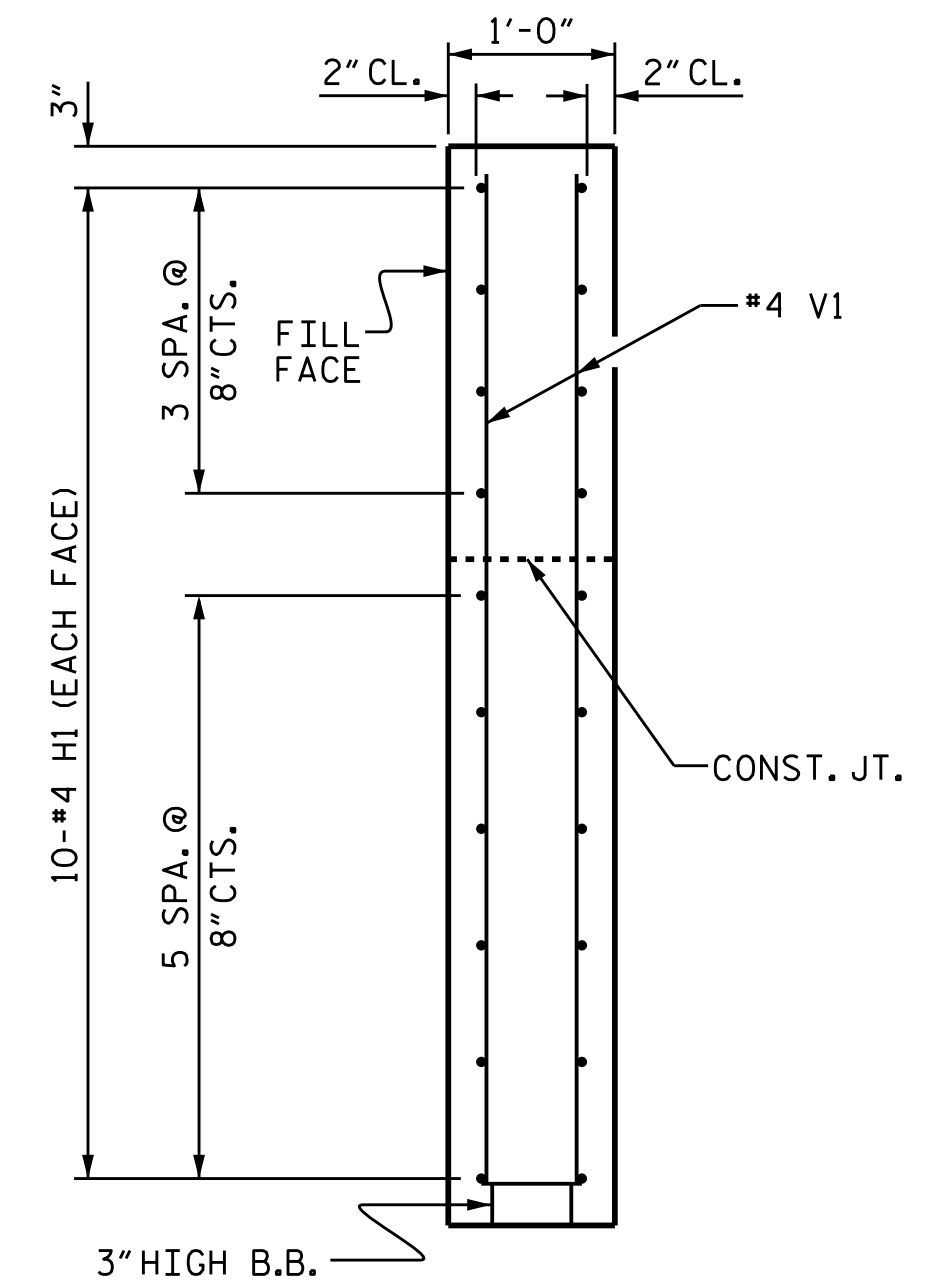
SECTION X-X



ELEVATION OF WING (W1)



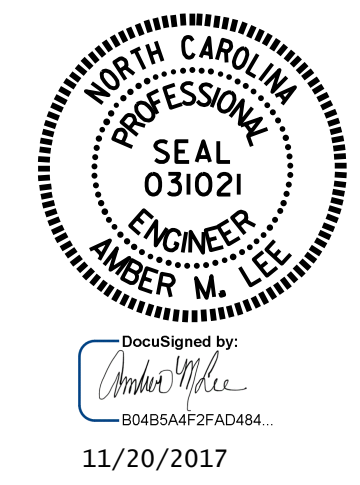
ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. B-5864
 YANCEY COUNTY
 STATION: 14+21.00 -L-

SHEET 3 OF 4



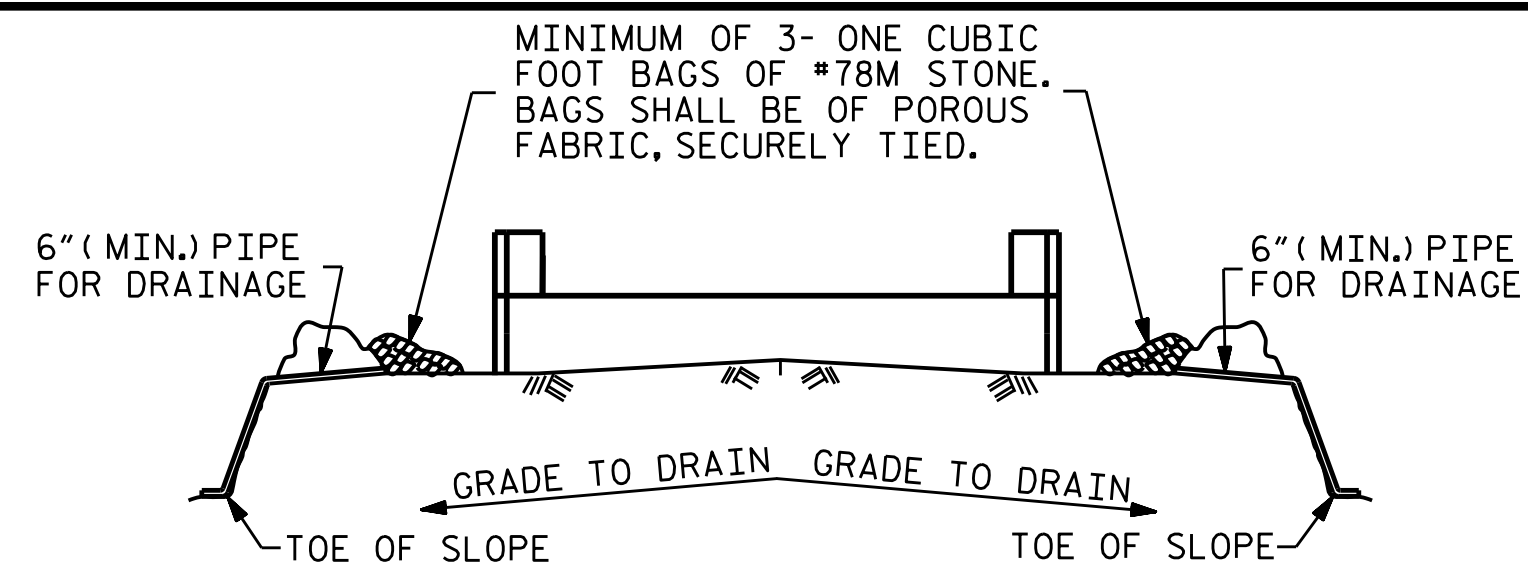
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT
 WING DETAILS

ASSEMBLED BY : E. K. POPE	DATE : 1/12/17
CHECKED BY : H. A. LOCKLEAR	DATE : 1/25/17
DRAWN BY : WJH	12/11
CHECKED BY : AAC	12/11
REV. 4/15	MAA/TMG

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13	
1			3			TOTAL SHEETS	
2			4			16	

WING DETAILS

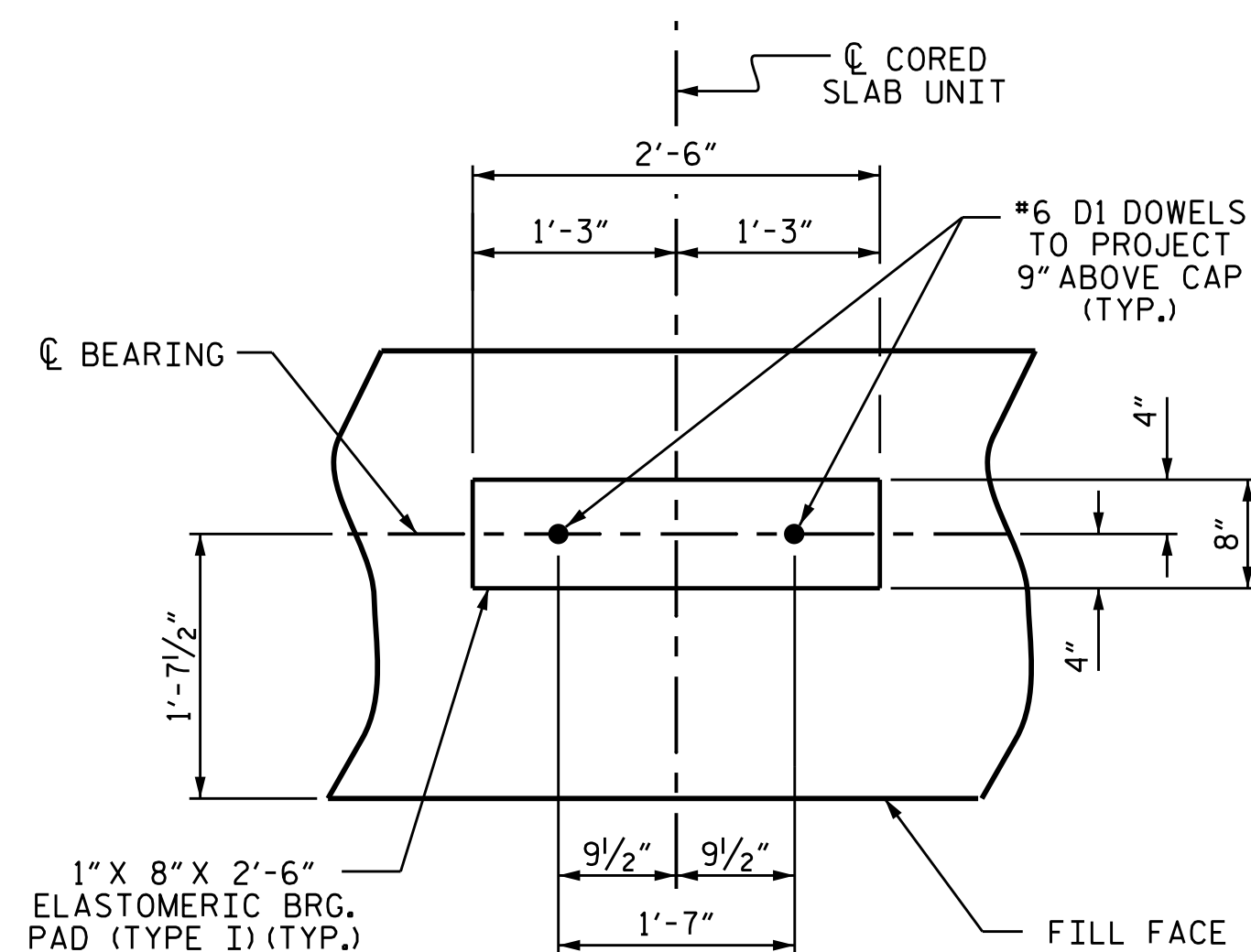


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

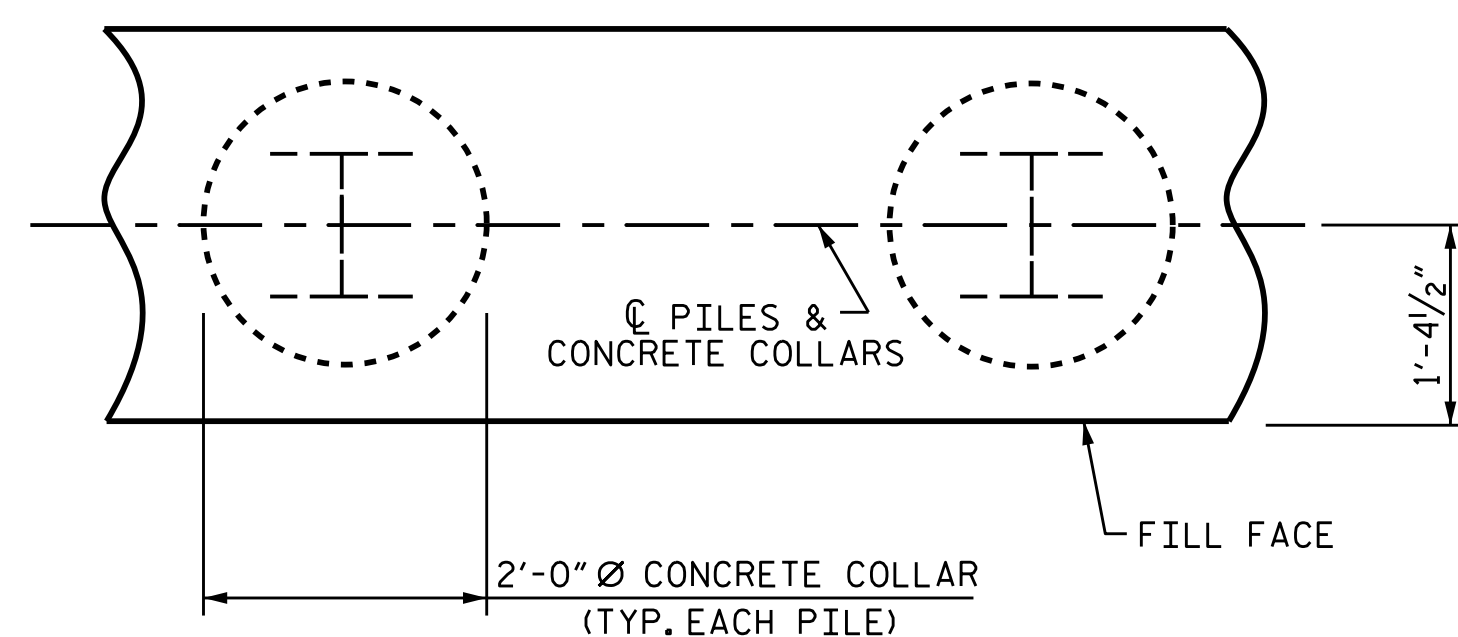
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

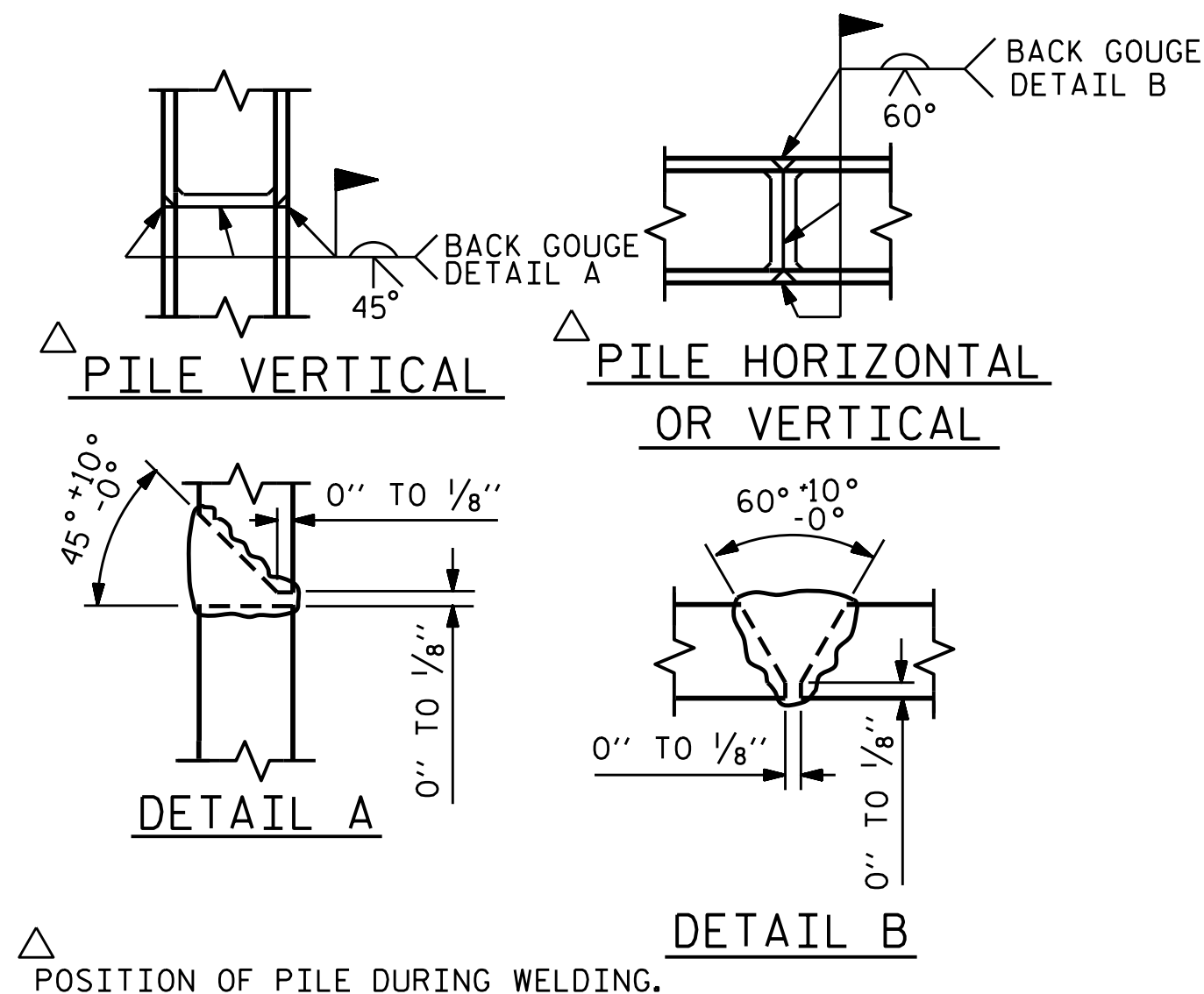
(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



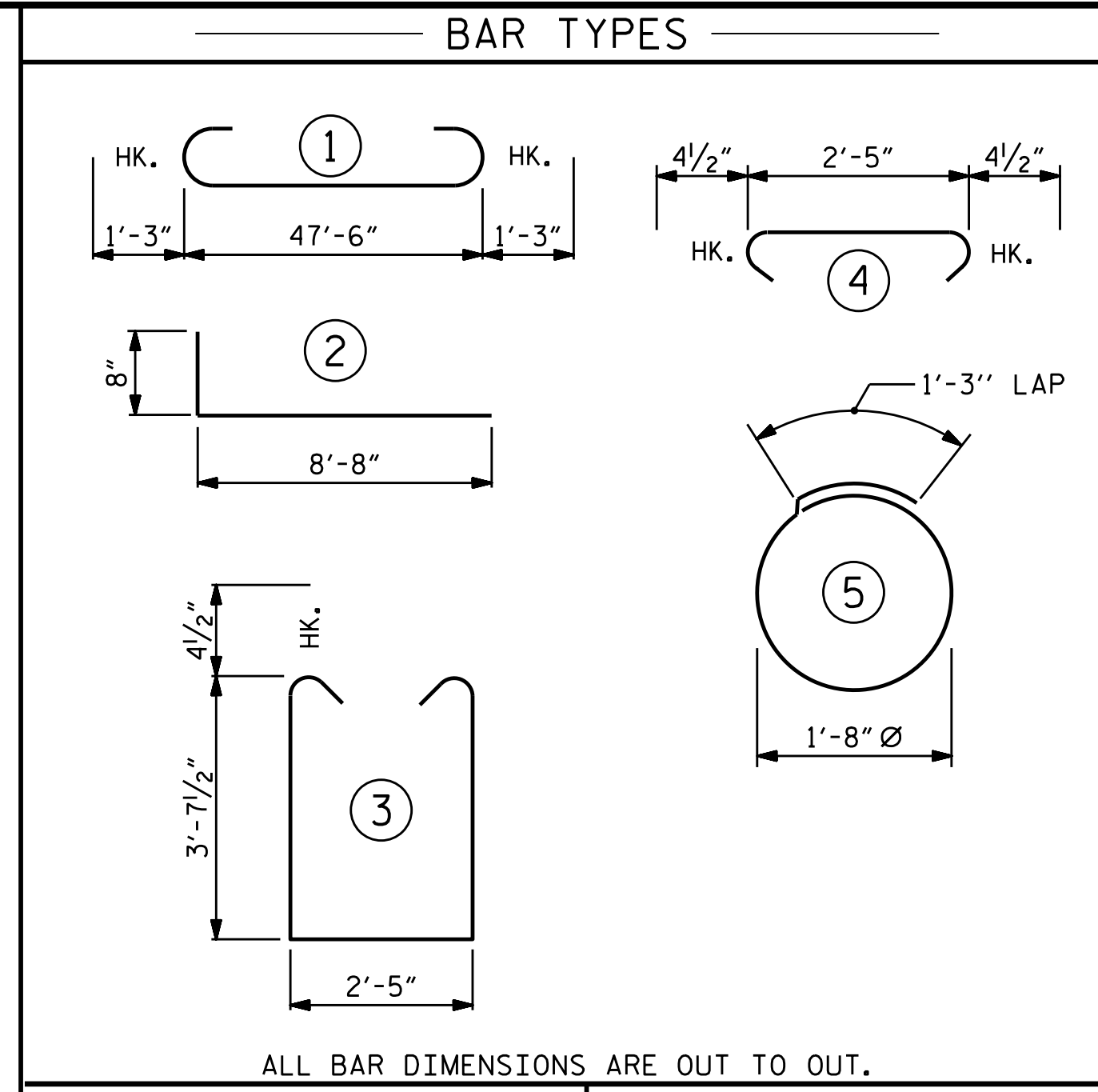
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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

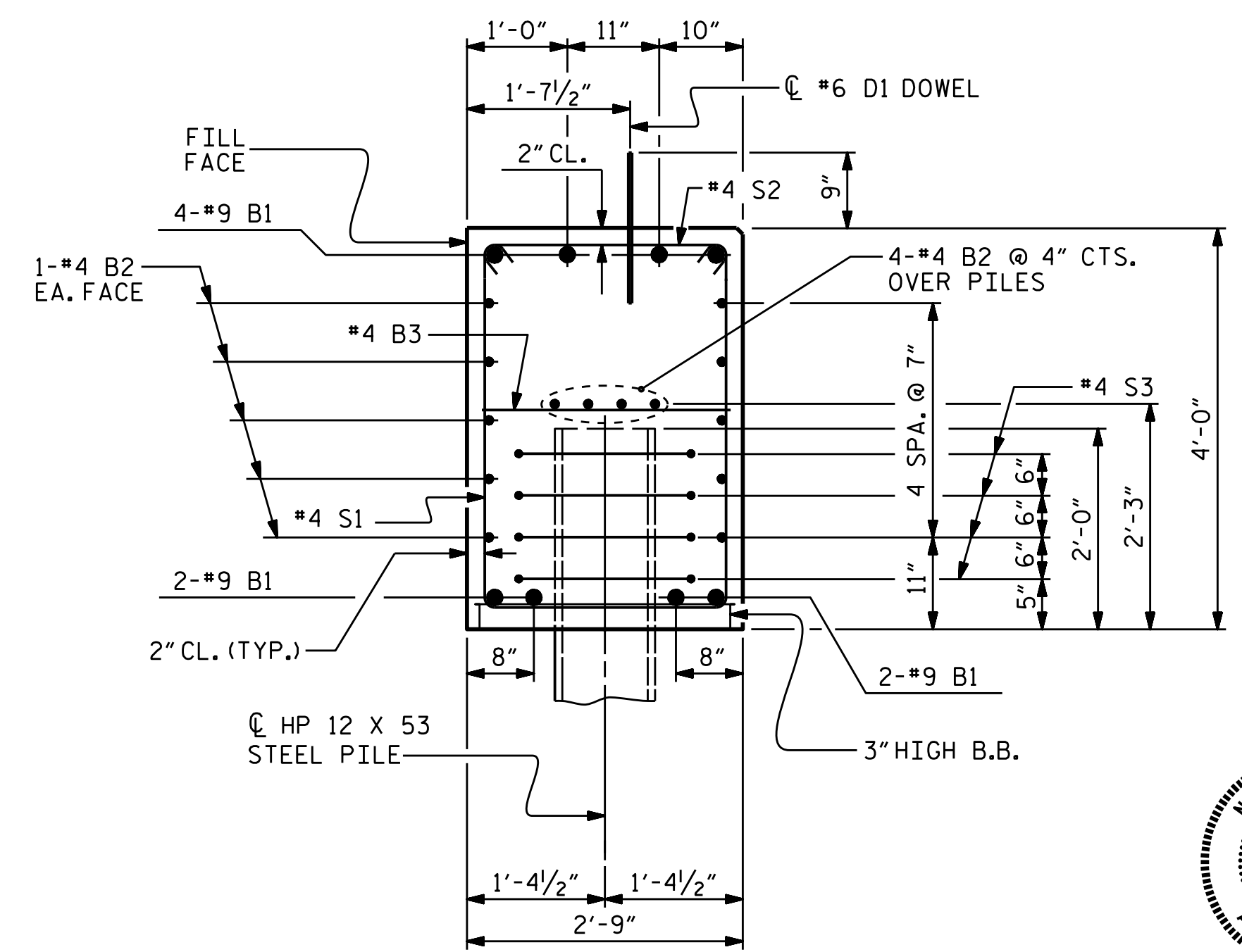


PILE SPLICE DETAILS



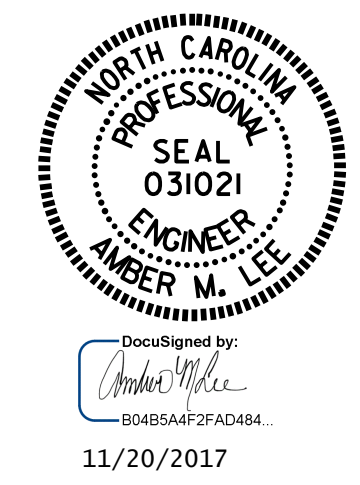
END BENT 1		END BENT 2	
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		
NO: 7	NO: 7		
LIN. FT.= 90	LIN. FT.= 110		
PILE EXCAVATION:		STEEL PILE POINTS NO. = 7	
IN SOIL	LIN. FT.= 28		
NOT IN SOIL	LIN. FT.= 35		
PILE DRIVING EQUIPMENT		PILE DRIVING EQUIPMENT	
SETUP FOR HP 12X53		SETUP FOR HP 12X53	
STEEL PILES	NO. = 7	STEEL PILES	NO. = 7

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	50'-0"	1360
B2	28	#4	STR	25'-1"	469
B3	12	#4	STR	2'-5"	19
D1	28	#6	STR	1'-6"	63
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	4'-4"	46
S1	60	#4	3	10'-5"	418
S2	60	#4	4	3'-2"	127
S3	28	#4	5	6'-6"	122
V1	56	#4	STR	6'-2"	231
REINFORCING STEEL (FOR ONE END BENT)					3104
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS				23.1 C.Y.
POUR #2	UPPER PART OF WINGS				2.3 C.Y.
TOTAL CLASS A CONCRETE					25.4 C.Y.



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

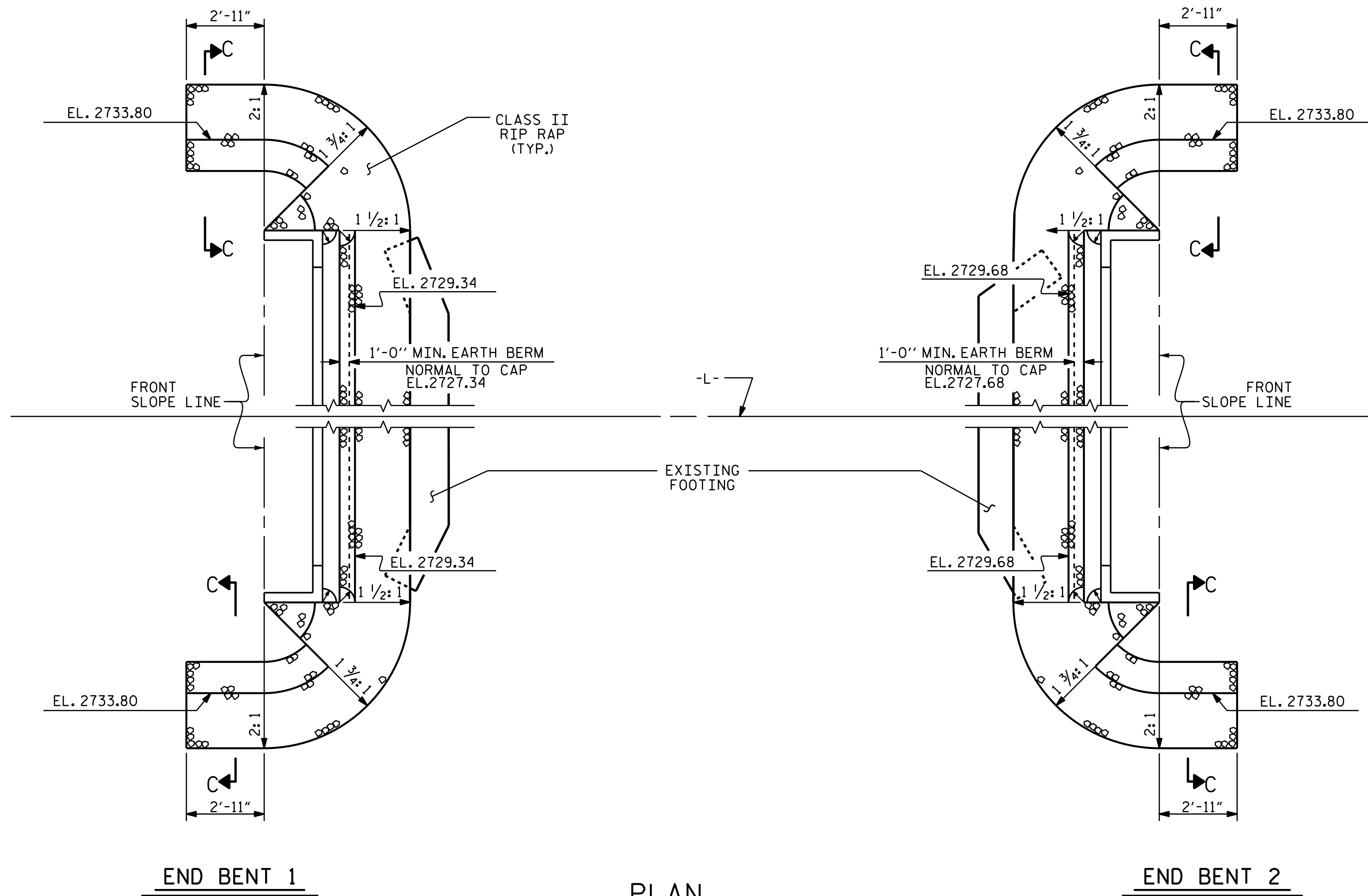


PROJECT NO. B-5864
 YANCEY COUNTY
 STATION: 14+21.00 -L-
 SHEET 4 OF 4

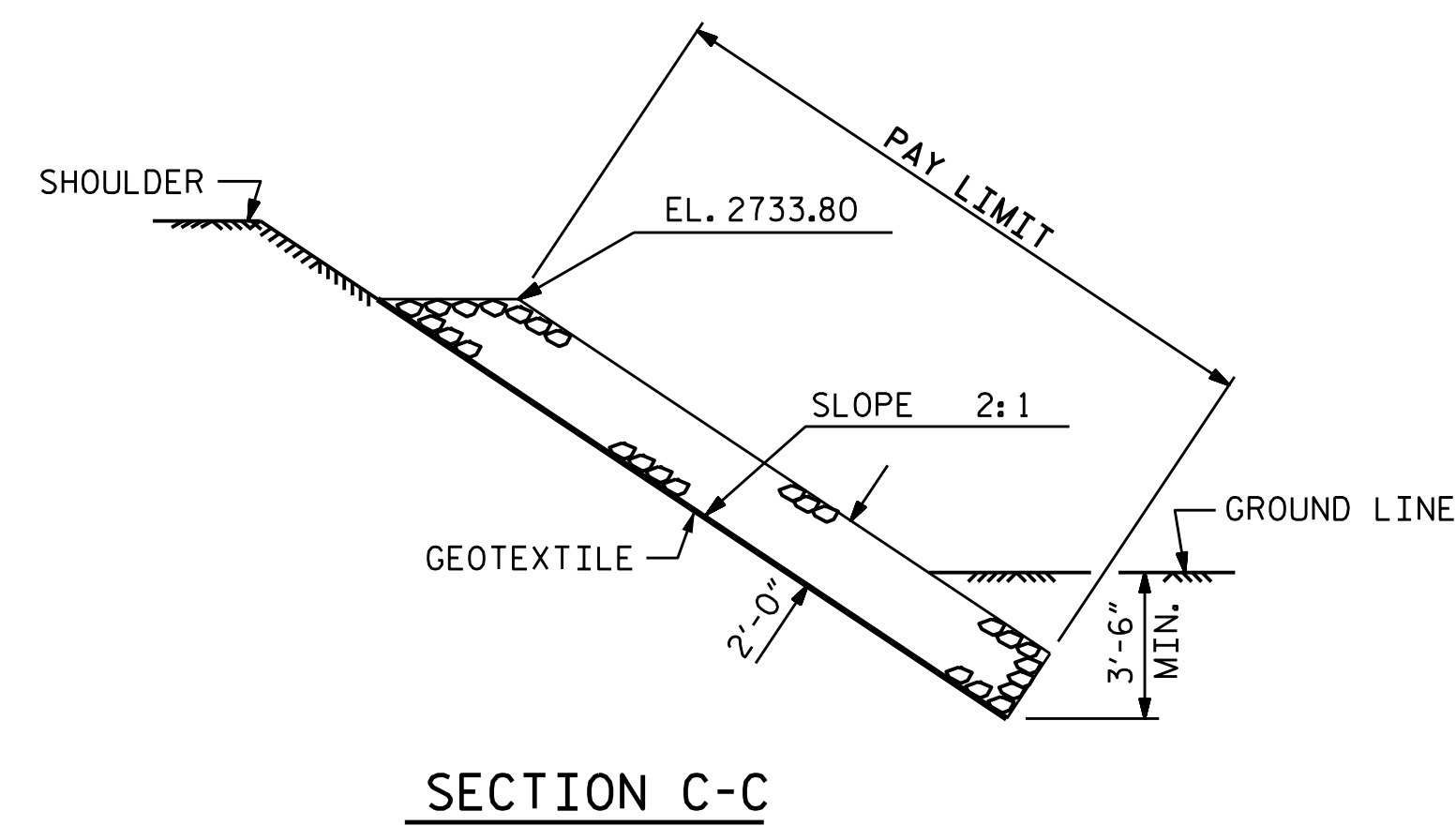
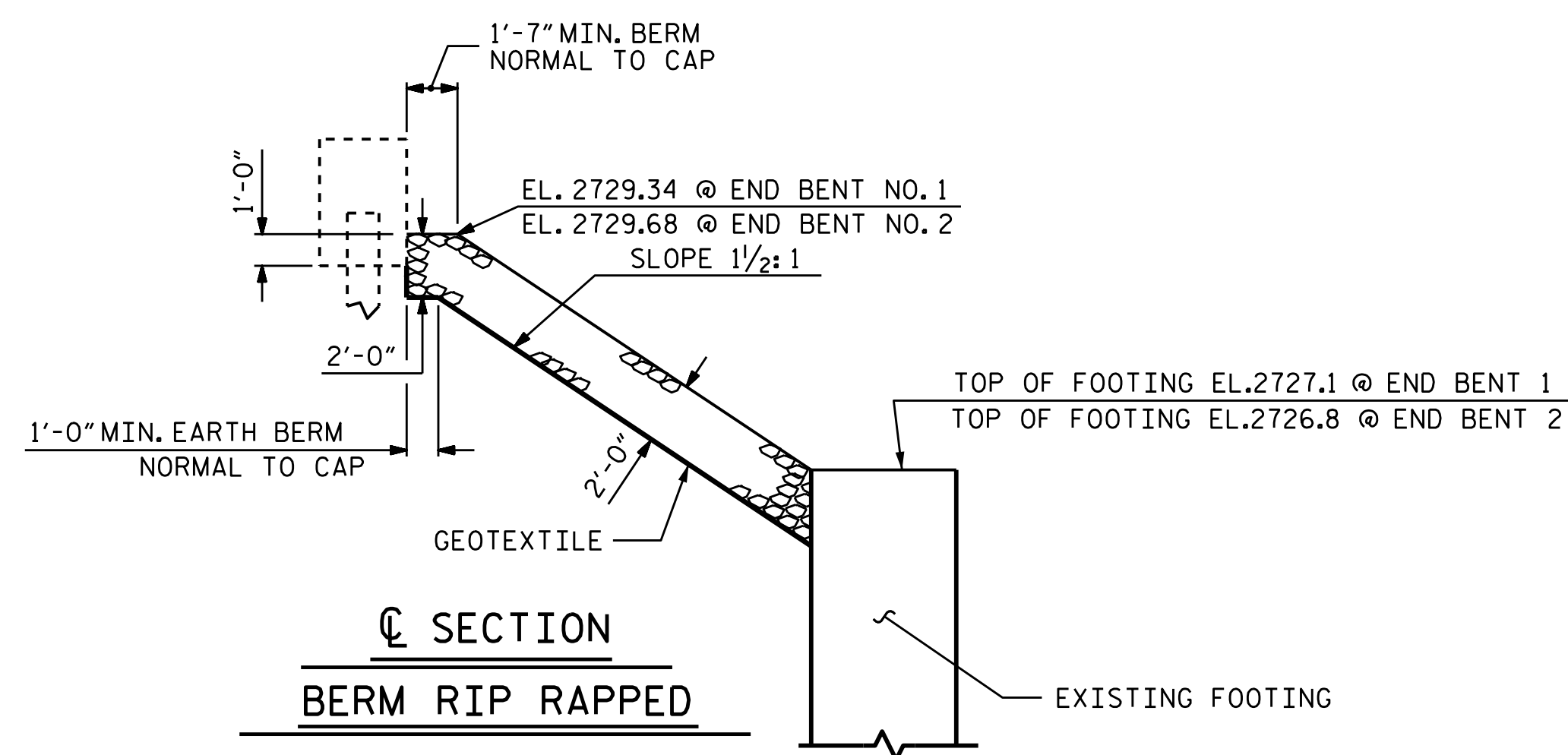
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1 & 2
 DETAILS

ASSEMBLED BY : E. K. POPE	DATE : 1/12/17
CHECKED BY : H. A. LOCKLEAR	DATE : 1/25/17
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	

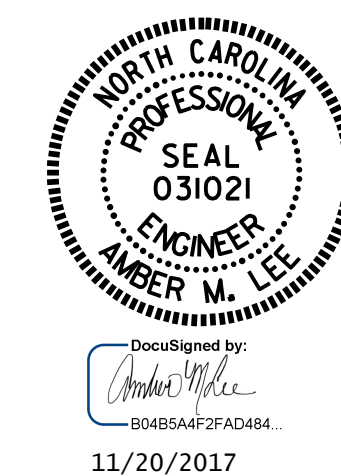
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS 16	
2			4				



ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+21.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	105	115
END BENT 2	120	135
TOTAL	225	250



PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

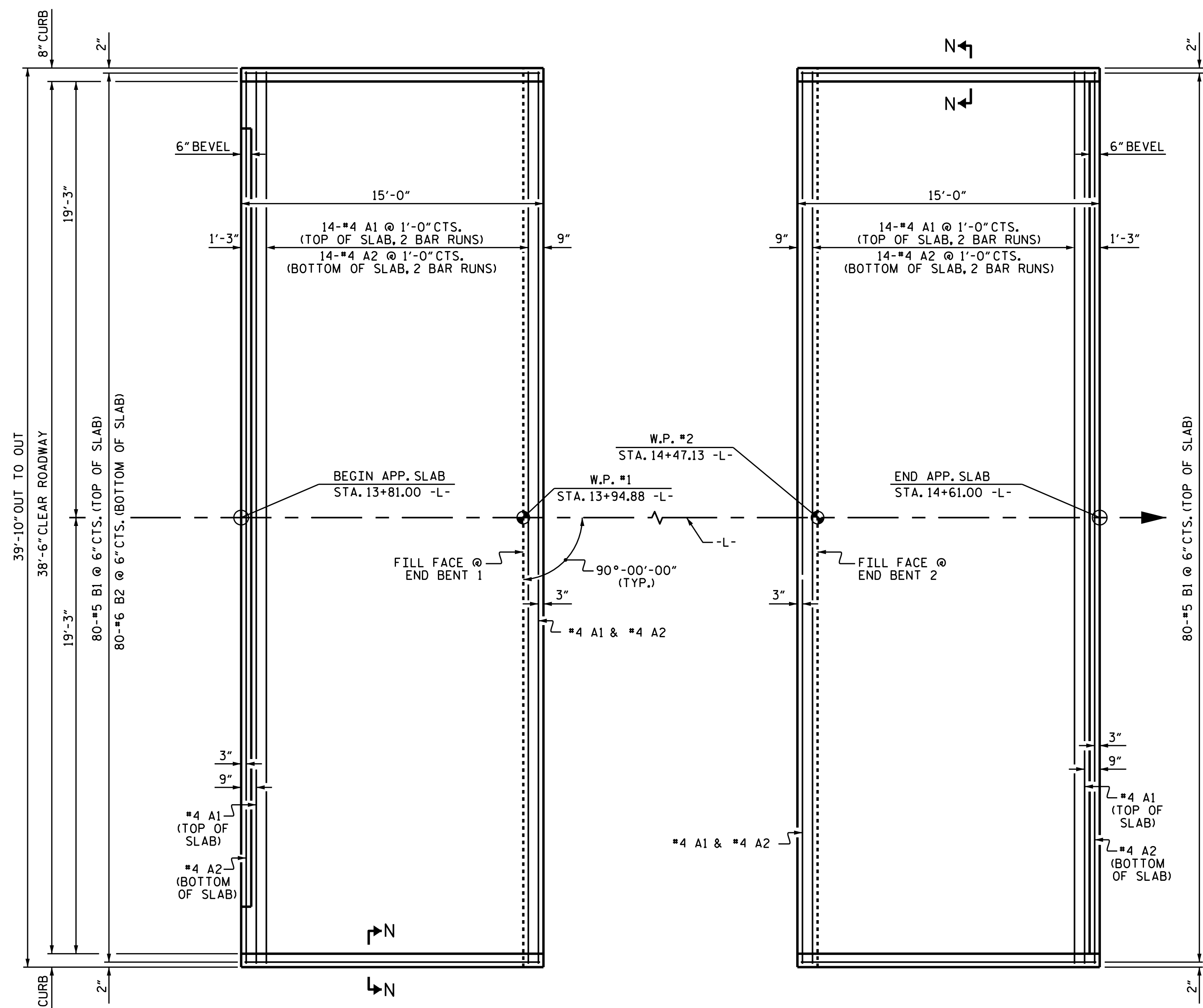


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 —RIP RAP DETAILS—

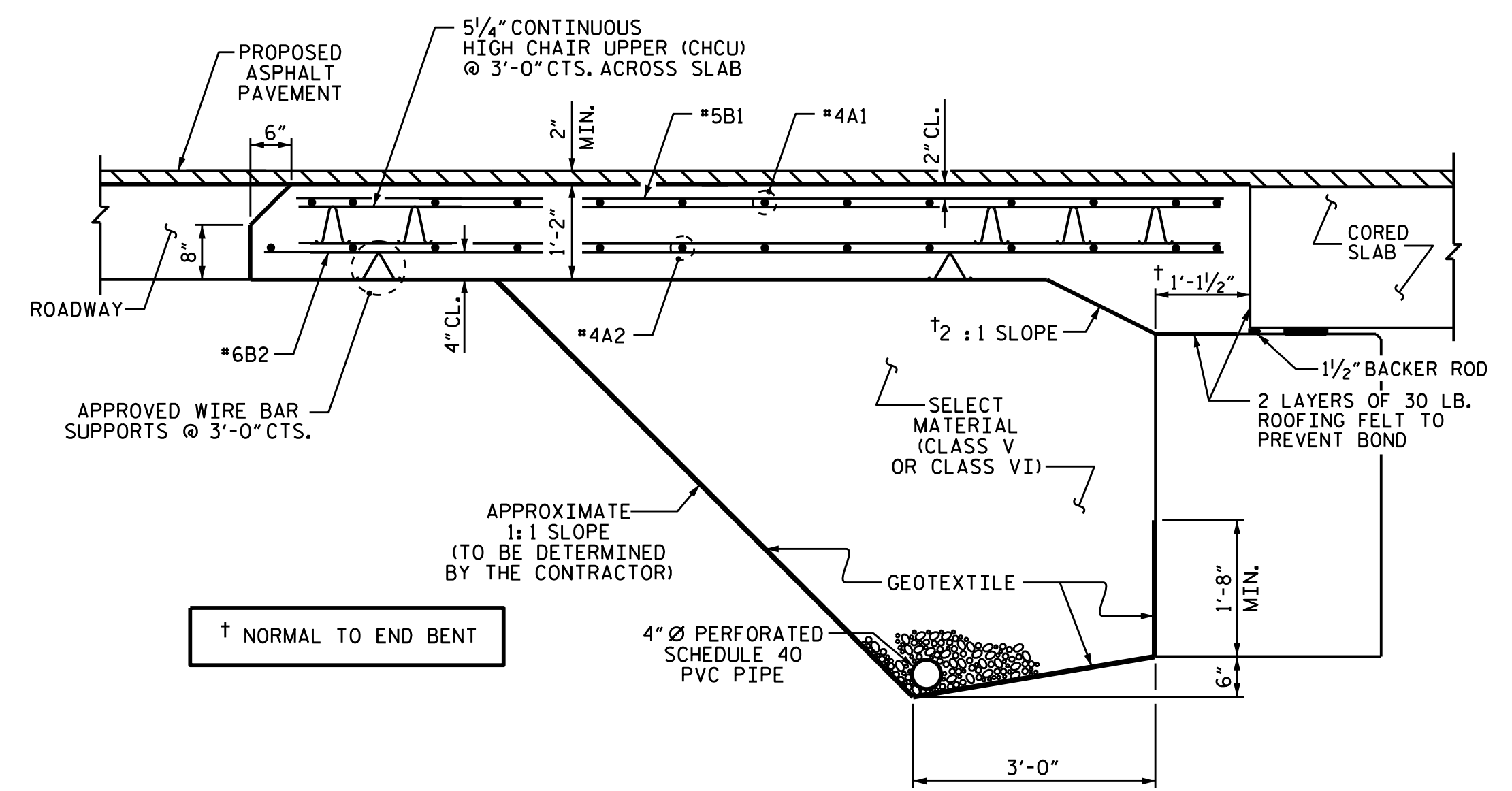
ASSEMBLED BY : G. KOUCHEKI	DATE : 2/13/17
CHECKED BY : H.T. BARBOUR	DATE : 4/13/17
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

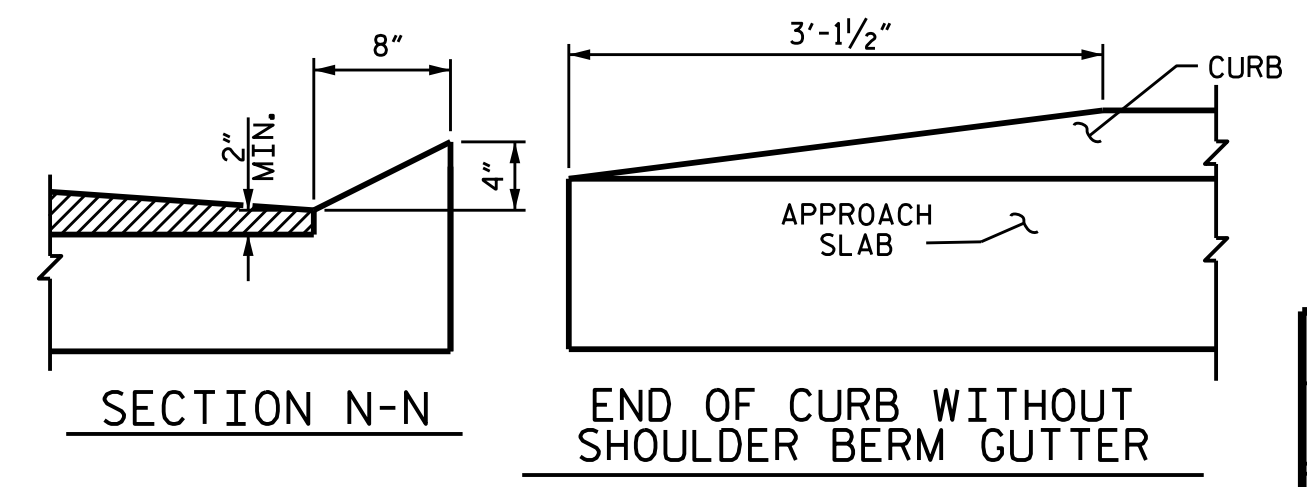
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	
2			4			16	



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



SECTION THRU SLAB
 (TYPE II - MODIFIED APPROACH FILL)



CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

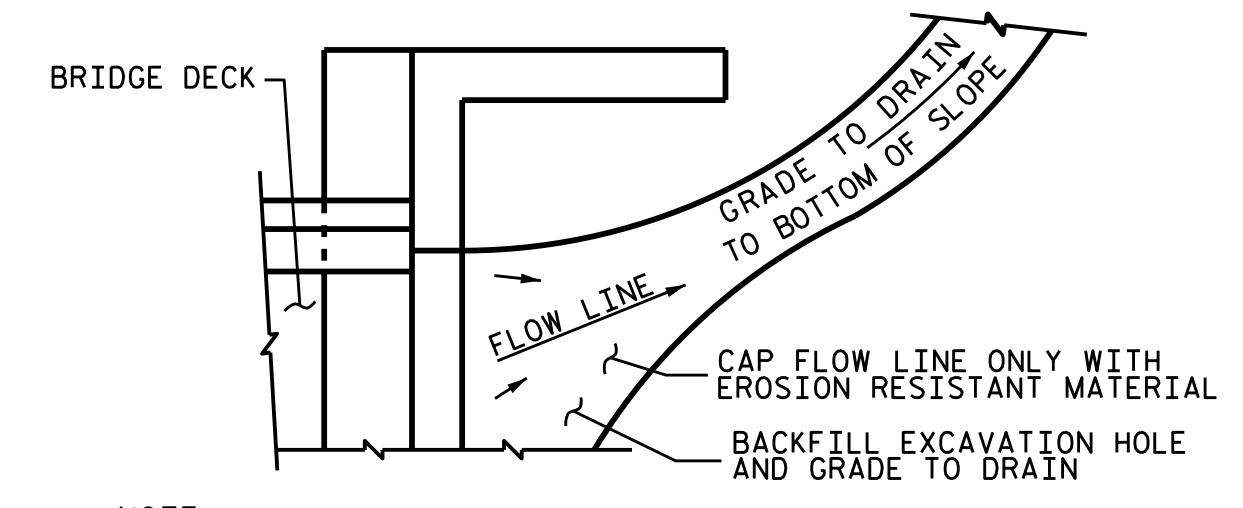
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL 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.

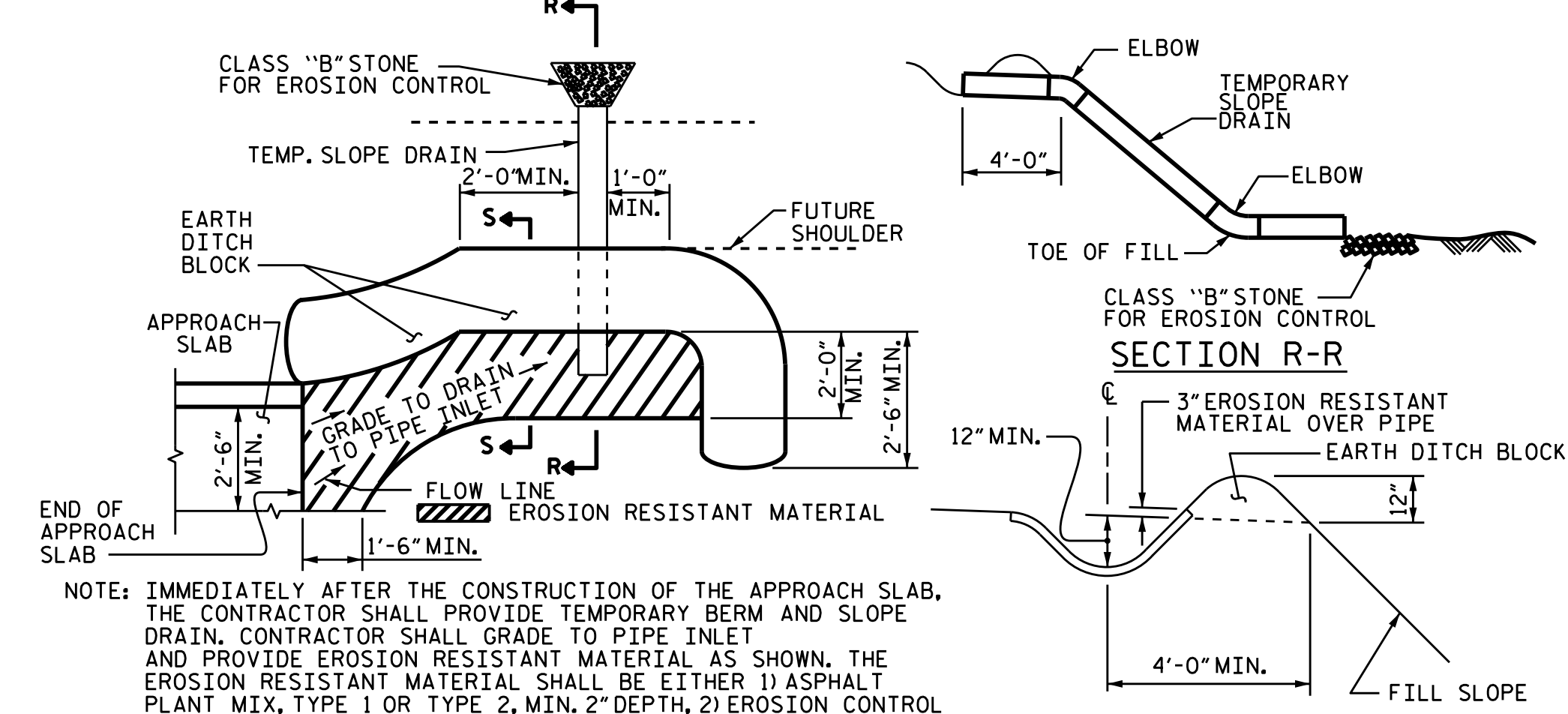
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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



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

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

BILL OF MATERIAL

APPROACH SLAB AT EB #1

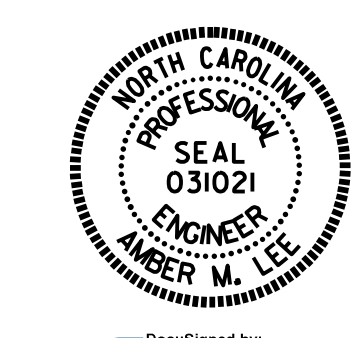
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	20'-9"	444
A2	32	#4	STR	20'-8"	442
*B1	80	#5	STR	14'-2"	1182
B2	80	#6	STR	14'-8"	1762
REINFORCING STEEL				LBS.	2204
*EPOXY COATED REINFORCING STEEL				LBS.	1626
CLASS AA CONCRETE				C. Y.	27.9

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	20'-9"	444
A2	32	#4	STR	20'-8"	442
*B1	80	#5	STR	11'-2"	1182
B2	80	#6	STR	11'-8"	1762
REINFORCING STEEL				LBS.	2204
*EPOXY COATED REINFORCING STEEL				LBS.	1626
CLASS AA CONCRETE				C. Y.	27.9

SPLICE LENGTHS

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



11/20/2017
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. B-5864
YANCEY COUNTY
 STATION: 14+21.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT

90° SKEW

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

ASSEMBLED BY : E. K. POPE DATE : 1/12/17
 CHECKED BY : H. A. LOCKLEAR DATE : 1/25/17
 DRAWN BY : SHS/MAA 5-09
 CHECKED BY : BCH 5-09

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 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.
WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".
EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

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