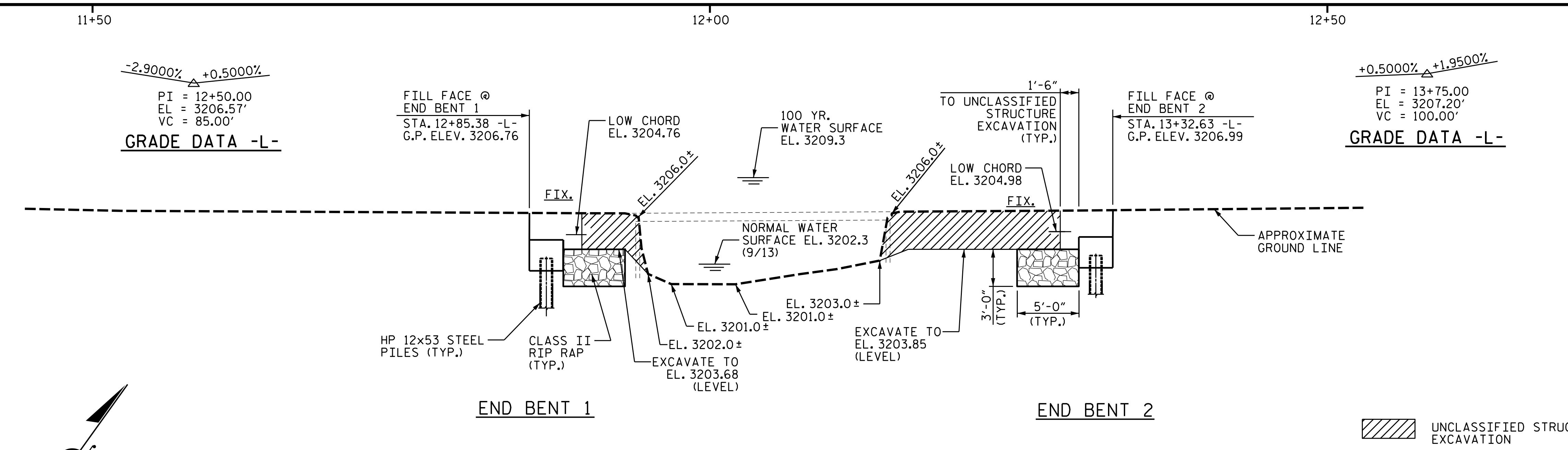


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SECTION ALONG -L-
(SECTION THRU END BENTS ARE TAKEN AT RIGHT ANGLES)

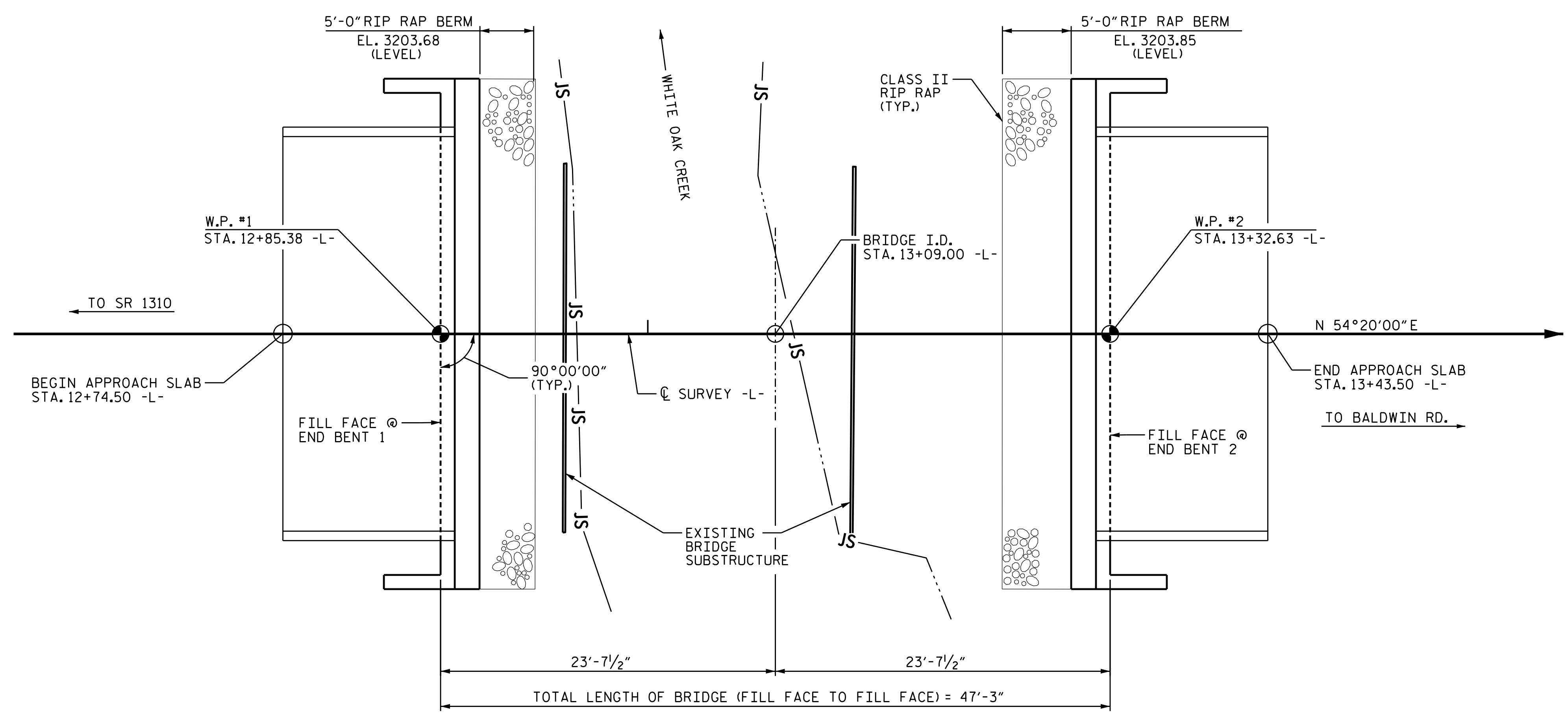
HYDRAULIC DATA

DESIGN DISCHARGE 440 CFS
 FREQUENCY OF DESIGN FLOOD 2 YRS. *
 DESIGN HIGH WATER ELEVATION 3205.2
 DRAINAGE AREA 6.0 SQ.MI.
 BASE DISCHARGE (Q100) 2100 CFS
 BASE HIGH WATER ELEVATION 3209.33
 * MAINTAINS EXISTING LEVEL OF SERVICE

OVERTOPPING FLOOD DATA

OVERTOPPING FLOOD DISCHARGE 711 CFS
 FREQUENCY OF OVERTOPPING FLOOD 5± YRS.
 OVERTOPPING FLOOD ELEVATION 3206.76

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN
(PILES NOT SHOWN FOR CLARITY)

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE No. 29

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 WHITE OAK CREEK
 ON SR 1475
 BETWEEN SR 1310
 AND BALDWIN RD.

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

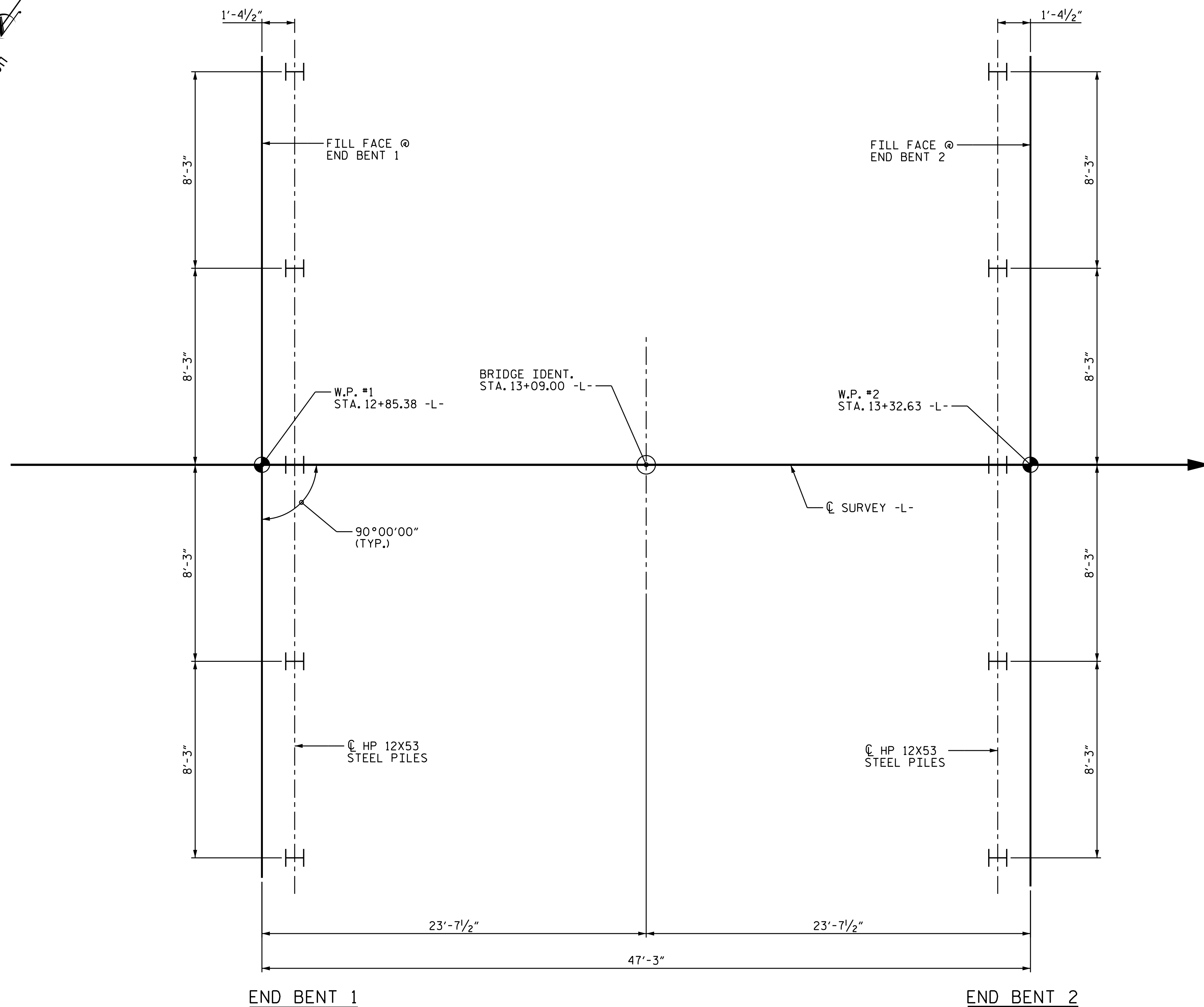
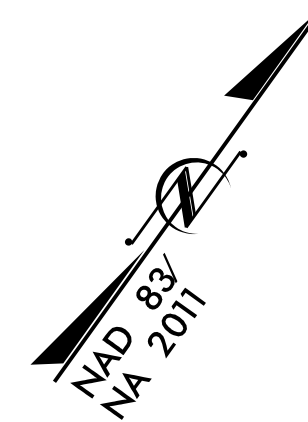
wsp
 WSP USA Inc.
 434 FAYETTEVILLE STREET
 SUITE 1500
 RALEIGH, NC 27601
 TEL: 1.919.836.4040
 LICENSE NO. F-0165

3/15/2021 4:\L\2001798\012 R.115 Macon Bridge 029\550029\Structures\0201 UPDATE.dgn\001_550029_STR.GD_01.dgn

DESIGNED BY: J. WHEATLEY DATE: FEB 2021
 DRAWN BY: M. HOGAN DATE: FEB 2021
 CHECKED BY: T. KIRSCHBAUM DATE: FEB 2021
 DESIGN ENGINEER OF RECORD: T. HARRIS DATE: FEB 2021

FOUNDATION NOTES:

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.
3. DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.
4. PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.
5. DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.



FOUNDATION LAYOUT

PROJECT NO. 17BP.14.R.115
MACON COUNTY
 STATION: 13+09.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

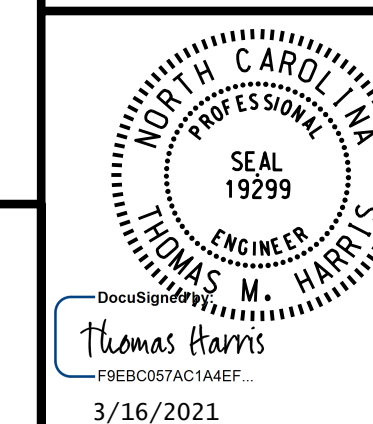
GENERAL DRAWING

FOR BRIDGE OVER
 WHITE OAK CREEK
 ON SR 1475
 BETWEEN SR 1310
 AND BALDWIN RD.

REVISIONS

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

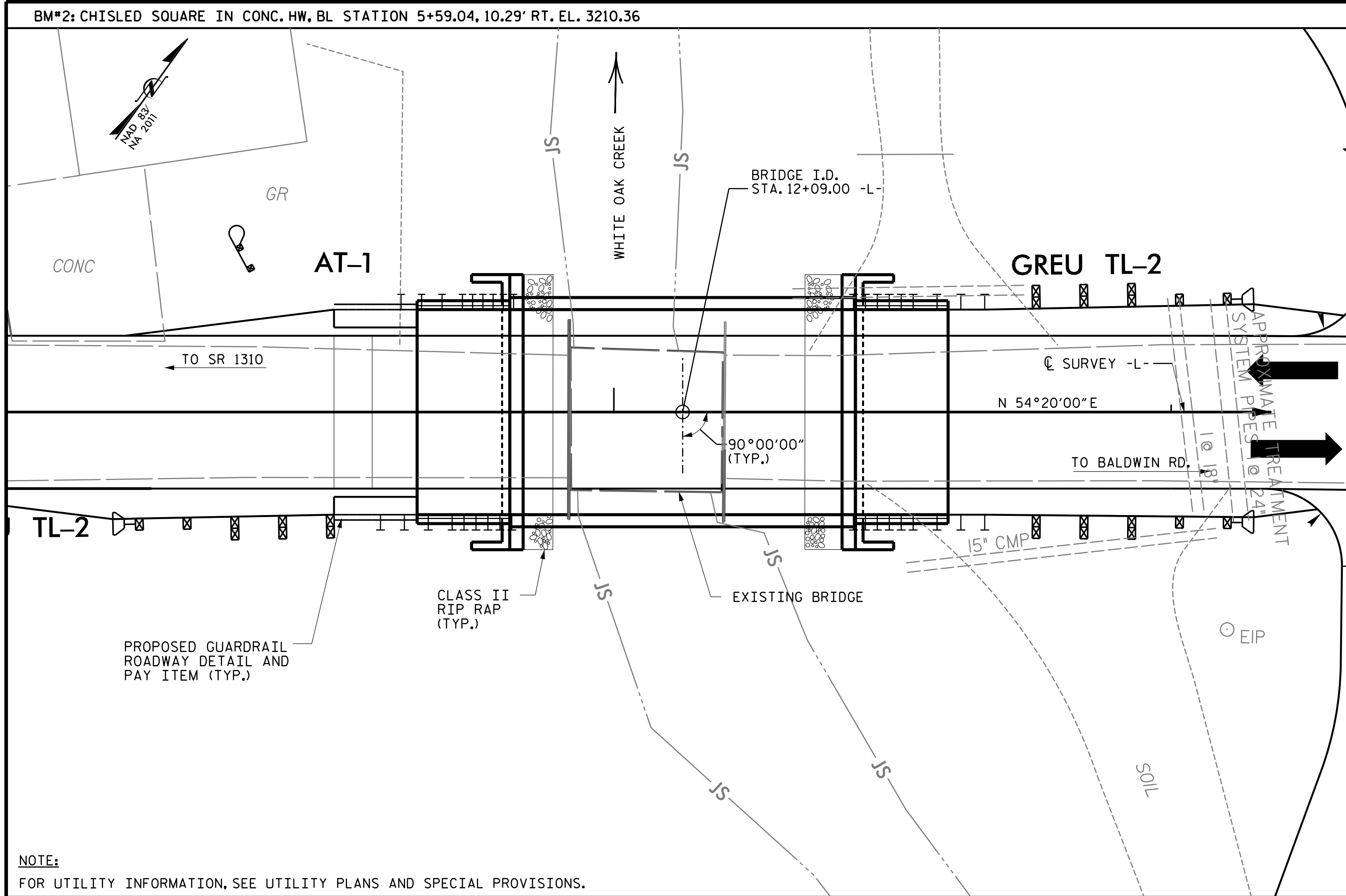
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2/12/2021 4:\L\T2001798.012 R.115 Macon Bridge 029\550029\Structures\0201 UPDATE.dgn\002_550029_STR.GD_02.dgn

DESIGNED BY:	J. WHEATLEY	DATE :	FEB 2021
DRAWN BY:	M. HOGAN	DATE :	FEB 2021
CHECKED BY:	T. KIRSCHBAUM	DATE :	FEB 2021
DESIGN ENGINEER OF RECORD:	T. HARRIS	DATE :	FEB 2021



NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- 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 EXISTING STRUCTURE CONSISTING OF ONE 20'-6" TIMBER JOIST SPAN WITH TIMBER FLOOR ON TIMBER ABUTMENTS LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL 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 30 FT. EACH SIDE 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.
- 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.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 EVALUATING SCOUR AT BRIDGES".
- 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.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 13+30.00 -DET- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.
- THE BRIDGE RAILS ON THE TEMPORARY STRUCTURE SHALL BE DESIGNED FOR THE AASHTO LRFD TEST LEVEL 3 (TL-3) CRASH TEST CRITERIA. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

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

LOCATION SKETCH

TOTAL BILL OF MATERIAL

	TEMPORARY STRUCTURE @ STA. 13+30.00 -DET-	ASBESTOS ASSESSMENT	REMOVAL OF EXISTING STRUCTURE @ STA. 10+89.00 -L-	REMOVAL OF EXISTING STRUCTURE @ STA. 13+09.00 -L-	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	HP 12 X 53 STEEL PILES	32" ALASKA RAIL	RIP RAP CLASS II (3'-0" THICK)	GEOTEXTILE FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EA.	NO.	LIN. FT.	TON	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE					LUMP SUM		LUMP SUM				90.0			LUMP SUM	10	450
END BENT NO. 1						12.9		1930	5	5	200	28	32			
END BENT NO. 2						12.9		1930	5	5	225	28	32			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	25.8	LUMP SUM	3860	10	10	425	90.0	64	LUMP SUM	10	450

PROJECT NO. 17BP.14.R.115
MACON COUNTY
 STATION: 13+09.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

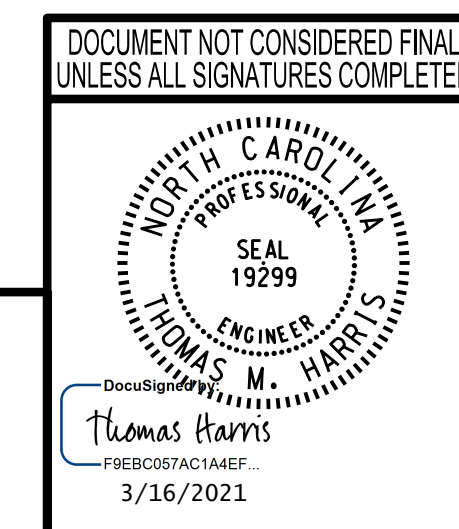
GENERAL DRAWING

FOR BRIDGE OVER
 WHITE OAK CREEK
 ON SR 1475
 BETWEEN SR 1310
 AND BALDWIN RD.

REVISIONS

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

SHEET NO.
 S-3
 TOTAL SHEETS
 17



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3/15/2021 4:\L\2001798\012 R.115 Macon Bridge 029\550029\Structure\es\2021 UPDATE.dgn\003_550029_STR.GD_03.dgn

DESIGNED BY: J. WHEATLEY DATE: FEB 2021
 DRAWN BY: M. HOGAN DATE: FEB 2021
 CHECKED BY: T. KIRSCHBAUM DATE: FEB 2021
 DESIGN ENGINEER OF RECORD: T. HARRIS DATE: FEB 2021

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			
						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	1.23	-	1.75	0.29	1.31	A	EX	22.00	0.60	2.18	A	I	13.00	0.80	0.29	1.23	A	EX	22.00		
	HL-93(Opr)	N/A		1.69	-	1.35	0.29	1.69	A	EX	22.00	0.60	2.94	A	I	8.50	N/A	-	-	-	-	-	-	
	HS-20(Inv)	36.000	2	1.51	54.360	1.75	0.29	1.60	A	EX	22.00	0.60	2.58	A	I	8.50	0.80	0.29	1.51	A	EX	22.00		
	HS-20(Opr)	36.000		2.08	74.880	1.35	0.29	2.08	A	EX	22.00	0.60	3.49	A	I	8.50	N/A	-	-	-	-	-	-	
LEGAL LOAD RATING	SV	SNSH	13.500		2.94	39.690	1.40	0.29	3.91	A	EX	22.00	0.60	7.54	A	I	8.50	0.80	0.29	2.94	A	EX	22.00	
		SNGARBS2	20.000		2.38	47.600	1.40	0.29	3.16	A	EX	22.00	0.60	5.58	A	I	8.50	0.80	0.29	2.38	A	EX	22.00	
		SNAGRIS2	22.000		2.34	51.480	1.40	0.29	3.08	A	EX	26.50	0.60	5.26	A	I	8.50	0.80	0.29	2.34	A	EX	22.00	
		SNCOTTS3	27.250		1.47	40.058	1.40	0.29	1.95	A	EX	22.00	0.60	3.59	A	I	8.50	0.80	0.29	1.47	A	EX	22.00	
		SNAGGRS4	37.925		1.30	49.303	1.40	0.29	1.72	A	EX	22.00	0.60	3.11	A	I	8.50	0.80	0.29	1.30	A	EX	22.00	
		SNS5A	35.550		1.26	44.793	1.40	0.29	1.68	A	EX	22.00	0.60	3.28	A	I	8.50	0.80	0.29	1.26	A	EX	22.00	
		SNS6A	39.950		1.19	47.541	1.40	0.29	1.58	A	EX	22.00	0.60	3.05	A	I	8.50	0.80	0.29	1.19	A	EX	22.00	
	SNS7B	42.000	3	1.13	47.460	1.40	0.29	1.51	A	EX	22.00	0.60	3.13	A	I	8.50	0.80	0.29	1.13	A	EX	22.00		
	TTST	TNAGRIT3	33.000		1.46	48.180	1.40	0.29	1.94	A	EX	22.00	0.60	3.61	A	I	8.50	0.80	0.29	1.46	A	EX	22.00	
		TNT4A	33.075		1.48	48.951	1.40	0.29	1.96	A	EX	22.00	0.60	3.43	A	I	8.50	0.80	0.29	1.48	A	EX	22.00	
		TNT6A	41.600		1.24	51.584	1.40	0.29	1.65	A	EX	22.00	0.60	3.36	A	I	8.50	0.80	0.29	1.24	A	EX	22.00	
		TNT7A	42.000		1.26	52.920	1.40	0.29	1.68	A	EX	22.00	0.60	3.06	A	I	8.50	0.80	0.29	1.26	A	EX	22.00	
		TNT7B	42.000		1.31	55.020	1.40	0.29	1.75	A	EX	22.00	0.60	2.94	A	I	8.50	0.80	0.29	1.31	A	EX	22.00	
		TNAGRIT4	43.000		1.25	53.750	1.40	0.29	1.66	A	EX	22.00	0.60	2.80	A	I	8.50	0.80	0.29	1.25	A	EX	22.00	
TNAGT5A		45.000		1.16	52.200	1.40	0.29	1.55	A	EX	22.00	0.60	2.91	A	I	8.50	0.80	0.29	1.16	A	EX	22.00		
TNAGT5B	45.000		1.14	51.300	1.40	0.29	1.51	A	EX	22.00	0.60	2.62	A	I	35.5	0.80	0.29	1.14	A	EX	22.00			

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:

-
-
-
-

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

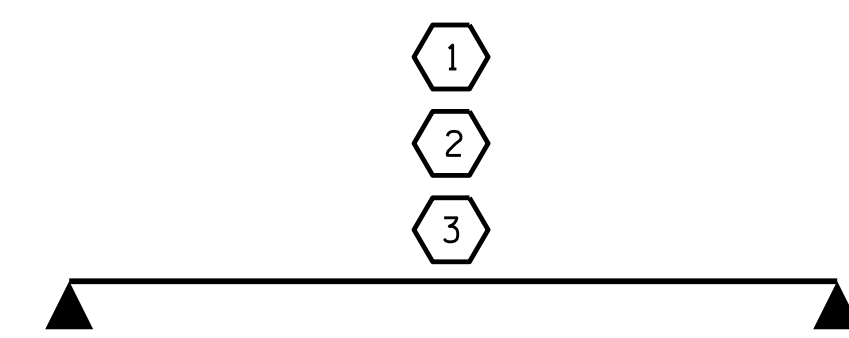
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING ***

*** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EX - EXTERIOR GIRDER



LRFR SUMMARY

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

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

SHEET NO. S-4
 TOTAL SHEETS 17

DOCUMENT NOT CONSIDERED FINAL
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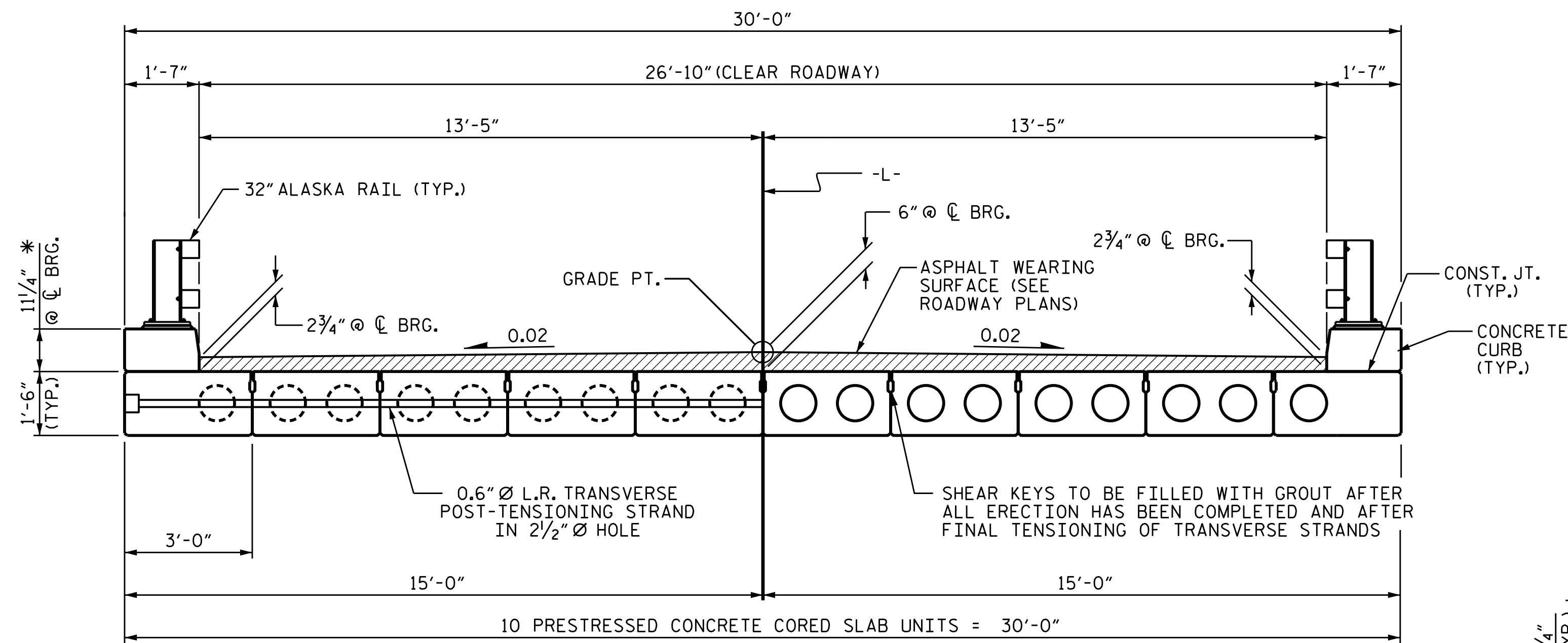
THOMAS M. HARRIS
 ENGINEER
 SEAL 19299
 3/16/2021

WSP

WSP USA Inc.
 434 FAYETTEVILLE STREET
 SUITE 1500
 RALEIGH, NC 27601
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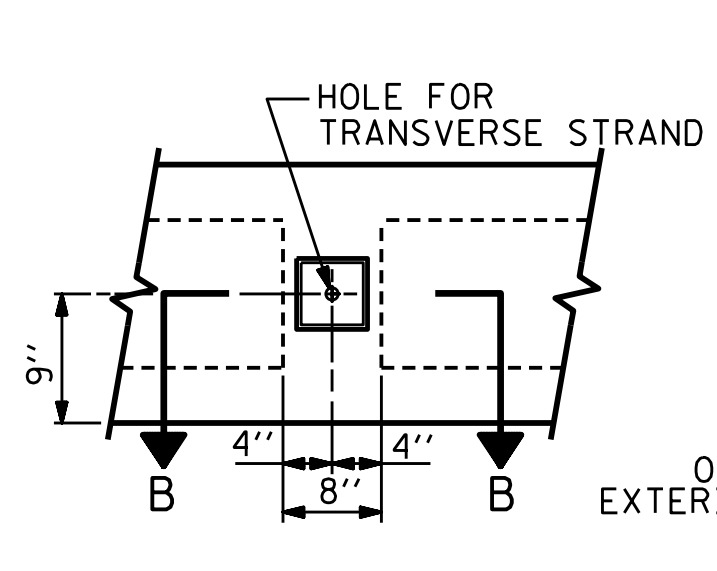
2/12/2021 J:\L\2001798\012_R.115_Macon_Bridge_029\550029\Structures\0201_UPDATE.dgn\004_550029_STR_LRFR.dgn

DESIGNED BY: J. WHEATLEY DATE: FEB 2021
 DRAWN BY: M. HOGAN DATE: FEB 2021
 CHECKED BY: T. KIRSCHBAUM DATE: FEB 2021
 DESIGN ENGINEER OF RECORD: T. HARRIS DATE: FEB 2021

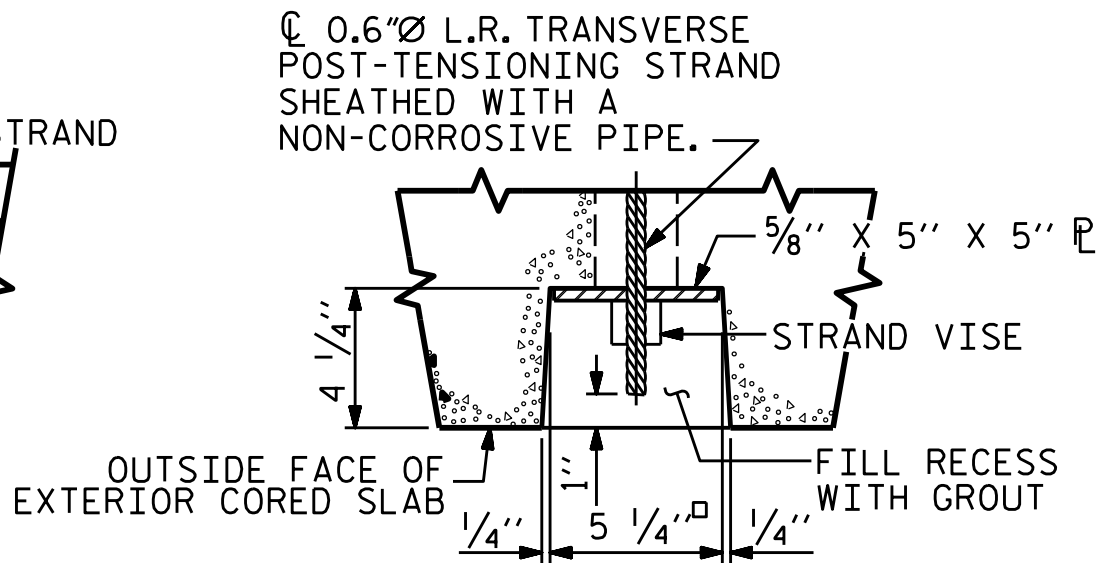


HALF SECTION AT INTERMEDIATE DIAPHRAGMS
TYPICAL SECTION THROUGH VOIDS

* - 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 CUTTERLINE. FOR CURB HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "32" ALASKA RAIL" SHEET.



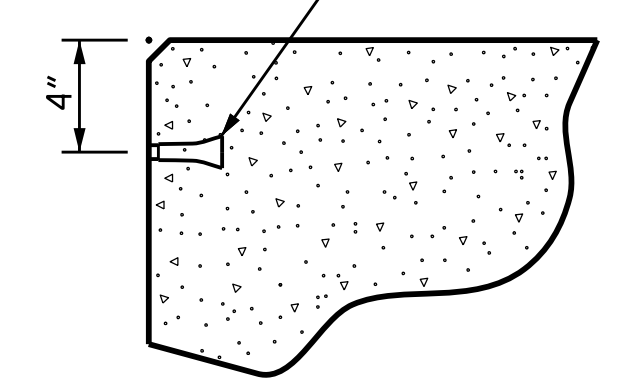
ELEVATION VIEW



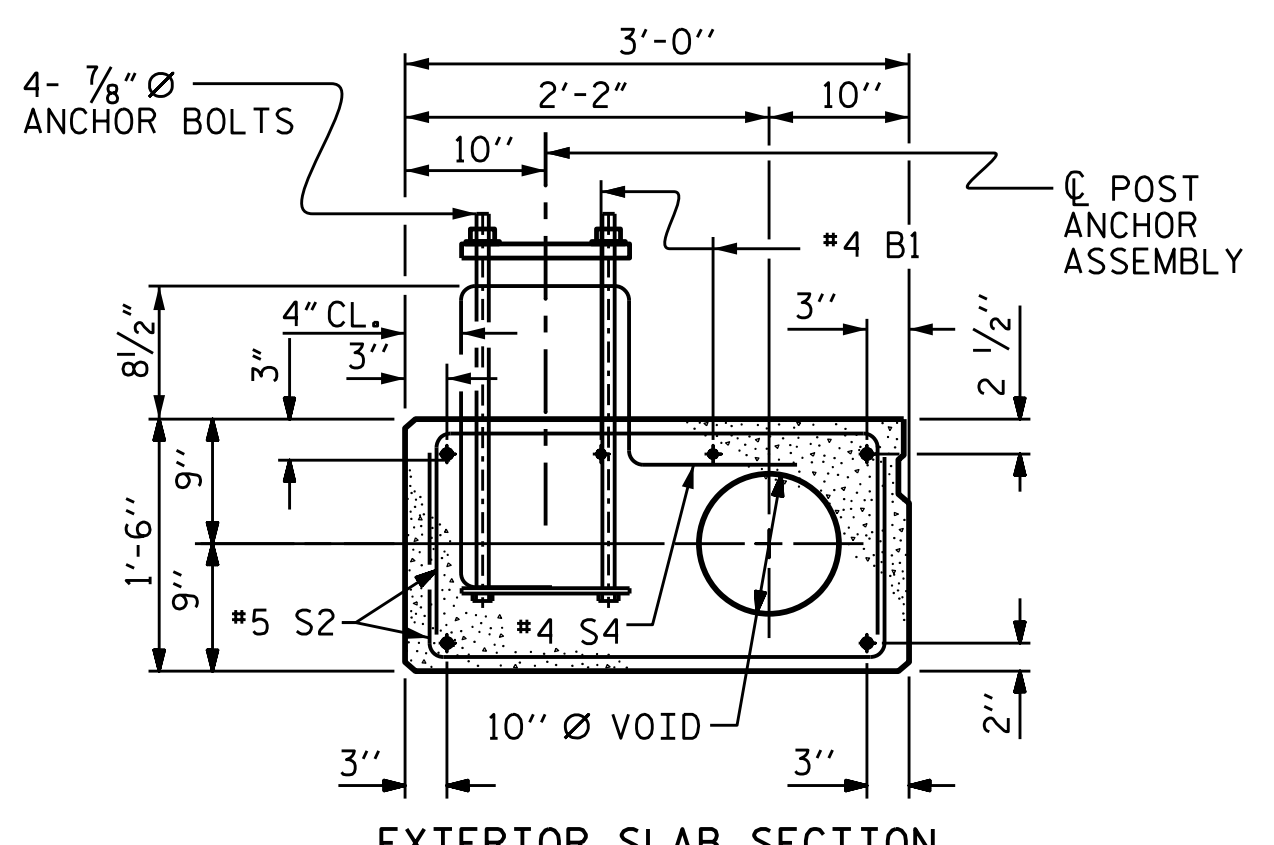
SECTION B-B

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

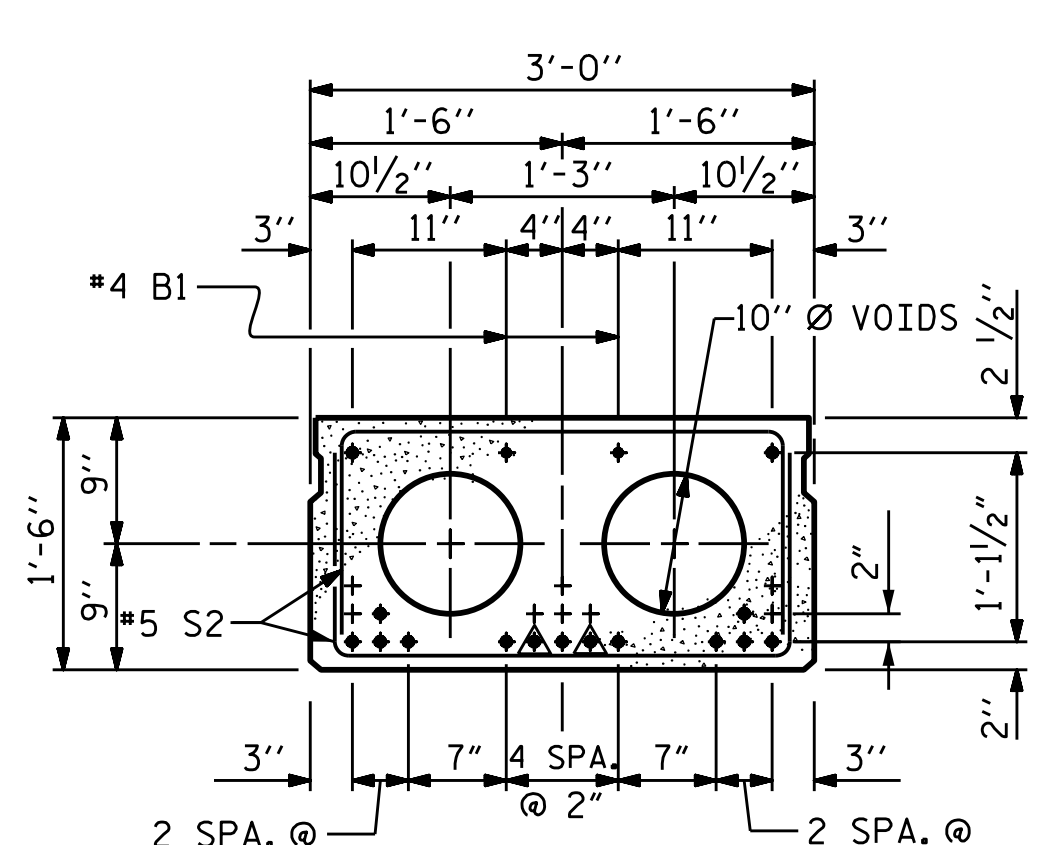
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

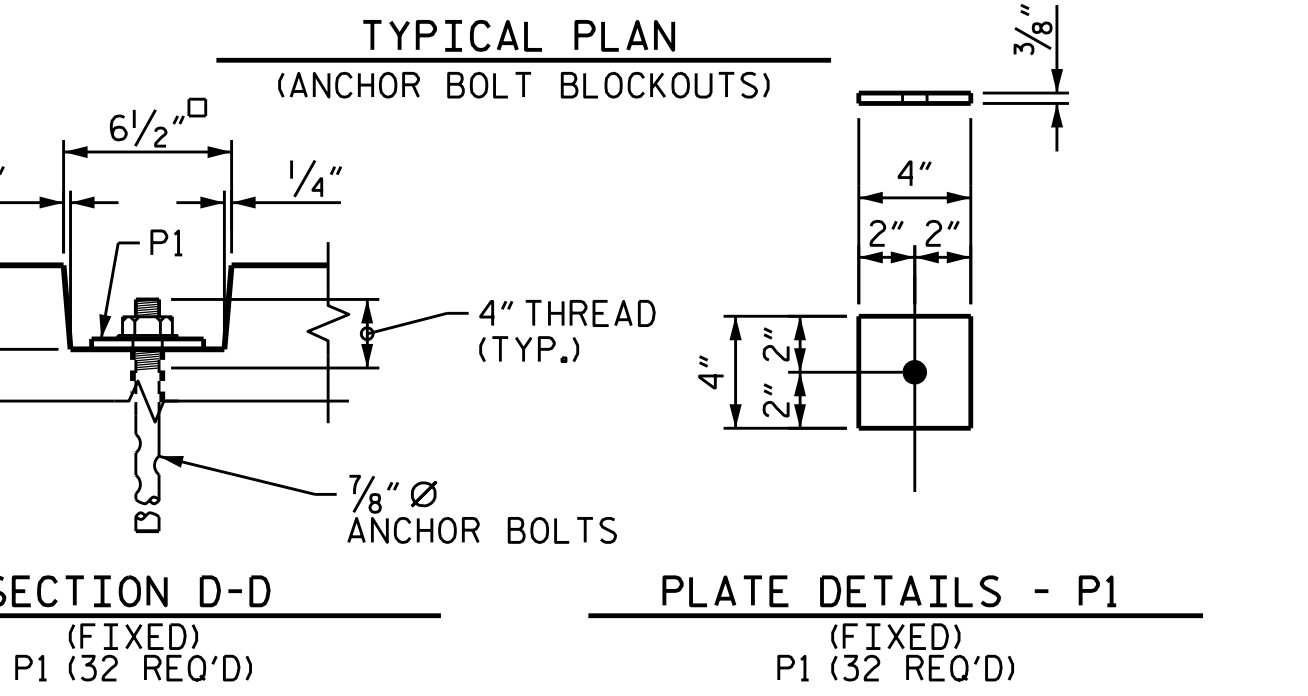


EXTERIOR SLAB SECTION (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION)



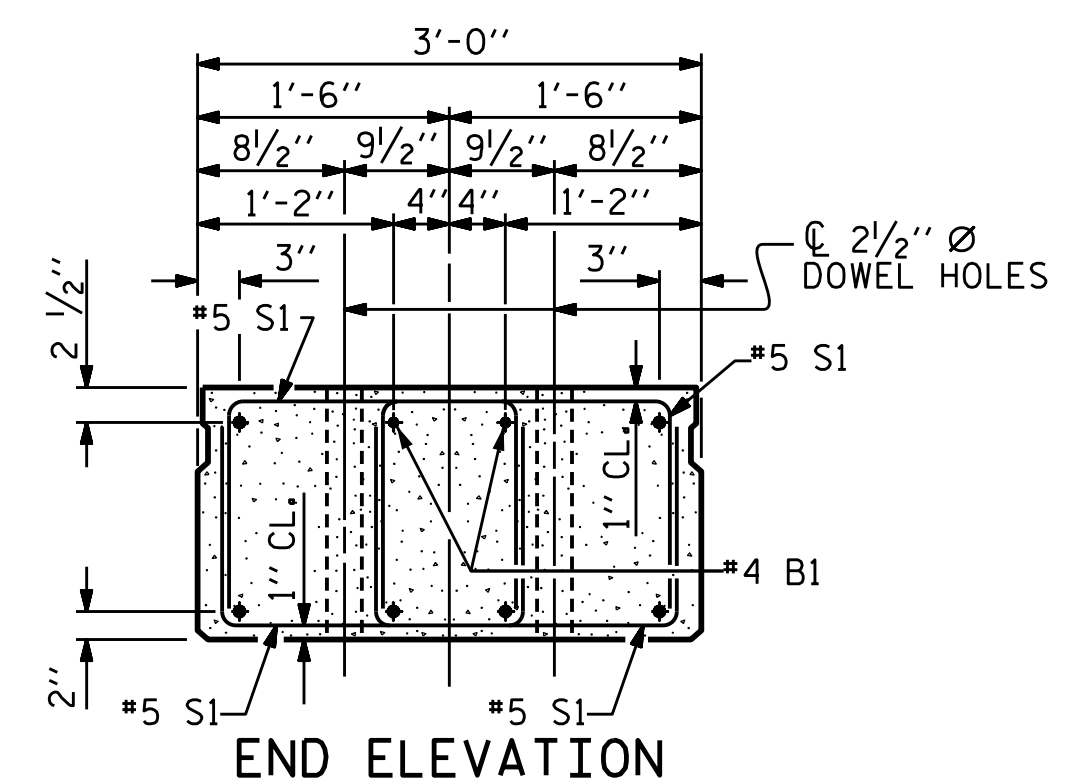
INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT (15 STRANDS REQUIRED)

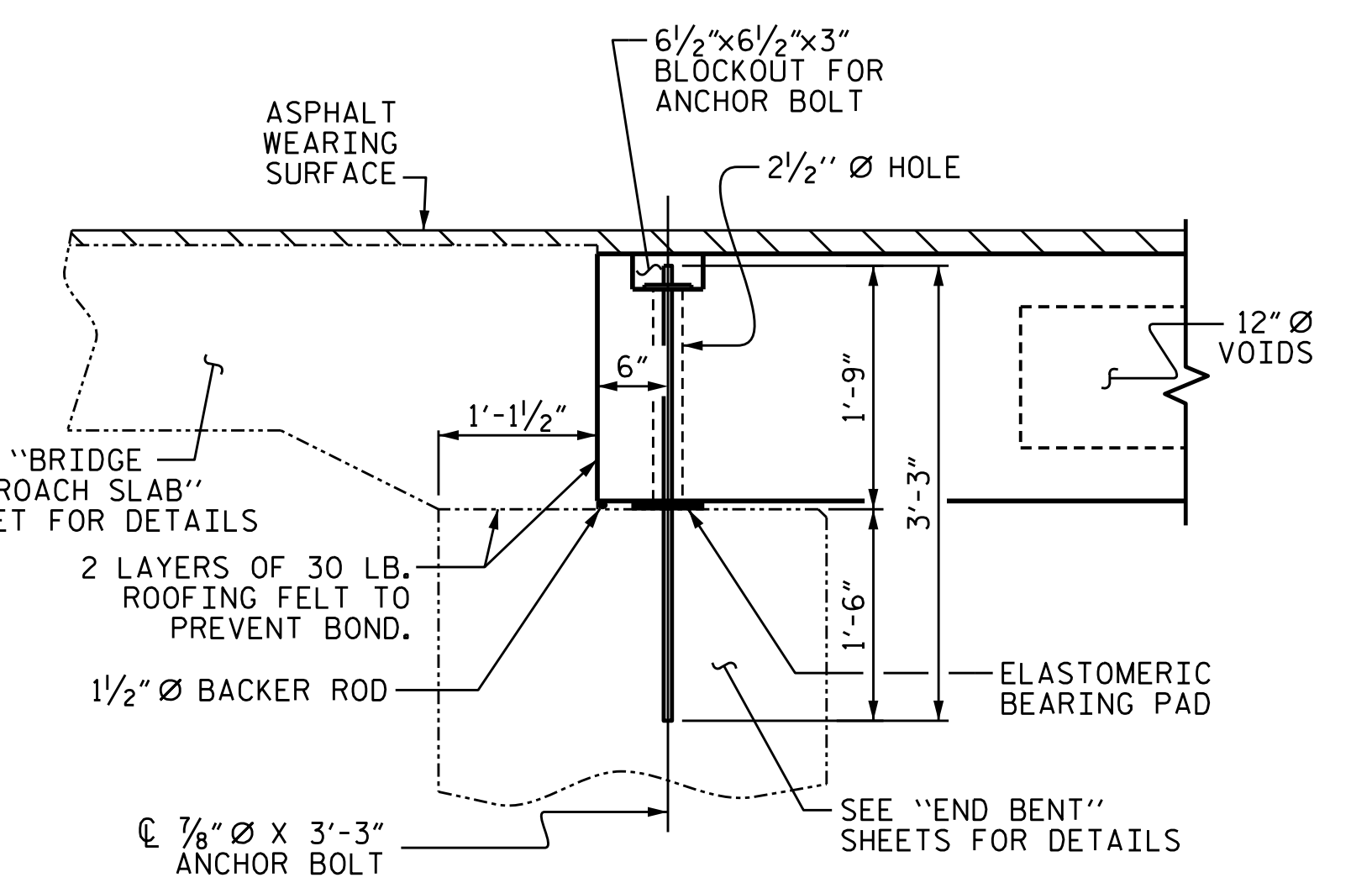


BLOCKOUT DETAIL FOR ANCHOR BOLTS

BLOCKOUTS SHALL BE FILLED WITH NONSHRINK GROUT.

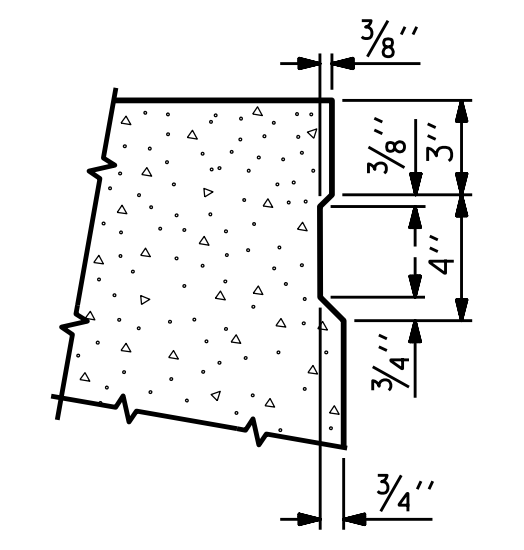


END ELEVATION SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



SECTION AT END BENT

THE COST OF ANCHOR BOLTS, P1 PLATES AND NUTS SHALL BE INCLUDED IN THE PRICE BID FOR PRECAST UNITS.



SHEAR KEY DETAIL

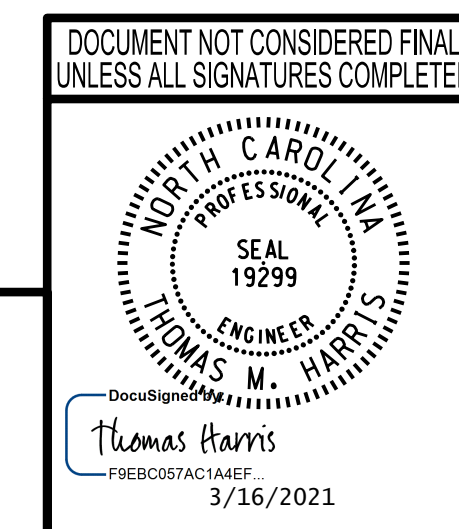
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. 17BP.14.R.115
MACON COUNTY
STATION: 13+09.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLAB UNIT
90° SKEW



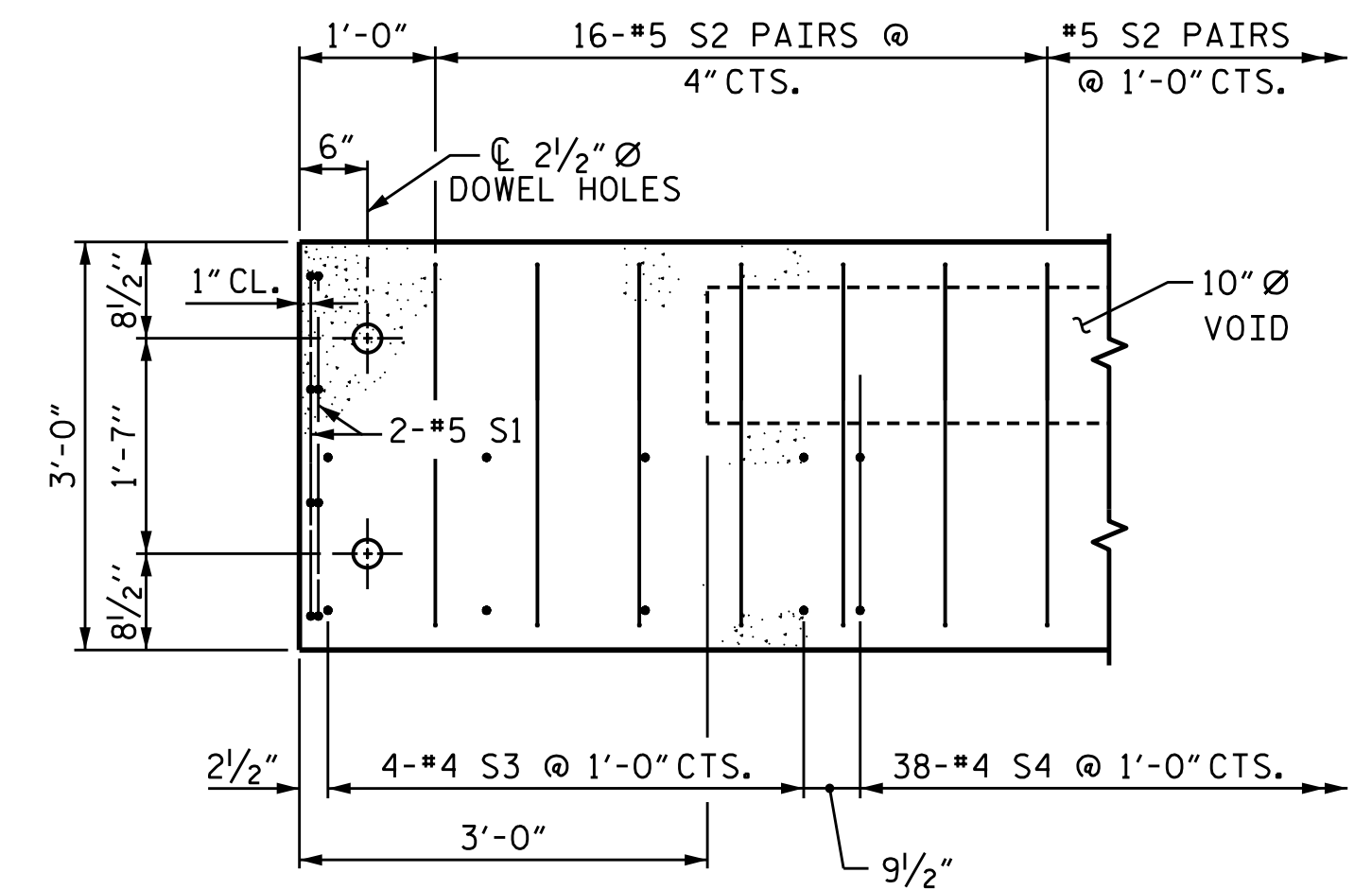
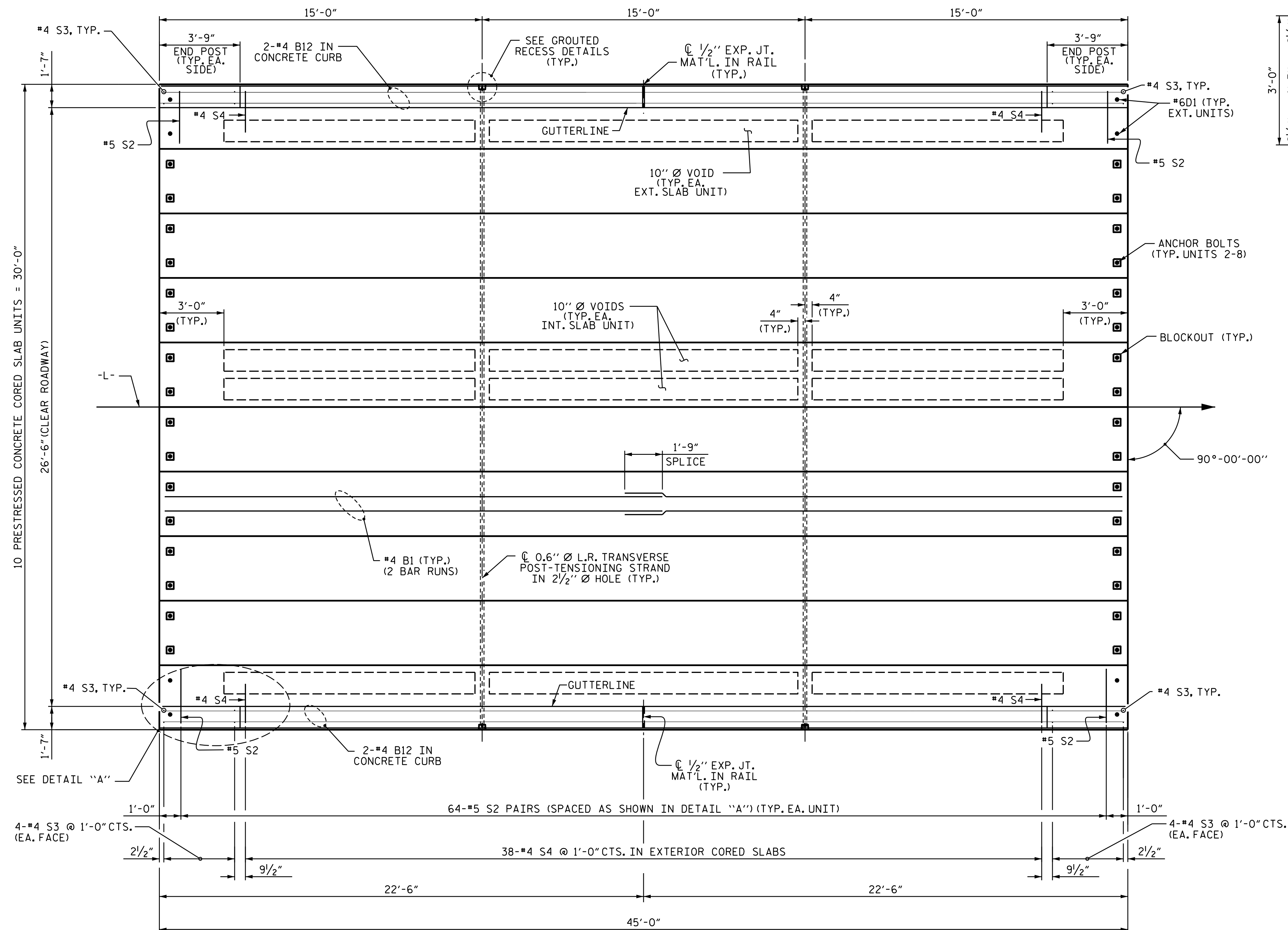
REVISIONS						SHEET NO.
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DRAWN BY:	M. HOGAN	DATE:	FEB 2021
CHECKED BY:	T. KIRSCHBAUM	DATE:	FEB 2021
DESIGN ENGINEER OF RECORD:	T. HARRIS	DATE:	FEB 2021

3/15/2021 4:\L\T2001798.012 R.115 Macon Bridge 029\550029\Structures\0201 UPDATE.dgn\006_550029_STR_SS.02.dgn



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #4 S3 BARS AND #4 S4 BARS AND ADD 10" VOID.

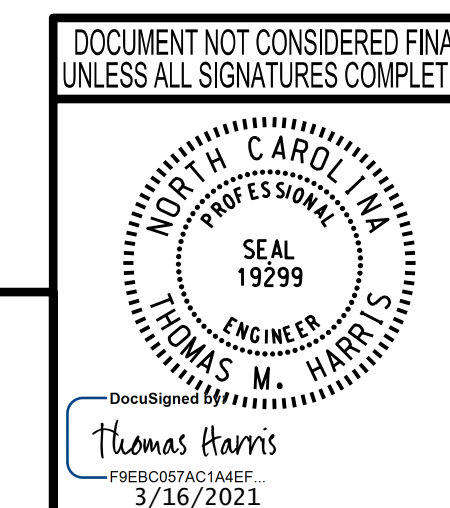
PLAN OF UNIT

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 45' UNIT
 27'-10" CLEAR ROADWAY
 90° SKEW



REVISIONS

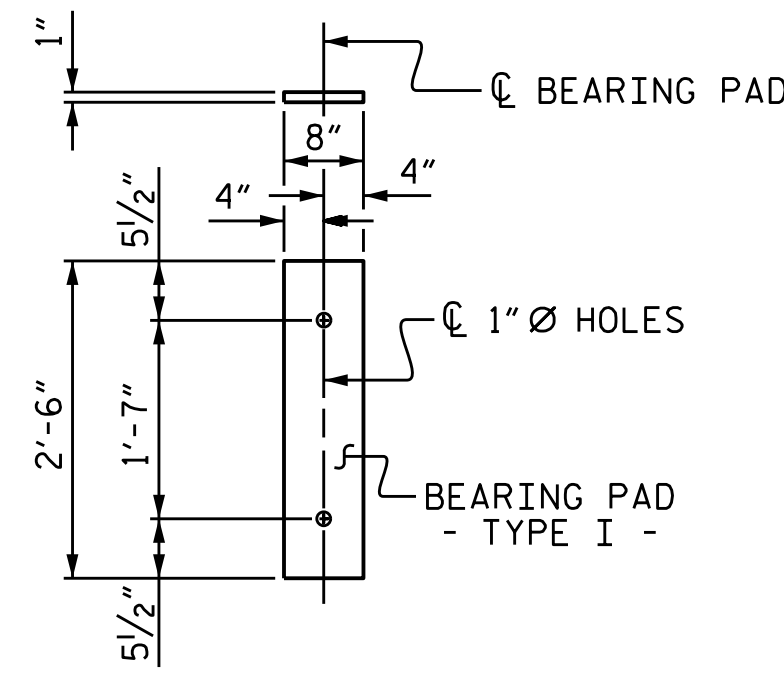
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1			3		
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SHEET NO.
 S-6
 TOTAL SHEETS
 17

wsp

WSP USA Inc.
 434 FAYETTEVILLE STREET
 SUITE 1500
 RALEIGH, NC 27601
 TEL: 1.919.836.4040
 LICENSE NO. F-0165

DESIGNED BY: J. WHEATLEY DATE: FEB 2021
 DRAWN BY: M. HOGAN DATE: FEB 2021
 CHECKED BY: T. KIRSCHBAUM DATE: FEB 2021
 DESIGN ENGINEER OF RECORD: T. HARRIS DATE: FEB 2021

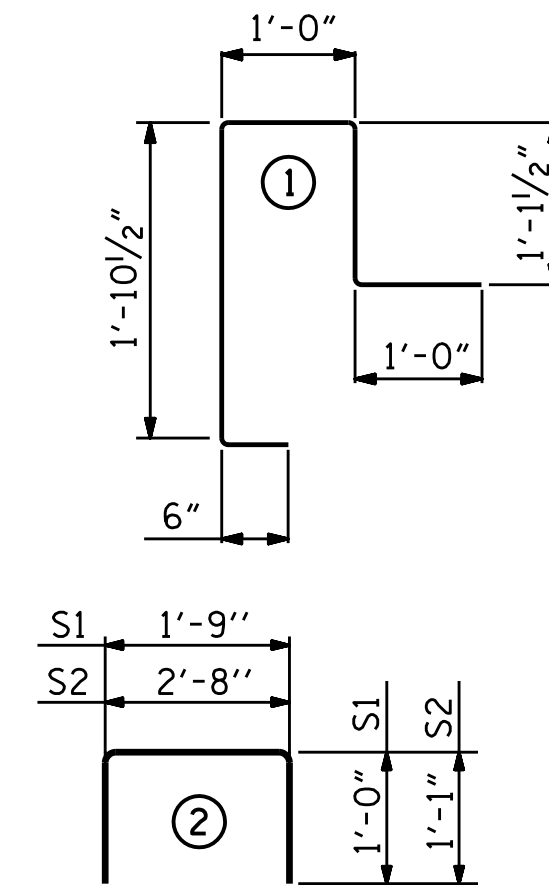


FIXED END
(TYPE I - 20 REO'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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 SIDEWAYS. 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.

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 CLASS AA CONCRETE AND REINFORCING STEEL FOR THE CONCRETE CURB AND END POSTS ARE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF 32" ALASKA RAIL.

ANCHOR BOLTS, NUTS, WASHERS AND PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

AT ALL FIXED ENDS OF CORED SLAB UNITS, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	2	3'-9"	31	3'-9"	31
S2	128	#5	2	4'-10"	645	4'-10"	645
*S3	16	#4	STR	3'-0"	32		
*S4	38	#4	1	5'-6"	139		
REINFORCING STEEL				LBS.	738		738
* EPOXY COATED REINFORCING STEEL				LBS.	171		
6000 P.S.I. CONCRETE				CU. YDS.	6.8		6.0
0.6" Ø L.R. STRANDS				No.	15		15

BILL OF MATERIAL FOR 2 CONCRETE CURBS AND 4 END POSTS

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
45' UNIT						
*B12	8	8	#4	STR	22'-1"	118
*E1	40	40	#7	STR	2'-8"	218
*F1	32	32	#6	STR	3'-5"	164
* EPOXY COATED REINFORCING STEEL				LBS.		500
CLASS AA CONCRETE				CU. YDS.		7.3
TOTAL				LN. FT.		90.00

CORED SLABS REQUIRED

45' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	8	45'-0"	360'-0"
TOTAL	10	45'-0"	450'-0"

CONCRETE RELEASE STRENGTH	
UNIT	PSI
45' UNITS	4000

DEAD LOAD DEFLECTION AND CAMBER	
45' CORED SLAB UNIT (EXT UNITS)	3'-0" x 1'-6" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 3/16" ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	5/16" ↓
FINAL CAMBER	1 3/16" ↓

** INCLUDES FUTURE WEARING SURFACE

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

DEAD LOAD DEFLECTION AND CAMBER	
45' CORED SLAB UNIT (INT UNITS)	3'-0" x 1'-6" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 3/16" ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	5/16" ↓
FINAL CAMBER	1" ↓

** INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 1'-6"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		

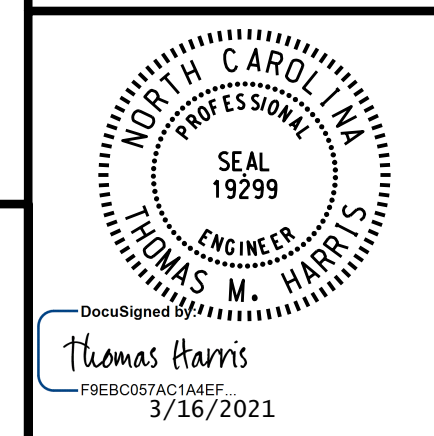
SHEET NO.

S-7

TOTAL SHEETS

17

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DESIGNED BY: J. WHEATLEY DATE: FEB 2021
 DRAWN BY: M. HOGAN DATE: FEB 2021
 CHECKED BY: T. KIRSCHBAUM DATE: FEB 2021
 DESIGN ENGINEER OF RECORD: T. HARRIS DATE: FEB 2021

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. ANCHOR BOLTS, 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 SHEET 2 OF 2.

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.

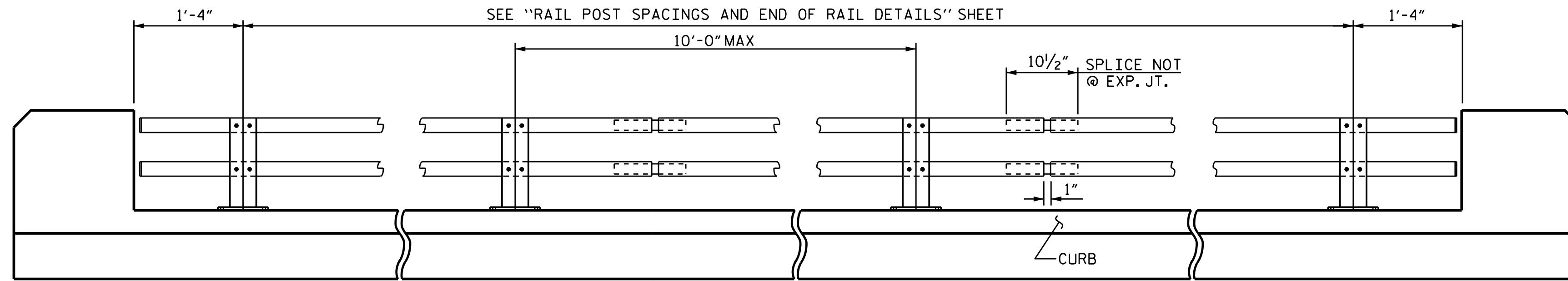
SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

GROOVED CONTRACTION JOINTS, 1/2" 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.

THE RAIL SECTIONS SHALL BE ATTACHED TO THE POSTS BY TWO THREADED 3/4" Ø WELDED STUDS, PLATE WASHERS, LOCKWASHERS, AND NUTS.

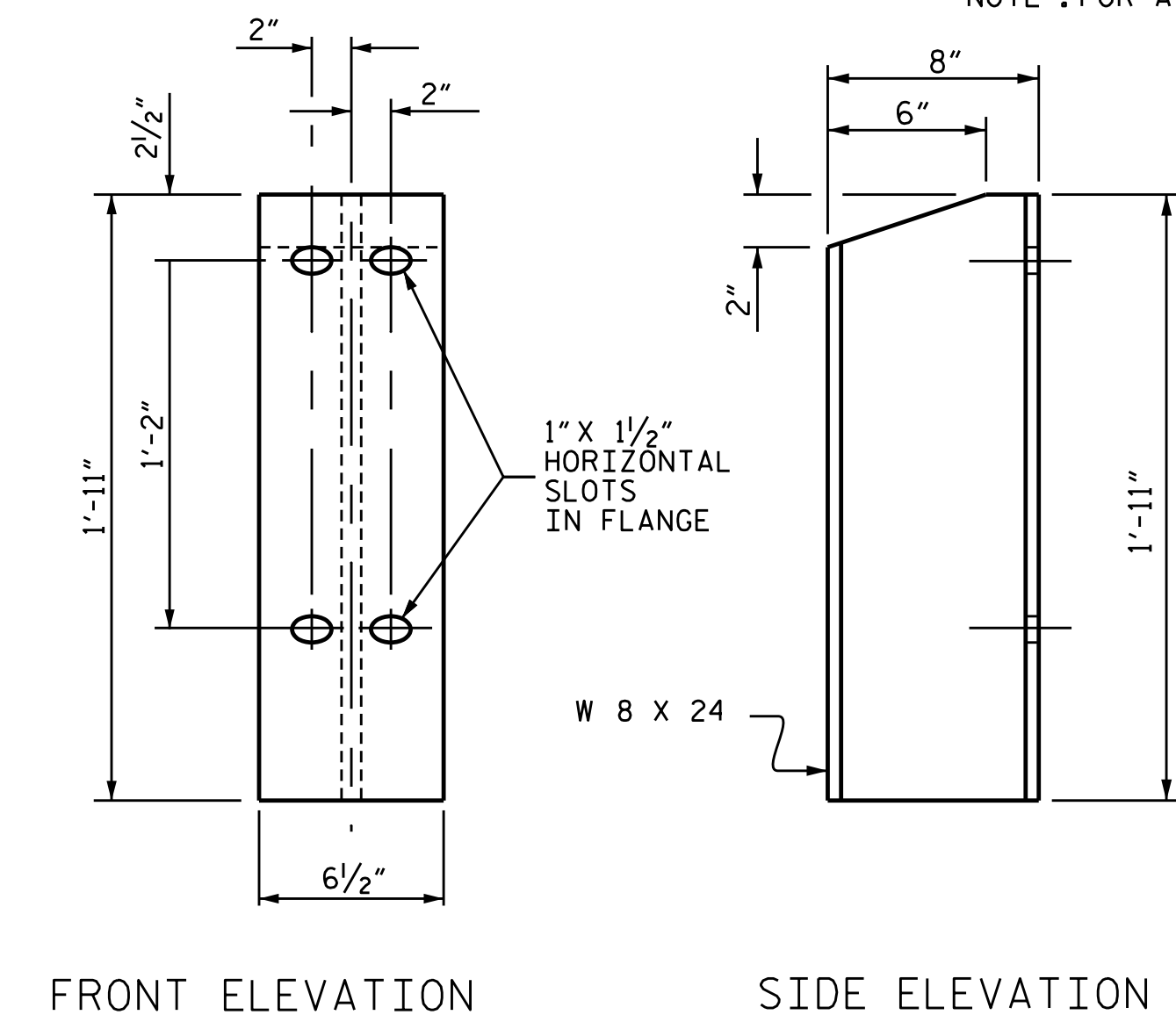
FOR 32" ALASKA RAIL, SEE THE STANDARD SPECIFICATIONS.

METAL RAIL LENGTH 90 LIN. FT.



ELEVATION

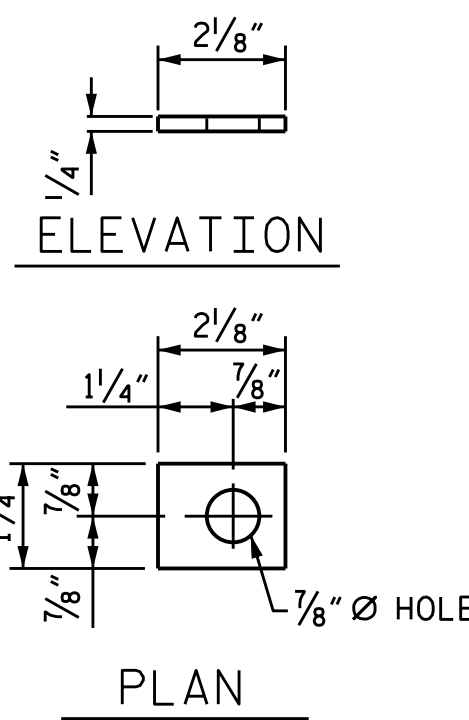
NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE SHEET 2 OF 2.



FRONT ELEVATION

SIDE ELEVATION

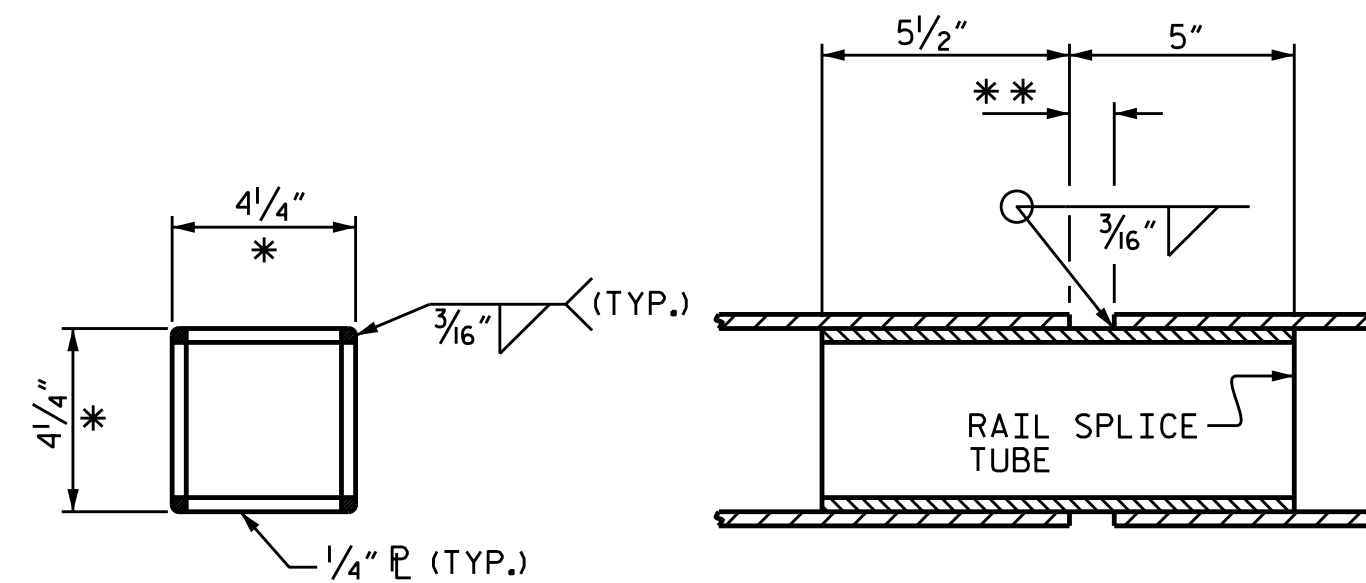
DETAILS OF POST



ELEVATION

PLAN

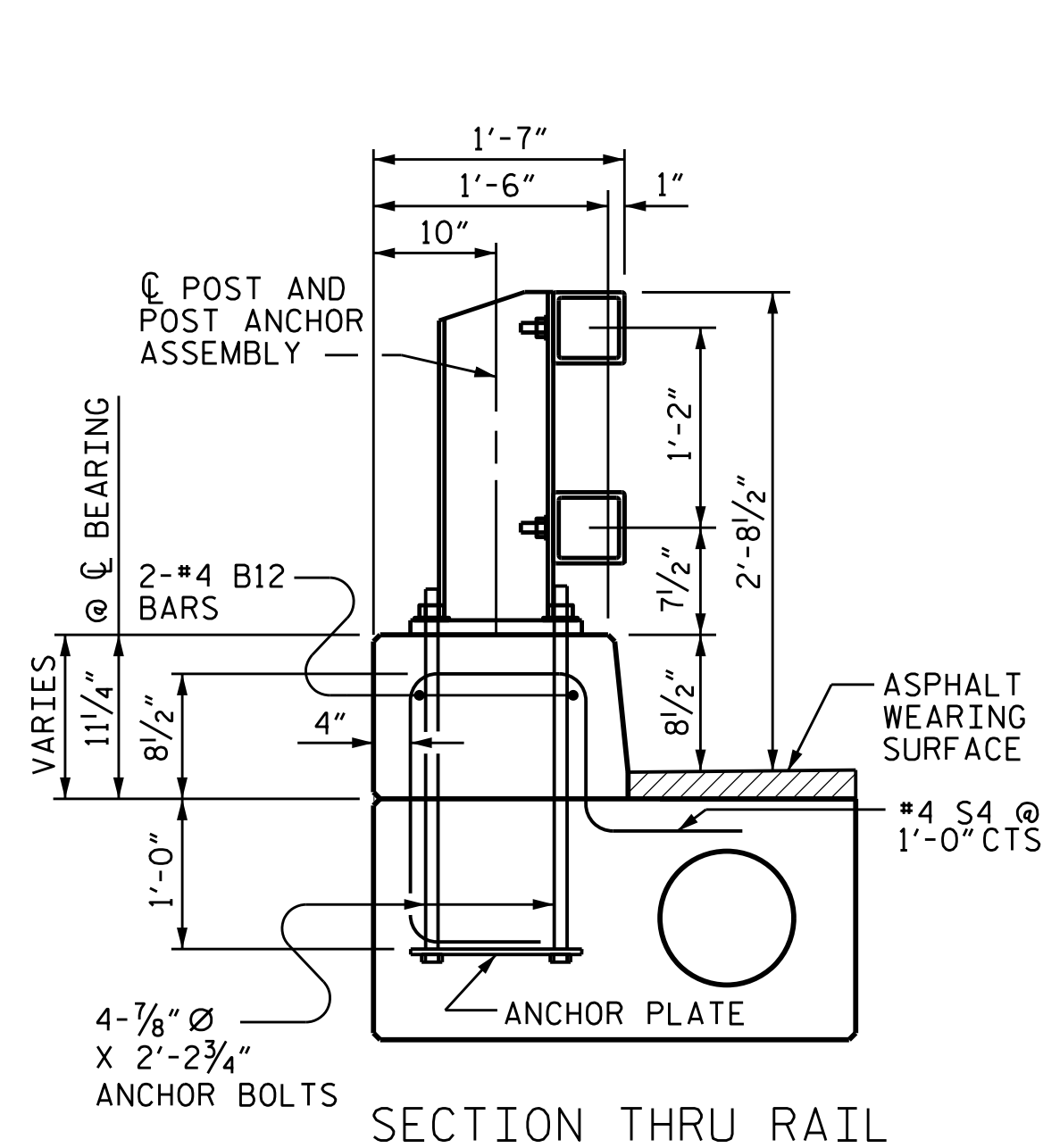
PLATE WASHER



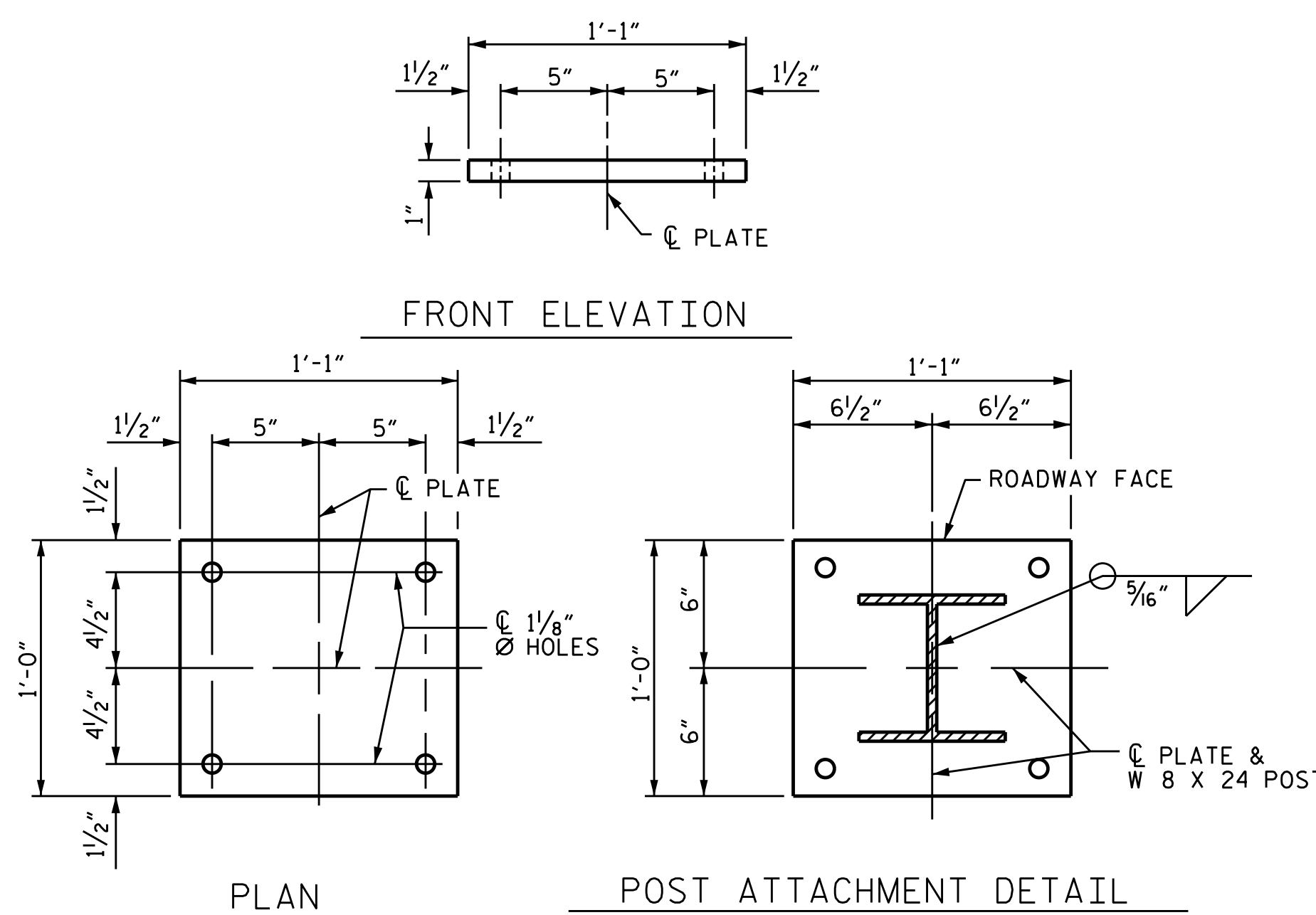
RAIL SPLICE DETAILS

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

** - 1" FOR SPLICE NOT AT EXPANSION JOINT; SEE TABLE 1 FOR OPENING FOR SPLICES AT EXPANSION JOINTS.



SECTION THRU RAIL

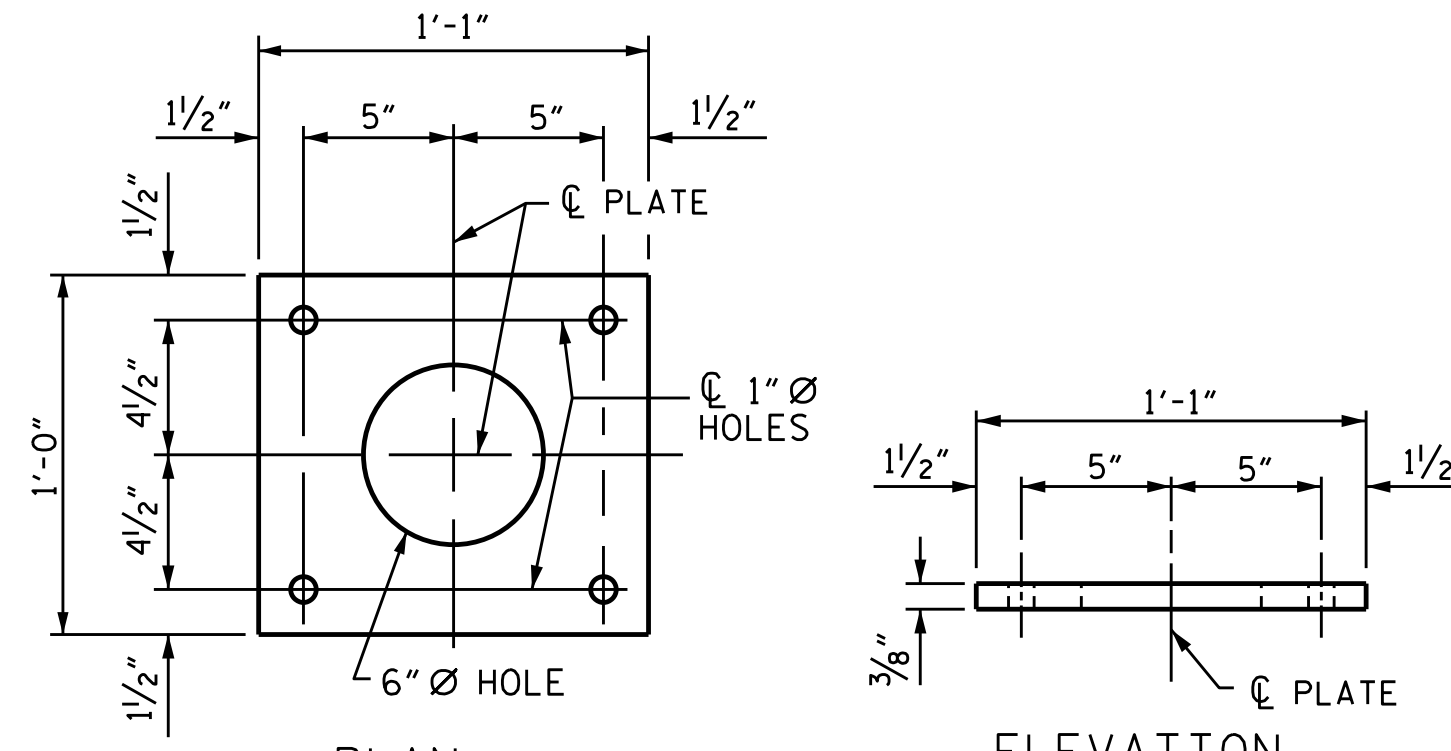


FRONT ELEVATION

PLAN

POST ATTACHMENT DETAIL

POST BASE DETAILS



PLAN

ELEVATION

ANCHOR PLATE DETAILS

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

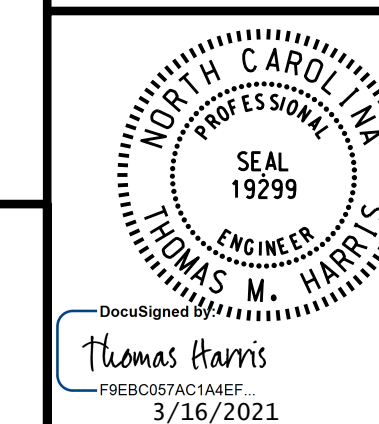
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

32" ALASKA RAIL

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2			4		

SHEET NO. S-8
 TOTAL SHEETS 17



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 434 FAYETTEVILLE STREET
 SUITE 1500
 RALEIGH, NC 27601
 TEL: 1.919.836.4040
 LICENSE NO. F-0165

3/16/2021 J:\L\2001798.012 R.115 Macon Bridge 029\550029\Structures\0201 UPDATE.dgn\008_550029_STR_BR_01.dgn

DRAWN BY: RWW 7/14	REV. 12/17	MAA/THC
CHECKED BY: TMG 7/14	REV. 5/18	MAA/THC
ASSEMBLED BY: J. WHEATLEY	DATE: FEB 2021	
CHECKED BY: T. KIRSCHBAUM	DATE: FEB 2021	
DESIGN ENGINEER OF RECORD: T. HARRIS	DATE: FEB 2021	

NOTES

STRUCTURAL CONCRETE INSERT

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

- A. FERRULE SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 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.)
- C. 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

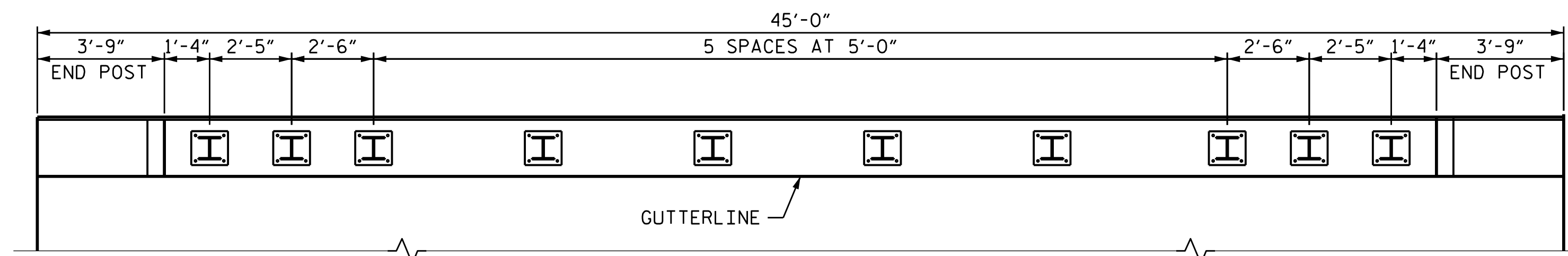
EACH METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. 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.
- B. 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.

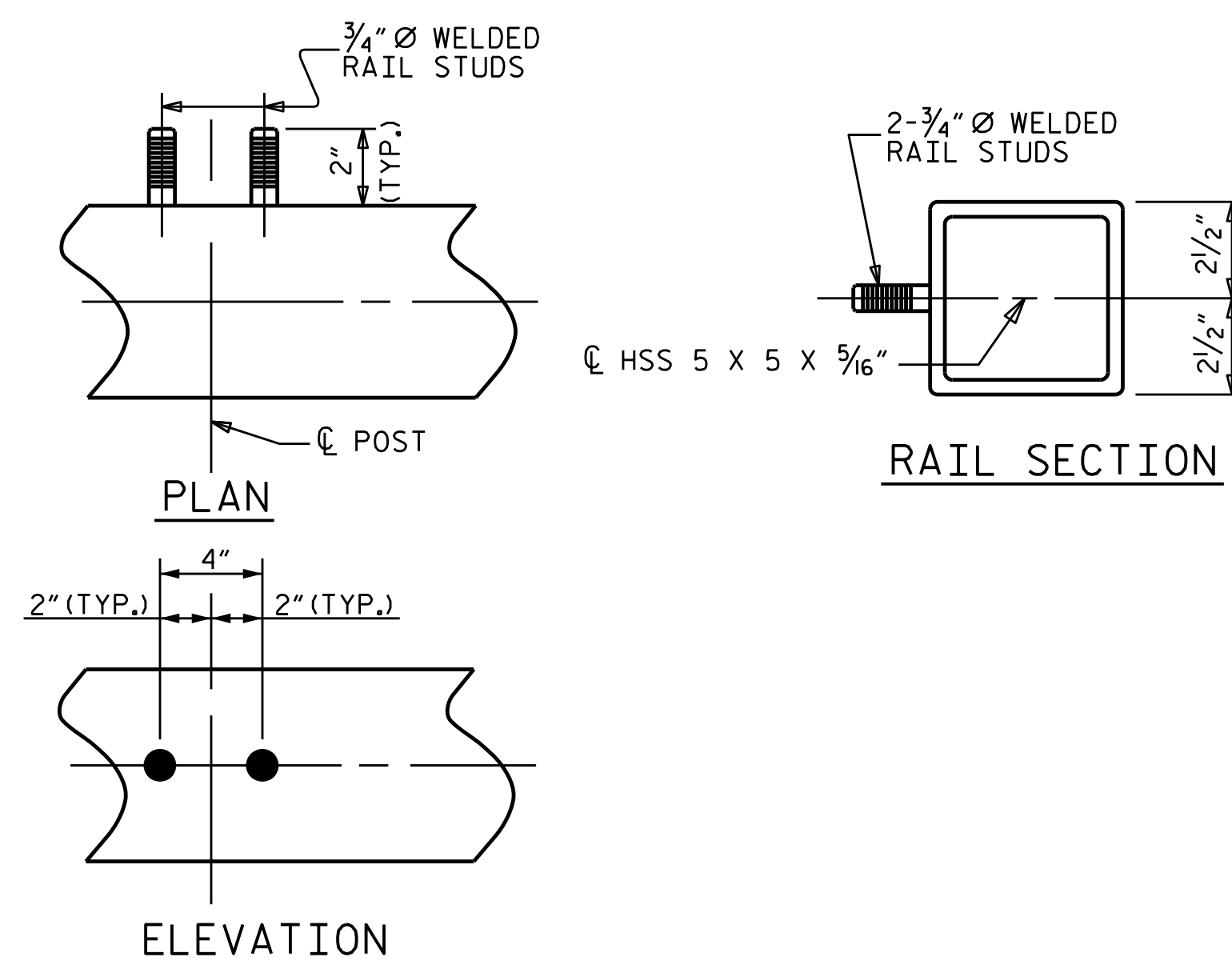
THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT, THE 1/2" BRACKET PLATES, AND THE RAIL INSERT TUBES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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.

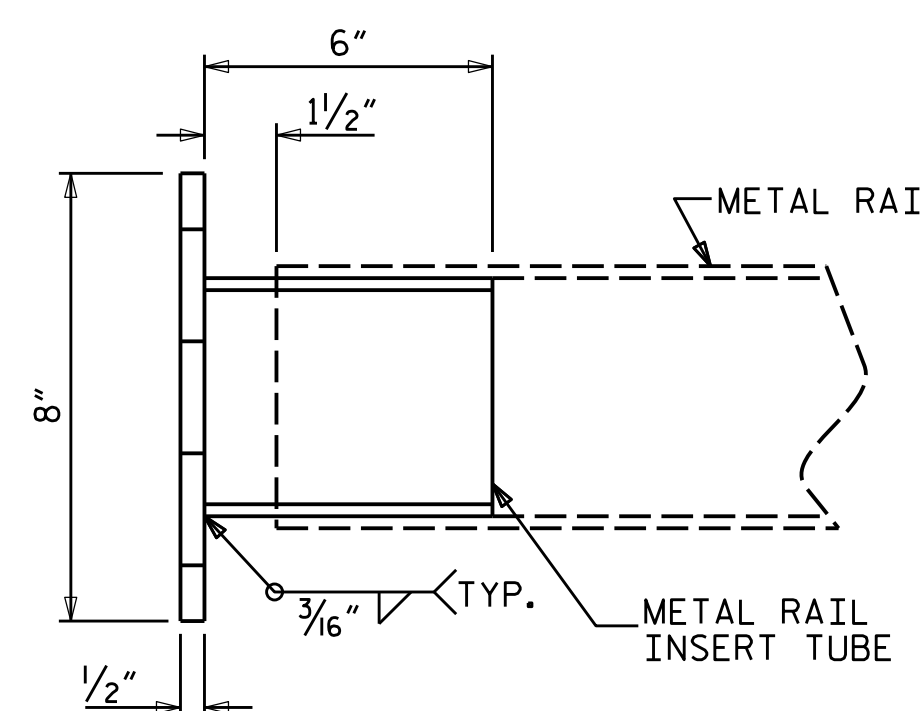


PLAN OF RAIL POST SPACINGS

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

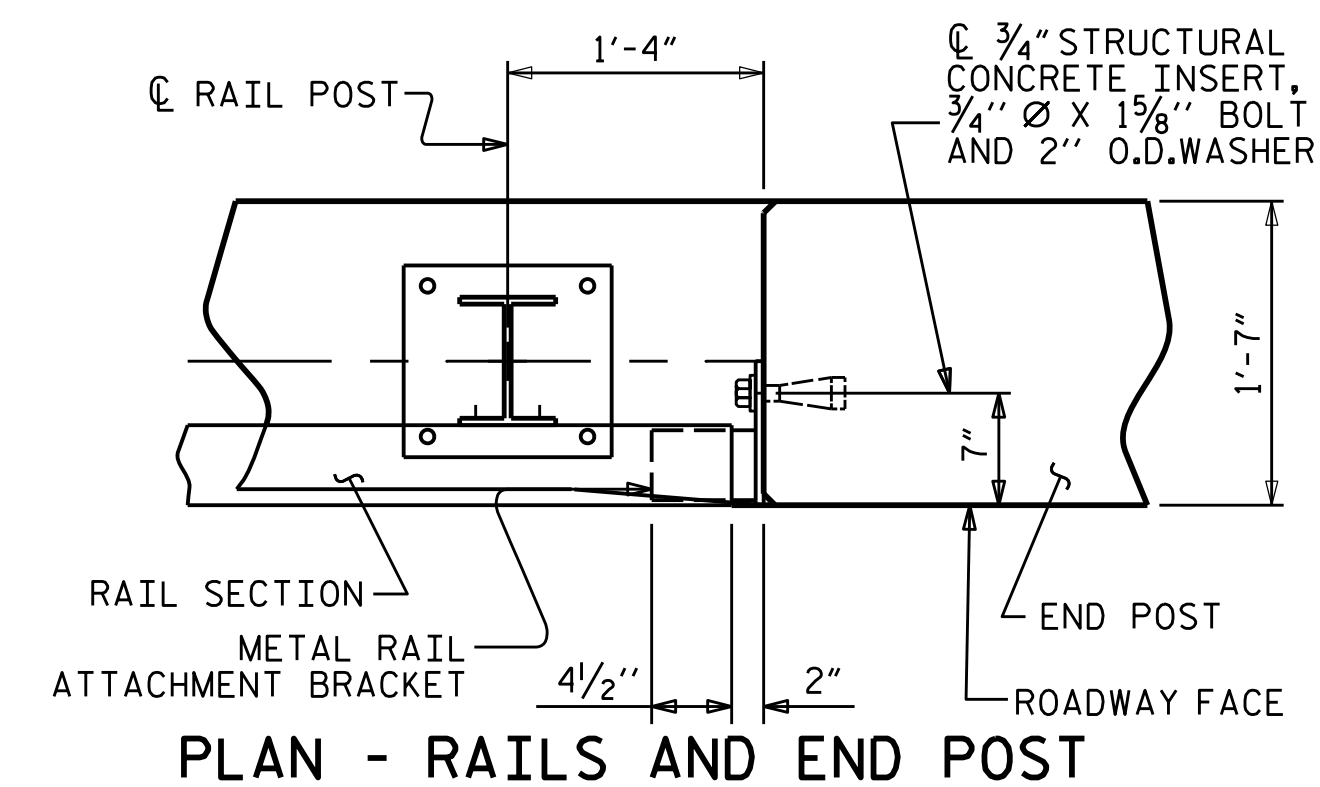


RAIL STUD DETAILS

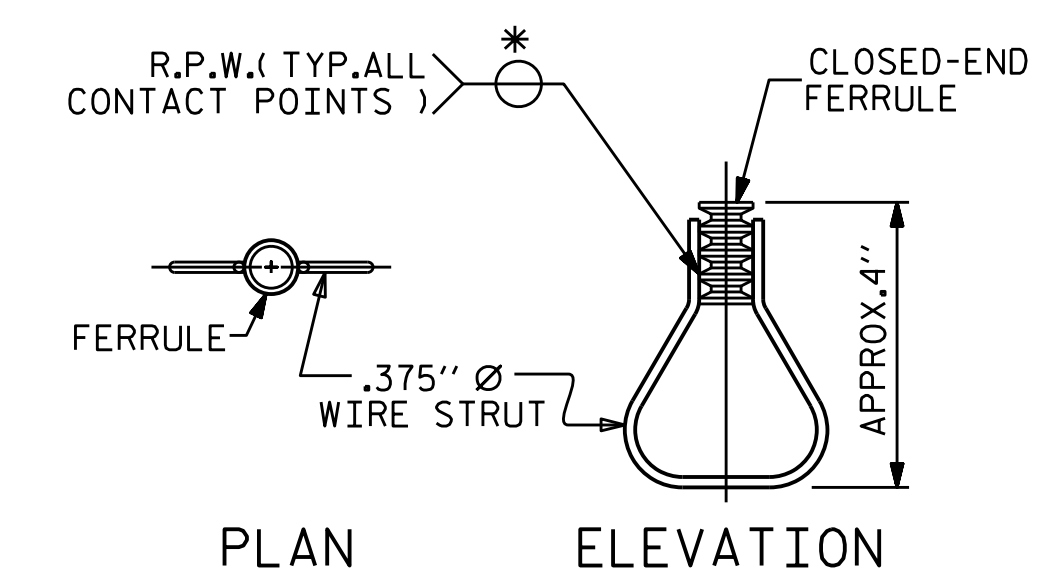
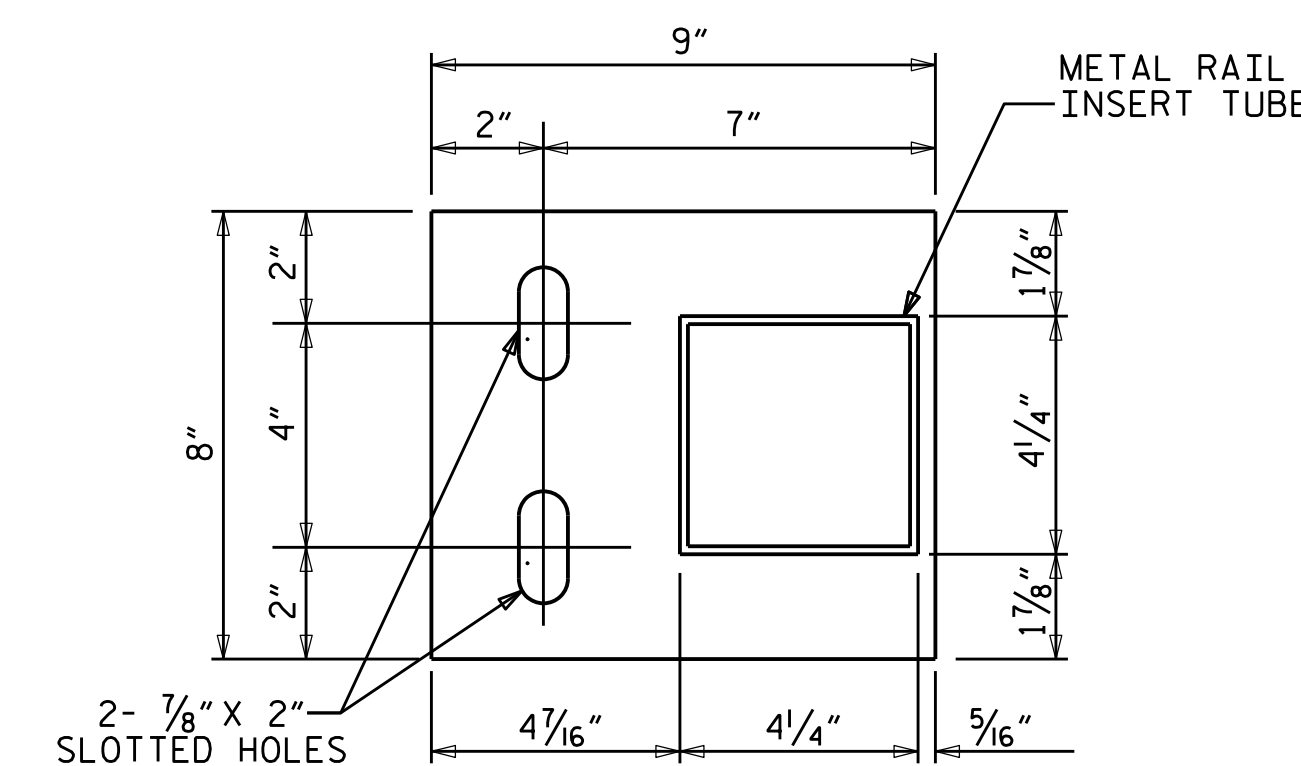


METAL RAIL ATTACHMENT BRACKET

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



PLAN - RAILS AND END POST



**PLAN ELEVATION
STRUCTURAL CONCRETE
INSERT**

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

PROJECT NO. 17BP.14.R.115
MACON COUNTY
STATION: 13+09.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR 32" ALASKA RAIL

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

SHEET NO. S-9
TOTAL SHEETS 17

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PROFESSIONAL ENGINEER
THOMAS M. HARRIS
SEAL 19299
FEBRUARY 14, 2021

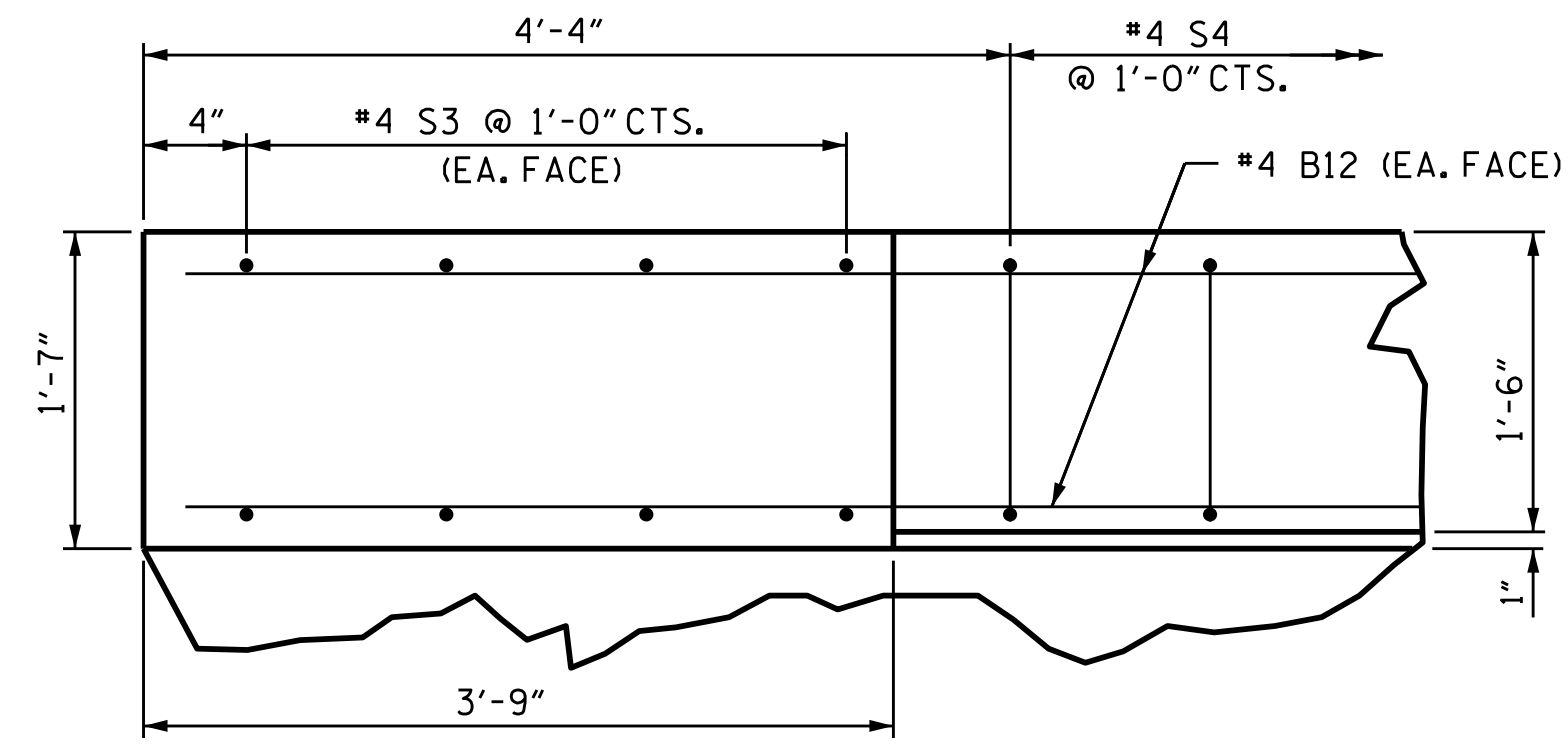
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434 FAYETTEVILLE STREET
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RALEIGH, NC 27601
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3/15/2021 4-L-T2001798.012 R.115 Macon Bridge 029\550029\Structures\0201 UPDATE.dgn\009_550029_STR_BR_02.dgn

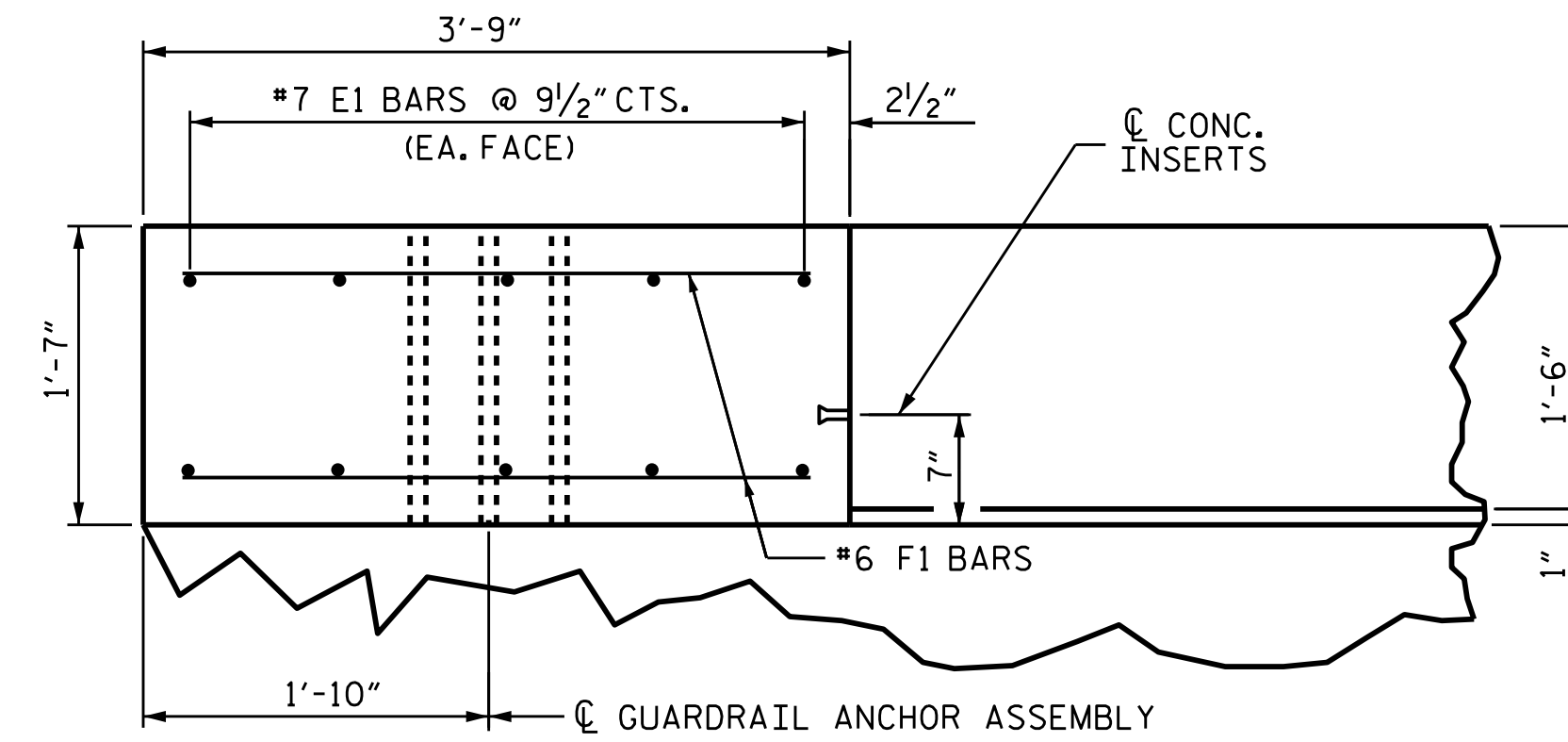
DRAWN BY : RWW	7/14	REV. 12/17	MAA/THC
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DESIGN ENGINEER OF RECORD : T. HARRIS	DATE : FEB 2021		

NOTES:

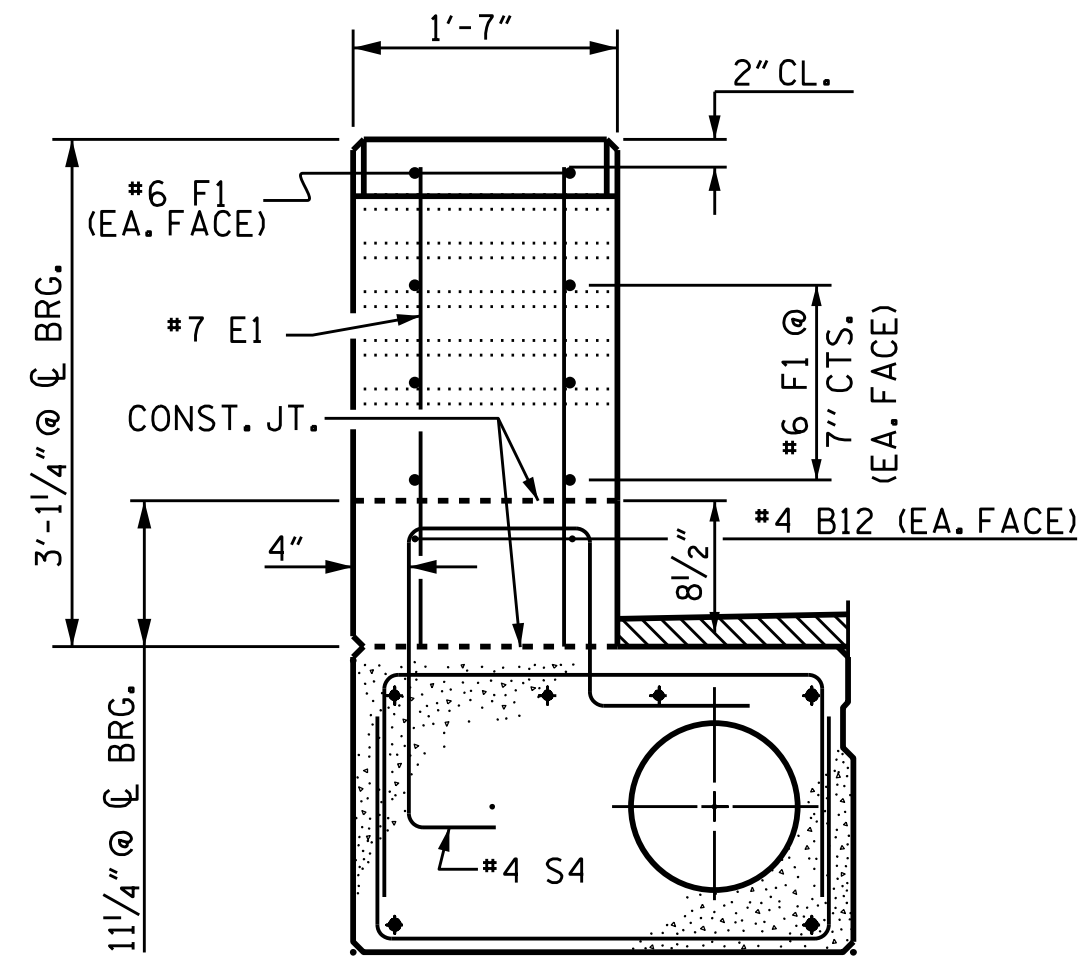
FOR REBAR LIST AND BILL OF MATERIAL FOR CURB AND END POST, SEE SHEET S-7.



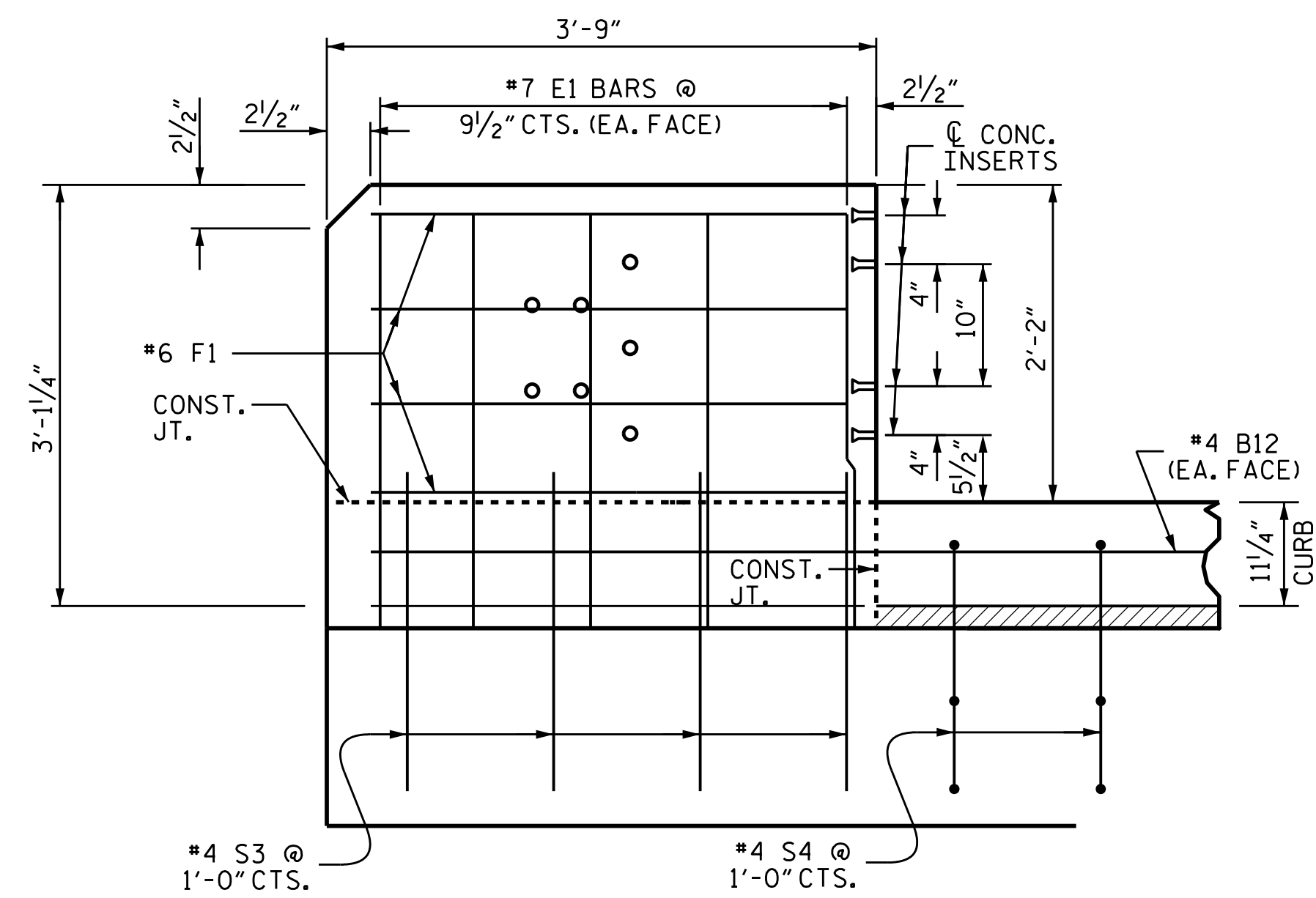
PLAN OF CURB



PLAN OF END POST



END VIEW



ELEVATION

CURB AND END POST FOR 32" ALASKA RAIL

PROJECT NO. 17BP.14.R.115
MACON COUNTY
 STATION: 13+09.00 -L-

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DESIGNED BY: J. WHEATLEY DATE: FEB 2021
 DRAWN BY: M. HOGAN DATE: FEB 2021
 CHECKED BY: T. KIRSCHBAUM DATE: FEB 2021
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Thomas Harris
 3/16/2021

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**END POST DETAILS
 FOR
 ALASKA RAIL**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			17

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.

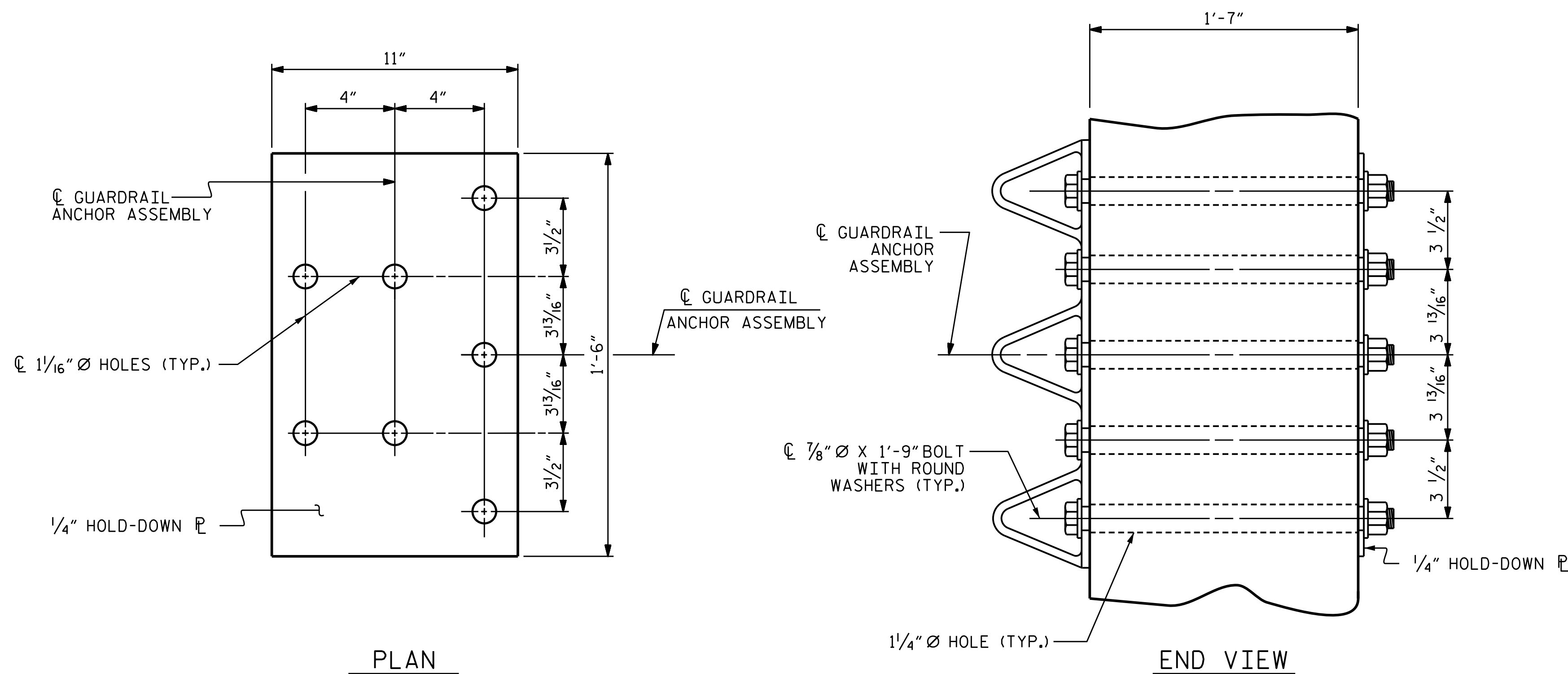
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

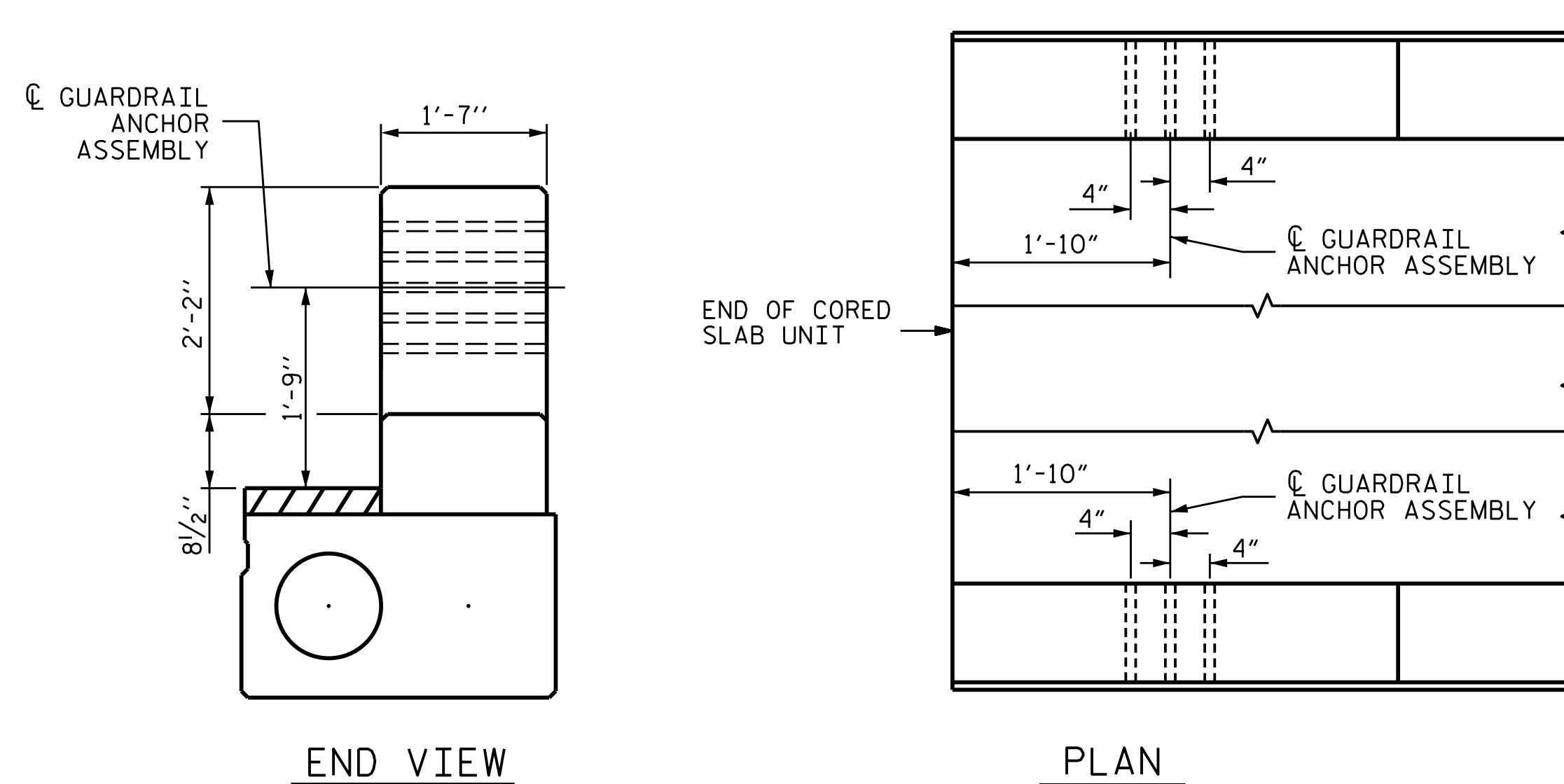


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			17

DOCUMENT NOT CONSIDERED FINAL
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THOMAS M. HARRIS
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 SEAL 19299
 3/16/2021

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WSP USA Inc.
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2/18/2021 J:\L\2001798.012 R.115 Macon Bridge 029\550029\Structures\0201 UPDATE.dgn\011.550029_STR_GRA.dgn

DRAWN BY : MAA	5/10	REV. 1/15	MAA/TMG
CHECKED BY : GM	5/10	REV. 12/17	MAA/THC
		REV. 5/18	MAA/THC
ASSEMBLED BY : J. WHEATLEY	DATE : FEB 2021		
CHECKED BY : T. KIRSCHBAUM	DATE : FEB 2021		
DESIGN ENGINEER OF RECORD : T. HARRIS	DATE : FEB 2021		

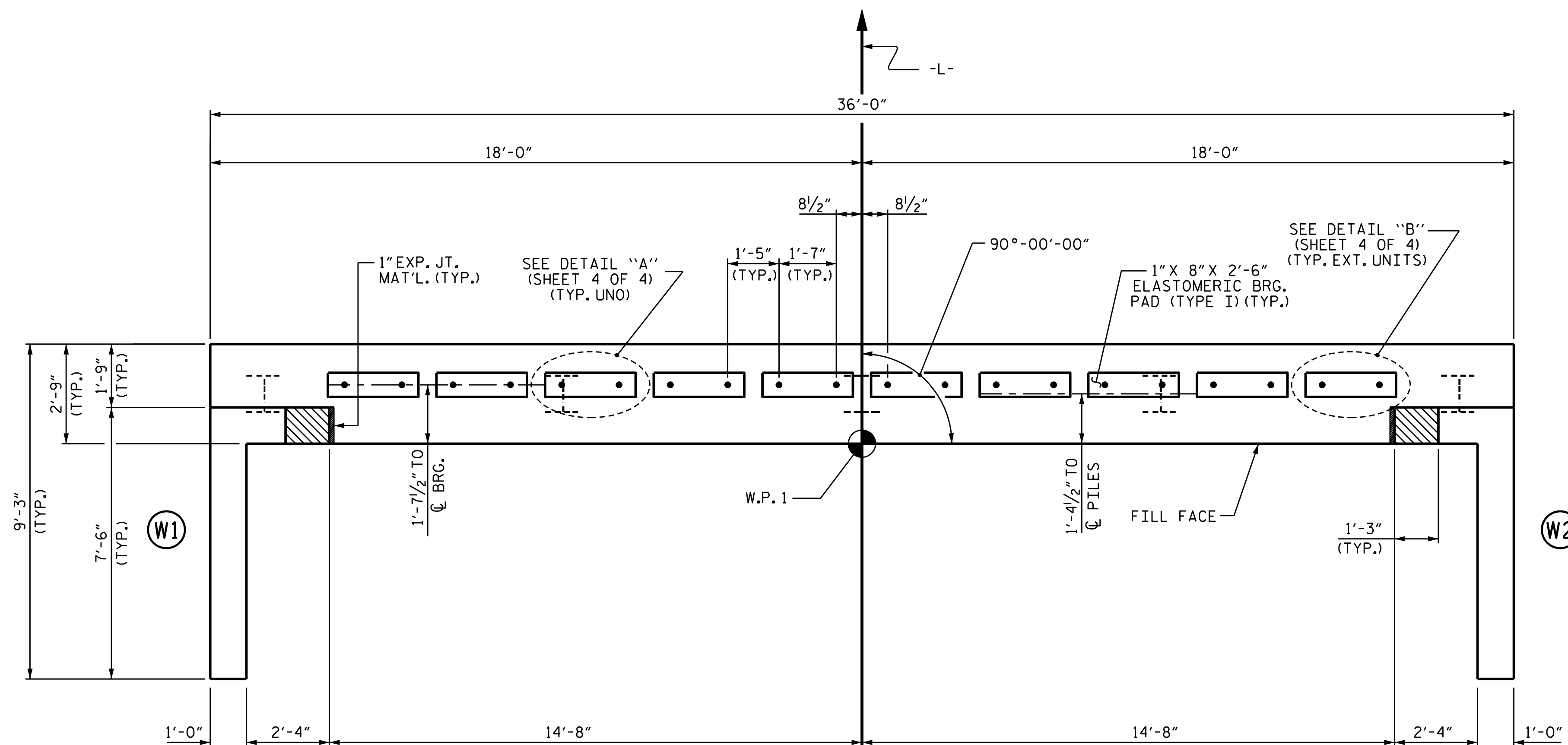
NOTES

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

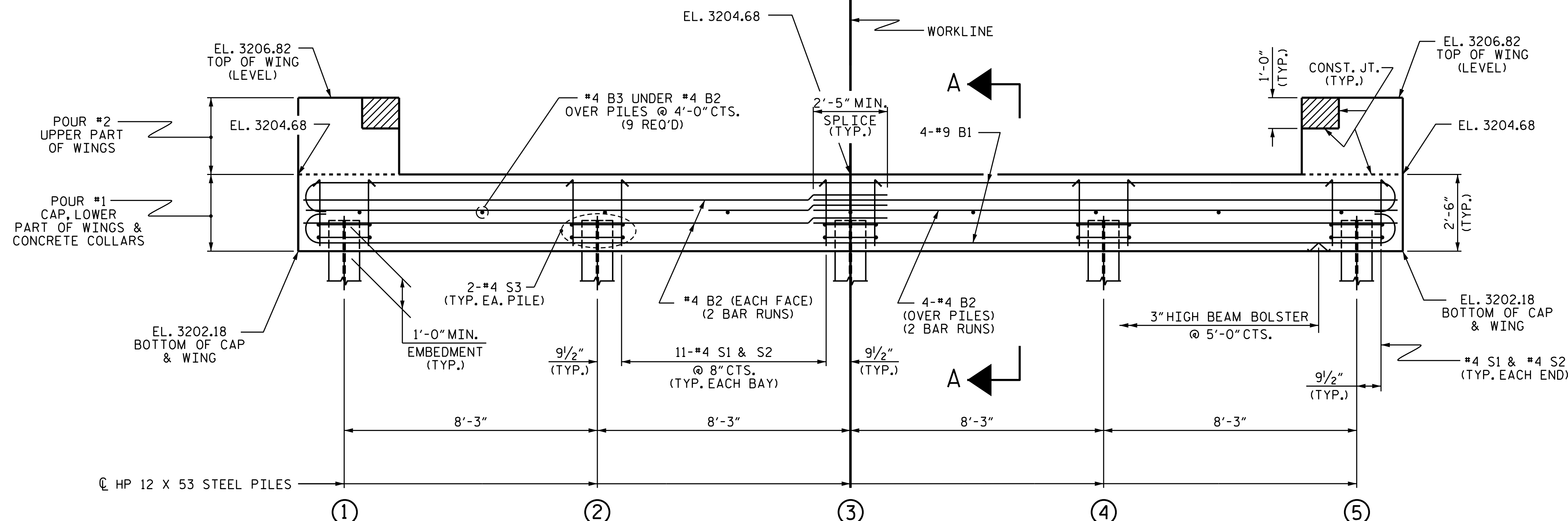
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CONCRETE CURB IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

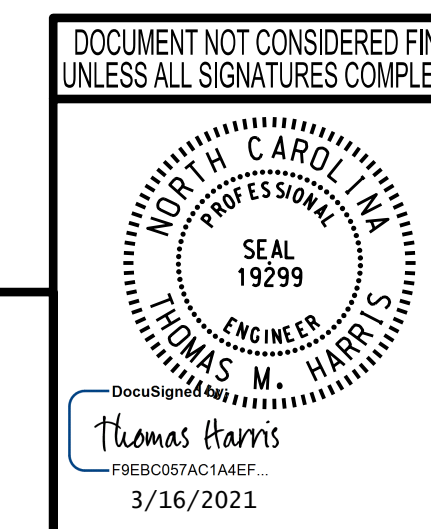
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.14.R.115
MACON COUNTY
STATION: 13+09.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			17



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DRAWN BY : DGE 01/10	REV. 4/15	MAA/TMG
CHECKED BY : MKT 01/10		
ASSEMBLED BY : J. WHEATLEY DATE : FEB 2021		
CHECKED BY : T. KIRSCHBAUM DATE : FEB 2021		
DESIGN ENGINEER OF RECORD : T. HARRIS DATE : FEB 2021		

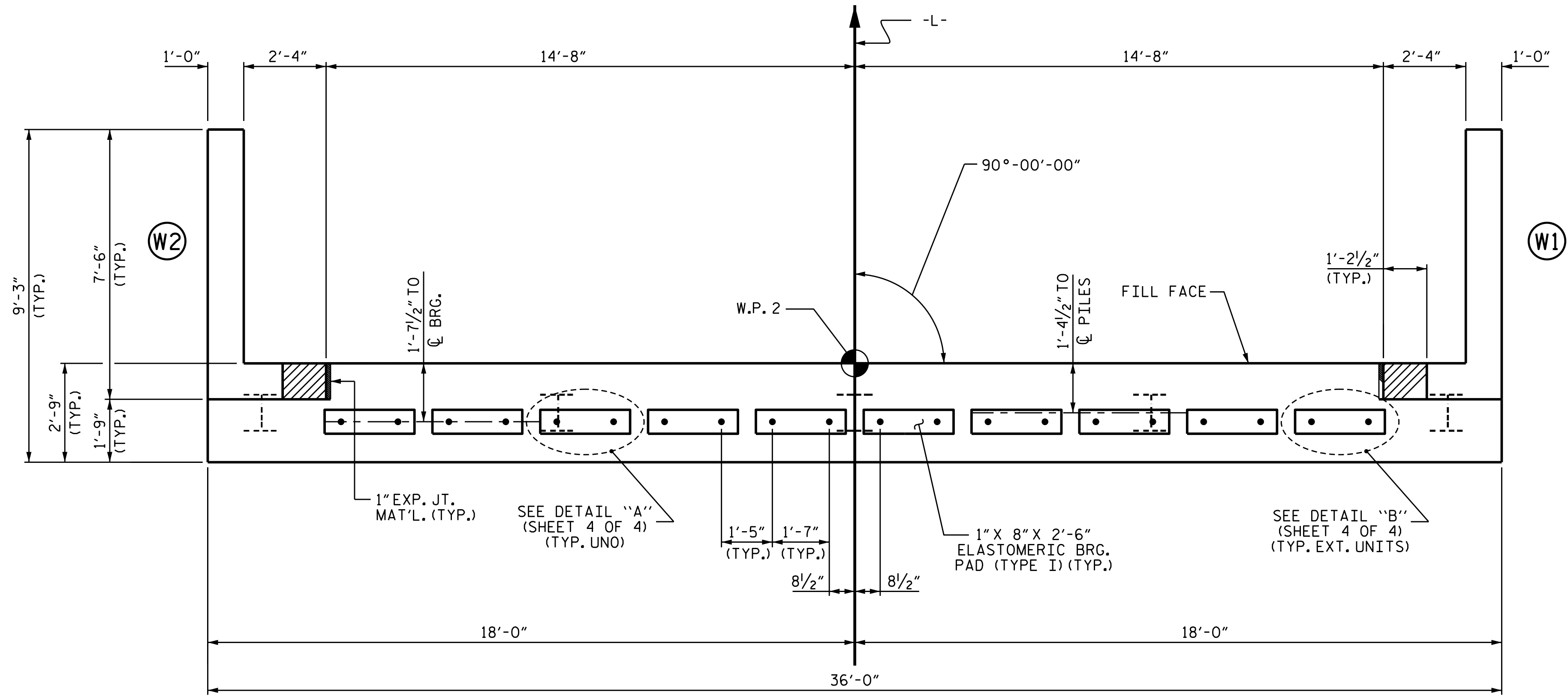
NOTES

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

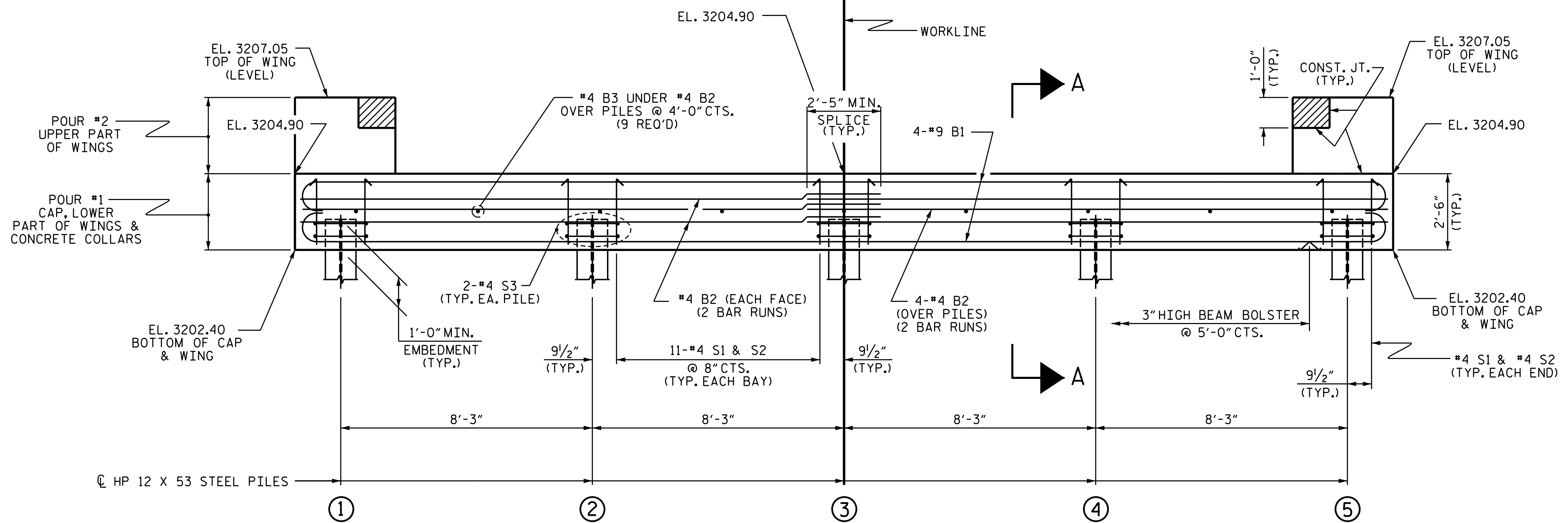
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CONCRETE CURB IS CAST IF SLIP FORMING IS USED.

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.

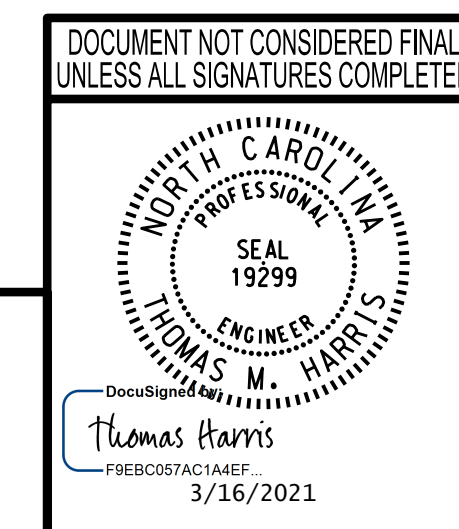
PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 17
2			4			

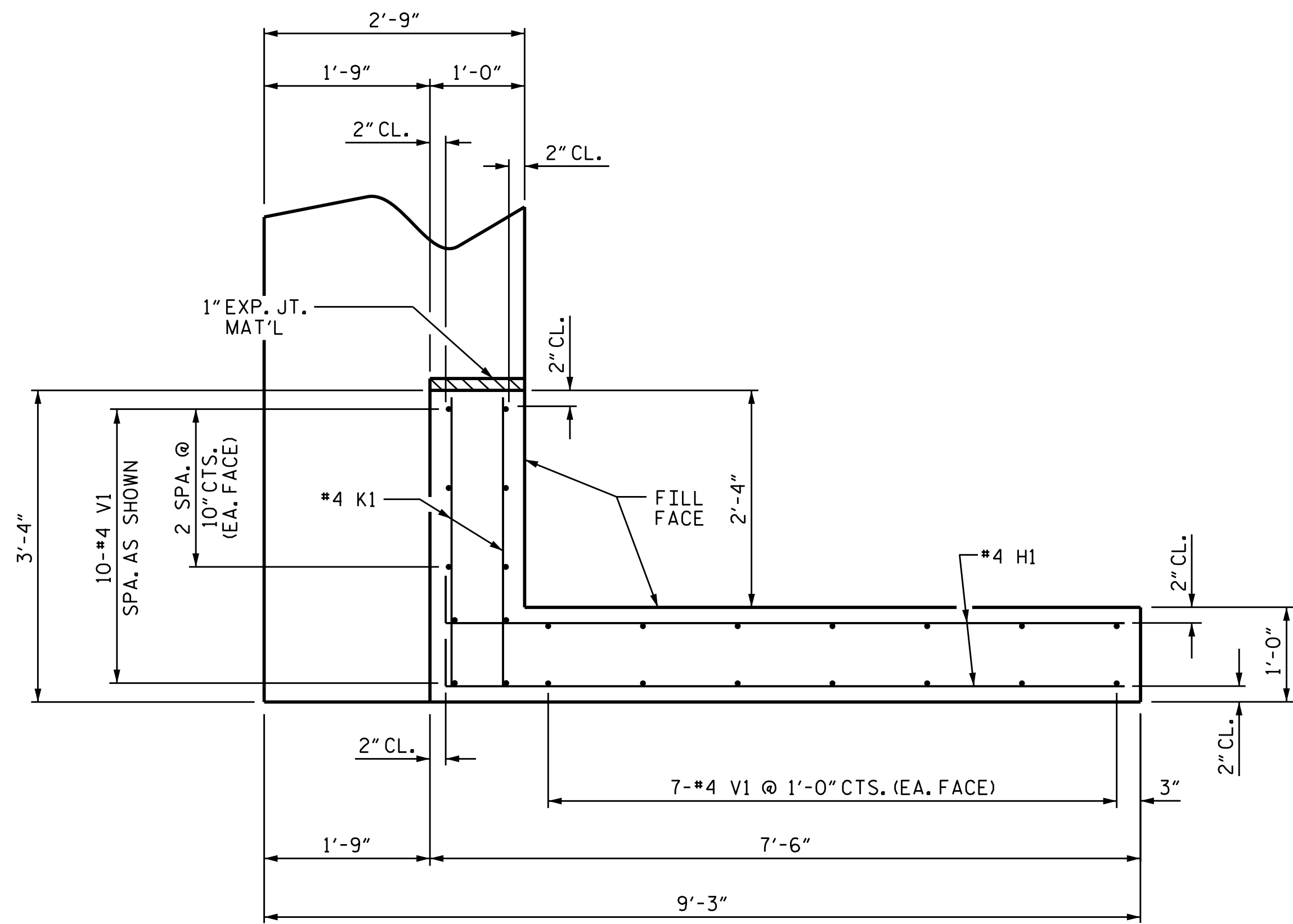


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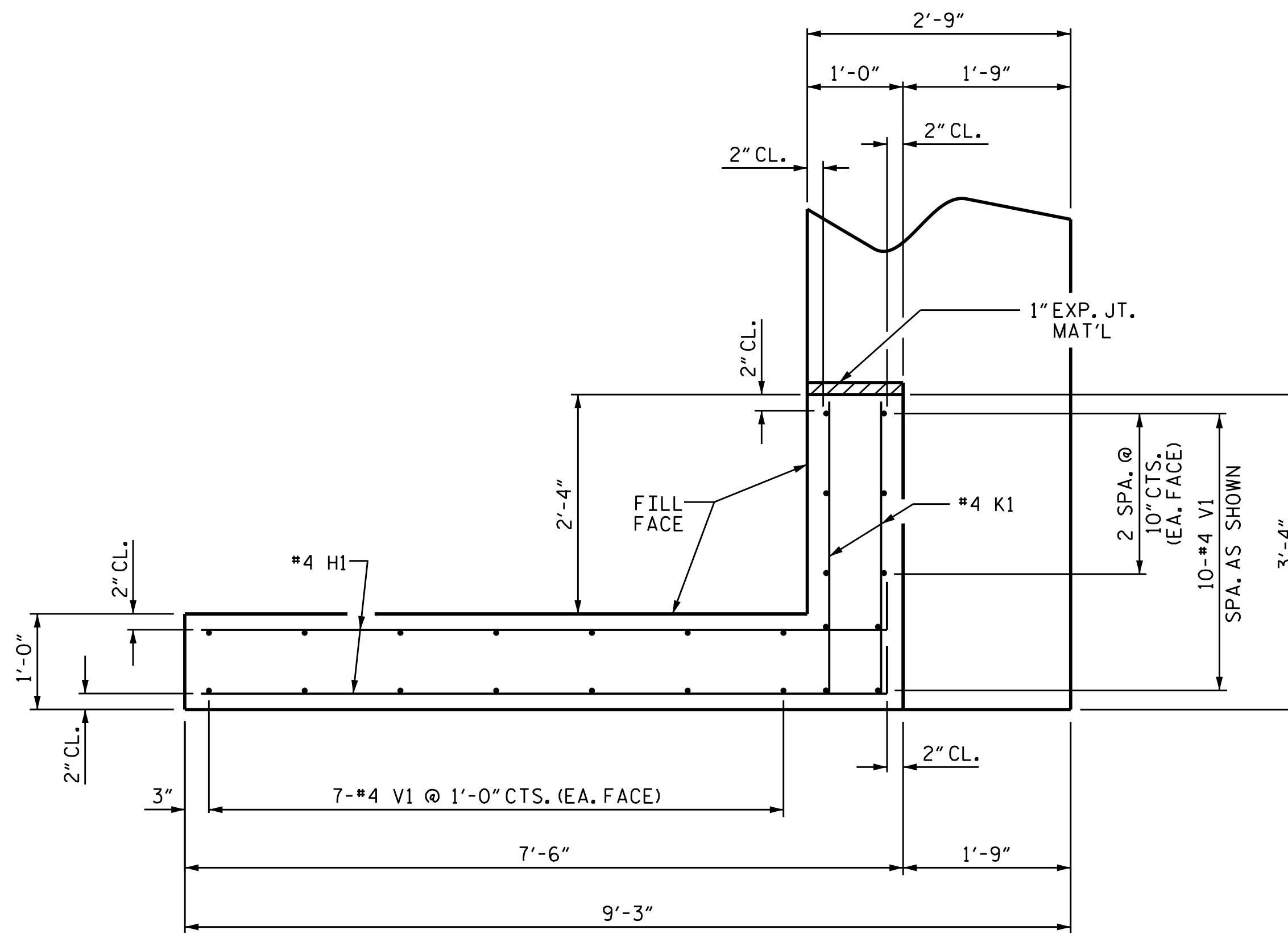
WSP USA Inc.
 434 FAYETTEVILLE STREET
 SUITE 1500
 RALEIGH, NC 27601
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3/15/2021 J:\L\T2001798\012_R.115_Macon_Bridge_029\550029\Structures\2021_UPDATE.dgn\013_550029_STR.EB_02.dgn

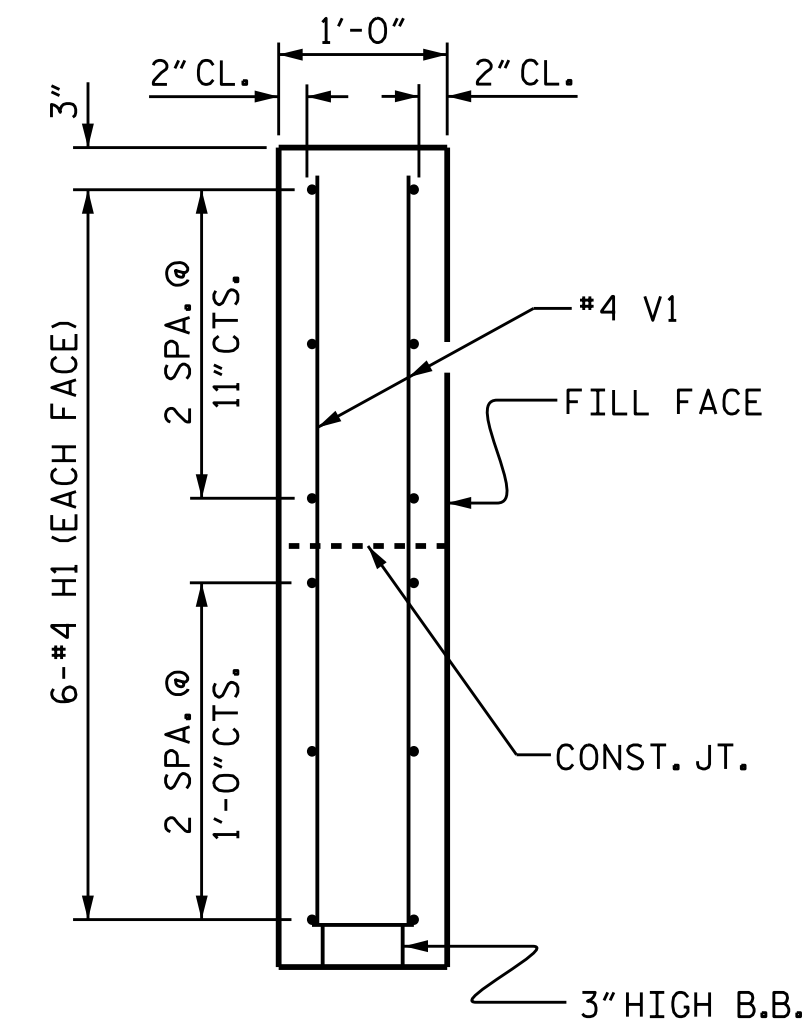
DRAWN BY : DGE	01/10	REV. 4/15	MAA/TMG
CHECKED BY : MKT	01/10		
ASSEMBLED BY : J. WHEATLEY	DATE : FEB 2021		
CHECKED BY : T. KIRSCHBAUM	DATE : FEB 2021		
DESIGN ENGINEER OF RECORD : T. HARRIS	DATE : FEB 2021		



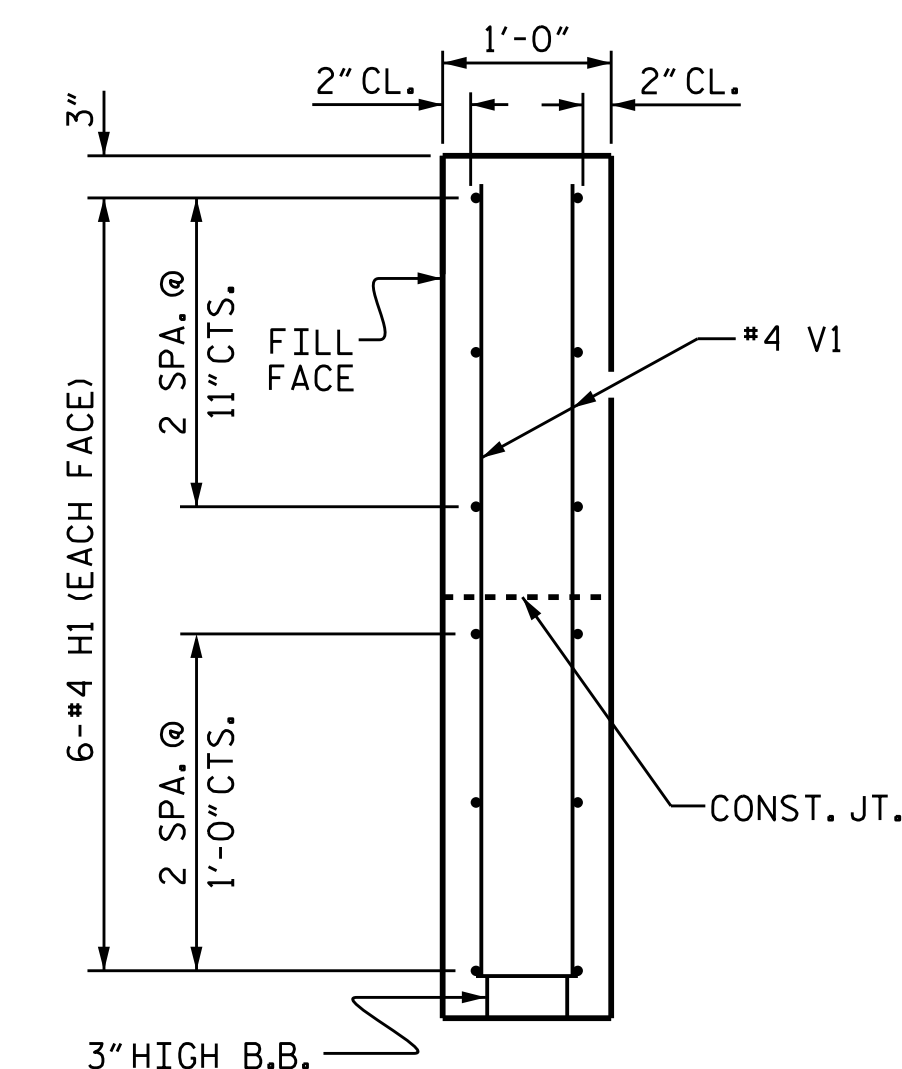
PLAN OF WING (W1)



PLAN OF WING (W2)



SECTION X-X



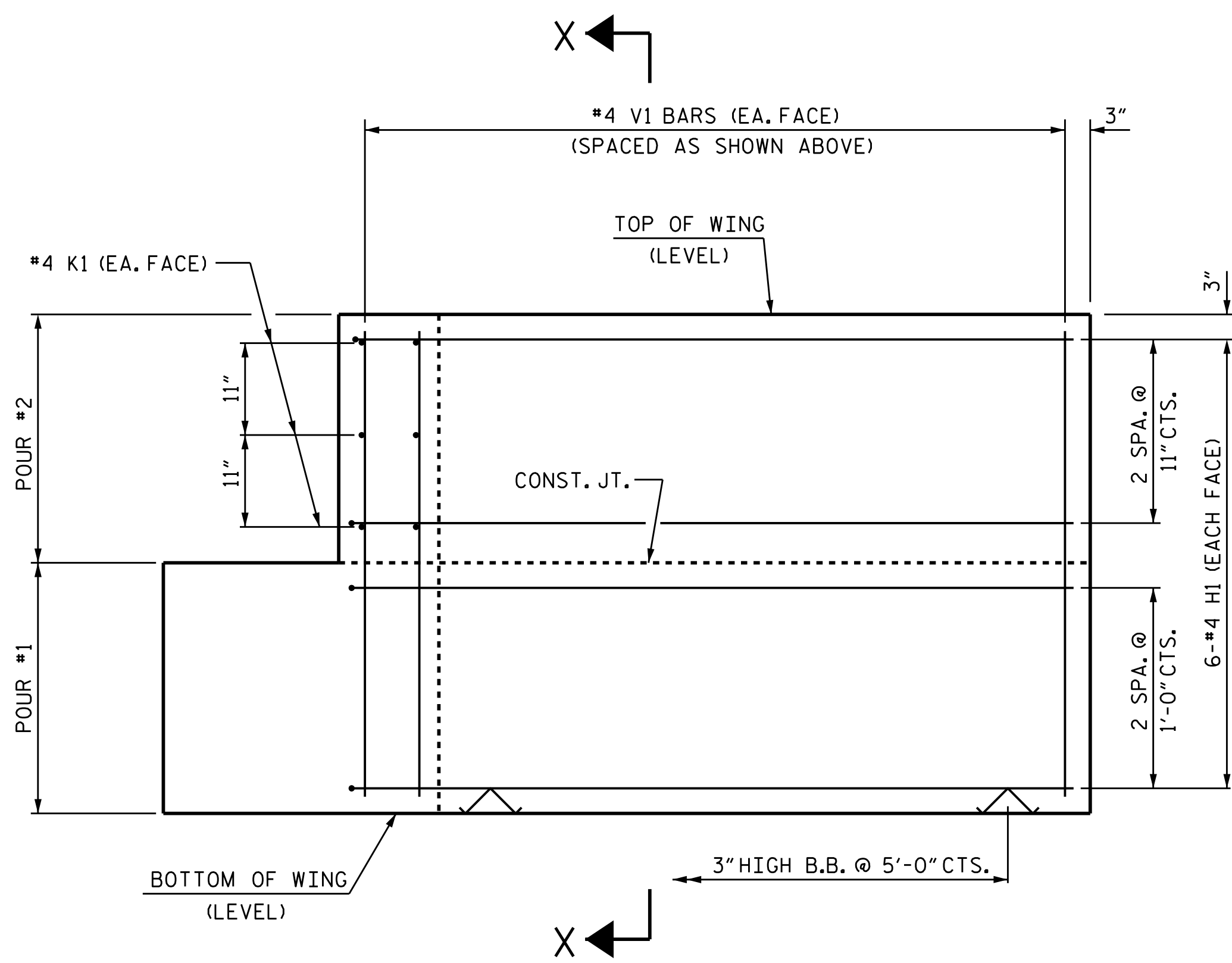
SECTION Y-Y

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

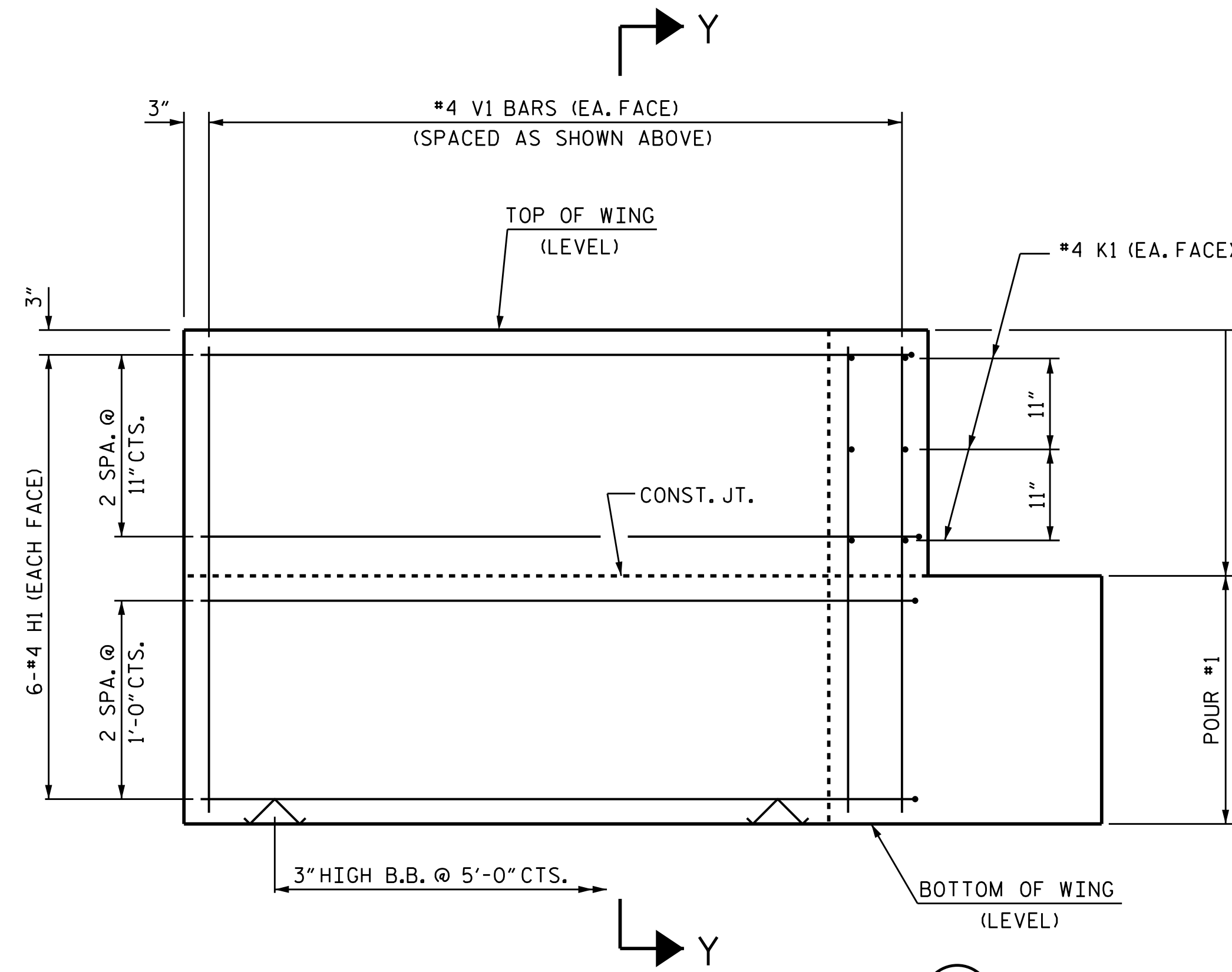
SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-14
					TOTAL SHEETS 17

STD. NO. EB_30_90S



ELEVATION OF WING (W1)

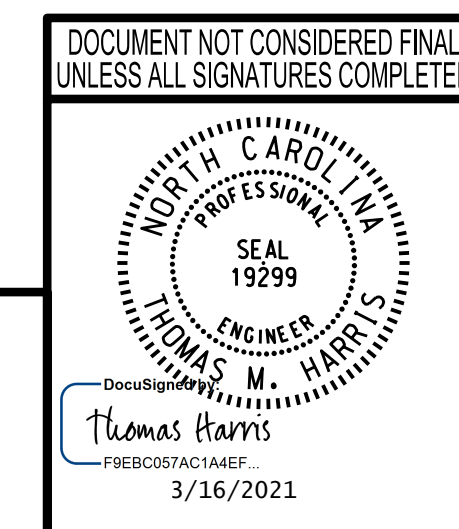


ELEVATION OF WING (W2)

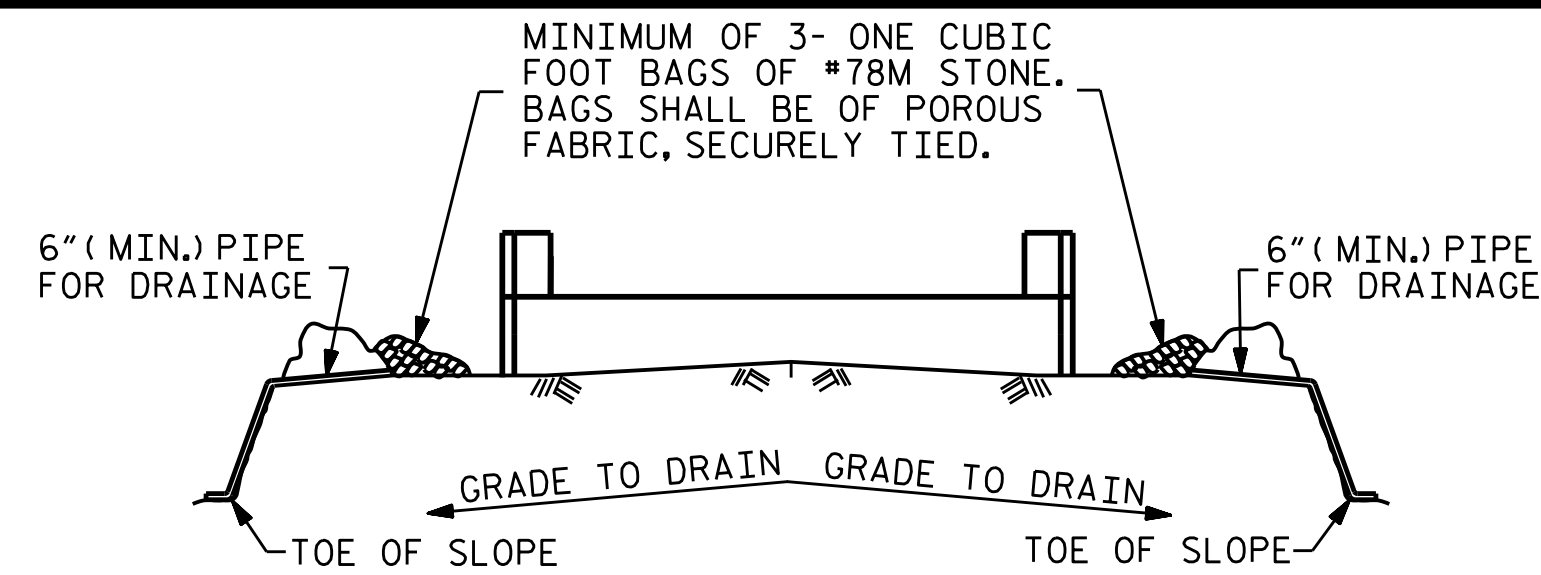
WING DETAILS

DRAWN BY : DGE	02/10	REV. 4/15	MAA/TMG
CHECKED BY : MKT	02/10		
ASSEMBLED BY : J. WHEATLEY	DATE : FEB 2021		
CHECKED BY : T. KIRSCHBAUM	DATE : FEB 2021		
DESIGN ENGINEER OF RECORD : T. HARRIS	DATE : FEB 2021		

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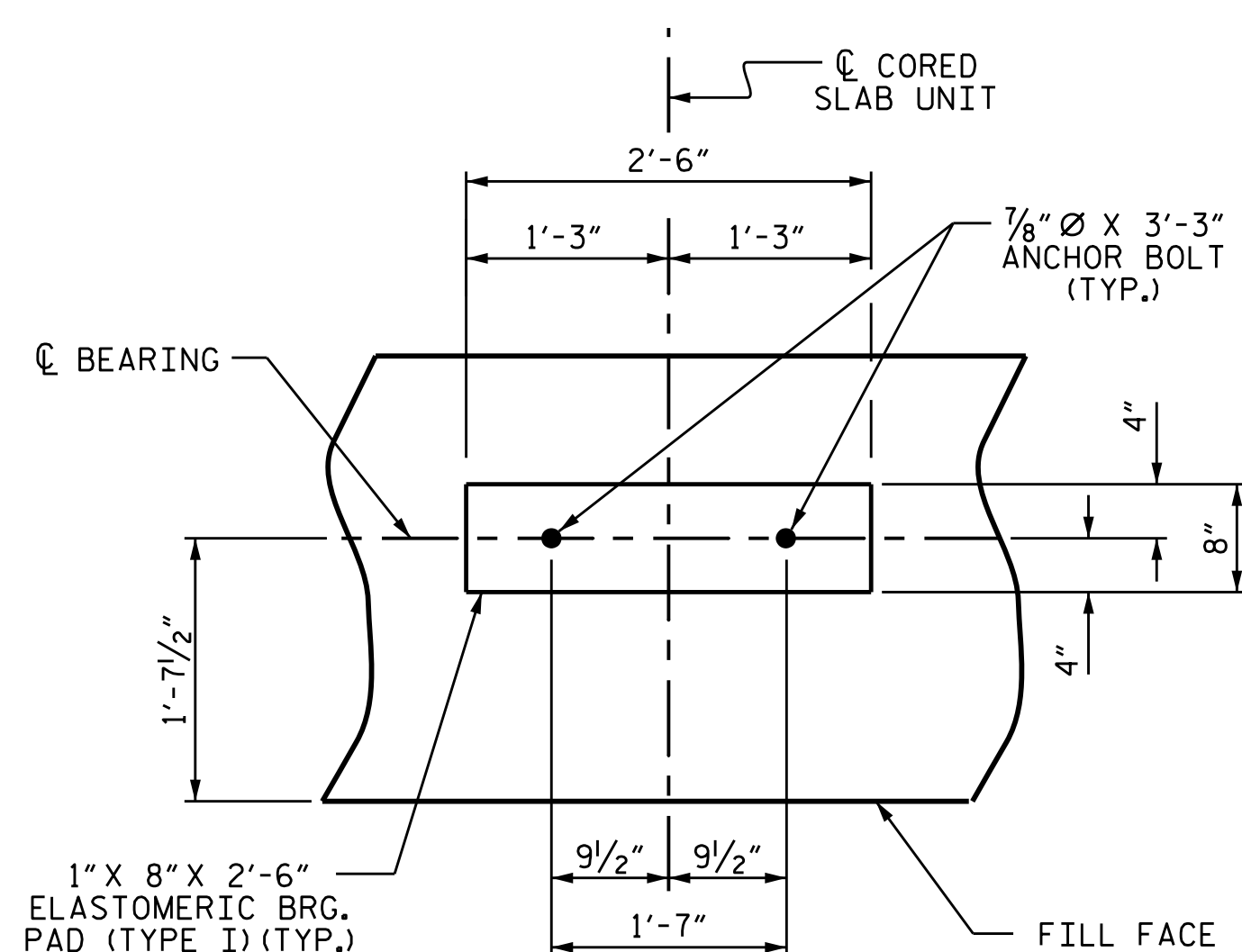


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

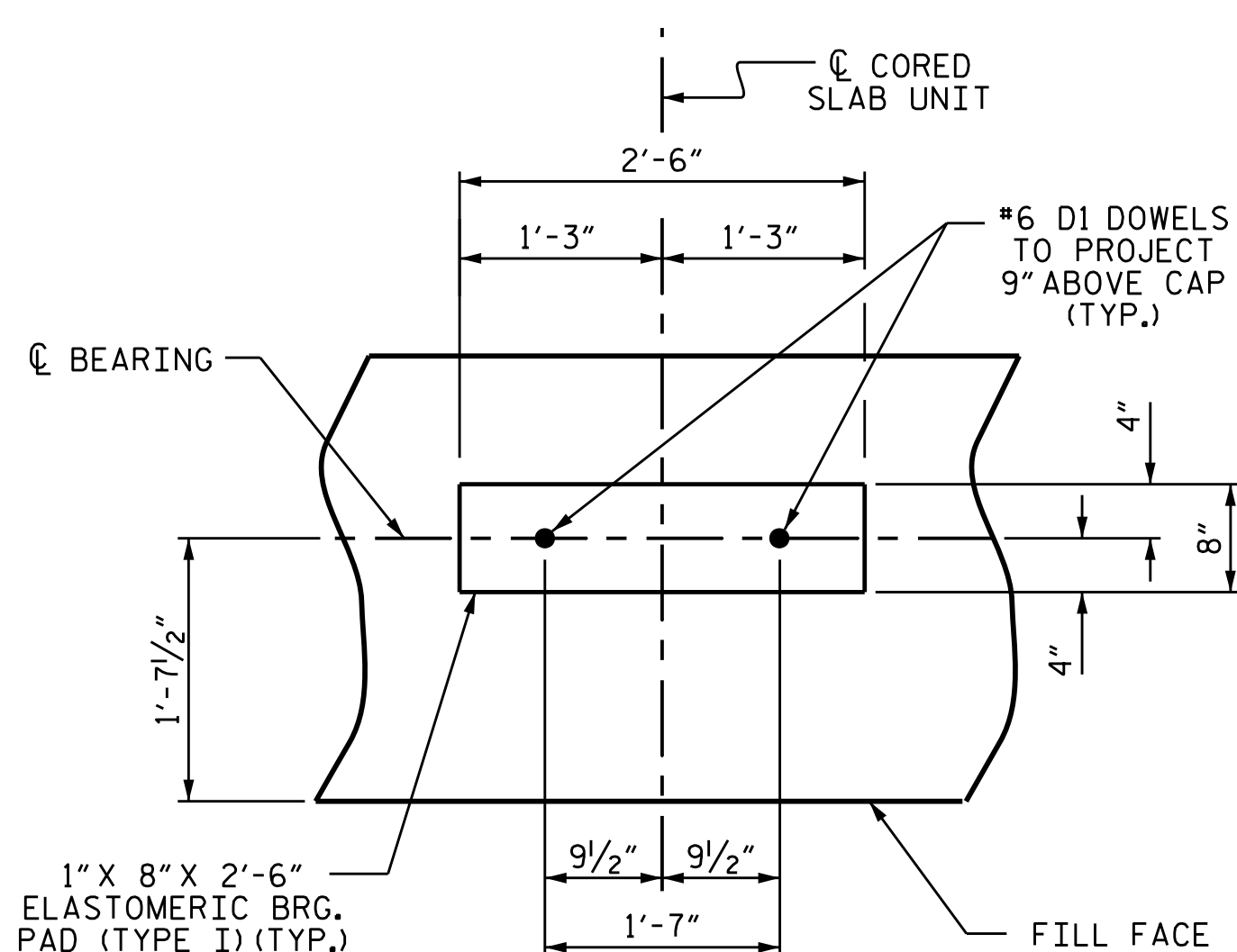
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



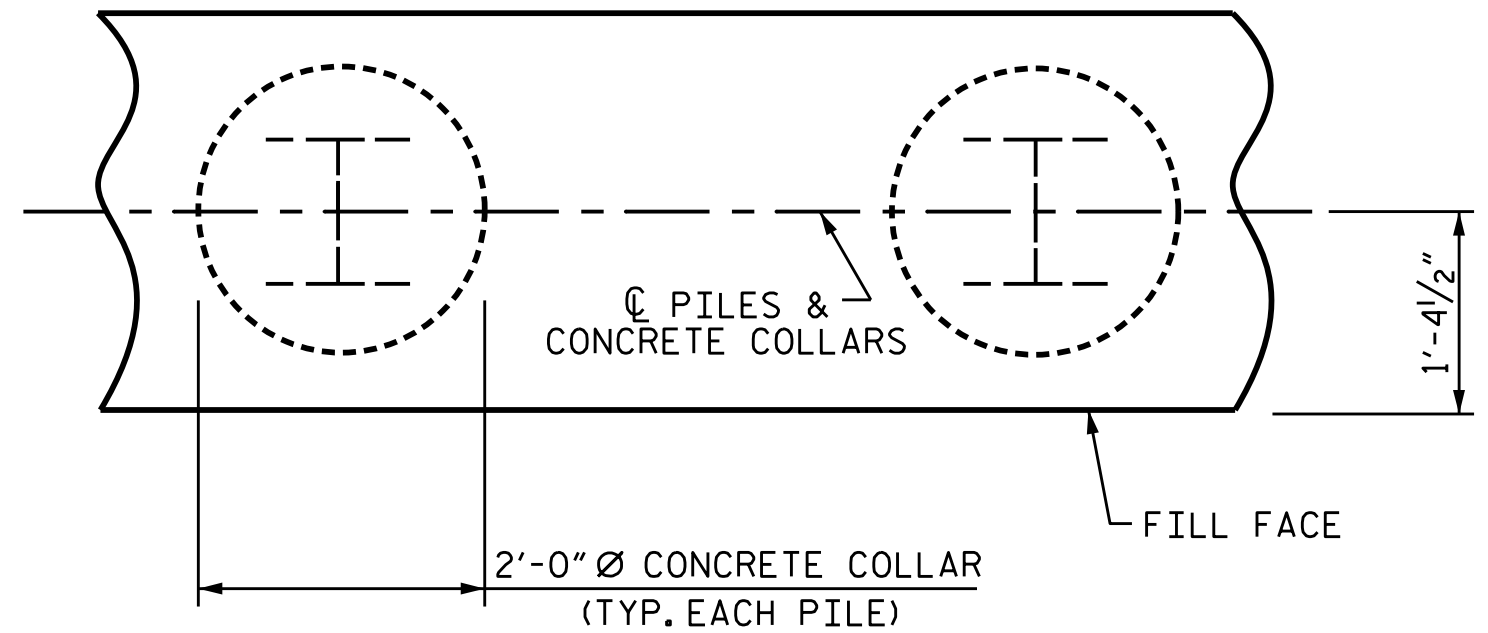
DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION) (TYP. UNITS 2-9)



DETAIL "B"

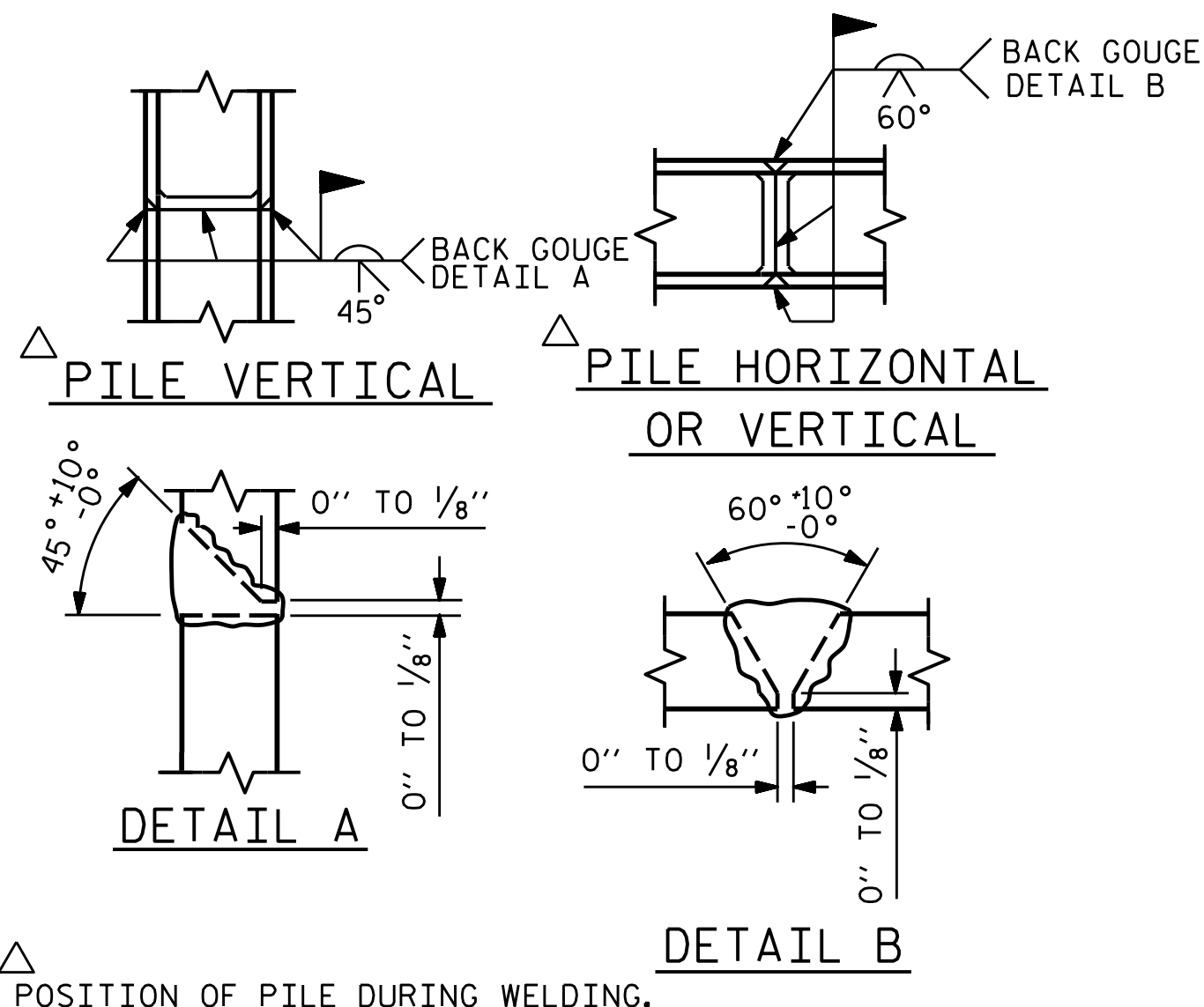
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION) (TYP. EXT. UNITS)



PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

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

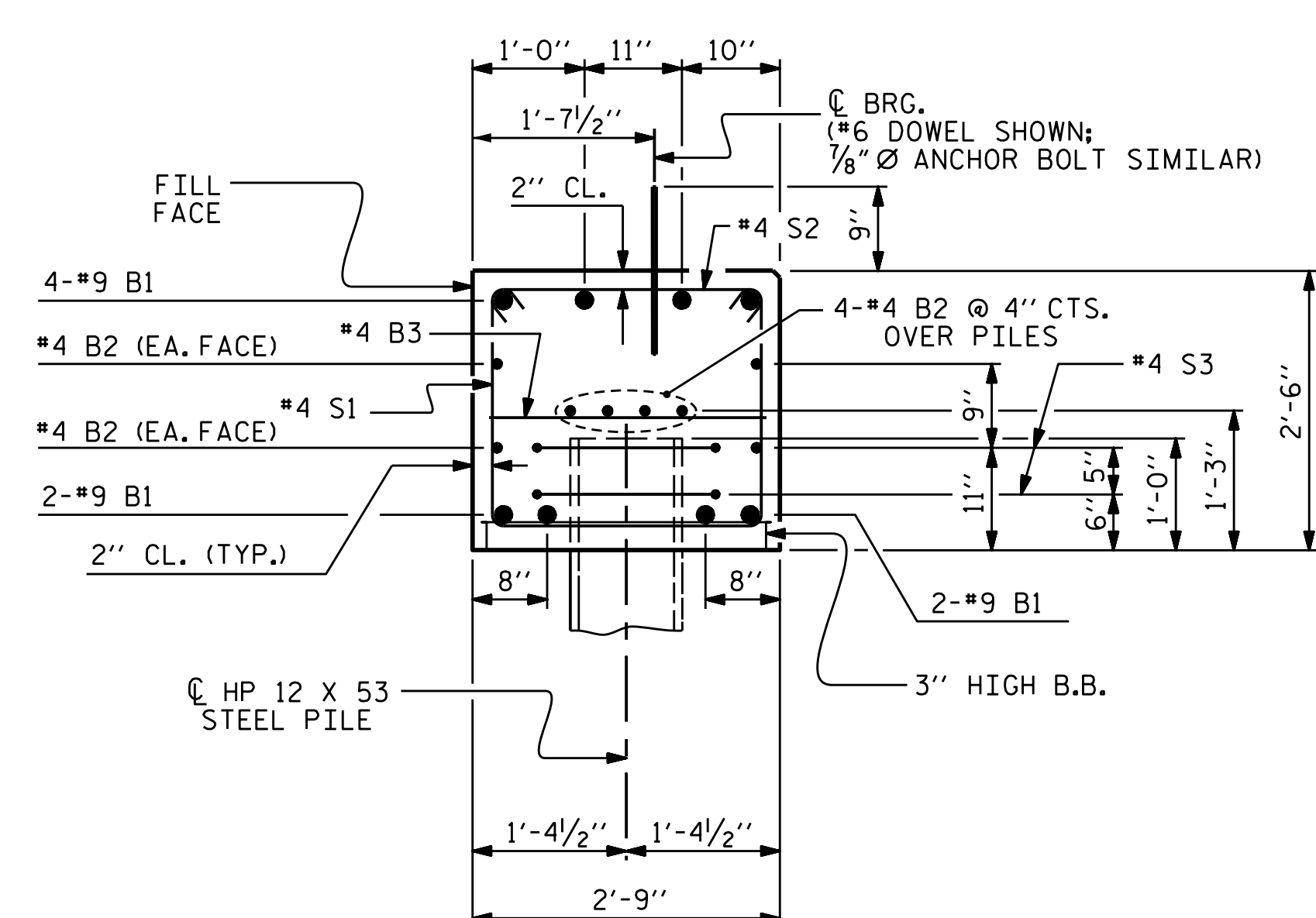


PILE SPLICE DETAILS

BAR TYPES		BILL OF MATERIAL FOR ONE END BENT				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	#9	1	38'-0"	1034		
B2	#4	STR	19'-1"	204		
B3	#4	STR	2'-5"	15		
D1	#6	STR	1'-6"	9		
H1	#4	2	7'-10"	126		
K1	#4	STR	2'-11"	23		
S1	#4	3	7'-5"	228		
S2	#4	4	3'-2"	97		
S3	#4	5	6'-6"	43		
S4	#4	6	4'-5"	12		
V1	#4	STR	4'-4"	139		
REINFORCING STEEL (FOR ONE END BENT)				1930 LBS.		
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)						
POUR #1 CAP, LOWER PART OF WINGS & COLLARS				11.2 C.Y.		
POUR #2 UPPER PART OF WINGS				1.6 C.Y.		
TOTAL CLASS A CONCRETE				12.8 C.Y.		

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 5	NO: 5
LIN. FT.= 200	LIN. FT.= 225
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES
NO: 5	NO: 5

ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION A-A

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

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-

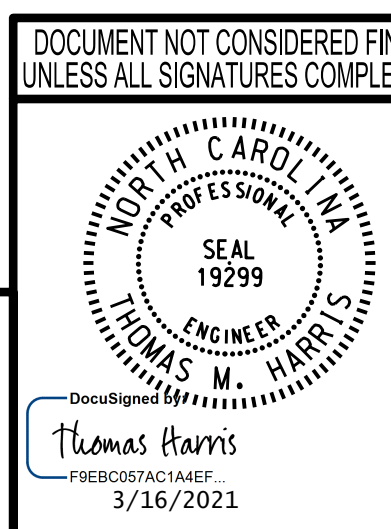
SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1 & 2
 DETAILS

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

SHEET NO. S-15
 TOTAL SHEETS 17



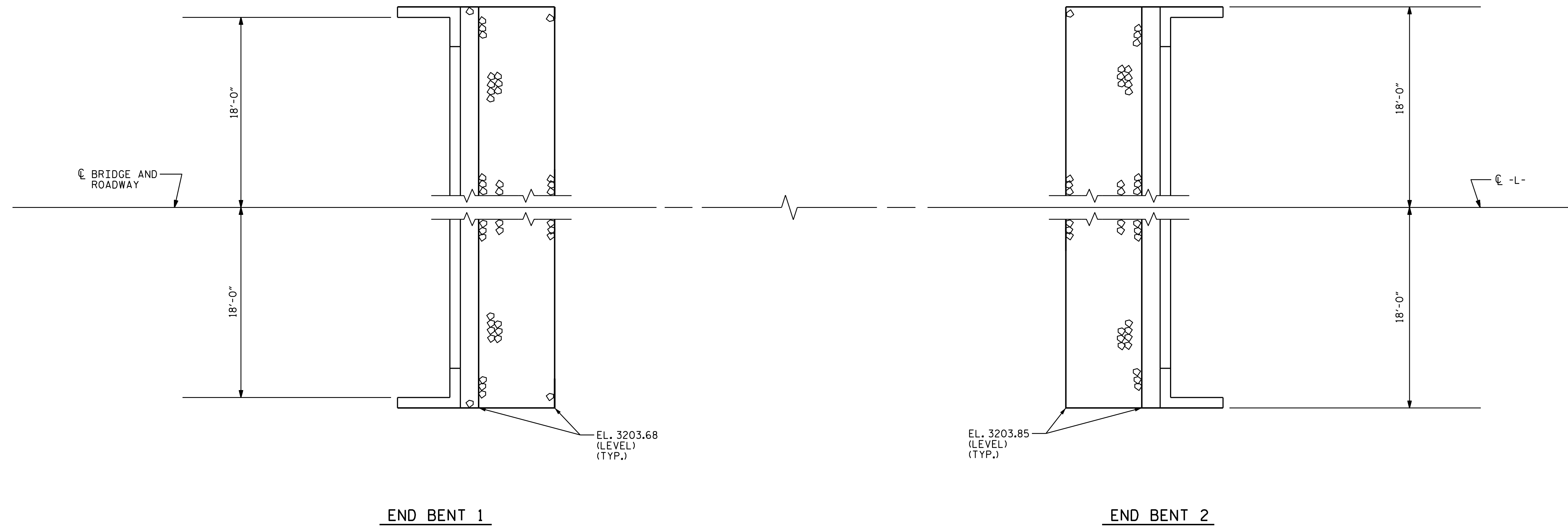
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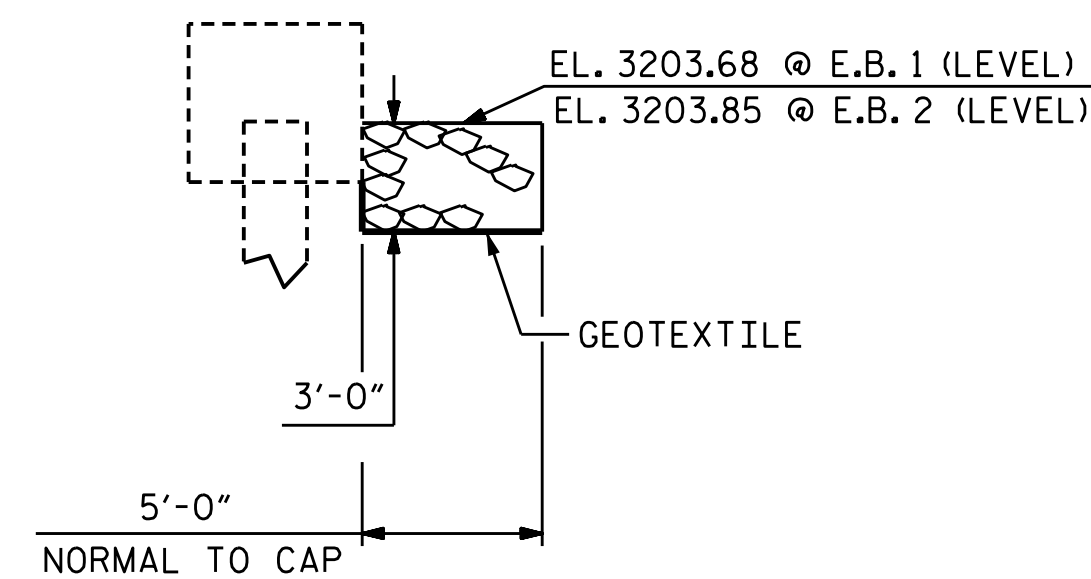
3/15/2021
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DRAWN BY : DGE	12/09	REV. 4/17	MAA/THC
CHECKED BY : MKT	01/10		
ASSEMBLED BY : J. WHEATLEY	DATE : FEB 2021		
CHECKED BY : T. KIRSCHBAUM	DATE : FEB 2021		
DESIGN ENGINEER OF RECORD : T. HARRIS	DATE : FEB 2021		

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+09.00 -L-	RIP RAP CLASS II (3'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	28	32
END BENT 2	28	32

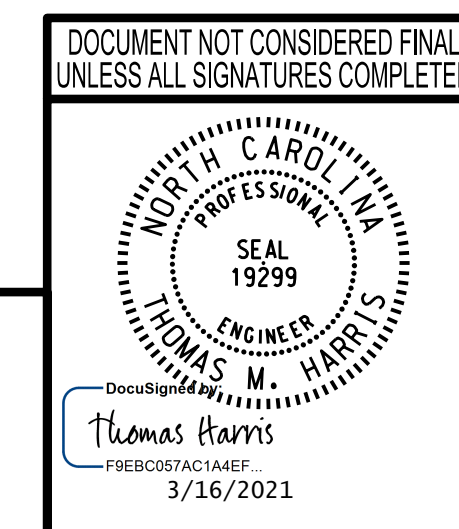


PROJECT NO. 17BP.14.R.115
MACON COUNTY
STATION: 13+09.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

—RIP RAP DETAILS—

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



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3/15/2021 J:\L\T2001798.012 R.115 Macon Bridge 029\550029\Structures\0201 UPDATE.dgn\016.550029_STR_RR.dgn

DESIGNED BY: J. WHEATLEY DATE: FEB 2021
DRAWN BY: M. HOGAN DATE: FEB 2021
CHECKED BY: T. KIRSCHBAUM DATE: FEB 2021
DESIGN ENGINEER OF RECORD: T. HARRIS DATE: FEB 2021

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	SIR	28'-10"	25Q	
A2	13	#4	SIR	28'-10"	25Q	
*B1	58	#5	SIR	11'-2"	67G	
B2	58	#6	SIR	11'-8"	101G	
REINFORCING STEEL					LBS.	1266
* EPOXY COATED REINFORCING STEEL					LBS.	926
CLASS AA CONCRETE					C. Y.	15.9
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	SIR	28'-10"	25Q	
A2	13	#4	SIR	28'-10"	25Q	
*B1	58	#5	SIR	11'-2"	67G	
B2	58	#6	SIR	11'-8"	101G	
REINFORCING STEEL					LBS.	1266
* EPOXY COATED REINFORCING STEEL					LBS.	926
CLASS AA CONCRETE					C. Y.	15.9

NOTES

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

GEOTEXTILE SHALL BE TYPE 1 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.

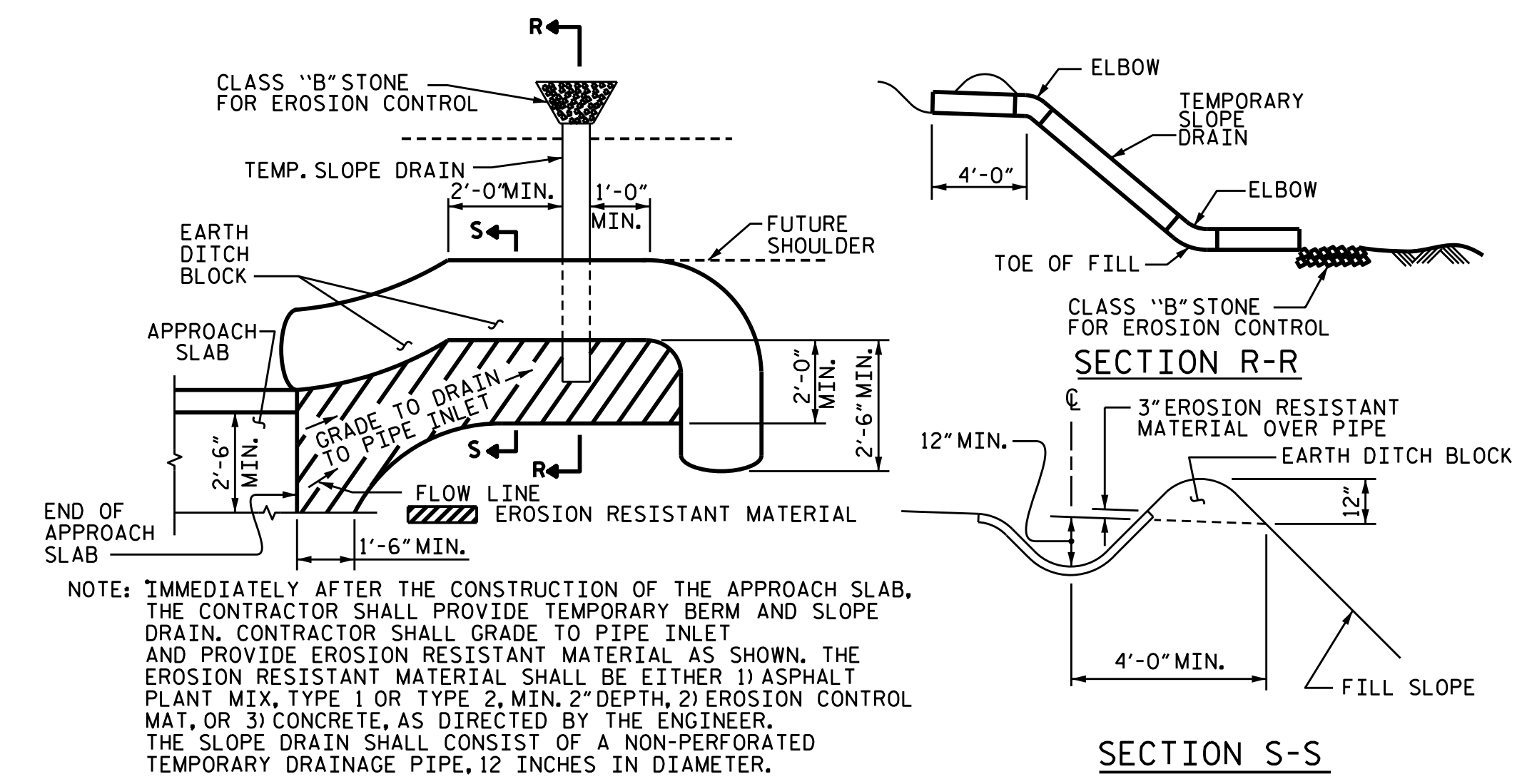
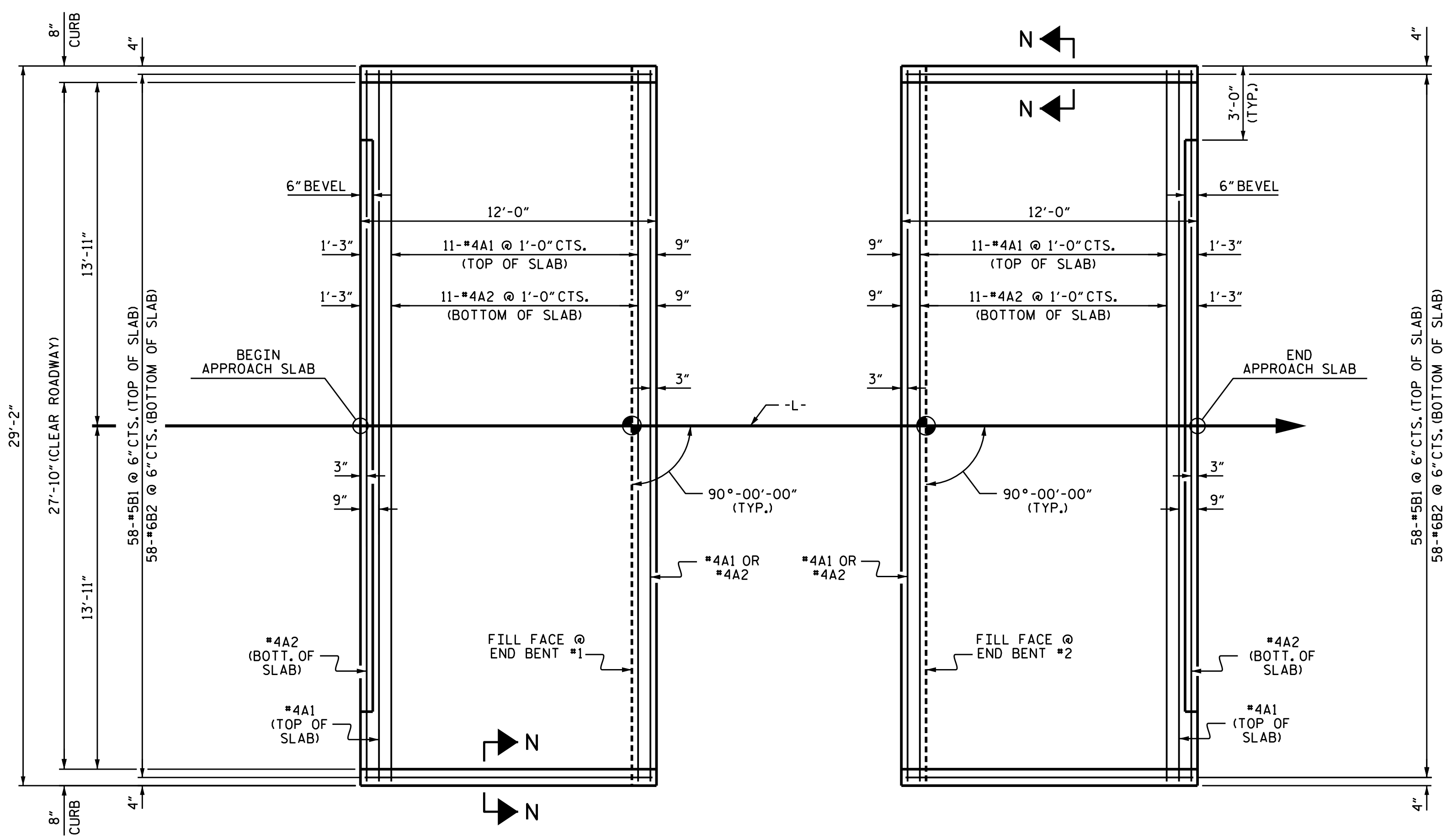
SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE OF APPROACH SLAB.

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.

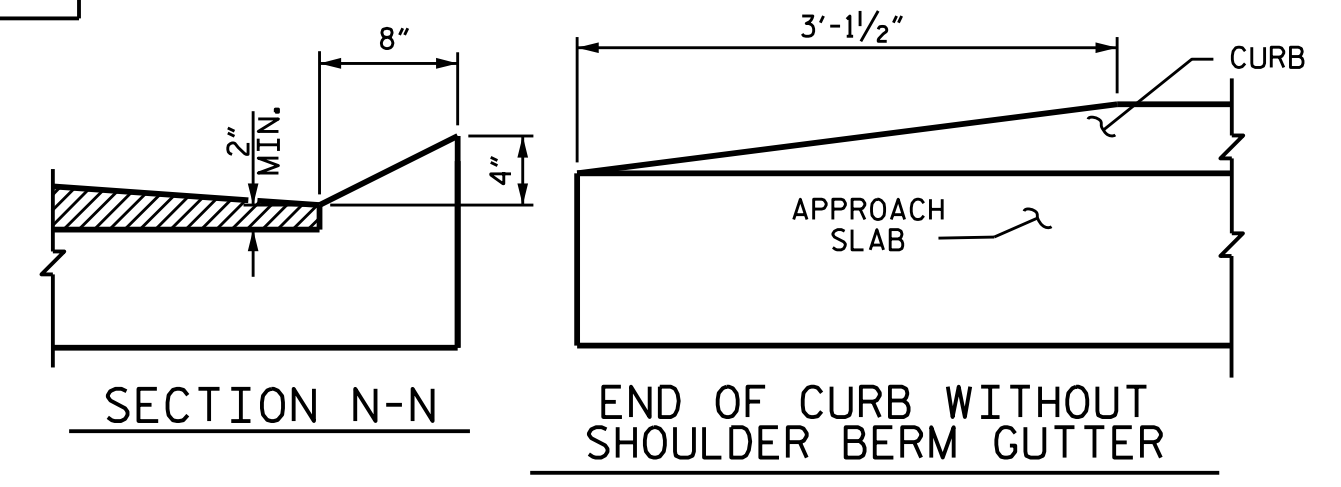
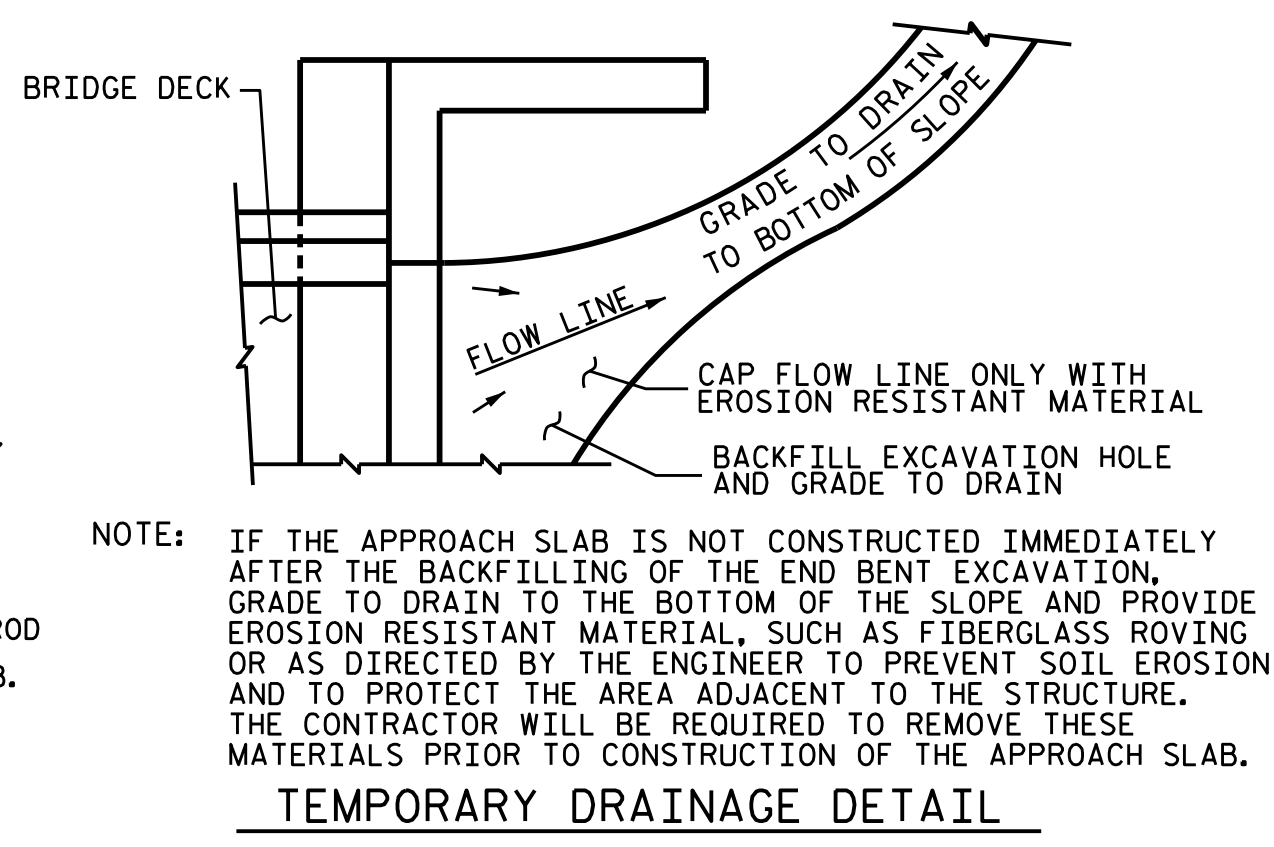
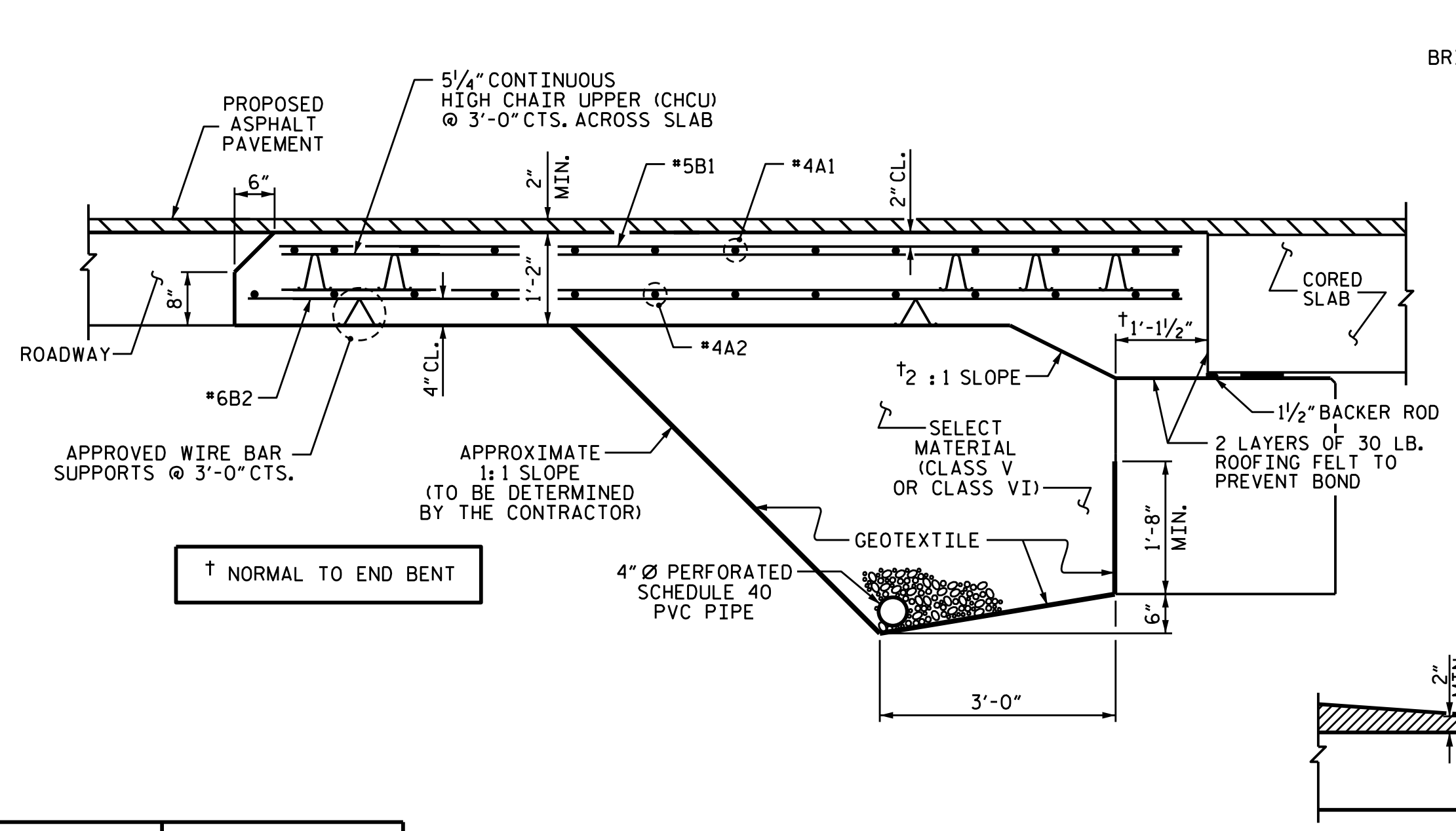
APPROACH SLAB GROOVING IS NOT REQUIRED.

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



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

PROJECT NO. 17BP.14.R.115
 MACON COUNTY
 STATION: 13+09.00 -L-



DRAWN BY: SHS/MAA 5-09	CHECKED BY: BCH 5-09	REV. 12-17	MAA/THC
DESIGNED BY: J. WHEATLEY	DATE: FEB 2021	DRAWN BY: M. HOGAN	DATE: FEB 2021
CHECKED BY: T. KIRSCHBAUM	DATE: FEB 2021	DESIGN ENGINEER OF RECORD: T. HARRIS	DATE: FEB 2021

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THOMAS M. HARRIS
 PROFESSIONAL ENGINEER
 SEAL 19299
 3/16/2021

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW

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

SHEET NO. S-17
 TOTAL SHEETS 17

