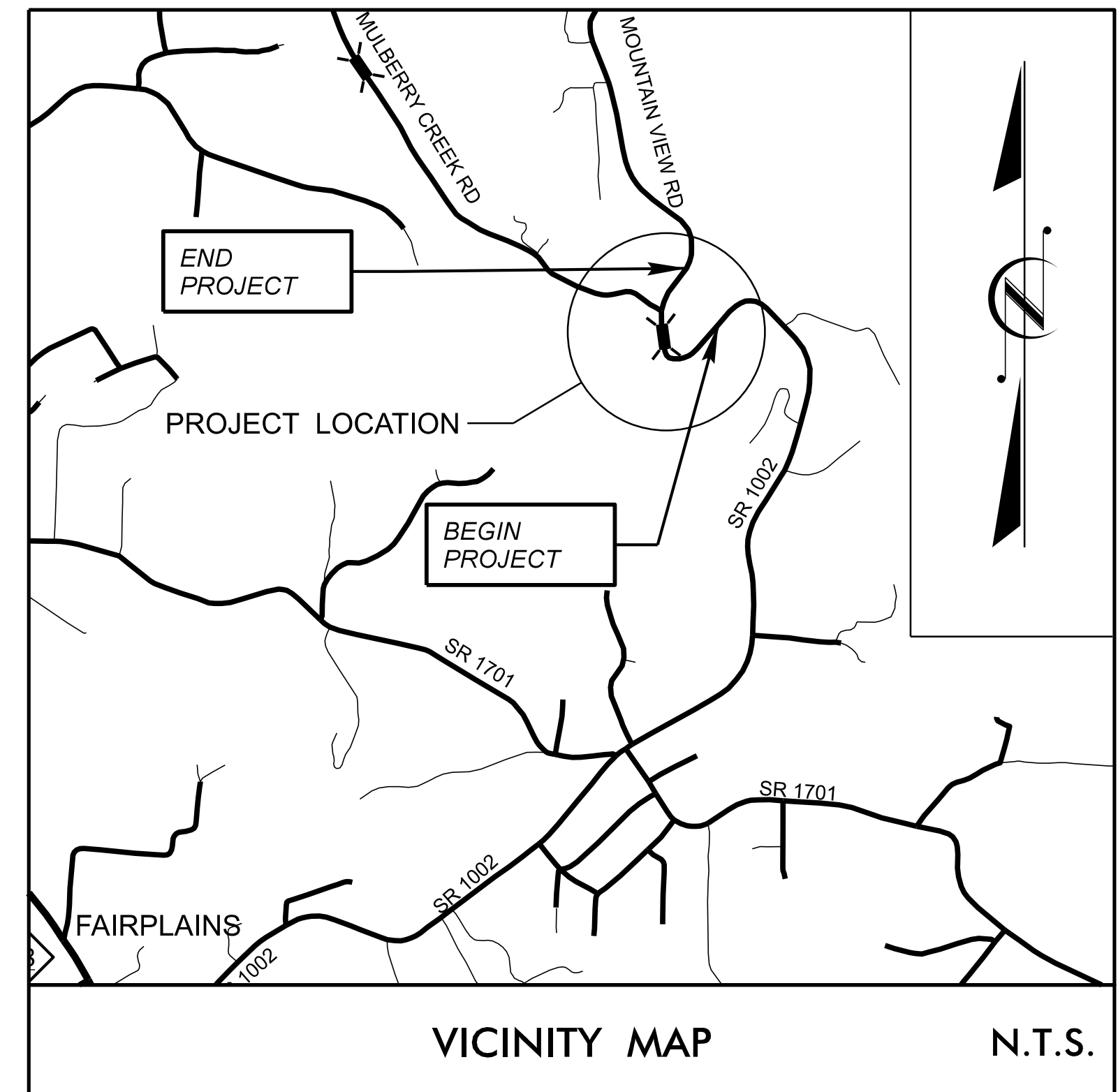


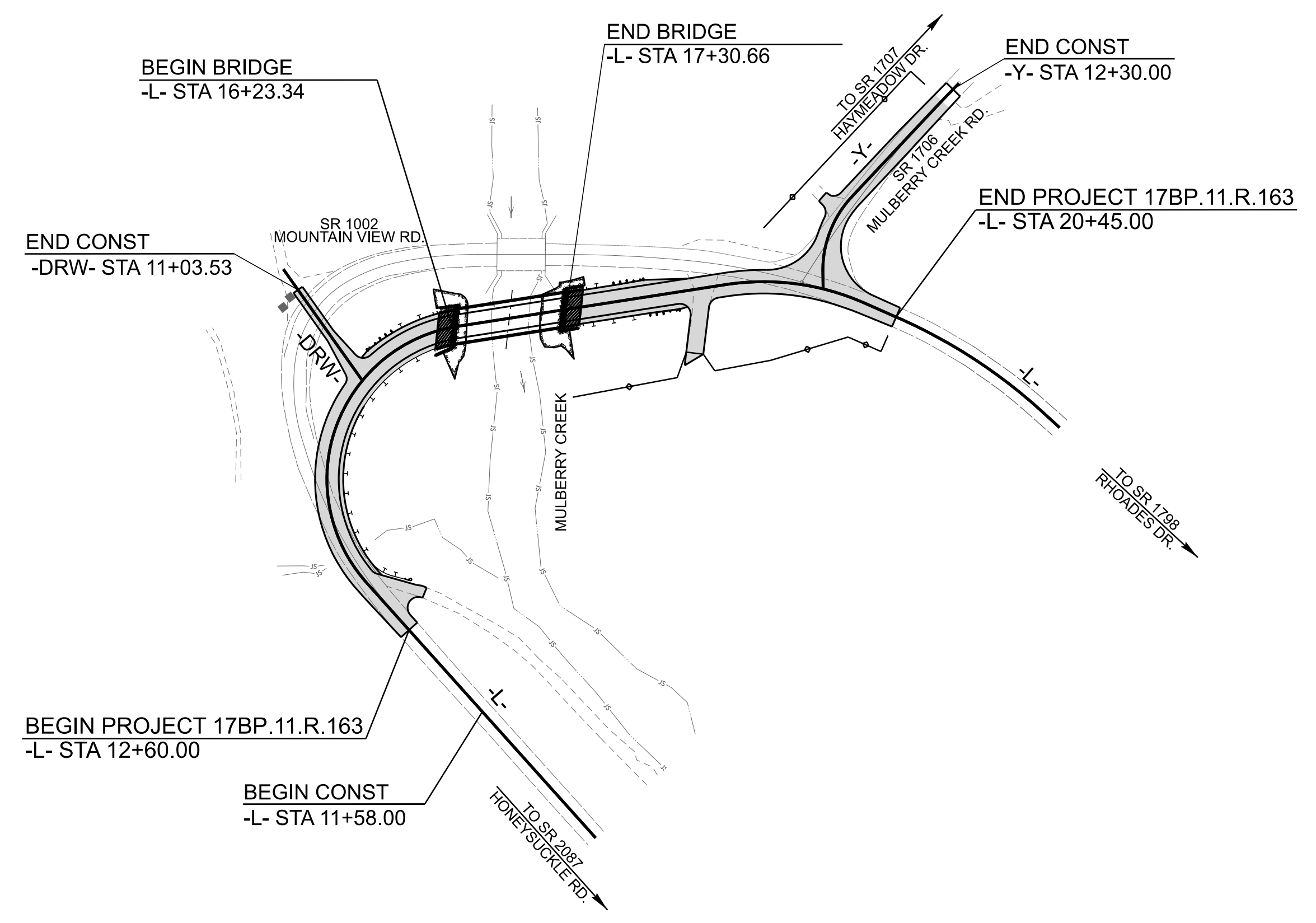
**PROJECT: 17BP.11.R.163**



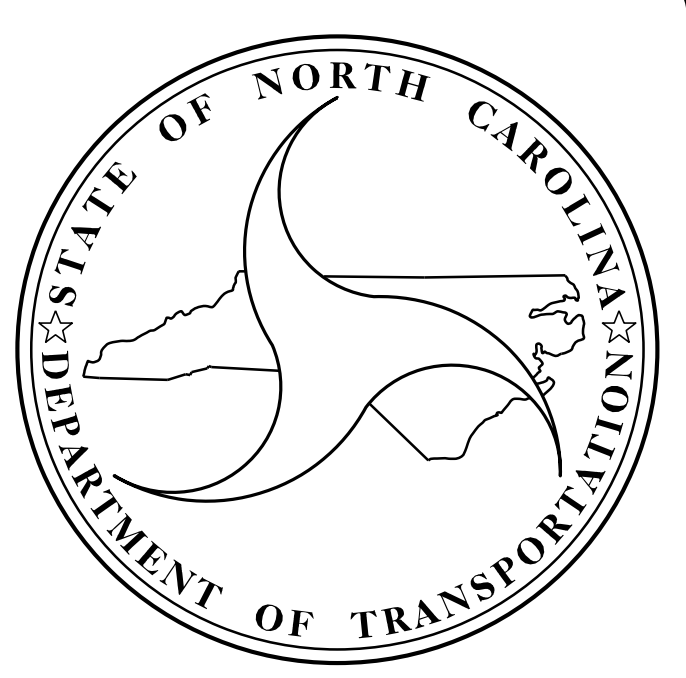
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
***WILKES COUNTY***

**LOCATION: BRIDGE NO. 960136 ON SR 1002 (MOUNTAIN VIEW RD.)  
OVER MULBERRY CREEK**  
**TYPE OF WORK: WIDENING, GRADING, DRAINAGE, PAVING,  
AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.11.R.163	1	20
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.11.PE.163	N/A	P.E.	
17BP.11.ROW.163	N/A	RW, UTILITIES	
17BP.11.R.163	N/A	CONST.	



***STRUCTURE***



**DESIGN DATA**

ADT (2025) =	2.900
ADT (2045) =	-
K =	N/A %
D =	N/A %
T =	7 % **
V =	25 MPH
** (TTST 3.5%, DUAL 3.5 %)	
FUNC CLASS =	RURAL LOCAL
SUB-REGIONAL TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT 17BP.11.R.163 =	0.129 MILES
LENGTH STRUCTURE TIP PROJECT 17BP.11.R.163 =	0.020 MILES
<b>TOTAL LENGTH TIP PROJECT 17BP.11.R.163 =</b>	<b>0.149 MILES</b>

Prepared in the Office of:

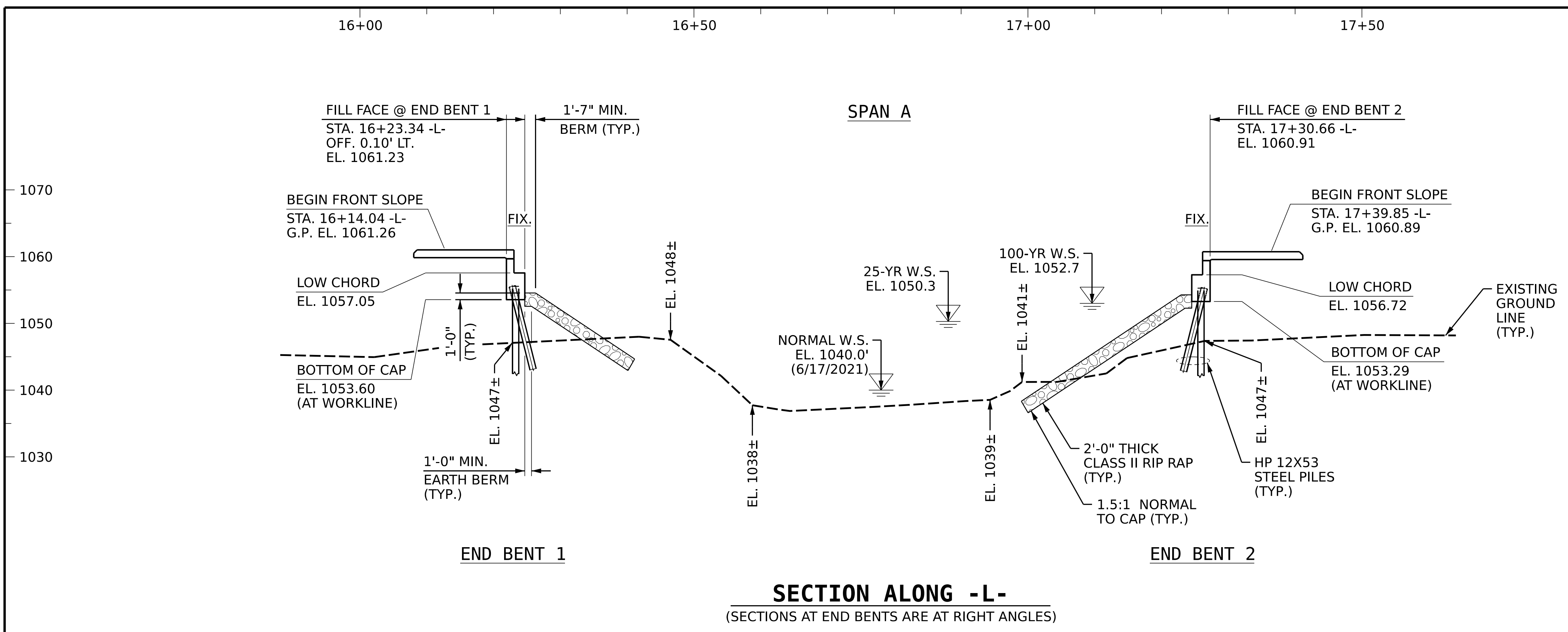
**KCA**  
KISINGER CAMPO  
& ASSOCIATES

301 FAYETTEVILLE ST., SUITE 1500  
RALEIGH, NC 27601 (919) 882-7839  
NC FIRM LICENSE: C-1506

---

2024 STANDARD SPECIFICATIONS

<p><b>LETTING DATE :</b></p> <p>SEE ROADWAY PLANS</p>	<p><b>DIEGO A. AGUIRRE, Ph.D., P.E.</b> <i>PROJECT ENGINEER</i></p> <hr/> <p><b>FIDEL L. FLORES, E.I.</b> <i>PROJECT DESIGN ENGINEER</i></p>
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(-) 5.6341% (-) 0.3000% (-) 0.3000% (+) 5.0899%

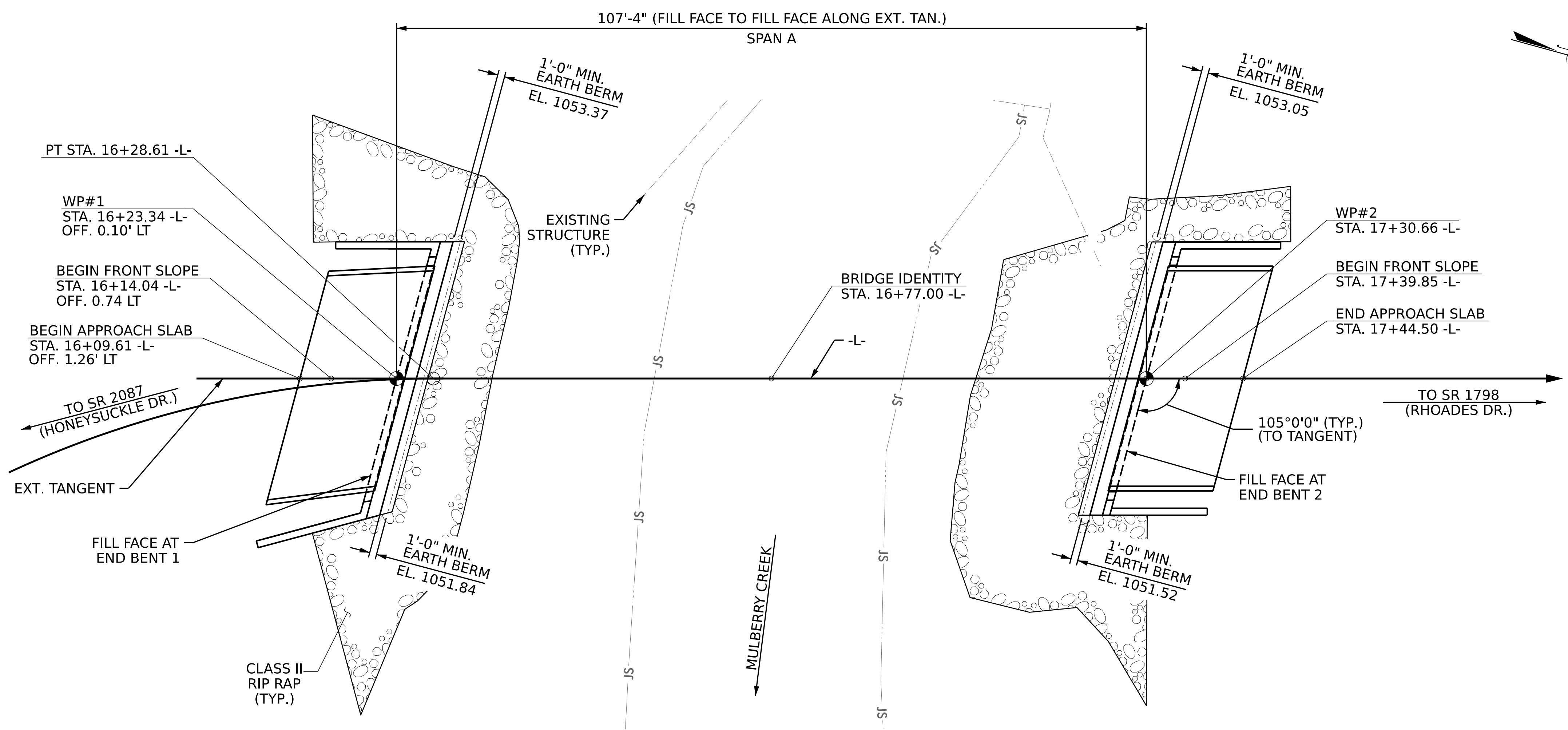
**VERTICAL CURVE DATA**

PI =	13+75.00 -L-	PI =	18+55.73 -L-
EL. =	1061.98	EL. =	1060.54
VC =	220'	VC =	200'

**HORIZONTAL CURVE DATA**

PI =	15+84.82 -L-
Δ =	123° 02' 40.8" (RT)
D =	39° 47' 19.4"
L =	309.24'
T =	265.46'
R =	144.00'

**SECTION ALONG -L-**  
(SECTIONS AT END BENTS ARE AT RIGHT ANGLES)



**PLAN**  
(PILES NOT SHOWN FOR CLARITY)

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
 STATION: 16+77.00 -L-  
 SHEET 1 OF 3 REPLACES BRIDGE NO. 960136



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON SR 1002  
 (MOUNTAIN VIEW RD.) OVER  
 MULBERRY CREEK BETWEEN  
 SR 2087 (HONEYSUCKLE DR.)  
 AND SR 1798 (RHOADES DR.)

DRAWN BY : DIEGO A. AGUIRRE DATE : 09/2022  
 CHECKED BY : SCOTT A. BETZ DATE : 09/2022  
 DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 09/2022

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

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



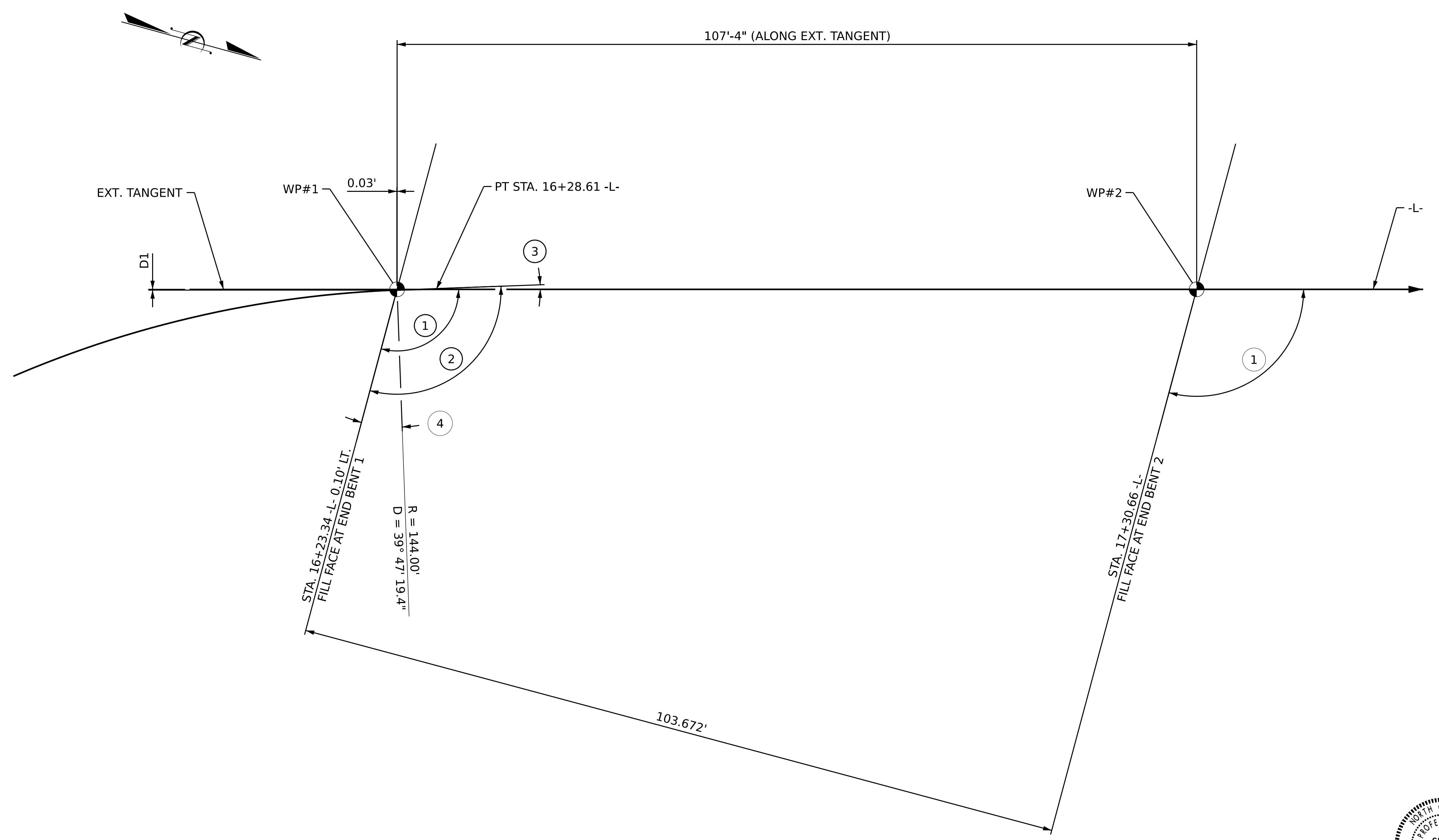


**OFFSETS**

D1 = 0.10' LT.

**ANGLES**

- ① 105° 0' 0" TO WORKLINE
- ② 107° 6' 29" TO TANGENT
- ③ 2° 6' 29"
- ④ 17° 5' 47" TO RADIAL LINE



**EXTENDED TANGENT LAYOUT**  
(END BENTS ARE PARALLEL)

PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
 STATION: 16+77.00 -L-  
 SHEET 2 OF 3 REPLACES BRIDGE NO. 960136



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON SR 1002  
 (MOUNTAIN VIEW RD.) OVER  
 MULBERRY CREEK BETWEEN  
 SR 2087 (HONEYSUCKLE DR.)  
 AND SR 1798 (RHOADES DR.)

DRAWN BY : DIEGO A. AGUIRRE DATE : 09/2022  
 CHECKED BY : SCOTT A. BETZ DATE : 09/2022  
 DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 09/2022

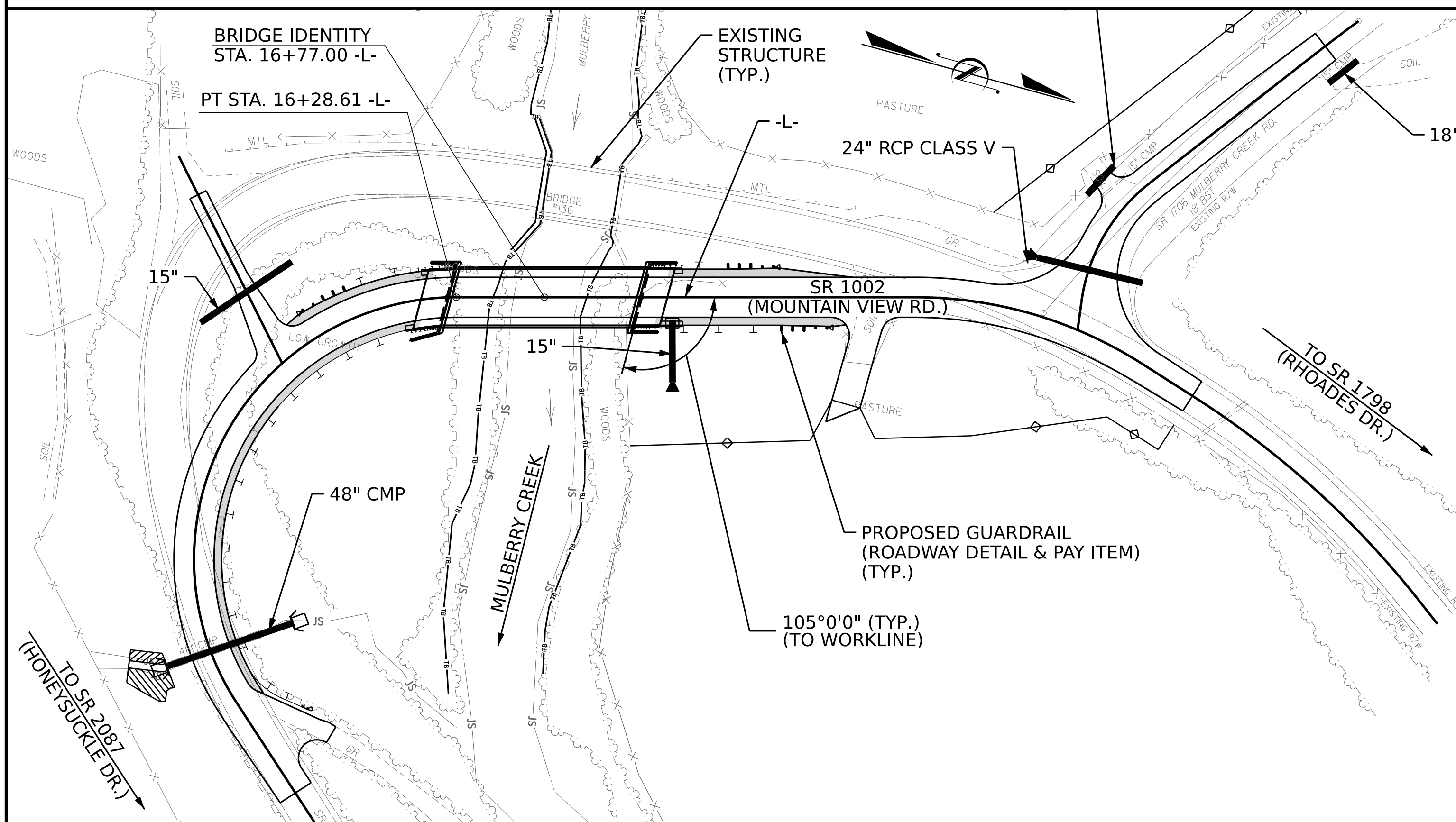
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

301 FAYETTEVILLE ST., SUITE 1500  
 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-3
2			4			20



BM INFO: BM#1, RR SPIKE IN 14" WALNUT, -L- STA 17+52, 250.0' LT  
EL. 1050.81, NORTHING: 905451 EASTING: 1369650



**LOCATION SKETCH**

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

**GENERAL NOTES**

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

REMOVAL OF EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENT 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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF ONE 45'-6" SPAN PRESTRESSED CONCRETE CORED SLABS WITH A CLEAR ROADWAY OF 29'-3" ON PRECAST CONCRETE CAPS WITH CONCRETE ENCASED STEEL PILES AND TIMBER ABUTMENTS LOCATED APPROXIMATELY 25' UPSTREAM FROM PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

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 16 + 77.00 -L-".

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

**HYDRAULIC DATA**

DESIGN DISCHARGE	5400 CFS
FREQUENCY OF DESIGN FLOOD	25 YRS.
DESIGN HIGH WATER ELEVATION	1050.3 FT.
DRAINAGE AREA	39.1 SQ. MI.
BASE DISCHARGE (Q100)	7500 CFS
BASE HIGH WATER ELEVATION	1052.7'

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE	18300 CFS
FREQUENCY OF OVERTOPPING FLOOD	500+ YRS.
OVERTOPPING FLOOD ELEVATION	1061.2'
SAG STA.	17+67.00 -L-

**TOTAL BILL OF MATERIAL**

	REMOVAL OF EXISTING STRUCTURE STA. 16+77.00 -L-	ASBESTOS ASSESSMENT	CLASS A CONCRETE (BRIDGE)	BRIDGE APPROACH SLABS	REINFORCING STEEL (BRIDGE)	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	DYNAMIC PILE TESTING
							No.	LIN. FT.		
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	CU. YD.	LUMP SUM	LBS.	EA.			EA.	EA.
END BENT 1			30.3		5085	7	7	175	*	*
END BENT 2			29.7		4982	7	7	175	*	*
TOTAL	LUMP SUM	LUMP SUM	60.00	LUMP SUM	10067	14	14	350	14	1

**TOTAL BILL OF MATERIAL CONT.**

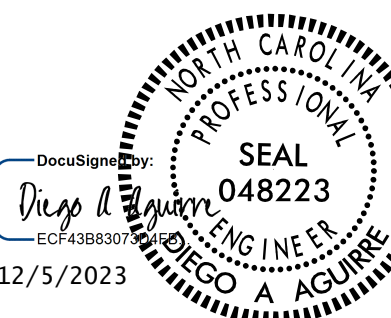
	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAM	
	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	No.	LIN. FT.
SUPERSTRUCTURE	210.00				11	1155.00
END BENT 1		232	365			
END BENT 2		275	373			
TOTAL	210.00	507	738	LUMP SUM	11	1155.00

\* SEE "PILE FOUNDATION TABLES" SHEET FOR QUANTITIES

DRAWN BY : DIEGO A. AGUIRRE DATE : 09/2022  
CHECKED BY : SCOTT A. BETZ DATE : 09/2022  
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 09/2022

12/1/2023  
17BP.11.R.163.SMU.PGD03\_960136.dgn  
fflores

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



301 FAYETTEVILLE ST., SUITE 1500  
RALEIGH, NC 27601 (919) 882-7839  
NC FIRM LICENSE: C-1506

PROJECT NO. 17BP.11.R.163

WILKES COUNTY

STATION: 16+77.00 -L-

SHEET 3 OF 3 REPLACES BRIDGE NO. 960136

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**  
FOR BRIDGE ON SR 1002 (MOUNTAIN VIEW RD.) OVER MULBERRY CREEK BETWEEN SR 2087 (HONEYSUCKLE DR.) AND SR 1798 (RHOADES DR.)

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



LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																							
LEVEL	Vehicle	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER	
						MOMENT					SHEAR					MOMENT							
						LIVELOAD FACTORS (VLL)	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)	LIVE LOAD FACTORS (VLL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD RATING	HL-93 (INV)	N/A	①	1.60	--	1.75	0.209	2.15	A	EL	52.760	0.571	1.60	A	EL	4.140	0.8	0.209	1.79	A	EL	50.690	
	HL-93 (OP)	N/A	--	2.07	--	1.35	0.209	2.79	A	EL	52.760	0.571	2.07	A	EL	4.140	N/A	--	--	--	--	--	
	HS-20 (INV)	36.000	②	2.16	77.8	1.75	0.209	3.02	A	EL	52.760	0.571	2.16	A	EL	4.140	0.8	0.209	2.52	A	EL	50.690	
LEGAL LOAD RATING	HS-20 (OP)	36.000	--	2.81	101.2	1.35	0.209	3.92	A	EL	52.760	0.571	2.81	A	EL	4.140	N/A	--	--	--	--	--	
	SINGLE VEHICLE (SV)	SNSH	13.500	--	5.37	72.5	1.4	0.209	9.01	A	EL	52.760	0.571	5.37	A	EL	4.140	0.8	0.209	6.02	A	EL	51.730
		SNGARBS2	20.000	--	4.34	86.8	1.4	0.209	6.49	A	EL	49.660	0.571	4.61	A	EL	51.730	0.8	0.209	4.34	A	EL	50.690
		SNAGRIS2	22.000	--	4.05	89.1	1.4	0.209	6.06	A	EL	49.660	0.571	4.30	A	EL	4.140	0.8	0.209	4.05	A	EL	50.690
	SNCOTTS3	27.250	--	2.99	81.5	1.4	0.209	4.48	A	EL	51.730	0.571	3.32	A	EL	99.310	0.8	0.209	2.99	A	EL	51.730	
	SNAGGRS4	34.925	--	2.45	85.6	1.4	0.209	3.66	A	EL	52.760	0.571	2.70	A	EL	99.310	0.8	0.209	2.45	A	EL	50.690	
	SNS5A	35.550	--	2.40	85.3	1.4	0.209	3.59	A	EL	51.730	0.571	2.71	A	EL	4.140	0.8	0.209	2.40	A	EL	51.730	
	SNS6A	39.950	--	2.18	87.1	1.4	0.209	3.26	A	EL	52.760	0.571	2.45	A	EL	99.310	0.8	0.209	2.18	A	EL	51.730	
	SNS7B	42.000	--	2.07	86.9	1.4	0.209	3.10	A	EL	51.730	0.571	2.38	A	EL	4.140	0.8	0.209	2.07	A	EL	51.730	
	TRUCK TRACTOR SEMI- TRAILER (TTST)	TNAGRIT3	33.000	--	2.65	87.5	1.4	0.209	3.97	A	EL	51.730	0.571	2.93	A	EL	4.140	0.8	0.209	2.65	A	EL	51.730
		TNT4A	33.075	--	2.65	87.6	1.4	0.209	3.97	A	EL	52.760	0.571	2.88	A	EL	4.140	0.8	0.209	2.65	A	EL	50.690
		TNT6A	41.600	--	2.15	89.4	1.4	0.209	3.22	A	EL	52.760	0.571	2.47	A	EL	4.140	0.8	0.209	2.15	A	EL	50.690
		TNT7A	42.000	--	2.15	90.3	1.4	0.209	3.22	A	EL	51.730	0.571	2.44	A	EL	4.140	0.8	0.209	2.15	A	EL	51.730
		TNT7B	42.000	--	2.19	92.0	1.4	0.209	3.28	A	EL	52.760	0.571	2.34	A	EL	4.140	0.8	0.209	2.19	A	EL	50.690
		TNAGRIT4	43.000	--	2.11	90.7	1.4	0.209	3.16	A	EL	51.730	0.571	2.27	A	EL	4.140	0.8	0.209	2.11	A	EL	51.730
TNAGT5A		45.000	--	2.00	90.0	1.4	0.209	2.99	A	EL	52.760	0.571	2.23	A	EL	4.140	0.8	0.209	2.00	A	EL	50.690	
TNAGT5B	45.000	③	1.98	89.1	1.4	0.209	2.97	A	EL	49.660	0.571	2.17	A	EL	4.140	0.8	0.209	1.98	A	EL	50.690		
EMERGENCY VEHICLE (EV)	EV2	28.750	--	3.05	87.7	1.3	0.209	4.92	A	EL	49.660	0.571	3.52	A	EL	4.140	0.8	0.209	3.05	A	EL	50.690	
	EV3	43.000	④	2.01	86.4	1.3	0.209	3.25	A	EL	52.760	0.571	2.37	A	EL	4.140	0.8	0.209	2.01	A	EL	50.690	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	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.

④ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

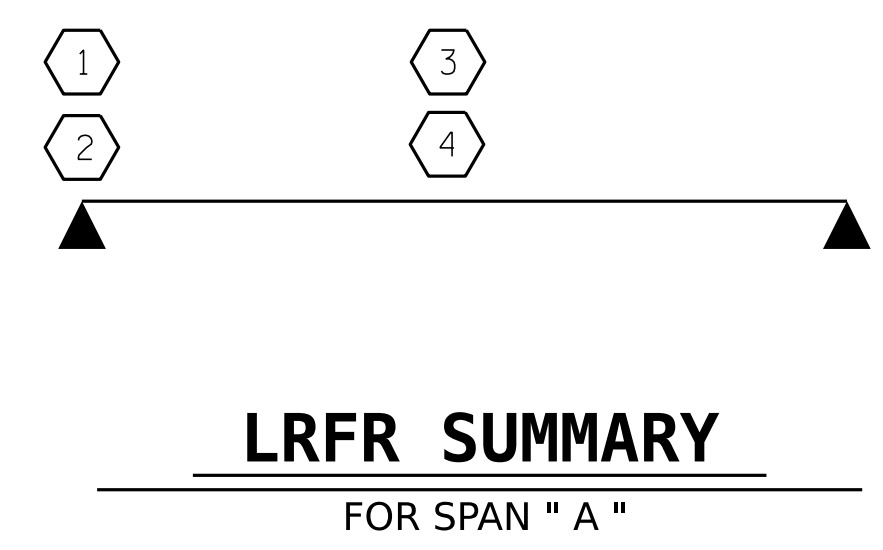
③ LEGAL LOAD RATING \*\*

④ EMERGENCY VEHICLE LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
STATION: 16+77.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
LRFR SUMMARY FOR  
105' BOX BEAM UNIT  
105° SKEW  
(NON-INTERSTATE TRAFFIC)

DESIGN ENGINEER OF RECORD:  
**DIEGO A. AGUIRRE** DATE : 01/2023

ASSEMBLED BY : FIDEL L. FLORES DATE : 01/2023  
CHECKED BY : SCOTT A. BETZ DATE : 01/2023

DOCUMENT NOT CONSIDERED  
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301 FAYETTEVILLE ST., SUITE 1500  
RALEIGH, NC 27601 (919) 882-7839  
NC FIRM LICENSE: C-1506

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



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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM 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.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,500 PSI.

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

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

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

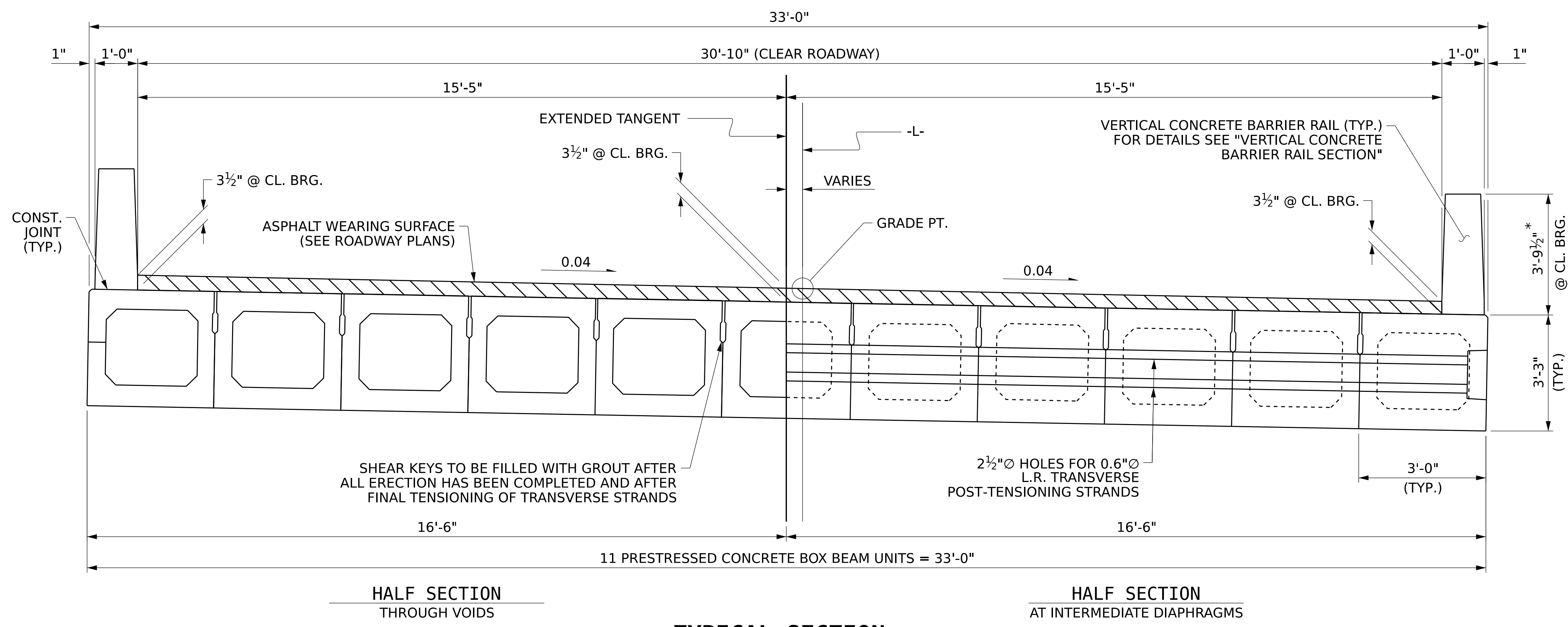
THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

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.

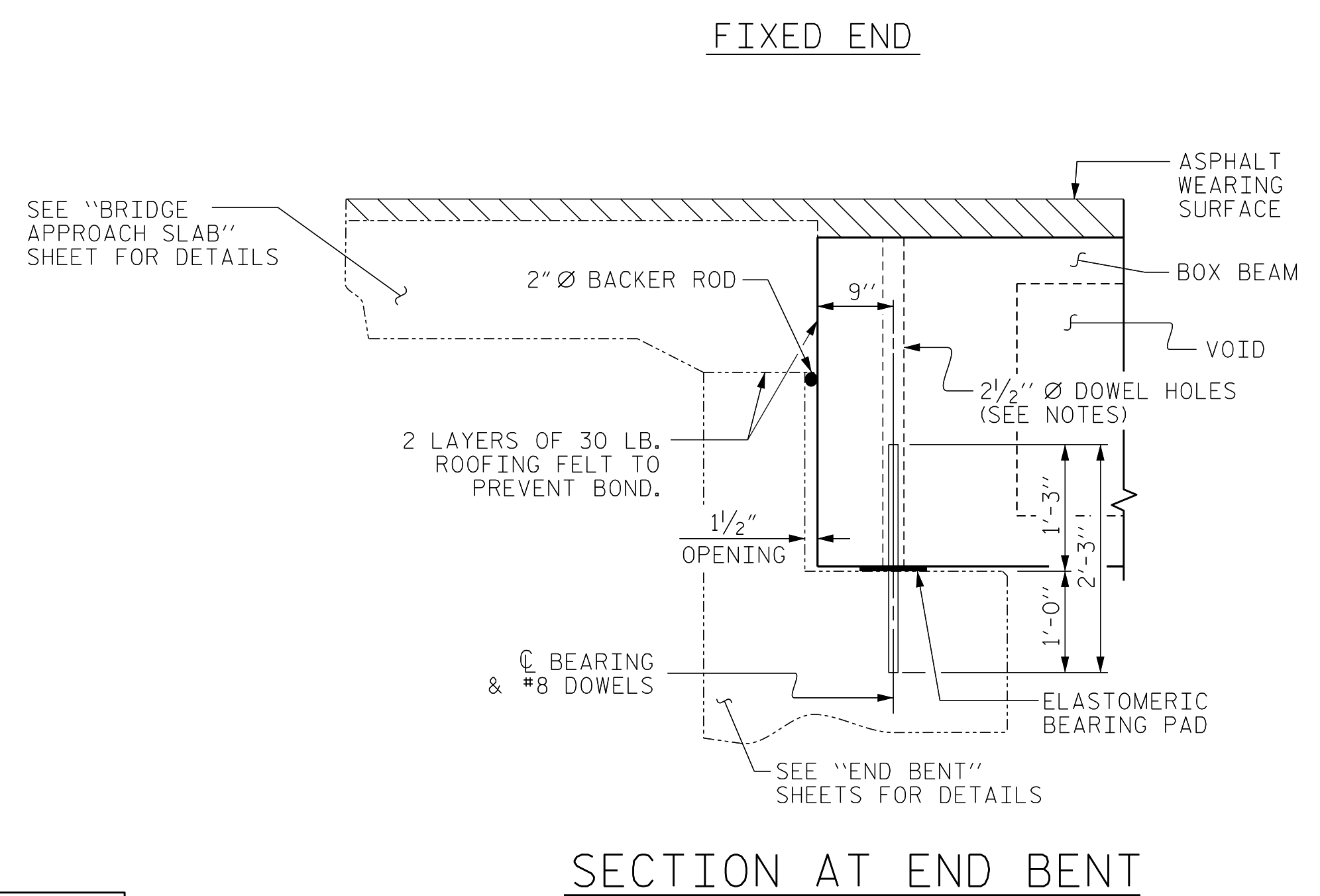
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

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

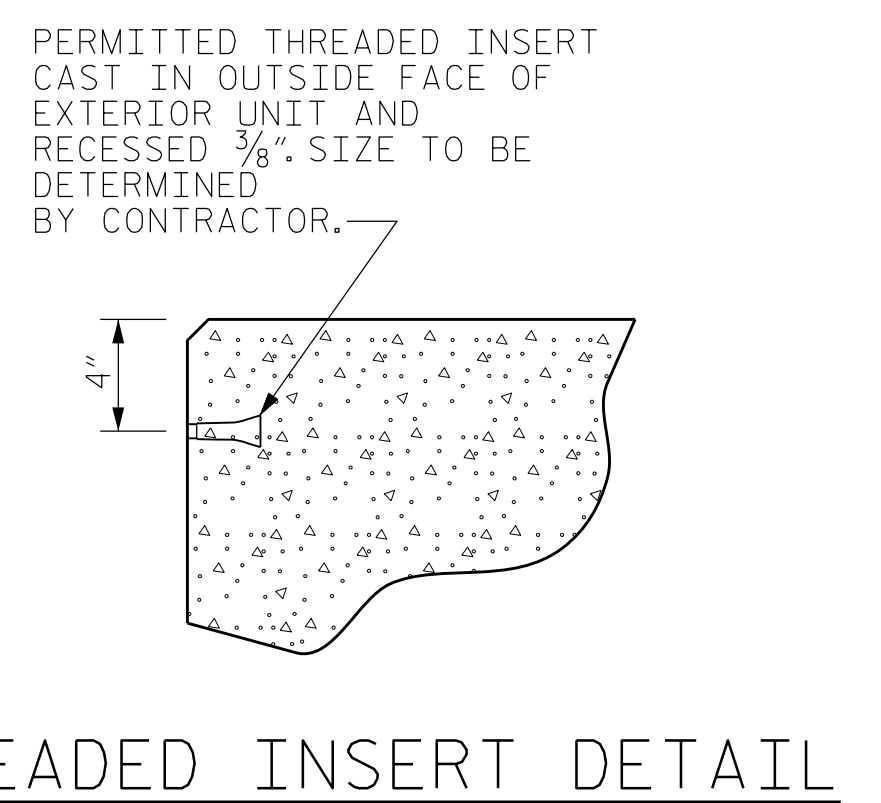


TYPICAL SECTION

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



SECTION AT END BENT



THREADED INSERT DETAIL

PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
 STATION: 16+77.00 -L-

SHEET 1 OF 5  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 MODIFIED STANDARD  
 3'-0" X 3'-3"  
 PRESTRESSED CONCRETE  
 BOX BEAM UNIT

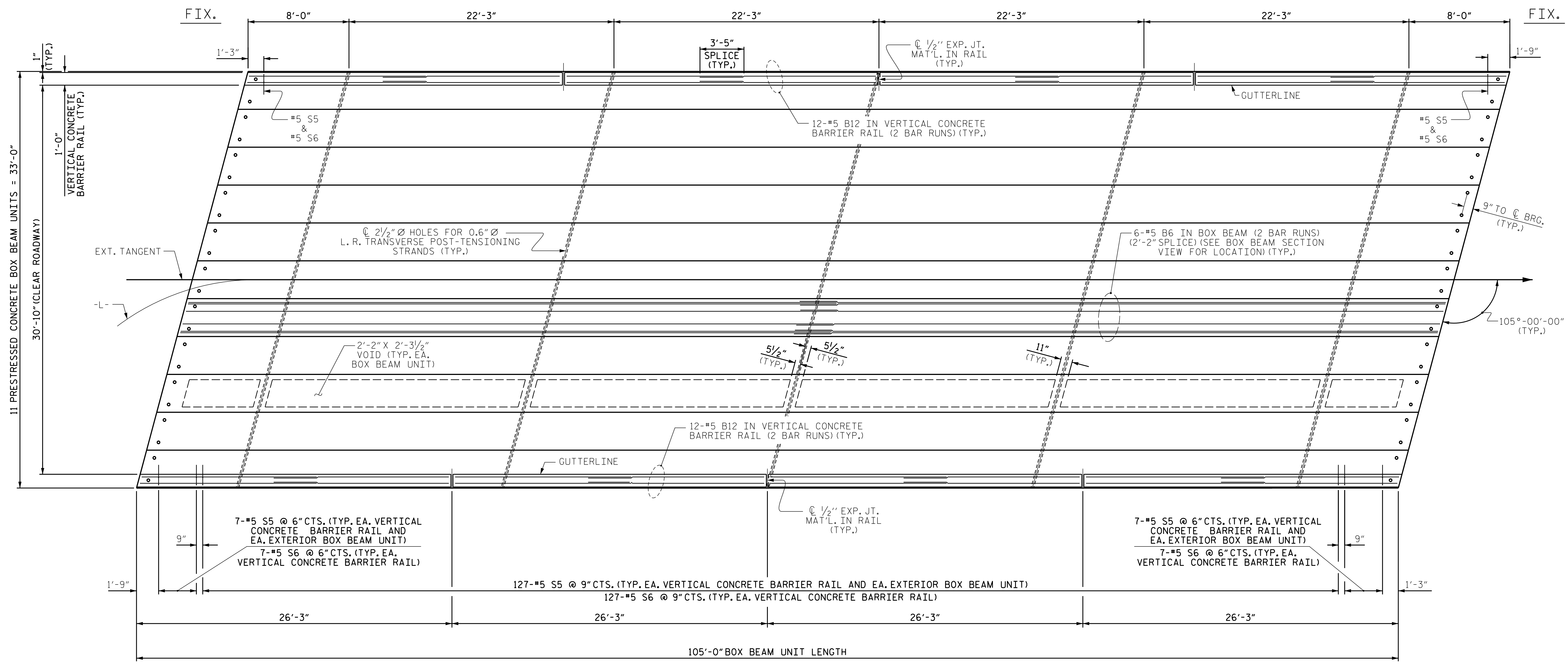


DESIGN ENGINEER OF RECORD: <b>DIEGO A. AGUIRRE</b> DATE : 01/2023	
ASSEMBLED BY : FIDEL L. FLORES DATE : 01/2023	CHECKED BY : SCOTT A. BETZ DATE : 01/2023
DRAWN BY : DGE 8/11	REV. 10/15 MAA/TMG
CHECKED BY : TMG 11/11	

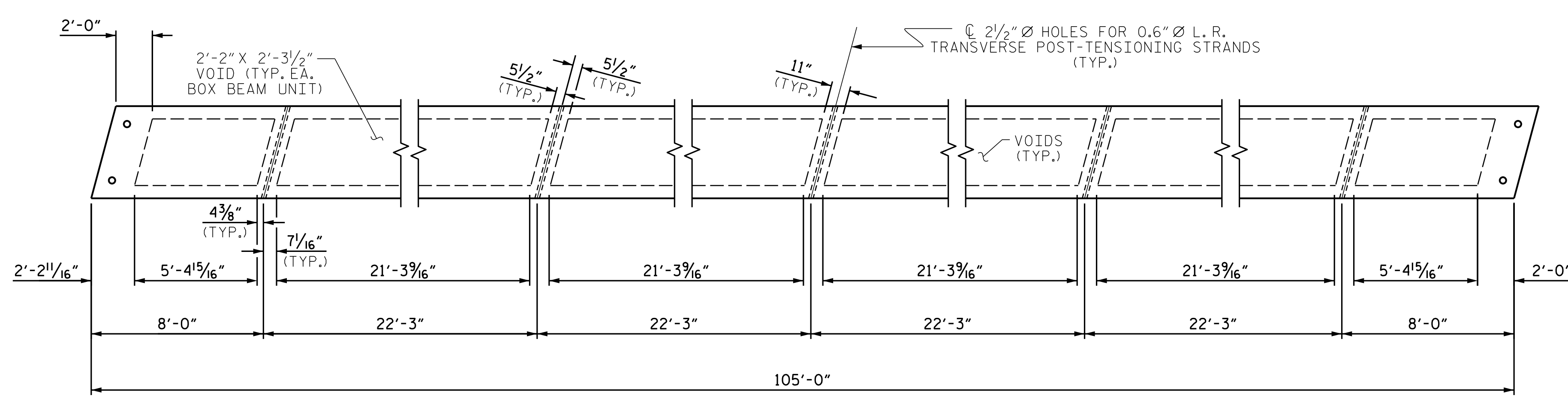
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

301 FAYETTEVILLE ST., SUITE 1500  
 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-6
2			4			20



PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
 STATION: 16+77.00 -L-

SHEET 2 OF 5  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 MODIFIED STANDARD  
 PLAN OF 105' UNIT  
 30'-10" CLEAR ROADWAY  
 105° SKEW  
 SPAN A



DESIGN ENGINEER OF RECORD: <b>DIEGO A. AGUIRRE</b> DATE: <b>01/2023</b>		
ASSEMBLED BY: <b>FIDEL L. FLORES</b> DATE: <b>01/2023</b>		
CHECKED BY: <b>SCOTT A. BETZ</b> DATE: <b>01/2023</b>		
DRAWN BY: <b>DGE</b> 8/11	REV. 8/14	MAA/TMG
CHECKED BY: <b>TMG</b> 11/11		

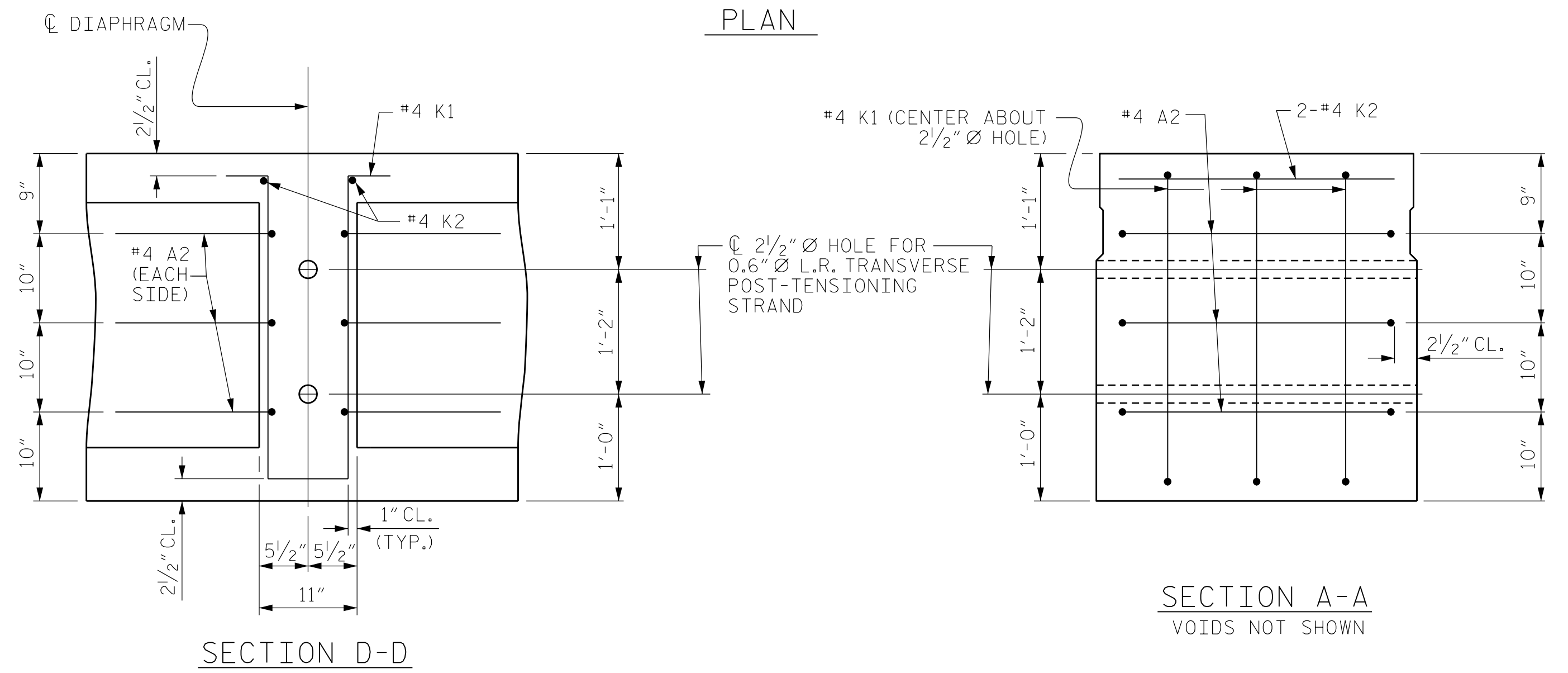
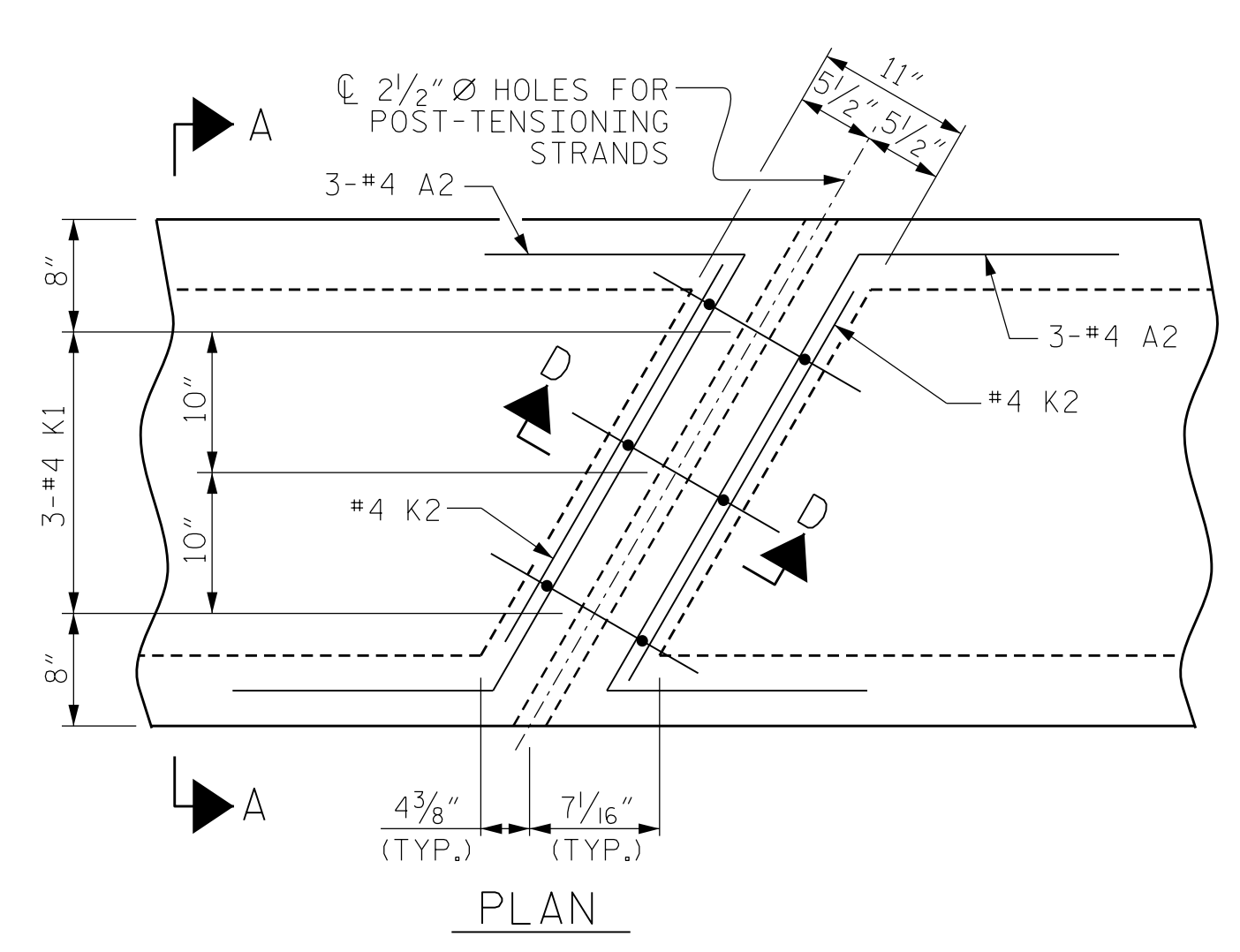
DOCUMENT NOT CONSIDERED  
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2			4			20



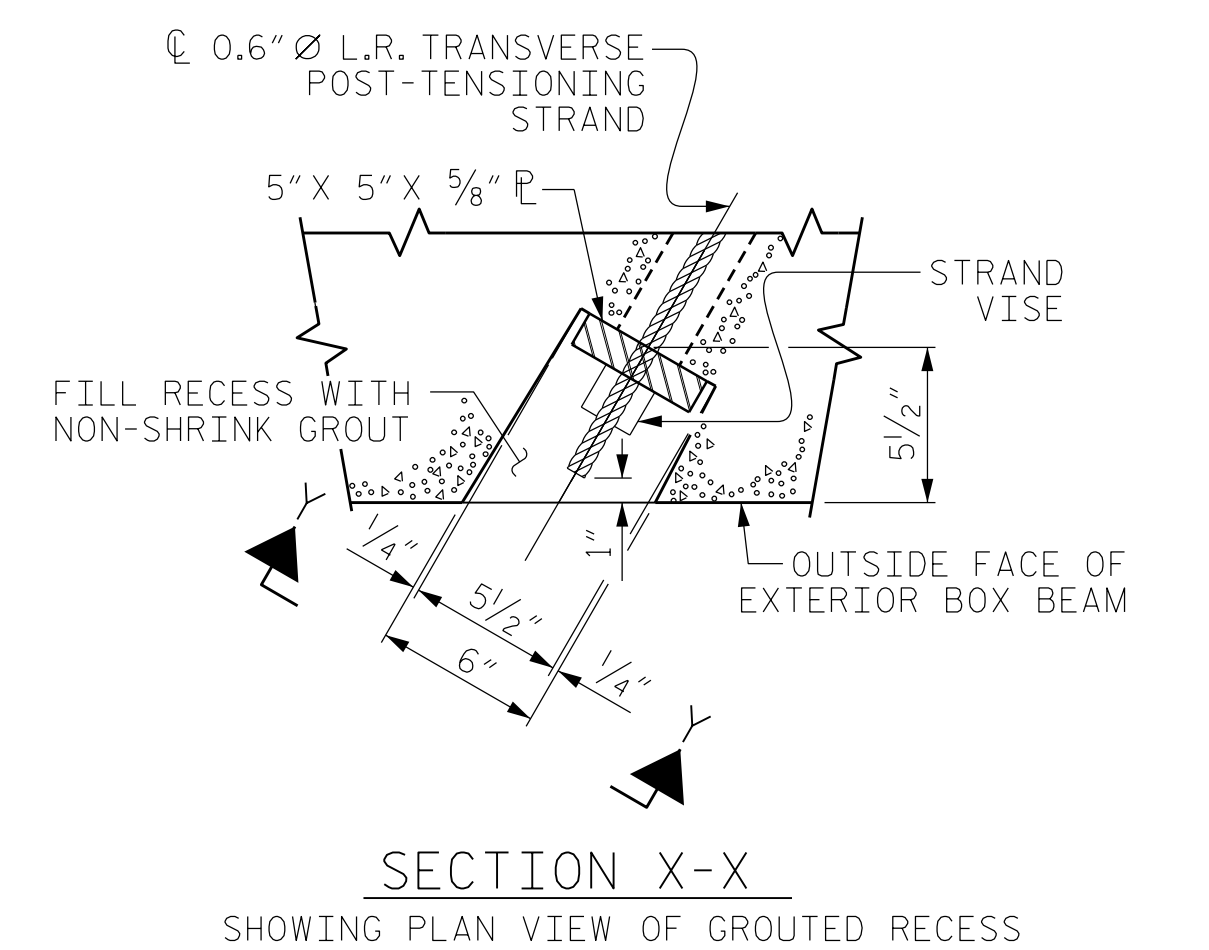
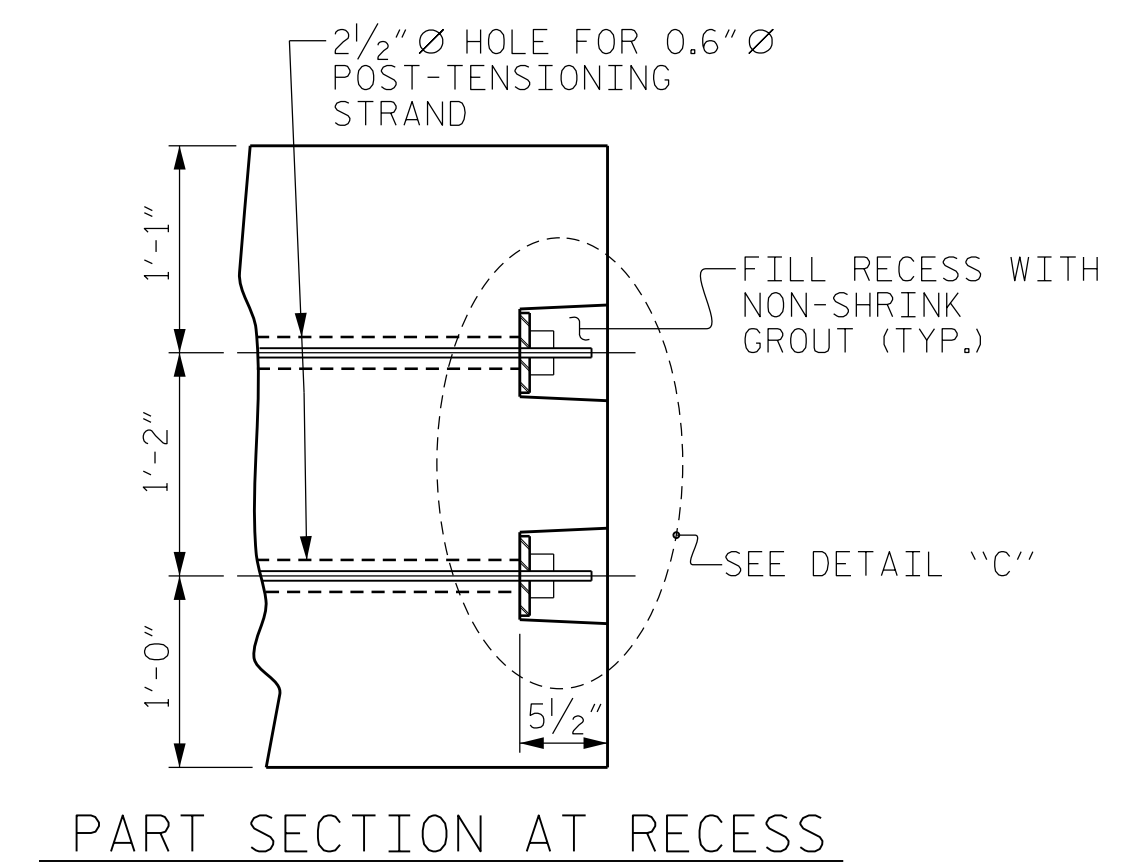
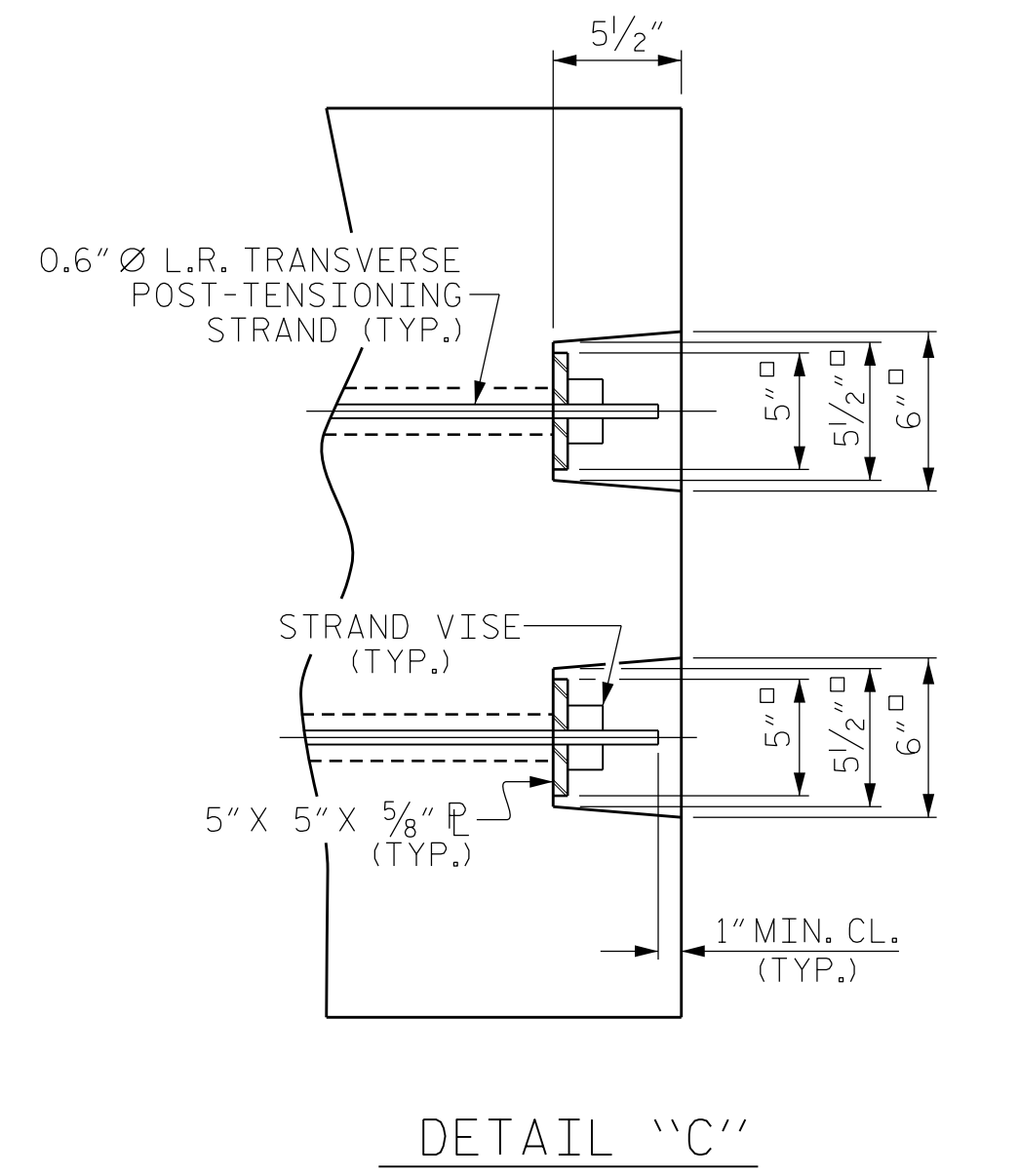
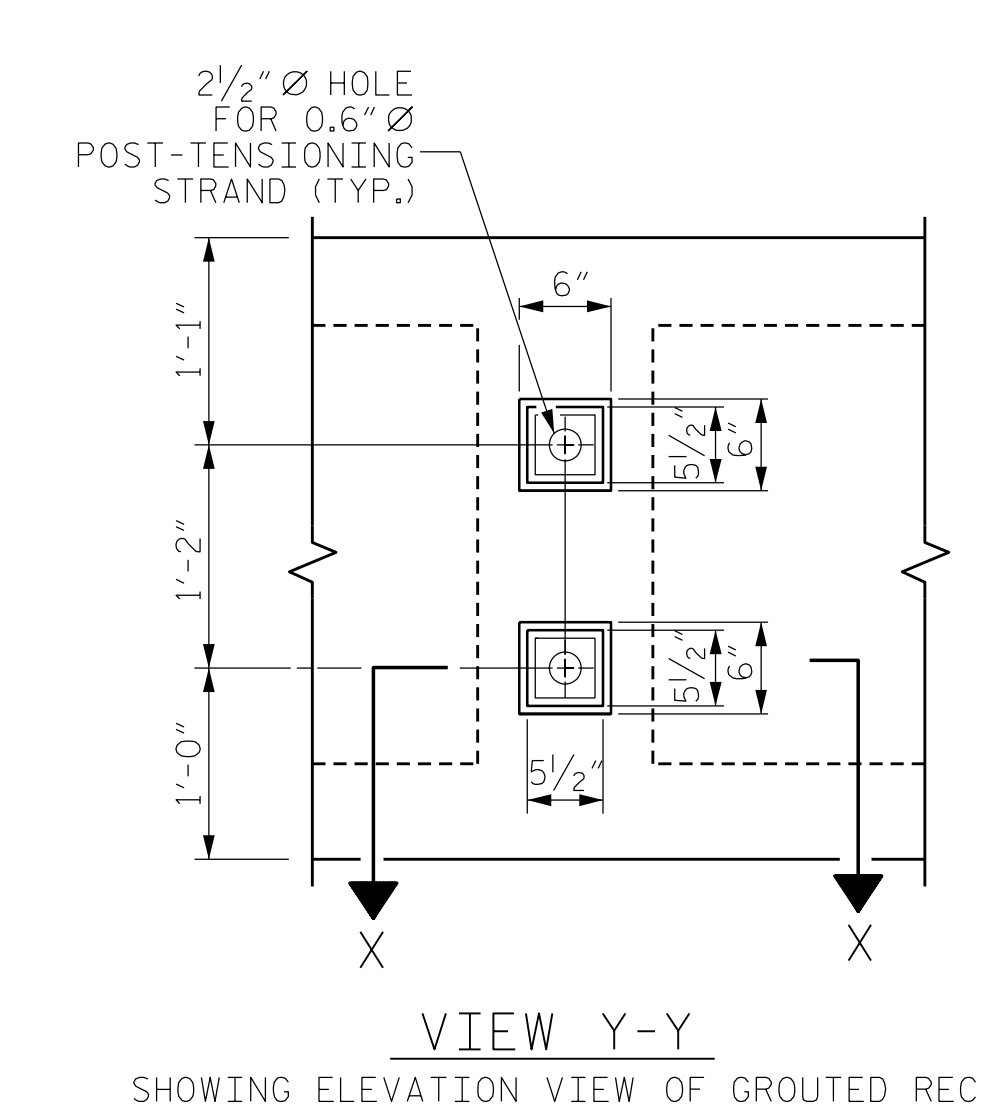




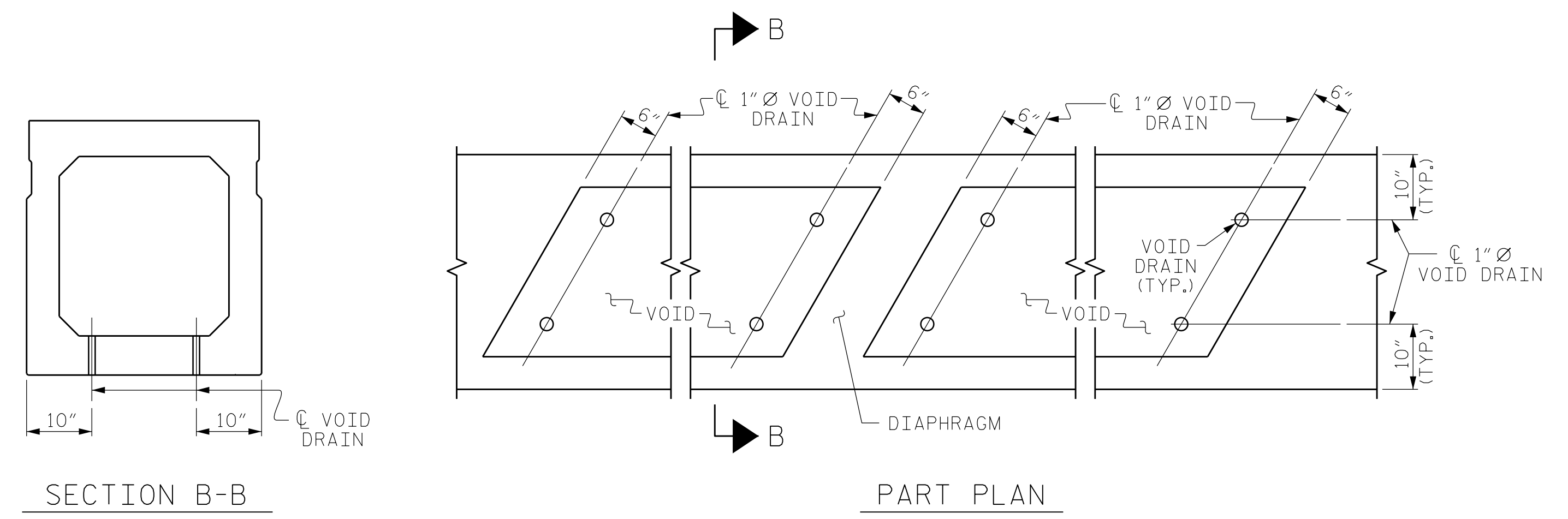
SECTION D-D

DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.



GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM

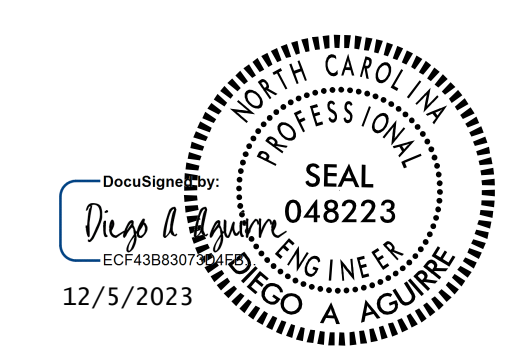


VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
105' BOX BEAM UNIT (SE)	3'-0" x 3'-3"
	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 5/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1 3/16" ↓
FINAL CAMBER	7/16" ↑

\*\* INCLUDES FUTURE WEARING SURFACE



PROJECT NO. **17BP.11.R.163**  
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 STATION: **16+77.00 -L-**

SHEET 4 OF 5  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 MODIFIED STANDARD  
 3'-0" X 3'-3"  
 PRESTRESSED CONCRETE  
 BOX BEAM UNIT

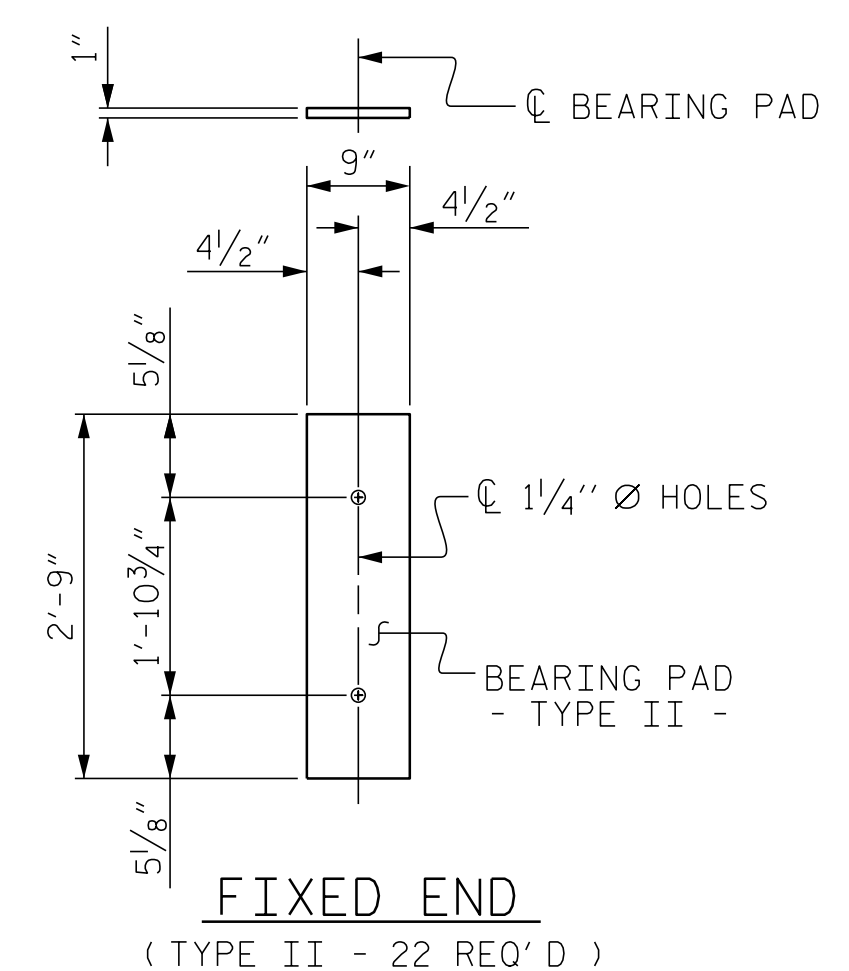
DESIGN ENGINEER OF RECORD: <b>DIEGO A. AGUIRRE</b> DATE: <b>01/2023</b>	
ASSEMBLED BY: <b>FIDEL L. FLORES</b> DATE: <b>01/2023</b>	CHECKED BY: <b>SCOTT A. BETZ</b> DATE: <b>01/2023</b>
DRAWN BY: <b>DGE</b> 11/11	REV. 8/14
CHECKED BY: <b>TMG</b> 11/11	MAA/TMG

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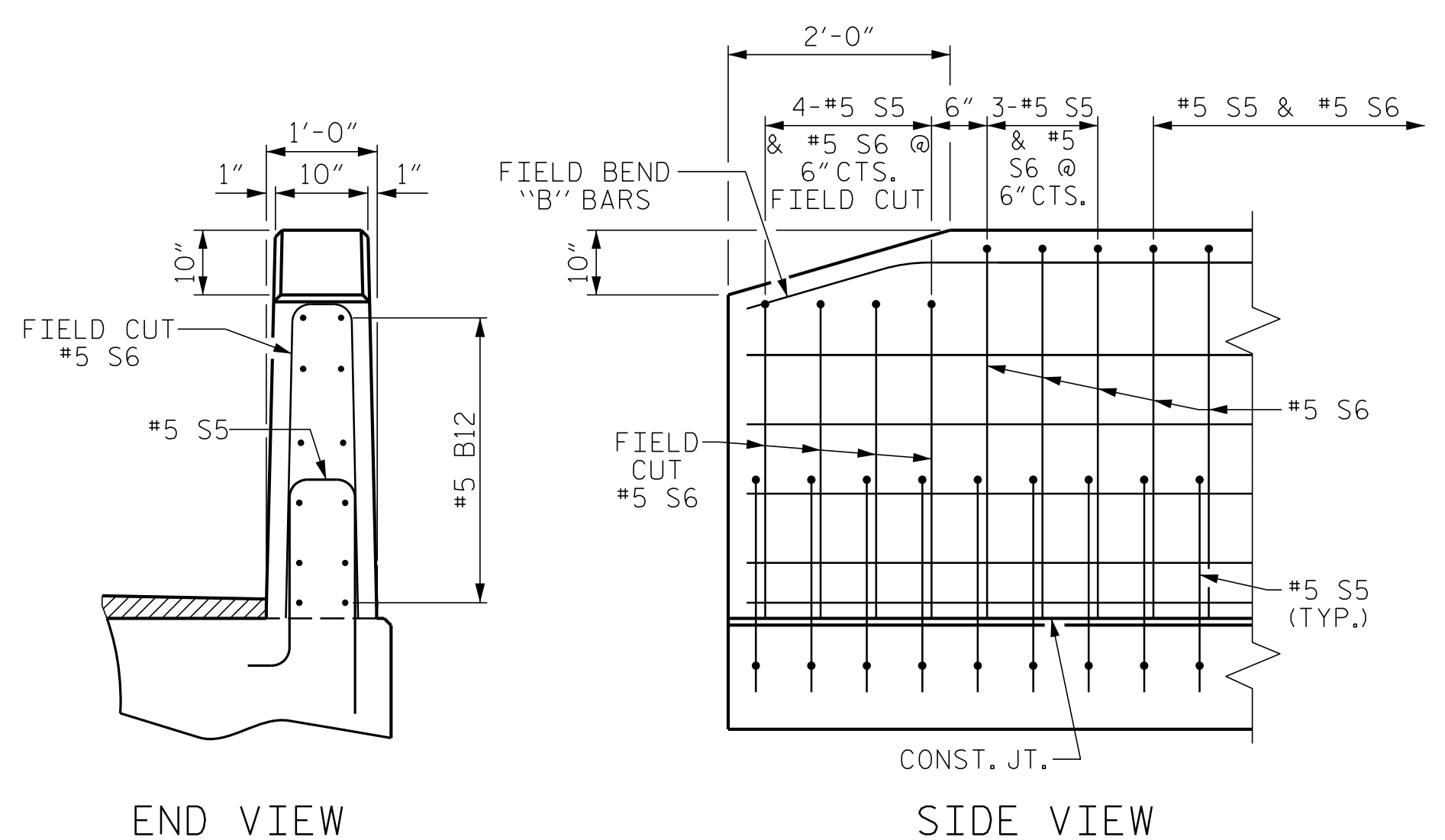
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 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-9
2			4			20



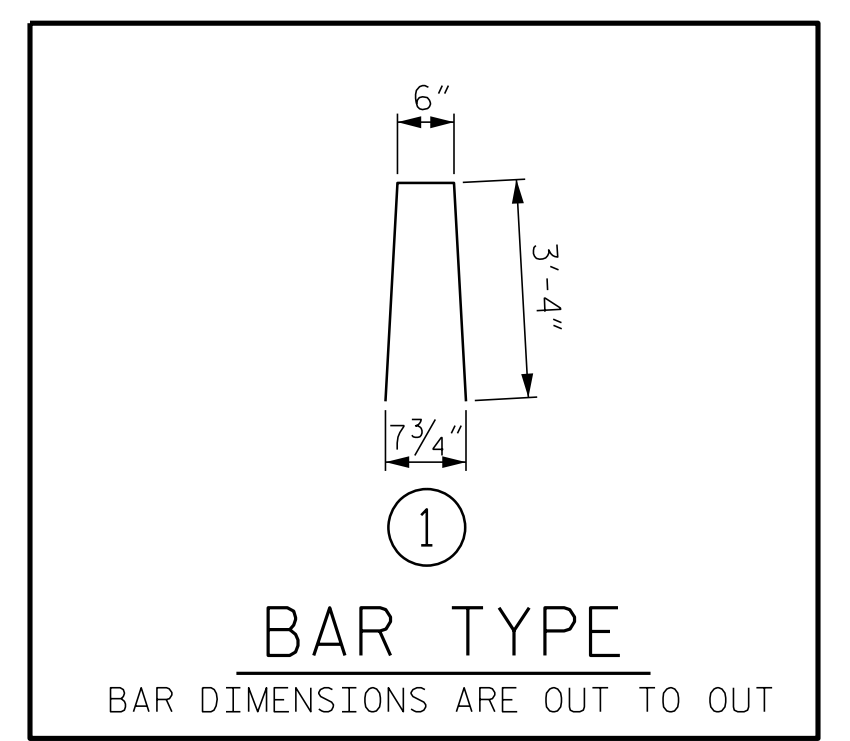


**ELASTOMERIC BEARING DETAILS**  
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



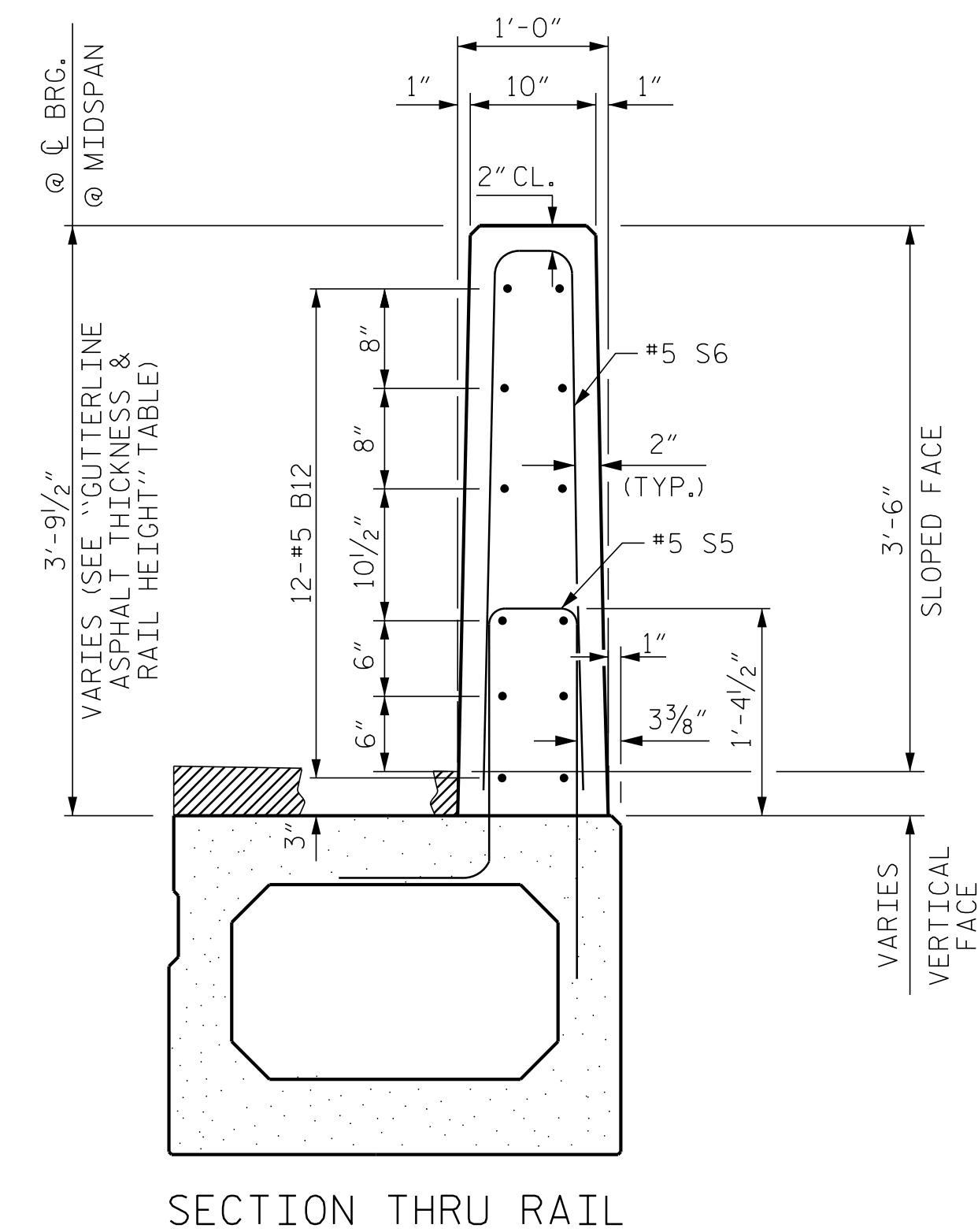
**END OF RAIL DETAILS**

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
105' UNITS	3 1/8"	3'-9 1/8"

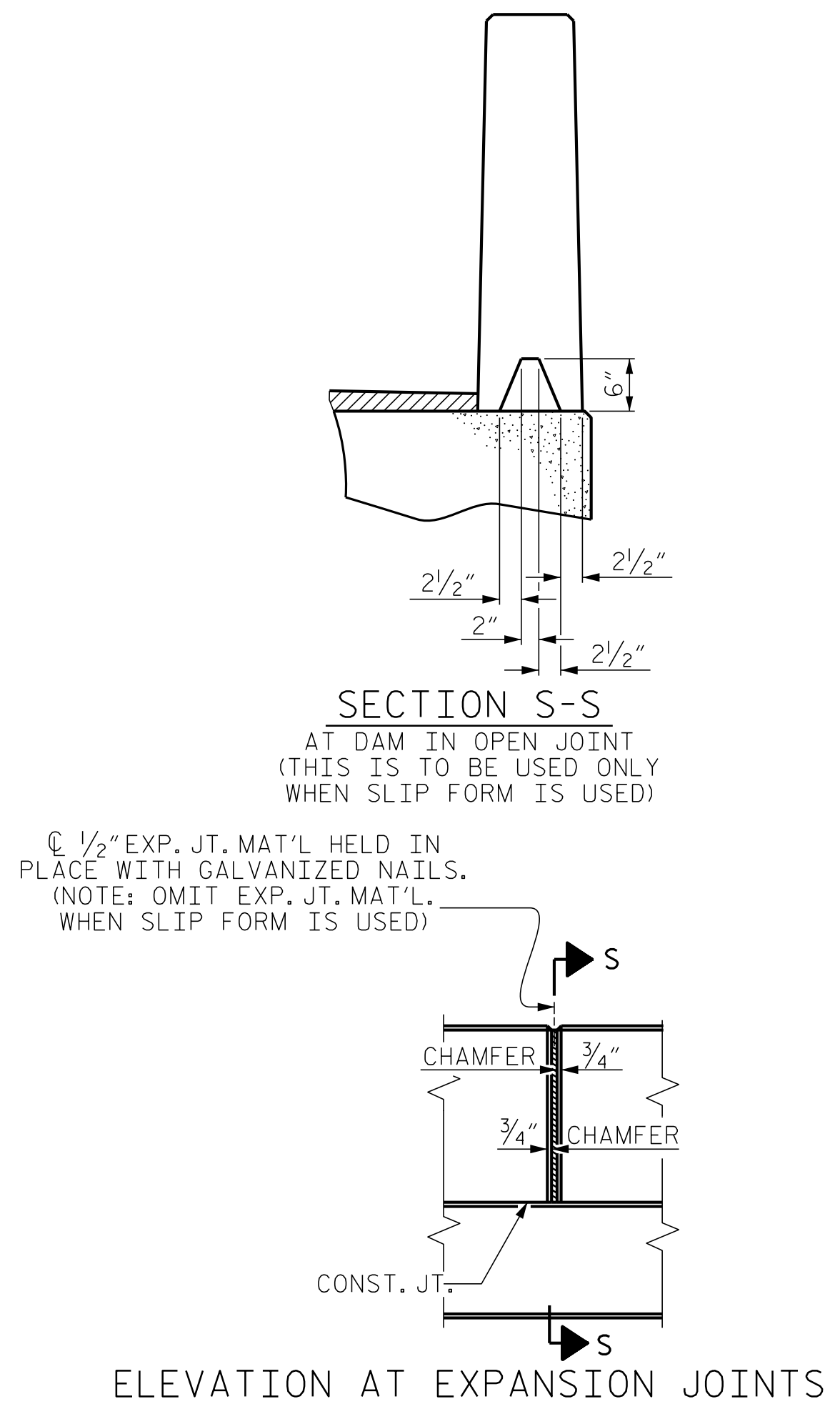


BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	105'-0"	210'-0"
INTERIOR B.B.	9	105'-0"	945'-0"
TOTAL	11		1155'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	BARS PER PAIR OF EXTERIOR UNITS	SIZE	TYPE	LENGTH	WEIGHT
	105' UNIT				
*B12	192	#5	STR	14'-10"	2970
*S6	282	#5	1	7'-2"	2108
*EPOXY COATED REINFORCING STEEL				LBS.	5078
CLASS AA CONCRETE				CU.YDS.	27.2
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.	210.00



**VERTICAL CONCRETE BARRIER RAIL DETAILS**



**ELEVATION AT EXPANSION JOINTS**



PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
STATION: 16+77.00 -L-

SHEET 5 OF 5  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
MODIFIED STANDARD  
3'-0" X 3'-3"  
PRESTRESSED CONCRETE  
BOX BEAM UNIT

DESIGN ENGINEER OF RECORD: <b>DIEGO A. AGUIRRE</b> DATE: <b>01/2023</b>		
ASSEMBLED BY: <b>FIDEL L. FLORES</b> DATE: <b>01/2023</b>	CHECKED BY: <b>SCOTT A. BETZ</b> DATE: <b>01/2023</b>	
DRAWN BY: <b>DGE</b> 10/11	REV. <b>5/18</b>	MAA/THC
CHECKED BY: <b>TMG</b> 11/11		

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301 FAYETTEVILLE ST., SUITE 1500  
RALEIGH, NC 27601 (919) 882-7839  
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-10
2			4			20

NOTES

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

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

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

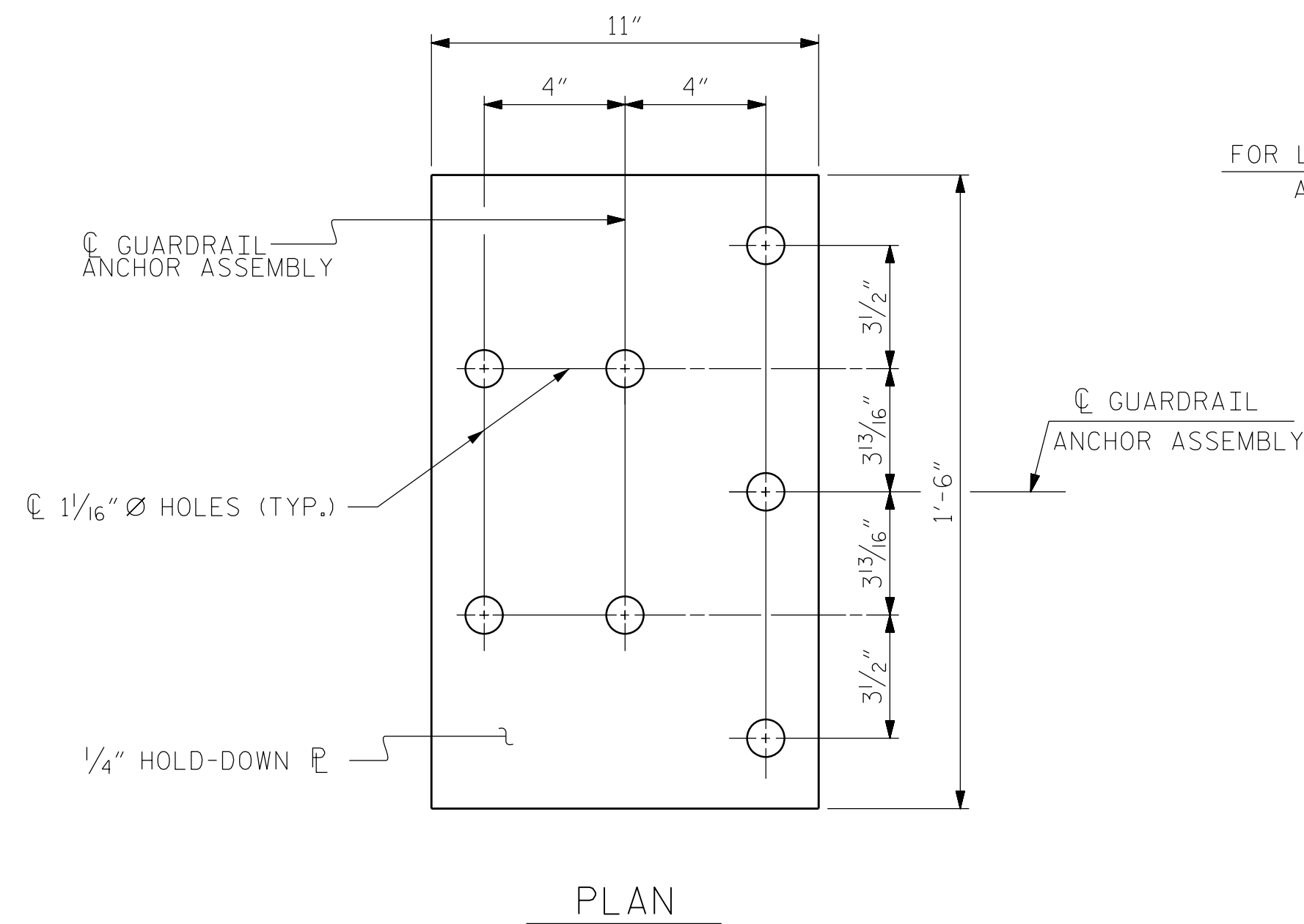
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

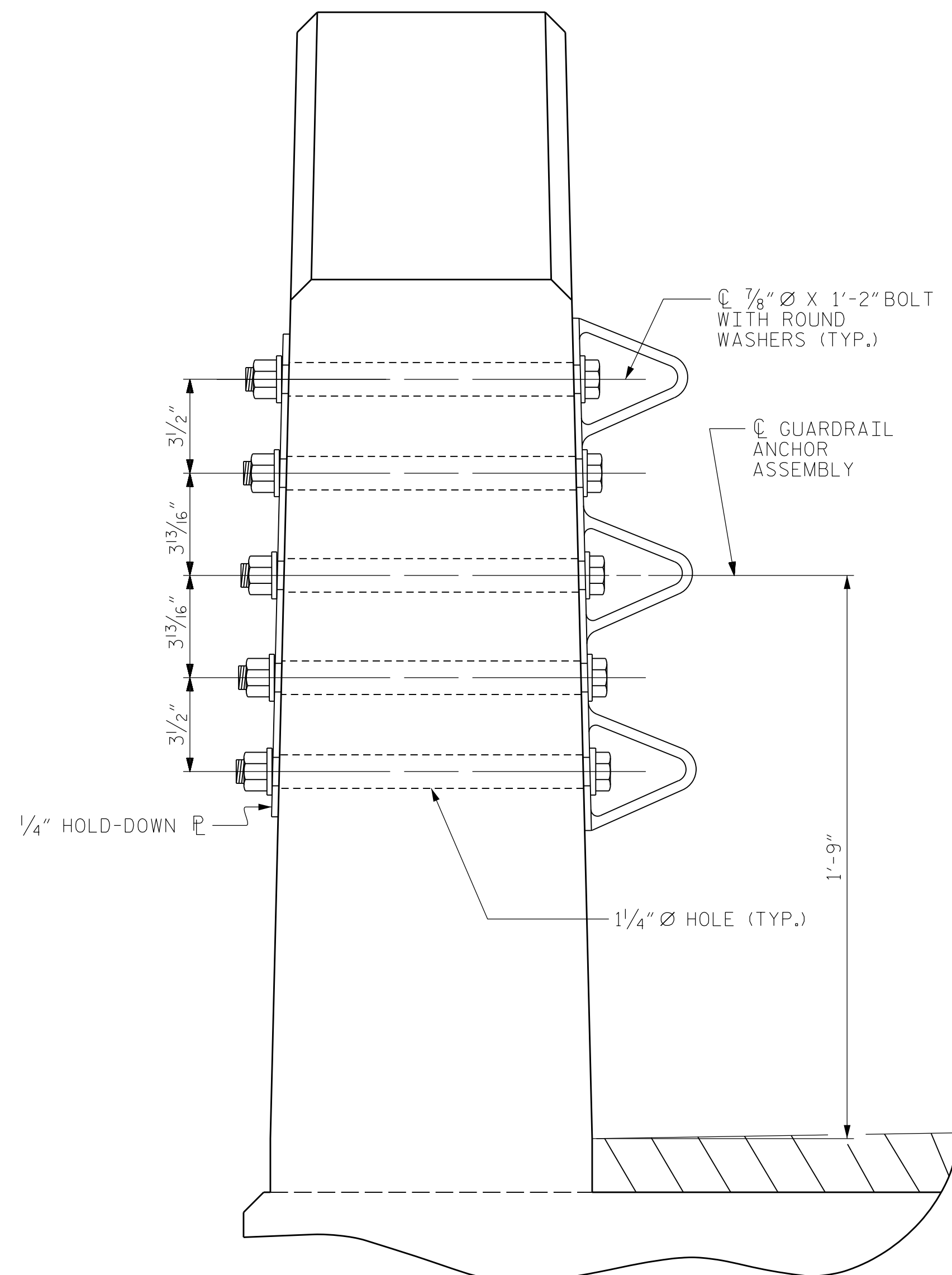
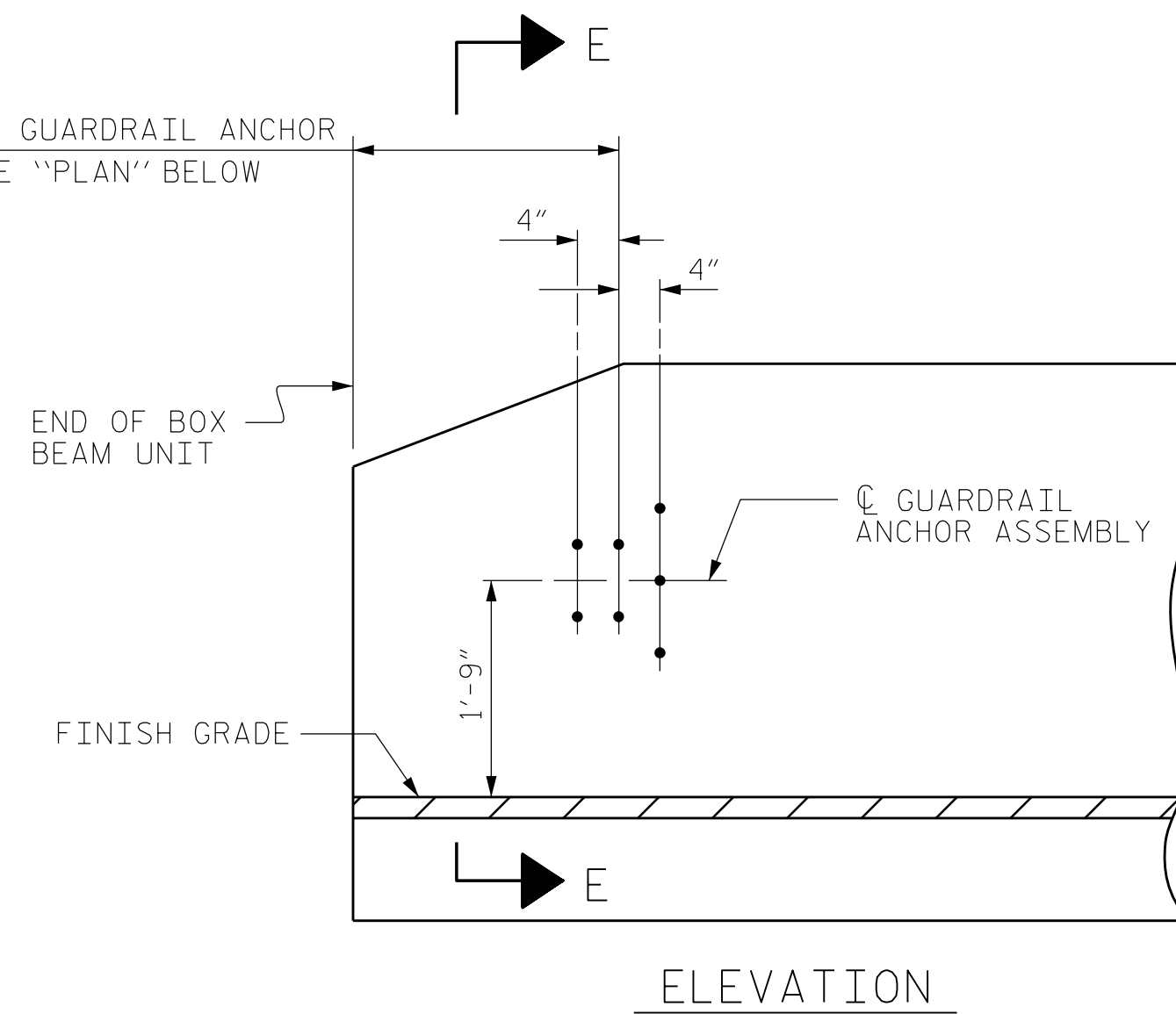
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

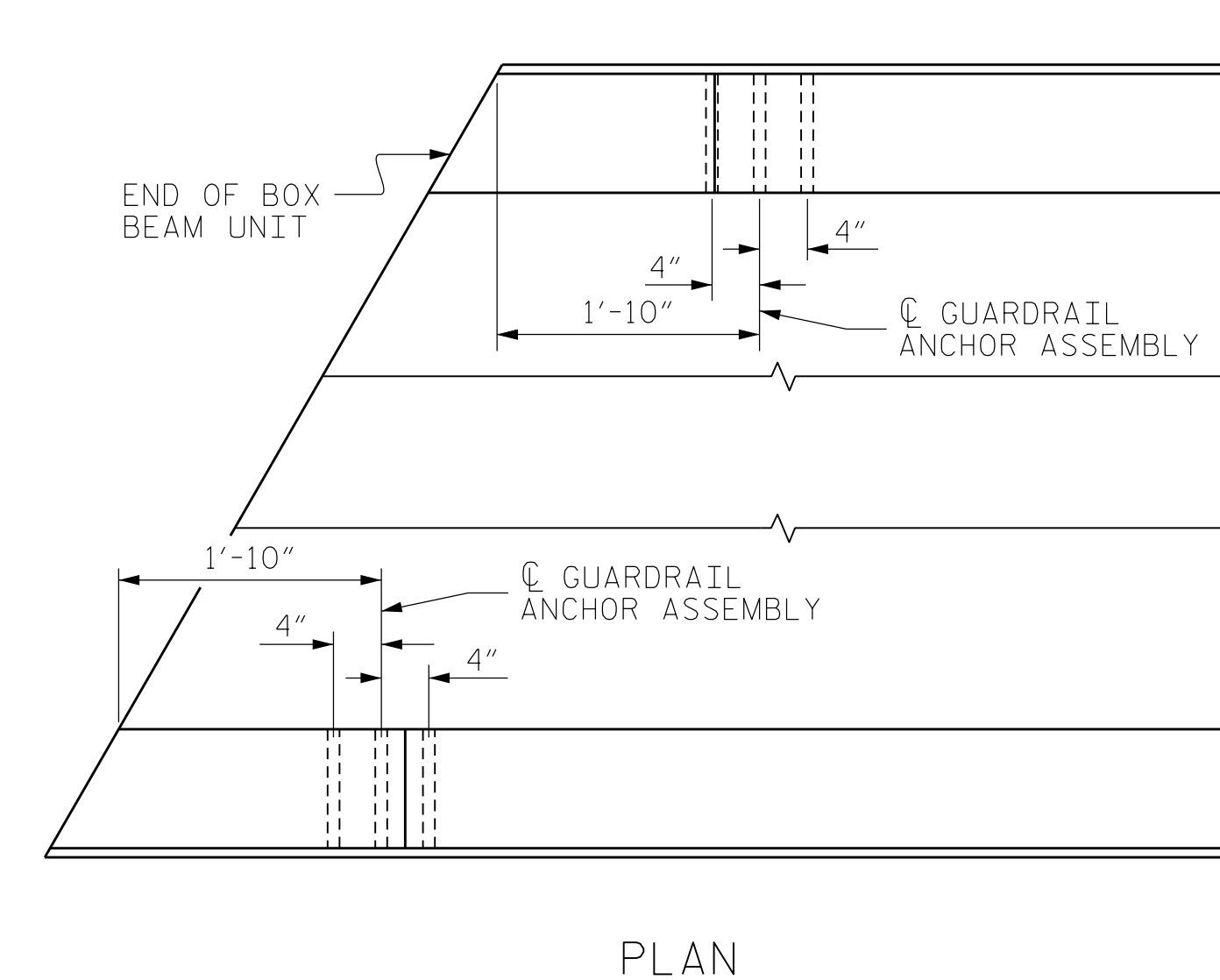
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



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

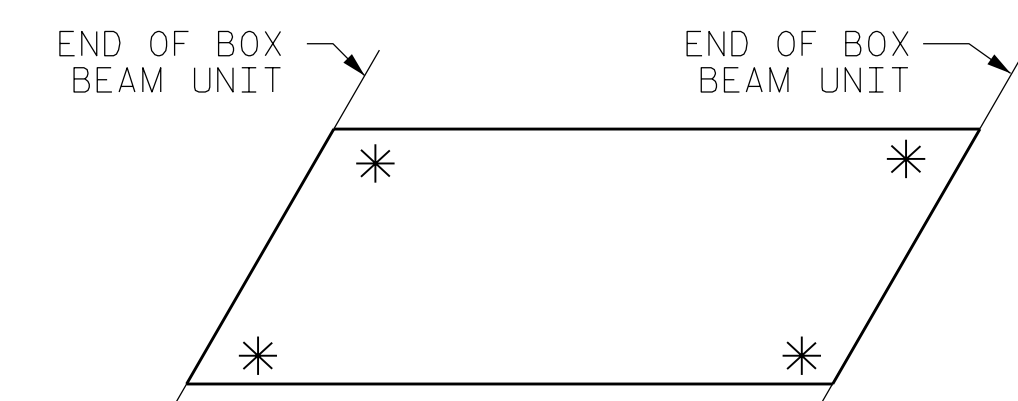


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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



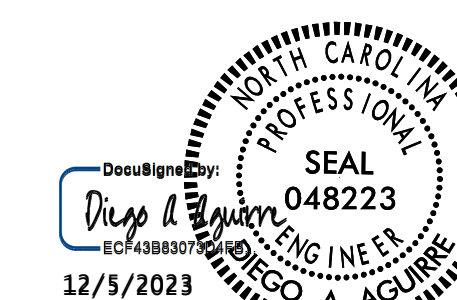
SKETCH SHOWING POINTS OF ATTACHMENT

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. **17BP.11.R.163**

**WILKES** COUNTY

STATION: **16+77.00 -L-**



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

DESIGN ENGINEER OF RECORD: <b>DIEGO A. AGUIRRE</b> DATE: <b>01/2023</b>		
ASSEMBLED BY: <b>FIDEL L. FLORES</b> DATE: <b>01/2023</b>		
CHECKED BY: <b>SCOTT A. BETZ</b> DATE: <b>01/2023</b>		
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

DOCUMENT NOT CONSIDERED  
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301 FAYETTEVILLE ST., SUITE 1500  
RALEIGH, NC 27601 (919) 882-7839  
NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
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1			3			5-11
2			4			20



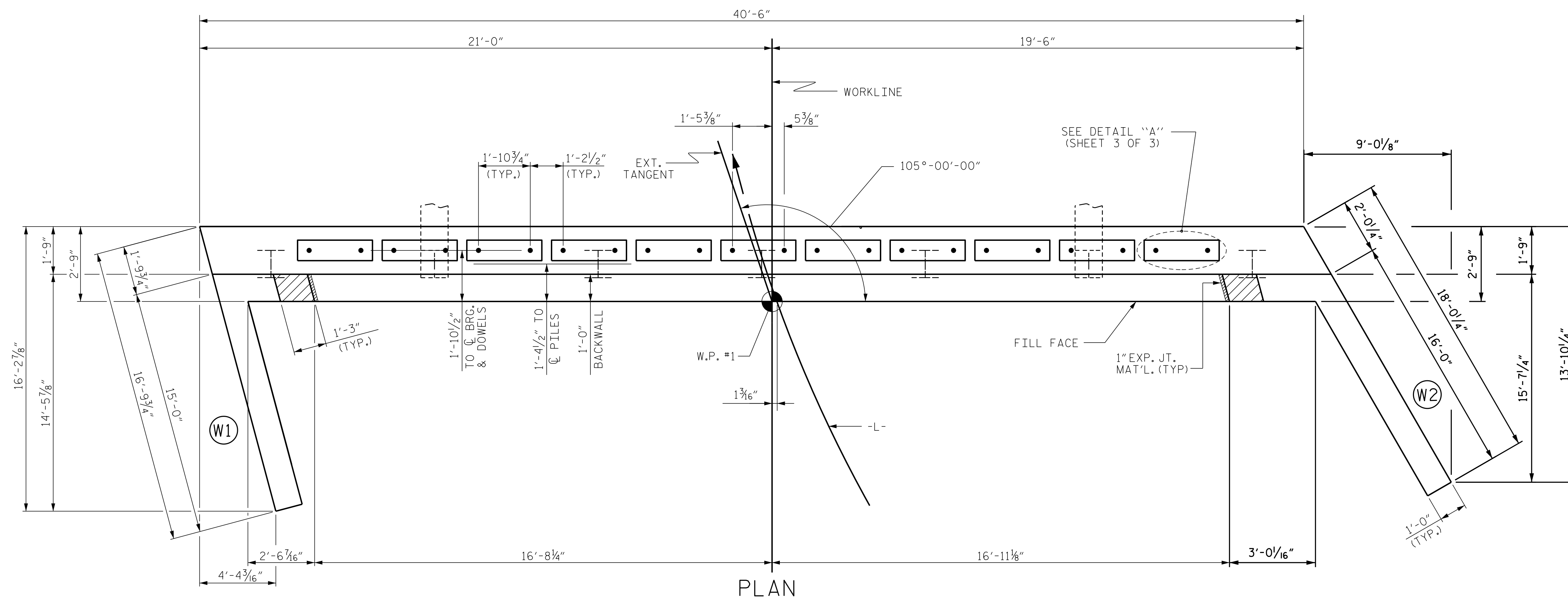
### NOTES

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

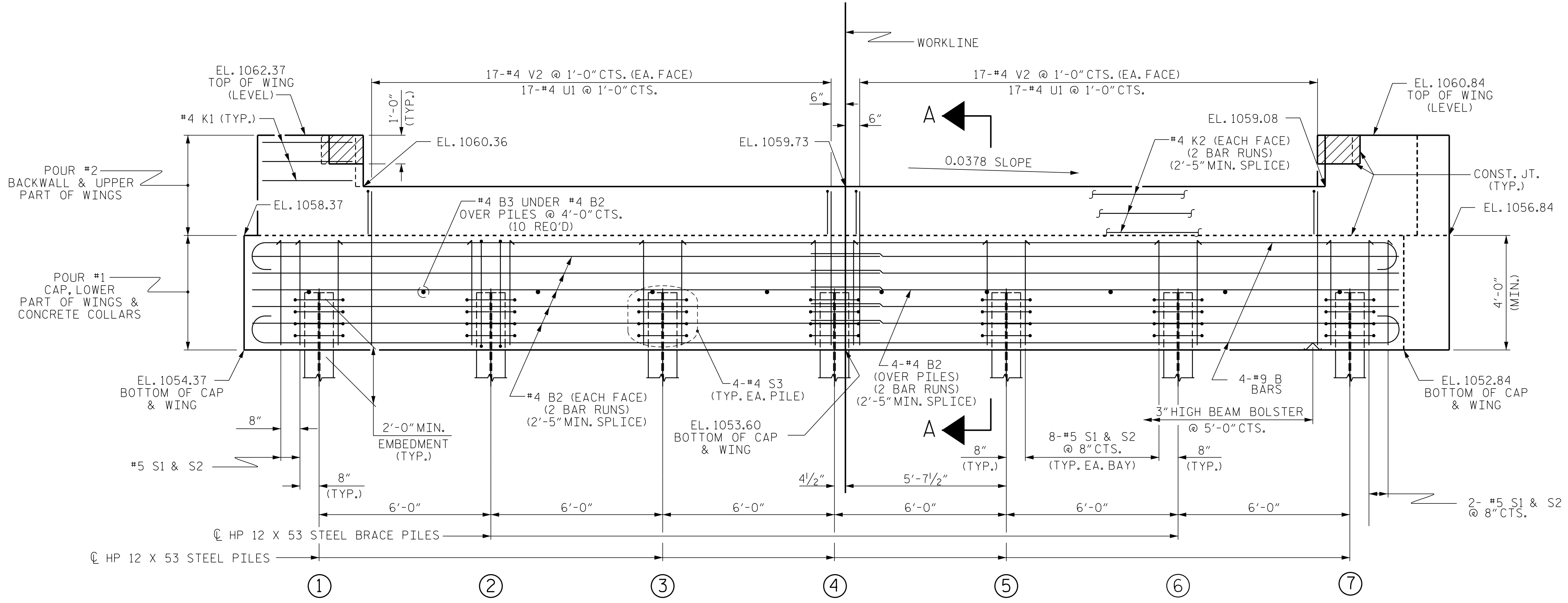
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.



PLAN

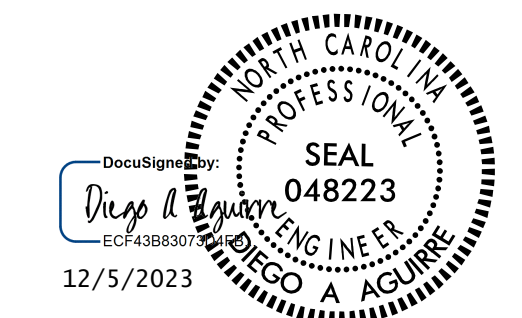


ELEVATION

TOP OF PILE ELEVATIONS	
①	1056.30
②	1056.07
③	1055.85
④	1055.62
⑤	1055.39
⑥	1055.17
⑦	1054.94

PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
 STATION: 16+77.00 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1



DESIGN ENGINEER OF RECORD: <b>DIEGO A. AGUIRRE</b> DATE: <b>01/2023</b>			
ASSEMBLED BY: <b>FIDEL L. FLORES</b> DATE: <b>01/2023</b>			
CHECKED BY: <b>SCOTT A. BETZ</b> DATE: <b>01/2023</b>			
DRAWN BY: <b>WJH</b> 12/11	REV. 4/15	MAA/TMG	
CHECKED BY: <b>AAC</b> 12/11			

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 3 OF 3.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

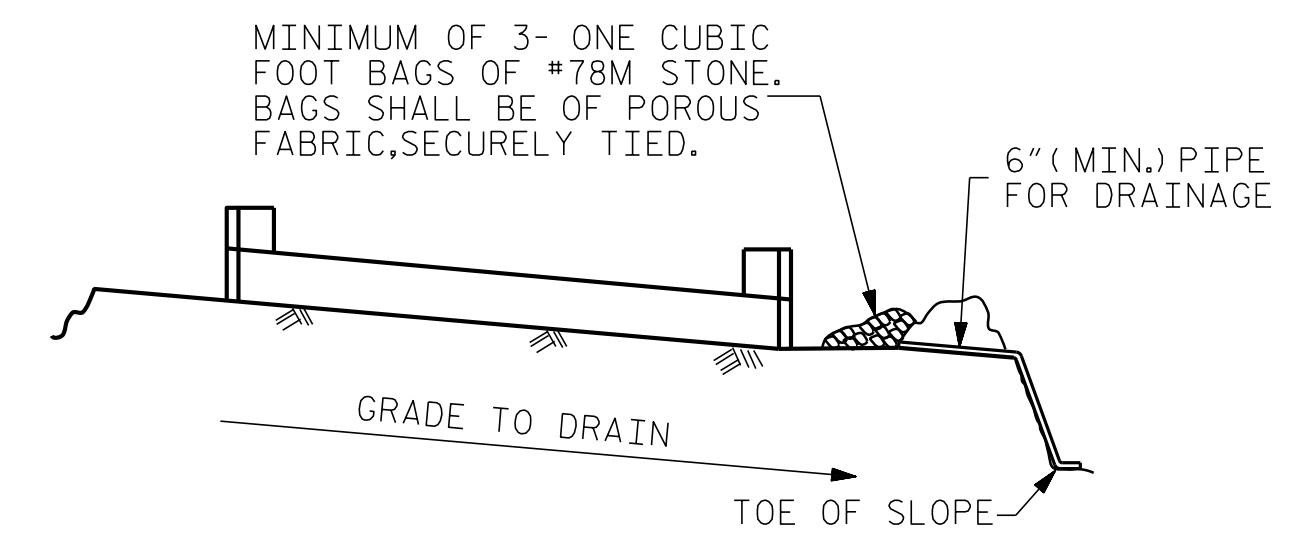
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-12
2			4			20





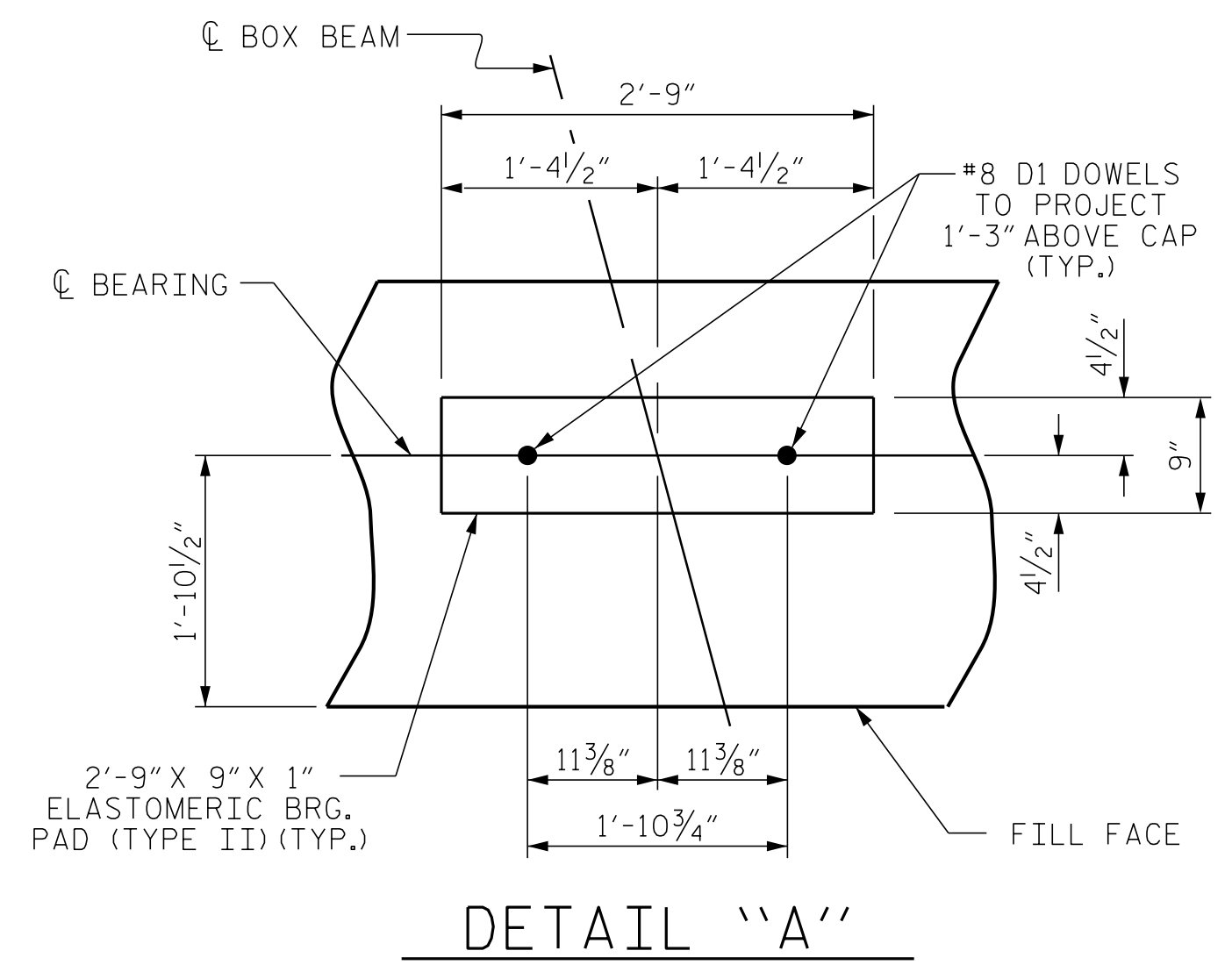


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

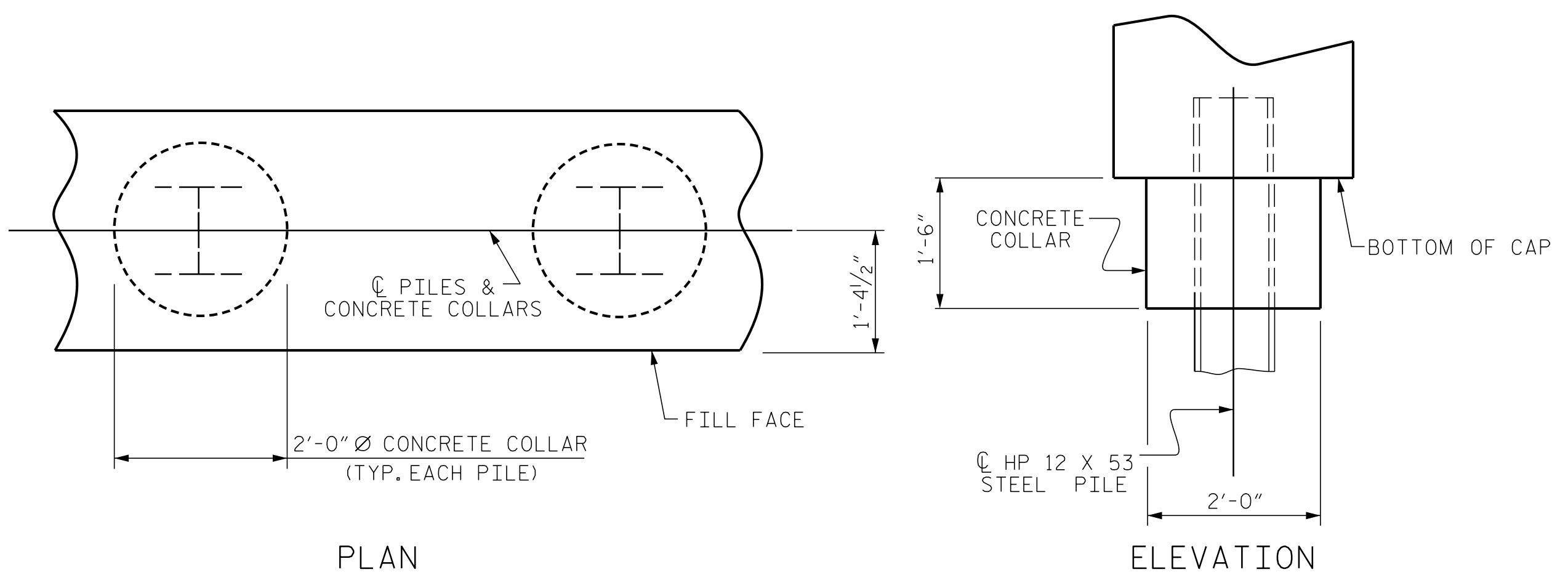
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

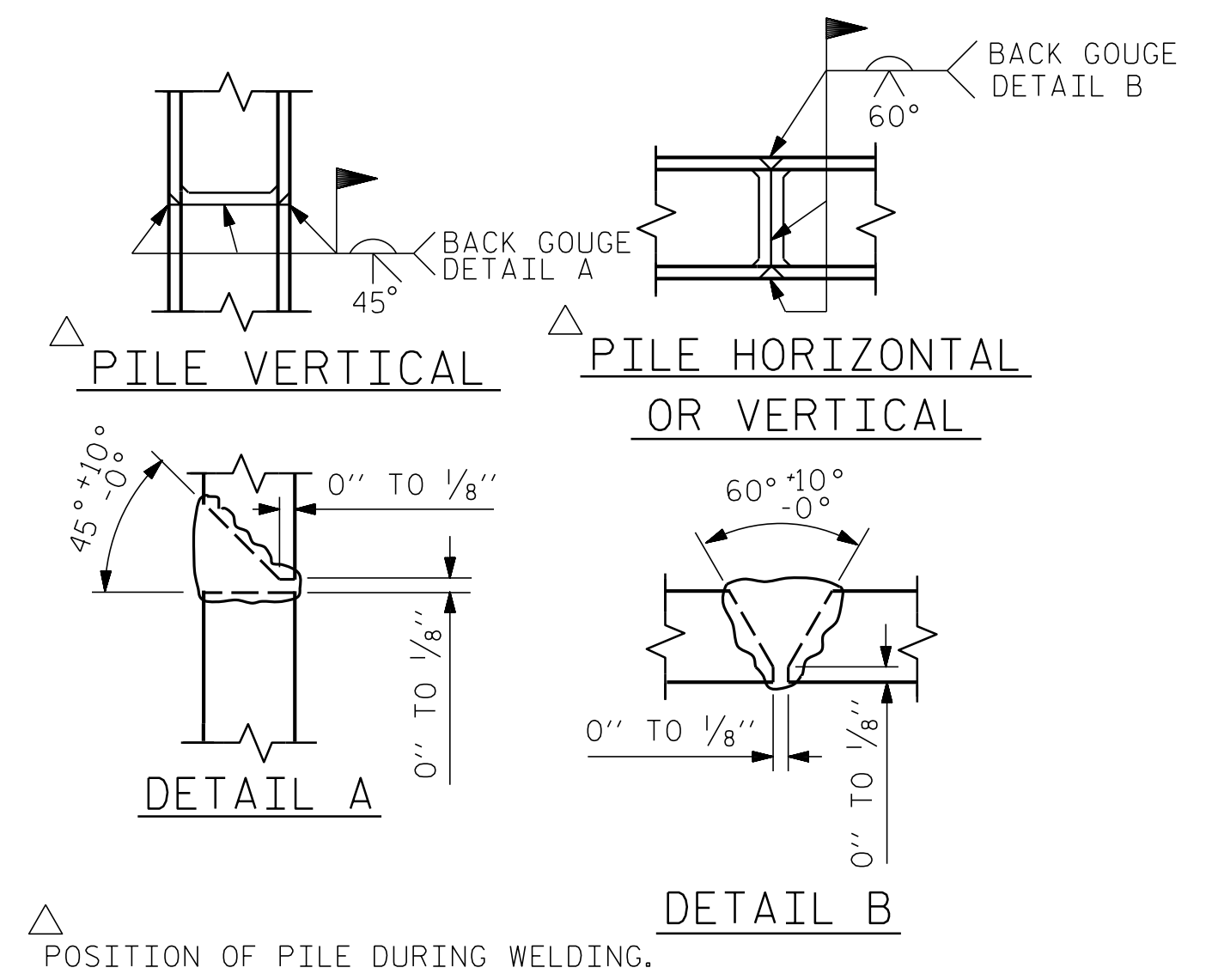
**TEMPORARY DRAINAGE AT END BENT**



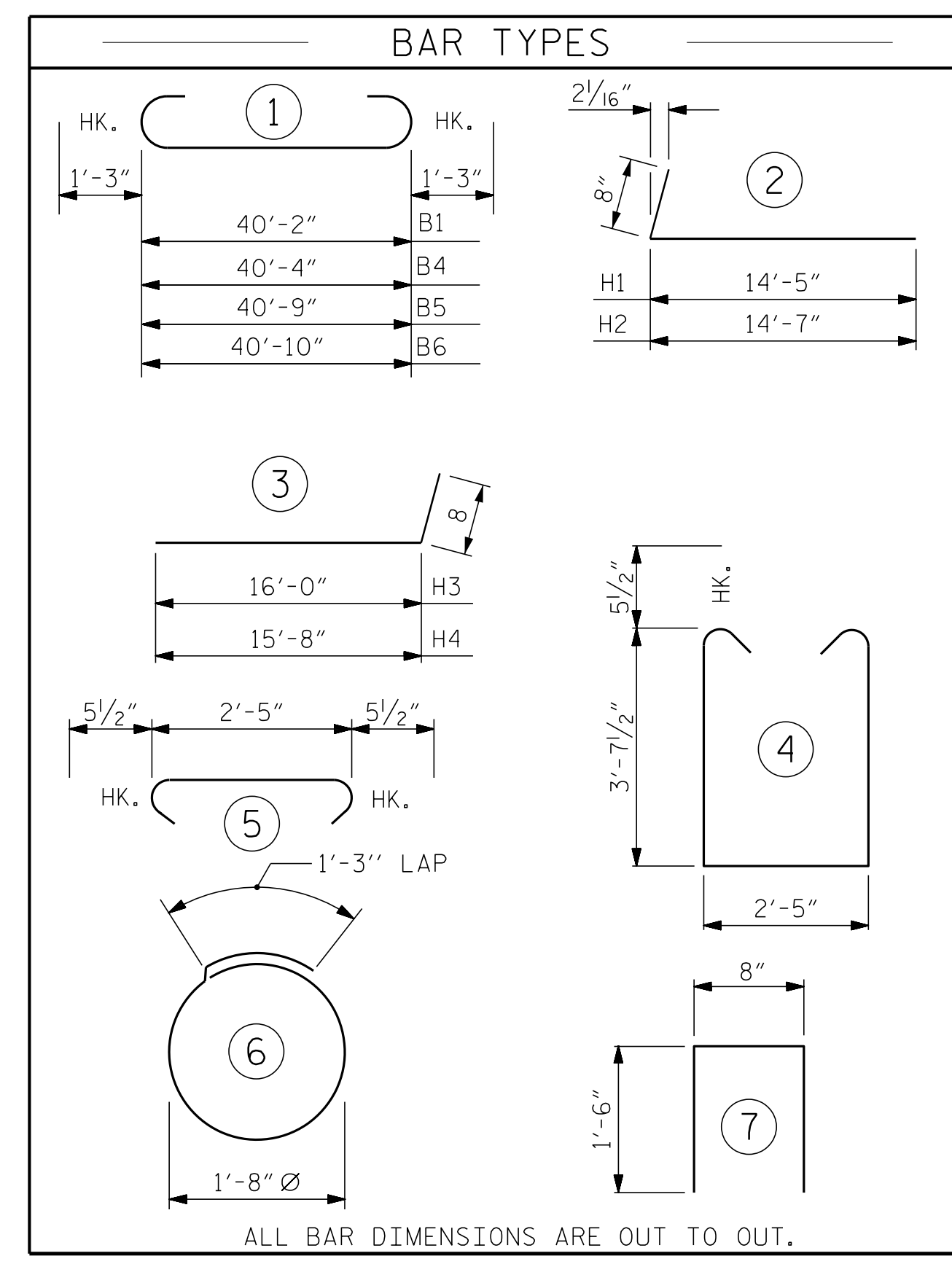
DETAIL "A"



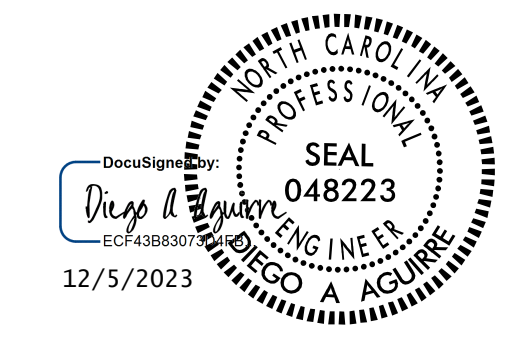
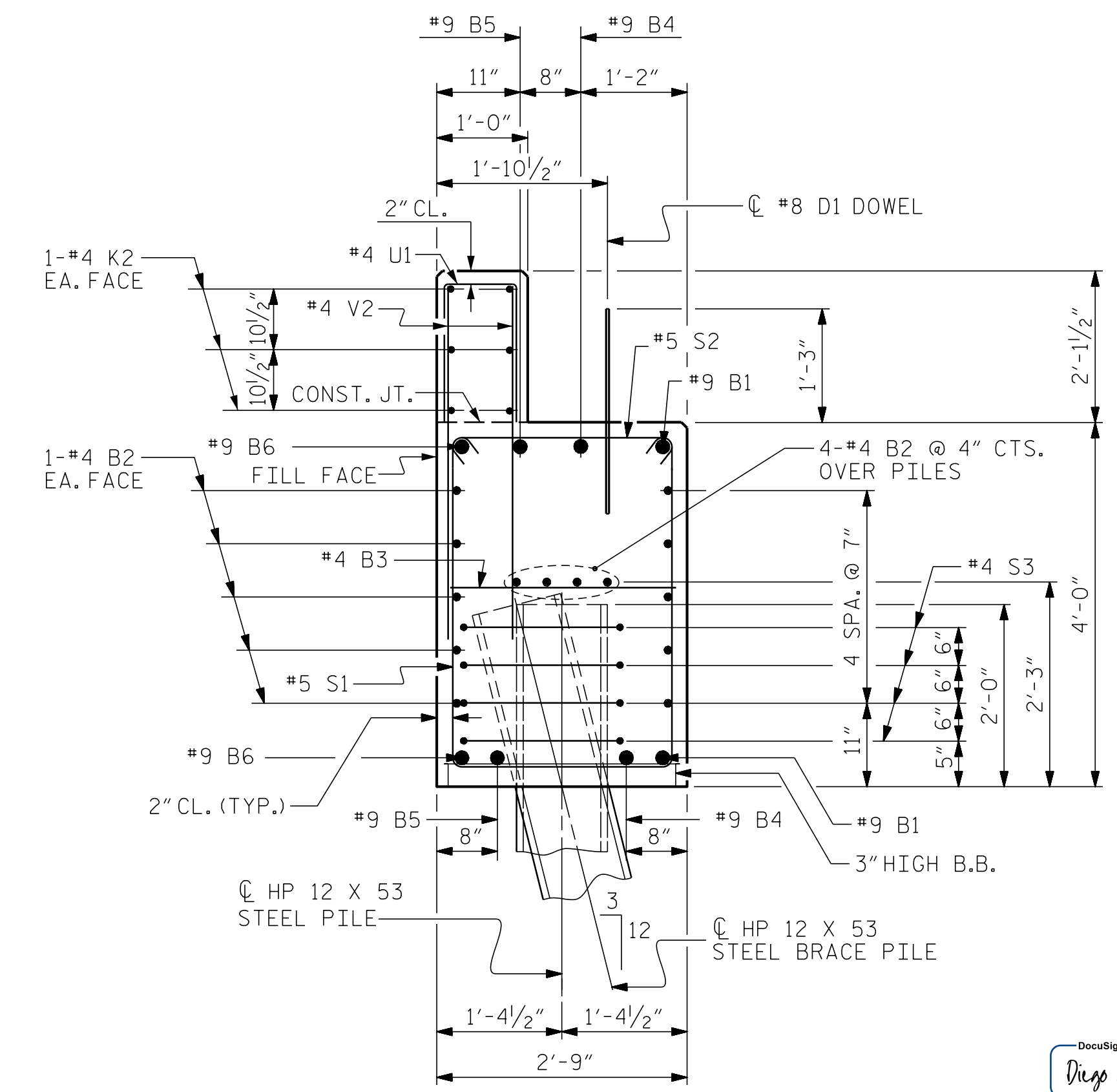
**CORROSION PROTECTION FOR STEEL PILES DETAIL**



**PILE SPLICE DETAILS**



BILL OF MATERIAL FOR END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	#9	1	42'-8"	291
B2	28	#4	STR	21'-7"	404
B3	10	#4	STR	2'-5"	17
B4	2	#9	1	42'-10"	292
B5	2	#9	1	43'-3"	294
B6	2	#9	1	43'-4"	295
D1	22	#8	STR	2'-3"	132
H1	16	#6	2	15'-1"	362
H2	16	#6	2	15'-3"	366
H3	16	#6	3	16'-8"	401
H4	16	#6	3	16'-4"	393
K1	6	#4	STR	3'-1"	13
K2	12	#4	STR	21'-8"	174
K3	6	#4	STR	3'-7"	15
S1	52	#5	4	10'-7"	574
S2	52	#5	5	3'-4"	181
S3	28	#4	6	6'-6"	122
U1	34	#4	7	3'-8"	83
V1	81	#4	STR	7'-8"	415
V2	68	#4	STR	5'-9"	261
REINFORCING STEEL					5085 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					22.2 C.Y.
POUR #2 BACKWALL & UPPER PART OF WINGS					8.1 C.Y.
TOTAL CLASS A CONCRETE					30.3 C.Y.



PROJECT NO. 17BP.11.R.163  
 WILKES COUNTY  
 STATION: 16+77.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1  
 DETAILS

DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE	DATE: 01/2023
ASSEMBLED BY: FIDEL L. FLORES	DATE: 01/2023
CHECKED BY: SCOTT A. BETZ	DATE: 01/2023
DRAWN BY: WJH 12/11	REV. 4/17
CHECKED BY: AAC 12/11	MAA/THC

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2			4			TOTAL SHEETS 20

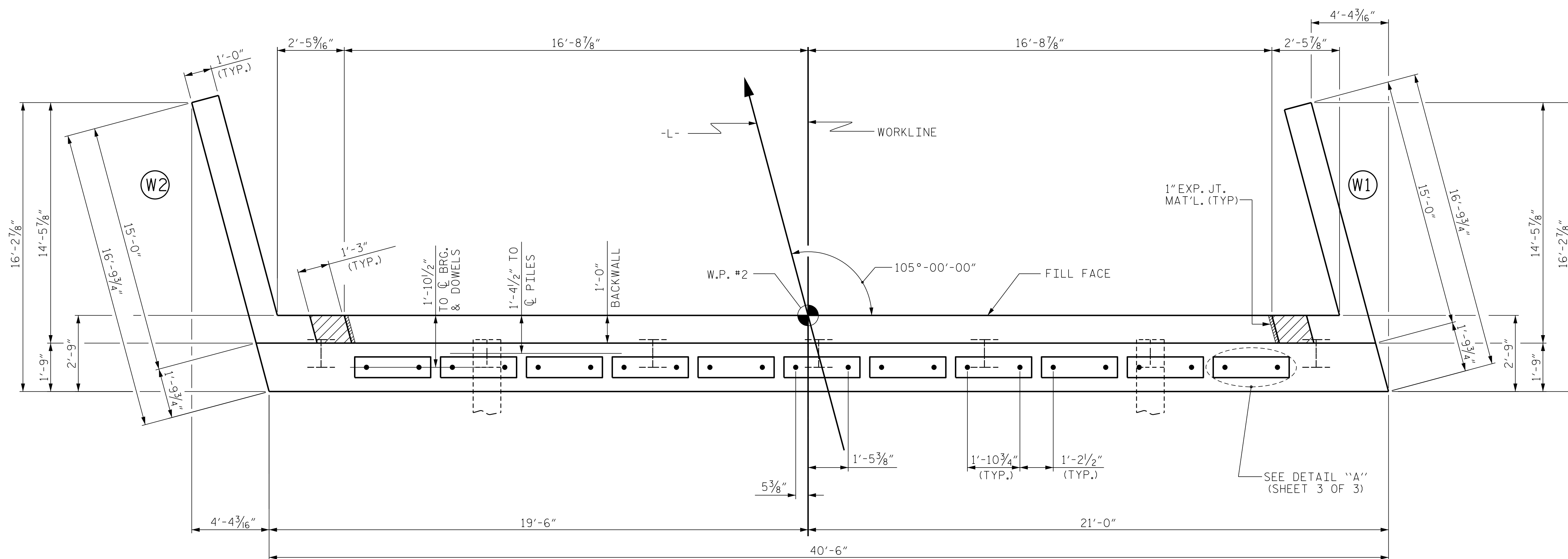
NOTES

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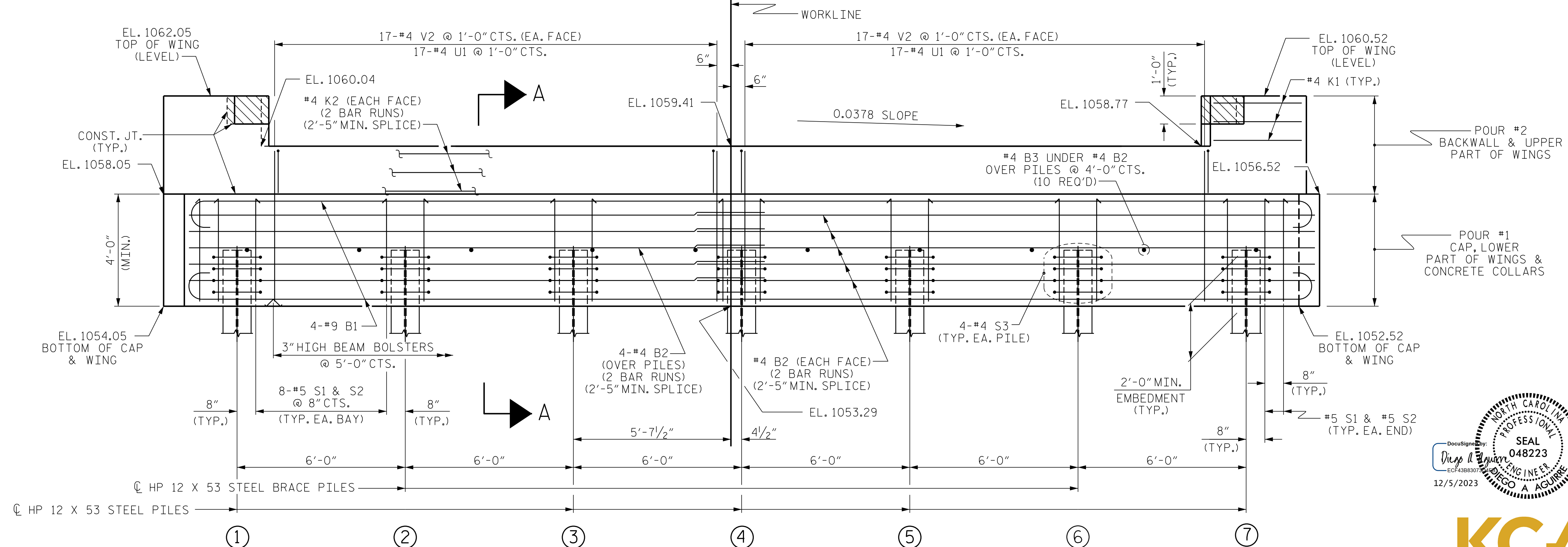
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 2 OF 3.

FOR WING DETAILS, SEE SHEET 3 OF 3.



PLAN

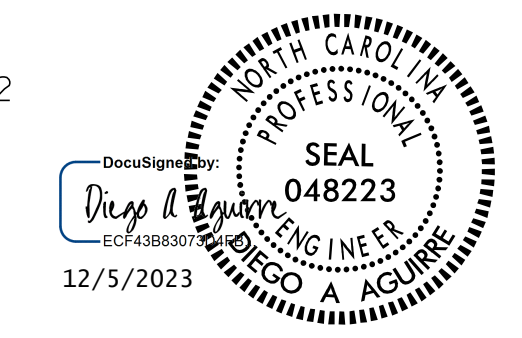


ELEVATION

TOP OF PILE ELEVATIONS	
①	1055.96
②	1055.73
③	1055.50
④	1055.27
⑤	1055.05
⑥	1054.82
⑦	1054.59

PROJECT NO. 17BP.11.R.163  
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SHEET 1 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 2

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

DESIGN ENGINEER OF RECORD:  
 DIEGO A. AGUIRRE DATE: 01/2023

ASSEMBLED BY: FIDEL L. FLORES DATE: 01/2023  
 CHECKED BY: SCOTT A. BETZ DATE: 01/2023

DRAWN BY: WJH 12/11 REV. 4/15 MAA/TMG  
 CHECKED BY: AAC 12/11

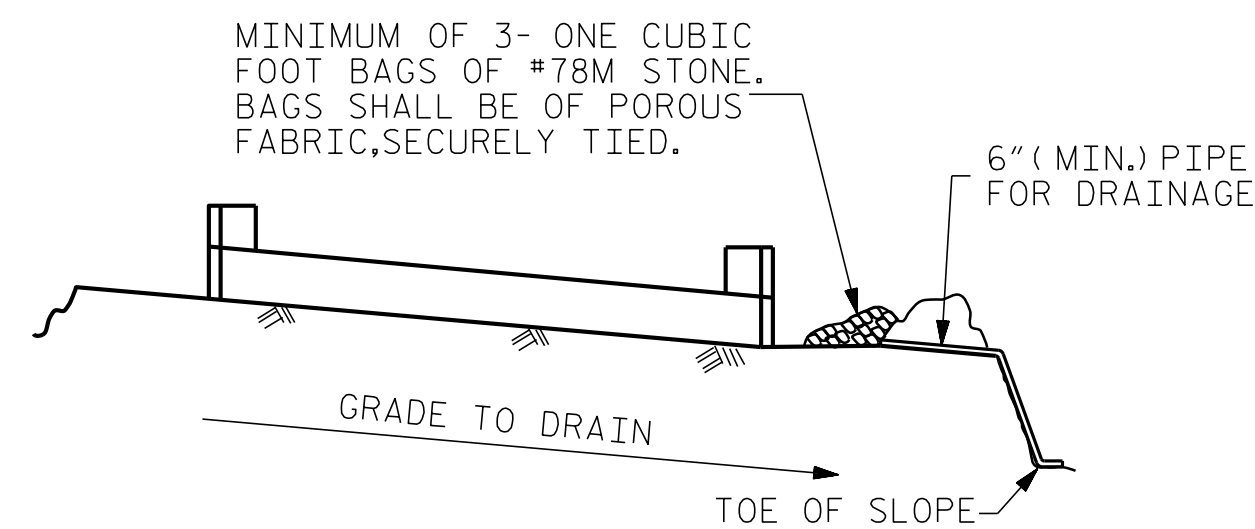
WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 3 OF 3.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506





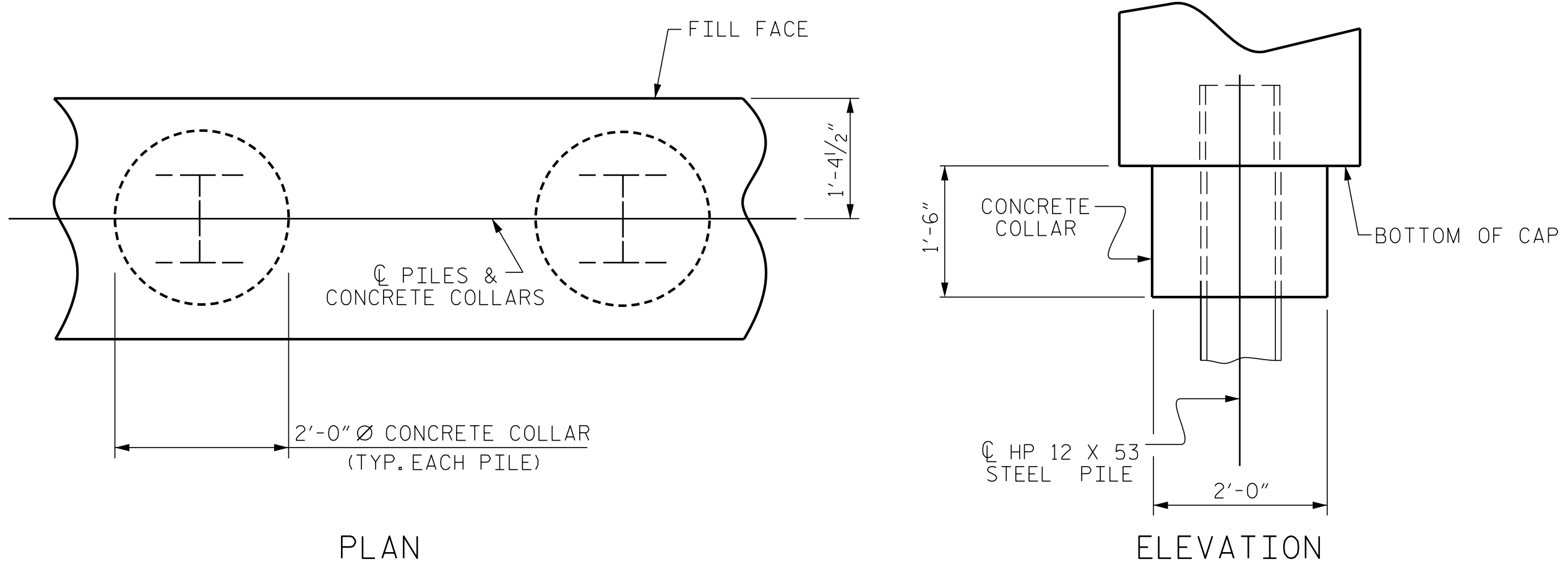
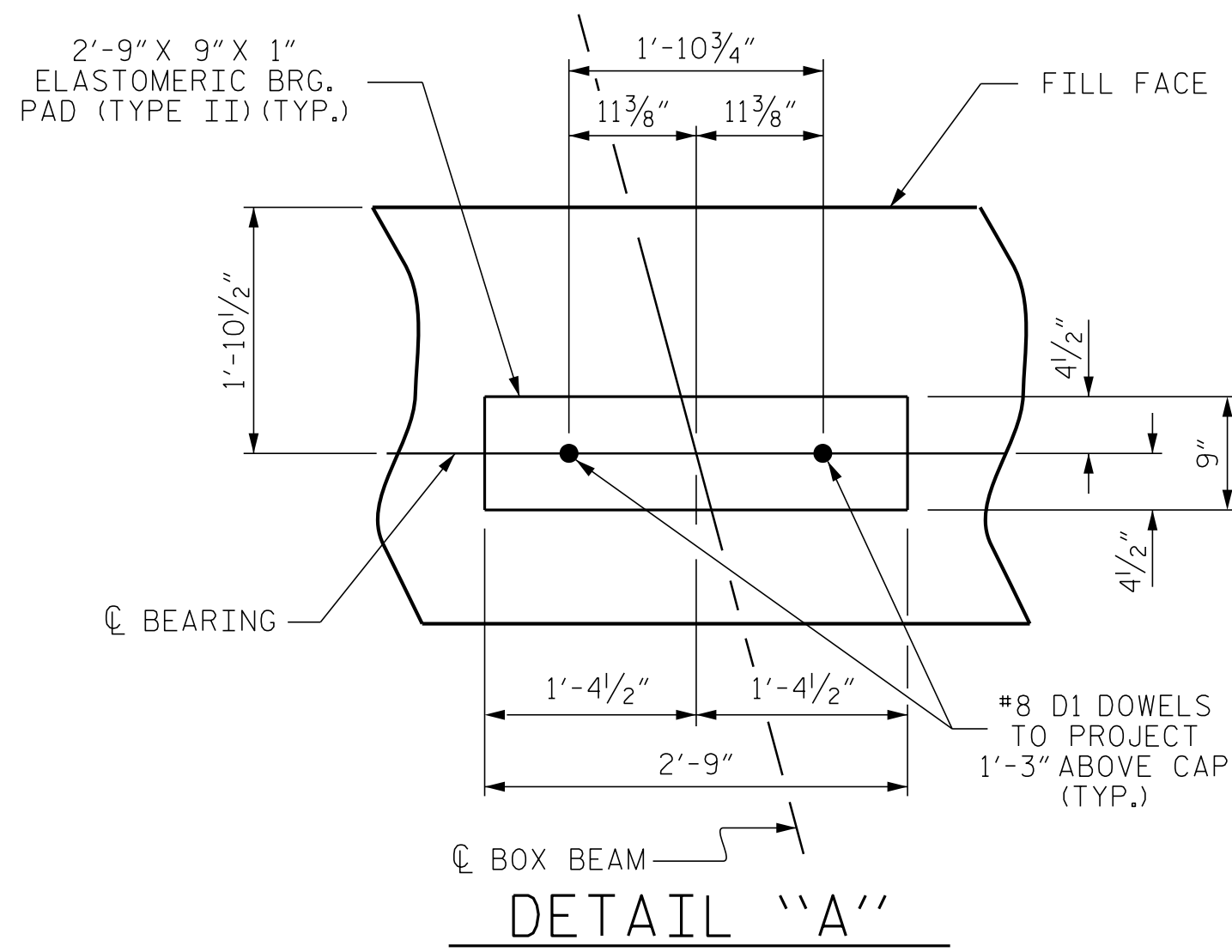


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

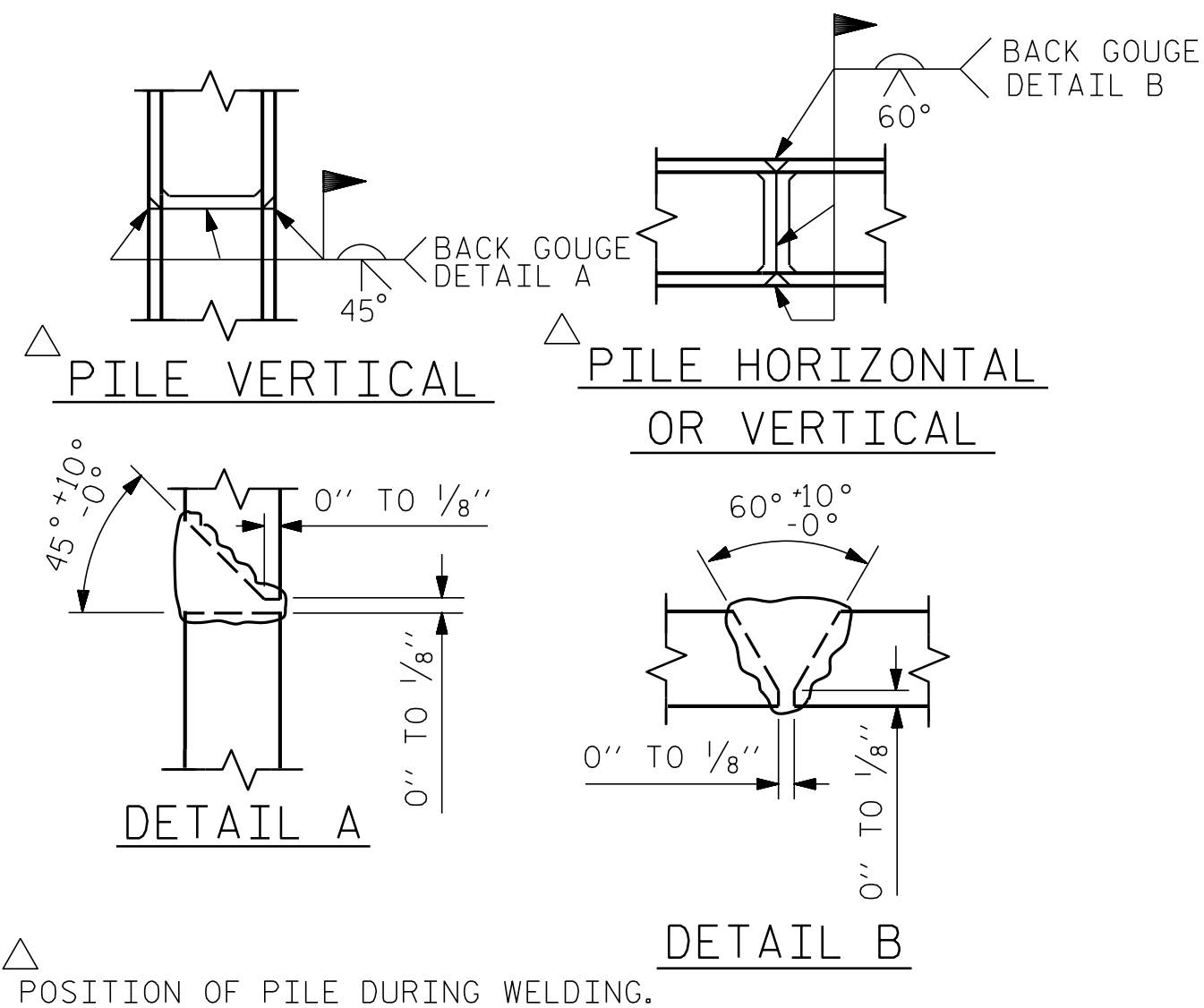
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

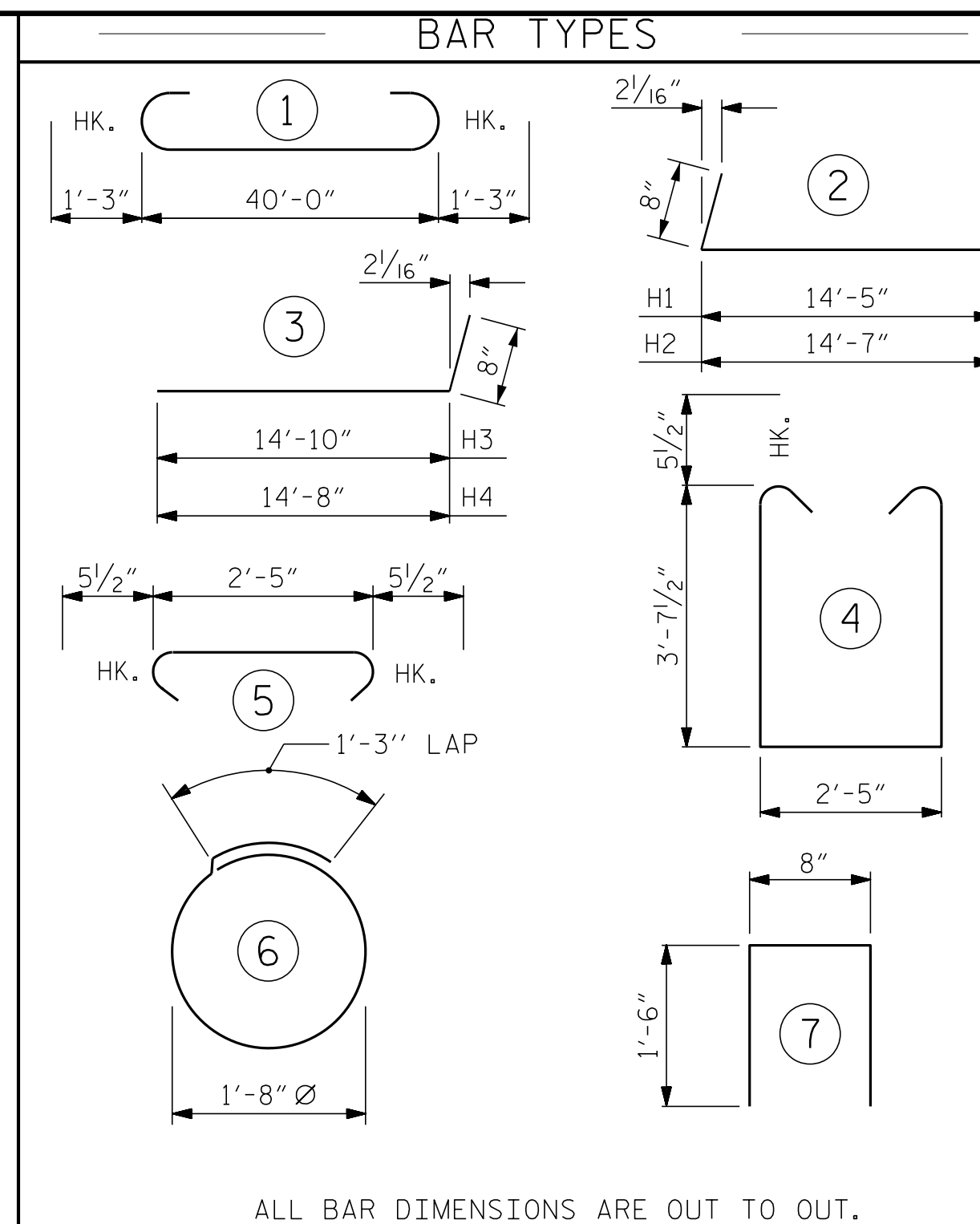
### TEMPORARY DRAINAGE AT END BENT



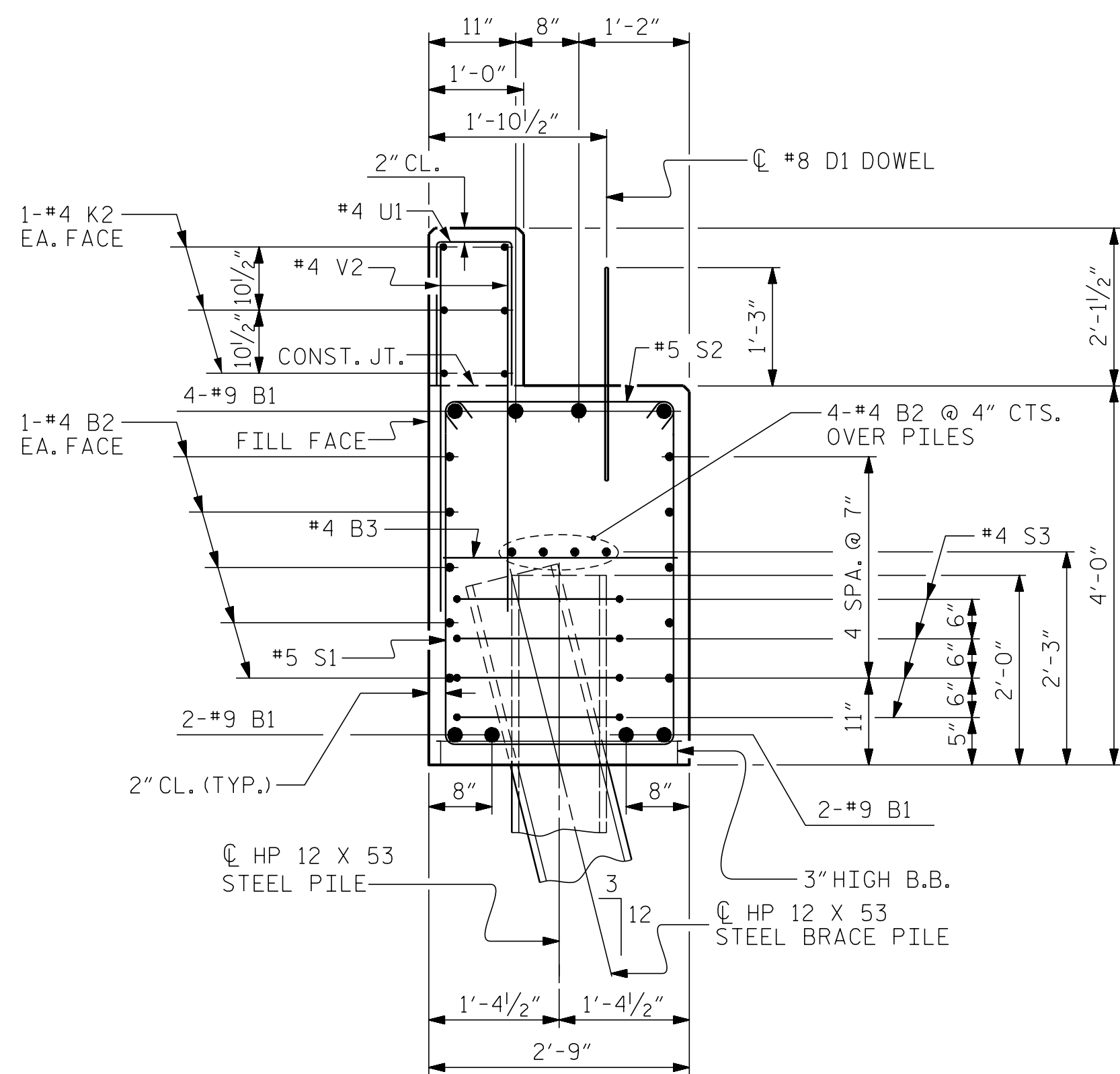
### CORROSION PROTECTION FOR STEEL PILES DETAIL



### PILE SPLICE DETAILS



BILL OF MATERIAL					
END BENT 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	42'-6"	1156
B2	28	#4	STR	21'-4"	399
B3	10	#4	STR	2'-5"	16
D1	22	#8	STR	2'-3"	132
H1	16	#6	2	15'-1"	362
H2	16	#6	2	15'-3"	366
H3	16	#6	3	15'-6"	372
H4	16	#6	3	15'-4"	368
K1	12	#4	STR	3'-1"	25
K2	12	#4	STR	21'-4"	171
S1	52	#5	4	10'-7"	574
S2	52	#5	5	3'-4"	181
S3	28	#4	6	6'-6"	122
U1	34	#4	7	3'-8"	83
V1	77	#4	STR	7'-8"	394
V2	68	#4	STR	5'-9"	261
REINFORCING STEEL					4982 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					21.9 C.Y.
POUR #2 BACKWALL & UPPER PART OF WINGS					7.8 C.Y.
TOTAL CLASS A CONCRETE					29.7 C.Y.



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

PROJECT NO. 17BP.11.R.163  
 WILKES COUNTY  
 STATION: 16+77.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

END BENT 2  
 DETAILS

DESIGN ENGINEER OF RECORD:			
DIEGO A. AGUIRRE DATE: 01/2023			
ASSEMBLED BY: FIDEL L. FLORES DATE: 01/2023			
CHECKED BY: SCOTT A. BETZ DATE: 01/2023			
DRAWN BY: WJH 12/11	REV. 4/17	MAA/THC	
CHECKED BY: AAC 12/11			

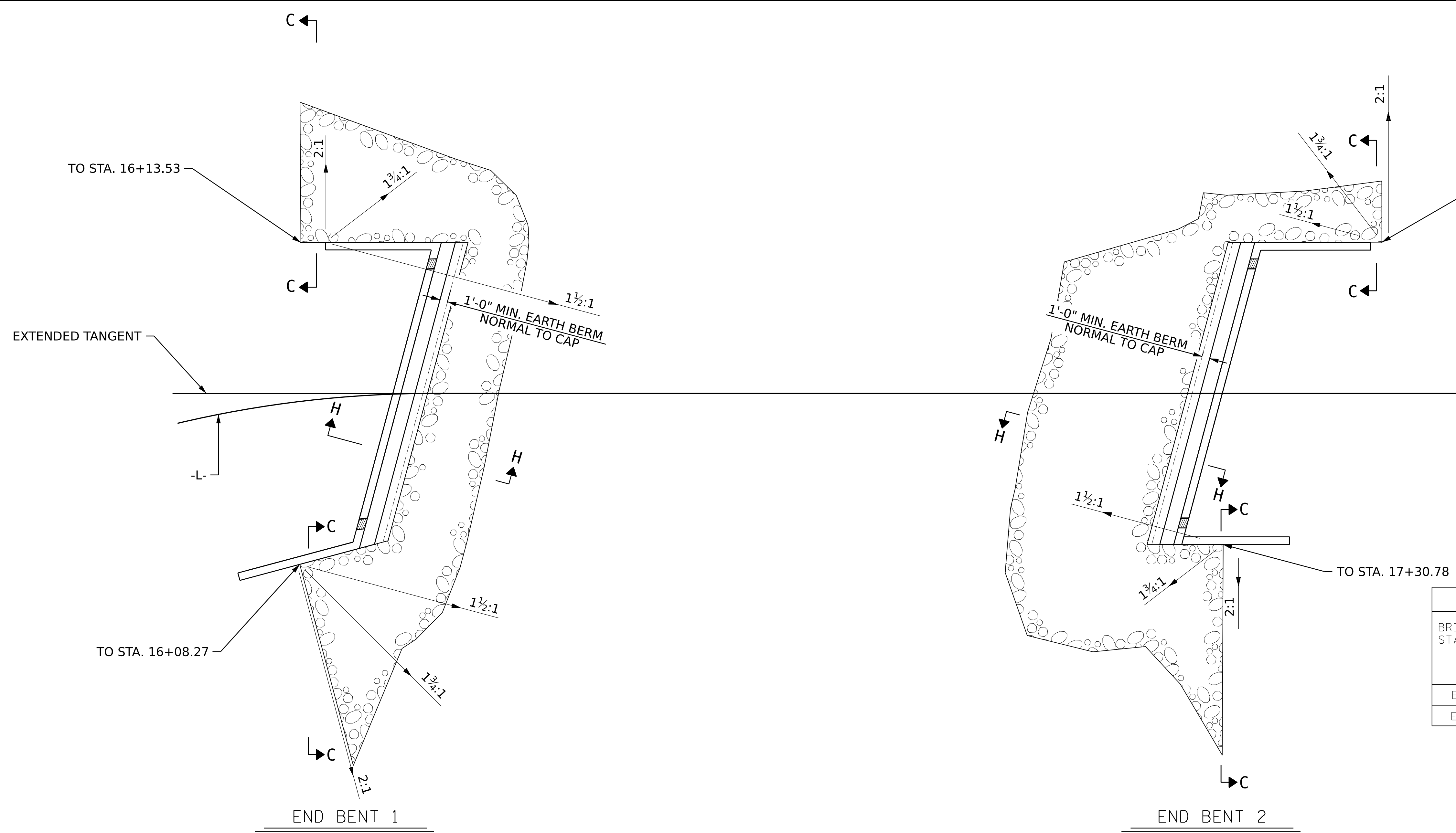
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 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-17
2			4			TOTAL SHEETS 20

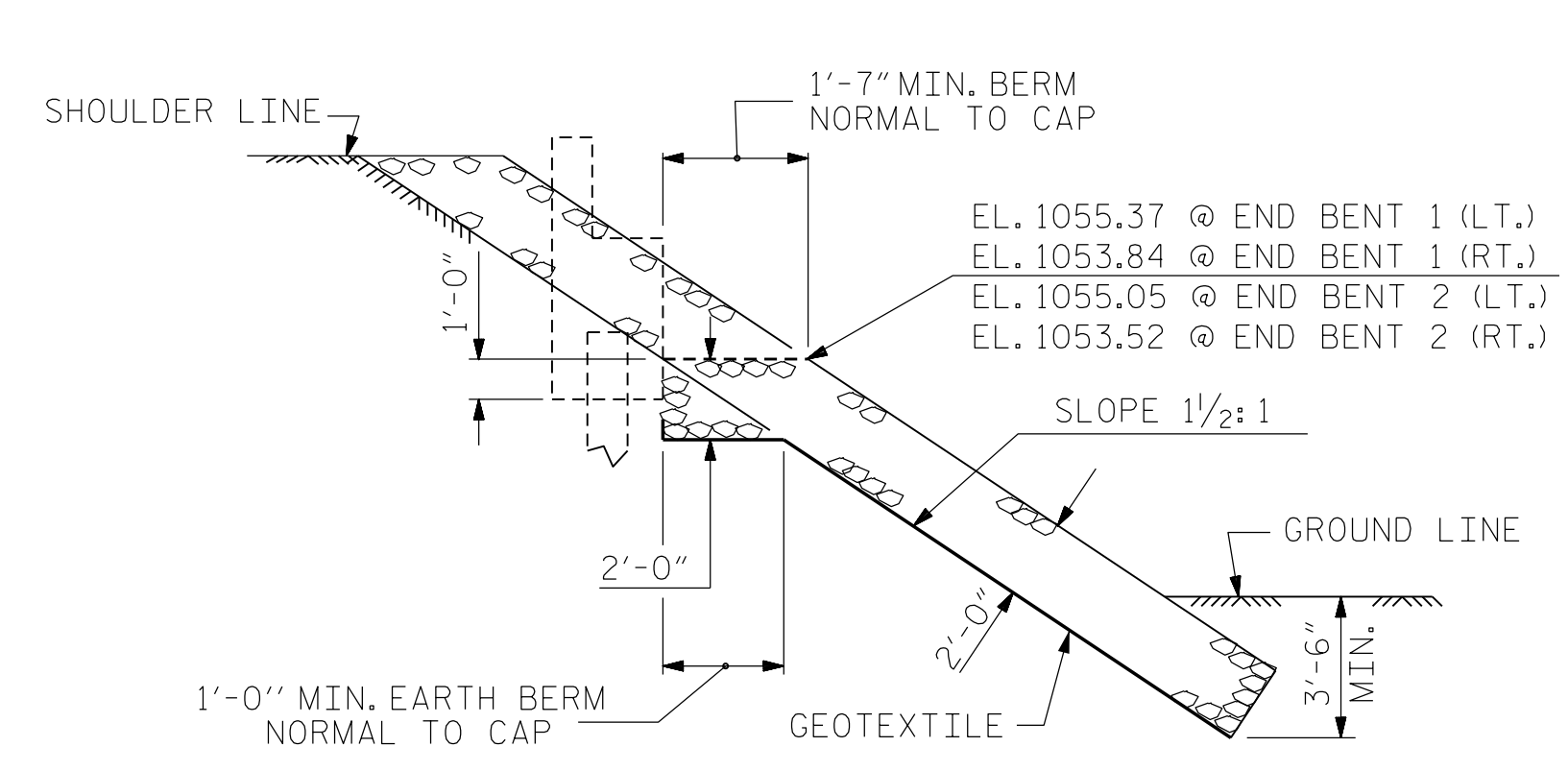


NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

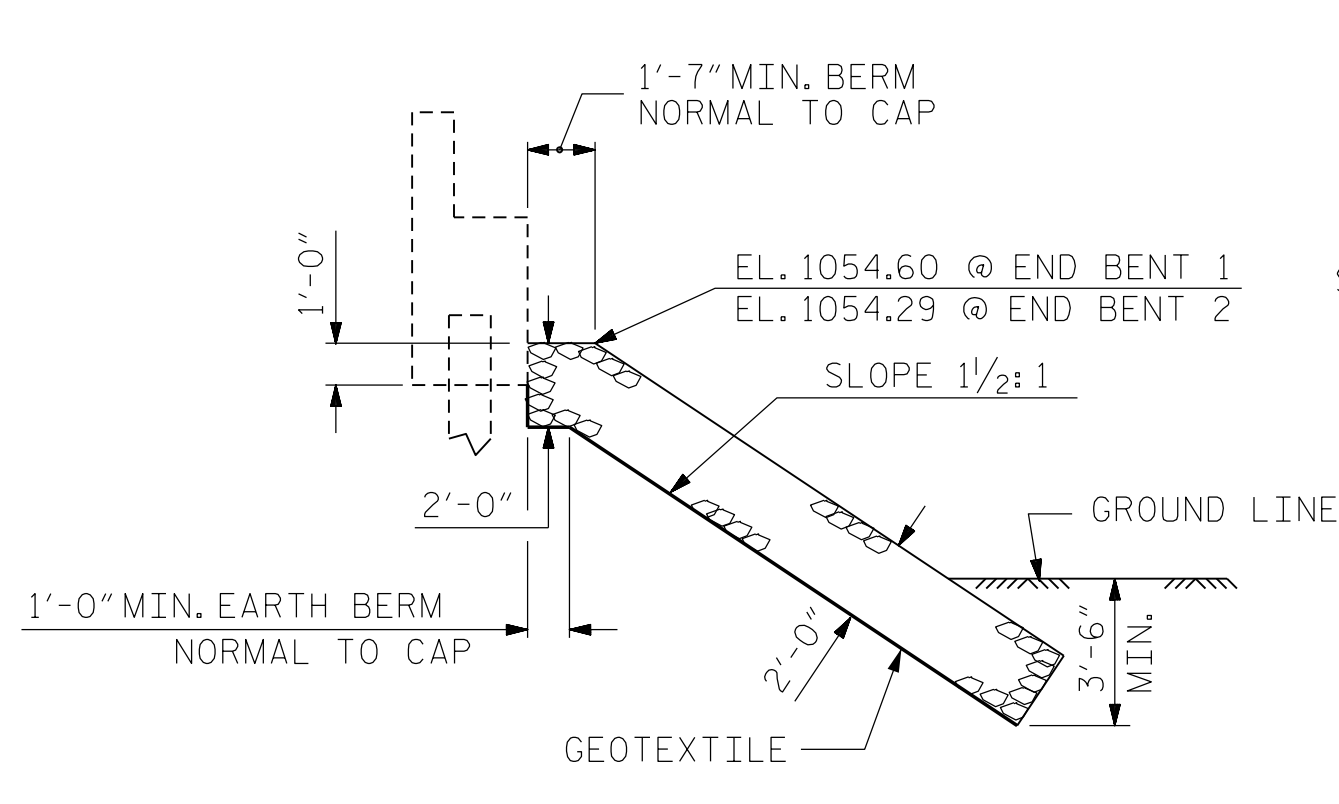


ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+77.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	232	365
END BENT 2	275	373

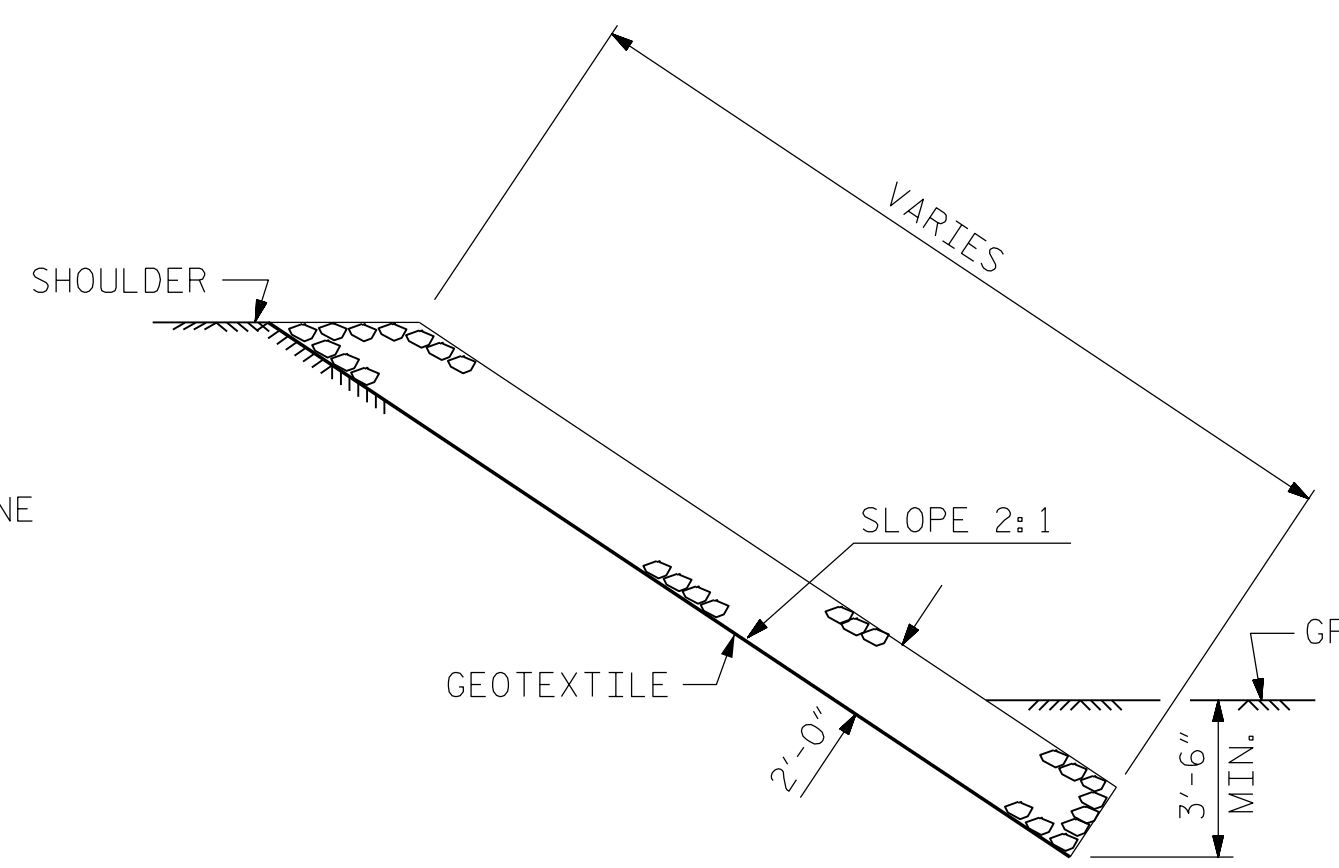
PLAN



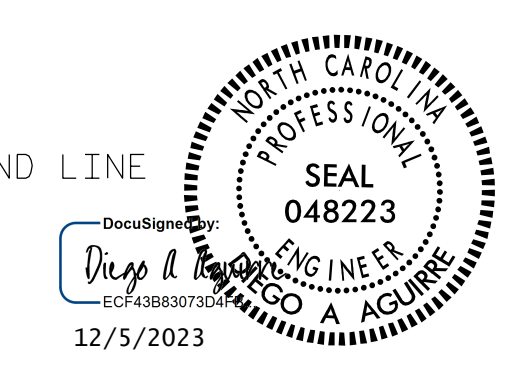
SECTION H-H



SECTION C-C  
BERM RIP RAPPED



SECTION C-C



PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
STATION: 16+77.00 -L-

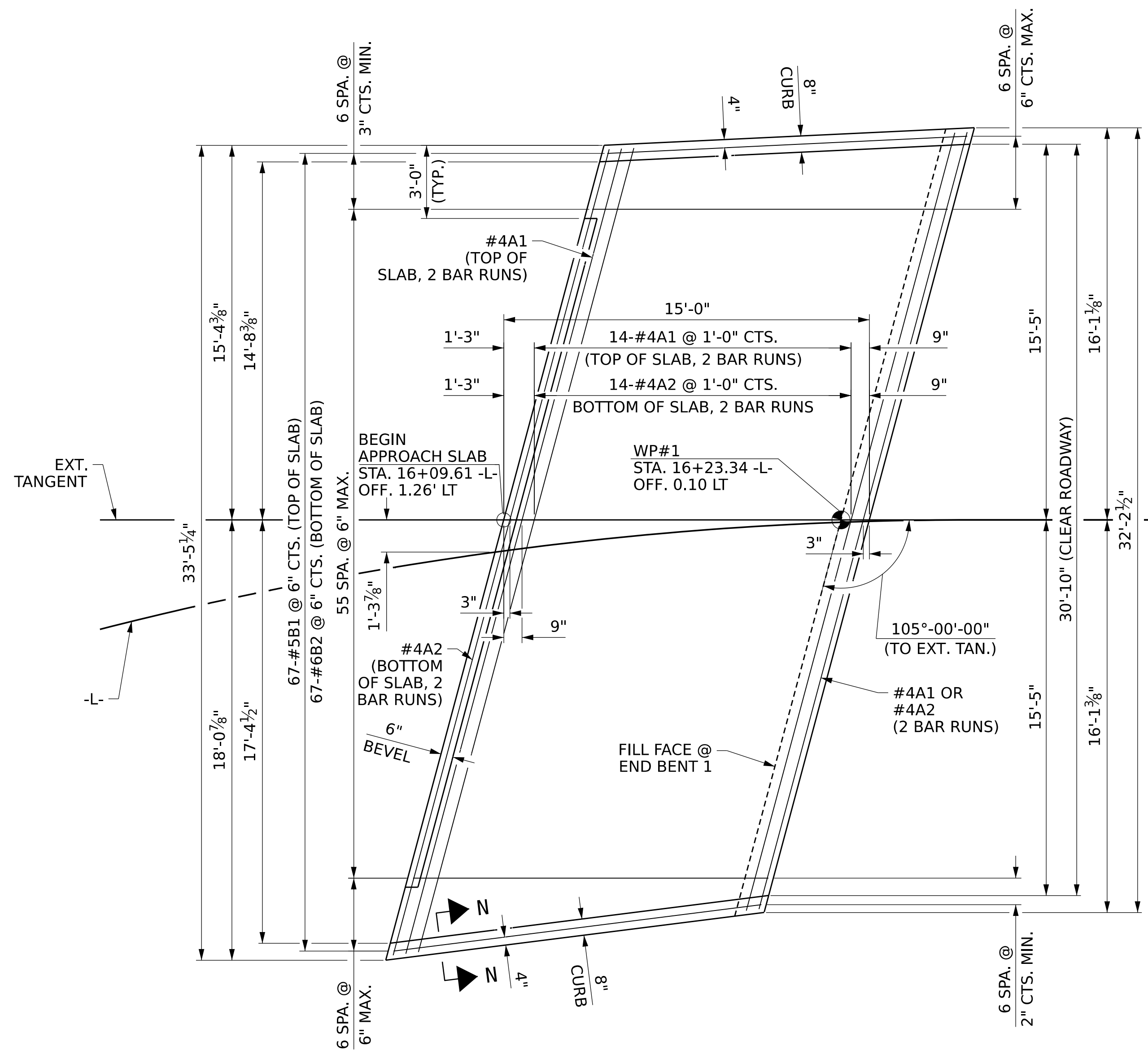
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
RIP RAP DETAILS

DESIGN ENGINEER OF RECORD:  
**DIEGO A. AGUIRRE** DATE : **01/2023**  
ASSEMBLED BY : **FIDEL L. FLORES** DATE : **01/2023**  
CHECKED BY : **SCOTT A. BETZ** DATE : **01/2023**  
DRAWN BY : REK 1/84 MAA/GM  
CHECKED BY : RDU 1/84 MAA/GM  
REV. 10/17/II MAA/THC  
REV. 12/21/II MAA/GM  
REV. 12/17 MAA/THC

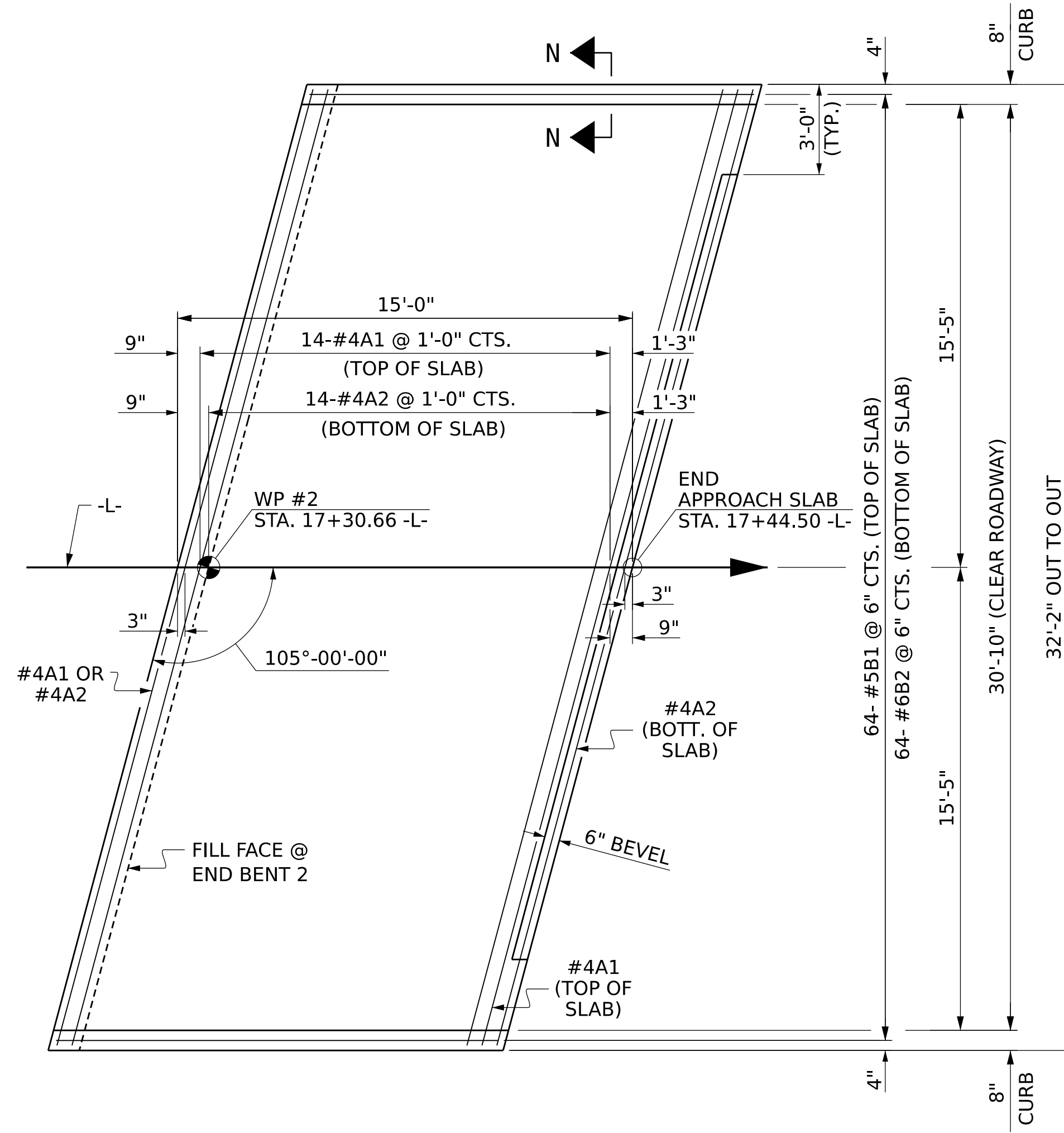
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RALEIGH, NC 27601 (919) 882-7839  
NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-18
2			4			20



PLAN @ END BENT 1



PLAN @ END BENT 2

PROJECT NO. 17BP.11.R.163

WILKES COUNTY

STATION: 16+77.00 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BRIDGE APPROACH SLAB  
FOR PRESTRESSED CONCRETE  
BOX BEAM UNIT  
(SUB-REGIONAL TIER)  
105° SKEW

REVISIONS

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

SHEET NO.

**5-19**  
TOTAL SHEETS  
**20**

DRAWN BY : DIEGO A. AGUIRRE DATE : 02/2023  
CHECKED BY : SCOTT A. BETZ DATE : 02/2023  
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 02/2023

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

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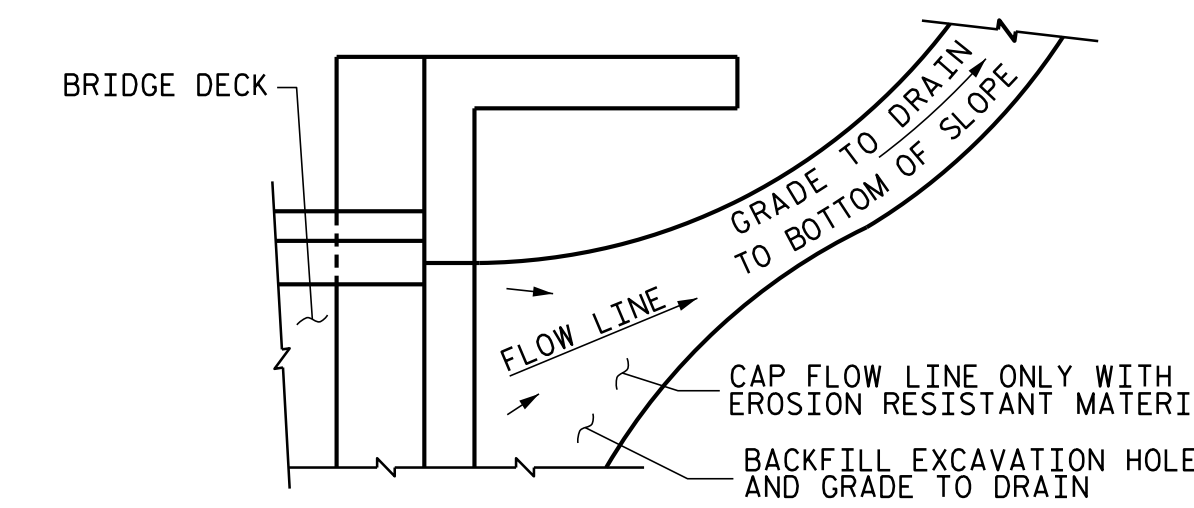


### NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

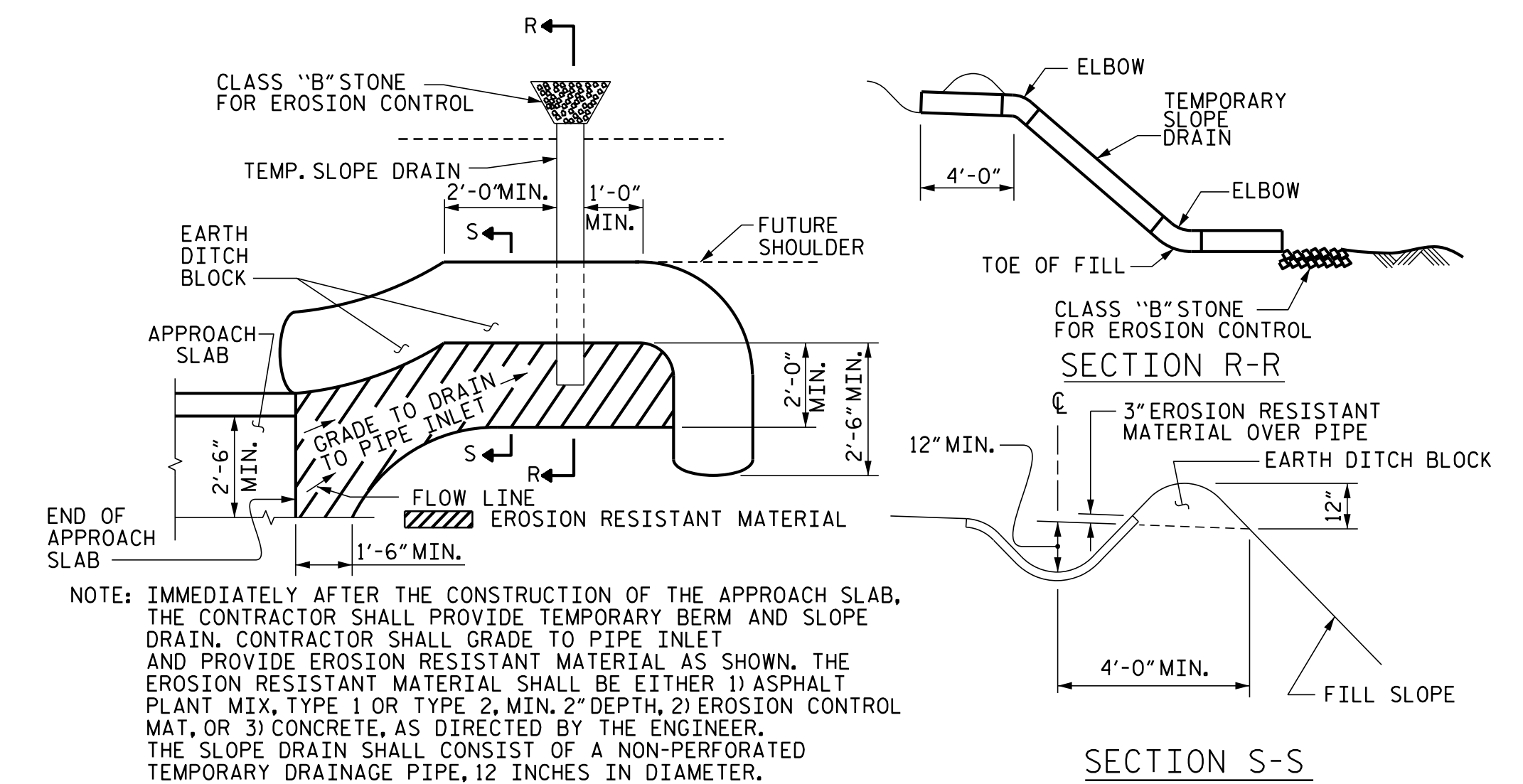
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

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

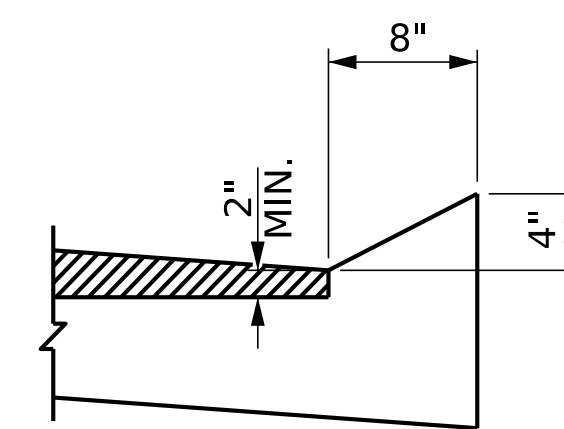


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

### TEMPORARY BERM AND SLOPE DRAIN DETAILS

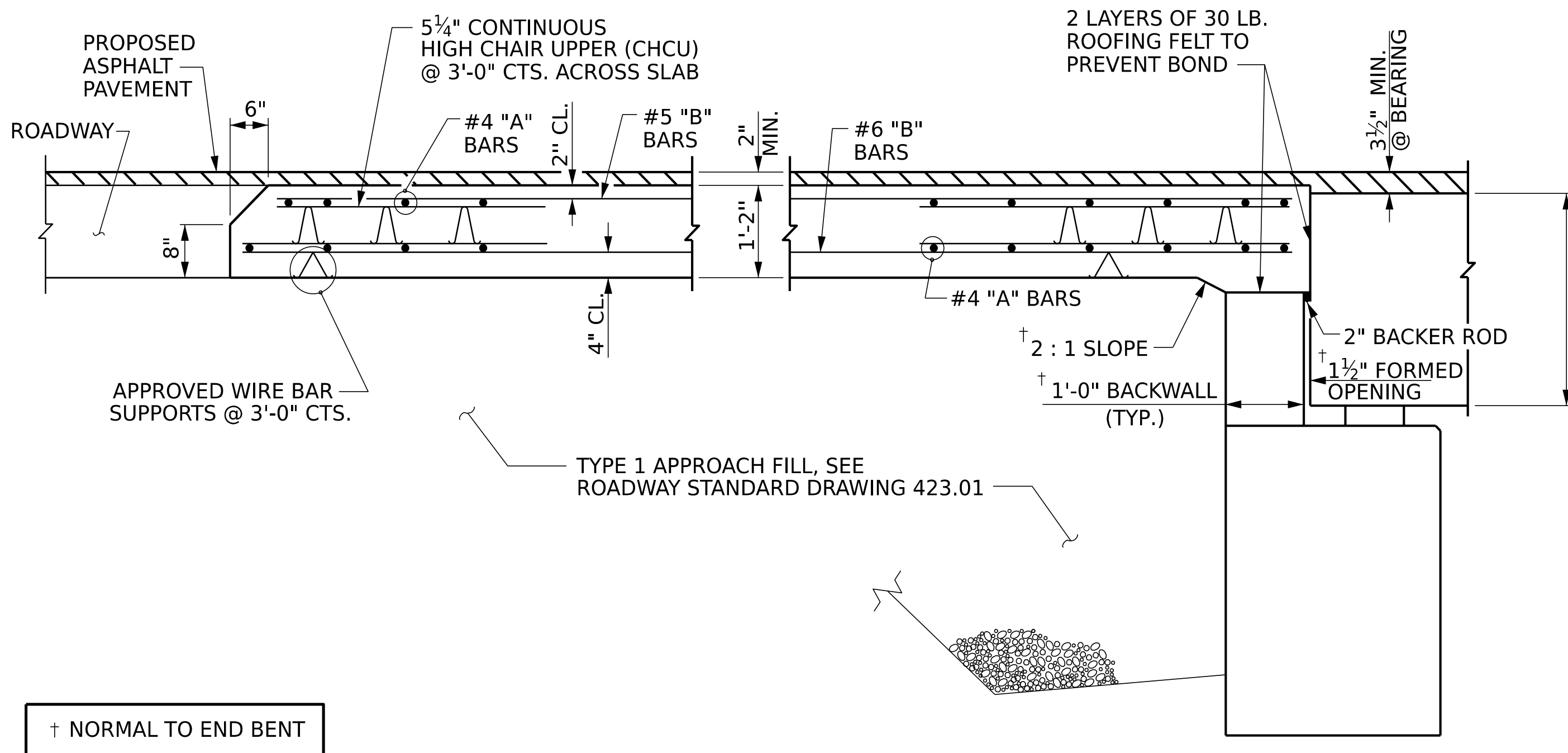
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"



### SECTION N-N

### CURB DETAILS

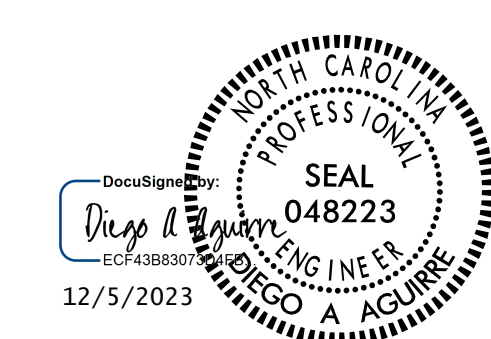


### SECTION THRU SLAB

BILL OF MATERIAL						
APPROACH SLAB AT EB 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	32	#4	STR	18'-1"	387	
A2	32	#4	STR	17'-11"	383	
*B1	67	#5	STR	14'-1"	985	
B2	67	#6	STR	14'-7"	1468	
REINFORCING STEEL					LBS.	1851
*EPOXY COATED REINFORCING STEEL					LBS.	1372
CLASS AA CONCRETE					C. Y.	21.5
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	16	#4	STR	32'-11"	352	
A2	16	#4	STR	32'-11"	352	
*B1	64	#5	STR	14'-1"	941	
B2	64	#6	STR	14'-7"	1402	
REINFORCING STEEL					LBS.	1754
*EPOXY COATED REINFORCING STEEL					LBS.	1293
CLASS AA CONCRETE					C. Y.	21.1

DESIGN ENGINEER OF RECORD:		
DIEGO A. AGUIRRE	01/2023	
ASSEMBLED BY : FIDEL L. FLORES DATE : 01/2023		
CHECKED BY : SCOTT A. BETZ DATE : 01/2023		
DRAWN BY : FCJ 6/87	REV. 12/17	MAA/THC
CHECKED BY : EGA 6/87	REV. 06/19	BNB/THC
	REV. 07/23	BNB/SNM

12/1/2023  
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301 FAYETTEVILLE ST., SUITE 1500  
RALEIGH, NC 27601 (919) 882-7839  
NC FIRM LICENSE: C-1506

PROJECT NO. 17BP.11.R.163  
WILKES COUNTY  
STATION: 16+77.00 -L-  
SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-20	
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE BOX BEAM UNIT (SUB-REGIONAL TIER)						TOTAL SHEETS 20	
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

