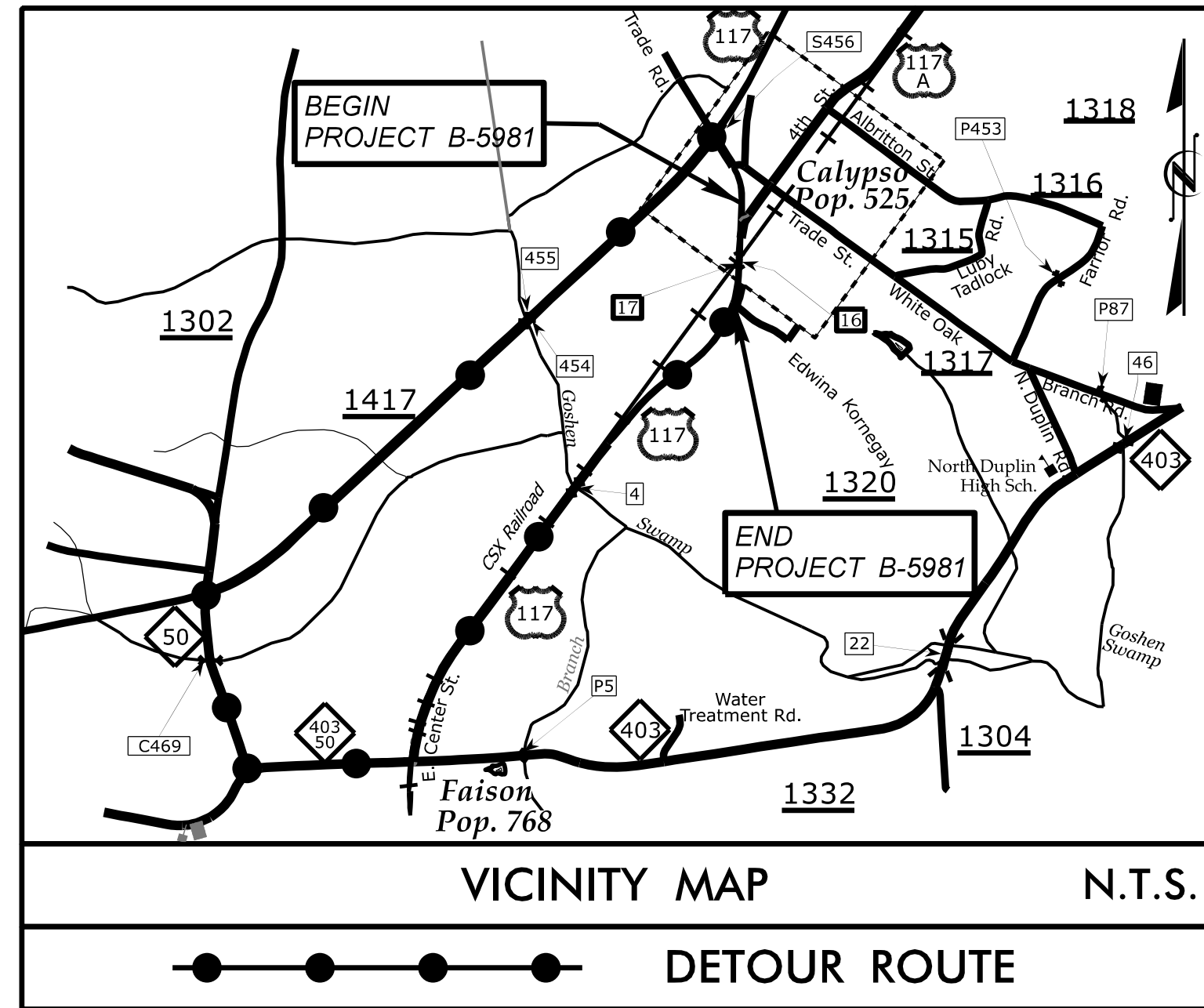


TIP PROJECT: B-5981

CONTRACT: C204767

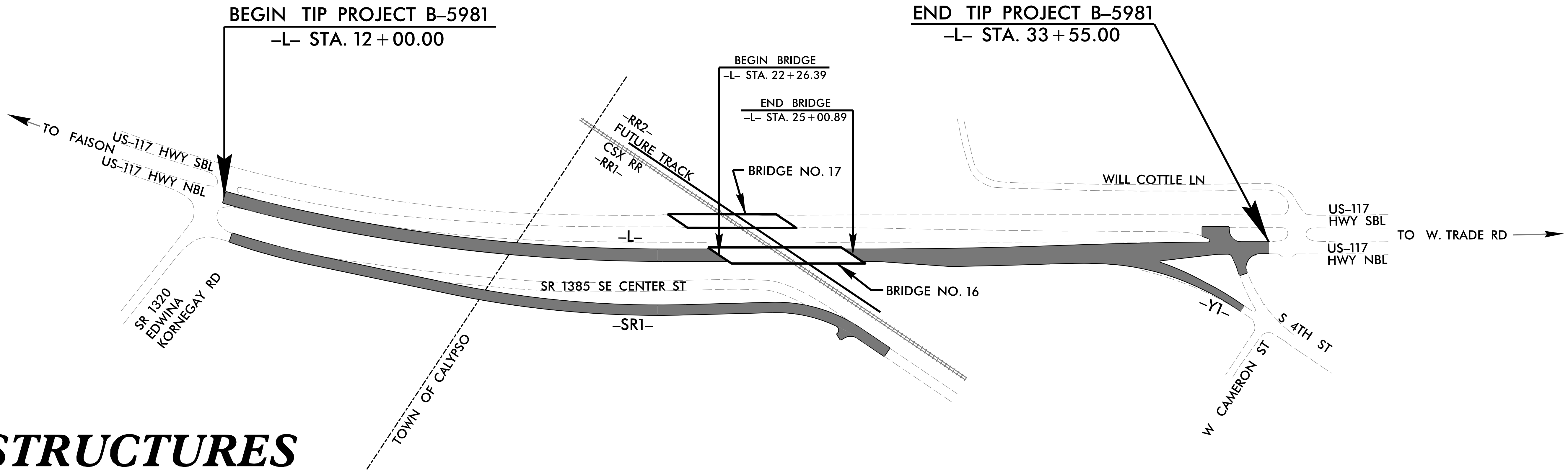
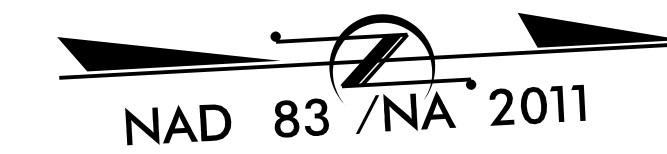


STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
DUPLIN COUNTY

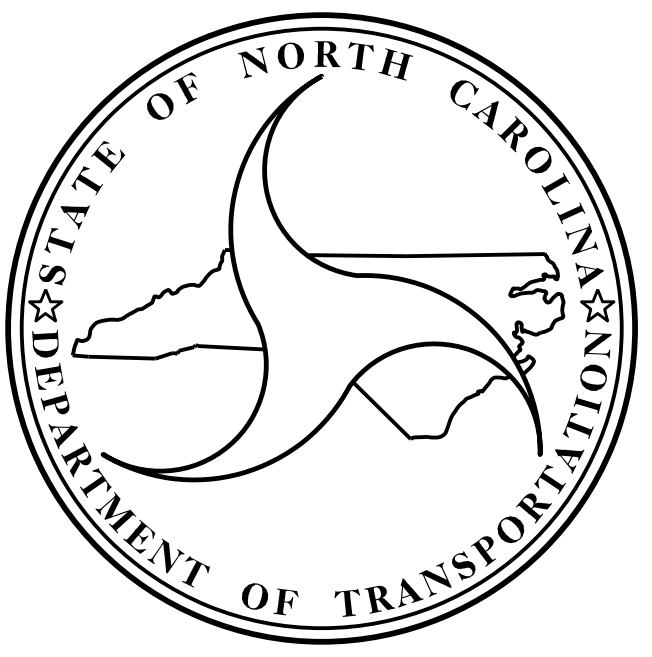
LOCATION: BRIDGE NO. 300016 OVER CSX RAILROAD ON US-117
 NORTH BOUND LANES AND PRESERVATION OF
 BRIDGE NO. 300017 OVER CSX RAILROAD

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE,
 AND STRUCTURE PRESERVATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5981		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
47747.1.1		P.E.	
47747.2.1	0117050	R / W	
47747.3.1	0117050	CONST.	



STRUCTURES



DESIGN DATA

ADT 2023 = 2,063
 ADT 2042 = 2,300
 K = 9 %
 D = 100 %
 T = 6 % **
 * V = 60 MPH
 ** (TTST 3%, DUAL 3%)

FUNC CLASS = MAJOR COLLECTOR
 REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5981 = 0.356 MILE
 LENGTH OF STRUCTURE TIP PROJECT B-5981 = 0.052 MILE
 LENGTH OF STRUCTURE REHAB TIP PROJECT B-5981 = 0.043 MILE

TOTAL LENGTH OF TIP PROJECT B-5981 = 0.451 MILE

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

2018 STANDARD SPECIFICATIONS

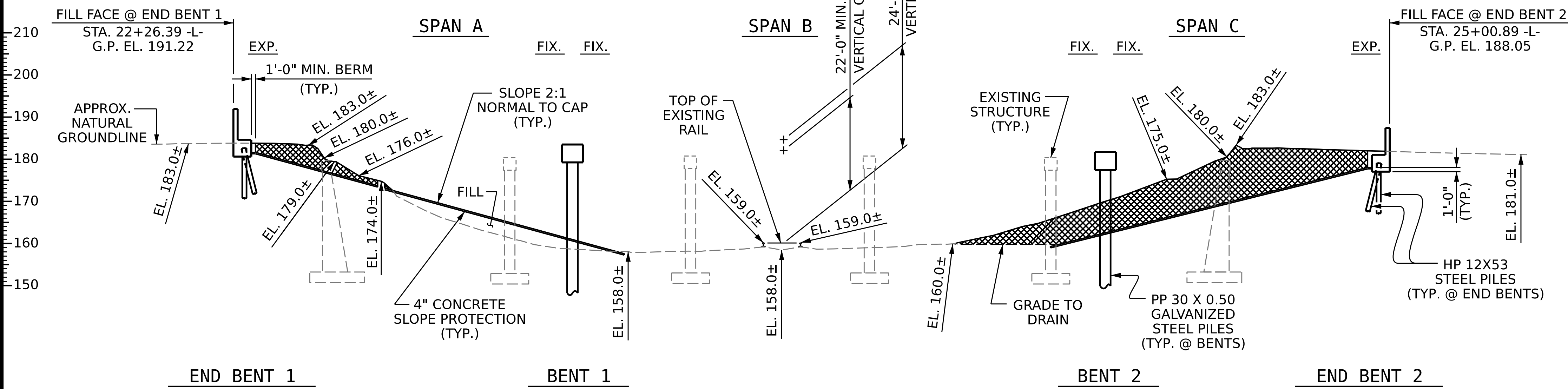
LETTING DATE :
 DECEMBER 19, 2023

KRISTY W. ALFORD, P.E.
 PROJECT ENGINEER

WILLIAM C. SMITH, P.E.
 PROJECT DESIGN ENGINEER

GRADE DATA
 (+) 2.7500% (-) 5.0000%

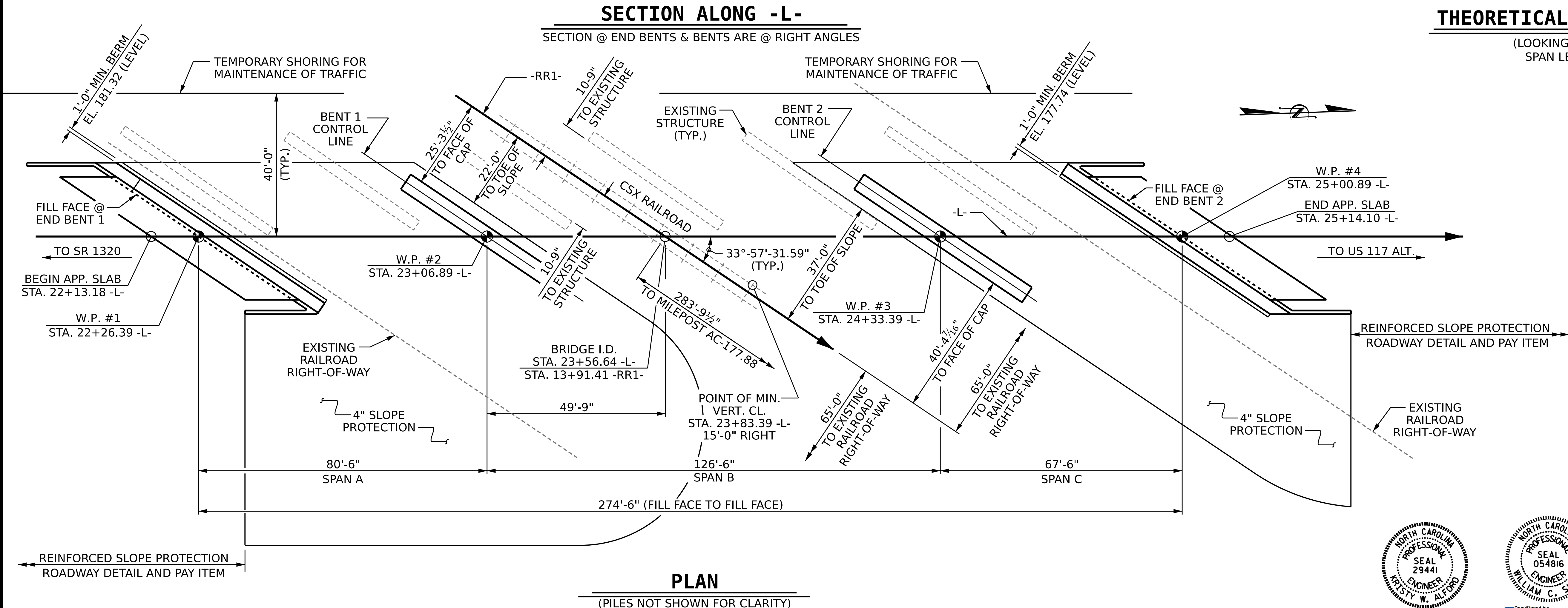
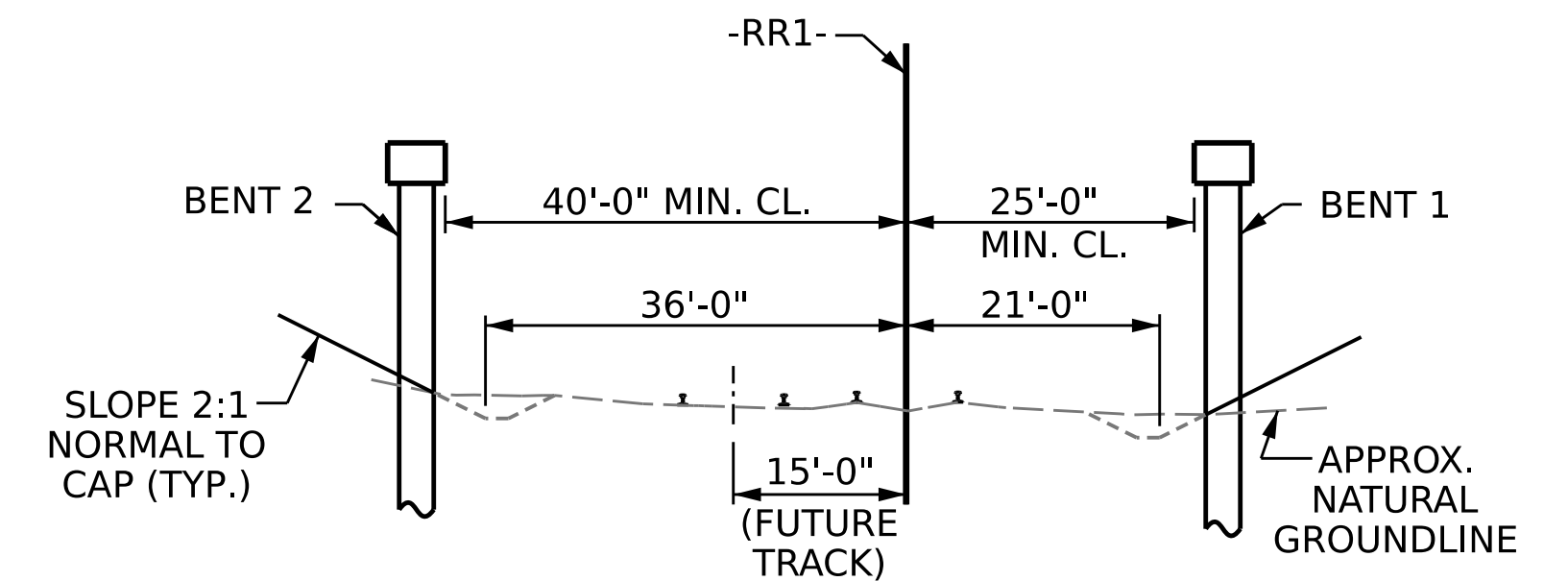
P.I. STA. = 23+60.00 -L-
 ELEV. = 199.12
 V.C. = 890'



TOP OF RAIL ELEVATIONS		
-RR1- STATION	LEFT RAIL	RIGHT RAIL
13+38.74	158.69	158.72
14+31.49	159.00	159.04
14+92.99	159.27	159.29

SURVEY DATE 8/27/2019

UNCLASSIFIED STRUCTURE EXCAVATION



PROJECT NO. **B-5981**
 COUNTY **DUPLIN**
 STATION: **23+56.64 -L-**
13+91.41 -RR1-
 MILEPOST AC-177.88 REPLACES
 BRIDGE NO. 300016

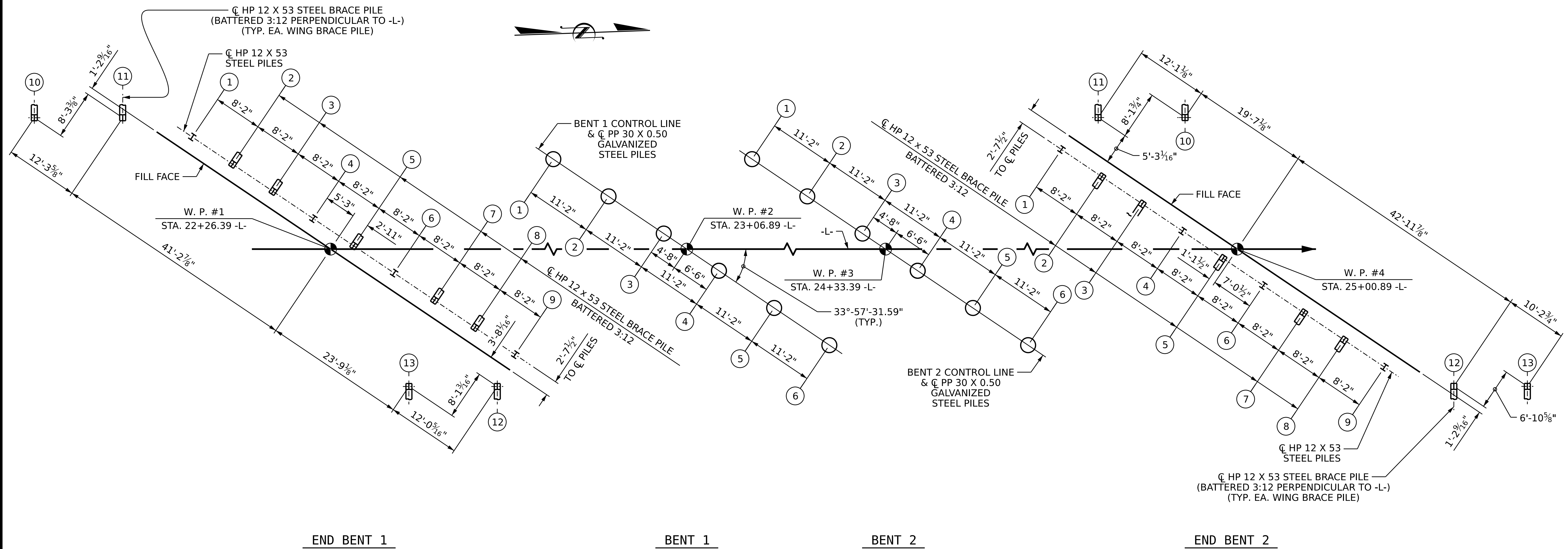
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON US 117 (NBL)
 OVER CSX RAILROAD
 BETWEEN SR 1320 &
 US 117 ALT.

DRAWN BY : S. T. SANDOR DATE : 5/6/22
 CHECKED BY : M. K. BEARD DATE : 9/16/22
 DESIGN ENGINEER OF RECORD : W.C. SMITH DATE : 3/8/23

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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

S1-1
 TOTAL SHEETS 43



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.

NOTES

FOR PILES, SEE PILES SPECIAL PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 100,000 - 190,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT 1 AND BENT 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

PROJECT NO. **B-5981**

DUPLIN COUNTY

STATION: **23+56.64 -L-**

SHEET 2 OF 6



DocuSigned by:
William C. Smith
10/24/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON US 117 (NBL)
OVER CSX RAILROAD
BETWEEN SR 1320 &
US 117 ALT.

DRAWN BY : S. T. SANDOR DATE : 7/17/22
CHECKED BY : M. K. BEARD DATE : 7/27/22
DESIGN ENGINEER OF RECORD : W.C. SMITH DATE : 3/8/23

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

TOTAL SHEETS: 43

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-13	90	182.32	70			120							
Bent 1, Piles 1-6	245	181.79	89		132	330	16						
Bent 2, Piles 1-6	225	180.00	89		136	300							
End Bent 2, Piles 1-13	85	178.74	65			115							

*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$**RDR = \frac{\text{Factored Resistance} + \text{Factored Downdrag Load} + \text{Factored Dead Load}}{\text{Dynamic Resistance Factor}} + \frac{\text{Nominal Downdrag Resistance} + \text{Nominal Scour Resistance}}{\text{Scour Resistance Factor}}$$

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent 1, Piles 1-13	Yes	80	4		
Bent 1, Piles 1-6	Yes	99			
Bent 2, Piles 1-6	Yes	99			
End Bent 2, Piles 1-13	Yes	75			

*EST = Pile order lengths from estimated pile lengths; PDA = Pile order lengths based on PDA testing. For groups of end bents/bents with pile order lengths based on PDA testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the PDA.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-13	90			0.75			
Bent 1, Piles 1-6	243			0.75			
Bent 2, Piles 1-6	224			0.75			
End Bent 2, Piles 1-13	85			0.75			

*Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates Required? YES or MAYBE	Steel Pile Points			Steel Pile Tips Required? YES
		Pipe Pile Cutting Shoes Required? YES	Pipe Pile Conical Points Required? YES	H-Pile Points Required? YES	
End Bent 1, Piles 1-13					
Bent 1, Piles 1-6	Yes				
Bent 2, Piles 1-6	Yes				
End Bent 2, Piles 1-13					
TOTAL QTY:	12				

NOTES:

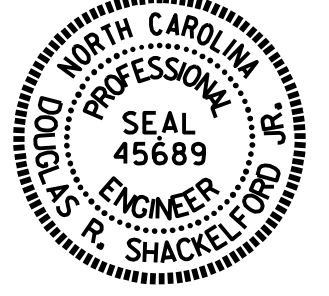
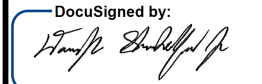
- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Donald W. Brown, Jr., PE, Lic. No. 028422) on 07-14-21.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.

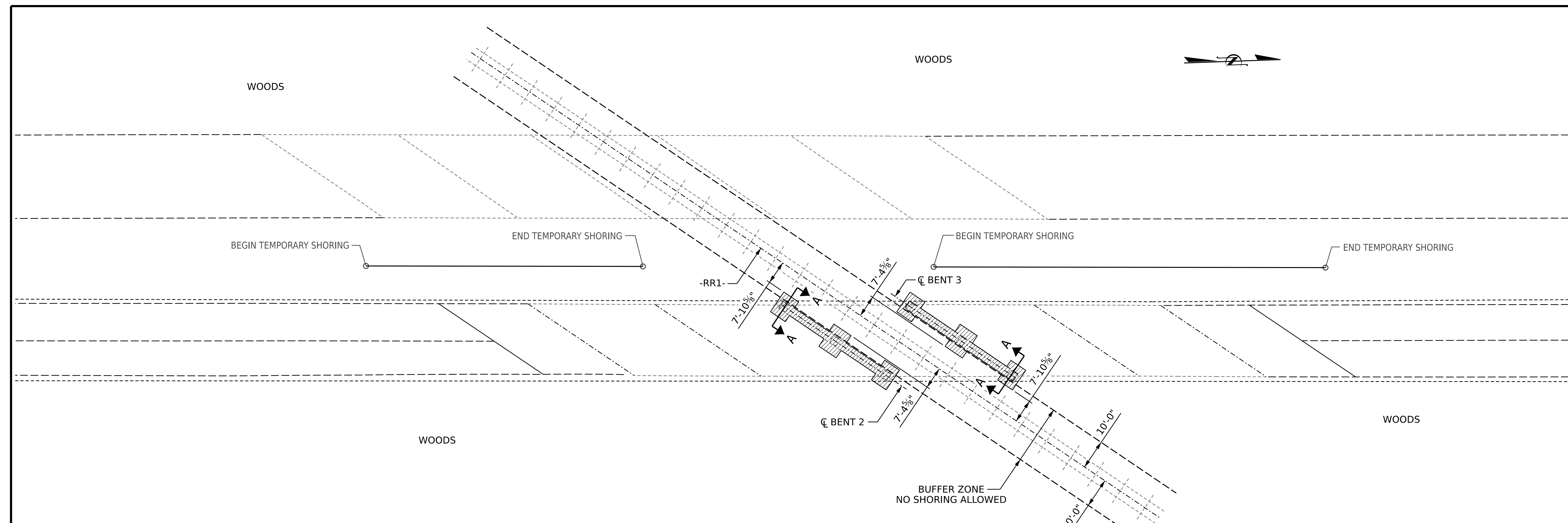
PROJECT NO. B-5981

DUPLIN COUNTY

STATION: 23+56.64 -L-

SHEET 3 OF 6

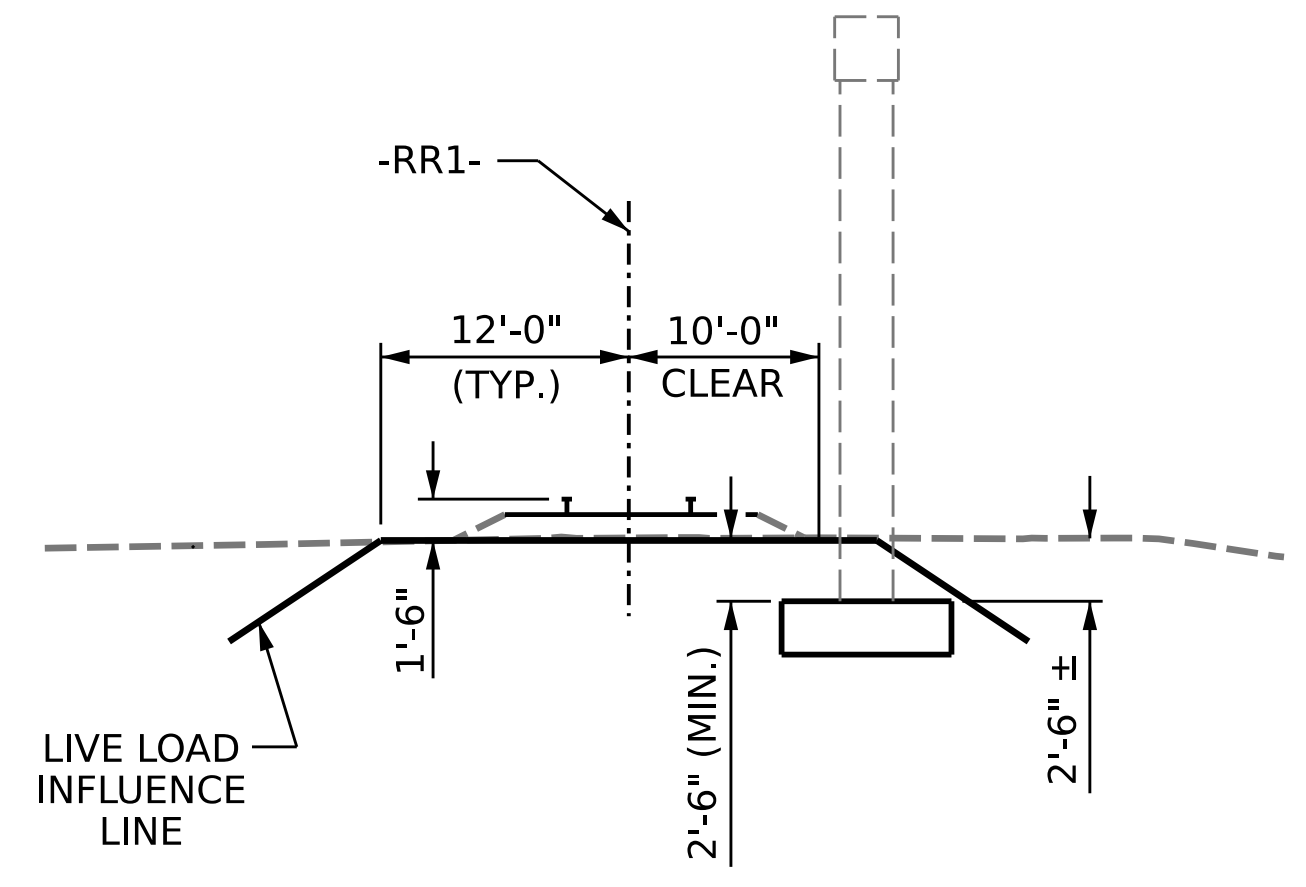
 DocuSigned by:  SIGNATURE	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH PILE FOUNDATION TABLES						SHEET NO. S1-3 TOTAL SHEETS 43
	REVISIONS						
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	NO.	BY:	DATE:	NO.	BY:	DATE:	
	1			3			
	2			4			



☒ COLUMNS IN SHADED AREAS SHALL BE REMOVED TO 2'-6" BELOW GROUND LEVEL. METHOD OF REMOVAL OF EXISTING BENTS 1 & 4 SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING WORK. SEE SECTION IV: DEMOLITION PROCEDURE AND SECTION VI: TEMPORARY EXCAVATION AND SHORING OF THE CSX TRANSPORTATION CONSTRUCTION SUBMISSION REQUIREMENTS INCLUDED IN THE PROJECT SPECIAL PROVISIONS.

THE CONTRACTOR SHALL COORDINATE WITH THE RAILROAD FLAGGER SO THAT REMOVAL ACTIVITIES OF BENTS ADJACENT TO RAIL LINES ARE PERFORMED DURING STOPPAGES OF TRAINS. WHEN REMOVAL ACTIVITIES ARE SUSPENDED TO ALLOW FOR TRAIN PASSAGE, THE RAILROAD EMBANKMENT SHALL BE RESTORED AND COMPACTED TO AT LEAST THE CROSS SECTION OF THE LIVE LOAD INFLUENCE LINE SHOWN ON THE PLANS.

PLAN FOR STRUCTURE REMOVAL



SECTION A-A

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 4 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

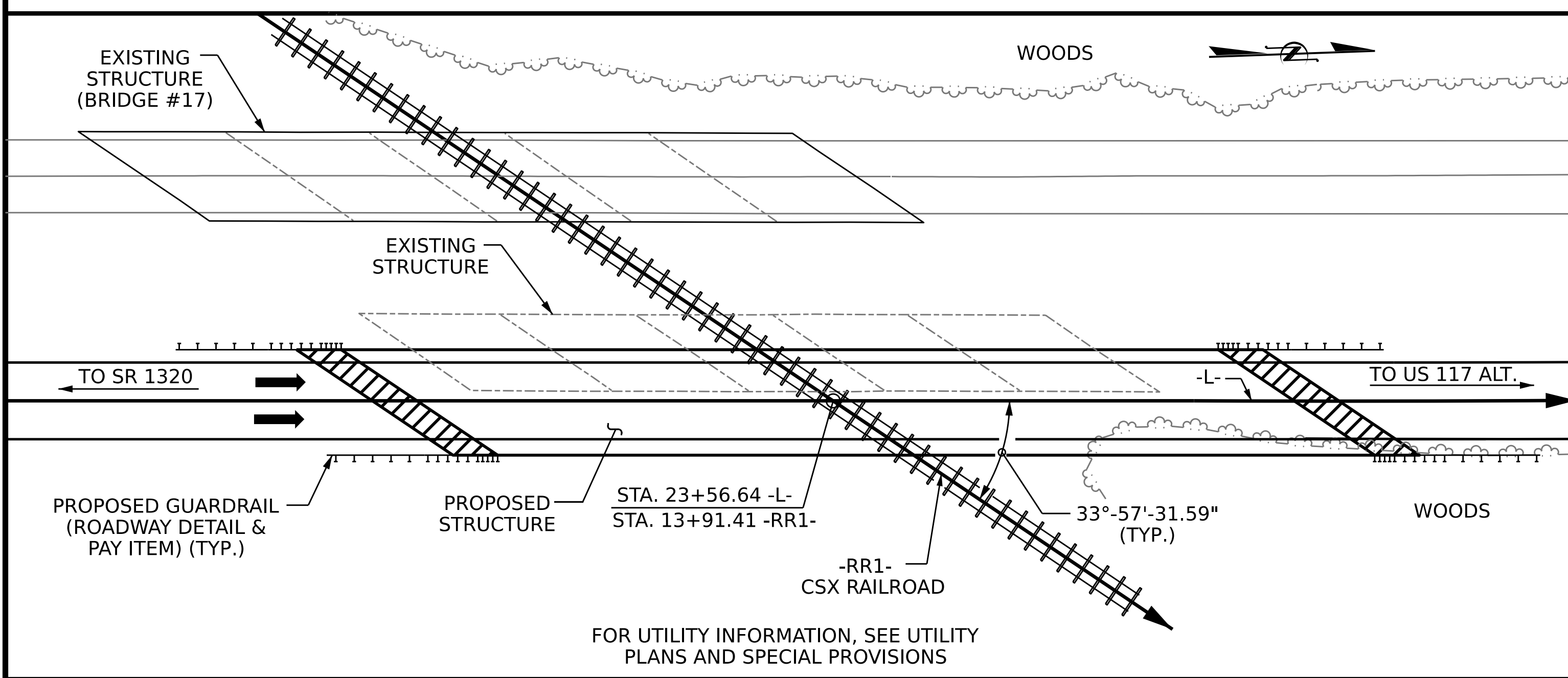
EXISTING STRUCTURE
 REMOVAL

DRAWN BY : M. K. BEARD DATE : 9/12/22
 CHECKED BY : P. K. NEWTON DATE : 11/17/22
 DESIGN ENGINEER OF RECORD : P. K. NEWTON DATE : 11/17/22

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-4
1			3			TOTAL SHEETS
2			4			43

BM. #1 - RR SPIKE IN 36" PINE, 50' RIGHT OF STA. 34+41.00 -L-, ELEV. 161.39



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

THE RAILROAD TRACK TOP OF RAIL ELEVATIONS ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

FOR RAILROAD PROVISIONS, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. TO THE LEFT AND 50' TO THE RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

TEMPORARY SHORING WILL BE REQUIRED IN THE AREA INDICATED IN THE PLAN VIEW ON SHEET S1-6.

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

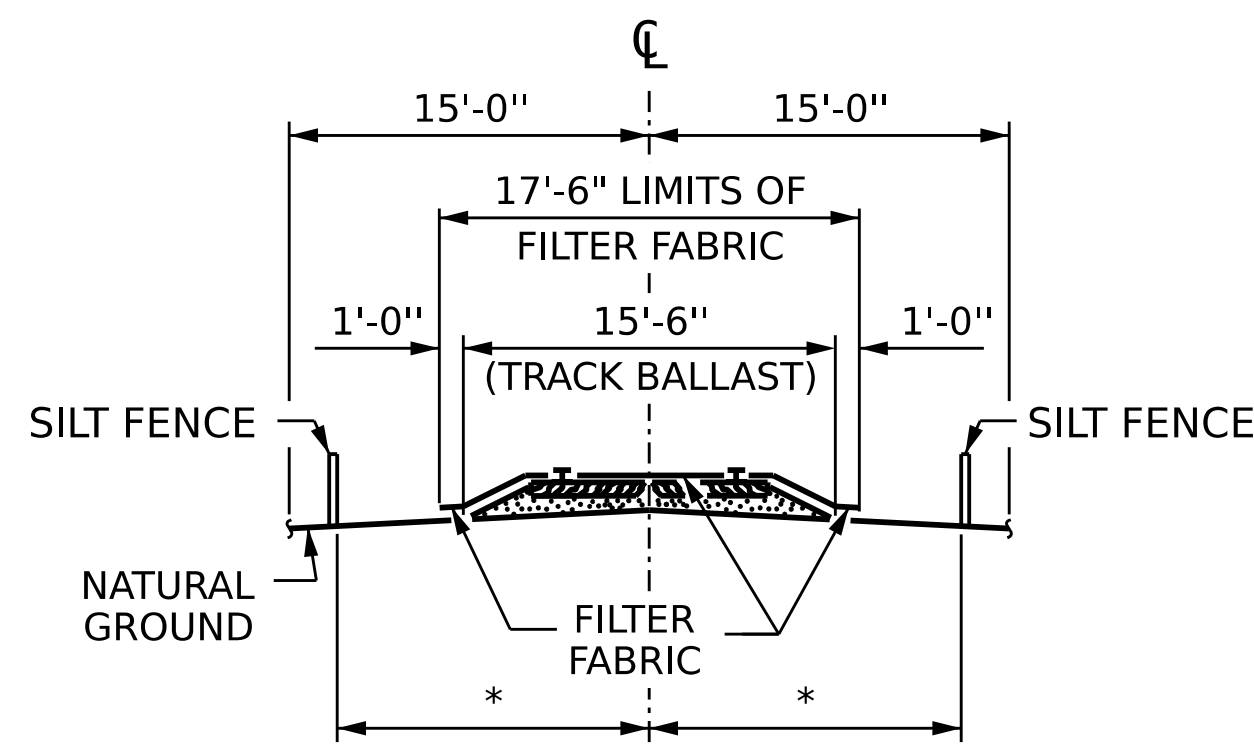
THE EXISTING STRUCTURE CONSISTING OF 5 SPANS @ 42'-6" OF REINFORCED CONCRETE DECK GIRDERS WITH ASPHALT WEARING SURFACE WITH A CLEAR ROADWAY WIDTH OF 24'-0" ON END BENTS AND BENTS CONSISTING OF REINFORCED CONCRETE CAPS, COLUMNS, AND FOOTINGS LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL 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.

FOR INTERIOR BENTS, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEET(S) FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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



RAILROAD EROSION CONTROL DETAIL

* TO BE DETERMINED BY THE RESIDENT ENGINEER IN CONSULTATION WITH THE RAILROAD ENGINEER.

NOTES:

RAILROAD EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO PERFORMING ANY WORK IN THE RAILROAD RIGHT-OF-WAY.

ADDITIONAL EROSION CONTROL MEASURES FOR PROTECTION OF RAILROAD DITCHES MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

NO SEPARATE PAYMENT WILL BE MADE FOR RAILROAD EROSION CONTROL MEASURES.

LIMITS OF SILT FENCE AND FILTER FABRIC PARALLEL TO RAILROAD SHALL EXTEND A MINIMUM OF 25'-0" OUTSIDE EDGE OF SUPERSTRUCTURE OR TOE OF SLOPE ON CONSTRUCTION. A GREATER LENGTH OF SILT FENCE OR FILTER FABRIC MAY BE REQUIRED IF SO DIRECTED BY THE ENGINEER.

FILTER FABRIC TO BE NAILED TO TIMBER RAIL TIES WITH PRIME SOURCE "GRIP CAP" OR EQUIVALENT. FILTER FABRIC ON SHOULDER TO BE SECURED AS DIRECTED BY THE ENGINEER AND RAILROAD.

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE:

SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND f =60 ksi.

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

SHEET 5 OF 6



DocuSigned by:
 William C. Smith
 10/24/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON US 117 (NBL)
 OVER CSX RAILROAD
 BETWEEN SR 1320 &
 US 117 ALT.

DRAWN BY : S. T. SANDOR DATE : 05/2022
 CHECKED BY : M. K. BEARD DATE : 05/12/22
 DESIGN ENGINEER OF RECORD: W.C. SMITH DATE : 3/8/23

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S1-5
2			4			43

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TOTAL BILL OF MATERIAL													
	REMOVAL OF EXISTING STRUCTURE @ STA. 23+56.64 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION @ STA. 23+56.64 -L-	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS STA. 23+56.64 -L-	REINFORCING STEEL	MODIFIED 63" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 30 X 0.50 GALVANIZED STEEL PILES	
	LUMP SUM	LUMP SUM	EA.	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EA.	EA.
SUPERSTRUCTURE					9,807	8,867				12	1,063.43		
END BENT 1			1				80.8		10,472			13	
BENT 1			1				47.5		5,874				6
BENT 2			1				49.7		5,849				6
END BENT 2			1				85.8		10,673			13	
TOTAL	LUMP SUM	LUMP SUM	4	LUMP SUM	9,807	8,867	263.8	LUMP SUM	32,622	12	1,063.43	26	12

TOTAL BILL OF MATERIAL											
	HP 12 X 53 STEEL PILES		PP 30 X 0.50 GALVANIZED STEEL PILES		PIPE PILE PLATES	PILE REDRIVES	CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	STRIP SEAL EXPANSION JOINTS
	NO.	LIN. FT.	NO.	LIN. FT.	EA.	EA.	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE							586.29	528.0			
END BENT 1	13	910.0							1,160		
BENT 1			6	540.0	6						
BENT 2			6	540.0	6						
END BENT 2	13	845.0							450		
TOTAL	26	1,755.0	12	1,080.0	12	16	586.29	528.0	1,610	LUMP SUM	LUMP SUM

PROJECT NO. **B-5981**
DUPLIN COUNTY
STATION: **23+56.64-L-**

SHEET 6 OF 6



DocuSigned by:
William C. Smith
10/24/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON US 117 (NBL)
OVER CSX RAILROAD
BETWEEN SR 1320 &
US 117 ALT.

DRAWN BY : S. T. SANDOR DATE : 05/2022
CHECKED BY : K. BEARD DATE : 07/14/22
DESIGN ENGINEER OF RECORD: W.C. SMITH DATE : 3/8/23

10/24/2023
R:\Structures\Plans\300016\401_011_B5981.SMU.TotalBOM.S1-6_300016.dgn
ssandor

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S1-6
1			3		TOTAL SHEETS
2			4		43

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMAMRY 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 (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL93(Inv)	N/A	1	1.009	-	1.75	0.701	1.277	B	EL	62.38	1.148	1.009	B	I	74.85	0.8	0.618	1.075	B	I	62.38		
	HL93(Opr)	N/A	--	1.308	--	1.35	0.701	1.655	B	EL	62.38	1.148	1.308	B	I	74.85	N/A	--	--	--	--	--		
	HS20(Inv)	36.00	2	1.219	43.882	1.75	0.647	1.737	A	I	37.46	1.131	1.219	A	I	29.97	0.8	0.618	1.587	B	I	62.38		
	HS20(Opr)	36.00	--	1.58	56.885	1.35	0.647	2.252	A	I	37.46	1.131	1.58	A	I	29.97	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.50	--	3.417	46.125	1.4	0.647	4.929	A	I	37.46	1.131	3.417	A	I	29.97	0.8	0.618	3.866	B	I	62.38	
		SNGARBS2	20.00	--	2.494	49.871	1.4	0.647	3.661	A	I	37.46	1.131	2.494	A	I	29.97	0.8	0.618	2.756	B	I	62.38	
		SNAGRIS2	22.00	--	2.34	51.481	1.4	0.647	3.455	A	I	33.72	1.131	2.34	A	I	29.97	0.8	0.618	2.561	B	I	62.38	
		SNCOTTS3	27.25	--	1.712	46.654	1.4	0.647	2.453	A	I	37.46	1.131	1.712	A	I	29.97	0.8	0.618	1.92	B	I	62.38	
		SNAGGRS4	34.93	--	1.466	51.208	1.4	0.647	2.045	A	I	37.46	1.131	1.466	A	I	29.97	0.8	0.618	1.556	B	I	62.38	
		SNS5A	35.55	--	1.51	53.677	1.4	0.647	2.0	A	I	37.46	1.131	1.51	A	I	29.97	0.8	0.618	1.525	B	I	62.38	
		SNS6A	39.95	--	1.38	55.123	1.4	0.647	1.833	A	I	37.46	1.131	1.397	A	I	29.97	0.8	0.618	1.38	B	I	62.38	
	T1ST	SNS7B	42.00	--	1.313	55.158	1.4	0.647	1.746	A	I	37.46	1.131	1.4	A	I	29.97	0.8	0.618	1.313	B	I	62.38	
		TNAGRIT3	33.00	--	1.647	54.345	1.4	0.647	2.235	A	I	37.46	1.131	1.647	A	I	29.97	0.8	0.618	1.677	B	I	62.38	
		TNT4A	33.08	--	1.584	52.395	1.4	0.647	2.244	A	I	37.46	1.131	1.584	A	I	29.97	0.8	0.618	1.679	B	I	62.38	
		TNT6A	41.60	--	1.355	56.373	1.4	0.647	1.833	A	I	37.46	1.148	1.521	B	I	74.85	0.8	0.618	1.355	B	I	62.38	
		TNT7A	42.00	--	1.353	56.808	1.4	0.647	1.841	A	I	37.46	1.148	1.493	B	I	74.85	0.8	0.618	1.353	B	I	62.38	
		TNT7B	42.00	--	1.347	56.581	1.4	0.647	1.901	A	I	33.72	1.131	1.347	A	I	29.97	0.8	0.618	1.377	B	I	62.38	
		TNAGRIT4	43.00	--	1.297	55.788	1.4	0.647	1.812	A	I	37.46	1.131	1.297	A	I	29.97	0.8	0.618	1.326	B	I	62.38	
EV LOAD RATING	EV2	28.75	--	1.892	54.382	1.3	0.647	2.786	A	I	37.46	1.131	1.892	A	I	29.97	0.8	0.618	1.934	B	I	62.38		
	EV3	43.00	--	1.279	54.977	1.3	0.647	1.825	A	I	37.46	1.131	1.281	A	I	29.97	0.8	0.618	1.279	B	I	62.38		

NOTES:

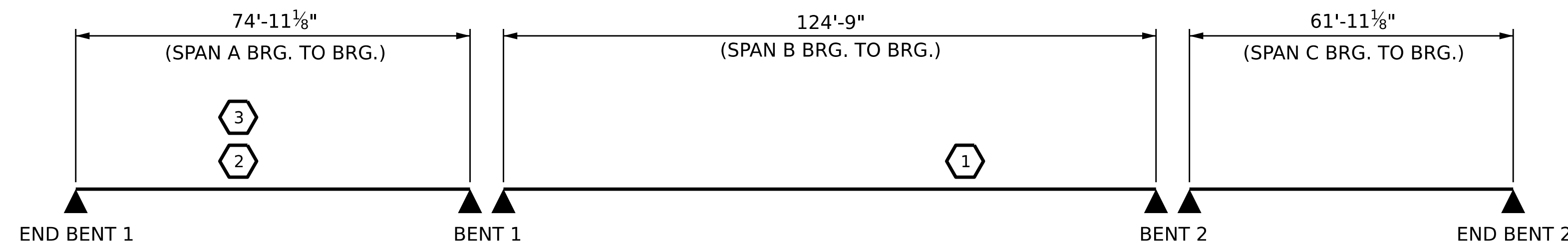
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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
EL	EXTERIOR LEFT GIRDER
ER	EXTERIOR RIGHT GIRDER

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**



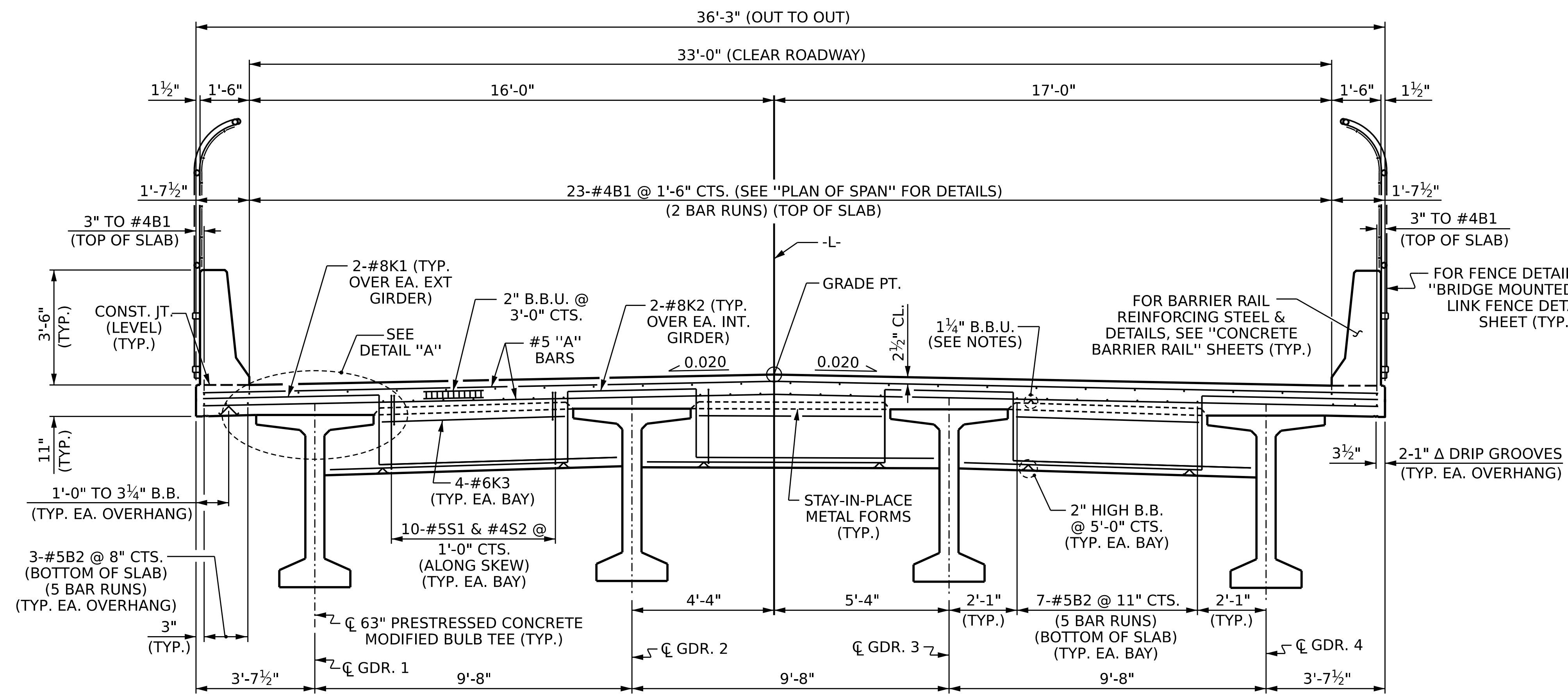
LRFR SUMMARY

DESIGN ENGINEER OF RECORD : W. C. SMITH DATE : 3/8/23	
ASSEMBLED BY : P. K. NEWTON	DATE : 2/8/23
CHECKED BY : M. K. BEARD	DATE : 2/8/23
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA / GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA / GM
	REV. 12/17 MAA / THC

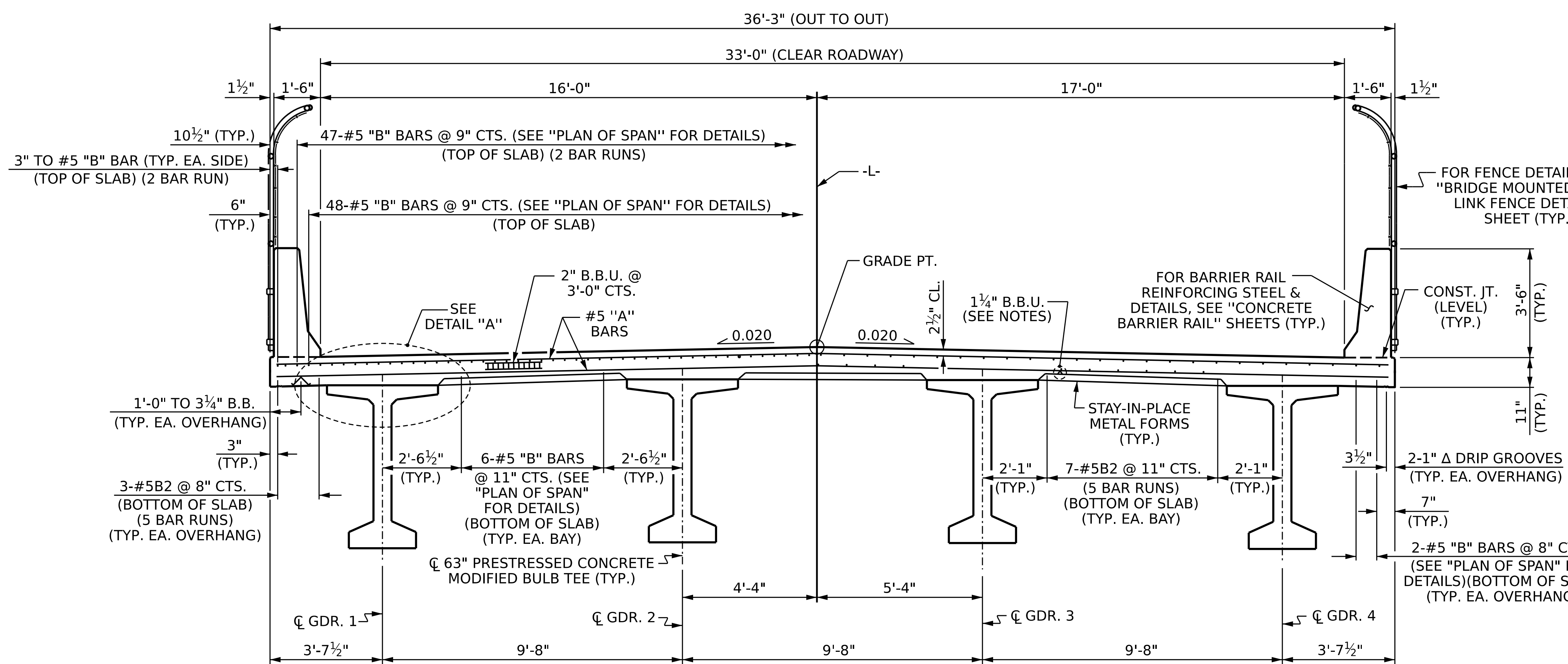


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**LRFR SUMAMRY FOR
 PRESTRESSED
 CONCRETE GIRDERS**
 (NON-INTERSTATE TRAFFIC)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	REVISIONS						SHEET NO.
	NO.	BY:	DATE:	NO.	BY:	DATE:	S1-7
	1			3			TOTAL SHEETS 43
	2			4			



TYPICAL SECTION @ END BENT



TYPICAL SECTION @ LINK SLAB

NOTES

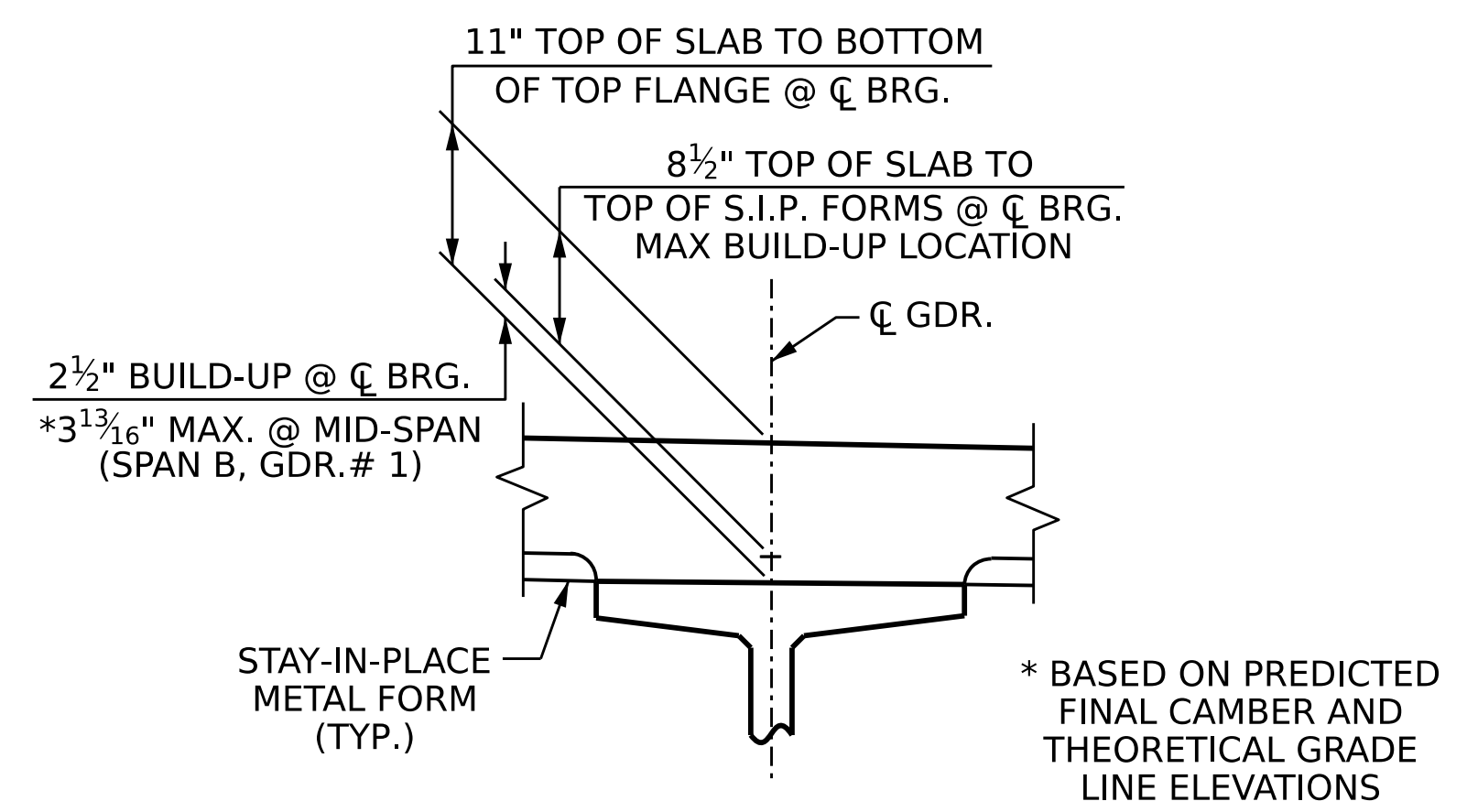
PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 1/2"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

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

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

FOR STRIP SEAL EXPANSION JOINT, SEE SPECIAL PROVISIONS.

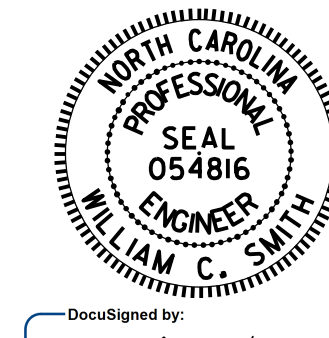


DETAIL "A"

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
TYPICAL SECTION

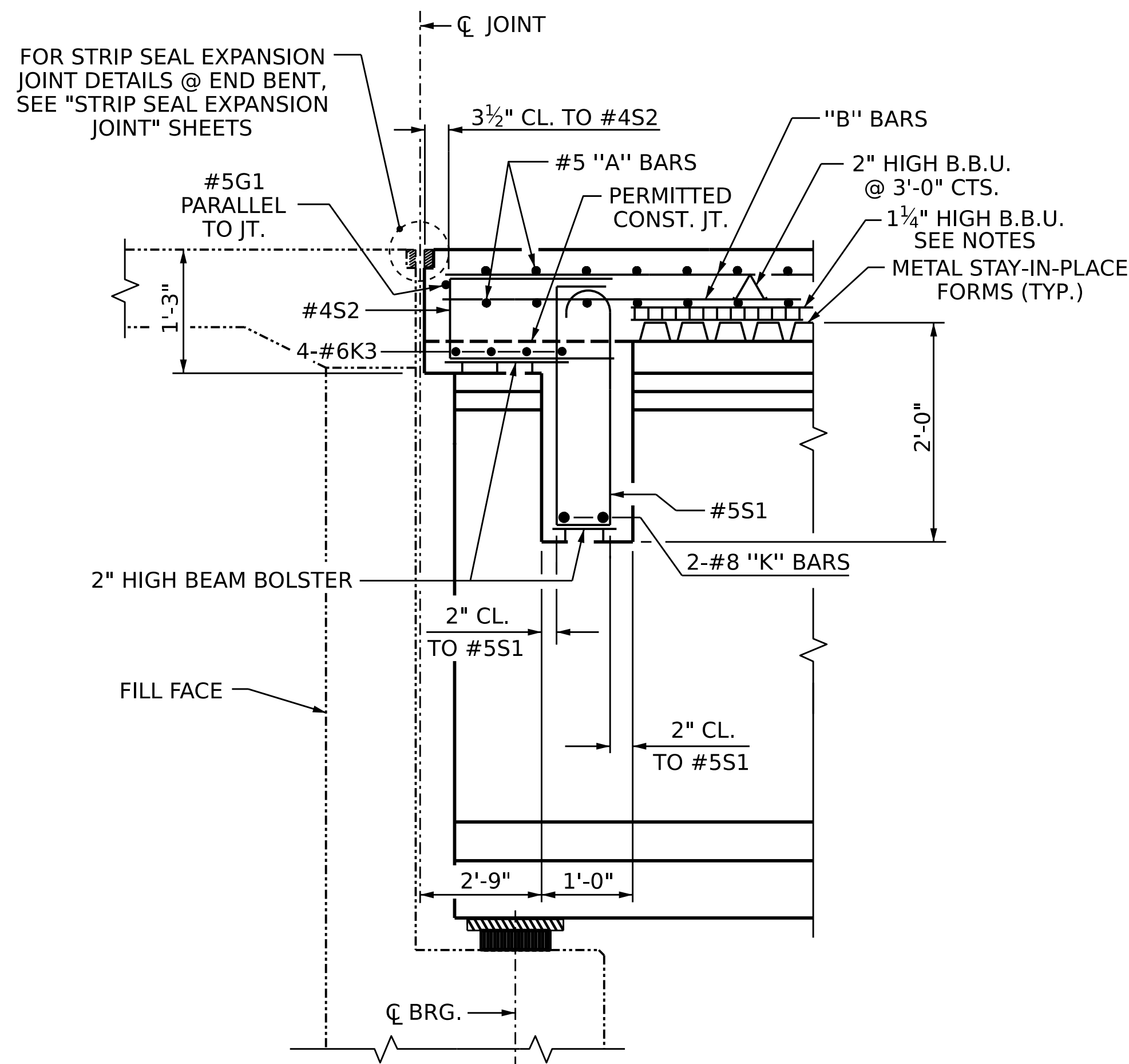


DocuSigned by:
 William C. Smith
 10/24/2023

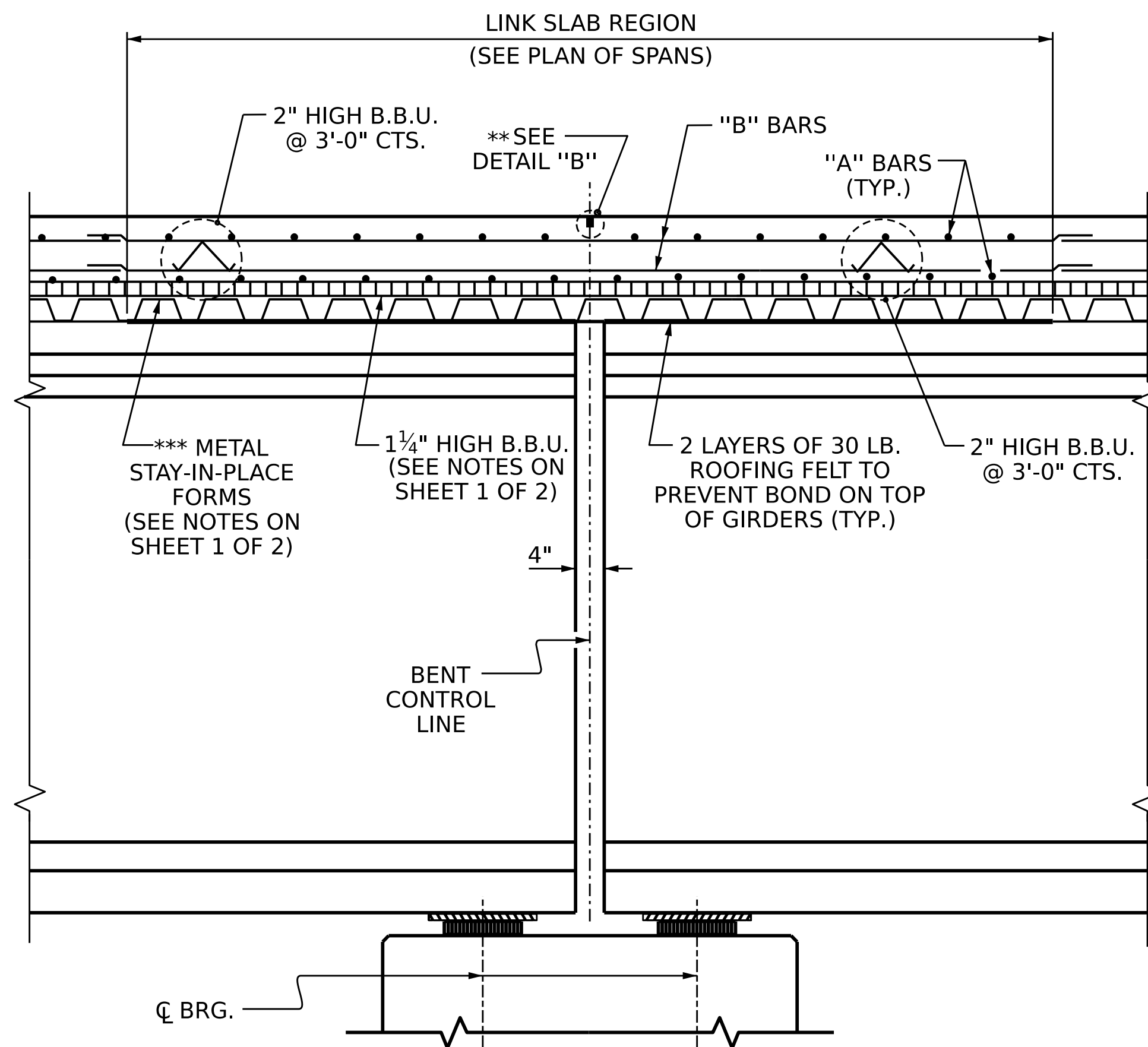
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-8
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : **K. BEARD** DATE : **8/10/22**
 CHECKED BY : **D. SHACKELFORD** DATE : **8/22/22**
 DESIGN ENGINEER OF RECORD: **W.C. SMITH** DATE : **3/8/23**

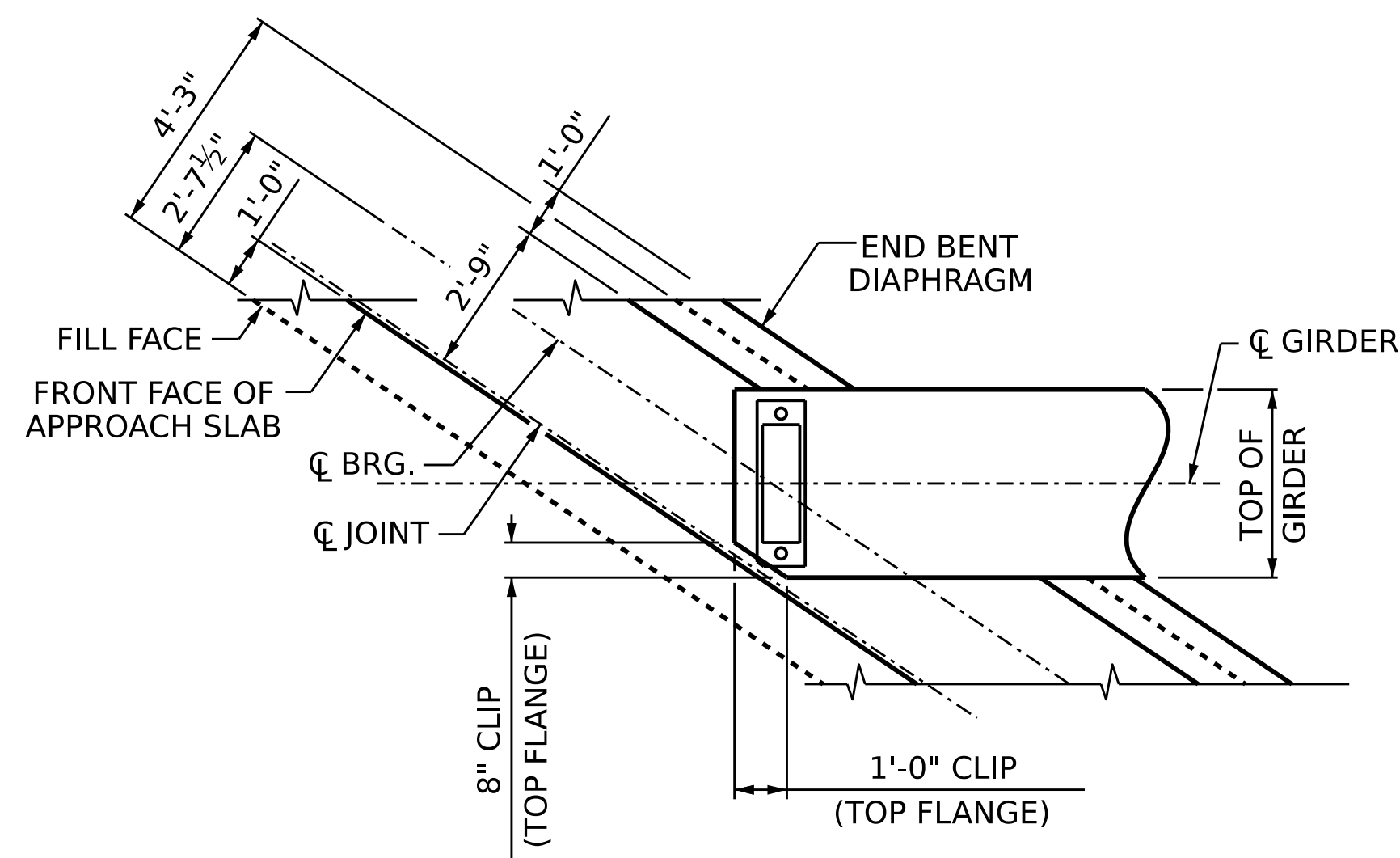


SECTION @ END BENT

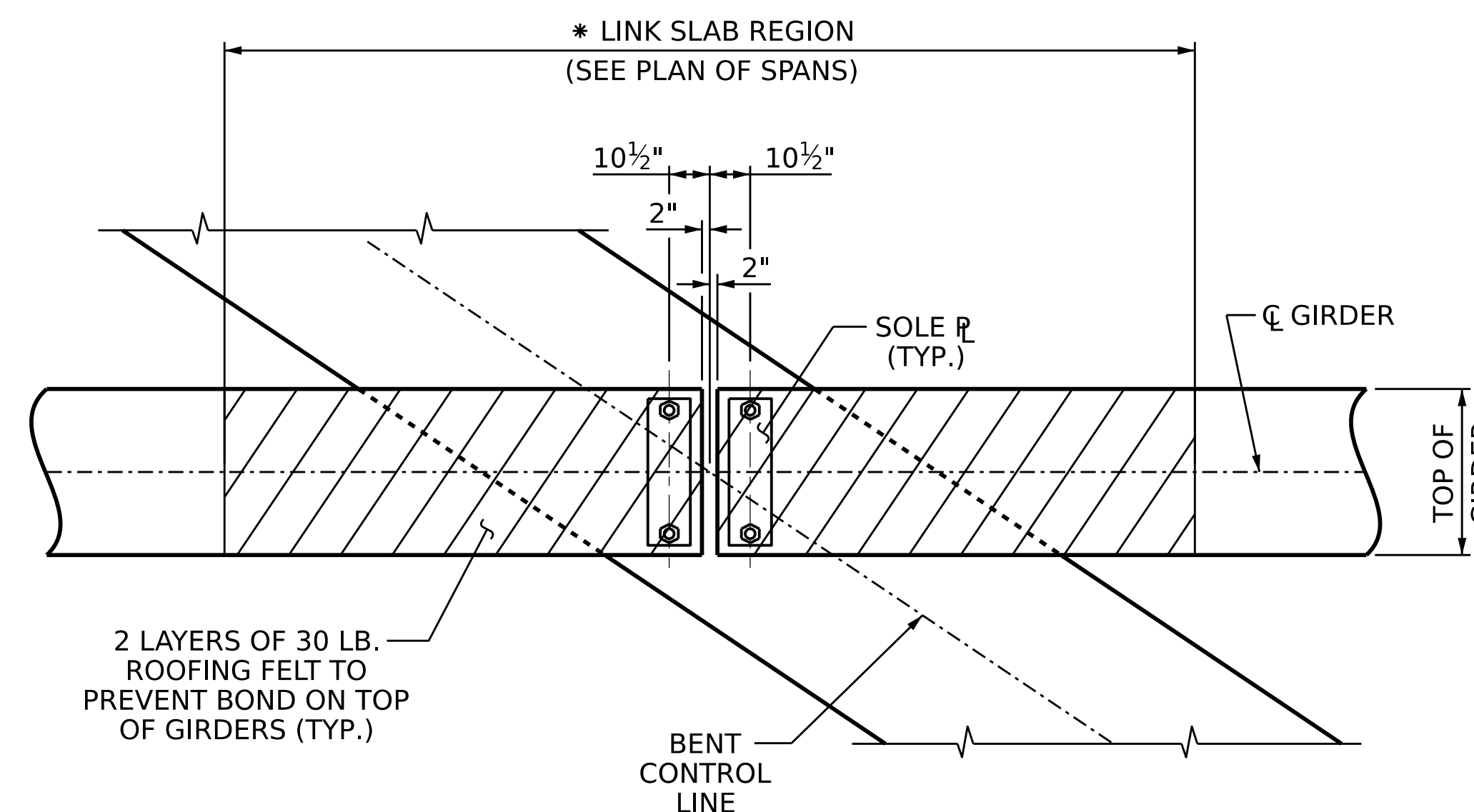


SECTION @ LINK SLAB

*** METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO THE GIRDER FLANGES IN THE REGION OF THE LINK SLAB



PLAN @ END BENT



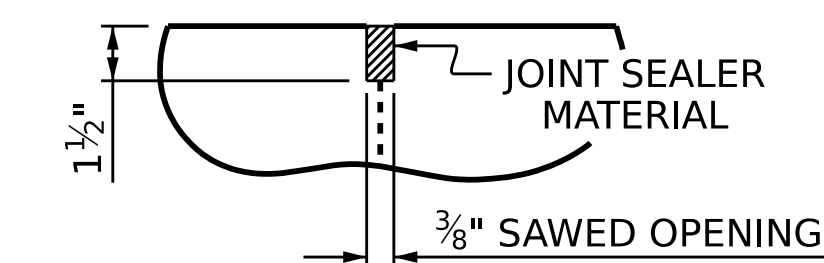
PLAN @ BENT

* THE TOP OF THE GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.

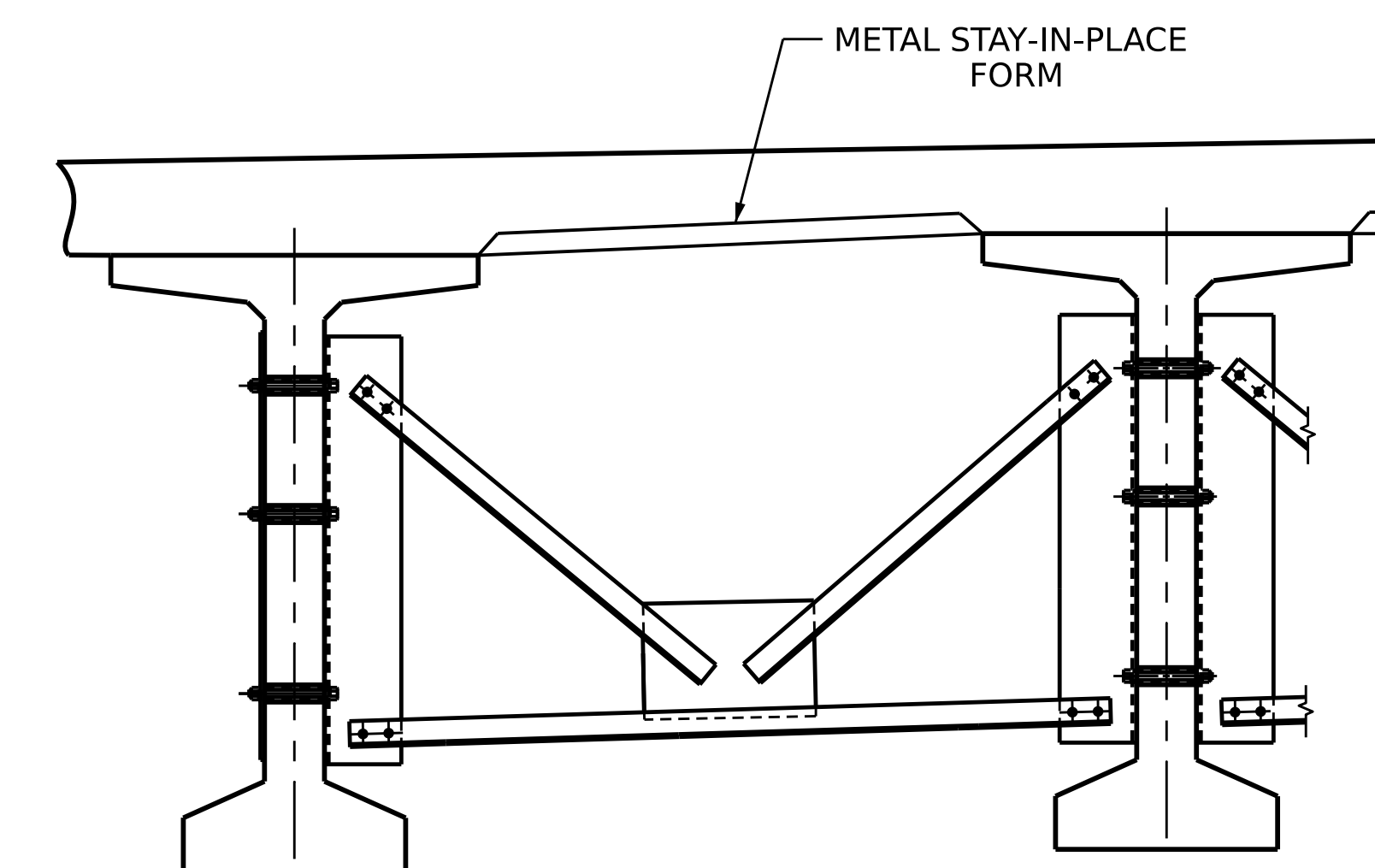
NOTES

** A 1 1/2" DEEP, 3/8" WIDE CONTRACTION JOINT AT THE BENT CONTROL LINE SHALL BE SAWED WITHIN 24 HOURS OF POURING THE DECK. THE JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

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



DETAIL "B"



EXTERIOR GIRDER

INTERIOR GIRDER

SECTION @ INTERMEDIATE DIAPHRAGM

SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS.

PROJECT NO. **B-5981**

DUPLIN COUNTY

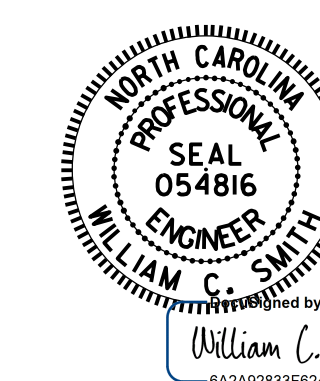
STATION: **23+56.64 -L-**

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION



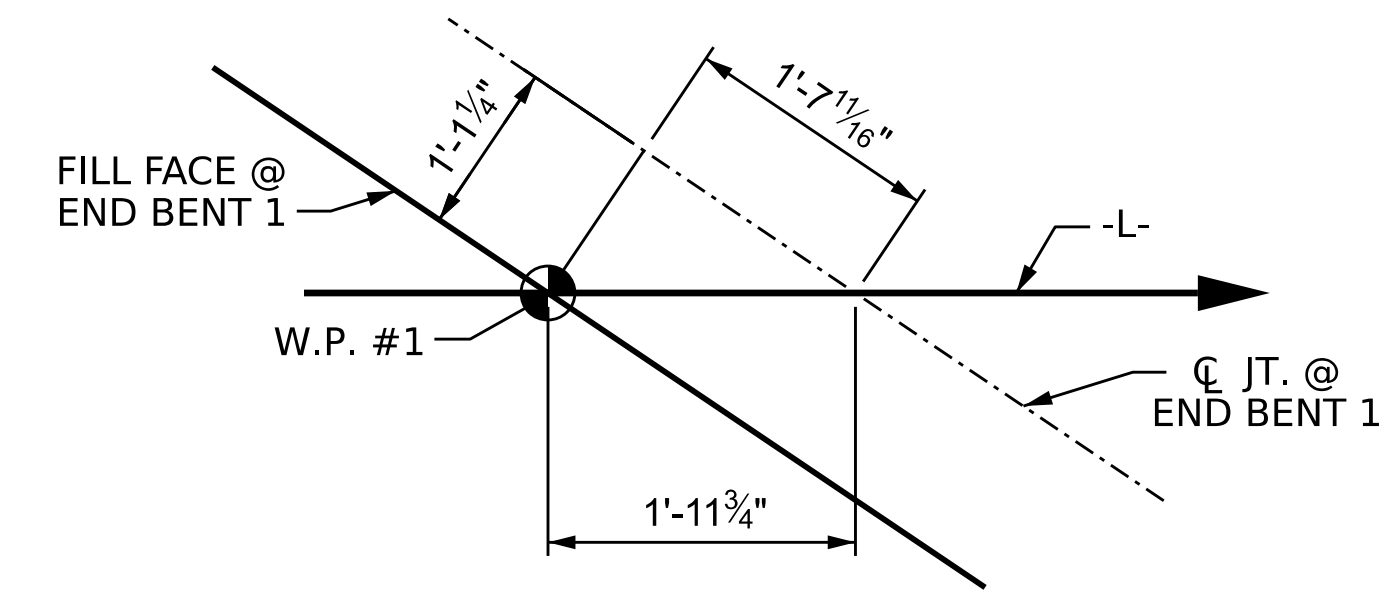
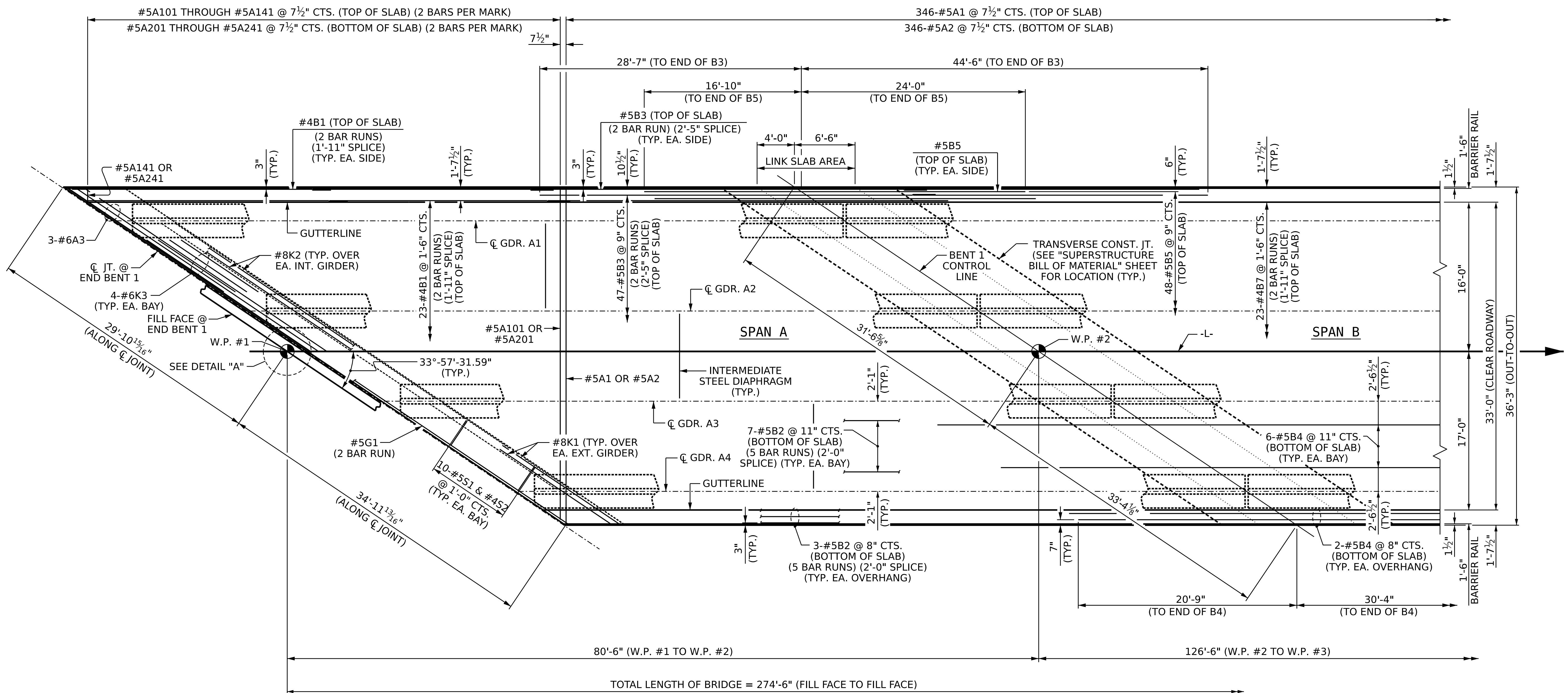
William C. Smith
10/24/2023

DRAWN BY : K. BEARD DATE : 3/14/22
CHECKED BY : D. SHACKELFORD DATE : 8/22/22
DESIGN ENGINEER OF RECORD: W.C. SMITH DATE : 3/8/23

10/24/2023
R:\Structures\Plans\300016\401.017.B5981.SMU.TS.S1-9.300016.dgn
ssandor

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S1-9 TOTAL SHEETS 43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



PLAN OF SPAN A

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULBTEE PRESTRESSED CONCRETE GIRDERS" SHEET.
 FOR LOCATIONS OF TRANSVERSE CONSTRUCTION JOINTS, SEE SHEET S1-29

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

SHEET 1 OF 3



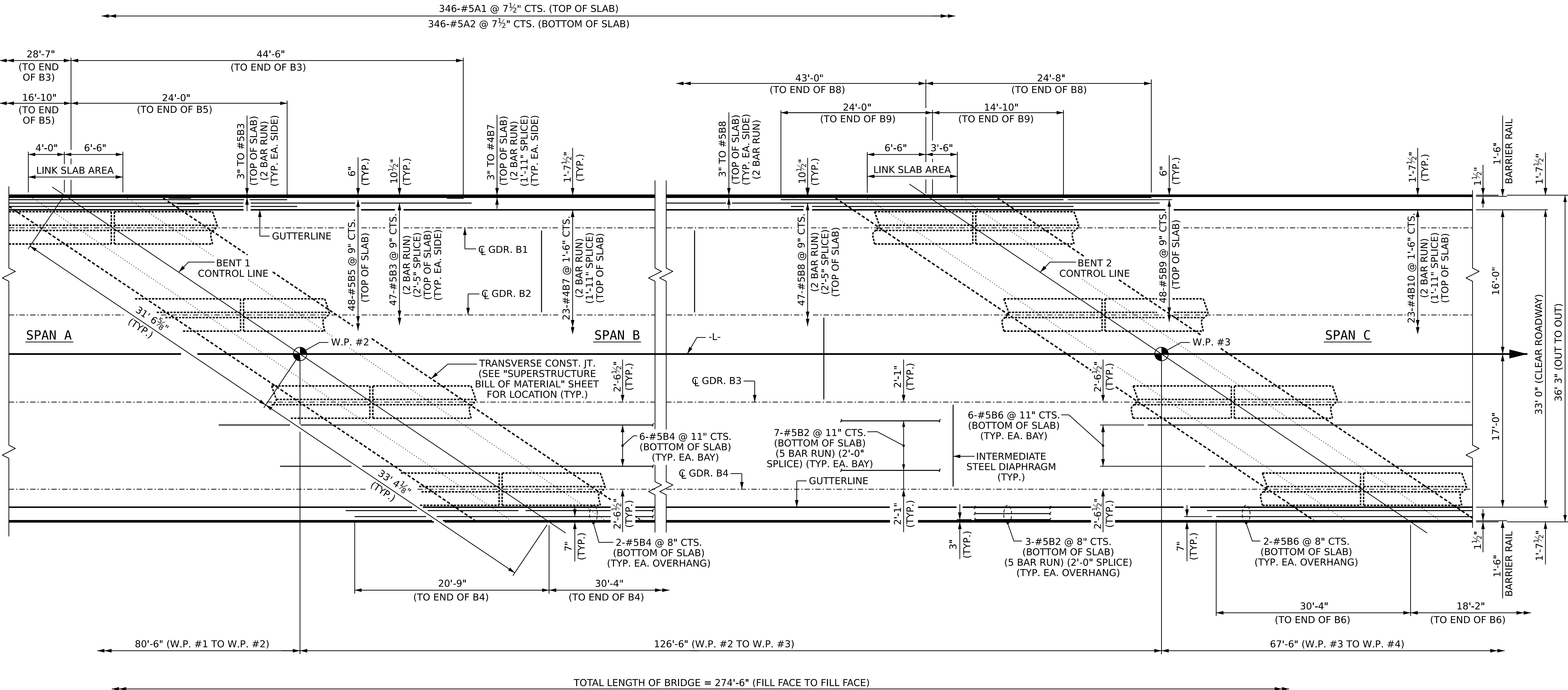
DocuSigned by:
 William C. Smith
 8A2A8283F8241D
 10/24/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
PLAN OF SPANS

DRAWN BY: **K. BEARD** DATE: **7/26/22**
 CHECKED BY: **D. SHACKELFORD** DATE: **8/24/22**
 DESIGN ENGINEER OF RECORD: **W.C. SMITH** DATE: **3/8/23**

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-10
1			3			TOTAL SHEETS
2			4			43

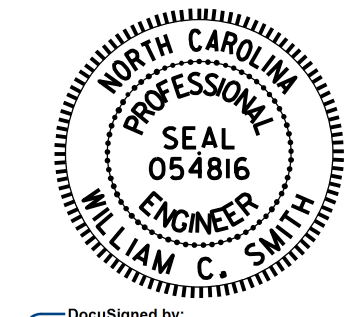


PLAN OF SPAN B

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULBTEE PRESTRESSED CONCRETE GIRDERS" SHEET.
 FOR LOCATIONS OF TRANSVERSE CONSTRUCTION JOINTS, SEE SHEET S1-29

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

SHEET 2 OF 3



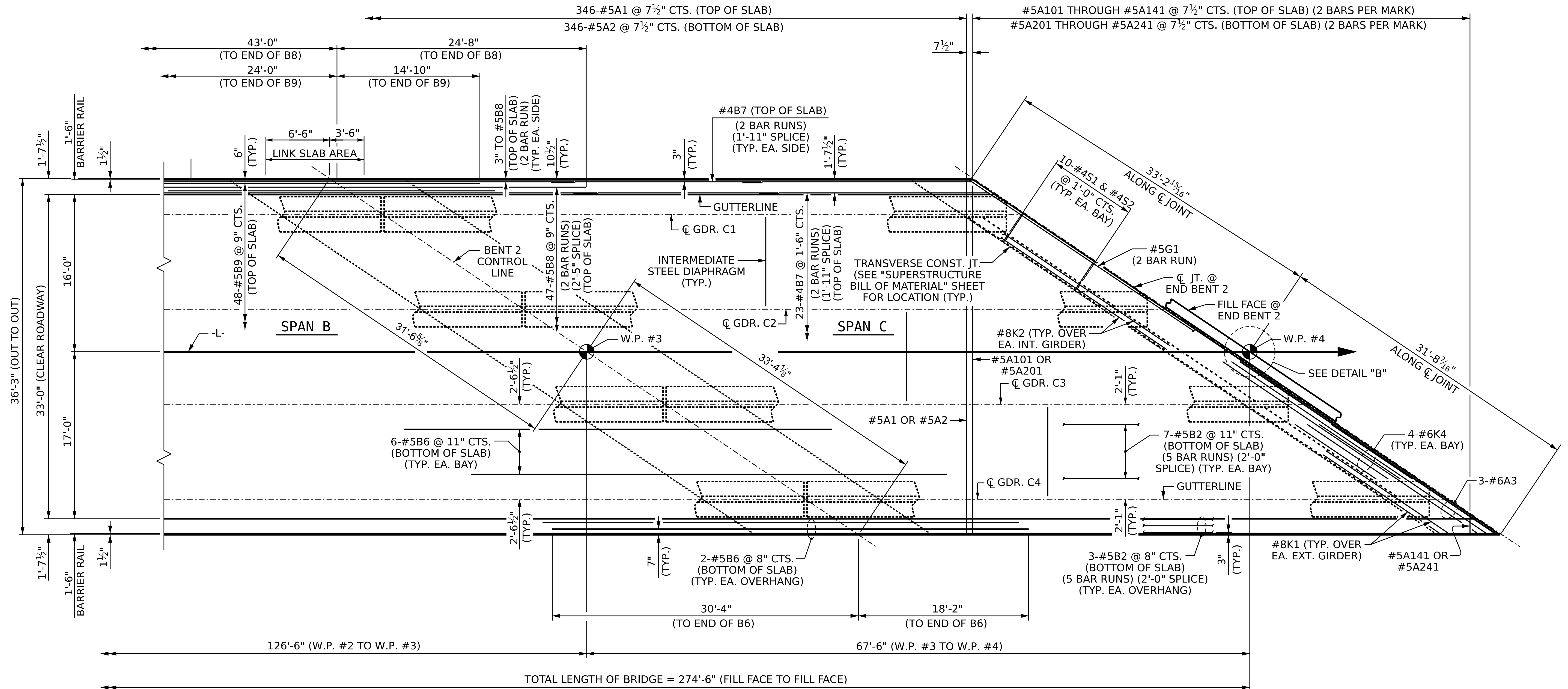
DocuSigned by:
 William C. Smith
 10/24/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
PLAN OF SPANS

DRAWN BY : K. BEARD DATE : 7/27/22
 CHECKED BY : D. SHACKELFORD DATE : 11/18/22
 DESIGN ENGINEER OF RECORD : W.C. SMITH DATE : 3/8/23

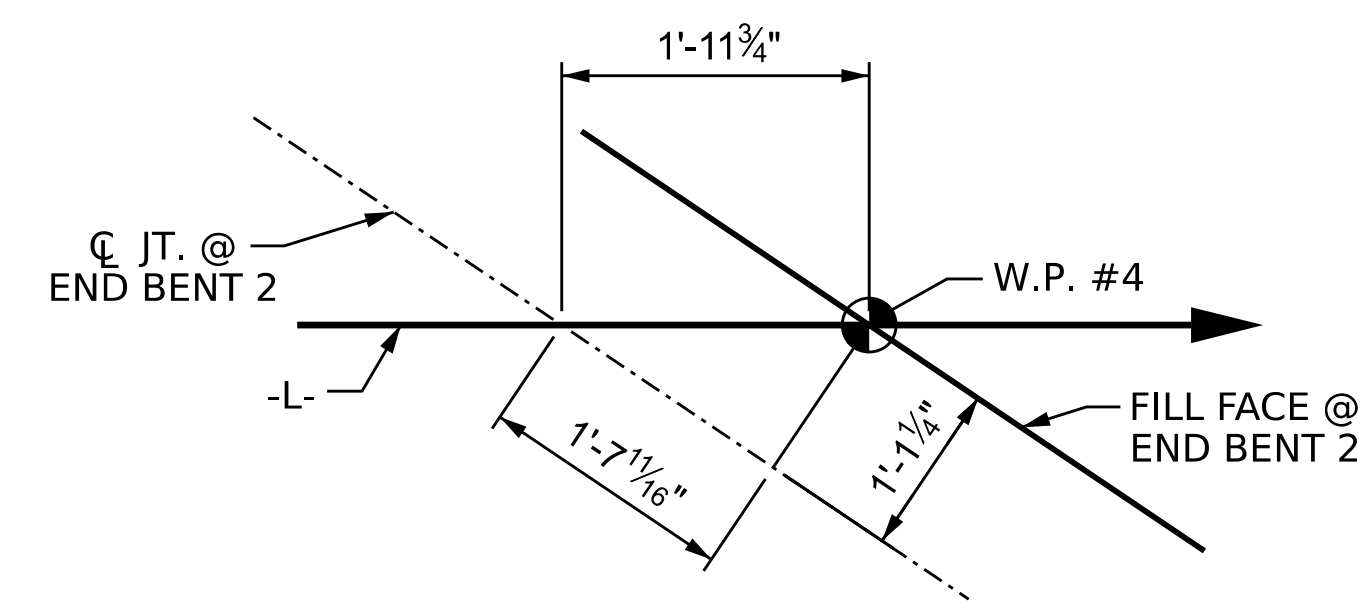
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO. S1-11 TOTAL SHEETS 43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



PLAN OF SPAN C

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR 63" MODIFIED BULBTEE PRESTRESSED CONCRETE GIRDERS" SHEET. FOR LOCATIONS OF TRANSVERSE CONSTRUCTION JOINTS, SEE SHEET S1-29



DETAIL B

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
PLAN OF SPANS



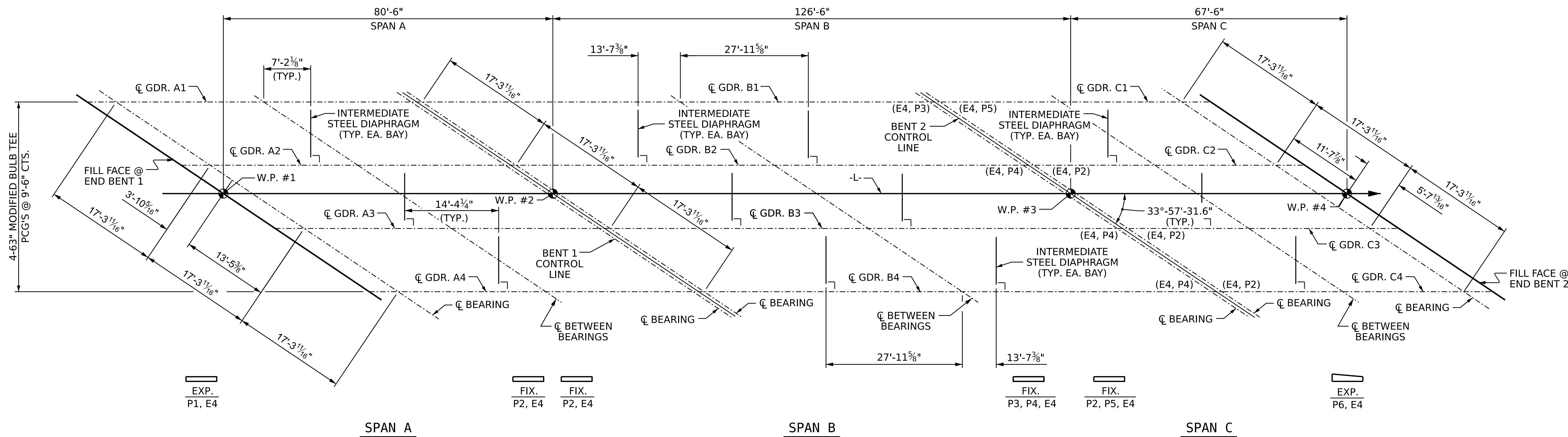
DocuSigned by:
 William C. Smith
 10/24/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-12
1			3			TOTAL SHEETS
2			4			43

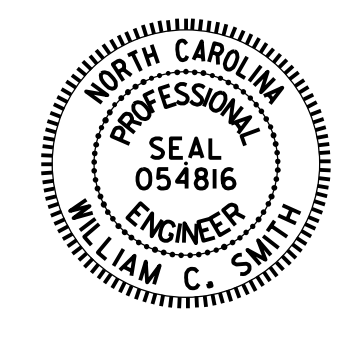
DRAWN BY: K. BEARD DATE: 7/29/22
 CHECKED BY: D. SHACKELFORD DATE: 8/24/22
 DESIGN ENGINEER OF RECORD: W.C. SMITH DATE: 3/8/23

10/17/2023
 R:\Structures\Plans\300016\401_023.B5981.SMU.PS-S1-12_300016.dgn
 ssondor



GIRDER LAYOUT

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

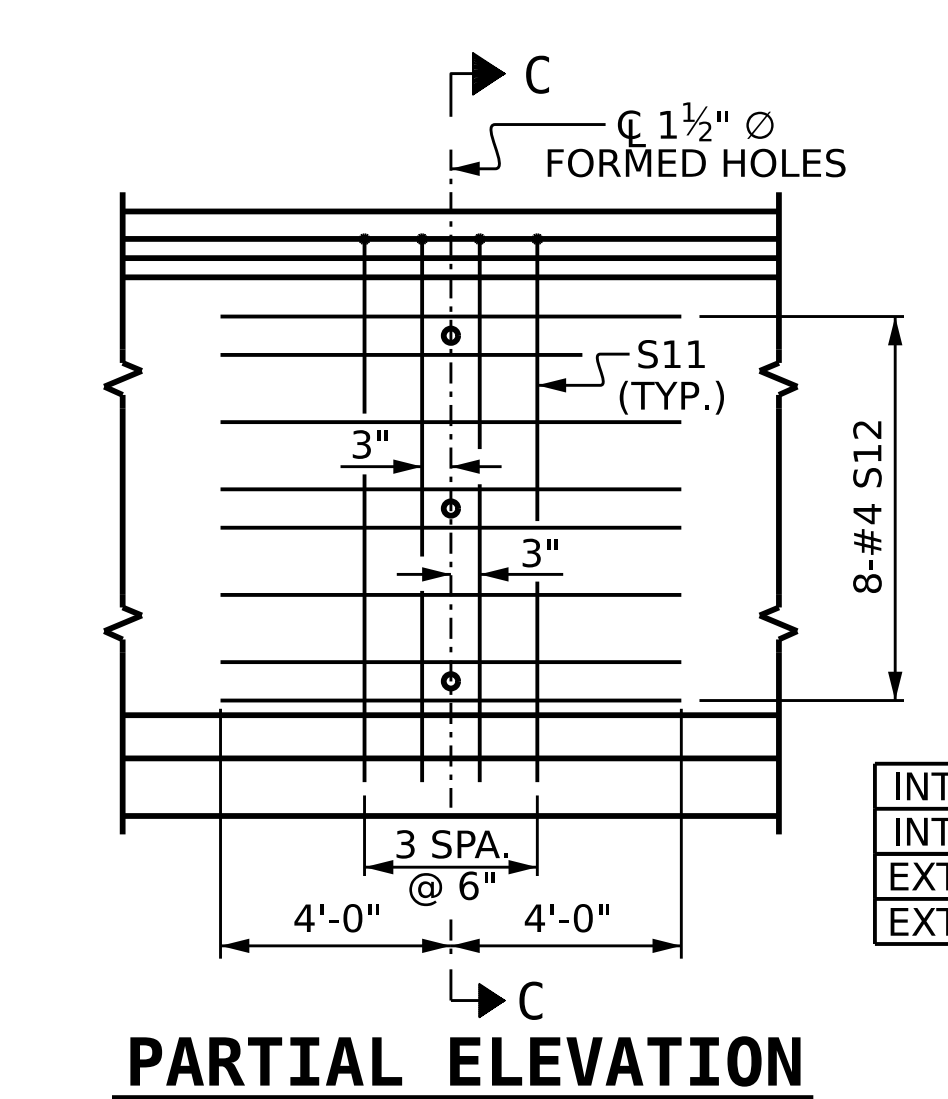
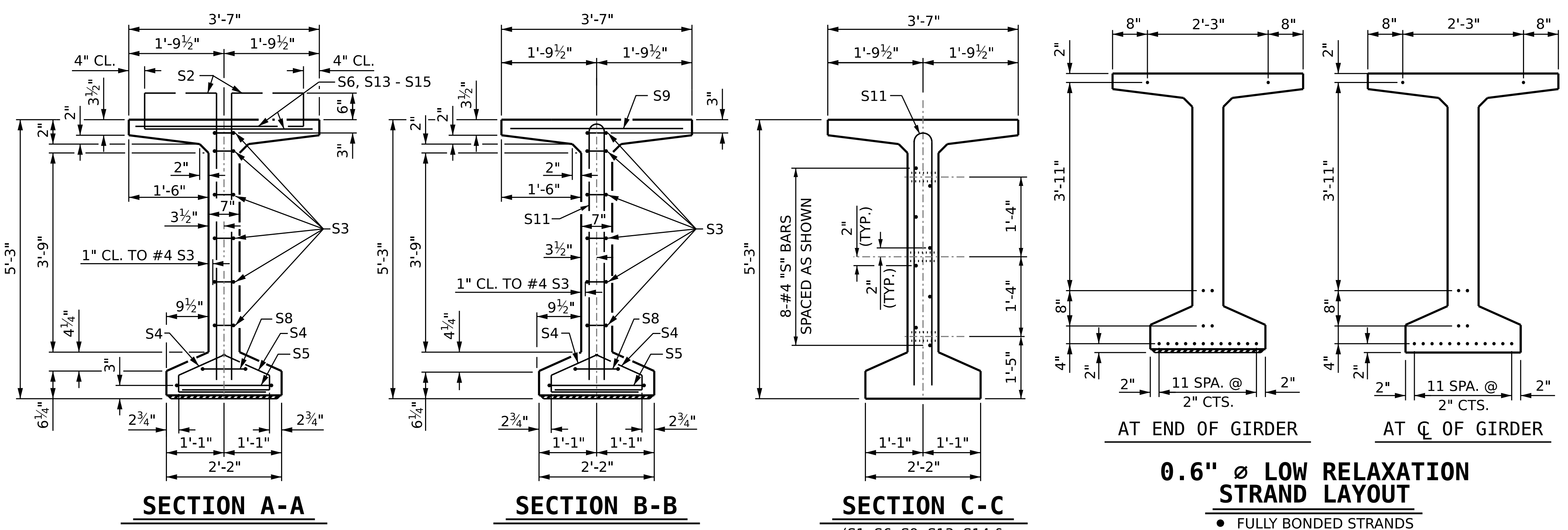


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
FRAMING PLAN

DRAWN BY: K. BEARD DATE: 3/14/22
 CHECKED BY: D. R. SHACKELFORD DATE: 5/20/22
 DESIGN ENGINEER OF RECORD: W.C. SMITH DATE: 3/8/23

REVISIONS						SHEET NO. S1-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



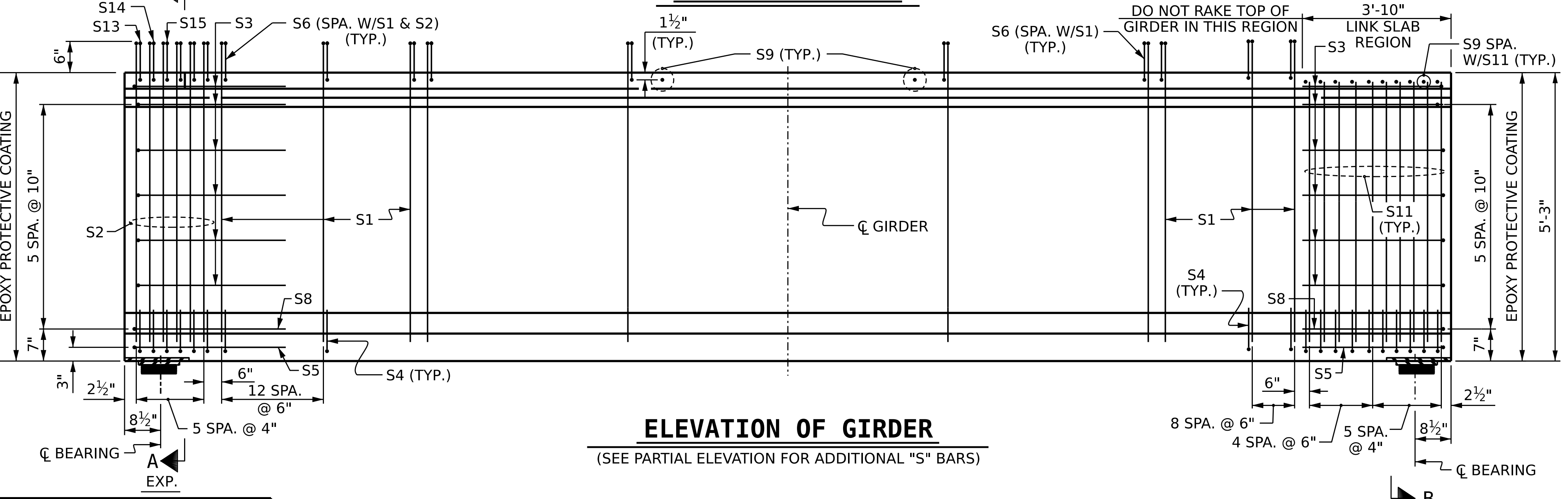
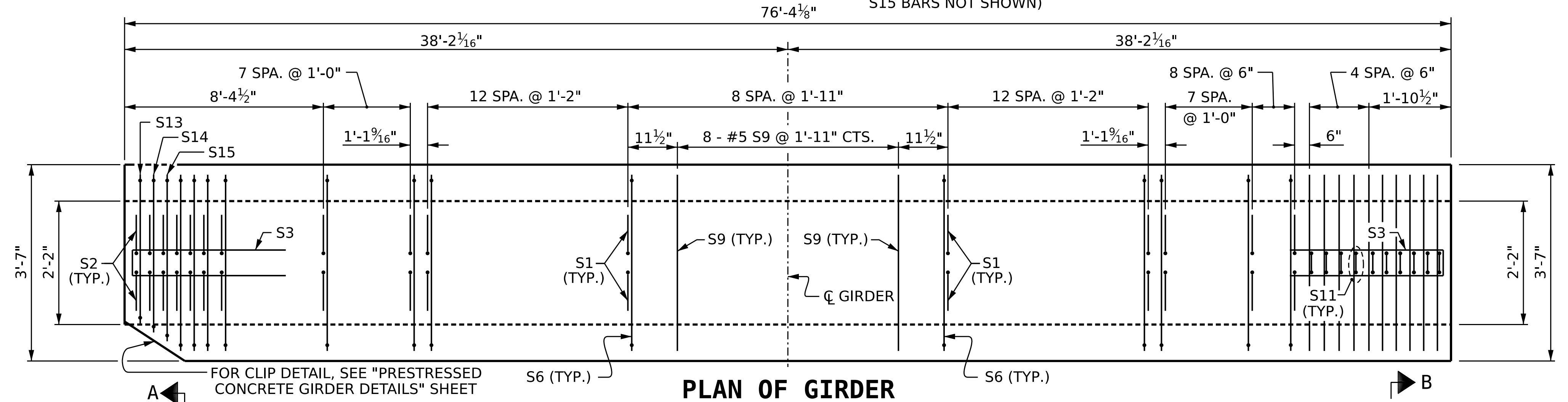
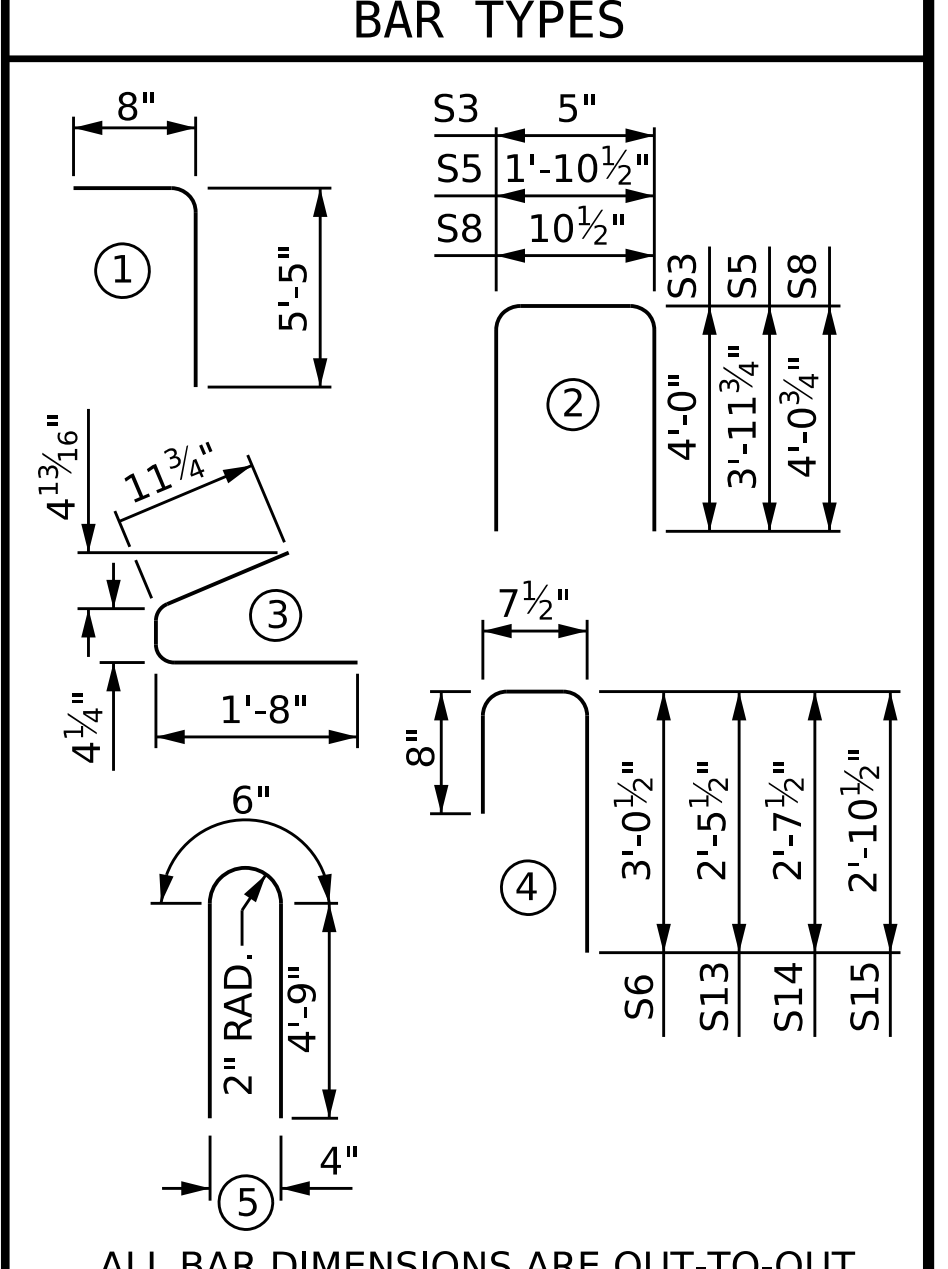
0.6" Ø L.R. GRADE 270 STRANDS

AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	138	#4	1 6'-1"	561
S2	12	#5	1 6'-1"	76
S3	12	#4	2 8'-5"	67
S4	76	#4	3 3'-0"	152
S5	2	#5	2 9'-10"	21
S6	144	#5	4 4'-4"	651
S8	2	#5	2 9'-0"	19
S9	18	#5	STR 3'-3"	61
S11	18	#5	5 10'-0"	188
S12	16	#4	STR 8'-0"	86
S13	14	#5	5 10'-0"	146
S14	8	#4	STR 8'-0"	43
S15	2	#5	4 3'-11"	8
S15	2	#5	4 4'-2"	9

INT. EXT. EXT. EXT.



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER

GIRDERS	REINFORCING STEEL	5000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
INTERIOR	1,907	15.2	18
EXTERIOR	1,822	15.2	18

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	76'-4 1/8"	305.38

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**63" PRESTRESSED
 MODIFIED BULB TEE
 LINK SLAB**
 (SPAN A)

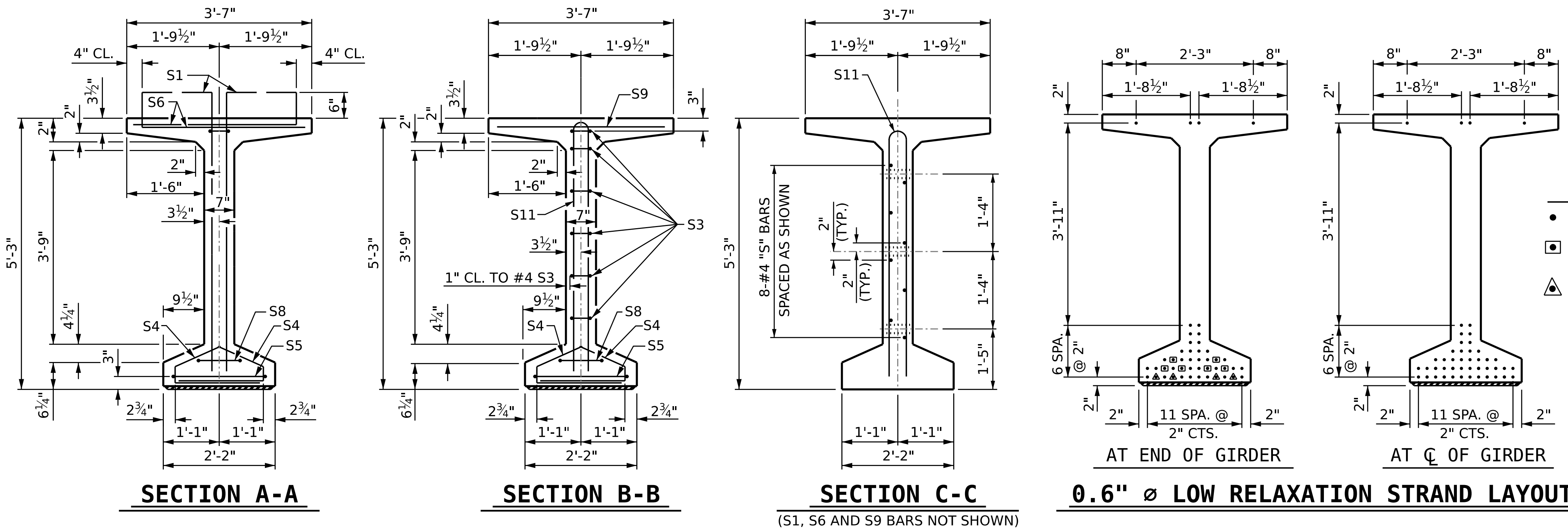
ASSEMBLED BY : K. BEARD DATE : 6/21/22
 CHECKED BY : D. SHACKELFORD DATE : 7/11/22
 DRAWN BY : BNB 09/21
 CHECKED BY : AAI 09/21
 DESIGN ENGINEER OF RECORD:
 W.C. SMITH DATE : 3/8/23

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS

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

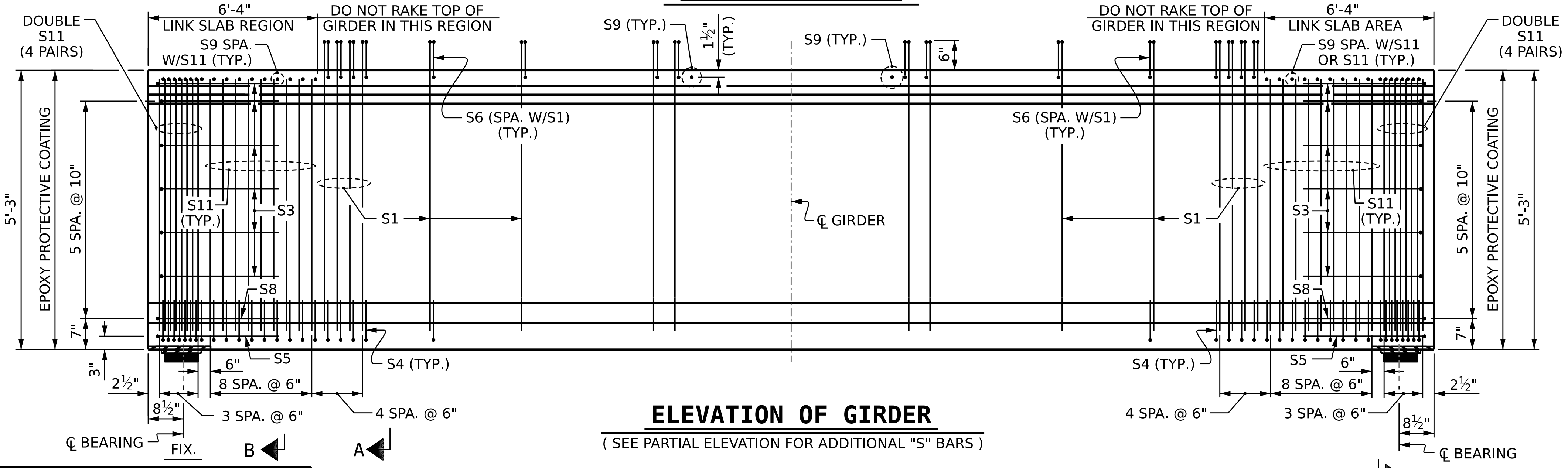
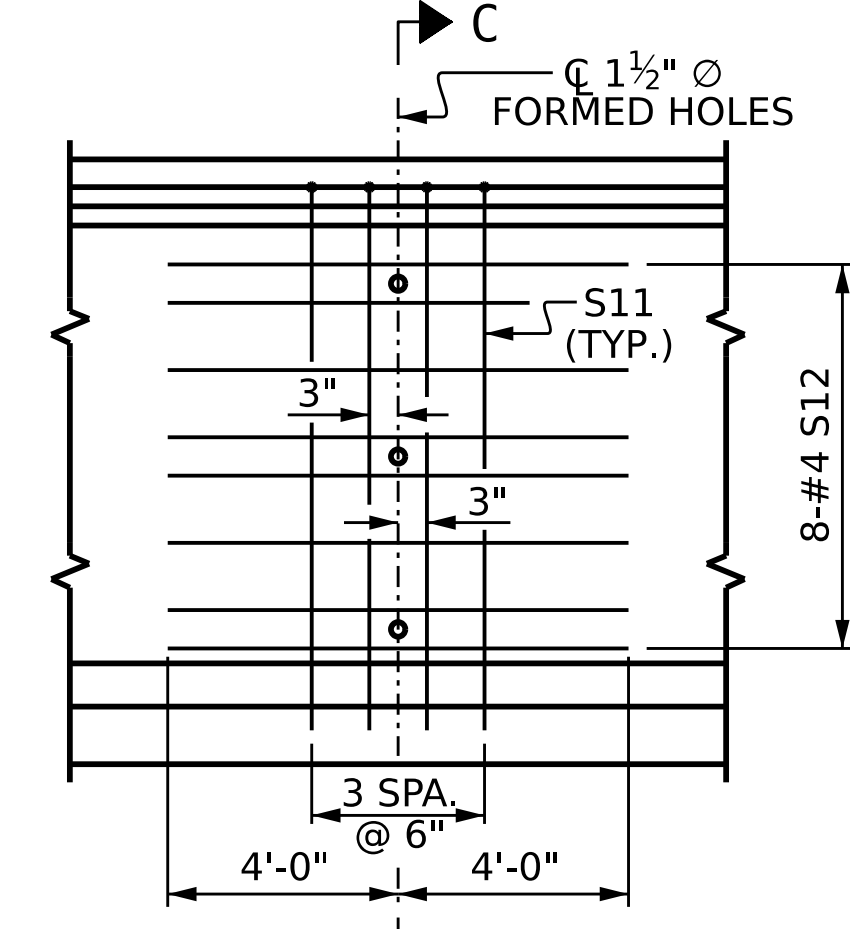
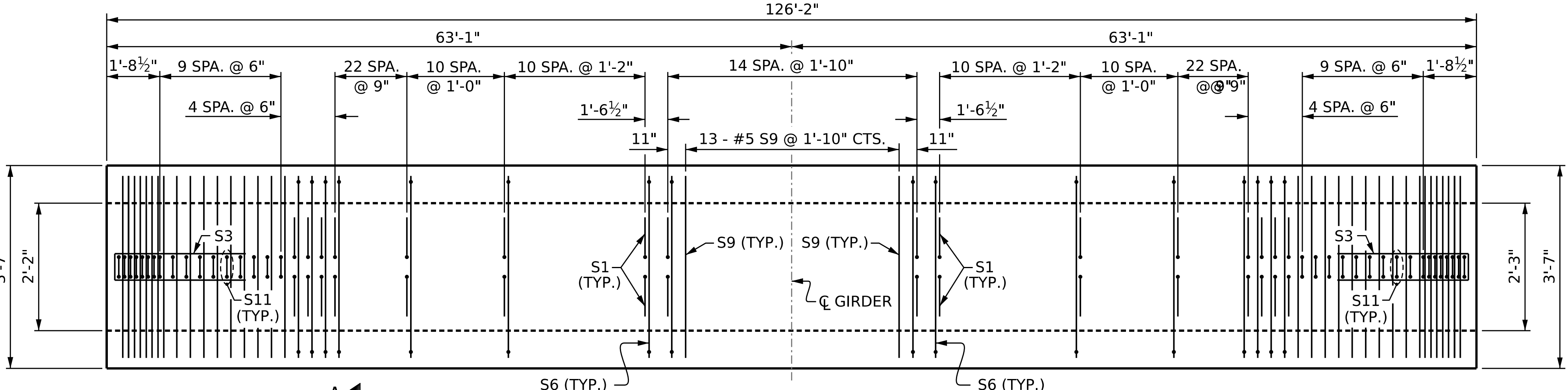
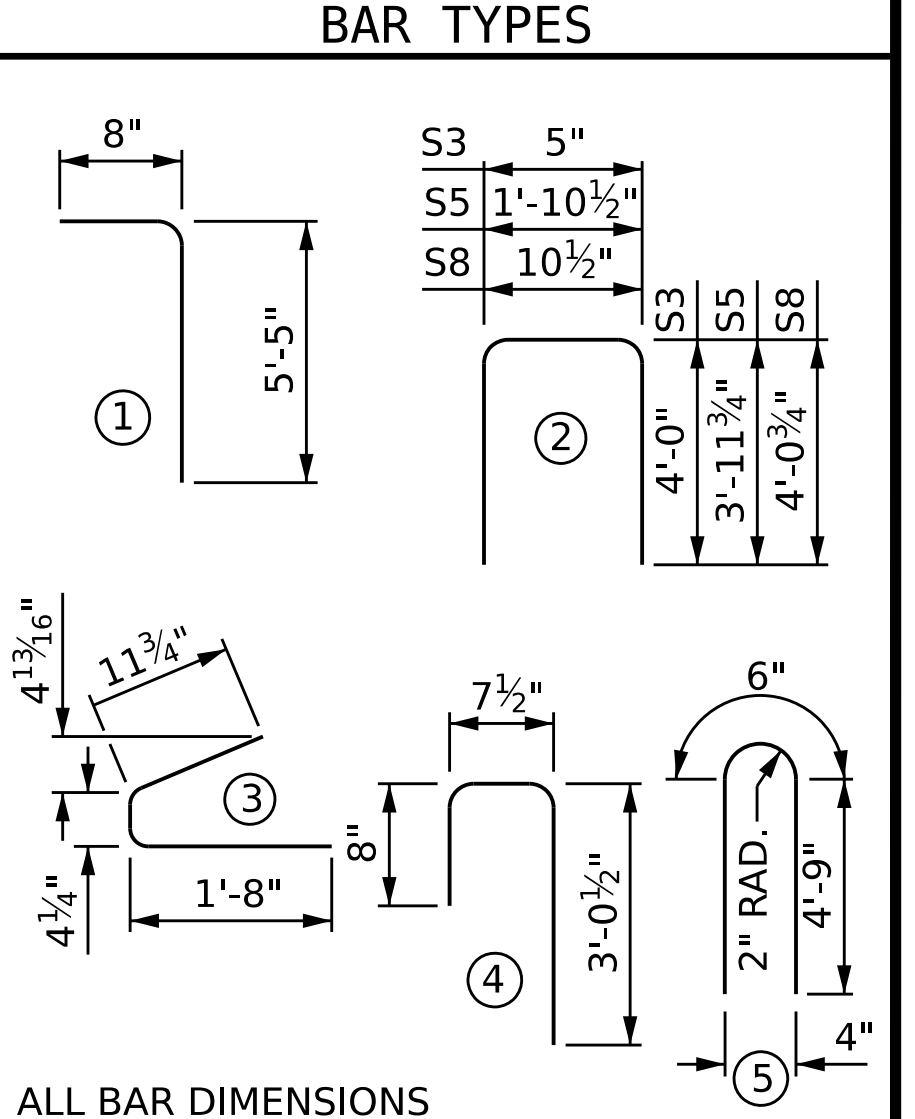
SHEET NO. S1-14
 TOTAL SHEETS 43



- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 24'-0" FROM END OF GIRDER

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

REINFORCING STEEL FOR ONE GDR						
BAR NUMBER	SIZE	TYPE	LENGTH	WEIGHT		
S1	222	#4	1	6'-1"	902	
S3	12	#4	2	8'-5"	67	
S4	68	#4	3	3'-0"	136	
S5	2	#5	2	9'-10"	21	
S6	222	#5	4	4'-4"	1003	
S8	2	#5	2	9'-0"	19	
S9	39	#5	STR	3'-3"	132	
INT. S11	50	#5	5	10'-0"	522	
INT. S12	32	#4	STR	8'-0"	171	
EXT. S11	42	#5	5	10'-0"	438	
EXT. S12	16	#4	STR	8'-0"	86	



QUANTITIES FOR ONE GIRDER			
GIRDERS	REINFORCING STEEL	10,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
INTERIOR	2,973	25.0	46
EXTERIOR	2,804	25.0	46

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	126'-2"	504.67'

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 2 OF 3

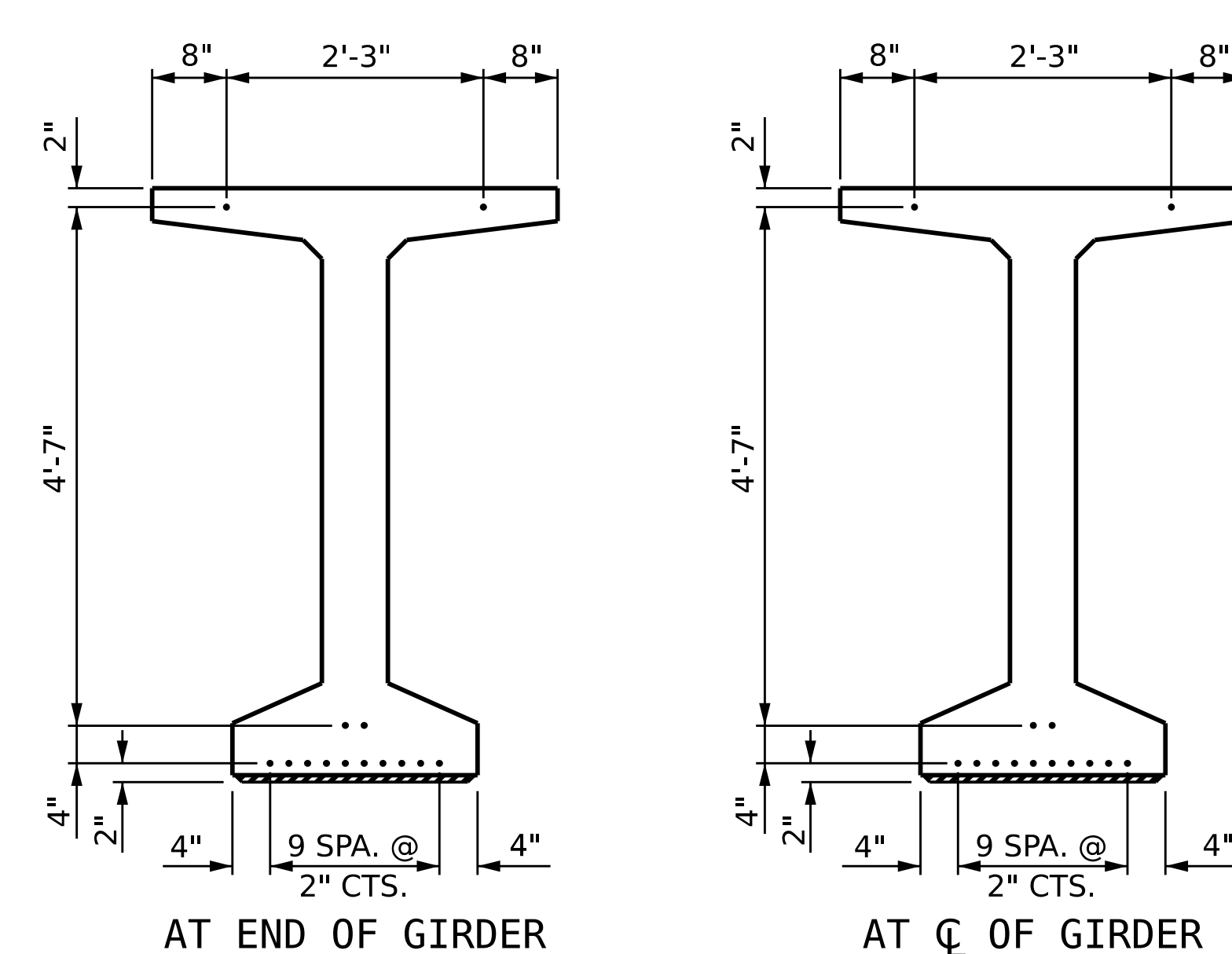
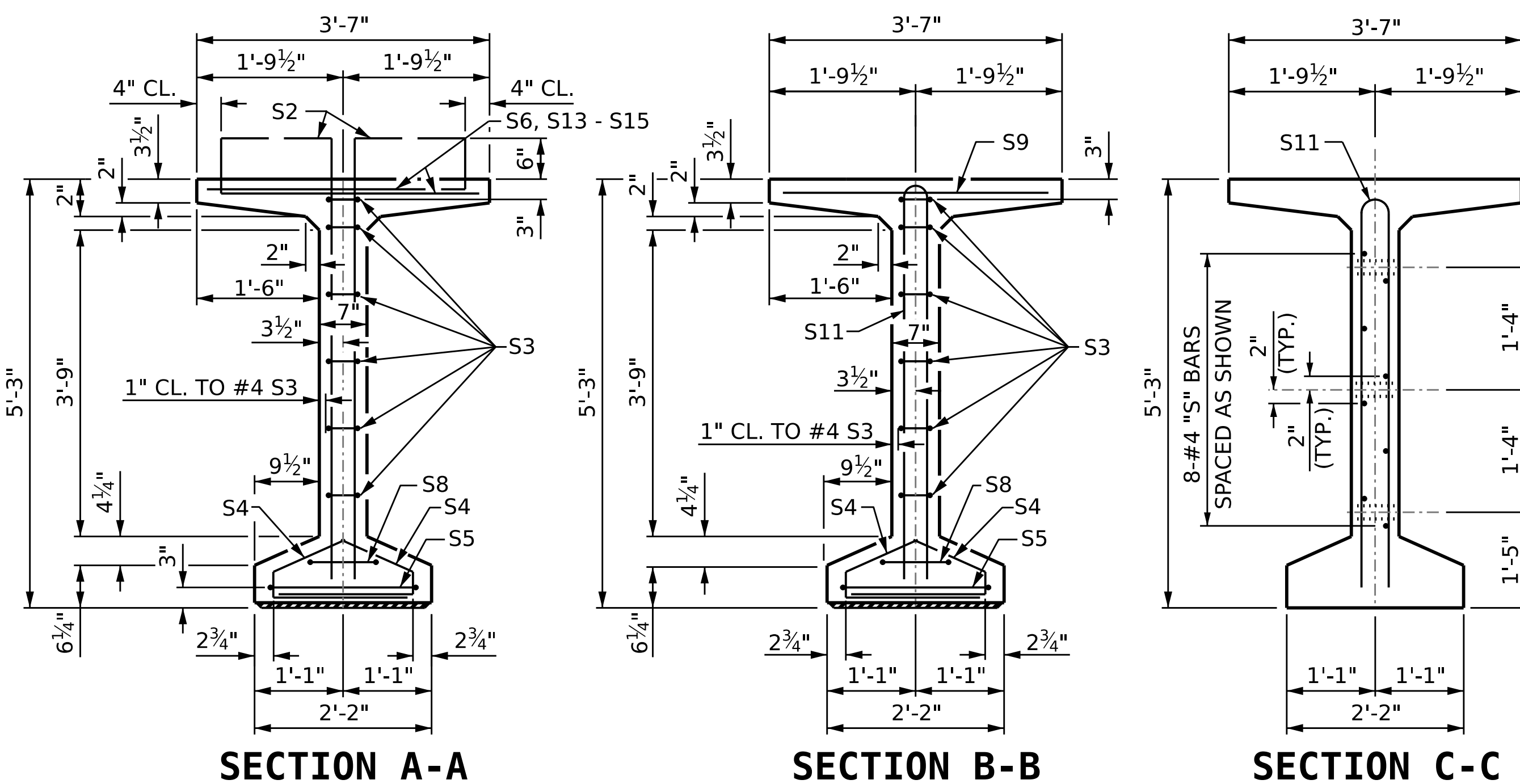
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**63" PRESTRESSED
 MODIFIED BULB TEE
 LINK SLAB**
 (SPAN B)



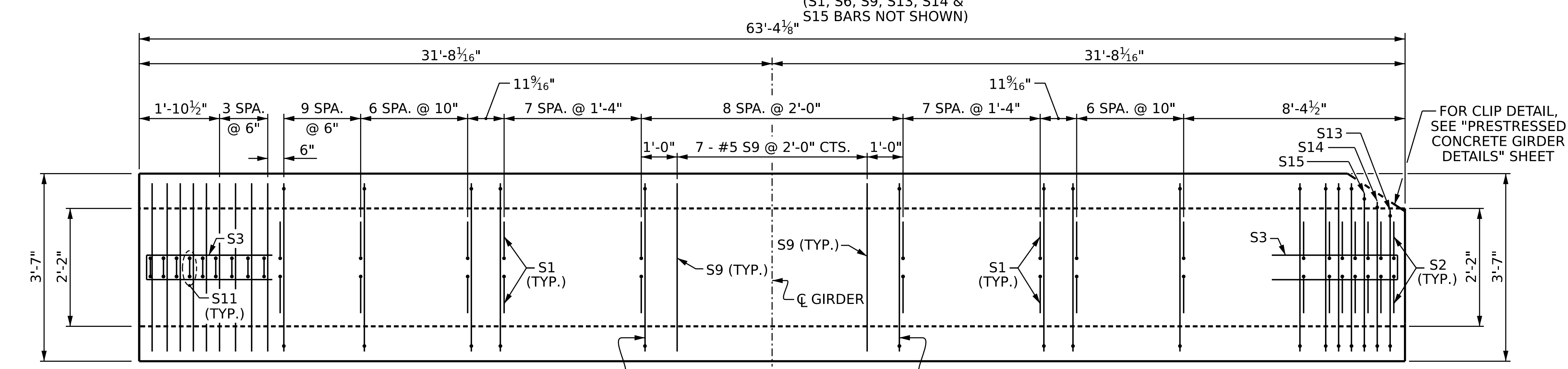
ASSEMBLED BY : K. BEARD DATE : 6/22/22
 CHECKED BY : D. SHACKELFORD DATE : 7/12/22
 DRAWN BY : BNB 09/21
 CHECKED BY : AAI 09/21
 DESIGN ENGINEER OF RECORD:
 W.C. SMITH DATE : 3/8/23

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

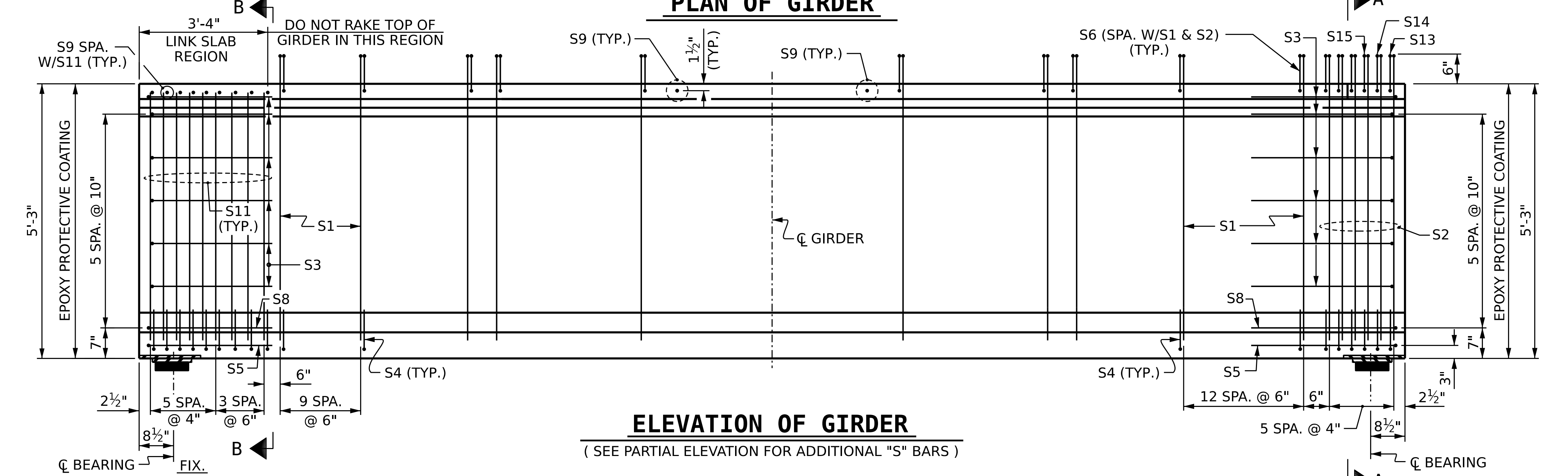
REVISIONS				SHEET NO. S1-15
NO.	BY:	DATE:	NO.	
1			3	TOTAL SHEETS 43
2			4	



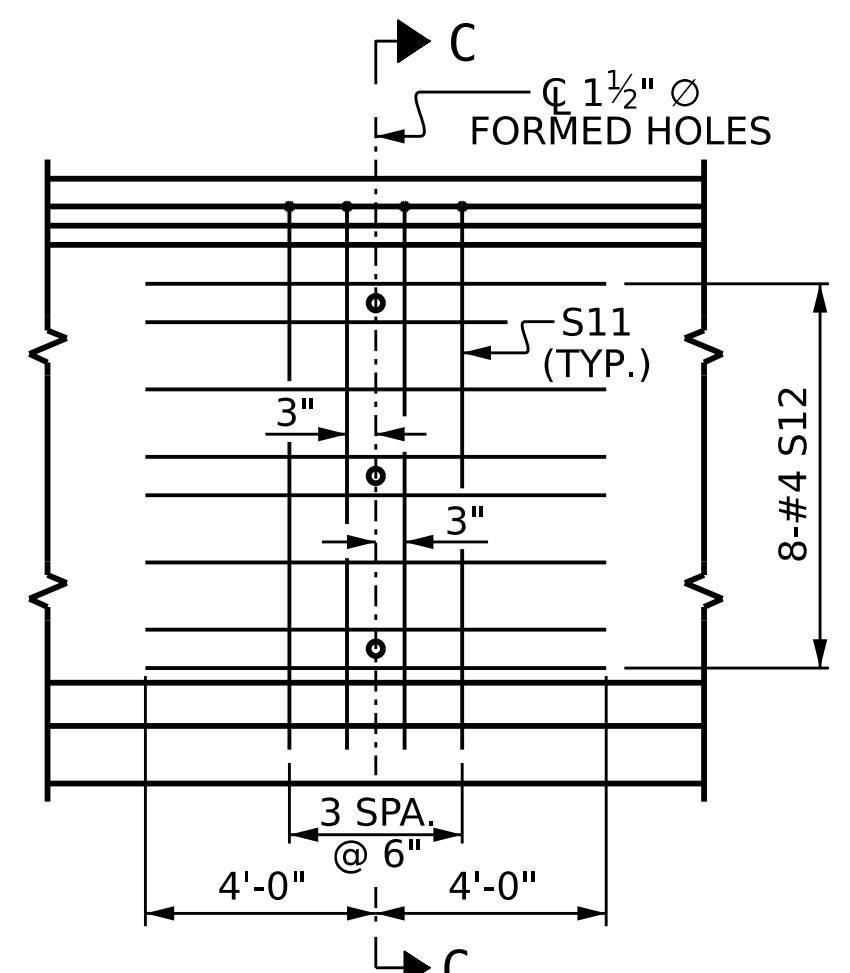
0.6" Ø LOW RELAXATION STRAND LAYOUT
 • FULLY BONDED STRANDS



PLAN OF GIRDER



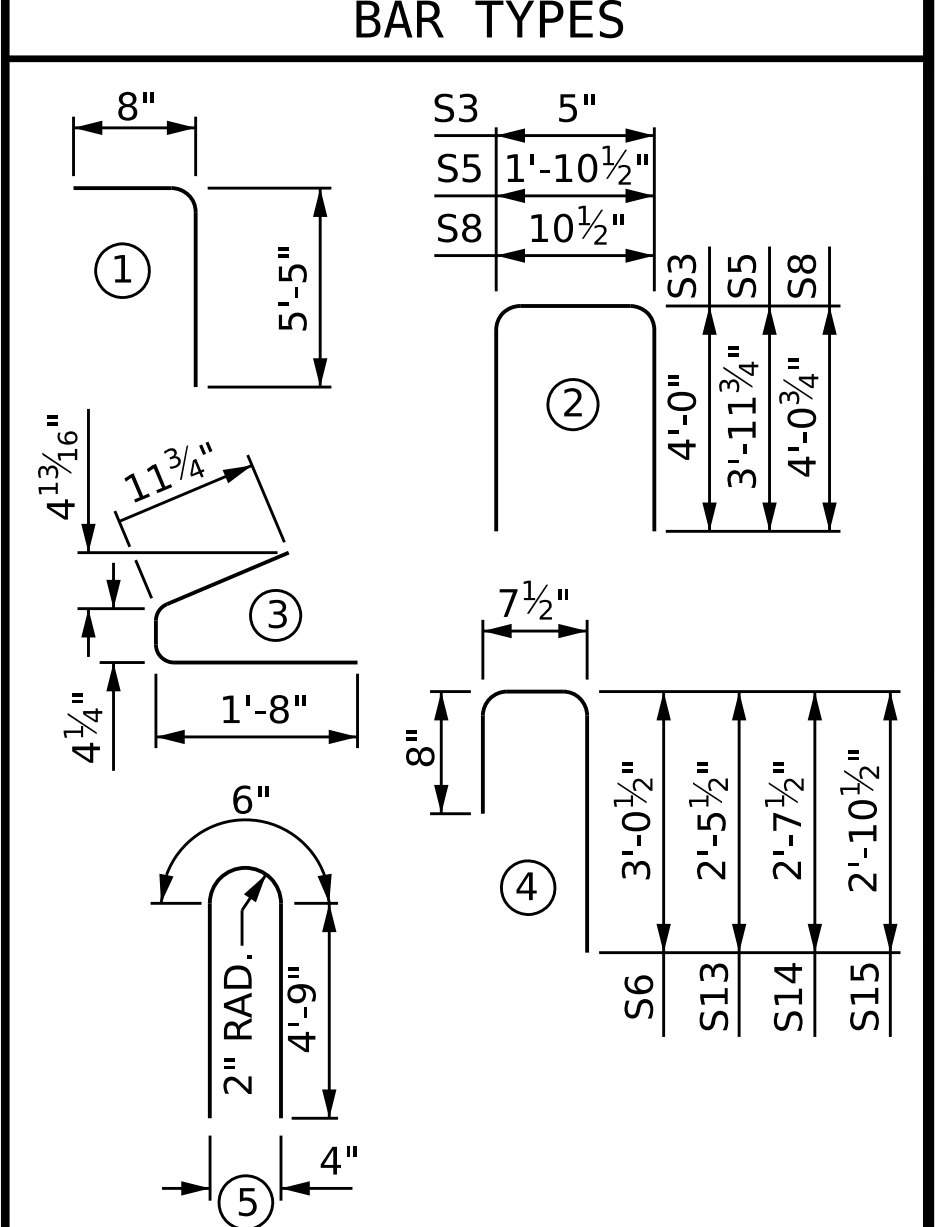
ELEVATION OF GIRDER
 (SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

0.6" Ø L.R. GRADE 270 STRANDS				
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)		
0.217	58,600	43,950		
REINFORCING STEEL FOR ONE GDR				
BAR NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	116	#4	1 6'-1"	471
S2	12	#5	1 6'-1"	76
S3	12	#4	2 8'-5"	67
S4	76	#4	3 3'-0"	152
S5	2	#5	2 9'-10"	21
S6	128	#5	4 4'-4"	579
S8	2	#5	2 9'-0"	19
S9	16	#5	STR 3'-3"	54
INT. S11	17	#5	5 10'-0"	177
INT. S12	16	#4	STR 8'-0"	86
EXT. S11	13	#5	5 10'-0"	136
EXT. S12	8	#4	STR 8'-0"	43
S13	2	#5	4 3'-9"	8
S14	2	#5	4 3'-11"	8
S15	2	#5	4 4'-2"	9

INT.
INT.
EXT.
EXT.



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
GIRDERS	REINFORCING STEEL	5000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
INTERIOR	1,727	12.6	14
EXTERIOR	1,643	12.6	14

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	63'-4 1/8"	253.38'

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

63" PRESTRESSED CONCRETE MODIFIED BULB TEE LINK SLAB (SPAN C)



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS				SHEET NO. S1-16
NO.	BY:	DATE:	NO.	
1			3	TOTAL SHEETS 43
2			4	

ASSEMBLED BY : K. BEARD DATE : 6/23/22
 CHECKED BY : D. SHACKELFORD DATE : 7/12/22
 DRAWN BY : BNB 09/21
 CHECKED BY : AAI 09/21

DESIGN ENGINEER OF RECORD:
 W.C. SMITH DATE : 3/8/23

10/17/2023
 R:\Structures\Plans\300016\401_031.B5981.SMU_GIRDER.S1-16.300016.dgn
 sssondor

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 SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

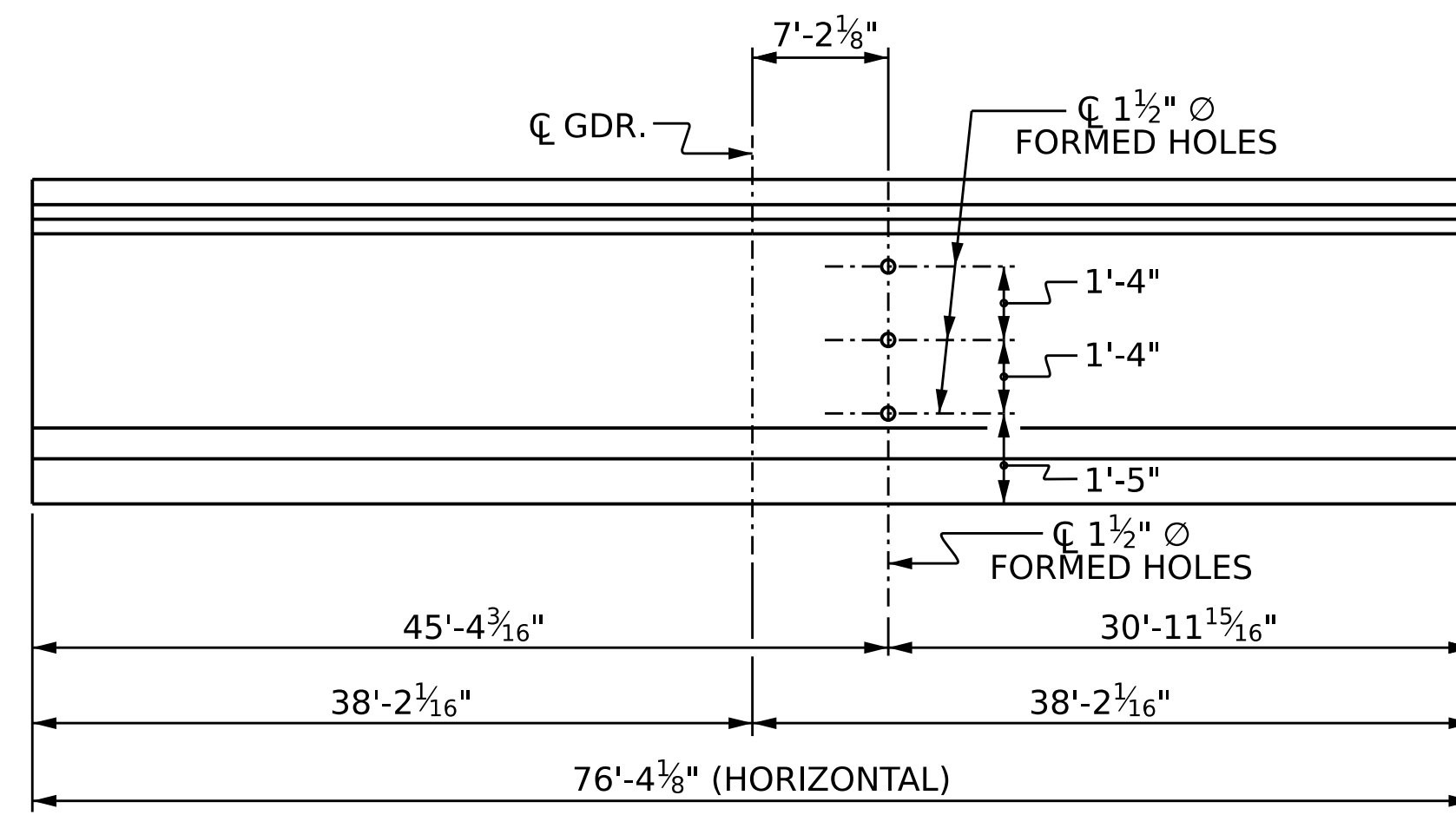
AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI FOR SPAN A OR C & 8,000 PSI FOR SPAN B.

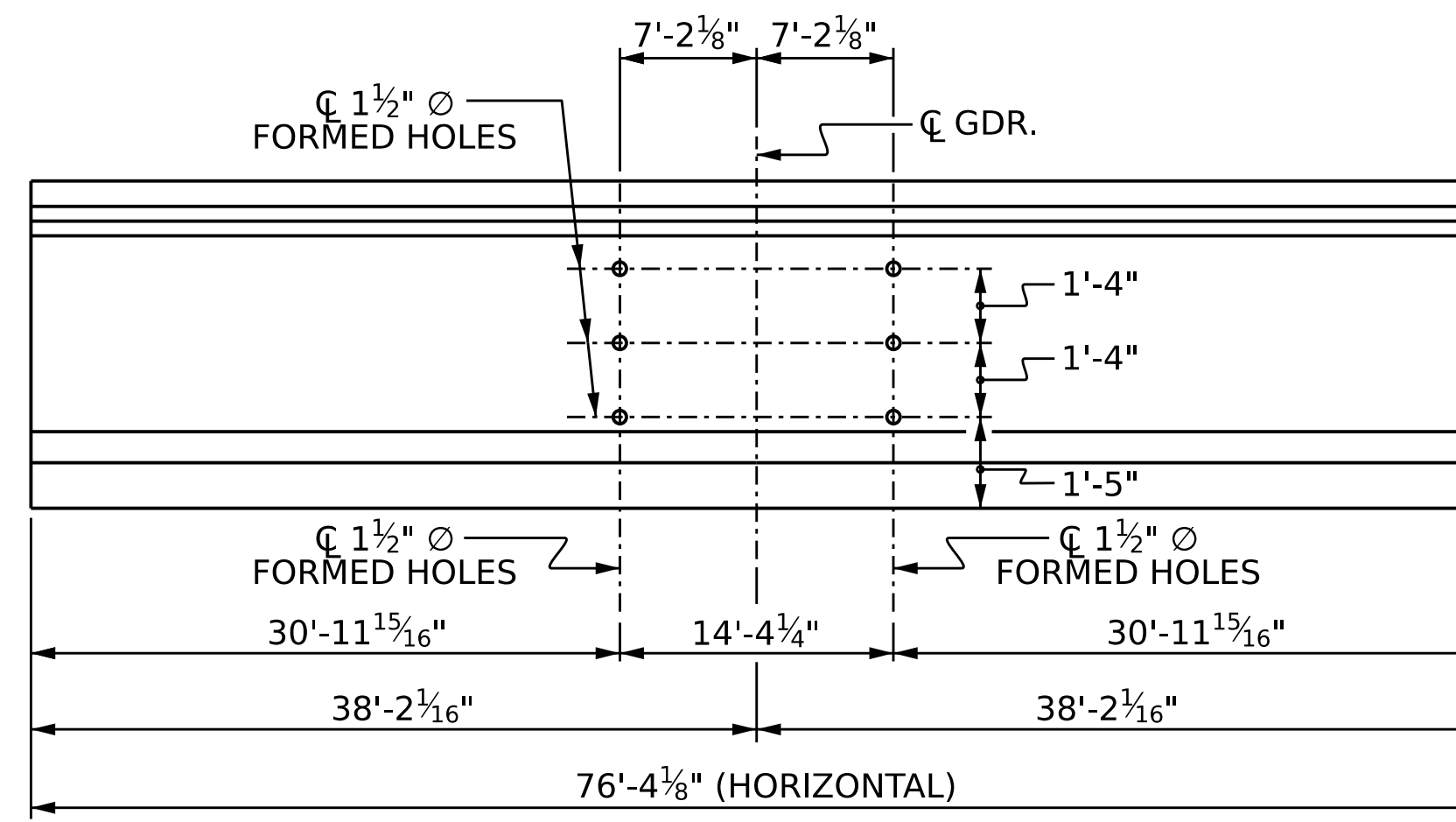
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4" AND LINK SLAB REGION, SHALL BE RAKED TO A DEPTH OF 1/4".

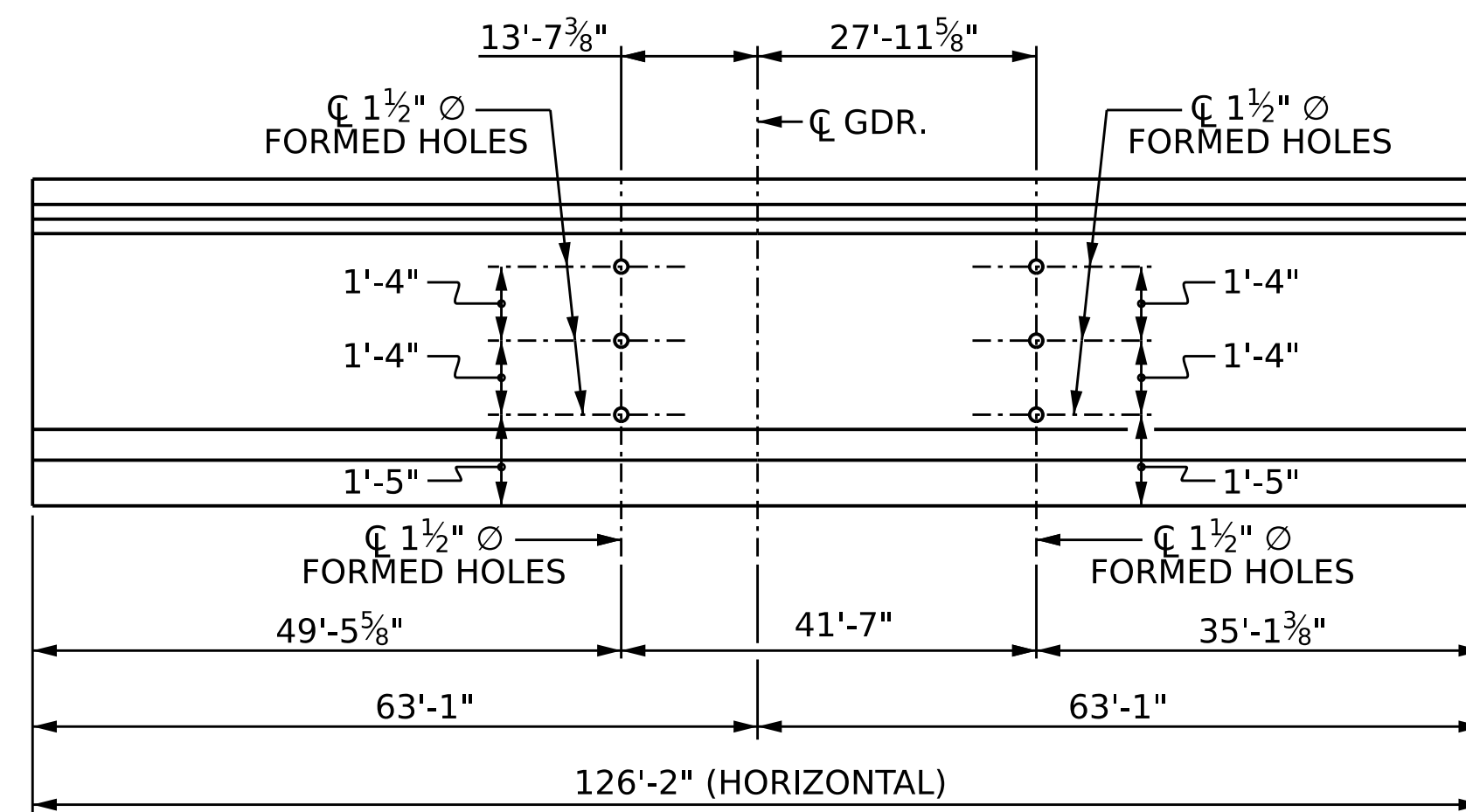
A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" MODIFIED BULB TEES ONLY.



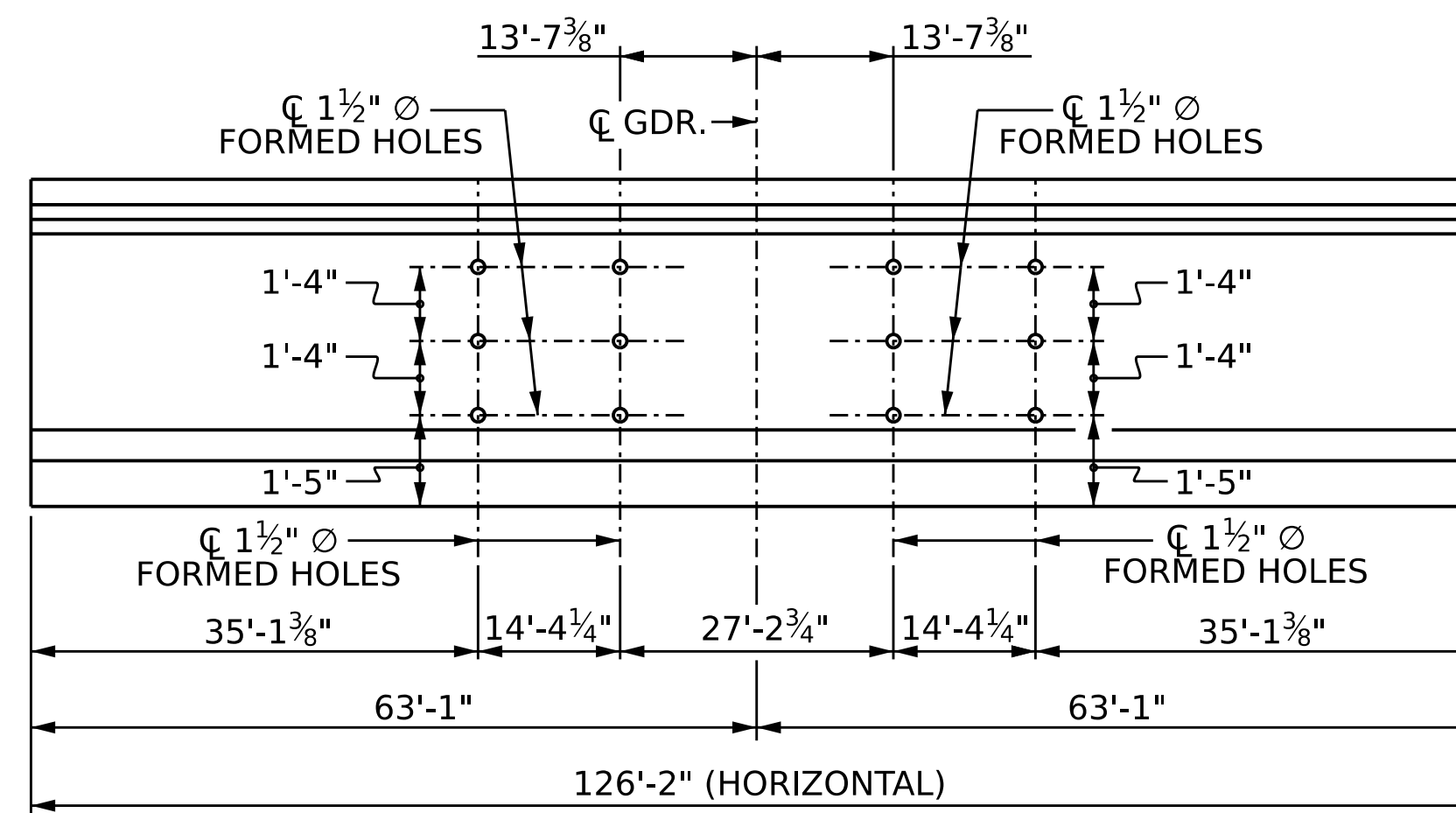
SPAN A - EXTERIOR GIRDERS
(LEFT EXTERIOR SHOWN, RIGHT EXTERIOR DIMENSIONS MIRRORED ABOUT ϕ)



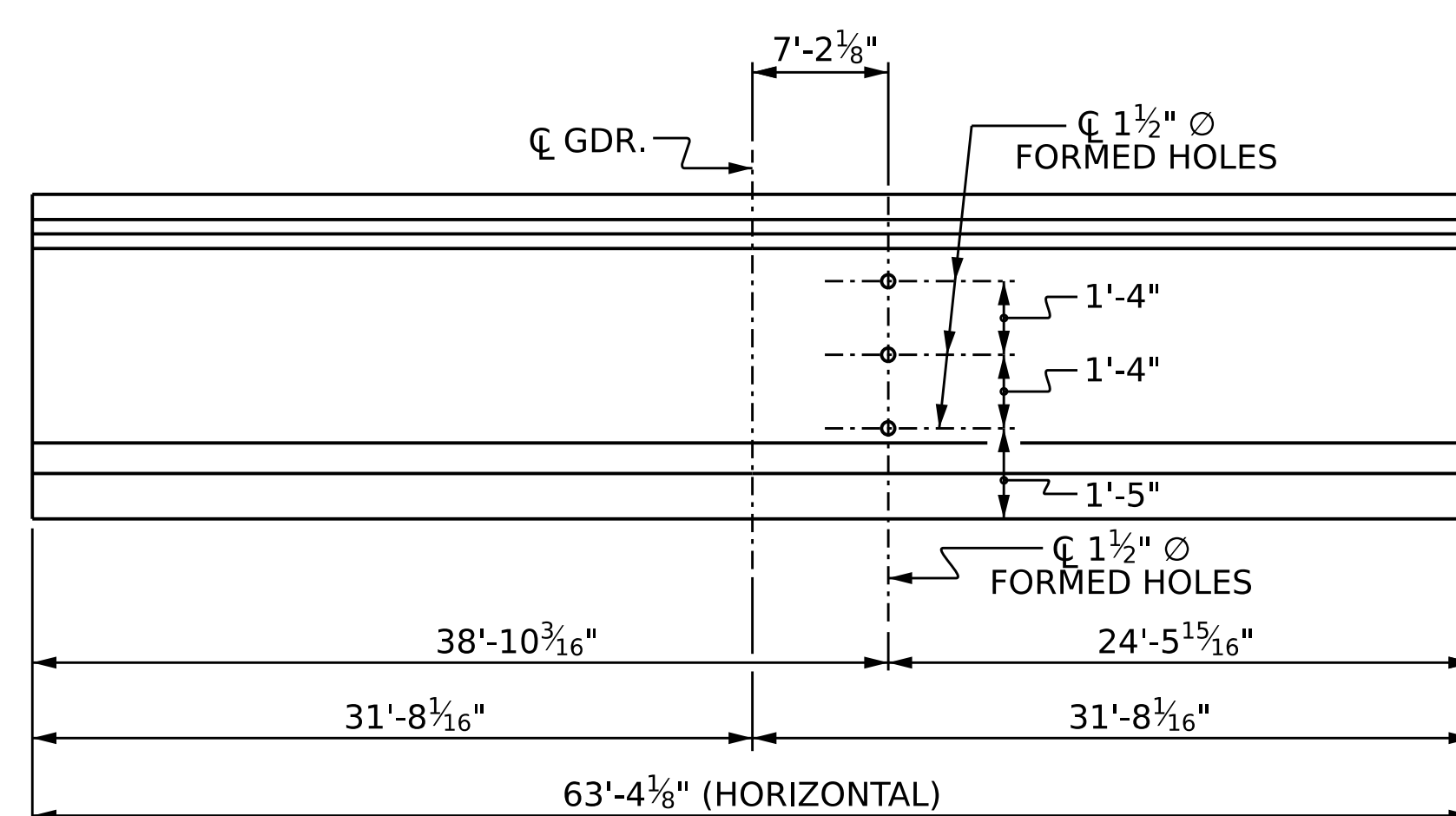
SPAN A - INTERIOR GIRDERS



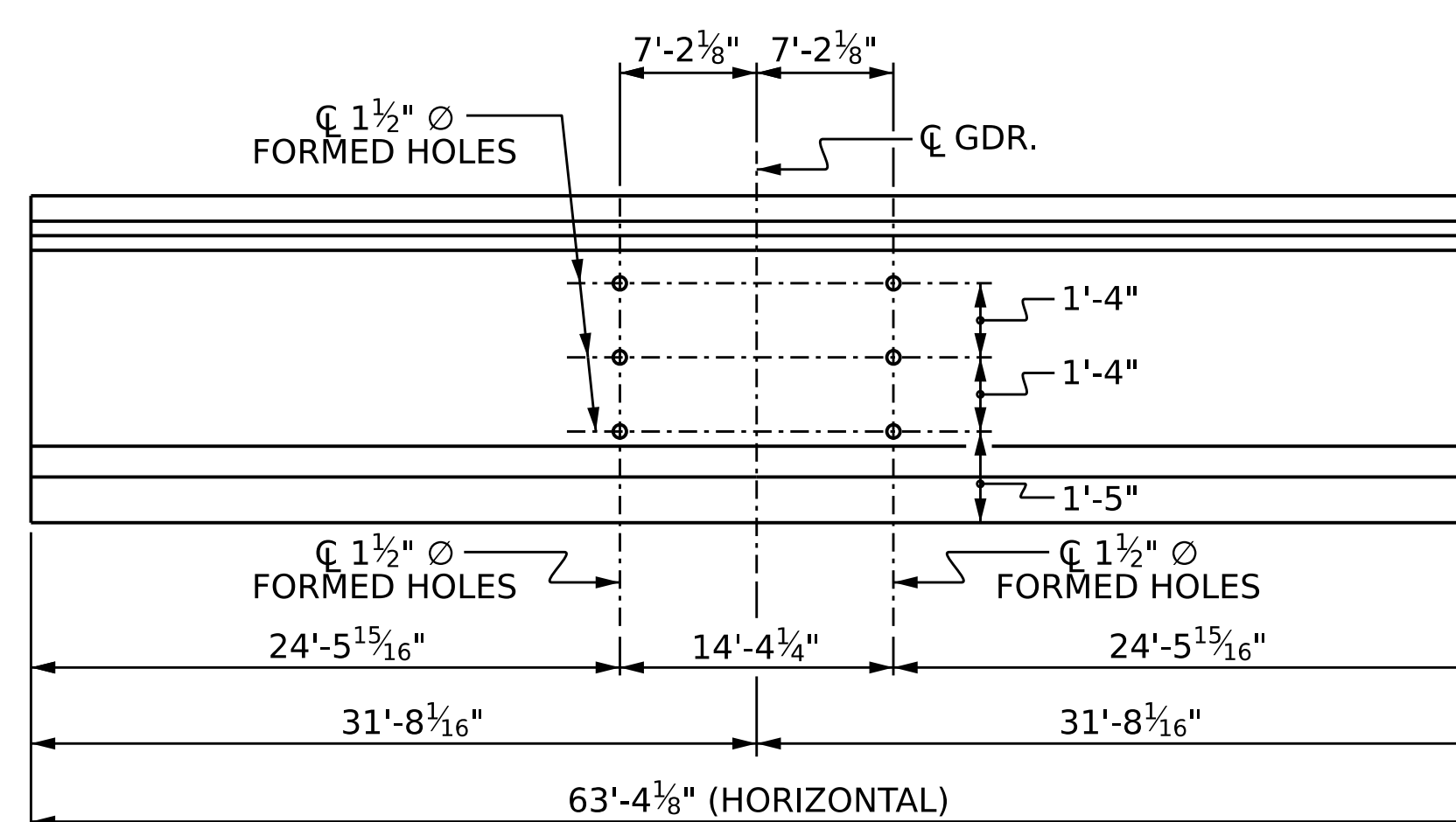
SPAN B - EXTERIOR GIRDERS
(LEFT EXTERIOR SHOWN, RIGHT EXTERIOR SIMILAR BY ROTATION)



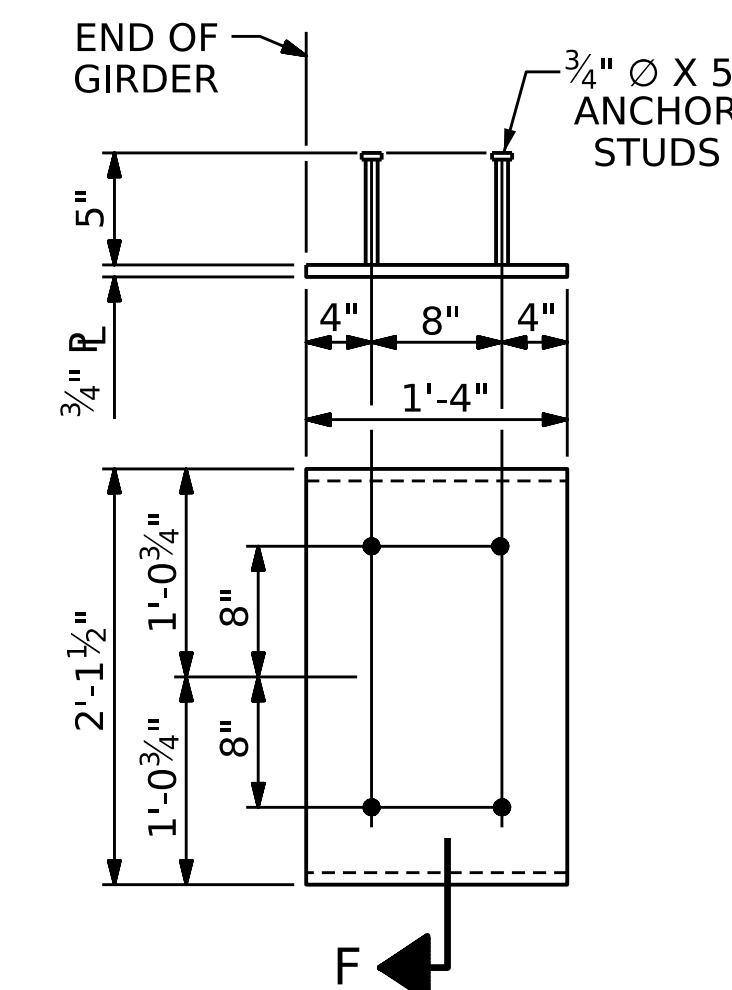
SPAN B - INTERIOR GIRDERS



SPAN C - EXTERIOR GIRDERS
(LEFT EXTERIOR SHOWN, RIGHT EXTERIOR DIMENSIONS MIRRORED ABOUT ϕ)

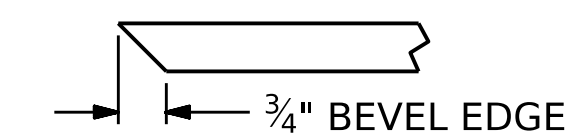


SPAN C - INTERIOR GIRDERS

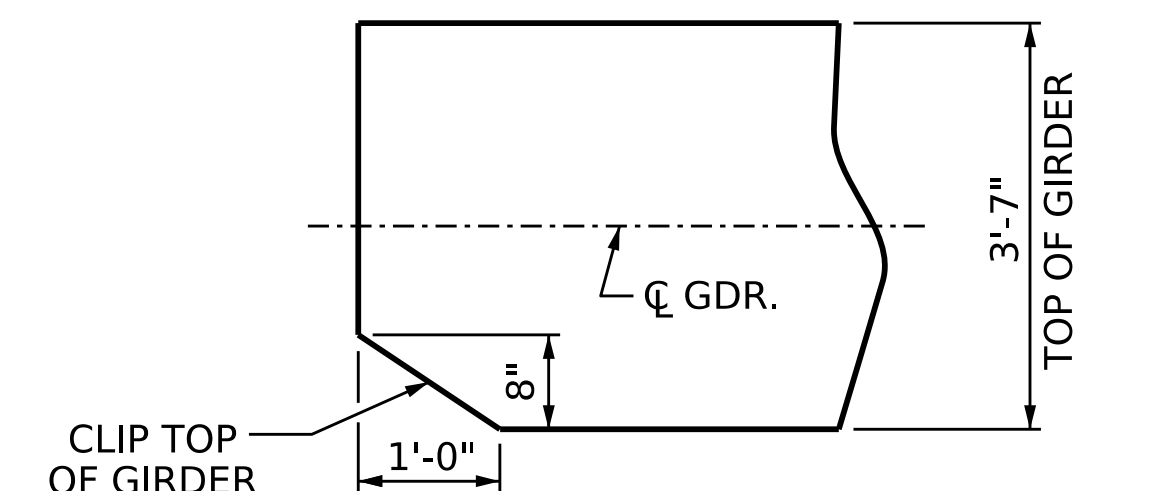


EMBEDDED PLATE "B-1" DETAILS FOR 63" MODIFIED BULB TEES

(2 REQ'D PER GIRDER)

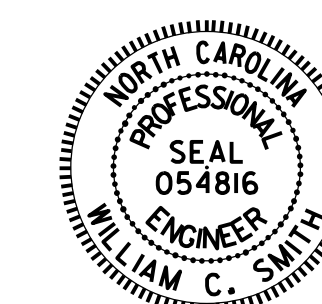


SECTION "F"
(SEE NOTES)



TOP FLANGE CLIP DETAILS
END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION

PROJECT NO. **B-5981**
DUPLIN COUNTY
STATION: **23+56.64 -L-**



DocuSigned by:
William C. Smith
042A6293F0241D
10/24/2023

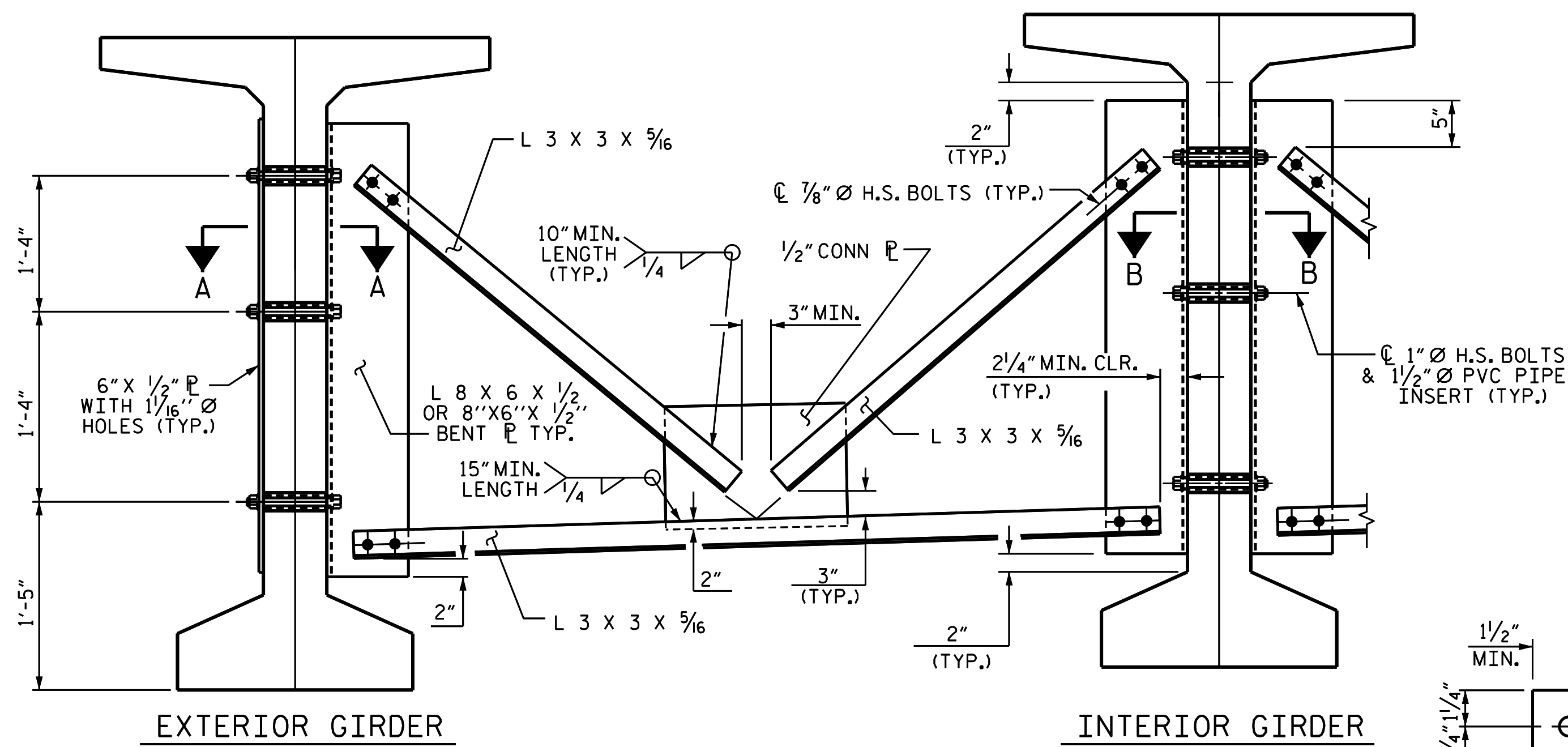
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PRESTRESSED CONCRETE GIRDER DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-17
1			3			TOTAL SHEETS
2			4			43

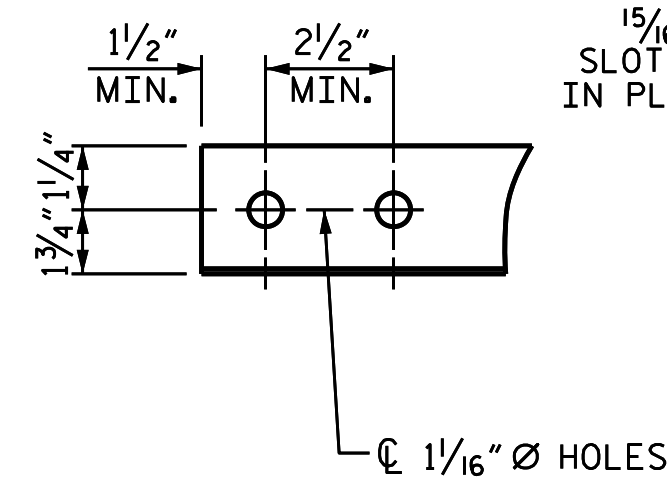
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DESIGN ENGINEER OF RECORD:			
W.C. SMITH		DATE : 3/8/23	
ASSEMBLED BY : K. BEARD		DATE : 7/6/22	
CHECKED BY : D. SHACKELFORD		DATE : 8/15/22	
DRAWN BY : ELR	11/91	REV. 1/15	MAA/TMG
CHECKED BY : GRP	11/91	REV. 2/15	MAA/TMG
		REV. 12/17	MAA/THC

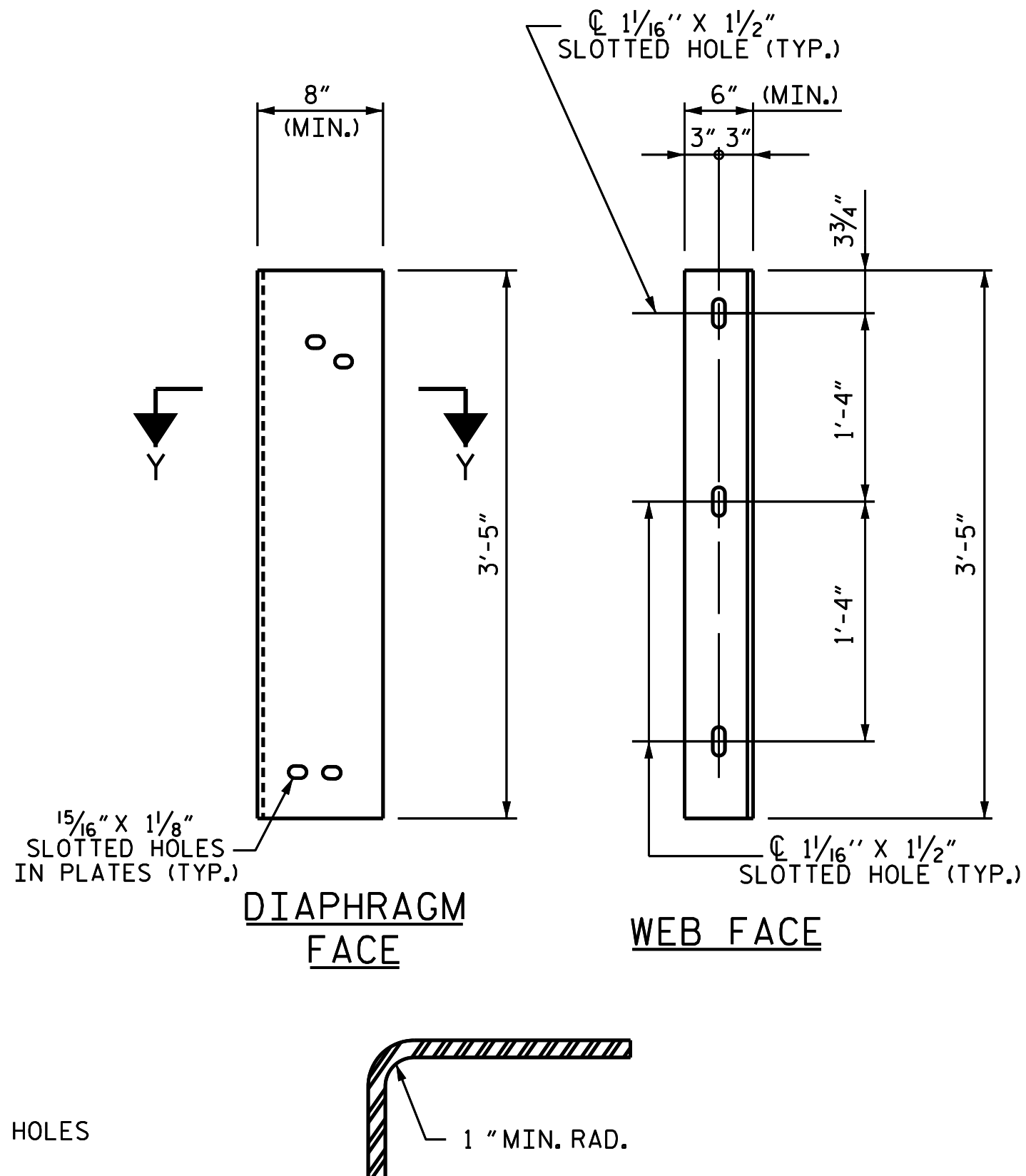
BOLT HOLE PLACEMENT DETAILS



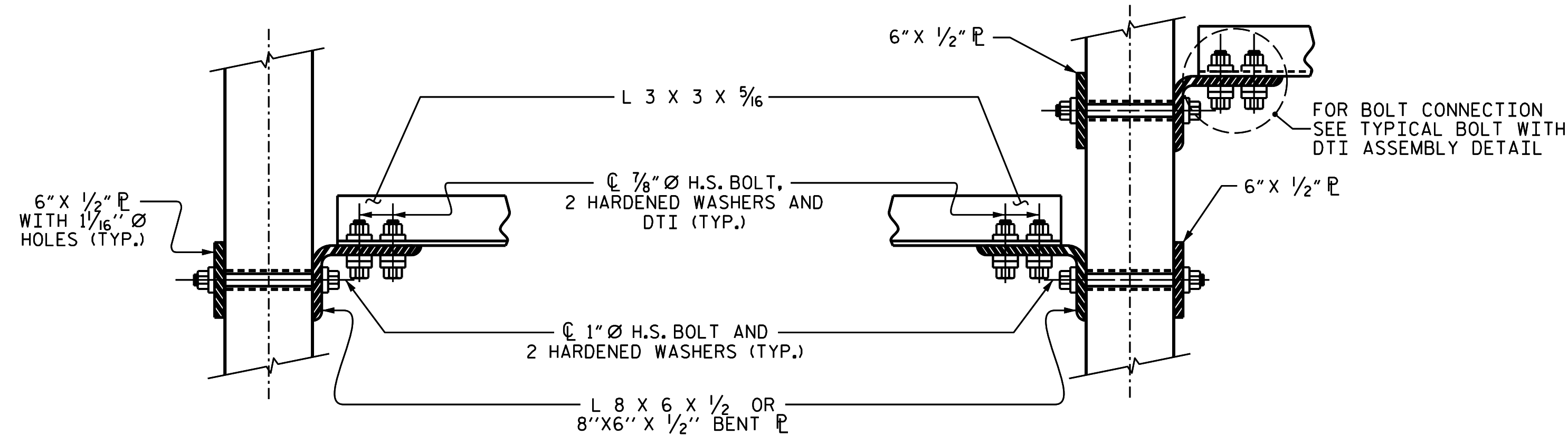
PART SECTION AT INTERMEDIATE DIAPHRAGM



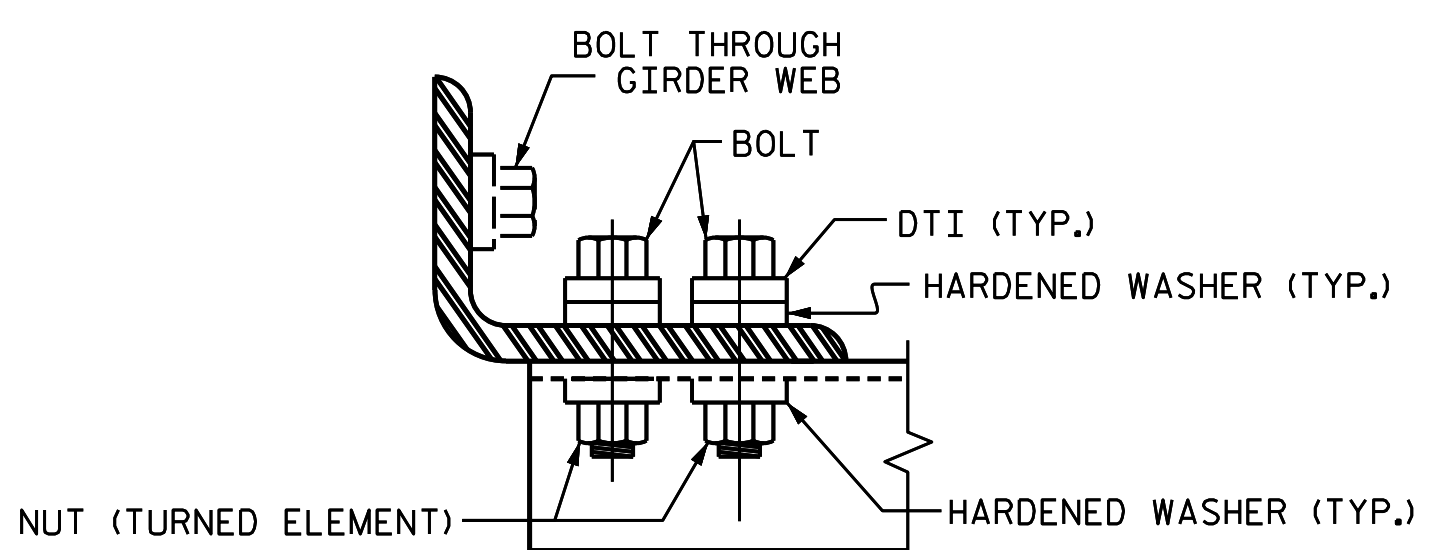
ANGLE END
(L 3 x 3 x 5/16)



CONNECTOR PLATE DETAIL



CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 INTERMEDIATE
 STEEL DIAPHRAGMS
 FOR 63" MODIFIED BULB
 TEE PRESTRESSED
 CONCRETE GIRDERS

ASSEMBLED BY : K. BEARD	DATE : 5/5/22
CHECKED BY : D. SHACKELFORD	DATE : 5/19/22
DRAWN BY : RWW 11/09	REV. 10/1/11 MAA/GM
CHECKED BY : GM 11/09	REV. 12/17 MAA/THC

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-18
1			3			TOTAL SHEETS
2			4			43

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES

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

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

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

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

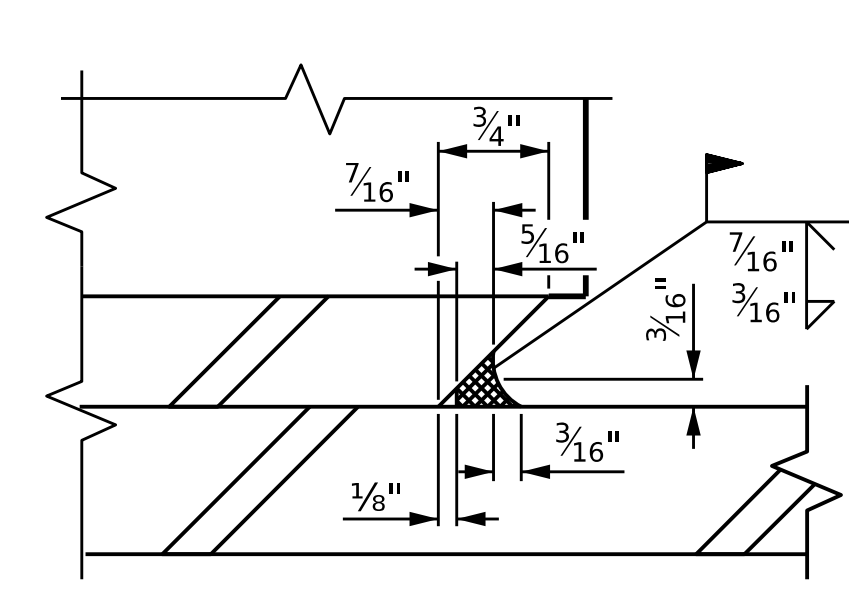
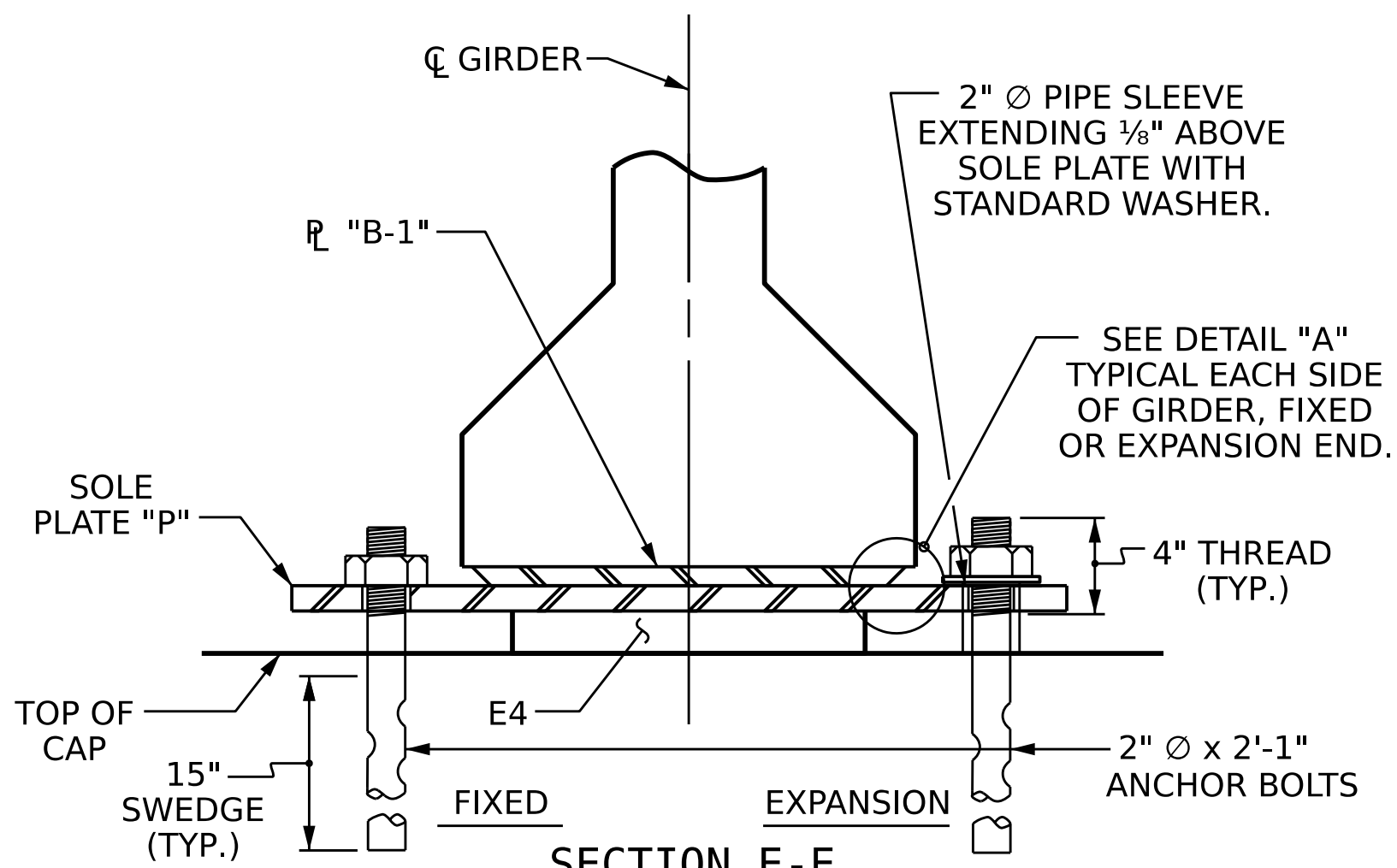
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

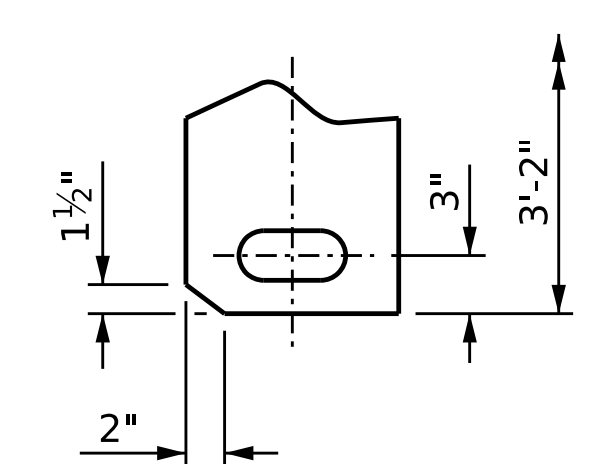
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



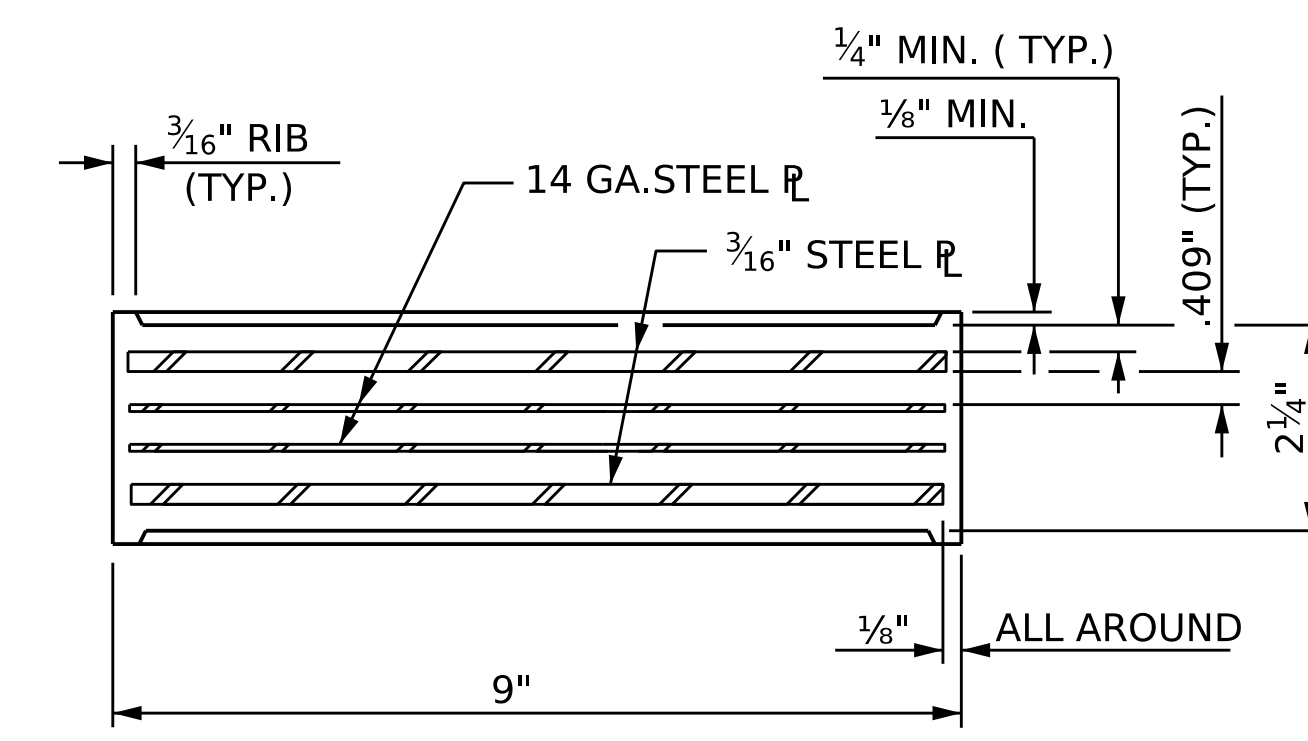
DETAIL "A"



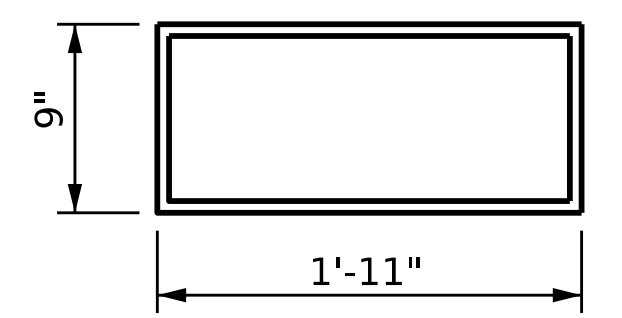
CLIP DETAIL

(SOLE PLATE P1 SHOWN, SOLE PLATE P6 SIMILAR BY ROTATION.)

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE V	365 K

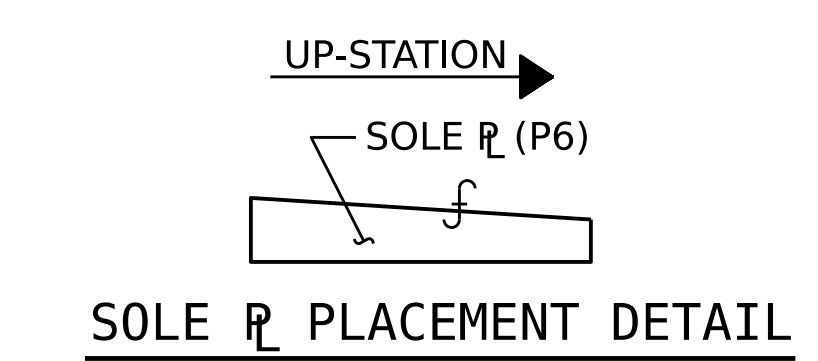


TYPICAL SECTION OF ELASTOMERIC BEARINGS

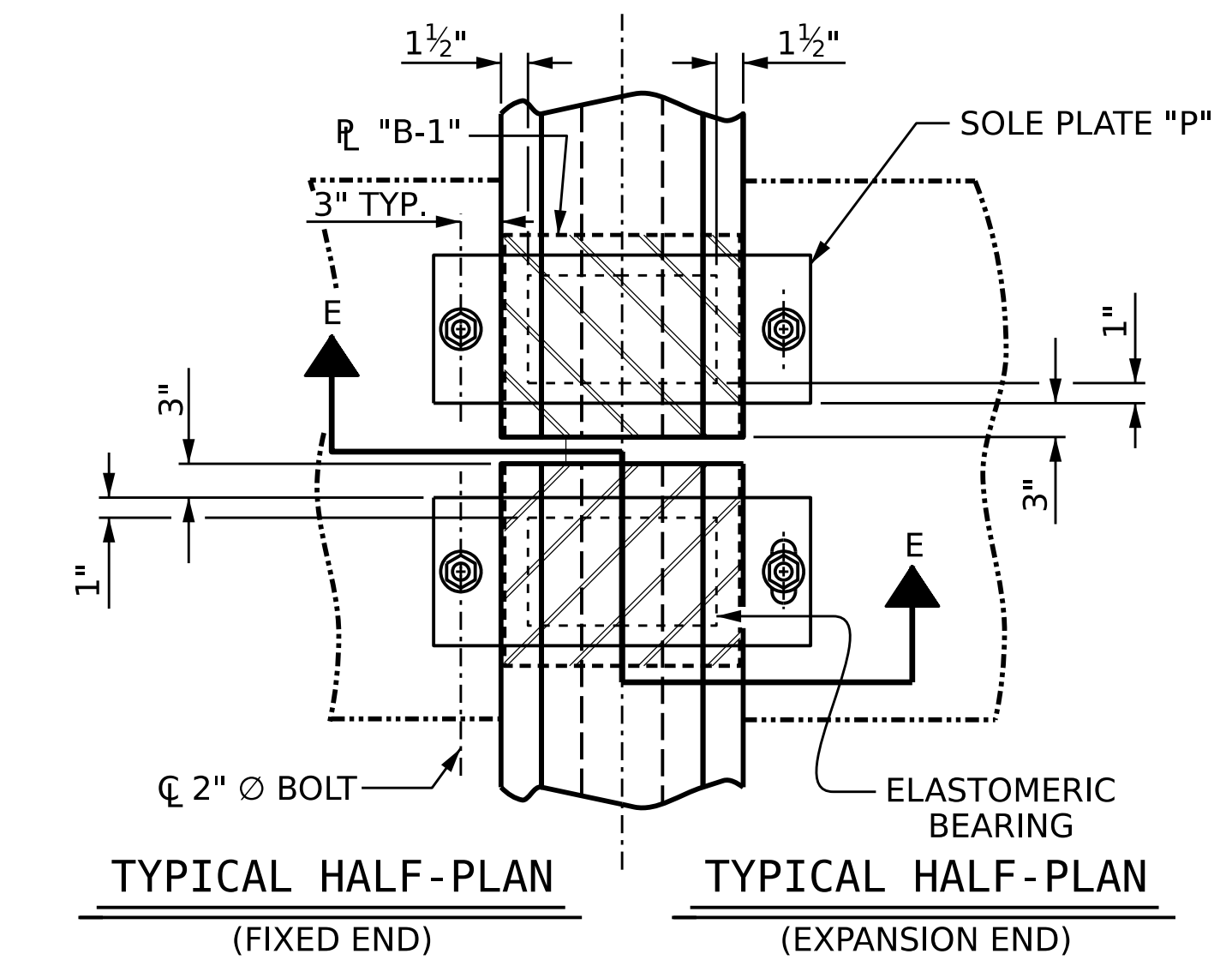


PLAN VIEW OF ELASTOMERIC BEARING

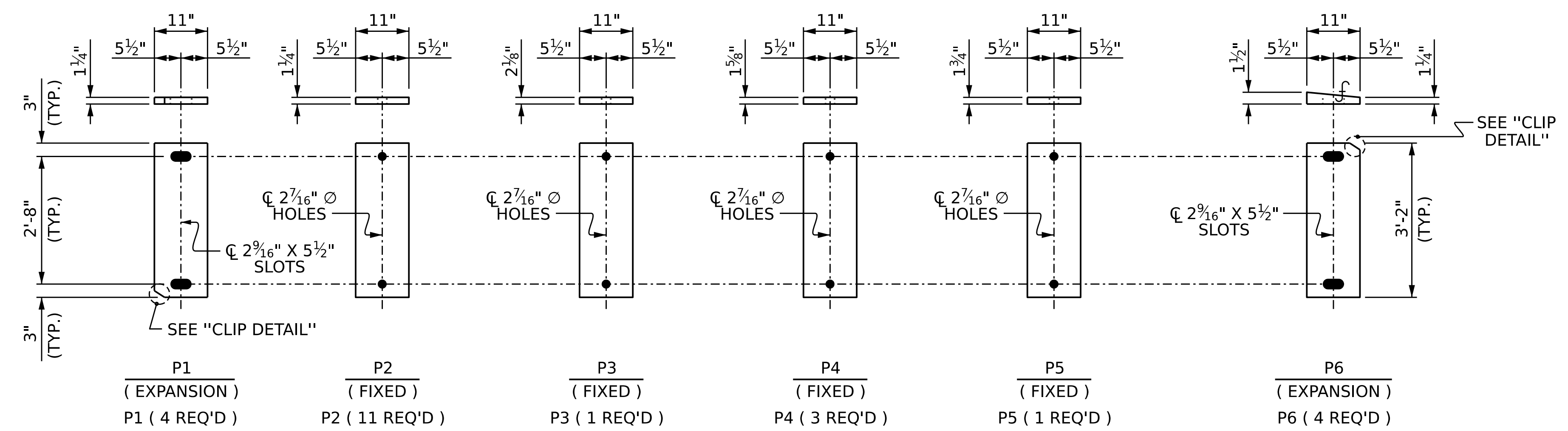
TYPE V



SOLE PLACEMENT DETAIL



TYPICAL HALF-PLAN (FIXED END) **TYPICAL HALF-PLAN (EXPANSION END)**



SOLE PLATE DETAILS ("P")

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD ELASTOMERIC BEARING DETAILS
 PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	
1			3	S1-19
2			4	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED				TOTAL SHEETS: 43

DESIGN ENGINEER OF RECORD: W.C. SMITH DATE: 3/8/23	
ASSEMBLED BY : K. BEARD DATE : 5/6/22	CHECKED BY : D. SHACKELFORD DATE : 7/8/22
DRAWN BY : WJH 8/89	REV. 1/15 MAA/TMC
CHECKED BY : CRK 8/89	REV. 12/17 MAA/THC
	REV. 10/21 BNB/AAI

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" Ø LOW RELAXATION	SPAN A																				
	GIRDERS 1 & 4																				
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.015	0.029	0.043	0.055	0.067	0.076	0.083	0.089	0.092	0.093	0.092	0.089	0.083	0.076	0.067	0.055	0.043	0.029	0.015	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.007	0.014	0.020	0.026	0.031	0.036	0.039	0.042	0.044	0.044	0.044	0.042	0.039	0.036	0.031	0.026	0.020	0.014	0.007	0
FINAL CAMBER ↑	0	1/8"	3/16"	1/4"	3/8"	7/16"	1/2"	1/2"	9/16"	5/8"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	3/8"	1/4"	3/16"	1/8"	0

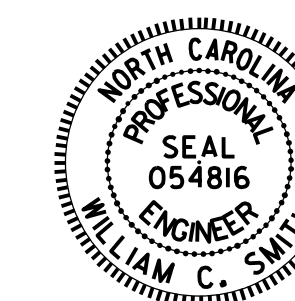
* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION	SPAN A																					
	GIRDERS 2 & 3																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00	
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.015	0.029	0.043	0.055	0.067	0.076	0.083	0.089	0.092	0.093	0.092	0.089	0.083	0.076	0.067	0.055	0.043	0.029	0.015	0	
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.008	0.015	0.022	0.029	0.035	0.040	0.043	0.046	0.048	0.049	0.048	0.046	0.043	0.040	0.035	0.029	0.022	0.015	0.008	0	
FINAL CAMBER ↑	0	1/16"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	3/8"	5/16"	1/4"	3/16"	1/16"	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. **B-5981**
DUPLIN COUNTY
STATION: **23+56.64 -L-**

SHEET 1 OF 3



DocuSigned by:
William C. Smith
10/24/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS
(SPAN A)

DRAWN BY : K. BEARD DATE : 5/9/22
CHECKED BY : D. SHACKELFORD DATE : 5/19/22
DESIGN ENGINEER OF RECORD: W.C. SMITH DATE : 3/8/23

10/18/2023
R:\Structures\Plans\300016\401_039_B5981_SMU_DL_S1-20_300016.dgn
ssandor

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-20
1			3			TOTAL SHEETS
2			4			43

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" ø LOW RELAXATION		SPAN B																				
		GIRDERS 1 & 4																				
FORTIETH POINTS		0	.025	.050	.075	.100	.125	.150	.175	.200	.225	.250	.275	.300	.325	.350	.375	.400	.425	.450	.475	.500
CAMBER (GIRDER ALONE IN PLACE) ↑		0	0.027	0.054	0.080	0.106	0.131	0.156	0.179	0.201	0.222	0.241	0.259	0.275	0.290	0.302	0.313	0.322	0.329	0.334	0.337	0.338
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0	0.023	0.045	0.067	0.088	0.109	0.129	0.149	0.167	0.184	0.200	0.215	0.229	0.241	0.251	0.260	0.268	0.274	0.278	0.281	0.281
FINAL CAMBER ↑		0	1/16"	1/8"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	7/16"	1/2"	1/2"	9/16"	9/16"	5/8"	5/8"	5/8"	11/16"	11/16"	11/16"	11/16"
0.6" ø LOW RELAXATION		SPAN B																				
		GIRDERS 1 & 4																				
FORTIETH POINTS		.525	.550	.575	.600	.625	.650	.675	.700	.725	.750	.775	.800	.825	.850	.875	.900	.925	.950	.975	1.00	
CAMBER (GIRDER ALONE IN PLACE) ↑		0.337	0.334	0.329	0.322	0.313	0.302	0.290	0.275	0.259	0.241	0.222	0.201	0.179	0.156	0.131	0.106	0.080	0.054	0.027	0	
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.281	0.278	0.274	0.268	0.260	0.251	0.241	0.229	0.215	0.200	0.184	0.167	0.149	0.129	0.109	0.088	0.067	0.045	0.023	0	
FINAL CAMBER ↑		1 1/16"	1 1/16"	1 1/16"	5/8"	5/8"	5/8"	9/16"	9/16"	1/2"	1/2"	7/16"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	1/8"	1/16"	0	

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" ø LOW RELAXATION		SPAN B																				
		GIRDERS 2 & 3																				
FORTIETH POINTS		0	.025	.050	.075	.100	.125	.150	.175	.200	.225	.250	.275	.300	.325	.350	.375	.400	.425	.450	.475	.500
CAMBER (GIRDER ALONE IN PLACE) ↑		0	0.027	0.054	0.080	0.106	0.131	0.156	0.179	0.201	0.222	0.241	0.259	0.275	0.290	0.302	0.313	0.322	0.329	0.334	0.337	0.338
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0	0.025	0.049	0.073	0.097	0.119	0.142	0.163	0.183	0.201	0.219	0.235	0.250	0.263	0.274	0.284	0.292	0.298	0.303	0.306	0.307
FINAL CAMBER ↑		0	0	1/16"	1/16"	1/8"	1/8"	3/16"	3/16"	3/16"	1/4"	1/4"	5/16"	5/16"	5/16"	5/16"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
0.6" ø LOW RELAXATION		SPAN B																				
		GIRDERS 2 & 3																				
FORTIETH POINTS		.525	.550	.575	.600	.625	.650	.675	.700	.725	.750	.775	.800	.825	.850	.875	.900	.925	.950	.975	1.00	
CAMBER (GIRDER ALONE IN PLACE) ↑		0.337	0.334	0.329	0.322	0.313	0.302	0.290	0.275	0.259	0.241	0.222	0.201	0.179	0.156	0.131	0.106	0.080	0.054	0.027	0	
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.306	0.303	0.298	0.292	0.284	0.274	0.263	0.250	0.235	0.219	0.201	0.183	0.163	0.142	0.119	0.097	0.073	0.049	0.025	0	
FINAL CAMBER ↑		3/8"	3/8"	3/8"	3/8"	3/8"	5/16"	5/16"	5/16"	5/16"	1/4"	1/4"	3/16"	3/16"	3/16"	1/8"	1/8"	1/16"	1/16"	0	0	

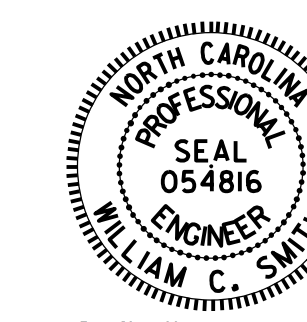
* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. **B-5981**

DUPLIN COUNTY

STATION: **23+56.64 -L-**

SHEET 2 OF 3



DocuSigned by:
William C. Smith
10/24/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS

(SPAN B)

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : K. BEARD DATE : 5/11/22
CHECKED BY : D. SHACKELFORD DATE : 5/19/22
DESIGN ENGINEER OF RECORD : W.C. SMITH DATE : 3/8/23

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6" Ø LOW RELAXATION	SPAN C																					
	GIRDERS 1 & 4																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00	
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.008	0.016	0.024	0.031	0.037	0.042	0.047	0.050	0.052	0.052	0.052	0.050	0.047	0.042	0.037	0.031	0.024	0.016	0.008	0	
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.003	0.006	0.009	0.012	0.015	0.017	0.018	0.020	0.020	0.021	0.020	0.020	0.018	0.017	0.015	0.012	0.009	0.006	0.003	0	
FINAL CAMBER ↑	0	1/16"	1/8"	3/16"	1/4"	1/4"	5/16"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	5/16"	1/4"	1/4"	3/16"	1/8"	1/16"	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" Ø LOW RELAXATION	SPAN C																				
	GIRDERS 2 & 3																				
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.008	0.016	0.024	0.031	0.037	0.042	0.047	0.050	0.052	0.052	0.052	0.050	0.047	0.042	0.037	0.031	0.024	0.016	0.008	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.004	0.007	0.010	0.013	0.016	0.018	0.020	0.022	0.022	0.023	0.022	0.022	0.020	0.018	0.016	0.013	0.010	0.007	0.004	0
FINAL CAMBER ↑	0	1/16"	1/8"	3/16"	3/16"	1/4"	5/16"	5/16"	5/16"	3/8"	3/8"	3/8"	5/16"	5/16"	5/16"	1/4"	3/16"	3/16"	1/8"	1/16"	0

* INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. **B-5981**
DUPLIN COUNTY
STATION: **23+56.64 -L-**

SHEET 3 OF 3



DocuSigned by:
William C. Smith
10/24/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS
(SPAN C)

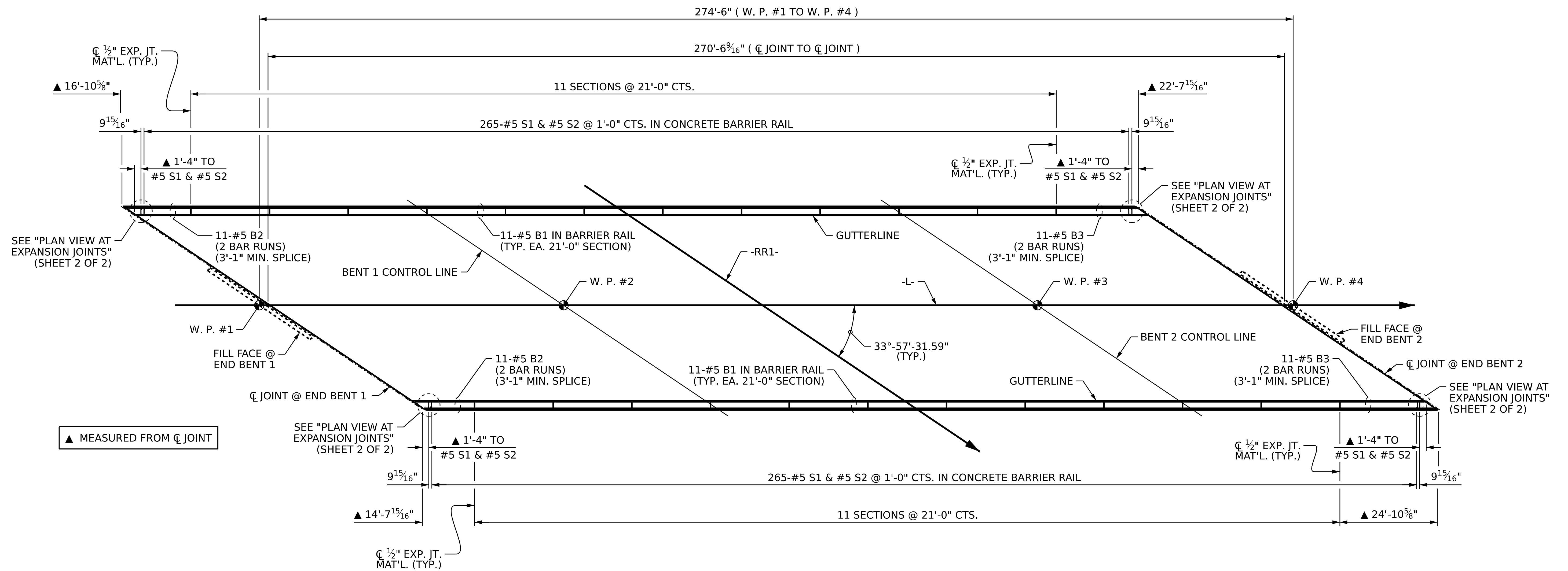
DRAWN BY : K. BEARD DATE : 5/9/22
CHECKED BY : D. SHACKELFORD DATE : 5/19/22
DESIGN ENGINEER OF RECORD: W.C. SMITH DATE : 3/8/23

10/18/2023
R:\Structures\Plans\300016\401_043_B5981_SMU_DL_S1-22_300016.dgn
ssandor

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

TOTAL SHEETS: 43



PLAN OF CONCRETE BARRIER RAIL

STRIP SEAL EXPANSION JOINT SEALS NOT SHOWN FOR CLARITY.

APPROACH SLABS NOT SHOWN FOR CLARITY. FOR CONCRETE BARRIER RAILS ON APPROACH SLABS, SEE "BRIDGE APPROACH SLAB" SHEETS.

PROJECT NO. **B-5981**

DUPLIN COUNTY

STATION: **23+56.64 -L-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

**CONCRETE
BARRIER RAIL**

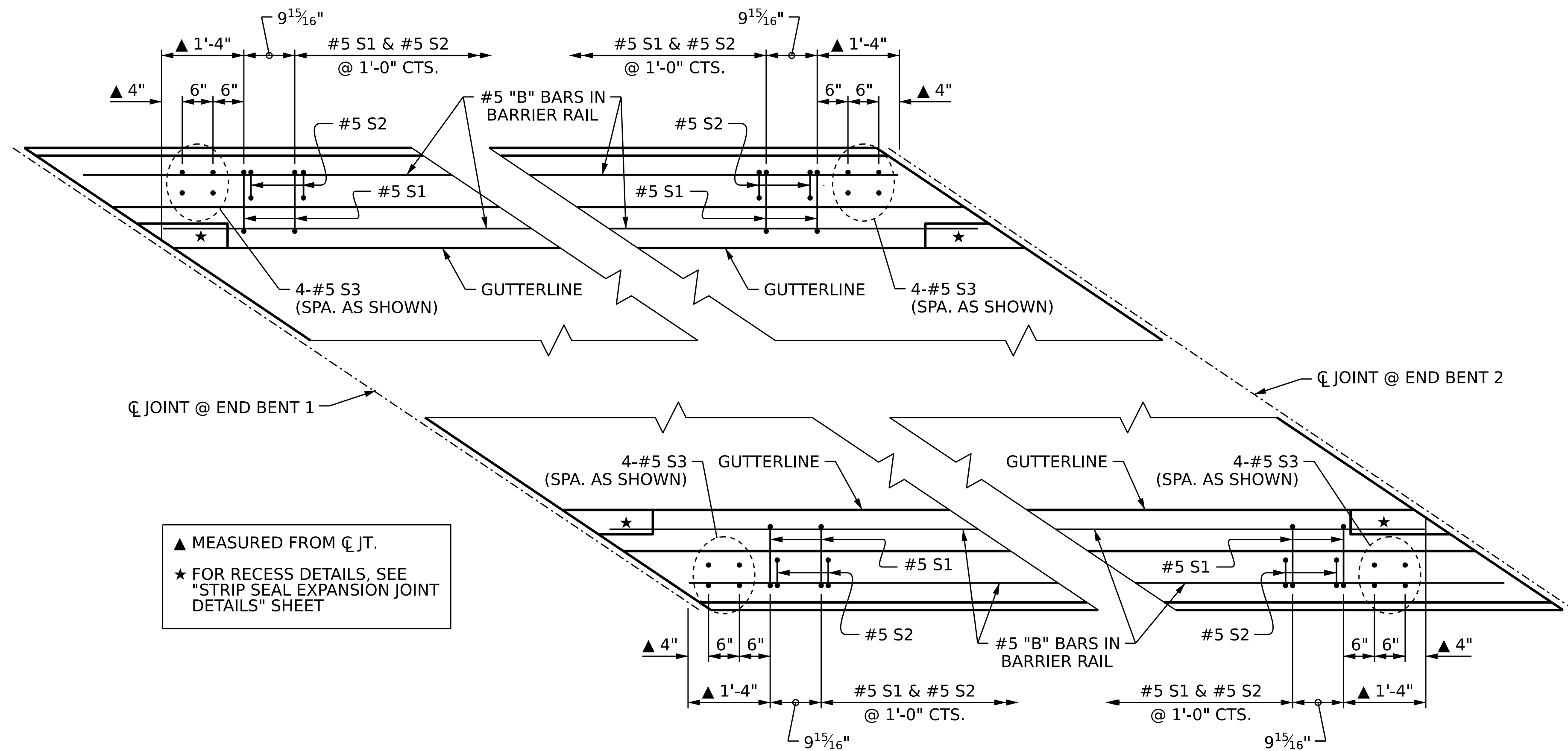


DocuSigned by:
William C. Smith
10/24/2023

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

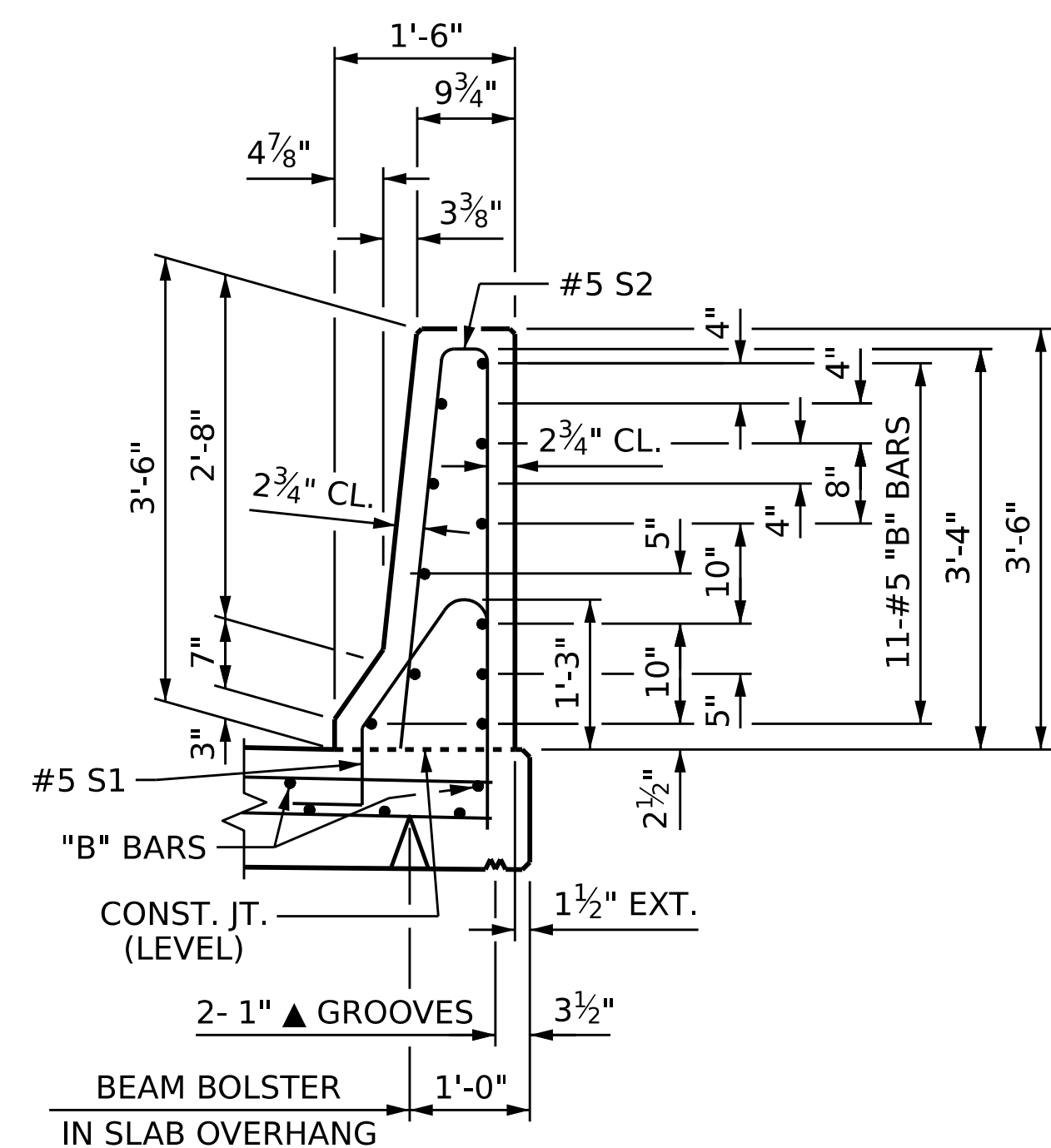
REVISIONS						SHEET NO. S1-23 TOTAL SHEETS 43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : P. K. NEWTON DATE : 1/30/23
 CHECKED BY : M. K. BEARD DATE : 2/6/23
 DESIGN ENGINEER OF RECORD: W. C. SMITH DATE : 3/8/23

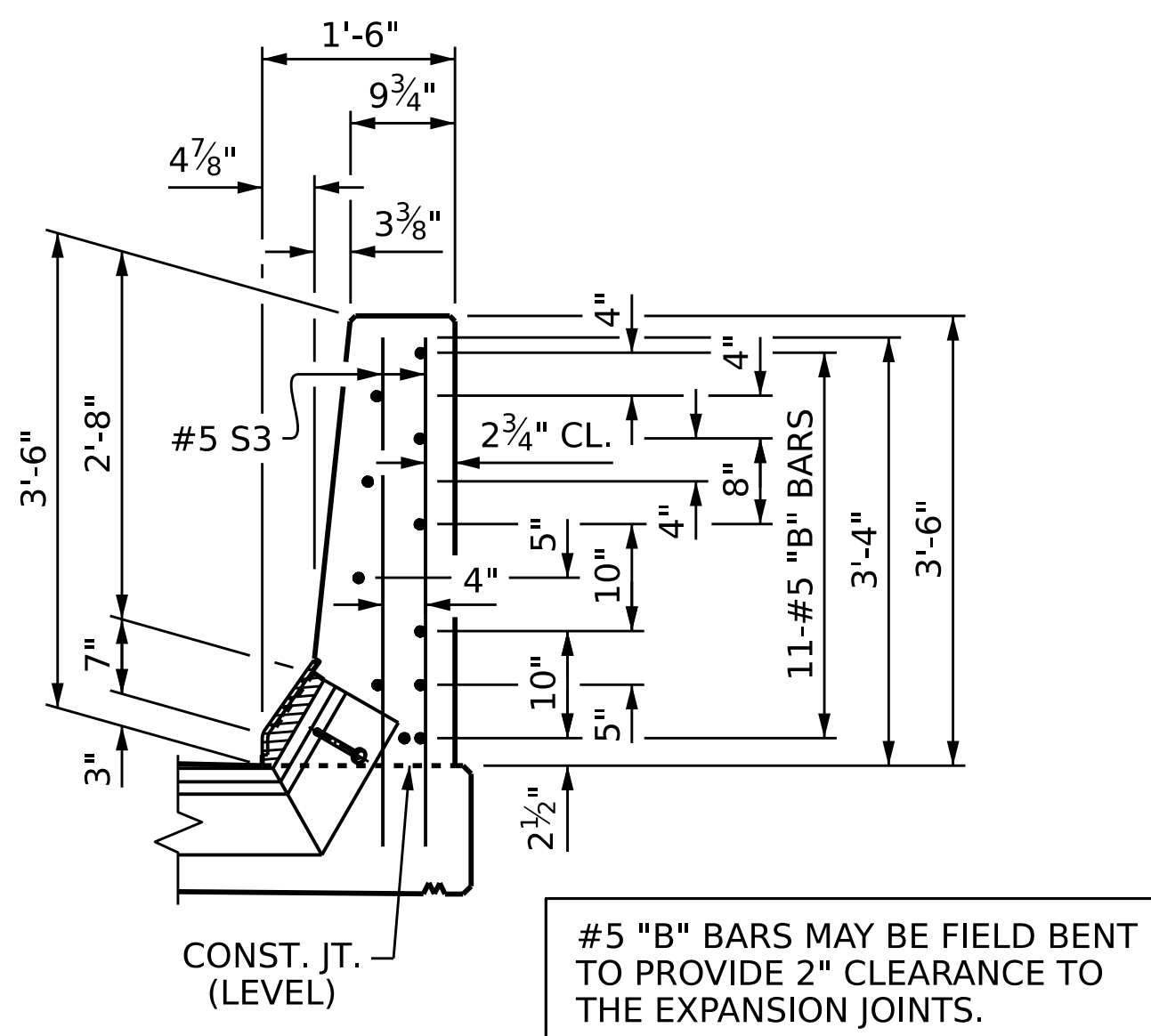


▲ MEASURED FROM C/JT.
 ★ FOR RECESS DETAILS, SEE "STRIP SEAL EXPANSION JOINT DETAILS" SHEET

PLAN VIEW AT EXPANSION JOINTS

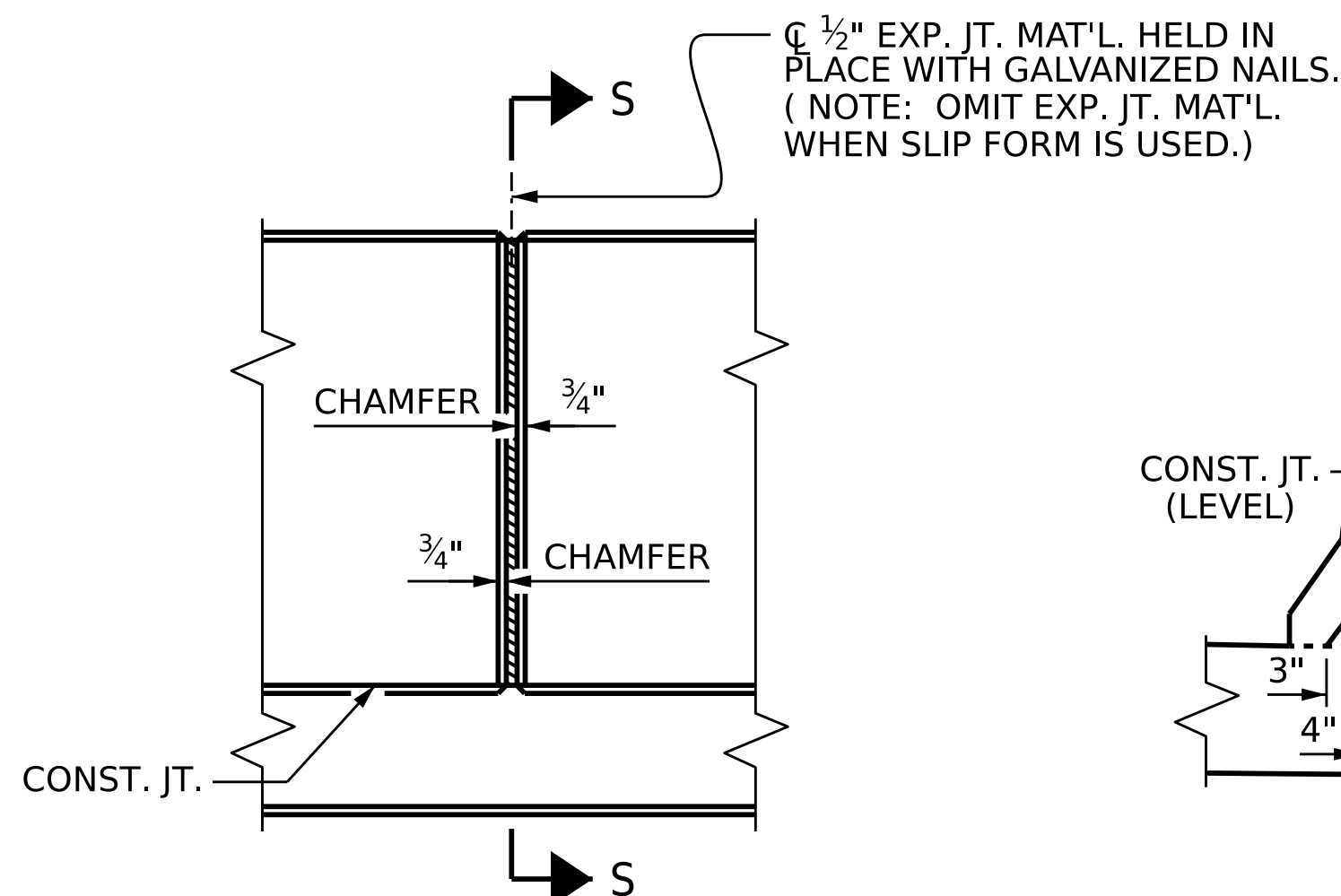


SECTION THRU RAIL

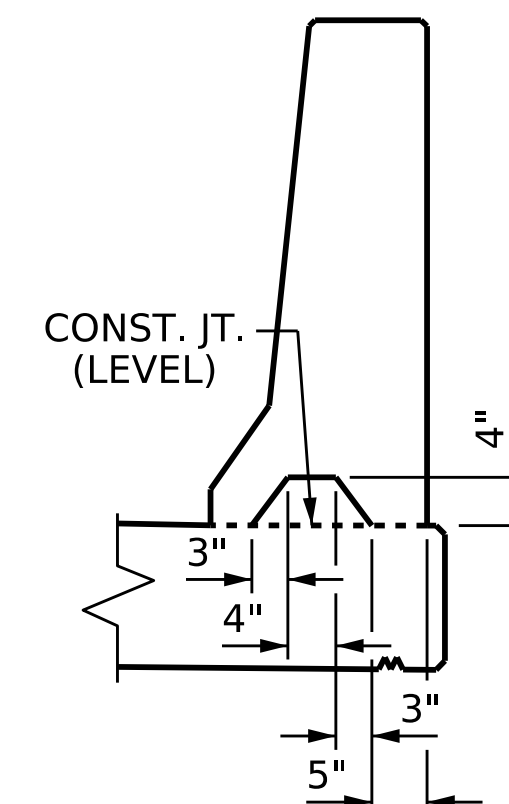


#5 "B" BARS MAY BE FIELD BENT TO PROVIDE 2" CLEARANCE TO THE EXPANSION JOINTS.

SECTION AT JOINTS



ELEVATION AT EXPANSION JOINTS



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

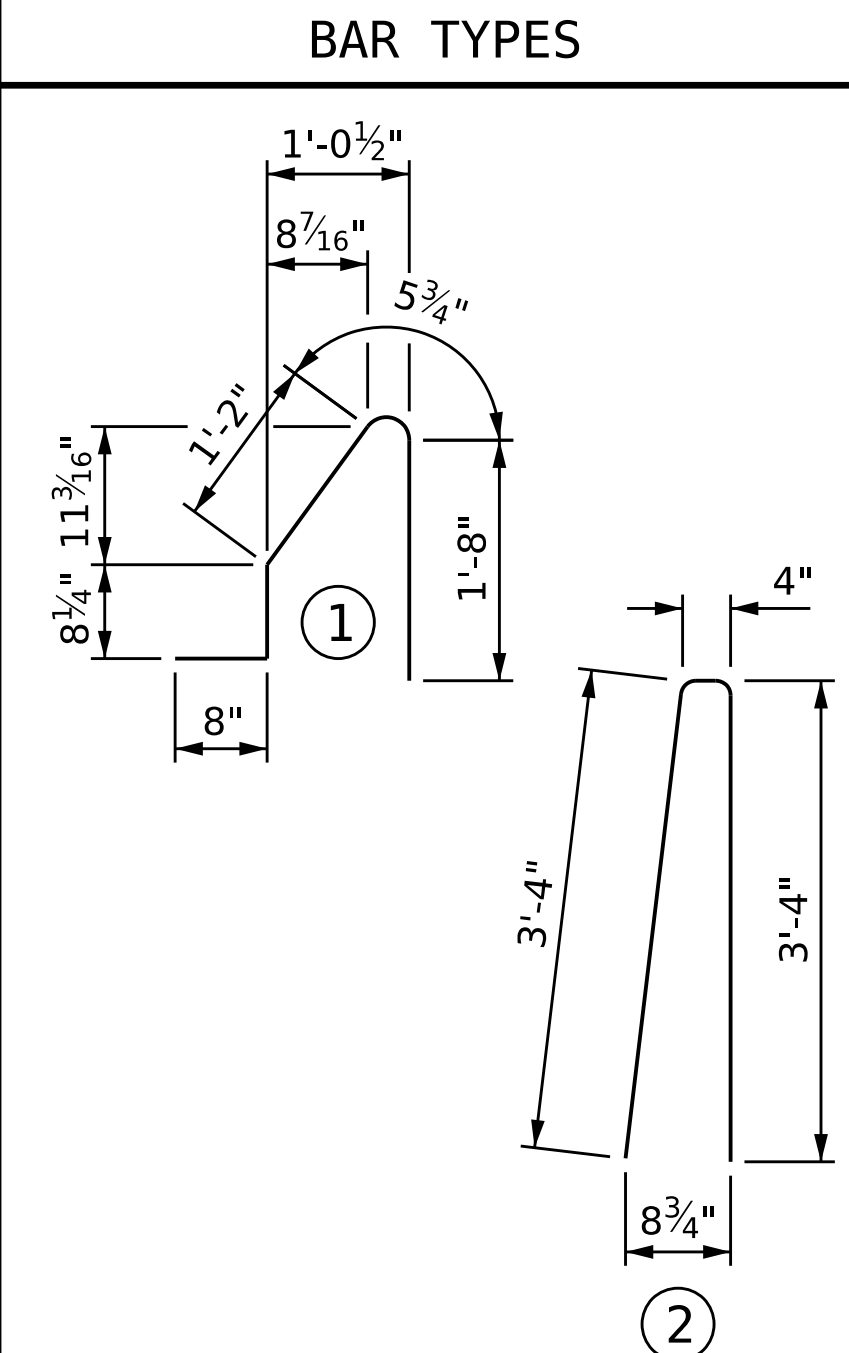
NOTES

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

#5 "B" BARS MAY BE FIELD BENT TO PROVIDE 2" CLEARANCE TO THE EXPANSION JOINTS.



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*S1	534	#5	1	4'-8"	2,599
*S2	534	#5	2	7'-0"	3,899
*S3	16	#5	STR	4'-0"	67
*B1	242	#5	STR	20'-7"	5,195
*B2	44	#5	STR	9'-5"	432
*B3	44	#5	STR	13'-5"	616

* EPOXY COATED REINFORCING STEEL 12,808 LBS.

CLASS AA CONCRETE 79.7 C. Y.

** CONCRETE BARRIER RAIL SUPERSTRUCTURE 541.09 LIN. FT.

** FOR DETAILS & QUANTITIES FOR CONCRETE BARRIER RAIL ON APPROACH SLABS, SEE "BRIDGE APPROACH SLAB" SHEETS.

PROJECT NO. **B-5981**

DUPLIN COUNTY

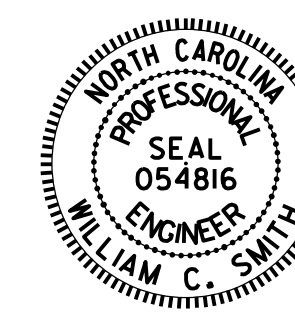
STATION: **23+56.64 -L-**

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

CONCRETE BARRIER RAIL



DocuSigned by:
 William C. Smith
 10/24/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-24
2			4			TOTAL SHEETS 43

DESIGN ENGINEER OF RECORD :	
W. C. SMITH	DATE : 3/8/23
ASSEMBLED BY : P. K. NEWTON DATE : 1/27/23	
CHECKED BY : M. K. BEARD DATE : 3/6/23	
DRAWN BY : ARB 5/87	REV. 7/12 MAA / GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA / GM
	REV. 12/17 MAA / THC

BARRIER RAIL DETAILS

NOTES

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

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 1/8" 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.)

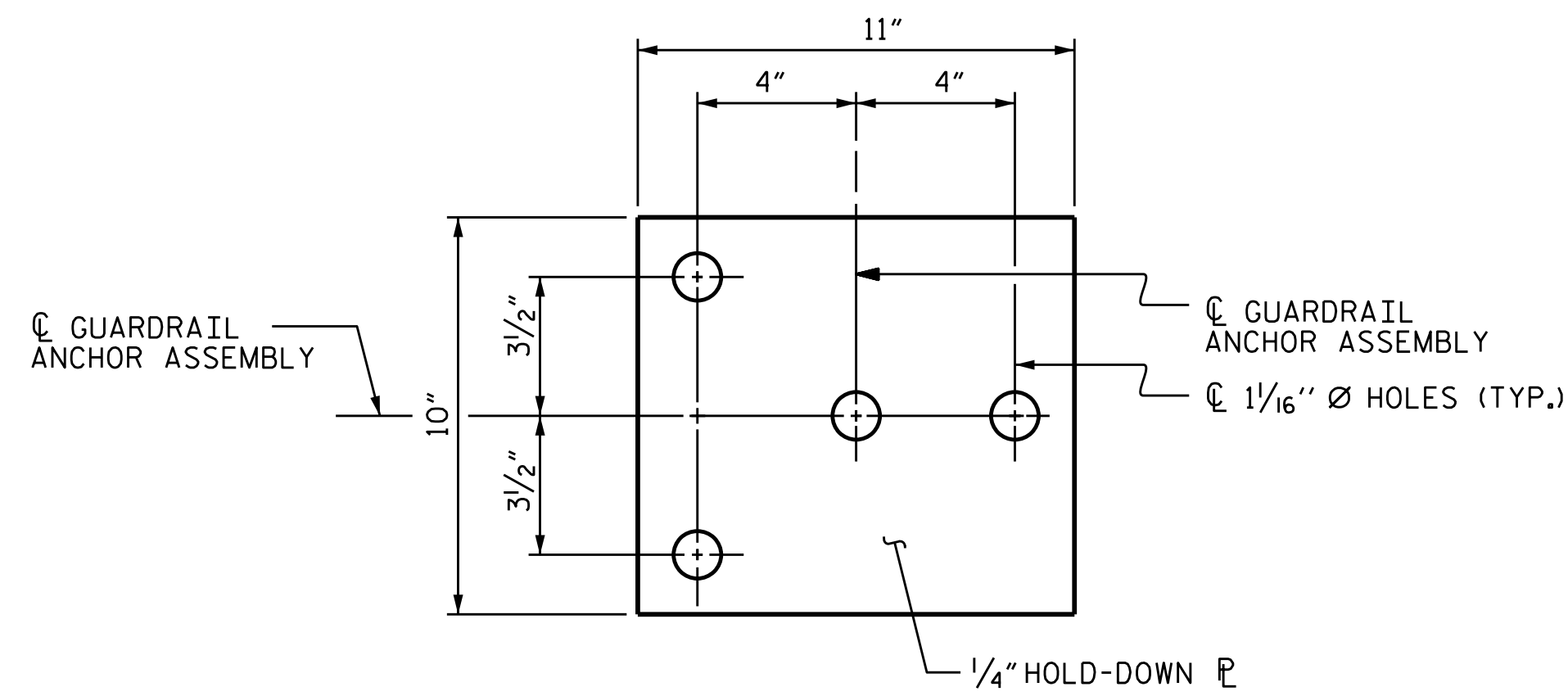
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

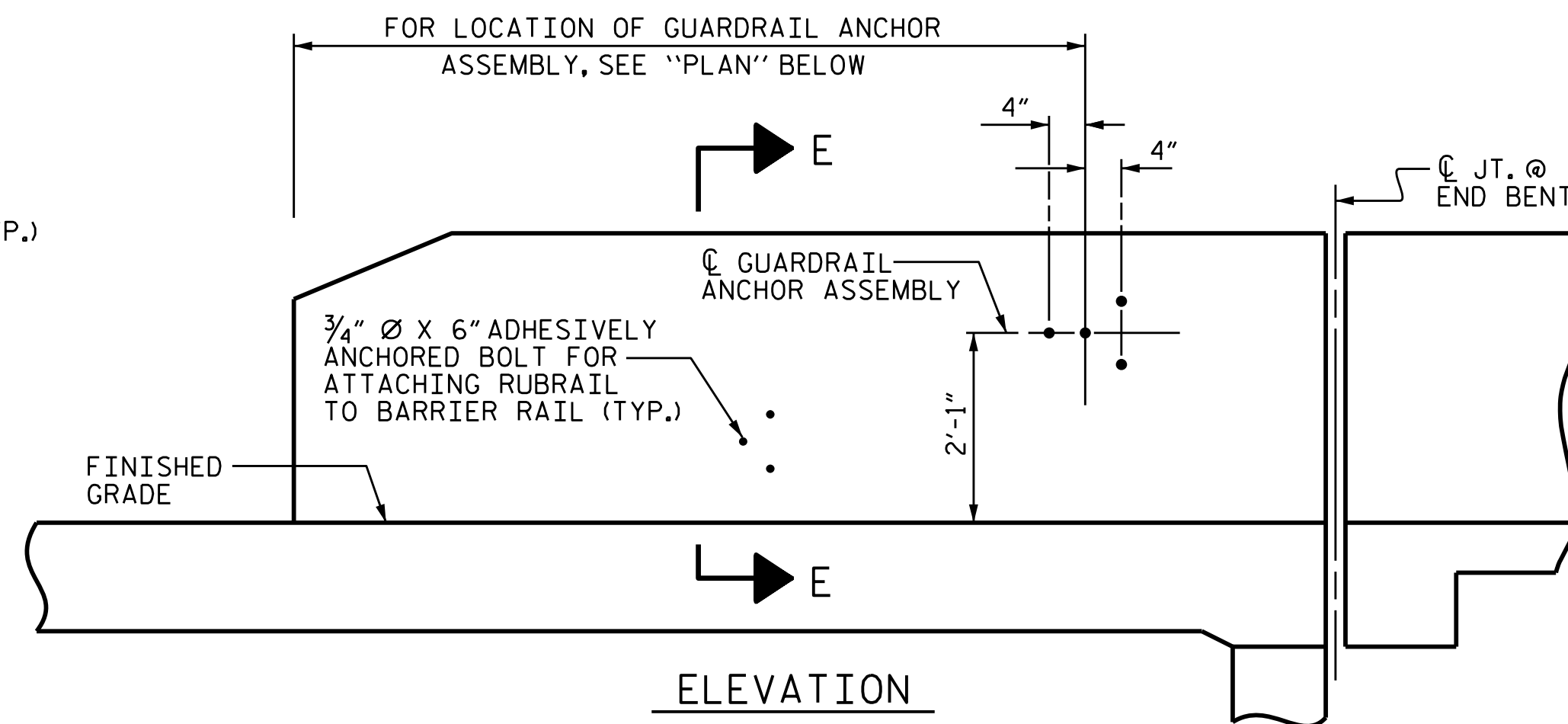
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

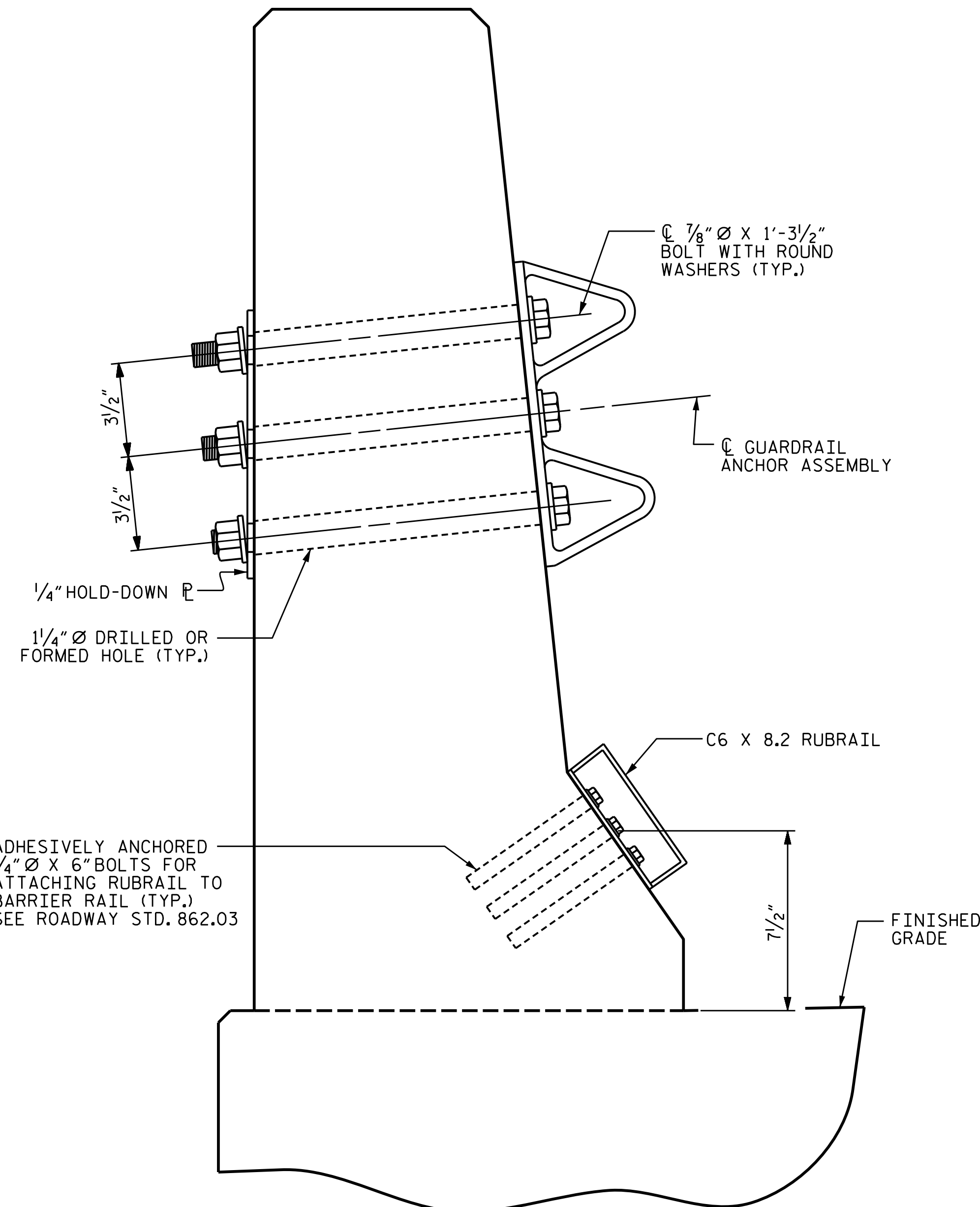
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



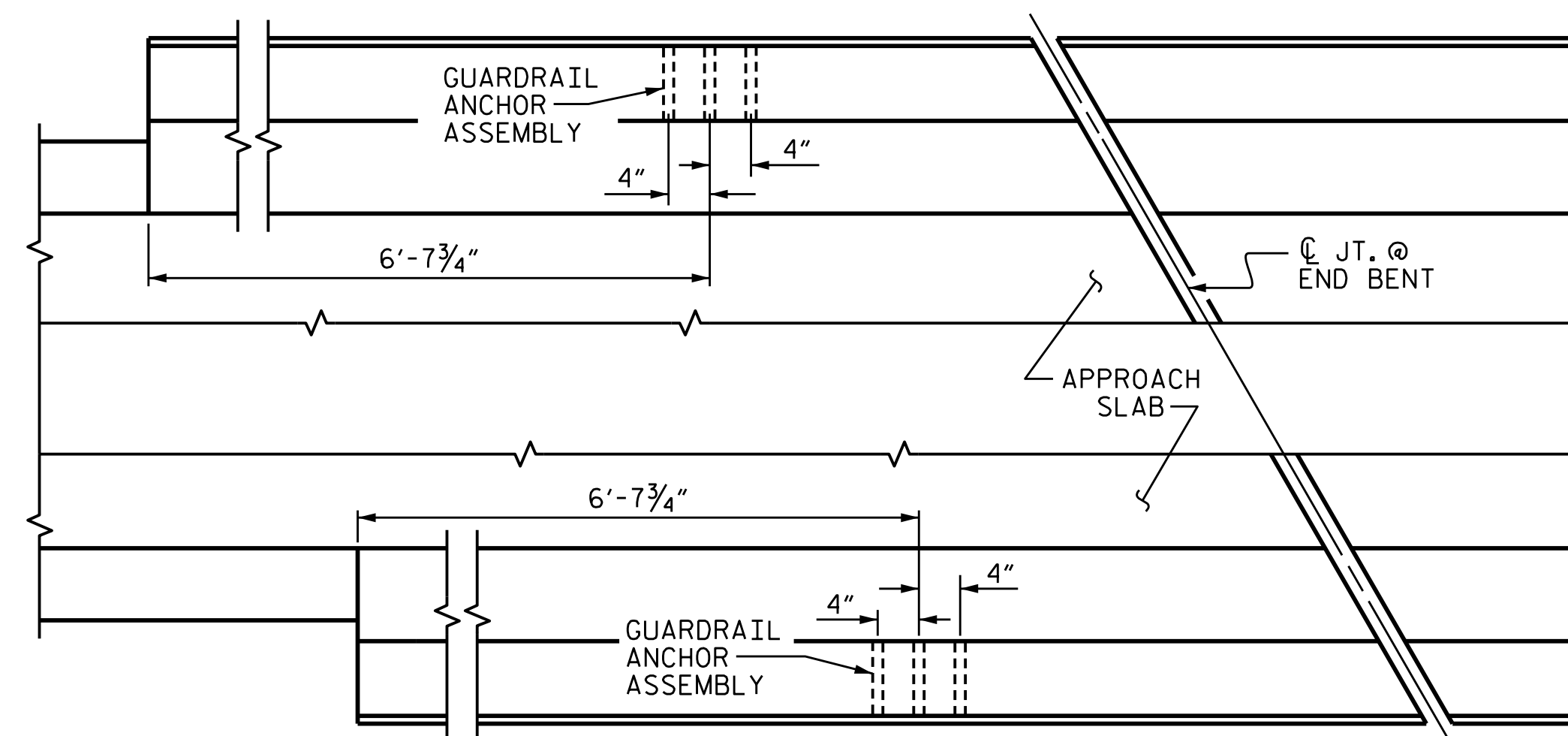
PLAN



ELEVATION



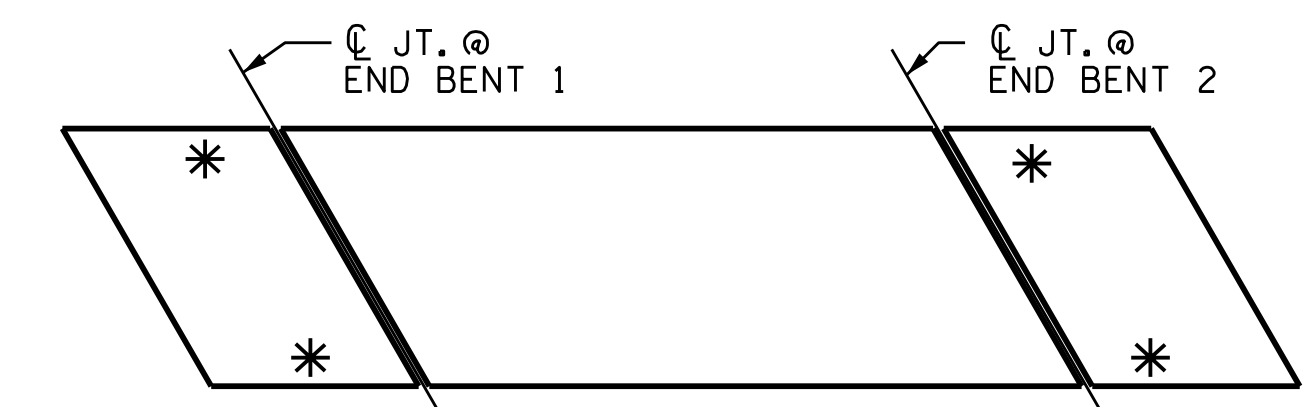
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

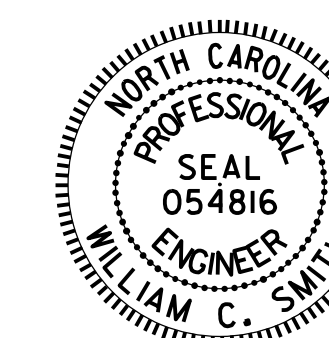
END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-5981
DUPLIN COUNTY
STATION: 23+56.64 -L-



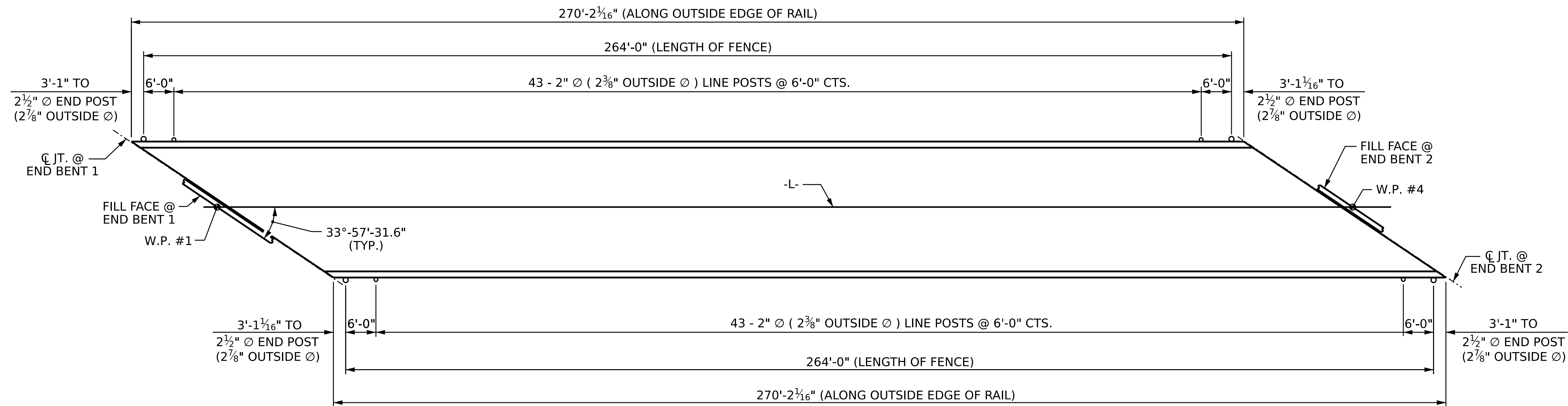
DocuSigned by:
William C. Smith
0A2A2023F0241D

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

ASSEMBLED BY : S. T. SANDOR	DATE : 03/24/2022
CHECKED BY : M. K. BEARD	DATE : 05/03/2022
DRAWN BY : TLA 5/06	REV. 7/12
CHECKED BY : GM 5/06	REV. 6/13
	REV. 12/17
	MAA/GM
	MAA/GM
	MAA/THC

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S1-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			



PLAN OF FENCE POST SPACING

(PAY LENGTH = 528.00 LIN. FT.)

NOTES

FOR 72" CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

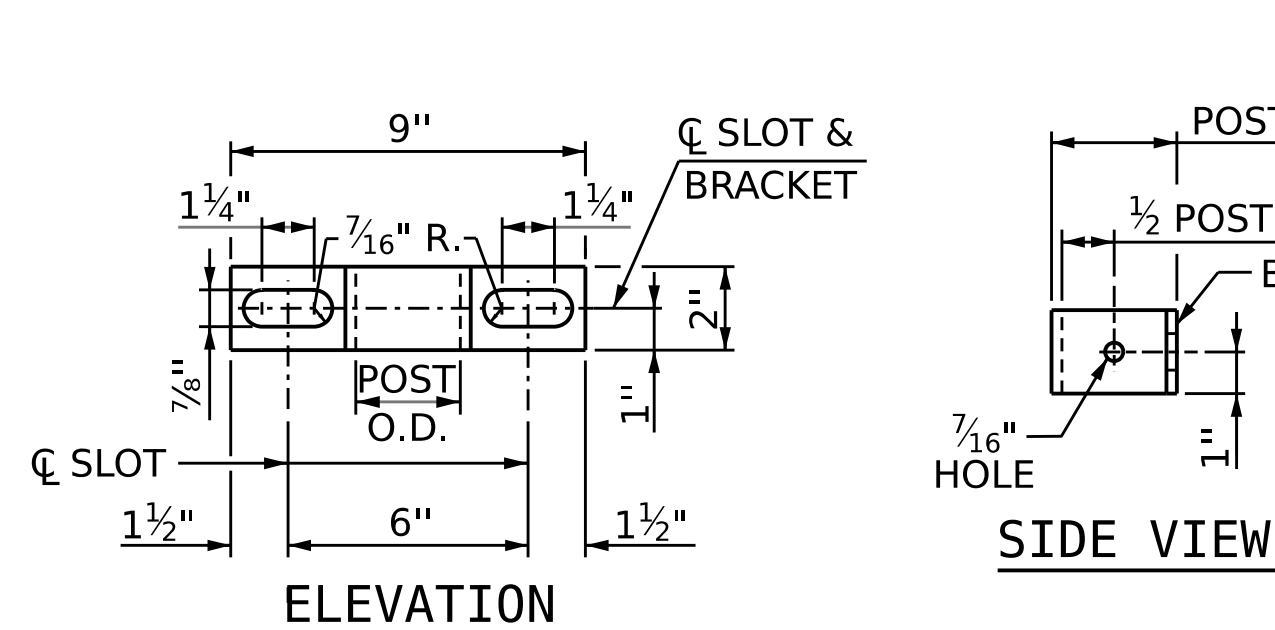
MATERIAL FOR ANCHOR BOLTS SHALL BE TYPE 304 STAINLESS STEEL WITH A MINIMUM 9000 PSI ULTIMATE STRENGTH. NUTS AND WASHERS SHALL BE TYPE 304 STAINLESS STEEL. ANCHOR BOLTS SHALL BE EMBEDDED AS PER ADHESIVE BONDING SYSTEM MANUFACTURER SPECIFICATIONS. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK NUTS, CLASS 2B THREADS.

FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE STANDARD SPECIFICATIONS SECTION 420-13 FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4" Ø BOLTS IS 12.0 KIPS.

ALL FENCE MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS. GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

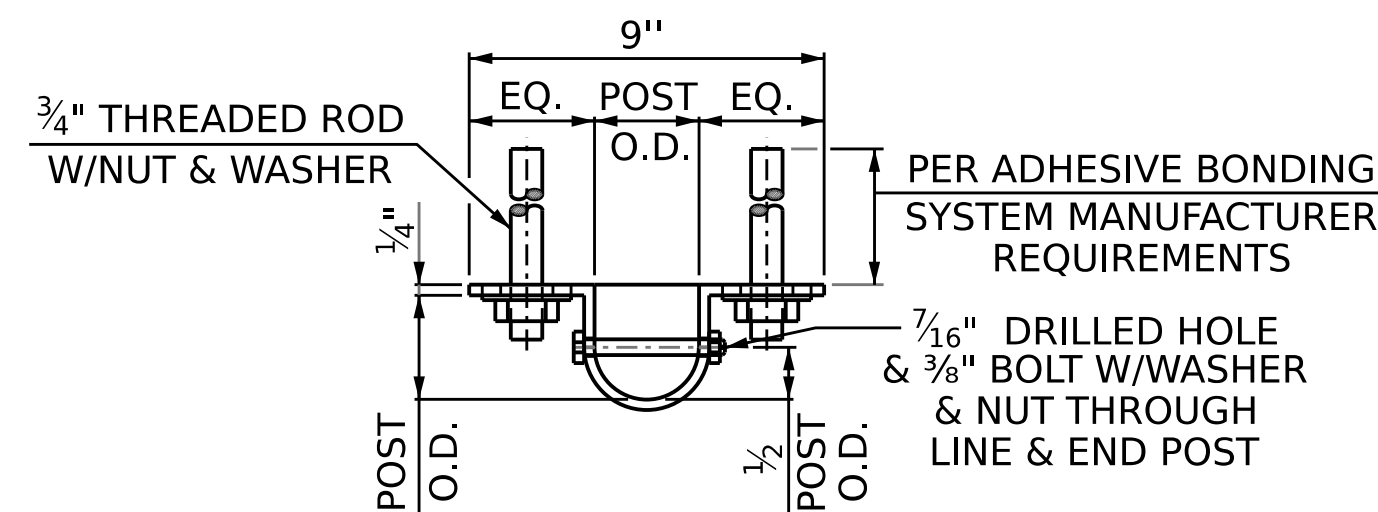
FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN BARRIER RAIL.

DIMENSIONS ARE SHOWN ALONG OUTSIDE FACE OF BARRIER RAIL.



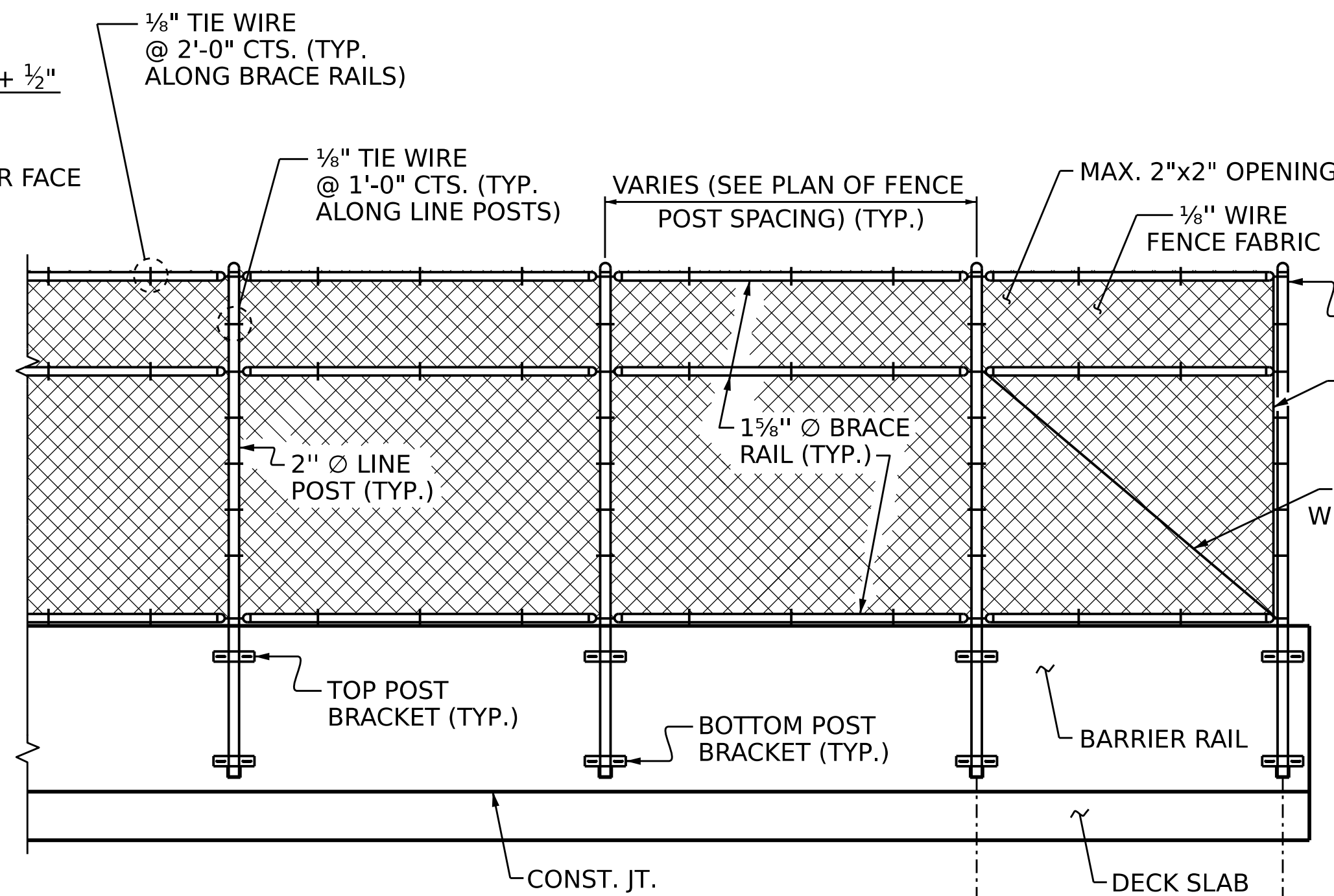
ELEVATION

SIDE VIEW

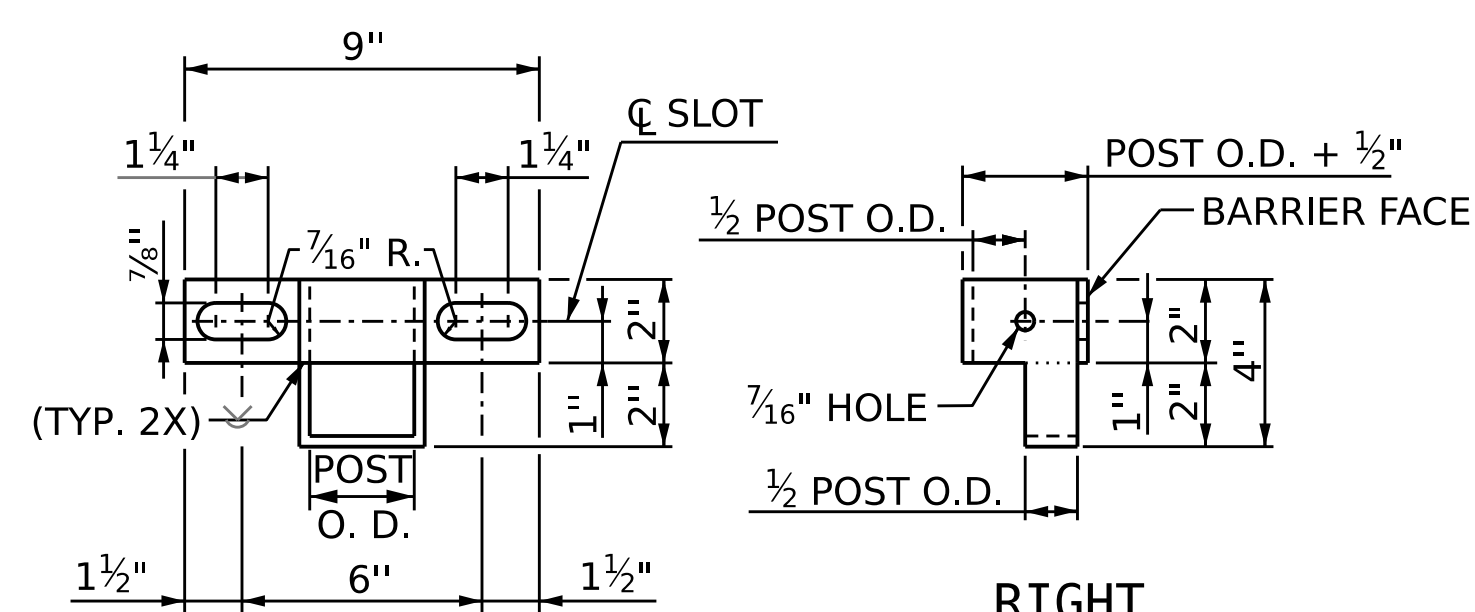


PLAN

TOP POST BRACKET

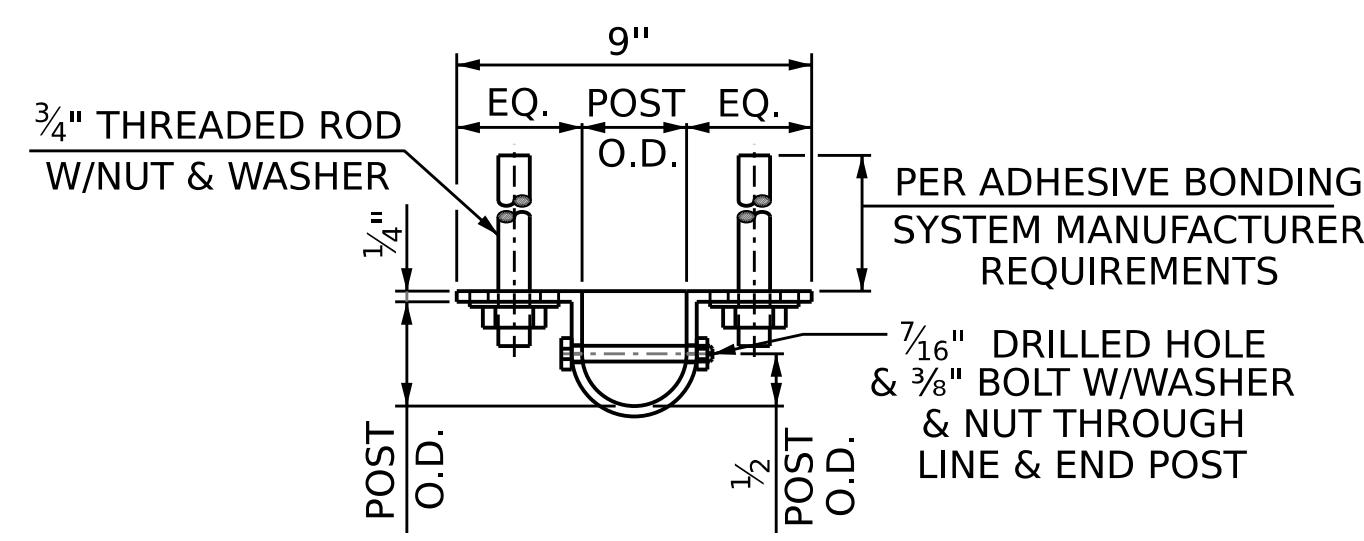


PARTIAL ELEVATION



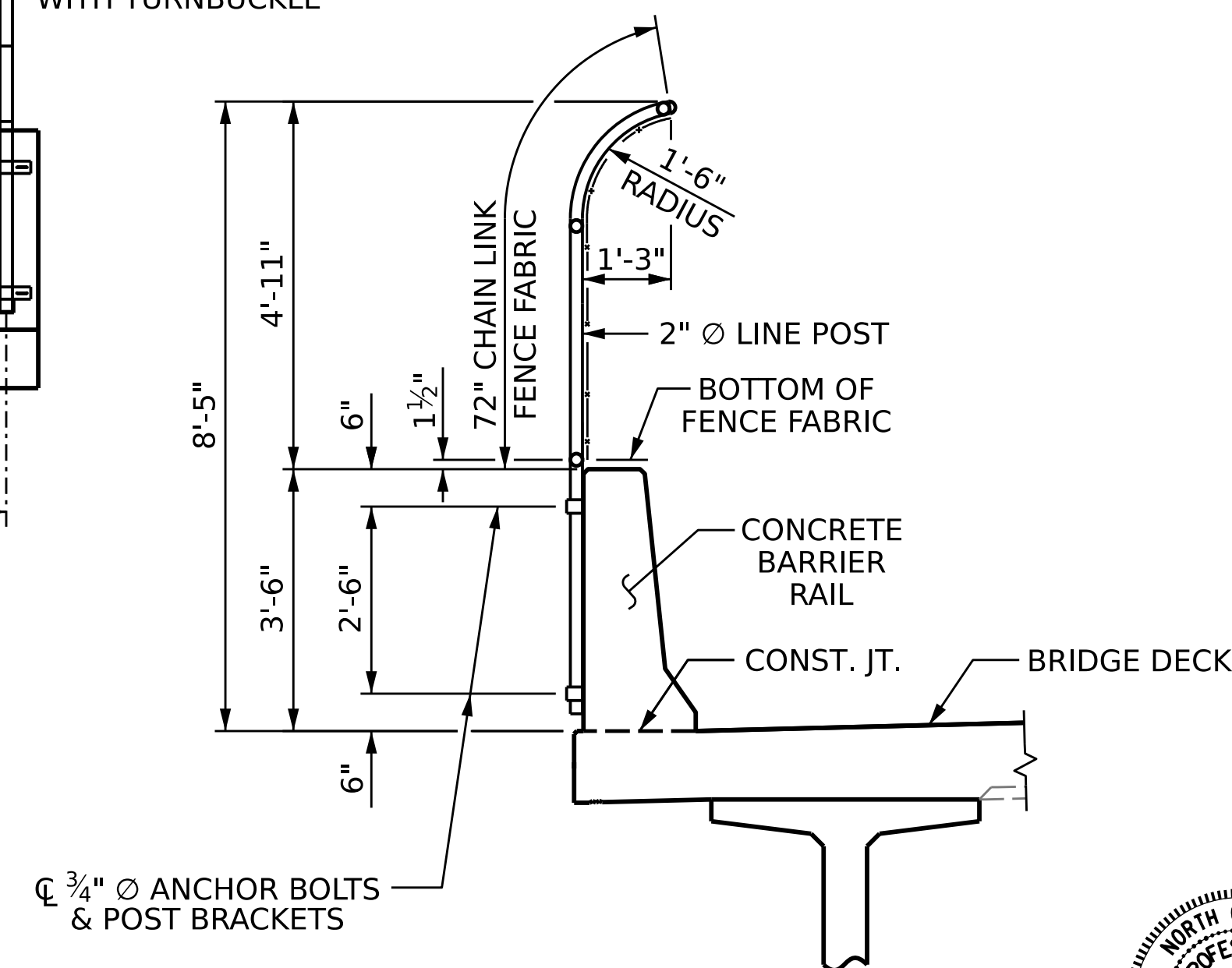
ELEVATION

RIGHT SIDE VIEW

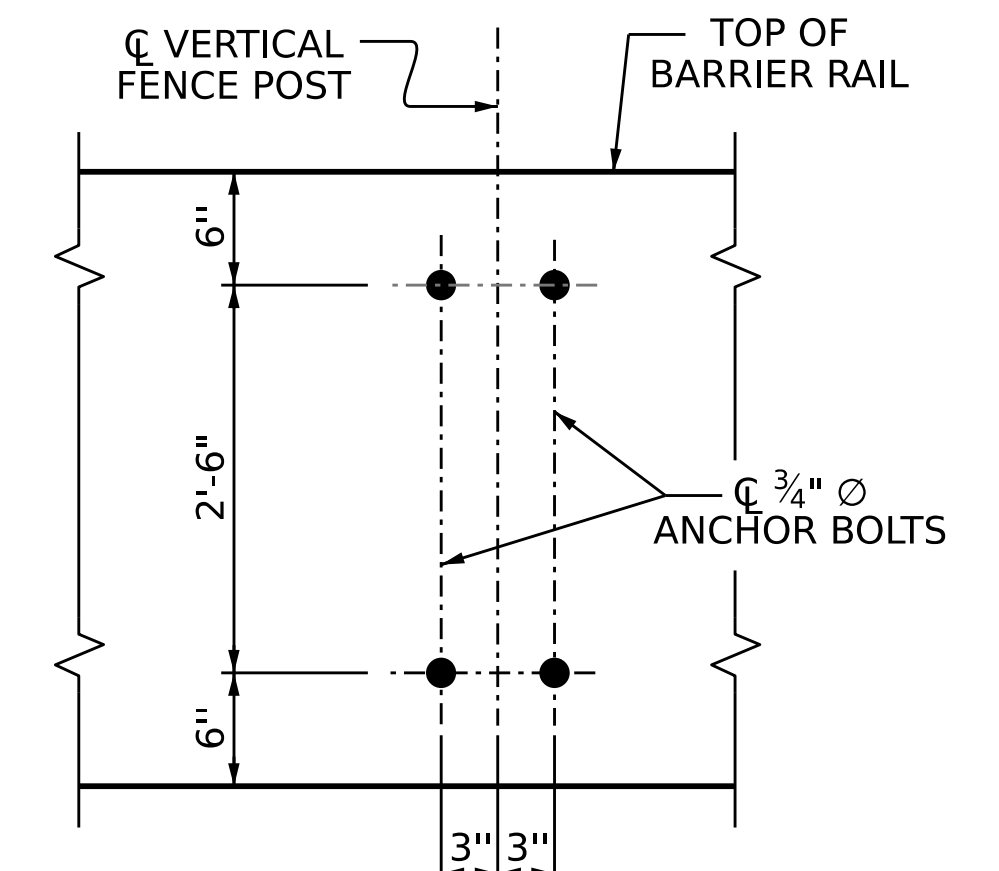


PLAN

BOTTOM POST BRACKET



SECTION THRU FENCE



BOLT SETTING DETAIL

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**



DocuSigned by:
 William C. Smith
 10/24/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE MOUNTED
 CHAIN LINK FENCE
 DETAILS**

DRAWN BY: **K. BEARD** DATE: **4/5/22**
 CHECKED BY: **D. SHACKELFORD** DATE: **6/6/22**
 DESIGN ENGINEER OF RECORD: **W.C. SMITH** DATE: **3/8/23**

10/18/2023
 R:\Structures\Plans\300016\401_051_B5981.SMU.CLF.S1-26_300016.dgn
 ssandor

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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

TOTAL SHEETS: 43

JOINT INSTALLATION PROCEDURE:

1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
9. PLACE APPROACH/DECK SLAB CONCRETE.
10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT, STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.

GENERAL NOTES

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.

ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.

STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.

UPON COMPLETION OF SHOP FABRICATION, THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

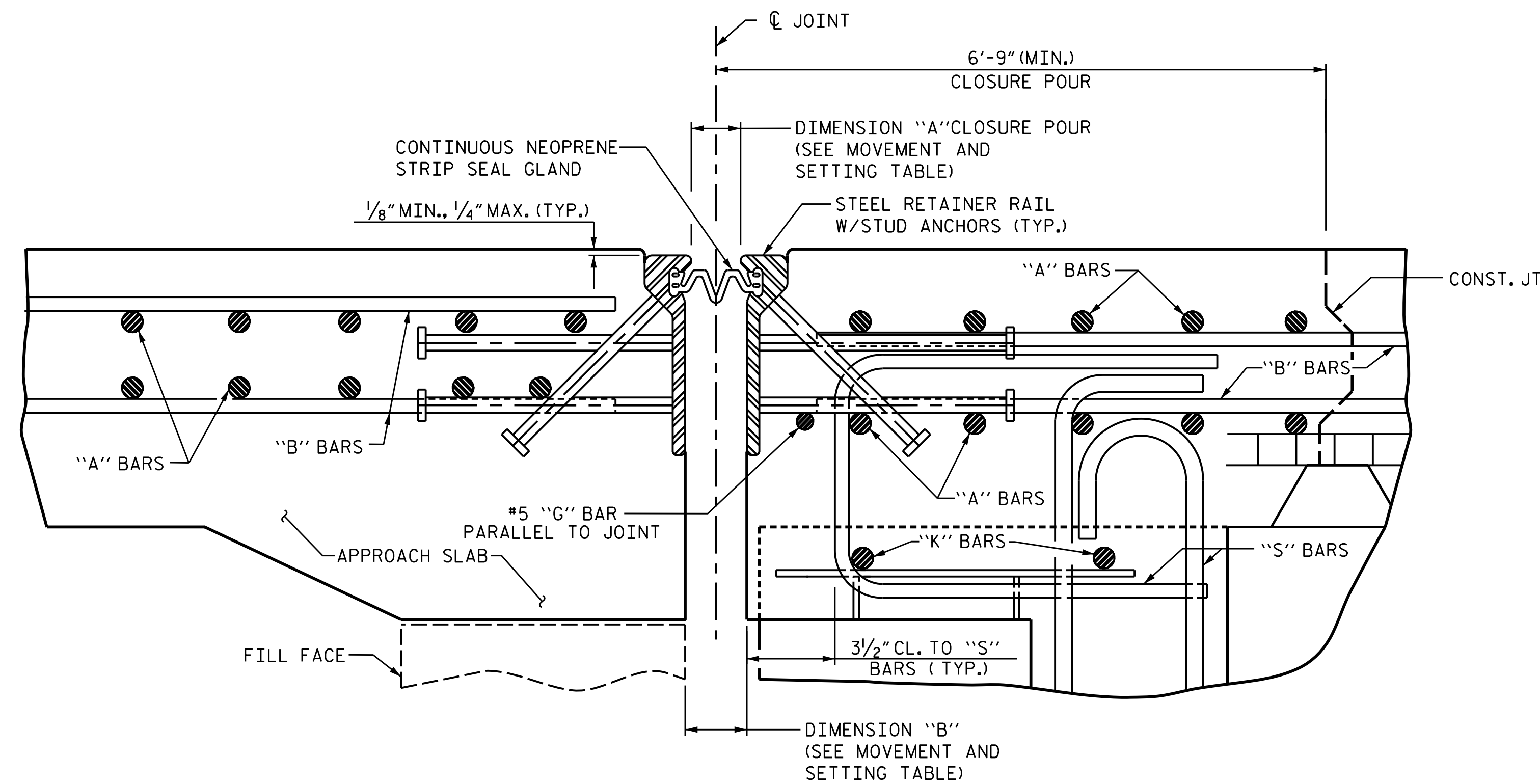
FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPLICING THE GLAND IS NOT PERMITTED.

NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.

THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

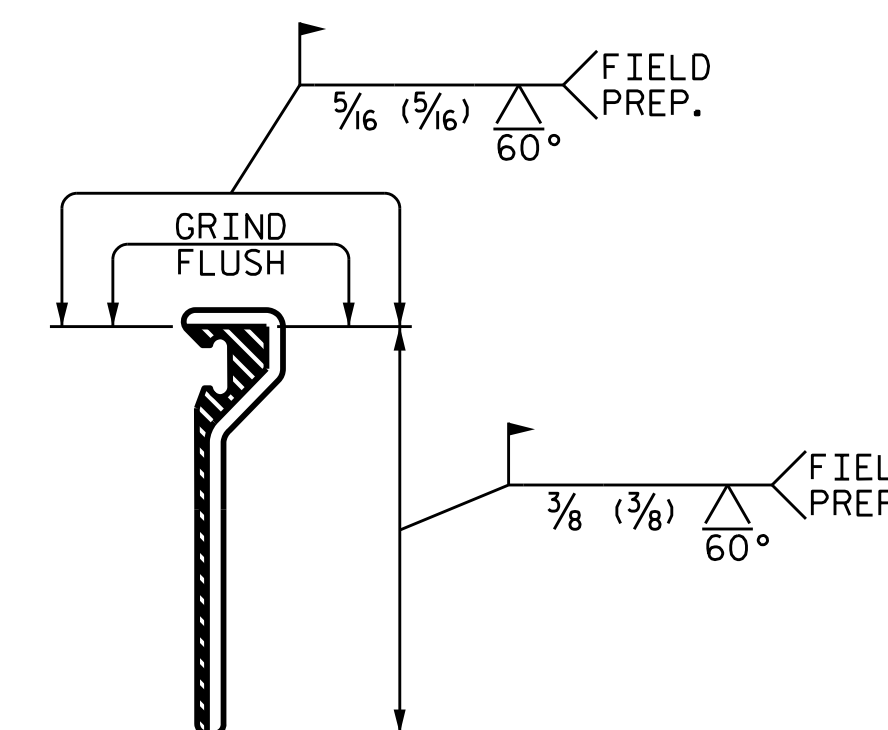
THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE $\frac{3}{4}$ " \emptyset BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



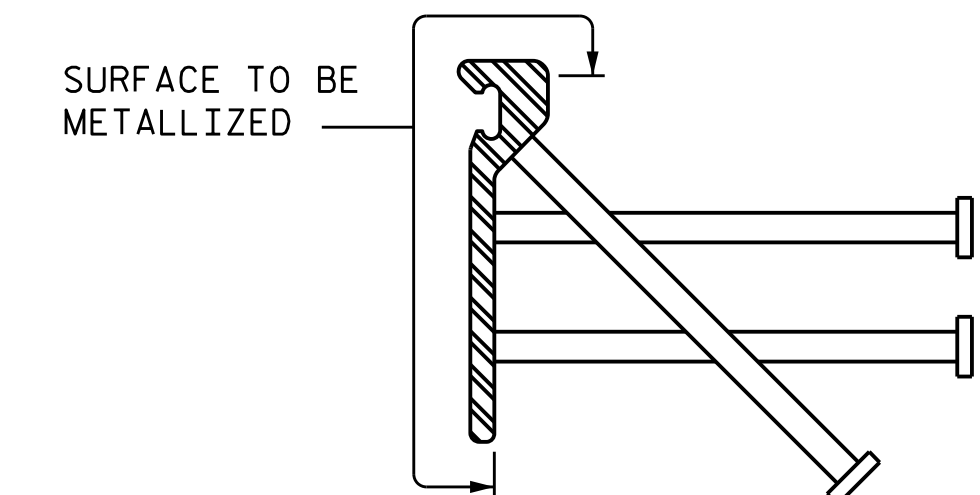
STRIP SEAL EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

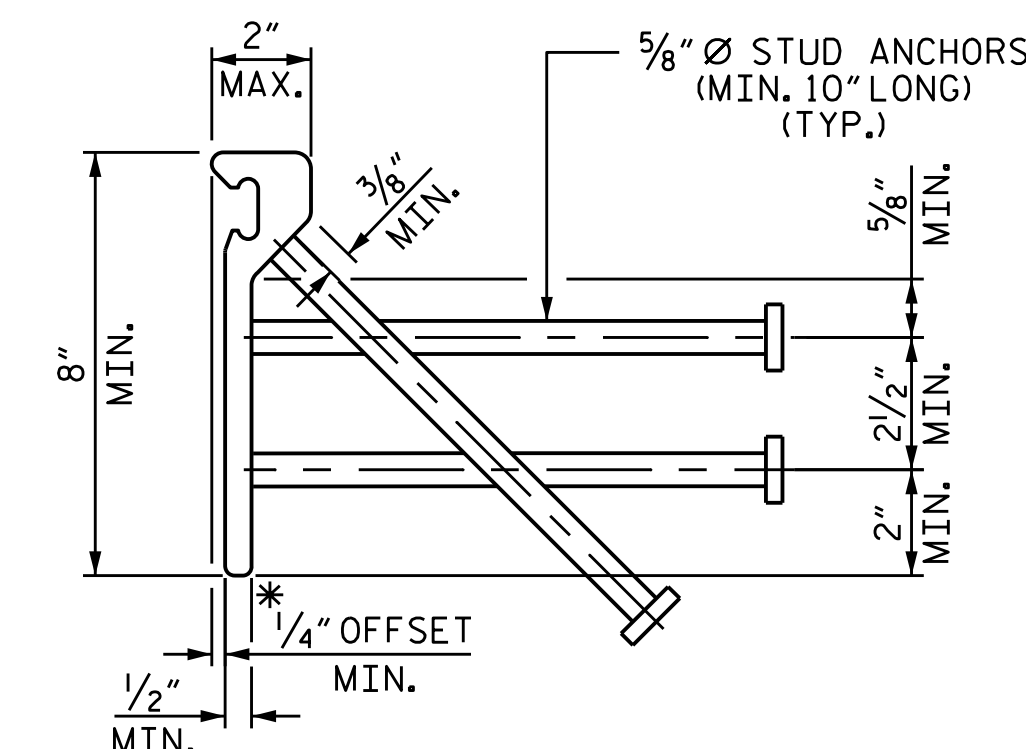
LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG \emptyset RDWY)	MOVEMENT AND SETTING AT JOINT					
			DIMENSION "A"			DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	33°-57'-31.6"	$\frac{7}{8}$ "	2 $\frac{1}{4}$ "	2"	1 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "
END BENT 2	33°-57'-31.6"	1 $\frac{3}{16}$ "	2 $\frac{1}{4}$ "	2"	1 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "



STEEL RETAINER RAIL (FIELD SPLICE DETAIL)



METALLIZING DETAIL



TYPICAL SECTION STEEL RETAINER RAIL

*DIMENSION "B" BASED ON STEEL RETAINER RAIL TOP OFFSET TO FACE OF RAIL OF $\frac{1}{4}$ " MINIMUM. IF ACTUAL OFFSET IS GREATER ADJUST DIMENSION "B" AS REQUIRED.



DocuSigned by:
William C. Smith
0A2A8293F0241D
10/24/2023

PROJECT NO. B-5981
DUPLIN COUNTY
STATION: 23+56.64 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
STRIP SEAL EXPANSION JOINT DETAILS

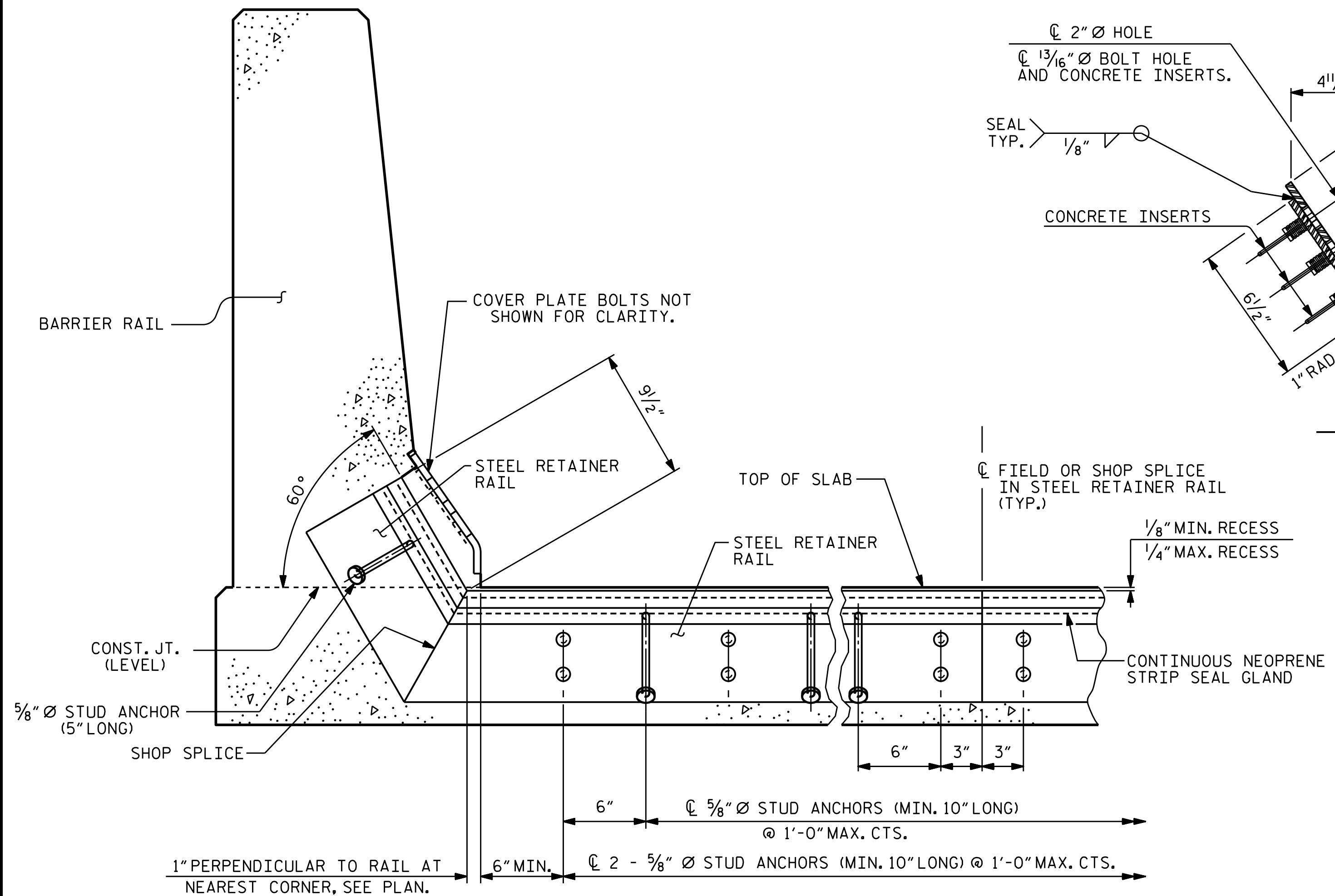
DESIGN ENGINEER OF RECORD:
W. C. SMITH DATE: 3/8/23
ASSEMBLED BY: S. T. SANDOR DATE: 7/29/22
CHECKED BY: M. K. BEARD DATE: 8/27/22
DRAWN BY: MAA 6/20
CHECKED BY: BNB 6/20

10/18/2023
R:\Structures\Plans\300016\401.053.B5981.SMU.SSEJ.S1-27.300016.dgn
ssandor

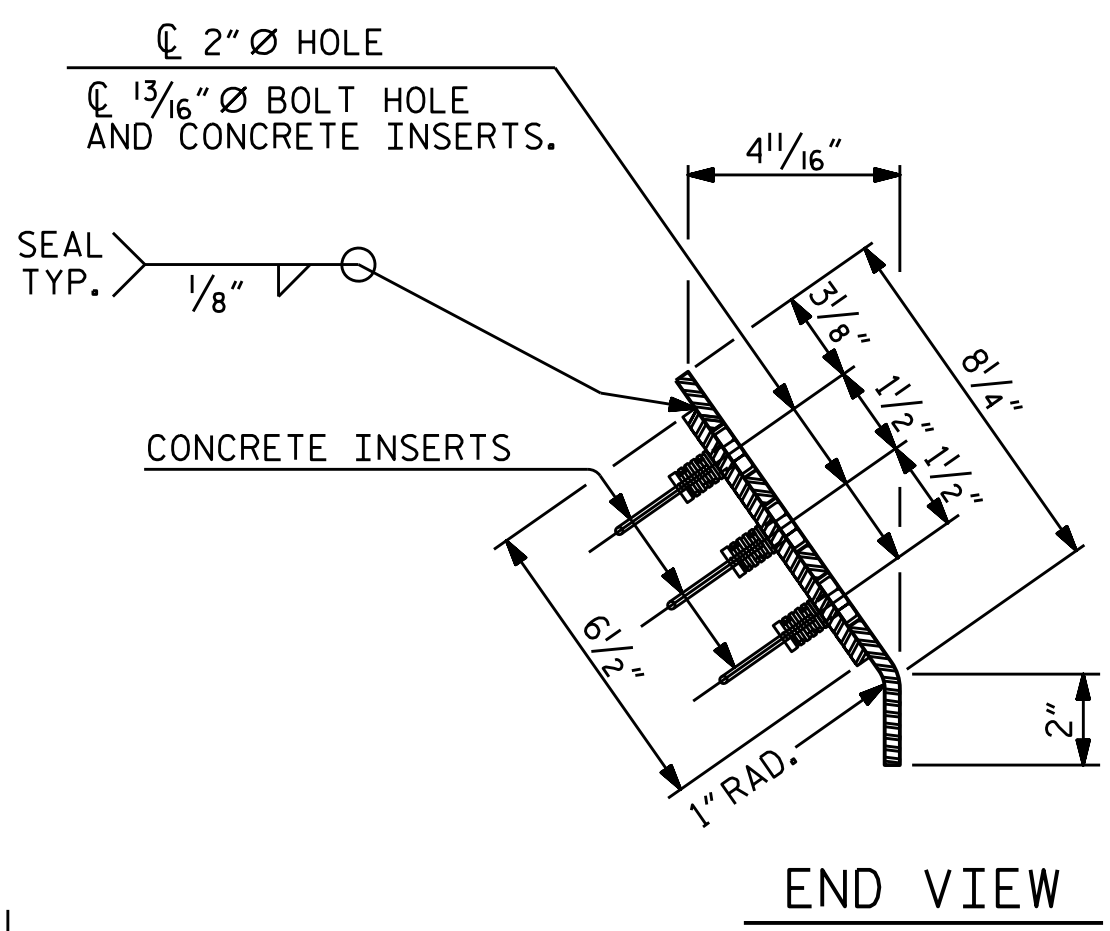
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. S1-27
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

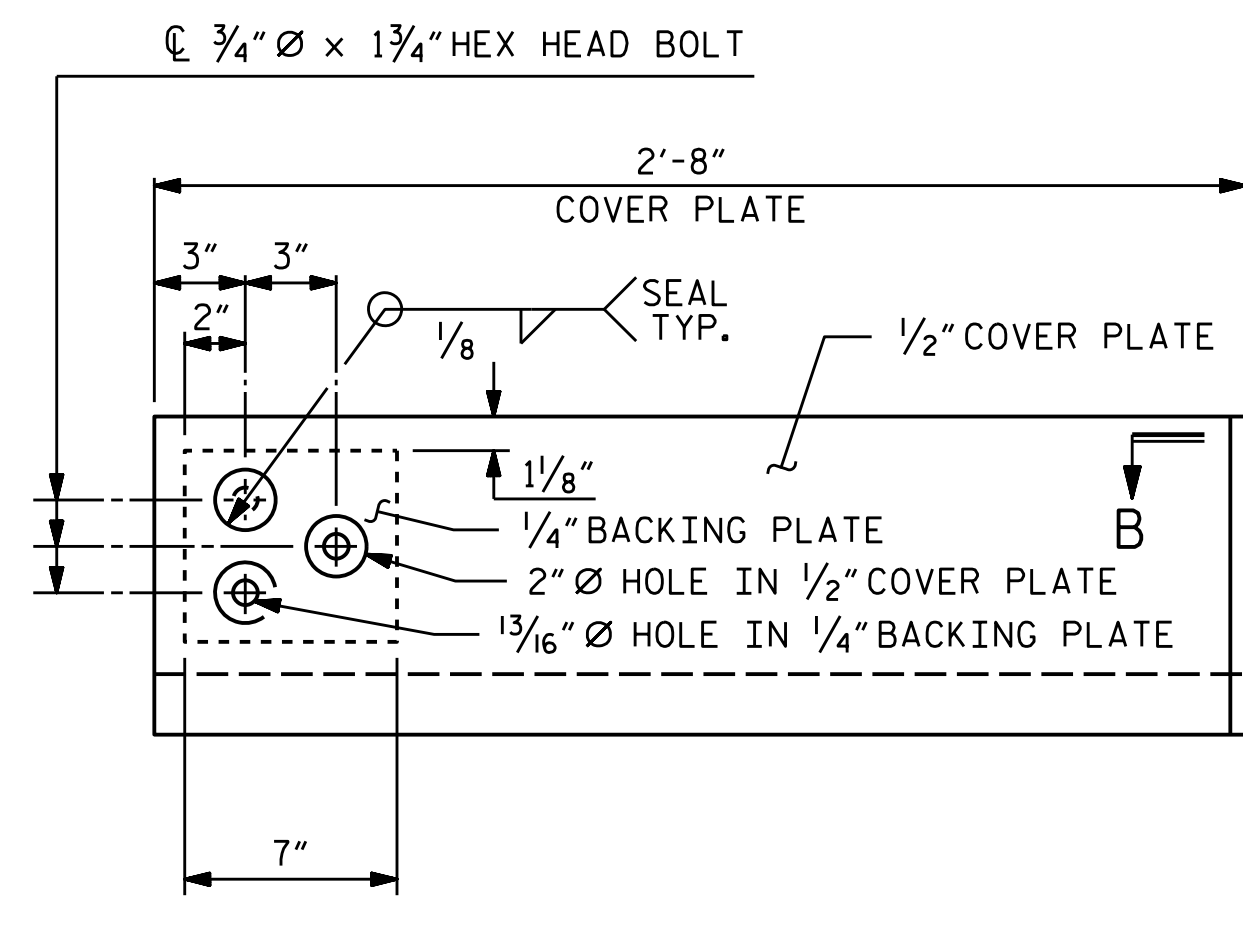
STD. NO. SSEJ1(SHT 1)



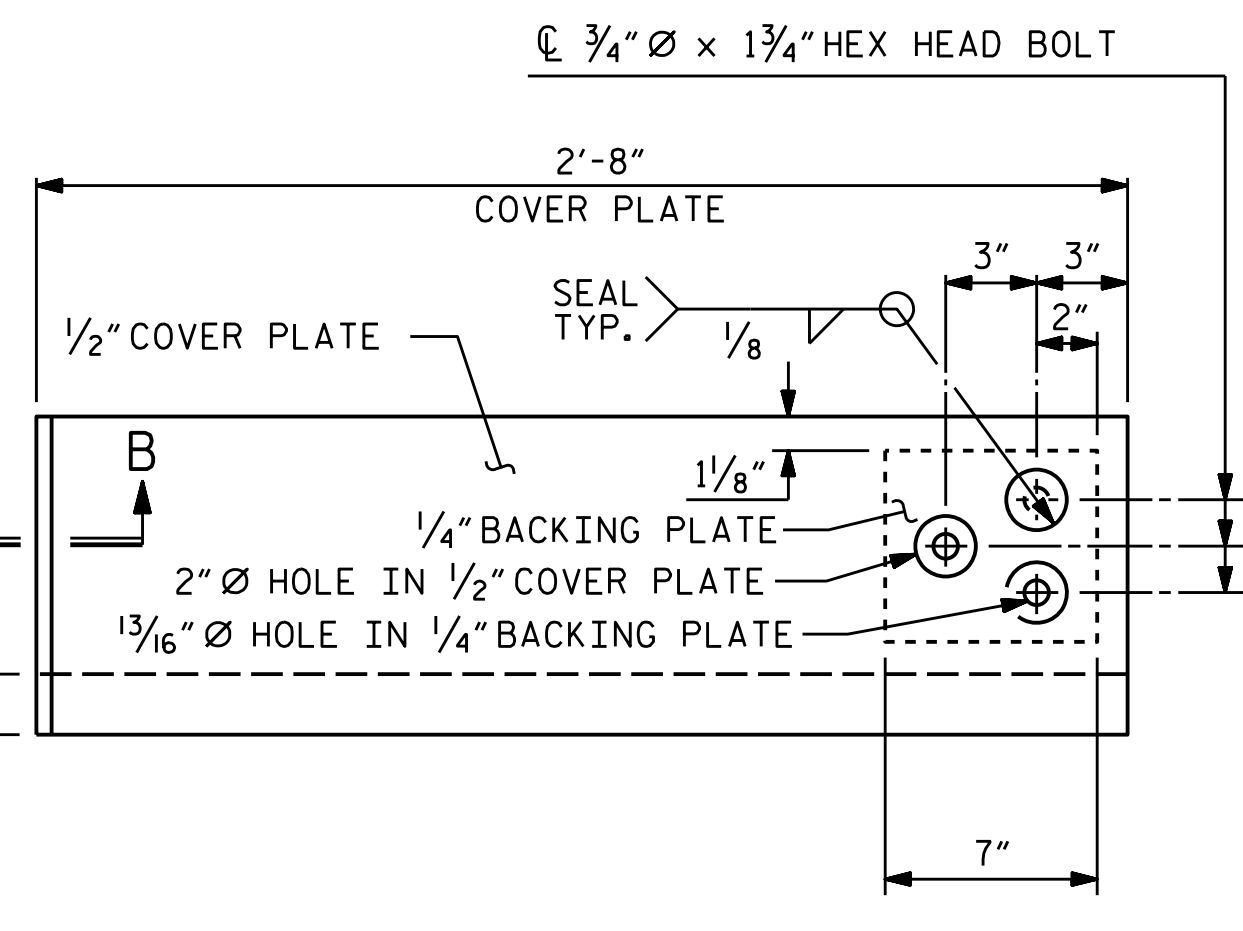
SECTION THRU RAIL NORMAL TO JOINT



END VIEW

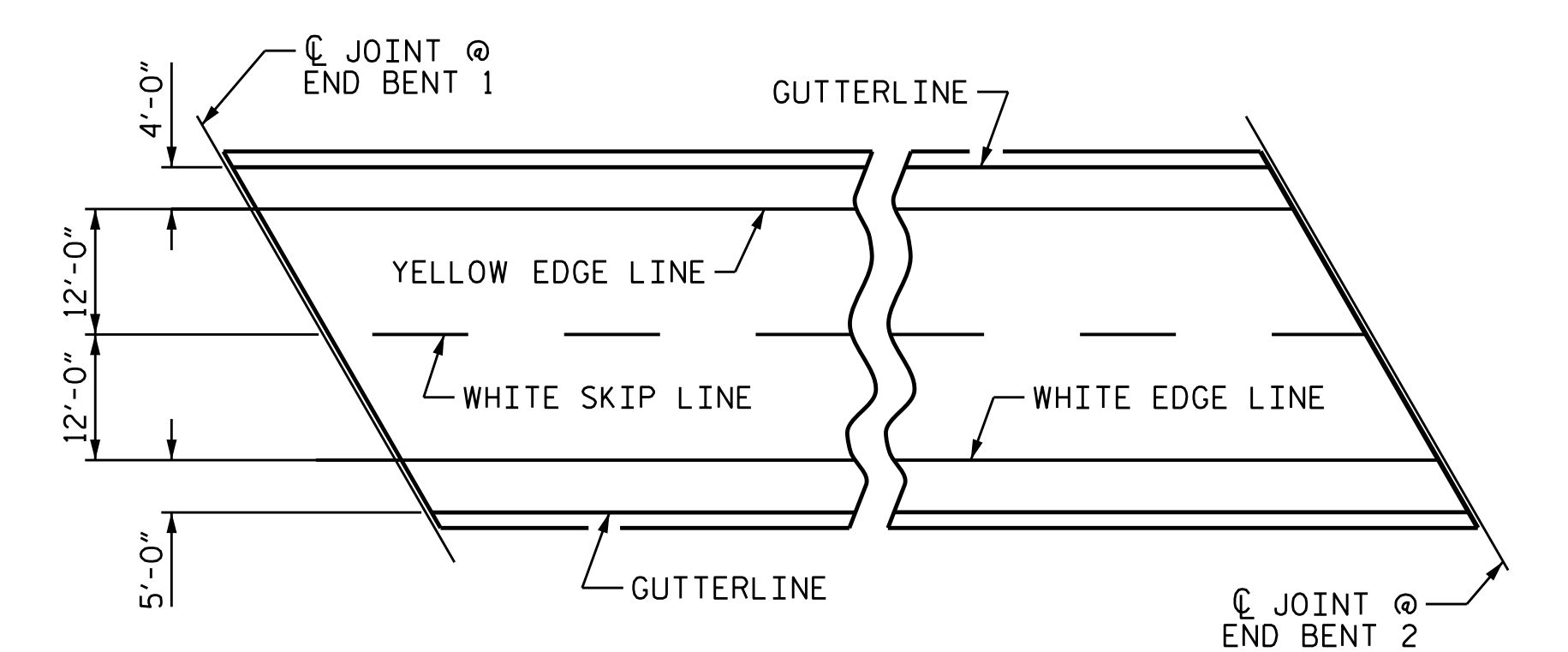


TYPE I - ELEVATION VIEW

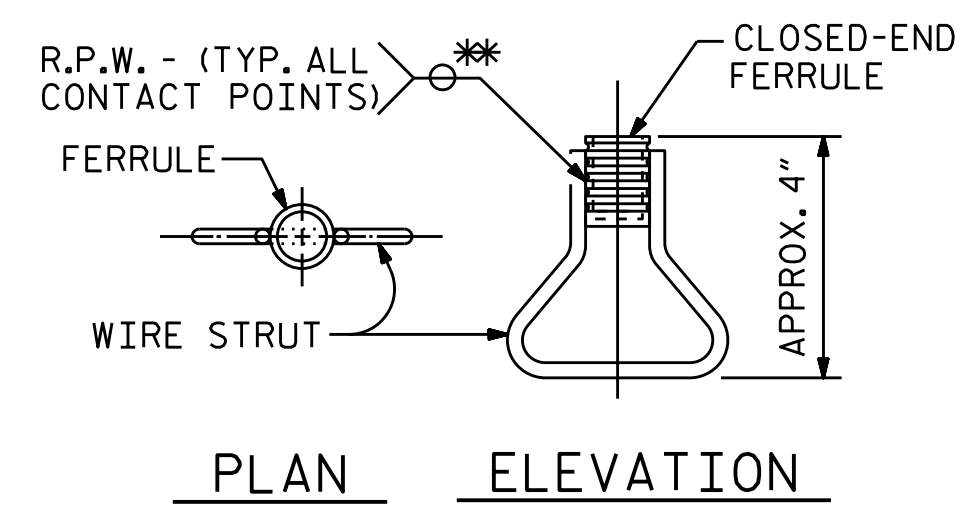


TYPE II - ELEVATION VIEW

COVER PLATE DETAILS

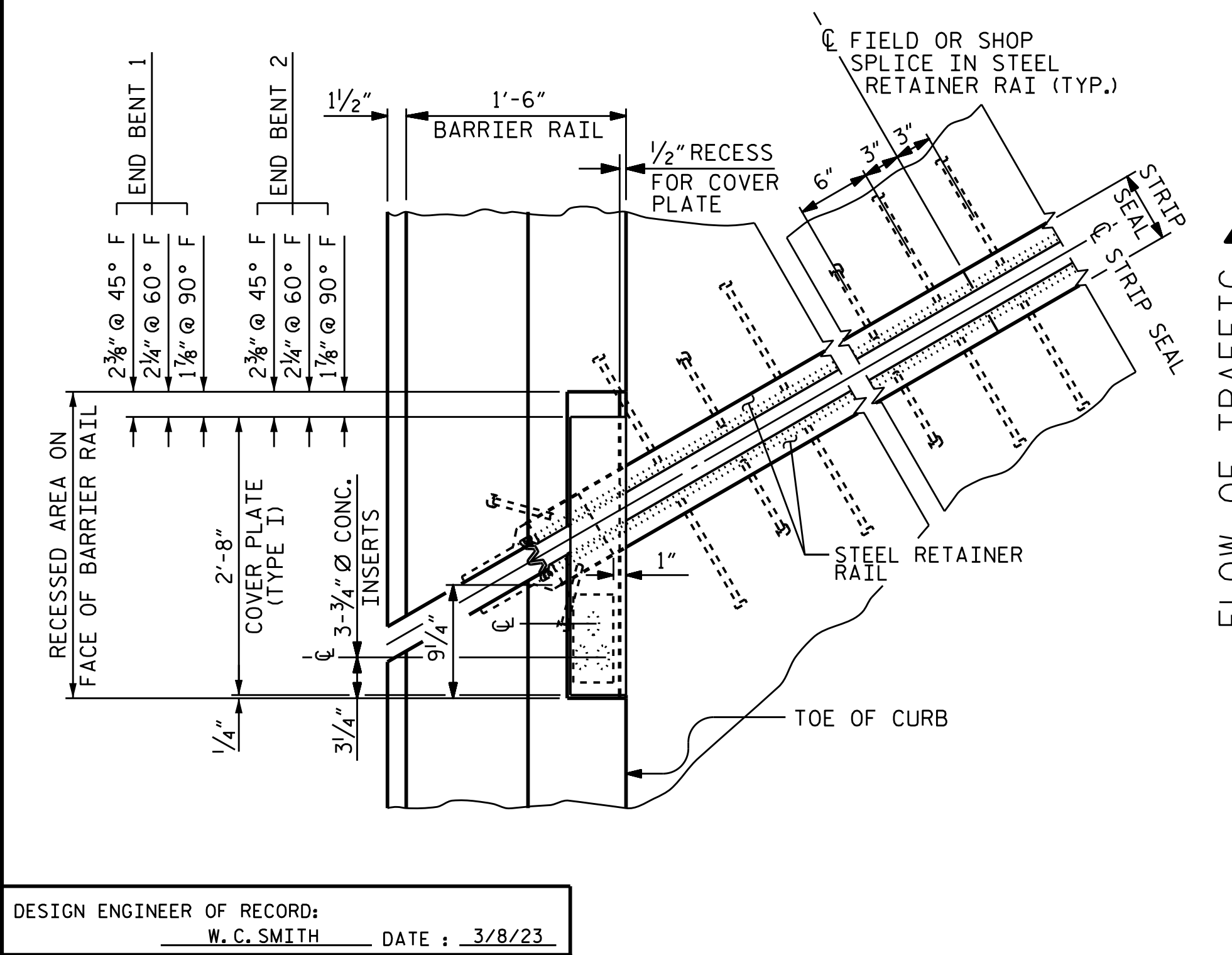


PAVEMENT MARKING ALIGNMENT

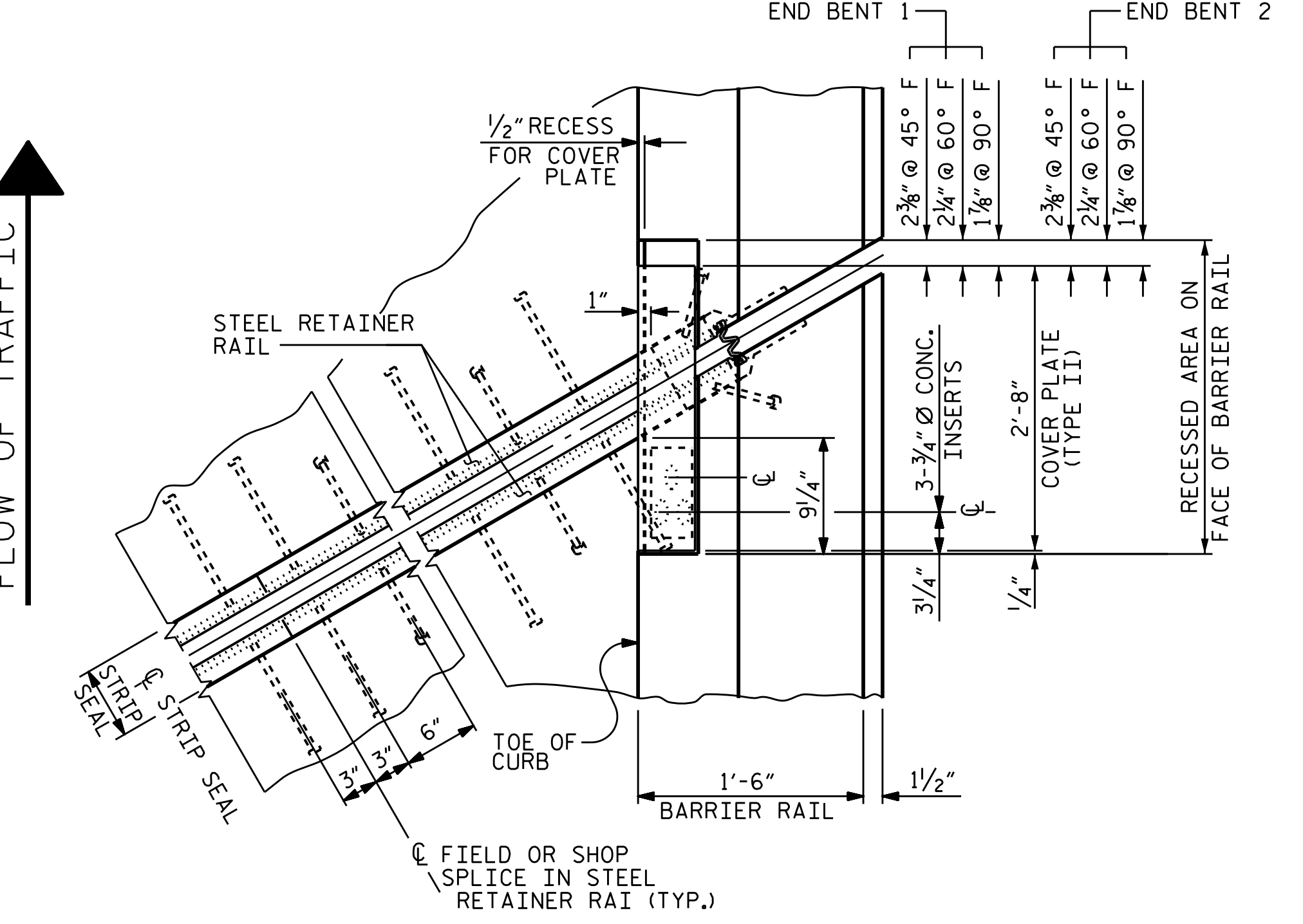


CONCRETE INSERT

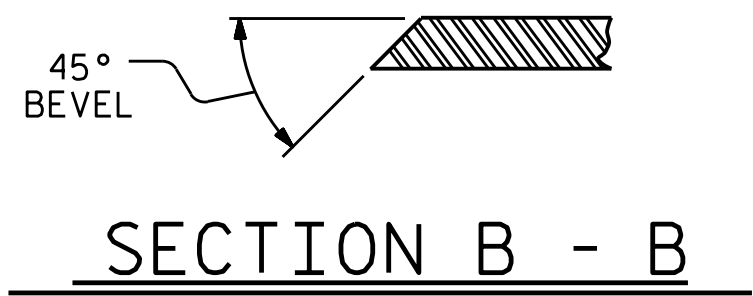
* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



PLAN OF STRIP SEAL EXPANSION JOINT



BLOCK OUT DETAIL



SECTION B - B

DESIGN ENGINEER OF RECORD: W. C. SMITH	DATE: 3/8/23
ASSEMBLED BY: S. T. SANDOR	DATE: 9/27/22
CHECKED BY: M. K. BEARD	DATE: 9/28/22
DRAWN BY: MAA 6/20	
CHECKED BY: BNB 6/20	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-28
2			4			TOTAL SHEETS 43



PROJECT NO. B-5981
DUPLIN COUNTY
STATION: 23+56.64 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
STRIP SEAL EXPANSION
JOINT DETAILS
FOR BARRIER RAIL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

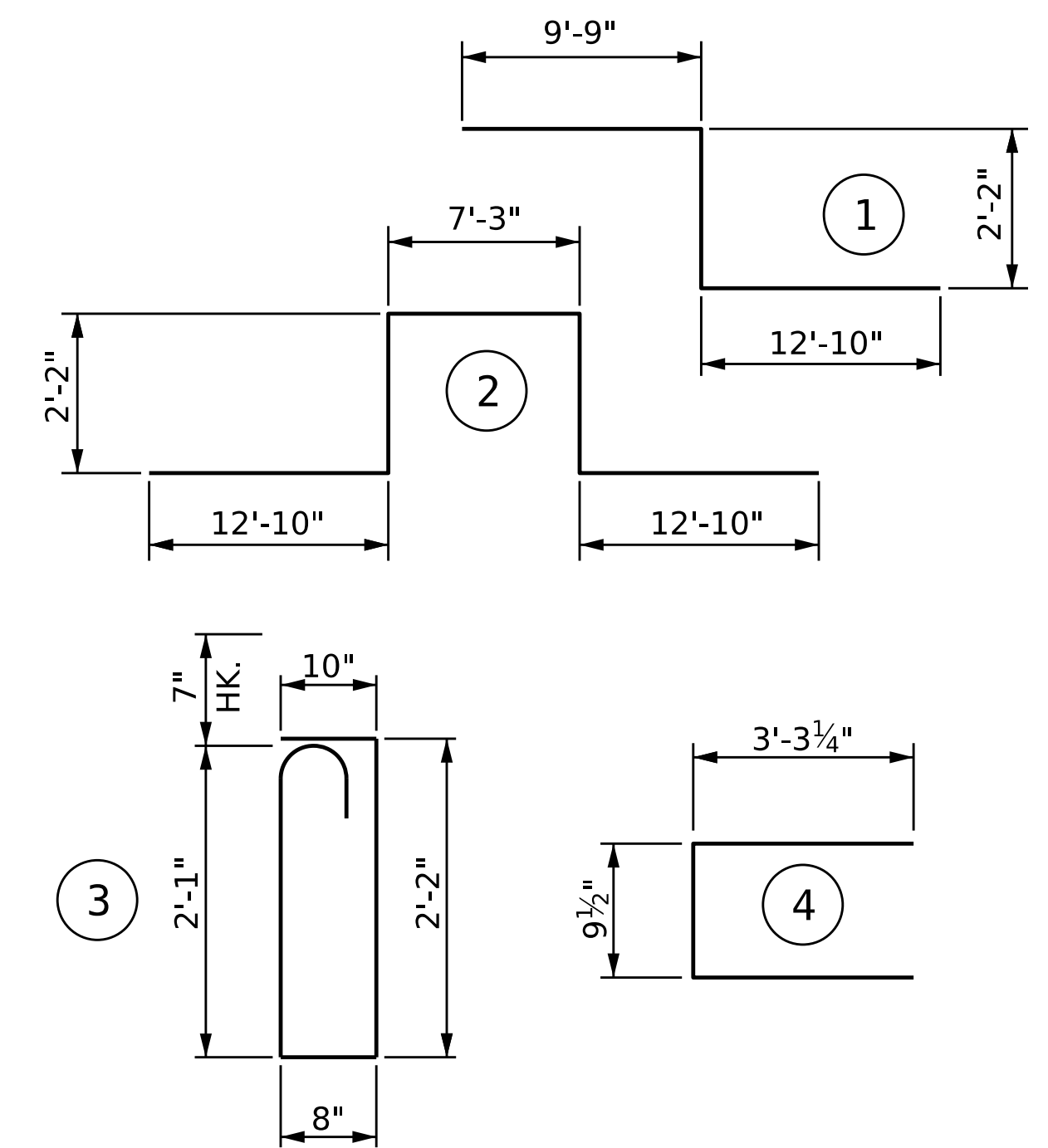
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPETS, AND BARRIER RAILS		APPROACH SLABS		PARAPETS AND BARRIER RAILS
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	1'-11"	1'-7"	1'-11"	1'-7"	2'-6"
#5	2'-5"	2'-0"	2'-5"	2'-0"	3'-1"
#6	2'-10"	2'-5"	3'-7"	2'-5"	3'-8"
#7	4'-2"	2'-9"			
#8	4'-9"	3'-2"			

BILL OF MATERIAL

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	346	#5	STR	35'-11"	12962	A201	4	#5	STR	35'-3"	147	B4	22	#5	STR	51'-1"	1172
A2	346	#5	STR	35'-11"	12962	A202	4	#5	STR	34'-5"	144	* B5	48	#5	STR	40'-10"	2044
* A3	6	#6	STR	23'-6"	212	A203	4	#5	STR	33'-6"	140	B6	22	#5	STR	48'-6"	1113
						A204	4	#5	STR	32'-8"	136	* B7	100	#4	STR	22'-5"	1497
* A101	4	#5	STR	35'-3"	147	A205	4	#5	STR	31'-10"	133	* B8	98	#5	STR	35'-1"	3586
* A102	4	#5	STR	34'-5"	144	A206	4	#5	STR	31'-0"	129	* B9	48	#5	STR	38'-10"	1944
* A103	4	#5	STR	33'-6"	140	A207	4	#5	STR	30'-2"	126						
* A104	4	#5	STR	32'-8"	136	A208	4	#5	STR	29'-4"	122	* G1	4	#5	STR	33'-4"	139
* A105	4	#5	STR	31'-10"	133	A209	4	#5	STR	28'-6"	119						
* A106	4	#5	STR	31'-0"	129	A210	4	#5	STR	27'-8"	115	* K1	8	#8	1	24'-9"	529
* A107	4	#5	STR	30'-2"	126	A211	4	#5	STR	26'-10"	112	* K2	8	#8	2	37'-3"	796
* A108	4	#5	STR	29'-4"	122	A212	4	#5	STR	26'-0"	109	* K3	24	#6	STR	10'-2"	366
* A109	4	#5	STR	28'-6"	119	A213	4	#5	STR	25'-1"	105						
* A110	4	#5	STR	27'-8"	115	A214	4	#5	STR	24'-3"	102	* S1	60	#5	3	6'-4"	396
* A111	4	#5	STR	26'-10"	112	A215	4	#5	STR	23'-5"	98	* S2	60	#4	4	7'-4"	294
* A112	4	#5	STR	26'-0"	109	A216	4	#5	STR	22'-7"	94						
* A113	4	#5	STR	25'-1"	105	A217	4	#5	STR	21'-9"	91						
* A114	4	#5	STR	24'-3"	102	A218	4	#5	STR	20'-11"	87						
* A115	4	#5	STR	23'-5"	98	A219	4	#5	STR	20'-1"	84						
* A116	4	#5	STR	22'-7"	94	A220	4	#5	STR	19'-3"	80						
* A117	4	#5	STR	21'-9"	91	A221	4	#5	STR	18'-5"	77						
* A118	4	#5	STR	20'-11"	87	A222	4	#5	STR	17'-7"	73						
* A119	4	#5	STR	20'-1"	84	A223	4	#5	STR	16'-8"	70						
* A120	4	#5	STR	19'-3"	80	A224	4	#5	STR	15'-10"	66						
* A121	4	#5	STR	18'-5"	77	A225	4	#5	STR	15'-0"	63						
* A122	4	#5	STR	17'-7"	73	A226	4	#5	STR	14'-2"	59						
* A123	4	#5	STR	16'-8"	70	A227	4	#5	STR	13'-4"	56						
* A124	4	#5	STR	15'-10"	66	A228	4	#5	STR	12'-6"	52						
* A125	4	#5	STR	15'-0"	63	A229	4	#5	STR	11'-8"	49						
* A126	4	#5	STR	14'-2"	59	A230	4	#5	STR	10'-10"	45						
* A127	4	#5	STR	13'-4"	56	A231	4	#5	STR	10'-0"	42						
* A128	4	#5	STR	12'-6"	52	A232	4	#5	STR	9'-2"	38						
* A129	4	#5	STR	11'-8"	49	A233	4	#5	STR	8'-3"	34						
* A130	4	#5	STR	10'-10"	45	A234	4	#5	STR	7'-5"	31						
* A131	4	#5	STR	10'-0"	42	A235	4	#5	STR	6'-7"	27						
* A132	4	#5	STR	9'-2"	38	A236	4	#5	STR	5'-9"	24						
* A133	4	#5	STR	8'-3"	34	A237	4	#5	STR	4'-11"	21						
* A134	4	#5	STR	7'-5"	31	A238	4	#5	STR	4'-1"	17						
* A135	4	#5	STR	6'-7"	27	A239	4	#5	STR	3'-3"	14						
* A136	4	#5	STR	5'-9"	24	A240	4	#5	STR	2'-5"	10						
* A137	4	#5	STR	4'-11"	21	A241	4	#5	STR	1'-7"	7						
* A138	4	#5	STR	4'-1"	17												
* A139	4	#5	STR	3'-3"	14	* B1	50	#4	STR	26'-8"	891						
* A140	4	#5	STR	2'-5"	10	B2	135	#5	STR	55'-10"	7862						
* A141	4	#5	STR	1'-7"	7	* B3	98	#5	STR	37'-9"	3859						

REINFORCING STEEL 26,257 LBS.
* EPOXY COATED REINFORCING STEEL 32,451 LBS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

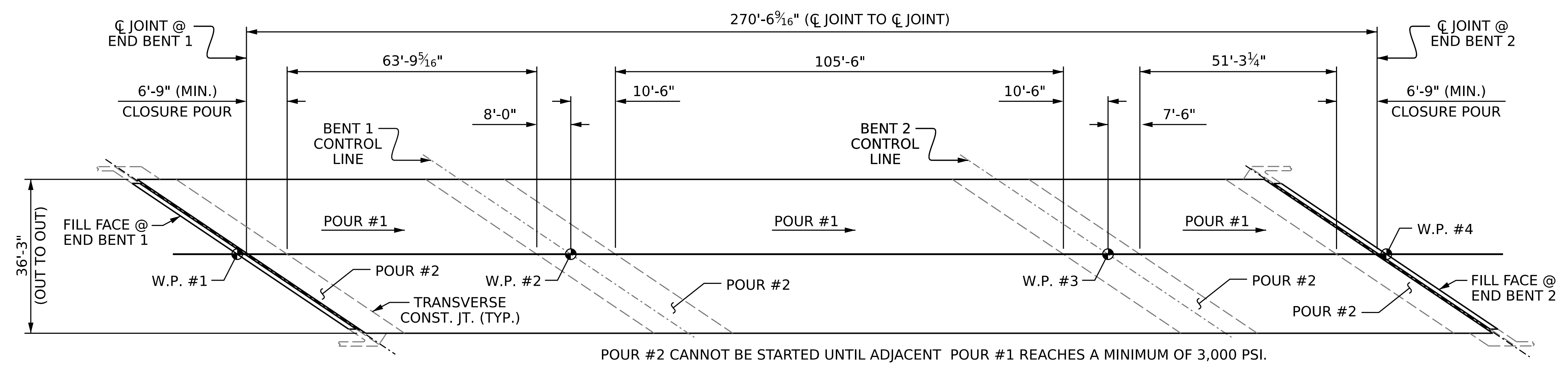
SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	* EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	253.9		
POUR 2	66.8		
TOTALS **	320.7	26,236	32,288

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

APPROACH SLABS	795	SQ.FT.
BRIDGE DECK	8,072	SQ.FT.
TOTAL	8,867	SQ.FT.

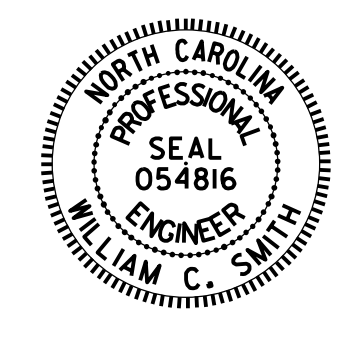


LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ.FT. = 9807)

DESIGN ENGINEER OF RECORD: W.C. SMITH DATE: 3/8/23

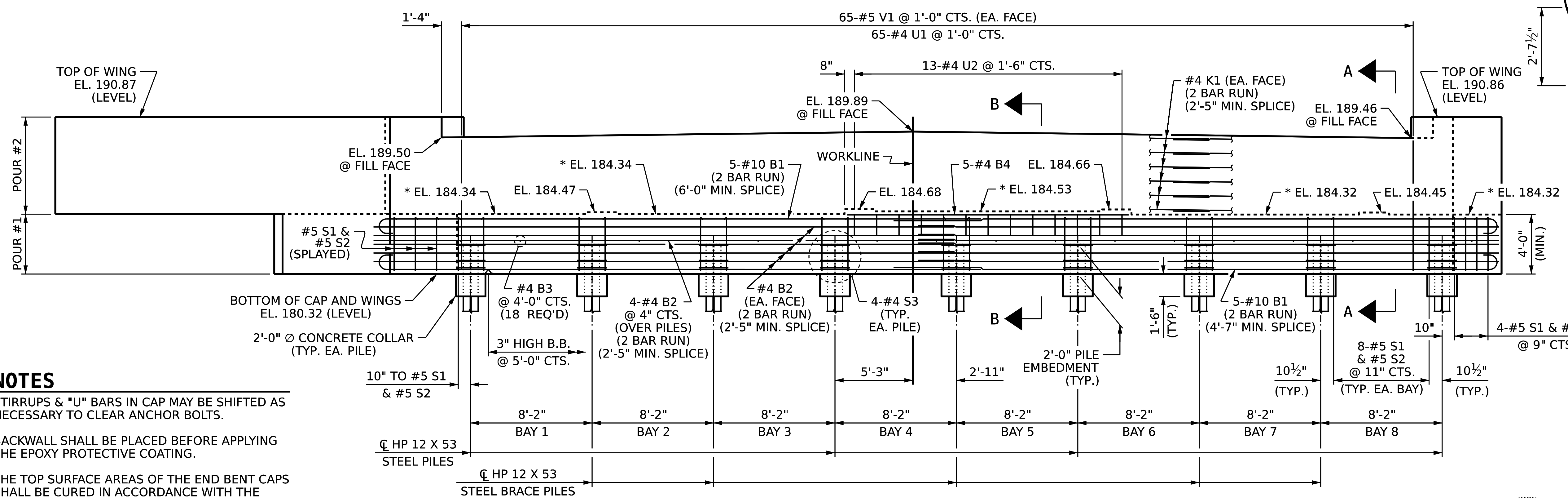
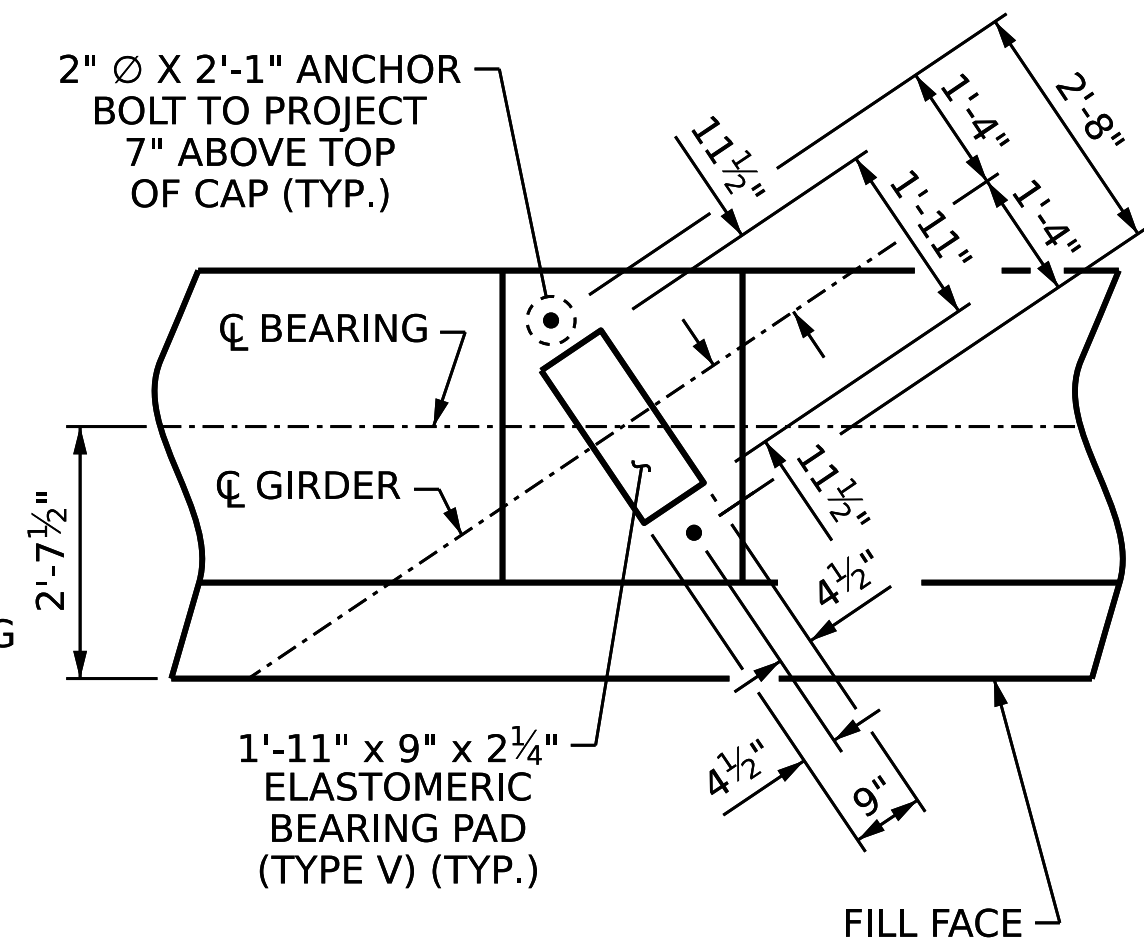
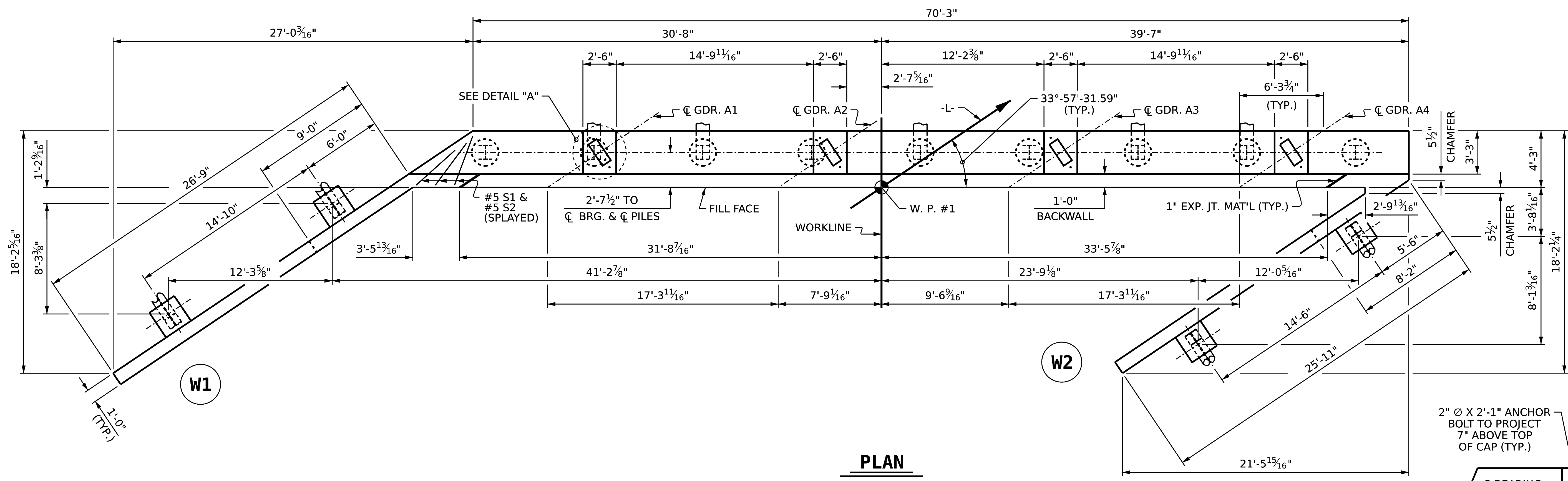
ASSEMBLED BY: M.K. BEARD DATE: 10/4/22
CHECKED BY: D.R. SHACKELFORD DATE: 11/18/22

DRAWN BY: JMB 5/87 MAA/GM
CHECKED BY: SJD 9/87 REV. 10/1/11 MAA/THC
REV. 12/17 BNB/THC
REV. 06/19



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. S1-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			



NOTES

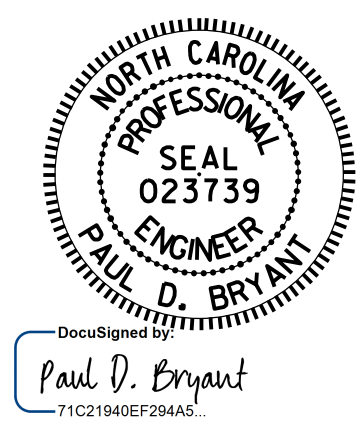
STIRRUPS & "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

* THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

PROJECT NO. **B-5981**
DUPLIN COUNTY
STATION: **23+56.64 -L-**
SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

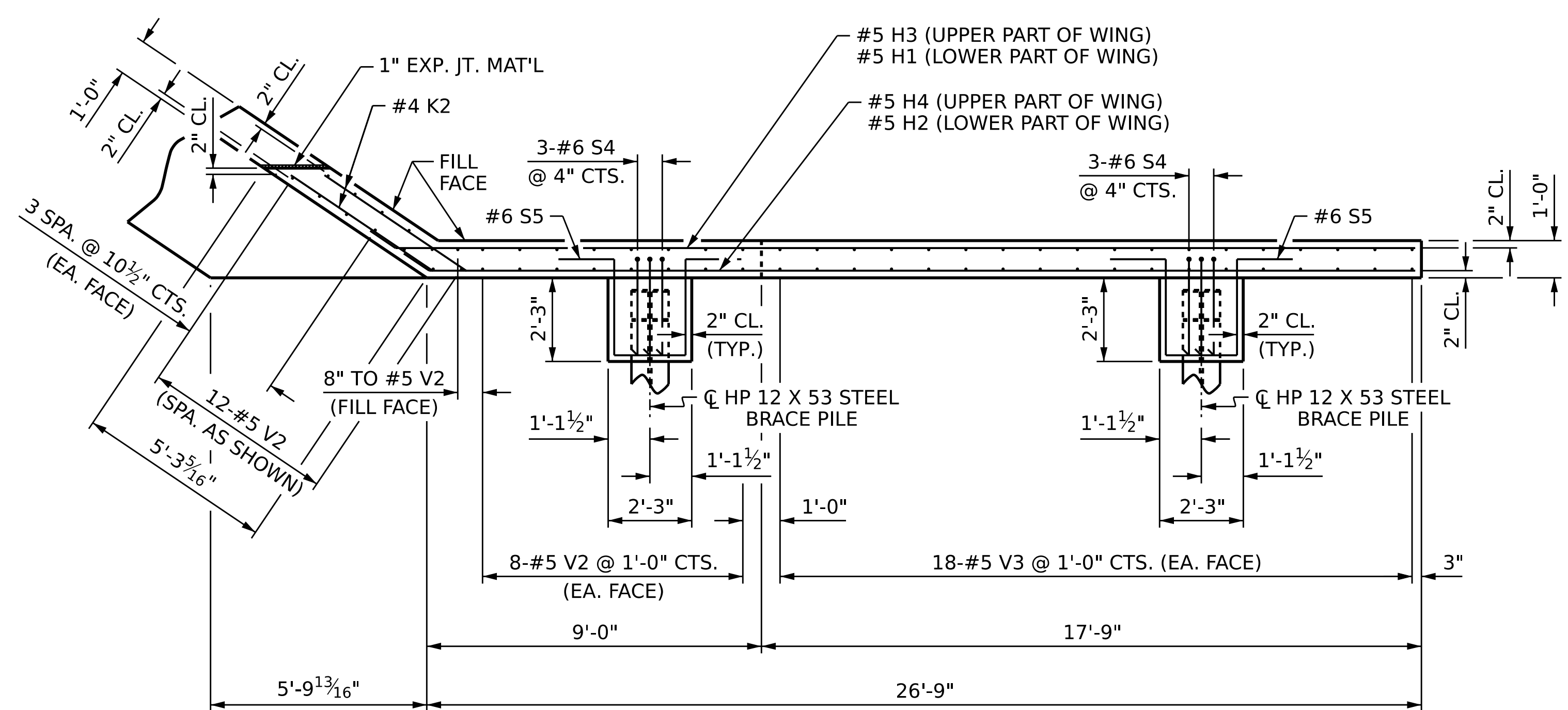
SUBSTRUCTURE
END BENT 1

DRAWN BY: P. K. NEWTON DATE: 1/14/23
CHECKED BY: D. R. SHACKELFORD DATE: 1/31/23
DESIGN ENGINEER OF RECORD: P. D. BRYANT DATE: 2/6/23

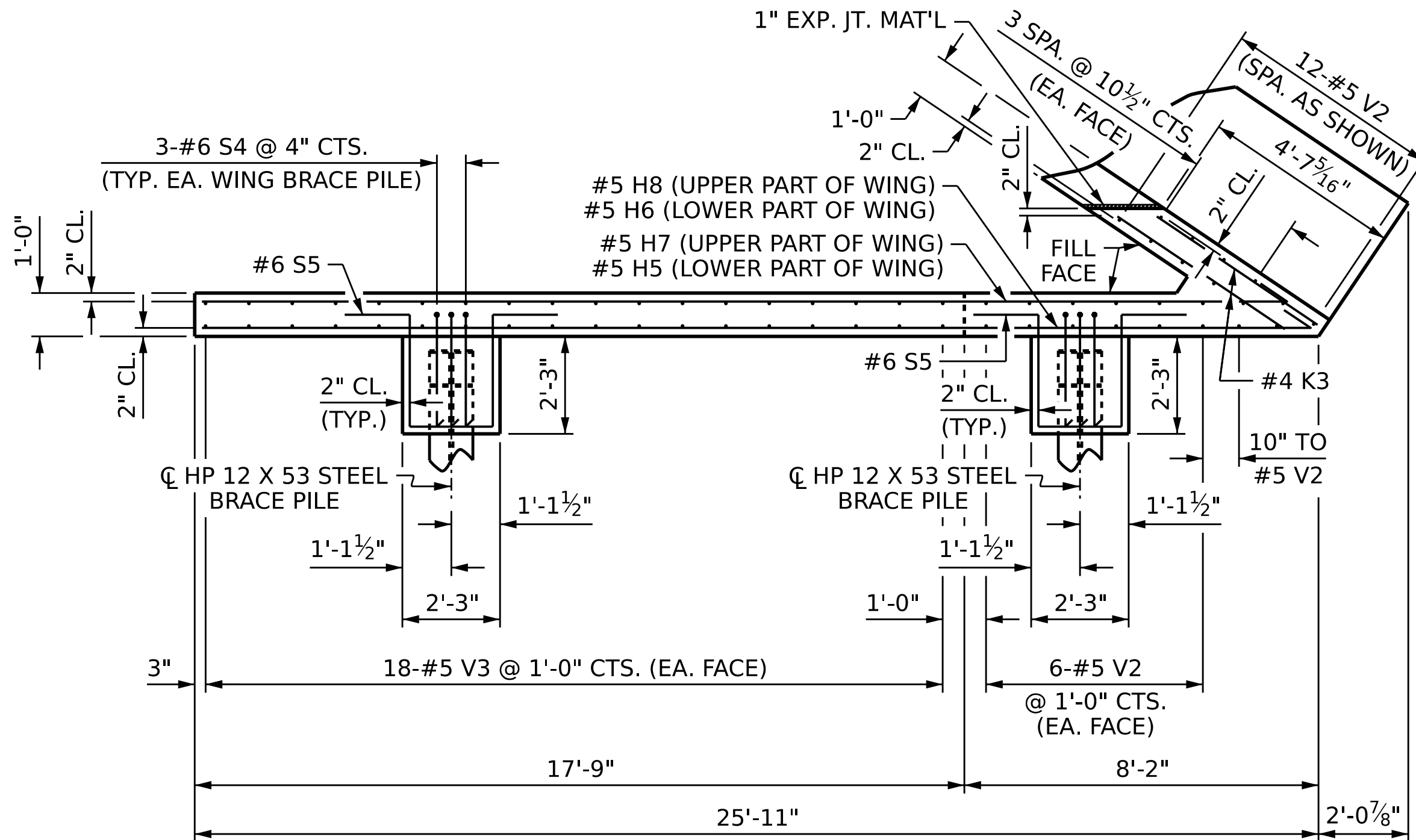
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

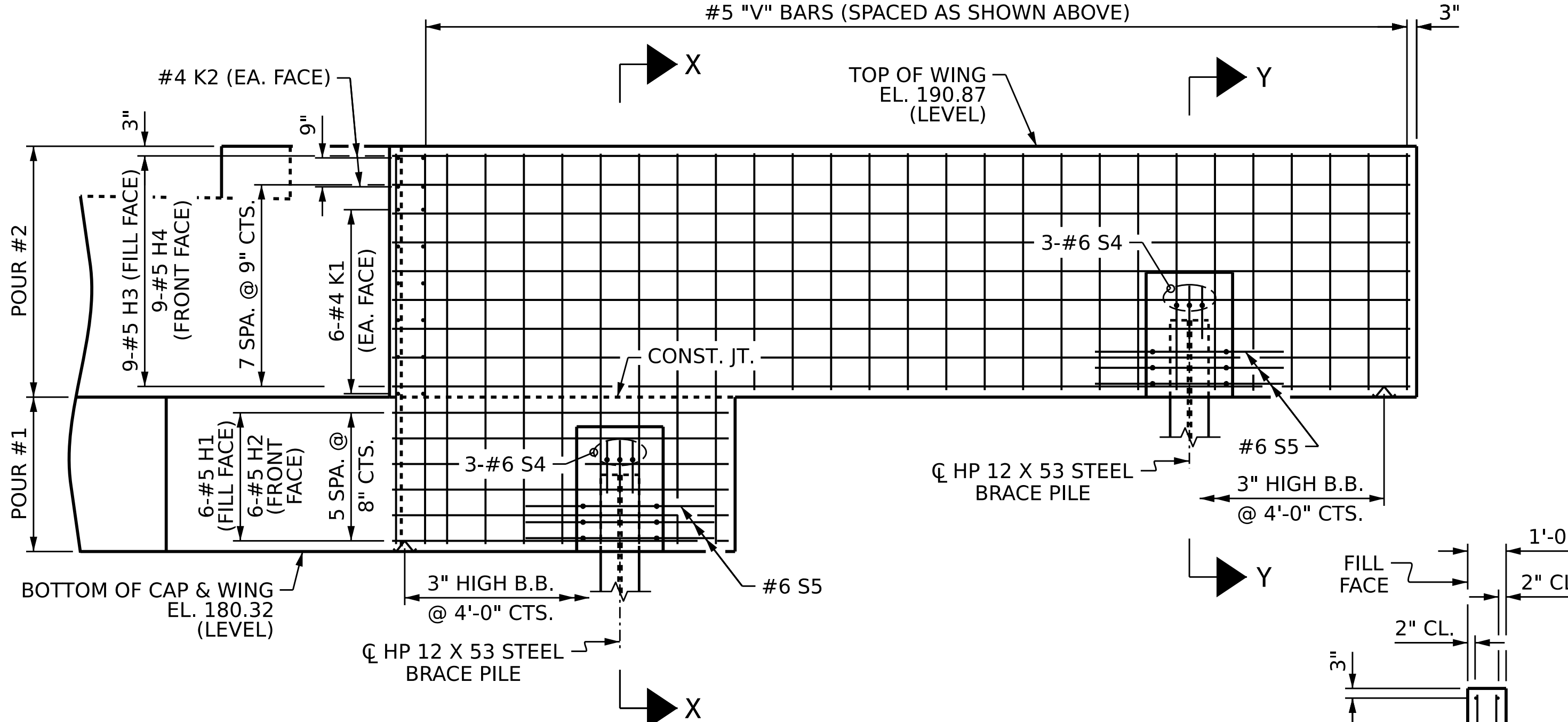
TOTAL SHEETS: 43



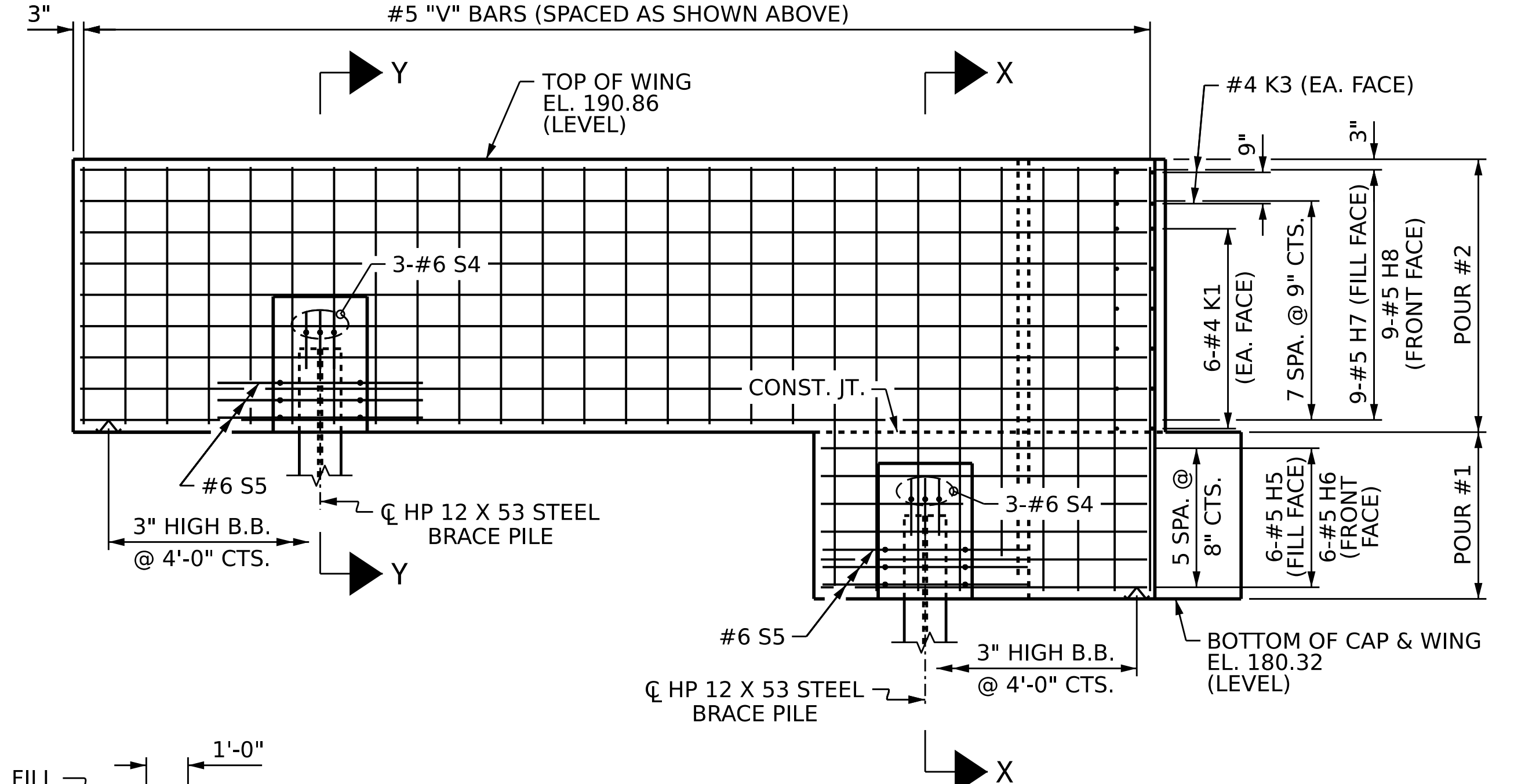
PLAN OF WING W1



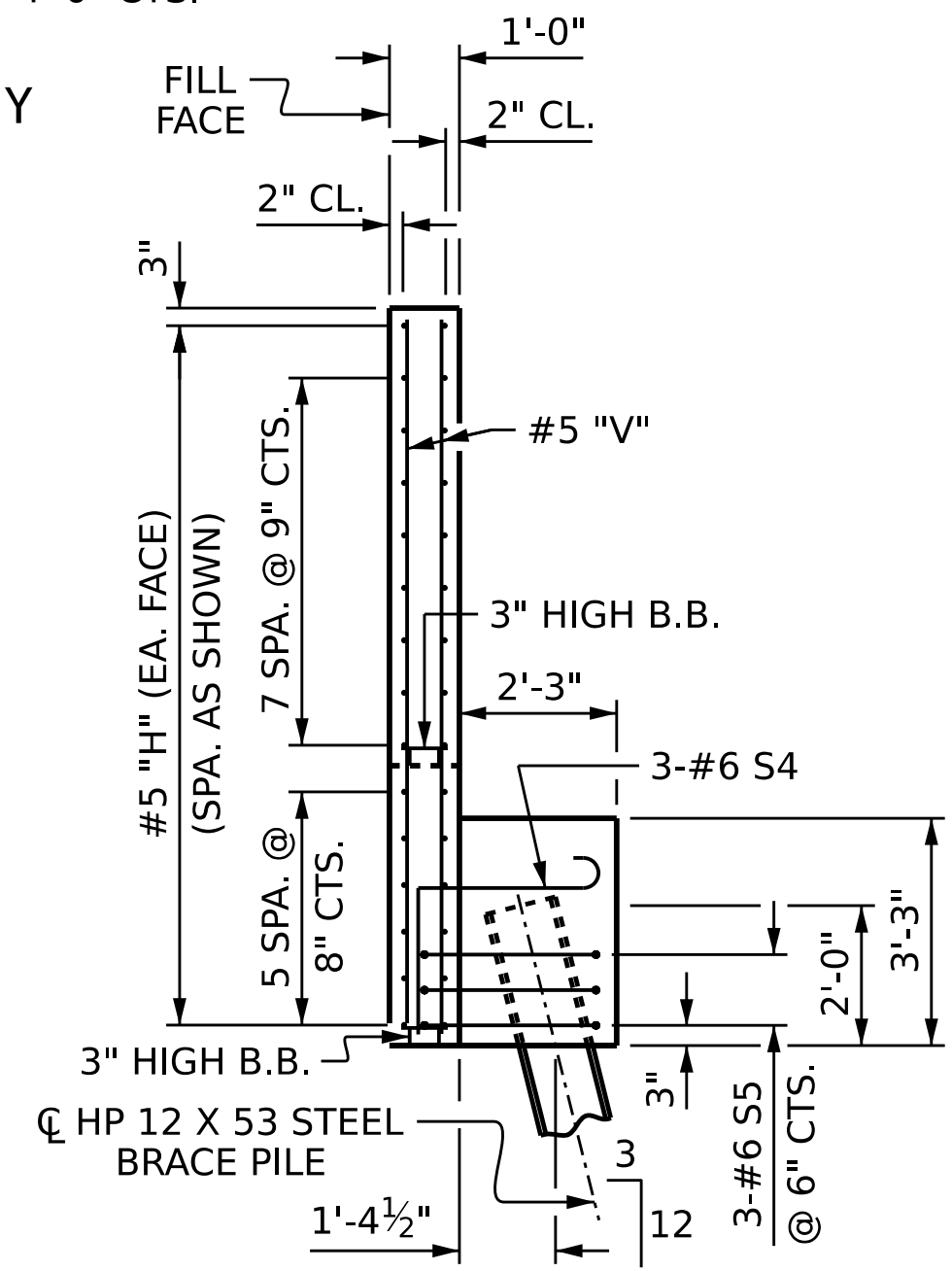
PLAN OF WING W2



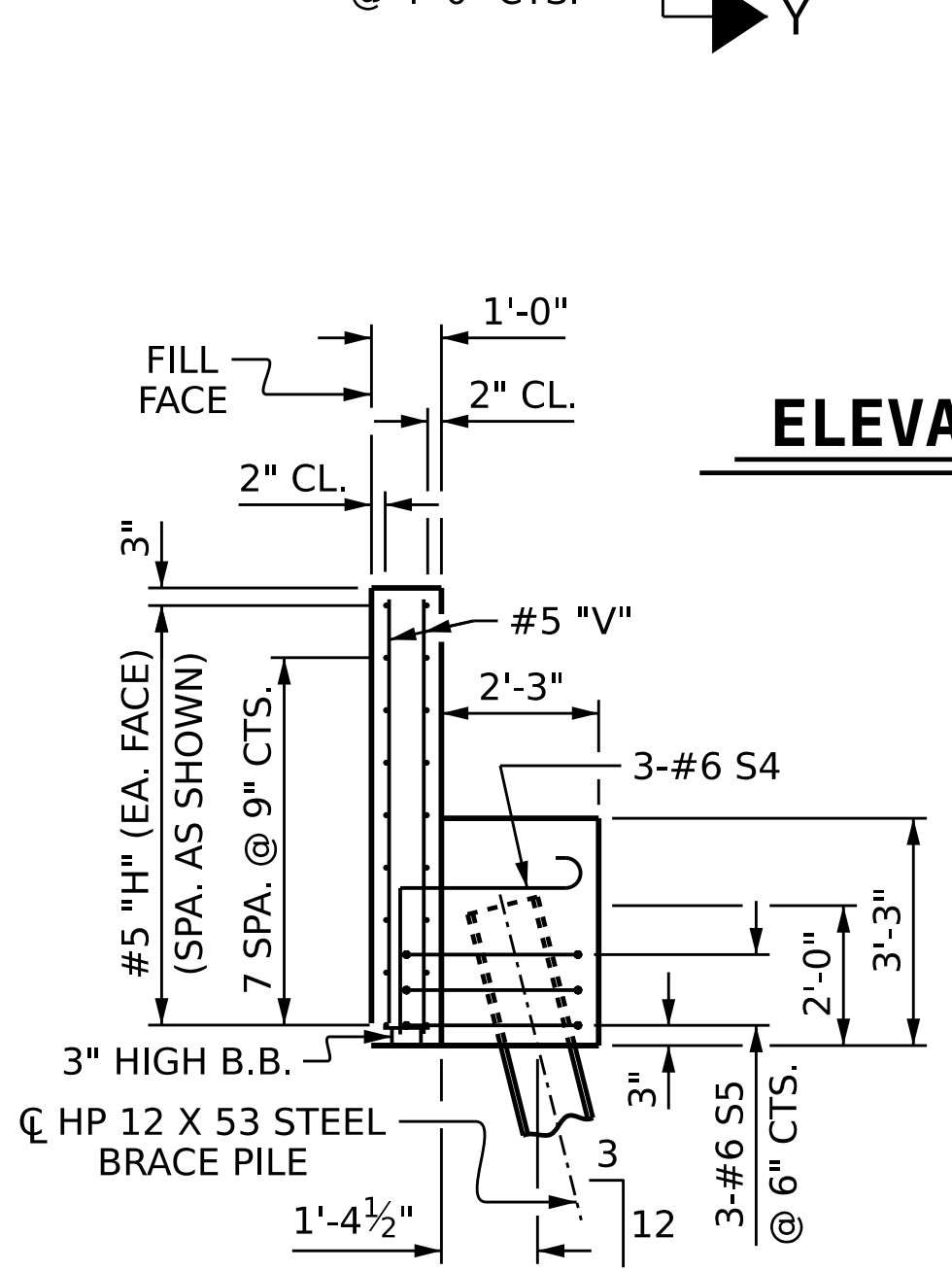
ELEVATION OF WING W1



ELEVATION OF WING W2

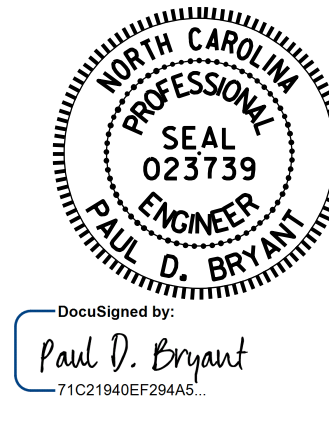


SECTION X-X



SECTION Y-Y

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 2 OF 3

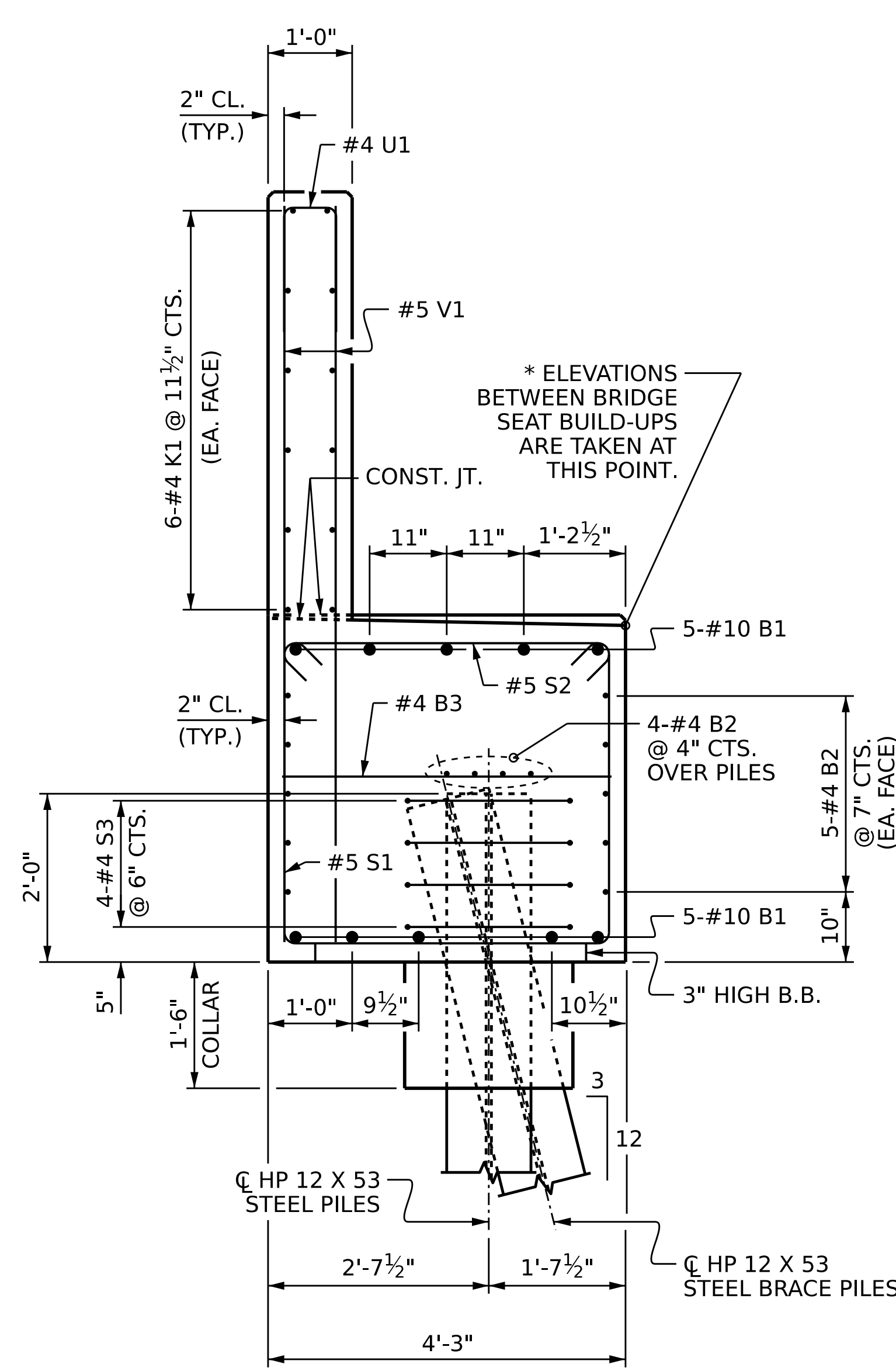


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
END BENT 1

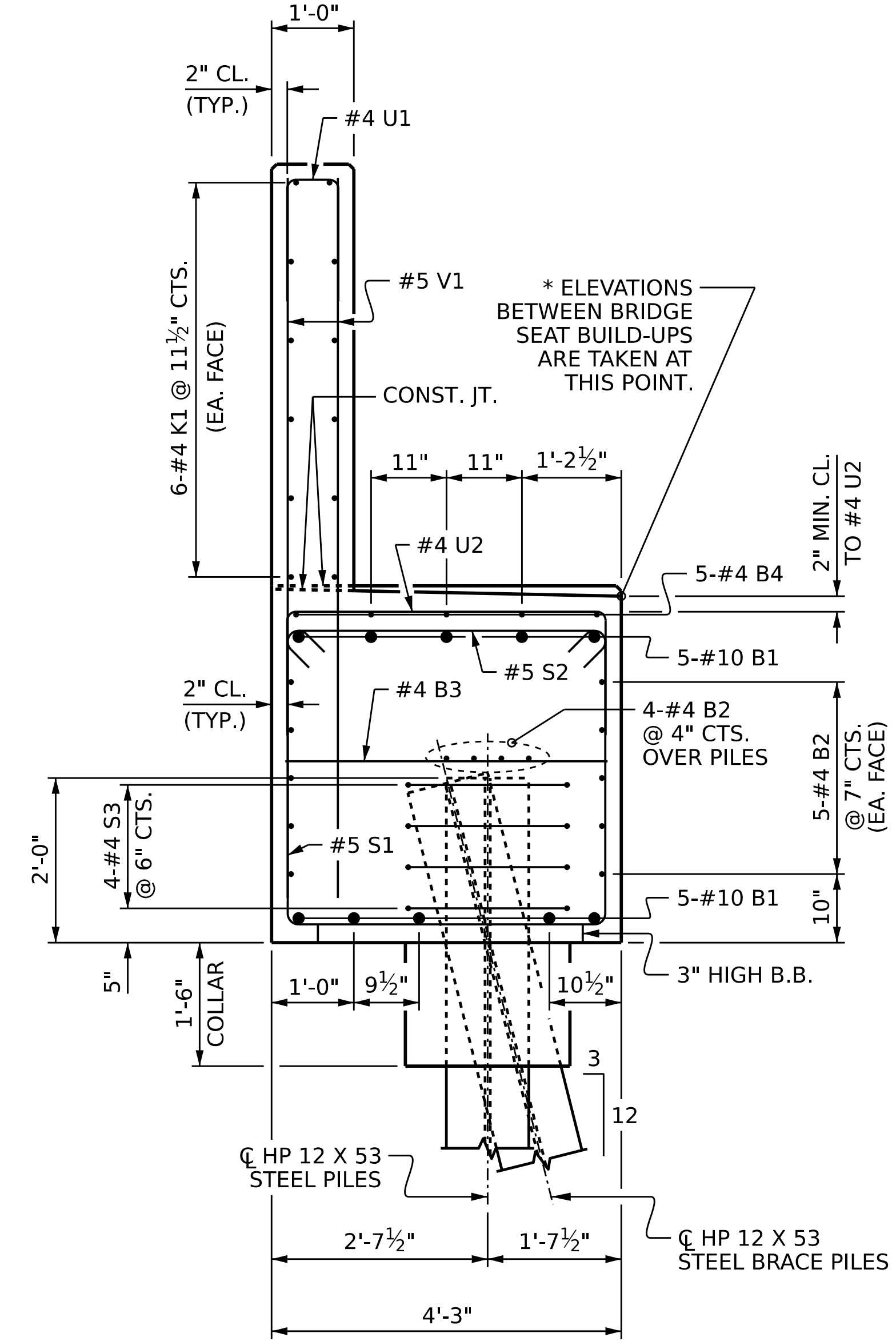
DRAWN BY : P. K. NEWTON DATE : 1/15/22
 CHECKED BY : D. SHACKELFORD DATE : 1/31/23
 DESIGN ENGINEER OF RECORD : P. D. BRYANT DATE : 2/6/23

REVISIONS		NO.	BY:	DATE:	SHEET NO.
1					
2		2			TOTAL SHEETS 43

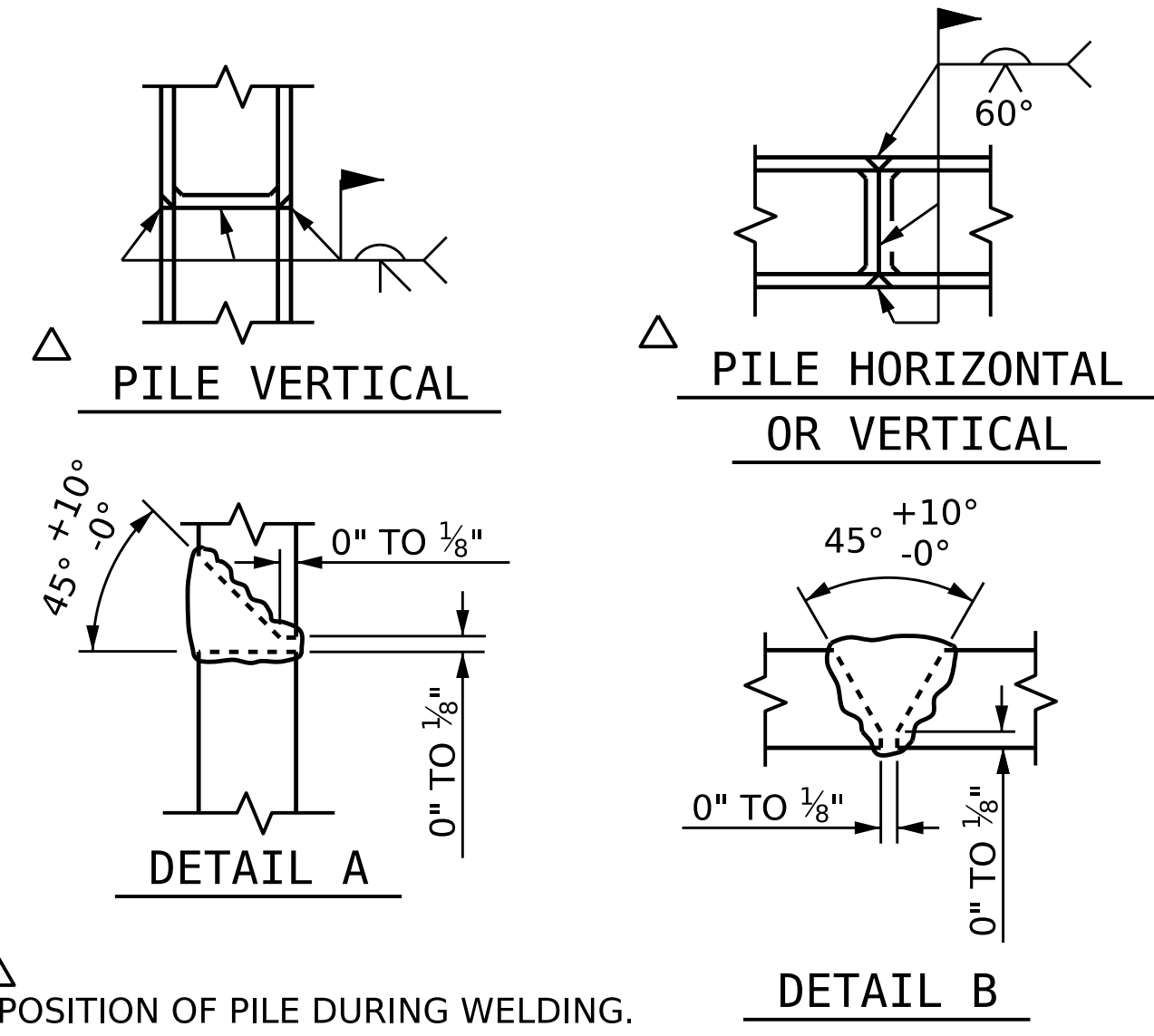
10/24/2023 R:\Structures\Plans\300016\401.061.B5981.SMU.EB1.S1-31.300016.dgn sssandor



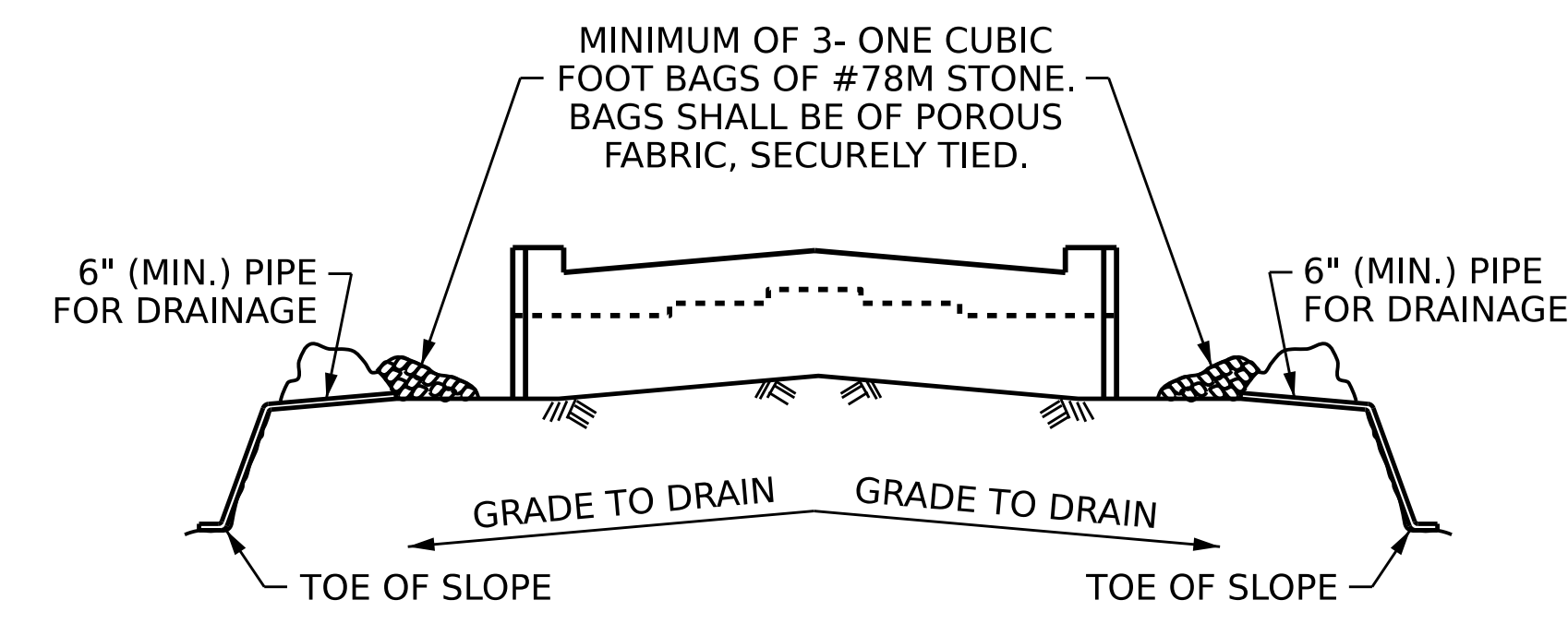
SECTION A-A



SECTION B-B



PILE SPLICE DETAILS



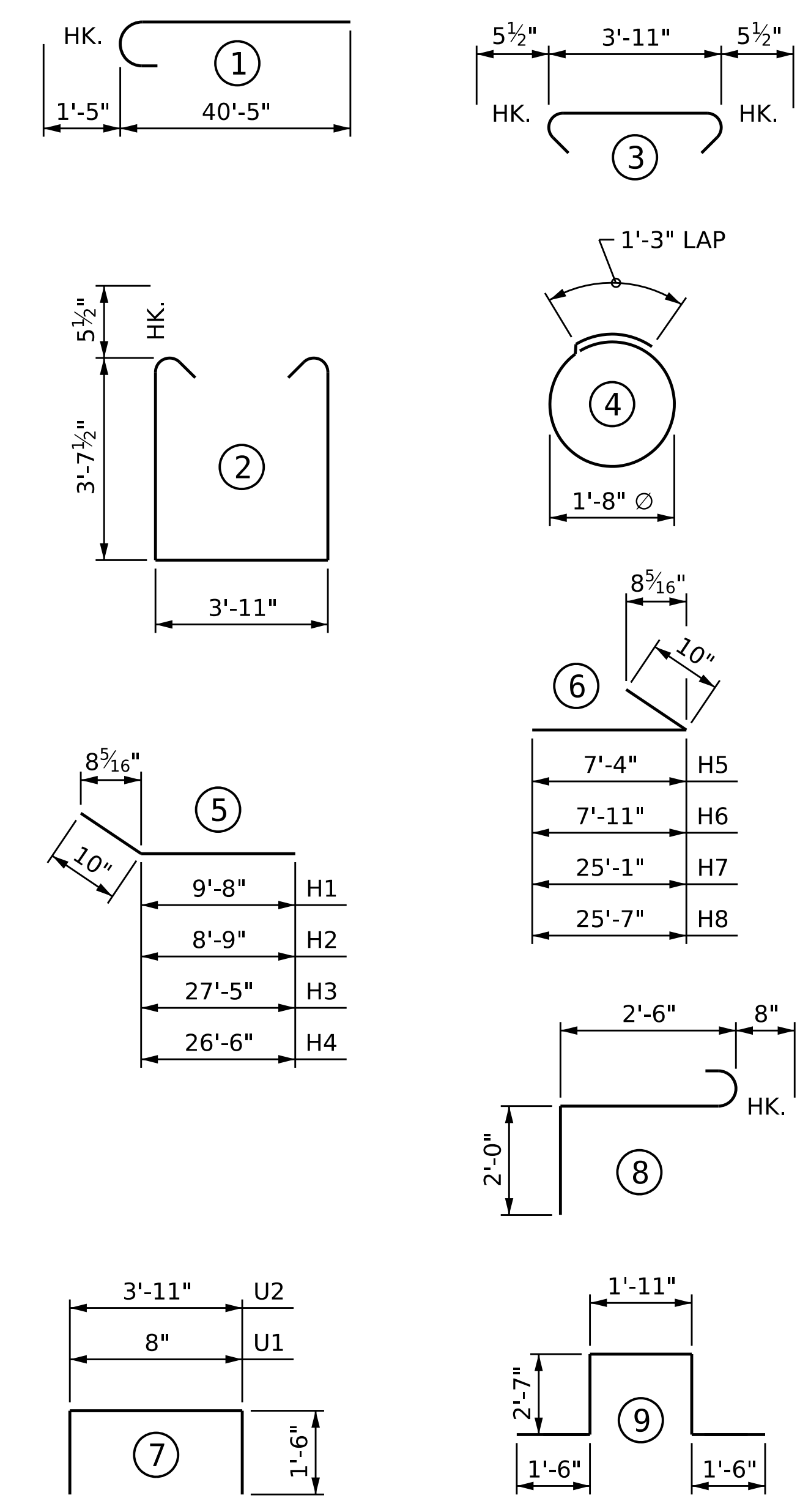
TEMPORARY DRAINAGE AT END BENT

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.

BAR TYPES



BILL OF MATERIAL

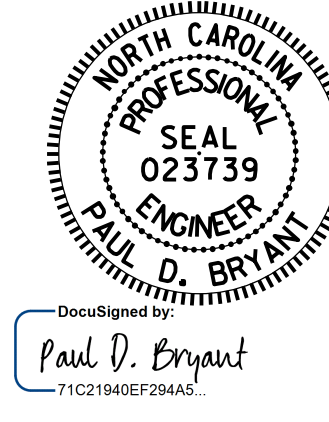
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	20	#10	1	41'-10"	3,600
B2	28	#4	STR	38'-10"	726
B3	18	#4	STR	3'-11"	47
B4	5	#4	STR	19'-5"	65
H1	6	#5	5	10'-6"	66
H2	6	#5	5	9'-7"	60
H3	9	#5	5	28'-3"	265
H4	9	#5	5	27'-4"	257
H5	6	#5	6	8'-2"	51
H6	6	#5	6	8'-9"	55
H7	9	#5	6	25'-11"	243
H8	9	#5	6	26'-5"	248
K1	24	#4	STR	38'-10"	623
K2	4	#4	STR	4'-7"	12
K3	4	#4	STR	4'-5"	12
S1	72	#5	2	12'-1"	907
S2	72	#5	3	4'-10"	363
S3	36	#4	4	6'-6"	156
S4	12	#6	8	5'-2"	93
S5	12	#6	9	10'-1"	182
U1	65	#4	7	3'-8"	159
U2	13	#4	7	6'-11"	60
V1	130	#5	STR	8'-9"	1,186
V2	54	#5	STR	10'-2"	573
V3	72	#5	STR	6'-2"	463
REINFORCING STEEL				10,472	LBS.
CLASS A CONCRETE					
POUR 1	(CAP, COLLARS & LOWER WINGS)			52.2	C. Y.
POUR 2	(BACKWALL & UPPER WINGS)			28.6	C. Y.
TOTAL				80.8	C. Y.

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
END BENT 1

DocuSigned by:
 Paul D. Bryant
 71C21940E2944E
 10/24/2023



DRAWN BY : P. K. NEWTON DATE : 1/18/23
 CHECKED BY : D. R. SHACKELFORD DATE : 1/31/23
 DESIGN ENGINEER OF RECORD : P. D. BRYANT DATE : 2/6/23

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S1-32
1			3		TOTAL SHEETS 43
2			4		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES

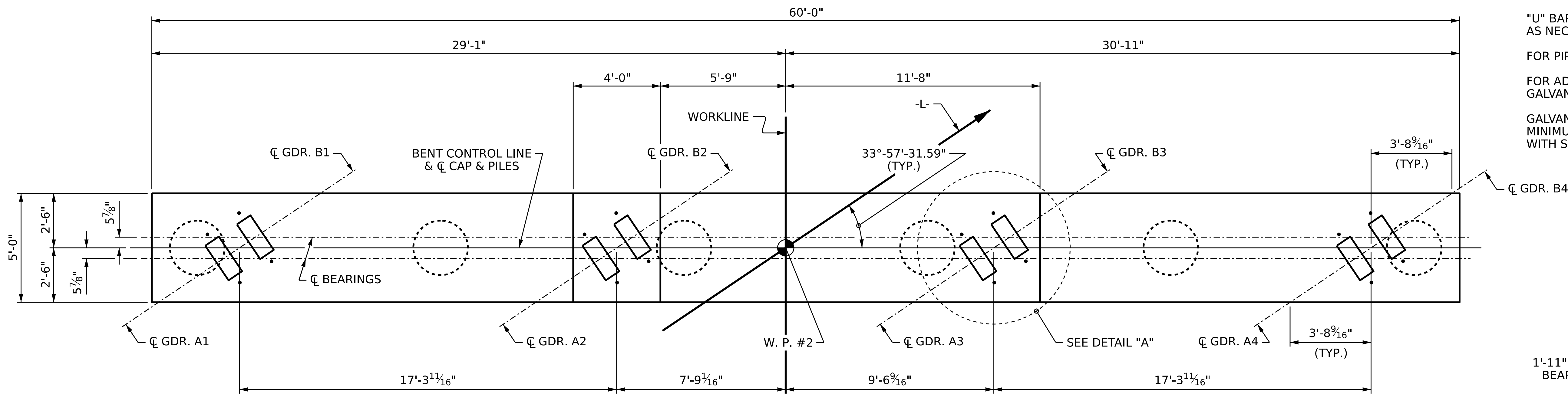
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

"U" BARS IN ENDS OF CAP MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR "B" BARS.

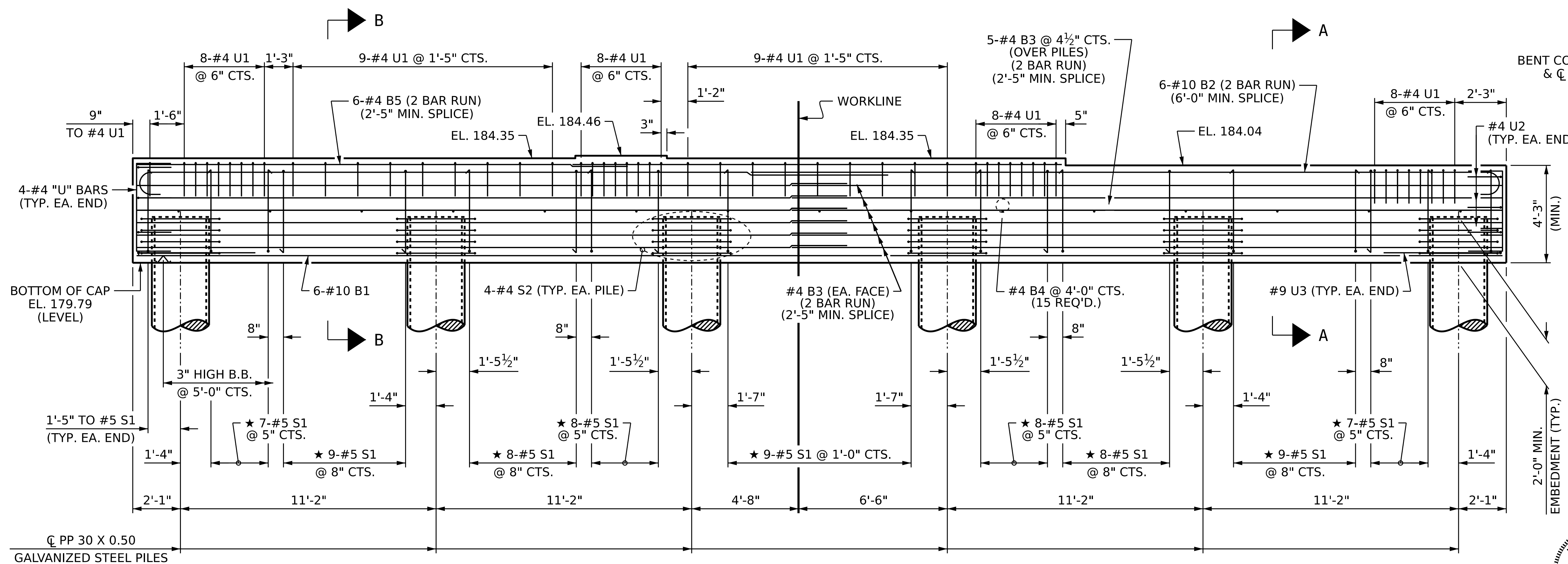
FOR PIPE PILE SPLICE DETAILS, SEE SHEET S1-37.

FOR ADDITIONAL REINFORCING STEEL IN PP 30 X 0.50 GALVANIZED STEEL PILES, SEE SHEET S1-37.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 45 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

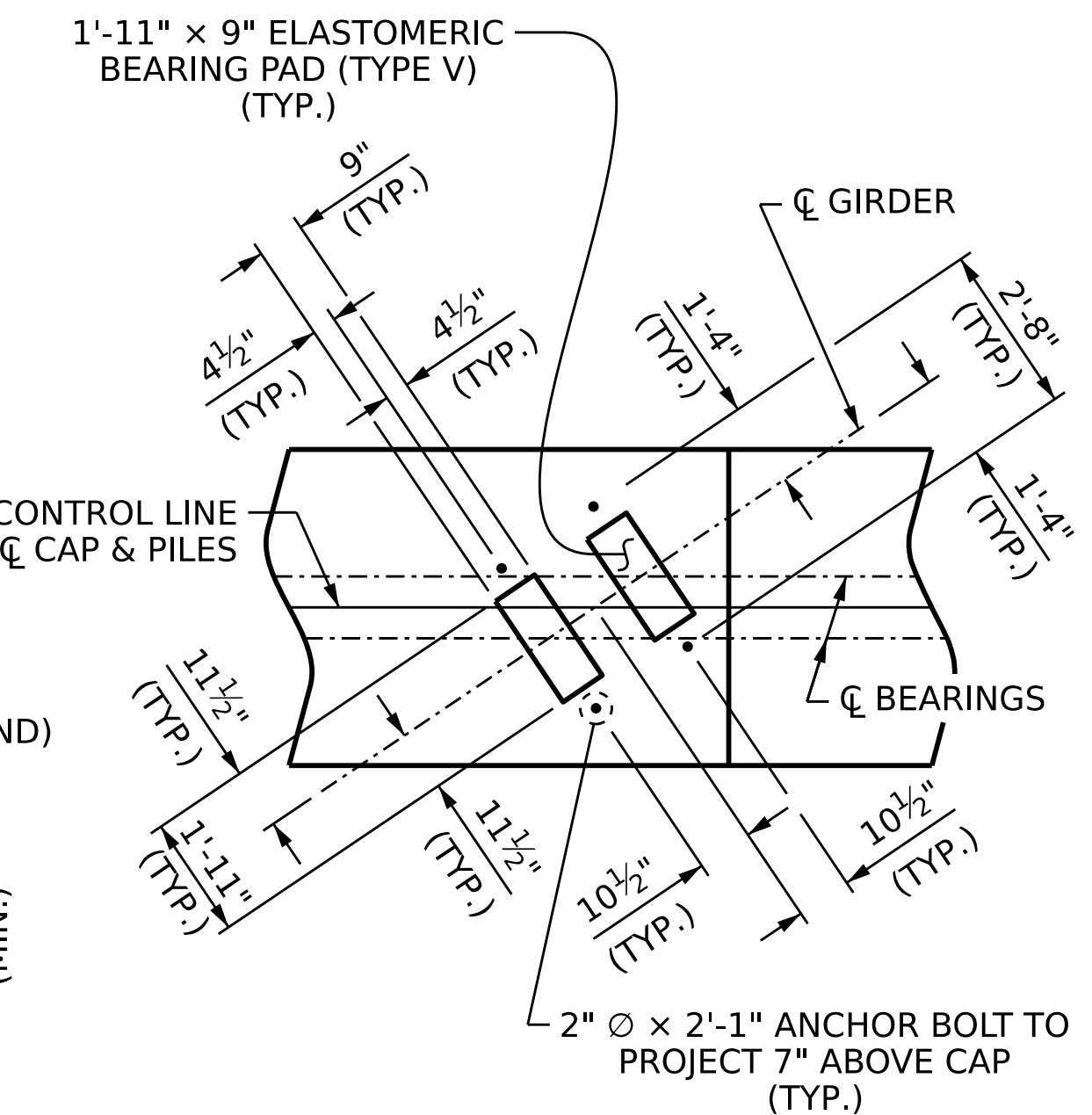


PLAN



★ INVERT ALTERNATE STIRRUPS

ELEVATION



DETAIL "A"

(TYP. EA. GIRDER)

PROJECT NO. **B-5981**

DUPLIN COUNTY

STATION: **23+56.64 -L-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1



DocuSigned by:
Paul D. Bryant
11C2194CF28442

10/24/2023

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS		NO.		DATE		BY	
1		3					
2		4					

SHEET NO.
S1-33
TOTAL SHEETS
43

DRAWN BY : P. K. NEWTON DATE : 10/18/22
CHECKED BY : D. R. SHACKELFORD DATE : 2/1/23
DESIGN ENGINEER OF RECORD : P. D. BRYANT DATE : 2/6/23

10/24/2023
R:\Structures\Plans\300016\401_065_B5981_SMU_B1_S1-33_300016.dgn
ssandor

NOTES

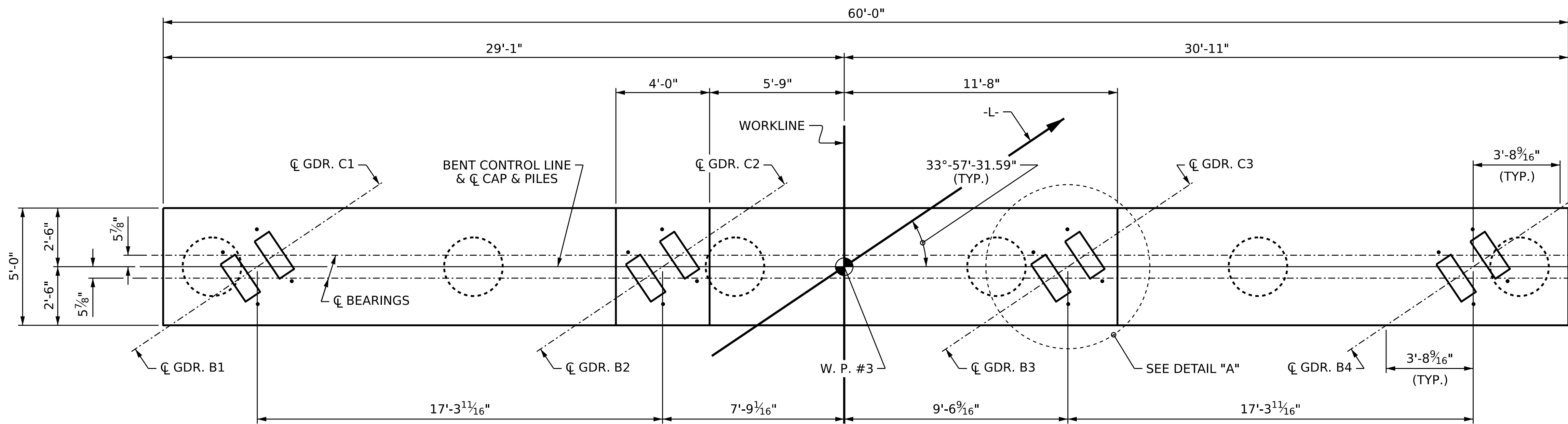
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

"U" BARS IN ENDS OF CAP MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR "B" BARS.

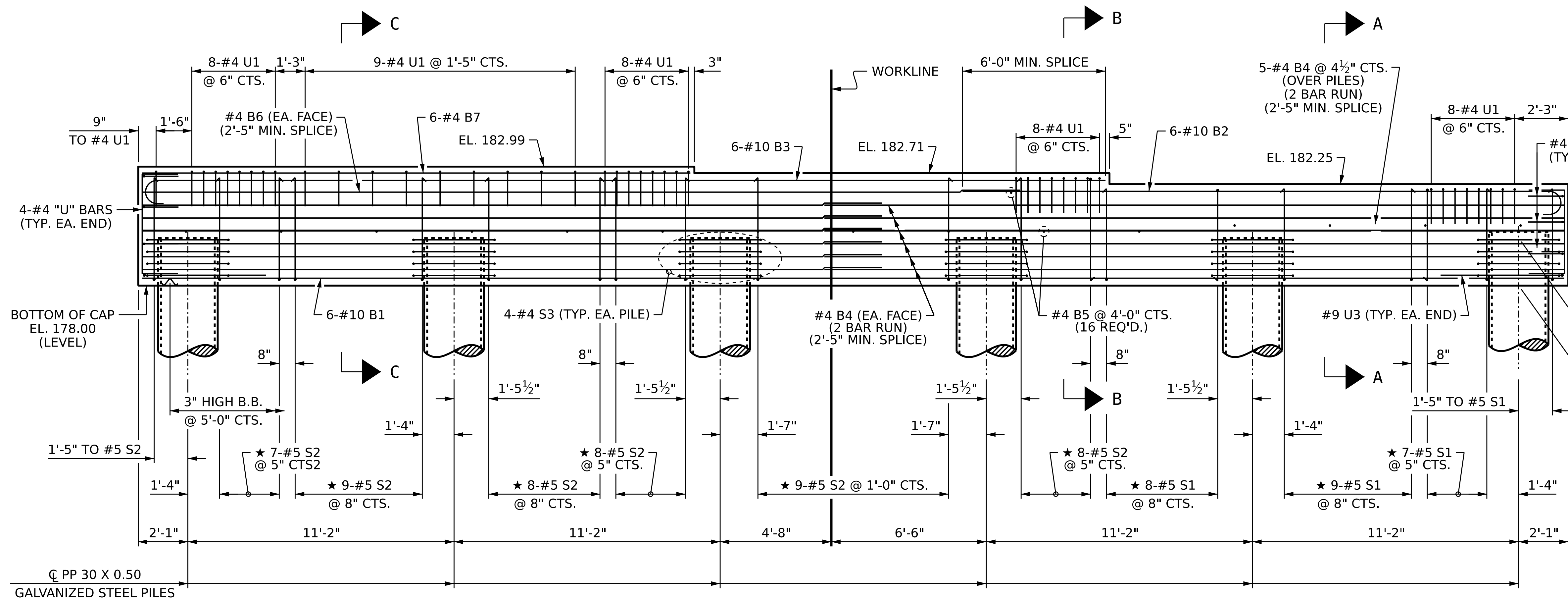
FOR PIPE PILE SPLICE DETAILS, SEE SHEET S1-37.

FOR ADDITIONAL REINFORCING STEEL IN PP 30 X 0.50 GALVANIZED STEEL PILES, SEE SHEET S1-37.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 45 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

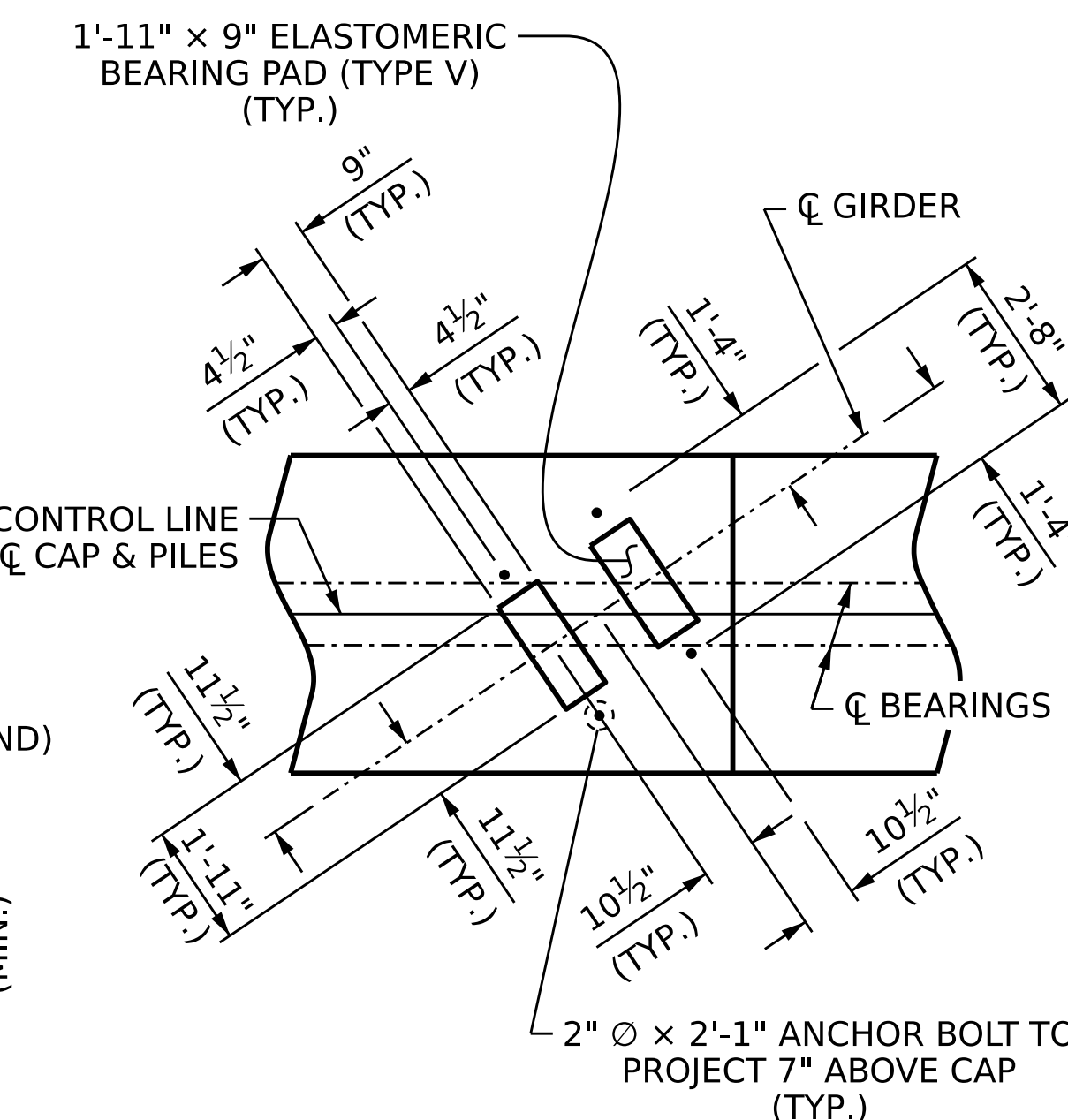


PLAN



★ INVERT ALTERNATE STIRRUPS

ELEVATION



DETAIL "A"

(TYP. EA. GIRDER)

PROJECT NO. **B-5981**

DUPLIN COUNTY

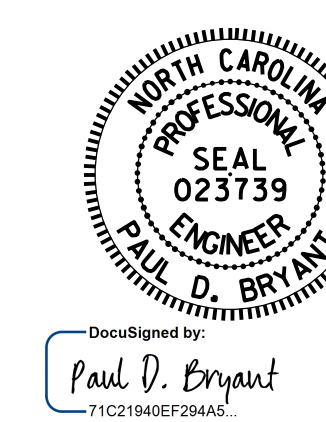
STATION: **23+56.64 -L-**

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

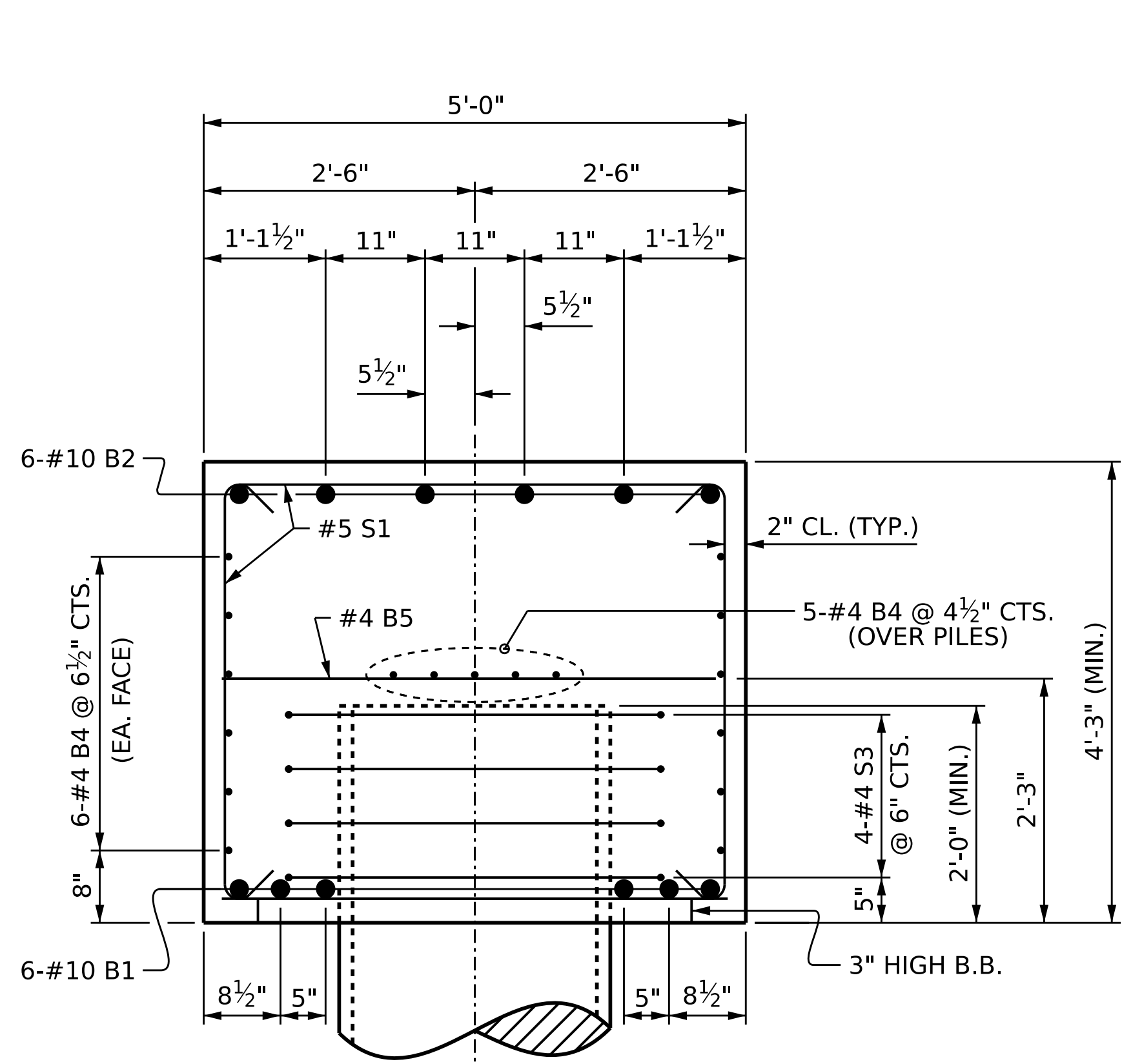
BENT 2



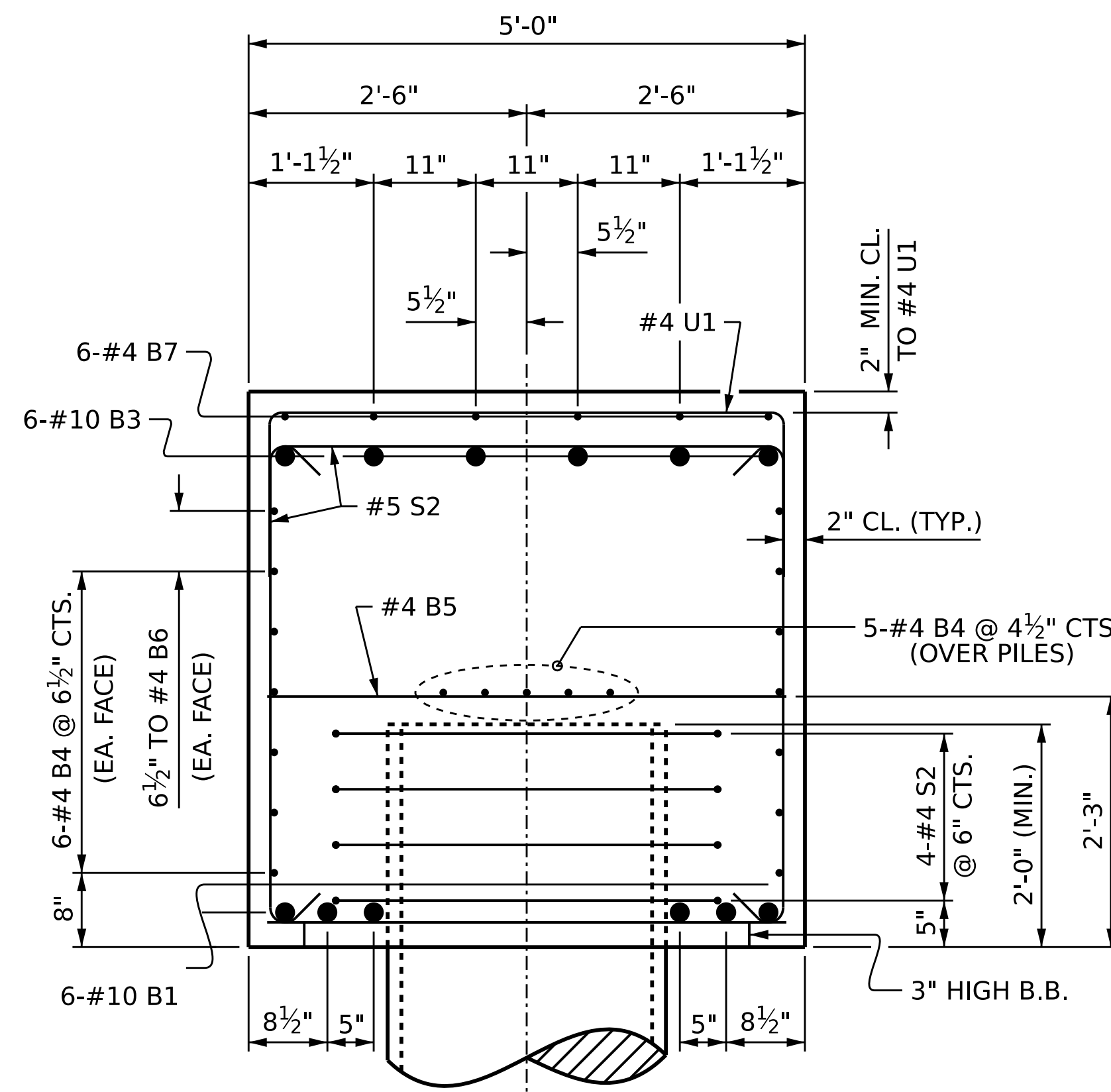
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS		SHEET NO.	
NO.	DATE	NO.	DATE
1		3	
2		4	

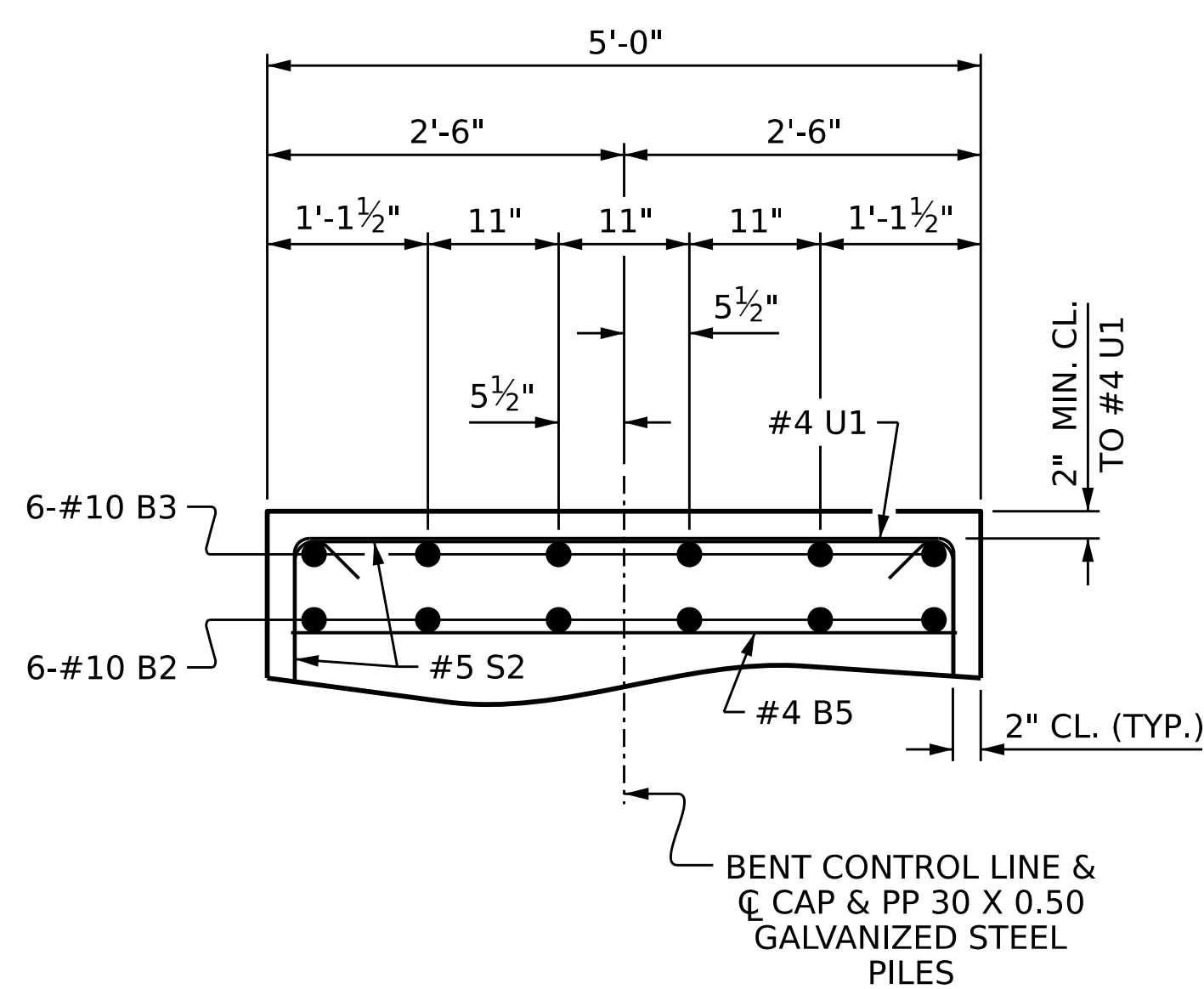
DRAWN BY: P. K. NEWTON DATE: 10/18/22
 CHECKED BY: D. R. SHACKELFORD DATE: 2/1/23
 DESIGN ENGINEER OF RECORD: P. D. BRYANT DATE: 2/6/23



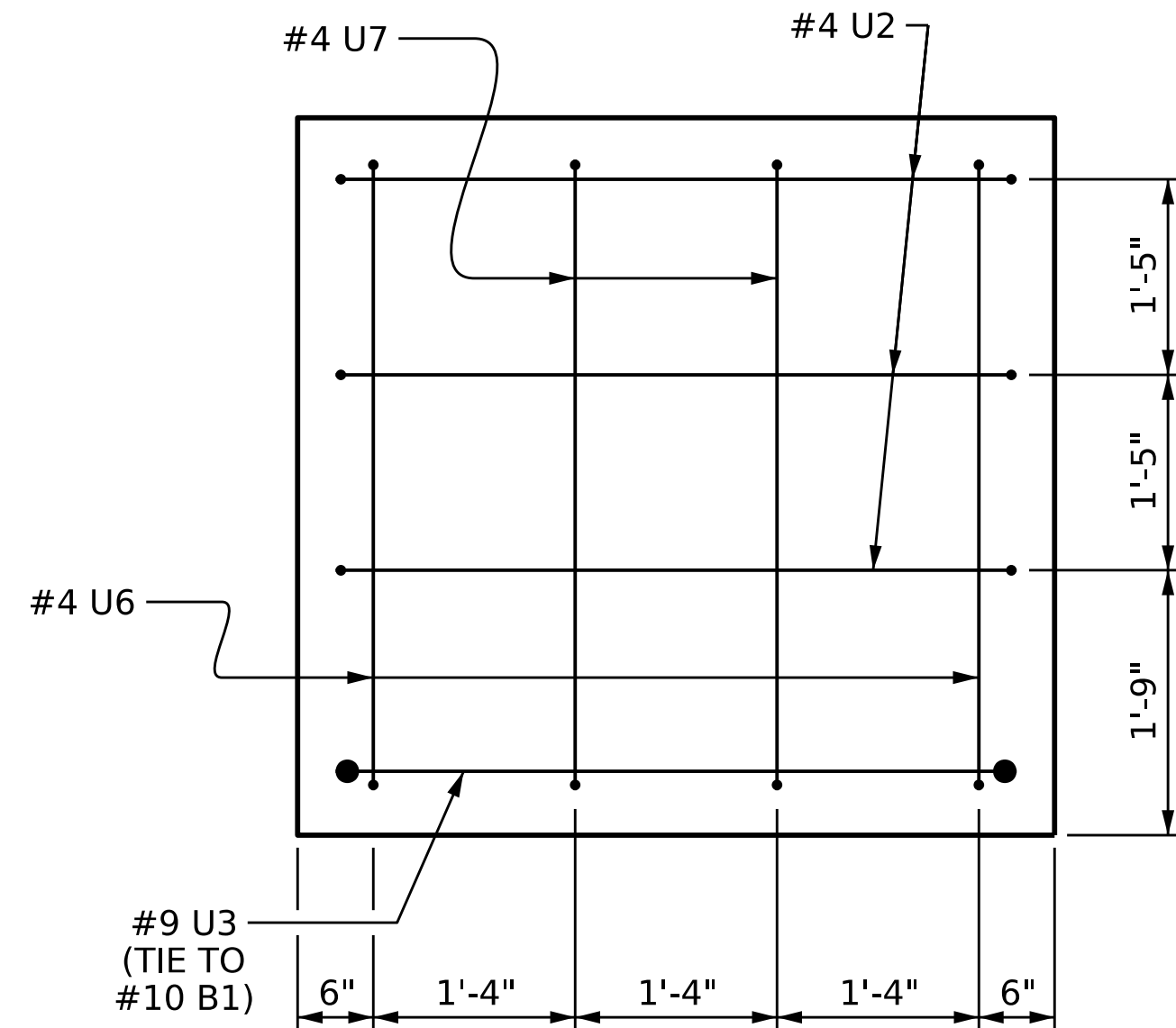
SECTION A-A



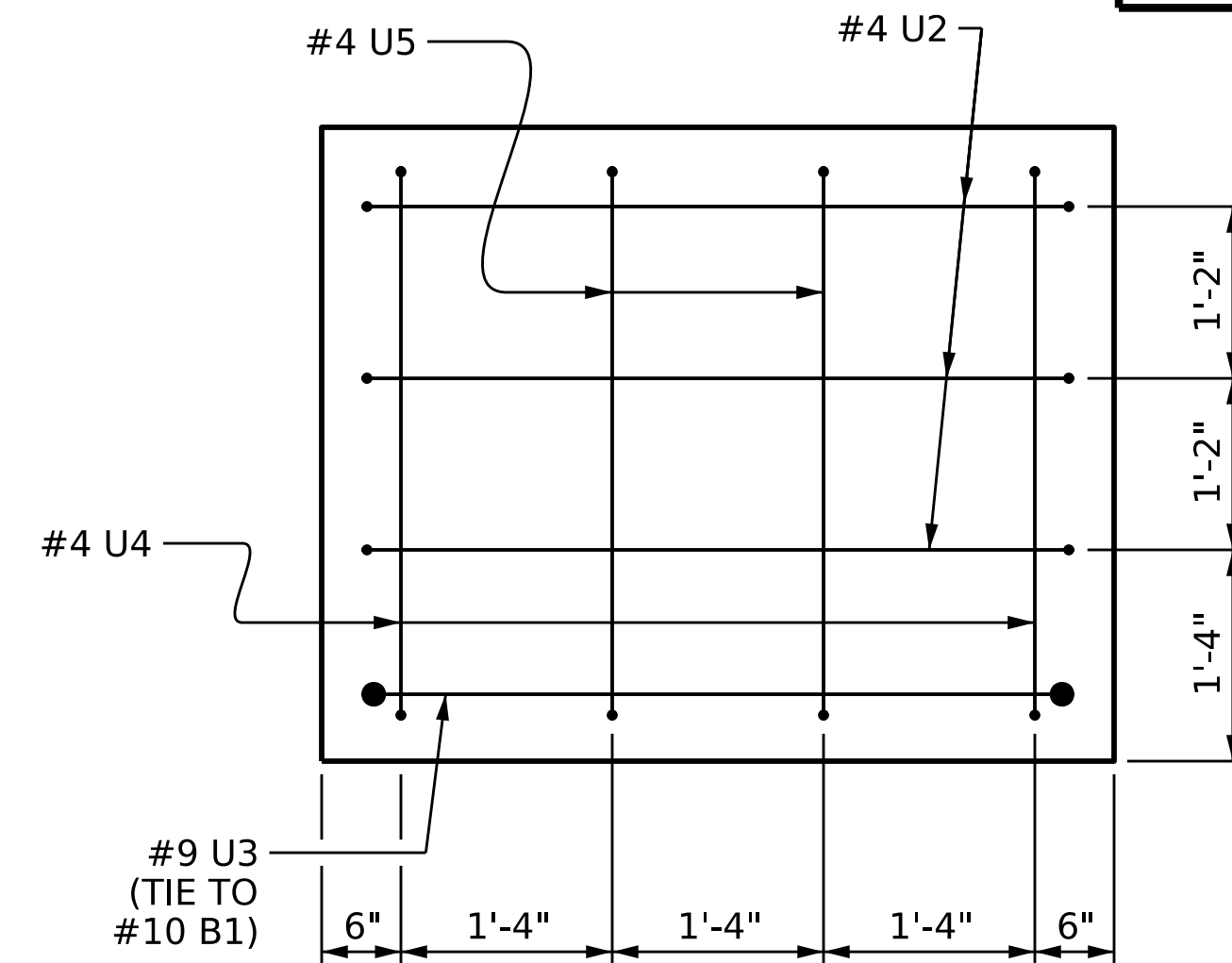
SECTION C-C



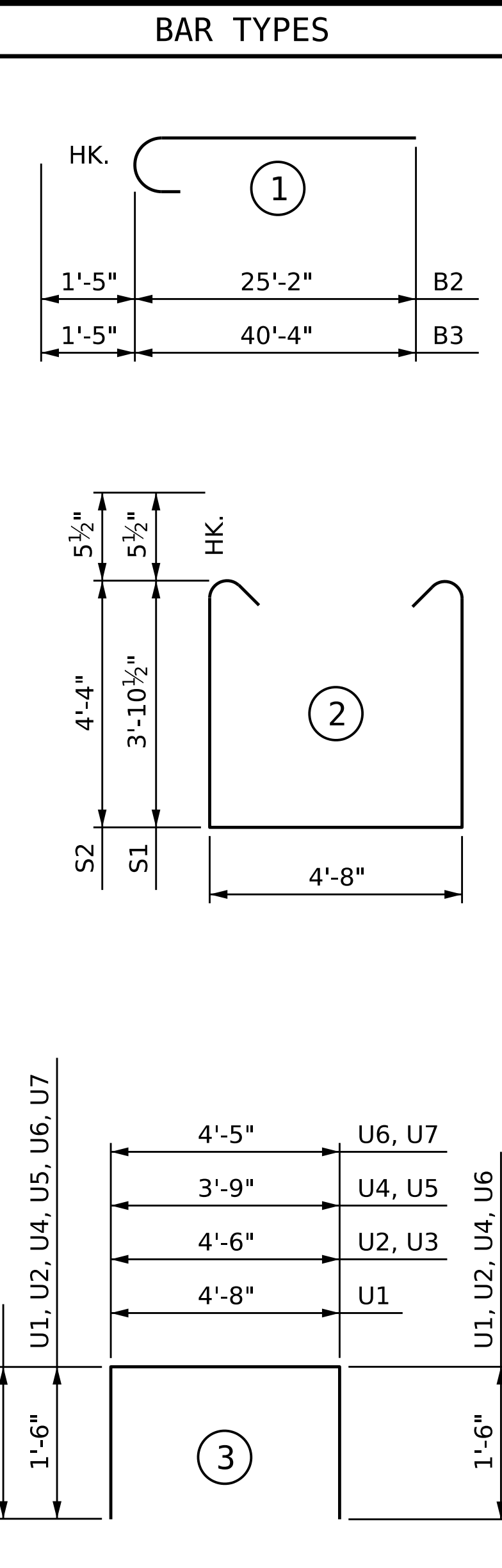
PART SECTION B-B



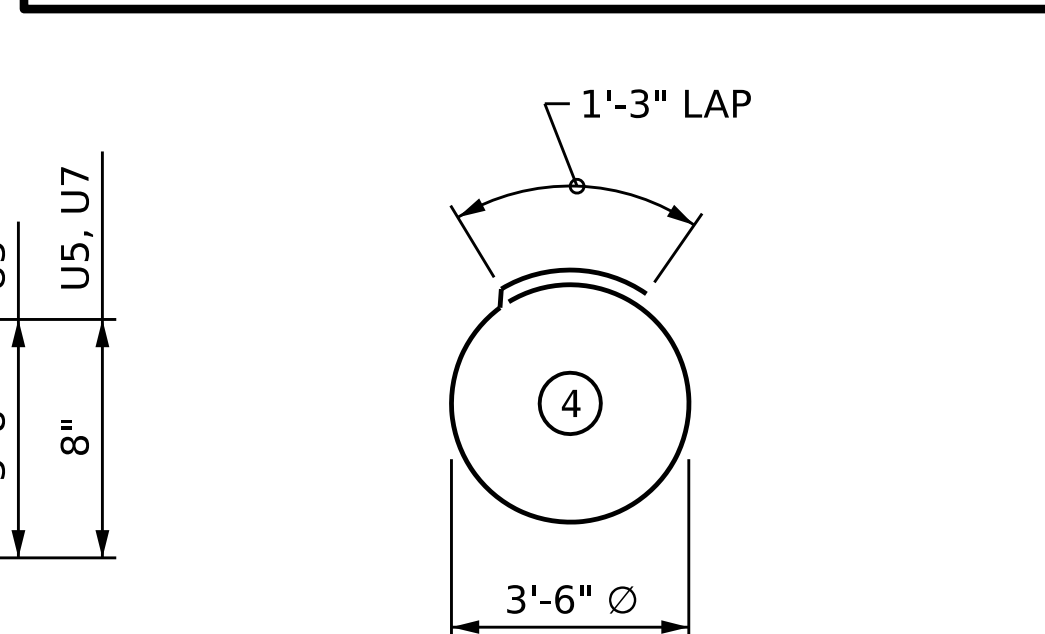
LEFT END VIEW



RIGHT END VIEW



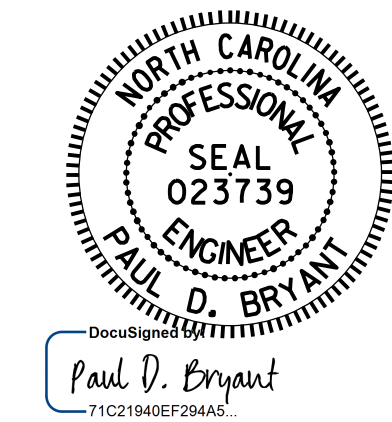
BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	STR	59'-8"	1,540
B2	6	#10	1	26'-7"	686
B3	6	#10	1	41'-9"	1,078
B4	34	#4	STR	31'-1"	706
B5	16	#4	STR	4'-8"	50
B6	2	#4	STR	36'-10"	49
B7	6	#4	STR	23'-0"	92
S1	25	#5	2	13'-4"	348
S2	50	#5	2	14'-3"	743
S3	24	#4	4	12'-3"	196
U1	42	#4	3	7'-8"	215
U2	6	#4	3	7'-6"	30
U3	2	#9	3	11'-10"	80
U4	2	#4	3	6'-9"	9
U5	2	#4	3	5'-11"	8
U6	2	#4	3	7'-5"	10
U7	2	#4	3	6'-7"	9
REINFORCING STEEL					5,849 LBS.
CLASS A CONCRETE BREAKDOWN:					
TOTAL CLASS A CONCRETE					▲ 49.7 C. Y.
▲ CONCRETE DISPLACED BY THE PP 30 X 0.50 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.					



ALL BAR DIMENSIONS ARE OUT TO OUT.

DRAWN BY : P. K. NEWTON DATE : 10/21/22
 CHECKED BY : D. R. SHACKELFORD DATE : 2/1/23
 DESIGN ENGINEER OF RECORD : P. D. BRYANT DATE : 2/6/23

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

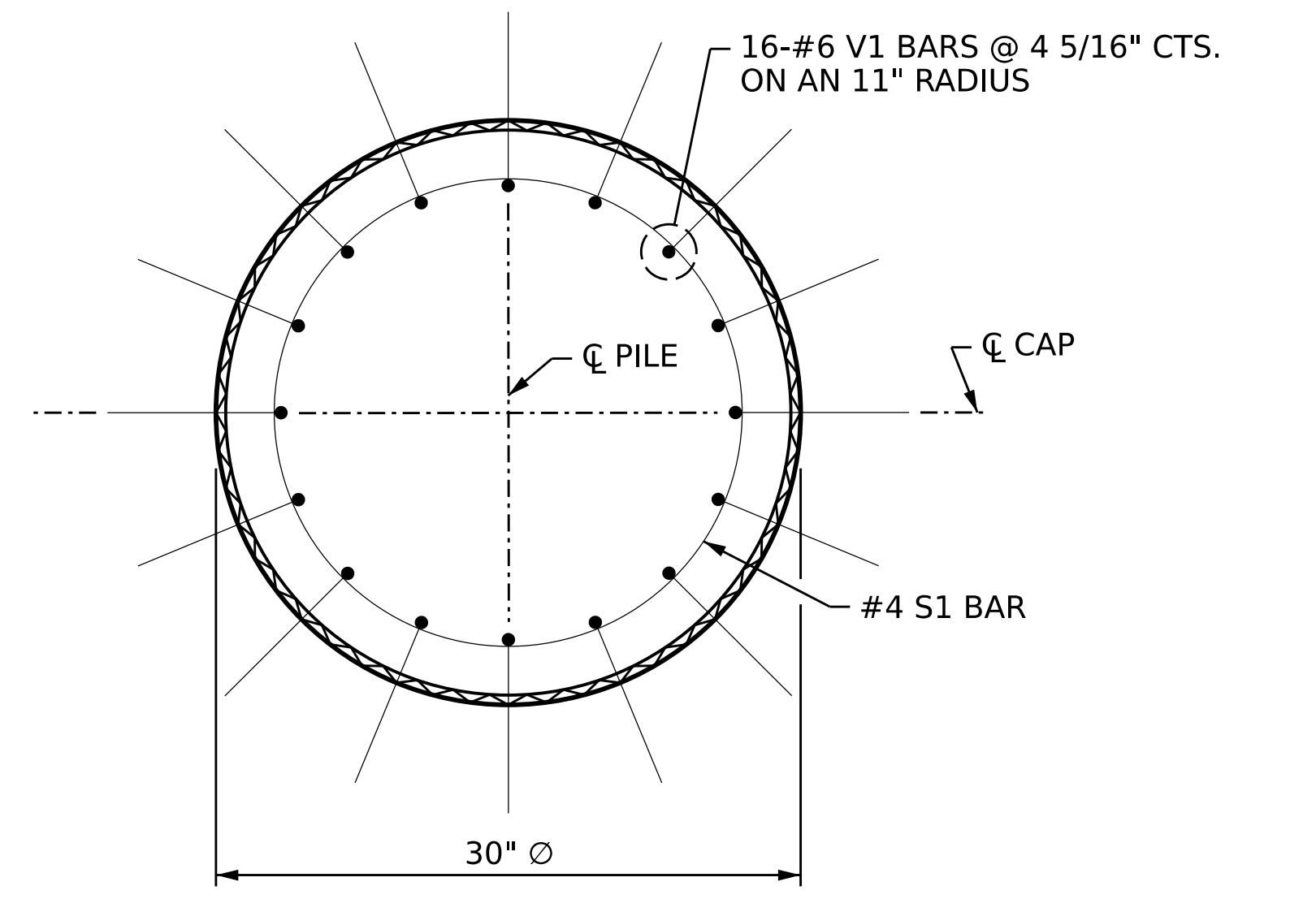


PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 2 OF 2

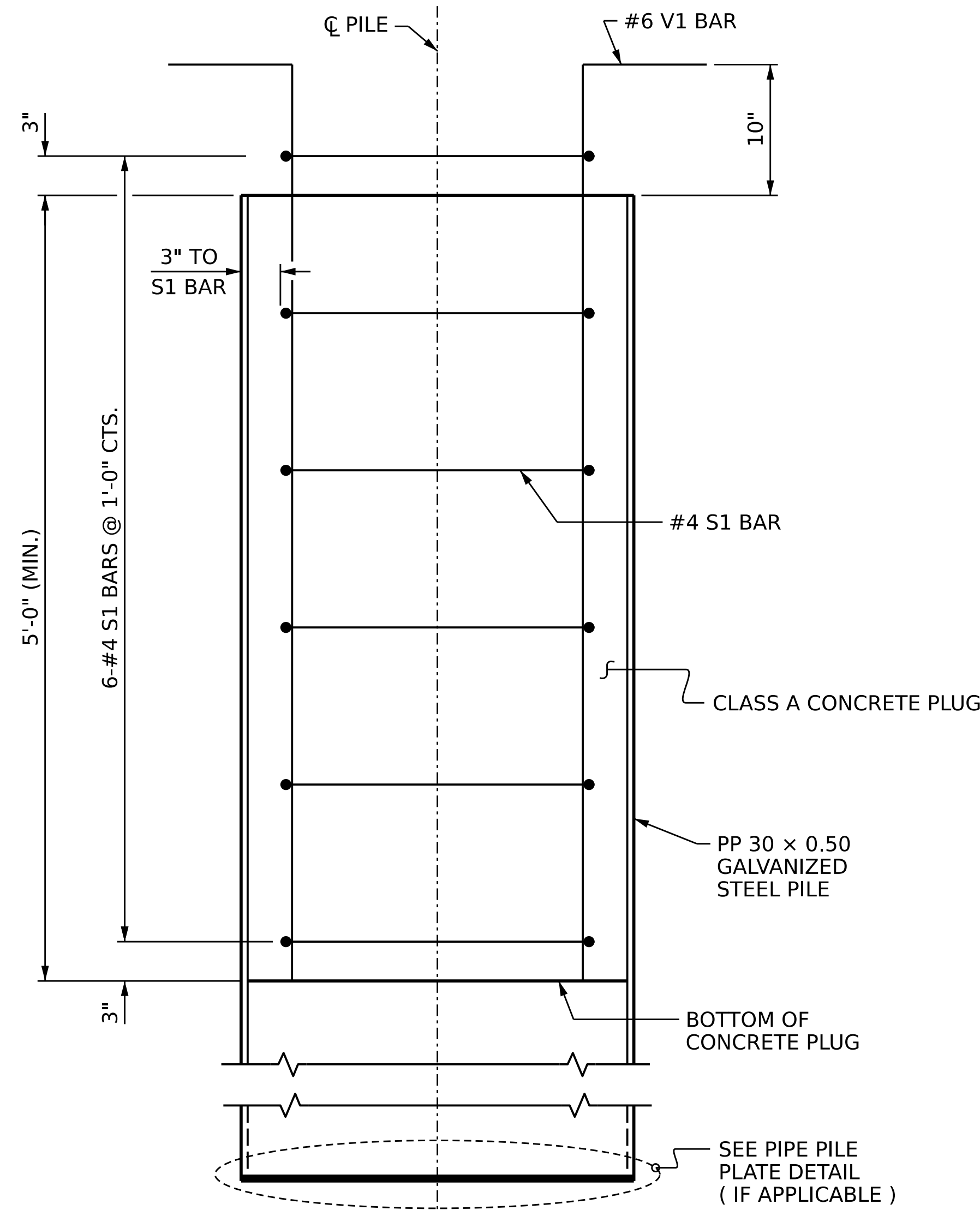
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
BENT 2

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

TOTAL SHEETS: 43



PLAN



ELEVATION

PP 30 x 0.50 GALVANIZED STEEL PILE

(OPEN OR CLOSED END)

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

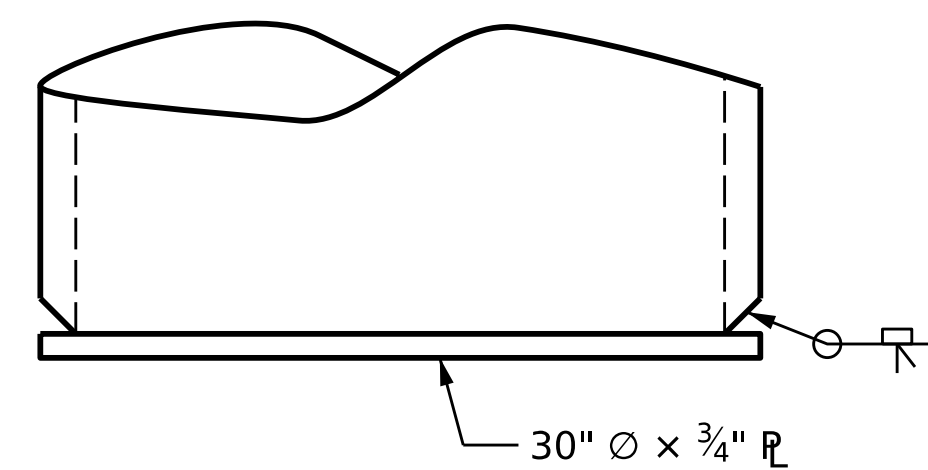
PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

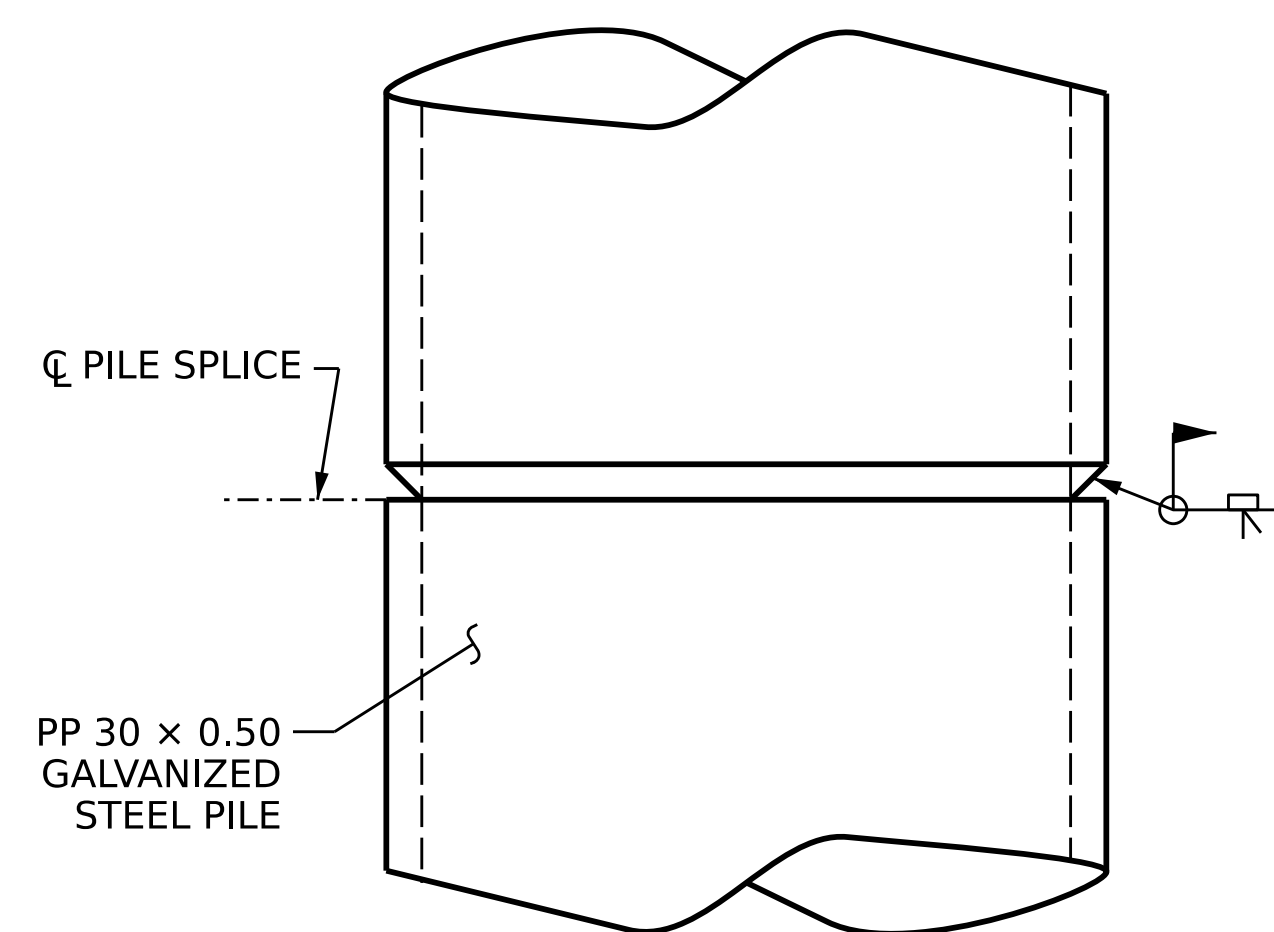
FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 30 X 0.50 GALVANIZED STEEL PILES.



PIPE PILE PLATE DETAIL
(IF APPLICABLE)

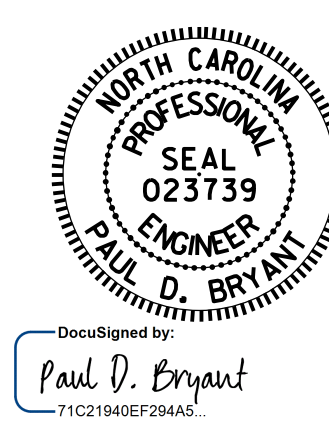


PIPE PILE SPLICE DETAIL

**BILL OF MATERIAL FOR ONE
PP 30 x 0.50 GALVANIZED STEEL PILE**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	7'-7"	30
V1	16	#6	2	6'-10"	164
REINFORCING STEEL					194 LBS.
CLASS A CONCRETE					
5'-0" MINIMUM PLUG					0.8 C.Y.
BAR TYPES					
ALL BAR DIMENSIONS ARE OUT TO OUT.					

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**

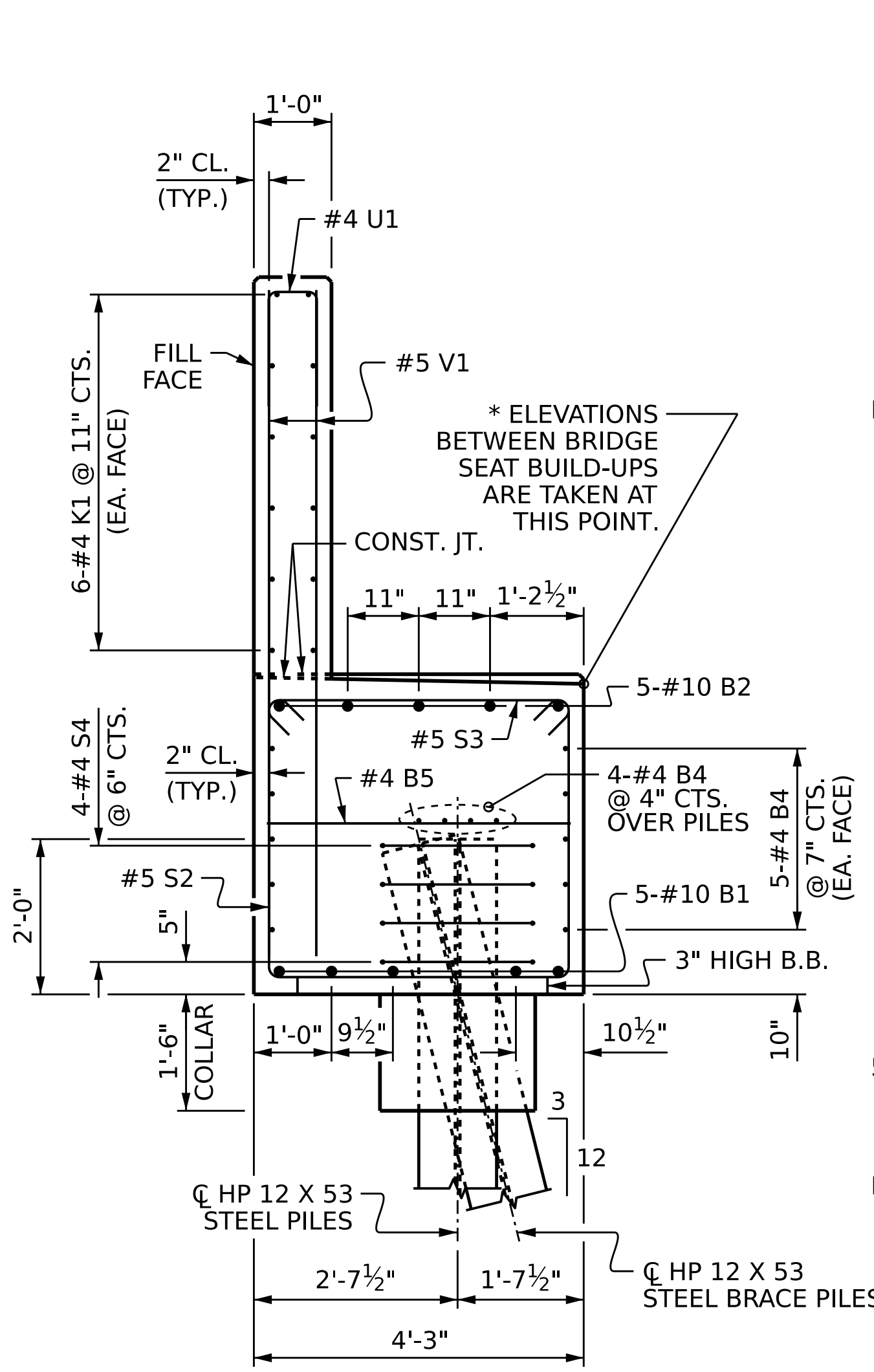


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
30" STEEL PIPE PILE

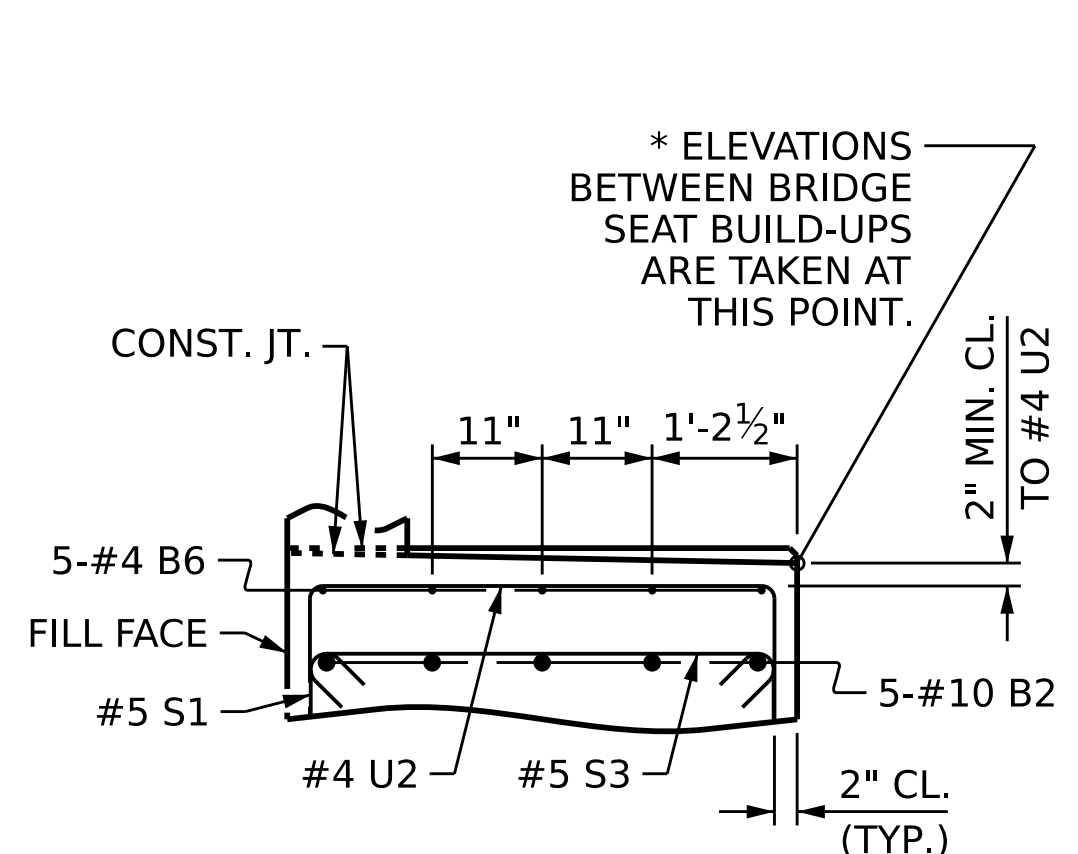
ASSEMBLED BY: P. K. NEWTON	DATE: 1/24/23
CHECKED BY: D. R. SHACKELFORD	DATE: 2/1/23
DRAWN BY: TLA 8/05	REV. 5/1/06R MAA / KMM
CHECKED BY: GM 9/05	REV. 10/1/11 MAA / GM
	REV. 12/17 MAA / THC

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-37
1			3			TOTAL SHEETS
2			4			43

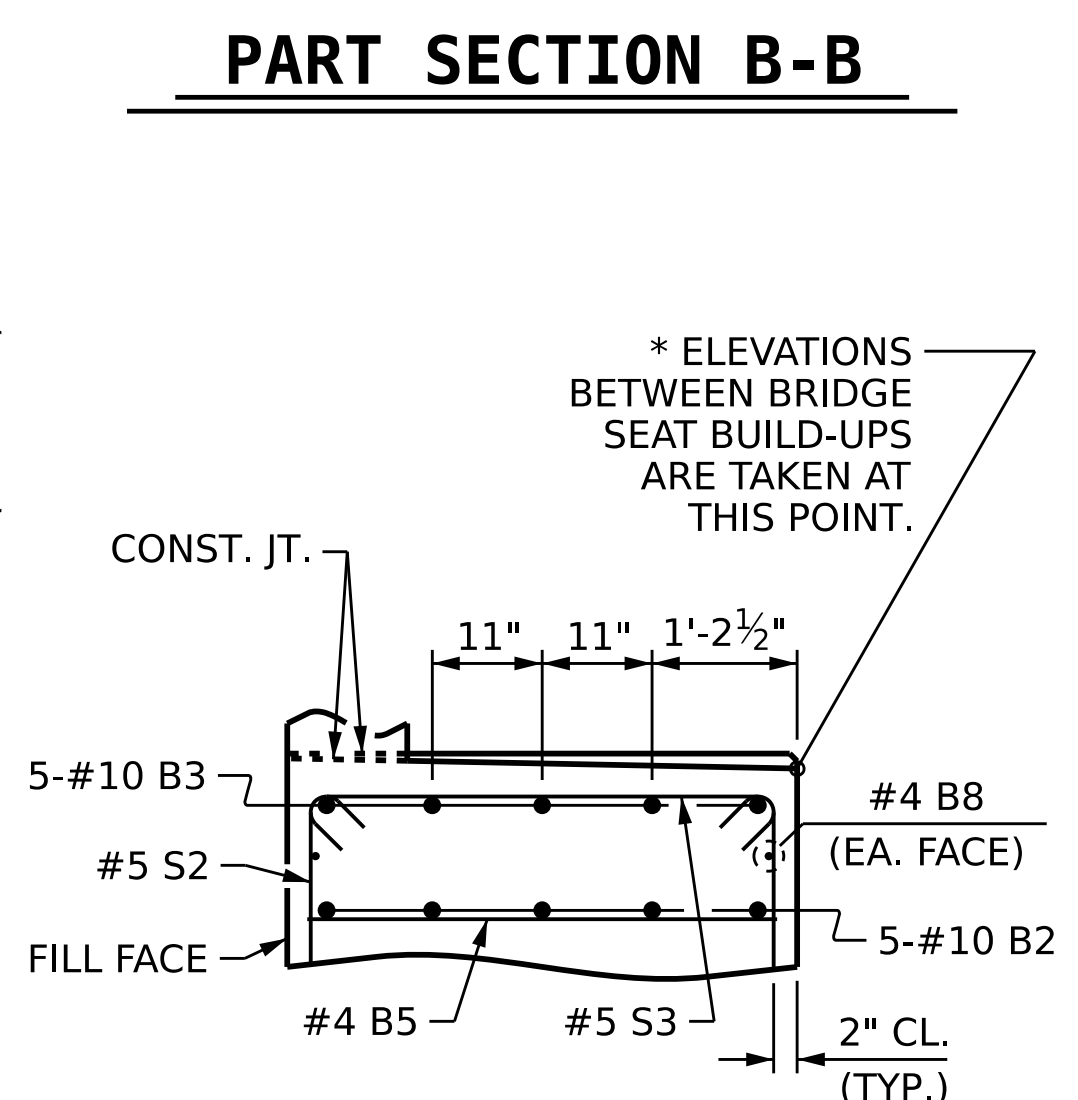
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



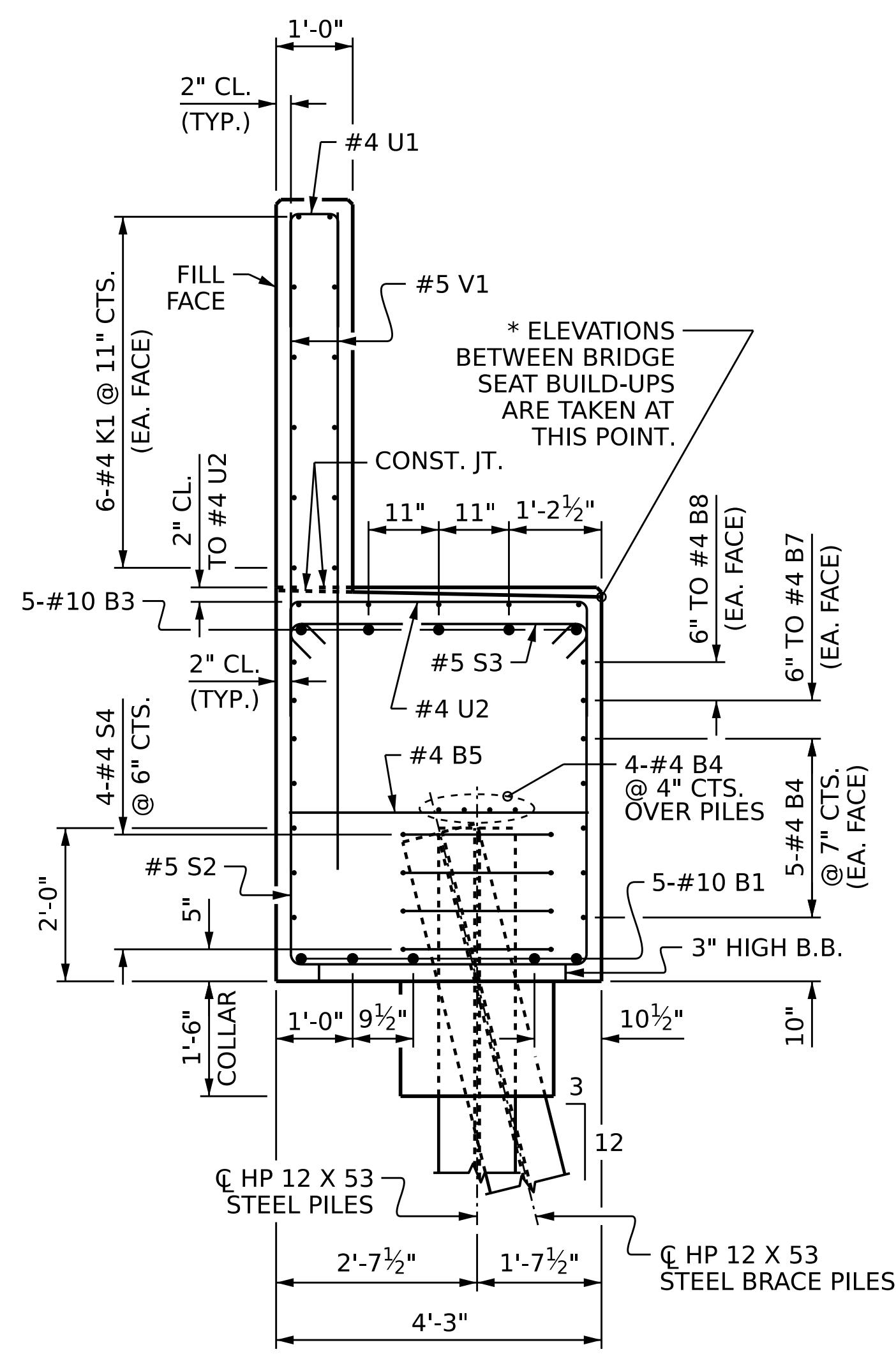
SECTION A-A



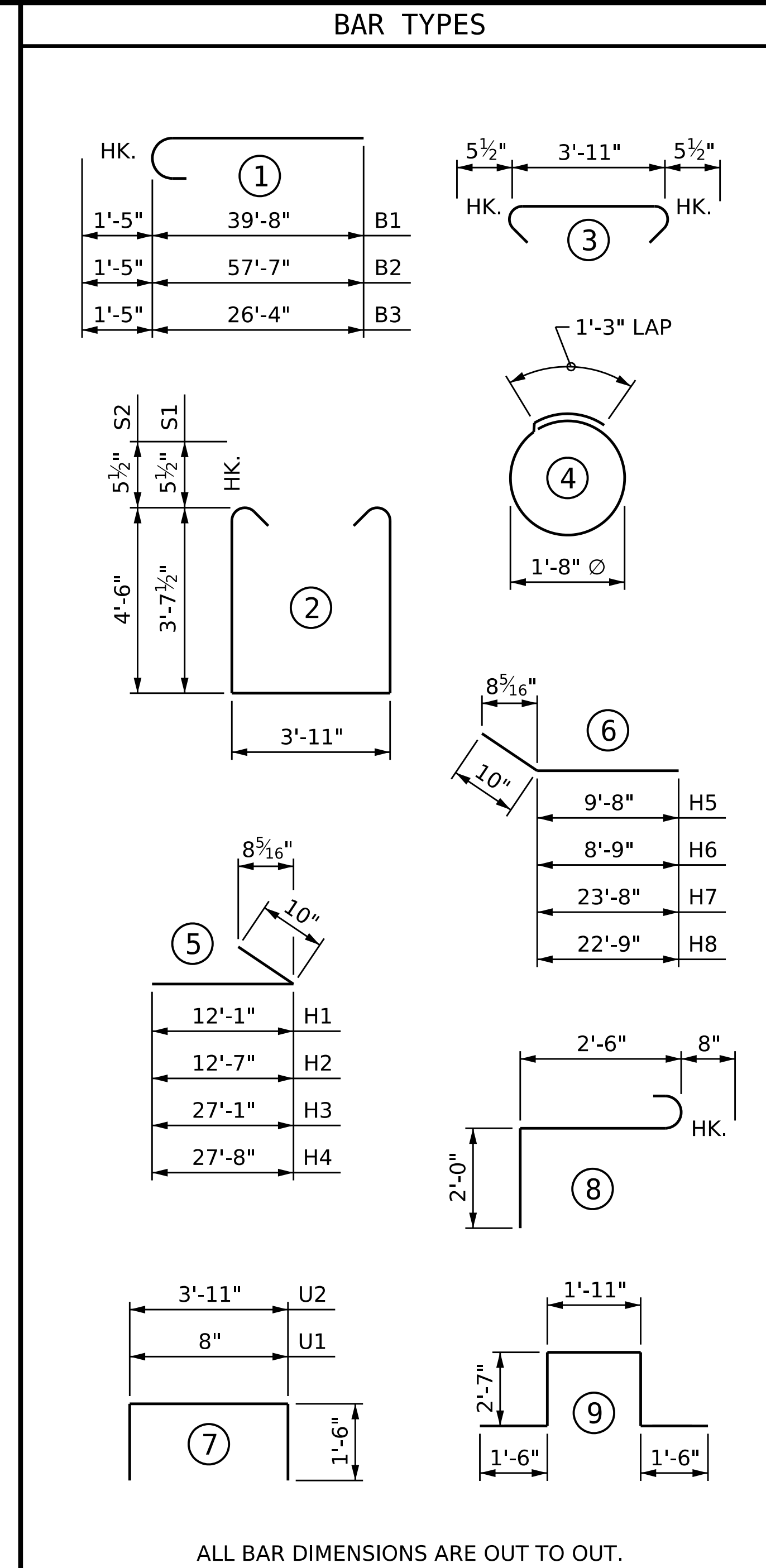
PART SECTION B-B



PART SECTION C-C

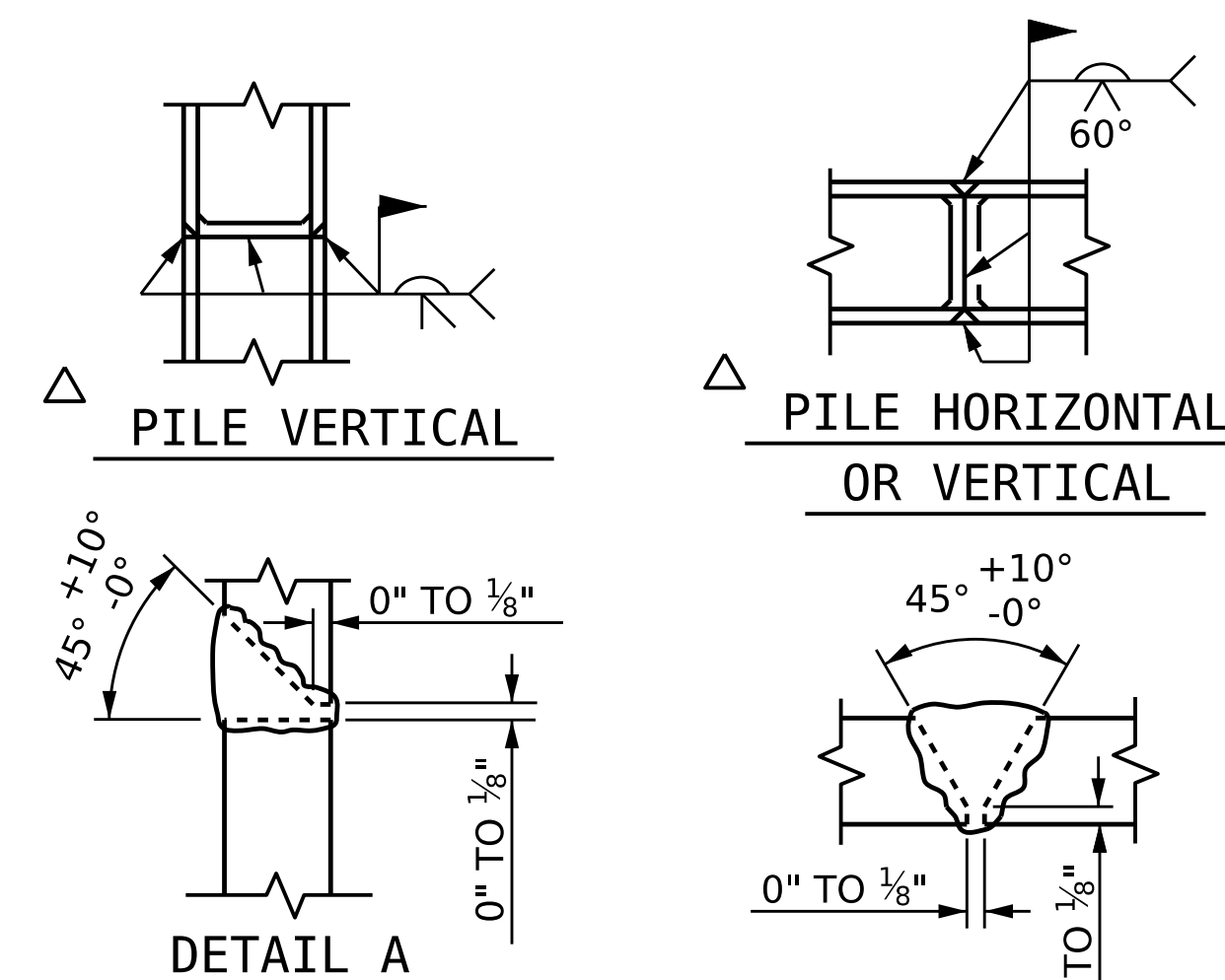


SECTION D-D

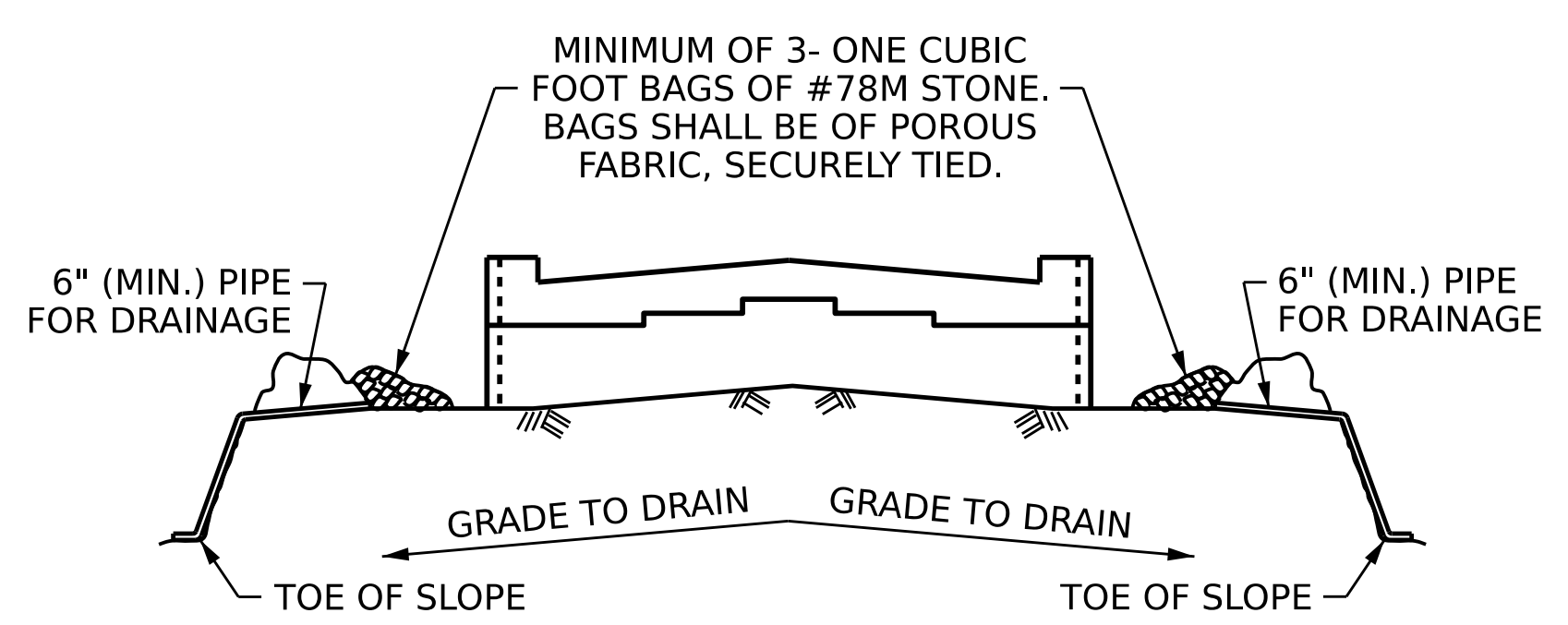


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#10	1	41'-1"	1,768
B2	5	#10	1	59'-0"	1,269
B3	5	#10	1	27'-9"	597
B4	28	#4	STR	38'-10"	726
B5	20	#4	STR	3'-11"	52
B6	5	#4	STR	17'-3"	58
B7	2	#4	STR	19'-8"	26
B8	2	#4	STR	29'-7"	40
B9	5	#4	STR	2'-2"	7
H1	7	#5	5	12'-11"	94
H2	7	#5	5	13'-5"	98
H3	9	#5	5	27'-11"	262
H4	9	#5	5	28'-6"	268
H5	6	#5	6	10'-6"	66
H6	6	#5	6	9'-7"	60
H7	9	#5	6	24'-6"	230
H8	9	#5	6	23'-7"	221
K1	24	#4	STR	38'-10"	623
K2	8	#4	STR	4'-6"	24
S1	45	#5	2	12'-1"	567
S2	27	#5	2	13'-10"	390
S3	72	#5	3	4'-10"	363
S4	36	#4	4	6'-6"	156
S5	12	#6	8	5'-2"	93
S6	12	#6	9	10'-1"	182
U1	65	#4	7	3'-8"	159
U2	14	#4	7	6'-11"	65
V1	130	#5	STR	8'-7"	1,164
V2	25	#5	STR	11'-2"	291
V3	10	#5	STR	11'-1"	116
V4	6	#5	STR	6'-0"	38
V5	14	#5	STR	5'-10"	85
V6	10	#5	STR	5'-8"	59
V7	19	#5	STR	9'-11"	197
V8	10	#5	STR	9'-8"	101
V9	8	#5	STR	5'-7"	47
V10	10	#5	STR	5'-5"	56
V11	10	#5	STR	5'-3"	55
REINFORCING STEEL					10,673 LBS.
CLASS A CONCRETE					
POUR 1	(CAP, COLLARS & LOWER WINGS)				58.1 C. Y.
POUR 2	(BACKWALL & UPPER WINGS)				27.7 C. Y.
TOTAL					85.8 C. Y.



PILE SPLICE DETAILS

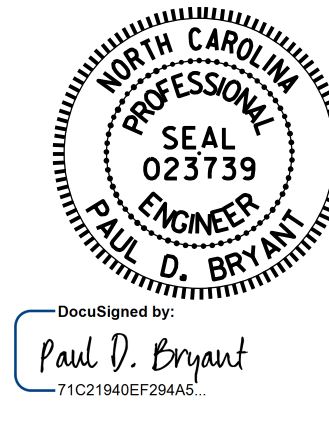


TEMPORARY DRAINAGE AT END BENT

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.



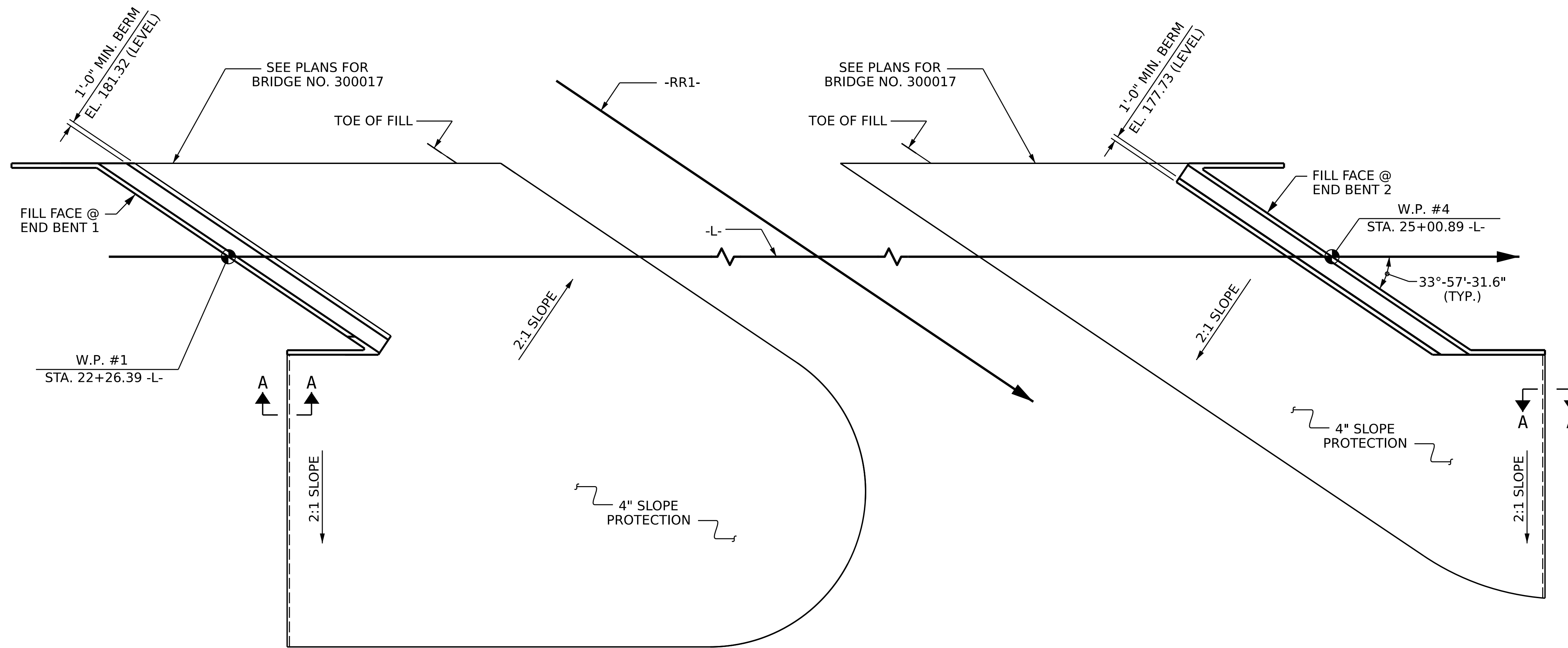
PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 3 OF 3

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET NO. **S1-40**
 TOTAL SHEETS **43**

DRAWN BY: P. K. NEWTON DATE: 1/19/23
 CHECKED BY: D. R. SHACKELFORD DATE: 1/31/23
 DESIGN ENGINEER OF RECORD: P. D. BRYANT DATE: 2/6/23

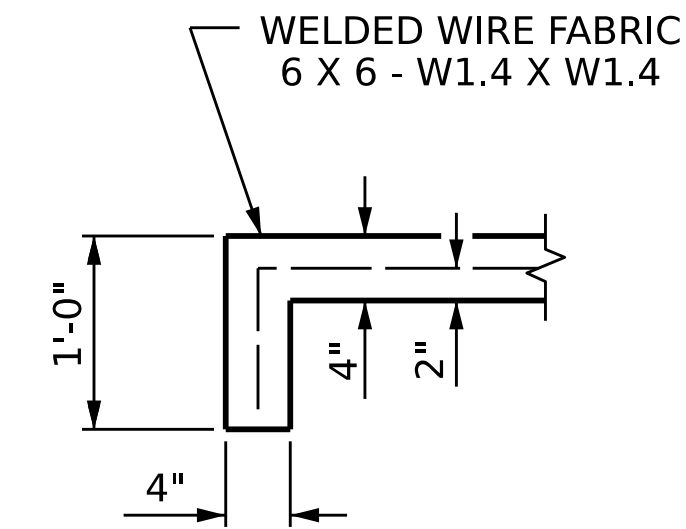


PLAN

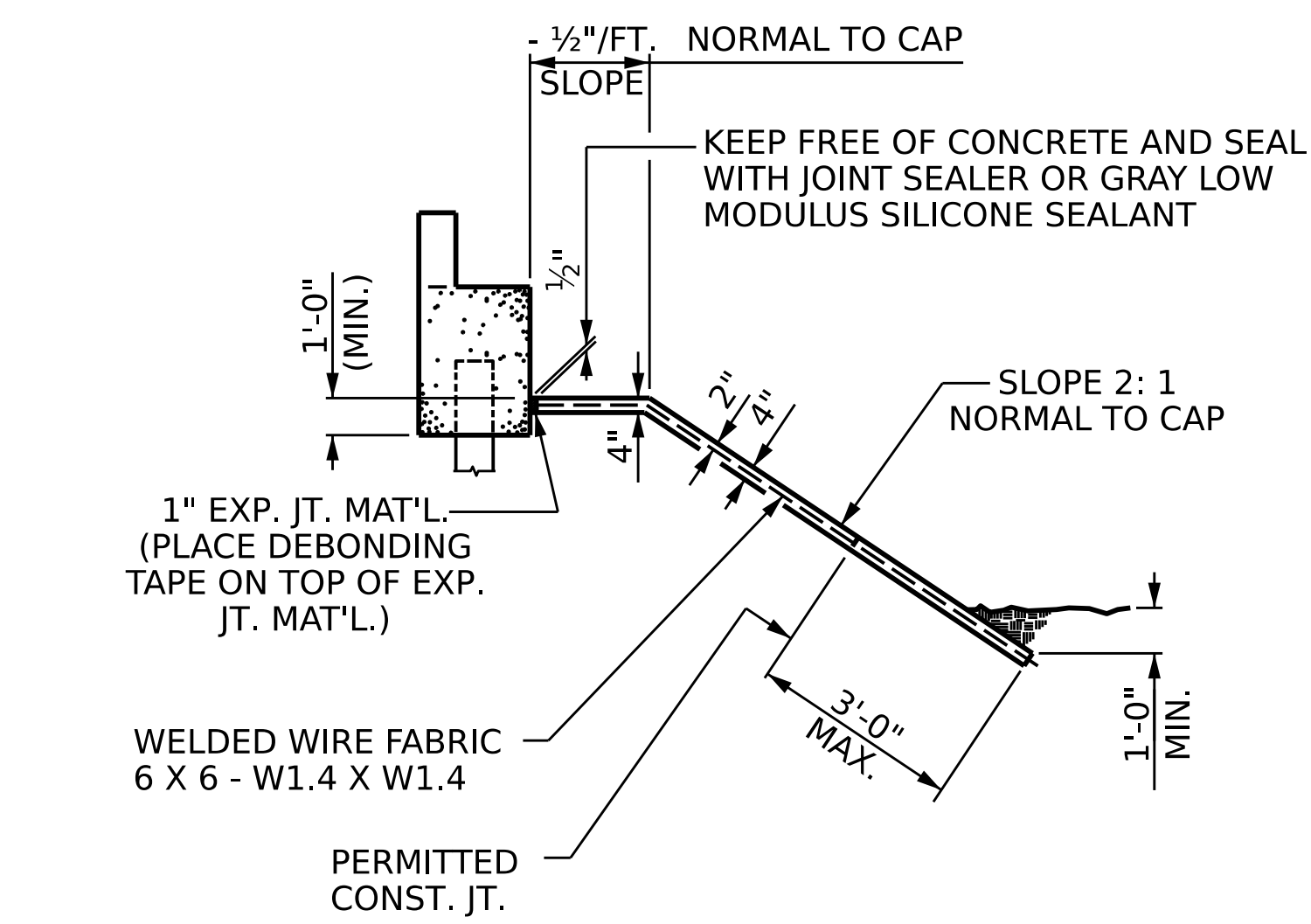
NOTES:
 SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.
 SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

BRIDGE @ STA. 23+56.64-L-	4" SLOPE PROTECTION SQ. YD.	* WELDED WIRE FABRIC 60 INCHES WIDE APPROX. L.F.
END BENT 1	1,160	2,090
END BENT 2	450	810

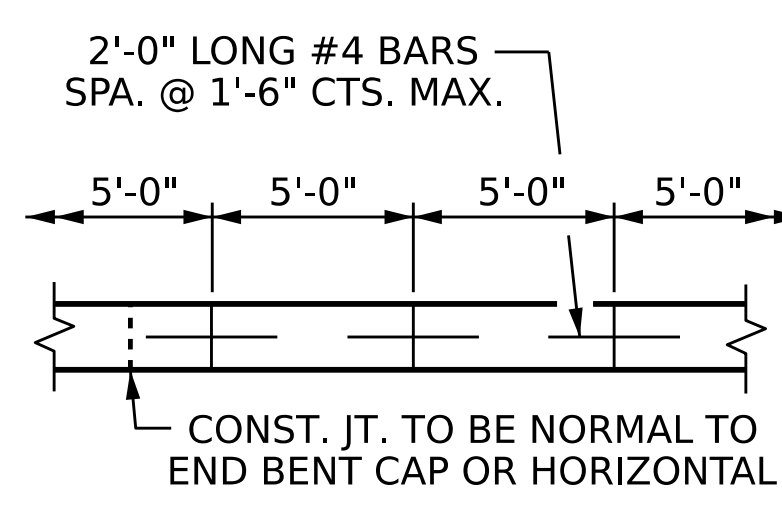
* QUANTITY SHOWN IS BASED ON 5' POURS.



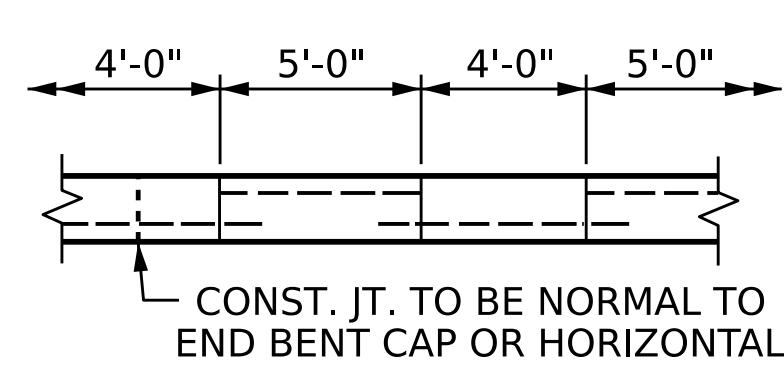
SECTION A-A



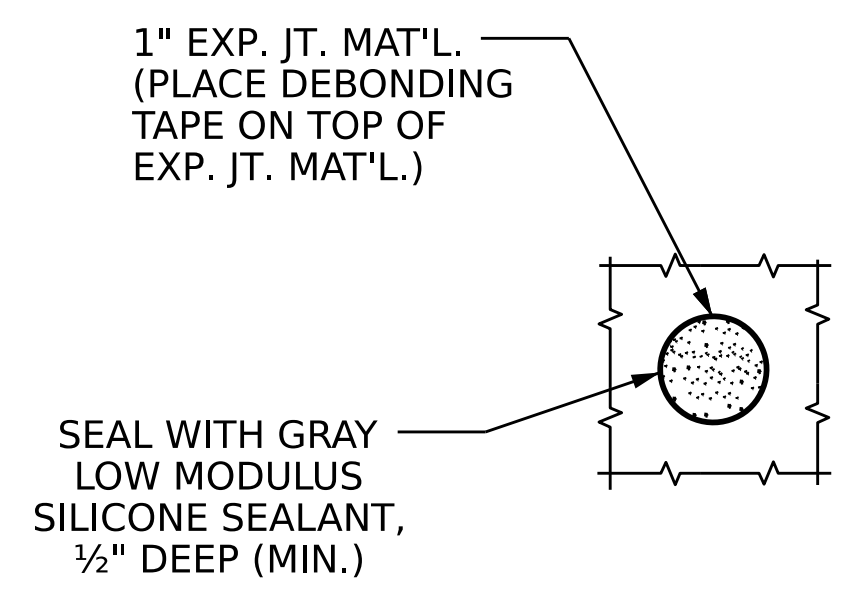
SECTION ALONG -L- WHEN DITCH IS NOT PROVIDED



POURING DETAIL



OPTIONAL POURING DETAIL



PLAN WHERE CONCRETE SLOPE PROTECTION MUST BE PLACED AROUND A BENT PILE

DETAILS FOR SLOPE PROTECTION

PROJECT NO. **B-5981**
 DUPLIN COUNTY
 STATION: **23+56.64 -L-**



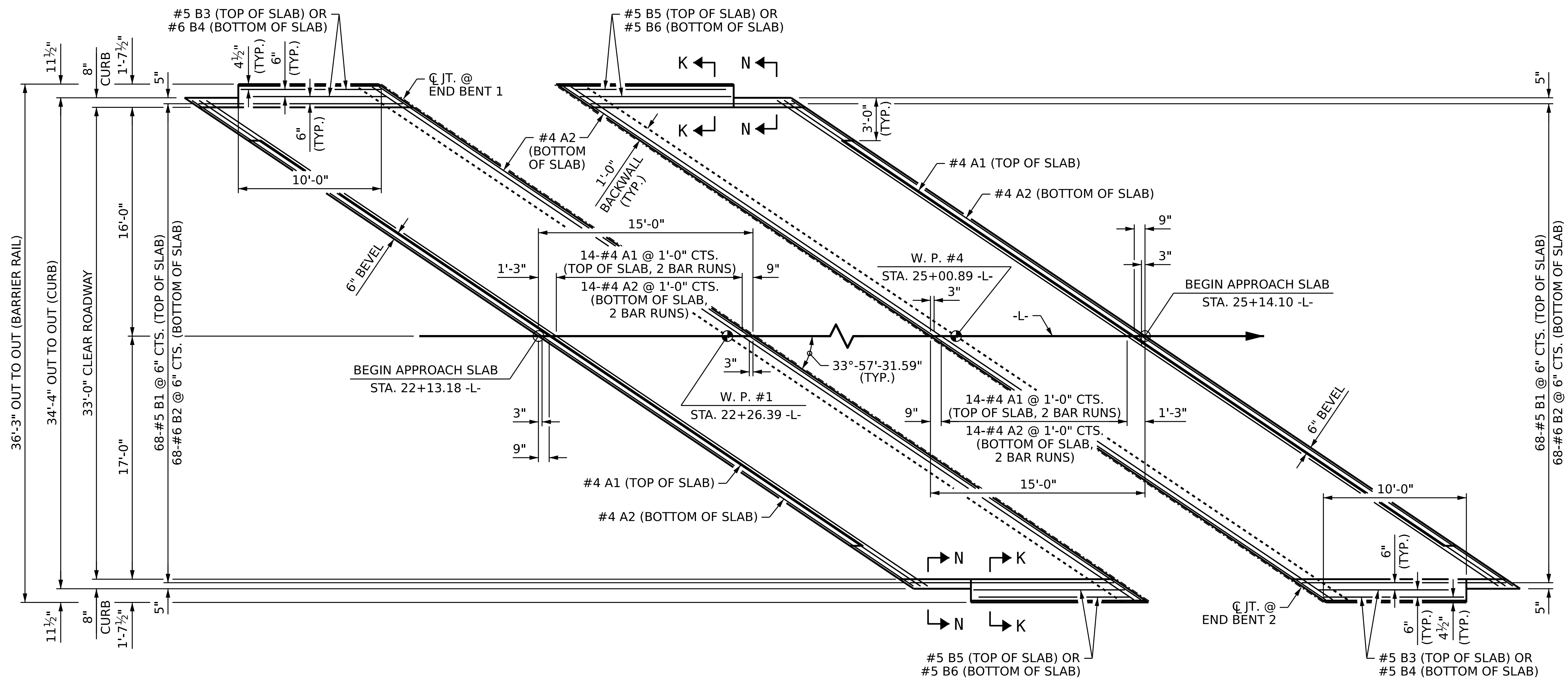
DocuSigned by:
 William C. Smith
 10/24/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
4" SLOPE PROTECTION DETAILS

DRAWN BY: S. T. SANDOR DATE: 08/2022
 CHECKED BY: W. C. SMITH DATE: 08/2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-41
1			3			TOTAL SHEETS
2			4			43

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

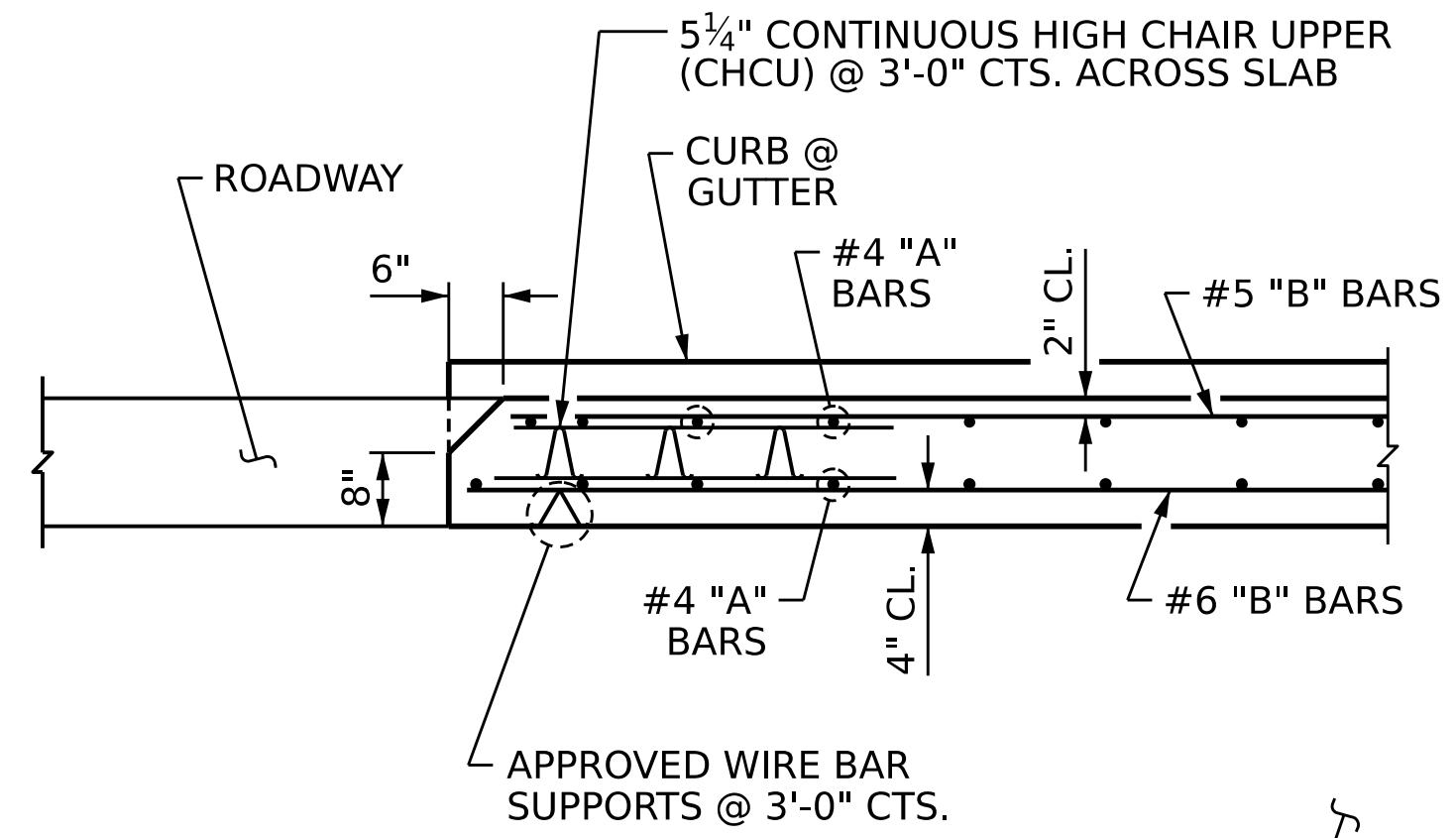


PLAN @ END BENT 1

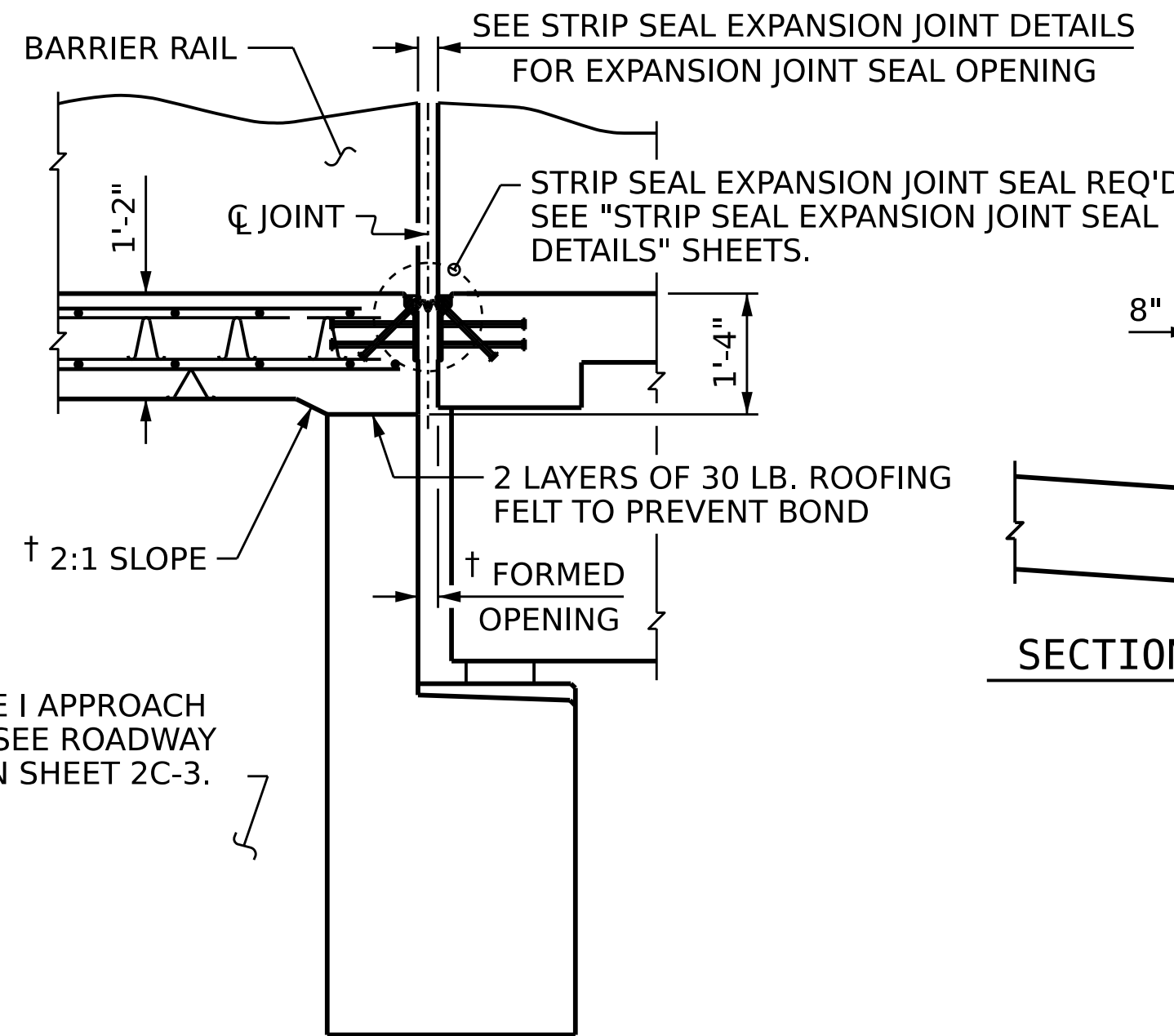
PLAN @ END BENT 2

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	33'-1"	663
A2	32	#4	STR	33'-1"	707
REINFORCING STEEL				** 2,224 LBS.	
* EPOXY COATED REINFORCING STEEL				** 1,658 LBS.	
CLASS AA CONCRETE				** 23.7 C. Y.	
APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	33'-6"	663
A2	32	#4	STR	33'-6"	707
REINFORCING STEEL				** 2,224 LBS.	
* EPOXY COATED REINFORCING STEEL				** 1,658 LBS.	
CLASS AA CONCRETE				** 23.7 C. Y.	

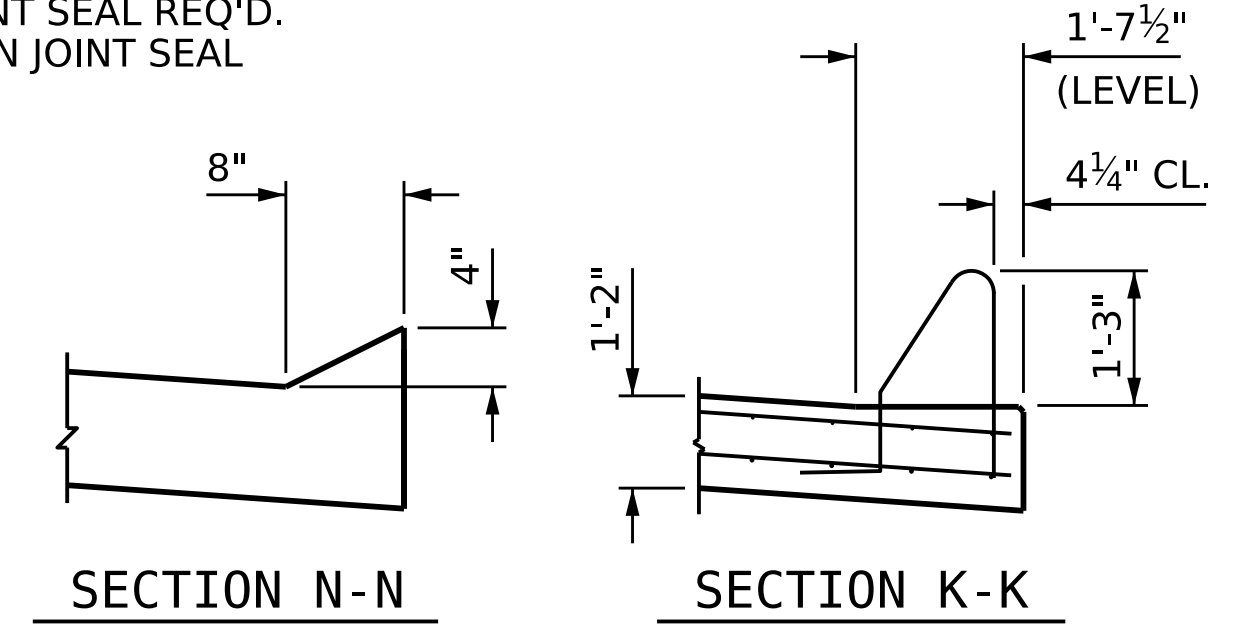
** QUANTITIES FOR CONCRETE BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 2 OF 2.



SECTION THRU SLAB

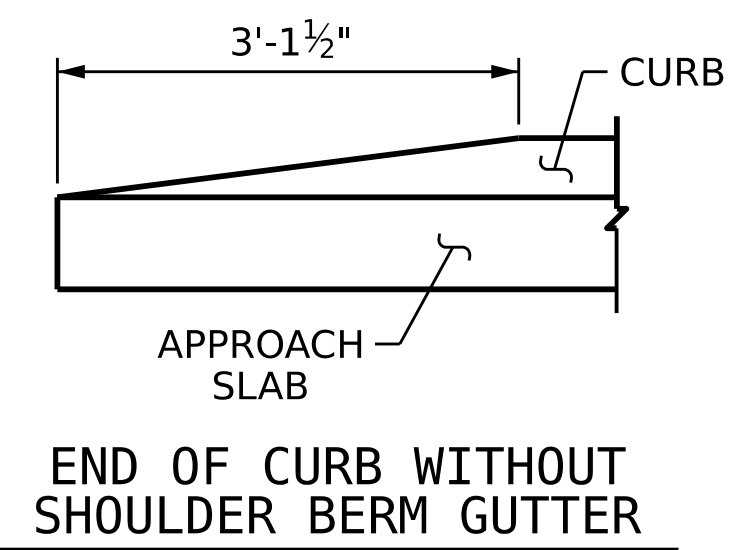


CURB DETAILS



SECTION N-N

SECTION K-K



END OF CURB WITHOUT SHOULDER BERM GUTTER

NOTES

- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- 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.
- FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.
- FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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

PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+56.64 -L-**
 SHEET 1 OF 2



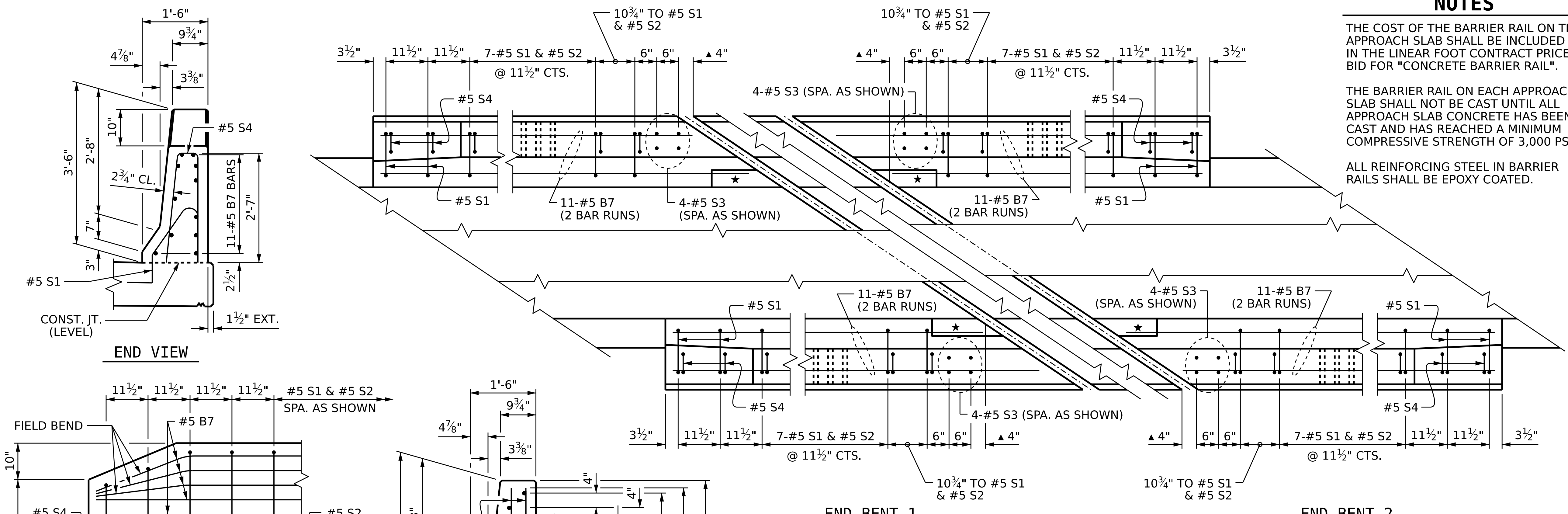
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT

DRAWN BY : P. K. NEWTON DATE : 1/30/23
 CHECKED BY : M. K. BEARD DATE : 2/7/23
 DESIGN ENGINEER OF RECORD : W. C. SMITH DATE : 3/8/23

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TOTAL SHEETS: 43

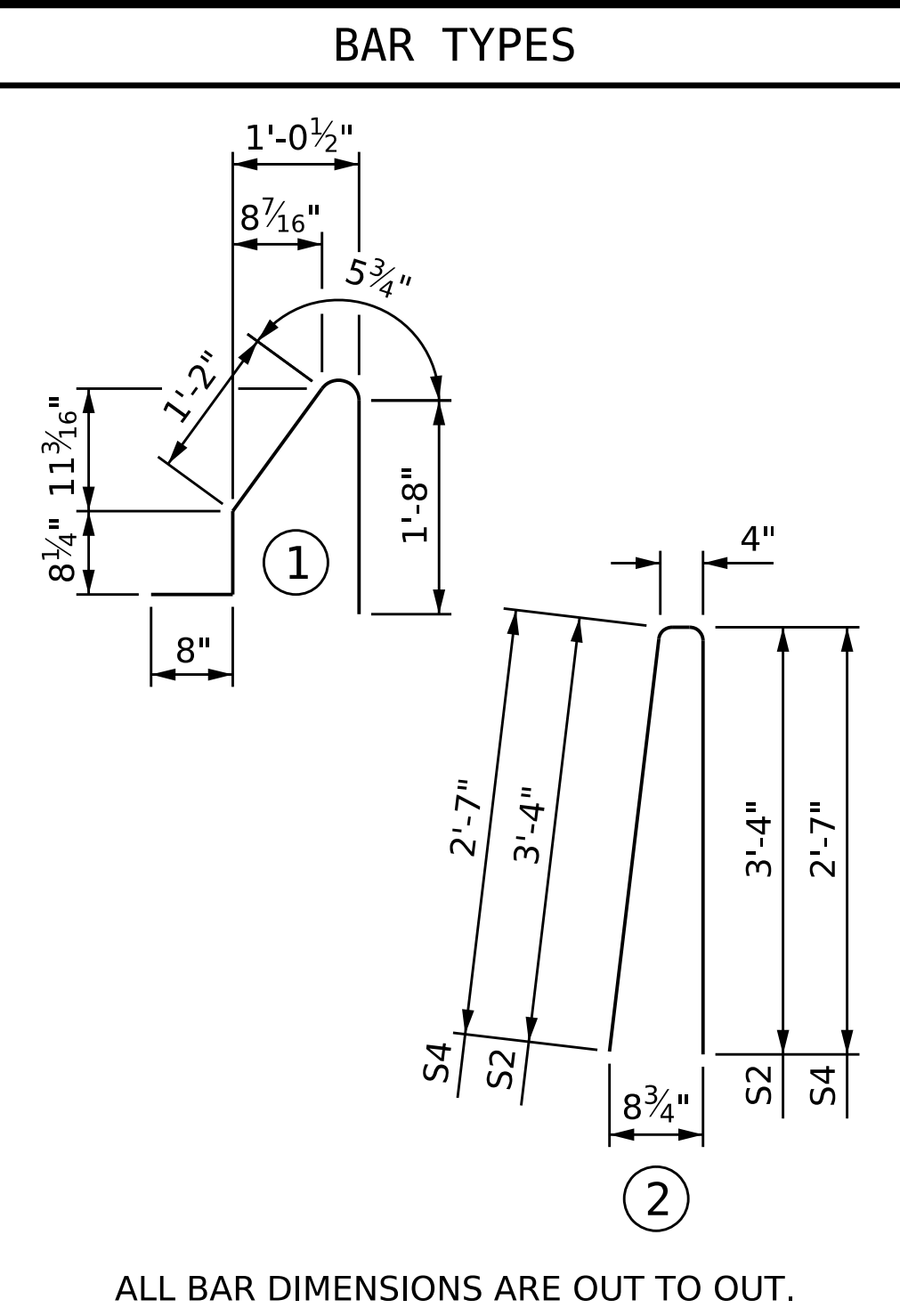


NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.



BILL OF MATERIAL

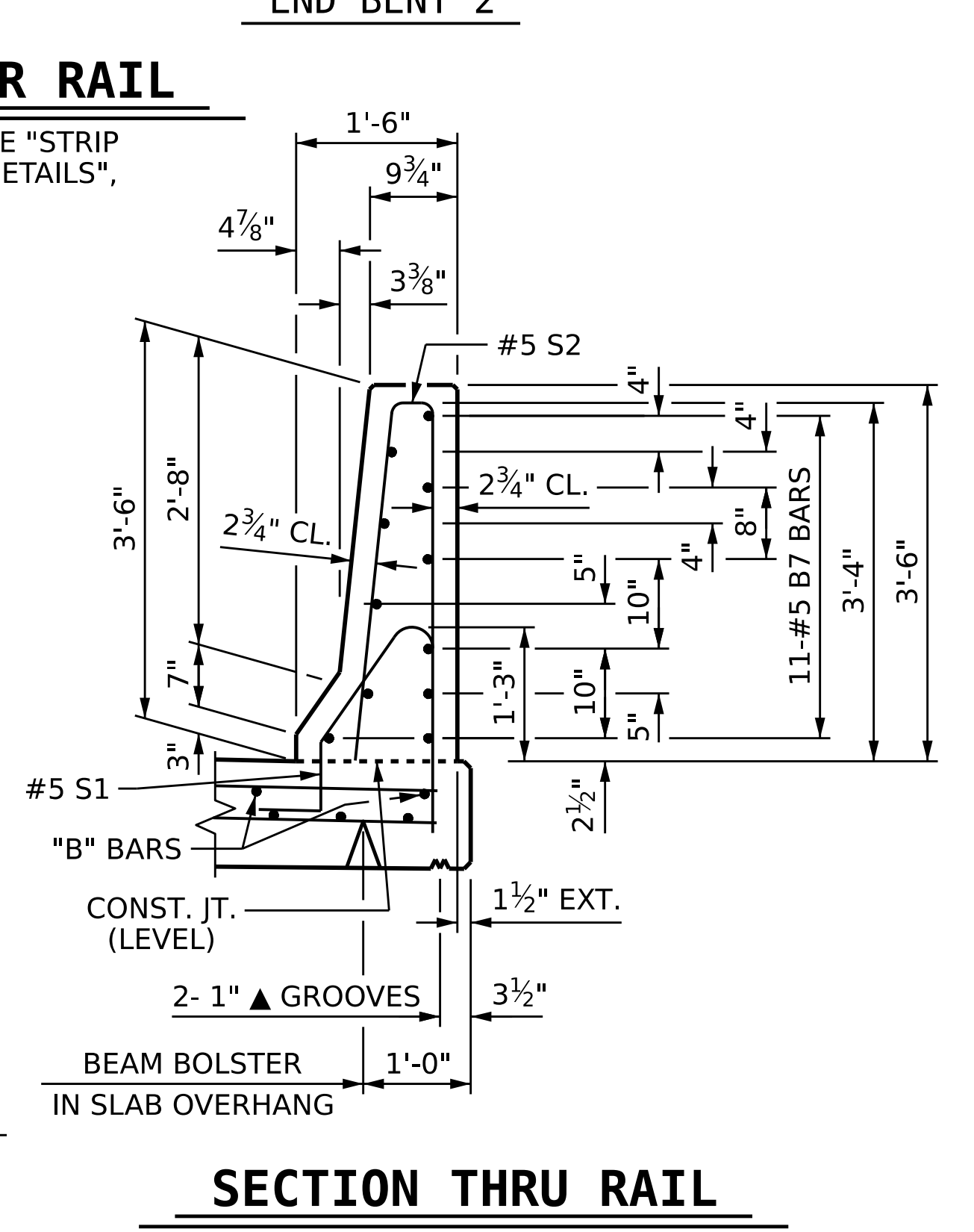
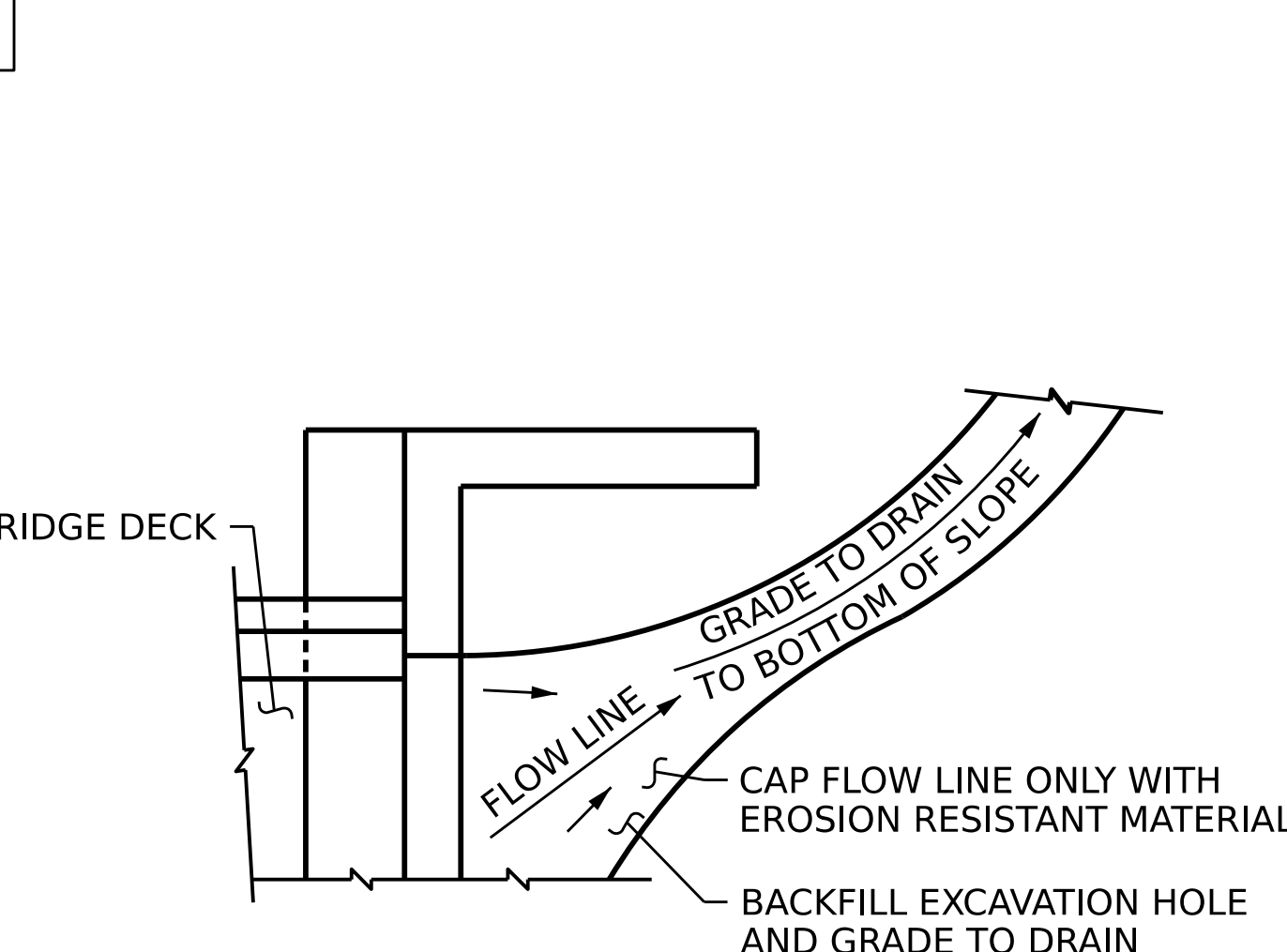
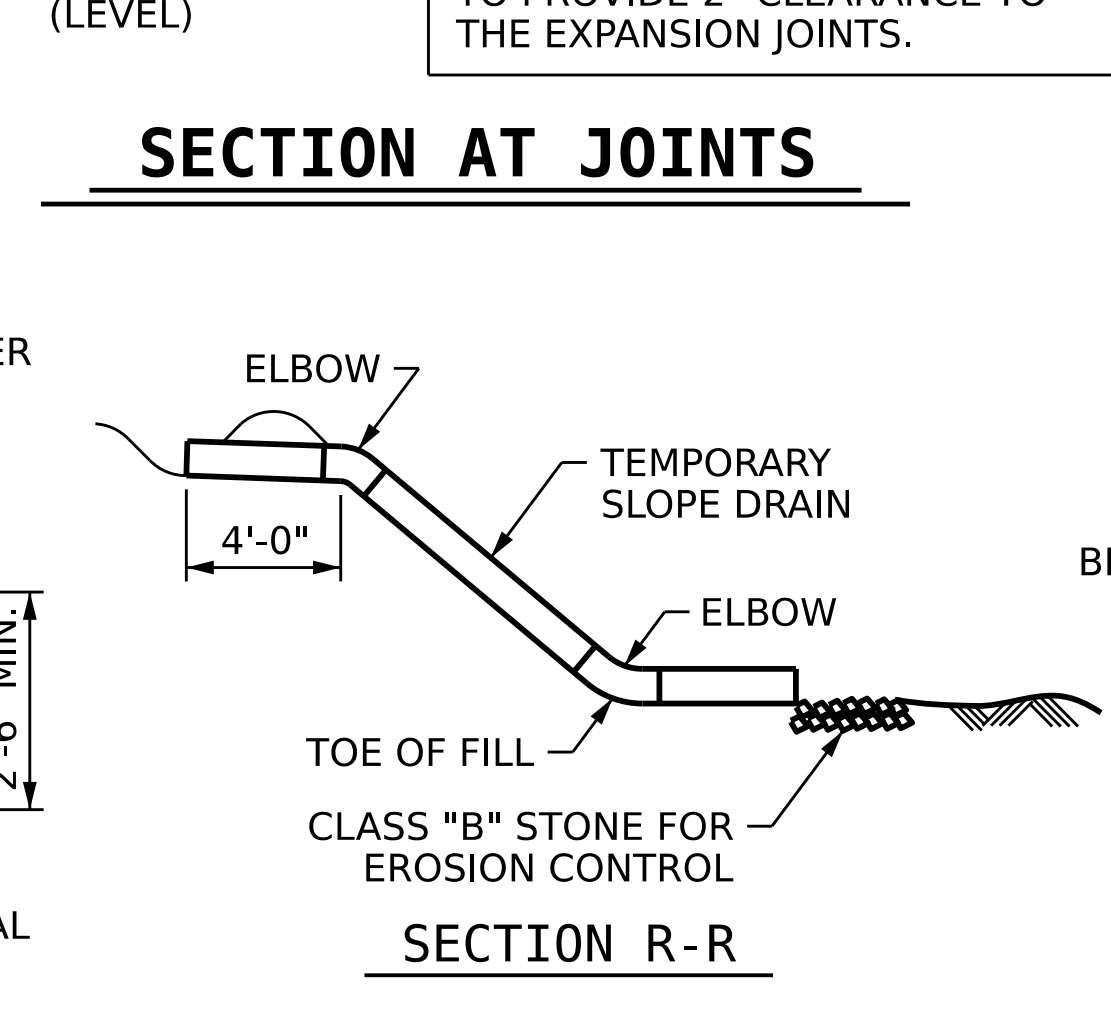
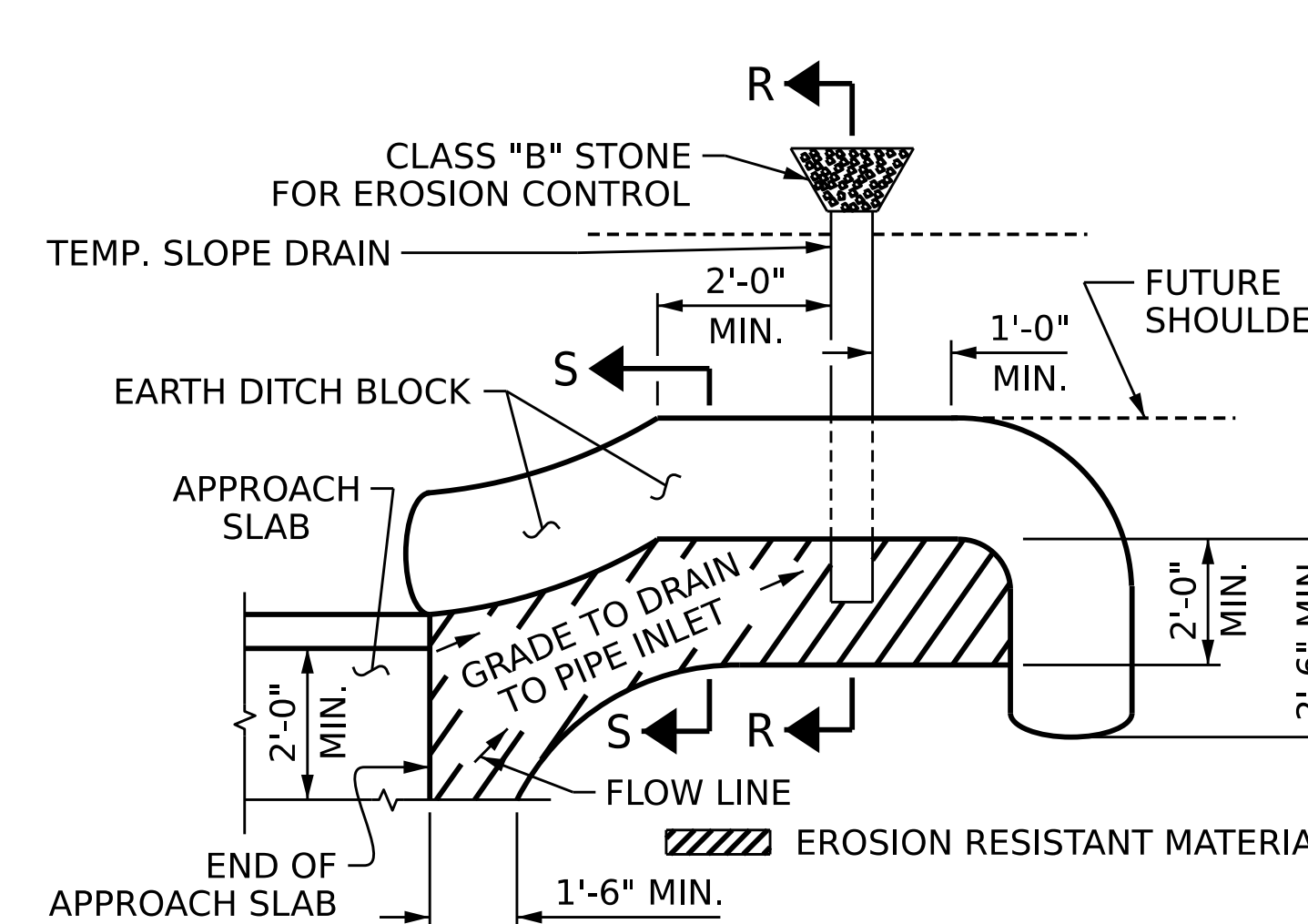
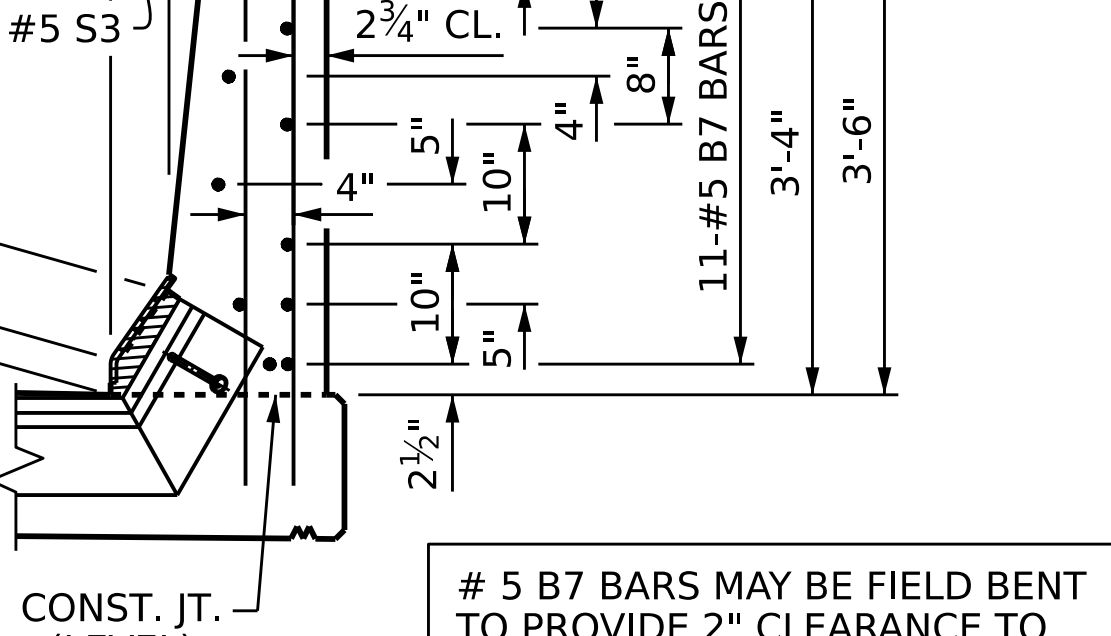
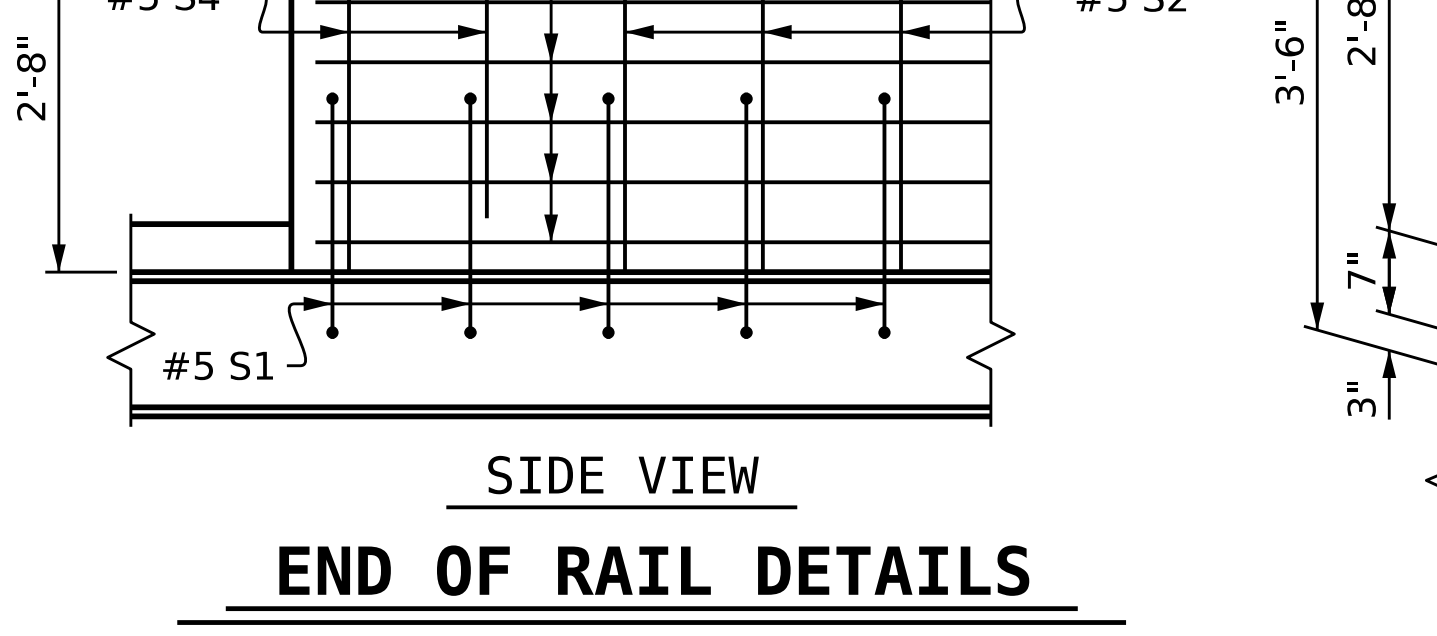
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*S1	40	#5	1	4'-8"	195
*S2	40	#5	2	7'-0"	292
*S3	16	#5	STR	4'-0"	67
*S4	8	#5	2	5'-6"	46
*B7	88	#5	STR	6'-10"	627

* EPOXY COATED REINFORCING STEEL 1,227 LBS.

CLASS AA CONCRETE 6.1 C. Y.

CONCRETE BARRIER RAIL 45.20 LIN. FT.



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.

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.

DRAWN BY : P. K. NEWTON DATE : 2/2/23
 CHECKED BY : M. K. BEARD DATE : 2/7/23
 DESIGN ENGINEER OF RECORD : W. C. SMITH DATE : 3/8/23

TEMPORARY BERM AND SLOPE DRAIN DETAILS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

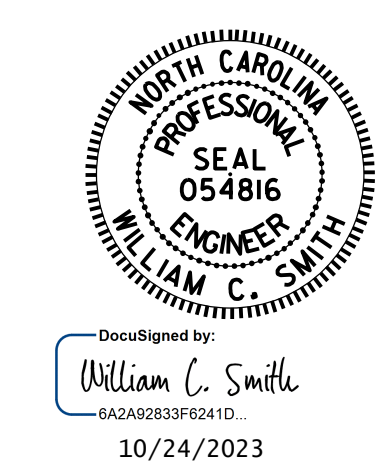
PROJECT NO. **B-5981**
DUPLIN COUNTY
 STATION: **23+63.64 -L-**

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
BRIDGE APPROACH SLAB DETAILS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S1-43
2			4			TOTAL SHEETS 43

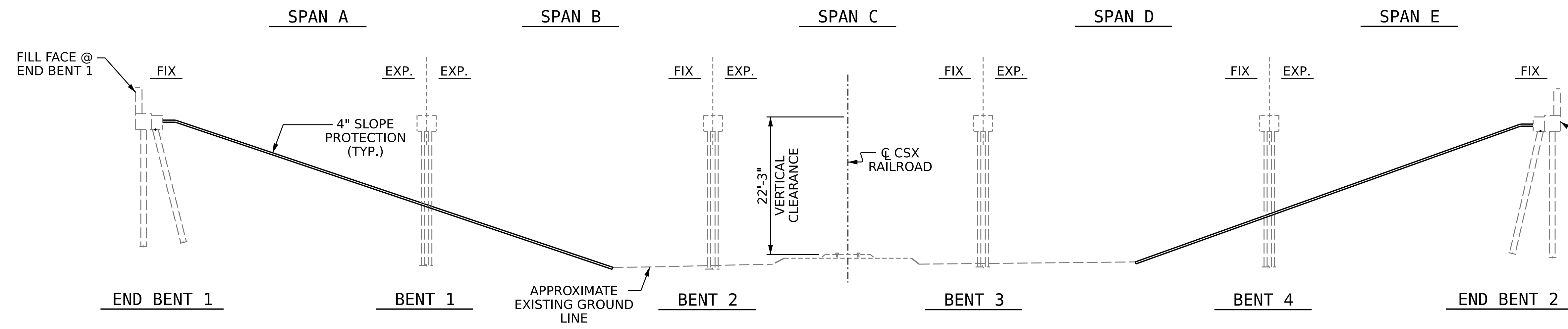


NOTES

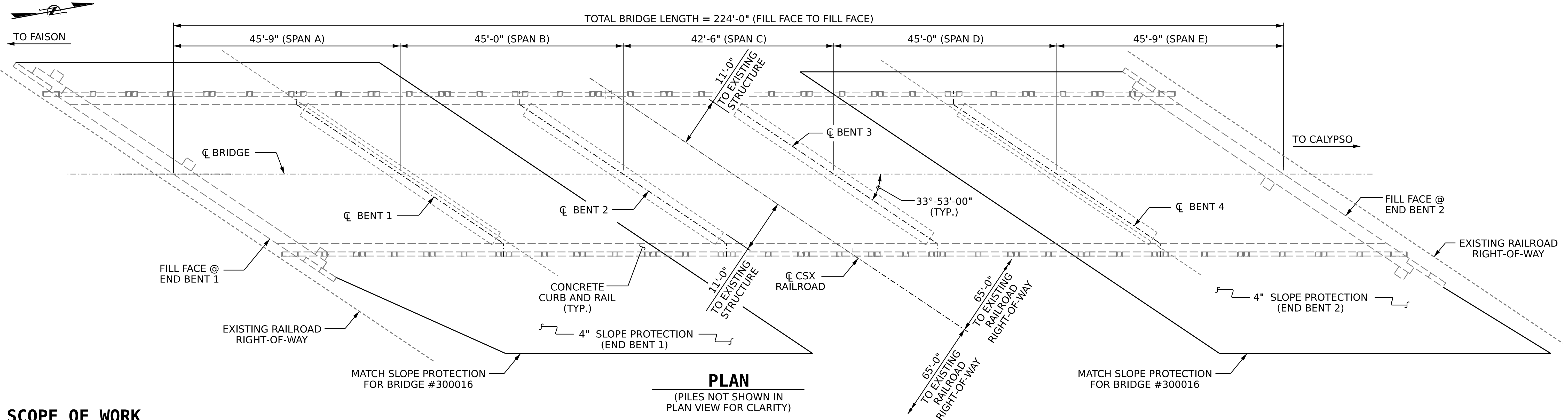
GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 11/18/2021.

BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL BRIDGE PLANS.

FILL FACE @ END BENT 2



SECTION ALONG CL BRIDGE



PLAN
(PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

SCOPE OF WORK

- REMOVE EXISTING DECK ASPHALT WEARING SURFACE AND PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYMER CONCRETE (PC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- GROOVE POLYMER CONCRETE BRIDGE DECK.
- MILL AND PAVE ASPHALT APPROACH ROADWAYS.
- CLEAN, REPAIR, AND ZONE PAINT EXISTING STRUCTURAL STEEL BEAMS.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.
- EPOXY RESIN INJECTION OF CONCRETE CRACKS.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS, AND PERFORM SHOTCRETE AND CONCRETE REPAIRS.

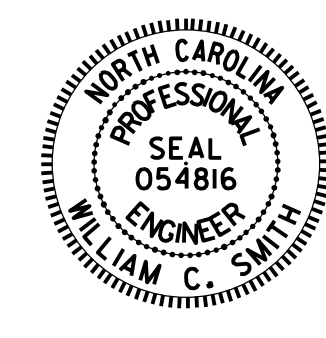
- REPAIR EXISTING SLOPES AND PLACE SLOPE PROTECTION MATERIALS.
- INSTALL ELASTOMERIC BEARINGS AT INTERIOR BENTS.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER _____ DATE _____



DocuSigned by:
F24688809FAE...
10/24/2023



DocuSigned by:
William C. Smith
10/24/2023

PROJECT NO. **B-5981**
DUPLIN COUNTY
BRIDGE NO. **300017**

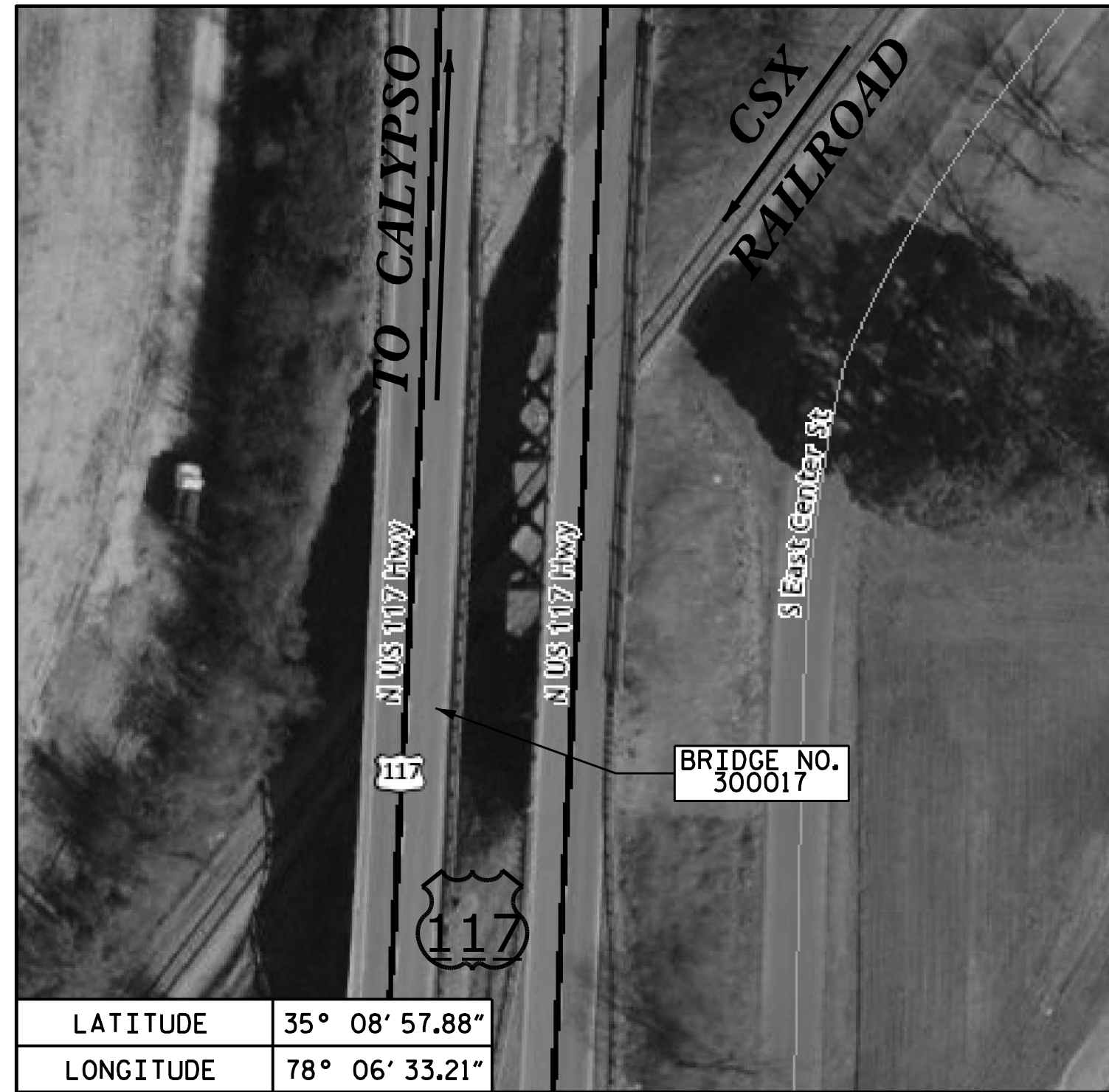
MILEPOST AC-177.88
REHABILITATION OF BRIDGE NO. 300017

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE ON US 117 (SBL)
OVER CSX RAILROAD
BETWEEN SR 1320 &
US 117 ALTERNATE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-1
1			3			TOTAL SHEETS 31
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES:



LATITUDE	35° 08' 57.88"
LONGITUDE	78° 06' 33.21"

LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF PRESERVATION PROJECTS, THE EXTENT OF WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OF ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR PLANS TO USE PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES TO CATCH THE MATERIAL. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATIONS OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR FLOWABLE FILL, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT FOR ZONE PAINTING AND POLLUTION CONTROL, SEE "ZONE PAINTING OF EXISTING STRUCTURE" SPECIAL PROVISION.

FOR ZONE PAINTING OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY, PLACING AND FINISHING POLYMER CONCRETE OVERLAY, GROOVING BRIDGE FLOORS, POLYESTER POLYMER CONCRETE MATERIALS, AND EPOXY POLYMER CONCRETE MATERIALS, SEE "POLYMER CONCRETE BRIDGE DECK OVERLAY" SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II AND CLASS III SURFACE PREPARATION, SEE "OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE" SPECIAL PROVISION.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR RAILROAD PROVISIONS, SEE SPECIAL PROVISIONS.

AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT THE FOLLOWING ITEM(S) LISTED WOULD BE REQUIRED, HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT THE FOLLOWING ITEM(S) LISTED, OR OTHER WORK WILL BE NECESSARY TO PROPERLY COMPLETE THE INTENDED BRIDGE PRESERVATION/REHABILITATION WORK. THE CONTRACTOR SHALL BE PREPARED TO PERFORM SUCH WORK IN A TIMELY MANNER, AS DETERMINED IN THE FIELD. SUCH WORK SHALL BE CONSIDERED EXTRA WORK AND SHALL BE ADDRESSED AS PER ARTICLE 104-7 OF THE STANDARD SPECIFICATIONS. PROJECT SPECIAL PROVISIONS THAT OUTLINE REQUIREMENTS FOR THESE POTENTIAL ADDITIONAL WORK ITEMS HAVE BEEN PROVIDED IN THE PROJECT DOCUMENTS, BUT NO QUANTITIES HAVE BEEN LISTED. ACTUAL PAY ITEMS, QUANTITIES, AND COSTS WILL BE ESTABLISHED, AS REQUIRED, IF EXTRA WORK IS ENCOUNTERED.

UNANTICIPATED ITEMS:

ITEM	DESCRIPTION	UNIT
1	CLASS III SURFACE PREPARATION	SQ. YD.
2	BEAM REPAIR CUT-OUT	LBS.
3	BOLTED BEAM REPAIR	LBS.

TOTAL BILL OF MATERIAL

BRIDGE NO. 300017	#57 STONE	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	ASPHALT BINDER FOR PLANT MIX	FLOWABLE FILL	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	4" SLOPE PROTECTION	CLASS II, SURFACE PREPARATION	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	PAINTING CONTAINMENT FOR ZONE PAINTING
	CU. YD.	SQ. YDS.	TONS	TONS	CU. YD.	SQ. FT.	LUMP SUM	SQ. YD.	SQ. YD.	SQ. YD.	LUMP SUM	CU. FT.	LIN. FT.	LUMP SUM
TOTAL	5.8	1,063.0	90.0	10.0	3.0	5,510.7	LUMP SUM	1,353.0	22.4	52.0	LUMP SUM	240.7	32.0	LUMP SUM

BRIDGE NO. 300017	ZONE PAINTING OF EXISTING STRUCTURE	FOAM JOINT SEALS FOR PRESERVATION	POURABLE SILICONE JOINT SEALANT	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	BEAM REPAIR PLATING	EPOXY COATING	CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	PLACING & FINISHING POLYMER CONCRETE OVERLAY	CONCRETE REPAIRS	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	TYPE I BRIDGE JACKING BRIDGE NO.
	LUMP SUM	LIN. FT.	LIN. FT.	CU. YD.	CU. YD.	LBS.	SQ. FT.	SQ. YD.	SQ. YD.	CU. FT.	SQ. YD.	SQ. YD.	EA.
TOTAL	LUMP SUM	201.0	20.7	41.7	41.7	767.0	720.0	22.4	696.9	0.8	696.9	696.9	32

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**



DocuSigned by:
 William C. Smith
 8A2A2023F0241D

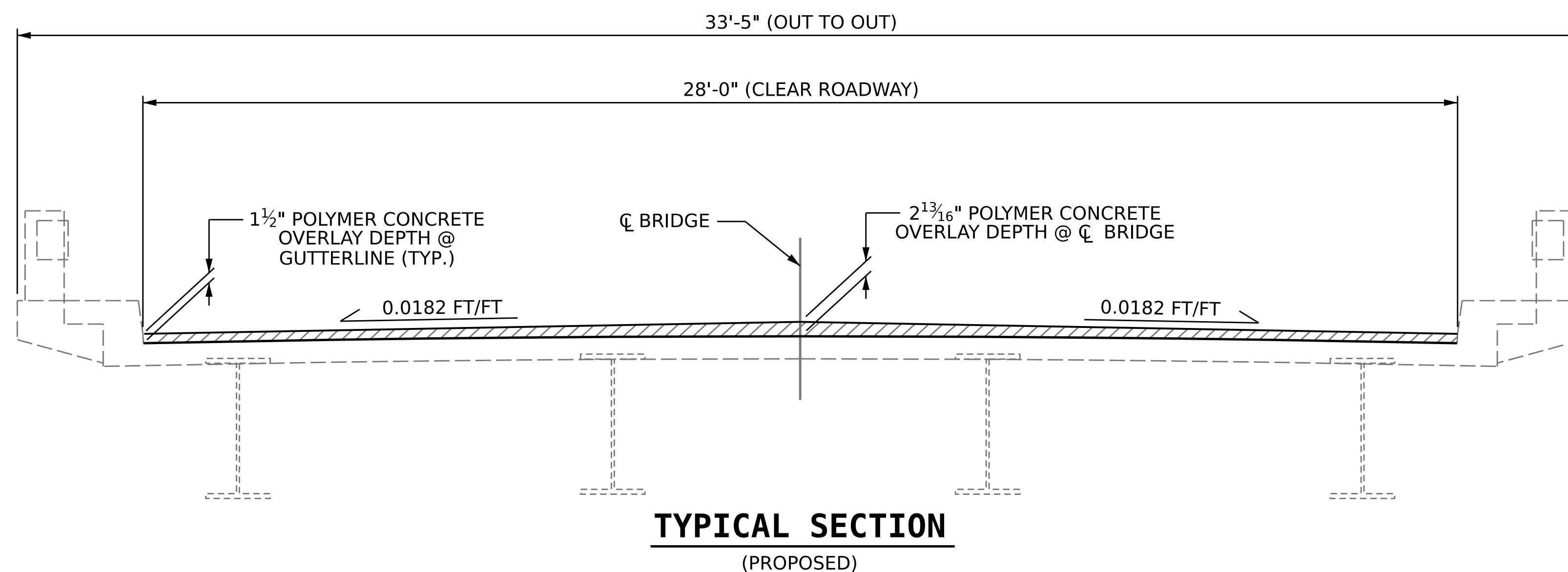
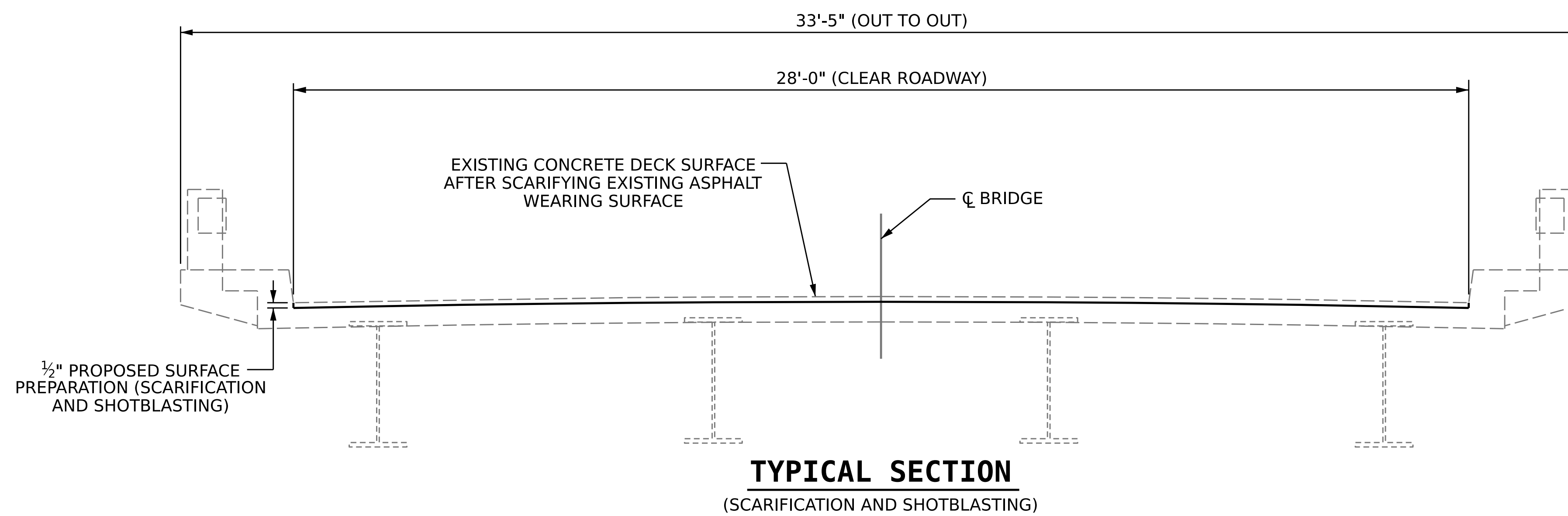
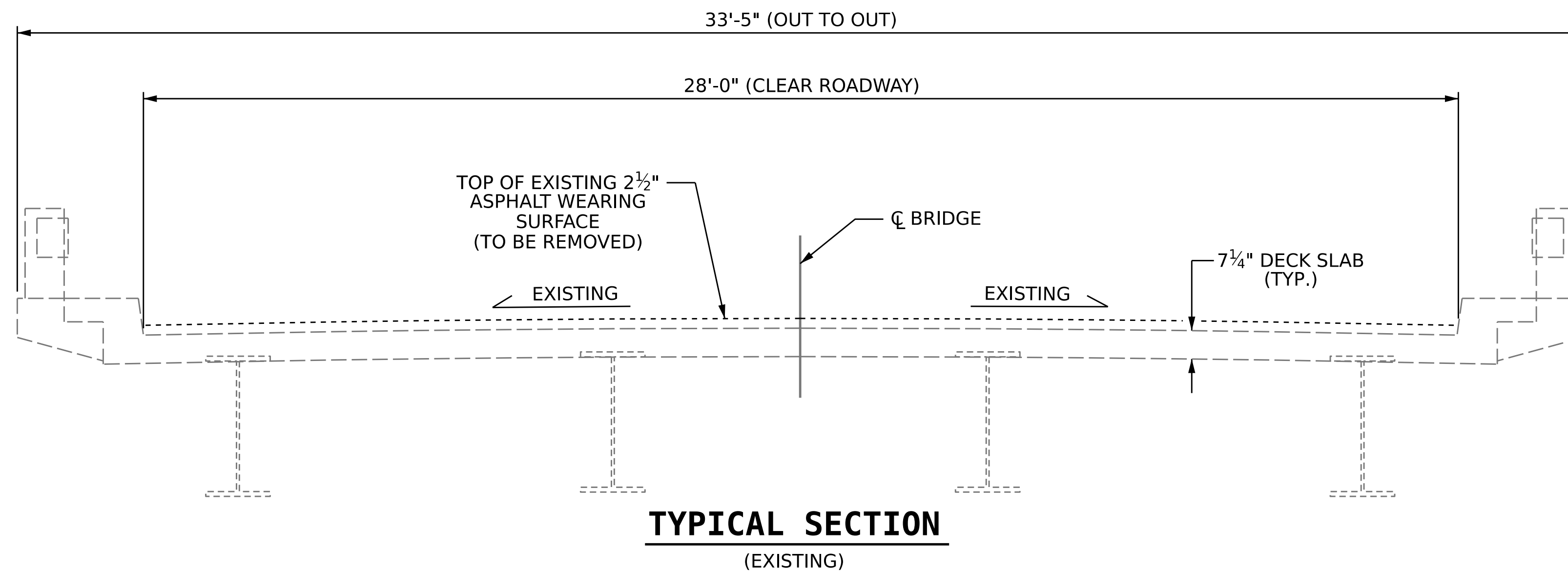
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

LOCATION SKETCH AND TOTAL BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-2
2			4			TOTAL SHEETS 31

DRAWN BY : S. T. SANDOR DATE : 1/22/23
 CHECKED BY : W. C. SMITH DATE : 5/31/23

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

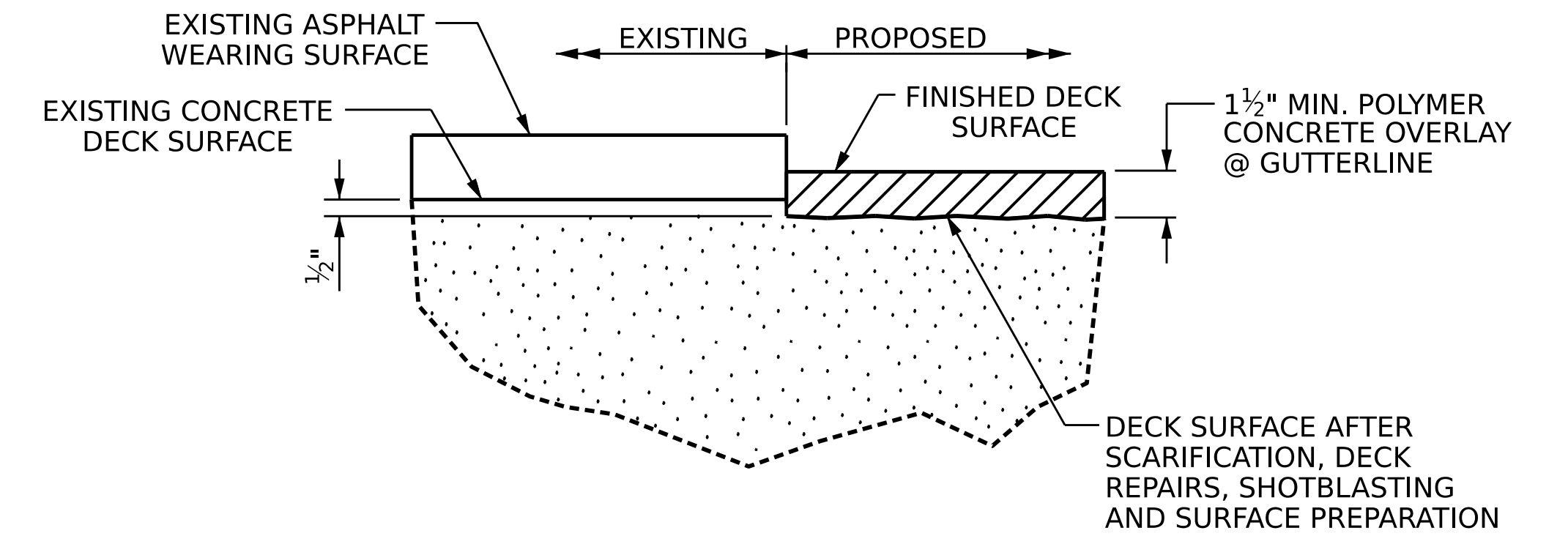


NOTES

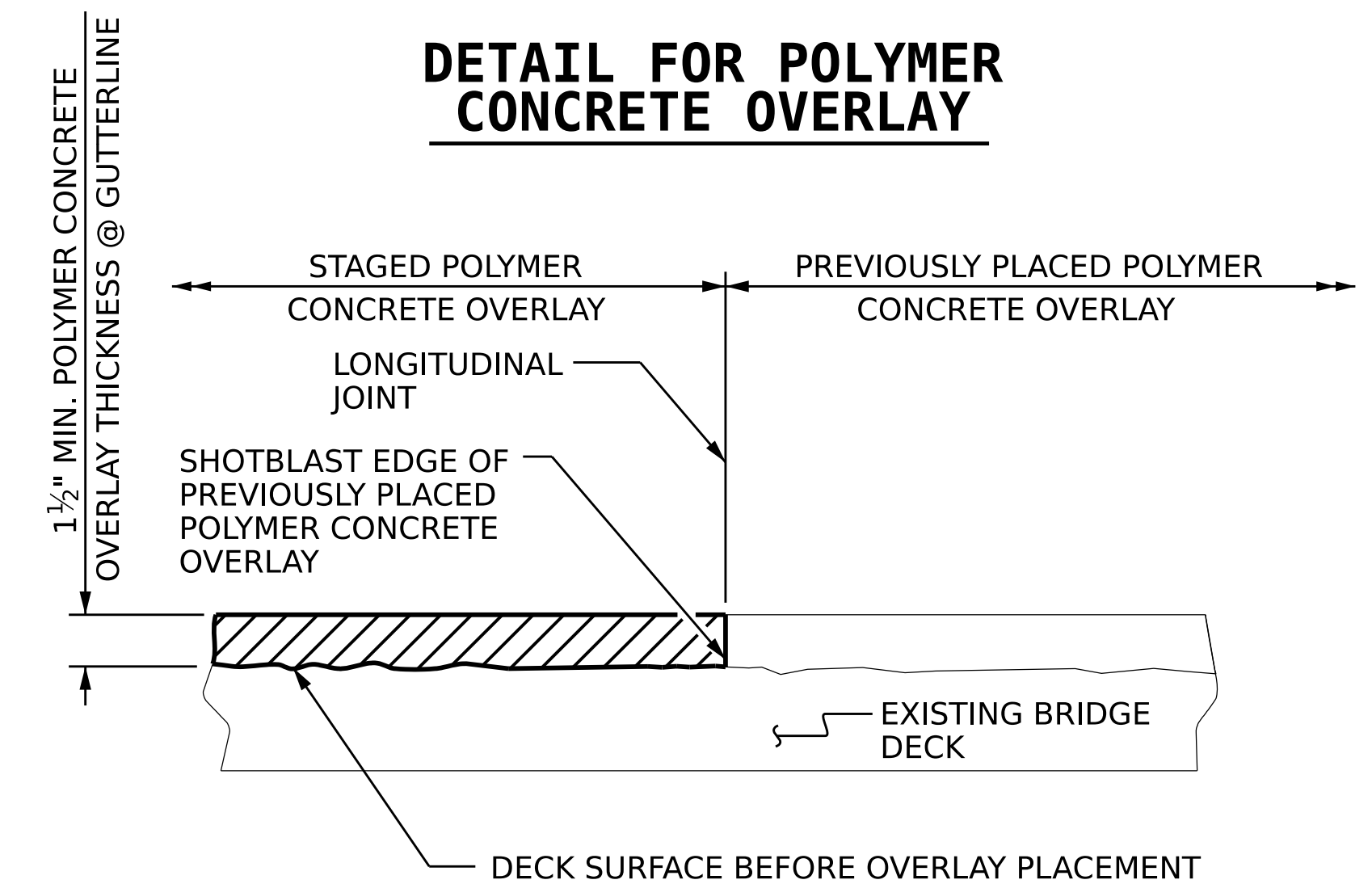
SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYMER CONCRETE PLACEMENT.

THE EXISTING TOP OF SLAB DOES NOT FOLLOW A STRAIGHT SLOPE FROM GUTTERLINE TO CL OF BRIDGE AND WILL REQUIRE ADJUSTMENT OF THE POLYMER CONCRETE OVERLAY DEPTH ACCORDINGLY.

THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A PLAN FOR SCARIFICATION, SURFACE PREPARATION AND POLYMER CONCRETE OVERLAY PLACEMENT AND FINISHING TO ATTAIN THE FINAL SURFACE SLOPE AS INDICATED.



DETAIL FOR POLYMER CONCRETE OVERLAY



STAGED POLYMER CONCRETE OVERLAY JOINT
(AS NEEDED)

PROJECT NO. **B-5981**
DUPLIN COUNTY
BRIDGE NO. **300017**



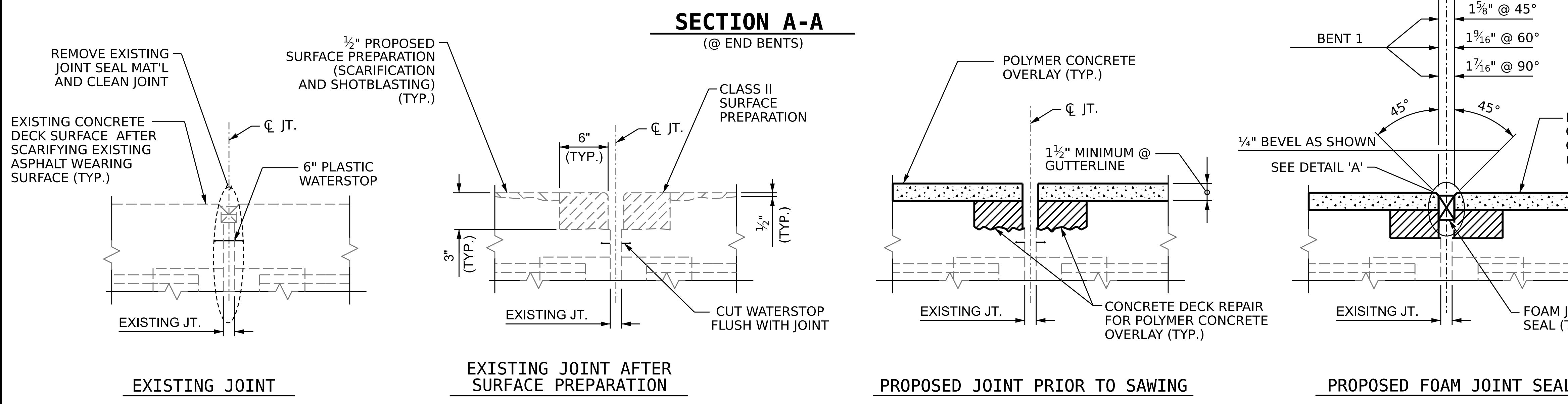
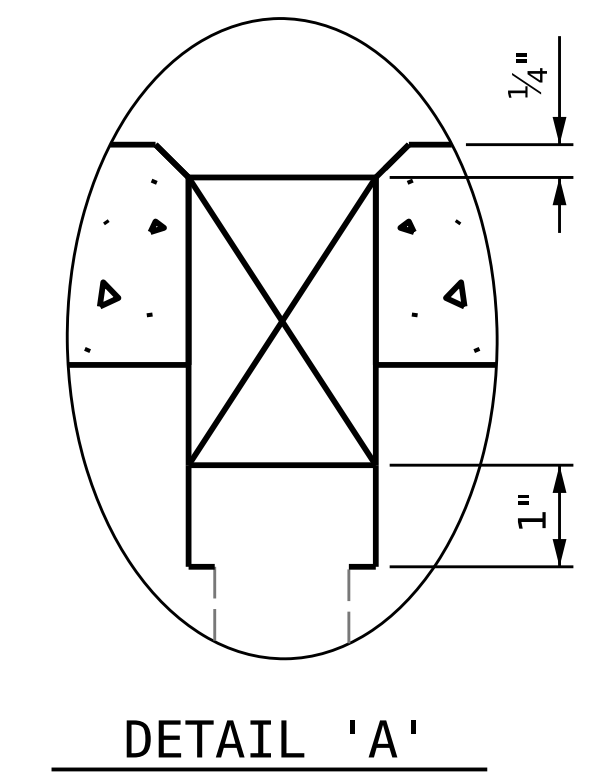
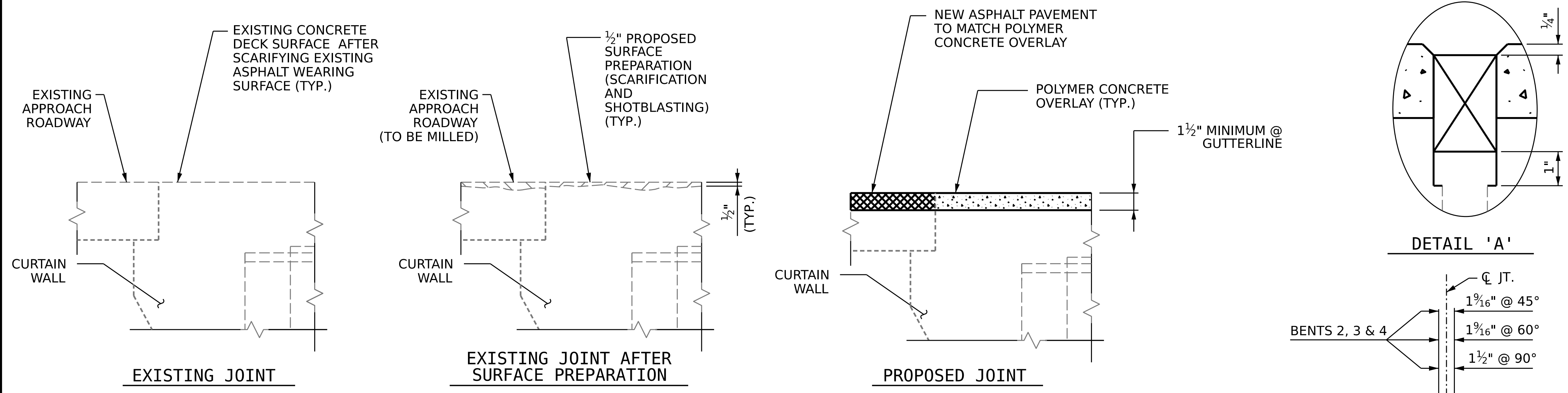
DocuSigned by:
William C. Smith
10/24/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
AND
POLYMER CONCRETE
OVERLAY DETAILS

REVISIONS						SHEET NO. S2-3 TOTAL SHEETS 31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

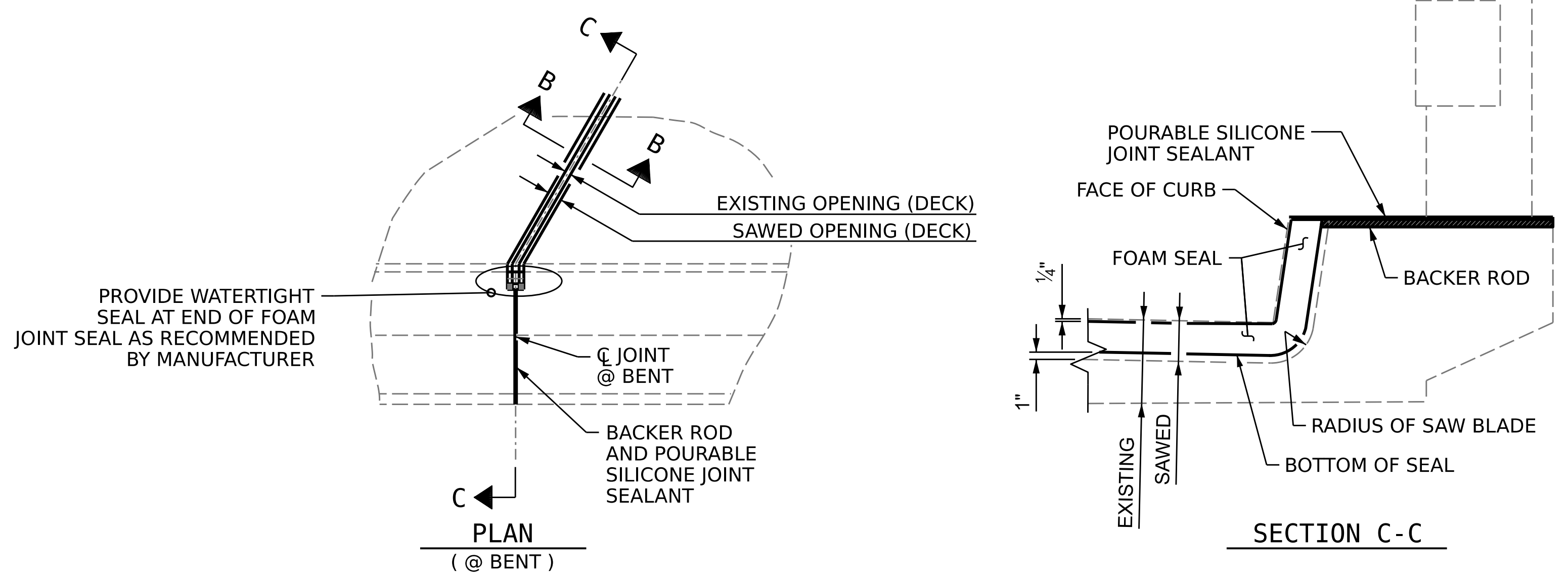
DRAWN BY : K. BEARD DATE : 5/12/22
CHECKED BY : P.K. NEWTON DATE : 5/31/23



SECTION A-A
 (@ END BENTS)

SECTION B-B
 (@ BENTS)

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
POURABLE SILICONE JOINT SEALANT	20.7 LF	
FOAM JOINT SEALS FOR PRESERVATION	201.0 LF	



JOINT SEAL DETAILS

NOTES
 FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY WORK IS COMPLETE.

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN 1/4", NOTIFY THE ENGINEER.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

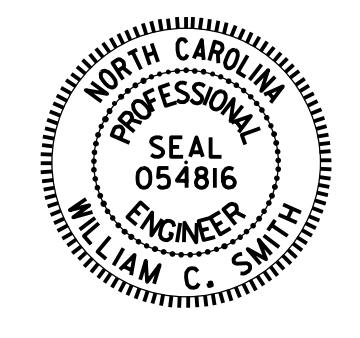
FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

FINAL SURFACE OF CLASS II PREPARATION AREA PRIOR TO PLACEMENT OF POLYMER CONCRETE REPAIR MATERIAL SHALL BE REASONABLY FLAT AND LEVEL. THE ENGINEER SHALL DETERMINE ACCEPTABILITY OF THE SURFACE.

FOR CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT REPAIR DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **S2-4**
 TOTAL SHEETS **31**

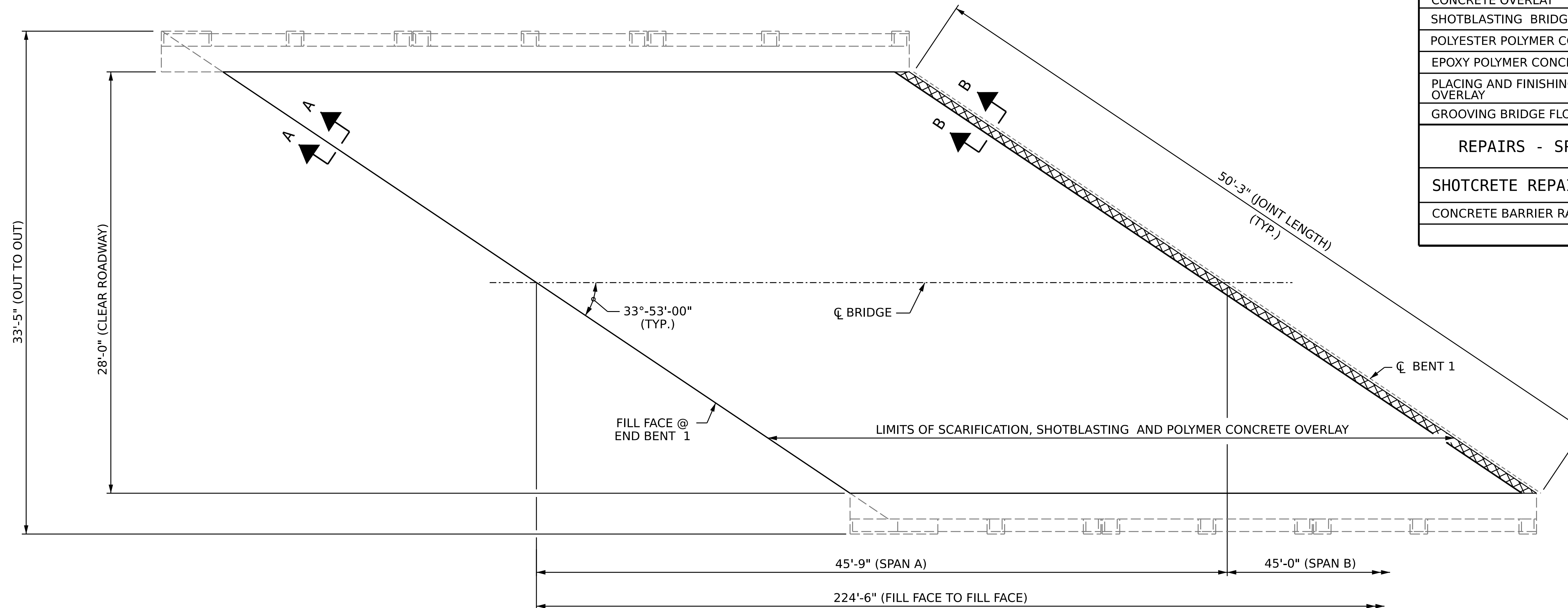
ASSEMBLED BY : S. T. SANDOR DATE : 05/2022
 CHECKED BY : W. C. SMITH DATE : 5/31/23
 DRAWN BY : NAP 08/2018
 CHECKED BY : -

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN A

	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	142.3 SQ. YDS.			
CLASS II SURFACE PREPARATION	2.8 SQ. YDS.			
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	2.8 SQ. YDS.			
SHOTBLASTING BRIDGE DECK	142.3 SQ. YDS.			
POLYESTER POLYMER CONCRETE MATERIALS	8.5 CU. YDS.			
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	8.5 CU. YDS.			
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	142.3 SQ. YDS.			
GROOVING BRIDGE FLOORS	1,127.0 SQ. FT.			
REPAIRS - SPAN A	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE BARRIER RAIL	0	0		



SPAN A

(DECK DRAINS NOT SHOWN FOR CLARITY)

NOTES

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT).

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION A-A AND B-B, SEE "JOINT REPAIR DETAILS" SHEET.

NO DECK DEFICIENCIES NOTED DURING FIELD INSPECTION, BECAUSE THE EXISTING DECK IS COVERED WITH 2½" ASPHALT WEARING SURFACE. THE CONTRACTOR AND THE ENGINEER SHALL INSPECT THE DECK SURFACE AFTER SCARIFICATION.

 - APPROX. AREA CLASS II SURFACE PREPARATION

 - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

 - SHOTCRETE REPAIR AREA

PROJECT NO. **B-5981**

DUPLIN COUNTY

BRIDGE NO. **300017**

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION PLAN OF SPANS



DocuSigned by:
William C. Smith
10/24/2023

REVISIONS						SHEET NO. S2-5 TOTAL SHEETS 31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

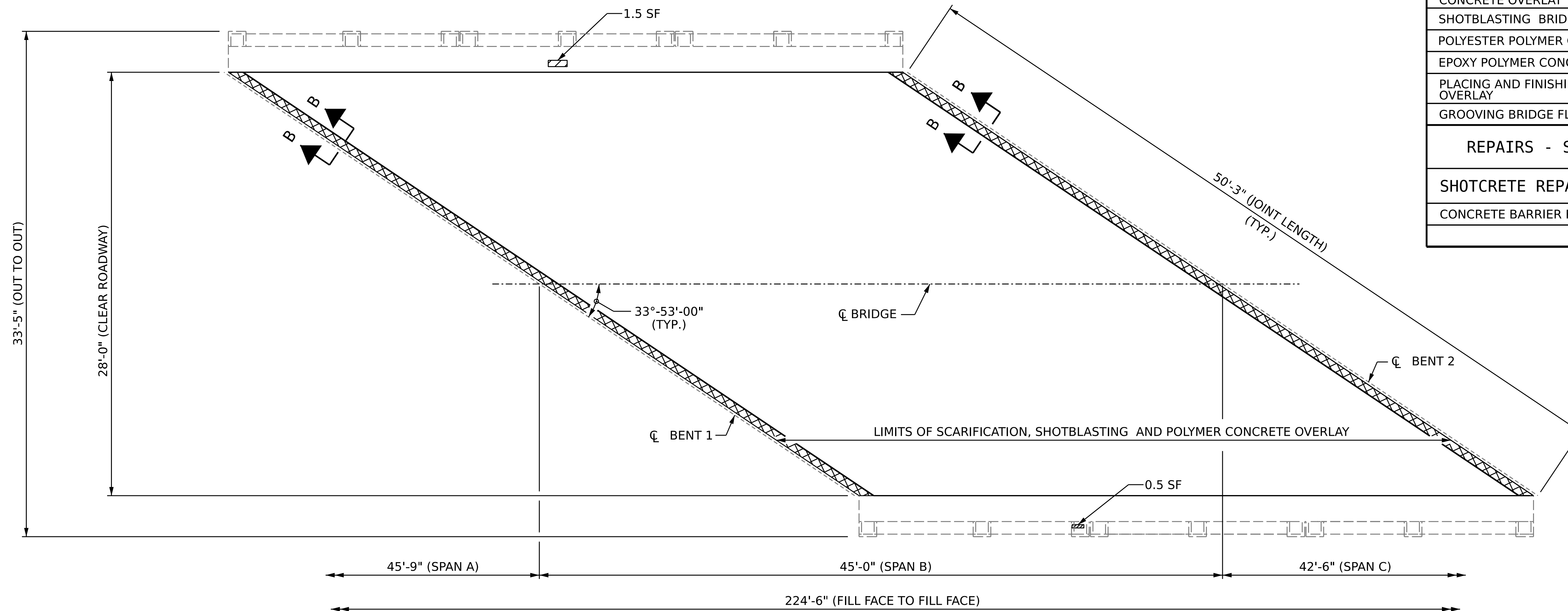
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR DATE : 05/2022
CHECKED BY : W. C. SMITH DATE : 5/31/23

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN B

	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	140.0 SQ. YDS.			
CLASS II SURFACE PREPARATION	5.6 SQ. YDS.			
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	5.6 SQ. YDS.			
SHOTBLASTING BRIDGE DECK	140.0 SQ. YDS.			
POLYESTER POLYMER CONCRETE MATERIALS	8.4 CU. YDS.			
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	8.4 CU. YDS.			
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	140.0 SQ. YDS.			
GROOVING BRIDGE FLOORS	1,106.4 SQ. FT.			
REPAIRS - SPAN B	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE BARRIER RAIL	2.0	1.0		



SPAN B (DECK DRAINS NOT SHOWN FOR CLARITY)

NOTES

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT).

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

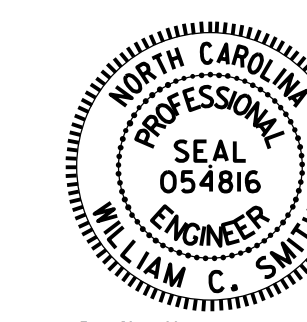
FOR SECTION B-B, SEE "JOINT REPAIR DETAILS" SHEET.

NO DECK DEFICIENCIES NOTED DURING FIELD INSPECTION, BECAUSE THE EXISTING DECK IS COVERED WITH 2½" ASPHALT WEARING SURFACE. THE CONTRACTOR AND THE ENGINEER SHALL INSPECT THE DECK SURFACE AFTER SCARIFICATION.

 - APPROX. AREA CLASS II SURFACE PREPARATION

 - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

 - SHOTCRETE REPAIR AREA



DocuSigned by:
William C. Smith
10/24/2023

PROJECT NO. **B-5981**
DUPLIN COUNTY
BRIDGE NO. **300017**

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION
PLAN OF SPANS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-6
2			4			TOTAL SHEETS 31

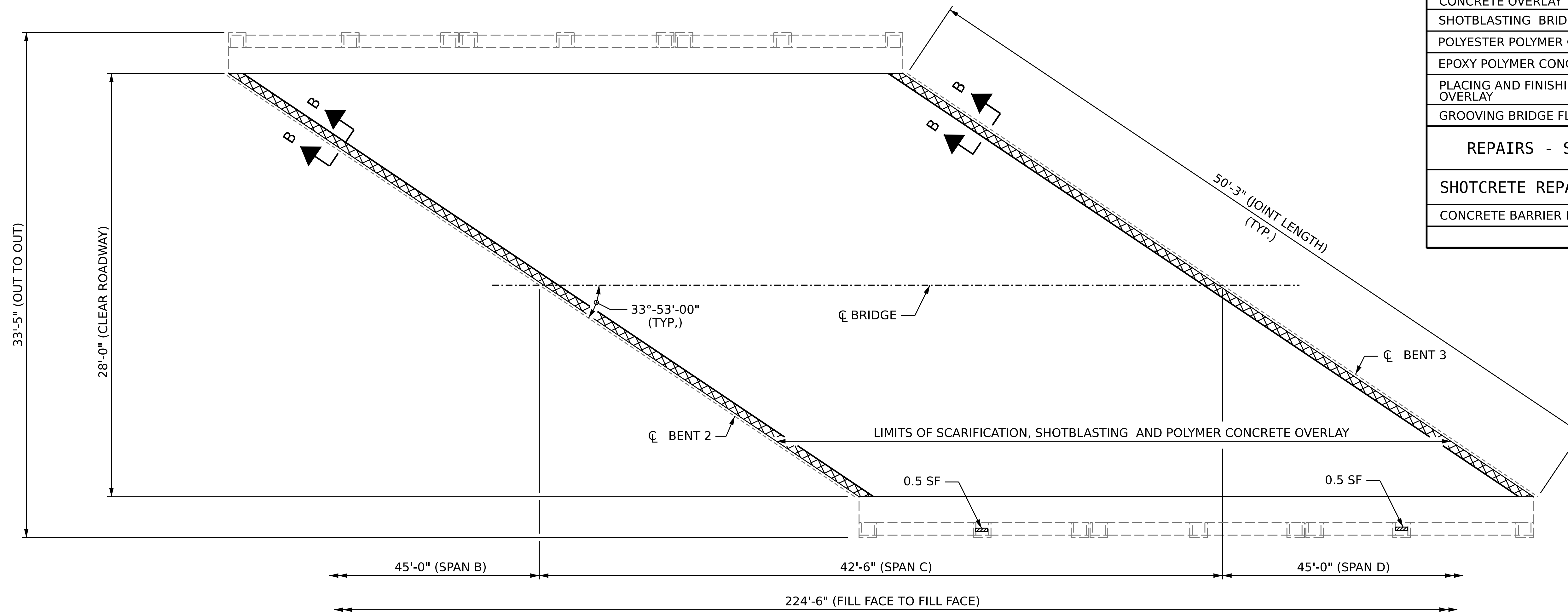
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR DATE : 05/2022
CHECKED BY : W. C. SMITH DATE : 5/31/23

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN C

	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	132.3 SQ. YDS.			
CLASS II SURFACE PREPARATION	5.6 SQ. YDS.			
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	5.6 SQ. YDS.			
SHOTBLASTING BRIDGE DECK	132.3 SQ. YDS.			
POLYESTER POLYMER CONCRETE MATERIALS	7.9 CU. YDS.			
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	7.9 CU. YDS.			
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	132.3 SQ. YDS.			
GROOVING BRIDGE FLOORS	1,043.9 SQ. FT.			
REPAIRS - SPAN C	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE BARRIER RAIL	1.0	0.5		



SPAN C

(DECK DRAINS NOT SHOWN FOR CLARITY)

NOTES

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT).

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION B-B, SEE "JOINT REPAIR DETAILS" SHEET.

NO DECK DEFICIENCIES NOTED DURING FIELD INSPECTION, BECAUSE THE EXISTING DECK IS COVERED WITH 2½" ASPHALT WEARING SURFACE. THE CONTRACTOR AND THE ENGINEER SHALL INSPECT THE DECK SURFACE AFTER SCARIFICATION.

 - APPROX. AREA CLASS II SURFACE PREPARATION

 - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

 - SHOTCRETE REPAIR AREA



DocuSigned by:
William C. Smith
10/24/2023

PROJECT NO. **B-5981**
DUPLIN COUNTY
BRIDGE NO. **300017**

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION PLAN OF SPANS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			31
2			4			

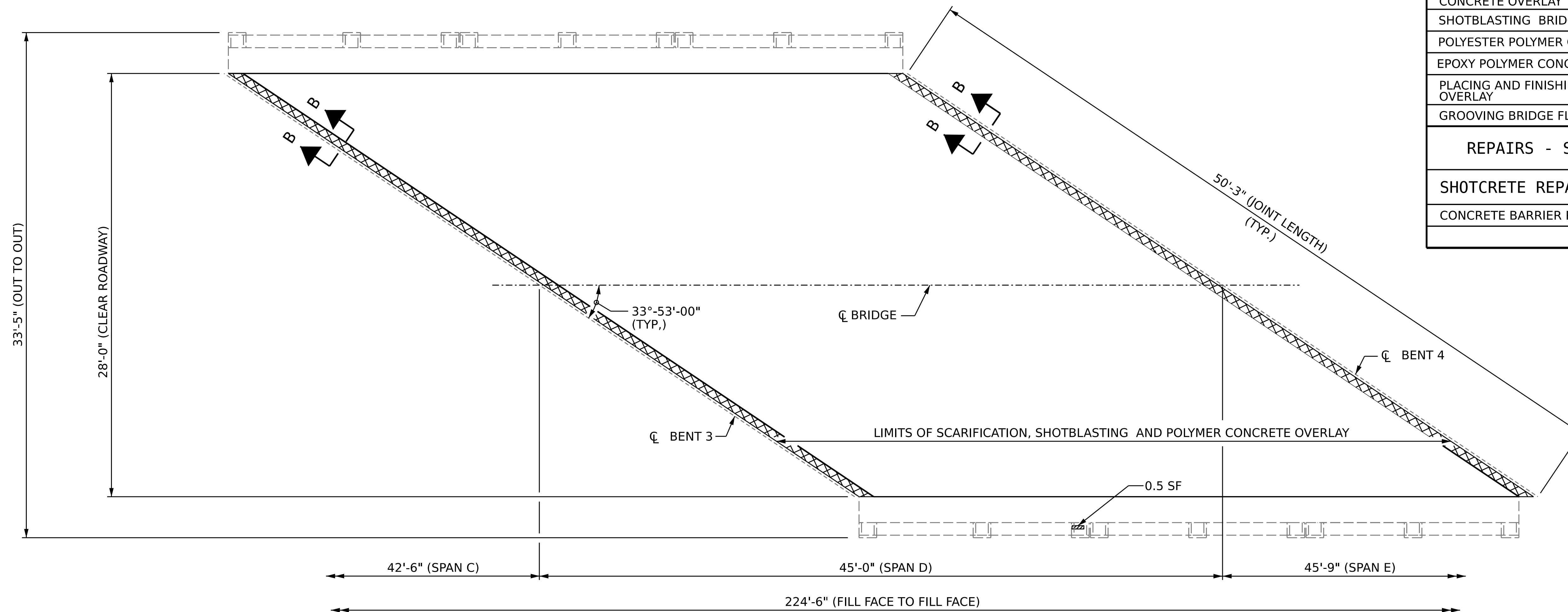
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR DATE : 05/2022
CHECKED BY : W. C. SMITH DATE : 5/31/23

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN D

	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	140.0 SQ. YDS.			
CLASS II SURFACE PREPARATION	5.6 SQ. YDS.			
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	5.6 SQ. YDS.			
SHOTBLASTING BRIDGE DECK	140.0 SQ. YDS.			
POLYESTER POLYMER CONCRETE MATERIALS	8.4 CU. YDS.			
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	8.4 CU. YDS.			
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	140.0 SQ. YDS.			
GROOVING BRIDGE FLOORS	1,106.4 SQ. FT.			
REPAIRS - SPAN D	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE BARRIER RAIL	0.5	0.3		



SPAN D
(DECK DRAINS NOT SHOWN FOR CLARITY)

NOTES

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT).

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION B-B, SEE "JOINT REPAIR DETAILS" SHEET.

NO DECK DEFICIENCIES NOTED DURING FIELD INSPECTION, BECAUSE THE EXISTING DECK IS COVERED WITH 2½" ASPHALT WEARING SURFACE. THE CONTRACTOR AND THE ENGINEER SHALL INSPECT THE DECK SURFACE AFTER SCARIFICATION.

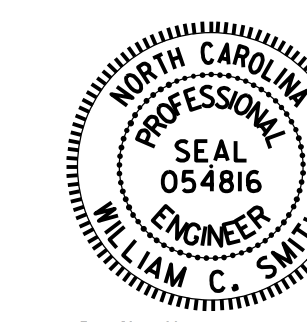
 - APPROX. AREA CLASS II SURFACE PREPARATION

 - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

 - SHOTCRETE REPAIR AREA

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 4 OF 5



DocuSigned by:
 William C. Smith
 10/24/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION PLAN OF SPANS

REVISIONS						SHEET NO. S2-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 31
2			4			

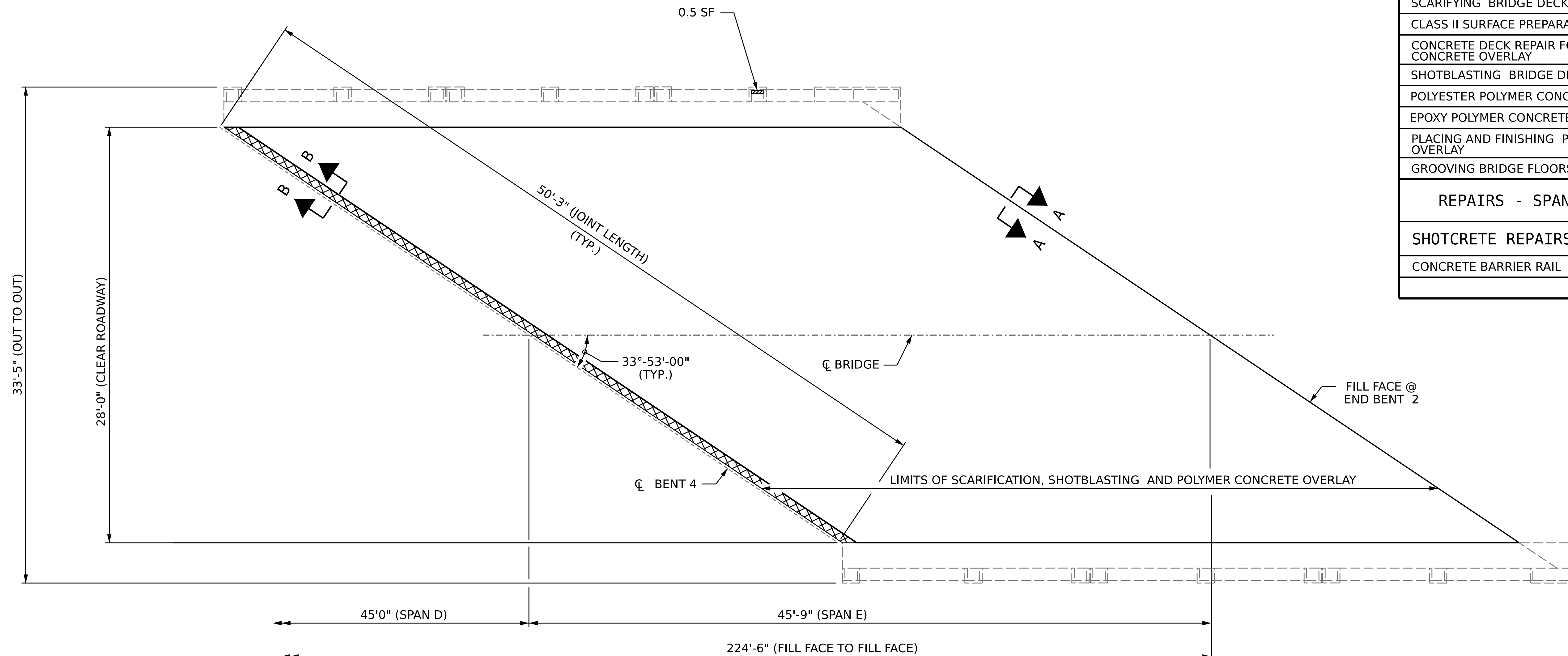
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR DATE : 05/2022
 CHECKED BY : W. C. SMITH DATE : 5/31/23

AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN E

	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	142.3 SQ. YDS.			
CLASS II SURFACE PREPARATION	2.8 SQ. YDS.			
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	2.8 SQ. YDS.			
SHOTBLASTING BRIDGE DECK	142.3 SQ. YDS.			
POLYESTER POLYMER CONCRETE MATERIALS	8.5 CU. YDS.			
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	8.5 CU. YDS.			
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	142.3 SQ. YDS.			
GROOVING BRIDGE FLOORS	1,127.0 SQ. FT.			
REPAIRS - SPAN E	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE BARRIER RAIL	0.5	0.3		



SPAN E (DECK DRAINS NOT SHOWN FOR CLARITY)

NOTES

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT).

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION A-A AND B-B, SEE "JOINT REPAIR DETAILS" SHEET.

NO DECK DEFICIENCIES NOTED DURING FIELD INSPECTION, BECAUSE THE EXISTING DECK IS COVERED WITH 2½" ASPHALT WEARING SURFACE. THE CONTRACTOR AND THE ENGINEER SHALL INSPECT THE DECK SURFACE AFTER SCARIFICATION.

- APPROX. AREA CLASS II SURFACE PREPARATION

- SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

- SHOTCRETE REPAIR AREA

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION PLAN OF SPANS



DocuSigned by:
 William C. Smith
 8A2A8293F8241D
 10/24/2023

DRAWN BY : S. T. SANDOR DATE : 05/2022
 CHECKED BY : W. C. SMITH DATE : 5/31/23

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-9
2			4			TOTAL SHEETS 31

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

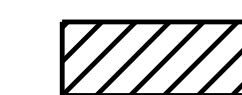





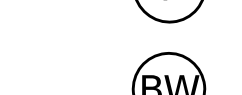


FOR UNDERSIDE OF DECK REPAIRS, SEE "DECK REPAIR DETAILS" SHEET.

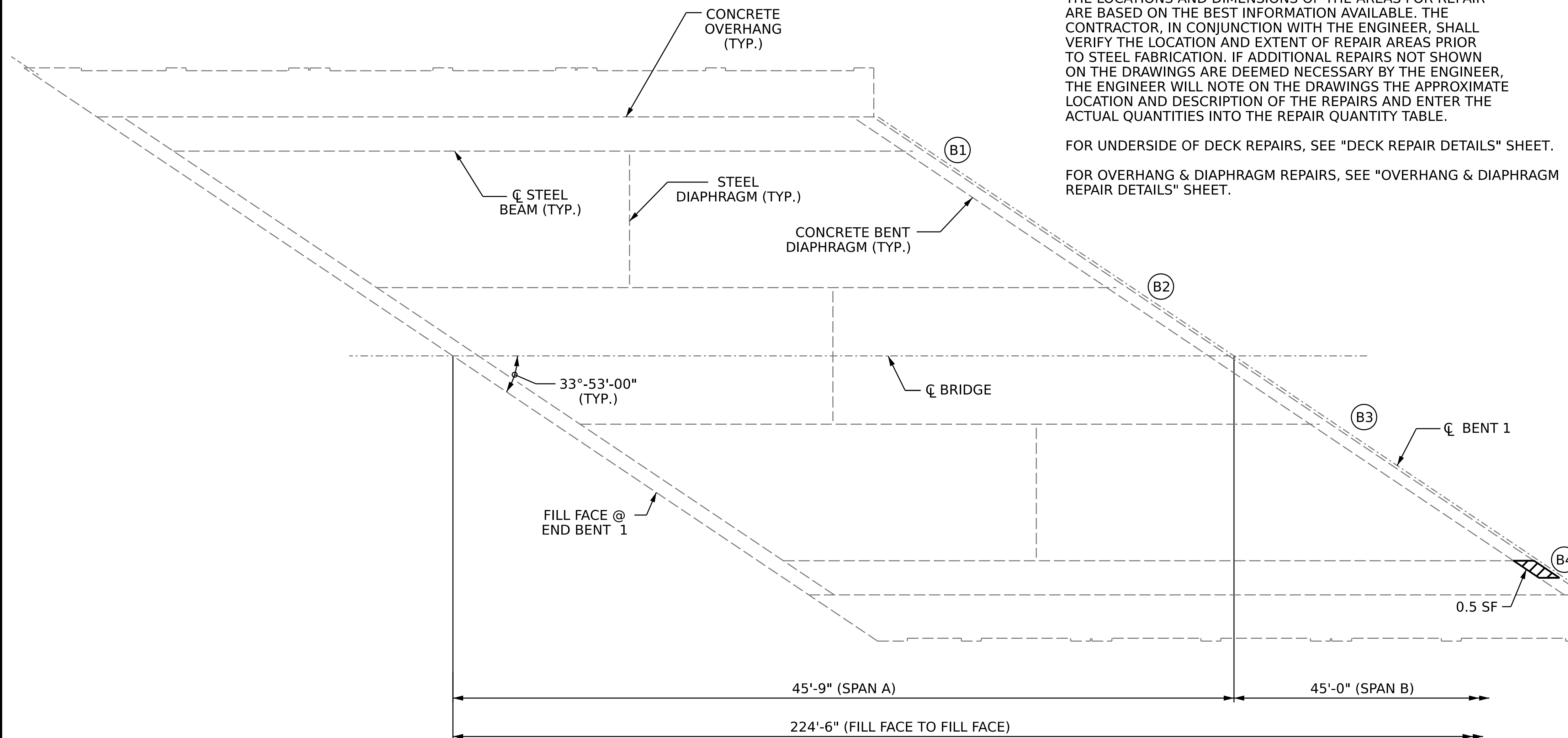
FOR OVERHANG & DIAPHRAGM REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET.

DECK UNDERSIDE REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS SPAN A	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0.5	0.4		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
EPOXY RESIN INJECTION	LINEAR FT		LINEAR FT	
CONCRETE DIAPHRAGM	0			
CONCRETE OVERHANG	0			
ZONE PAINTING		AREA SF		AREA SF
BEAM ENDS		225.4		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  ZONE PAINTING
-  EPOXY RESIN INJECTION
-  BEAM NUMBER
-  WEB PLATING REPAIR
-  BOTTOM FLANGE PLATING REPAIR
-  BOLTED WEB PLATE REPAIR
-  BOLTED FLANGE PLATE REPAIR

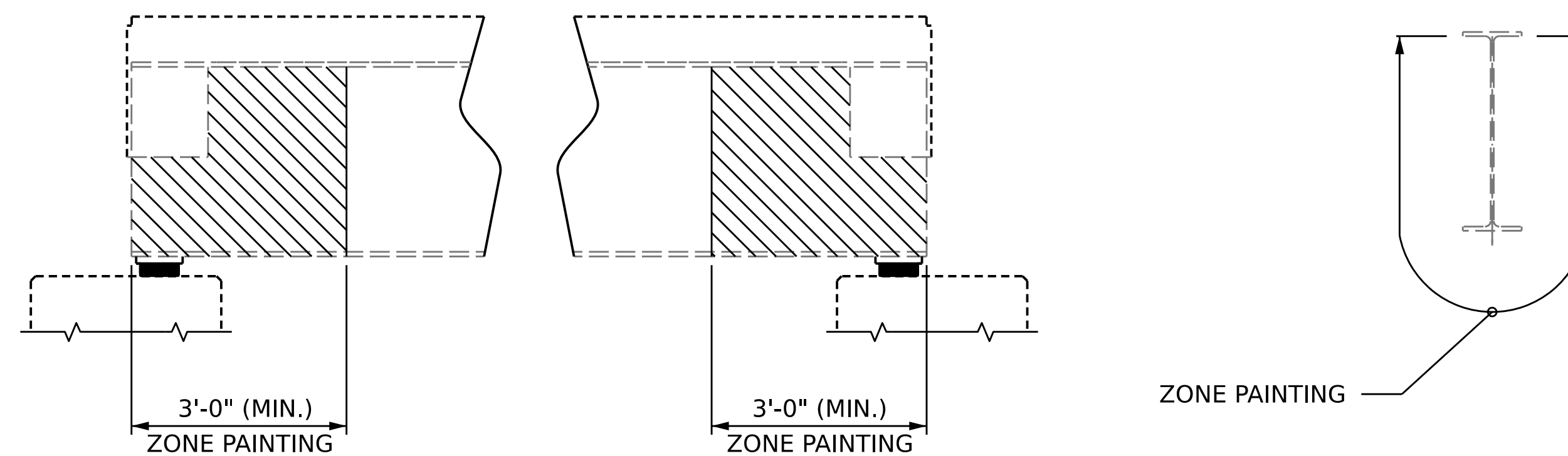


SPAN A

BEAM REPAIR QUANTITY TABLE							
BOLTED STEEL PLATES		STEEL PLATES		STEEL DIAPHRAGM		BEAM REPAIR CUT-OUT	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
0.0		0.0		0.0		0.0	

ANTICIPATED STEEL REPAIR LOCATIONS						
REPAIR TYPE	BEAM	LOCATION	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"
W						
BC						
F						
BW						
BF						

(SEE SHEETS S2-26, S2-27 AND S2-28 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)



LIMITS OF ZONE PAINTING

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DECK UNDERSIDE REPAIR
 SPAN A**



DocuSigned by:
 William C. Smith
 8A2A6293F0241D

10/24/2023

DRAWN BY : S. T. SANDOR DATE : 1/31/23
 CHECKED BY : W. C. SMITH DATE : 5/31/23

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

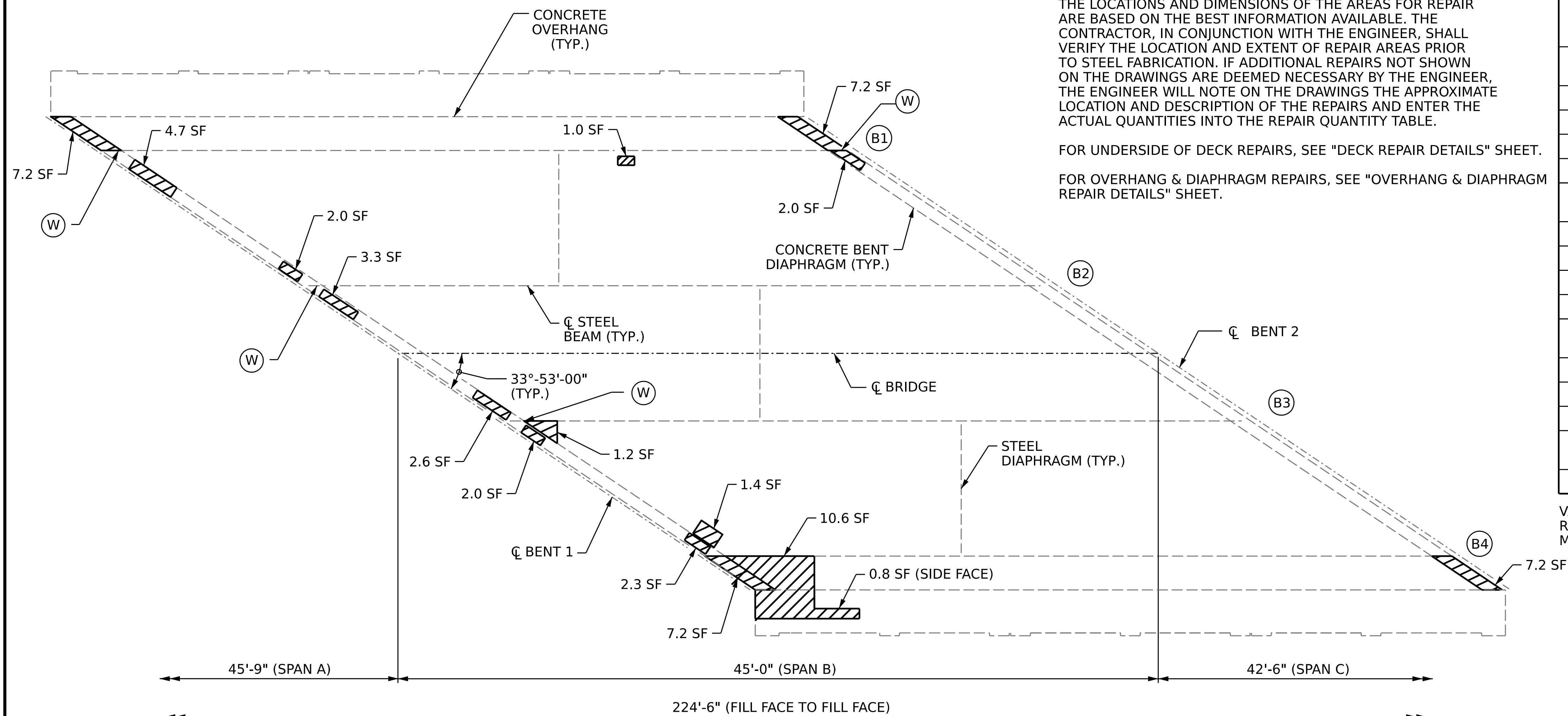
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-10
2			4			TOTAL SHEETS 31

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK REPAIRS, SEE "DECK REPAIR DETAILS" SHEET.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET.



DECK UNDERSIDE REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS SPAN B	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	3.6	1.2		
CONCRETE DIAPHRAGM	47.7	36.8		
OVERHANG	11.4	3.9		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
EPOXY RESIN INJECTION	LINEAR FT		LINEAR FT	
CONCRETE DIAPHRAGM	0			
CONCRETE OVERHANG	0			
ZONE PAINTING		AREA SF		AREA SF
BEAM ENDS		225.4		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

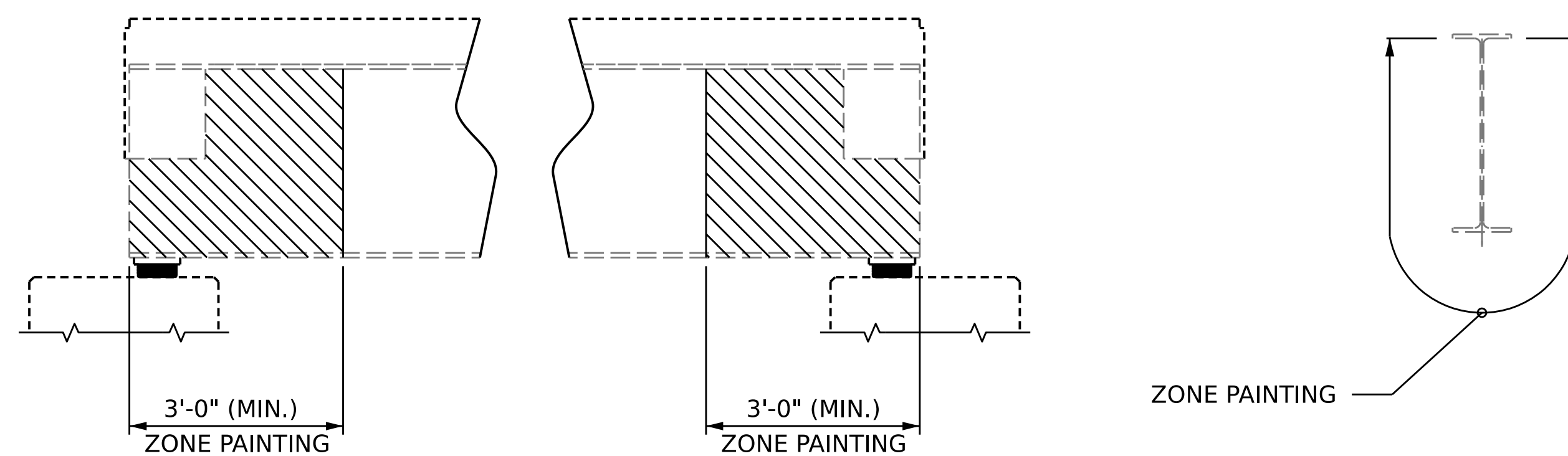
- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- ZONE PAINTING
- EPOXY RESIN INJECTION
- BEAM NUMBER
- WEB PLATING REPAIR
- BOTTOM FLANGE PLATING REPAIR
- BOLTED WEB PLATE REPAIR
- BOLTED FLANGE PLATE REPAIR
- BEAM REPAIR CUT-OUT

SPAN B

BOLTED STEEL PLATES		STEEL PLATES		STEEL DIAPHRAGM		BEAM REPAIR CUT-OUT	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
0.0		446.0		0.0		0.0	

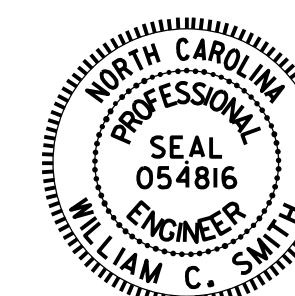
REPAIR TYPE	BEAM	LOCATION	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"
W	1	BENT 1	18"	16"		
W	2	BENT 1	18"	18"		
W	3	BENT 1	18"	18"		
W	1	BENT 2	18"	18"		

(SEE SHEETS S2-26, S2-27 AND S2-28 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)



LIMITS OF ZONE PAINTING

DRAWN BY : S. T. SANDOR DATE : 1/31/23
 CHECKED BY : W. C. SMITH DATE : 5/31/23



DocuSigned by:
 William C. Smith
 8A2A6293F0241D
 10/24/2023

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DECK UNDERSIDE REPAIR
 SPAN B**

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3			S2-11	
2				4			TOTAL SHEETS 31	

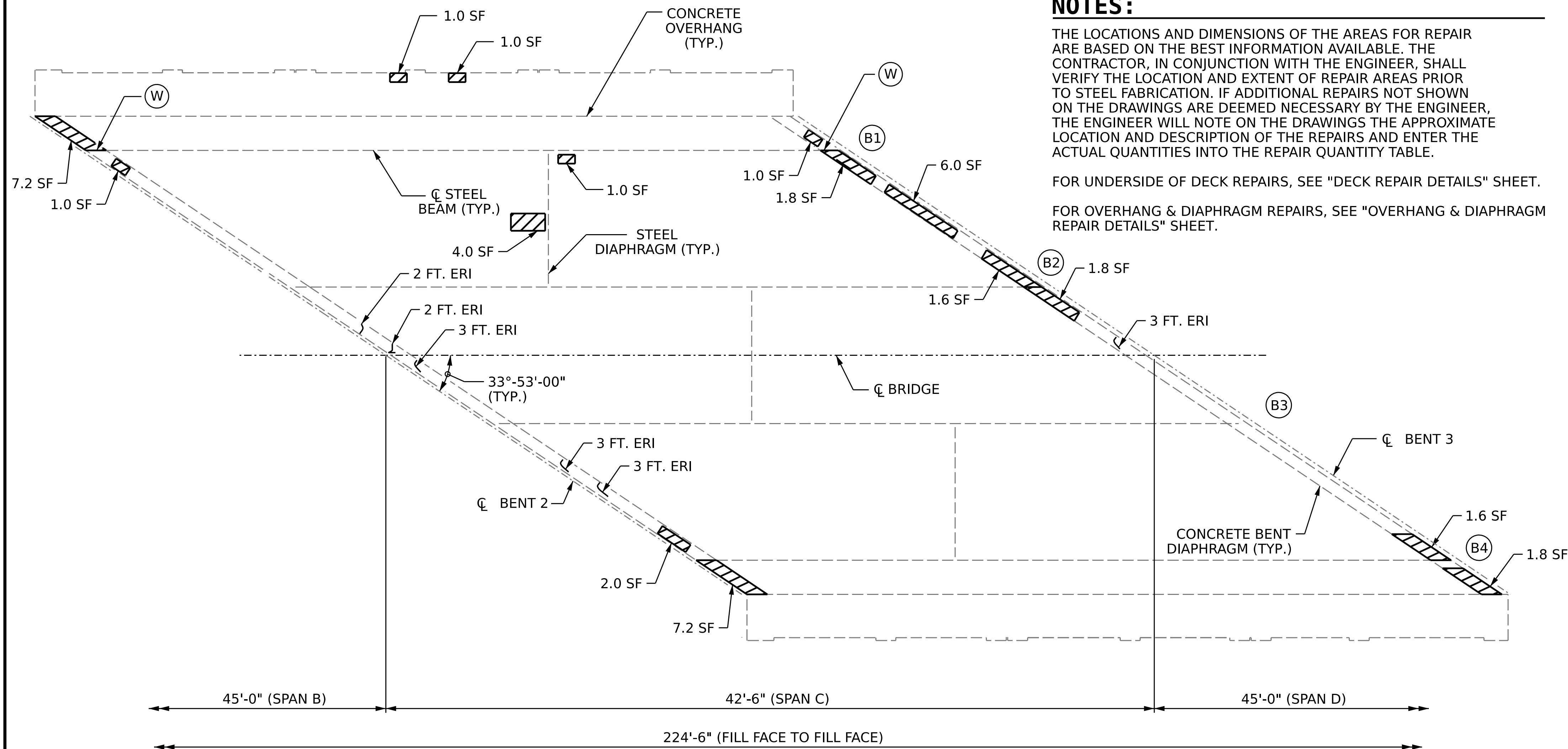
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK REPAIRS, SEE "DECK REPAIR DETAILS" SHEET.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET.



SPAN C

DECK UNDERSIDE REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS SPAN C	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	5.0	1.6		
CONCRETE DIAPHRAGM	33.0	24.1		
OVERHANG	2.0	0.6		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
EPOXY RESIN INJECTION	LINEAR FT		LINEAR FT	
CONCRETE DIAPHRAGM	16.0			
CONCRETE OVERHANG	0			
ZONE PAINTING		AREA SF		AREA SF
BEAM ENDS		225.4		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- ZONE PAINTING
- EPOXY RESIN INJECTION
- BEAM NUMBER
- WEB PLATING REPAIR
- BOTTOM FLANGE PLATING REPAIR
- BOLTED WEB PLATE REPAIR
- BOLTED FLANGE PLATE REPAIR
- BEAM REPAIR CUT-OUT

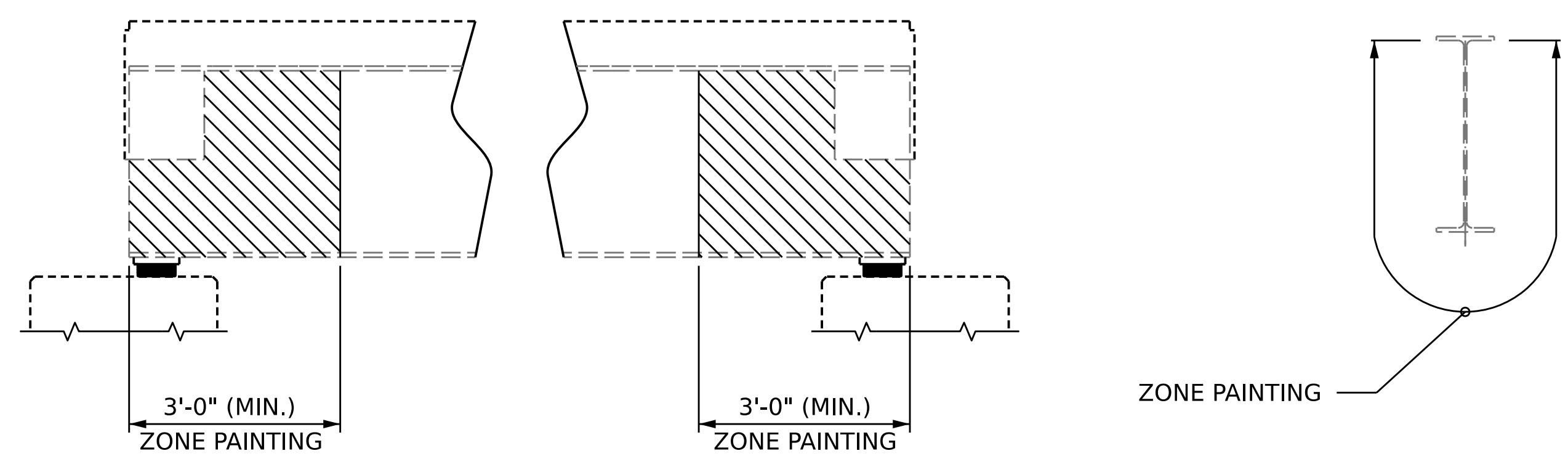
BEAM REPAIR QUANTITY TABLE

BOLTED STEEL PLATES		STEEL PLATES		STEEL DIAPHRAGM		BEAM REPAIR CUT-OUT	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
0.0		191.0		0.0		0.0	

ANTICIPATED STEEL REPAIR LOCATIONS

REPAIR TYPE	BEAM	LOCATION	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"
W	1	BENT 2	18"	16"		
W	1	BENT 3	15"	15"		

(SEE SHEETS S2-26, S2-27 AND S2-28 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)



LIMITS OF ZONE PAINTING

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DECK UNDERSIDE REPAIR
 SPAN C**



DocuSigned by:
 William C. Smith
 10/24/2023

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-12
2			4			TOTAL SHEETS 31

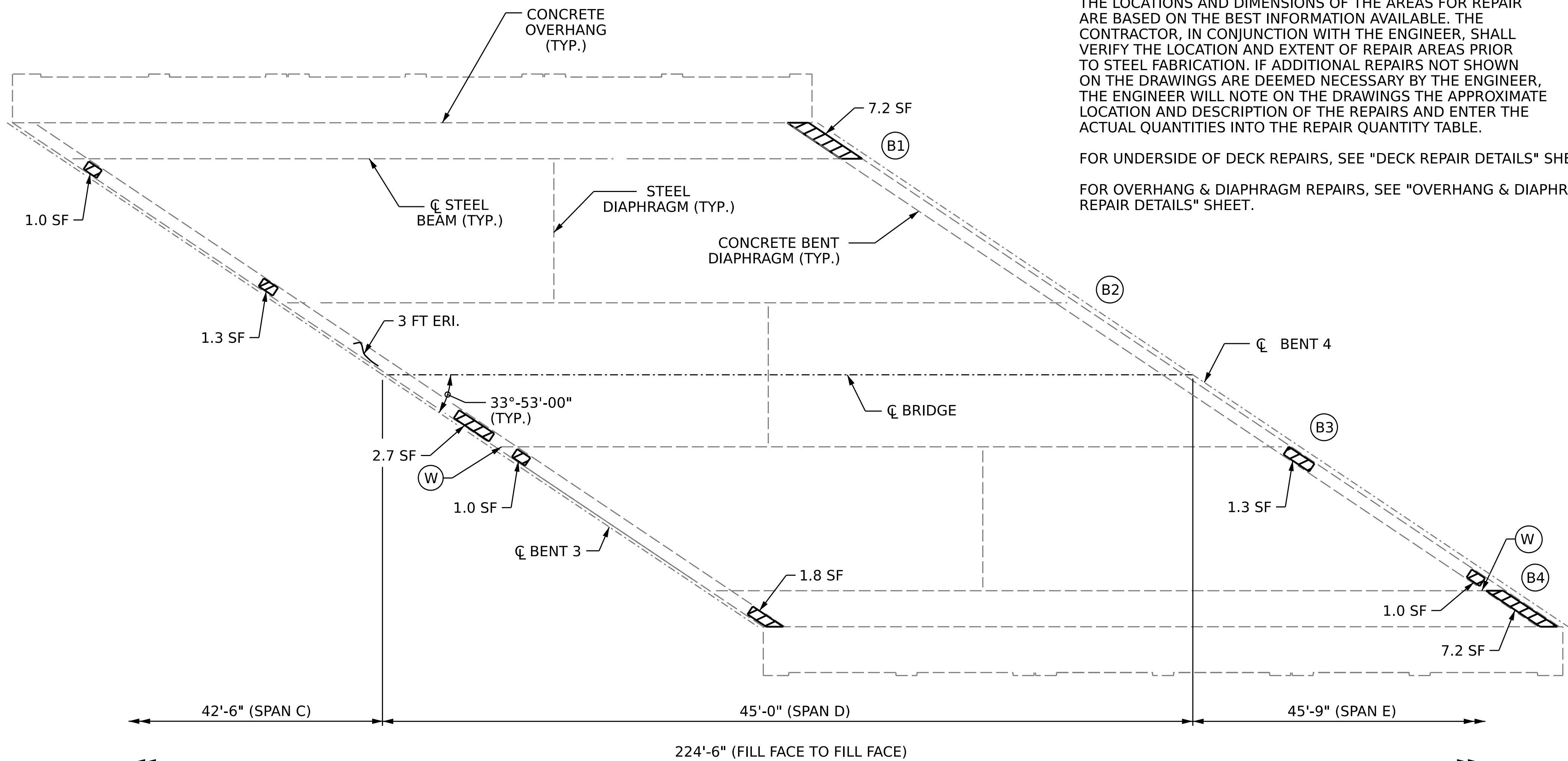
DRAWN BY : S. T. SANDOR DATE : 1/31/23
 CHECKED BY : W. C. SMITH DATE : 5/31/23

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK REPAIRS, SEE "DECK REPAIR DETAILS" SHEET.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET.



SPAN D

DECK UNDERSIDE REPAIR QUANTITY TABLE				
DECK UNDERSIDE REPAIRS SPAN D	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	21.5	17.5		
OVERHANG	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
EPOXY RESIN INJECTION	LINEAR FT		LINEAR FT	
CONCRETE DIAPHRAGM	3.0			
CONCRETE OVERHANG	0			
ZONE PAINTING		AREA SF		AREA SF
BEAM ENDS		225.4		

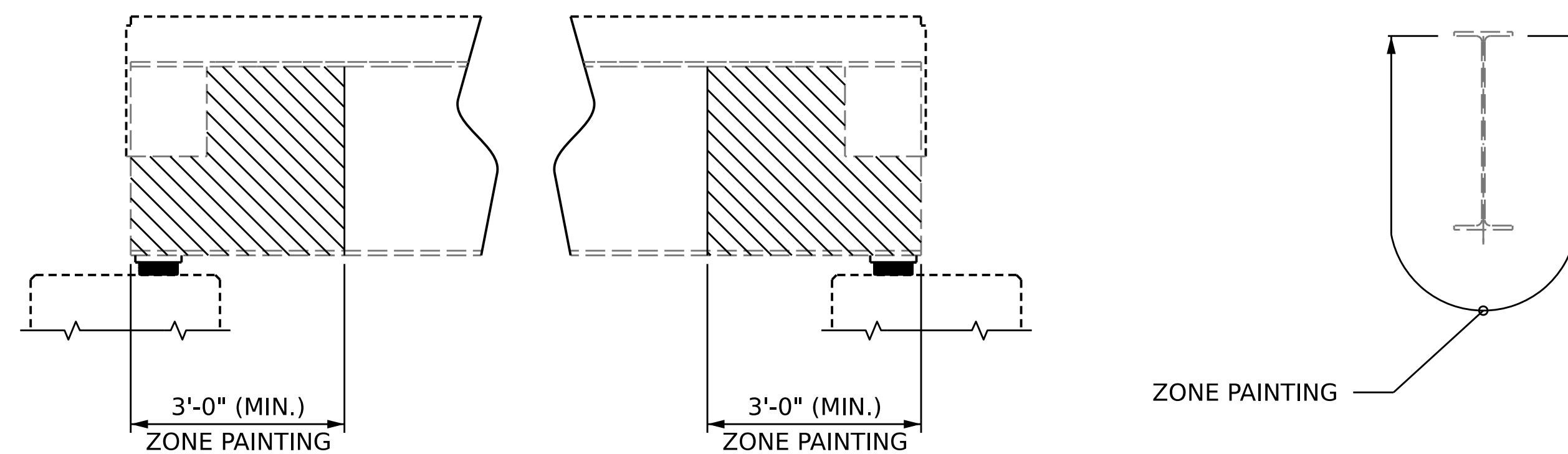
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- ZONE PAINTING
- EPOXY RESIN INJECTION
- BEAM NUMBER
- WEB PLATING REPAIR
- BOTTOM FLANGE PLATING REPAIR
- BOLTED WEB PLATE REPAIR
- BOLTED FLANGE PLATE REPAIR
- BEAM REPAIR CUT-OUT

BEAM REPAIR QUANTITY TABLE							
BOLTED STEEL PLATES		STEEL PLATES		STEEL DIAPHRAGM		BEAM REPAIR CUT-OUT	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
0.0		174.0		0.0		0.0	

ANTICIPATED STEEL REPAIR LOCATIONS						
REPAIR TYPE	BEAM	LOCATION	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"
W	3	BENT 3	15"	15"		
W	4	BENT 4	15"	15"		

(SEE SHEETS S2-26, S2-27 AND S2-28 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)



LIMITS OF ZONE PAINTING

DRAWN BY : S. T. SANDOR DATE : 1/31/23
 CHECKED BY : W. C. SMITH DATE : 5/31/23

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by:
William C. Smith
10/24/2023

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK UNDERSIDE REPAIR SPAN D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-13
1			3			TOTAL SHEETS
2			4			31

NOTES:

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

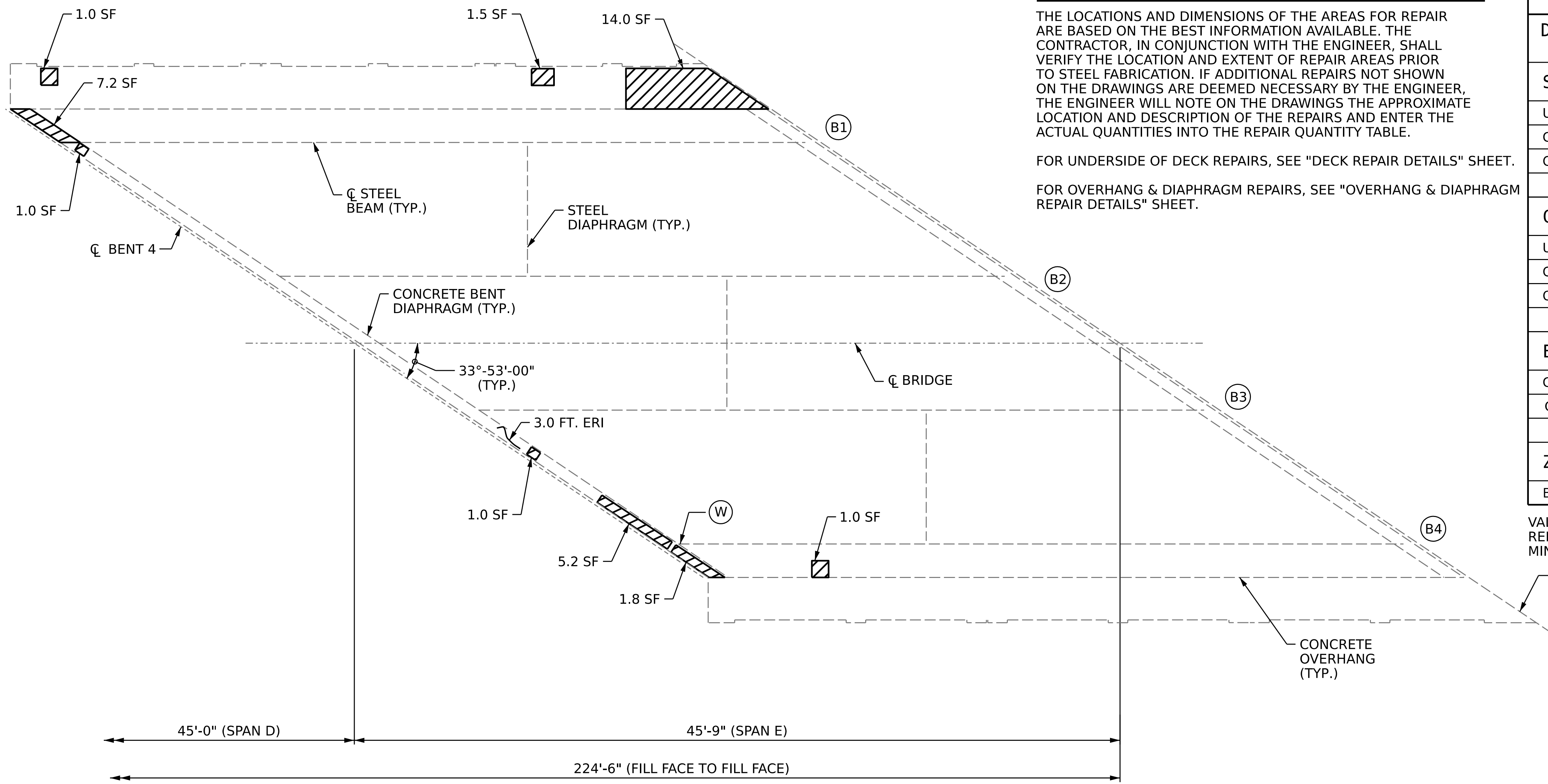
FOR UNDERSIDE OF DECK REPAIRS, SEE "DECK REPAIR DETAILS" SHEET.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIR DETAILS" SHEET.

DECK UNDERSIDE REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS SPAN E	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	1.0	0.3		
CONCRETE DIAPHRAGM	16.2	13.4		
OVERHANG	17.5	5.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
CONCRETE DIAPHRAGM	0	0		
OVERHANG	0	0		
EPOXY RESIN INJECTION	LINEAR FT		LINEAR FT	
CONCRETE DIAPHRAGM	3.0			
CONCRETE OVERHANG	0			
ZONE PAINTING		AREA SF		AREA SF
BEAM ENDS		225.4		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- ZONE PAINTING
- EPOXY RESIN INJECTION
- BEAM NUMBER
- WEB PLATING REPAIR
- BOTTOM FLANGE PLATING REPAIR
- BOLTED WEB PLATE REPAIR
- BOLTED FLANGE PLATE REPAIR
- BEAM REPAIR CUT-OUT

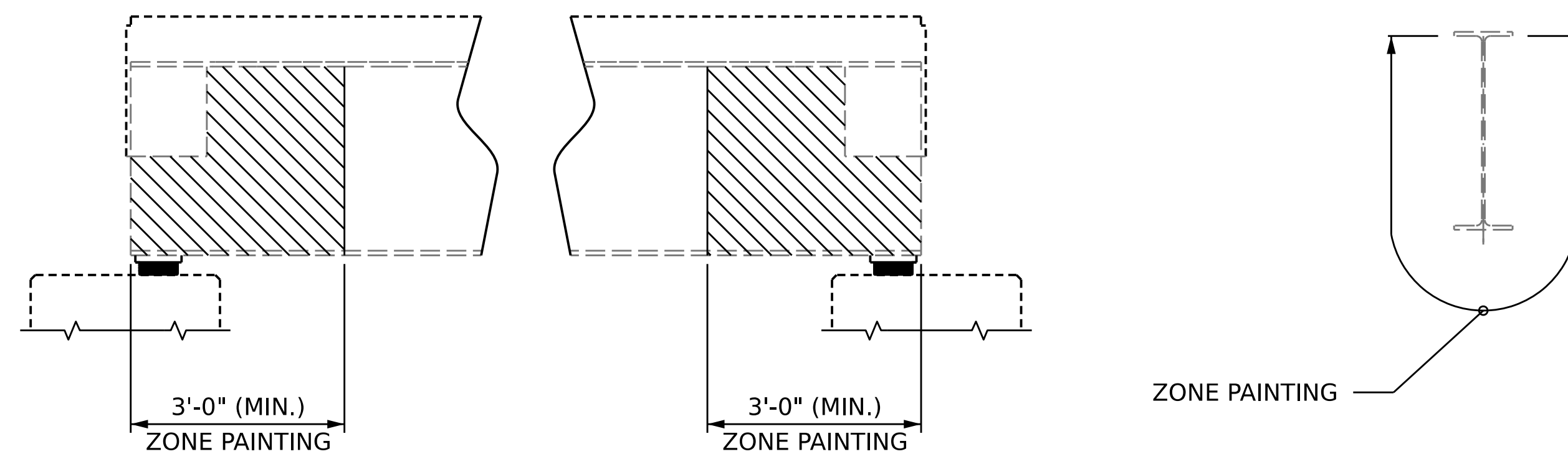
BEAM REPAIR QUANTITY TABLE

BOLTED STEEL PLATES		STEEL PLATES		STEEL DIAPHRAGM		BEAM REPAIR CUT-OUT	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
0.0		87.0		0.0		0.0	

ANTICIPATED STEEL REPAIR LOCATIONS

REPAIR TYPE	BEAM	LOCATION	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"
W	4	BENT 4	15"	15"		

(SEE SHEETS S2-26, S2-27 AND S2-28 FOR BEAM REPAIR DETAILS AND DIMENSIONS.)



LIMITS OF ZONE PAINTING



DocuSigned by:
William C. Smith
054816

PROJECT NO. **B-5981**
DUPLIN COUNTY
BRIDGE NO. **300017**

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**DECK UNDERSIDE REPAIR
SPAN E**

DRAWN BY : S. T. SANDOR DATE : 2/1/23
CHECKED BY : W. C. SMITH DATE : 5/31/23

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-14
2			4			TOTAL SHEETS 31

NOTES

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

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

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

FOR PAINTED STRUCTURAL STEEL (EXCLUDING AASHTO M270 GRADE 50W), SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

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

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

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

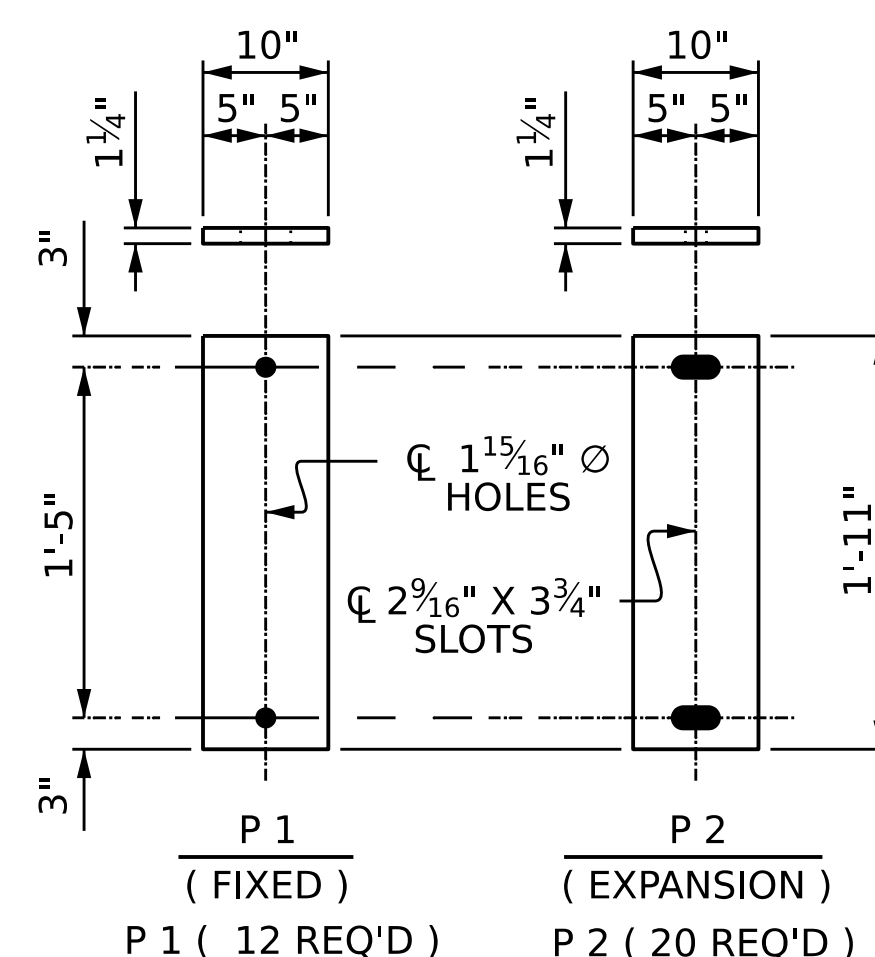
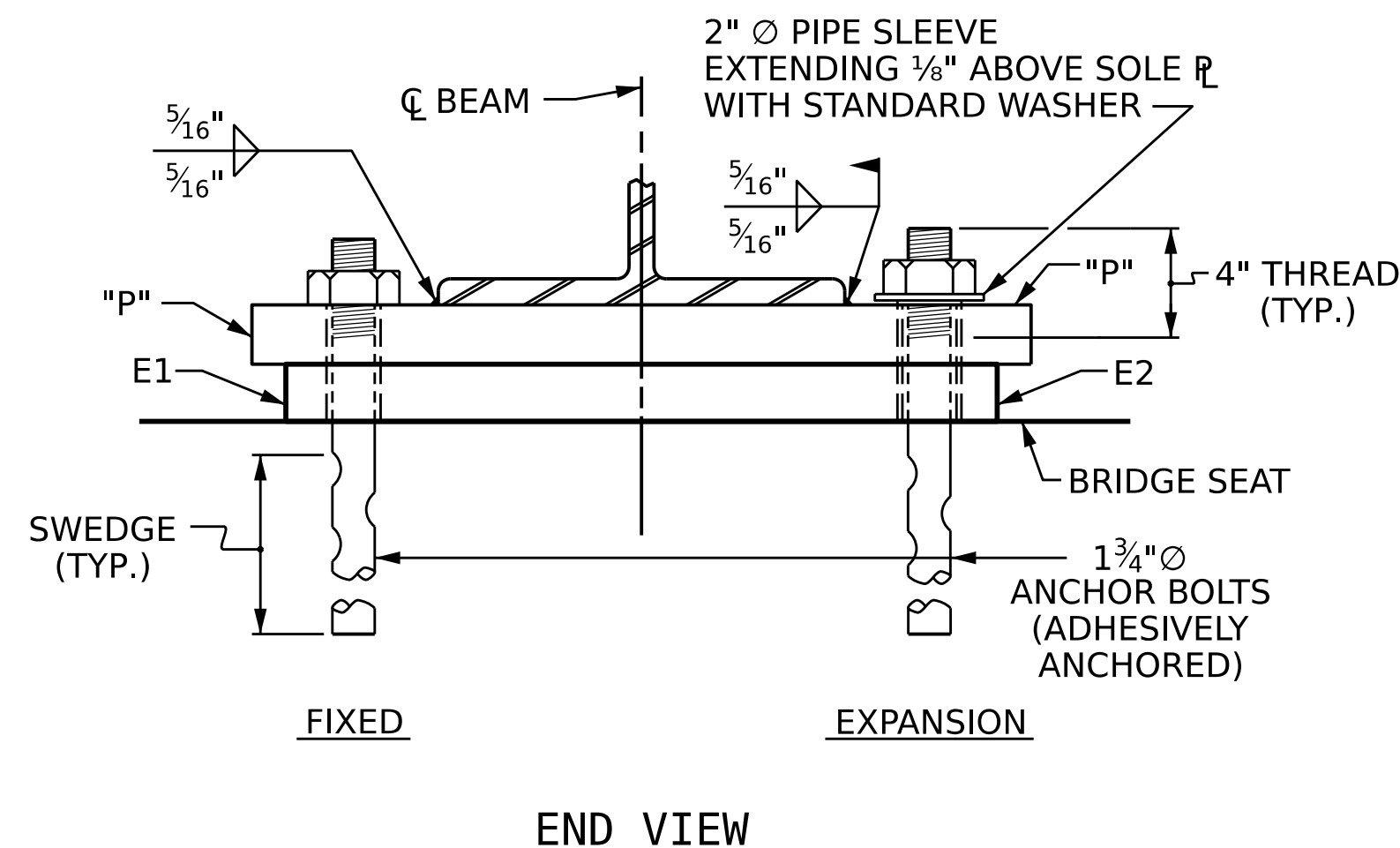
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

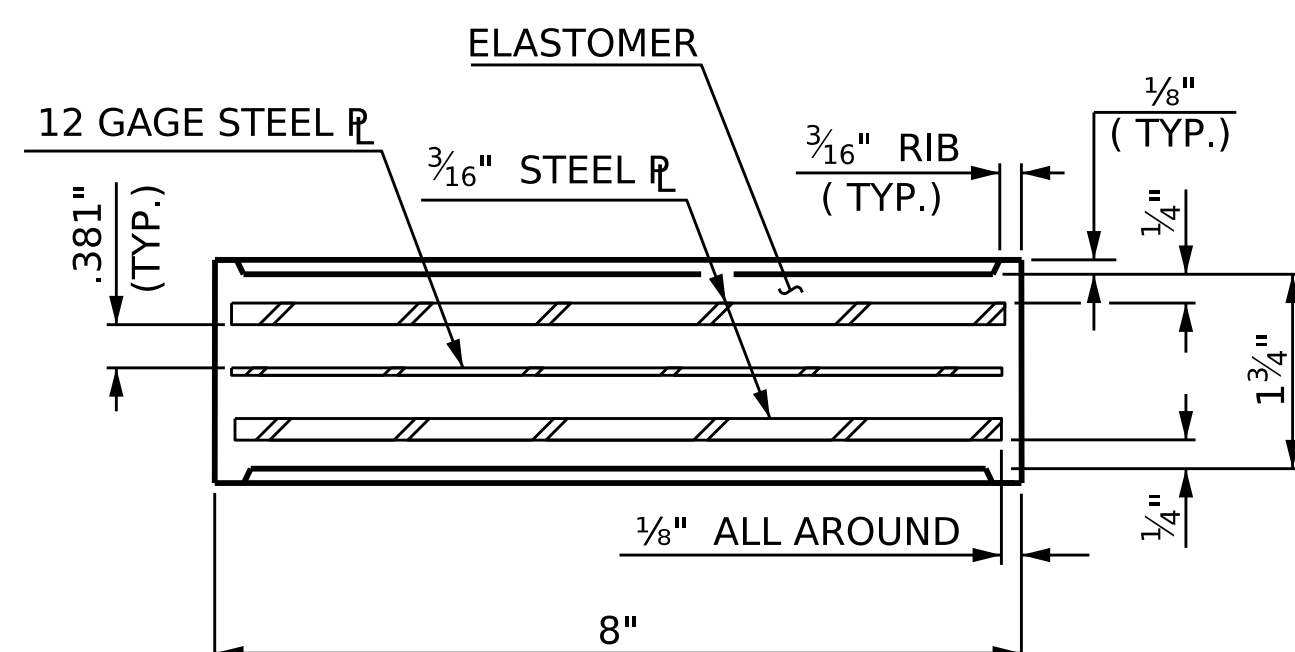
ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 10,000 LBS. TENSION FOR ANCHOR BOLTS.

MINIMUM EMBEDMENT OF ANCHOR BOLT SHALL BE PER MANUFACTURER RECOMMENDATIONS. MINIMUM LENGTH OF ANCHOR BOLT SHALL BE SUFFICIENT FOR EMBEDMENT DEPTH, THICKNESS OF ELASTOMERIC BEARING, SOLE PLATE(S), AND FULL ENGAGEMENT OF ANCHOR BOLT NUT.

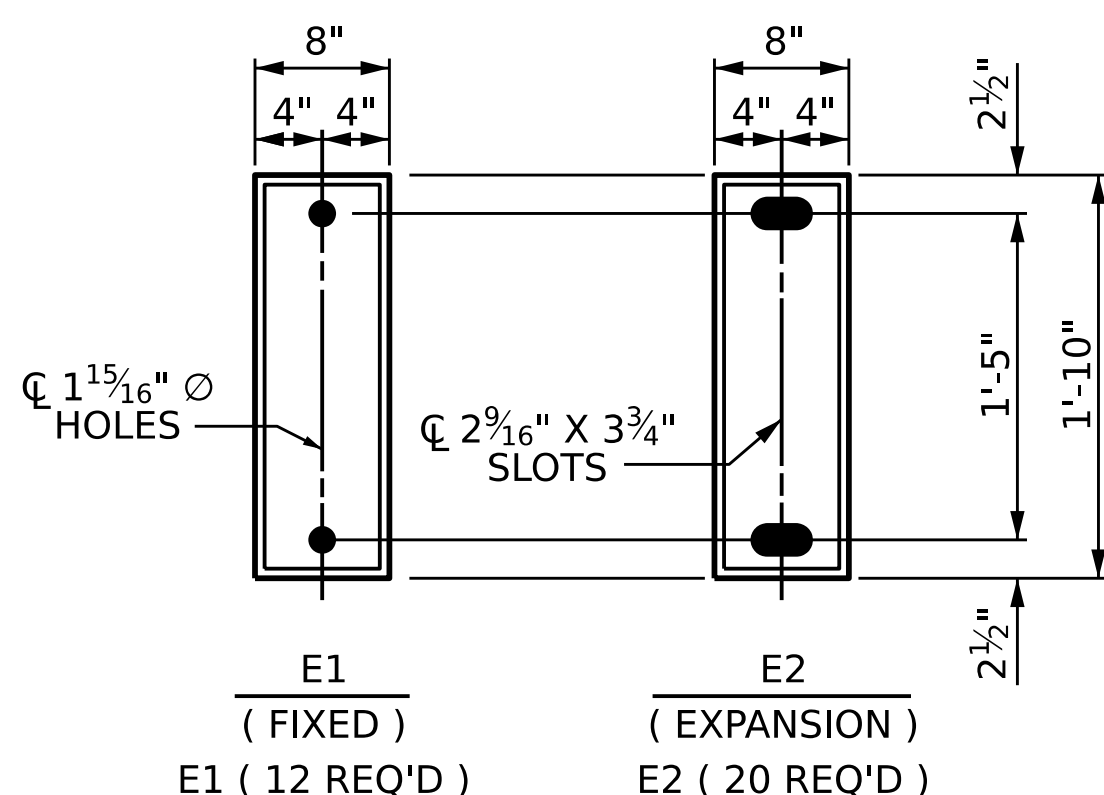


BENT #	NEAR		FAR	
	EXP.	FIX	EXP.	FIX
1	4 E2	4 P2	4 E2	4 P2
2	4 E1	4 P1	4 E2	4 P2
3	4 E1	4 P1	4 E2	4 P2
4	4 E1	4 P1	4 E2	4 P2

SOLE PLATE DETAILS ("P")



TYPICAL SECTION OF ELASTOMERIC BEARINGS

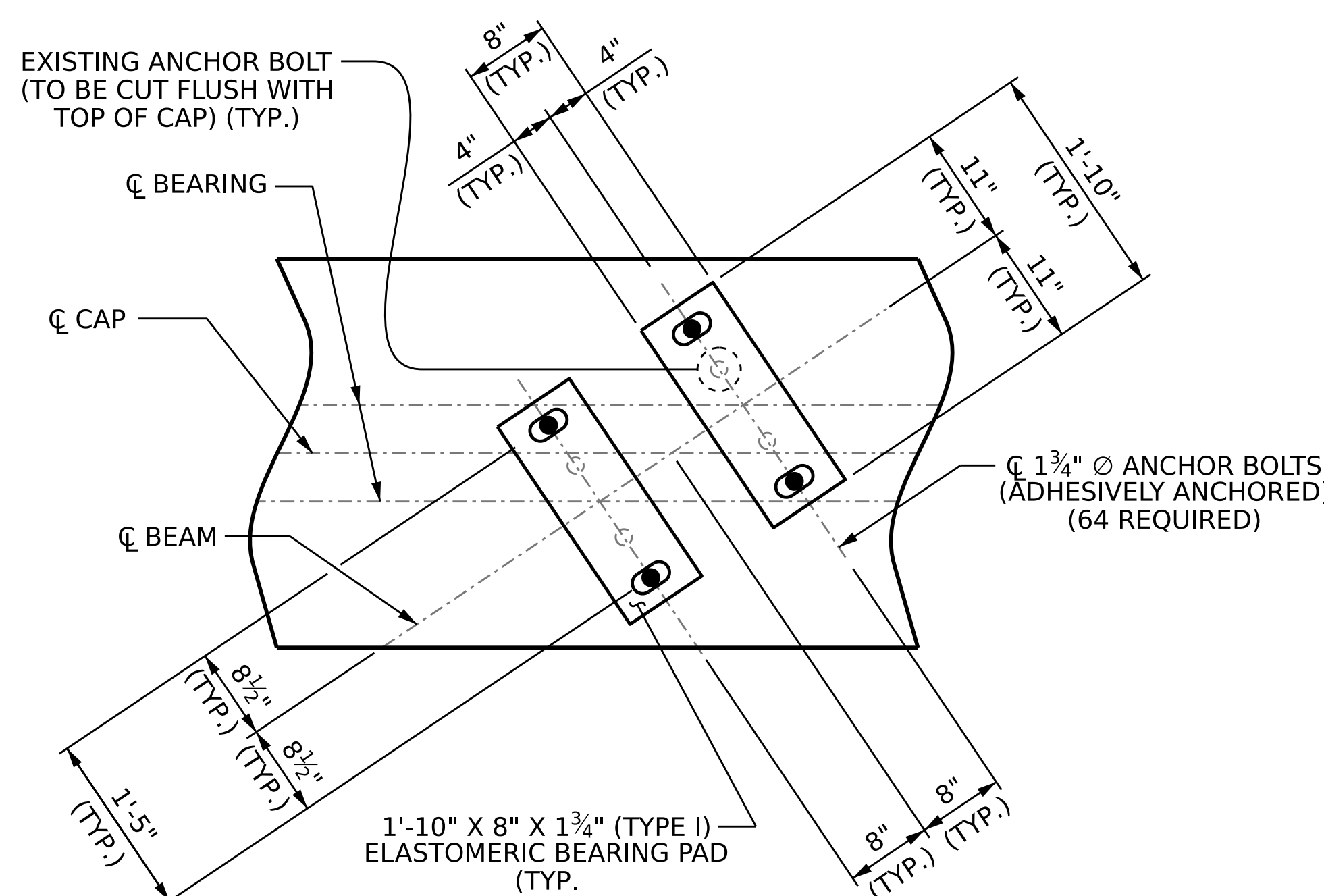


PLAN VIEW OF ELASTOMERIC BEARING

TYPE I

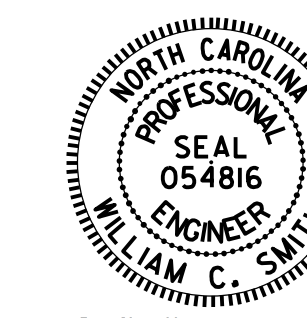
MAXIMUM ALLOWABLE SERVICE LOADS	
D.L. + L.L. (NO IMPACT)	
TYPE I	140 k

ASSEMBLED BY : S. T. SANDOR	DATE : 08/22/22
CHECKED BY : W. C. SMITH	DATE : 5/31/23
DRAWN BY : JMB 11/87	REV. 6/13 AAC/MAA
CHECKED BY : ARB 11/87	REV. 12/17 MAA/THC
	REV. 10/21 BNB/AAI



TYPICAL ANCHOR BOLT LAYOUT

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**



DocuSigned by:
 William C. Smith
 10/24/2023

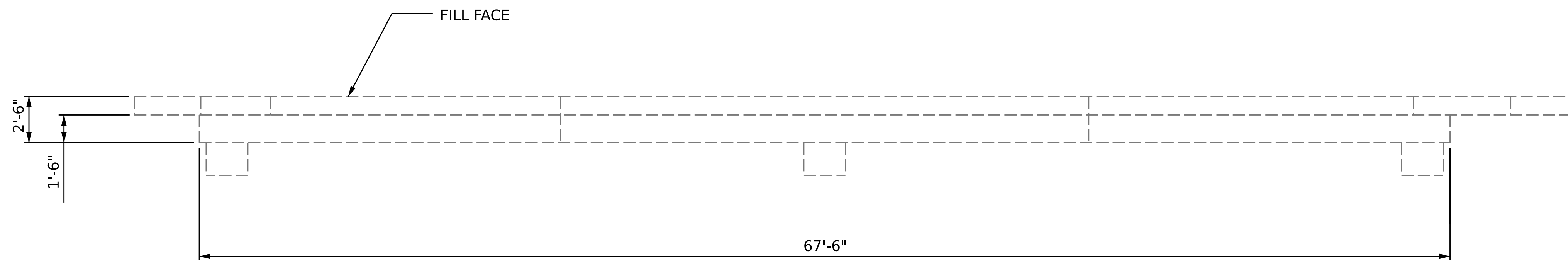
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELASTOMERIC BEARING DETAILS

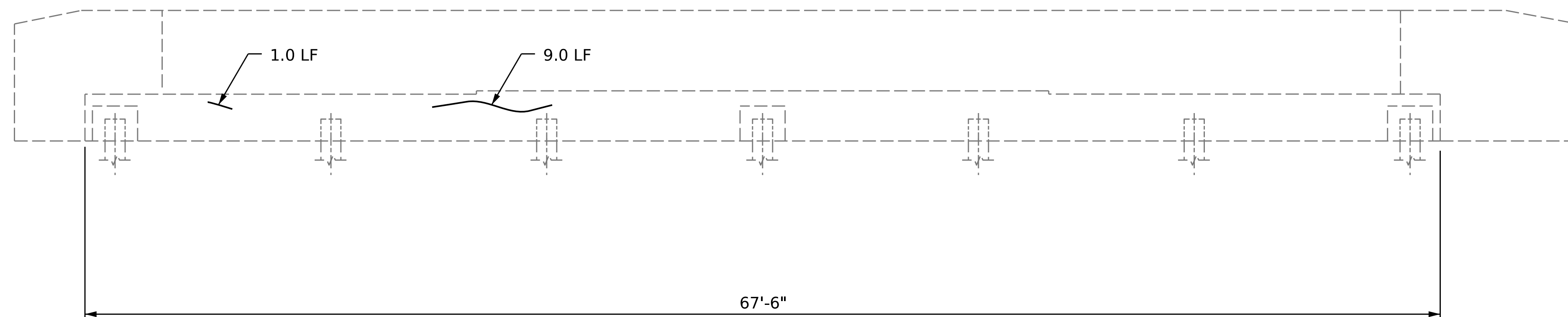
(STEEL SUPERSTRUCTURE)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS				SHEET NO.
NO.	BY:	DATE:	DATE:	
1				S2-15
2				
3				TOTAL SHEETS
4				31



PLAN
(TOP OF CAP)



ELEVATION
(NORTH FACE
LOOKING SOUTH)

SUBSTRUCTURE REPAIR QUANTITY TABLE

REPAIRS - END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
WINGWALL	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
WINGWALL	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		10.0		
CURTAIN WALL		0		
WINGWALL		0		
EPOXY COATING		AREA SF		AREA SF
CAP		99.0		

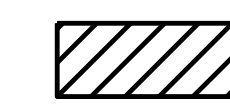
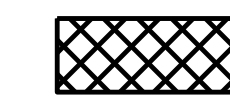
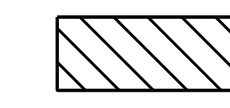

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

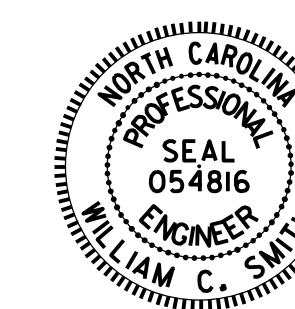
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE BEARINGS.

FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA
-  EPOXY RESIN INJECTION

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 1 OF 6



DocuSigned by:
 William C. Smith
 10/24/2023

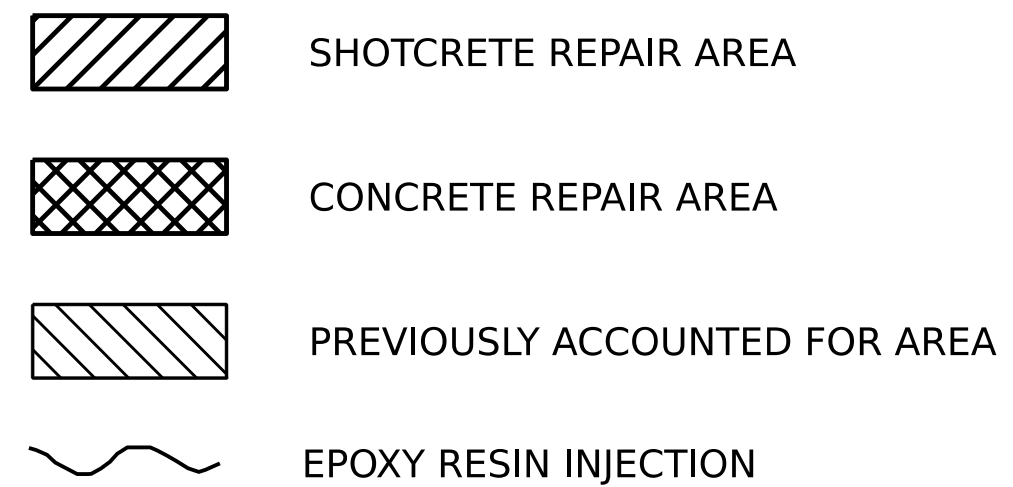
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE REPAIR
 END BENT 1**

DRAWN BY : S. T. SANDOR DATE : 1/31/23
 CHECKED BY : W. C. SMITH DATE : 5/31/23

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-16 TOTAL SHEETS 31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



NOTES

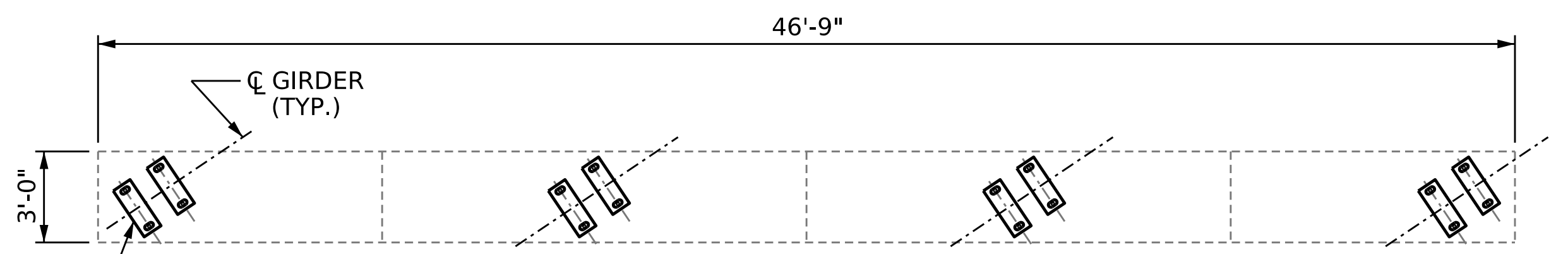
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AFTER ELASTOMERIC BEARINGS AND ANCHOR BOLTS ARE INSTALLED. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE BEARINGS.

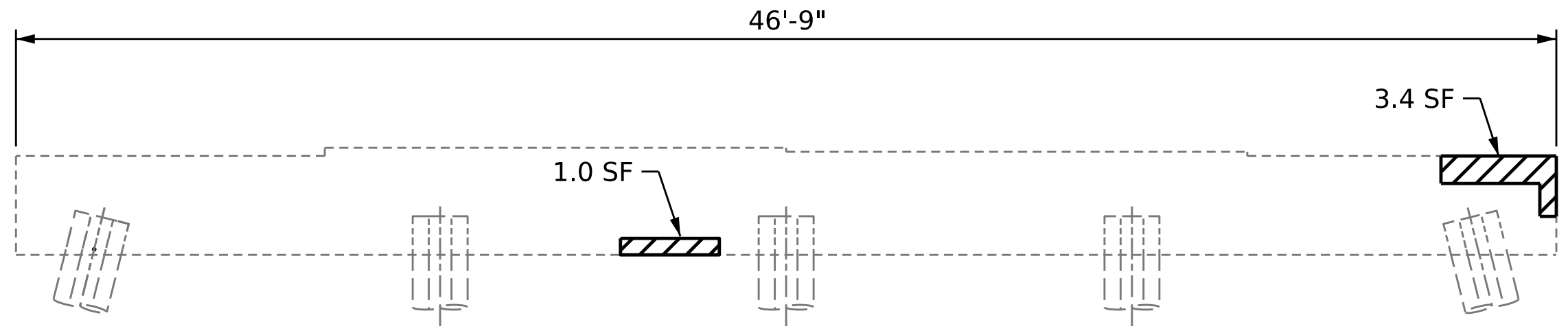
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

SUBSTRUCTURE REPAIR QUANTITY TABLE				
REPAIRS - BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	36.8	18.4		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		0		
COLUMN		0		
EPOXY COATING		AREA SF		AREA SF
CAP		130.5		

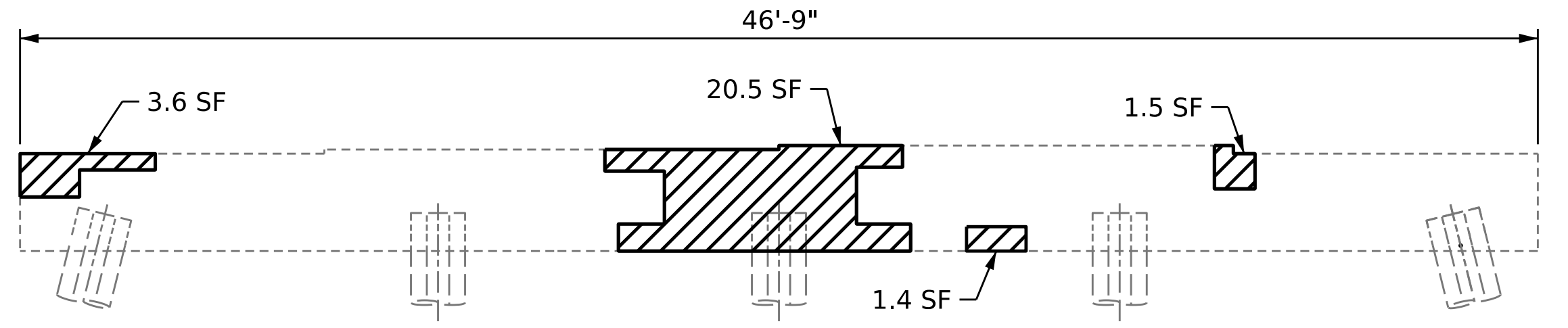
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



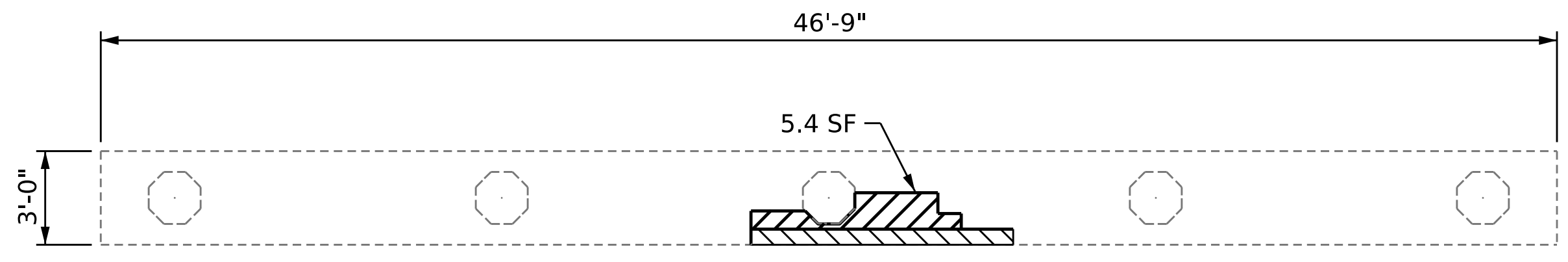
PLAN
(TOP OF CAP)



ELEVATION
SOUTH FACE
(LOOKING NORTH)



ELEVATION
NORTH FACE
(LOOKING SOUTH)



PLAN
(BOTTOM OF CAP)

END VIEW
WEST FACE

END VIEW
EAST FACE

PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**

SHEET 2 OF 6



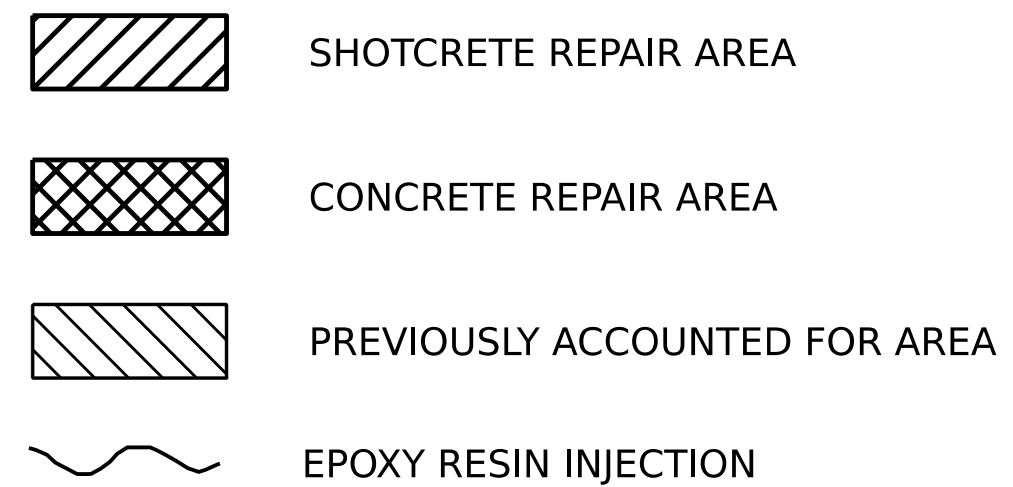
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE REPAIR
 BENT 1**

DRAWN BY : S. T. SANDOR DATE : 1/25/23
 CHECKED BY : W. C. SMITH DATE : 5/31/23

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-17 TOTAL SHEETS 31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



NOTES

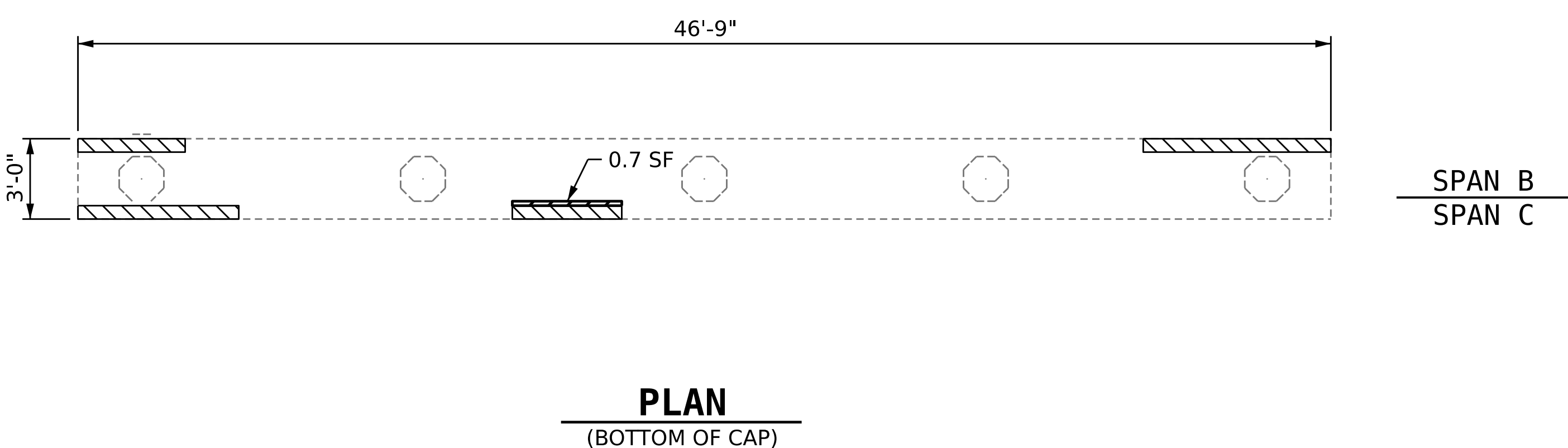
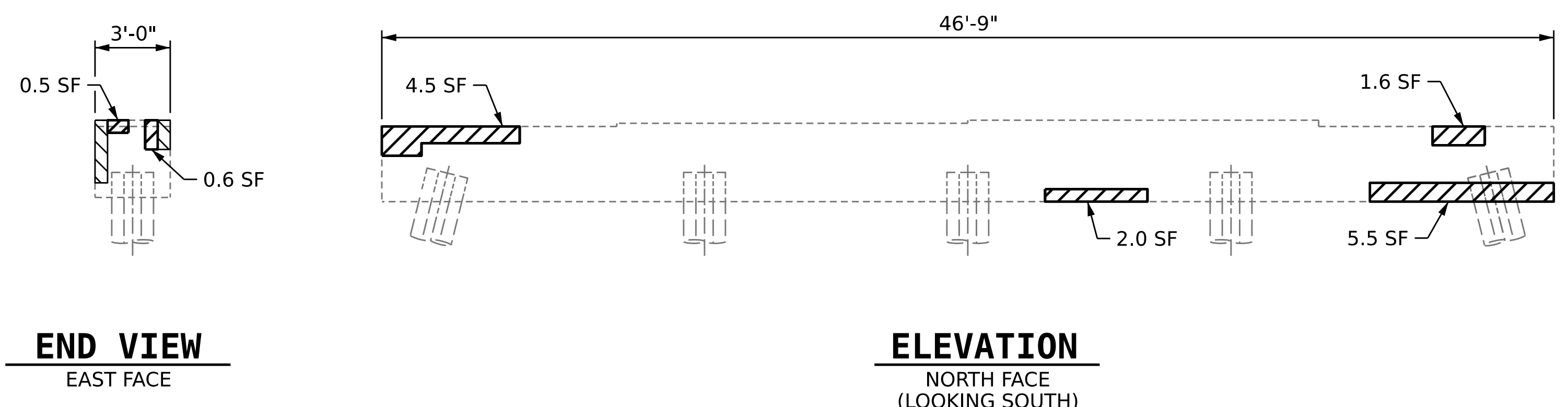
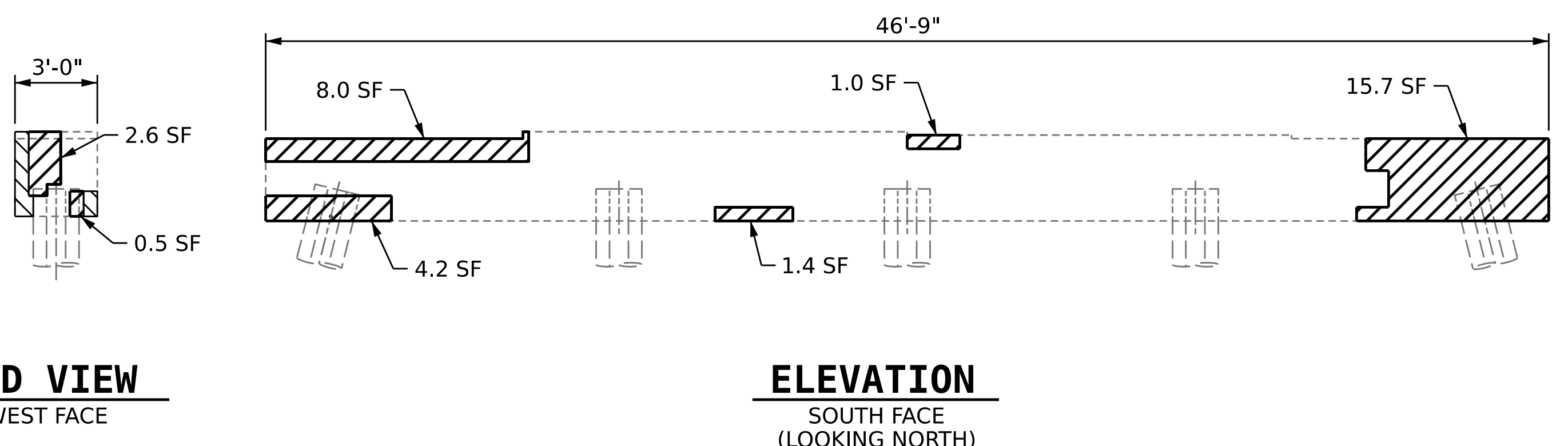
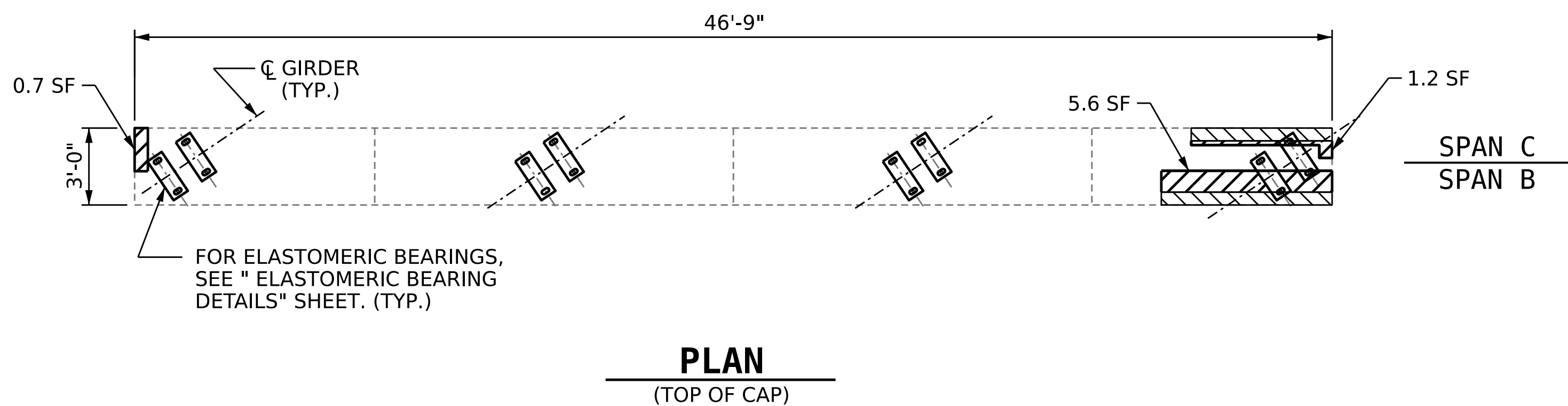
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AFTER ELASTOMERIC BEARINGS AND ANCHOR BOLTS ARE INSTALLED. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE BEARINGS.

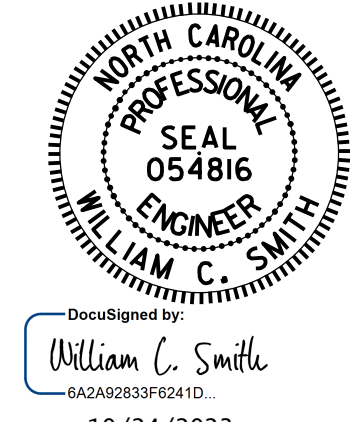
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

SUBSTRUCTURE REPAIR QUANTITY TABLE				
REPAIRS - BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	56.3	28.2		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		0		
COLUMN		0		
EPOXY COATING		AREA SF		AREA SF
CAP		130.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



PROJECT NO. **B-5981**
DUPLIN COUNTY
 BRIDGE NO. **300017**
 SHEET 3 OF 6

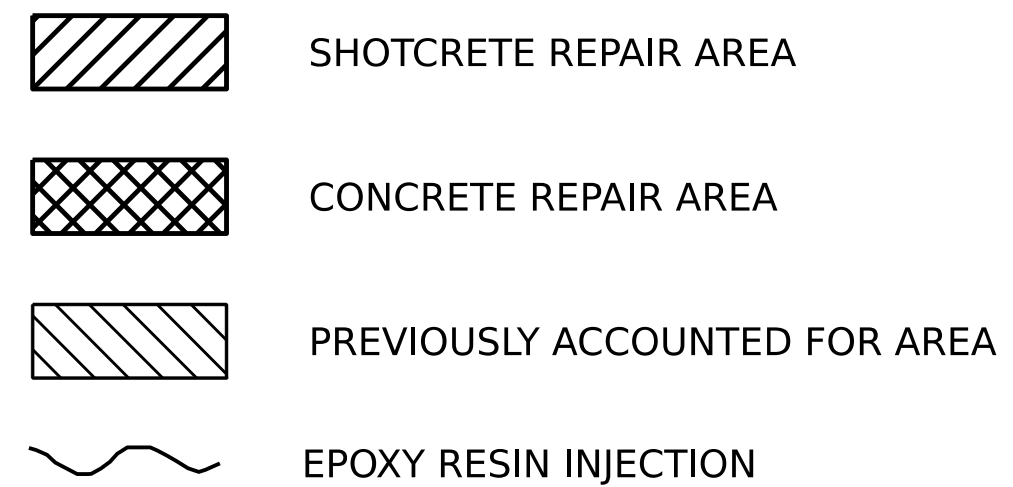


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUBSTRUCTURE REPAIR
 BENT 2**

DRAWN BY : S. T. SANDOR DATE : 1/25/23
 CHECKED BY : W. C. SMITH DATE : 2/1/23

REVISIONS						SHEET NO. S2-18 TOTAL SHEETS 31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

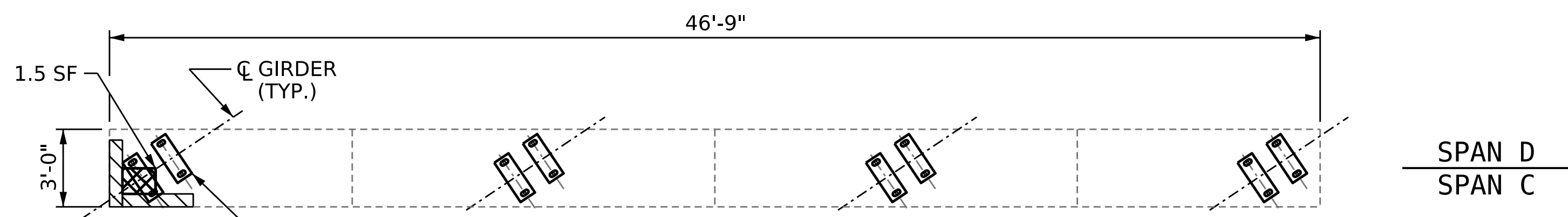
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AFTER ELASTOMERIC BEARINGS AND ANCHOR BOLTS ARE INSTALLED. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE BEARINGS.

FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

SUBSTRUCTURE REPAIR QUANTITY TABLE

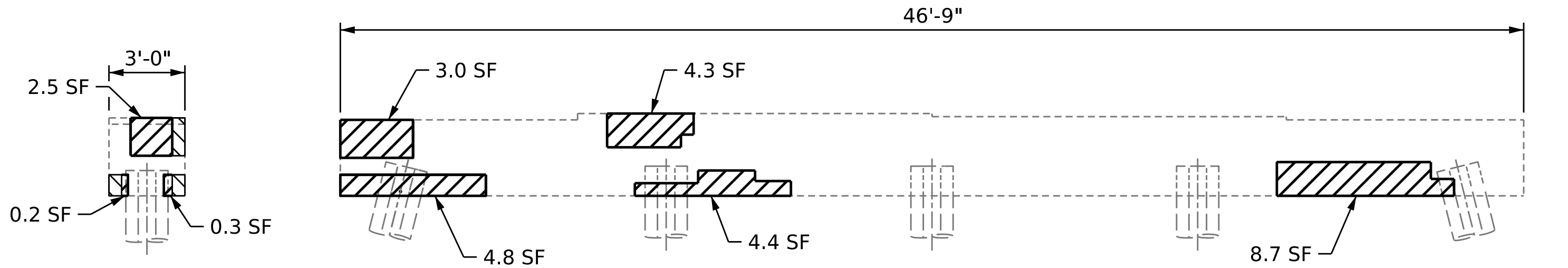
REPAIRS - BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	97.5	48.8		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	1.5	0.8		
COLUMN	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		0		
COLUMN		0		
EPOXY COATING		AREA SF		AREA SF
CAP		130.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



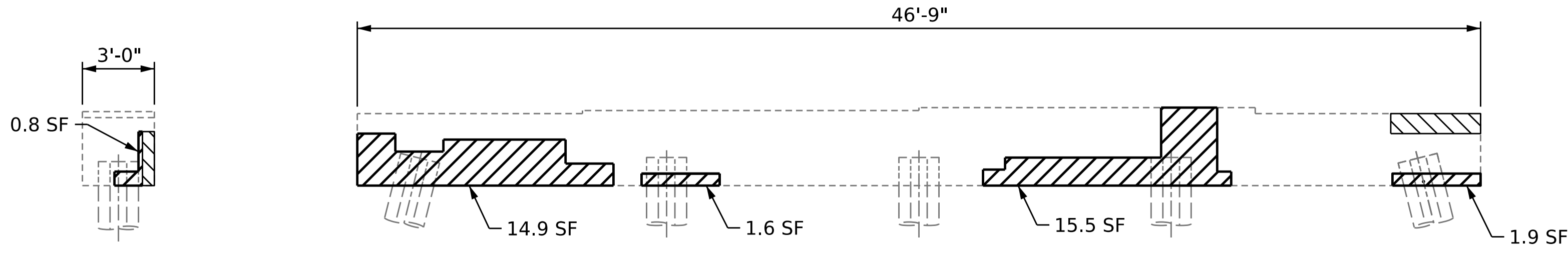
FOR ELASTOMERIC BEARINGS, SEE "ELASTOMERIC BEARING DETAILS" SHEET. (TYP.)

PLAN
(TOP OF CAP)



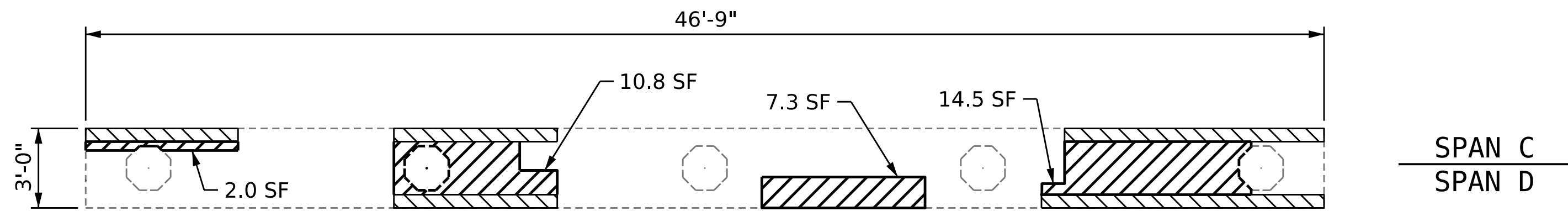
END VIEW
WEST FACE

ELEVATION
SOUTH FACE
(LOOKING NORTH)



END VIEW
EAST FACE

ELEVATION
NORTH FACE
(LOOKING SOUTH)



PLAN
(BOTTOM OF CAP)

PROJECT NO. **B-5981**
DUPLIN COUNTY
BRIDGE NO. **300017**

SHEET 4 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUBSTRUCTURE REPAIR
BENT 3**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-19
1			3			TOTAL SHEETS
2			4			31

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR DATE : 1/26/23
CHECKED BY : W. C. SMITH DATE : 5/31/23