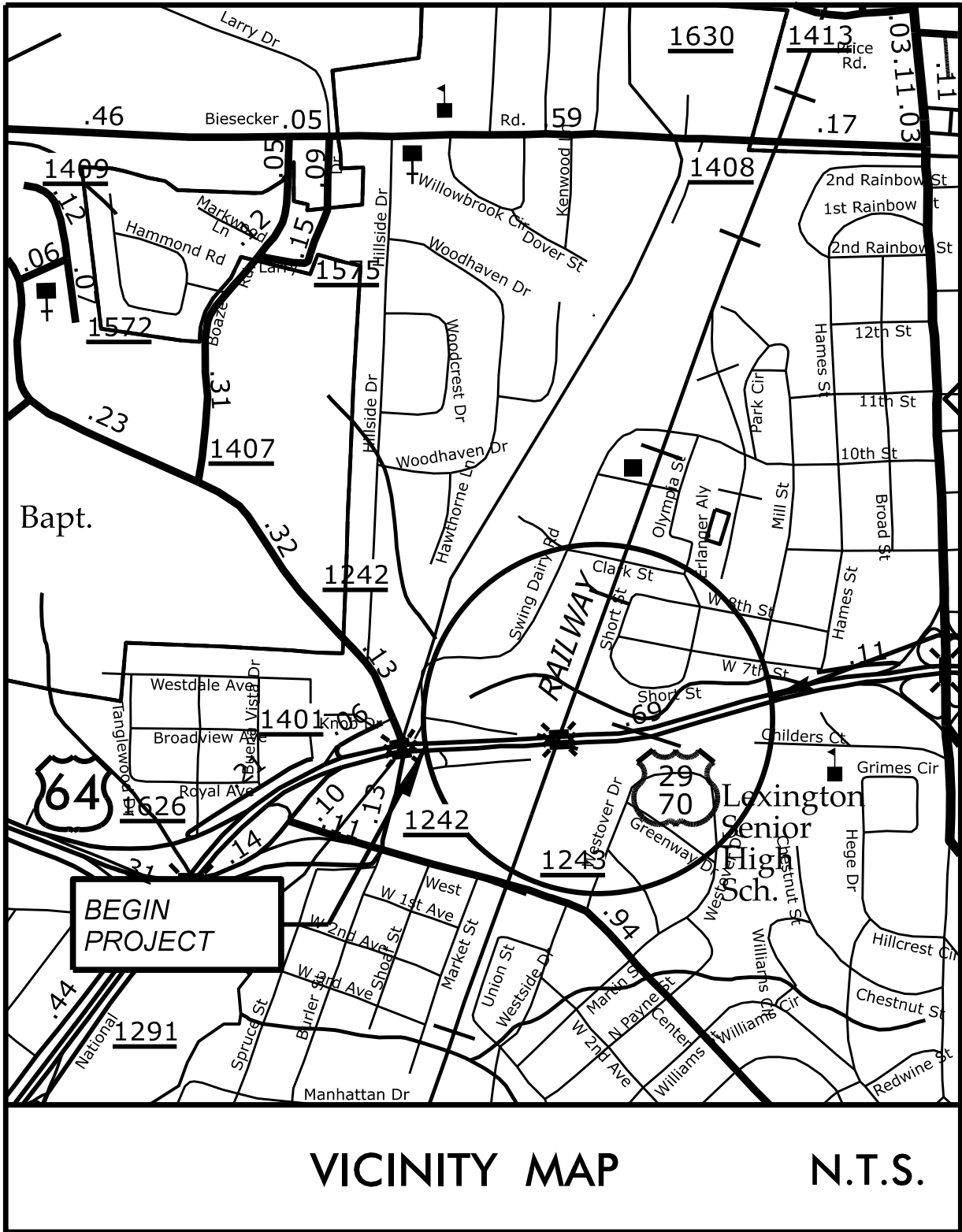


TIP PROJECT: BR-0140

CONTRACT: C205091



END
PROJECT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DAVIDSON COUNTY

LOCATION: REPLACE BRIDGES 280087 AND 280089 ON US 29/64/70
OVER WSSB RAILROAD

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0140		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67140.1.1		PE	
67140.2.1		ROW/UTILITIES	
67140.3.1		CONSTRUCTION	

BEGIN TIP PROJECT BR-0140
STA. 27+79.34 -L-

BEGIN BRIDGE (-L WB-)
STA. 38+64.27 -L- 11' LT

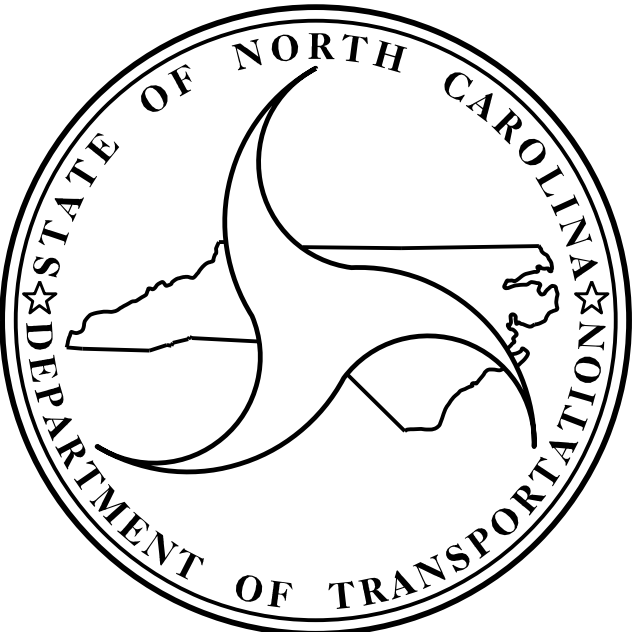
END BRIDGE (-L WB-)
STA. 40+83.77 -L- 11' LT

END BRIDGE (-L EB-)
STA. 40+74.66 -L- 11' RT

BEGIN BRIDGE (-L EB-)
STA. 38+55.16 -L- 11' RT

END TIP PROJECT BR-0140
STA. 56+59.72 -L-

STRUCTURES



DESIGN DATA

ADT 2025 = 21700
ADT 2045 = 25100
K = 10 %
D = 59 %
T = 10 % *
V = 60 MPH
* TTST = 5% DUAL 5%
FUNC CLASS =
FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0140 = 0.504 MILES
LENGTH STRUCTURE TIP PROJECT BR-0140 = 0.042 MILES
TOTAL LENGTH TIP PROJECT BR-0140 = 0.546 MILES

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

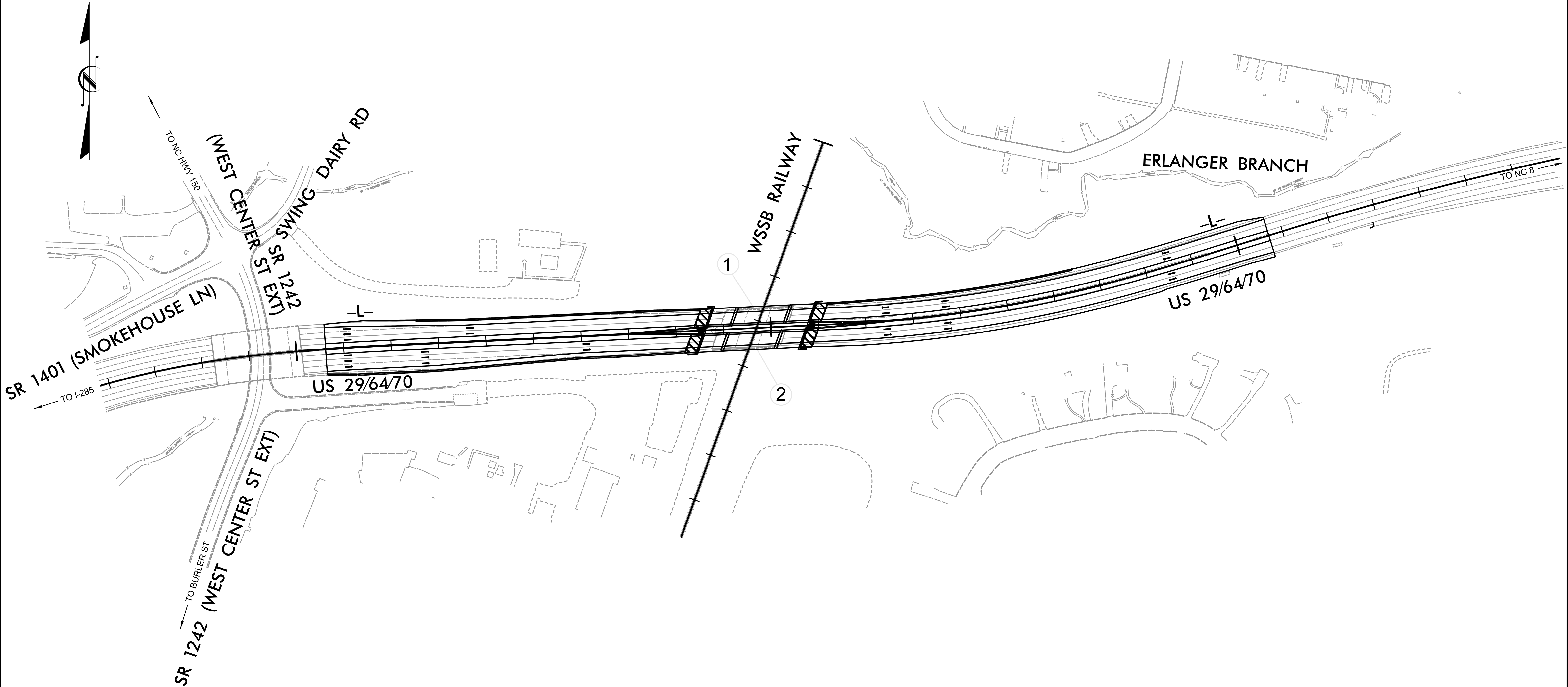
2024 STANDARD SPECIFICATIONS

LETTING DATE :

NOVEMBER 17, 2026

ADAM PARRISH, PE
PROJECT ENGINEER

Wael Arafat, PE
PROJECT DESIGN ENGINEER



PROJECT NO. BR-0140
DAVIDSON COUNTY

INDEX			
STR	STATION	DESCRIPTION	"S" SHEETS
1	39+69.46 -L- = 14+15.10 -RR-	I-85 BUSINESS (WESTBOUND) BRIDGE OVER WINSTON-SALEM SOUTH BOUND RAILROAD	S01-1 THRU S01-40
2	39+69.46 -L- = 14+15.10 -RR-	I-85 BUSINESS (EASTBOUND) BRIDGE OVER WINSTON-SALEM SOUTH BOUND RAILROAD	S02-1 THRU S02-40

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

INDEX SHEET

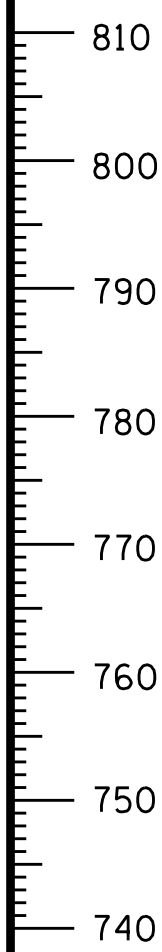
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

PARRISH & PARTNERS

Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

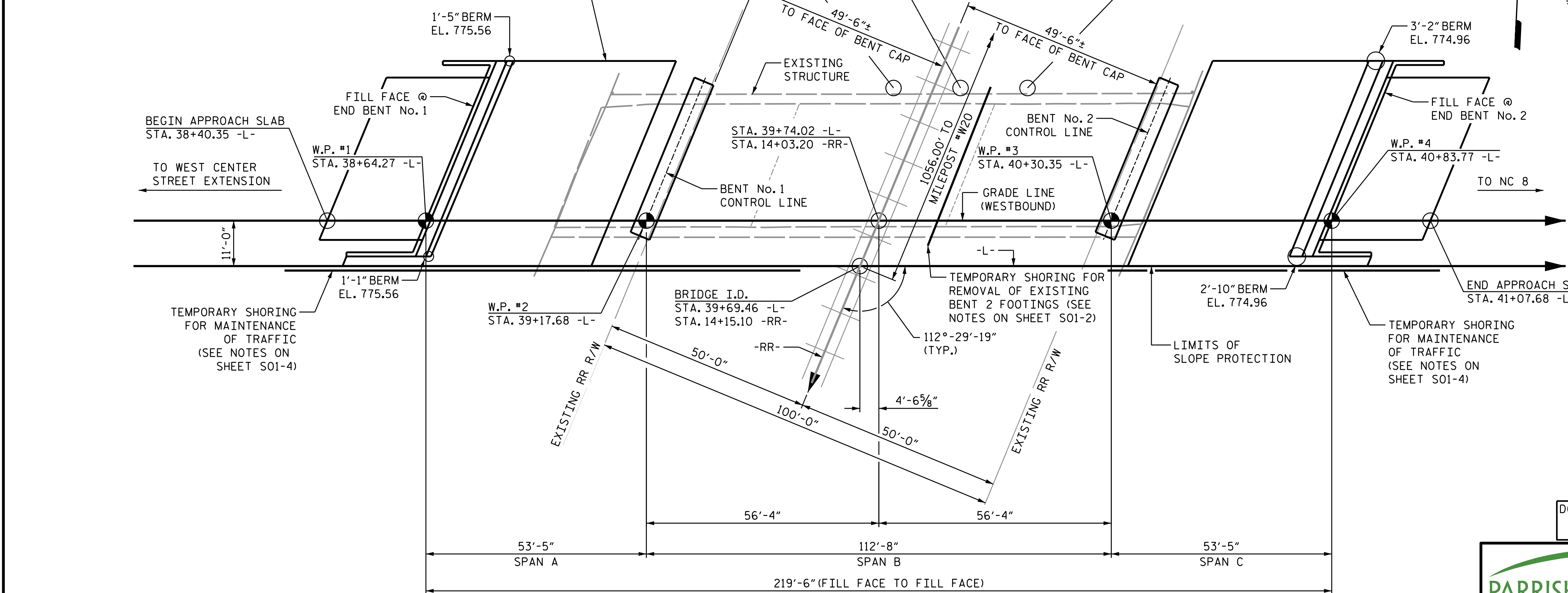
NC License #P-1212

DRAWN BY : C.T. MIXON DATE : 07-25
CHECKED BY : O. PUIGCERVER DATE : 07-25

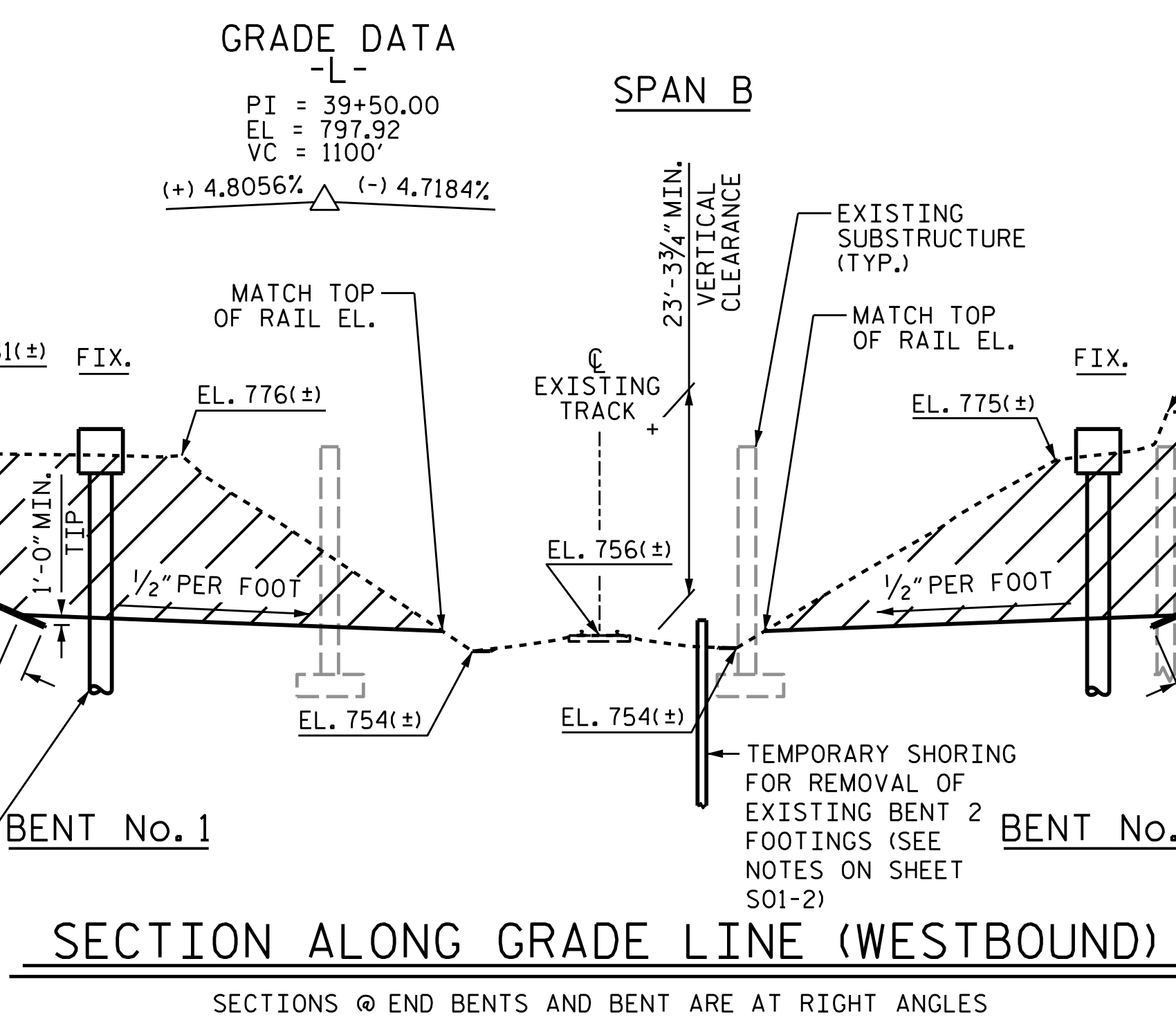


-RR-
(LOOKING UPSTATION ALONG RAILROAD)

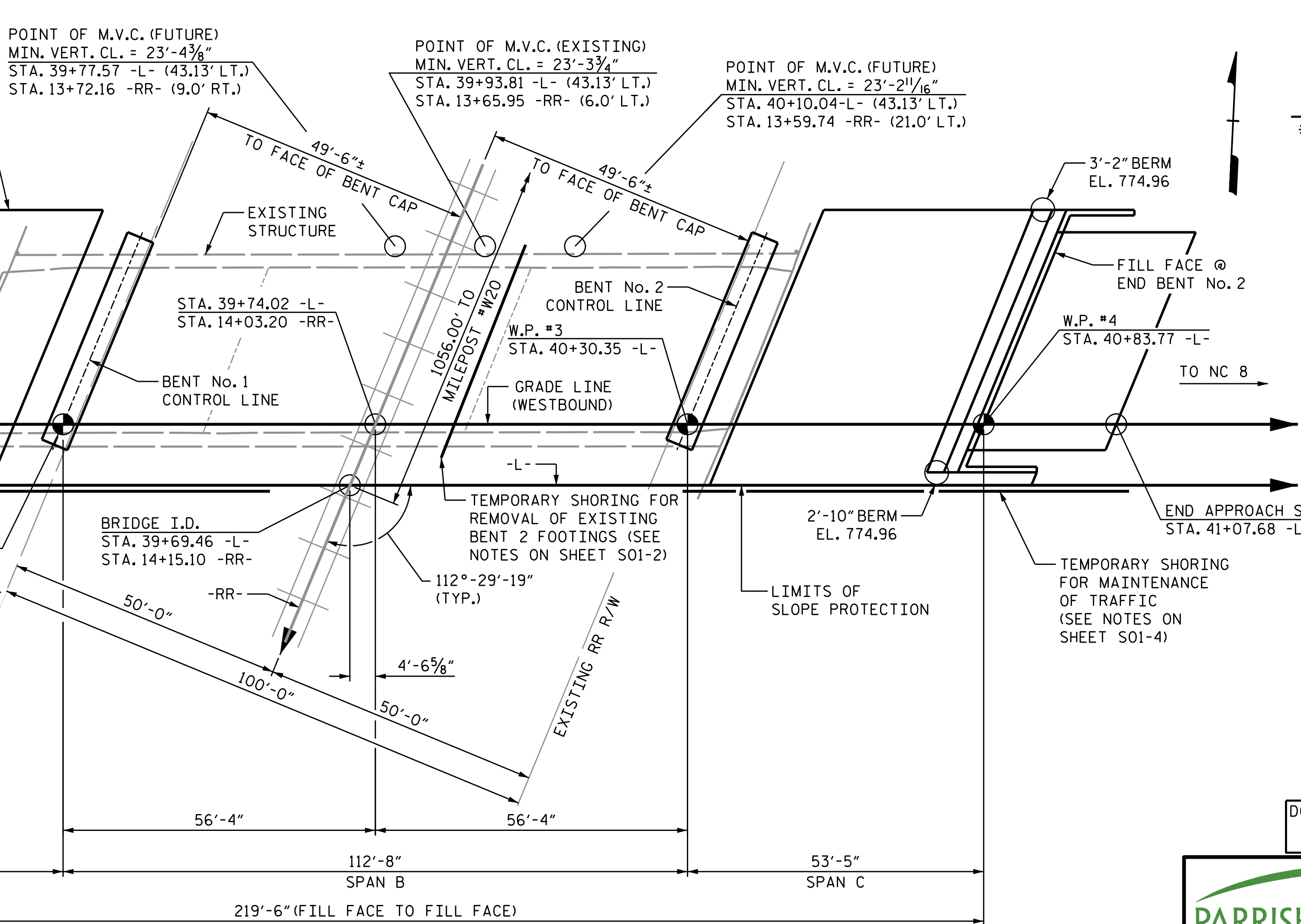
TOP OF RAIL ELEVATIONS DATE OF SURVEY 7/13/22			
STATION	LEFT RAIL	STATION	RIGHT RAIL
13+00	755.98	13+00	755.96
13+50	755.83	13+50	755.83
14+00	755.69	14+00	755.70
14+50	755.54	14+50	755.53
15+00	755.30	15+00	755.30
15+50	755.02	15+50	755.05



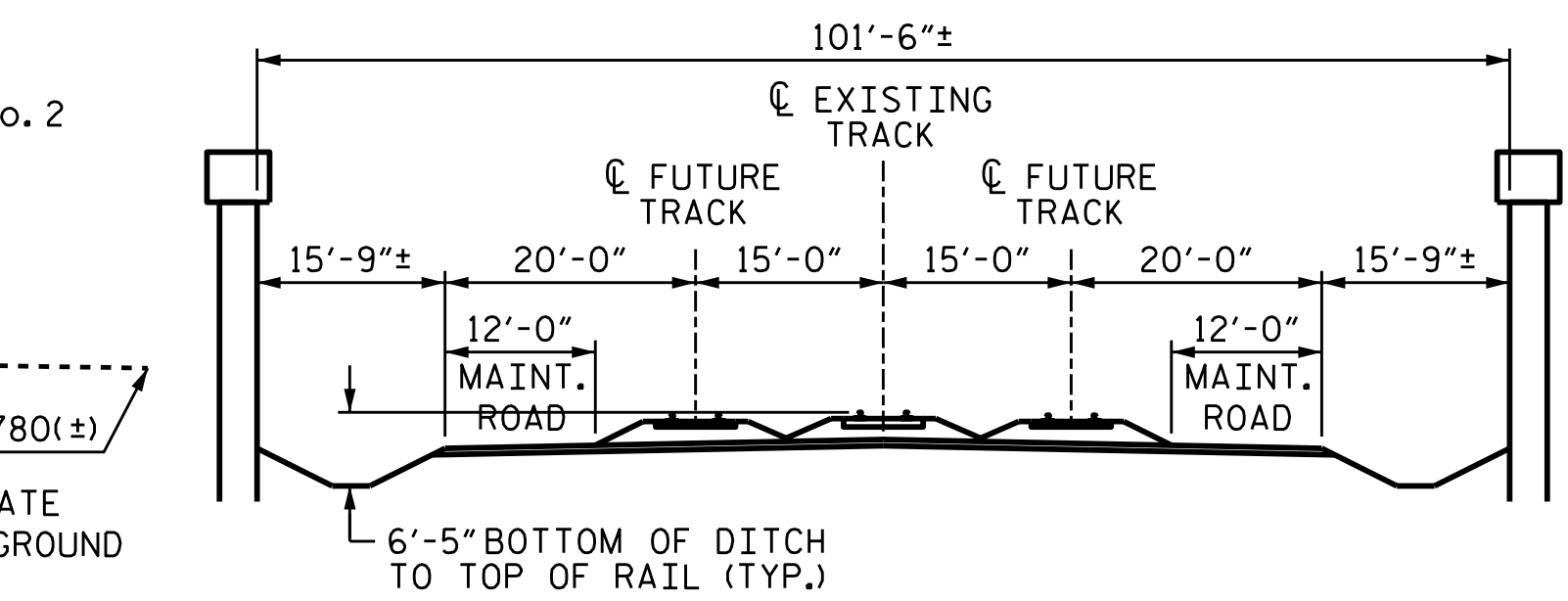
DRAWN BY :	C.T. MIXON	DATE :	4-25
CHECKED BY :	W. S. ARAFAT	DATE :	5-25
DESIGN ENGINEER OF RECORD:	O. PUIGCERVER	DATE :	4-25



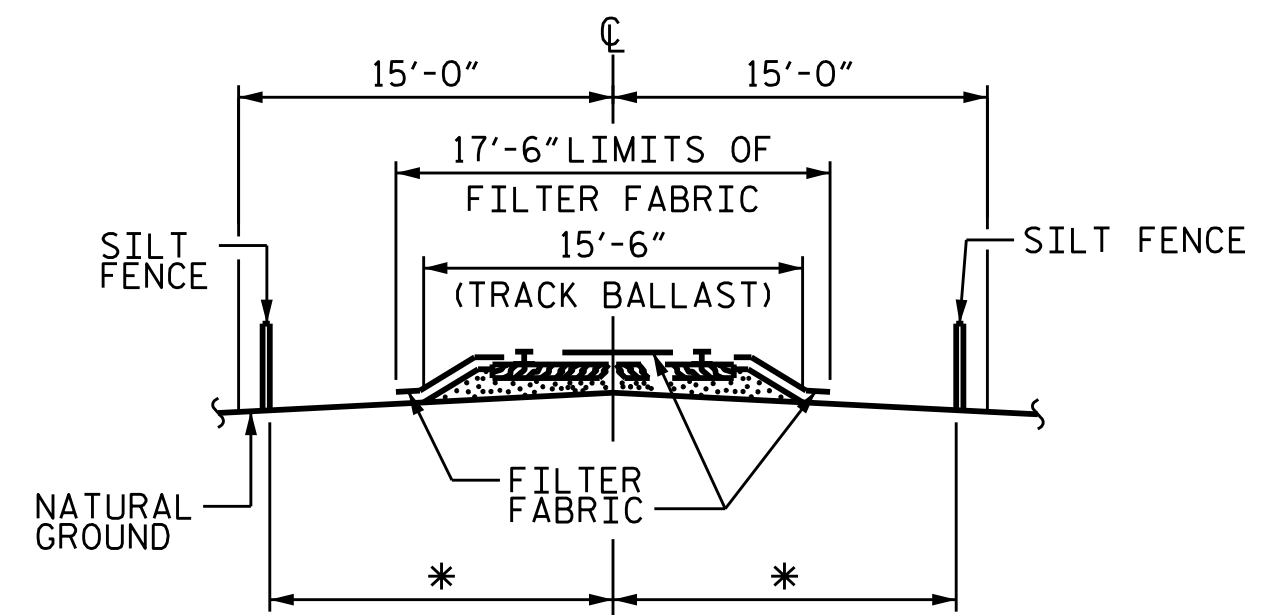
SECTIONS @ END BENTS AND BENT ARE AT RIGHT ANGLES



DRAWN BY :	C.T. MIXON	DATE :	4-25
CHECKED BY :	W. S. ARAFAT	DATE :	5-25
DESIGN ENGINEER OF RECORD:	O. PUIGCERVER	DATE :	4-25



THEORETICAL RAILROAD CROSS SECTION



RAILROAD EROSION CONTROL DETAIL

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

NOTES

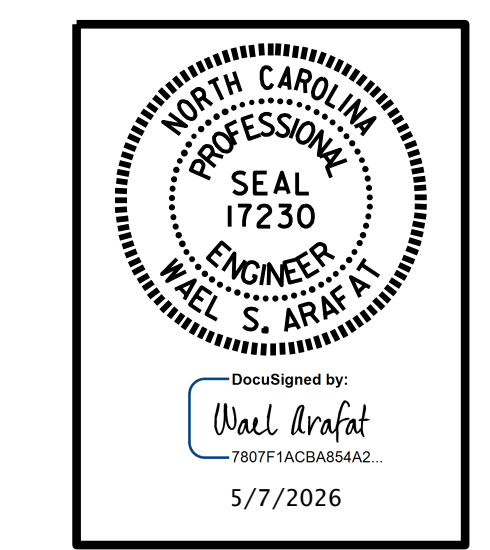
RAILROAD EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO PERFORMING ANY WORK IN THE RAILROAD RIGHT-OF-WAY.

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 THE RAILROAD SHALL EXTEND A MINIMUM OF 25'-0" OUTSIDE 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.



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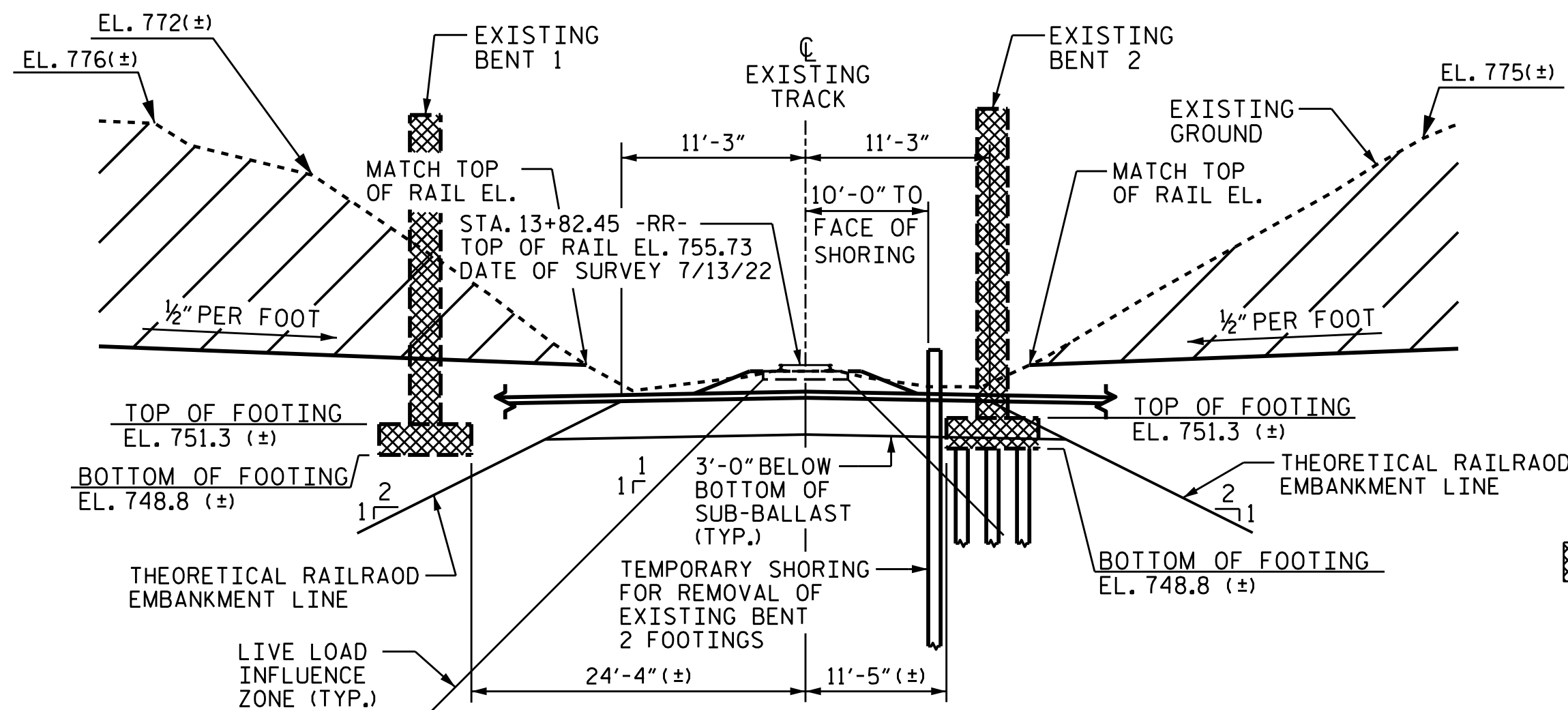
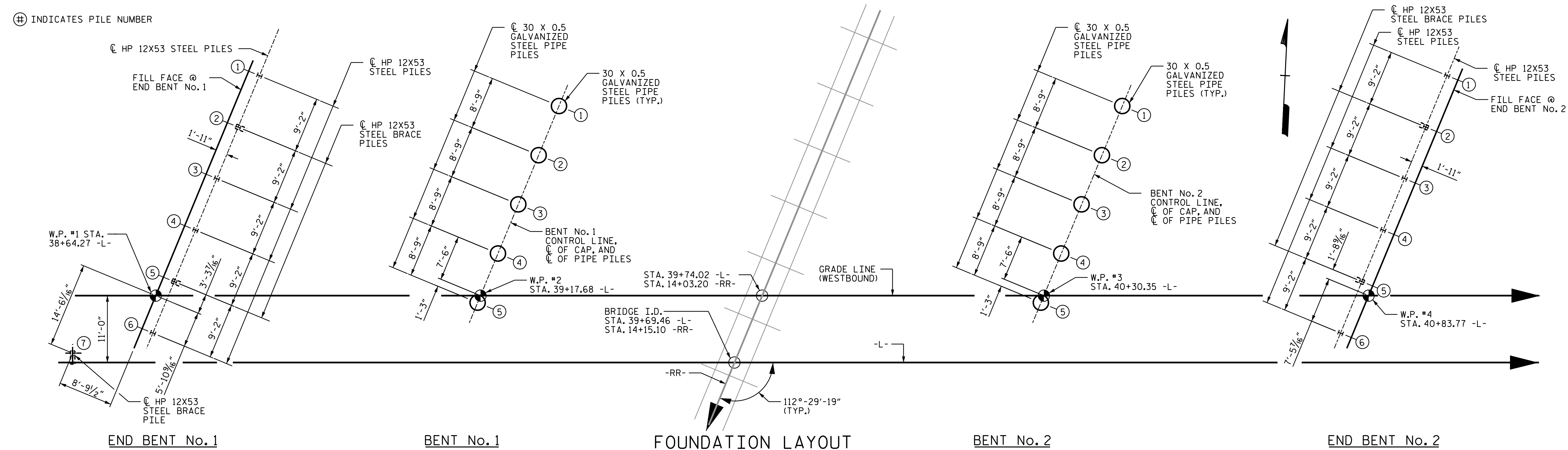
PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-
14+15.10 -RR-
SHEET 1 OF 4
REPLACE BRIDGE No. 280089
MILE POST #W20.20

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(WESTBOUND)

REVISIONS						SHEET NO. S01-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR. #1

Ⓢ INDICATES PILE NUMBER



PARTIAL SECTION PERPENDICULAR TO RR

NOTES FOR REMOVAL OF BENTS 1 AND 2:

EXISTING BENTS 1 AND 2 SHALL BE REMOVED TO BOTTOM OF EXISTING FOOTINGS. ALL EXISTING PILES TO REMAIN IN PLACE. TEMPORARY SHORING WILL BE REQUIRED FOR REMOVAL OF EXISTING BENT 2 FOOTINGS FROM STA. 13+62.00 -RR- (10' LEFT) TO STA. 14+03.00 -RR- (10' LEFT). FOR TEMPORARY SHORING FOR REMOVAL OF EXISTING BENT 2 FOOTINGS, SEE SPECIAL PROVISIONS.

METHOD FOR REMOVAL OF EXISTING BENTS 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.

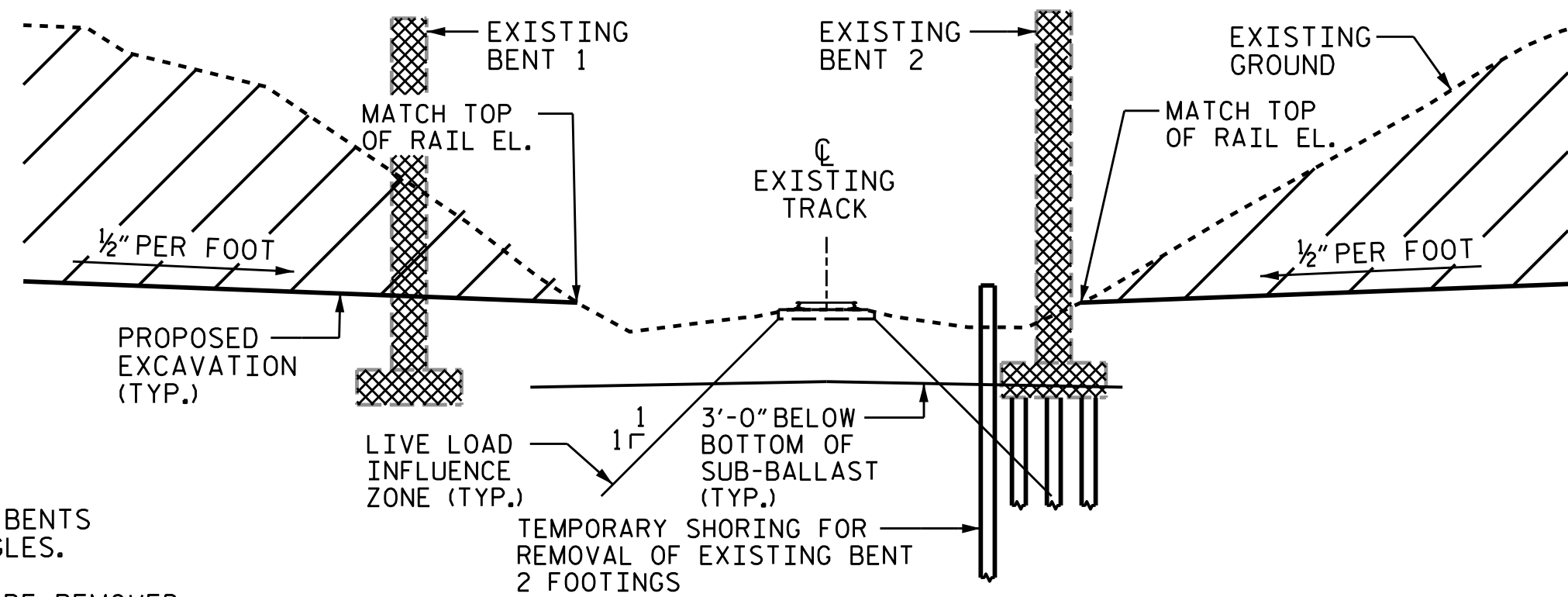
OTHER EXISTING SUBSTRUCTURE UNITS WITHIN RAILROAD RIGHT OF-WAY SHALL BE ENTIRELY REMOVED.

THE CONTRACTOR SHALL COORDINATE WITH THE RAILROAD FLAGGER SO THAT REMOVAL ACTIVITIES OF BENT ADJACENT TO RAIL LINES IS 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.

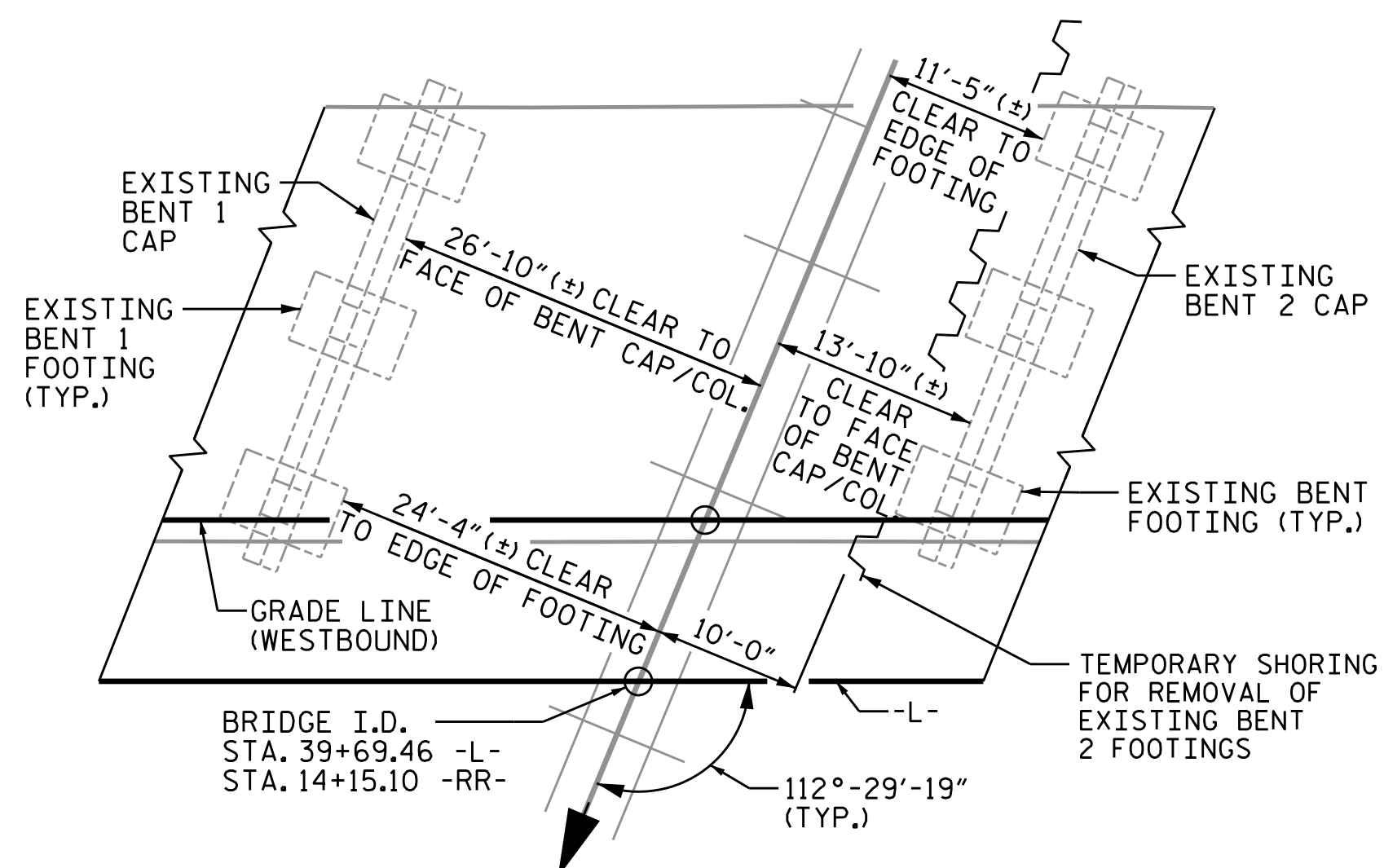
LOCATION OF CSXT SIGNALS INFRASTRUCTURE SHALL BE COORDINATED THROUGH THE CONSTRUCTION MONITORING REPRESENTATIVE WORKING ON BEHALF OF CSXT.

ALL DIMENSIONS TO BE FIELD VERIFIED.

DRAWN BY : C. T. MIXON DATE : 4-25
 CHECKED BY : W. S. ARAFAT DATE : 5-25
 DESIGN ENGINEER OF RECORD: O. PUIGSERVER DATE : 4-25



PARTIAL SECTION ALONG -L-



PARTIAL PLAN

PARTIAL STRUCTURE REMOVAL PLAN

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 80,000-120,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NOS.1&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.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30,000-60,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS. 1&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. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 2 OF 4

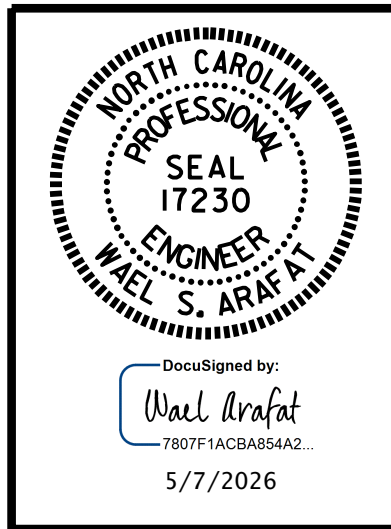
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(WESTBOUND)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S01-2
1			3			TOTAL SHEETS 40
2			4			

STR. #1



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SIGNATURES COMPLETED



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")	Number of Piles per Line	Factored Resistance per Pile KIPS	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		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1, Piles 1-7	7	198		55	N/A		330							
Bent 1, Piles 1-5	5	606		60	N/A	722.00	1014							
Bent 2, Piles 1-5	5	612		75	N/A	722.00	1024							
End Bent 2, Piles 1-6	6	198		70	N/A		330							
TOTAL QUANTITY:														

* $RDR = \frac{Factored\ Resistance + Factored\ Drag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + Nominal\ Resistance\ from\ Scourable\ Material$

** 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.

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 KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-7	196			0.60		
Bent 1, Piles 1-5	606		4	0.60		
Bent 2, Piles 1-5	608		4	0.60		
End Bent 2, Piles 1-6	198			0.60		

* 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 EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
TOTAL QUANTITY:				

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

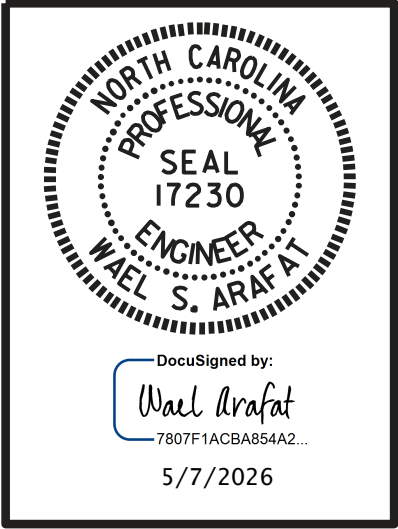
Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
TOTAL QUANTITY:		

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

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

NOTES:

- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (SHIPING YANG, #031361) on 06-5-2025.
- 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.
- The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.



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Raleigh, NC 27615
NC License #P-1212

DRAWN BY :	C.T. MIXON	DATE :	04-25
CHECKED BY :	W. S. ARAFAT	DATE :	05-25
DESIGN ENGINEER OF RECORD:	O. PUIGCERVER	DATE :	04-25

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

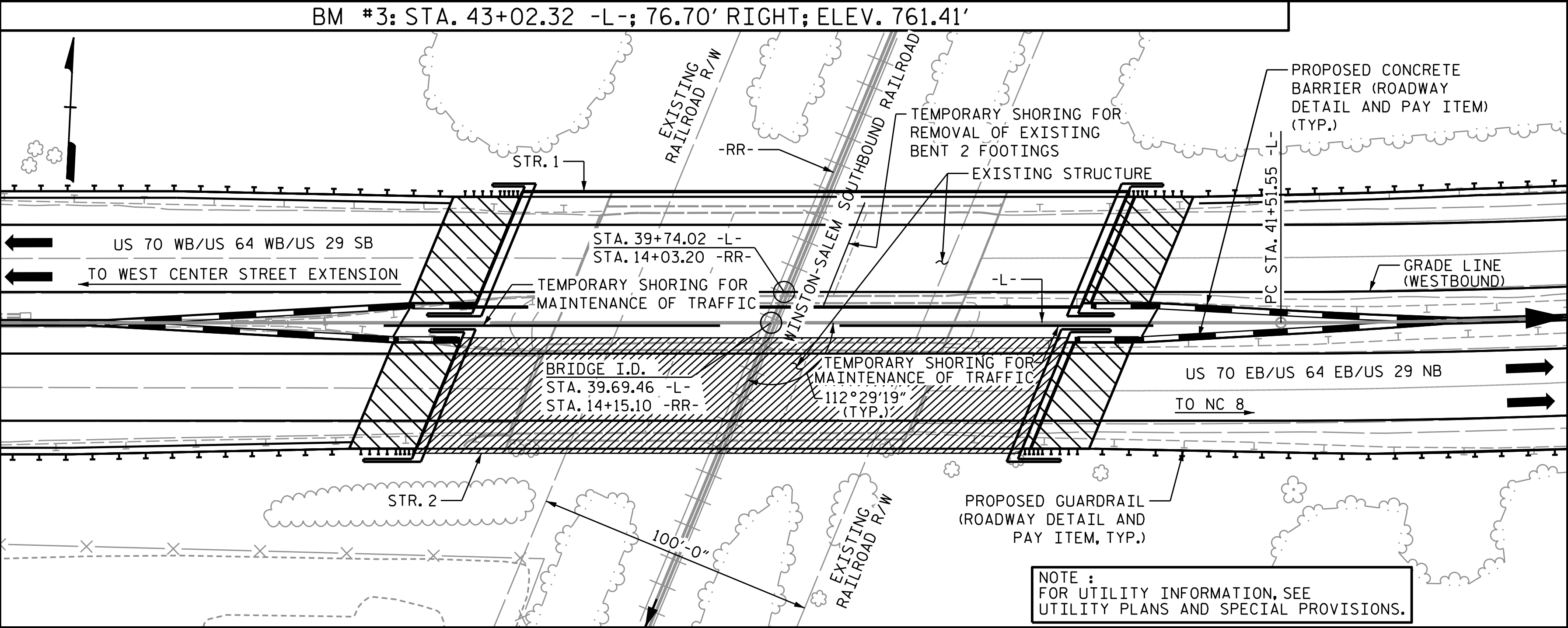
GENERAL DRAWING

BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(WESTBOUND)

REVISIONS						SHEET NO. S01-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

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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.
- 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.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 39+69.46 -L-"
- THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF APPROXIMATELY 59' LEFT AND 11' RIGHT OF GRADE LINE (WESTBOUND) AT END BENT No. 1 AND 56' LEFT AND 11' RIGHT OF GRADE LINE (WESTBOUND) AT END BENT No. 2 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.

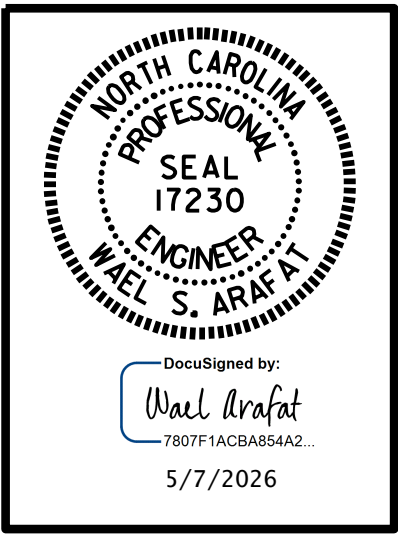
TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSEMENT	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	APPROX. 313,166 LBS. STRUCTURAL STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 30 X 0.50 GALVANIZED STEEL PILES	HP 12 X 53 STEEL PILES		PP 30 X 0.50 GALVANIZED STEEL PILES		CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE (BLACK VINYL COATED)	4 INCH SLOPE PROTECTION	DISC BEARINGS	ELASTOMERIC BEARINGS	STRIP SEALS	TEMPORARY SHORING FOR REMOVAL OF EXISTING BENT 2 FOOTINGS
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LUMP SUM	EACH	EACH	No.	LIN. FT.	No.	LIN. FT.	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE				8,956	9,317											504.7	429.0		LUMP SUM	LUMP SUM	LUMP SUM	
END BENT No. 1						47.4		6,232		7		7	385					270				
BENT No. 1						31.0		4,734			5			5	300							
BENT No. 2						31.4		4,734			5			5	375							
END BENT No. 2						46.3		6,502		6		6	420					270				
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	8,956	9,317	156.1	LUMP SUM	22,202	LUMP SUM	13	10	13	805	10	675	504.7	429.0	540	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM

NOTES (CONTINUED)

- WORK SHALL NOT BE STARTED ON THIS BRIDGE UNTIL THE ROADWAY SECTION HAS BEEN EXCAVATED.
- 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 3 SIMPLE SPANS AT APPROXIMATELY 48' EACH WITH A CLEAR ROADWAY WIDTH OF 30', REINFORCED CONCRETE DECK ON 5 LINES OF STEEL I BEAMS, POST AND BEAM BENTS WITH REINFORCED CONCRETE CAPS AND REINFORCED CONCRETE COLUMNS ON SPREAD FOOTINGS ON TIMBER PILES, SPILL THROUGH END BENTS WITH REINFORCED CONCRETE CAPS ON TIMBER PILES, AND 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. SEE SPECIAL PROVISION.

- 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 1 AND 2, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZING 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.



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NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(WESTBOUND)

REVISIONS						SHEET NO. S01-4 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STR. #1

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS																								
LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING Ⓢ	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE						COMMENT NUMBER	
							LIVE-LOAD FACTORS (γ LL)	MOMENT				SHEAR				LIVE-LOAD FACTORS (γ LL)	MOMENT							
								DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD		HL-93 (INVENTORY)	N/A	Ⓢ1	1.34	--	1.75	0.875	1.34	B	I	0.00	1.132	1.49	B	I	112.67	1.30	0.875	1.47	B	I	0.00	
		HL-93 (OPERATING)	N/A		1.74	--	1.35	0.875	1.74	B	I	0.00	1.132	1.93	B	I	112.67	1.00	0.875	1.91	B	I	0.00	
		HS-20 (INVENTORY)	36.000	Ⓢ2	2.09	75.2	1.75	0.875	2.09	B	I	0.00	1.132	2.09	B	I	0.00	1.30	0.875	2.97	B	I	0.00	
		HS-20 (OPERATING)	36.000		2.70	97.2	1.35	0.875	2.70	B	I	0.00	1.132	2.71	B	I	0.00	1.00	0.875	3.86	B	I	0.00	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		6.68	90.2	1.40	0.875	7.14	B	I	0.00	1.132	6.68	B	I	0.00	1.30	0.875	8.13	B	I	0.00	
		SNGARBS2	20.000		4.59	91.8	1.40	0.875	4.71	B	I	0.00	1.132	4.59	B	I	0.00	1.30	0.875	5.37	B	I	0.00	
		SNAGRIS2	22.000		4.21	92.6	1.40	0.875	4.25	B	I	0.00	1.132	4.21	B	I	0.00	1.30	0.875	4.84	B	I	0.00	
		SNCOTTS3	27.250		3.31	90.2	1.40	0.875	3.50	B	I	0.00	1.132	3.31	B	I	0.00	1.30	0.875	3.99	B	I	0.00	
		SNAGGRS4	34.925		2.44	85.2	1.40	0.875	2.62	B	I	0.00	1.132	2.44	B	I	0.00	1.30	0.875	2.98	B	I	0.00	
		SNS5A	35.550		2.42	86.0	1.40	0.875	2.56	B	I	0.00	1.132	2.42	B	I	0.00	1.30	0.875	2.91	B	I	0.00	
		SNS6A	39.950		2.17	86.7	1.40	0.875	2.29	B	I	0.00	1.132	2.17	B	I	0.00	1.30	0.875	2.61	B	I	0.00	
		SNS7B	42.000		2.10	88.2	1.40	0.875	2.19	B	I	0.00	1.132	2.10	B	I	0.00	1.30	0.875	2.50	B	I	0.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.84	93.7	1.40	0.875	2.81	B	I	0.00	1.132	2.84	B	I	0.00	1.30	0.875	3.19	B	I	0.00	
		TNT4A	33.075		2.60	86.0	1.40	0.875	2.78	B	I	0.00	1.132	2.60	B	I	0.00	1.30	0.875	3.16	B	I	0.00	
		TNT6A	41.600		2.17	90.3	1.40	0.875	2.23	B	I	0.00	1.132	2.17	B	I	0.00	1.30	0.875	2.54	B	I	0.00	
		TNT7A	42.000		2.14	89.9	1.40	0.875	2.21	B	I	0.00	1.132	2.14	B	I	0.00	1.30	0.875	2.52	B	I	0.00	
		TNT7B	42.000		2.09	87.8	1.40	0.875	2.22	B	I	0.00	1.132	2.09	B	I	0.00	1.30	0.875	2.54	B	I	0.00	
		TNAGRIT4	43.000		2.02	86.9	1.40	0.875	2.15	B	I	0.00	1.132	2.02	B	I	0.00	1.30	0.875	2.45	B	I	0.00	
		TNAGT5A	45.000		2.42	108.9	1.40	0.875	2.56	B	I	0.00	1.132	2.42	B	I	0.00	1.30	0.875	2.91	B	I	0.00	
		TNAGT5B	45.000	Ⓢ3	1.93	86.9	1.40	0.875	2.04	B	I	0.00	1.132	1.93	B	I	0.00	1.30	0.875	2.33	B	I	0.00	
EMERGENCY VEHICLE (EV)	EV2	28.750		3.18	91.4	1.30	0.875	3.47	B	I	0.00	1.132	3.18	B	I	0.00	1.30	0.875	3.67	B	I	0.00		
	EV3	43.000	Ⓢ4	2.14	92.0	1.30	0.875	2.29	B	I	0.00	1.132	2.14	B	I	0.00	1.30	0.875	2.43	B	I	0.00		
FATIGUE		HL-93 (INVENTORY)	γLL=0.75		1.79																			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:

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

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

COMMENTS:

1.

2.

3.

4.

⬡ CONTROLLING LOAD RATING

⬡1 DESIGN LOAD RATING (HL-93)

⬡2 DESIGN LOAD RATING (HS-20)

⬡3 LEGAL LOAD RATING * *

⬡4 EMERGENCY VEHICLE LOAD RATING

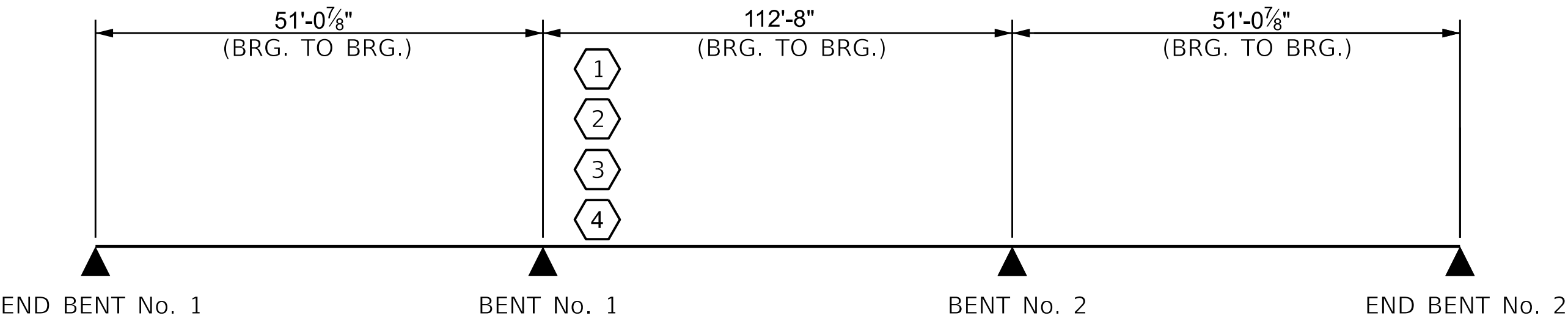
* * SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER

EL - EXTERIOR LEFT GIRDER

ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

ASSEMBLED BY: G.C. MORRIS		DATE : 4/25	
CHECKED BY : O. PUIGCERVER		DATE : 4/25	
DRAWN BY : MAA 1/08		REV. 11/12/08RR	MAA/GM
CHECKED BY : GM/DI 2/08		REV. 10/1/11	MAA/GM
		REV. 04/23	BNG/AAI

STATE OF NORTH CAROLINA

PROFESSIONAL SEAL

17230

ENGINEER

WEL S. ARAFAT

DocuSigned by:
Wael Arafat
7807F1ACB8B8A42
5/7/2026

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SIGNATURES COMPLETED

PARRISH & PARTNERS

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NC License #P-1212

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

LRFR SUMMARY FOR
STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)
(WESTBOUND)

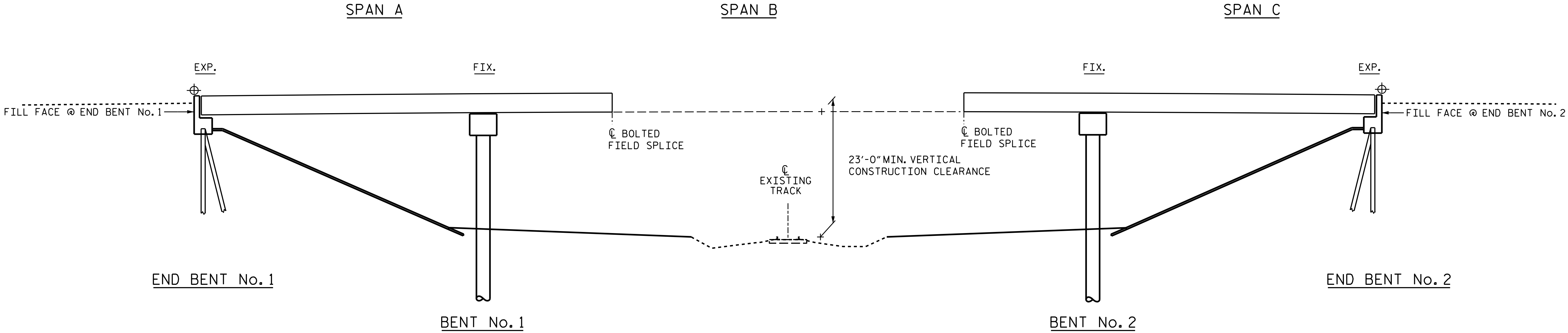
REVISIONS					SHEET NO. S01-5
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS
40

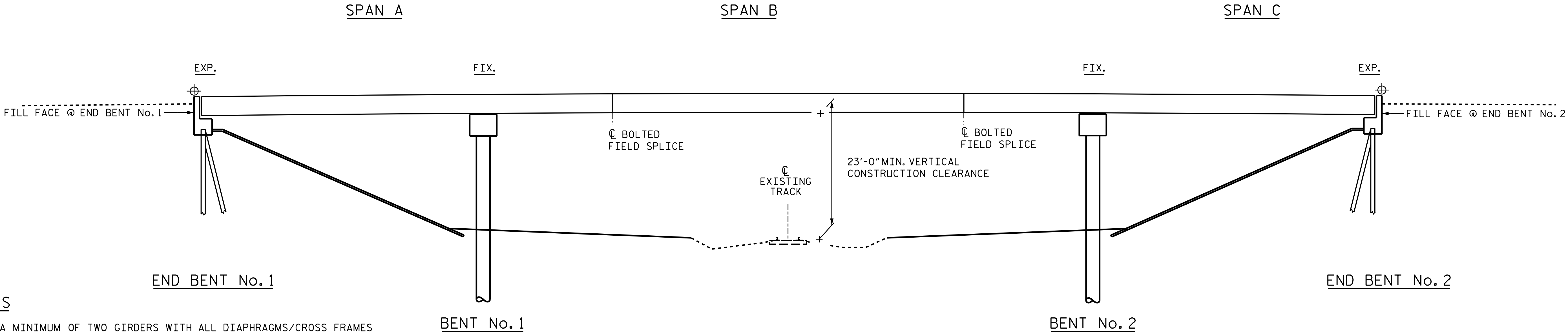
STR #1 STD. NO. LRFR3

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\\parrish-pw-bentling.com\projects\pw\Documents\Surfaces Transportation\NCDOT BR-0140\Project Design\Structures\FINAL\BR0140_ORDER ERECTION-EB.dgn
10/24/2025 3:54:54 PM MODEL NAME: NEW 9-12-24 (WESTBOUND)



STAGE I GIRDER ERECTION
SECTIONS @ END BENTS AND BENT ARE AT RIGHT ANGLES



STAGE II GIRDER ERECTION
SECTIONS @ END BENTS AND BENT ARE AT RIGHT ANGLES

NOTES

ERECT A MINIMUM OF TWO GIRDERS WITH ALL DIAPHRAGMS/CROSS FRAMES BETWEEN GIRDERS IN PLACE AND THE BOLTS TIGHTENED PRIOR TO RELEASING THE GIRDERS.

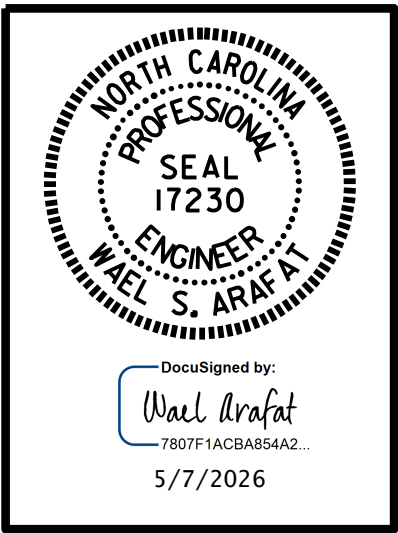
ERECT EACH SUBSEQUENT GIRDER OR PAIR OF GIRDERS WITH DIAPHRAGMS/CROSS FRAMES CONNECTIONS TO THE ADJACENT PREVIOUSLY ERECTED GIRDER AND TIGHTEN ALL BOLTS BEFORE RELEASING THE GIRDERS.

DURING THE GIRDERS ERECTION PROCEEDURE, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY LATERAL BRACING AND OTHER MEANS OF SUPPORT, AS REQUIRED, TO ENSURE STABILITY OF THE GIRDERS AND TO ENSURE PLUMBNESS OF THE GIRDERS IN FINAL CONDITION.

THE CONTRACTOR MAY SUBMIT AN ALTERNATE ERECTION METHOD TO THE ENGINEER FOR REVIEW AND APPROVAL. IF TEMPORARY BENTS ARE UTILIZED, SEE SPECIAL PROVISIONS.

NO SEPERATE PAYMENT WILL BE MADE FOR PROVIDING A TEMPORARY BENT, TEMPORARY BRACING, OR OTHER MEANS OF TEMPORARY SUPPORT, AS NEEDED. THE COST FOR ALL MATERIALS, EQUIPMENT, TOOLS AND LABOR NECESSARY FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM BID PRICE FOR STRUCTURAL STEEL.

AT NO ADDITIONAL COST TO THE DEPARTMENT, THE CONTRACTOR MAY SPLICE THE GIRDERS ON GROUND BEFORE ERECTION.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S01-6 TOTAL SHEETS 40
2			4			



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S01-7 TOTAL SHEETS 40
1			3			
2			4			

STR #1



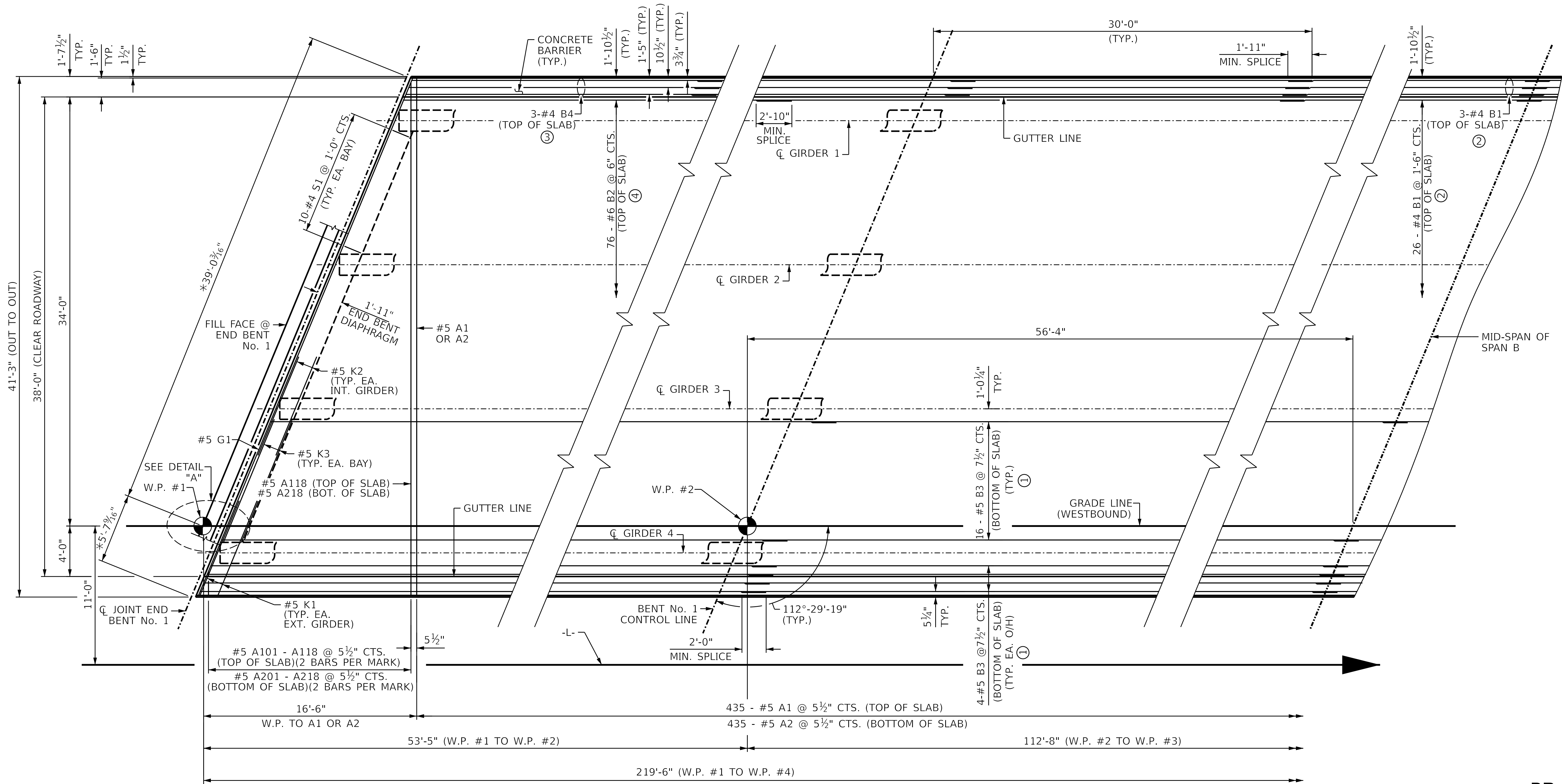
NOTES

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.



REVISIONS						SHEET NO. S01-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

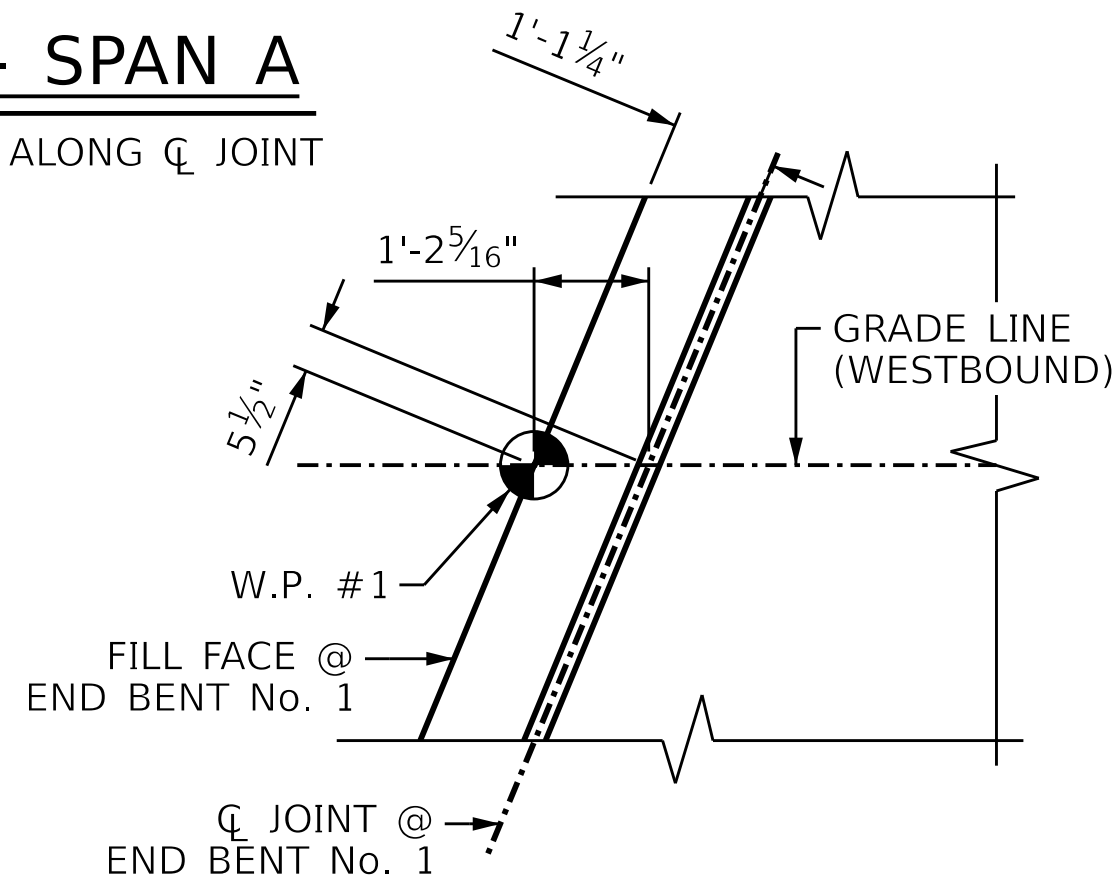
STR #1



PLAN - SPAN A

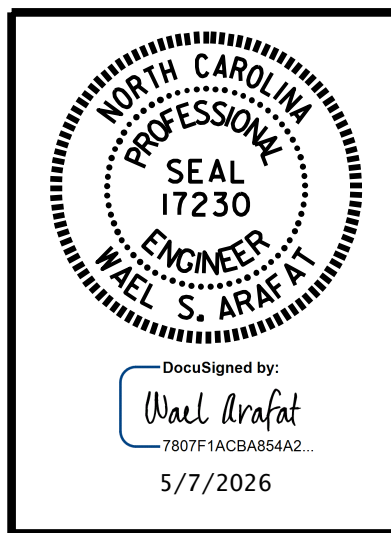
* MEASURED ALONG Q_L JOINT

- ① 4 BAR RUN
(TYP. EA. BAY)
2'-0" MIN. SPLICE
- ② 2 BAR RUN
1'-11" MIN. SPLICE
- ③ 3 BAR RUN
1'-11" MIN. SPLICE
- ④ 2 BAR RUN
2'-10" MIN. SPLICE



DETAIL "A"

HALF PLAN - SPAN B



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SIGNATURES COMPLETED



PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPANS
(WESTBOUND)

REVISIONS						SHEET NO. S01-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR #1

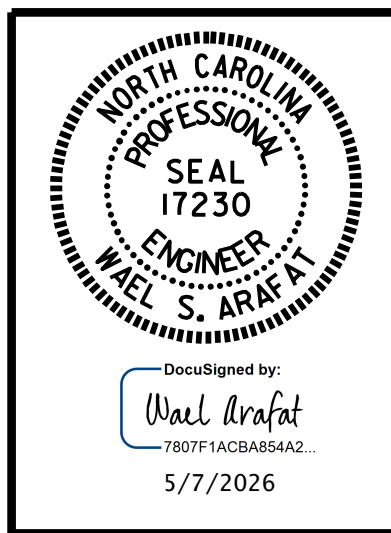


-
- Diagram illustrating the plan view of a bridge structure, showing the joint location and dimensions:
- CL JOINT @ END BENT No. 2**: Indicated by a dashed line and arrow pointing to the joint location.
 - FILL FACE @ END BENT No. 2**: Indicated by a solid line and arrow pointing to the fill face location.
 - W.P. #4**: Indicated by a solid line and arrow pointing to the centerline of the bridge.
 - GRADE LINE (WESTBOUND)**: Indicated by a dashed line and arrow pointing to the grade line location.
 - Dimensions**:
 - $5\frac{1}{2}'$: Distance from the centerline to the joint.
 - $1'-2\frac{5}{16}"$: Distance from the centerline to the fill face.
 - $1'-1\frac{1}{4}"$: Distance from the centerline to the grade line.

DETAIL "B"

PLAN - SPAN C

* MEASURED ALONG q_L JOINT



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FINAL UNLESS ALL
SIGNATURES COMPLETED

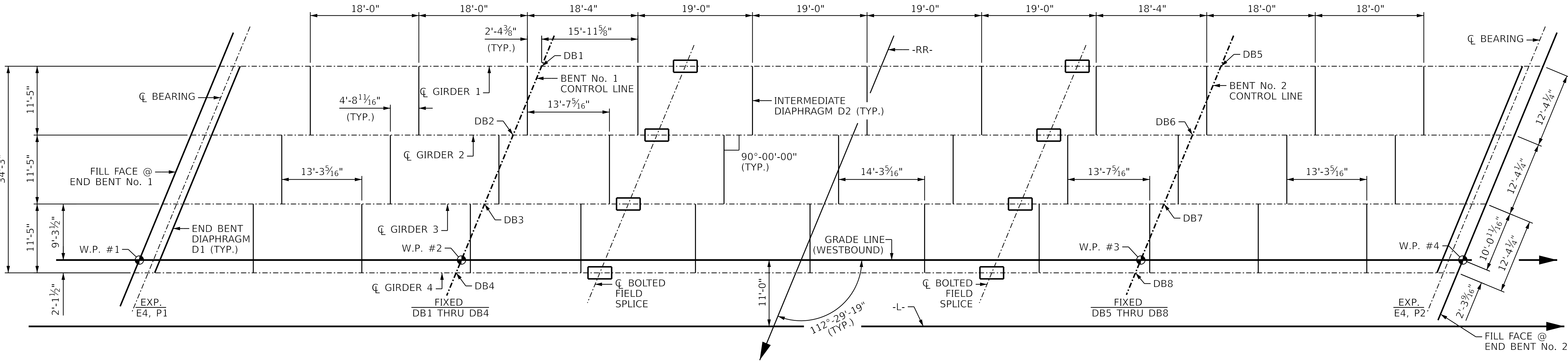


PLAN OF SPANS (WESTBOUND)

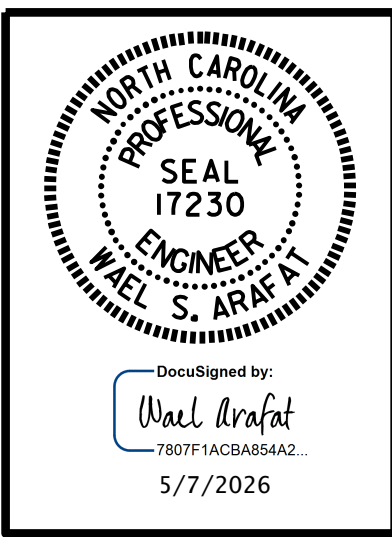
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2			4			40

STR #1

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FRAMING PLAN



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NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
FRAMING PLAN
(WESTBOUND)

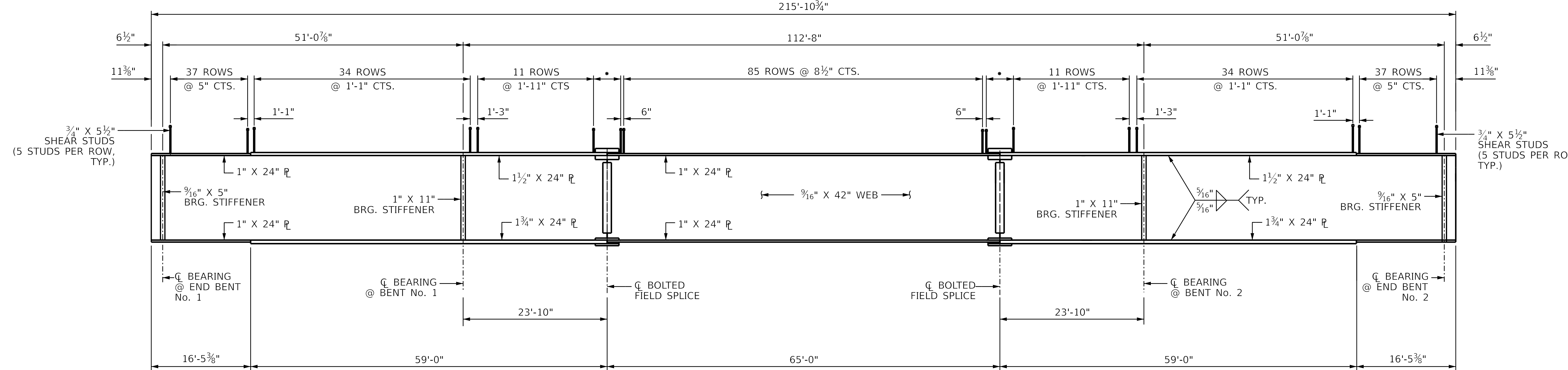
DRAWN BY : C.T. MIXON DATE : 11-24
CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25

REVISIONS						SHEET NO. S01-11 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STR #1

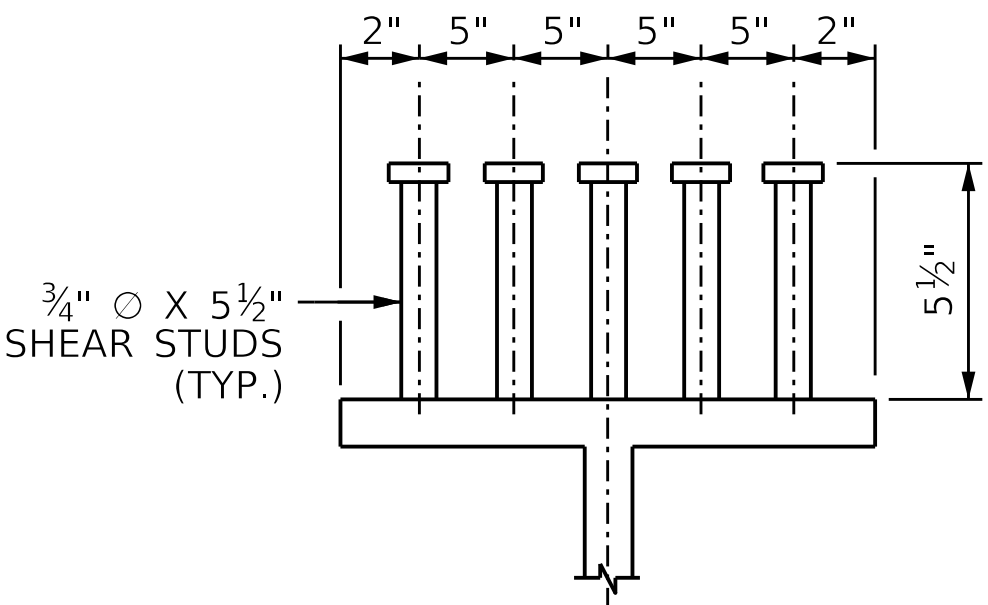
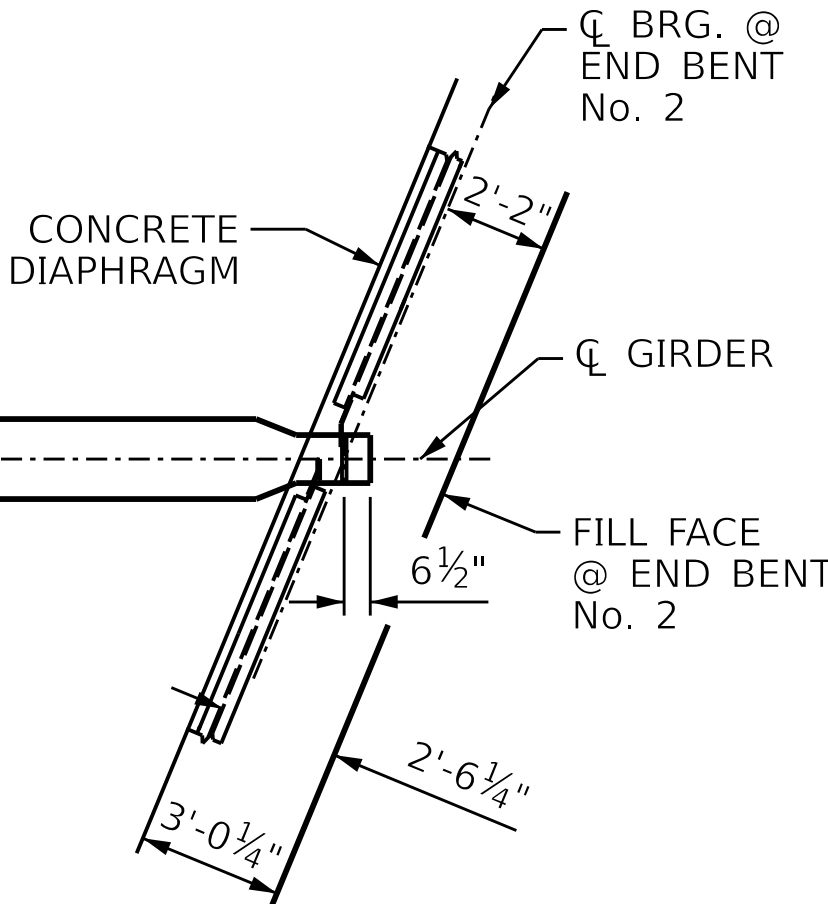
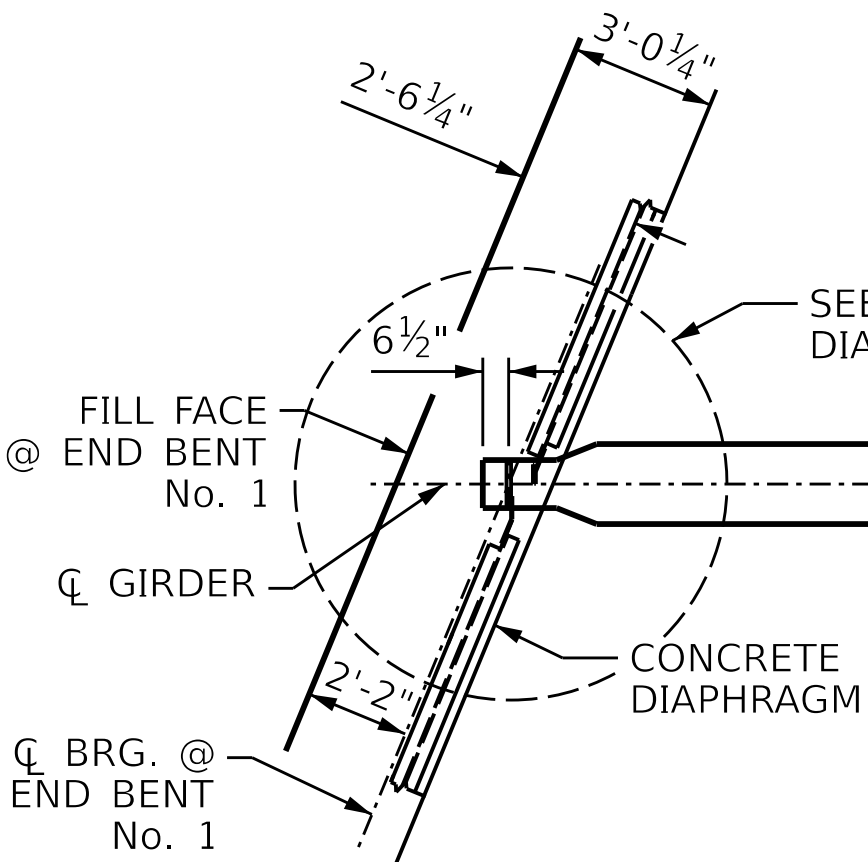
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\\parrish-partners\parrish-partners\Documents\Surface Transportation\NC DOT - BR-0140\Project Design\Structures\FINAL\BR140_FINAL_STRUCTURAL STEEL 1/20/2026



GIRDER ELEVATION

* SEE BOLTED FIELD SPLICE DETAIL (SHEET 4 OF 4) FOR SHEAR STUD SPACING.



SHEAR STUD DETAIL

BOTTOM FLANGE DETAIL

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

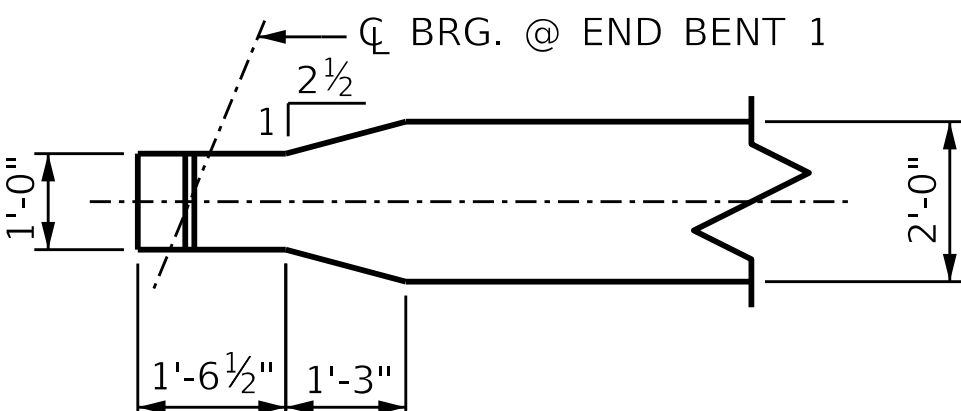
PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

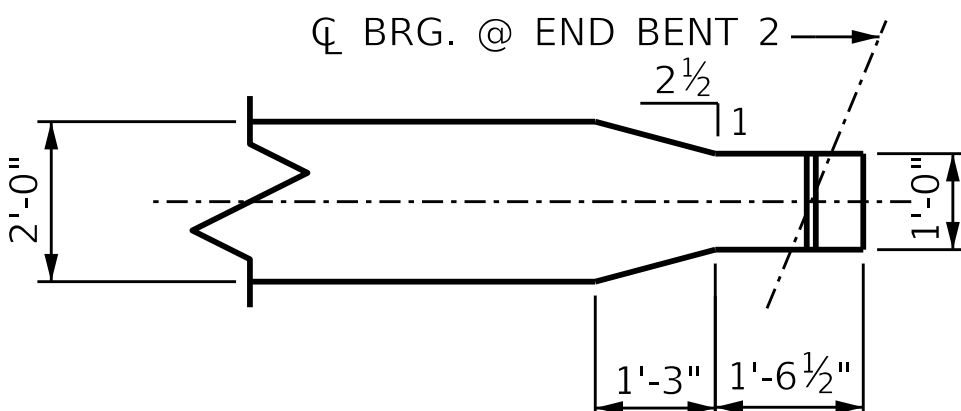
TENSION ON THE ASTM F3125 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

END OF GIRDERS SHALL BE PLUMB.

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.



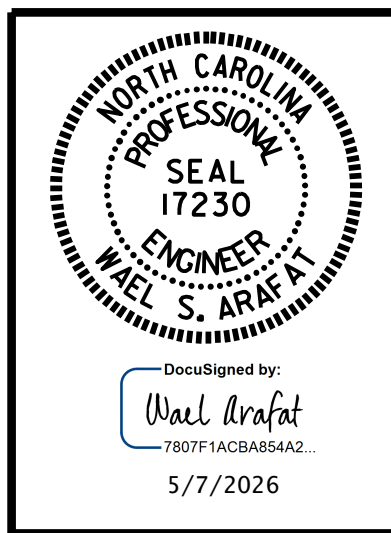
END BENT No. 1



END BENT No. 2

BOTTOM FLANGE TAPER DETAIL

DRAWN BY : G.C. MORRIS DATE : 11-24
CHECKED BY : O. PUIGSERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGSERVER DATE : 4-25



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PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

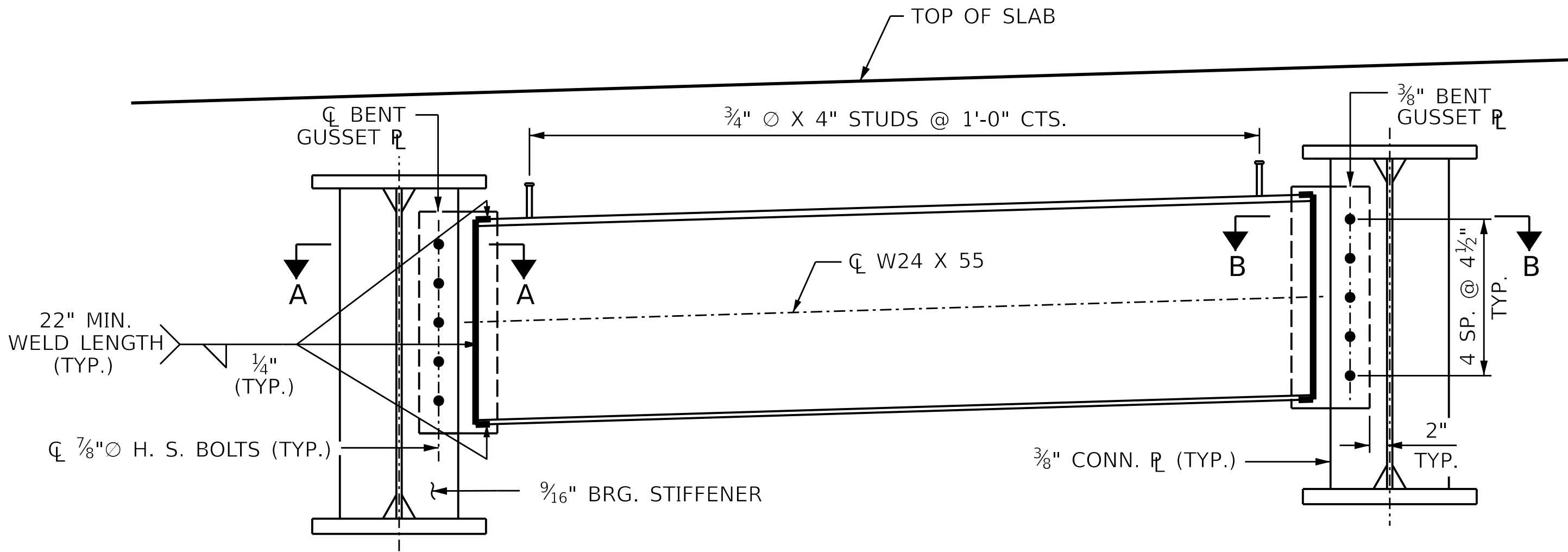
STRUCTURAL STEEL
DETAILS
(WESTBOUND)

REVISIONS						SHEET NO. S01-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR #1

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

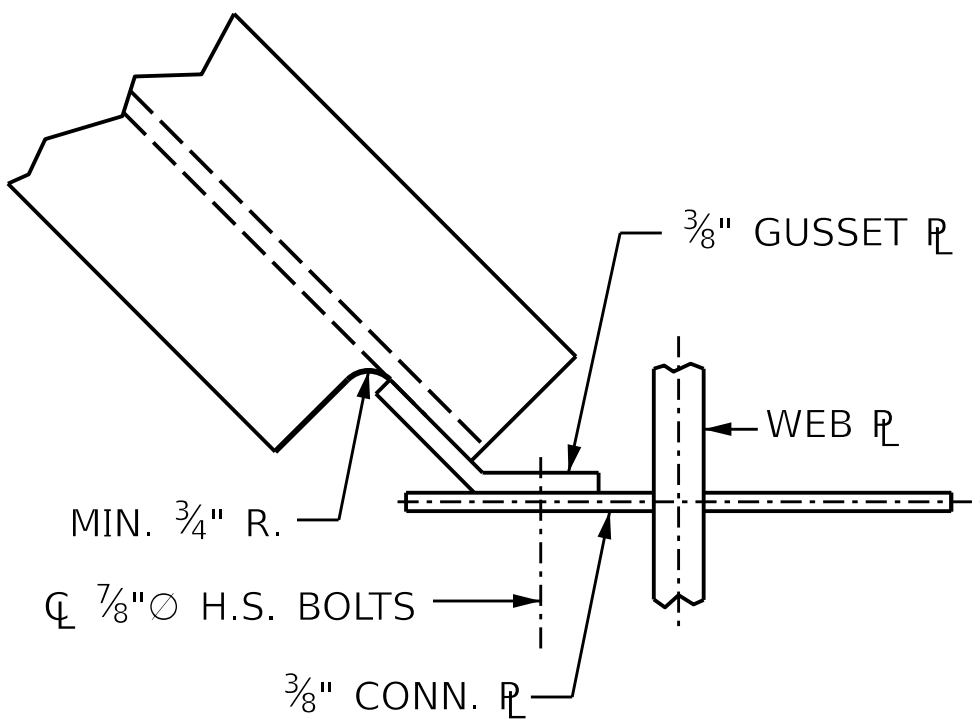
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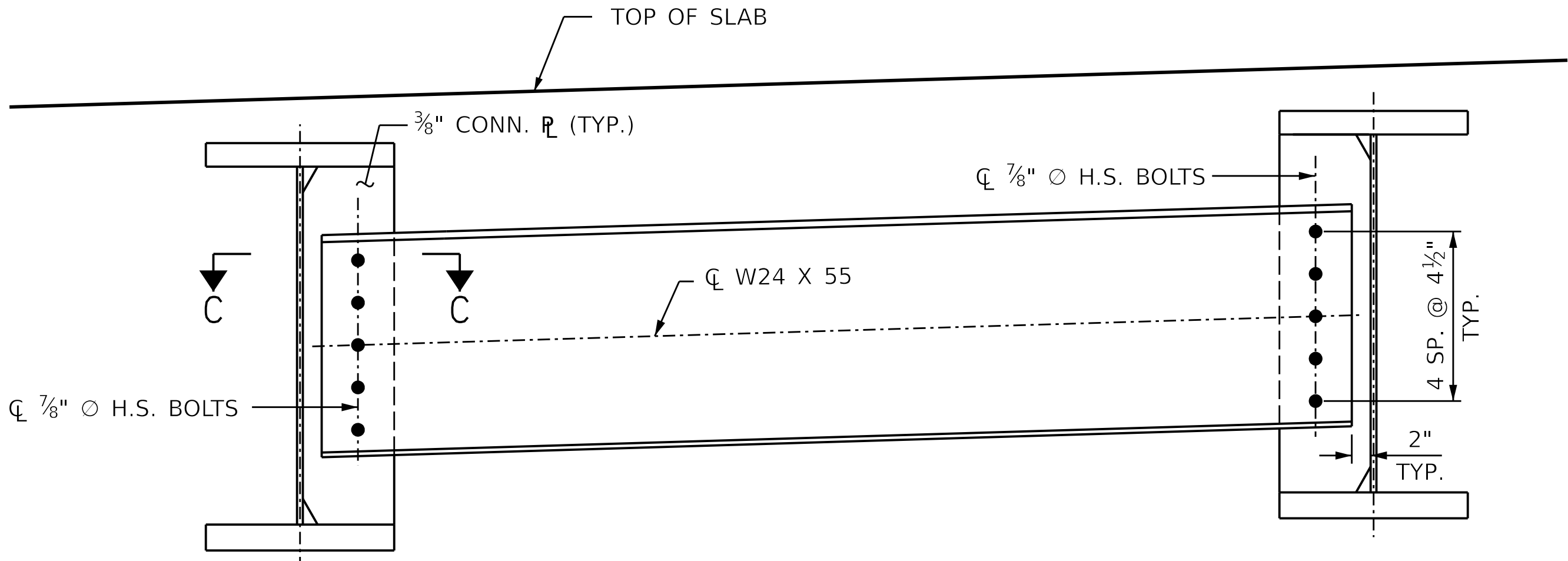
SECTION A-A

TYPICAL END BENT DIAPHRAGM - D1

END BENT 1 SHOWN, END BENT 2 SIMILIAR.

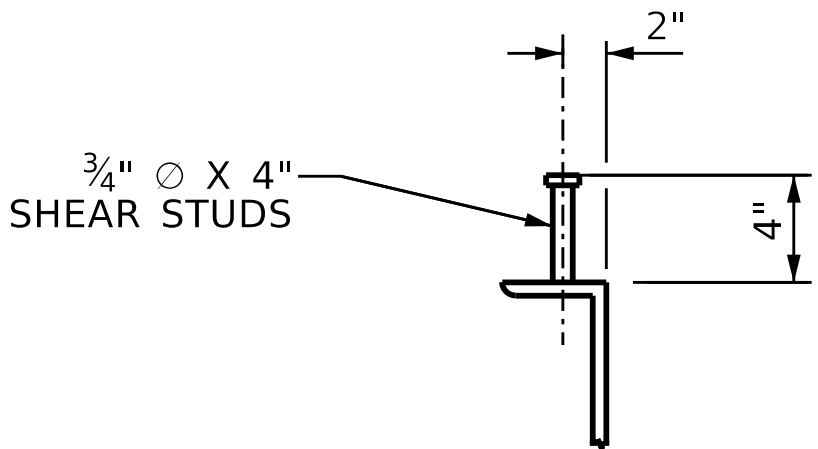


SECTION B-B

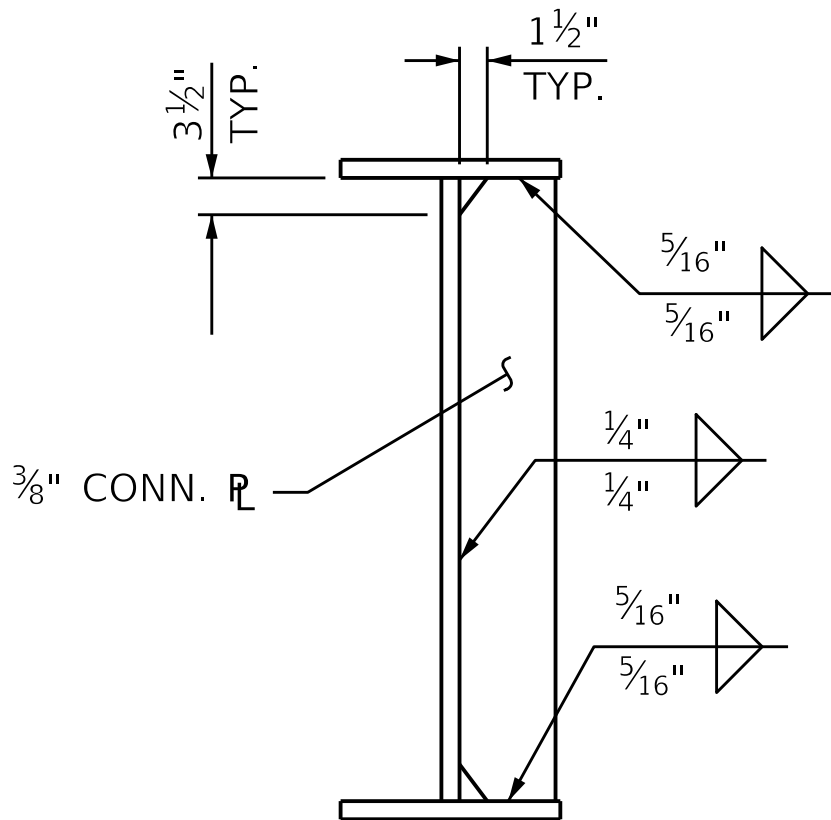


SECTION C-C

TYPICAL INTERMEDIATE DIAPHRAGM - D2



SHEAR STUD DETAIL

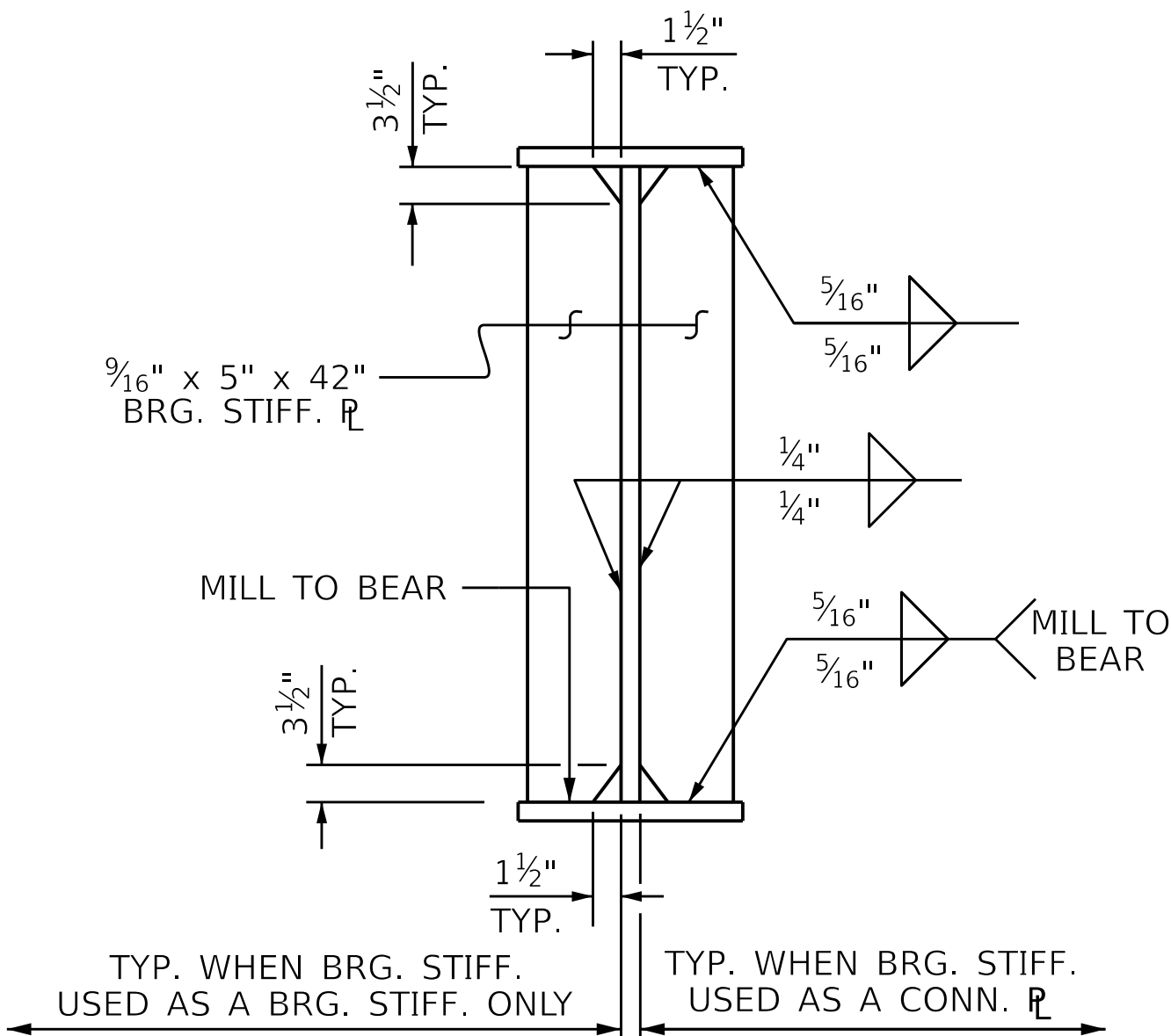


CONNECTOR PLATE

NOTES

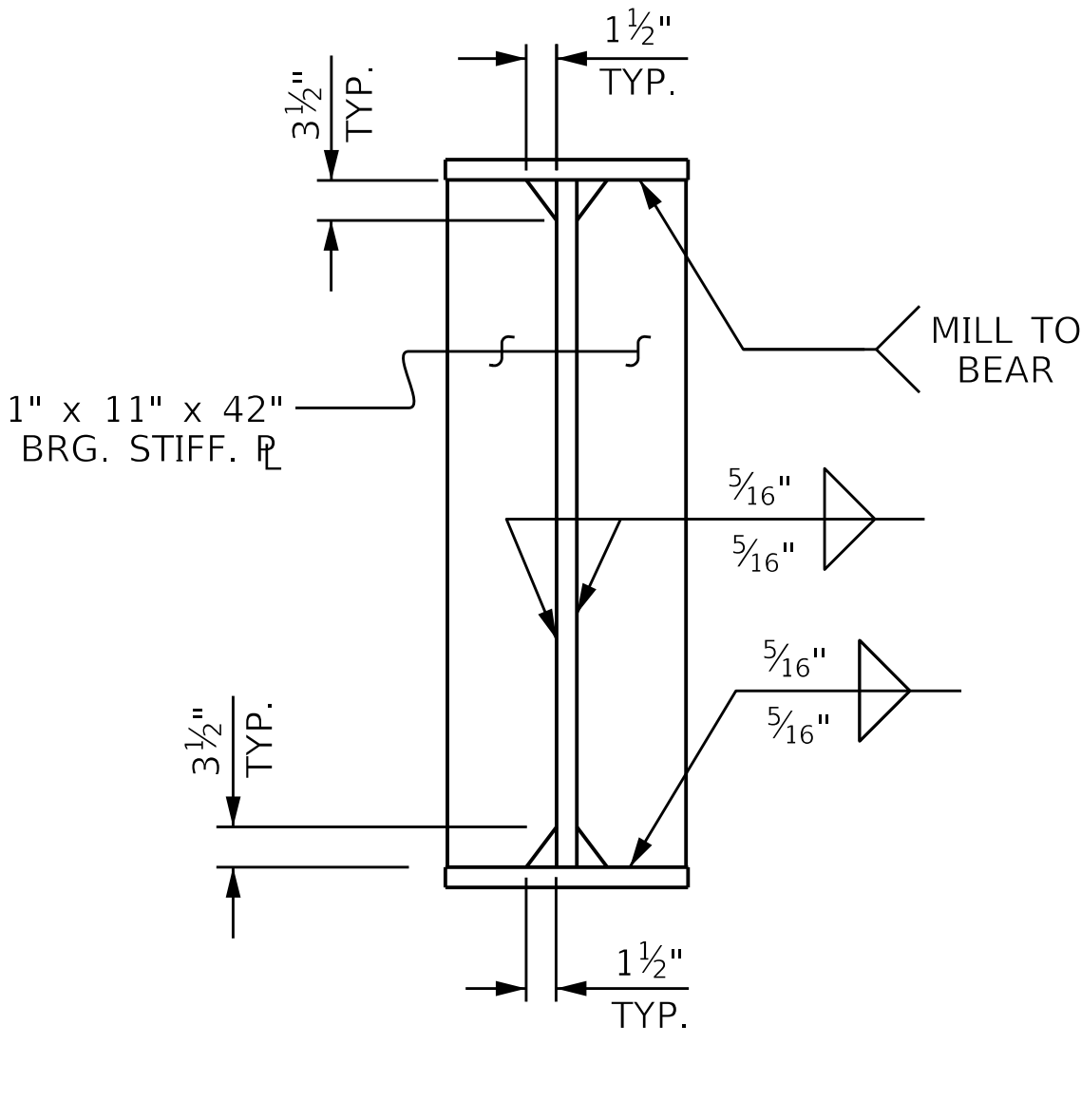
FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR FULL DEAD LOAD FIT UP. GIRDERS SHALL BE PLUMB AFTER THE FULL AMOUNT OF DEAD LOAD IS APPLIED.

BEARING STIFFENER, WHEN USED AS A CONNECTOR PLATE, MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.



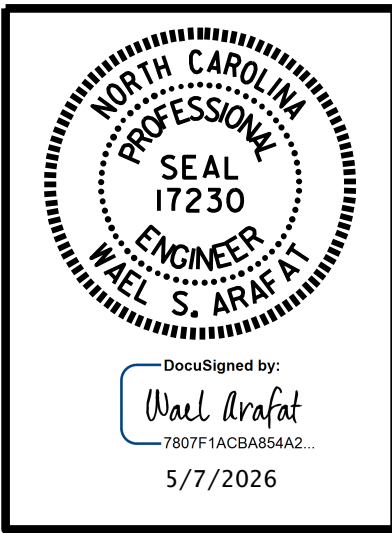
BEARING STIFFENER

(END BENTS)



BEARING STIFFENER

(BENT)



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220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

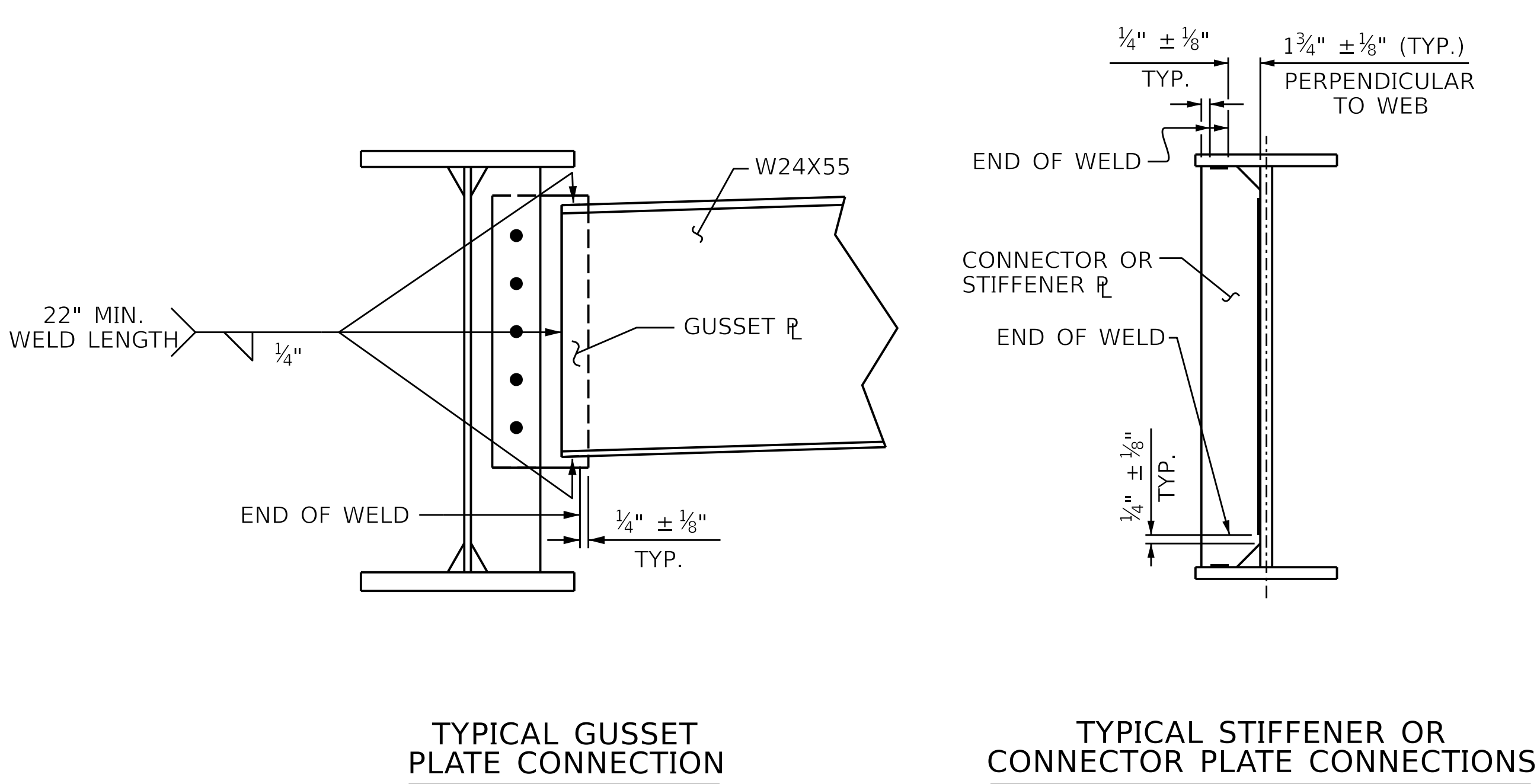
SHEET 2 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS
(WESTBOUND)

REVISIONS					SHEET NO. S01-13 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		

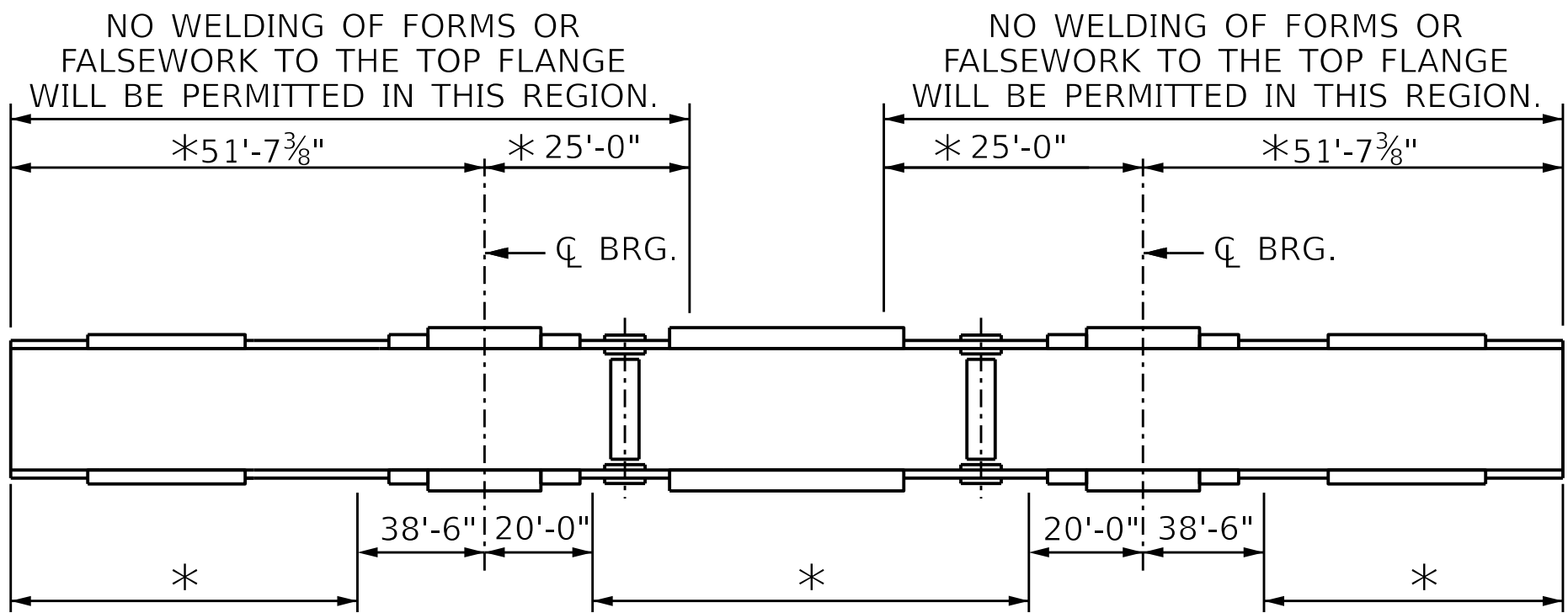
STR #1

Docusign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

pm/parrish-partners.com/parrish-partners.com/Projects/Transportation/NC DOT - BR-0140/Project Design/Structures/FINAL/BR140_FINAL_STRUCTURAL STEEL 10/24/2025 3:55:06 PM MODEL NAME: SS DETS 3 - WESTBOUND



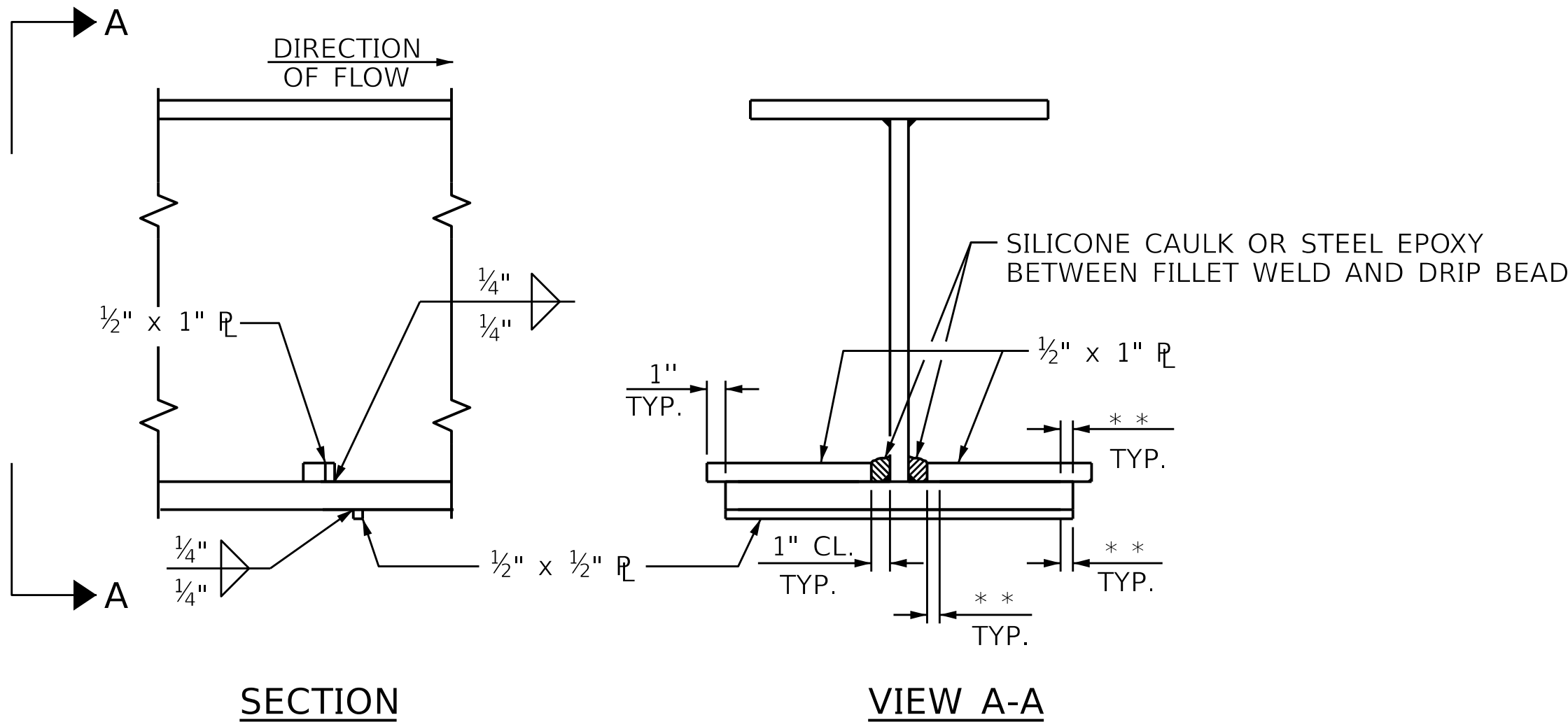
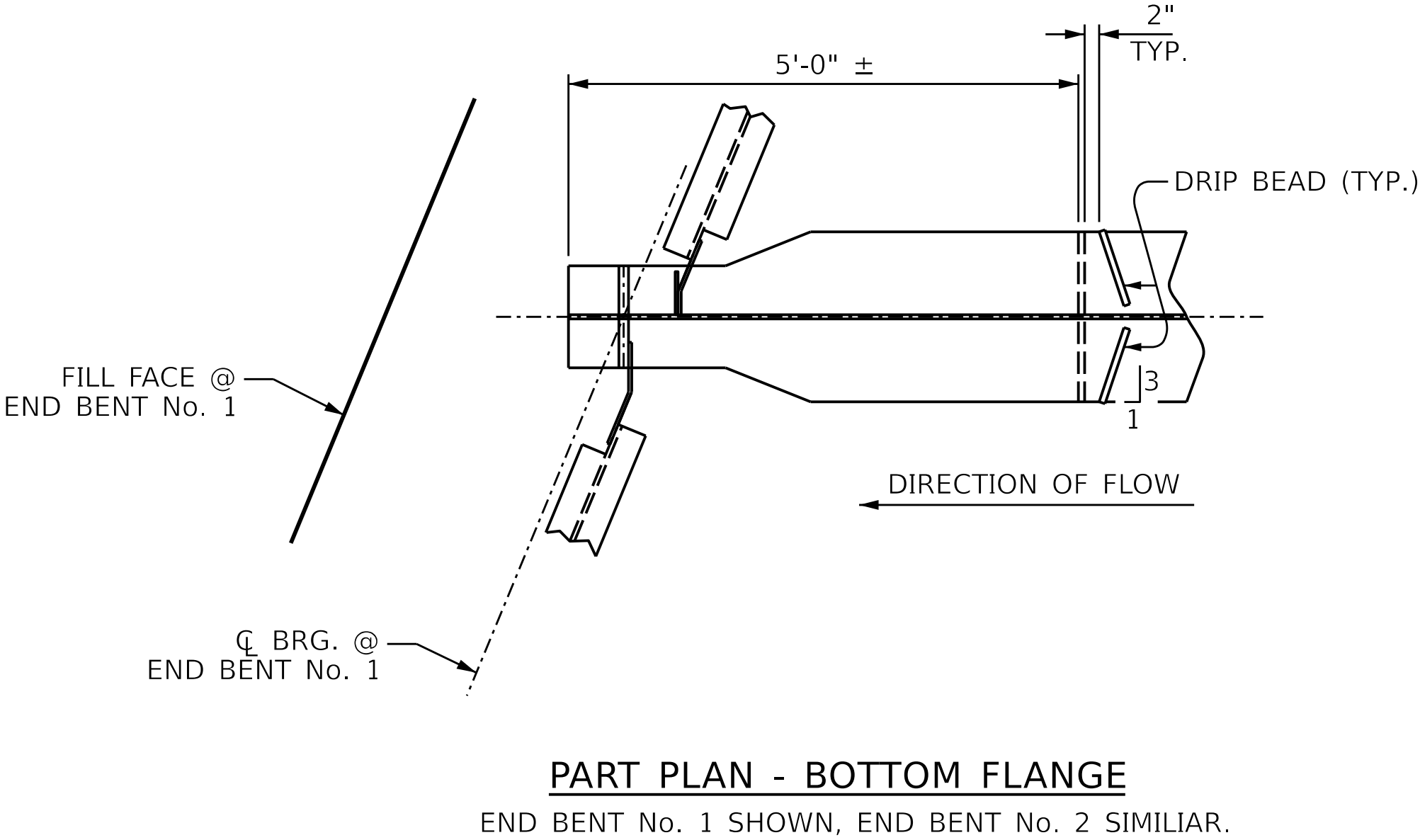
WELD TERMINATION DETAILS



GIRDER MAKE UP

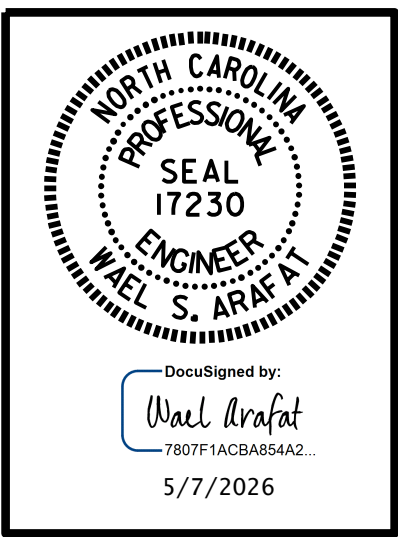
* CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.

CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS



DRIP BEAD DETAILS

* * SEE "WELD TERMINATION DETAILS"



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 3 OF 4

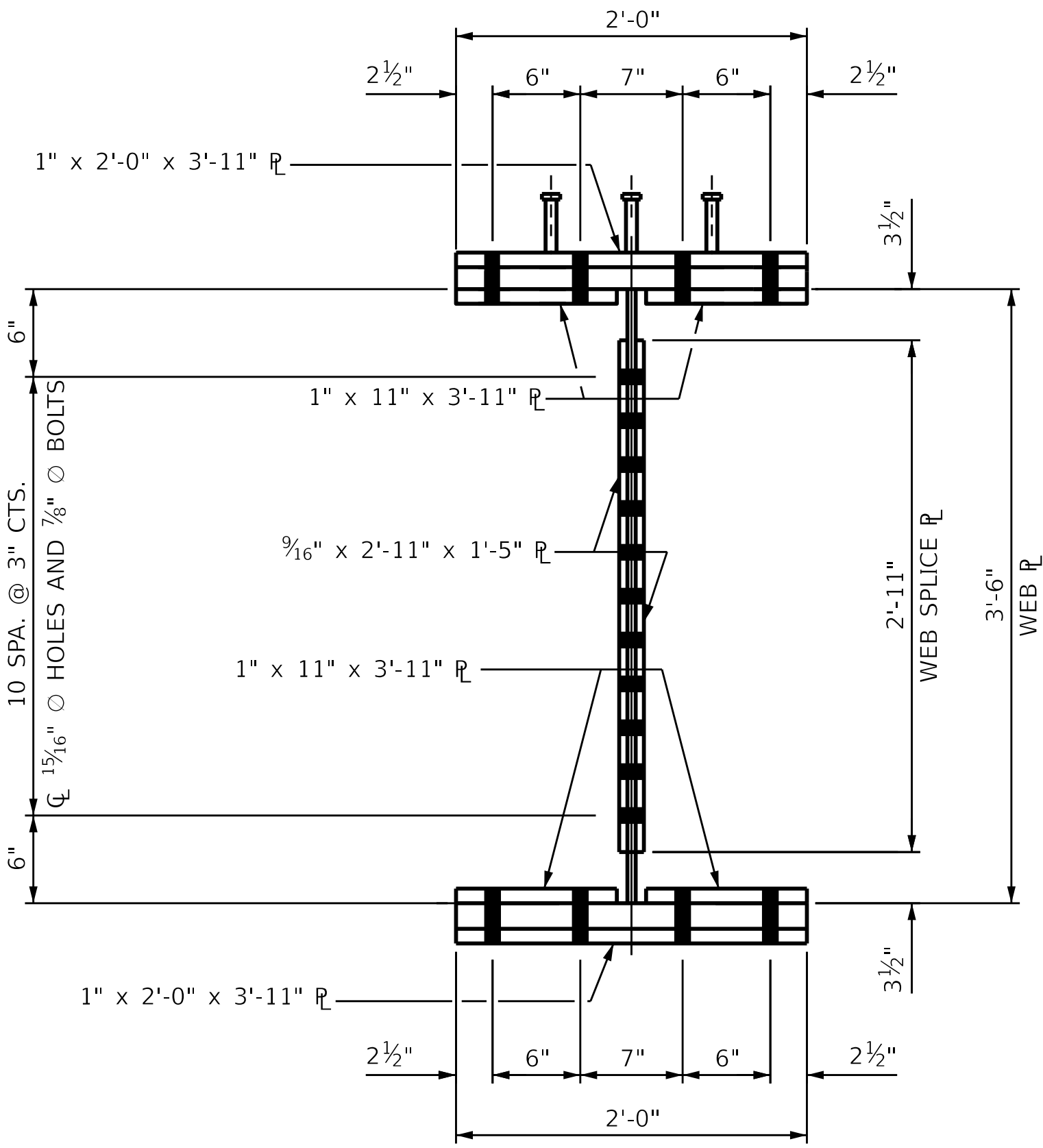
REVISIONS						SHEET NO. S01-14 TOTAL SHEETS 40
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1			3			
2			4			

STR #1

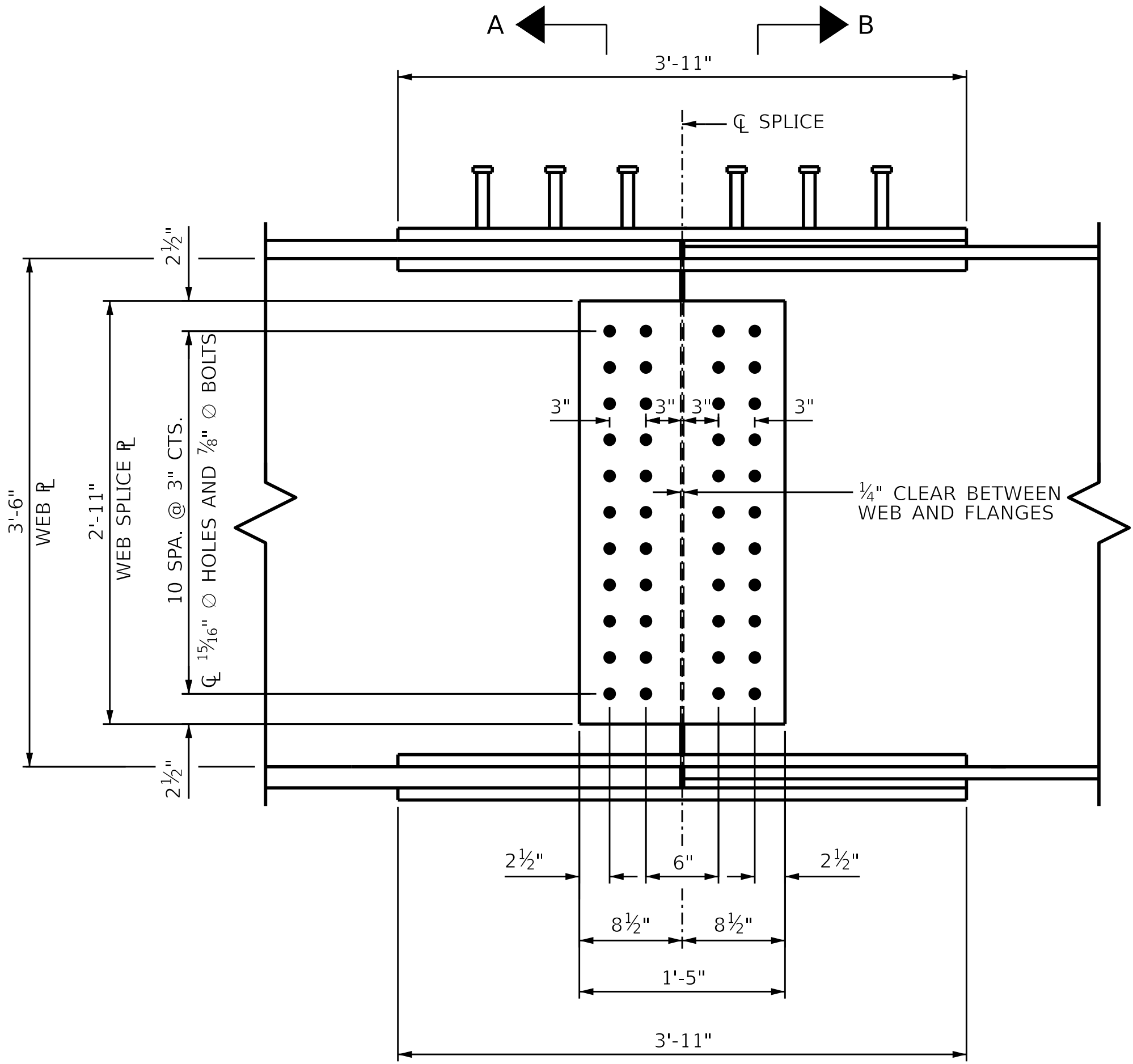
DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

\\parrish-partners\parrish-partners\Documents\Surface Transportation\NCDOT BR-0140\Project Design\Structures\FINAL\BR140_FINAL_STRUCTURAL STEEL MODEL NAME: SS DETS 4 - WESTBOUND

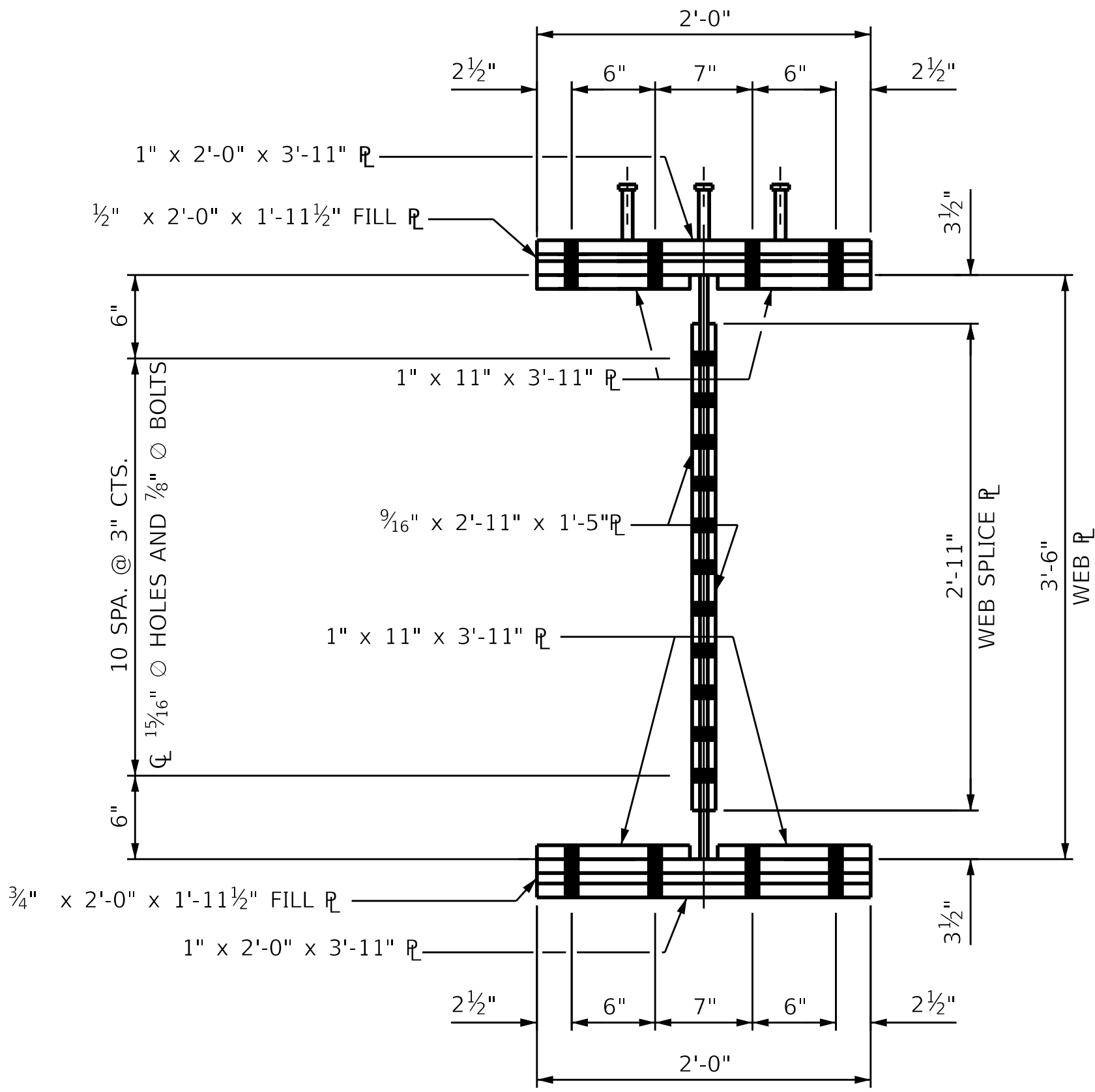
1/20/2026 11:54:52 AM



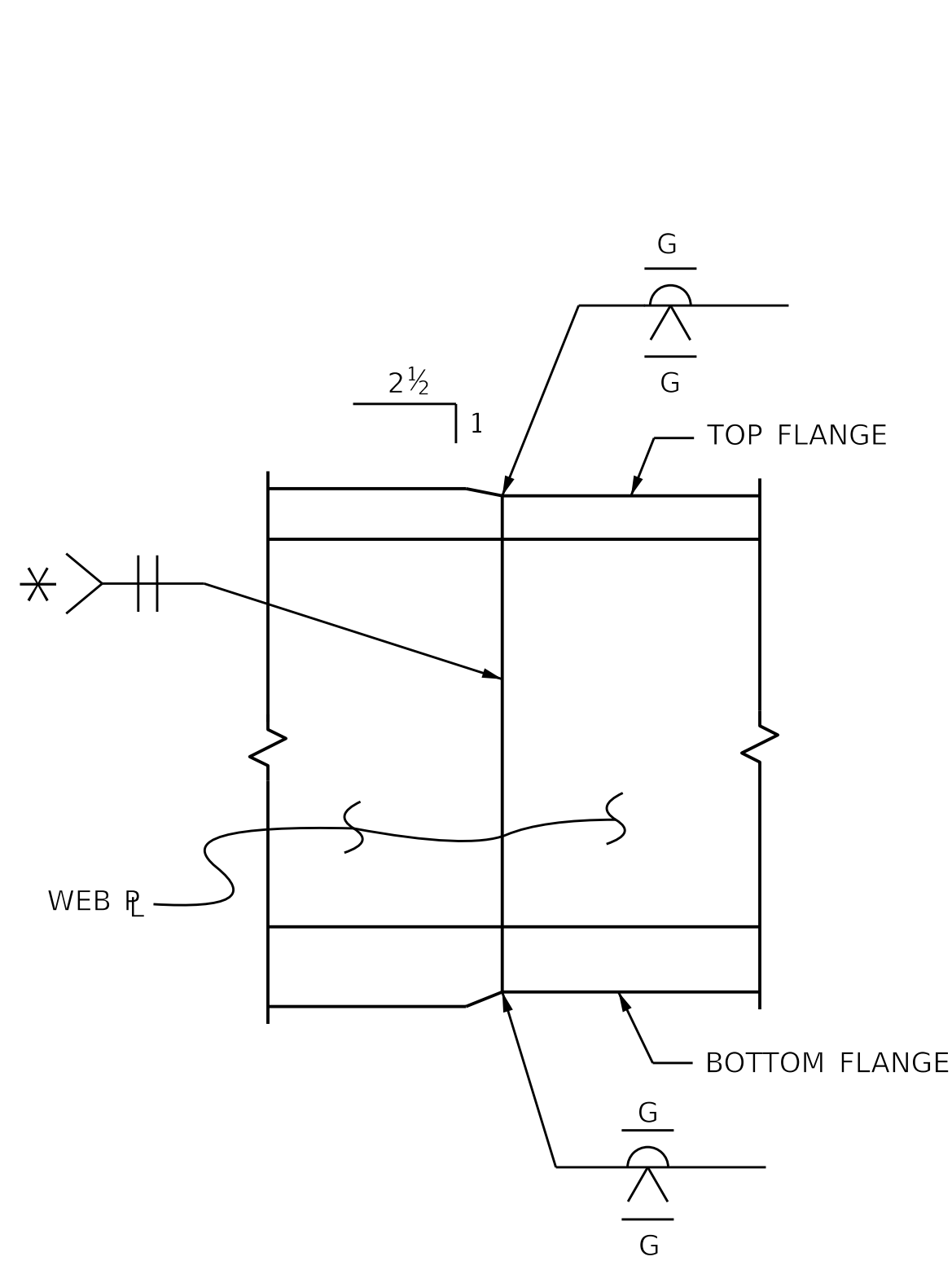
SECTION A-A



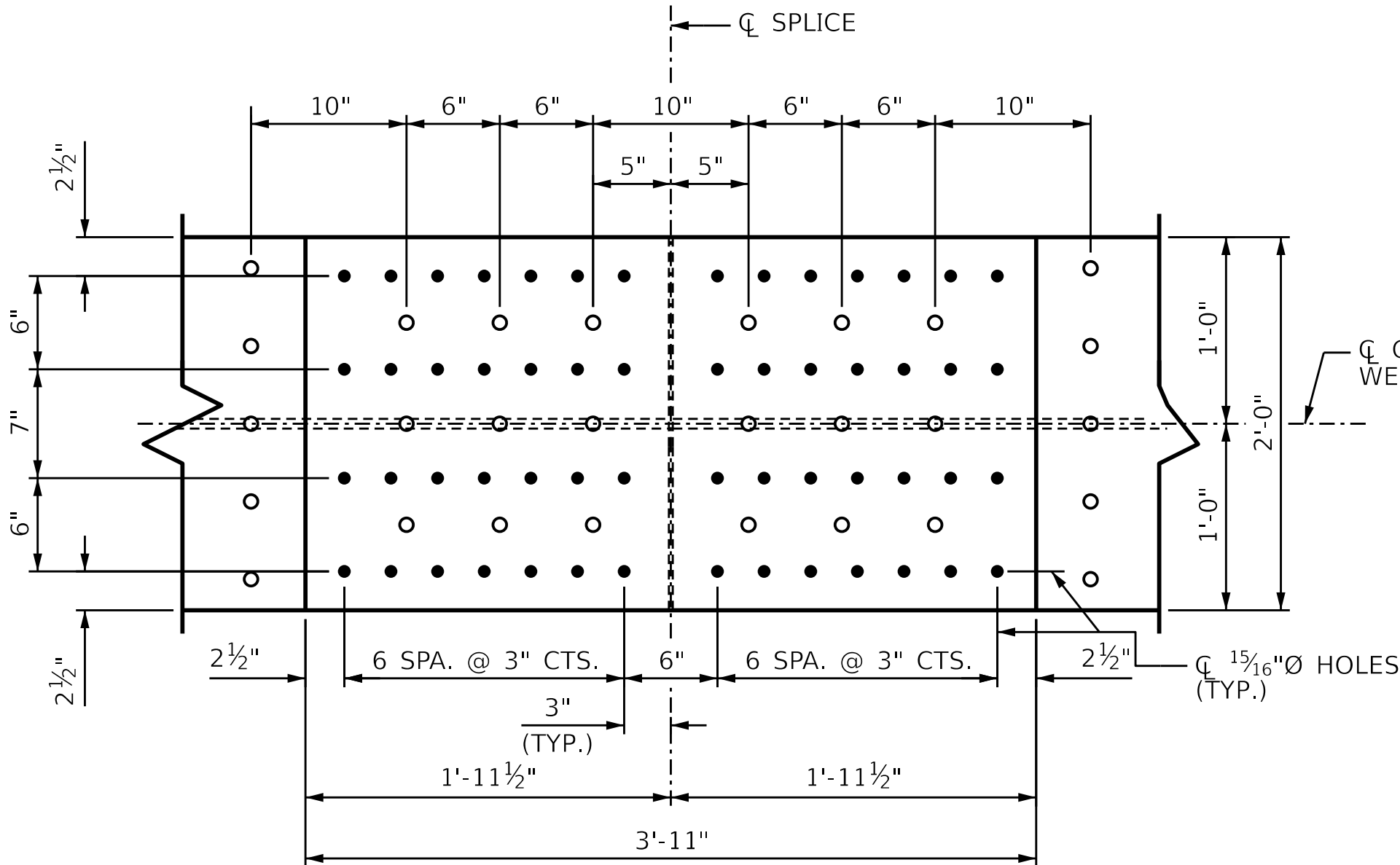
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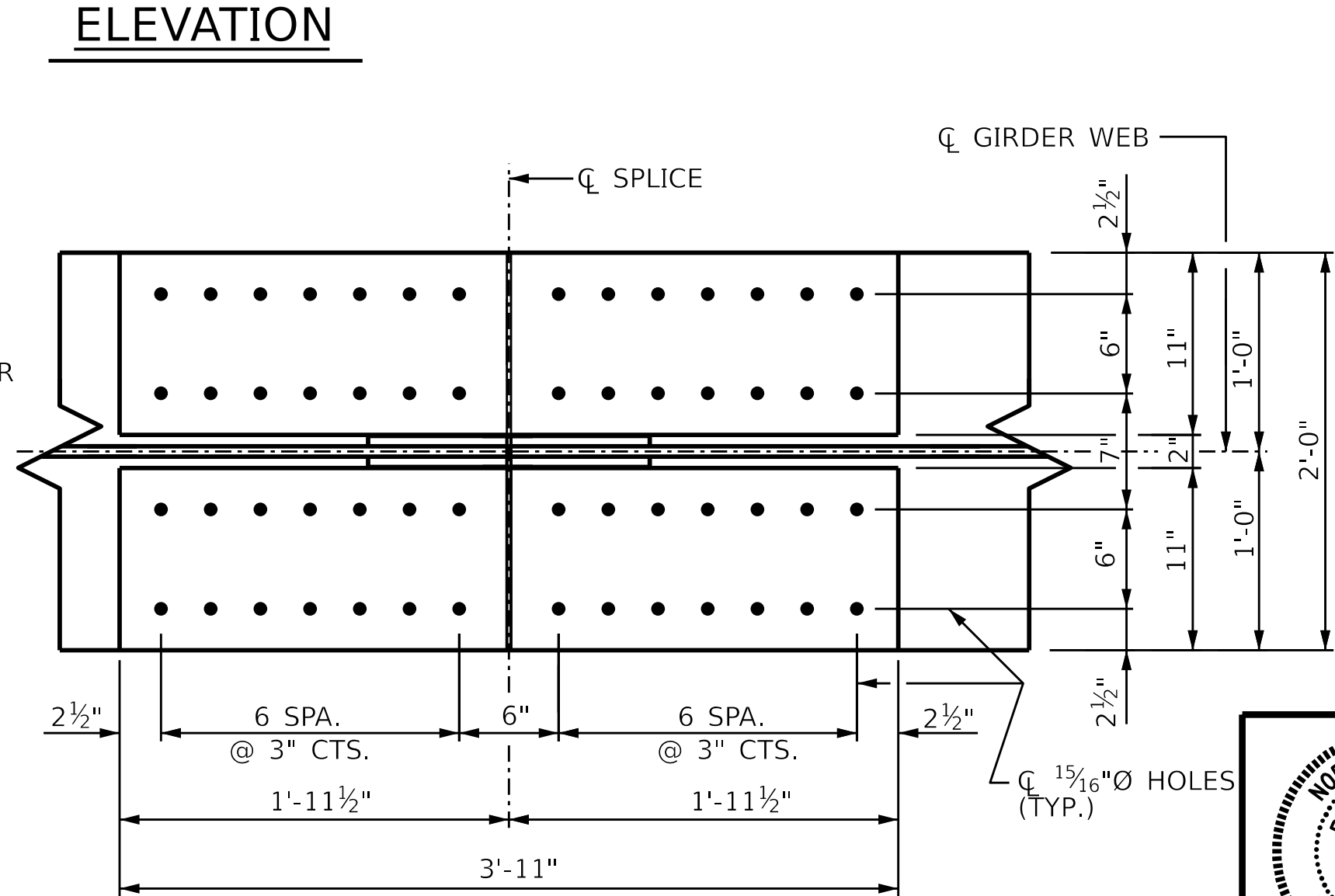
SECTION B-B



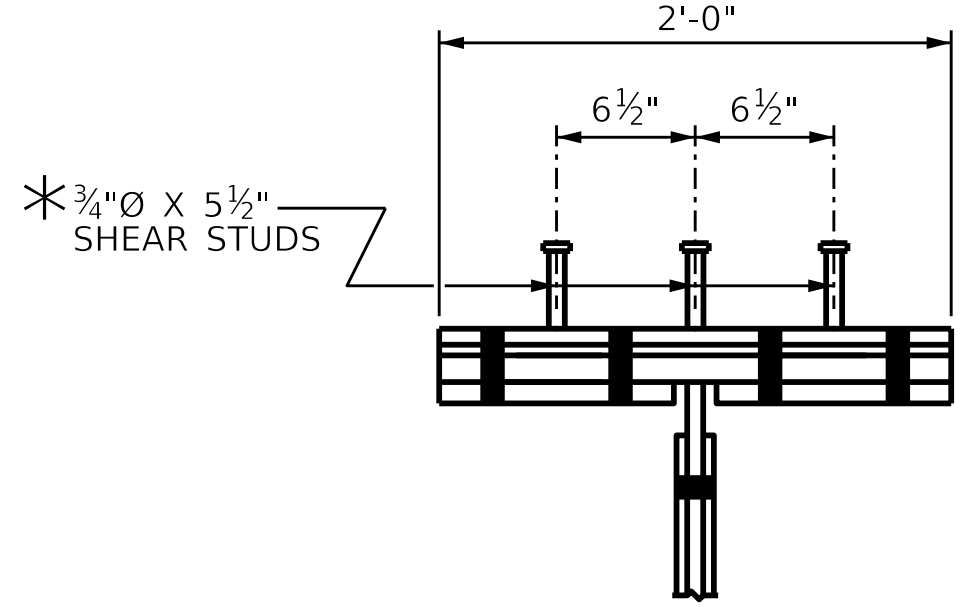
TYPICAL FLANGE AND WEB BUTT JOINT



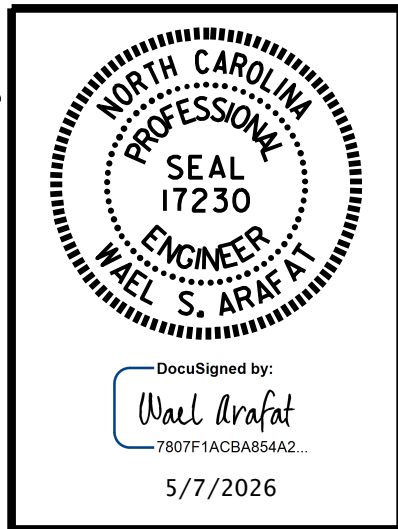
PLAN (TOP OF TOP FLANGE)



PLAN (TOP OF BOTTOM FLANGE)



SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE



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NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 4 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS
(WESTBOUND)

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS			40		

STR #1

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

DocuSigned by:
Wael S. Arafa
7807F1ACB854A2
5/7/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

BR-0140/Project Design/Structures/FINAL/BR0140_FINAL_DEAD_LOAD
10/24/2025 3:55:09 PM MODEL NAME: WB-SPAN_A

DRAWN BY : G.C. MORRIS DATE : 12-24
CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN A																				
	GIRDER #1																				
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.001	-0.002	-0.004	-0.005	-0.006	-0.008	-0.009	-0.010	-0.011	-0.012	-0.013	-0.013	-0.014	-0.013	-0.013	-0.012	-0.010	-0.008	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.002	-0.003	-0.005	-0.007	-0.008	-0.010	-0.012	-0.013	-0.015	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.014	-0.010	-0.006	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	1/16"	1/16"	1/8"	1/8"	1/8"	3/16"	3/16"	3/16"	3/16"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0	0	0	0	0

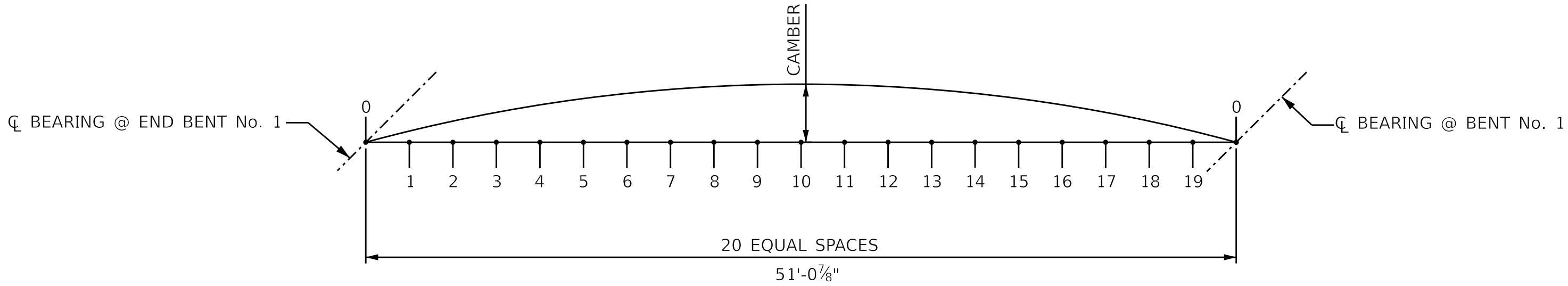
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	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	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.001	-0.002	-0.004	-0.005	-0.006	-0.008	-0.009	-0.010	-0.011	-0.012	-0.013	-0.013	-0.014	-0.014	-0.013	-0.012	-0.010	-0.008	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.002	-0.003	-0.005	-0.007	-0.008	-0.010	-0.012	-0.013	-0.015	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.013	-0.010	-0.006	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	1/16"	1/16"	1/8"	1/8"	3/16"	3/16"	3/16"	3/16"	3/16"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0	0	0	0	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN A																				
	GIRDER #4																				
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.001	-0.002	-0.004	-0.005	-0.006	-0.008	-0.009	-0.010	-0.011	-0.012	-0.013	-0.013	-0.014	-0.014	-0.013	-0.012	-0.010	-0.008	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.002	-0.003	-0.005	-0.007	-0.008	-0.010	-0.012	-0.013	-0.015	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.014	-0.010	-0.006	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0	0	0	0	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHEMATIC CAMBER ORDINATES

SLOPE FOR THE ZERO CAMBER BASE LINE VARIES.

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 3

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

NO.			REVISIONS			SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S01-16
2			4			
TOTAL SHEETS						40

STR #1

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

BR-0140-Project Design/Structures/FINAL/BROW40_FINAL_DEAD_LOAD

10/24/2025 3:55:10 PM

MODEL NAME: WB-SPAN B

Drawn by: G.C. Morris
Checked by: O. Puigcerver
Design Engineer of Record: O. Puigcerver

Date: 12-24
Date: 4-25
Date: 4-25

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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	FORTIETH POINTS	0	.025	.05	.075	.10	.125	.15	0.175	.20	.225	.25	.275	.30	.325	.35	.375	.40	.425	.45	.475	.50	.525	.55	.575	.60	.625	.65	.675	.70	.725	.75	.775	.80	0.825	.85	.875	.90	.925	.95	.975	0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.001	0.003	0.005	0.007	0.009	0.011	0.013	0.016	0.018	0.020	0.022	0.024	0.026	0.028	0.029	0.031	0.031	0.032	0.033	0.033	0.033	0.032	0.031	0.031	0.029	0.028	0.026	0.024	0.022	0.020	0.018	0.016	0.013	0.011	0.009	0.007	0.005	0.003	0.001	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.006	0.013	0.021	0.029	0.038	0.048	0.057	0.067	0.077	0.087	0.096	0.104	0.112	0.119	0.125	0.131	0.135	0.138	0.139	0.140	0.139	0.138	0.135	0.131	0.125	0.119	0.112	0.104	0.096	0.087	0.077	0.067	0.057	0.048	0.038	0.029	0.021	0.013	0.006	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.008	0.009	0.010	0.011	0.012	0.014	0.014	0.015	0.016	0.017	0.017	0.018	0.018	0.018	0.018	0.017	0.017	0.016	0.015	0.014	0.014	0.012	0.011	0.010	0.009	0.008	0.006	0.005	0.004	0.003	0.002	0.001	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.009	0.017	0.028	0.040	0.052	0.065	0.078	0.092	0.105	0.118	0.130	0.142	0.152	0.163	0.171	0.178	0.183	0.188	0.189	0.191	0.189	0.188	0.183	0.178	0.171	0.163	0.152	0.142	0.130	0.118	0.105	0.092	0.078	0.065	0.052	0.040	0.028	0.017	0.009	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
VERTICAL CURVE ORDINATE	↑	0.000	0.013	0.026	0.038	0.049	0.060	0.070	0.079	0.088	0.096	0.103	0.110	0.115	0.121	0.125	0.129	0.132	0.134	0.136	0.137	0.137	0.137	0.136	0.134	0.132	0.129	0.125	0.121	0.115	0.110	0.103	0.096	0.088	0.079	0.070	0.060	0.049	0.038	0.026	0.013	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
REQUIRED CAMBER	↑	0	¼"	½"	13⁄16"	1¼"	1¾"	1⅝"	1⅞"	2⅜"	2⅞"	21¼"	2⅞"	3⅛"	3¼"	3⅞"	3⅝"	3¾"	313⁄16"	3⅞"	315⁄16"	315⁄16"	3⅞"	313⁄16"	3¾"	3⅝"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3⅞"	3

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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	GIRDERS #2 & #3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	FORTIETH POINTS	0	.025	.05	.075	.10	.125	.15	0.175	.20	.225	.25	.275	.30	.325	.35	.375	.40	.425	.45	.475	.50	.525	.55	.575	.60	.625	.65	.675	.70	.725	.75	.775	.80	0.825	.85	.875	.90	.925	.95	.975	0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.001	0.003	0.005	0.007	0.009	0.011	0.013	0.016	0.018	0.020	0.022	0.024	0.026	0.028	0.029	0.031	0.031	0.032	0.033	0.033	0.033	0.032	0.031	0.031	0.029	0.028	0.026	0.024	0.022	0.020	0.018	0.016	0.013	0.011	0.009	0.007	0.005	0.003	0.001	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.007	0.013	0.021	0.029	0.039	0.048	0.058	0.067	0.077	0.087	0.096	0.105	0.113	0.120	0.126	0.132	0.135	0.139	0.140	0.141	0.140	0.139	0.135	0.132	0.126	0.120	0.113	0.105	0.096	0.087	0.077	0.068	0.058	0.048	0.038	0.029	0.021	0.013	0.007	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013	0.012	0.011	0.010	0.009	0.008	0.008	0.006	0.004	0.003	0.002	0.002	0.001	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.009	0.017	0.028	0.039	0.052	0.065	0.078	0.091	0.104	0.117	0.129	0.141	0.152	0.162	0.169	0.177	0.182	0.187	0.188	0.190	0.188	0.187	0.182	0.177	0.169	0.162	0.152	0.141	0.129	0.117	0.104	0.091	0.078	0.065	0.052	0.039	0.028	0.017	0.009	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
VERTICAL CURVE ORDINATE	↑	0.000	0.013	0.026	0.038	0.049	0.060	0.070	0.079	0.088	0.096	0.103	0.110	0.115	0.121	0.125	0.129	0.132	0.134	0.136	0.137	0.137	0.137	0.136	0.134	0.132	0.129	0.125	0.121	0.115	0.110	0.103	0.096	0.088	0.079	0.070	0.060	0.049	0.038	0.026	0.013	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
REQUIRED CAMBER	↑	0	¼"	½"	13⁄16"	1¼"	1¾"	1⅝"	1⅞"	2⅛"	2⅝"	2⅞"	3¼"	3¼"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙"	3⅙

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																										
	SPAN B																																									
	GIRDER #4																																									
	FORTIETH POINTS	0	.025	.05	.075	.10	.125	.15	0.175	.20	.225	.25	.275	.30	.325	.35	.375	.40	.425	.45	.475	.50	.525	.55	.575	.60	.625	.65	.675	.70	.725	.75	.775	.80	0.825	.85	.875	.90	.925	.95	.975	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.001	0.003	0.005	0.007	0.009	0.011	0.013	0.016	0.018	0.020	0.022	0.024	0.026	0.028	0.029	0.031	0.031	0.032	0.033	0.033	0.033	0.032	0.031	0.031	0.029	0.028	0.026	0.024	0.022	0.020	0.018	0.016	0.013	0.011	0.009	0.007	0.005	0.003	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.007	0.013	0.021	0.029	0.038	0.048	0.058	0.068	0.078	0.088	0.097	0.105	0.113	0.121	0.127	0.132	0.136	0.139	0.140	0.142	0.140	0.139	0.136	0.132	0.127	0.121	0.113	0.105	0.097	0.088	0.078	0.068	0.058	0.048	0.039	0.029	0.021	0.013	0.007	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.008	0.009	0.010	0.011	0.012	0.014	0.014	0.015	0.016	0.017	0.017	0.018	0.018	0.018	0.018	0.018	0.017	0.017	0.016	0.015	0.014	0.014	0.012	0.011	0.010	0.009	0.008	0.006	0.005	0.004	0.003	0.002	0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.009	0.018	0.029	0.040	0.053	0.066	0.079	0.092	0.106	0.119	0.131	0.143	0.154	0.164	0.172	0.180	0.184	0.189	0.191	0.192	0.191	0.189	0.184	0.180	0.172	0.164	0.154	0.143	0.131	0.119	0.106	0.092	0.079	0.066	0.053	0.040	0.029	0.018	0.009	0.000
VERTICAL CURVE ORDINATE	↑	0.000	0.013	0.026	0.038	0.049	0.060	0.070	0.079	0.088	0.096	0.103	0.110	0.115	0.121	0.125	0.129	0.132	0.134	0.136	0.137	0.137	0.137	0.136	0.134	0.132	0.129	0.125	0.121	0.115	0.110	0.103	0.096	0.088	0.079	0.070	0.060	0.049	0.038	0.026	0.013	0.000
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑	0	¼"	½"	⅜ ₁₆ "	1¼ ₁₆ "	1⅜"	1⅝"	1⅞"	2⅜ ₁₆ "	2⅞ ₁₆ "	2⅞"	3⅜"	3⅝ ₁₆ "	3½"	3⅝"	3¾"	3⅜ ₁₆ "	3⅞"	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞"	3⅞ ₁₆ "	3¾"	3⅝"	3½"	3⅝ ₁₆ "	3⅞"	2⅞"	2⅞ ₁₆ "	2⅞ ₁₆ "	2⅜ ₁₆ "	1⅞"	1⅝"	1⅜"	1¼ ₁₆ "	1⅜ ₁₆ "	½"	¼"	0

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Wael Arafat
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DRAWN BY : G.C. MORRIS DATE : 12-24
CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25

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MODEL NAME: WB-SPAN C

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN C																				
	GIRDER #1																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
TWENTIETH POINTS																					
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.004	-0.008	-0.010	-0.012	-0.013	-0.013	-0.014	-0.013	-0.013	-0.012	-0.011	-0.010	-0.009	-0.008	-0.006	-0.005	-0.004	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.006	-0.010	-0.014	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.015	-0.013	-0.012	-0.010	-0.008	-0.007	-0.005	-0.003	-0.002	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	0	0	0	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0

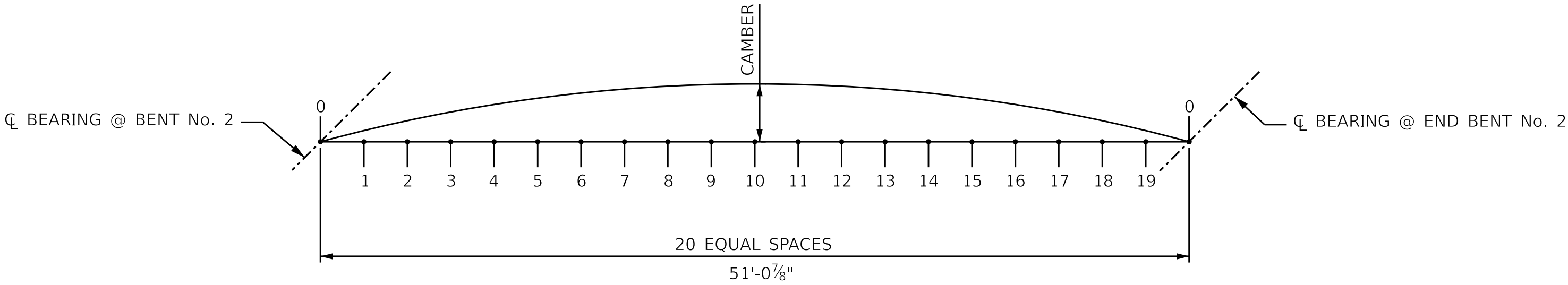
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN C																				
	GIRDERS #2 & #3																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
TWENTIETH POINTS																					
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.004	-0.008	-0.010	-0.012	-0.013	-0.014	-0.014	-0.013	-0.013	-0.012	-0.011	-0.010	-0.009	-0.008	-0.006	-0.005	-0.004	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.006	-0.010	-0.013	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.015	-0.013	-0.012	-0.010	-0.008	-0.007	-0.005	-0.003	-0.002	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	0	0	0	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN C																				
	GIRDER #4																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
TWENTIETH POINTS																					
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.004	-0.008	-0.010	-0.012	-0.013	-0.014	-0.014	-0.013	-0.013	-0.012	-0.011	-0.010	-0.009	-0.008	-0.006	-0.005	-0.004	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.006	-0.010	-0.014	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.015	-0.013	-0.012	-0.010	-0.008	-0.007	-0.005	-0.003	-0.002	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	0	0	0	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHEMATIC CAMBER ORDINATES

SLOPE FOR THE ZERO CAMBER BASE LINE VARIES.

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 3 OF 3

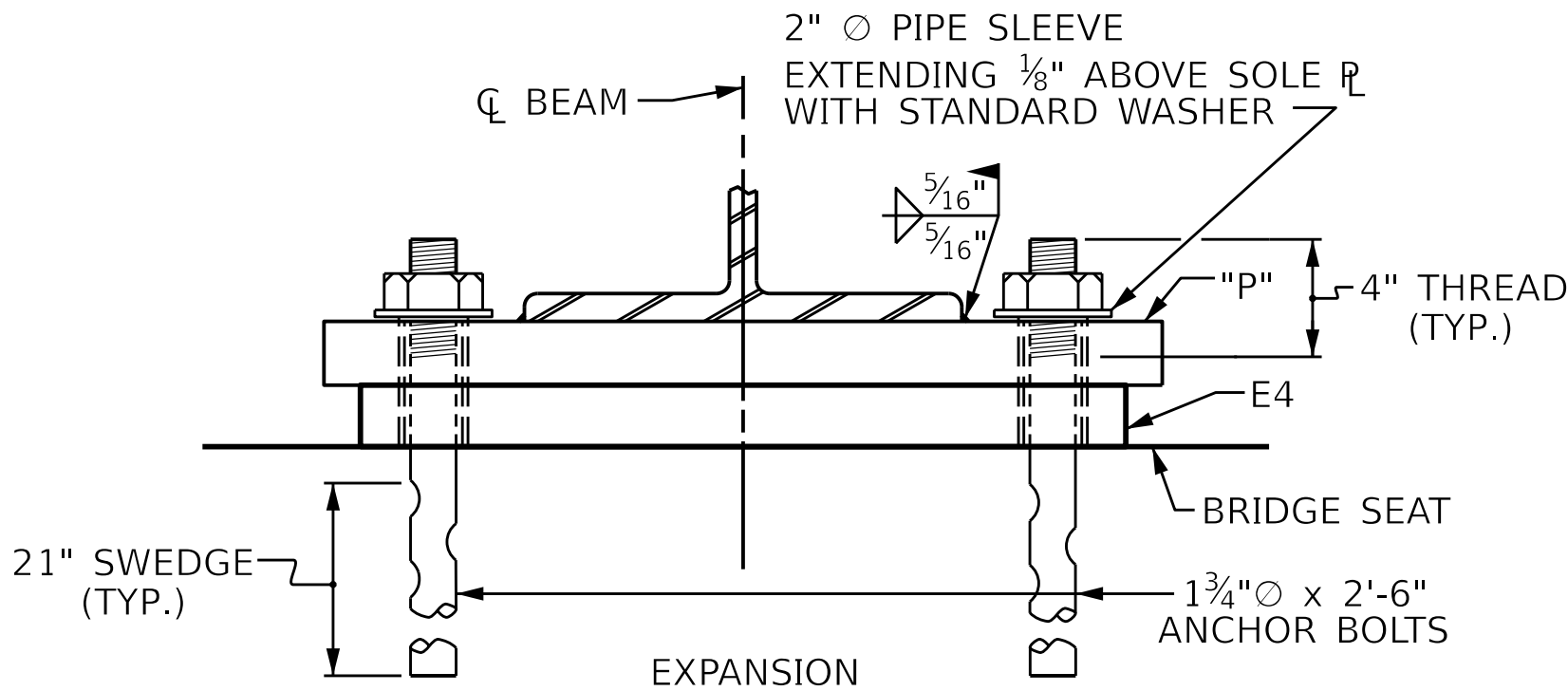
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS
(WESTBOUND)

REVISIONS						SHEET NO. S01-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

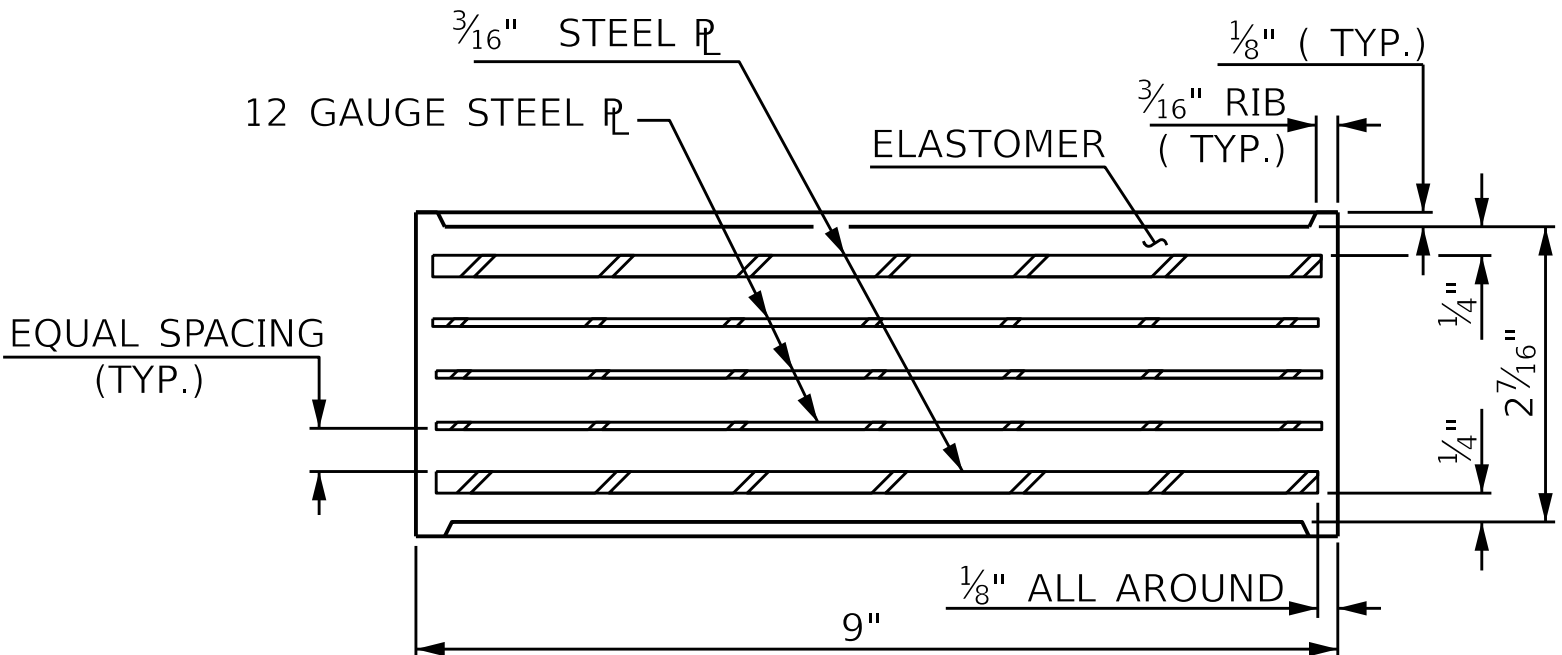
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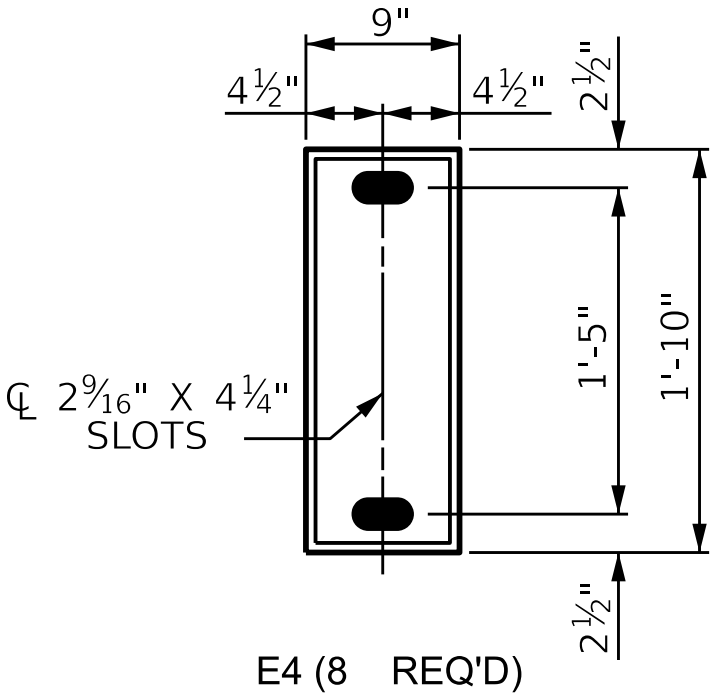
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END VIEW

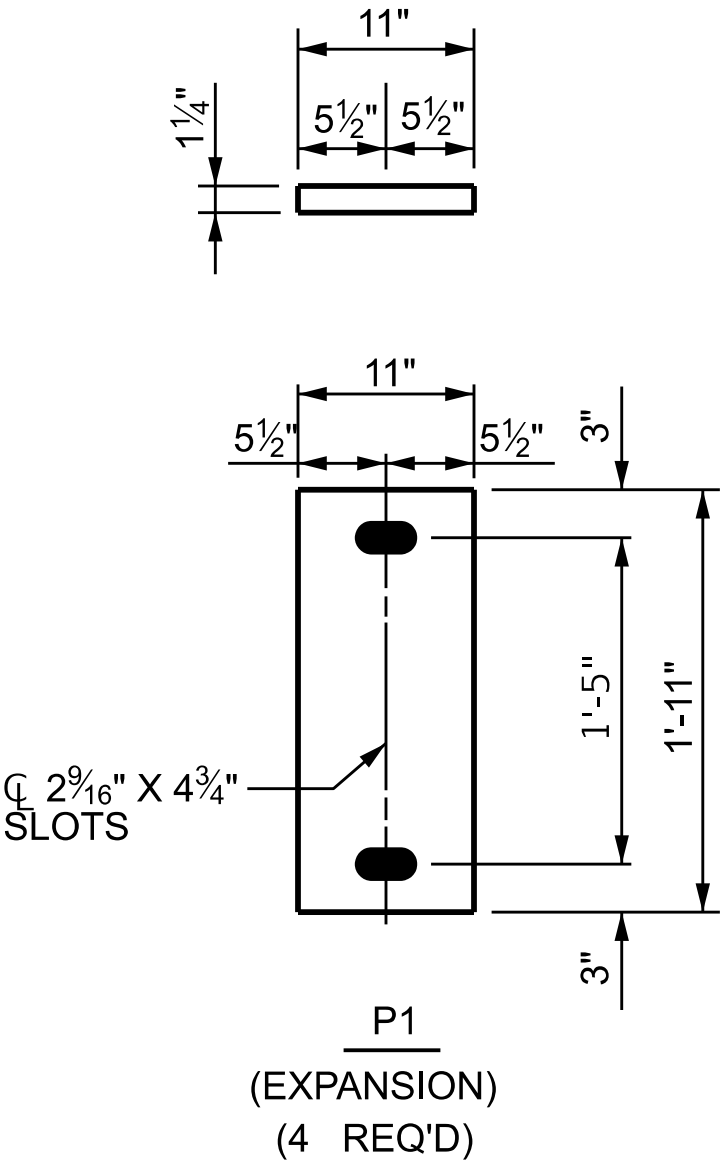


TYPICAL SECTION OF ELASTOMERIC BEARINGS

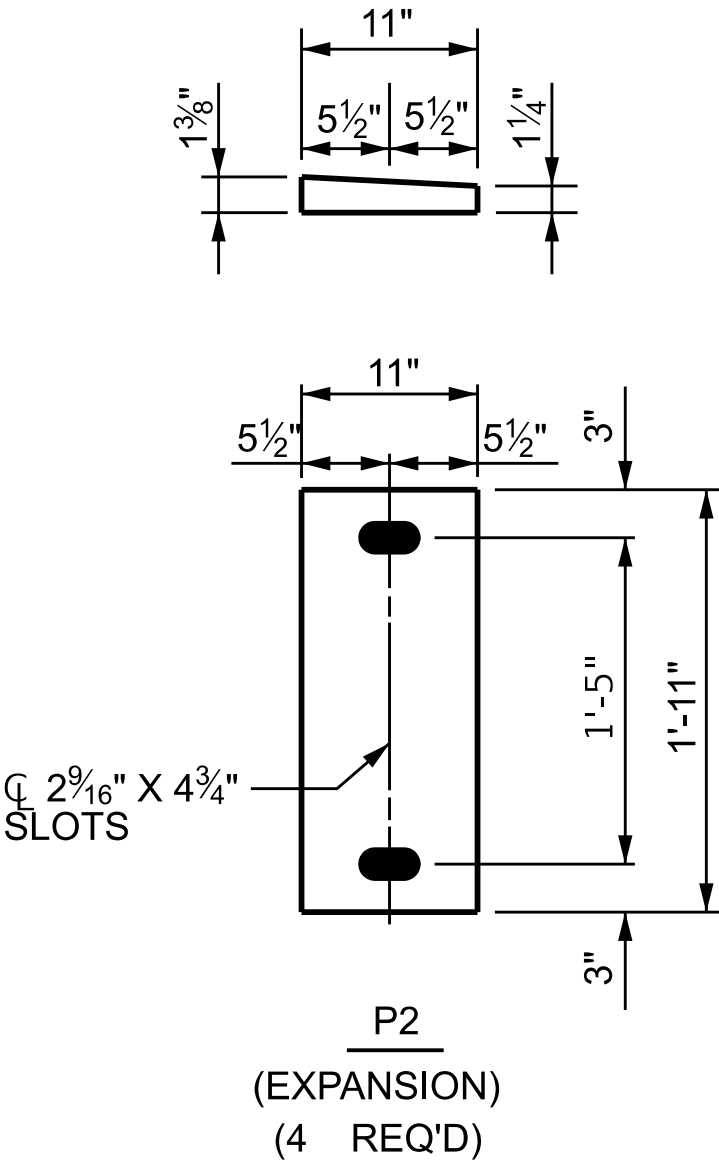


PLAN VIEW OF ELASTOMERIC BEARING

TYPE II



SOLE PLATE DETAILS "P"



SOLE PLATE DETAILS "P"

SOLE PLATE DETAILS ("P")

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" O 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.

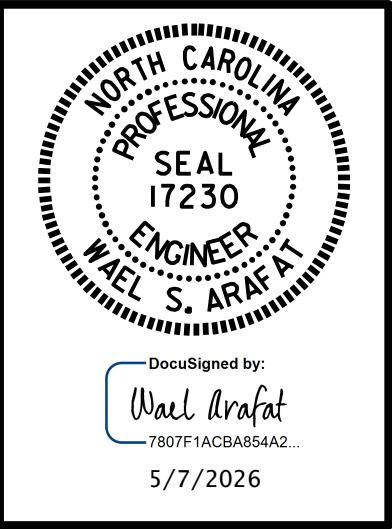
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURE, WHICH MAY BE REQUIRED BY THE ENGINEER, TO RESET ELASTOMERIC BEARINGS DUE TO GIRDER TRANSLATION AND END ROTATION:

1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ELASTOMERIC BEARING SLOTS CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.

THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L. + L.L. (NO IMPACT)	
TYPE II	180 k



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Raleigh, NC 27615
NC License #P-1212

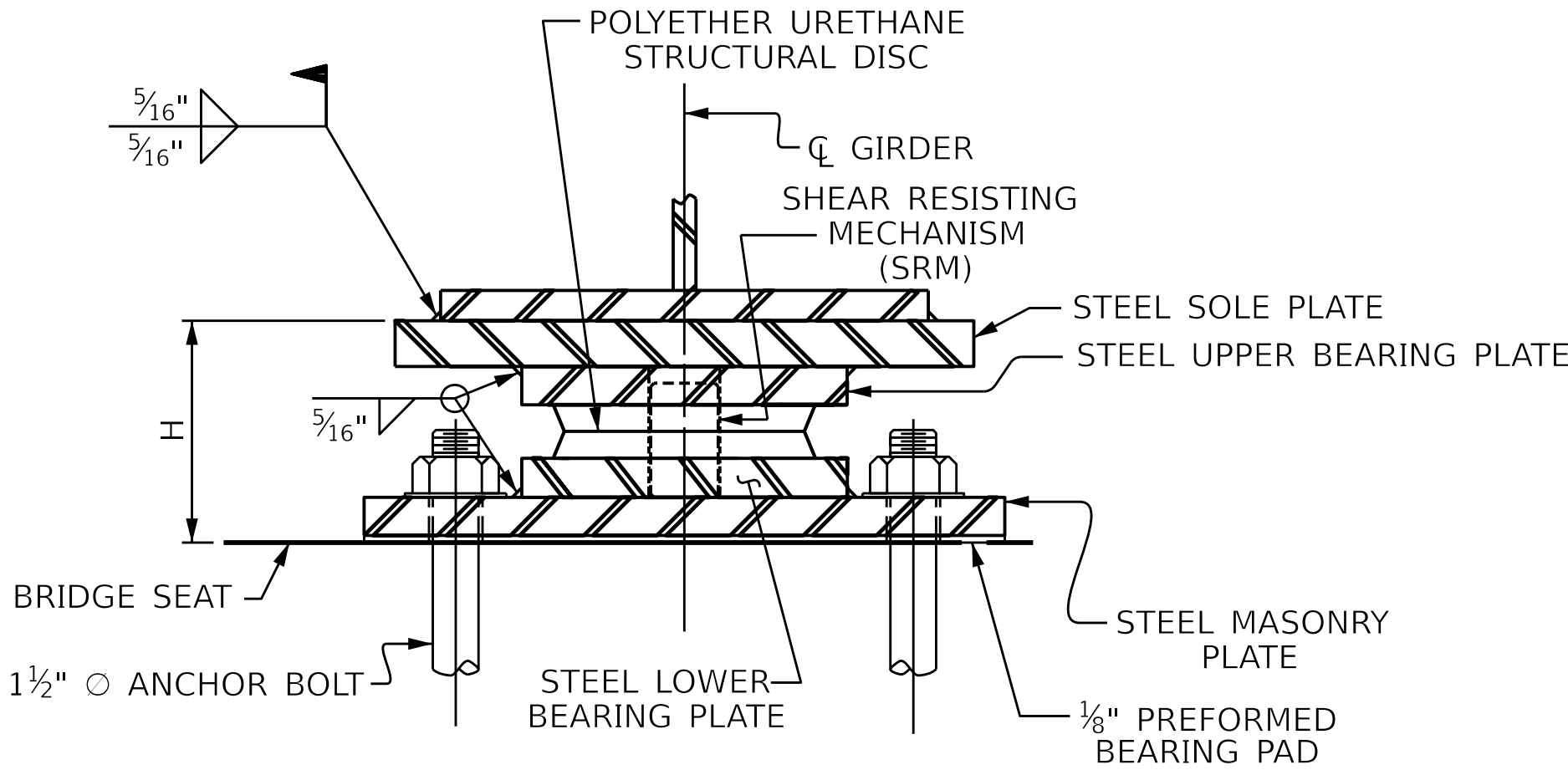
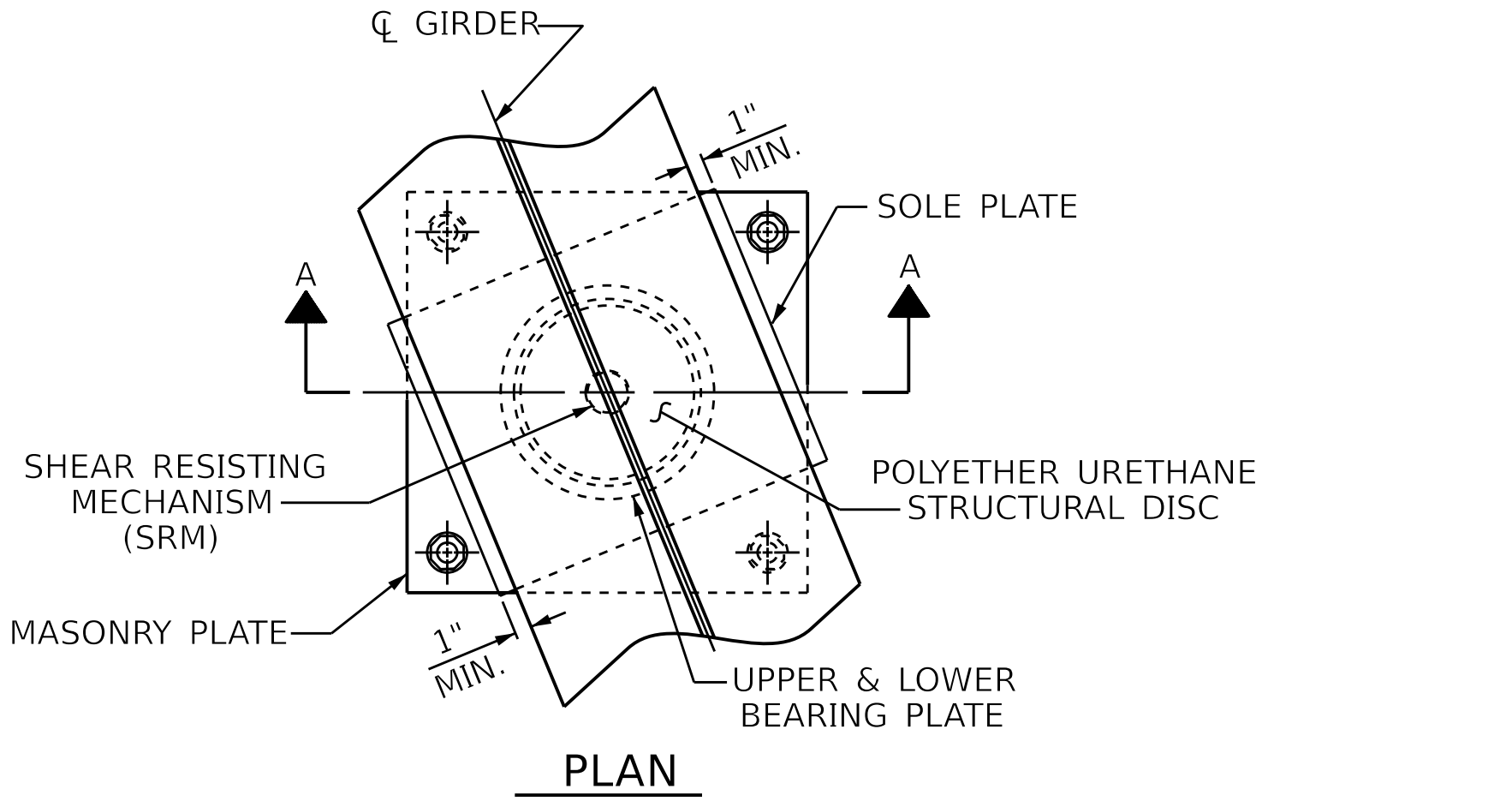
PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING
DETAILS
(STEEL SUPERSTRUCTURE)
(WESTBOUND)

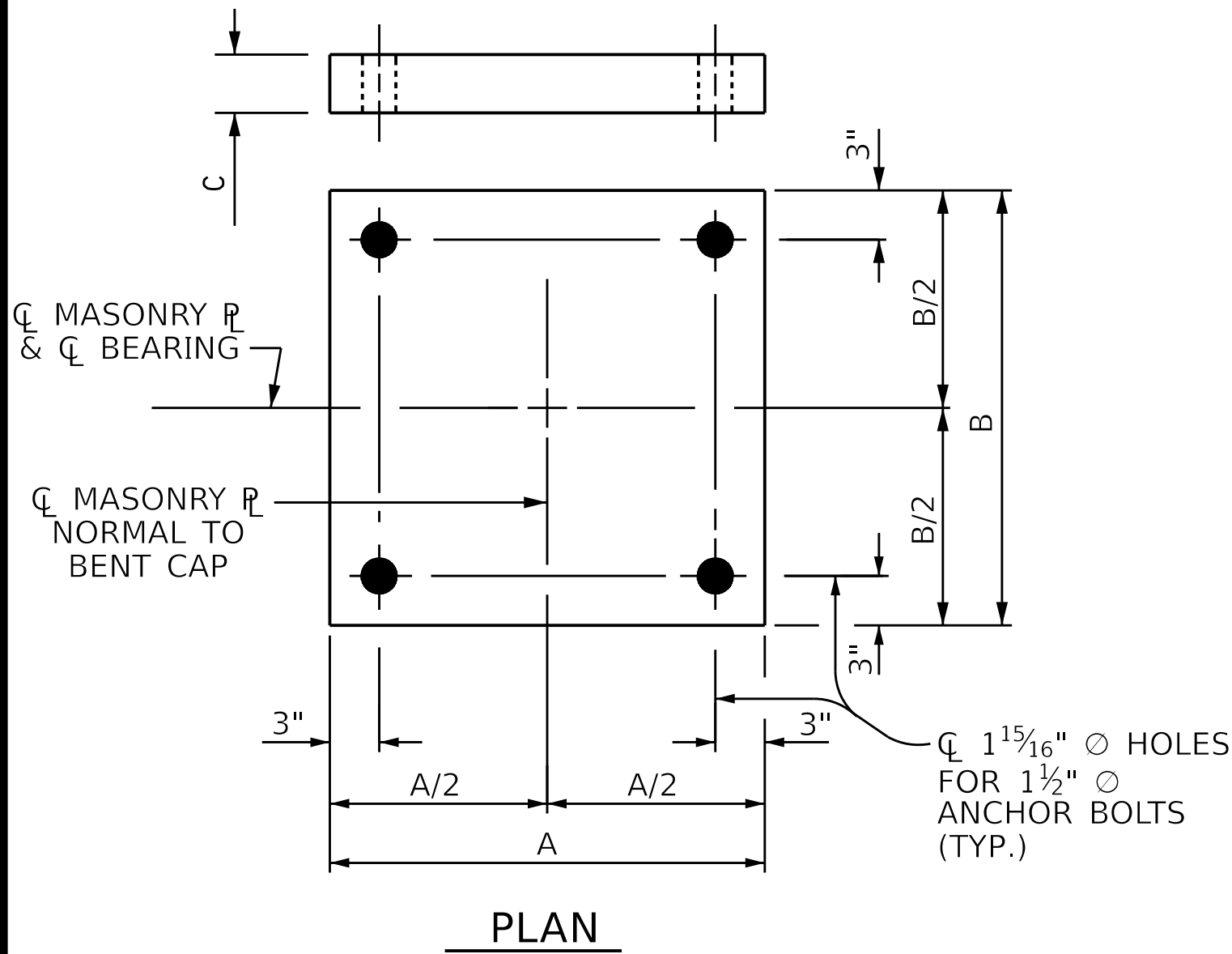
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NO.	BY:	DATE:	NO.	BY:	DATE:	S01-19
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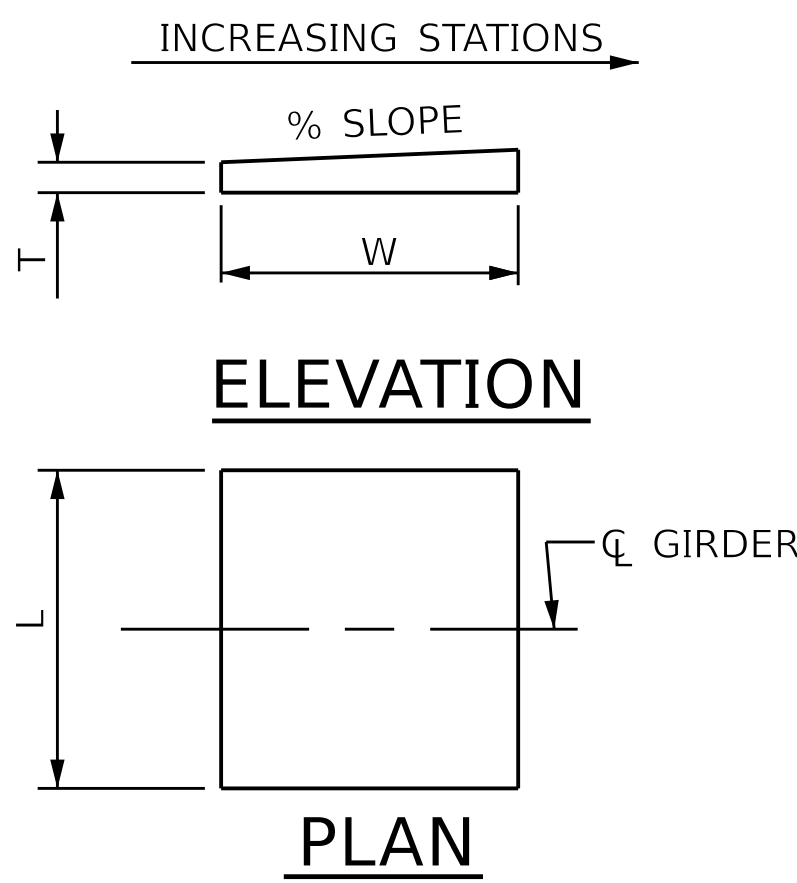
SECTION A-A
DB1 THRU DB8, FIXED



MASONRY PLATE
DETAILS

ASSEMBLED BY: G.C. MORRIS		DATE : 5/24	
CHECKED BY : O. PUIGCERVER		DATE : 4/25	
DRAWN BY : TMG	08/13	REV. 12/17	MAA/THC
CHECKED BY : EKP	10/13		

DESIGNATIONS				DIMENSIONS						LOADS AND MOVEMENT				
				BEARING H (IN.)	MASONRY PLATE			SOLE PLATE		UNFACTORED VERTICAL LOAD (KIPS)			FACTORED HORIZONTAL LOAD (KIPS)	ONE-WAY MOVEMENT (IN.)
					A (IN.)	B (IN.)	C (IN.)	TOP SLOPE (%)	L (IN.)	DEAD		LIVE		
BEARINGS	MASONRY PLATE	LOCATION	NUMBER OF BEARINGS							DC	DW	LL+IM		
DB1 (FIXED)	M1	BENT No.1	1 (GIRDER 1)	5 5/8	22 1/2	22 1/2	3/4	0.208	26	195.9	28.8	190.0	79.9	0.0
DB2 (FIXED)	M1	BENT No.1	1 (GIRDER 2)	5 5/8	22 1/2	22 1/2	3/4	0.249	26	222.9	28.8	215.8	89.9	0.0
DB3 (FIXED)	M1	BENT No.1	1 (GIRDER 3)	5 5/8	22 1/2	22 1/2	3/4	0.290	26	222.9	28.8	215.8	89.9	0.0
DB4 (FIXED)	M1	BENT No.1	1 (GIRDER 4)	5 5/8	22 1/2	22 1/2	3/4	0.331	26	197.3	28.8	190.0	80.3	0.0
DB5 (FIXED)	M1	BENT No. 2	1 (GIRDER 1)	5 5/8	22 1/2	22 1/2	3/4	-0.767	26	195.9	28.8	190.0	79.9	0.0
DB6 (FIXED)	M1	BENT No. 2	1 (GIRDER 2)	5 5/8	22 1/2	22 1/2	3/4	-0.726	26	222.9	28.8	215.8	89.9	0.0
DB7 (FIXED)	M1	BENT No. 2	1 (GIRDER 3)	5 5/8	22 1/2	22 1/2	3/4	-0.685	26	222.9	28.8	215.8	89.9	0.0
DB8 (FIXED)	M1	BENT No. 2	1 (GIRDER 4)	5 5/8	22 1/2	22 1/2	3/4	-0.644	26	197.3	28.8	190.0	80.3	0.0



NOTE:
DIMENSIONS "W" AND "T" SHALL BE DETERMINED
BY THE BEARING MANUFACTURER.

SOLE PLATE DETAILS

NOTES

FOR DISC BEARINGS, SEE SPECIAL PROVISIONS.

ALL BEARING PLATES SHALL BE AASHTO M270 GRADE 50W OR GRADE 50.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS SHALL BE FINGER-TIGHTENED PLUS AN ADDITIONAL ¼ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

WHEN WELDING THE SOLE PLATE TO THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE BEARING DOES NOT EXCEED 250°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE TFE OR URETHANE DISC.

AFTER BEARING ASSEMBLY IS IN PLACE AND ANCHOR BOLTS HAVE BEEN FINALLY POSITIONED, THEY SHALL BE GROUTED IN PLACE AS SHOWN.

THE CLOSURE PLATE, GROUT PIPE, AND STANDARD PIPE FOR THIS ASSEMBLY NEED NOT BE GALVANIZED.

SOLE PLATES SHOULD BE WELDED TO GIRDER FLANGES AND ANCHOR BOLTS SHOULD BE GROUTED BEFORE FALSEWORK IS PLACED.

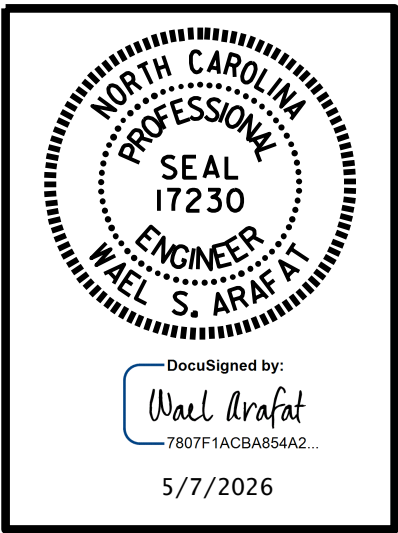
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR ATTACHMENT OF THE STAINLESS STEEL SHEETS TO THE STEEL SOLE PLATE AND GUIDE BARS, AS WELL AS THE TOP AND SIDE PTFE SHEETS TO THE STEEL UPPER BEARING PLATE, SEE SPECIAL PROVISIONS.

FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE MINIMUM ROTATIONAL CAPACITY FOR ALL BEARINGS SHALL BE 0.02 RADIAN.

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-



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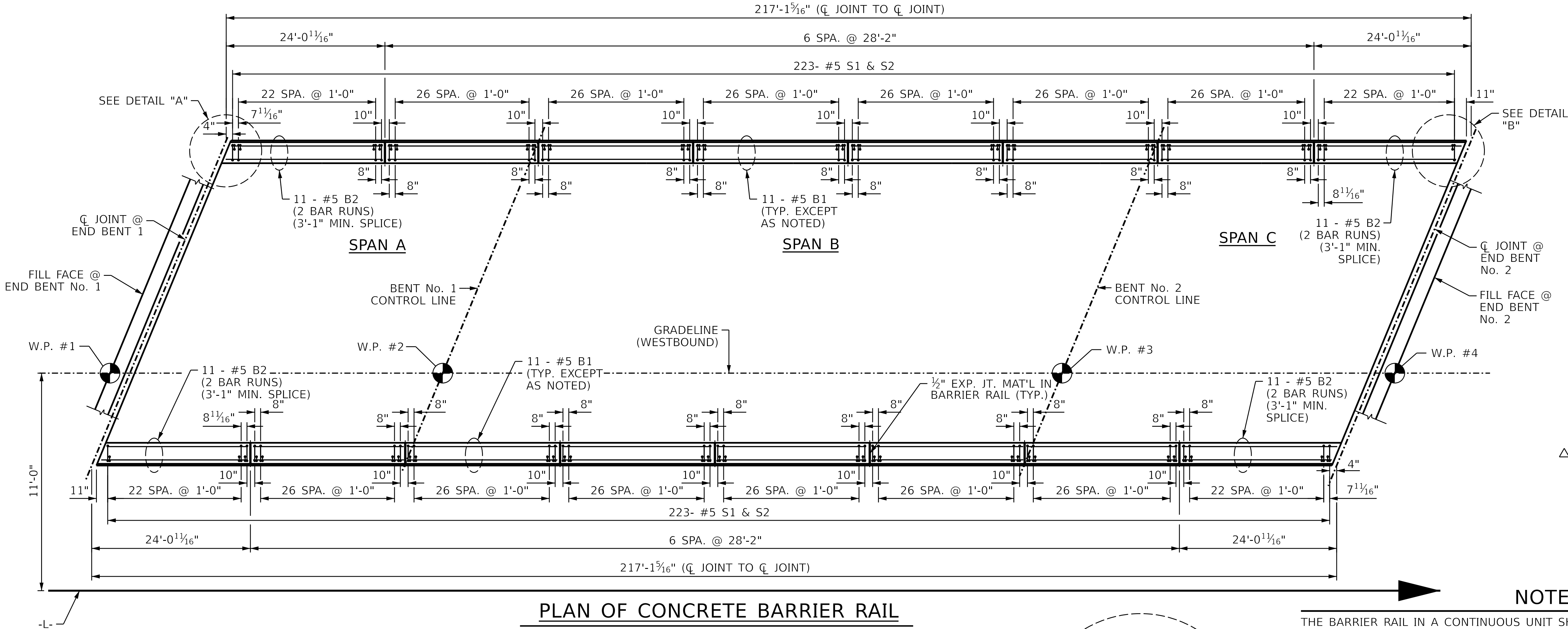
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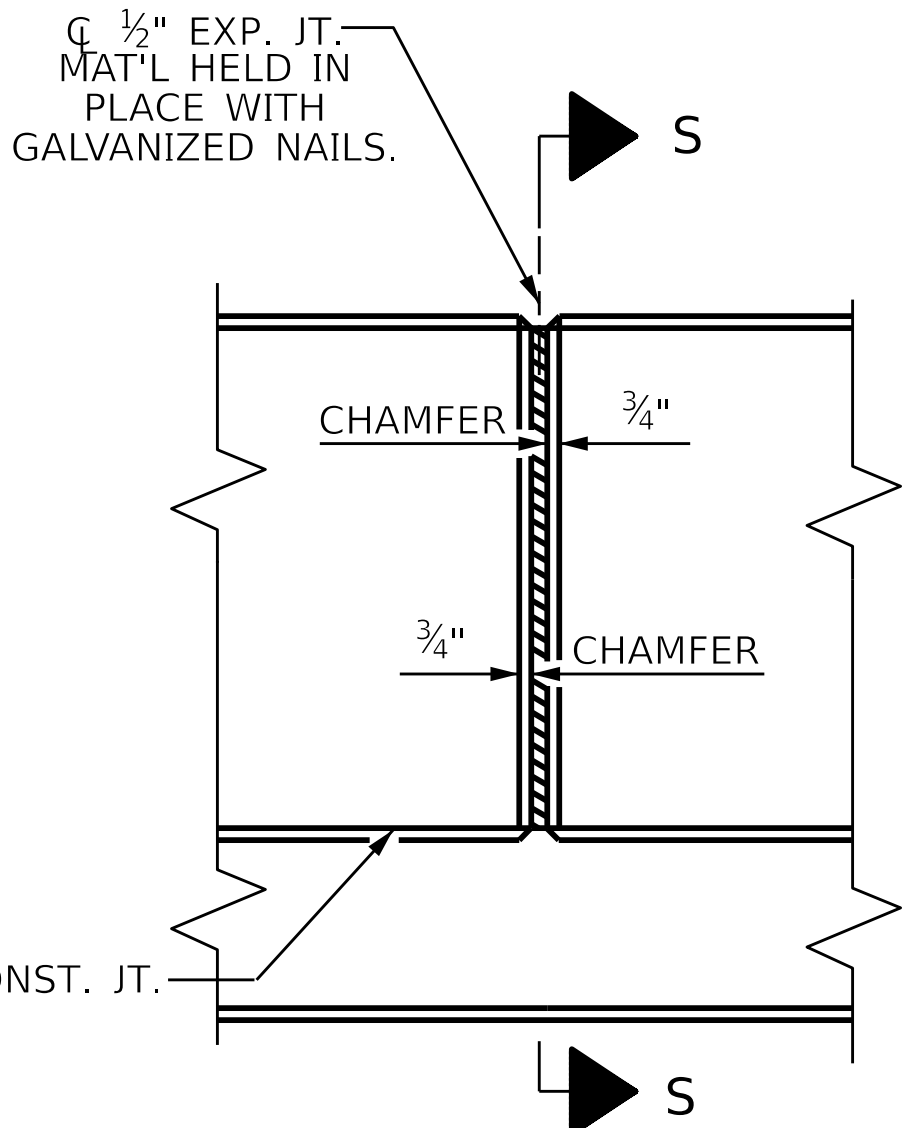
MODEL NAME: SHEET MODEL - CONCRETE BARRIER PLAN WESTBOUND



PLAN OF CONCRETE BARRIER RAIL

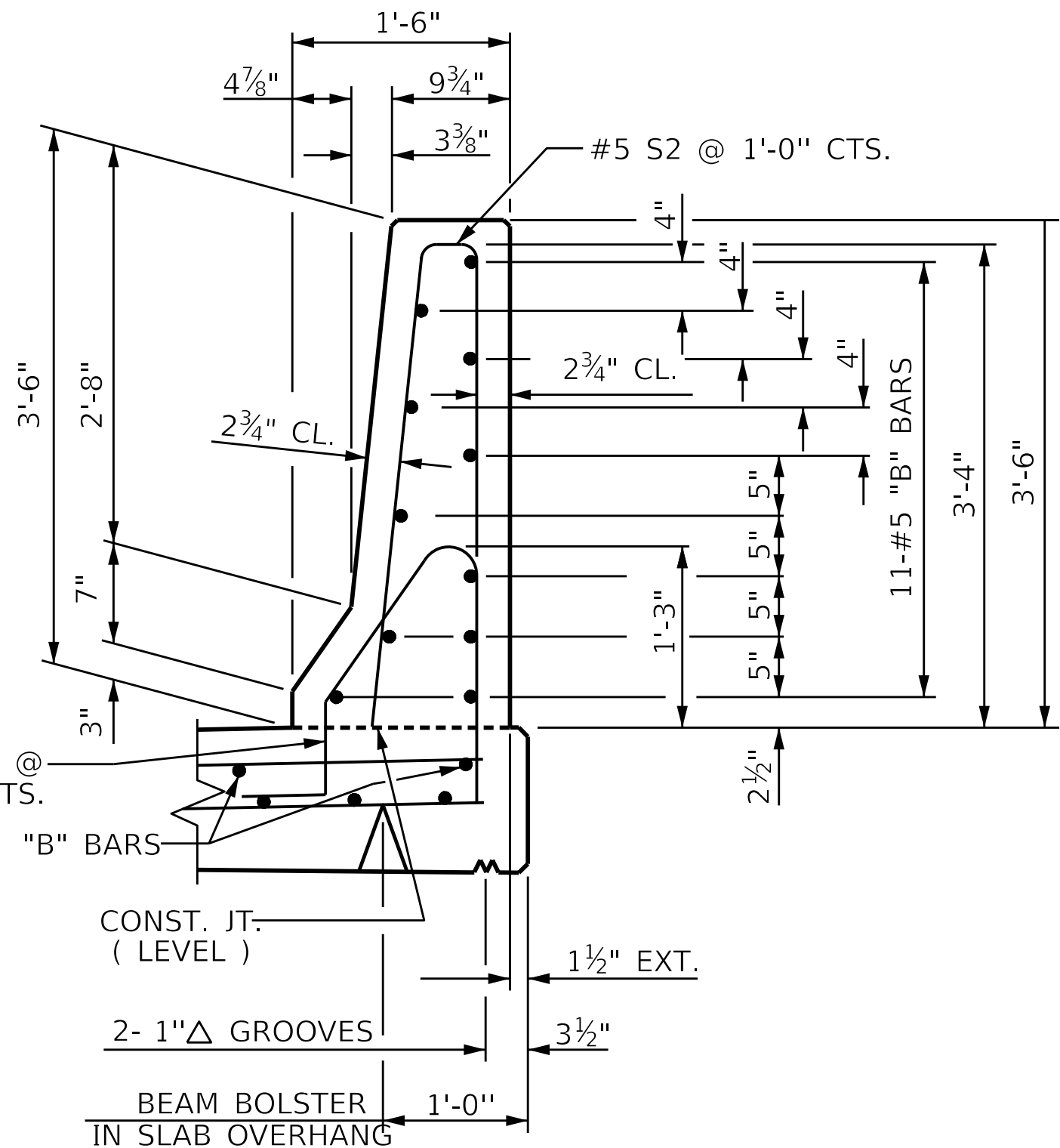
BARRIER RAIL DIMENSIONS ARE TAKEN ALONG OUTSIDE FACE OF BARRIER RAIL.

(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)

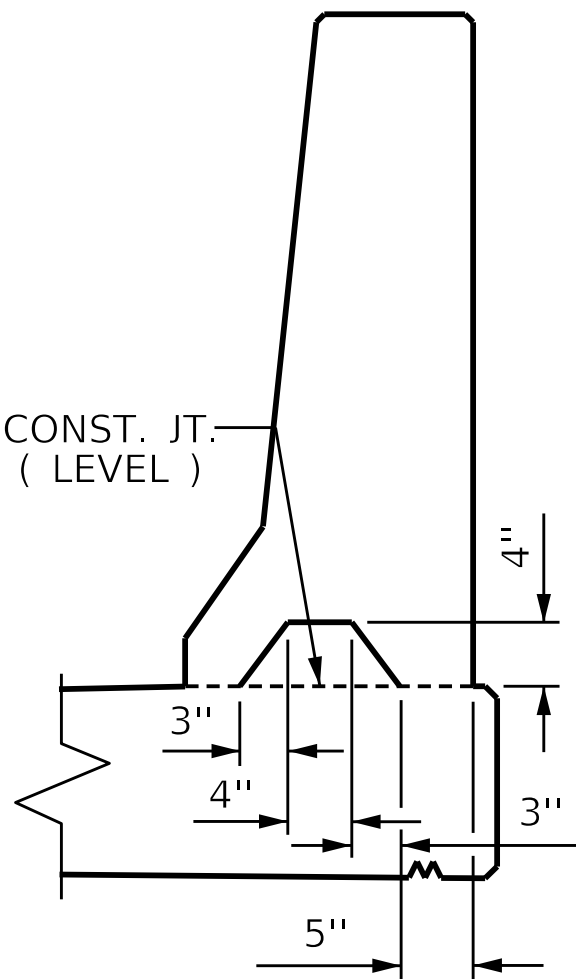


ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

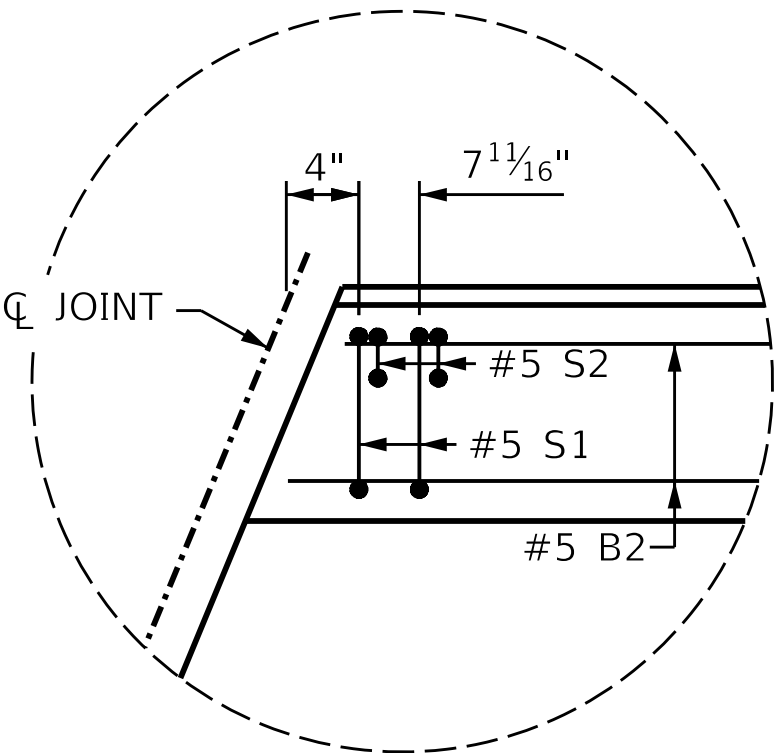


SECTION THRU RAIL



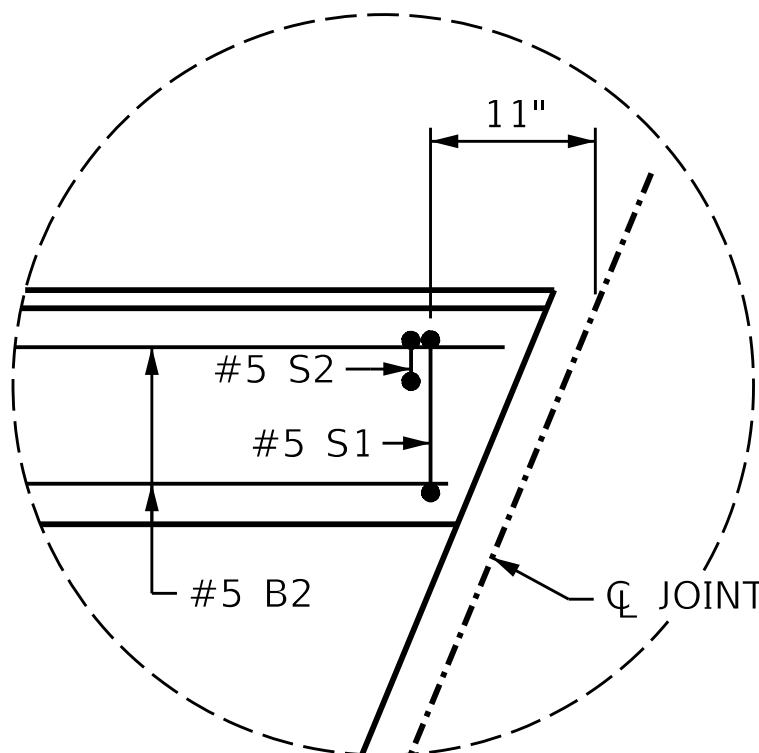
SECTION S-S

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



DETAIL "A"

OBTUSE CORNERS (TYP.)



DETAIL "B"

ACUTE CORNERS (TYP.)

NOTES

THE 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.

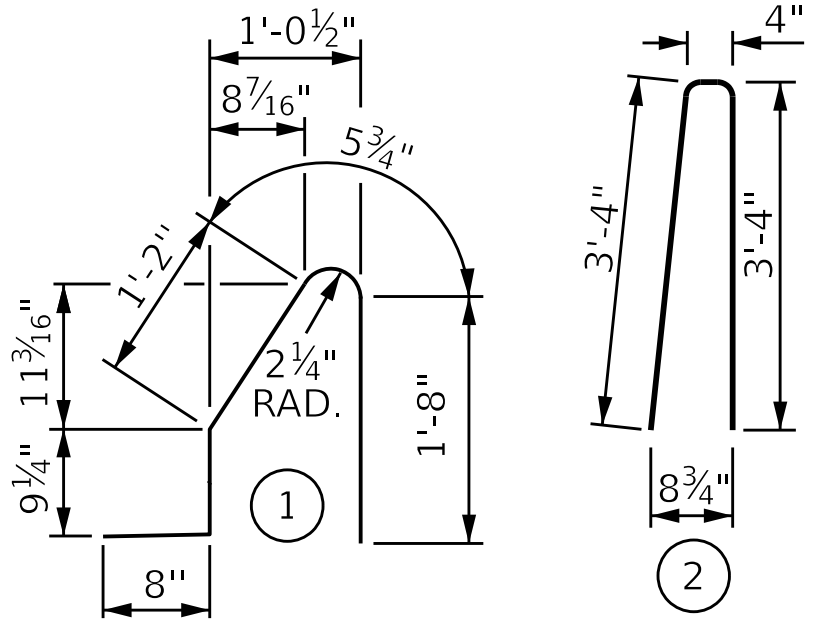
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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.

QUANTITIES FOR BARRIER RAIL ON APPROACH SLAB ARE INCLUDED ON BRIDGE APPROACH SLAB SHEETS.

FOR STRIP SEAL JOINT DETAILS, SEE "STRIP SEAL JOINT DETAILS FOR BARRIER RAIL" SHEET.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S1	446	#5	1	4'-9"	2210
* S2	446	#5	2	7'-0"	3256
* B1	132	#5	STR	27'-9"	3821
* B2	88	#5	STR	13'-7"	1247

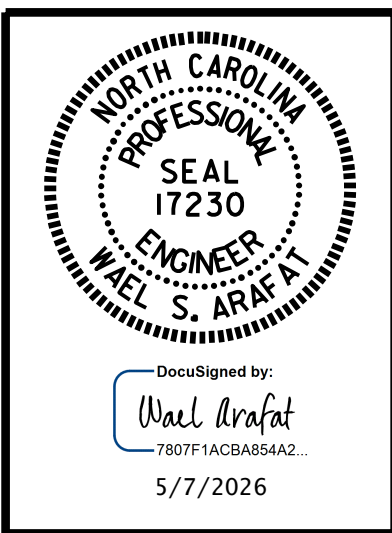
* EPOXY COATED REINFORCING STEEL	10,534 LBS.
CLASS AA CONCRETE	59.0 CU. YDS
CONCRETE BARRIER RAIL	434.2 LIN. FT

Δ DOES NOT INCLUDE BARRIER RAIL ON APPROACH SLAB.

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

CONCRETE
BARRIER RAIL
(WESTBOUND)

REVISIONS				SHEET NO. S01-21
NO.	BY:	DATE:	NO.	
1			3	TOTAL SHEETS
2			4	40

STR #1

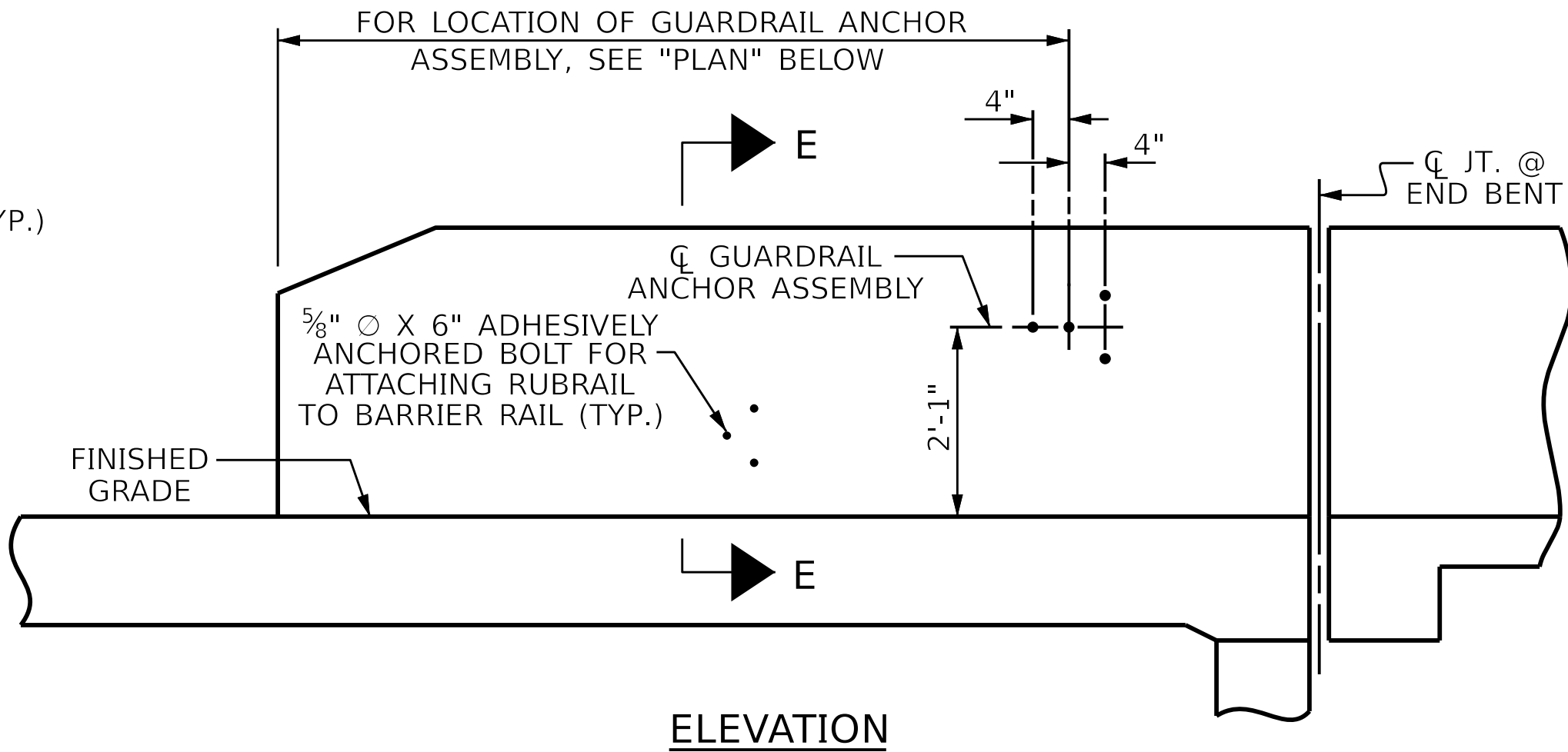
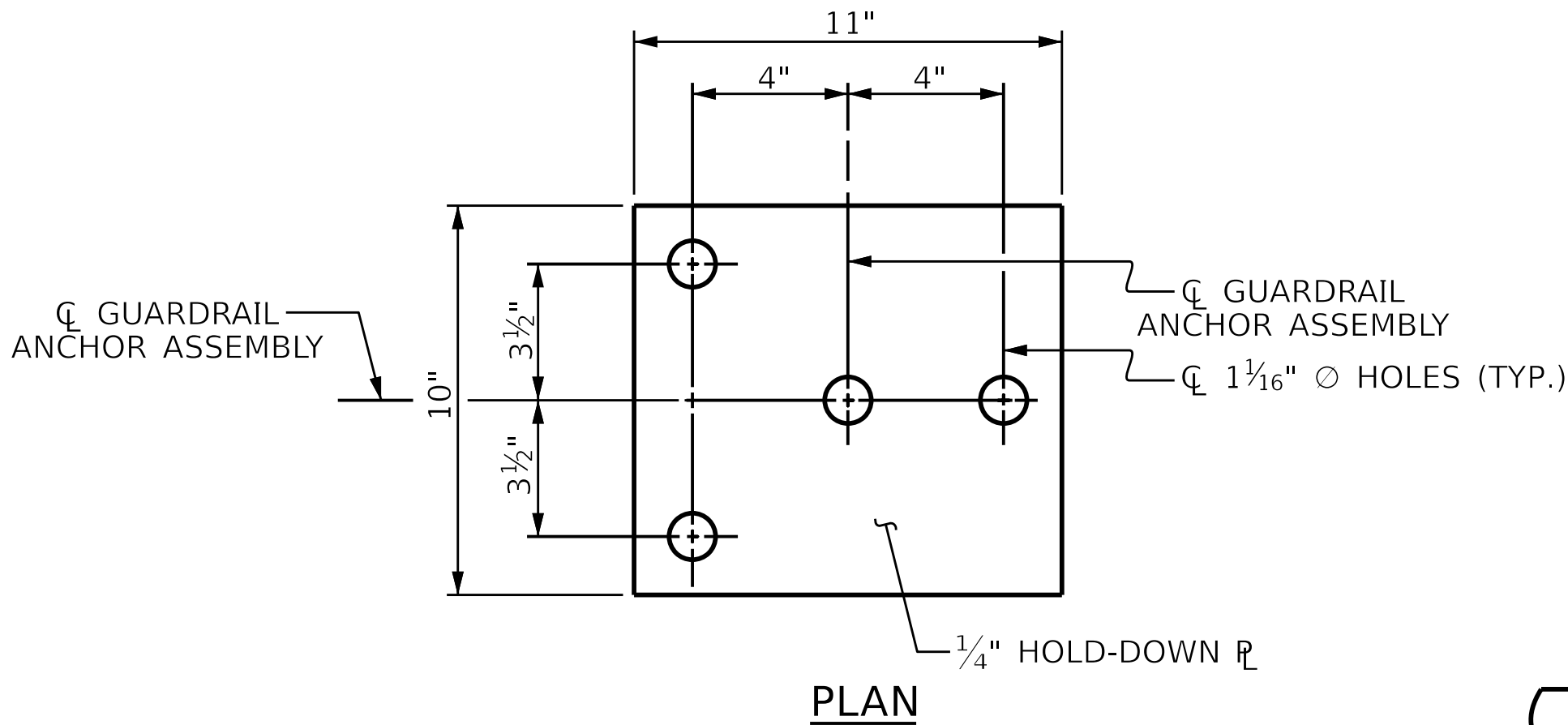
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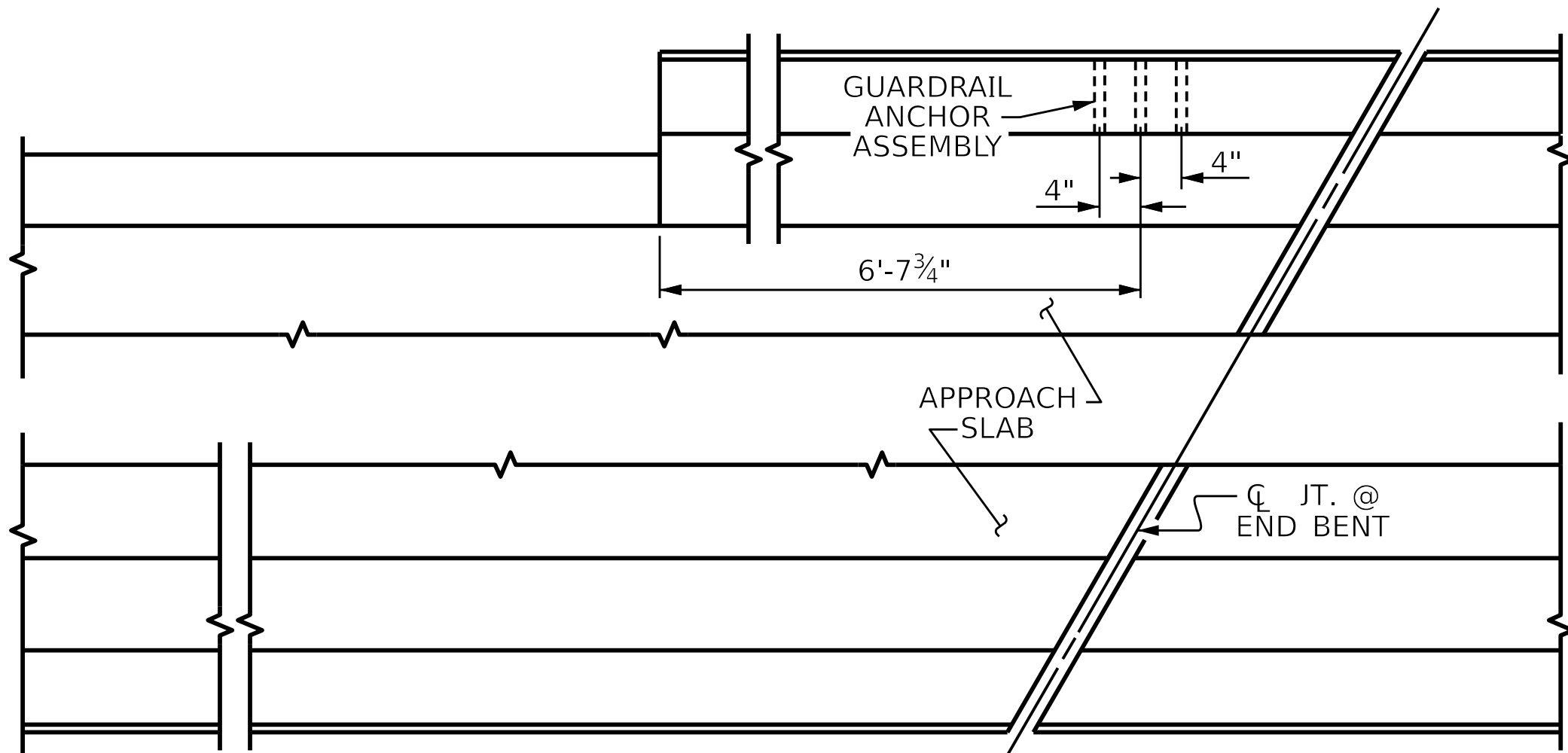
BR-0140/Project Design/Structures/FINAL/BR0140_GR ATTACHMENT

10/28/2025 1:08:33 PM

MODEL NAME: Sheet 3b WESTBOUND



ELEVATION



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 -5/8" O 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 5/8" O 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.)

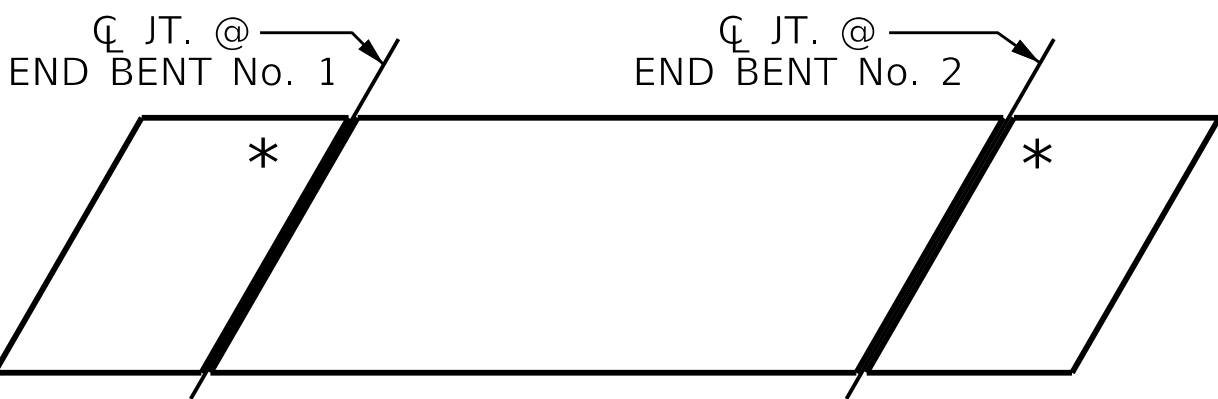
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

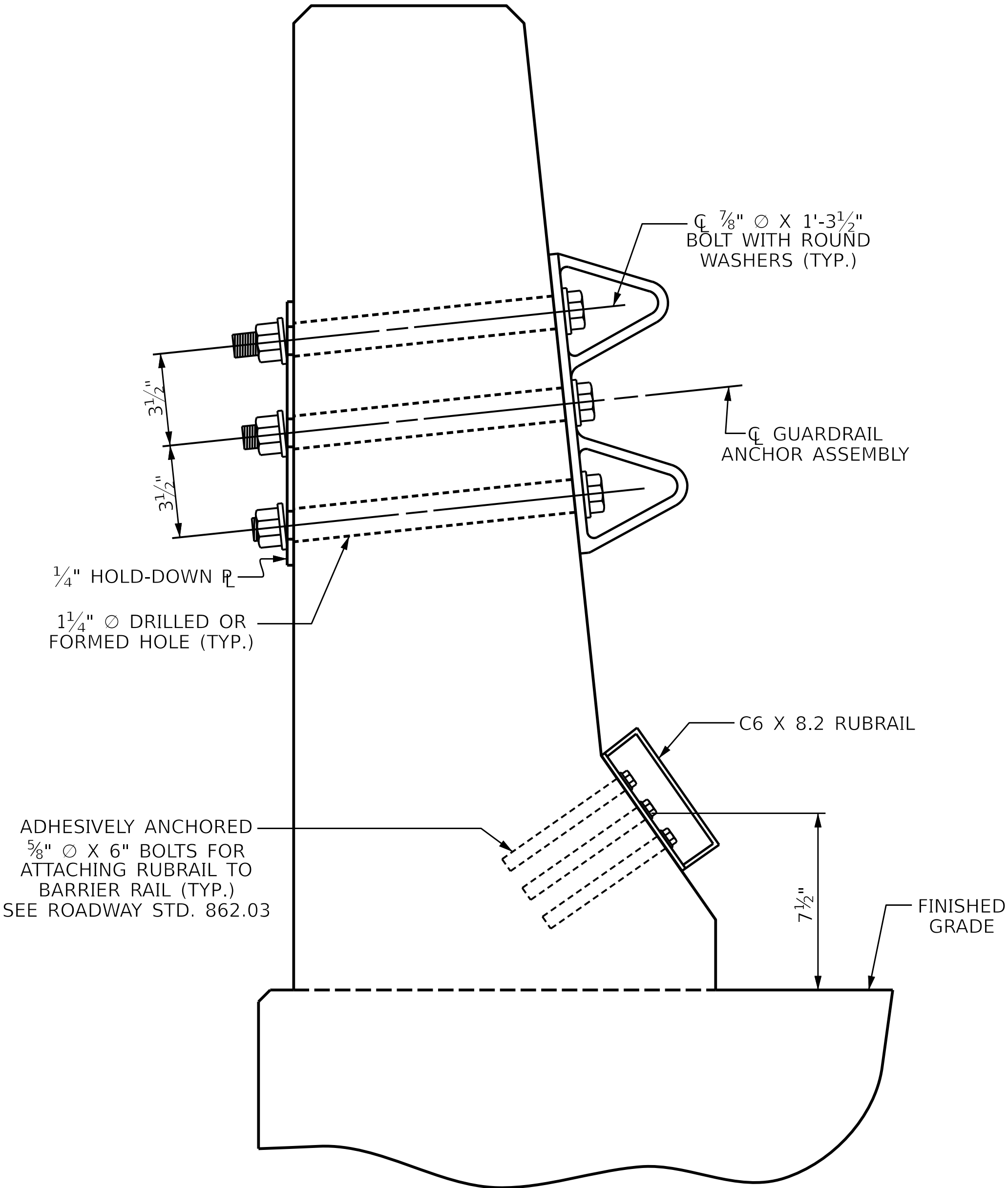
THE 1/4" O HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" O X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" O 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.



SKETCH SHOWING POINTS OF ATTACHMENTS

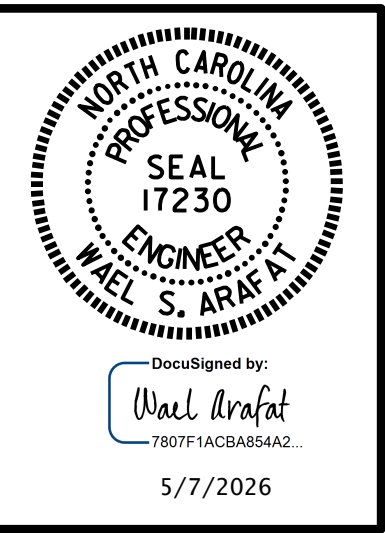
* DENOTES GUARDRAIL ANCHOR ASSEMBLY



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

ASSEMBLED BY : G.C. MORRIS	DATE : 12-24
CHECKED BY : O. PUIGCERVER	DATE : 4-25
DRAWN BY : TLA 5/06	REV. 6/13 MAA/GM
CHECKED BY : GM 5/06	REV. 12/17 MAA/THC
	REV. 6/22 BNB/AAI



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PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

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

REVISIONS				SHEET NO. S01-22
NO.	BY:	DATE:	NO.	
1			3	TOTAL SHEETS
2			4	40

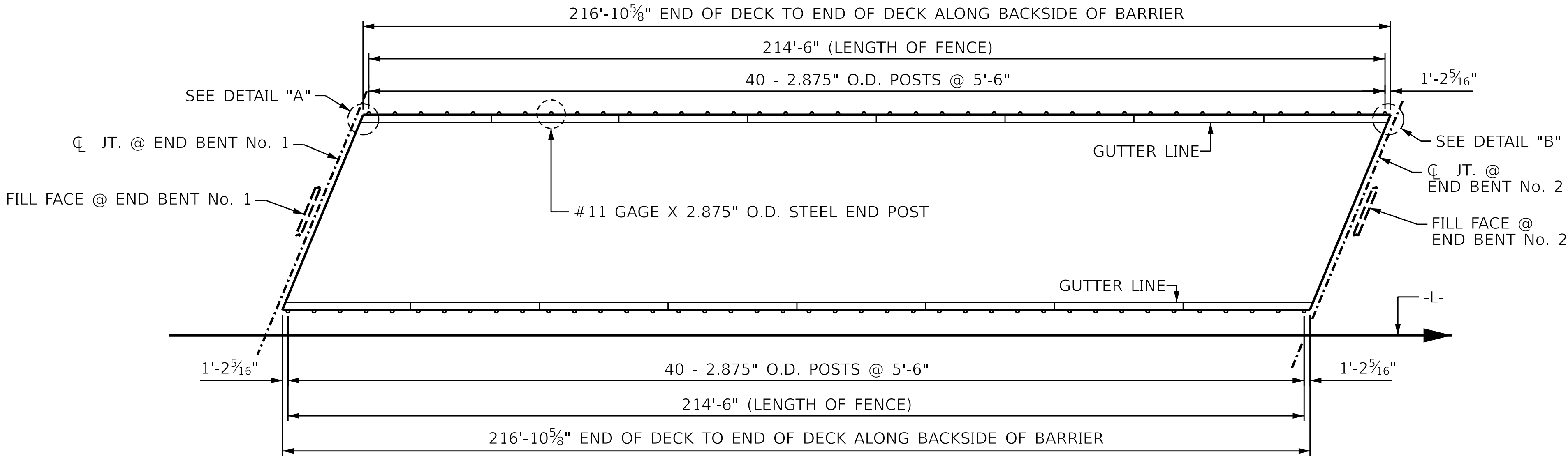
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BR-0140/Project Design/Structures/FINAL/BR140_FENCE DETAILS

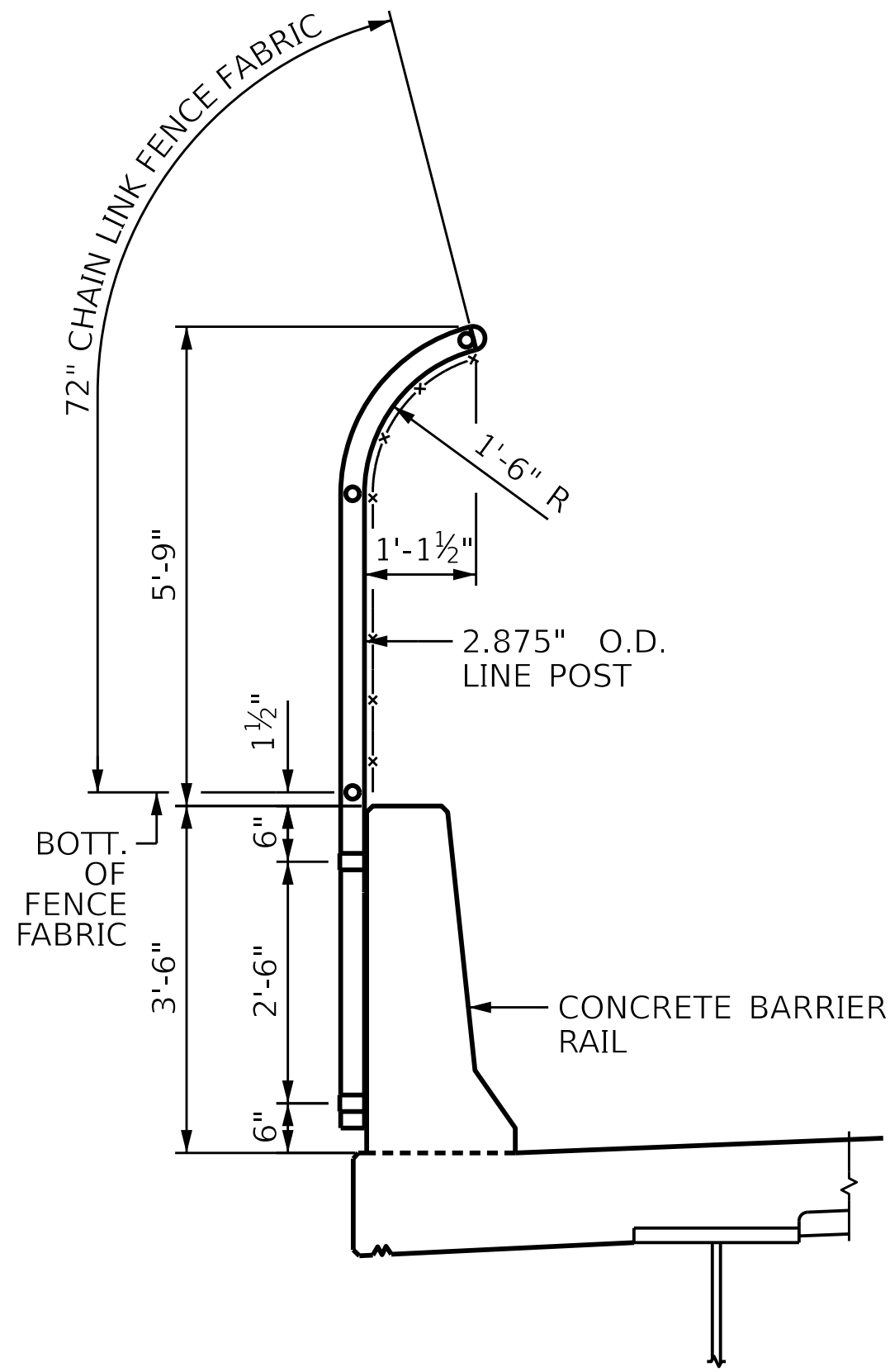
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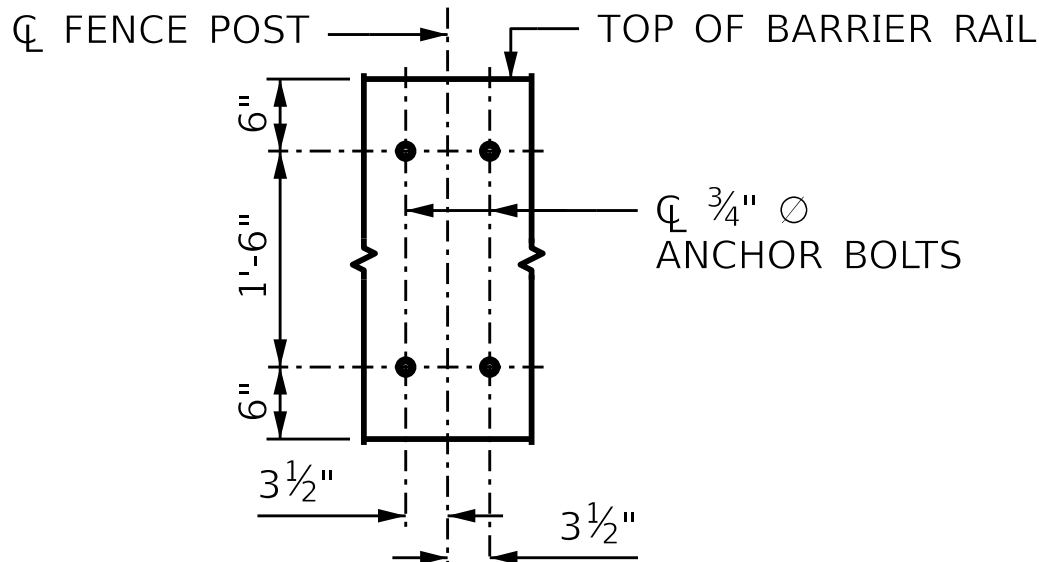
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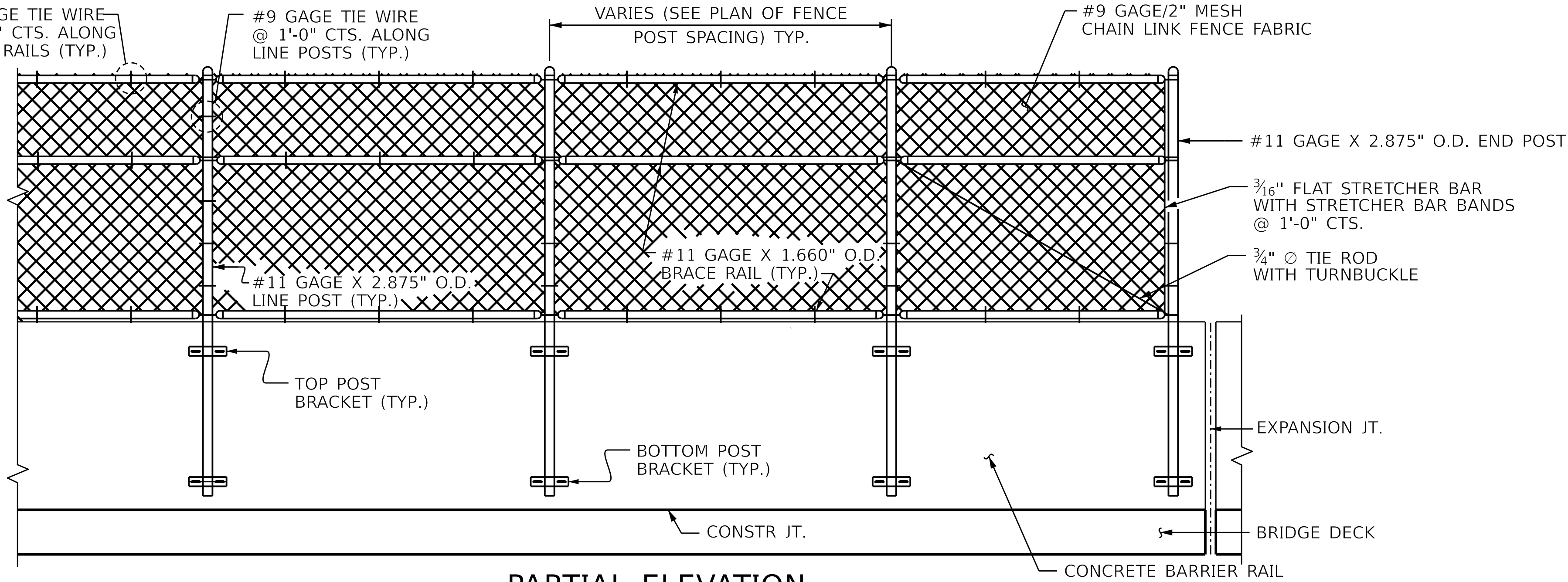
PLAN OF FENCE POST SPACING



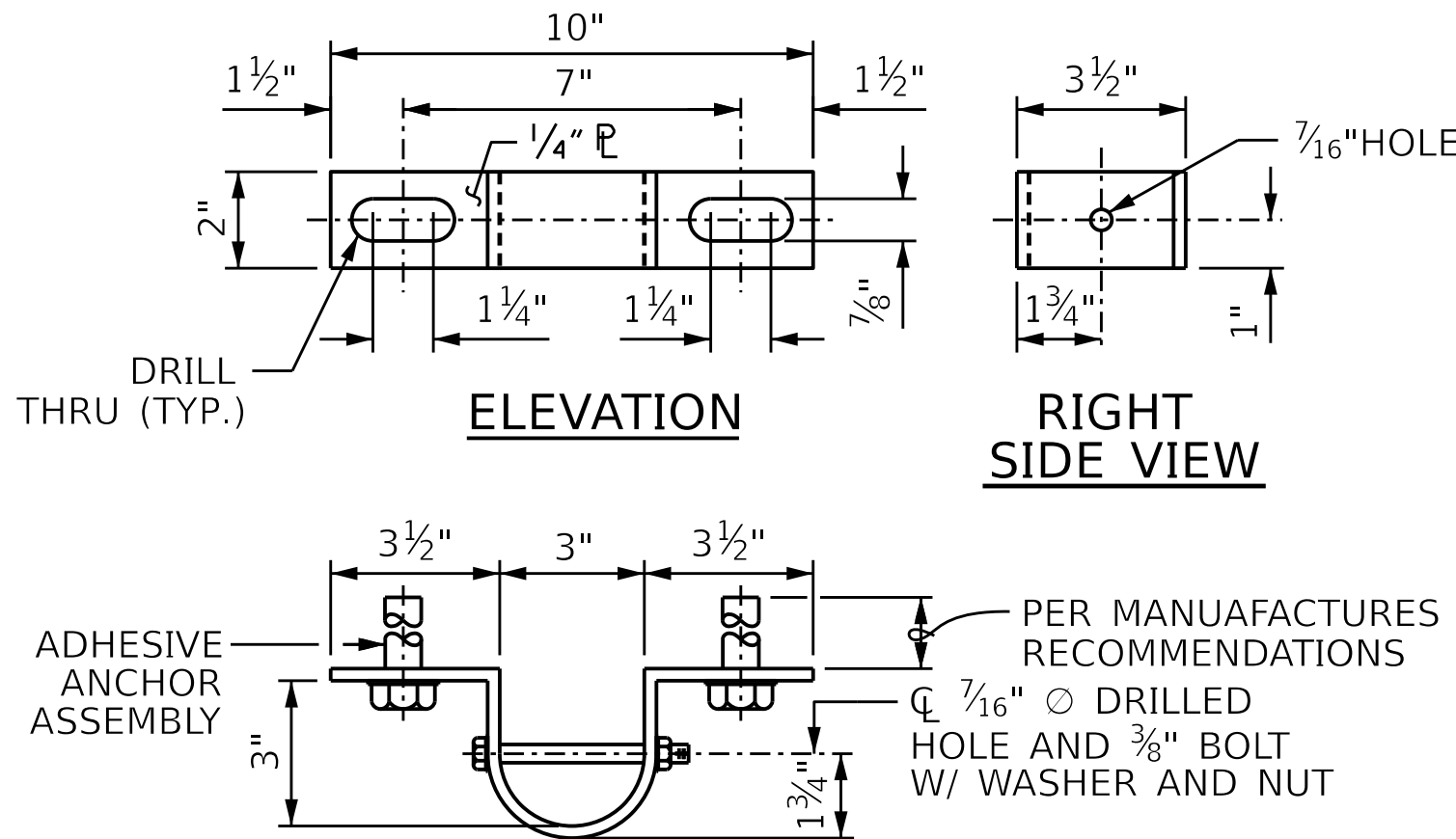
SECTION THRU FENCE



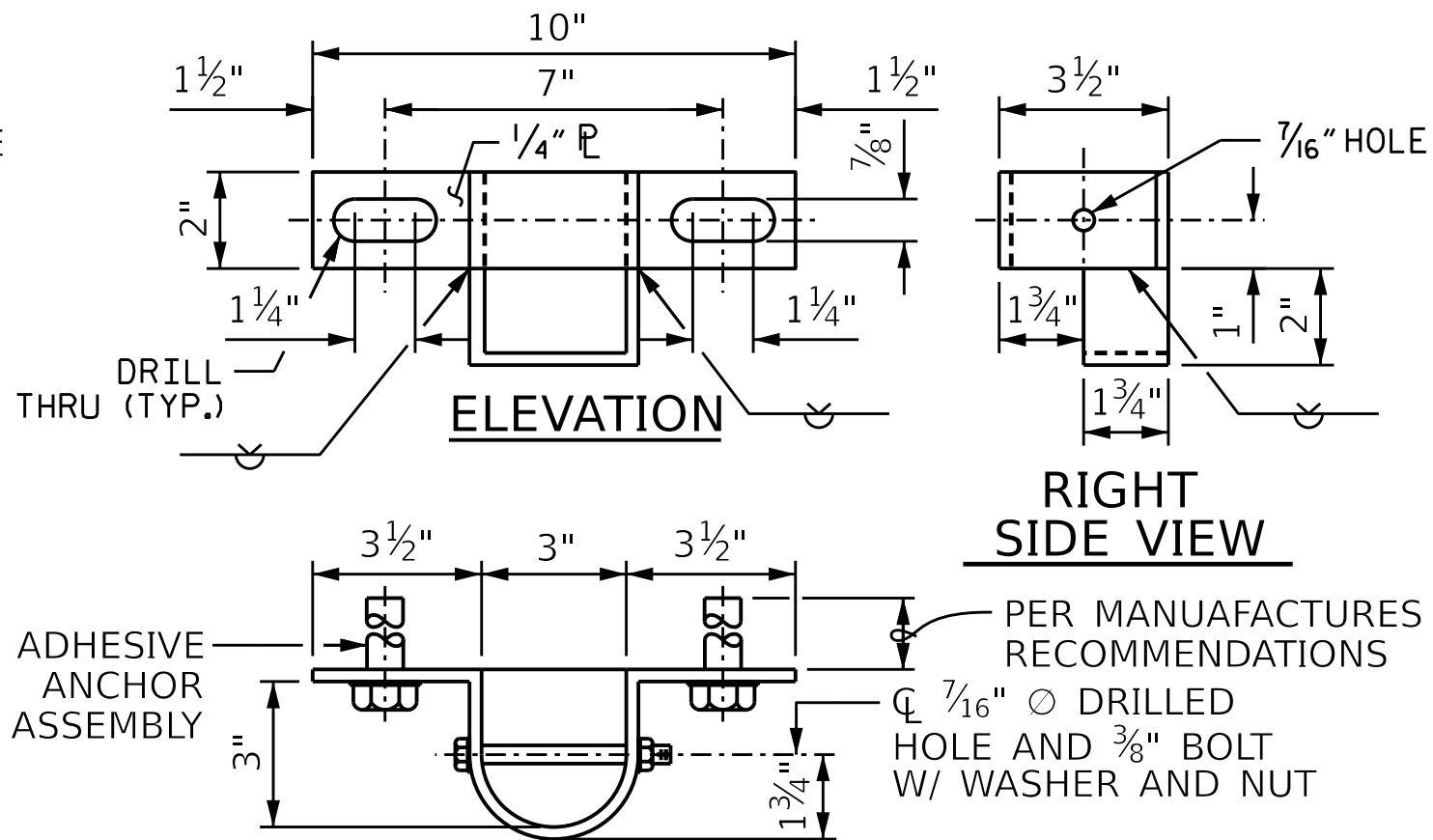
BOLT SETTING DETAIL



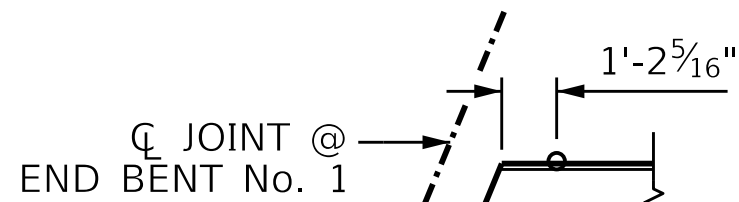
PARTIAL ELEVATION



TOP POST BRACKET

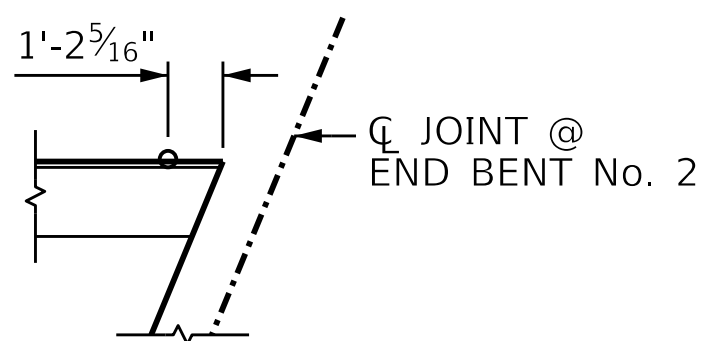


BOTTOM POST BRACKET



DETAIL "A"

OBTUSE CORNERS (TYP.)



DETAIL "B"

ACUTE CORNERS (TYP.)

NOTES

FOR BRIDGE MOUNTED 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. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED.

ALL FENCE MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, BLACK VINYL COAT ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1050 OF THE STANDARD SPECIFICATIONS.

ALL FENCE COMPONENTS SHALL BE BLACK VINYL COATED.

FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN A 6" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN CONCRETE BARRIER RAIL.

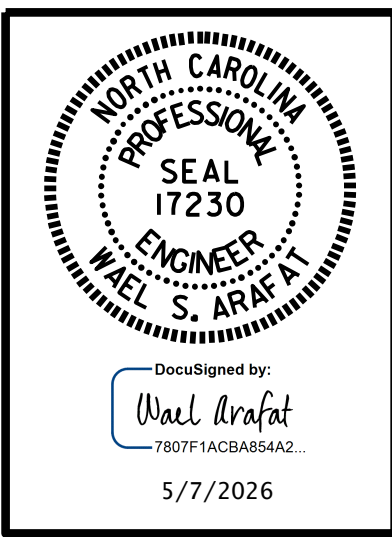
FENCE POST LOCATION SHALL BE SHIFTED AS NECESSARY TO CLEAR PARAPET REINFORCING STEEL AND TO CLEAR RAIL POST ANCHOR ASSEMBLY.

WELDING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 1072-20 OF STANDARD SPECIFICATIONS.

ADHESIVE BONDING SYSTEM SHALL HAVE MINIMUM PULLOUT STRENGTH OF 10 KIPS. THE ADHESIVE BONDING SYSTEM SHALL BE CHOSEN FROM THOSE ON THE NCDOT APPROVED PRODUCTS LIST.

72" CHAIN LINK FENCE
(BLACK VINYL COATED)

TOTAL PAY LENGTH 429' LIN. FT.



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PARRISH & PARTNERS
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220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

BRIDGE MOUNTED
CHAIN LINK FENCE
DETAILS
(WESTBOUND)

REVISIONS

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

SHEET NO.

S01-23

TOTAL SHEETS

40

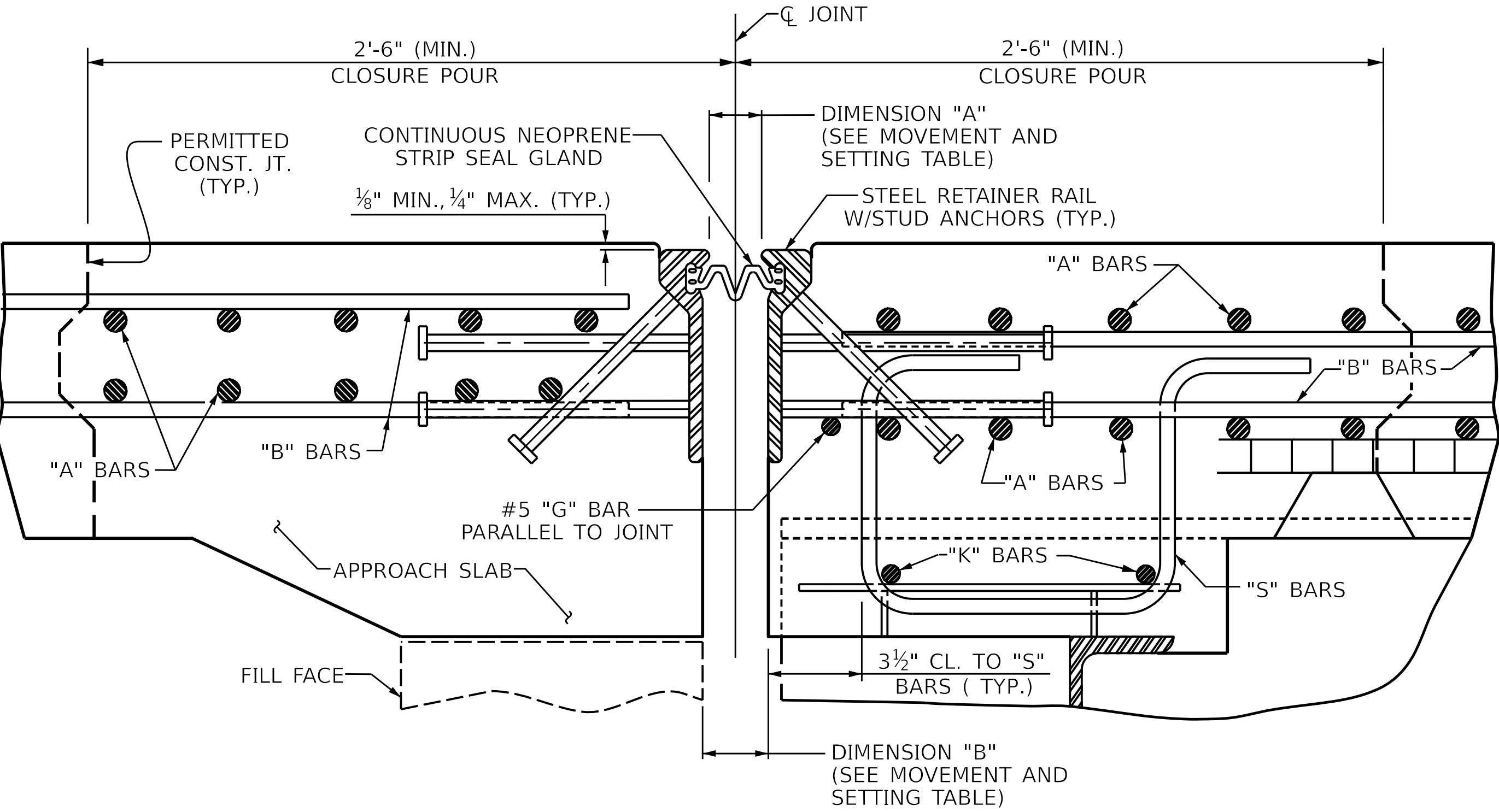
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MODEL NAME: WESTBOUND



STRIP SEAL EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

MOVEMENT AND SETTING AT JOINT								
LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG ϕ RDWY)	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 No. 1	112°-29'-19"	1/2"	2 1/16"	2"	1 7/8"	2 9/16"	2 1/2"	2 3/8"
END BENT No. 2	112°-29'-19"	1/2"	2 1/16"	2"	1 7/8"	2 9/16"	2 1/2"	2 3/8"

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.

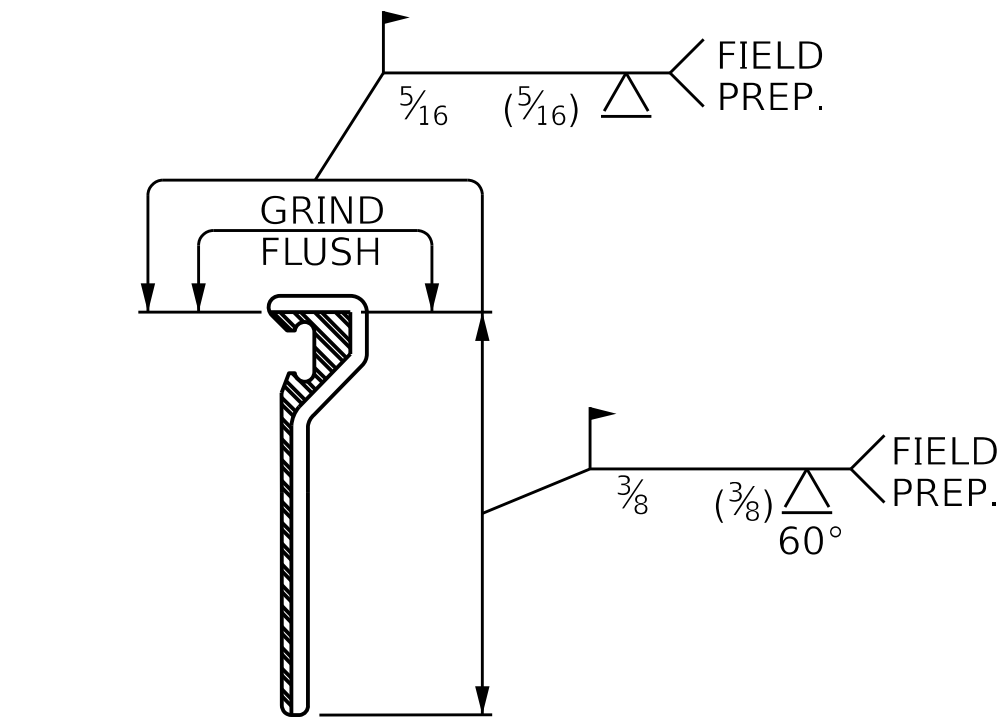
FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

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.

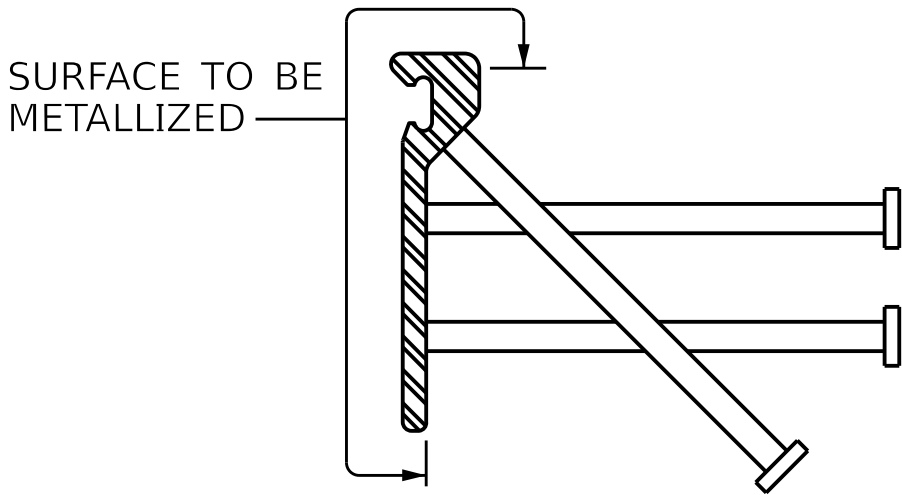
NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.

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

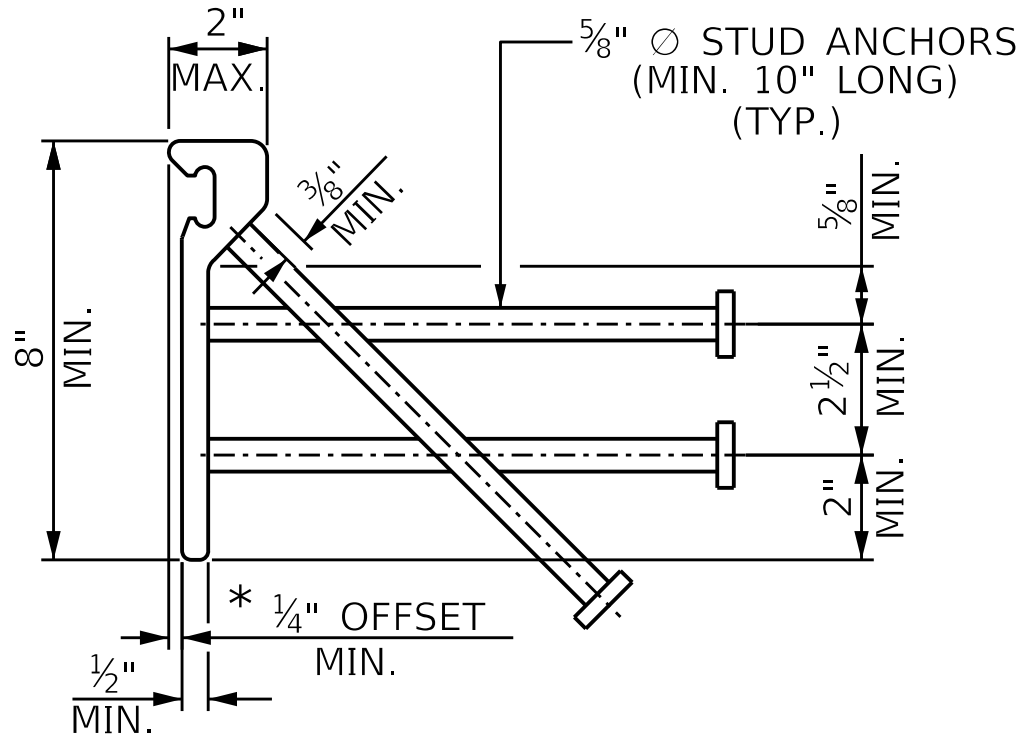
THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" ϕ BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



STEEL RETAINER RAIL (FIELD SPLICE DETAIL)

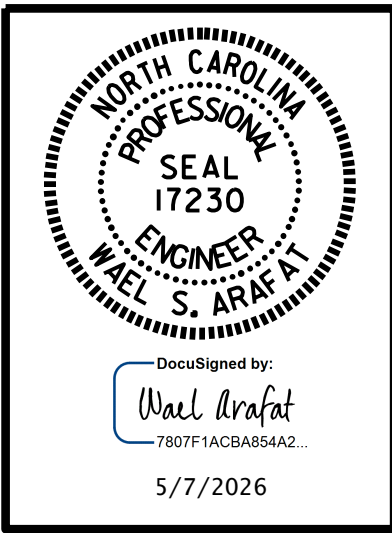


METALLIZING DETAIL



TYPICAL SECTION STEEL RETAINER RAIL

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



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PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

STRIP SEAL EXPANSION
JOINT DETAILS
(WESTBOUND)

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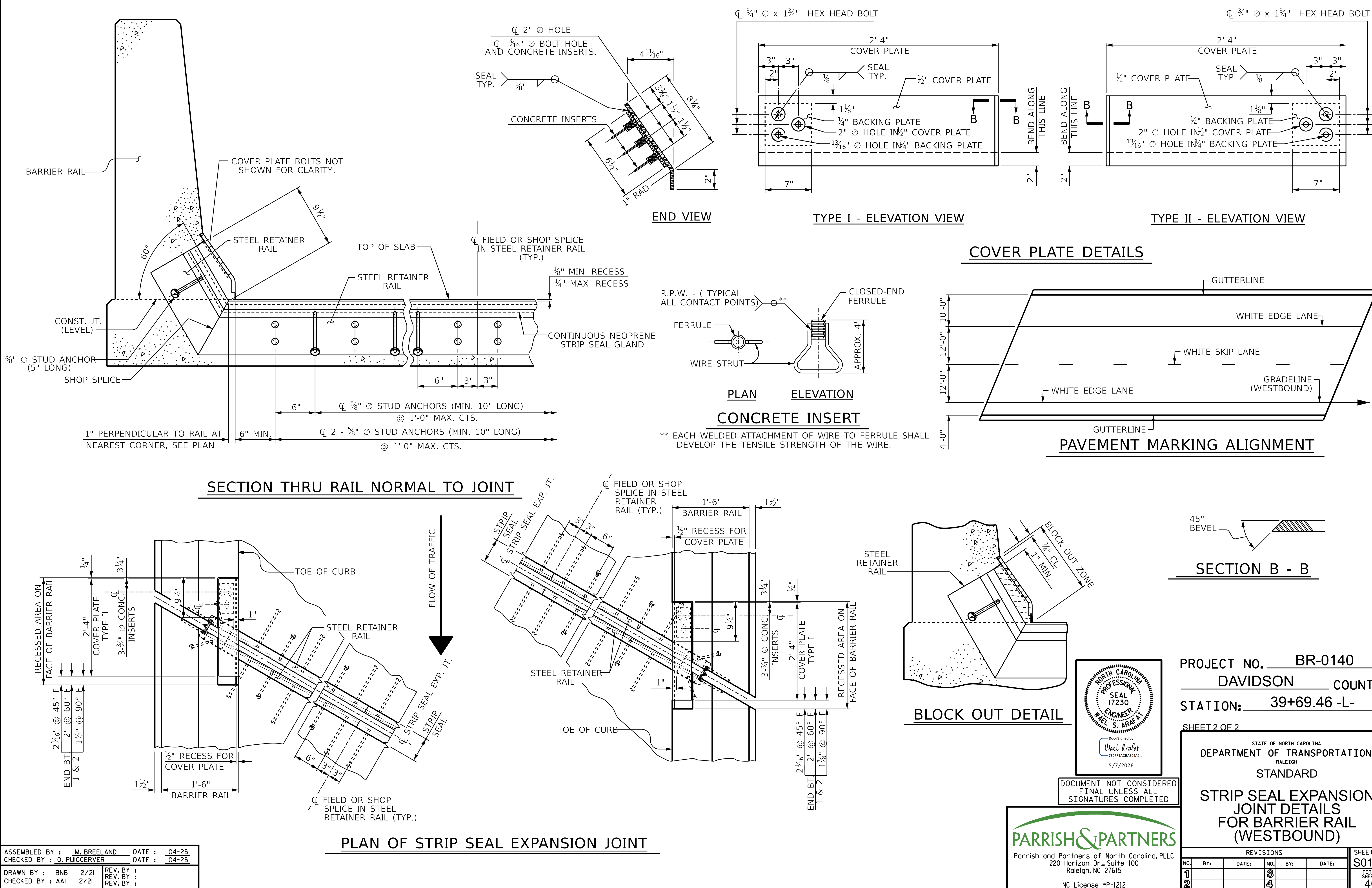
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CHECKED BY : O. PUIGCERVER DATE : 04-25

DRAWN BY : MAA 6/20
CHECKED BY : BNB 6/20

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CHECKED BY : O. PUIGCERVER	DATE : 04-25
DRAWN BY : BNB 2/21	REV. BY :
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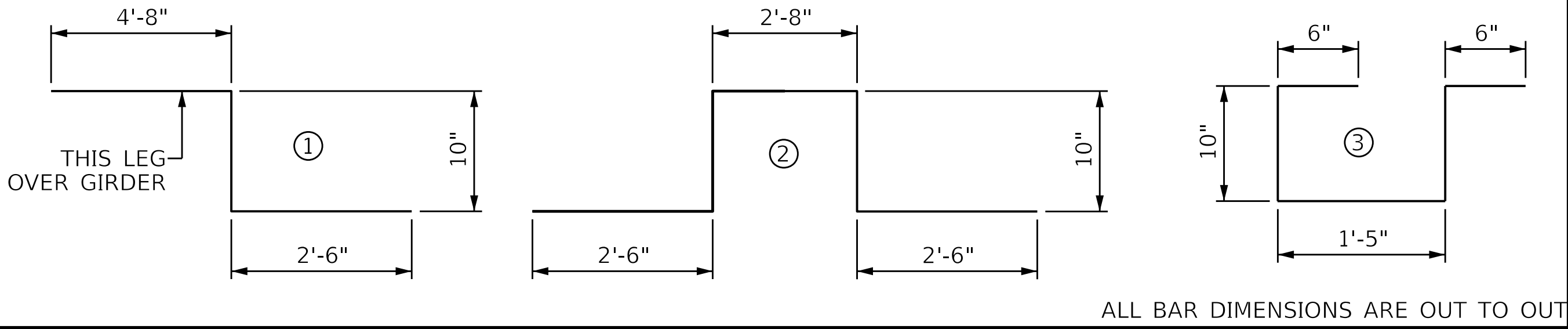
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MODEL NAME: SHEET MODEL - REINF. STEEL WESTBOUND

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	435	#5	STR	40'-11"	18564	* B1	56	#4	STR	29'-3"	1094	* G1	2	#5	STR	44'-3"	92
A2	435	#5	STR	40'-11"	18564	* B2	304	#6	STR	42'-5"	19368						
						B3	224	#5	STR	55'-8"	13006	* K1	8	#5	1	8'-0"	67
						* B4	36	#4	STR	28'-8"	121	* K2	8	#5	2	9'-4"	78
*A101	4	#5	STR	1'-10"	8	A201	4	#5	STR	1'-10"	8	* K3	12	#5	STR	9'-8"	121
*A102	4	#5	STR	4'-0"	17	A202	4	#5	STR	4'-0"	17						
*A103	4	#5	STR	6'-3"	26	A203	4	#5	STR	6'-3"	26	* S1	60	#4	3	4'-1"	164
*A104	4	#5	STR	8'-6"	35	A204	4	#5	STR	8'-6"	35						
*A105	4	#5	STR	10'-8"	45	A205	4	#5	STR	10'-8"	45	* EPOXY COATED REINFORCING STEEL			LBS.	41,788	
*A106	4	#5	STR	12'-11"	54	A206	4	#5	STR	12'-11"	54				LBS.	33,121	
*A107	4	#5	STR	15'-1"	63	A207	4	#5	STR	15'-1"	63						
*A108	4	#5	STR	17'-4"	72	A208	4	#5	STR	17'-4"	72						
*A109	4	#5	STR	19'-6"	81	A209	4	#5	STR	19'-6"	81						
*A110	4	#5	STR	21'-9"	91	A210	4	#5	STR	21'-9"	91						
*A111	4	#5	STR	24'-0"	100	A211	4	#5	STR	24'-0"	100						
*A112	4	#5	STR	26'-2"	109	A212	4	#5	STR	26'-2"	109						
*A113	4	#5	STR	28'-5"	119	A213	4	#5	STR	28'-5"	119						
*A114	4	#5	STR	30'-7"	128	A214	4	#5	STR	30'-7"	128						
*A115	4	#5	STR	32'-10"	137	A215	4	#5	STR	32'-10"	137						
*A116	4	#5	STR	35'-0"	146	A216	4	#5	STR	35'-0"	146						
*A117	4	#5	STR	37'-3"	155	A217	4	#5	STR	37'-3"	155						
*A118	4	#5	STR	39'-6"	165	A218	4	#5	STR	39'-6"	165						

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.)
TOTAL	286.2	33,121	41,788

** QUANTITIES FOR CONCRETE PARAPET AND SIDEWALK ARE NOT INCLUDED.

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

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	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"			

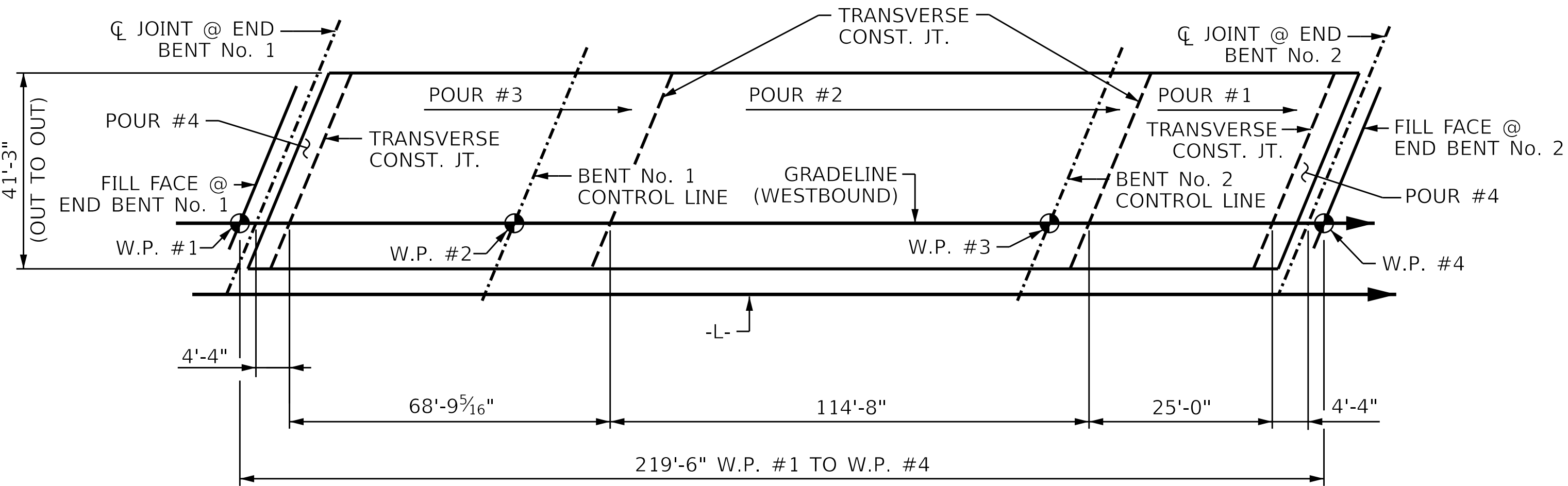
CLASS AA CONCRETE BREAKDOWN

POUR #1	32.8	CU. YDS.
POUR #2	150.2	CU. YDS.
POUR #3	89.8	CU. YDS.
POUR #4	13.4	CU. YDS.
TOTAL	286.2	CU. YDS.

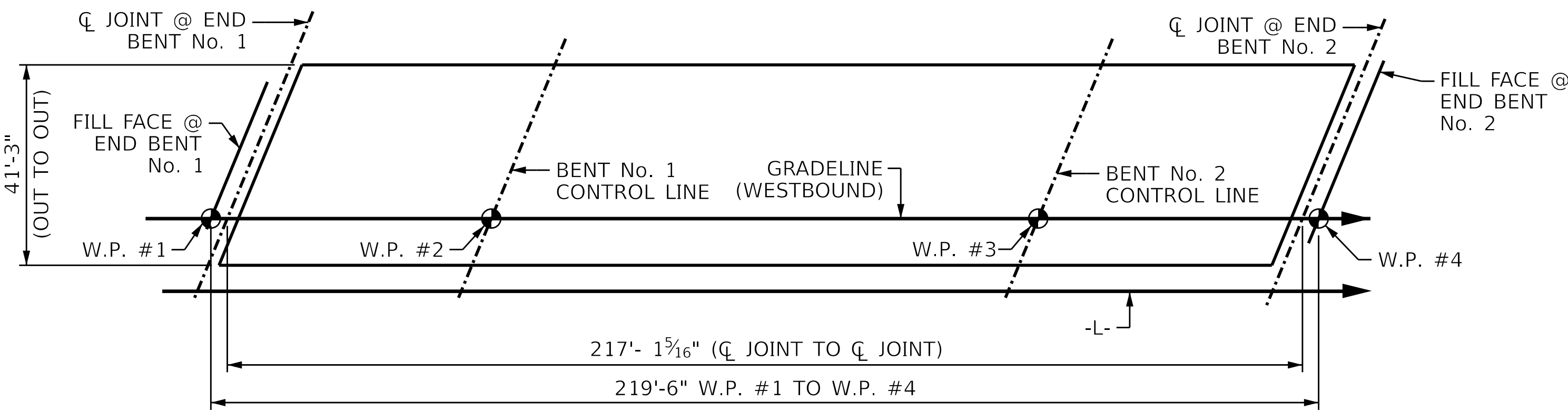
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CHECKED BY :	O. PUIGCERVER	DATE :	4-25
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GROOVING BRIDGE FLOORS

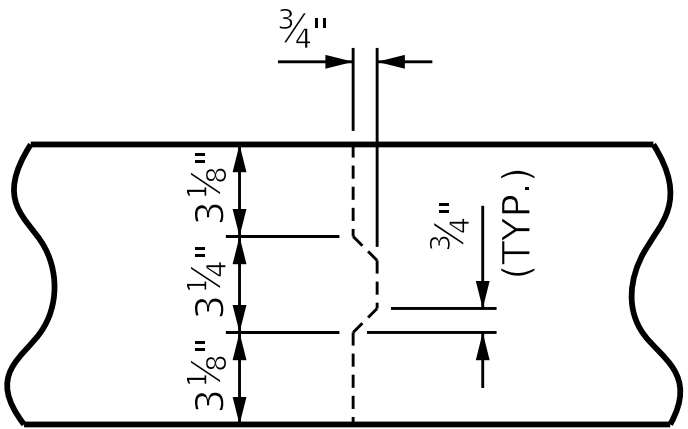
APPROACH SLABS	1738	SQ. FT.
BRIDGE DECK	7579	SQ. FT.
TOTAL	9317	SQ. FT.



POURING SEQUENCE

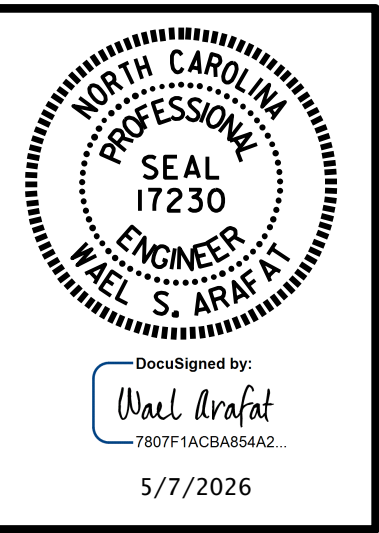


LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 8,956)



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.



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DAVIDSON COUNTY
STATION: 39+69.46 -L-

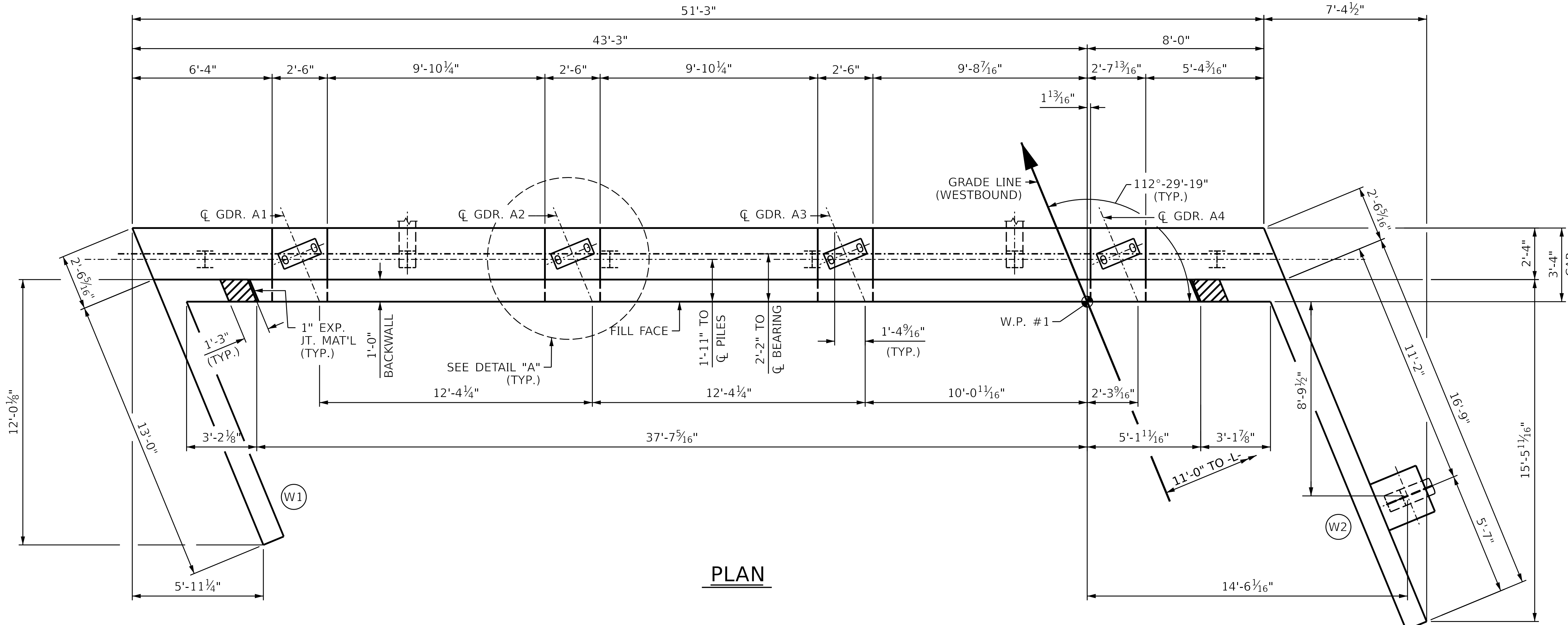
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BILL OF MATERIAL
(WESTBOUND)

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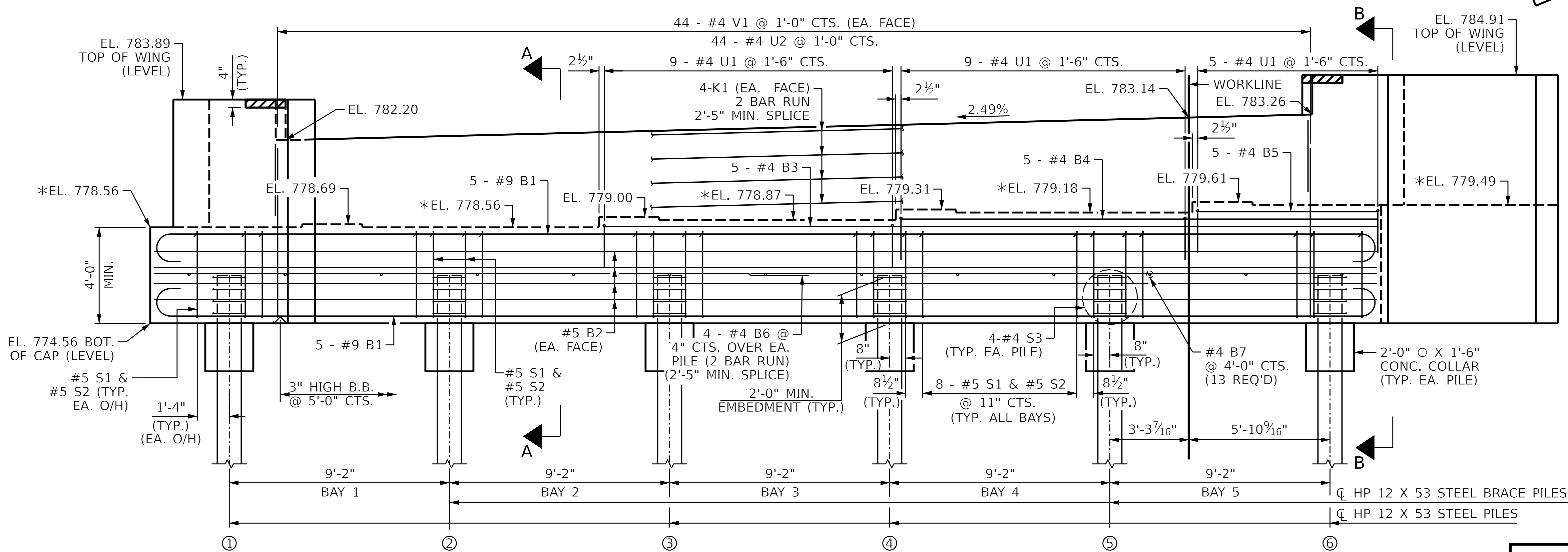
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PLAN



ELEVATION

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A, SHEET 3 OF 3.

WING BRACE PILE NOT SHOWN FOR CLARITY.

NOTES

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

FOR PILE SPLICE DETAILS, SEE END BENT 1 SHEET 3 OF 3.

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 THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

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

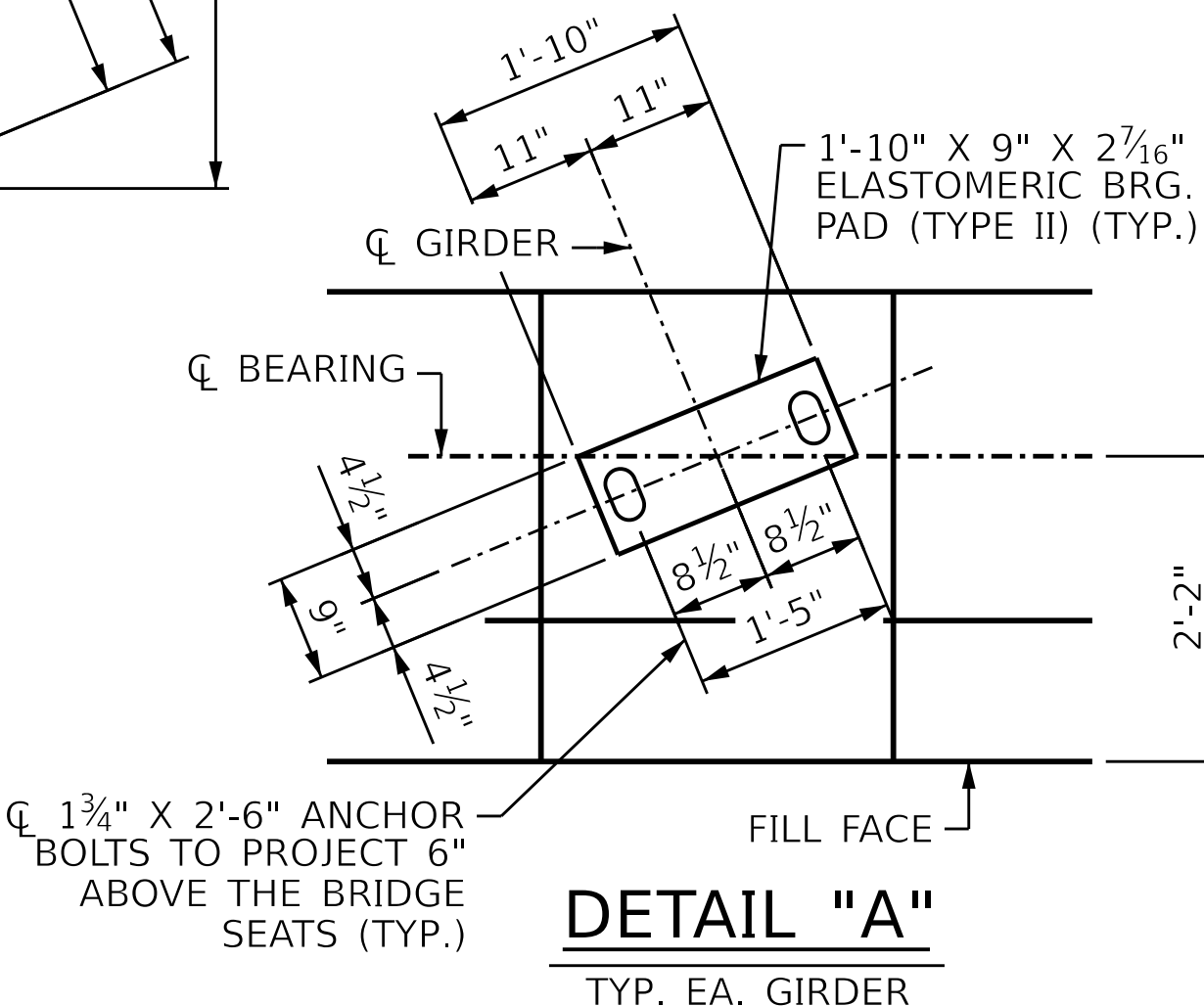
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS AND ANCHOR BOLTS ARE GROUTED.

THE #4 B3, #4 B4, AND #4 B5 BARS MAY BE CUT TO MAINTAIN 2" MINIMUM CLEARANCE.

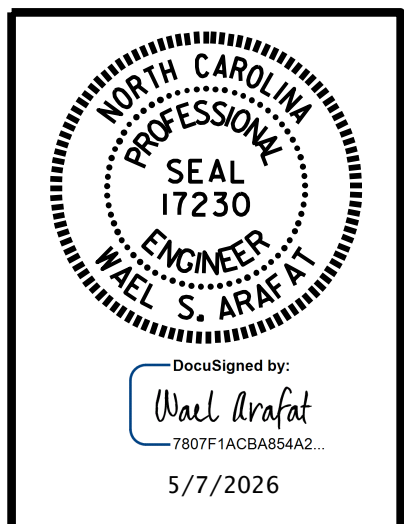
FOR WING DETAILS, SEE SHEET 2 OF 3.

INSTALL THE 6" Ø DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL "A"

TYP. EA. GIRDER



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Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1
(WESTBOUND)

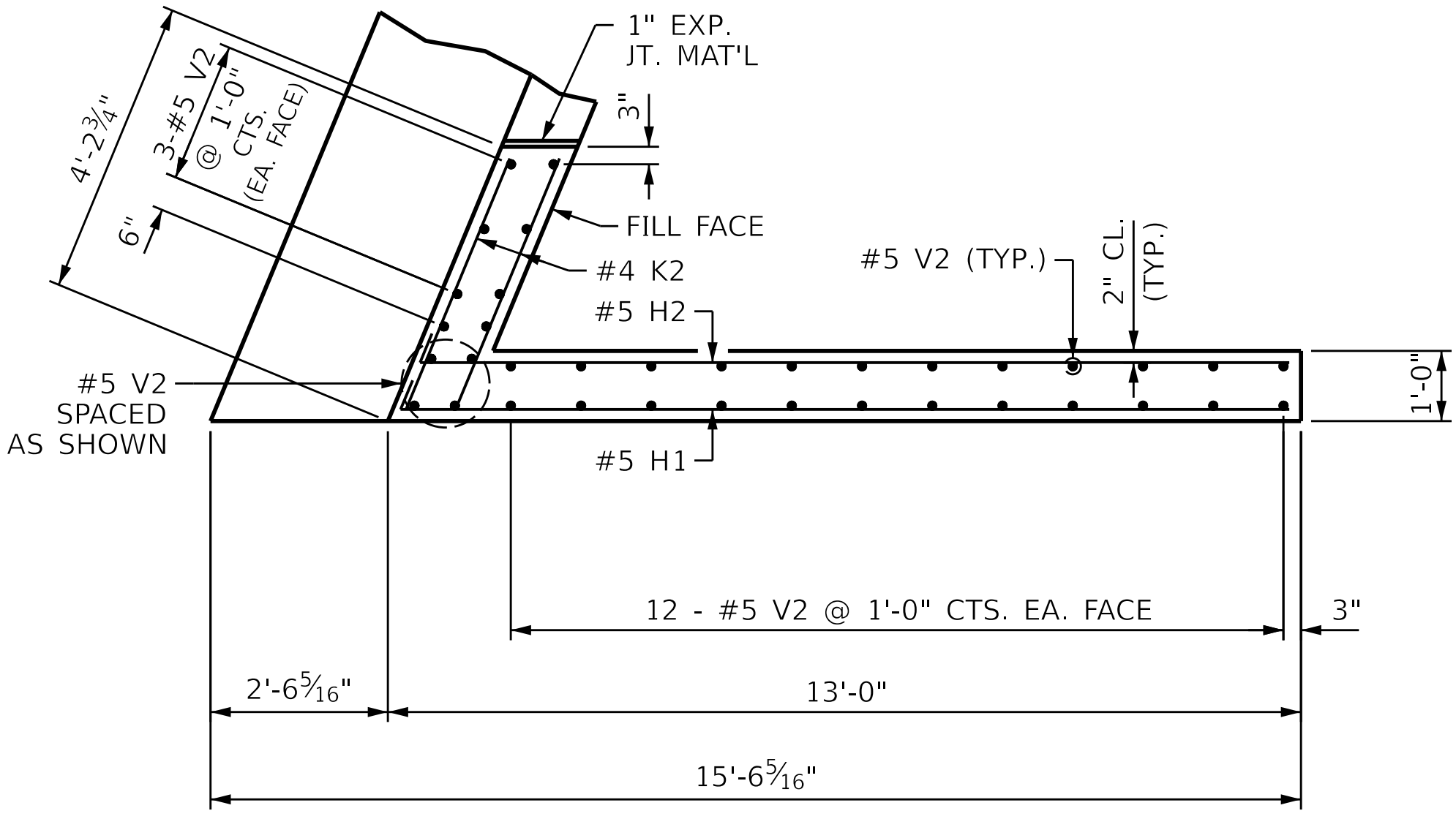
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STR #1

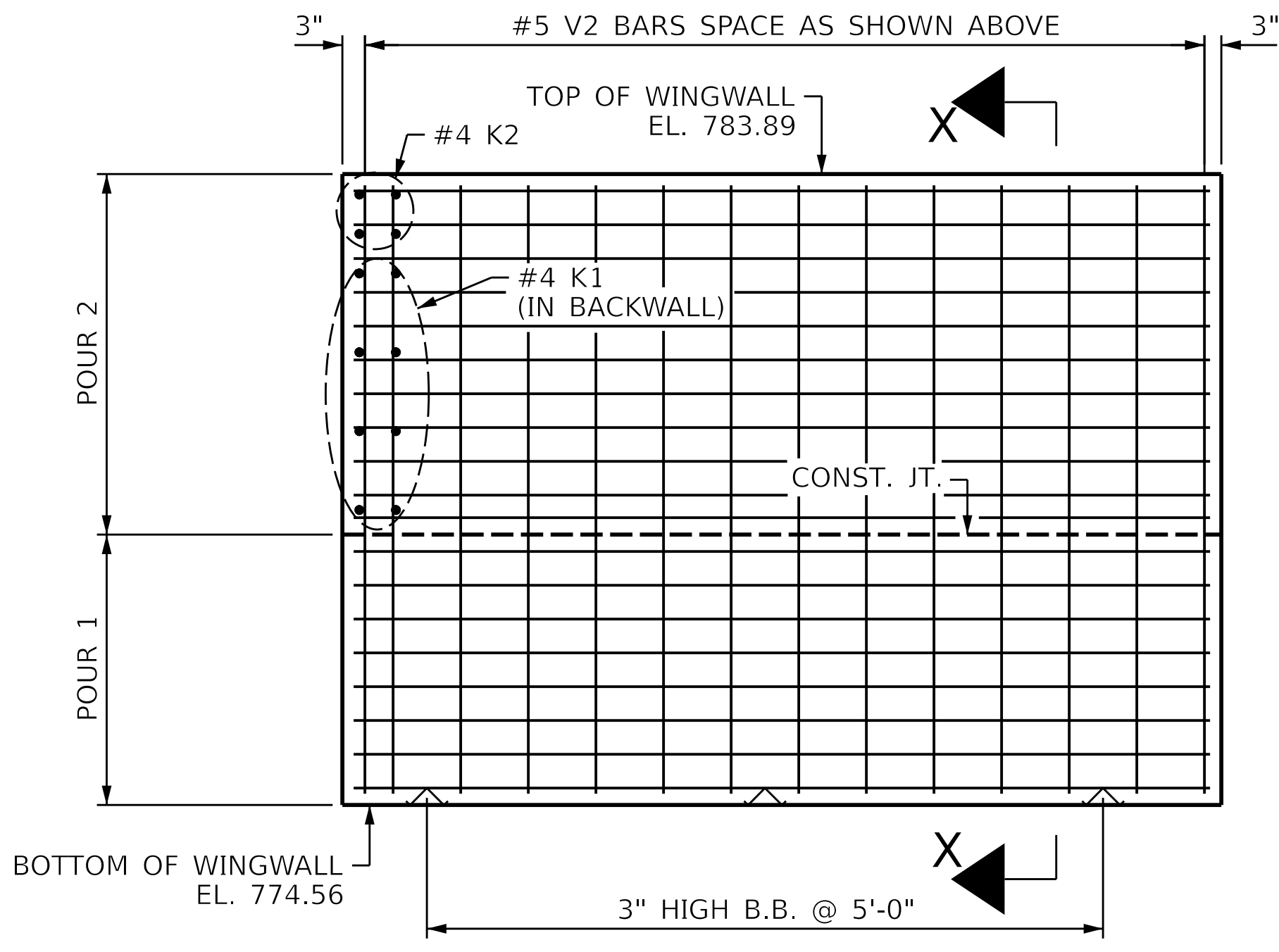
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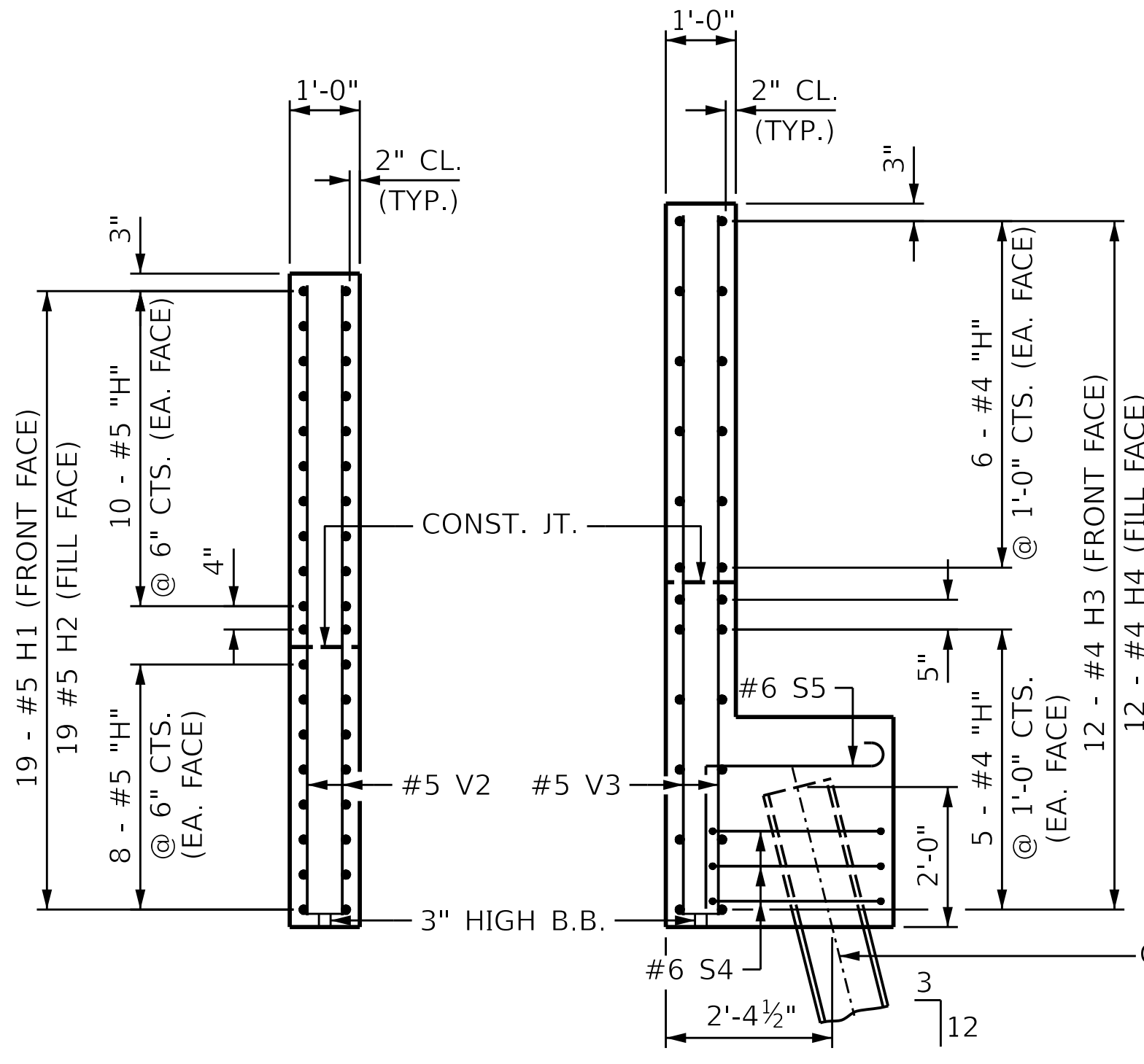
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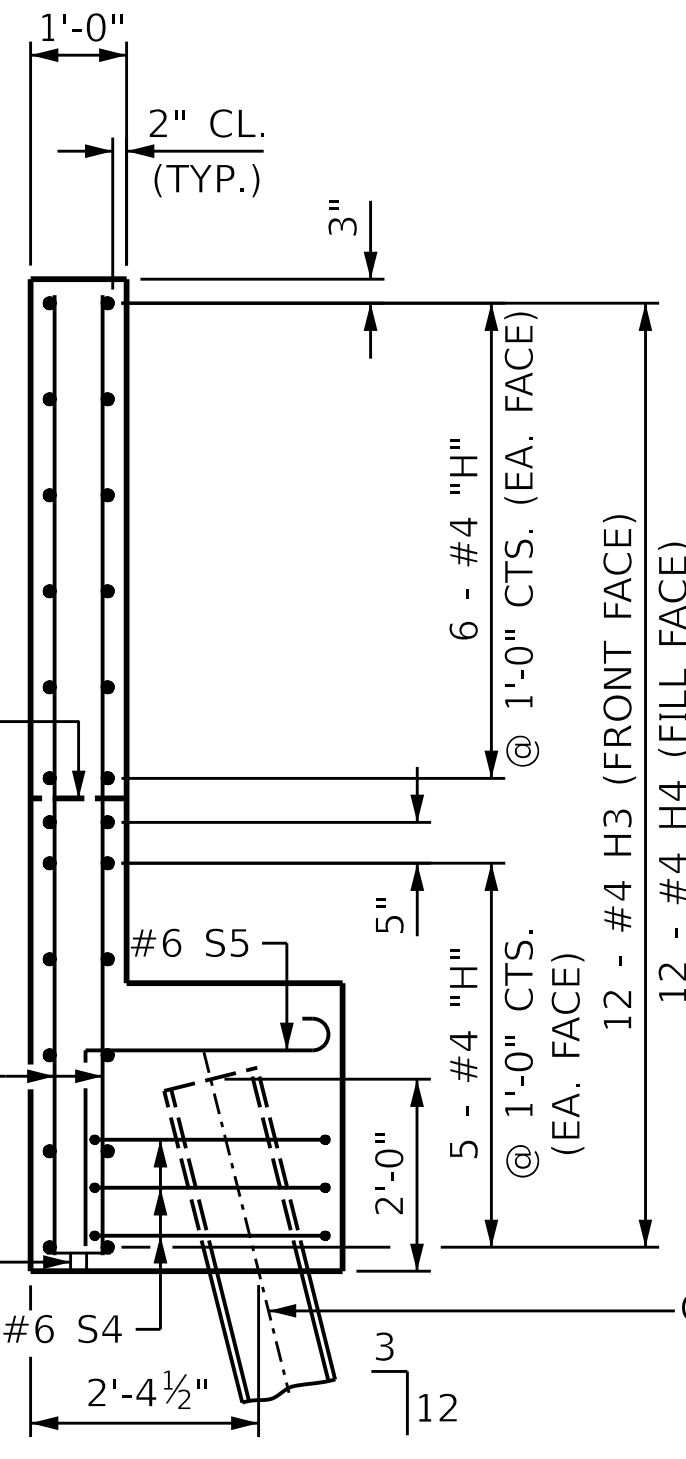
PLAN OF LEFT WINGWALL (W1)
CAP REINF. NOT SHOWN FOR CLARITY



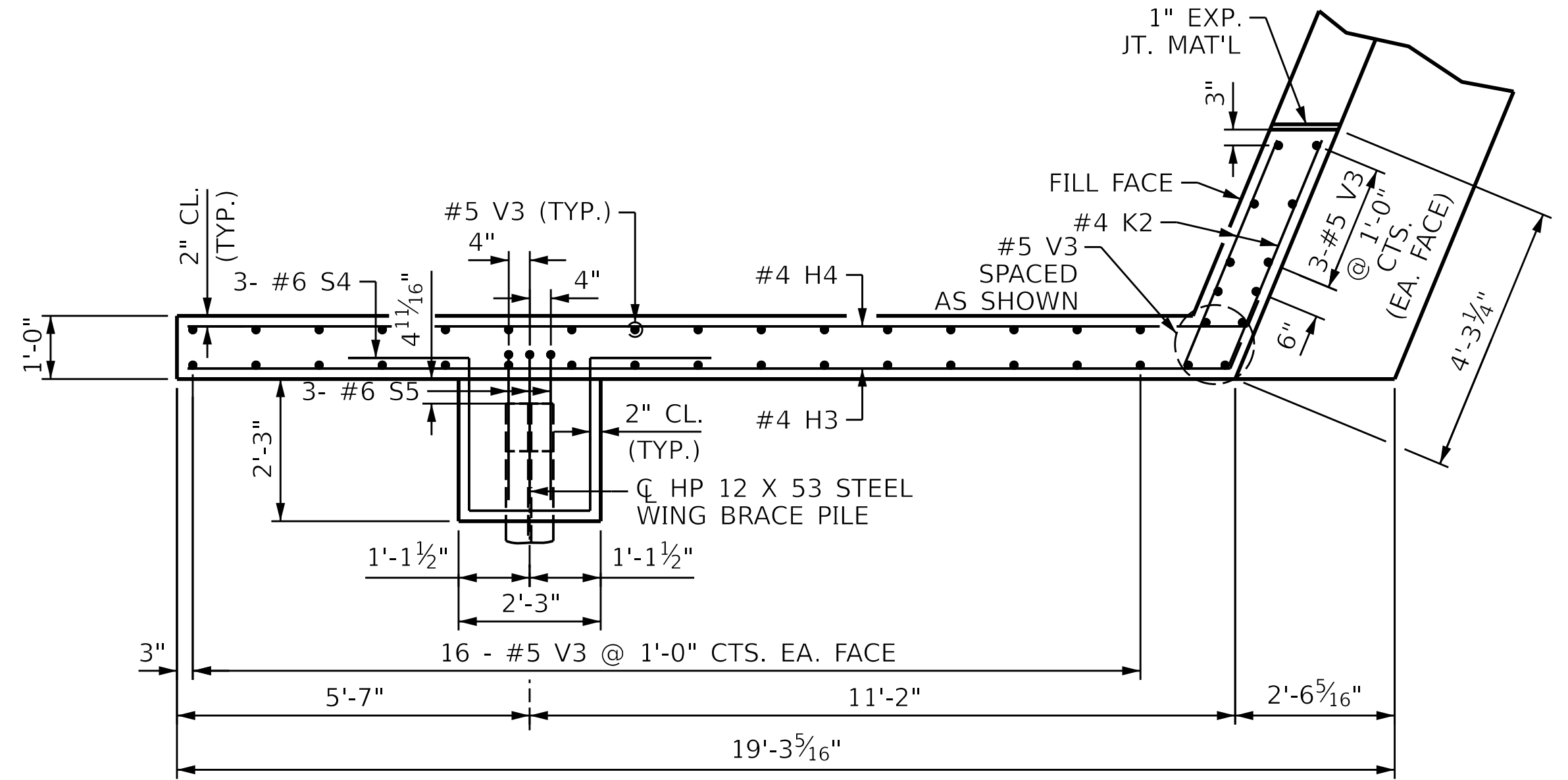
ELEVATION OF WINGWALL (W1)



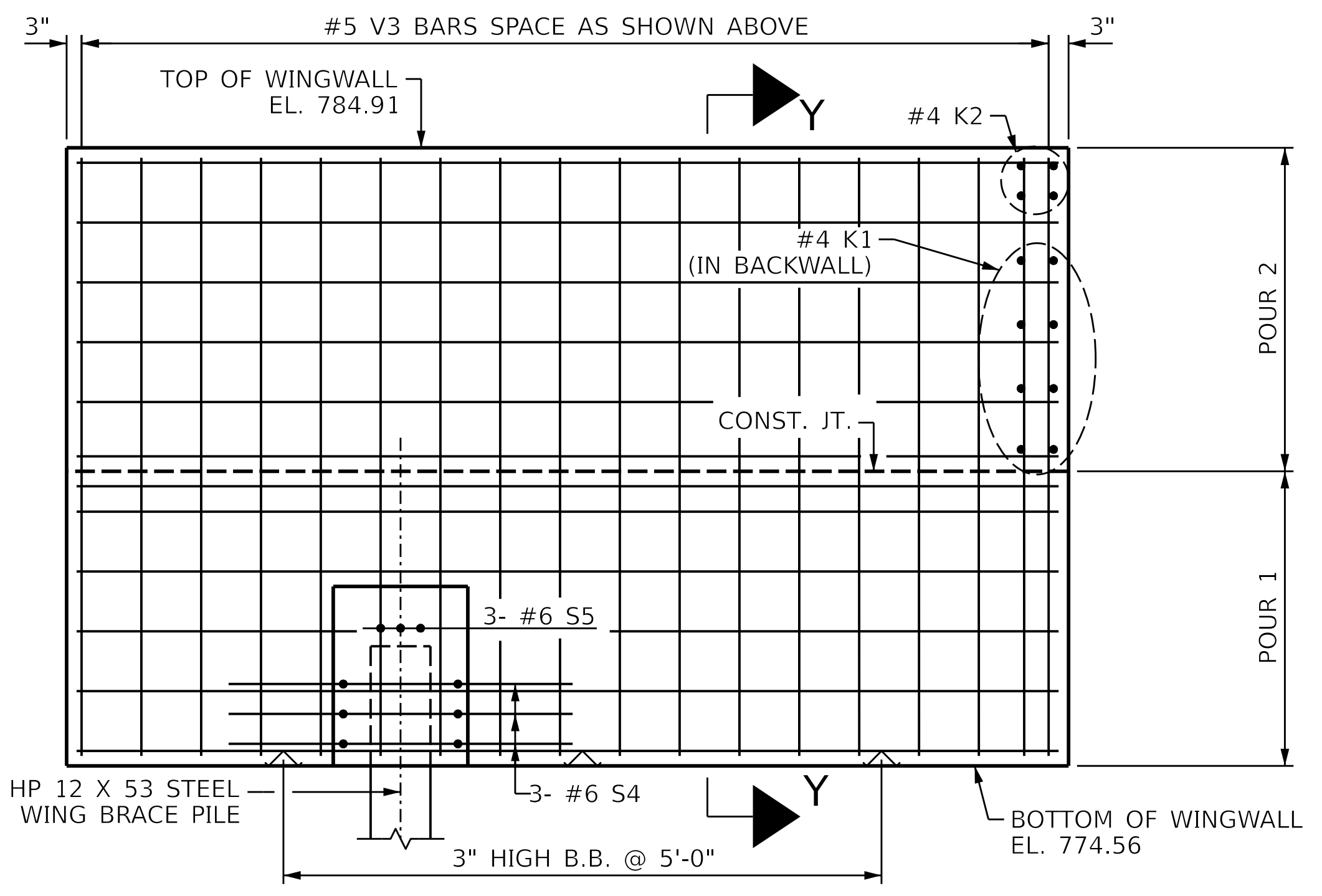
SECTION X-X



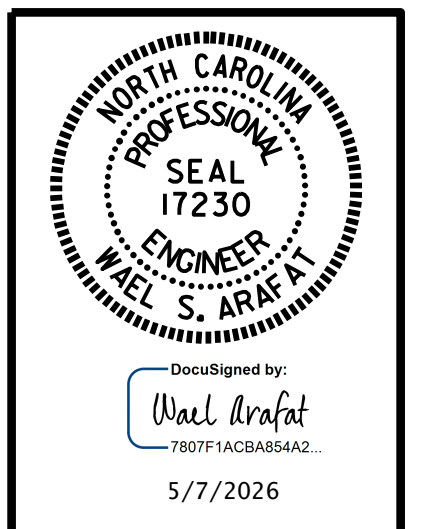
SECTION Y-Y



PLAN OF RIGHT WINGWALL (W2)
CAP REINF. NOT SHOWN FOR CLARITY



ELEVATION OF WINGWALL (W2)



DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

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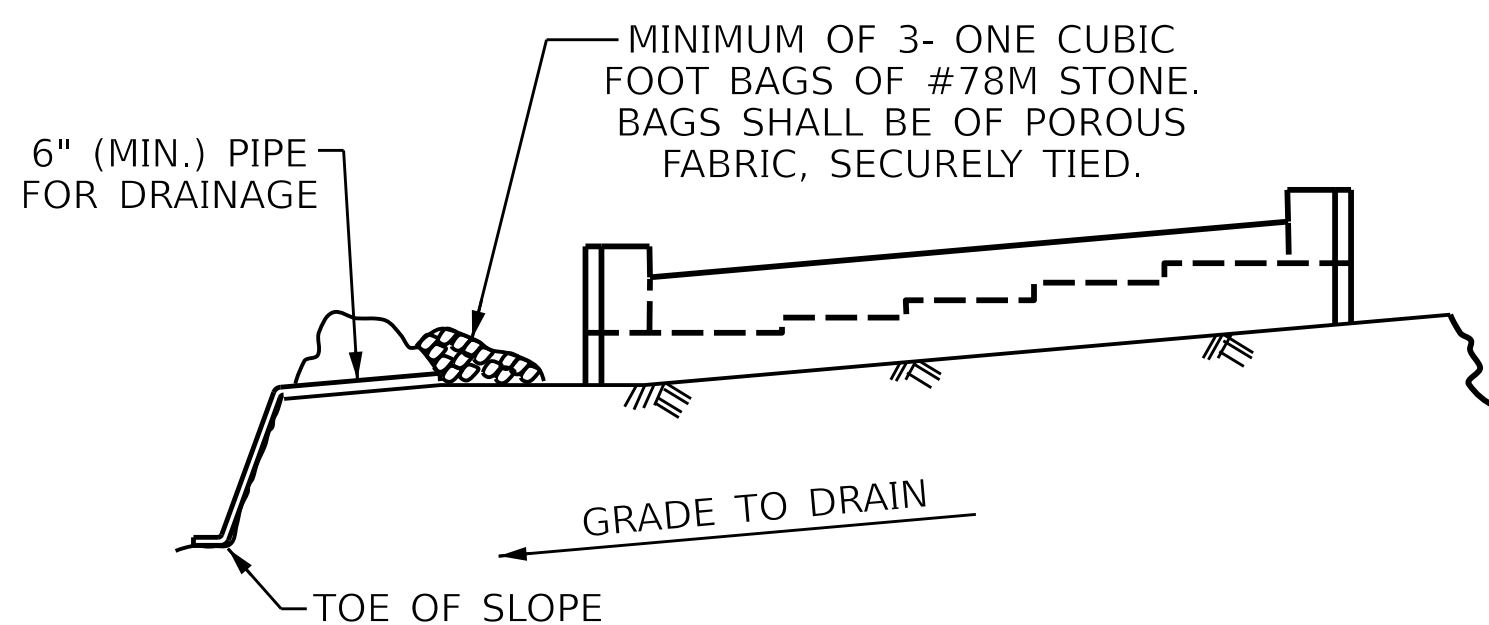
PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 2 OF 3					
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT No. 1 (WESTBOUND)					
REVISIONS					SHEET NO. S01-28 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		

STR #1



PILE SPLICE DETAILS

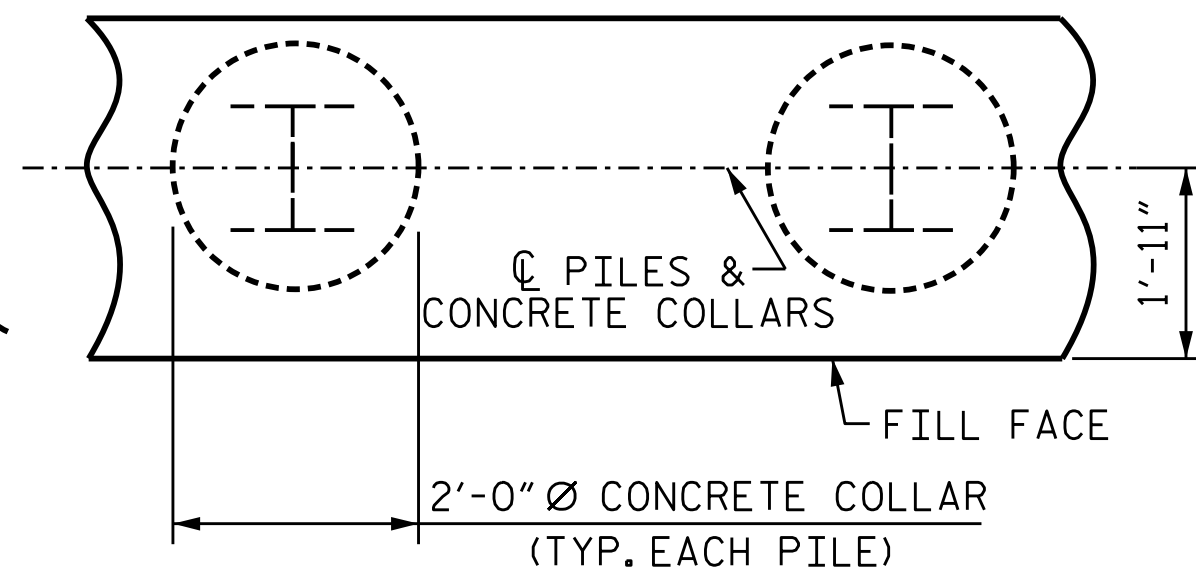


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

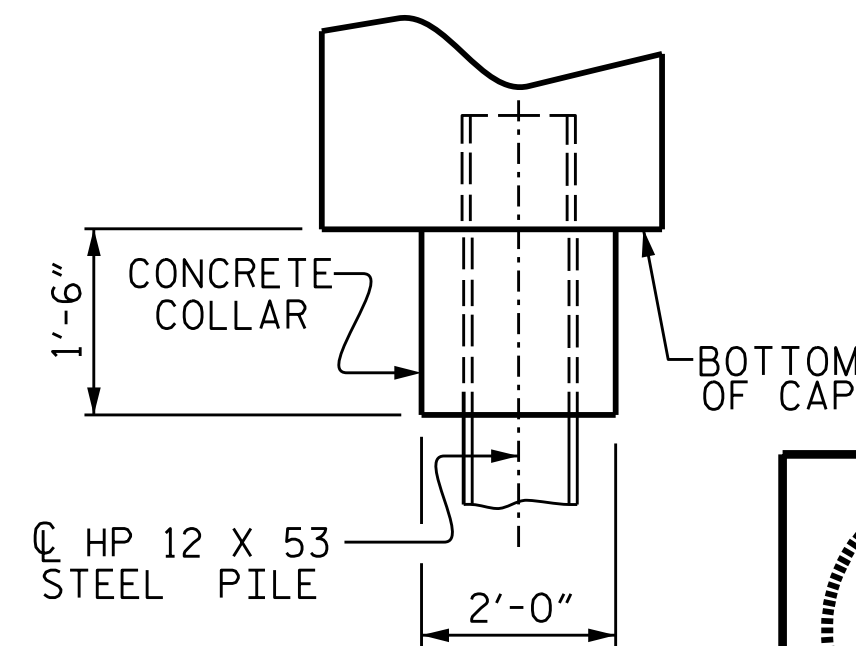
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



BILL OF MATERIAL

FOR END BENT 1

16	#4	STR	26' 8"
----	----	-----	--------

52	#5	2	11'-2

23	#4	1	6'-0"
----	----	---	-------

CC	4	CHD	7.25

FORCING STEEL

S A CONCRETE BREAKDO

PILE CAP, LOWER CU
OF WINGS & COLLABS)

KWALL & UPPER PART CU
(WINGS)

ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1
(WESTBOUND)

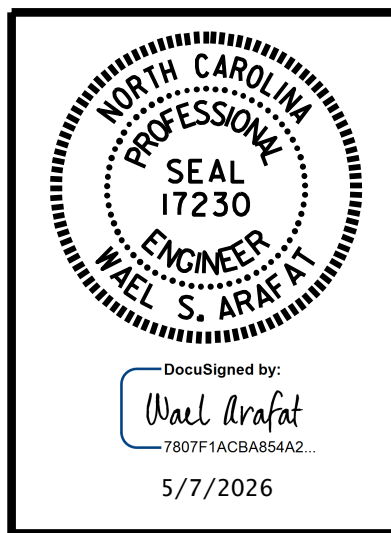
REVISIONS	
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SHEET NO. 00100

S01-29
TOTAL

40

STR #1



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

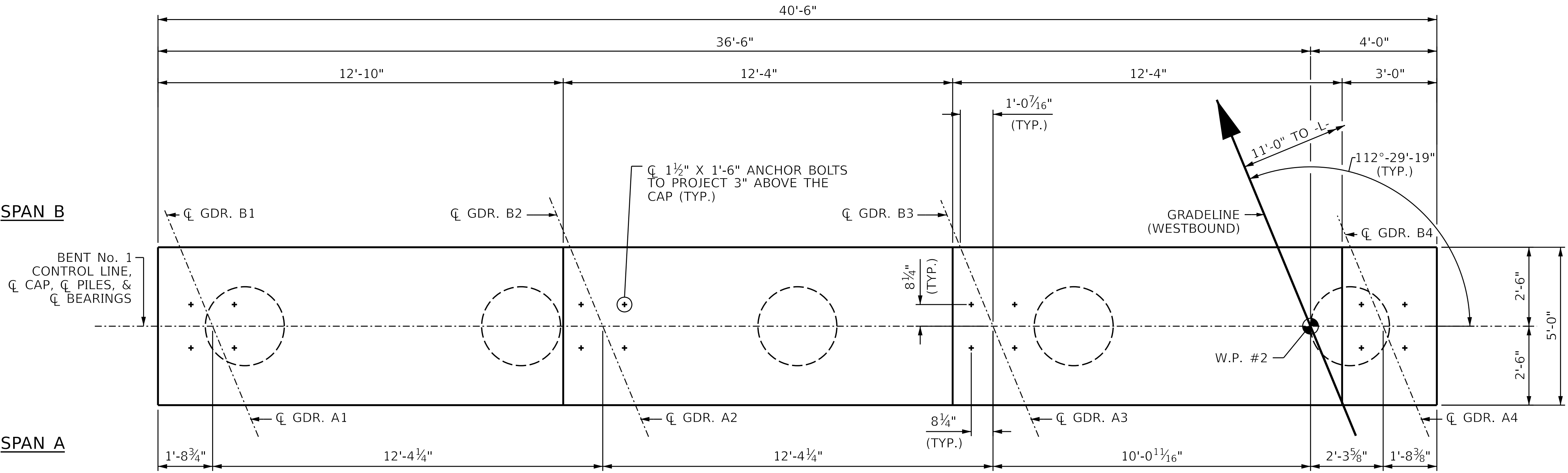


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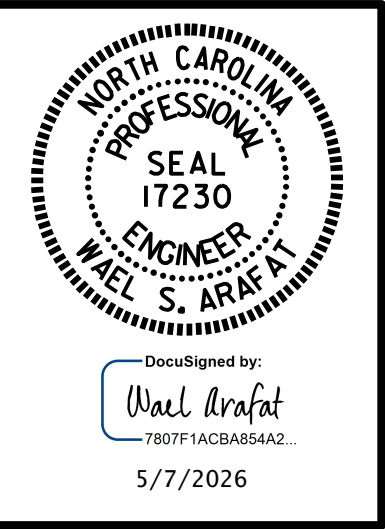
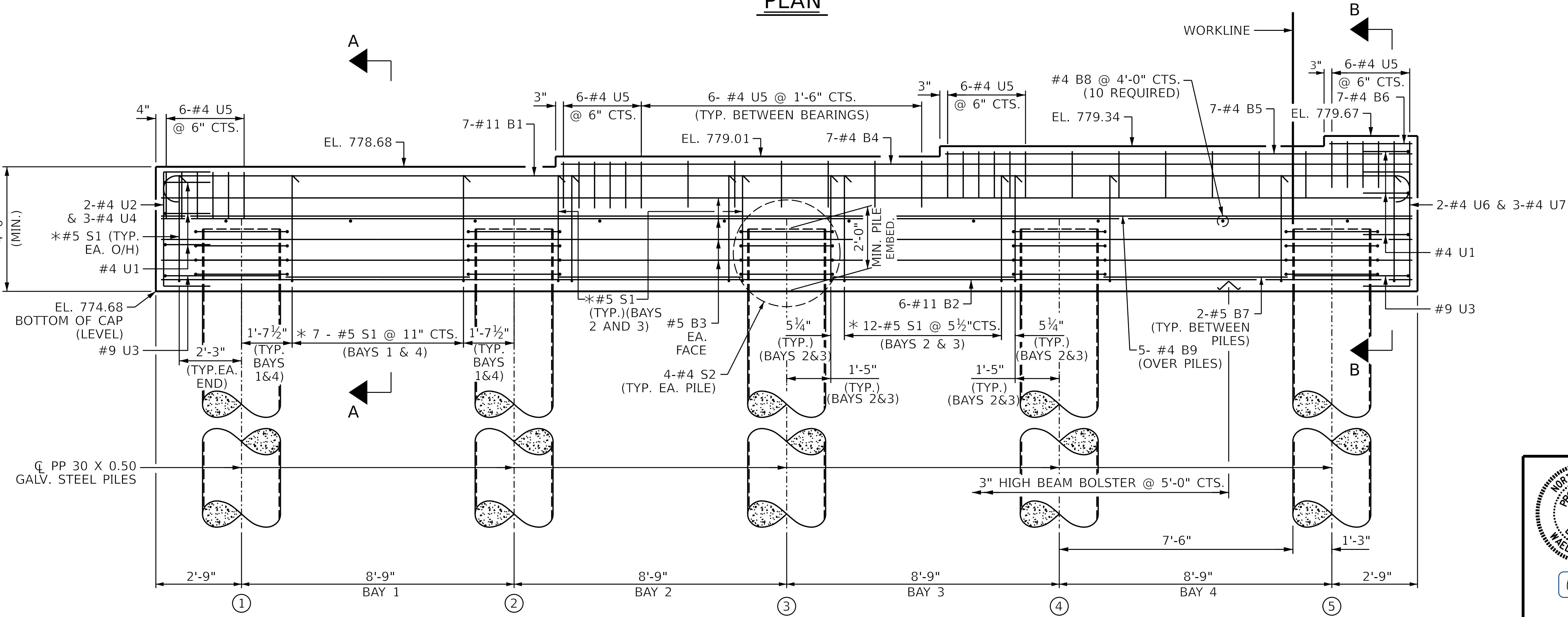


NOTES

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

FOR ADDITIONAL REINFORCING STEEL IN PP 30 X 0.50 GALVANIZED STEEL PILES, SEE 30" STEEL PIPE PILE SHEET.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 42 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



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PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

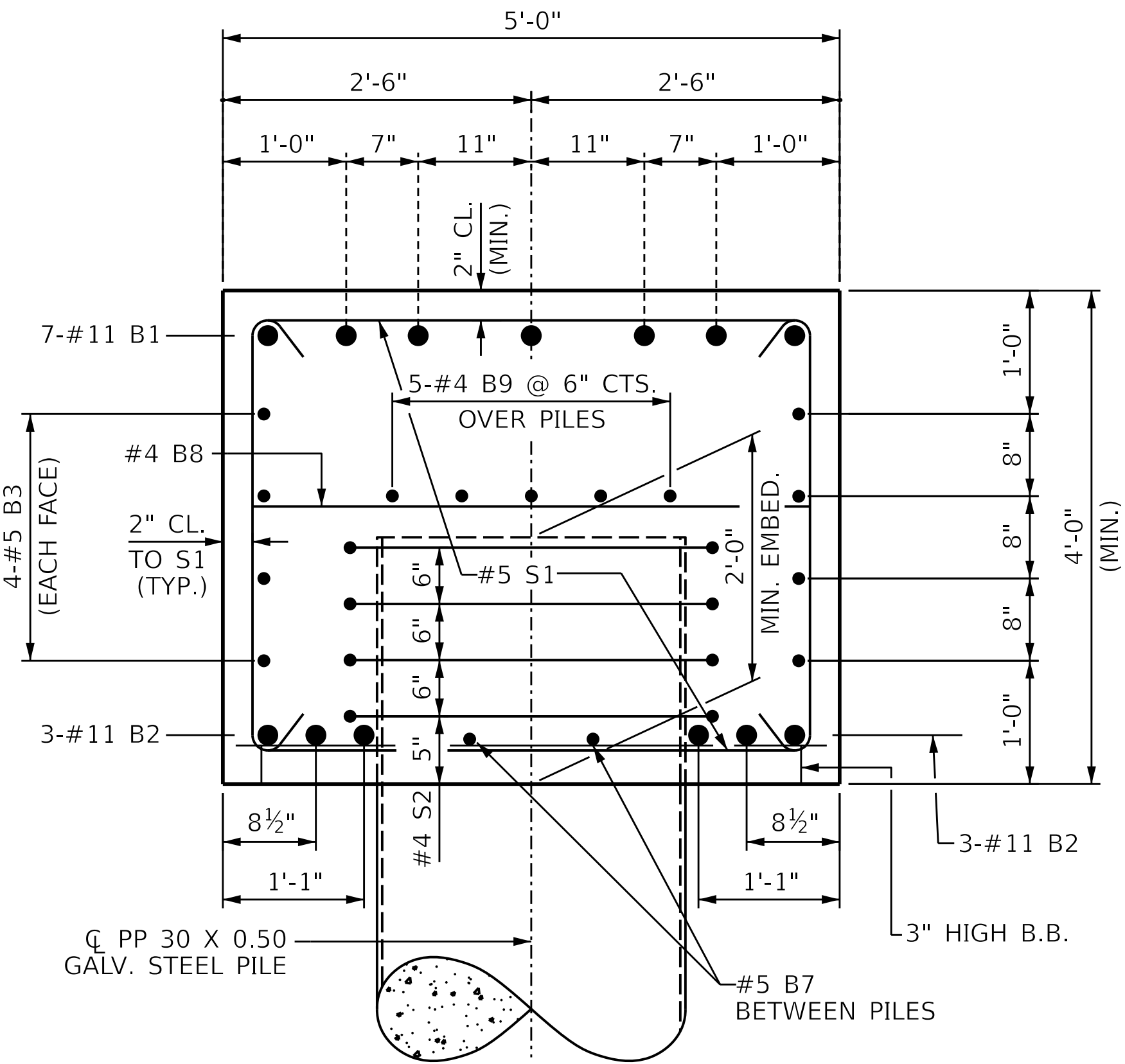
**BENT No. 1
(WESTBOUND)**

REVISIONS						SHEET NO. S01-30 TOTAL SHEETS 40
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2			4			

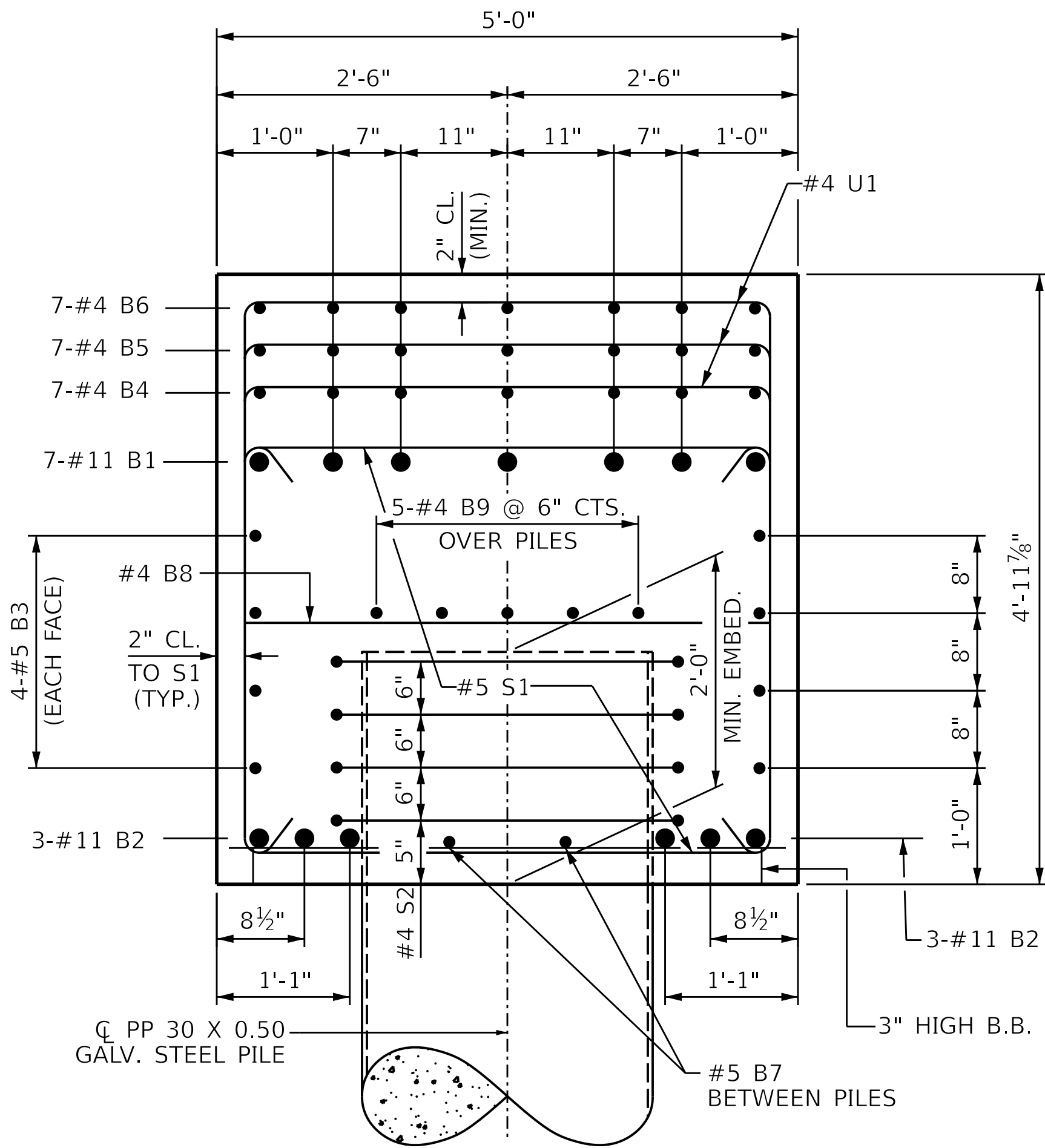
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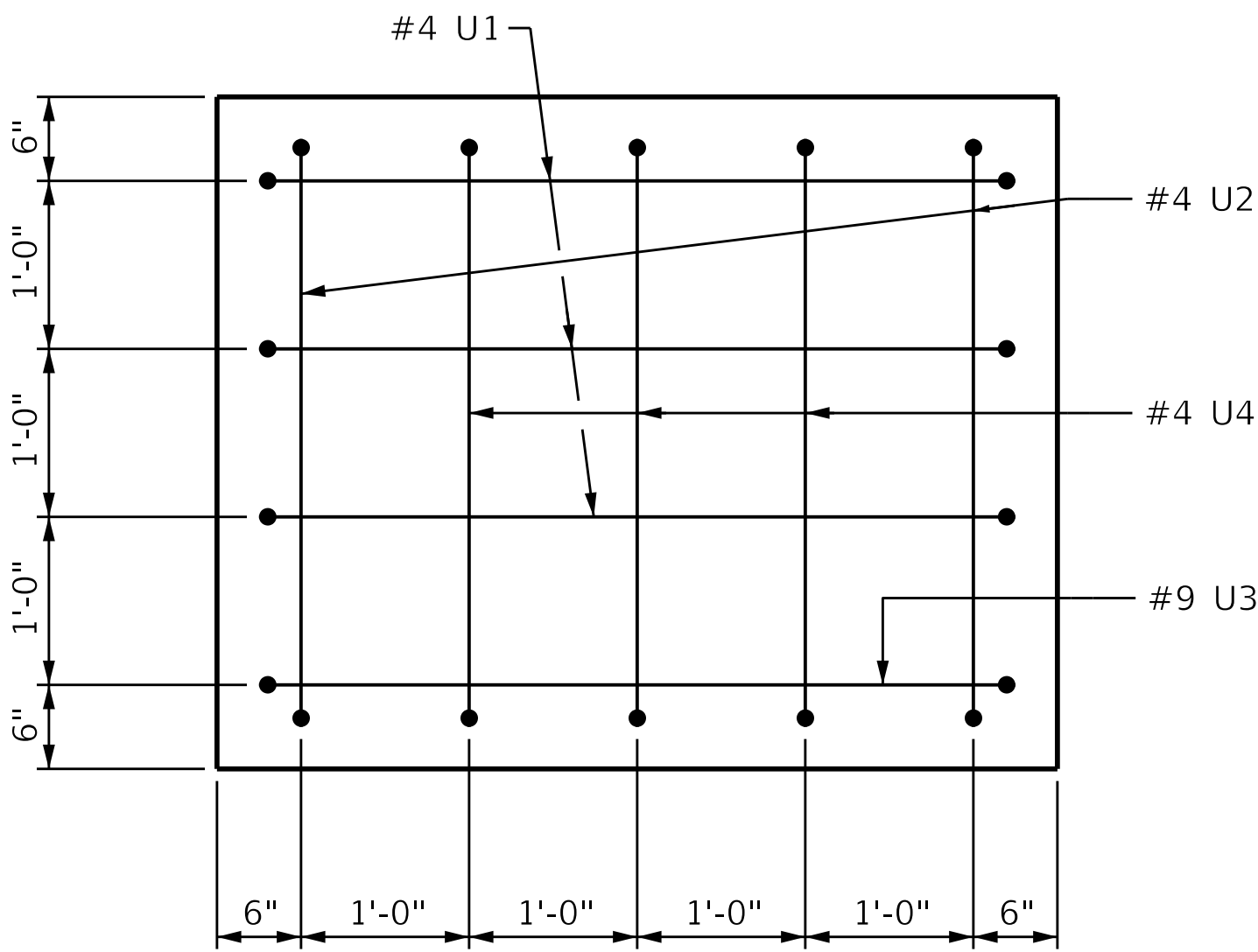
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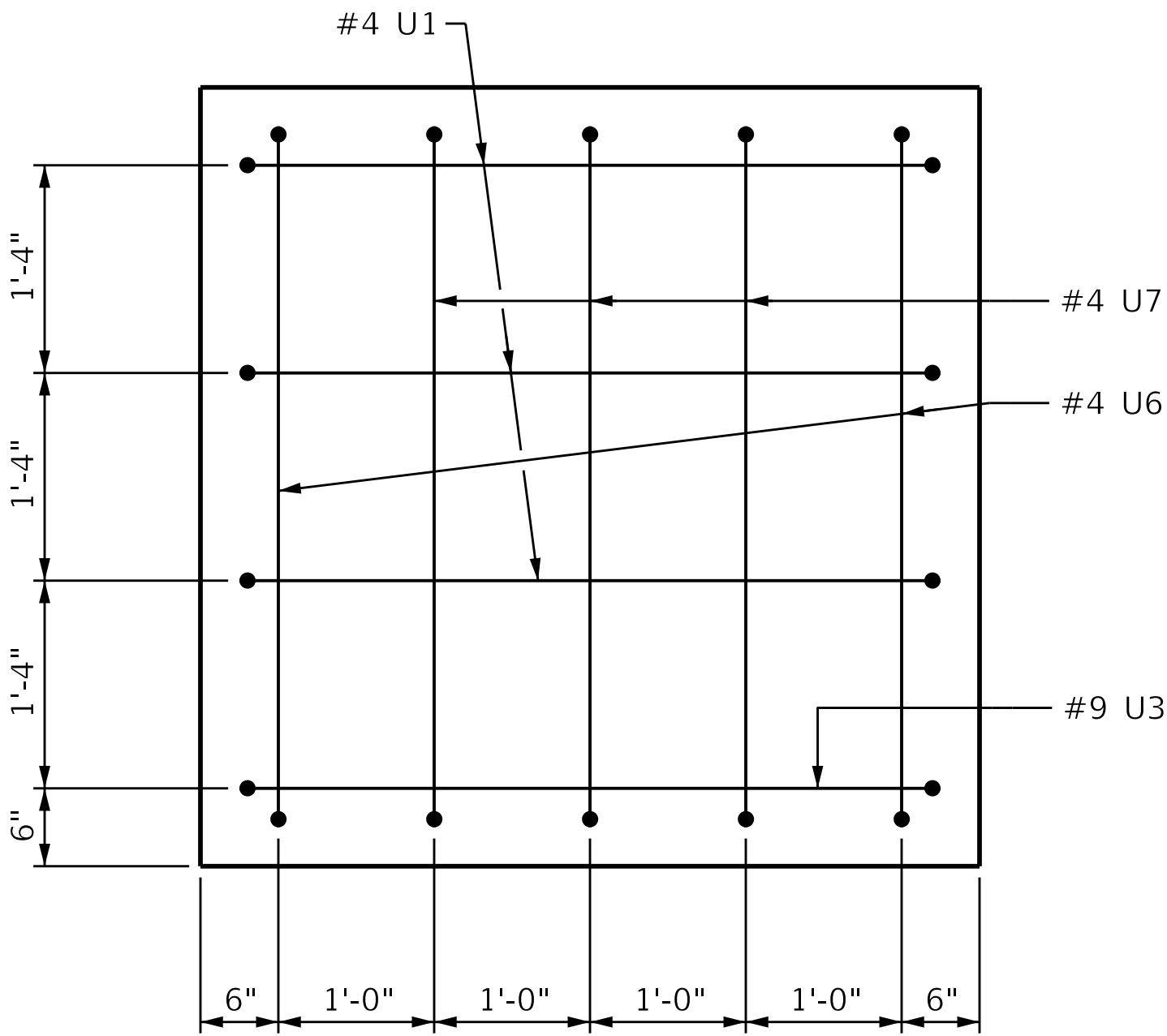
SECTION A-A



SECTION B-B

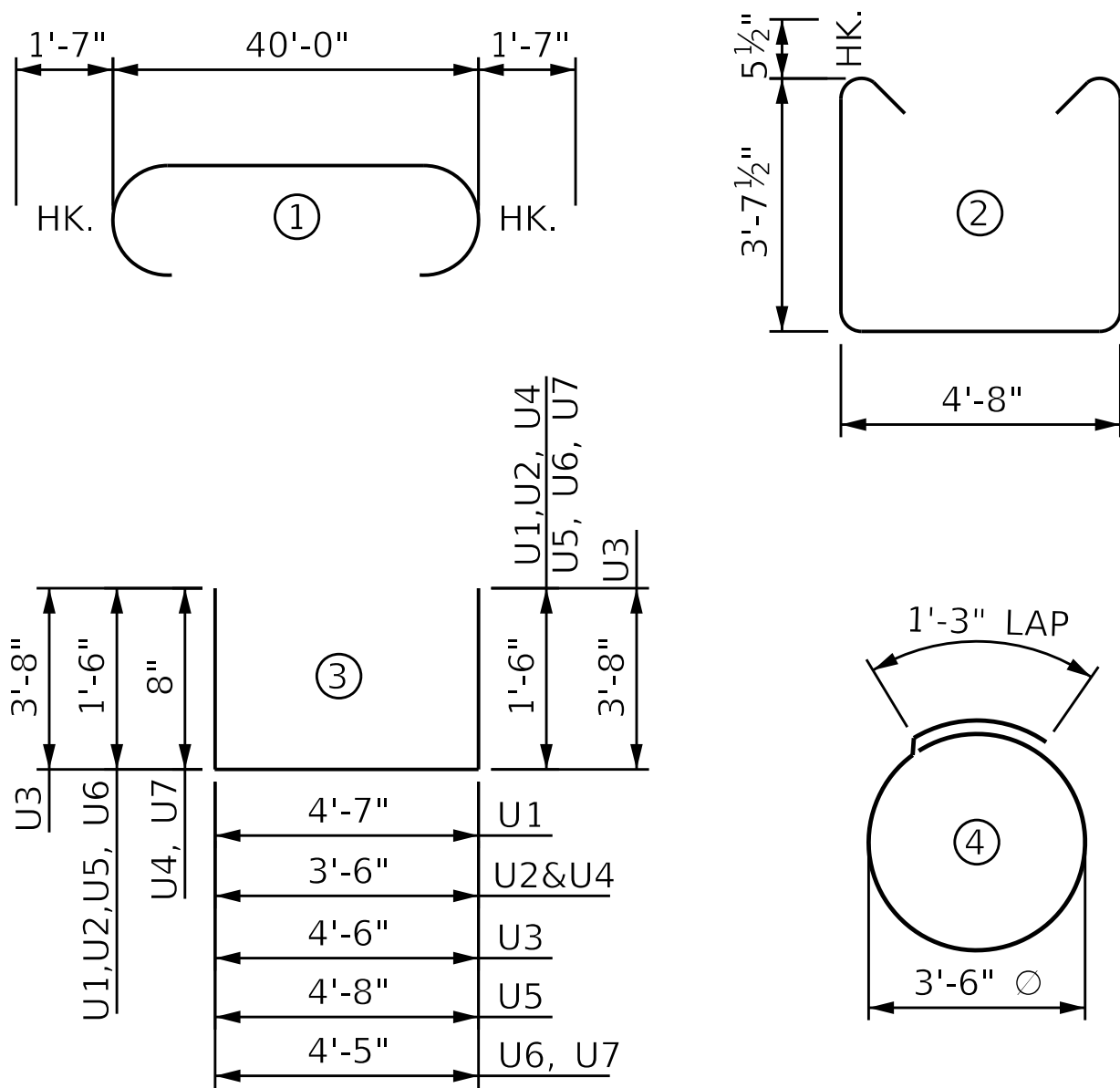


LEFT END VIEW



RIGHT END VIEW

BAR TYPES



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#11	1	43'-2"	1605
B2	6	#11	STR	40'-2"	1280
B3	8	#5	STR	40'-2"	335
B4	7	#4	STR	27'-4"	128
B5	7	#4	STR	15'-0"	70
B6	7	#4	STR	2'-6"	12
B7	8	#5	STR	5'-11"	49
B8	10	#4	STR	4'-8"	31
B9	5	#4	STR	40'-0"	134

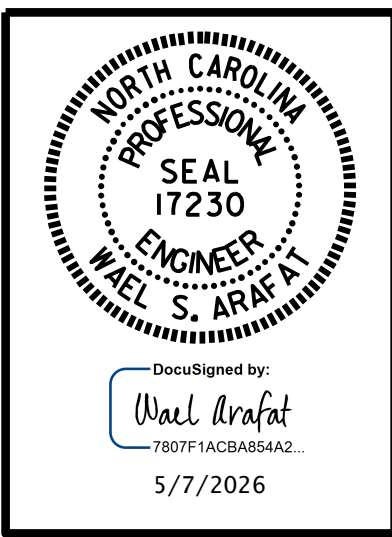
S1	44	#5	2	12'-10"	589
S2	20	#4	4	12'-3"	164
U1	6	#4	3	7'-7"	30
U2	2	#4	3	6'-6"	9
U3	2	#9	3	11'-10"	80
U4	3	#4	3	5'-8"	11
U5	36	#4	3	7'-8"	184
U6	2	#4	3	7'-5"	10
U7	3	#4	3	6'-7"	13

* REINFORCING STEEL LBS. 4,734

CLASS A CONCRETE BREAKDOWN

Δ CLASS A CONCRETE TOTAL CU.YDS. 31.0

Δ CONCRETE DISPLACED BY THE PP 30 X 0.50 GALVANIZED STEEL PILE HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.



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PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

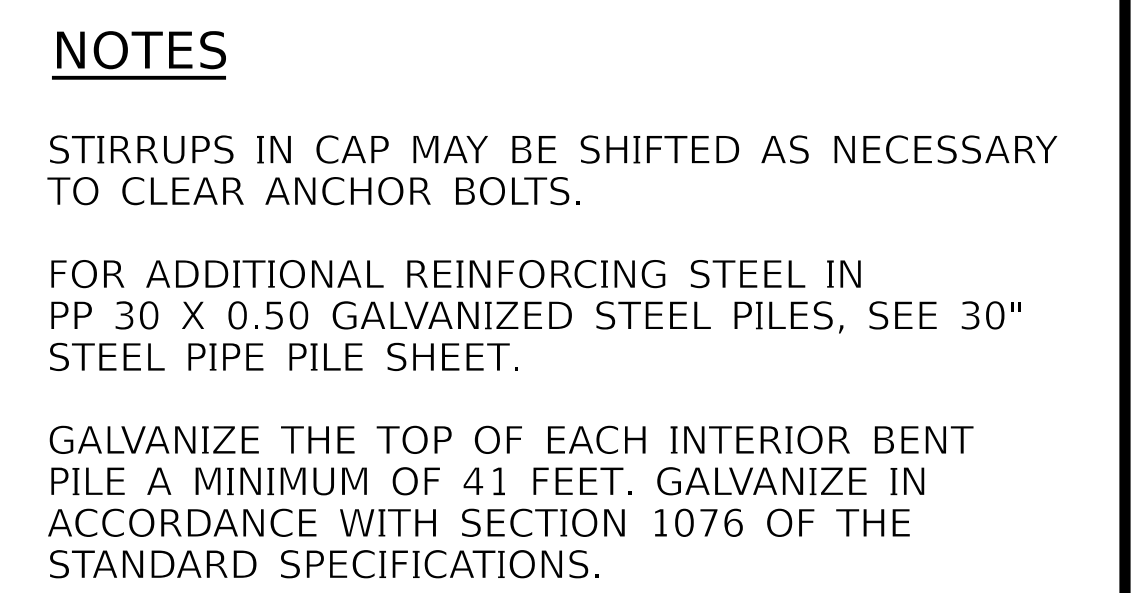
SUBSTRUCTURE

BENT No. 1
(WESTBOUND)

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S01-31 TOTAL SHEETS 40
2			4		

STR #1

DRAWN BY : C.T. MIXON DATE : 11-24
CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25



PLAN



SHEET 1 OF 2

SUBSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S01-32
1			3			TOTAL SHEETS 40
2			4			

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 CHECKED BY : O. PUIGSERVER DATE : 4-25
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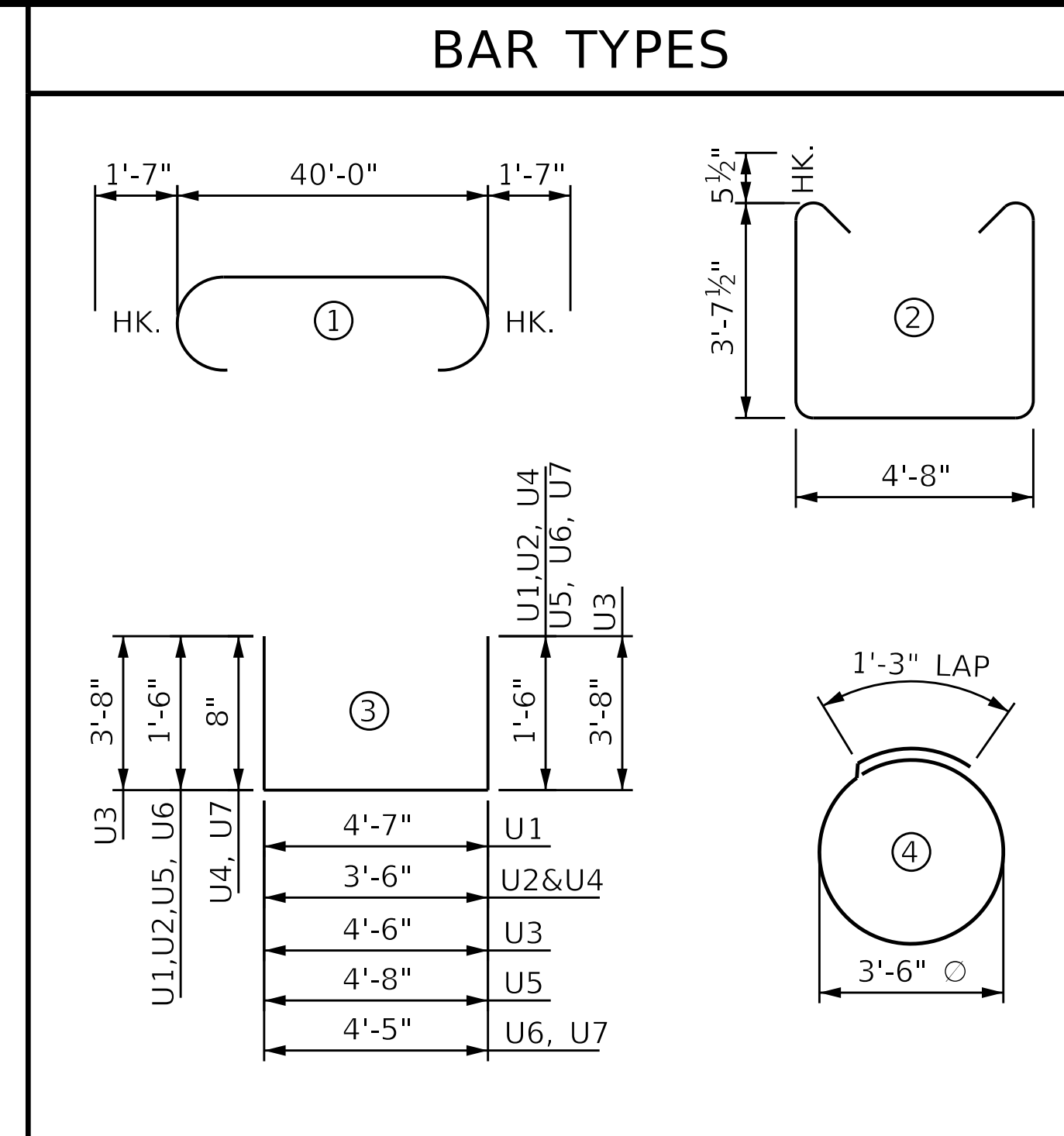
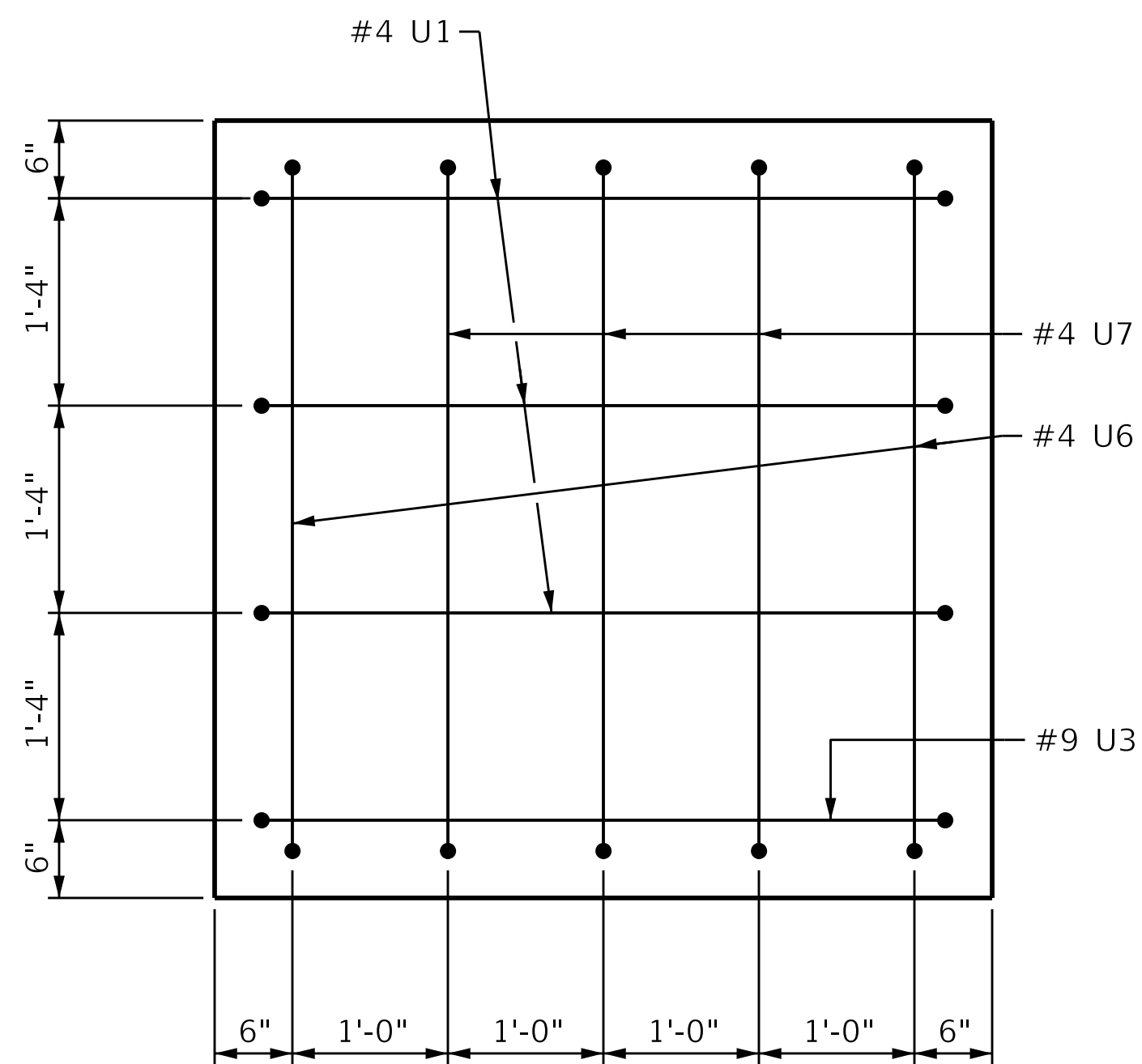
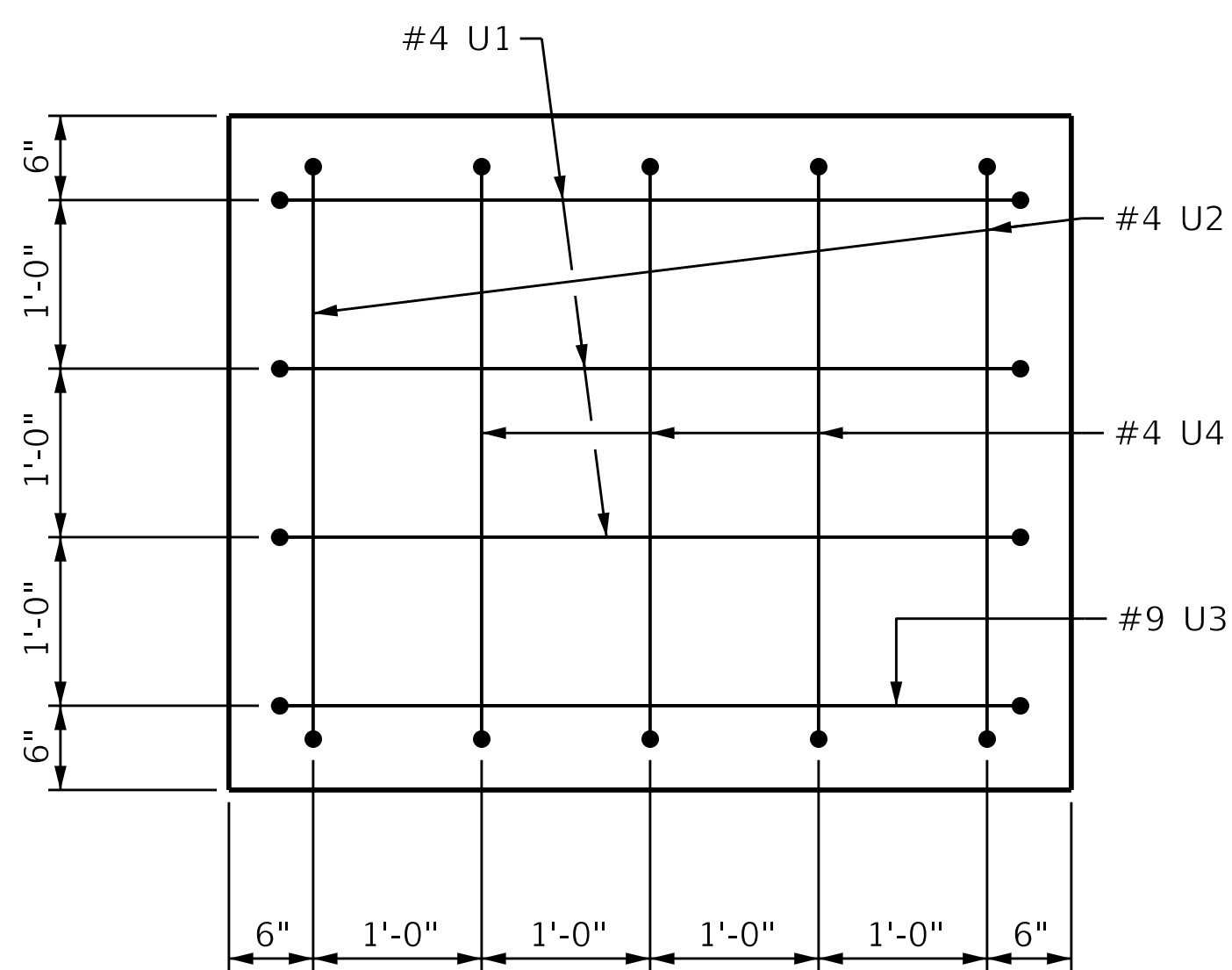
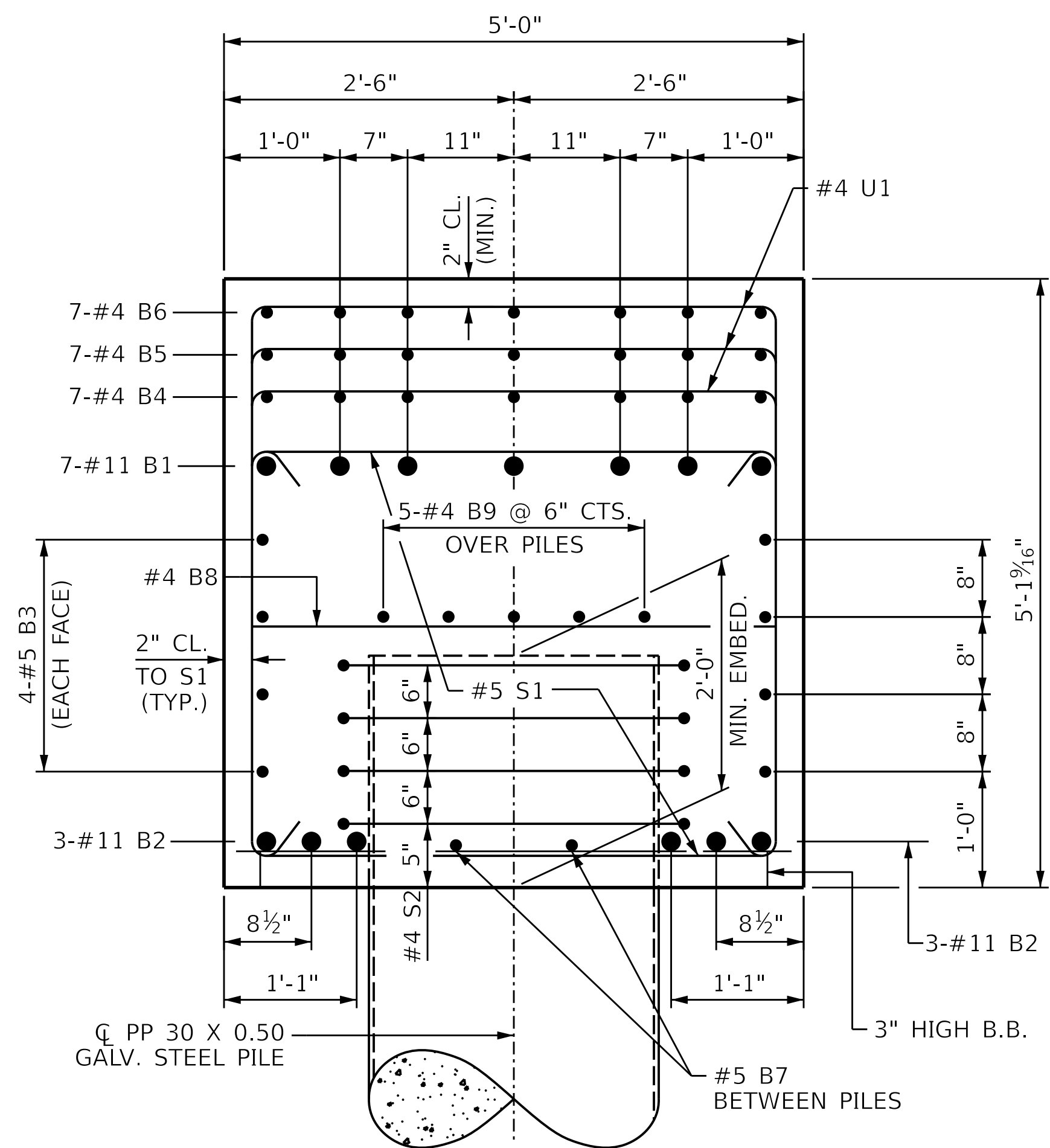
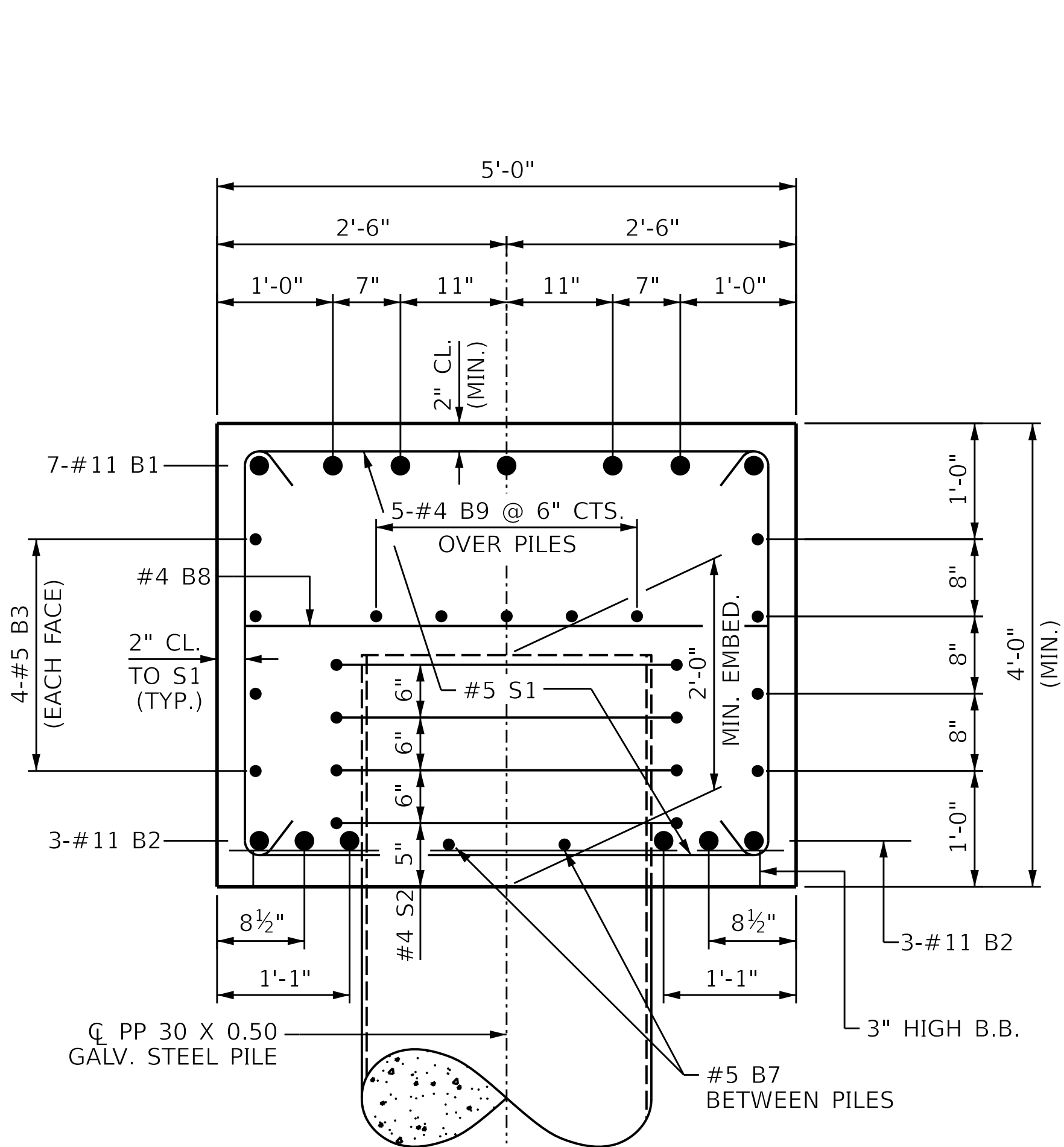


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Raleigh, NC 27615

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STR #1



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#11	1	43'-2"	1605
B2	6	#11	STR	40'-2"	1280
B3	8	#5	STR	40'-2"	335
B4	7	#4	STR	27'-4"	128
B5	7	#4	STR	15'-0"	70
B6	7	#4	STR	2'-8"	12
B7	8	#5	STR	5'-11"	49
B8	10	#4	STR	4'-8"	31
B9	5	#4	STR	40'-0"	134
S1	44	#5	2	12'-10"	589
S2	20	#4	4	12'-3"	164
U1	6	#4	3	7'-7"	30
U2	2	#4	3	6'-6"	9
U3	2	#9	3	11'-10"	80
U4	3	#4	3	5'-8"	11
U5	36	#4	3	7'-8"	184
U6	2	#4	3	7'-5"	10
U7	3	#4	3	6'-7"	13
* REINFORCING STEEL				LBS.	4,734
CLASS A CONCRETE BREAKDOWN					
Δ CLASS A CONCRETE TOTAL				CU.YDS.	31.4

△ CONCRETE DISPLACED BY THE PP 30 X 0.50 GALVANIZED STEEL PILE HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

[pwr/ /partish-pw.bentley.com/partish-pw/Documents/Surface Transportation/NCDOT_BR-040/Project Design/Structures/FINAL/BR040_FINAL_INT](#)
[BENT.dgn](#)
 MODEL NAME: SHEET MODEL - WESTBOUND DETAILS (BENT 2)
 3:55:37 PM
 10/24/2025

STD. NO. SPP5



INSTALL THE 6" Ø DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE



TYP. EA. GIRDER



WING BRACE PILE NOT SHOWN FOR CLARITY.



SHEET 1 OF 3

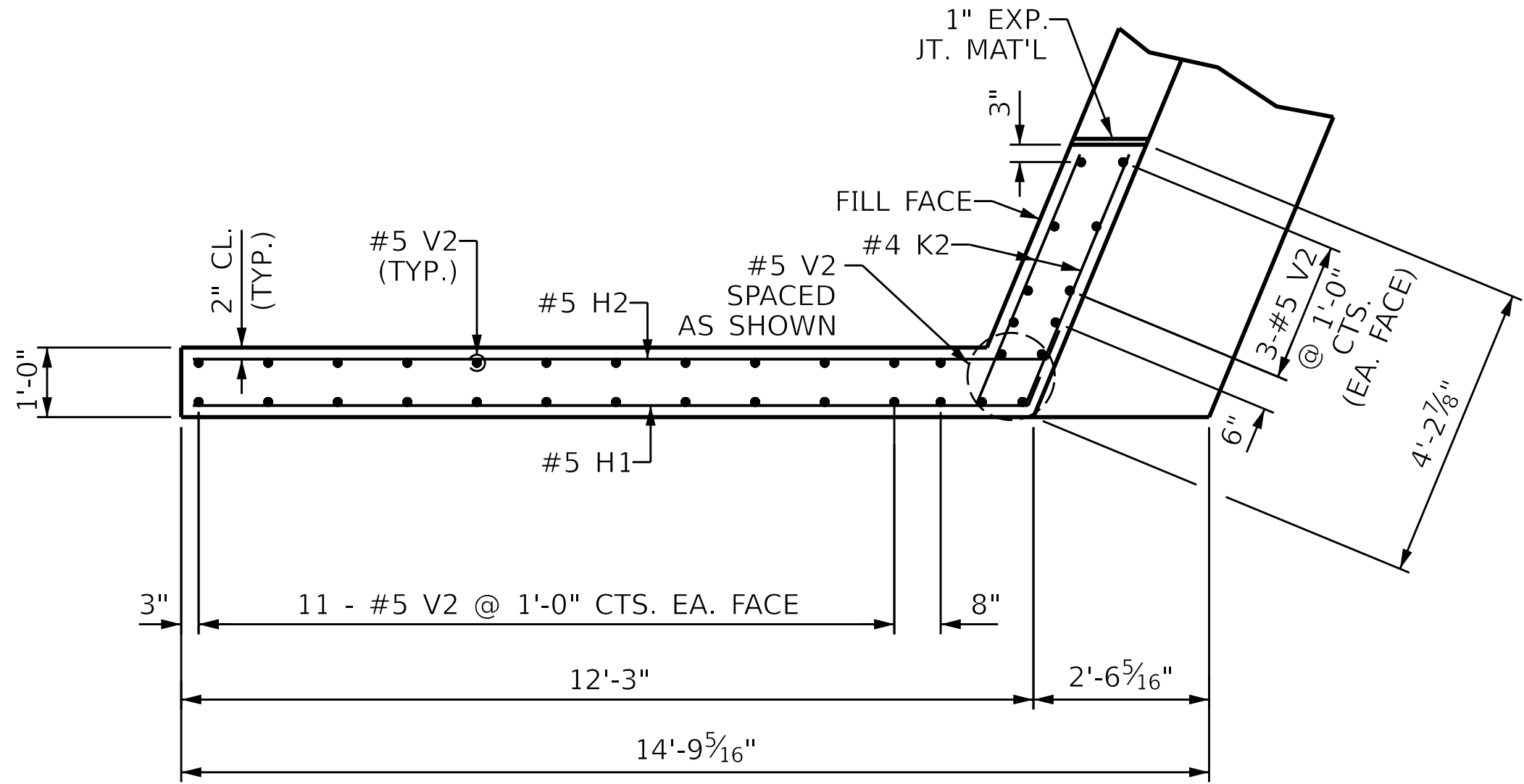
SUBSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S01-35 TOTAL SHEETS 40
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2			4			

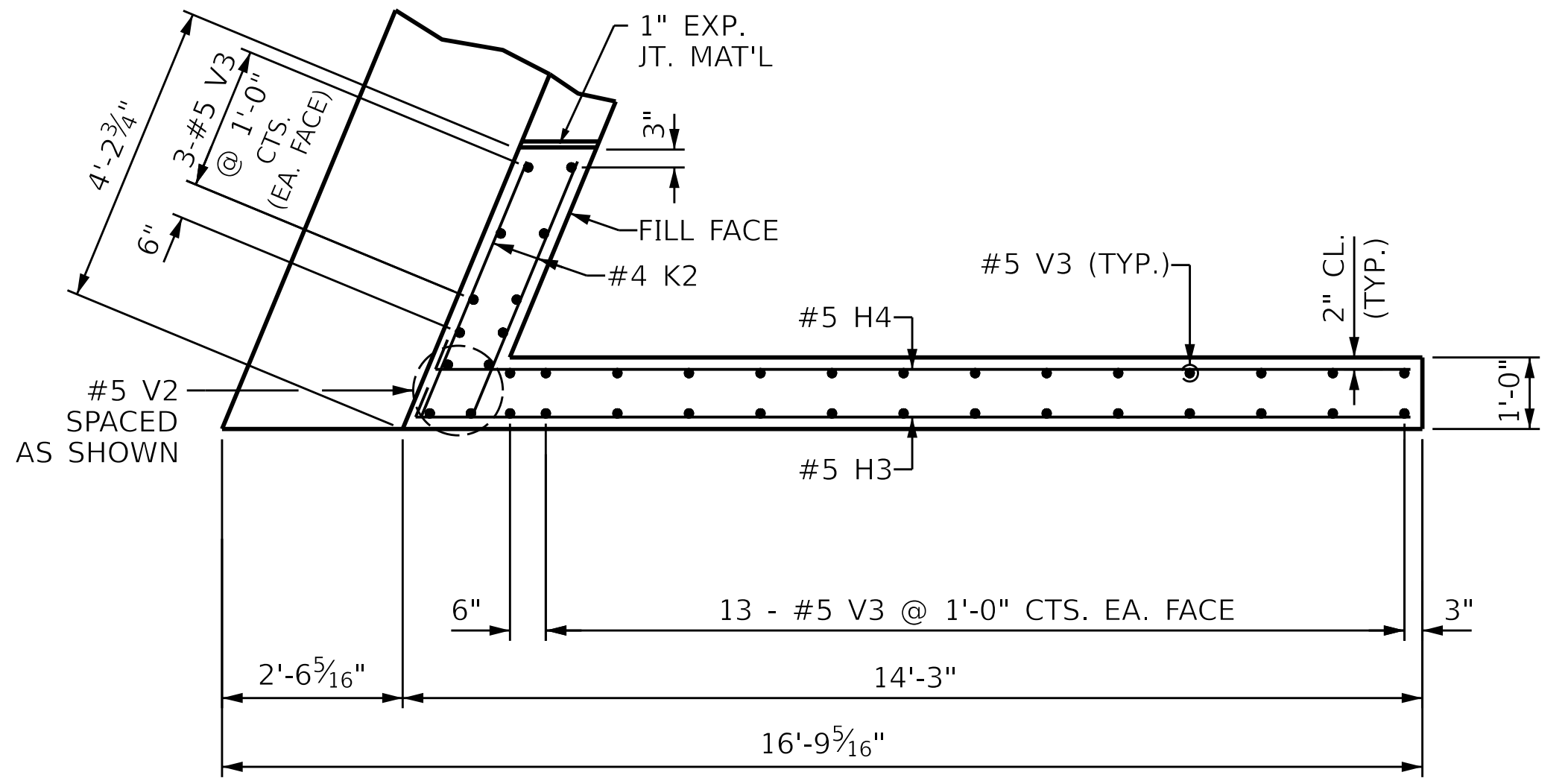
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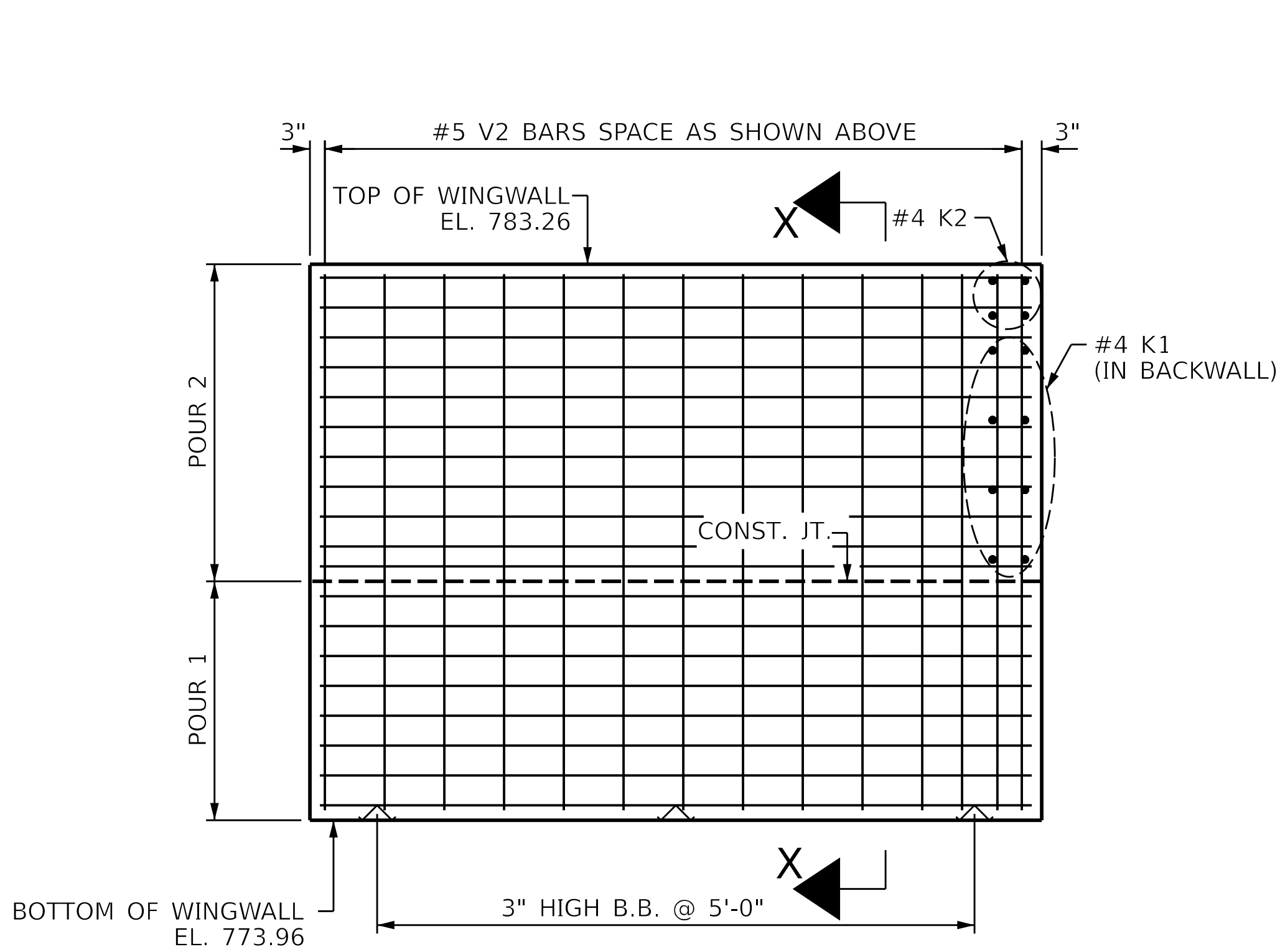
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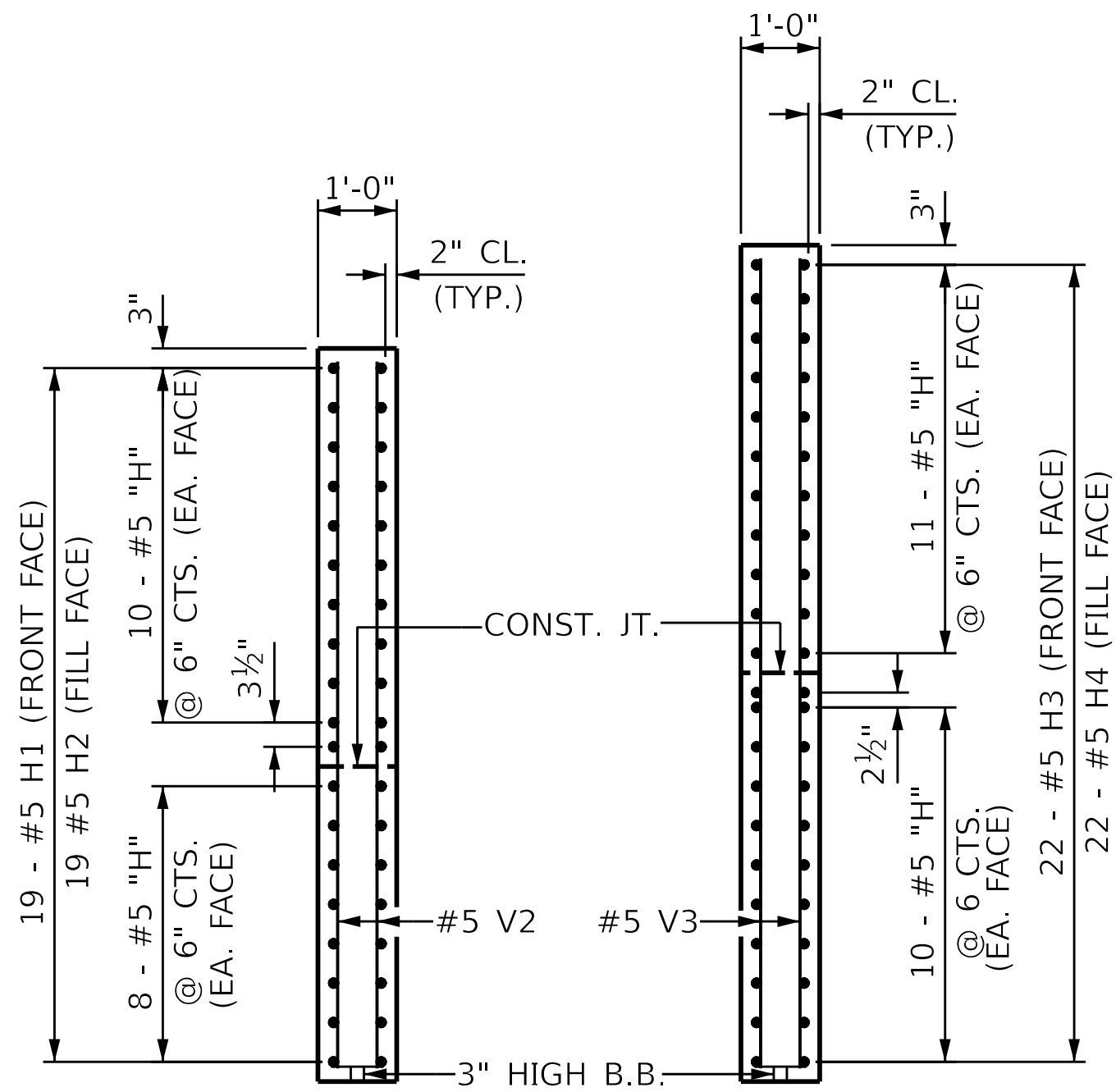
PLAN OF LEFT WINGWALL (W1)
CAP REINF. NOT SHOWN FOR CLARITY



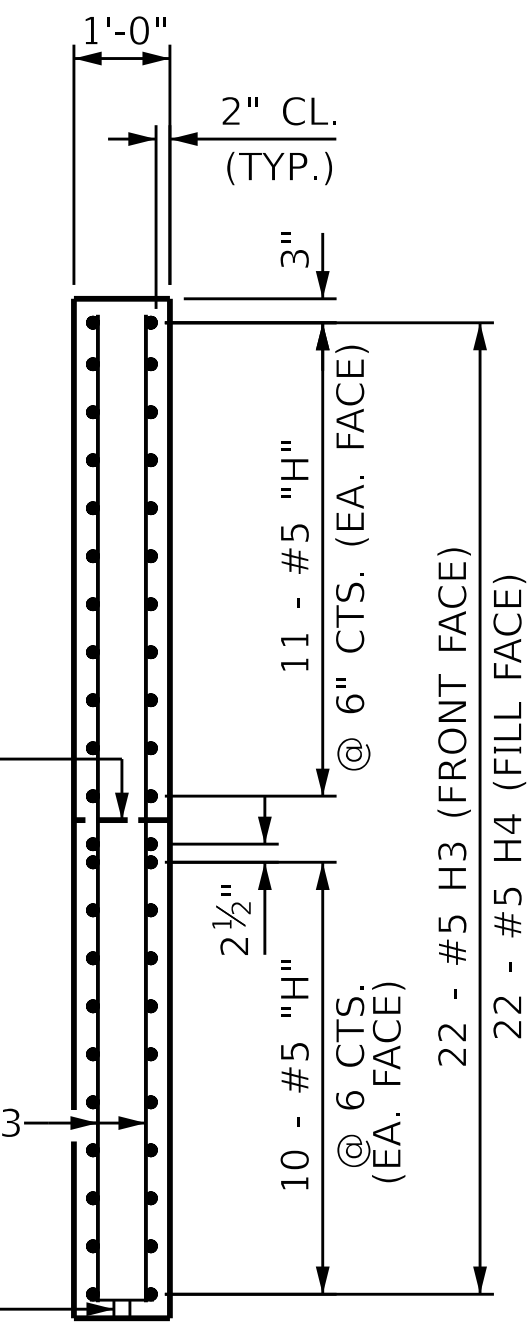
PLAN OF RIGHT WINGWALL (W2)
CAP REINF. NOT SHOWN FOR CLARITY



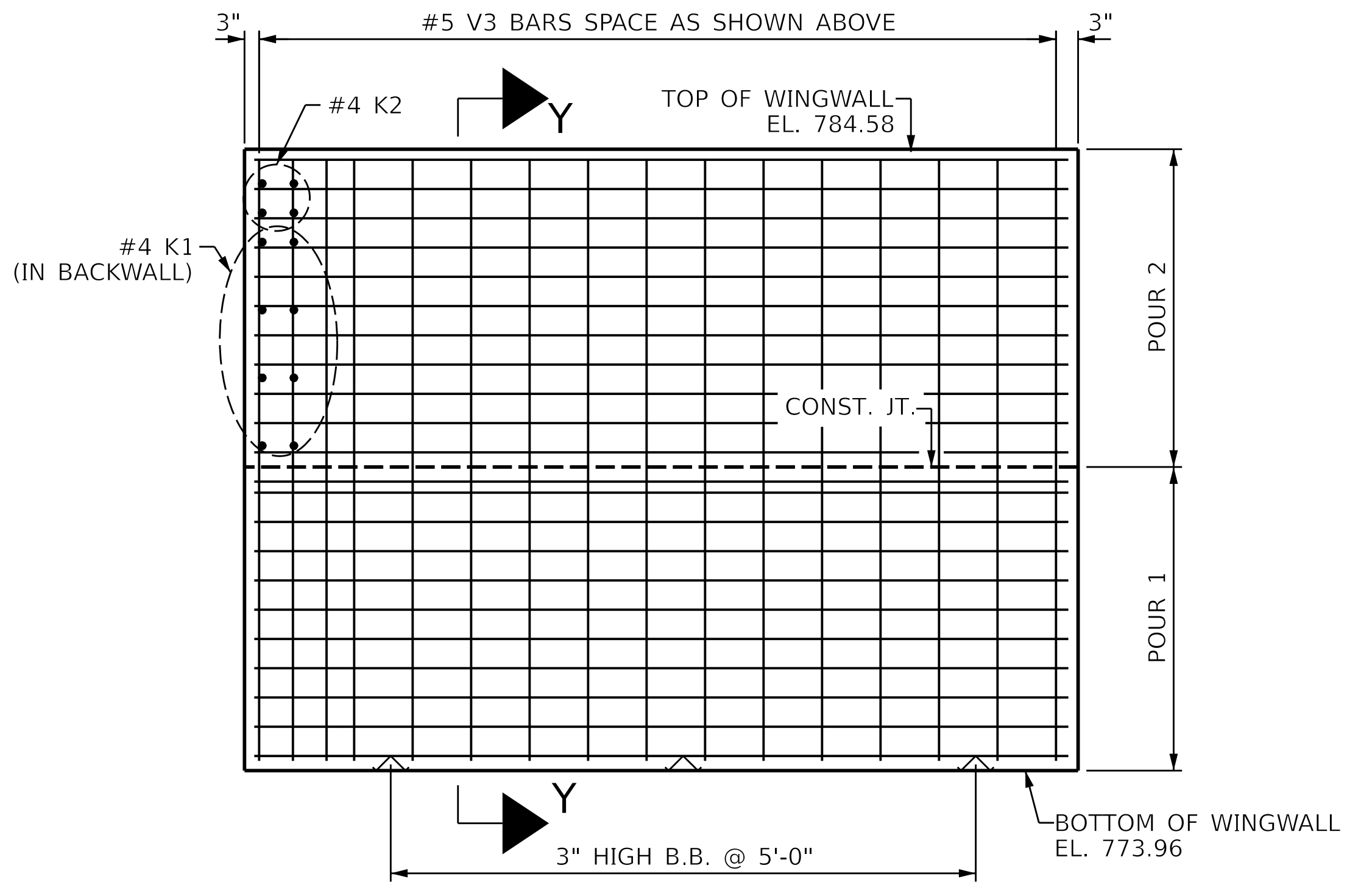
ELEVATION WINGWALL (W1)



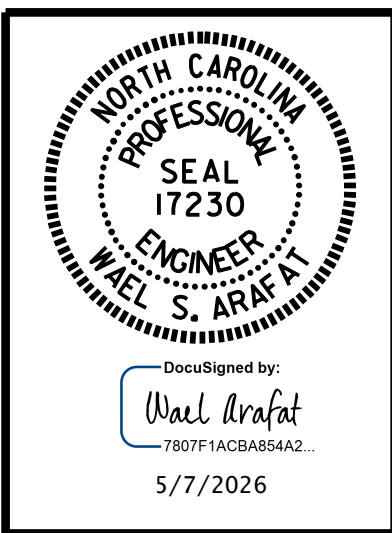
SECTION X-X



SECTION Y-Y



ELEVATION WINGWALL (W2)



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

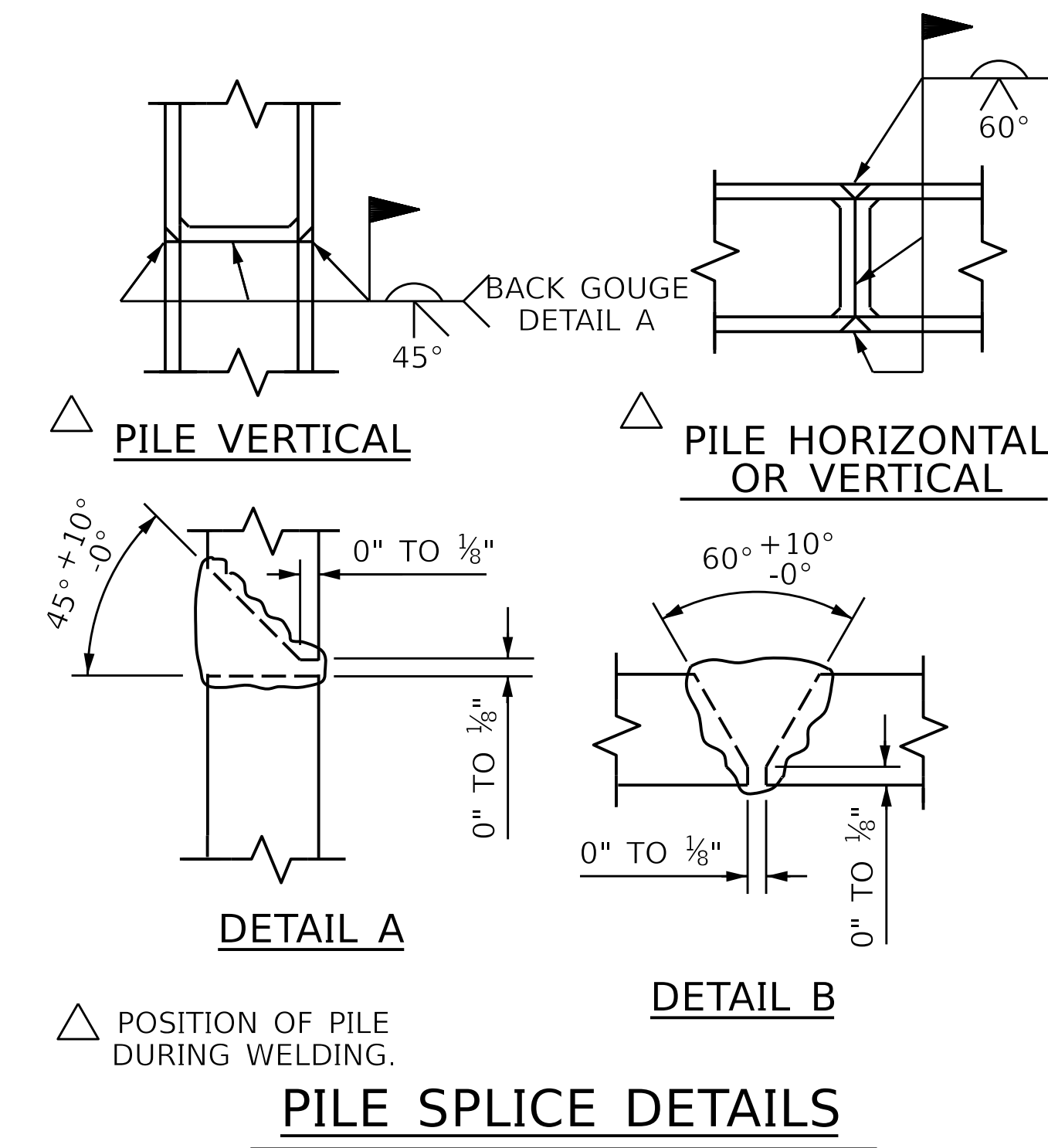
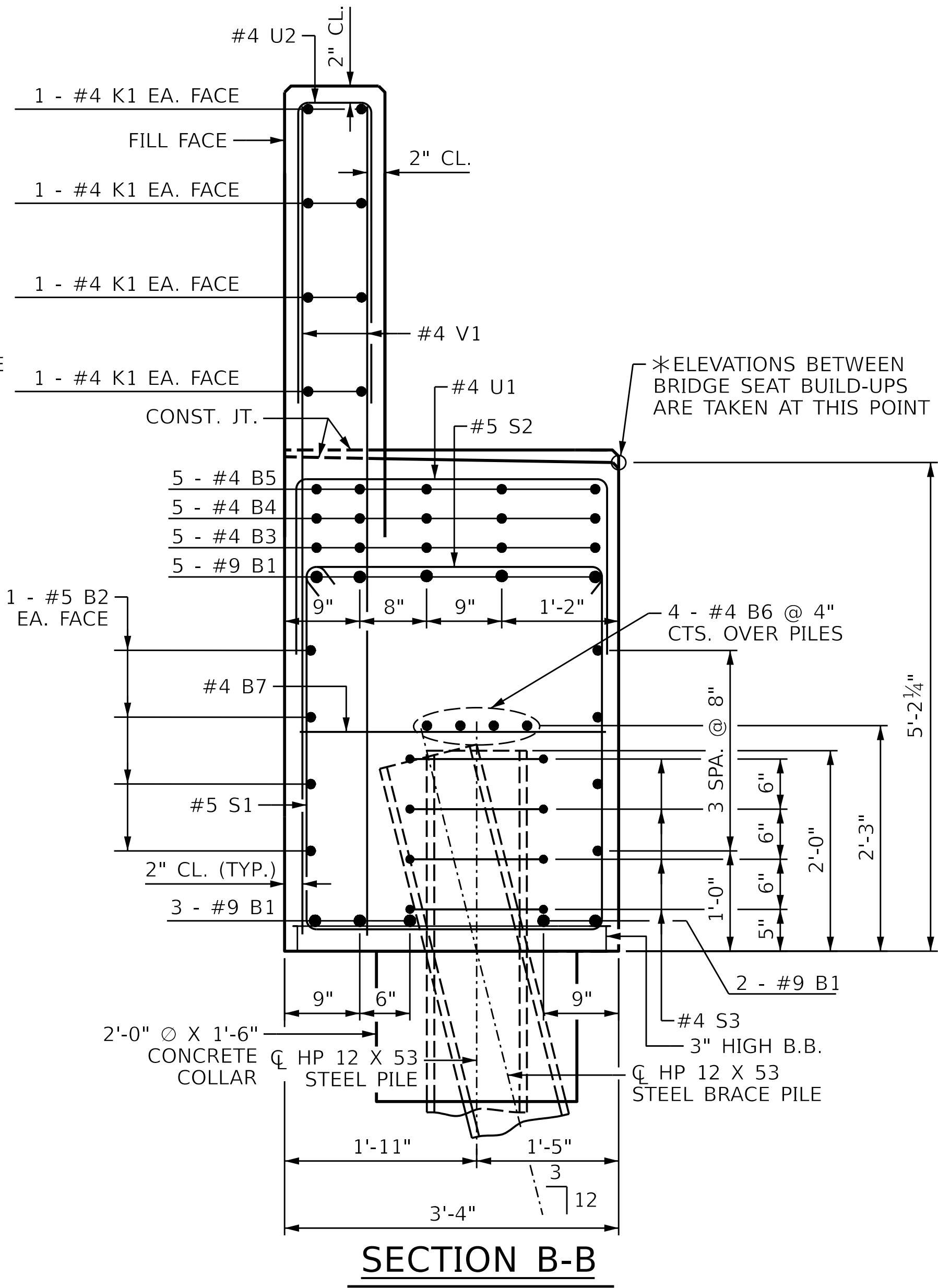
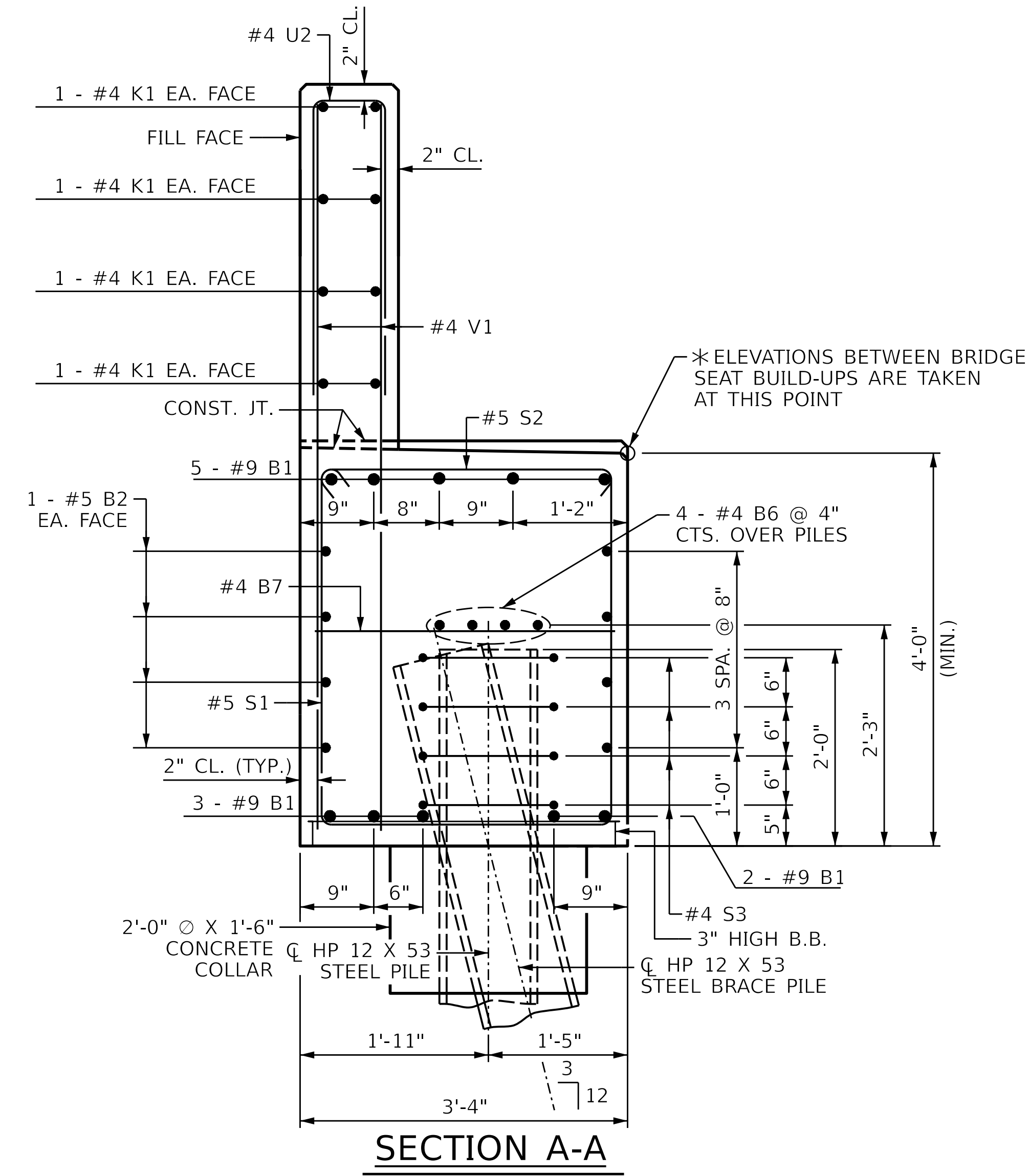
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220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

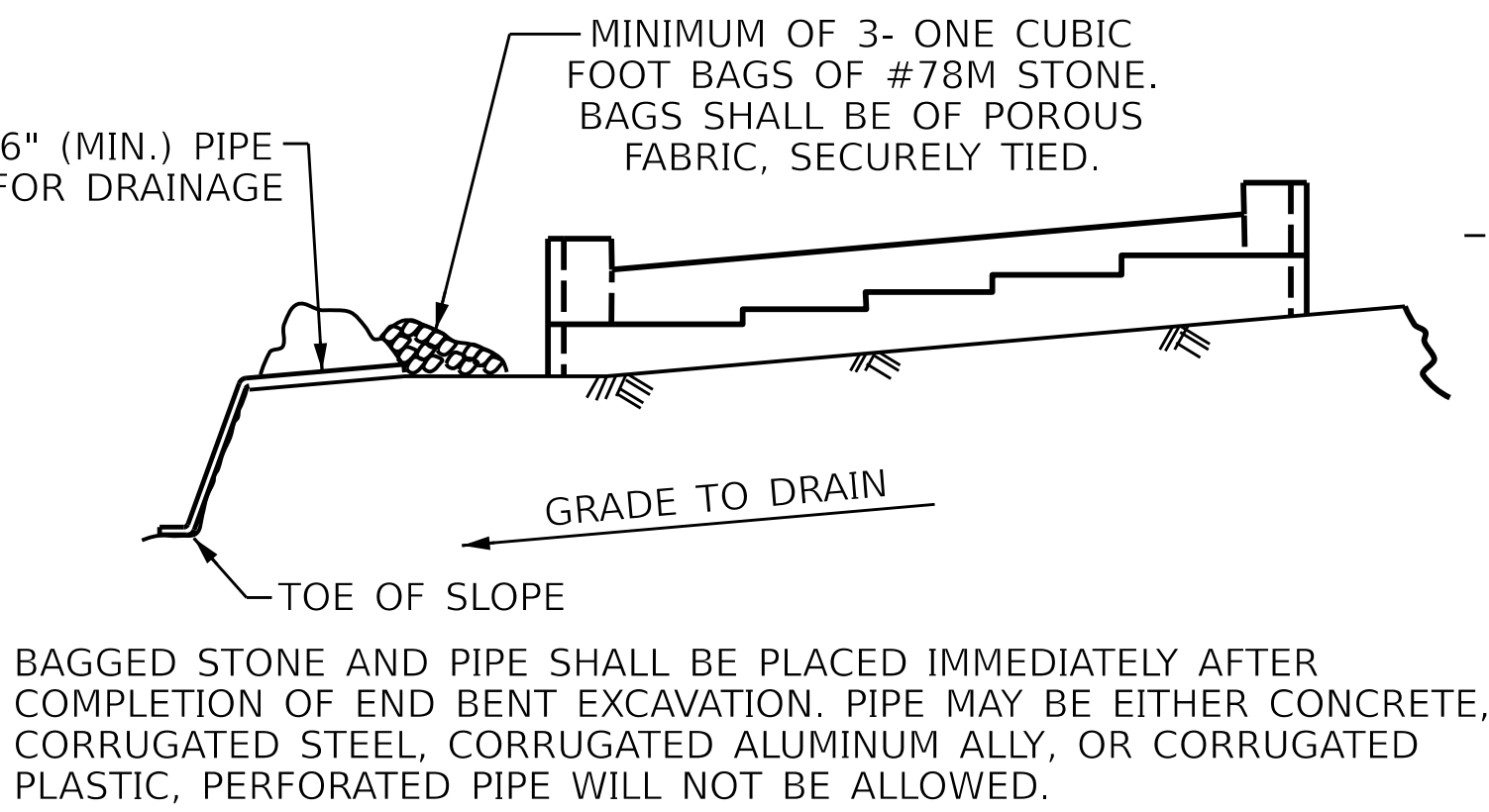
SHEET 2 OF 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR #1



DRAWN BY : C.T. MIXON DATE : 02-25
CHECKED BY : O. PUIGSERVER DATE : 04-25
DESIGN ENGINEER OF RECORD: O. PUIGSERVER DATE : 04-25

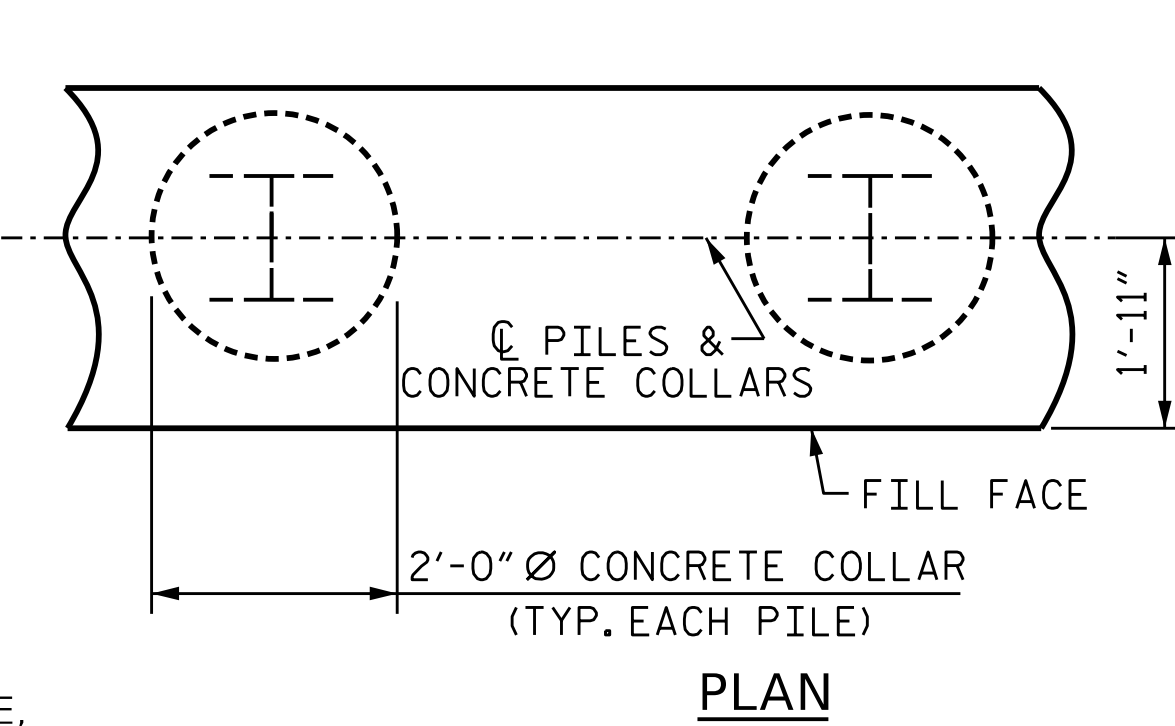


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC, PERFORATED PIPE WILL NOT BE ALLOWED.

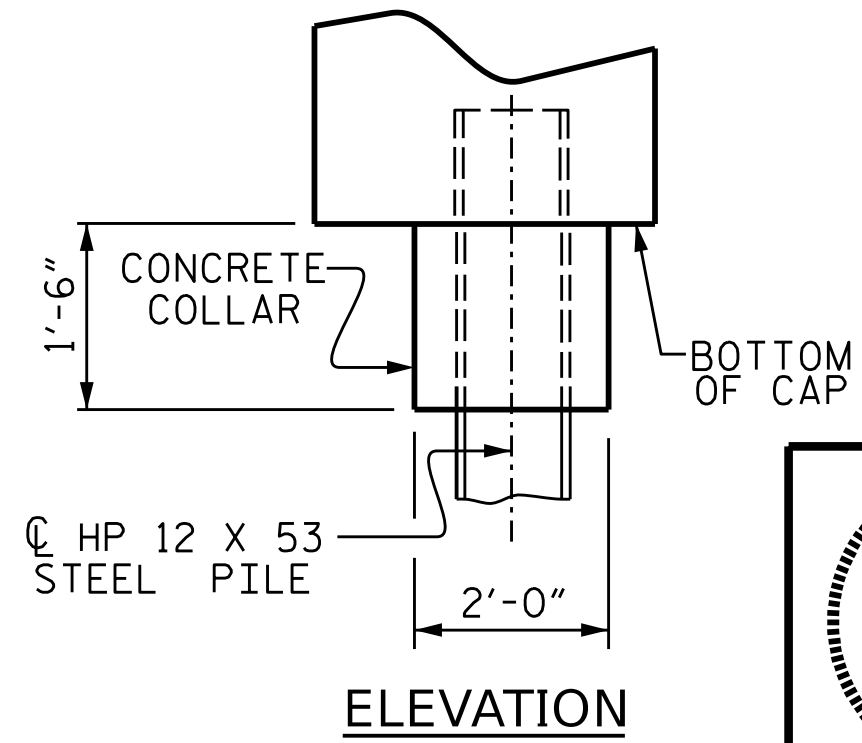
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



CORROSION PROTECTION FOR STEEL PILES DETAIL

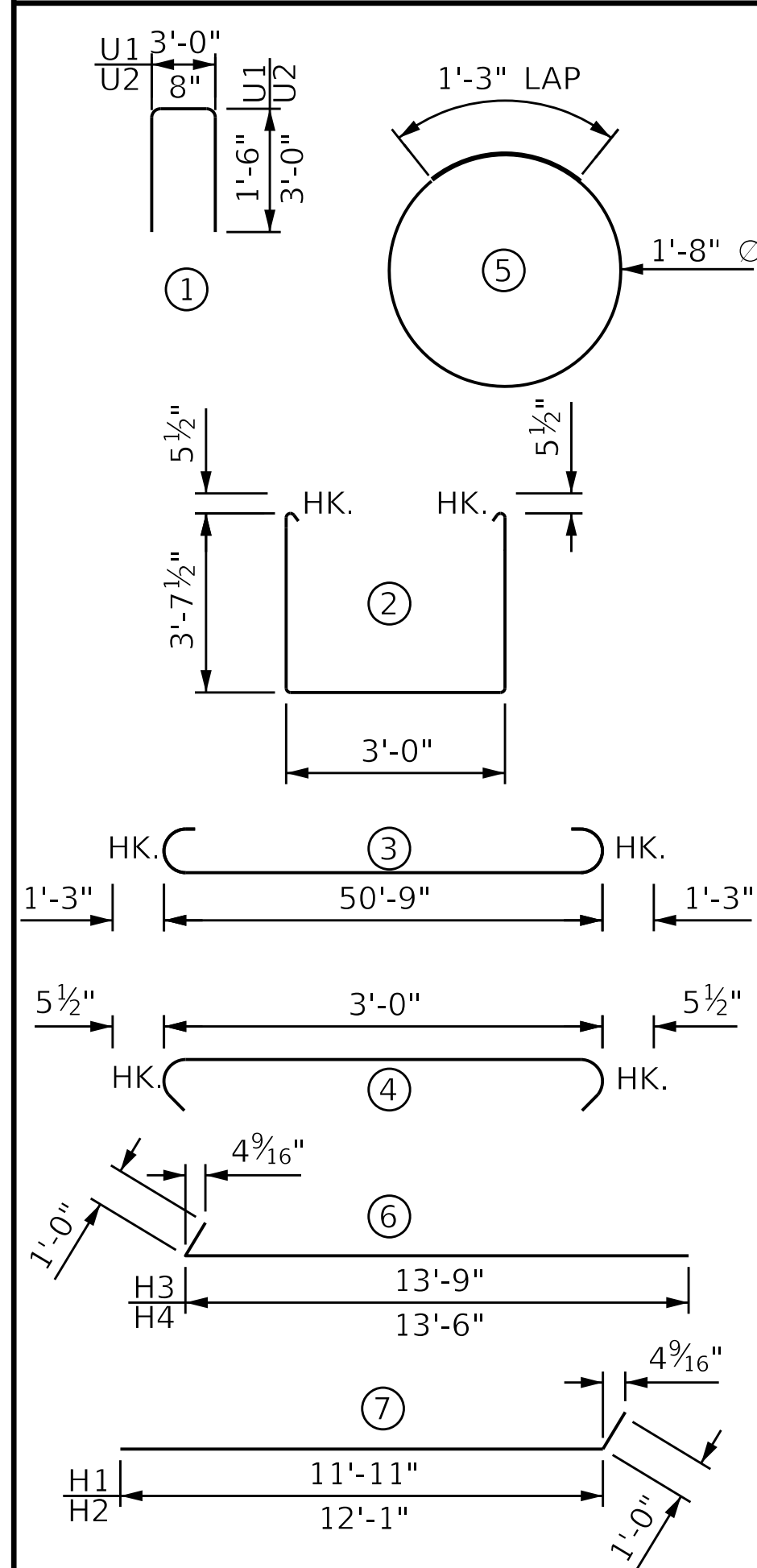


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Raleigh, NC 27615
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FINAL UNLESS ALL
SIGNATURES COMPLETED

BAR TYPES



BILL OF MATERIAL

FOR END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	3	53'-3"	1811
B2	8	#5	STR	50'-11"	425
B3	5	#4	STR	33'-0"	110
B4	5	#4	STR	20'-8"	69
B5	5	#4	STR	8'-4"	28
B6	8	#4	STR	26'-8"	143
B7	13	#4	STR	3'-0"	26
H1	19	#5	7	12'-11"	256
H2	19	#5	7	13'-1"	259
H3	22	#5	6	14'-9"	338
H4	22	#5	6	14'-6"	333
K1	16	#4	STR	26'-8"	285
K2	8	#4	STR	3'-9"	20
S1	52	#5	2	11'-2"	606
S2	52	#5	4	3'-11"	212
S3	24	#4	5	6'-6"	104
U1	23	#4	1	6'-0"	92
U2	44	#4	1	6'-8"	196
V1	88	#4	STR	7'-3"	426
V2	36	#5	STR	8'-11"	335
V3	40	#5	STR	10'-3"	428

REINFORCING STEEL LBS. 6,502

CLASS A CONCRETE BREAKDOWN
POUR 1 (CAP, LOWER PART OF WINGS & COLLARS) CU.YDS. 33.7
POUR 2 (BACKWALL & UPPER PART OF WINGS) CU.YDS. 12.6
CLASS A CONCRETE TOTAL CU.YDS. 46.3

ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 3 OF 3

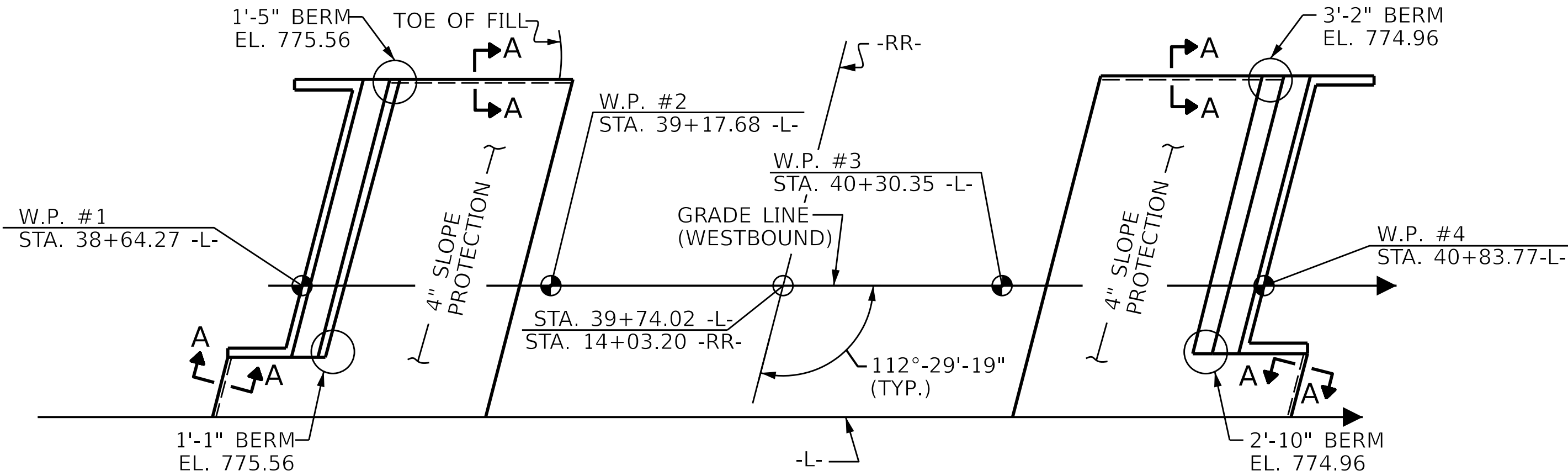
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT No. 2
(WESTBOUND)

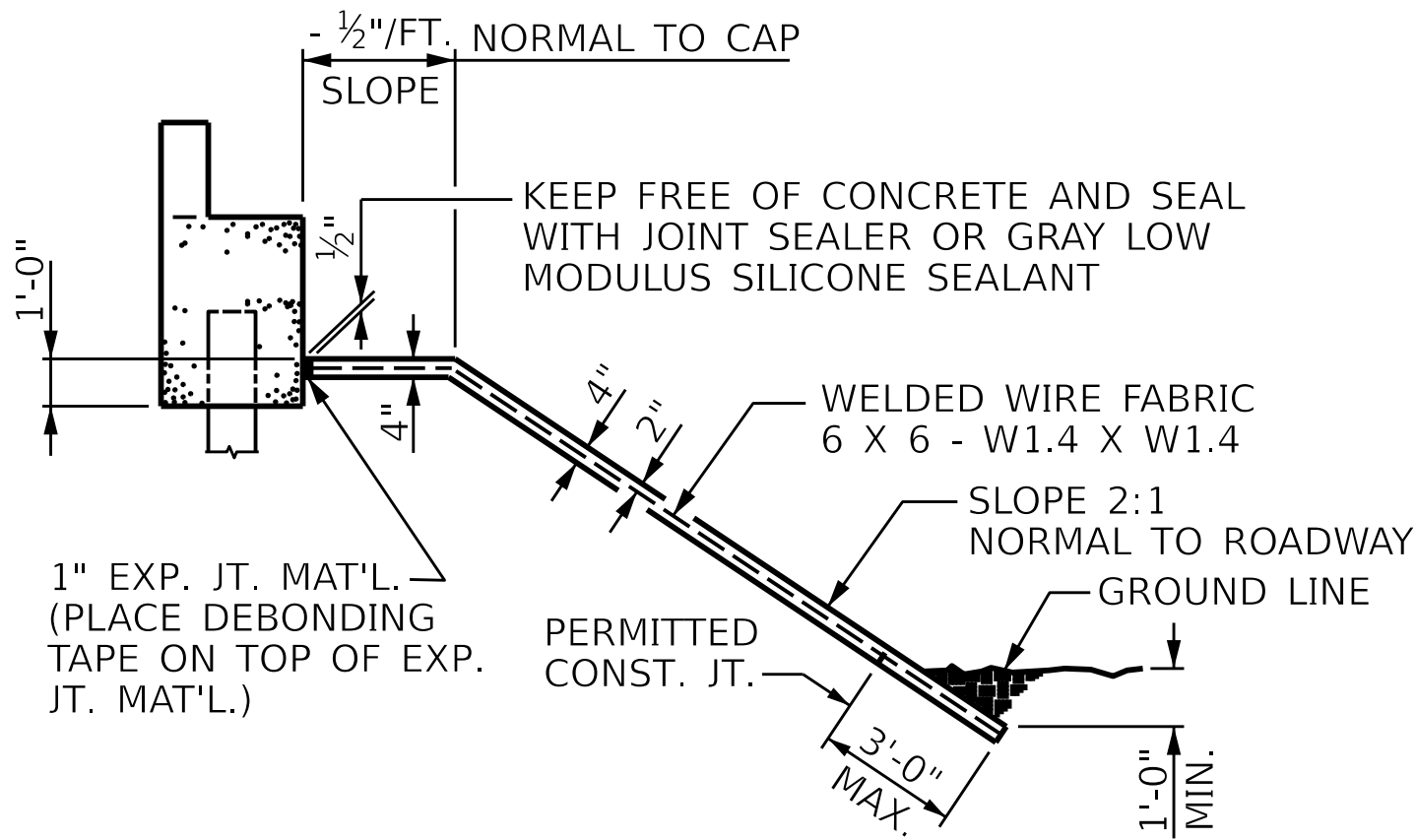
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	
1			3	TOTAL SHEETS
2			4	40

STR #1

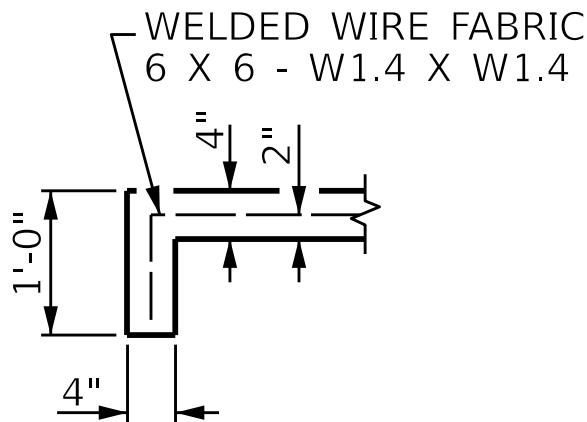
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PLAN



SECTION ALONG CL SURVEY WHEN DITCH IS NOT PROVIDED



SECTION A-A

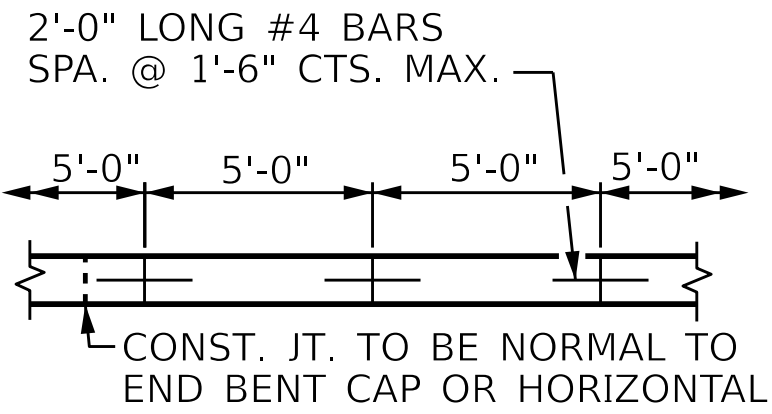
GENERAL NOTES

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.

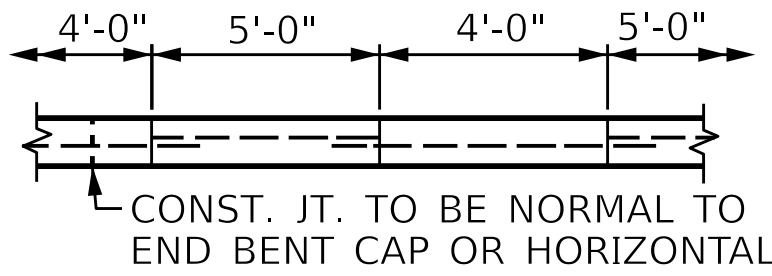
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL 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. 39+69.46 -L- (WESTBOUND)	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT No. 1	270	490
END BENT No. 2	270	490

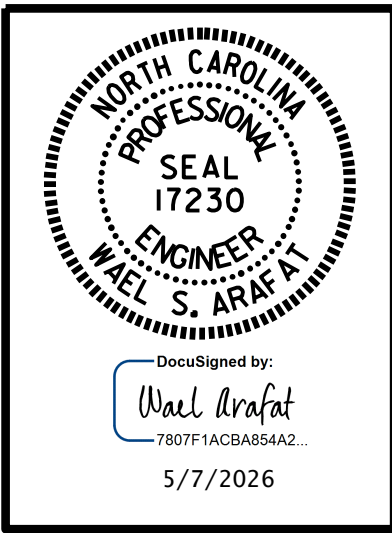
* QUANTITY SHOWN IS BASED ON 5' POURS.



POURING DETAIL



OPTIONAL POURING DETAIL



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PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SLOPE PROTECTION DETAILS (WESTBOUND)					
REVISIONS					SHEET NO. S01-38
NO.	BY:	DATE:	NO.	BY:	
1			3		TOTAL SHEETS 40
2			4		

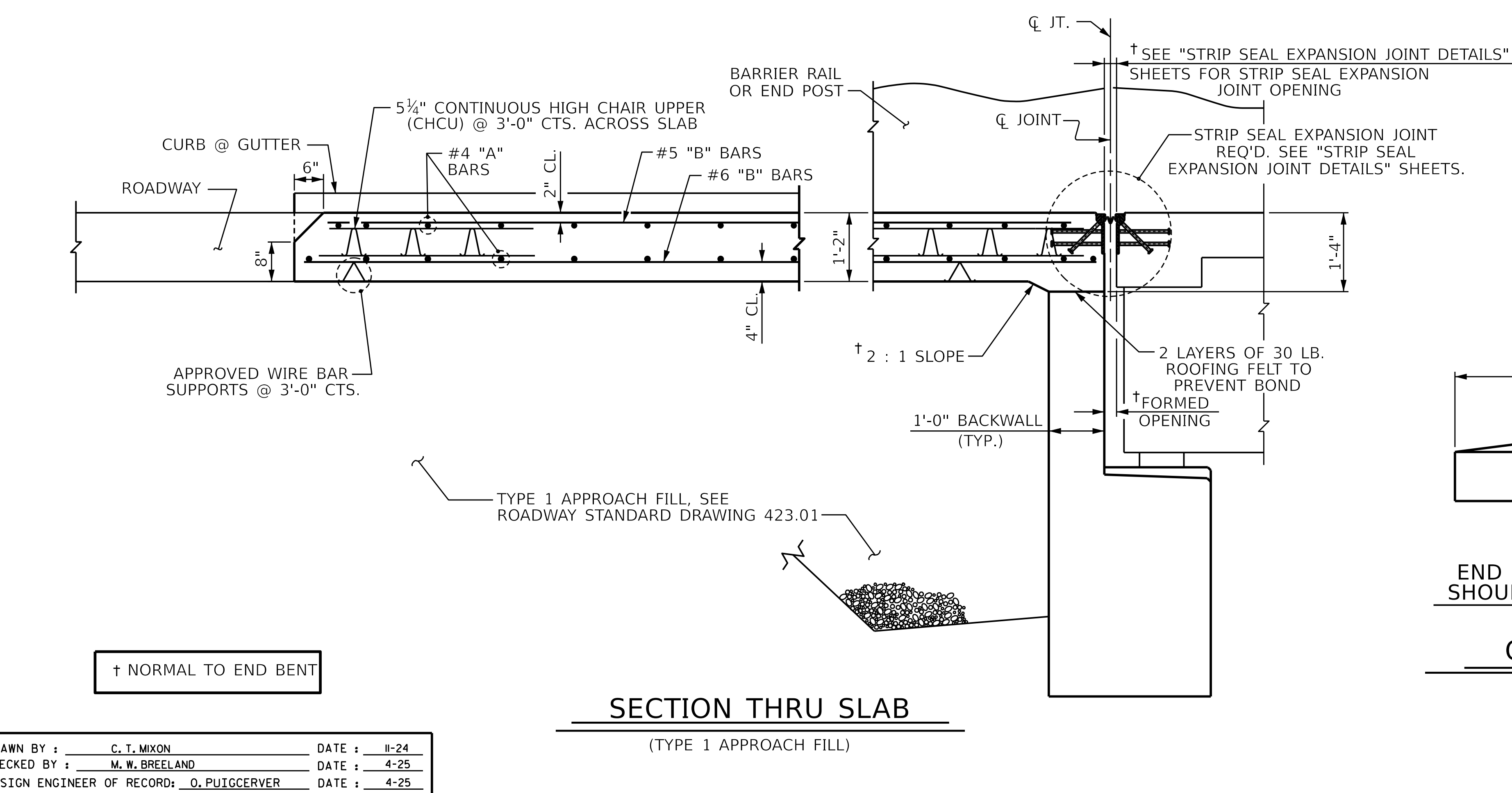
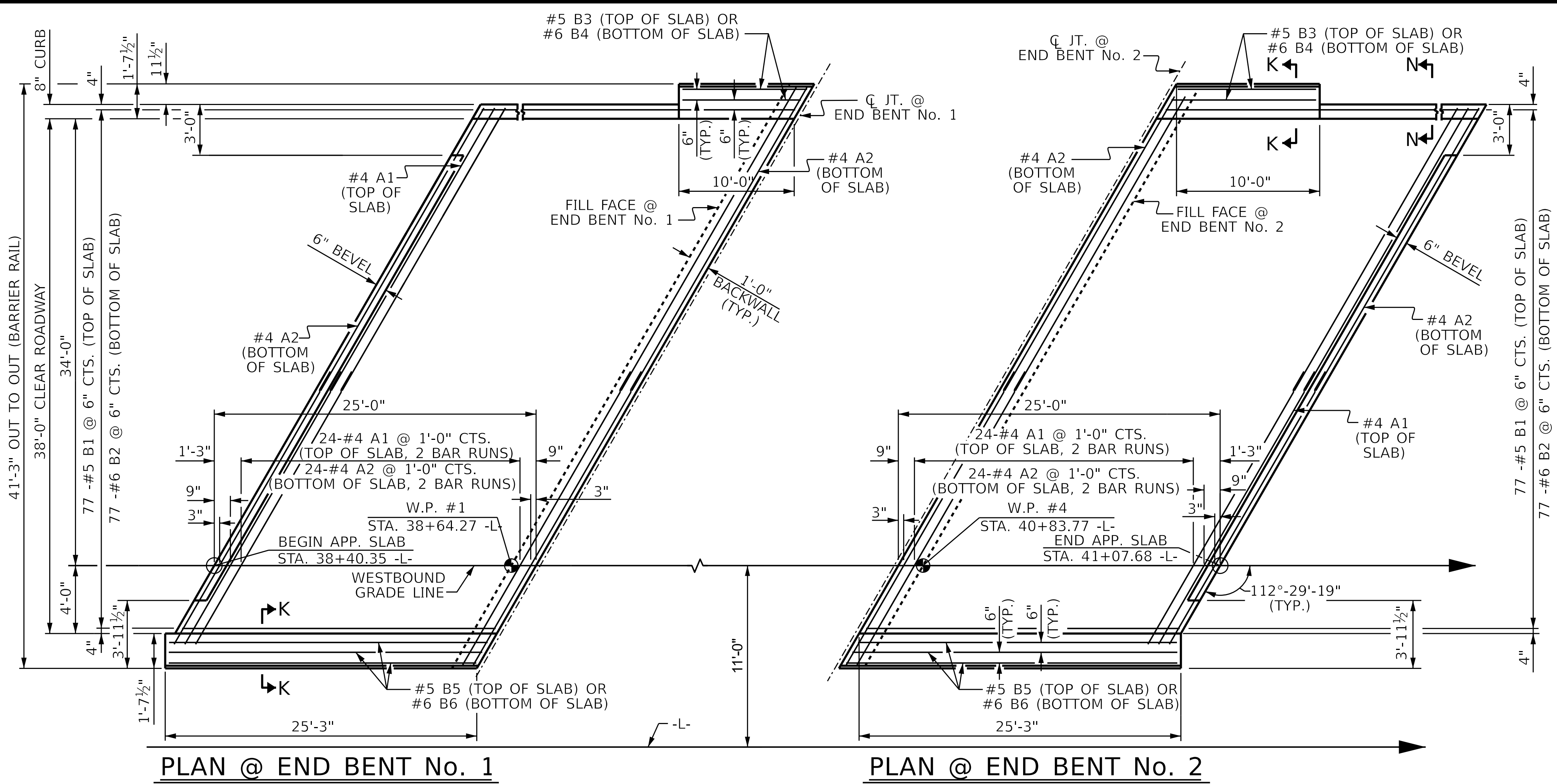
STR #1

Sht. 3

DRAWN BY : C. T. MIXON DATE : 5-25
CHECKED BY : O. PUIGCERVER DATE : 5-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 5-25

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

\\parrish-partners.com\projects\Documents\Surface Transportation\NC DOT BR-0140\Project Design Structures\FINAL\BR0140_APP SLAB PLAN 1/20/2026 11:55:12 AM



BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	23'-1"	771
A2	52	#4	STR	22'-11"	796
*B1	77	#5	STR	23'-8"	1901
B2	77	#6	STR	24'-7"	2843
*B3	2	#5	STR	9'-8"	20
B4	2	#6	STR	9'-8"	29
*B5	3	#5	STR	24'-11"	78
B6	3	#6	STR	24'-11"	112
REINFORCING STEEL				3780 LBS.	
* EPOXY COATED					
REINFORCING STEEL				2809 LBS.	
CLASS AA CONCRETE 44.1 C. Y.					
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	23'-1"	771
A2	52	#4	STR	22'-11"	796
*B1	77	#5	STR	23'-8"	1901
B2	77	#6	STR	24'-7"	2843
*B3	2	#5	STR	9'-8"	20
B4	2	#6	STR	9'-8"	29
*B5	3	#5	STR	24'-11"	78
B6	3	#6	STR	24'-11"	112
REINFORCING STEEL				3780 LBS.	
* EPOXY COATED					
REINFORCING STEEL				2809 LBS.	
CLASS AA CONCRETE 44.1 C. Y.					
* * QUANTITIES FOR BARRIER RAIL OR END POST ARE NOT INCLUDED. SEE SHEET 2 OF 2.					

NOTES					
FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.					
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 EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.					

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

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT (WESTBOUND)

REVISIONS				SHEET NO. S01-39
NO.	BY:	DATE:	NO.	
1			3	TOTAL SHEETS
2			4	40

DocuSigned by:
Walid Arafat
7807F1ACB8B5A2...
5/7/2026

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SECTION N-N

SECTION K-K

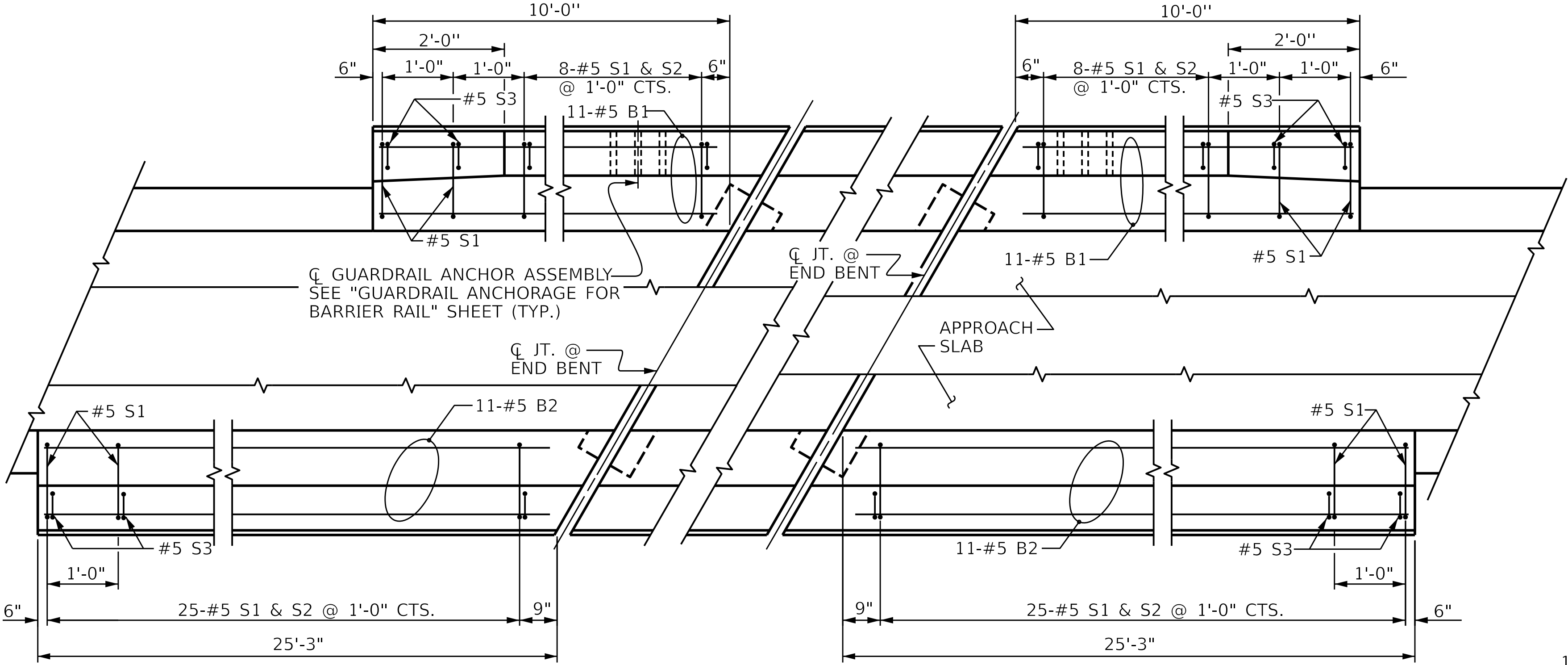
END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

DRAWN BY : C. T. MIXON	DATE : 11-24
CHECKED BY : M. W. BREELAND	DATE : 4-25
DESIGN ENGINEER OF RECORD : O. PUIGCERVER	DATE : 4-25

D:\parrish-partners\working\parrish-partners\Documents\Surfaces Transportation\NC DOT BR-0140\Project Design\Structures\FINAL\BR0140_APP SLAB DETAILS 10/24/2025 3:55:48 PM MODEL NAME: Sheet 03b WESTBOUND

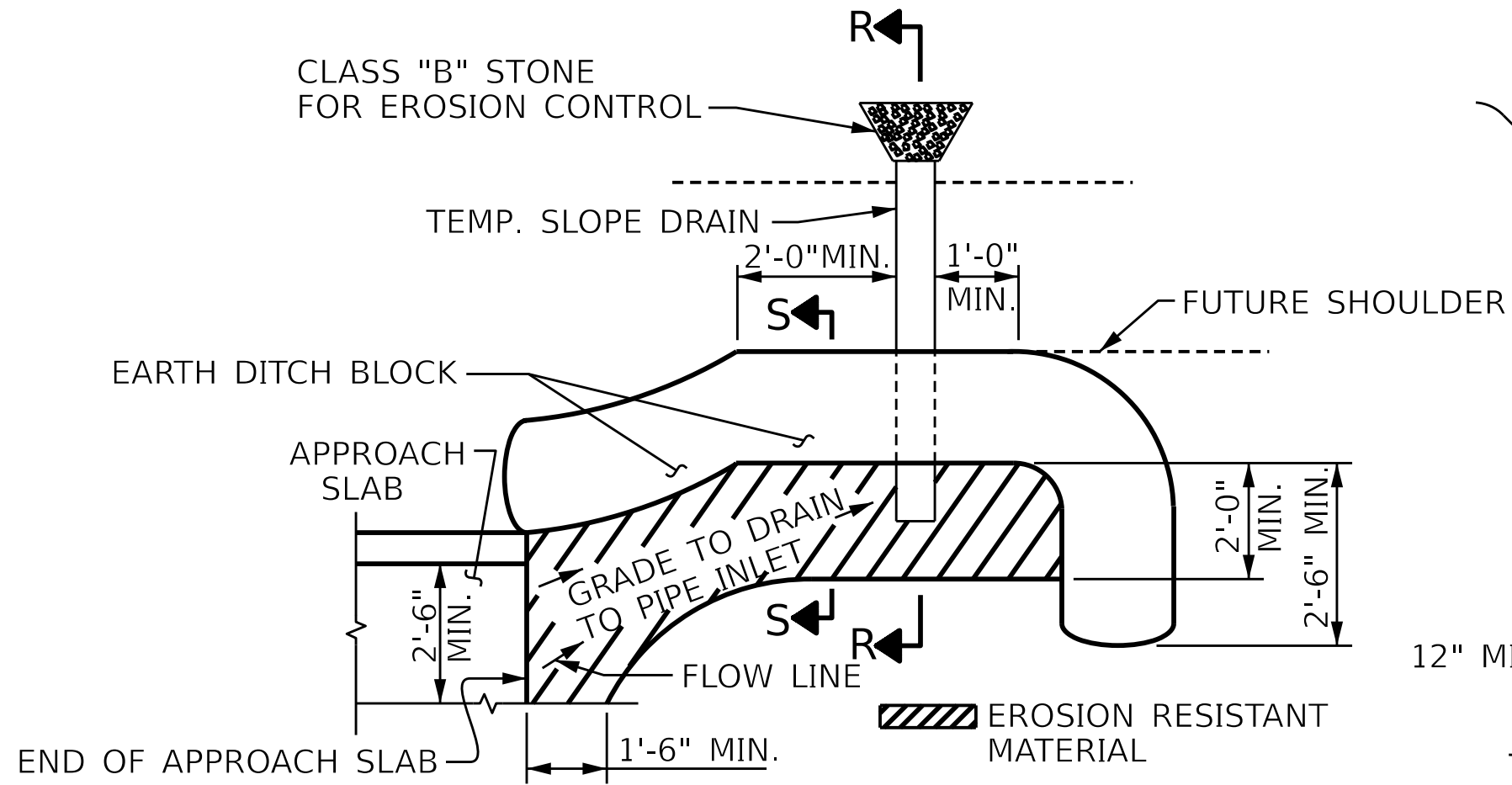
8/26/21



END BENT No. 1

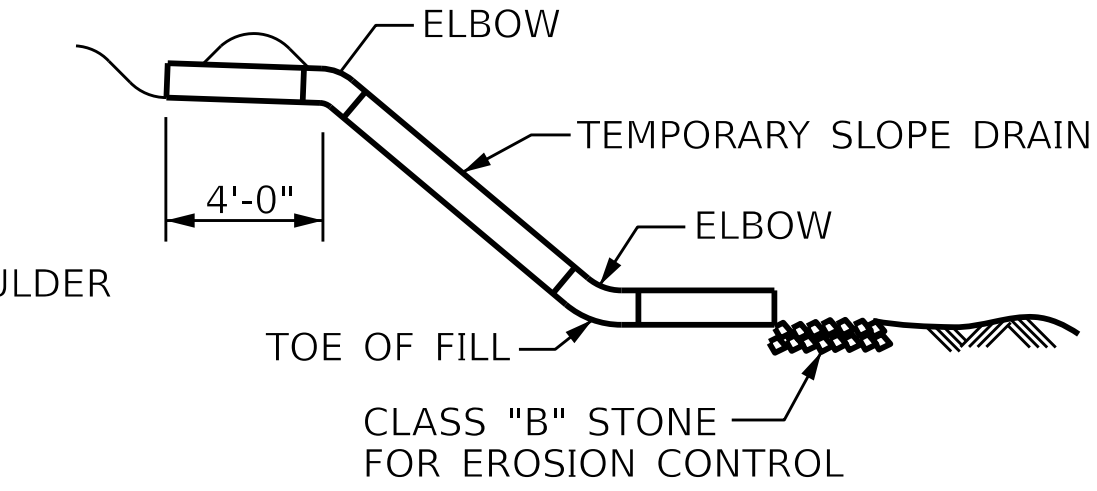
END BENT No. 2

PLAN OF BARRIER RAIL

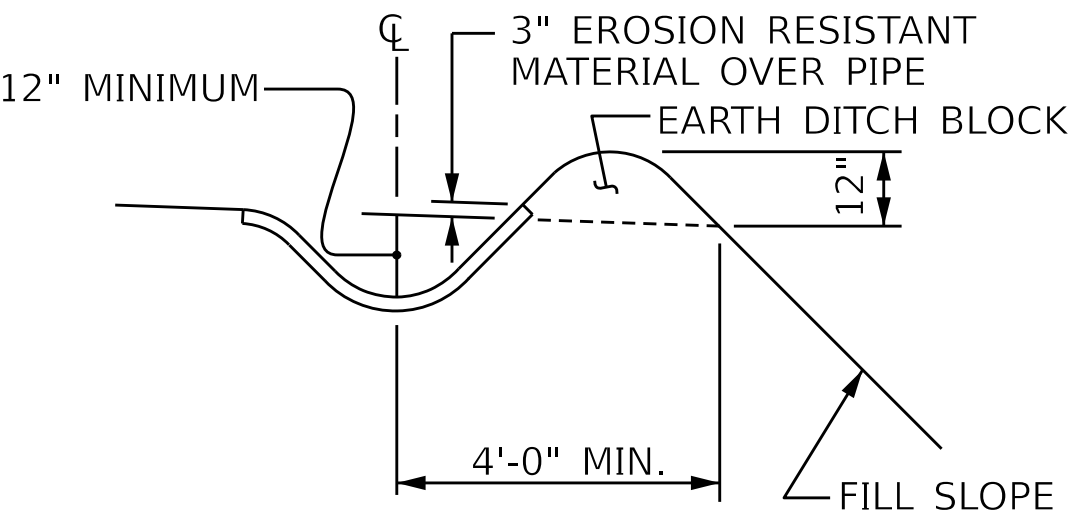


PLAN VIEW

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.



SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

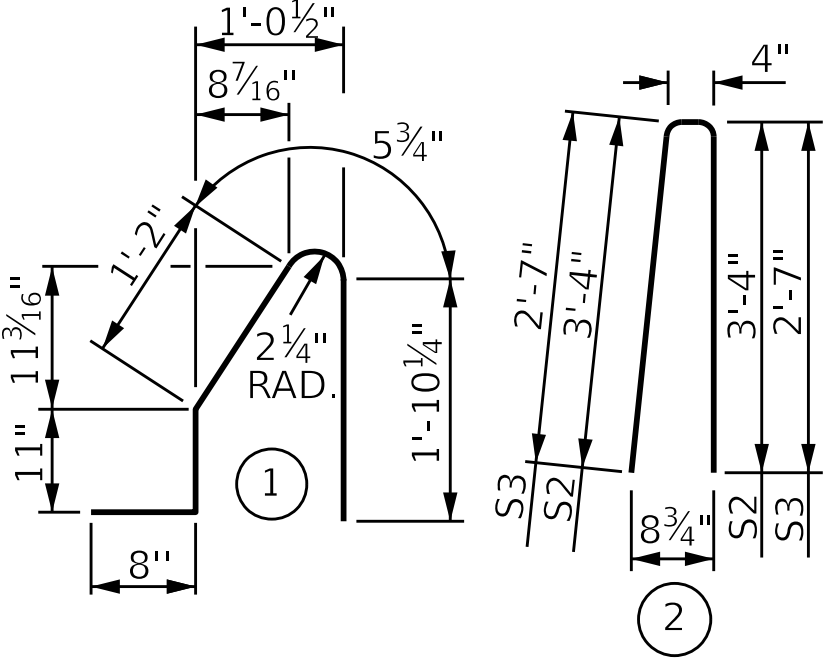
NOTES

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.

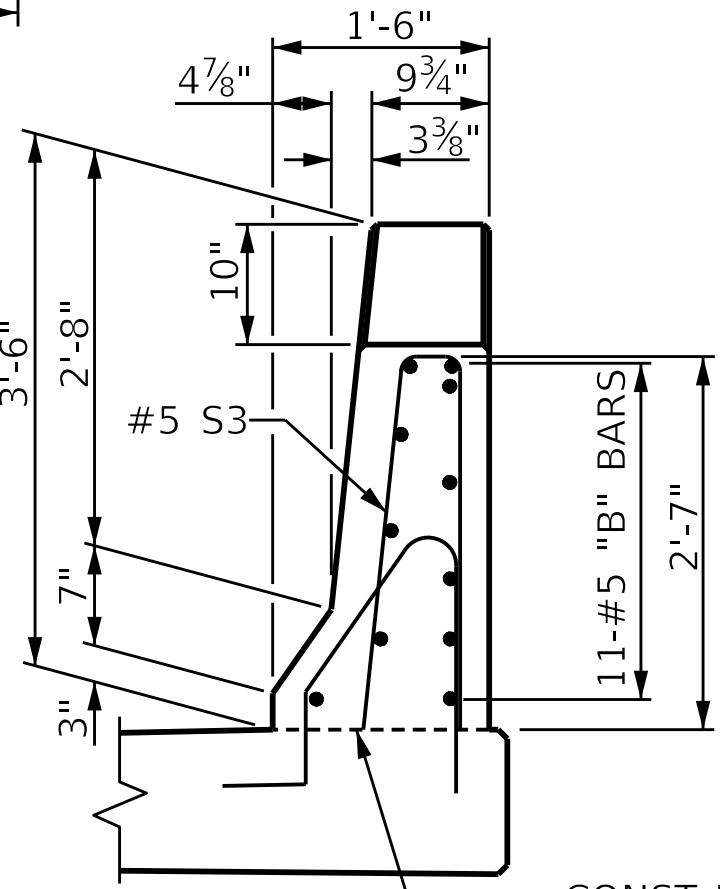
BAR TYPES



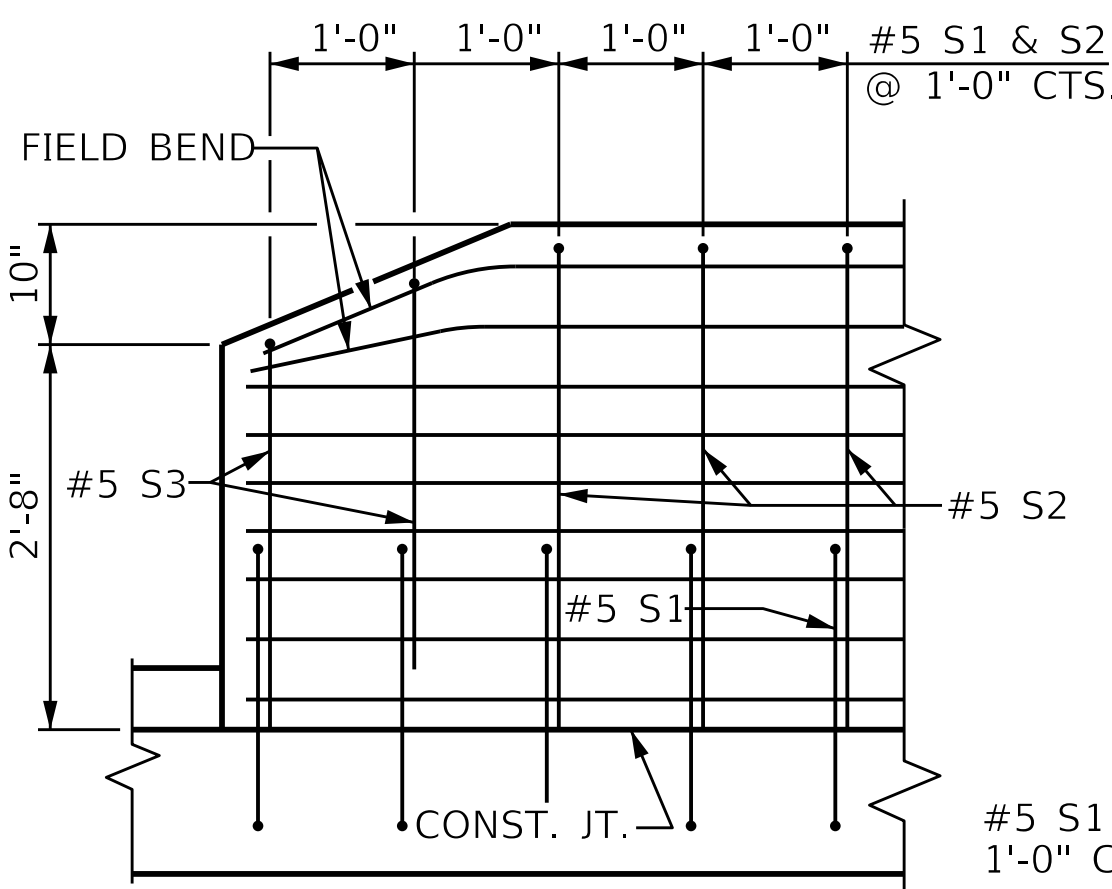
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

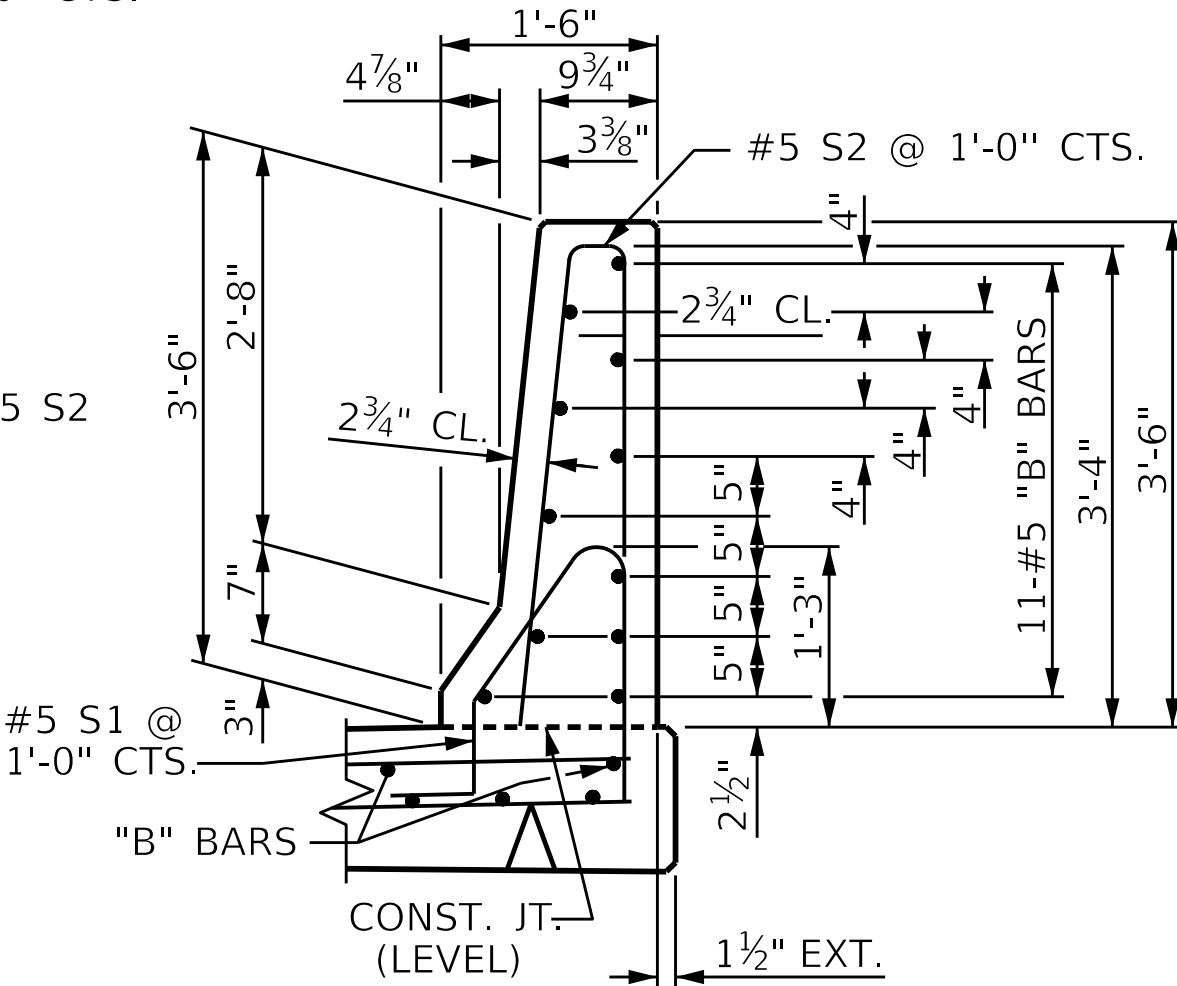
BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	22	#5	STR	9'-8"	222
* B2	22	#5	STR	24'-11"	572
* S1	70	#5	1	5'-1"	371
* S2	66	#5	2	7'-0"	482
* S3	8	#5	2	5'-6"	46
* EPOXY COATED REINFORCING STEEL					1693 LBS.
CLASS AA CONCRETE					9.4 C. Y.
CONCRETE BARRIER RAIL					70'-6" LIN. FT.



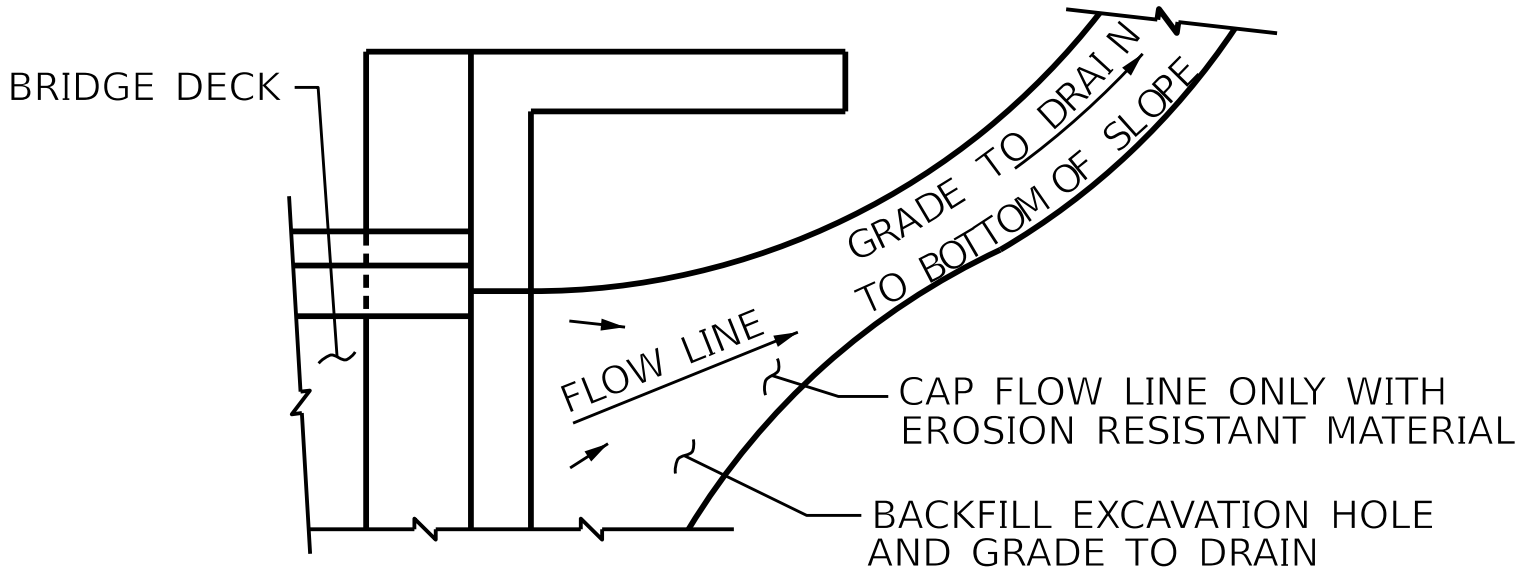
END VIEW



SIDE VIEW

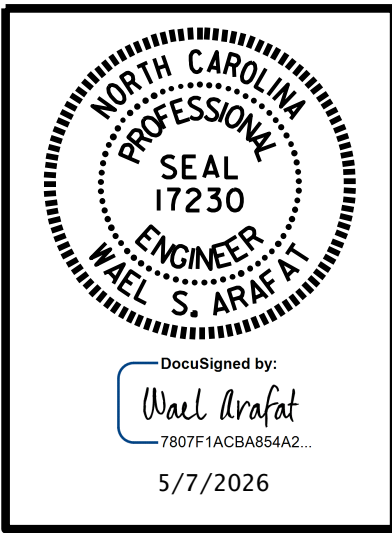


SECTION THRU RAIL



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



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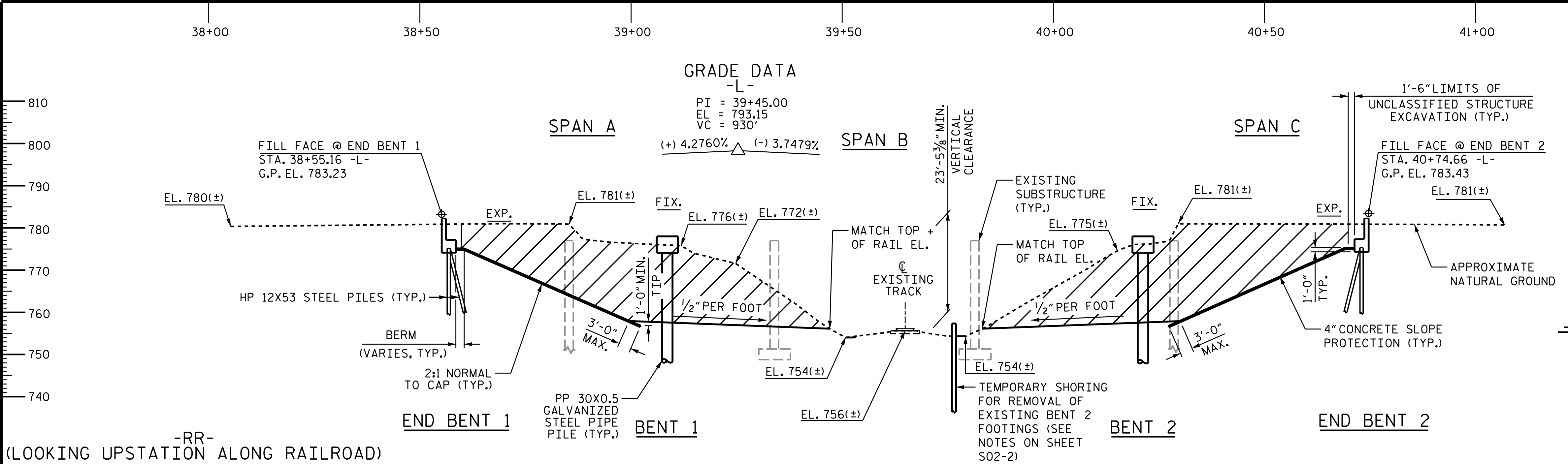
PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB DETAILS (WESTBOUND)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					40

STR #1 STD. BAS4 Sht. 03b

DRAWN BY :	C. T. MIXON	DATE :	11-24
CHECKED BY :	M. W. BREELAND	DATE :	3-25
DESIGN ENGINEER OF RECORD:	O. PUIGCERVER	DATE :	4-25

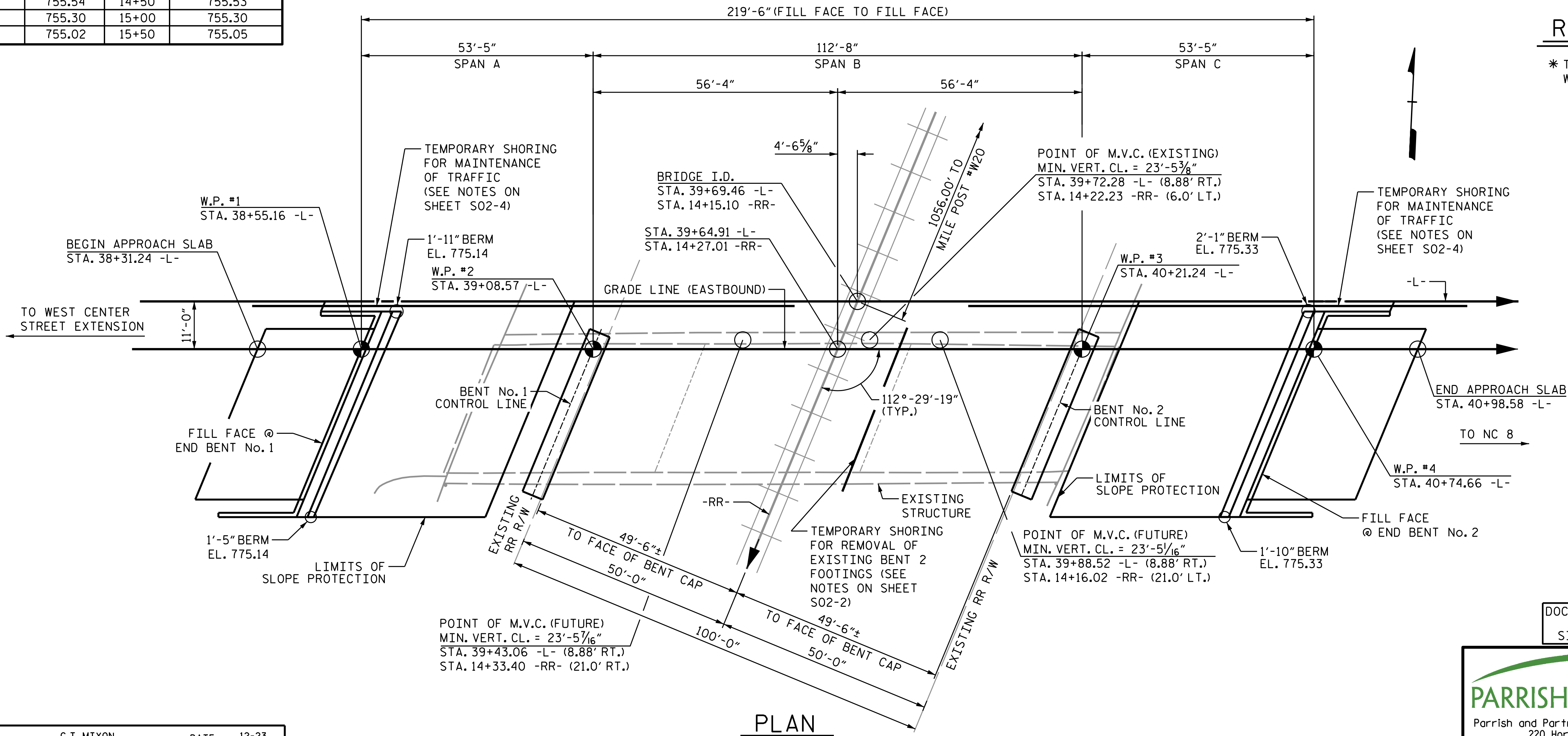
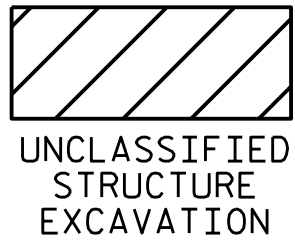


-RR-
(LOOKING UPSTATION ALONG RAILROAD)

TOP OF RAIL ELEVATIONS DATE OF SURVEY 7/13/22			
STATION	LEFT RAIL	STATION	RIGHT RAIL
13+00	755.98	13+00	755.96
13+50	755.83	13+50	755.83
14+00	755.69	14+00	755.70
14+50	755.54	14+50	755.53
15+00	755.30	15+00	755.30
15+50	755.02	15+50	755.05

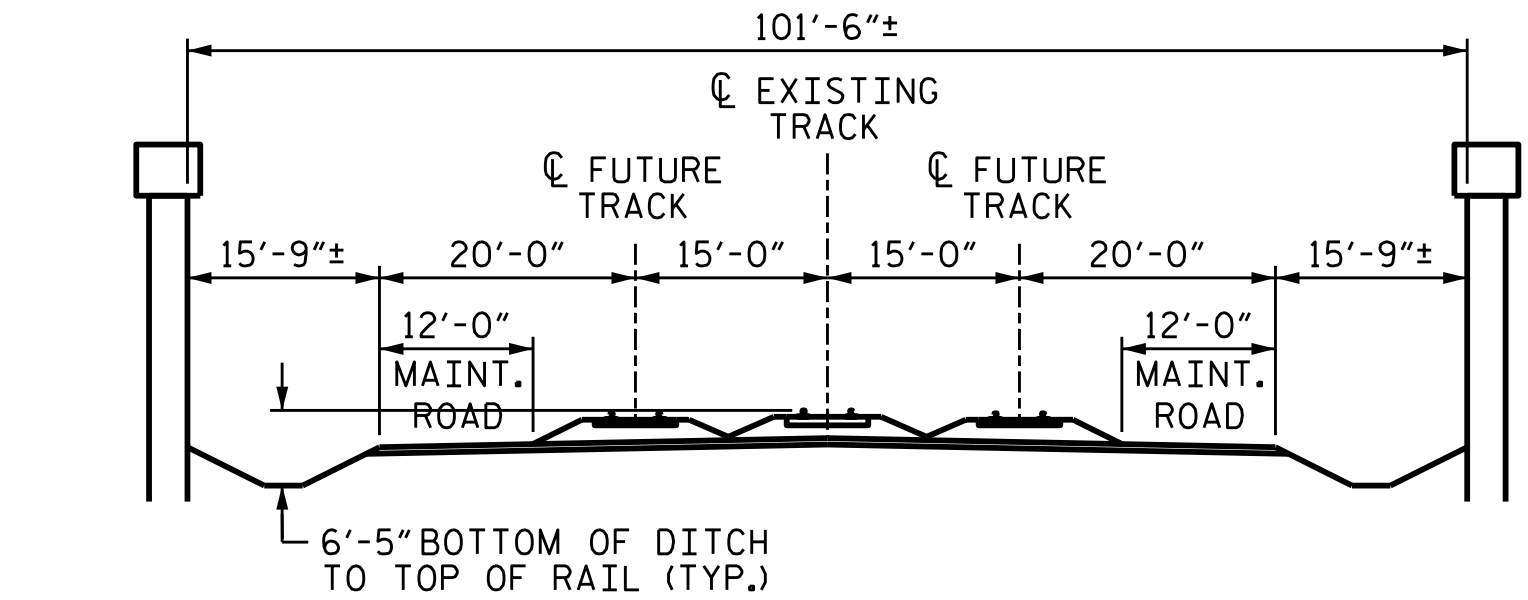
SECTION ALONG GRADE LINE (EASTBOUND)

SECTIONS @ END BENTS AND BENT ARE AT RIGHT ANGLES

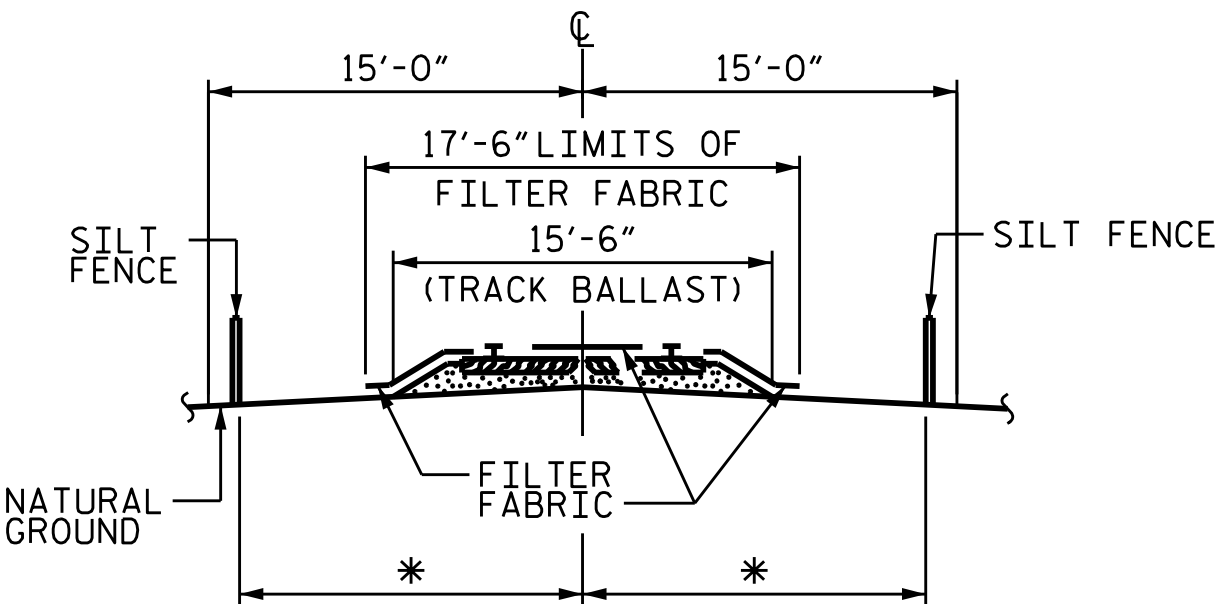


PLAN

PILES AND COLUMNS NOT SHOWN FOR CLARITY



THEORETICAL RAILROAD CROSS SECTION



RAILROAD EROSION CONTROL DETAIL

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

NOTES

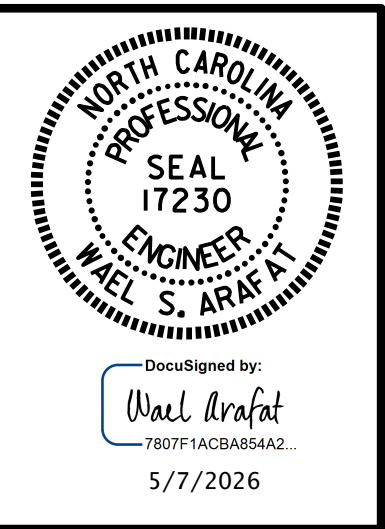
RAILROAD EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO PERFORMING ANY WORK IN THE RAILROAD RIGHT-OF-WAY.

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 THE RAILROAD SHALL EXTEND A MINIMUM OF 25'-0" OUTSIDE 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.



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PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-
14+15.10 -RR-

SHEET 1 OF 4 REPLACE BRIDGE No. 280087 MILE POST #W20.20

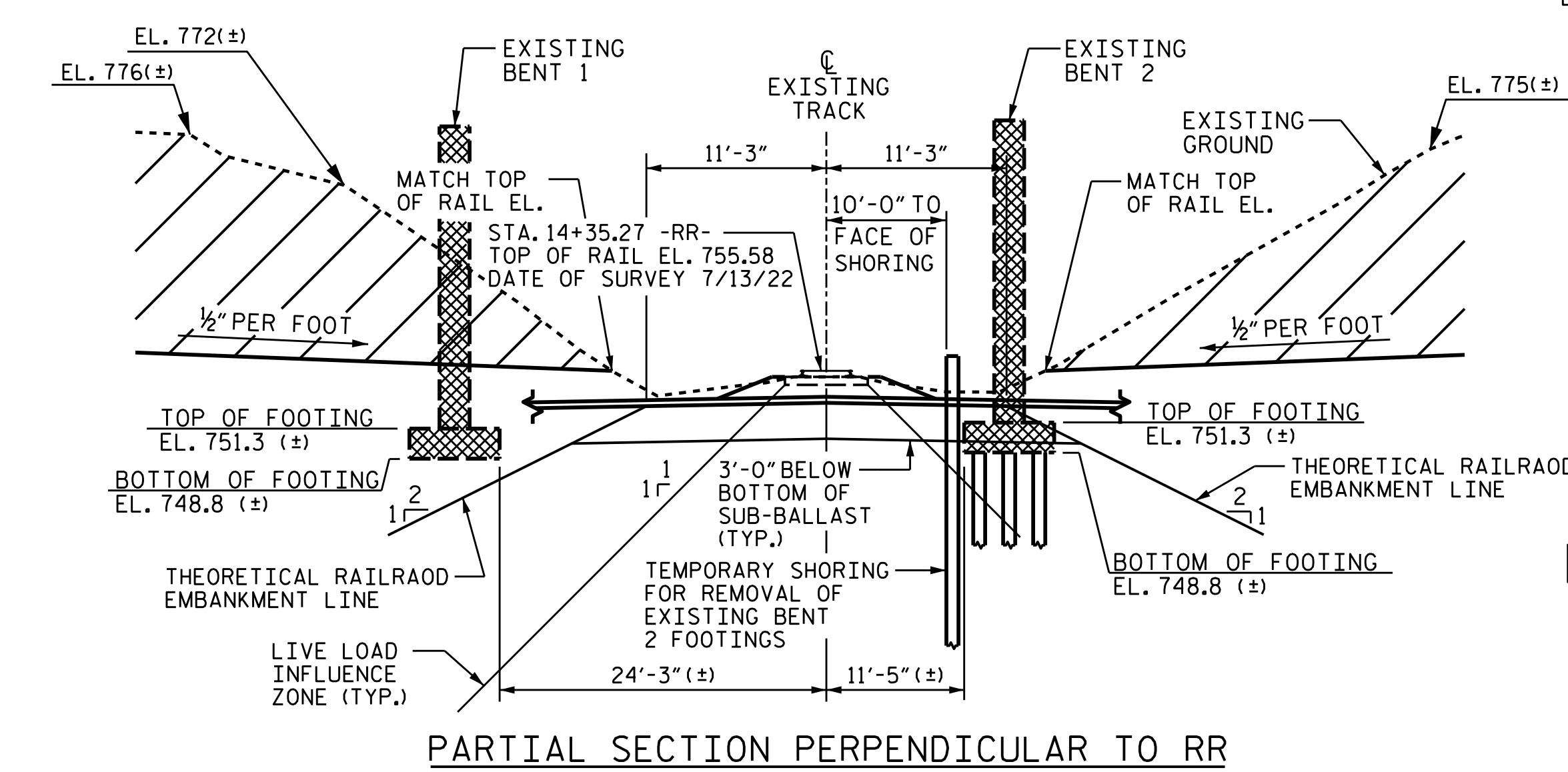
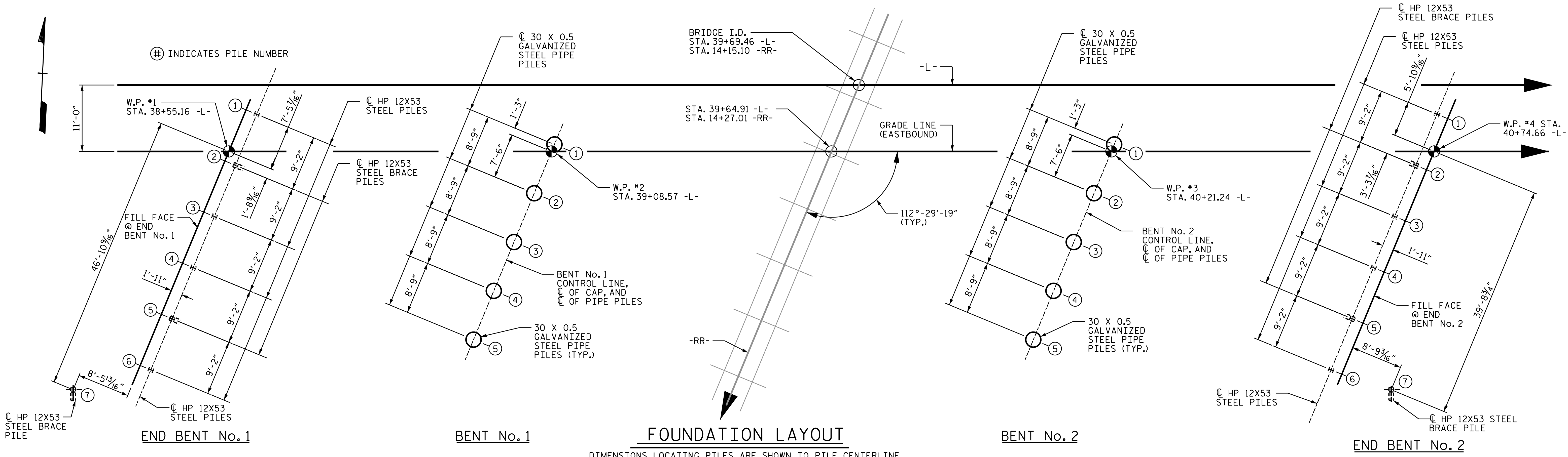
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(EASTBOUND)

REVISIONS						SHEET NO. S02-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR. #2



NOTES FOR REMOVAL OF BENTS 1 AND 2:

EXISTING BENTS 1 AND 2 SHALL BE REMOVED TO BOTTOM OF EXISTING FOOTINGS. ALL EXISTING PILES TO REMAIN IN PLACE. TEMPORARY SHORING WILL BE REQUIRED FOR REMOVAL OF EXISTING BENT 2 FOOTINGS FROM STA. 14+15.00 -RR- (10' LEFT) TO STA. 14+56.00 -RR- (10' LEFT). FOR TEMPORARY SHORING FOR REMOVAL OF EXISTING BENT 2 FOOTINGS, SEE SPECIAL PROVISIONS.

METHOD FOR REMOVAL OF EXISTING BENTS 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.

OTHER EXISTING SUBSTRUCTURE UNITS WITHIN RAILROAD RIGHT OF-WAY SHALL BE ENTIRELY REMOVED.

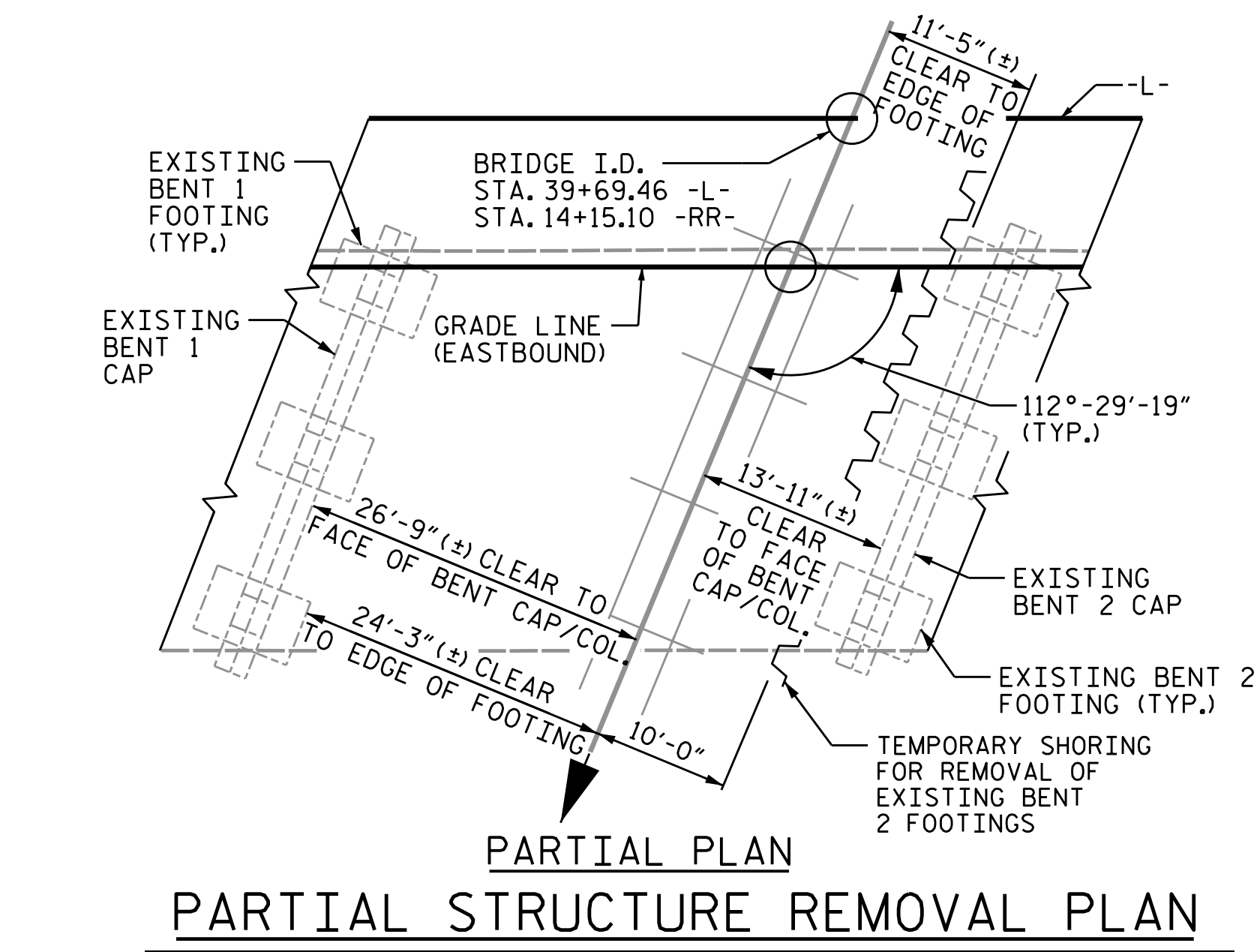
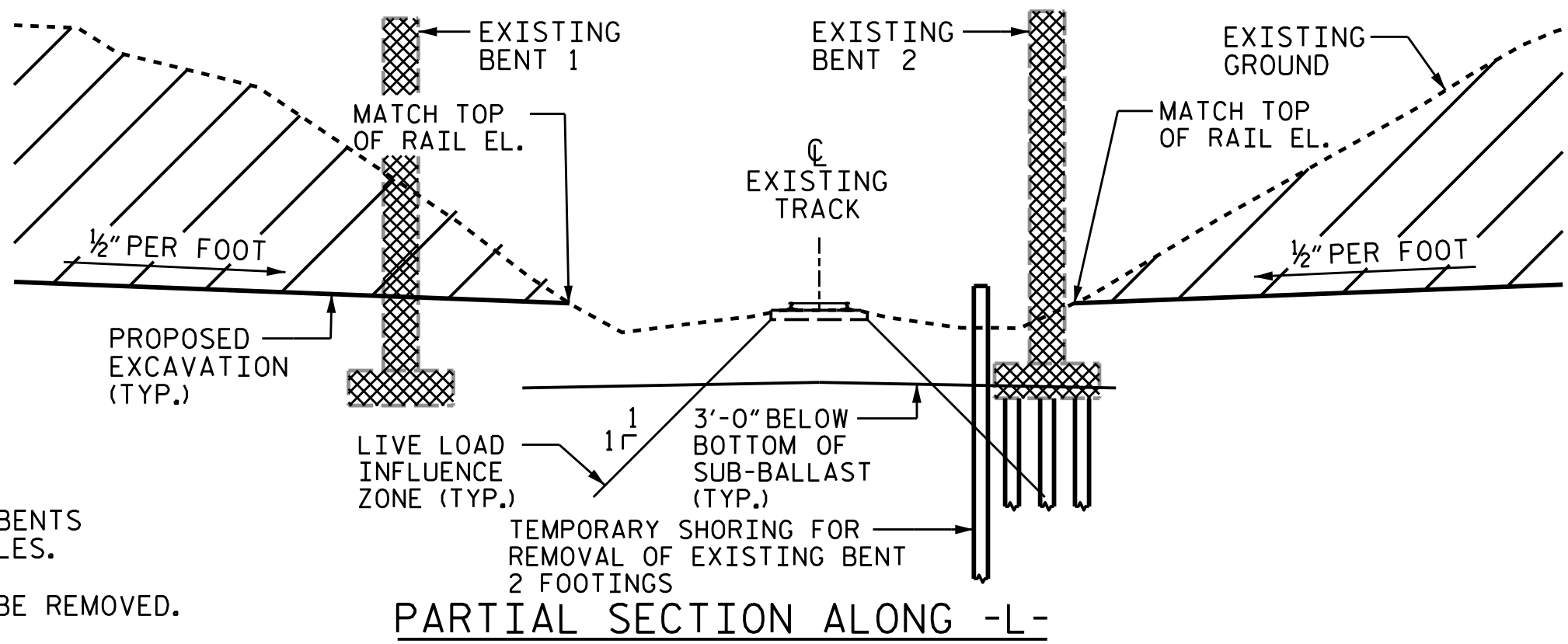
THE CONTRACTOR SHALL COORDINATE WITH THE RAILROAD FLAGGER SO THAT REMOVAL ACTIVITIES OF BENT ADJACENT TO RAIL LINES IS PERFORMED DURING STOPPAGES OF TRAINS. WHEN REMOVAL ACTIVITIES ARE SUSPENDED TO ALLOW FOR TRAIN PASSAGE, THE RAILROAD EMBANKMENT SHALL BE RESTORED AND COMPACTED TO AT LEAST THE CROSS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

LOCATION OF CSXT SIGNALS INFRASTRUCTURE SHALL BE COORDINATED THROUGH THE CONSTRUCTION MONITORING REPRESENTATIVE WORKING ON BEHALF OF CSXT.

ALL DIMENSIONS TO BE FIELD VERIFIED.

DRAWN BY :	C. T. MIXON	DATE :	4-25
CHECKED BY :	W. S. ARAFAT	DATE :	5-25
DESIGN ENGINEER OF RECORD:	O. PUTIGERVER	DATE :	4-25

FOUNDATION LAYOUT
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.



NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 80,000-120,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NOS. 1&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.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30,000-60,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS. 1&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. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 2 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(EASTBOUND)



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REVISIONS						SHEET NO. S02-2 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STR. #2

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")	Number of Piles per Line	Factored Resistance per Pile KIPS	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		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent 1, Piles 1-7	7	198		65	N/A		330							
Bent 1, Piles 1-5	5	606		75	N/A	722.00	1014							
Bent 2, Piles 1-5	5	612		75	N/A	722.00	1024							
End Bent 2, Piles 1-7	7	198		75	N/A		330							
TOTAL QUANTITY:														

* $RDR = \frac{Factored\ Resistance + Factored\ Drag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + Nominal\ Resistance\ from\ Scourable\ Material$

** 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.

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 KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent 1, Piles 1-7	196			0.60		
Bent 1, Piles 1-5	606		4	0.60		
Bent 2, Piles 1-5	608		4	0.60		
End Bent 2, Piles 1-7	198			0.60		

* 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 EACH	Steel Pile Points		
		Pipe Pile Cutting Shoes EACH	Pipe Pile Conical Points EACH	H-Pile Points EACH
TOTAL QUANTITY:				

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

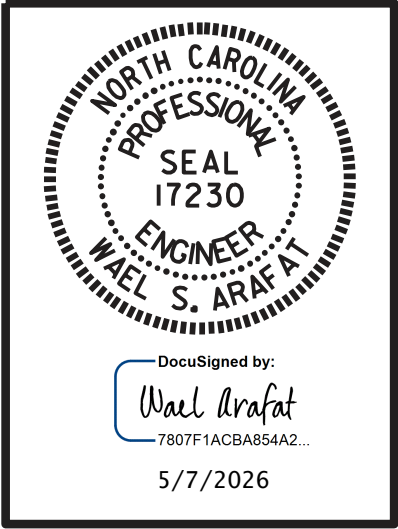
Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
TOTAL QUANTITY:		

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

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

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (SHIPING YANG, #031361) on 06-5-2025.
2. 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.
3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.



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Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 3 OF 4

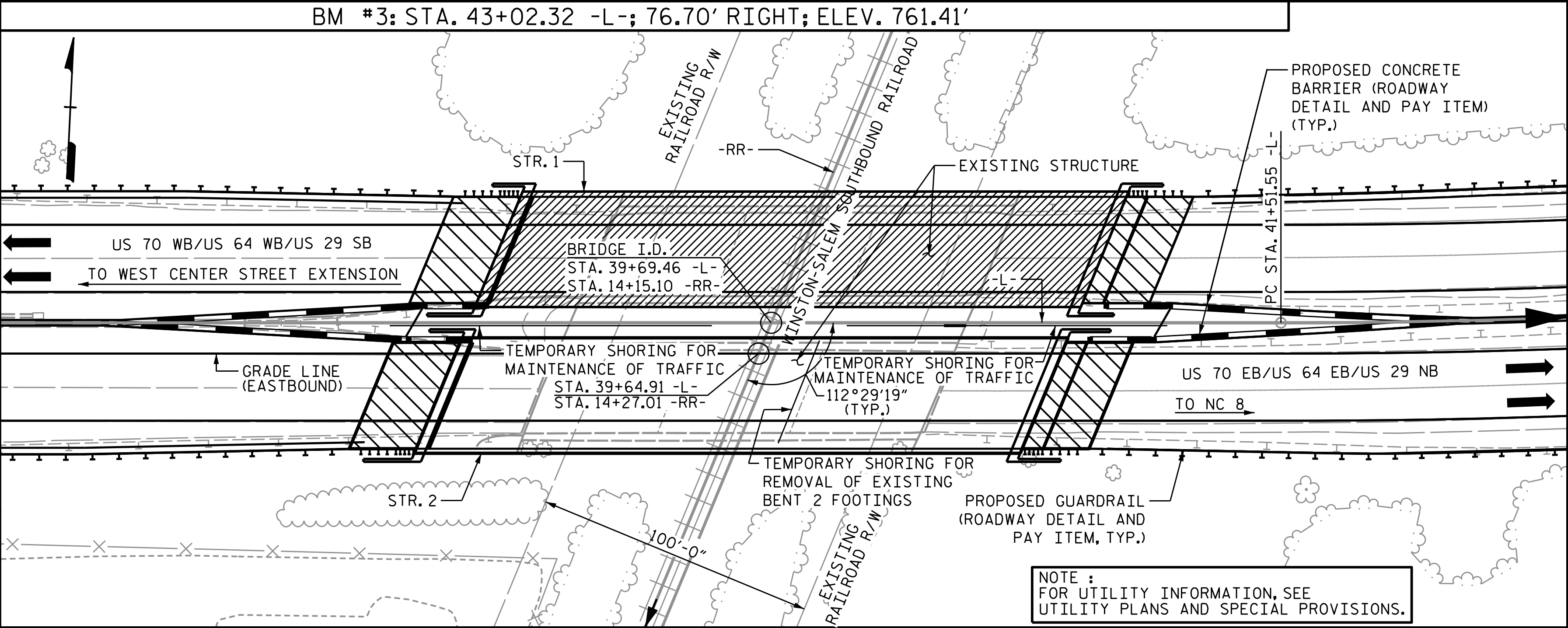
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(EASTBOUND)

REVISIONS						SHEET NO. S02-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR. #2

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LOCATION SKETCH

NOTES

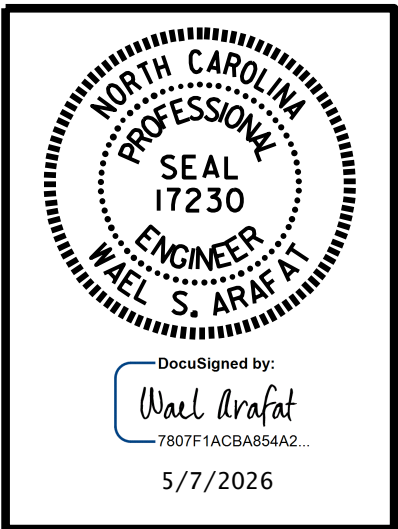
- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- 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.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 39+69.46 -L-"
- THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF APPROXIMATELY 11' LEFT AND 60' RIGHT OF GRADE LINE (EASTBOUND) AT END BENT 1 AND 11' LEFT AND 65' RIGHT OF GRADE LINE (EASTBOUND) AT END BENT 2 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.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSEMENT	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	APPROX. 313,166 LBS. STRUCTURAL STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 30 X 0.50 GALVANIZED STEEL PILES	HP 12 X 53 STEEL PILES		PP 30 X 0.50 GALVANIZED STEEL PILES		CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE (BLACK VINYL COATED)	4 INCH SLOPE PROTECTION	DISC BEARINGS	ELASTOMERIC BEARINGS	STRIP SEALS	TEMPORARY SHORING FOR REMOVAL OF EXISTING BENT 2 FOOTINGS
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LUMP SUM	EACH	EACH	No.	LIN. FT.	No.	LIN. FT.	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE				8,956	9,317		LUMP SUM		LUMP SUM							504.7	429.0		LUMP SUM	LUMP SUM	LUMP SUM	
END BENT No. 1						46.8		6,201		7		7	455					255				
BENT No. 1						30.9		4,734			5			5	375							
BENT No. 2						31.2		4,734			5			5	375							
END BENT No. 2						47.5		6,200		7		7	525					265				
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	8,956	9,317	156.4	LUMP SUM	21,869	LUMP SUM	14	10	14	980	10	750	504.7	429.0	520	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM

NOTES (CONTINUED)

- WORK SHALL NOT BE STARTED ON THIS BRIDGE UNTIL THE ROADWAY SECTION HAS BEEN EXCAVATED.
- 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.
- AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SIMPLE SPANS AT APPROXIMATELY 48' EACH WITH A CLEAR ROADWAY WIDTH OF 30', REINFORCED CONCRETE DECK ON 5 LINES OF STEEL I BEAMS, POST AND BEAM BENTS WITH REINFORCED CONCRETE CAPS AND REINFORCED CONCRETE COLUMNS ON SPREAD FOOTINGS ON TIMBER PILES, SPILL THROUGH END BENTS WITH REINFORCED CONCRETE CAPS ON TIMBER PILES, AND 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. SEE SPECIAL PROVISION.
- 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 1 AND 2, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZING 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.



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PARRISH & PARTNERS
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PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON US 29/64/70
OVER WINSTON-SALEM SOUTHBOUND
RAILROAD BETWEEN WEST CENTER
STREET EXTENSION (SR 1242) AND NC 8
(EASTBOUND)

REVISIONS						SHEET NO. S02-4 TOTAL SHEETS 40
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STR. #2

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pm:/parrish-pwberling.com/parrish-pw/Documents/Surfaces Transportation/NC DOT BR-0140/Project Design/Structures/FINAL/BR0140_FINAL_LRFR 10/23/2025 4:04:37 PM MODEL NAME: LRFR - EASTBOUND

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS																								
LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING ⚡	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE						COMMENT NUMBER	
							LIVE-LOAD FACTORS (γ LL)	MOMENT				SHEAR				LIVE-LOAD FACTORS (γ LL)	MOMENT							
								DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD		HL-93 (INVENTORY)	N/A	①	1.34	--	1.75	0.875	1.34	B	I	0.00	1.132	1.49	B	I	112.67	1.30	0.875	1.47	B	I	0.00	
		HL-93 (OPERATING)	N/A		1.74	--	1.35	0.875	1.74	B	I	0.00	1.132	1.93	B	I	112.67	1.00	0.875	1.91	B	I	0.00	
		HS-20 (INVENTORY)	36.000	②	2.09	75.2	1.75	0.875	2.09	B	I	0.00	1.132	2.09	B	I	0.00	1.30	0.875	2.97	B	I	0.00	
		HS-20 (OPERATING)	36.000		2.70	97.2	1.35	0.875	2.70	B	I	0.00	1.132	2.71	B	I	0.00	1.00	0.875	3.86	B	I	0.00	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		6.68	90.2	1.40	0.875	7.14	B	I	0.00	1.132	6.68	B	I	0.00	1.30	0.875	8.13	B	I	0.00	
		SNGARBS2	20.000		4.59	91.8	1.40	0.875	4.71	B	I	0.00	1.132	4.59	B	I	0.00	1.30	0.875	5.37	B	I	0.00	
		SNAGRIS2	22.000		4.21	92.6	1.40	0.875	4.25	B	I	0.00	1.132	4.21	B	I	0.00	1.30	0.875	4.84	B	I	0.00	
		SNCOTTS3	27.250		3.31	90.2	1.40	0.875	3.50	B	I	0.00	1.132	3.31	B	I	0.00	1.30	0.875	3.99	B	I	0.00	
		SNAGGRS4	34.925		2.44	85.2	1.40	0.875	2.62	B	I	0.00	1.132	2.44	B	I	0.00	1.30	0.875	2.98	B	I	0.00	
		SNS5A	35.550		2.42	86.0	1.40	0.875	2.56	B	I	0.00	1.132	2.42	B	I	0.00	1.30	0.875	2.91	B	I	0.00	
		SNS6A	39.950		2.17	86.7	1.40	0.875	2.29	B	I	0.00	1.132	2.17	B	I	0.00	1.30	0.875	2.61	B	I	0.00	
		SNS7B	42.000		2.10	88.2	1.40	0.875	2.19	B	I	0.00	1.132	2.10	B	I	0.00	1.30	0.875	2.50	B	I	0.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.84	93.7	1.40	0.875	2.81	B	I	0.00	1.132	2.84	B	I	0.00	1.30	0.875	3.19	B	I	0.00	
		TNT4A	33.075		2.60	86.0	1.40	0.875	2.78	B	I	0.00	1.132	2.60	B	I	0.00	1.30	0.875	3.16	B	I	0.00	
		TNT6A	41.600		2.17	90.3	1.40	0.875	2.23	B	I	0.00	1.132	2.17	B	I	0.00	1.30	0.875	2.54	B	I	0.00	
		TNT7A	42.000		2.14	89.9	1.40	0.875	2.21	B	I	0.00	1.132	2.14	B	I	0.00	1.30	0.875	2.52	B	I	0.00	
		TNT7B	42.000		2.09	87.8	1.40	0.875	2.22	B	I	0.00	1.132	2.09	B	I	0.00	1.30	0.875	2.54	B	I	0.00	
		TNAGRIT4	43.000		2.02	86.9	1.40	0.875	2.15	B	I	0.00	1.132	2.02	B	I	0.00	1.30	0.875	2.45	B	I	0.00	
		TNAGT5A	45.000		2.42	108.9	1.40	0.875	2.56	B	I	0.00	1.132	2.42	B	I	0.00	1.30	0.875	2.91	B	I	0.00	
		TNAGT5B	45.000	③	1.93	86.9	1.40	0.875	2.04	B	I	0.00	1.132	1.93	B	I	0.00	1.30	0.875	2.33	B	I	0.00	
EMERGENCY VEHICLE (EV)	EV2	28.750		3.18	91.4	1.30	0.875	3.47	B	I	0.00	1.132	3.18	B	I	0.00	1.30	0.875	3.67	B	I	0.00		
	EV3	43.000	④	2.14	92.0	1.30	0.875	2.29	B	I	0.00	1.132	2.14	B	I	0.00	1.30	0.875	2.43	B	I	0.00		
FATIGUE		HL-93 (INVENTORY)	γ _{LL} =0.75		1.79																			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:

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

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

COMMENTS:

1.

2.

3.

4.

⚡ CONTROLLING LOAD RATING

⚡1

DESIGN LOAD RATING (HL-93)

⚡2

DESIGN LOAD RATING (HS-20)

⚡3

LEGAL LOAD RATING * *

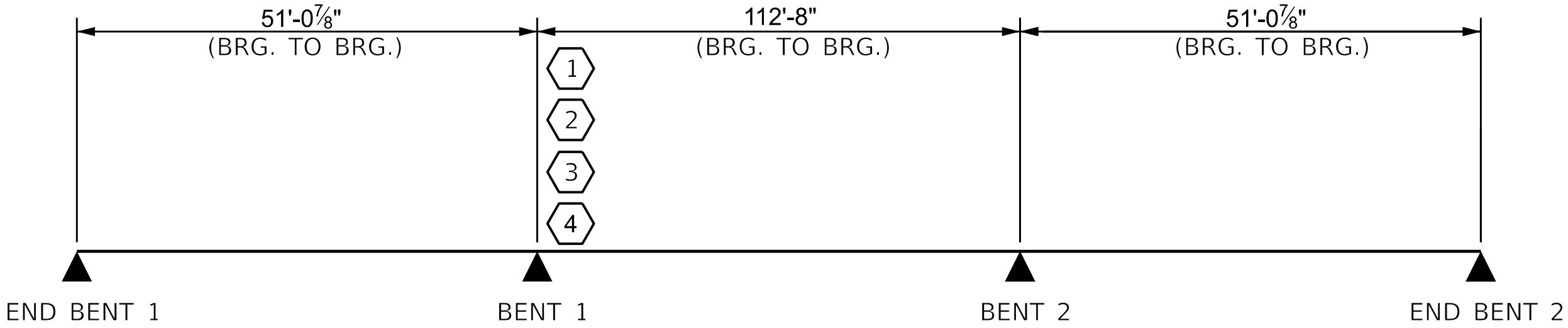
⚡4

EMERGENCY VEHICLE LOAD RATING

* * SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

ASSEMBLED BY: G.C. MORRIS		DATE : 4/25
CHECKED BY : O. PUIGCERVER		DATE : 4/25
DRAWN BY : MAA 1/08	REV. 11/12/08RR	MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11	MAA/GM
	REV. 04/23	BNG/AAI

NORTH CAROLINA

PROFESSIONAL

SEAL

17230

ENGINEER

WEL S. ARAFAT

DocuSigned by:

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5/7/2026

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DAVIDSON COUNTY

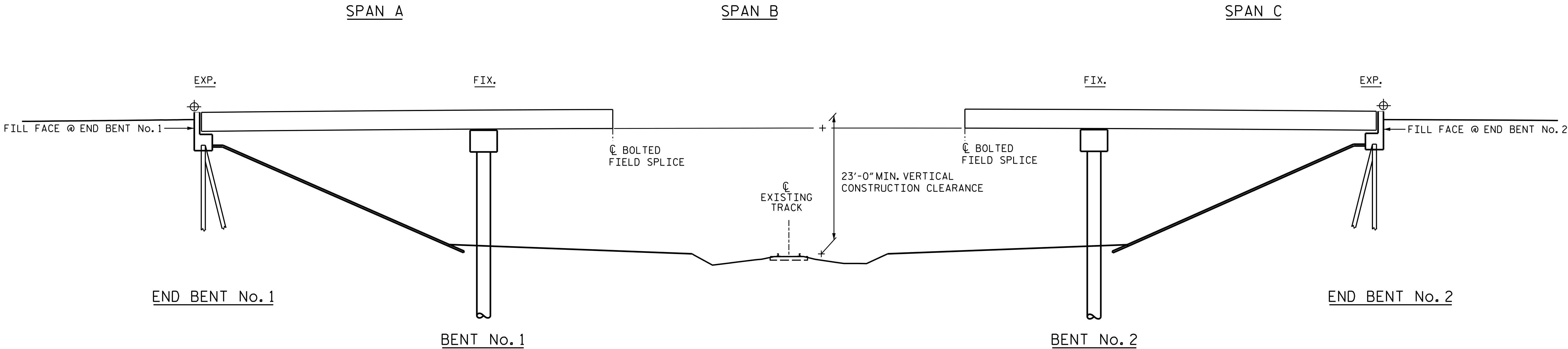
STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)
(EASTBOUND)

REVISIONS						SHEET NO. S02-5 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

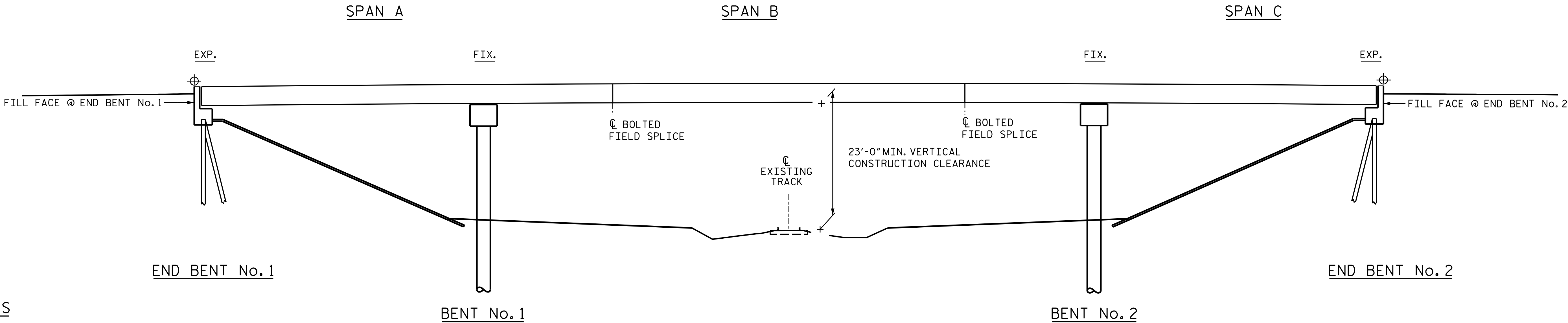
STR #2 STD. NO. LRFR3

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STAGE I GIRDER ERECTION

SECTIONS @ END BENTS AND BENT ARE AT RIGHT ANGLES



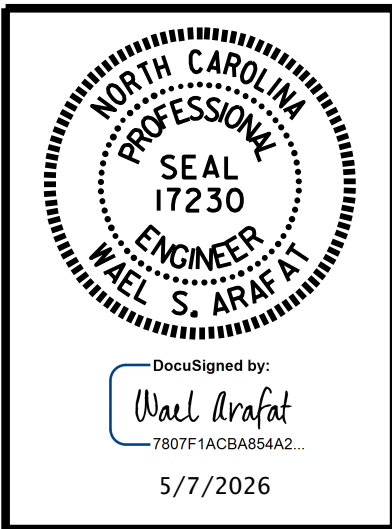
STAGE II GIRDER ERECTION

SECTIONS @ END BENTS AND BENT ARE AT RIGHT ANGLES

NOTES

- ERECT A MINIMUM OF TWO GIRDERS WITH ALL DIAPHRAGMS/CROSS FRAMES BETWEEN GIRDERS IN PLACE AND THE BOLTS TIGHTENED PRIOR TO RELEASING THE GIRDERS.
- ERECT EACH SUBSEQUENT GIRDER OR PAIR OF GIRDERS WITH DIAPHRAGMS/CROSS FRAMES CONNECTIONS TO THE ADJACENT PREVIOUSLY ERECTED GIRDER AND TIGHTEN ALL BOLTS BEFORE RELEASING THE GIRDERS.
- DURING THE GIRDERS ERECTION PROCEEDURE,THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY LATERAL BRACING AND OTHER MEANS OF SUPPORT,AS REQUIRED,TO ENSURE STABILITY OF THE GIRDERS AND TO ENSURE PLUMBNESS OF THE GIRDERS IN FINAL CONDITION.
- THE CONTRACTOR MAY SUBMIT AN ALTERNATE ERECTION METHOD TO THE ENGINEER FOR REVIEW AND APPROVAL.IF TEMPORARY BENTS ARE UTILIZED, SEE SPECIAL PROVISIONS.
- NO SEPERATE PAYMENT WILL BE MADE FOR PROVIDING A TEMPORARY BENT, TEMPORARY BRACING,OR OTHER MEANS OF TEMPORARY SUPPORT,AS NEEDED.THE COST FOR ALL MATERIALS,EQUIPMENT,TOOLS AND LABOR NECESSARY FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM BID PRICE FOR STRUCTURAL STEEL.
- AT NO ADDITIONAL COST TO THE DEPARTMENT,THE CONTRACTOR MAY SPLICE THE GIRDERS ON GROUND BEFORE ERECTION.

DRAWN BY :	M. BREELAND	DATE :	04-25
CHECKED BY :	W. S. ARAFAT	DATE :	11-24
DESIGN ENGINEER OF RECORD:	O. PUIGCERVER	DATE :	04-25

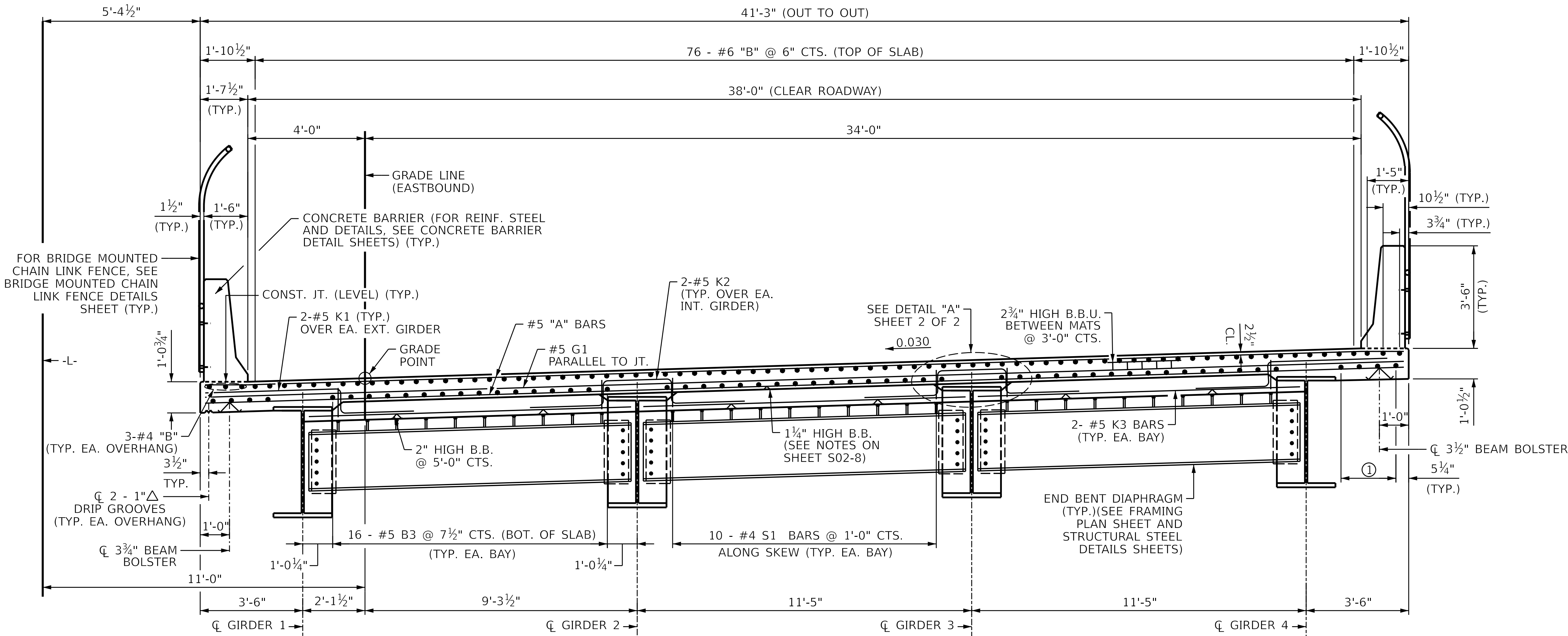


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DAVIDSON COUNTY
STATION: 39+69.46 -L-

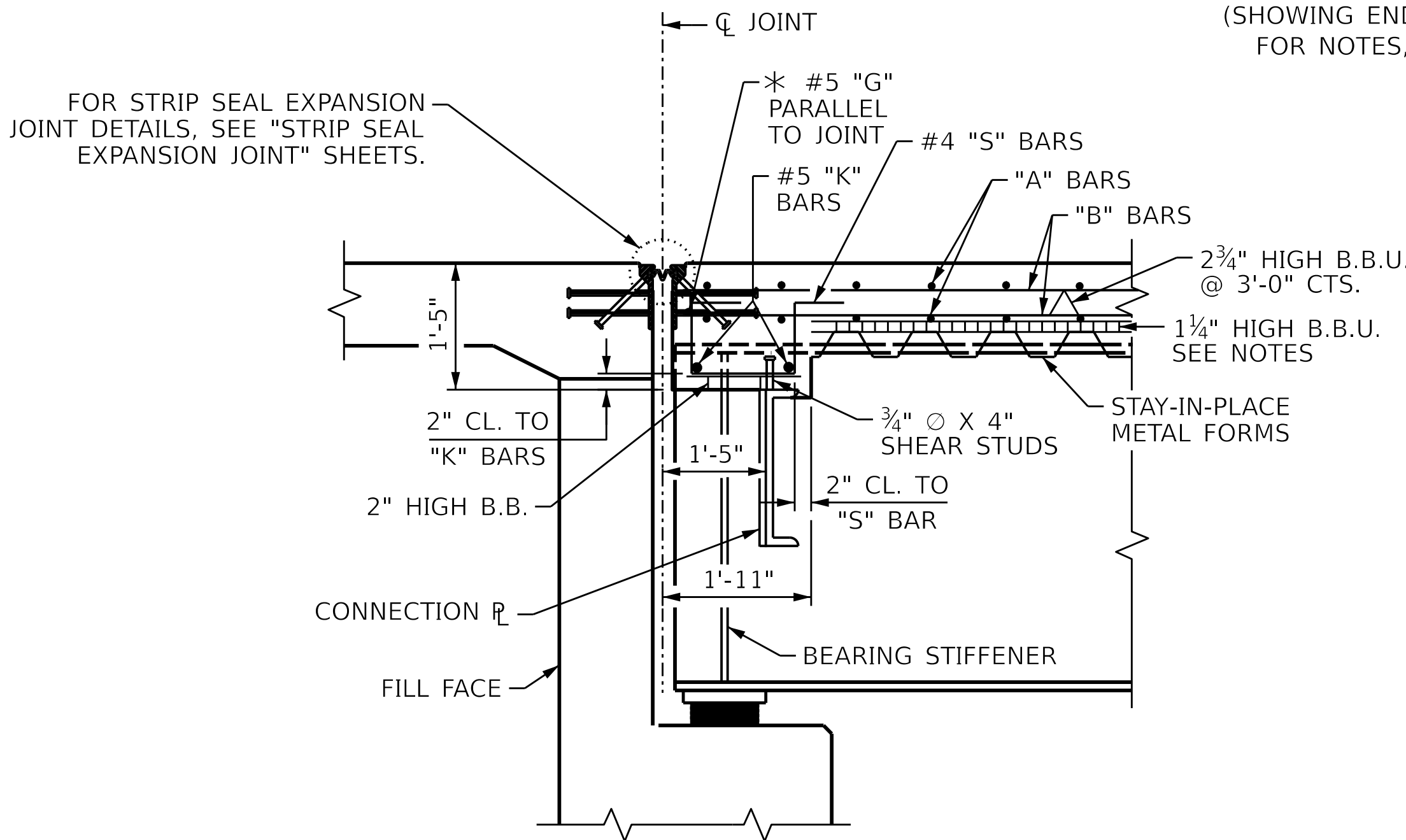
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2			4			
TOTAL SHEETS						40



TYPICAL SECTION

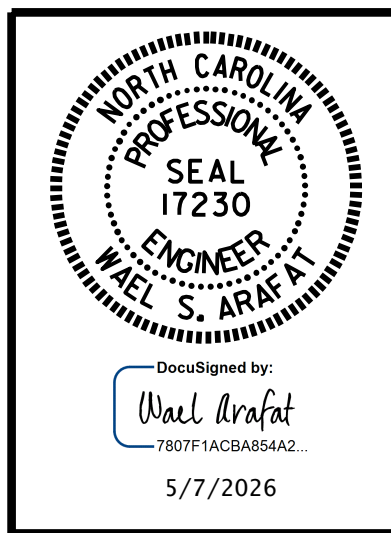
(SHOWING END BENT DIAPHRAGMS)
FOR NOTES, SEE SHEET 2 OF 2

① 4 - #5 B3 @ 7½" CTS. (BOT. OF SLAB) (TYP. AT OVERHANGS)



END OF GIRDER DETAIL AT END BENT

* #5G BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DIAPHRAGM AND REINFORCING STEEL.



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DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION
(EASTBOUND)

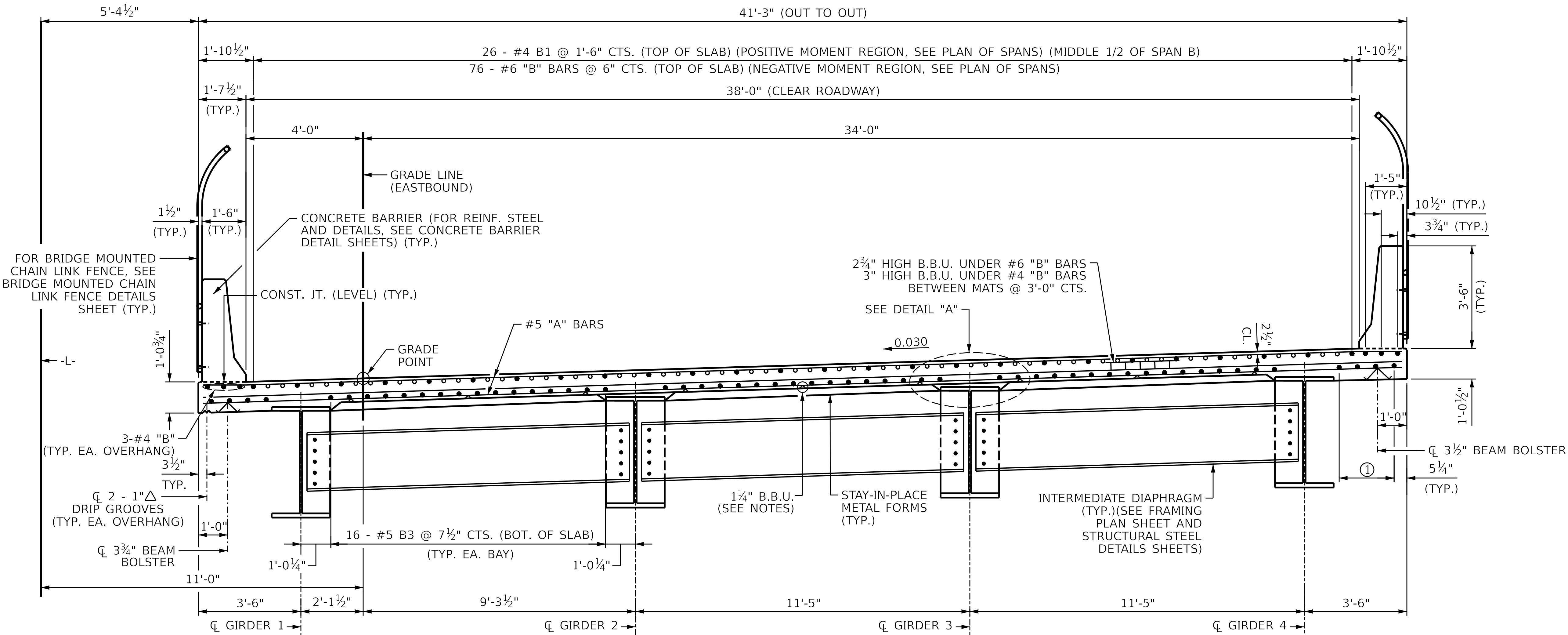
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2			4			

STR #2

DRAWN BY : C.T. MIXON DATE : 11-24
CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25

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3/9/2026 12:59:23 PM MODEL NAME: SHEET MODEL - EAST BOUND TYP SHEET 2



TYPICAL SECTION
(SHOWING INTERMEDIATE DIAPHRAGMS)

① 4 - #5 B3 @ 7½" CTS. (BOT. OF SLAB) (TYP. AT OVERHANGS)

NOTES

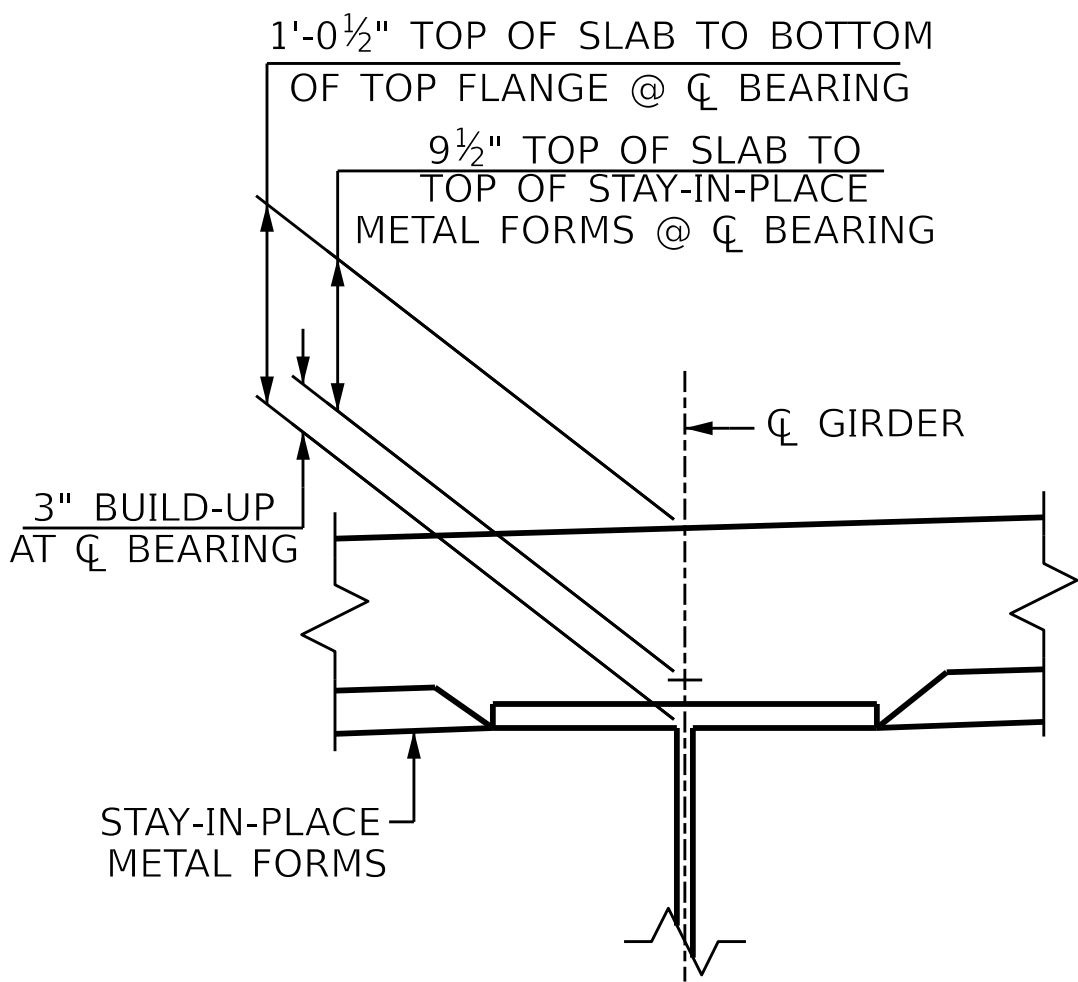
PROVIDE 1¼" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2½" ABOVE THE TOP OF THE REMOVABLE FORM.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST, SEE STRUCTURAL STEEL DETAILS SHEET.

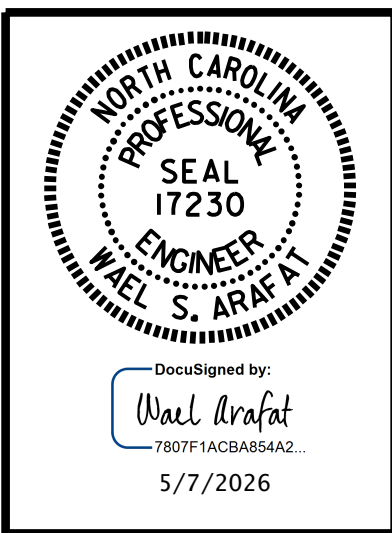
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.



DETAIL "A"



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PROJECT NO. BR-0140

DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

**TYPICAL SECTION
(EASTBOUND)**

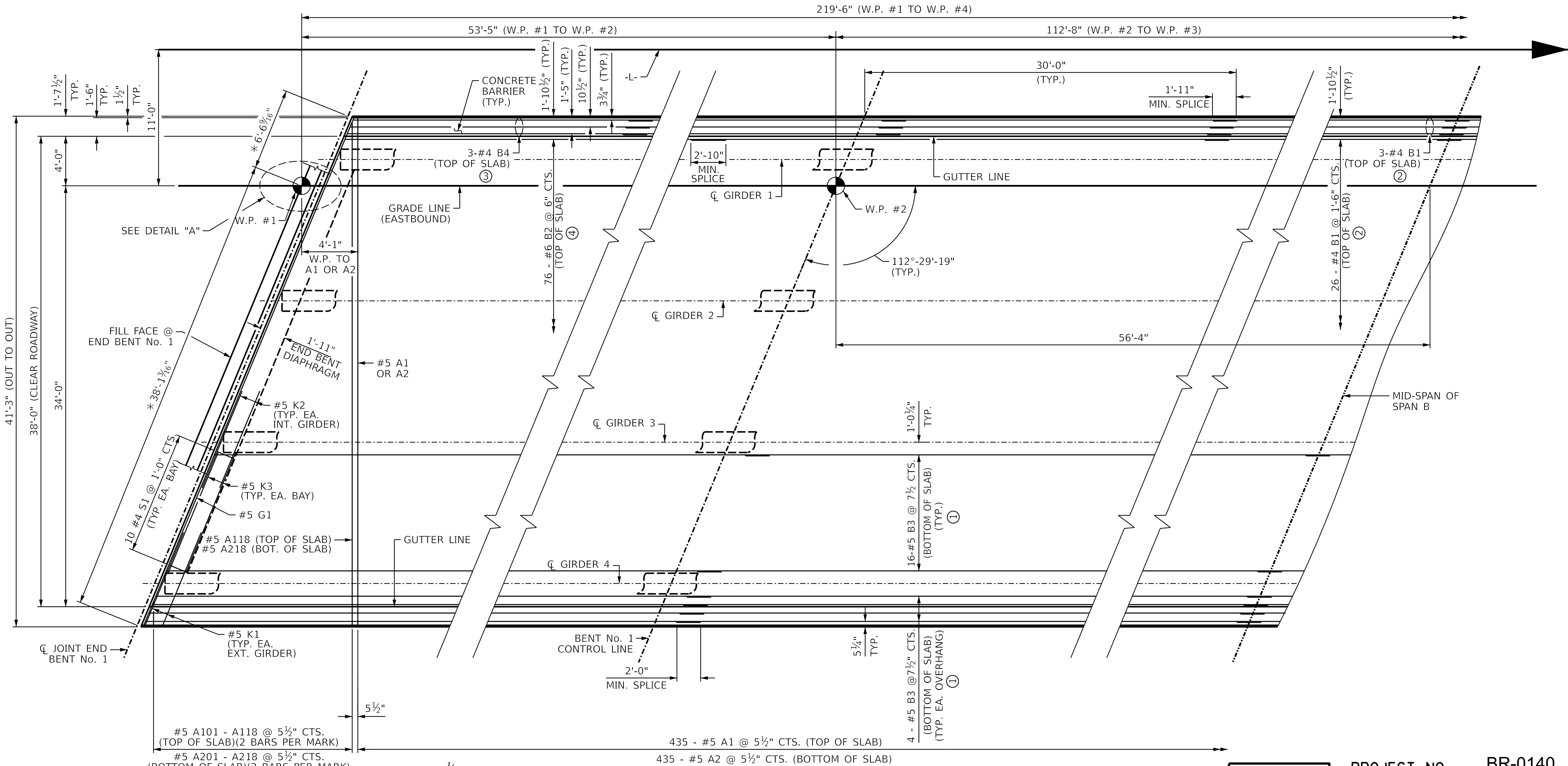
REVISIONS						SHEET NO. S02-8 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STR #2

DRAWN BY : C.T. MIXON DATE : 11-24
CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25

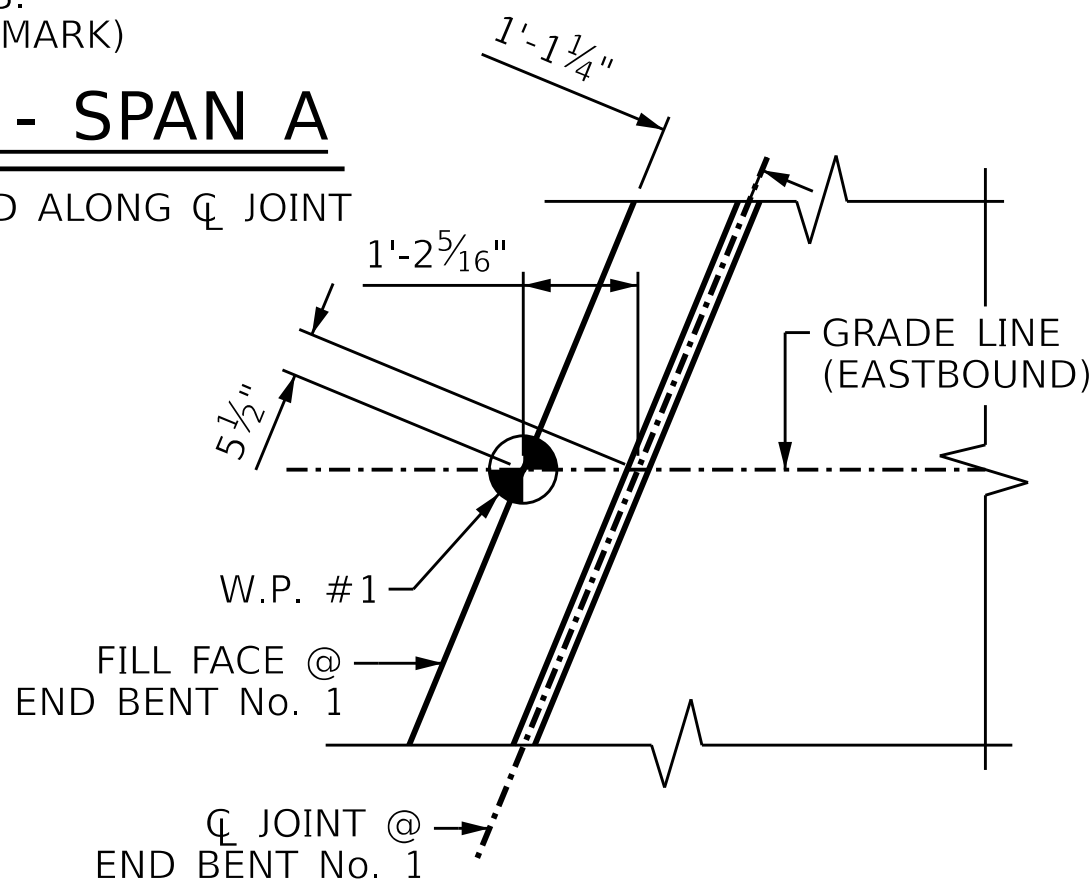
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1/20/2026 1:26:19 PM MODEL NAME: SHEET MODEL - EAST BOUND - SPAN A



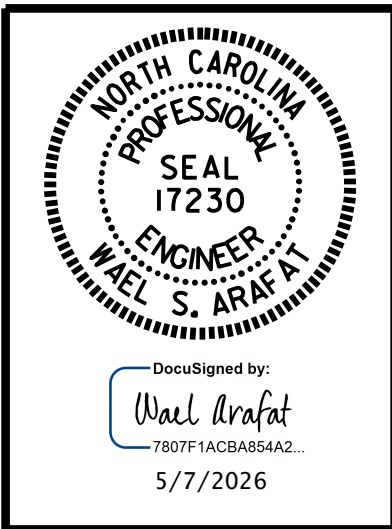
PLAN - SPAN A

- ① 4 BAR RUN (TYP. EA. BAY) 2'-0" MIN. SPLICE * MEASURED ALONG CL JOINT
- ② 2 BAR RUN 1'-11" MIN. SPLICE
- ③ 3 BAR RUN 1'-11" MIN. SPLICE
- ④ 2 BAR RUN 2'-10" MIN. SPLICE



DETAIL "A"

HALF PLAN - SPAN B



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PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 1 OF 2

REVISIONS						SHEET NO. S02-9 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STR #2



-
- Diagram illustrating the plan view of a bridge structure, showing the joint location and dimensions:
- CL JOINT @** (Center Line Joint at)
 - END BENT No. 2**
 - FILL FACE @** (Fill Face at)
 - END BENT No. 2**
 - W.P. #4** (Water Pipe #4)
 - GRADE LINE (EASTBOUND)**
 - Dimensions:**
 - $5\frac{1}{2}"$
 - $1'-2\frac{5}{16}"$
 - $1'-1\frac{1}{4}"$

DETAIL "B"

PLAN - SPAN C
* MEASURED ALONG C JOINT



SHEET 2 OF 2

SUPERSTRUCTURE
PLAN OF SPANS
(EASTBOUND)

REVISIONS						SHEET NO. S02-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR #2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
FRAMING PLAN
(EASTBOUND)

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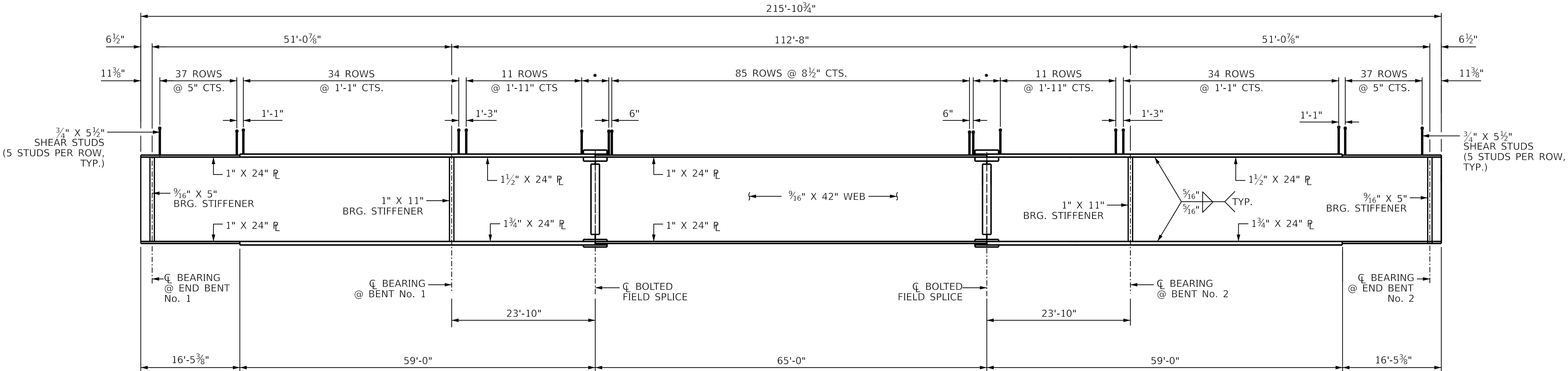
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NO.	BY:	DATE:	NO.	BY:	DATE:	S02-11
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STR #2

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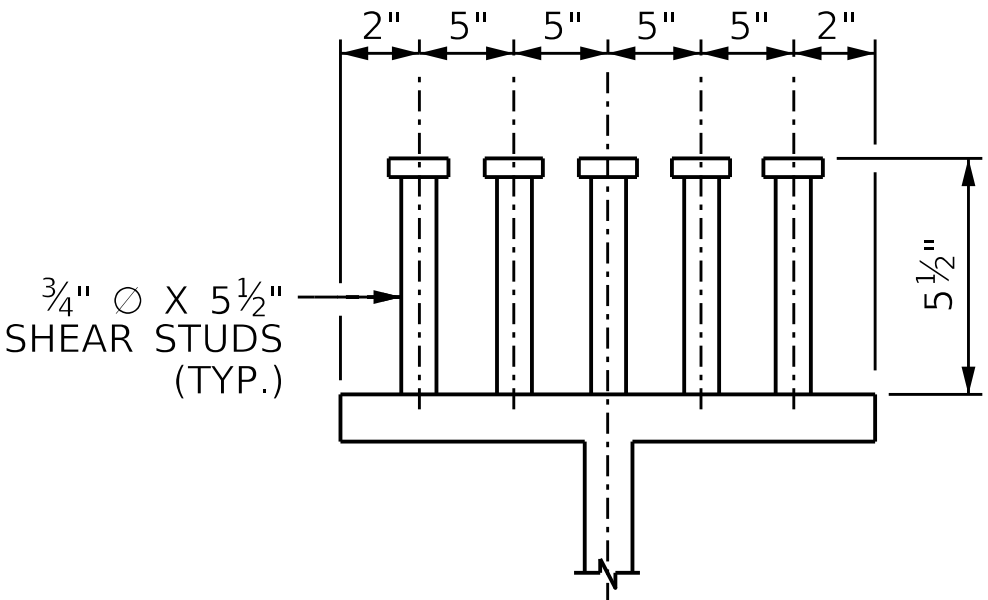
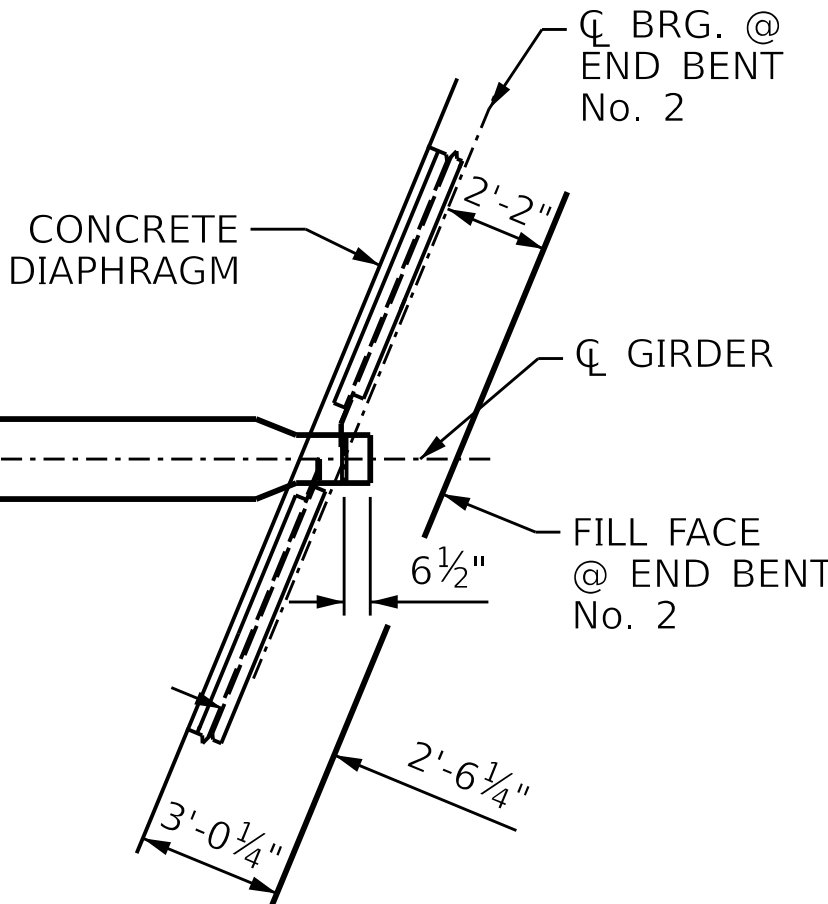
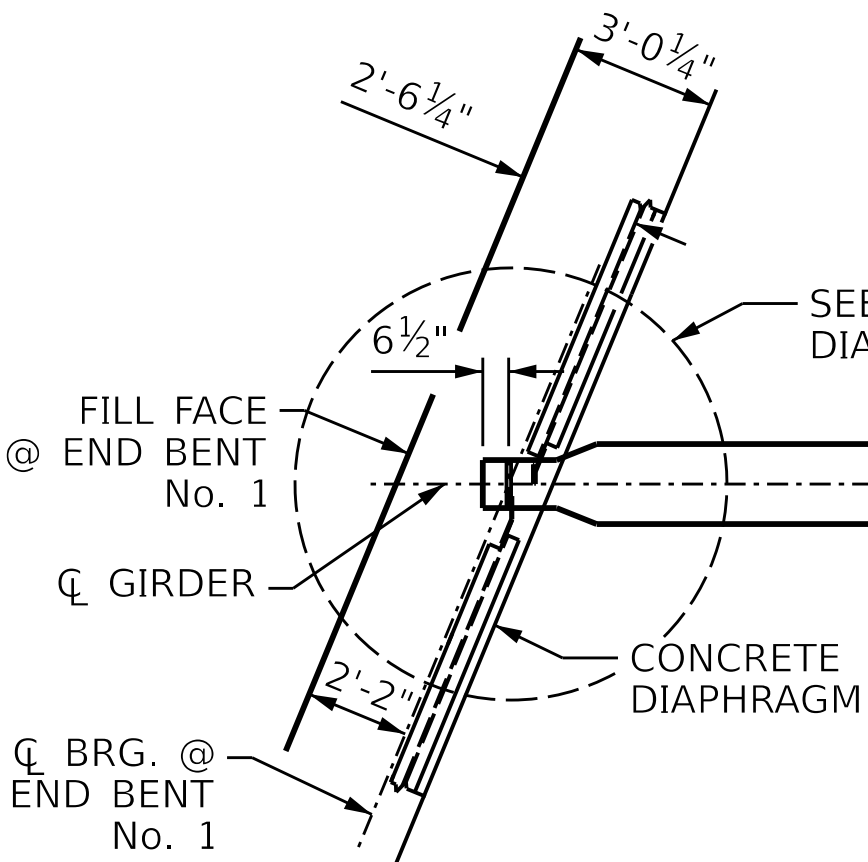
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1/20/2026 4:46:44 PM



GIRDER ELEVATION

* SEE BOLTED FIELD SPLICE DETAIL (SHEET 4 OF 4) FOR SHEAR STUD SPACING.



SHEAR STUD DETAIL

BOTTOM FLANGE DETAIL

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

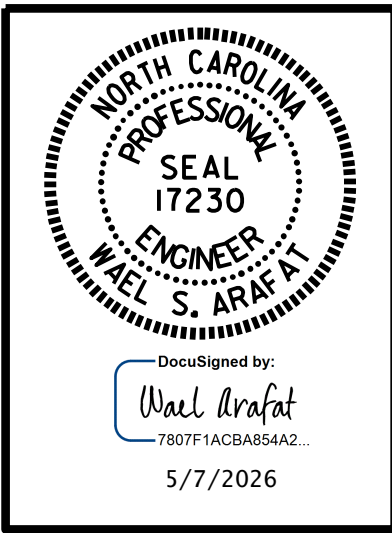
PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

TENSION ON THE ASTM F3125 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

END OF GIRDERS SHALL BE PLUMB.

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.



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DAVIDSON COUNTY

STATION: 39+69.46 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

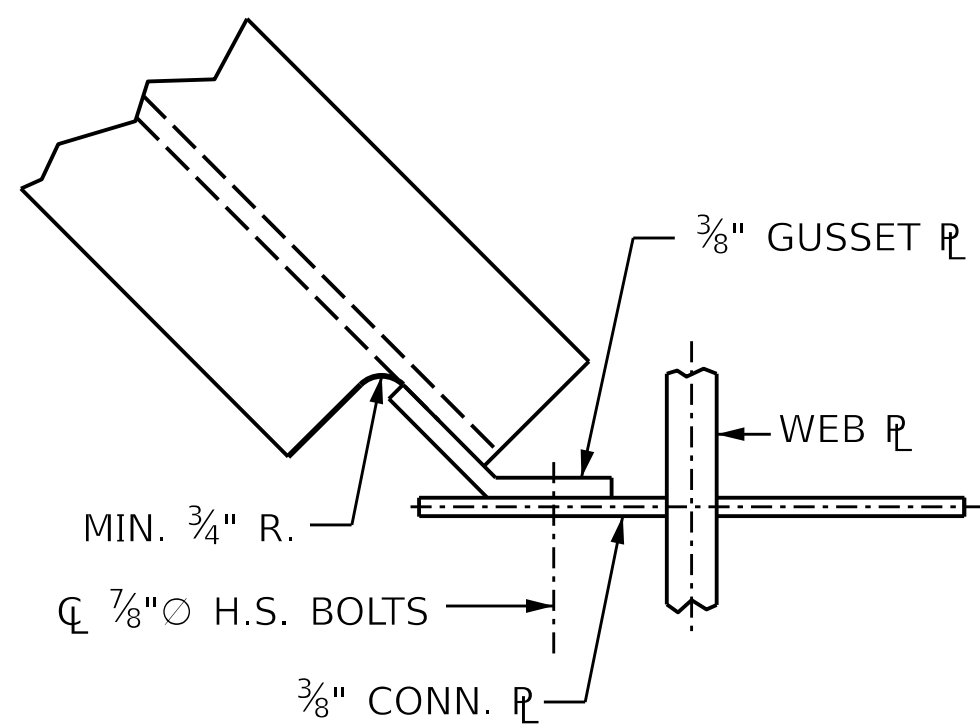
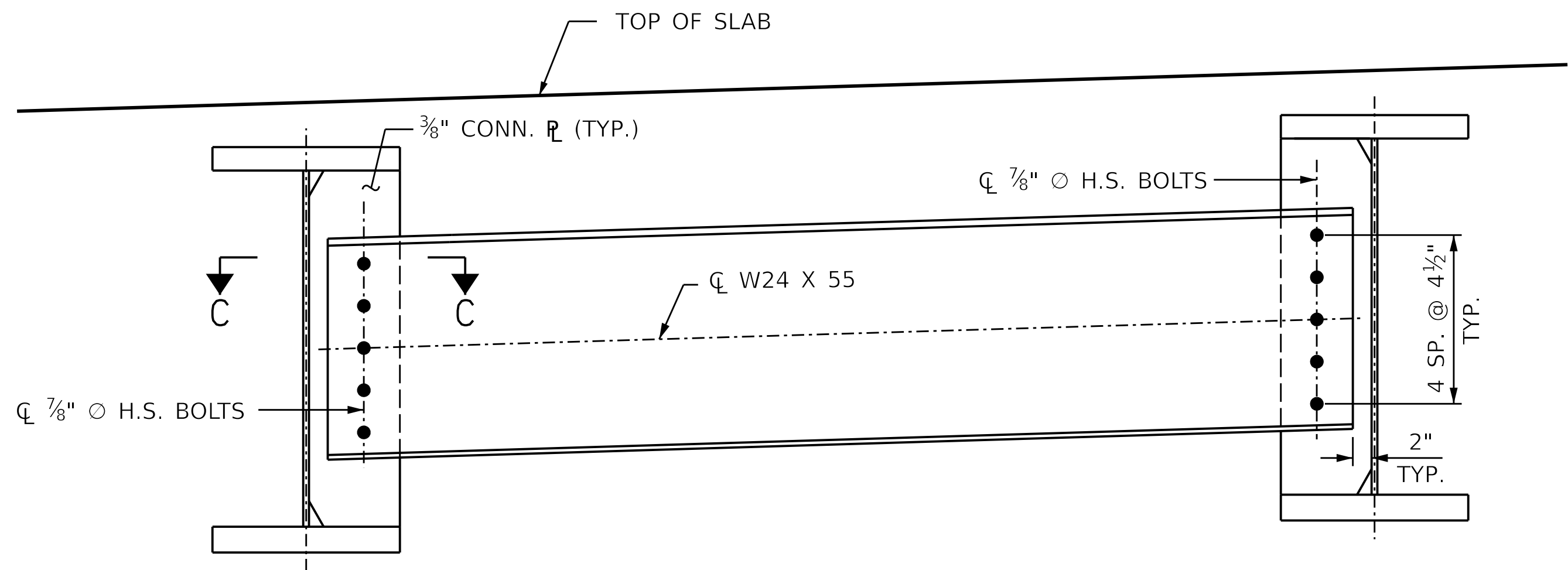
SUPERSTRUCTURE

STRUCTURAL STEEL
DETAILS
(EASTBOUND)

REVISIONS						SHEET NO. S02-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 40
2			4			

STR #2

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CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25

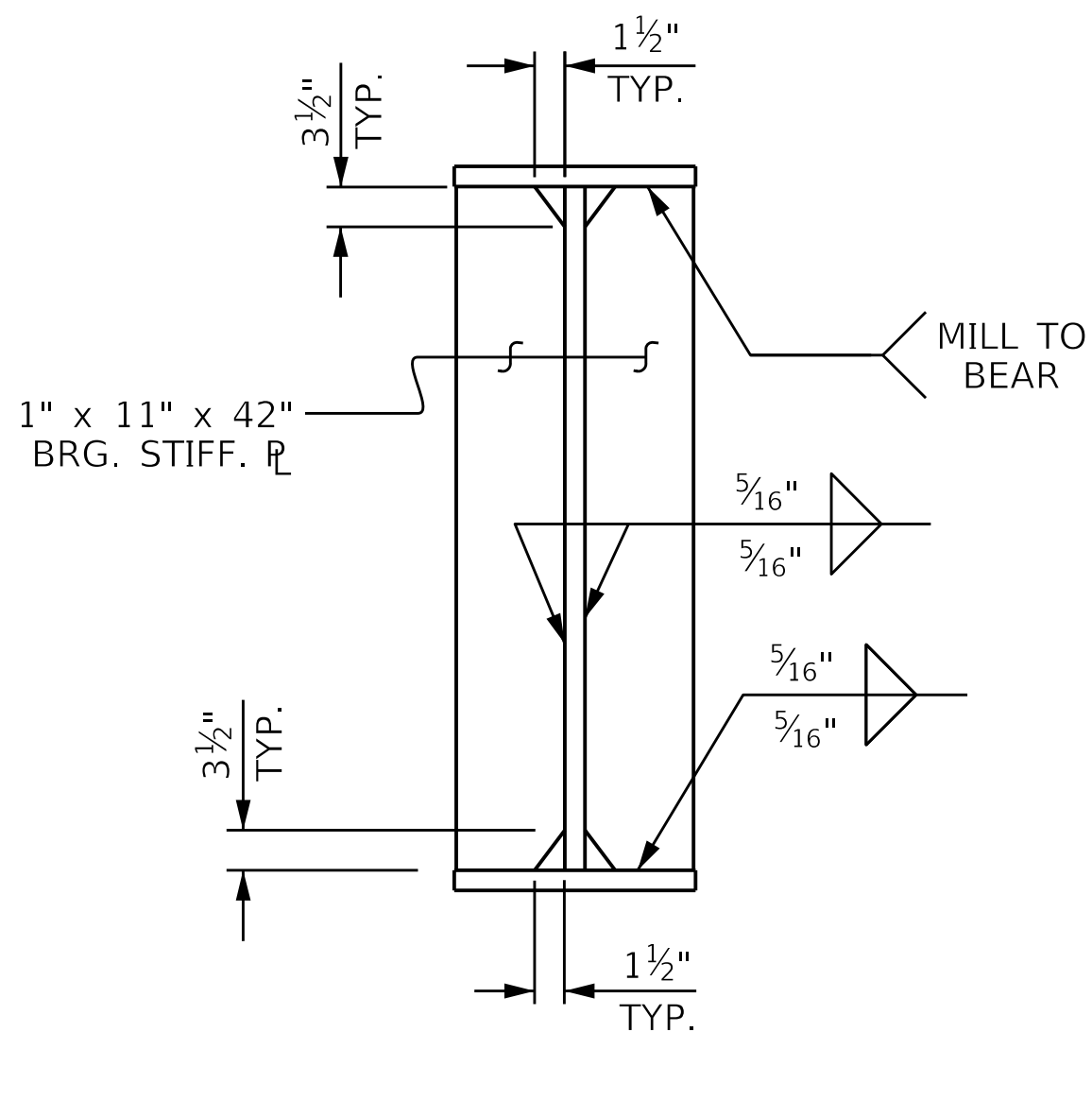


SECTION B-B

TYPICAL INTERMEDIATE DIAPHRAGM - D2

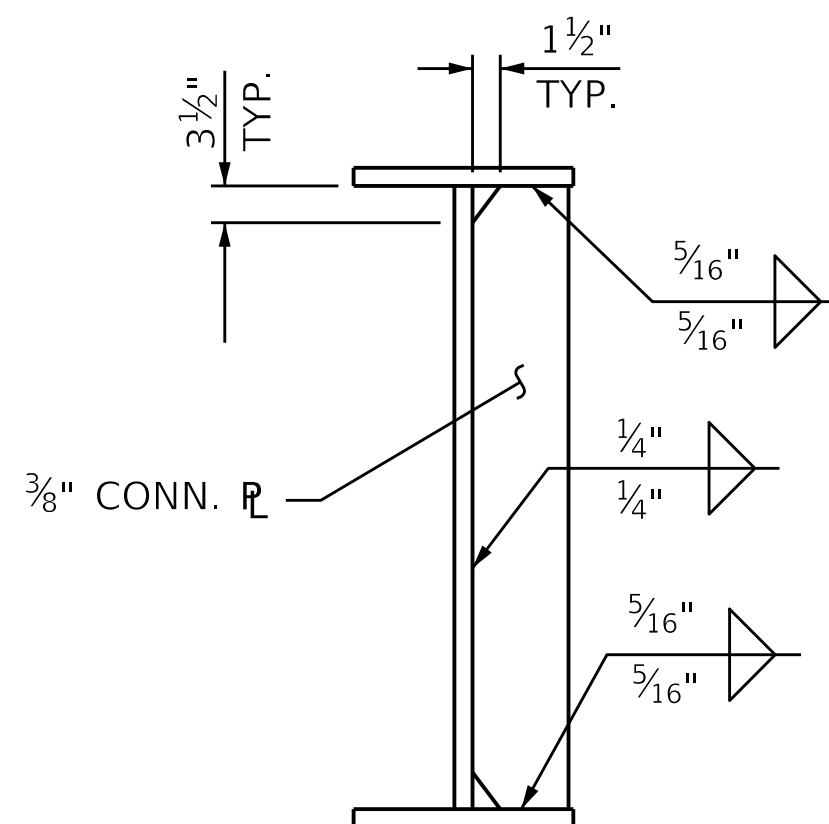
Diagram showing the detail of shear studs on a beam. The studs are labeled "SHEAR STUDS" and have a diameter of $\frac{3}{4}$ " and a height of 4". The spacing between the studs is indicated as 2".

SHEAR STUD DETAIL



BEARING STIFFENER

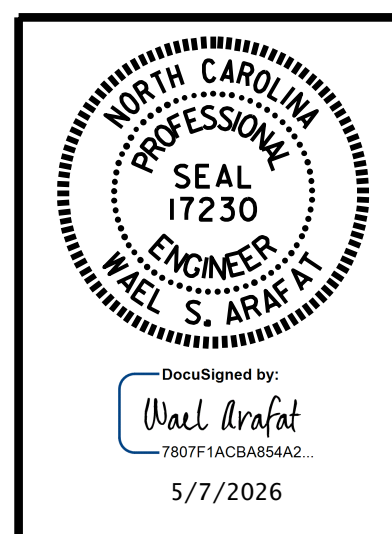
(BENT)



CONNECTOR PLATE

FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR FULL DEAD LOAD FIT UP. GIRDERS SHALL BE PLUMB AFTER THE FULL AMOUNT OF DEAD LOAD IS APPLIED.

BEARING STIFFENER, WHEN USED AS A CONNECTOR PLATE, MAY REQUIRE
COPING IF WIDER THAN BOTTOM FLANGE.



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DAVIDSON COUNTY
 STATION: 39+69.46 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS (EASTBOUND)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S02-13
1			3			TOTAL SHEETS 40
2			4			

STR #2

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 CHECKED BY : O. PUIGSERVER DATE : 4-25
 DESIGN ENGINEER OF RECORD: O. PUIGSERVER DATE : 4-25



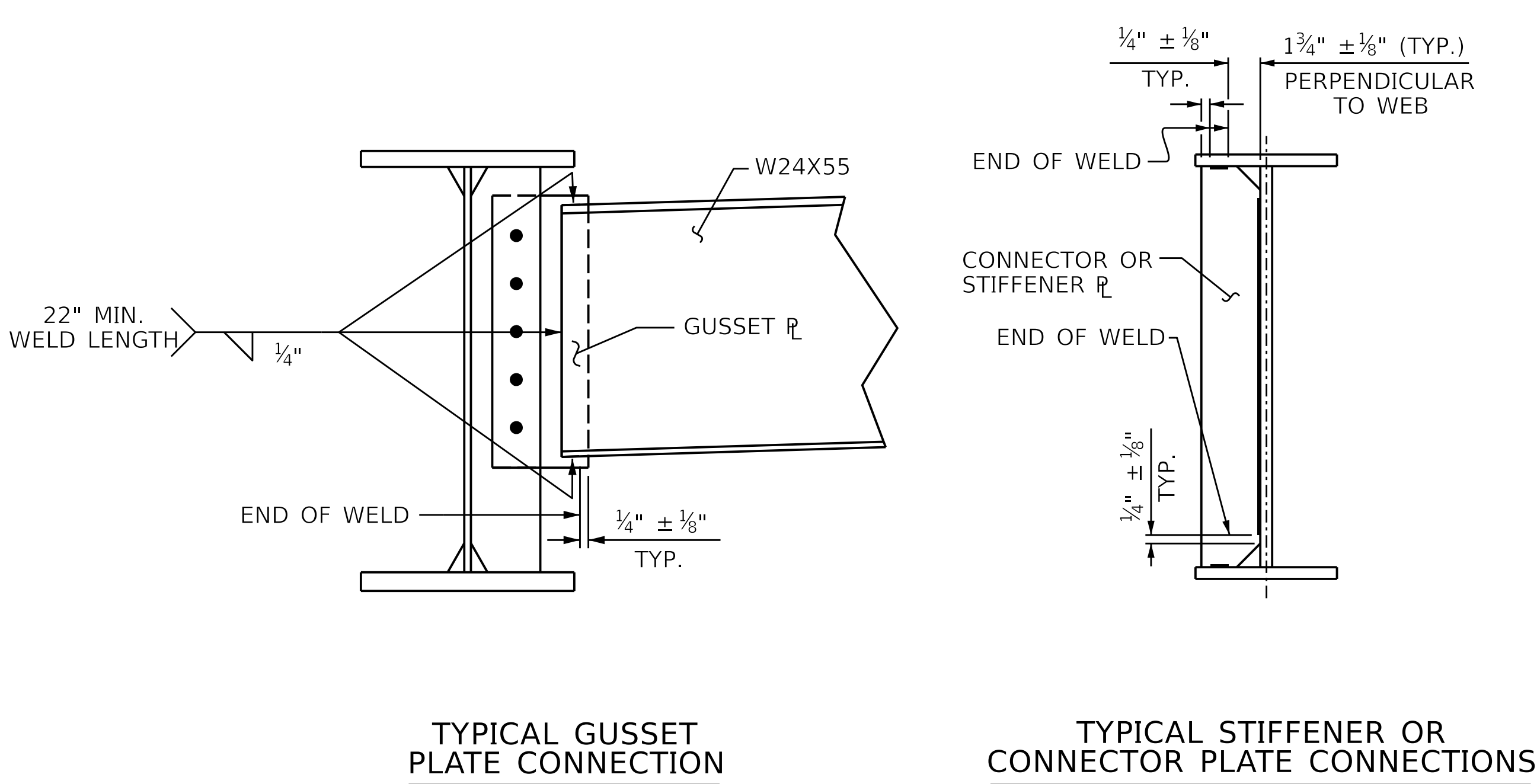
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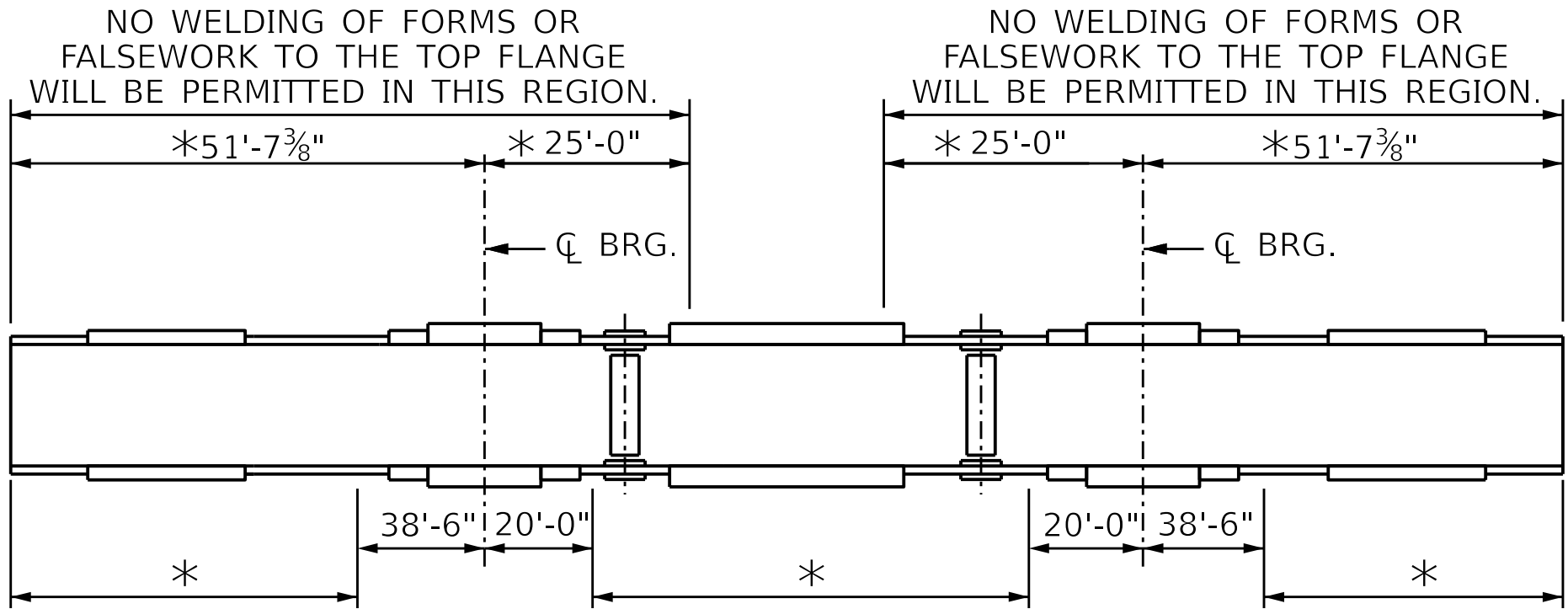
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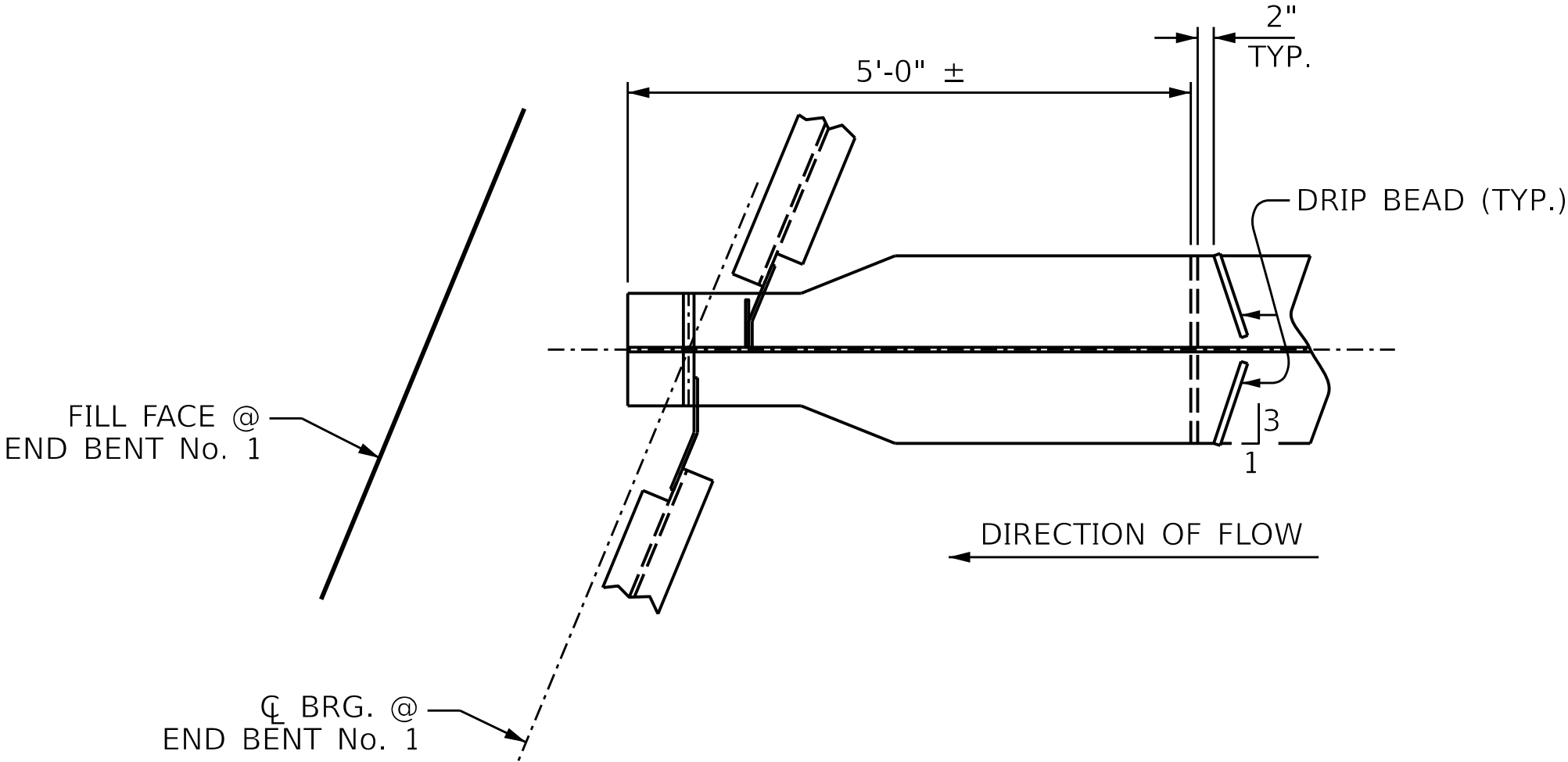
WELD TERMINATION DETAILS



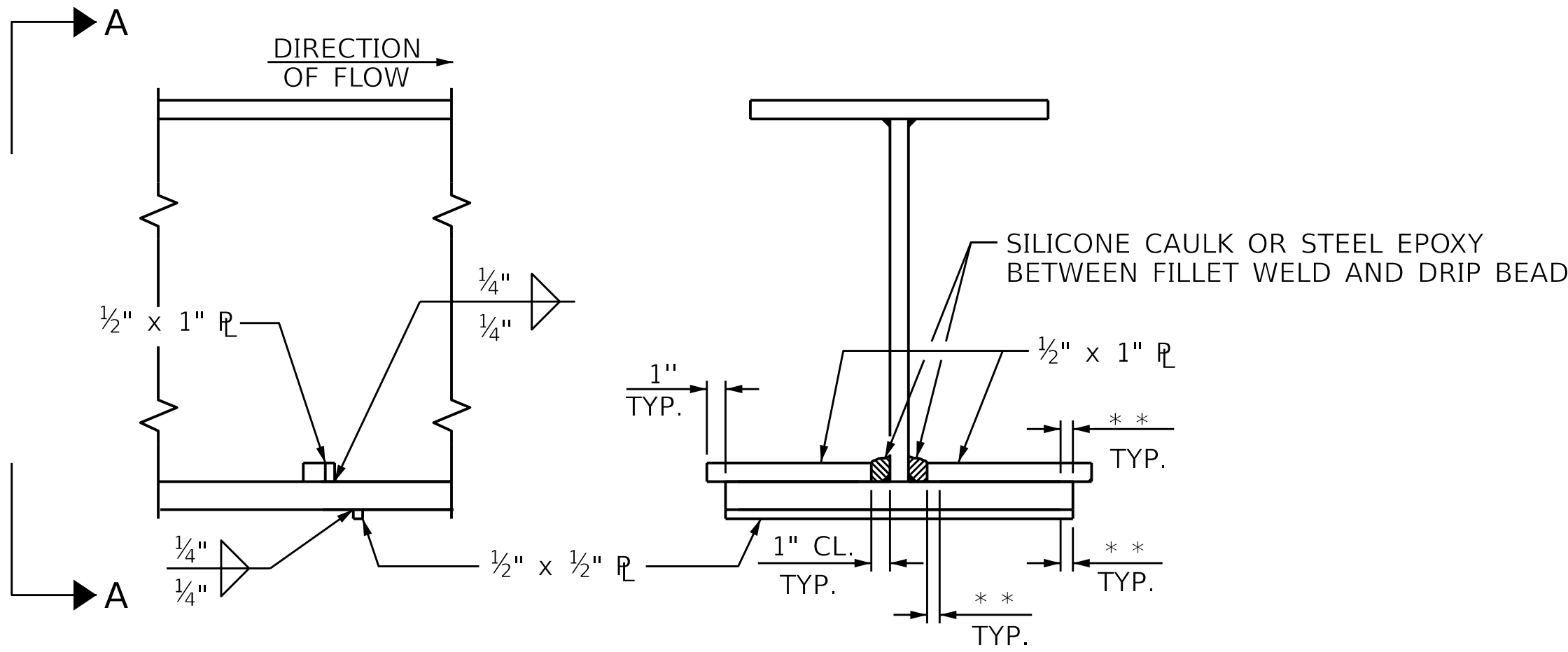
GIRDER MAKE UP

* CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.

CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS



PART PLAN - BOTTOM FLANGE
END BENT No. 1 SHOWN, END BENT No. 2 SIMILIAR.

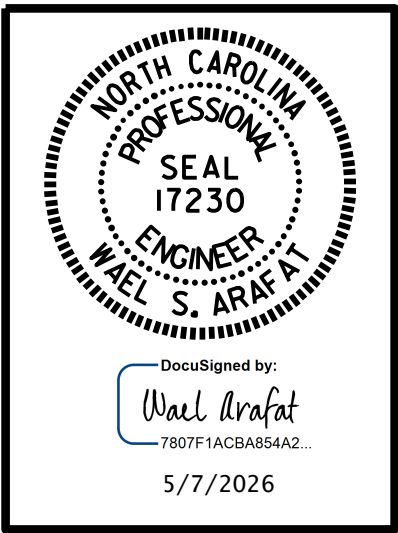


SECTION

VIEW A-A

DRIP BEAD DETAILS

* * SEE "WELD TERMINATION DETAILS"



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SHEET 3 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS
(EASTBOUND)

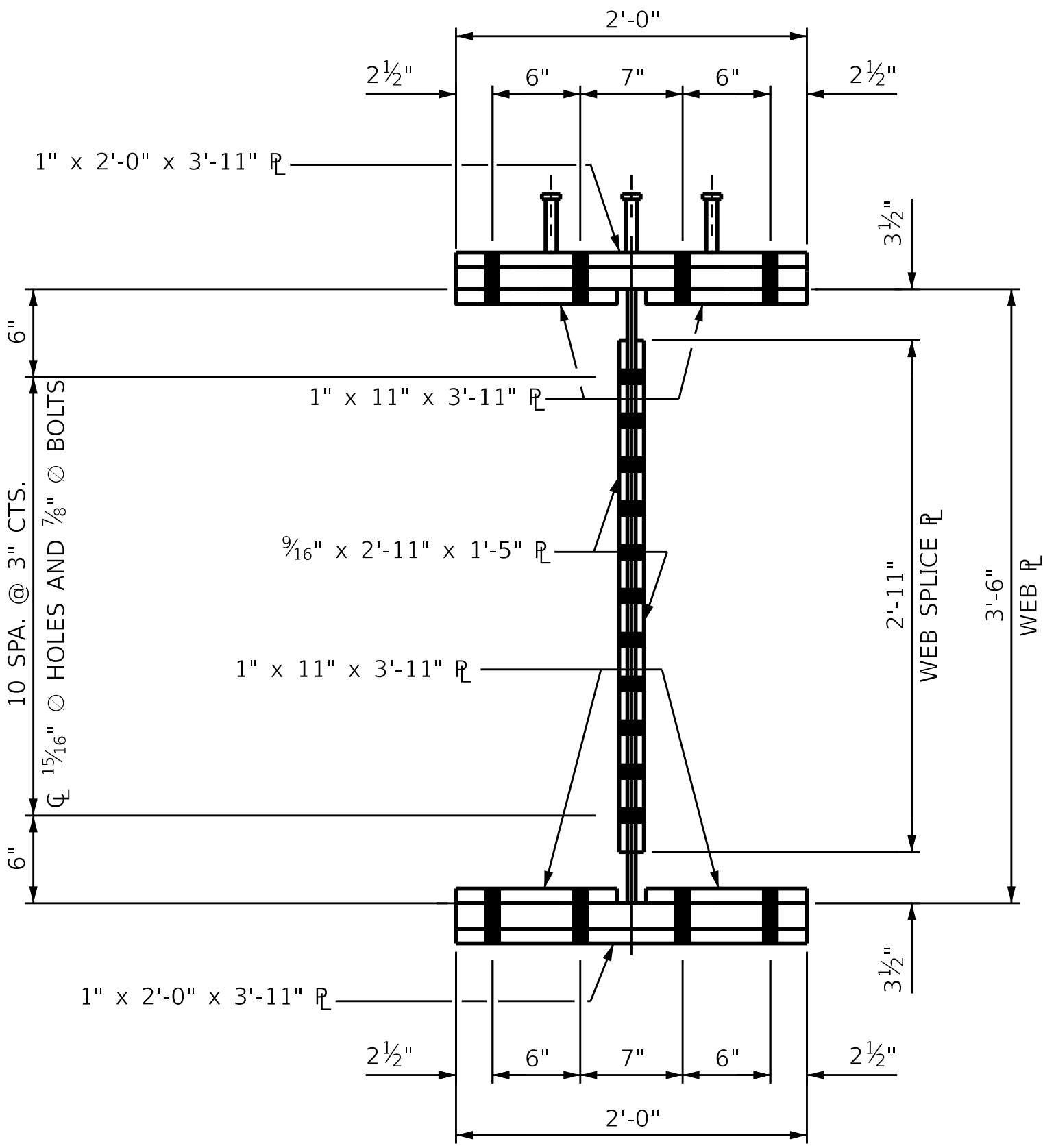
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NO.	BY:	DATE:	NO.	BY:	
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STR #2

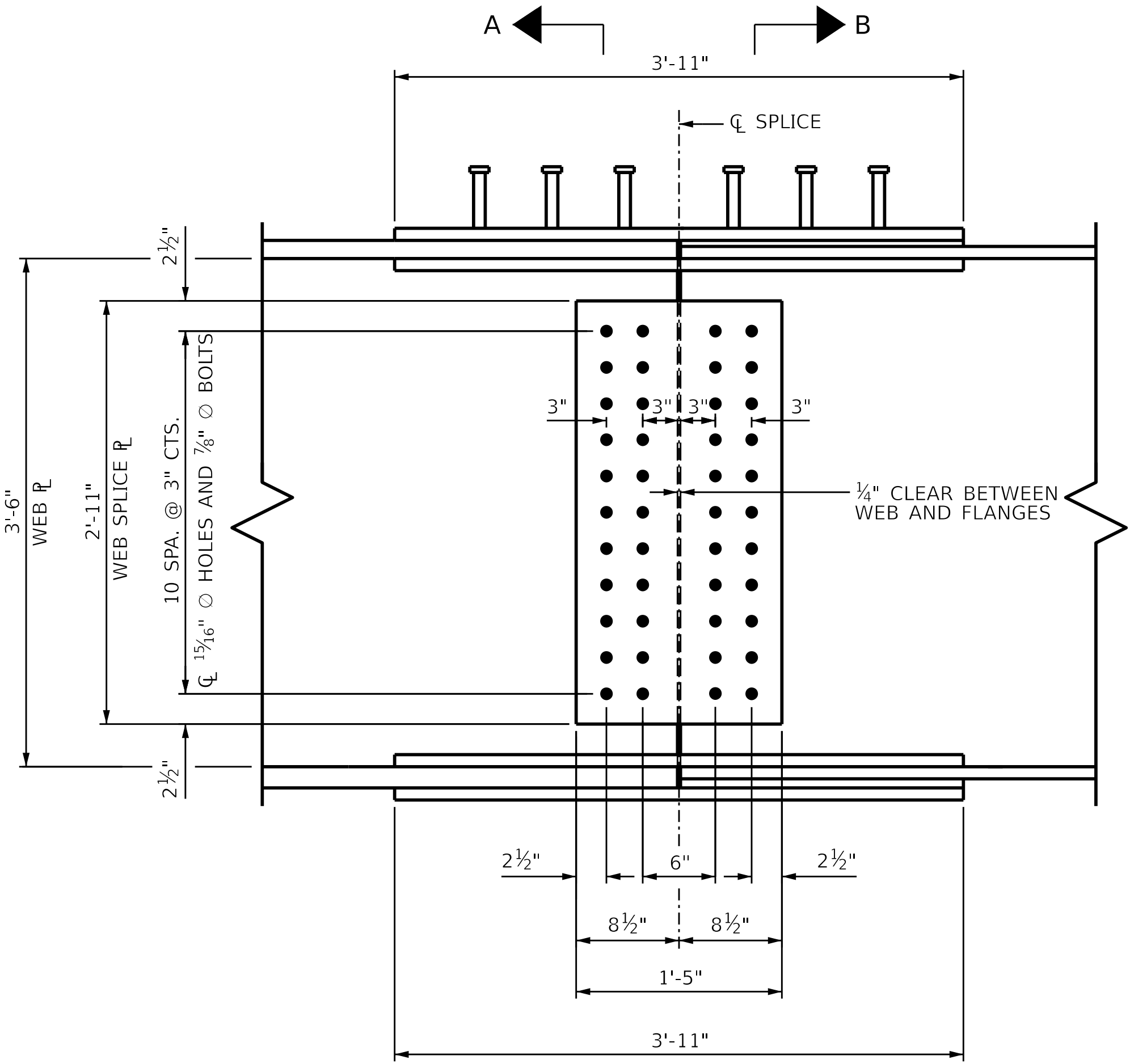
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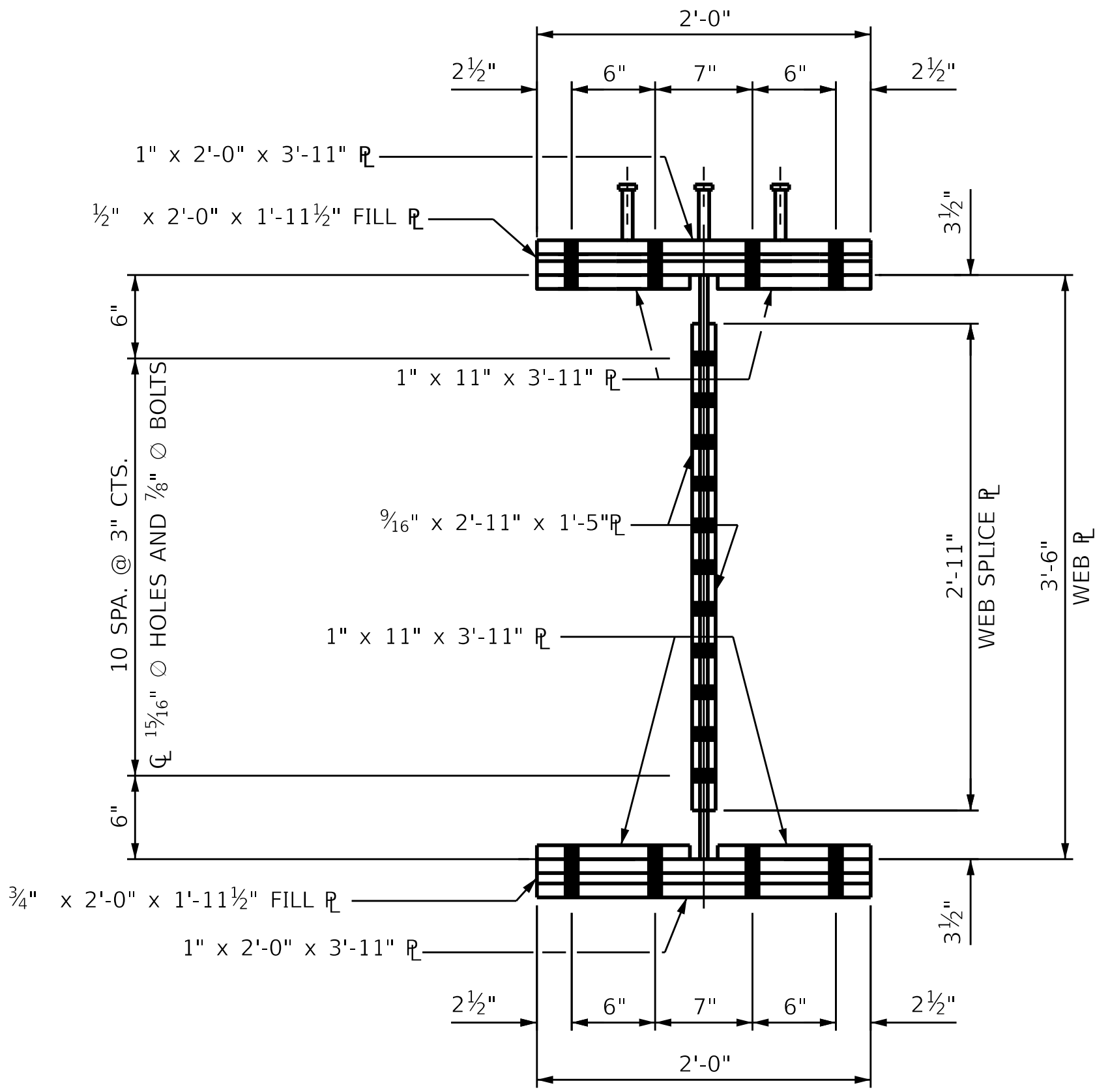
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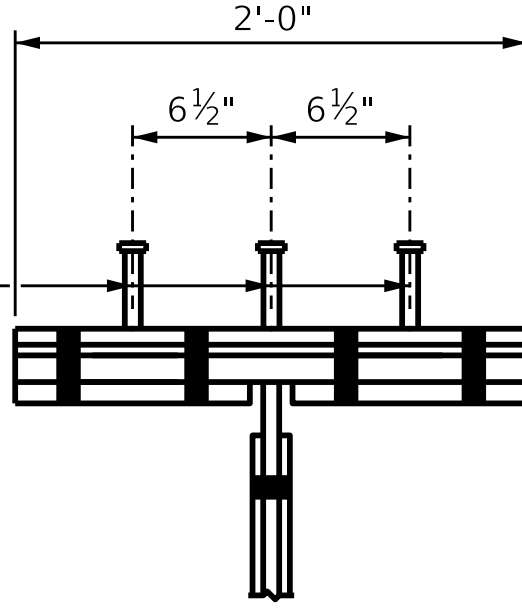
SECTION A-A



ELEVATION

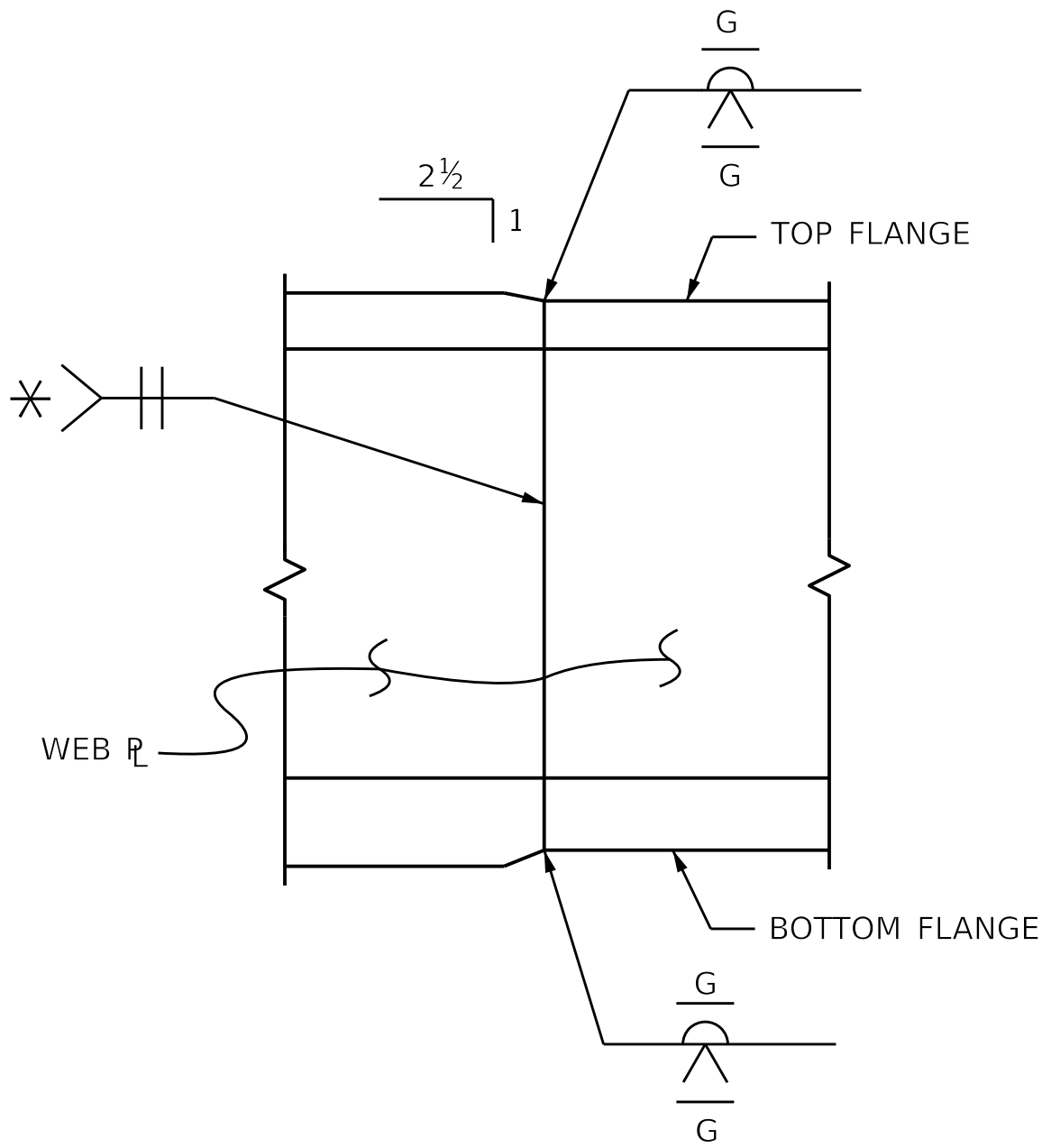


SECTION B-B



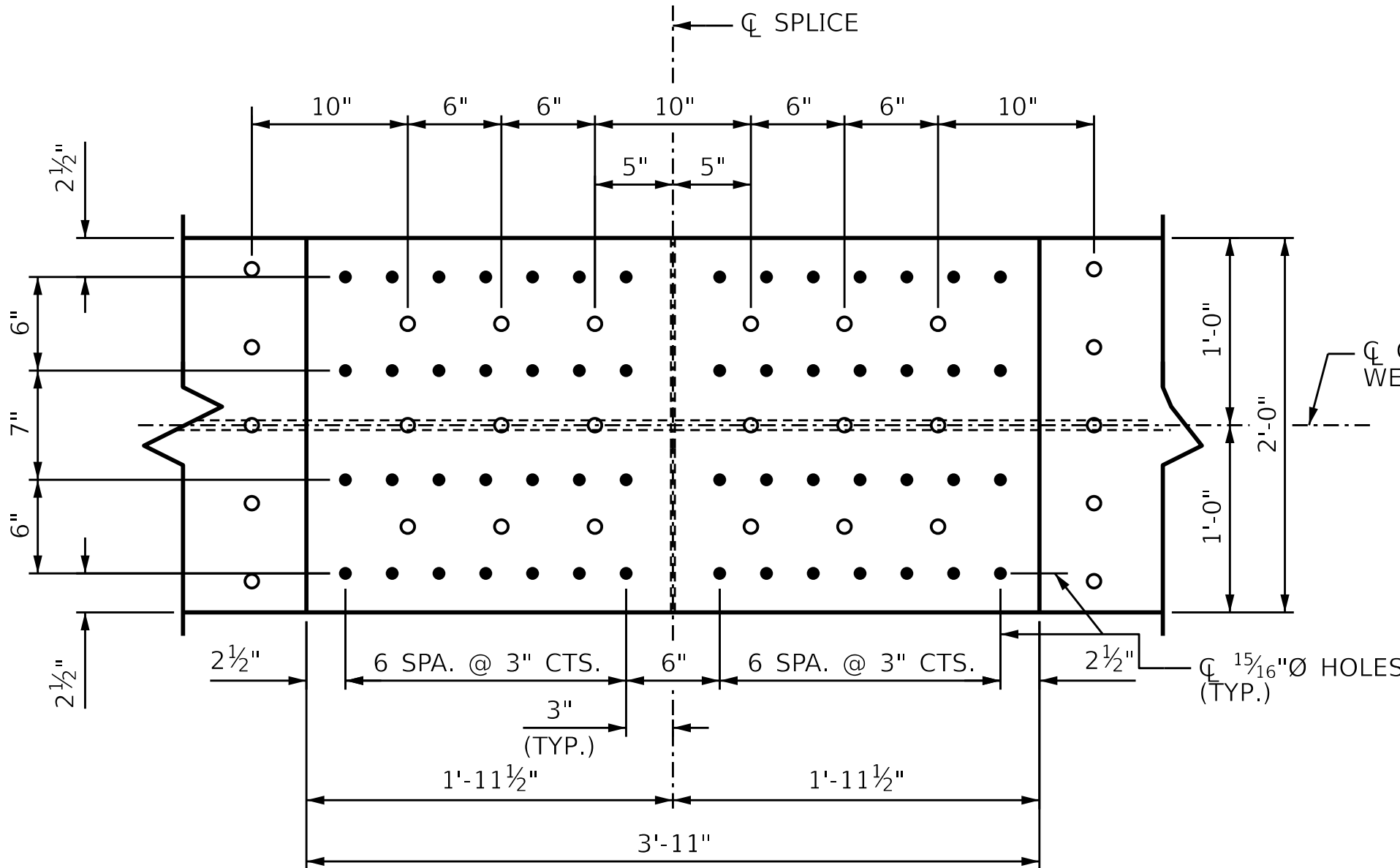
SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

* SHEAR STUDS ARE TO BE WELDED TO TOP OF TOP SPLICE $\bar{C}$ BEFORE ASSEMBLY.

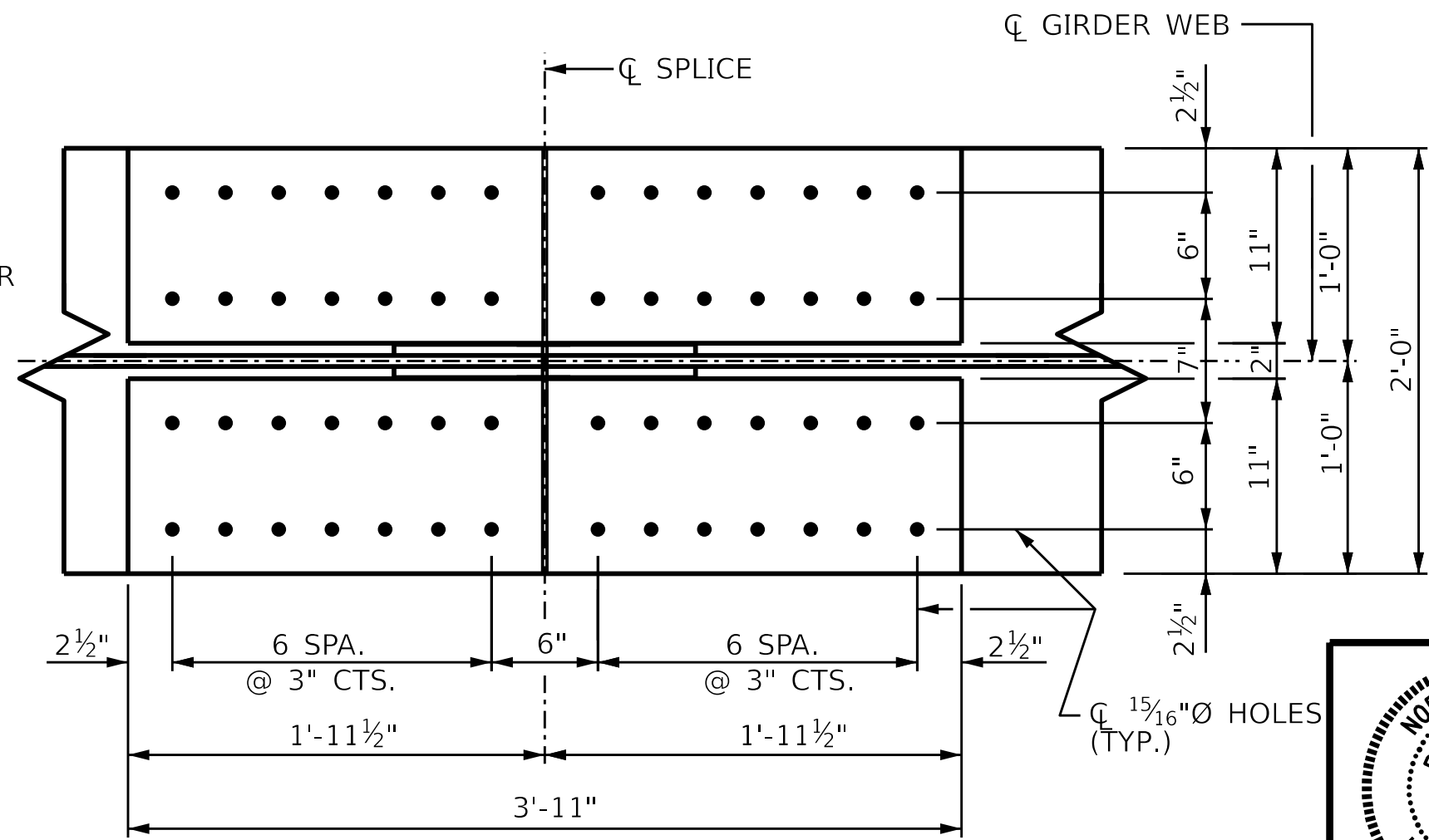


TYPICAL FLANGE AND WEB BUTT JOINT

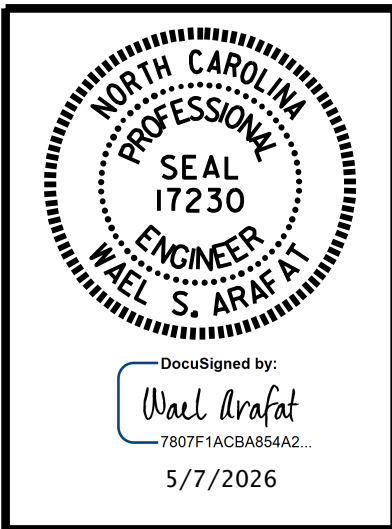
* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS.



PLAN (TOP OF TOP FLANGE)



PLAN (TOP OF BOTTOM FLANGE)



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SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS
(EASTBOUND)

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS			40		

STR #2

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pn:/parrish-pw/bearing.com/parrish-pw/Documents/Surface Transportation/NC DOT BR-0140/Project Design/Structures/FINAL/BR0140_FINAL_DEAD_LOAD 10/23/2025 4:04:56 PM MODEL NAME: EB-SPAN A

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
	SPAN A																					
	GIRDER # 1																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0	
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.001	0.000	
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	-0.001	-0.002	-0.004	-0.005	-0.006	-0.008	-0.009	-0.010	-0.011	-0.012	-0.013	-0.013	-0.014	-0.013	-0.013	-0.012	-0.010	-0.008	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	-0.002	-0.003	-0.005	-0.007	-0.008	-0.010	-0.012	-0.013	-0.015	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.014	-0.010	-0.006	0.000
VERTICAL CURVE ORDINATE	↑	0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑	0	1/16"	1/16"	1/8"	1/8"	1/8"	3/16"	3/16"	3/16"	3/16"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	0	0	0	0	0

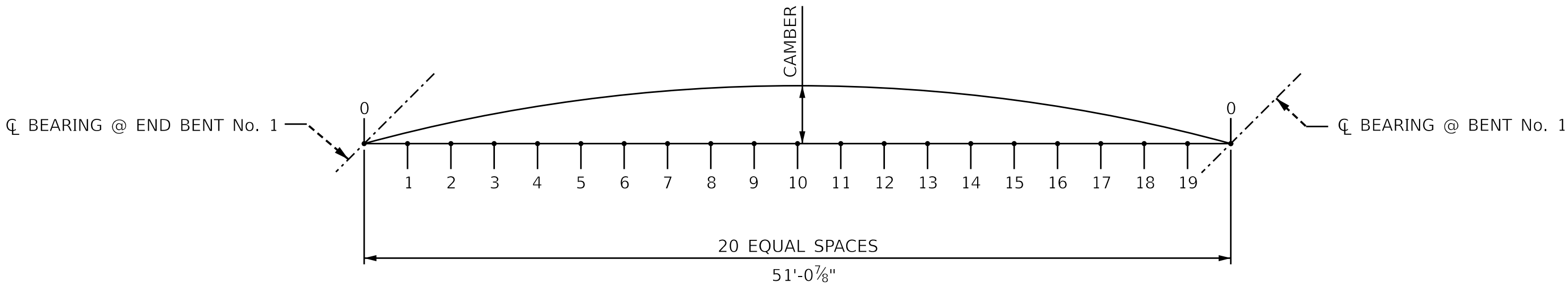
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
	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	0	
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.001	0.000	
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	-0.001	-0.002	-0.004	-0.005	-0.006	-0.008	-0.009	-0.010	-0.011	-0.012	-0.013	-0.013	-0.014	-0.014	-0.013	-0.012	-0.010	-0.008	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	-0.002	-0.003	-0.005	-0.007	-0.008	-0.010	-0.012	-0.013	-0.015	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.013	-0.010	-0.006	0.000
VERTICAL CURVE ORDINATE	↑	0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0	0	0	0	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

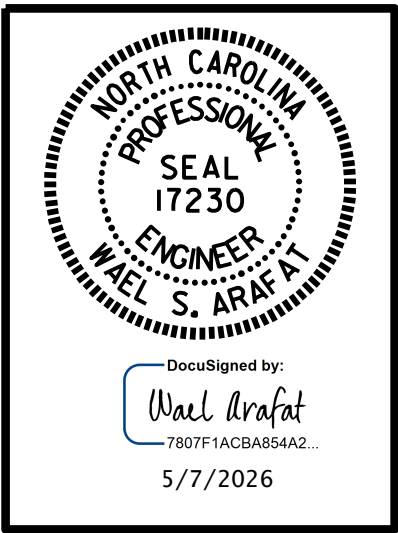
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
	SPAN A																					
	GIRDER #4																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0	
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.001	0.000	
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	-0.001	-0.002	-0.004	-0.005	-0.006	-0.008	-0.009	-0.010	-0.011	-0.012	-0.013	-0.013	-0.014	-0.014	-0.013	-0.012	-0.010	-0.008	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	-0.002	-0.003	-0.005	-0.007	-0.008	-0.010	-0.012	-0.013	-0.015	-0.016	-0.017	-0.018	-0.018	-0.017	-0.016	-0.014	-0.010	-0.006	0.000	
VERTICAL CURVE ORDINATE	↑	0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0	0	0	0	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHEMATIC CAMBER ORDINATES

SLOPE FOR THE ZERO CAMBER BASE LINE VARIES.



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH&PARTNERS

Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 1 OF 3

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

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

TOTAL SHEETS
40

DocuSign Envelope ID: CC1508FA-4025-83A9-81B2-A1E697750CA7

BR-0140-Project Design/Structures/FINAL/BROW40_FINAL_DEAD_LOAD

10/23/2025 4:04:57 PM

MODEL NAME: EB-SPAN B

Drawn by: G.C. Morris
Checked by: O. Puigcerver
Design Engineer of Record: O. Puigcerver

Date: 12-24
Date: 4-25
Date: 4-25

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	SPAN B																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	GIRDER #1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	FORTIETH POINTS	0	.025	.05	.075	.10	.125	.15	0.175	.20	.225	.25	.275	.30	.325	.35	.375	.40	.425	.45	.475	.50	.525	.55	.575	.60	.625	.65	.675	.70	.725	.75	.775	.80	0.825	.85	.875	.90	.925	.95	.975	0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.001	0.003	0.005	0.007	0.009	0.011	0.013	0.016	0.018	0.020	0.022	0.024	0.026	0.028	0.029	0.031	0.031	0.032	0.033	0.033	0.033	0.032	0.031	0.031	0.029	0.028	0.026	0.024	0.022	0.020	0.018	0.016	0.013	0.011	0.009	0.007	0.005	0.003	0.001	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.006	0.013	0.021	0.029	0.038	0.048	0.057	0.067	0.077	0.087	0.096	0.104	0.112	0.119	0.125	0.131	0.135	0.138	0.139	0.140	0.139	0.138	0.135	0.131	0.125	0.119	0.112	0.104	0.096	0.087	0.077	0.067	0.057	0.048	0.038	0.029	0.021	0.013	0.006	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.008	0.009	0.010	0.011	0.012	0.014	0.014	0.015	0.016	0.017	0.017	0.018	0.018	0.018	0.018	0.017	0.017	0.016	0.015	0.014	0.014	0.012	0.011	0.010	0.009	0.008	0.006	0.005	0.004	0.003	0.002	0.001	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.009	0.017	0.028	0.040	0.052	0.065	0.078	0.092	0.105	0.118	0.130	0.142	0.152	0.163	0.171	0.178	0.183	0.188	0.189	0.191	0.189	0.188	0.183	0.178	0.171	0.163	0.152	0.142	0.130	0.118	0.105	0.092	0.078	0.065	0.052	0.040	0.028	0.017	0.009	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
VERTICAL CURVE ORDINATE	↑	0.000	0.013	0.026	0.038	0.049	0.060	0.070	0.079	0.088	0.095	0.103	0.109	0.115	0.121	0.125	0.128	0.131	0.134	0.136	0.137	0.137	0.137	0.136	0.134	0.131	0.128	0.125	0.120	0.115	0.109	0.103	0.095	0.088	0.079	0.070	0.060	0.049	0.038	0.026	0.013	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
REQUIRED CAMBER	↑	0	¼"	½"	13⁄16"	1¼"	1¾"	1⅝"	1⅞"	2⅜"	2⅝"	21¼"	2⅞"	3⅛"	3¼"	3⅞"	3⅞"	31¼"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾"	31¾

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																										
	SPAN B																																									
	GIRDERS #2 & #3																																									
	FORTIETH POINTS	0	.025	.05	.075	.10	.125	.15	0.175	.20	.225	.25	.275	.30	.325	.35	.375	.40	.425	.45	.475	.50	.525	.55	.575	.60	.625	.65	.675	.70	.725	.75	.775	.80	0.825	.85	.875	.90	.925	.95	.975	0
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.001	0.003	0.005	0.007	0.009	0.011	0.013	0.016	0.018	0.020	0.022	0.024	0.026	0.028	0.029	0.031	0.031	0.032	0.033	0.033	0.033	0.032	0.031	0.031	0.029	0.028	0.026	0.024	0.022	0.020	0.018	0.016	0.013	0.011	0.009	0.007	0.005	0.003	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.007	0.013	0.021	0.029	0.039	0.048	0.058	0.067	0.077	0.087	0.096	0.105	0.113	0.120	0.126	0.132	0.135	0.139	0.140	0.141	0.140	0.139	0.135	0.132	0.126	0.120	0.113	0.105	0.096	0.087	0.077	0.068	0.058	0.048	0.038	0.029	0.021	0.013	0.007	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.001	0.002	0.002	0.003	0.004	0.006	0.007	0.008	0.009	0.010	0.011	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.014	0.014	0.013	0.012	0.011	0.010	0.009	0.008	0.008	0.006	0.004	0.003	0.002	0.002	0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.009	0.017	0.028	0.039	0.052	0.065	0.078	0.091	0.104	0.117	0.129	0.141	0.152	0.162	0.169	0.177	0.182	0.187	0.188	0.190	0.188	0.187	0.182	0.177	0.169	0.162	0.152	0.141	0.129	0.117	0.104	0.091	0.078	0.065	0.052	0.039	0.028	0.017	0.009	0.000
VERTICAL CURVE ORDINATE	↑	0.000	0.013	0.026	0.038	0.049	0.060	0.070	0.079	0.088	0.095	0.103	0.109	0.115	0.120	0.125	0.128	0.131	0.134	0.136	0.137	0.137	0.137	0.136	0.134	0.131	0.128	0.125	0.120	0.115	0.109	0.103	0.095	0.088	0.079	0.070	0.060	0.049	0.038	0.026	0.013	0.000
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑	0	¼"	½"	⅜ ₁₆ "	1¼ ₁₆ "	1⅜"	1⅝"	1⅞"	2⅞"	2⅝"	2⅞"	3¼ ₁₆ "	3¼"	3⅜ ₁₆ "	3⅝ ₁₆ "	3⅞ ₁₆ "	3⅞"	3⅞"	3⅞ ₁₆ "	3⅞"	3⅞"	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "	3⅞ ₁₆ "

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																										
	SPAN B																																									
	GIRDER #4																																									
	FORTIETH POINTS																																									
	0	.025	.05	.075	.10	.125	.15	0.175	.20	.225	.25	.275	.30	.325	.35	.375	.40	.425	.45	.475	.50	.525	.55	.575	.60	.625	.65	.675	.70	.725	.75	.775	.80	0.825	.85	.875	.90	.925	.95	.975	0	
DEFLECTION DUE TO WEIGHT OF GIRDER	↓	0.000	0.001	0.003	0.005	0.007	0.009	0.011	0.013	0.016	0.018	0.020	0.022	0.024	0.026	0.028	0.029	0.031	0.031	0.032	0.033	0.033	0.033	0.032	0.031	0.031	0.029	0.028	0.026	0.024	0.022	0.020	0.018	0.016	0.013	0.011	0.009	0.007	0.005	0.003	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓	0.000	0.007	0.013	0.021	0.029	0.038	0.048	0.058	0.068	0.078	0.088	0.097	0.105	0.113	0.121	0.127	0.132	0.136	0.139	0.140	0.142	0.140	0.139	0.136	0.132	0.127	0.121	0.113	0.105	0.097	0.088	0.078	0.068	0.058	0.048	0.039	0.029	0.021	0.013	0.007	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.008	0.009	0.010	0.011	0.012	0.014	0.014	0.015	0.016	0.017	0.017	0.018	0.018	0.018	0.018	0.018	0.017	0.017	0.016	0.015	0.014	0.014	0.012	0.011	0.010	0.009	0.008	0.006	0.005	0.004	0.003	0.002	0.001	0.000
TOTAL DEAD LOAD DEFLECTION	↓	0.000	0.009	0.018	0.029	0.040	0.053	0.066	0.079	0.092	0.106	0.119	0.131	0.143	0.154	0.164	0.172	0.180	0.184	0.189	0.191	0.192	0.191	0.189	0.184	0.180	0.172	0.164	0.154	0.143	0.131	0.119	0.106	0.092	0.079	0.066	0.053	0.040	0.029	0.018	0.009	0.000
VERTICAL CURVE ORDINATE	↑	0.000	0.013	0.026	0.038	0.049	0.060	0.070	0.079	0.088	0.095	0.103	0.109	0.115	0.120	0.125	0.128	0.131	0.134	0.136	0.137	0.137	0.137	0.136	0.134	0.131	0.128	0.125	0.120	0.115	0.109	0.103	0.095	0.088	0.079	0.070	0.060	0.049	0.038	0.026	0.013	0.000
ORDINATE DUE TO SUPERELEVATION		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑	0	¼"	½"	⅜ ₁₆ "	1¼ ₁₆ "	1¾"	1⅝"	1⅞"	2¾ ₁₆ "	2⅞ ₁₆ "	2⅞"	3⅞"	3⅝ ₁₆ "	3½"	3⅝"	3¾"	3⅜ ₁₆ "	3⅞"	3⅞ ₁₆ "	3⅝ ₁₆ "	3⅝ ₁₆ "	3⅞"	3⅜ ₁₆ "	3¾"	3⅝"	3½"	3⅝ ₁₆ "	3⅞"	2⅞"	2⅞ ₁₆ "	2⅞ ₁₆ "	2¾ ₁₆ "	1⅝"	1⅝"	1¾"	1¼ ₁₆ "	1¾ ₁₆ "	½"	¼"	0	

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pm:/parrish-pw/bearing.com/parrish-pw/Documents/Surface Transportation/NC DOT BR-0140/Project Design/Structures/FINAL/BR0140_FINAL_DEAD_LOAD 10/23/2025 4:04:59 PM MODEL NAME: EB-SPAN C

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN C																				
	GIRDER #1																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
TWENTIETH POINTS																					
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.004	-0.008	-0.010	-0.012	-0.013	-0.013	-0.014	-0.013	-0.013	-0.012	-0.011	-0.010	-0.009	-0.008	-0.006	-0.005	-0.004	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.006	-0.010	-0.014	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.015	-0.013	-0.012	-0.010	-0.008	-0.007	-0.005	-0.003	-0.002	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	0	0	0	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0

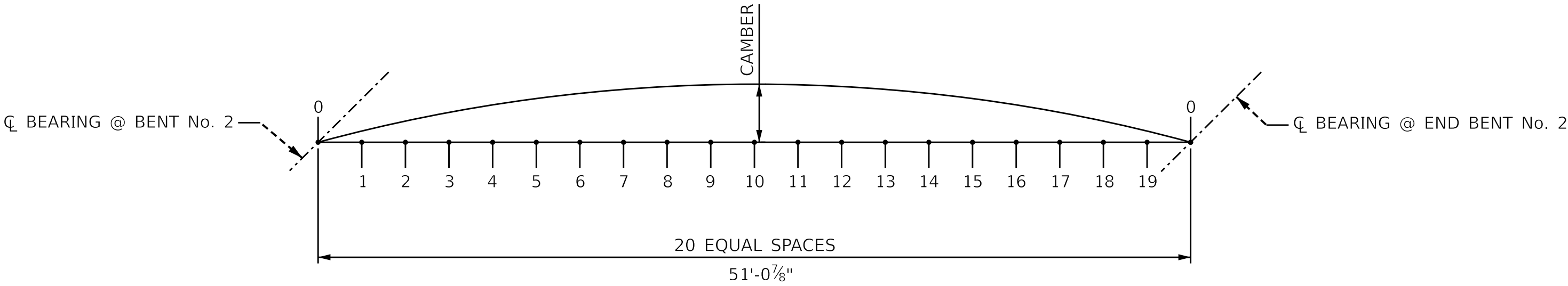
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN C																				
	GIRDERS #2 & #3																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
TWENTIETH POINTS																					
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.004	-0.008	-0.010	-0.012	-0.013	-0.014	-0.014	-0.013	-0.013	-0.012	-0.011	-0.010	-0.009	-0.008	-0.006	-0.005	-0.004	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.006	-0.010	-0.013	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.015	-0.013	-0.012	-0.010	-0.008	-0.007	-0.005	-0.003	-0.002	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	0	0	0	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
	SPAN C																				
	GIRDER #4																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
TWENTIETH POINTS																					
DEFLECTION DUE TO WEIGHT OF GIRDER	↓ 0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	↓ 0.000	-0.004	-0.008	-0.010	-0.012	-0.013	-0.014	-0.014	-0.013	-0.013	-0.012	-0.011	-0.010	-0.009	-0.008	-0.006	-0.005	-0.004	-0.002	-0.001	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	↓ 0.000	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	↓ 0.000	-0.006	-0.010	-0.014	-0.016	-0.017	-0.018	-0.018	-0.018	-0.017	-0.016	-0.015	-0.013	-0.012	-0.010	-0.008	-0.007	-0.005	-0.003	-0.002	0.000
VERTICAL CURVE ORDINATE	↑ 0.000	0.005	0.010	0.014	0.018	0.021	0.024	0.026	0.027	0.028	0.028	0.028	0.027	0.026	0.024	0.021	0.018	0.014	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	↑ 0	0	0	0	0	1⁄16"	1⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄8"	3⁄16"	3⁄16"	3⁄16"	3⁄16"	1⁄8"	1⁄8"	1⁄8"	1⁄16"	1⁄16"	0

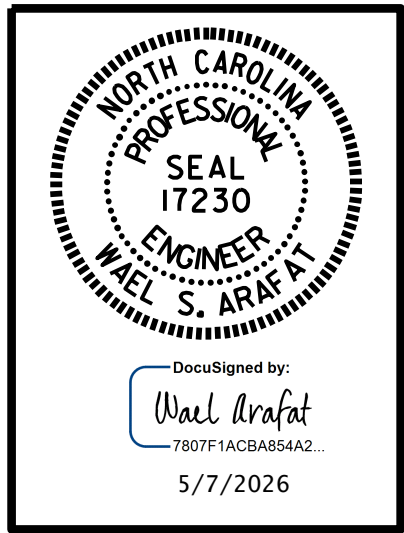
* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT `` FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SCHEMATIC CAMBER ORDINATES

SLOPE FOR THE ZERO CAMBER BASE LINE VARIES.

DRAWN BY : G.C. MORRIS DATE : 12-24
CHECKED BY : O. PUIGCERVER DATE : 4-25
DESIGN ENGINEER OF RECORD: O. PUIGCERVER DATE : 4-25



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PARRISH & PARTNERS
Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615
NC License #P-1212

PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

SHEET 3 OF 3

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S02-18
2			4			
TOTAL SHEETS						40

STR #2

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\\parrish-pw-bentley.com\project\1st-pw\Documents\Surfaces Transportation\NC DOT BR-0140\Project Design\Structures\FINAL\BR140_FINAL_ELASTOMERIC BEARINGS MODEL NAME1 EASTBOUND

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NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½" 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.

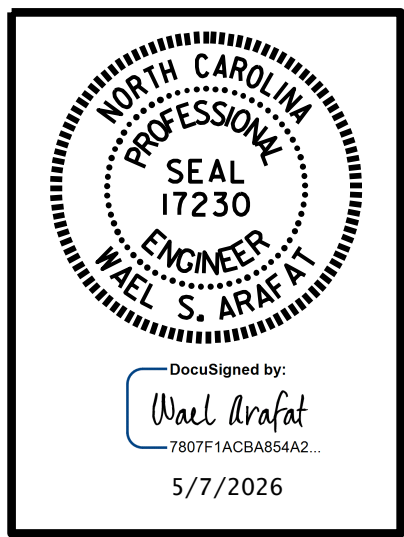
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURE, WHICH MAY BE REQUIRED BY THE ENGINEER, TO RESET ELASTOMERIC BEARINGS DUE TO GIRDER TRANSLATION AND END ROTATION:

1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ELASTOMERIC BEARING SLOTS CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.

THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L. + L.L. (NO IMPACT)	
TYPE II	180 k



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PARRISH & PARTNERS

Parrish and Partners of North Carolina, PLLC
220 Horizon Dr., Suite 100
Raleigh, NC 27615

NC License #P-1212

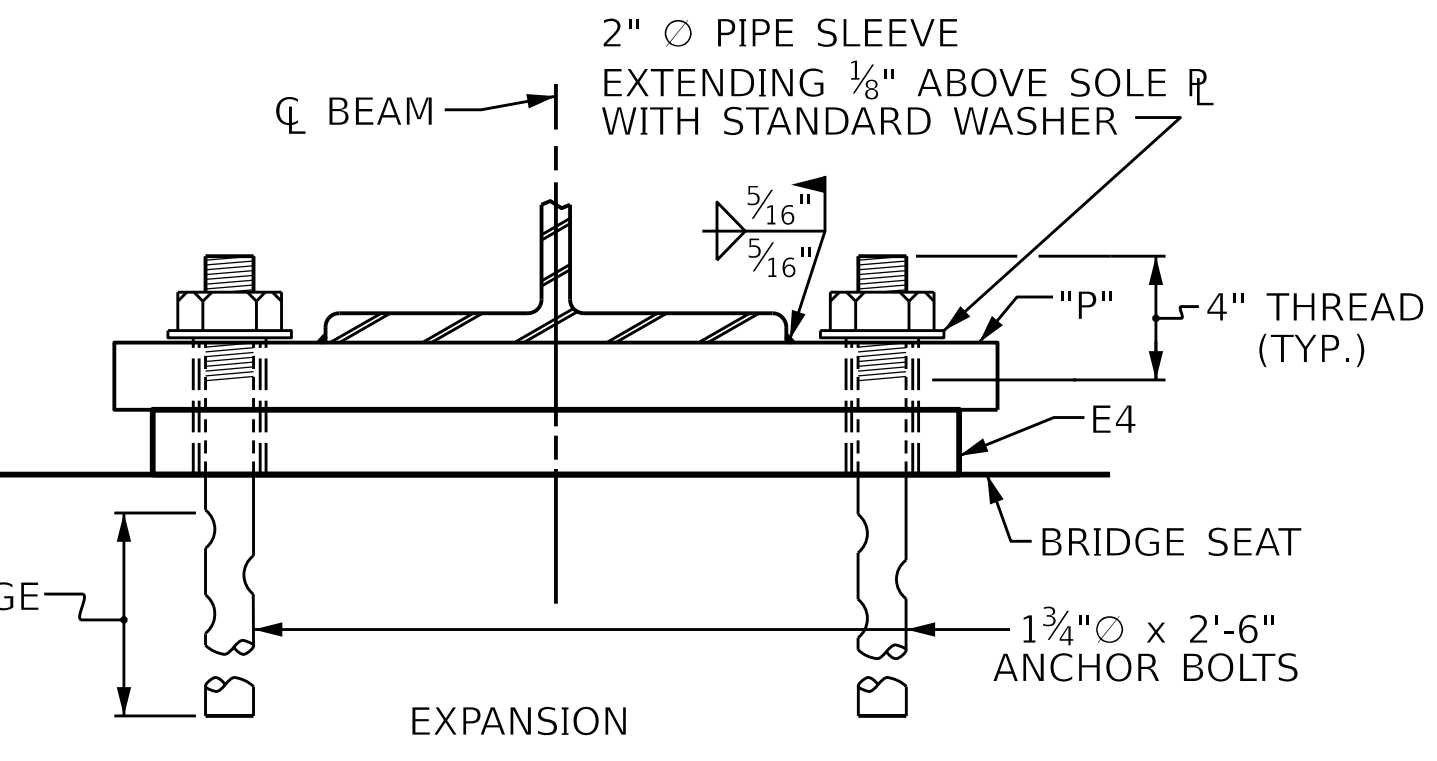
PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

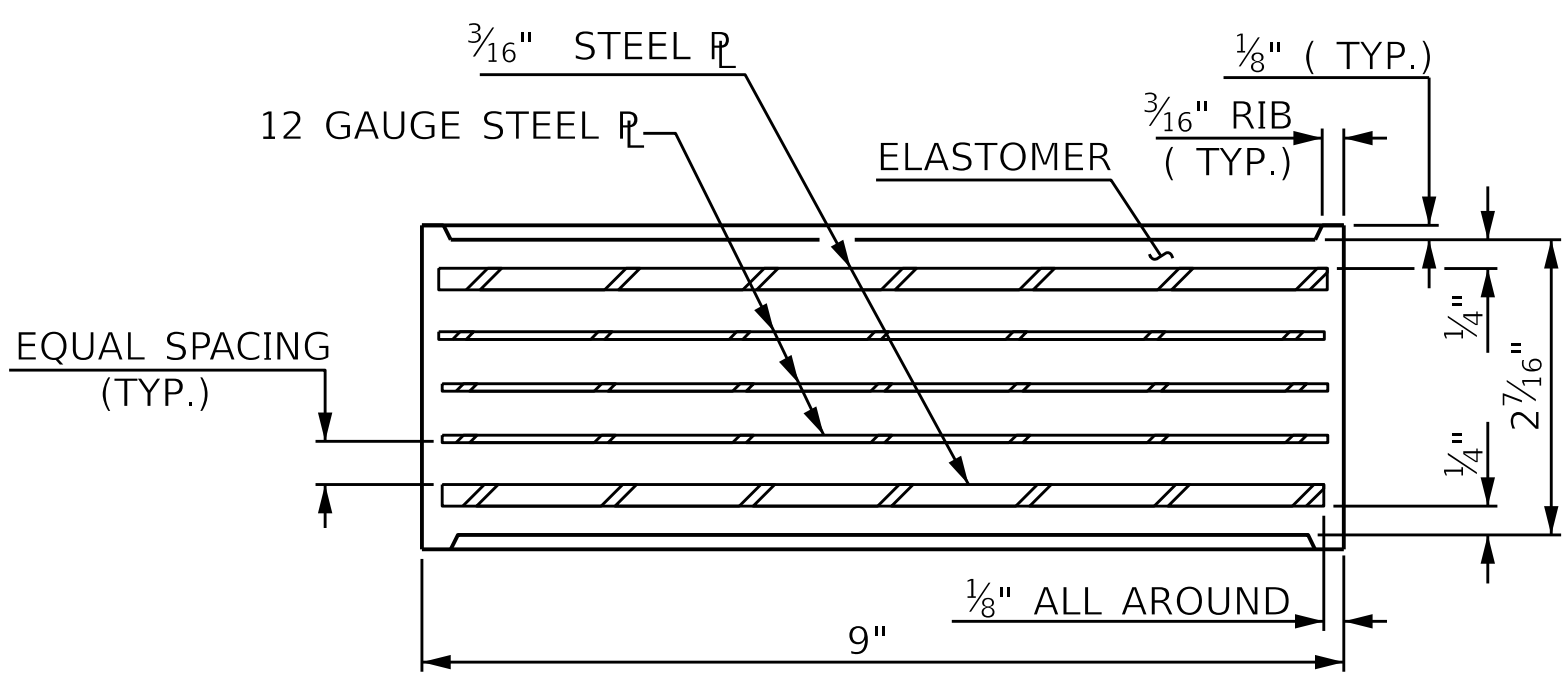
STANDARD
ELASTOMERIC BEARING
DETAILS
(STEEL SUPERSTRUCTURE)
(EASTBOUND)

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

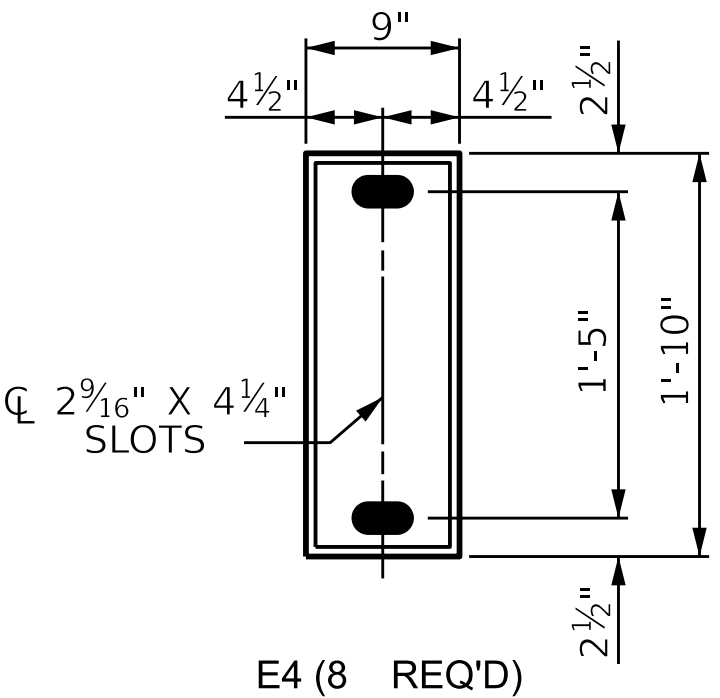
TOTAL SHEETS
40



END VIEW

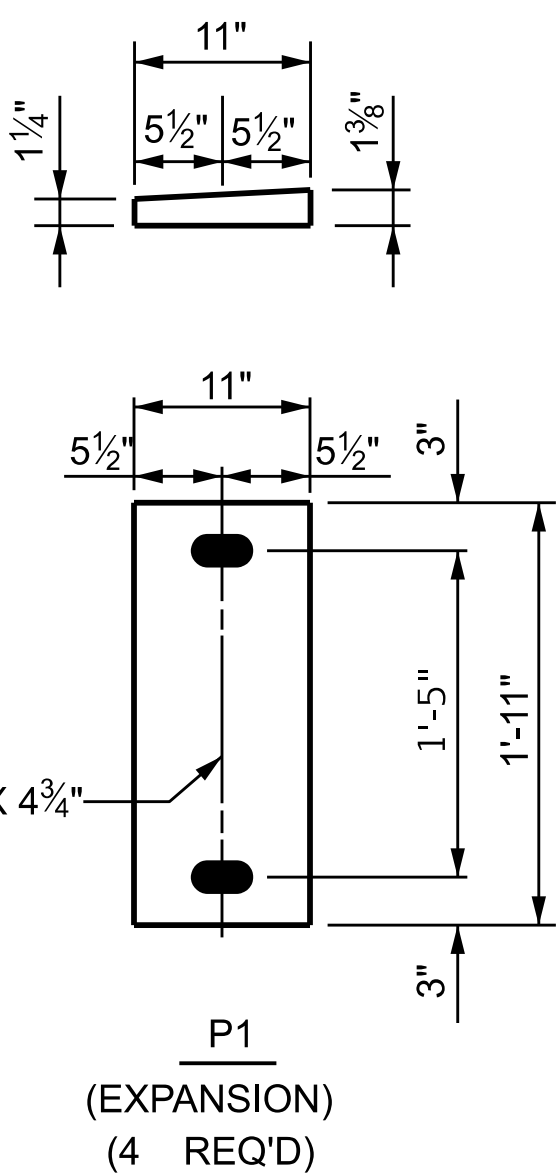


TYPICAL SECTION OF ELASTOMERIC BEARINGS

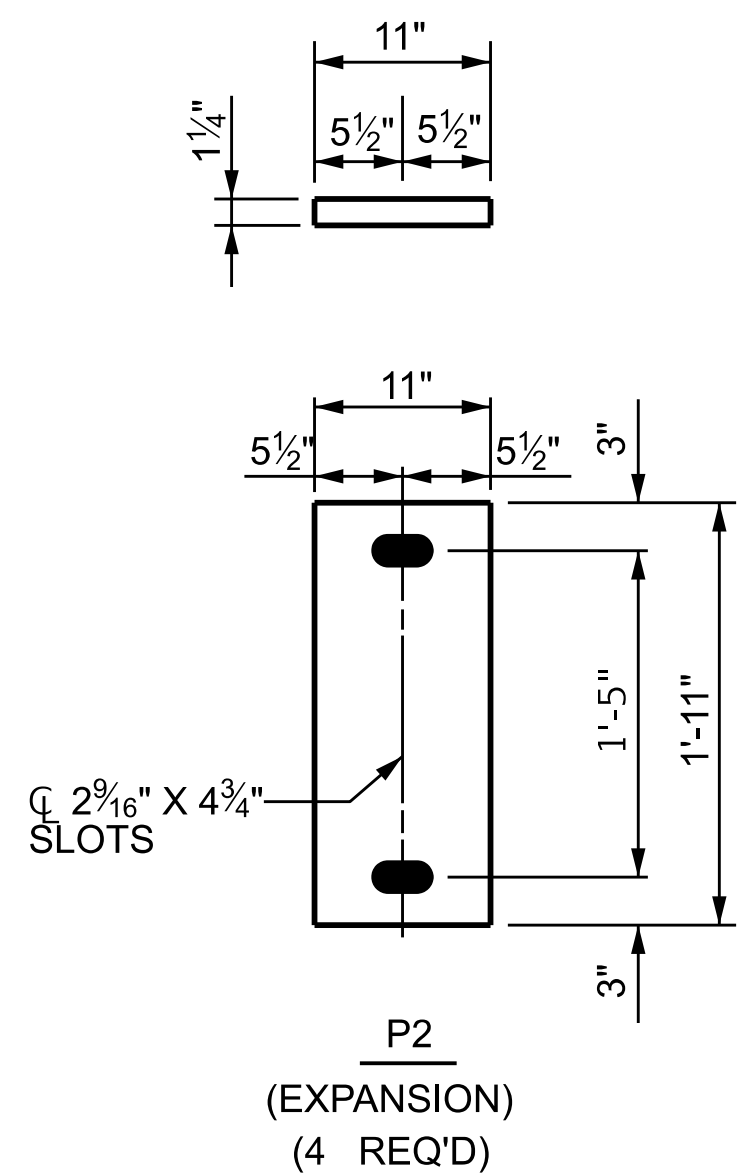


PLAN VIEW OF ELASTOMERIC BEARING

TYPE II



SOLE PLATE DETAILS "P"

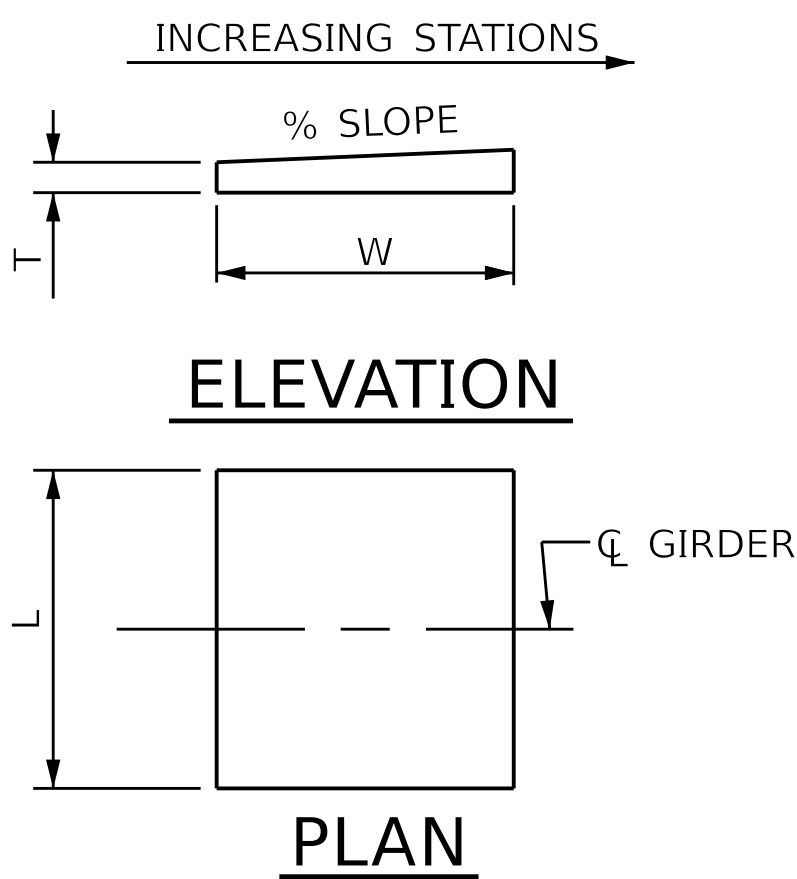
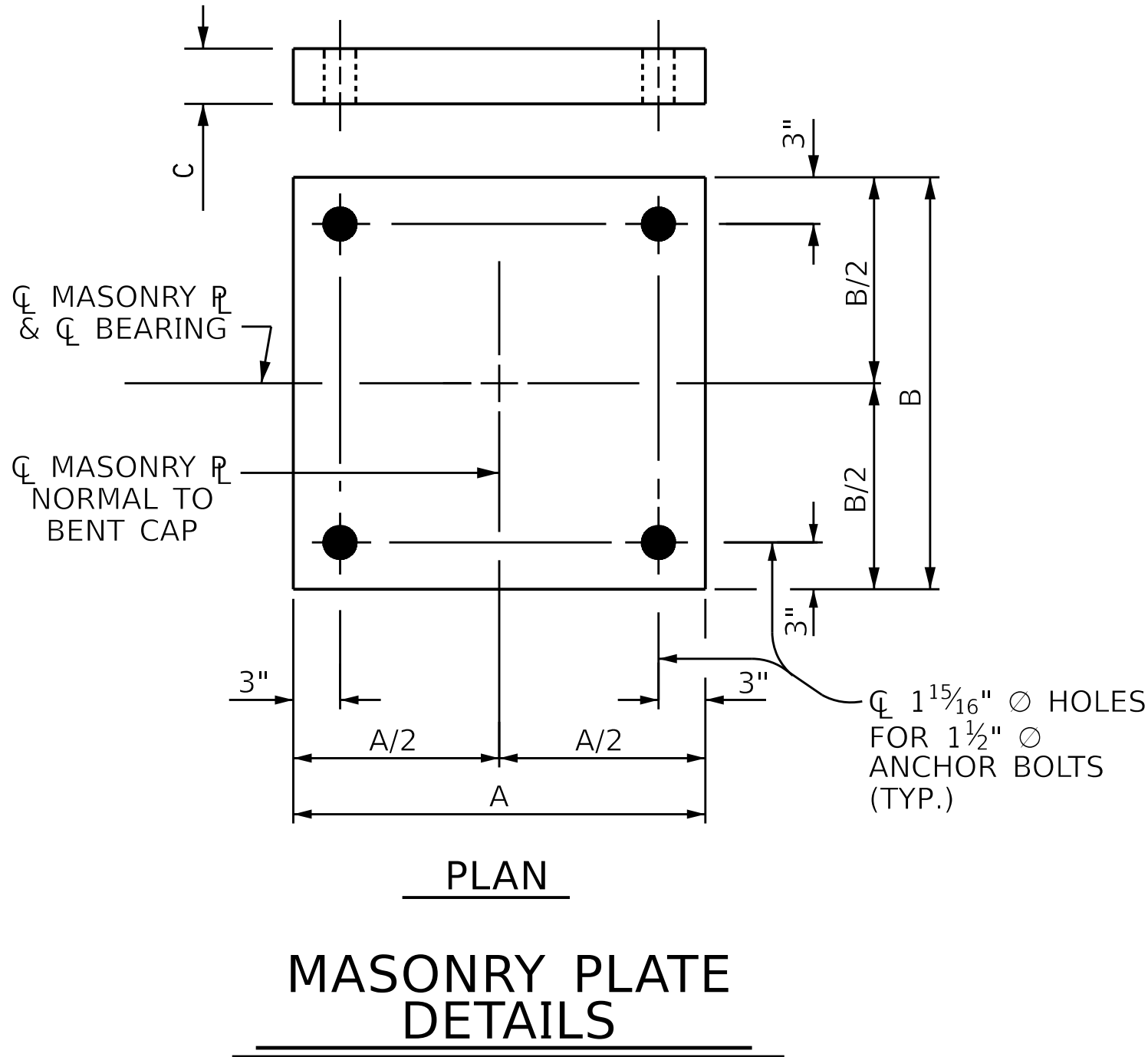
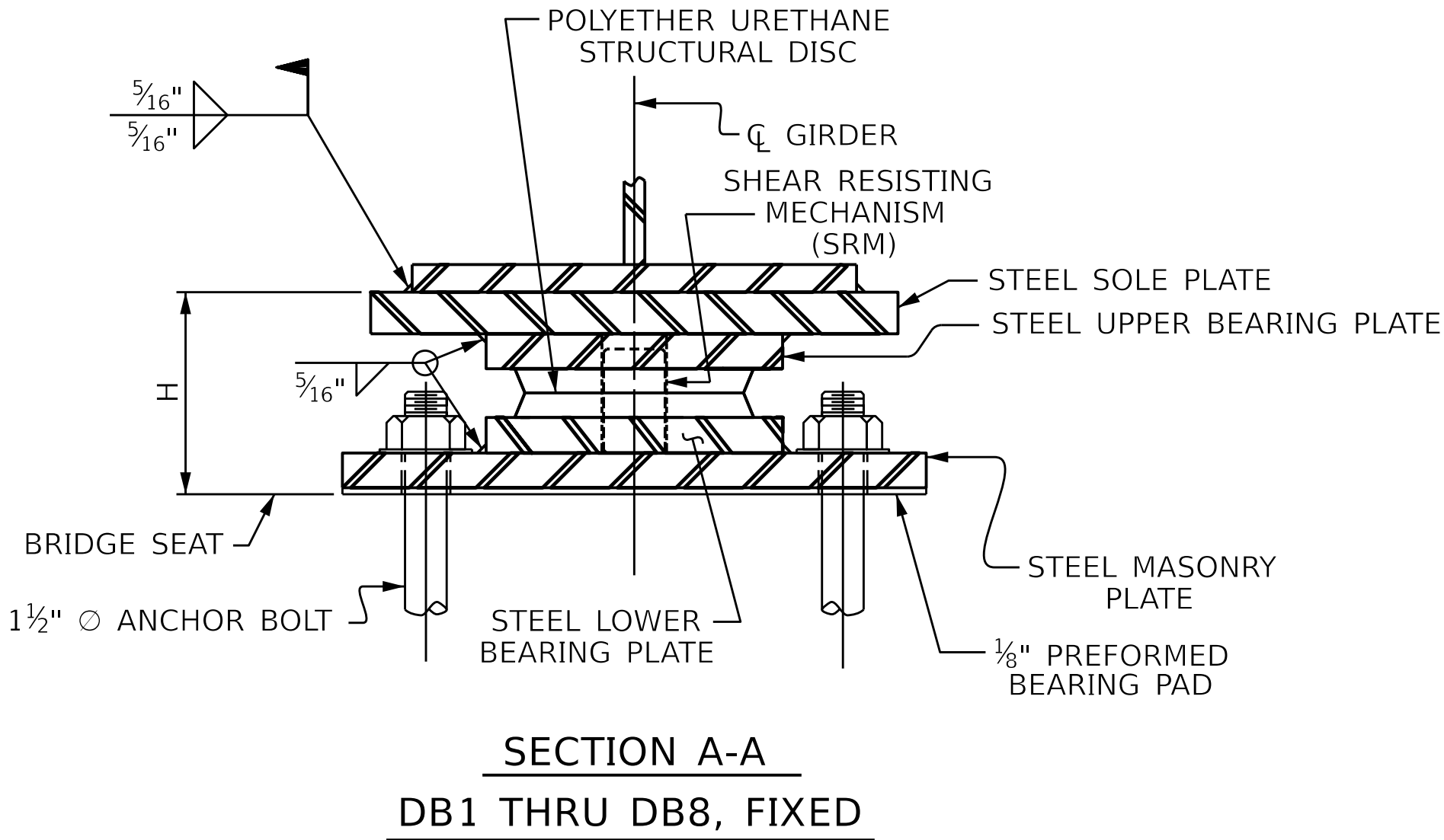
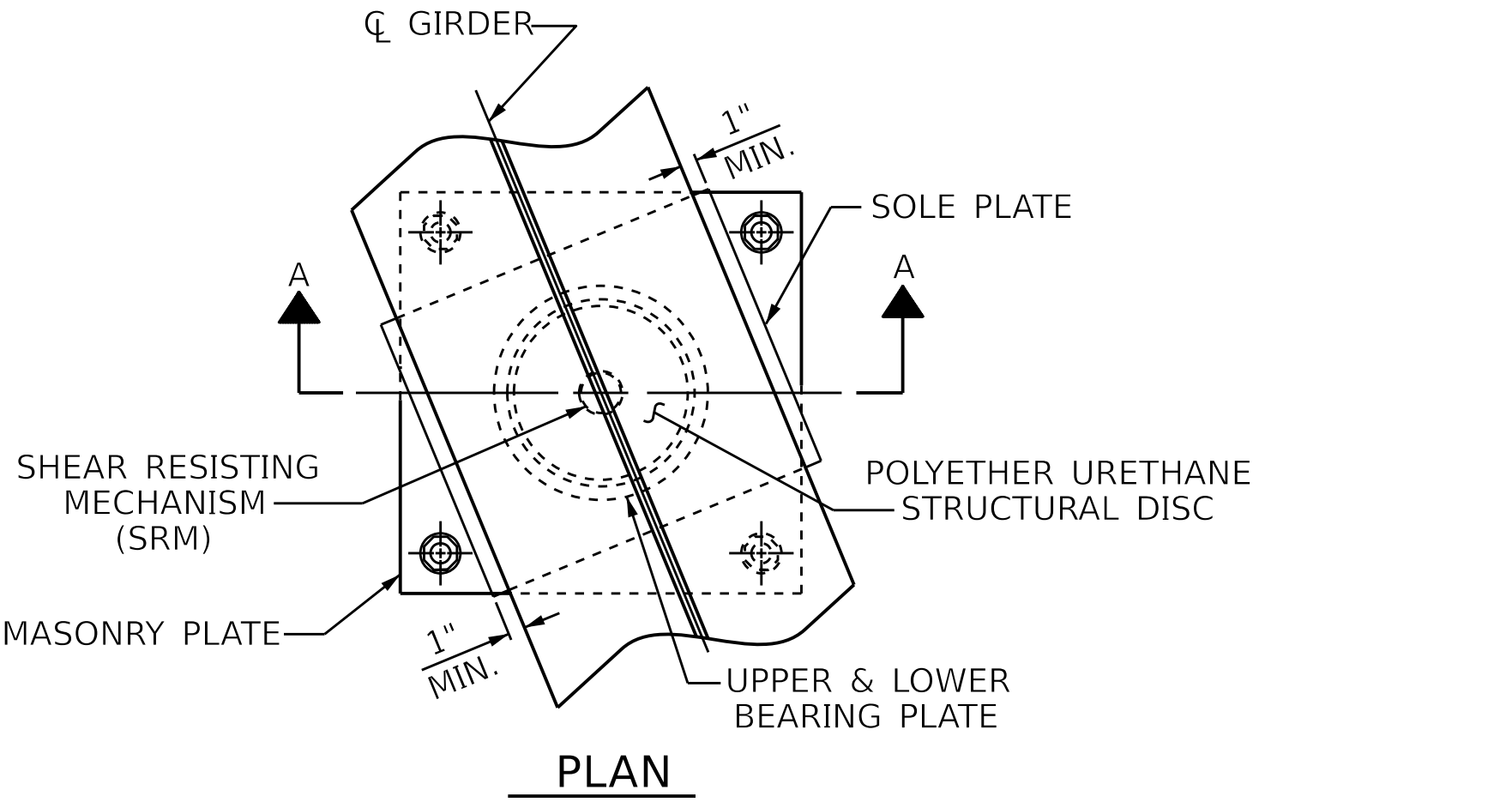


SOLE PLATE DETAILS "P"

SOLE PLATE DETAILS ("P")

ASSEMBLED BY : G.C. MORRIS	DATE : 5/24
CHECKED BY : O. PUIGCERVER	DATE : 4/25
DRAWN BY : JMB	11/87
CHECKED BY : ARB	11/87
REV. 12/17	MAA/THC
REV. 10/21	BNB/AAI
REV. 10/23	BNB/SNM

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NOTE:
DIMENSIONS "W" AND "T" SHALL BE DETERMINED BY THE BEARING MANUFACTURER.

SOLE PLATE DETAILS

NOTES

FOR DISC BEARINGS, SEE SPECIAL PROVISIONS.

ALL BEARING PLATES SHALL BE AASHTO M270 GRADE 50W OR GRADE 50.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS SHALL BE FINGER-TIGHTENED PLUS AN ADDITIONAL ¼ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

WHEN WELDING THE SOLE PLATE TO THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE BEARING DOES NOT EXCEED 250°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE TFE OR URETHANE DISC.

AFTER BEARING ASSEMBLY IS IN PLACE AND ANCHOR BOLTS HAVE BEEN FINALLY POSITIONED, THEY SHALL BE GROUTED IN PLACE AS SHOWN.

THE CLOSURE PLATE, GROUT PIPE, AND STANDARD PIPE FOR THIS ASSEMBLY NEED NOT BE GALVANIZED.

SOLE PLATES SHOULD BE WELDED TO GIRDER FLANGES AND ANCHOR BOLTS SHOULD BE GROUTED BEFORE FALSEWORK IS PLACED.

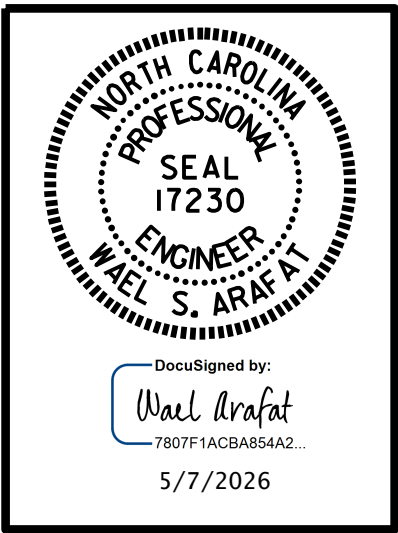
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR ATTACHMENT OF THE STAINLESS STEEL SHEETS TO THE STEEL SOLE PLATE AND GUIDE BARS, AS WELL AS THE TOP AND SIDE PTFE SHEETS TO THE STEEL UPPER BEARING PLATE, SEE SPECIAL PROVISIONS.

FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE MINIMUM ROTATIONAL CAPACITY FOR ALL BEARINGS SHALL BE 0.02 RADIAN.

				DIMENSIONS						LOADS AND MOVEMENT				
DESIGNATIONS		LOCATION	NUMBER OF BEARINGS	BEARING	MASONRY PLATE			SOLE PLATE		UNFACTORED VERTICAL LOAD (KIPS)			FACTORED HORIZONTAL LOAD (KIPS)	ONE-WAY MOVEMENT (IN.)
BEARINGS	MASONRY PL			H (IN.)	A (IN.)	B (IN.)	C (IN.)	TOP SLOPE (%)	L (IN.)	DEAD		LIVE		
										DC	DW	LL+IM		
DB1 (FIXED)	M1	BENT No.1	1 (GIRDER 1)	5⅝	22 ½	22 ½	¾	0.571	26	195.9	28.8	190.0	79.9	0.0
DB2 (FIXED)	M1	BENT No.1	1 (GIRDER 2)	5⅝	22 ½	22 ½	¾	0.612	26	222.9	28.8	215.8	89.9	0.0
DB3 (FIXED)	M1	BENT No.1	1 (GIRDER 3)	5⅝	22 ½	22 ½	¾	0.652	26	222.9	28.8	215.8	89.9	0.0
DB4 (FIXED)	M1	BENT No.1	1 (GIRDER 4)	5⅝	22 ½	22 ½	¾	0.693	26	197.3	28.8	190.0	80.3	0.0
DB5 (FIXED)	M1	BENT No. 2	1 (GIRDER 1)	5⅝	22 ½	22 ½	¾	-0.401	26	195.9	28.8	190.0	79.9	0.0
DB6 (FIXED)	M1	BENT No. 2	1 (GIRDER 2)	5⅝	22 ½	22 ½	¾	-0.361	26	222.9	28.8	215.8	89.9	0.0
DB7 (FIXED)	M1	BENT No. 2	1 (GIRDER 3)	5⅝	22 ½	22 ½	¾	-0.320	26	222.9	28.8	215.8	89.9	0.0
DB8 (FIXED)	M1	BENT No. 2	1 (GIRDER 4)	5⅝	22 ½	22 ½	¾	-0.279	26	197.3	28.8	190.0	80.3	0.0



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PROJECT NO. BR-0140
DAVIDSON COUNTY
STATION: 39+69.46 -L-

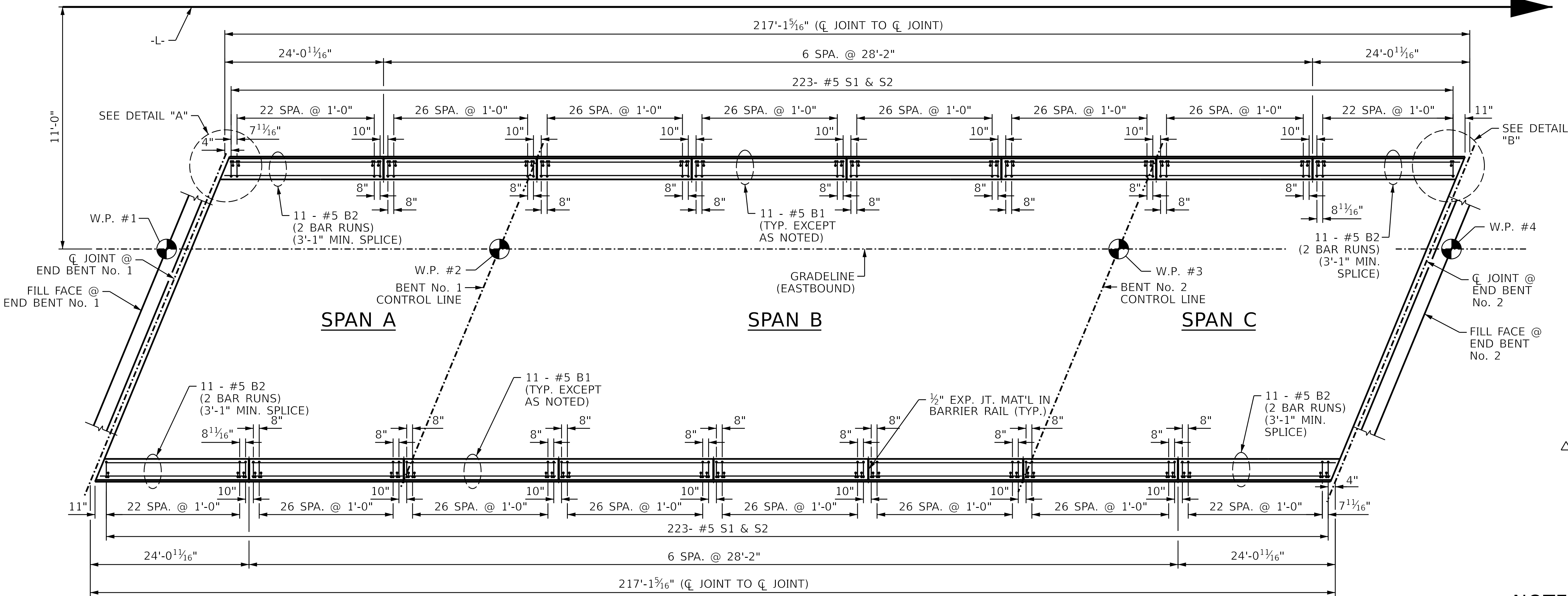
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
DISC BEARING
DETAILS
(EASTBOUND)

REVISIONS						SHEET NO. S02-20 TOTAL SHEETS 40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY: G.C. MORRIS		DATE : 5/24	
CHECKED BY : O. PUIGCERVER		DATE : 4/25	
DRAWN BY : TMG	08/13	REV. 12/17	MAA/THC
CHECKED BY : EKP	10/13		

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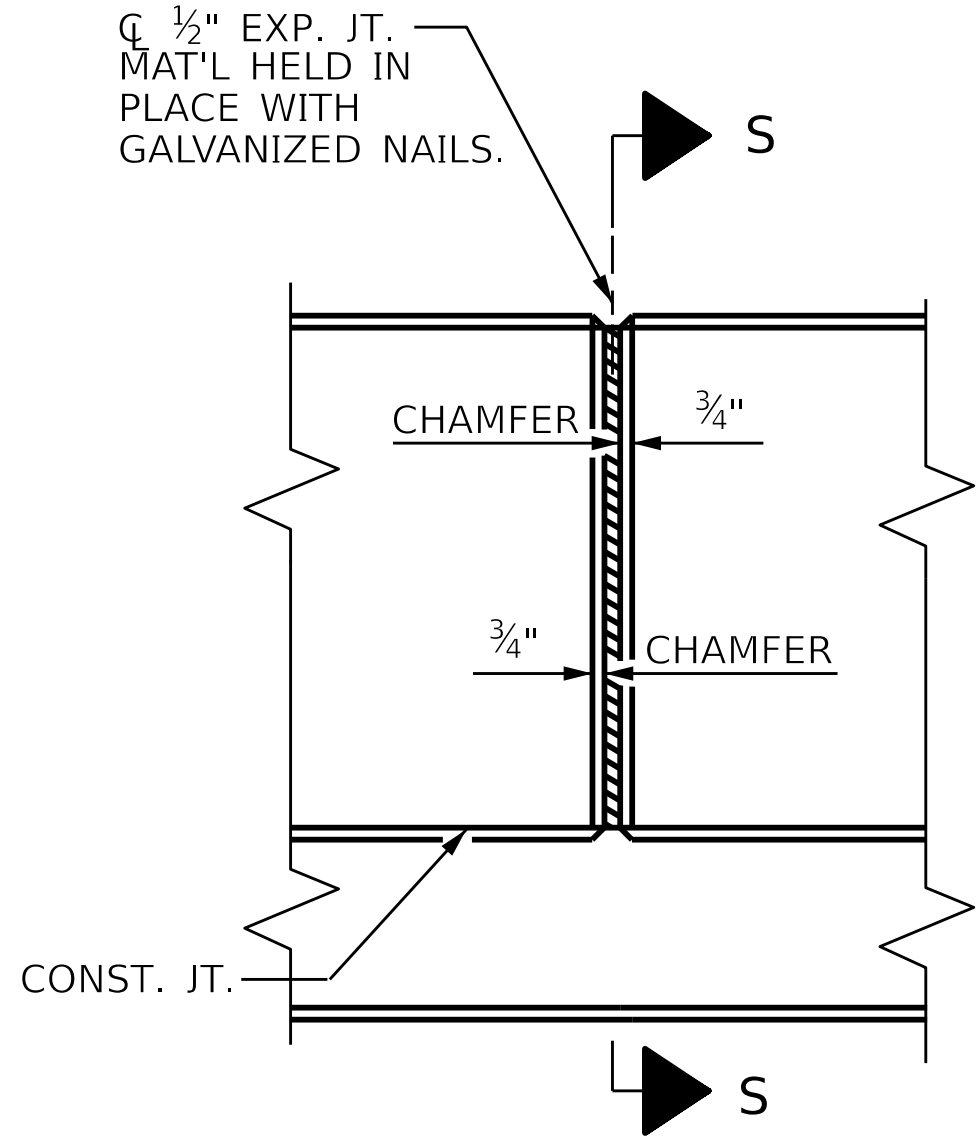
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MODEL NAME: SHEET MODEL - CONCRETE BARRIER PLAN EAST BOUND



PLAN OF CONCRETE BARRIER RAIL

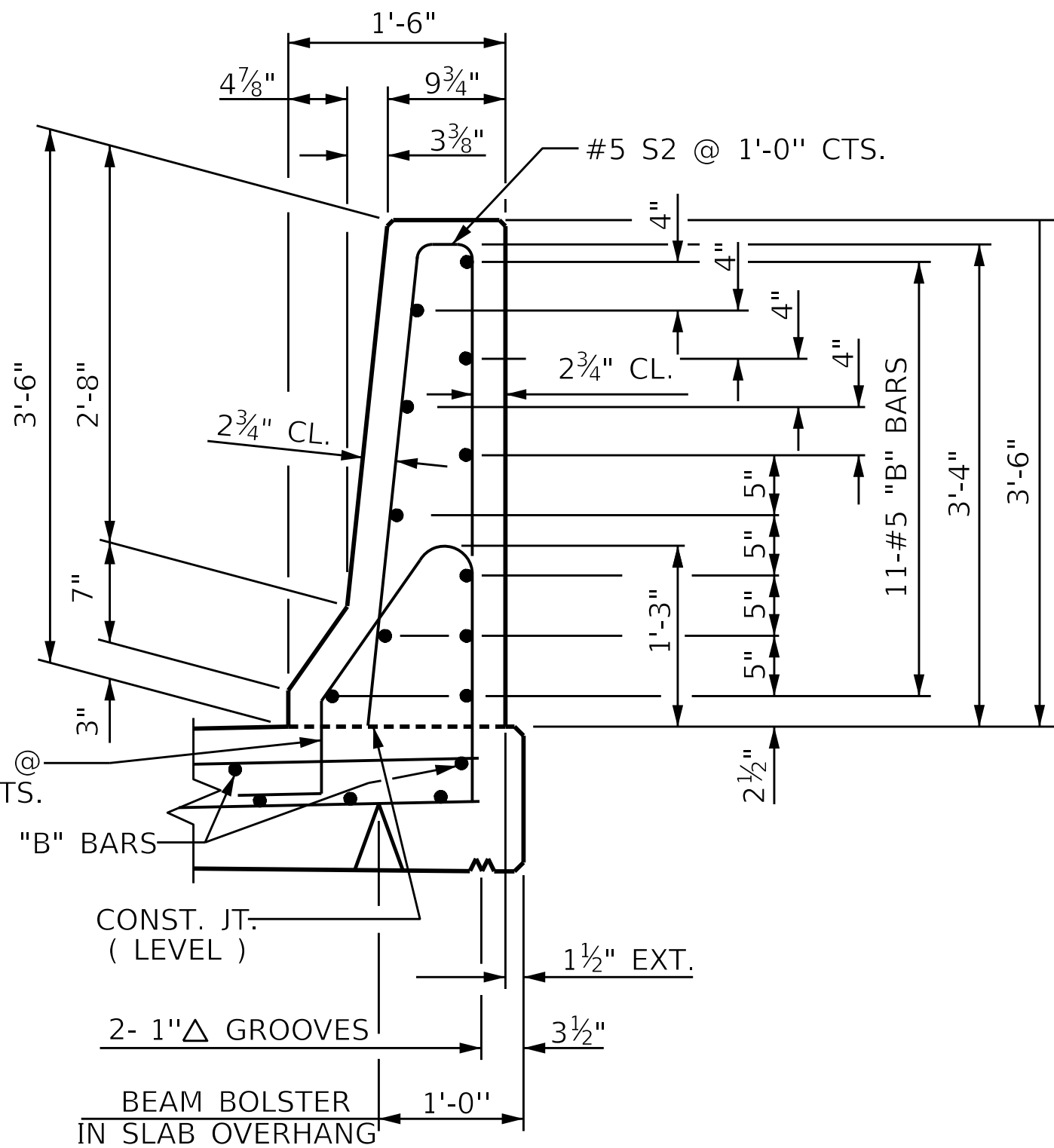
BARRIER RAIL DIMENSIONS ARE TAKEN ALONG OUTSIDE FACE OF BARRIER RAIL.

(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)

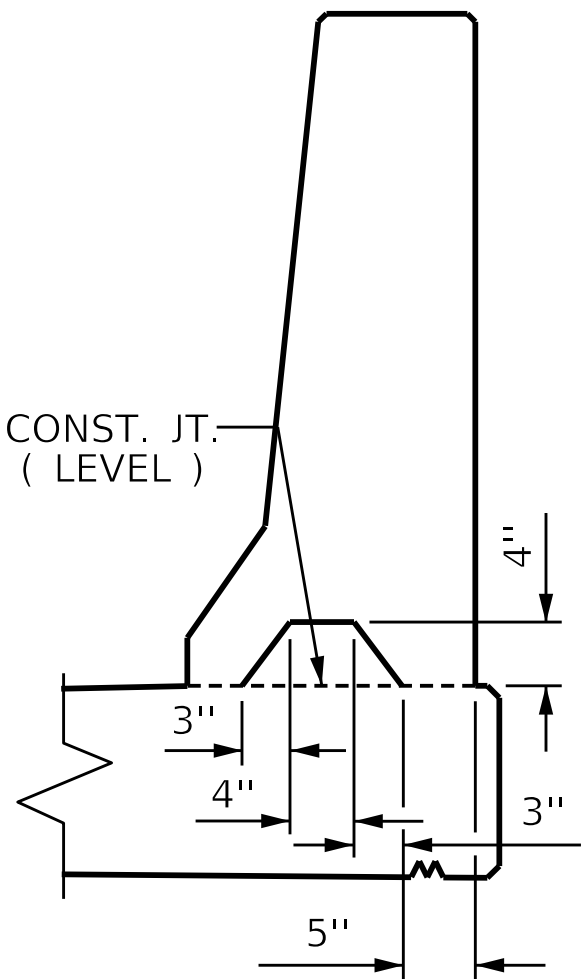


ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

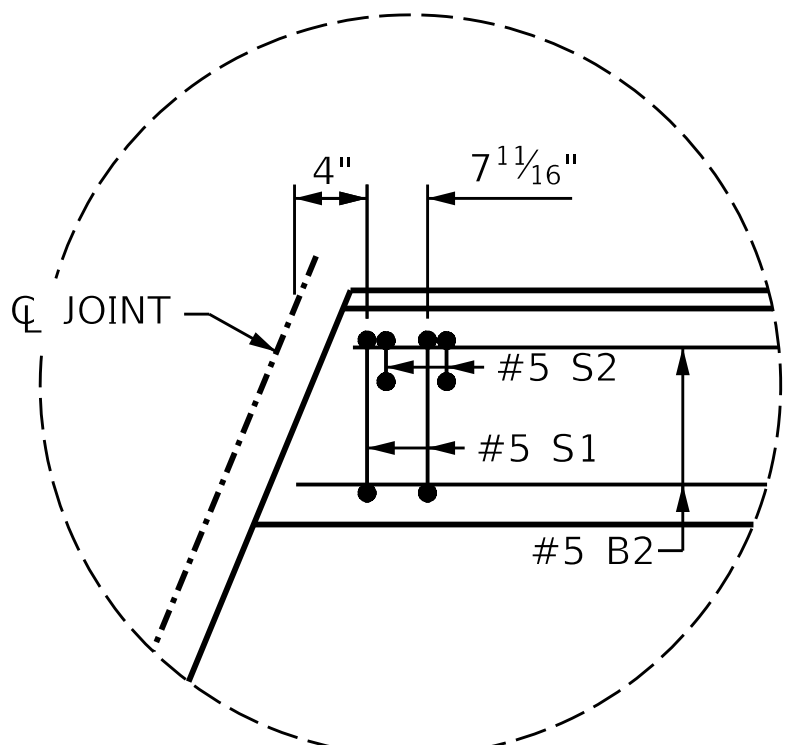


SECTION THRU RAIL



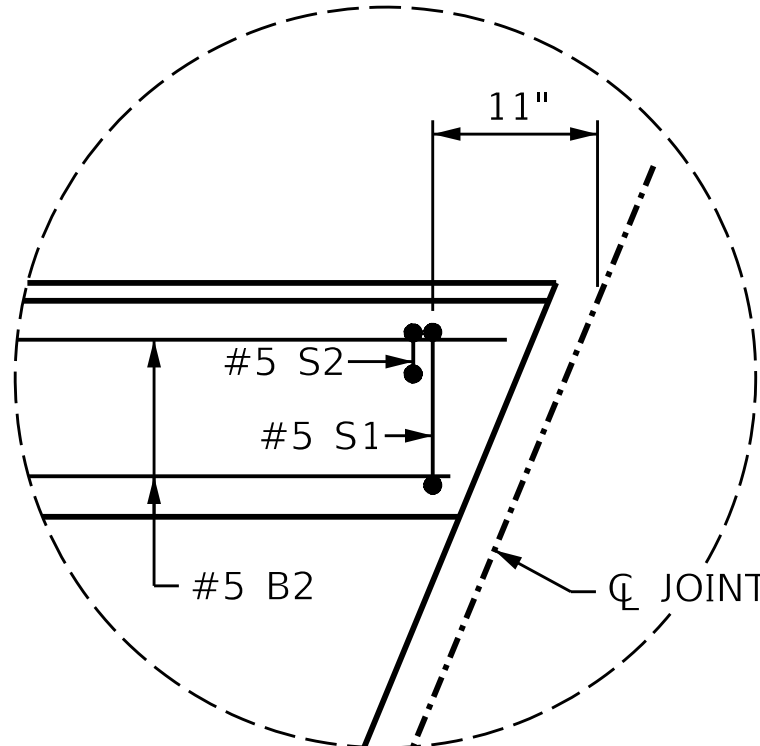
SECTION S-S

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



DETAIL "A"

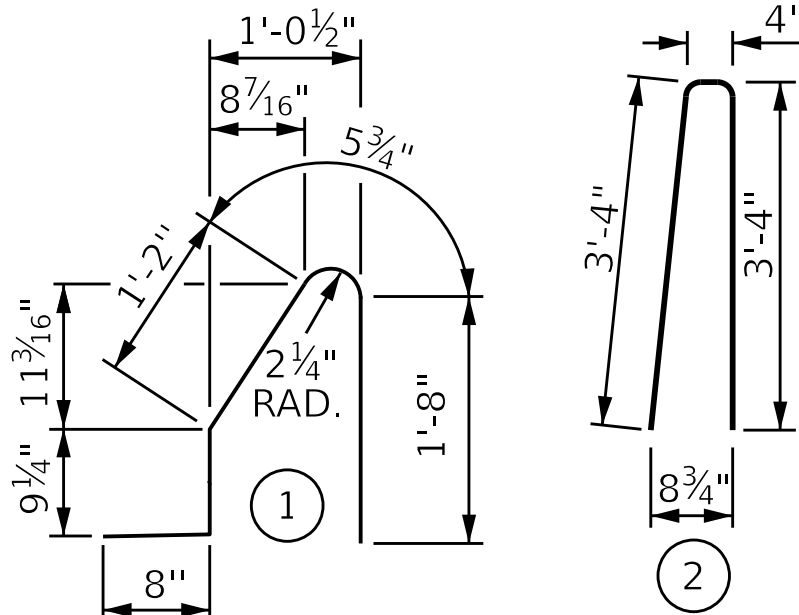
OBTUSE CORNERS (TYP.)



DETAIL "B"

ACUTE CORNERS (TYP.)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S1	446	#5	1	4'-9"	2210
* S2	446	#5	2	7'-0"	3256
* B1	132	#5	STR	27'-9"	3821
* B2	88	#5	STR	13'-7"	1247

* EPOXY COATED REINFORCING STEEL	10,534 LBS.
CLASS AA CONCRETE	59.0 CU. YDS
CONCRETE BARRIER RAIL	434.2 LIN. FT

Δ DOES NOT INCLUDE BARRIER RAIL ON APPROACH SLAB.

NOTES

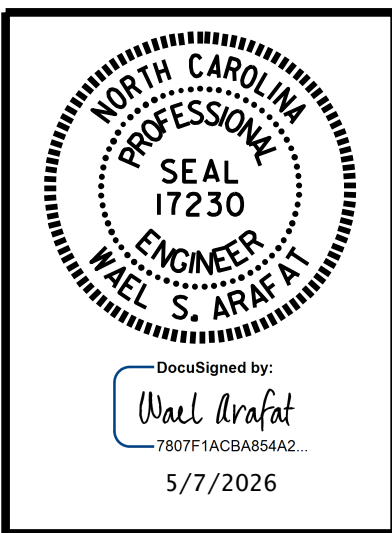
THE BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

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.

QUANTITIES FOR BARRIER RAIL ON APPROACH SLAB ARE INCLUDED ON BRIDGE APPROACH SLAB SHEETS.

FOR STRIP SEAL JOINT DETAILS, SEE "STRIP SEAL JOINT DETAILS FOR BARRIER RAIL" SHEET.



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STATION: 39+69.46 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

CONCRETE
BARRIER RAIL
(EASTBOUND)

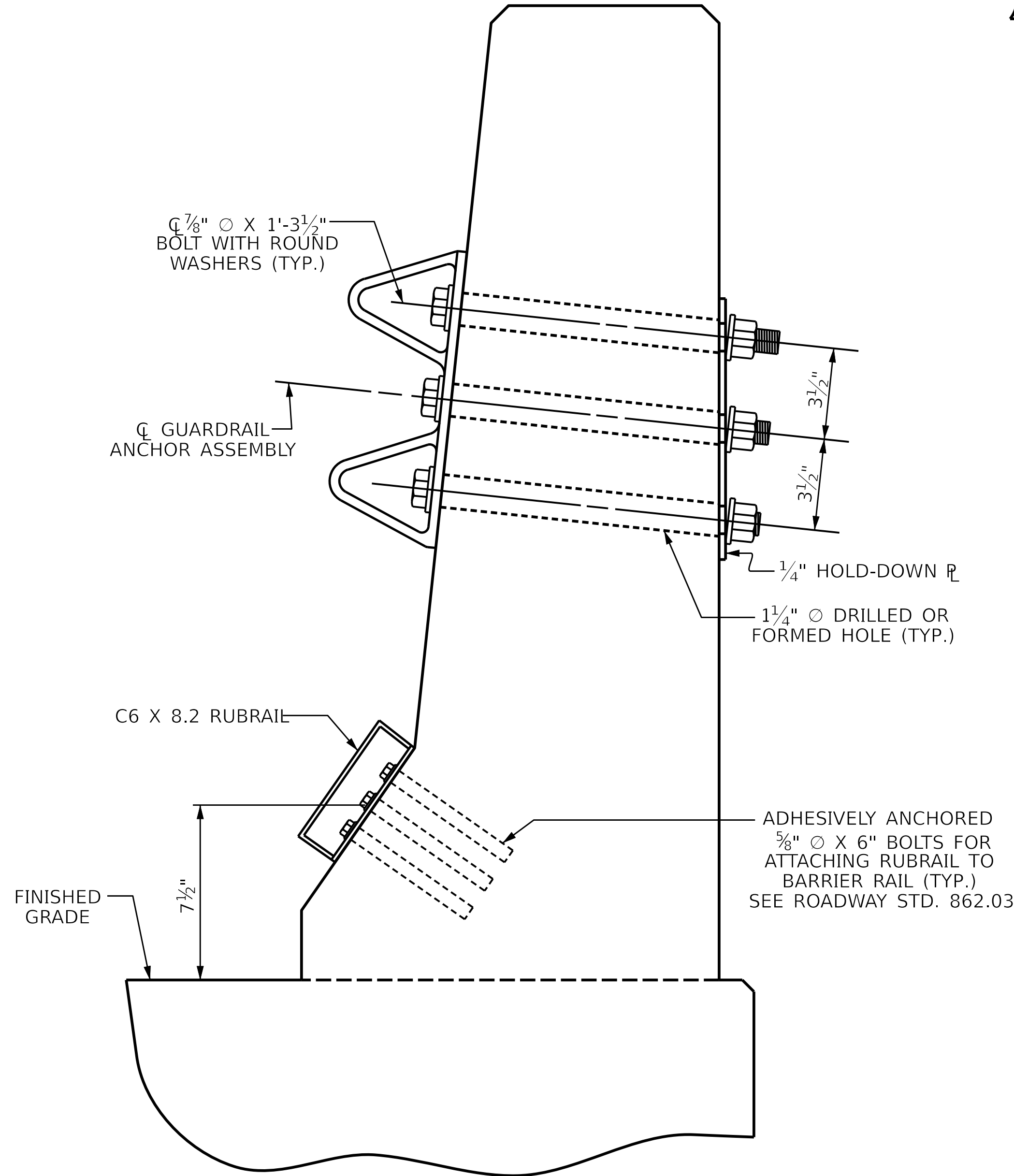
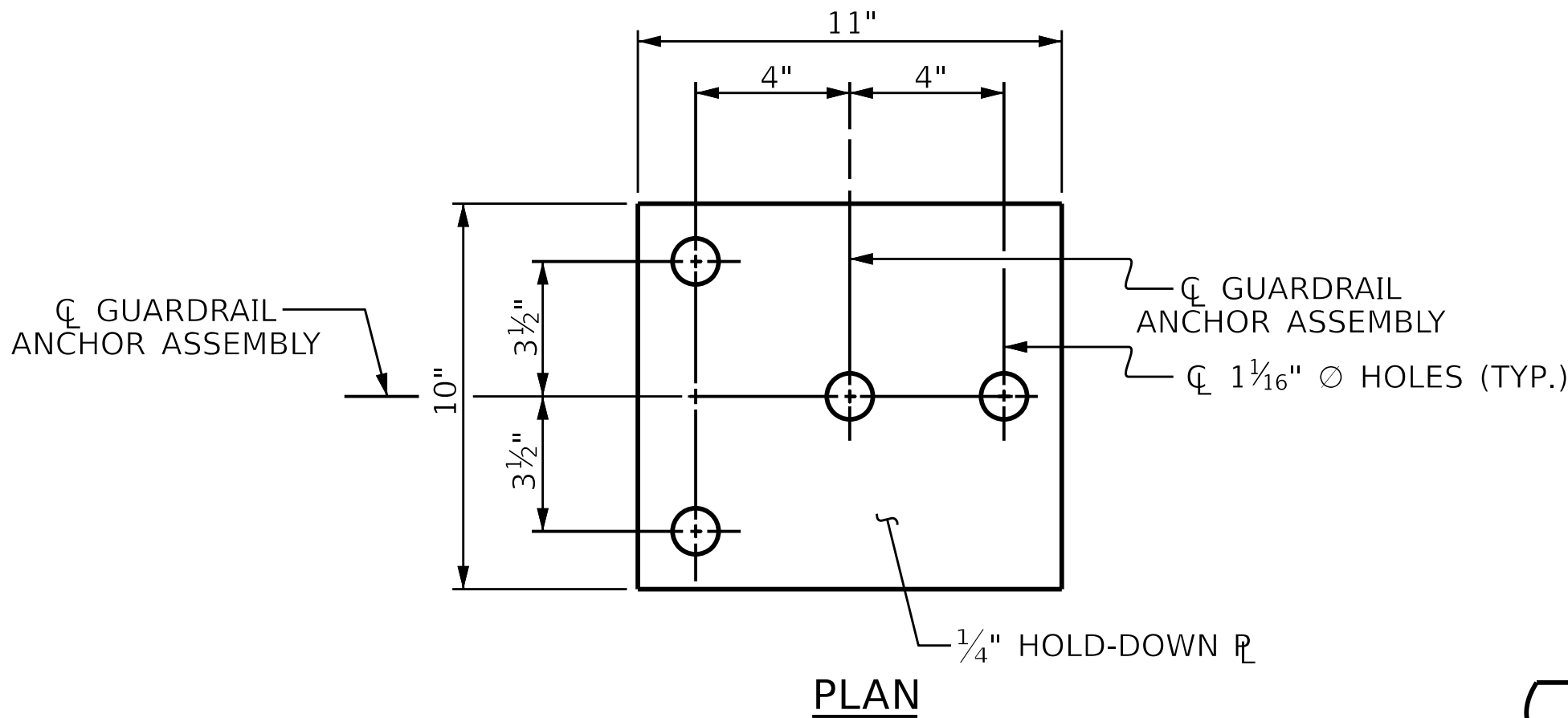
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STR #2

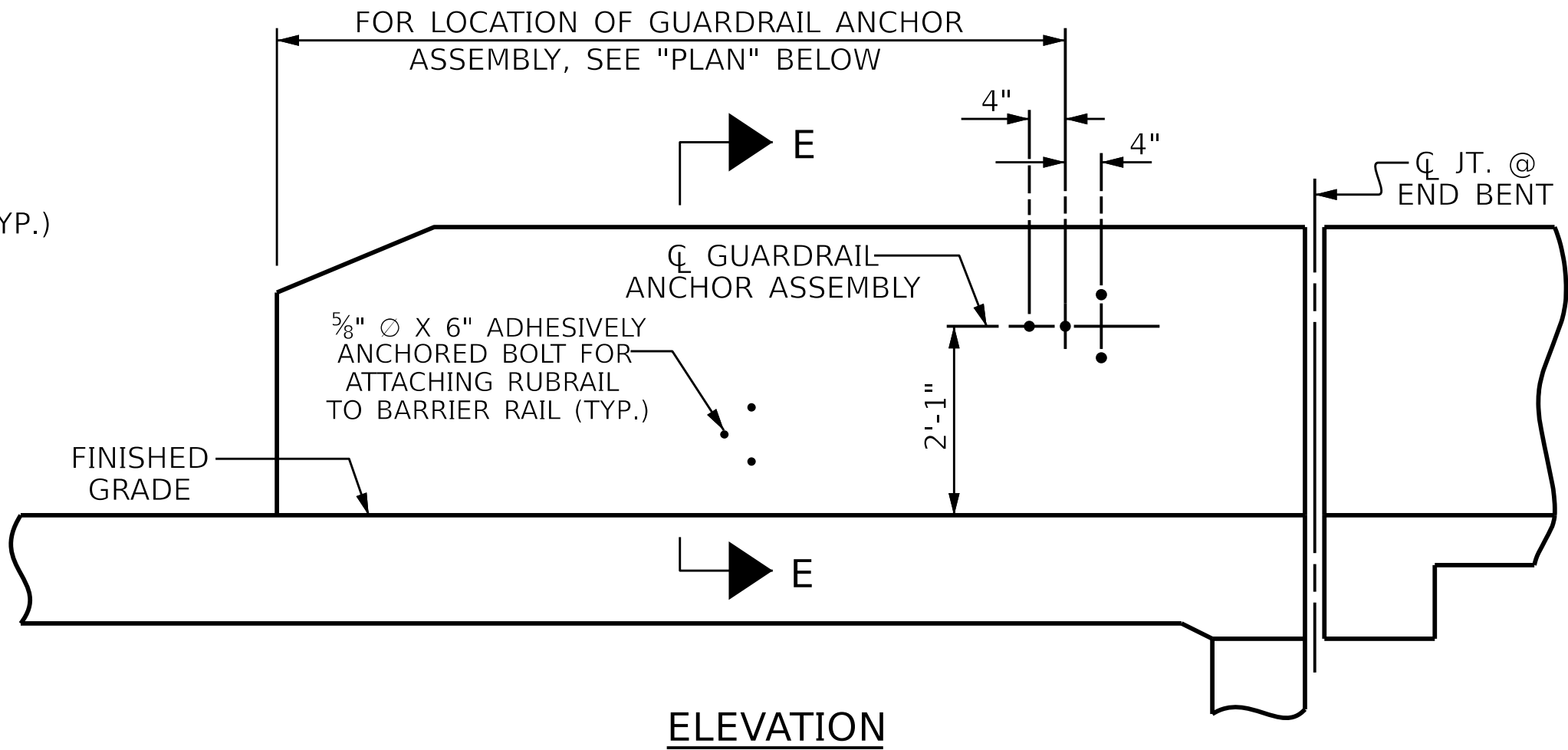
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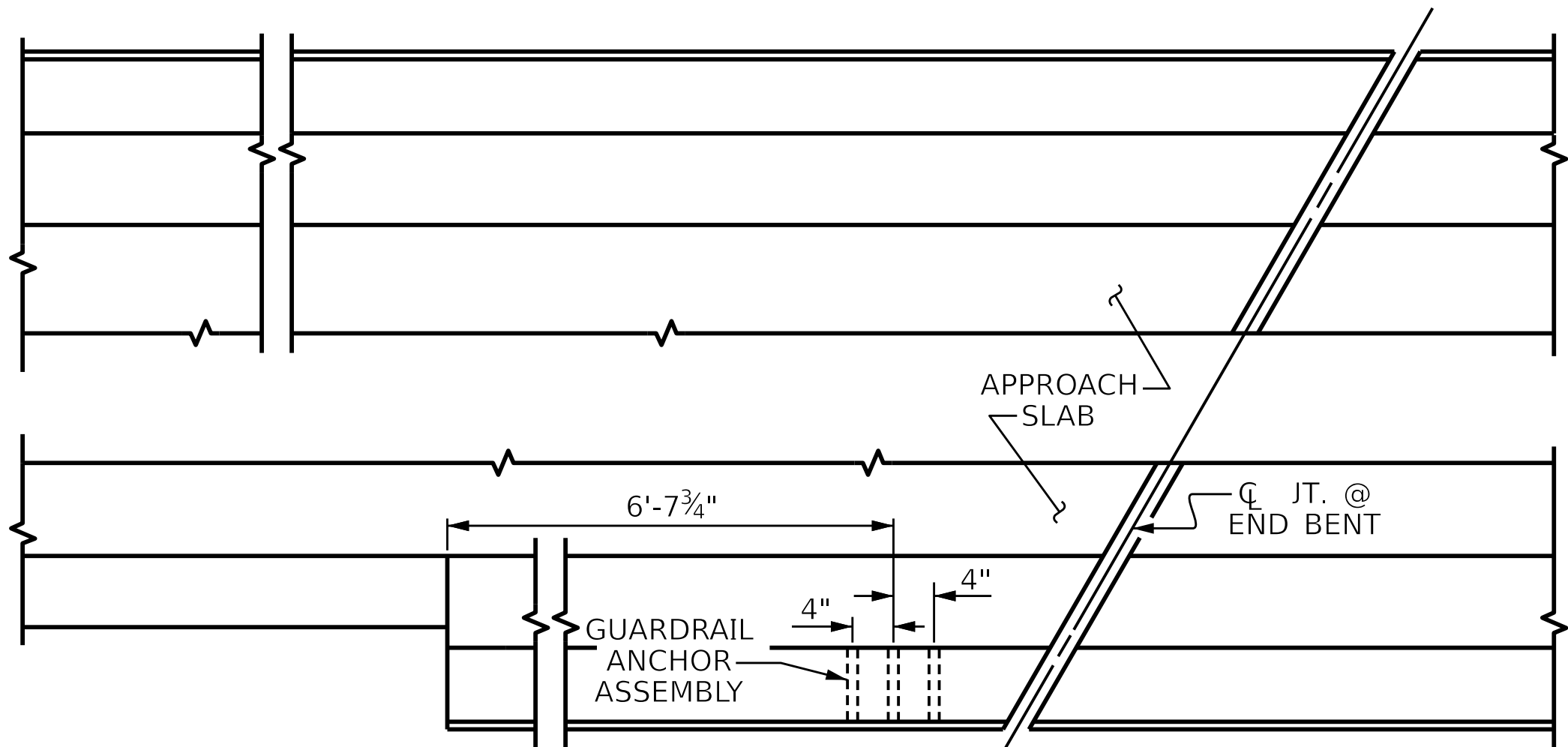
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SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



ELEVATION



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 -5/8" O 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 7/8" O 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.)

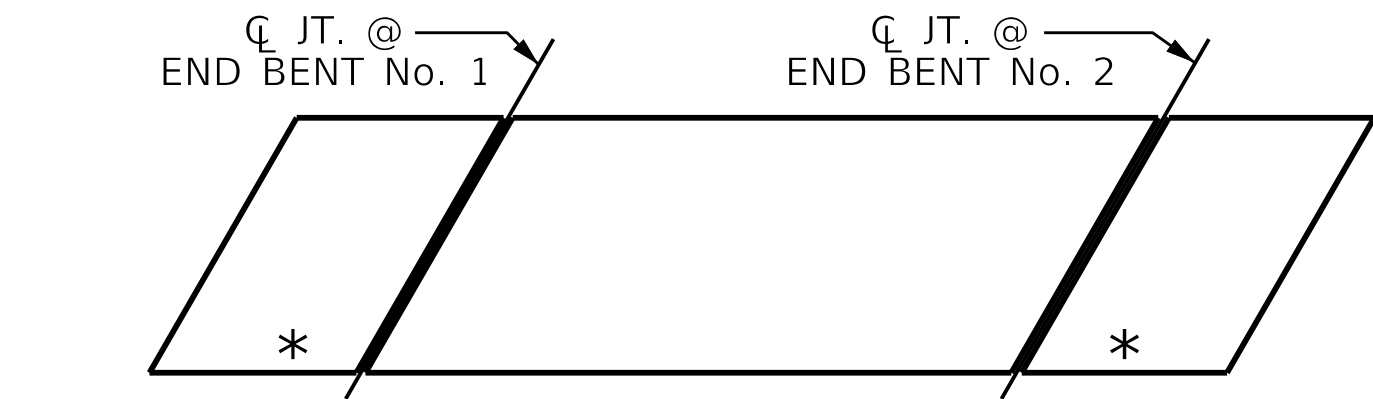
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

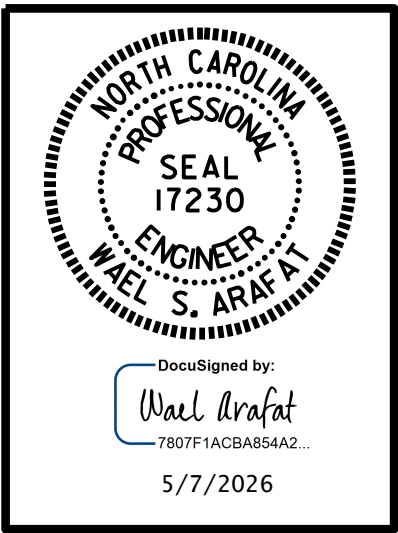
THE 1 1/4" O HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" O X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" O 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.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY



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STATE OF NORTH CAROLINA
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STANDARD
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL
(EASTBOUND)

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