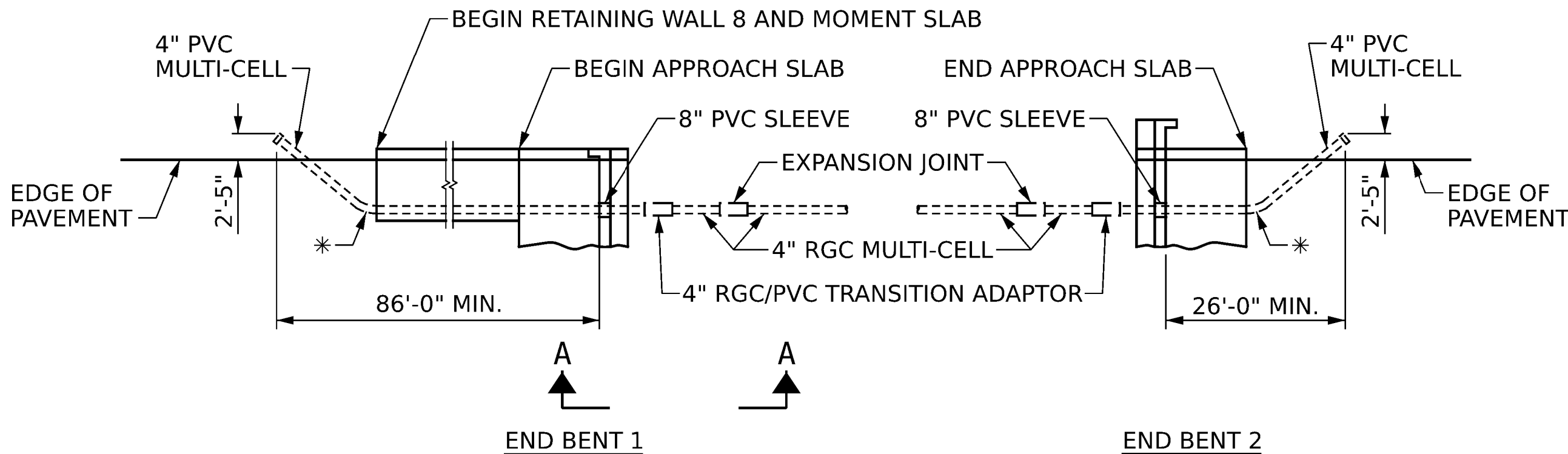
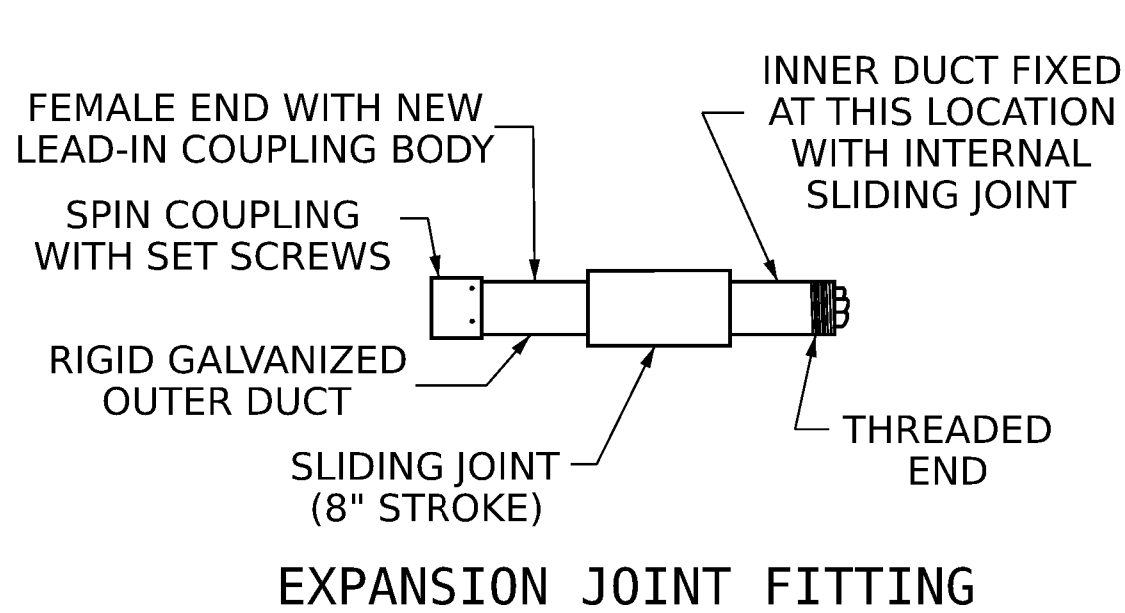
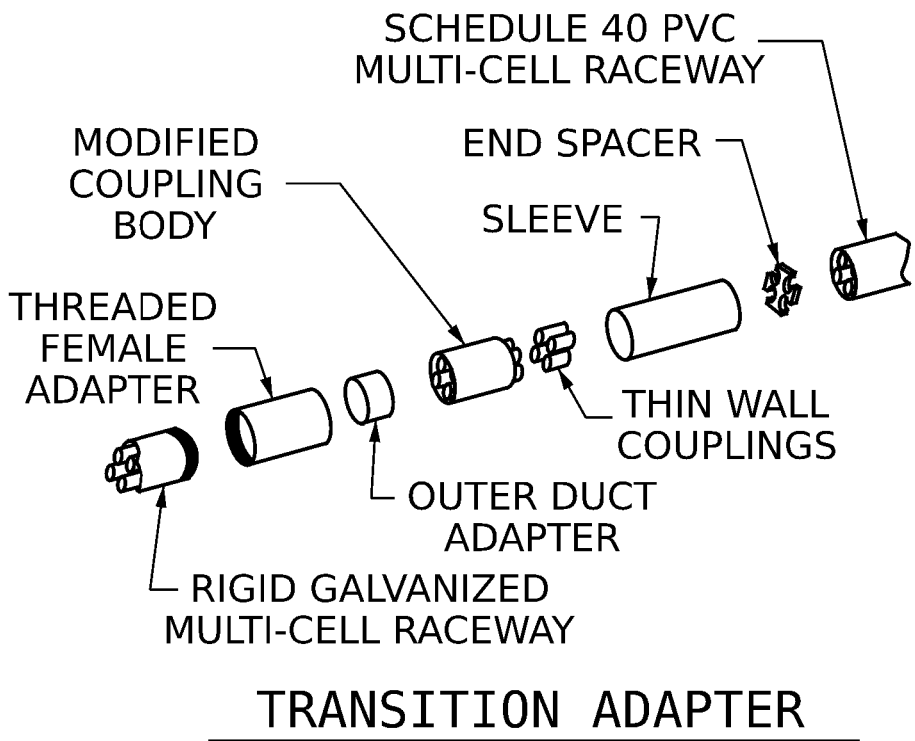
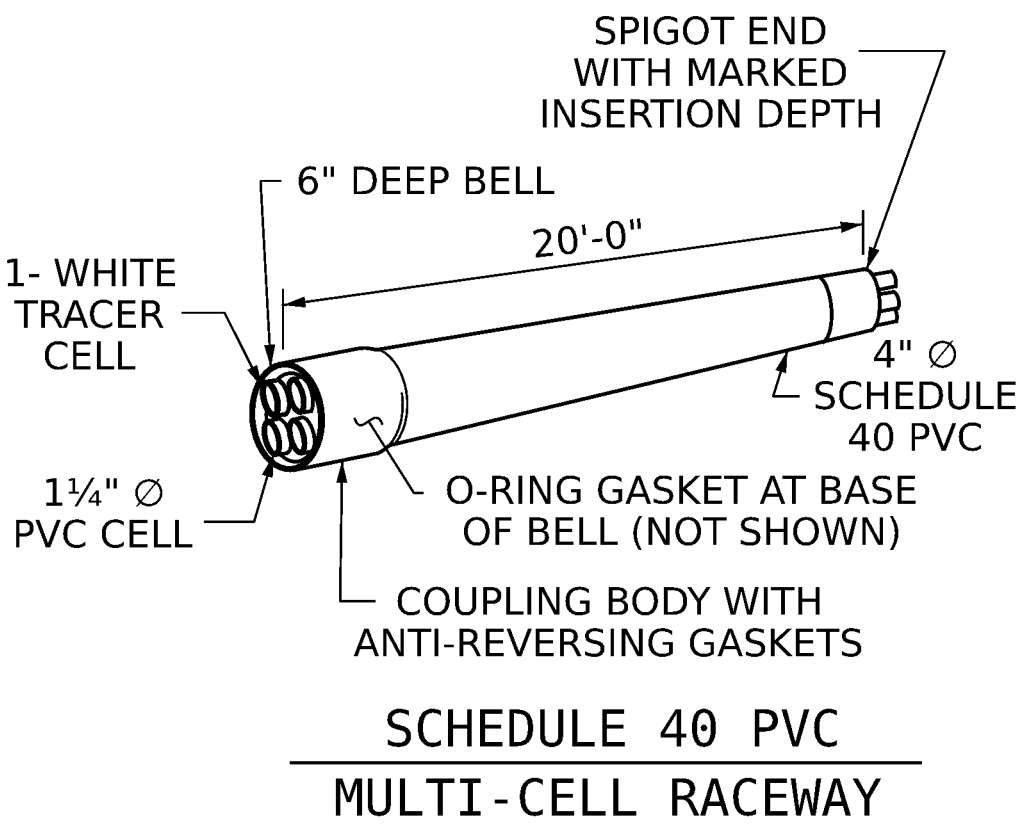
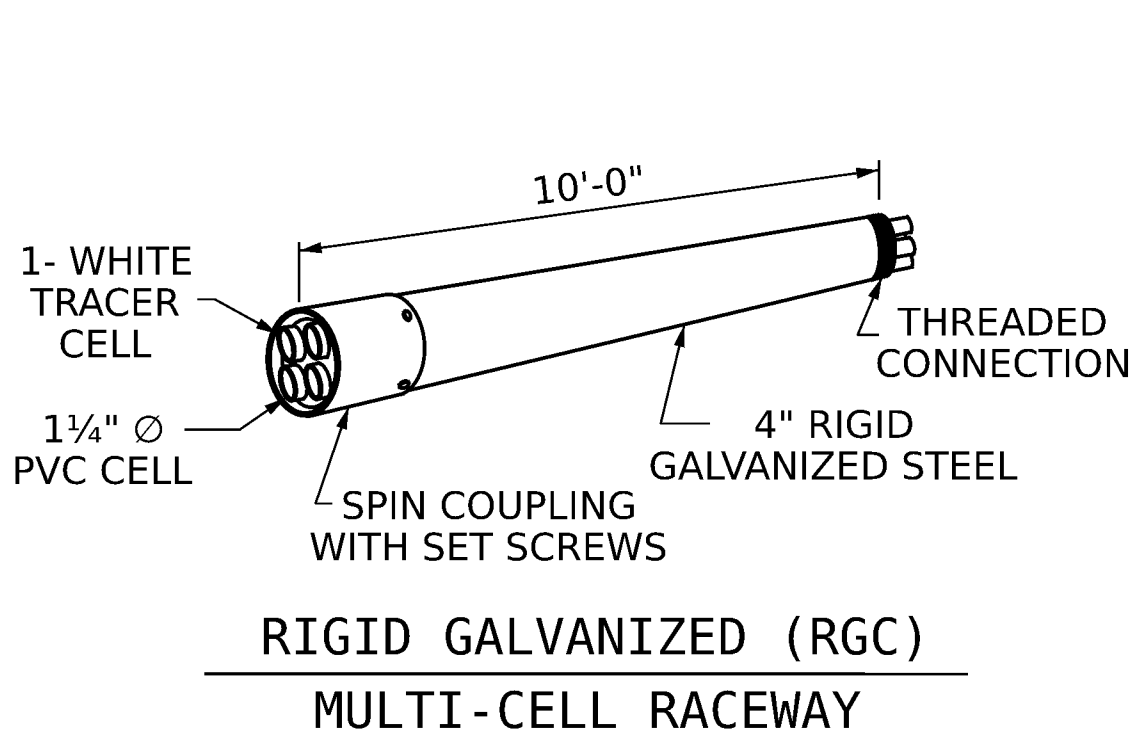


DocuSign Envelope ID: 2B6EC2A8-E0AF-817C-82A3-BBAC4191A095

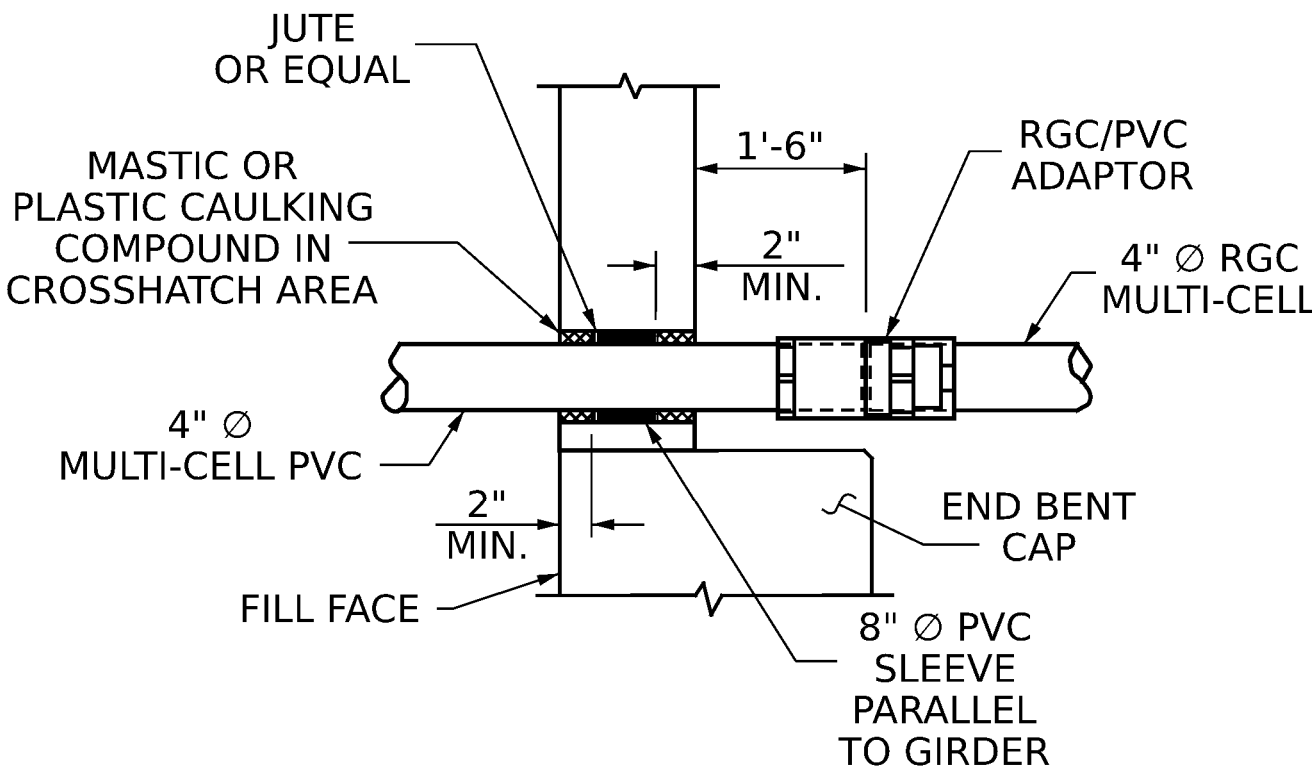
Hominy-1-12-26.tbl

8/4/2026 1:11:28 PM pdf_color_gfclt.FS.plt

pw://gfnrt-pw.bentley.com/gfnrt-pw-01/Projects/68347/5-Working/Task 002 - I-2513AC Final/Structures/CAD/2.0 FinalPlans/402_087_12513AC_SWU_EC51_S2-44_100905

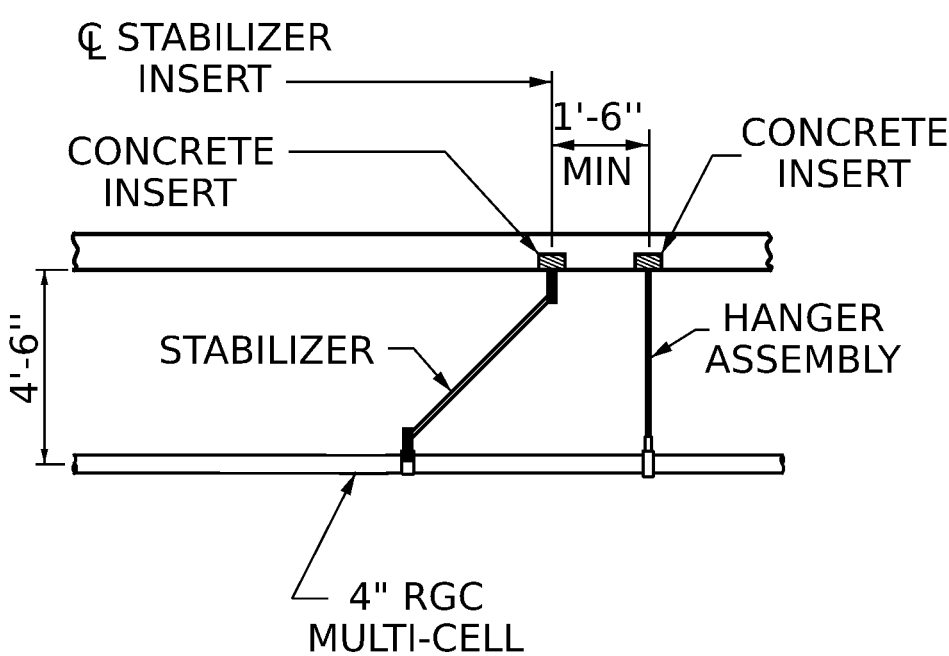


DETAIL "A"

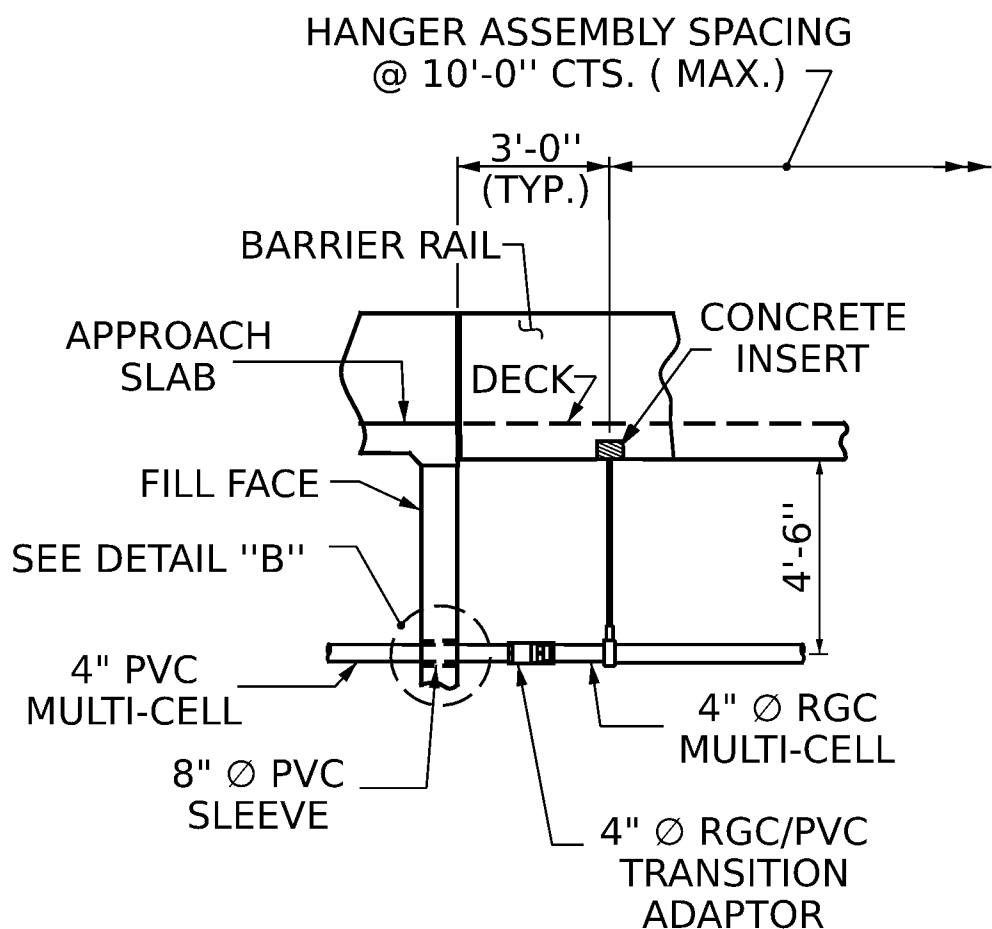


DETAIL "B"

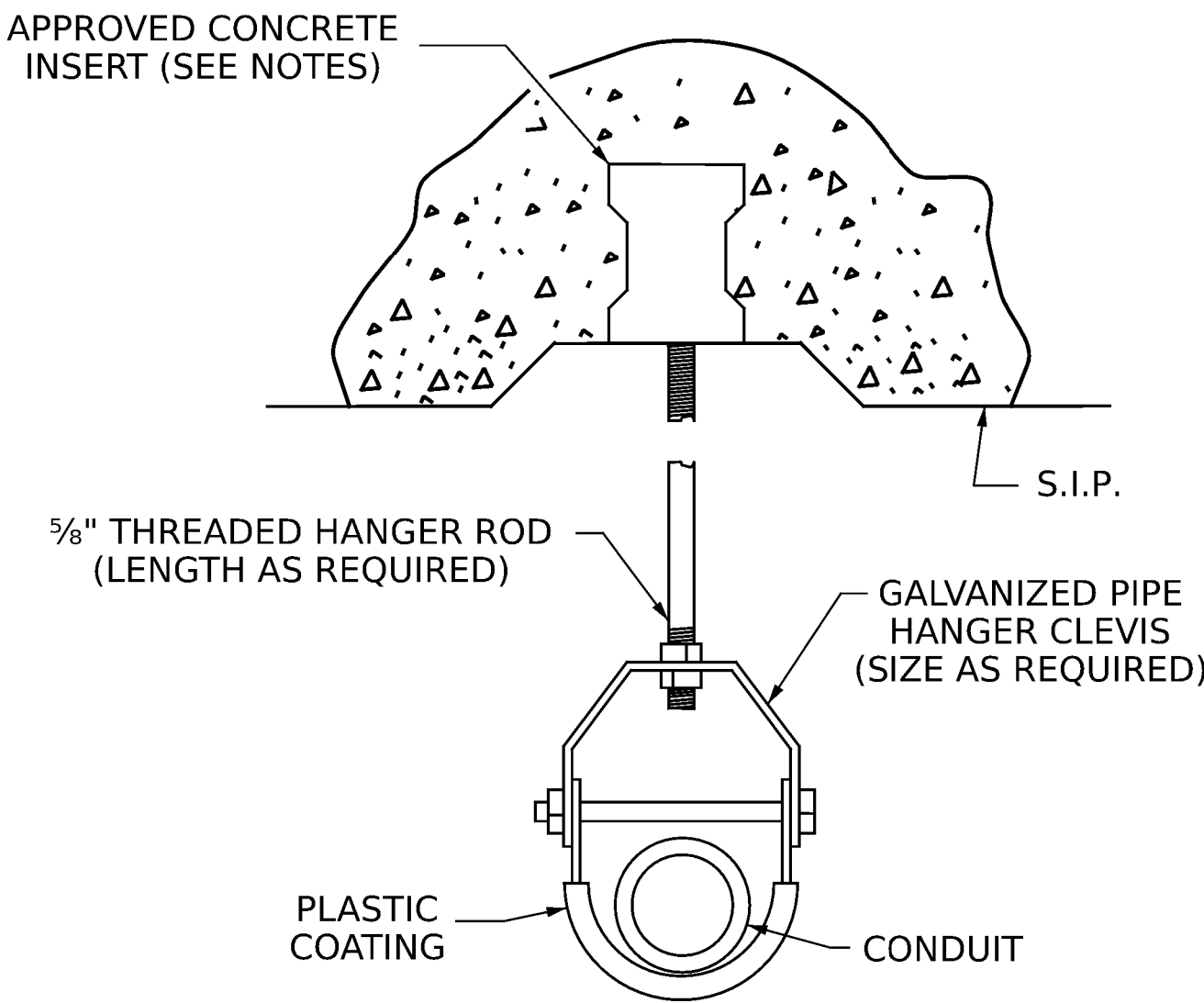
PVC SLEEVE INSTALLATION & RGC/PVC ADAPTOR AT BACKWALL.



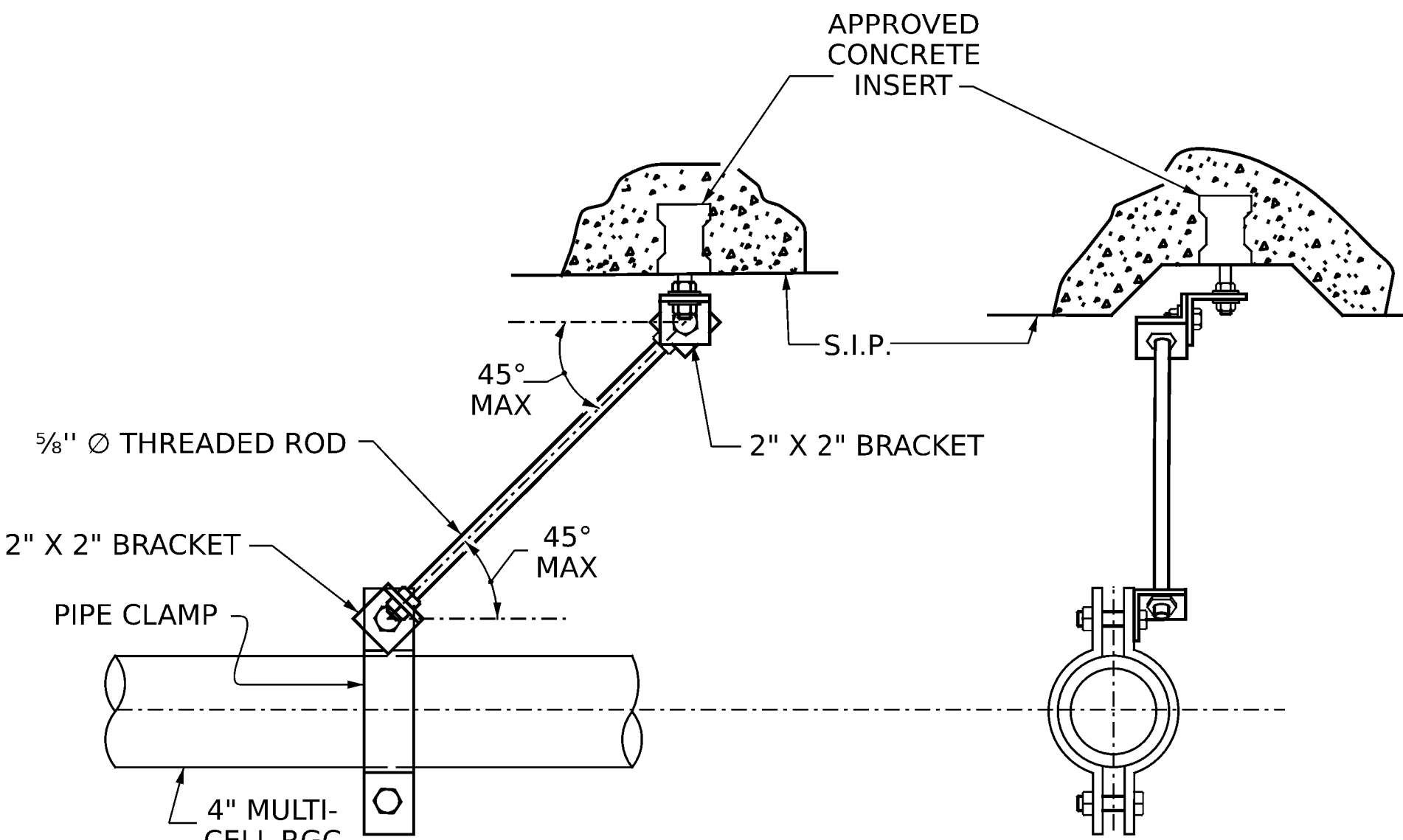
VIEW B-B



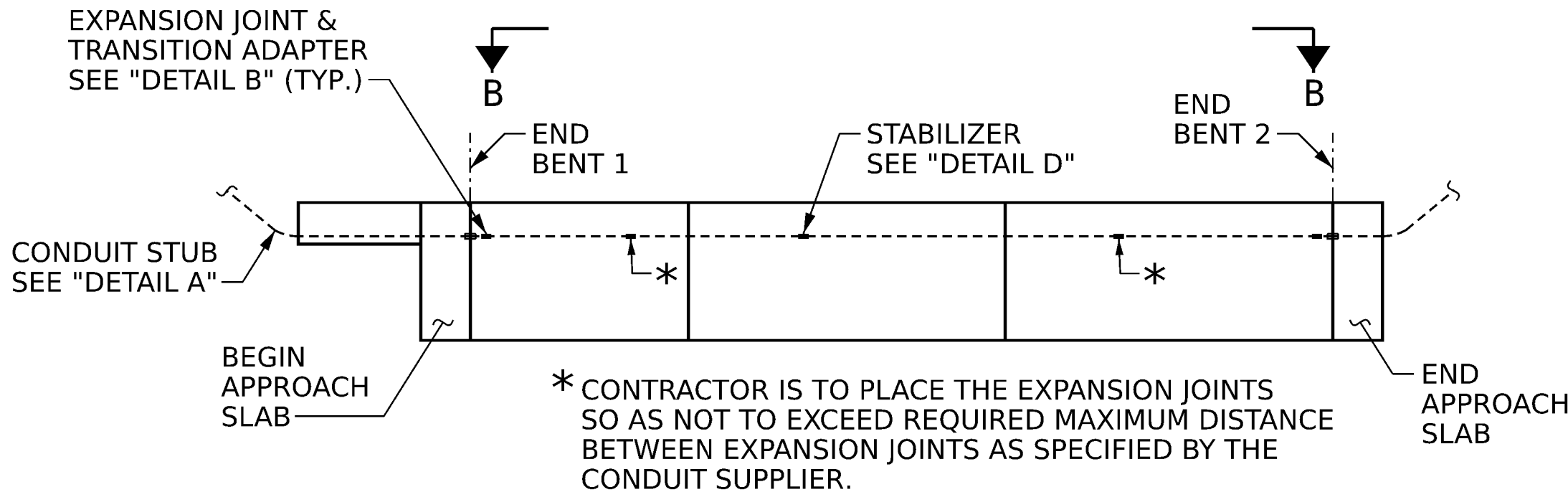
VIEW A-A



DETAIL "C"
HANGER ASSEMBLY



DETAIL "D"
STABILIZER



CONDUIT LAYOUT

NOTES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE TOTAL QUANTITY OF CONDUIT NEEDED TO COMPLETE THE WORK AND THAT THE CONDUIT(S) ARE PLACED AT THE NOTED DIMENSIONS AND ABOVE THE BOTTOM OF THE GIRDER.

THE INSTALLATION OF THE CONDUIT SYSTEM SHALL BE PAID FOR AS LUMP SUM. THE PRICE SHALL INCLUDE ALL CONDUIT HANGERS, STABILIZERS, EXPANSION JOINTS, CONCRETE INSERTS, PVC SLEEVES AND ALL NECESSARY HARDWARE TO COMPLETE THE WORK.

THE CONTRACTOR SHALL FIELD VERIFY THAT THE CONDUIT SYSTEM IS NOT IN CONFLICT WITH THE GUARDRAIL POSTS.

SEE DETAIL "C" FOR HANGER ASSEMBLY INSTALLATION.

INSTALL SLEEVES PARALLEL TO GIRDERS. SEE DETAIL "B" FOR SLEEVE INSTALLATION.

PROVIDE TRANSITION ADAPTOR (AND EXPANSION JOINT) FOR CONDUIT AT END BENT 1 AND END BENT 2.

INSTALL STABILIZER'S MIDWAY BETWEEN DECK EXPANSION JOINTS. STABILIZER CANNOT BE USED INSTEAD OF A HANGER ASSEMBLY.

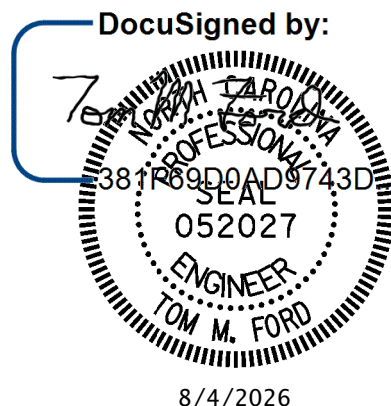
THE CONCRETE SCREW INSERT SHALL HAVE A ROD SIZE OF 5/8" AND A PULL FORCE OF 1260 lbs.

FOR ELECTRICAL CONDUIT SYSTEM FOR SIGNALS, SEE SPECIAL PROVISIONS.

SEE TYPICAL SECTIONS SHEET 1 OF 2 FOR HORIZONTAL LOCATION OF CONDUIT.

* CONTRACTOR IS TO PLACE THE EXPANSION JOINTS SO AS NOT TO EXCEED REQUIRED MAXIMUM DISTANCE BETWEEN EXPANSION JOINTS AS SPECIFIED BY THE CONDUIT SUPPLIER.

PROJECT NO. **I-2513AC**
BUNCOMBE COUNTY
STATION: **19+17.50 -Y2RPB-**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELECTRICAL CONDUIT DETAILS

DRAWN BY : J. HARRIS DATE : 4/2024
CHECKED BY : J. FARNHAM DATE : 6/2024
DESIGN ENGINEER OF RECORD: T. FORD DATE : 6/2024

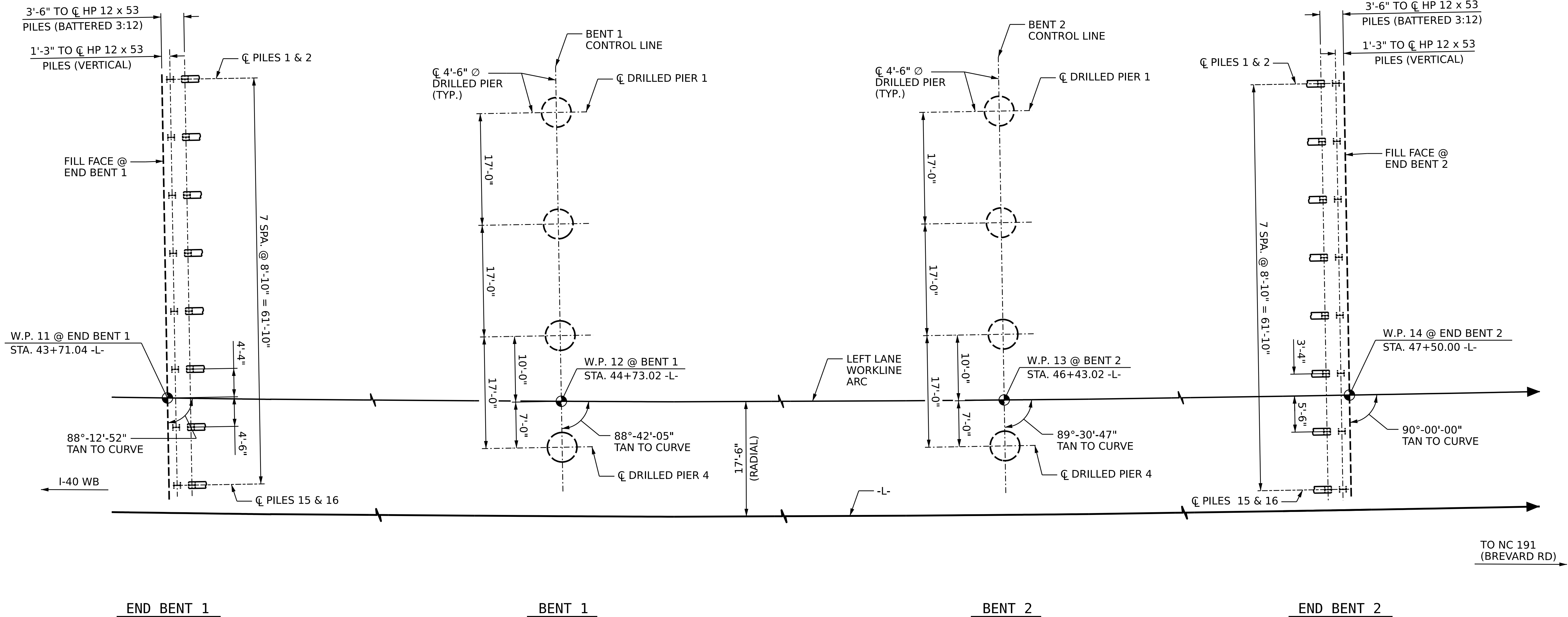
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S2-44
2			4		TOTAL SHEETS 44

STR. #2

GFT

GFT Infrastructure, Inc.
One Glenwood Avenue, Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE TO CENTERLINE OF PILES AND DRILLED PIERS)

FOUNDATION NOTES:

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- INSTALL PERMANENT STEEL CASINGS AT BENT NO. 1 BY VIBRATING, SCREWING, OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 1985.9 FT AT PIER 1 AND PIER 2, 1997.5 FT AT PIER 3, AND 1985.4 FT AT PIER 4.
- INSTALL PERMANENT STEEL CASINGS AT BENT NO. 2 BY VIBRATING, SCREWING, OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 1986.9 FT AT PIER 1, 1984.7 FT AT PIER 2, AND 1981.4 FT AT PIER 4.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 2 OF 6

AECOM AECOM TECHNICAL SERVICES OF NC, INC. 5438 WADE PARK BOULEVARD, SUITE 200 RALEIGH, NC 27607 (919) 854-6200 AECOM License No. F62362		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
 7/16/2026		GENERAL DRAWING FOR BRIDGE ON I-26/I-240 OVER HOMINY CREEK & HOMINY CREEK RD BETWEEN I-40 WB & NC 191 (BREVARD RD)			
(LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
			SHEET NO. S3-02		
			TOTAL SHEETS 57		

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : D. DRUM DATE : 03/2026
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

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 1-2, 13-16	6	160	2027.58	35			270							
End Bent 1, Piles 3-12	10	160	2027.58	40			270							
End Bent 2, Piles 1-4	4	160	2036.13	20			270							
End Bent 2, Piles 5-10	6	160	2036.13	25			270							
End Bent 2, Piles 11-16	6	160	2036.13	30			270							
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 1-16	159			0.6		
End Bent 2, Piles 1-16	158			0.6		

* 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)			Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH	End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT
End Bent 1	45	1		
End Bent 2	35			
TOTAL QUANTITY:		1		

* 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.

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Number of Piers per Line	Factored Resistance per Pier KIPS	Required Drilled Pier Tip Elevation FT	Required Tip Resistance per Pier KSF	Scour Critical Elevation FT	Minimum Drilled Pier Penetration Into Rock per Pier LIN FT	Drilled Pier Length* per Pier LIN FT	Drilled Pier Length Not In Soil* per Pier LIN FT	Drilled Pier Length In Soil* per Pier LIN FT	Permanent Steel Casing Required? YES	Permanent Steel Casing Tip Elevation (Elevation Not To Extend Casing Below) FT	Permanent Steel Casing Length** per Pier LIN FT
Bent 1, Pier 1	1	1510	1963.2	50	1995.8	22.7		22.7	11.8	MAYBE	1985.9	11.8
Bent 1, Pier 2	1	1440	1965.2	50	1995.8	20.7		20.7	11.8	MAYBE	1985.9	11.8
Bent 1, Pier 3	1	1620	1975.2	50	1995.8	22.3		22.3	4.2	MAYBE	1997.5	4.2
Bent 1, Pier 4	1	1490	1964.2	50	1995.8	21.2		21.2	20.3	MAYBE	1985.4	20.3
Bent 2, Pier 1	1	1545	1963.3	50	1993.1	23.6		23.6	13.9	MAYBE	1986.9	13.9
Bent 2, Pier 2	1	1545	1963.3	50	1993.1	21.4		21.4	16.1	MAYBE	1984.7	16.1
Bent 2, Piers 3-4	2	1545	1960.3	50	1993.1	21.1		21.1	19.4	MAYBE	1981.4	19.4
TOTAL QUANTITY:								174.1	116.9			116.9

* Drilled Pier Length, Drilled Pier Length Not in Soil and Drilled Pier Length in Soil represent estimated drilled pier quantities and are measured and paid for as either "___ Dia. Drilled Piers" or "___ Dia. Drilled Piers Not in Soil" and "___ Dia. Drilled Piers in Soil" in accordance with Article 411-7 of the NCDOT Standard Specifications. For bents with a not in soil pay item, drilled piers through air or water will be paid at the contract unit price for "___ Dia. Drilled Piers in Soil."

** Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation and is measured and paid for as "Permanent Steel Casing for ___ Dia. Drilled Pier" in accordance with Article 411-7 of the NCDOT Standard Specifications.

SUMMARY OF DRILLED PIER TESTING

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Standard Penetration Test (SPT) EACH	Crosshole Sonic Logging (CSL) EACH	Thermal Integrity Profiler (TIP) EACH	Shaft Inspection Device (SID) EACH	Pile Integrity Test (PIT) EACH
Bent 1, Piers 1-4		1			
Bent 2, Piers 1-4		1			
TOTAL QUANTITY:		2			

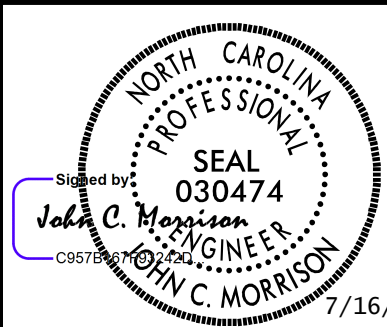
PROJECT NO. I-2513AC

BUNCOMBE COUNTY

STATION: 45+58.00 -L-

NOTES:

- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Stephen C. Crockett, #048207) on 06-04-2025.
- 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, Pipe Pile Plates, Permanent Steel Casing, SPTs, TIPs, CSL Testing, SID Inspections and PITs when necessary.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE AND DRILLED PIER
FOUNDATION
TABLES

SIGNATURE DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS

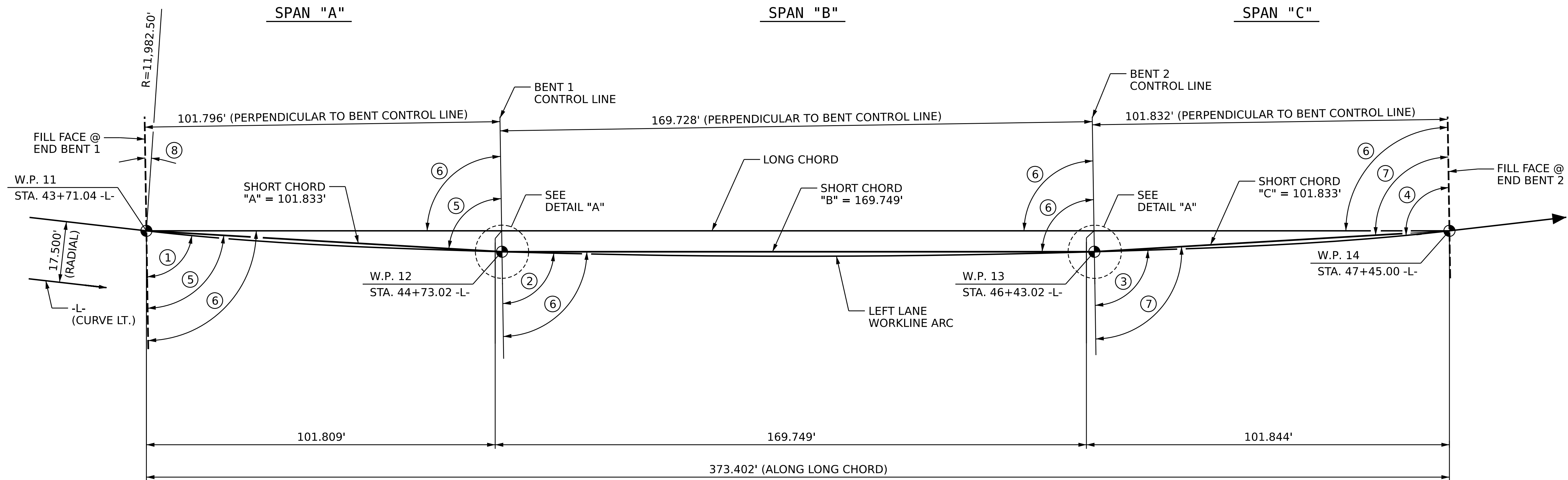
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S3-03

TOTAL
SHEETS
57

HORIZONTAL CURVE DATA

P.I. STA. = 52+29.12 -L-
 Δ = 11°08'02.2" (LT)
D = 0°28'38.9"
L = 2,331.89'
T = 1,169.63'
R = 12,000.00'

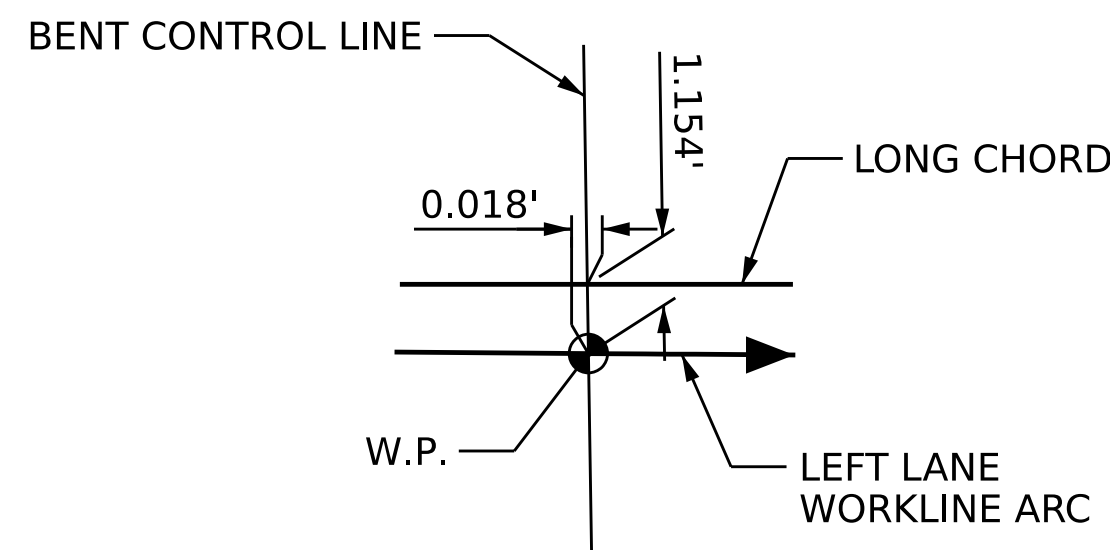


LONG CHORD LAYOUT

END BENTS AND BENTS ARE PARALLEL

ANGLES

- 88°-12'-52" (TAN. TO CURVE)
- 88°-42'-05" (TAN. TO CURVE)
- 89°-30'-47" (TAN. TO CURVE)
- 90°-00'-00" (TAN. TO CURVE)
- 88°-27'-29"
- 89°-06'-26"
- 89°-45'-24"
- 01°-47'-08"



DETAIL "A"

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 4 OF 6

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-26/I-240 OVER
HOMINY CREEK & HOMINY CREEK RD
BETWEEN I-40 WB & NC 191 (BREVARD RD)

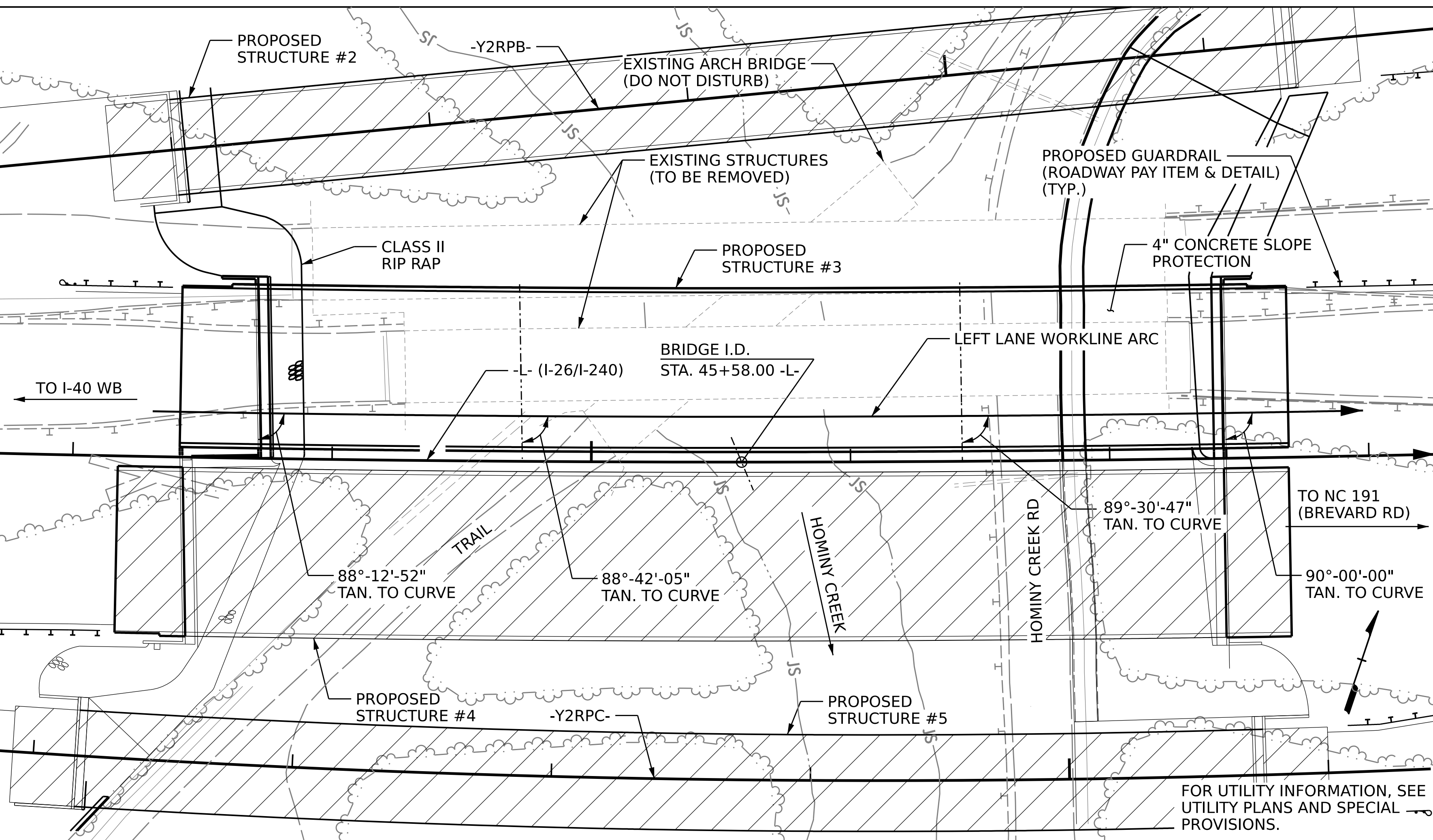
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			57
2			4			

DRAWN BY : D. DRUM DATE : 08/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

BENCHMARK: BM8; CHISELED SQUARE IN CONC ON SE CORNER OF EXIT 1B (BREVARD RD) SIGN AT RAMP EXIT; STA. 51+74.56 -L-, OFFSET 28.53' RT; N 679,284, E 930,968 EL. 2058.72'



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

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.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR LIGHTING DETAILS, CONDUIT DETAILS AND PAY ITEMS, SEE LIGHTING PLANS.

FOR FOUNDATION NOTES, SEE "FOUNDATION LAYOUT" AND "PILE AND DRILLED PIER FOUNDATION TABLES" SHEET.

THE ELEVATION(S) AND CLEARANCE(S) SHOWN ON THE PLANS AT THE POINT(S) OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATION(S) ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

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

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

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W (345W) AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR 6 OF ARTICLE 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 45+58.00 -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 70 FT LEFT OF -L- AT END BENT 1 ONLY, 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.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING LEFT LANE STRUCTURE CONSISTING OF A 3 SPAN (60'-141'-95') CONCRETE DECK ON STEEL PLATE GIRDERS WITH 28.2' CLEAR ROADWAY WIDTH, SUPPORTED BY PILE BENTS, CONCRETE END BENTS, AND CONCRETE POST AND BEAM BENTS ON ISOLATED SPREAD FOOTINGS AND THE EXISTING RIGHT LANE STRUCTURE CONSISTING OF A 3 SPAN (60'-141'-95') CONCRETE DECK ON STEEL PLATE GIRDERS WITH 28.2' CLEAR ROADWAY WIDTH, SUPPORTED BY PILE BENTS, CONCRETE END BENTS AND CONCRETE POST, AND BEAM BENTS ON ISOLATED SPREAD FOOTINGS SHALL BE REMOVED. THE EXISTING BRIDGES ARE PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGES DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGES, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGES INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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.

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

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 1995.8, AND FOR BENT NO. 2 IS ELEVATION 1993.1. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

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.

FOR TOTAL BILL OF MATERIAL, SEE SHEET 6 OF 6.

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 5 OF 6

DRAWN BY :	D. DRUM	DATE :	03/2024
CHECKED BY :	G. COLS	DATE :	03/2024
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

7/22/2026
c:\pwworking\oecom.ds21.na.2020\d0131345\403.009.12513AC.SMU.L.S.S3-05.100208.dgn
caterm

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON I-26/I-240 OVER HOMINY CREEK & HOMINY CREEK RD BETWEEN I-40 WB & NC 191 (BREVARD RD)					
(LEFT LANE)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					57
					S3-05

TOTAL BILL OF MATERIAL													
	REMOVAL OF EXISTING STRUCTURES AT STA. 45+58.00 -L-	ASBESTOS ASSESSMENT	4'-6" Ø DRILLED PIERS IN SOIL	4'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIER	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 45+58.00 -L-	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.
SUPERSTRUCTURE								23,474	23,945		LUMP SUM		
END BENT 1										75.0		9,602	
BENT 1			48.1	86.9	48.1	1				117.2		25,371	6,139
BENT 2			68.8	87.2	68.8	1				124.4		27,600	8,107
END BENT 2										79.2		9,430	
TOTAL	LUMP SUM	LUMP SUM	116.9	174.1	116.9	2	LUMP SUM	23,474	23,945	395.8	LUMP SUM	72,003	14,246

TOTAL BILL OF MATERIAL													
	805,166 LBS. STRUCTURAL STEEL (APPROX.)	PILE DRIVING EQUIPMENT SETUP FOR HP 12X53 STEEL PILES	HP 12X53 STEEL PILES		DYNAMIC PILE TESTING	CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE	4" SLOPE PROTECTION	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	DISC BEARINGS	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS
	LUMP SUM	EACH	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	SQ. YDS.	TON	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM					820.6	368.0				LUMP SUM	LUMP SUM	LUMP SUM
END BENT 1		16	16	610					287	319			
BENT 1													
BENT 2													
END BENT 2		16	16	410				1,128					
TOTAL	LUMP SUM	32	32	1,020	1	820.6	368.0	1,128	287	319	LUMP SUM	LUMP SUM	LUMP SUM

SHEET 6 OF 6

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ DC	γ DW
	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. ANALYSIS METHOD: FINITE ELEMENT MODEL ON GRILLAGE.
2.
3.
4.

CONTROLLING LOAD RATING

1

DESIGN LOAD RATING (HL-93)

2

DESIGN LOAD RATING (HS-20)

3

LEGAL LOAD RATING **

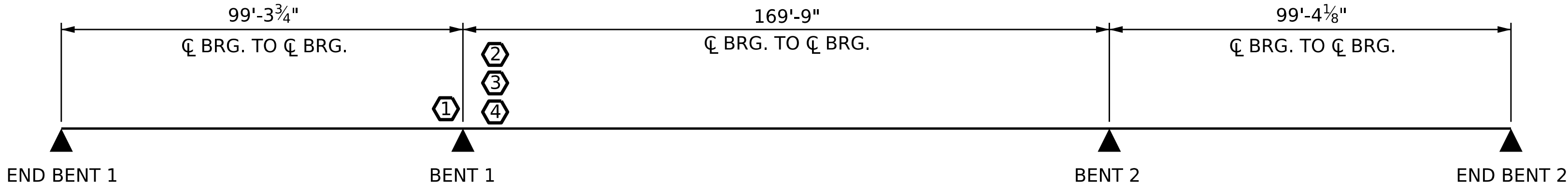
4

EMERGENCY VEHICLE LOAD RATING

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

GIRDER LOCATION IS PROVIDED USING GIRDER NUMBER, WHERE GIRDER 1 IS THE LEFT EXTERIOR GIRDER LOOKING UPSTATION.



LRFR SUMMARY

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

ASSEMBLED BY : S. NATARAJAN	DATE : 03/2024
CHECKED BY : D. TUTTLE	DATE : 04/2024
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 BNB/AAI

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

Seal of
John C. Morrison

030474

Professional Engineer

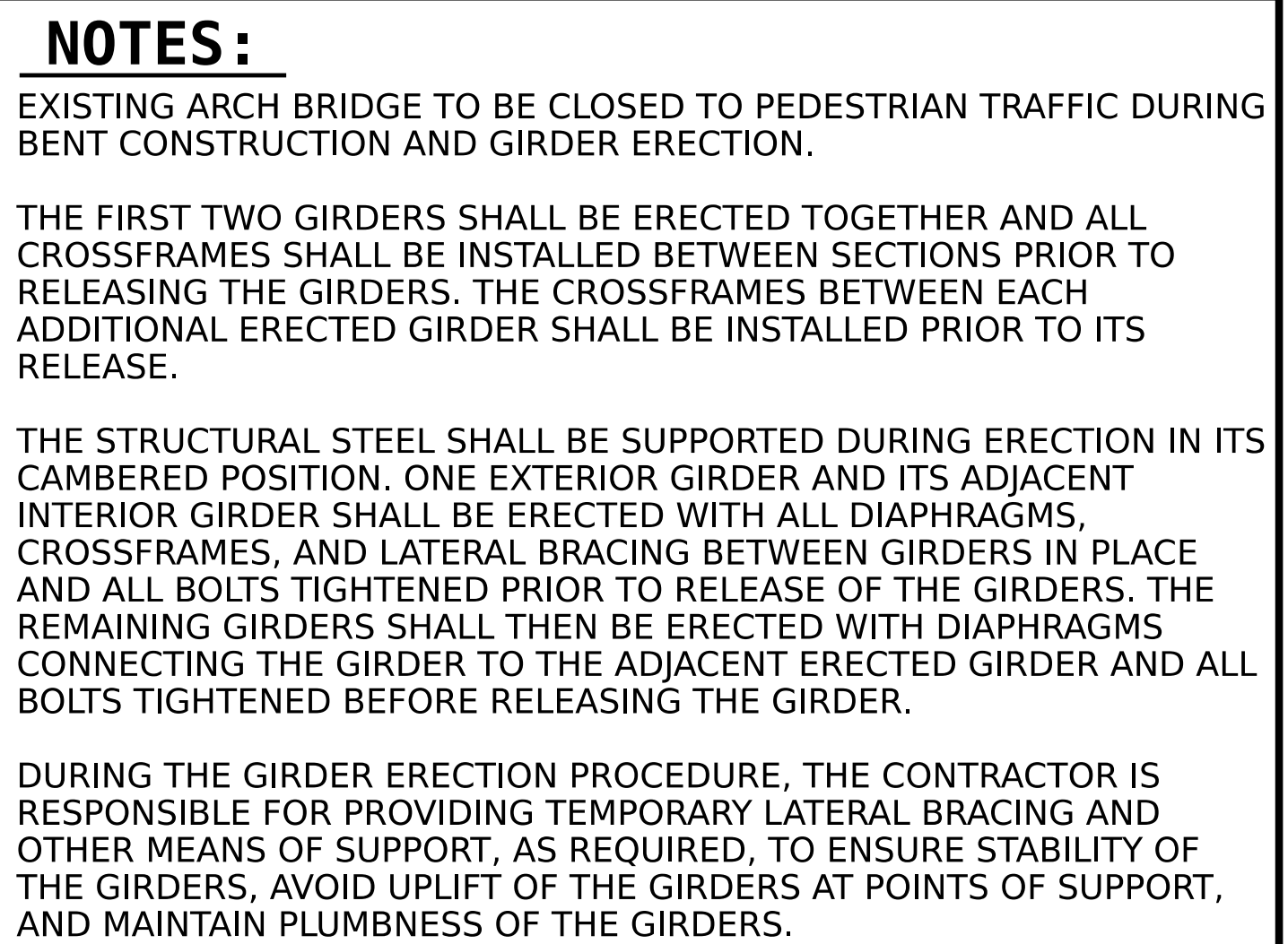
7/16/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

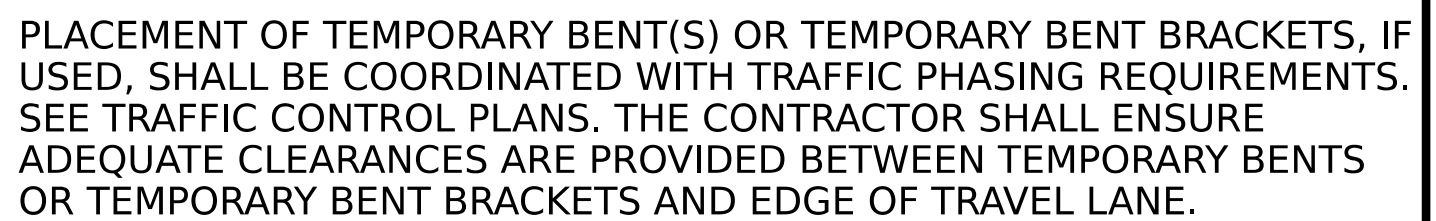
STANDARD
LRFR SUMMARY FOR
STEEL GIRDERS
(INTERSTATE TRAFFIC)
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-07
2			4			TOTAL SHEETS 57

26	REVISIONS						SHEET NO.
	NO.	BY:	DATE:	NO.	BY:	DATE:	S3-08
	1			3			TOTAL SHEETS
	2			4			57



THE CONTRACTOR MAY SUBMIT ALTERNATE ERECTION METHODS. PLANS FOR SUCH ERECTION METHODS SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR'S ERECTION PLANS SHALL INCLUDE A METHOD OF TEMPORARY SUPPORT REMOVAL THAT WILL UNIFORMLY TRANSFER THE STRUCTURAL WEIGHT TO THE DIAPHRAGMS/CROSSFRAMES AND THE GIRDERS WILL REMAIN IN THE CAMBERED POSITIONS. PLANS FOR TEMPORARY BENT ERECTION AND REMOVAL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.



TEMPORARY BENT(S), IF USED, SHALL SUPPORT ALL GIRDERS IN THE TYPICAL SECTION AND REMAIN IN PLACE UNTIL ALL CROSSFRAMES AND LATERAL BRACING ARE IN PLACE AND HIGH STRENGTH BOLTS ARE TIGHTENED.



THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING THE TEMPORARY BENTS. THE DESIGN SHALL BE COMPLETED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA. THE CONTRACTOR SHALL SUBMIT SIGNED AND SEALED WORKING DRAWINGS AND CALCULATIONS FOR APPROVAL BY THE ENGINEER.

THE CONTRACTOR IS ADVISED THAT THE EXISTING GROUND UNDER THE PROPOSED BRIDGE MAY HAVE STEEP SLOPES AND/OR HEAVY VEGETATION.

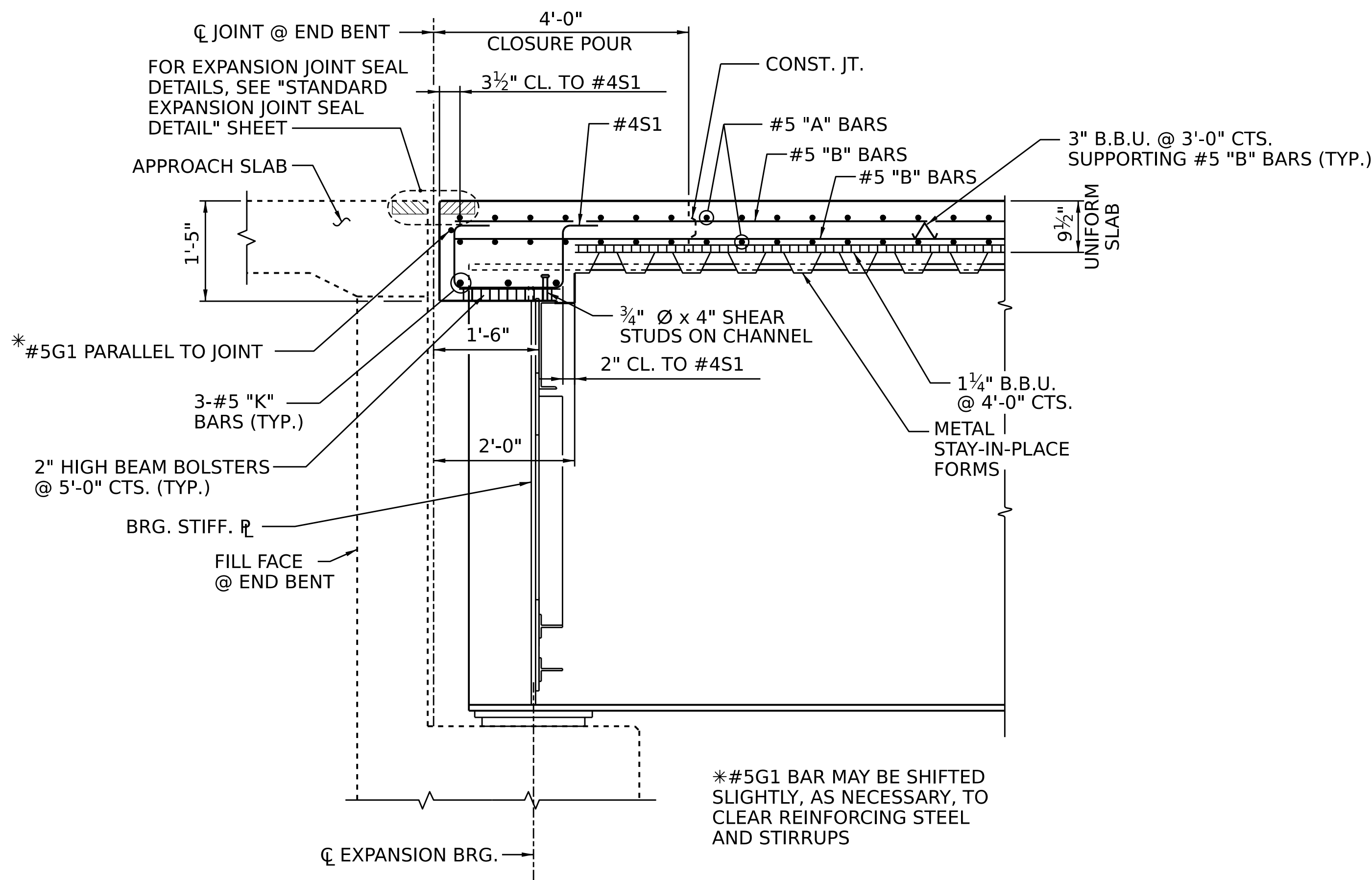
NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR PROVIDING TEMPORARY BENT(S). THE COST FOR ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, AND ANY INCIDENTALS NECESSARY TO PROVIDE THE TEMPORARY BENT(S) SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM BID PRICE FOR STRUCTURAL STEEL.

FOR TEMPORARY BENTS, SEE SPECIAL PROVISIONS.

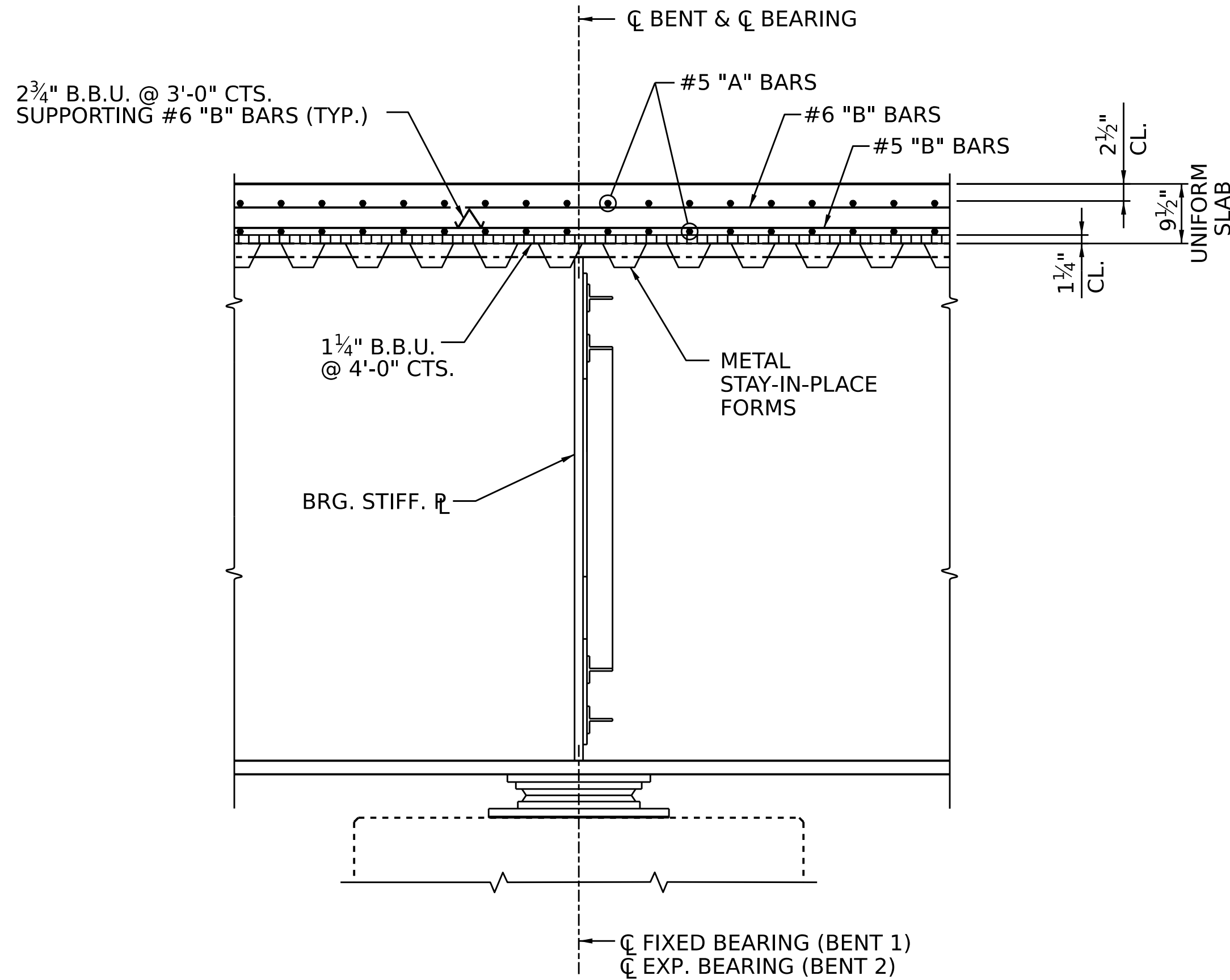
PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
 STATION: 45+58.00 -L-

DRAWN BY :	D. DRUM	DATE :	12/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

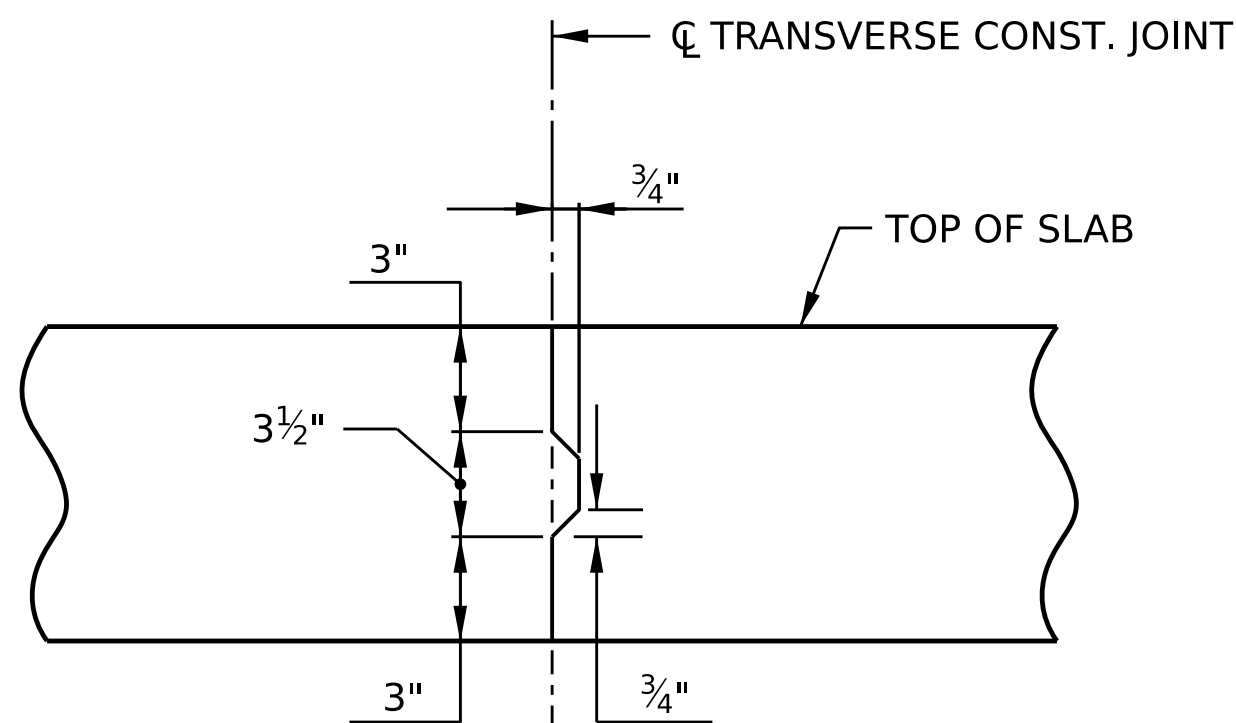
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



SECTION AT END BENT



SECTION AT BENT



TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN FOR CLARITY.
LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 2 OF 2

DRAWN BY :	D. DRUM	DATE :	12/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F62342

PROFESSIONAL SEAL
030474
John C. Morrison
ENGINEER
7/16/2026

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTION & DETAILS (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S3-11
TOTAL SHEETS					57

NOTES:

FOR CONCRETE BARRIER RAIL DETAILS, SEE "CONCRETE BARRIER RAIL" SHEET.

FOR "A" BAR LAYOUT, SEE SHEET 4 OF 4.

FOR TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB DETAIL, SEE SUPERSTRUCTURE "TYPICAL SECTION AND DETAILS" SHEET 2 OF 2.

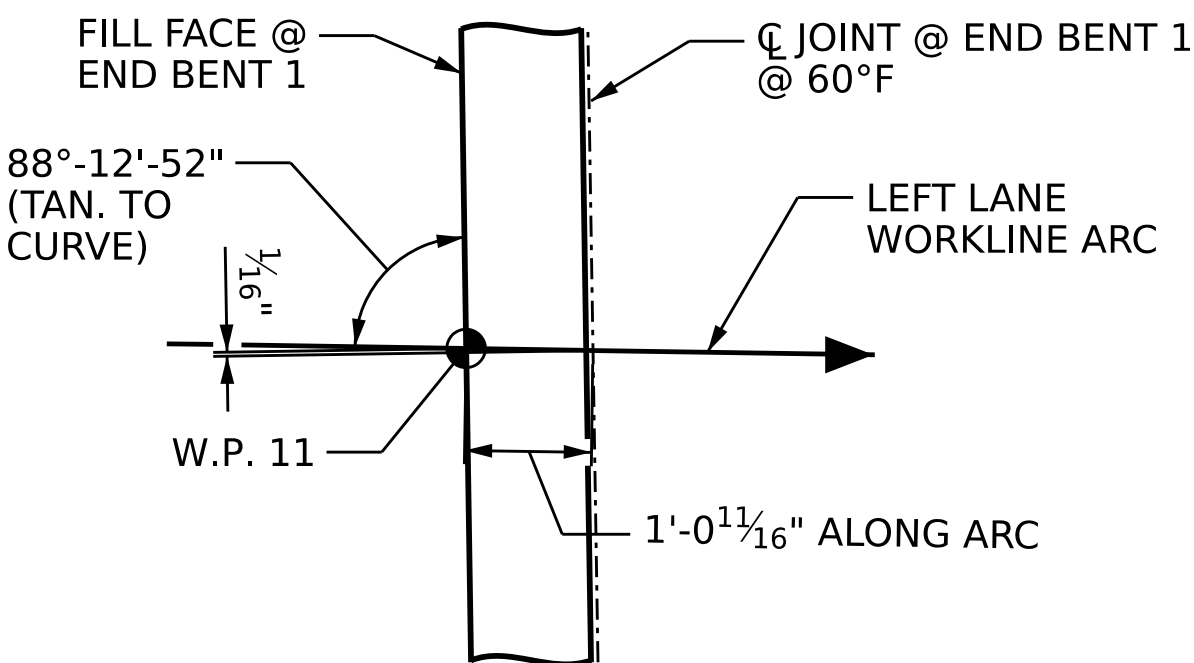
TRANSVERSE CONSTRUCTION JOINTS MAY BE SHIFTED SLIGHTLY, IF NECESSARY, TO PROVIDE 2" MIN. CLEARANCE TO "A" BARS.

FOR DECK POURING SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE SUPERSTRUCTURE "BILL OF MATERIAL" SHEET.

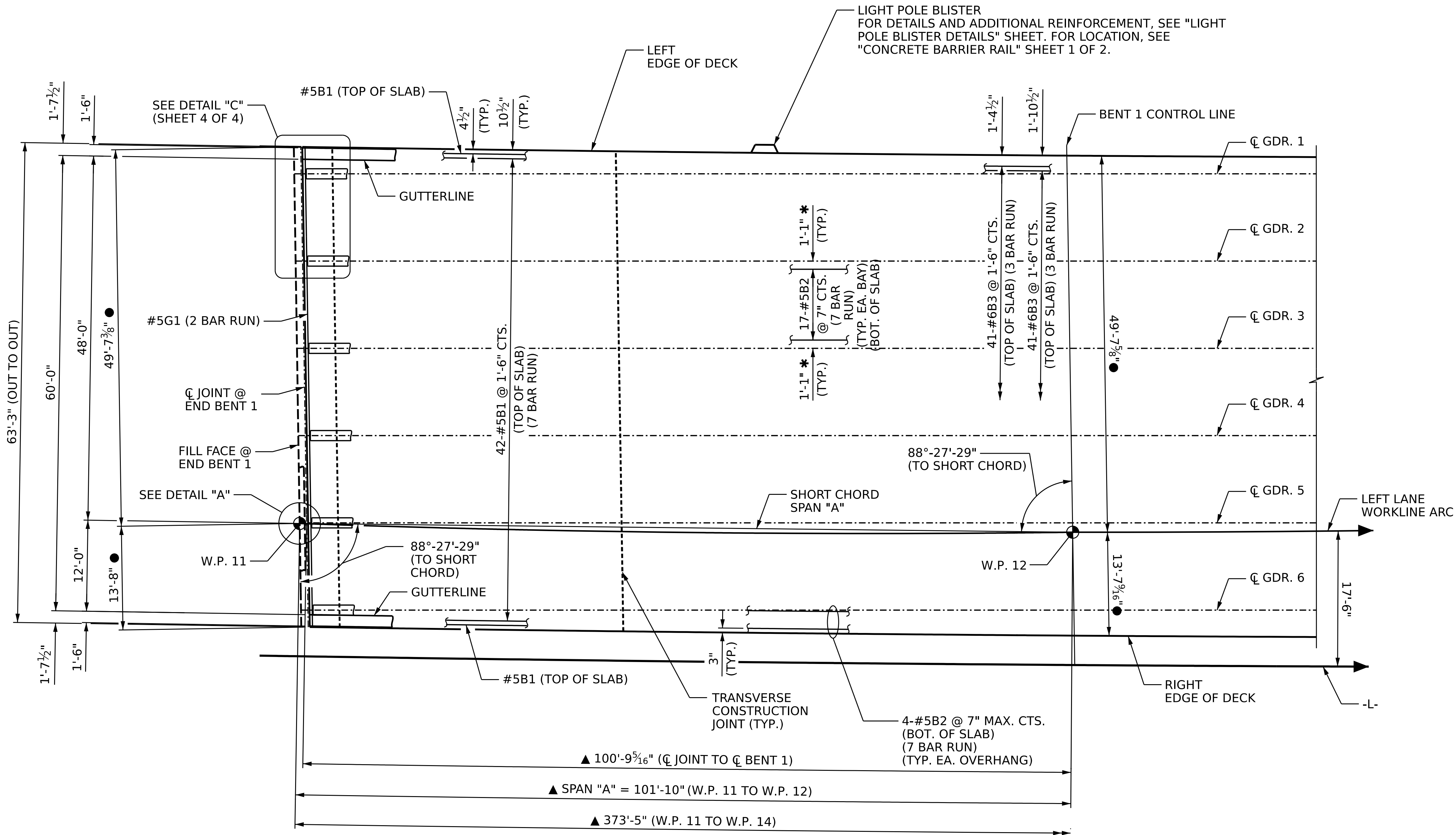
FOR OUTSIDE EDGE OF DECK CURVE OFFSETS, SEE "ARC OFFSETS" SHEETS.

FOR GEOMETRY DETAILS NOT SHOWN, SEE GENERAL DRAWING SHEET 4 OF 5.

FOR SPLICE LENGTHS NOT SHOWN, REFER TO MINIMUM SPLICE LENGTH TABLE ON SUPERSTRUCTURE BILL OF MATERIAL SHEET.



DETAIL "A"



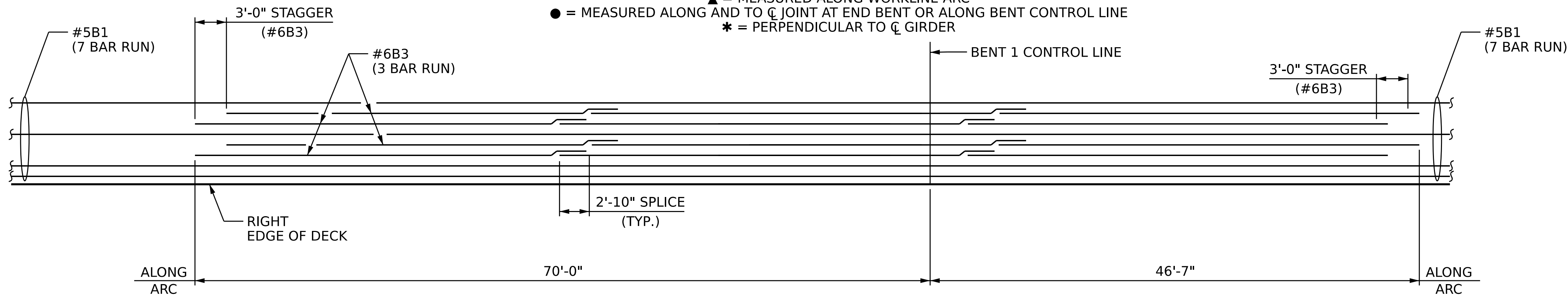
PLAN OF SPAN "A"

ALL DIMENSIONS RADIAL UNLESS NOTED OTHERWISE.

▲ = MEASURED ALONG WORKLINE ARC

● = MEASURED ALONG AND TO ¢ JOINT AT END BENT OR ALONG BENT CONTROL LINE

* = PERPENDICULAR TO ¢ GIRDER



TOP OF SLAB REINFORCEMENT

RIGHT EDGE OF DECK SHOWN, LEFT SIDE SIMILAR.
DECK CURVATURE NOT SHOWN FOR CLARITY.

DRAWN BY :	D. DRUM	DATE :	09/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

7/15/2026
c:\pwworking\aeocom.ds21.na.2020\d0131345\403.023.12513AC.SMU.S1.S3-12.100208.dgn
caterm

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. I-2513 AC

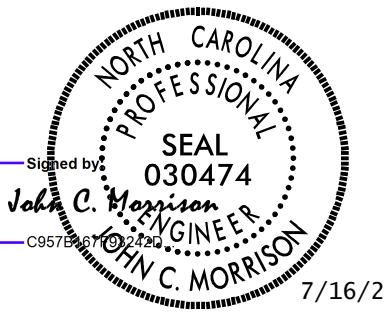
BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 1 OF 4

AECOM

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS

SPAN "A"

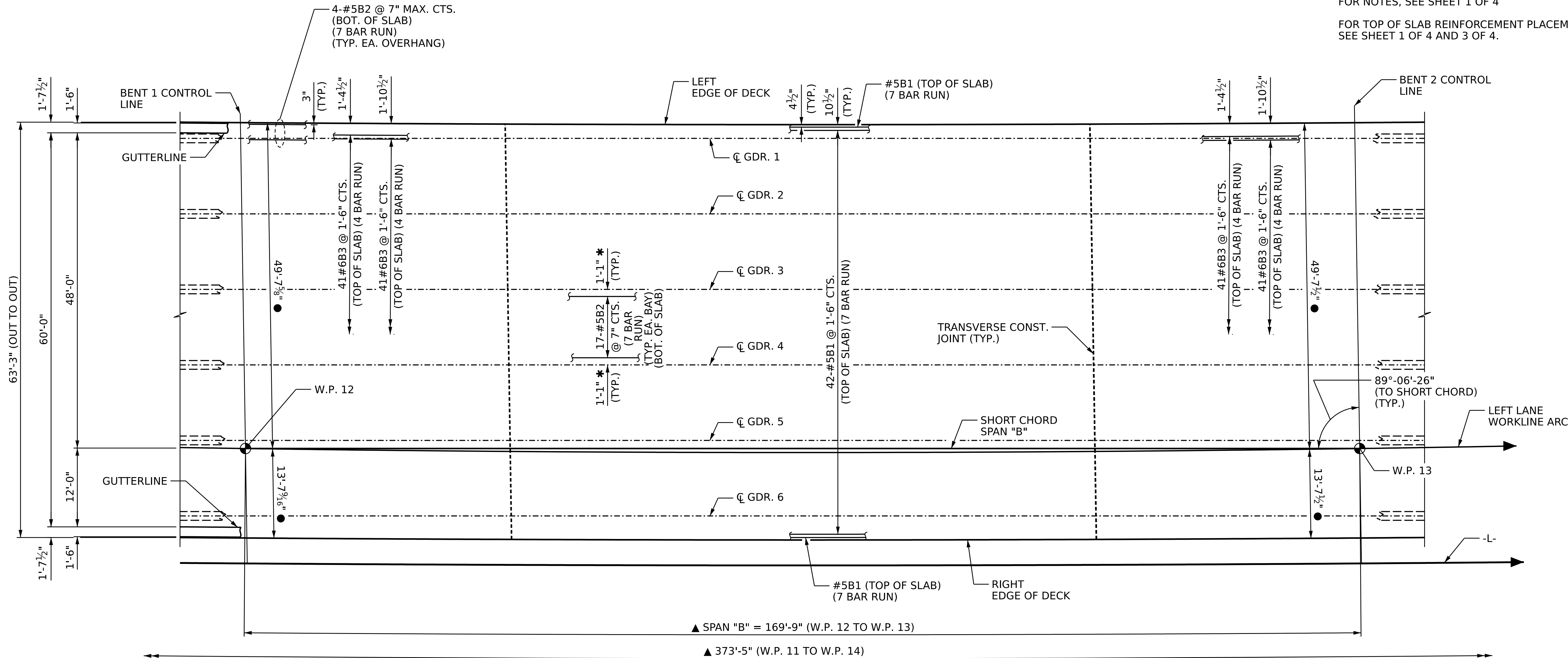
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-12
2			4			TOTAL SHEETS 57

NOTES:

FOR NOTES, SEE SHEET 1 OF 4

FOR TOP OF SLAB REINFORCEMENT PLACEMENT,
SEE SHEET 1 OF 4 AND 3 OF 4.



PLAN OF SPAN "B"

ALL DIMENSIONS RADIAL UNLESS NOTED OTHERWISE.

▲ = MEASURED ALONG WORKLINE ARC

● = MEASURED ALONG BENT CONTROL LINE

* = PERPENDICULAR TO G GIRDER

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 2 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS

SPAN "B"

(LEFT LANE)

REVISIONS

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

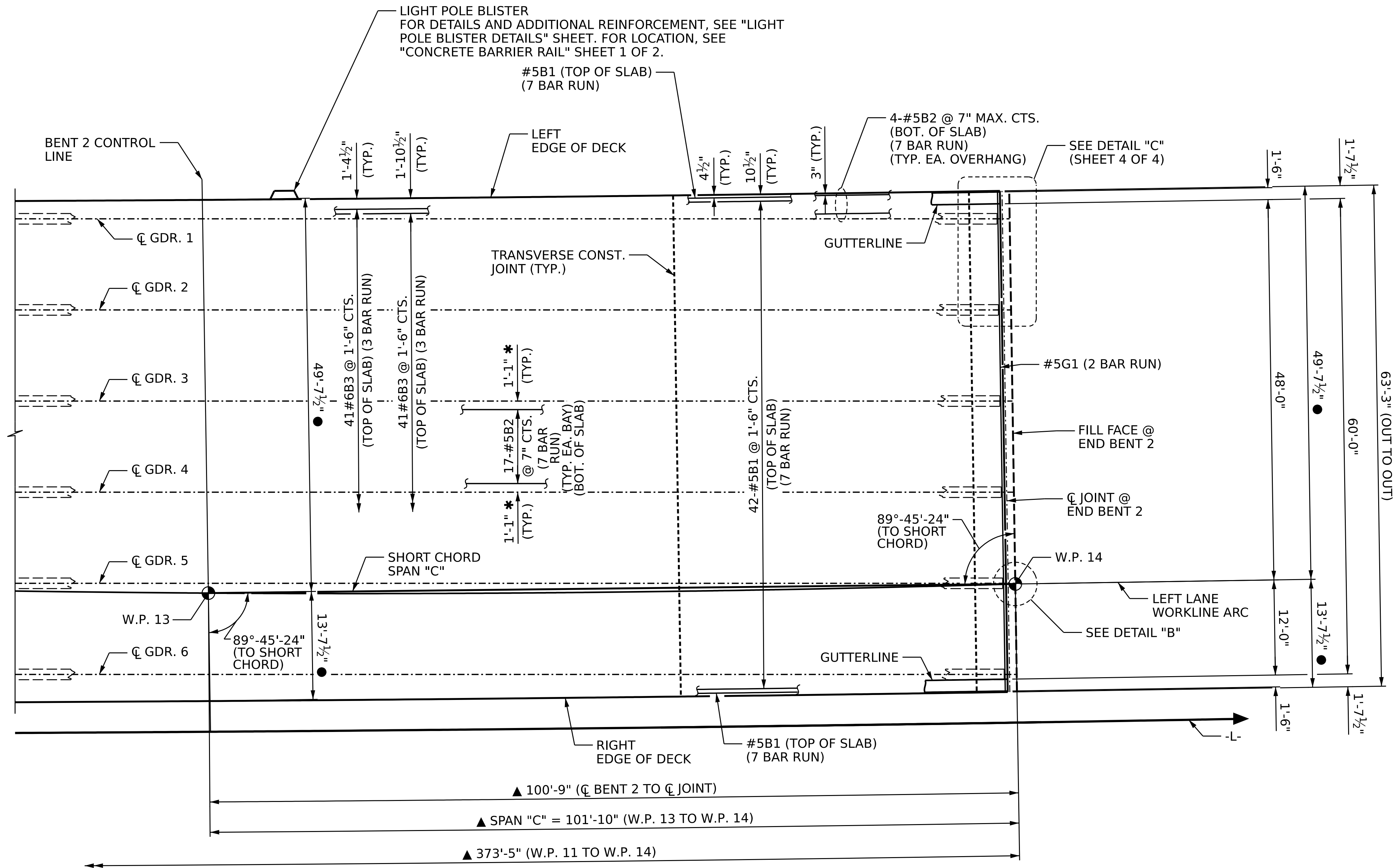
SHEET NO.
S3-13
TOTAL SHEETS
57

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY :	M. CATER	DATE :	09/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

NOTES:

FOR NOTES, SEE SHEET 1 OF 4



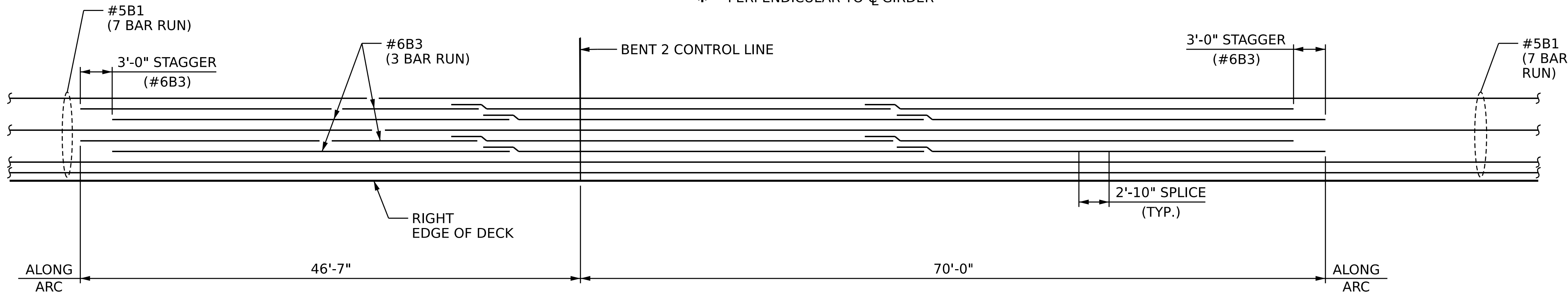
PLAN OF SPAN "C"

ALL DIMENSIONS RADIAL UNLESS NOTED OTHERWISE.

▲ = MEASURED ALONG WORKLINE ARC

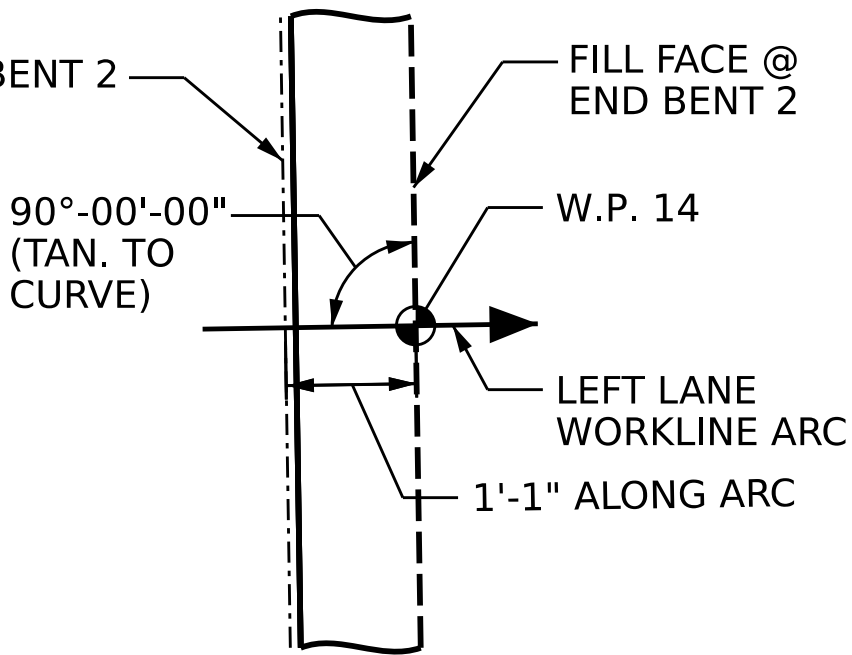
● = MEASURED ALONG AND TO CL JOINT AT END BENT OR ALONG BENT CONTROL LINE

* = PERPENDICULAR TO CL GIRDER



TOP OF SLAB REINFORCEMENT

RIGHT EDGE OF DECK SHOWN, LEFT SIDE SIMILAR.
DECK CURVATURE NOT SHOWN FOR CLARITY.



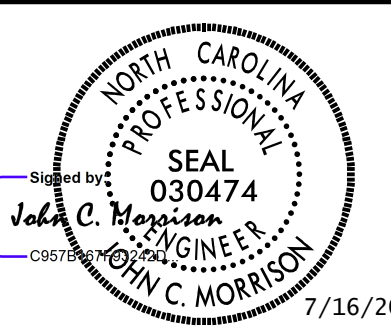
DETAIL "B"

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 3 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS

SPAN "C"

(LEFT LANE)

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S3-14
2			4			TOTAL SHEETS 57

DRAWN BY :	M. CATER	DATE :	09/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

FOR LONG CHORD DETAILS NOT SHOWN,
SEE GENERAL DRAWING SHEET 4 OF 5.



LEFT OVERHANG AT END BENT 1 SHOWN, OTHER LOCATIONS SIMILAR.



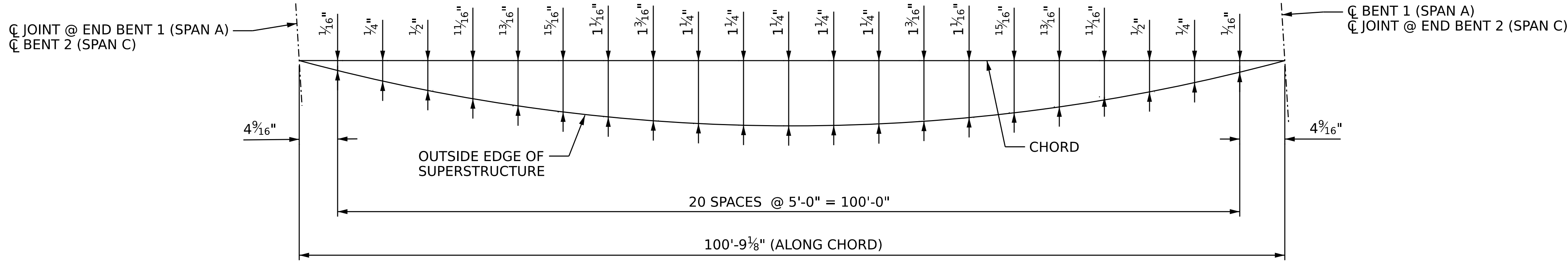
* SPACE BARS EQUALLY WITH A MAXIMUM SPACING OF 5"

LAPS NOT SHOWN FOR CLARITY. REFER TO MINIMUM SPLICE LENGTH TABLE ON
SUPERSTRUCTURE BILL OF MATERIAL SHEET FOR LAP LENGTHS.

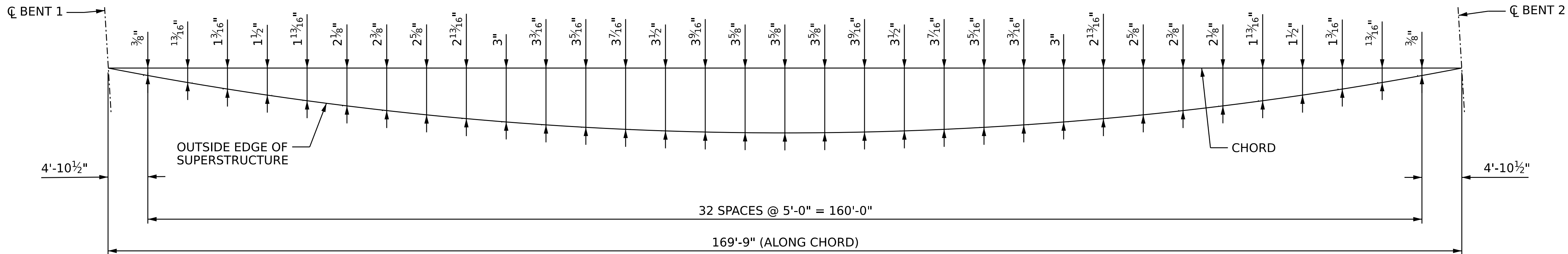
DRAWN BY :	D. DRUM	DATE :	09/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

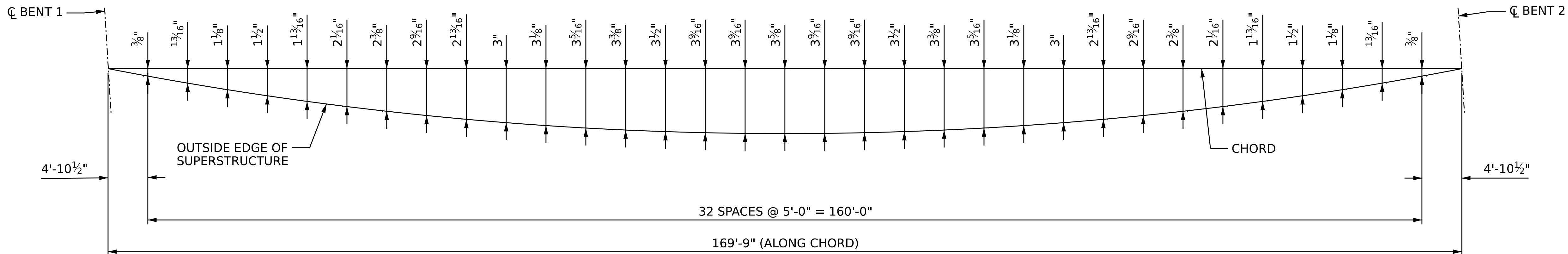
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 DETAILS
 (LEFT LANE)



ARC OFFSETS - SPAN "A" & "C" (LEFT & RIGHT SIDE)
NOT DRAWN TO SCALE



ARC OFFSETS - SPAN "B" (LEFT SIDE)
NOT DRAWN TO SCALE

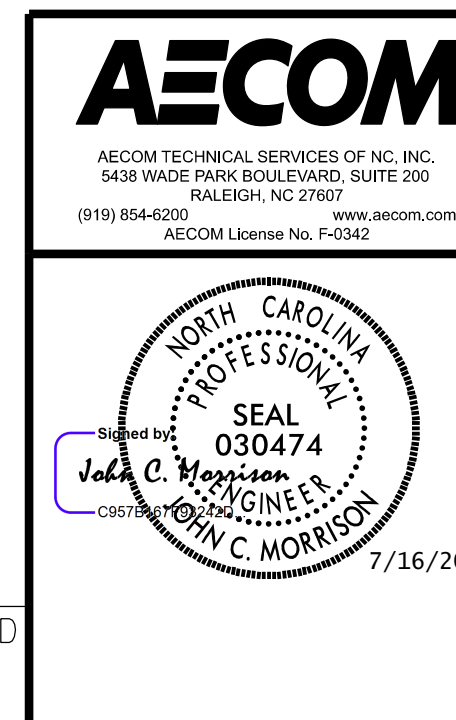


ARC OFFSETS - SPAN "B" (RIGHT SIDE)
NOT DRAWN TO SCALE

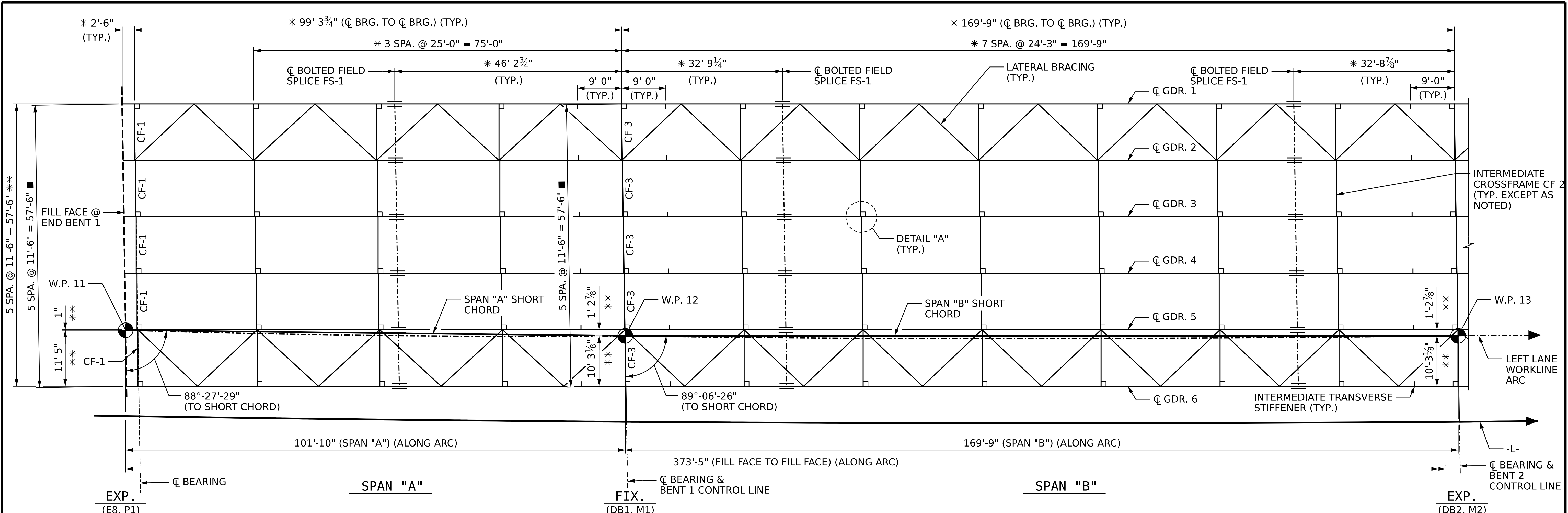
PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

DRAWN BY : I. HART DATE : 10/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

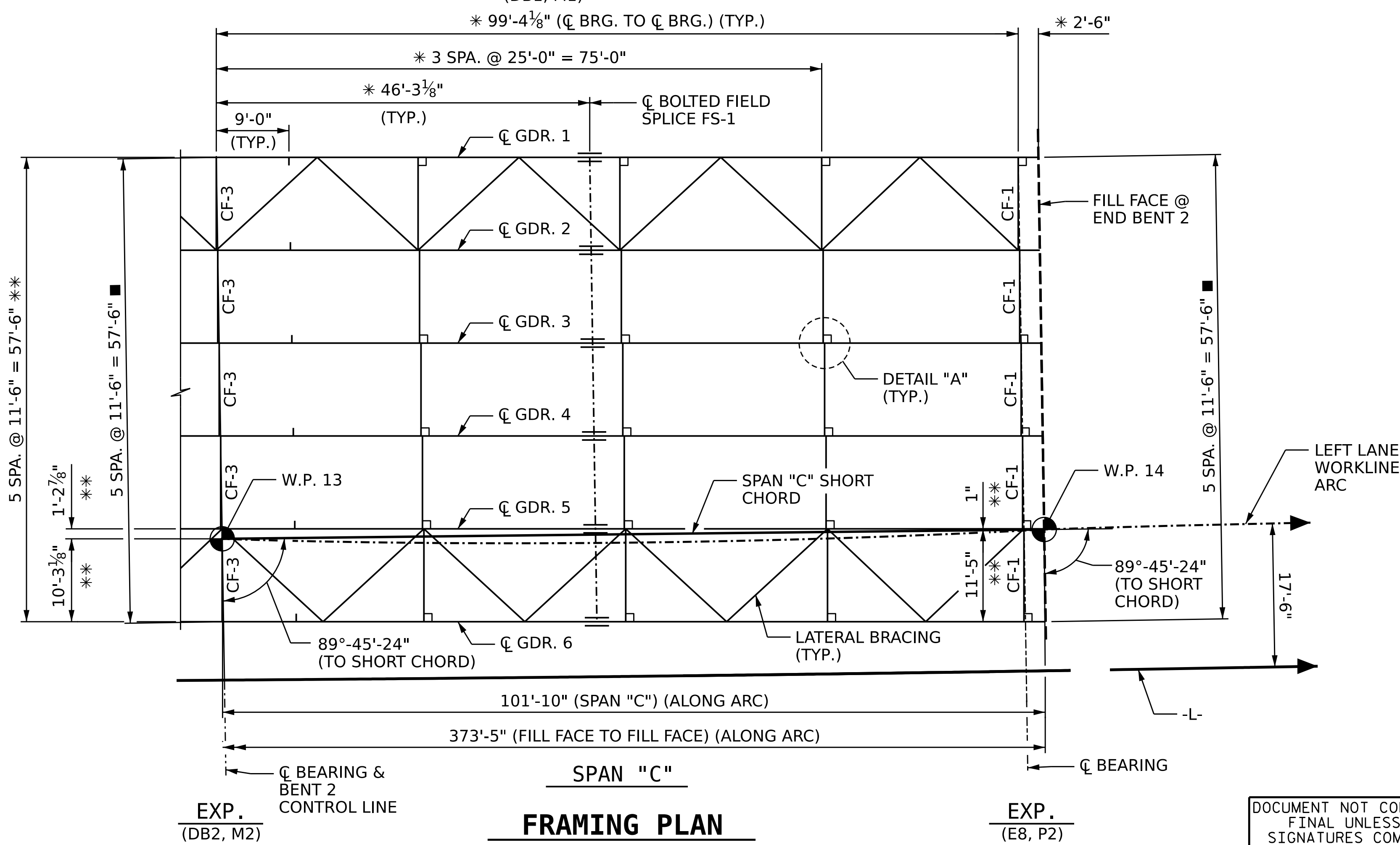
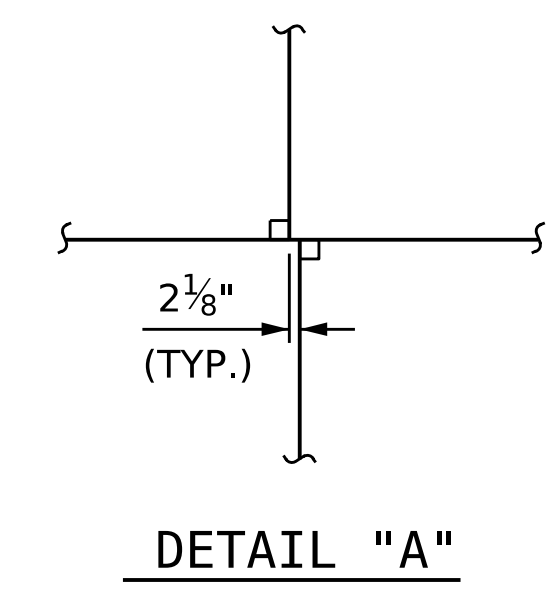
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



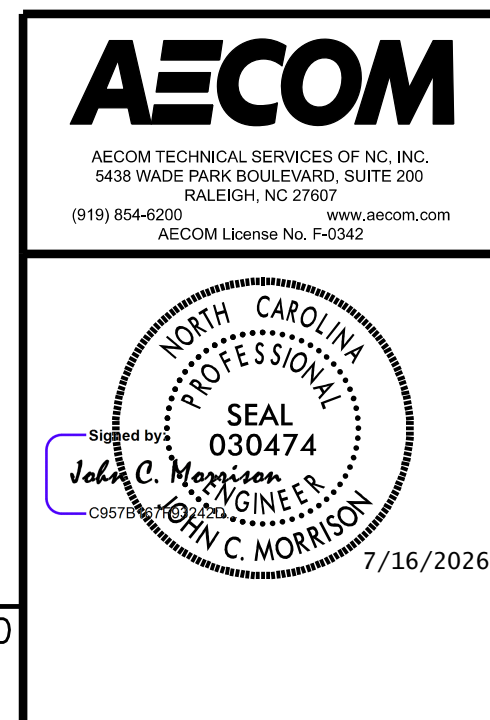
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
ARC OFFSETS					
(LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					TOTAL SHEETS
S3-16					57



* = ALONG ϕ GIRDER
** = NORMAL TO LONG CHORD
■ = ALONG FILL FACE OR BENT CONTROL LINE



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

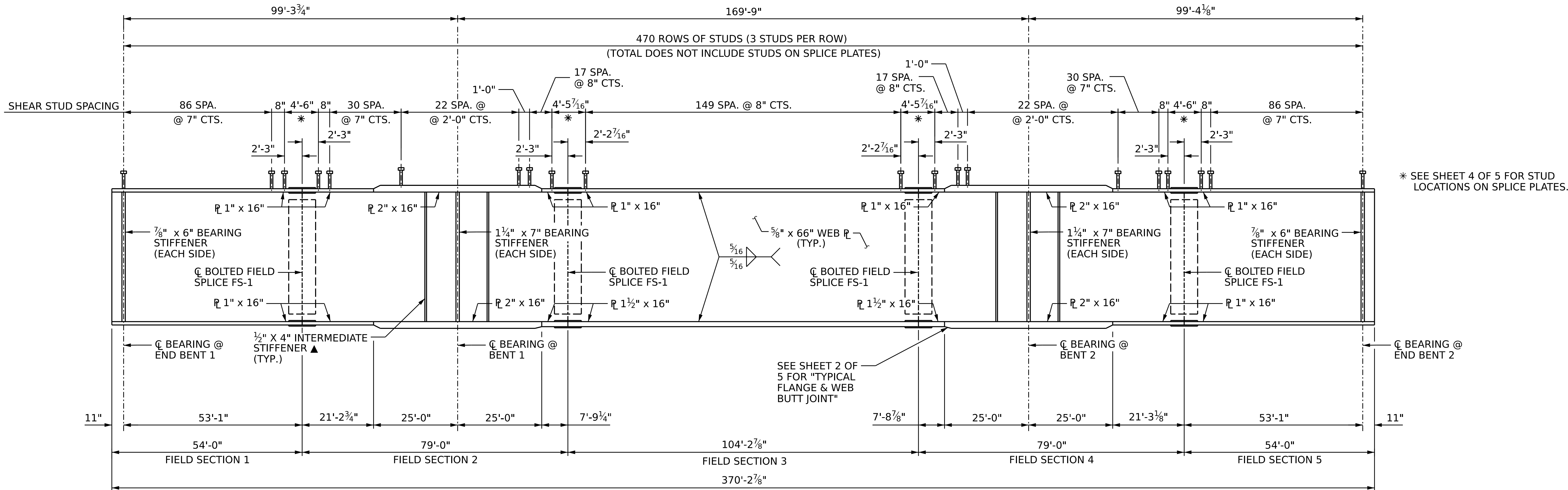


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-17
2			4			

TOTAL SHEETS	57
--------------	----

DRAWN BY : D. DRUM DATE : 03/2023
CHECKED BY : J.C. MORRISON DATE : 04/2024
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

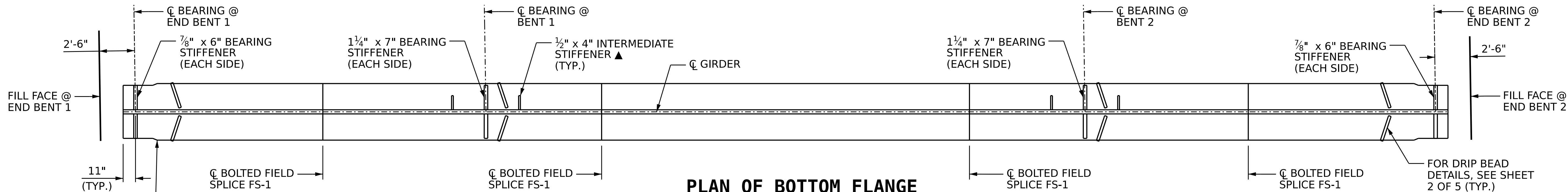
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



GIRDER ELEVATION

(CROSS FRAME CONNECTOR PLATES NOT SHOWN FOR CLARITY)

▲ INTERMEDIATE STIFFENERS ARE TO BE PLACED ON ONE SIDE OF GIRDER ONLY AND ARE NOT TO BE PLACED ON THE OUTSIDE OF EXTERIOR GIRDERS. SEE FRAMING PLAN FOR LOCATIONS.



PLAN OF BOTTOM FLANGE

NOTES:

FOR CHARPY V-NOTCH TEST LIMITS, SEE "STRUCTURAL STEEL DETAILS" SHEET 2 OF 5.

FOR CROSS FRAME DETAILS, STIFFENER DETAILS, AND STRUCTURAL STEEL NOTES, SEE "STRUCTURAL STEEL DETAILS" SHEET 3 OF 5.

FOR BOLTED FIELD SPLICE DETAILS, SEE "STRUCTURAL STEEL DETAILS" SHEET 4 OF 5.

FOR LATERAL BRACING DETAILS, SEE "STRUCTURAL STEEL DETAILS" SHEET 5 OF 5.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR 6 OF ARTICLE 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.

BEARING STIFFENERS MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.

FABRICATOR 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.

TENSION ON THE ASTM A325 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

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

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.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/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.

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

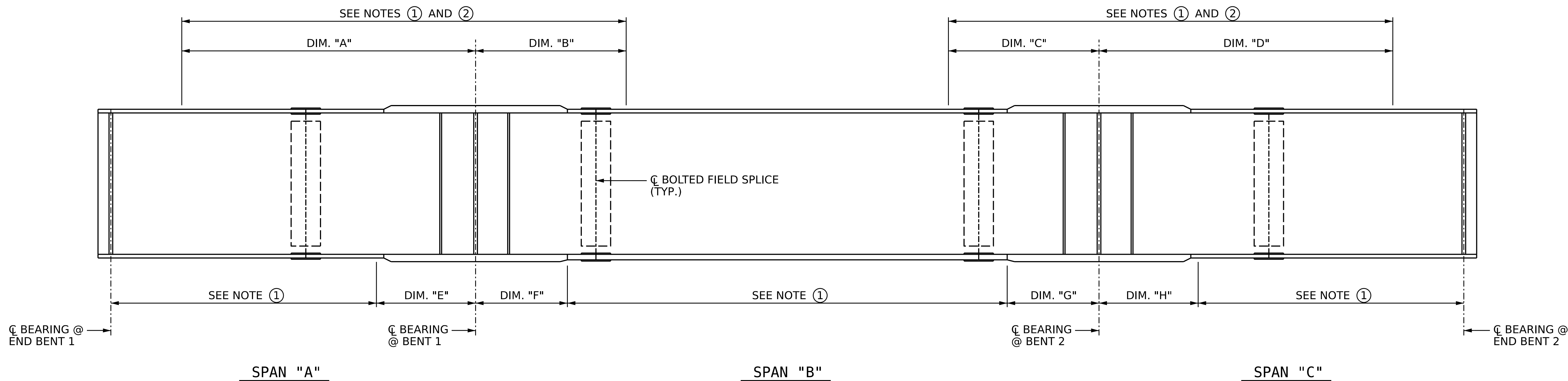
SHEET 1 OF 5

AECOM AECOM TECHNICAL SERVICES OF NC, INC. 5438 WADE PARK BOULEVARD, SUITE 200 RALEIGH, NC 27607 (919) 854-6200 AECOM License No. FC0342		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE STRUCTURAL STEEL DETAILS (LEFT LANE)			
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.			TOTAL SHEETS		
S3-18			57		

BOTTOM FLANGE TAPER DETAIL

(TYP. EA. END)

DRAWN BY : D. DRUM
CHECKED BY : J.C. MORRISON
DESIGN ENGINEER OF RECORD: J.C. MORRISON
DATE : 08/2023
DATE : 04/2024
DATE : 03/2026

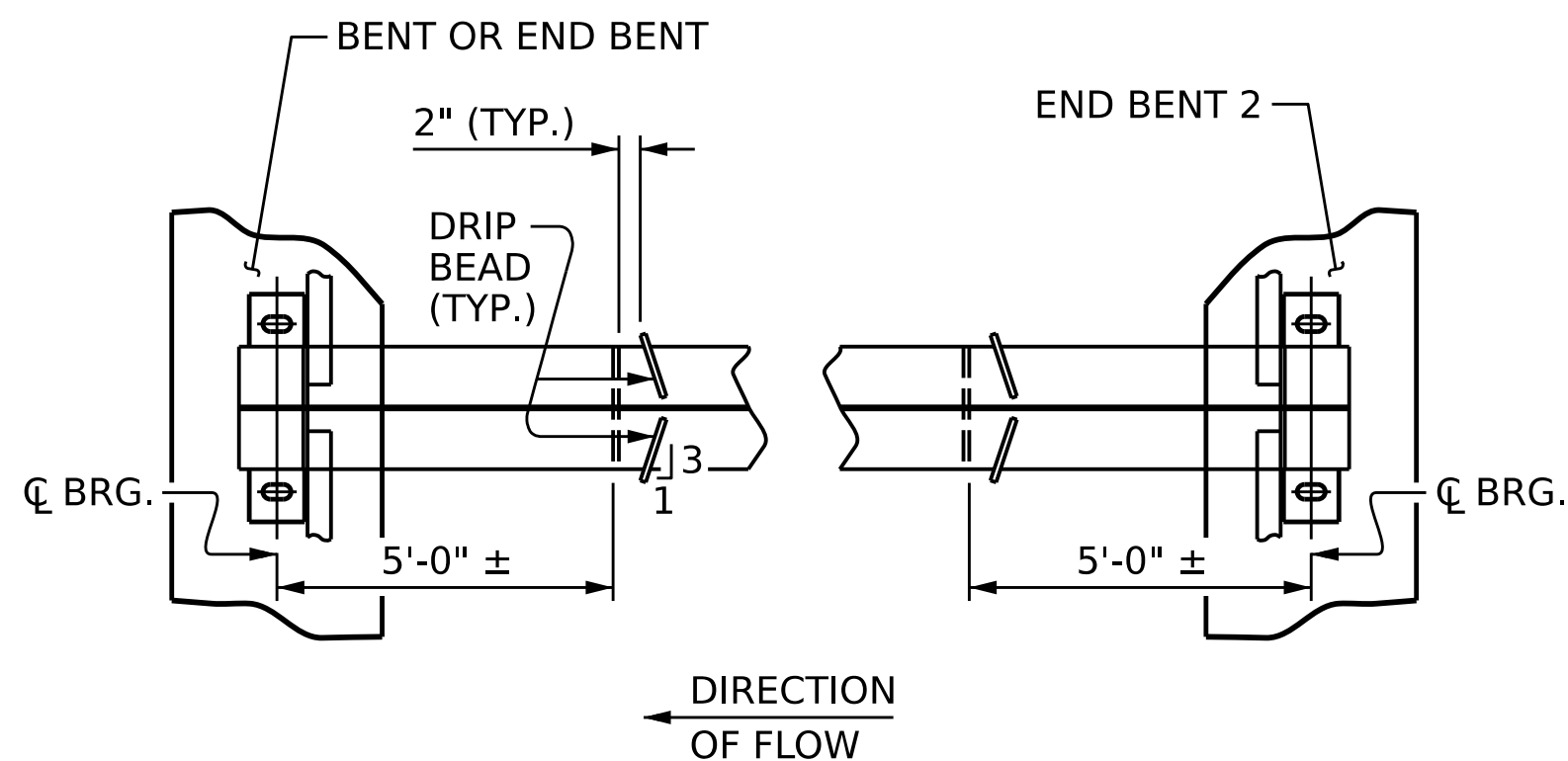


GIRDER MAKE UP

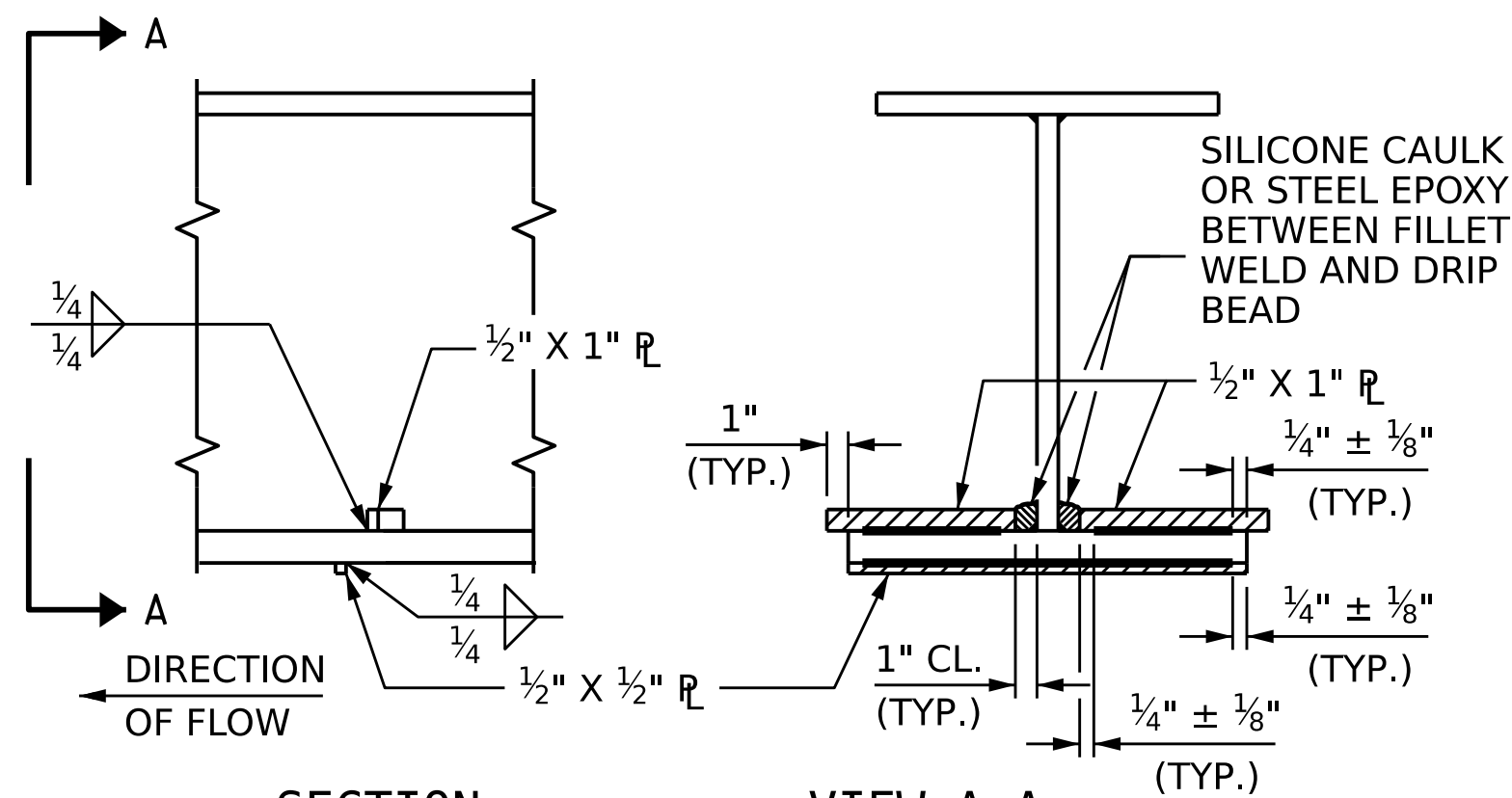
CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS

CHARPY V-NOTCH NOTES:

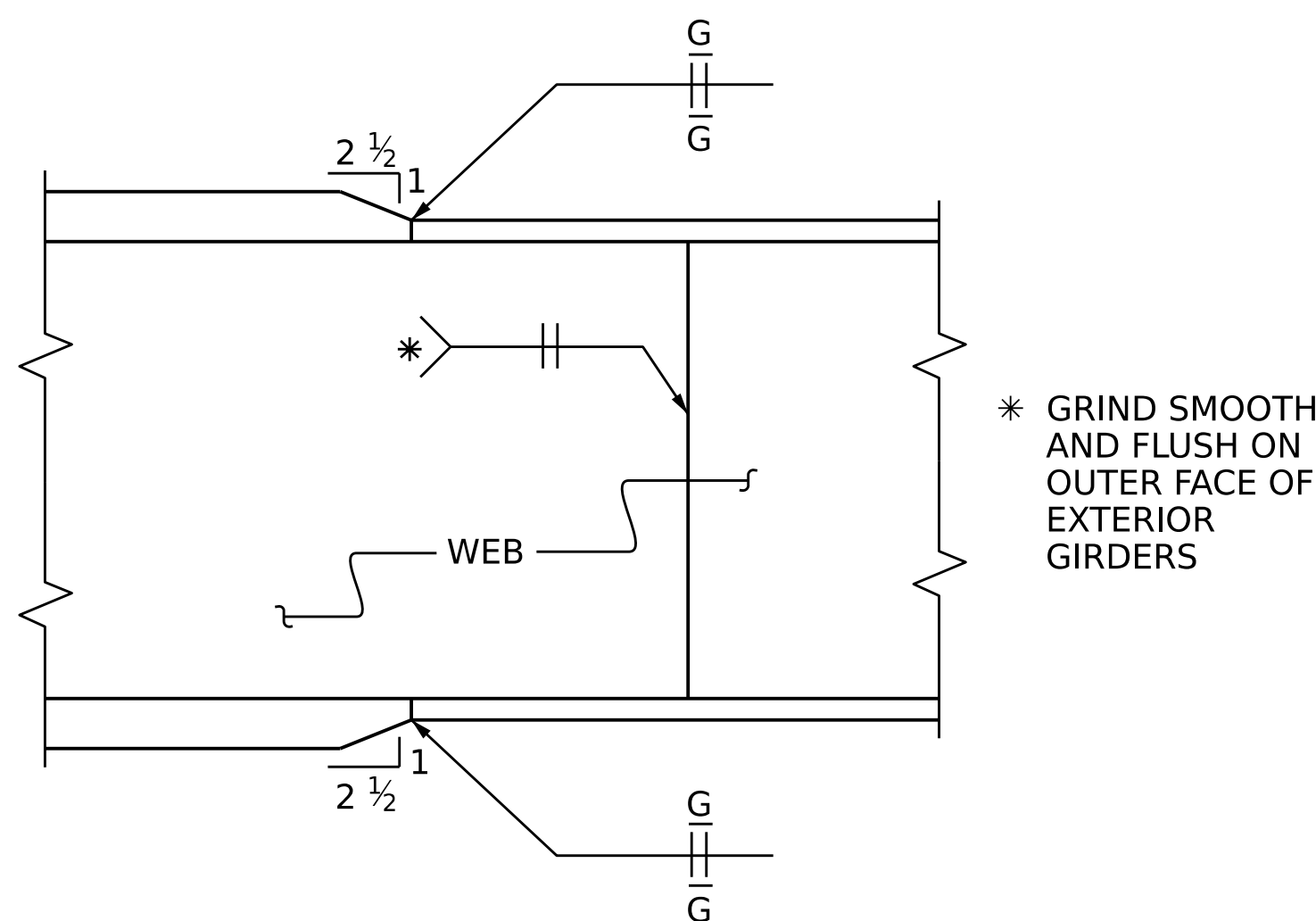
- CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS. ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.
- NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.



PART PLAN - BOTTOM FLANGE



DRIP BEAD DETAILS



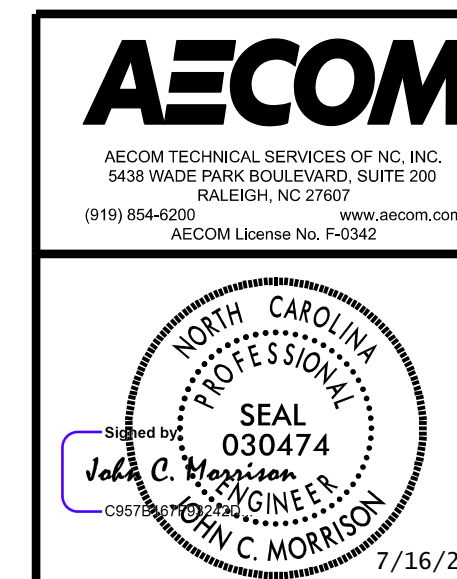
ELEVATION

TYPICAL FLANGE AND WEB BUTT JOINT

GIRDER MAKE-UP DIMENSIONS								
GIRDER	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"	DIM. "F"	DIM. "G"	DIM. "H"
1	69'-0"	39'-0"	39'-0"	79'-0"	28'-0"	25'-0"	26'-0"	29'-0"
2	64'-0"	38'-0"	38'-0"	64'-0"	28'-0"	24'-0"	25'-0"	29'-0"
3	59'-0"	38'-0"	38'-0"	59'-0"	29'-0"	25'-0"	26'-0"	30'-0"
4	59'-0"	39'-0"	38'-0"	59'-0"	29'-0"	25'-0"	26'-0"	30'-0"
5	62'-0"	39'-0"	39'-0"	62'-0"	28'-0"	24'-0"	25'-0"	28'-0"
6	68'-0"	39'-0"	39'-0"	67'-0"	28'-0"	25'-0"	26'-0"	28'-0"

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 2 OF 5



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-19
2			4			

DRAWN BY : D. DRUM DATE : 12/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



(SEE FRAMING PLAN FOR LOCATIONS)



** PER BRIDGE WELDING CODE FIG 2.3(C)
BEVEL IF NECESSARY

*** ONLY WELD BEARING STIFFENER TO BOTTOM FLANGE IF DIAPHRAGM IS ATTACHED TO BEARING STIFFENER. BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.



NOTES:

ALL FRAMING PLAN DIMENSIONS ARE HORIZONTAL
UNLESS OTHERWISE NOTED.

FOR STRUCTURAL STEEL NOTES AND DETAILS, SEE
"STRUCTURAL STEEL DETAILS" SHEET 1 OF 5.

FOR CHARPY V-NOTCH TEST LIMITS, SEE
"STRUCTURAL STEEL DETAILS" SHEET 2 OF 5.

FOR BOLTED FIELD SPLICE DETAILS, SEE
"STRUCTURAL STEEL DETAILS" SHEET 4 OF 5.

FOR LATERAL BRACING DETAILS, SEE "STRUCTURAL
STEEL DETAILS" SHEET 5 OF 5.



STATION: 45+58.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS

(LEFT LANE)

NO.		BY:		DATE:		NO.		BY:		DATE:		SHEET NO.	
1						3						TOTAL SHEETS 57	
2						4							

DRAWN BY : M. CATER DATE : 12/2025
 CHECKED BY : J.C. MORRISON DATE : 03/2026
 DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

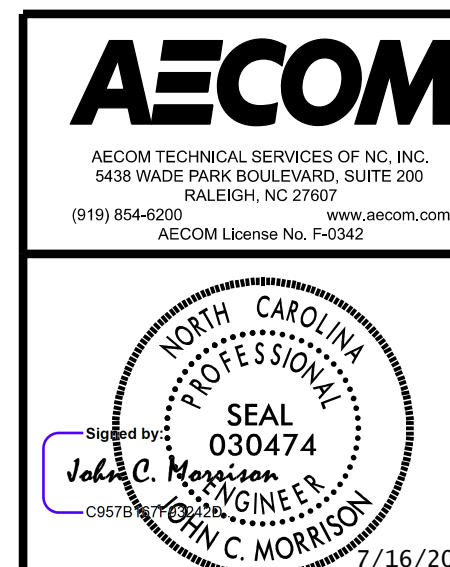
7/9/2026
c:\pwworking\aecom_ds21_na_2020\d0131345\403.039.I2513AC.SMU.SS3.S3-20.100208.dgn
caterm

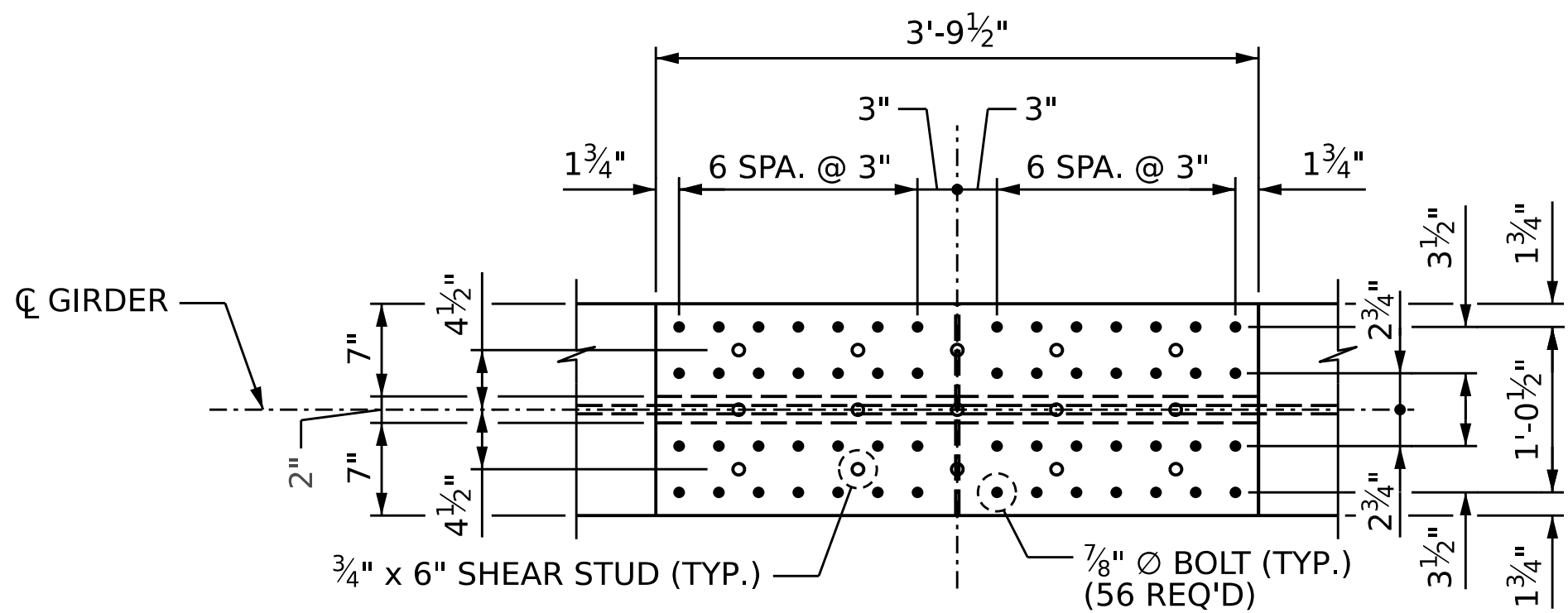
The diagrams illustrate the placement of shear studs on different structural components:

- ON GIRDERS:** A side view of a girder with three shear studs. The studs are spaced 6 inches apart. The height of the studs is 6 inches. The label indicates $\frac{3}{4}$ " $\varnothing$ x 6" SHEAR STUDS (TYP.).
- ON DIAPHRAGMS:** A side view of a diaphragm with one shear stud. The height of the stud is 4 inches. The label indicates $\frac{3}{4}$ " $\varnothing$ x 4" SHEAR STUDS (TYP.).

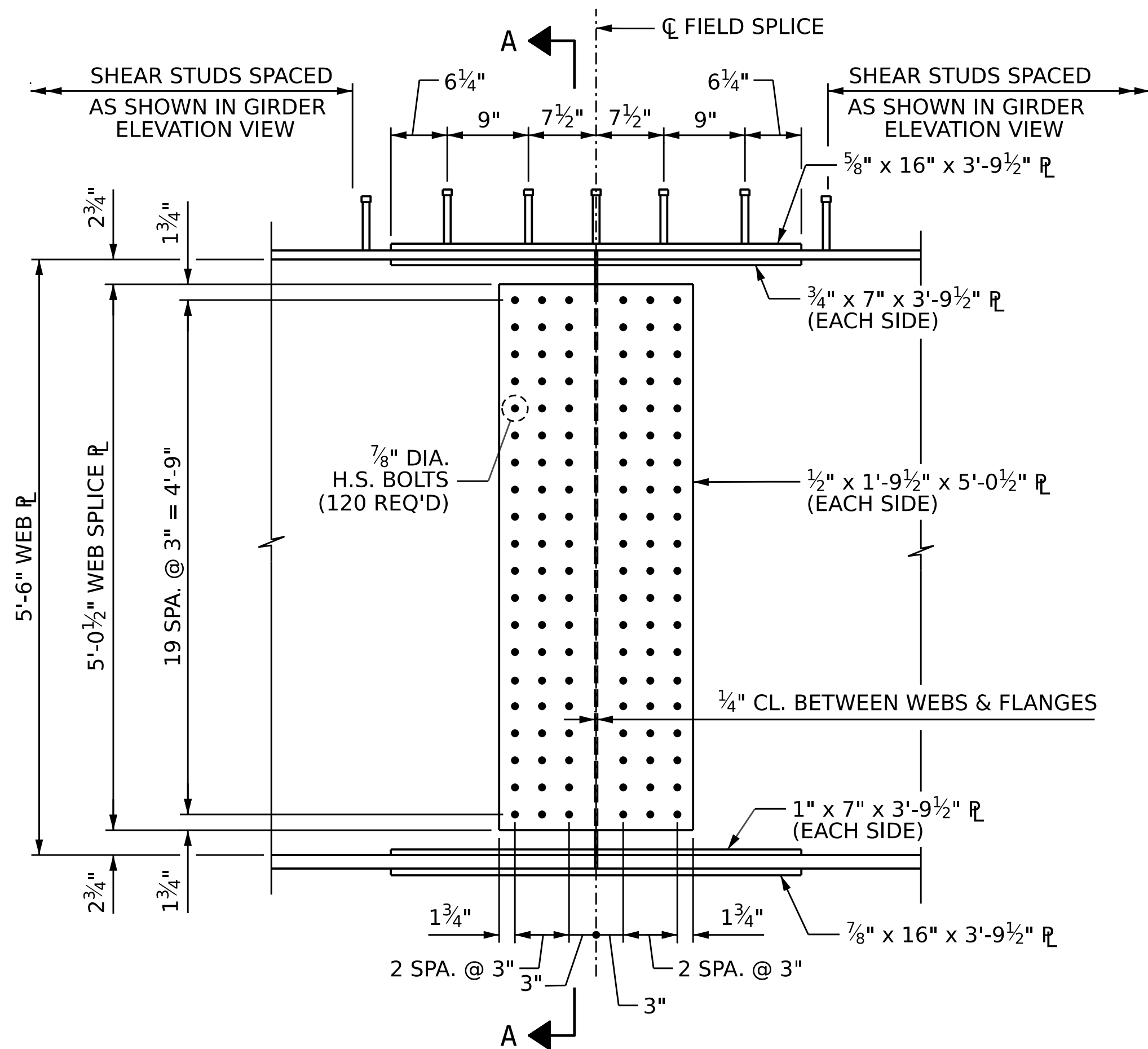
SHEAR STUD DETAILS

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

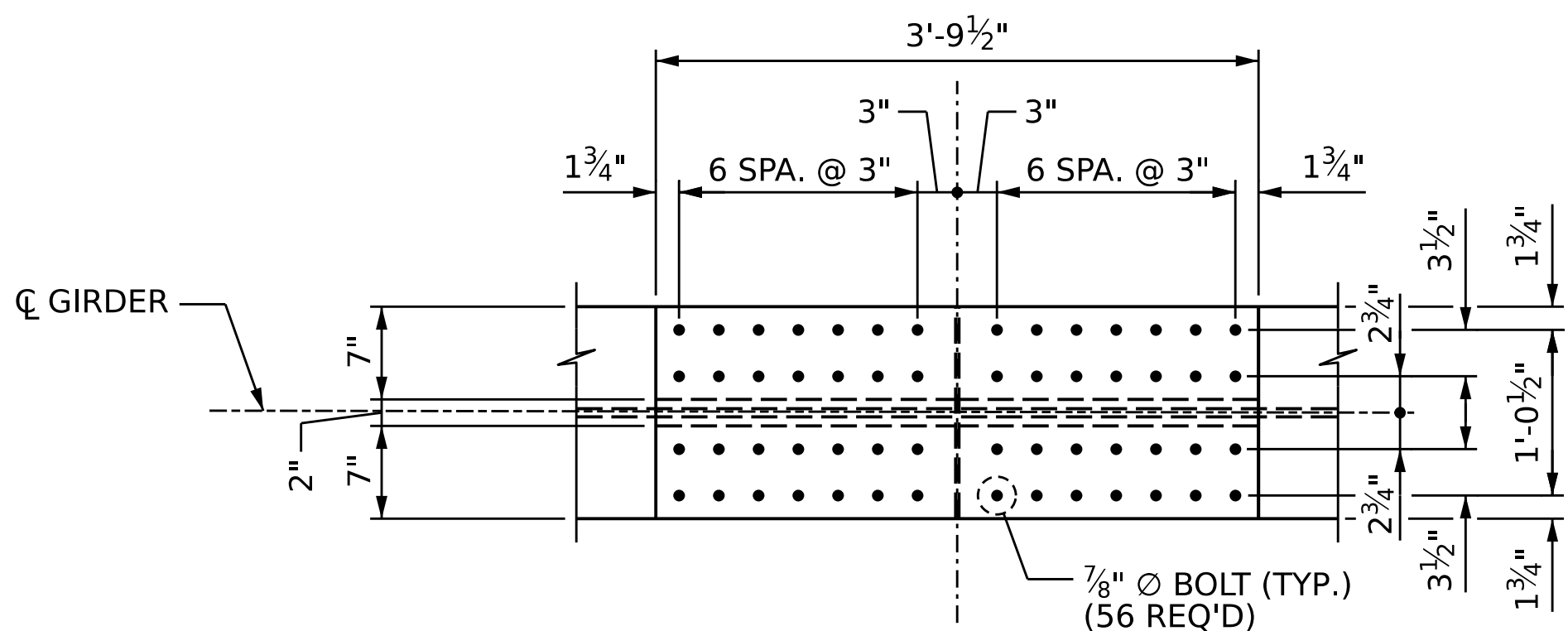




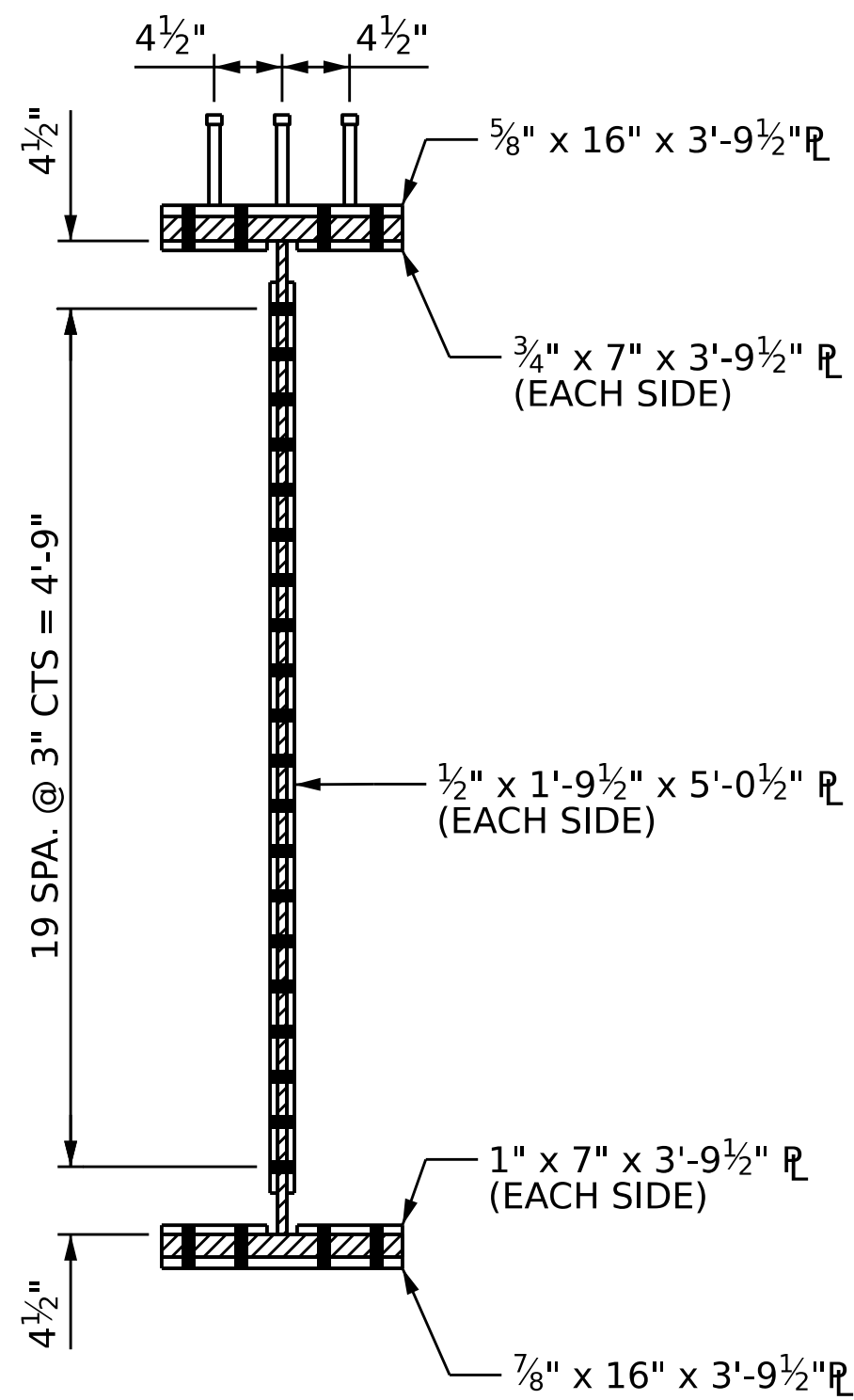
PLAN (TOP OF TOP FLANGE) (FS-1)



ELEVATION (FS-1)



PLAN (BOTTOM OF BOTTOM FLANGE) (FS-1)



SECTION A-A

NOTES:

FOR GENERAL NOTES, SEE "STRUCTURAL STEEL DETAILS" SHEET 1 OF 5.

STANDARD $1\frac{1}{16}$ " DIAMETER HOLES SHALL BE USED FOR ALL $\frac{7}{8}$ " DIAMETER FIELD SPLICE BOLTS.

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 4 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

**STRUCTURAL STEEL
DETAILS**

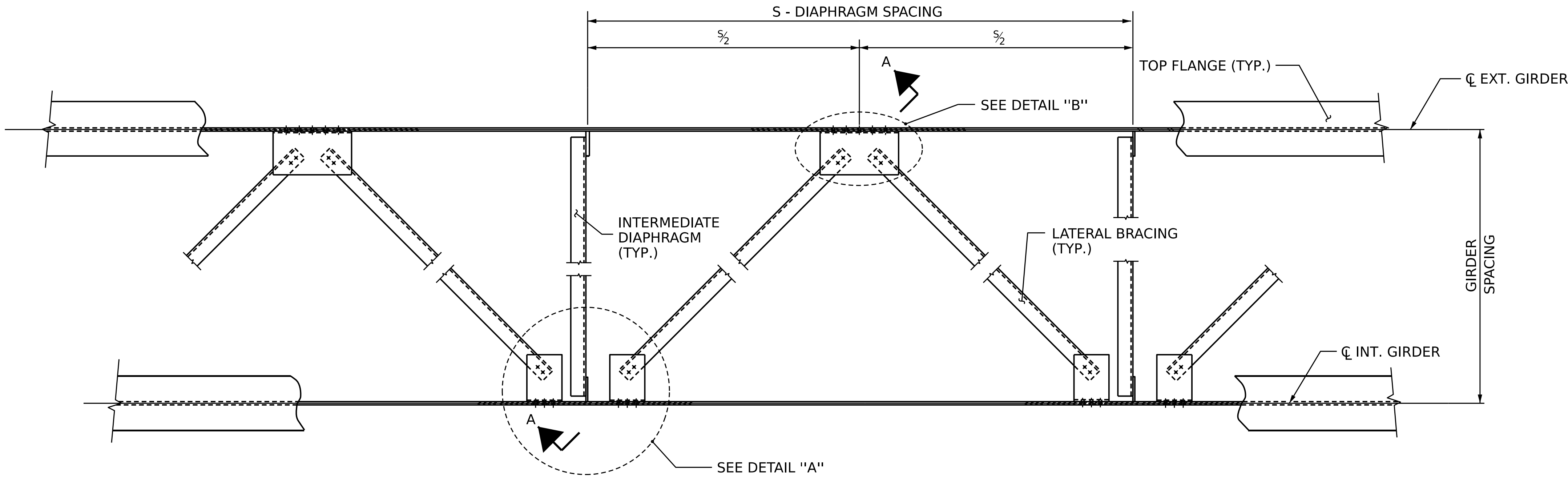
(LEFT LANE)

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

SHEET NO.
S3-21
TOTAL SHEETS
57

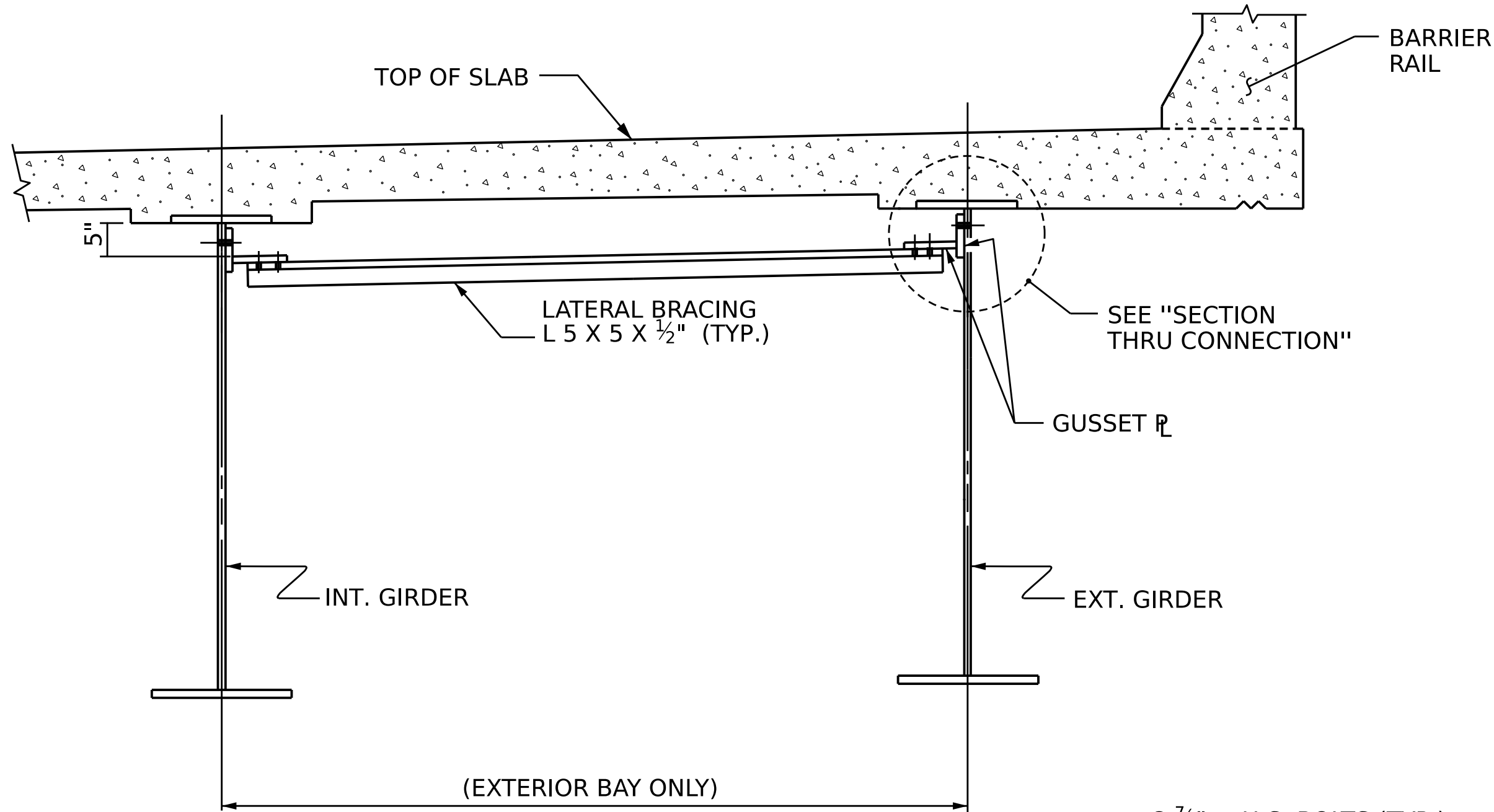
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : D. DRUM DATE : 08/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

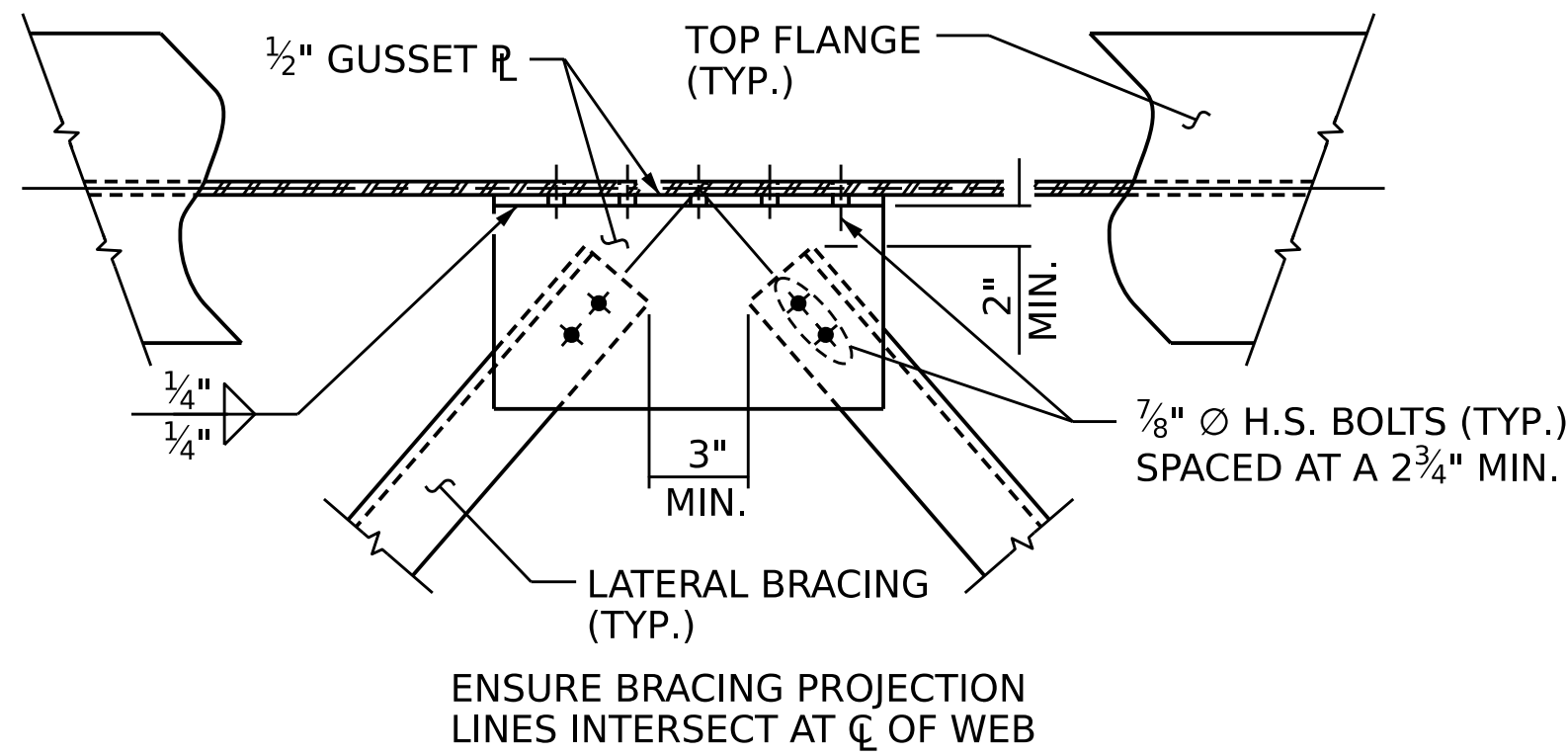


PART PLAN - NEAR TOP FLANGE LATERAL BRACING

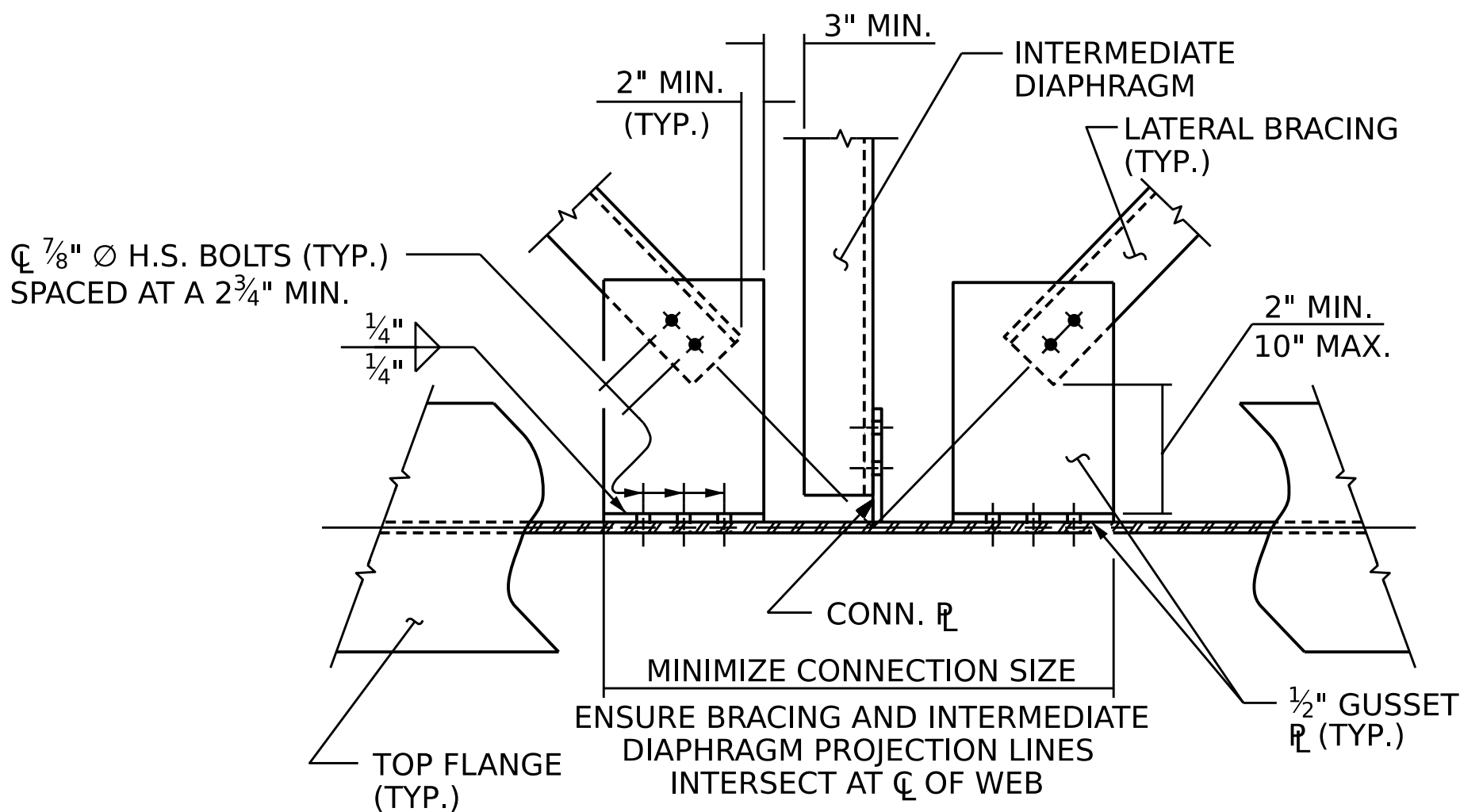
(THROUGHOUT EXTERIOR BAYS ONLY)



SECTION A-A



DETAIL "B"



DETAIL "A"

NOTES:

LATERAL BRACING ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W OR APPROVED EQUAL.

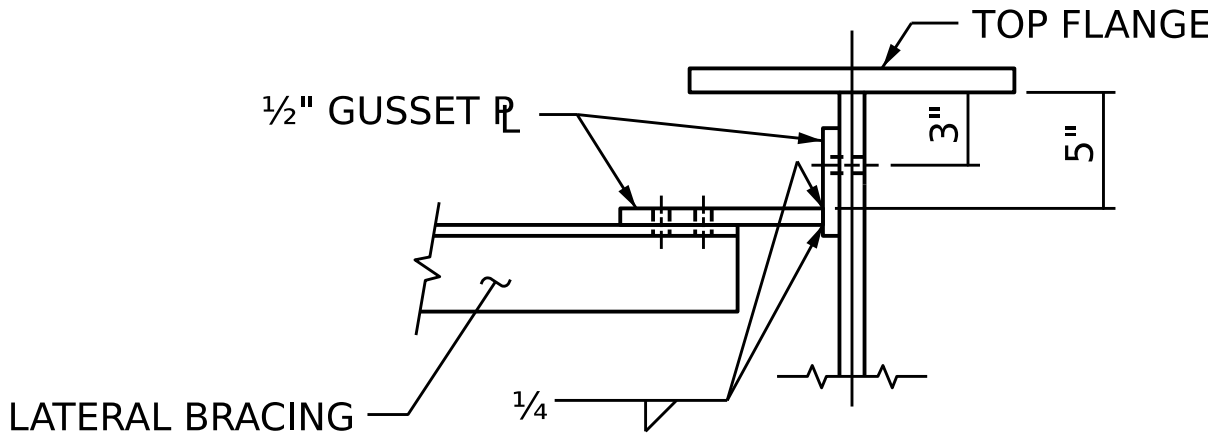
TENSION ON THE ASTM A325 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BOLTED CONNECTIONS SHALL BE 7/8" ~ HIGH STRENGTH BOLTS.

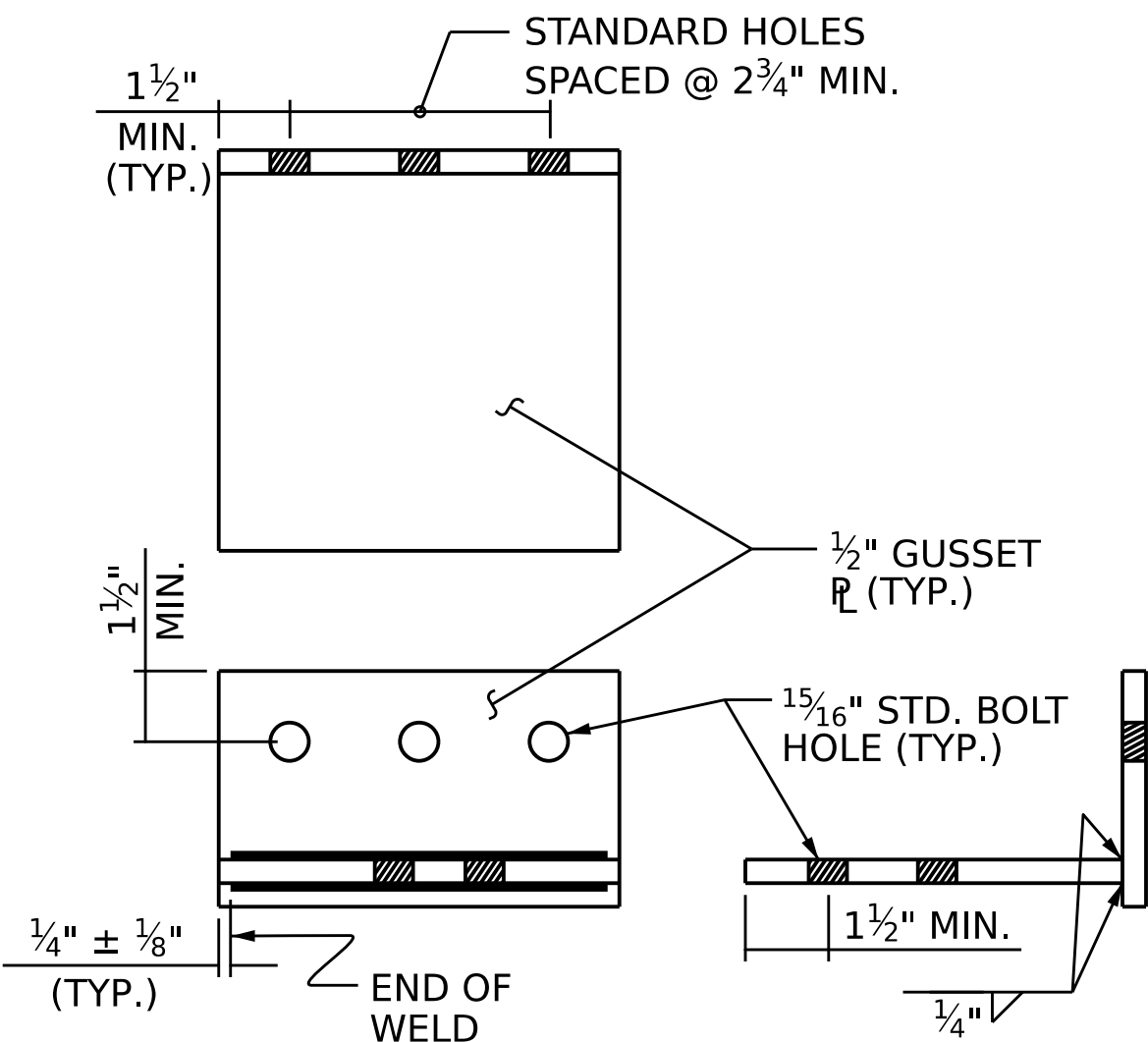
THE CONTRACTOR HAS THE OPTION TO CLIP THE PROTRUDING CORNERS OF THE GUSSET PLATES, AT NO ADDITIONAL COST TO THE DEPARTMENT.

BENT GUSSET PLATES OR ROLLED ANGLE SHAPES MAY BE SUBSTITUTED FOR THE WELDED GUSSET PLATES DETAILED IF APPROVED BY THE ENGINEER, AT NO ADDITIONAL COST TO THE DEPARTMENT.

INSTALL THE LATERAL BRACING AFTER ERECTING THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER AND INSTALLING THE INTERMEDIATE DIAPHRAGMS.



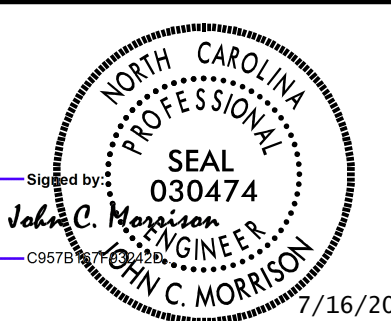
SECTION THRU CONNECTION



CONNECTION DETAIL

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 5 OF 5



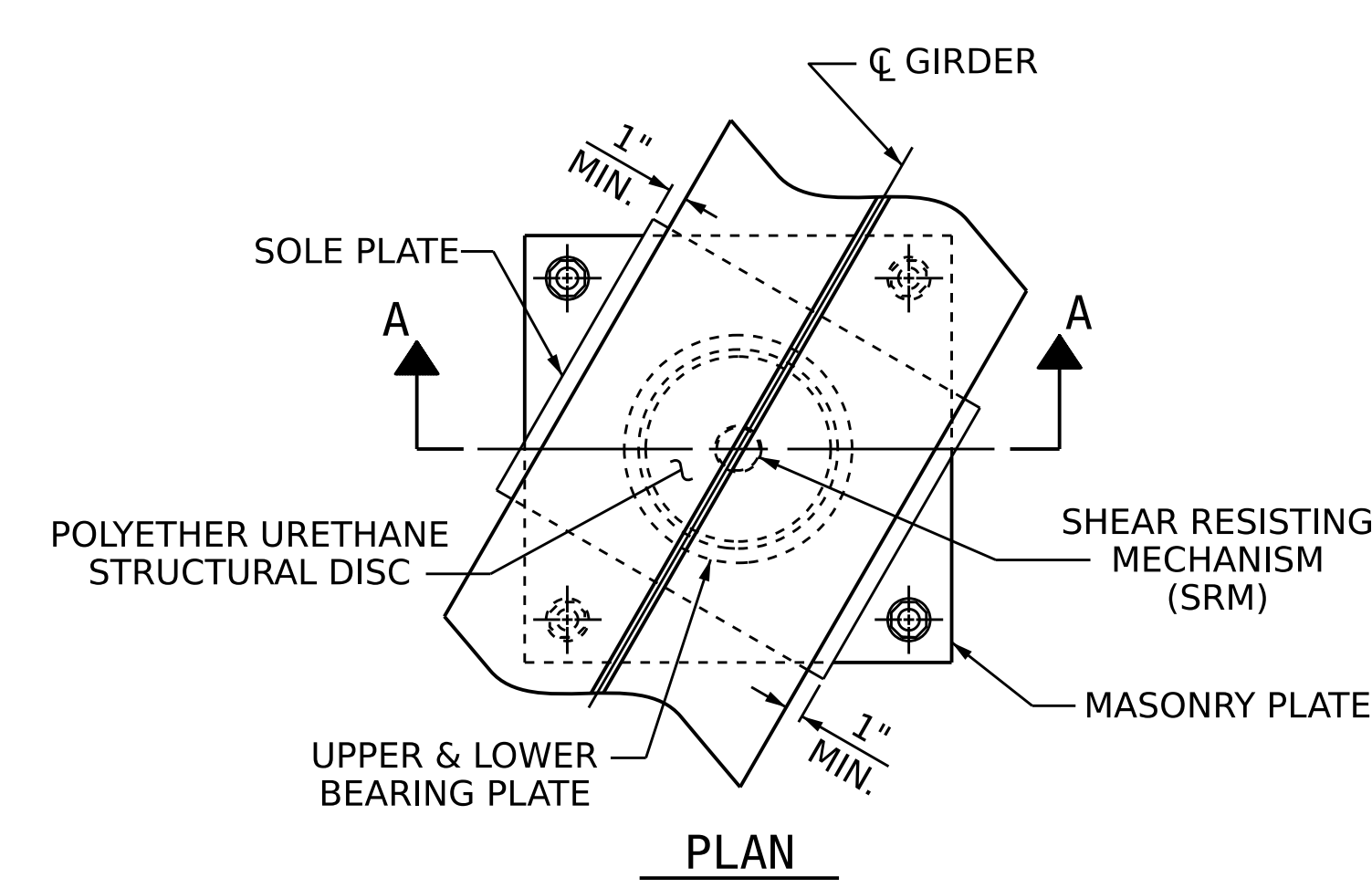
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

**STRUCTURAL STEEL DETAILS
(LEFT LANE)**

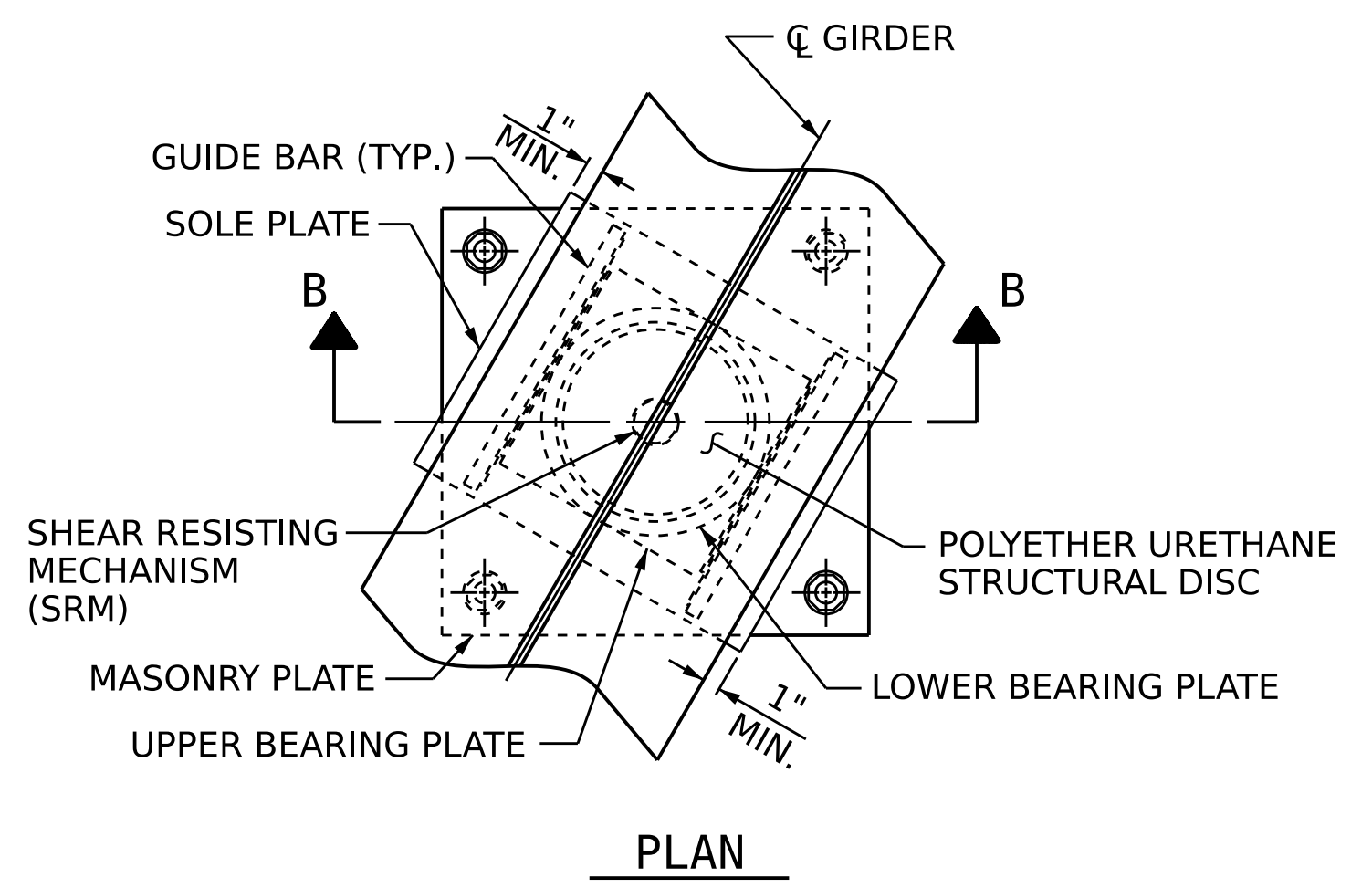
REVISIONS						SHEET NO. S3-22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 57
2			4			

ASSEMBLED BY: I. HART	DATE: 11/2023
CHECKED BY: J.C. MORRISON	DATE: 04/2024
DRAWN BY: WMC 6/11	REV. 12/17 MAA/THC
CHECKED BY: GM 6/11	

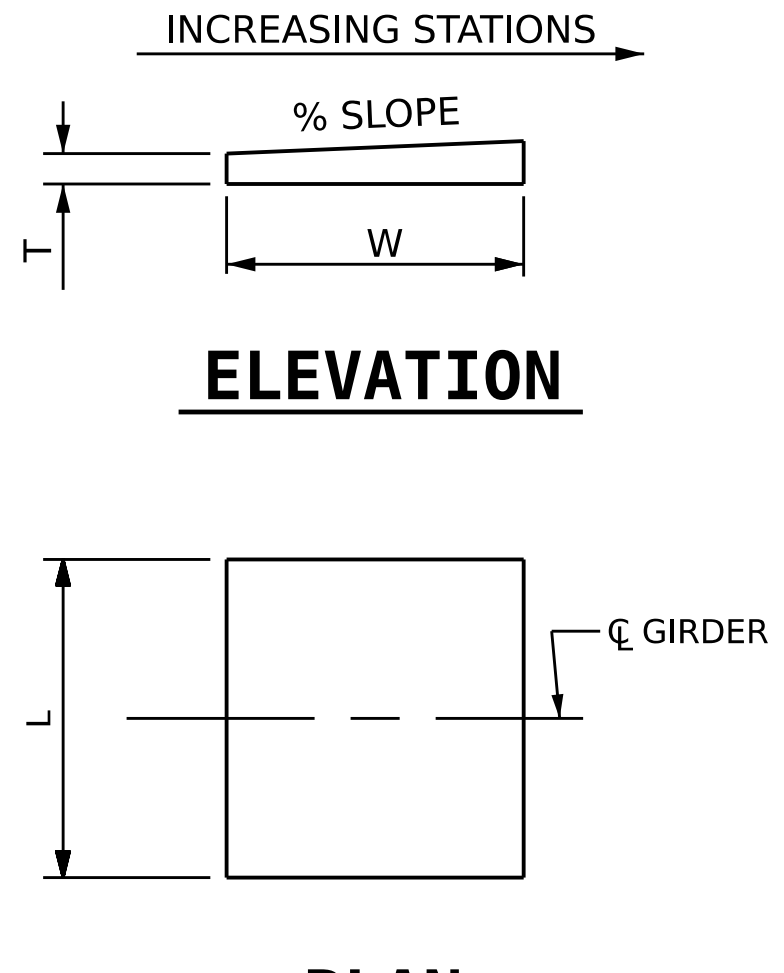
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PLAN



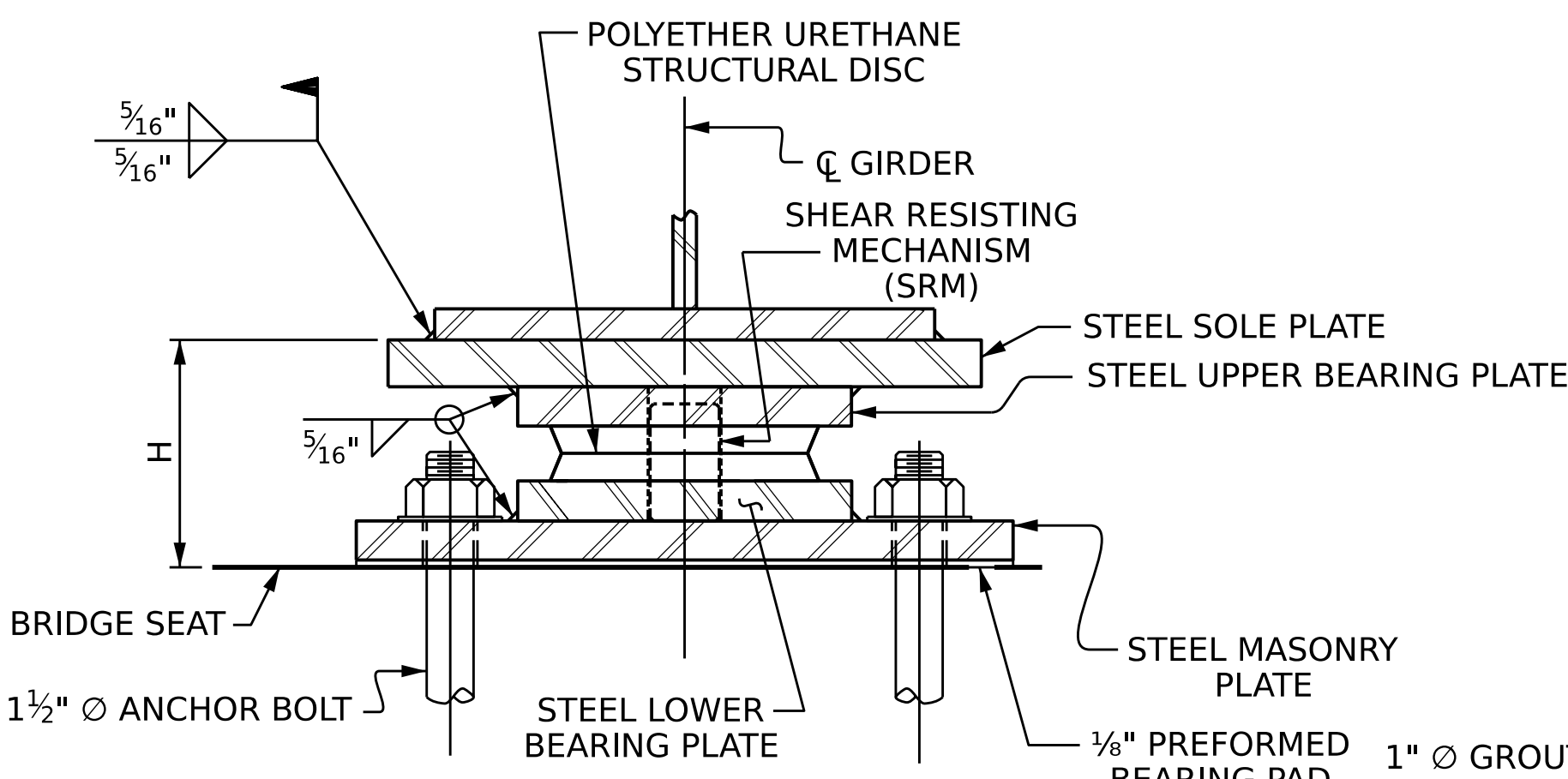
PLAN



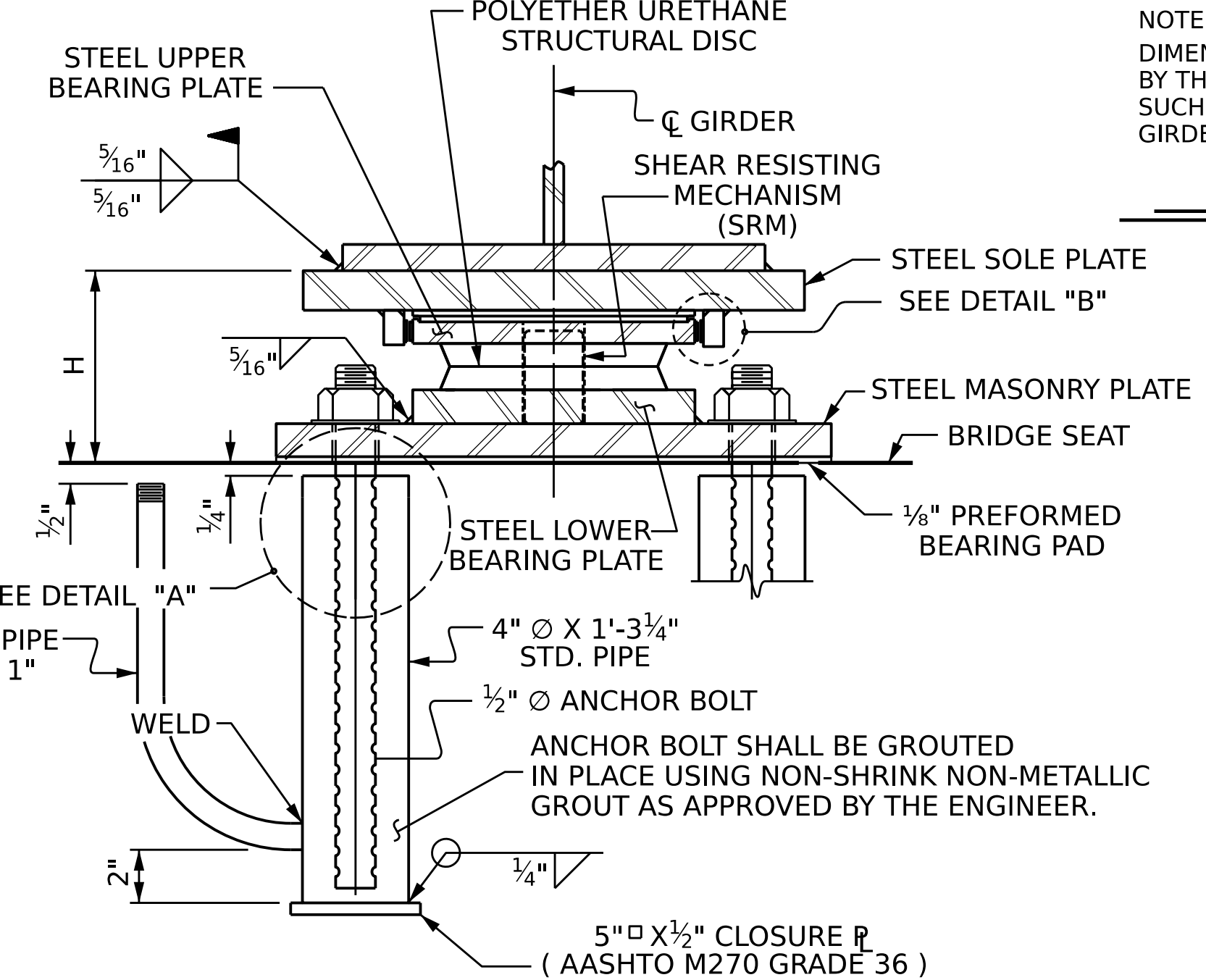
PLAN

NOTE:
DIMENSIONS "W" AND "T" SHALL BE DETERMINED
BY THE BEARING MANUFACTURER. SET DIMENSION "L"
SUCH THAT THE MINIMUM EDGE DISTANCE TO THE
GIRDER FLANGE IS 1".

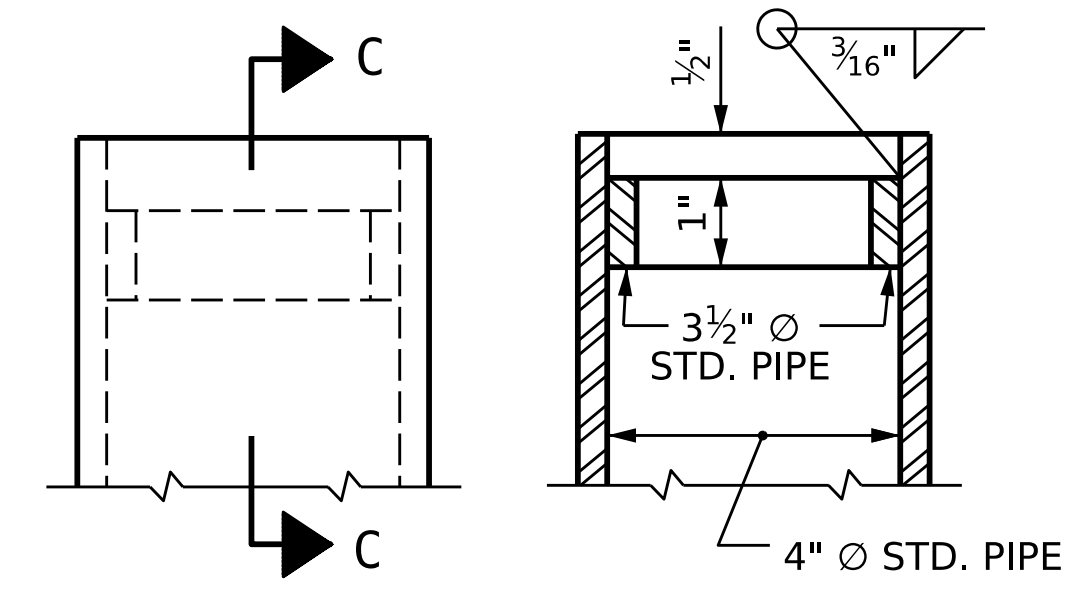
SOLE PLATE DETAILS



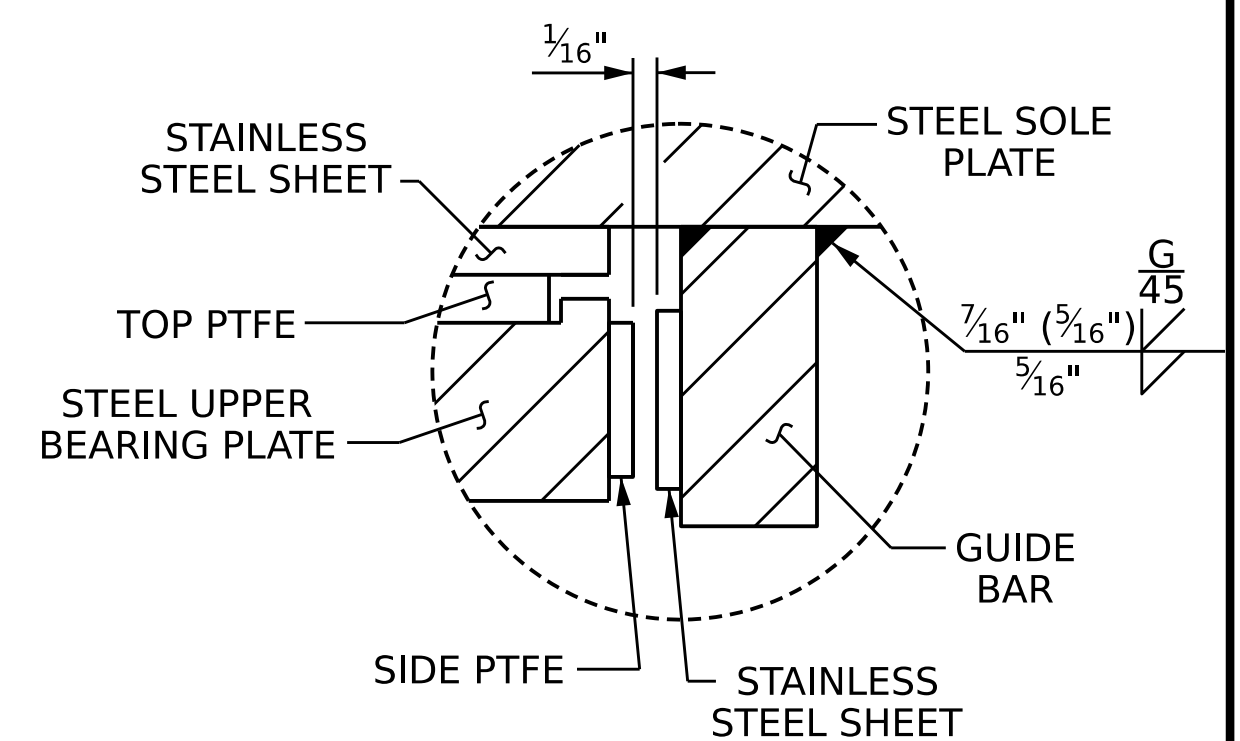
SECTION A-A
DB1, FIXED



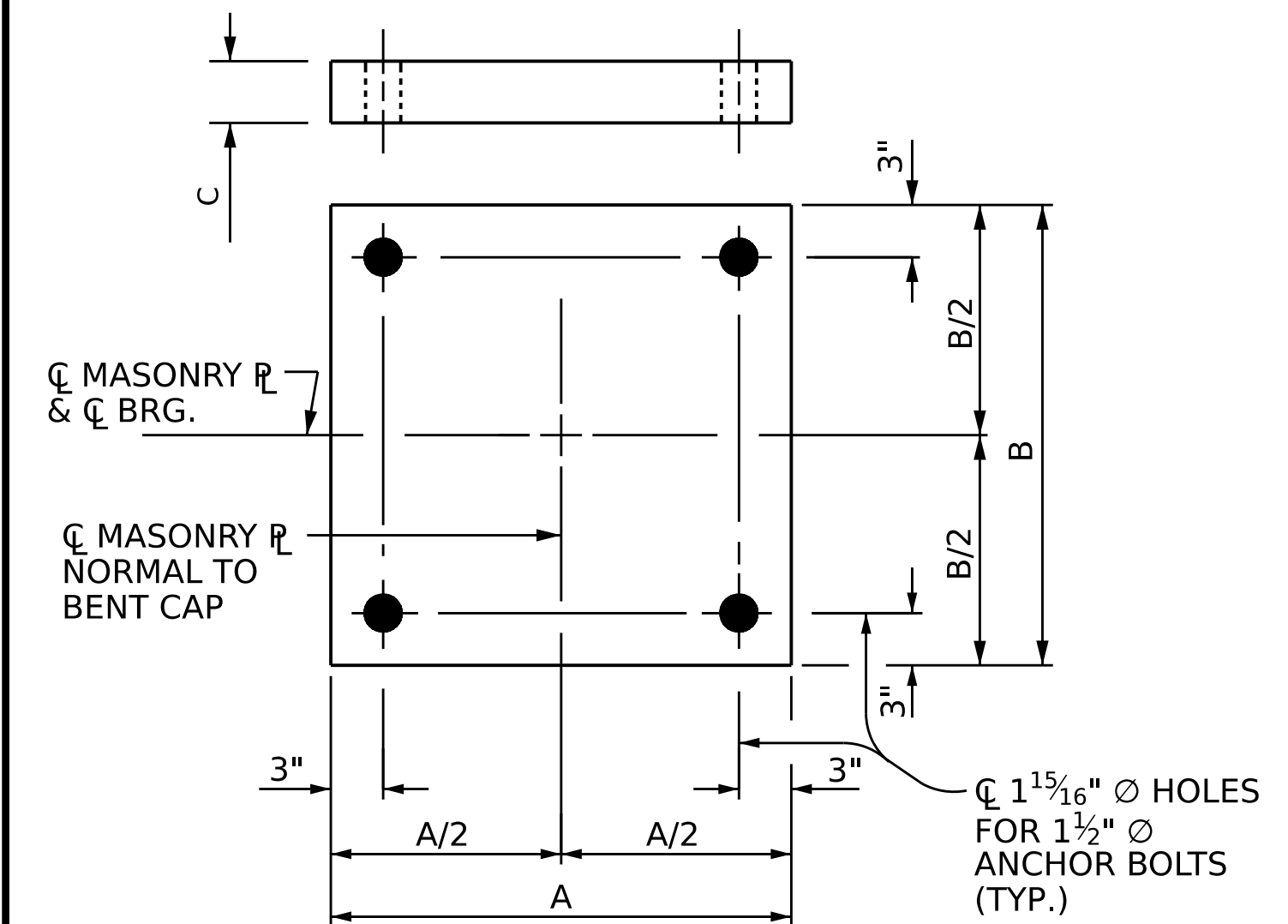
SECTION B-B
DB2, EXP.



DETAIL "A"



DETAIL "B"



MASONRY PLATE DETAILS

PLATE SETTING DATA (EXPANSION DISC BEARINGS)				
LOCATION	TEMPERATURE AT TIME OF SETTING			*
		60° F	90° F	
DB2 (EXP.)	-1/16	0	3/16	-3/16

* CORRECTION FOR END ROTATION DUE TO WEIGHT OF SLAB AND
COMPOSITE DEAD LOAD.

TEMPERATURE SETTING DETAIL

DESIGNATIONS		LOCATION	NUMBER OF BEARINGS	DIMENSIONS				LOADS AND MOVEMENT			
				BEARING H (IN.)	MASONRY PLATE			SOLE PLATE		UNFACTORED VERTICAL LOAD (KIPS)	
BEARINGS	MASONRY }				A (IN.)	B (IN.)	C (IN.)	TOP SLOPE (%)	L (IN.)	DEAD	LIVE
DB1 (FIX.)	M1	BENT 1	6	6.5	24.5	24.5	1	1.760	18	DC	LL+IM
DB2 (EXP.)	M2	BENT 2	6	7.75	30.5	30.5	1	3.006	18	317	54

ASSEMBLED BY : M. CATER
CHECKED BY : J.C. MORRISON
DATE : 03/2026
DATE : 03/2026
DRAWN BY : TMG 08/13
CHECKED BY : EKP 10/13
REV. 12/17
MAA/THC

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

Seal of John C. Morrison, Professional Engineer, State of North Carolina, License No. 030474, dated 7/16/2026.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
**DISC BEARING
DETAILS
(LEFT LANE)**

REVISIONS						SHEET NO. S3-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 57
2			4			

STD. NO. DB1

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.

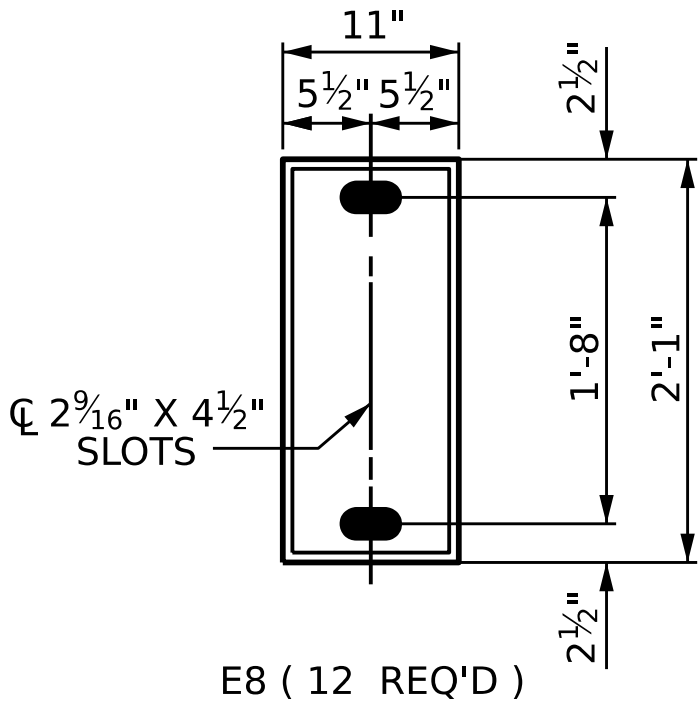
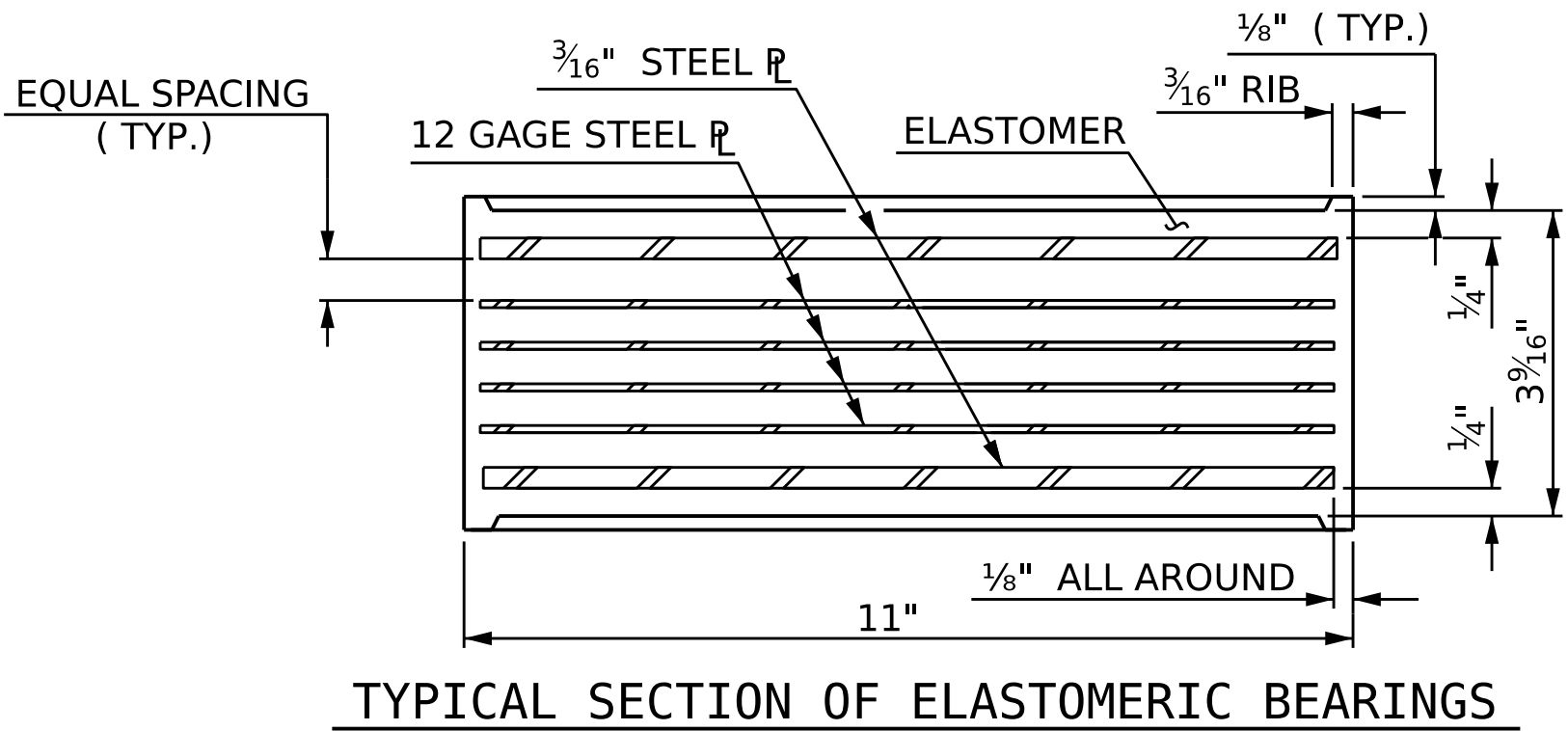
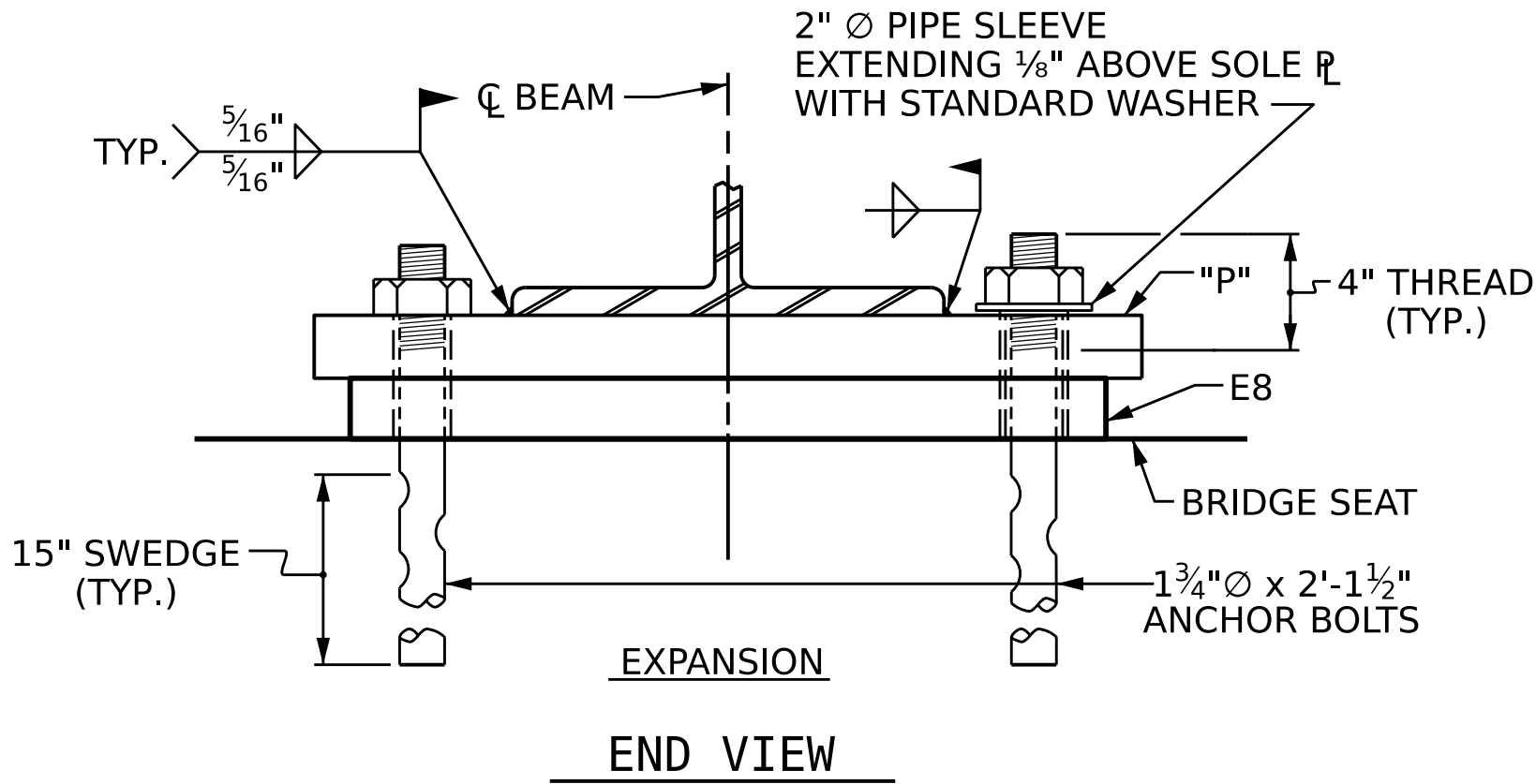
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

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:

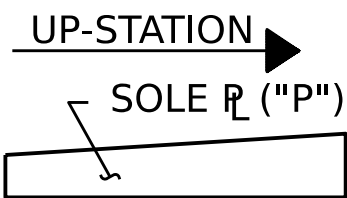
1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED THEN THE ELASTOMERIC BEARING SLOTS CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60°F.

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

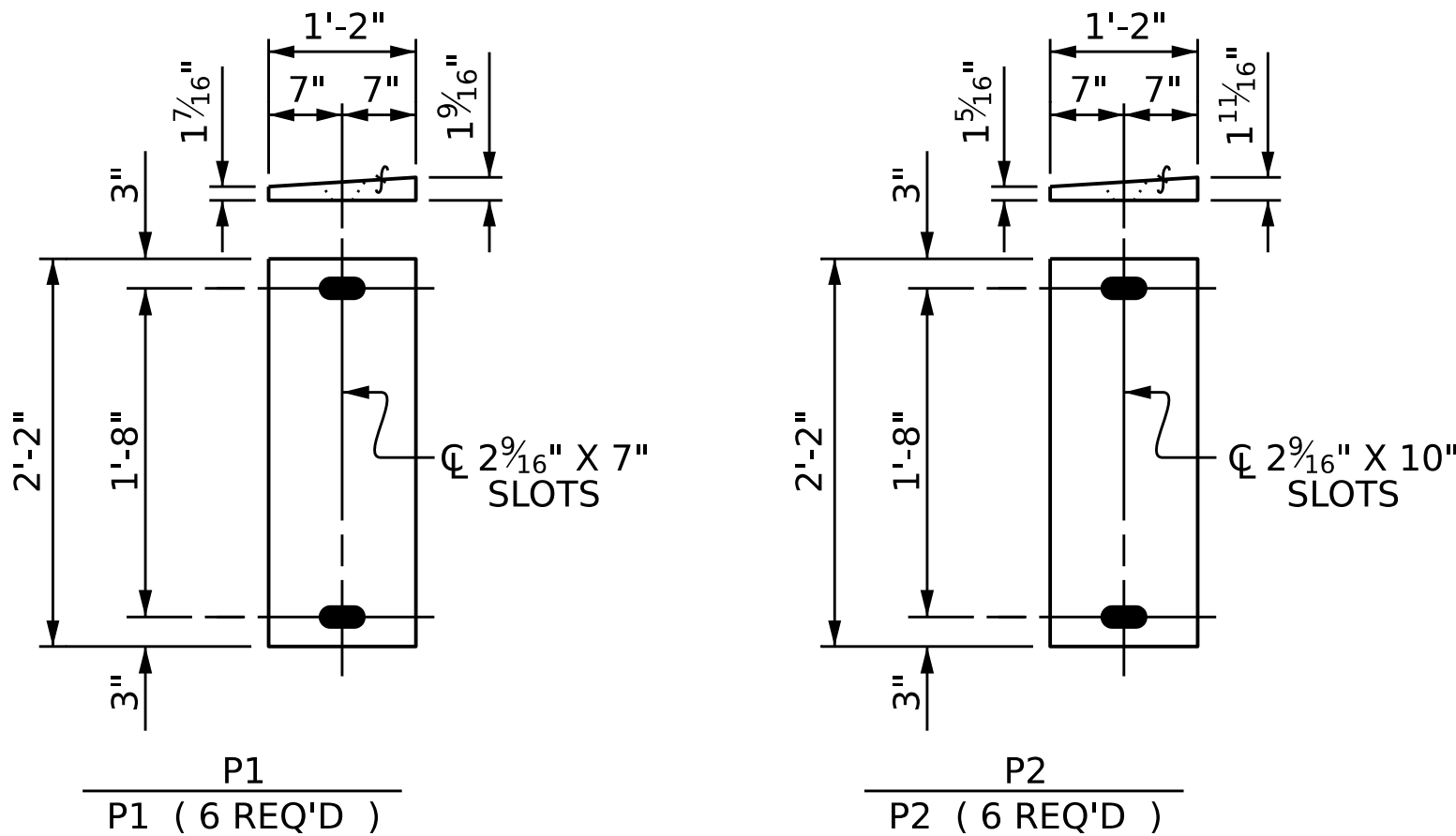


PLAN VIEW OF ELASTOMERIC BEARING

TYPE IV



SOLE PLACEMENT DETAIL

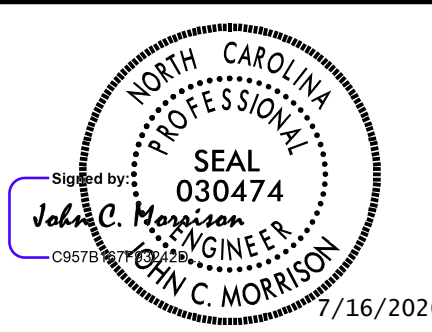


SOLE PLATE DETAILS ("P")

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	310 k

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-



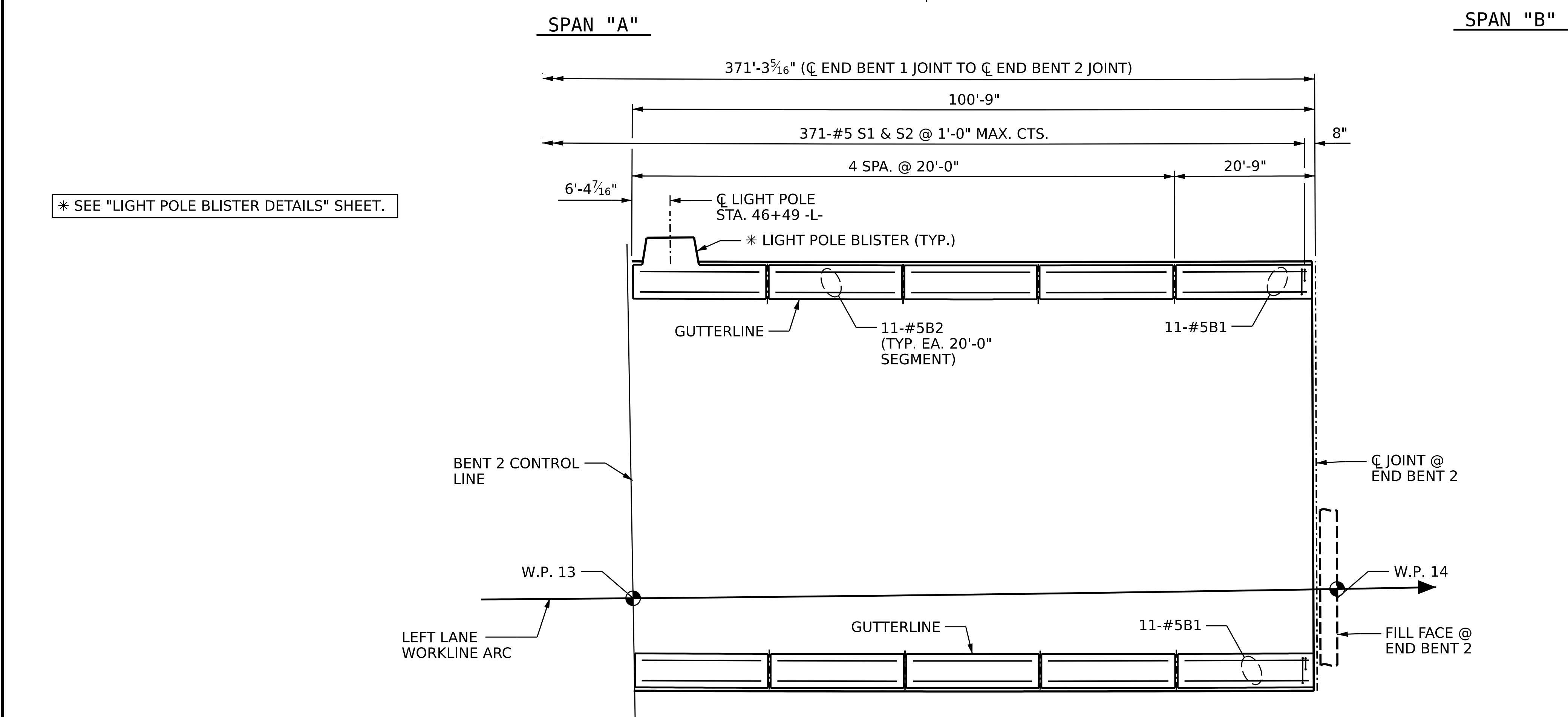
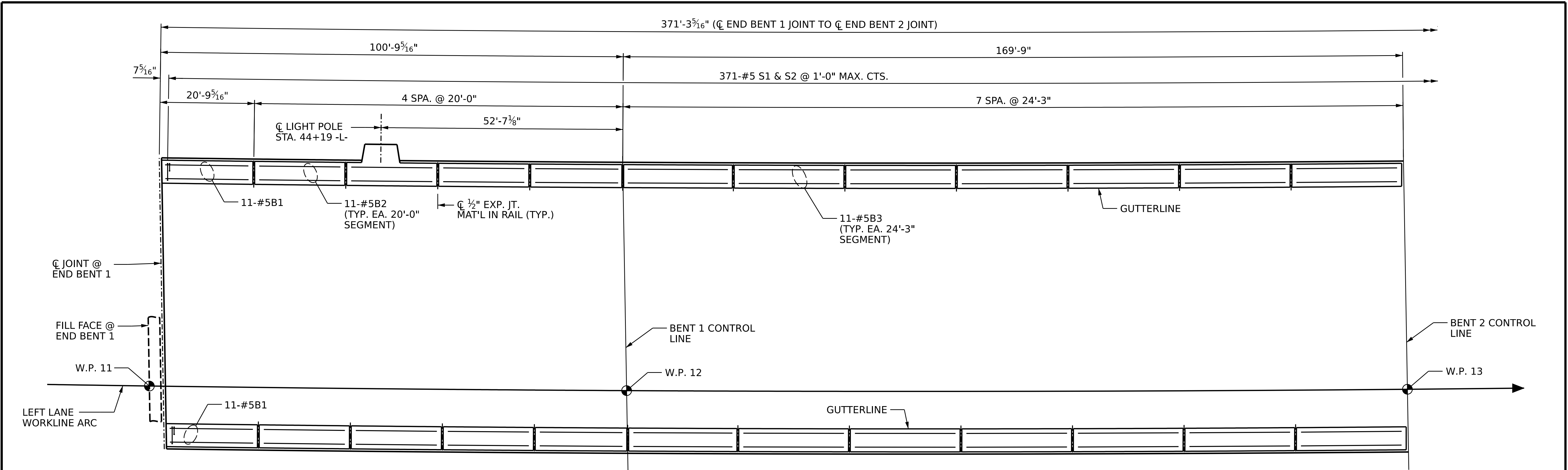
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

ELASTOMERIC BEARING DETAILS
(LEFT LANE)

REVISIONS						SHEET NO. S3-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 57
2			4			

STD. NO. EB2

ASSEMBLED BY : I. HART		DATE : 11/2023	
CHECKED BY : J.C. MORRISON		DATE : 03/2026	
DRAWN BY :	JMB 11/87	REV. 12/17	MAA/THC
CHECKED BY :	ARB 11/87	REV. 10/21	BNB/AAI
		REV. 10/23	BNB/SNM



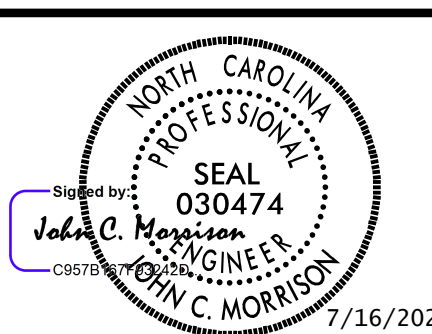
* SEE "LIGHT POLE BLISTER DETAILS" SHEET.

NOTES:

- ALL DIMENSIONS ARE ARC DIMENSIONS GIVEN ALONG OUTSIDE FACES OF RAIL.
- #5 S1 & S2 BARS MAY BE SHIFTED AS NECESSARY TO CLEAR EXPANSION JOINTS IN RAILS.
- FOR ADDITIONAL NOTES, SEE SHEET 2 OF 2.
- FOR REINFORCING STEEL & QUANTITIES OF BARRIER RAIL ON APPROACH SLAB, SEE "APPROACH SLAB DETAILS" SHEET.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

CONCRETE BARRIER
RAIL

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-34
2			4			
TOTAL SHEETS						57

DRAWN BY : M. CATER DATE : 11/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

PLAN OF CONCRETE BARRIER RAIL

DIMENSIONS & REINFORCING STEEL
TYPICAL LEFT AND RIGHT BARRIER RAILS

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

GROOVED CONTRACTION JOINTS $\frac{1}{2}$ " IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL 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 THE 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.

ALL REINFORCING STEEL IN THE CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

THE #5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO PROVIDE 2" CLEARANCE TO THE 1/2" EXPANSION JOINT.

CONDUIT IN BARRIER RAIL NOT SHOWN. SEE LIGHTING PLANS.

* EPOXY COATED REINFORCING STEEL	17,382 LBS.
-------------------------------------	-------------

CLASS AA CONCRETE	101.1 C.Y.
CONCRETE BARRIER RAIL	742.25 L.F.

ALL BAR DIMENSIONS ARE OUT TO OUT.



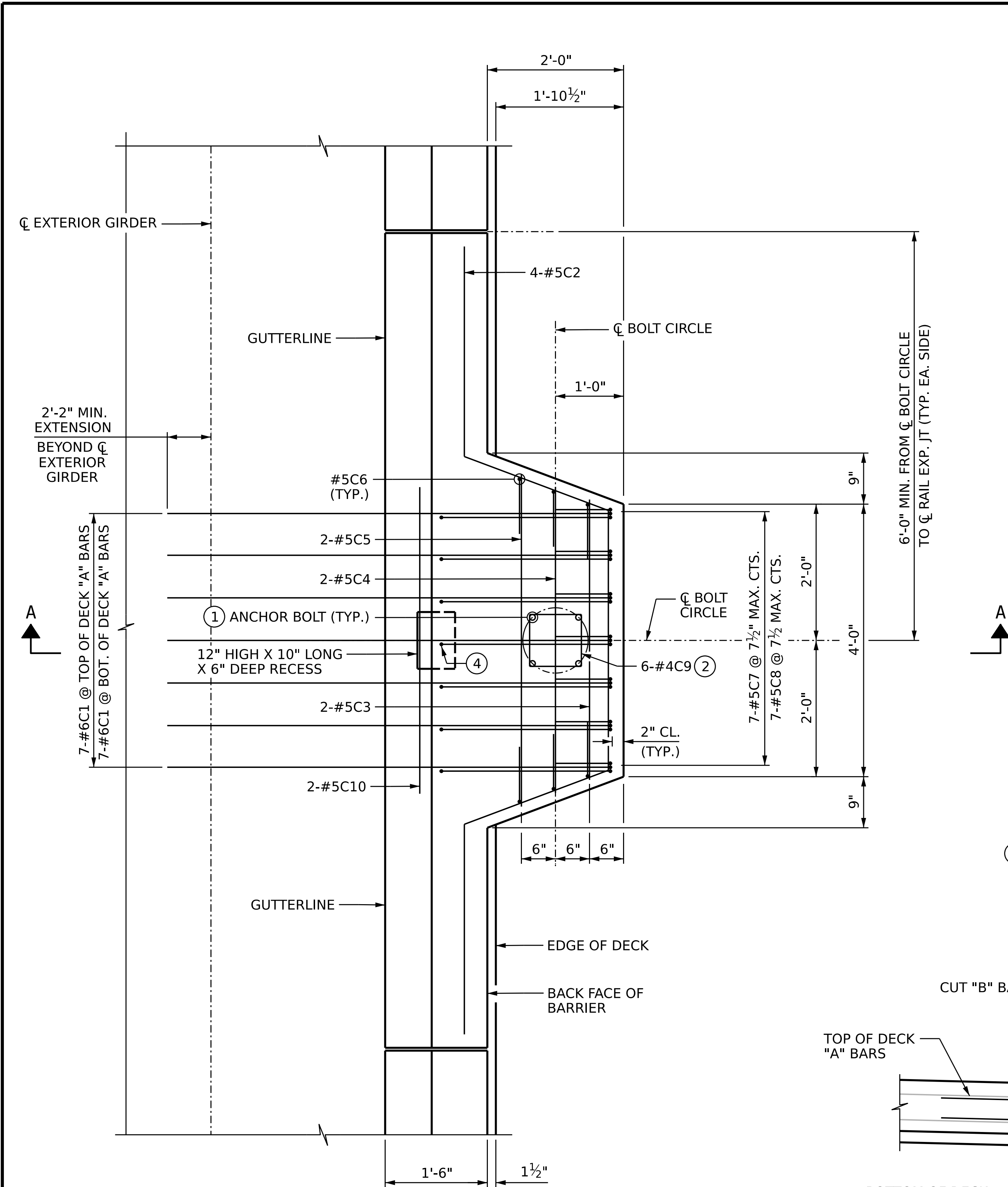
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

(LEFT LANE)

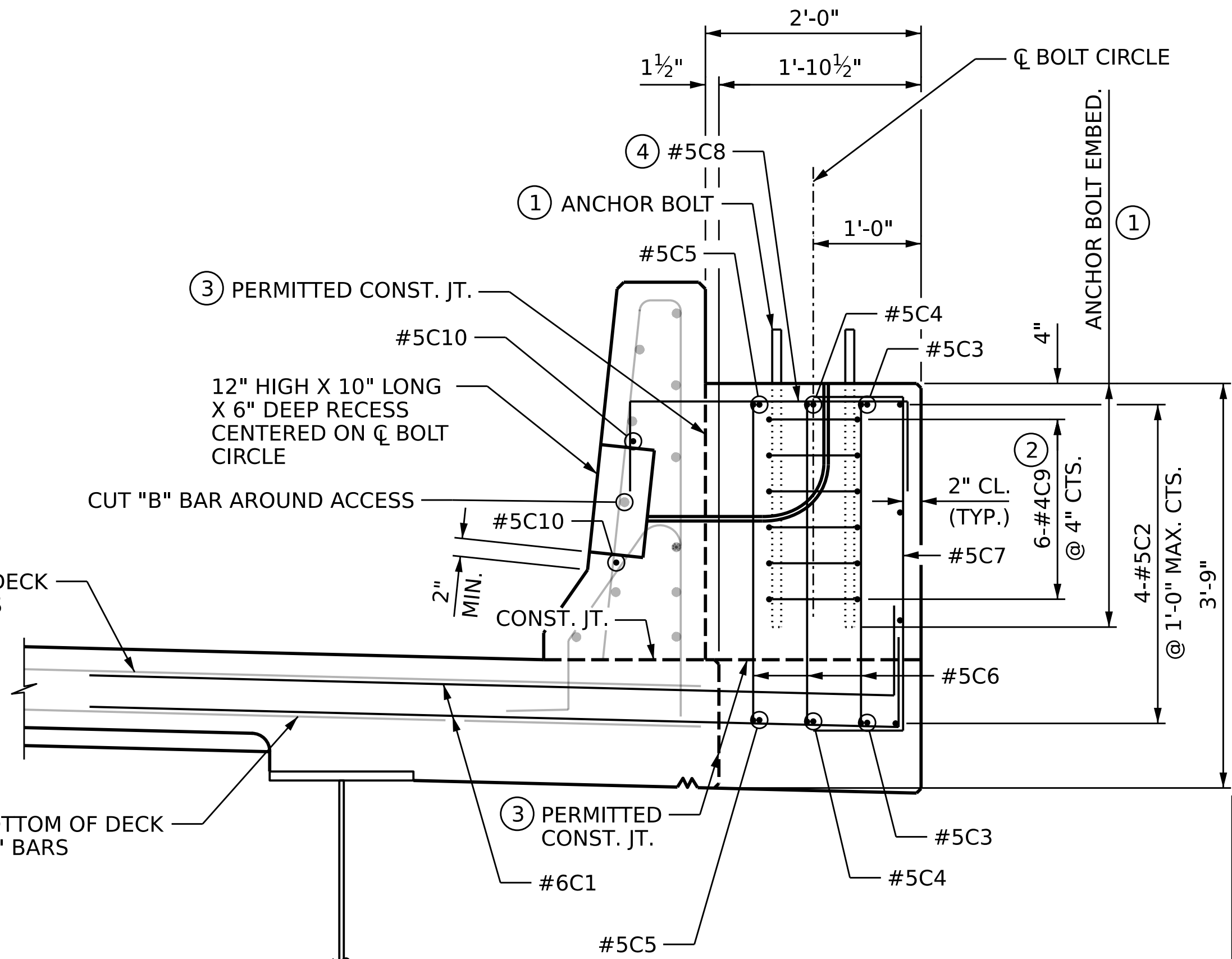
STD.NO.CBR1



PLAN

DECK SLAB REINFORCING AND BARRIER RAIL
REINFORCING BARS NOT SHOWN FOR CLARITY

DRAWN BY :	D. DRUM	DATE :	12/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026



SECTION A-A

NOTES:

THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CASTING THE DECK IF THE ANCHOR BOLT EMBEDMENT LENGTH IS LESS THAN 30".

REINFORCING STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH ANCHOR BOLTS AND RECESS.

FOR LOCATION OF LIGHT POLE BLISTERS, SEE "CONCRETE BARRIER RAIL" SHEET 1 OF 2.

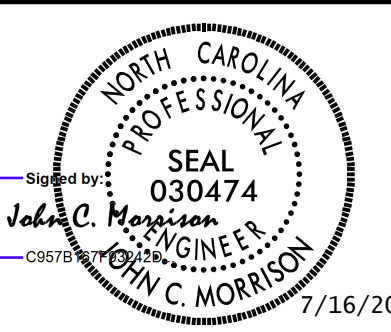
FOR LIGHTING DETAILS NOT SHOWN, SEE LIGHTING PLANS.

NO ADDITIONAL PAYMENT WILL BE MADE FOR LIGHT POLE BLISTERS. THE COST SHALL BE CONSIDERED INCIDENTAL TO THE CONCRETE BARRIER RAIL PAY ITEM.

- ANCHOR BOLTS, NUTS, WASHERS, EMBEDDED PLATE AND ANCHOR BOLT EMBEDMENT, PROJECTION, AND BOLT CIRCLE DIMENSIONS TO BE PROVIDED BY OTHERS.
- #4C9 BARS SHALL TIE DIRECTLY TO THE EMBEDDED ANCHOR BOLTS AND BE SPACED VERTICALLY FOR THE ENTIRE EMBEDDED ANCHOR BOLT LENGTH. THE CONTRACTOR MAY ADJUST THE DIMENSION AND NUMBER OF C9 BARS TO FIT THE ANCHOR BOLTS PROVIDED BY OTHERS.
- EITHER THE VERTICAL PERMITTED CONSTRUCTION JOINT(S) OR THE HORIZONTAL PERMITTED CONSTRUCTION JOINT MAY BE USED. THE USE OF BOTH VERTICAL AND HORIZONTAL PERMITTED CONSTRUCTION JOINTS IS NOT PERMITTED.
- VERTICAL LEG OF #5C8 BAR AT RECESS MAY BE CUT TO MAINTAIN 2" CLEAR TO RECESS

BILL OF MATERIAL					
FOR ONE LIGHT POLE CONCRETE BLISTER (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*C1	14	6	1	8'-10"	186
*C2	4	5	2	14'-5"	60
*C3	2	5	STR	4'-0"	8
*C4	2	5	STR	4'-4"	9
*C5	2	5	STR	4'-9"	10
*C6	6	5	3	4'-9"	30
*C7	7	5	3	4'-10"	35
*C8	7	5	3	4'-2"	30
*C9	6	4	4	3'-9"	15
*C10	2	5	STR	7'-4"	15
* EPOXY COATED REINFORCING STEEL					398 LBS.
CLASS AA CONCRETE					1.3 C.Y.
BAR TYPES					
ALL BAR DIMENSIONS ARE OUT TO OUT.					

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

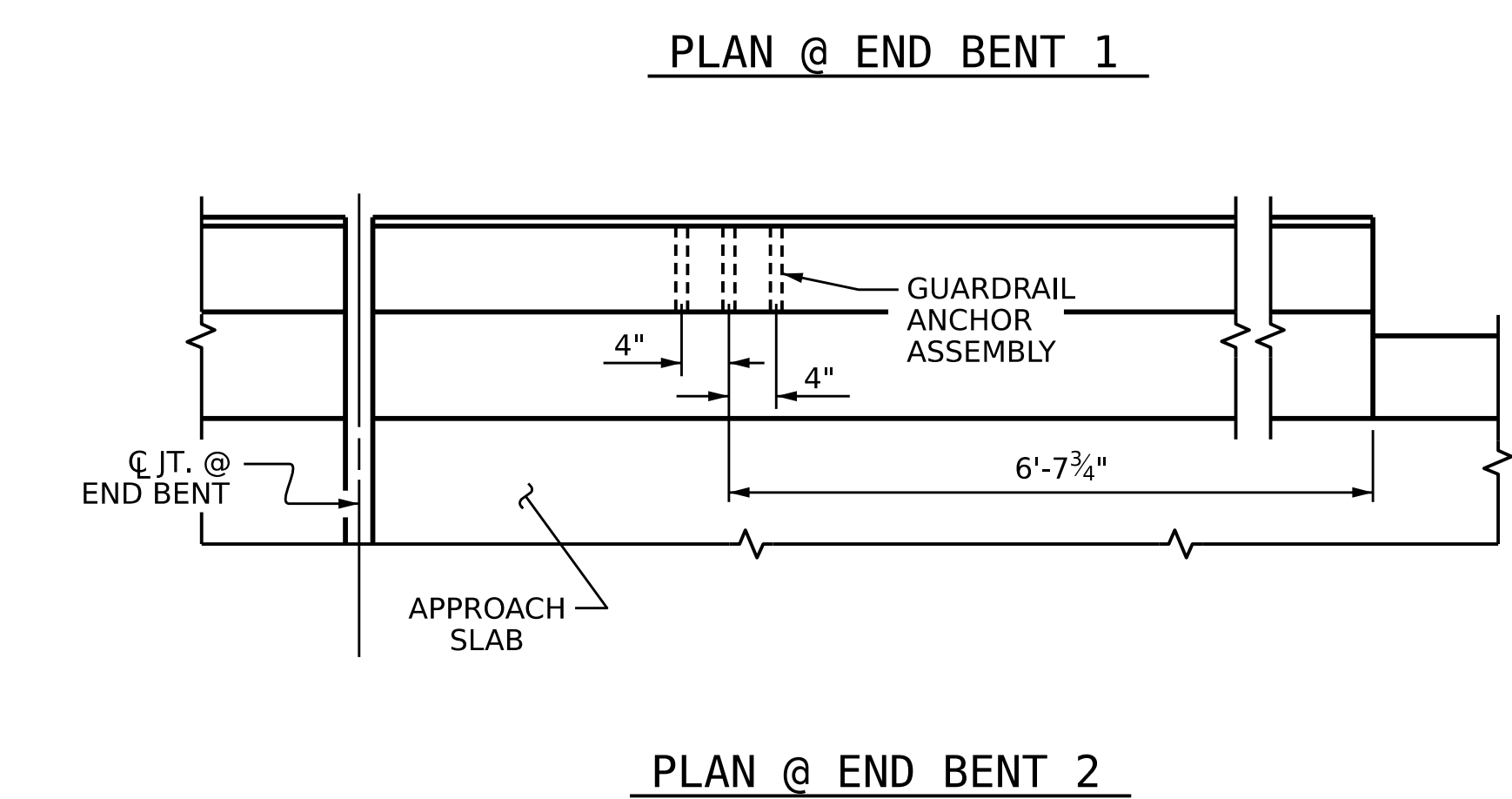
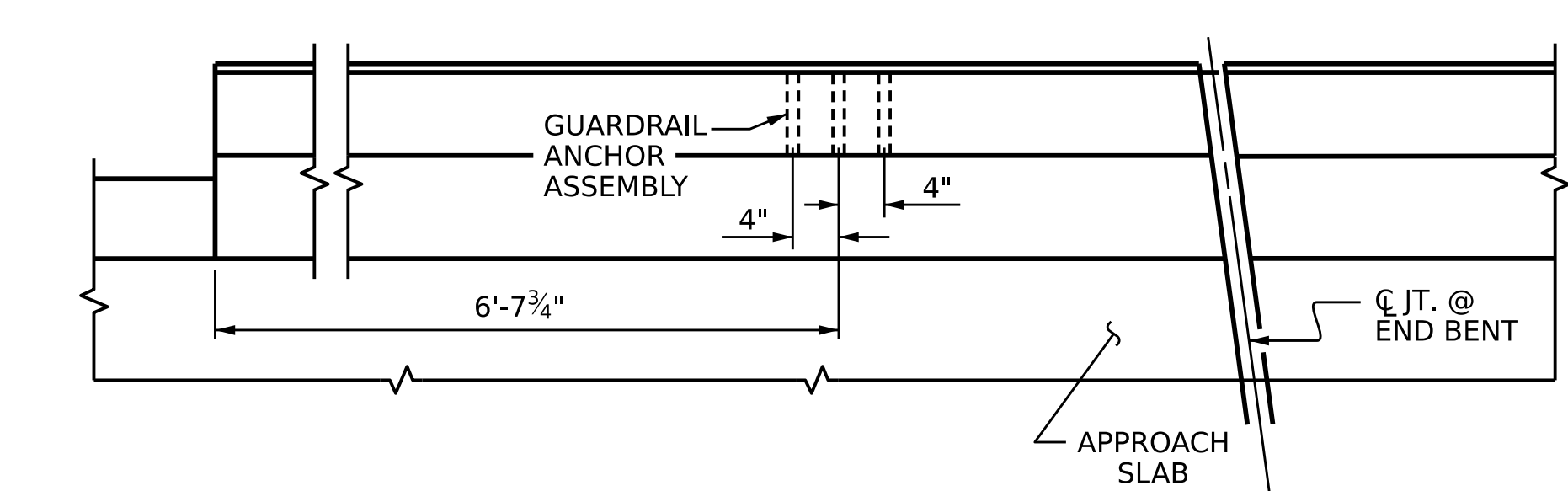
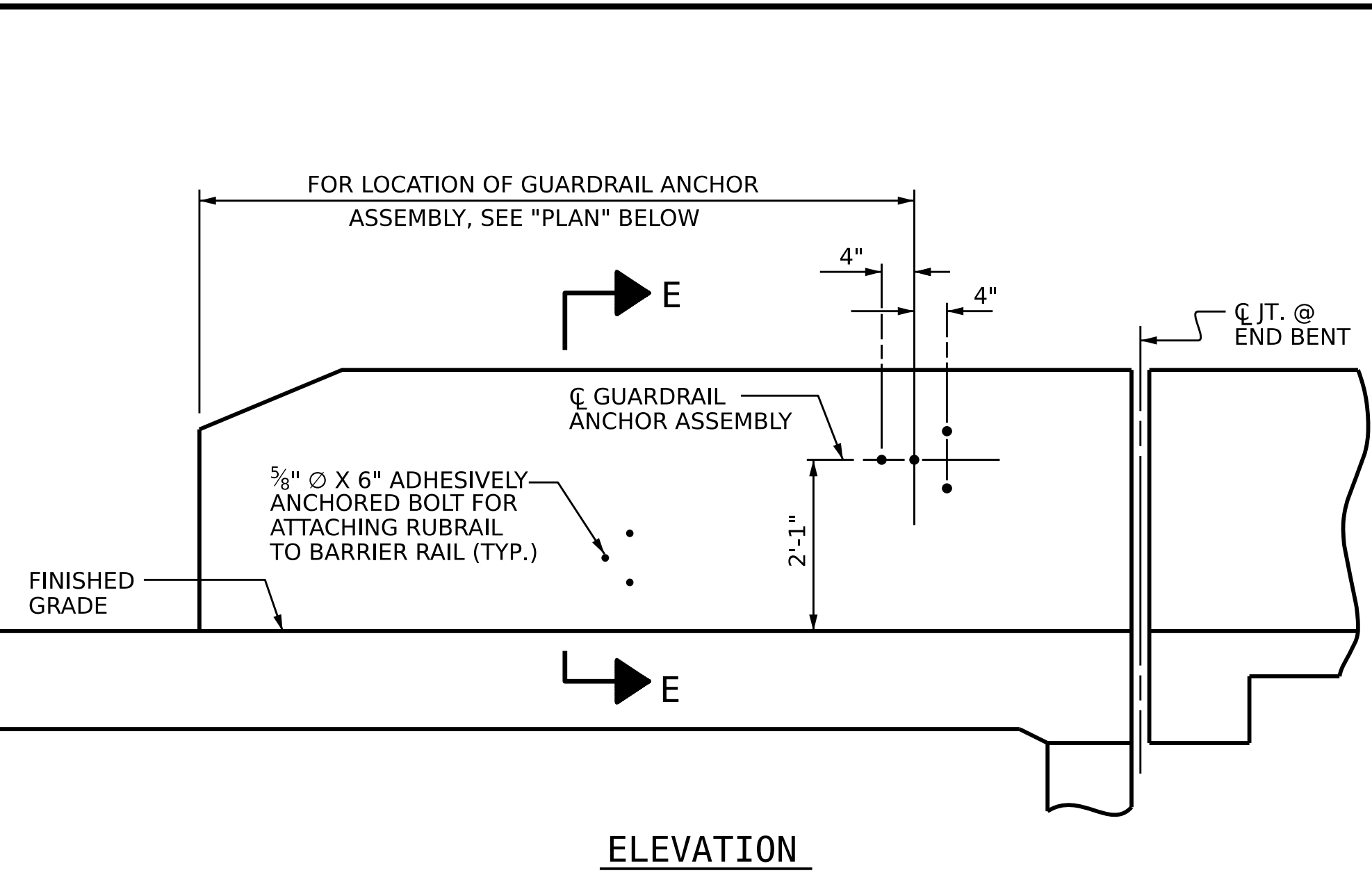
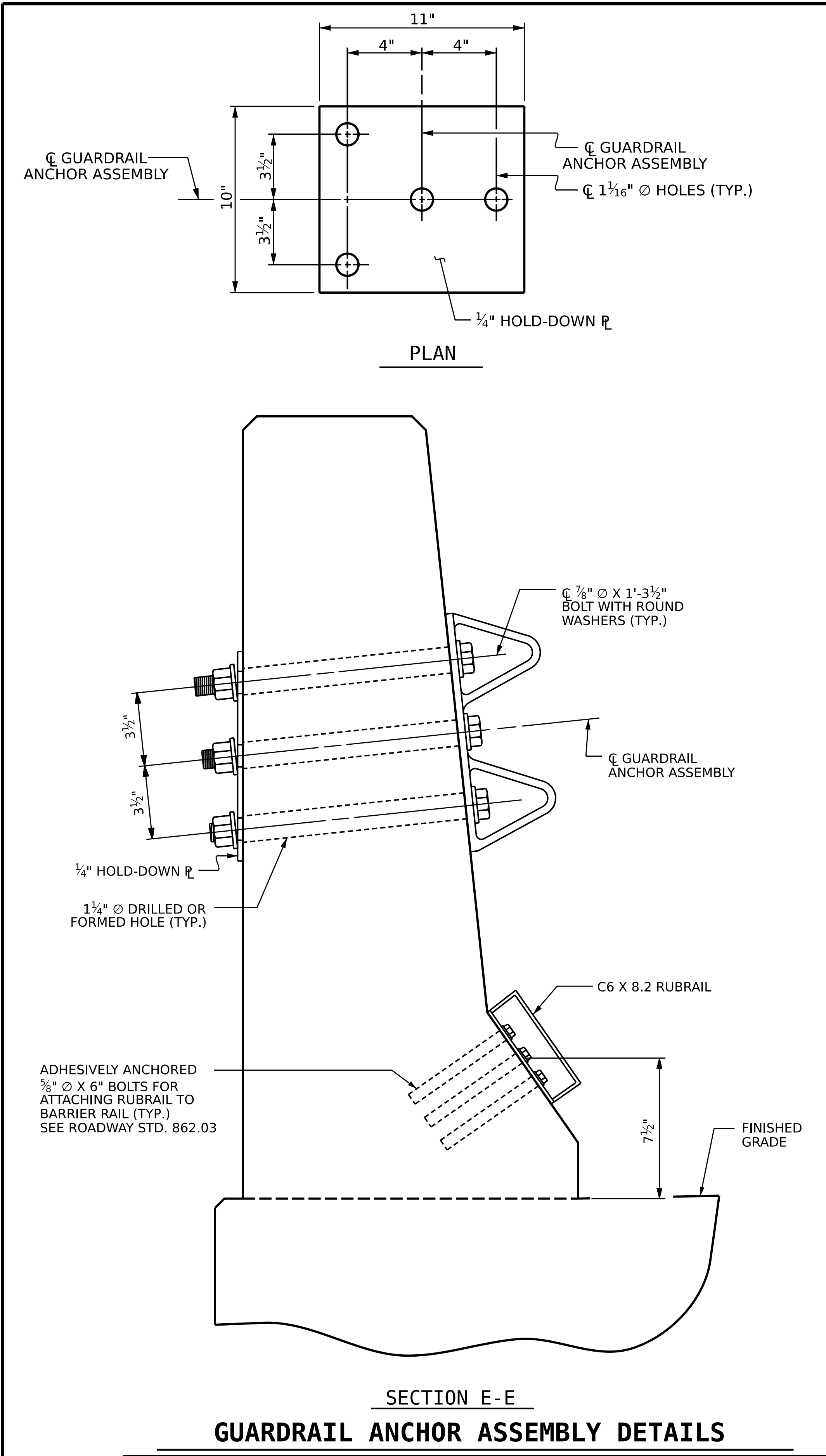
SUPERSTRUCTURE

**LIGHT POLE
BLISTER DETAILS**

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-36
1			3			TOTAL SHEETS
2			4			57

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



LOCATION OF ANCHORS FOR GUARDRAIL

NOTES

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

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

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

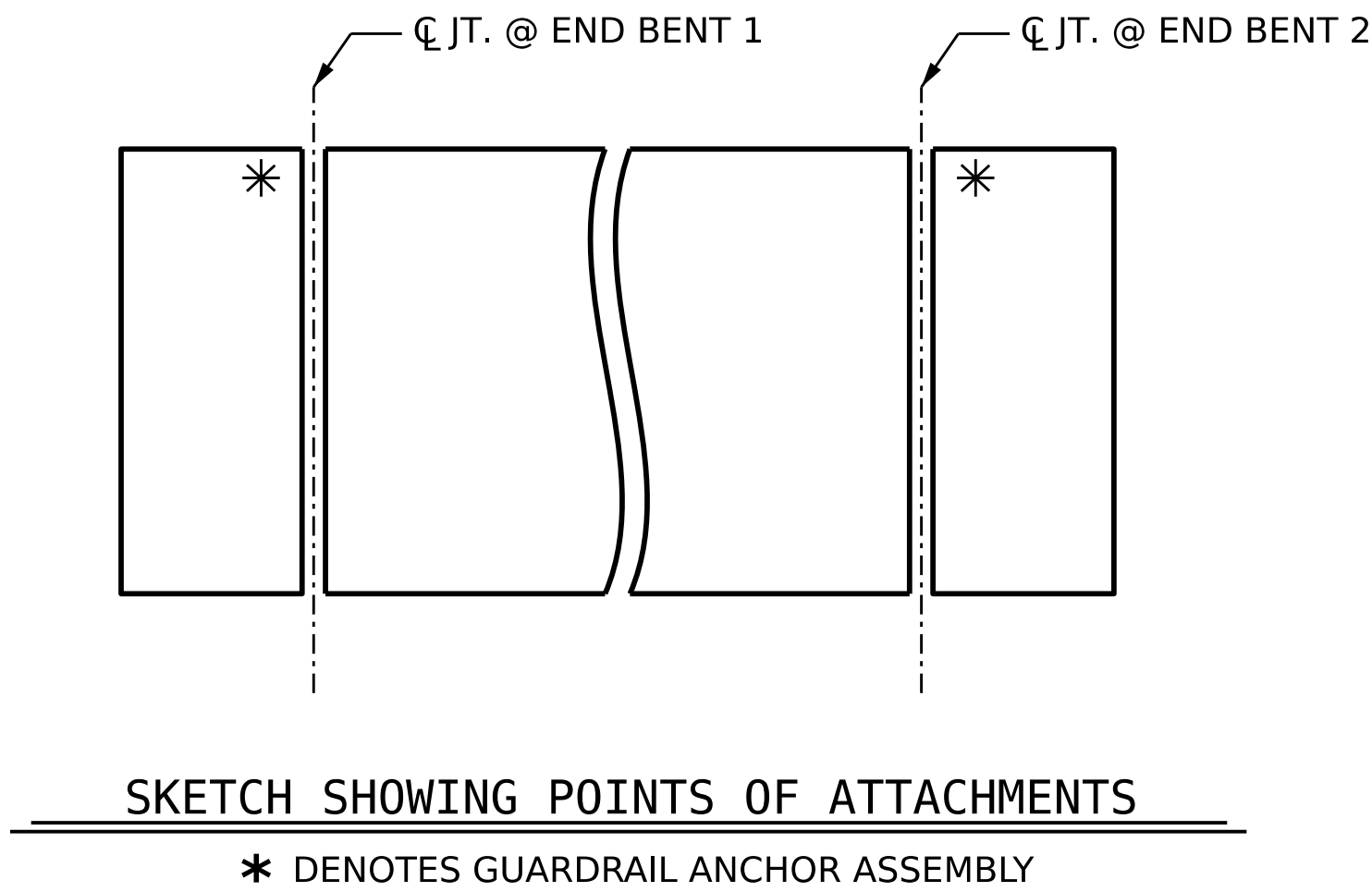
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 5/8" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

AECOM AECOM TECHNICAL SERVICES OF NC, INC. 5438 WADE PARK BOULEVARD, SUITE 200 RALEIGH, NC 27607 (919) 854-6200 www.aecom.com AECOM License No. F02342	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL (LEFT LANE)	
	SHEET NO. S3-37 TOTAL SHEETS 57	

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ASSEMBLED BY : M. CATER	DATE : 03/2026
CHECKED BY : J.C. MORRISON	DATE : 03/2026
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

NOTES:

FOR 72" CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

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

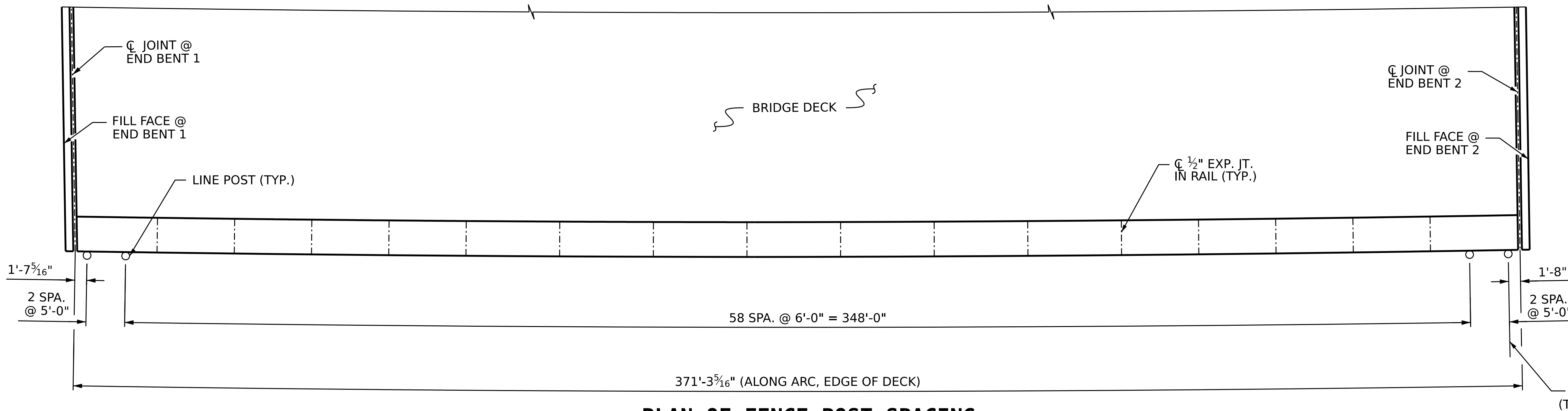
FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. SEE STANDARD SPECIFICATIONS SECTION 420-13 FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4" Ø BOLTS IS 12.0 KIPS.

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

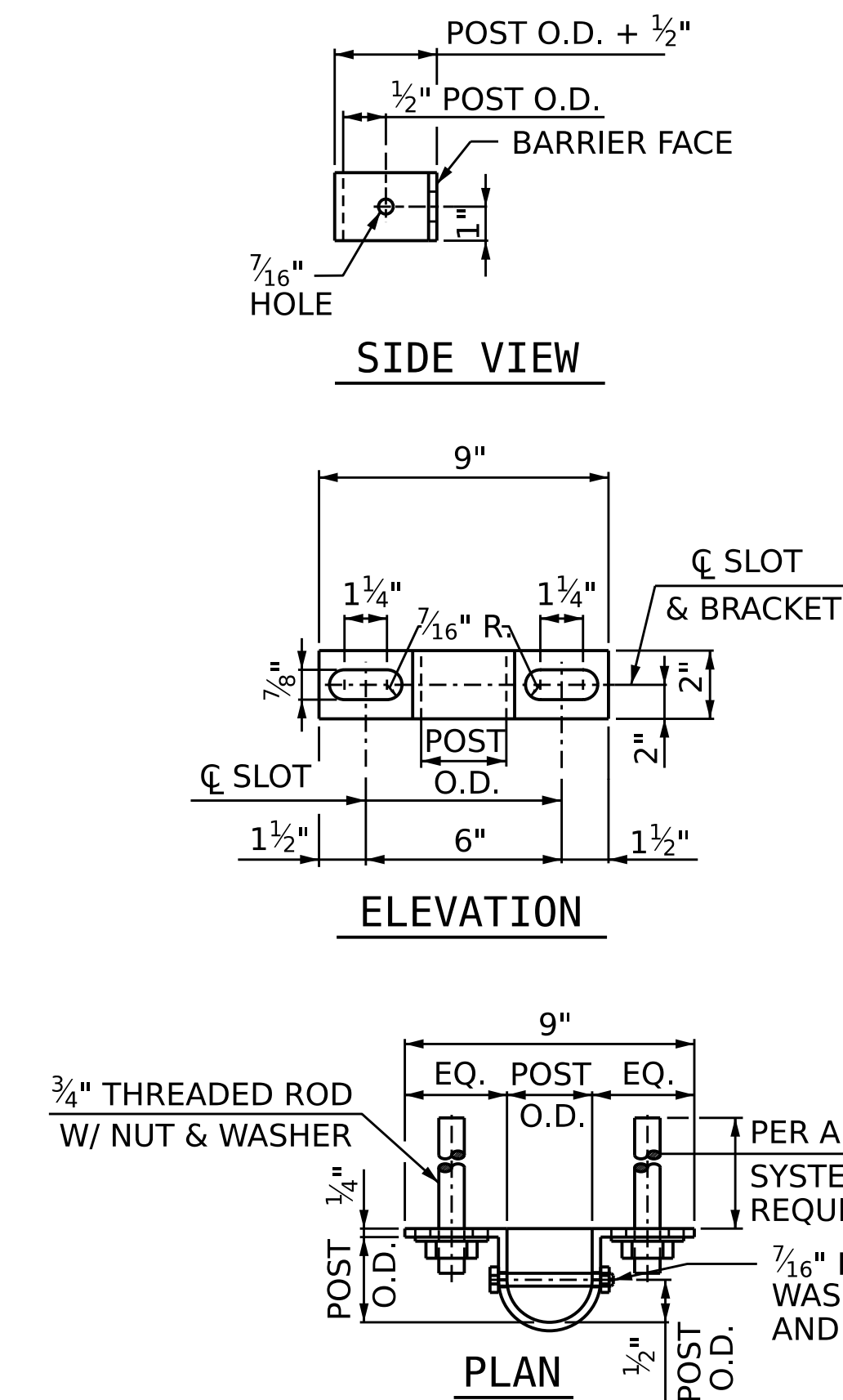
FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN BARRIER RAIL.

DIMENSIONS ARE SHOWN ALONG OUTSIDE EDGE OF DECK.

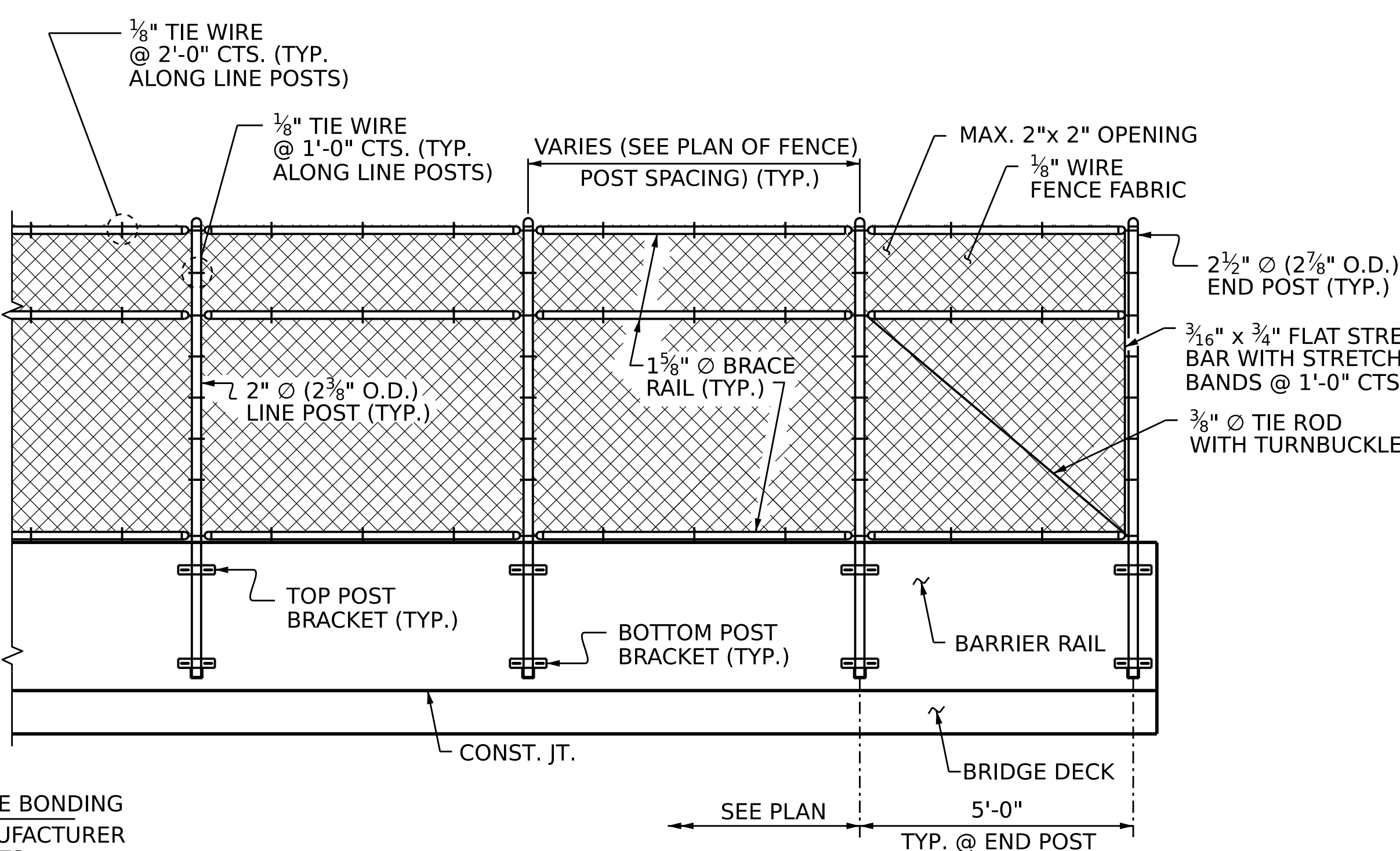
72" CHAIN LINK FENCE PAY LENGTH = 368.0 LIN. FT.



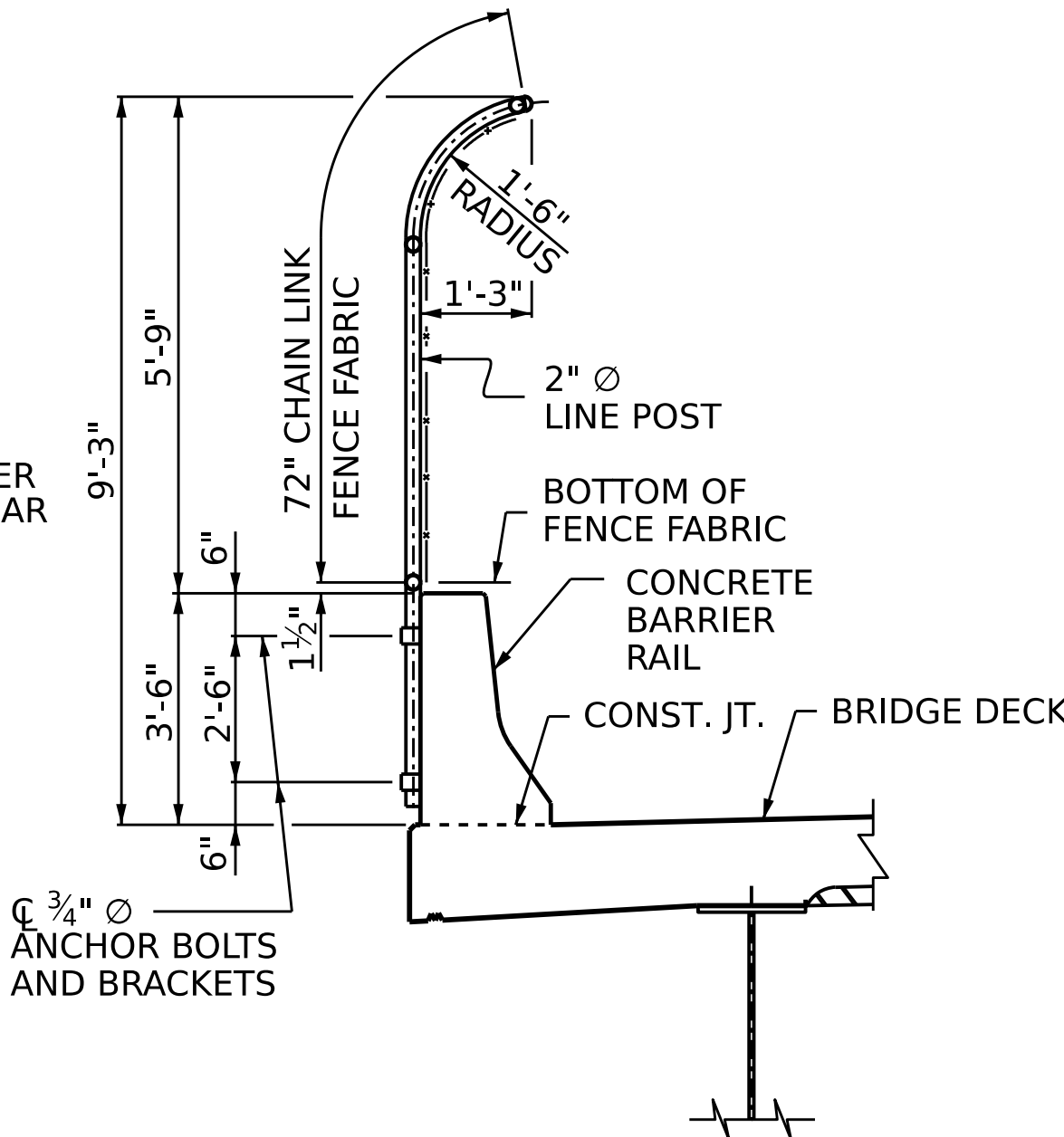
PLAN OF FENCE POST SPACING



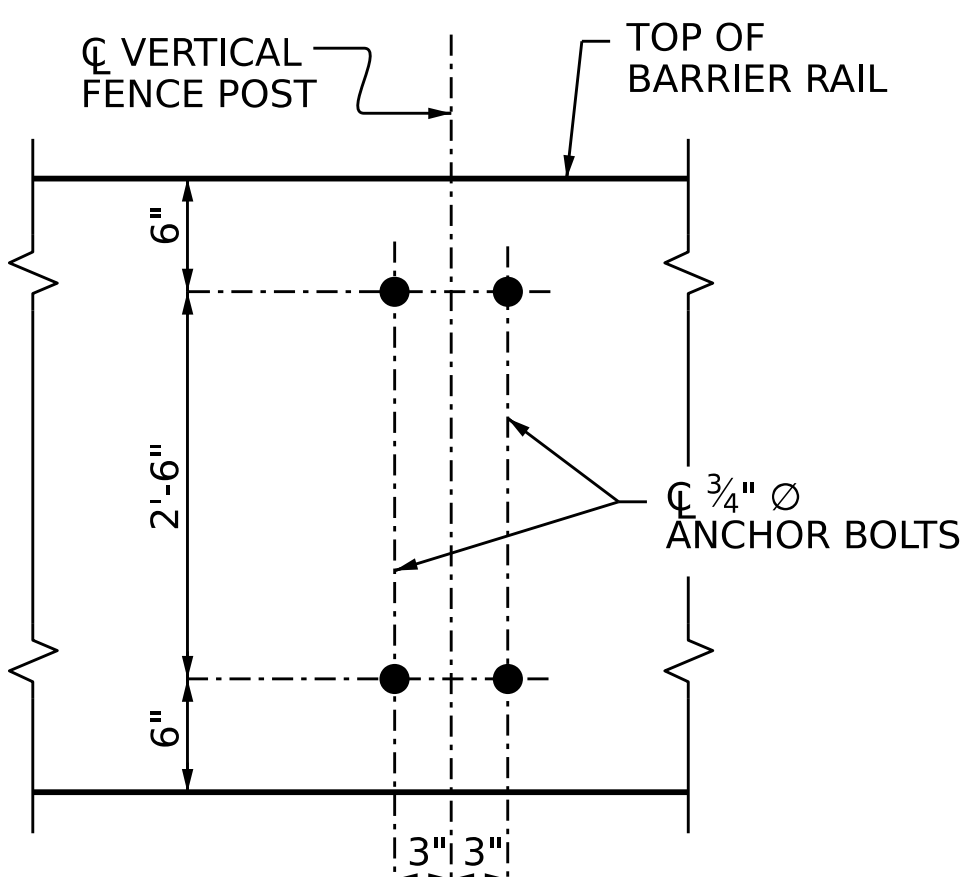
TOP POST BRACKET



PARTIAL ELEVATION



SECTION THRU FENCE

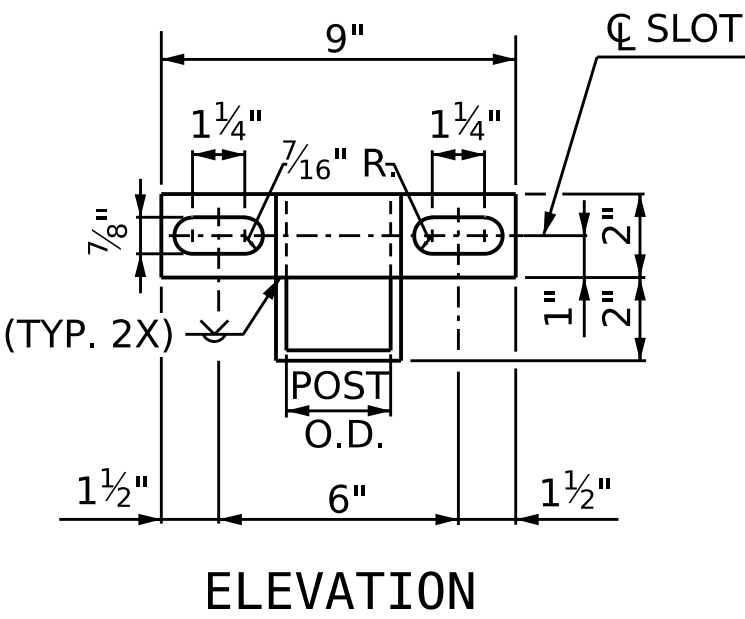


BOLT SETTING DETAIL

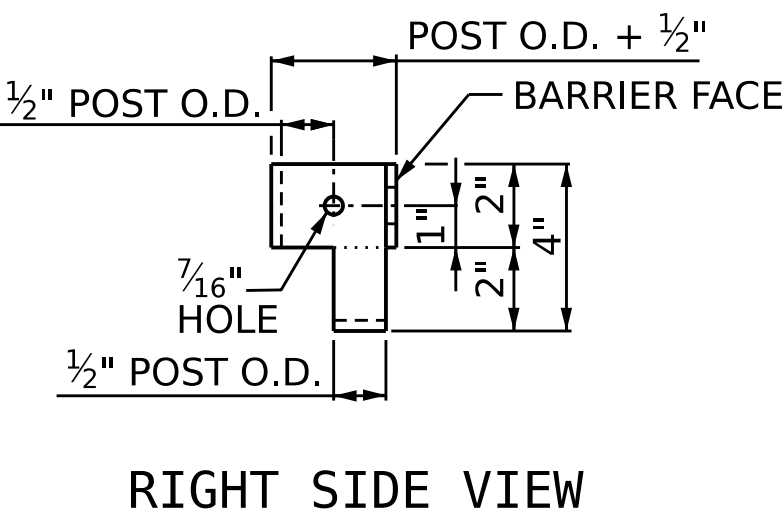
PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

DRAWN BY : T. NEAL DATE : 01/2024
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

7/3/2026
C:\pwworking\aecom.ds21-na.2020\d0131345\403.075.12513AC.SMU.CLF_S3-38.100208.dgn
caterm

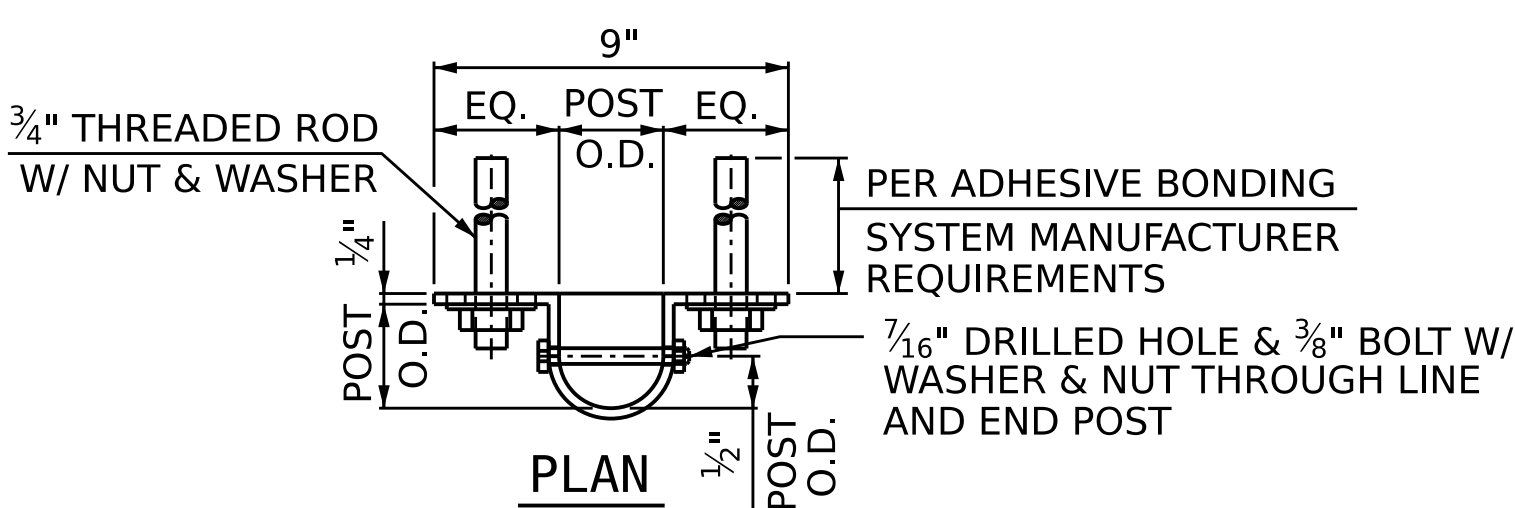


ELEVATION



RIGHT SIDE VIEW

BOTTOM POST BRACKET



PLAN

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

JOHN C. MORRISON
NORTH CAROLINA
PROFESSIONAL
SEAL
030474
ENGINEER
7/16/2026

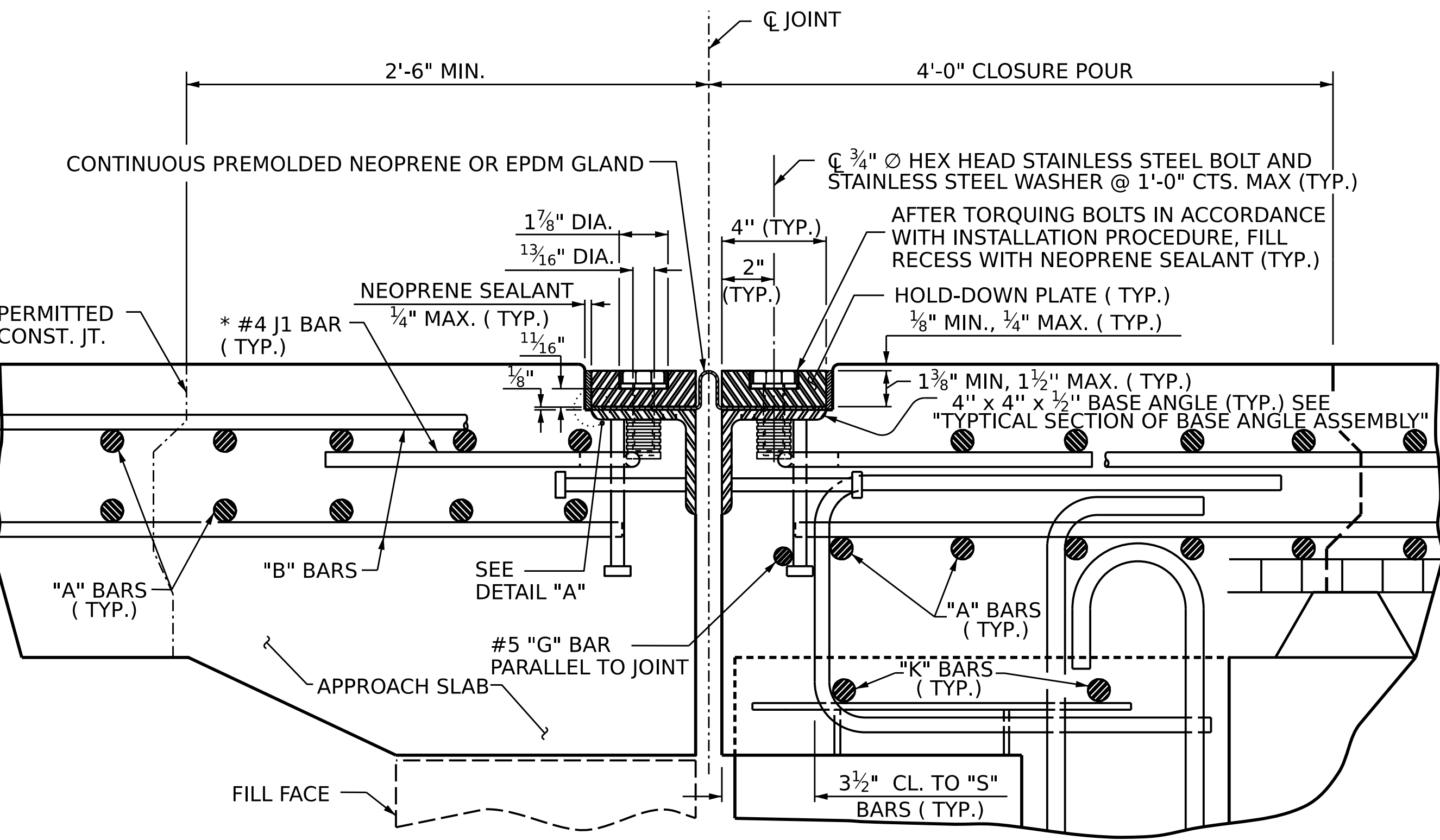
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**CHAIN LINK FENCE
DETAILS**

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-38
2			4			

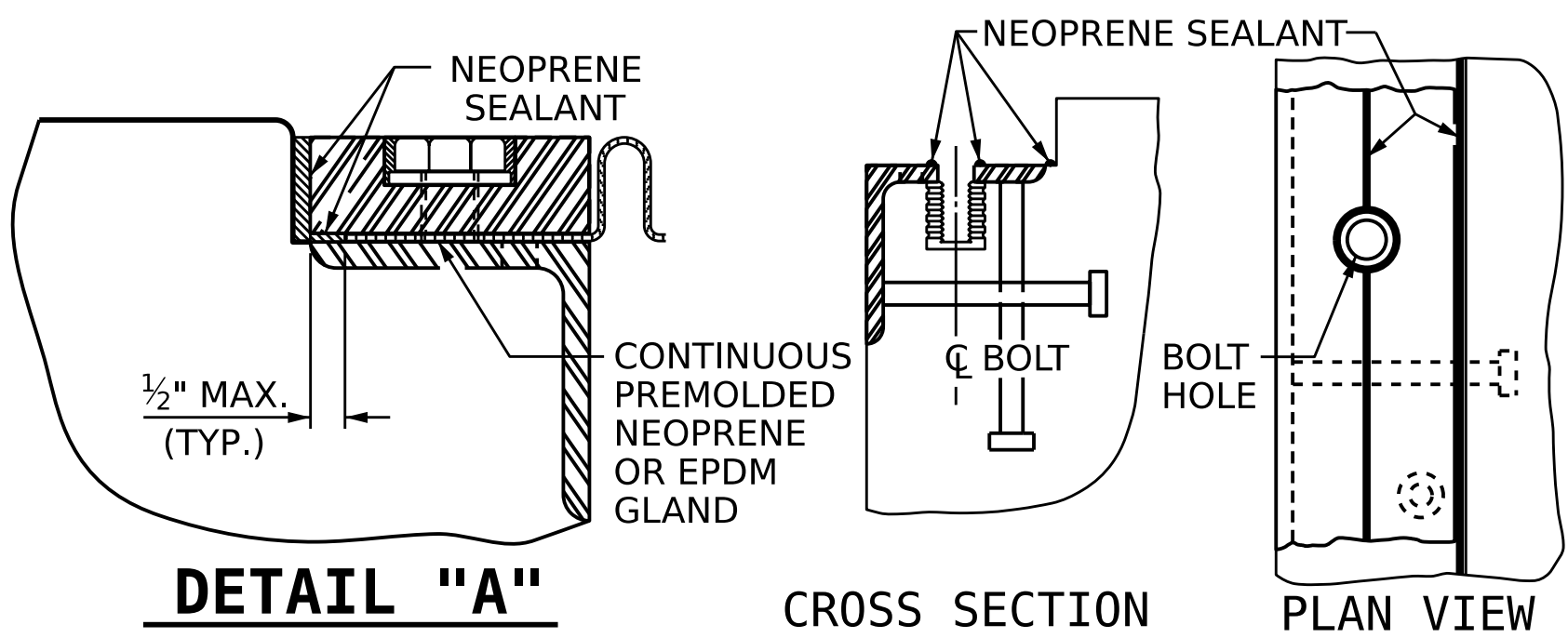
TOTAL
SHEETS
57



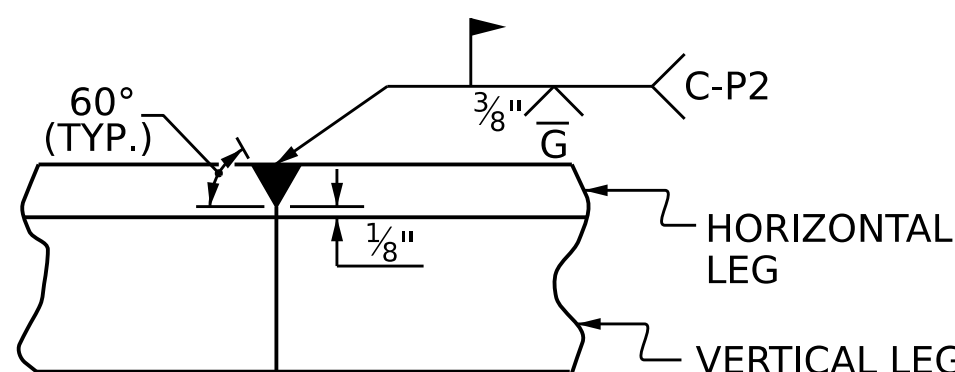
EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.



INSTALLATION SKETCH

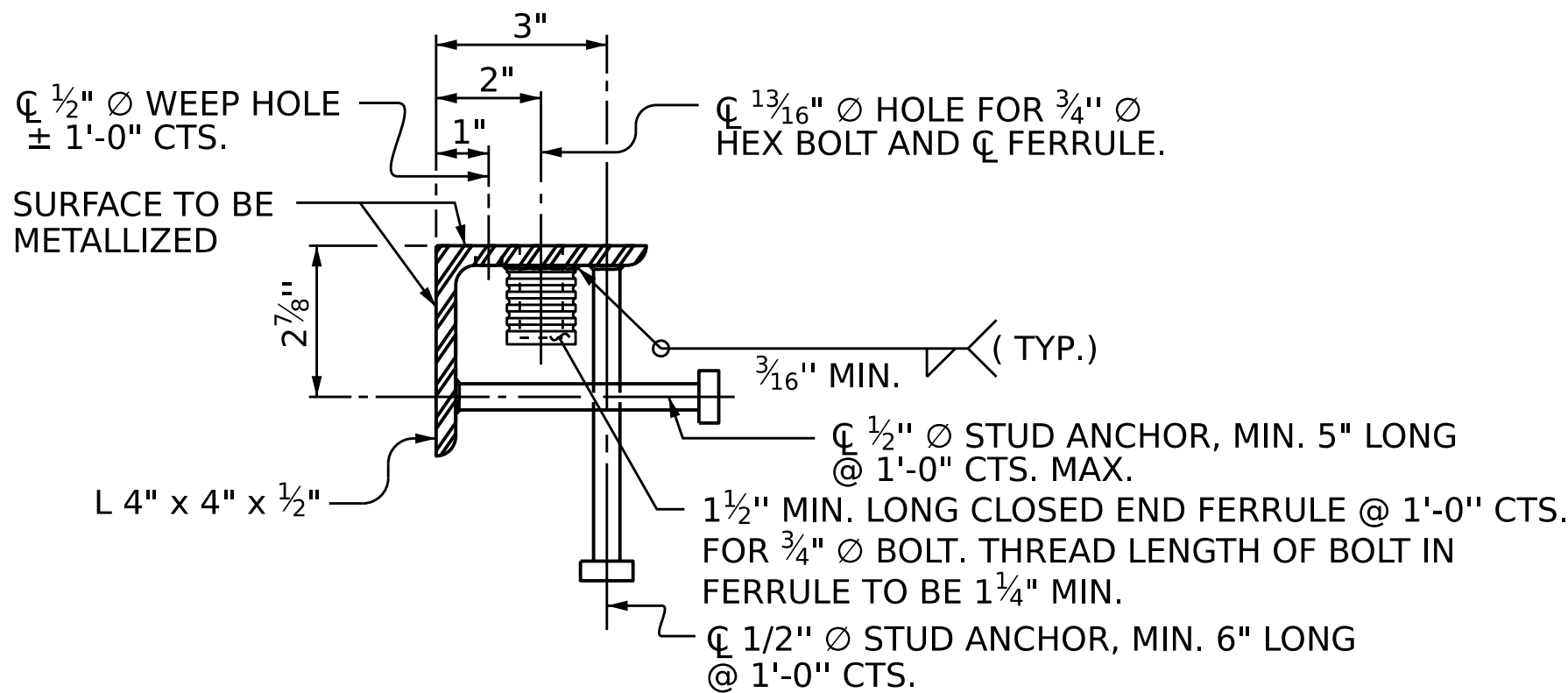


DETAIL- FIELD WELD SPLICE OF BASE ANGLE

INSTALLATION PROCEDURE :

1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE $4\frac{1}{8}$ " TO $4\frac{1}{4}$ " WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE $\frac{3}{4}$ " $\varnothing$ HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" $\varnothing$ HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X $\frac{1}{2}$ " BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED $\frac{7}{8}$ " IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE BUT DO NOT TIGHTEN. THE ENGINEER SHALL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES, THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, AND THE LIFTING HOLES IN THE HOLD-DOWN PLATE, AND COMPLETELY FILL THE RECESSES AND LIFTING HOLES WITH NEOPRENE SEALANT.

MOVEMENT AND SETTING AT JOINT					
LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG $\varnothing$ RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	88°12'52"	$1\frac{3}{16}$ "	$1\frac{1}{2}$ "	$1\frac{3}{8}$ "	$1\frac{3}{16}$ "
END BENT 2	90°00'00"	$2\frac{1}{8}$ "	$2\frac{3}{8}$ "	$2\frac{1}{16}$ "	$1\frac{1}{16}$ "



TYPICAL SECTION OF BASE ANGLE ASSEMBLY

NOTES :

1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS 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. MINIMUM.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD-DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
7. THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
8. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
9. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
10. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
11. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE $\frac{3}{4}$ " $\varnothing$ BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
12. THE FABRICATOR SHALL PROVIDE $\frac{1}{2}$ " $\varnothing$ THREADED HOLES IN THE HOLD-DOWN PLATES TO ASSIST IN LIFTING AND PLACING. THE HOLES SHALL BE $\frac{3}{4}$ " DEEP AT 6'-0" MAXIMUM SPACING AND A MINIMUM OF TWO HOLES PER PLATE.

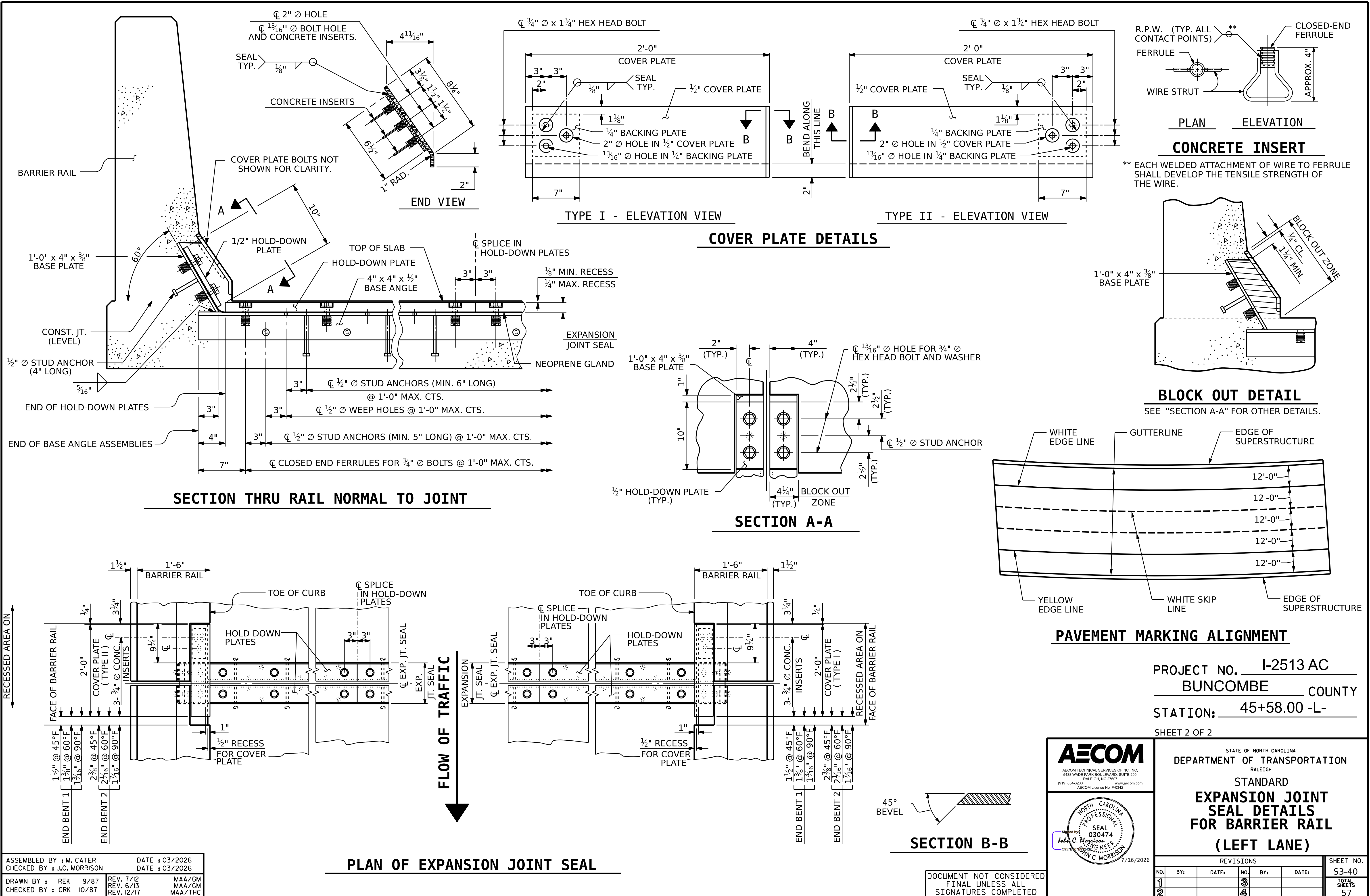
PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 1 OF 2

AECOM AECOM TECHNICAL SERVICES OF NC, INC. 5438 WADE PARK BOULEVARD, SUITE 200 RALEIGH, NC 27607 (919) 854-6200 www.aecom.com AECOM License No. F02342		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD			
Signed by: <i>John C. Morrison</i> JOHN C. MORRISON 7/16/2026		EXPANSION JOINT SEAL DETAILS (LEFT LANE)			
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S3-39 TOTAL SHEETS 57					

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STD.NO.EJS1



ASSEMBLED BY : M. CATER		DATE : 03/2026	
CHECKED BY : J.C. MORRISON		DATE : 03/2026	
DRAWN BY : REK	9/87	MAA/GM	
	10/87		
CHECKED BY : CRK	9/87	MAA/GM	
	10/87		

7/3/2026
C:\pwworking\voecom.ds21-na.2020\d0131345\403.079.12513AC.SMU.J52.S3-40.100208.dgn
caterm

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S3-40
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 57
2			4			

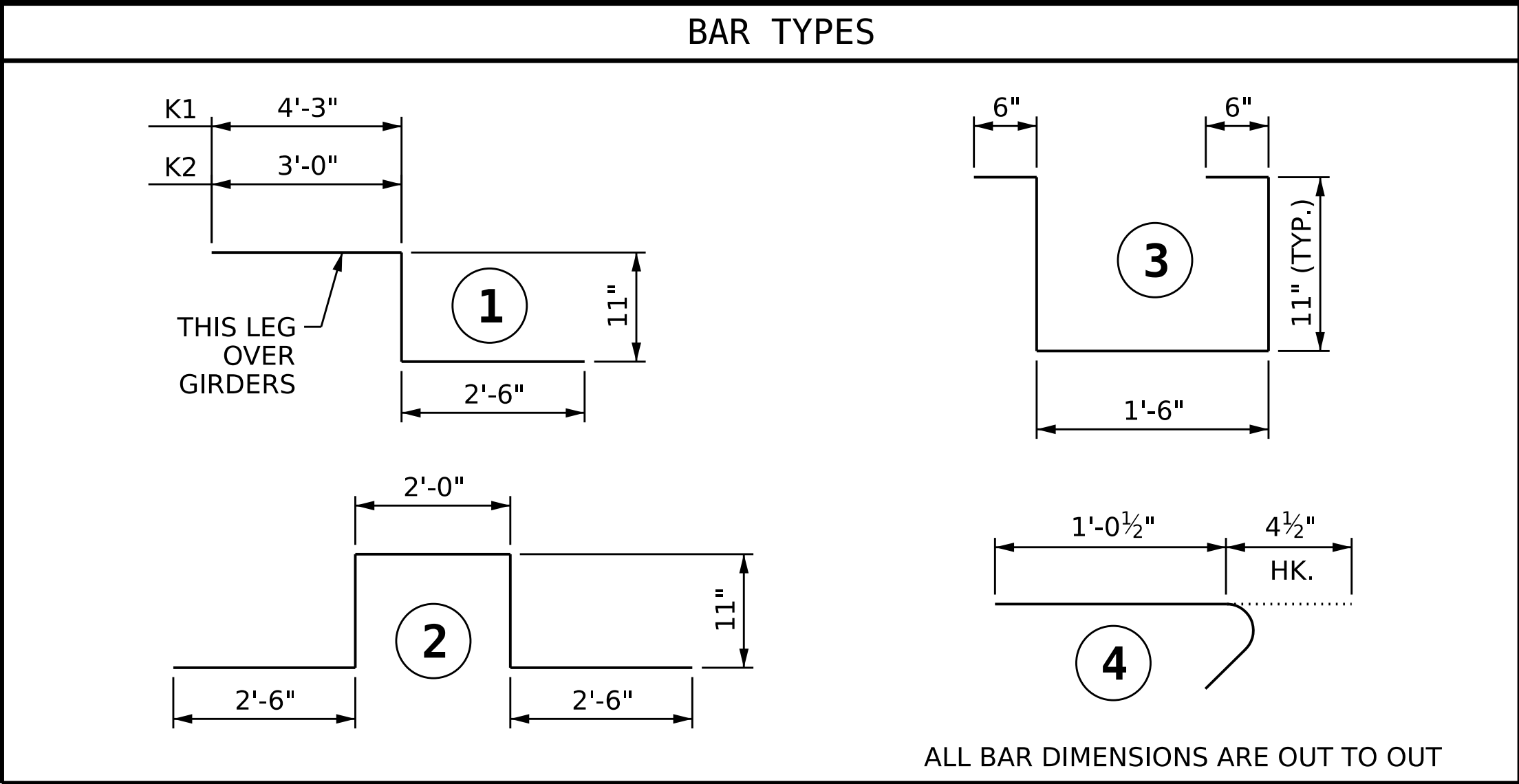
STD.NO.EJS2

SUPERSTRUCTURE REINFORCING STEEL LENGTHS 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"			

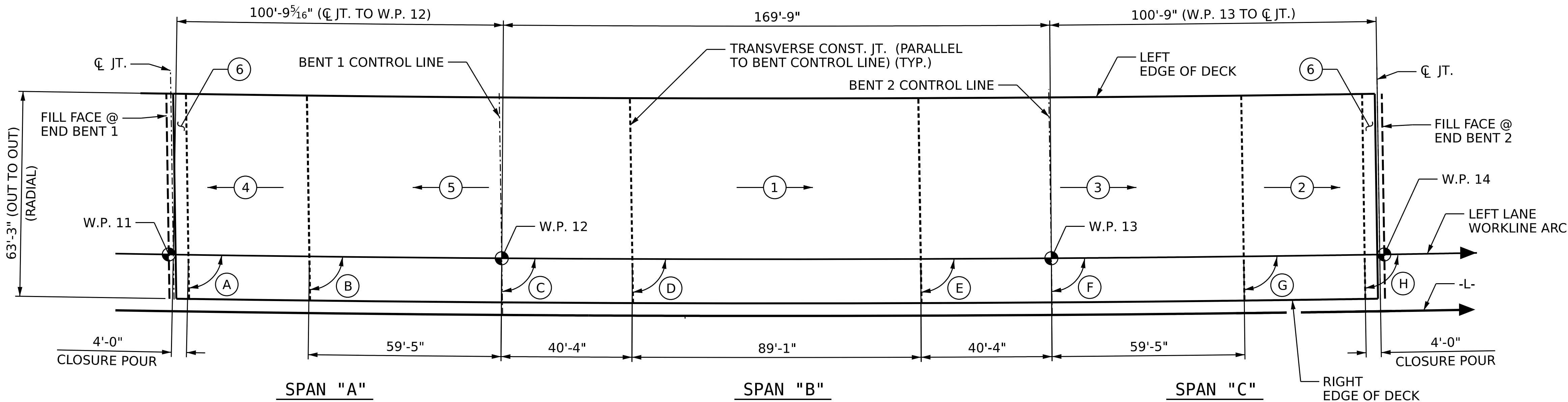
SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS)	(LBS.)	(LBS.)
SPANS A-C		97,784	113,652
POUR #1	79.2	-	-
POUR #2	79.2	-	-
POUR #3	189.2	-	-
POUR #4	211.9	-	-
POUR #5	211.9	-	-
POUR #6	22.9	-	-
TOTALS **	794.2	97,784	113,652

GROOVING BRIDGE FLOORS	
APPROACH SLABS	2,849 SQ. FT.
BRIDGE DECK	21,096 SQ. FT.
TOTAL	23,945 SQ. FT.

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

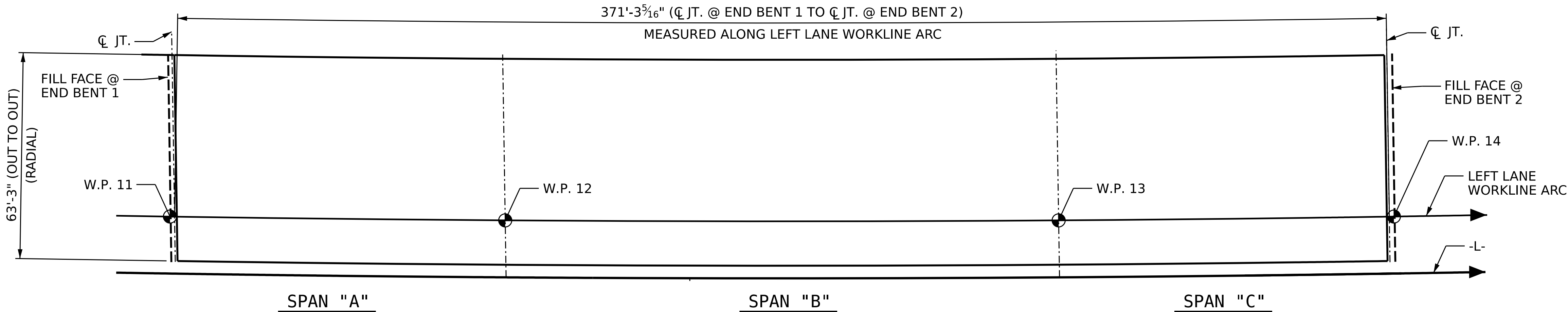


REINFORCING BAR SCHEDULE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	1788	5	STR	32'-9"	61075
A2	1788	5	STR	32'-6"	60609
* B1	308	5	STR	55'-2"	17722
B2	651	5	STR	54'-9"	37175
* B3	492	6	STR	40'-9"	30114
* G1	4	5	STR	32'-9"	137
* J1	120	4	4	1'-5"	114
* K1	6	5	1	7'-8"	48
* K2	6	5	1	6'-5"	40
* K3	24	5	2	8'-10"	221
* K4	30	5	STR	9'-6"	297
* S1	100	4	3	4'-4"	289
TOTAL REINFORCING STEEL				LBS.	97,784
* TOTAL EPOXY COATED REINFORCING STEEL				LBS.	110,057



PLAN - POURING SEQUENCE

ALL DIMENSIONS ARE ALONG LEFT LANE WORKLINE ARC
INDICATES POUR NUMBER AND POUR DIRECTION

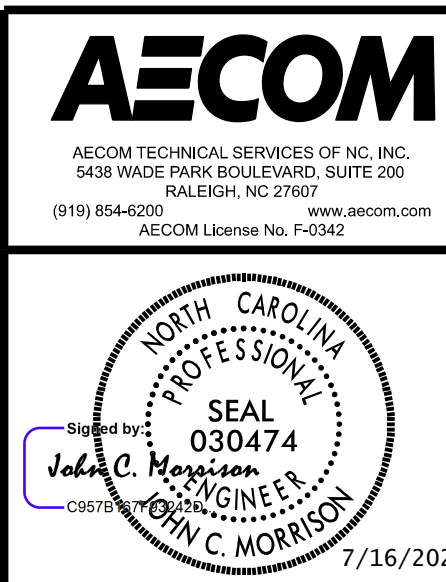


LAYOUT FOR COMPUTING REINFORCED CONCRETE DECK SLAB (SQ. FT. = 23,474)

DRAWN BY :	D. DRUM	DATE :	10/2023
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

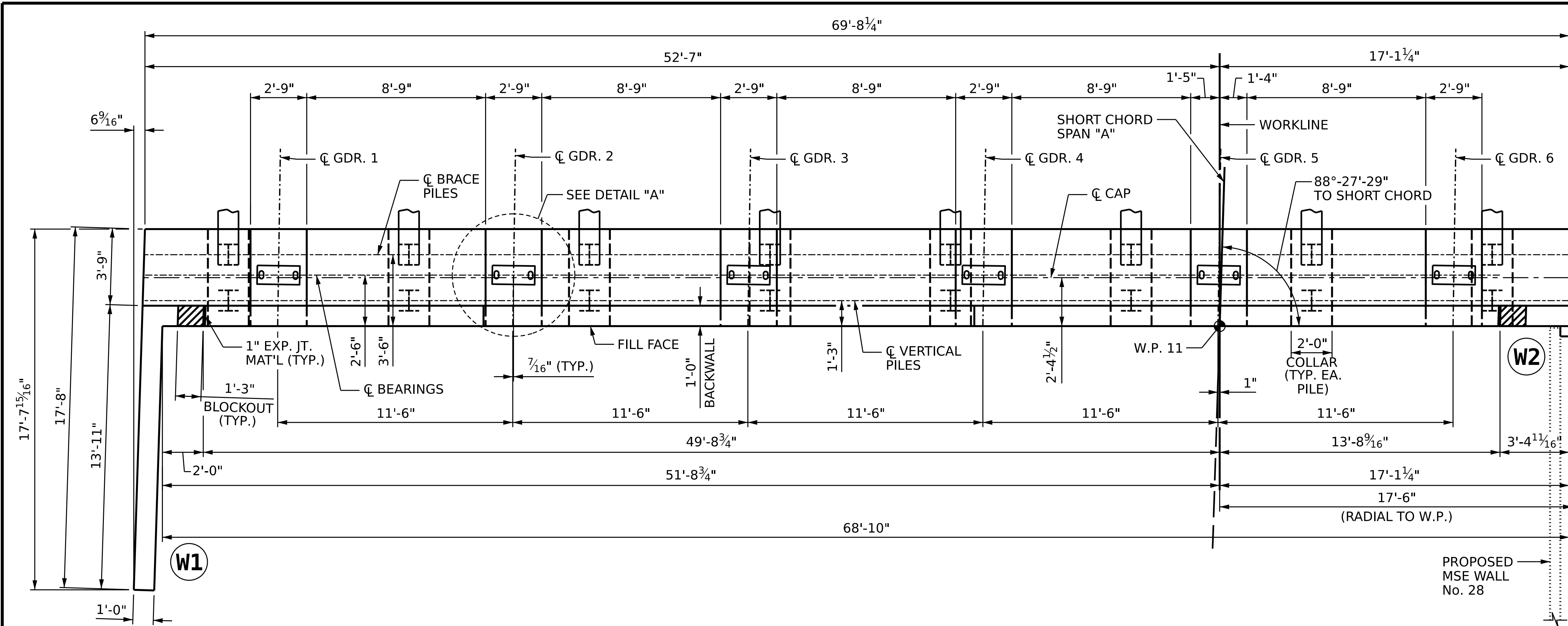
7/16/2026
C:\pwworking\voecom.ds21.na.2020\40131345\403.081.I2513AC.SMU.BM.S3-41.100208.dgn
caterm

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

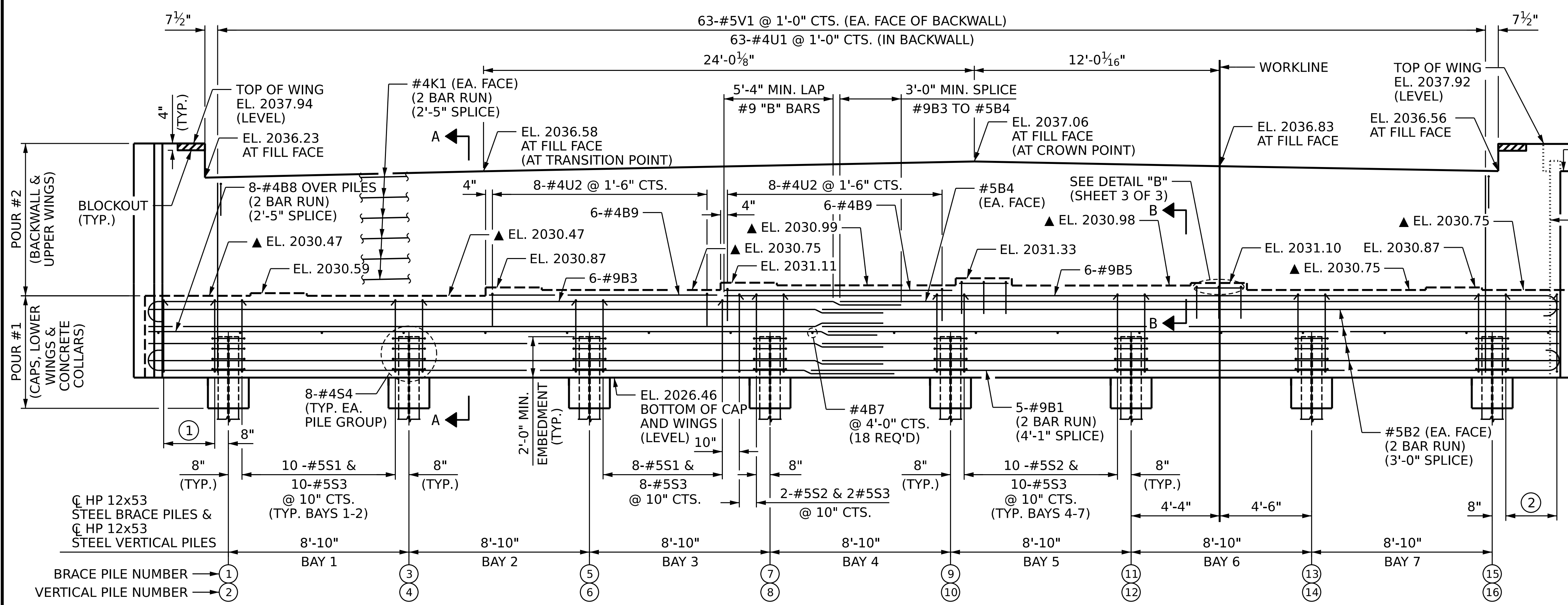


PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE BILL OF MATERIAL (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S3-41					TOTAL SHEETS 57



PLAN



ELEVATION

NOTES:

STIRRUPS AND U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

#5 "V" BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM THE TOP OF BACKWALL.

EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

FOR WING DETAILS, SEE SHEET 2 OF 3.

FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 3.

FOR TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

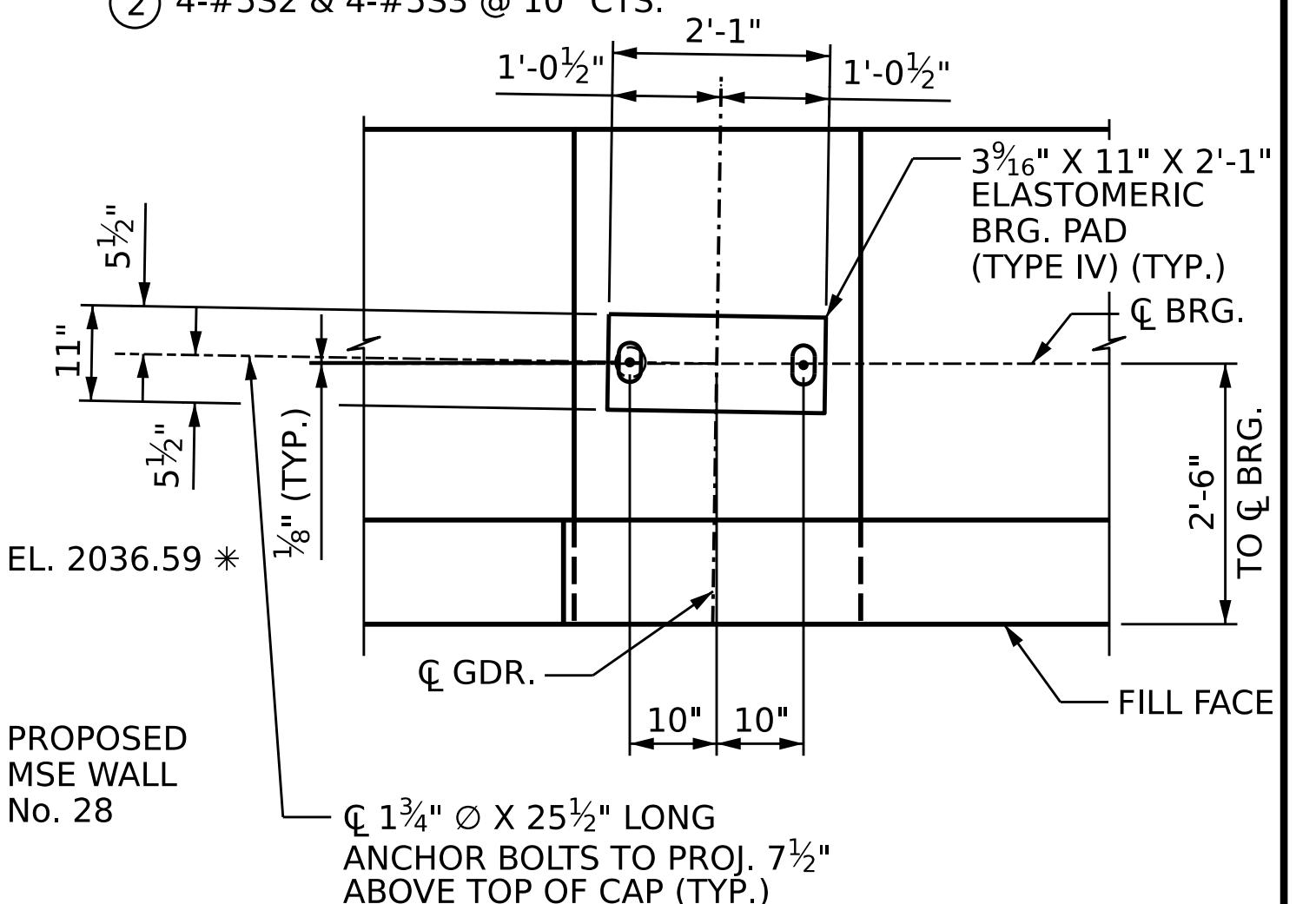
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

* A CONCRETE COPING DEPTH OF 1'-4" WAS ASSUMED FOR ESTABLISHING CHEEK WALL ELEVATION. CONTRACTOR SHALL ADJUST ELEVATION AS NECESSARY.

▲ SEE SECTION A-A FOR LOCATION OF TOP OF CAP ELEVATIONS.

① 4-#5S1 & 4-#5S3 @ 10" CTS.

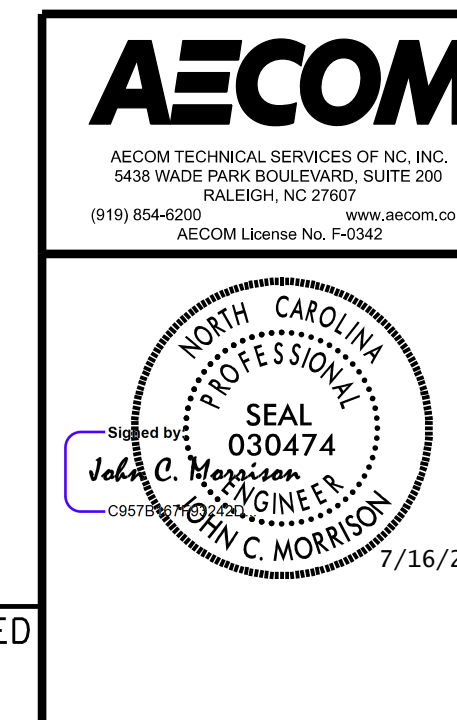
② 4-#5S2 & 4-#5S3 @ 10" CTS.



DETAIL "A"

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 1 OF 3



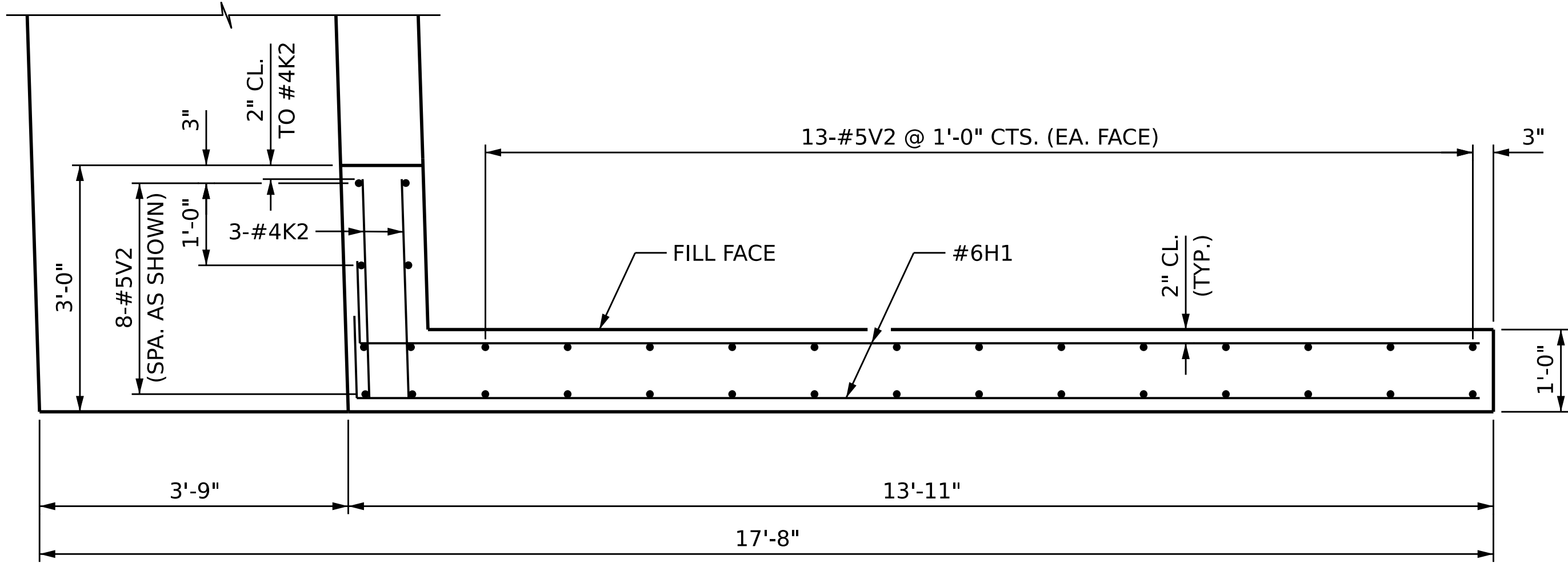
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1
(LEFT LANE)

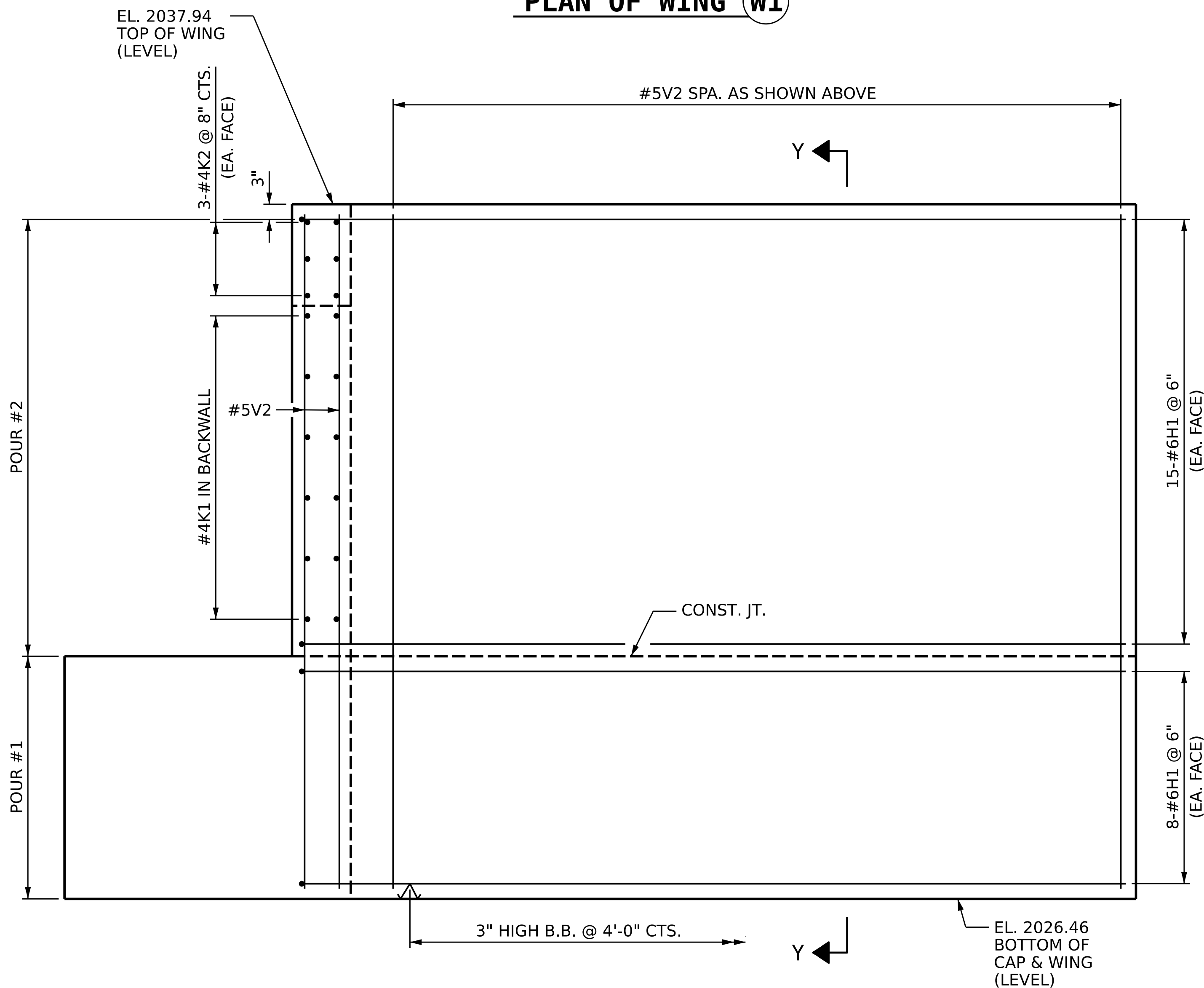
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-42
2			4			TOTAL SHEETS 57

DRAWN BY : D. DRUM
CHECKED BY : J.C. MORRISON
DESIGN ENGINEER OF RECORD: J.C. MORRISON
DATE : 12/2023
DATE : 03/2026
DATE : 03/2026

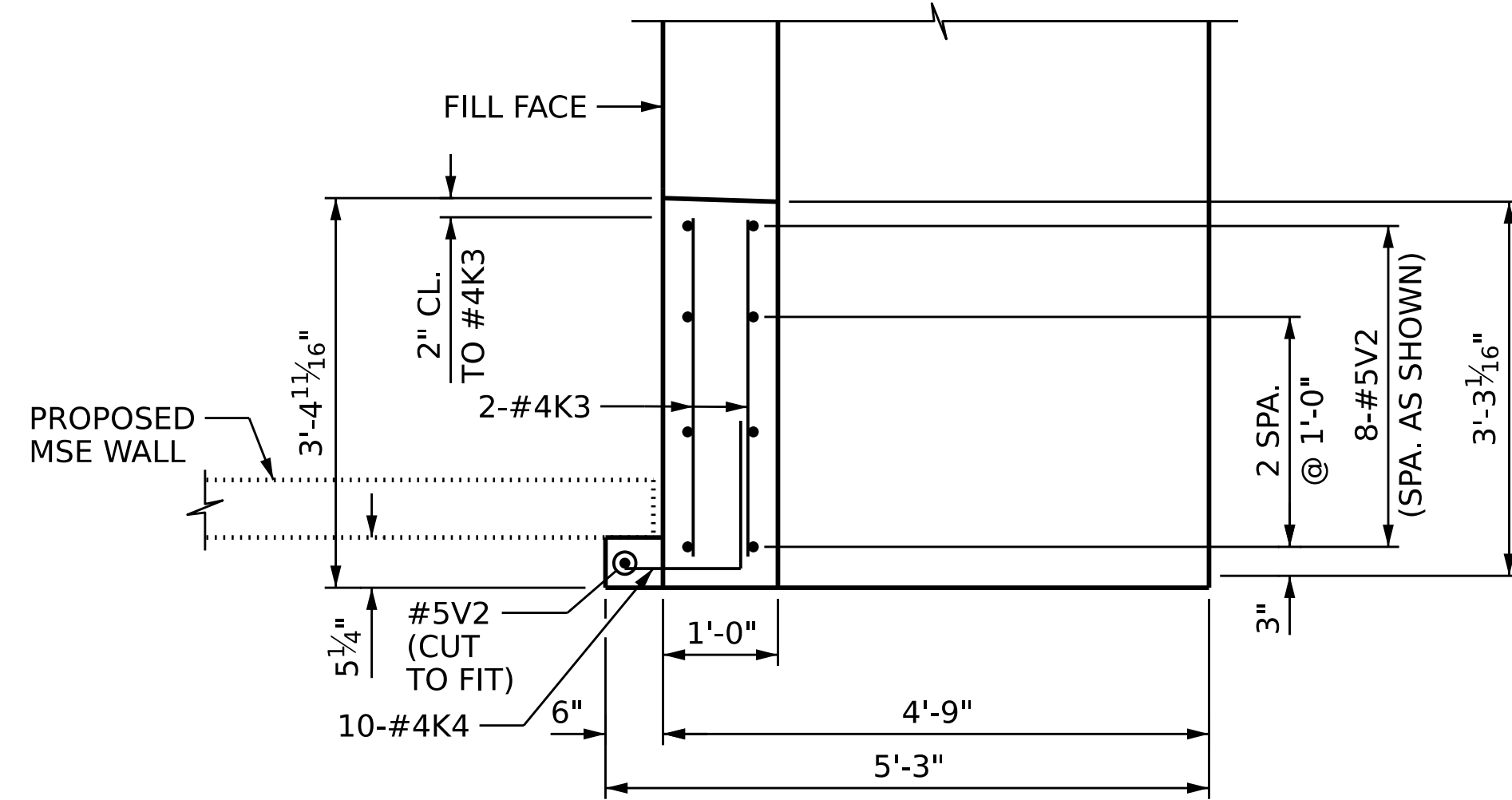
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



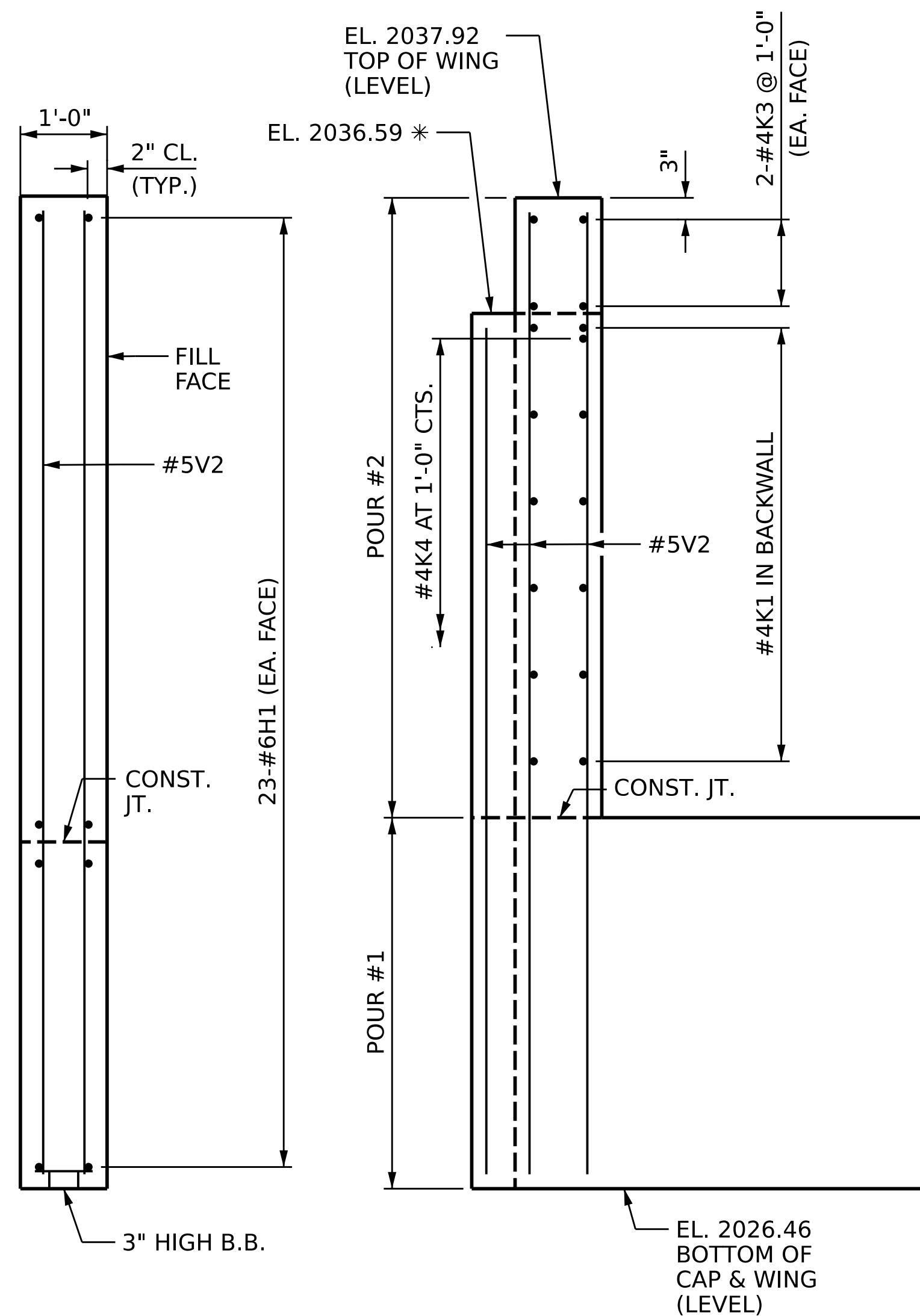
PLAN OF WING (W1)



ELEVATION OF WING (W1)



PLAN OF WING (W2)



ELEVATION OF WING (W2)

* A CONCRETE COPING DEPTH OF 1'-4" WAS ASSUMED FOR ESTABLISHING CHEEK WALL ELEVATION. CONTRACTOR SHALL ADJUST ELEVATION AS NECESSARY.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 2 OF 3

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

SEAL

030474

7/16/2026

JOHN C. MORRISON

ENGINEER

Signed by:
John C. Morrison

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1
(LEFT LANE)

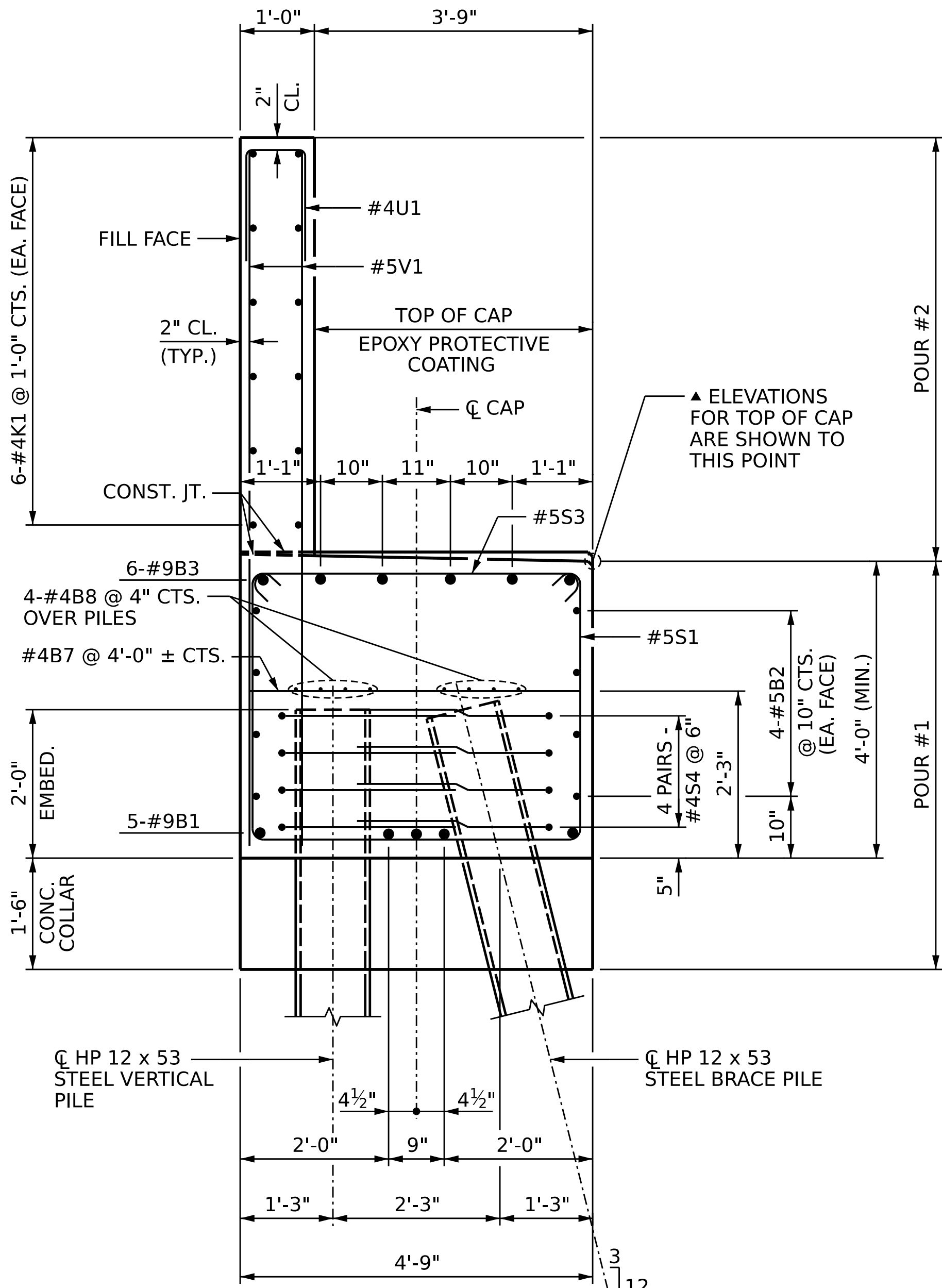
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-43
2			4			

TOTAL SHEETS
57

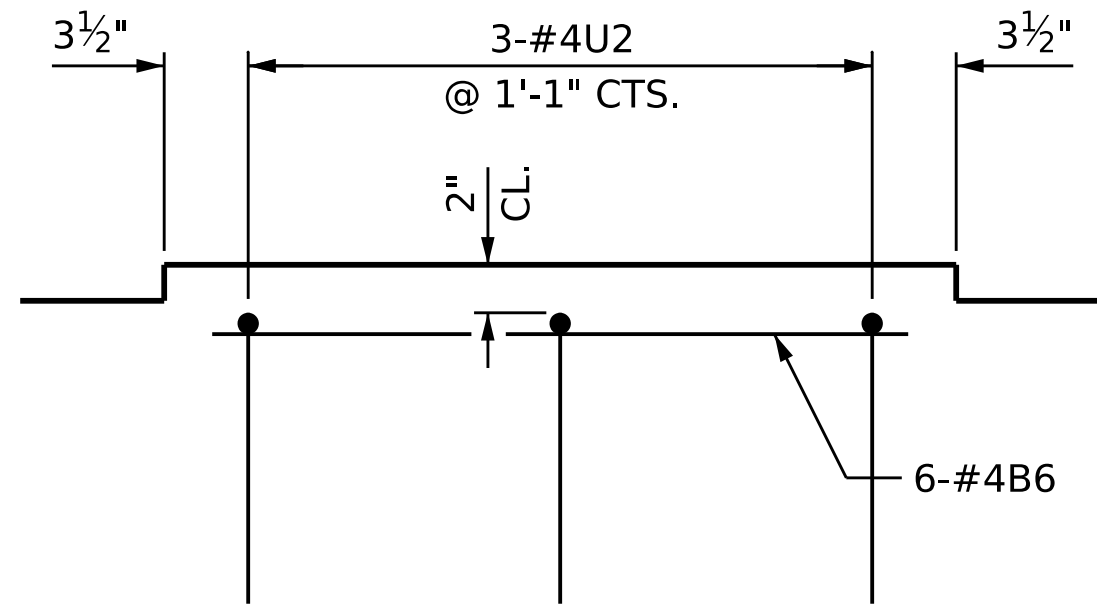
DRAWN BY : D. DRUM DATE : 12/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

7/5/2026
C:\pwworking\aoecom.ds21.na.2020\0131345\403.085.12513AC.SMU.E102.S3-43.100208.dgn
caterm

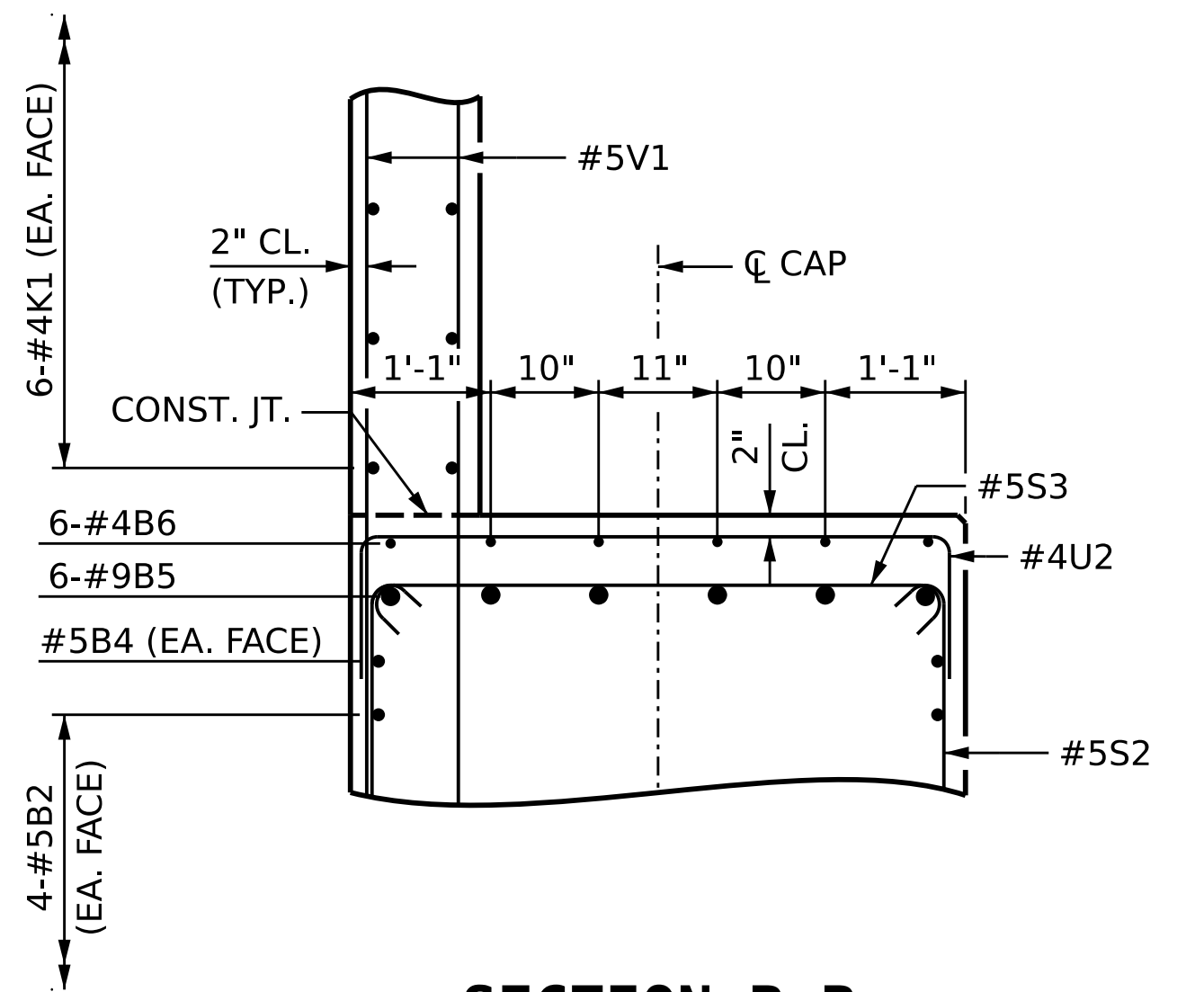


SECTION A-A

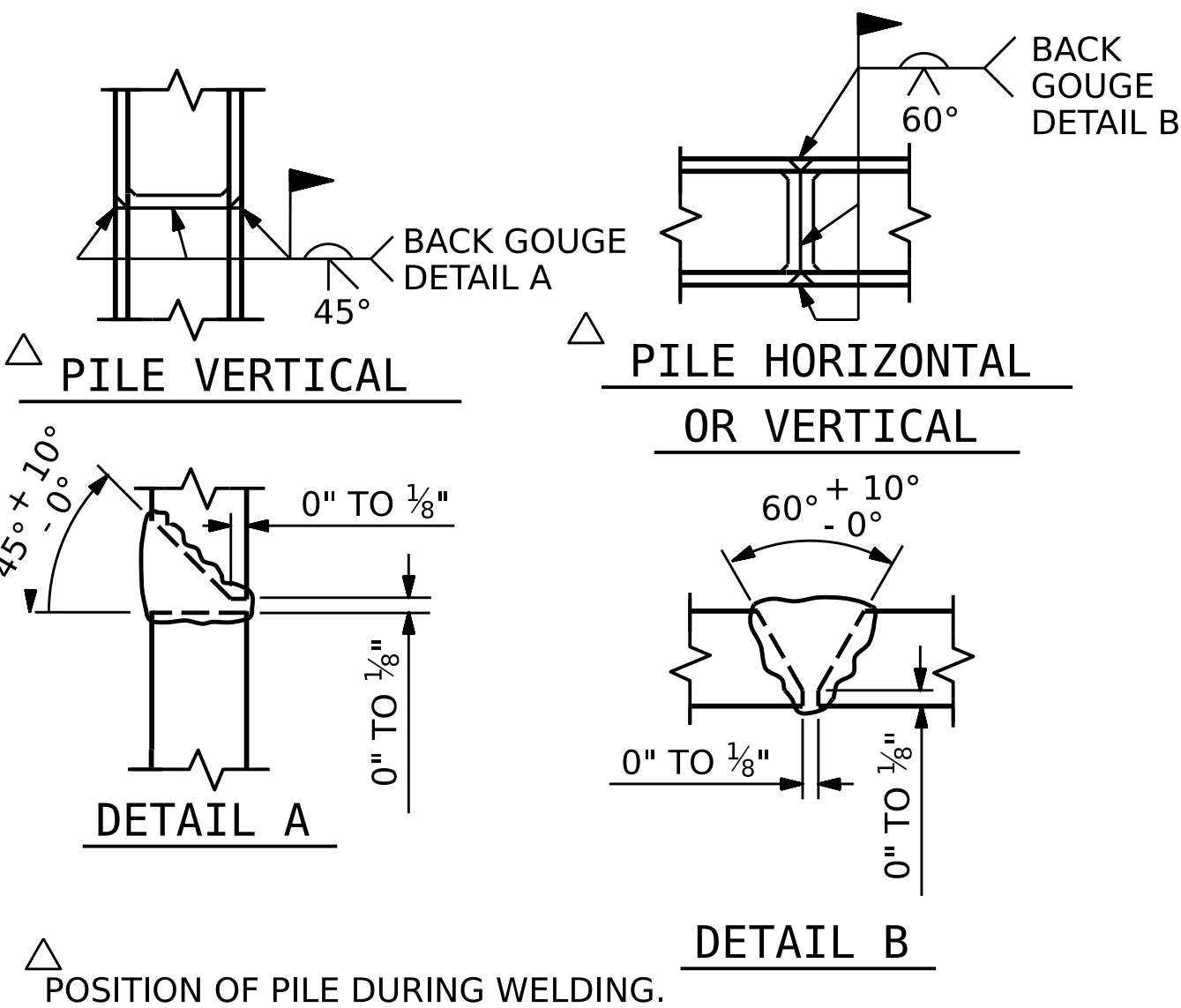


DETAIL "B"

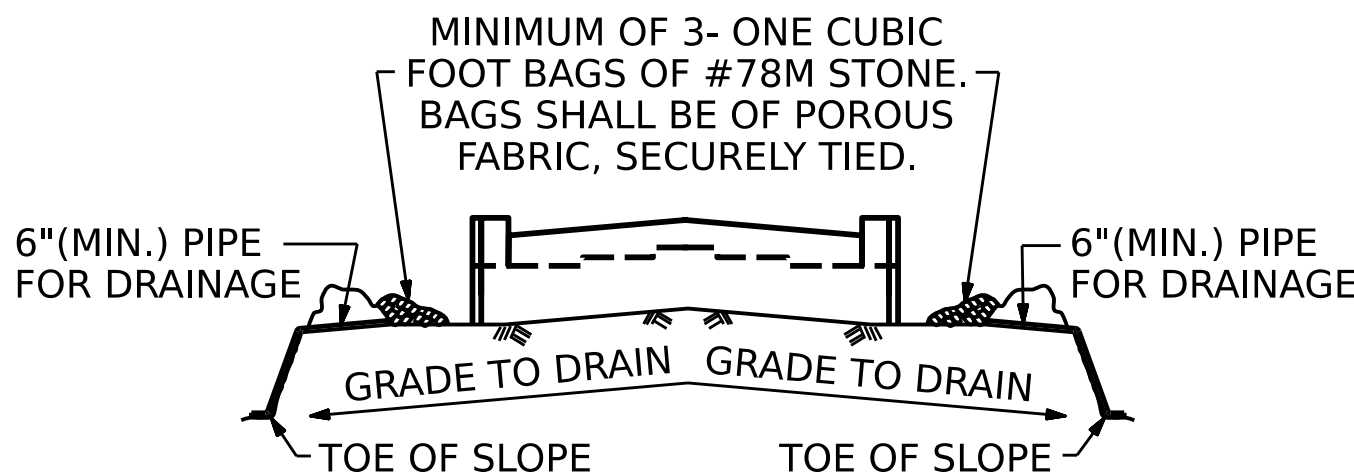
(TYP. GIRDER 4 & GIRDER 5 BRIDGE SEATS)



SECTION B-B



PILE SPLICE DETAILS



TEMPORARY DRAINAGE AT END BENT

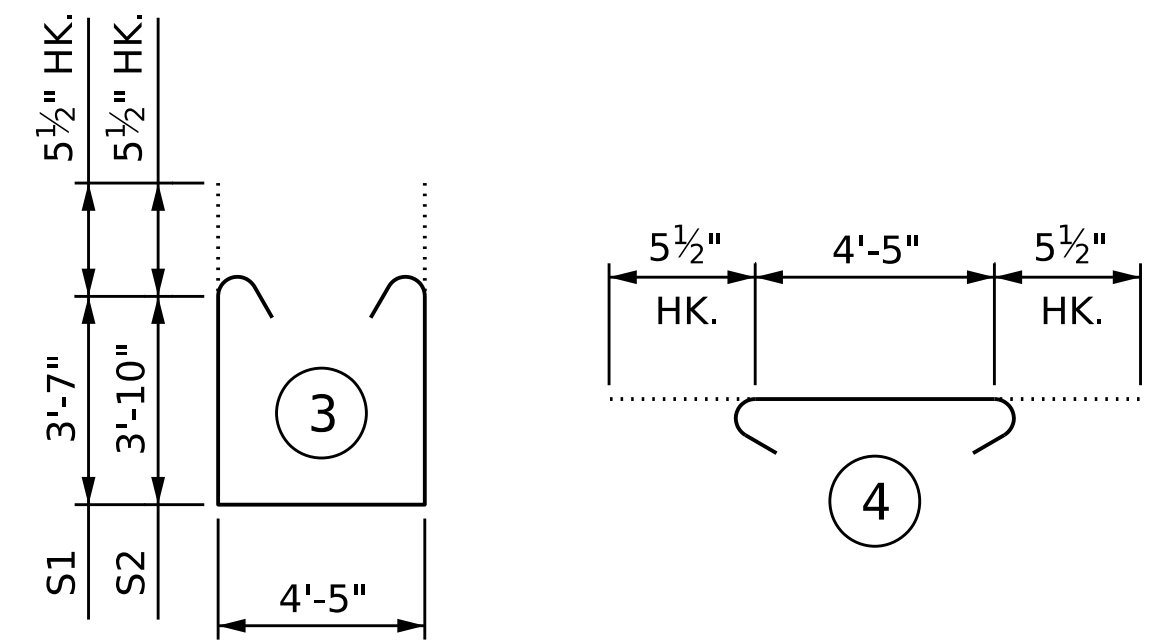
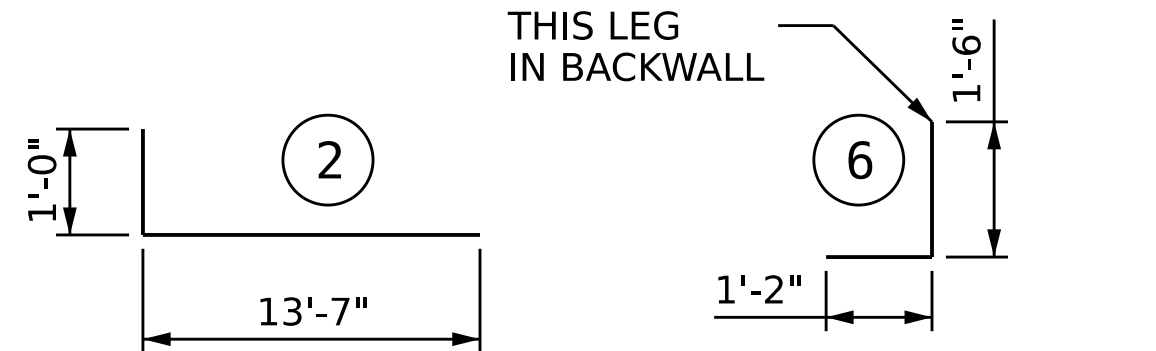
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

BAR TYPES

BAR	DIM. "X"
B1	36'-10"
B3	36'-8"
B5	41'-2"



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	9	1	38'-1"	1295
B2	16	5	STR	36'-4"	606
B3	6	9	1	37'-11"	774
B4	2	5	STR	35'-11"	75
B5	6	9	1	42'-5"	865
B6	12	4	STR	2'-5"	19
B7	18	4	STR	4'-5"	53
B8	16	4	STR	36'-1"	386
B9	12	4	STR	11'-2"	90

H1	46	6	2	14'-7"	1008
K1	24	4	STR	36'-1"	578
K2	6	4	STR	2'-8"	11
K3	4	4	STR	2'-11"	8
K4	10	4	6	2'-8"	18
S1	32	5	3	12'-6"	417
S2	46	5	3	13'-0"	624
S3	78	5	4	5'-4"	434
S4	64	4	5	7'-6"	321
U1	63	4	5	3'-8"	154
U2	22	4	5	8'-11"	131
V1	126	5	STR	9'-5"	1238
V2	43	5	STR	11'-1"	497

REINFORCING STEEL 9,602 LBS.

CLASS A CONCRETE

POUR #1 (CAP, COLLARS, & LOWER WINGWALL) 59.5 C.Y.

POUR #2 (BACKWALL & UPPER WINGWALLS) 15.5 C.Y.

TOTAL = 75.0 C.Y.

NOTE: SEE GEOTECHNICAL FOUNDATION TABLES FOR ADDITIONAL PILE INFORMATION

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 3 OF 3



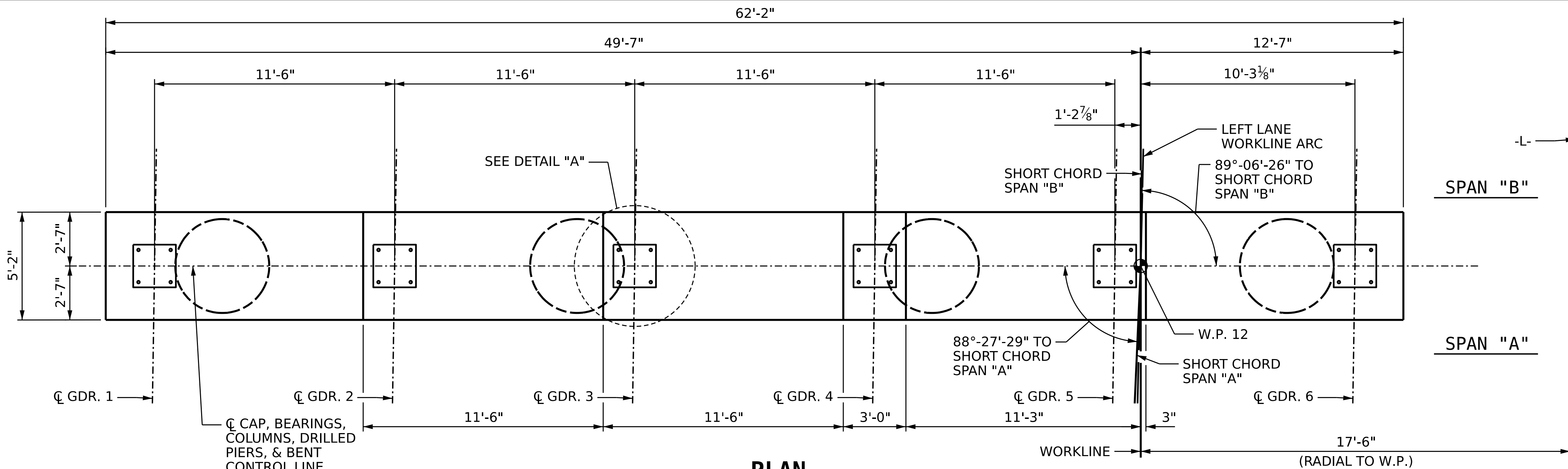
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1
(LEFT LANE)

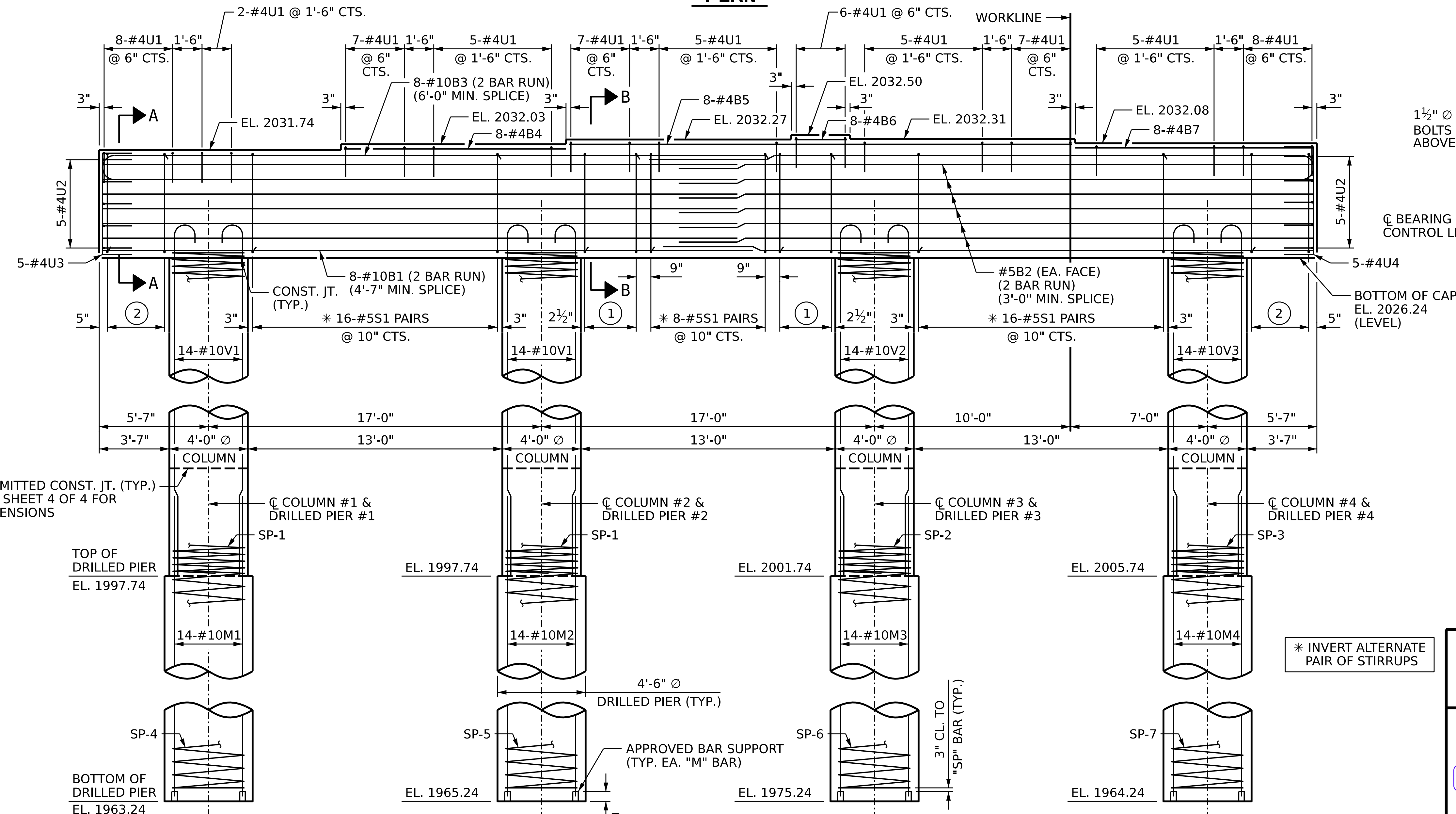
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-44
2			4			TOTAL SHEETS 57

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : D. DRUM	DATE : 12/2023
CHECKED BY : J.C. MORRISON	DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON	DATE : 03/2026



PLAN



ELEVATION

NOTES:

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED SLIGHTLY TO CLEAR ANCHOR BOLTS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

FOR DRILLED PIERS AND PERMANENT STEEL CASING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

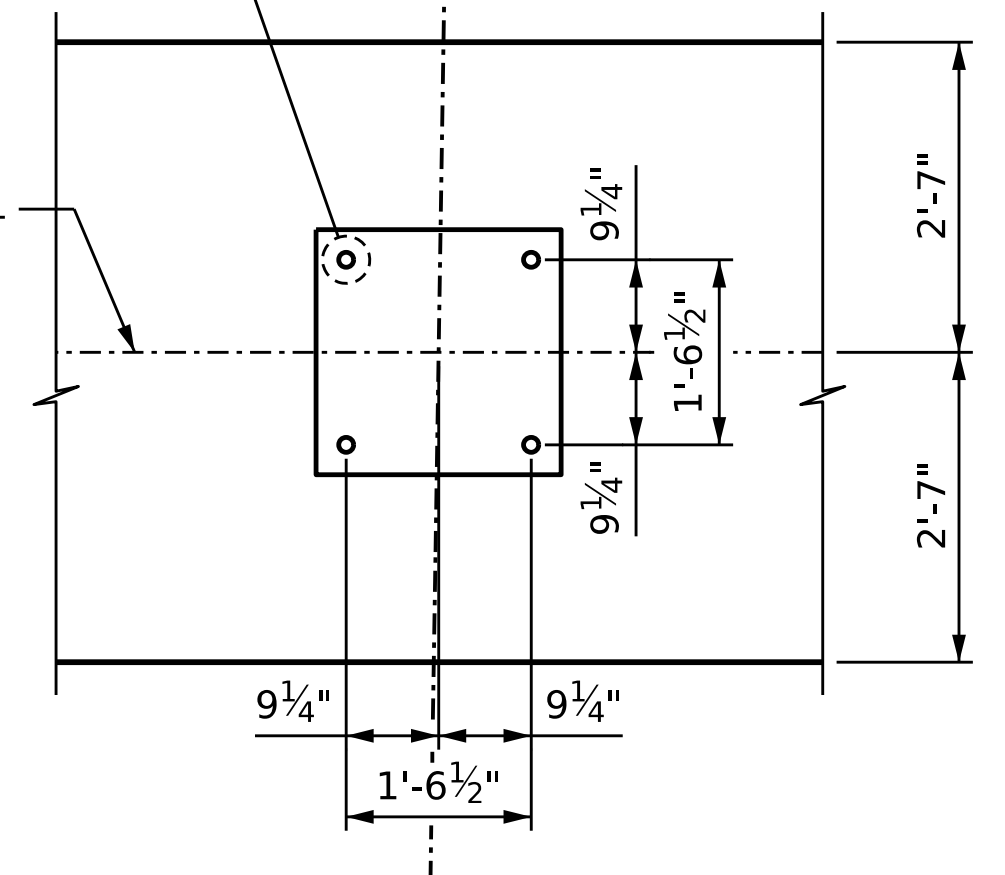
FOR SECTIONS A-A AND B-B, AND CAP END VIEWS, SEE SHEET 3 OF 4.

FOR CONSTRUCTION JOINT DETAIL AND END VIEW, SEE SHEET 4 OF 4.

- 10-#5S1 PAIRS @ 3 1/2" CTS. *
- 8-#5S1 PAIRS @ 5" CTS. *

1 1/2" Ø X 18 1/4" ANCHOR BOLTS TO PROJECT 3/4" ABOVE CAP (TYP.)

CL BEARING & BENT 1 CONTROL LINE



DETAIL "A"

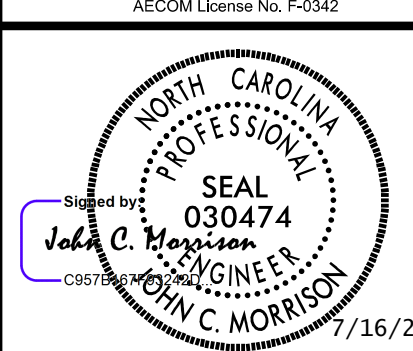
(TYP. EA. BEARING)

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 1 OF 4

* INVERT ALTERNATE PAIR OF STIRRUPS



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

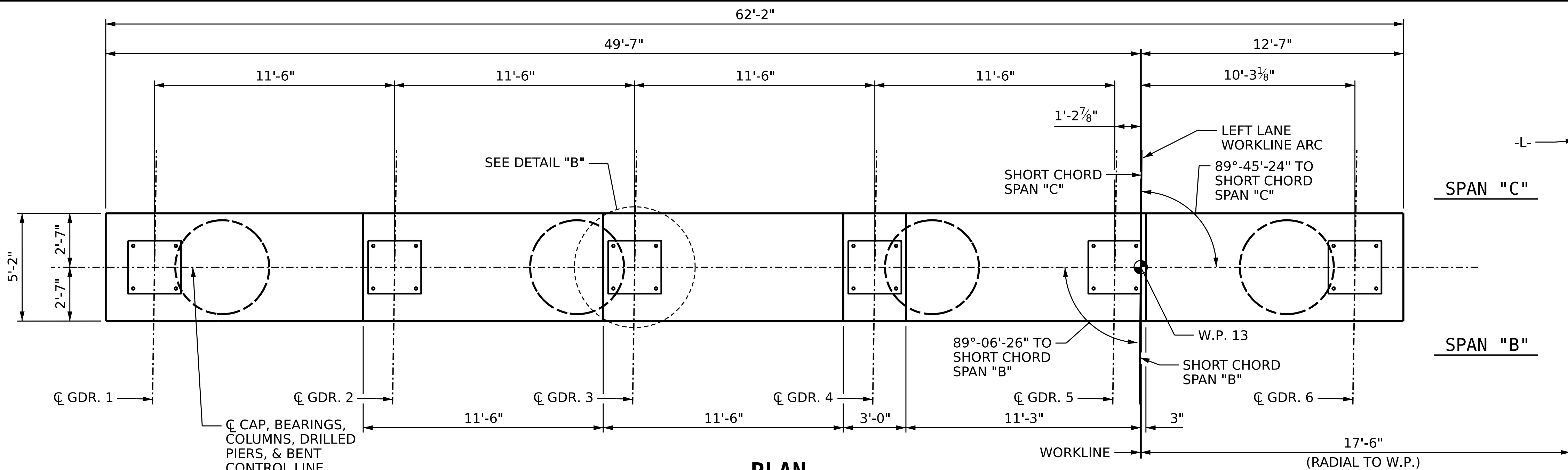
SUBSTRUCTURE
INTERMEDIATE BENT
BENT 1

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-45
2			4			
TOTAL SHEETS						57

DRAWN BY: D. DRUM
CHECKED BY: J.C. MORRISON
DESIGN ENGINEER OF RECORD: J.C. MORRISON
DATE: 11/2023
DATE: 03/2026
DATE: 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PLAN

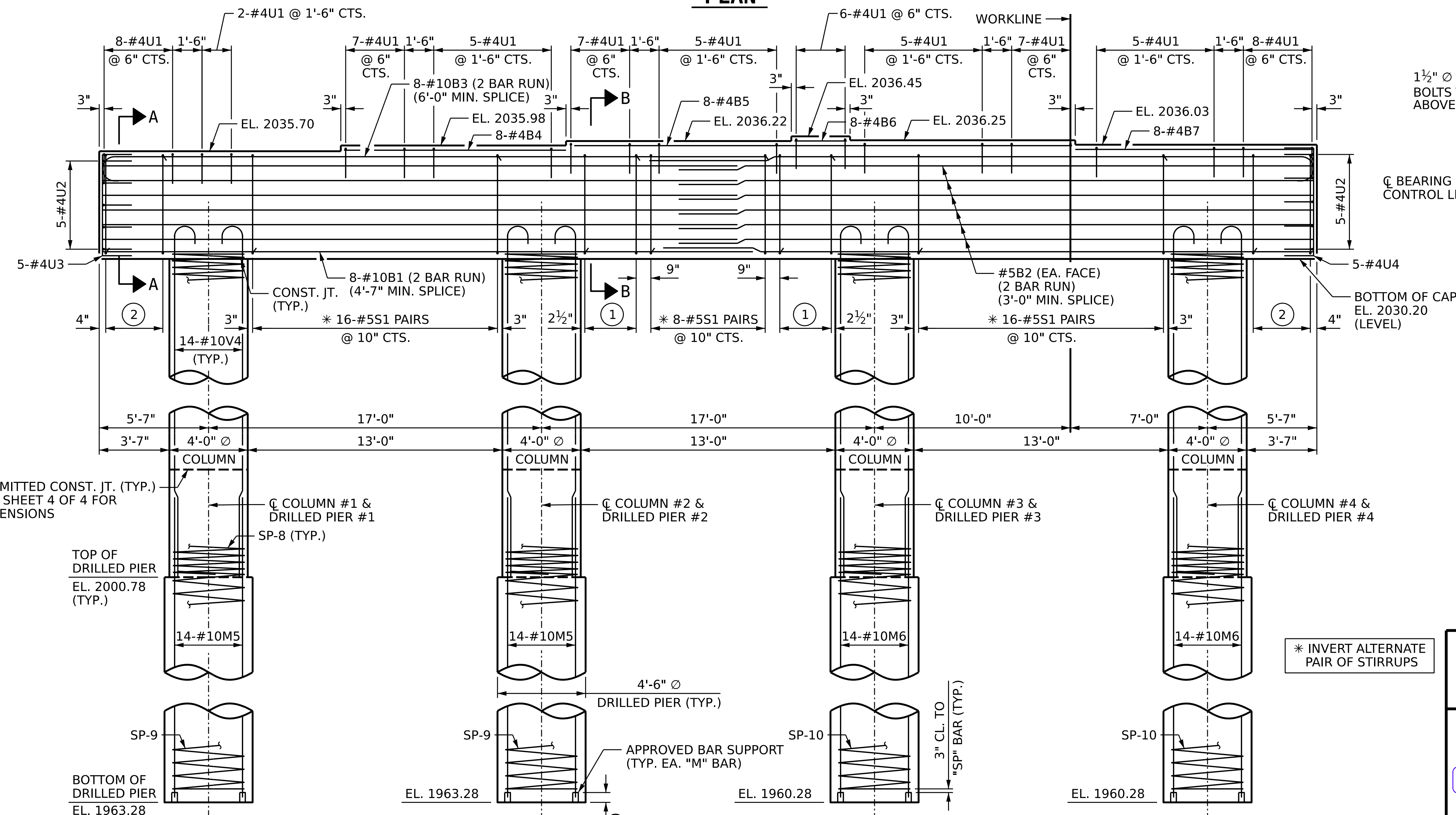
NOTES:

FOR NOTES, SEE SHEET 1 OF 4.

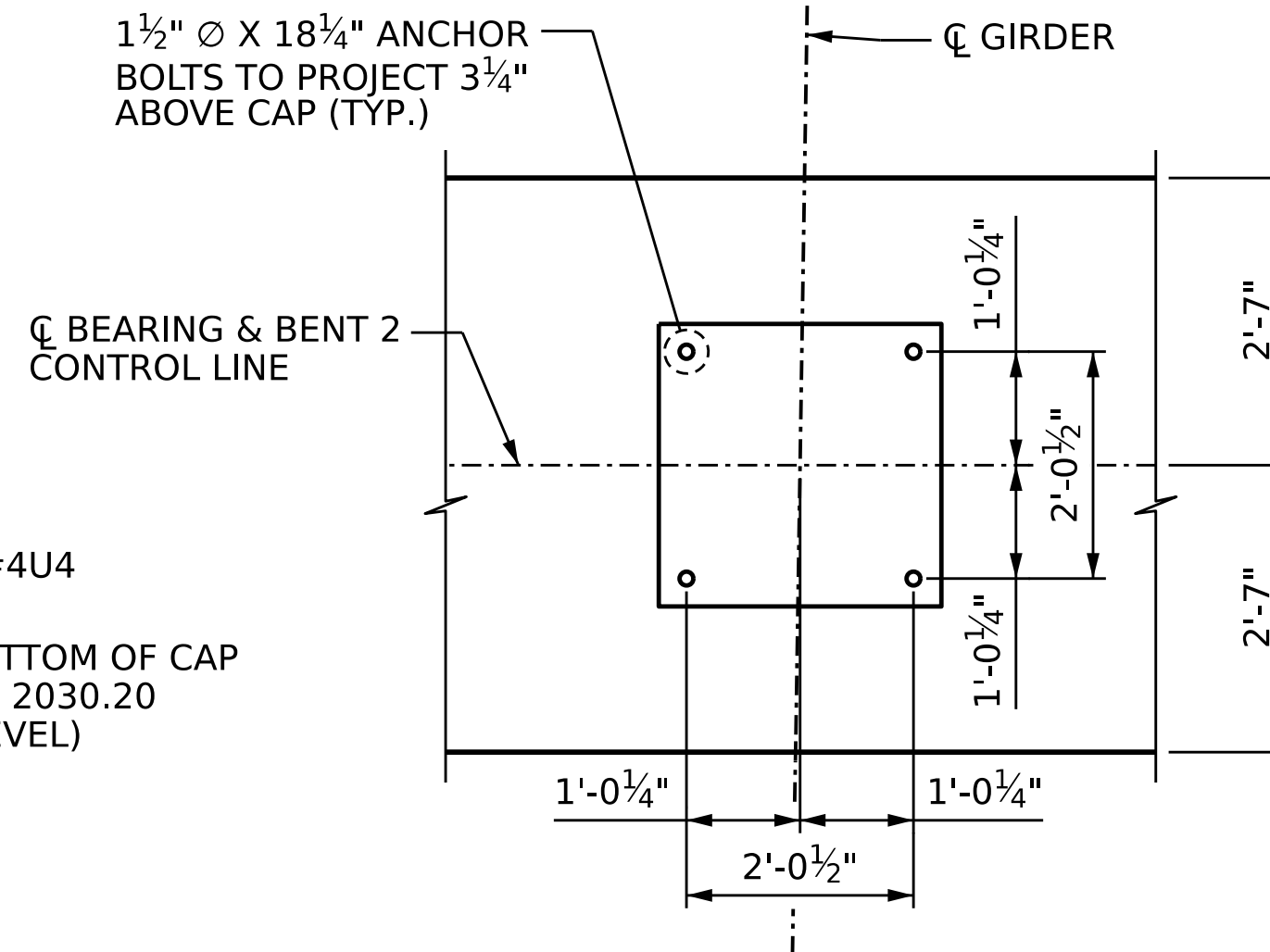
FOR SECTIONS A-A AND B-B, AND CAP END VIEWS, SEE SHEET 3 OF 4.

FOR CONSTRUCTION JOINT DETAIL AND END VIEW, SEE SHEET 4 OF 4.

- 1 10-#5S1 PAIRS @ 3 1/2" CTS. *
- 2 8-#5S1 PAIRS @ 5" CTS. *



ELEVATION

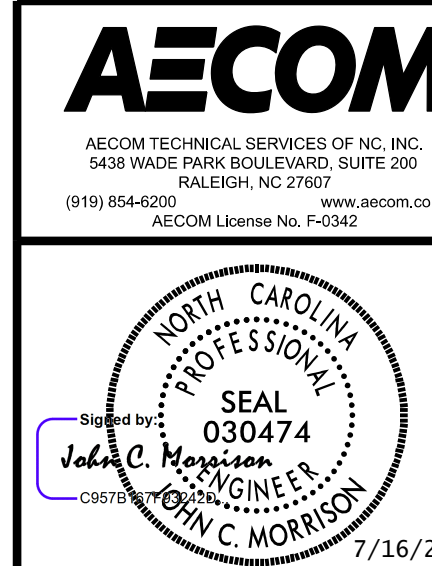


DETAIL "B"
(TYP. EA. BEARING)

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 2 OF 4

* INVERT ALTERNATE
PAIR OF STIRRUPS



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
INTERMEDIATE BENT
BENT 2
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-46
2			4			TOTAL SHEETS 57

DRAWN BY : D. DRUM DATE : 11/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

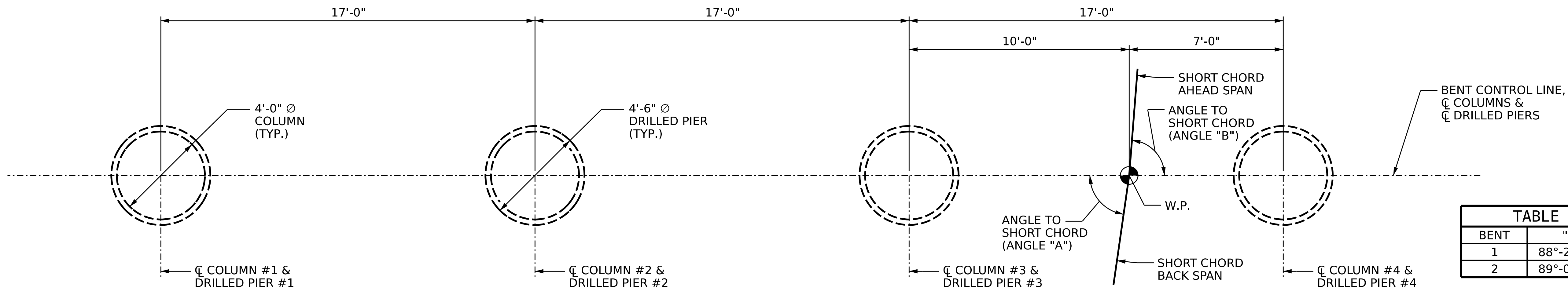
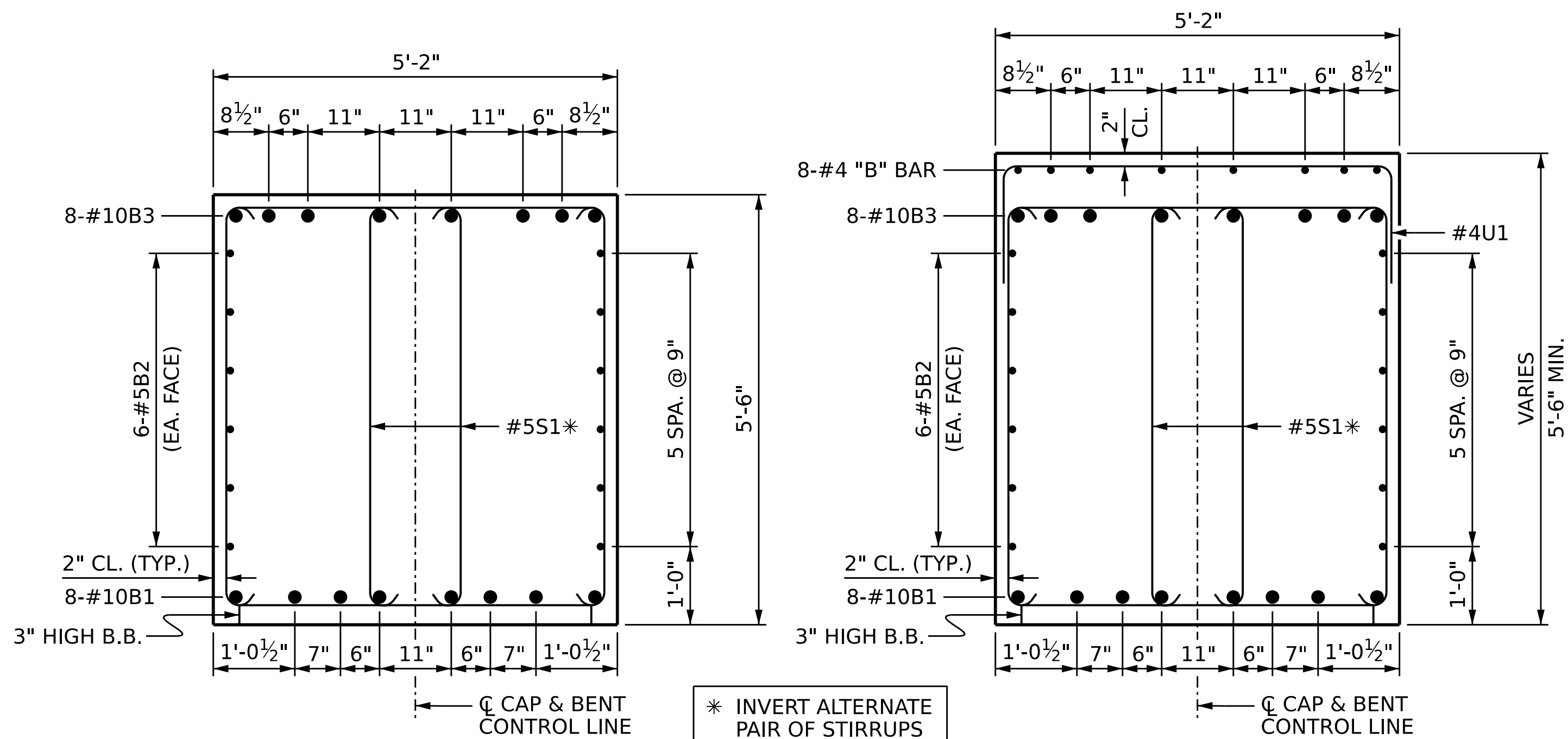


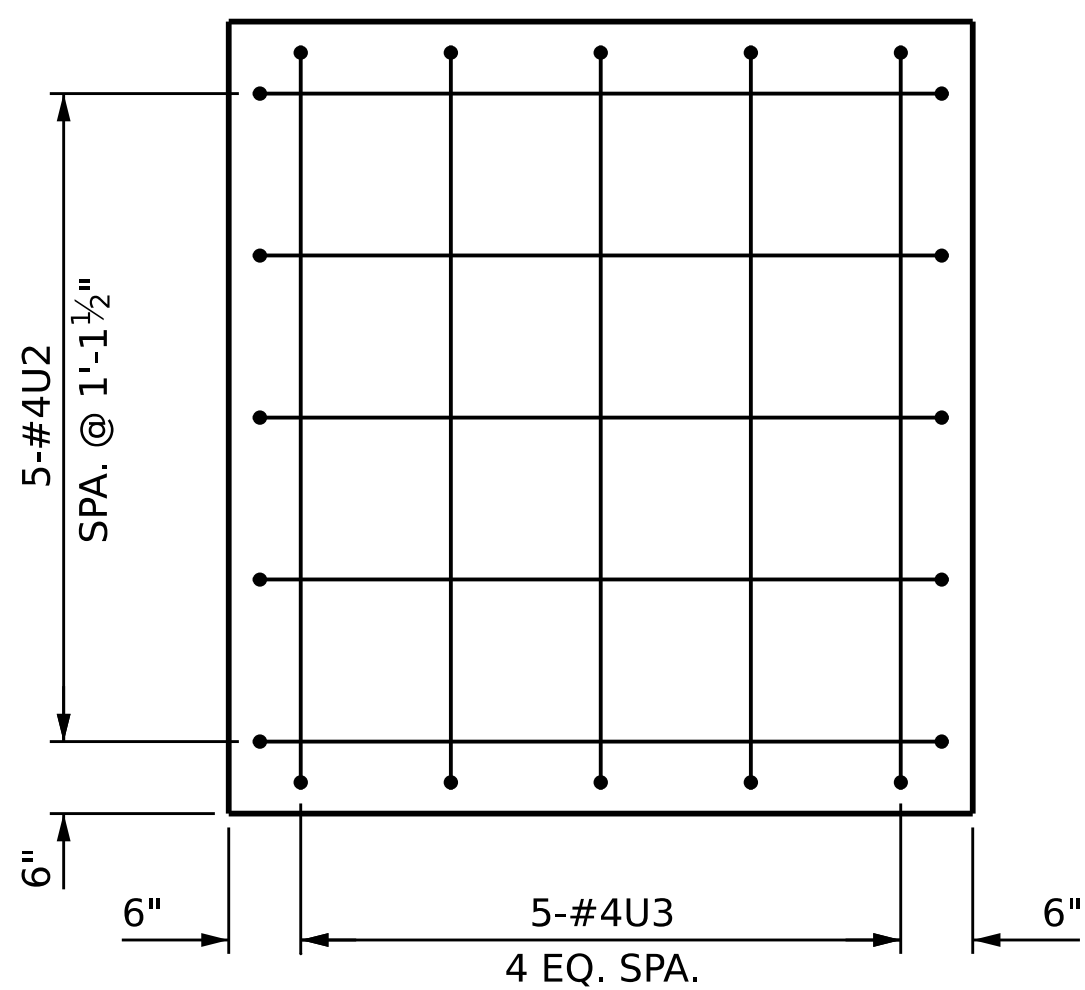
TABLE OF ANGLES		
BENT	"A"	"B"
1	88°-27'-29"	89°-06'-26"
2	89°-06'-26"	89°-45'-24"

PLAN OF DRILLED PIERS AND COLUMNS

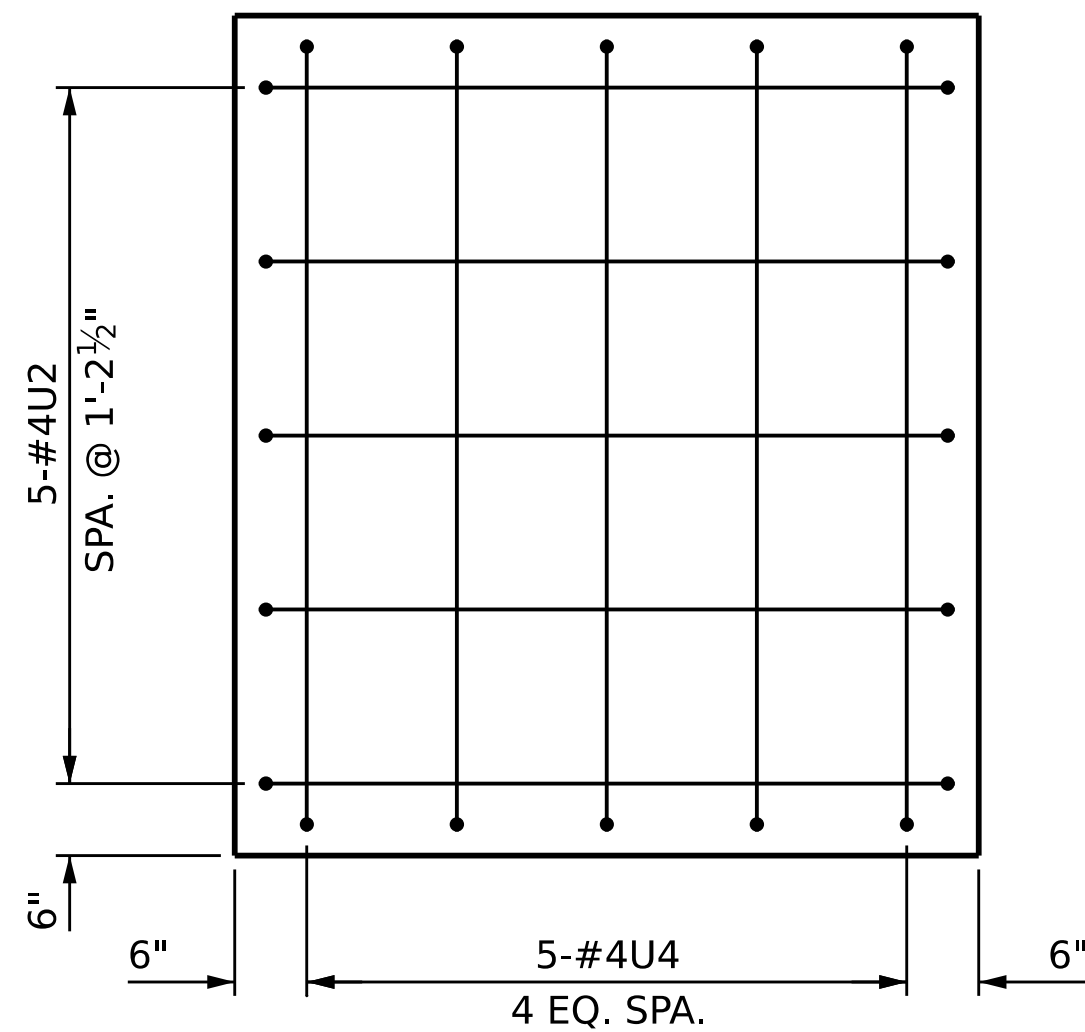


SECTION A-A

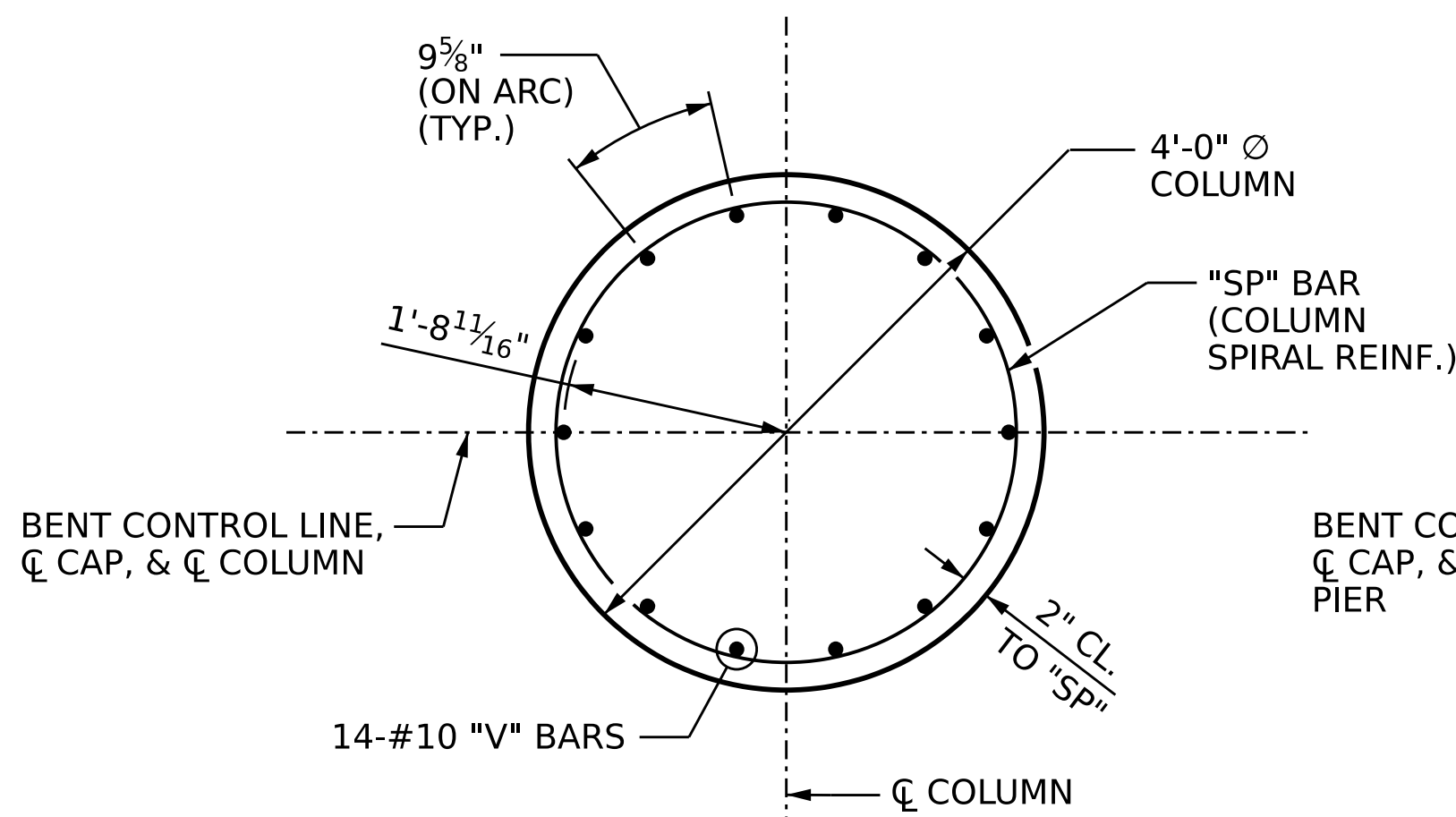
SECTION B-B



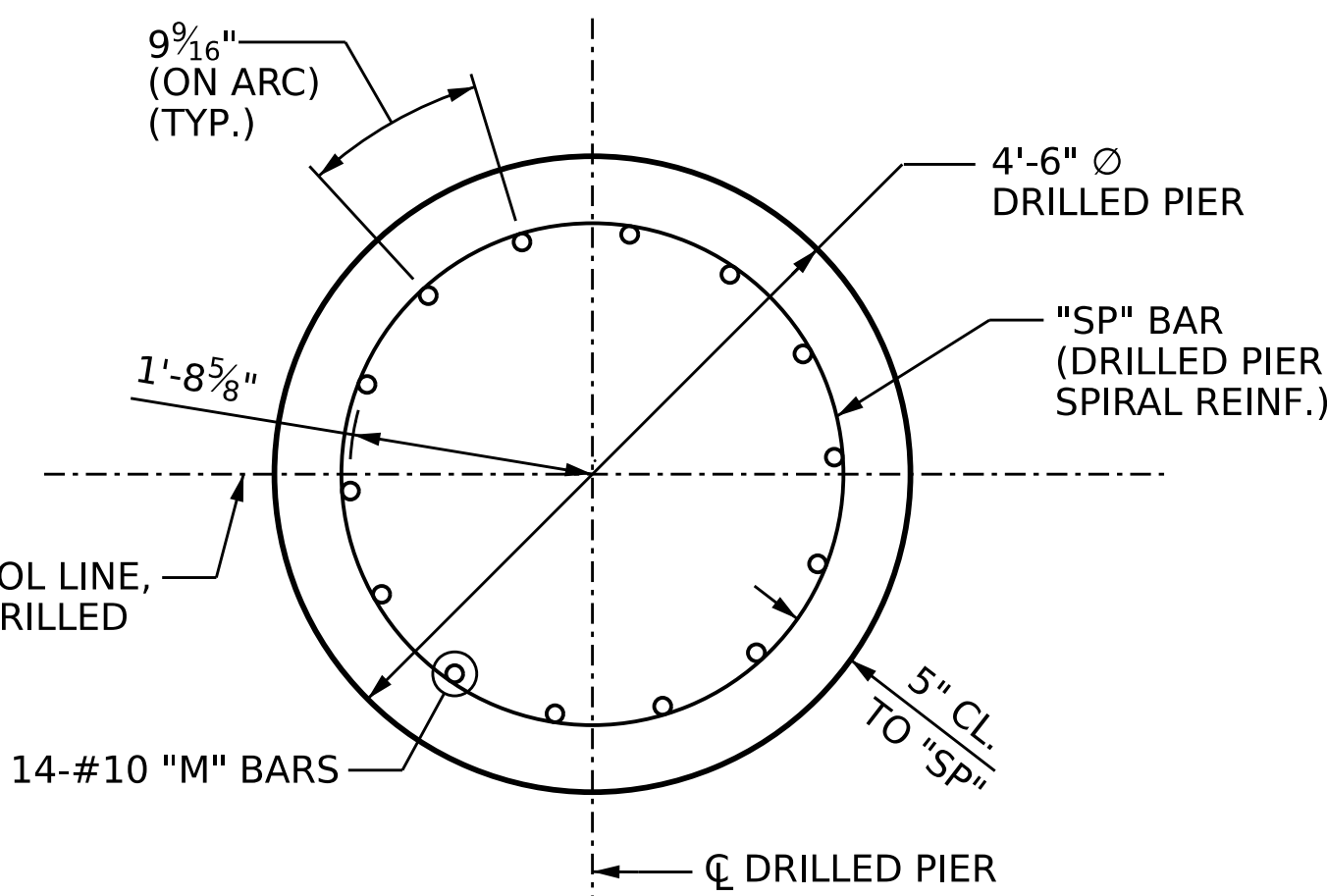
LEFT CAP END VIEW



RIGHT CAP END VIEW



SECTION C-C



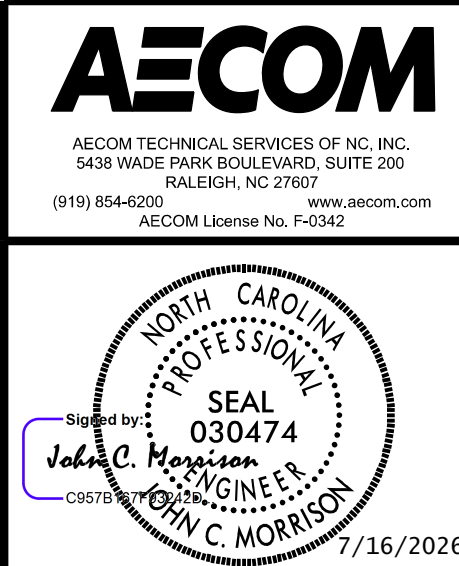
SECTION D-D

PROJECT NO. I-2513 AC

BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 3 OF 4



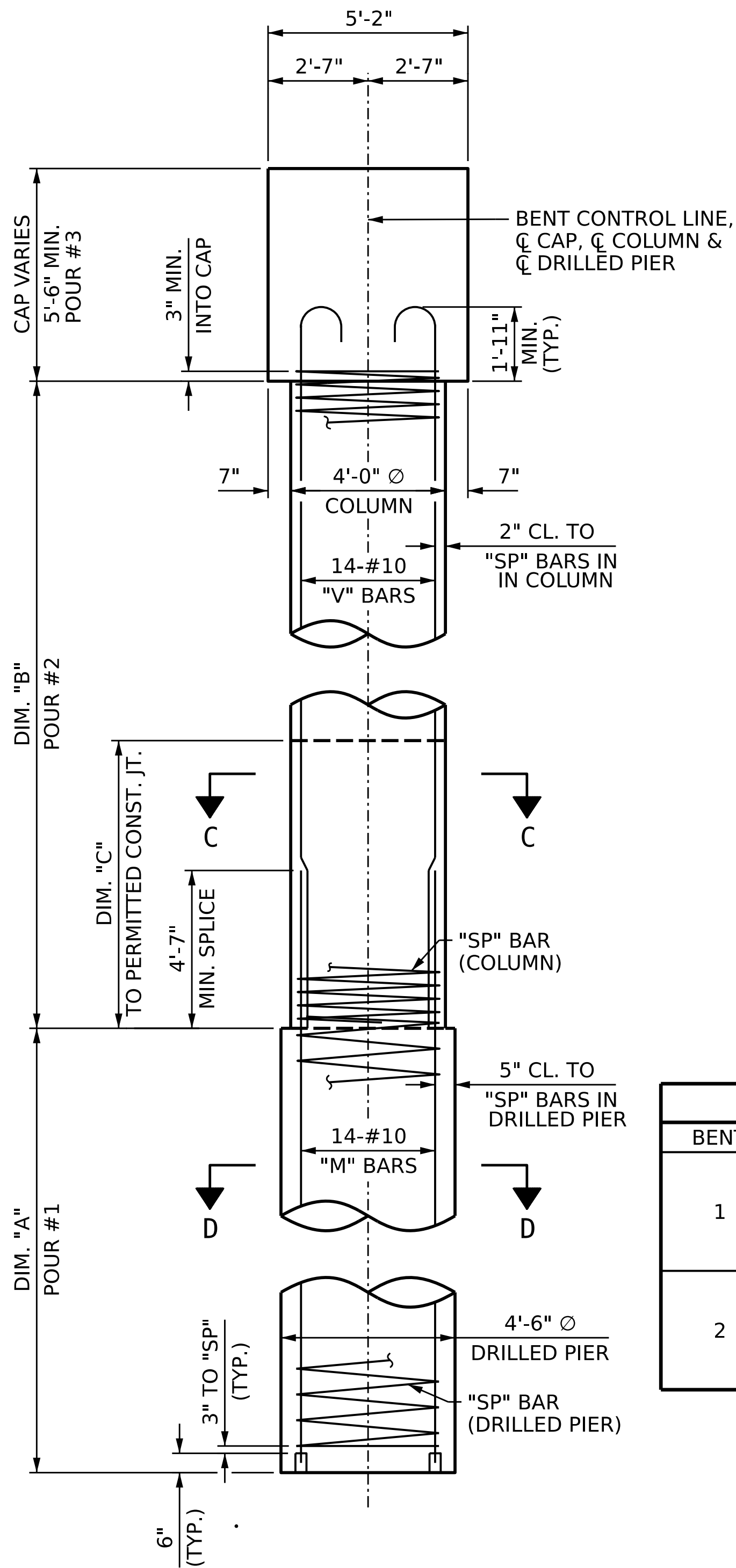
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
INTERMEDIATE BENT
DETAILS
(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-47
2			4			TOTAL SHEETS 57

DRAWN BY : D. DRUM DATE : 11/2023
CHECKED BY : D. TUTTLE DATE : 01/2024
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



END VIEW

FOR SECTIONS C-C & D-D, SEE SHEET 3 OF 4.

DRAWN BY : D. DRUM DATE : 11/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

7/9/2026
C:\working\oecom.ds21.na.2020\0131345\403.095.12513AC.SMU.B104.S3-4B.100208.dgn
caterm

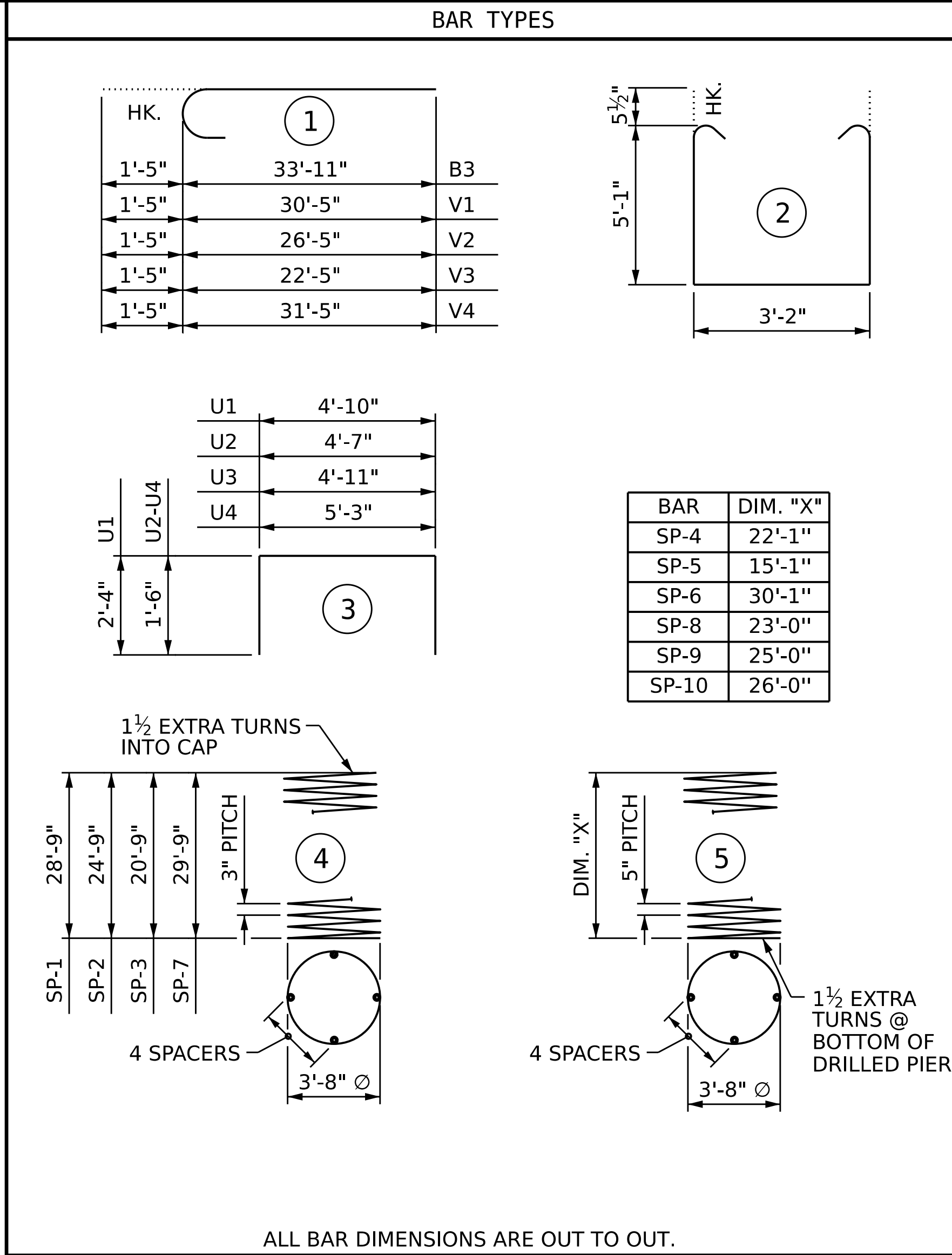
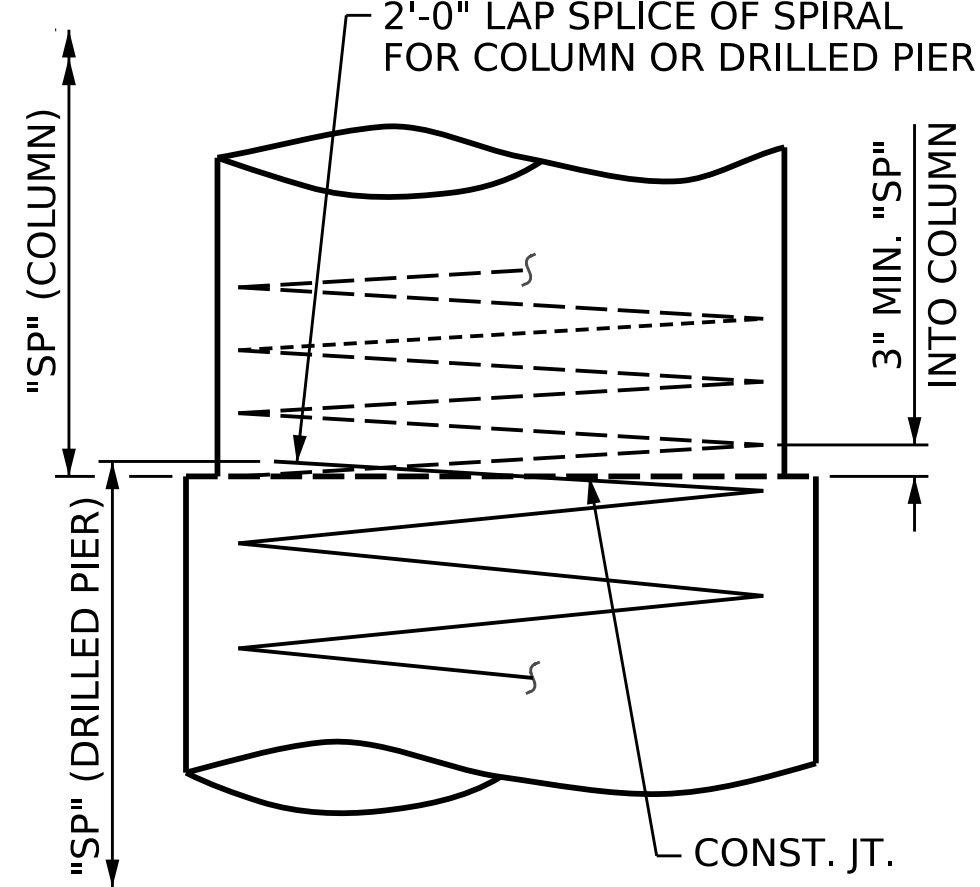


TABLE OF DIMENSIONS					
BENT	COLUMN	"A"	"B"	"C"	"X"
1	1	34'-6"	28'-6"	14'-0"	34'-0"
	2	32'-6"	28'-6"	14'-0"	32'-0"
	3	26'-6"	24'-6"	12'-0"	26'-0"
	4	41'-6"	20'-6"	10'-0"	41'-0"
2	1	37'-6"	29'-5"	15'-0"	37'-0"
	2	37'-6"	29'-5"	15'-0"	37'-0"
	3	40'-6"	29'-5"	15'-0"	40'-0"
	4	40'-6"	29'-5"	15'-0"	40'-0"

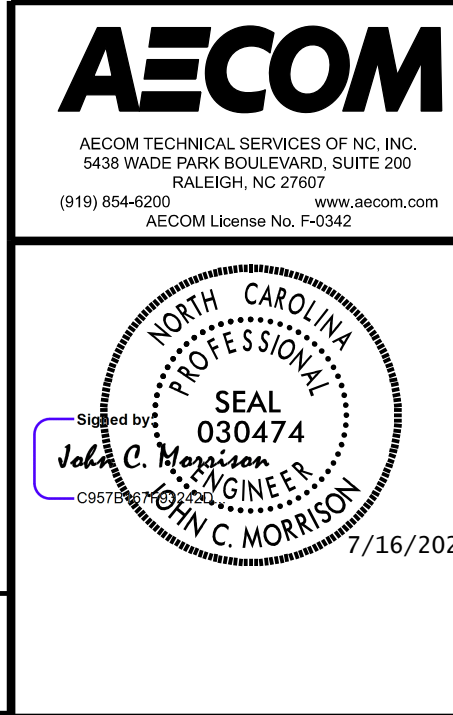


CONSTRUCTION JOINT DETAIL

BILL OF MATERIAL											
BENT 1						BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	10	STR	33'-3"	2286	B1	16	10	STR	33'-3"	2286
B2	24	5	STR	32'-5"	811	B2	24	5	STR	32'-5"	811
B3	16	10	1	35'-4"	2433	B3	16	10	1	35'-4"	2433
B4	8	4	STR	11'-4"	61	B4	8	4	STR	11'-4"	61
B5	8	4	STR	25'-8"	137	B5	8	4	STR	25'-8"	137
B6	8	4	STR	2'-8"	14	B6	8	4	STR	2'-8"	14
B7	8	4	STR	12'-2"	65	B7	8	4	STR	12'-2"	65
M1	14	10	STR	41'-7"	2505	M5	28	10	STR	44'-7"	5372
M2	14	10	STR	39'-7"	2385	M6	28	10	STR	47'-7"	5733
M3	14	10	STR	33'-7"	2023						
M4	14	10	STR	48'-7"	2927	S1	152	5	2	14'-3"	2259
S1	152	5	2	14'-3"	2259	U1	65	4	3	9'-6"	412
						U2	10	4	3	7'-7"	51
U1	65	4	3	9'-6"	412	U3	5	4	3	7'-11"	26
U2	10	4	3	7'-7"	51	U4	5	4	3	8'-3"	28
U3	5	4	3	7'-11"	26						
U4	5	4	3	8'-3"	28	V4	56	10	1	32'-10"	7912
V1	28	10	1	31'-10"	3835						
V2	14	10	1	27'-10"	1677						
V3	14	10	1	23'-10"	1436						
REINFORCING STEEL						REINFORCING STEEL					
25,371 LBS.						27,600 LBS.					
SP-1	1	*	4	1325'-2"	885	SP-8	4	*	4	1370'-8"	3662
SP-2	1	*	4	1143'-2"	764	SP-9	2	**	5	1024'-7"	2137
SP-3	1	*	4	961'-2"	642	SP-10	2	**	5	1106'-4"	2308
SP-4	1	**	5	942'-11"	983						
SP-5	1	**	5	888'-6"	927						
SP-6	1	**	5	725'-1"	756						
SP-7	1	**	5	1133'-7"	1182						
SPIRAL COLUMN REINFORCING STEEL						SPIRAL COLUMN REINFORCING STEEL					
6,139 LBS.						8,107 LBS.					
* THE SP-1 THRU SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR						* THE SP-8 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR					
** THE SP-4 THRU SP-7 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR						** THE SP-9 THRU SP-11 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR					
CLASS A CONCRETE BREAKDOWN						CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMNS)				47.5 C.Y.		POUR #2 (COLUMNS)				54.8 C.Y.	
POUR #3 (CAP)				69.7 C.Y.		POUR #3 (CAP)				69.6 C.Y.	
TOTAL CLASS A CONCRETE				117.2 C.Y.		TOTAL CLASS A CONCRETE				124.4 C.Y.	
DRILLED PIERS:						DRILLED PIERS:					
DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)				79.5 C.Y.		DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)				91.9 C.Y.	

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 4 OF 4



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-48
2			4			TOTAL SHEETS 57

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STIRRUPS AND U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY
TO CLEAR ANCHOR BOLTS.

EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS.

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

FOR WING DETAILS, SEE SHEET 2 OF 3.

FOR SECTIONS A-A AND B-B, SEE SHEET 3 OF 3.

FOR TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

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

POUR #3 SHALL BE COMPLETED AFTER BARRIER RAILS ON LEFT AND RIGHT BRIDGES ARE CAST IF SLIP FORMING IS USED.

▲ SEE SECTION A-A FOR LOCATION OF TOP OF CAP ELEVATIONS.

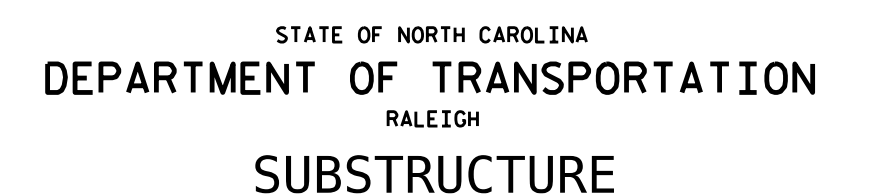
① 3-#5S2 & 3-#5S3 @ 10" CTS.



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY

STATION: 45+58.00 -L-

SHEET 1 OF 3



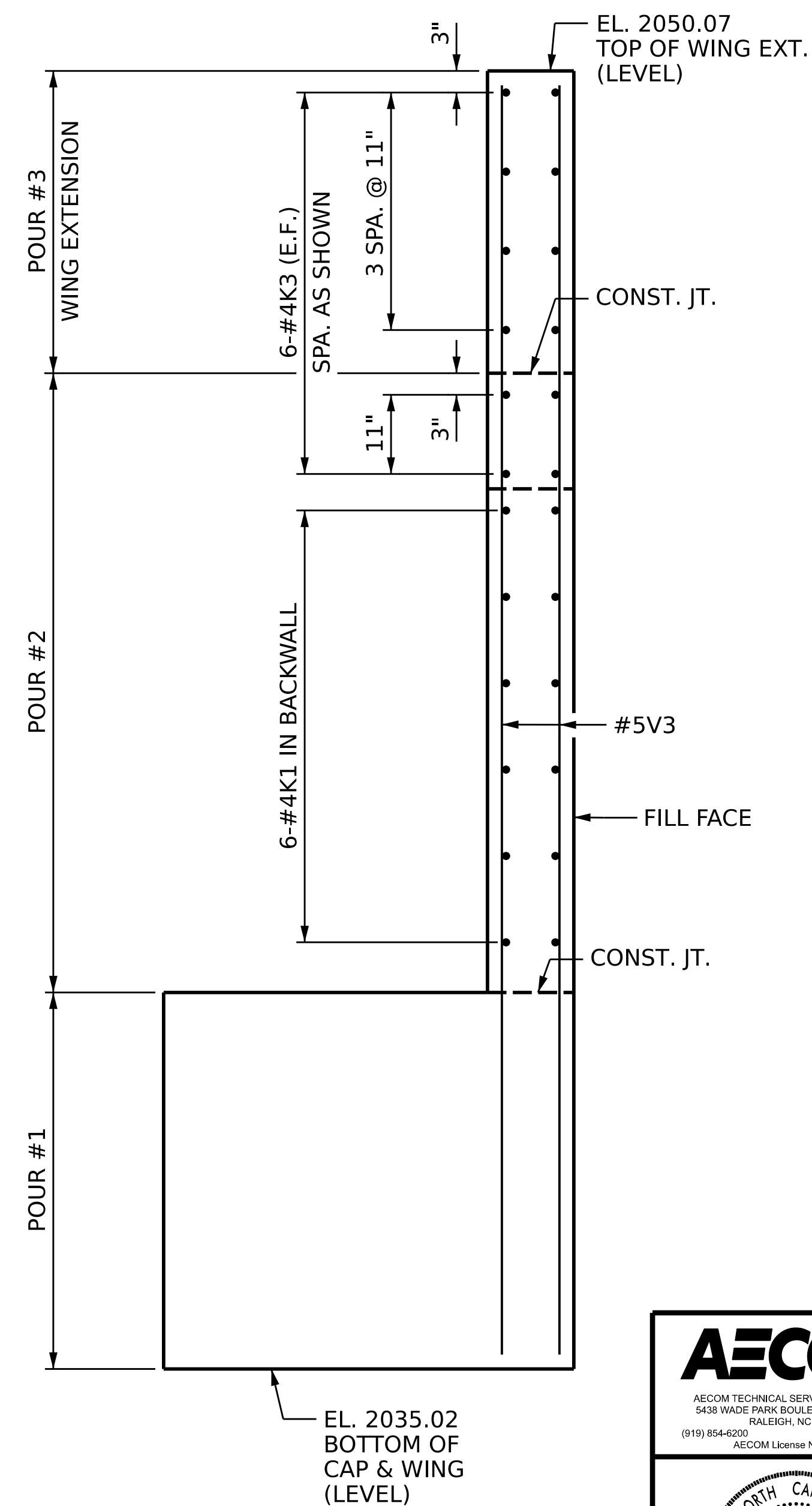
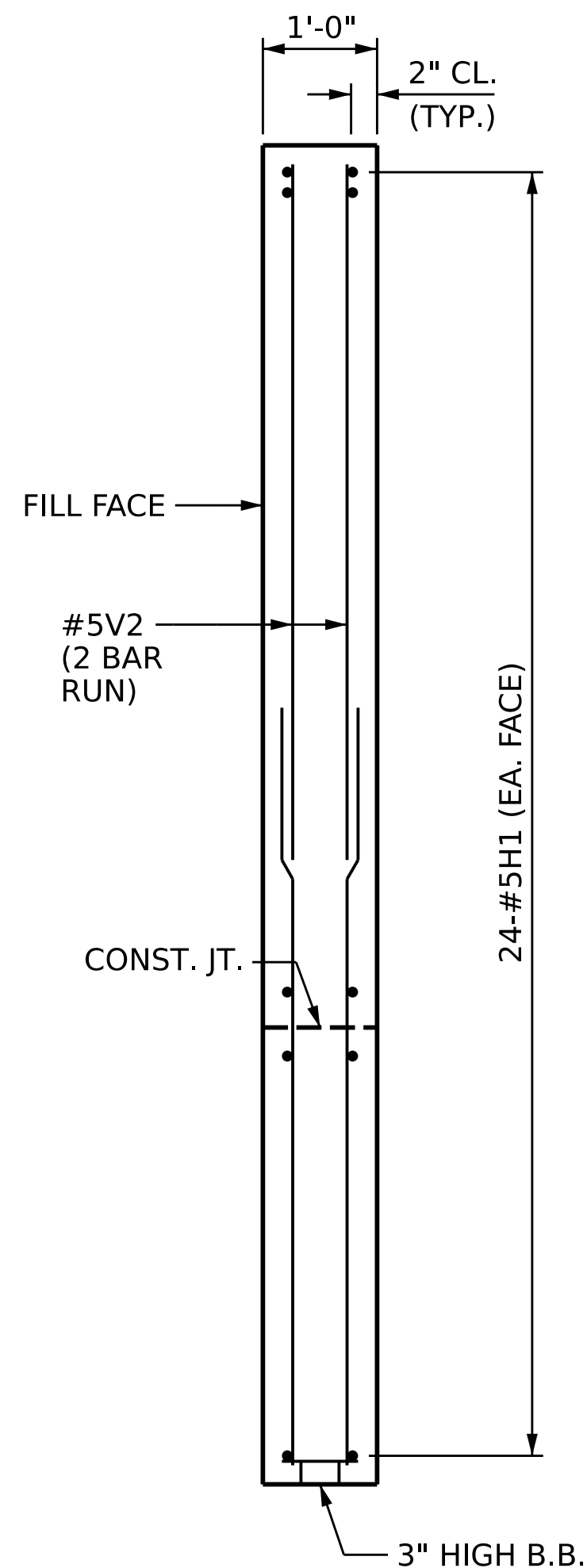
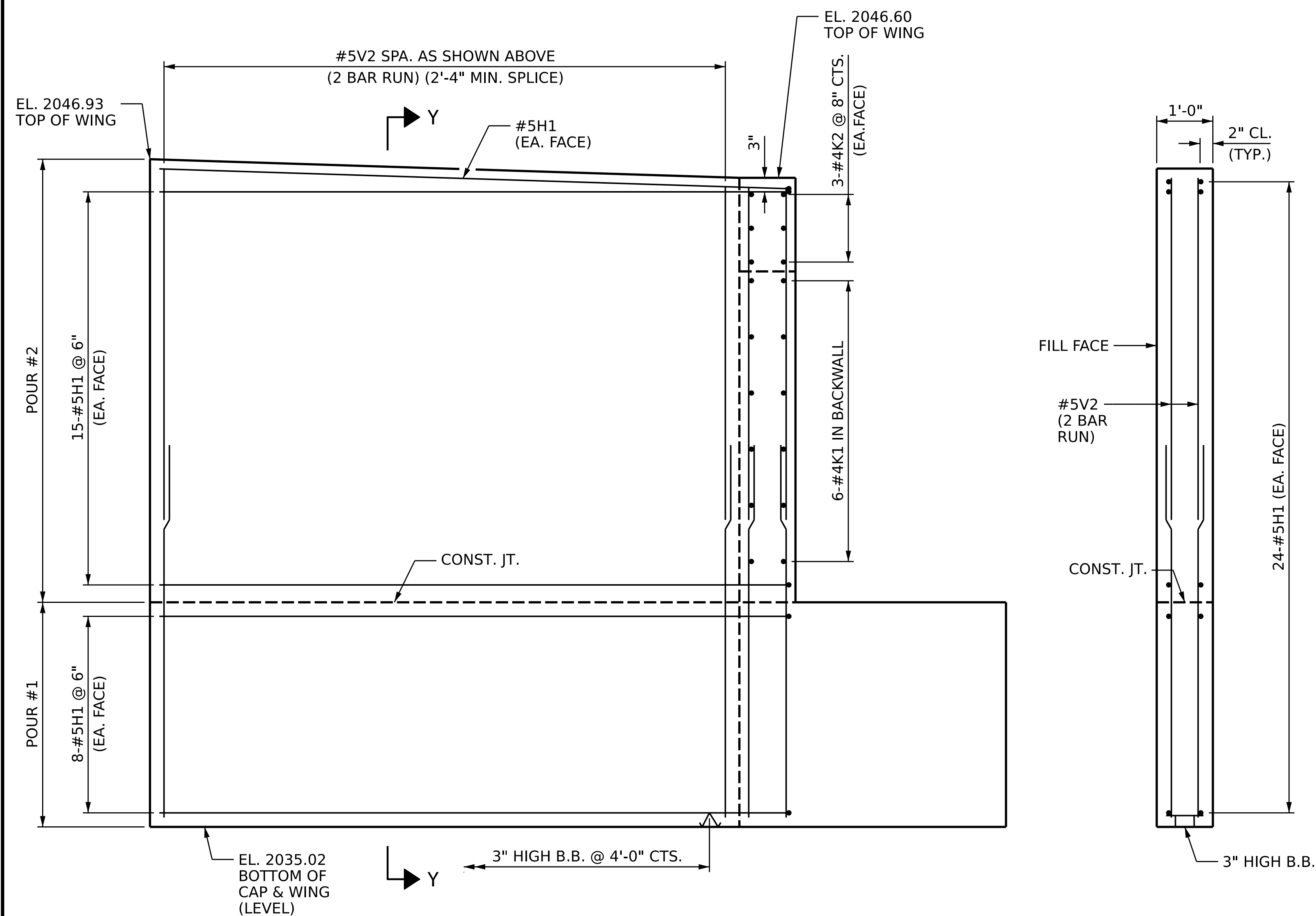
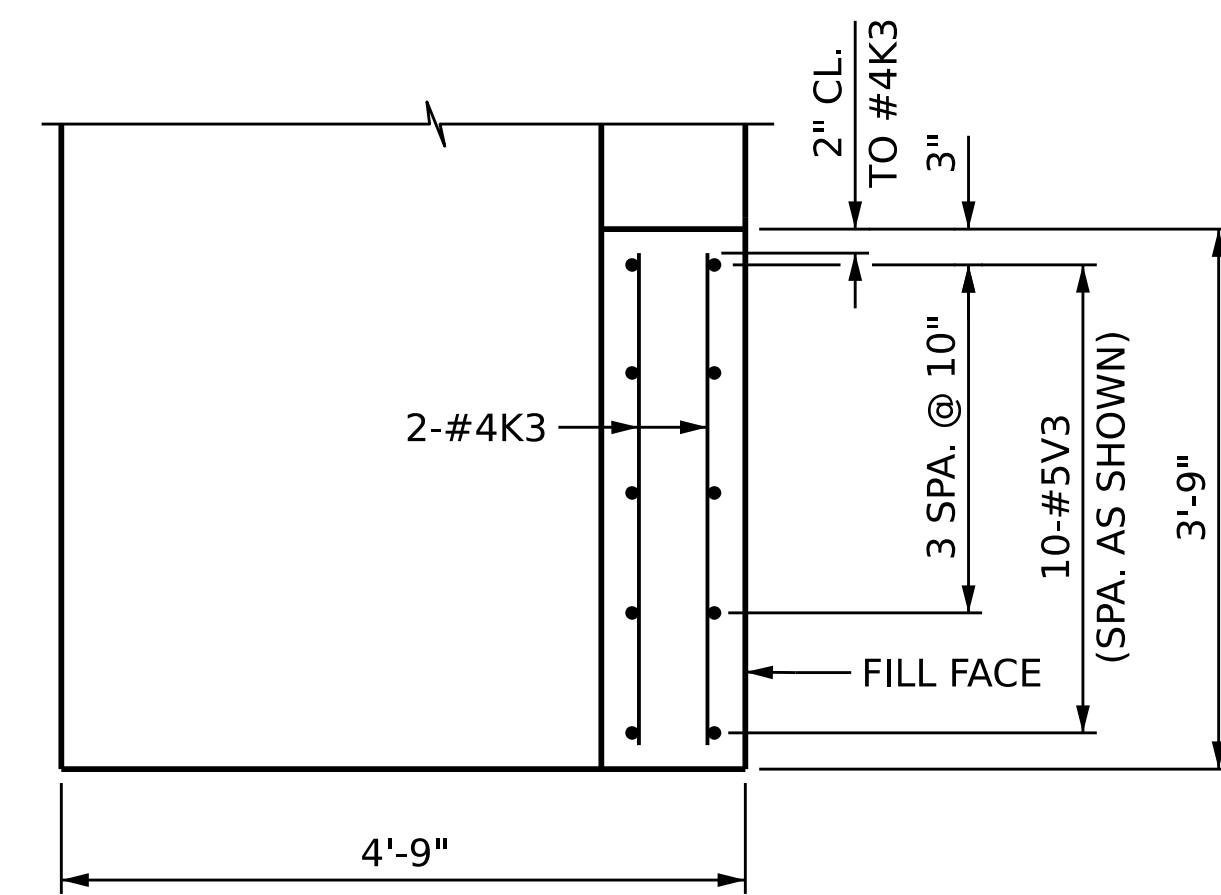
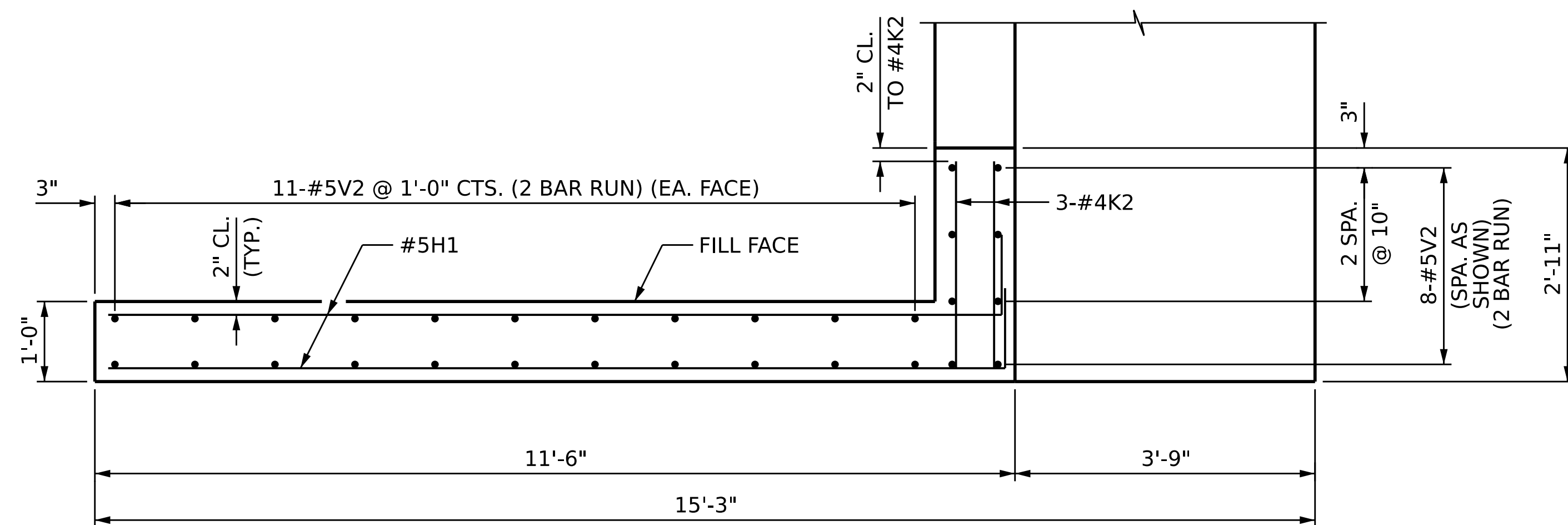
END BENT 2
(LEFT LANE)

026	REVISIONS						SHEET NO.
	NO.	BY:	DATE:	NO.	BY:	DATE:	S3-49
	1			3			
	2			4			
						TOTAL SHEETS	57



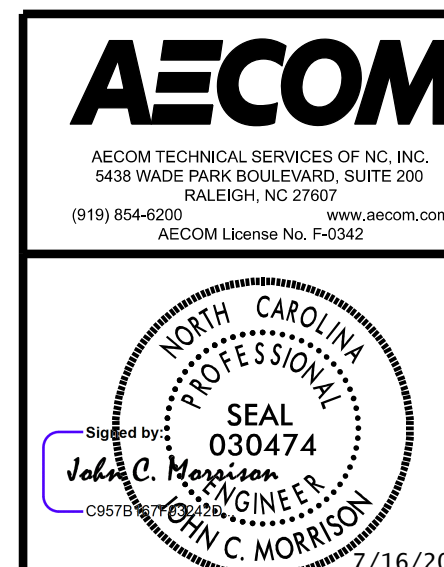
DRAWN BY :	D. DRUM	DATE :	12/2023
CHECKED BY :	S. NATARAJAN	DATE :	01/2024
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
 STATION: 45+58.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

(LEFT LANE)

REVISIONS

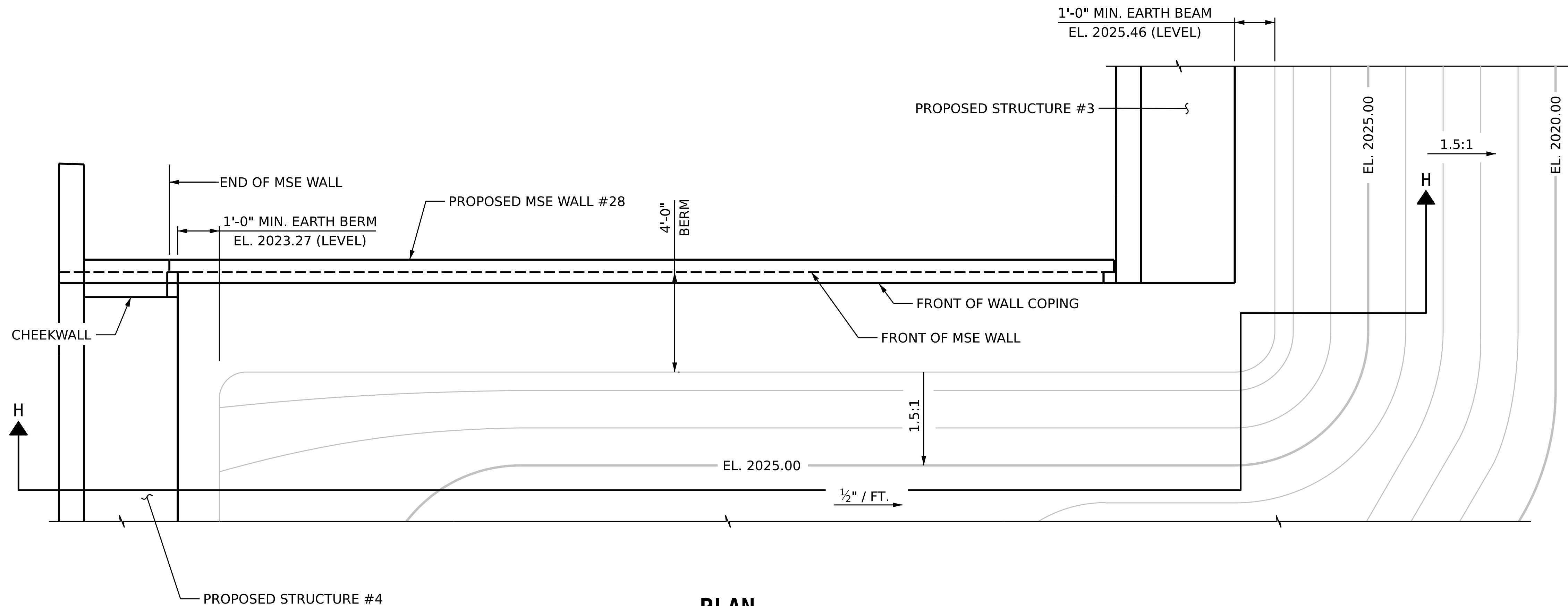
SHEET NO.

S3-50

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

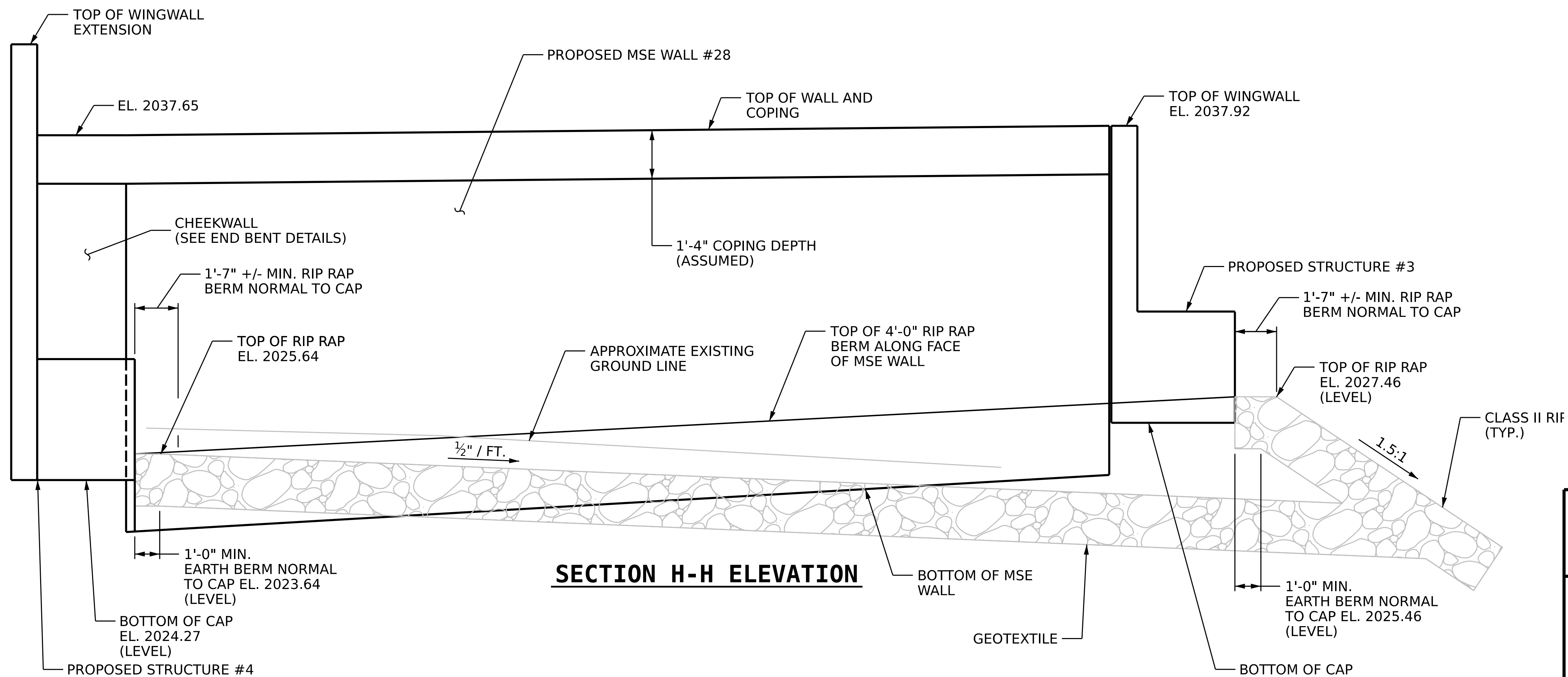
TOTAL
SHEETS
57

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PLAN

SHOWING TOP OF RIP RAP CONTOURS
(SHOWING APPROXIMATE GRADING BETWEEN BRIDGE END BENTS)



SECTION H-H ELEVATION

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-
SHEET 2 OF 3

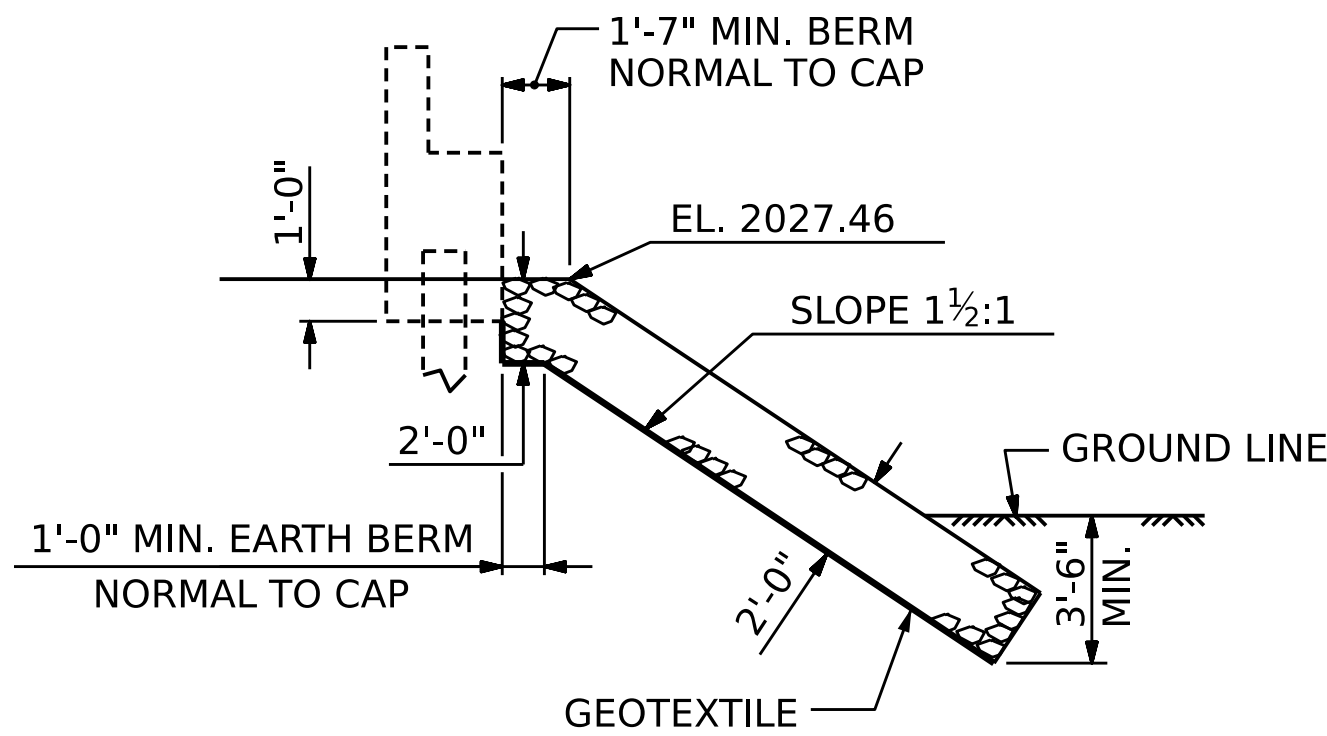
AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F02342

Signed by:
John C. Morrison
Civil Engineer
7/16/2026

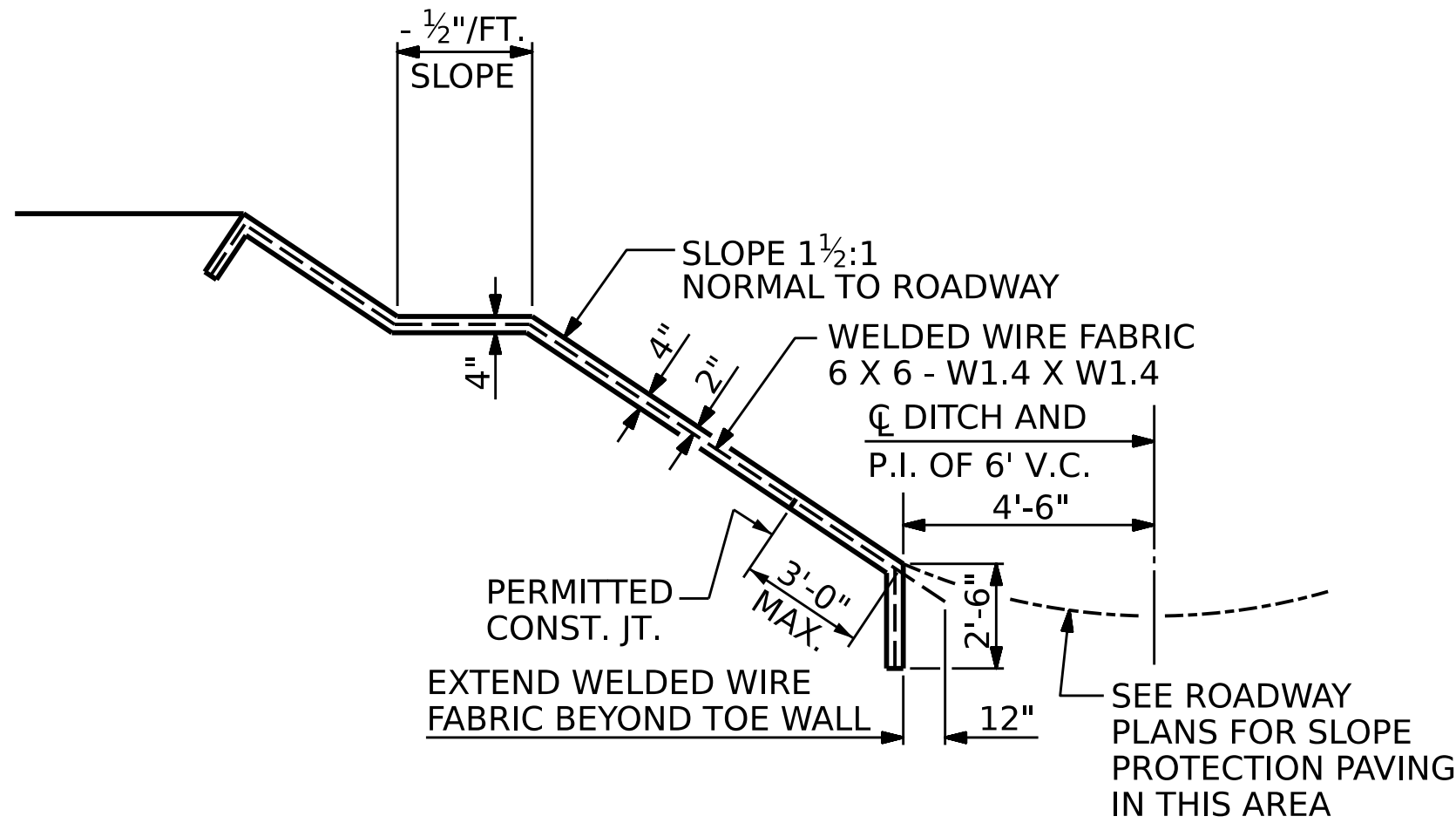
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-53
2			4			
TOTAL SHEETS						57

DRAWN BY : D. DRUM DATE : 10/2023
CHECKED BY : J.C. MORRISON DATE : 03/2026
DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

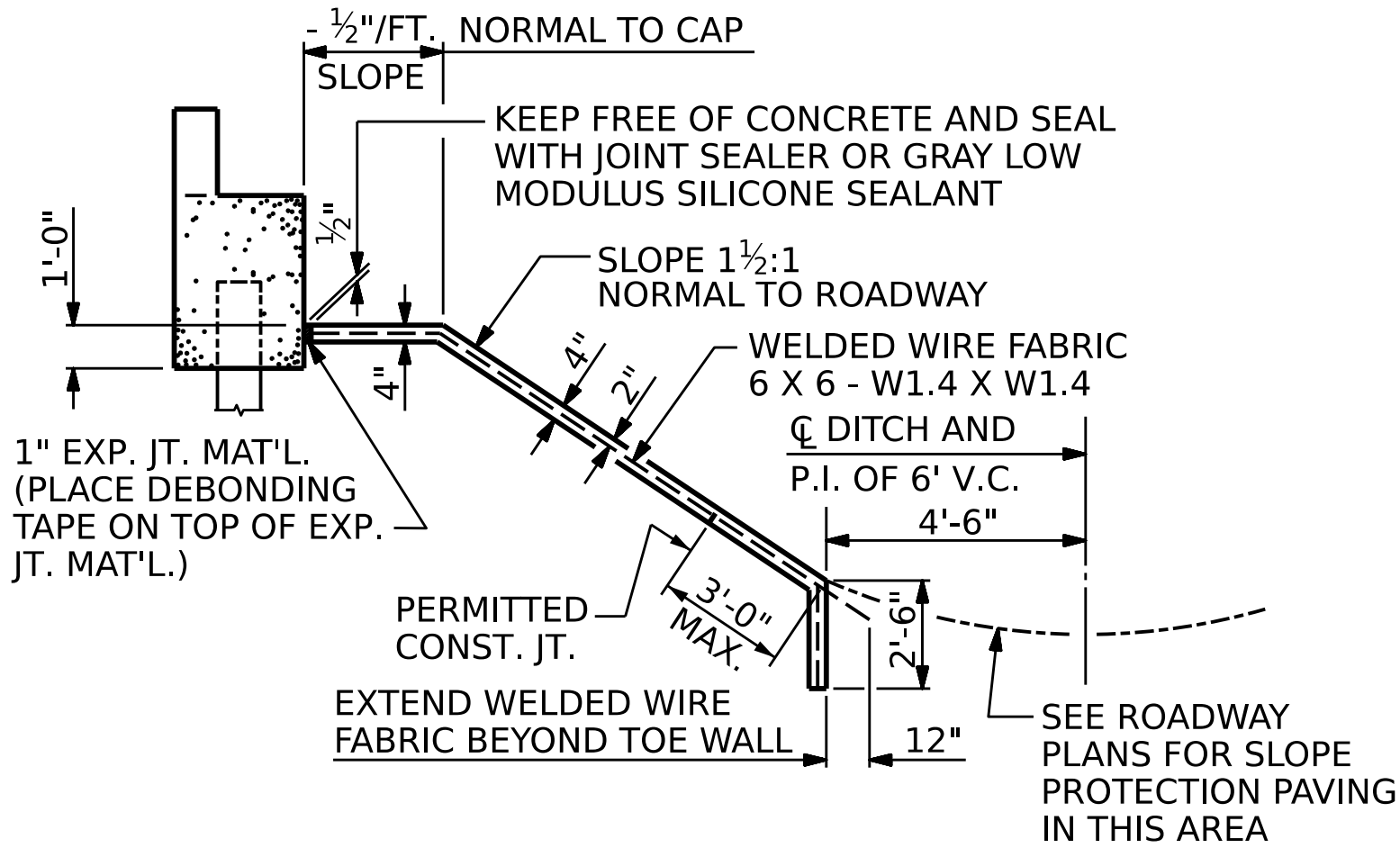
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



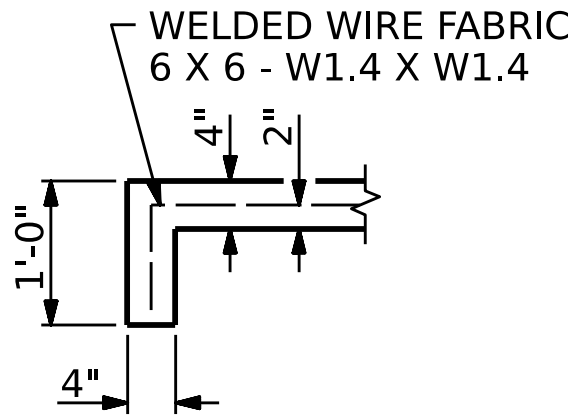
SECTION A-A



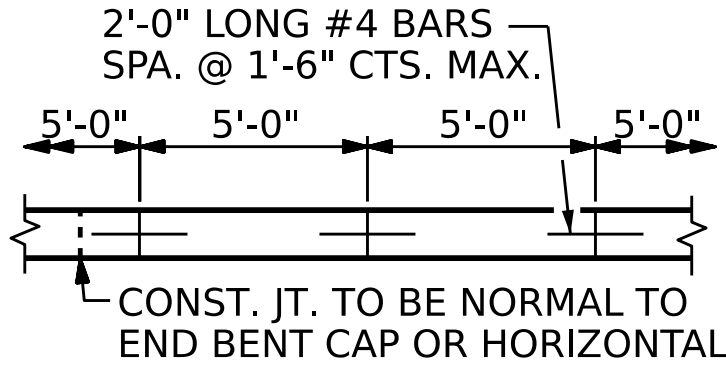
SECTION D-D



SECTION B-B



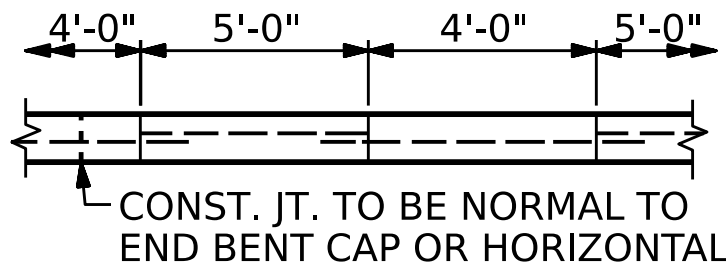
SECTION C-C



STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL

THE "POURING DETAIL" SHALL BE USED TO CONNECT SLOPE PROTECTION PORTIONS BETWEEN BRIDGES 2, 3, 4, AND 5. THE #4 BAR DOWELS SHALL BE INSTALLED WITH THE PORTION OF SLOPE PROTECTION CAST FIRST.



POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL

NOTES:

SLOPE PROTECTION SHALL BE PLACED UNDER THE BRIDGE END AS SHOWN IN THE DETAILS. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTHS, SEE SHEET 1 OF 3.

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 FINISHED TO THE SATISFACTION OF THE ENGINEER. 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 SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

COORDINATE GRADING REQUIREMENTS WITH ROADWAY CROSS SECTIONS AND WALL NO. 28 ENVELOPE.

BRIDGE @ STA. 45+58.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	287	319

BRIDGE @ STA. 45+58.00 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 2	1128	2030

* QUANTITY IS BASED ON 5' POURS

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 3 OF 3

AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-0342

7/16/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**RIP RAP &
SLOPE PROTECTION
DETAILS
(LEFT LANE)**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-54
1			3			TOTAL SHEETS
2			4			57

DRAWN BY :	D. DRUM	DATE :	01/2024
CHECKED BY :	J.C. MORRISON	DATE :	03/2026
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

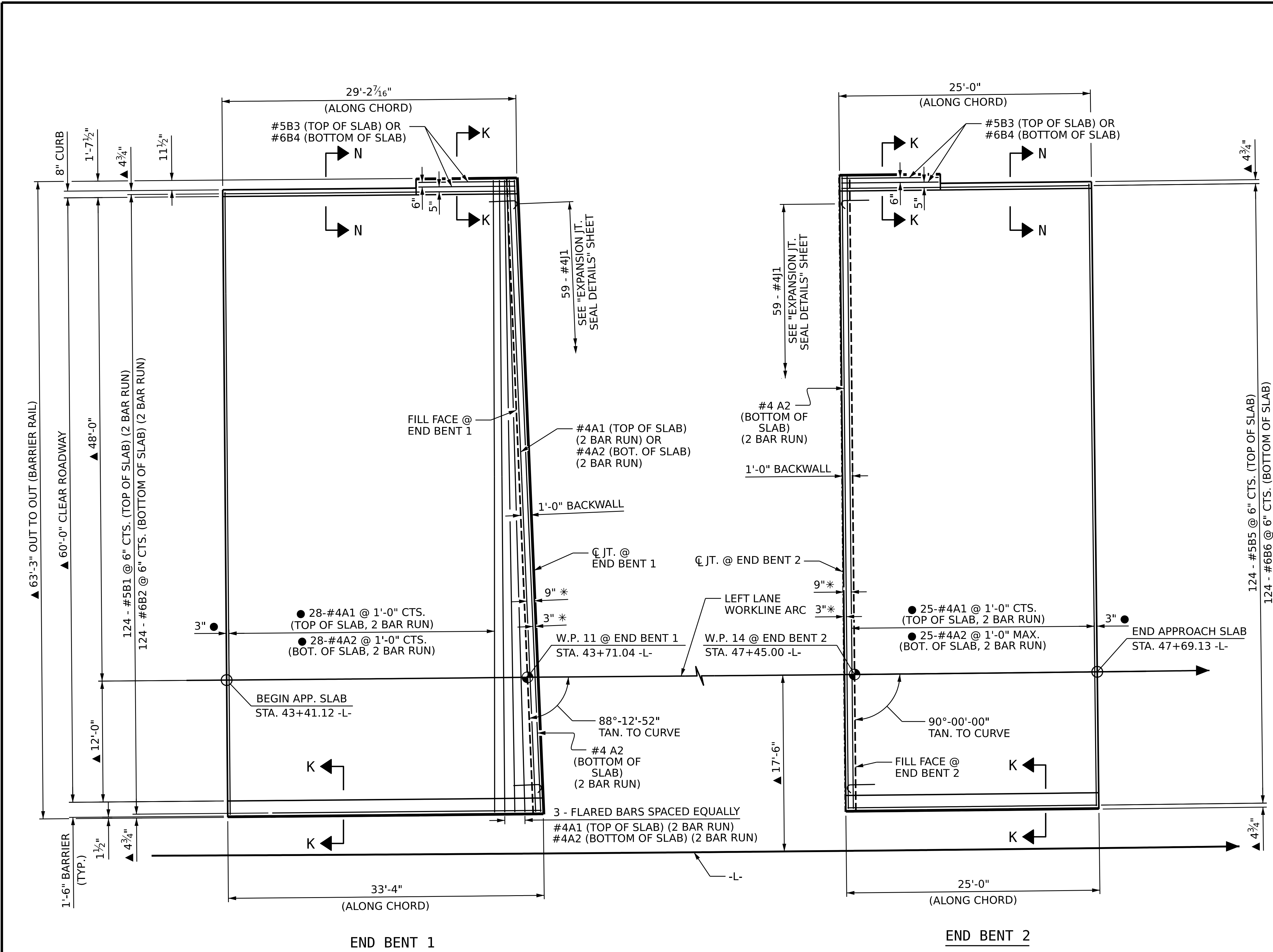
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES:

SEE SHEET 2 OF 3 FOR SECTION K-K AND SECTION N-N

SPLICE LENGTH SHOWN ARE MINIMUM AND WILL VARY

THE QUANTITY OF #4J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEED THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.



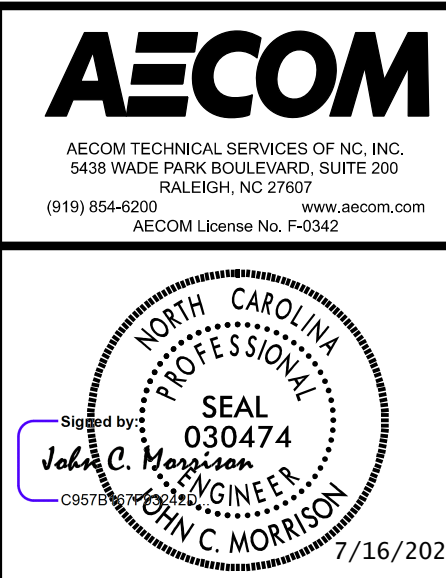
PLAN

* = MEASURED PARALLEL TO JOINT
▲ = MEASURED RADIALLY
● = "A" BARS PLACED PARALLEL TO BEGINNING/END FACE OF APPROACH SLAB
ARC OFFSET VALUES ARE NEGLIGIBLE. THE OUTSIDE OF APPROACH SLABS SHALL BE SET ALONG A CHORD

DRAWN BY :	M. CATER	DATE :	02/2024
CHECKED BY :	S. NATARAJAN	DATE :	02/2024
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

7/9/2026
C:\working\oecom.ds21.na.2020\d0131345\403.109.12513AC.SMU.AS1.S3-55.100208.dgn
caterm

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

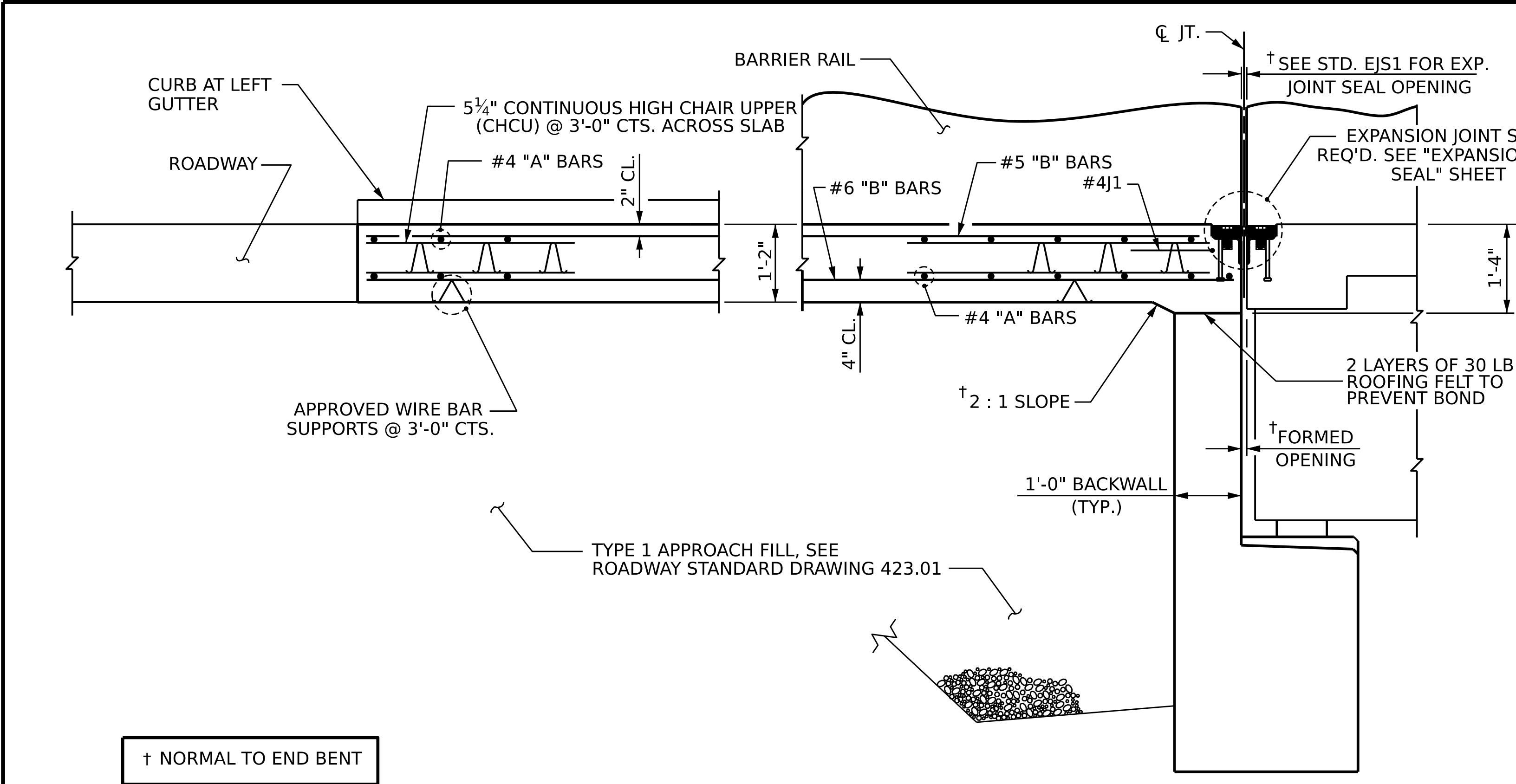
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

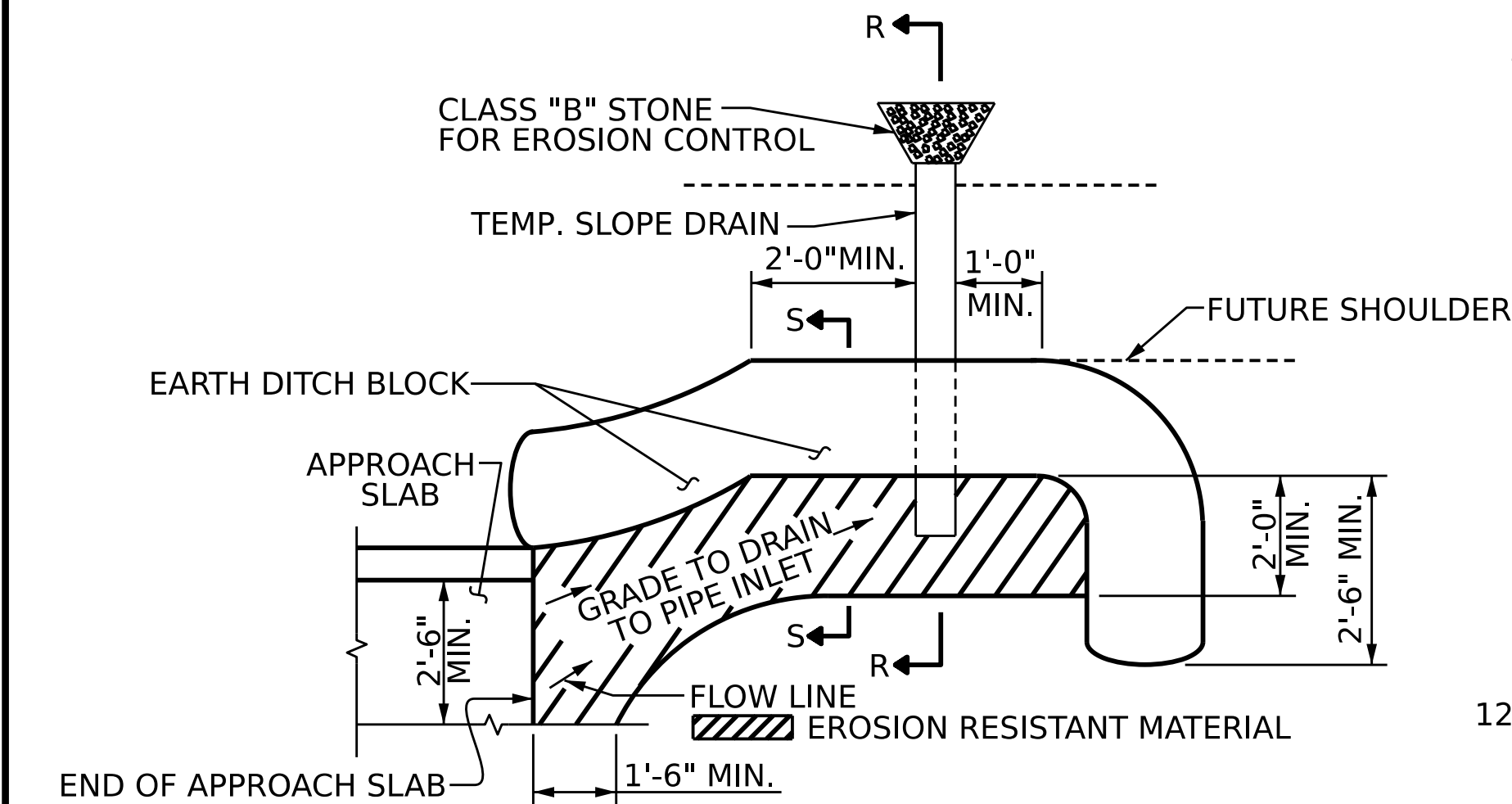
APPROACH SLAB

(LEFT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-55
2			4			
TOTAL SHEETS						57



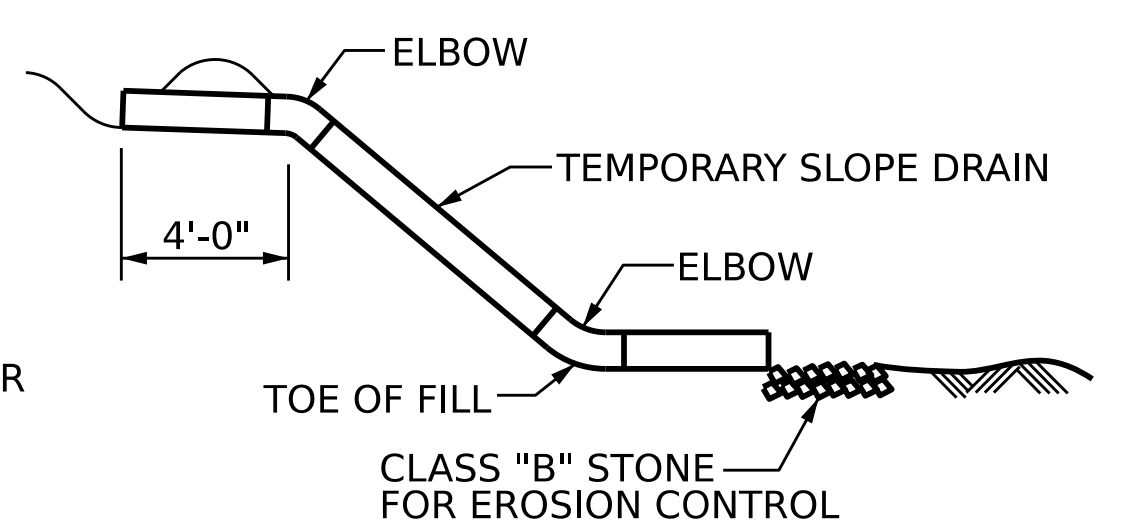
SECTION THRU SLAB
(TYPE 1 - APPROACH FILL)



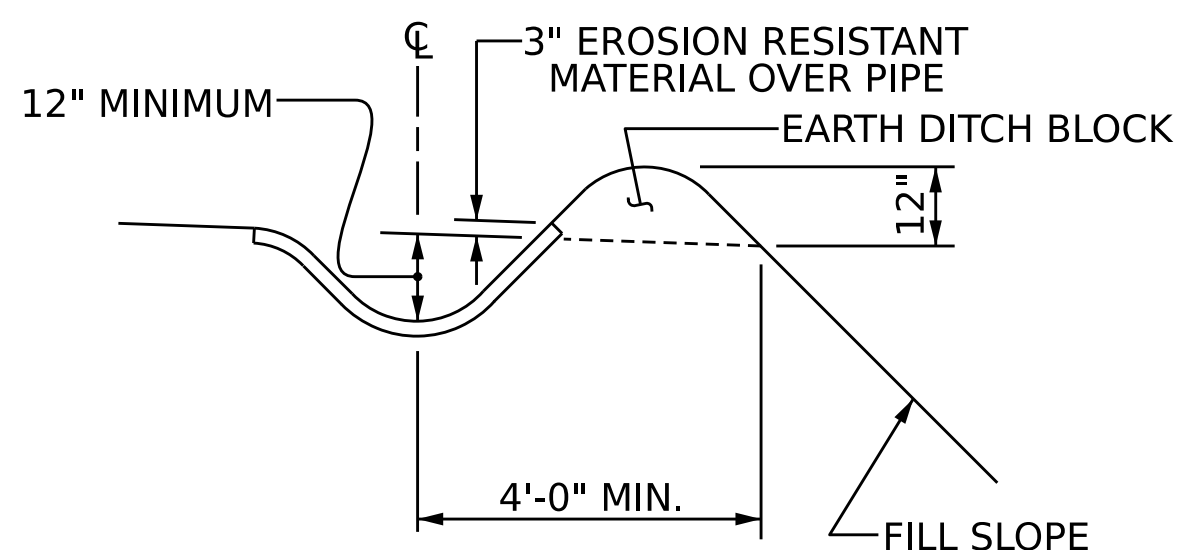
PLAN VIEW

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.

DRAWN BY :	M. CATER	DATE :	02/2024
CHECKED BY :	S. NATARAJAN	DATE :	02/2024
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	03/2026

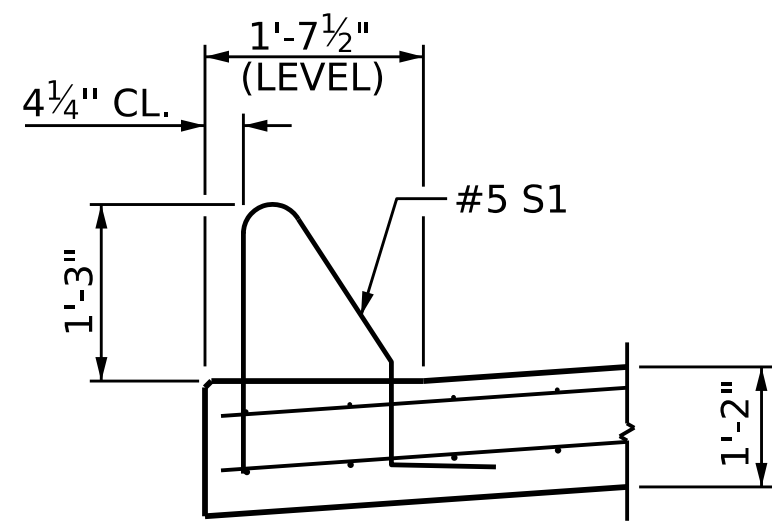


SECTION R-R

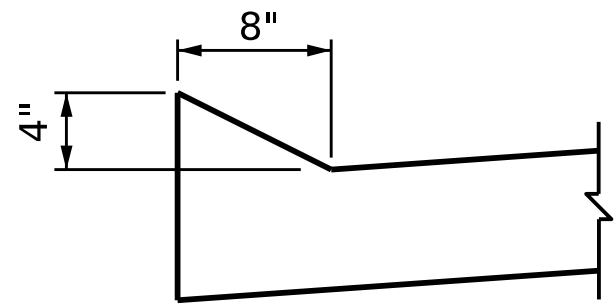


SECTION S-S

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



SECTION K-K



SECTION N-N

NOTES :

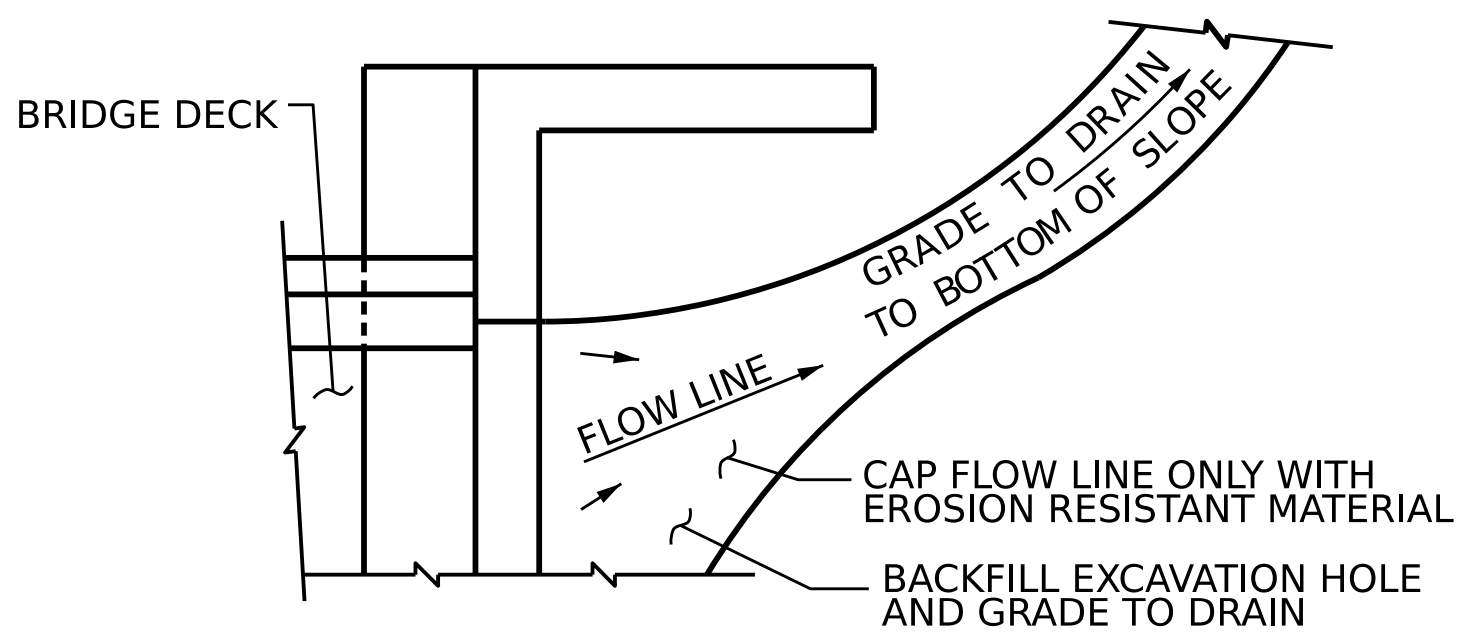
FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.

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.

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



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

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	64	4	STR	32'-6"	1389
A2	66	4	STR	32'-4"	1426
* B1	248	5	STR	17'-9"	4591
B2	248	6	STR	17'-9"	6612
* B3	2	5	STR	9'-8"	20
B4	2	6	STR	9'-8"	29
* J1	59	4	1	1'-5"	56
REINFORCING STEEL				**	7,707 LBS.
* EPOXY COATED REINFORCING STEEL				**	6,416 LBS.
CLASS AA CONCRETE				**	82.4 C.Y.
APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	4	STR	32'-5"	1083
A2	52	4	STR	32'-3"	1120
* B3	2	5	STR	9'-8"	20
B4	2	6	STR	9'-8"	29
* B5	124	5	STR	24'-8"	3190
B6	124	6	STR	24'-8"	4594
* J1	59	4	1	1'-5"	56
REINFORCING STEEL				**	5,743 LBS.
* EPOXY COATED REINFORCING STEEL				**	4,349 LBS.
CLASS AA CONCRETE				**	68.4 C.Y.
BAR TYPES					

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED, SEE SHEET 3 OF 3.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+58.00 -L-

SHEET 2 OF 3

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F62362

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR RIGID PAVEMENT (LEFT LANE)					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					57

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

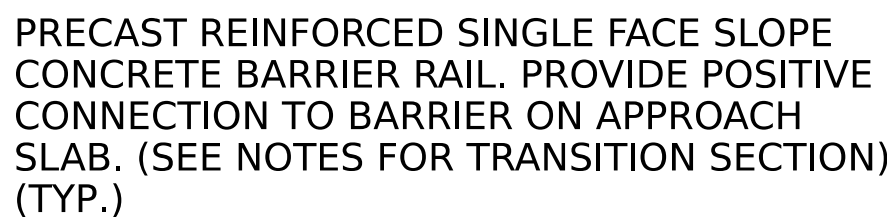
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

SHIFT, BEND, OR CUT REINFORCING STEEL AS NECESSARY TO CLEAR JOINT BLOCKOUT.

SEE LIGHTING PLANS FOR ELECTRICAL CONDUIT AND SIZE AND LOCATION OF FORMED OPENING IN BARRIER RAIL.

FOR EXPANSION JOINT FILLER AND SEALANT, SEE STANDARD SPECIFICATION SECTION 1028.

AT THE CONTRACTOR'S OPTION, THE BARRIER TRANSITION SECTION MAY BE ON THE APPROACH SLAB. BARRIER TRANSITION LENGTH SHALL BE 8 FT. MIN. AND 10 FT. MAX. CONTRACTOR TO SUBMIT WORKING DRAWING SHOWING MODIFICATION OF REINFORCING DETAILS IN BARRIER ON APPROACH SLAB AND POSITIVE CONNECTION DETAILS. COST TO BE INCLUDED IN COST OF "CONCRETE BARRIER RAIL". NO ADDITIONAL PAYMENT WILL BE MADE.



* = MEASURED ALONG EDGE OF APP. SLAB.



END BENT 1 & 2, LEFT SIDE ONLY



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

BAR TYPES



SHEET 3 OF 3

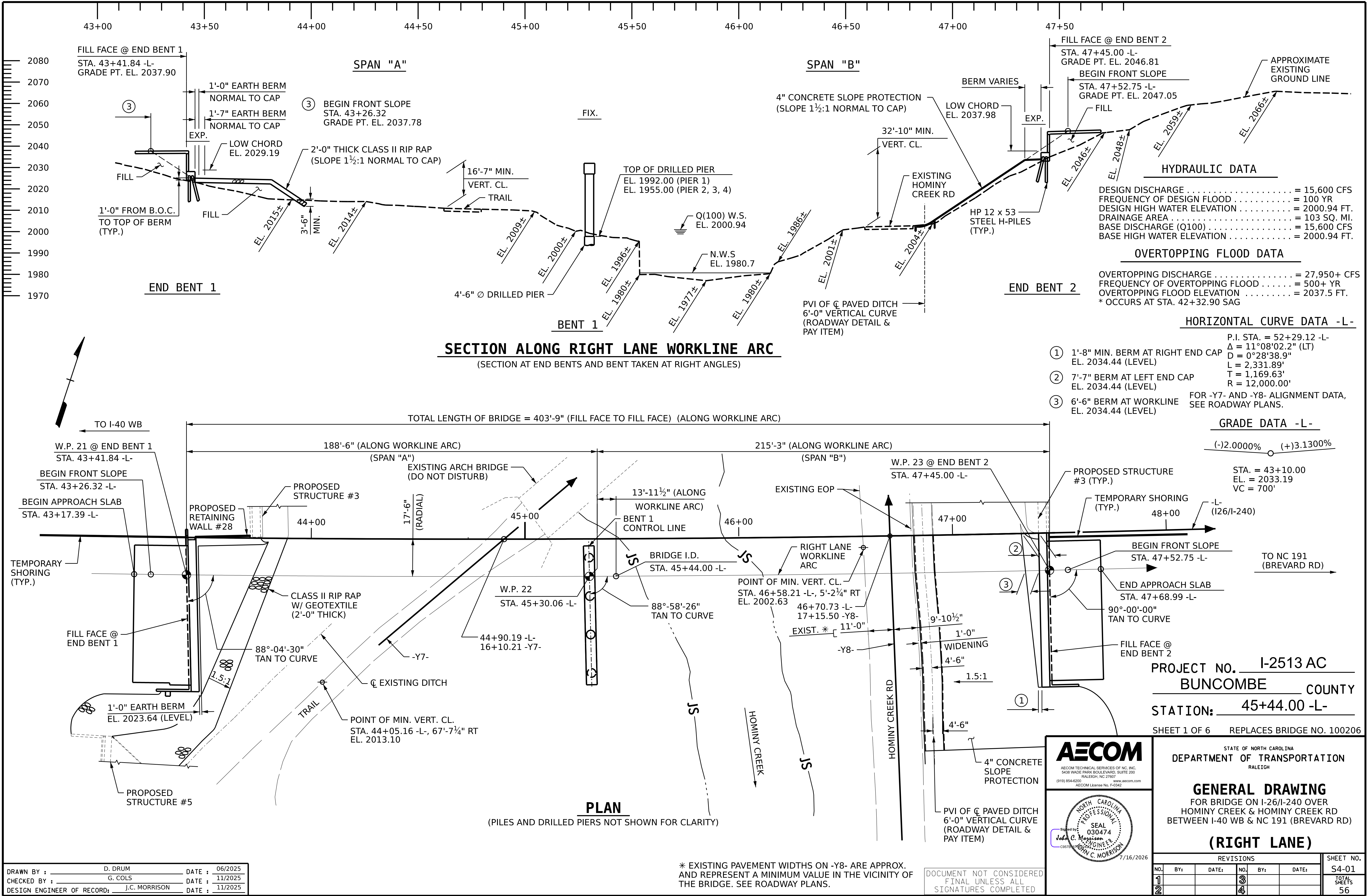
APPROACH SLAB DETAILS

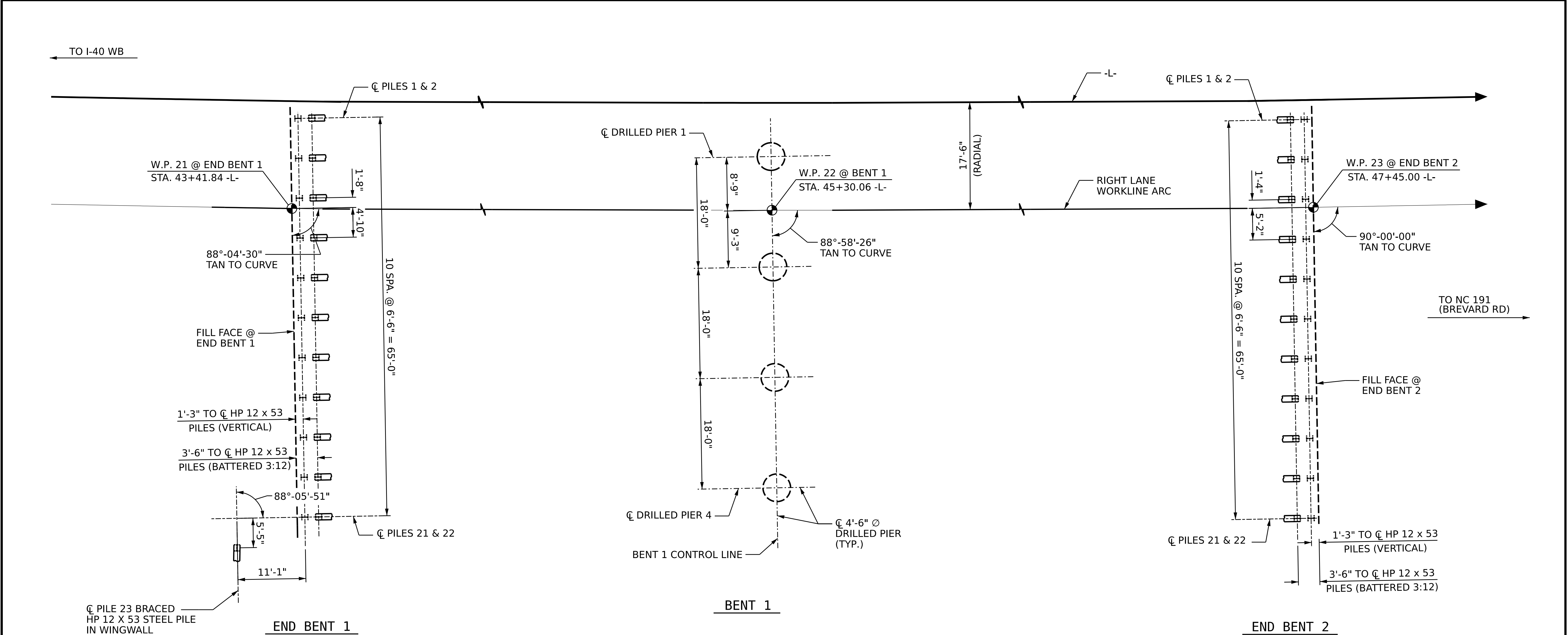
(LEFT LANE)

REVISIONS						SHEET NO. S3-57 TOTAL SHEETS 57
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : M. CATER DATE : 02/2024
 CHECKED BY : S. NATARAJAN DATE : 02/2024
 DESIGN ENGINEER OF RECORD: J.C. MORRISON DATE : 03/2026

7/15/2026
c:\pwworking\aecom_ds21_na_2020\d0131345\403.113-I2513AC-SMU-AS3-S3-57-100208.dgn
caterm





FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES AND DRILLED PIERS ARE TO CENTERLINE OF PILES AND DRILLED PIERS)

FOUNDATION NOTES:

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- INSTALL PERMANENT STEEL CASINGS AT BENT NO. 1 BY VIBRATING, SCREWING, OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 1994.9 FT AT PIER 1.

PROJECT NO. I-2513 AC
BUNCOMBE COUNTY
STATION: 45+44.00 -L-

SHEET 2 OF 6

AECOM
AECOM TECHNICAL SERVICES OF NC, INC.
5438 WADE PARK BOULEVARD, SUITE 200
RALEIGH, NC 27607
(919) 854-6200
www.aecom.com
AECOM License No. F02342

Seal of John C. Morrison, Professional Engineer, No. 030474, State of North Carolina, dated 7/16/2026.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-26/I-240 OVER
HOMINY CREEK & HOMINY CREEK RD
BETWEEN I-40 WB & NC 191 (BREVARD RD)

(RIGHT LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S4-02
2			4			TOTAL SHEETS 56

DRAWN BY :	D. DRUM	DATE :	06/2025
CHECKED BY :	J.C. MORRISON	DATE :	11/2025
DESIGN ENGINEER OF RECORD:	J.C. MORRISON	DATE :	11/2025

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED