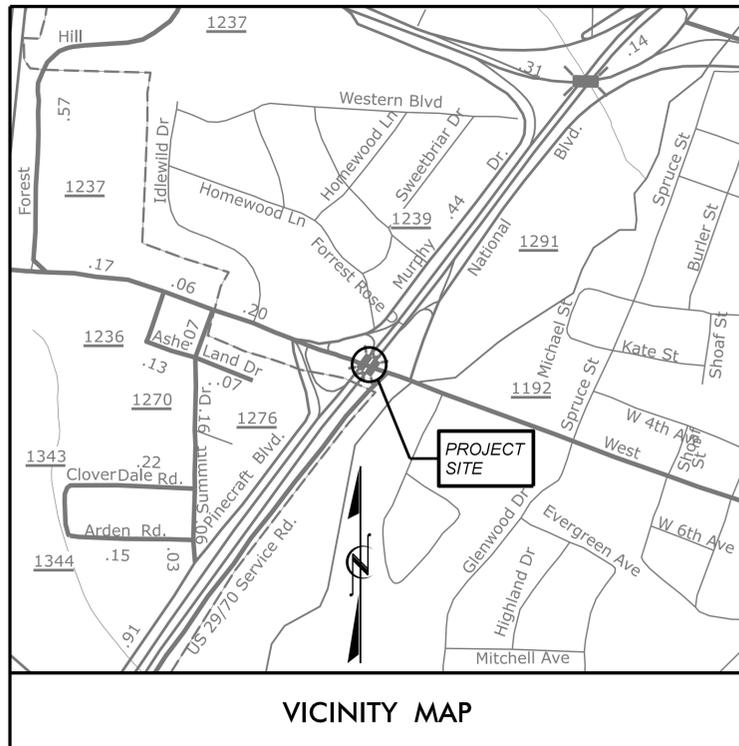


TIP PROJECT: BR-0015

CONTRACT: C205037



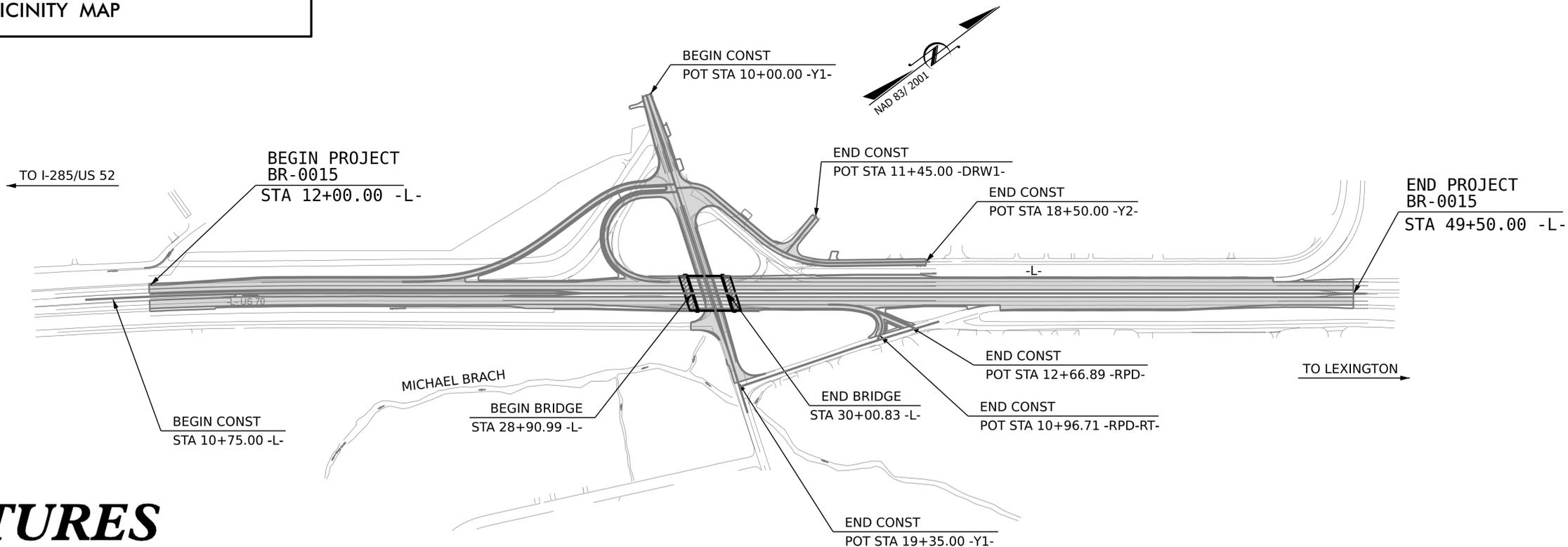
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DAVIDSON COUNTY

LOCATION: REPLACE EXISTING BRIDGE NO. 280067 & NO. 280068 WITH NEW BRIDGE NO. 280905 ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVE.)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, WIDENING, SIGNALS, RETAINING WALL, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0015	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
67015.1.1	-	P.E.	
67015.2.1	-	R/W. UTIL	
67015.3.1	-	CONST.	



STRUCTURES



DESIGN DATA

ADT (2025) = 15150
 ADT (2045) = 18700
 K = 8 %
 D = 55 %
 T = 9 % *
 V = 60 MPH
 * (TTST 5 %, DUAL 4 %)
 FUNC CLASS = PRINCIPAL ARTERIAL
 STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0015 = 0.689 MILES
 LENGTH STRUCTURE TIP PROJECT BR-0015 = 0.021 MILES
 TOTAL LENGTH TIP PROJECT BR-0015 = 0.710 MILES

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

2024 STANDARD SPECIFICATIONS

LETTING DATE :

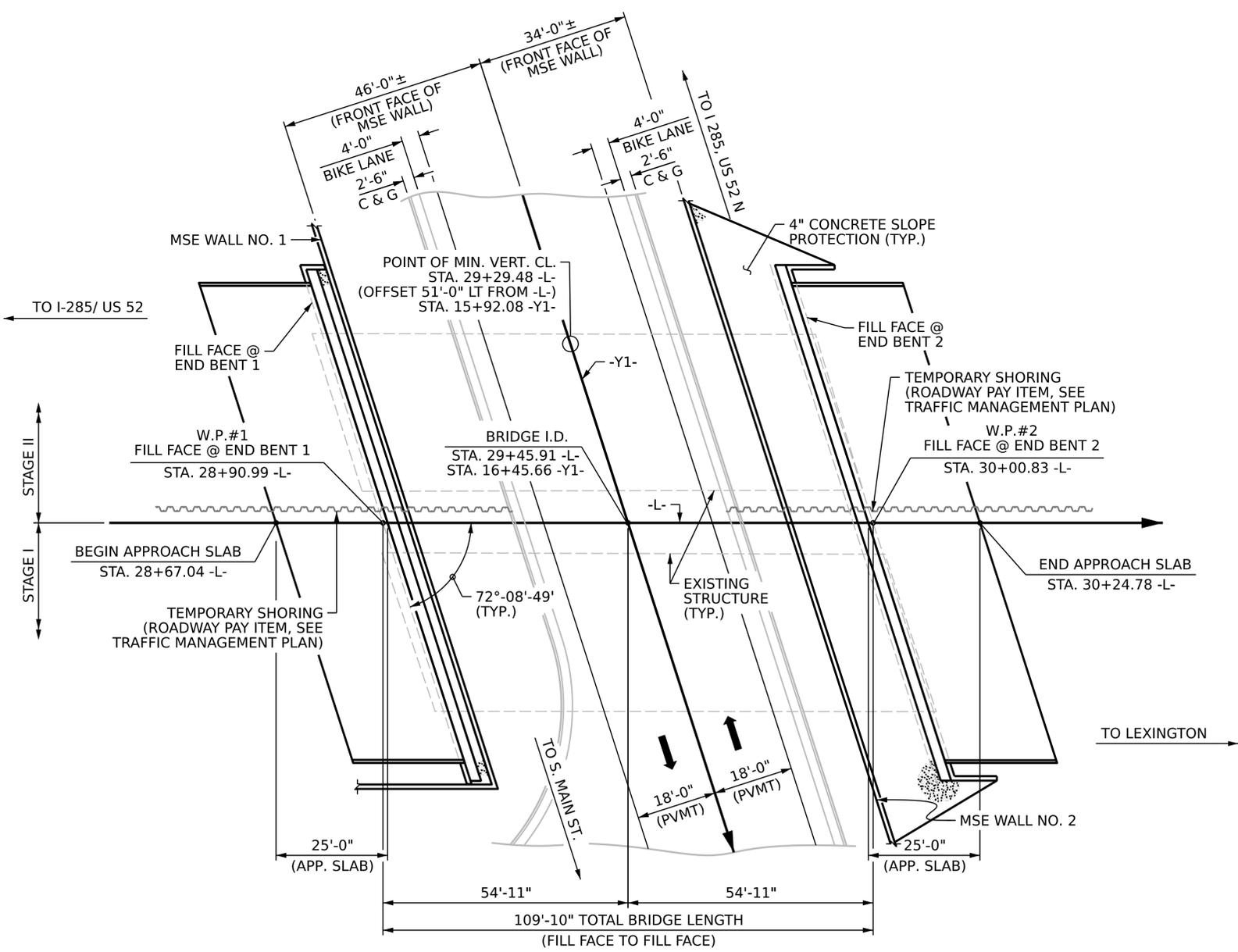
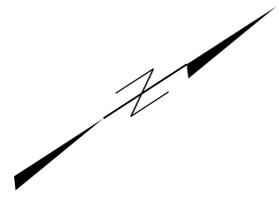
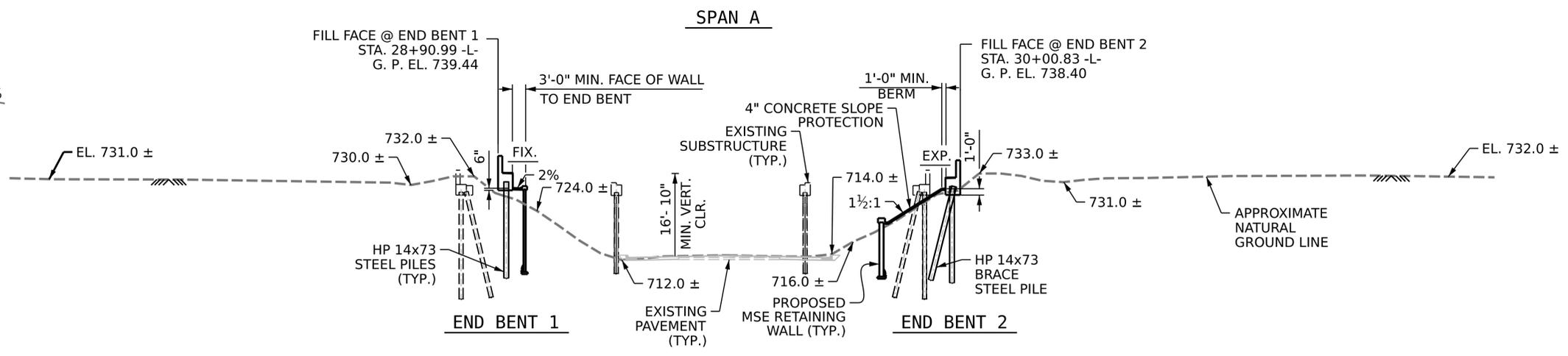
JUNE 17, 2025

ADAM COLE, PE
PROJECT ENGINEER

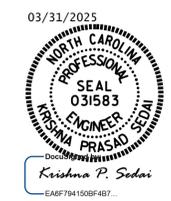
KRISHNA SEDAI, PE
PROJECT DESIGN ENGINEER

GRADE DATA -L-

(+) 0.7000% (-) 1.6000%
PI STA. 28+70.00
EL. 740.56
VC=350



PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 1 OF 4
 BRIDGE #905 REPLACES BRIDGES #67 AND #68
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 SR 1192 (W. 5TH AVE.)
 ON US 29/US 70 NB & SB



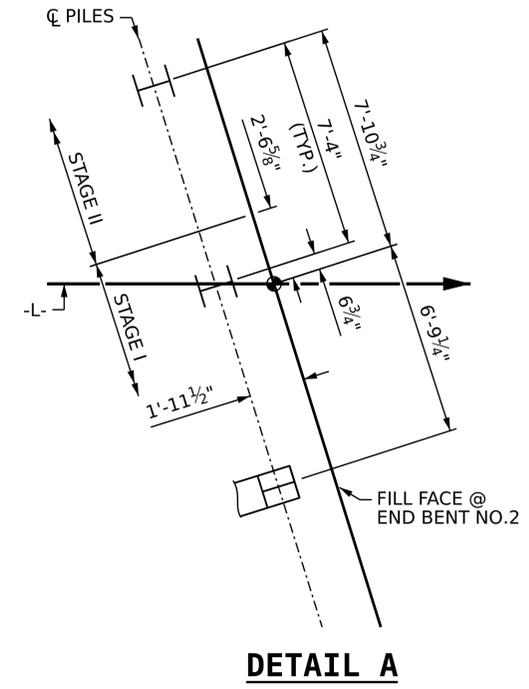
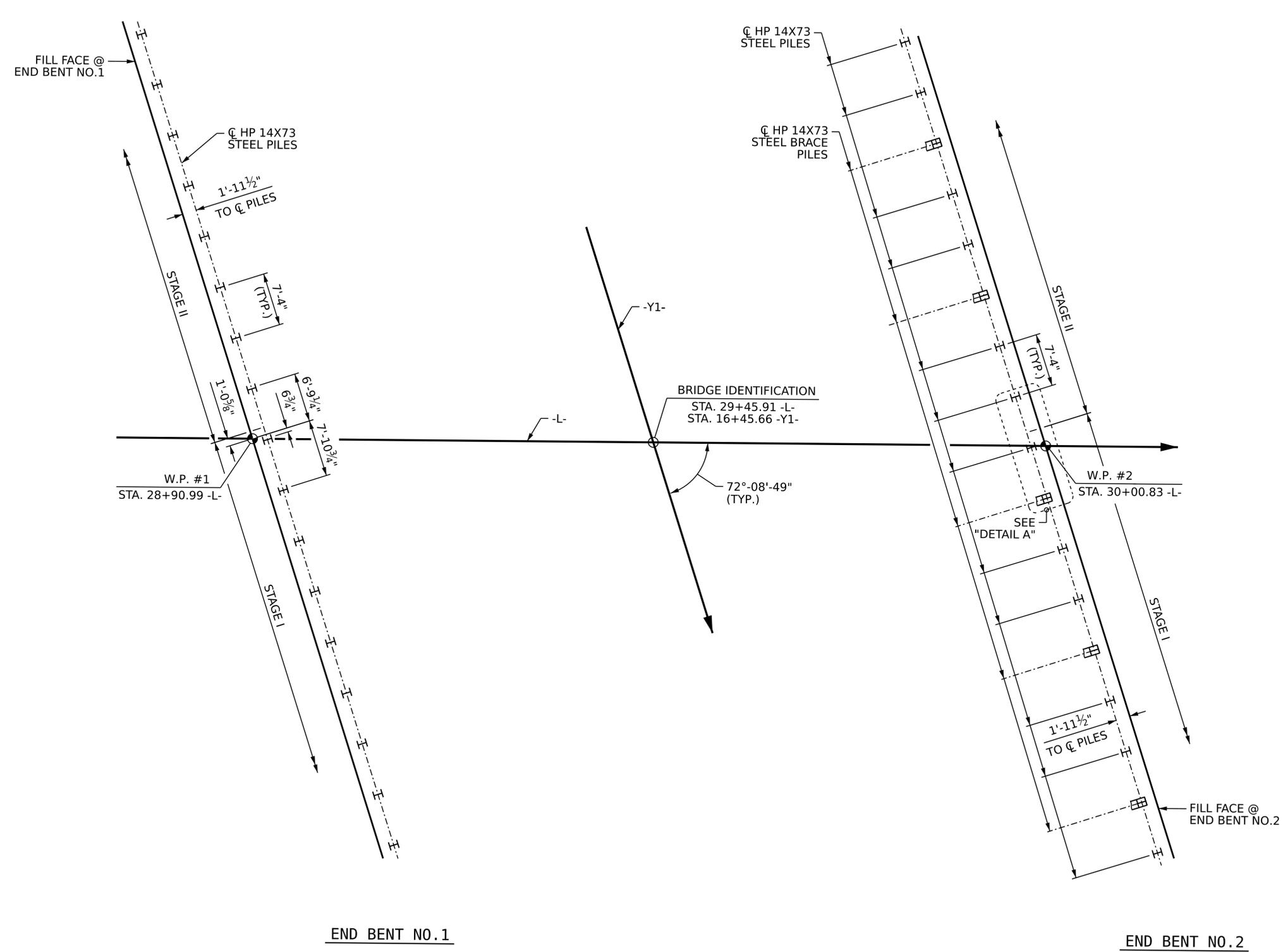
DRAWN BY : S.A. HERNANDEZ DATE : 06/2024
 CHECKED BY : A. SORSENGINH DATE : 12/2024
 DESIGN ENGINEER OF RECORD : E. BAYISSA DATE : 12/2024

PLAN
 PILES ARE NOT SHOWN IN PLAN VIEW FOR CLARITY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TOTAL SHEETS: 32



FOUNDATION LAYOUT

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 2 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 SR 1192 (W. 5TH AVE.)
 ON US 29/US 70 NB & SB

DRAWN BY : S.A. HERNANDEZ DATE : 2/2024
 CHECKED BY : A. SORSENGINH DATE : 6/2024
 DESIGN ENGINEER OF RECORD : E. BAYISSA DATE : 6/2024

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-02
1			3			TOTAL SHEETS
2			4			32

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 No. 1, Piles 1-17	17	264		45			440							
End Bent No. 2, Piles 1-17	17	264		65			440							
TOTAL QUANTITY:														

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

** 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 No. 1, Piles 1-17	264			0.60		
End Bent No. 2, Piles 1-17	264			0.60		

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

NOTES:

- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Michael H. Stephens, #028893) on 08-16-2024.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 & NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 264 KIPS PER PILE.

DRIVE PILES AT END BENT NOS. 1 AND 2 PRIOR TO MSE WALL CONSTRUCTION.

OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT, END BENT AND BRIDGE APPROACH FILL BEFORE BEGINNING APPROACH SLAB CONSTRUCTION AT END BENT NOS. 1 AND 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS. BEFORE BEGINNING THE WAITING PERIOD, INSTALL HUBS IN THE SUBGRADE AT LOCATIONS CORRESPONDING TO THE CENTER OF THE APPROACH SLAB AND AT EACH CORNER OF THE END OF THE APPROACH SLAB. SURVEY THE HUBS INITIALLY AND EVERY 3 TO 4 DAYS THEREAFTER FOR RELATIVE MOVEMENT AND SUBMIT THE DATA TO THE ENGINEER WEEKLY. THE ENGINEER WILL DETERMINE WHEN THE WAITING PERIOD ENDS AND BRIDGE APPROACH SLAB CONSTRUCTION CAN BEGIN.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40,000 FT-LBS PER BLOW TO 80,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS. 1 AND 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

PROJECT NO. **BR-0015**

DAVIDSON COUNTY

STATION: **29+45.91 -L-**

SHEET 3 OF 4



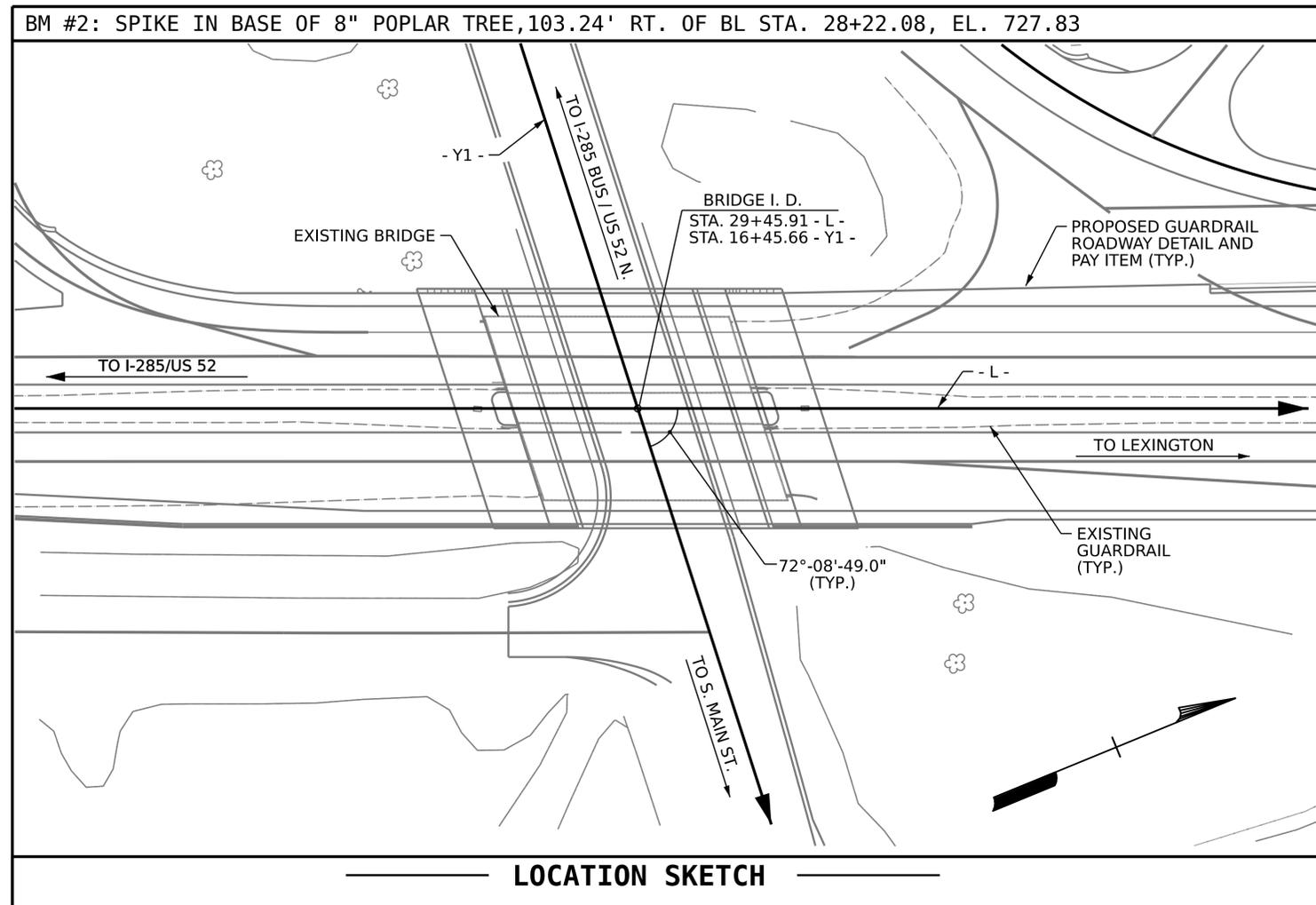
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-03
1			3			TOTAL SHEETS
2			4			32

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S.A. HERNANDEZ DATE : 2/2024
 CHECKED BY : A. SORSENGINH DATE : 6/2024
 DESIGN ENGINEER OF RECORD: E. BAYISSA DATE : 6/2024



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

NOTES

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURES CONSISTING OF 3 SPANS (1 @ 35'-0", 1 @ 45'-0" AND 1 @ 35'-0"). A CLEAR ROADWAY WIDTH OF 30'-0", REINFORCED CONCRETE DECK ON I-BEAMS AND REINFORCED CONCRETE CAP ON END BENT AND INTERIOR BENT STEEL PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR TEMPORARY GUARDRAIL, SEE TRAFFIC MANAGEMENT PLANS.
- TEMPORARY SHORING WILL BE REQUIRED IN THE AREAS INDICATED IN THE PLAN VIEW
- 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 MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS
- THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATIONS 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.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

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 COST 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 29+45.91 -L-."

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 MSE WALLS, SEE GEOTECHNICAL SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURES AT STA. 28+45.91 - L-	ASBESTOS ASSESSMENT	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLAB	REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS	PILE DRIVING EQUIPMENT SETUP FOR HP14X73 STEEL PILES	HP 14 X 73 STEEL PILES	CONCRETE BARRIER RAIL	CONCRETE MEDIAN BARRIER	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	FOAM JOINT SEALS		
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	NO.	LIN. FT.	LIN. FT.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			11,760	15,082				14	1,488.89							LUMP SUM	LUMP SUM
END BENT NO. 1					91		12,353		17	17	765				40		
END BENT NO.2					98.1		12,885		17	17	1,105				270		
TOTAL	LUMP SUM	LUMP SUM	11,760	15,082	189.1	LUMP SUM	25,238	14	1488.89	34	34	1,870	215.3	157.6	310	LUMP SUM	LUMP SUM

PROJECT NO. **BR-0015**

DAVIDSON COUNTY

STATION: **29+45.91 -L-**

SHEET 4 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
SR 1192 (W. 5TH AVE.)
ON US 29/US 70 NB & SB

DRAWN BY : S.A. HERNANDEZ DATE : 9/2024
CHECKED BY : A. SORSENGINH DATE : 9/2024
DESIGN ENGINEER OF RECORD: S.A. HERNANDEZ DATE : 9/2024

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-04
1			3			TOTAL SHEETS
2			4			32

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS (YLL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS (YLL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inventory)	N/A	①	1.09	--	1.75	0.800	1.40	A	14	52.47	0.929	1.09	A	13	7	0.80	0.800	1.17	A	14	52.47		
	HL-93(Operating)	N/A	--	1.41	--	1.35	0.800	1.81	A	14	52.47	0.929	1.41	A	13	7	N/A	--	--	--	--	--		
	HS-20(Inventory)	36.000	②	1.50	54.12	1.75	0.800	1.98	A	14	52.47	0.929	1.50	A	2	7	0.80	0.800	1.65	A	14	52.47		
	HS-20(Operating)	36.000	--	1.95	70.16	1.35	0.800	2.56	A	14	52.47	0.929	1.95	A	2	7	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	3.94	53.16	1.40	0.800	5.90	A	14	52.47	0.929	4.66	A	2	7	0.80	0.800	3.94	A	14	52.47	
		SNGARBS2	20.000	--	2.84	56.78	1.40	0.800	4.25	A	14	55.96	0.929	3.25	A	2	7	0.80	0.800	2.84	A	14	52.47	
		SNAGRIS2	22.000	--	2.65	58.31	1.40	0.800	3.97	A	14	55.96	0.929	3.00	A	2	7	0.80	0.800	2.65	A	14	52.47	
		SNCOTTS3	27.250	--	1.96	53.32	1.40	0.800	2.93	A	14	52.47	0.929	2.32	A	2	7	0.80	0.800	1.96	A	14	52.47	
		SNAGGRS4	34.925	--	1.60	55.82	1.40	0.800	2.39	A	14	52.47	0.929	1.88	A	2	7	0.80	0.800	1.60	A	14	52.47	
		SNS5A	35.550	--	1.57	55.65	1.40	0.800	2.35	A	14	52.47	0.929	1.89	A	2	7	0.80	0.800	1.57	A	14	52.47	
		SNS6A	39.950	--	1.42	56.79	1.40	0.800	2.13	A	14	52.47	0.929	1.71	A	2	7	0.80	0.800	1.42	A	14	52.47	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.73	57.06	1.40	0.800	2.59	A	14	52.47	0.929	2.04	A	2	7	0.80	0.800	1.73	A	14	52.47	
		TNT4A	33.075	--	1.73	57.31	1.40	0.800	2.60	A	14	52.47	0.929	2.01	A	2	7	0.80	0.800	1.73	A	14	52.47	
		TNT6A	41.600	--	1.40	58.36	1.40	0.800	2.10	A	14	52.47	0.929	1.73	A	2	7	0.80	0.800	1.40	A	14	52.47	
		TNT7A	42.000	--	1.40	58.90	1.40	0.800	2.10	A	14	52.47	0.929	1.70	A	2	7	0.80	0.800	1.40	A	14	52.47	
		TNT7B	42.000	--	1.43	60.19	1.40	0.800	2.14	A	14	55.96	0.929	1.63	A	2	7	0.80	0.800	1.43	A	14	52.47	
		TNAGRIT4	43.000	--	1.38	59.19	1.40	0.800	2.06	A	14	52.47	0.929	1.58	A	2	7	0.80	0.800	1.38	A	14	52.47	
		TNAGT5A	45.000	--	1.30	58.69	1.40	0.800	1.95	A	14	52.47	0.929	1.55	A	2	7	0.80	0.800	1.30	A	14	52.47	
EV LOAD RATING	EV2	28.750	--	2.00	57.38	1.30	0.800	3.22	A	14	55.96	0.929	2.45	A	2	7	0.80	0.800	2.00	A	14	52.47		
EV3	43.000	④	1.32	56.60	1.30	0.800	2.12	A	14	52.47	0.929	1.65	A	2	7	0.80	0.800	1.32	A	14	52.47			

NOTES:

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

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

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

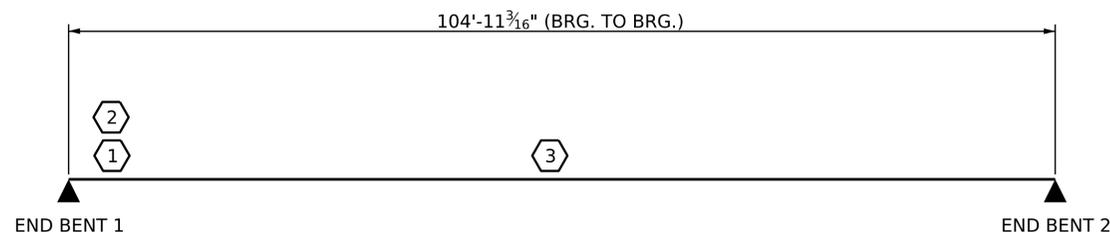
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**



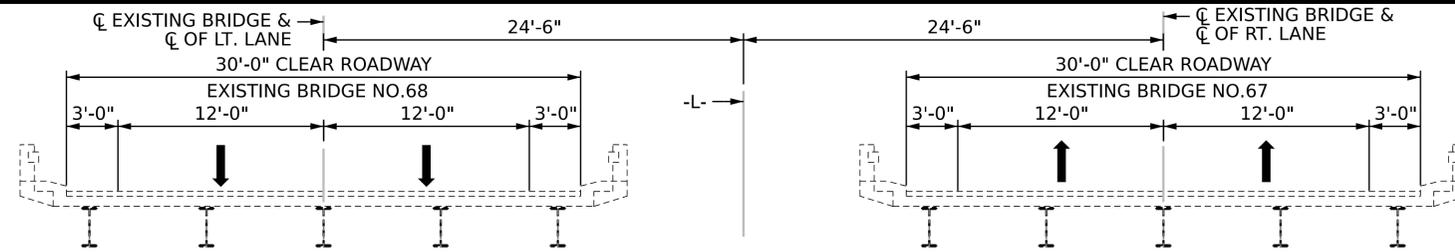
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

ASSEMBLED BY: S. HERNANDEZ	DATE: 06/2024
CHECKED BY: A. SORSENGINH	DATE: 06/2024
DRAWN BY: MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY: GM/DI 2/08	REV. 10/17/11 MAA/GM

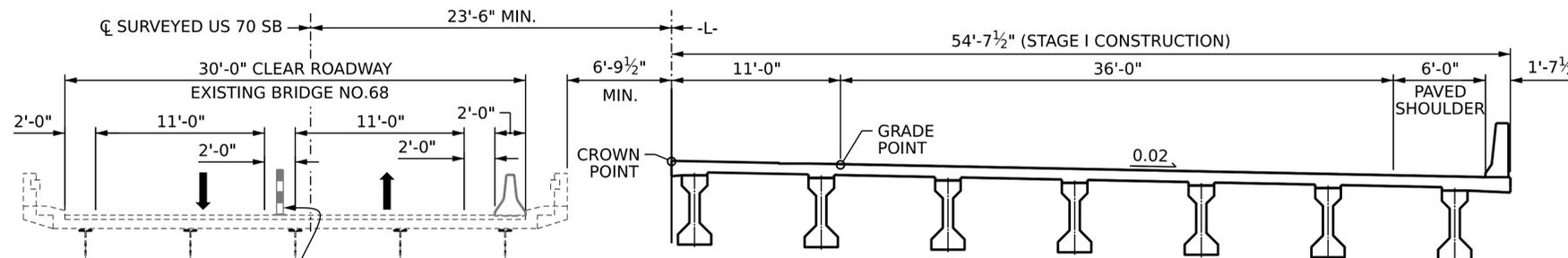
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-05
2			4			32

8/26/21

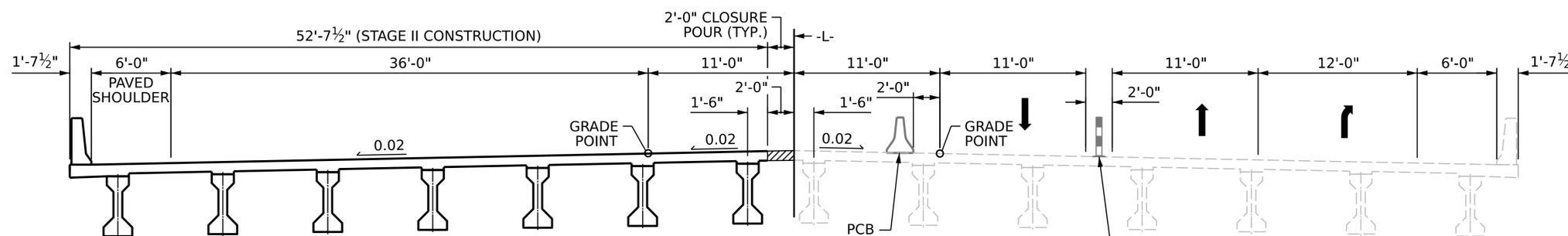


EXISTING SECTION



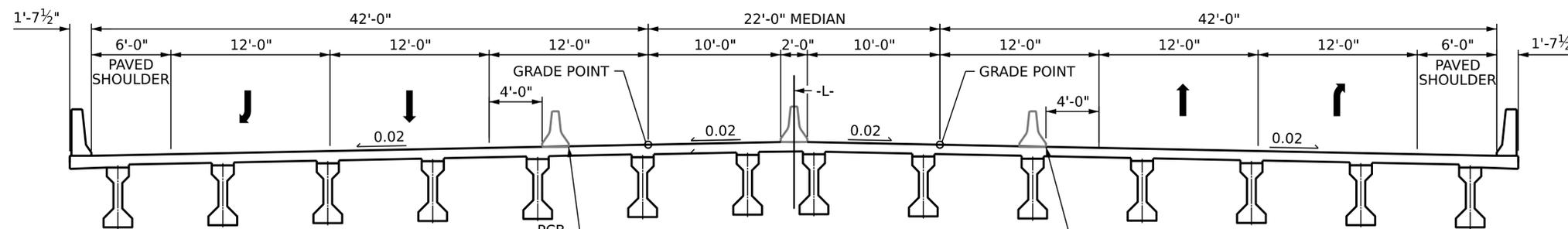
STAGE I

TRANSFER ALL TRAFFIC TO EXISTING BRIDGE NO.68
DEMOLISH EXISTING BRIDGE NO.67
CONSTRUCT RIGHT SIDE OF PROPOSED BRIDGE



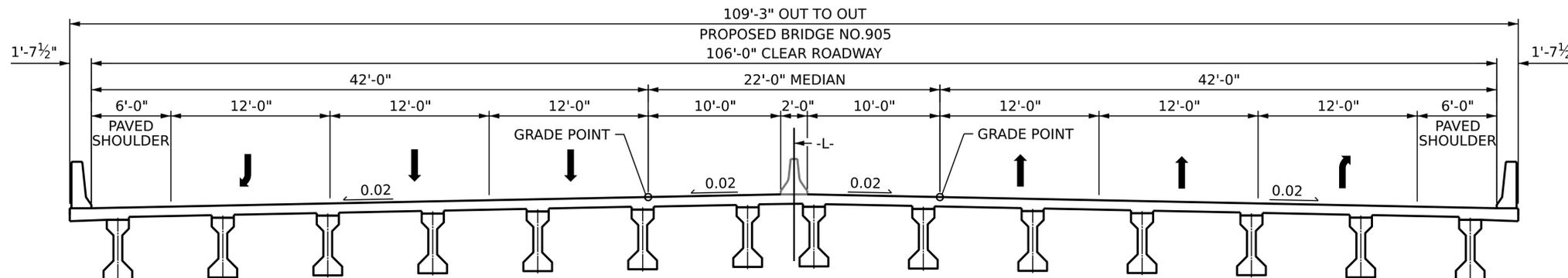
STAGE II & CLOSURE POUR

TRANSFER ALL TRAFFIC TO RIGHT SIDE OF PROPOSED BRIDGE
CONSTRUCT LEFT SIDE OF PROPOSED BRIDGE AND CLOSURE POUR



STAGE III - MEDIAN WORK

INSTALL MEDIAN BARRIER RAIL



FINAL TYPICAL SECTION

NOTES:

FOR PHASING, MAINTENANCE OF TRAFFIC, LOCATION OF TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER, SEE TRAFFIC CONTROL PLANS.

PROJECT NO. BR-0015
DAVIDSON COUNTY
STATION: 29+45.91 -L-



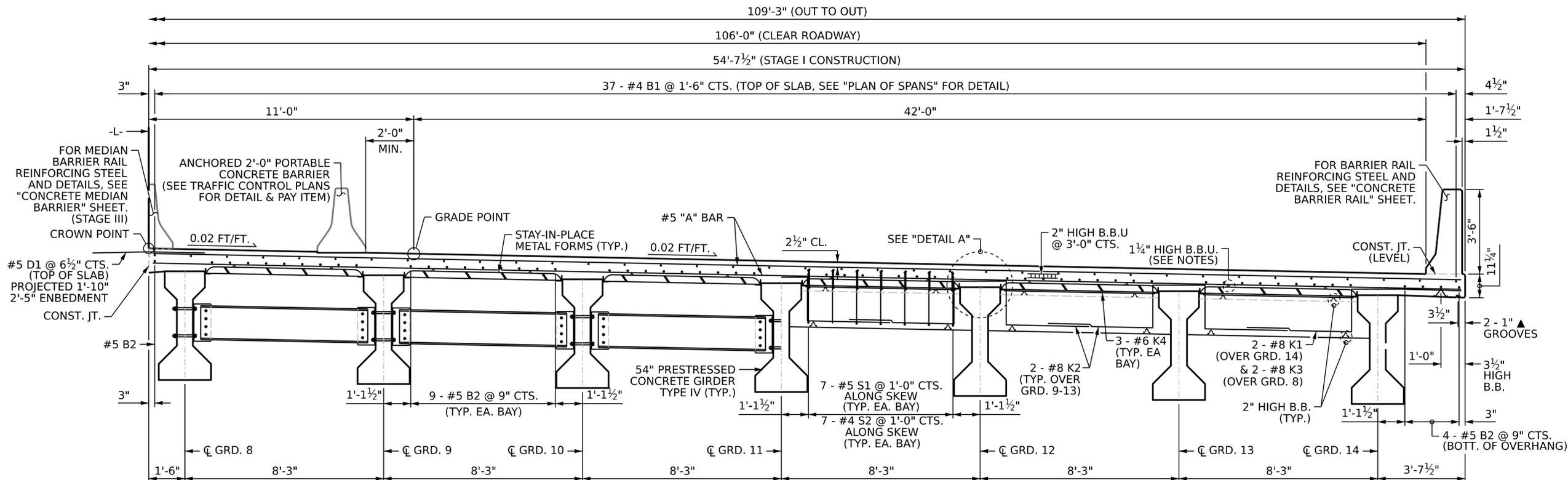
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION STAGING SEQUENCE

DRAWN BY : S.A. HERNANDEZ DATE : 4/2024
CHECKED BY : A. SORSENGINH DATE : 5/2024
DESIGN ENGINEER OF RECORD : E. BAYISSA DATE : 5/2024

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-06
1			3			TOTAL SHEETS
2			4			32



SECTION AT INTERMEDIATE DIAPHRAGMS
(FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS. SEE "INTERMEDIATE DIAPHRAGMS FOR IV PRESTRESSED CONCRETE GIRDERS")

TYPICAL SECTION
STAGE I - RIGHT SIDE

SECTION AT END BENT DIAPHRAGMS

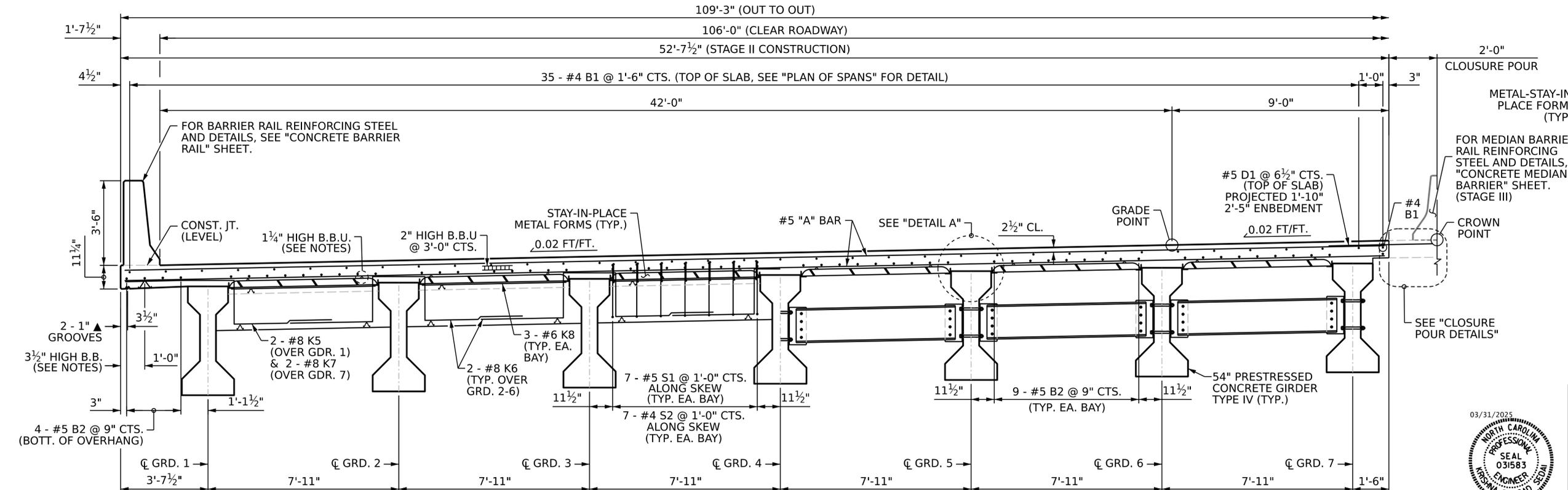
NOTES:

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

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

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL.

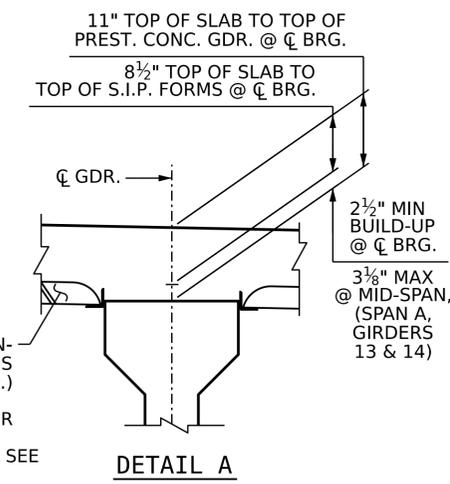
DIRECTION OF CASTING DECK CONCRETE SHALL BE FROM THE FIXED BEARING END TOWARD THE EXPANSION BEARING END OF THE SPAN.



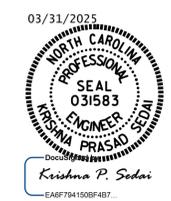
SECTION AT END BENT DIAPHRAGMS

TYPICAL SECTION
STAGE II - LEFT SIDE

SECTION AT INTERMEDIATE DIAPHRAGMS
(FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS. SEE "INTERMEDIATE DIAPHRAGMS FOR IV PRESTRESSED CONCRETE GIRDERS")



DETAIL A



PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

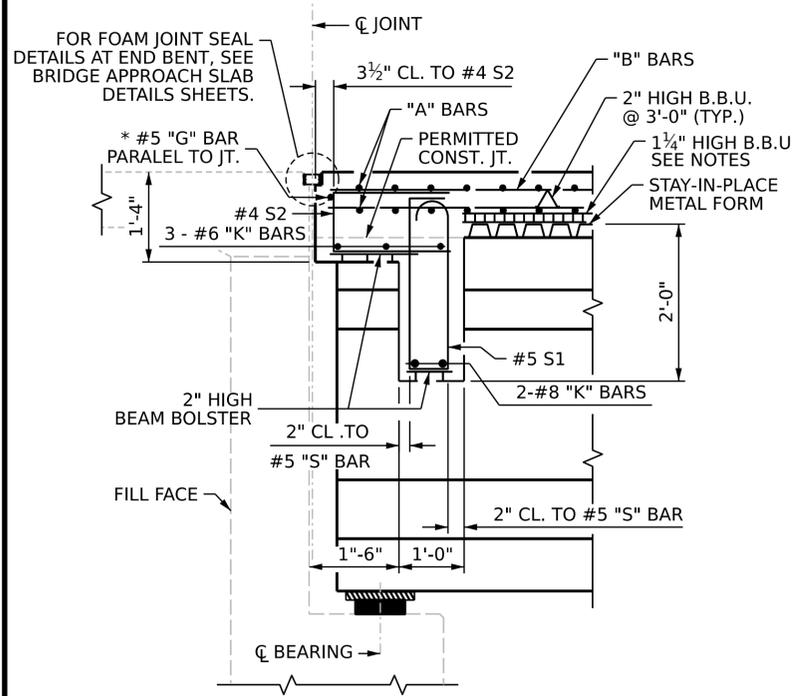
TYPICAL SECTIONS

DRAWN BY: **S.A. HERNANDEZ** DATE: **4/2024**
 CHECKED BY: **A.SORSENGINH** DATE: **6/2024**
 DESIGN ENGINEER OF RECORD: **E. BAYISSA** DATE: **6/2024**

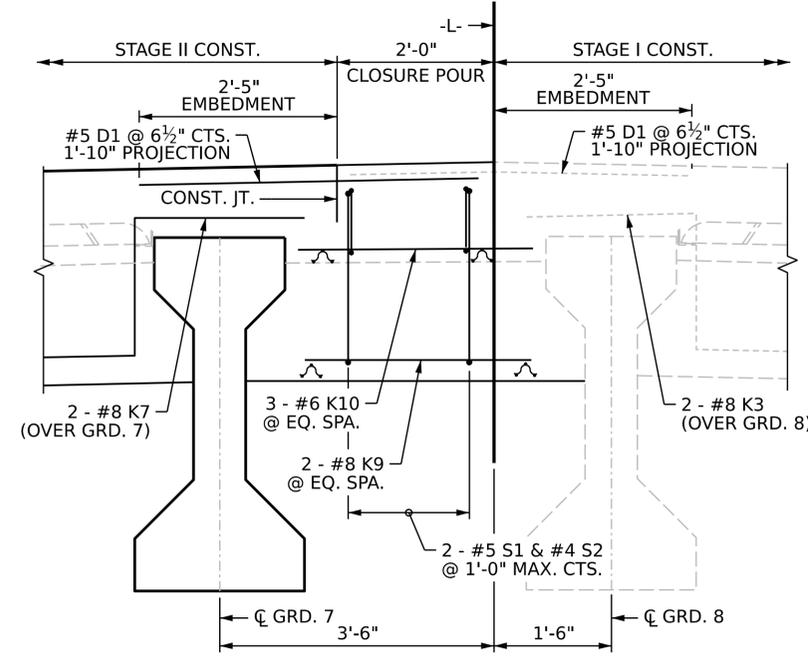
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO. S-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 32
2			4			

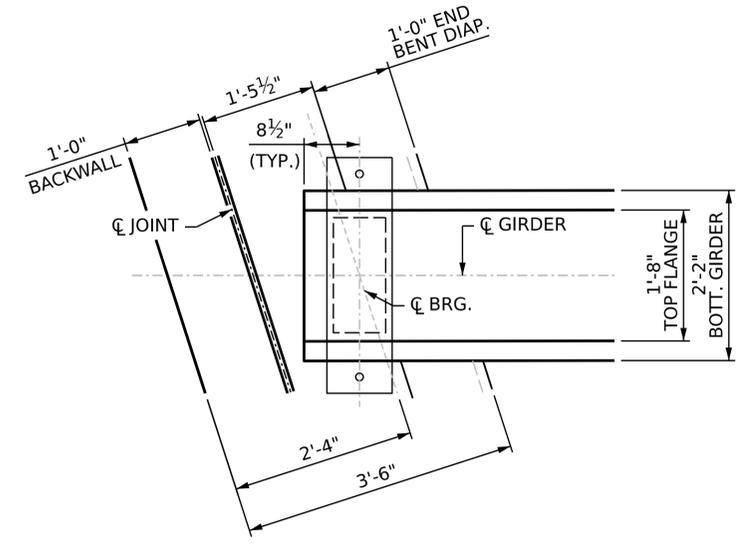
8/26/21



SECTION THROUGH END BENT DIAPHRAGM



CLOSURE POUR DETAIL
DECK CLOSURE POUR DETAIL @ END BENT



END BENT DIAPHRAGM

PROJECT NO. BR-0015
DAVIDSON COUNTY
 STATION: 29+45.91 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTIONS



DRAWN BY: S.A. HERNANDEZ DATE: 4/2024
 CHECKED BY: A. SORSENGINH DATE: 6/2024
 DESIGN ENGINEER OF RECORD: E. BAYISSA DATE: 6/2024

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-08
1			3			TOTAL SHEETS
2			4			32

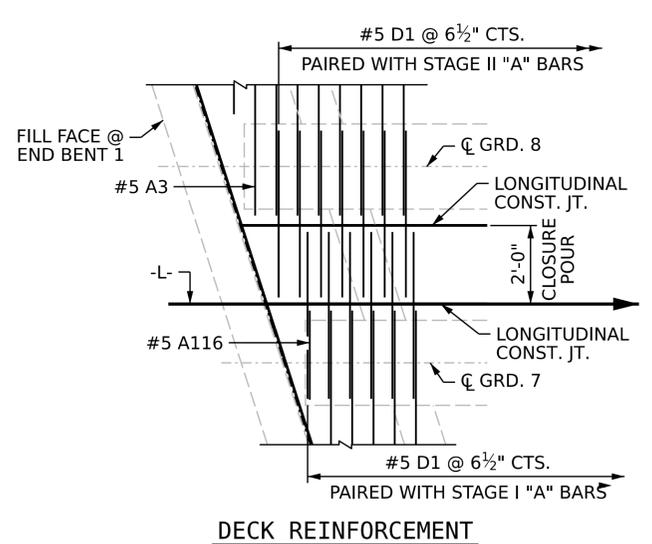
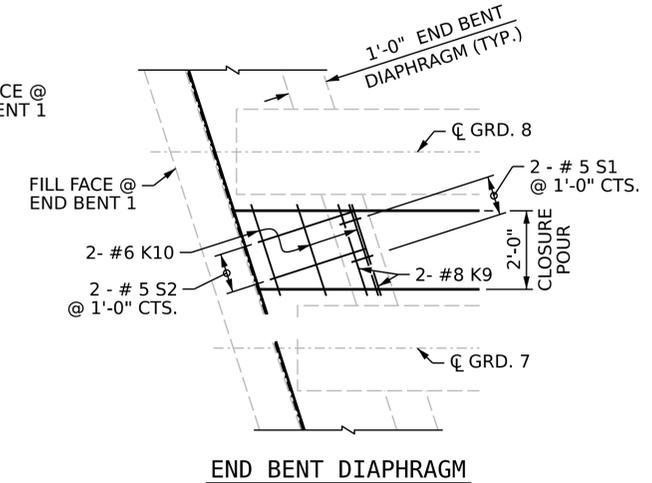
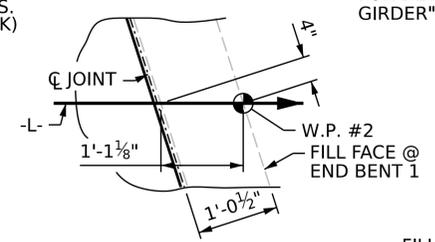
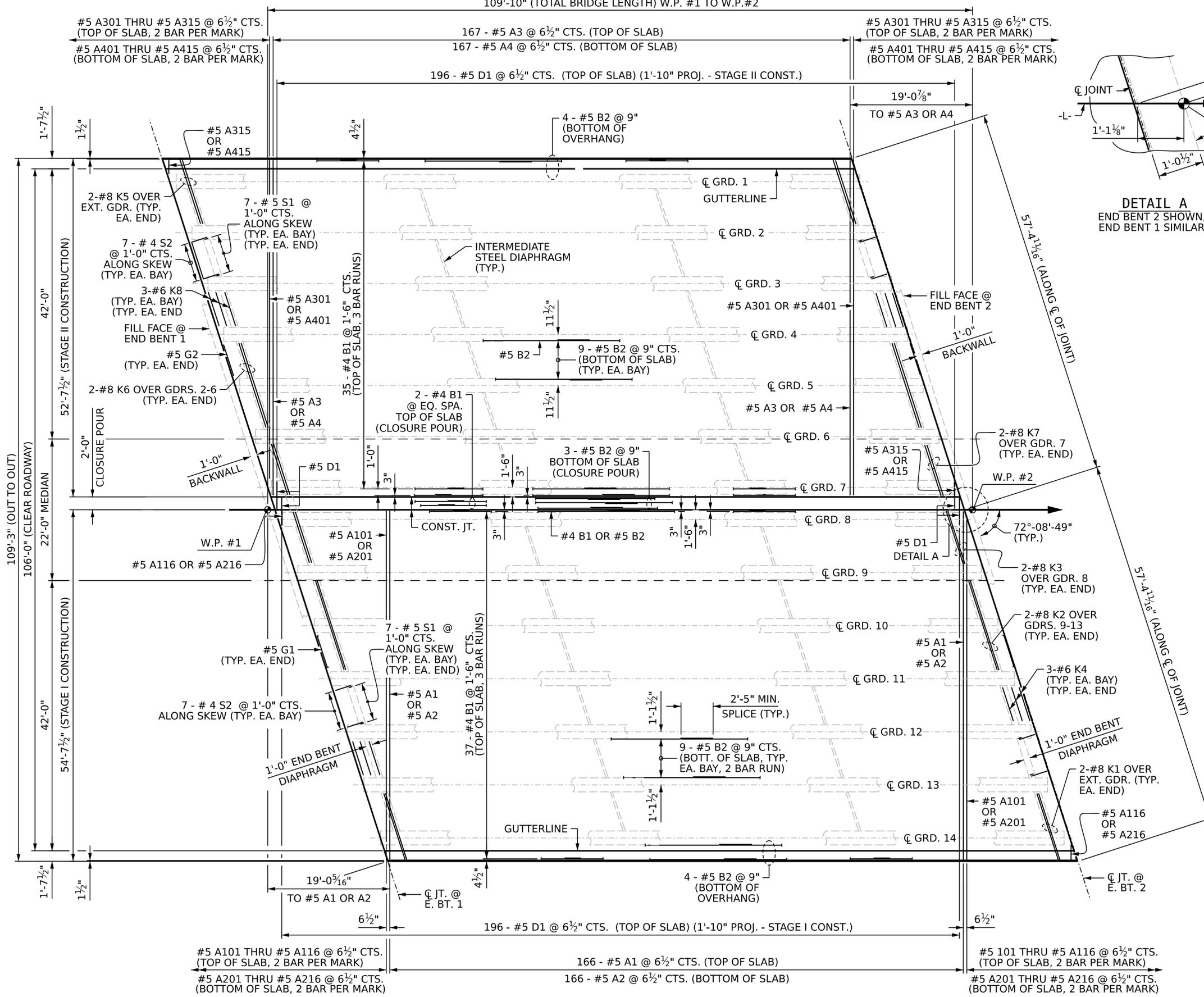
109'-10" (TOTAL BRIDGE LENGTH) W.P. #1 TO W.P.#2

NOTES

FOR CLOSURE POUR DETAILS, SEE "TYPICAL SECTION SHEET", SHEET 8 OF 32

FOR POUR SEQUENCE, SEE "BILL OF MATERIAL", SHEET 19 OF 32

FOR DETAIL OF INTERMEDIATE DIAPHRAGMS, SEE "PRESTRESS CONCRETE GIRDER", SHEET 14 OF 32



PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

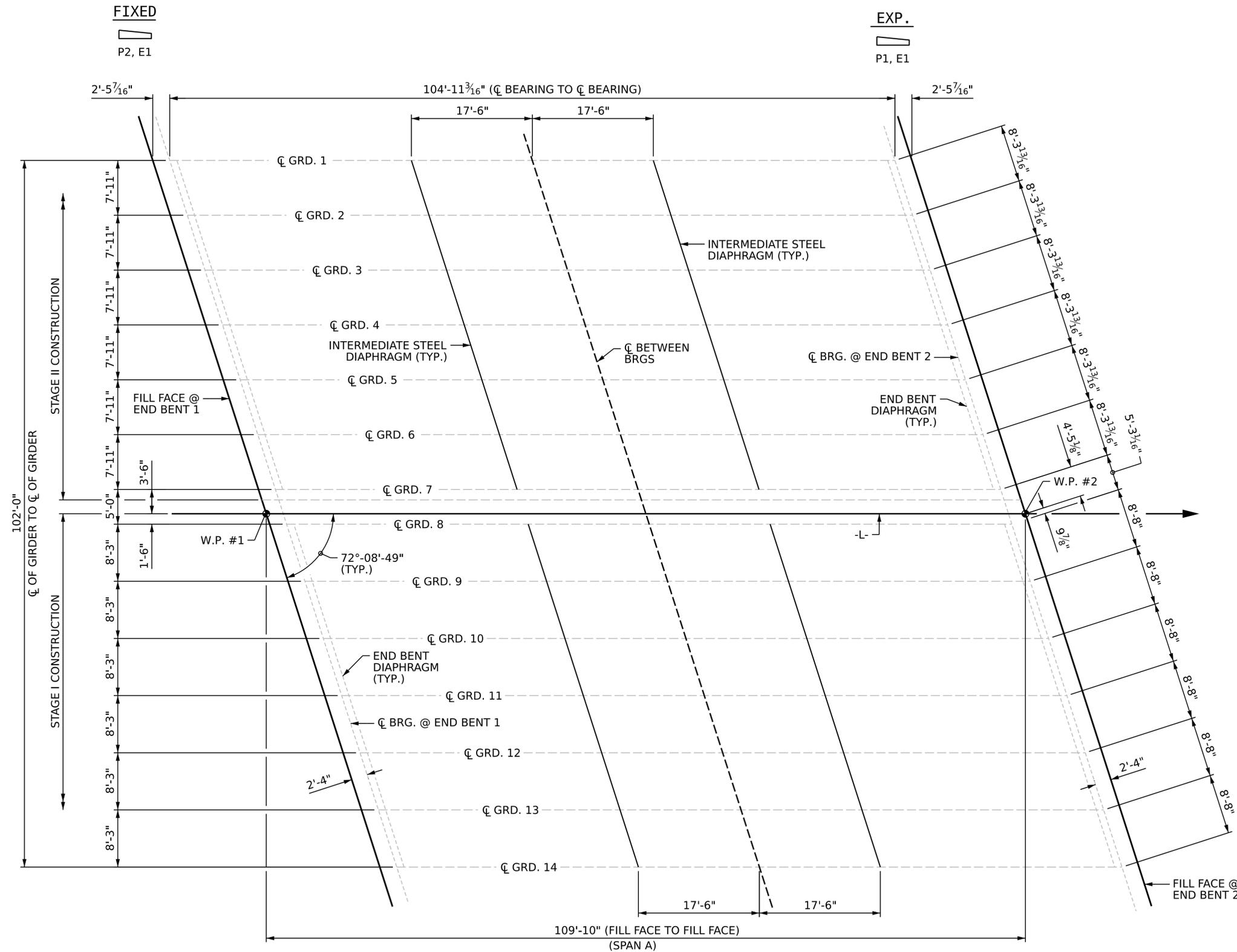
PLAN OF SPANS

DRAWN BY: S.A. HERNANDEZ DATE: 05/2024
 CHECKED BY: A. SORSENGINH DATE: 05/2024
 DESIGN ENGINEER OF RECORD: E. BAYISSA DATE: 05/2024

PLAN OF SPAN

REVISIONS				SHEET NO. S-09
NO.	BY:	DATE:	NO.	
1			3	TOTAL SHEETS 32
2			4	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FRAMING PLAN

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**



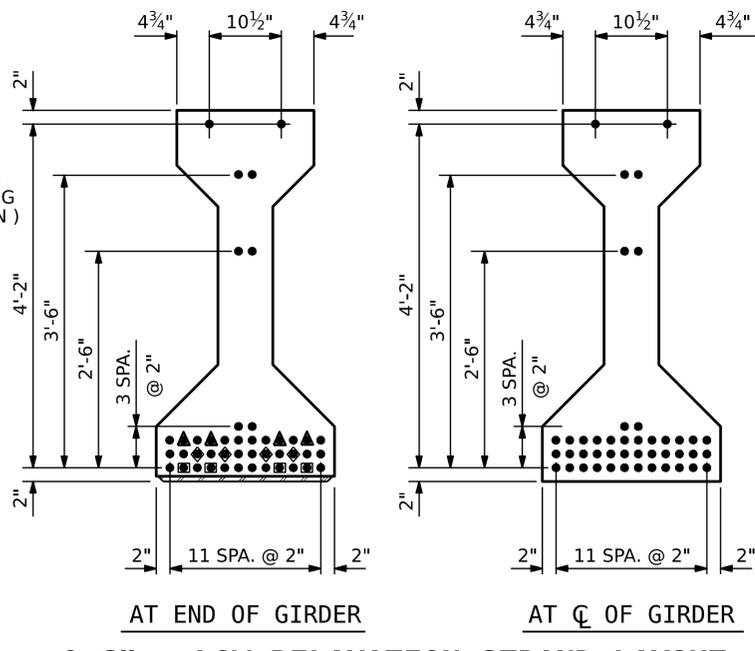
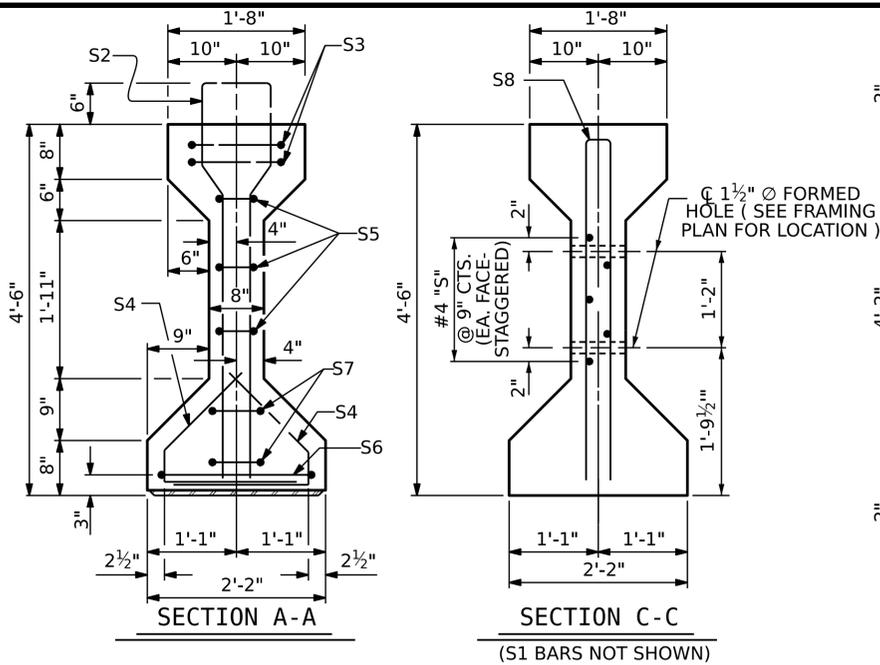
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

FRAMING PLAN

DRAWN BY : **S.A. HERNANDEZ** DATE : **05/2024**
 CHECKED BY : **A. SORSENGINH** DATE : **05/2024**
 DESIGN ENGINEER OF RECORD : **E. BAYISSA** DATE : **05/2024**

DOCUMENT NOT CONSIDERED
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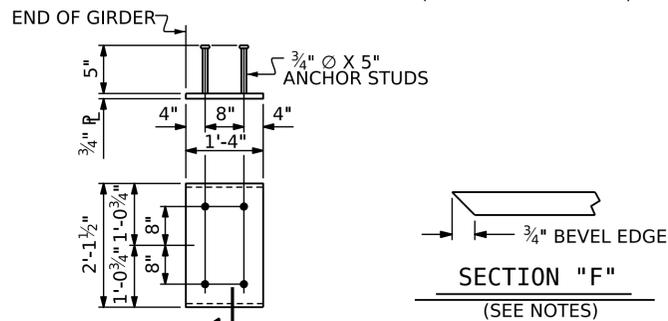
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			32



0.6" Ø LOW RELAXATION STRAND LAYOUT

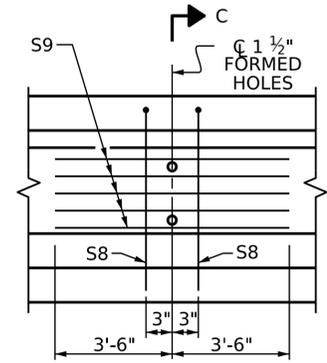
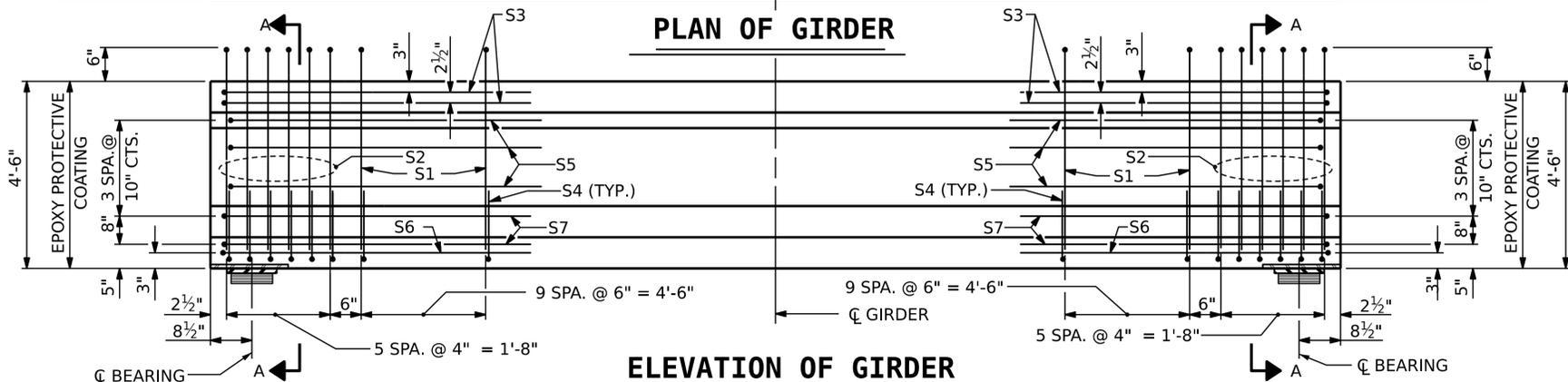
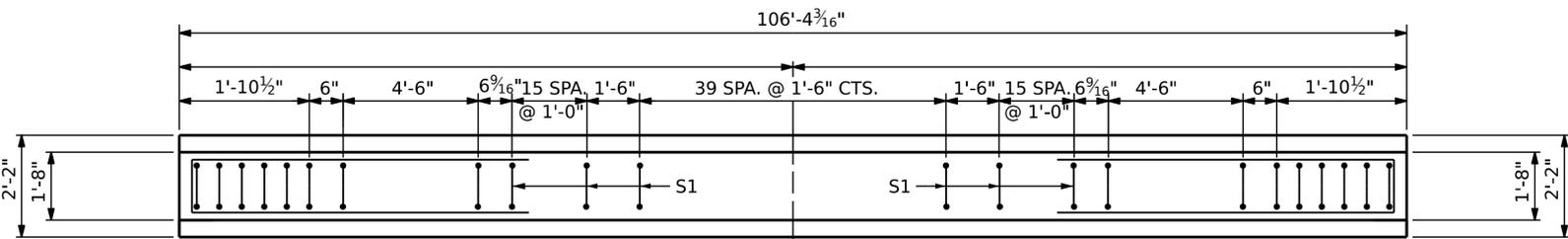
DEBONDING LEGEND

- FULLY BONDED STRANDS
- ▲ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◇ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- ◻ STRANDS DEBONDED FOR 16'-0" FROM END OF GIRDER



EMBEDDED PLATE "B-1" DETAILS

TWO EMBEDDED PLATES "B-1" ARE REQUIRED FOR EACH GIRDER.



NOTES

ALL PRESTRESS STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

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

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

ALL PRESTRESSED STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7000 PSI.

THE TOP SURFACE OF THE GIRDER SHALL BE RAKED TO A DEPTH OF 3/4" EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

THE CONTRACTOR HAS THE OPTION TO PROVIDE AT NO ADDITIONAL COST TO THE DEPARTMENT 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCEMENT. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 LBS.

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

0.6" Ø L. R. GRADE 270 STRANDS

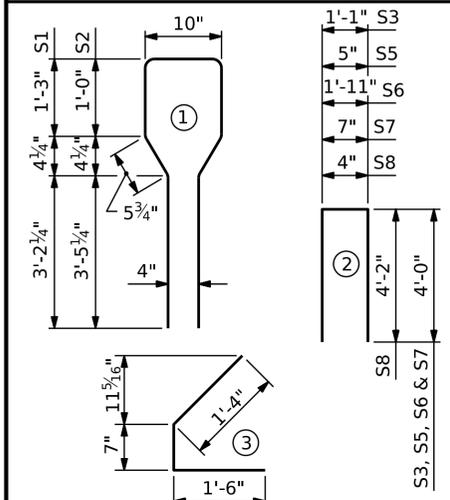
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	92	#4	1	10'-8"	656
S2	12	#6	1	10'-8"	192
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
S6	2	#4	2	9'-11"	13
S7	4	#4	2	8'-7"	23
S8	2	#5	2	8'-8"	18
S9	5	#4	STR	7'-0"	23

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	9,000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	1129	21.6	44
INTERIOR GIRDER	1129	21.6	44

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
14	106'-4 3/16"	1488'-10 5/8"

PROJECT NO. **BR-0015**

DAVIDSON COUNTY

STATION: **29+45.91 -L-**

SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
**AASHTO TYPE IV
 PRESTRESSED CONCRETE
 GIRDER**

ASSEMBLED BY: S.A. HERNANDEZ	DATE: 06/2024
CHECKED BY: A. SORSENGINH	DATE: 06/2024
DRAWN BY:	
CHECKED BY:	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TOTAL SHEETS: 32

DEAD LOAD DEFLECTION TABLES FOR GIRDERS 1-7

0.6" Ø LOW RELAXATION		SPAN A																																								
40TH POINTS		GIRDER A1																																								
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.038	0.056	0.074	0.091	0.108	0.125	0.140	0.154	0.168	0.180	0.191	0.202	0.210	0.218	0.224	0.229	0.233	0.235	0.235	0.235	0.233	0.229	0.224	0.218	0.210	0.202	0.191	0.180	0.168	0.154	0.140	0.125	0.108	0.091	0.074	0.056	0.038	0.019	0
DEFLECTION DUE TO SDL*	↓	0	0.015	0.030	0.045	0.060	0.074	0.087	0.100	0.113	0.125	0.135	0.145	0.155	0.163	0.170	0.176	0.181	0.185	0.188	0.189	0.190	0.189	0.188	0.185	0.181	0.176	0.170	0.163	0.155	0.145	0.135	0.125	0.113	0.100	0.087	0.074	0.060	0.045	0.030	0.015	0
FINAL CAMBER	↑	0"	1/16"	1/16"	1/8"	3/16"	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	9/16"	9/16"	9/16"	9/16"	9/16"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	7/16"	3/8"	3/8"	5/16"	5/16"	1/4"	3/16"	3/16"	1/8"	1/16"	1/16"	1/16"	0"

* INCLUDES FUTURE WEARING SURFACE.

ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER" WHICH IS SHOWN IN INCHES (FRACTION FORM).

PROJECT NO. **BR-0015**

DAVIDSON COUNTY

STATION: **29+45.91 -L-**

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**SUPERSTRUCTURE
 DEAD LOAD
 DEFLECTIONS**

DRAWN BY : **S.A. HERNANDEZ** DATE : **06/2024**
 CHECKED BY : **A. SORSENGINH** DATE : **06/2024**
 DESIGN ENGINEER OF RECORD : **E. BAYISSA** DATE : **06/2024**

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

TOTAL SHEETS: 32

DEAD LOAD DEFLECTION TABLES FOR GIRDERS 8-14

0.6" Ø LOW RELAXATION		SPAN A																																								
		GIRDER A8																																								
40TH POINTS	BRG.	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600	0.625	0.650	0.675	0.700	0.725	0.750	0.775	0.800	0.825	0.850	0.875	0.900	0.925	0.950	0.975	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.037	0.056	0.074	0.091	0.108	0.124	0.139	0.153	0.167	0.179	0.190	0.200	0.209	0.217	0.223	0.228	0.231	0.233	0.234	0.233	0.231	0.228	0.223	0.217	0.209	0.200	0.190	0.179	0.167	0.153	0.139	0.124	0.108	0.091	0.074	0.056	0.037	0.019	0
DEFLECTION DUE TO SDL*	↓	0	0.013	0.025	0.038	0.050	0.062	0.073	0.084	0.095	0.104	0.114	0.122	0.130	0.136	0.142	0.148	0.152	0.155	0.157	0.159	0.159	0.157	0.155	0.152	0.148	0.142	0.136	0.130	0.122	0.114	0.104	0.095	0.084	0.073	0.062	0.050	0.038	0.025	0.013	0	
FINAL CAMBER	↑	0"	1/16"	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	3/4"	13/16"	13/16"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	13/16"	13/16"	3/4"	3/4"	11/16"	5/8"	9/16"	9/16"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"	1/16"	0"	

0.6" Ø LOW RELAXATION		GIRDER A9																																								
40TH POINTS	BRG.	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600	0.625	0.650	0.675	0.700	0.725	0.750	0.775	0.800	0.825	0.850	0.875	0.900	0.925	0.950	0.975	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.037	0.056	0.074	0.091	0.108	0.124	0.139	0.153	0.167	0.179	0.190	0.200	0.209	0.217	0.223	0.228	0.231	0.233	0.234	0.233	0.231	0.228	0.223	0.217	0.209	0.200	0.190	0.179	0.167	0.153	0.139	0.124	0.108	0.091	0.074	0.056	0.037	0.019	0
DEFLECTION DUE TO SDL*	↓	0	0.015	0.029	0.044	0.058	0.071	0.084	0.097	0.109	0.120	0.131	0.140	0.149	0.157	0.164	0.170	0.175	0.178	0.181	0.183	0.183	0.183	0.181	0.178	0.175	0.170	0.164	0.157	0.149	0.140	0.131	0.120	0.109	0.097	0.084	0.071	0.058	0.044	0.029	0.015	0
FINAL CAMBER	↑	0"	1/16"	1/8"	1/8"	3/16"	1/4"	1/4"	5/16"	3/8"	3/8"	7/16"	7/16"	1/2"	1/2"	9/16"	9/16"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	9/16"	9/16"	1/2"	1/2"	7/16"	7/16"	3/8"	3/8"	5/16"	1/4"	1/4"	3/16"	1/8"	1/8"	1/16"	0"

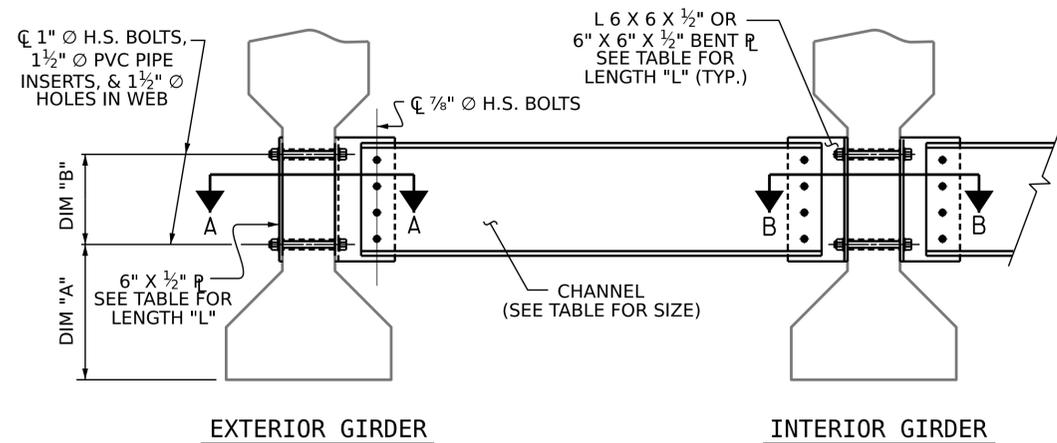
0.6" Ø LOW RELAXATION		GIRDER A10																																								
40TH POINTS	BRG.	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600	0.625	0.650	0.675	0.700	0.725	0.750	0.775	0.800	0.825	0.850	0.875	0.900	0.925	0.950	0.975	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.037	0.056	0.074	0.091	0.108	0.124	0.139	0.153	0.167	0.179	0.190	0.200	0.209	0.217	0.223	0.228	0.231	0.233	0.234	0.233	0.231	0.228	0.223	0.217	0.209	0.200	0.190	0.179	0.167	0.153	0.139	0.124	0.108	0.091	0.074	0.056	0.037	0.019	0
DEFLECTION DUE TO SDL*	↓	0	0.015	0.029	0.043	0.057	0.071	0.084	0.096	0.108	0.119	0.130	0.139	0.148	0.156	0.163	0.168	0.173	0.177	0.180	0.181	0.182	0.181	0.180	0.177	0.173	0.168	0.163	0.156	0.148	0.139	0.130	0.119	0.108	0.096	0.084	0.071	0.057	0.043	0.029	0.015	0
FINAL CAMBER	↑	0"	1/16"	1/8"	1/8"	3/16"	1/4"	5/16"	5/16"	3/8"	7/16"	7/16"	1/2"	1/2"	9/16"	9/16"	9/16"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	9/16"	9/16"	9/16"	1/2"	1/2"	7/16"	7/16"	3/8"	5/16"	5/16"	1/4"	3/16"	1/8"	1/8"	1/16"	0"	

0.6" Ø LOW RELAXATION		GIRDER A11																																									
40TH POINTS	BRG.	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600	0.625	0.650	0.675	0.700	0.725	0.750	0.775	0.800	0.825	0.850	0.875	0.900	0.925	0.950	0.975	BRG.		
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.037	0.056	0.074	0.091	0.108	0.124	0.139	0.153	0.167	0.179	0.190	0.200	0.209	0.217	0.223	0.228	0.231	0.233	0.234	0.233	0.231	0.228	0.223	0.217	0.209	0.200	0.190	0.179	0.167	0.153	0.139	0.124	0.108	0.091	0.074	0.056	0.037	0.019	0	
DEFLECTION DUE TO SDL*	↓	0	0.014	0.028	0.042	0.056	0.069	0.082	0.094	0.106	0.117	0.127	0.136	0.145	0.153	0.159	0.165	0.170	0.174	0.176	0.178	0.178	0.176	0.174	0.170	0.165	0.159	0.153	0.145	0.136	0.127	0.117	0.106	0.094	0.082	0.069	0.056	0.042	0.028	0.014	0		
FINAL CAMBER	↑	0"	1/16"	1/8"	3/16"	3/16"	1/4"	5/16"	3/8"	3/8"	7/16"	1/2"	1/2"	9/16"	9/16"	5/8"	5/8"	5/8"	5/8"	11/16"	11/16"	11/16"	11/16"	11/16"	5/8"	5/8"	5/8"	5/8"	9/16"	9/16"	9/16"	1/2"	1/2"	7/16"	3/8"	3/8"	5/16"	1/4"	3/16"	3/16"	1/8"	1/16"	0"

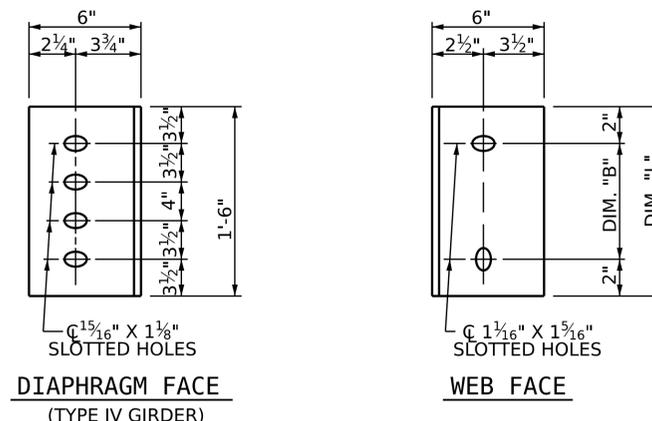
0.6" Ø LOW RELAXATION		GIRDER A12																																								
40TH POINTS	BRG.	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600	0.625	0.650	0.675	0.700	0.725	0.750	0.775	0.800	0.825	0.850	0.875	0.900	0.925	0.950	0.975	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.037	0.056	0.074	0.091	0.108	0.124	0.139	0.153	0.167	0.179	0.190	0.200	0.209	0.217	0.223	0.228	0.231	0.233	0.234	0.233	0.231	0.228	0.223	0.217	0.209	0.200	0.190	0.179	0.167	0.153	0.139	0.124	0.108	0.091	0.074	0.056	0.037	0.019	0
DEFLECTION DUE TO SDL*	↓	0	0.015	0.030	0.044	0.059	0.072	0.086	0.099	0.111	0.122	0.133	0.143	0.152	0.160	0.167	0.173	0.178	0.181	0.184	0.186	0.186	0.186	0.184	0.181	0.178	0.173	0.167	0.160	0.152	0.143	0.133	0.122	0.111	0.099	0.086	0.072	0.059	0.044	0.030	0.015	0
FINAL CAMBER	↑	0"	1/16"	1/16"	1/8"	3/16"	3/16"	1/4"	5/16"	5/16"	3/8"	7/16"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	7/16"	3/8"	5/16"	5/16"	1/4"	1/4"	3/16"	1/8"	1/16"	1/16"	0"

0.6" Ø LOW RELAXATION		GIRDER A13																																									
40TH POINTS	BRG.	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600	0.625	0.650	0.675	0.700	0.725	0.750	0.775	0.800	0.825	0.850	0.875	0.900	0.925	0.950	0.975	BRG.		
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.037	0.056	0.074	0.091	0.108	0.124	0.139	0.153	0.167	0.179	0.190	0.200	0.209	0.217	0.223	0.228	0.231	0.233	0.234	0.233	0.231	0.228	0.223	0.217	0.209	0.200	0.190	0.179	0.167	0.153	0.139	0.124	0.108	0.091	0.074	0.056	0.037	0.019	0	
DEFLECTION DUE TO SDL*	↓	0	0.015	0.030	0.045	0.060	0.074	0.087	0.101	0.113	0.125	0.135	0.145	0.155	0.163	0.170	0.176	0.181	0.185	0.188	0.190	0.190	0.188	0.185	0.181	0.176	0.170	0.163	0.155	0.145	0.135	0.125	0.113	0.101	0.087	0.074	0.060	0.045	0.030	0.015	0		
FINAL CAMBER	↑	0"	1/16"	1/16"	1/8"	3/16"	3/16"	1/4"	1/4"	5/16"	3/8"	3/8"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	3/8"	3/8"	3/8"	5/16"	1/4"	1/4"	3/16"	3/16"	1/8"	1/16"	1/16"	0"

0.6" Ø LOW RELAXATION		GIRDER A14																																								
40TH POINTS	BRG.	0.025	0.050	0.075	0.100	0.125	0.150	0.175	0.200	0.225	0.250	0.275	0.300	0.325	0.350	0.375	0.400	0.425	0.450	0.475	0.500	0.525	0.550	0.575	0.600	0.625	0.650	0.675	0.700	0.725	0.750	0.775	0.800	0.825	0.850	0.875	0.900	0.925	0.950	0.975	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.019	0.038	0.056	0.074	0.091	0.108	0.125	0.140	0.154	0.168	0.180	0.191	0.202	0.210	0.218	0.224	0.229	0.233	0.235	0.235	0.235	0.233	0.229	0.224	0.218	0.210	0.202	0.191	0.180	0.168	0.154	0.140	0.125	0.108	0.091	0.074	0.056	0.038	0.019	0
DEFLECTION DUE TO SDL*	↓	0	0.015	0.031	0.046	0.060	0.075	0.089	0.102	0.114	0.126	0.137	0.147	0.157	0.165	0.172	0.178	0.183	0.187	0.190	0.192	0.193	0.192	0.190	0.187	0.183	0.178	0.172	0.165	0.157	0.147	0.137	0.126	0.114	0.102	0.089	0.075	0.060	0.046	0.031	0.015	0
FINAL CAMBER	↑	0"	1/16"	1/16"																																						



PART SECTION AT INTERMEDIATE DIAPHRAGM
(TYPE IV GIRDER)



CONNECTOR PLATE DETAILS

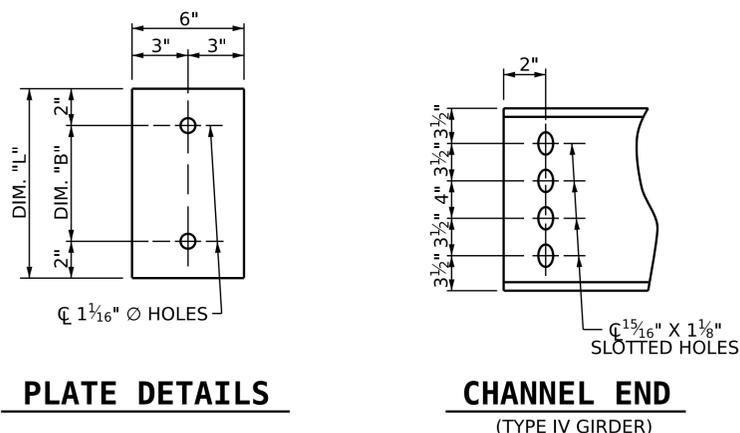
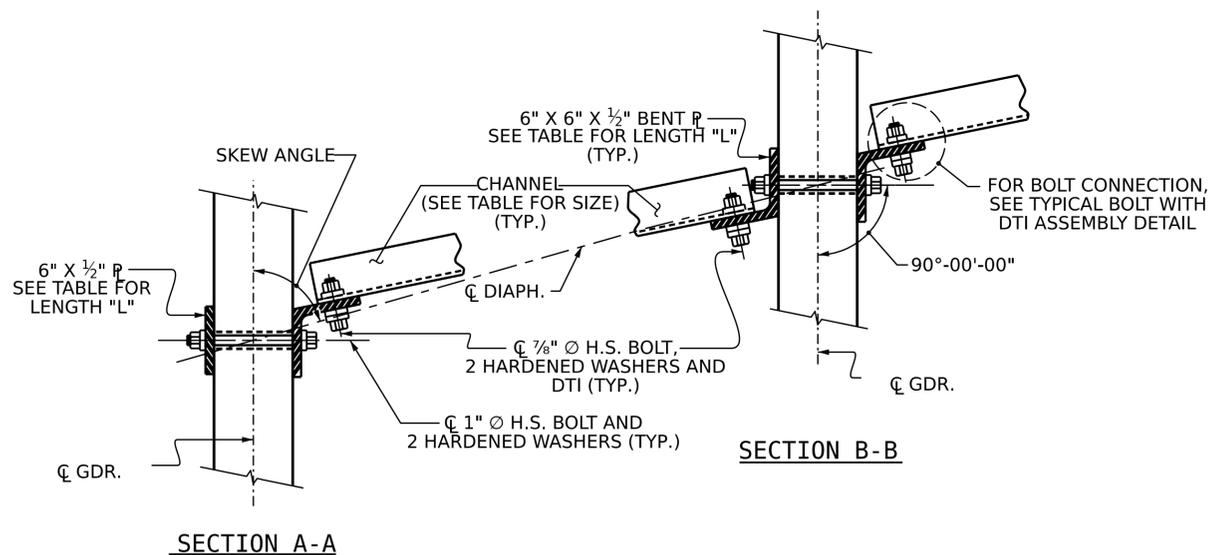


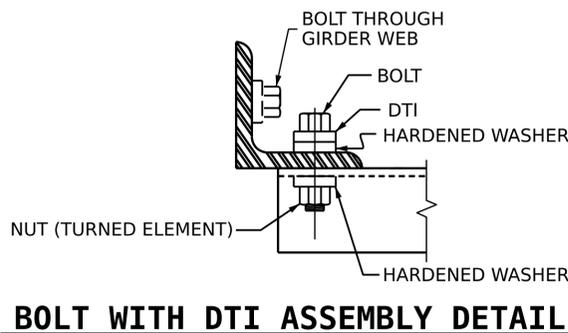
PLATE DETAILS

CHANNEL END
(TYPE IV GIRDER)



CONNECTION DETAILS

(90° < SKEW ≤ 110° SHOWN
70° ≤ SKEW < 90° SIM.)



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
IV	MC 18 x 42.7	1'-9 1/2"	1'-2"	1'-6"

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
STATION: **29+45.91 -L-**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
**INTERMEDIATE
STEEL DIAPHRAGMS
FOR TYPE IV
PRESTRESSED CONCRETE
GIRDERS**

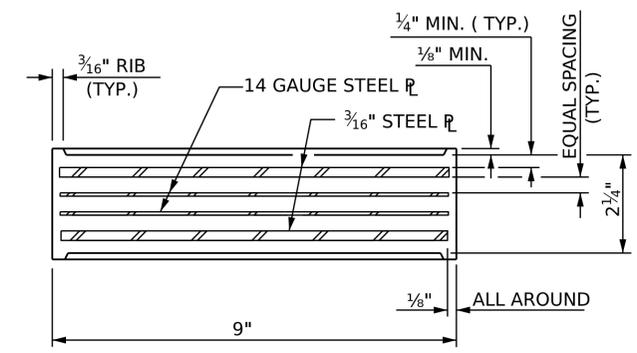
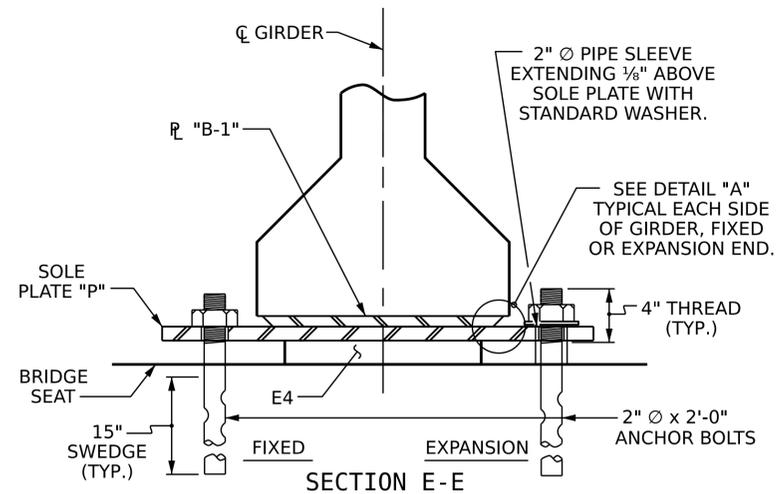
ASSEMBLED BY: S.A. HERNANDEZ	DATE: 6/2024
CHECKED BY: A. SORSENGINH	DATE: 6/2024
DRAWN BY: TLA 6/05	REV. 5/1/06RRR KMM/GM
CHECKED BY: VC 6/05	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

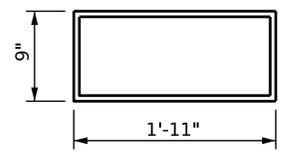
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
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2			4	

TOTAL SHEETS: 32

8/26/21

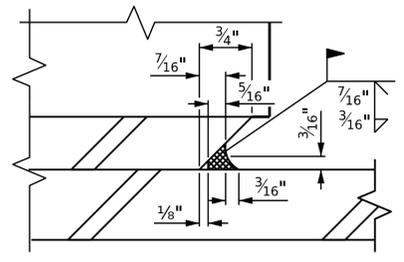


TYPICAL SECTION OF ELASTOMERIC BEARINGS

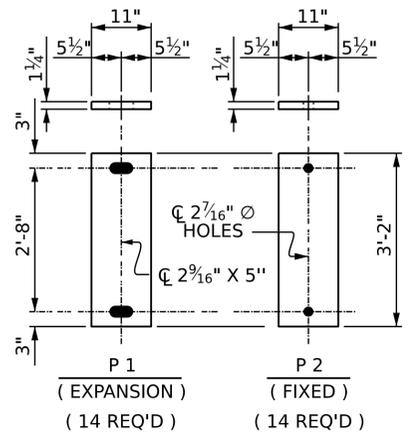


E4 (28 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

TYPE V



DETAIL "A"



SOLE PLATE DETAILS ("P")

NOTES

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

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

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

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

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

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

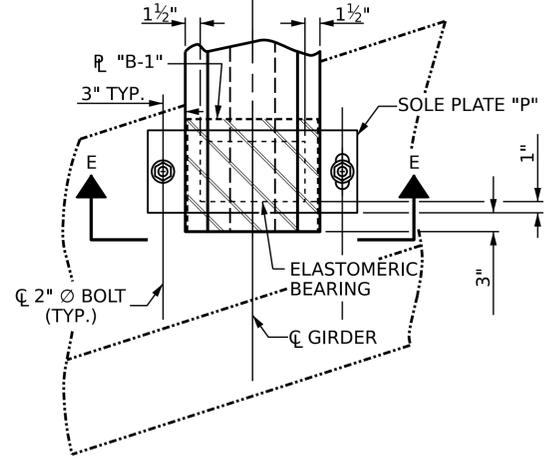
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



TYPICAL HALF-PLAN (SHOWING FIXED END)

TYPICAL HALF-PLAN (SHOWING EXPANSION END)

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

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**



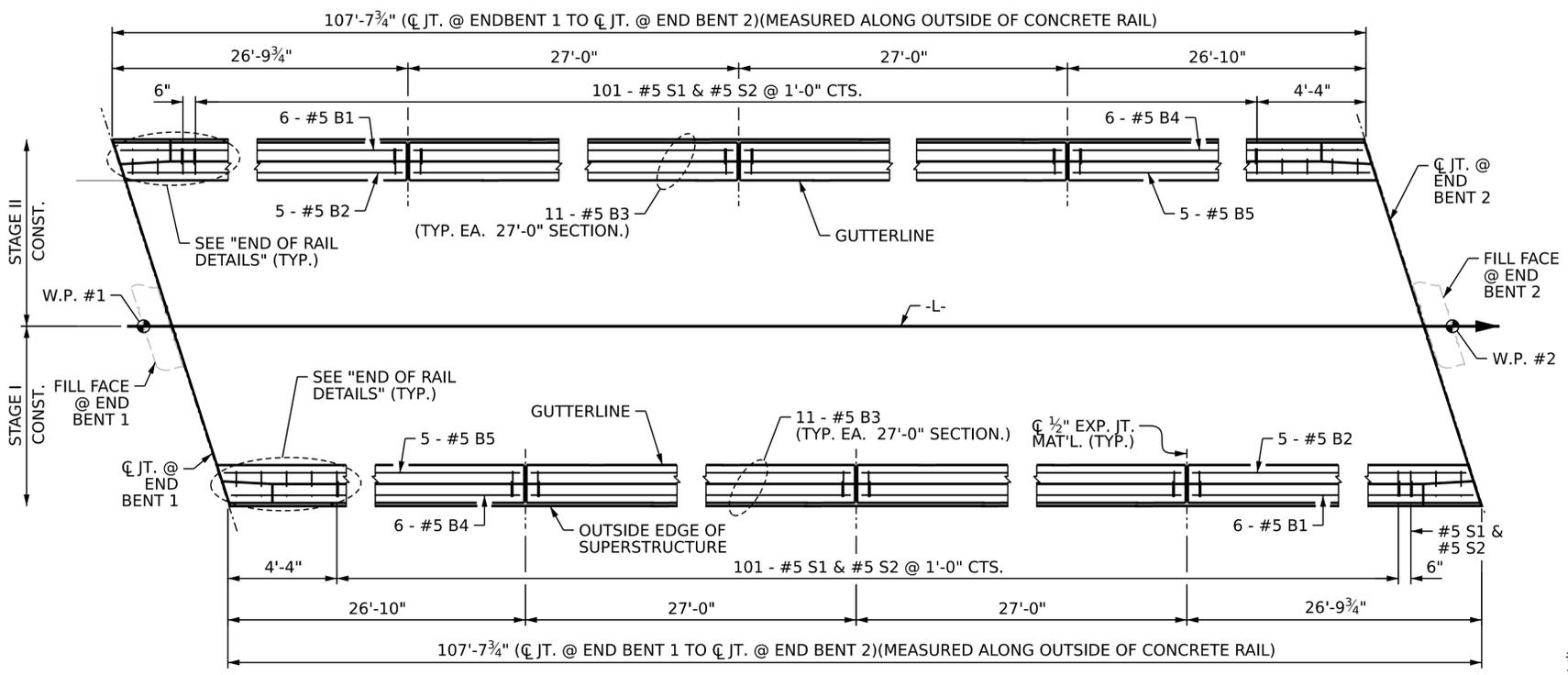
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
ELASTOMERIC BEARING DETAILS
 PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

ASSEMBLED BY: S.A. HERNANDEZ	DATE: 6/2024
CHECKED BY: A. SORSENGINH	DATE: 6/2024
DRAWN BY: WJH 8/89	REV. 12/17 MAA/THC
CHECKED BY: CRK 8/89	REV. 10/21 BNB/AAI
	REV. 10/23 BNB/SNM

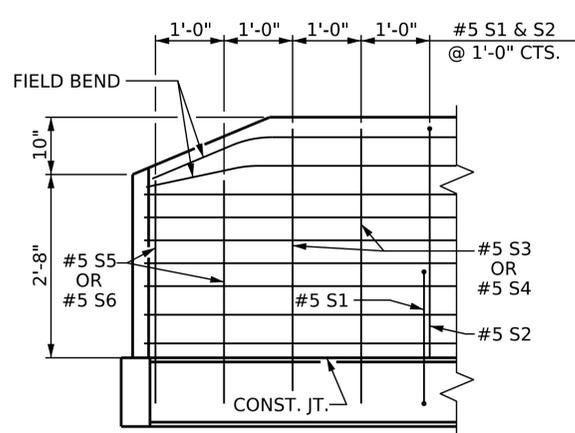
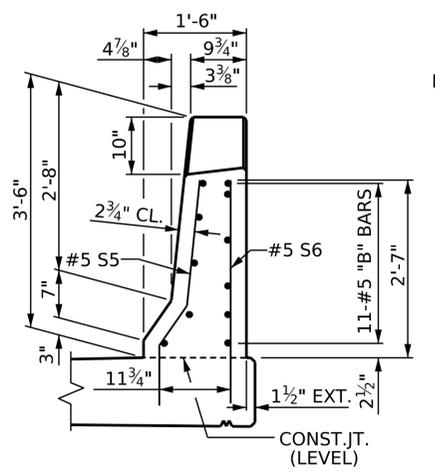
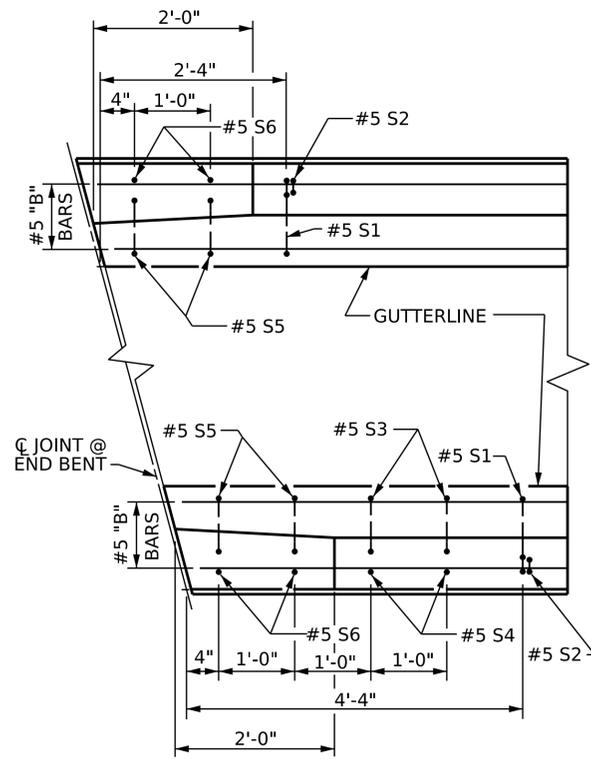
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2			4	

TOTAL SHEETS: 32



PLAN OF BARRIER RAIL

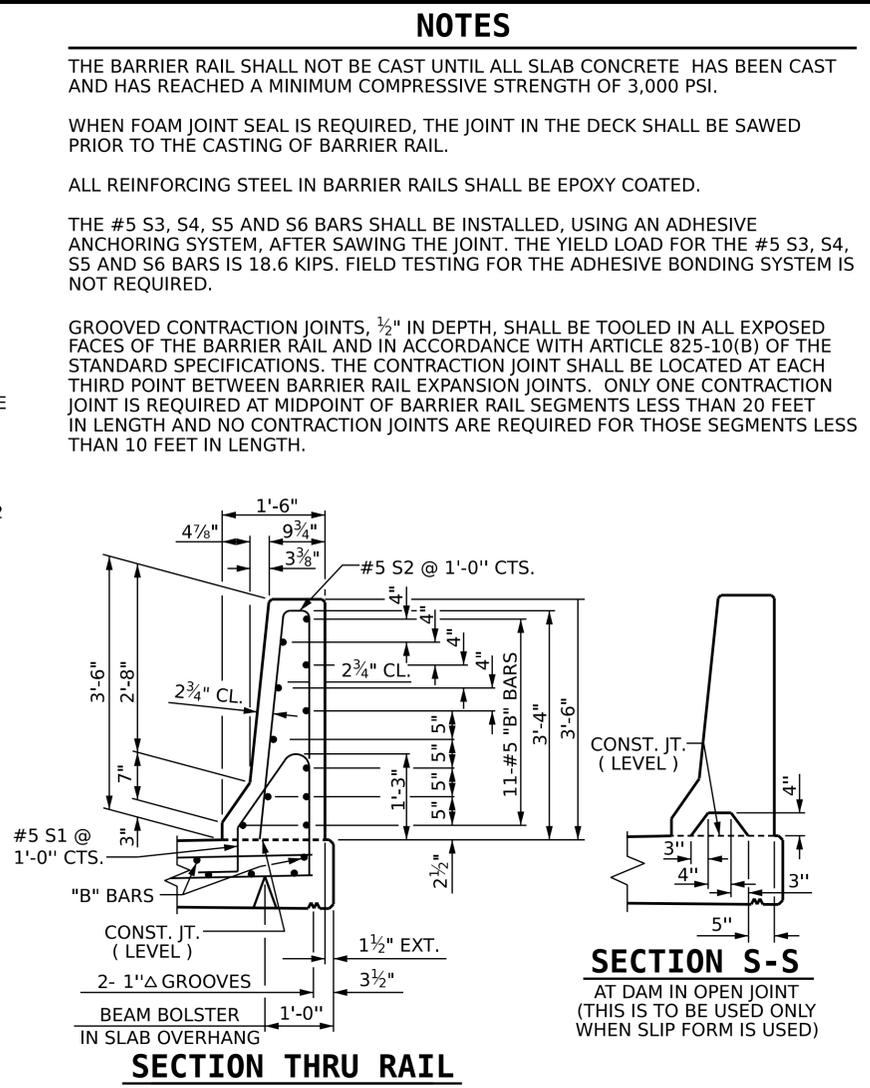


ASSEMBLED BY: S.A. HERNANDEZ DATE: 06/2024
 CHECKED BY: A. SORSENGINH DATE: 06/2024

DRAWN BY: ARB 5/87 REV. 7/12 MAA/GM
 CHECKED BY: SJD 9/87 REV. 6/13 MAA/GM
 REV. 12/17 MAA/THC

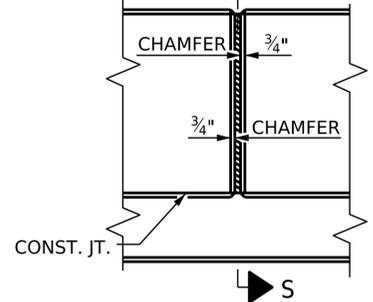
3/31/2025
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 ksedi

END OF RAIL DETAILS
 FOR ADHESIVE ANCHORING AT SAWED JOINTS



SECTION THRU RAIL

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)



BARRIER RAIL DETAILS



BAR TYPES

1'-0 1/2" 8 7/8" 5 3/4" 2 1/4" RAD. 1-6 1/4" 11 3/16" 8" 8" 3'-4" 3'-4" 8 3/4"

5 1/2" 4 1/4" S3 3 3/4" S5 2-7" S3 1'-10" S5 10 1/2" 6 3/4" 1-9 3/8" 6 1/2" 8 1/2"

3

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL
 FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	12	#5	STR	26'-3"	329
* B2	10	#5	STR	26'-0"	271
* B3	44	#5	STR	26'-7"	1220
* B4	12	#5	STR	26'-6"	332
* B5	10	#5	STR	26'-9"	279
* S1	204	#5	1	4'-6"	957
* S2	204	#5	2	7'-0"	1489
* S3	4	#5	3	4'-2"	17
* S4	4	#5	STR	4'-0"	17
* S5	8	#5	3	3'-5"	29
* S6	8	#5	STR	3'-3"	27

* EPOXY COATED REINFORCING STEEL 4,967 LBS.
 CLASS AA CONCRETE 29.3 CU. YDS.
 CONCRETE BARRIER RAIL 215.3 LIN. FT.

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**

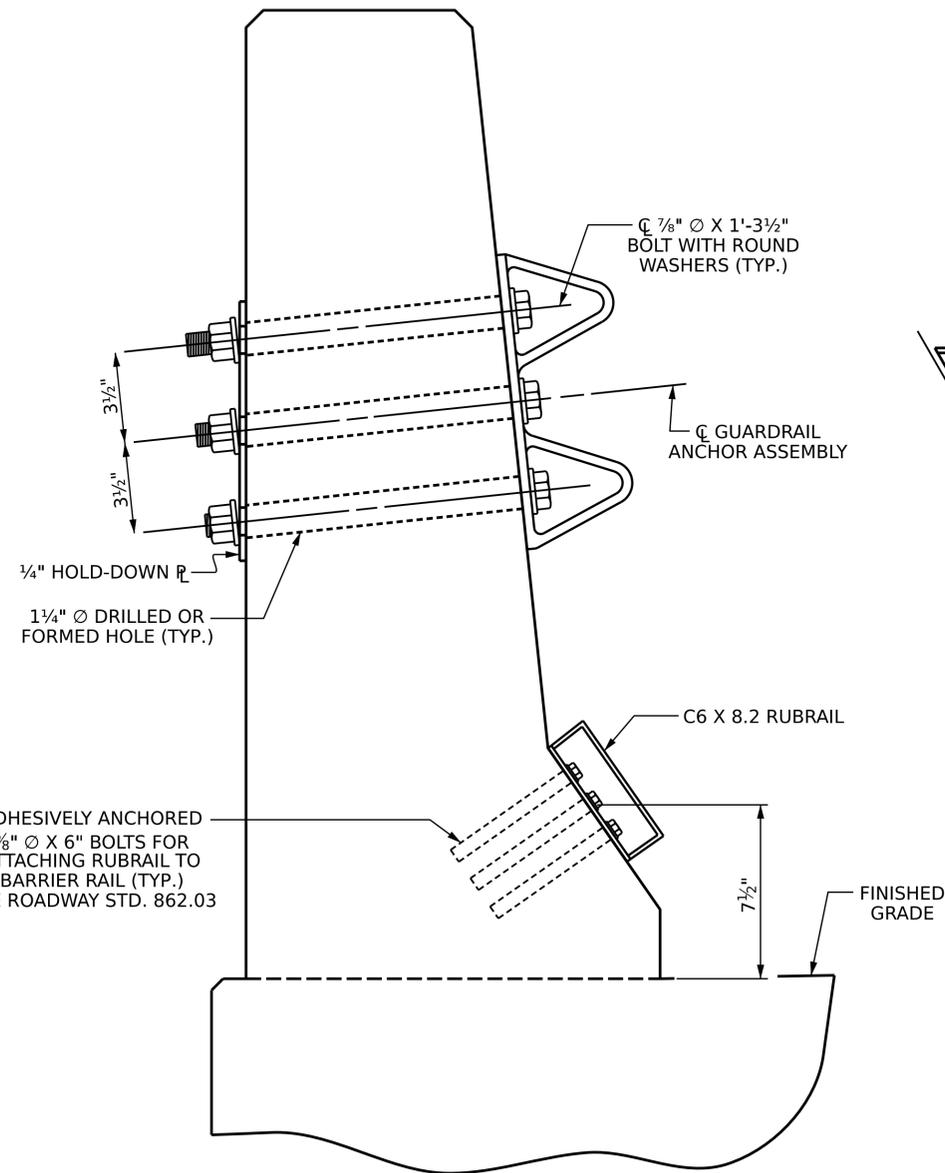
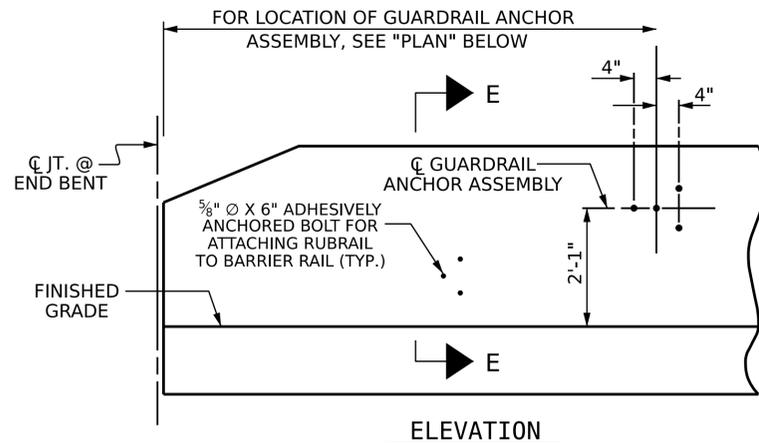
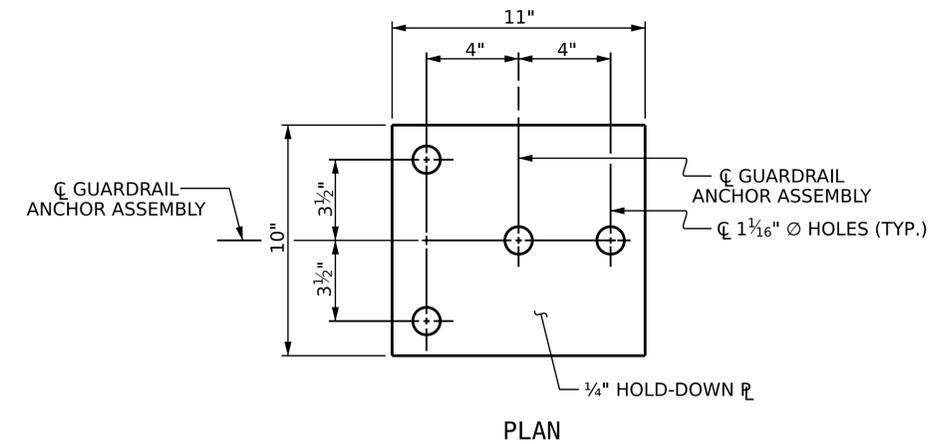
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
CONCRETE BARRIER RAIL

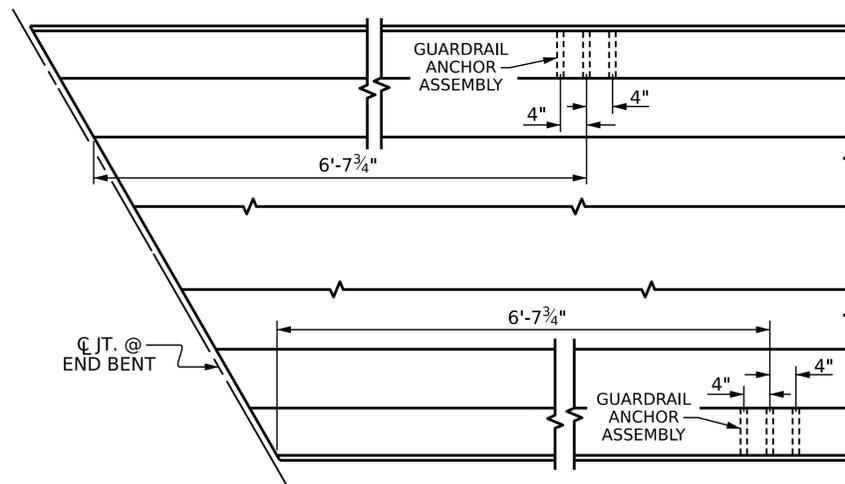
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NO.	BY:	DATE:	NO.	DATE:
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2			4	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

S-16
 TOTAL SHEETS
 32

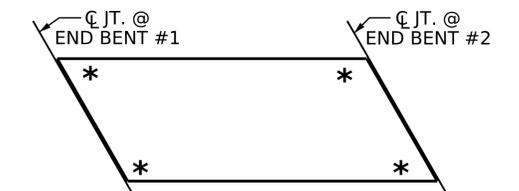


SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

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

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

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

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

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

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

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

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" O X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" O BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

PROJECT NO. **BR-0015**

DAVIDSON COUNTY

STATION: **29+45.91 -L-**

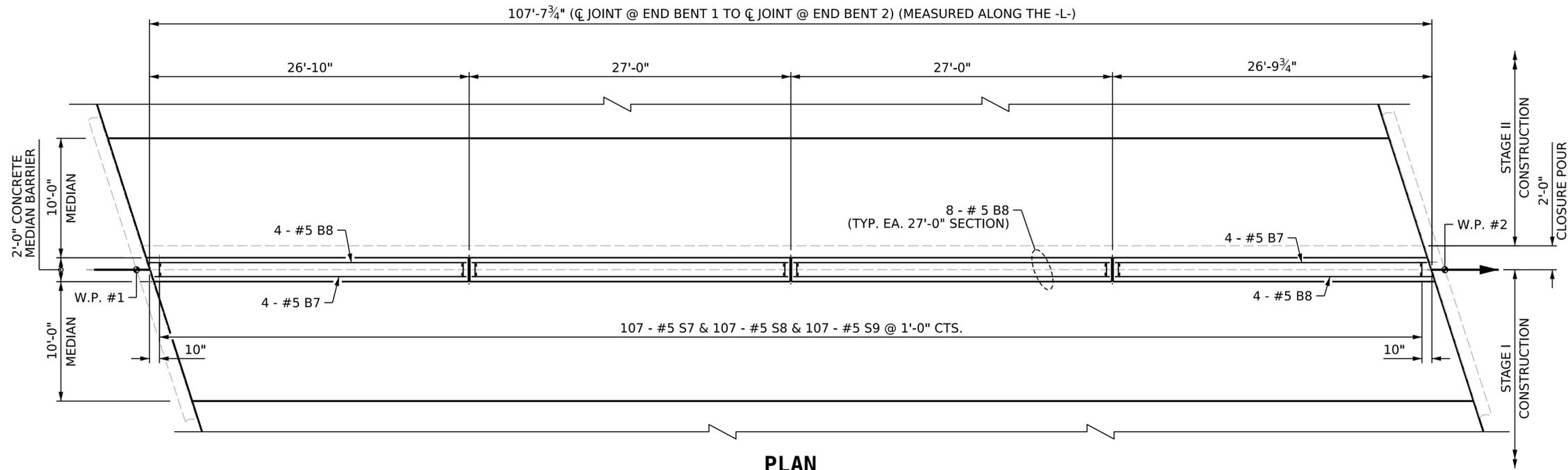


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
**GUARDRAIL ANCHORAGE
FOR BARRIER RAIL**

ASSEMBLED BY: S.A. HERNANDEZ	DATE: 06/2024
CHECKED BY: A. SORSENGINH	DATE: 06/2024
DRAWN BY: TLA 5/06	REV. 6/13 MAA/GM
CHECKED BY: GM 5/06	REV. 12/17 MAA/THC
	REV. 6/22 BNB/AAL

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			32



PLAN

NOTES

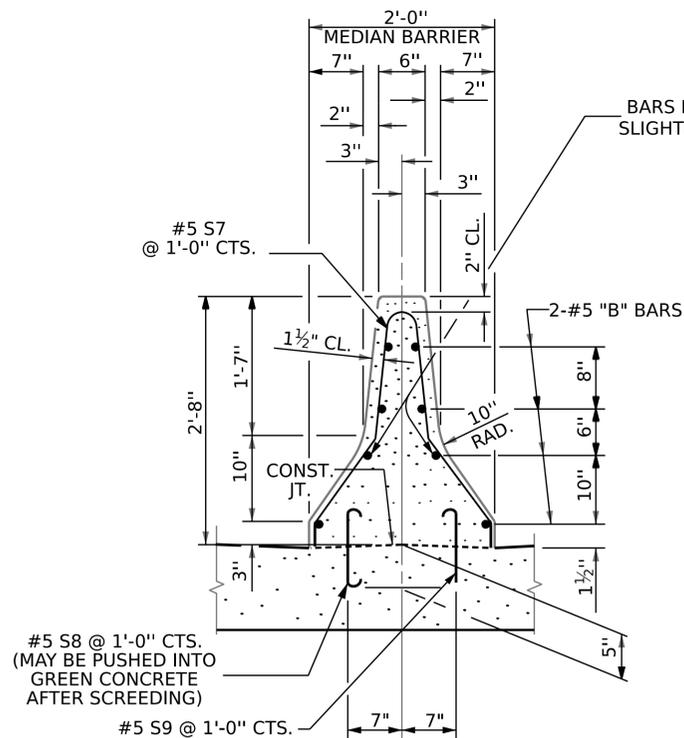
THE MEDIAN BARRIER RAILS SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN MEDIAN BARRIER RAILS SHALL BE EPOXY COATED.

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

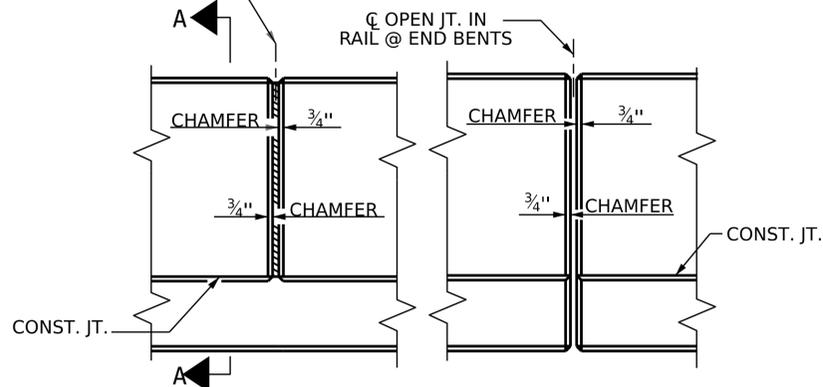
LINEAR FOOT QUANTITIES FOR MEDIAN BARRIER RAILS INCLUDE RAILS ON APPROACH SLABS. REINFORCING STEEL AND CONCRETE QUANTITIES FOR APPROACH SLAB BARRIER RAILS ARE INCLUDED IN BILL OF MATERIAL FOR THE APPROACH SLABS.

FOR MEDIAN BARRIER ON APPROACH SLABS, SEE APPROACH SLAB SHEETS.



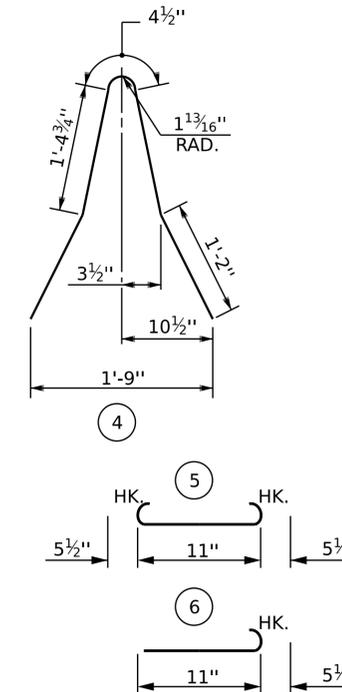
SECTION A-A THRU 2'-0\"/>

1/2" EXP. JT. MAT'L. HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)



ELEVATION AT EXPANSION JOINTS
(TYP. MEDIAN BARRIERS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

2'-0" CONCRETE MEDIAN BARRIER

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B7	8	#5	STR	26'-2"	218
* B8	24	#5	STR	26'-7"	665
* S7	107	#5	4	5'-6"	614
* S8	107	#5	5	1'-10"	205
* S9	107	#5	6	1'-6"	167

* EPOXY COATED REINFORCING STEEL	1,869 LBS.
CLASS AA CONCRETE	14.9 CU. YDS.
CONCRETE MEDIAN BARRIER	
BRIDGE DECK	107.6 LIN. FT.
APPROACH SLABS	50.0 LIN. FT.
TOTAL	157.6 LIN. FT.

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE MEDIAN BARRIER RAIL

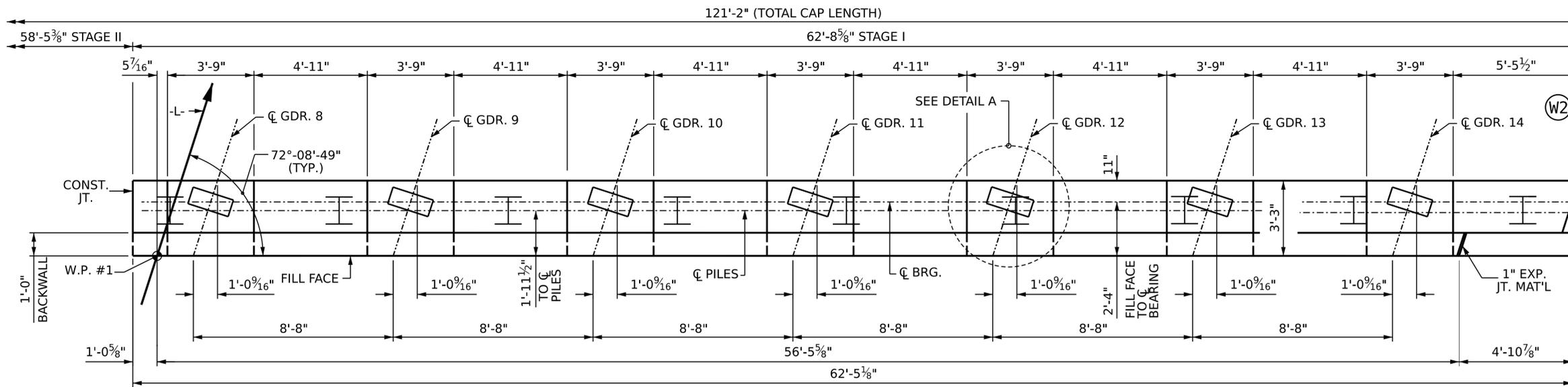
DRAWN BY: S.A. HERNANDEZ DATE: 06/2024
 CHECKED BY: A. SORSENGINH DATE: 06/2024
 DESIGN ENGINEER OF RECORD: E. BAYISSA DATE: 06/2024

CONCRETE MEDIAN BARRIER RAIL DETAILS

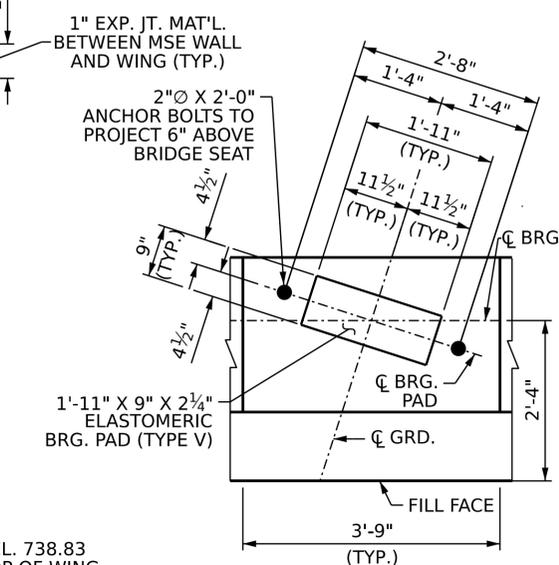
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	
1			3		S-18
2			4		TOTAL SHEETS 32

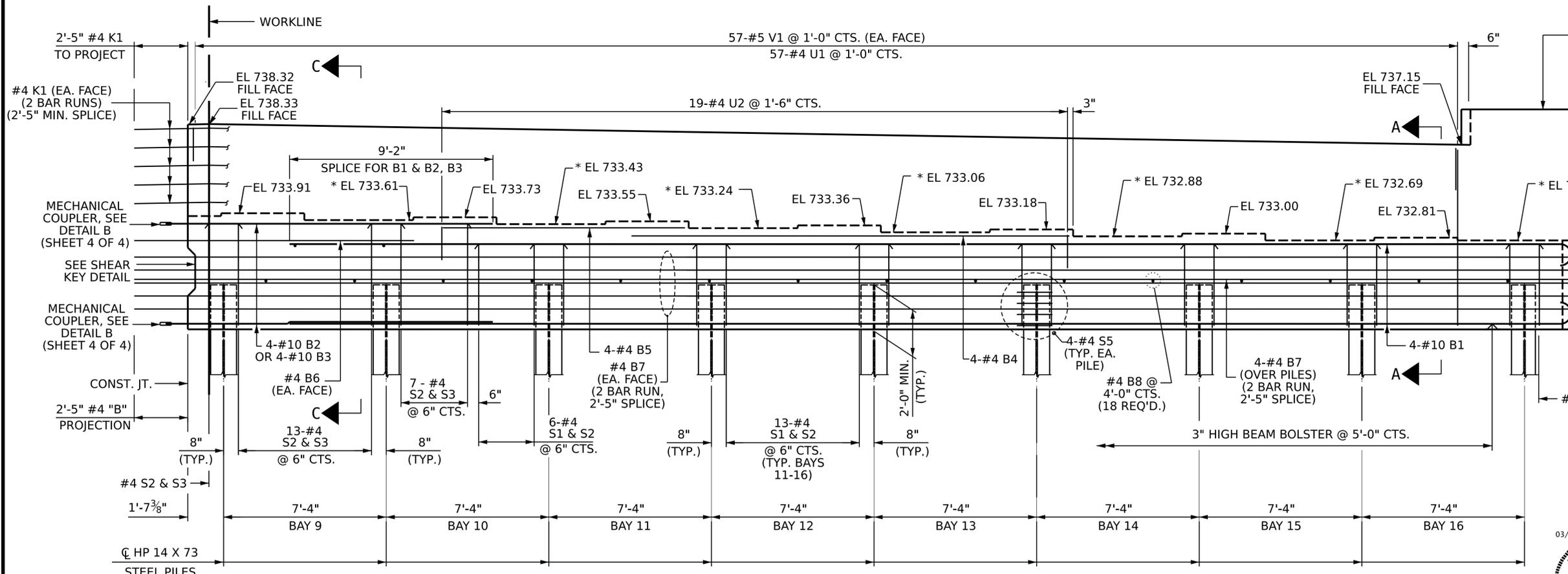
8/26/21



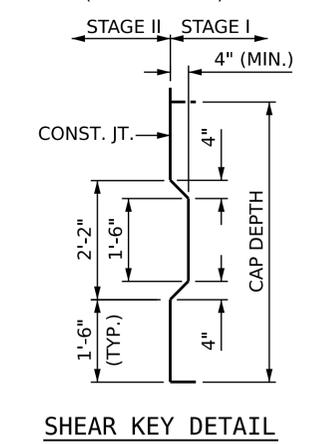
PLAN OF STAGE I



DETAIL A
(TYP. EA. GDR.)



ELEVATION OF STAGE I



SHEAR KEY DETAIL

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 1 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
END BENT #1
STAGE I

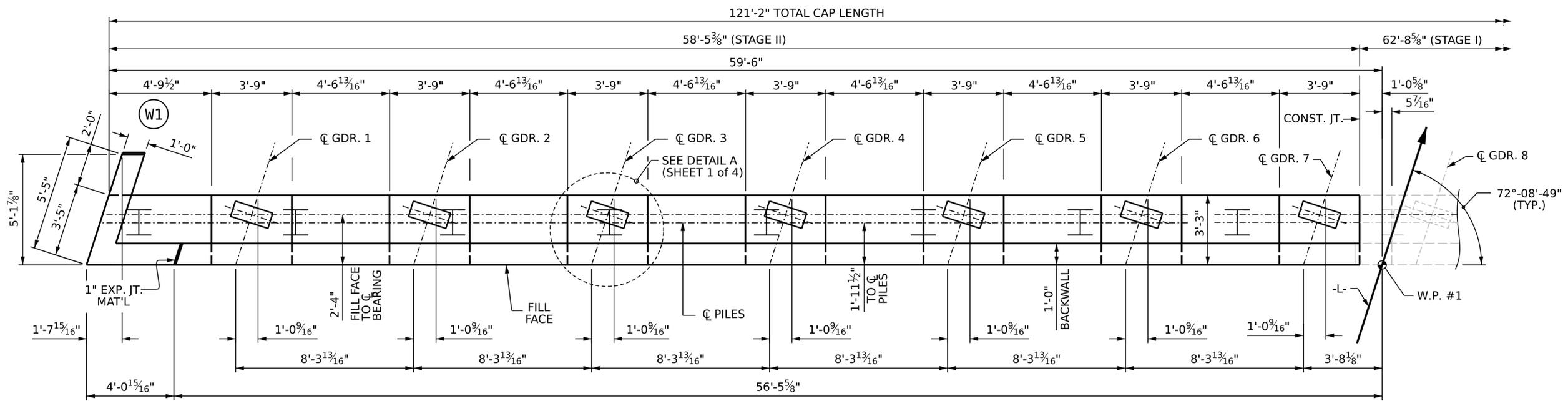
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 CHECKED BY: **A. SORSENGINH** DATE: **7/2024**
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DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

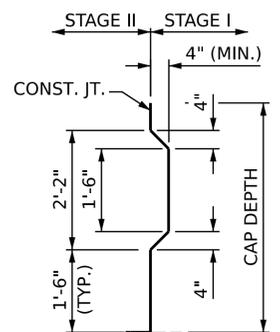
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NO.	BY:	DATE:	NO.	DATE:
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TOTAL SHEETS: 32

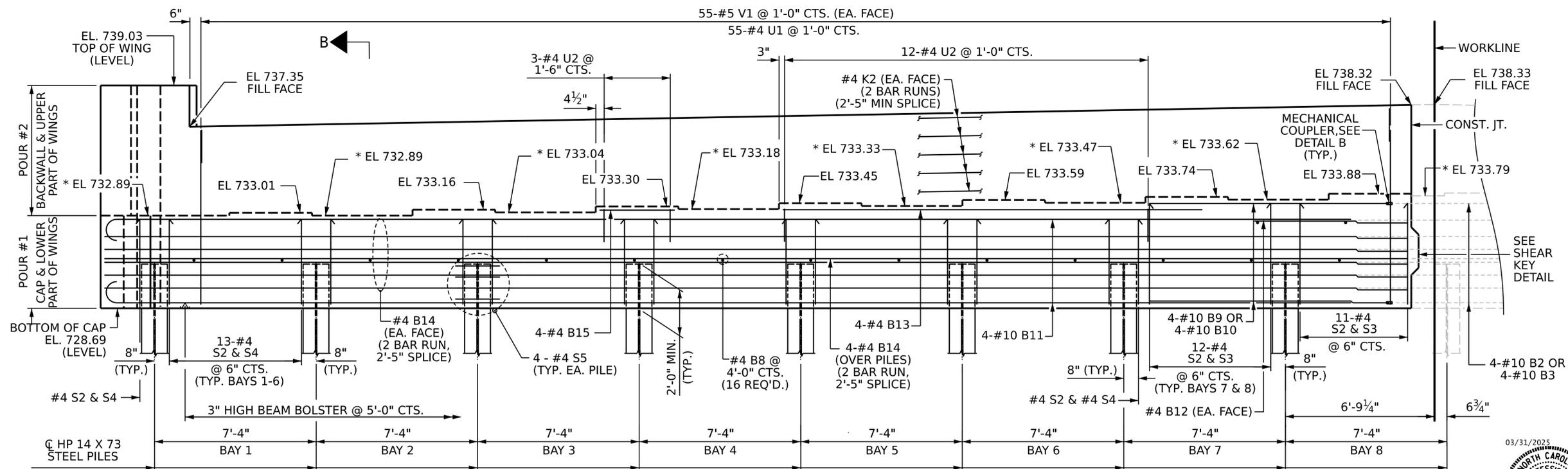
3/31/2025
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 ksedi



PLAN OF STAGE II



SHEAR KEY DETAIL



ELEVATION OF STAGE II



PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

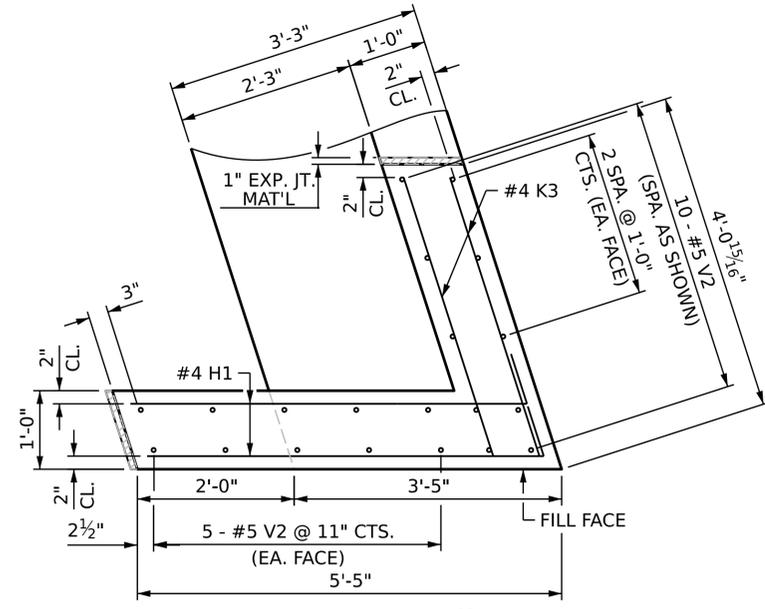
**SUBSTRUCTURE
 END BENT #1
 STAGE II**

DRAWN BY: **S.A. HERNANDEZ** DATE: **6/2024**
 CHECKED BY: **A. SORSENGINH** DATE: **7/2024**
 DESIGN ENGINEER OF RECORD: **A. SORSENGINH** DATE: **7/2024**

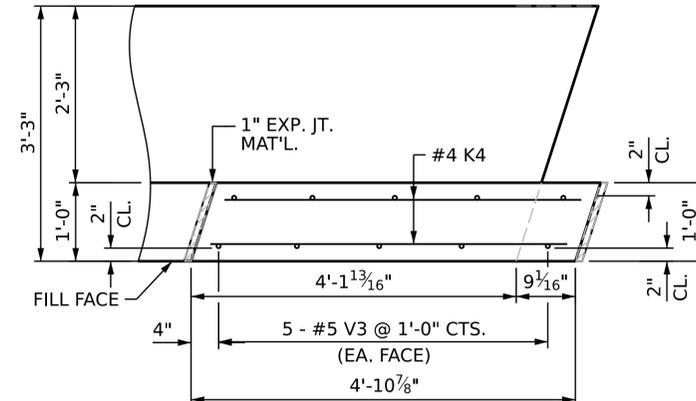
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 SIGNATURES COMPLETED

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NO.	BY:	DATE:	NO.
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2			4

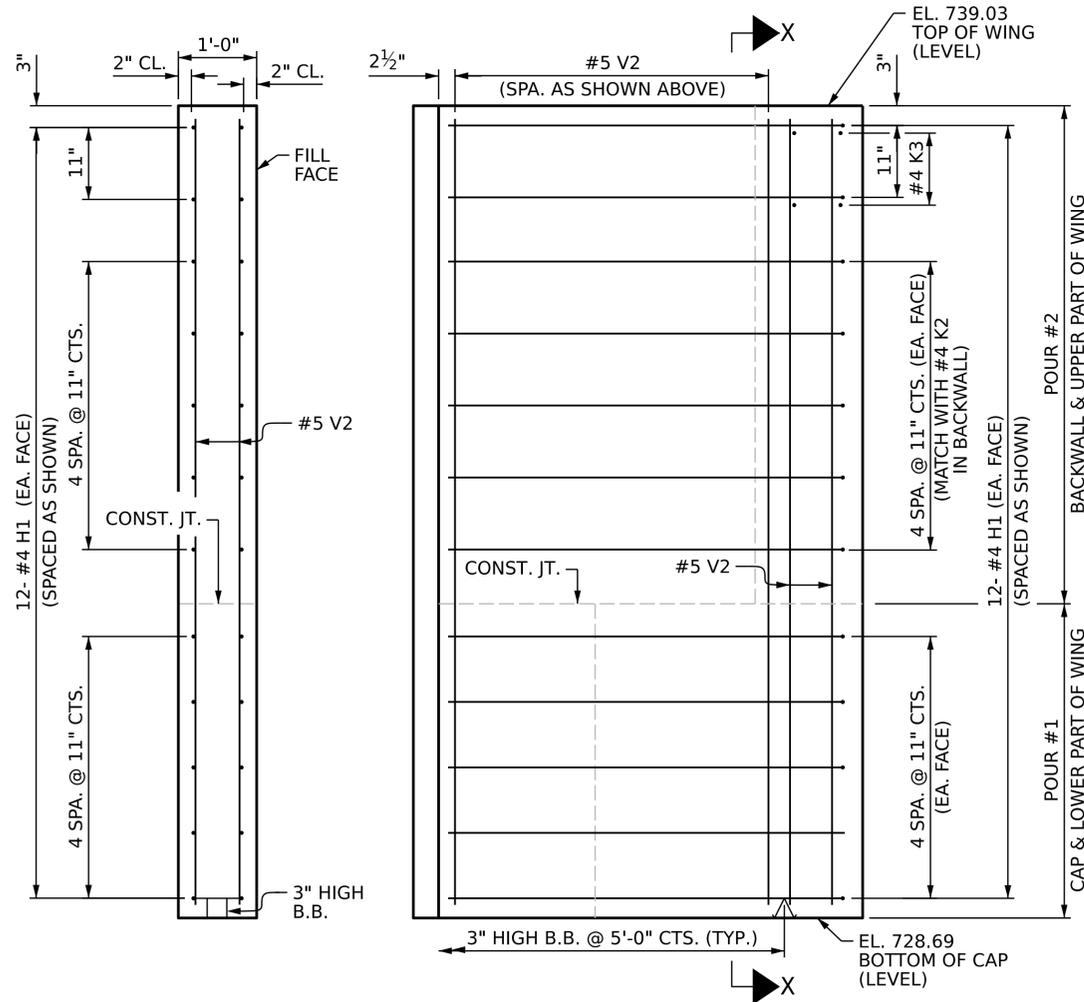
TOTAL SHEETS: 32



PLAN OF WING (W1)

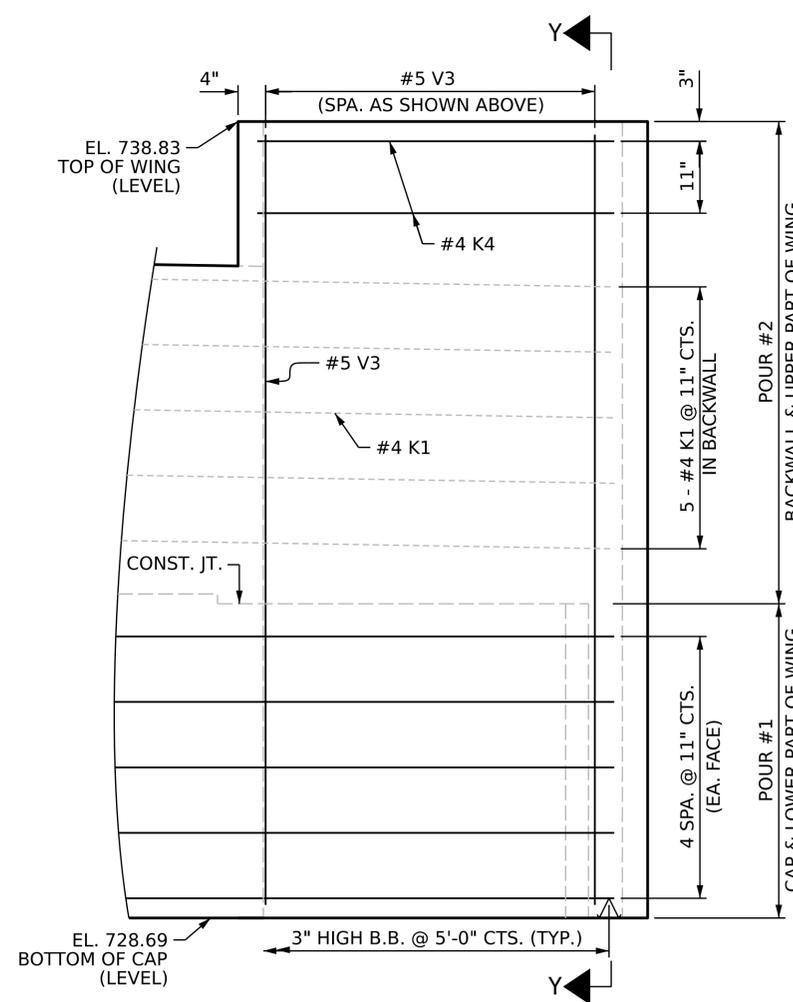


PLAN OF EARWALL (W2)

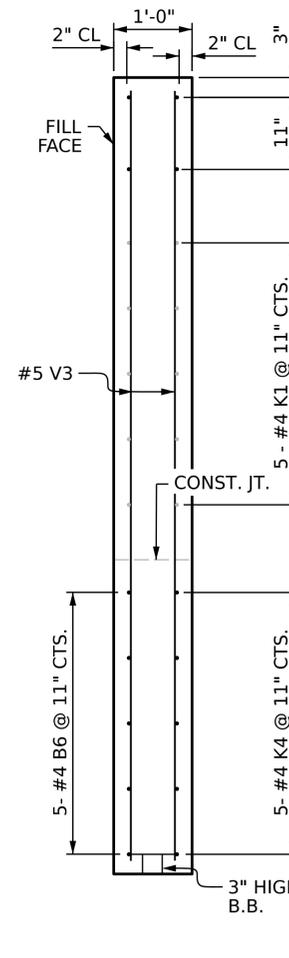


SECTION X-X

ELEVATION OF WING (W1)



ELEVATION OF EARWALL (W2)



SECTION Y-Y



PROJECT NO. **BR-0015**
DAVIDSON COUNTY
STATION: **29+45.91 -L-**
SHEET 3 OF 4

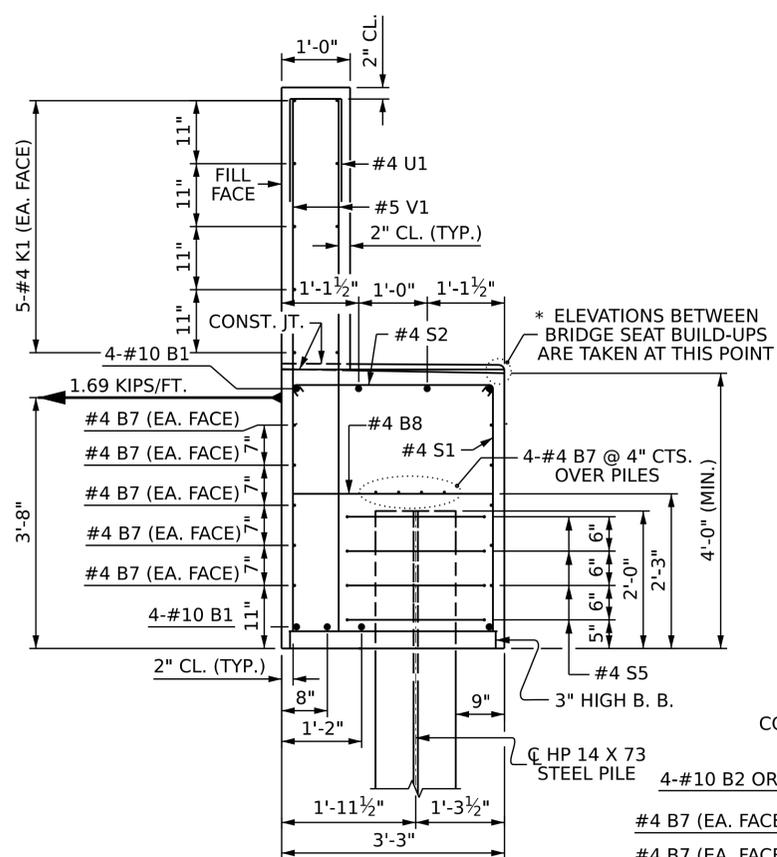
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUBSTRUCTURE
END BENT #1**

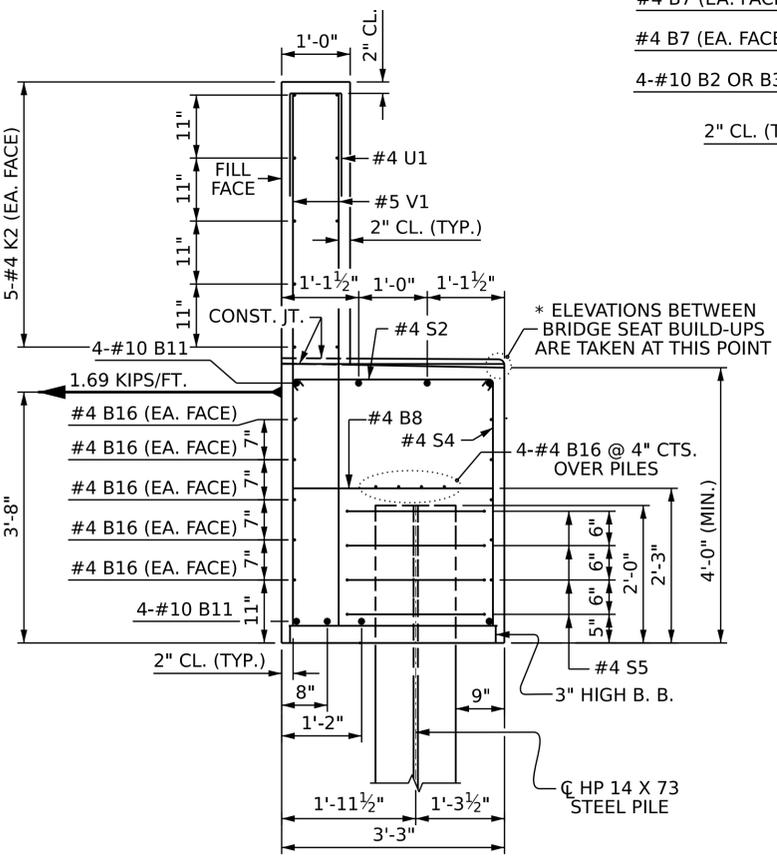
DRAWN BY : S.A. HERNANDEZ DATE : 6/2024
CHECKED BY : A. SORSENGINH DATE : 7/2024
DESIGN ENGINEER OF RECORD: A. SORSENGINH DATE : 7/2024

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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			32

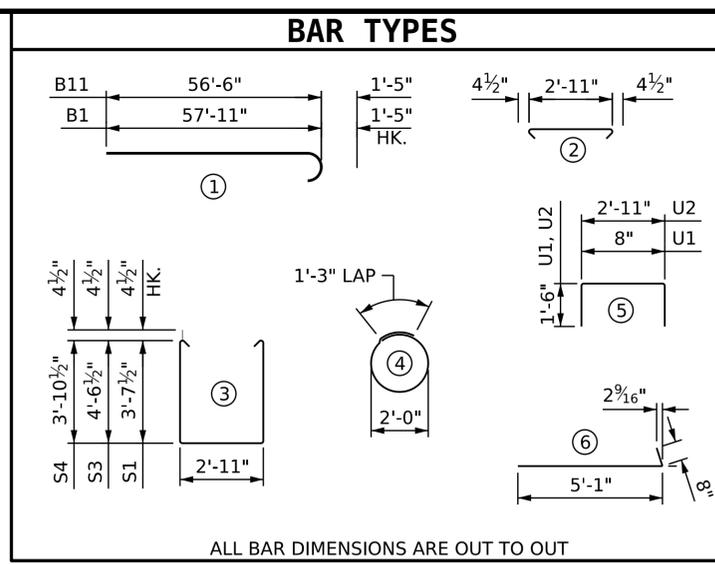


SECTION A-A

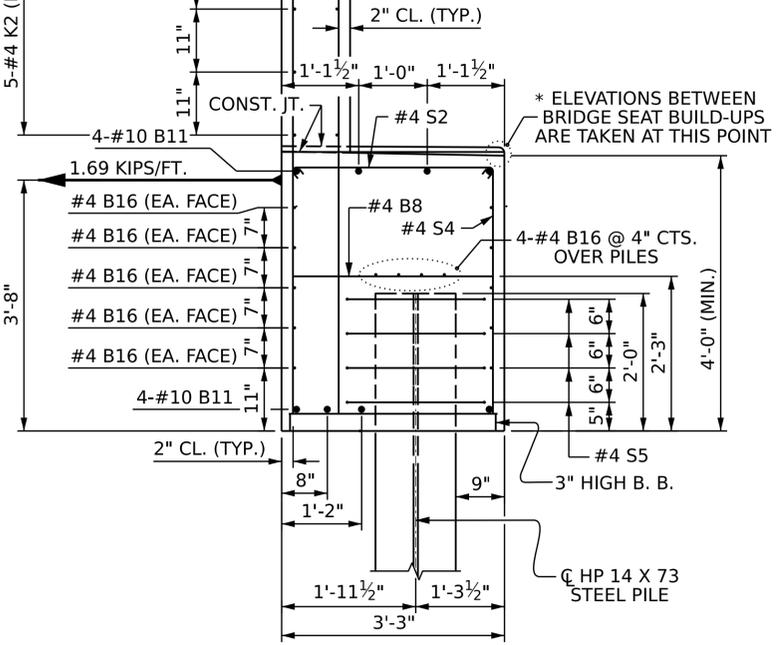


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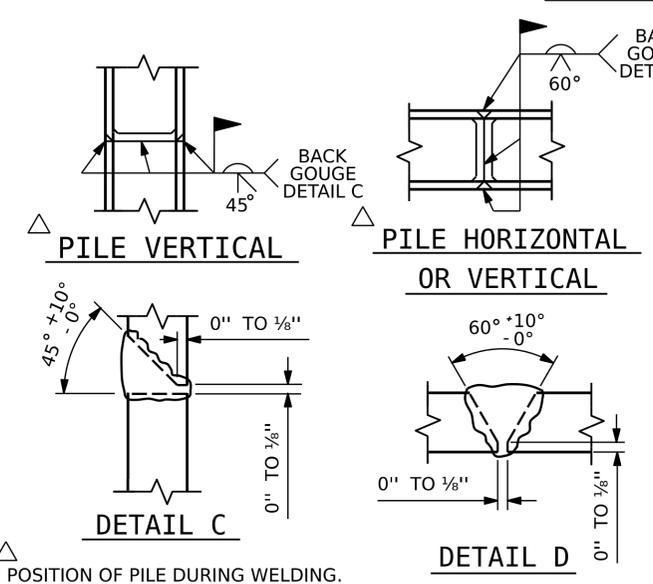
DRAWN BY : S.A. HERNANDEZ DATE : 6/2024
 CHECKED BY : A. SORSENGINH DATE : 7/2024
 DESIGN ENGINEER OF RECORD : A. SORSENGINH DATE : 7/2024



STAGE I						STAGE II					
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT	BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	# 10	1	59'-4"	2042	B8	16	# 4	STR	2'-11"	31
B2	4	# 10	STR	16'-9"	288	B9	4	# 10	STR	8'-10"	152
B3	4	# 10	STR	14'-9"	254	B10	4	# 10	STR	10'-10"	186
B4	4	# 4	STR	19'-9"	53	B11	8	# 10	1	57'-11"	1994
B5	4	# 4	STR	11'-11"	32	B12	2	# 4	STR	5'-2"	7
B6	2	# 4	STR	13'-4"	18	B13	4	# 4	STR	20'-0"	53
B7	28	# 4	STR	33'-9"	631	B14	28	# 4	STR	30'-11"	578
B8	18	# 4	STR	2'-11"	35	B15	4	# 4	STR	3'-5"	9
K1	20	# 4	STR	33'-0"	441	H1	24	# 4	6	5'-9"	92
K4	4	# 4	STR	4'-6"	12	K2	20	# 4	STR	30'-11"	413
S1	85	# 4	3	10'-11"	620	K3	4	# 4	STR	3'-8"	10
S2	106	# 4	2	3'-8"	260	S2	103	# 4	2	3'-8"	252
S3	21	# 4	3	12'-9"	179	S3	23	# 4	3	12'-9"	196
S5	36	# 4	4	7'-7"	182	S4	79	# 4	3	11'-5"	602
U1	57	# 4	5	3'-8"	140	S5	32	# 4	4	7'-7"	162
U2	19	# 4	5	5'-11"	75	U1	55	# 4	5	3'-8"	135
V1	114	# 5	STR	7'-11"	941	U2	15	# 4	5	5'-11"	59
V3	10	# 5	STR	9'-9"	102	V1	110	# 5	STR	7'-11"	908
REINFORCING STEEL					6,305 LBS.	V2	20	# 5	STR	10'-0"	209



SECTION C-C

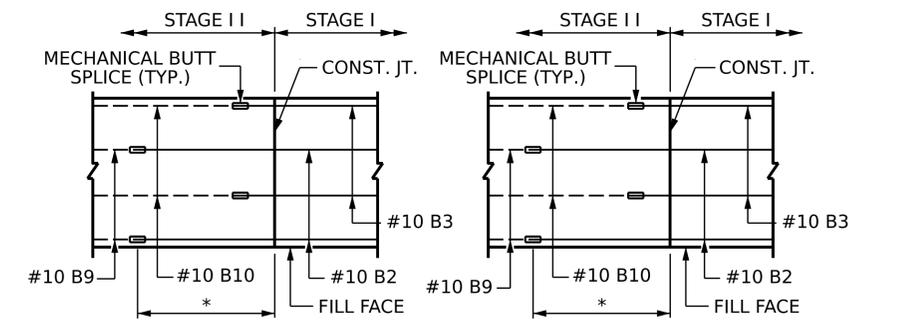


PILE SPLICE DETAILS

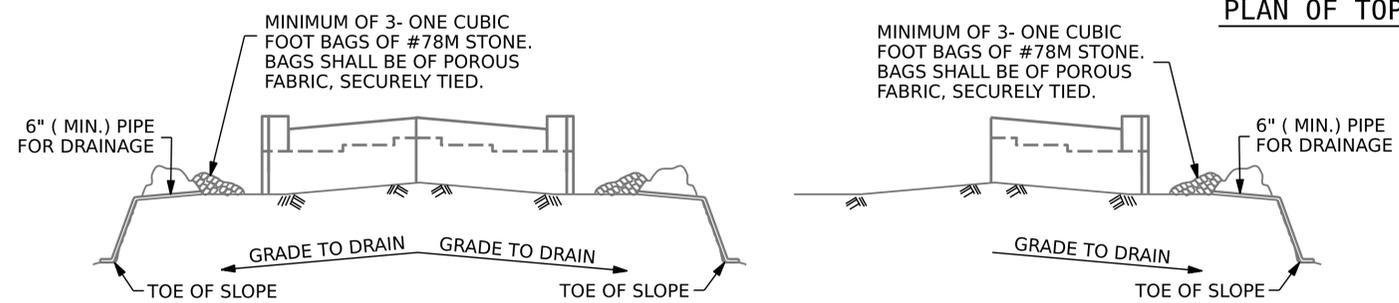
CLASS A CONCRETE BREAKDOWN (STAGE I)		
POUR #1	CAP & LOWER PART OF WINGS	35.5 C.Y.
POUR #2	BACKWALL & UPPER PART OF WINGS	10.9 C.Y.
TOTAL CLASS A CONCRETE		46.4 C.Y.
HP 14X73 STEEL PILES		
NO. 9		405 LIN. FT.

CLASS A CONCRETE BREAKDOWN (STAGE II)		
POUR #1	CAP & LOWER PART OF WINGS	34.3 C.Y.
POUR #2	BACKWALL & UPPER PART OF WINGS	10.3 C.Y.
TOTAL CLASS A CONCRETE		44.6 C.Y.
HP 14X73 STEEL PILES		
NO. 8		360 LIN. FT.

* STAGE I TOP AND BOTTOM "B" BARS ARE DETAILED WITH STAGGERED 1'-0" AND 3'-0" EXTENSIONS BEYOND CONSTRUCTION JOINT



PLAN OF TOP REINFORCEMENT PLAN OF BOTTOM REINFORCEMENT



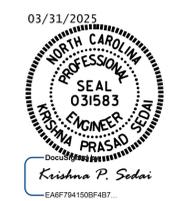
STAGE II CONSTRUCTION STAGE I CONSTRUCTION

TEMPORARY DRAINAGE AT END BENT

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

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

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

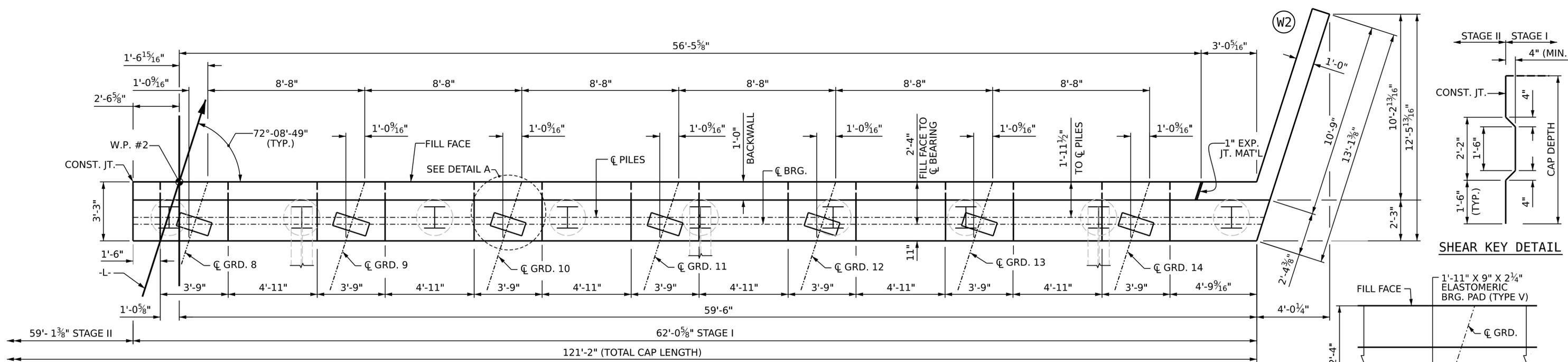


PROJECT NO. BR-0015
 DAVIDSON COUNTY
 STATION: 29+45.91 -L-
 SHEET 4 OF 4

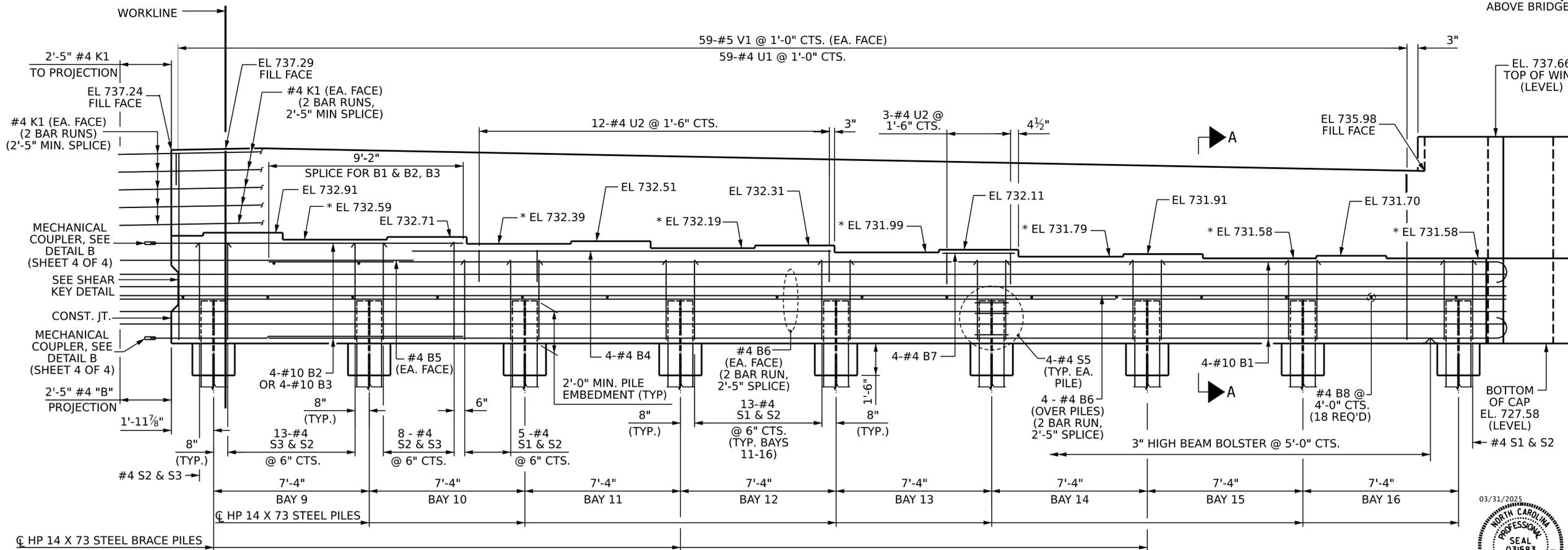
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

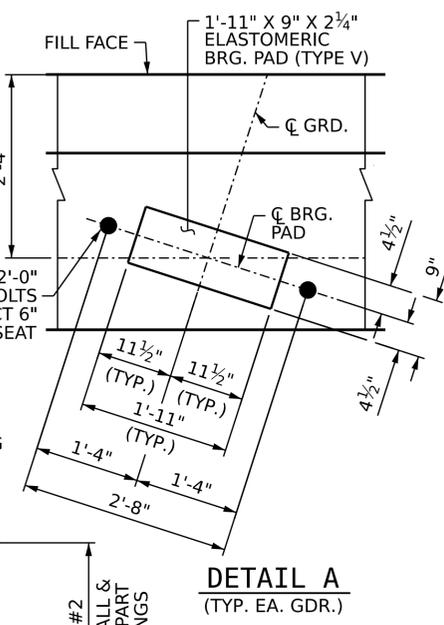
SHEET NO. S-23
 TOTAL SHEETS 32



PLAN OF STAGE I



ELEVATION OF STAGE I



DETAIL A
(TYP. EA. GDR.)

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 1 OF 4



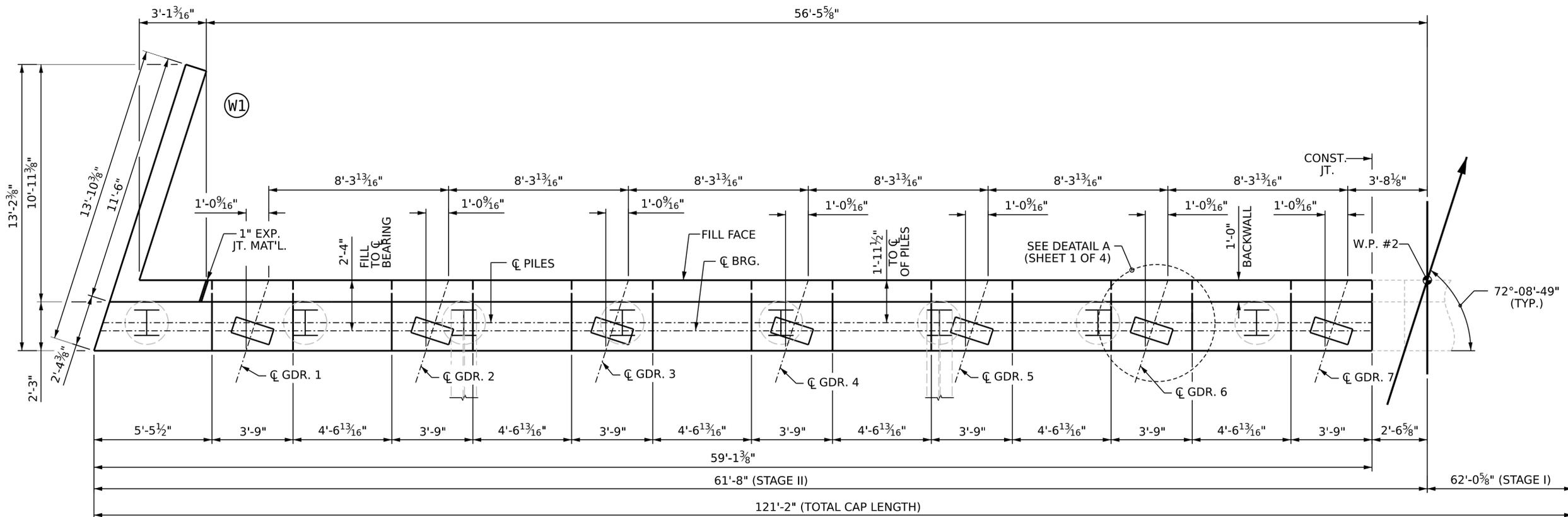
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
END BENT #2
STAGE I

DRAWN BY: **S.A. HERNANDEZ** DATE: **6/2024**
 CHECKED BY: **A. SORSENGINH** DATE: **7/2024**
 DESIGN ENGINEER OF RECORD: **A. SORSENGINH** DATE: **7/2024**

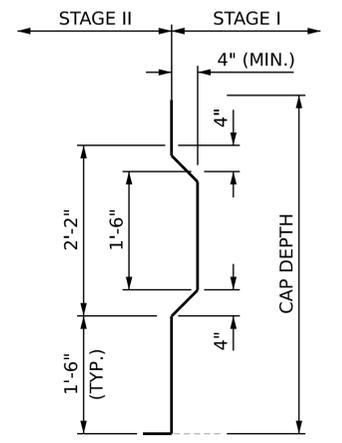
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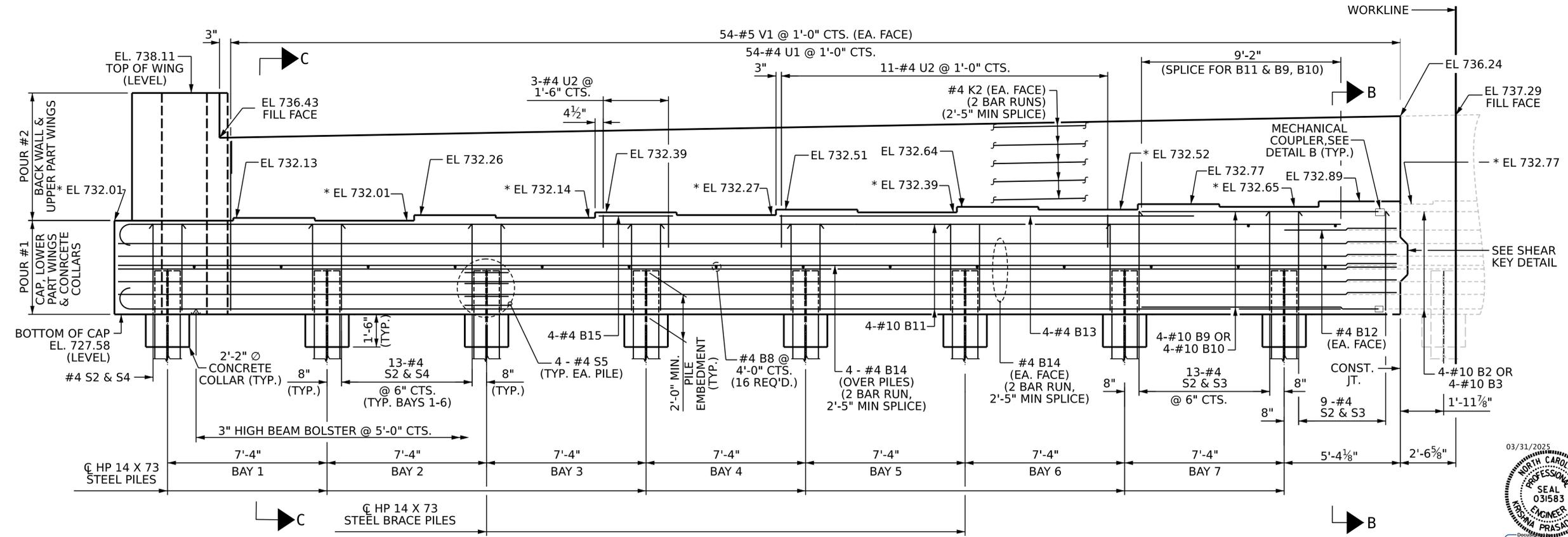
TOTAL SHEETS: 32



PLAN OF STAGE II



SHEAR KEY DETAIL



ELEVATION OF STAGE II

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 2 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

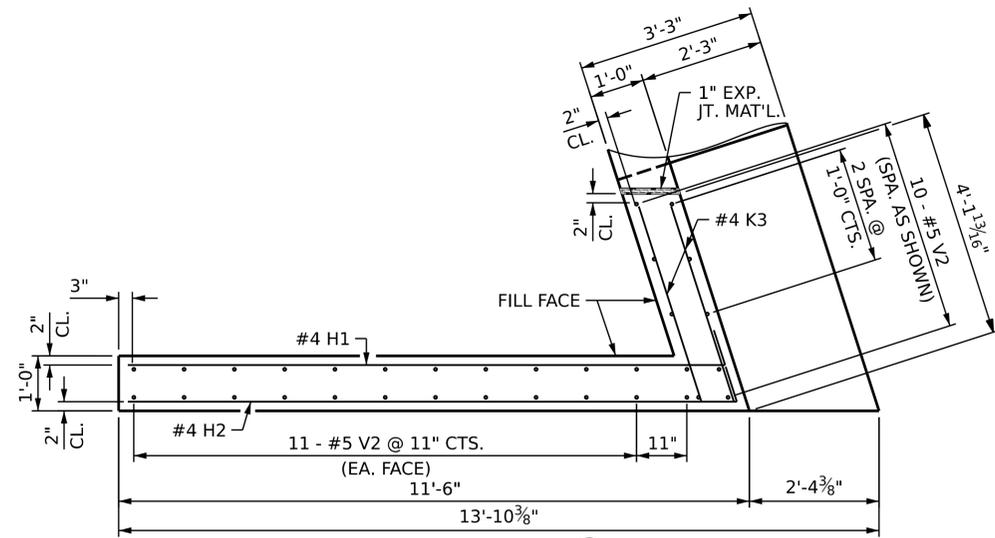
**SUBSTRUCTURE
 END BENT #2
 STAGE II**

DRAWN BY: **S.A. HERNANDEZ** DATE: **6/2024**
 CHECKED BY: **A. SORSENGINH** DATE: **7/2024**
 DESIGN ENGINEER OF RECORD: **A. SORSENGINH** DATE: **7/2024**

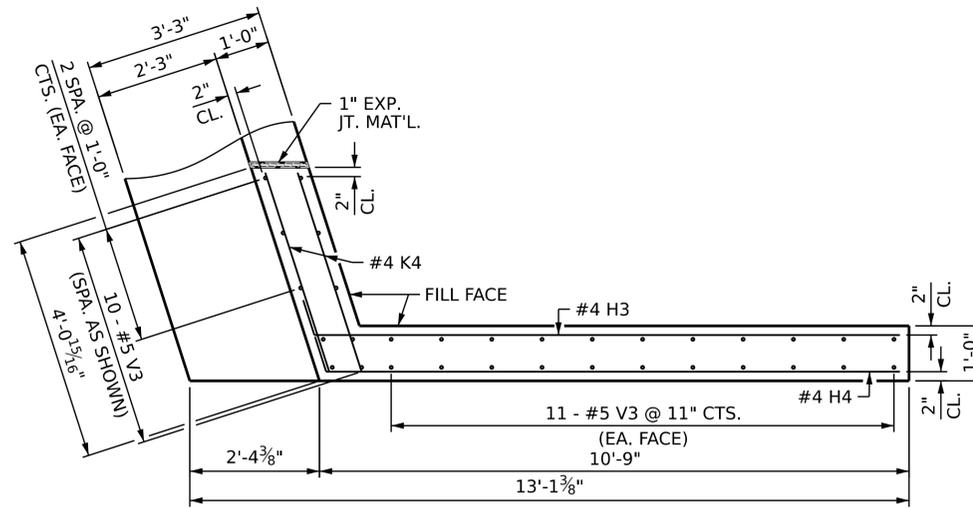
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REVISIONS		NO.		DATE		BY	
1		3					
2		4					

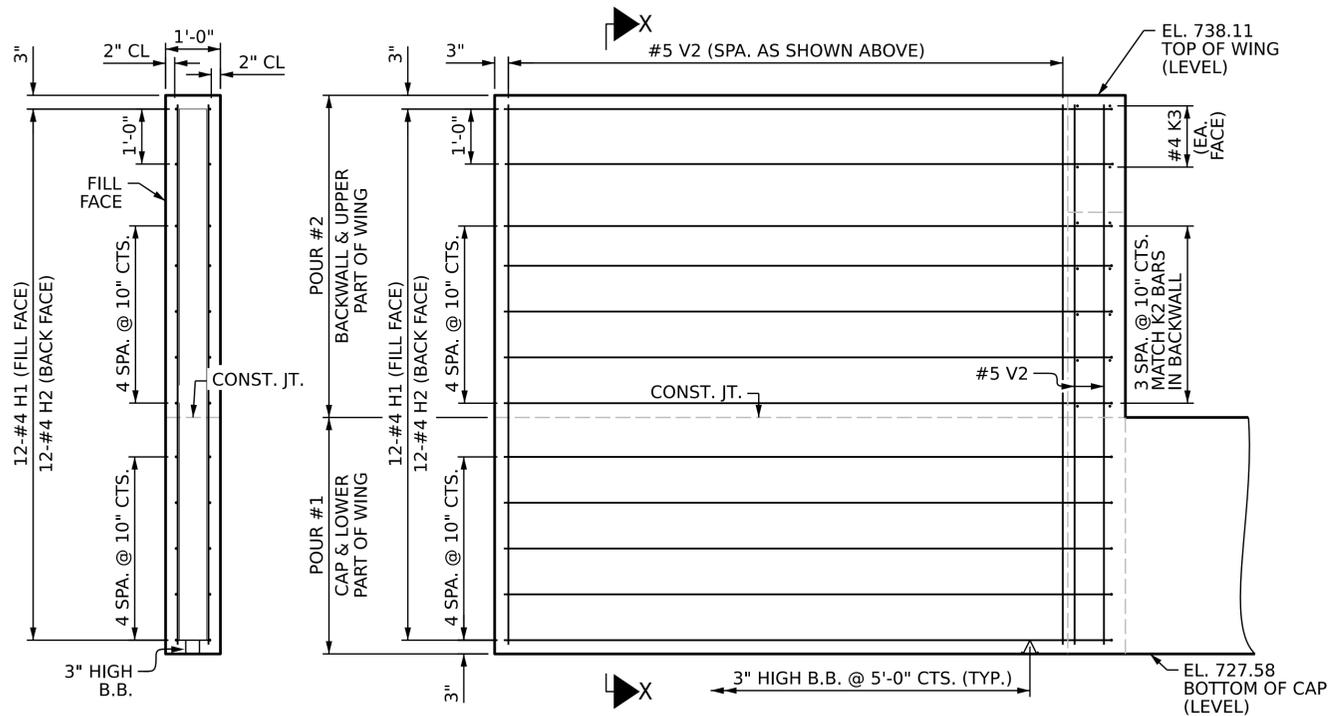
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 TOTAL SHEETS **32**



PLAN OF WING (W1)

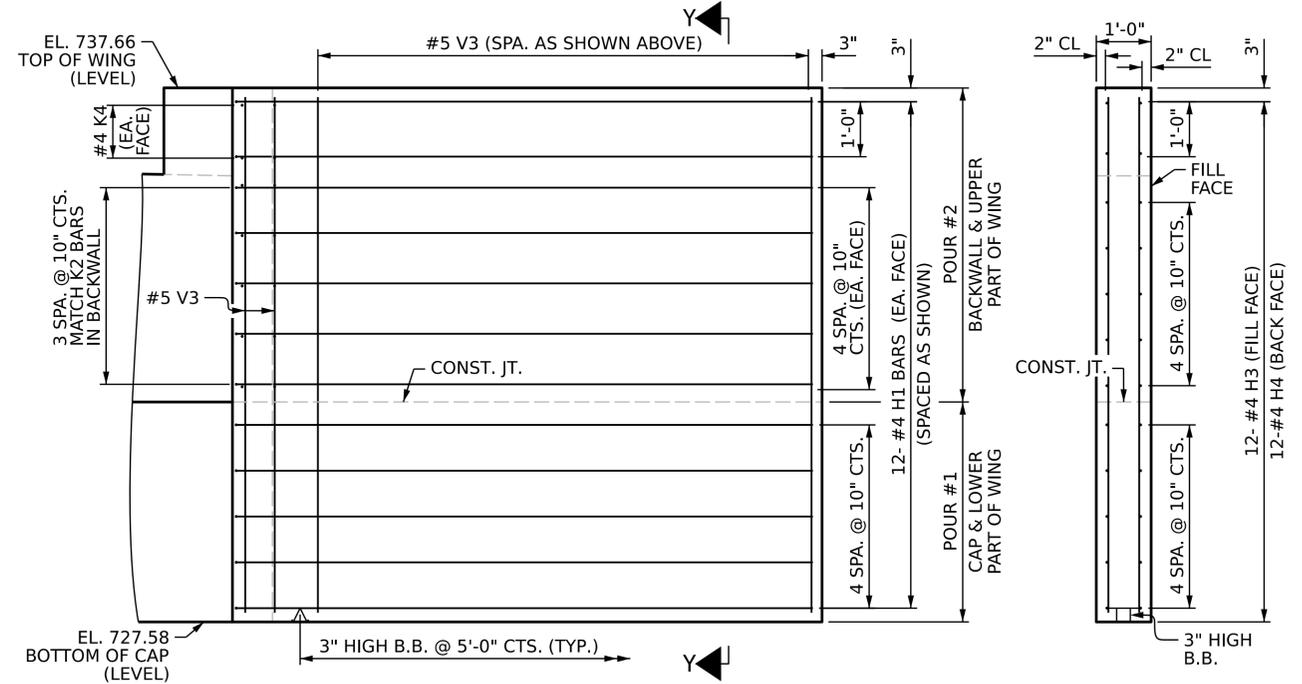


PLAN OF WING (W2)



SECTION X-X

ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

SECTION Y-Y

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**

SHEET 3 of 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

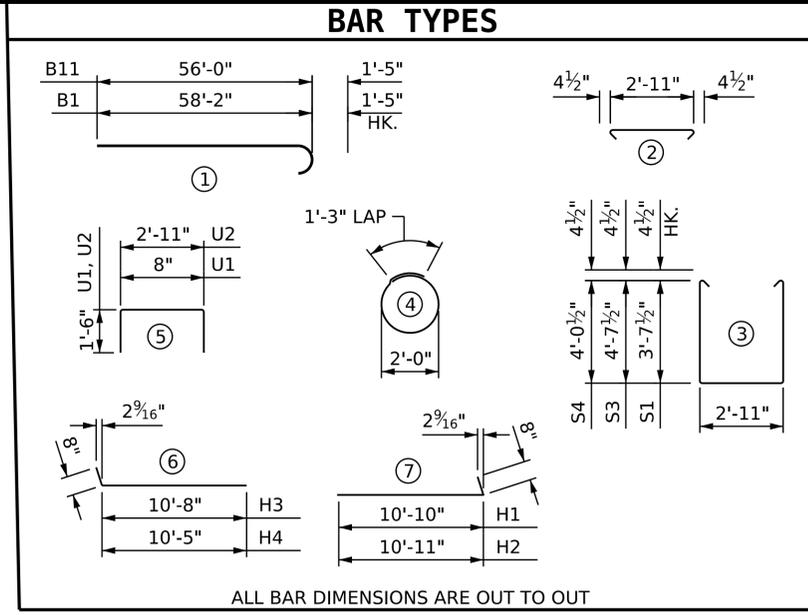
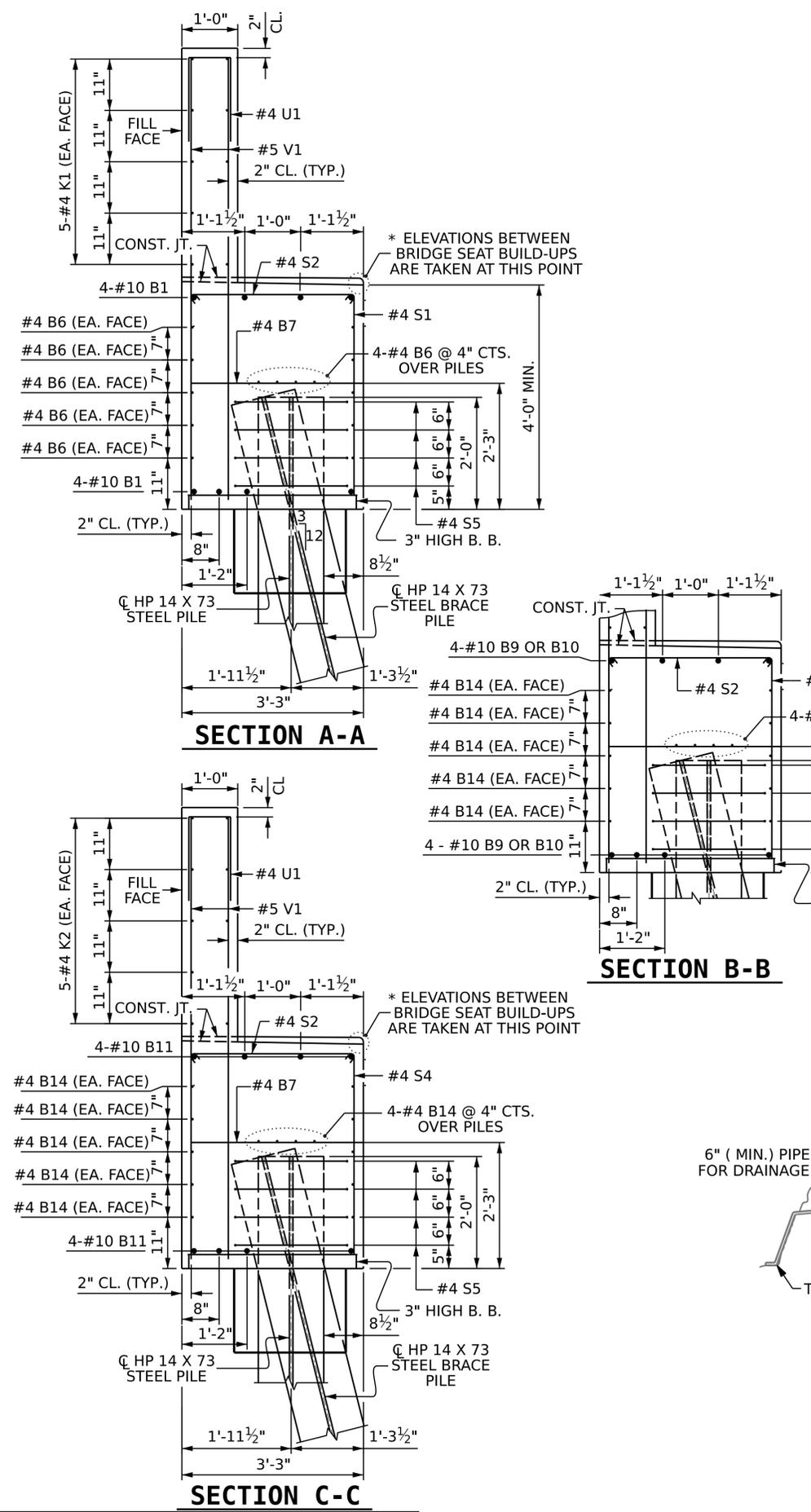
SUBSTRUCTURE
END BENT #2

DRAWN BY : S.A. HERNANDEZ DATE : 06/2024
 CHECKED BY : A. SORSENGINH DATE : 07/2024
 DESIGN ENGINEER OF RECORD: A. SORSENGINH DATE : 07/2024

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

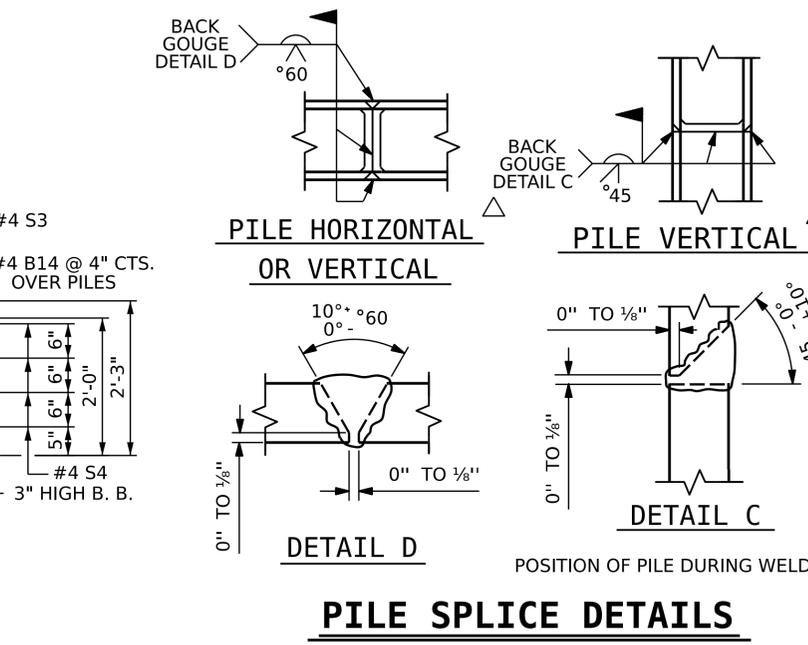
REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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8/26/21

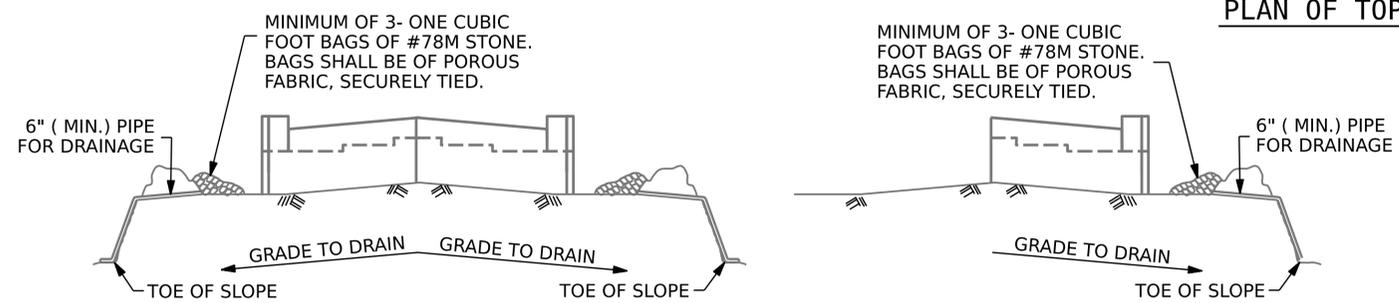
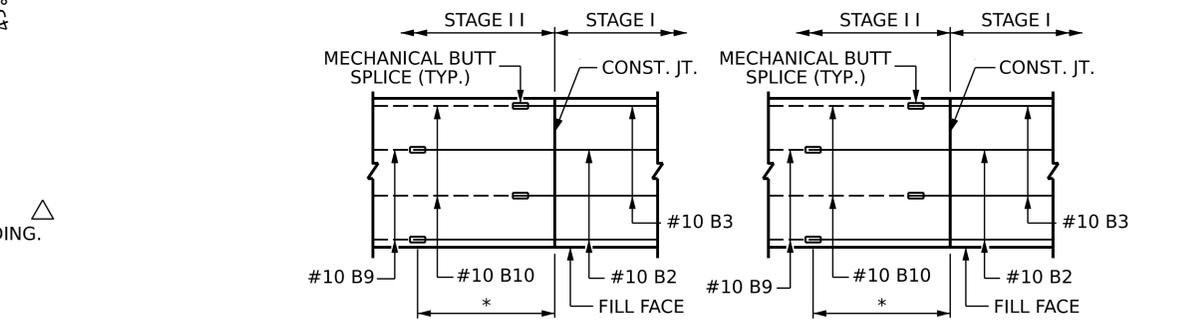


BILL OF MATERIAL

STAGE I						STAGE II					
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT	BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	# 10	1	59'-7"	2051	B8	16	# 4	STR	2'-11"	31
B2	4	# 10	STR	16'-9"	288	B9	4	# 10	STR	8'-10"	152
B3	4	# 10	STR	14'-9"	254	B10	4	# 10	STR	10'-10"	186
B4	4	# 4	STR	19'-9"	53	B11	8	# 10	1	57'-5"	1977
B5	2	# 4	STR	9'-5"	13	B12	2	# 4	STR	5'-2"	7
B6	28	# 4	STR	33'-11"	634	B13	4	# 4	STR	19'-0"	51
B7	4	# 4	STR	3'-5"	9	B14	28	# 4	STR	30'-8"	574
B8	18	# 4	STR	2'-11"	35	B15	4	# 4	STR	3'-5"	9
H3	12	# 4	6	11'-4"	91	H1	12	# 4	7	11'-6"	92
H4	12	# 4	6	11'-1"	89	H2	12	# 4	7	11'-7"	93
K1	20	# 4	STR	34'-0"	454	K2	20	# 4	STR	28'-2"	376
K4	4	# 4	STR	3'-8"	10	K3	4	# 4	STR	3'-9"	10
S1	84	# 4	3	10'-11"	613	S2	101	# 4	2	3'-8"	247
S2	106	# 4	2	3'-8"	260	S3	22	# 4	3	12'-11"	190
S3	22	# 4	3	12'-11"	190	S4	79	# 4	3	11'-9"	620
S5	36	# 4	4	7'-7"	182	S5	32	# 4	4	7'-7"	162
U1	59	# 4	5	3'-8"	145	U1	54	# 4	5	3'-8"	132
U2	15	# 4	5	5'-11"	59	U2	14	# 4	5	5'-11"	55
V1	118	# 5	STR	7'-9"	954	V1	108	# 5	STR	7'-9"	873
V3	32	# 5	STR	9'-9"	325	V2	32	# 5	STR	10'-2"	339
REINFORCING STEEL			6,709 LBS.			REINFORCING STEEL			6,176 LBS.		



CLASS A CONCRETE BREAKDOWN (STAGE I)			CLASS A CONCRETE BREAKDOWN (STAGE II)		
POUR #1	CAP & LOWER PART OF WINGS	37.7 C.Y.	POUR #1	CAP & LOWER PART OF WINGS	37.0 C.Y.
POUR #2	BACKWALL & UPPER PART OF WINGS	12.3 C.Y.	POUR #2	BACKWALL & UPPER PART OF WINGS	11.1 C.Y.
TOTAL CLASS A CONCRETE		50.0 C.Y.	TOTAL CLASS A CONCRETE		48.1 C.Y.
HP 14X73 STEEL PILES			HP 14X73 STEEL PILES		
NO. 9		585 LIN. FT.	NO. 8		520 LIN. FT.



STAGE II CONSTRUCTION

MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

TOE OF SLOPE

STAGE I CONSTRUCTION

MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

TOE OF SLOPE

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.

PLAN OF TOP REINFORCEMENT

PLAN OF BOTTOM REINFORCEMENT

* STAGE I TOP AND BOTTOM "B" BARS ARE DETAILED WITH STAGGERED 1'-0" AND 3'-0" EXTENSIONS BEYOND CONSTRUCTION JOINT

PROJECT NO. **BR-0015**

DAVIDSON COUNTY

STATION: **29+45.91 -L-**

SHEET 4 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

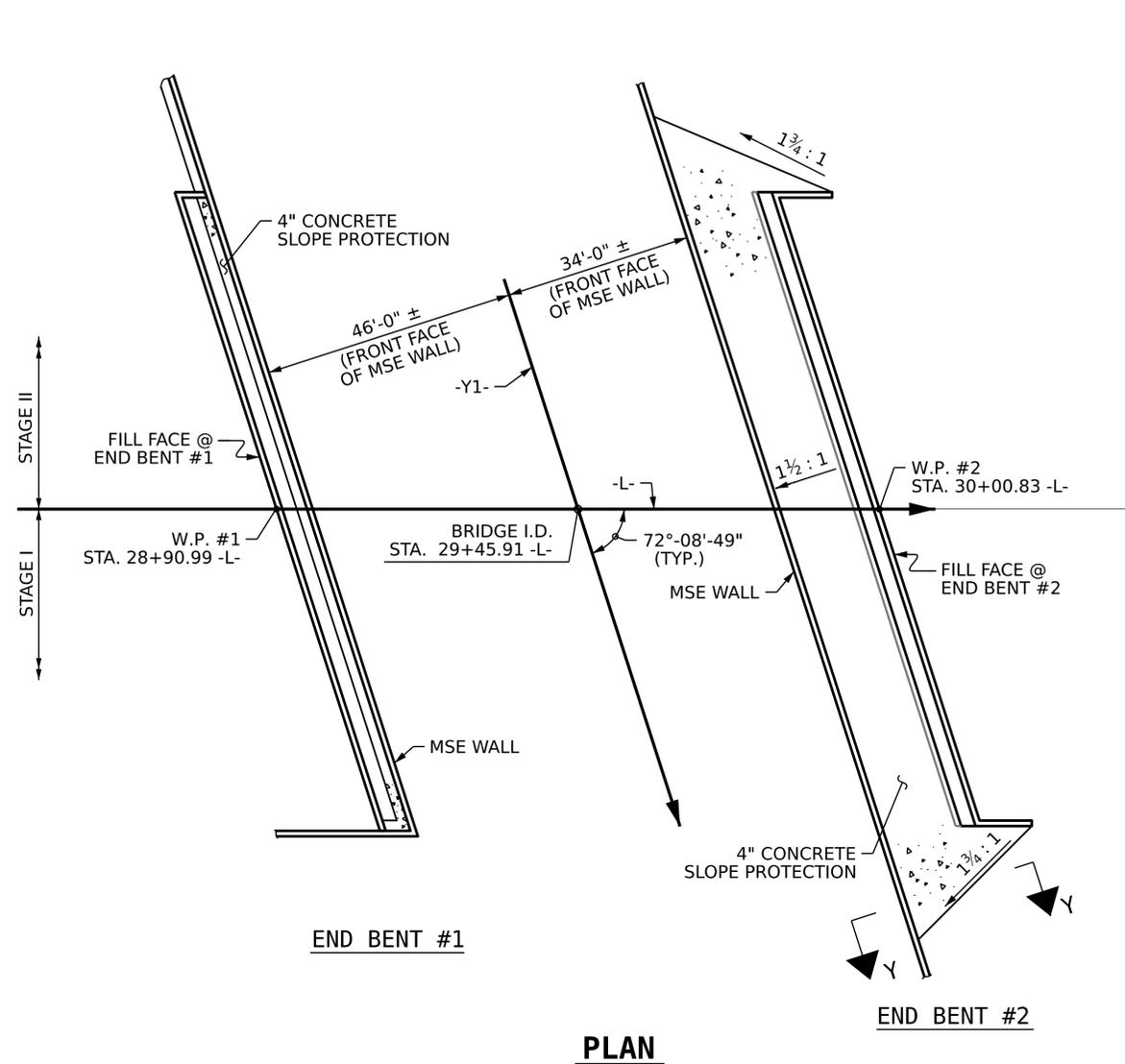
SUBSTRUCTURE

END BENT #2

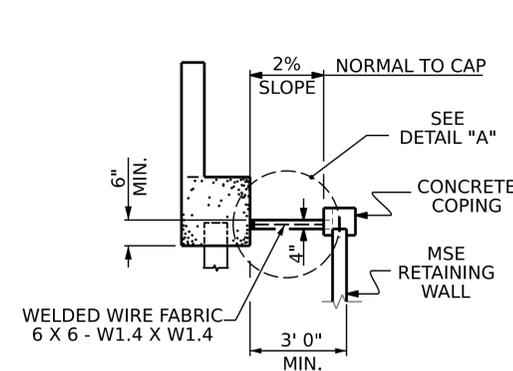
DRAWN BY: S.A. HERNANDEZ DATE: 06/2024
CHECKED BY: A. SORSENGINH DATE: 07/2024
DESIGN ENGINEER OF RECORD: A. SORSENGINH DATE: 07/2024

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS 32	
2			4				

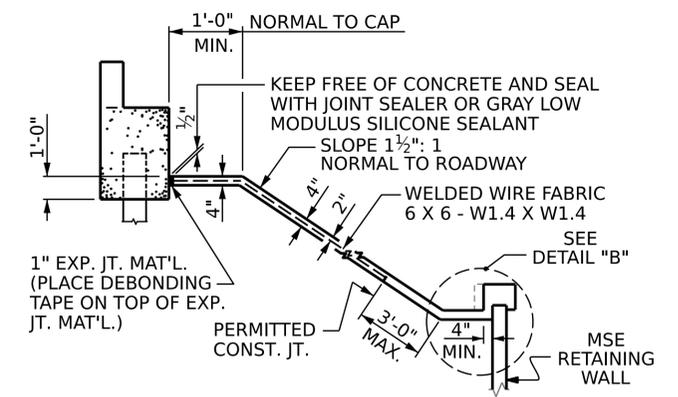
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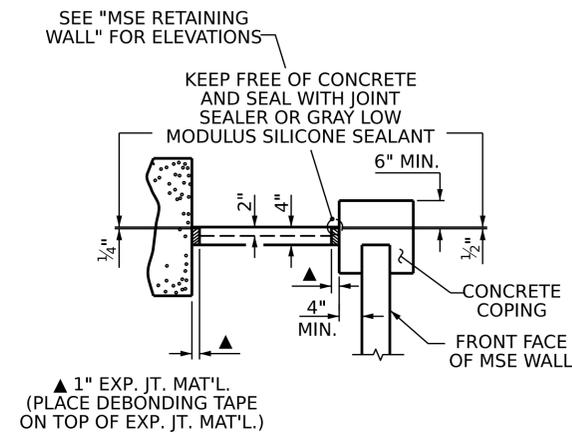
PLAN



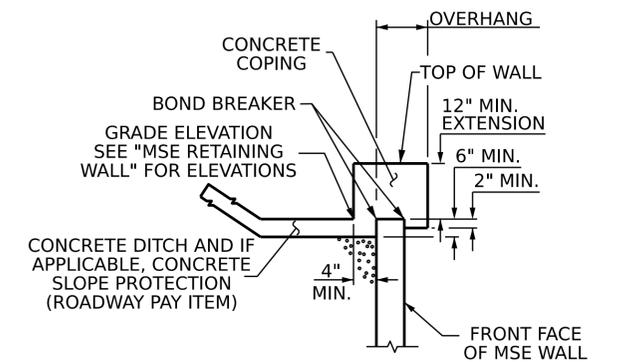
**SECTION ALONG C-C -
END BENT 1**



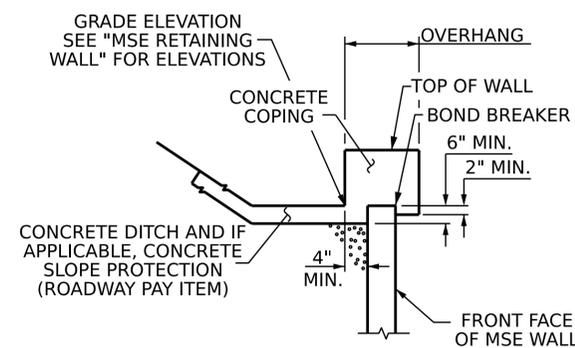
**SECTION ALONG C-C -
END BENT 2**



DETAIL A



DETAIL B



SECTION Y-Y

BRIDGE @ STA. 29+45.91 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	40	80
END BENT 2	270	540

* QUANTITY SHOWN IS BASED ON 5' POURS.

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**SLOPE PROTECTION
 DETAILS**

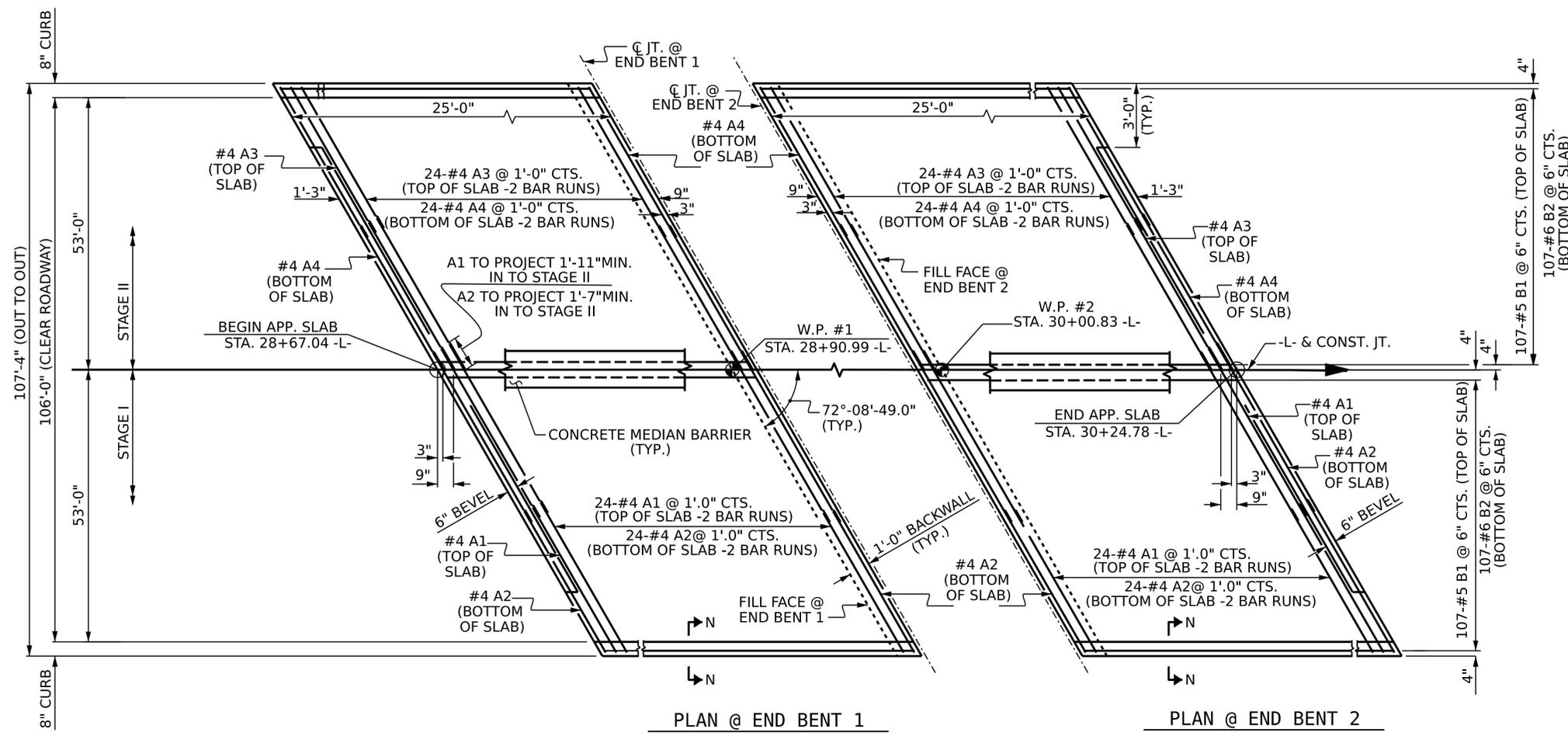
ASSEMBLED BY : S. A. HERNANDEZ DATE : 07/2024
 CHECKED BY : A. SORSENGINH DATE : 09/2024

DRAWN BY : ELR 5/92 REV. 12/21/11 MAA/GM
 CHECKED BY : GRP 6/92 REV. 1/16 MAA/TMG
 REV. 12/17 MAA/THC

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			32

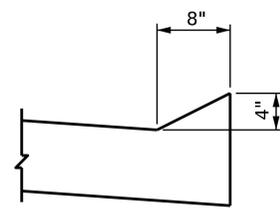
8/26/21



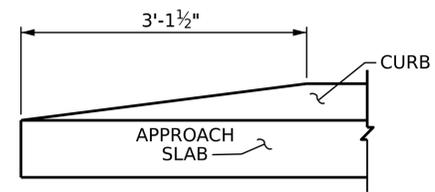
PLAN @ END BENT 1 PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

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



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

BILL OF MATERIAL FOR ONE APPROACH SLAB (2 REQ'D)

STAGE I (2 REQ'D)						STAGE II (REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	52	#4	STR	30'-1"	1045	*A3	52	#4	STR	29'-1"	1010
A2	52	#4	STR	29'-9"	1033	A4	52	#4	STR	28'-11"	1004
*B1	107	#5	STR	24'-2"	2697	*B1	107	#5	STR	24'-2"	2697
B2	107	#6	STR	24'-8"	3964	B2	107	#6	STR	24'-8"	3964
REINFORCING STEEL				LBS. 4997		REINFORCING STEEL				LBS. 4968	
* EPOXY COATED REINFORCING STEEL				LBS. 3742		* EPOXY COATED REINFORCING STEEL				LBS. 3707	
CLASS AA CONCRETE				C. Y. 58.3		CLASS AA CONCRETE				C. Y. 58.3	

NOTES

- FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.
- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL OR PARAPET AND END POST.
- 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.
- WITH FOAM JOINT SEAL
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**

SHEET 1 OF 4



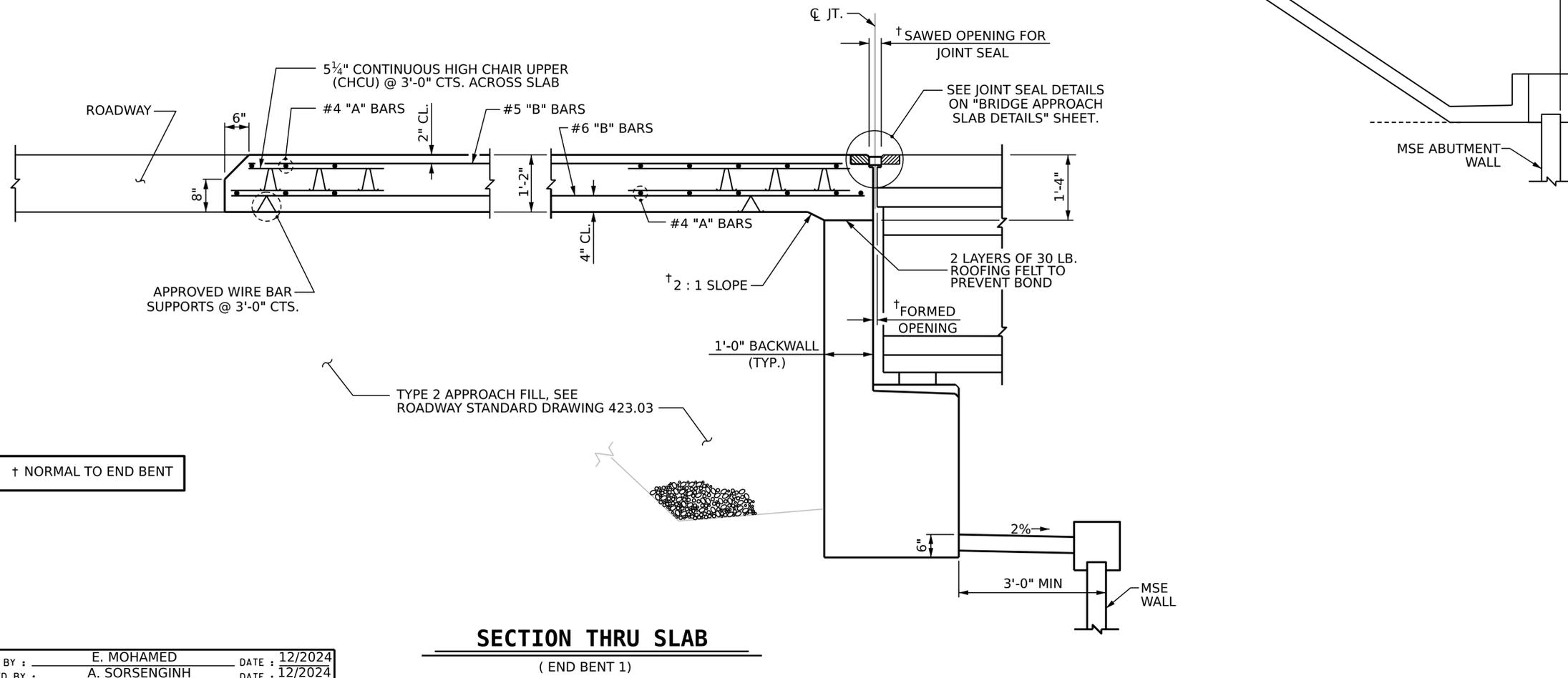
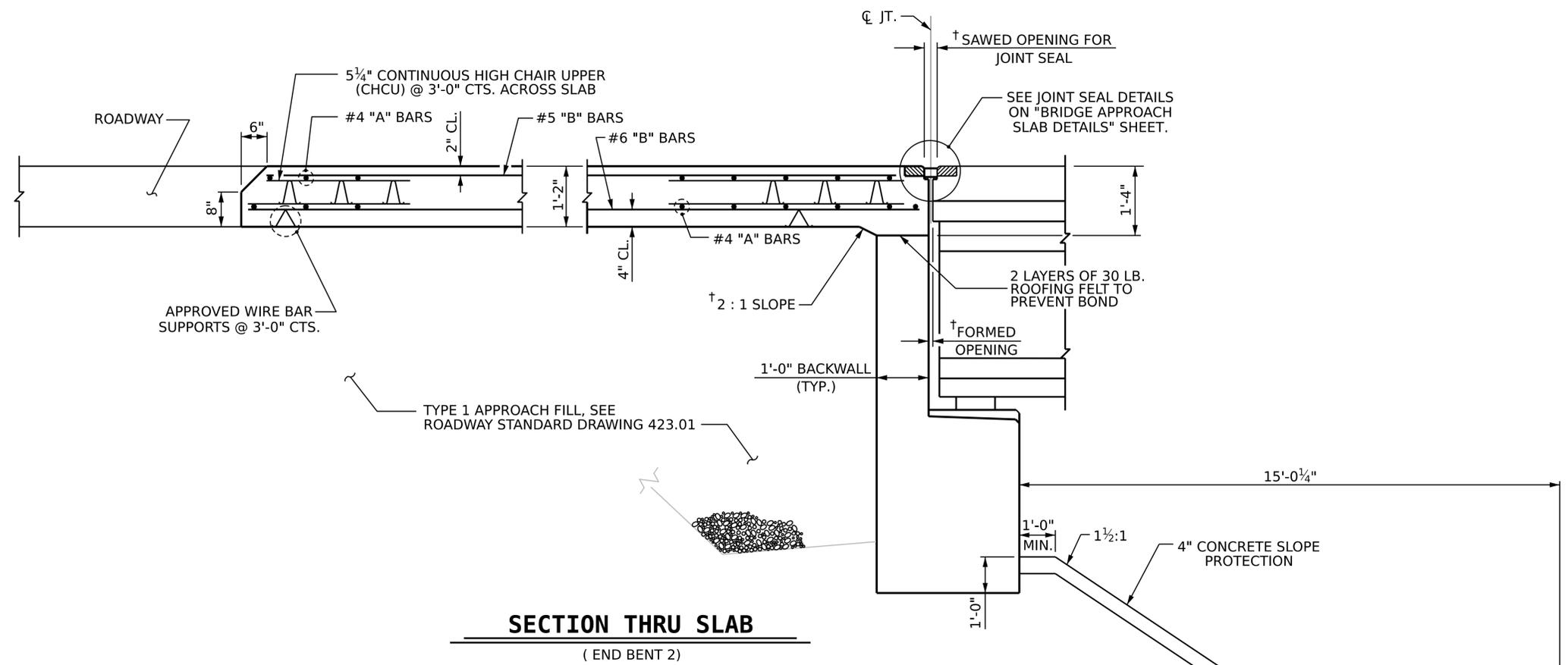
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29	
1			3			TOTAL SHEETS	
2			4			32	

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DRAWN BY : **E. MOHAMED** DATE : **09/2024**
 CHECKED BY : **A. SORSENGINH** DATE : **10/2024**
 DESIGN ENGINEER OF RECORD: **E. BAYISSA** DATE : **10/2024**

8/26/21



PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**
 SHEET 2 OF 4

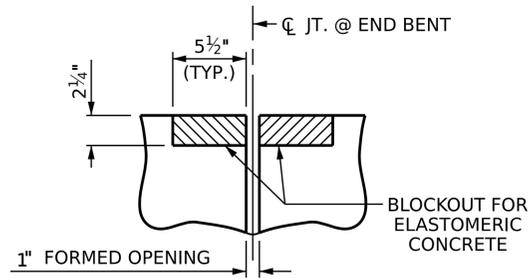


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT**

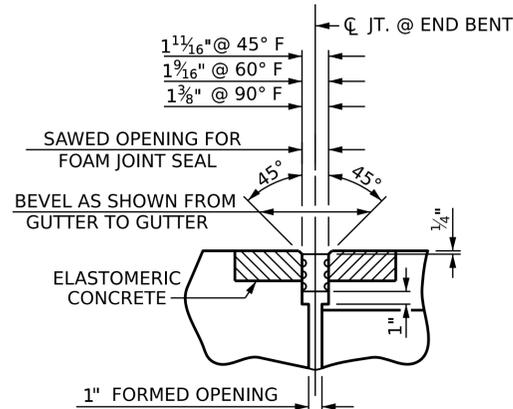
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 CHECKED BY : **A. SORSENGINH** DATE : **12/2024**
 DESIGN ENGINEER OF RECORD : **E. BAYISSA** DATE : **12/2024**

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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			

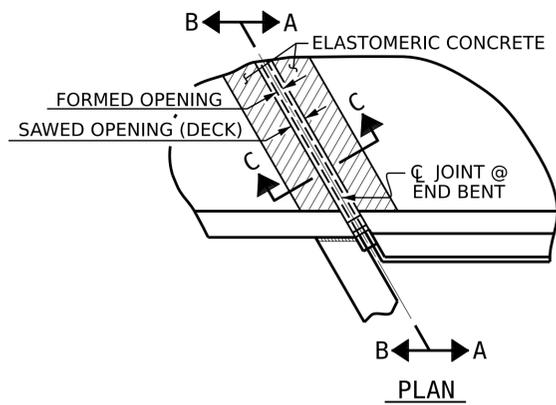
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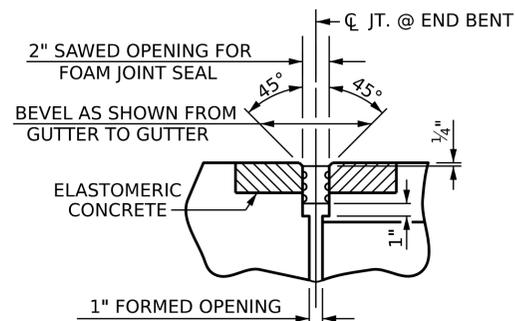
SECTION C-C
FOAM JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



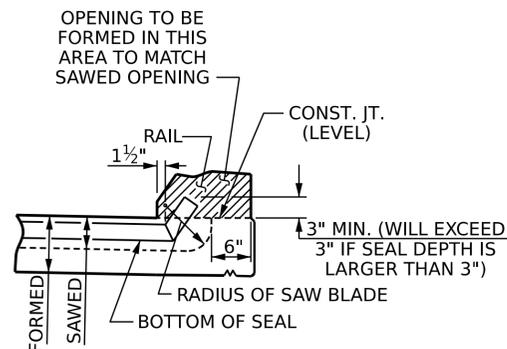
SECTION C-C
FOAM JOINT SEAL
(EXPANSION)



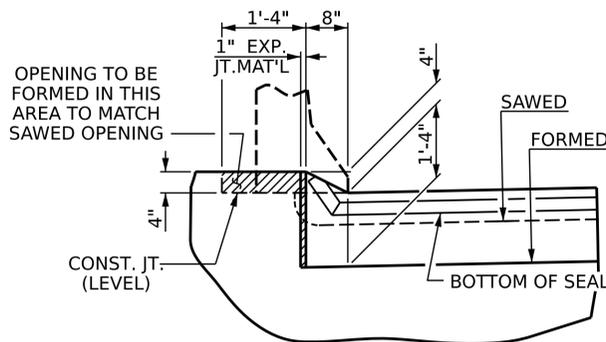
PLAN



SECTION C-C
FOAM JOINT SEAL
(FIXED)



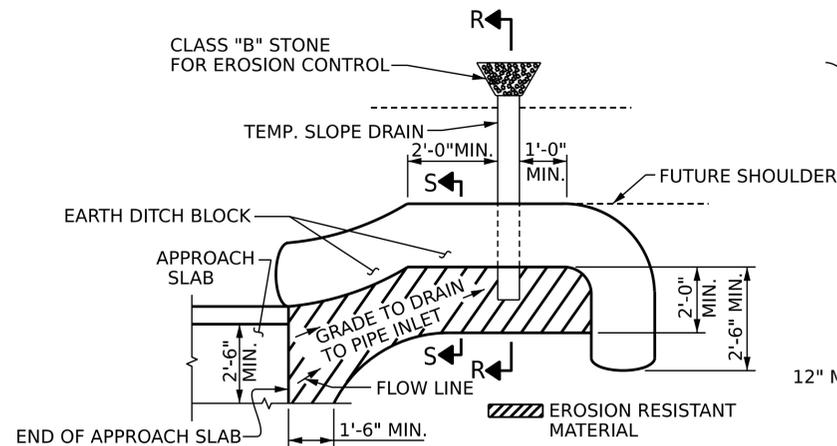
SECTION A-A



SECTION B-B

JOINT SEAL DETAILS @ END BENT

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.
THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

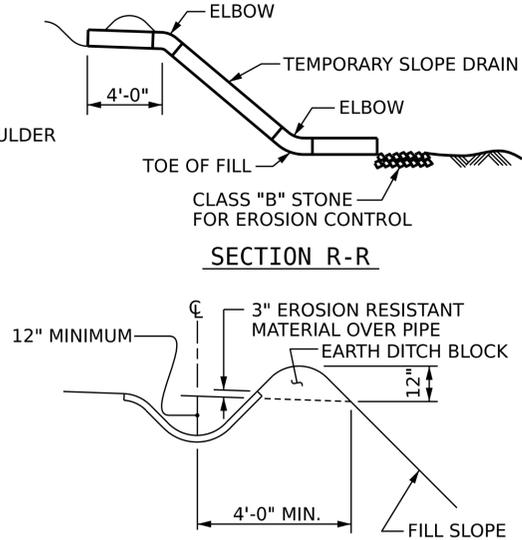


PLAN VIEW

NOTE:
IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

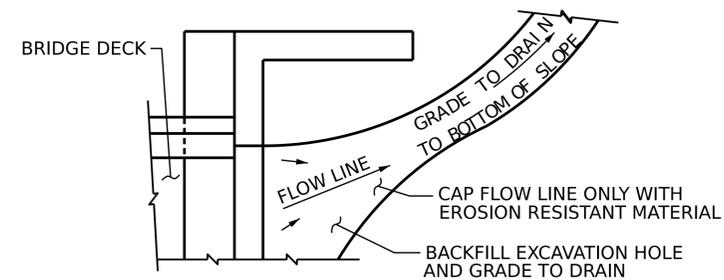
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION R-R

SECTION S-S



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

ELASTOMERIC CONCRETE		
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)	
	STAGE I	STAGE II
1	9.56	9.56
2	9.56	9.56
TOTAL	19.12	19.12

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

ASSEMBLED BY: E. MOHAMED	DATE: 10/2024
CHECKED BY: A. SORSENGINH	DATE: 10/2024
DRAWN BY: FCJ 11/88	REV. 6/13 MAA/GM
CHECKED BY: ARB 11/88	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

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PROJECT NO. **BR-0015**
DAVIDSON COUNTY
STATION: **29+45.91 -L-**

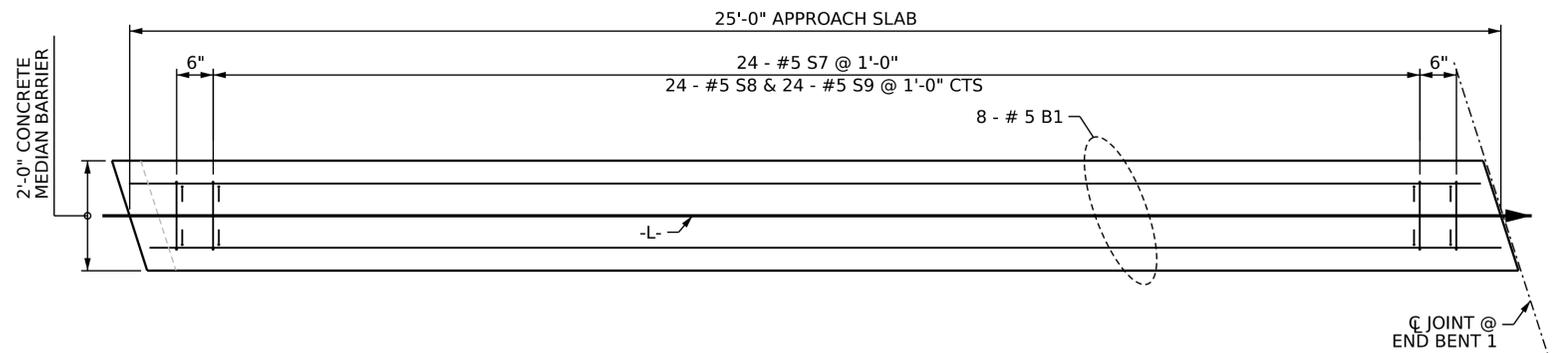
SHEET 3 OF 4



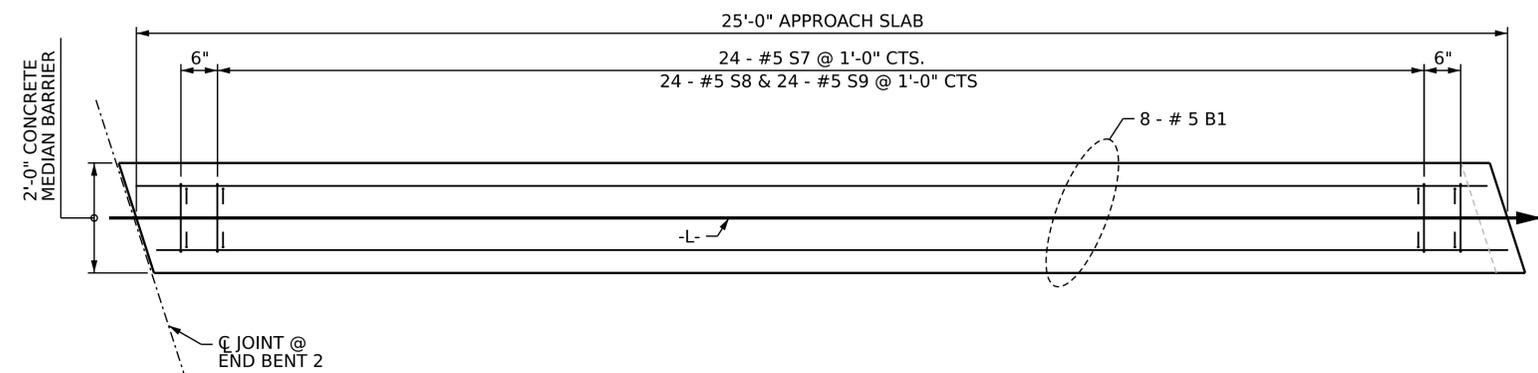
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

BRIDGE APPROACH SLAB DETAILS

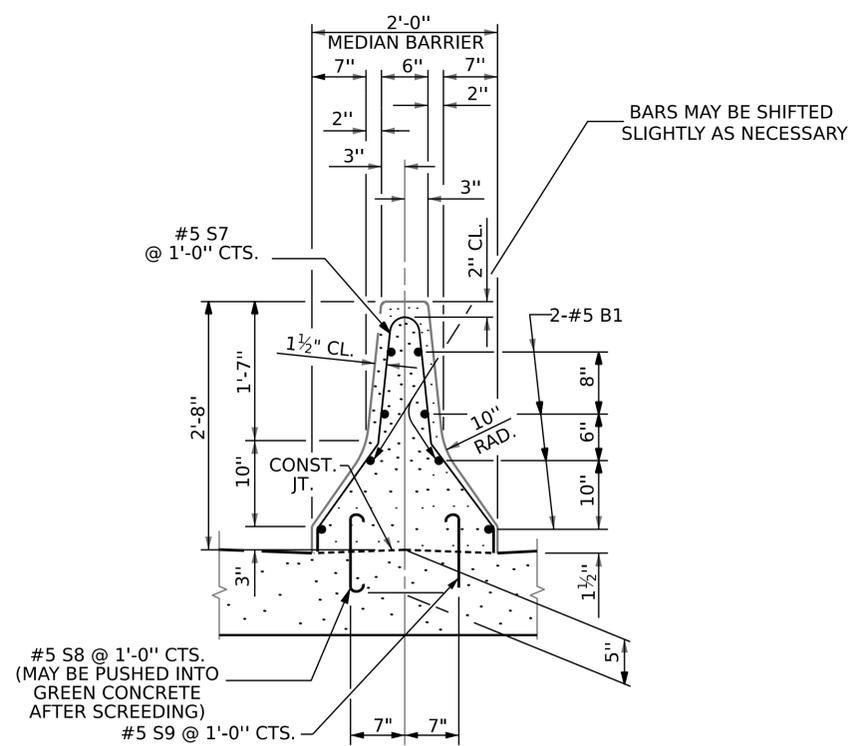
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	
1			3	S-31
2			4	TOTAL SHEETS 32



PLAN OF MEDIAN BARRIER RAIL - END BENT 1



PLAN OF MEDIAN BARRIER RAIL - END BENT 2



SECTION THRU 2'-0" MEDIAN BARRIER

NOTES

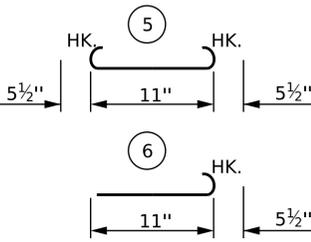
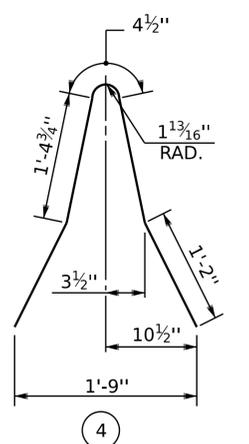
THE MEDIAN BARRIER SHALL NOT BE CAST UNTIL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN MEDIAN BARRIER RAILS SHALL BE EPOXY COATED.

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

LINEAR FOOT QUANTITIES FOR BARRIER RAILS INCLUDE RAILS ON APPROACH SLABS. REINFORCING STEEL AND CONCRETE QUANTITIES FOR APPROACH SLAB BARRIER RAILS ARE INCLUDED IN BILL OF MATERIAL FOR THE APPROACH SLABS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

2'-0" CONCRETE MEDIAN BARRIER					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S7	48	#5	4	5'-6"	275
* S8	48	#5	5	1'-10"	92
* S9	48	#5	6	1'-6"	75
* B1	16	#5	STR	24'-7"	410
* EPOXY COATED REINFORCING STEEL					852 LBS.
CLASS AA CONCRETE					4.7 CU. YDS.
CONCRETE MEDIAN RAIL					50.0 LIN. FT.

PROJECT NO. **BR-0015**
DAVIDSON COUNTY
 STATION: **29+45.91 -L-**

SHEET 4 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**APPROACH SLAB
 CONCRETE MEDIAN
 BARRIER RAIL**

DRAWN BY: S.A. HERNANDEZ DATE: 09/2024
 CHECKED BY: A. SORSENGINH DATE: 09/2024
 DESIGN ENGINEER OF RECORD: E. BAYISSA DATE: 09/2024

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

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ...	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$ " OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.