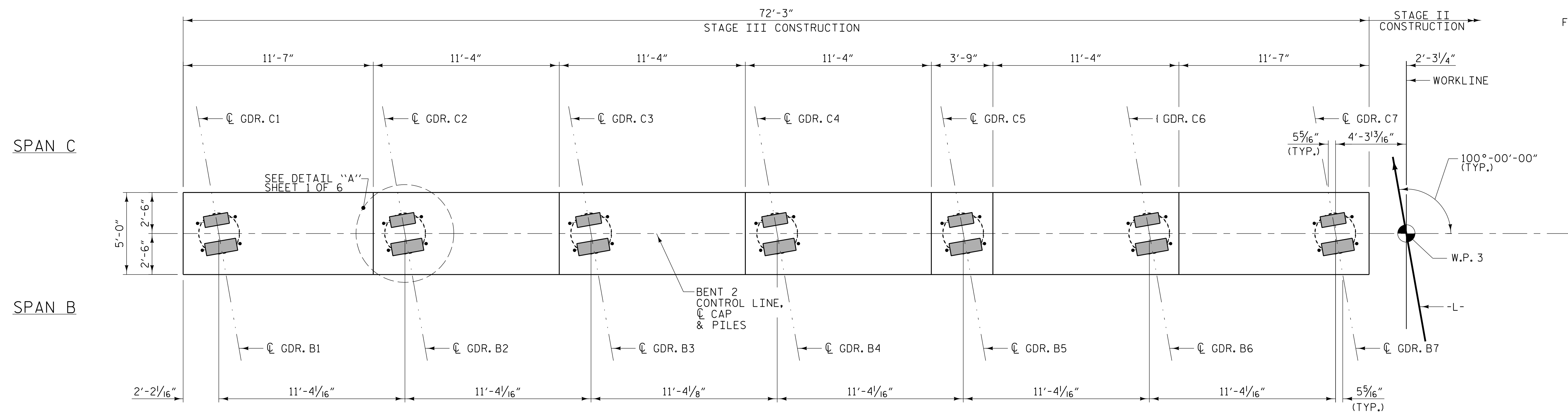
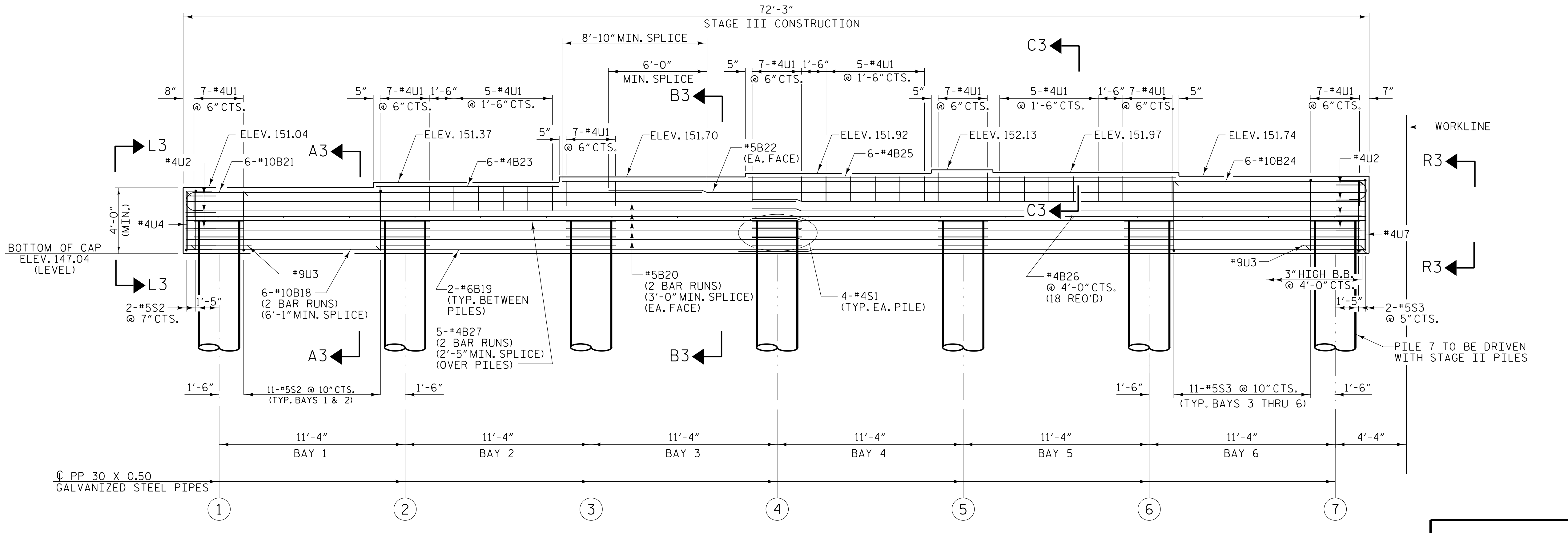




NOTES  
FOR NOTES SEE SHEET 1 OF 6.



PLAN



ELEVATION

⊕ INDICATES PILE NUMBER

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NC License # F-13333

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 586+14.00 -L- POT

SHEET 5 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT 2  
 STAGE III

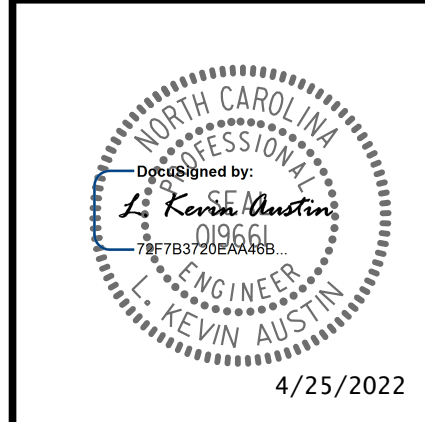
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **S5-51**  
TOTAL SHEETS 64

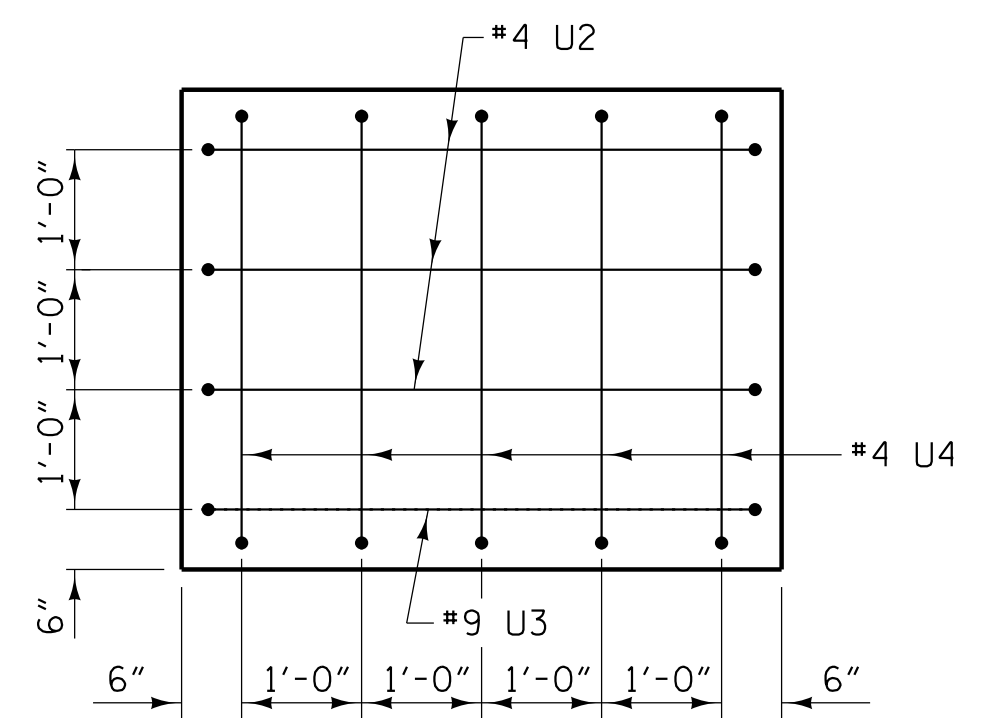
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DRAWN BY : J.A. PANDOLI DATE : 2/22  
 CHECKED BY : G.F. WILSON DATE : 2/22  
 DESIGN ENGINEER OF RECORD: L.K. AUSTIN DATE : 2/22

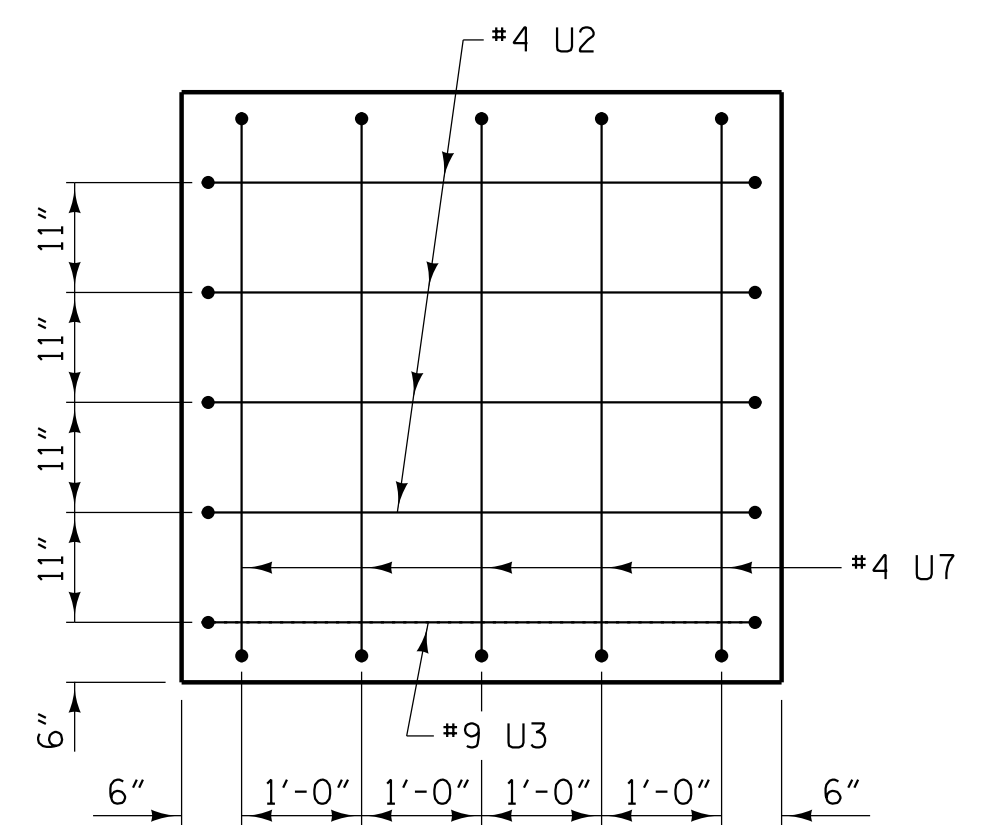
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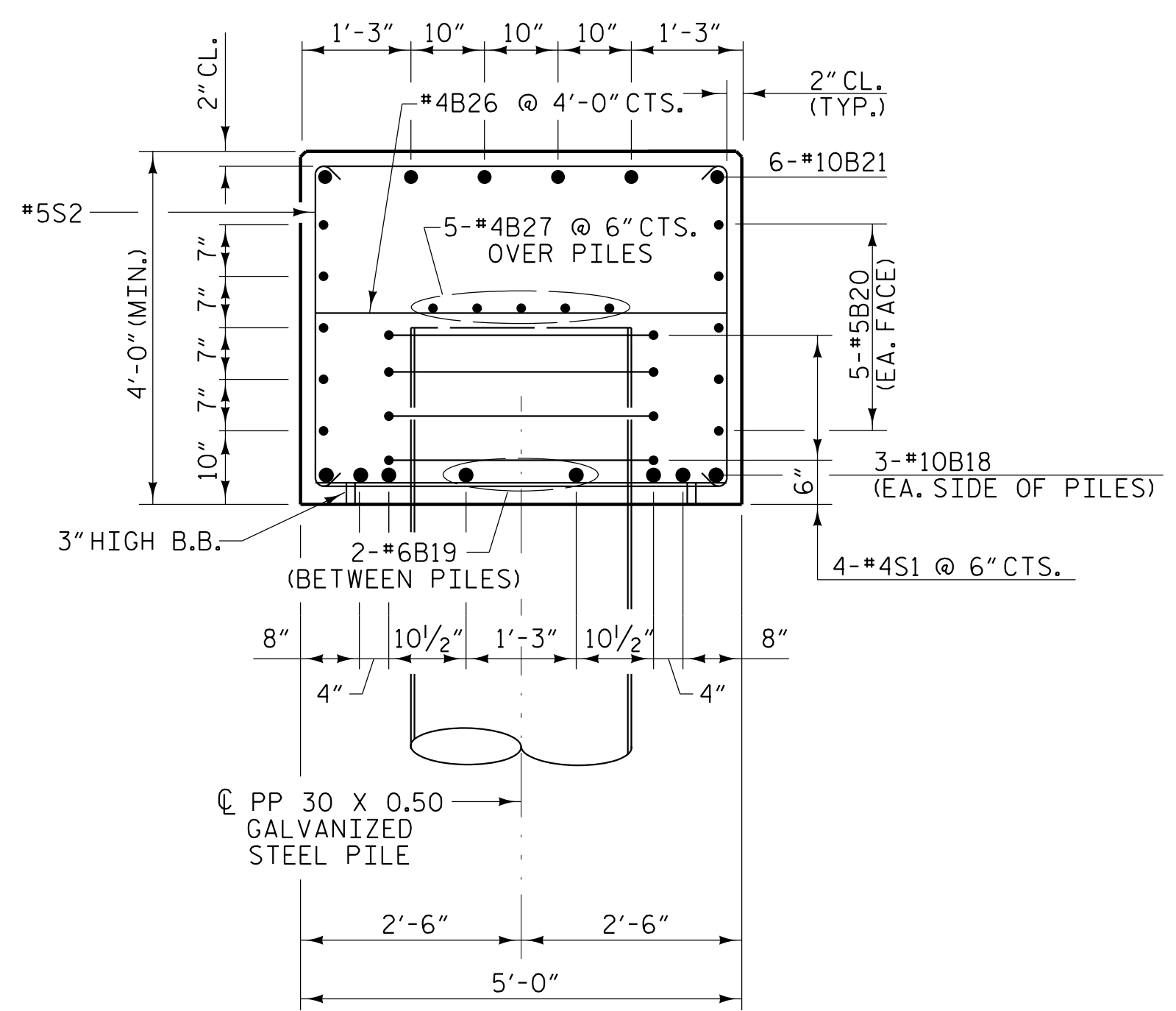
4/25/2022



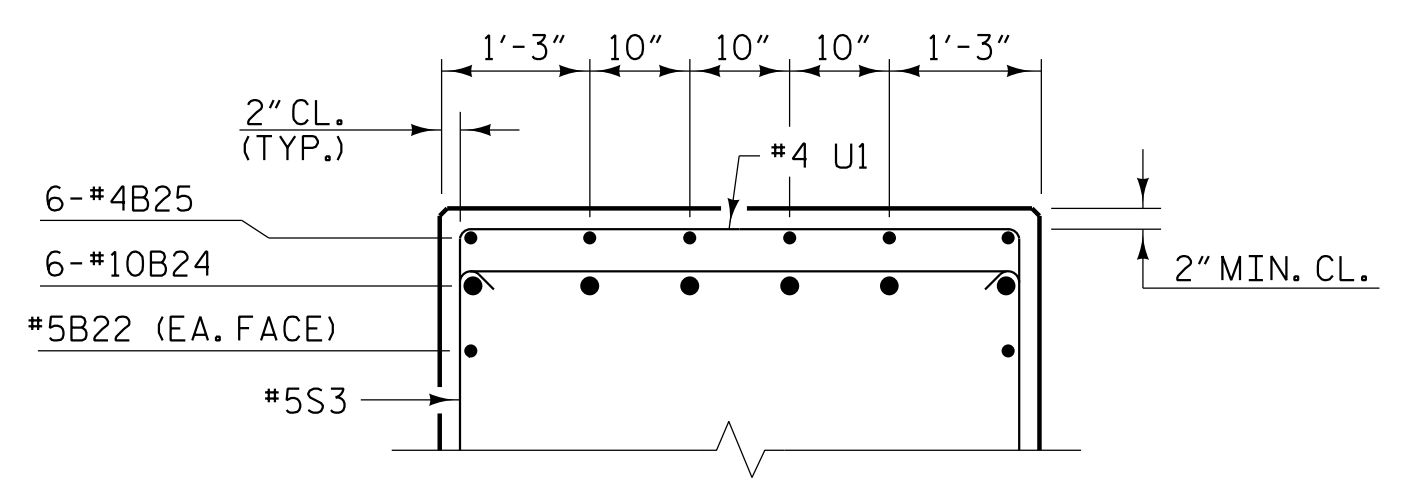
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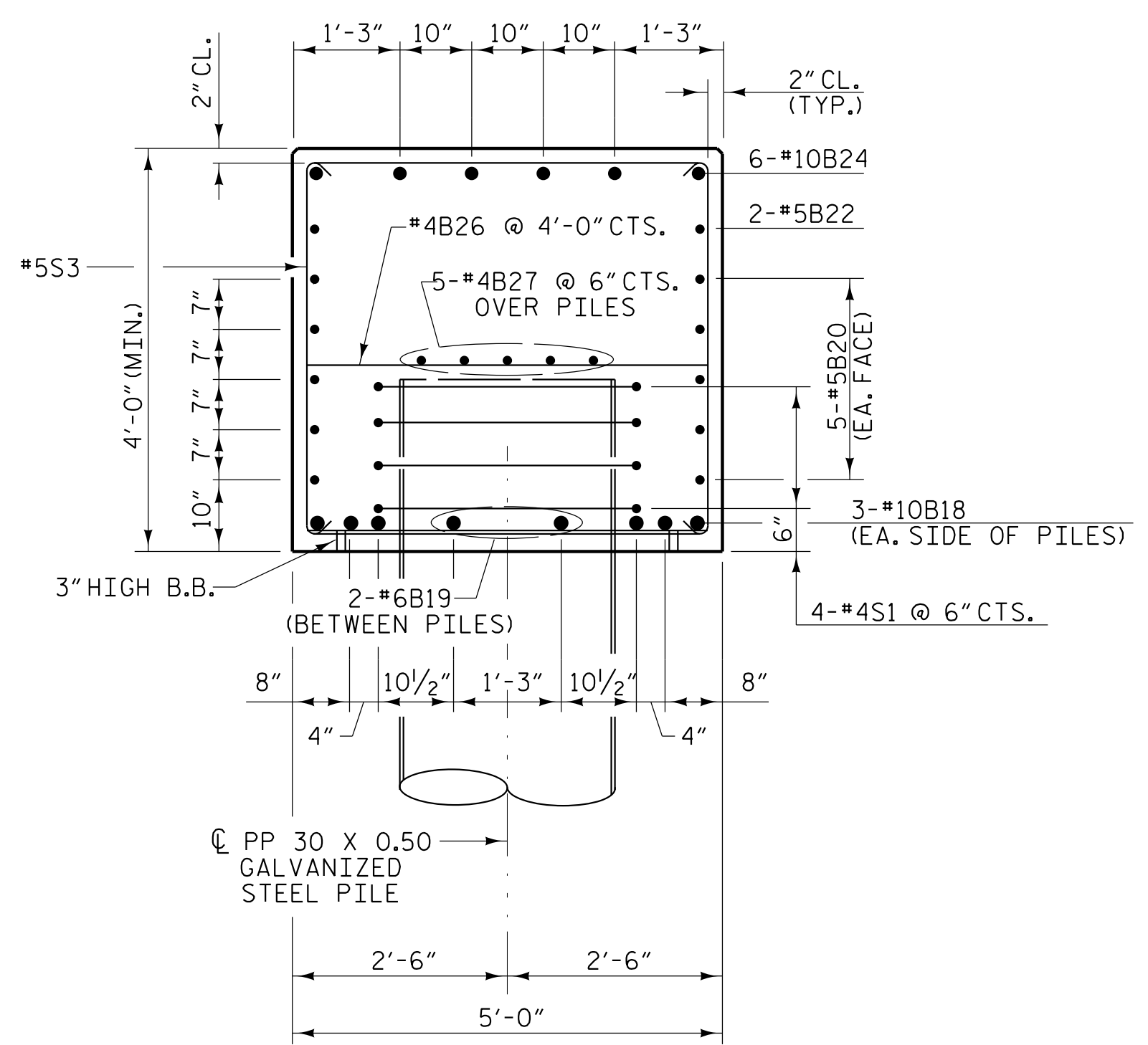
VIEW R3-R3



SECTION A3-A3

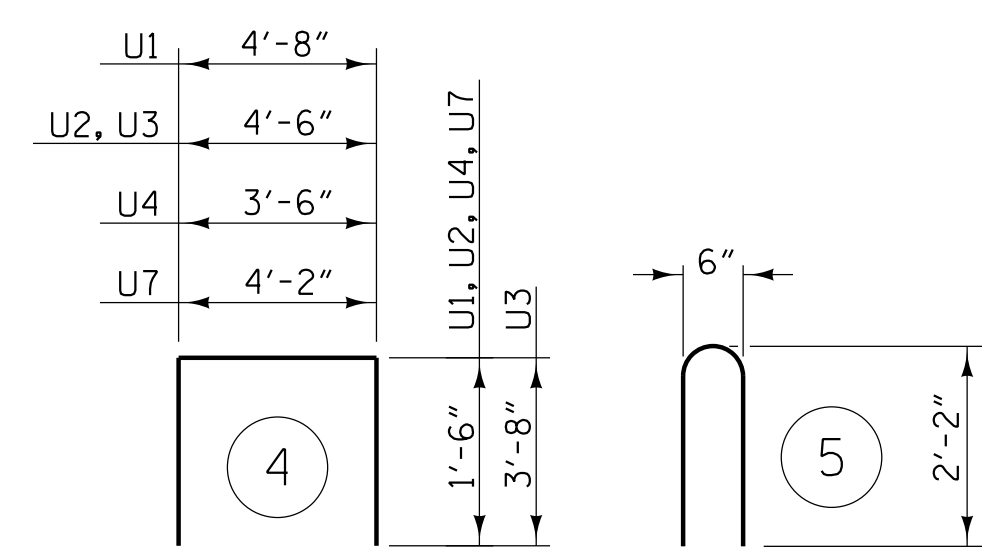
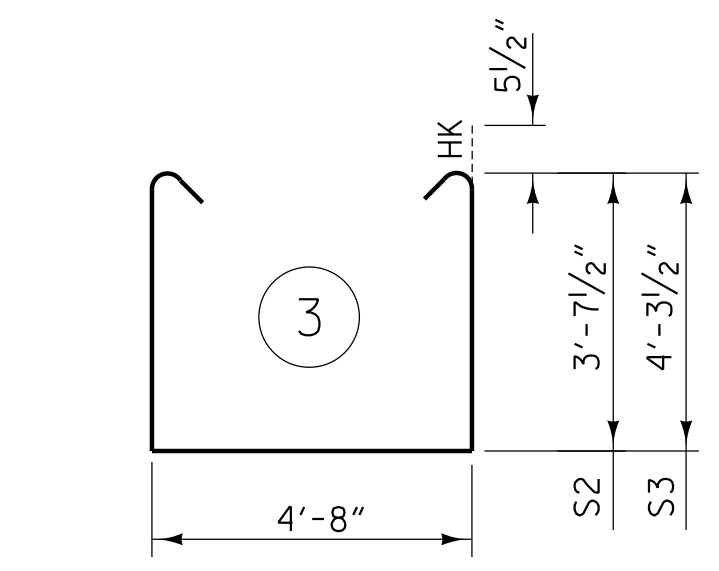
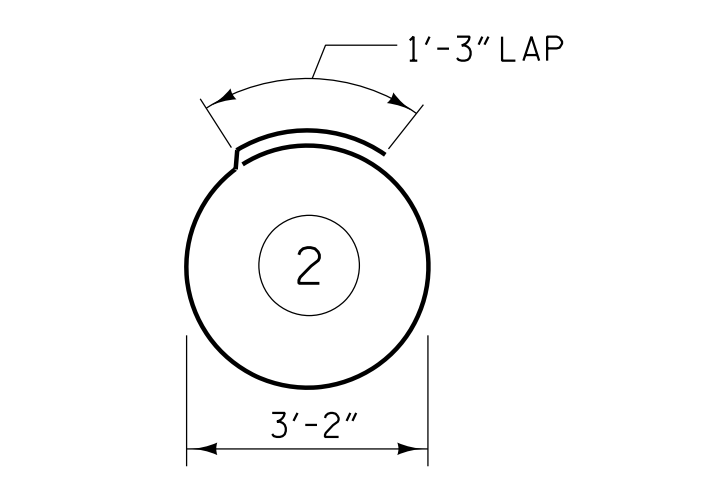
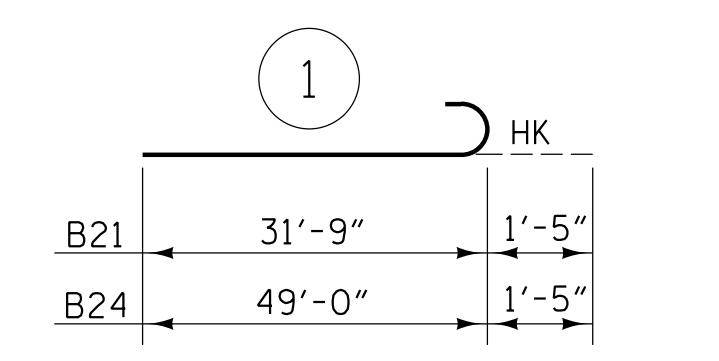


PARTIAL SECTION C3-C3



SECTION B3-B3

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

BENT 2 - STAGE III					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B18	12	#10	STR	39'-0"	2014
B19	12	#6	STR	8'-6"	153
B20	20	#5	STR	37'-6"	782
B21	6	#10	1	33'-2"	856
B22	2	#5	STR	46'-2"	96
B23	6	#4	STR	11'-2"	45
B24	6	#10	1	50'-5"	1302
B25	6	#4	STR	26'-1"	105
B26	18	#4	STR	4'-8"	56
B27	10	#4	STR	37'-2"	248
S1	28	#5	2	10'-8"	312
S2	24	#5	3	12'-10"	321
S3	46	#5	3	14'-2"	680
U1	64	#4	4	7'-8"	328
U2	7	#4	4	7'-6"	35
U3	2	#9	4	11'-10"	80
U4	5	#4	4	6'-6"	22
U7	5	#4	4	7'-2"	24
U8	112	#6	5	4'-10"	813

TOTAL REINFORCING STEEL 8272 LB.

TOTAL CLASS "A" CONCRETE 61.7 CU. YDS.

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NC License # F-1335  
Formerly CALYX Engineers & Consultants

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ROBESON COUNTY  
STATION: 586+14.00 -L- POT

SHEET 6 OF 6

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 2  
DETAILS  
STAGE III

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

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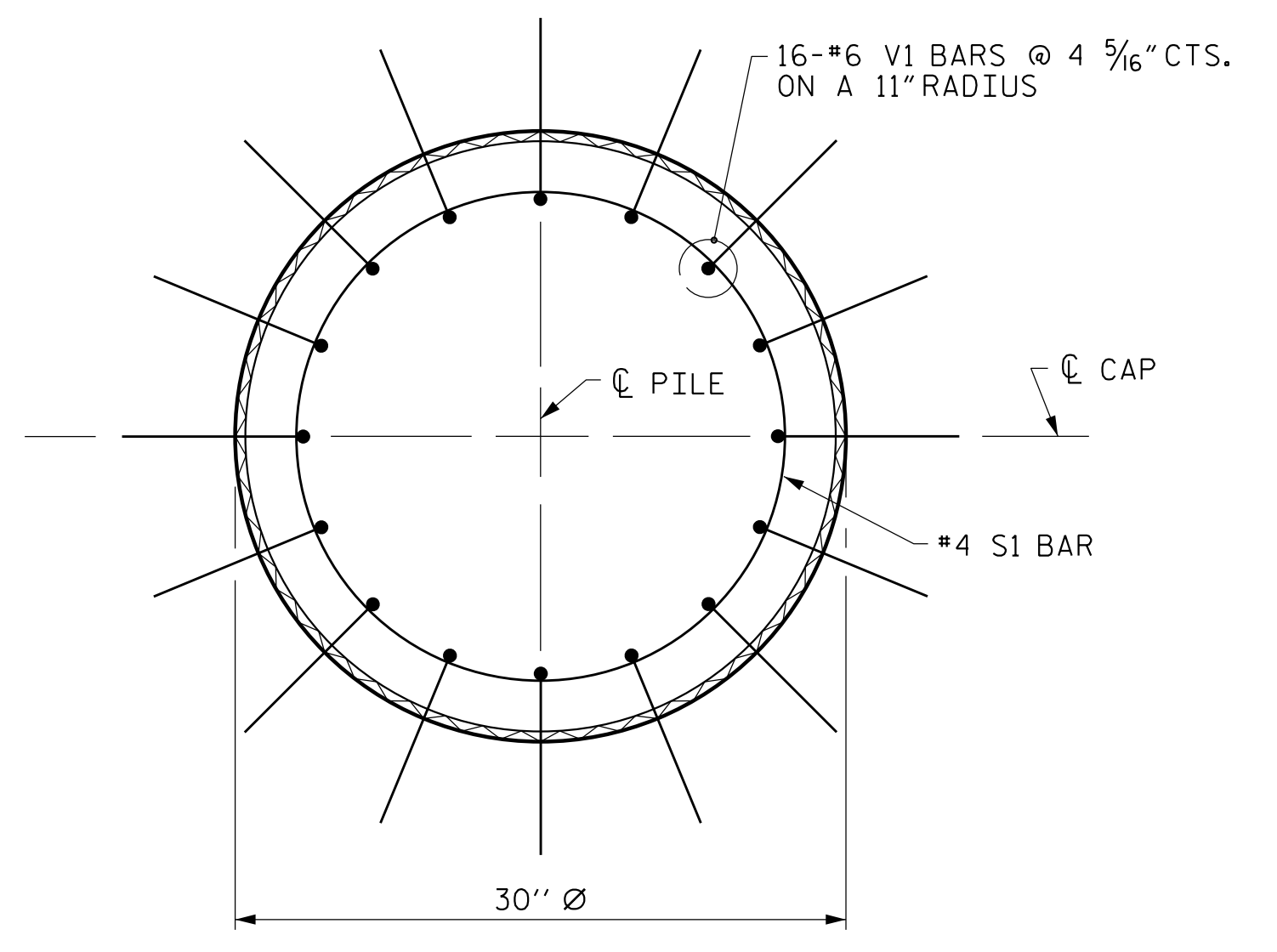
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CHECKED BY: G. F. WILSON DATE: 2/22  
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 2/22



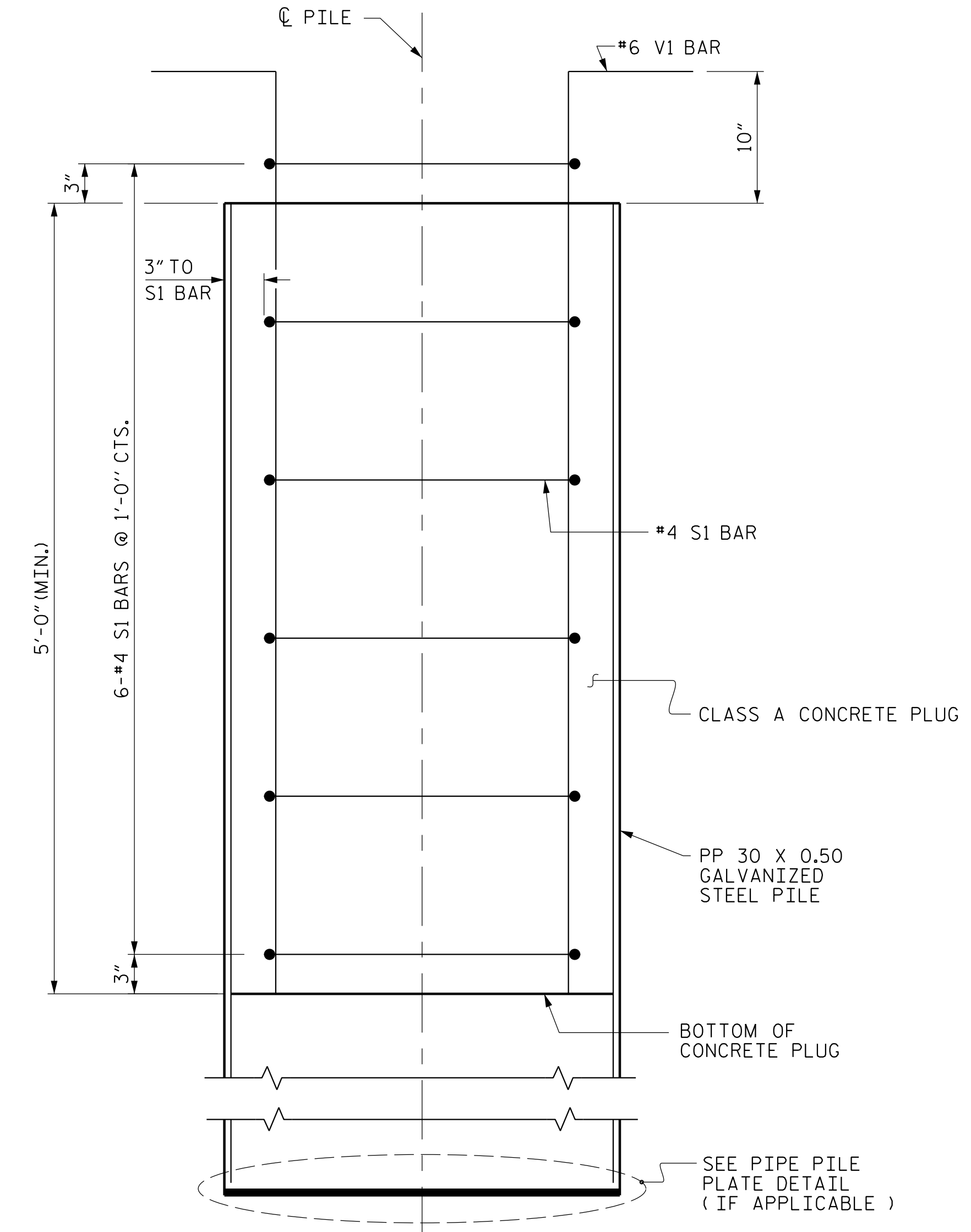
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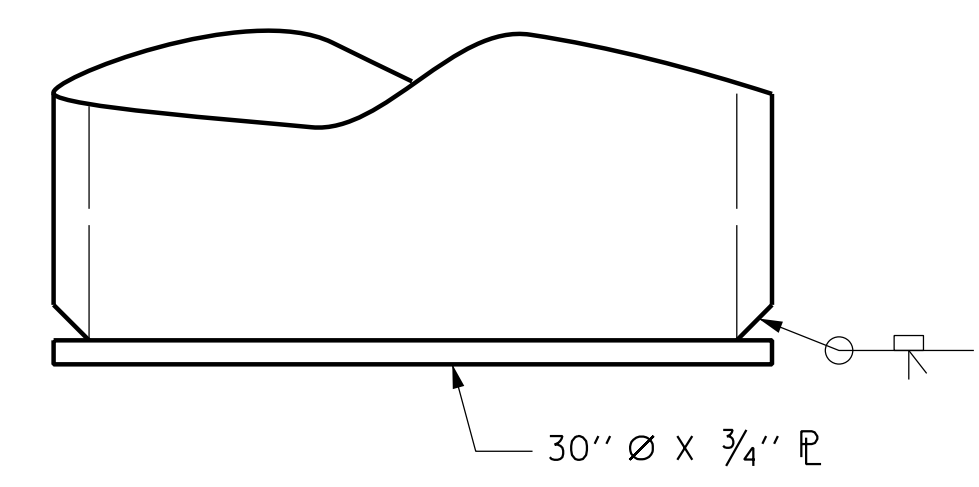


PLAN

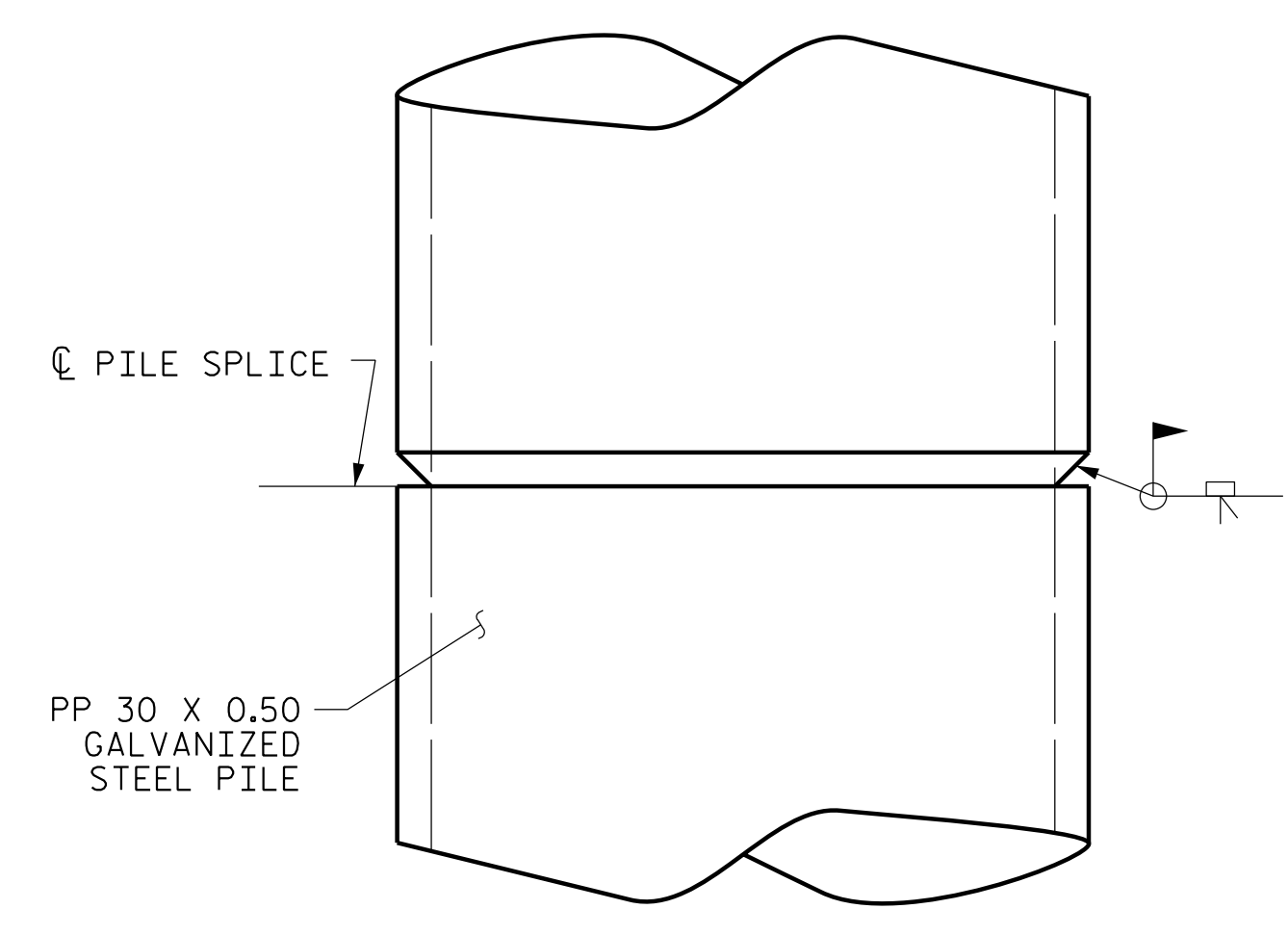


ELEVATION

PP 30 X 0.50 GALVANIZED STEEL PILE  
(OPEN OR CLOSED END)



PIPE PILE PLATE DETAIL  
( IF APPLICABLE )



PIPE PILE SPLICE DETAIL

NOTES

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

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

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

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

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

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

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

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

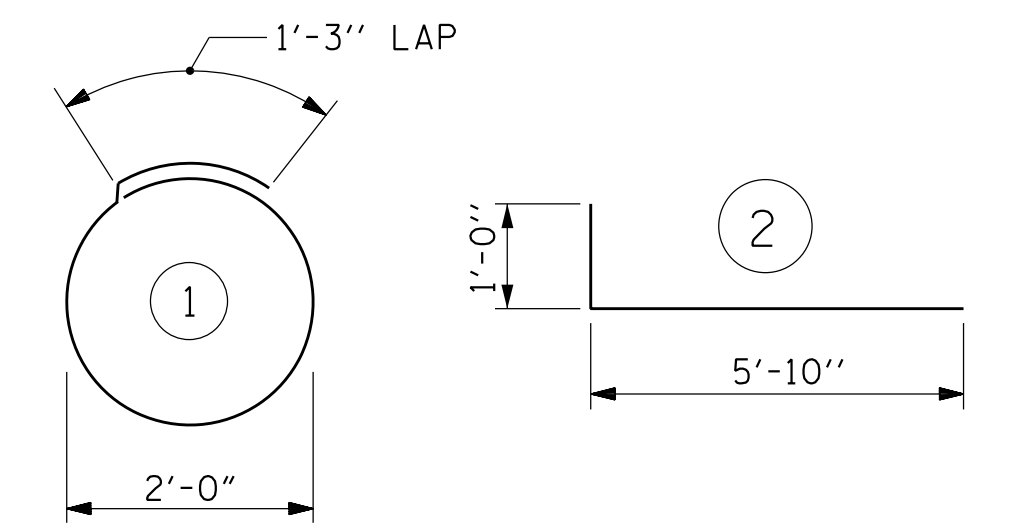
THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 30 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE  
PP 30 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	7'-7"	30
V1	16	#6	2	6'-10"	164
REINFORCING STEEL =					194 lbs

CLASS A CONCRETE  
5'-0" MINIMUM PLUG 0.8 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 586+14.00 -L- POT

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

REVISIONS				SHEET NO.	
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1			3		
2			4		

TOTAL SHEETS: 64

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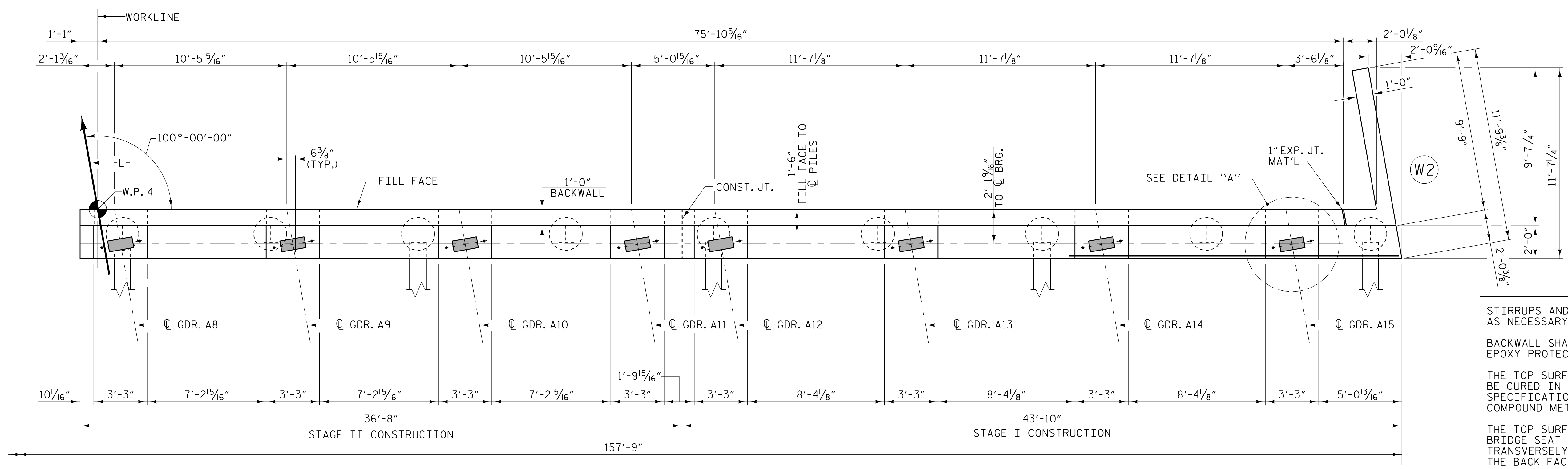
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THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:

4/24/2022

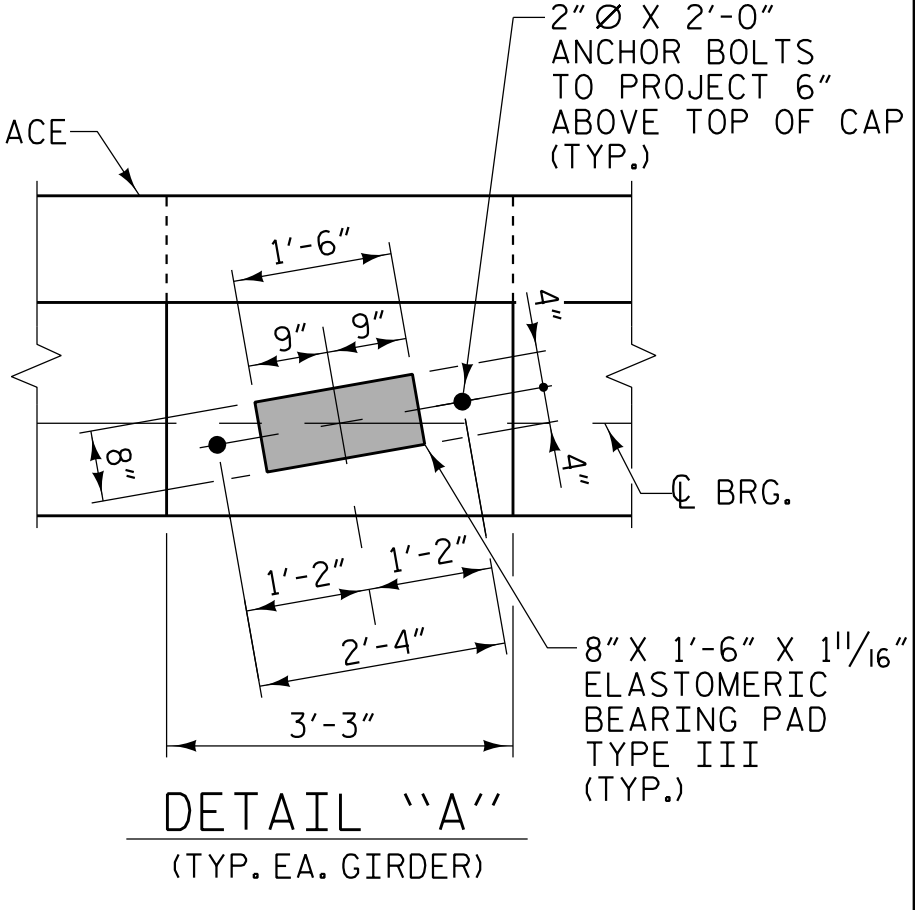
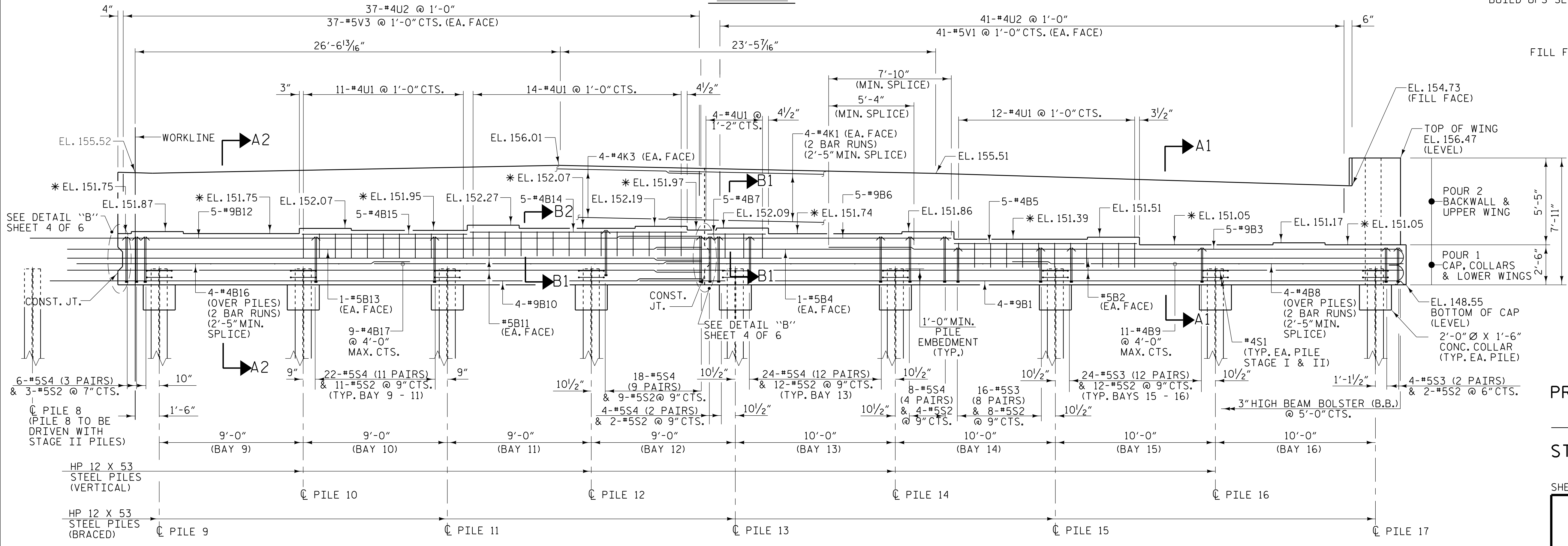




**NOTES**

- STIRRUPS AND U2 BARS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREA OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- \* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS SEE SHEETS 4 & 5 OF 6.

**PLAN**



**ELEVATION**

MIN. EXTENSION LENGTHS FROM STAGE II TO STAGE III  
 2'-7" - #4B16 & #4K3  
 3'-2" - #5B11 & #5B13  
 4'-3" - #9B10  
 5'-6" - #9B12

MIN. EXTENSION LENGTHS FROM STAGE I TO STAGE II  
 2'-7" - #4B8 & #4K1  
 3'-2" - #5B2 & #5B4  
 4'-3" - #9B1  
 5'-6" - #9B6

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PROJECT NO. **I-5987B**  
 ROBESON COUNTY  
 STATION: **586+14.00 -L- POT**

SHEET 1 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

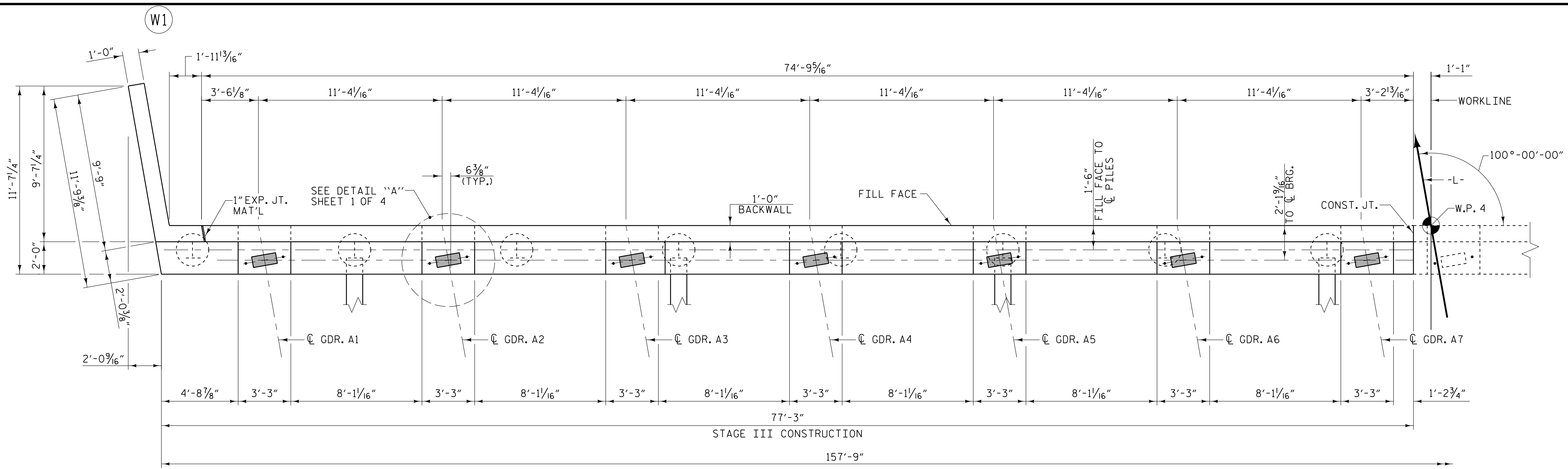
**SUBSTRUCTURE**  
**END BENT 2**  
**STAGE I & II**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			64
2			4			

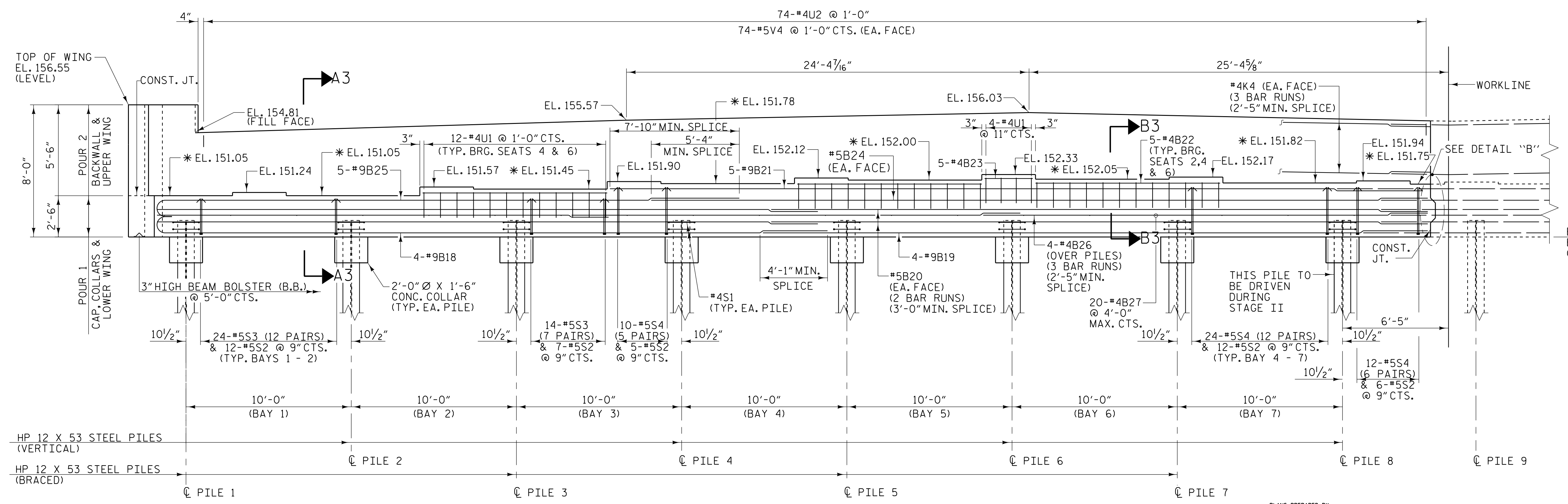
DRAWN BY: **J.A. PANDOLI** DATE: **2/22**  
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PLAN



ELEVATION

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 586+14.00 -L- POT

SHEET 2 OF 6  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2  
 STAGE III

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1			3			64
2			4			

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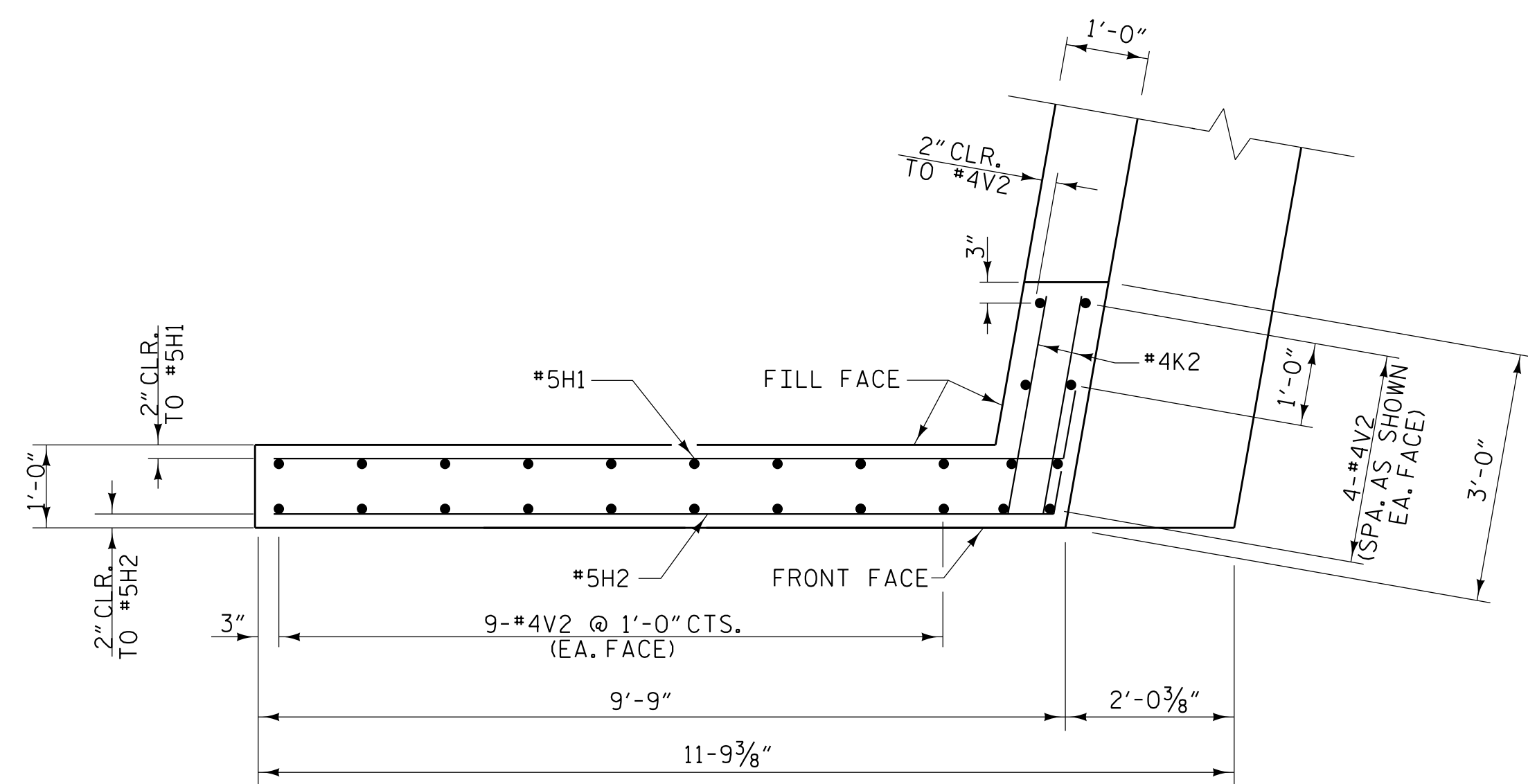


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 CHECKED BY: G.F. WILSON DATE: 2/22  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 2/22

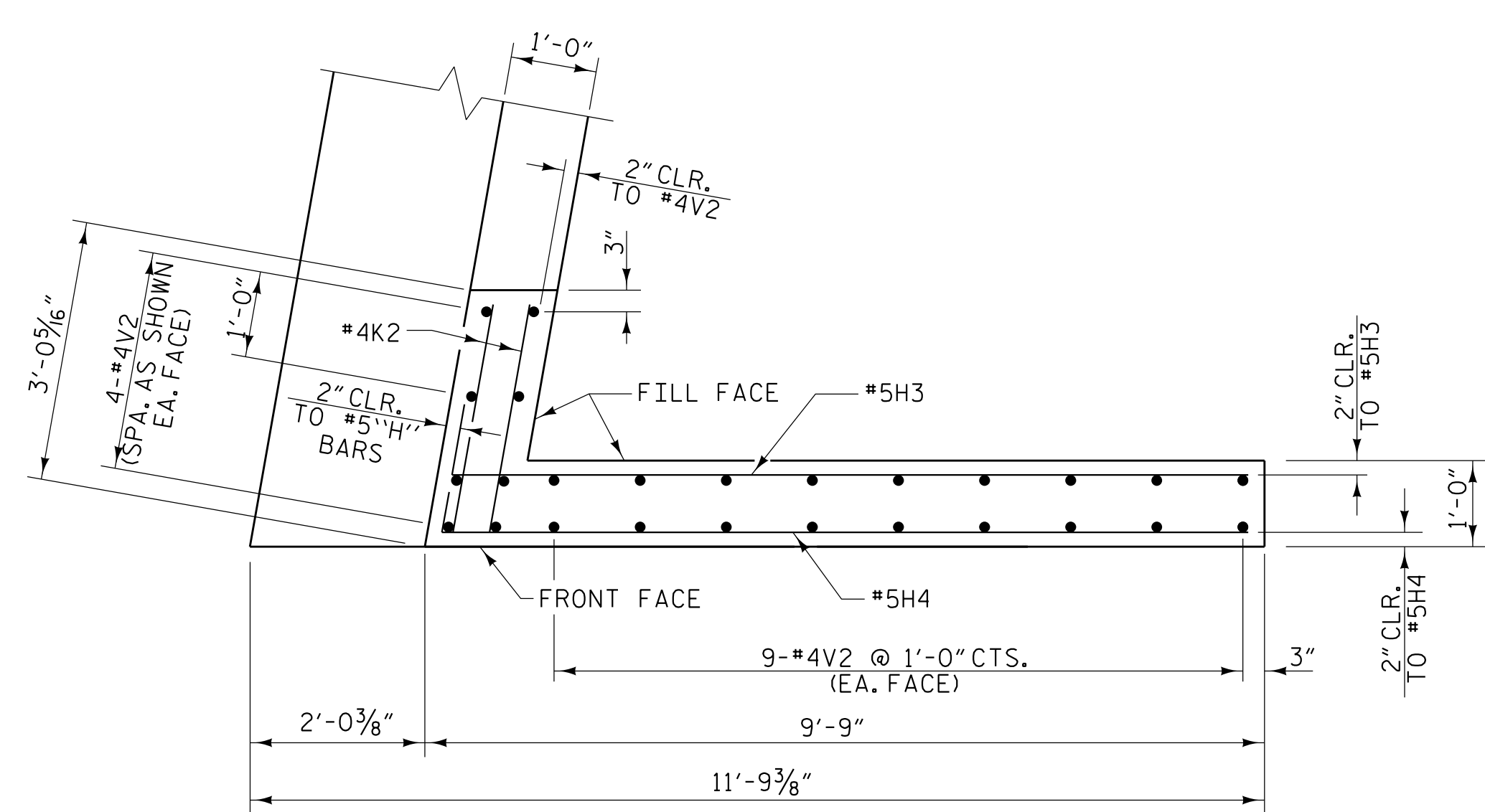
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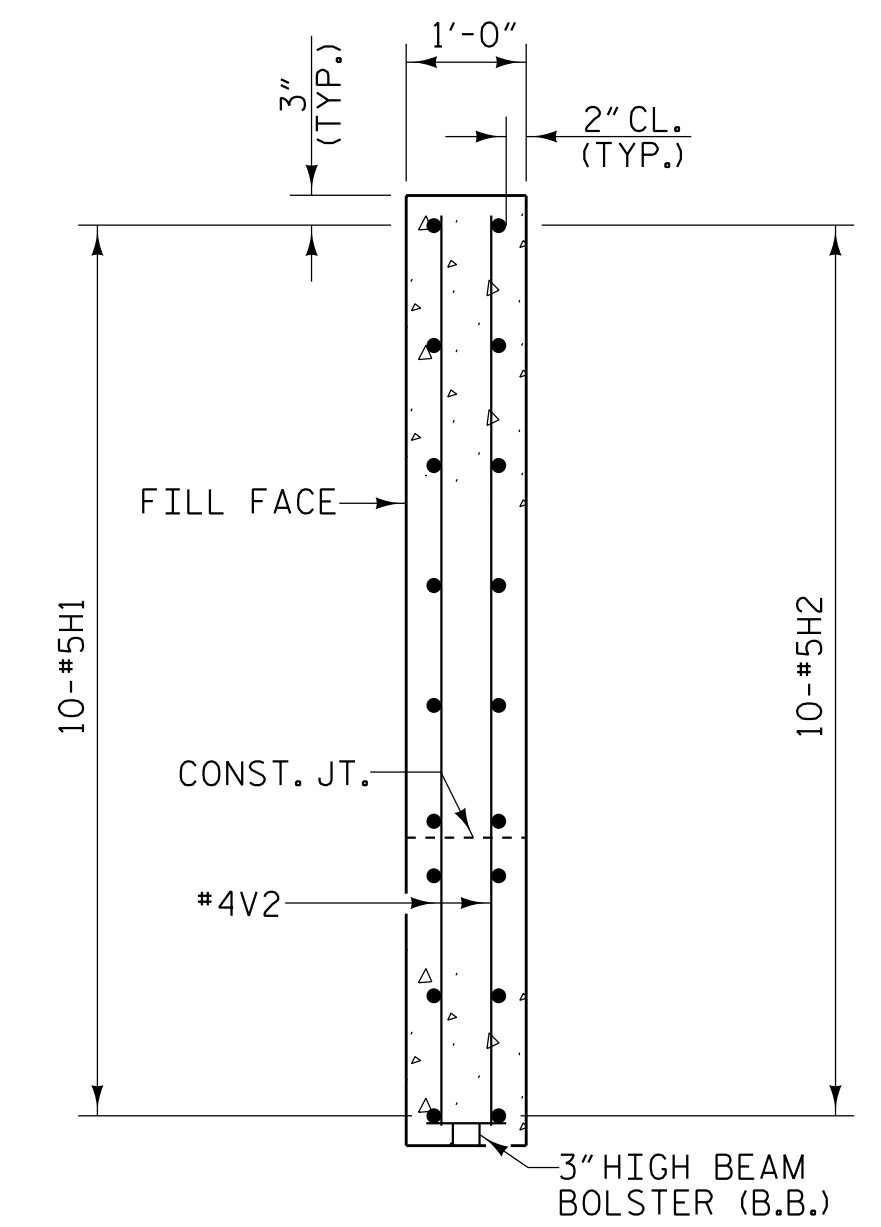




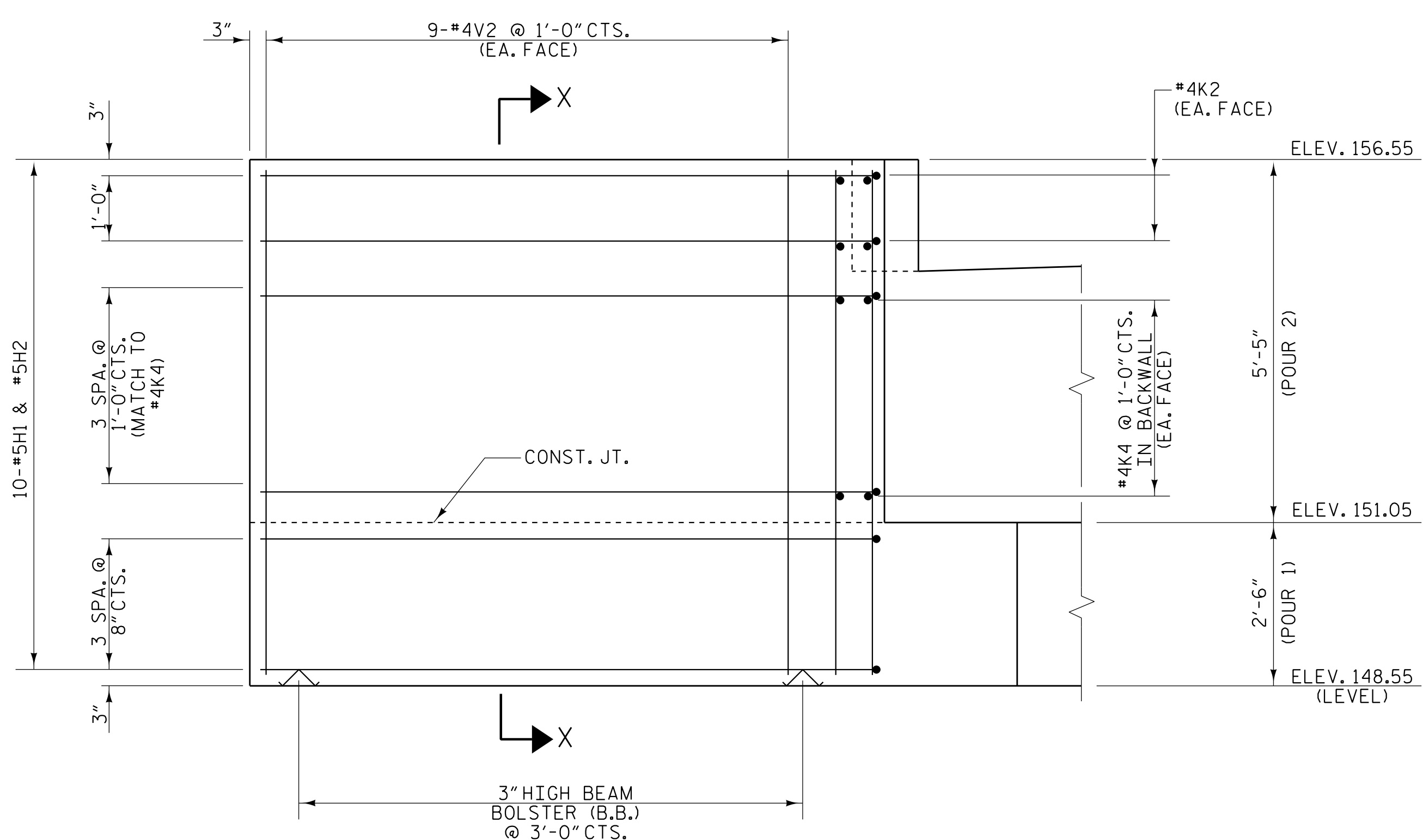
**PLAN OF LEFT WING - W1**  
(STAGE III CONSTRUCTION)



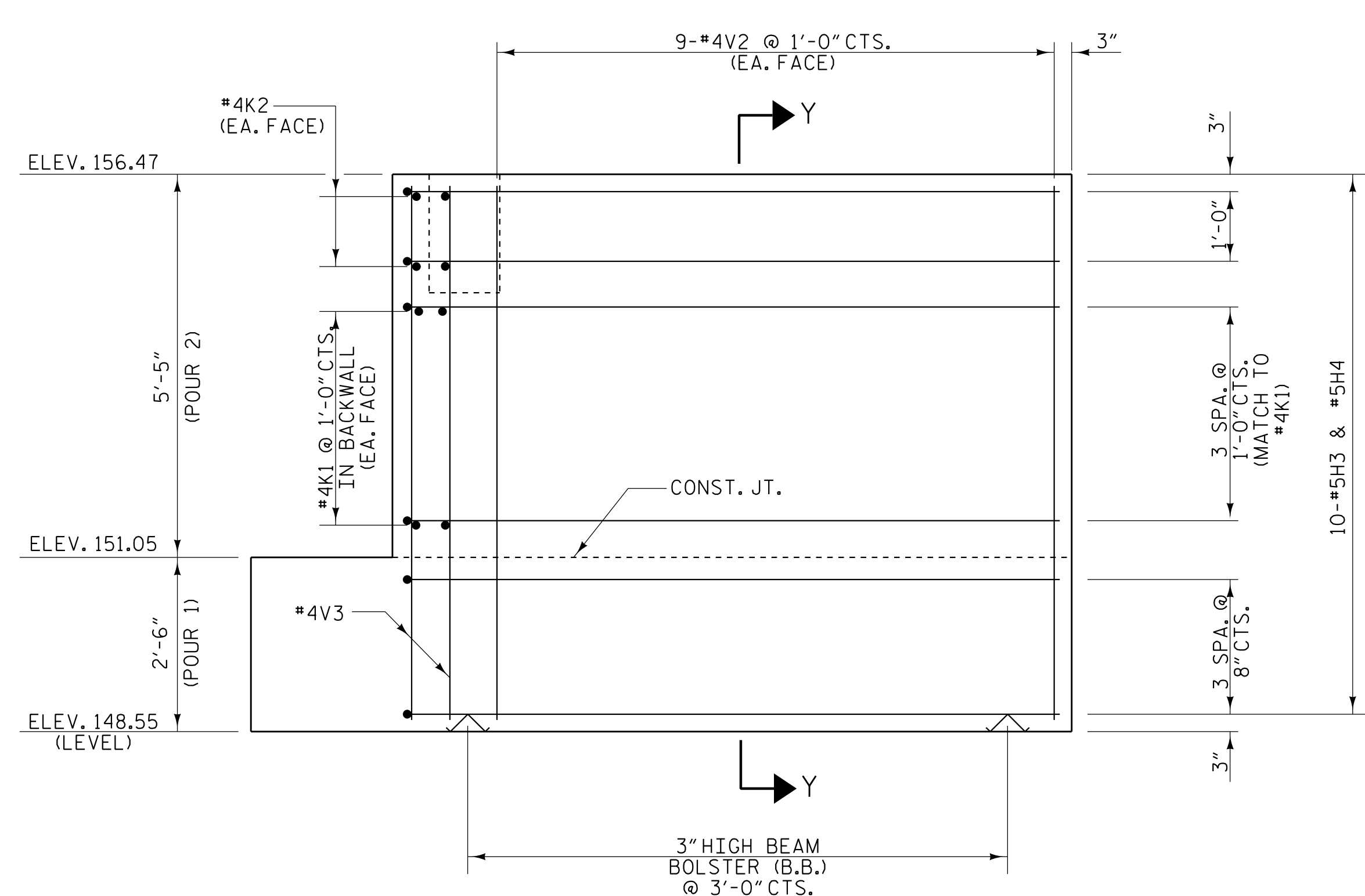
**PLAN OF RIGHT WING - W2**  
(STAGE I CONSTRUCTION)



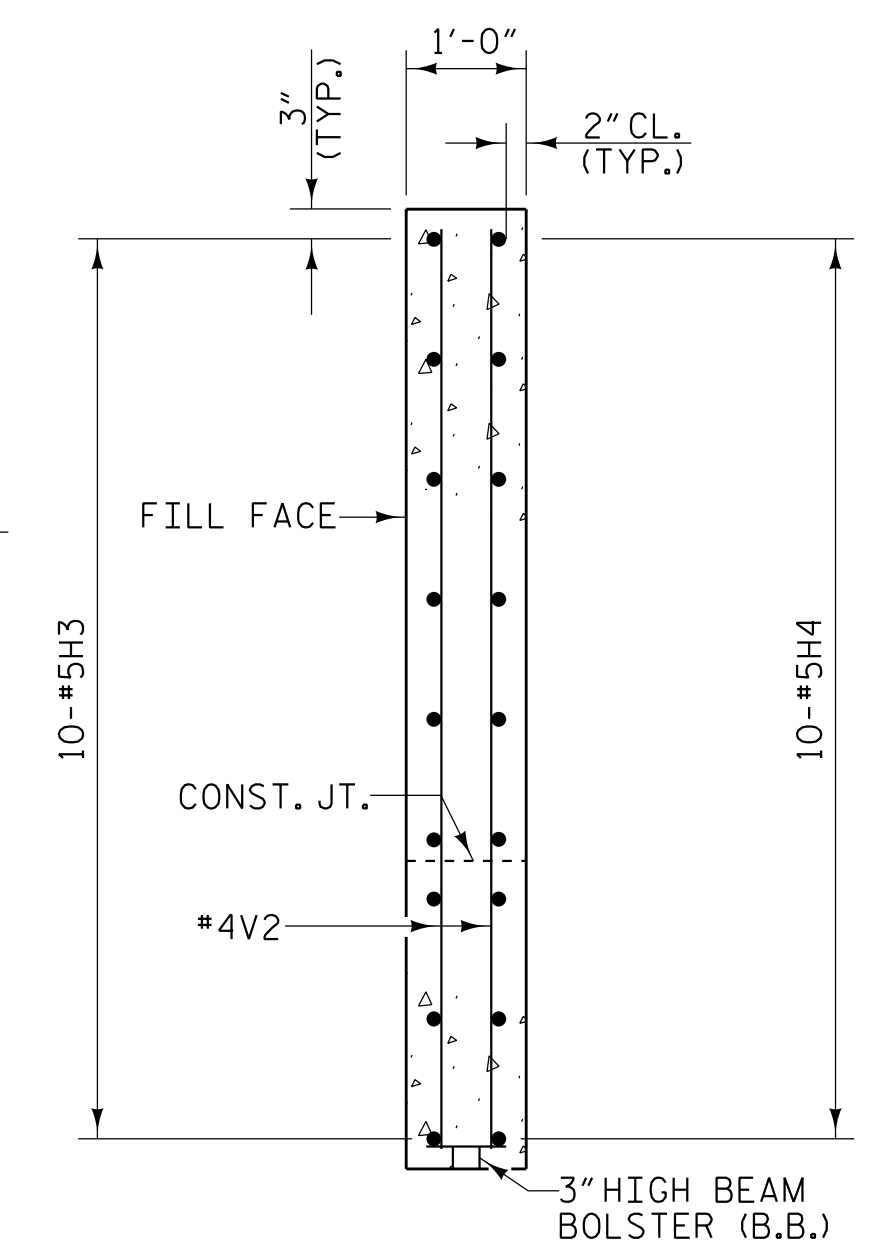
**SECTION X-X**



**ELEVATION OF LEFT WING - W1**  
(STAGE III CONSTRUCTION)



**ELEVATION OF RIGHT WING - W2**  
(STAGE I CONSTRUCTION)



**SECTION Y-Y**

PROJECT NO. **I-5987B**  
**ROBESON** COUNTY  
 STATION: **586+14.00 -L- POT**

SHEET 3 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

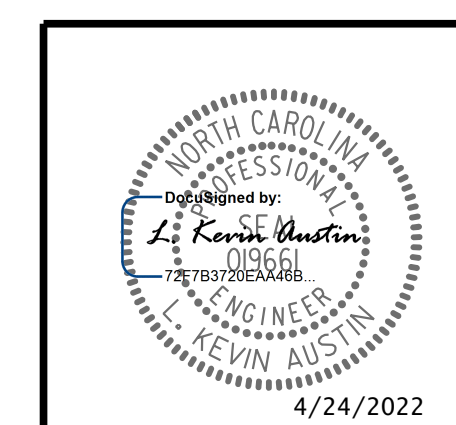
**SUBSTRUCTURE**  
**END BENT 2**  
**WING DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-56
1			3			TOTAL SHEETS
2			4			64

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 CHECKED BY : **G. F. WILSON** DATE : 2/22  
 DESIGN ENGINEER OF RECORD: **L. K. AUSTIN** DATE : 2/22

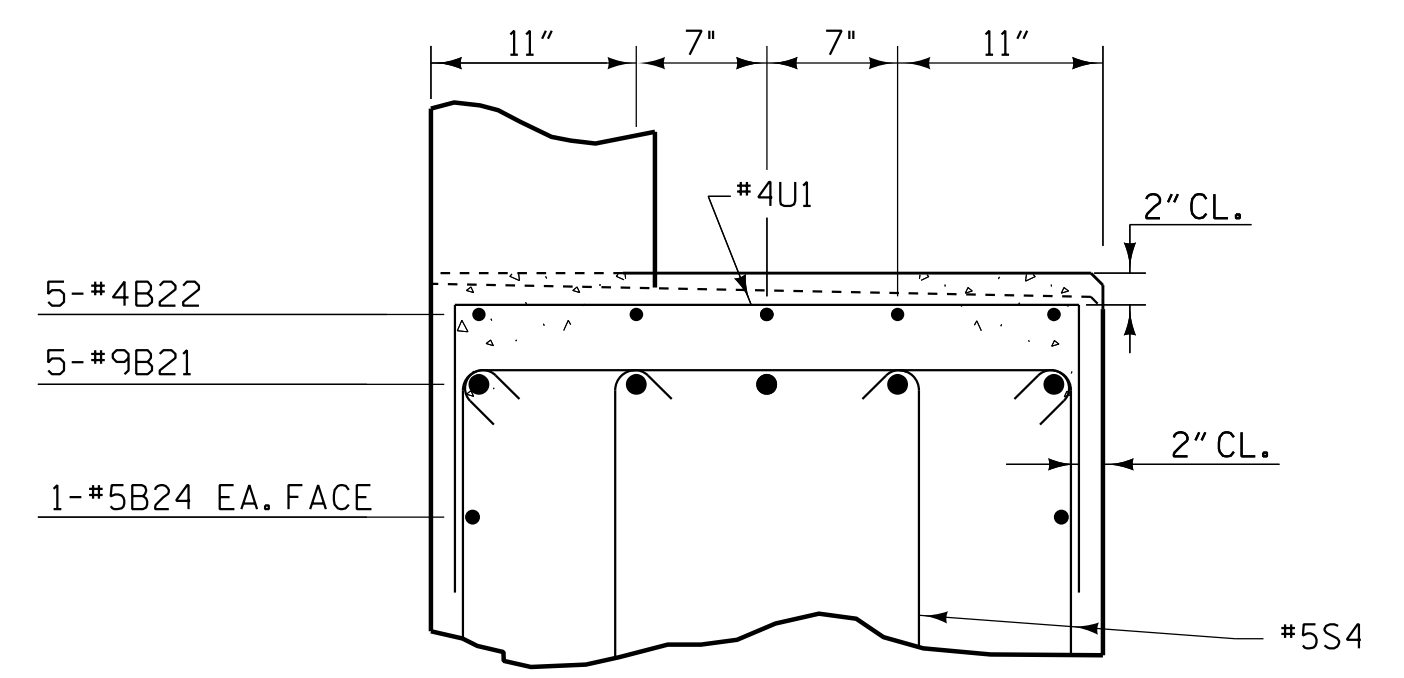
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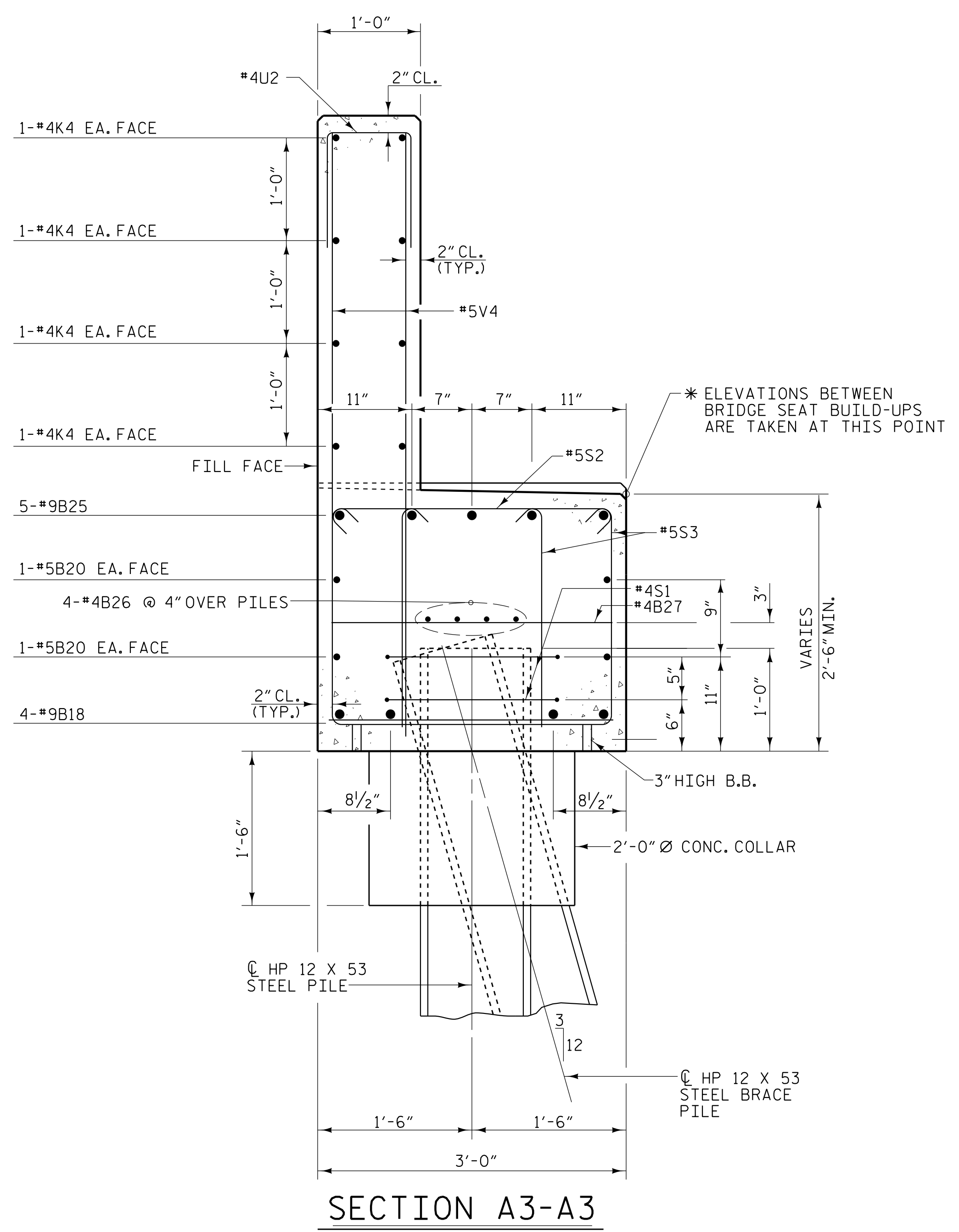




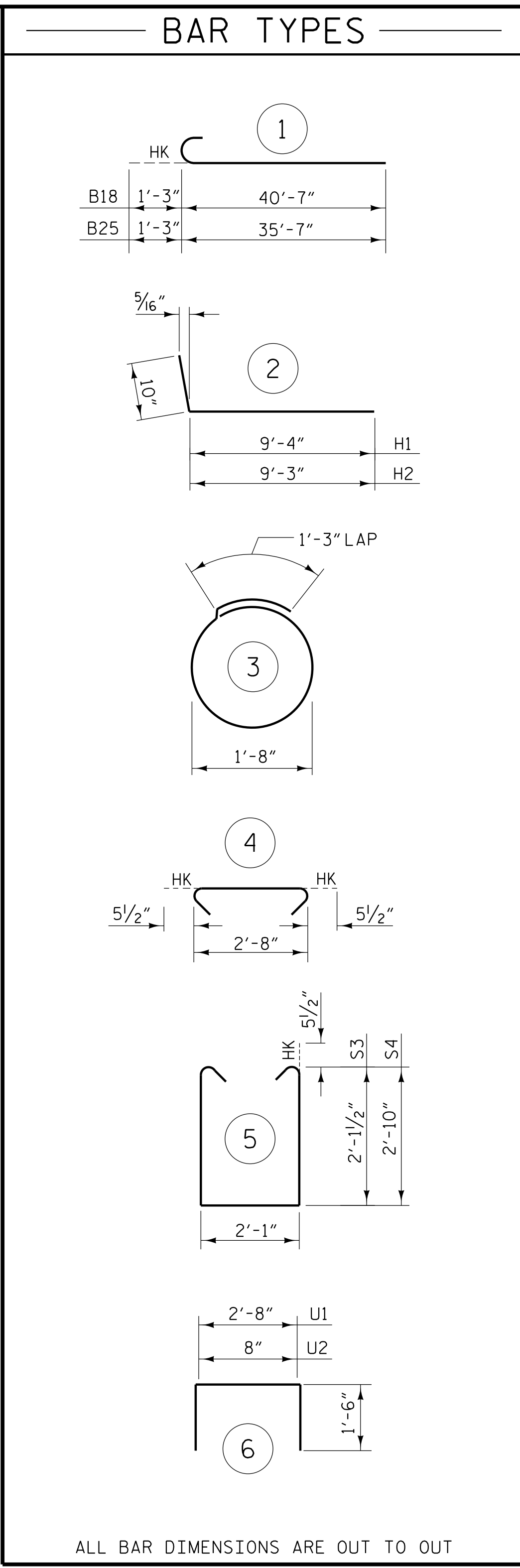




**PART SECTION B3-B3**



**SECTION A3-A3**



**BILL OF MATERIAL**

**END BENT 2 - STAGE III**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B18	4	#9	1	41'-10"	569
B19	4	#9	STR	40'-7"	552
B20	8	#5	STR	40'-1"	334
B21	5	#9	STR	49'-4"	839
B22	15	#4	STR	11'-2"	112
B23	5	#4	STR	2'-11"	10
B24	2	#9	STR	46'-10"	318
B25	5	#9	1	36'-10"	626
B26	12	#4	STR	27'-4"	219
B27	20	#4	STR	2'-8"	36
H1	10	#5	2	10'-2"	106
H2	10	#5	2	10'-1"	105
K2	8	#4	STR	2'-8"	14
K4	24	#4	STR	27'-4"	438
S1	16	#4	3	6'-6"	69
S2	90	#5	4	3'-7"	336
S3	62	#5	5	7'-3"	469
S4	118	#5	5	8'-8"	1067
U1	40	#4	6	5'-8"	151
U2	74	#4	6	3'-8"	181
V2	26	#4	STR	7'-5"	129
V4	148	#5	STR	5'-10"	900
<b>TOTAL REINFORCING STEEL</b>					<b>7580 lbs.</b>

**CLASS "A" CONCRETE - CU. YARDS**

POUR 1 (CAP, COLLARS & LOWER WING)	29.6 CU. YDS.
POUR 2 (BACKWALL & UPPER WING)	12.9 CU. YDS.
<b>TOTAL</b>	<b>42.5 CU. YDS.</b>

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 586+14.00 -L- POT

SHEET 6 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 END BENT 2  
 DETAILS  
 STAGE III**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			64
2			4			

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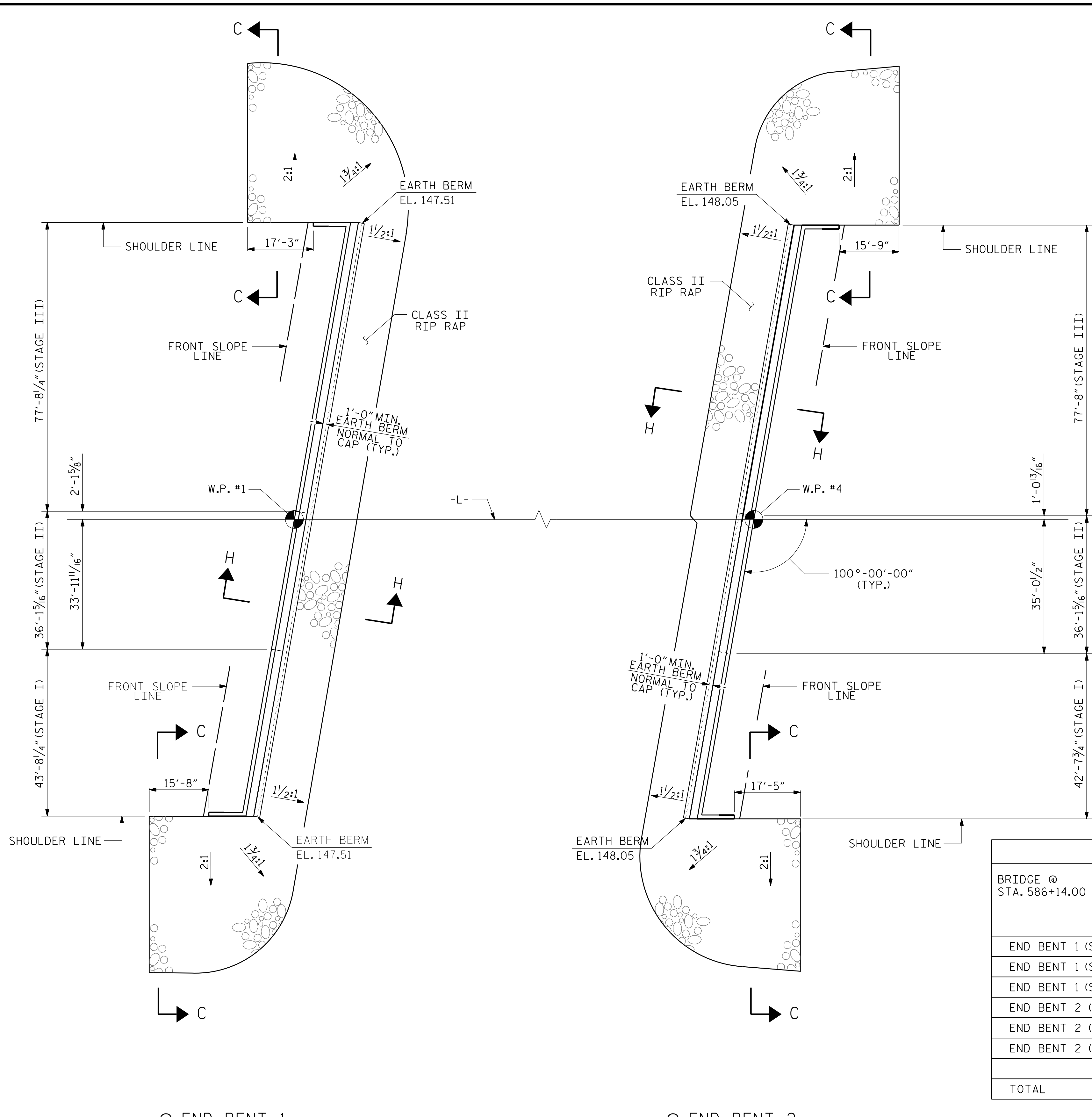


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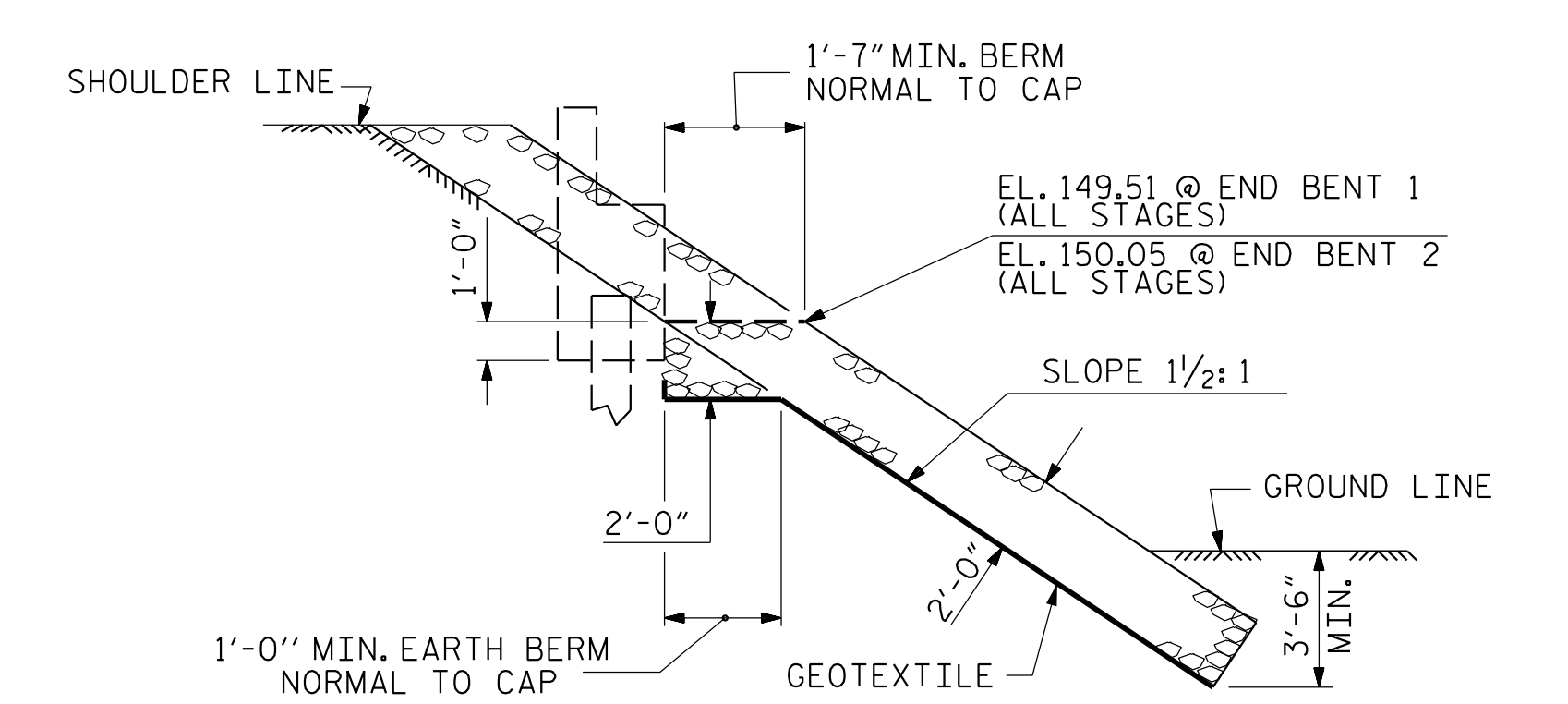
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DRAWN BY : W. B. ALLEN DATE : 12/21  
 CHECKED BY : G. F. WILSON DATE : 2/22  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 2/22

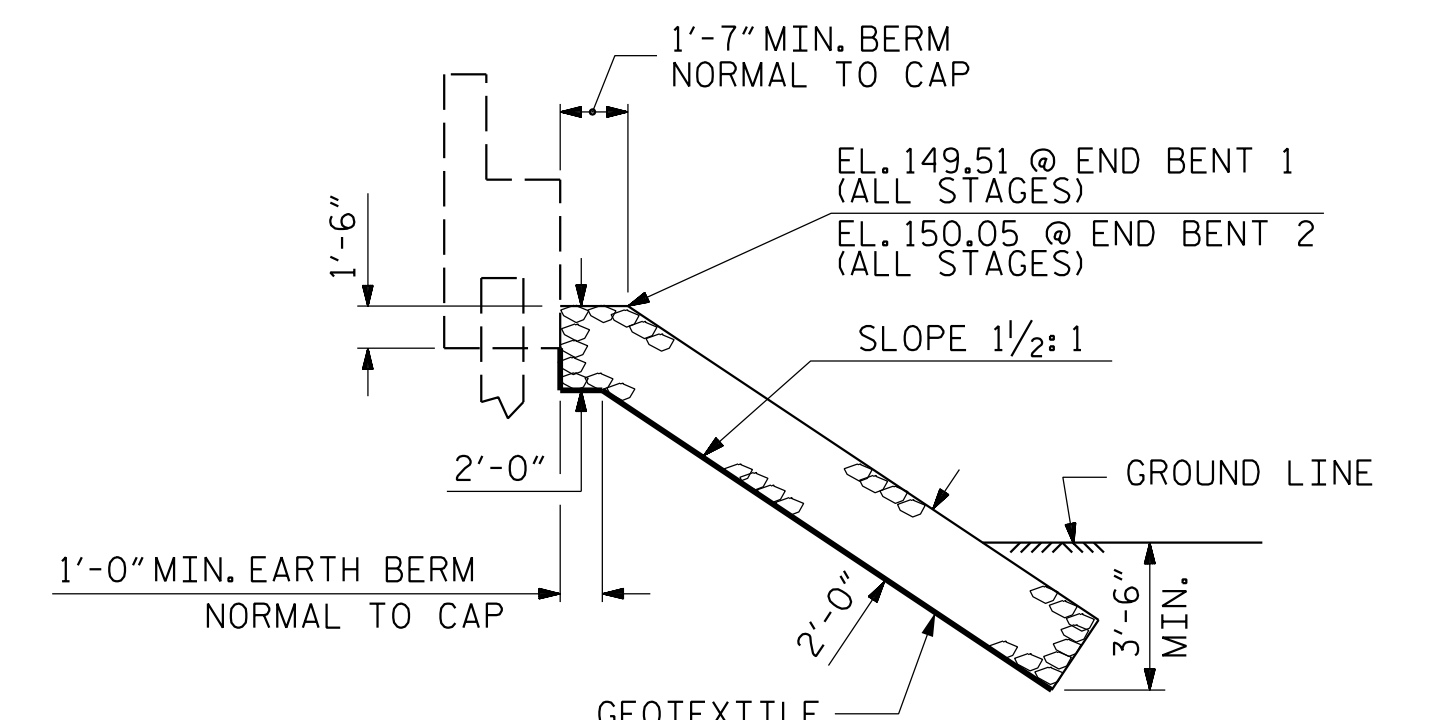




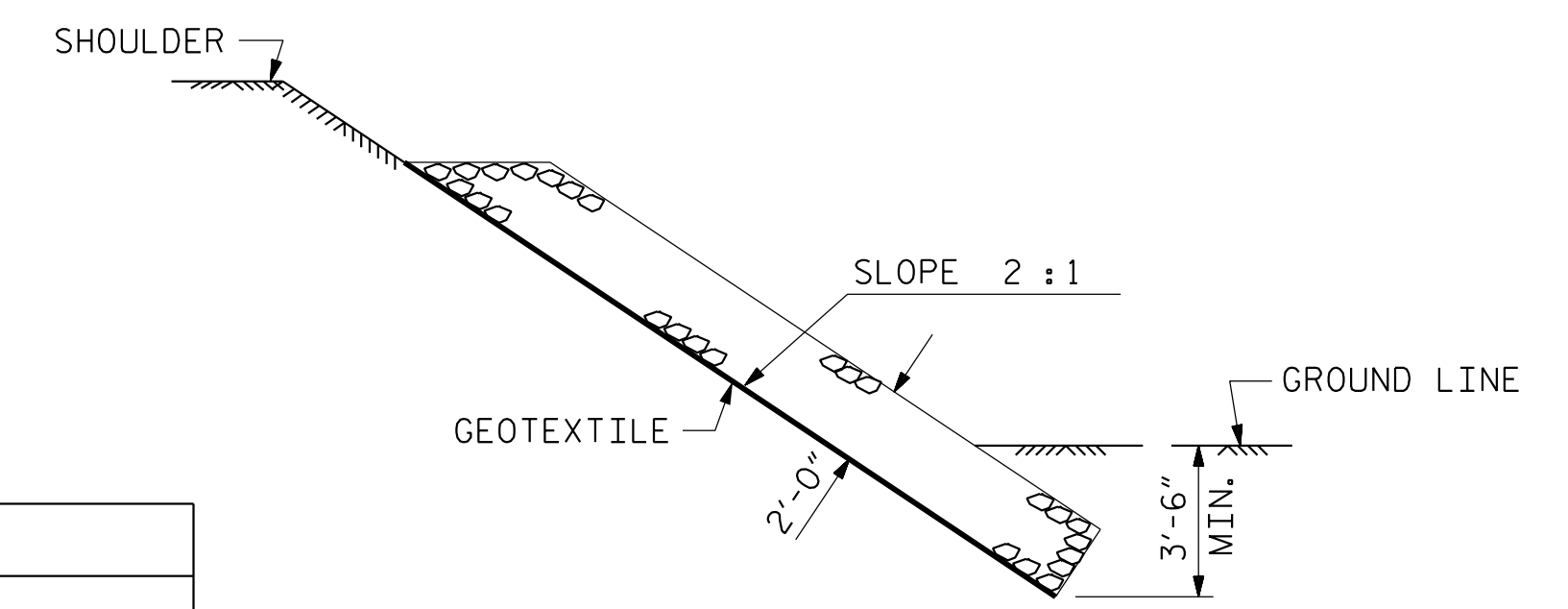
PLAN OF RIP RAP



SECTION H-H



SECTION C-C  
BERM RIP RAPPED



SECTION C-C

ESTIMATED QUANTITIES		
BRIDGE @ STA. 586+14.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1 (STAGE I)	195	220
END BENT 1 (STAGE II)	45	50
END BENT 1 (STAGE III)	235	260
END BENT 2 (STAGE I)	195	215
END BENT 2 (STAGE II)	35	40
END BENT 2 (STAGE III)	240	270
<b>TOTAL</b>	<b>945</b>	<b>1055</b>

PROJECT NO. I-5987B  
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 STATION: 586+14.00 -L- POT

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

RIP RAP DETAILS

DRAWN BY : J. A. PANDOLI DATE : 2/22  
 CHECKED BY : G.F. WILSON DATE : 2/22  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 2/22

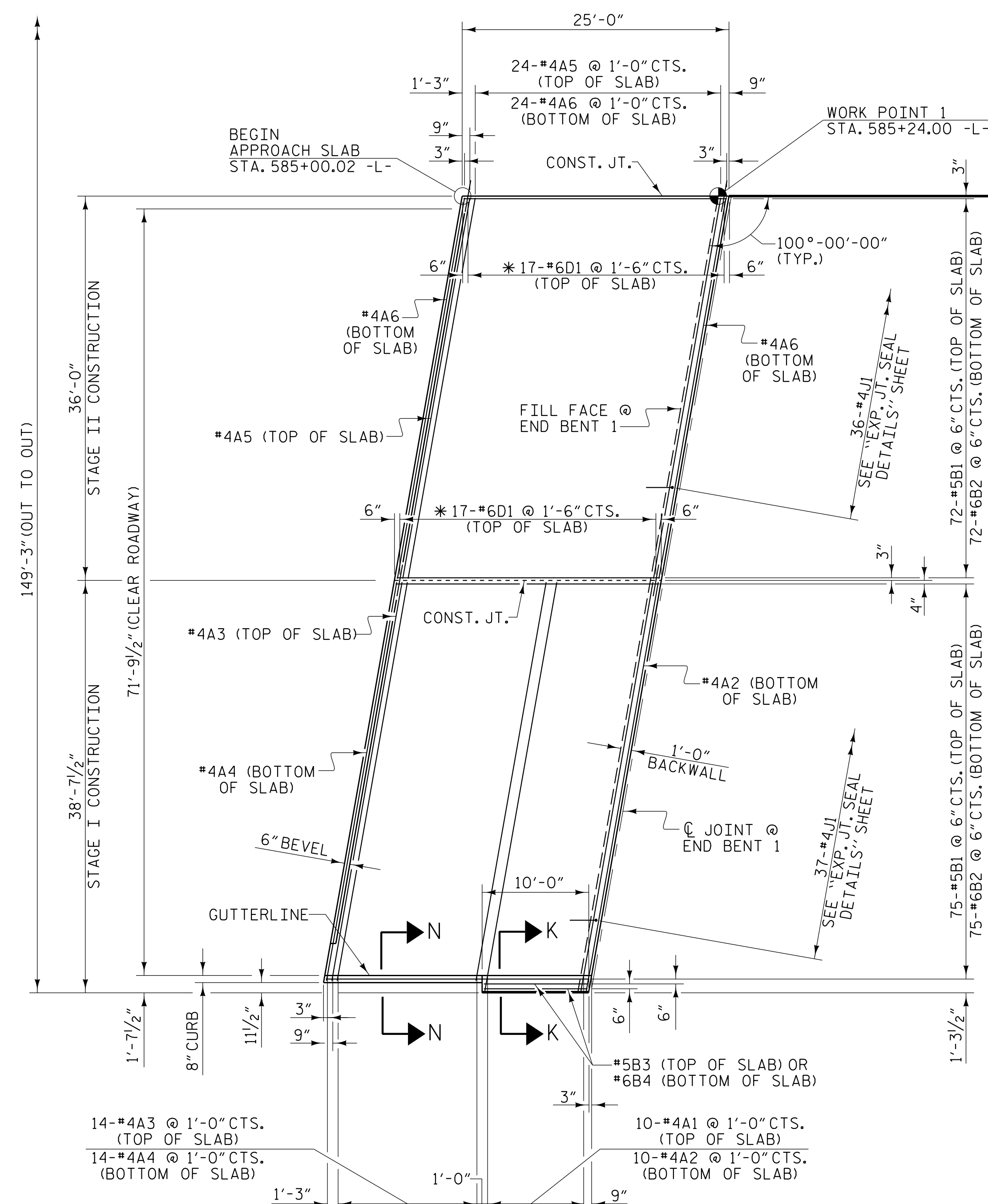
PLANS PREPARED BY:

NV5 ENGINEERS & CONSULTANTS, INC.  
 3300 REGENCY PARKWAY, SUITE 100  
 CARY, NC 27518  
 P: 919.851.1912 www.NV5.com  
 NC License # F-1333

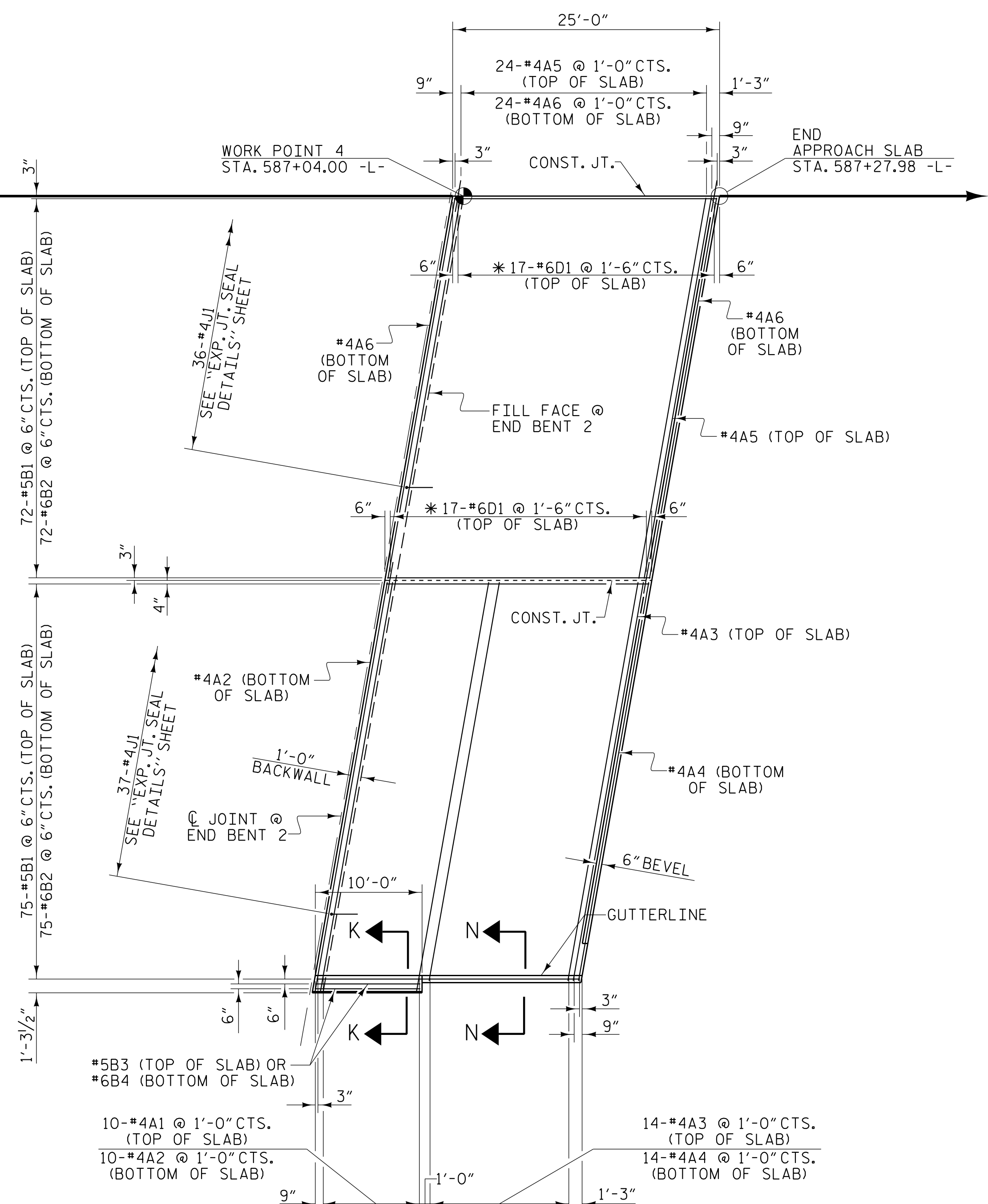
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			64
2			4			

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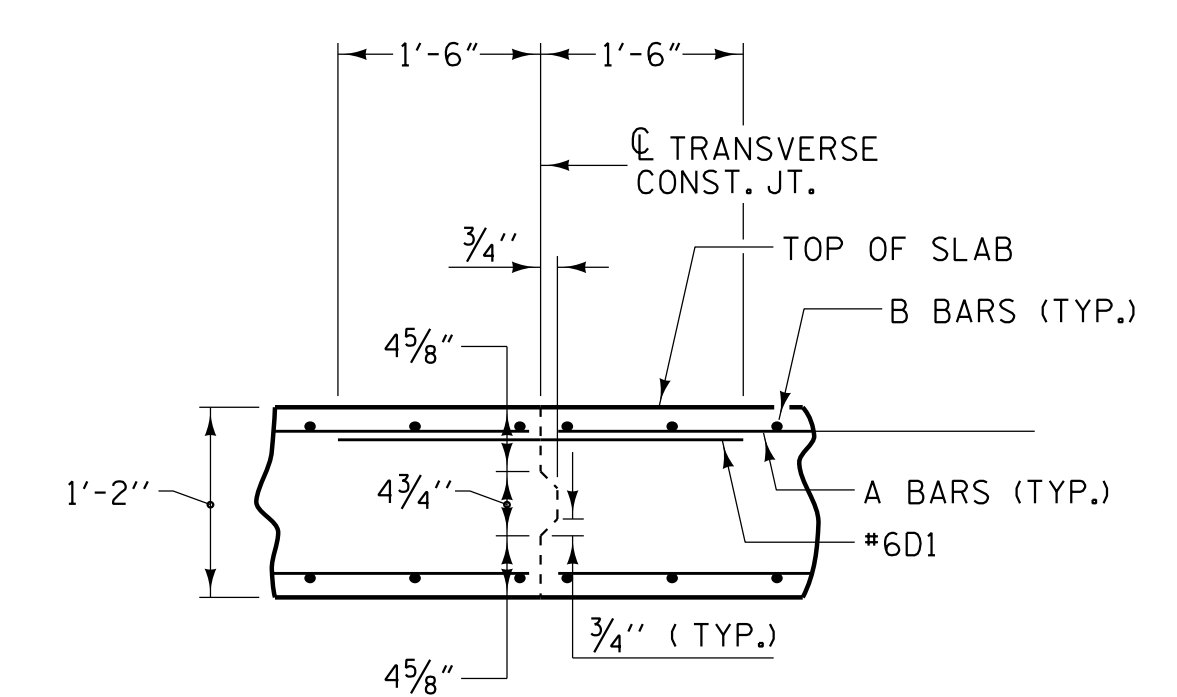


PLAN @ END BENT 1



PLAN @ END BENT 2

\* THE #6D1 BARS SHALL PROJECT 1'-6" INTO STAGE II & STAGE III CONSTRUCTION.  
DIMENSIONS ARE TYPICAL FOR BOTH APPROACH SLABS



TRANSVERSE CONSTRUCTION JOINT DETAIL

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 586+14.00 -L- POT

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF BRIDGE  
APPROACH SLABS  
STAGE I & STAGE II

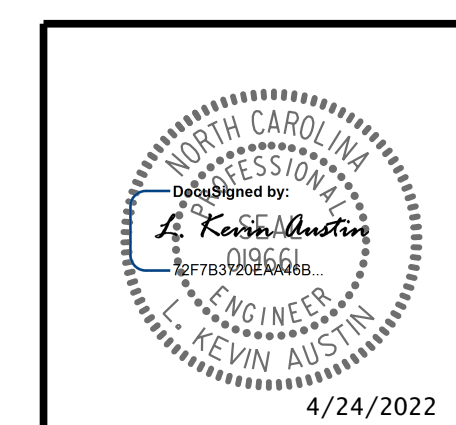
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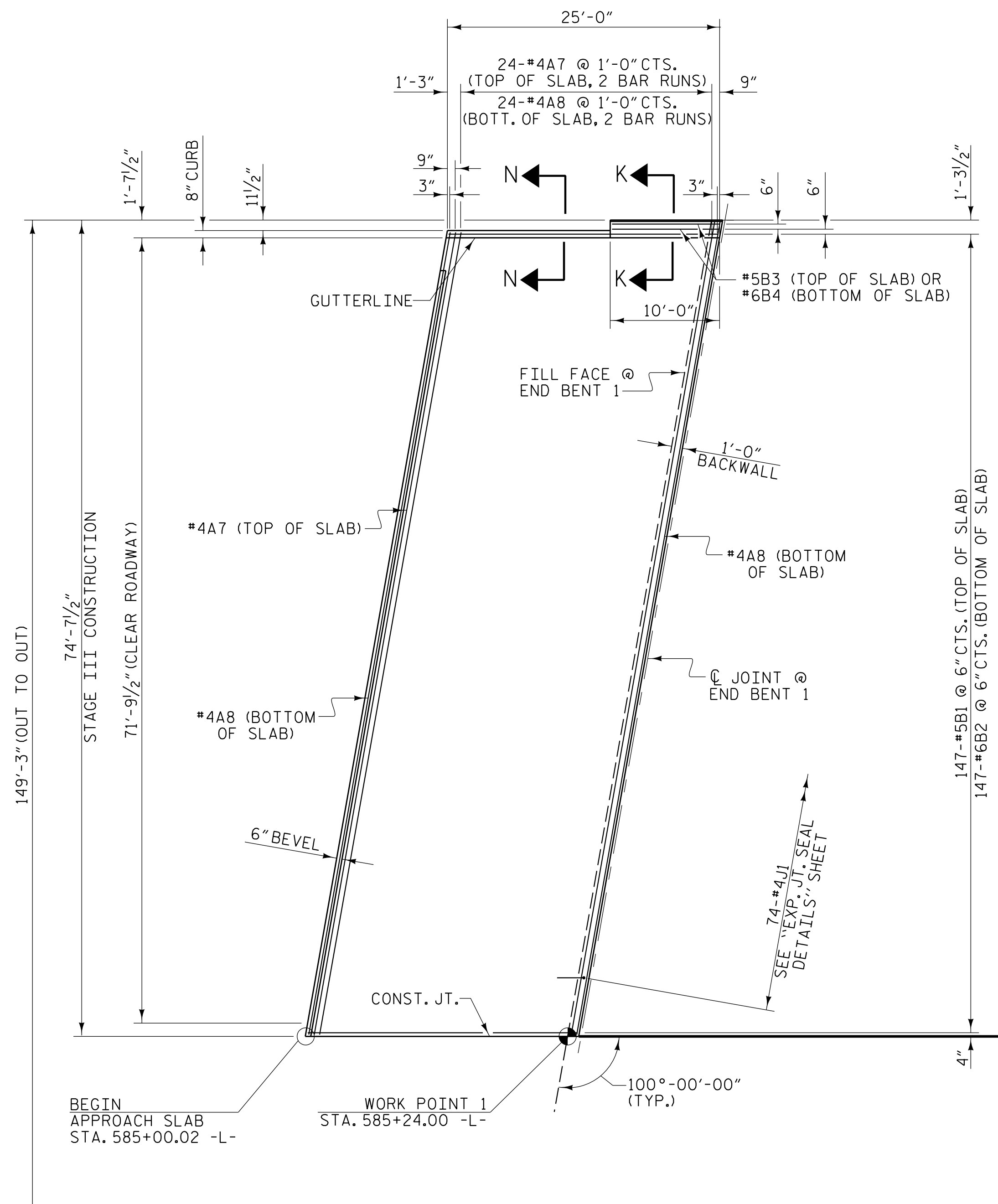


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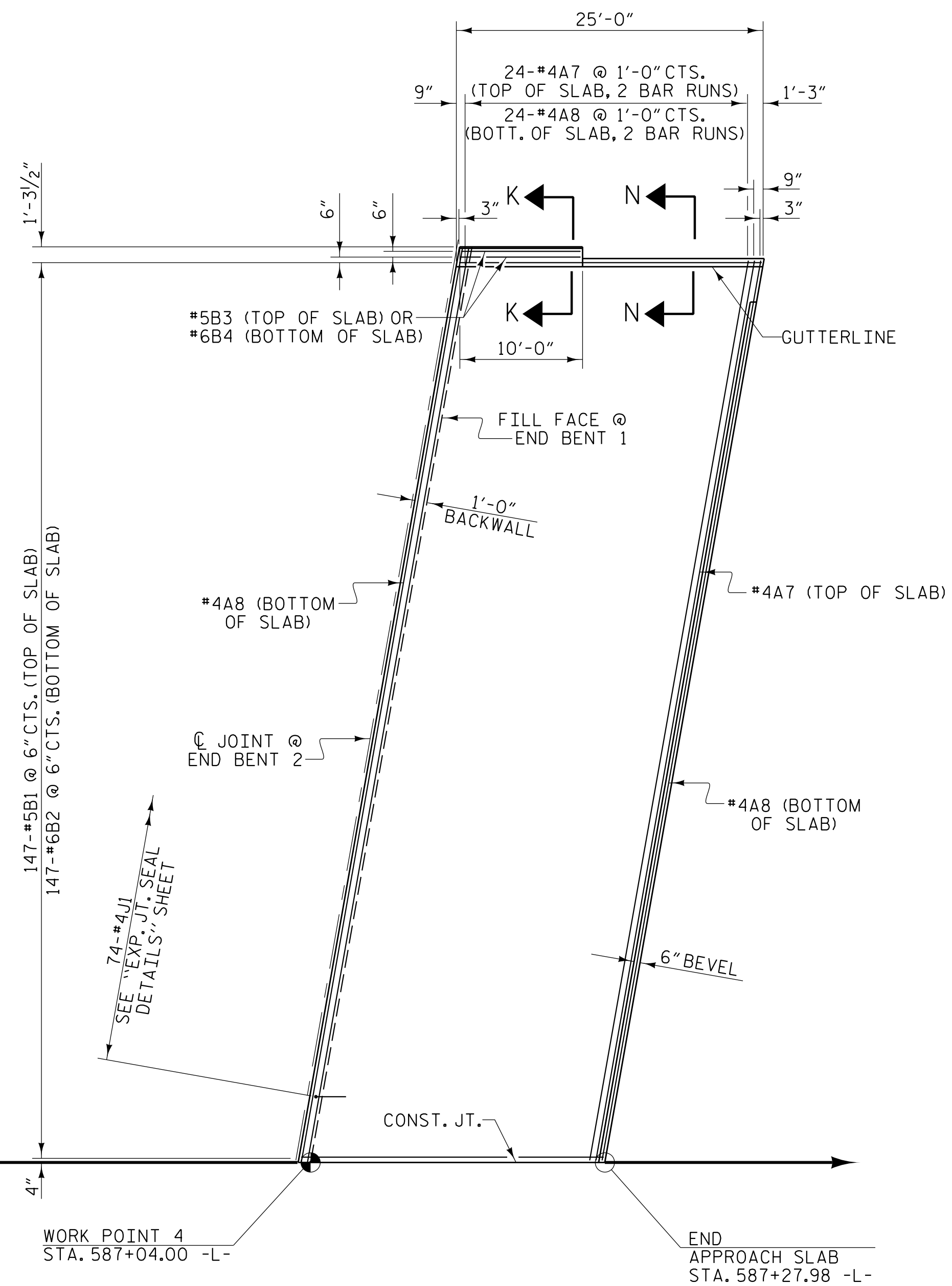
DRAWN BY: W. B. ALLEN DATE: 9/21  
CHECKED BY: G. F. WILSON DATE: 2/22  
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 2/22

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PLAN @ END BENT 1



PLAN @ END BENT 2

DIMENSIONS ARE TYPICAL FOR BOTH APPROACH SLABS

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 586+14.00 -L- POT

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PLAN OF BRIDGE  
 APPROACH SLABS**

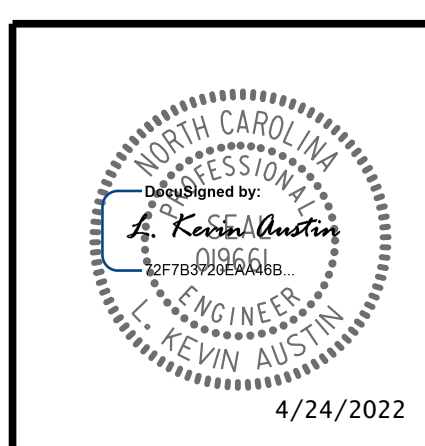
STAGE III

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			64
2			4			

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4/24/2022

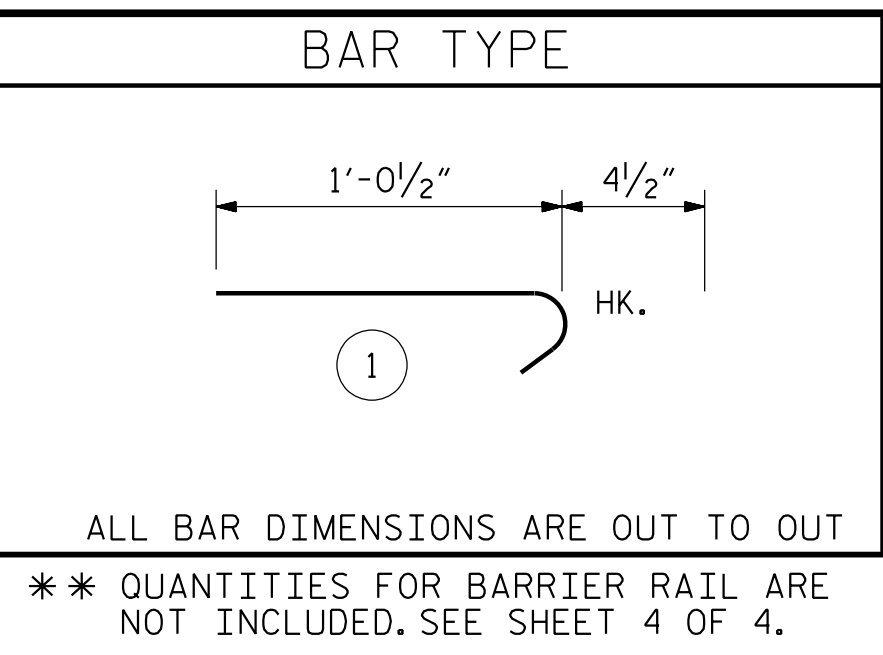
DRAWN BY: W. B. ALLEN DATE: 9/21  
 CHECKED BY: G. F. WILSON DATE: 2/22  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 2/22

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BILL OF MATERIAL - STAGE I						BILL OF MATERIAL - STAGE II						BILL OF MATERIAL - STAGE III					
APPROACH SLAB AT EB 1						APPROACH SLAB AT EB 1						APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	10	#4	STR	38'-10"	259	*A5	25	#4	STR	36'-2"	604	*A7	50	#4	STR	38'-8"	1291
A2	11	#4	STR	38'-10"	285	A6	26	#4	STR	36'-2"	628	A8	52	#4	STR	38'-6"	1337
*A3	15	#4	STR	37'-11"	380												
A4	15	#4	STR	37'-11"	380	*B1	72	#5	STR	23'-7"	1771	*B1	147	#5	STR	23'-7"	3616
						B2	72	#6	STR	24'-8"	2668	B2	147	#6	STR	24'-8"	5446
*B1	75	#5	STR	23'-7"	1845							*B3	2	#5	STR	9'-8"	20
B2	75	#6	STR	24'-8"	2779	*J1	36	#4	1	1'-5"	34	B4	2	#6	STR	9'-8"	29
*B3	2	#5	STR	9'-8"	20												
B4	2	#6	STR	9'-8"	29	*D1	17	#6	STR	3'-0"	77	*J1	74	#4	1	1'-5"	70
*J1	37	#4	1	1'-5"	35												
*D1	17	#6	STR	3'-0"	77												
REINFORCING STEEL **	LBS.				3473	REINFORCING STEEL **	LBS.				3296	REINFORCING STEEL **	LBS.				6812
*EPOXY COATED						*EPOXY COATED						*EPOXY COATED					
REINFORCING STEEL **	LBS.				2616	REINFORCING STEEL **	LBS.				2486	REINFORCING STEEL **	LBS.				4997
CLASS AA CONCRETE **	C. Y.				40.9	CLASS AA CONCRETE **	C. Y.				38.7	CLASS AA CONCRETE **	C. Y.				79.5



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

SPLICE LENGTHS

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

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

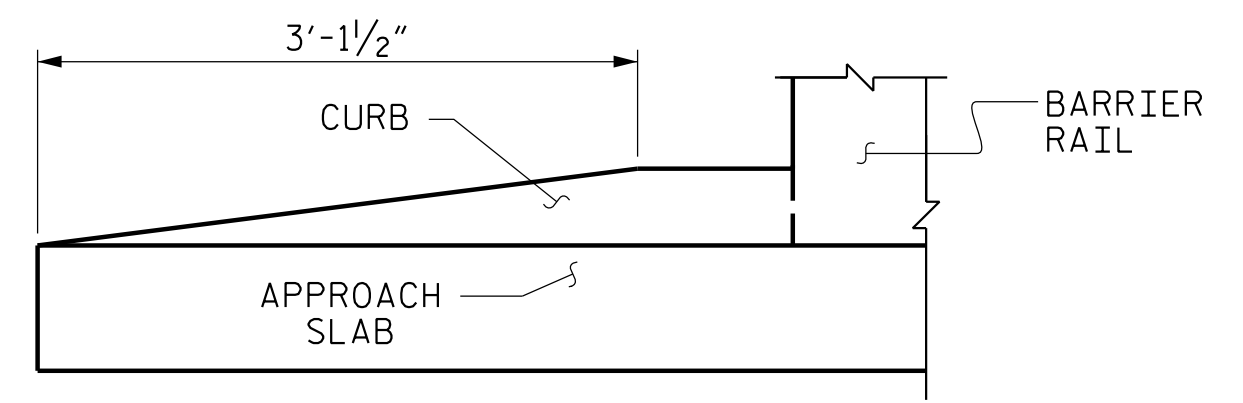
SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

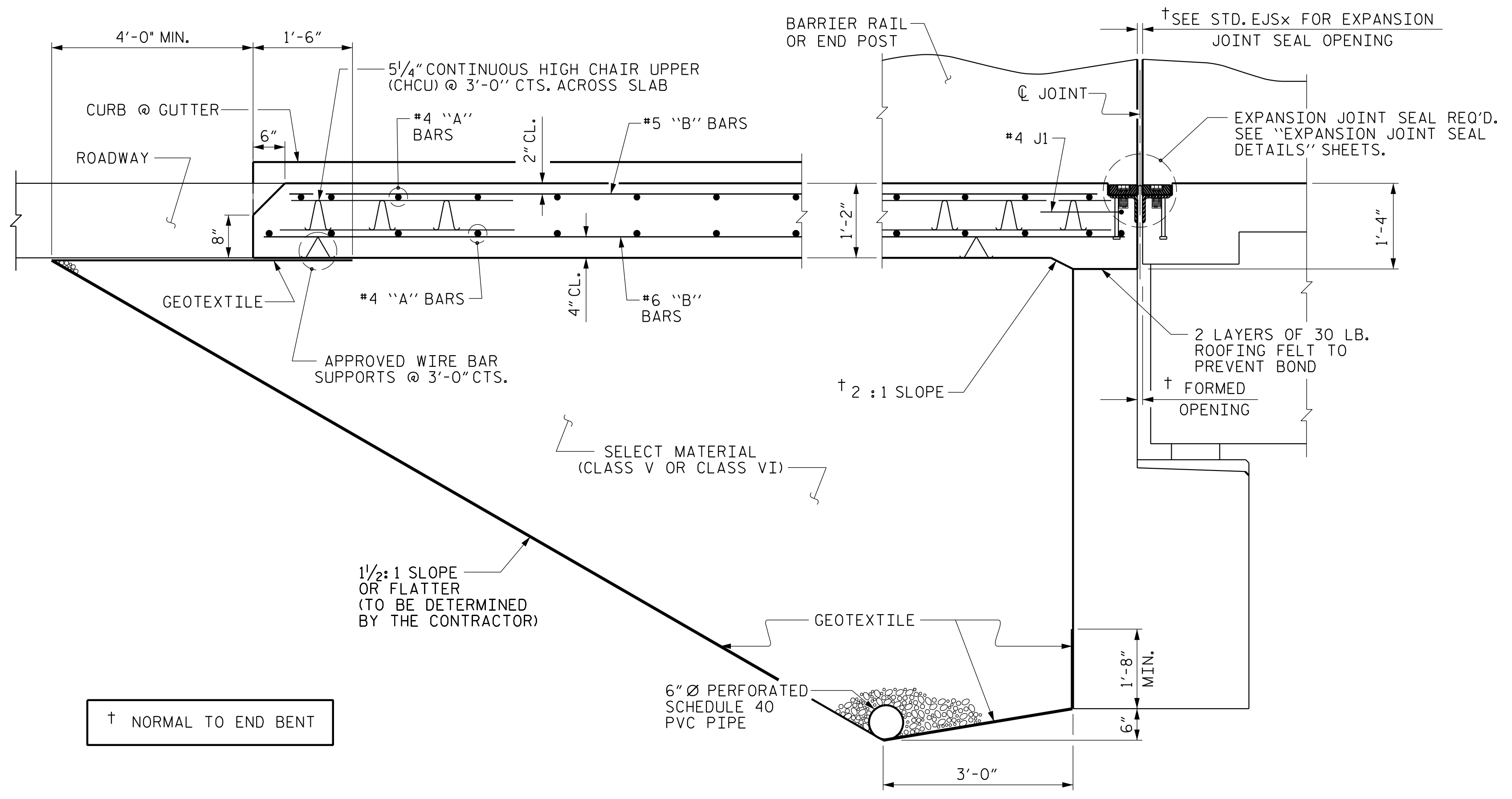
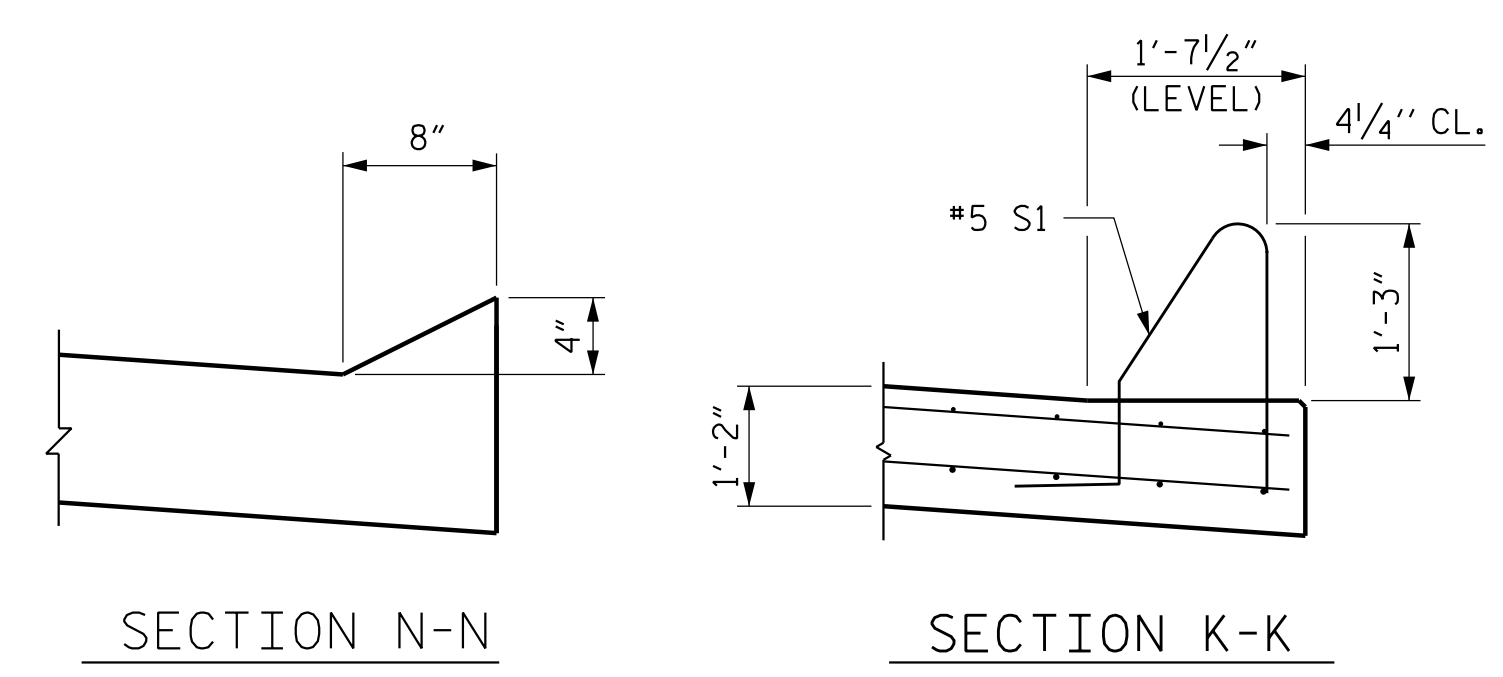
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



SECTION THRU SLAB  
 (TYPE I - STANDARD APPROACH FILL)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 586+14.00 -L- POT

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT**

PLANS PREPARED BY:

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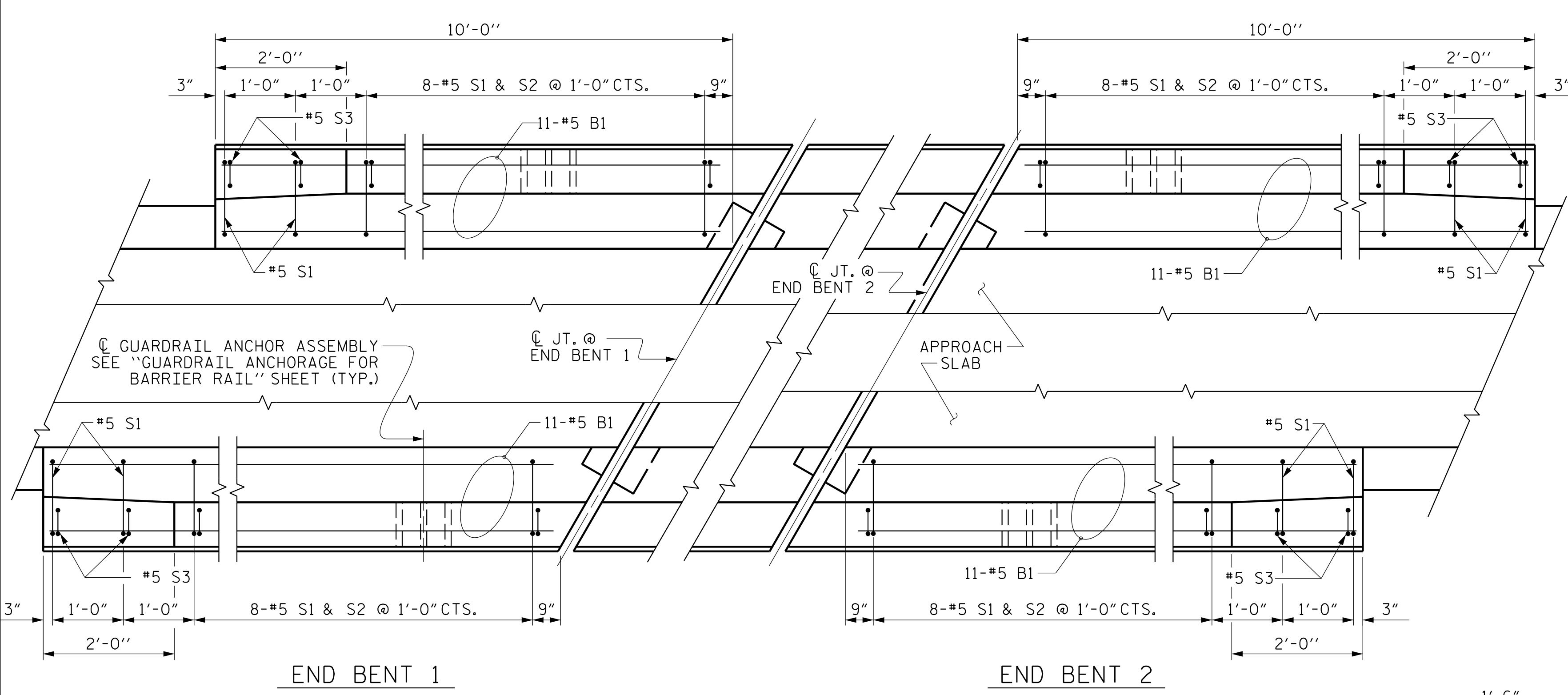
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DRAWN BY : W. B. ALLEN DATE : 5/21  
 CHECKED BY : G. F. WILSON DATE : 5/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 2/22

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4/24/2022





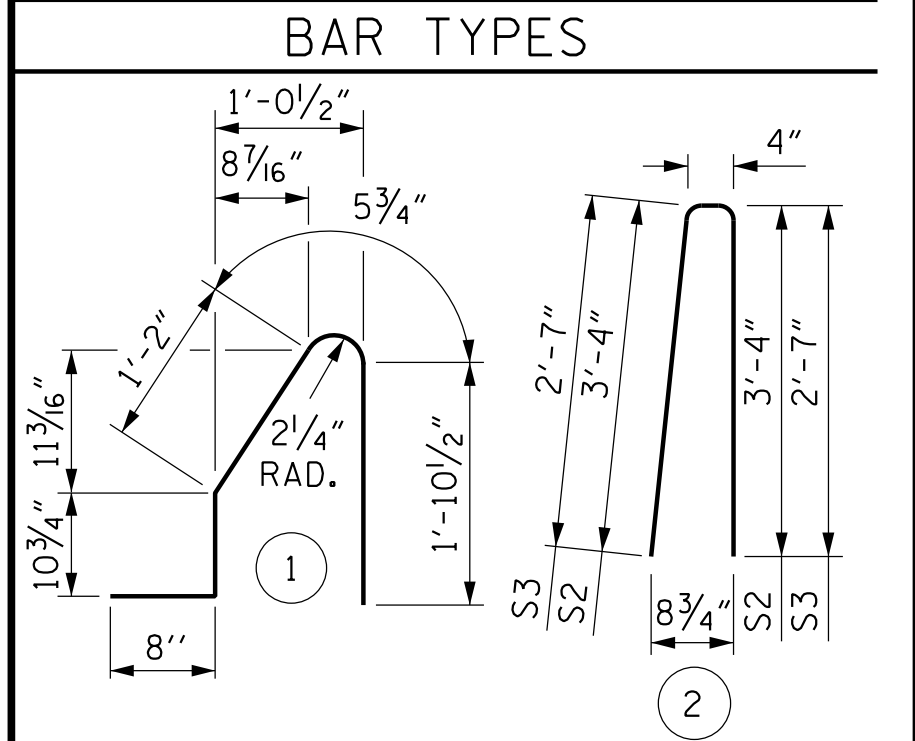
PLAN OF BARRIER RAIL

**NOTES**

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

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

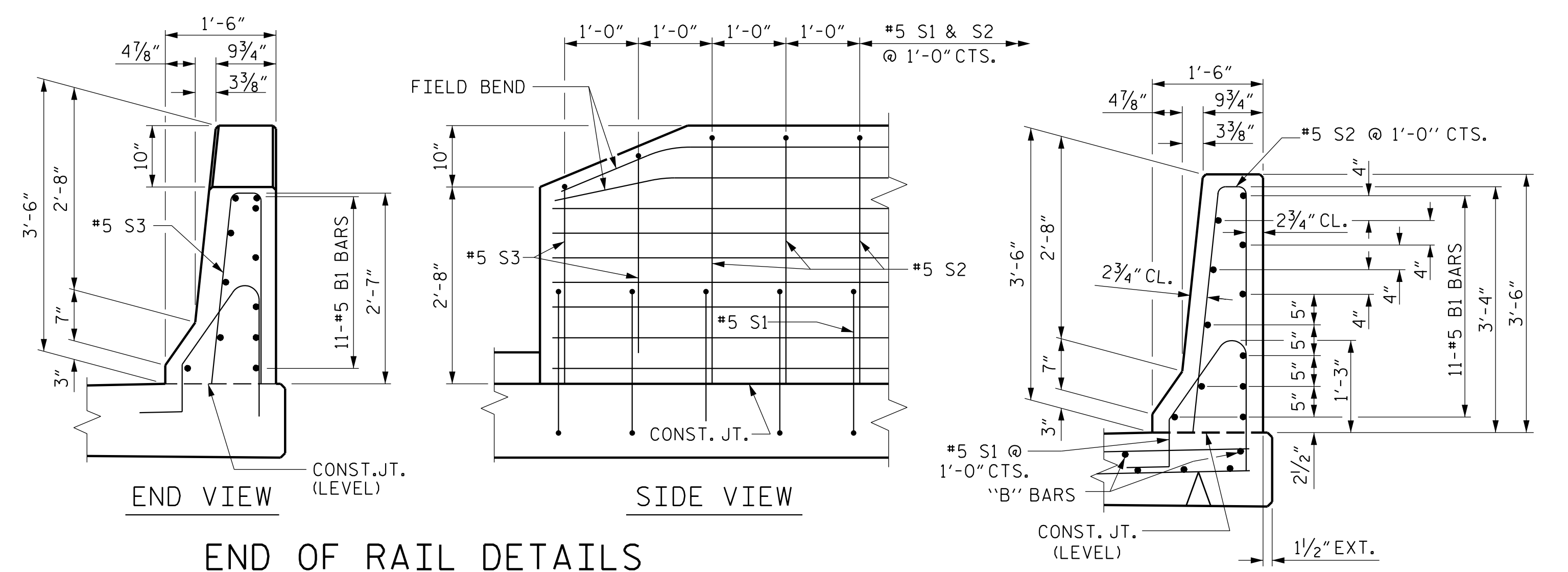
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.



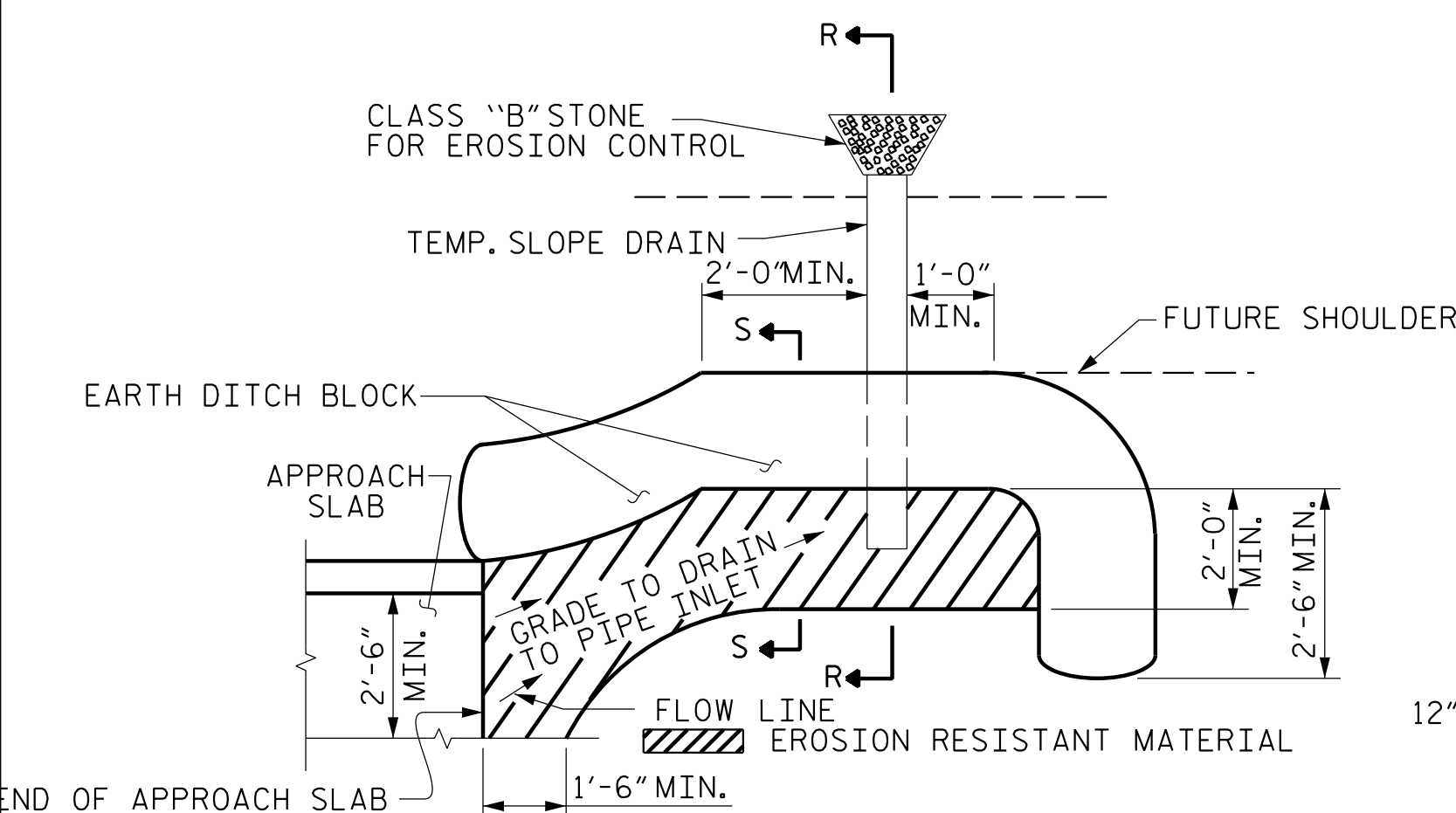
ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL**

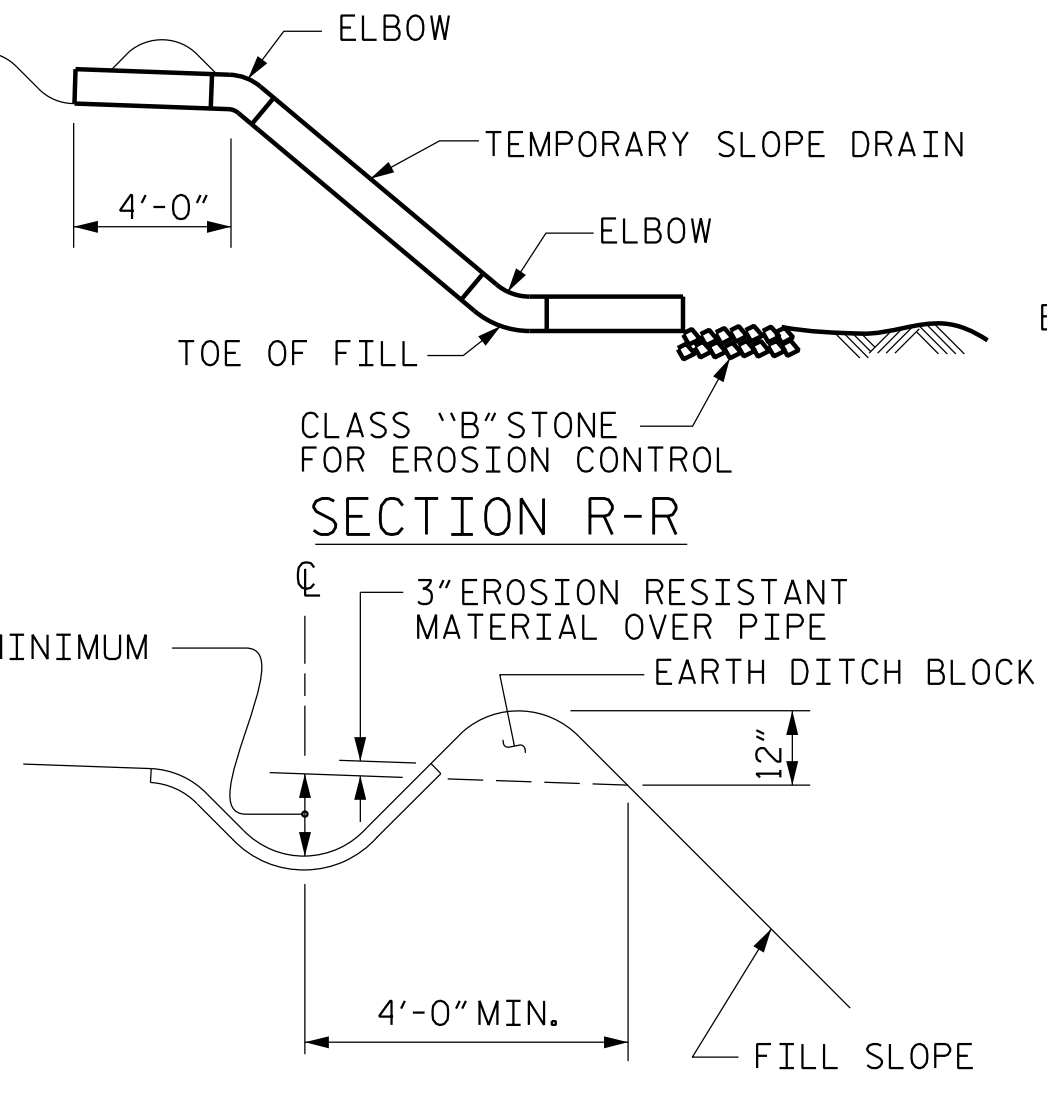
BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	44	#5	STR	9'-8"	444
*S1	40	#5	1	5'-1"	212
*S2	32	#5	2	7'-0"	234
*S3	8	#5	2	5'-6"	46
*EPOXY COATED REINFORCING STEEL				LBS.	936
CLASS AA CONCRETE				C. Y.	5.4
CONCRETE BARRIER RAIL				40.0 LIN. FT.	



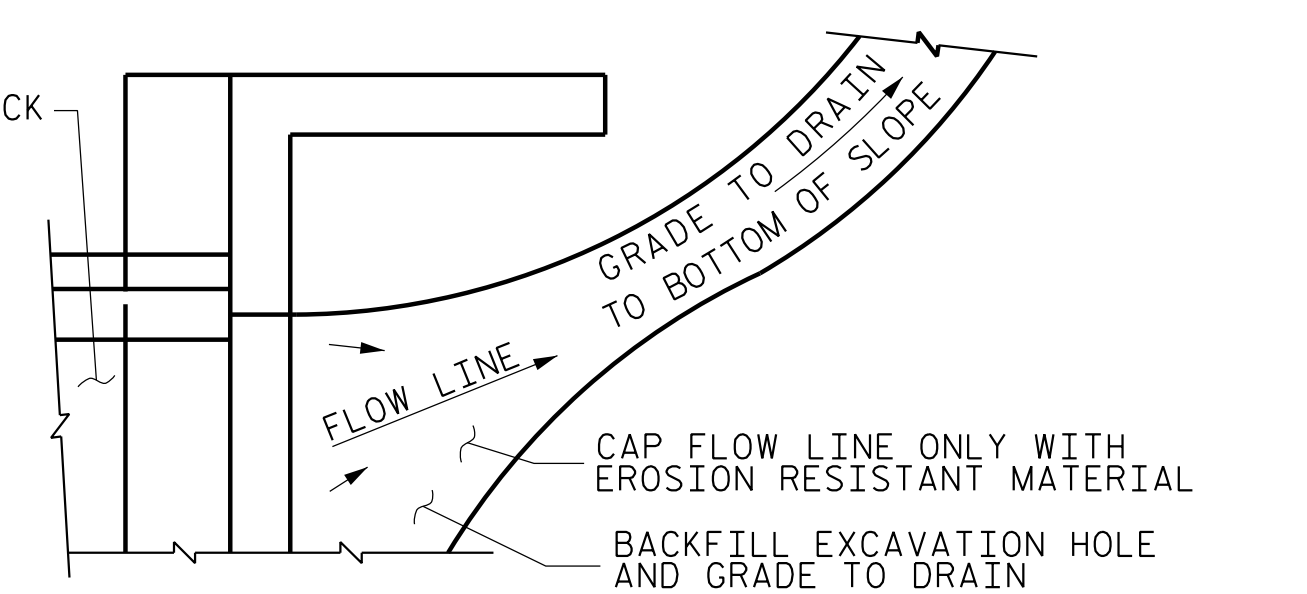
END OF RAIL DETAILS



PLAN VIEW



SECTION R-R



TEMPORARY DRAINAGE DETAIL

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

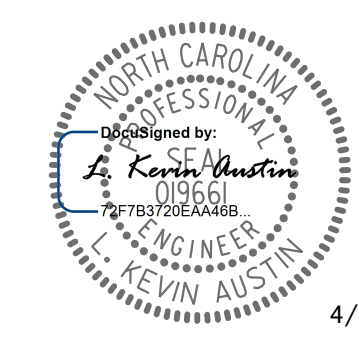
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

PLANS PREPARED BY:

**NV5**

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CARY, NC 27518  
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THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:



4/24/2022

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 586+14.00 -L- POT

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 BRIDGE APPROACH  
 SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-64
1			3			TOTAL SHEETS
2			4			64

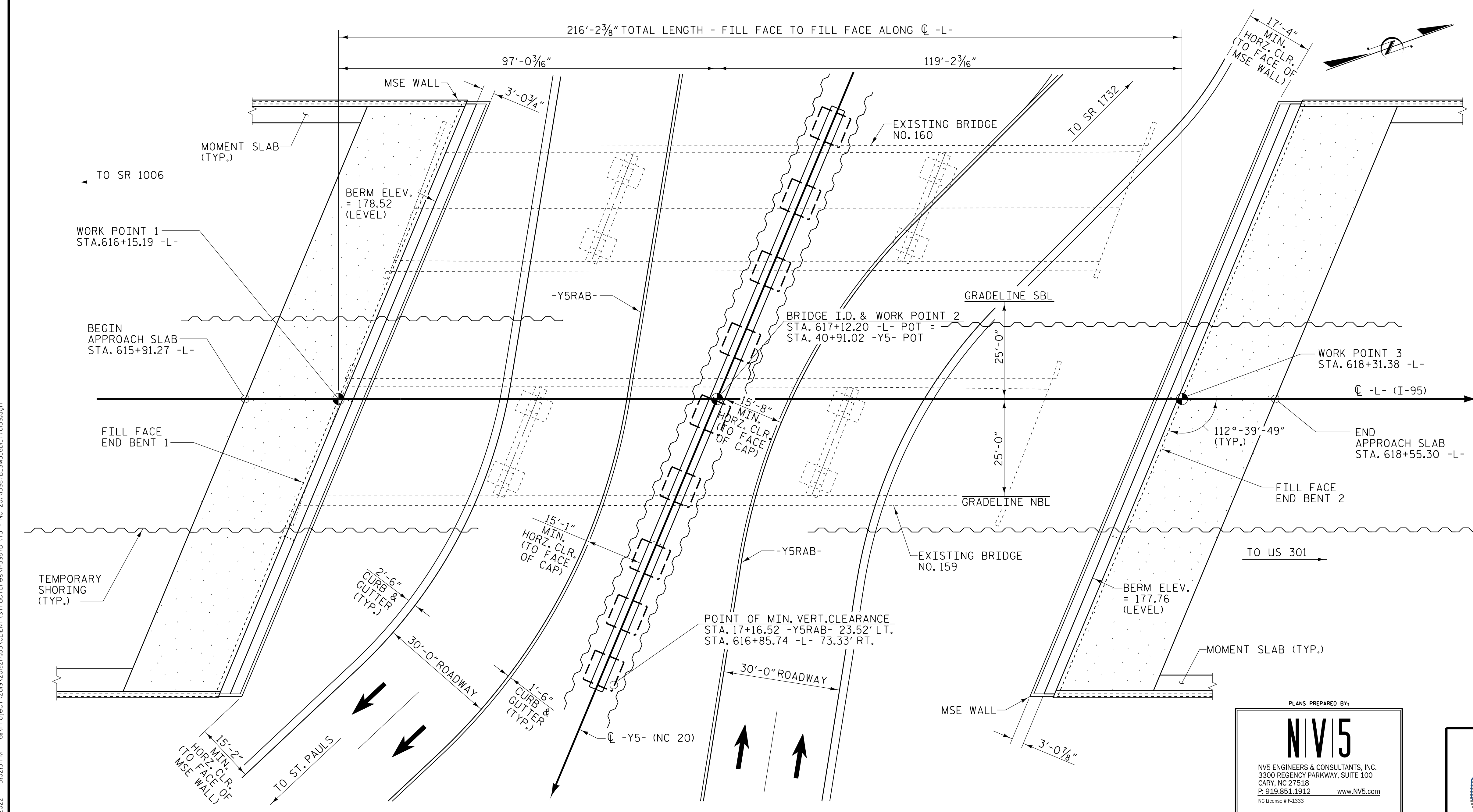
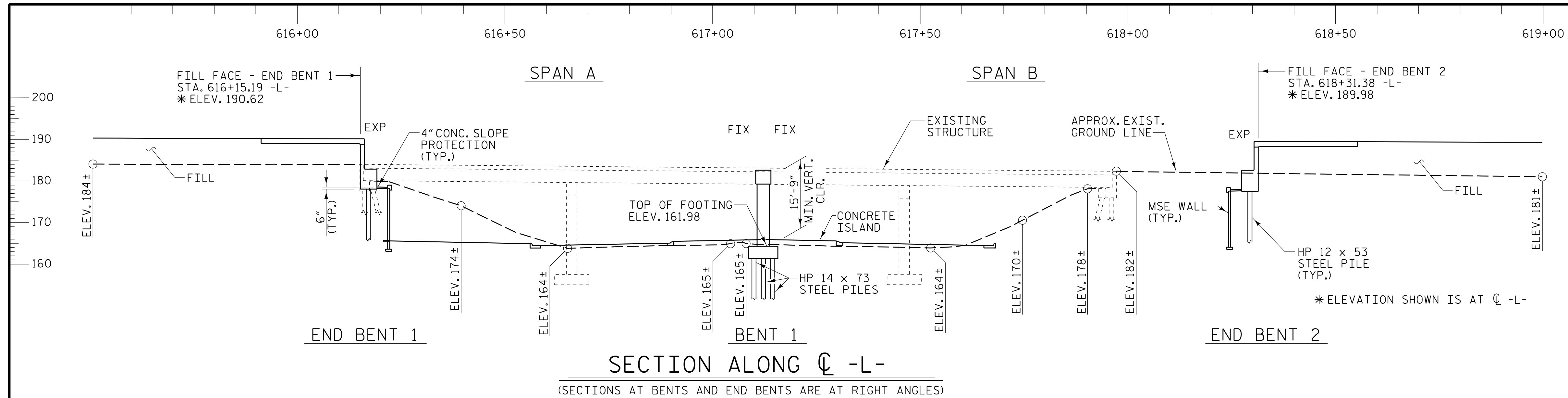
ASSEMBLED BY : W. B. ALLEN	DATE : 5/21
CHECKED BY : G. F. WILSON	DATE : 5/21
DRAWN BY : FCJ 11/88	REV. 6/13 MAA/GM
CHECKED BY : ARB 11/88	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

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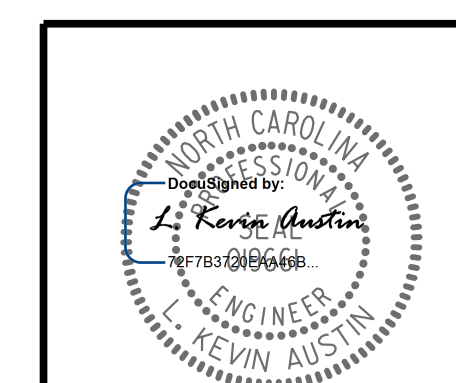
DRAWN BY: W.B. ALLEN DATE: 12/21  
 CHECKED BY: M.D. METZGER DATE: 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22

(NOTE: PILES AND COLUMNS NOT SHOWN IN PLAN VIEW)

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PROJECT NO. I-5987B  
 ROBESON COUNTY  
 STATION: 617+12.20 -L- POT  
 40+91.02 -Y5- POT

SHEET 1 OF 5 BRIDGE NO. 770537

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON -L- (I-95)  
 OVER -Y5- (NC 20)  
 BETWEEN SR 1006 AND US 301

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-1
1			3			TOTAL SHEETS
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4/22/2022





**SUMMARY OF PILE INFORMATION/INSTALLATION**

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) ## (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Exc Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-26	120	180.02	90			160							
End Bent 2, Piles 19-24	120	179.26	95			190							
End Bent 2, Piles 1-18	120	179.26	95			160							
Bent 1, Piles 1-63	160	159.48	90			215							

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

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

**SUMMARY OF PDA/PILE ORDER LENGTHS**

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent 1	YES	95	4		
End Bent 2	YES	100			
Bent 1	YES	90			

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

**PILE DESIGN INFORMATION**

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) ## (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-26	120			0.75			
End Bent 2, Piles 19-24	120	14		0.75			
End Bent 2, Piles 1-18	120			0.75			
Bent 1, Piles 1-63	160			0.75			

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

**NOTES:**


1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Stephen C. Crockett, 048207) on 12/16/21.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer will determine the need for PDA Testing when PDAs may be required.

PROJECT NO. I-5987B

ROBESON COUNTY

STATION: -L- 617+12.20/-Y5- 40+91.10

SHEET 3 OF 5

 DocuSigned by: <i>L. Kevin Austin</i> 4/22/2022 SIGNATURE DATE	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH  <b>PILE FOUNDATION TABLES</b>						SHEET NO. S6- 3
	REVISIONS						TOTAL SHEETS 53
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	NO. <b>1</b>	BY:	DATE:	NO. <b>3</b>	BY:	DATE:	
	<b>2</b>			<b>4</b>			



### TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURES	ASBESTOS ASSESSMENT	FOUNDATION EXCAVATION FOR BENT 1	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL
	LUMP SUM	LUMP SUM	LUMP SUM	EACH	SO. FT.	SO. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.
SUPERSTRUCTURE					32782	36762		LUMP SUM		
END BENT 1							139.3		19336	
BENT 1			LUMP SUM				236.7		43694	4984
END BENT 2							139.2		20336	
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	4	32782	36762	515.2	LUMP SUM	83366	4984

### TOTAL BILL OF MATERIAL

	MODIFIED 72" PRESTRESSED CONCRETE GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 STEEL PILES	HP 12 X 53 STEEL PILES	HP 14 X 73 STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	CONCRETE MEDIAN BARRIER	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS		
	NO.	LIN. FT.	EACH	EACH	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	SO. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	30	3182.50											LUMP SUM	LUMP SUM
END BENT 1			26		26	2340						37		
BENT 1					63	5670								
END BENT 2			24		24	2280						37		
TOTAL	30	3182.50	50	63	50	4620	63	5670	90	427.81	264.03	74	LUMP SUM	LUMP SUM

### NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 2.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

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

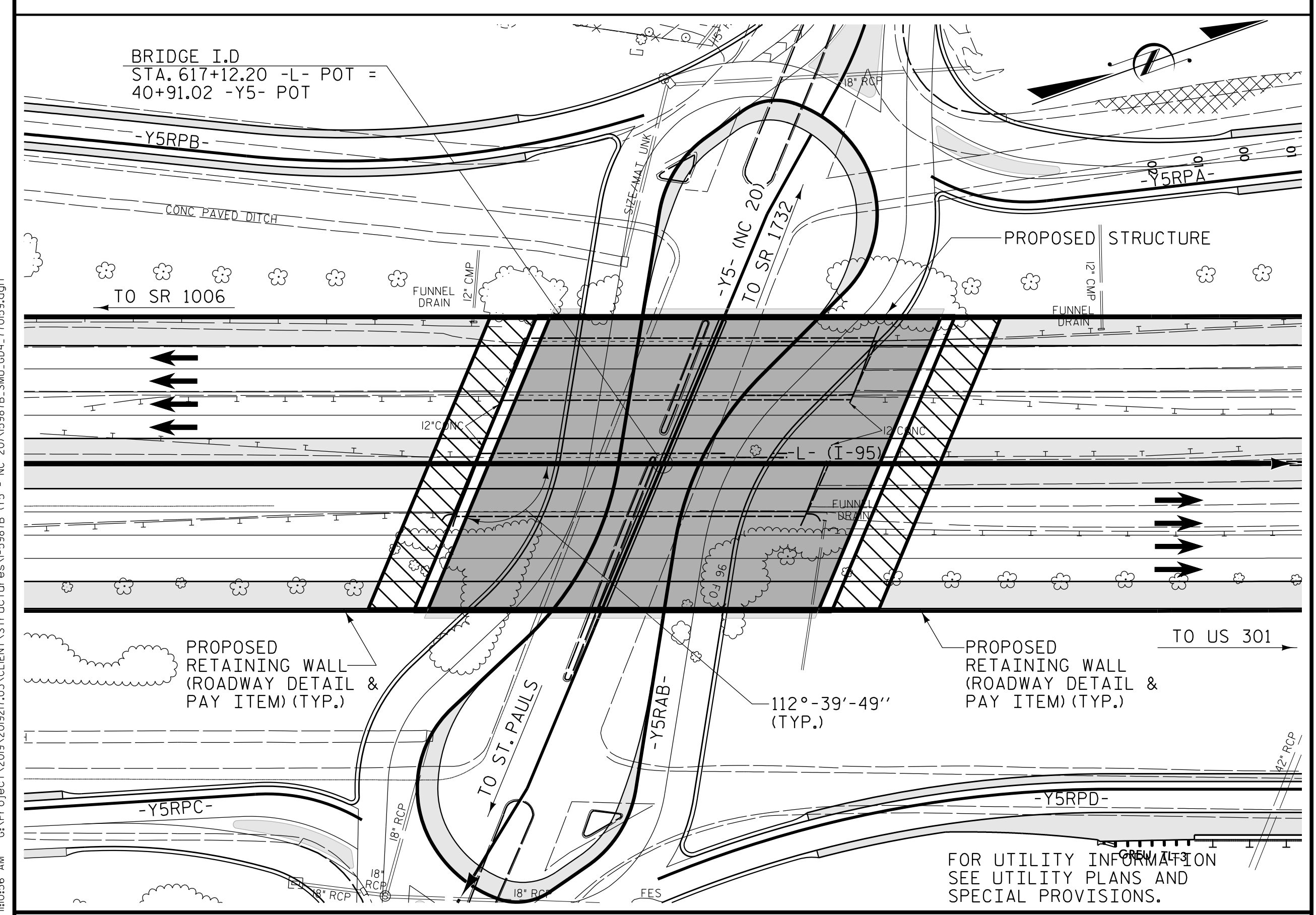
FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, 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 COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 617+12.20".

STEEL SHEET PILING REQUIRED FOR SHORING SHALL BE HOT ROLLED.

BM#35: RR SPIKE IN BASE OF 24" PINE TREE; 479.04' LT STA. 621+72.84 -L- ELEV. 164.21



### LOCATION SKETCH

DRAWN BY : W.B. ALLEN DATE : 12/21  
 CHECKED BY : M.D. METZGER DATE : 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 01/22

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.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURES 770159 AND 770160 CONSISTING OF 52', 80', 52', STEEL GIRDER SPANS, 28' CLEAR ROADWAY WIDTH, CONCRETE DECK, ON PRECAST CONCRETE PILES AND LOADED CONCURRENT WITH STAGE II & III OF NEW CONSTRUCTION, 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 STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5987B  
 ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 4 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

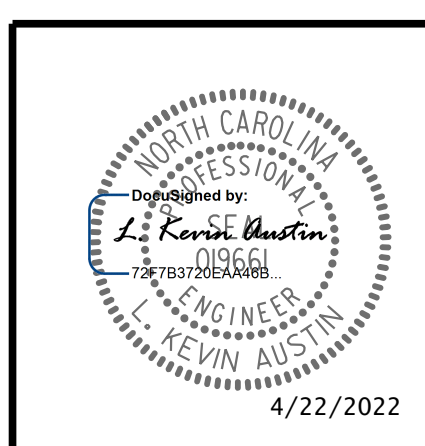
GENERAL DRAWING  
 FOR BRIDGE ON -L- (I-95)  
 OVER -Y5- (NC 20)  
 BETWEEN SR 1006 AND US 301

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			53

PLANS PREPARED BY:

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LOAD FACTORS:

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

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									
							LIVE-LOAD FACTORS ( $\gamma_{LL}$ )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS ( $\gamma_{LL}$ )	DISTRIBUTION FACTORS (DF)	RATING FACTOR		SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	①	1.03	--	1.75	0.960	1.25	B	E	57.88	1.120	1.77	B	I	11.01	0.80	0.960	1.03	B	E	57.88	
		HL-93 (OPERATING)	N/A		1.63	--	1.35	0.960	1.63	B	E	57.88	1.120	2.32	B	I	11.01	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	②	1.49	53.64	1.75	0.960	1.81	B	E	57.88	1.120	2.48	B	I	11.01	0.80	0.960	1.49	B	E	57.88	
		HS-20 (OPERATING)	36.000		2.35	84.60	1.35	0.960	2.35	B	E	57.88	1.120	3.26	B	I	11.01	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500		3.91	48.88	1.40	0.960	5.94	B	E	57.88	1.120	8.65	B	I	11.01	0.80	0.960	3.91	B	E	57.88	
		S3C	21.500		2.28	49.02	1.40	0.960	3.47	B	E	57.88	1.120	5.01	B	I	11.01	0.80	0.960	2.28	B	E	57.88	
		S3A	22.750		2.16	49.14	1.40	0.960	3.28	B	E	57.88	1.120	4.75	B	I	11.01	0.80	0.960	2.16	B	E	57.88	
		S4A	26.750		1.88	50.29	1.40	0.960	2.86	B	E	57.88	1.120	4.10	B	I	11.01	0.80	0.960	1.88	B	E	57.88	
		S5A	30.500		1.66	50.63	1.40	0.960	2.52	B	E	57.88	1.120	3.68	B	I	11.01	0.80	0.960	1.66	B	E	57.88	
		S6A	34.500		1.49	51.41	1.40	0.960	2.27	B	E	57.88	1.120	3.28	B	I	11.01	0.80	0.960	1.49	B	E	57.88	
		S7B	38.500		1.35	51.98	1.40	0.960	2.06	B	E	57.88	1.120	3.02	B	I	11.01	0.80	0.960	1.35	B	E	57.88	
		S7A	40.000	③	1.33	53.20	1.40	0.960	2.02	B	E	57.88	1.120	3.05	B	I	11.01	0.80	0.960	1.33	B	E	57.88	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250		1.84	51.98	1.40	0.960	2.79	B	E	57.88	1.120	3.94	B	I	11.01	0.80	0.960	1.84	B	E	57.88	
		T5B	32.000		1.62	51.84	1.40	0.960	2.46	B	E	57.88	1.120	3.65	B	I	104.74	0.80	0.960	1.62	B	E	57.88	
		T6A	36.000		1.47	52.92	1.40	0.960	2.23	B	E	57.88	1.120	3.31	B	I	11.01	0.80	0.960	1.47	B	E	57.88	
		T7A	40.000		1.35	54.00	1.40	0.960	2.05	B	E	57.88	1.120	3.04	B	I	11.01	0.80	0.960	1.35	B	E	57.88	
	T7B	40.000		1.41	56.40	1.40	0.960	2.15	B	E	57.88	1.120	2.90	B	I	11.01	0.80	0.960	1.41	B	E	57.88		

NOTES:  
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
 ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:  
 1.  
 2.  
 3.  
 4.

③ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

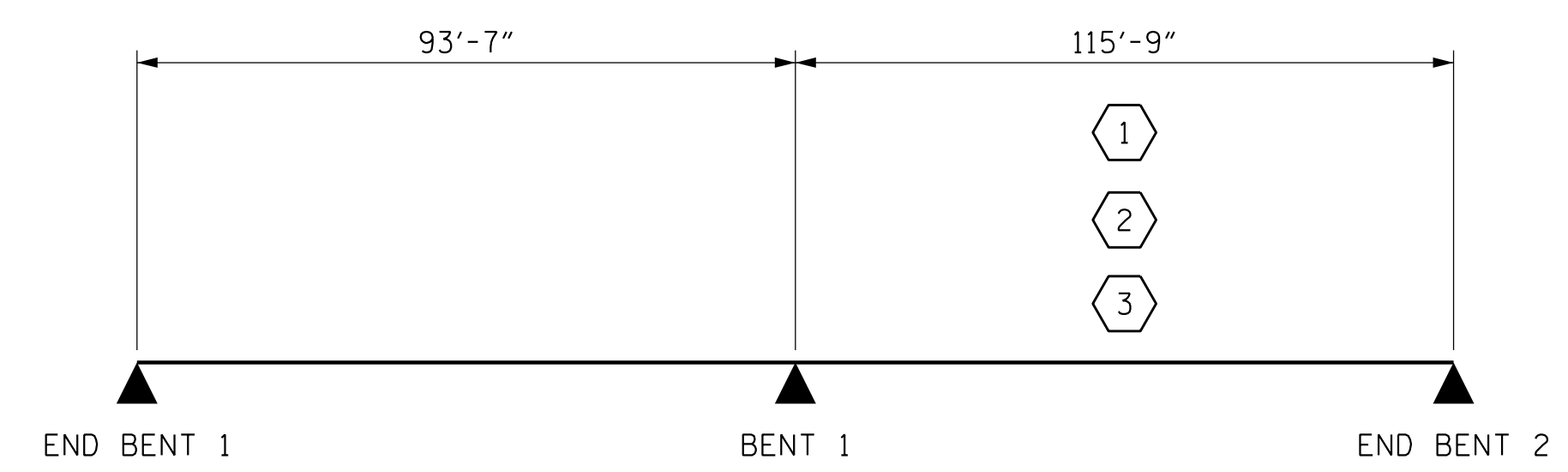
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. I-5987B  
 ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 5 OF 5

ASSEMBLED BY : J. A. PANDOLI	DATE : 12/21
CHECKED BY : M. D. METZGER	DATE : 12/21
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

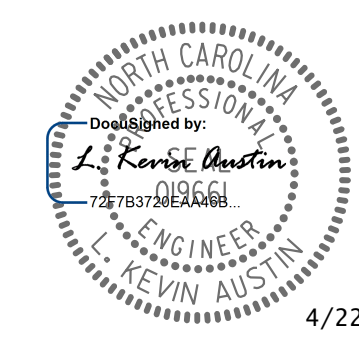
PLANS PREPARED BY:

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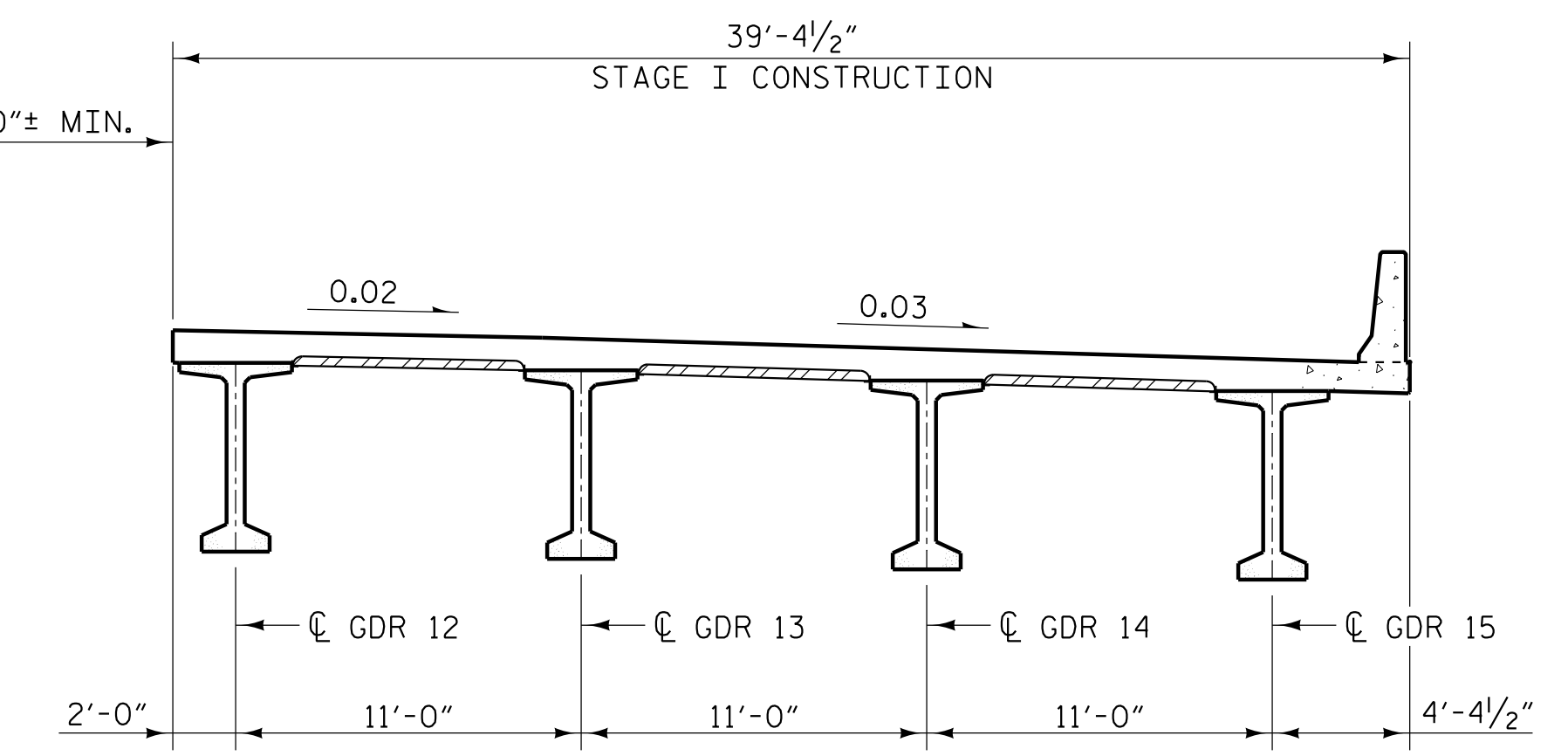
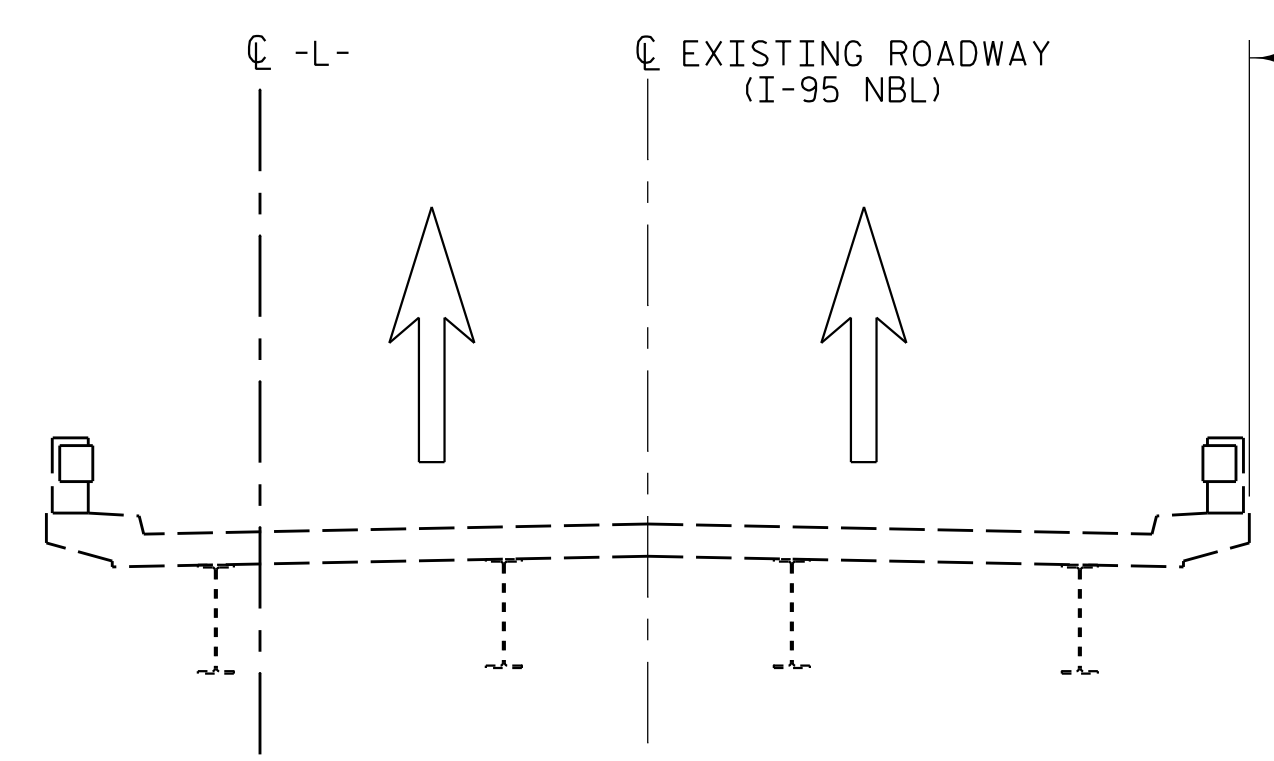
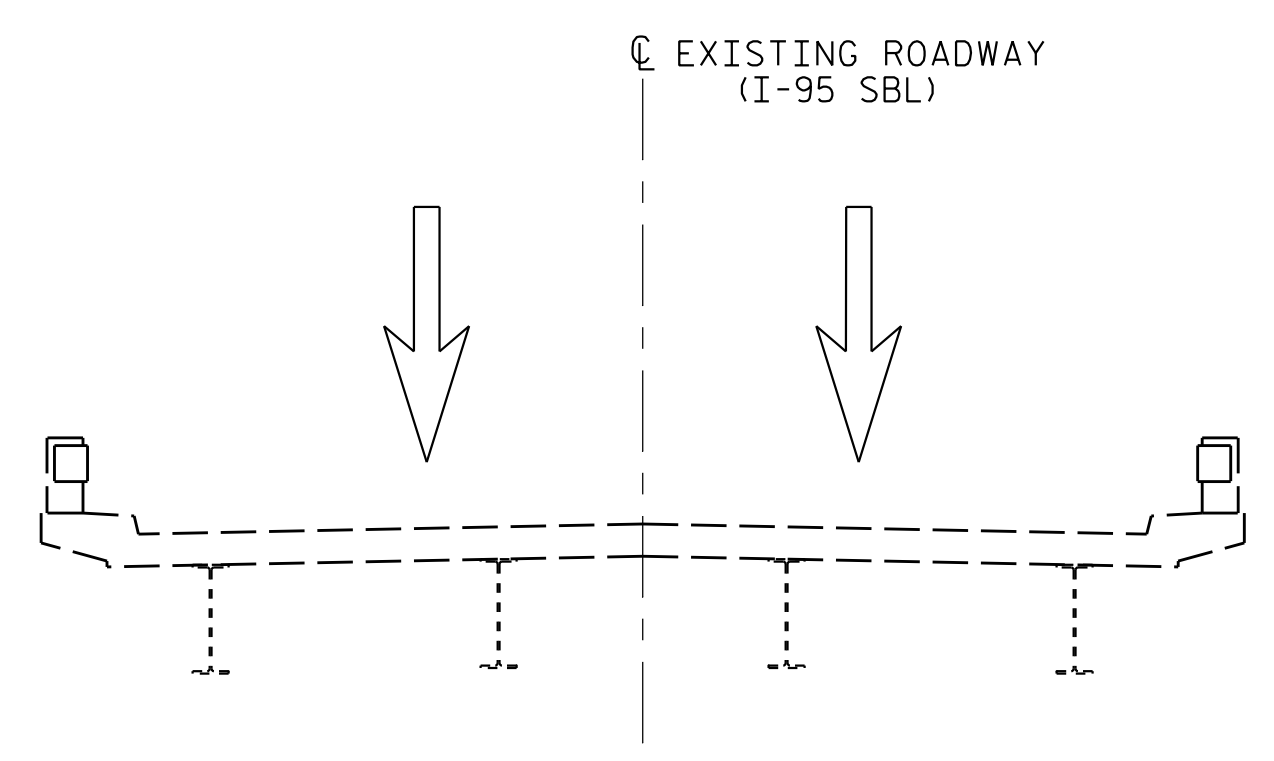
4/22/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

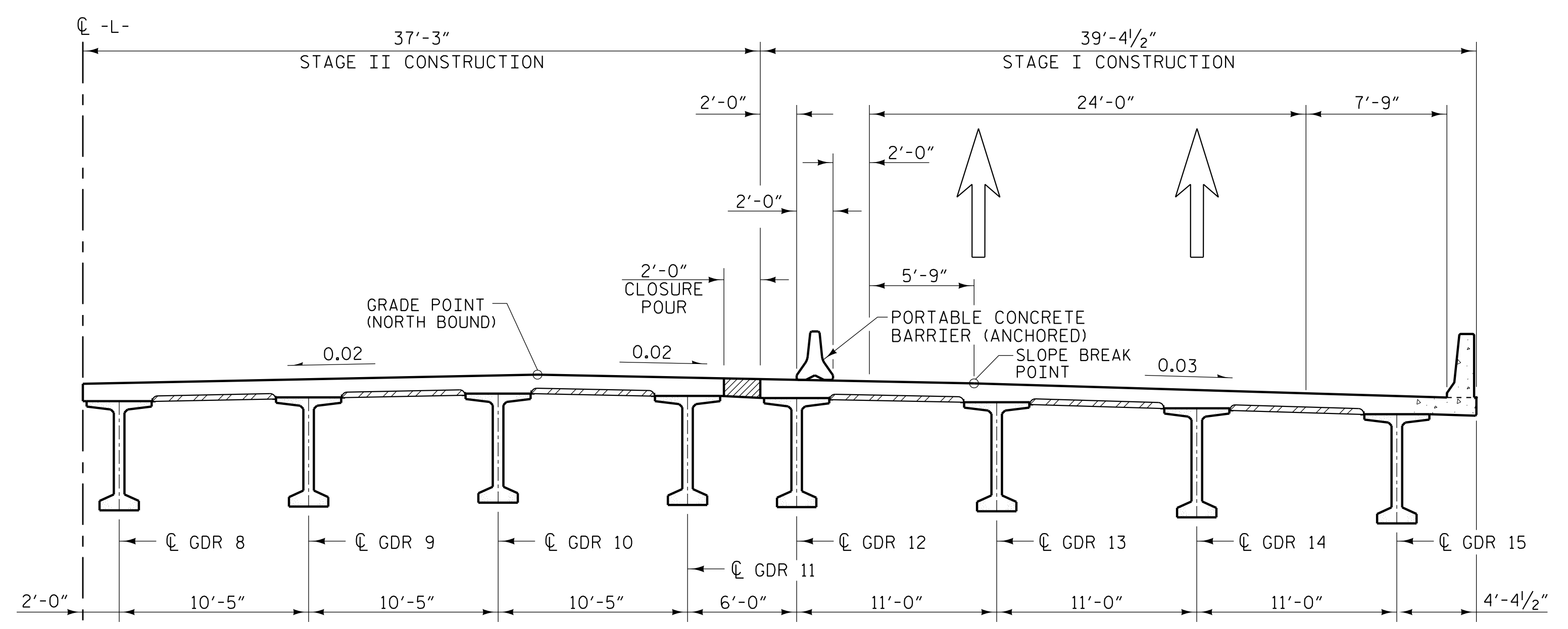
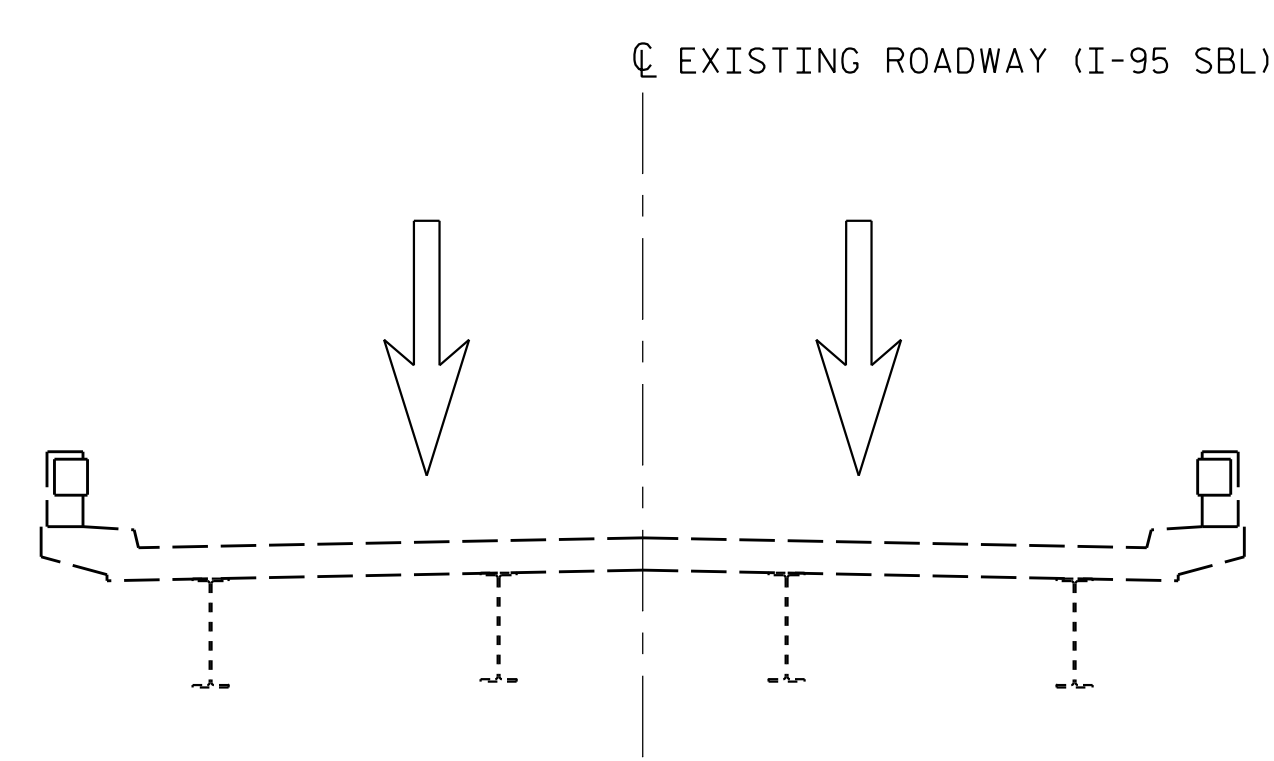
STANDARD  
 LRFR SUMMARY FOR  
 PRESTRESSED  
 CONCRETE GIRDERS  
 (INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-5
1			3			TOTAL SHEETS
2			4			53

STD. NO. LRFR2



STAGE I CONSTRUCTION



STAGE II CONSTRUCTION

NOTES:

FOR TRAFFIC PHASING, SEE TRAFFIC CONTROL PLANS.  
 THE PORTABLE CONCRETE BARRIER IS A TRAFFIC CONTROL PAY ITEM.  
 SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE PORTABLE CONCRETE BARRIER.

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**CONSTRUCTION STAGING SEQUENCE**

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2			4			53

PLANS PREPARED BY:

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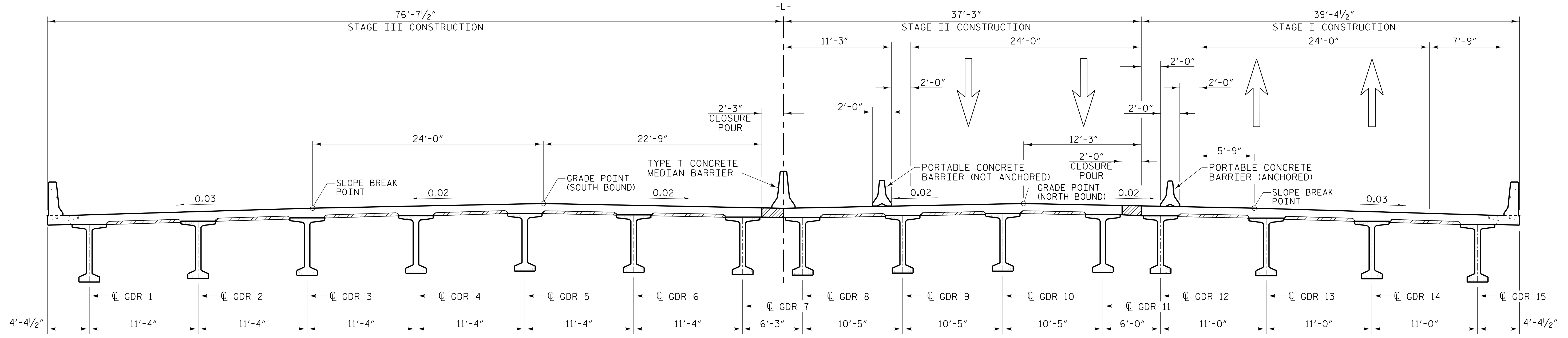
NV5 ENGINEERS & CONSULTANTS, INC.  
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Professional Engineer Seal for Kevin Austin, State of North Carolina, License # 72783.

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DRAWN BY : W.B. ALLEN DATE : 12/21  
 CHECKED BY : M.D. METZGER DATE : 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 01/22



### STAGE III CONSTRUCTION

#### NOTES:

- FOR TRAFFIC PHASING, SEE TRAFFIC CONTROL PLANS.
- THE PORTABLE CONCRETE BARRIER IS A TRAFFIC CONTROL PAY ITEM.
- SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE PORTABLE CONCRETE BARRIER.

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

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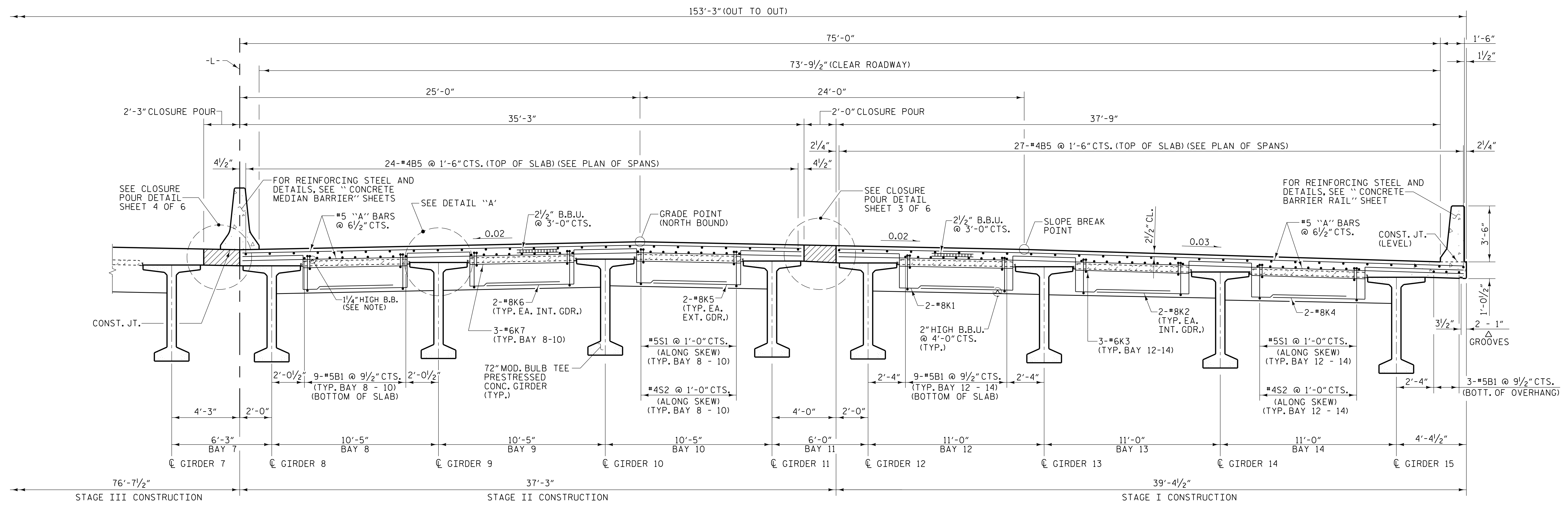
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-7
1			3			TOTAL SHEETS
2			4			53

DRAWN BY :	W.B. ALLEN	DATE :	12/21
CHECKED BY :	M.D. METZGER	DATE :	12/21
DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	01/22

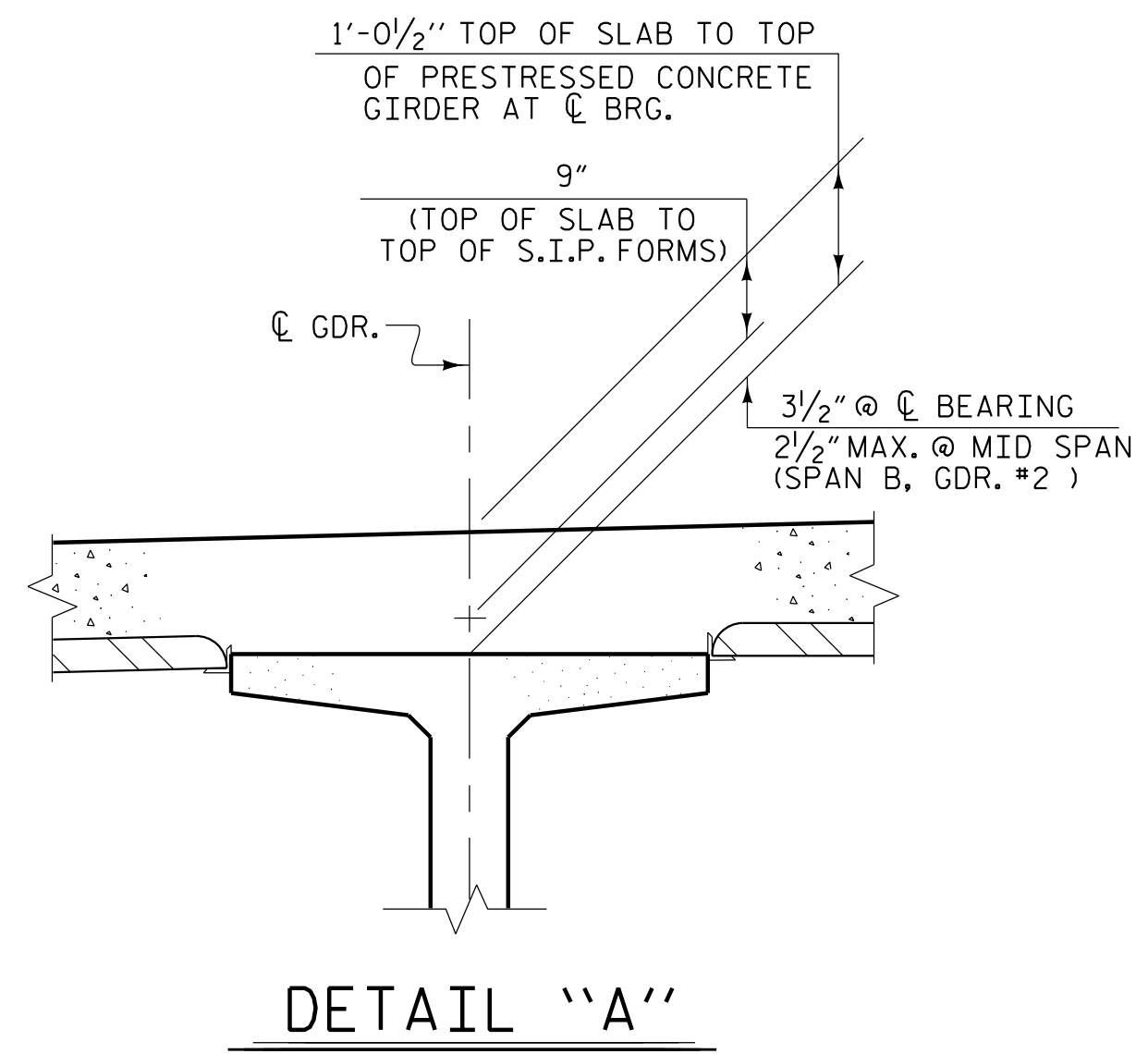
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**TYPICAL HALF SECTION**  
(SHOWING END BENT DIAPHRAGMS)



**NOTES:**

- PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER (BBU) AT 4'-0" CENTERS 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 AS NECESSARY TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS IN THE DECK.
- PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 1 OF 6

STATE OF NORTH CAROLINA  
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**SUPERSTRUCTURE  
 TYPICAL SECTION**

PLANS PREPARED BY:

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1			3			TOTAL SHEETS
2			4			53

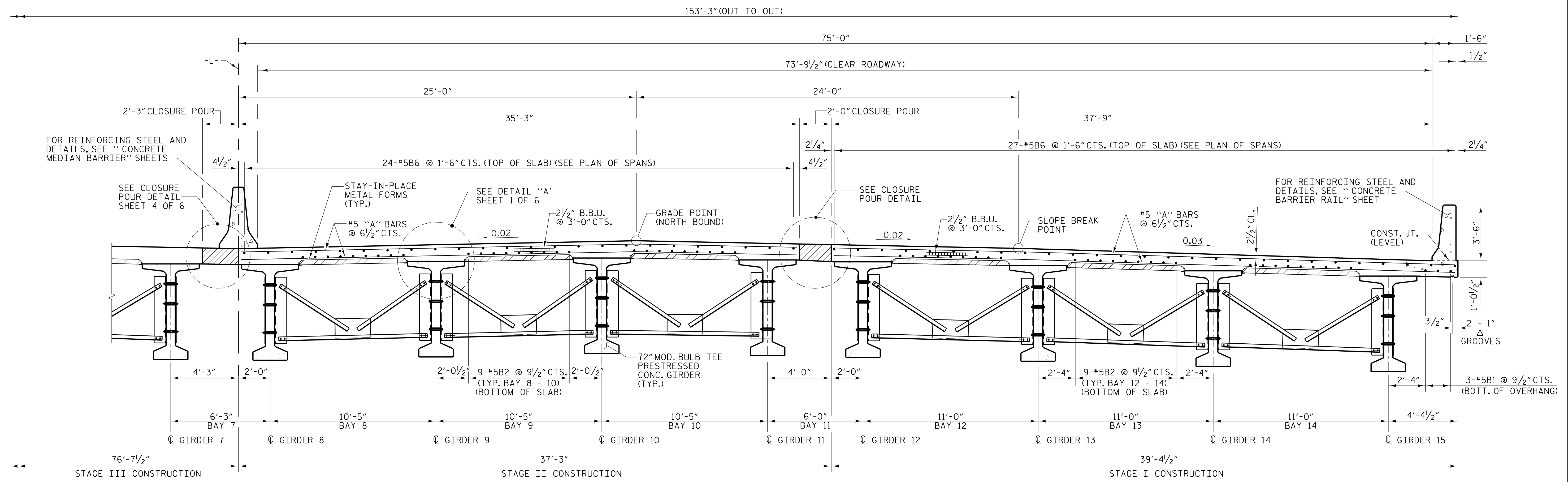
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CHECKED BY :	M.D. METZGER	DATE :	12/21
DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	01/22

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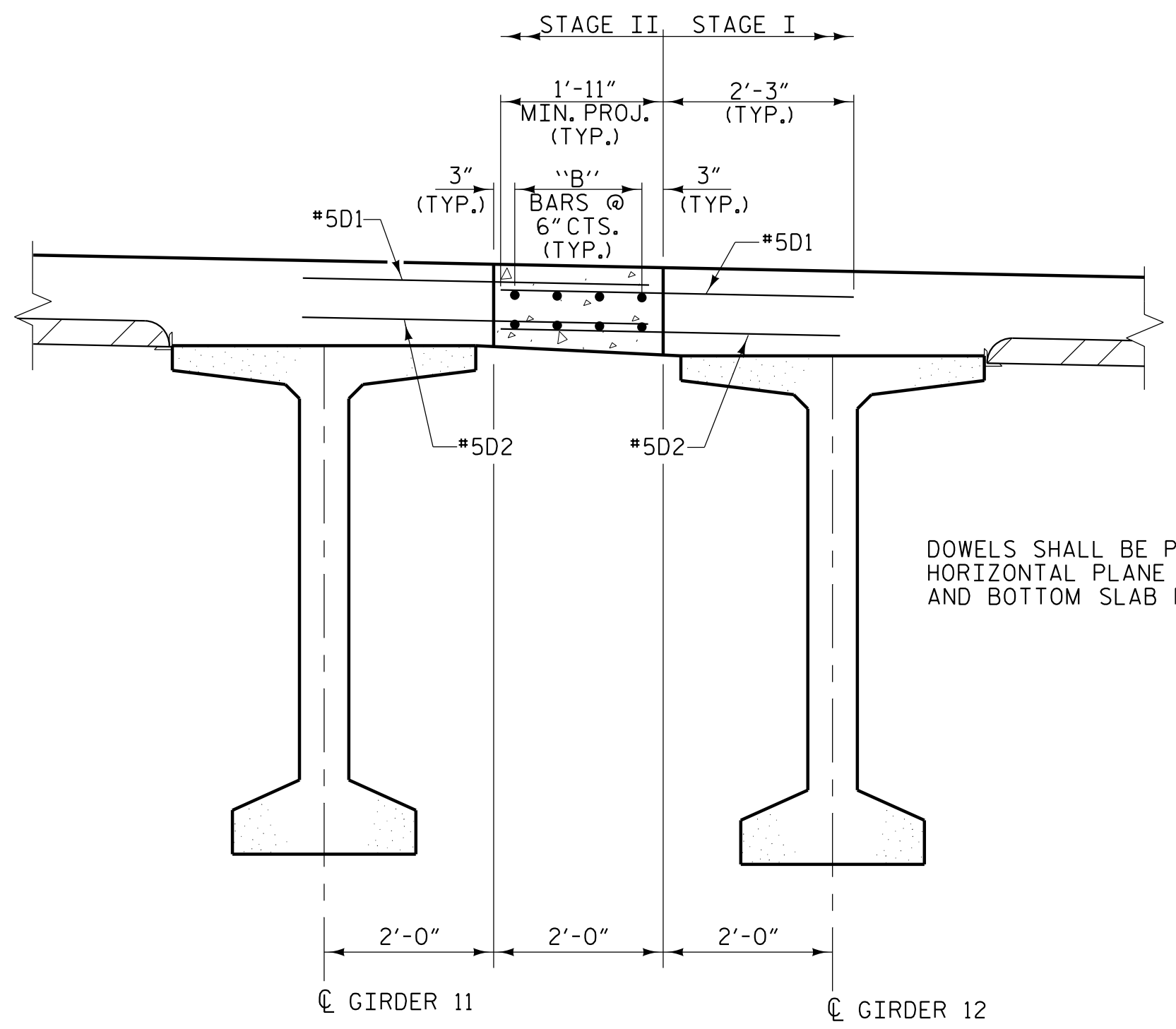
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**TYPICAL HALF SECTION**  
(SHOWING INTERMEDIATE DIAPHRAGMS)



**CLOSURE POUR DETAIL**  
(STAGE II CONSTRUCTION)

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

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 3 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
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**SUPERSTRUCTURE  
 TYPICAL SECTION**

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			53

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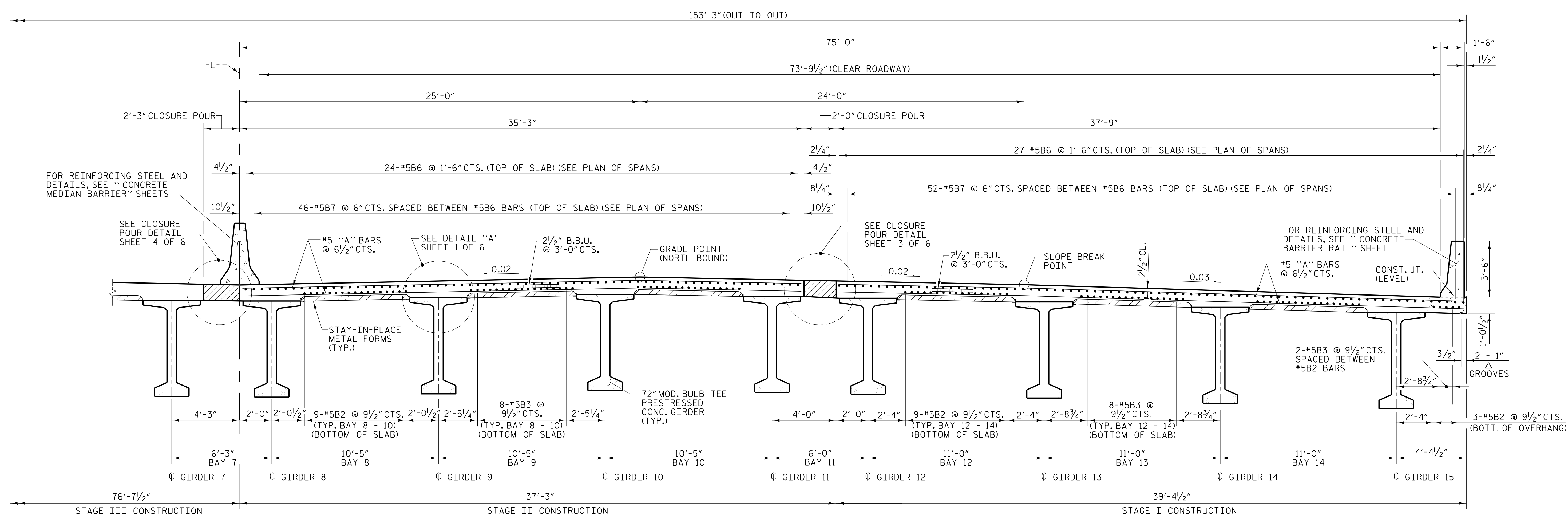
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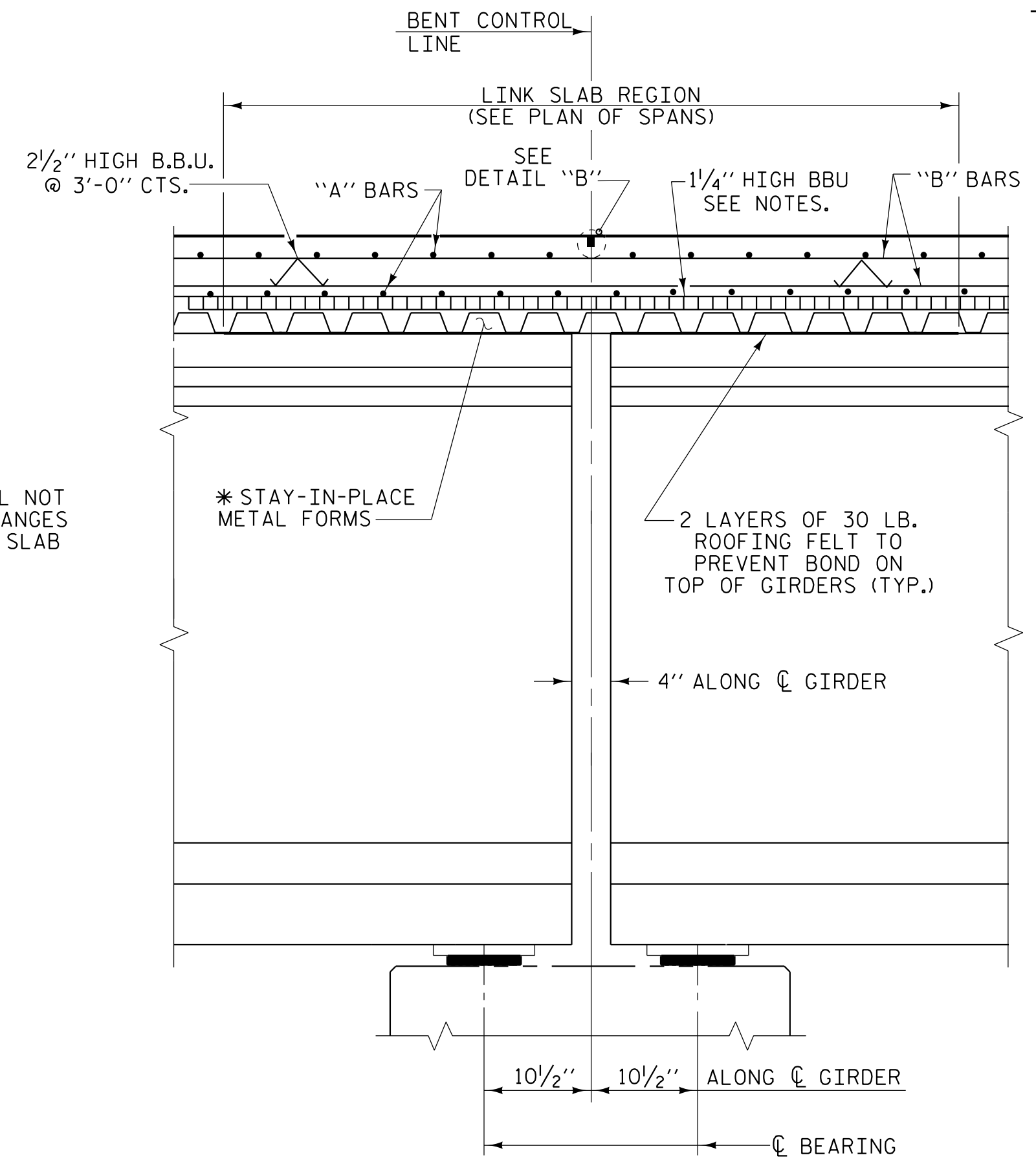
DRAWN BY: W.B. ALLEN DATE: 12/21  
 CHECKED BY: M.D. METZGER DATE: 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22



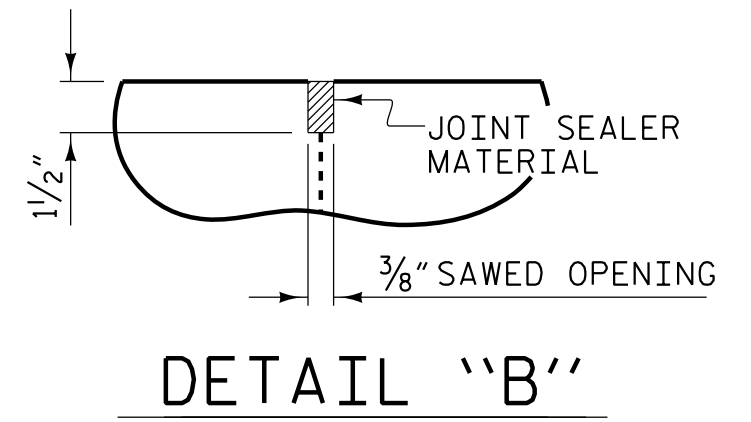




**TYPICAL HALF SECTION**  
(SHOWING LINK SLAB)



**SECTION AT BENT**



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

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

\* STAY-IN-PLACE METAL FORMS

2 LAYERS OF 30 LB. ROOFING FELT TO PREVENT BOND ON TOP OF GIRDERS (TYP.)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 5 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE**  
**TYPICAL SECTION**

PLANS PREPARED BY:

**NV5**

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 CARY, NC 27518  
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 NC License # F-1333



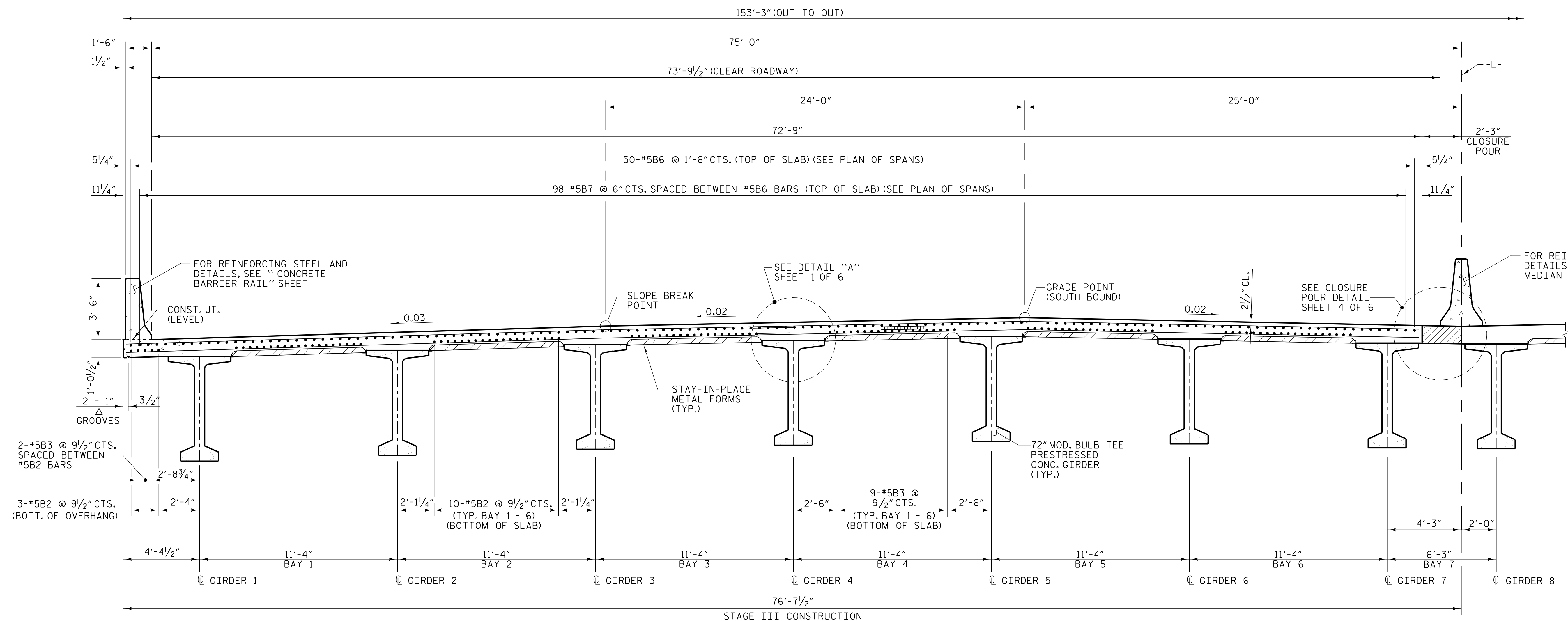
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NO.	BY:	DATE:	NO.	BY:	DATE:	S6-12
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2			4			53

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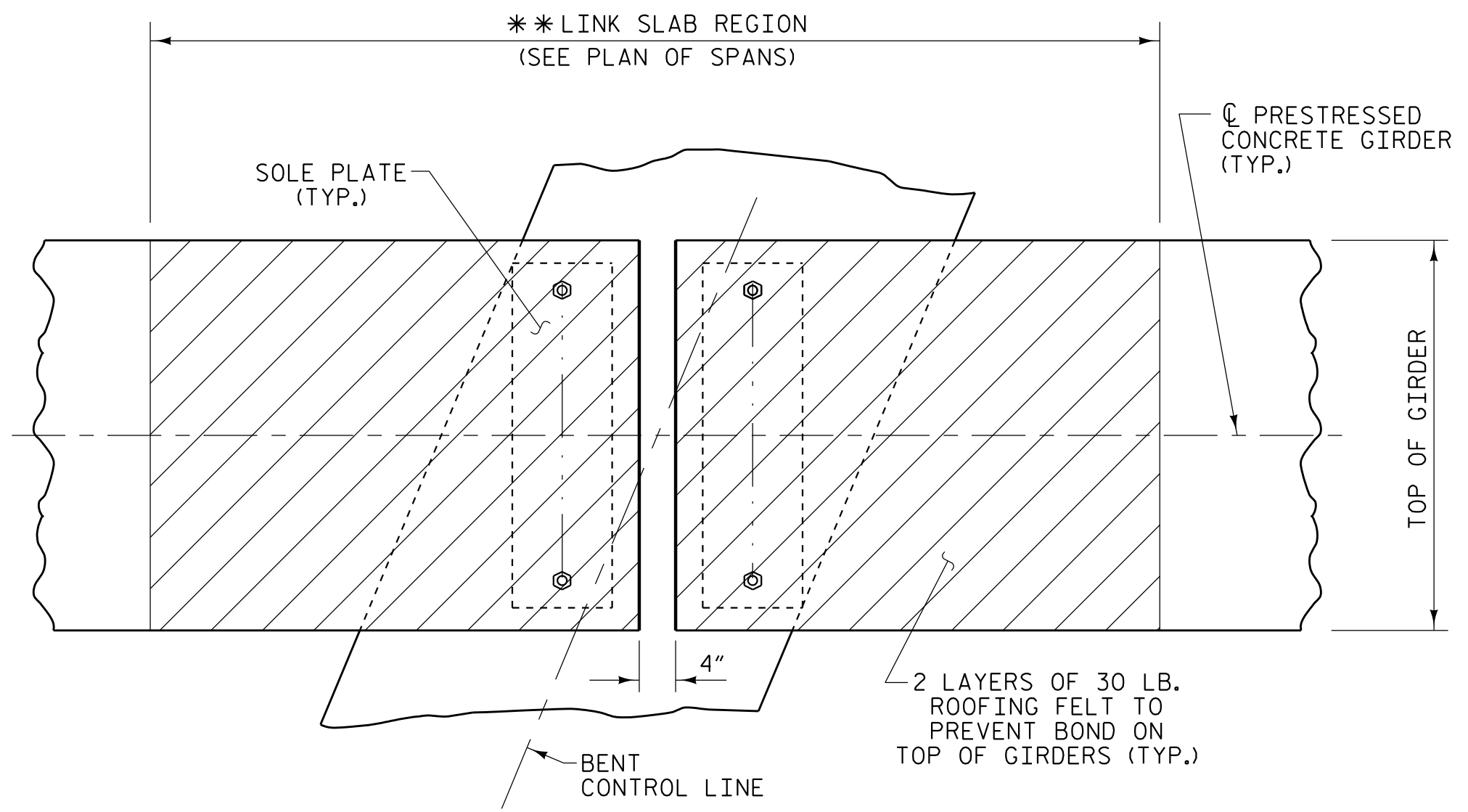
DRAWN BY: W.B. ALLEN DATE: 12/21  
 CHECKED BY: M.D. METZGER DATE: 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22

4/20/2022 11:04 AM G:\Project\2019\2019\7\03\CLIENT\Structures\I-5987B\15 - NC 2019\987B\_SML155\_77059.dgn



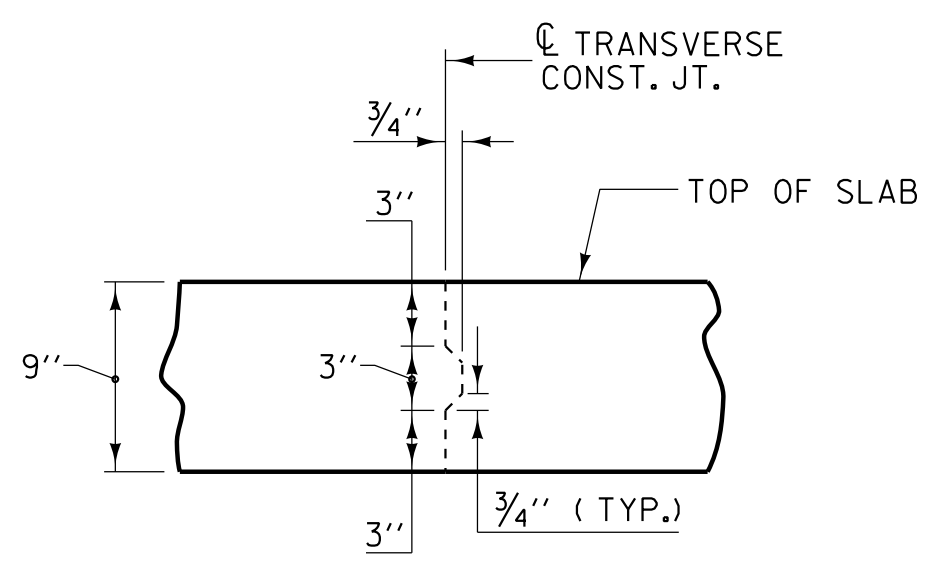


**TYPICAL HALF SECTION**  
(SHOWING LINK SLAB)



**PLAN OF GIRDERS AT BENT**

\*\* THE TOP OF THE BEAM IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.



**TRANSVERSE CONSTRUCTION JOINT DETAIL**

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

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 6 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 TYPICAL SECTION

PLANS PREPARED BY:  
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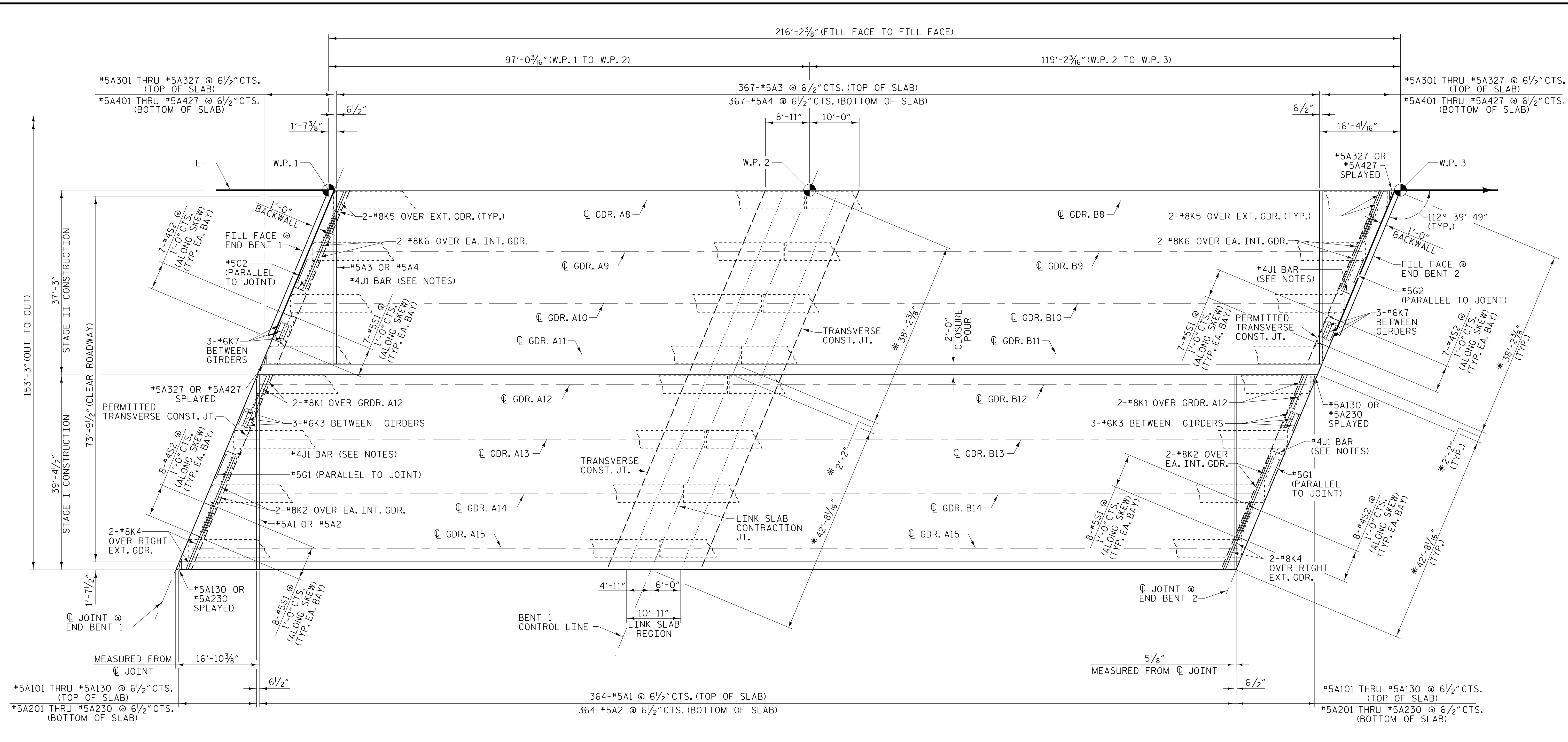
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NO.	BY:	DATE:	NO.	BY:	DATE:	S6-13
1			3			TOTAL SHEETS
2			4			53

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DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	01/22

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NOTES

- FOR "B" BARS AND REINFORCING STEEL IN THE CLOSURE POUR SEE "PLAN OF SPANS "B" BAR LAYOUT".
- FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 6 OF 6.
- FOR POUR SEQUENCE, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET 3 OF 3.
- FOR PLACEMENT OF #4JI BARS, SEE EXPANSION JOINT SEAL DETAILS" SHEET.

PLAN OF SPANS  
 STAGE I & STAGE II  
 CONSTRUCTION  
 \* MEASURED ALONG  $\phi$  JOINT

PROJECT NO. I-5987B  
 ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 1 OF 5  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 STAGE I & STAGE II

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2			4			

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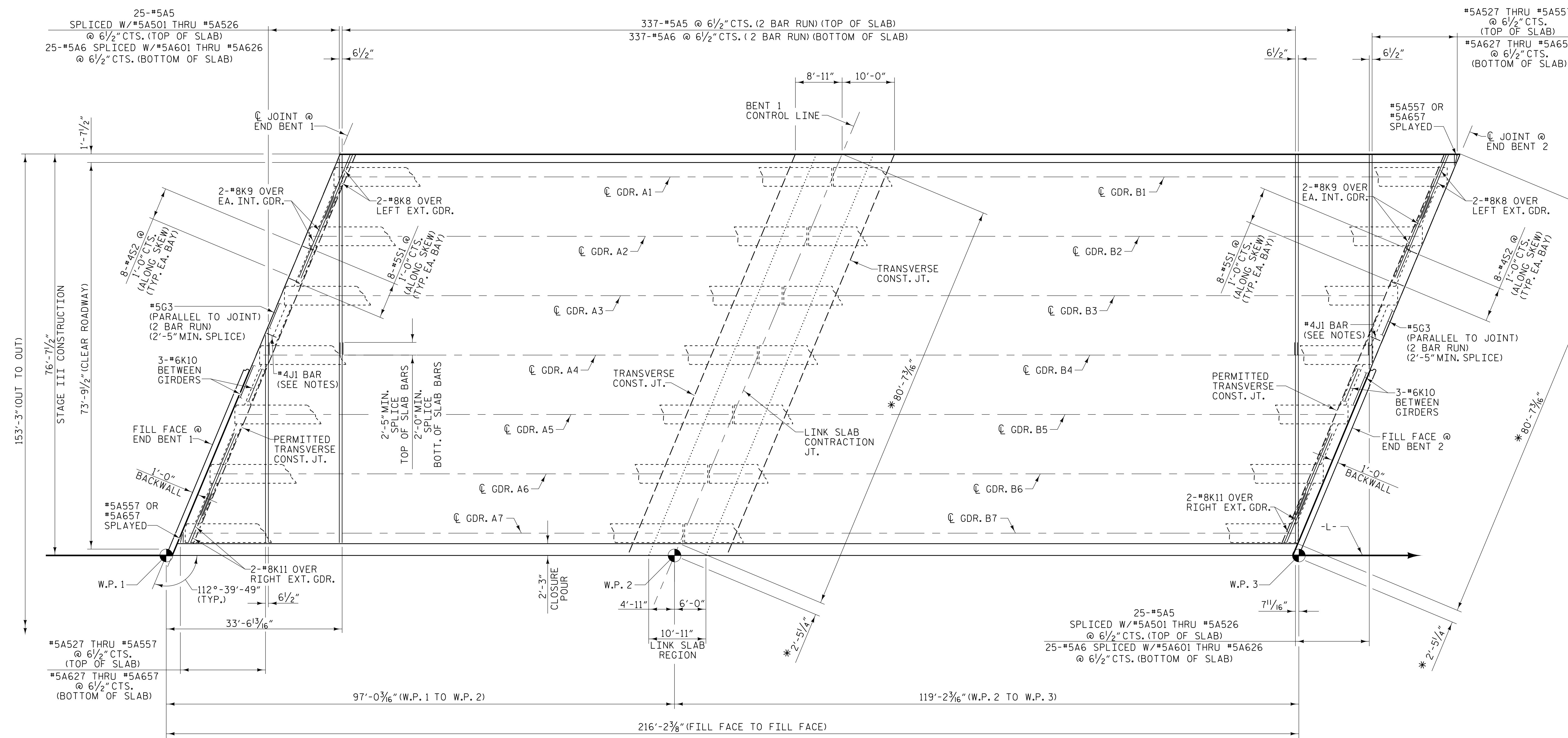
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SPAN A

SPAN B

**PLAN OF SPANS**  
**STAGE III CONSTRUCTION**  
 \* MEASURED ALONG @ JOINT

**NOTES**

- FOR "B" BARS AND REINFORCING STEEL IN THE CLOSURE POUR SEE "PLAN OF SPANS "B" BAR LAYOUT".
- FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 6 OF 6.
- FOR POUR SEQUENCE, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET 3 OF 3.
- FOR PLACEMENT OF #4J1 BARS, SEE EXPANSION JOINT SEAL DETAILS" SHEET.

PROJECT NO. I-5987B  
 ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 2 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

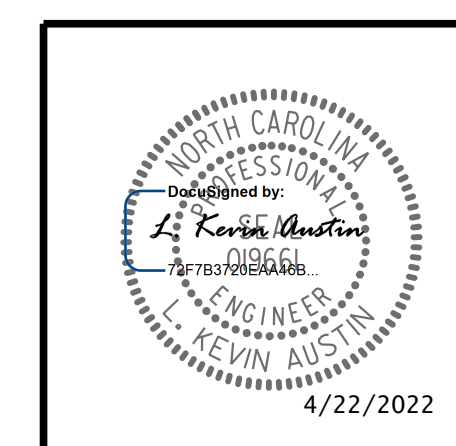
**SUPERSTRUCTURE**  
**PLAN OF SPANS**  
**STAGE III**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-15
1			3			TOTAL SHEETS
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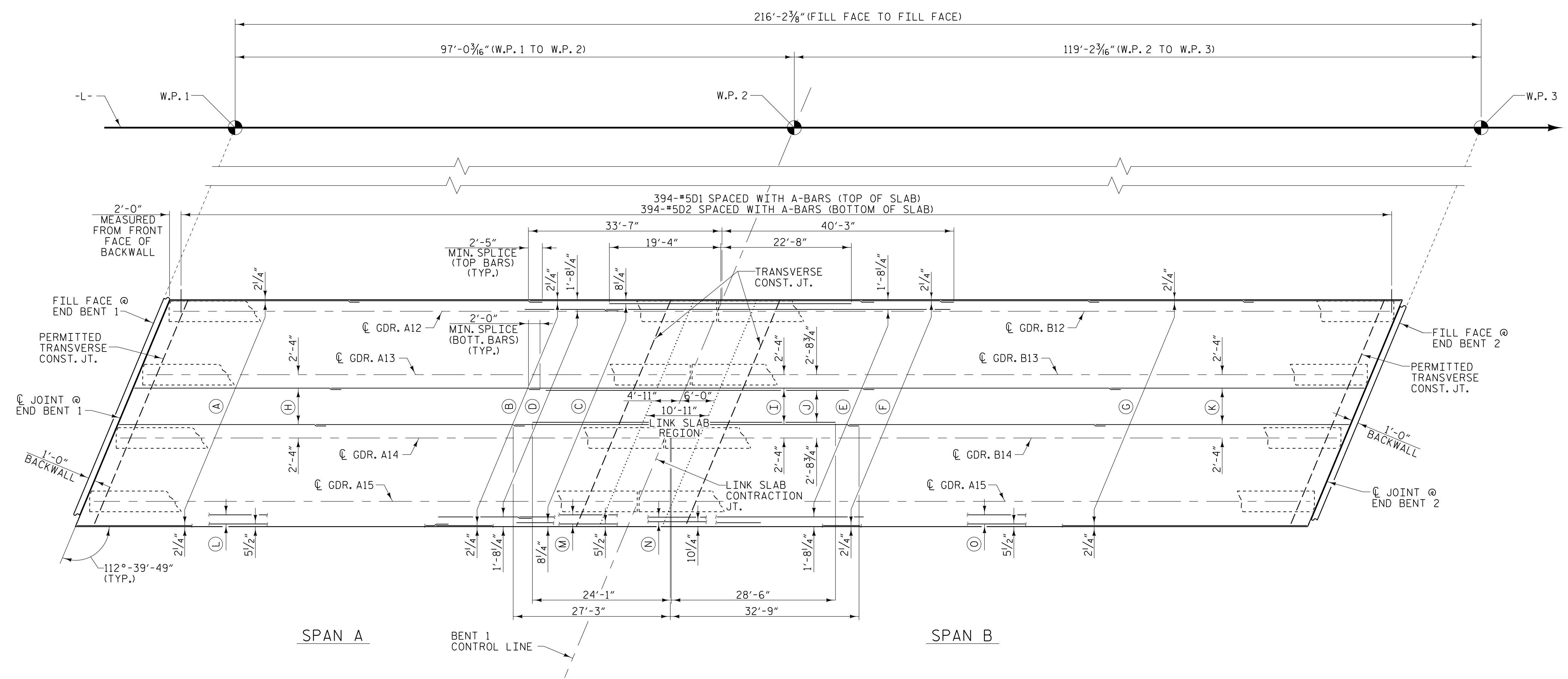
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**PLAN OF SPANS - "B" BAR LAYOUT**  
 STAGE I CONSTRUCTION  
 (BARRIER RAIL NOT SHOWN FOR CLARITY)

- (A) 27-#4B5 @ 1'-6" CTS. (TOP OF SLAB) (2 BAR RUNS) (1'-11" MIN. SPLICE)
- (B) 14-#5B6 @ 3'-0" CTS. (TOP OF SLAB)
- (C) 52-#5B7 @ 6" CTS. SPACED BETWEEN #5B6 BARS (TOP OF SLAB)
- (D) 13-#5B8 @ 3'-0" CTS. (TOP OF SLAB)
- (E) 13-#5B6 @ 3'-0" CTS. (TOP OF SLAB)
- (F) 14-#5B8 @ 3'-0" CTS. (TOP OF SLAB)
- (G) 27-#4B9 @ 1'-6" CTS. (TOP OF SLAB) (3 BAR RUNS) (1'-11" MIN. SPLICE)

- (H) 9-#5B1 @ 9/2" CTS. (BOTTOM OF SLAB) (2 BAR RUN) (2'-0" MIN. SPLICE) (TYP. BAY 12 - 14)
- (I) 9-#5B2 @ 9/2" CTS. (BOTTOM OF SLAB) (TYP. BAY 12 - 14)
- (J) 8-#5B3 @ 9/2" CTS. SPACED BETWEEN #5B2 BARS (BOTTOM OF SLAB) (TYP. BAY 12 - 14)
- (K) 9-#5B4 @ 9/2" CTS. (BOTTOM OF SLAB) (2 BAR RUNS) (2'-0" MIN. SPLICE) (TYP. BAY 12 - 14)
- (L) 3-#5B1 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG) (2 BAR RUNS) (2'-0" MIN. SPLICE)
- (M) 3-#5B2 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG)
- (N) 2-#5B3 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG)
- (O) 3-#5B4 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG) (2 BAR RUNS) (2'-0" MIN. SPLICE)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 3 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

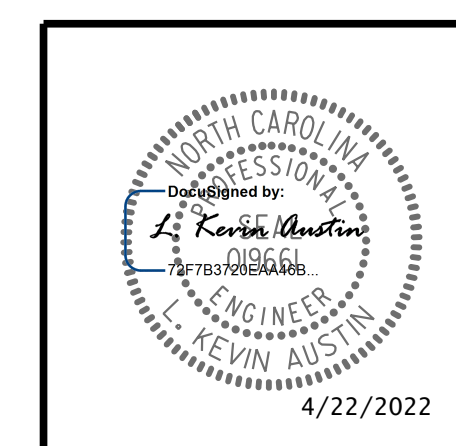
SUPERSTRUCTURE  
 PLAN OF SPANS  
 "B" BAR LAYOUT  
 STAGE I

REVISIONS						SHEET NO.
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2			4			

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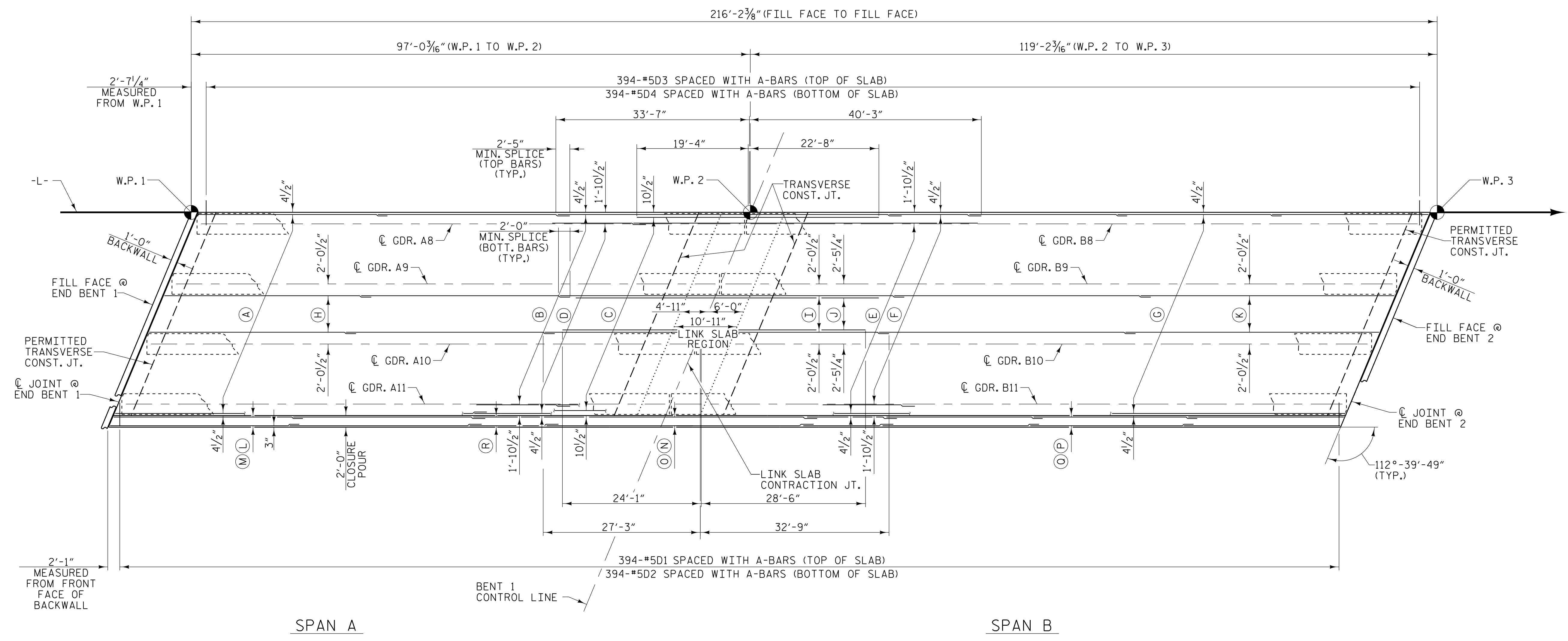


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**PLAN OF SPANS - "B" BAR LAYOUT**  
 STAGE II CONSTRUCTION  
 (MEDIAN CONCRETE BARRIER NOT SHOWN FOR CLARITY)

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>(A) 24-#4B5 @ 1'-6" CTS. (TOP OF SLAB) (2 BAR RUNS) (1'-11" MIN. SPLICE)</li> <li>(B) 12-#5B6 @ 3'-0" CTS. (TOP OF SLAB)</li> <li>(C) 46-#5B7 @ 6" CTS. SPACED BETWEEN #5B6 BARS (TOP OF SLAB)</li> <li>(D) 12-#5B8 @ 3'-0" CTS. (TOP OF SLAB)</li> <li>(E) 12-#5B6 @ 3'-0" CTS. (TOP OF SLAB)</li> <li>(F) 12-#5B8 @ 3'-0" CTS. (TOP OF SLAB)</li> <li>(G) 24-#4B9 @ 1'-6" CTS. (TOP OF SLAB) (3 BAR RUNS) (1'-11" MIN. SPLICE)</li> </ul> | <ul style="list-style-type: none"> <li>(H) 9-#5B1 @ 9/2" CTS. (BOTTOM OF SLAB) (2 BAR RUN) (2'-0" MIN. SPLICE) (TYP. BAY 8 - 10)</li> <li>(I) 9-#5B2 @ 9/2" CTS. (BOTTOM OF SLAB) (TYP. BAY 8 - 10)</li> <li>(J) 8-#5B3 @ 9/2" CTS. SPACED BETWEEN #5B2 BARS (BOTTOM OF SLAB) (TYP. BAY 8 - 10)</li> <li>(K) 9-#5B4 @ 9/2" CTS. (BOTTOM OF SLAB) (2 BAR RUNS) (2'-0" MIN. SPLICE) (TYP. BAY 8 - 10)</li> <li>(L) 4-#4B5 @ 6" CTS. (TOP OF SLAB) (CLOSURE POUR) (2 BAR RUNS) (1'-11" MIN. SPLICE)</li> <li>(M) 4-#5B1 @ 6" CTS. (BOTTOM OF SLAB) (CLOSURE POUR) (2 BAR RUNS) (2'-0" MIN. SPLICE)</li> <li>(N) 4-#5B6 @ 6" CTS. (TOP OF SLAB) (CLOSURE POUR)</li> <li>(O) 4-#5B2 @ 6" CTS. (BOTTOM OF SLAB) (CLOSURE POUR)</li> <li>(P) 4-#4B9 @ 6" CTS. (TOP OF SLAB) (CLOSURE POUR) (3 BAR RUNS) (2'-5" MIN. SPLICE)</li> <li>(Q) 4-#5B4 @ 6" CTS. (BOTTOM OF SLAB) (CLOSURE POUR) (2 BAR RUNS) (2'-0" MIN. SPLICE)</li> <li>(R) 4-#5B8 @ 6" CTS. (TOP OF SLAB) (CLOSURE POUR)</li> </ul> |
|--|---|

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

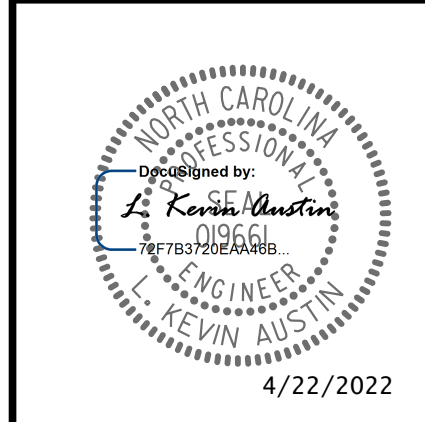
**SUPERSTRUCTURE**  
**PLAN OF SPANS**  
**"B" BAR LAYOUT**  
 STAGE II

REVISIONS						SHEET NO.
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1			3			53
2			4			

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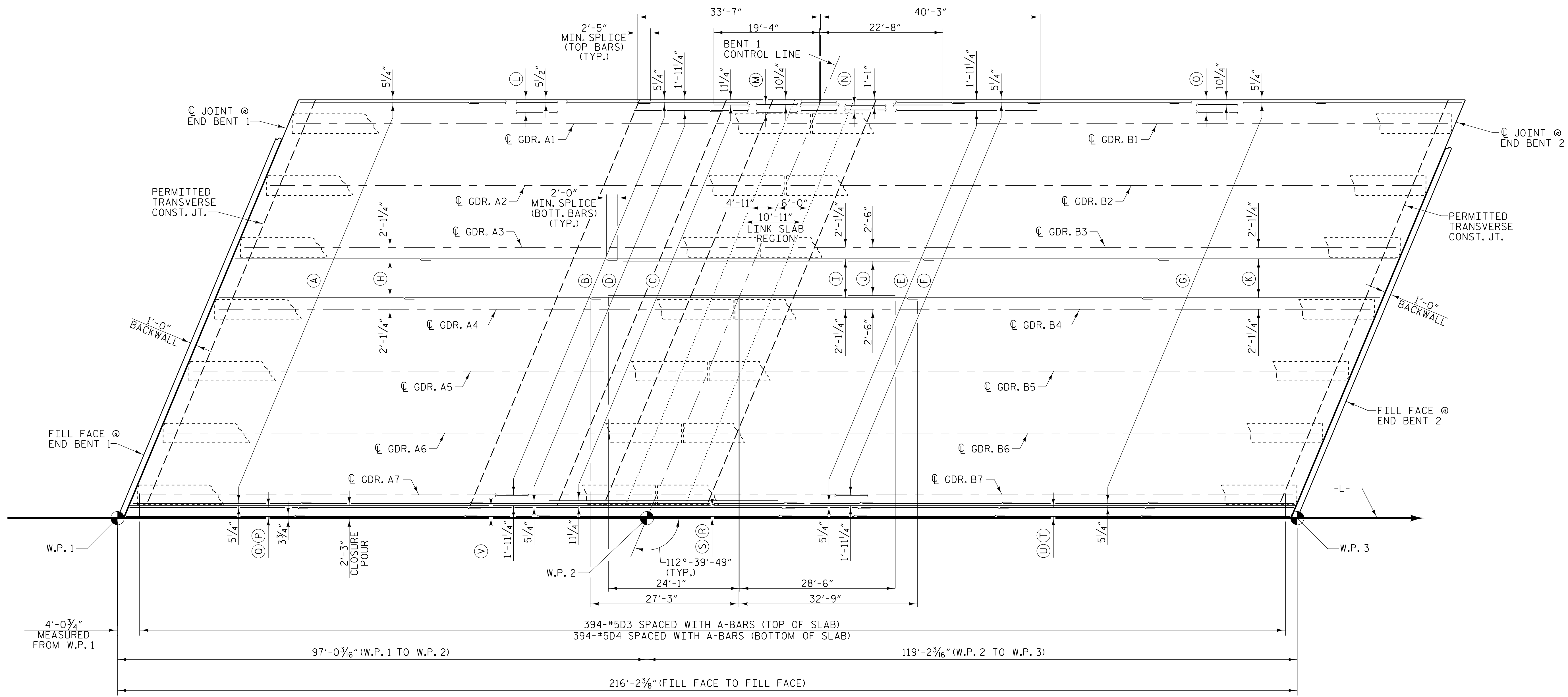
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SPAN A

### PLAN OF SPANS - "B" BAR LAYOUT

SPAN B

#### STAGE III CONSTRUCTION

(BARRIER RAIL AND MEDIAN CONCRETE BARRIER NOT SHOWN FOR CLARITY)

- (A) 50-#4B5 @ 1'-6" CTS. (TOP OF SLAB) (2 BAR RUNS) (1'-11" MIN. SPLICE)
- (B) 25-#5B6 @ 3'-0" CTS. (TOP OF SLAB)
- (C) 98-#5B7 @ 6" CTS. SPACED BETWEEN #5B6 BARS (TOP OF SLAB)
- (D) 25-#5B8 @ 3'-0" CTS. (TOP OF SLAB)
- (E) 25-#5B6 @ 3'-0" CTS. (TOP OF SLAB)
- (F) 25-#5B8 @ 3'-0" CTS. (TOP OF SLAB)
- (G) 50-#4B9 @ 1'-6" CTS. (TOP OF SLAB) (3 BAR RUNS) (1'-11" MIN. SPLICE)
- (H) 10-#5B1 @ 9/2" CTS. (BOTTOM OF SLAB) (2 BAR RUN) (2'-0" MIN. SPLICE) (TYP. BAY 1 - 6)
- (I) 10-#5B2 @ 9/2" CTS. (BOTTOM OF SLAB) (TYP. BAY 1 - 6)
- (J) 9-#5B3 @ 9/2" CTS. SPACED BETWEEN #5B2 BARS (BOTTOM OF SLAB) (TYP. BAY 1 - 6)
- (K) 10-#5B4 @ 9/2" CTS. (BOTTOM OF SLAB) (2 BAR RUNS) (2'-0" MIN. SPLICE) (TYP. BAY 1 - 6)

- (L) 3-#5B1 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG) (2 BAR RUNS) (2'-0" MIN. SPLICE)
- (M) 3-#5B2 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG)
- (N) 2-#5B3 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG)
- (O) 3-#5B4 @ 9/2" CTS. (BOTTOM OF SLAB) (OVERHANG) (2 BAR RUNS) (2'-0" MIN. SPLICE)
- (P) 4-#4B5 @ 6/2" CTS. (TOP OF SLAB) (CLOSURE POUR) (2 BAR RUNS) (2'-5" MIN. SPLICE)
- (Q) 4-#5B1 @ 6/2" CTS. (BOTTOM OF SLAB) (CLOSURE POUR) (2 BAR RUNS) (2'-0" MIN. SPLICE)
- (R) 4-#5B6 @ 6/2" CTS. (TOP OF SLAB) (CLOSURE POUR)
- (S) 4-#5B2 @ 6/2" CTS. (BOTTOM OF SLAB) (CLOSURE POUR)
- (T) 4-#4B9 @ 6/2" CTS. (TOP OF SLAB) (CLOSURE POUR) (3 BAR RUNS) (2'-5" MIN. SPLICE)
- (U) 4-#5B4 @ 6/2" CTS. (BOTTOM OF SLAB) (CLOSURE POUR) (2 BAR RUNS) (2'-0" MIN. SPLICE)
- (V) 4-#5B8 @ 6/2" CTS. (TOP OF SLAB) (CLOSURE POUR)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 5 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 "B" BAR LAYOUT  
 STAGE III

REVISIONS						SHEET NO.
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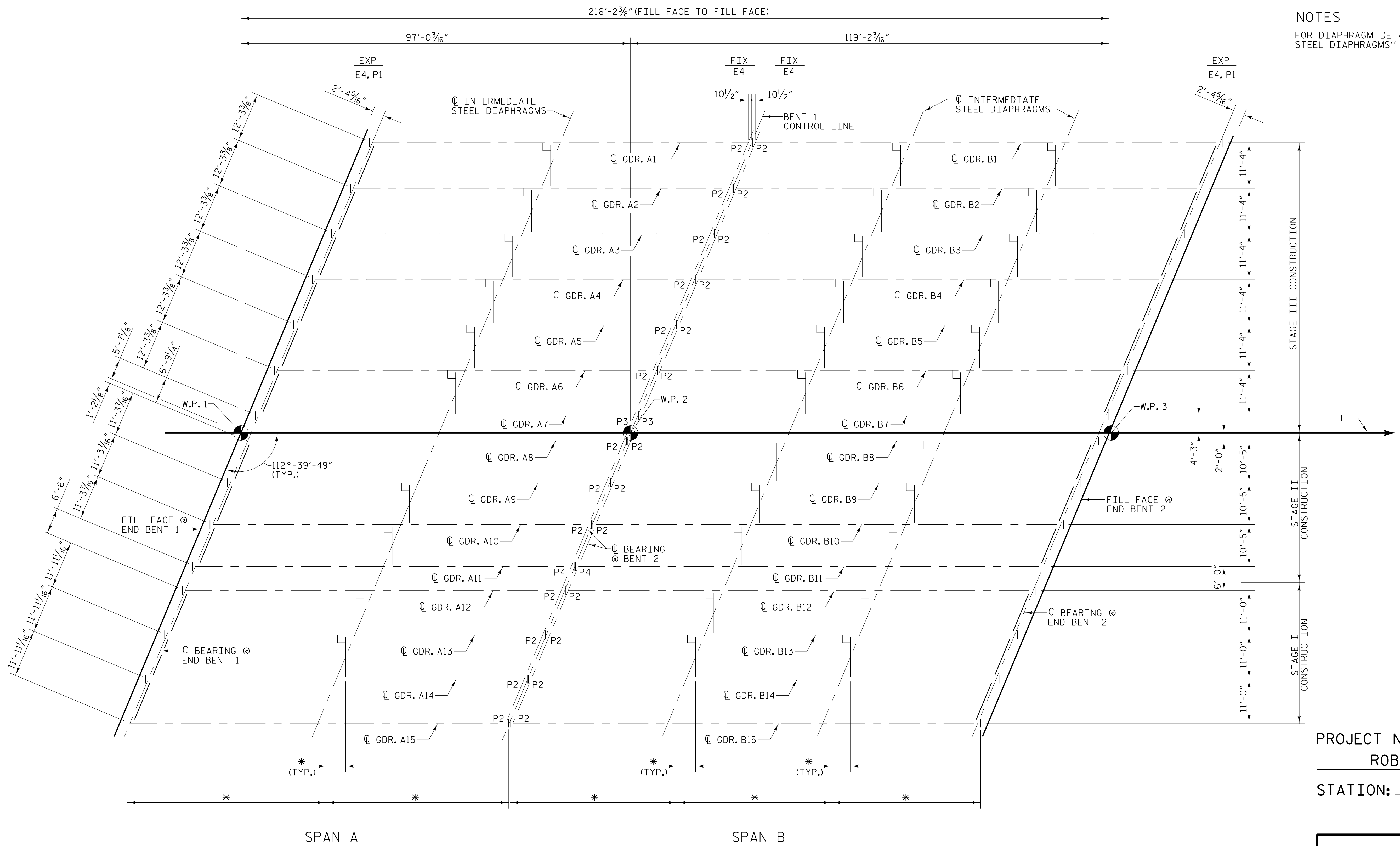
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NOTES  
FOR DIAPHRAGM DETAILS, SEE "INTERMEDIATE  
STEEL DIAPHRAGMS" SHEET.



### FRAMING PLAN

\* SEE "PRESTRESSED CONCRETE GIRDER FOR LINK SLAB DETAILS" SHEET 3 OF 6 FOR DIMENSIONS.

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
FRAMING PLAN

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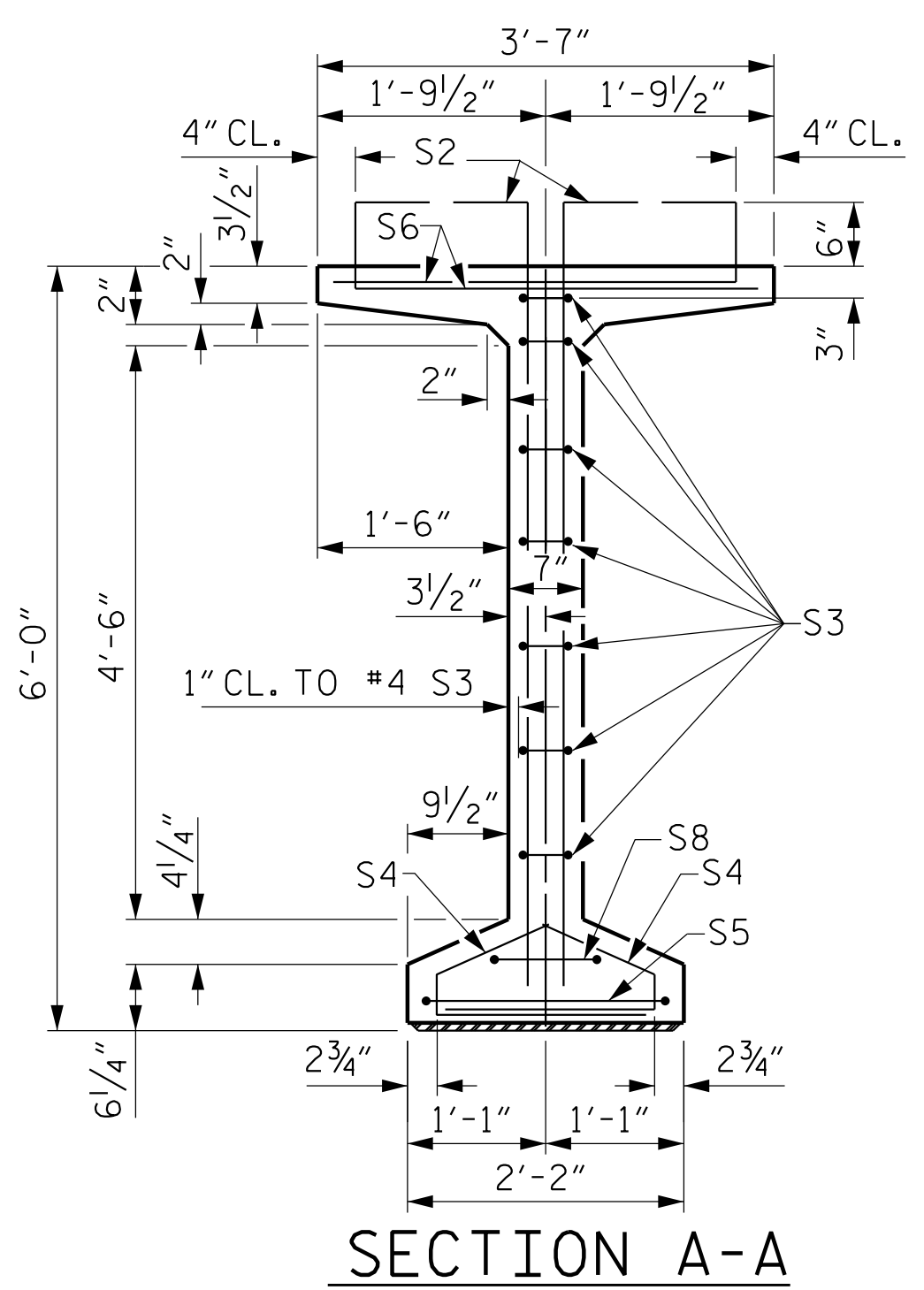
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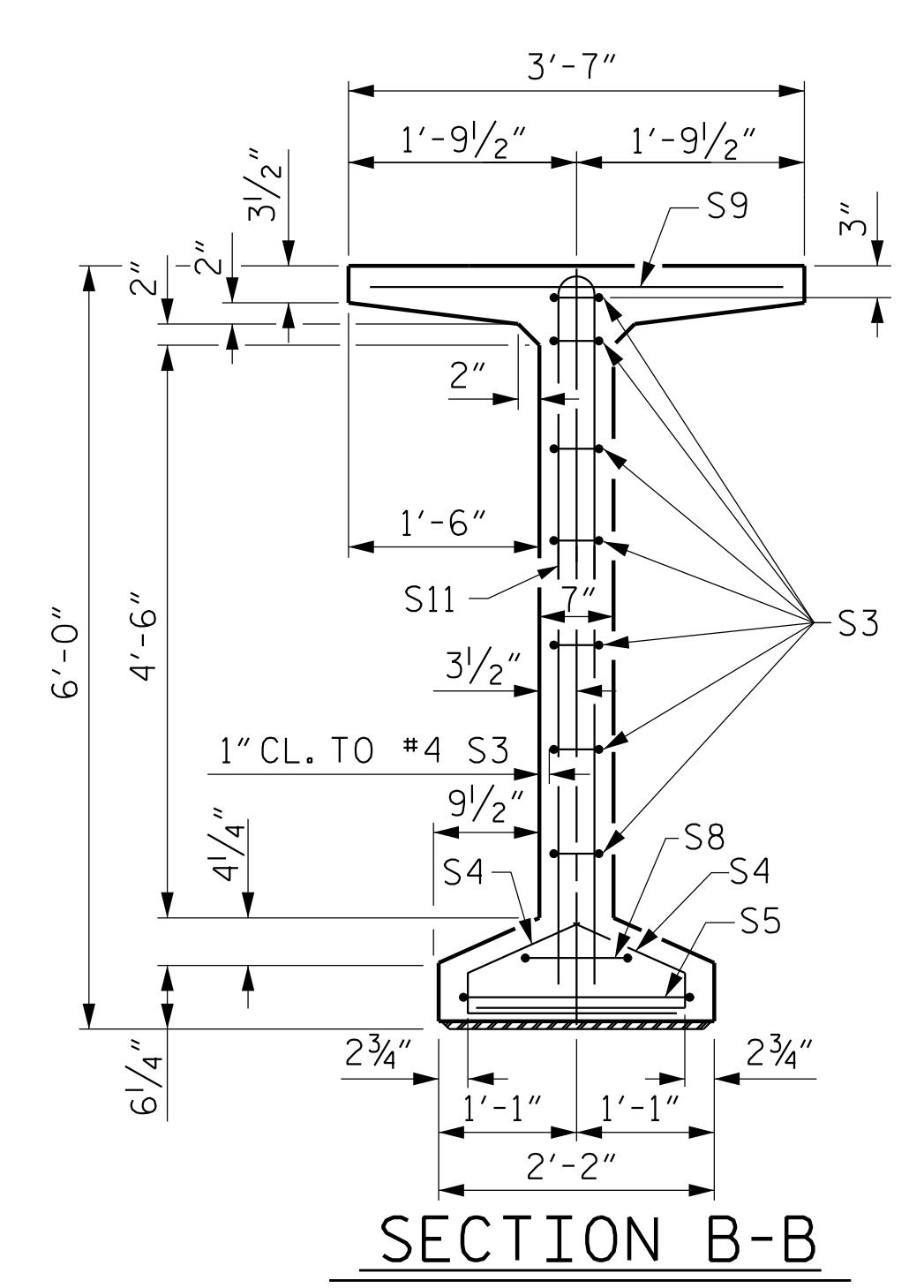
4/22/2022







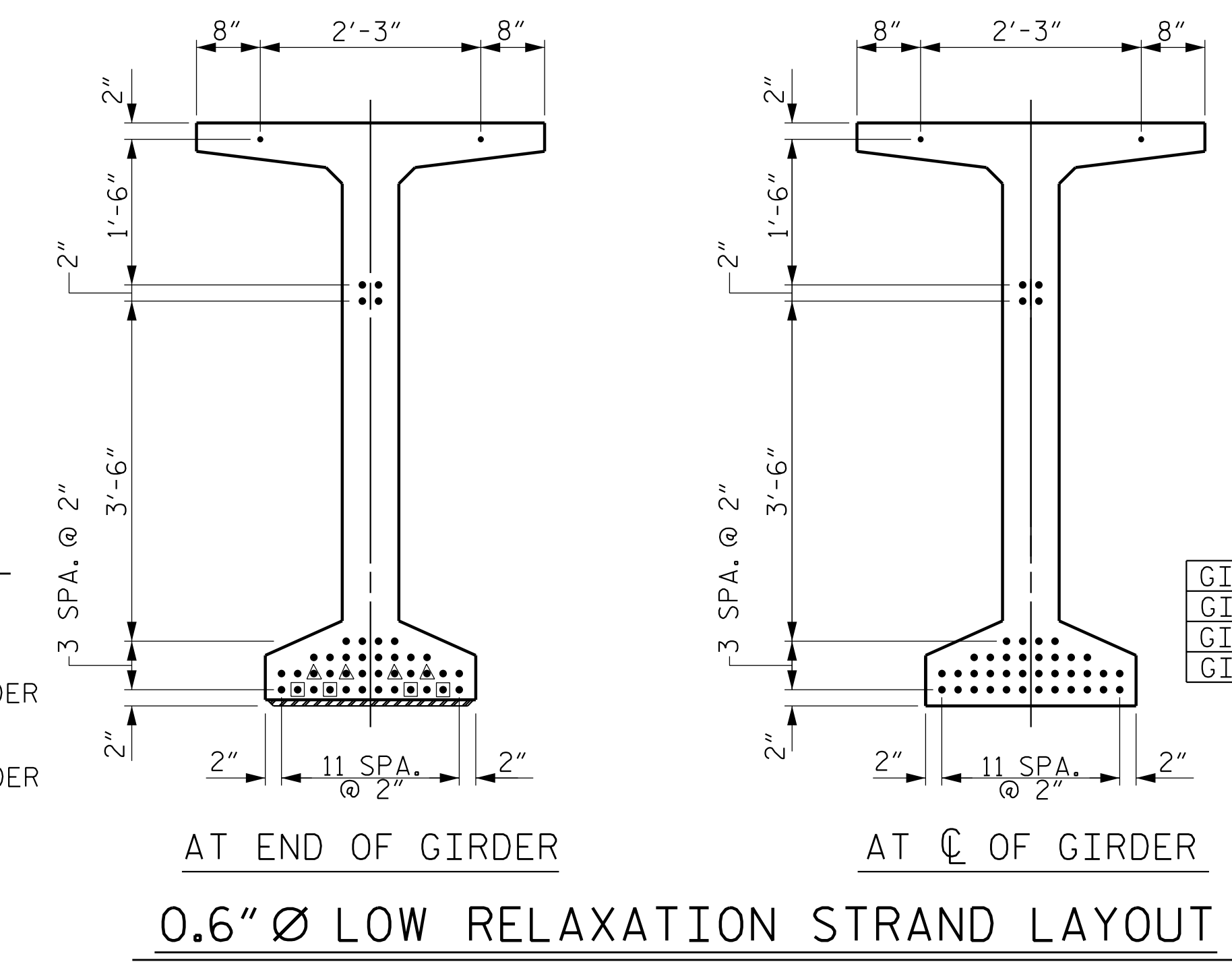
SECTION A-A



SECTION B-B

**DEBONDING LEGEND**

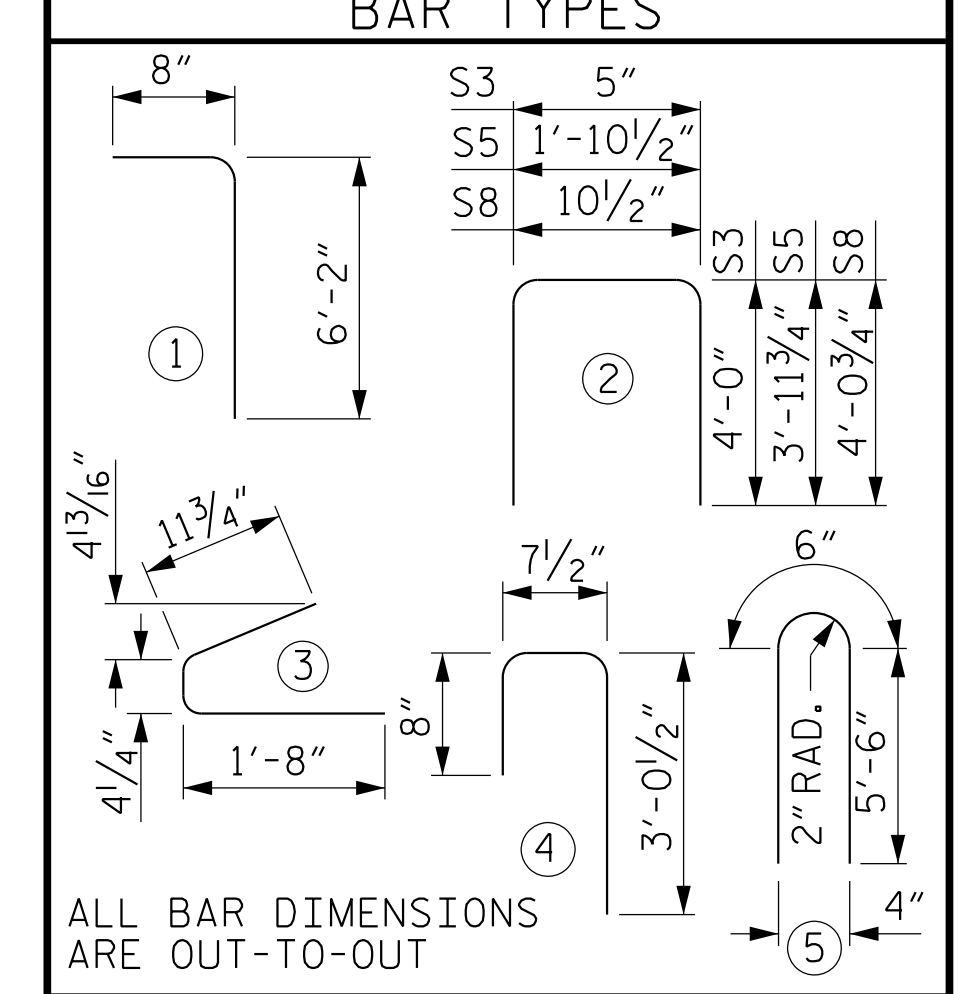
- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
- ◻ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER



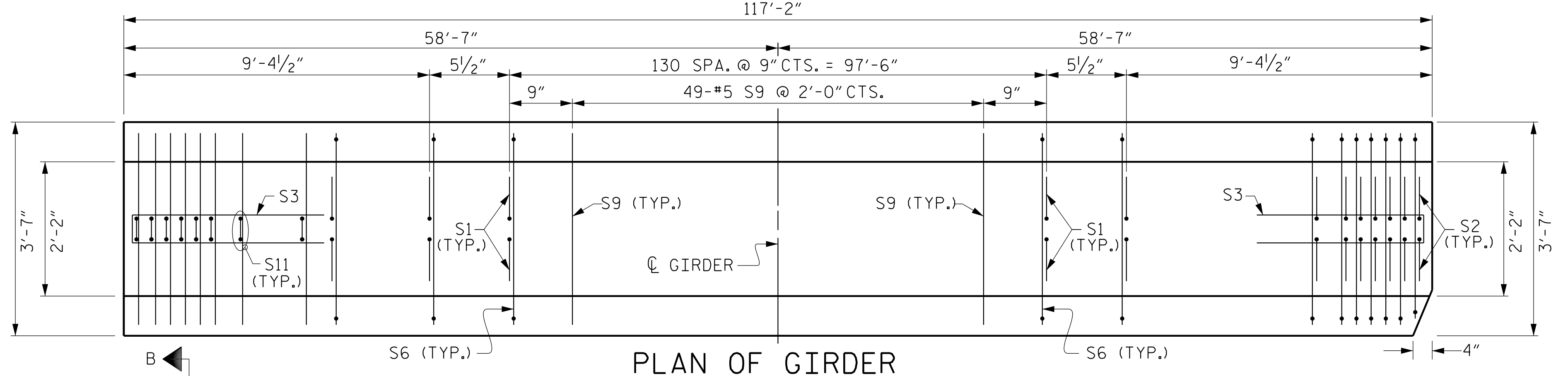
AT END OF GIRDER  
AT CL OF GIRDER  
0.6" Ø LOW RELAXATION STRAND LAYOUT

GIRDERS 1, 7, 8, 15	S1	22	#5	5	11'-6"	264
GIRDERS 2-6, 9-14	S11	30	#5	5	11'-6"	360
GIRDERS 1, 7, 8, 15	S12	16	#4	STR	8'-0"	86
GIRDERS 2-6, 9-14	S13	16	#4	STR	12'-9"	136

0.6" Ø L.R. GRADE 270 STRANDS					
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)			
0.217	58,600	43,950			
REINFORCING STEEL FOR ONE GDR					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	262	#4	1	6'-10"	1196
S2	84	#5	1	6'-10"	599
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S5	2	#5	2	9'-10"	21
S6	346	#5	4	4'-4"	1564
S8	2	#5	2	9'-0"	19
S9	92	#5	STR	3'-3"	312
S9	22	#5	5	11'-6"	264
S11	30	#5	5	11'-6"	360
S12	16	#4	STR	8'-0"	86
S13	16	#4	STR	12'-9"	136



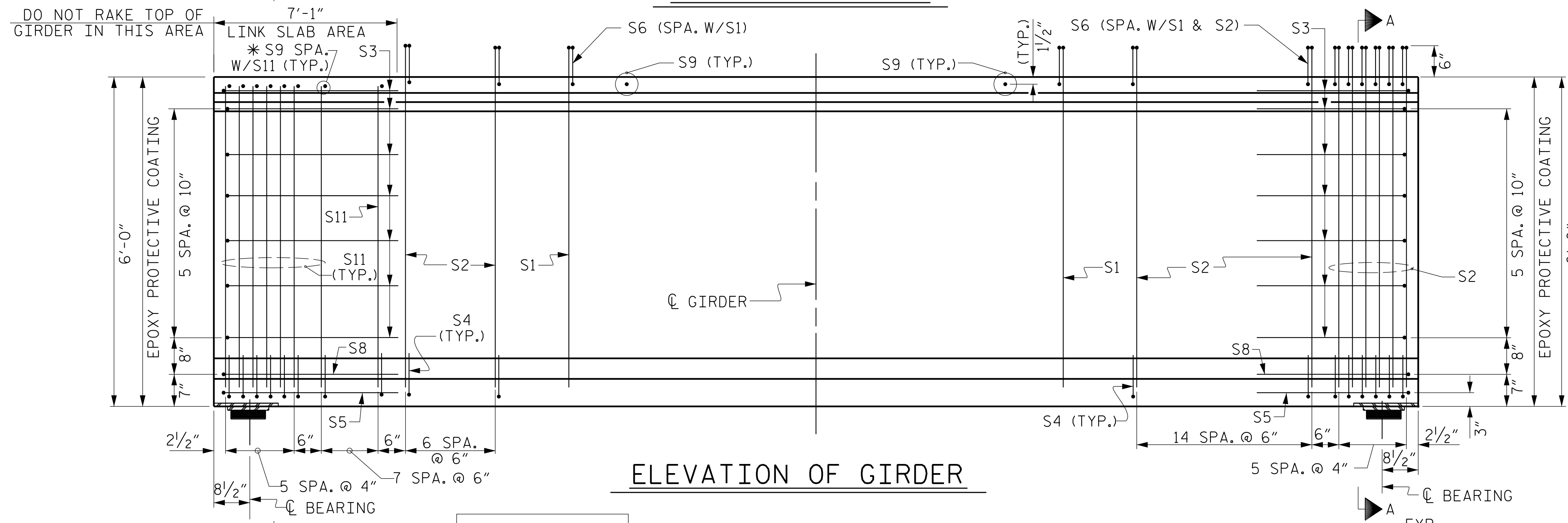
ALL BAR DIMENSIONS ARE OUT-TO-OUT



PLAN OF GIRDER

QUANTITIES FOR ONE GIRDER			
GIRDERS	REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
1, 7, 8, 15	3813	25.1	42
2-6, 9-14	3959	25.1	42

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
15	117'-2"	1757'-6"



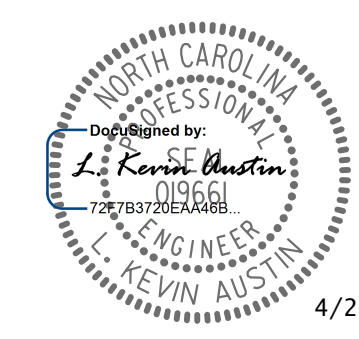
ELEVATION OF GIRDER

\* WITHIN LINK SLAB AREA ONLY

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NC License # F13333  
formerly CALXX Engineers & Consultants

THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:



4/22/2022

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

SHEET 2 OF 6

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
72" PRESTRESSED  
CONCRETE  
MODIFIED BULB TEE  
LINK SLAB-SPAN B

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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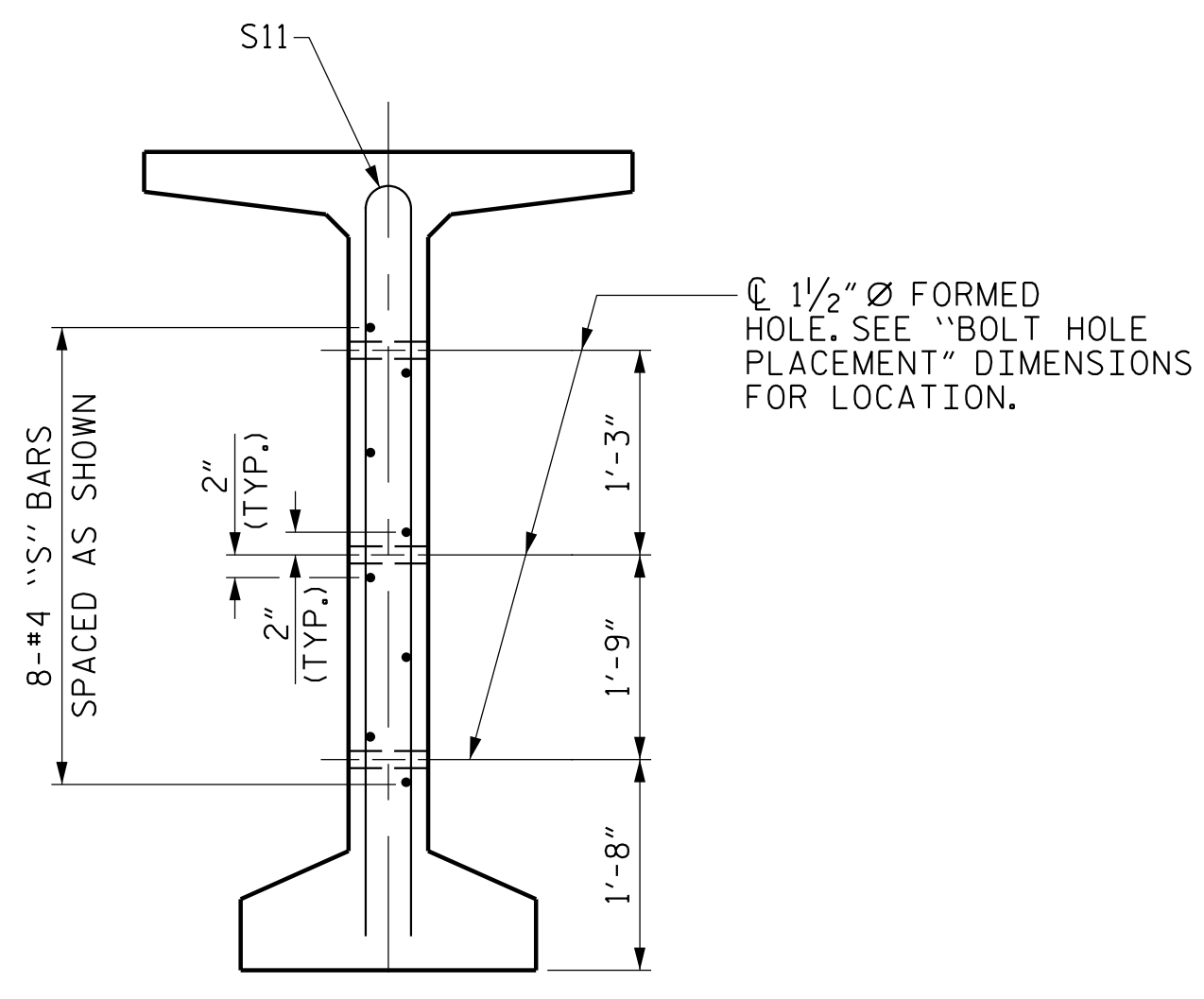
STD. NO. PCG8 (SHT. 1)

ASSEMBLED BY : W. B. ALLEN DATE : 11/21  
CHECKED BY : M. D. METZGER DATE : 12/21  
DRAWN BY : BNB 9/21  
CHECKED BY : AAI 9/21

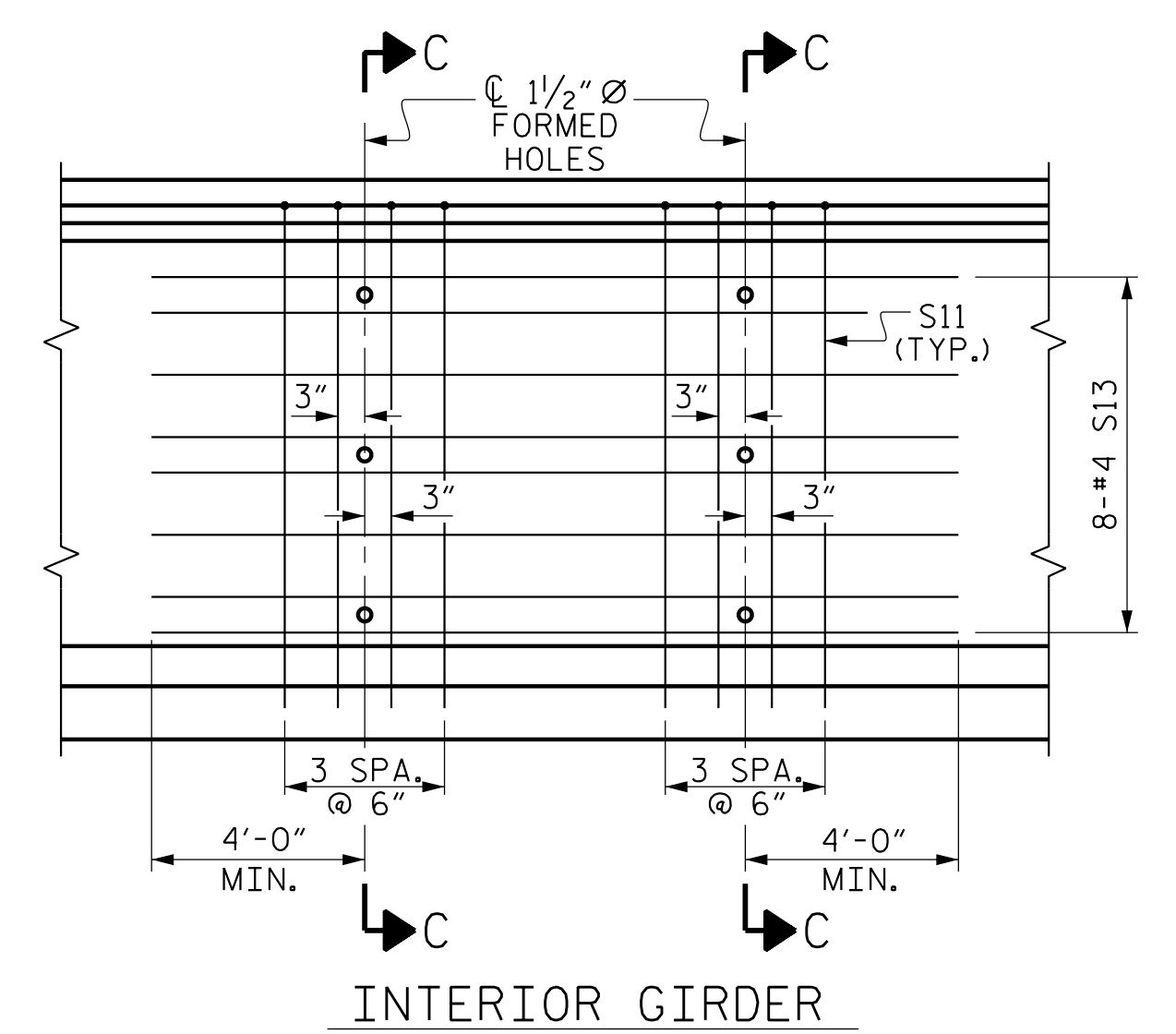
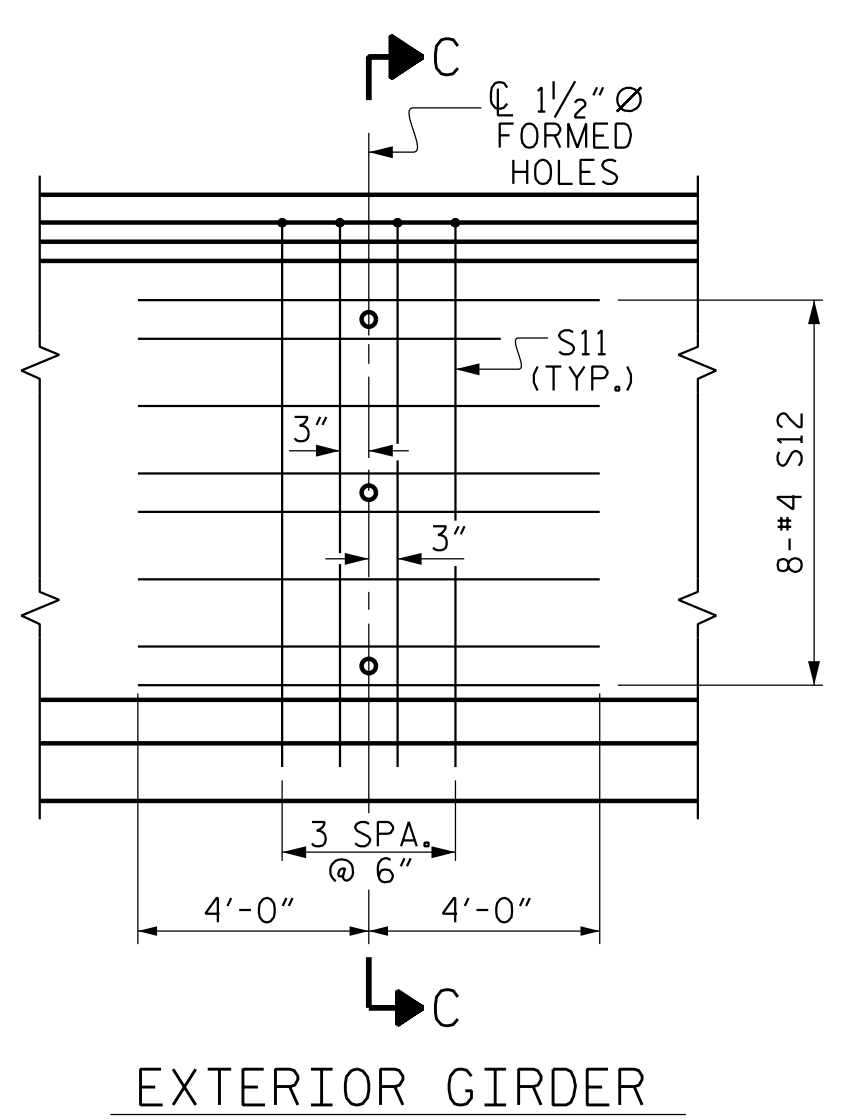
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UNLESS ALL SIGNATURES COMPLETED

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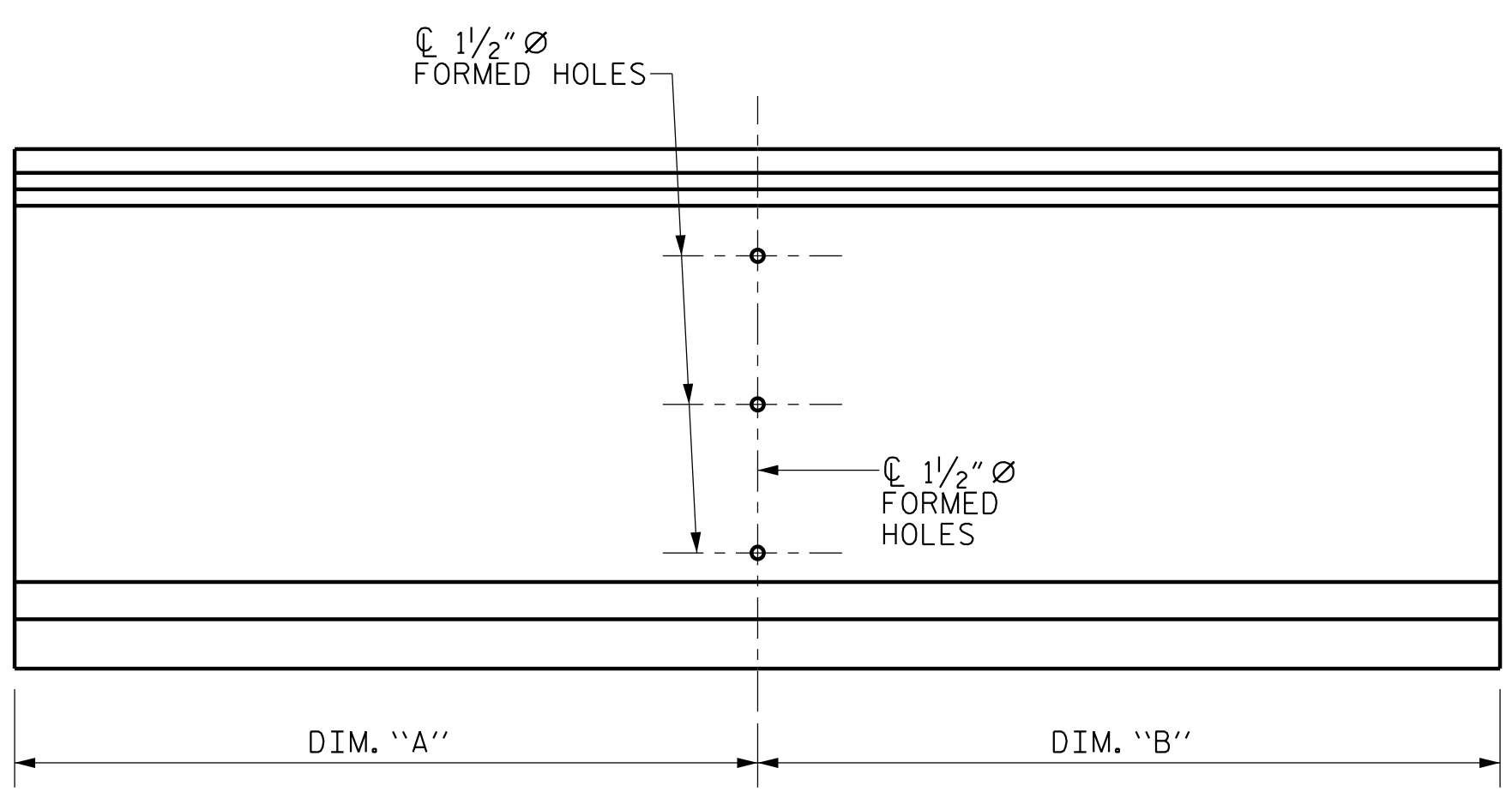
BOLT HOLE PLACEMENT DIMENSIONS							
GDR. NO.	SPAN A			SPAN B			
	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"
1	45'-1 5/8"	49'-10 3/8"	-	36'-11 1/8"	41'-7 7/8"	38'-7"	-
2-6	45'-1 5/8"	45'-1 5/8"	4'-8 3/4"	36'-11 1/8"	36'-11 1/8"	33'-10 1/8"	4'-8 3/16"
7	49'-10 3/8"	45'-1 5/8"	-	41'-7 7/8"	36'-11 1/8"	38'-7"	-
8	45'-3 7/8"	49'-8 1/8"	-	37'-1 3/8"	41'-5 5/8"	38'-7"	-
9-10	45'-3 7/8"	45'-3 7/8"	4'-4 1/4"	37'-1 3/8"	37'-1 3/8"	34'-2 7/8"	4'-4 3/16"
11	49'-8 1/8"	45'-3 7/8"	-	41'-5 5/8"	37'-1 3/8"	38'-7"	-
12	45'-2 1/2"	49'-9 1/2"	-	37'-0"	41'-7"	38'-7"	-
13-14	45'-2 1/2"	45'-2 1/2"	4'-7"	37'-0"	37'-0"	33'-11 3/4"	4'-7 1/8"
15	49'-9 1/2"	45'-2 1/2"	-	41'-7"	37'-0"	38'-7"	-



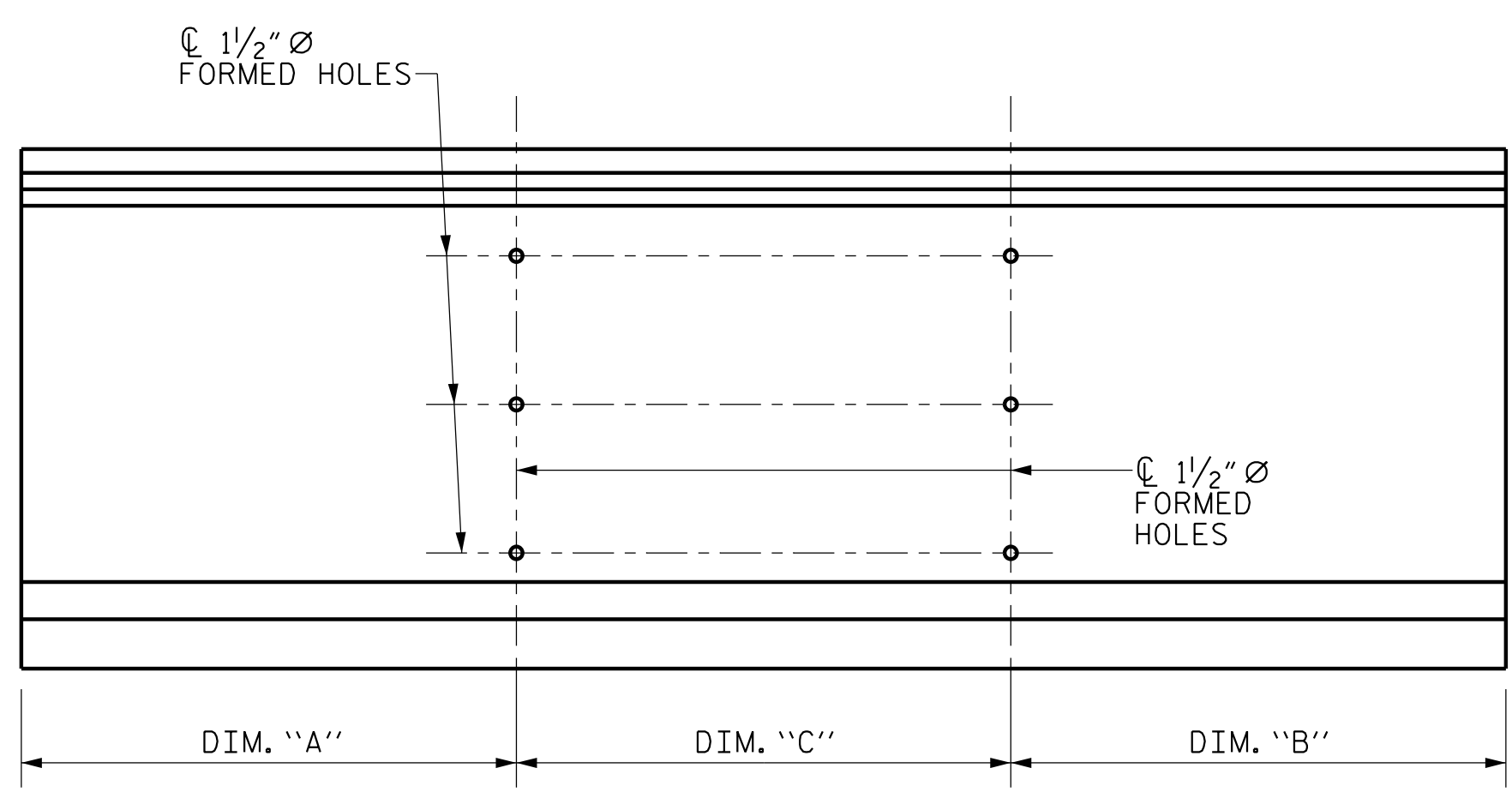
SECTION C-C  
(S1, S6 AND S9 BARS NOT SHOWN)



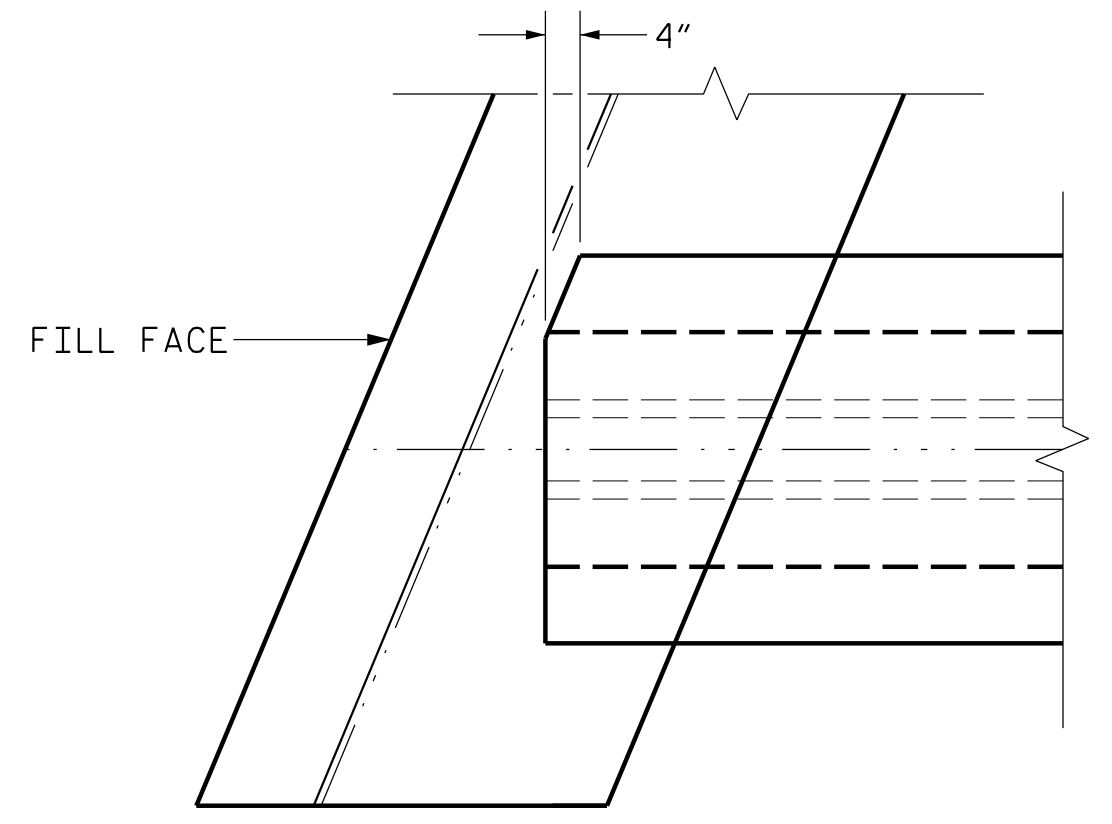
PARTIAL ELEVATION  
SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDER



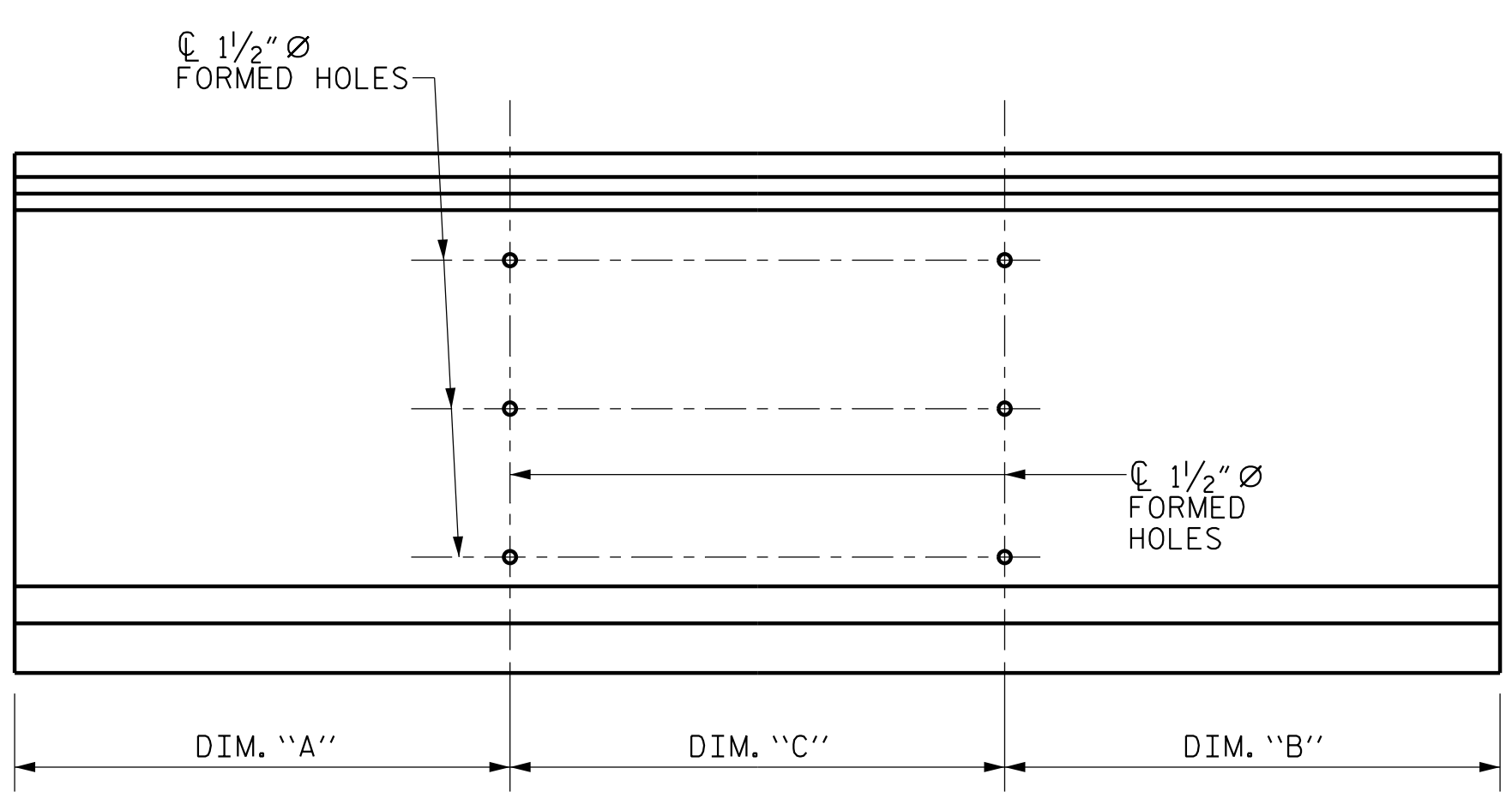
EXTERIOR GIRDER - SPAN A



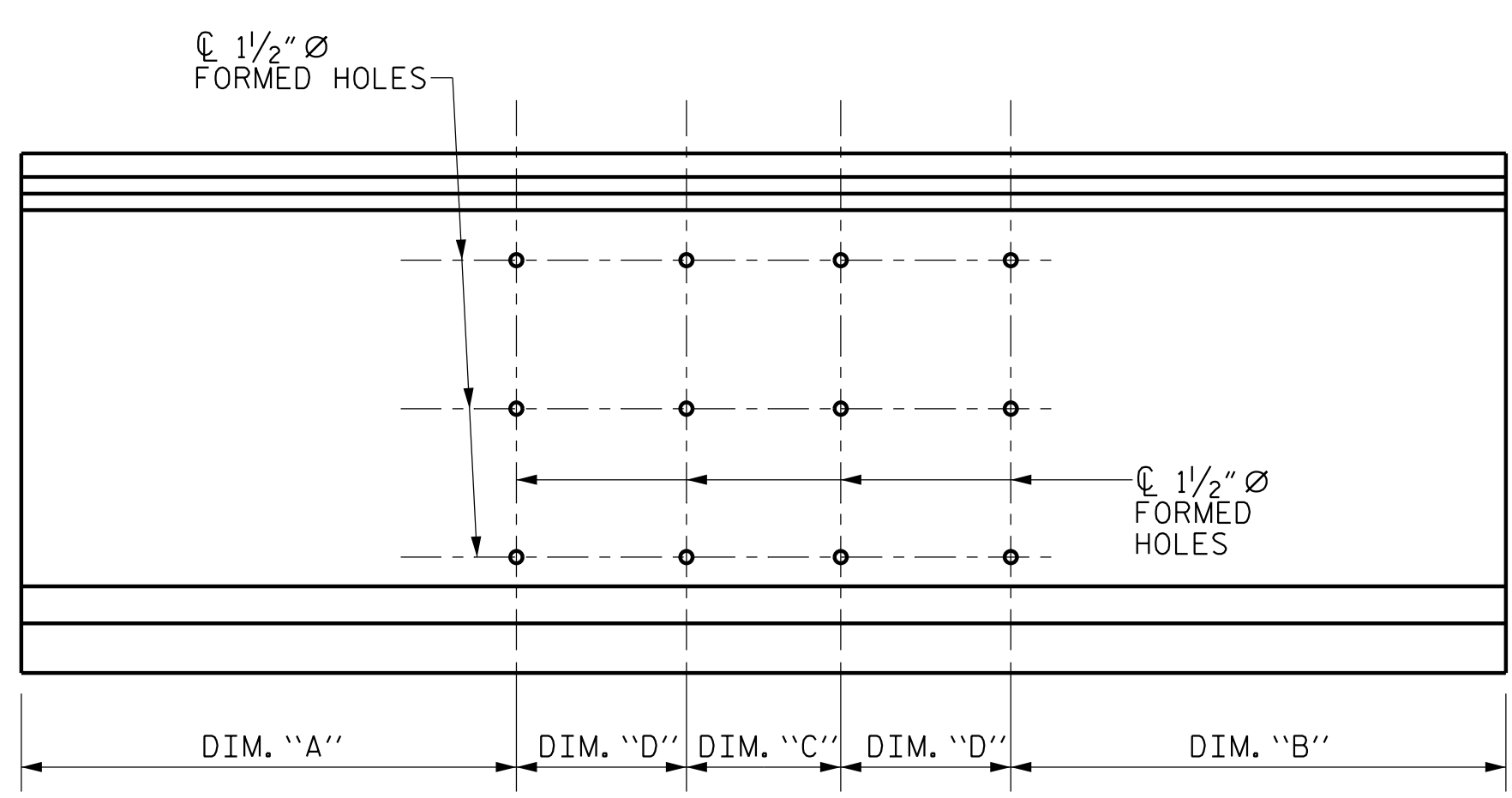
INTERIOR GIRDER - SPAN A



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



EXTERIOR GIRDER - SPAN B



INTERIOR GIRDER - SPAN B

BOLT HOLE PLACEMENT

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

SHEET 3 OF 6

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PRESTRESSED CONCRETE GIRDER FOR LINK SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-22
1			3			TOTAL SHEETS
2			4			53

PLANS PREPARED BY:

NV5 ENGINEERS & CONSULTANTS, INC.  
3300 REGENCY PARKWAY, SUITE 100  
CARY, NC 27518  
P: 919.851.1912 www.NV5.com  
NC License # F-1333

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

4/20/2022 11:03 AM G:\Project\2018\2018\2018\03\CLIENT\Structures\I-5987B\15 - NC 2018\987B\_SML\03\_77019.dgn

DRAWN BY: W.B. ALLEN DATE: 12/21  
CHECKED BY: M.D. METZGER DATE: 12/21  
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22

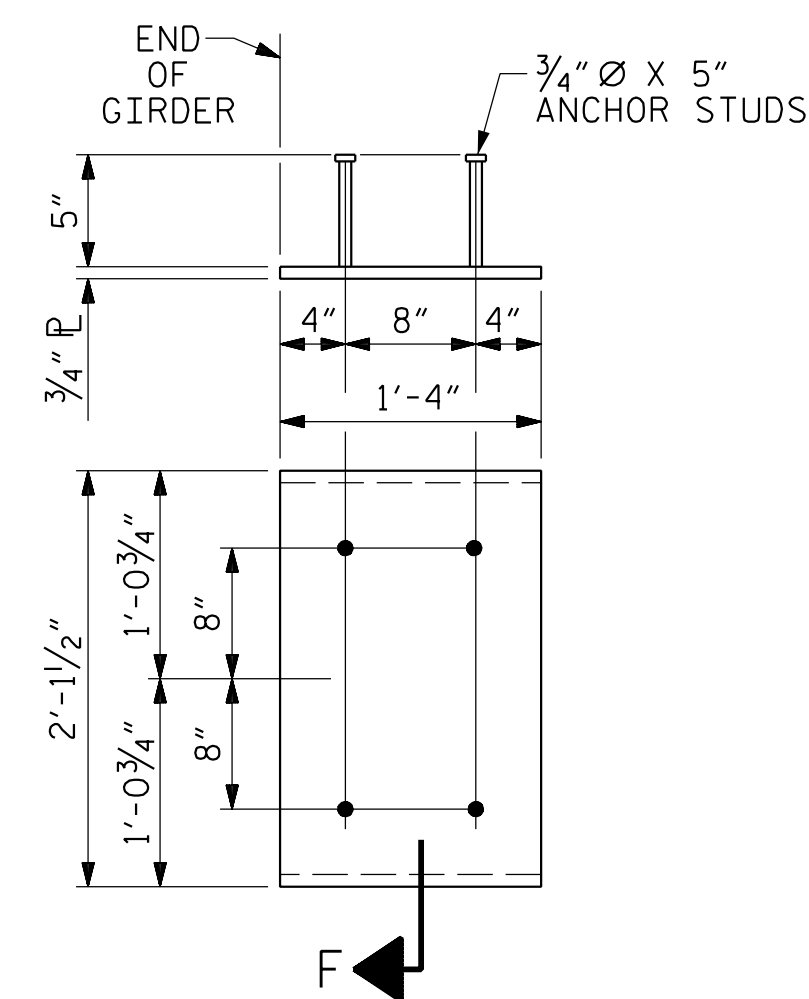


## DEAD LOAD DEFLECTION TABLE FOR GIRDERS - SPAN A

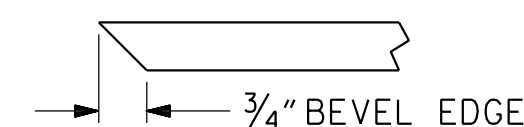
0.6" Ø LOW RELAXATION	GIRDERS 1 - 6, 13 & 14																				
FORTIETH POINTS	0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑	0.0	0.014	0.029	0.043	0.057	0.070	0.083	0.096	0.107	0.118	0.129	0.138	0.147	0.155	0.162	0.168	0.172	0.176	0.179	0.180	0.181
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.0	0.006	0.011	0.017	0.022	0.027	0.033	0.038	0.044	0.048	0.052	0.056	0.060	0.063	0.066	0.068	0.072	0.073	0.073	0.074	0.075
FINAL CAMBER ↑	0.0	1/8"	3/16"	5/16"	1/2"	1/2"	5/8"	11/16"	3/4"	13/16"	15/16"	1"	1 1/16"	1 1/8"	1 1/8"	1 3/16"	1 3/16"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
0.6" Ø LOW RELAXATION	GIRDERS 1 - 6, 13 & 14																				
FORTIETH POINTS	.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0.181	0.180	0.179	0.176	0.172	0.168	0.162	0.155	0.147	0.138	0.129	0.118	0.107	0.096	0.083	0.070	0.057	0.043	0.029	0.014	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.075	0.074	0.073	0.073	0.072	0.068	0.066	0.063	0.060	0.056	0.052	0.048	0.044	0.038	0.033	0.027	0.022	0.017	0.011	0.006	0.0
FINAL CAMBER ↑	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 3/16"	1 3/16"	1 1/8"	1 1/8"	1 1/16"	1"	15/16"	13/16"	3/4"	11/16"	5/8"	1/2"	7/16"	5/16"	3/16"	1/8"	0.0
0.6" Ø LOW RELAXATION	GIRDERS 7 - 10 & 15																				
FORTIETH POINTS	0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑	0.0	0.014	0.029	0.043	0.057	0.070	0.083	0.096	0.107	0.118	0.129	0.138	0.147	0.155	0.162	0.168	0.172	0.176	0.179	0.180	0.181
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.0	0.005	0.010	0.015	0.020	0.024	0.029	0.034	0.039	0.043	0.046	0.050	0.054	0.056	0.059	0.061	0.063	0.064	0.065	0.066	0.067
FINAL CAMBER ↑	0.0	1/8"	1/4"	5/16"	1/2"	9/16"	5/8"	3/4"	13/16"	7/8"	1"	1 1/16"	1 1/8"	1 3/16"	1 1/4"	1 5/16"	1 5/16"	1 5/16"	1 3/8"	1 3/8"	1 3/8"
0.6" Ø LOW RELAXATION	GIRDERS 7 - 10 & 15																				
FORTIETH POINTS	.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0.181	0.180	0.179	0.176	0.172	0.168	0.162	0.155	0.147	0.138	0.129	0.118	0.107	0.096	0.083	0.070	0.057	0.043	0.029	0.014	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.067	0.066	0.065	0.064	0.063	0.061	0.059	0.056	0.054	0.050	0.046	0.043	0.039	0.034	0.029	0.024	0.020	0.015	0.010	0.005	0.0
FINAL CAMBER ↑	1 3/8"	1 3/8"	1 3/8"	1 5/16"	1 5/16"	1 5/16"	1 1/4"	1 3/16"	1 1/8"	1 1/16"	1"	7/8"	13/16"	3/4"	5/8"	9/16"	1/2"	5/16"	1/4"	1/8"	0.0
0.6" Ø LOW RELAXATION	GIRDERS 11 & 12																				
FORTIETH POINTS	0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑	0.0	0.014	0.029	0.043	0.057	0.070	0.083	0.096	0.107	0.118	0.129	0.138	0.147	0.155	0.162	0.168	0.172	0.176	0.179	0.180	0.181
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.0	0.004	0.008	0.013	0.017	0.021	0.025	0.029	0.033	0.036	0.039	0.043	0.046	0.048	0.050	0.052	0.054	0.054	0.055	0.056	0.057
FINAL CAMBER ↑	0.0	1/8"	1/4"	3/8"	1/2"	9/16"	11/16"	13/16"	7/8"	1"	1 1/16"	1 1/8"	1 3/16"	1 5/16"	1 3/8"	1 3/8"	1 1/16"	1 1/16"	1 1/2"	1 1/2"	1 1/2"
0.6" Ø LOW RELAXATION	GIRDERS 11 & 12																				
FORTIETH POINTS	.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑	0.181	0.180	0.179	0.176	0.172	0.168	0.162	0.155	0.147	0.138	0.129	0.118	0.107	0.096	0.083	0.070	0.057	0.043	0.029	0.014	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.057	0.056	0.055	0.054	0.054	0.052	0.050	0.048	0.046	0.043	0.039	0.036	0.033	0.029	0.025	0.021	0.017	0.013	0.008	0.004	0.0
FINAL CAMBER ↑	1 1/2"	1 1/2"	1 1/2"	1 1/16"	1 1/16"	1 3/8"	1 3/8"	1 5/16"	1 3/16"	1 1/8"	1 1/16"	1"	7/8"	13/16"	1 1/16"	9/16"	1/2"	3/8"	1/4"	1/8"	0.0

\* INCLUDES FUTURE WEARING SURFACE.

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



**EMBEDDED PLATE "B-1" DETAILS  
FOR 72" MODIFIED BULB TEE**  
(2 REQ'D PER GIRDER)



**SECTION "F"**  
(SEE NOTES)

## NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7,000 PSI.

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

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

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" AND 72" MODIFIED BULB TEES ONLY.

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 REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 4 OF 6

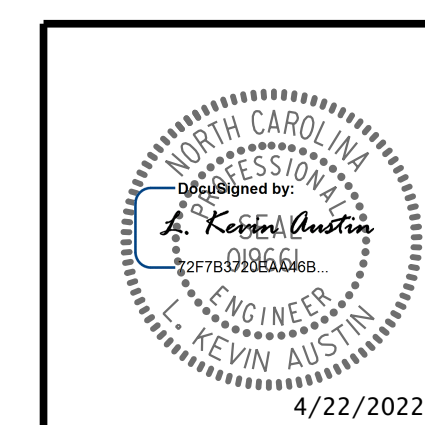
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 PRESTRESSED CONCRETE GIRDER  
 FOR LINK SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-23
1			3			TOTAL SHEETS
2			4			53

PLANS PREPARED BY:

# NV5

NV5 ENGINEERS & CONSULTANTS, INC.  
 3300 REGENCY PARKWAY, SUITE 100  
 CARY, NC 27518  
 P: 919.851.1912 www.nv5.com  
 NC License # F-1333



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DRAWN BY : W.B. ALLEN DATE : 12/21  
 CHECKED BY : M.D. METZGER DATE : 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 01/22

### DEAD LOAD DEFLECTION TABLE FOR GIRDERS - SPAN B

0.6" Ø LOW RELAXATION		GIRDERS 2, 3 & 14																				
FORTIETH POINTS		0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑		0.0	0.021	0.042	0.063	0.084	0.104	0.123	0.141	0.158	0.175	0.190	0.204	0.217	0.229	0.239	0.247	0.254	0.260	0.264	0.266	0.267
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.0	0.014	0.028	0.042	0.056	0.069	0.082	0.095	0.109	0.119	0.129	0.140	0.150	0.157	0.163	0.170	0.177	0.179	0.181	0.183	0.186
FINAL CAMBER ↑		0.0	1/16"	3/16"	1/4"	5/16"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	3/4"	13/16"	7/8"	15/16"	15/16"	15/16"	1"	1"	1"	1"
0.6" Ø LOW RELAXATION		GIRDERS 2, 3 & 14																				
FORTIETH POINTS		.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑		0.267	0.266	0.264	0.260	0.254	0.247	0.239	0.229	0.217	0.204	0.190	0.175	0.158	0.141	0.123	0.104	0.084	0.063	0.042	0.021	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.186	0.183	0.181	0.179	0.177	0.170	0.163	0.157	0.150	0.140	0.129	0.119	0.109	0.095	0.082	0.069	0.056	0.042	0.028	0.014	0.0
FINAL CAMBER ↑		1"	1"	1"	1"	15/16"	15/16"	15/16"	7/8"	13/16"	3/4"	3/4"	11/16"	5/8"	9/16"	1/2"	7/16"	5/16"	1/4"	3/16"	1/16"	0.0
0.6" Ø LOW RELAXATION		GIRDERS 1, 4-6, 13 & 15																				
FORTIETH POINTS		0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑		0.0	0.021	0.042	0.063	0.084	0.104	0.123	0.141	0.158	0.175	0.190	0.204	0.217	0.229	0.239	0.247	0.254	0.260	0.264	0.266	0.267
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.0	0.013	0.026	0.039	0.052	0.065	0.077	0.090	0.102	0.112	0.122	0.132	0.142	0.148	0.154	0.160	0.167	0.169	0.171	0.173	0.175
FINAL CAMBER ↑		0.0	1/8"	3/16"	5/16"	3/8"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	7/8"	1"	1"	11/16"	11/16"	11/8"	11/8"	11/8"	11/8"
0.6" Ø LOW RELAXATION		GIRDERS 1, 4-6, 13 & 15																				
FORTIETH POINTS		.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑		0.267	0.266	0.264	0.260	0.254	0.247	0.239	0.229	0.217	0.204	0.190	0.175	0.158	0.141	0.123	0.104	0.084	0.063	0.042	0.021	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.175	0.173	0.171	0.169	0.167	0.160	0.154	0.148	0.142	0.132	0.122	0.112	0.102	0.090	0.077	0.065	0.052	0.039	0.026	0.013	0.0
FINAL CAMBER ↑		1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	1"	1"	7/8"	7/8"	13/16"	3/4"	11/16"	5/8"	9/16"	1/2"	3/8"	5/16"	3/16"	1/8"	0.0
0.6" Ø LOW RELAXATION		GIRDERS 9 & 10																				
FORTIETH POINTS		0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑		0.0	0.021	0.042	0.063	0.084	0.104	0.123	0.141	0.158	0.175	0.190	0.204	0.217	0.229	0.239	0.247	0.254	0.260	0.264	0.266	0.267
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.0	0.013	0.025	0.038	0.050	0.062	0.074	0.086	0.098	0.108	0.117	0.126	0.136	0.142	0.148	0.154	0.160	0.162	0.164	0.166	0.168
FINAL CAMBER ↑		0.0	1/8"	3/16"	5/16"	3/8"	1/2"	9/16"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	11/16"	11/8"	11/8"	11/8"	13/16"	13/16"	13/16"	13/16"
0.6" Ø LOW RELAXATION		GIRDERS 9 & 10																				
FORTIETH POINTS		.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑		0.267	0.266	0.264	0.260	0.254	0.247	0.239	0.229	0.217	0.204	0.190	0.175	0.158	0.141	0.123	0.104	0.084	0.063	0.042	0.021	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.168	0.166	0.164	0.162	0.160	0.154	0.148	0.142	0.136	0.126	0.117	0.108	0.098	0.086	0.074	0.062	0.050	0.038	0.025	0.013	0.0
FINAL CAMBER ↑		13/16"	13/16"	13/16"	13/16"	11/8"	11/8"	11/8"	11/16"	1"	15/16"	7/8"	13/16"	3/4"	11/16"	9/16"	1/2"	3/8"	5/16"	3/16"	1/8"	0.0
0.6" Ø LOW RELAXATION		GIRDERS 7 & 8																				
FORTIETH POINTS		0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑		0.0	0.021	0.042	0.063	0.084	0.104	0.123	0.141	0.158	0.175	0.190	0.204	0.217	0.229	0.239	0.247	0.254	0.260	0.264	0.266	0.267
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.0	0.012	0.023	0.035	0.047	0.058	0.069	0.080	0.092	0.100	0.109	0.118	0.127	0.132	0.138	0.143	0.149	0.151	0.153	0.155	0.157
FINAL CAMBER ↑		0.0	1/8"	1/4"	3/16"	7/16"	9/16"	5/8"	3/4"	13/16"	7/8"	1"	11/16"	11/16"	13/16"	13/16"	11/4"	11/4"	13/16"	13/16"	13/16"	13/16"
0.6" Ø LOW RELAXATION		GIRDERS 7 & 8																				
FORTIETH POINTS		.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑		0.267	0.266	0.264	0.260	0.254	0.247	0.239	0.229	0.217	0.204	0.190	0.175	0.158	0.141	0.123	0.104	0.084	0.063	0.042	0.021	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.157	0.155	0.153	0.151	0.149	0.143	0.138	0.132	0.127	0.118	0.109	0.100	0.092	0.080	0.069	0.058	0.047	0.035	0.023	0.012	0.0
FINAL CAMBER ↑		13/16"	13/16"	13/16"	13/16"	11/4"	11/4"	13/16"	13/16"	11/16"	11/16"	1"	7/8"	13/16"	3/4"	5/8"	9/16"	7/16"	5/16"	1/4"	1/8"	0.0
0.6" Ø LOW RELAXATION		GIRDERS 11 & 12																				
FORTIETH POINTS		0	.025	.05	.075	.1	.125	.15	.175	.2	.225	.25	.275	.3	.325	.35	.375	.4	.425	.45	.475	.50
CAMBER (GIRDER ALONE IN PLACE) ↑		0.0	0.021	0.042	0.063	0.084	0.104	0.123	0.141	0.158	0.175	0.190	0.204	0.217	0.229	0.239	0.247	0.254	0.260	0.264	0.266	0.267
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.0	0.010	0.020	0.030	0.040	0.049	0.059	0.070	0.078	0.085	0.092	0.100	0.107	0.112	0.117	0.121	0.126	0.128	0.129	0.131	0.133
FINAL CAMBER ↑		0.0	1/8"	1/4"	3/8"	9/16"	11/16"	3/4"	7/8"	1"	11/16"	13/16"	11/4"	13/16"	13/16"	11/16"	11/16"	11/2"	13/16"	13/16"	13/16"	13/16"
0.6" Ø LOW RELAXATION		GIRDERS 11 & 12																				
FORTIETH POINTS		.50	.525	.55	.575	.6	.625	.65	.675	.7	.725	.75	.775	.8	.825	.85	.875	.9	.925	.95	.975	1.0
CAMBER (GIRDER ALONE IN PLACE) ↑		0.267	0.266	0.264	0.260	0.254	0.247	0.239	0.229	0.217	0.204	0.190	0.175	0.158	0.141	0.123	0.104	0.084	0.063	0.042	0.021	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓		0.133	0.131	0.129	0.128	0.126	0.121	0.117	0.112	0.107	0.100	0.092	0.085	0.078	0.070	0.059	0.049	0.040	0.030	0.020	0.010	0.0
FINAL CAMBER ↑		13/16"	13/16"	13/16"	13/16"	13/16"	11/2"	13/16"	13/16"	13/16"	11/4"	13/16"	11/16"	1"	7/8"	3/4"	11/16"	9/16"	3/8"	1/4"	1/8"	0.0

\* INCLUDES FUTURE WEARING SURFACE.

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

PLANS PREPARED BY:



PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

SHEET 5 OF 6

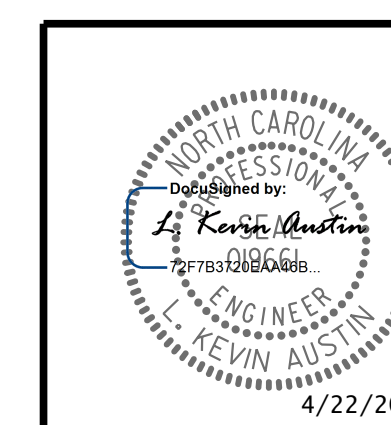
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PRESTRESSED CONCRETE GIRDER  
DETAILS

REVISIONS

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

SHEET NO.  
S6-24  
TOTAL SHEETS  
53

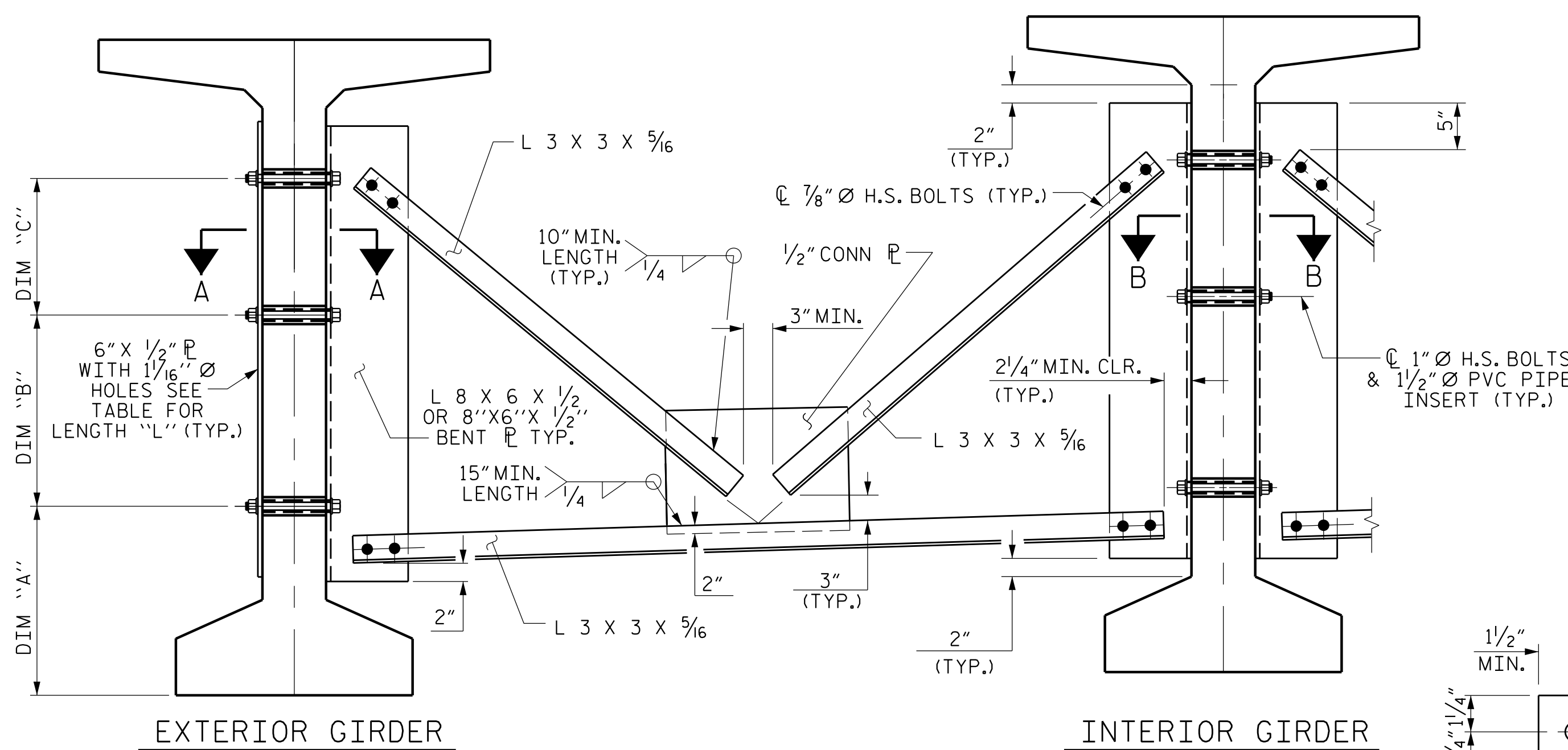
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DRAWN BY: W.B. ALLEN DATE: 12/21  
CHECKED BY: M.D. METZGER DATE: 12/21  
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22

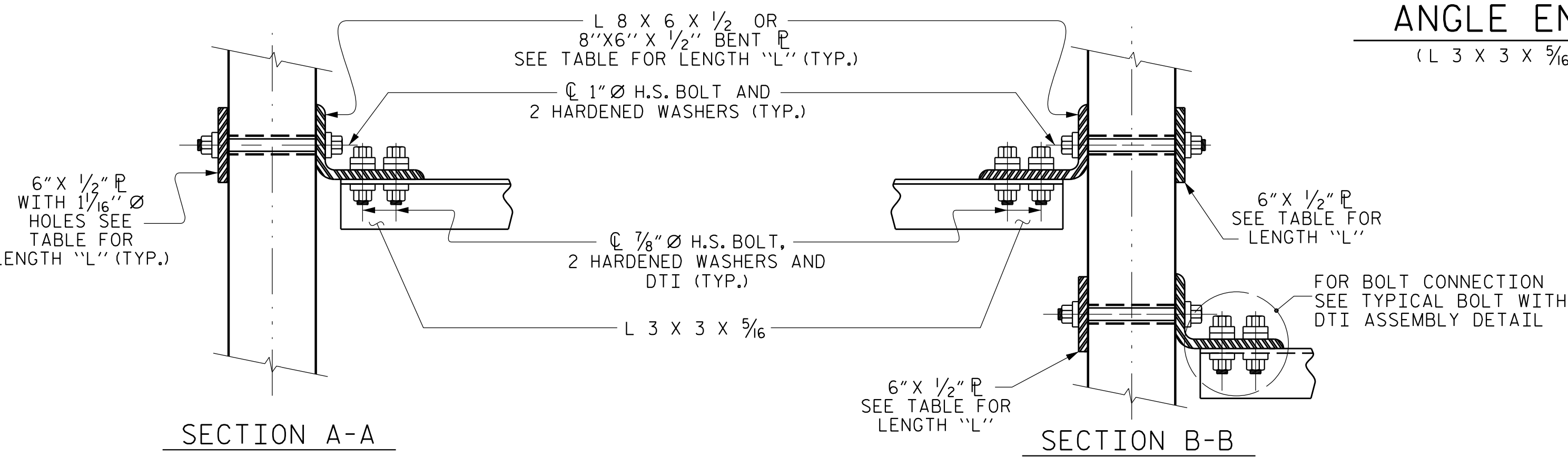
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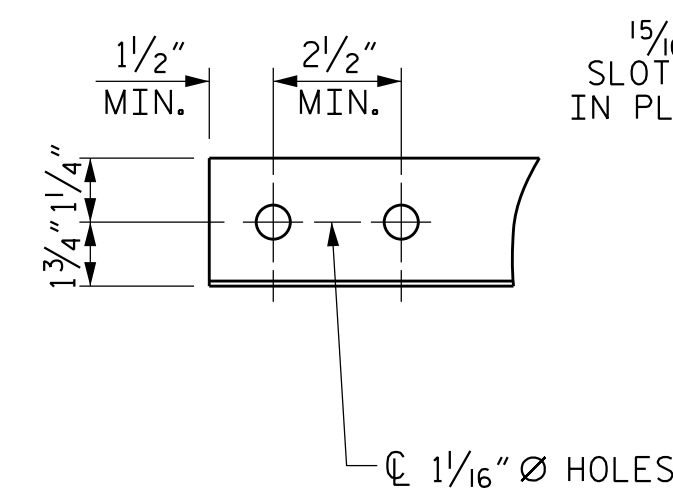


**PART SECTION AT INTERMEDIATE DIAPHRAGM**

(63" BULB TEE OR 72" BULB TEE GIRDER SHOWN)

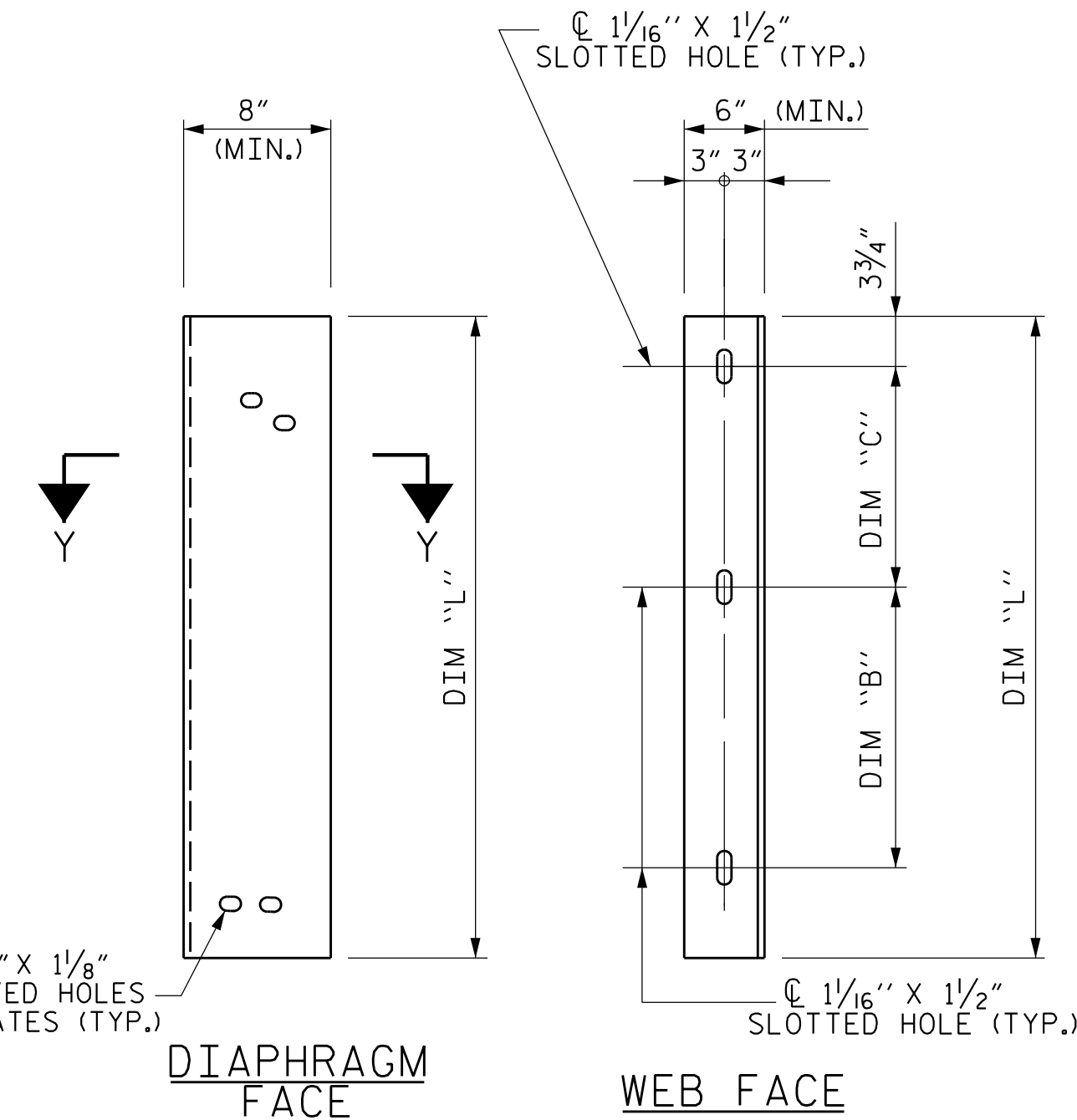


**CONNECTION DETAILS**

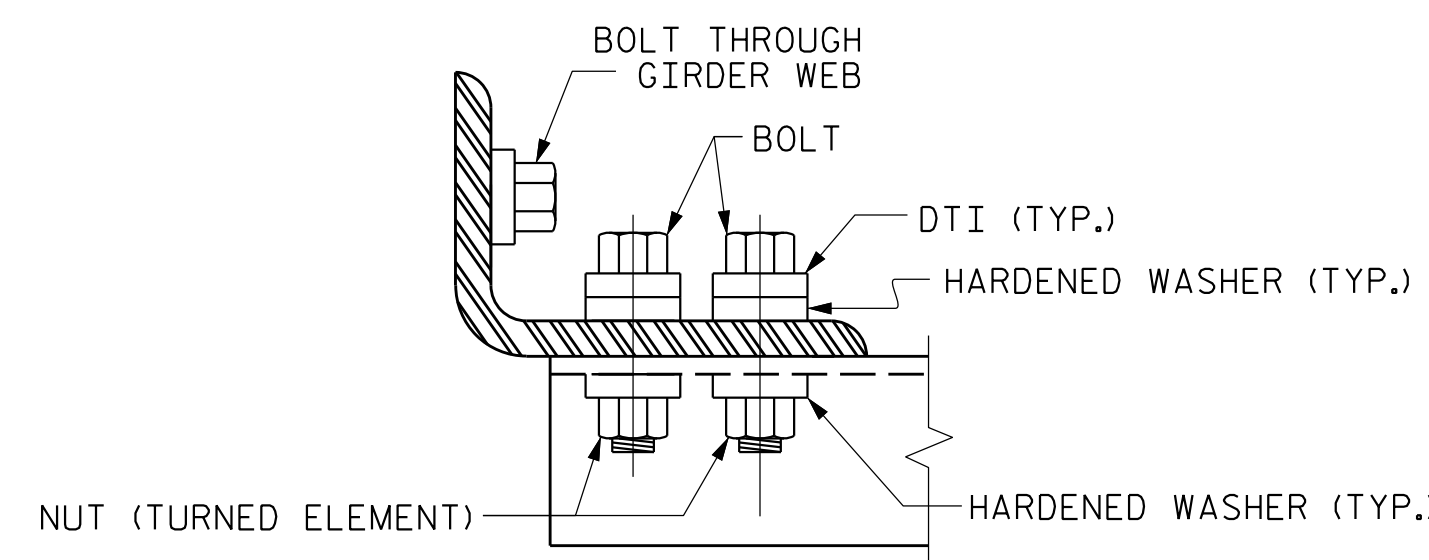


**ANGLE END**

(L 3 x 3 x 5/16)



**CONNECTOR PLATE DETAIL**



**BOLT WITH DTI ASSEMBLY DETAIL**

**STRUCTURAL STEEL NOTES**

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

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

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

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

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

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

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

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

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

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

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

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

**TABLE**

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
72" BULB TEE	1'-8"	1'-9"	1'-3"	4'-2"

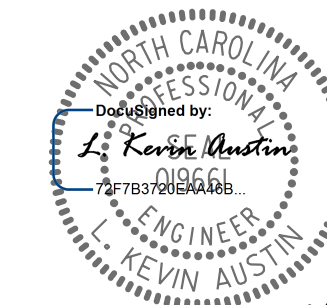
PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 6 OF 6

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-25
1			3			TOTAL SHEETS
2			4			53

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4/22/2022



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ASSEMBLED BY : W. B. ALLEN	DATE : 9/21
CHECKED BY : M. D. METZGER	DATE : 12/21
DRAWN BY : RWW 11/09	REV. 10/11/11 MAA/GM
CHECKED BY : GM 11/09	REV. 12/17 MAA/THC

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**NOTES**

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

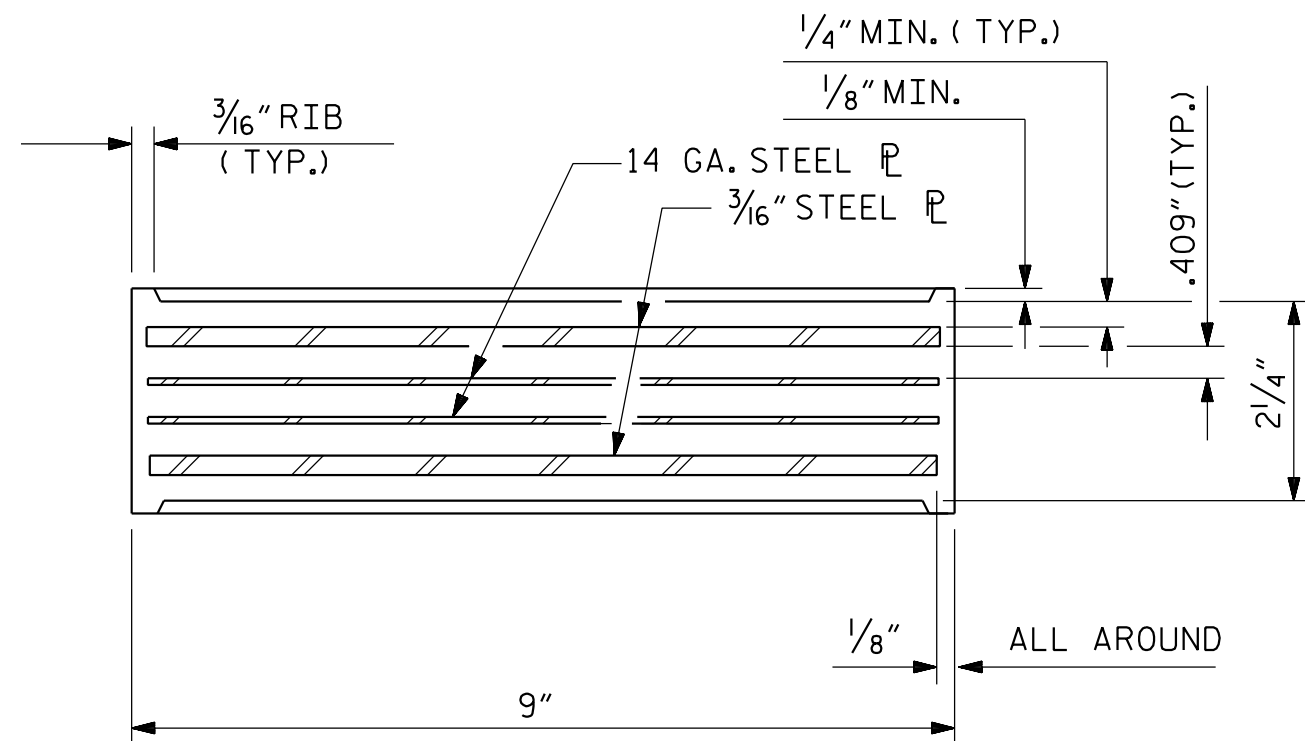
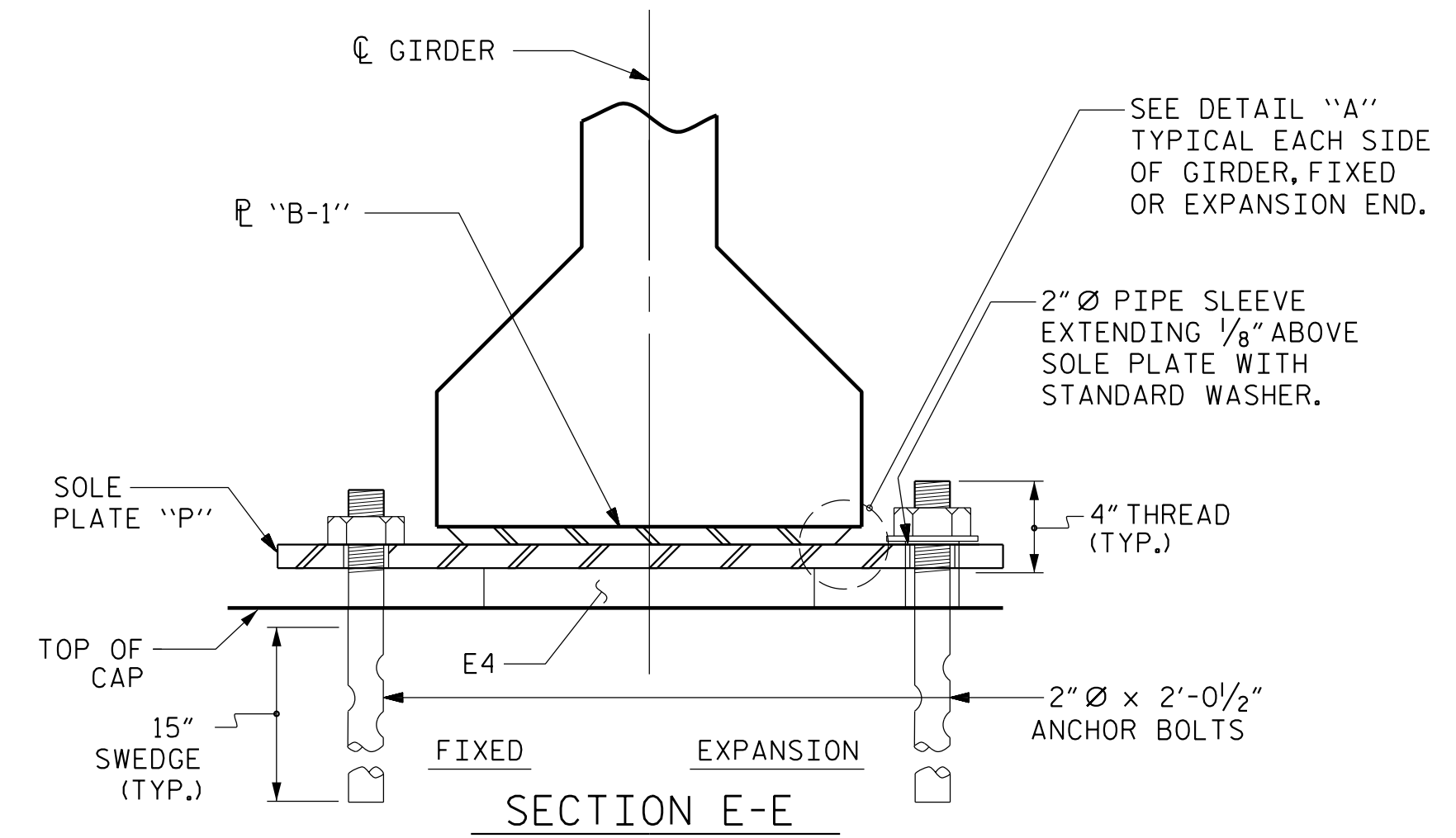
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

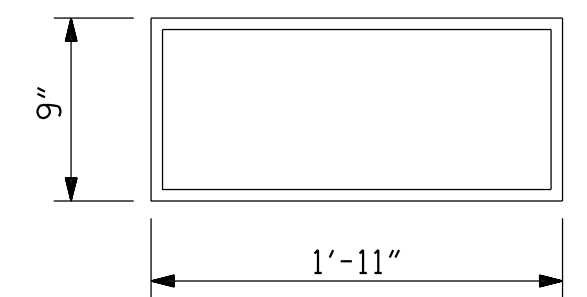
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

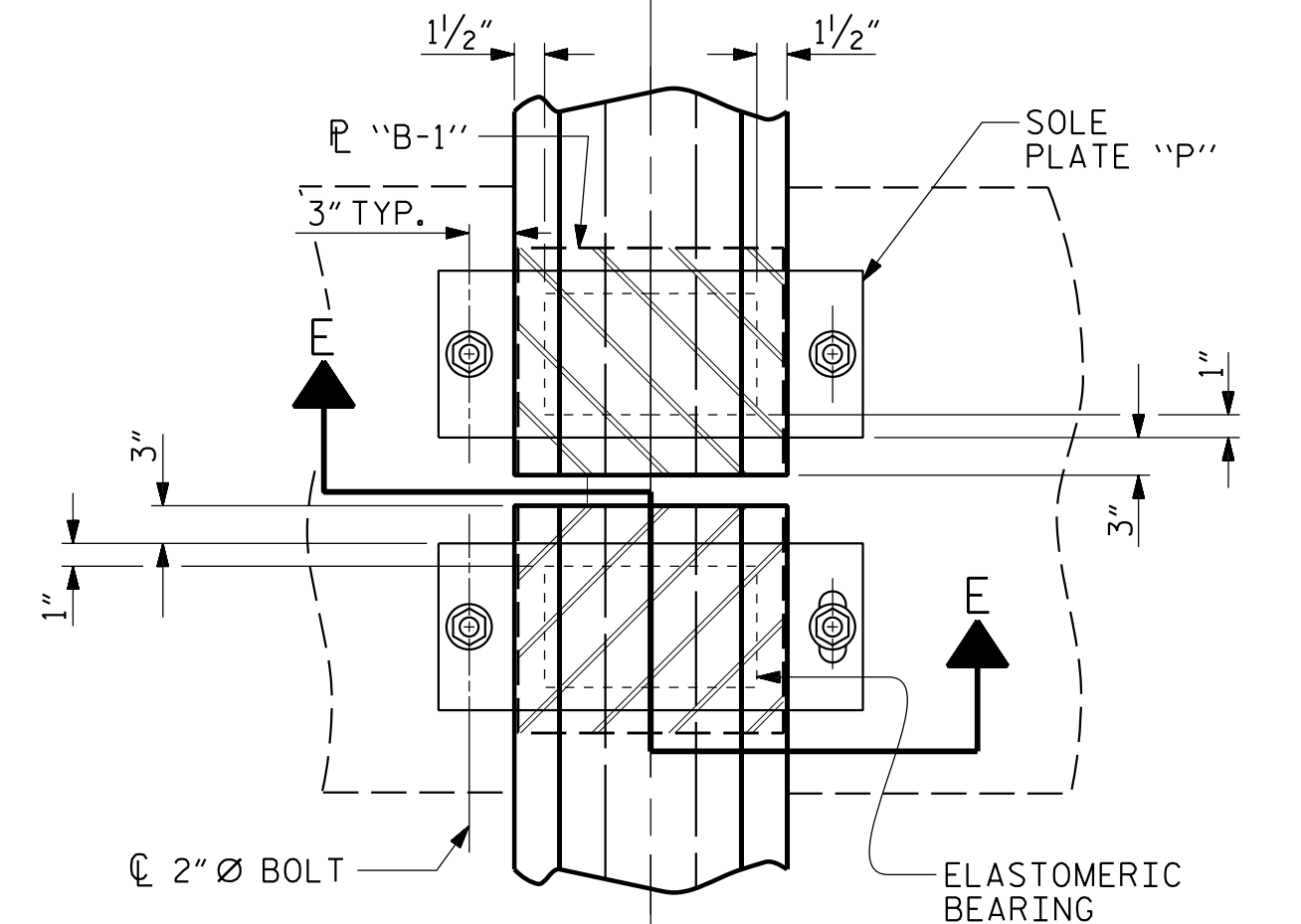
ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



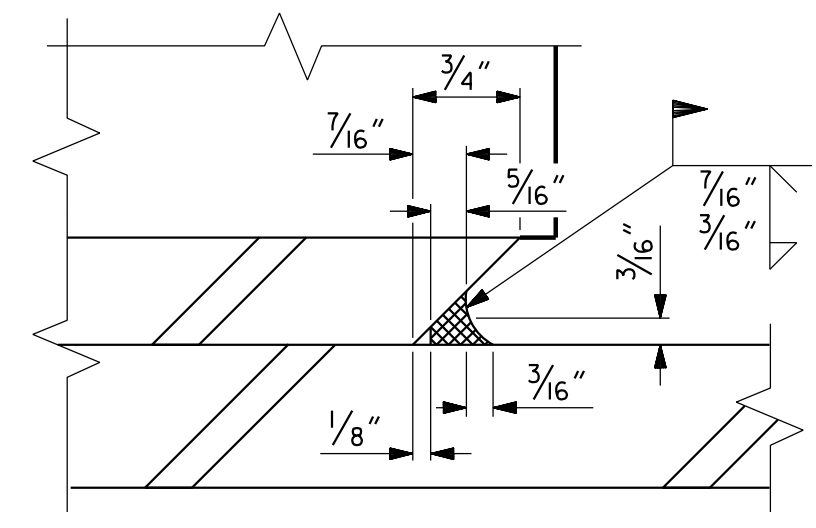
TYPICAL SECTION OF ELASTOMERIC BEARINGS



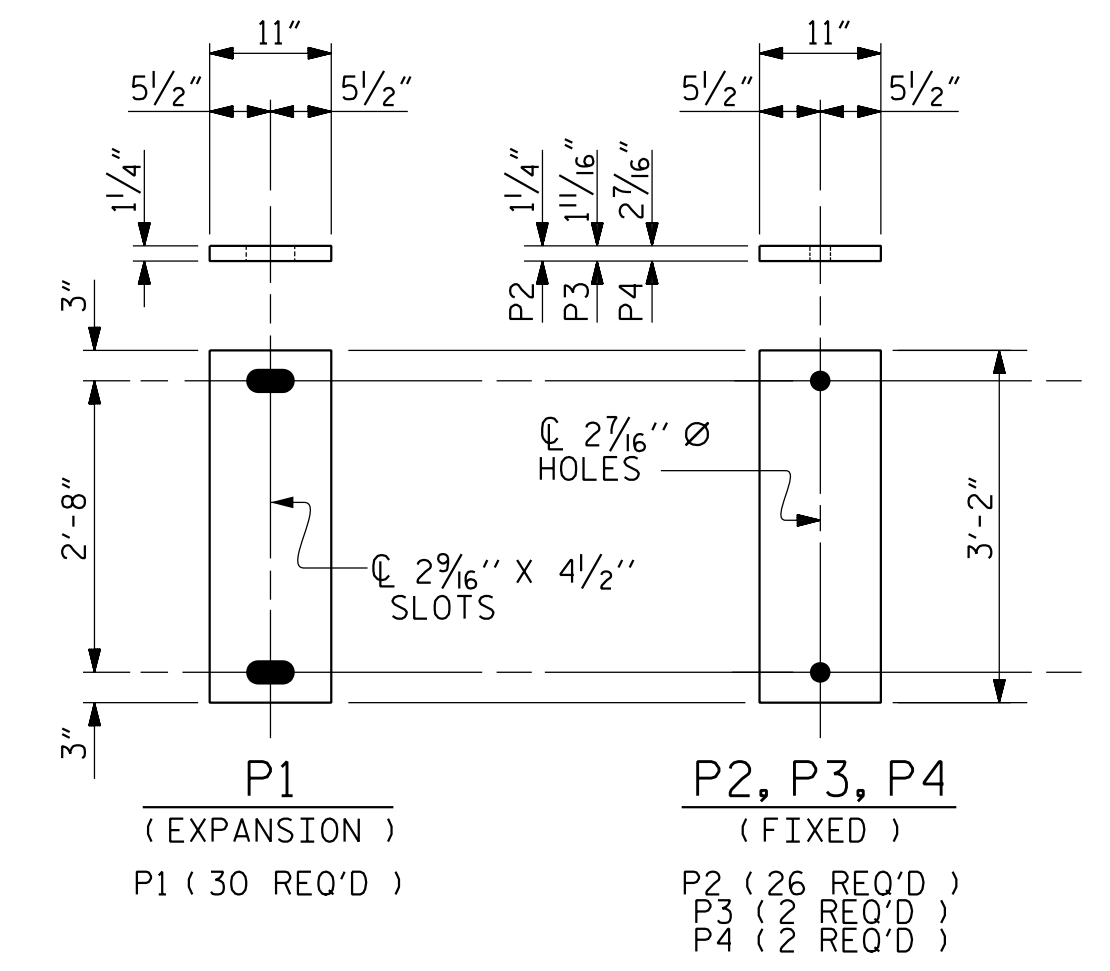
E4 (60 REQ'D)  
PLAN VIEW OF ELASTOMERIC BEARING  
TYPE V



TYPICAL HALF-PLAN (SHOWING CONTINUOUS BENT)  
TYPICAL HALF-PLAN (SHOWING SIMPLE SPAN BENT)



DETAIL "A"



SOLE PLATE DETAILS ("P")

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

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

PLANS PREPARED BY:

**NV5**

NV5 ENGINEERS & CONSULTANTS, INC.  
 3300 REGENCY PARKWAY, SUITE 100  
 CARY, NC 27518  
 P: 919.851.1912 www.NV5.com  
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THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:

*Kevin Austin*  
 L. KEVIN AUSTIN  
 PROFESSIONAL ENGINEER  
 4/22/2022

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

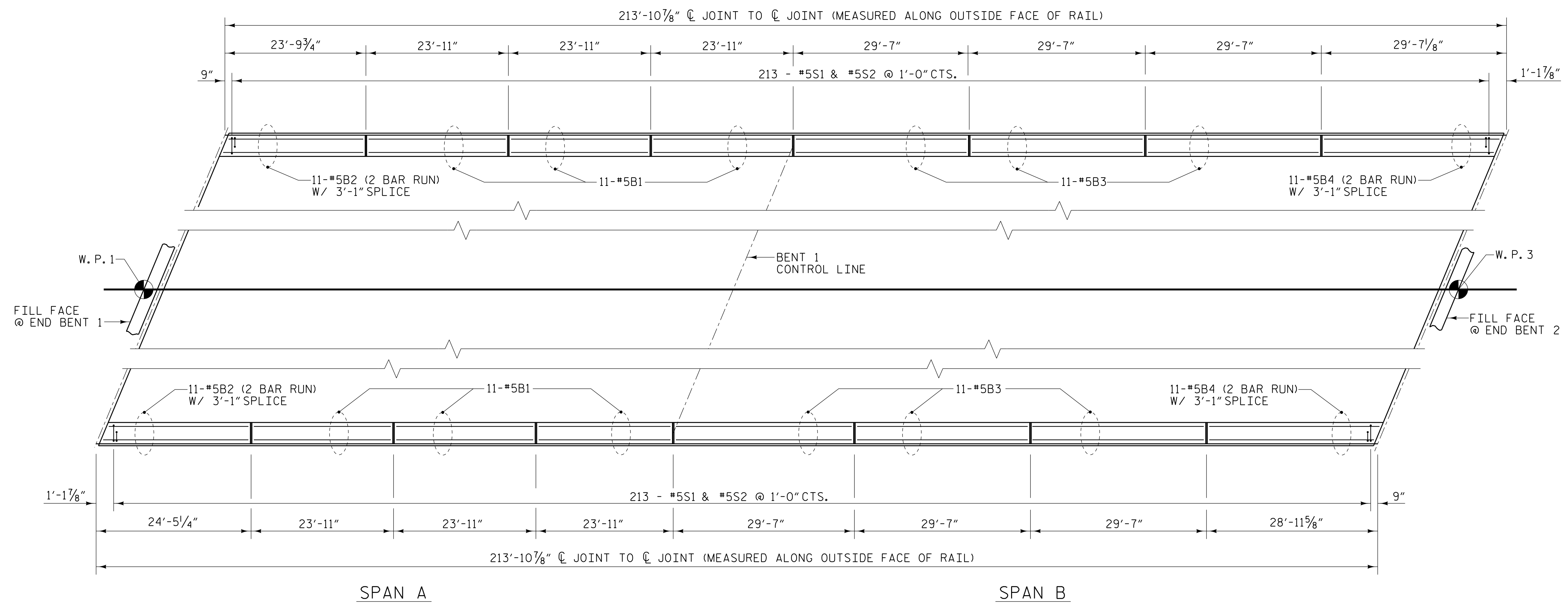
STANDARD  
**ELASTOMERIC BEARING DETAILS**  
 PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-26
1			3			TOTAL SHEETS
2			4			53

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**PLAN OF BARRIER RAIL**

**BAR TYPES**

ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL**  
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	66	#5	STR	23'-6"	1618
*B2	44	#5	STR	13'-6"	620
*B3	66	#5	STR	29'-2"	2008
*B4	44	#5	STR	16'-1"	738
*S1	426	#5	1	4'-2"	1851
*S2	426	#5	2	7'-0"	3110

\* EPOXY COATED REINFORCING STEEL 9945 LBS.  
CLASS AA CONCRETE 58.0 CU. YDS.  
CONCRETE BARRIER RAIL 427.81 LIN. FT.

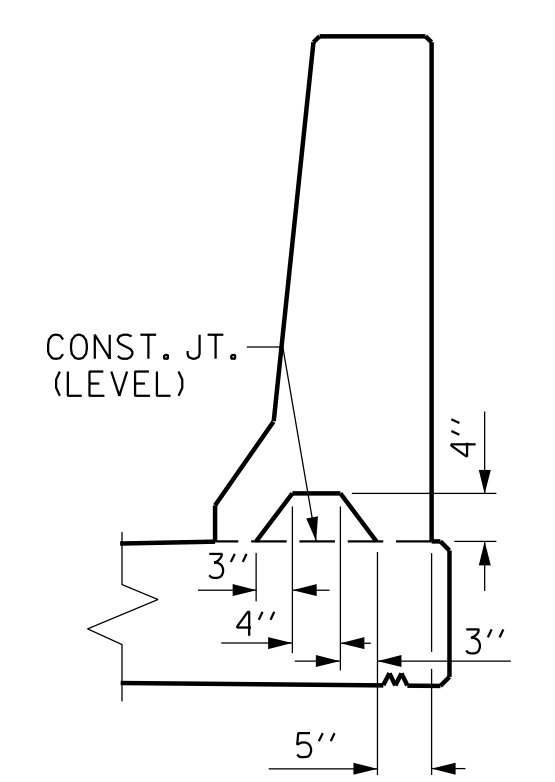
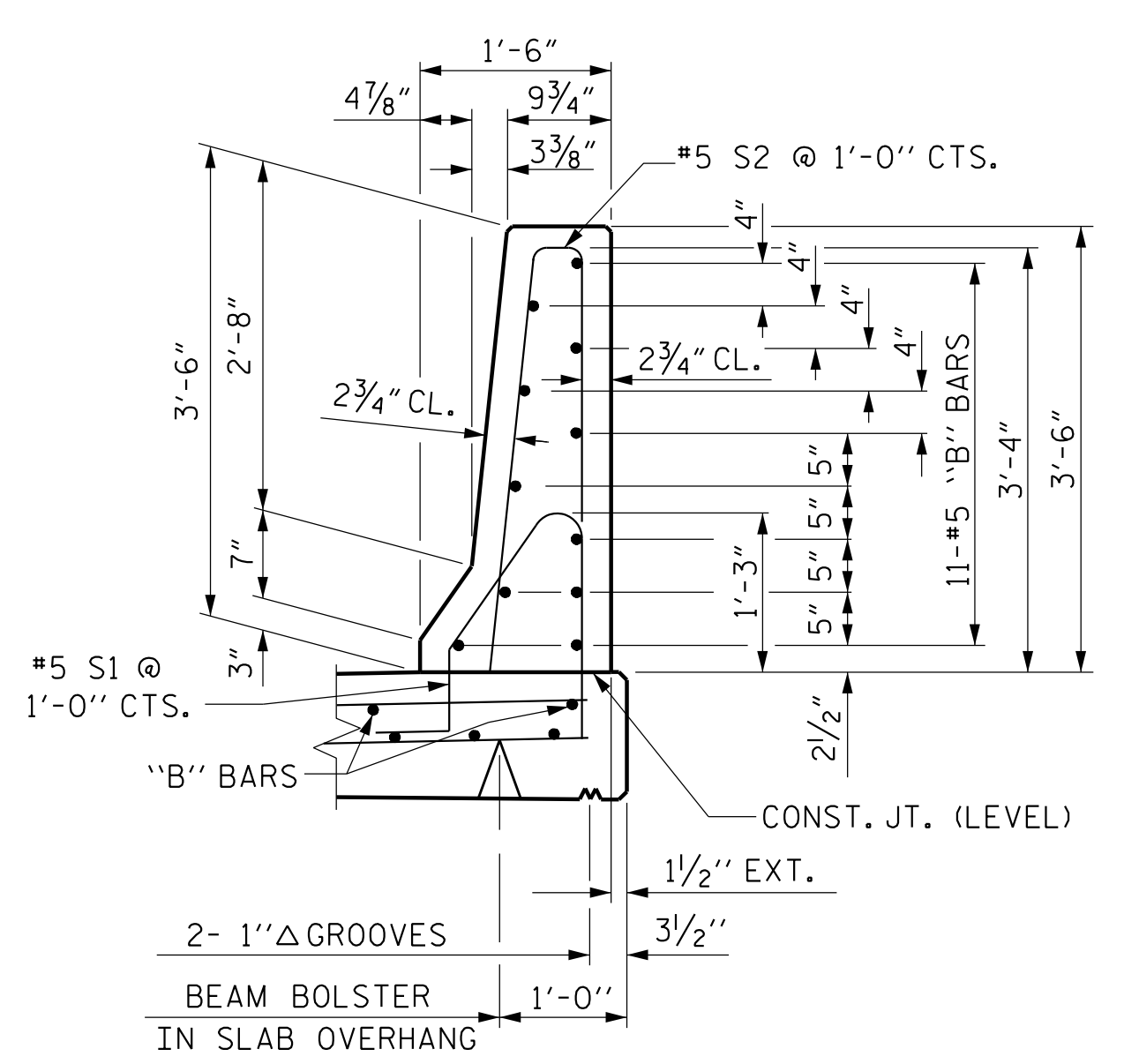
**NOTES**

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

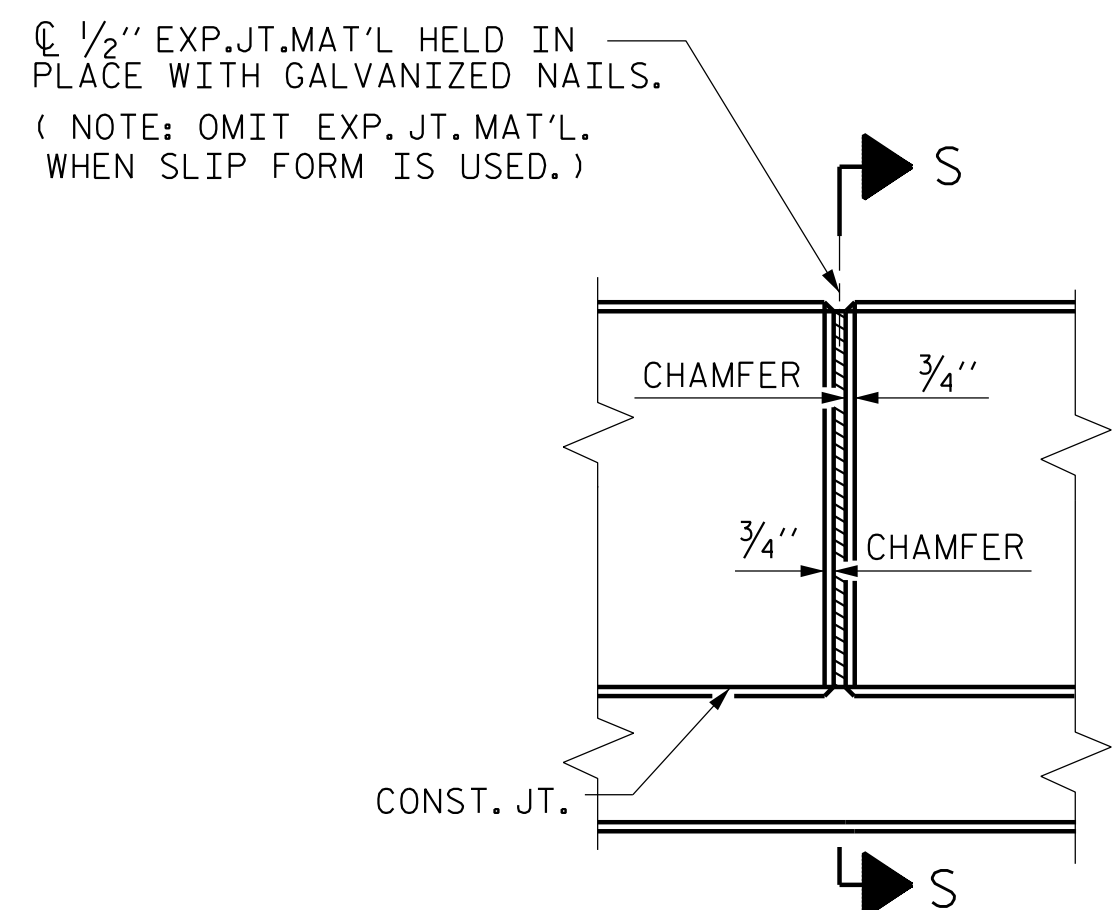
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3, S4, S5 AND S6 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3, S4, S5 AND S6 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

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.



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



**ELEVATION AT EXPANSION JOINTS**

**SECTION THRU RAIL**

**BARRIER RAIL DETAILS**

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
CONCRETE  
BARRIER RAIL

REVISIONS

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

SHEET NO. S6-27  
TOTAL SHEETS 53

PLANS PREPARED BY:

**NV5**

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CARY, NC 27518  
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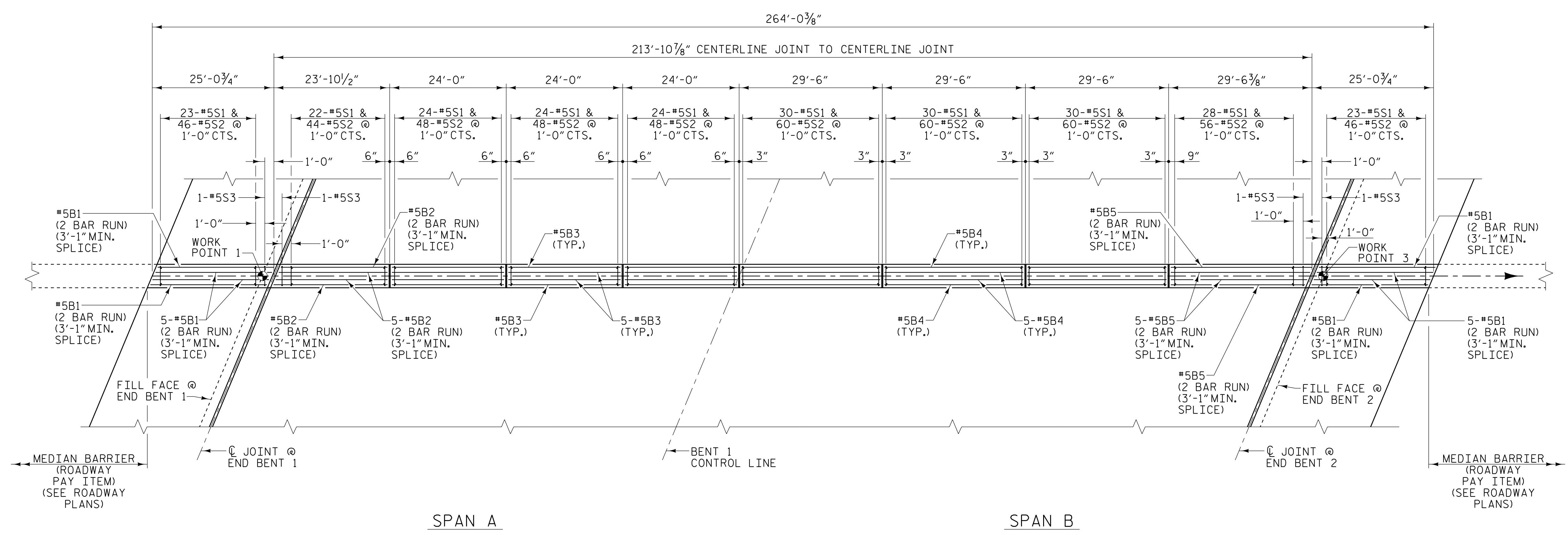
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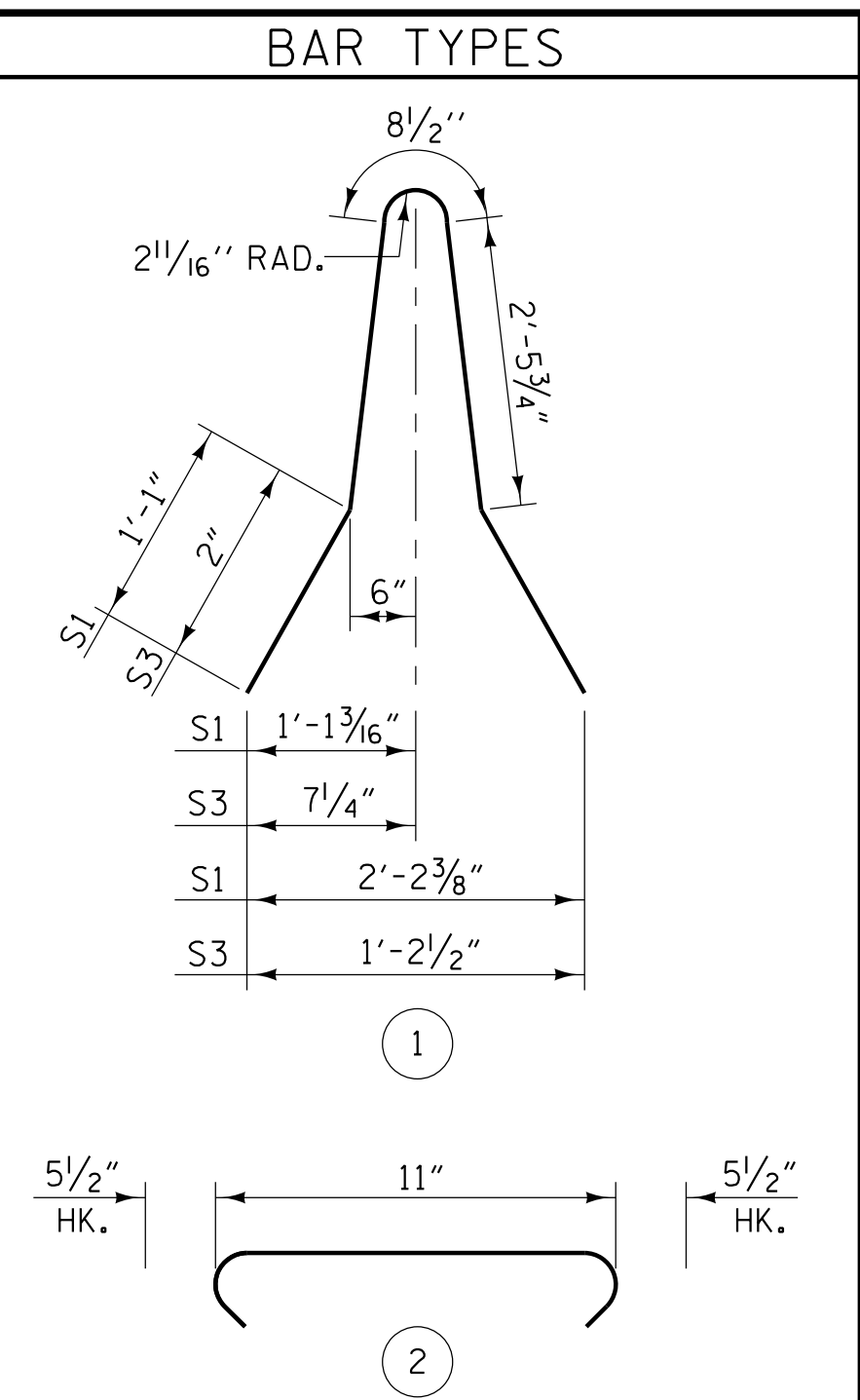
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ASSEMBLED BY : W. B. ALLEN	DATE : 8/21
CHECKED BY : M. D. METZGER	DATE : 12/21
DRAWN BY : ARB 5/87	REV. 7/12 MAA/GM
CHECKED BY : SJD 9/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC



PLAN OF MEDIAN BARRIER



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR	13'-11"	406
* B2	14	#5	STR	13'-6"	197
* B3	36	#5	STR	23'-7"	886
* B4	36	#5	STR	29'-1"	1092
* B5	14	#5	STR	16'-4"	238
* S1	258	#5	1	7'-10"	2108
* S2	516	#5	2	1'-10"	987
* S3	4	#5	1	6'-0"	25

* EPOXY COATED REINFORCING STEEL	5939 LBS.
CLASS AA CONCRETE	46.8 CU. YDS.
CONCRETE MEDIAN BARRIER	264.03 LIN. FT.

NOTES

- THE MEDIAN BARRIER IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.
- THE #5S2 BARS IN STAGE II AND STAGE III MAY BE PUSHED INTO GREEN CONCRETE AFTER SCREEDING.
- GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE MEDIAN BARRIER AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN MEDIAN BARRIER EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF MEDIAN BARRIER SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 CONCRETE  
 MEDIAN BARRIER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S6-28
2			4			TOTAL SHEETS 53

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 P: 919.851.1912 www.NV5.com  
 NC License # F-1333

North Carolina Professional Engineer  
 Kevin Austin  
 L. KEVIN AUSTIN  
 4/22/2022

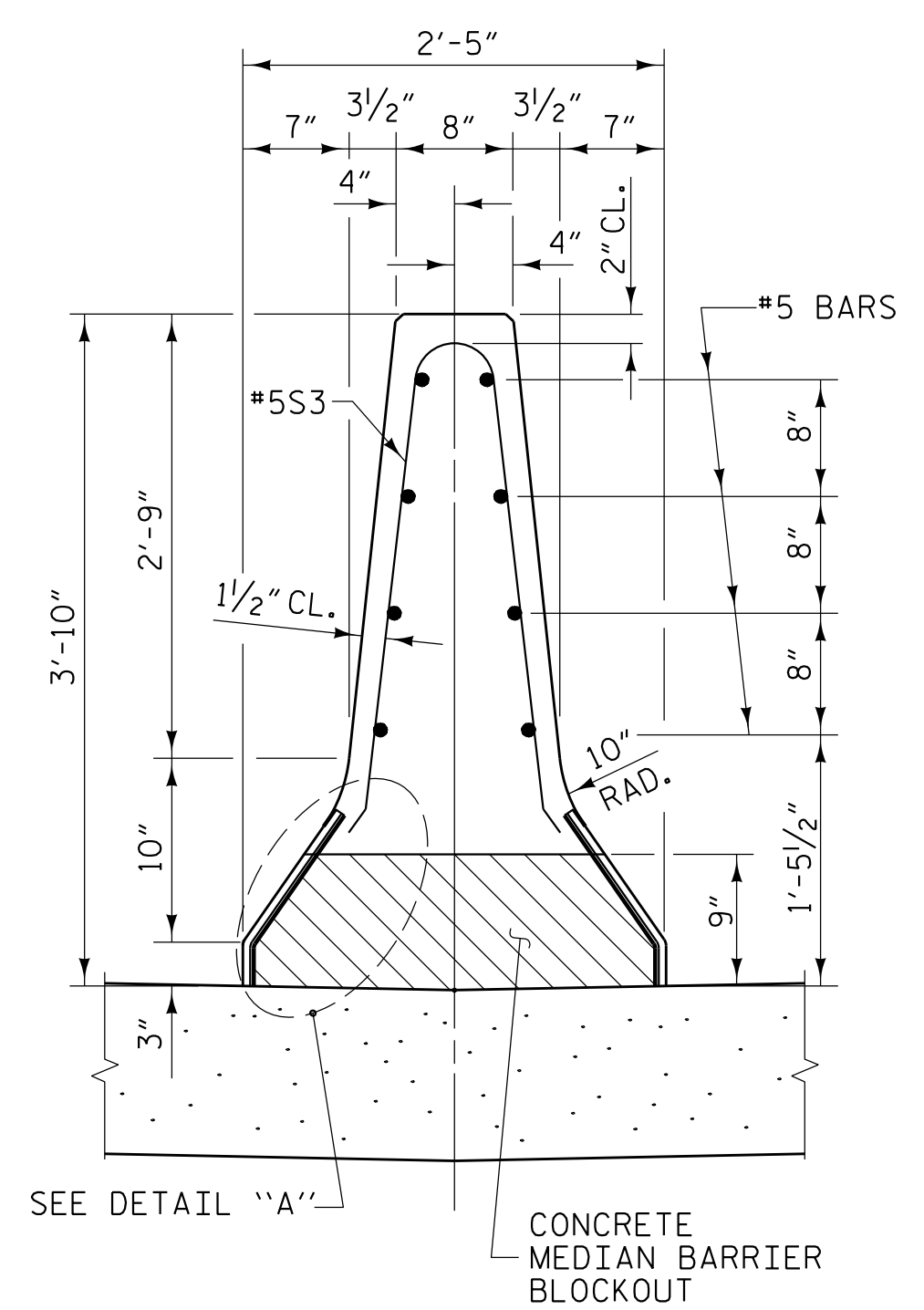
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DRAWN BY :	W.B. ALLEN	DATE :	12/21
CHECKED BY :	M.D. METZGER	DATE :	12/21
DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	01/22

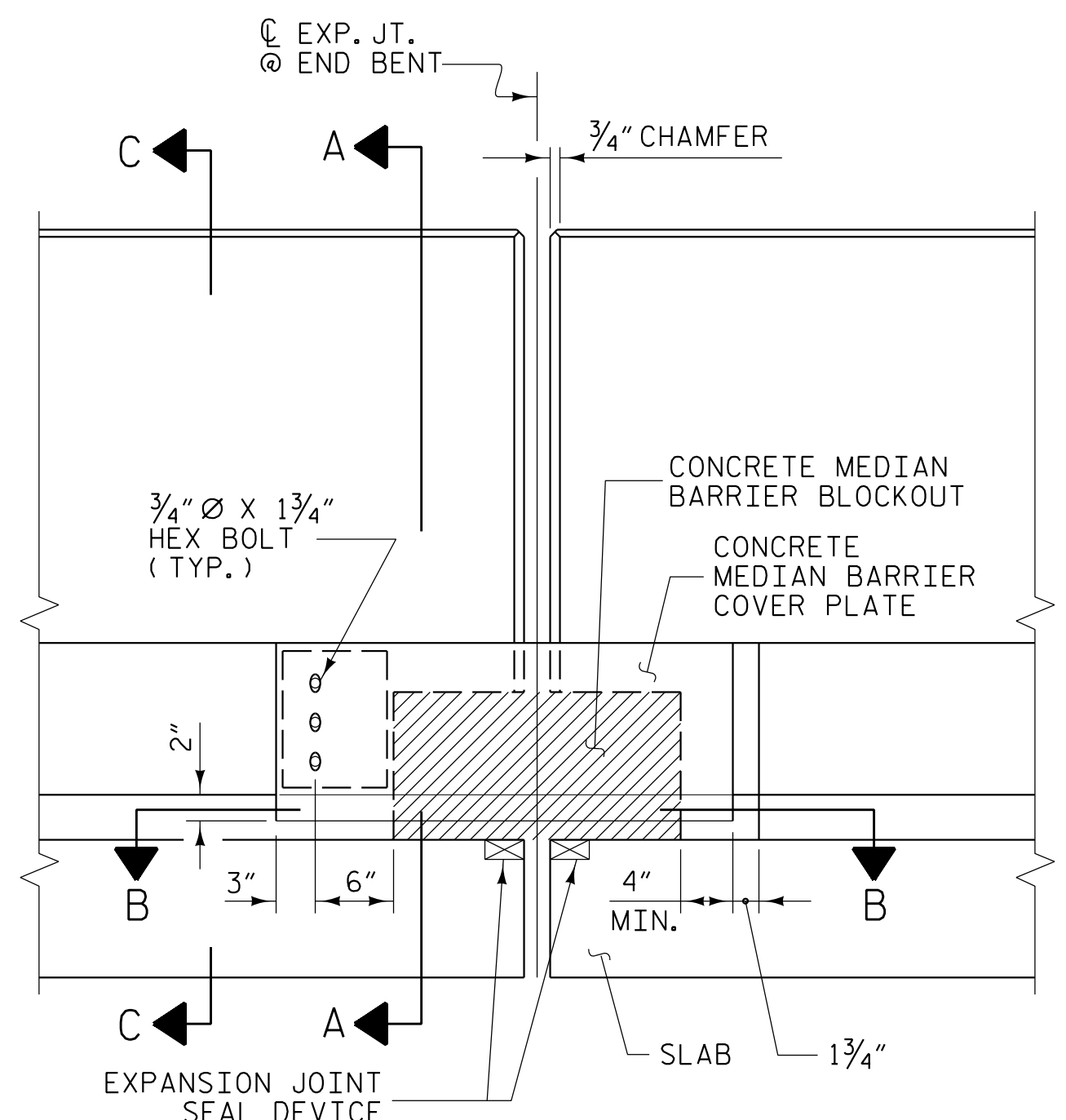
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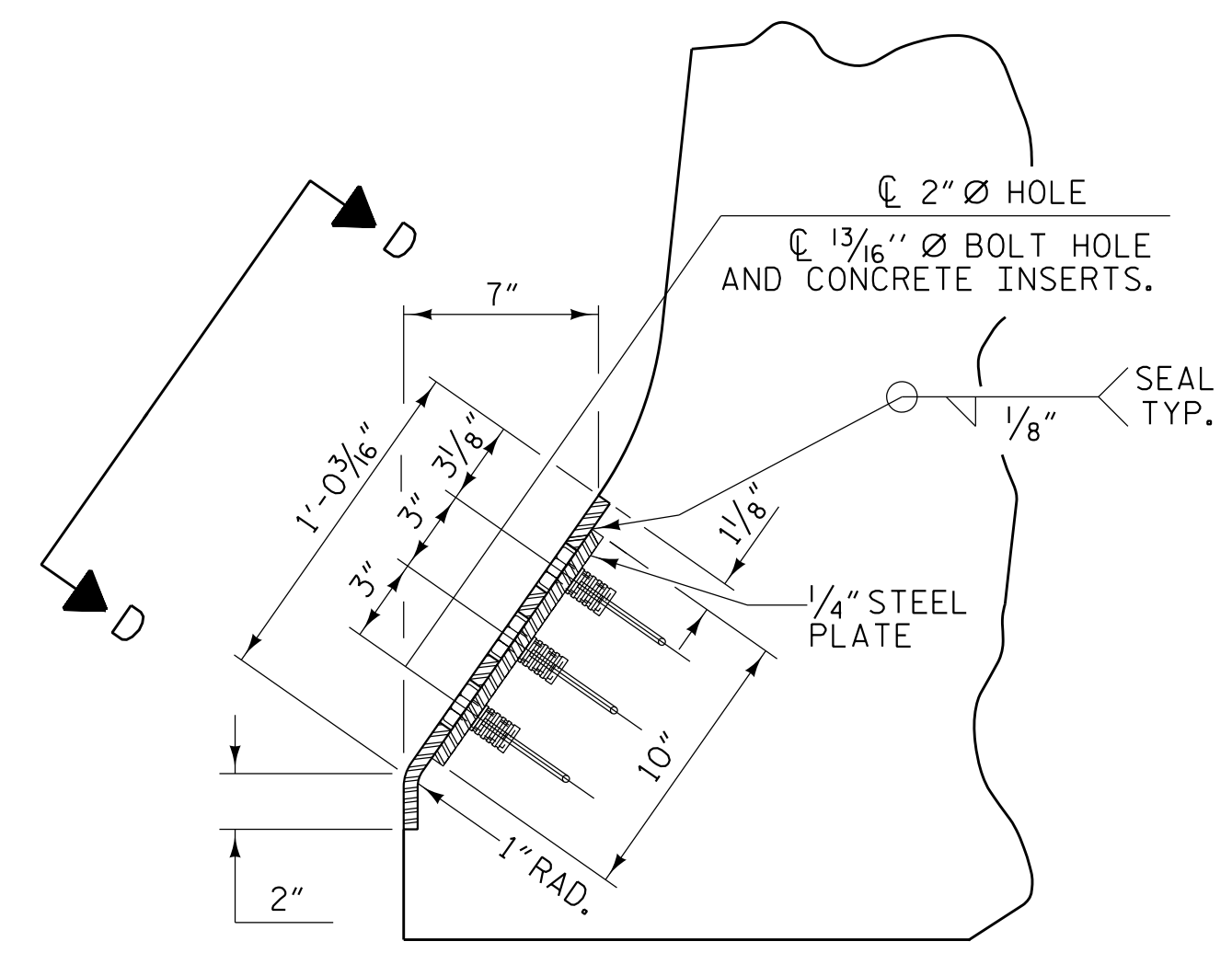
**NOTE:**  
 NO SEPARATE PAYMENT WILL BE MADE FOR FINISHING AND  
 INSTALLING THE COVER PLATE. THE ENTIRE COST OF THIS  
 WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR  
 EXPANSION JOINT SEALS.



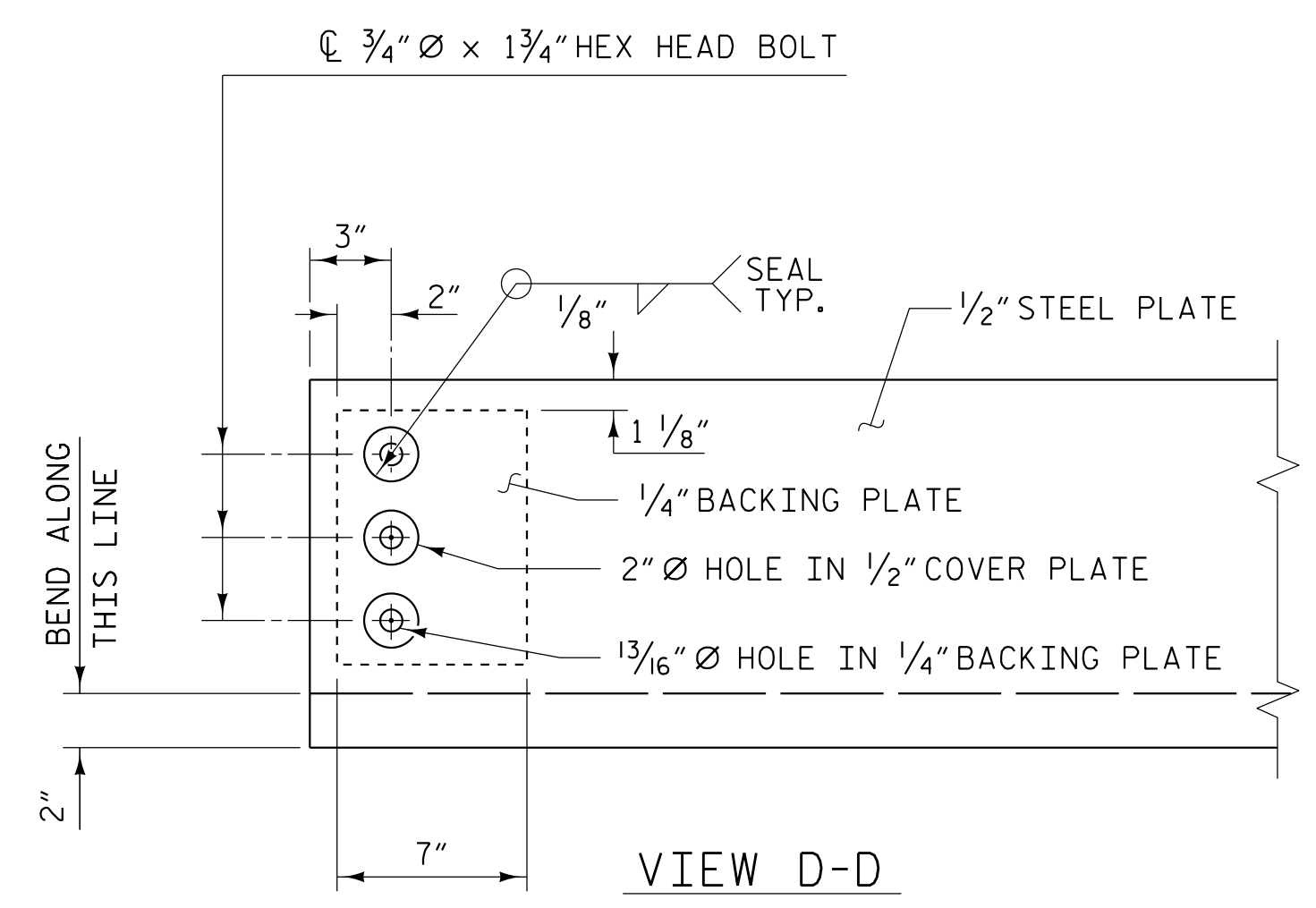
SECTION A-A



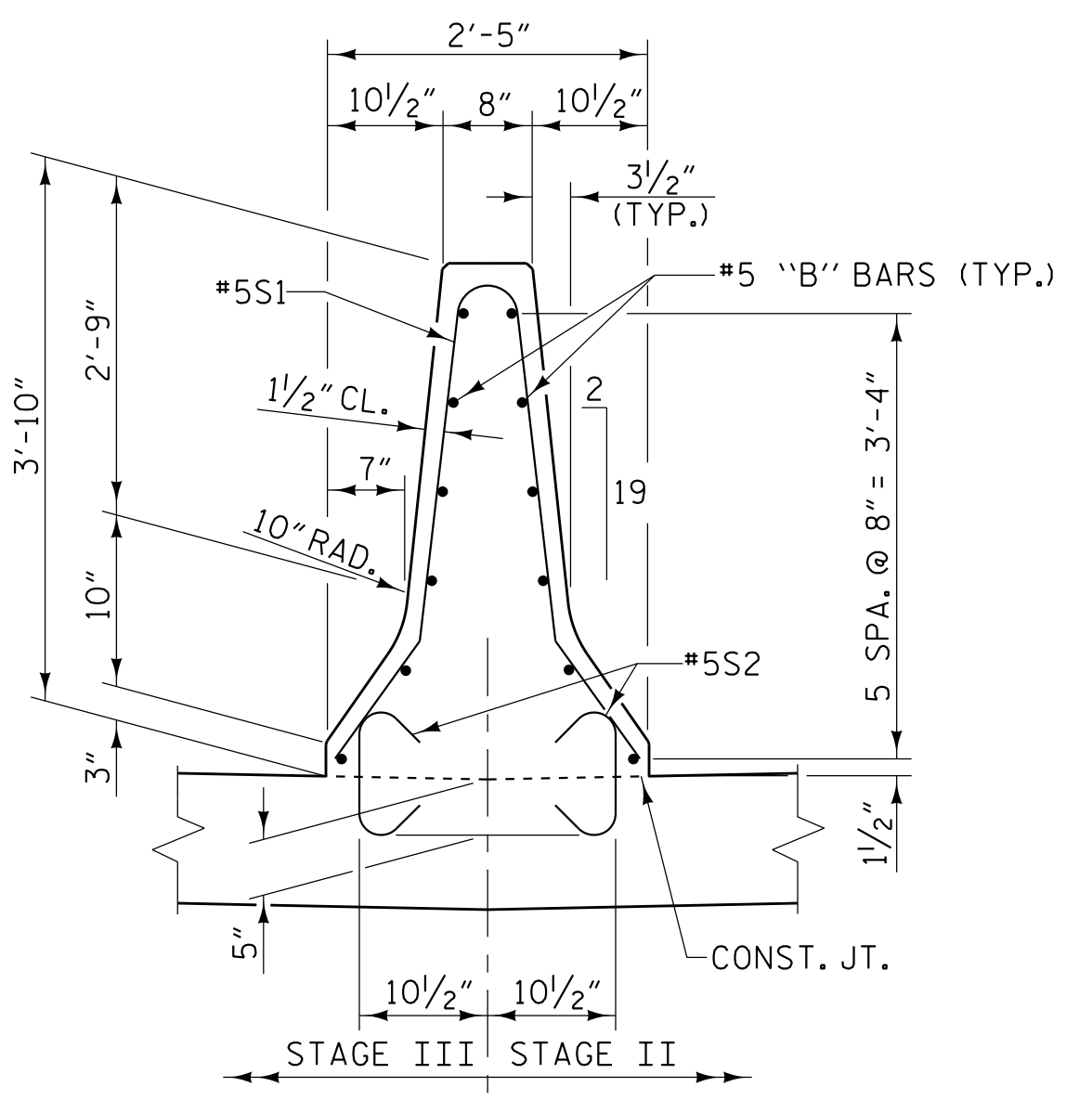
ELEVATION @ EXP. JOINT



DETAIL "A"

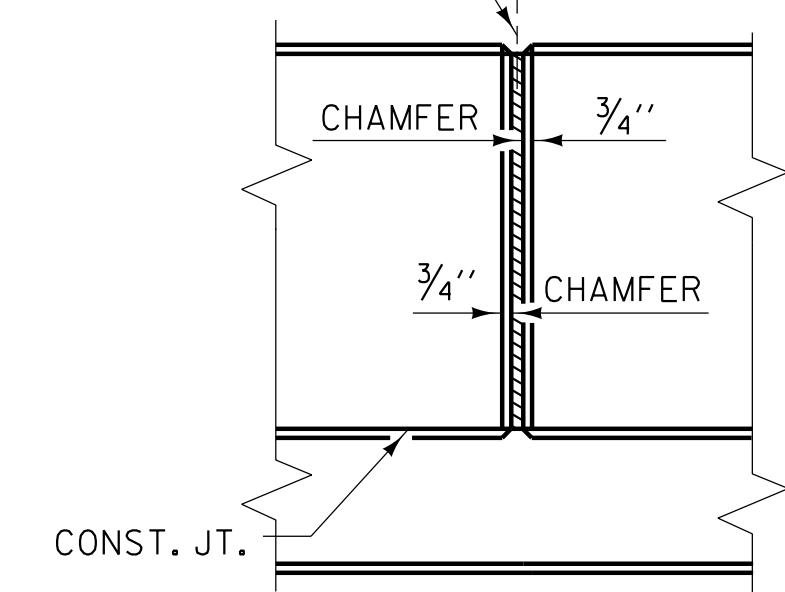


VIEW D-D

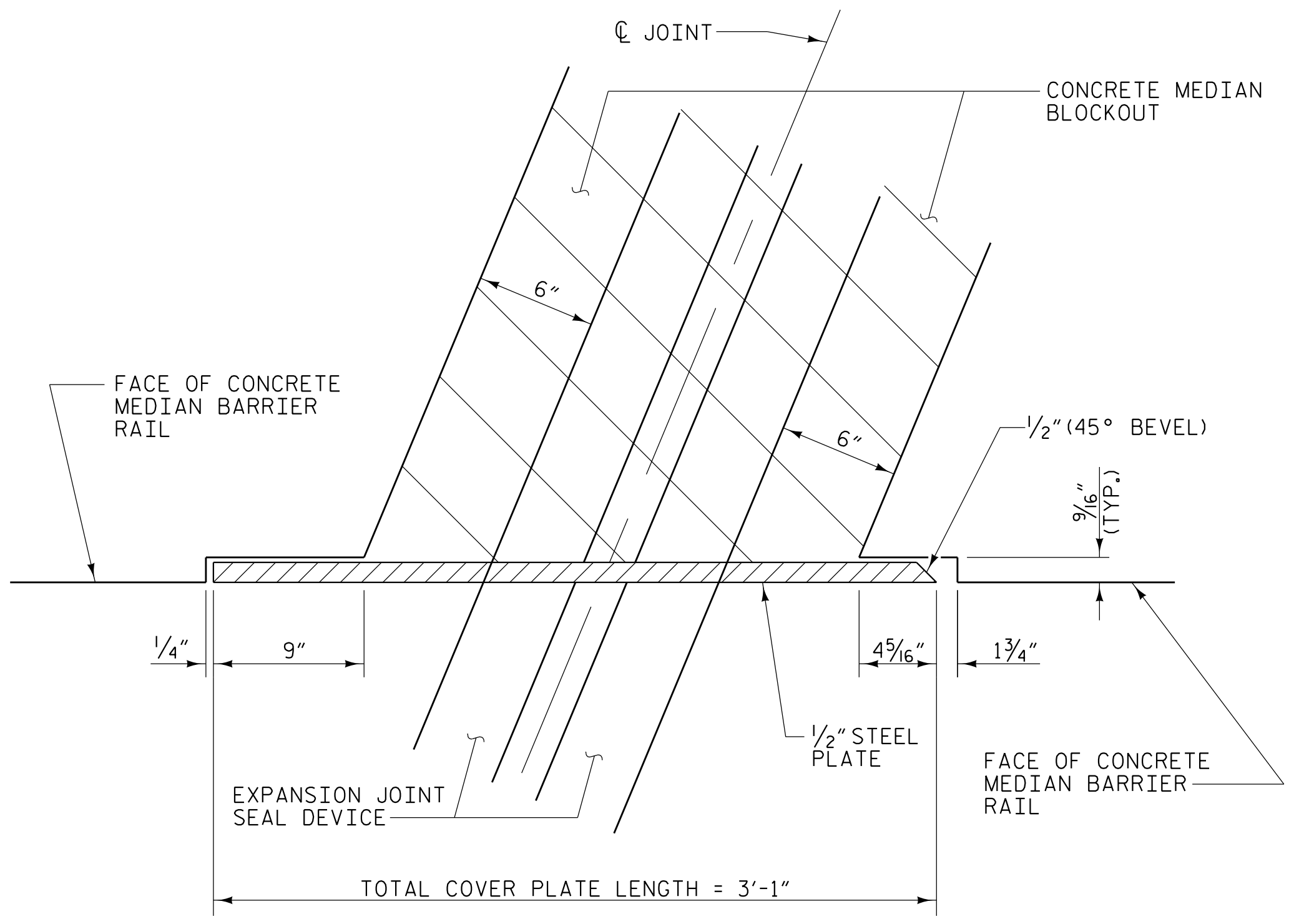


SECTION C-C

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 MEDIAN BARRIER EXPANSION JOINTS



SECTION B-B  
 MEDIAN BARRIER COVER PLATE DETAILS

**MEDIAN BARRIER DETAILS**

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
**CONCRETE  
 MEDIAN BARRIER**

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

TOTAL SHEETS: 53

PLANS PREPARED BY:

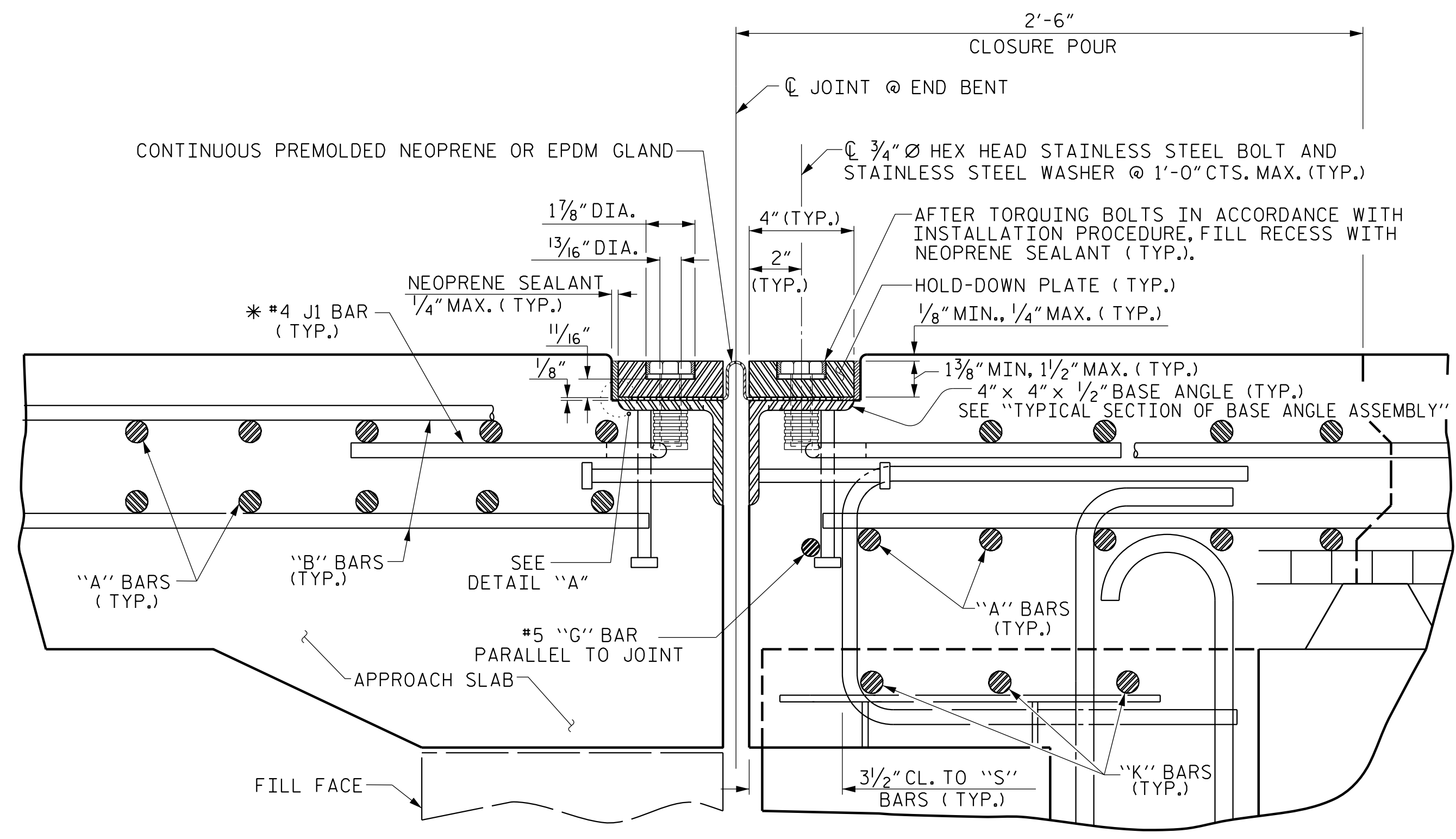
NV5 ENGINEERS & CONSULTANTS, INC.  
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DRAWN BY: W.B. ALLEN DATE: 12/21  
 CHECKED BY: M.D. METZGER DATE: 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22

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**EXPANSION JOINT DETAILS**

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

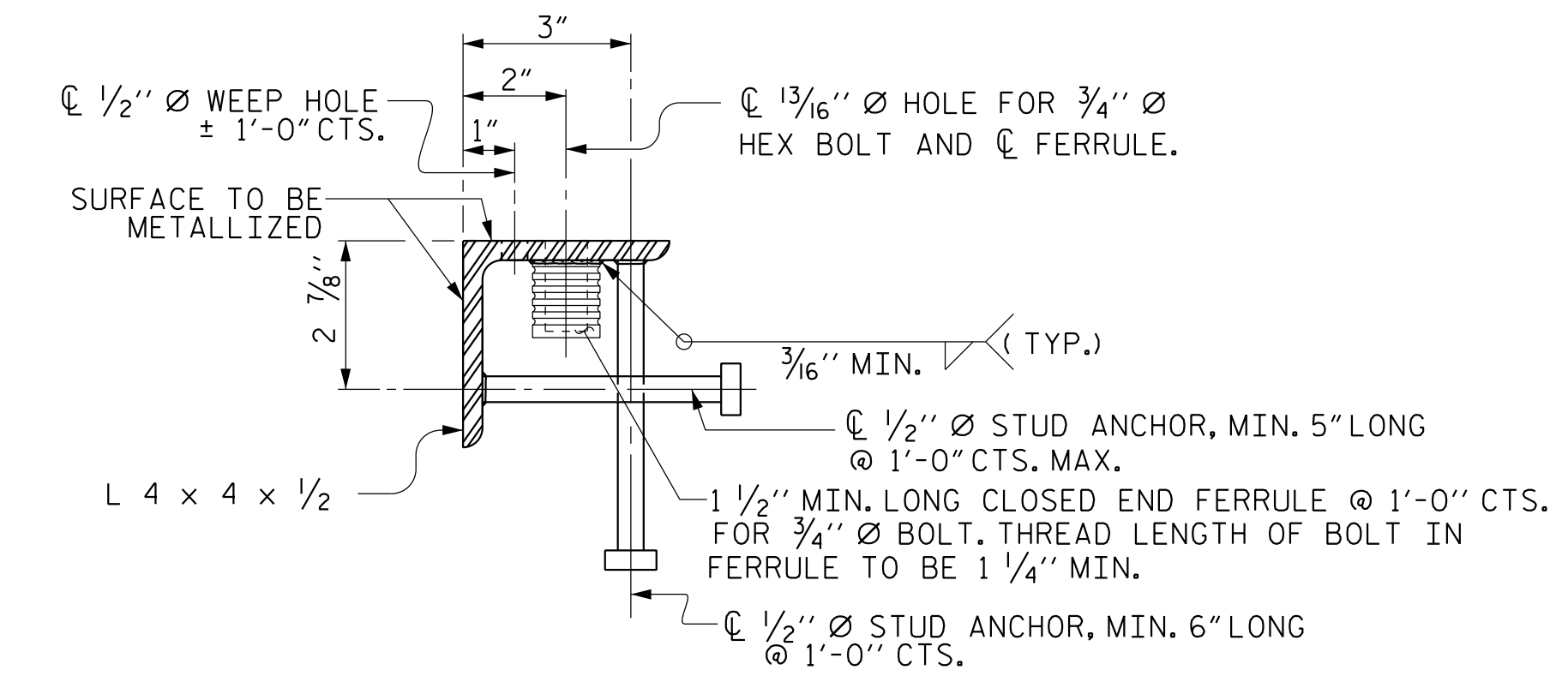
\* THE QUANTITY OF #4 J1 BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1 BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1 BARS SPECIFIED, ADDITIONAL J1 BARS WILL NOT BE REQUIRED.

**INSTALLATION PROCEDURE**

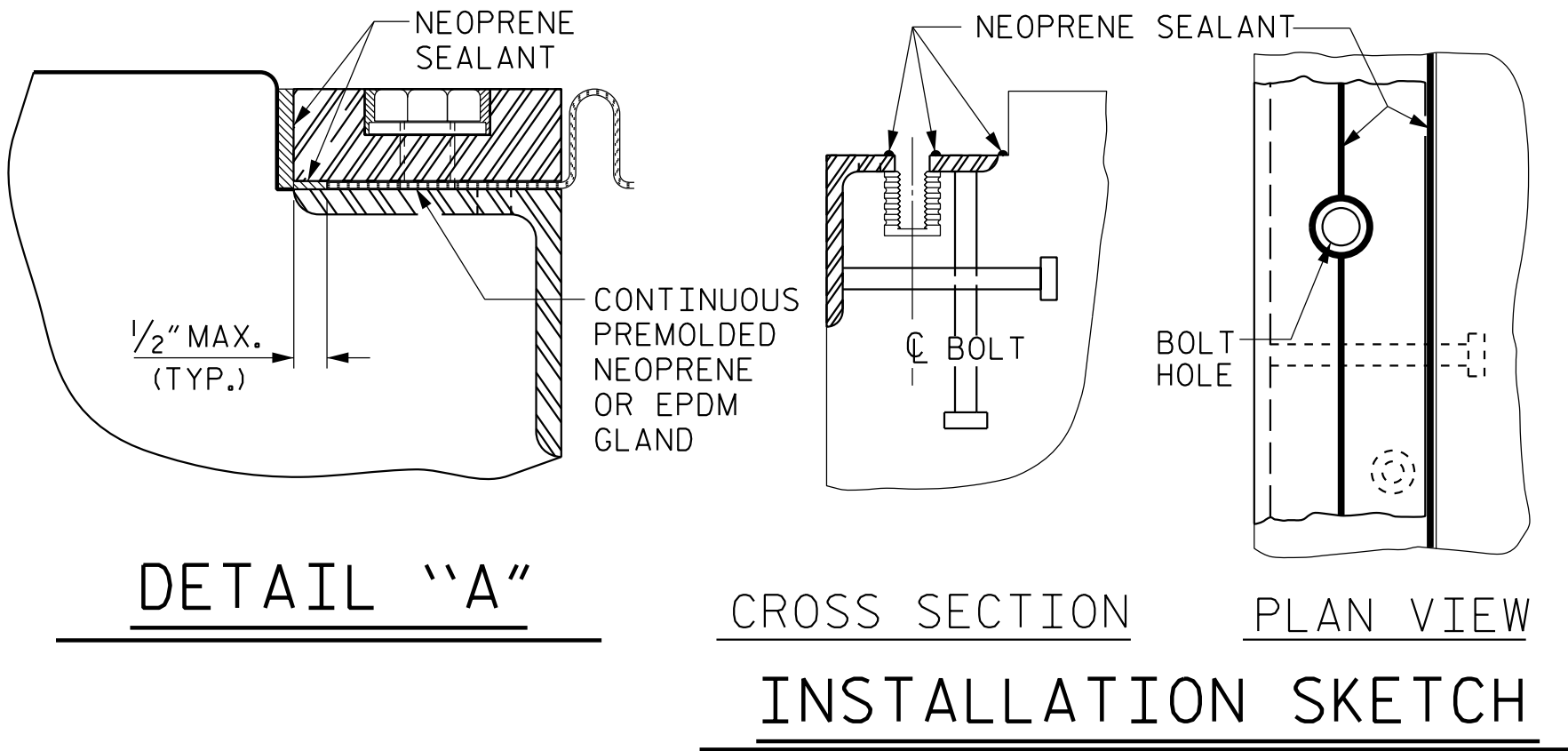
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4 1/8" TO 4 1/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED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

**GENERAL NOTES**

1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MINIMUM.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS ASKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD-DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE "TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
7. THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
8. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
9. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPlice LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
10. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
11. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
12. THE FABRICATOR SHALL PROVIDE 1/2" Ø THREADED HOLES IN THE HOLD-DOWN PLATES TO ASSIST IN LIFTING AND PLACING. THE HOLES SHALL BE 3/4" DEEP AT 6'-0" MAXIMUM SPACING AND A MINIMUM OF TWO HOLES PER PLATE.

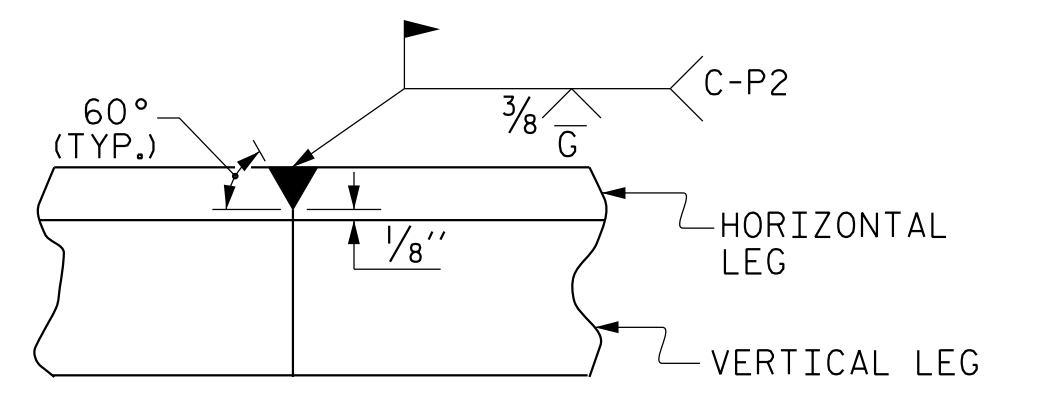


**TYPICAL SECTION OF BASE ANGLE ASSEMBLY**



**DETAIL "A"**

**CROSS SECTION PLAN VIEW INSTALLATION SKETCH**



**DETAIL - FIELD WELD SPLICE OF BASE ANGLE**

MOVEMENT AND SETTING AT JOINT					
END BENT NO.	SKEW ANGLE	TOTAL MOVEMENT (ALONG CL RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	112°-39'-49"	5/8"	1 3/8"	1 5/8"	1 1/8"
2	112°-39'-49"	3/4"	1 1/2"	1 3/8"	1 1/8"

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
**EXPANSION JOINT SEAL DETAILS**

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

SHEET NO. S6-30  
 TOTAL SHEETS 53

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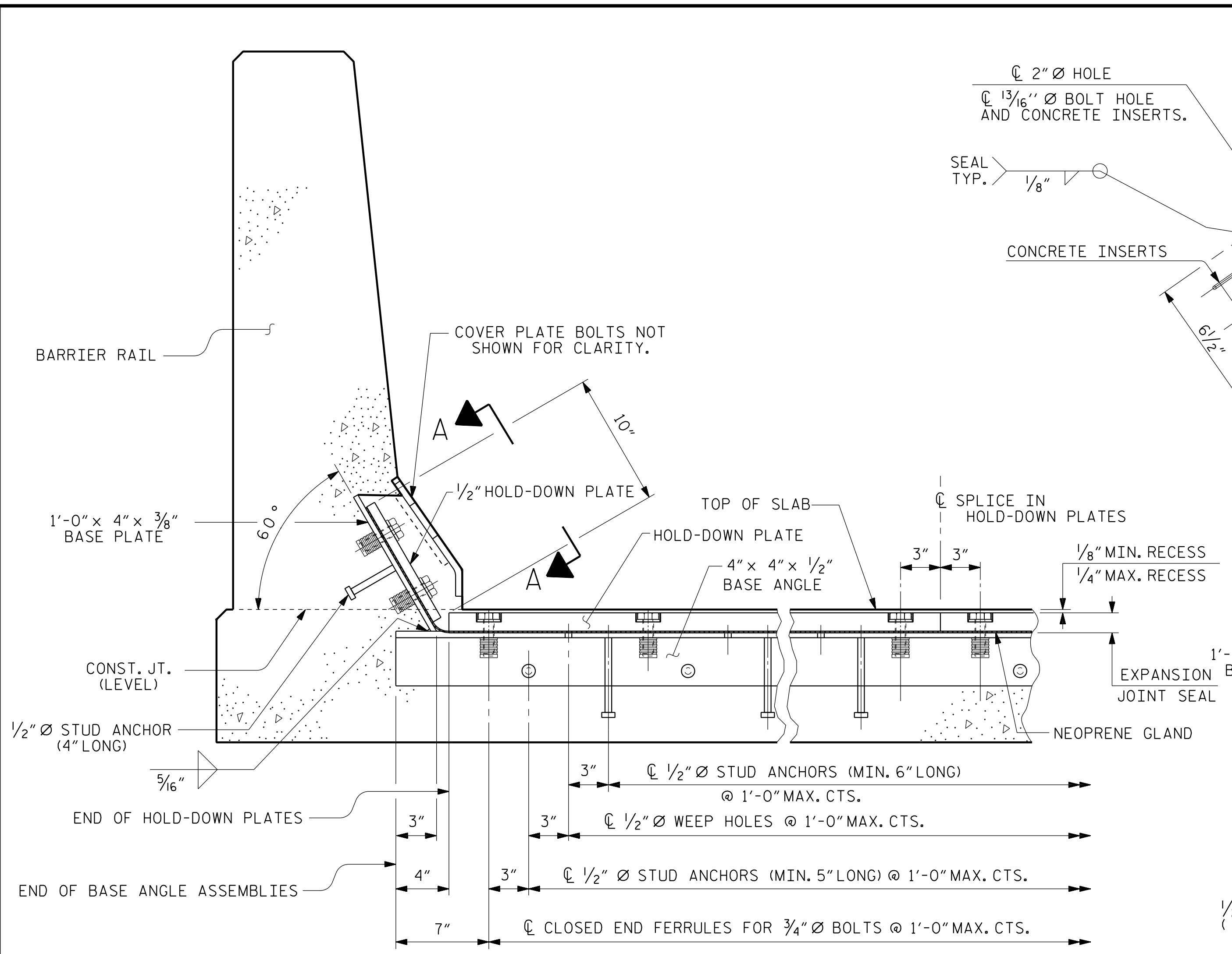
*Kevin Austin*  
 L. KEVIN AUSTIN  
 ENGINEER  
 4/22/2022

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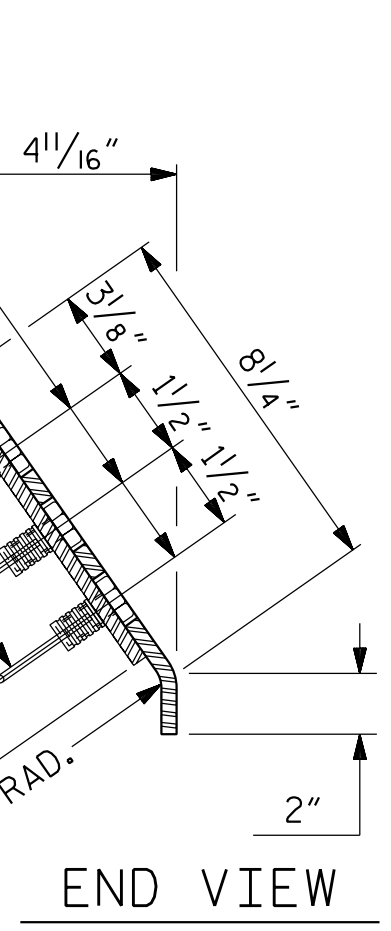
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ASSEMBLED BY : <b>W. B. ALLEN</b>	DATE : 12/21
CHECKED BY : <b>M. D. METZGER</b>	DATE : 12/21
DRAWN BY : REK 9/87	REV. 10/11 MAA/GM
CHECKED BY : CRK 10/87	REV. 10/17 MAA/THC
	REV. 6/18 MAA/THC

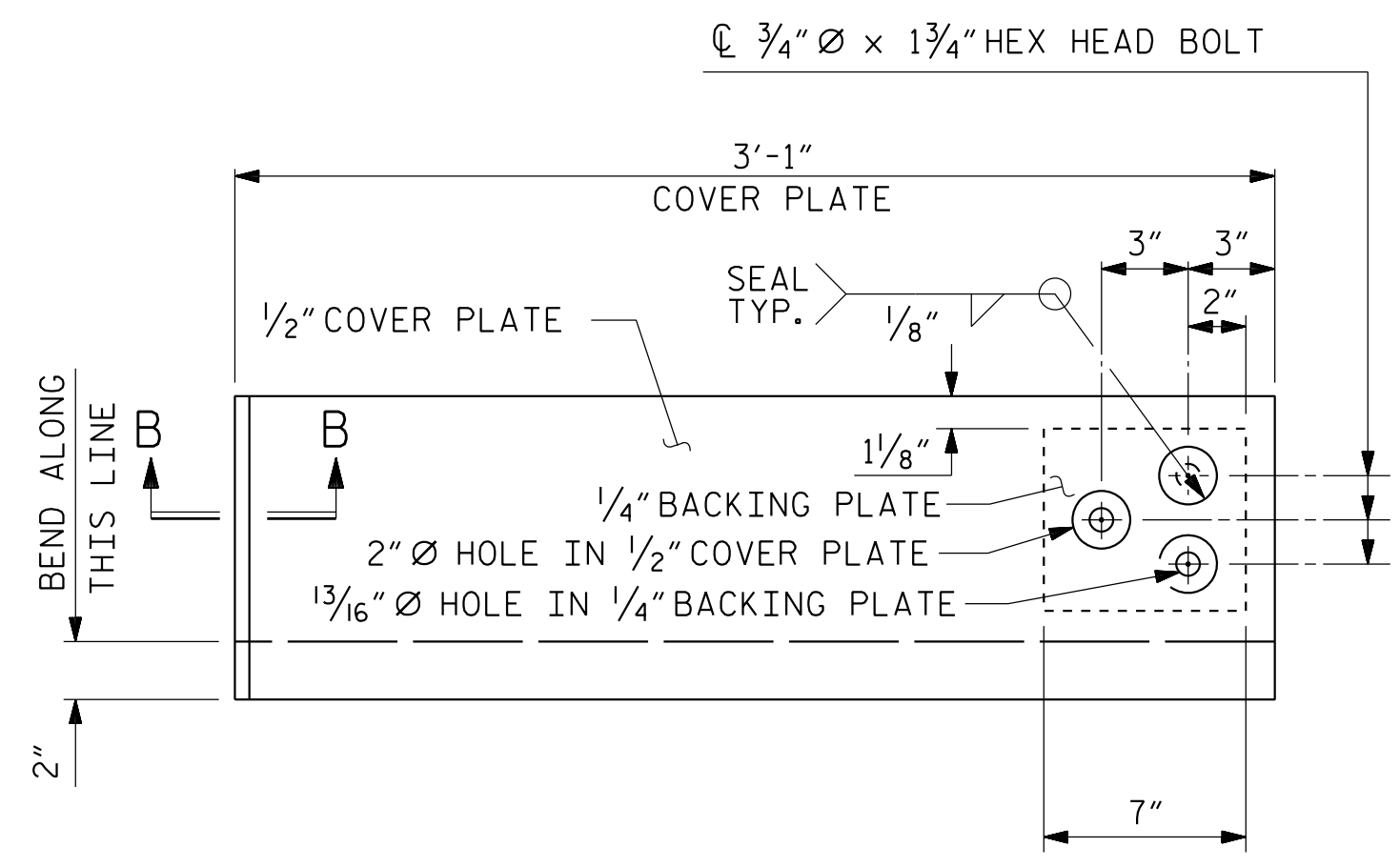




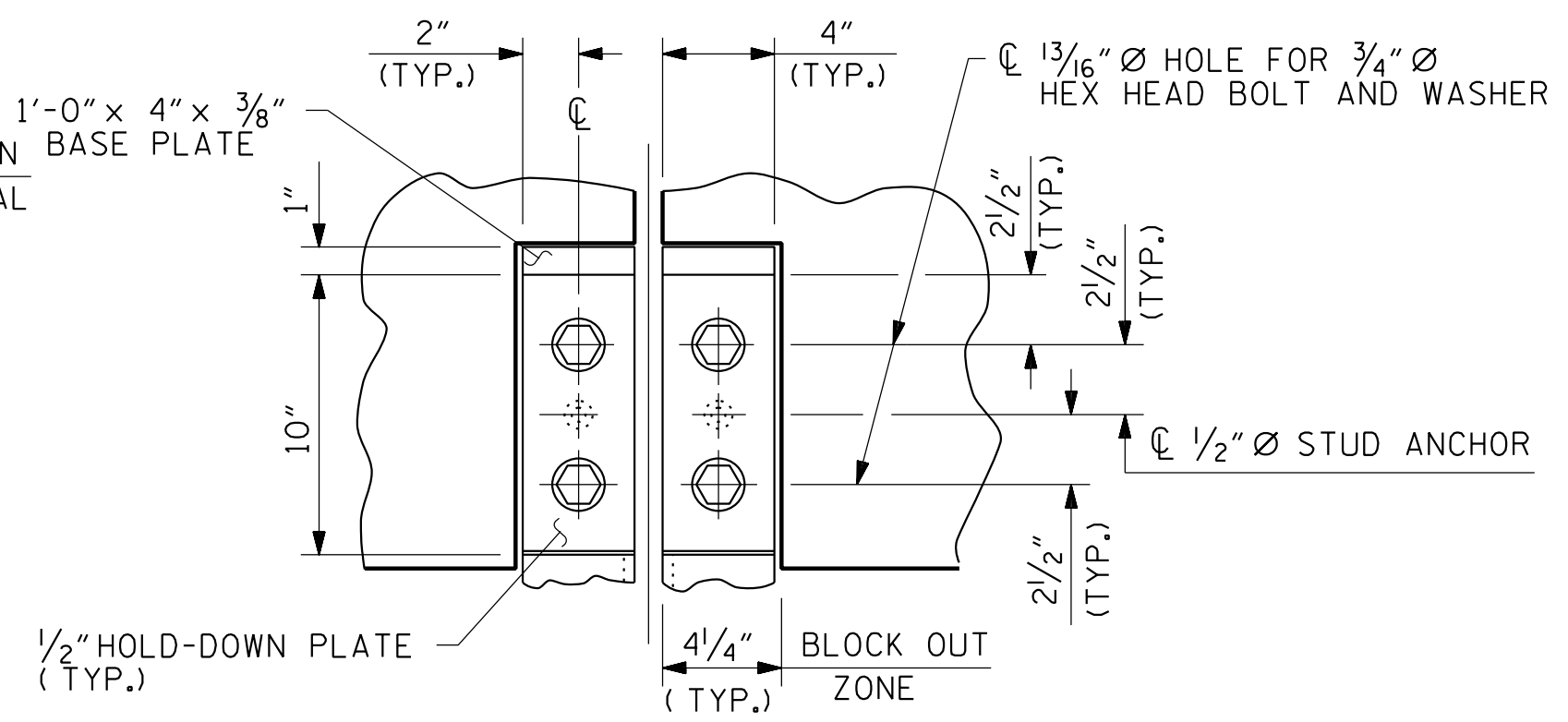
**SECTION THRU RAIL NORMAL TO JOINT**



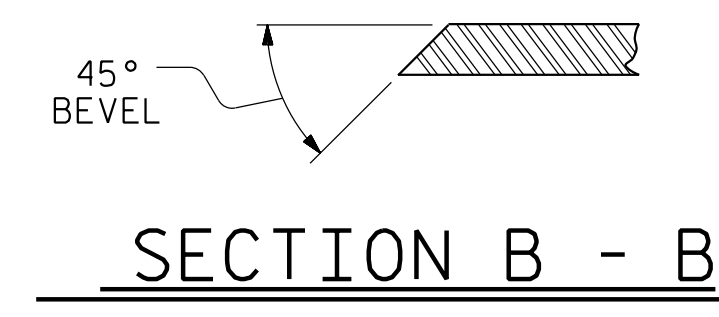
**END VIEW**



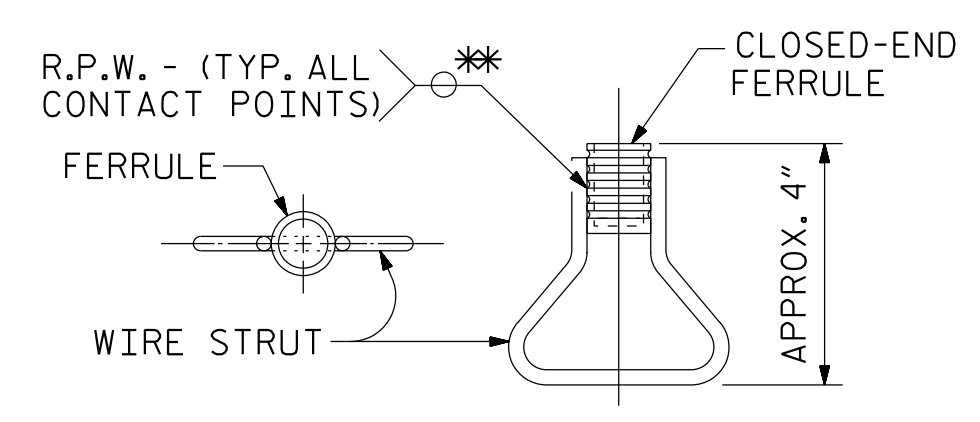
**TYPE II - ELEVATION VIEW  
COVER PLATE DETAILS**



**SECTION A - A**

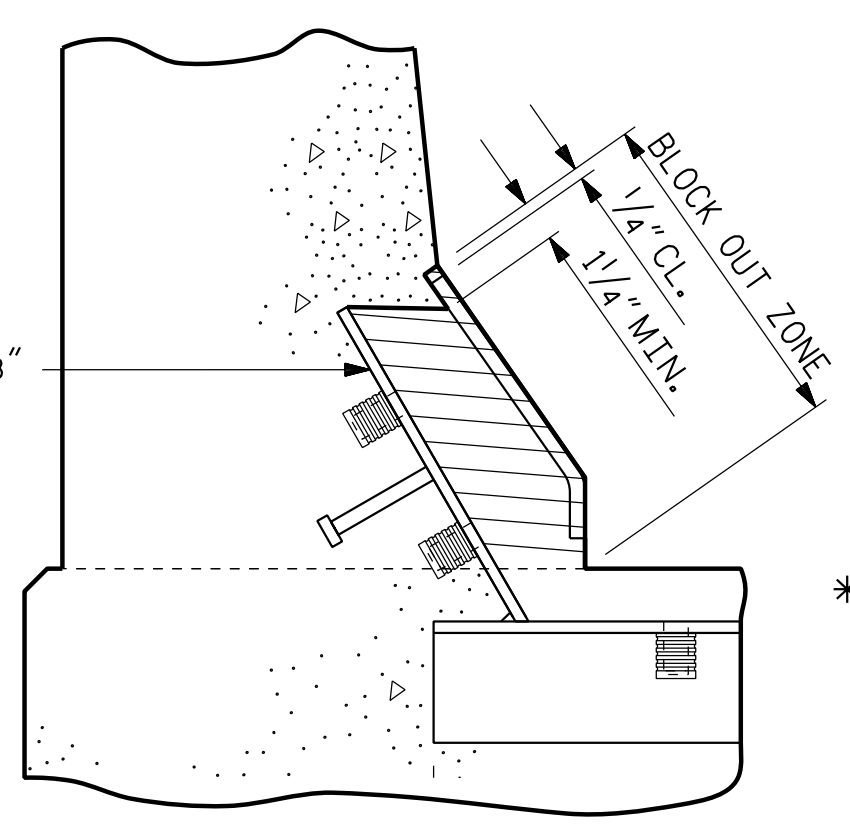


**SECTION B - B**

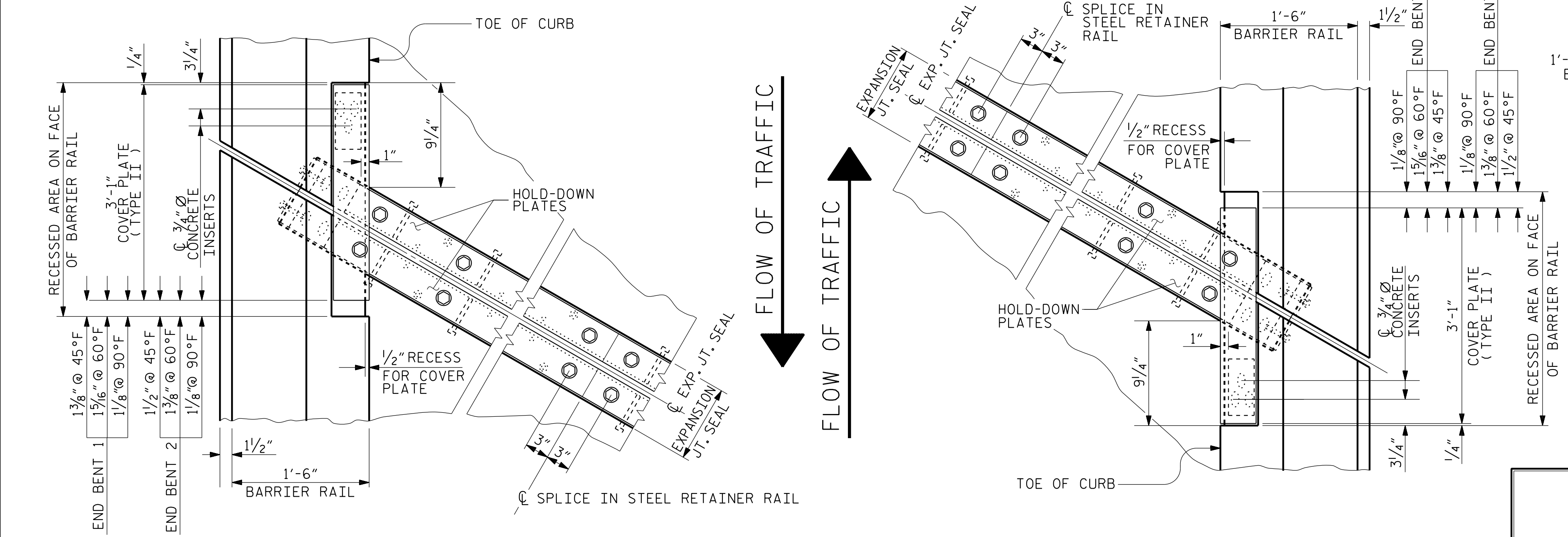


**CONCRETE INSERT**

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



**BLOCK OUT DETAIL**  
SEE "SECTION A - A" FOR OTHER DETAILS.



**PLAN OF EXPANSION JOINT SEAL**

ASSEMBLED BY : W. B. ALLEN	DATE : 12/21
CHECKED BY : M. D. METZGER	DATE : 12/21
DRAWN BY : REK 9/87	REV. 7/12 MAA/GM
CHECKED BY : CRK 10/87	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC

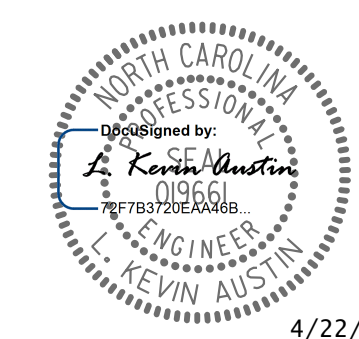
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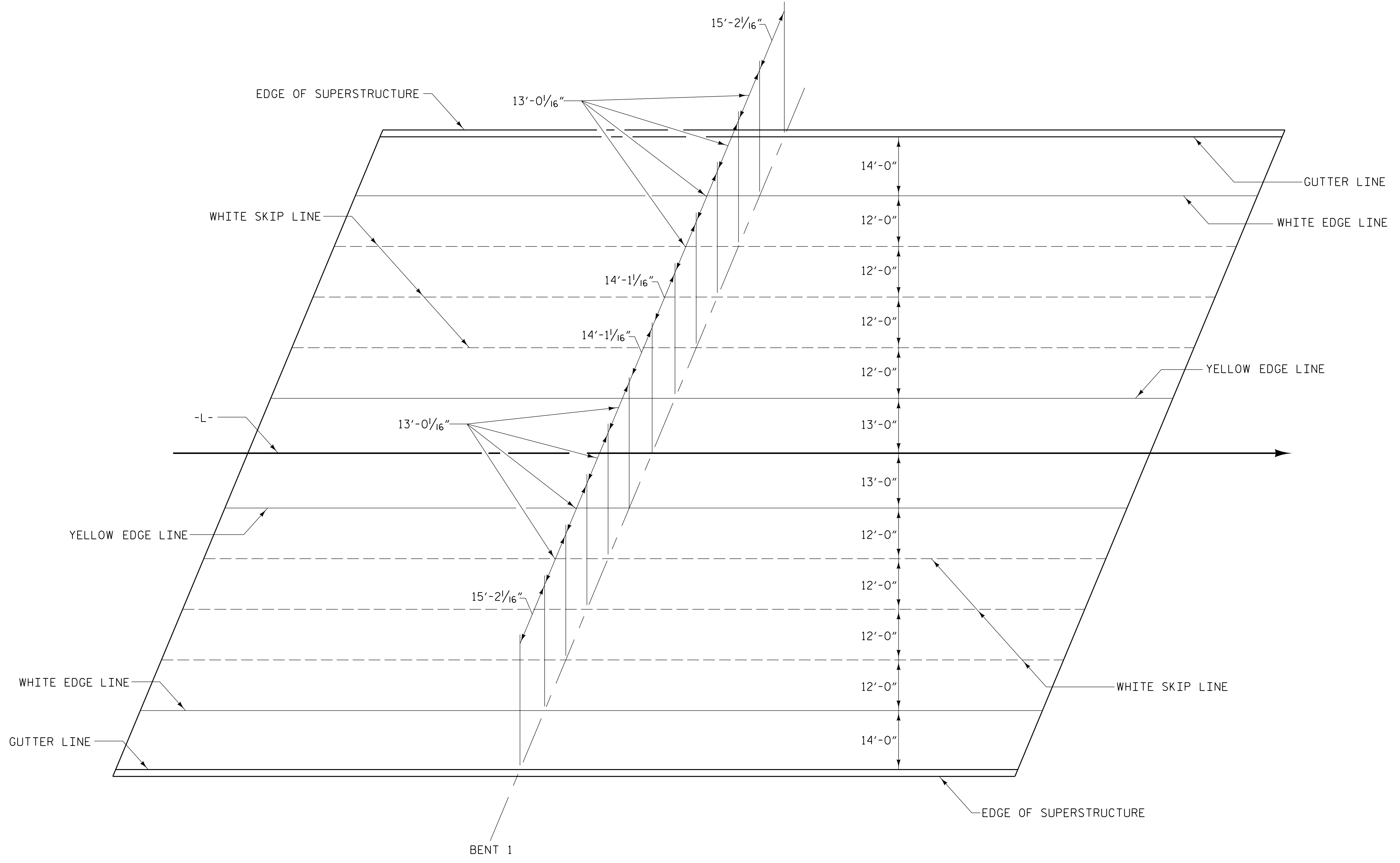
PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**STANDARD  
EXPANSION JOINT  
SEAL DETAILS  
FOR BARRIER RAIL**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-31
1			3			TOTAL SHEETS
2			4			53



PAVEMENT MARKING ALIGNMENT

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**EXPANSION JOINT  
 SEAL DETAILS**

REVISIONS						SHEET NO.
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2			4			53

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Professional Engineer Seal for Kevin Austin, State of North Carolina, License No. 7873, dated 4/22/2022.

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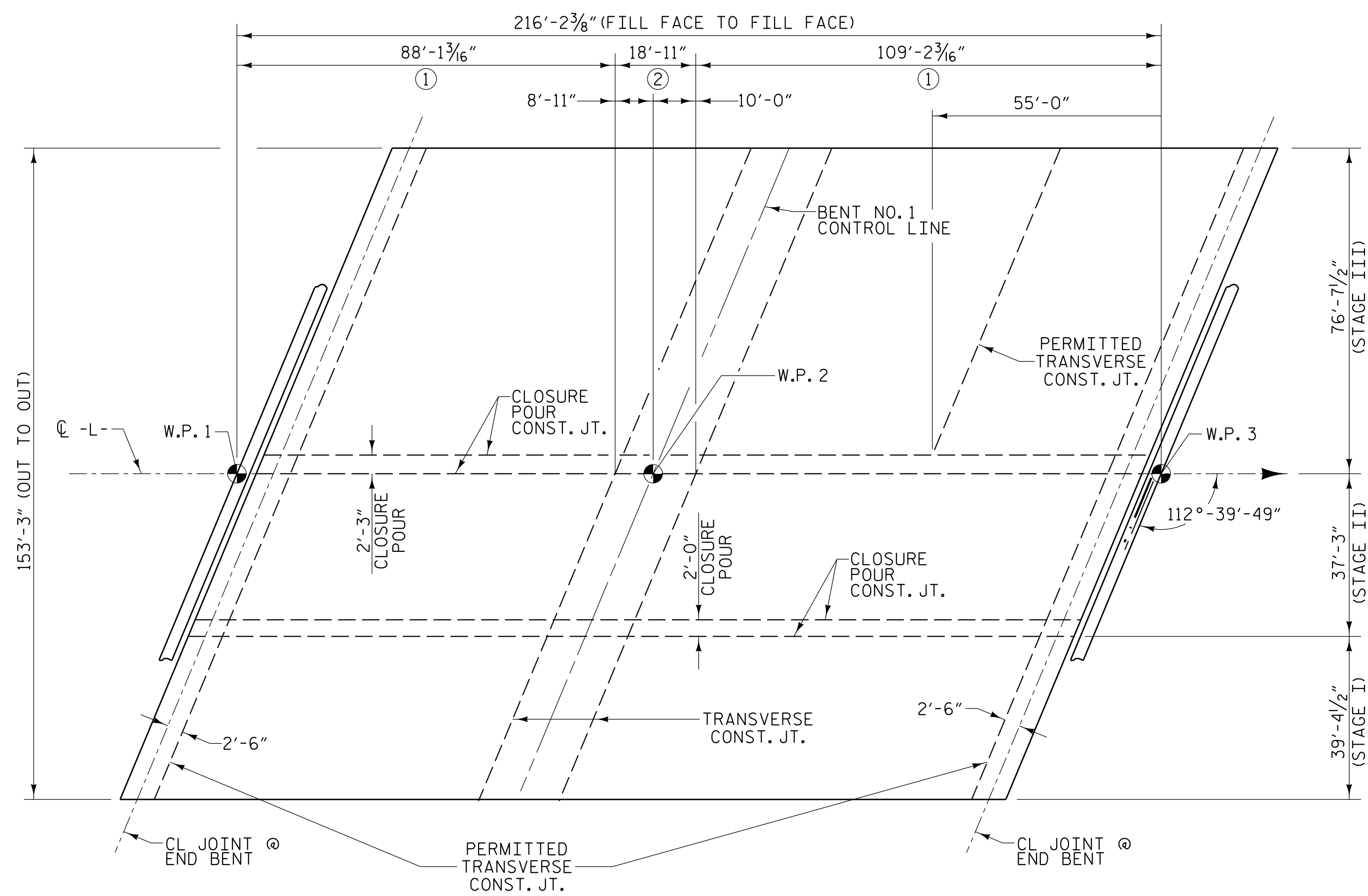
DRAWN BY : W.B. ALLEN DATE : 12/21  
 CHECKED BY : M.D. METZGER DATE : 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 01/22





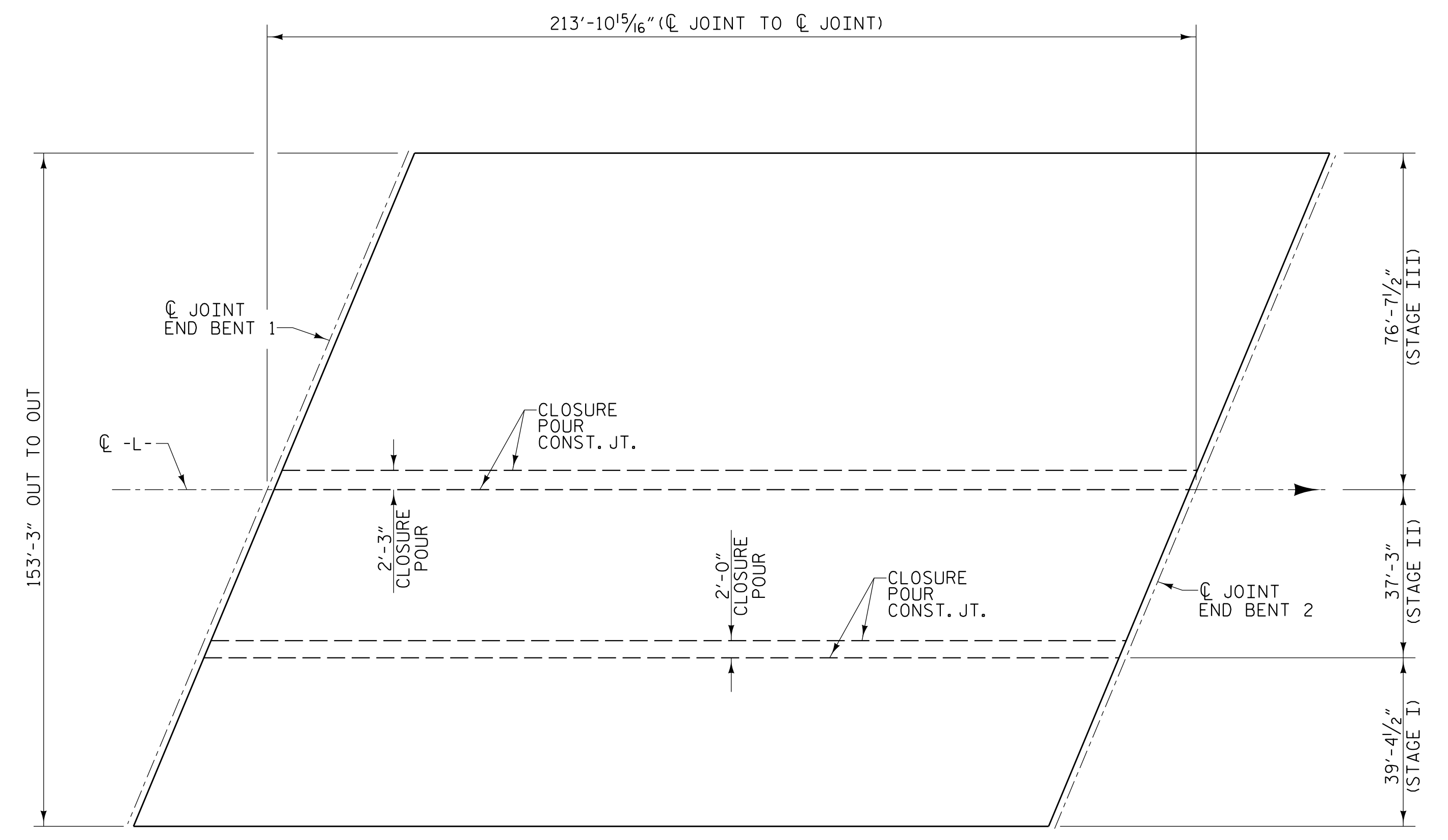






**POURING SEQUENCE SKETCH**

⊕ INDICATES POUR SEQUENCE NUMBER  
 NOTE: POUR 2 CANNOT BE STARTED UNTIL BOTH ADJACENT POURS REACH MINIMUM OF 3000 PSI



**LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB**

(TOTAL SQ. FT. = 32782)  
 (STAGE I = 8423 SQ. FT.)  
 (STAGE II = 7968 SQ. FT.)  
 (STAGE III = 16391 SQ. FT.)

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	* EPOXY COATED REINFORCING STEEL (LBS.)
STAGE I	292.6	26180	26501
STAGE II	276.6	26395	24354
STAGE III	563.5	55758	50413
<b>TOTALS**</b>	<b>1132.7</b>	<b>108333</b>	<b>101268</b>

\* INDICATES EPOXY COATED REINFORCING STEEL  
 \*\* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS	
APPROACH SLABS (STAGE I)	1711 SQ. FT.
APPROACH SLABS (STAGE II)	1630 SQ. FT.
APPROACH SLABS (STAGE III)	3312 SQ. FT.
<b>TOTAL</b>	<b>6653 SQ. FT.</b>
BRIDGE DECK (STAGE I)	7709 SQ. FT.
BRIDGE DECK (STAGE II)	7346 SQ. FT.
BRIDGE DECK (STAGE III)	15054 SQ. FT.
<b>TOTAL</b>	<b>30109 SQ. FT.</b>

SPANS A & B	CLASS AA CONCRETE (CU. YDS.)		
	STAGE I	STAGE II	STAGE III
POUR #1	267.1	239.0	499.3
POUR #2	25.5	22.7	47.5
CLOSURE POUR	-	14.9	16.7
<b>TOTALS</b>	<b>292.6</b>	<b>276.6</b>	<b>563.5</b>

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 BILL OF MATERIAL

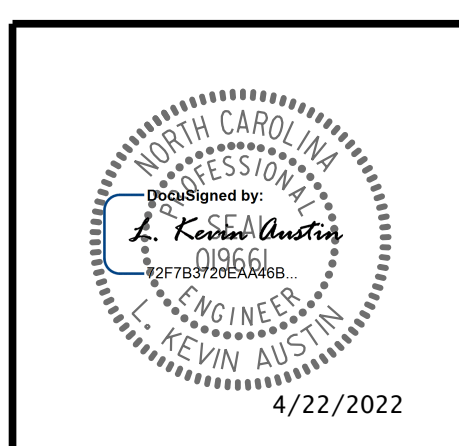
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1			3		
2			4		

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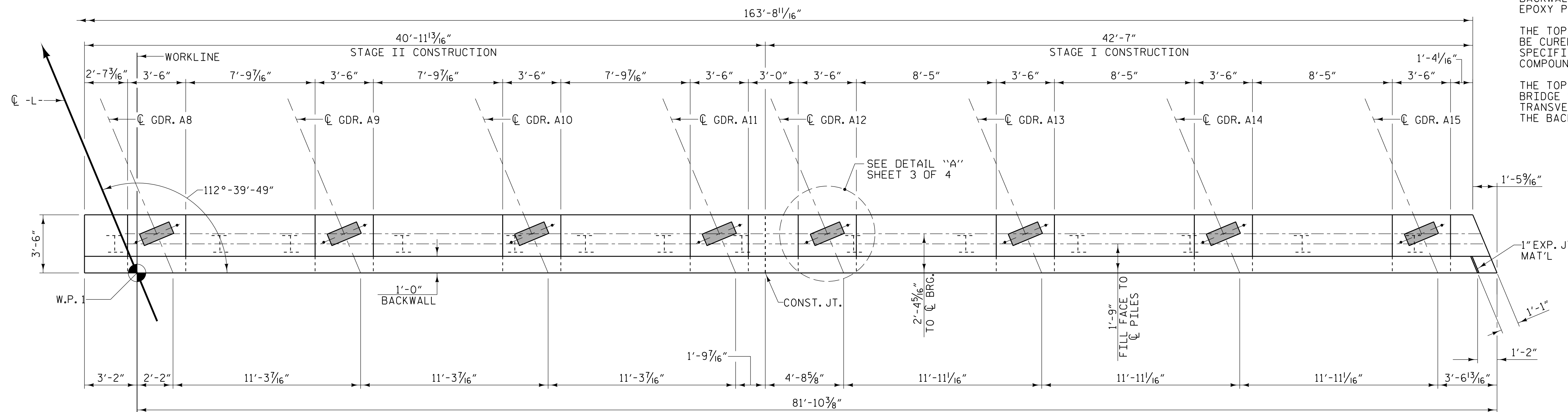


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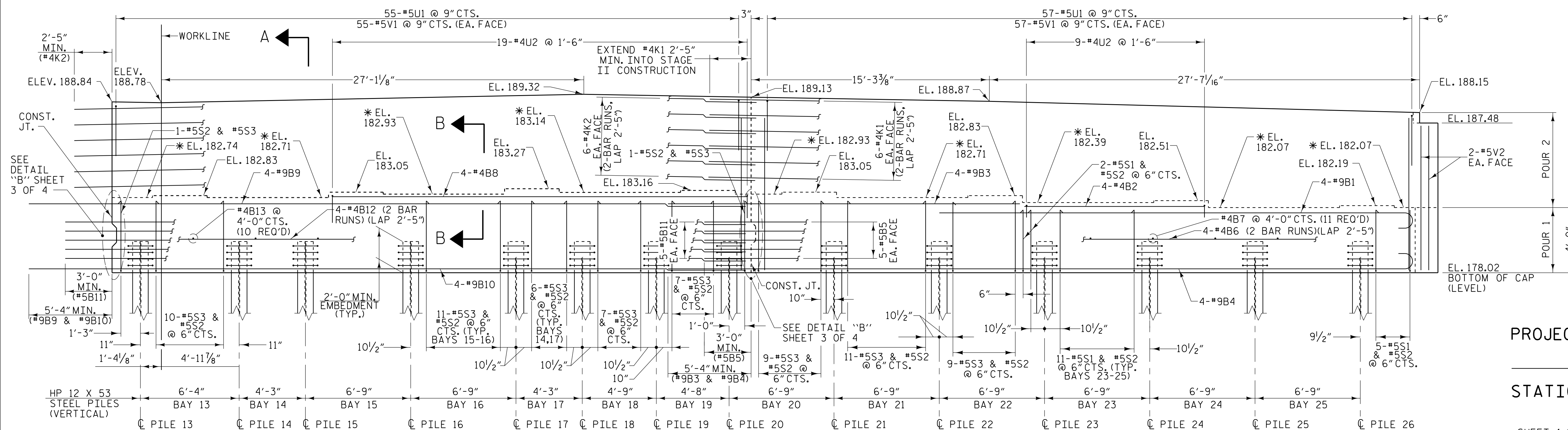


NOTES

STIRRUPS AND U2 BARS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.  
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.  
THE TOP SURFACE AREA OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.



PLAN



ELEVATION

\* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTIONS A-A & B-B, SHEET 3 OF 4

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

SHEET 1 OF 4

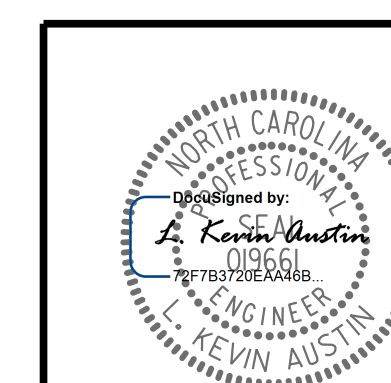
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT 1  
STAGE I & STAGE II

REVISIONS

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

SHEET NO.  
S6-36  
TOTAL SHEETS  
53



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CHECKED BY: M.D. METZGER DATE: 12/21  
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22





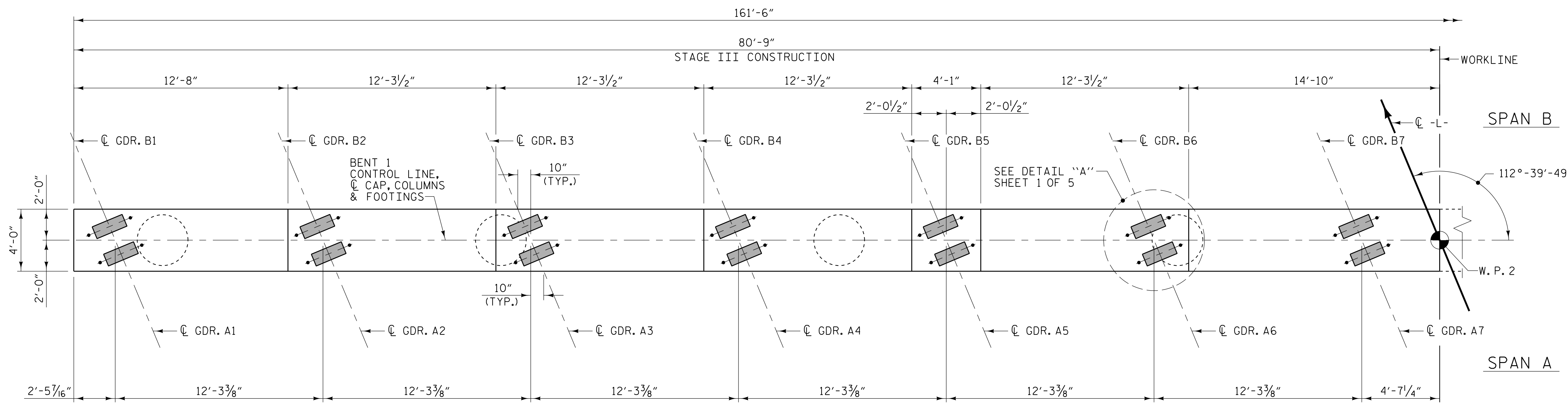




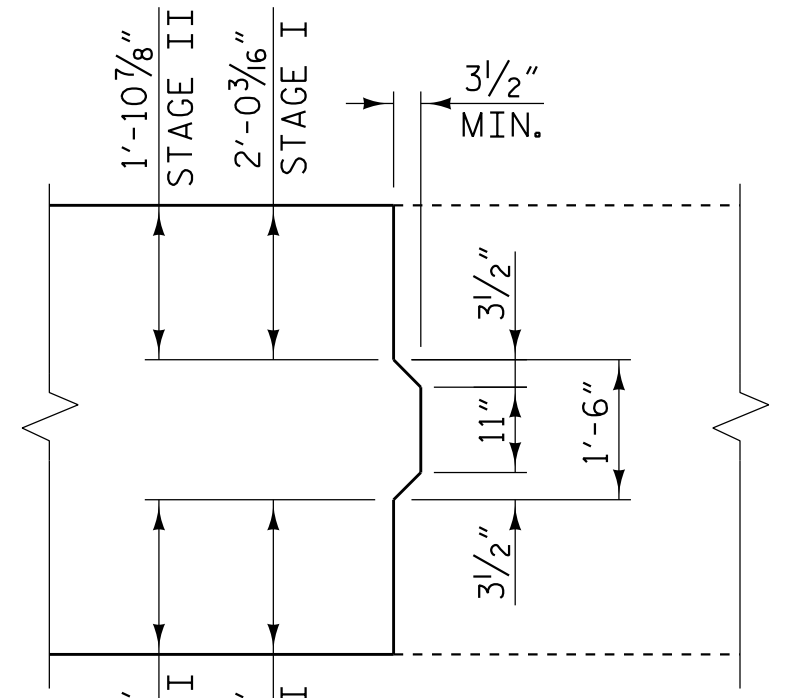




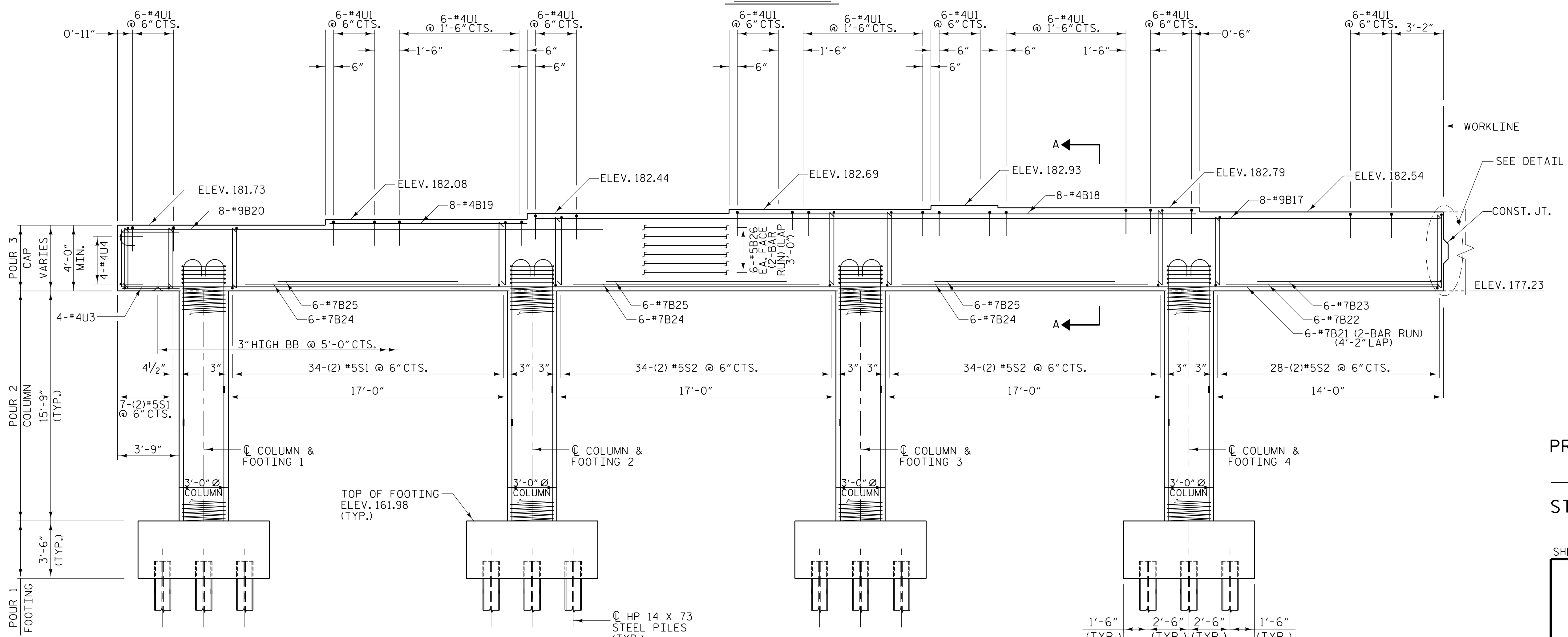




PLAN



DETAIL "B"



ELEVATION

PLANS PREPARED BY:

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ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 2 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT 1  
 STAGE III

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

TOTAL SHEETS: 53

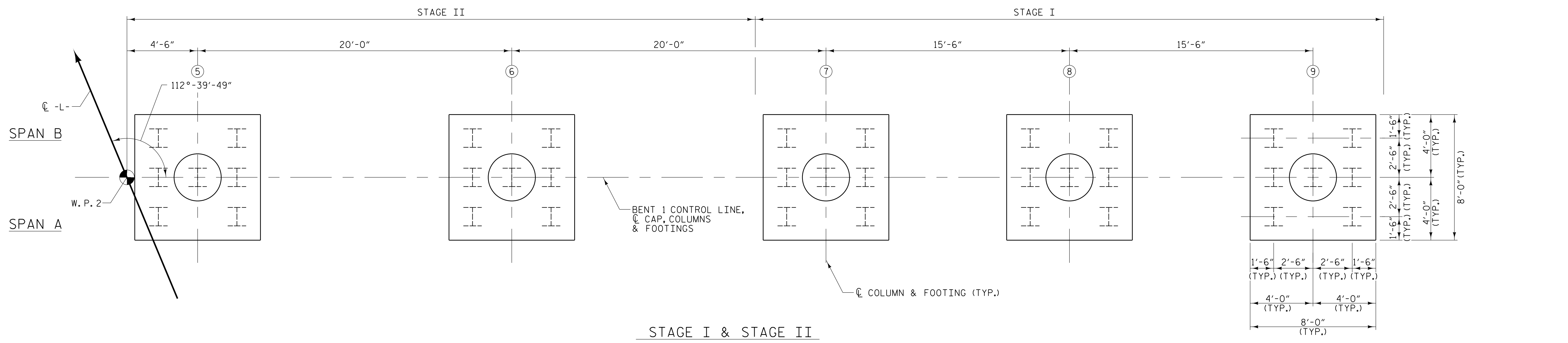
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DRAWN BY : W.B. ALLEN DATE : 12/21  
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 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 01/22

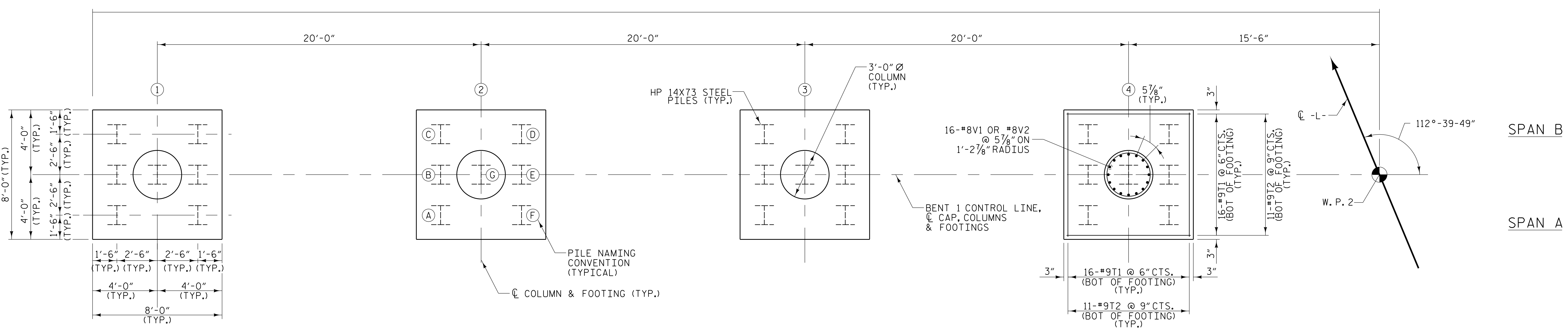
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4/22/2022



STAGE I & STAGE II



STAGE III

PLAN OF COLUMNS AND FOOTINGS

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 3 OF 5

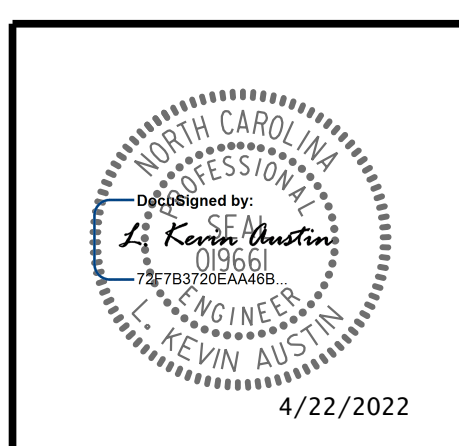
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT 1  
 DETAILS

PLANS PREPARED BY:

**NV5**

NV5 ENGINEERS & CONSULTANTS, INC.  
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 CARY, NC 27518  
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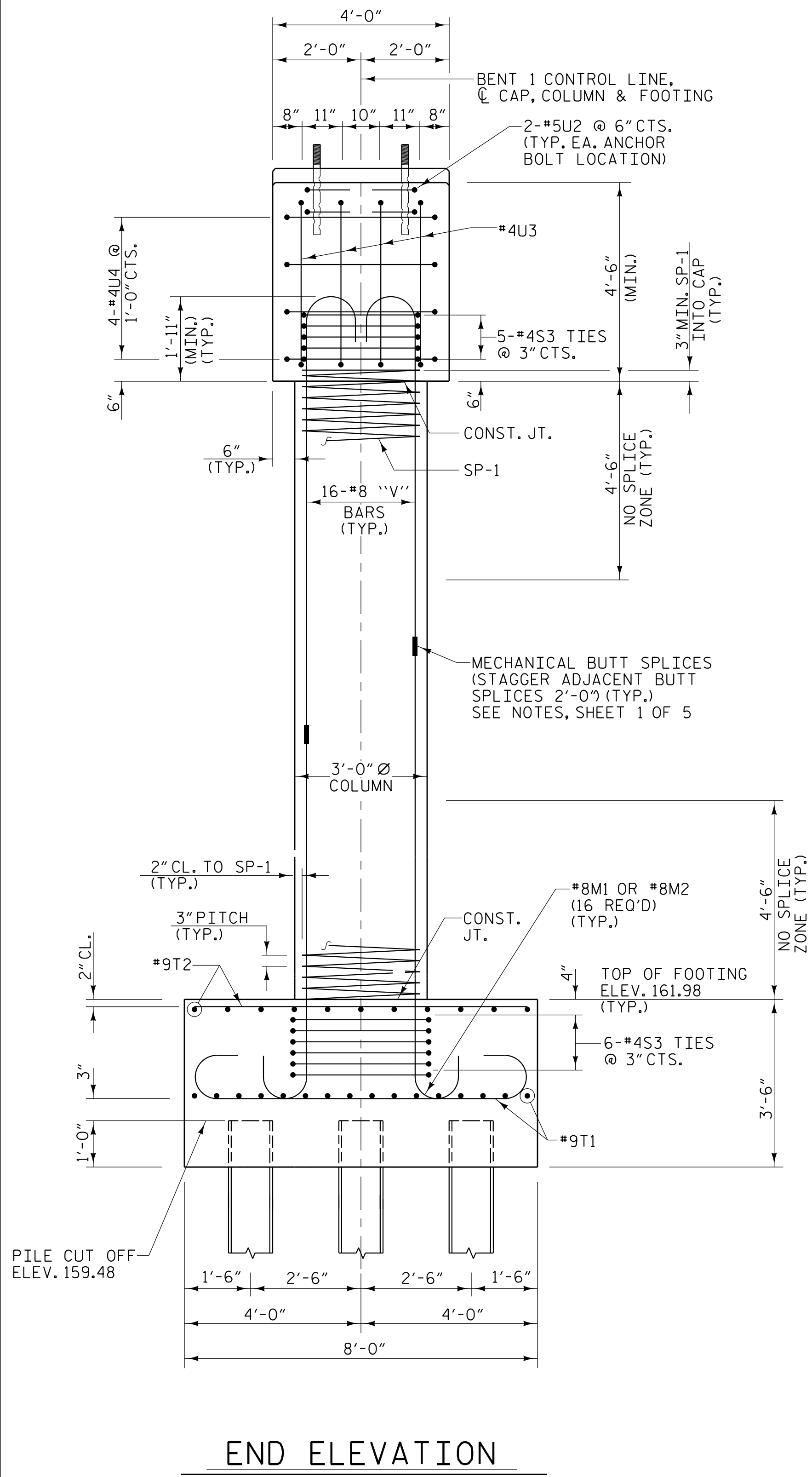
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NO.	BY:	DATE:	NO.	BY:	DATE:	S6-42	
1			3			TOTAL SHEETS	
2			4			53	

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DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	01/22

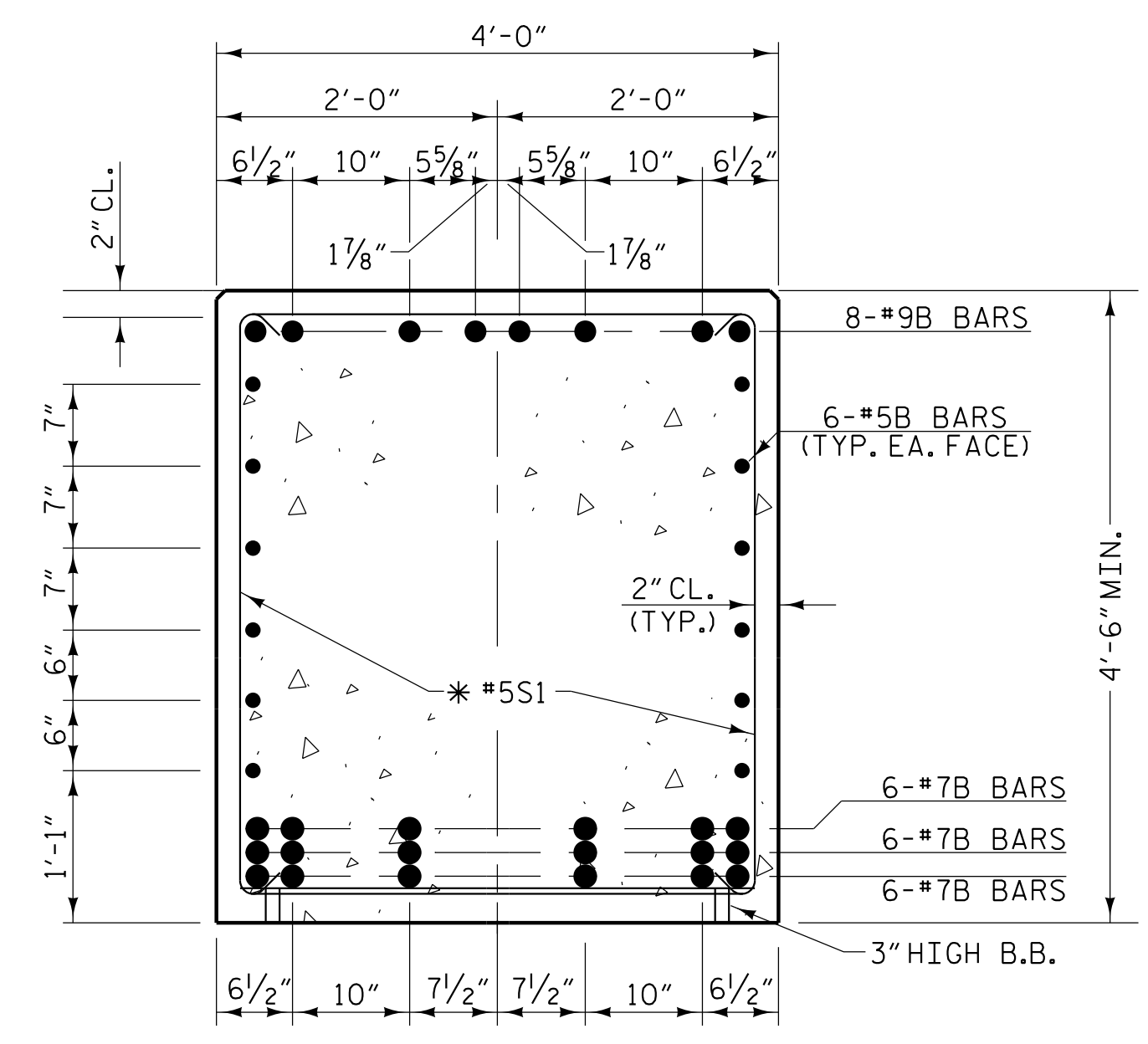
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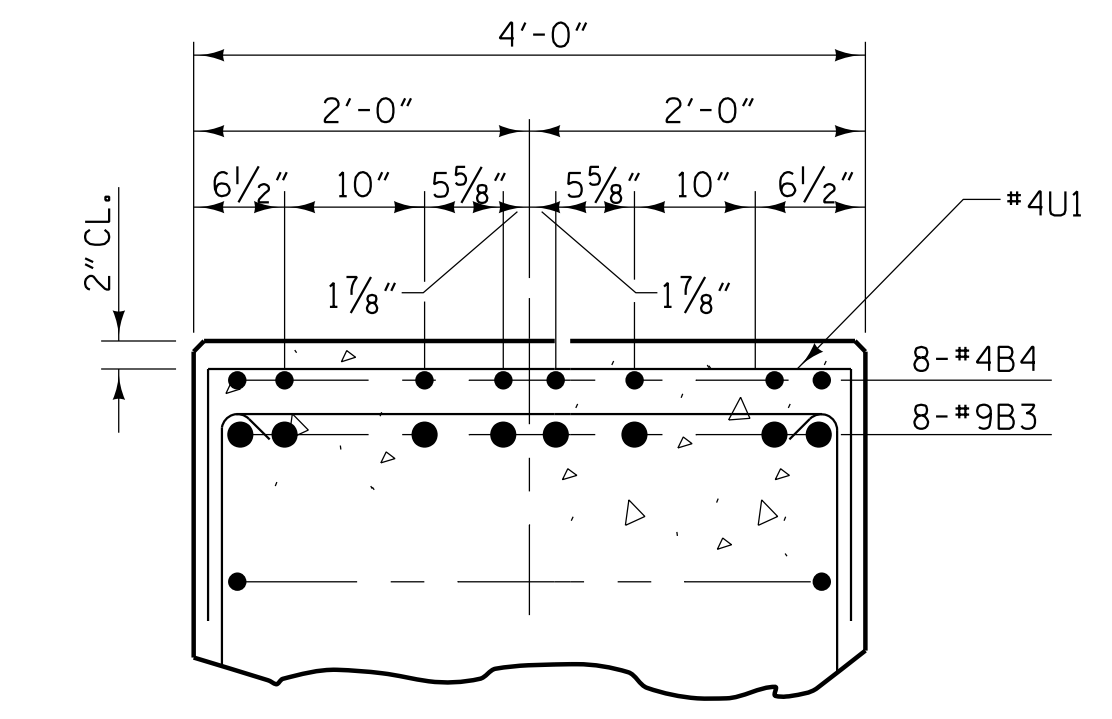


**END ELEVATION**

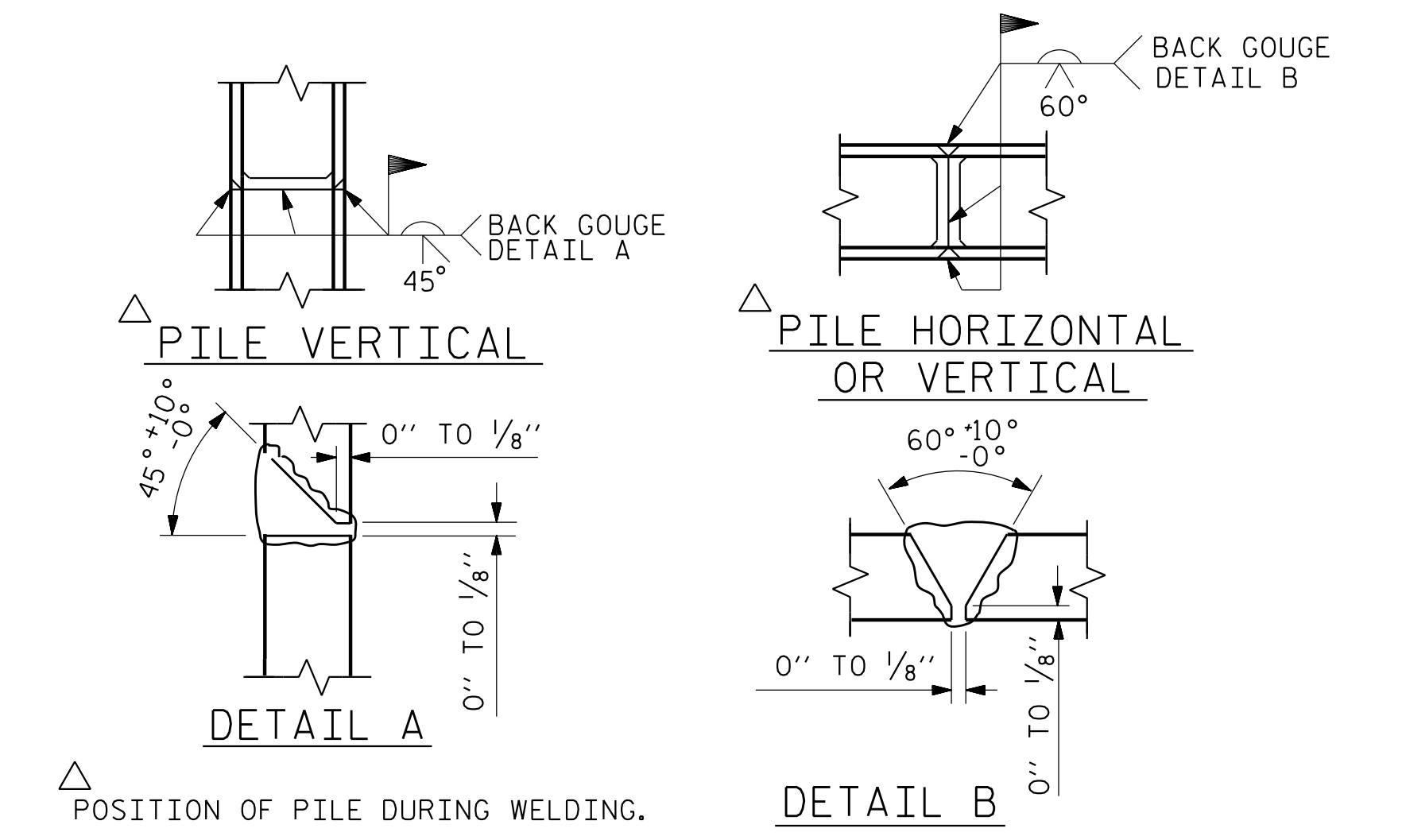


**SECTION A-A**

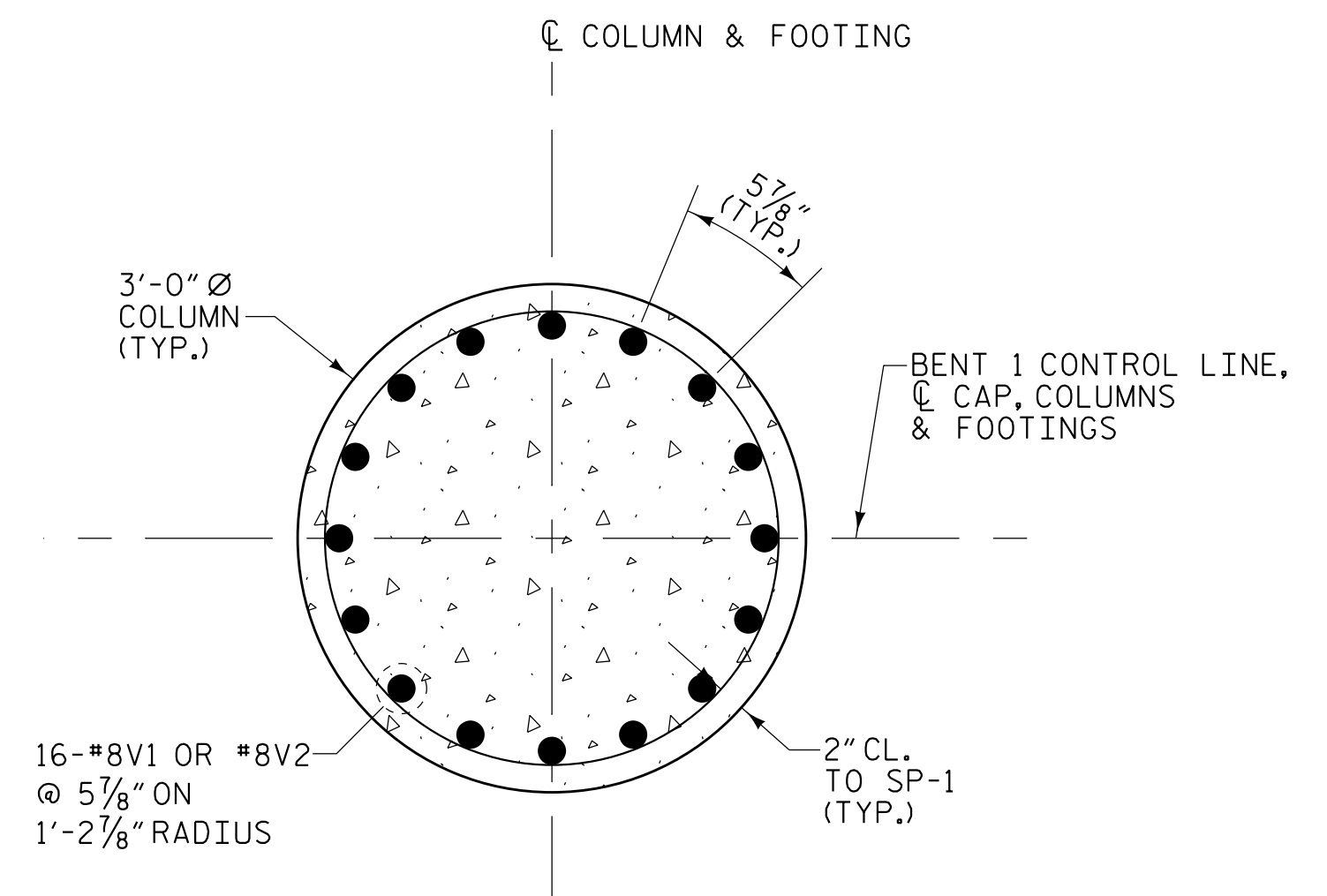
\* INVERT ALTERNATE STIRRUPS



**SECTION B-B**



**PILE SPLICE DETAILS**



**SECTION THRU COLUMN**

(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 4 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE <b>BENT 1 DETAILS</b>					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. <b>S6-43</b>
					TOTAL SHEETS 53

PLANS PREPARED BY:

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DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	01/22

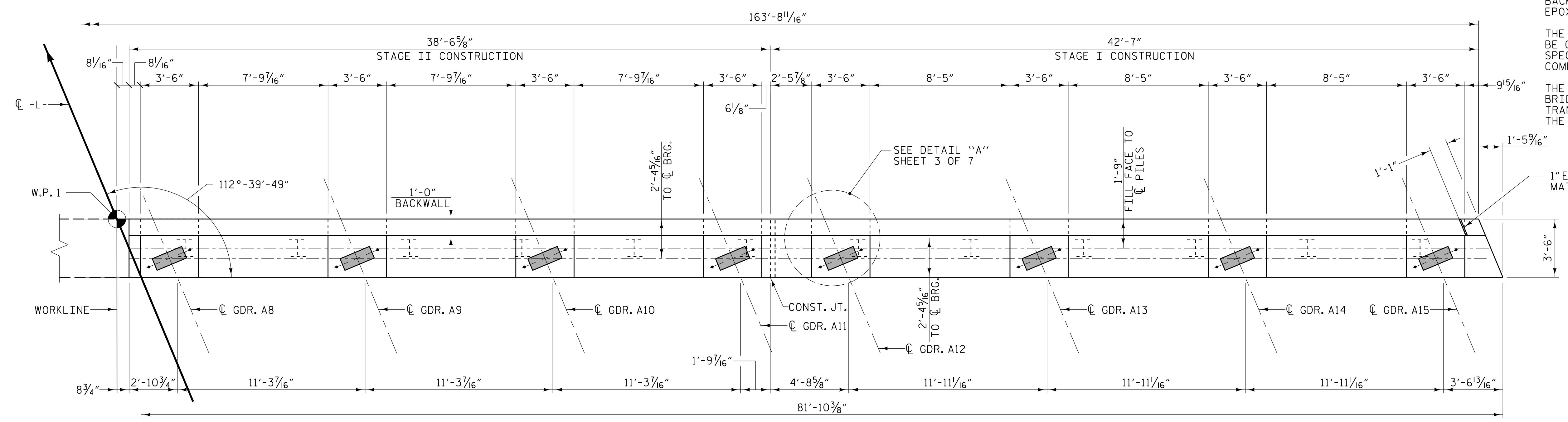
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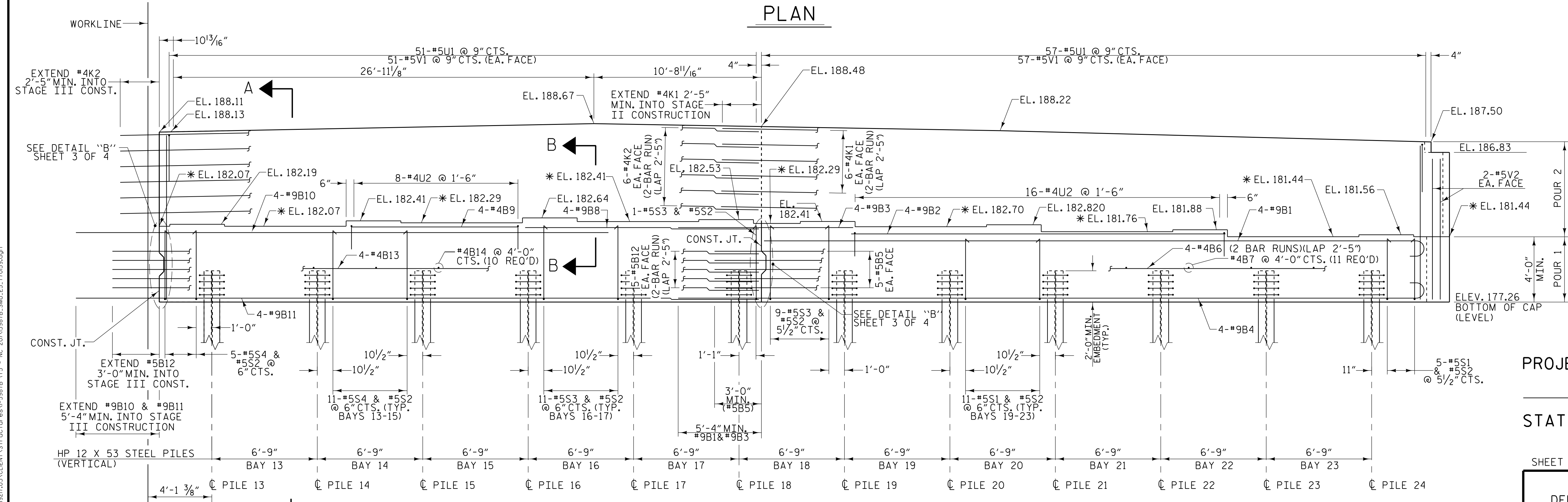


NOTES

STIRRUPS AND U2 BARS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.  
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.  
THE TOP SURFACE AREA OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.



PLAN



ELEVATION

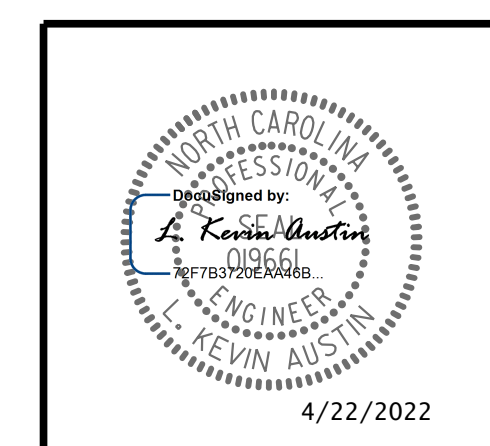
\* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTIONS A-A & B-B, SHEET 3 OF 4

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

SHEET 1 OF 4

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

PLANS PREPARED BY:  
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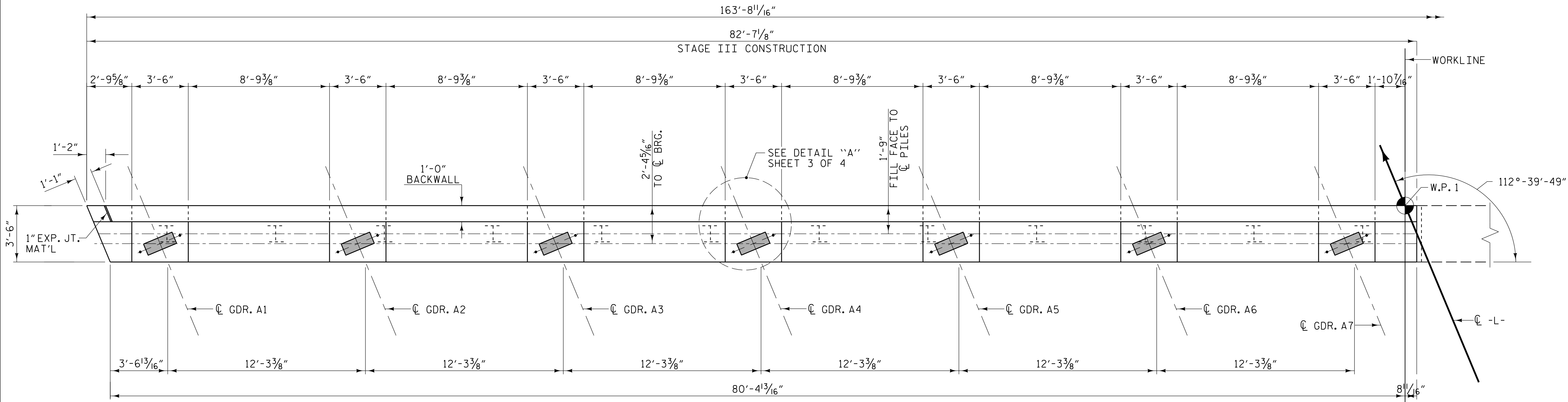


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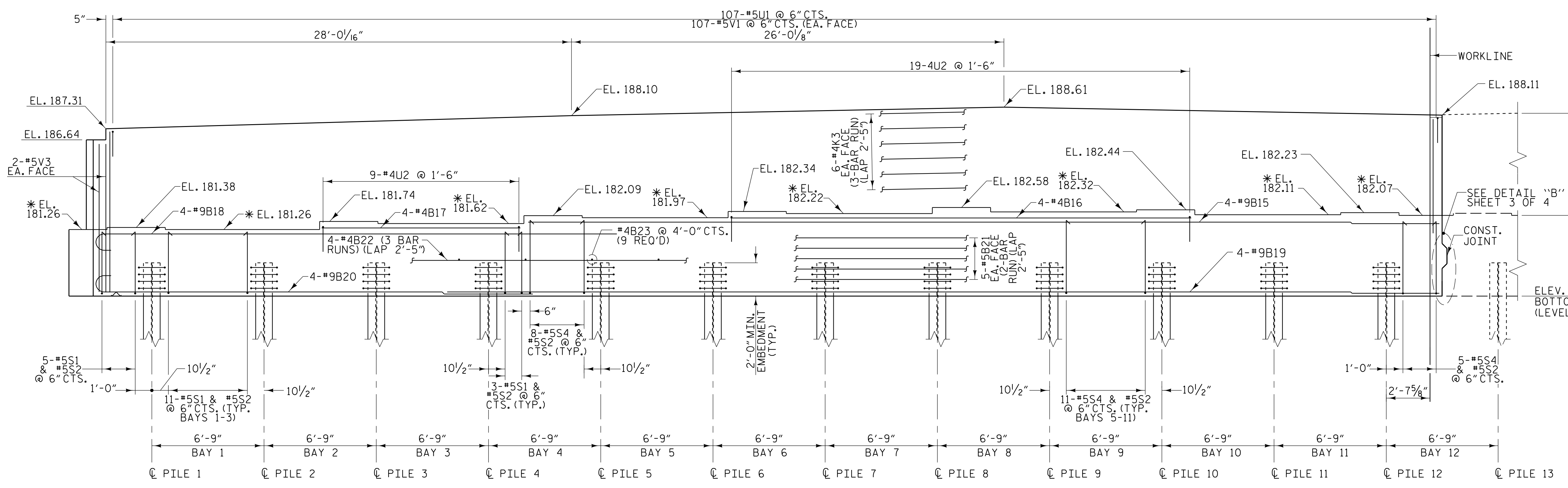
DRAWN BY :	W.B. ALLEN	DATE :	12/21
CHECKED BY :	M.D. METZGER	DATE :	12/21
DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	01/22

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PLAN



ELEVATION

\* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTIONS A-A & B-B, SHEET 3 OF 4

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 617+12.20 -L- POT

SHEET 2 OF 4

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-46
1			3			TOTAL SHEETS
2			4			53

PLANS PREPARED BY:  
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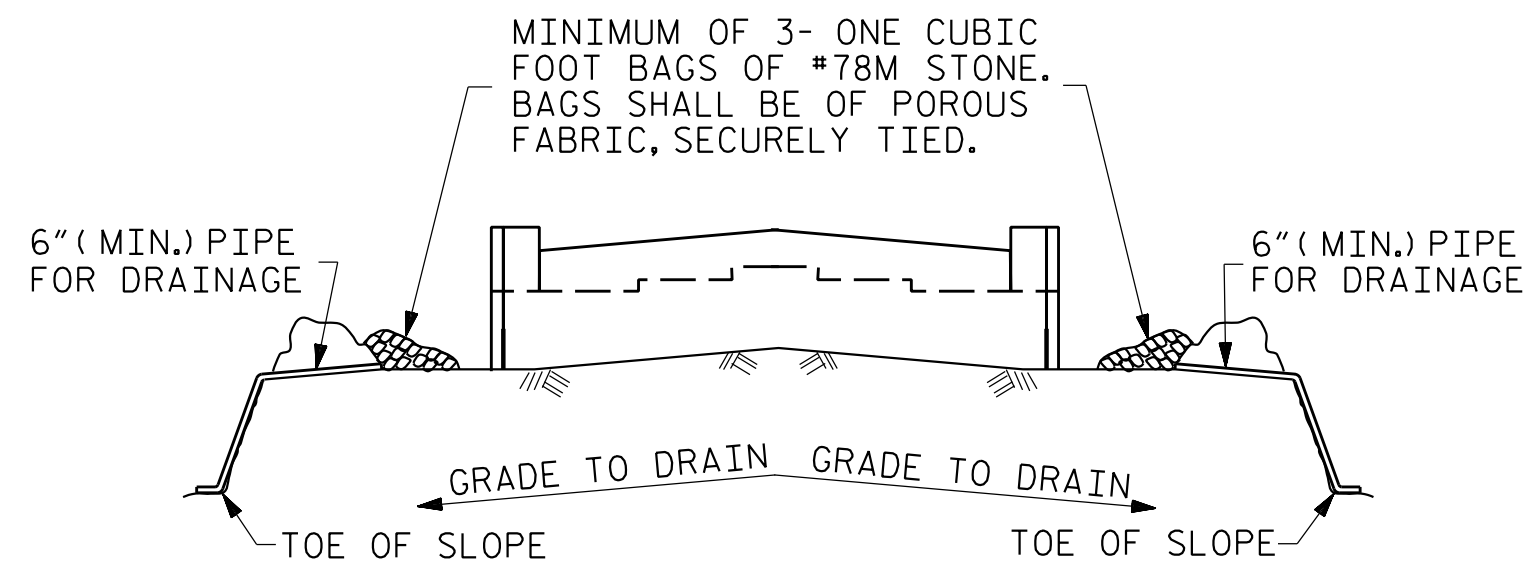
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CHECKED BY: M.D. METZGER DATE: 12/21  
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE: 01/22

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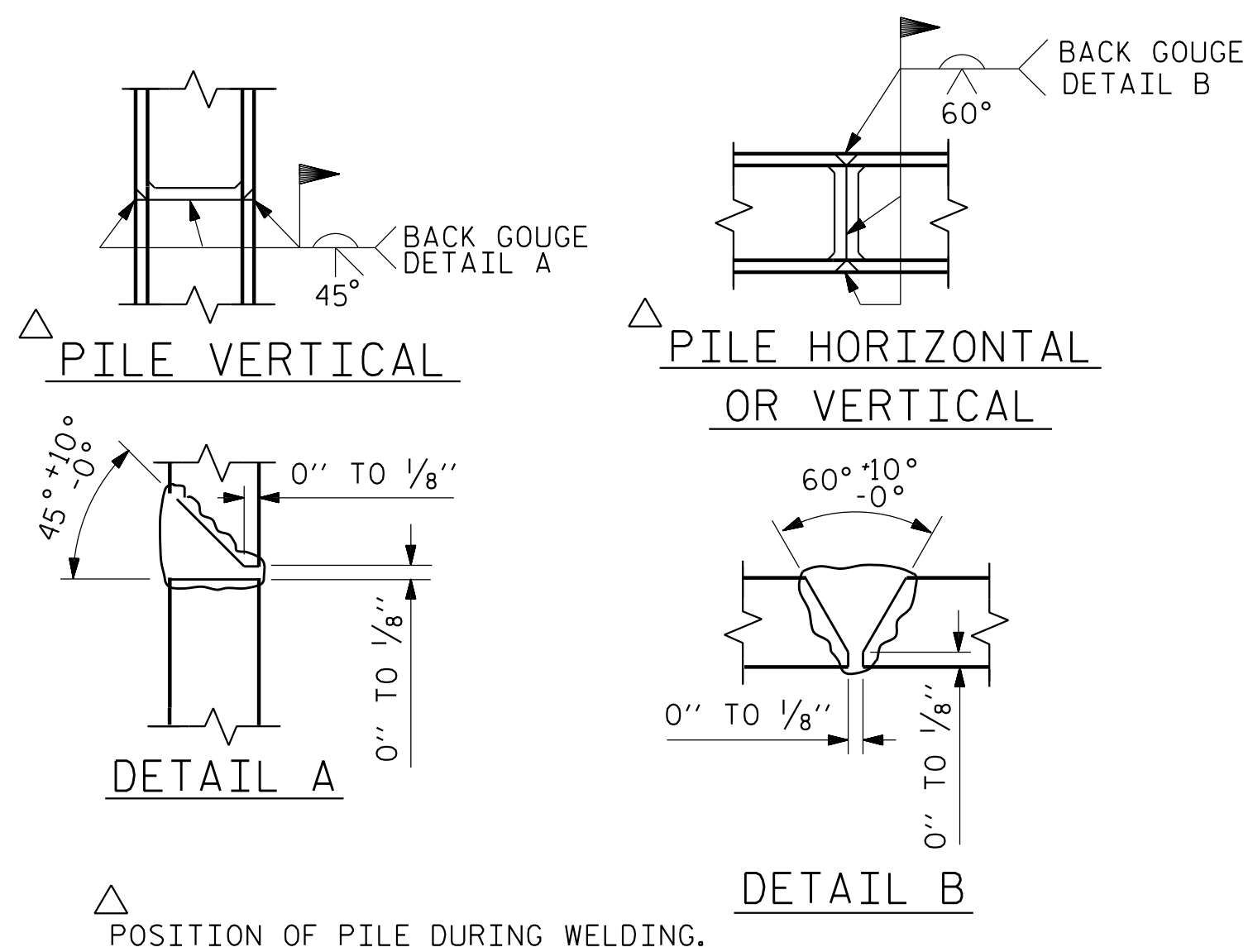


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

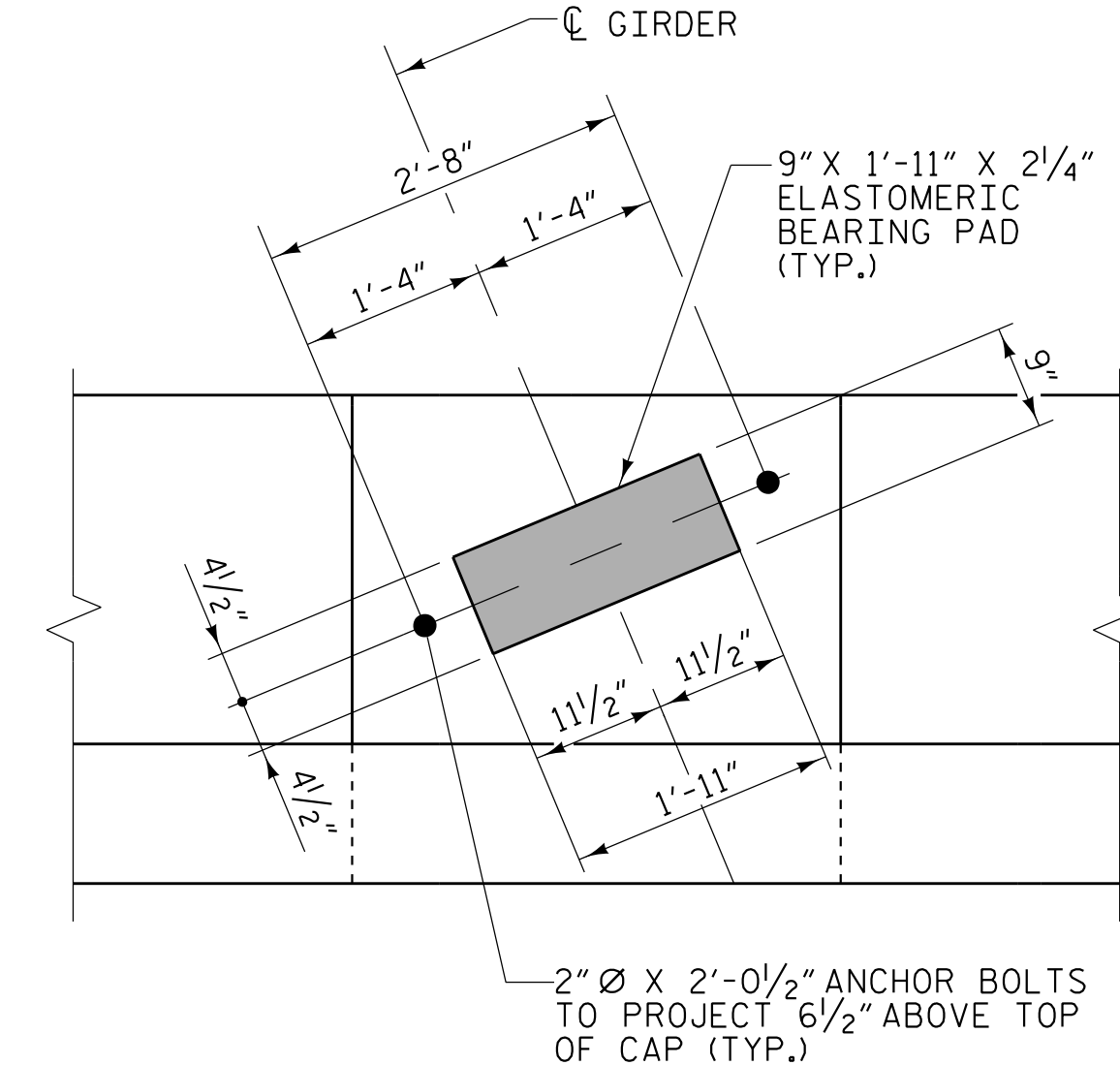
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

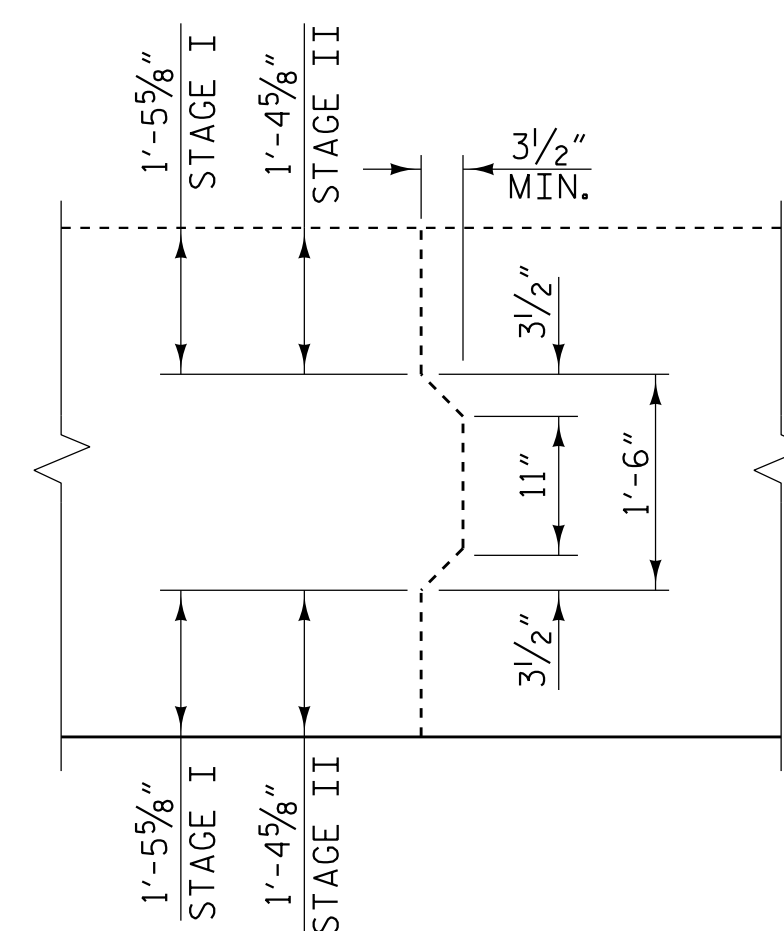
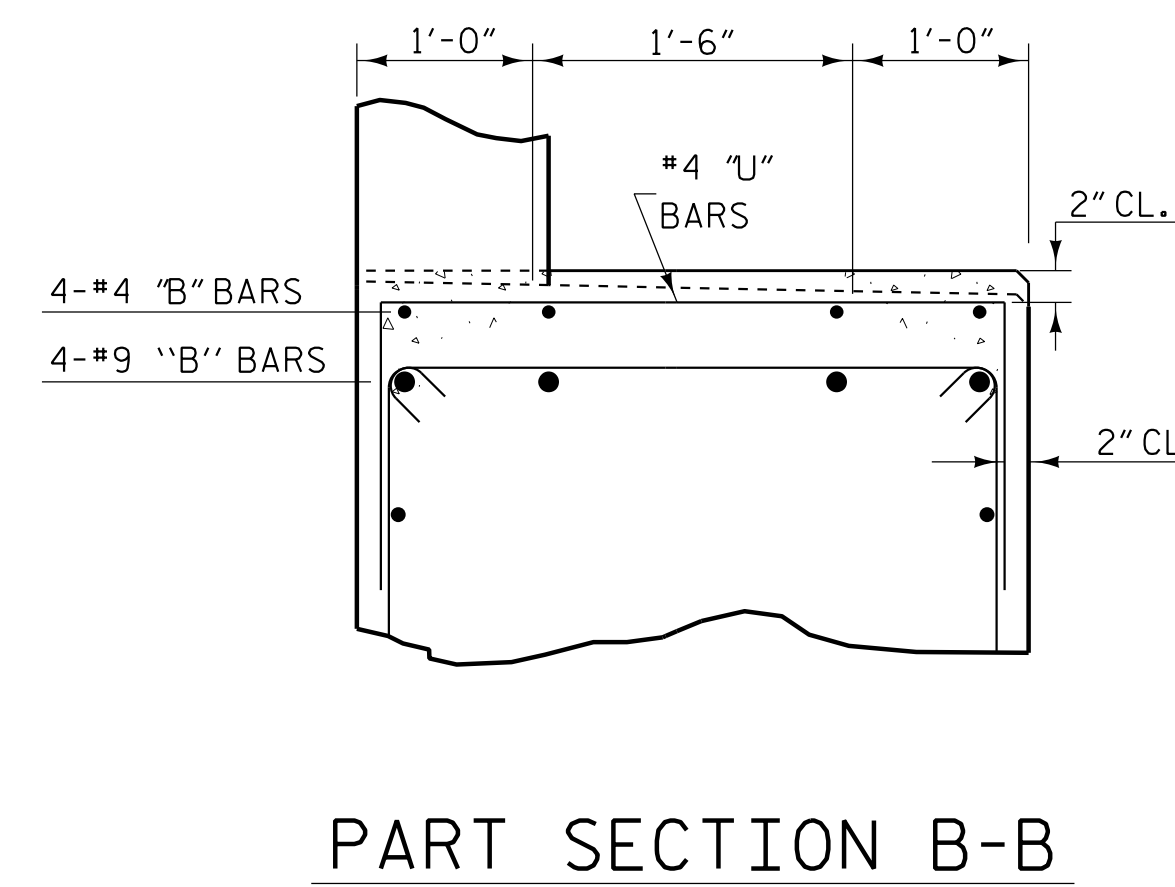
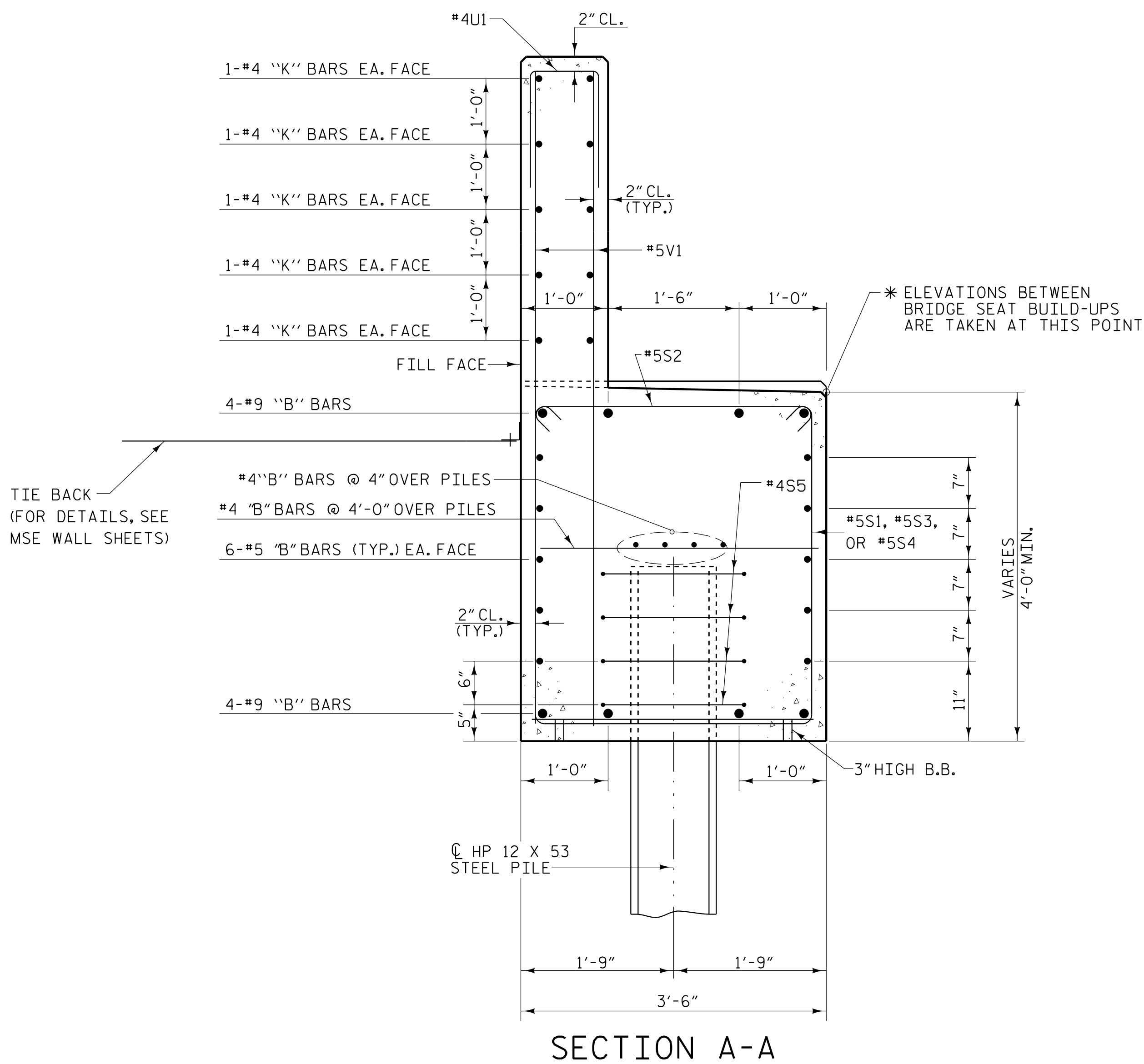
**TEMPORARY DRAINAGE AT END BENT**



**PILE SPLICE DETAILS**



**DETAIL "A"**  
(TYP. EACH GIRDER)



**PART SECTION B-B**

**DETAIL "B"**

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 2  
 DETAILS

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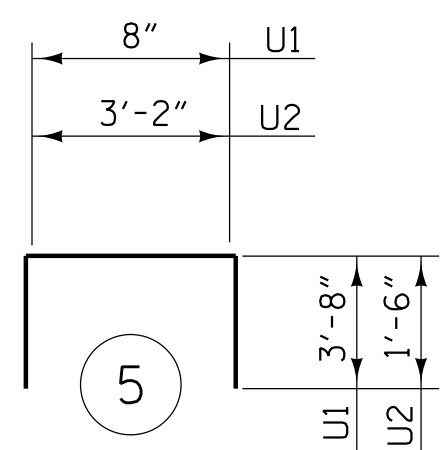
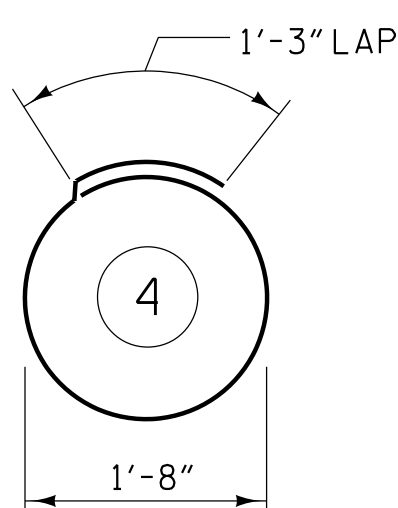
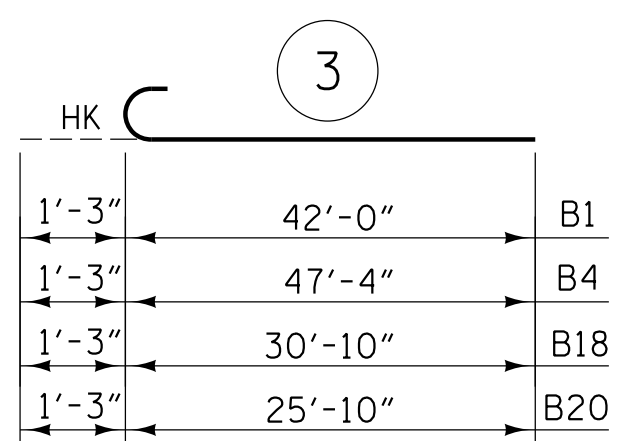
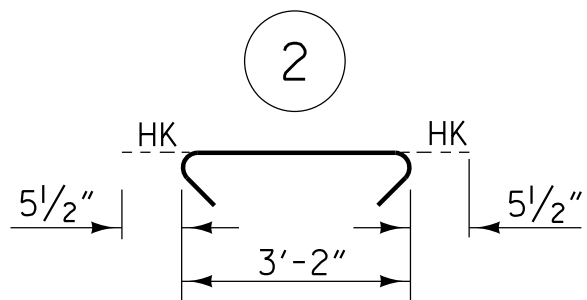
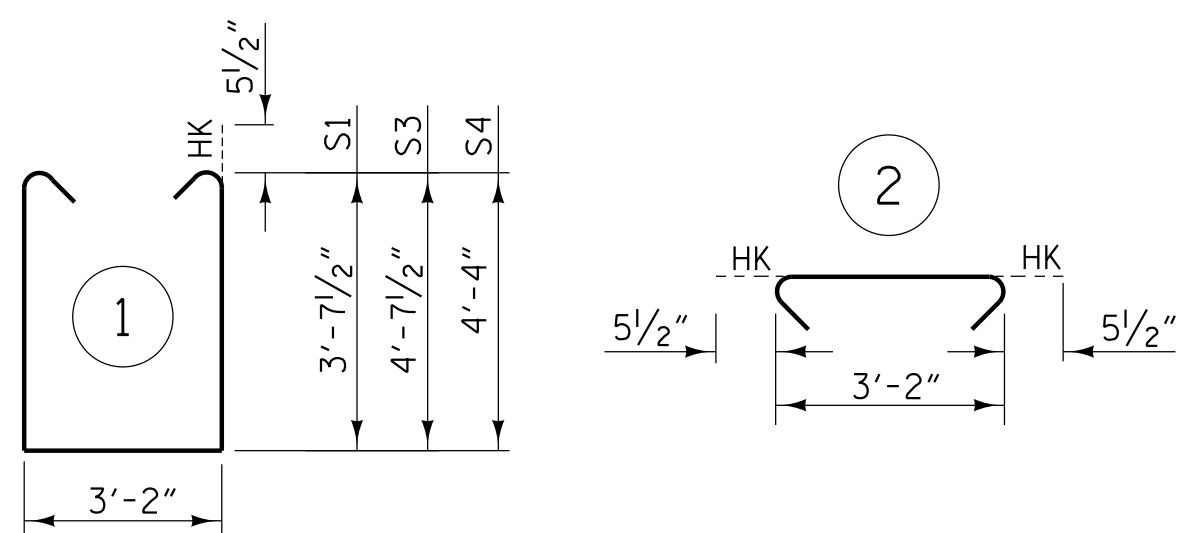
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NO.	BY:	DATE:	NO.	BY:	DATE:	S6-47
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2			4			53

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BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT 2-STAGE I						END BENT 2-STAGE II						END BENT 2-STAGE III					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	3	43'-3"	588	B8	4	#9	STR	15'-0"	204	B15	4	#9	STR	54'-10"	746
B2	4	#4	STR	23'-6"	63	B9	4	#4	STR	11'-0"	29	B16	4	#4	STR	27'-9"	74
B3	4	#9	STR	11'-2"	152	B10	4	#9	STR	34'-1"	464	B17	4	#4	STR	12'-0"	32
B4	4	#9	3	48'-7"	661	B11	4	#9	STR	34'-1"	464	B18	4	#9	3	32'-1"	436
B5	10	#5	STR	45'-0"	469	B12	20	#5	STR	21'-11"	457	B19	4	#9	STR	60'-0"	816
B6	8	#4	STR	22'-0"	118	B13	4	#4	STR	37'-6"	100	B20	4	#9	3	27'-1"	368
B7	11	#4	STR	3'-2"	23	B14	10	#4	STR	3'-2"	21	B21	20	#5	STR	41'-10"	873
												B22	12	#4	STR	28'-6"	228
												B23	9	#4	STR	3'-2"	19
K1	24	#4	STR	21'-10"	350	K2	24	#4	STR	21'-10"	350	K3	36	#4	STR	28'-4"	681
S1	60	#5	1	11'-4"	709	S2	61	#5	2	4'-1"	260	S3	41	#5	1	11'-4"	485
S2	69	#5	2	4'-1"	294	S3	23	#5	1	13'-4"	320	S2	131	#5	2	4'-1"	558
S3	9	#5	1	13'-4"	125	S4	38	#5	1	12'-9"	505	S4	90	#5	1	12'-9"	1197
S5	24	#4	4	6'-6"	104	S5	24	#4	4	6'-6"	104	S5	48	#4	4	6'-6"	208
U1	57	#5	5	8'-0"	476	U1	51	#5	5	8'-0"	426	U1	107	#5	5	8'-0"	893
U2	16	#4	5	6'-2"	66	U2	8	#4	5	6'-2"	33	U2	28	#4	5	6'-2"	115
V1	114	#5	STR	9'-7"	1139	V1	102	#5	STR	9'-7"	1020	V1	214	#5	STR	10'-11"	2437
V2	4	#5	STR	9'-2"	38							V3	4	#5	STR	9'-2"	38
TOTAL REINFORCING STEEL						TOTAL REINFORCING STEEL						TOTAL REINFORCING STEEL					
5375 lbs.						4757 lbs.						10204 lbs.					
CLASS "A" CONCRETE - CU. YARDS						CLASS "A" CONCRETE - CU. YARDS						CLASS "A" CONCRETE - CU. YARDS					
POUR 1 (CAP) 26.2 cu. yds.						POUR 1 (CAP) 25.4 cu. yds.						POUR 1 (CAP) 50.4 cu. yds.					
POUR 2 (BACKWALL) 10.0 cu. yds.						POUR 2 (BACKWALL) 8.7 cu. yds.						POUR 2 (BACKWALL) 18.5 cu. yds.					
TOTAL 36.2 cu. yds.						TOTAL 34.1 cu. yds.						TOTAL 68.9 cu. yds.					

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PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 4 OF 4  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2  
 BILL OF MATERIAL

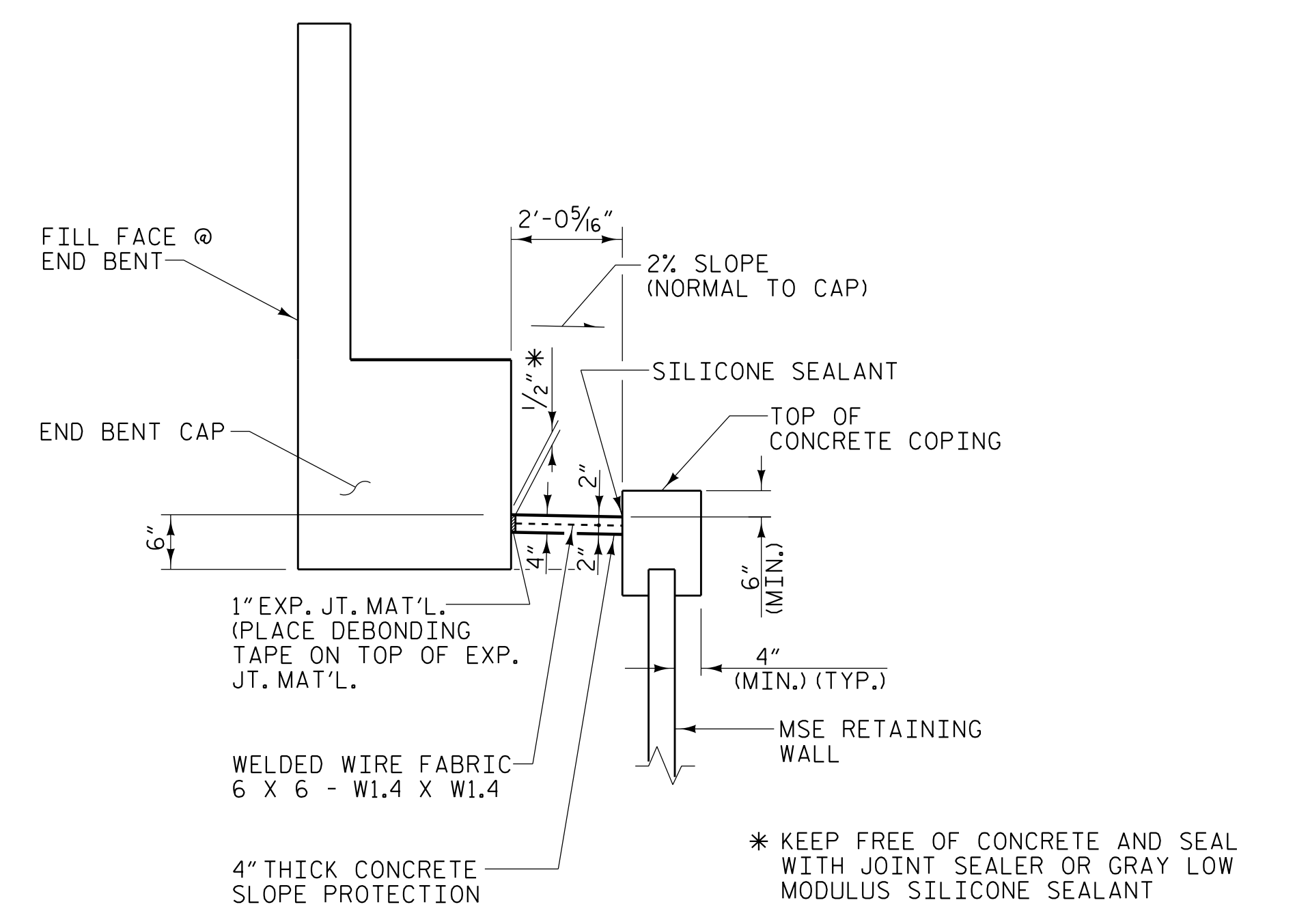
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			56-48
2			4			53



NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

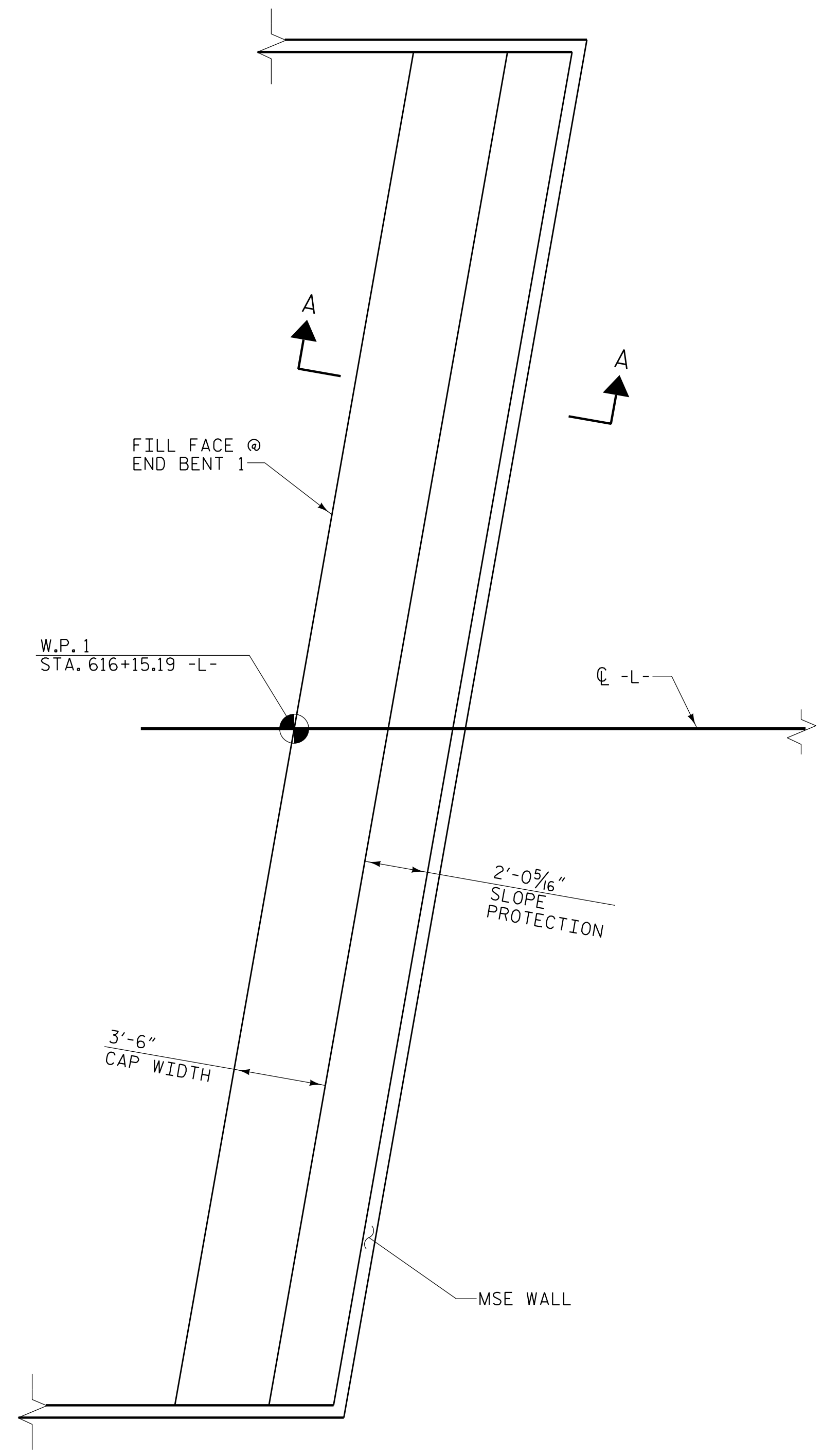
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B", THE CONCRETE SURFACE SHALL BE FINISHED TO THE SATISFACTION OF THE ENGINEER. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 20" WIDE AND PLACED IN THE MIDDLE OF THE 4" CONCRETE SLOPE PROTECTION. THE COST OF THE WELDED WIRE FABRIC SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.



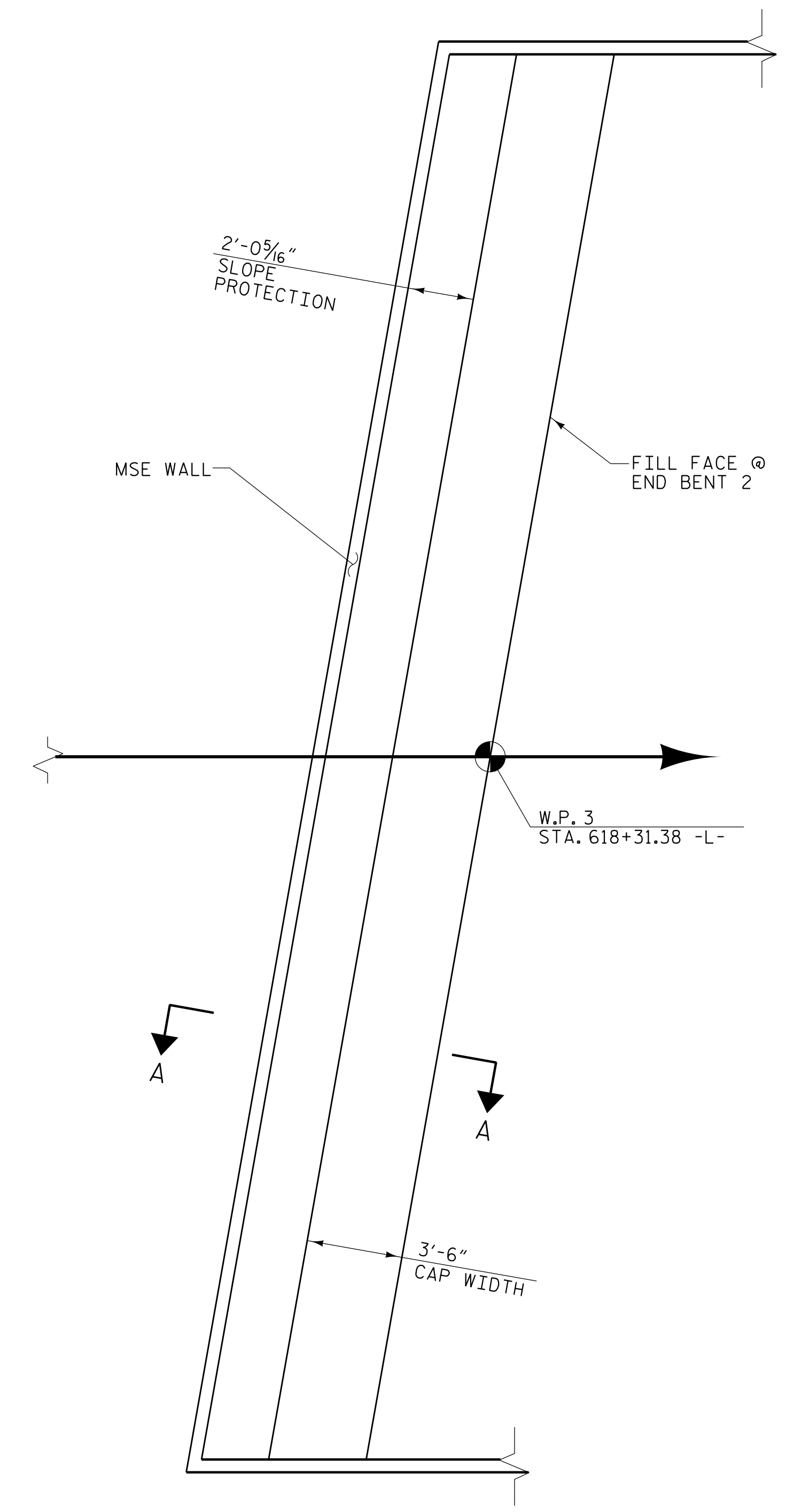
SECTION A-A  
(END BENT PILES NOT SHOWN)

BRIDGE @ STA. 617+12.20 -L-	4" SLOPE PROTECTION	WELDED WIRE FABRIC 20 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	37	164
END BENT 2	37	164

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT



END BENT 1



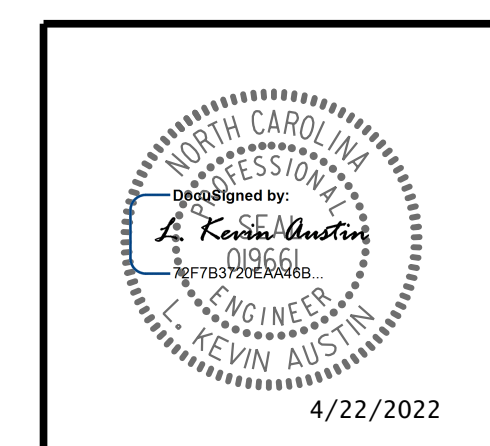
END BENT 2

PLAN

PLANS PREPARED BY:

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

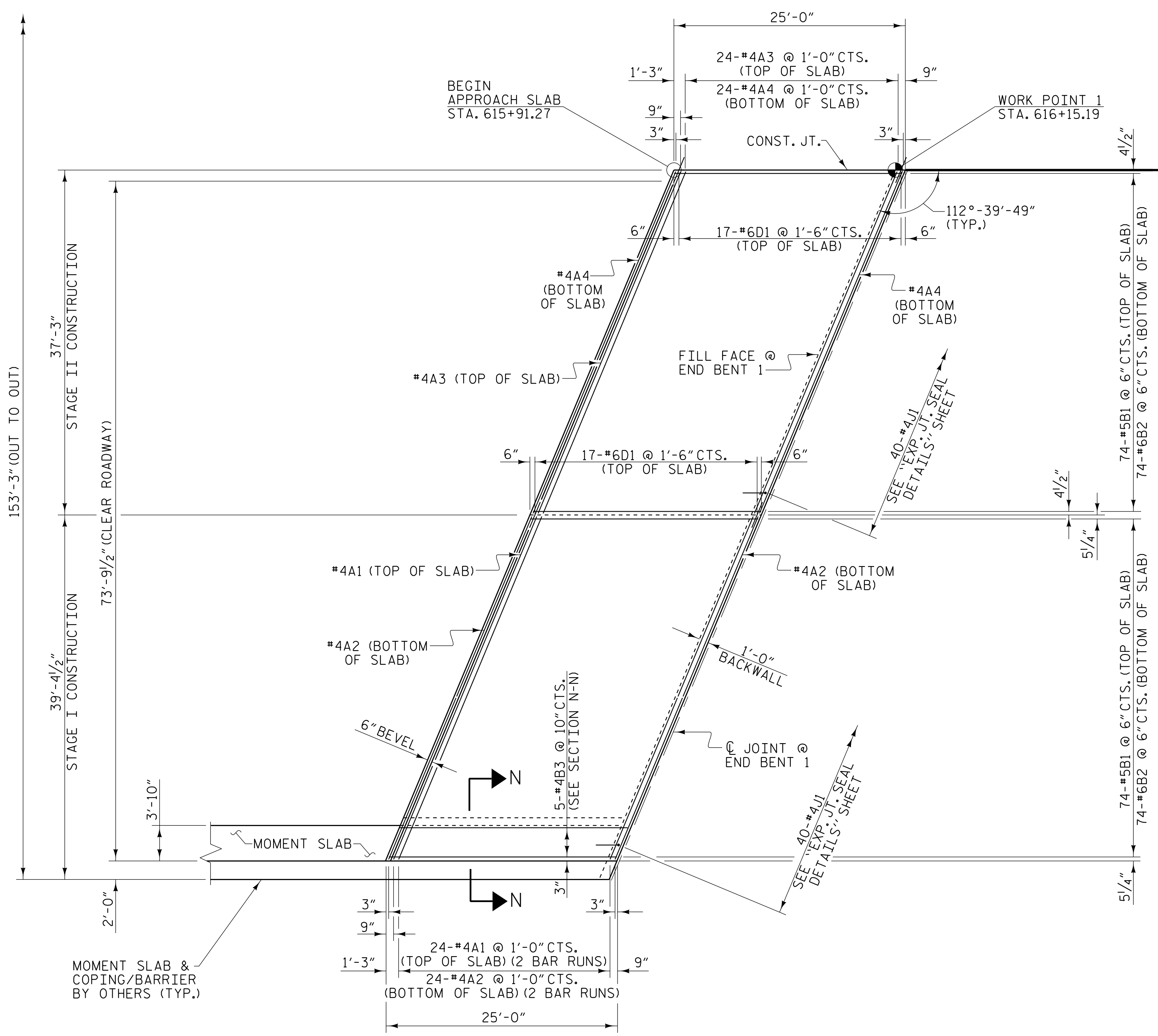
**SLOPE PROTECTION  
 DETAILS**

REVISIONS						SHEET NO.
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2			4			53

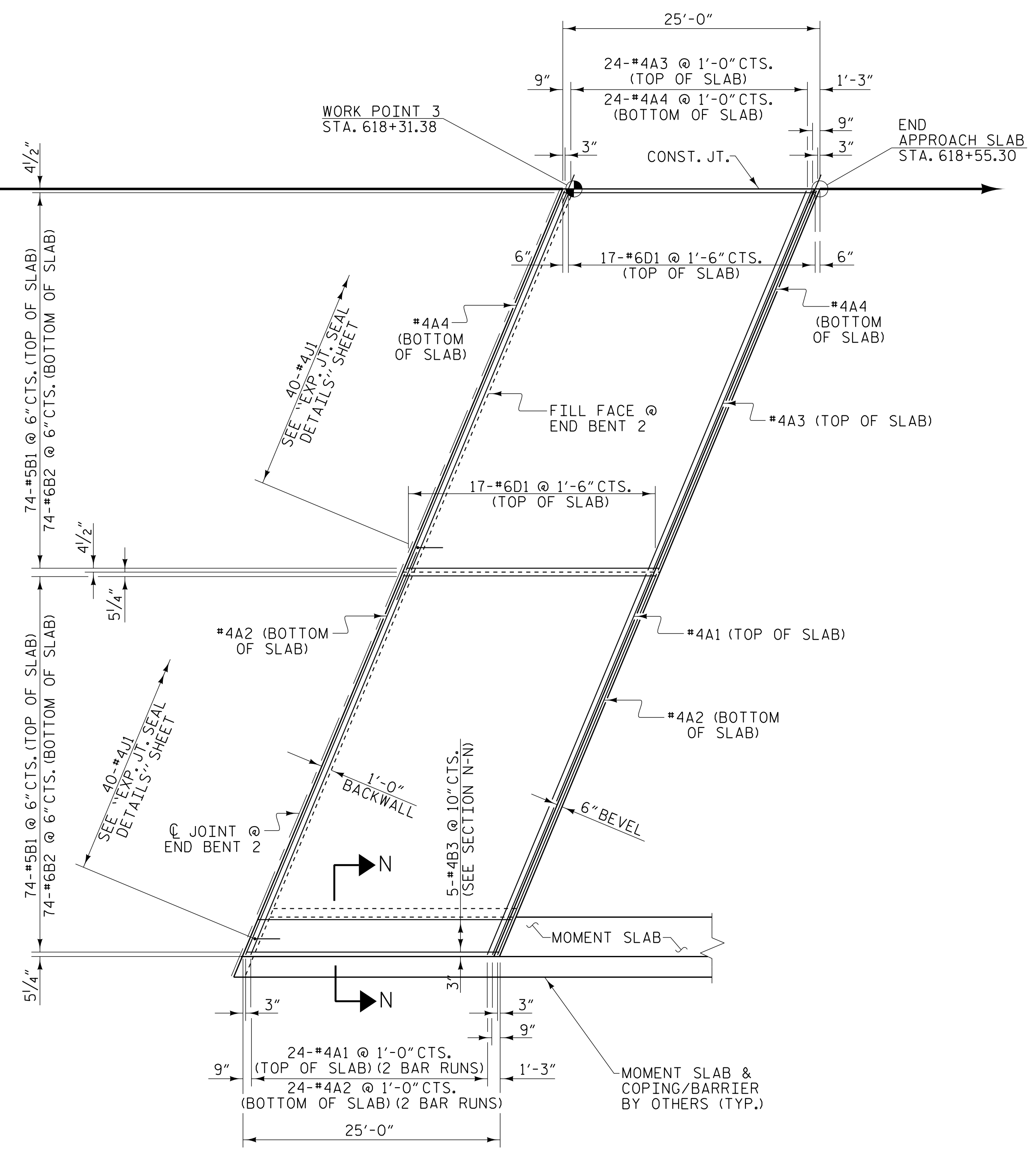
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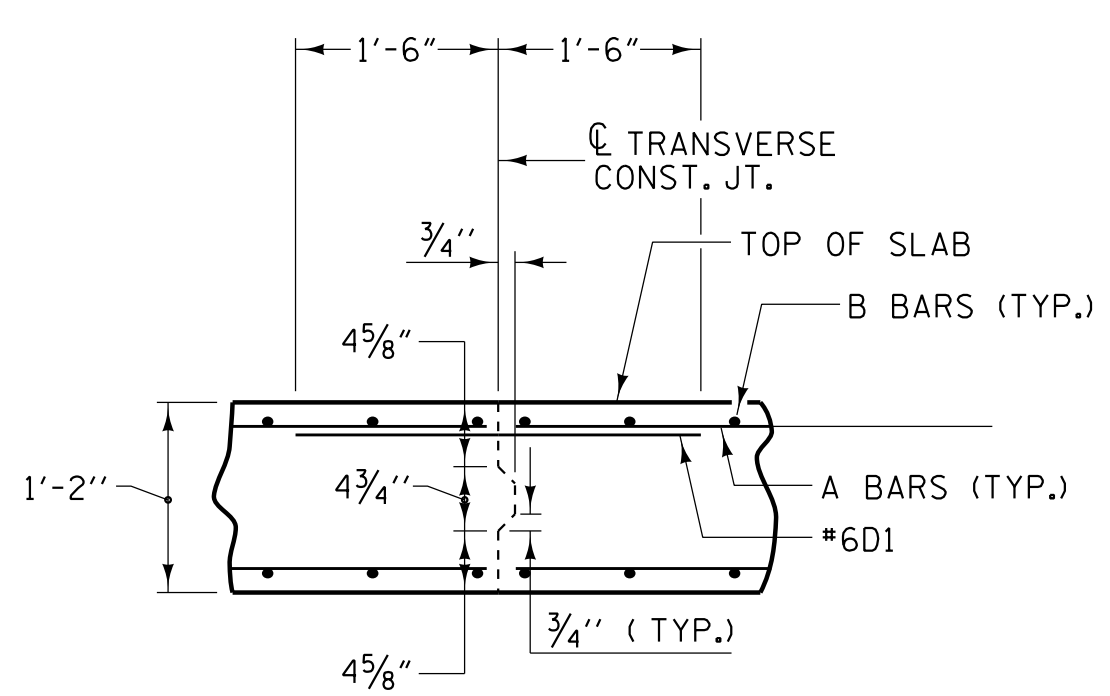
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PLAN @ END BENT 1



PLAN @ END BENT 2



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTES:  
 1. DIMENSIONS ARE TYPICAL FOR BOTH APPROACH SLABS  
 2. SEE PLAN OF BRIDGE APPROACH SLABS 3 OF 4 FOR SECTION N-N

DRAWN BY : W.B. ALLEN DATE : 12/21  
 CHECKED BY : M.D. METZGER DATE : 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 01/22

PROJECT NO. I-5987B  
 ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

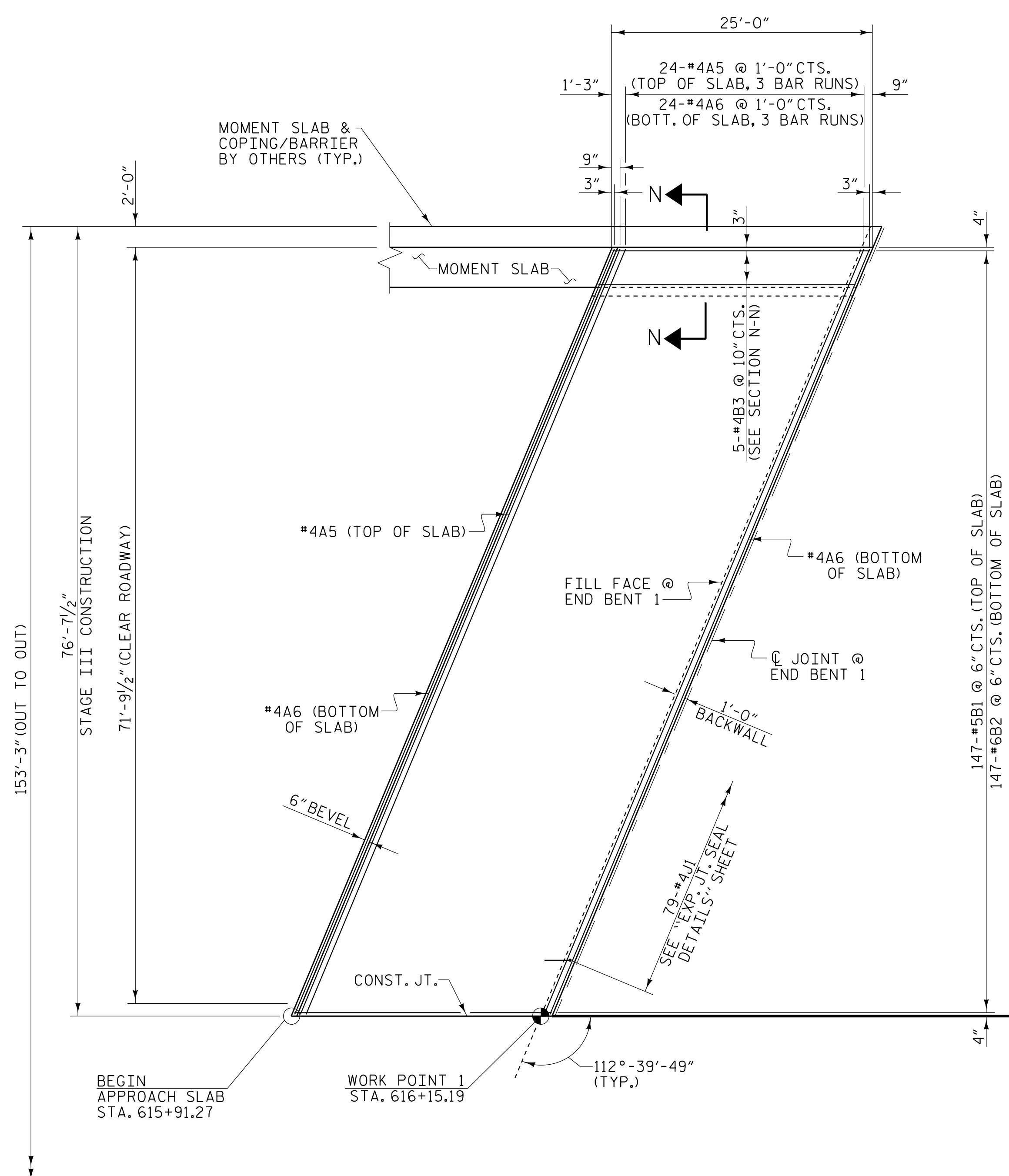
SHEET 1 OF 4  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 PLAN OF BRIDGE  
 APPROACH SLABS  
 STAGE I & STAGE II



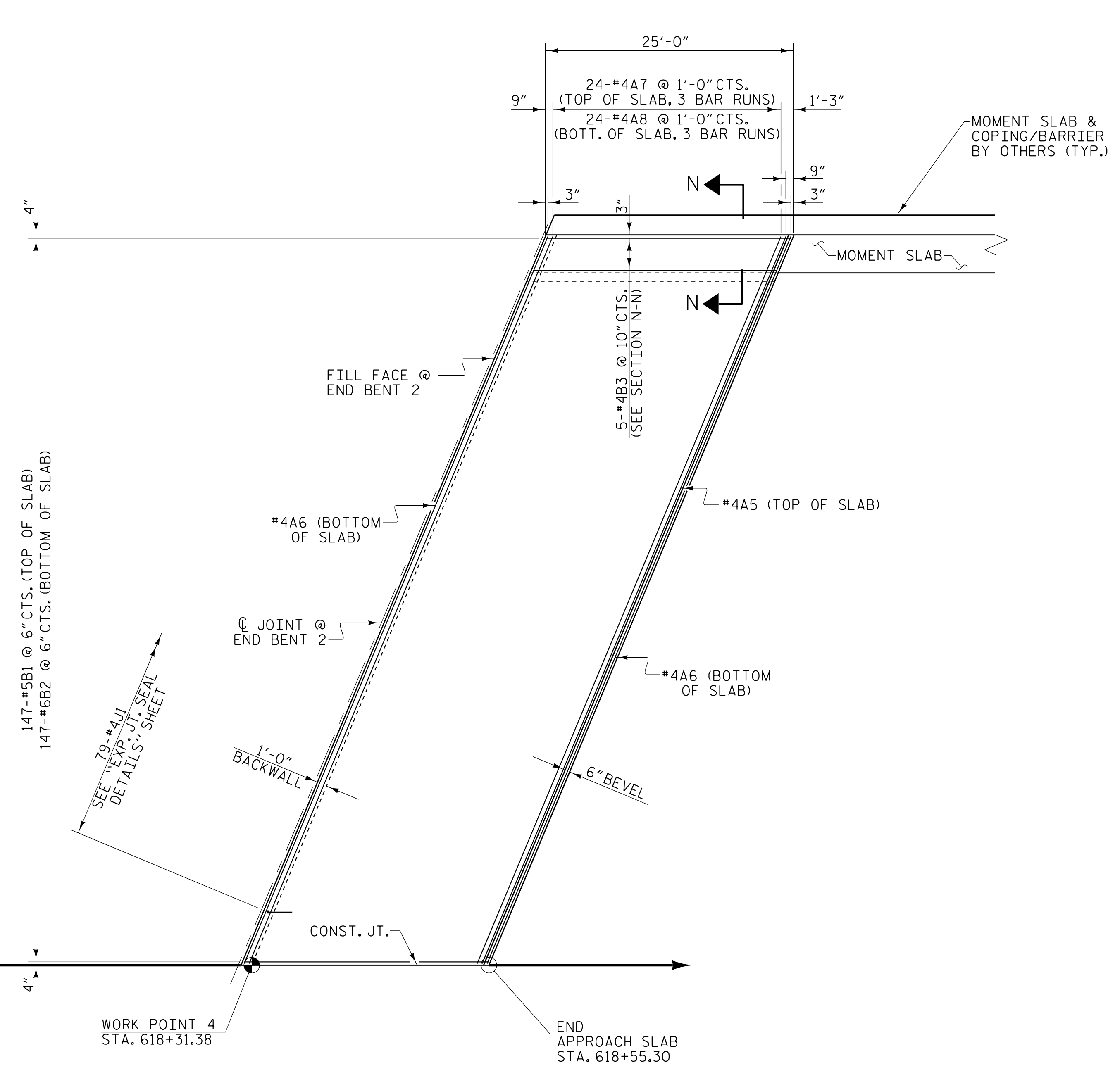
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			53
2			4			53





PLAN @ END BENT 1



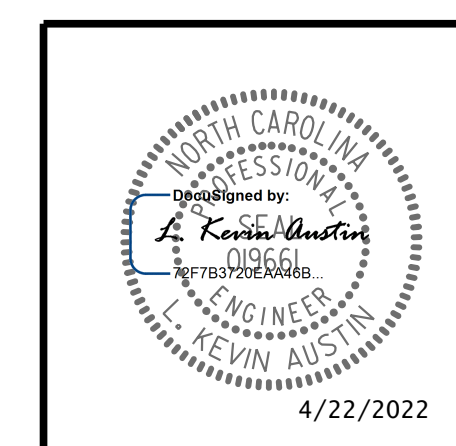
PLAN @ END BENT 2

NOTES:  
 1. DIMENSIONS ARE TYPICAL FOR BOTH APPROACH SLABS  
 2. SEE PLAN OF BRIDGE APPROACH SLABS 3 OF 4 FOR SECTION N-N

DRAWN BY :	W.B. ALLEN	DATE :	12/21
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PROJECT NO. I-5987B  
 ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 2 OF 4

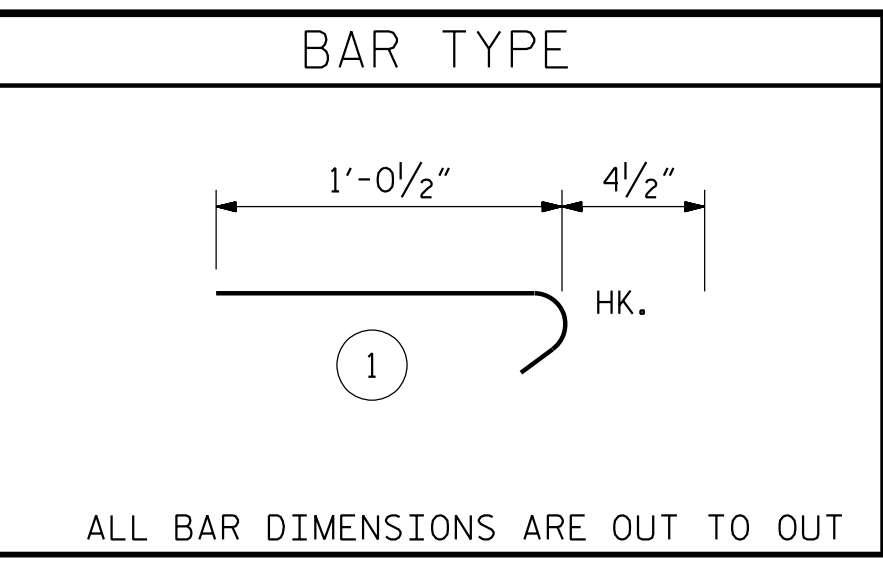
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF BRIDGE  
 APPROACH SLABS  
 STAGE III

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-51
1			3			TOTAL SHEETS
2			4			53

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 UNLESS ALL SIGNATURES COMPLETED

BILL OF MATERIAL - STAGE I						BILL OF MATERIAL - STAGE II						BILL OF MATERIAL - STAGE III								
APPROACH SLAB AT EB 1						APPROACH SLAB AT EB 1						APPROACH SLAB AT EB 1								
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT			
*A1	50	#4	STR	21'-1"	704	*A3	25	#4	STR	40'-0"	668	*A5	75	#4	STR	27'-10"	1394			
A2	52	#4	STR	20'-11"	727	A4	26	#4	STR	40'-0"	695	A6	78	#4	STR	27'-7"	1437			
*B1	74	#5	STR	23'-10"	1840	*B1	74	#5	STR	23'-10"	1840	*B1	147	#5	STR	23'-10"	3654			
B2	74	#6	STR	24'-8"	2742	B2	74	#6	STR	24'-8"	2742	B2	147	#6	STR	24'-8"	5446			
*B3	10	#4	STR	24'-8"	165	*J1	40	#4	1	1'-5"	38	*B3	10	#4	STR	24'-8"	165			
*J1	40	#4	1	1'-5"	38	*J1	40	#4	1	1'-5"	38	*J1	79	#4	1	1'-5"	75			
*D1	17	#6	STR	3'-0"	77	*D1	17	#6	STR	3'-0"	77									
REINFORCING STEEL					LBS.	3469	REINFORCING STEEL					LBS.	3437	REINFORCING STEEL					LBS.	6883
*EPOXY COATED REINFORCING STEEL					LBS.	2824	*EPOXY COATED REINFORCING STEEL					LBS.	2623	*EPOXY COATED REINFORCING STEEL					LBS.	5228
CLASS AA CONCRETE					C. Y.	43.7	CLASS AA CONCRETE					C. Y.	40.3	CLASS AA CONCRETE					C. Y.	83.0
APPROACH SLAB AT EB 2						APPROACH SLAB AT EB 2						APPROACH SLAB AT EB 2								
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT			
*A1	50	#4	STR	21'-1"	704	*A3	25	#4	STR	40'-0"	668	*A5	75	#4	STR	27'-10"	1394			
A2	52	#4	STR	20'-11"	727	A4	26	#4	STR	40'-0"	695	A6	78	#4	STR	27'-7"	1437			
*B1	74	#5	STR	23'-10"	1840	*B1	74	#5	STR	23'-10"	1840	*B1	147	#5	STR	23'-10"	3654			
B2	74	#6	STR	24'-8"	2742	B2	74	#6	STR	24'-8"	2742	B2	147	#6	STR	24'-8"	5446			
*B3	10	#4	STR	24'-8"	165	*J1	40	#4	1	1'-5"	38	*B3	10	#4	STR	24'-8"	165			
*J1	40	#4	1	1'-5"	38	*J1	40	#4	1	1'-5"	38	*J1	79	#4	1	1'-5"	75			
*D1	17	#6	STR	3'-0"	77	*D1	17	#6	STR	3'-0"	77									
REINFORCING STEEL					LBS.	3469	REINFORCING STEEL					LBS.	3437	REINFORCING STEEL					LBS.	6883
*EPOXY COATED REINFORCING STEEL					LBS.	2824	*EPOXY COATED REINFORCING STEEL					LBS.	2623	*EPOXY COATED REINFORCING STEEL					LBS.	5228
CLASS AA CONCRETE					C. Y.	43.7	CLASS AA CONCRETE					C. Y.	40.3	CLASS AA CONCRETE					C. Y.	83.0



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

**NOTES**

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 6" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

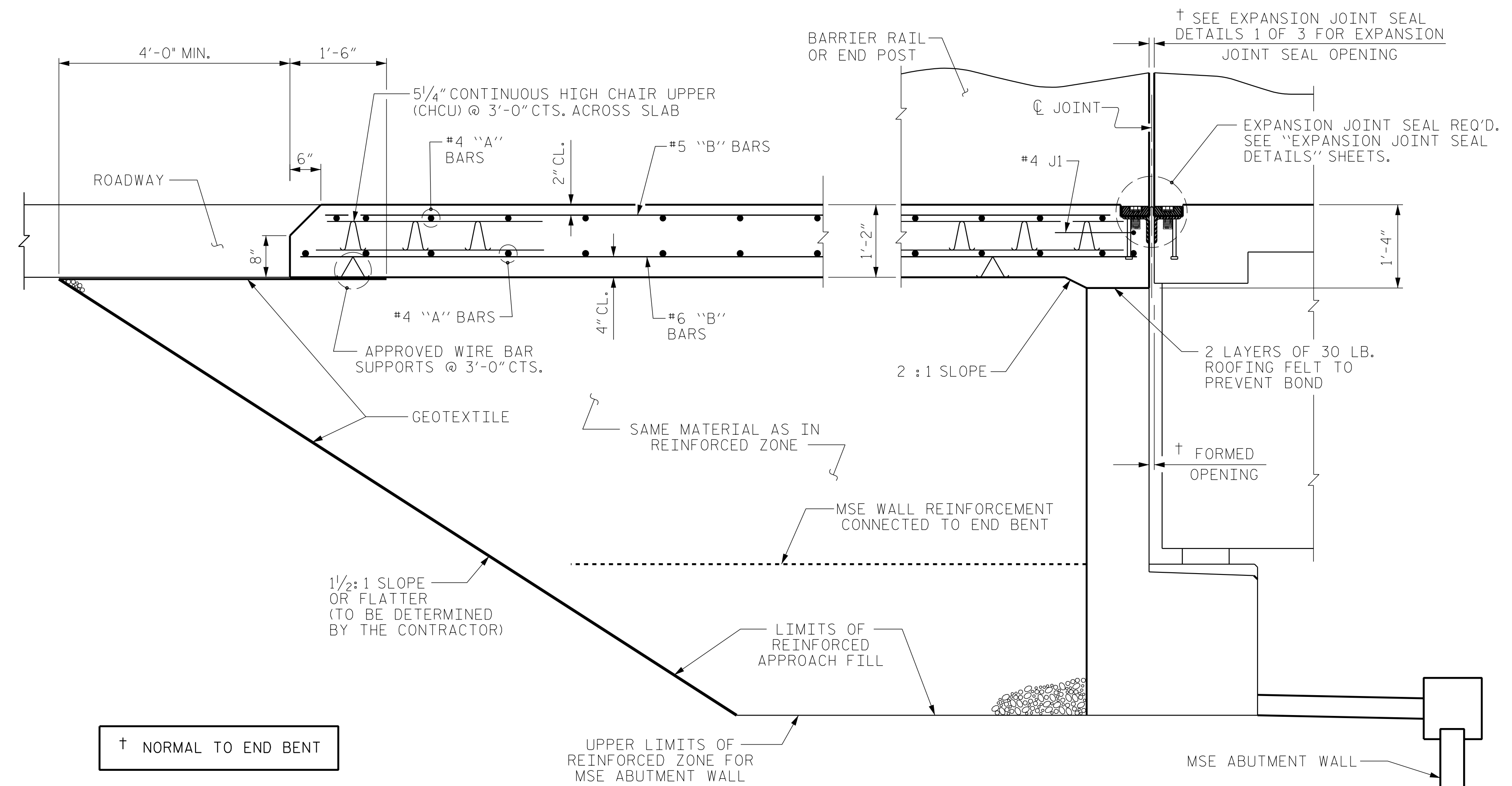
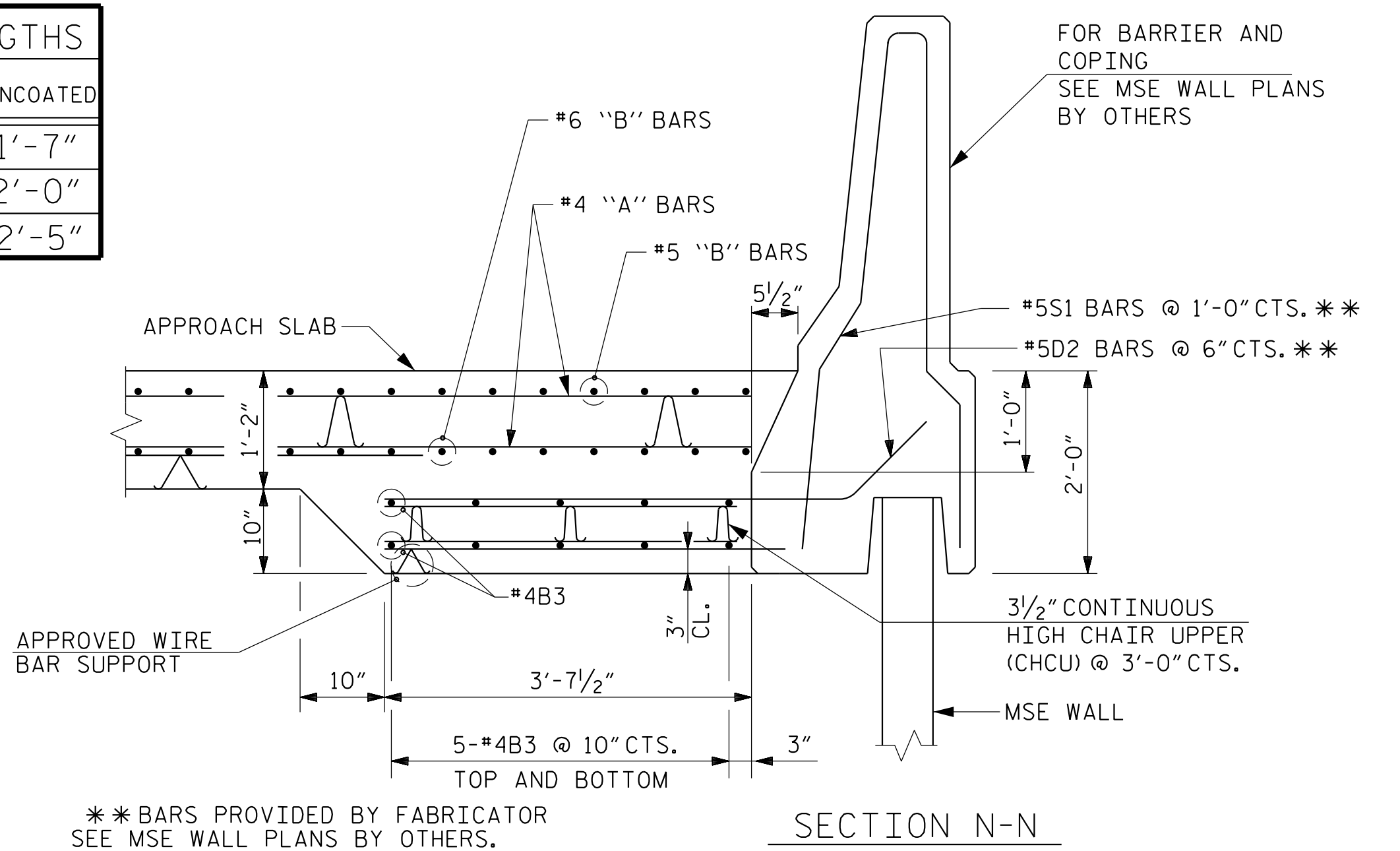
FOR THE 6" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

**SPLICE LENGTHS**

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



**SECTION THRU SLAB**  
(TYPE III - REINFORCED APPROACH FILL)

DRAWN BY : W.B. ALLEN DATE : 12/21  
 CHECKED BY : M.D. METZGER DATE : 12/21  
 DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 01/22

PLANS PREPARED BY:

**NV5**

NV5 ENGINEERS & CONSULTANTS, INC.  
 3300 REGENCY PARKWAY, SUITE 100  
 CARY, NC 27518  
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 NC License # F-1333

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4/22/2022

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 3 OF 4

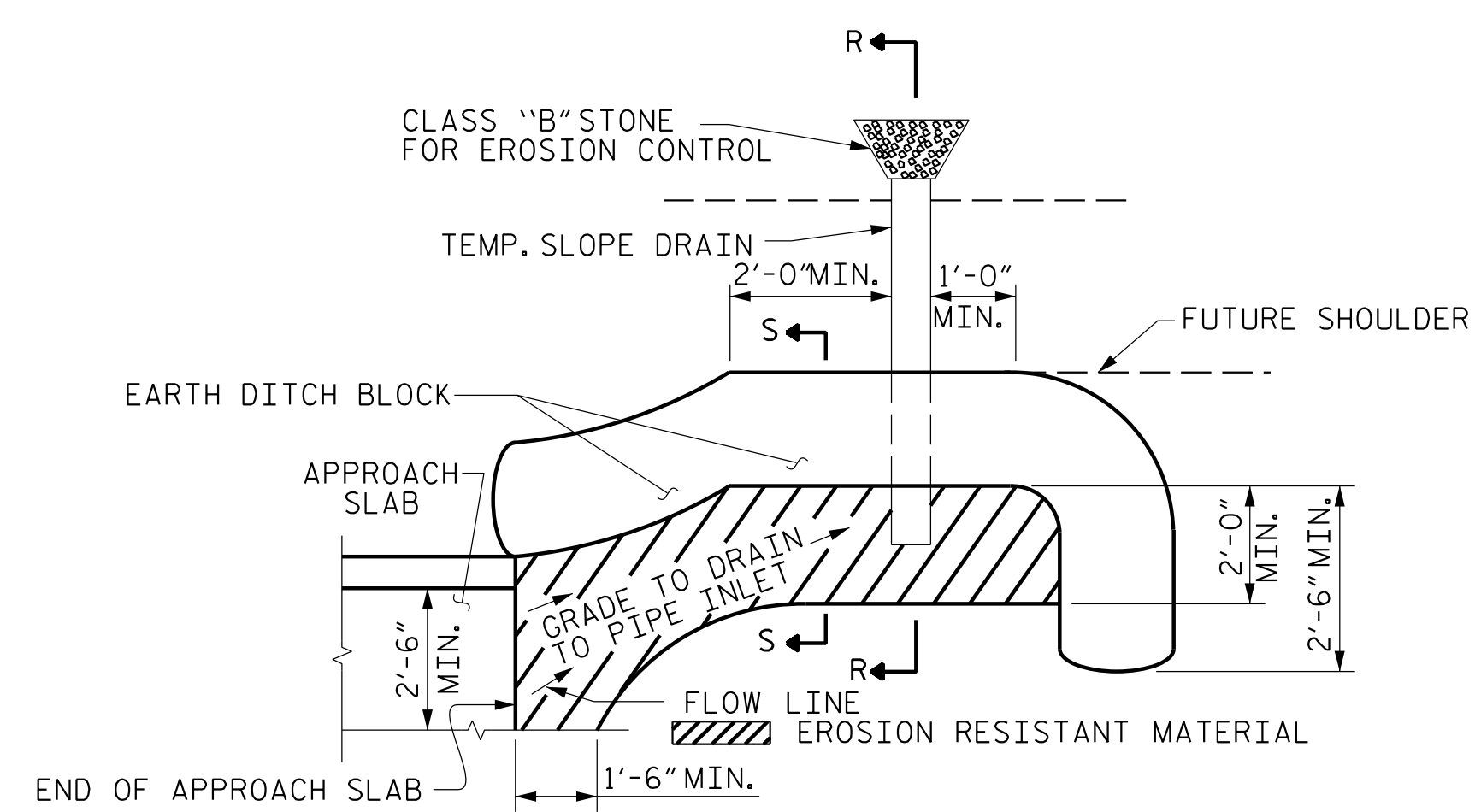
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			56-52
2			4			53

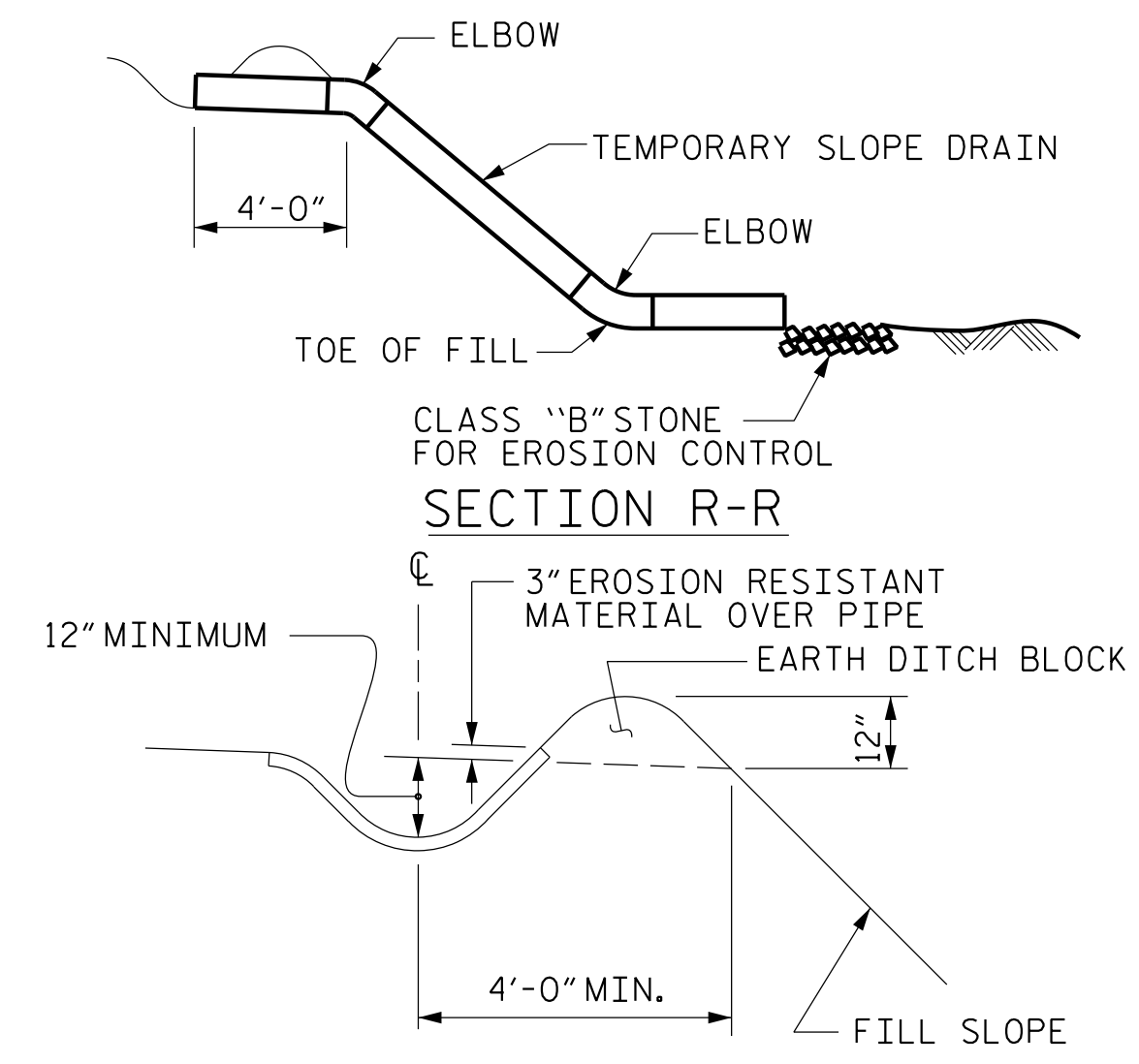
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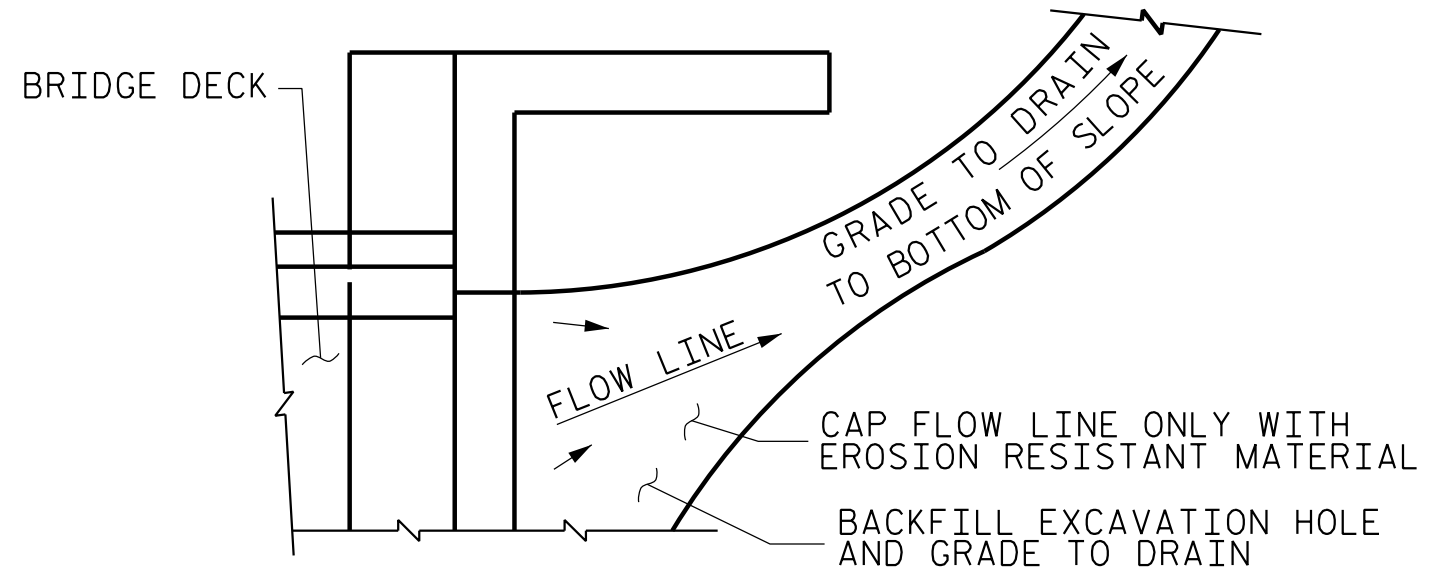


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



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

**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 617+12.20 -L- POT

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

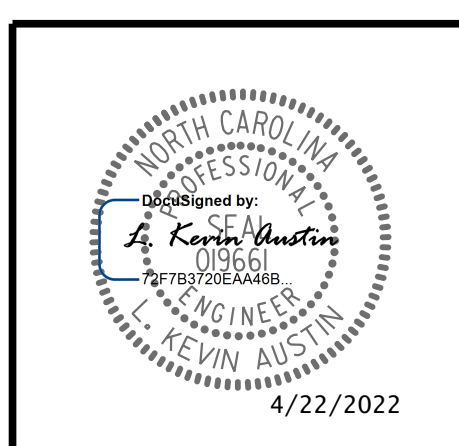
**BRIDGE APPROACH  
 SLAB DETAILS**

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

PLANS PREPARED BY:

**NV5**

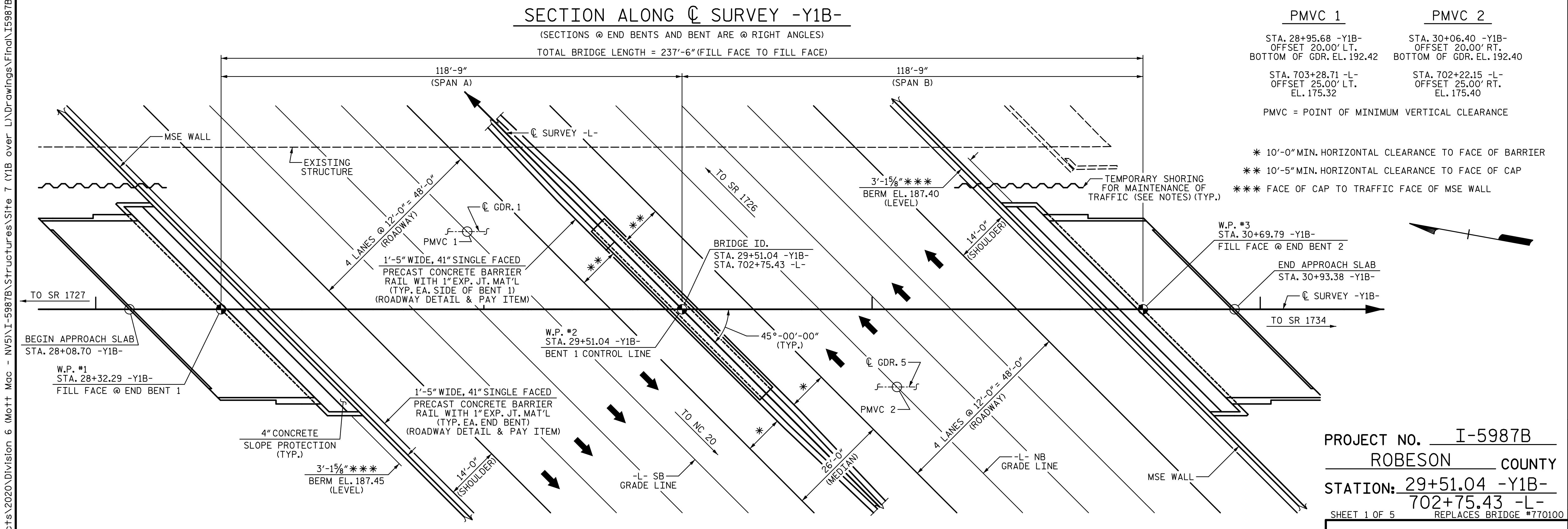
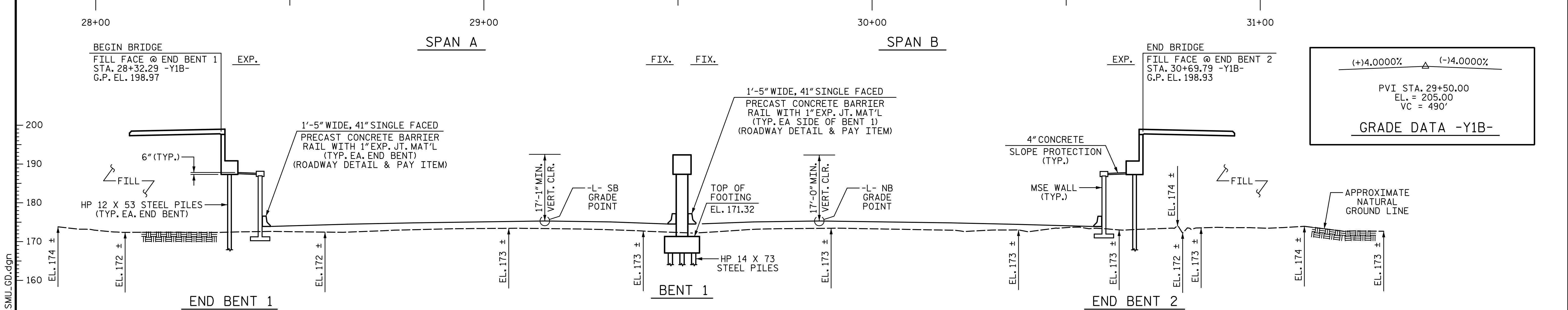
NV5 ENGINEERS & CONSULTANTS, INC.  
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 NC License # F-1333



DRAWN BY :	W.B. ALLEN	DATE : 12/21
CHECKED BY :	M.D. METZGER	DATE : 12/21
DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE : 01/22

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PMVC 1	PMVC 2
STA. 28+95.68 -Y1B- OFFSET 20.00' LT. BOTTOM OF GDR. EL. 192.42	STA. 30+06.40 -Y1B- OFFSET 20.00' RT. BOTTOM OF GDR. EL. 192.40
STA. 703+28.71 -L- OFFSET 25.00' LT. EL. 175.32	STA. 702+22.15 -L- OFFSET 25.00' RT. EL. 175.40

PMVC = POINT OF MINIMUM VERTICAL CLEARANCE

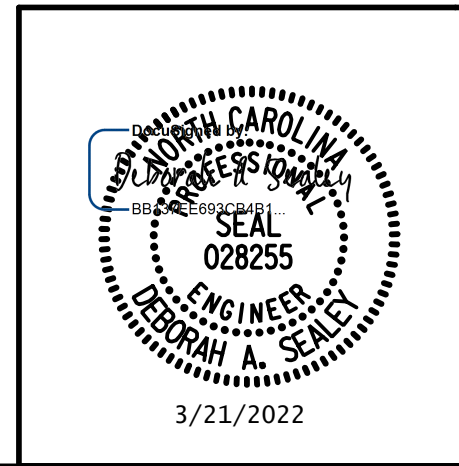
- \* 10'-0" MIN. HORIZONTAL CLEARANCE TO FACE OF BARRIER
- \*\* 10'-5" MIN. HORIZONTAL CLEARANCE TO FACE OF CAP
- \*\*\* FACE OF CAP TO TRAFFIC FACE OF MSE WALL

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-  
702+75.43 -L-  
 SHEET 1 OF 5 REPLACES BRIDGE #770100

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON US 301 (-Y1B-)  
 OVER I-95 (-L-) BETWEEN  
 SR 1727 AND SR 1734

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-1
1			3			TOTAL SHEETS
2			4			37



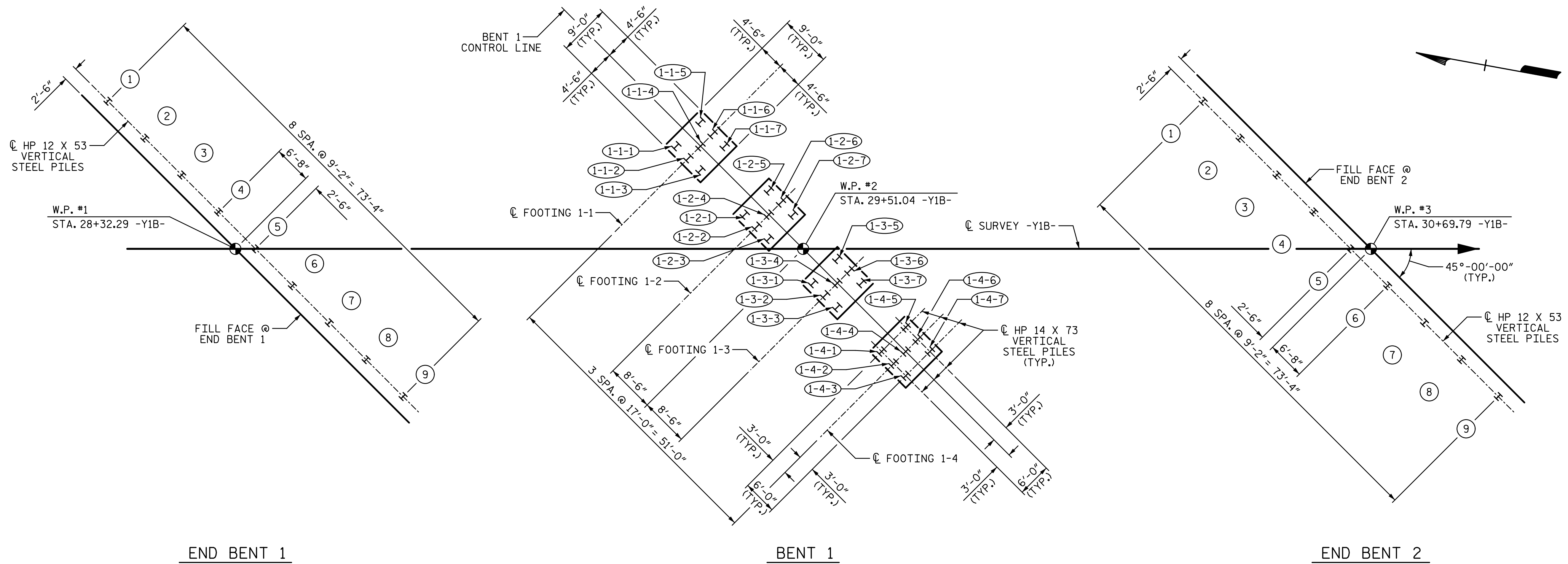
DRAWN BY: <u>T. BANKOVICH</u>	DATE: <u>3-22</u>
CHECKED BY: <u>D.A. SEALEY</u>	DATE: <u>3-22</u>
DESIGN ENGINEER OF RECORD: <u>D.A. SEALEY</u>	DATE: <u>3-22</u>

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**FOUNDATION LAYOUT**  
 (ALL PILES ARE VERTICAL HP STEEL PILES)  
 (DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES)

**FOUNDATION NOTES:**

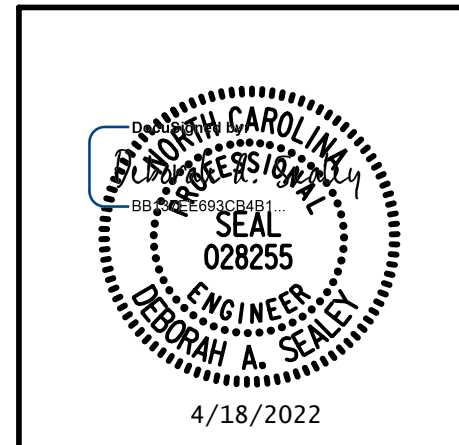
FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES REQUIRED AT END BENT 1 AND END BENT 2.  
 INSTALL PILE SLEEVES BEFORE CONSTRUCTING THE MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL AT END BENTS 1 AND 2. OBSERVE A 4 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MSE ABUTMENT WALL AND THE REINFORCED BRIDGE APPROACH FILL TO WITHIN 1 FT OF THE FINAL GRADE ELEVATION. THEN, INSTALL PILES THROUGH THE CORRUGATED STEEL PIPES AND FILL PILES WITH LOOSE UNCOMPACTED SAND BEFORE CONSTRUCTING END BENT CAPS. FOR PILE SLEEVES, SEE MSE RETAINING WALL PLANS AND PROVISION. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.  
 FOR REINFORCED BRIDGE APPROACH FILL, SEE SPECIAL BRIDGE APPROACH FILL DETAILS (2G-8 THROUGH 2G-10) AND SPECIAL BRIDGE APPROACH FILL (SPECIAL) PROVISION.

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE ON US 301 (-Y1B-)  
 OVER I-95 (-L-) BETWEEN  
 SR 1727 AND SR 1734

DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22



REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			37

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**SUMMARY OF PILE INFORMATION/INSTALLATION**

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) ## (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Exc Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent No. 1, Piles 1-9	120	188.45	95			200							
End Bent No. 2, Piles 1-9	120	188.40	90			200							
Bent No. 1, Piles 1-28	140	168.57	65			235	23						

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

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

**SUMMARY OF PDA/PILE ORDER LENGTHS**

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent No. 1	MAYBE	100	2		
End Bent No. 2	MAYBE	95			
Bent No. 1	MAYBE	70			

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

**PILE DESIGN INFORMATION**

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) ## (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent No. 1, Piles 1-9	120			0.60			
End Bent No. 2, Piles 1-9	120			0.60			
Bent No. 1, Piles 1-28	139			0.60			

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

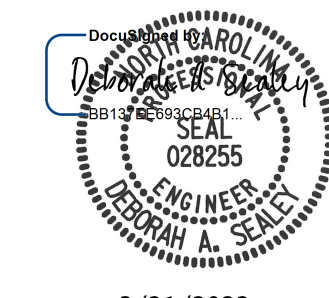
PROJECT NO. I-5987B

ROBESON COUNTY

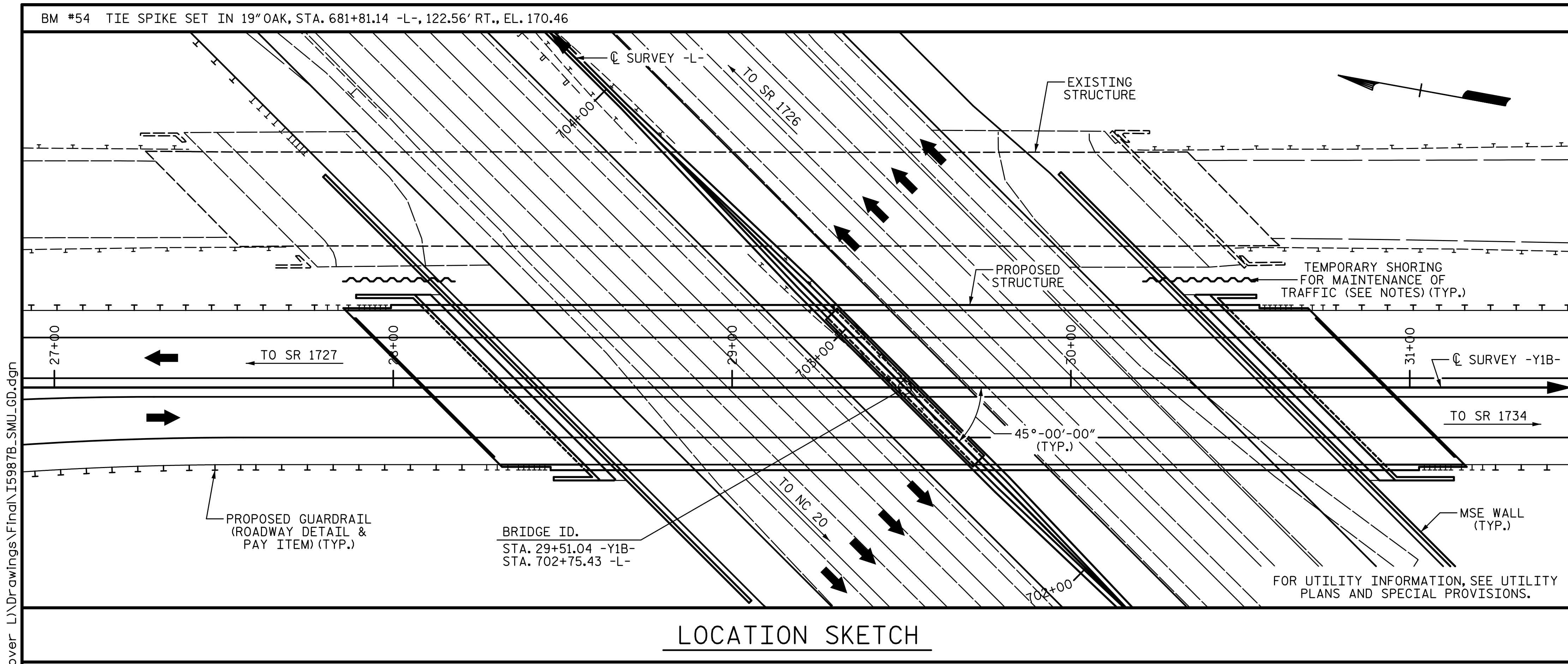
STATION: -Y1B- 29+51.04/-L- 702+75.43

**NOTES:**

- The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Stephen C. Crockett, 048207) on 12/16/21.
- Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
- The Engineer will determine the need for PDA Testing when PDAs may be required.

 3/21/2022 SIGNATURE _____ DATE _____	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH  <b>PILE FOUNDATION TABLES</b>						SHEET NO. S7-3
	REVISIONS						TOTAL SHEETS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	NO. <b>1</b>	BY:	DATE:	NO. <b>3</b>	BY:	DATE:	37
	<b>2</b>			<b>4</b>			





LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 2.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 4 SPANS, 1 SPAN @ 64'-2", 2 @ 76'-0", AND 1 @ 64'-2" SHALL BE REMOVED. THE SUPERSTRUCTURE HAS A CLEAR ROADWAY WIDTH OF 28'-0" WITH REINFORCED CONCRETE DECK ON STEEL I-BEAMS. THE END BENTS CONSIST OF REINFORCED CONCRETE CAPS ON PRESTRESSED PRECAST CONCRETE PILES. THE INTERIOR BENTS CONSIST OF REINFORCED CONCRETE POST AND BEAM WITH PRESTRESSED PRECAST CONCRETE PILE FOOTINGS. THE EXISTING STRUCTURE IS LOCATED NORTH OF THE PROPOSED STRUCTURE. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

FOR 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.

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

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

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, 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 COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 29+51.04 -Y1B-."

THE EXISTING BRIDGE WILL BE IN SERVICE DURING CONSTRUCTION OF THE REPLACEMENT STRUCTURE. FOR DETAILS REGARDING CONSTRUCTION STAGING AND REQUIREMENTS FOR TEMPORARY SHORING, SEE TMP PLANS.

ALL FALSEWORK AND FORMS FOR THE CAST-IN-PLACE DECK SLAB CONTINUOUS UNIT SHALL REMAIN IN PLACE UNTIL THE ENTIRE UNIT IS CAST AND CURED.

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.

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.

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

TOTAL BILL OF MATERIAL											
	REMOVAL OF EXISTING STRUCTURE AT STA. 29+51.04 -Y1B-	ASBESTOS ASSESSMENT	FOUNDATION EXCAVATION FOR BENT	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 72" PREST. CONCRETE GIRDER
	LS	LS	LS	EA	SF	SF	CY	LS	LB	LB	NO. LF
SUPERSTRUCTURE					11,429	11,959					10 1,152.81
END BENT 1							79.0		11,091		
BENT 1			LS				130.3		20,986	2,331	
END BENT 2							79.1		11,126		
TOTAL	LS	LS	LS	2	11,429	11,959	288.4	LS	43,203	2,331	10 1,152.81

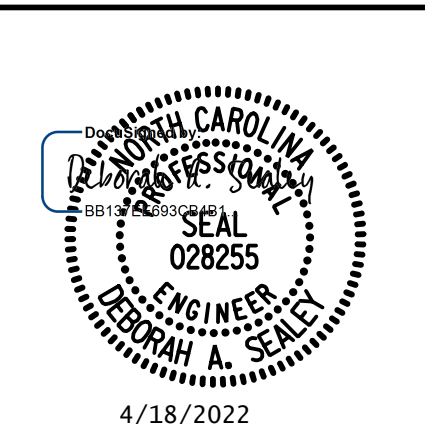
TOTAL BILL OF MATERIAL											
	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 STEEL PILES	HP 12 X 53 STEEL PILES	HP 14 X 73 STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	STRIP SEAL EXPANSION JOINTS		
	EA	EA	NO. LF	NO. LF	EA	LF	SY	LS	LS		
SUPERSTRUCTURE						511.9		LS	LS		
END BENT 1	9		9 855				25				
BENT 1		28		28 1,820							
END BENT 2	9		9 810				25				
TOTAL	18	28	18 1,665	28 1,820	23	511.9	50	LS	LS		

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

SHEET 4 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE ON US 301 (-Y1B-) OVER I-95 (-L-) BETWEEN SR 1727 AND SR 1734



DRAWN BY: T. BANKOVICH DATE: 3-22  
 CHECKED BY: D.A. SEALEY DATE: 3-22  
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	
1			3			S7-4	
2			4			TOTAL SHEETS 37	

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3/21/2022 9:08:38 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B\_SMU\_LRFR.dgn

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

LEVEL	VEHICLE	WEIGHT (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ <sub>L</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ <sub>L</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.29	- -	1.75	0.839	1.46	A	EL	56.9	1.105	1.40	A	I	33.9	0.80	0.839	<b>1.29</b>	A	EL	56.9		
	HL-93 (OPERATING)	N/A		1.90	- -	1.35	0.839	1.90	A	EL	56.9	1.105	1.98	A	I	10.8	N/A	- -	- -	- -	- -	- -		
	HS-20 (INVENTORY)	36.00	②	1.86	67.0	1.75	0.839	2.11	A	EL	56.9	1.105	2.14	A	I	103	0.80	0.839	<b>1.86</b>	A	EL	56.9		
	HS-20 (OPERATING)	36.00		2.73	98.3	1.35	0.839	2.73	A	EL	56.9	1.105	2.97	A	I	103	N/A	- -	- -	- -	- -	- -		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.18	29.4	1.40	0.839	3.08	A	EL	56.9	1.105	3.82	A	I	103	0.80	0.839	2.18	A	EL	56.9	
		SNGARBS2	20.000		1.83	36.6	1.40	0.839	2.58	A	EL	56.9	1.105	3.02	A	I	10.8	0.80	0.839	1.83	A	EL	56.9	
		SNAGRIS2	22.000		1.76	38.7	1.40	0.839	2.48	A	EL	56.9	1.105	2.83	A	I	10.8	0.80	0.839	1.76	A	EL	56.9	
		SNCOTTS3	27.250		1.46	39.8	1.40	0.839	2.07	A	EL	56.9	1.105	2.30	A	I	10.8	0.80	0.839	1.46	A	EL	56.9	
		SNAGGRS4	34.925		1.27	44.4	1.40	0.839	1.80	A	EL	56.9	1.105	1.89	A	I	103	0.80	0.839	1.27	A	EL	56.9	
		SNS5A	35.550		1.25	44.4	1.40	0.839	1.77	A	EL	56.9	1.105	1.90	A	I	10.8	0.80	0.839	1.25	A	EL	56.9	
		SNS6A	39.950		1.17	46.7	1.40	0.839	1.65	A	EL	56.9	1.105	1.72	A	I	10.8	0.80	0.839	1.17	A	EL	56.9	
		SNS7B	42.000	③	1.13	47.5	1.40	0.839	1.59	A	EL	56.9	1.105	1.66	A	I	10.8	0.80	0.839	<b>1.13</b>	A	EL	56.9	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.96	64.7	1.40	0.839	2.77	A	EL	56.9	1.105	3.15	A	I	10.8	0.80	0.839	1.96	A	EL	56.9	
		TNT4A	33.075		1.97	65.2	1.40	0.839	2.78	A	EL	56.9	1.105	3.09	A	I	10.8	0.80	0.839	1.97	A	EL	56.9	
		TNT6A	41.600		1.59	66.1	1.40	0.839	2.25	A	EL	56.9	1.105	2.55	A	I	10.8	0.80	0.839	1.59	A	EL	56.9	
		TNT7A	42.000		1.59	66.8	1.40	0.839	2.24	A	EL	56.9	1.105	2.50	A	I	10.8	0.80	0.839	1.59	A	EL	56.9	
		TNT7B	42.000		1.62	68.0	1.40	0.839	2.29	A	EL	56.9	1.105	2.38	A	I	10.8	0.80	0.839	1.62	A	EL	56.9	
		TNAGRIT4	43.000		1.56	67.1	1.40	0.839	2.20	A	EL	56.9	1.105	2.29	A	I	10.8	0.80	0.839	1.56	A	EL	56.9	
		TNAGT5A	45.000		1.48	66.6	1.40	0.839	2.09	A	EL	56.9	1.105	2.23	A	I	10.8	0.80	0.839	1.48	A	EL	56.9	
		TNAGT5B	45.000		1.47	66.2	1.40	0.839	2.07	A	EL	56.9	1.105	2.15	A	I	10.8	0.80	0.839	1.47	A	EL	56.9	

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.  
 ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.  
 DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM  $\bar{C}$  BEARING.

③ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

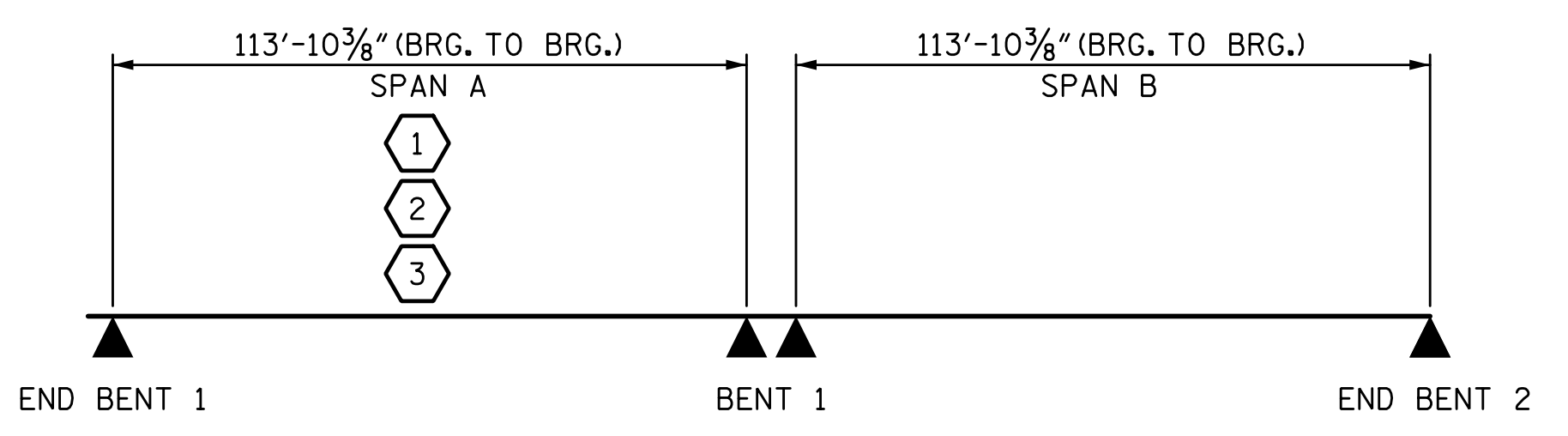
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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GIRDER LOCATION

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

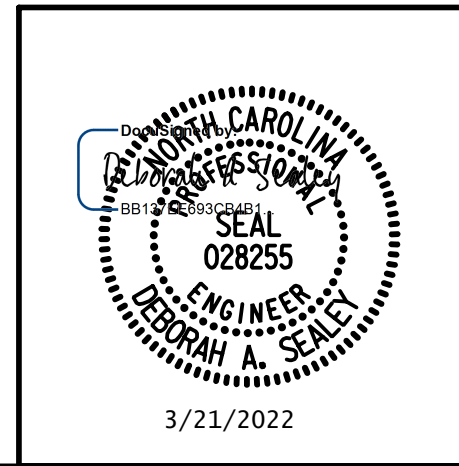


LRFR SUMMARY

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

SHEET 5 OF 5

DRAWN BY: S.D. COOPER DATE: 3-22  
 CHECKED BY: D.A. SEALEY DATE: 3-22  
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22



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

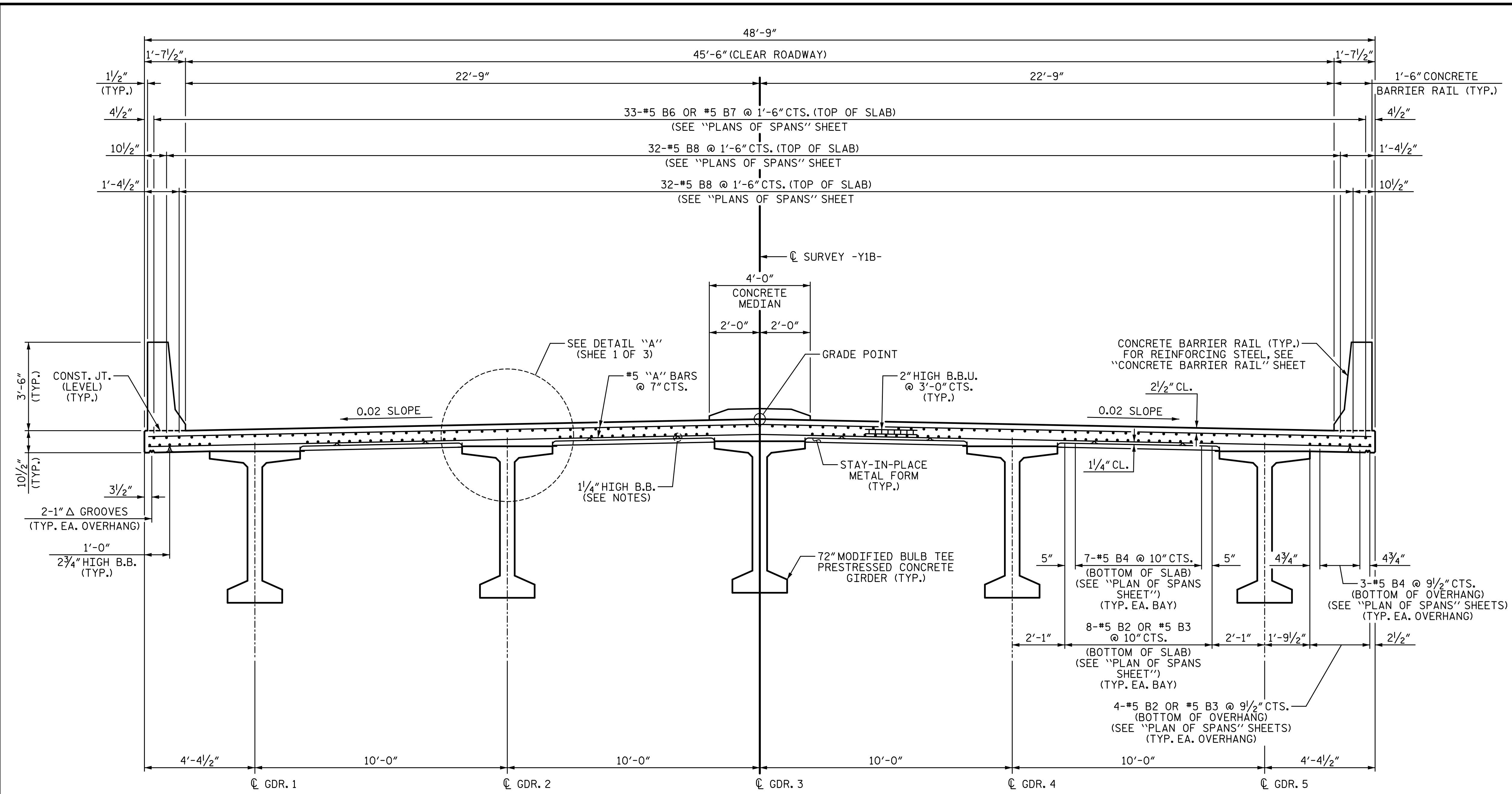
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NO.	BY:	DATE:	NO.	BY:	DATE:	S7-5
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2			4			37

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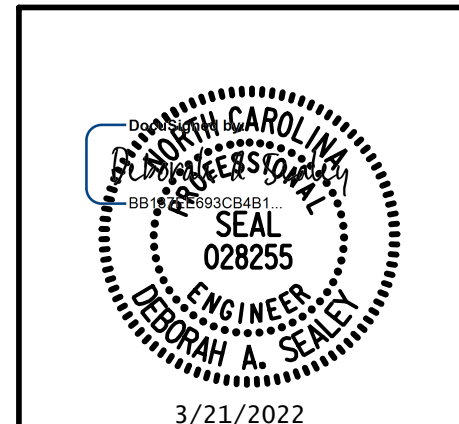
**TYPICAL SECTION**  
(SHOWING LINK SLAB REGION AT INTERIOR BENT)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE

**TYPICAL SECTION**



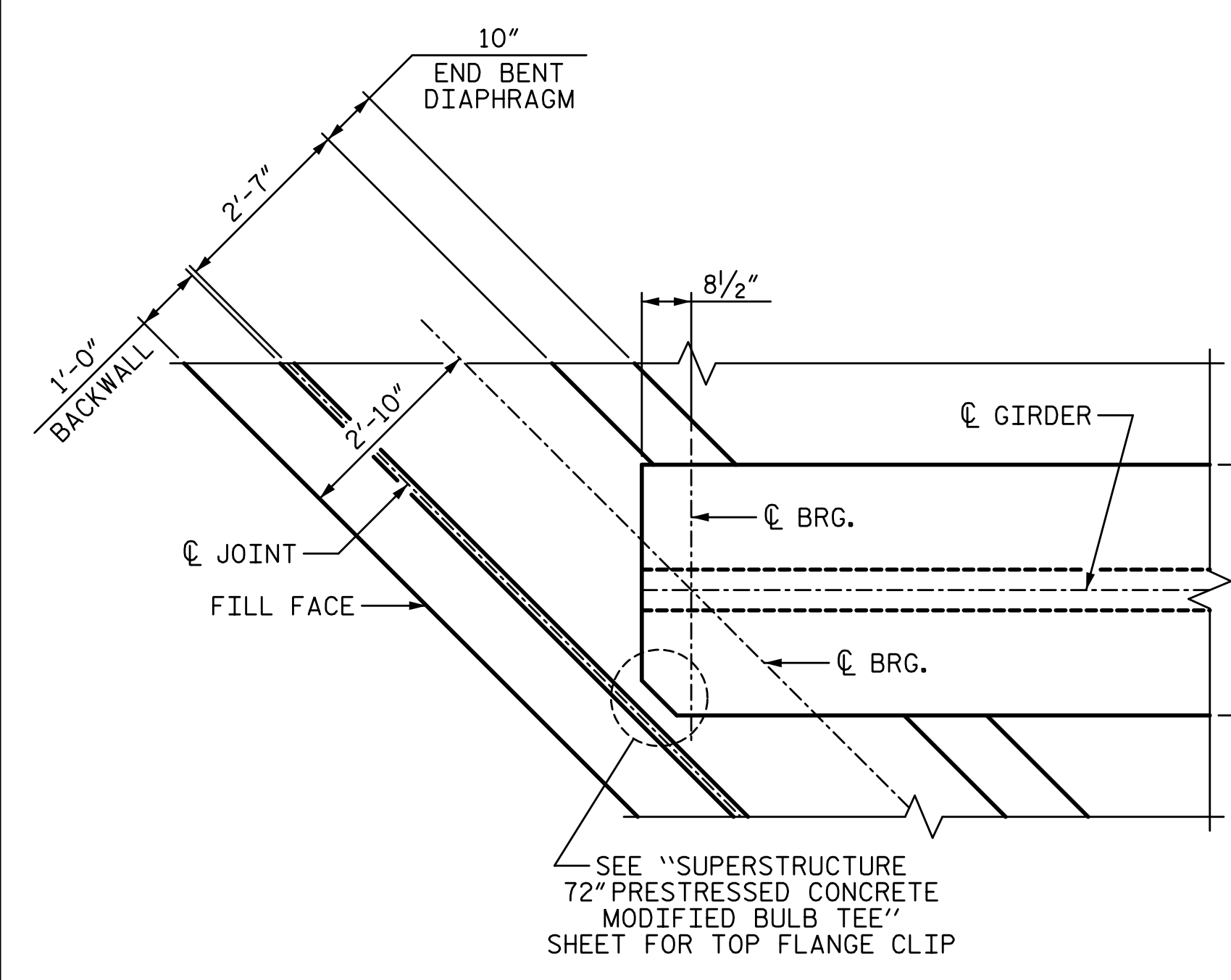
DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

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1			3			TOTAL SHEETS
2			4			37

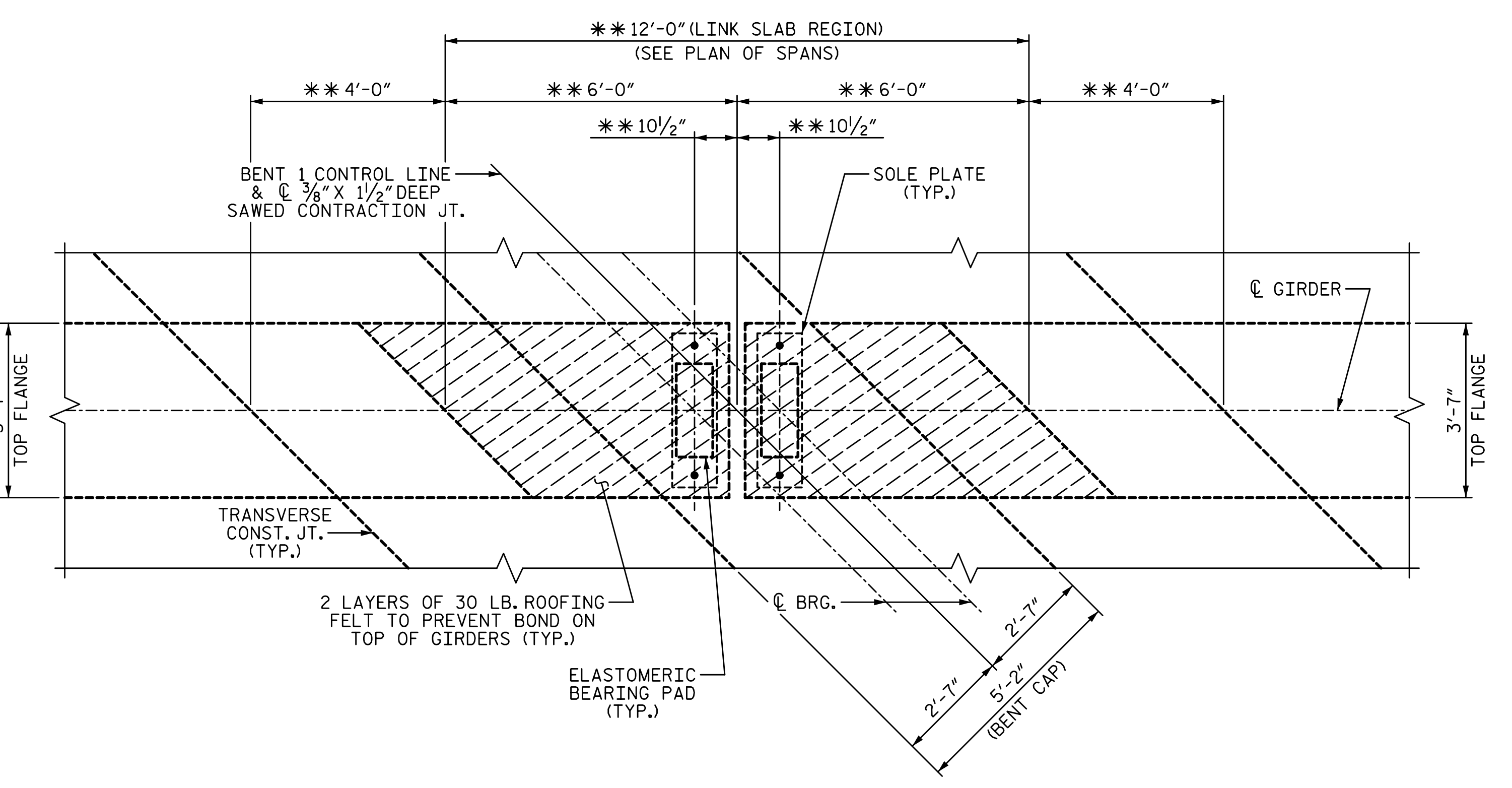
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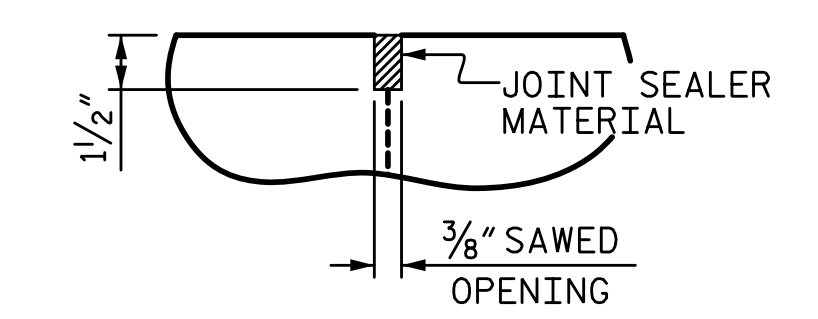


**PLAN OF GIRDER AT END BENT**  
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

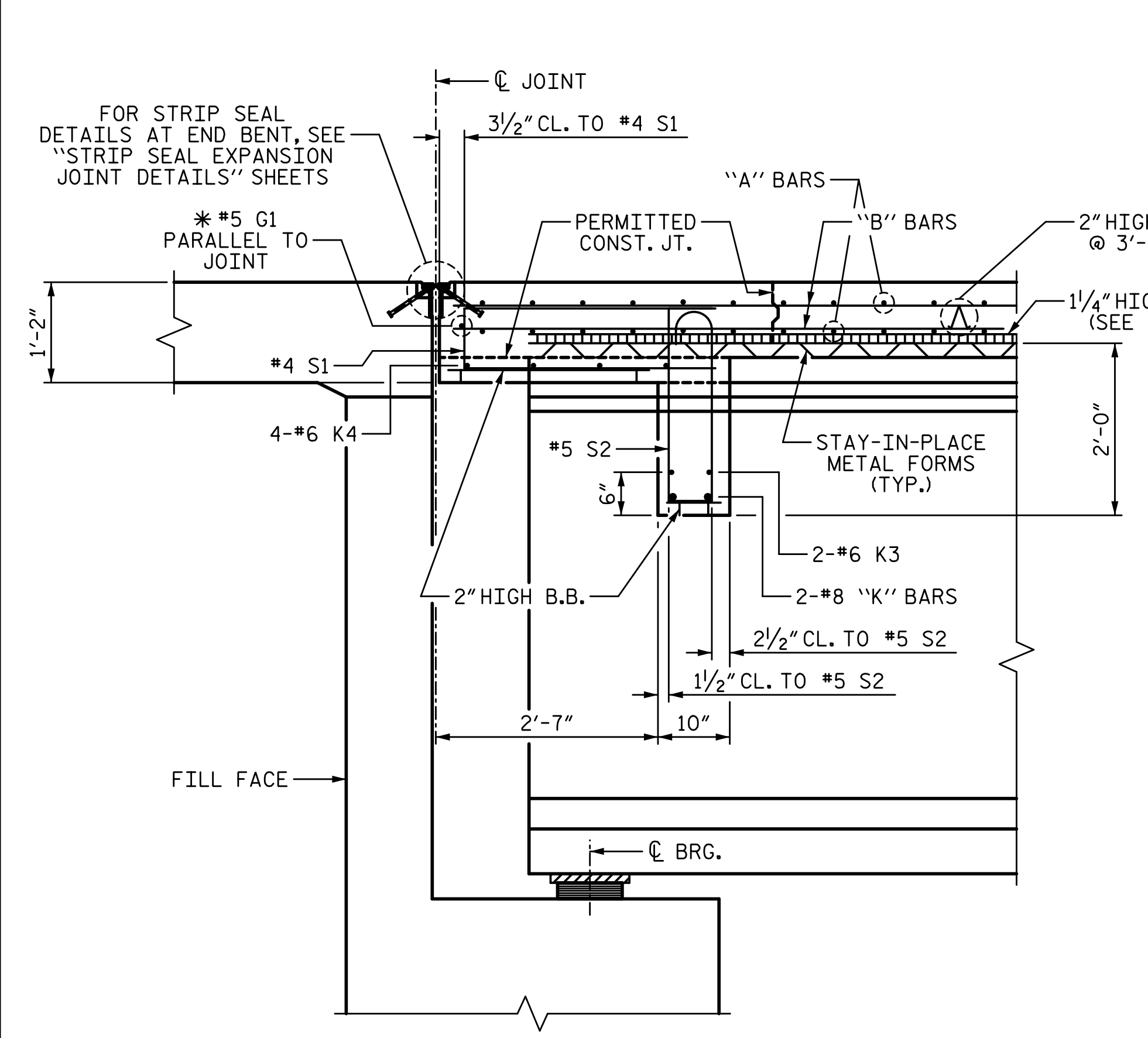


**PLAN OF GIRDER AT BENT - LINK SLAB**

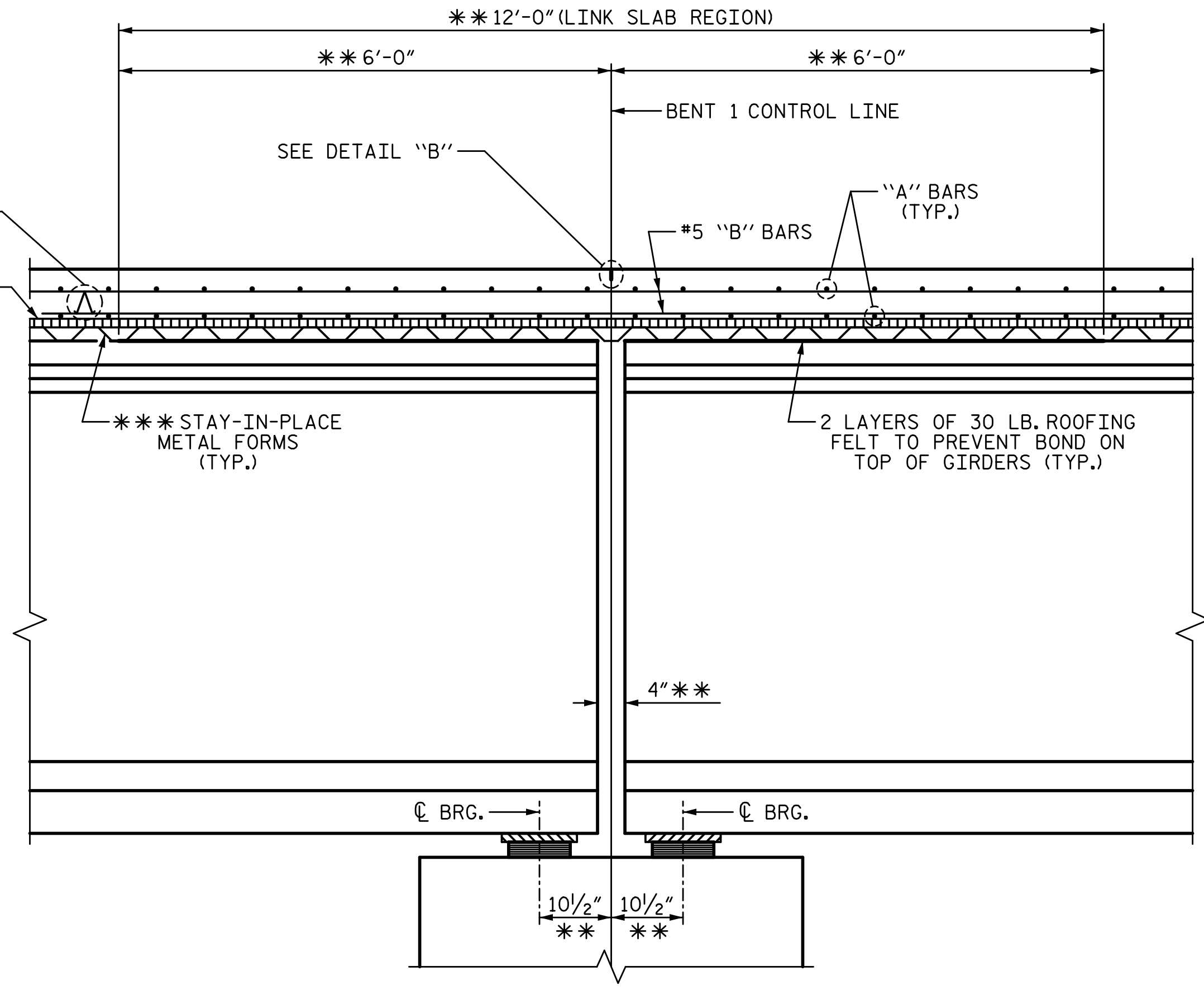
**NOTES:**  
 \*\* MEASURED ALONG C GIRDER.  
 \*\*\* METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO THE GIRDER FLANGES IN THE REGION OF THE LINK SLAB.  
 THE TOP OF GIRDER IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH (NOT RAKED) AND FREE OF STIRRUPS, ANCHOR STUDS, DECK FORMWORK ATTACHMENTS, AND OVERHANG FALSEWORK/FORMWORK ATTACHMENTS.



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



**SECTION A-A**  
(DIMENSIONS SHOWN ARE NORMAL TO THE END BENT UNLESS OTHERWISE NOTED)  
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



**SECTION B-B**

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE

**TYPICAL SECTION**



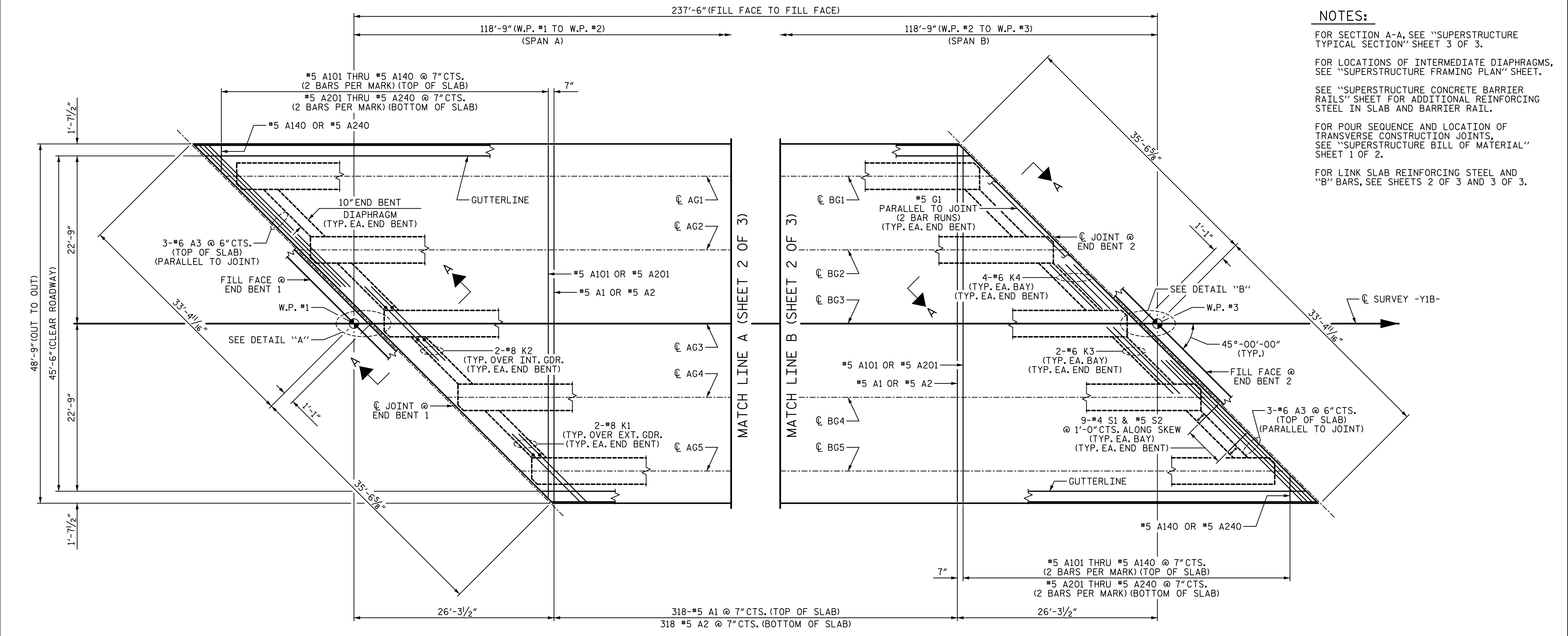
DRAWN BY: T. BANKOVICH DATE: 3-22  
 CHECKED BY: D.A. SEALEY DATE: 3-22  
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-8
1			3			TOTAL SHEETS
2			4			37

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**NOTES:**

FOR SECTION A-A, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 3 OF 3.

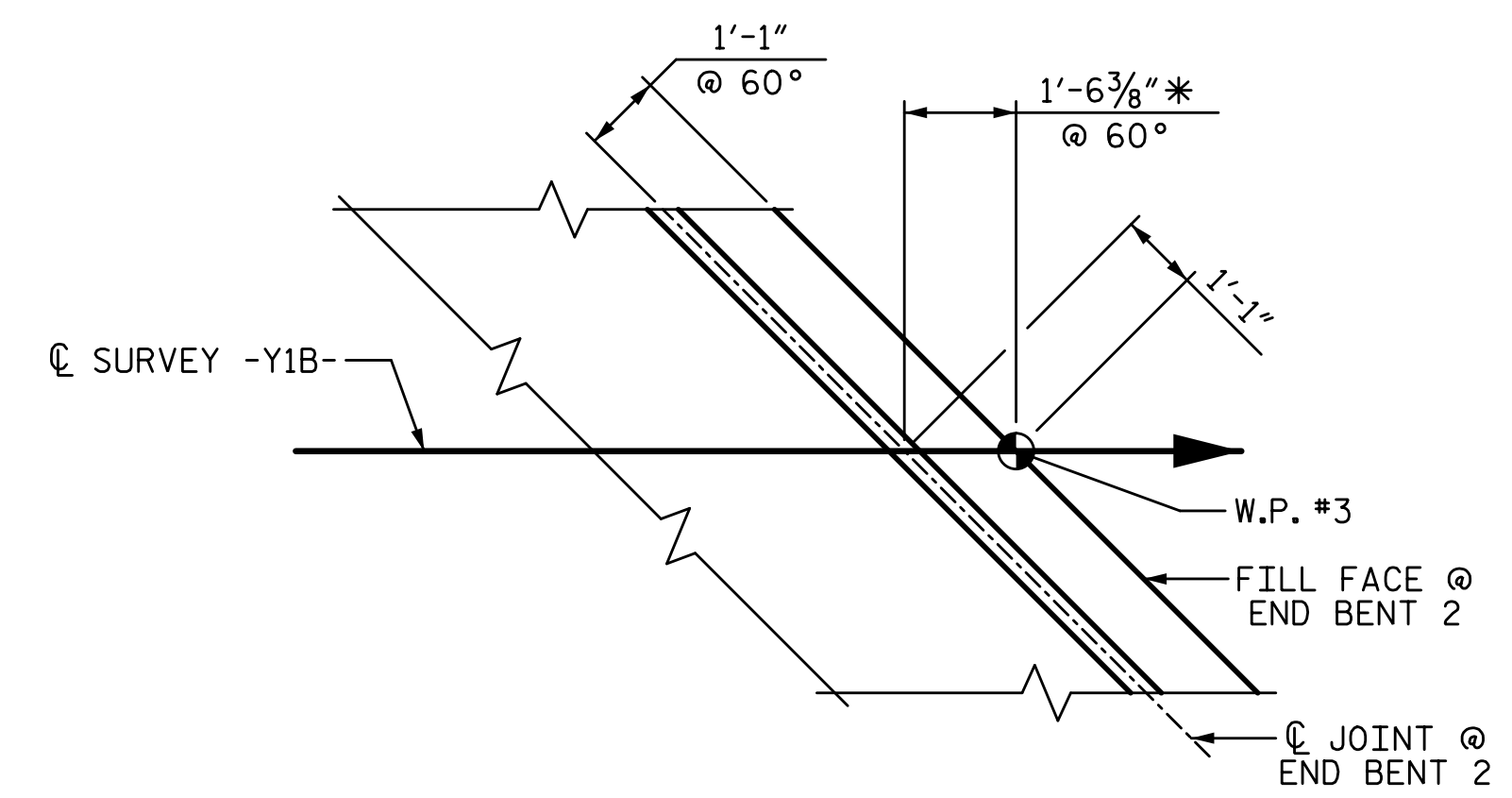
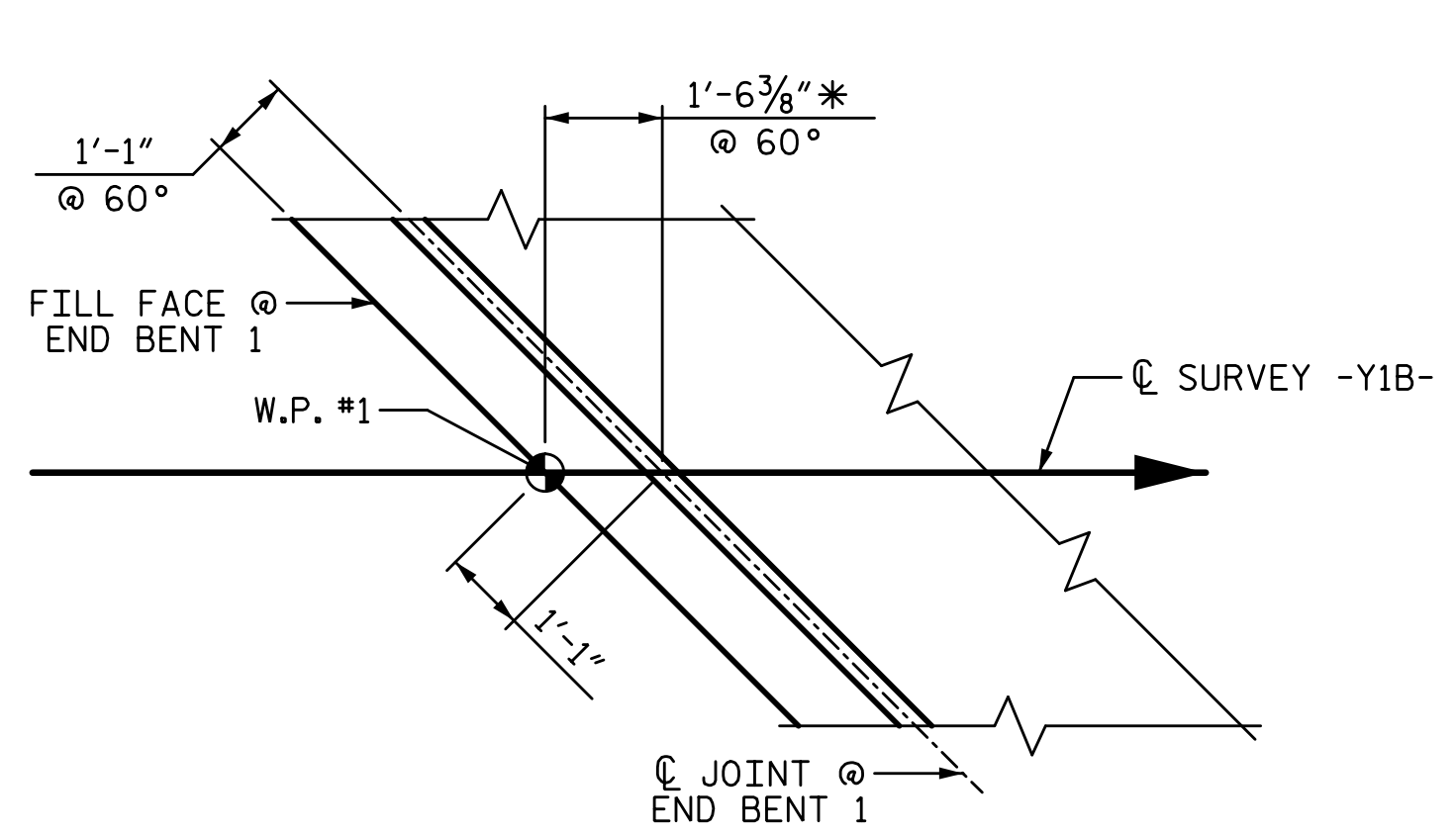
FOR LOCATIONS OF INTERMEDIATE DIAPHRAGMS, SEE "SUPERSTRUCTURE FRAMING PLAN" SHEET.

SEE "SUPERSTRUCTURE CONCRETE BARRIER RAILS" SHEET FOR ADDITIONAL REINFORCING STEEL IN SLAB AND BARRIER RAIL.

FOR POUR SEQUENCE AND LOCATION OF TRANSVERSE CONSTRUCTION JOINTS, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET 1 OF 2.

FOR LINK SLAB REINFORCING STEEL AND "B" BARS, SEE SHEETS 2 OF 3 AND 3 OF 3.

**PLAN OF SPANS**



PROJECT NO. I-5987B

ROBESON COUNTY

STATION: 29+51.04 -Y1B-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE

**PLAN OF SPANS**

DRAWN BY: T. BANKOVICH DATE: 3-22

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DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22



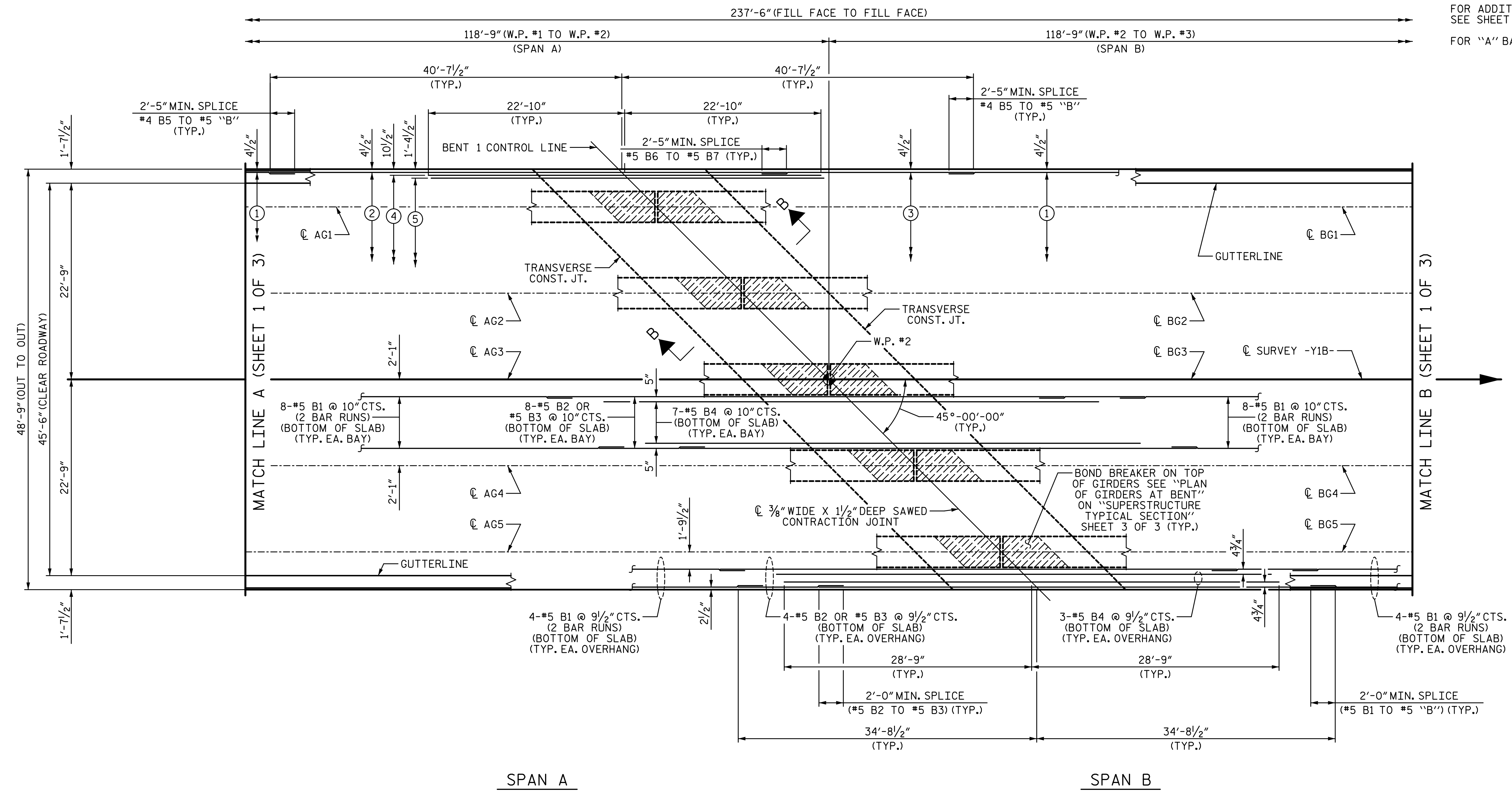
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NO.	BY:	DATE:	NO.	BY:	DATE:	S7-9
1			3			TOTAL SHEETS
2			4			37

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**NOTES:**  
 FOR SECTION B-B, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 3 OF 3.  
 FOR ADDITIONAL "B" BAR PLACEMENT DETAILS, SEE SHEET 3 OF 3.  
 FOR "A" BAR SPACING, SEE SHEET 1 OF 3.



**PLAN OF SPANS**

- ① 33-#4 B5 @ 1'-6" CTS. (3 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ② 33-#5 B6 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ③ 33-#5 B7 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ④ 32-#5 B8 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑤ 32-#5 B8 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

SHEET 2 OF 3

DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22



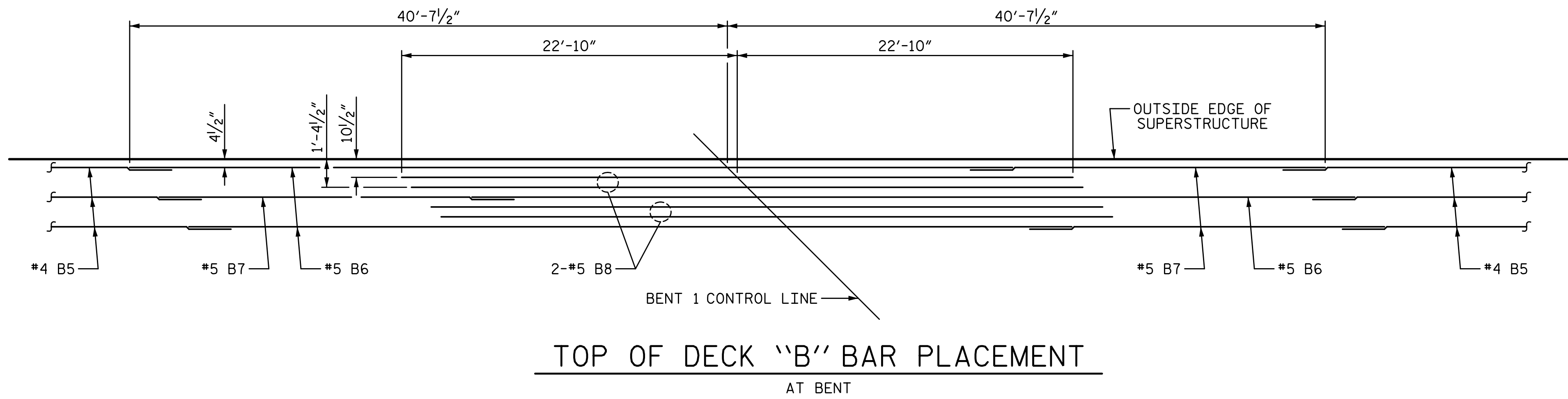
STATE OF NORTH CAROLINA  
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 RALEIGH  
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**PLAN OF SPANS**

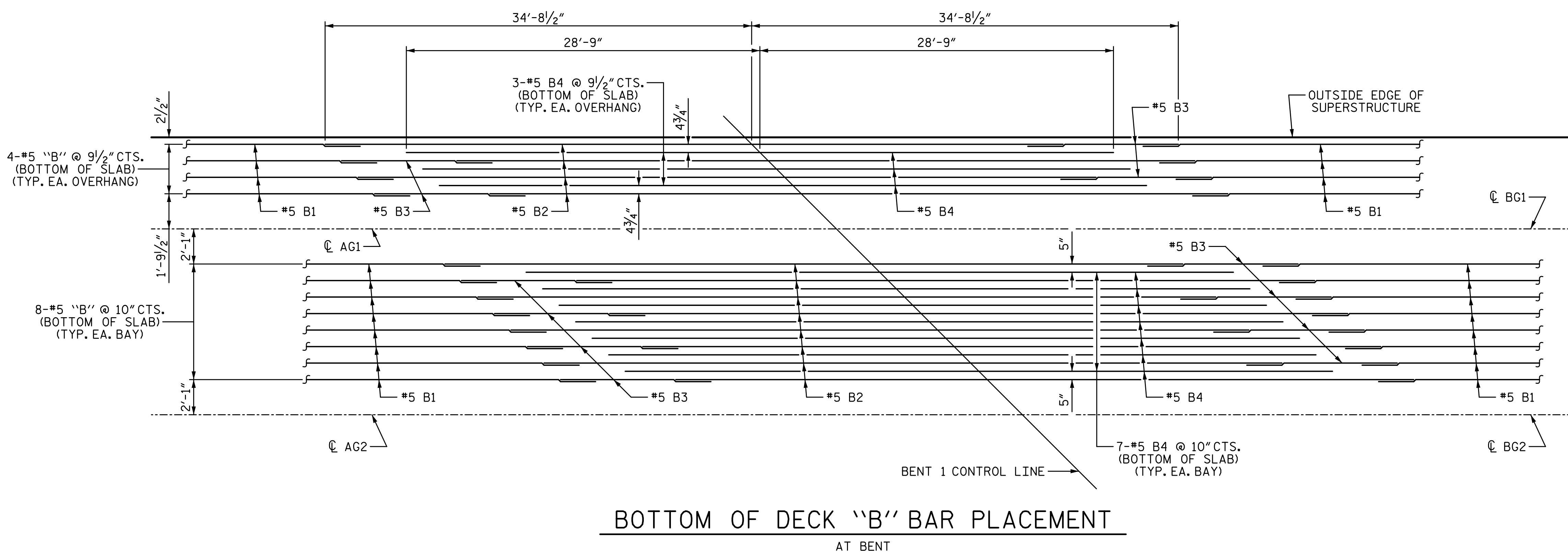
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NO.	BY:	DATE:	NO.	BY:	DATE:	S7-10
1			3			TOTAL SHEETS
2			4			37

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TOP OF DECK "B" BAR PLACEMENT  
AT BENT

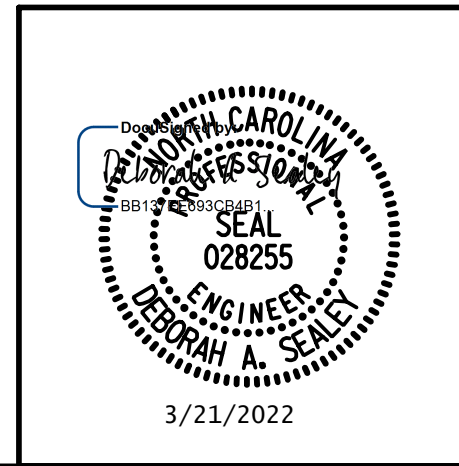


BOTTOM OF DECK "B" BAR PLACEMENT  
AT BENT

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 29+51.04 -Y1B-

SHEET 3 OF 3

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

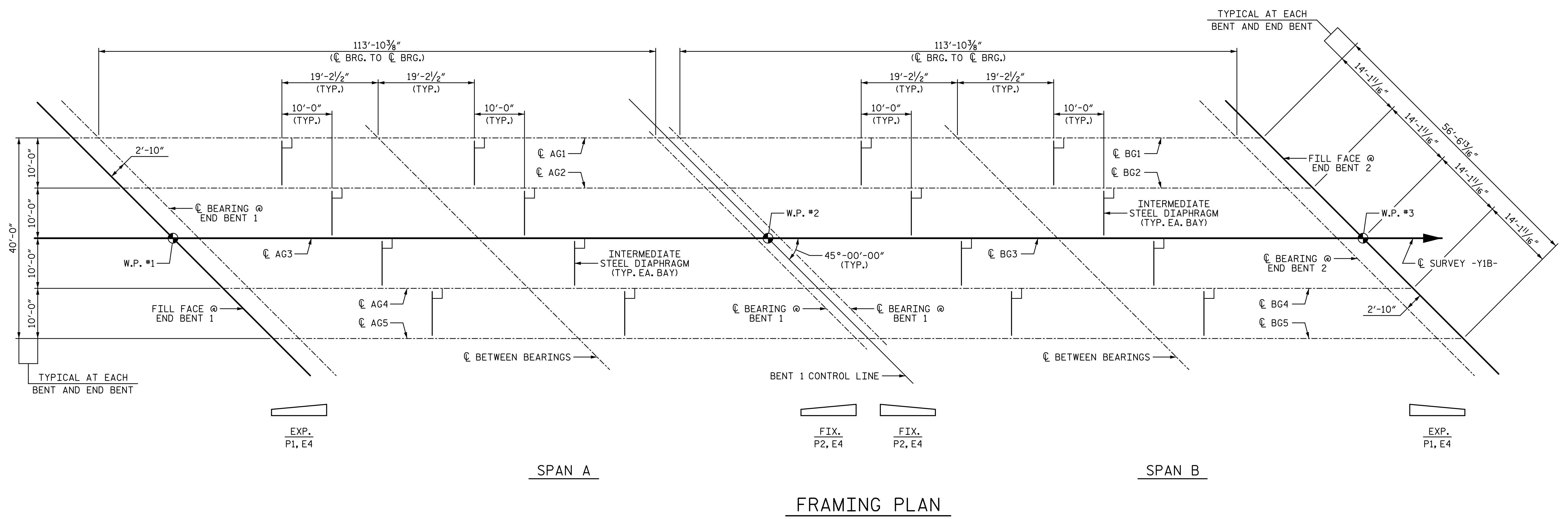


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DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

LICENSURE NO. C-4434						DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					
REVISIONS						SHEET NO.					
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1			3			TOTAL SHEETS					
2			4			37					



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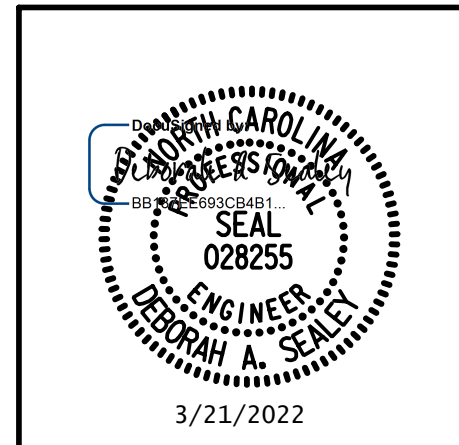
SPAN A

SPAN B

FRAMING PLAN

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN

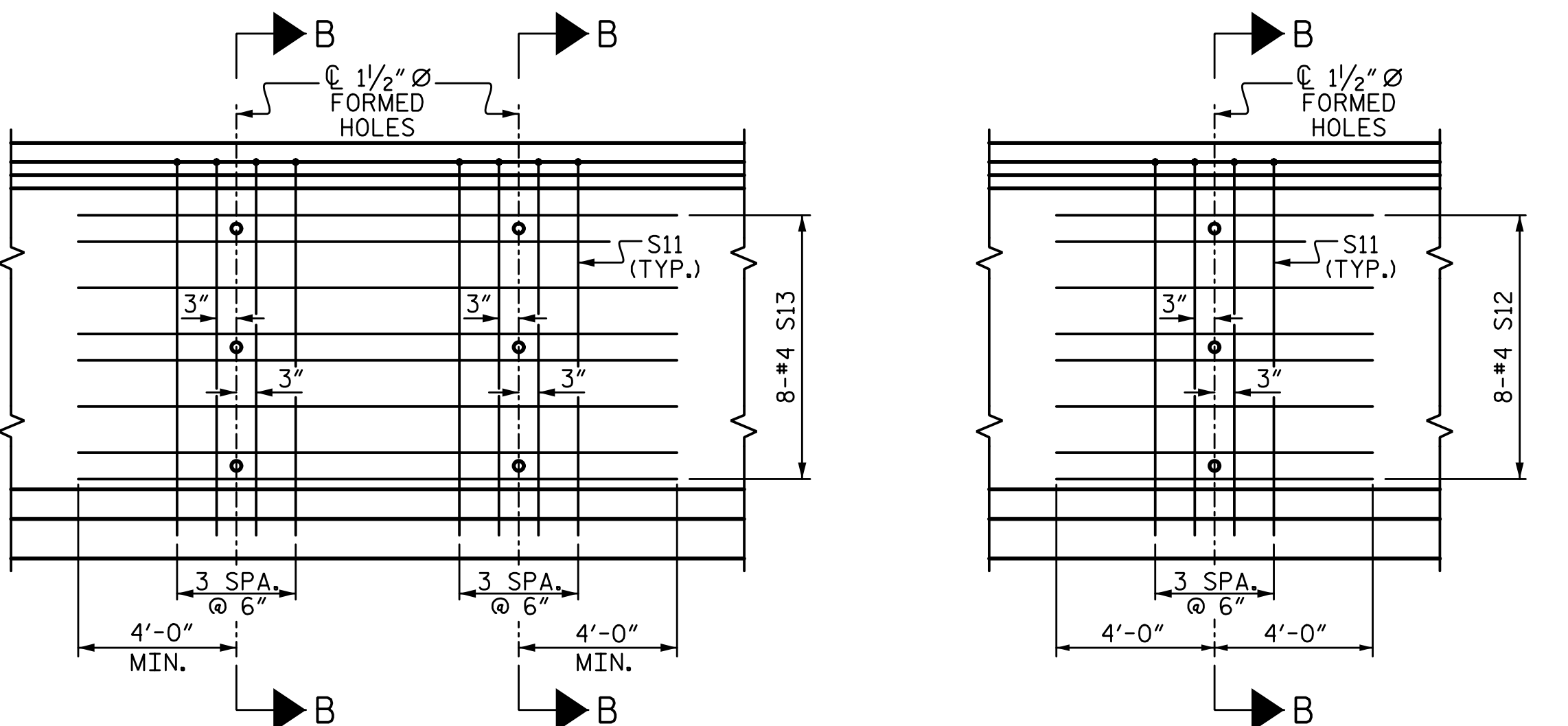


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NO.	BY:	DATE:	NO.	BY:	DATE:	S7-12
1			3			TOTAL SHEETS
2			4			37

DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

LICENSURE NO. C-4434  
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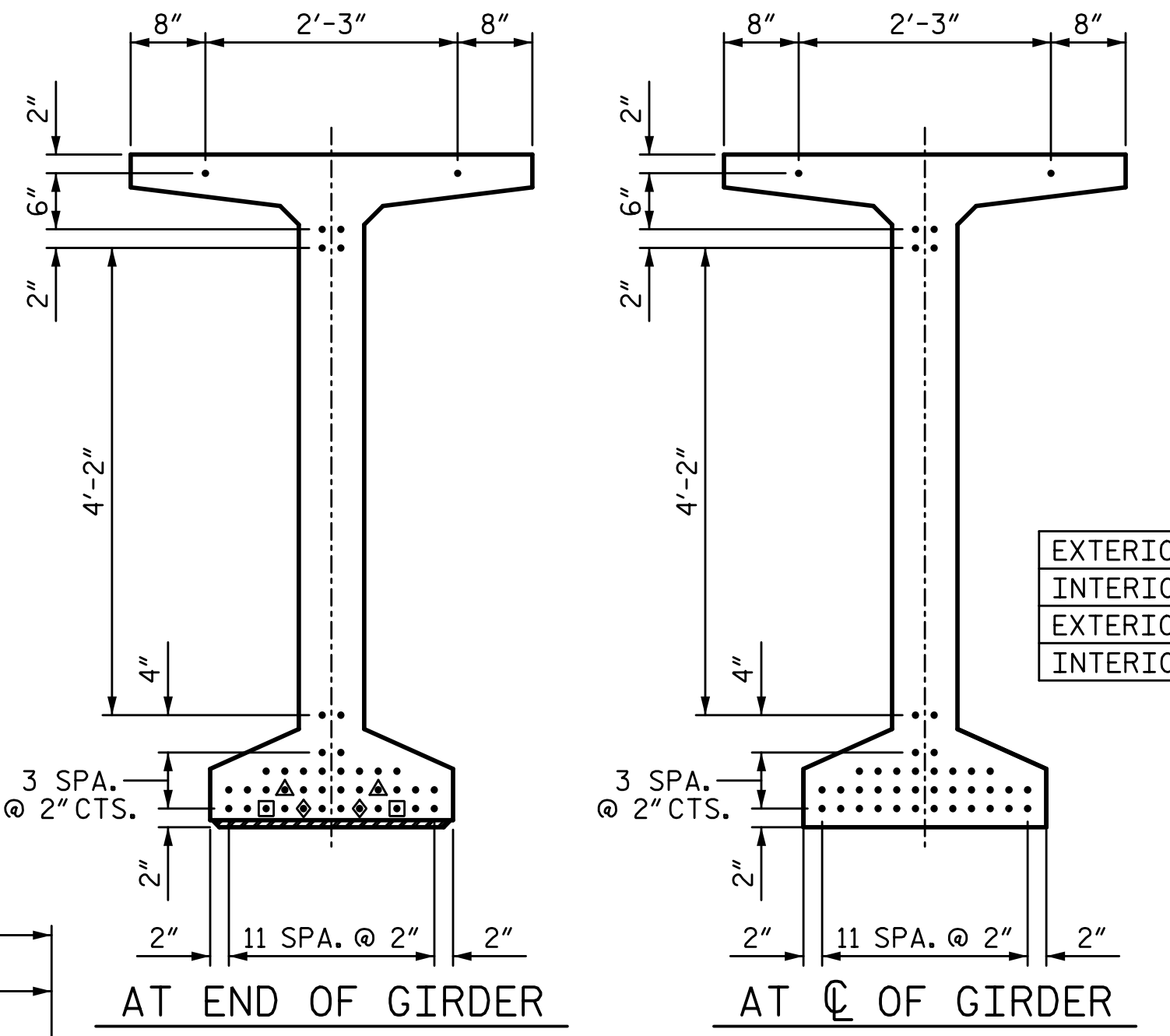


**PARTIAL ELEVATION**  
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR INTERIOR GIRDERS 2, 3 & 4.

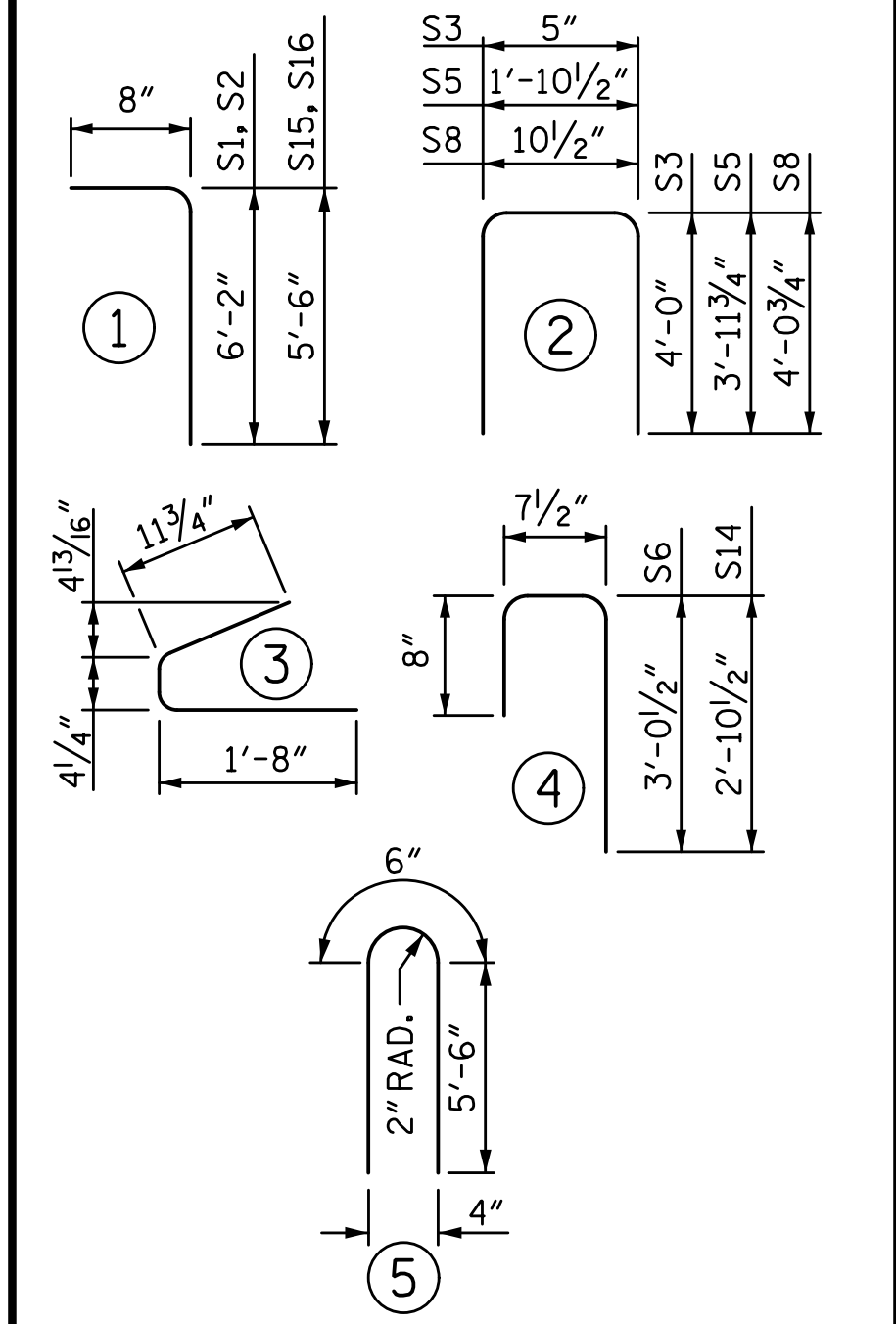
**PARTIAL ELEVATION**  
SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR EXTERIOR GIRDERS 1 & 5.

**DEBONDING LEGEND**

- FULLY BONDED STRAND
- ◻ STRAND DEBONDED FOR 4'-0" FROM END OF GIRDER
- ▲ STRAND DEBONDED FOR 12'-0" FROM END OF GIRDER
- ◆ STRAND DEBONDED FOR 20'-0" FROM END OF GIRDER

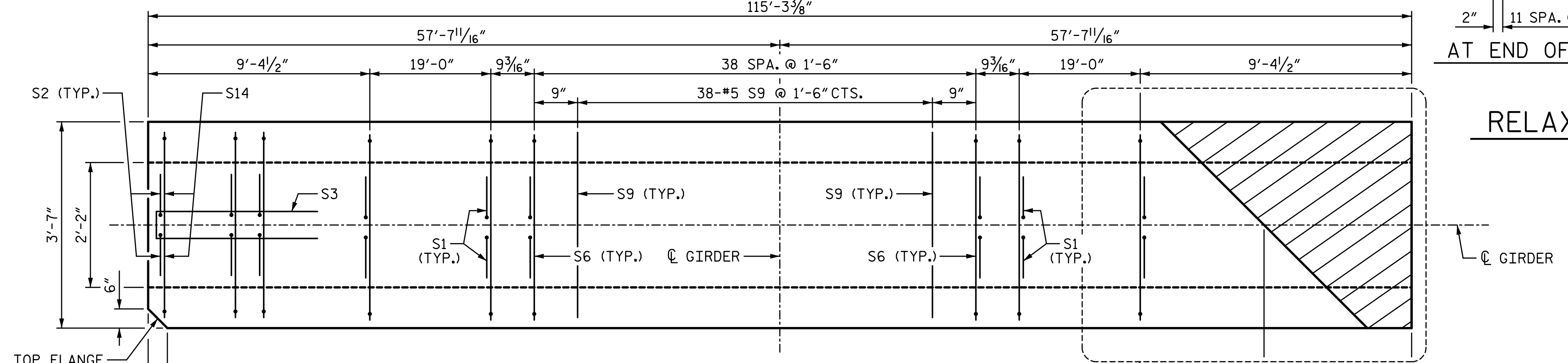


**0.6" Ø LOW RELAXATION STRAND LAYOUT**

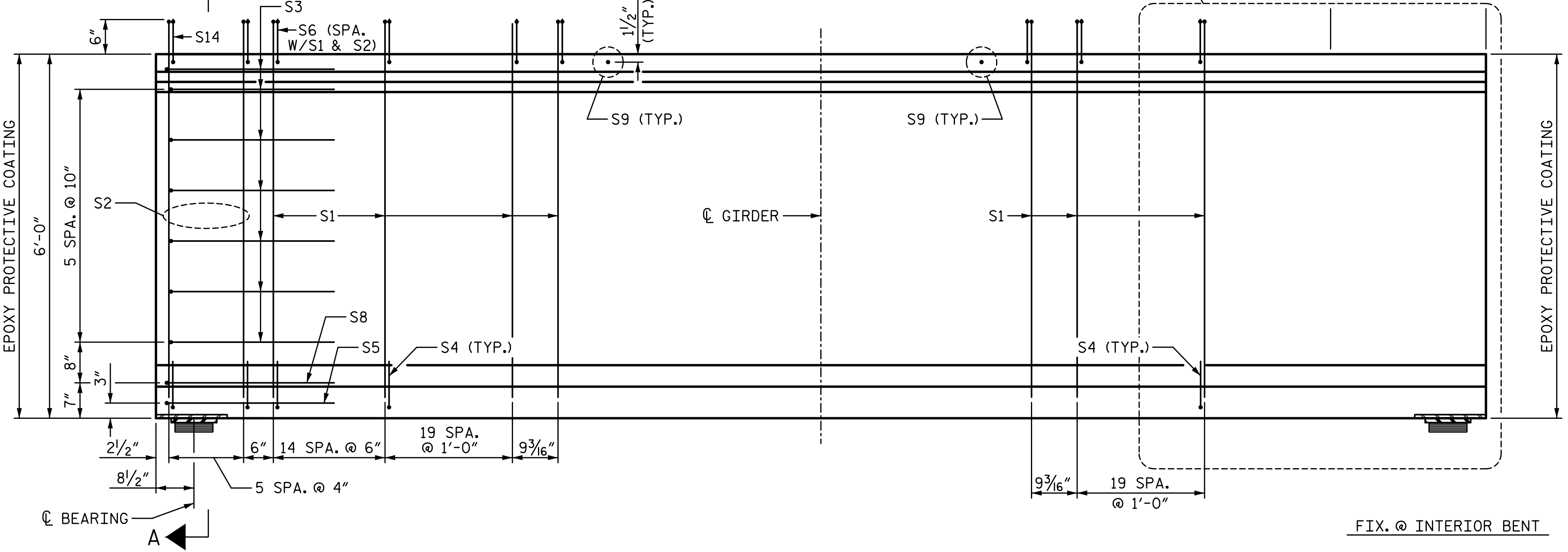


**NOTES:**  
FOR SECTION A-A, SEE SHEET 2 OF 2.  
FOR SECTION B-B, SEE SHEET 2 OF 2.

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	7500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB	CY	No.
EXTERIOR GIRDER	2738	24.7	42
INTERIOR GIRDER	2940	24.7	42
GIRDERS REQUIRED			
NUMBER	LENGTH	TOTAL LENGTH	
10	115'-3 3/8"	1152.81'	



**PLAN OF GIRDER**



**ELEVATION OF GIRDER**

\*\* DO NOT ROUGHEN TOP OF GIRDER IN THIS AREA. (SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

DRAWN BY: T. BANKOVICH DATE: 3-22  
CHECKED BY: D.A. SEALEY DATE: 3-22  
DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22



PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 29+51.04 -Y1B-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
72" PRESTRESSED  
CONCRETE MODIFIED  
BULB TEE  
SPANS A & B

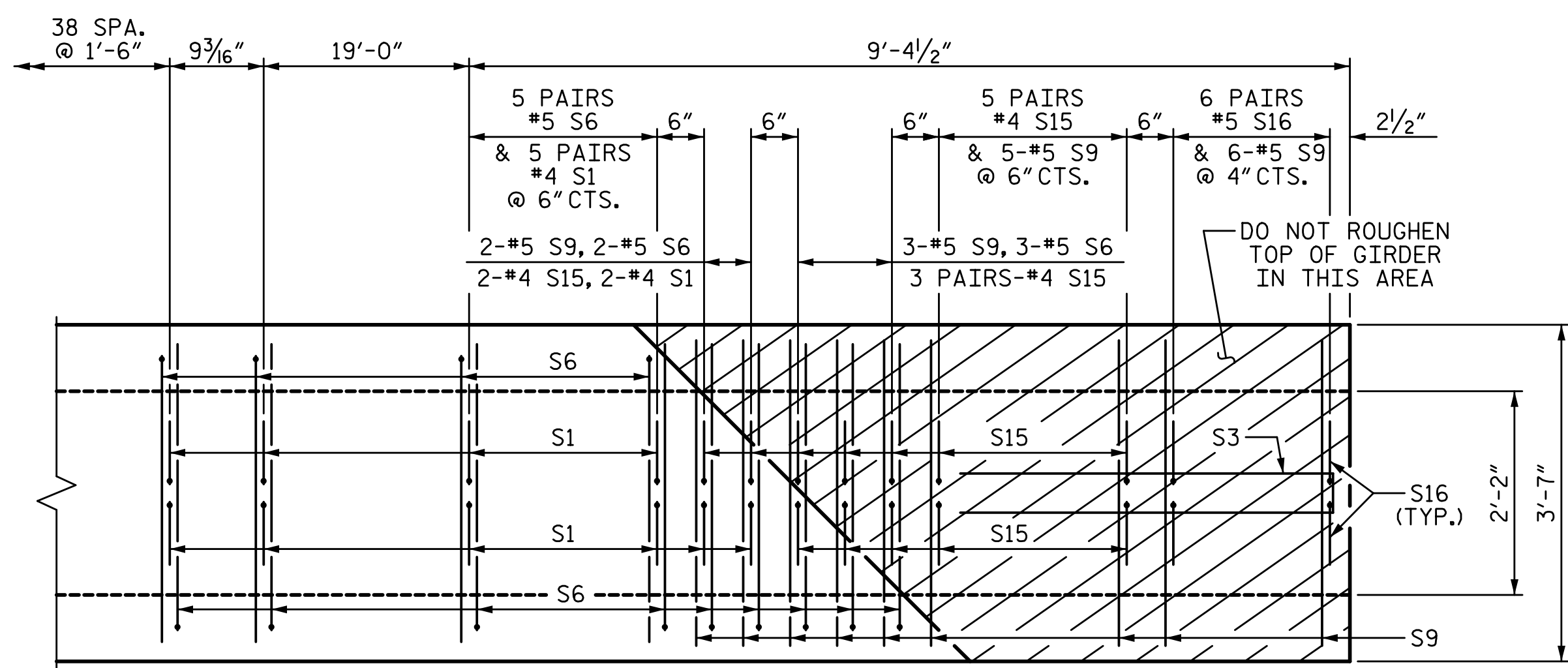
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 37

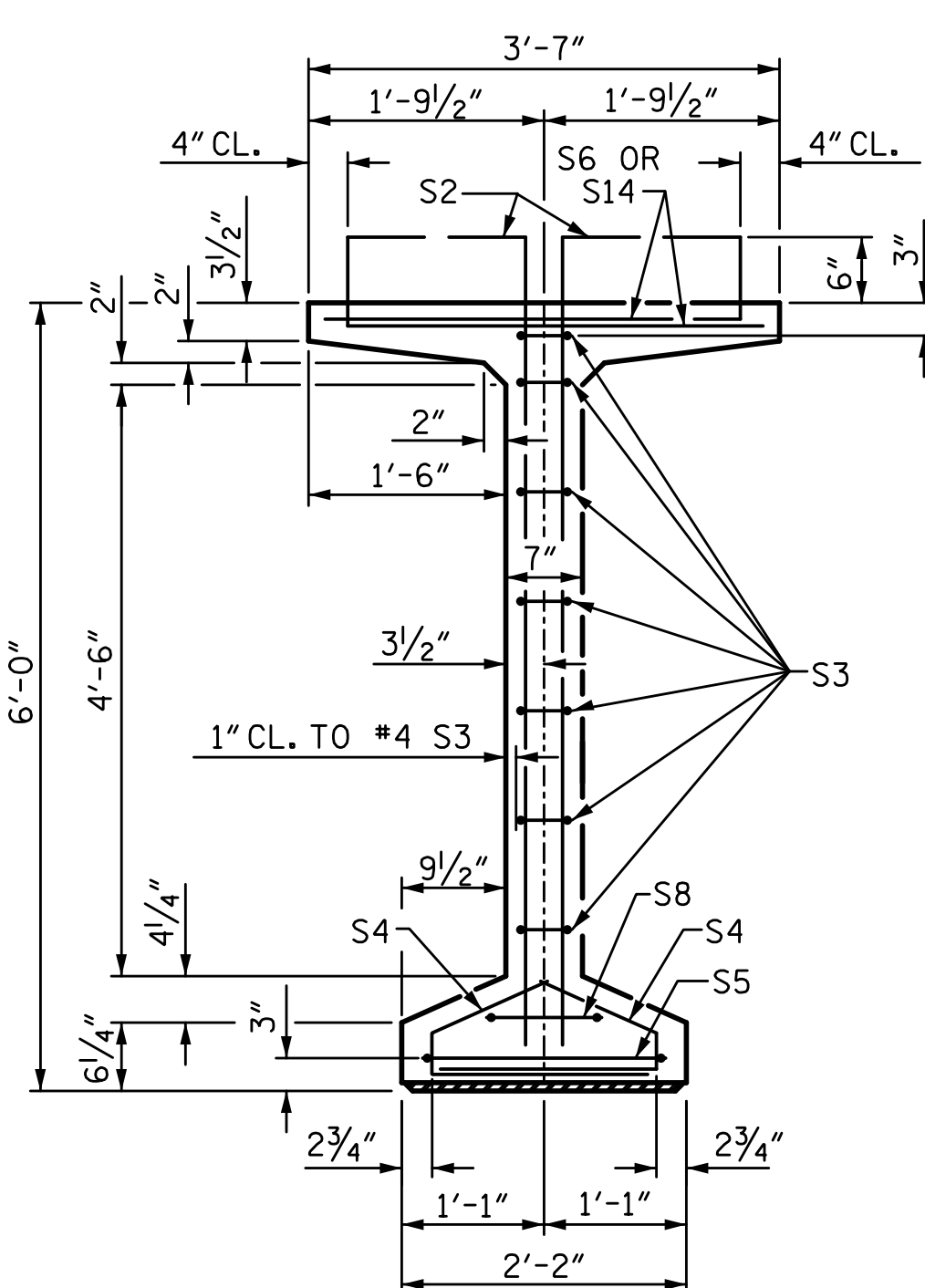
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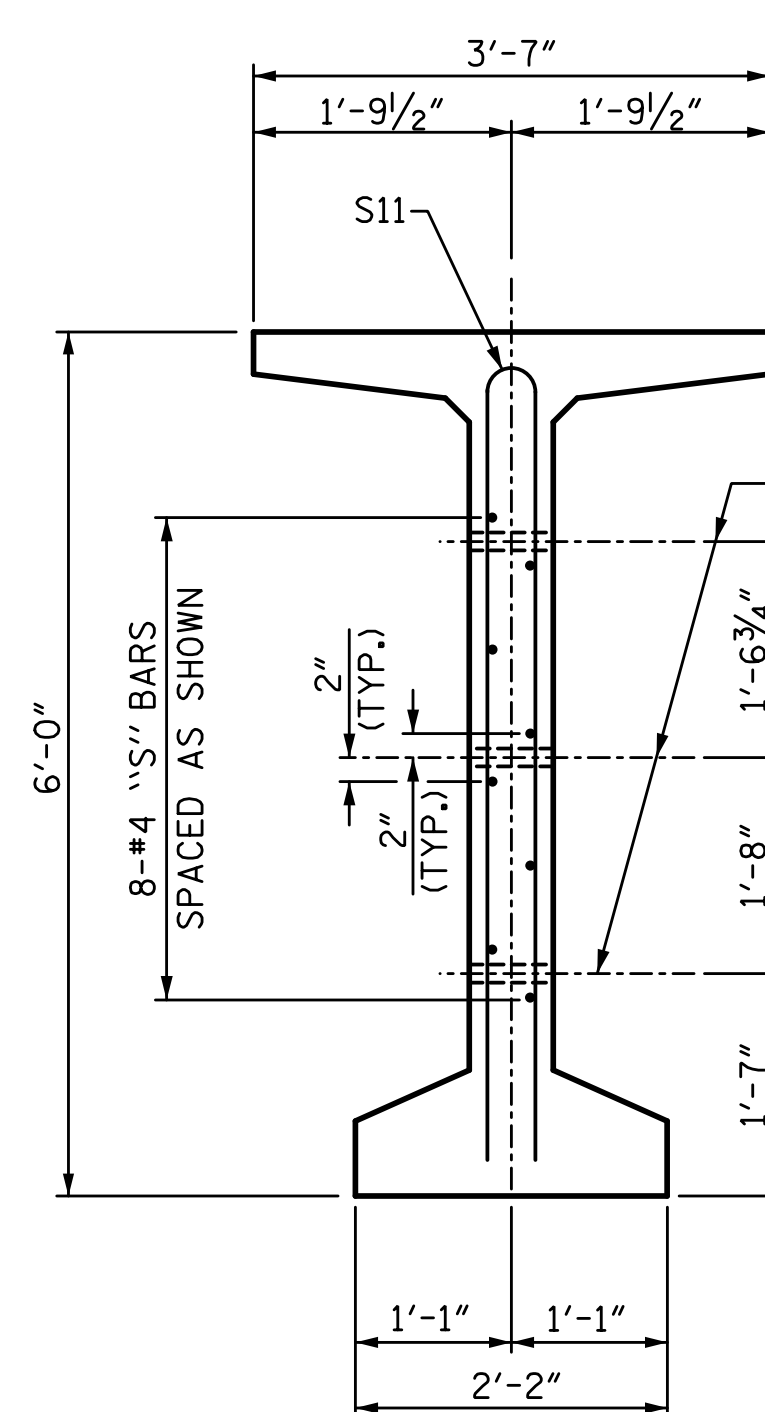
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PLAN OF GIRDER

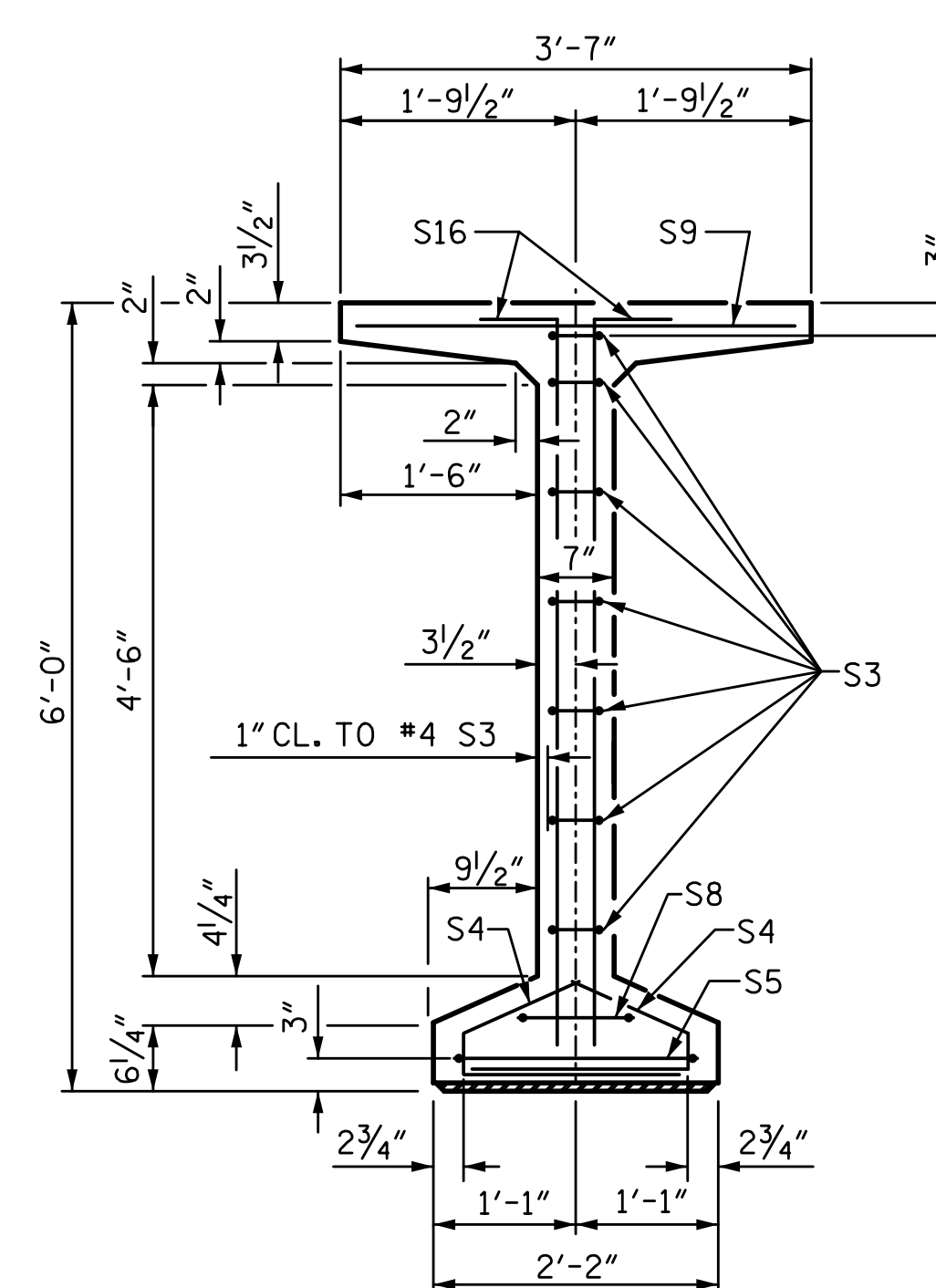


SECTION A-A

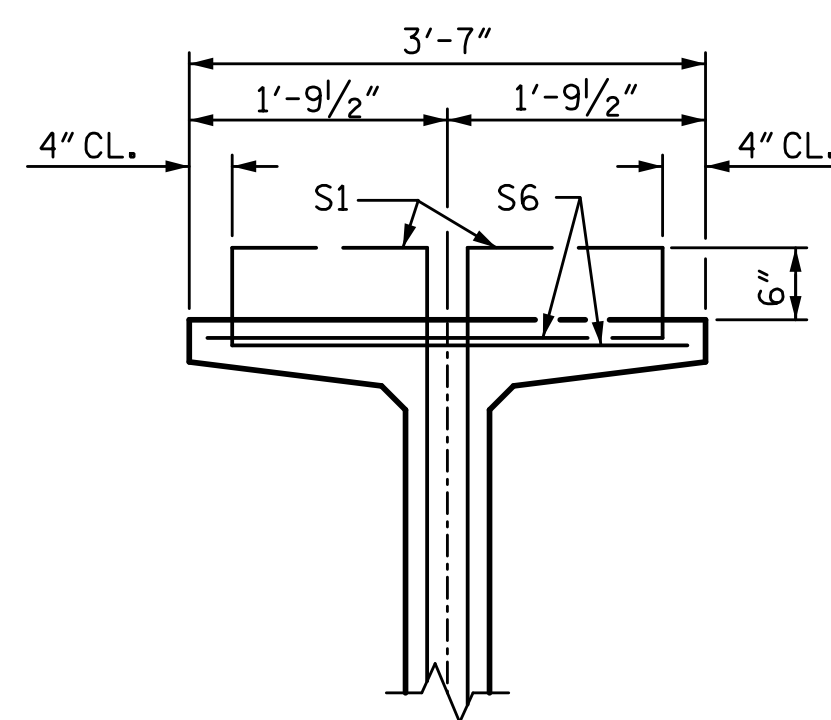


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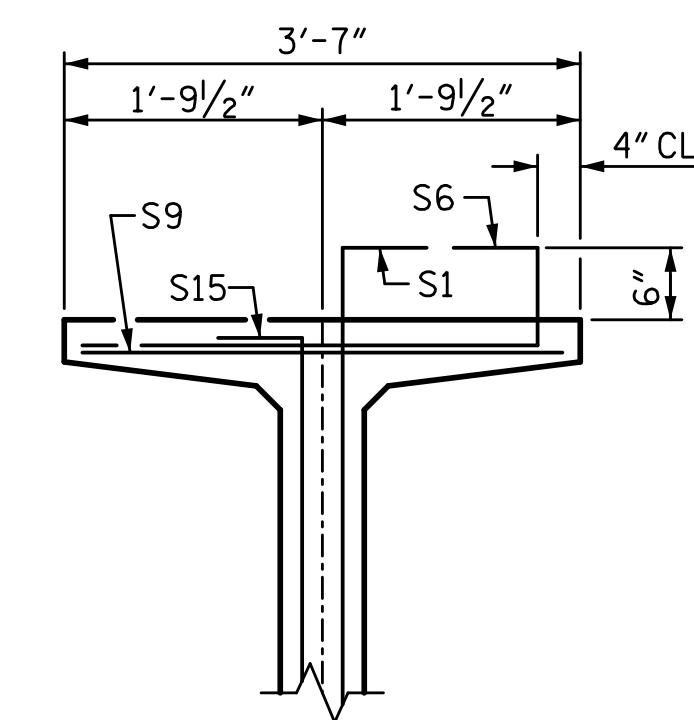
(S1, S6 AND S9 BARS NOT SHOWN)



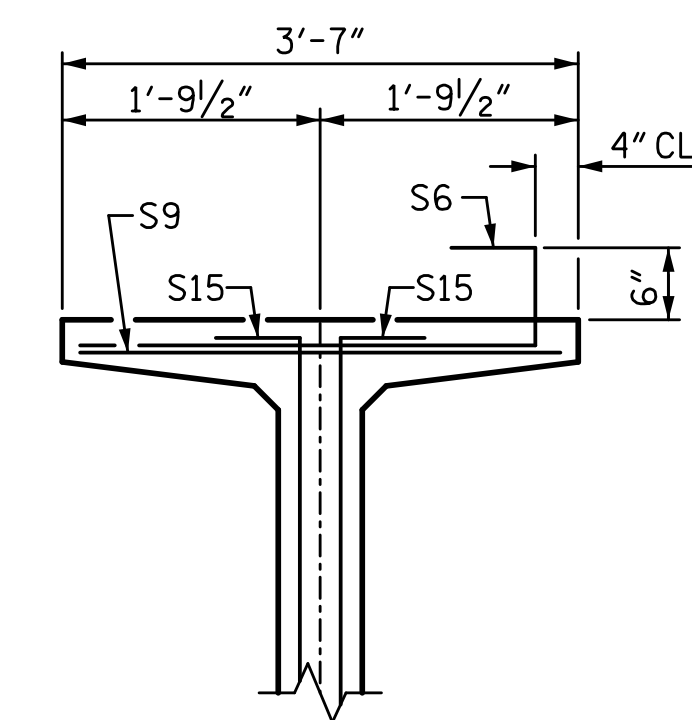
SECTION F-F



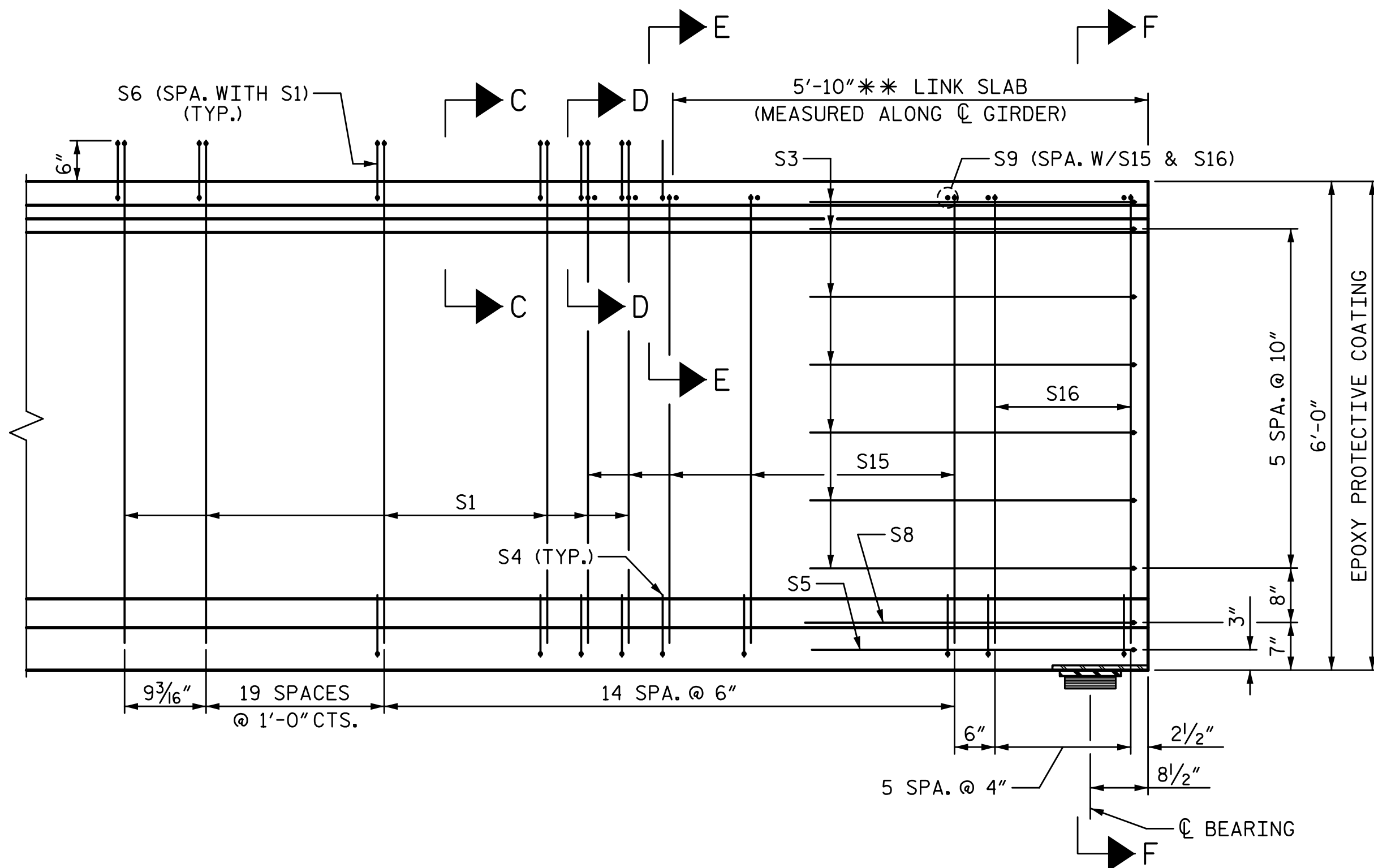
PARTIAL SECTION C-C  
SHOWING "S" BARS



PARTIAL SECTION D-D  
SHOWING "S" BARS



PARTIAL SECTION E-E  
SHOWING "S" BARS



ELEVATION OF GIRDER

\*\* DO NOT ROUGHEN TOP OF GIRDER IN THIS AREA.

DETAIL "B"

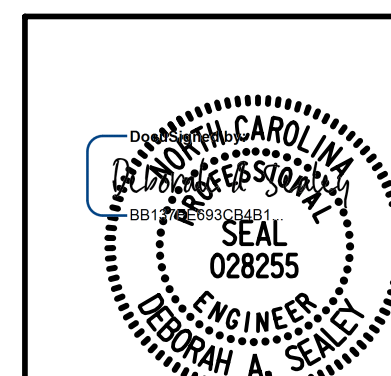
PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 29+51.04 -Y1B-

SHEET 2 OF 2



5640 Dillard Drive, Suite 200  
Cary, NC 27518

LICENSURE NO. C-4434



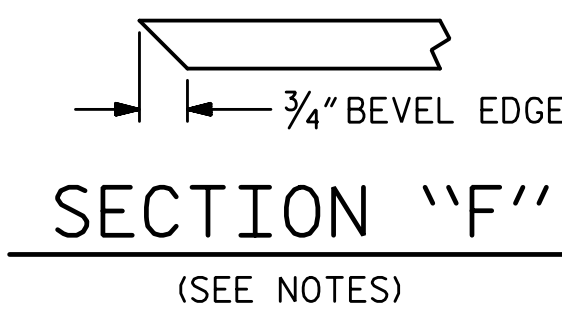
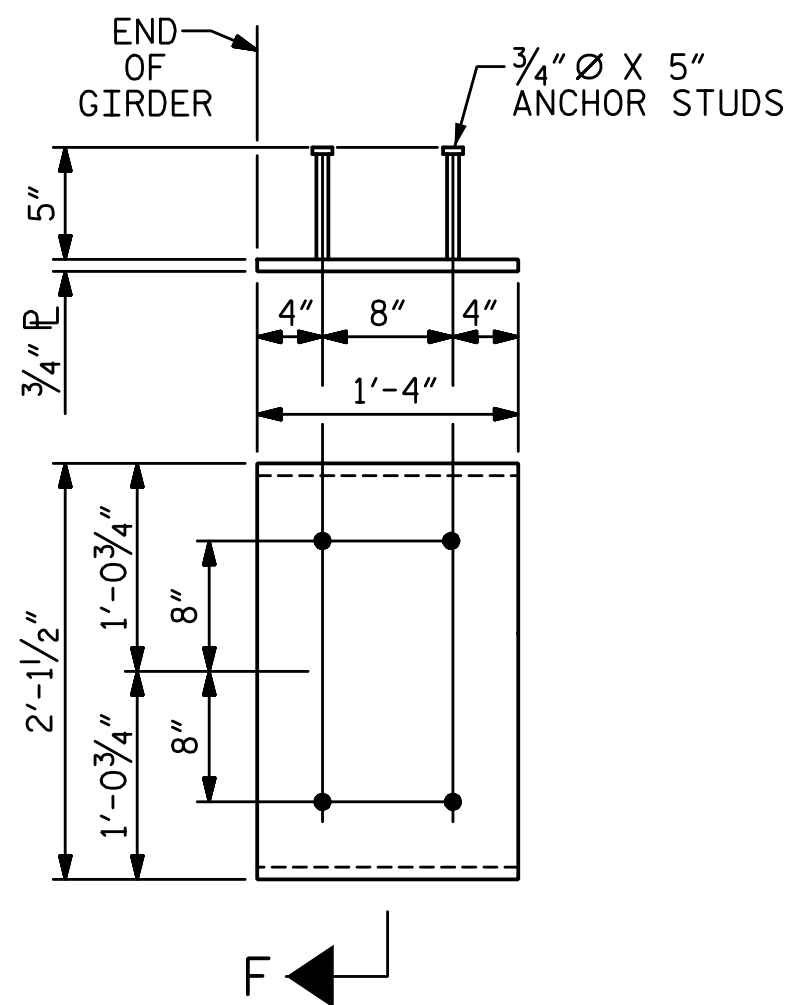
3/21/2022

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
72" PRESTRESSED  
CONCRETE MODIFIED  
BULB TEE  
SPANS A & B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-14
1			3			TOTAL SHEETS
2			4			37

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**EMBEDDED PLATE "B-1" DETAILS  
FOR 72" MODIFIED BULB TEE**  
(2 REQ'D PER GIRDER)

**NOTES:**

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

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

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

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE.

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 REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

**DEAD LOAD DEFLECTION TABLE FOR GIRDERS**

		SPAN A & B																																									
0.6" Ø LOW RELAXATION		GIRDER 1 & 5																																									
FORTIETH POINTS		0	.025	0.050	.075	.100	.125	.150	.175	.200	.225	.250	.275	.300	.325	.350	.375	.400	.425	.450	.475	.500	.525	.550	.575	.600	.625	.650	.675	.700	.725	.750	.775	.800	.825	.850	.875	.900	.925	.950	.975	1.000	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.020	0.040	0.060	0.080	0.099	0.118	0.135	0.152	0.168	0.182	0.196	0.208	0.219	0.229	0.237	0.244	0.249	0.253	0.255	0.256	0.255	0.253	0.249	0.244	0.237	0.229	0.219	0.208	0.196	0.182	0.168	0.152	0.135	0.118	0.099	0.080	0.060	0.040	0.020	0	
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.010	0.022	0.035	0.047	0.059	0.070	0.081	0.091	0.101	0.110	0.119	0.126	0.133	0.139	0.144	0.149	0.152	0.154	0.156	0.156	0.156	0.154	0.152	0.149	0.144	0.139	0.133	0.126	0.119	0.110	0.101	0.091	0.081	0.070	0.059	0.047	0.035	0.022	0.010	0	
FINAL CAMBER	↑	0	1/8"	3/16"	5/16"	3/8"	1/2"	9/16"	5/8"	3/4"	13/16"	7/8"	15/16"	1"	1 1/16"	1 1/16"	1 1/8"	1 1/8"	1 3/16"	1 3/16"	1 3/16"	1 3/16"	1 3/16"	1 3/16"	1 3/16"	1 1/8"	1 1/8"	1 1/16"	1 1/16"	1"	15/16"	7/8"	13/16"	13/16"	3/4"	5/8"	9/16"	1/2"	3/8"	5/16"	3/16"	1/8"	0

		SPAN A & B																																								
0.6" Ø LOW RELAXATION		GIRDER 2, 3 & 4																																								
FORTIETH POINTS		0	.025	0.050	.075	.100	.125	.150	.175	.200	.225	.250	.275	.300	.325	.350	.375	.400	.425	.450	.475	.500	.525	.550	.575	.600	.625	.650	.675	.700	.725	.750	.775	.800	.825	.850	.875	.900	.925	.950	.975	1.000
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.020	0.040	0.060	0.080	0.099	0.118	0.135	0.152	0.168	0.182	0.196	0.208	0.219	0.229	0.237	0.244	0.249	0.253	0.255	0.256	0.255	0.253	0.249	0.244	0.237	0.229	0.219	0.208	0.196	0.182	0.168	0.152	0.135	0.118	0.099	0.080	0.060	0.040	0.020	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.010	0.023	0.036	0.049	0.062	0.074	0.086	0.097	0.107	0.117	0.126	0.134	0.141	0.147	0.153	0.157	0.161	0.163	0.165	0.165	0.165	0.163	0.161	0.157	0.153	0.147	0.141	0.134	0.126	0.117	0.107	0.097	0.086	0.074	0.062	0.050	0.037	0.023	0.010	0
FINAL CAMBER	↑	0	1/8"	3/16"	5/16"	3/8"	7/16"	1/2"	5/8"	11/16"	3/4"	13/16"	13/16"	7/8"	15/16"	1"	1"	1 1/16"	1 1/16"	1 1/16"	1 1/16"	1 1/16"	1 1/16"	1 1/16"	1 1/16"	1 1/16"	1"	1"	15/16"	7/8"	13/16"	13/16"	3/4"	11/16"	5/8"	1/2"	7/16"	3/8"	5/16"	3/16"	1/8"	0

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

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 29+51.04 -Y1B-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
**PRESTRESSED CONCRETE  
GIRDER DETAILS  
AND CAMBER**

DRAWN BY: T. BANKOVICH DATE: 3-22  
CHECKED BY: D.A. SEALEY DATE: 3-22  
DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22

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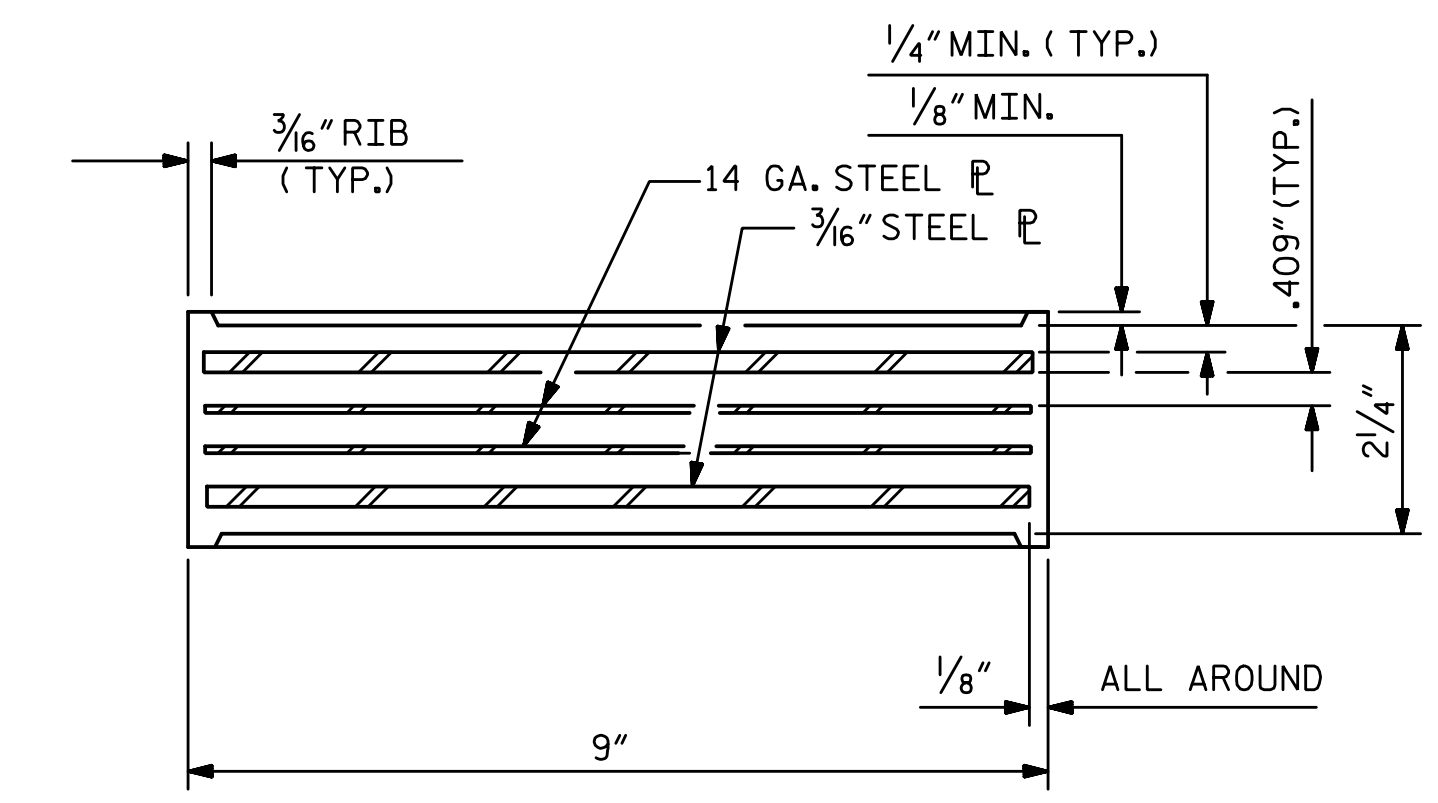
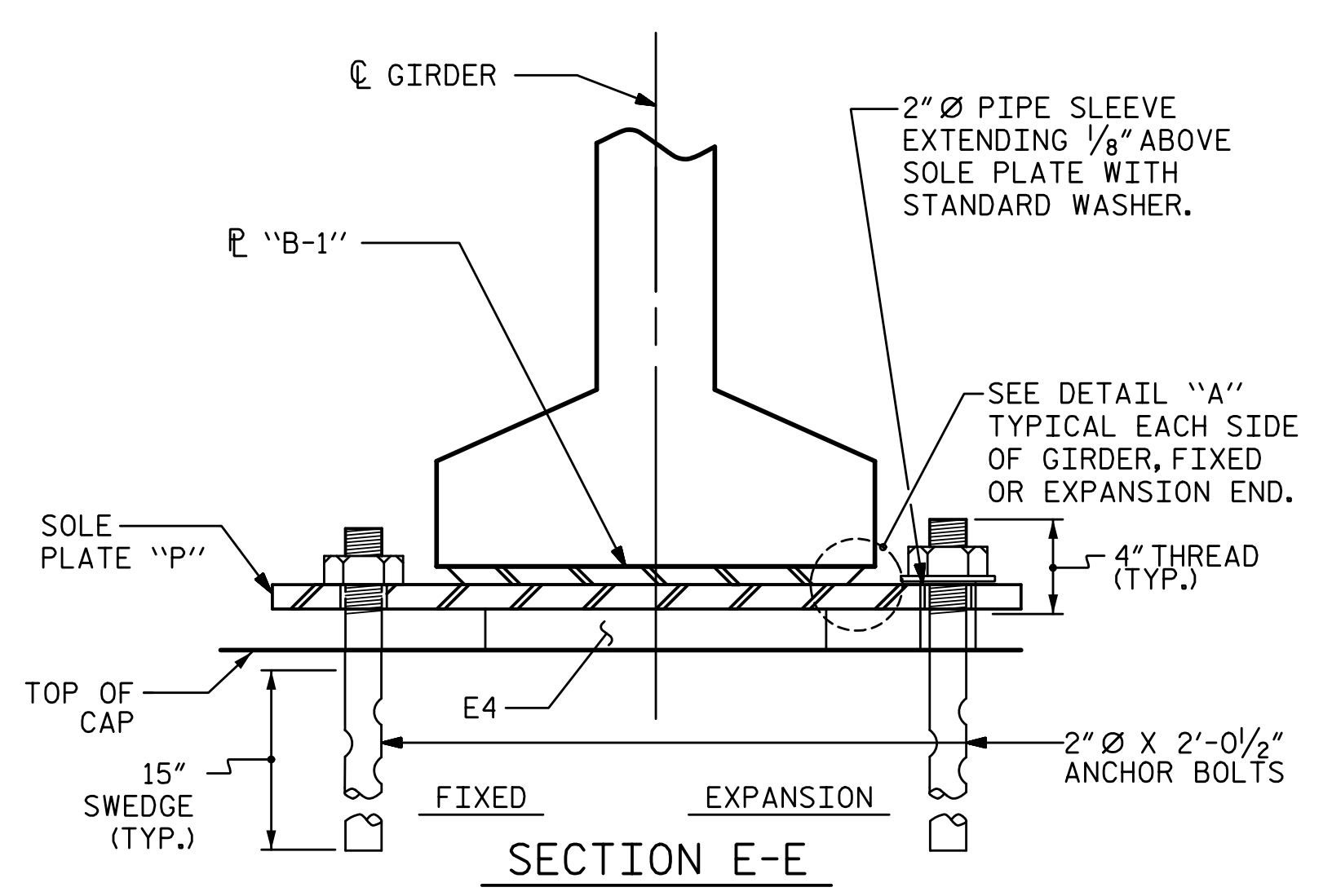
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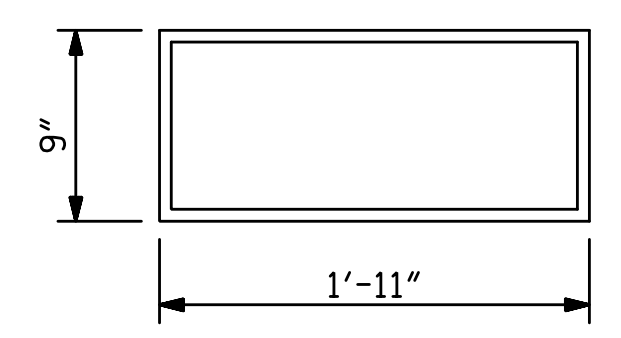




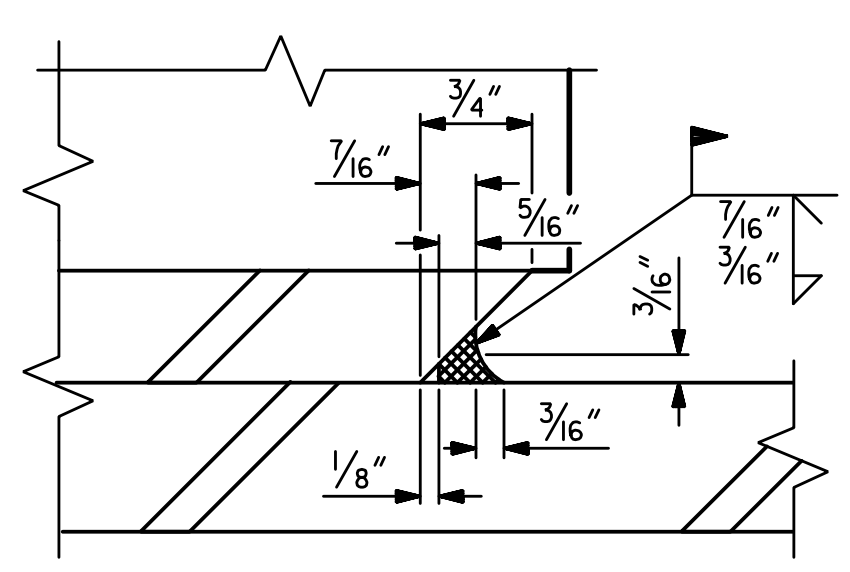
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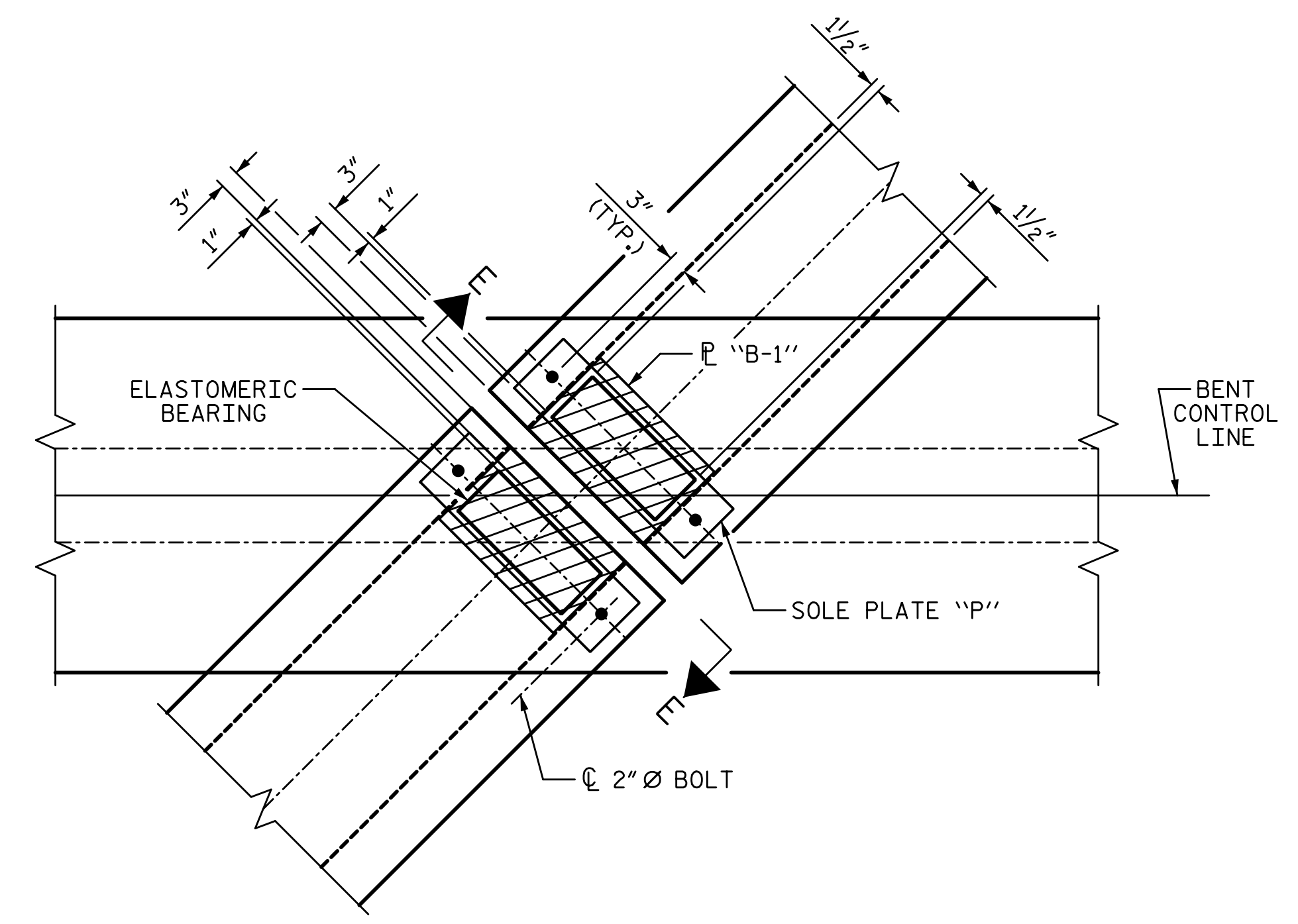
TYPICAL SECTION OF ELASTOMERIC BEARINGS



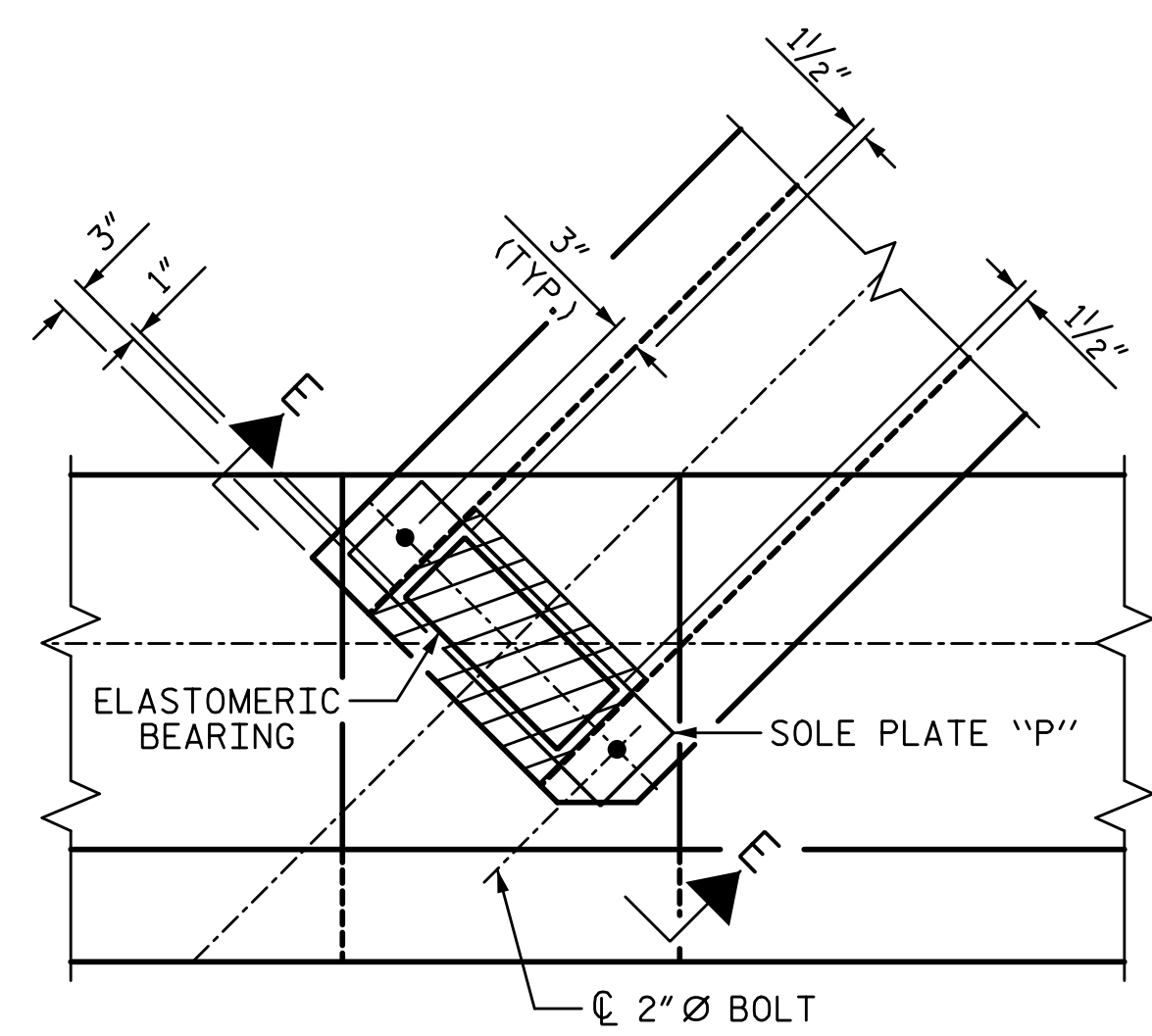
E4 (20 REQ'D)  
PLAN VIEW OF ELASTOMERIC BEARING  
TYPE V



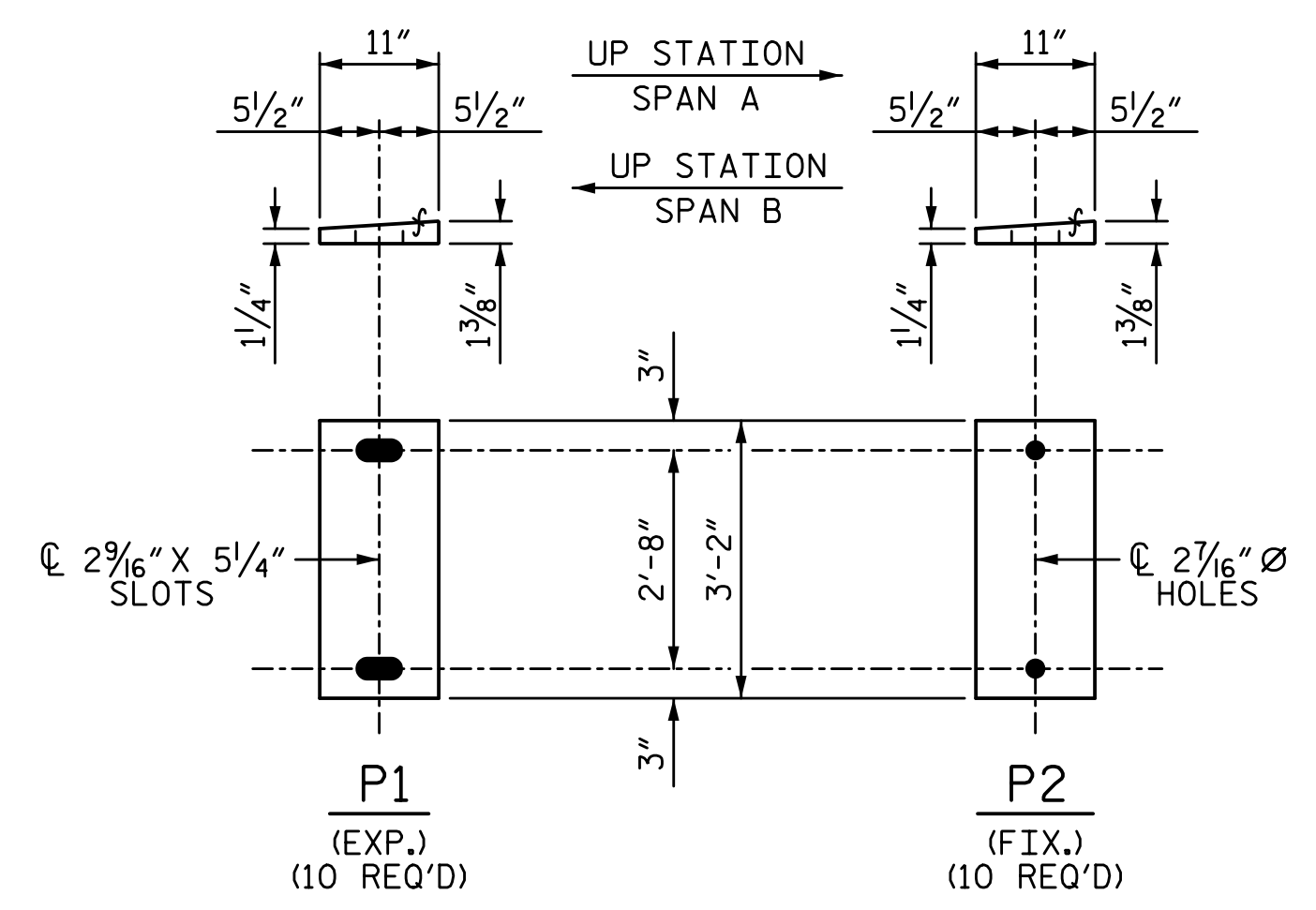
DETAIL "A"



TYPICAL PLAN  
(SHOWING LINK SLAB BENT)



TYPICAL PLAN  
(SHOWING END BENT)



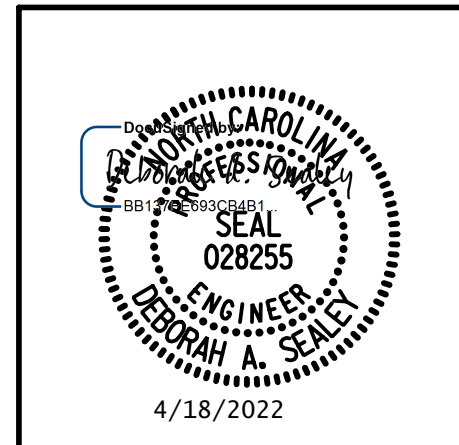
SOLE PLATE DETAILS ("P")  
SEE FRAMING PLAN FOR SOLE PLATE ORIENTATION

**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. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.
- ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.
- THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.
- FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.
- ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

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

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE

## ELASTOMERIC BEARING DETAILS

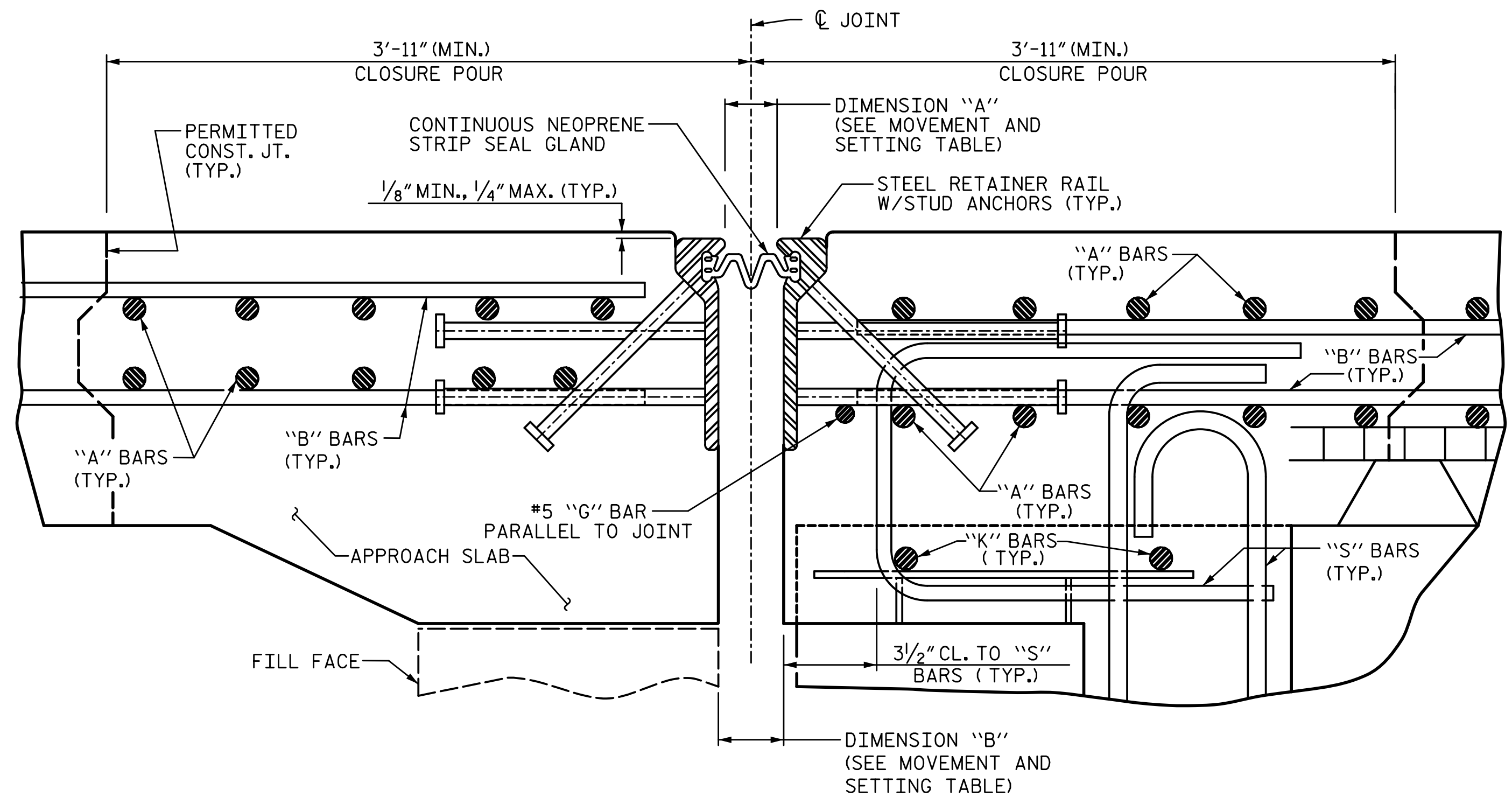
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CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

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2			4			37

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**STRIP SEAL EXPANION JOINT DETAILS**  
SECTION NORMAL TO JOINT

**JOINT INSTALLATION PROCEDURE:**

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

**GENERAL NOTES:**

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

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

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

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

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

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

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

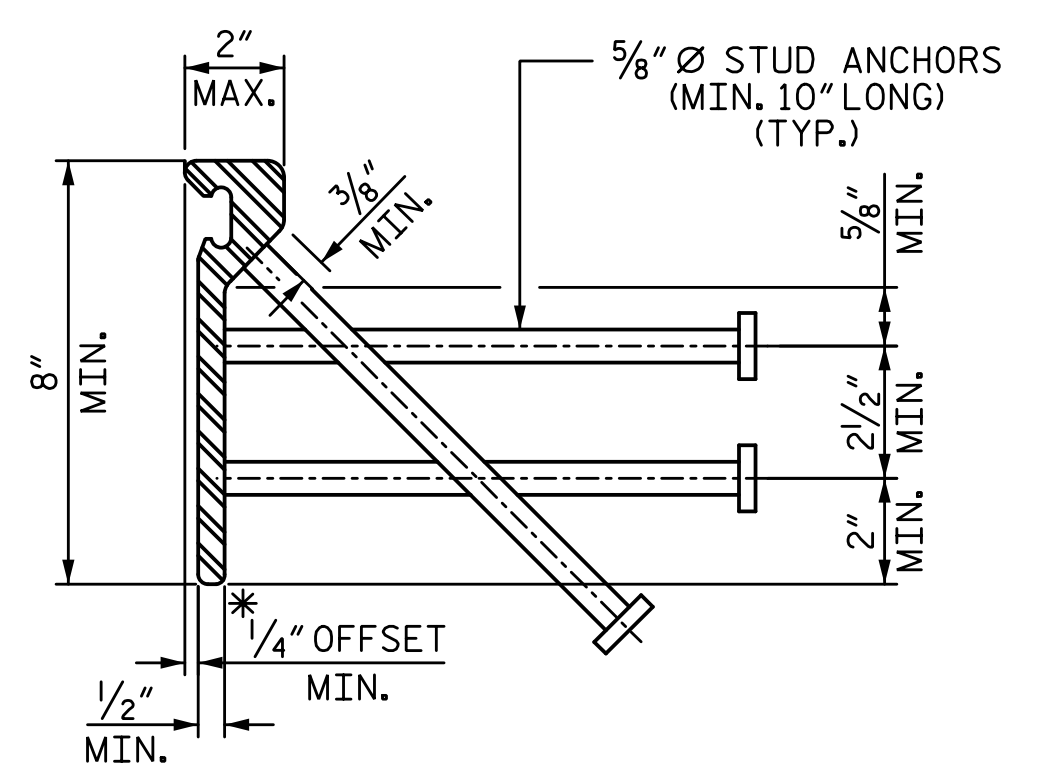
FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

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

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

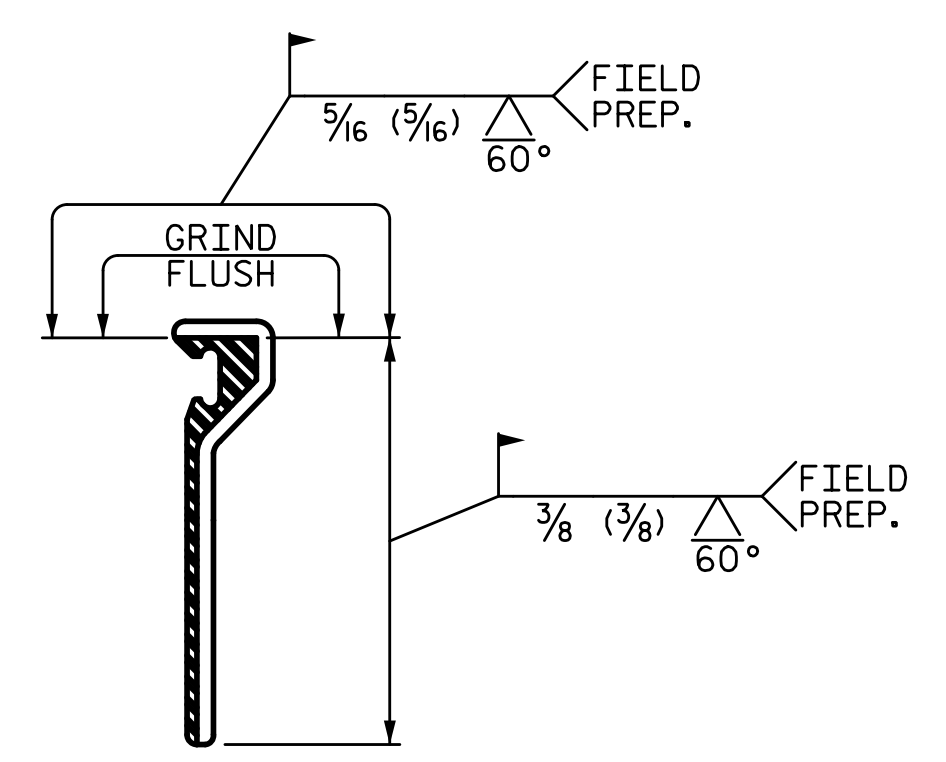
THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

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

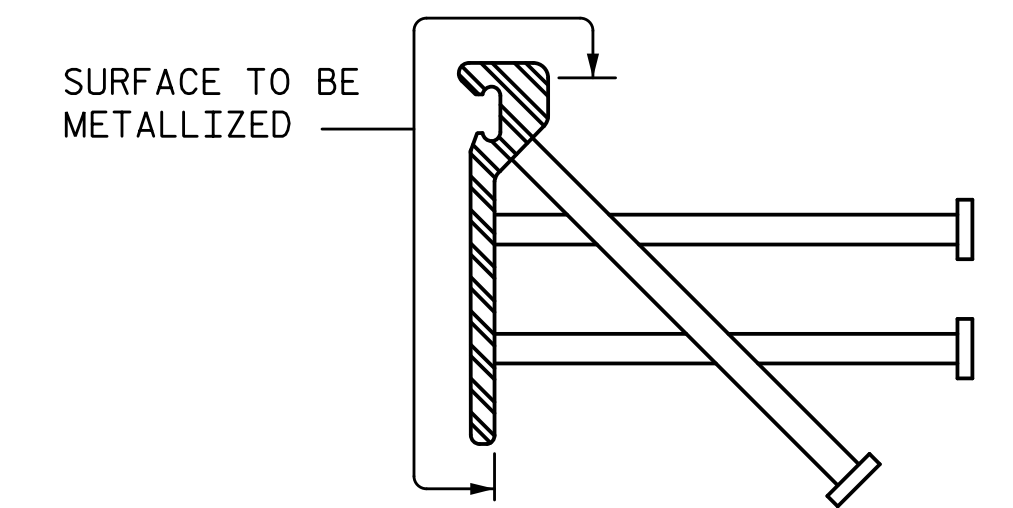


**TYPICAL SECTION STEEL RETAINER RAIL**

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



**STEEL RETAINER RAIL FIELD SPICE DETAIL**



**METALLIZING DETAIL**

LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG CL RDWY)	MOVEMENT AND SETTING AT JOINT					
			DIMENSION "A"			DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	45°-00'-00"	3/4"	2 1/16"	2"	1 3/16"	2 3/16"	2 1/2"	2 5/16"
END BENT 2	45°-00'-00"	3/4"	2 1/16"	2"	1 3/16"	2 3/16"	2 1/2"	2 5/16"

DRAWN BY: T. BANKOVICH DATE: 3-22  
 CHECKED BY: D.A. SEALEY DATE: 3-22  
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22



PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE

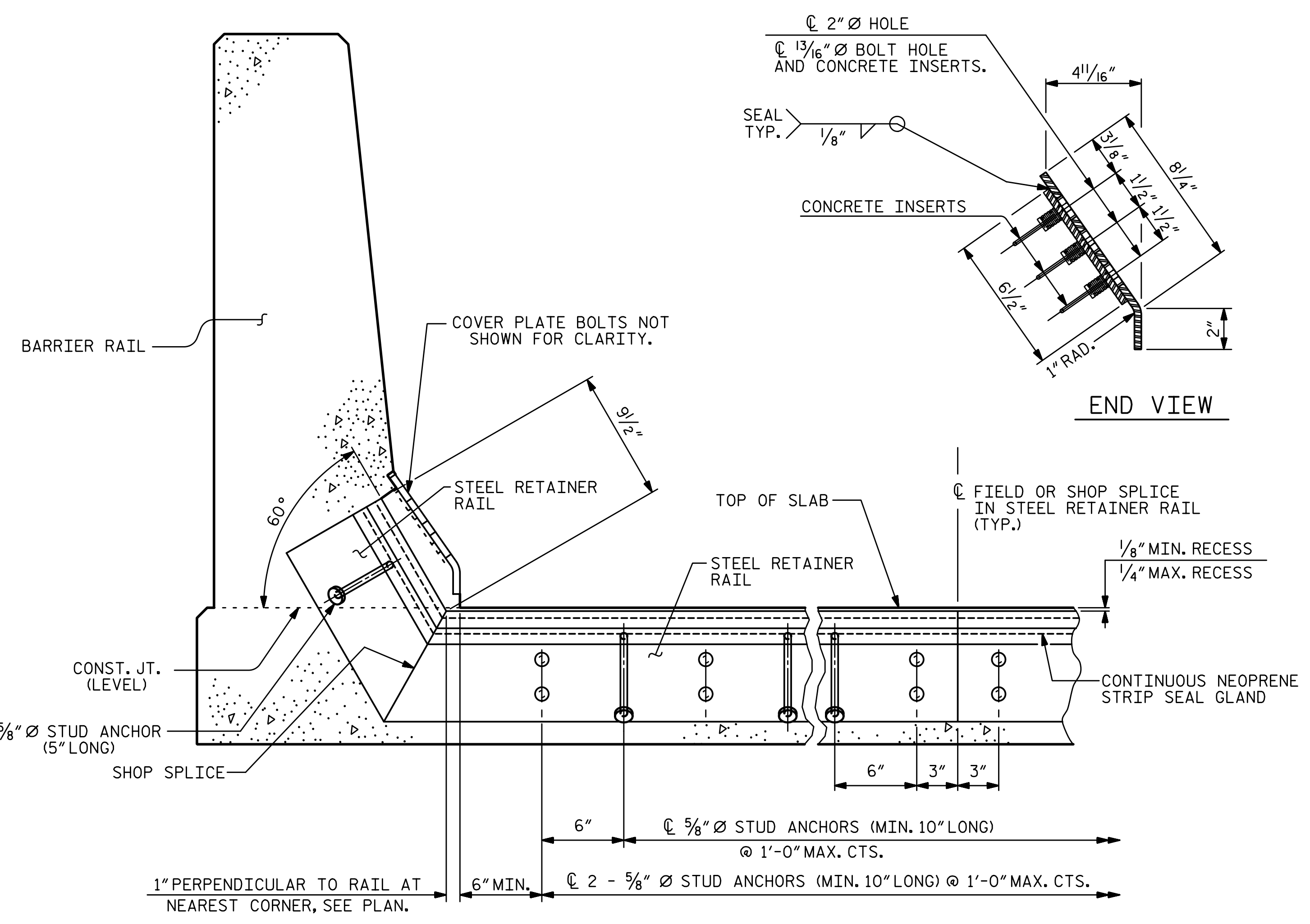
**STRIP SEAL EXPANSION JOINT DETAILS**

REVISIONS						SHEET NO. S7-18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 37
2			4			

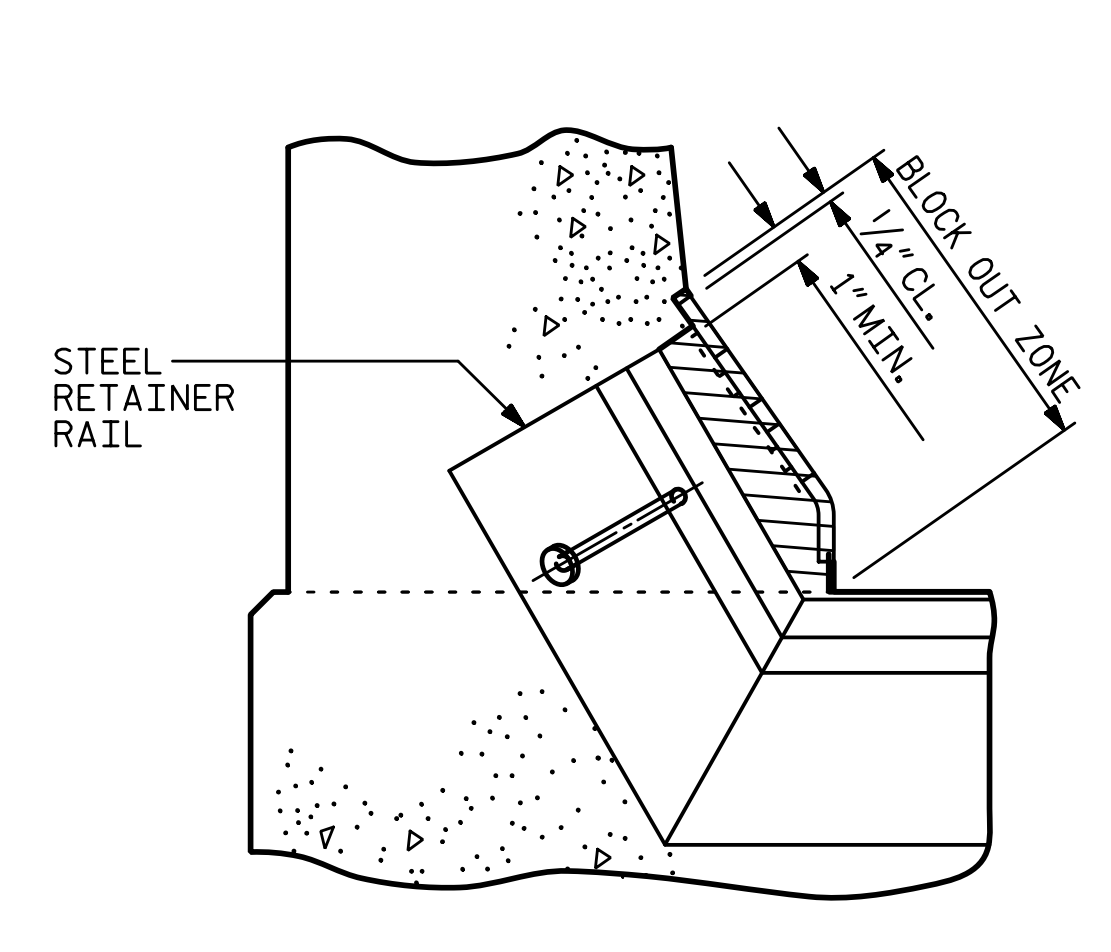
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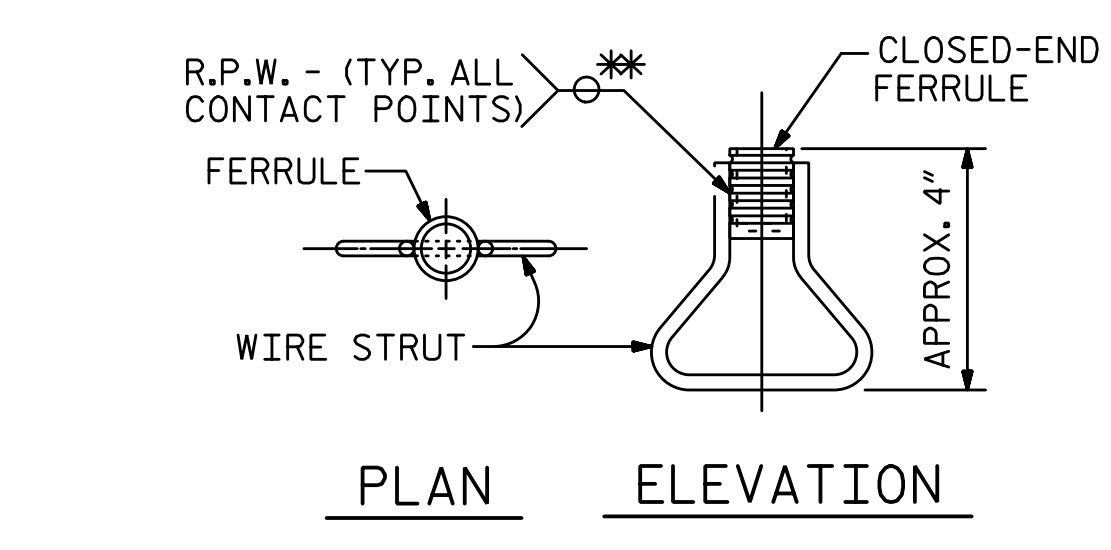
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SECTION THRU RAIL NORMAL TO JOINT

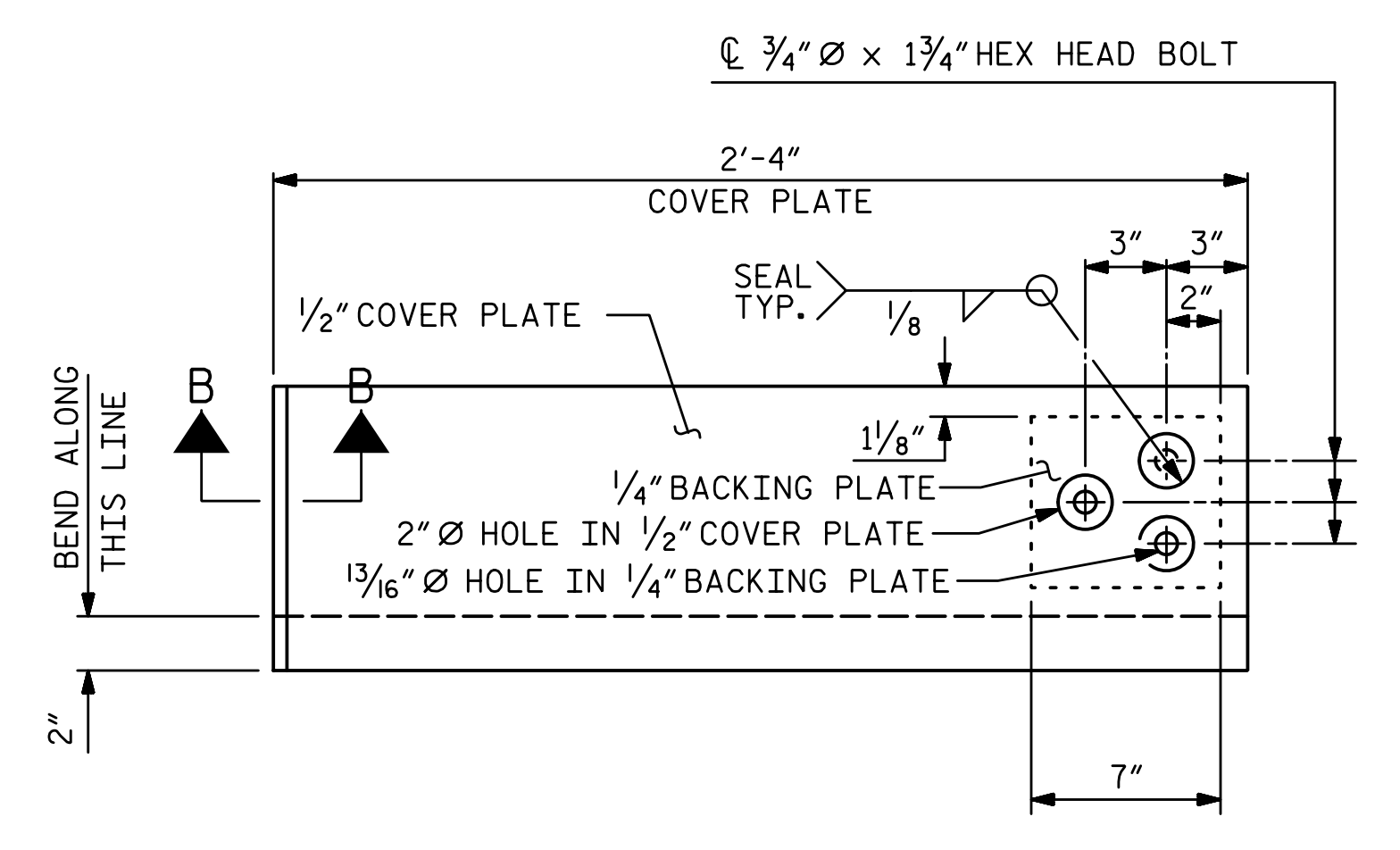


BLOCK OUT DETAIL

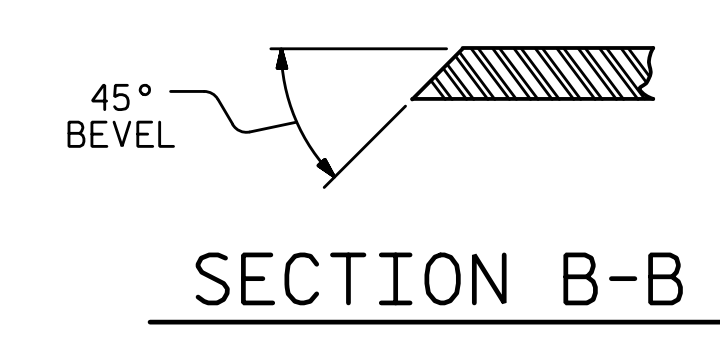


CONCRETE INSERT

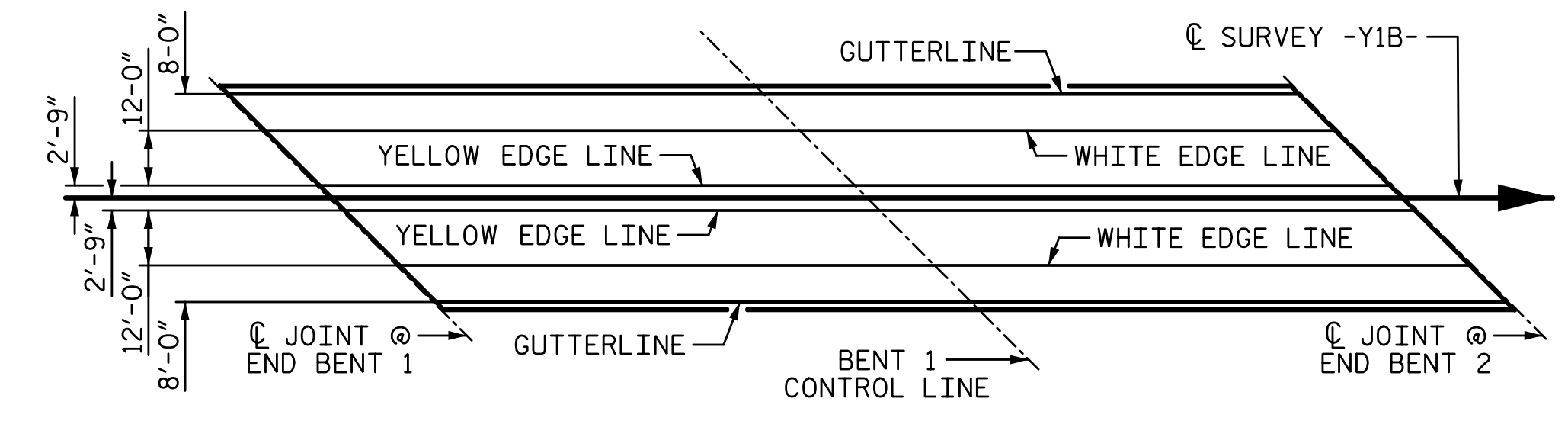
\* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



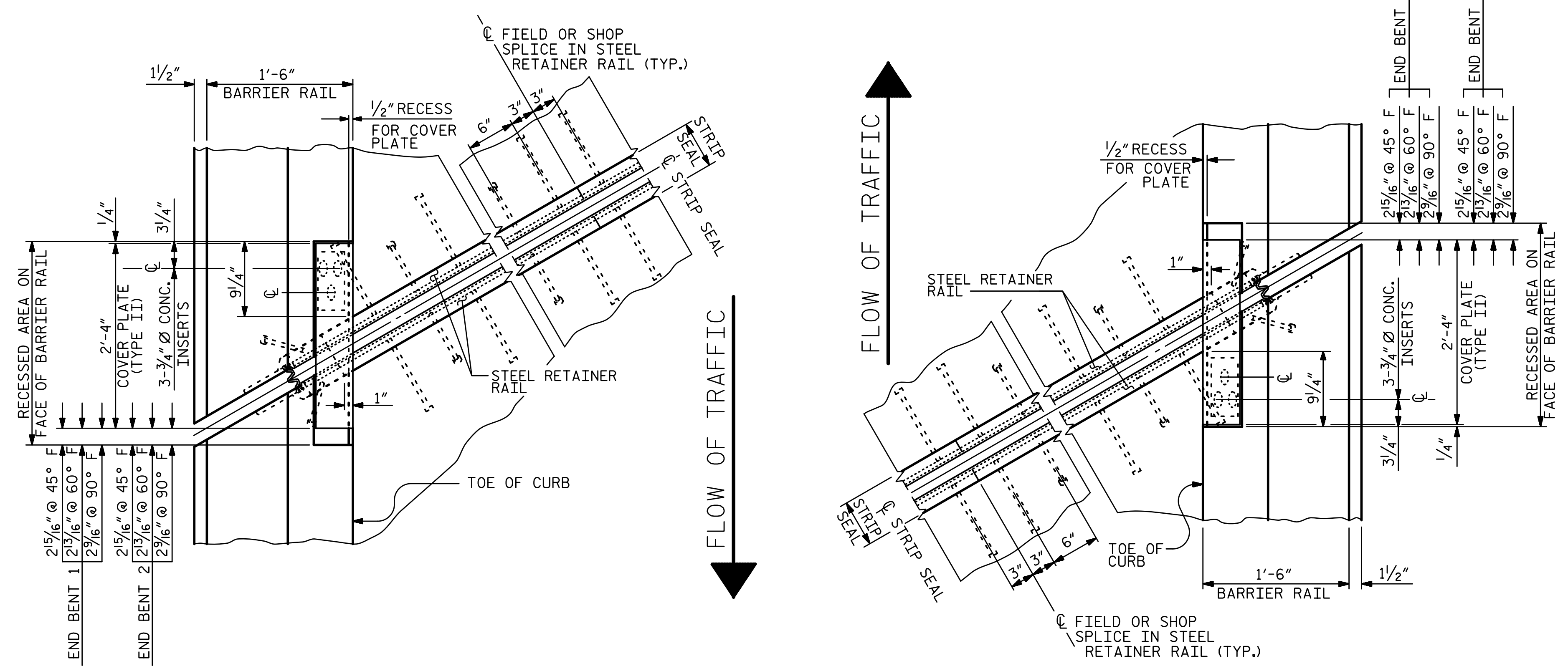
TYPE II - ELEVATION VIEW  
COVER PLATE DETAILS



SECTION B-B



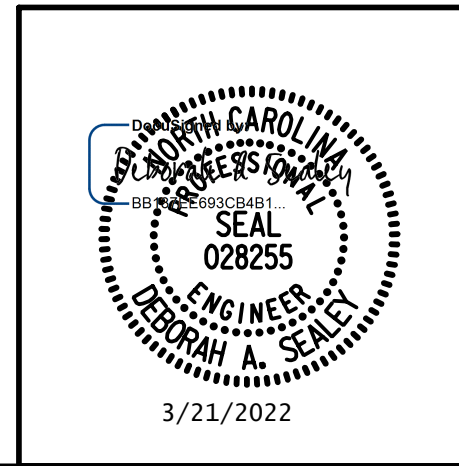
PAVEMENT MARKING ALIGNMENT



PLAN OF STRIP SEAL EXPANSION JOINT

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-  
 SHEET 2 OF 2

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



DRAWN BY: T. BANKOVICH DATE: 3-22  
 CHECKED BY: D.A. SEALEY DATE: 3-22  
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22

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**NOTES:**

ALL REINFORCING STEEL IN CONCRETE MEDIANS SHALL BE EPOXY COATED.

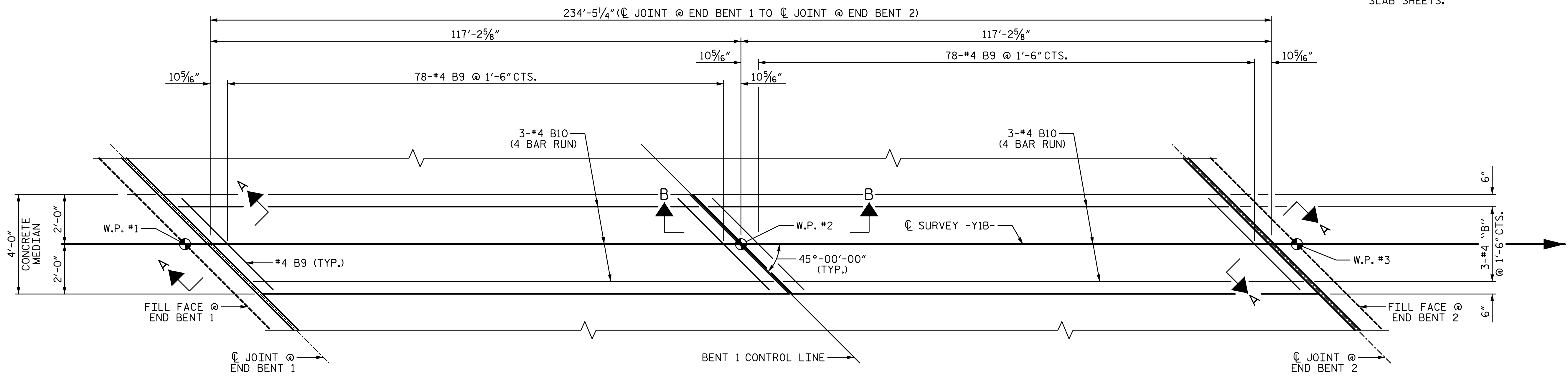
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE CONCRETE MEDIAN IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE CONCRETE MEDIAN IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

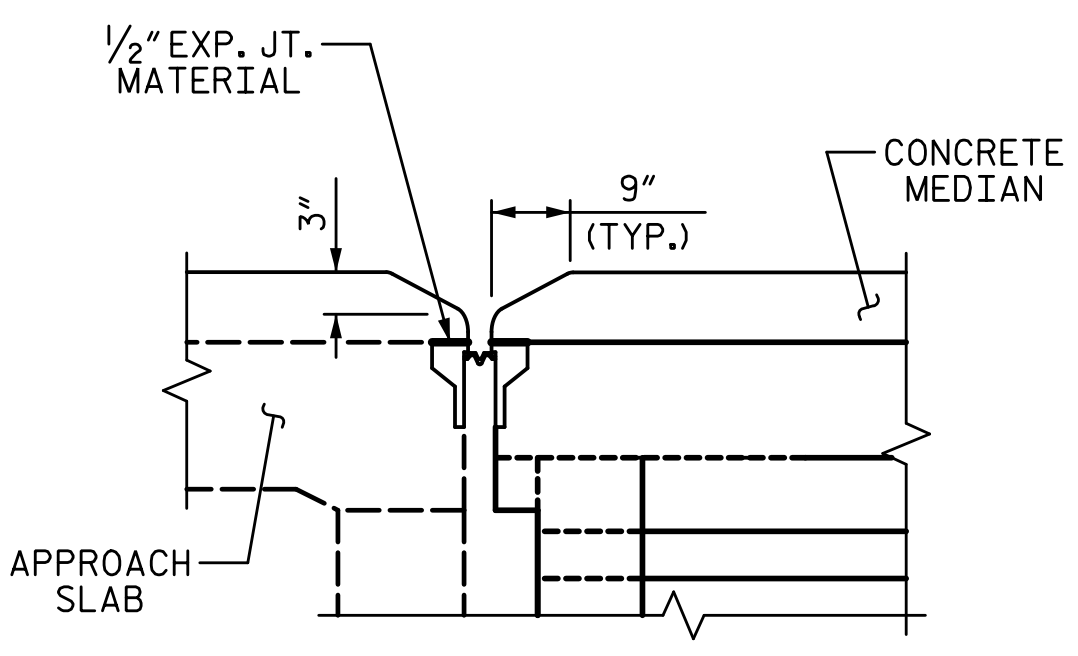
NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR MATERIALS OR LABOR REQUIRED TO CONSTRUCT THE CONCRETE MEDIAN. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE REINFORCED CONCRETE DECK SLAB.

FOR CONCRETE AND REINFORCING STEEL QUANTITIES, SEE "BILL OF MATERIAL SHEET", SHEET 2 OF 2.

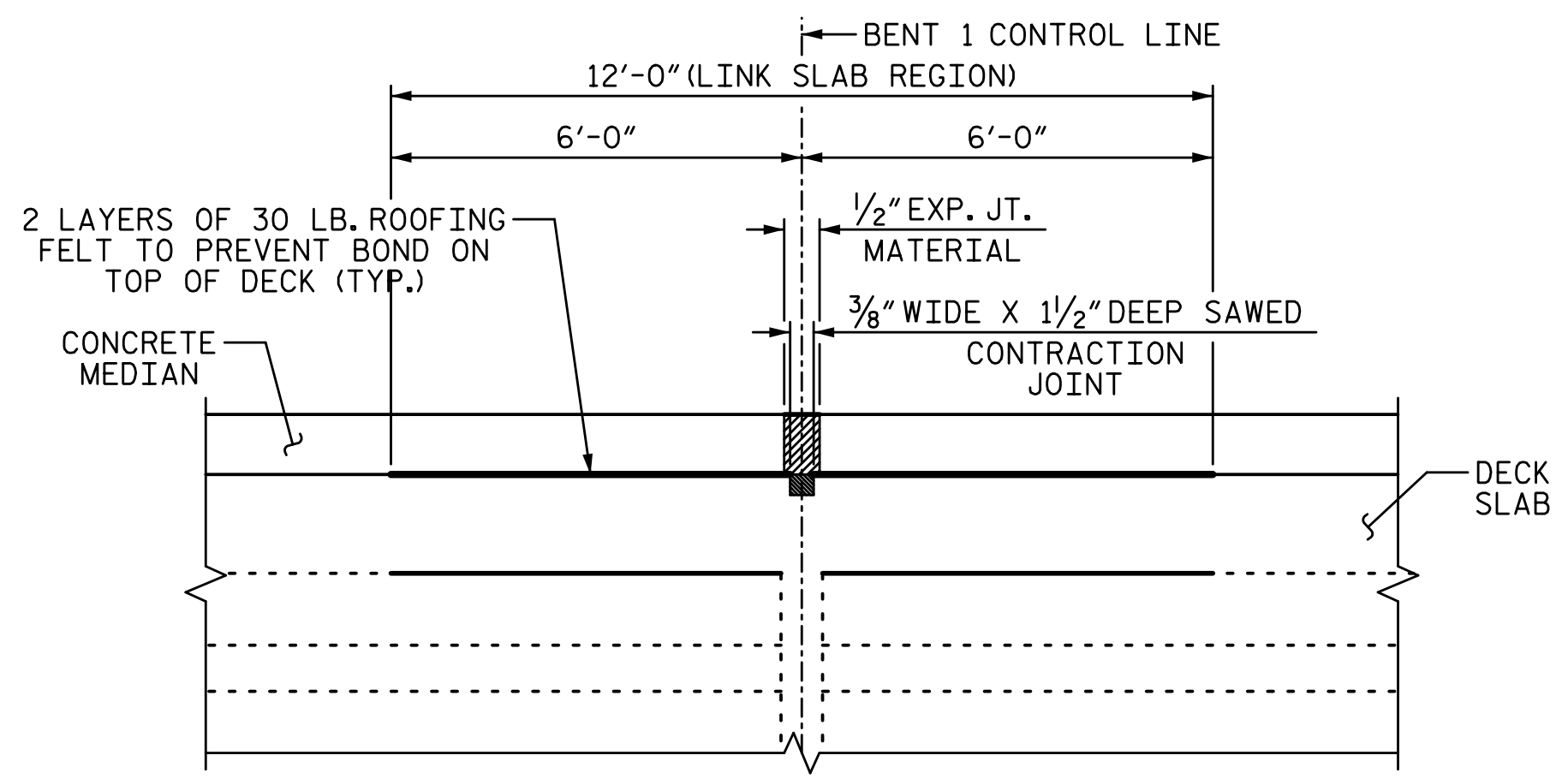
FOR MEDIAN ON APPROACH SLABS, SEE APPROACH SLAB SHEETS.



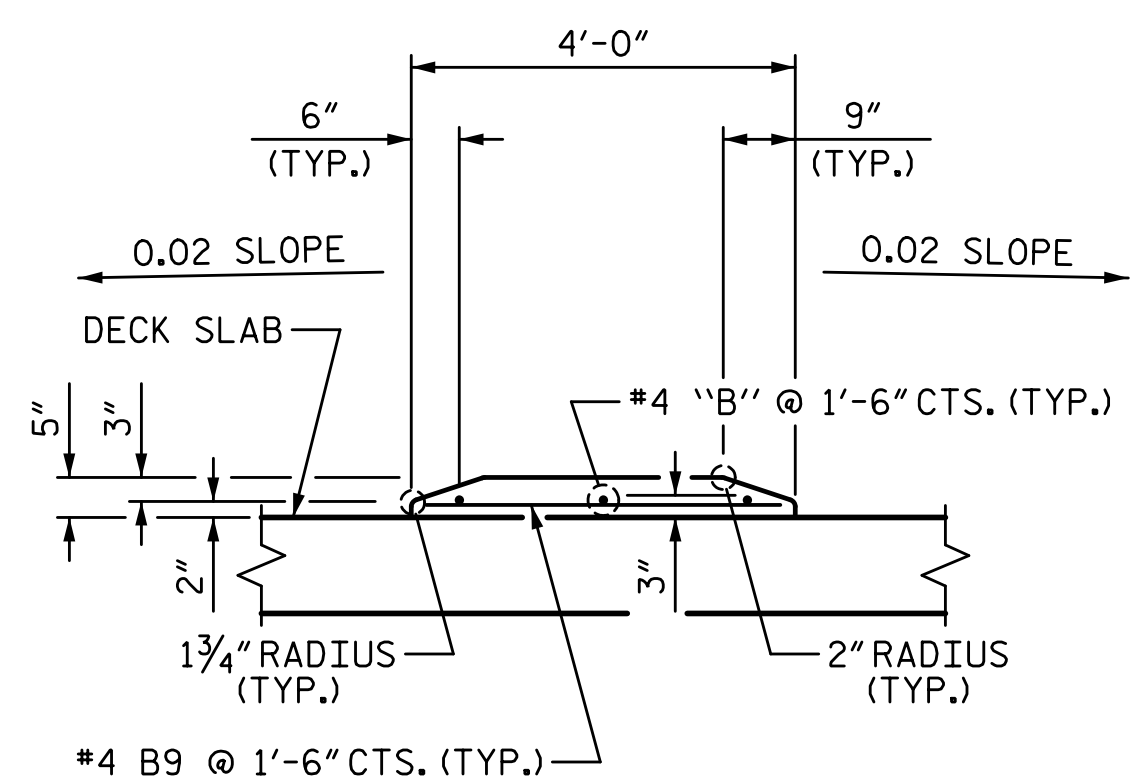
**PLAN OF CONCRETE MEDIAN**



**SECTION A-A**



**SECTION B-B  
CONCRETE MEDIAN DETAILS**



**REINFORCING STEEL DETAILS**

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
**CONCRETE MEDIAN**

**W WGI**  
 5640 Dillard Drive, Suite 200  
 Cary, NC 27518  
 LICENSURE NO. C-4434

STATE OF NORTH CAROLINA  
 PROFESSIONAL ENGINEER  
 SEAL  
 028255  
 DORIAN A. SEALEY  
 3/21/2022

DRAWN BY: T. BANKOVICH DATE: 3-22  
 CHECKED BY: D.A. SEALEY DATE: 3-22  
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22

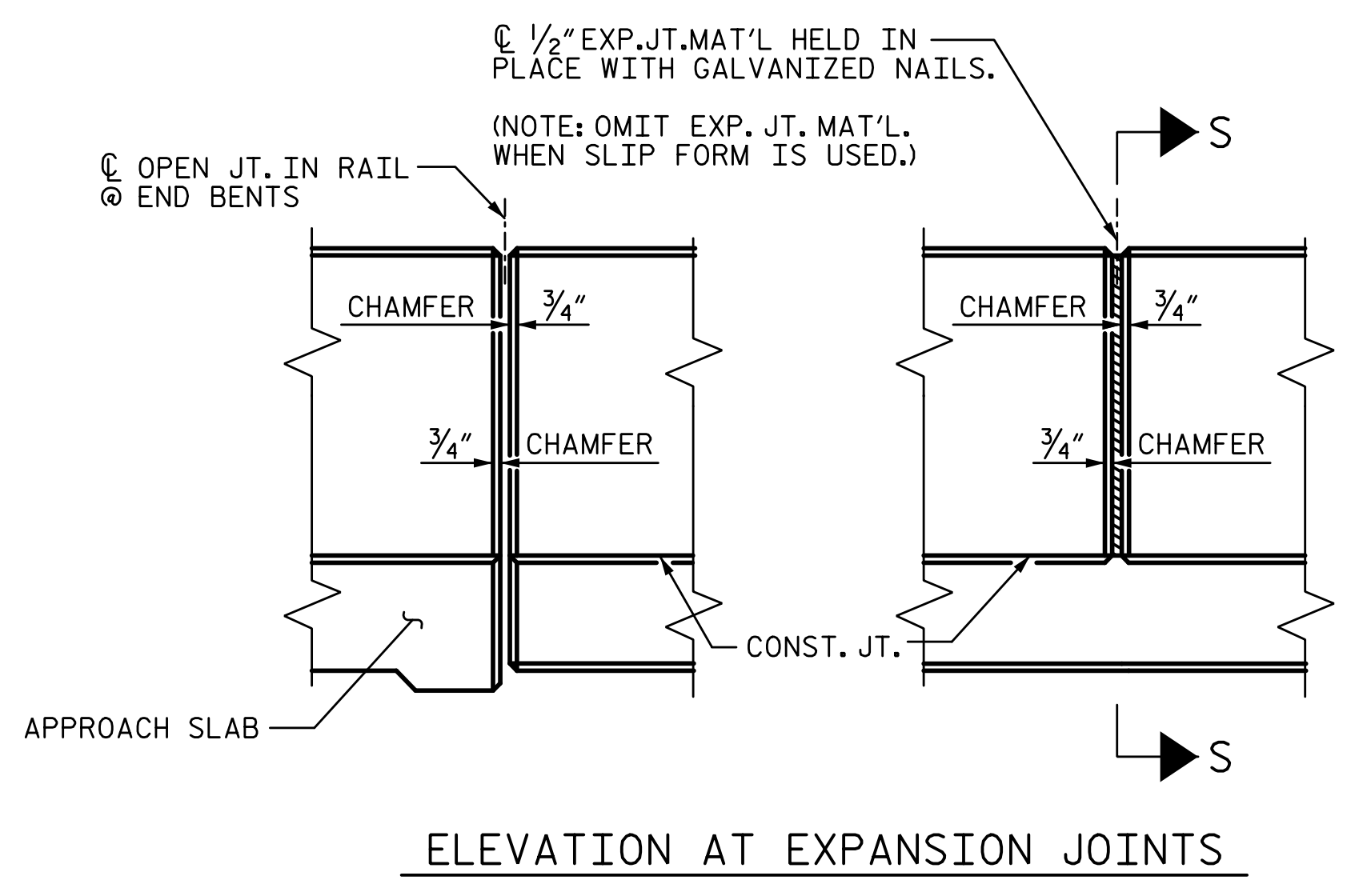
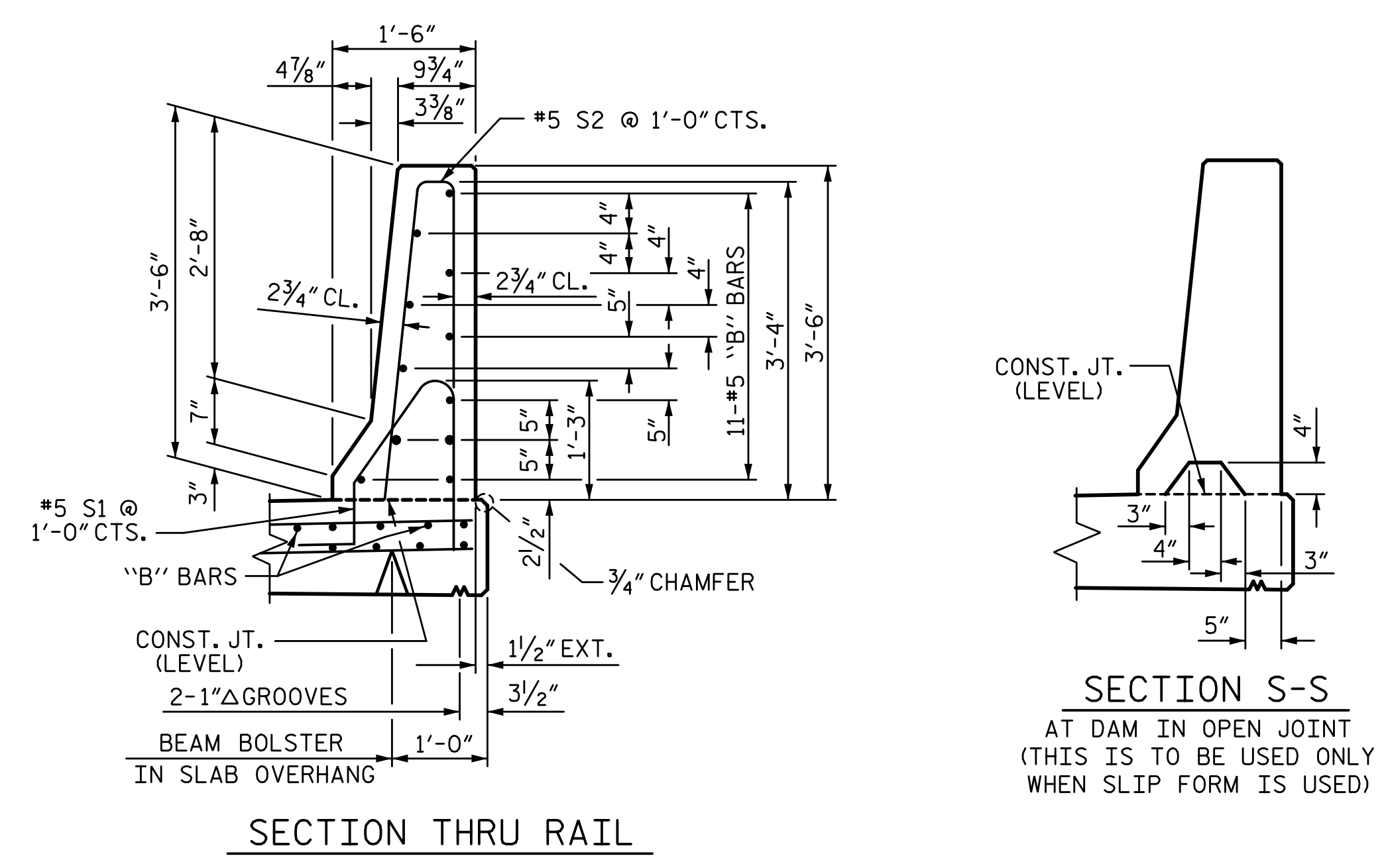
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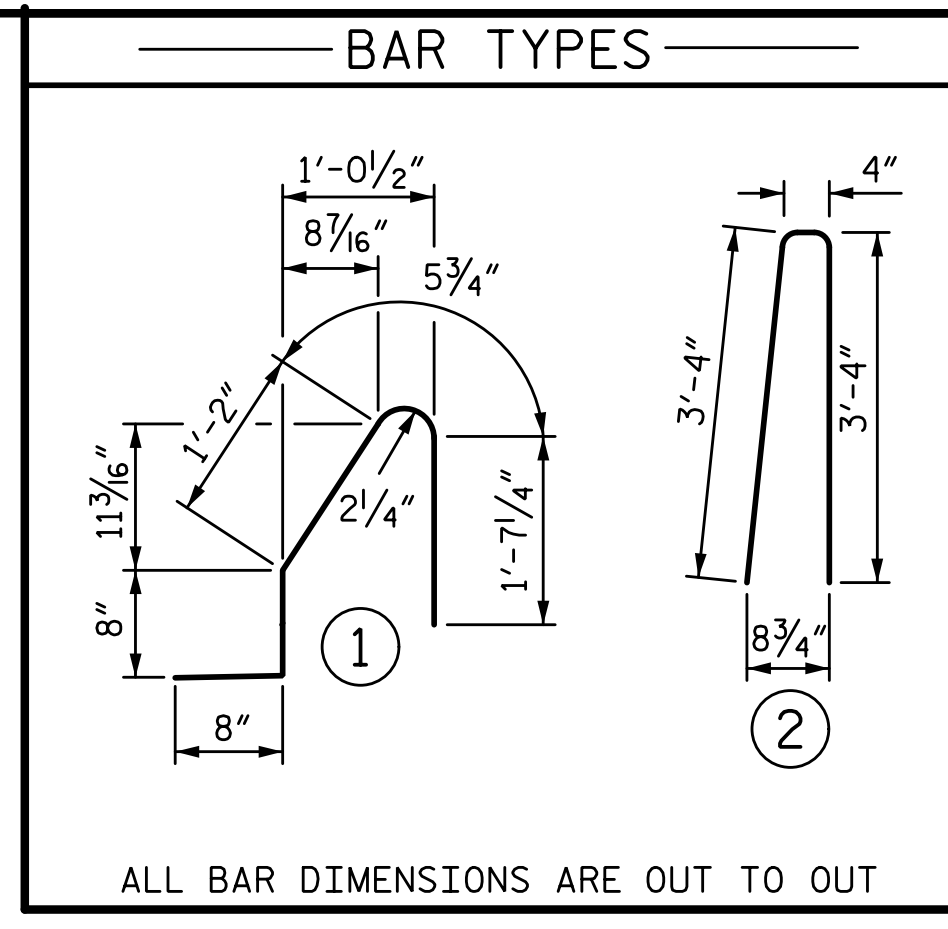




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**BARRIER RAIL DETAILS**

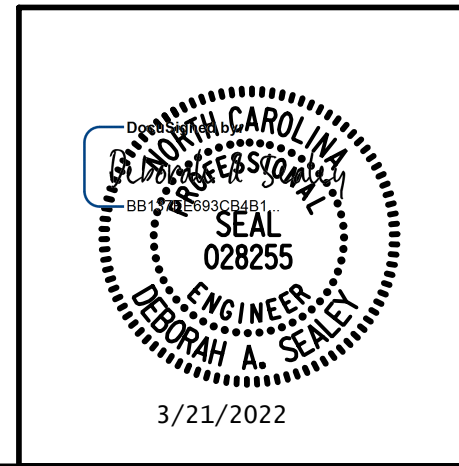


BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B11	132	#5	STR	29'-7"	4073
* B12	88	#5	STR	15'-4"	1407
* S1	456	#5	1	4'-7"	2180
* S2	456	#5	2	7'-0"	3329
EPOXY COATED REINFORCING STEEL					10989 LB
CLASS AA CONCRETE					63.8 CY
CONCRETE BARRIER RAIL					468.9 LF
* INDICATES EPOXY COATED REINFORCING STEEL					

PROJECT NO. I-5987B  
ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
**CONCRETE BARRIER RAIL**

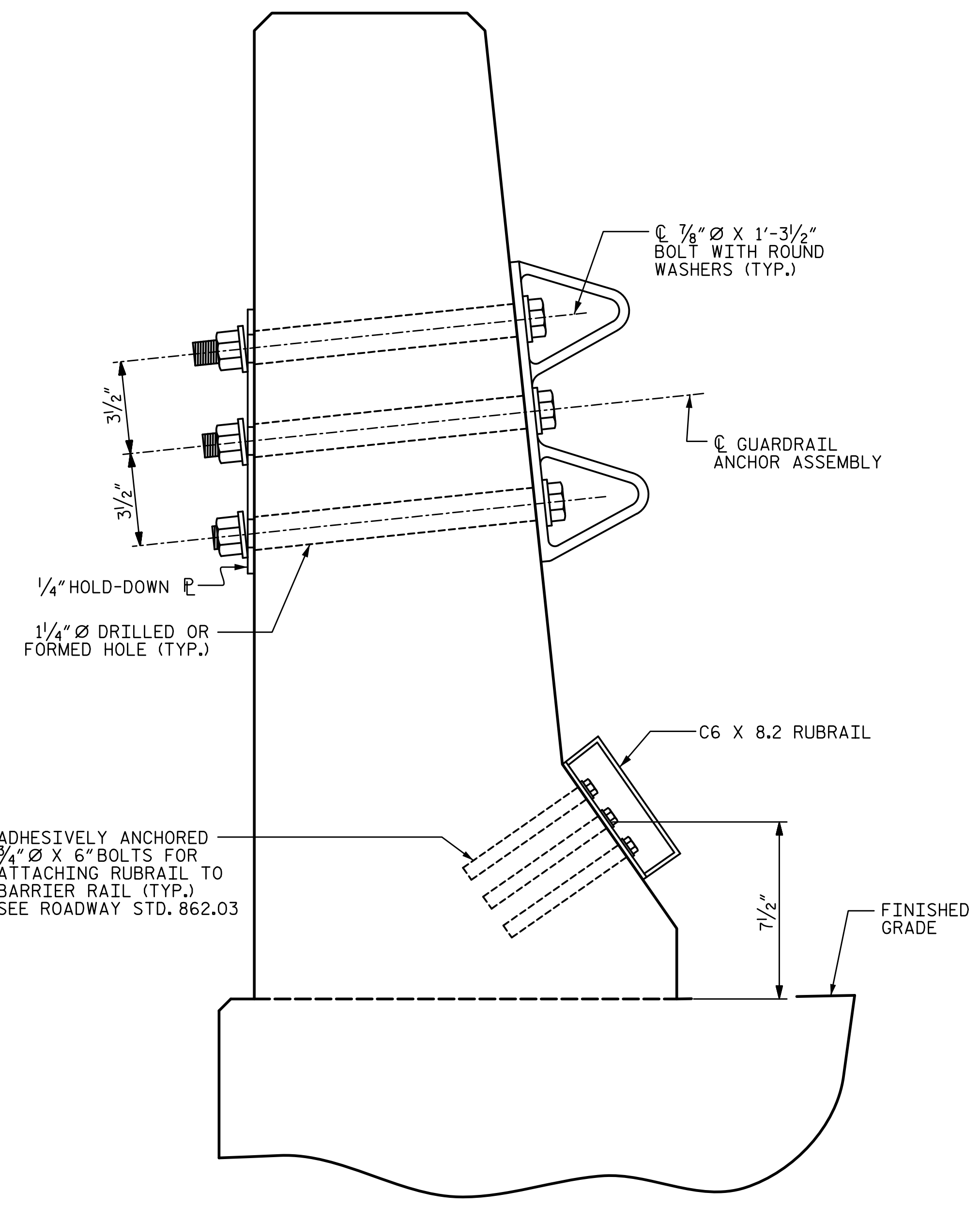
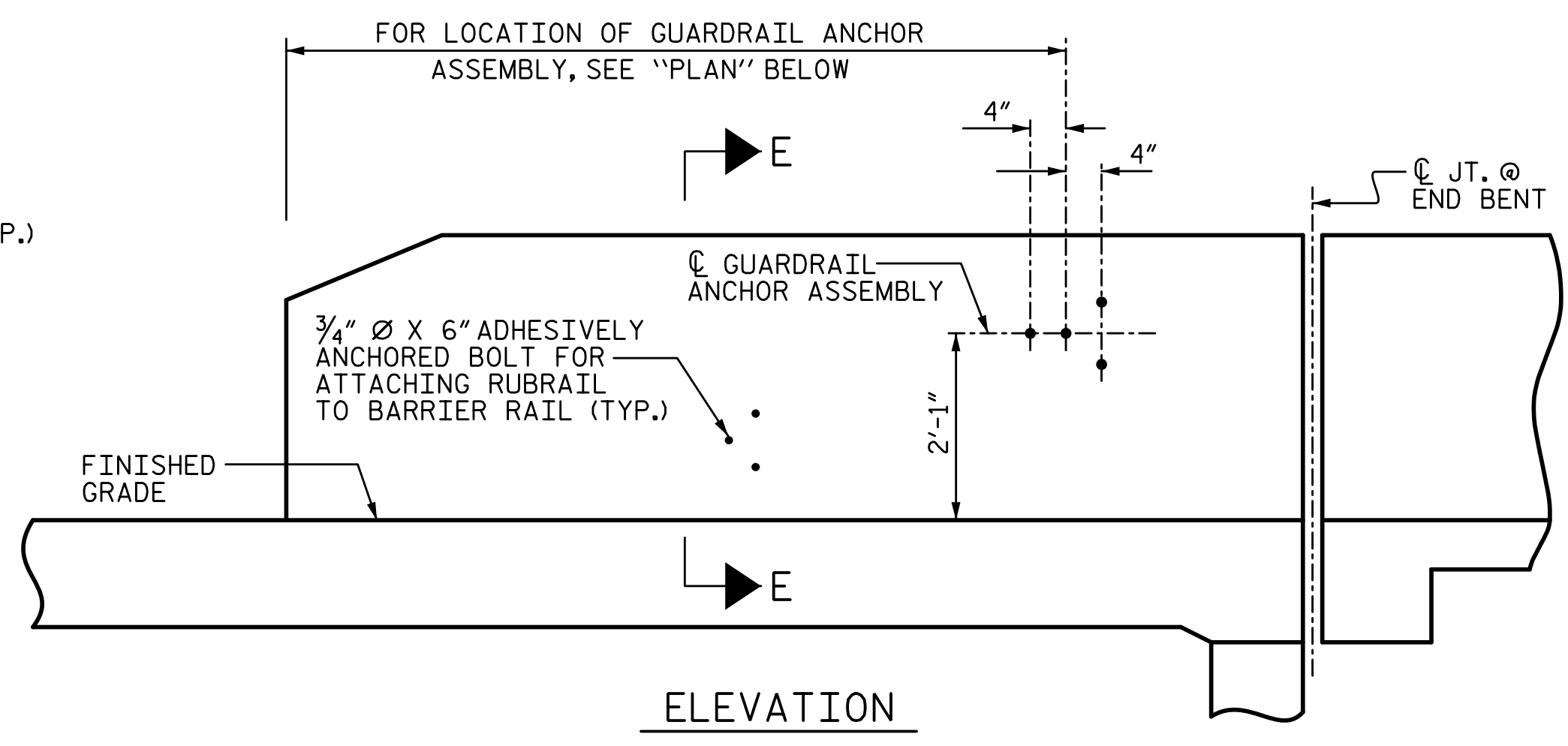
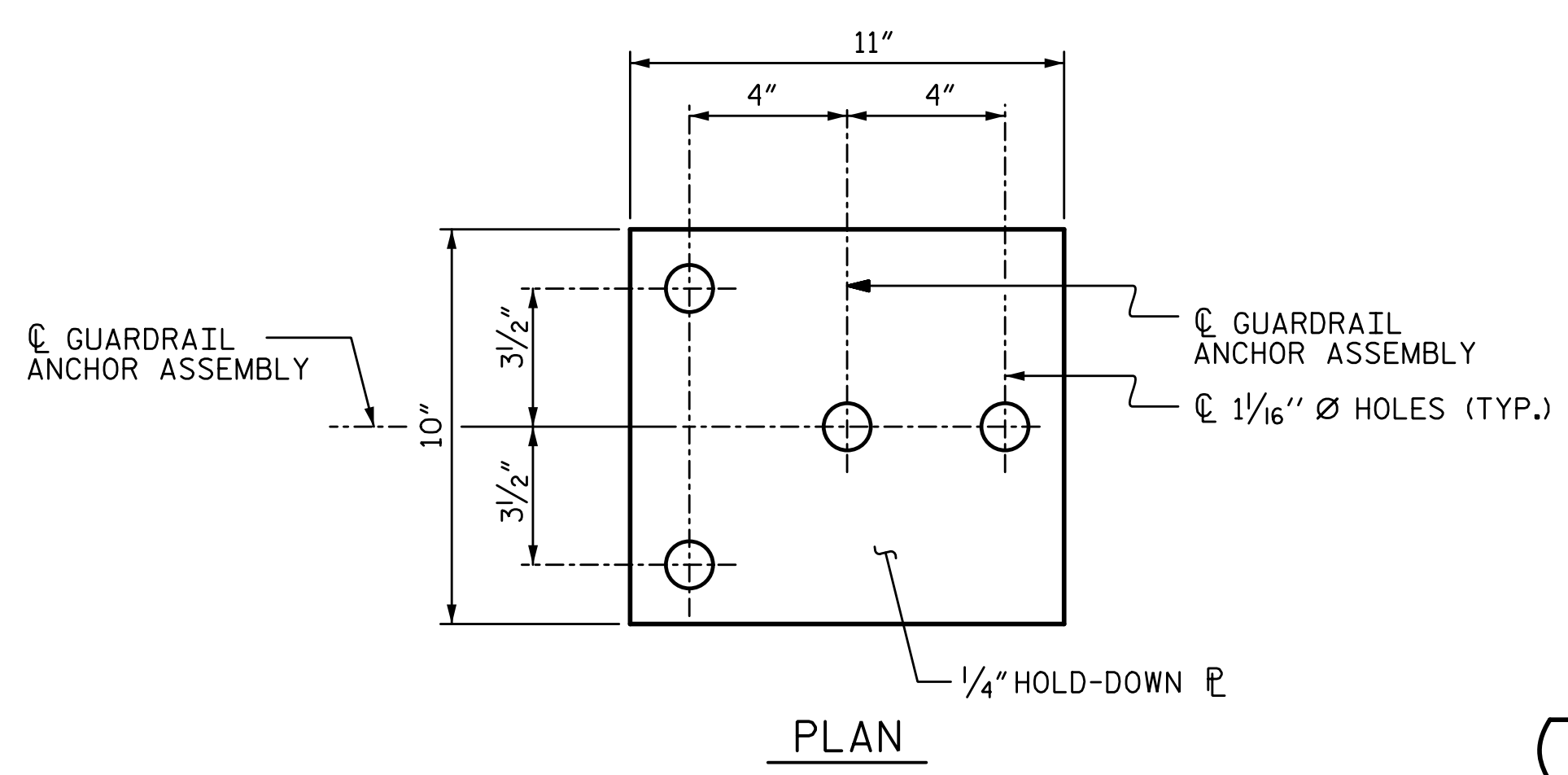


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1			3			TOTAL SHEETS
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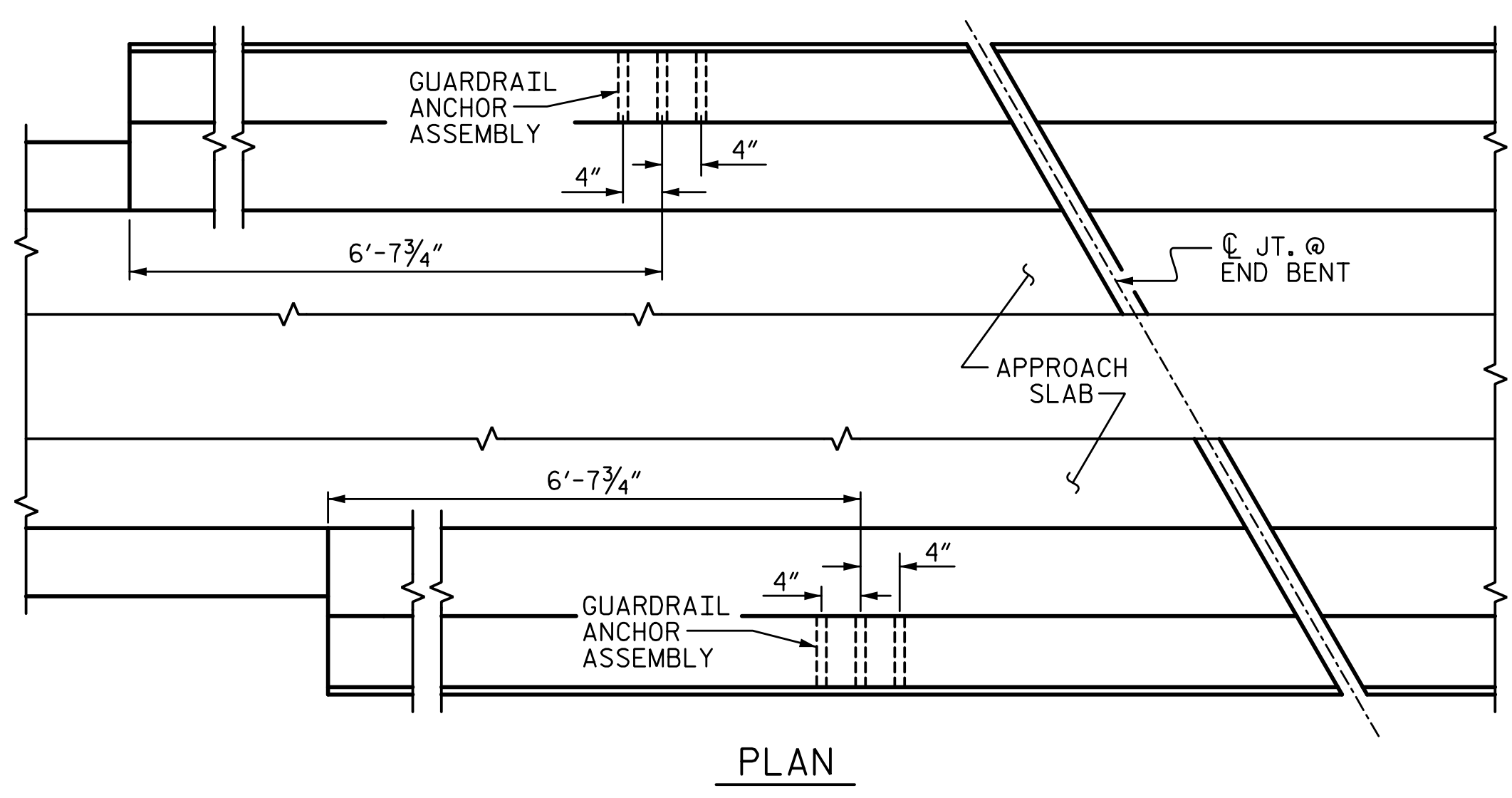
DRAWN BY: <u>T. BANKOVICH</u>	DATE: <u>3-22</u>
CHECKED BY: <u>D.A. SEALEY</u>	DATE: <u>3-22</u>
DESIGN ENGINEER OF RECORD: <u>D.A. SEALEY</u>	DATE: <u>3-22</u>

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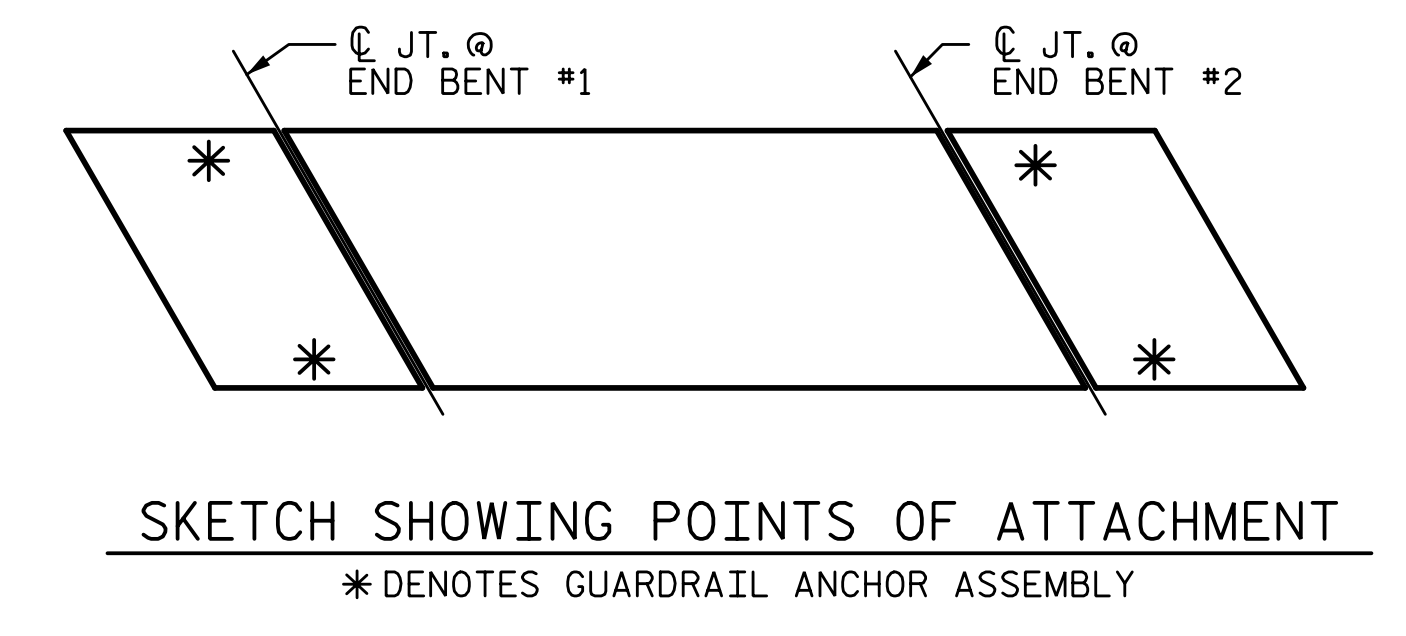
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**SECTION E-E**  
**GUARDRAIL ANCHOR ASSEMBLY DETAILS**



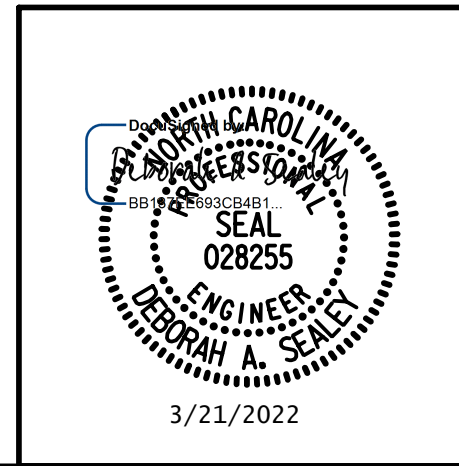
**LOCATION OF ANCHORS FOR GUARDRAIL**  
END BENT 1 SHOWN, END BENT 2 SIMILAR



**NOTES:**

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 1/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.
- THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
- THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22



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ROBESON COUNTY  
 STATION: 29+51.04 -Y1B-

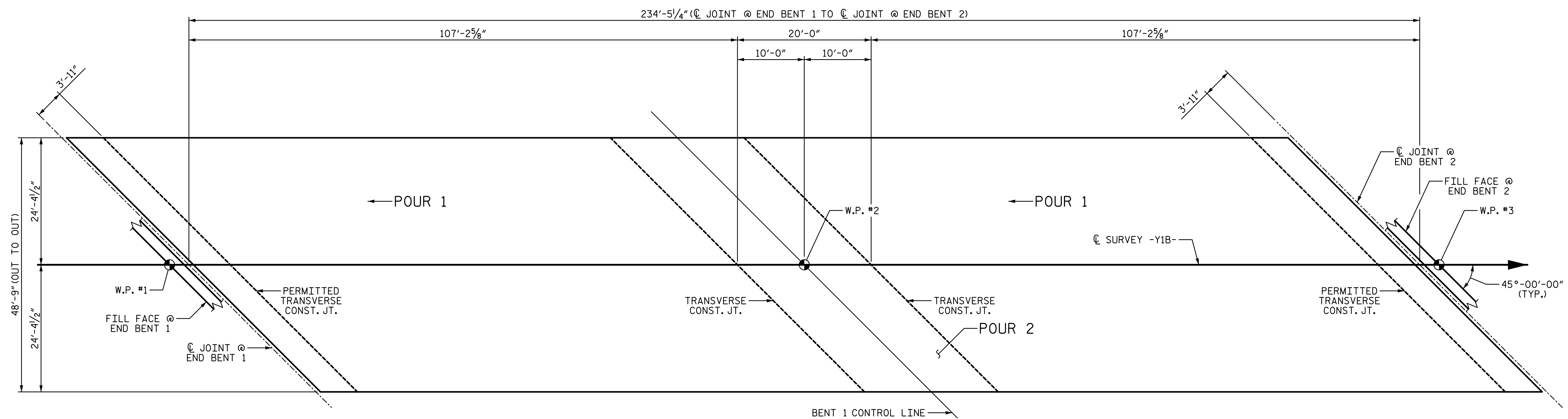
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
**GUARDRAIL ANCHORAGE FOR BARRIER RAIL**

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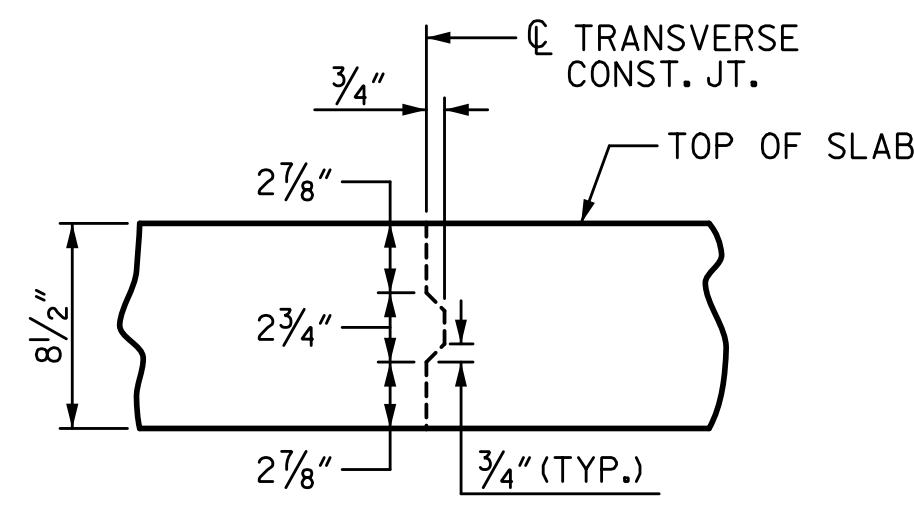
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**POUR SEQUENCE AND LAYOUT FOR COMPUTING  
REINFORCED CONCRETE DECK SLAB AREA**

(SQ. FT. 11,429)

POUR ② CAN NOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH  
A MINIMUM OF 3000 PSI.



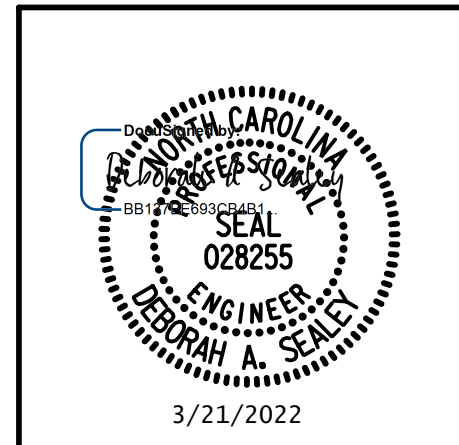
**TRANSVERSE CONSTRUCTION  
JOINT DETAIL**

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

PROJECT NO. I-5987B  
ROBESON COUNTY  
STATION: 29+51.04 -Y1B-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
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SUPERSTRUCTURE  
  
BILL OF MATERIAL



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