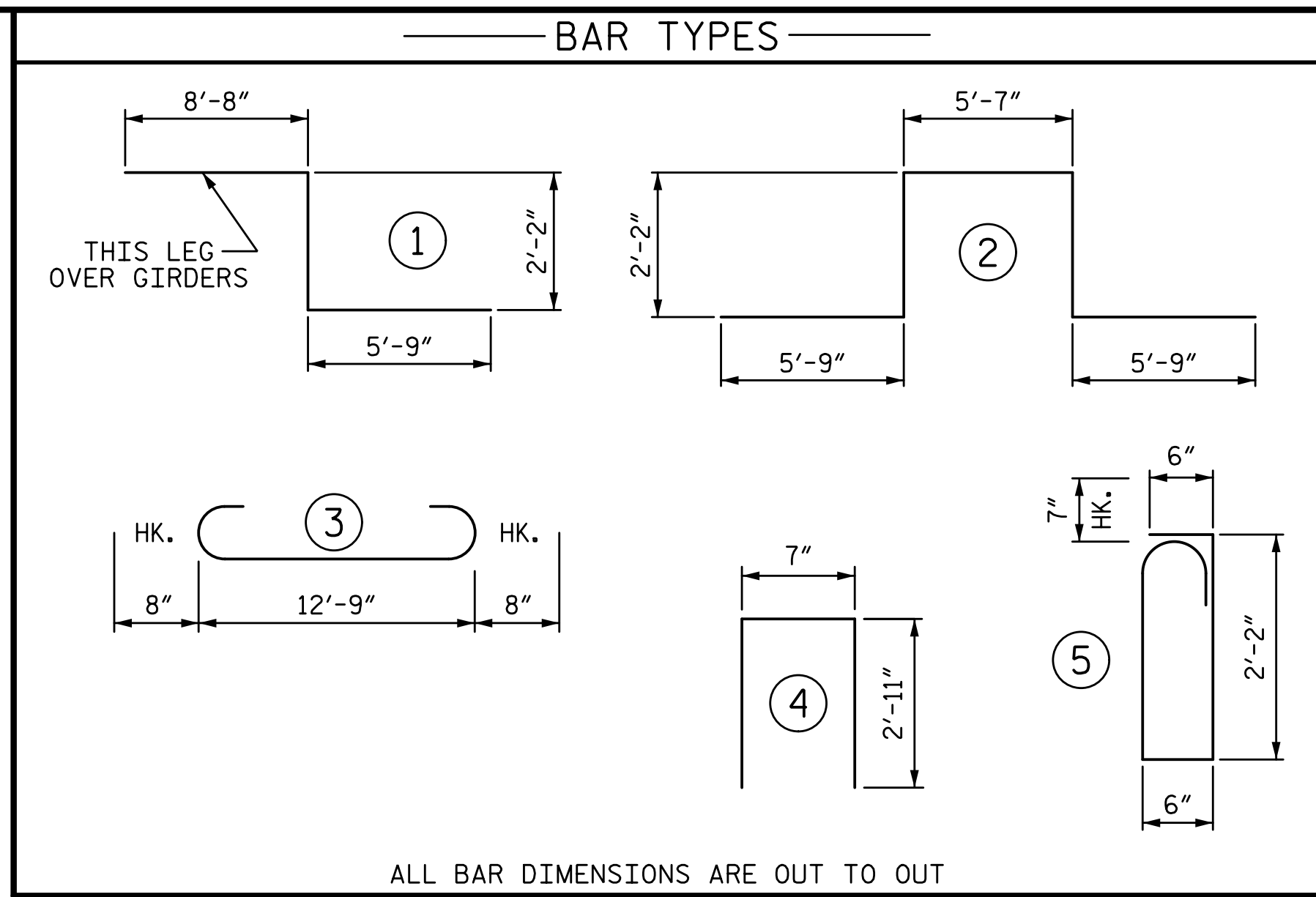


3/21/2022 9:08:54 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_BM.dgn



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

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

GROOVING BRIDGE FLOORS

APPROACH SLABS	2,017	SQ. FT.
BRIDGE DECK	9,942	SQ. FT.
TOTAL	11,959	SQ. FT.

BILL OF MATERIAL SPANS A & B

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	318	#5	STR	48'-5"	16059	* A138	4	#5	STR	4'-3"	18	A238	4	#5	STR	4'-3"	18
A2	318	#5	STR	48'-5"	16059	* A139	4	#5	STR	3'-1"	13	A239	4	#5	STR	3'-1"	13
* A3	6	#6	STR	27'-2"	245	* A140	4	#5	STR	1'-11"	8	A240	4	#5	STR	1'-11"	8
* A101	4	#5	STR	47'-5"	198	A201	4	#5	STR	47'-5"	198	B1	160	#5	STR	43'-1"	7190
* A102	4	#5	STR	46'-3"	193	A202	4	#5	STR	46'-3"	193	B2	40	#5	STR	60'-0"	2503
* A103	4	#5	STR	45'-1"	188	A203	4	#5	STR	45'-1"	188	B3	40	#5	STR	11'-5"	476
* A104	4	#5	STR	43'-11"	183	A204	4	#5	STR	43'-11"	183	B4	34	#5	STR	57'-6"	2039
* A105	4	#5	STR	42'-9"	178	A205	4	#5	STR	42'-9"	178	* B5	198	#4	STR	27'-7"	3648
* A106	4	#5	STR	41'-7"	173	A206	4	#5	STR	41'-7"	173	* B6	33	#5	STR	60'-0"	2065
* A107	4	#5	STR	40'-5"	169	A207	4	#5	STR	40'-5"	169	* B7	33	#5	STR	23'-8"	815
* A108	4	#5	STR	39'-3"	164	A208	4	#5	STR	39'-3"	164	* B8	64	#5	STR	45'-8"	3048
* A109	4	#5	STR	38'-1"	159	A209	4	#5	STR	38'-1"	159	* B9	156	#4	STR	5'-2"	538
* A110	4	#5	STR	36'-11"	154	A210	4	#5	STR	36'-11"	154	* B10	24	#4	STR	31'-0"	497
* A111	4	#5	STR	35'-9"	149	A211	4	#5	STR	35'-9"	149						
* A112	4	#5	STR	34'-7"	144	A212	4	#5	STR	34'-7"	144	* G1	4	#5	STR	35'-7"	148
* A113	4	#5	STR	33'-5"	139	A213	4	#5	STR	33'-5"	139						
* A114	4	#5	STR	32'-3"	135	A214	4	#5	STR	32'-3"	135	* K1	8	#8	1	16'-7"	354
* A115	4	#5	STR	31'-1"	130	A215	4	#5	STR	31'-1"	130	* K2	12	#8	2	21'-5"	686
* A116	4	#5	STR	29'-11"	125	A216	4	#5	STR	29'-11"	125	* K3	16	#6	3	14'-1"	338
* A117	4	#5	STR	28'-9"	120	A217	4	#5	STR	28'-9"	120	* K4	32	#6	STR	8'-7"	413
* A118	4	#5	STR	27'-7"	115	A218	4	#5	STR	27'-7"	115						
* A119	4	#5	STR	26'-5"	110	A219	4	#5	STR	26'-5"	110	* S1	72	#4	4	6'-5"	309
* A120	4	#5	STR	25'-3"	105	A220	4	#5	STR	25'-3"	105	* S2	72	#5	5	5'-11"	444
* A121	4	#5	STR	24'-1"	100	A221	4	#5	STR	24'-1"	100						
* A122	4	#5	STR	22'-11"	96	A222	4	#5	STR	22'-11"	96						
* A123	4	#5	STR	21'-9"	91	A223	4	#5	STR	21'-9"	91						
* A124	4	#5	STR	20'-7"	86	A224	4	#5	STR	20'-7"	86						
* A125	4	#5	STR	19'-5"	81	A225	4	#5	STR	19'-5"	81						
* A126	4	#5	STR	18'-3"	76	A226	4	#5	STR	18'-3"	76						
* A127	4	#5	STR	17'-1"	71	A227	4	#5	STR	17'-1"	71						
* A128	4	#5	STR	15'-11"	66	A228	4	#5	STR	15'-11"	66						
* A129	4	#5	STR	14'-9"	62	A229	4	#5	STR	14'-9"	62						
* A130	4	#5	STR	13'-7"	57	A230	4	#5	STR	13'-7"	57						
* A131	4	#5	STR	12'-5"	52	A231	4	#5	STR	12'-5"	52						
* A132	4	#5	STR	11'-3"	47	A232	4	#5	STR	11'-3"	47						
* A133	4	#5	STR	10'-1"	42	A233	4	#5	STR	10'-1"	42						
* A134	4	#5	STR	8'-11"	37	A234	4	#5	STR	8'-11"	37						
* A135	4	#5	STR	7'-9"	32	A235	4	#5	STR	7'-9"	32						
* A136	4	#5	STR	6'-7"	27	A236	4	#5	STR	6'-7"	27						
* A137	4	#5	STR	5'-5"	23	A237	4	#5	STR	5'-5"	23						

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	CY	LB	LB
POUR 1	329.9	--	--
POUR 2	30.0	--	--
MEDIAN	13.0	--	--
TOTAL **	372.9	32,383	33,723

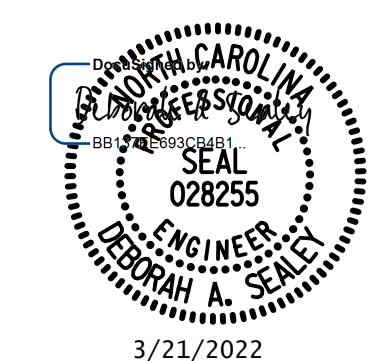
** QUANTITIES FOR CONCRETE BARRIER RAIL ARE NOT INCLUDED

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

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

BILL OF MATERIAL

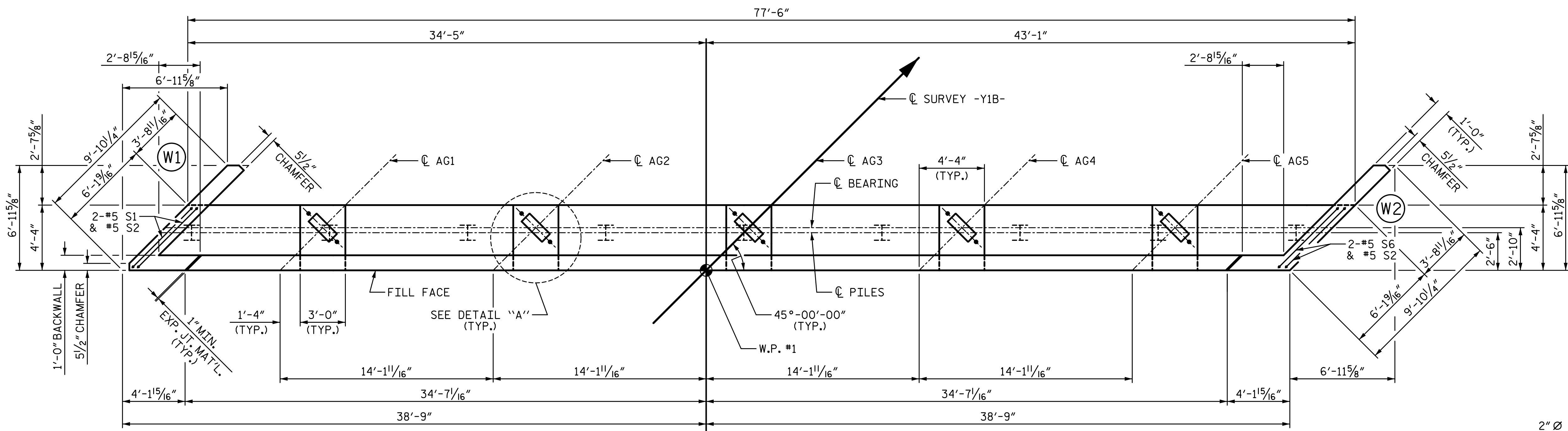


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

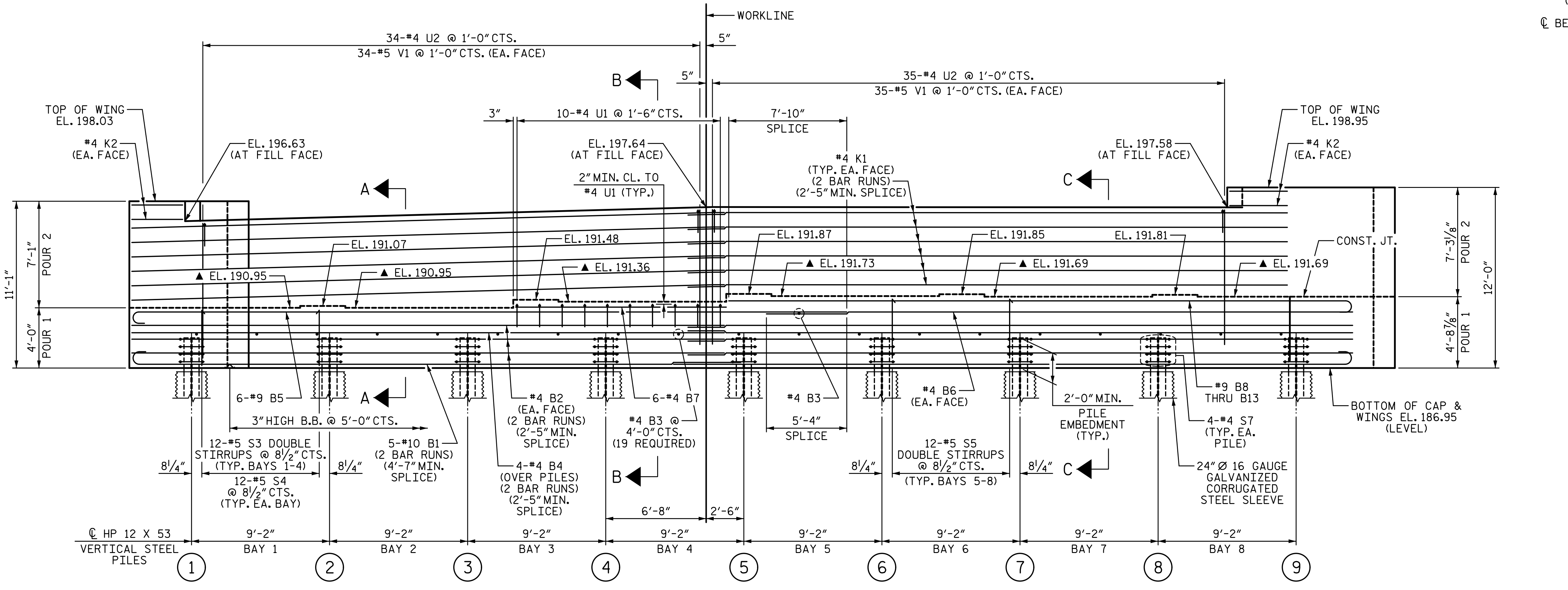
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-25
1			3			TOTAL SHEETS
2			4			37

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/21/2022 9:08:56 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B-SMU-EL.dgn



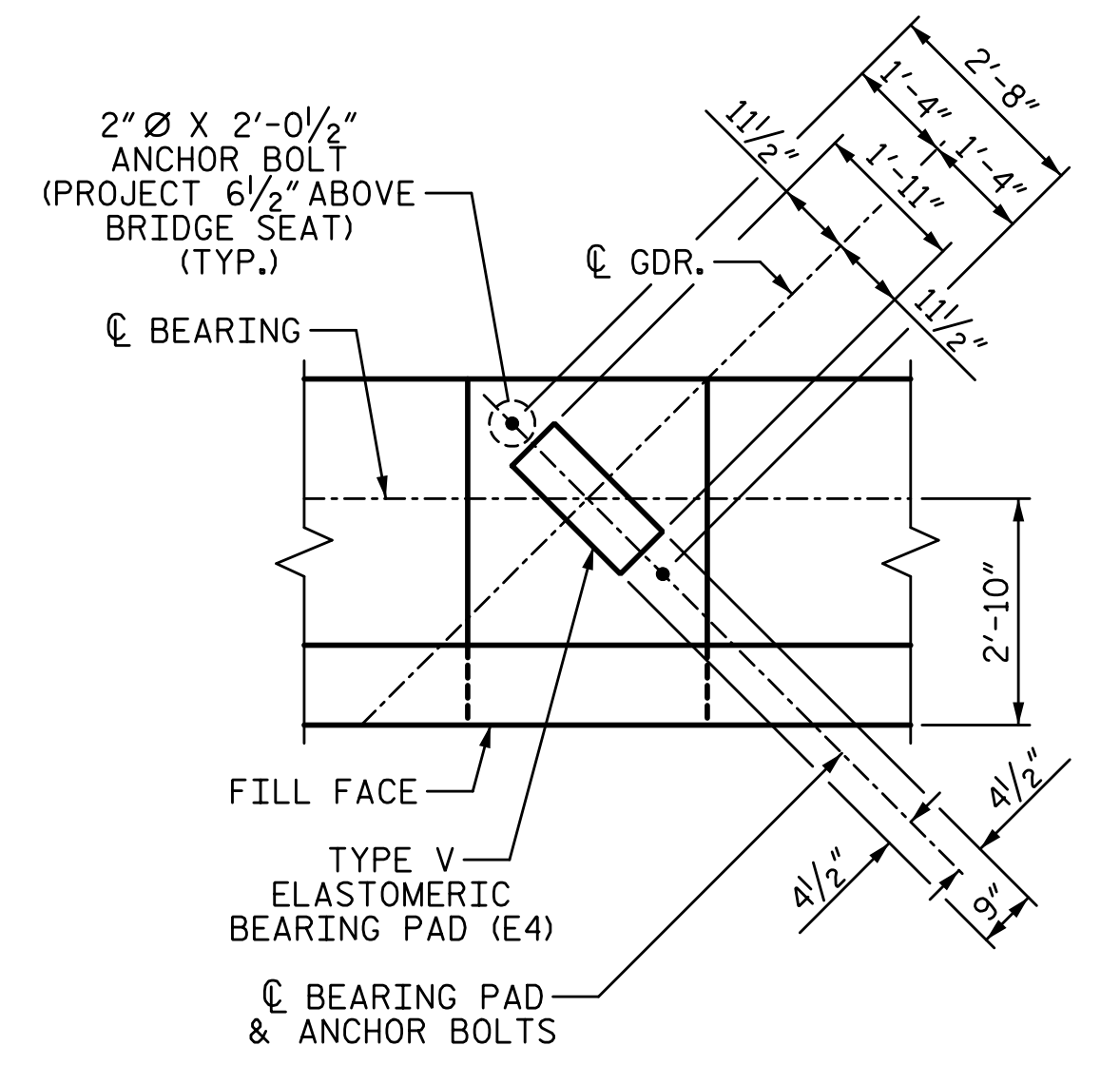
PLAN



ELEVATION

NOTES:

- STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXPECT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE 2%.
- SEE GENERAL DRAWING "FOUNDATION LAYOUT" FOR ADDITIONAL NOTES FOR DRIVING PILES.
- FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SECTIONS A-A AND B-B SHEET 3 OF 3.
- WING LENGTHS BASED ON A 6" ASSUMED MSE RETAINING WALL THICKNESS.



DETAIL "A"
(TYP. EA. GIRDER)

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

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 1

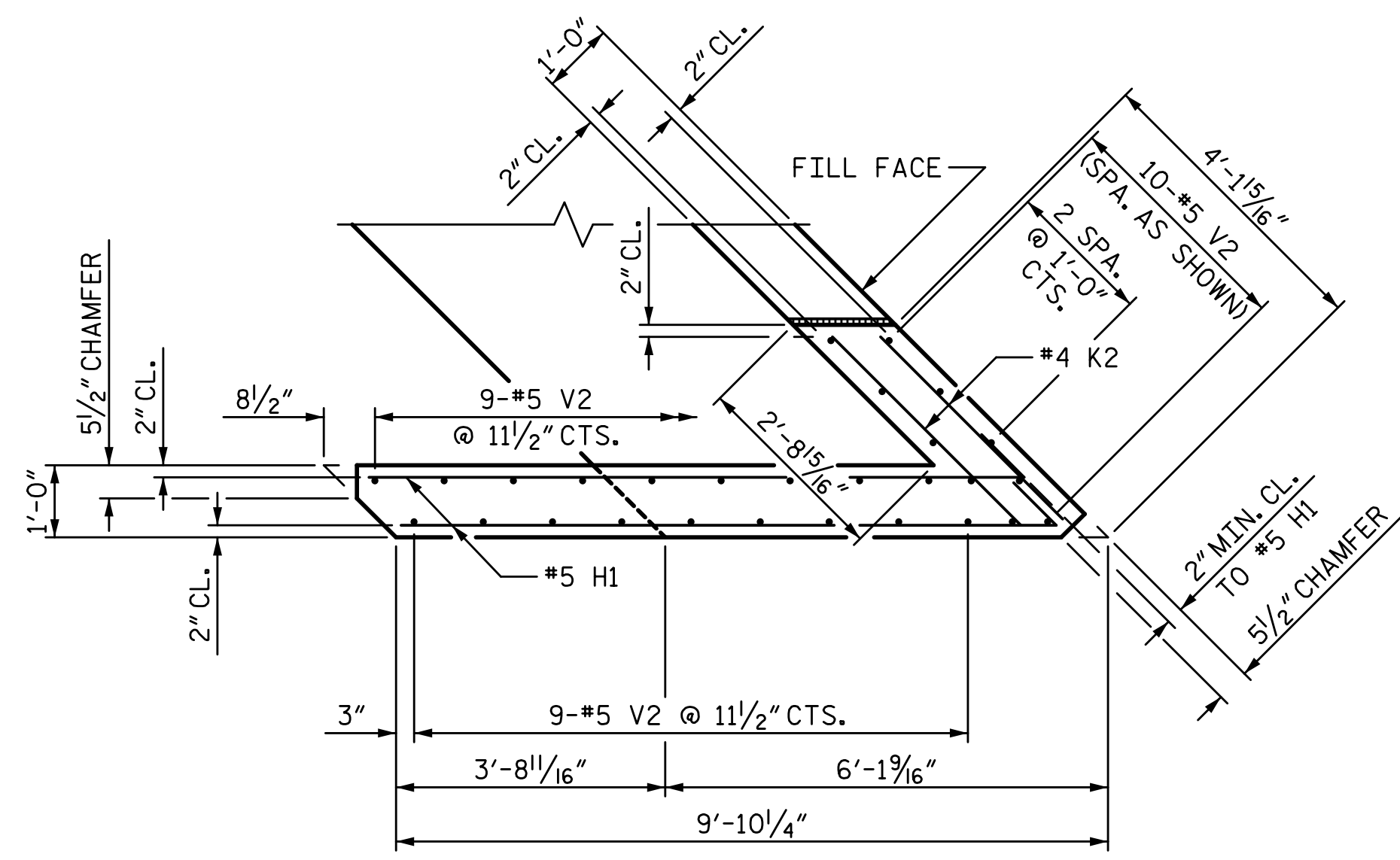


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

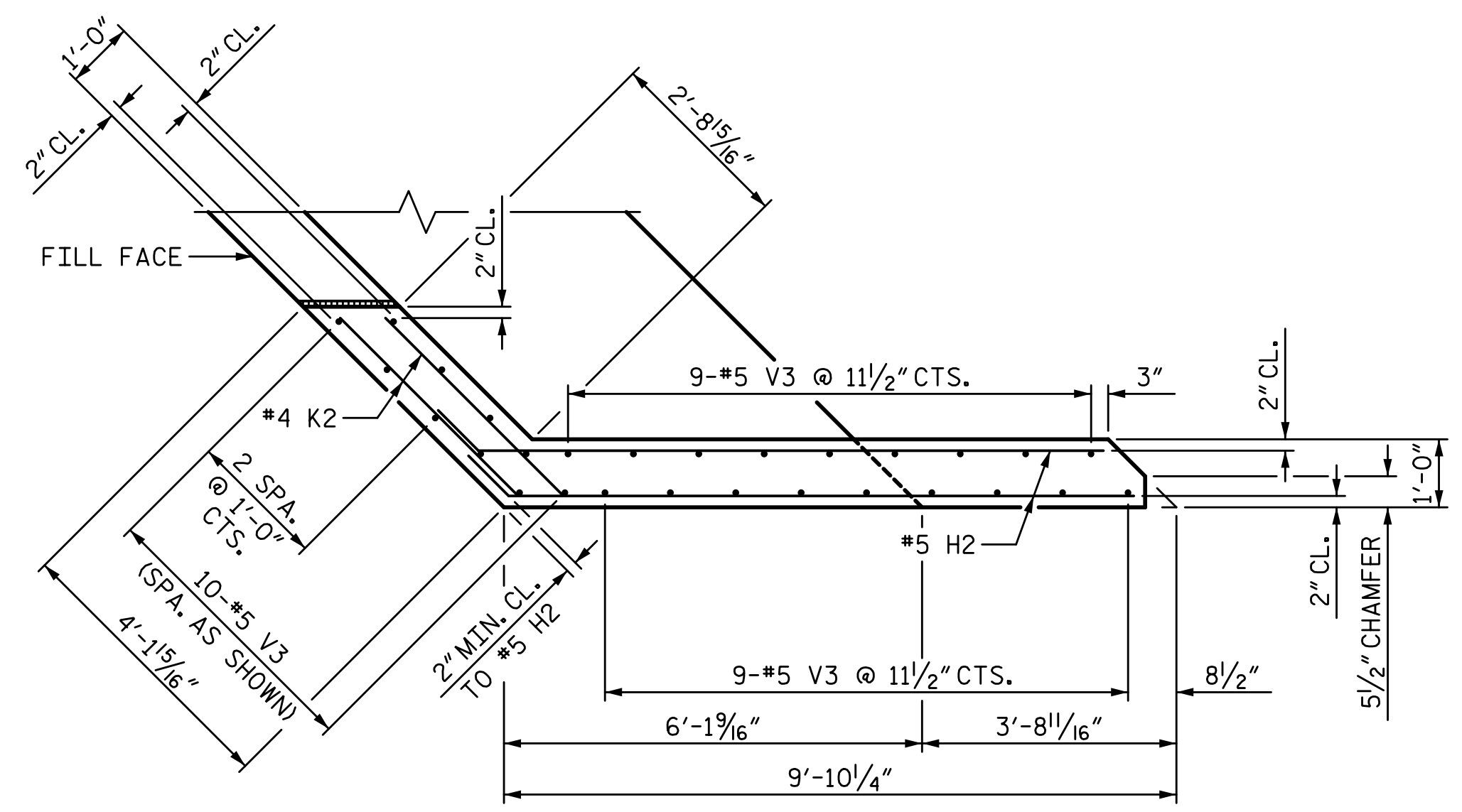
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-26	
1			3			TOTAL SHEETS	
2			4			37	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

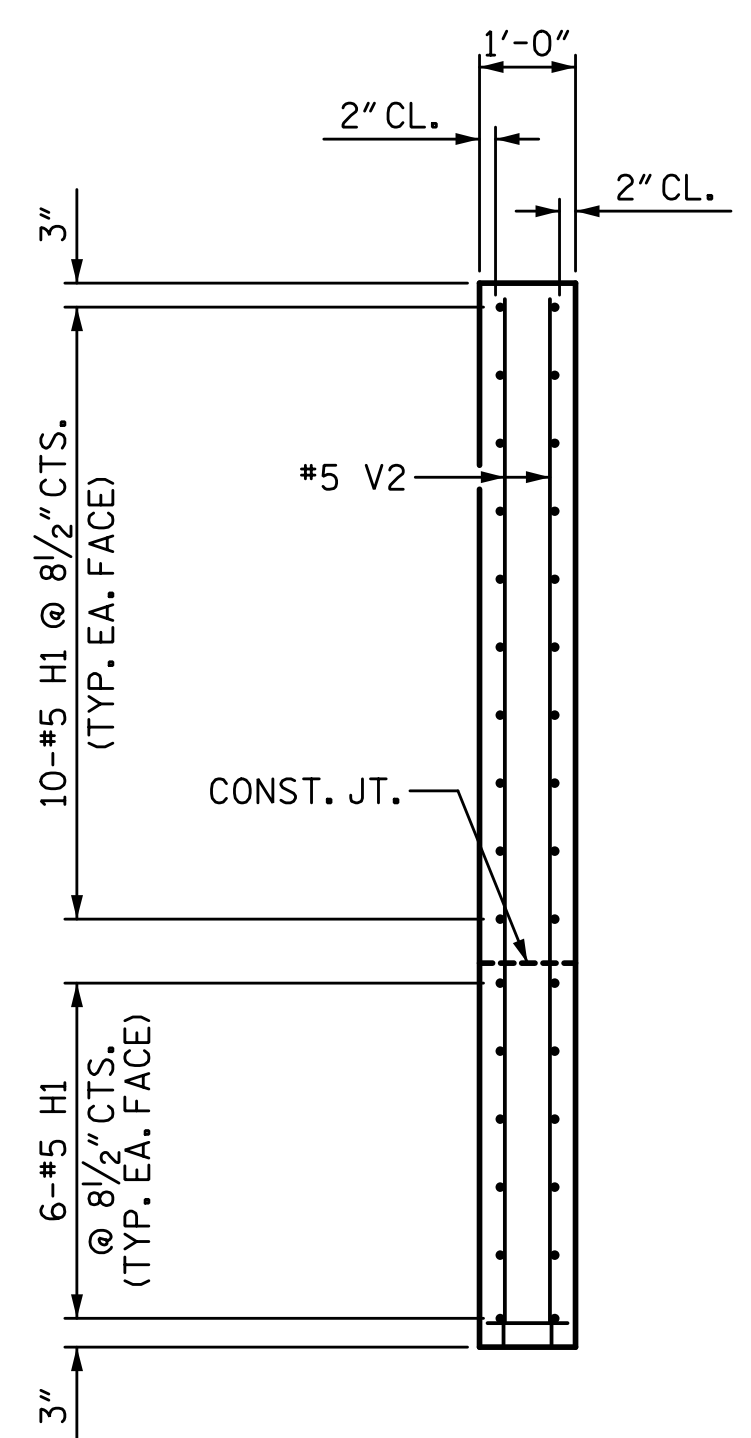
3/21/2022 9:08:56 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_E1.dgn



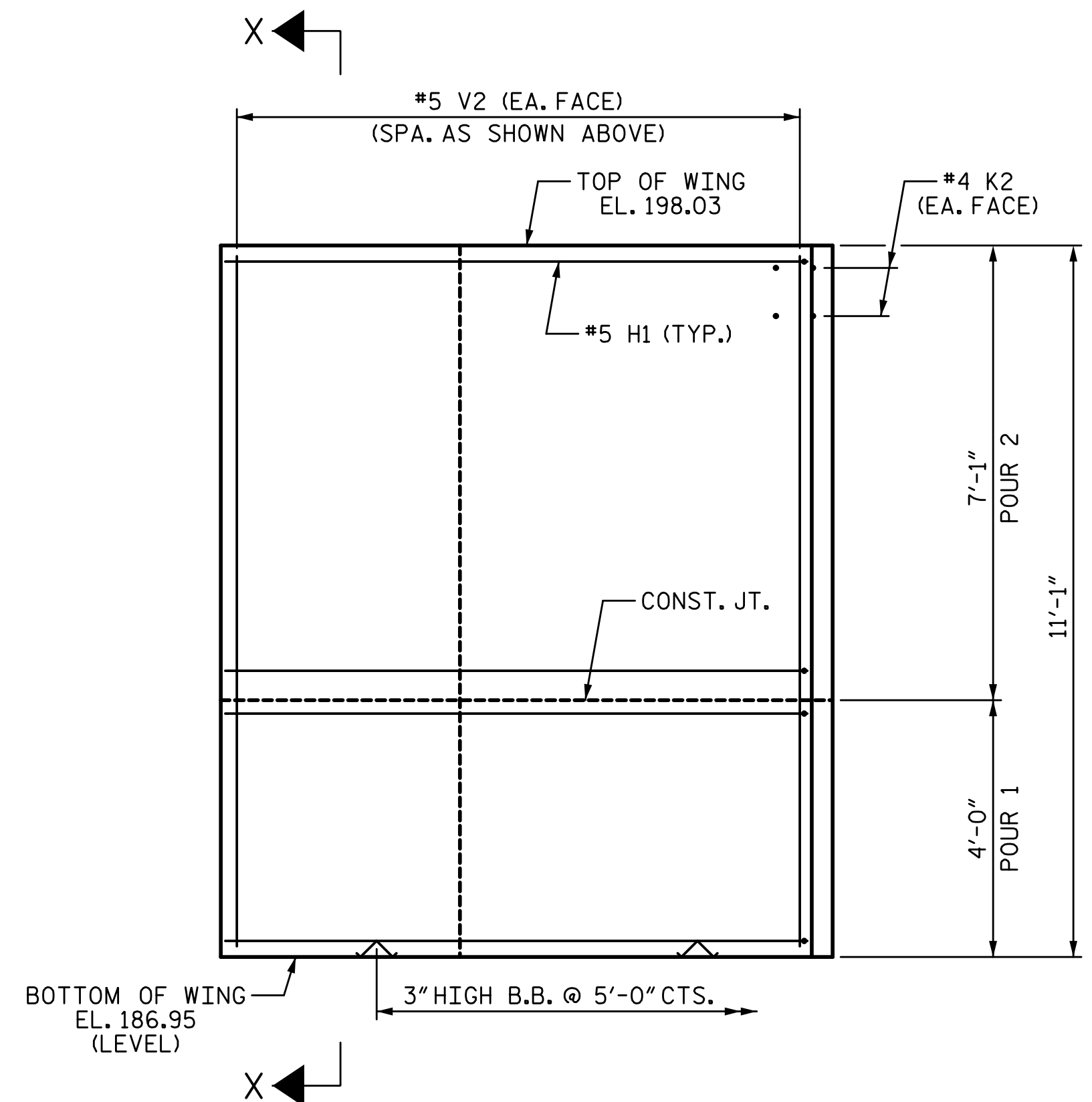
PLAN OF WING (W1)



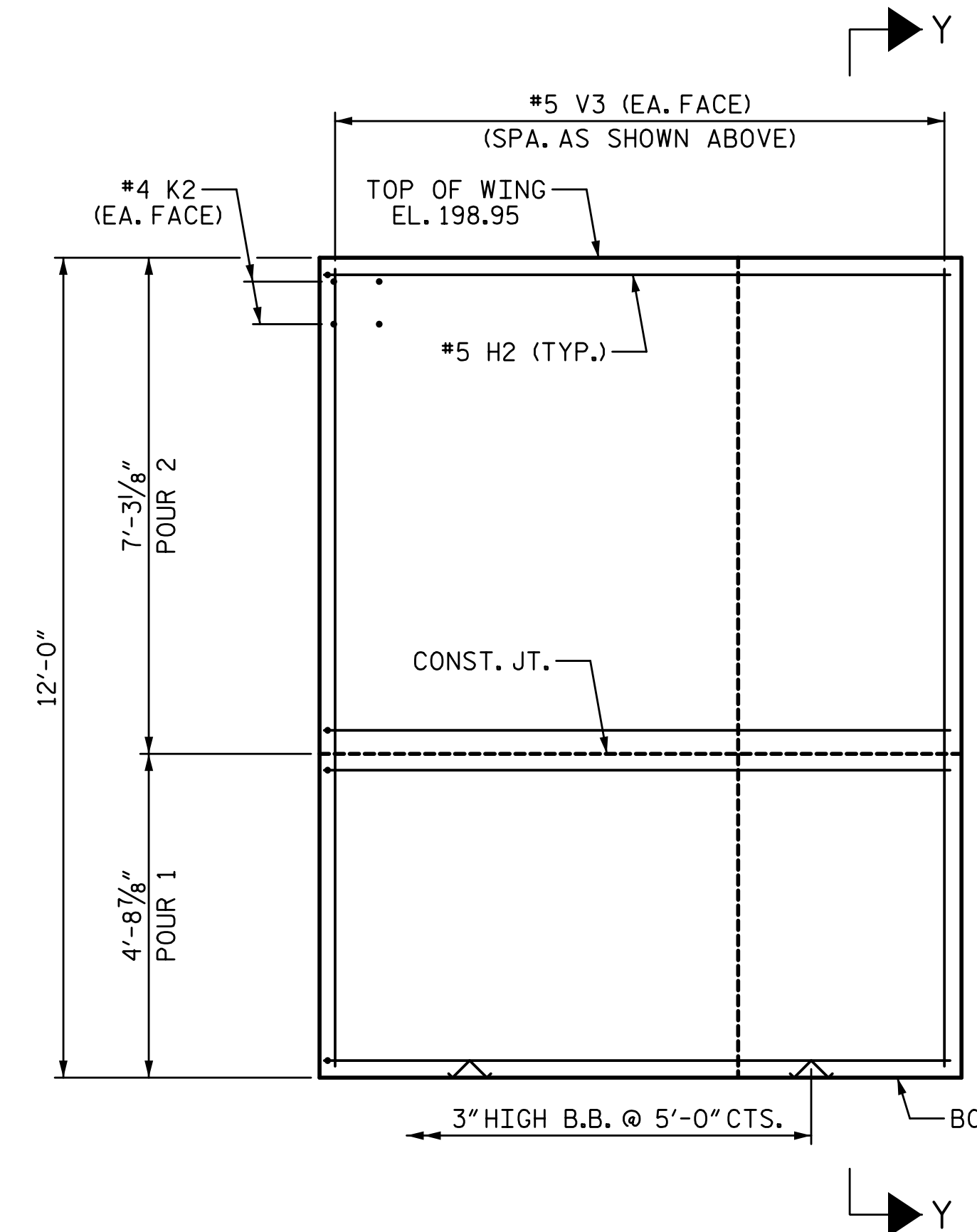
PLAN OF WING (W2)



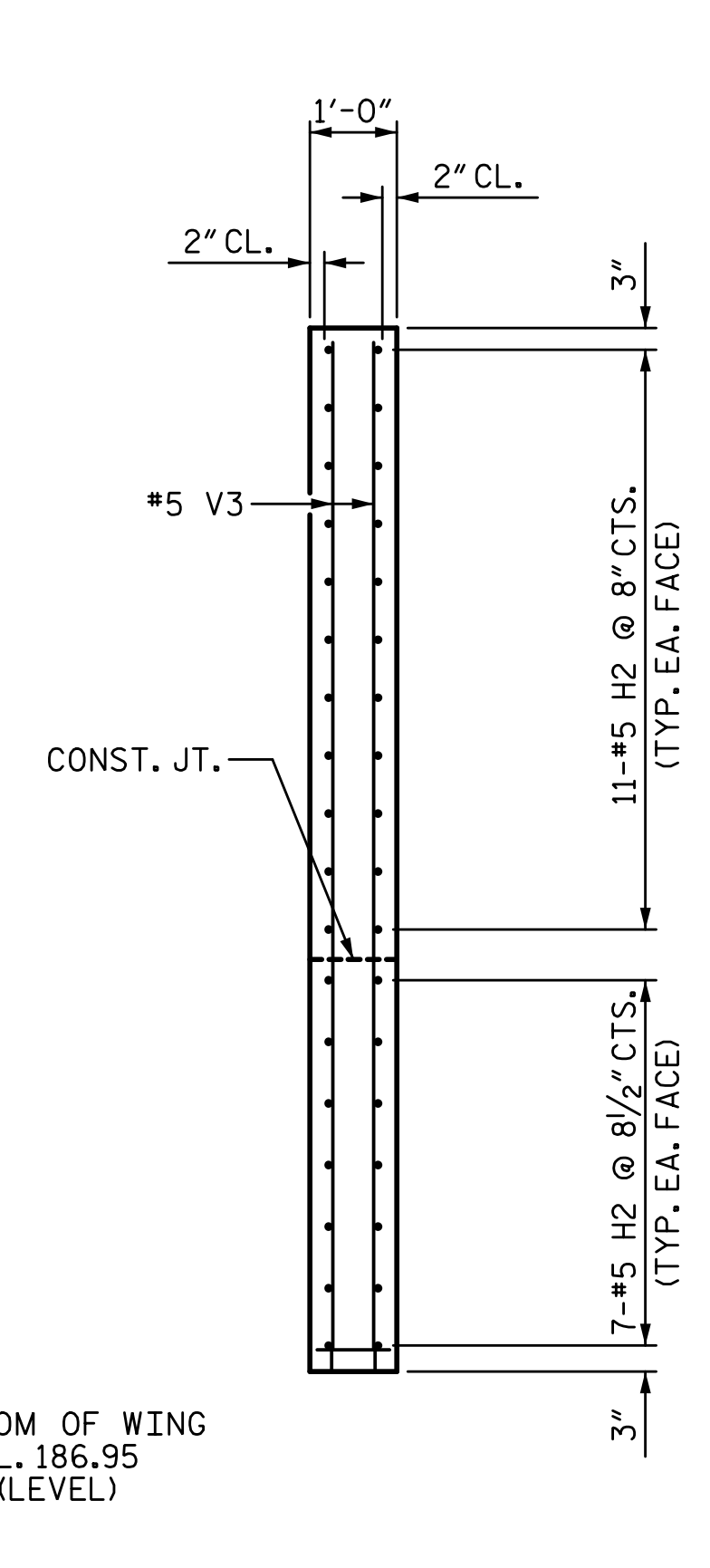
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

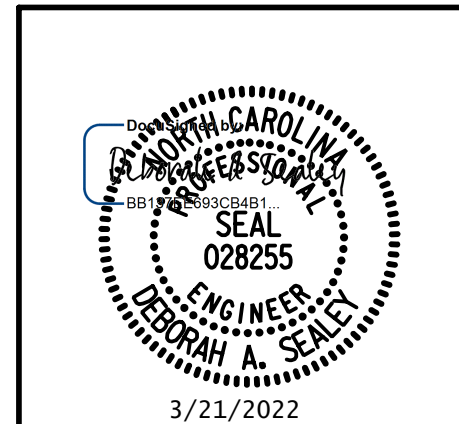
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 29+51.04 -Y1B-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 1

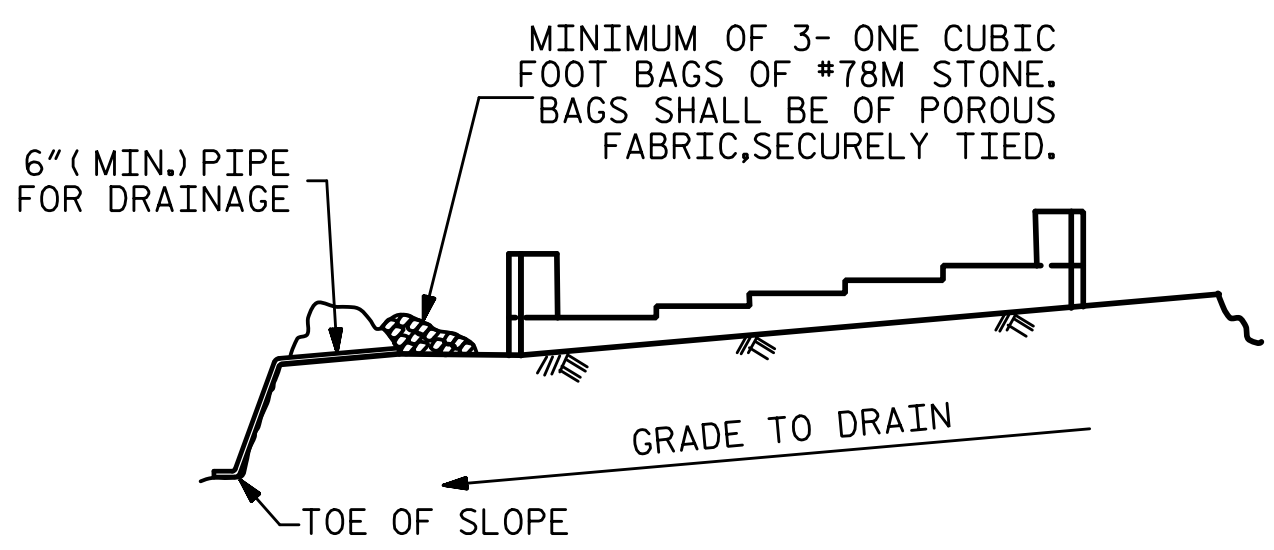
DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22



LICENSURE NO. C-4434

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

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



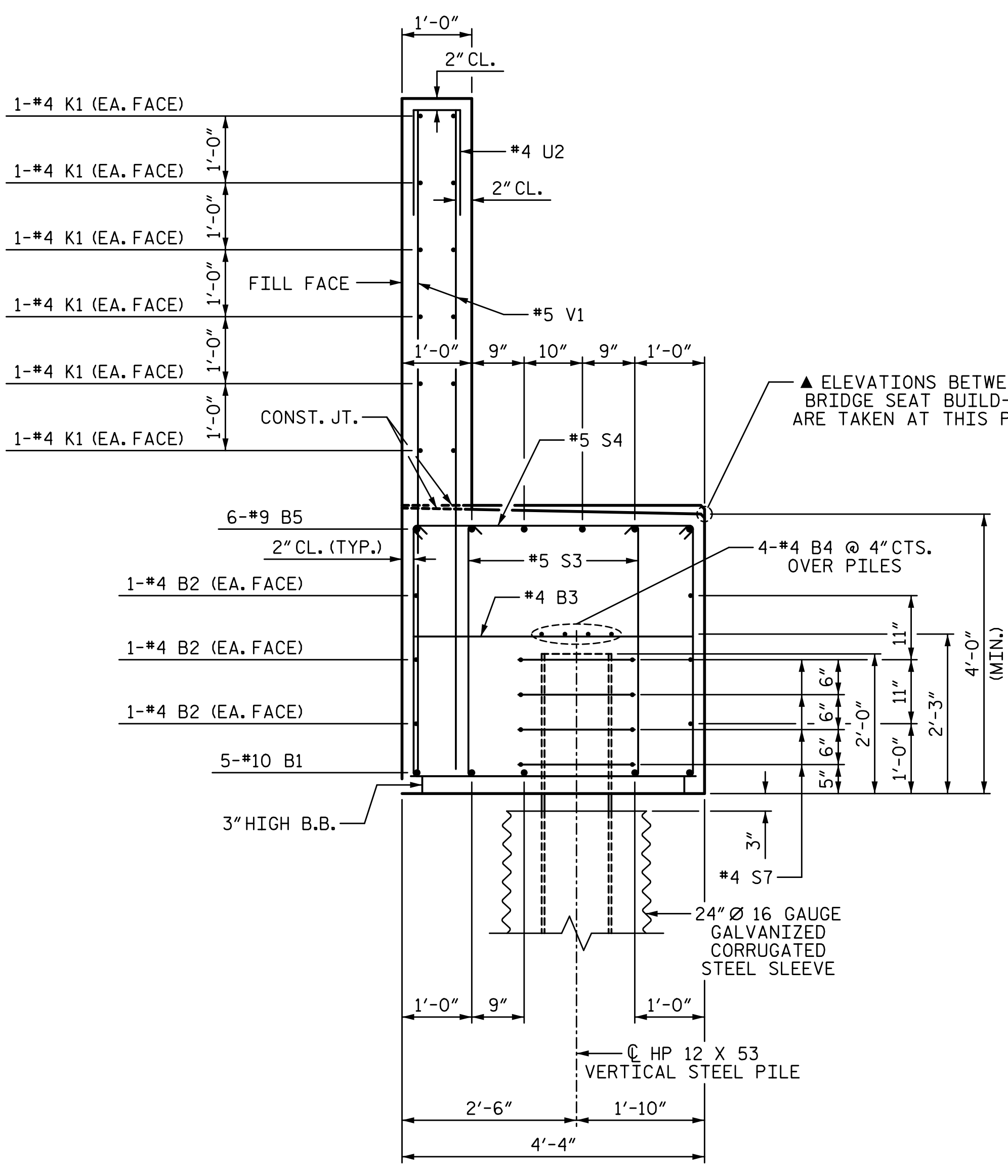
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

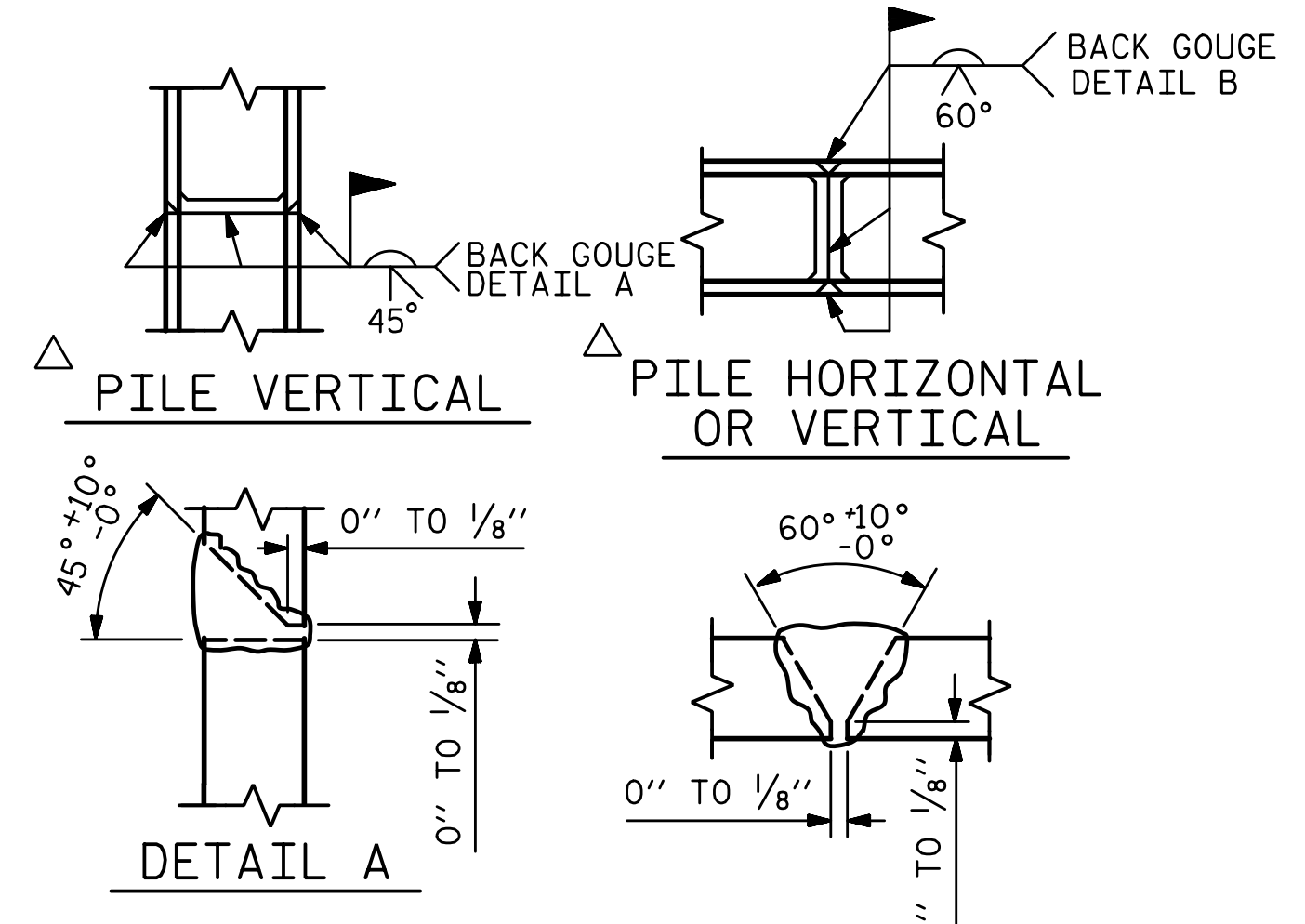
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER.

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

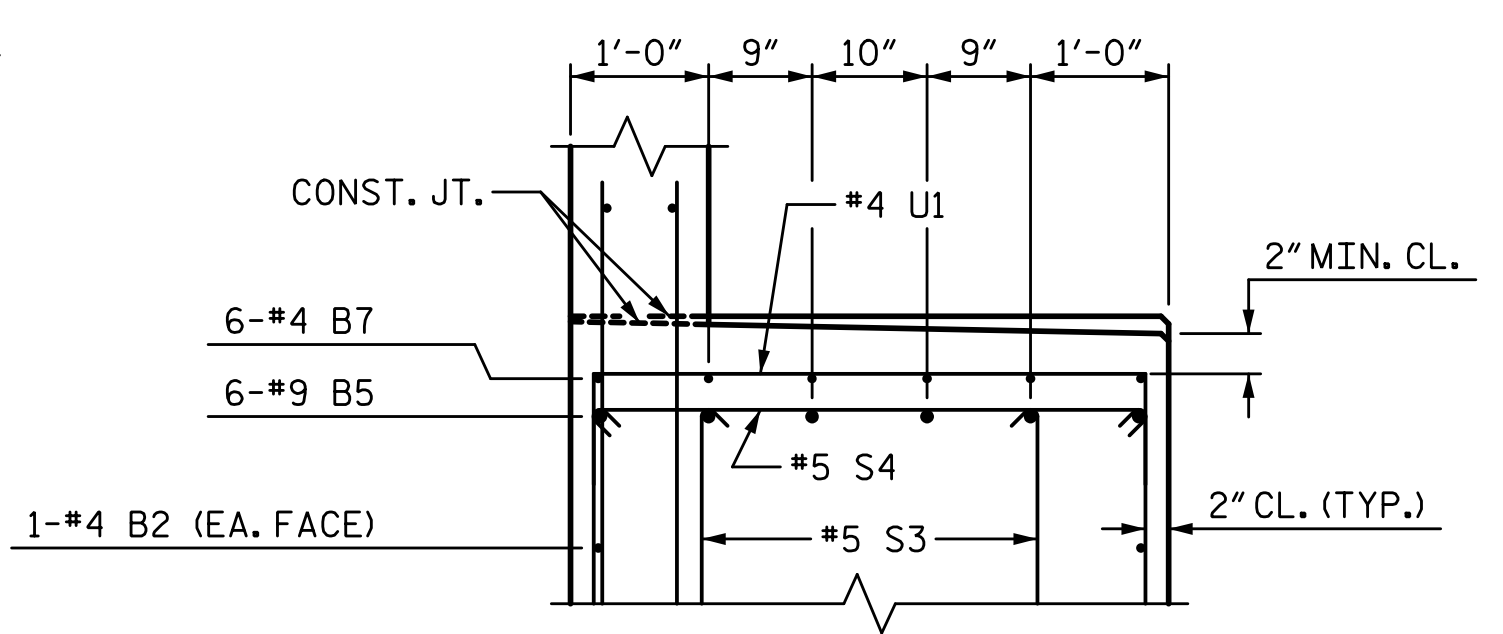


SECTION A-A
(TIEBACKS NOT SHOWN FOR CLARITY)

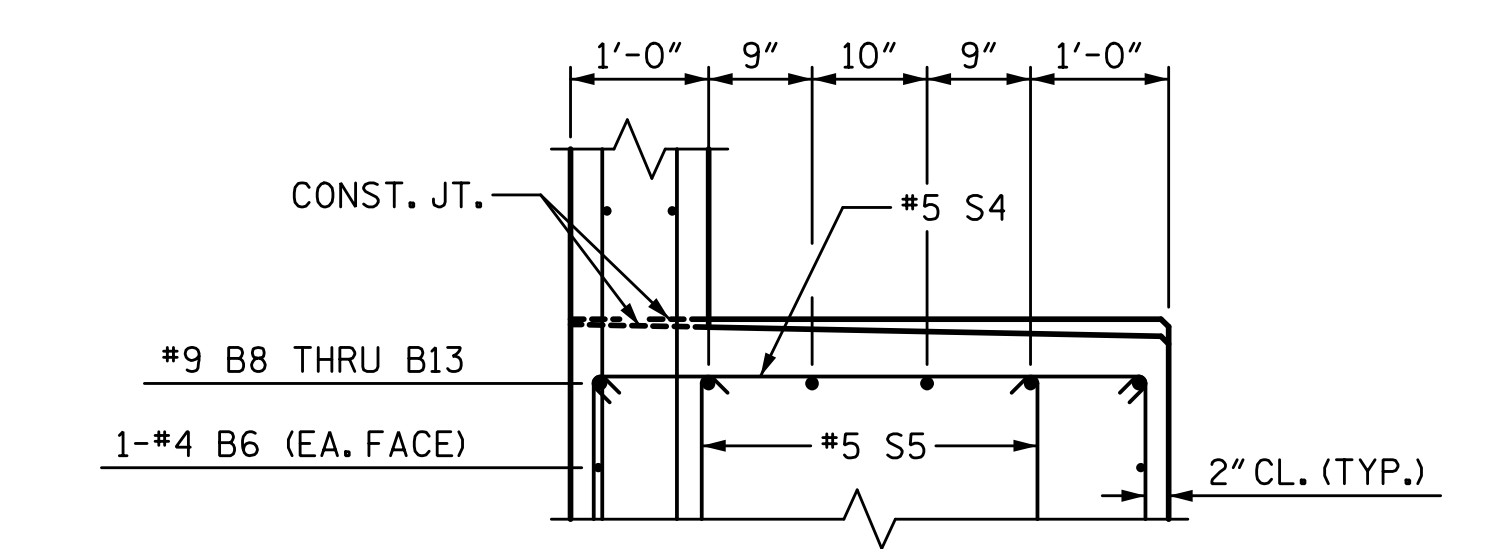


PILE SPLICE DETAILS

POSITION OF PILE DURING WELDING.

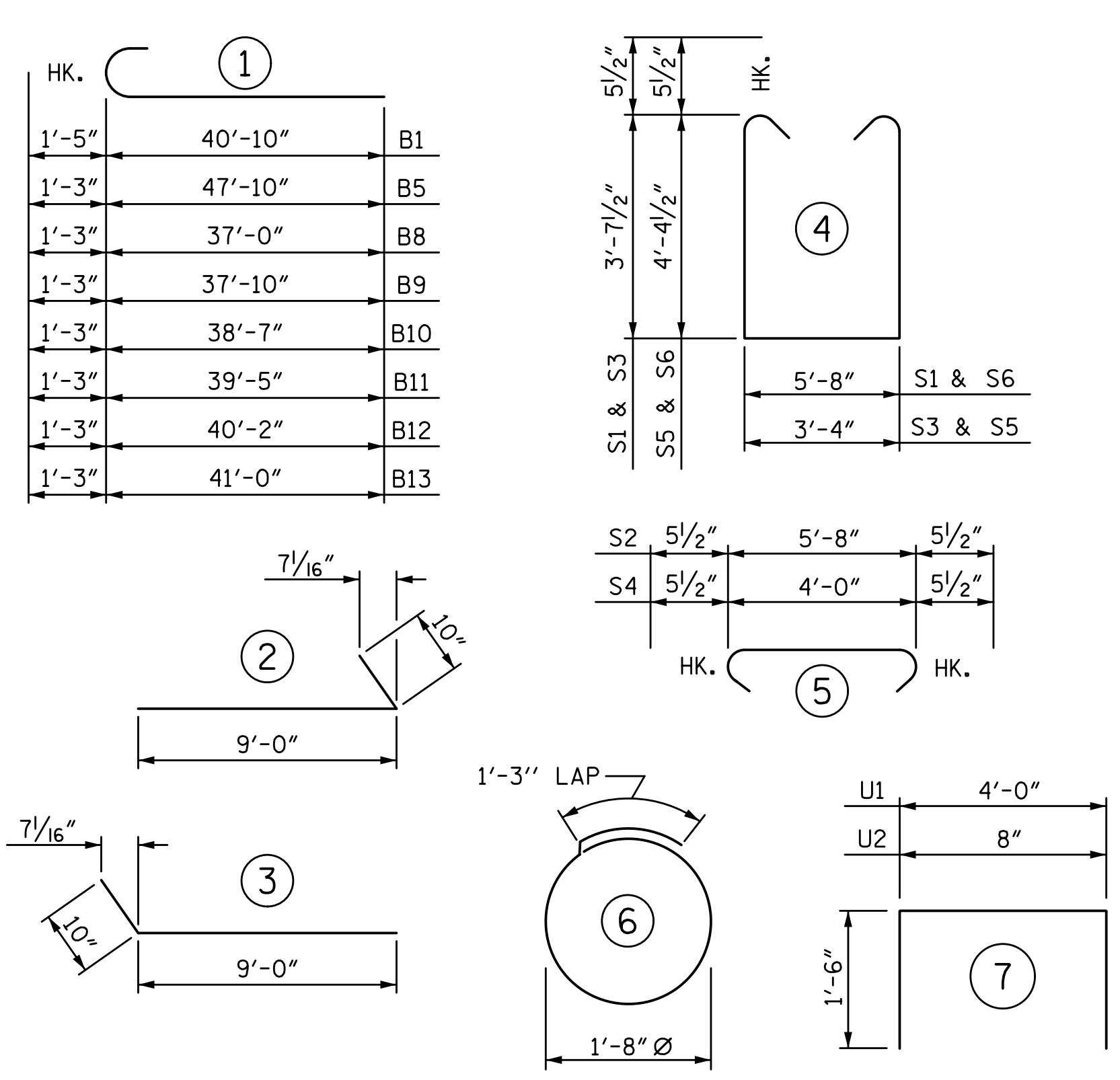


SECTION B-B



SECTION C-C

BAR TYPES



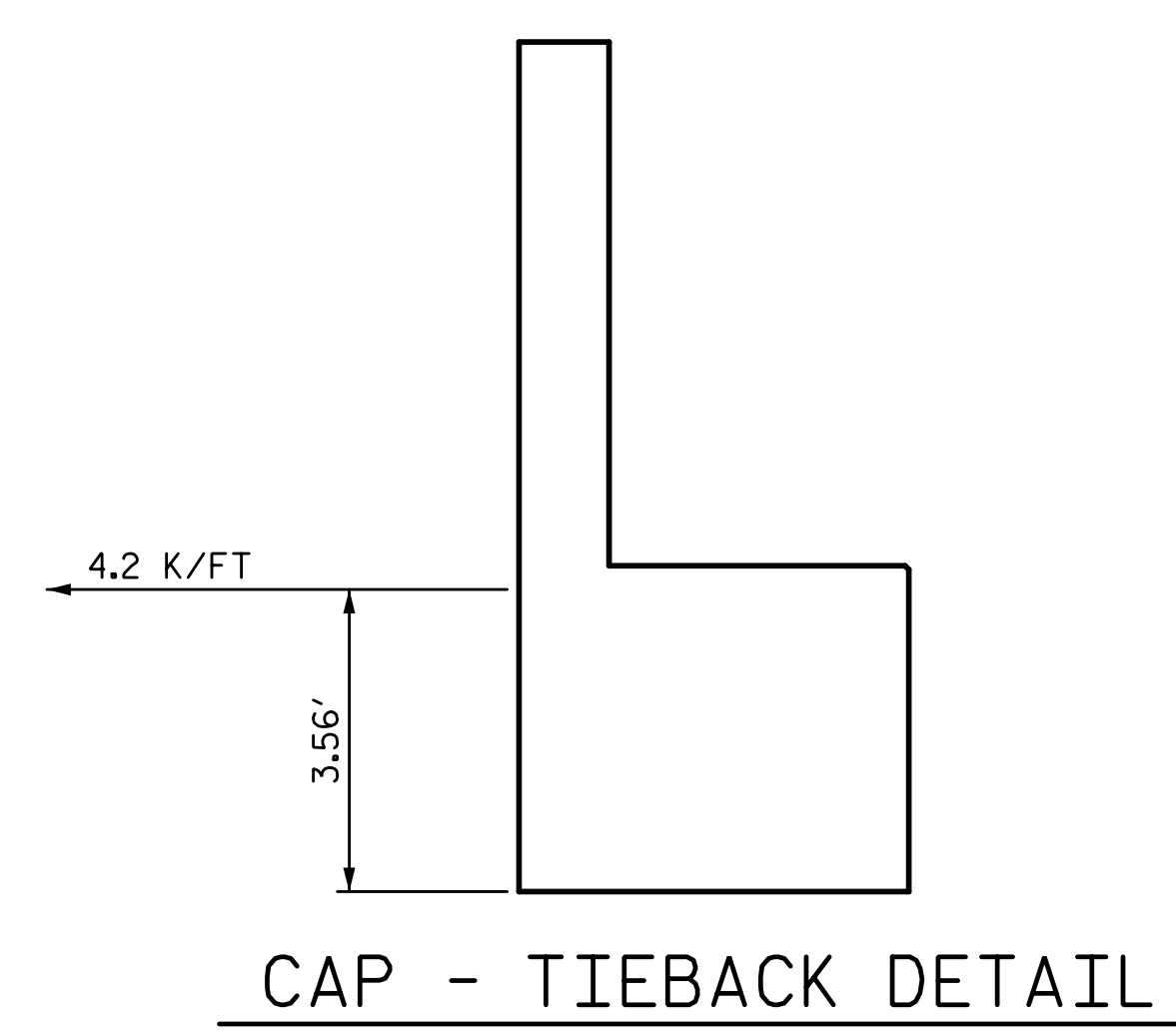
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT 1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#10	1	42'-3"	1818
B2	12	#4	STR	39'-10"	319
B3	20	#4	STR	4'-0"	53
B4	8	#4	STR	39'-10"	213
B5	6	#9	1	49'-1"	1001
B6	2	#4	STR	34'-7"	46
B7	6	#4	STR	14'-0"	56
B8	1	#9	1	38'-3"	130
B9	1	#9	1	39'-1"	133
B10	1	#9	1	39'-10"	135
B11	1	#9	1	40'-8"	138
B12	1	#9	1	41'-5"	141
B13	1	#9	1	42'-3"	144

H1	32	#5	2	9'-10"	328
H2	36	#5	3	9'-10"	369
K1	24	#4	STR	39'-10"	639
K2	8	#4	STR	3'-4"	18
S1	2	#5	4	13'-10"	29
S2	4	#5	5	6'-7"	27
S3	96	#5	4	11'-6"	1151
S4	96	#5	5	4'-11"	492
S5	96	#5	4	13'-0"	1302
S6	2	#5	4	15'-4"	32
S7	36	#4	6	6'-6"	156
U1	10	#4	7	7'-0"	47
U2	69	#4	7	3'-8"	169
V1	138	#5	STR	9'-5"	1355
V2	28	#5	STR	10'-8"	312
V3	28	#5	STR	11'-7"	338

TOTAL REINFORCING STEEL		11091 LB			
CLASS A CONCRETE BREAKDOWN					
POUR 1					
(CAP & LOWER WINGS)				57.0 CY	
POUR 2					
(UPPER WINGS & BACKWALL)				22.0 CY	
TOTAL CLASS A CONCRETE				79.0 CY	

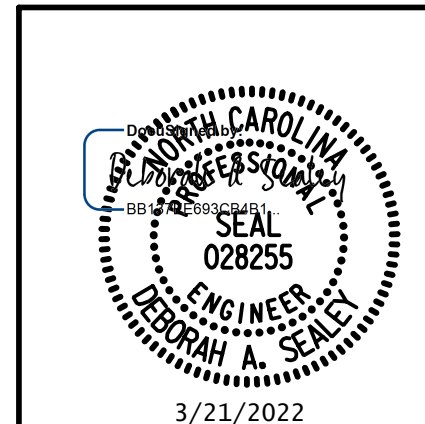


CAP - TIEBACK DETAIL

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

SHEET 3 OF 3

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



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

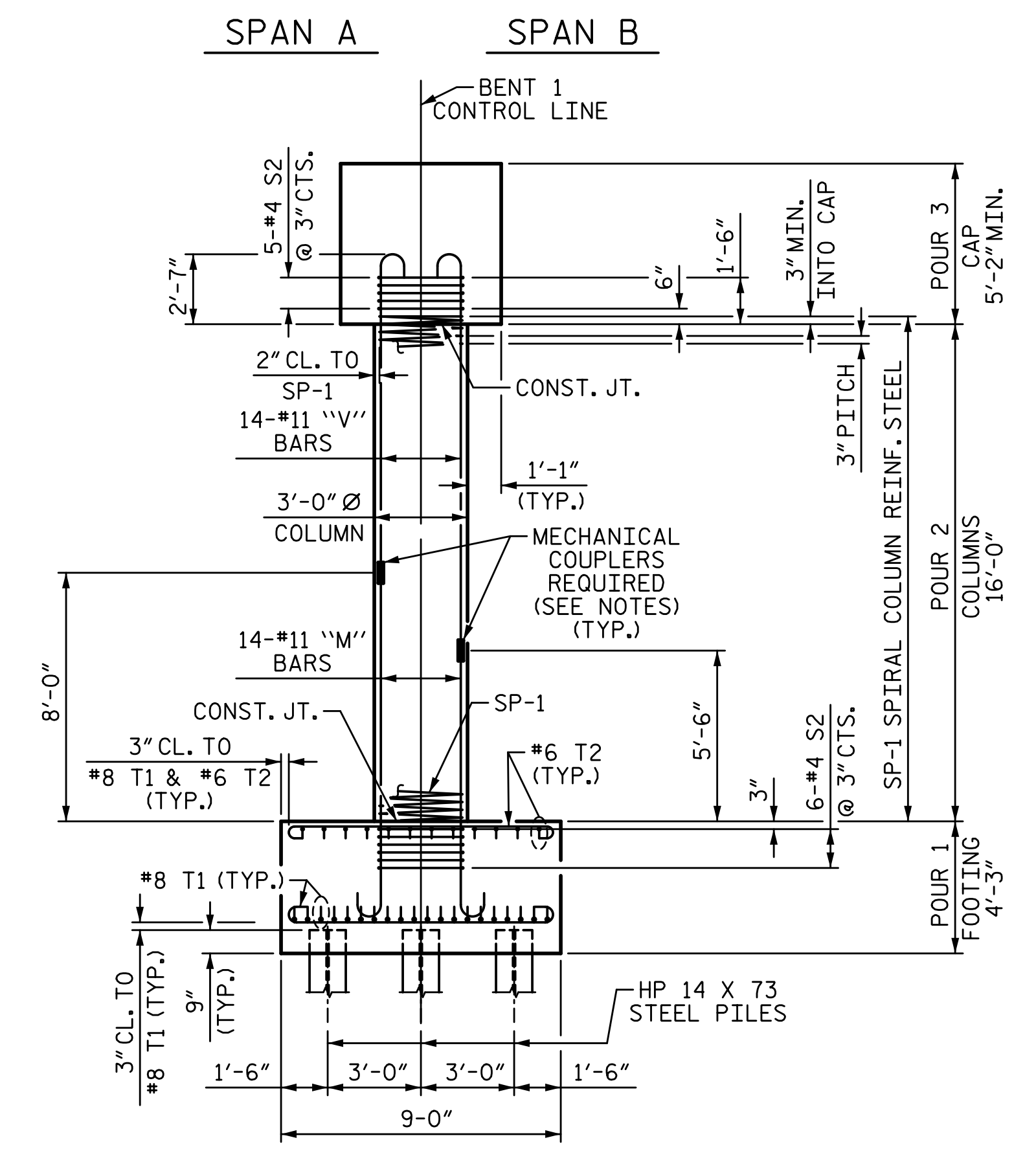
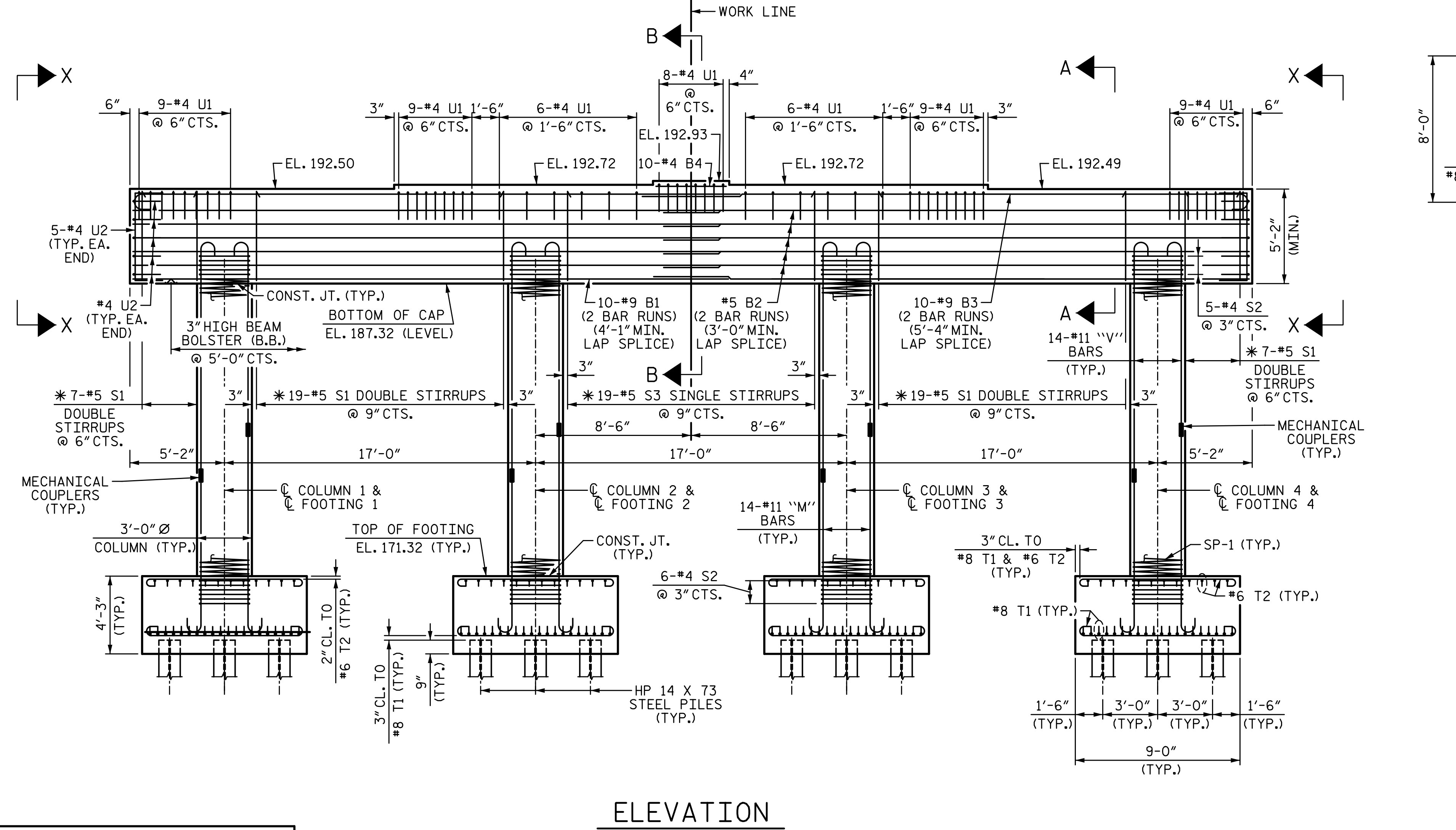
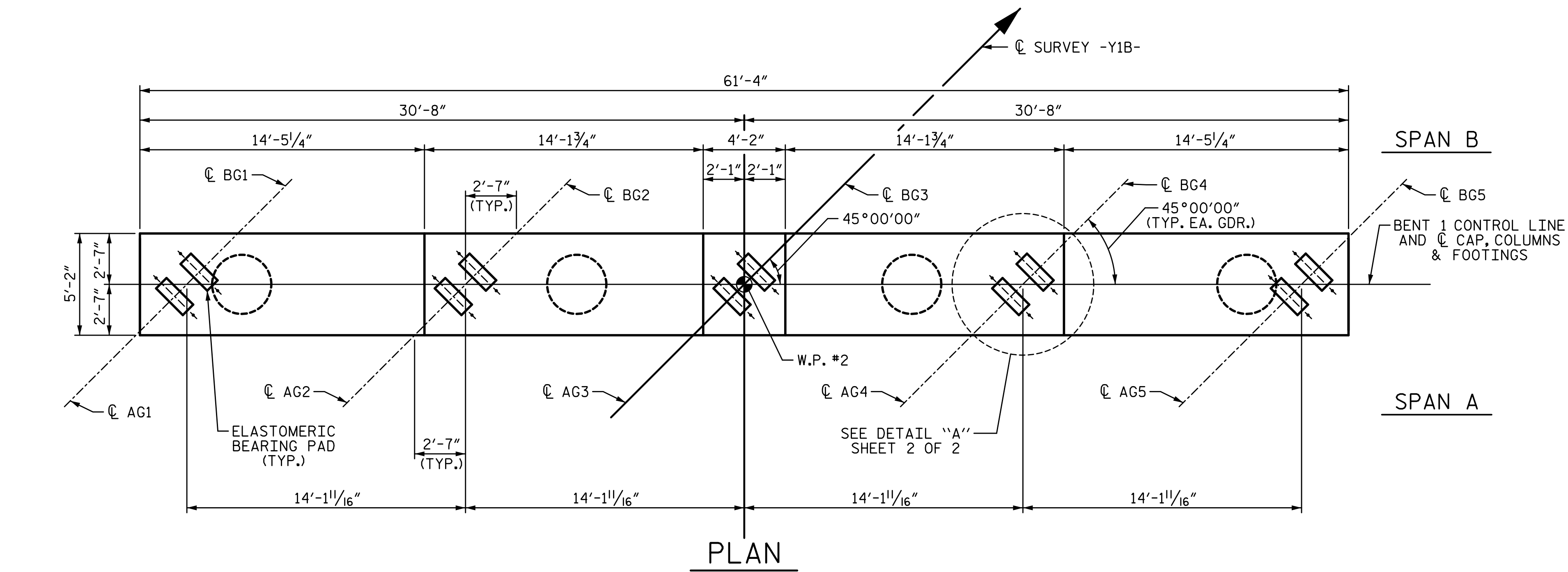
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SHEET NO. S7-28
TOTAL SHEETS 37

3/21/2022 9:08:58 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Find\I5987B_SMU_B1.dgn

NOTES:

- * INVERT ALTERNATE STIRRUPS.
- STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "M" AND "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- SEE "GENERAL DRAWING FOUNDATION LAYOUT" FOR ADDITIONAL NOTES FOR DRIVING PILES.
- FOR SECTION A-A, SECTION B-B, AND VIEW X-X, SEE SHEET 2 OF 2.
- MECHANICAL COUPLERS ARE REQUIRED FOR "M" BAR AND "V" BAR CONNECTIONS. EACH COUPLER SHALL BE ABLE TO RESIST A TENSILE FORCE OF 47 KIPS. THE COUPLER LOCATIONS SHALL ALTERNATE BETWEEN 8'-0" AND 5'-6" ABOVE TOP OF FOOTING IN EACH COLUMN.

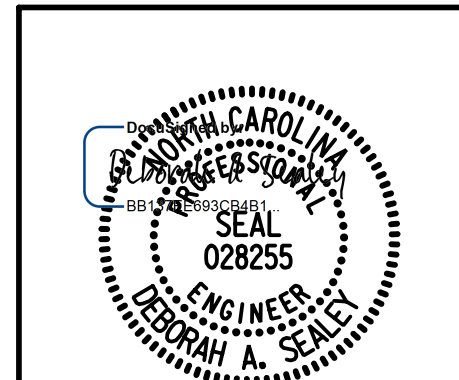


PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 29+51.04 -Y1B-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 1

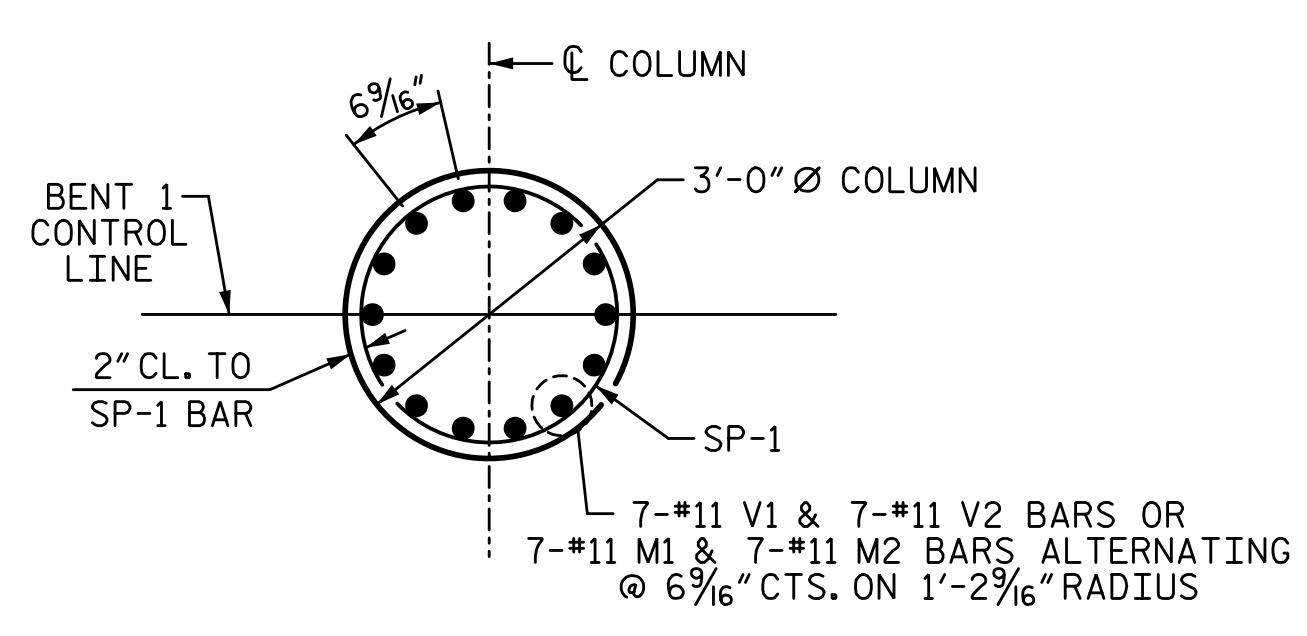


DRAWN BY: S.D. COOPER	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

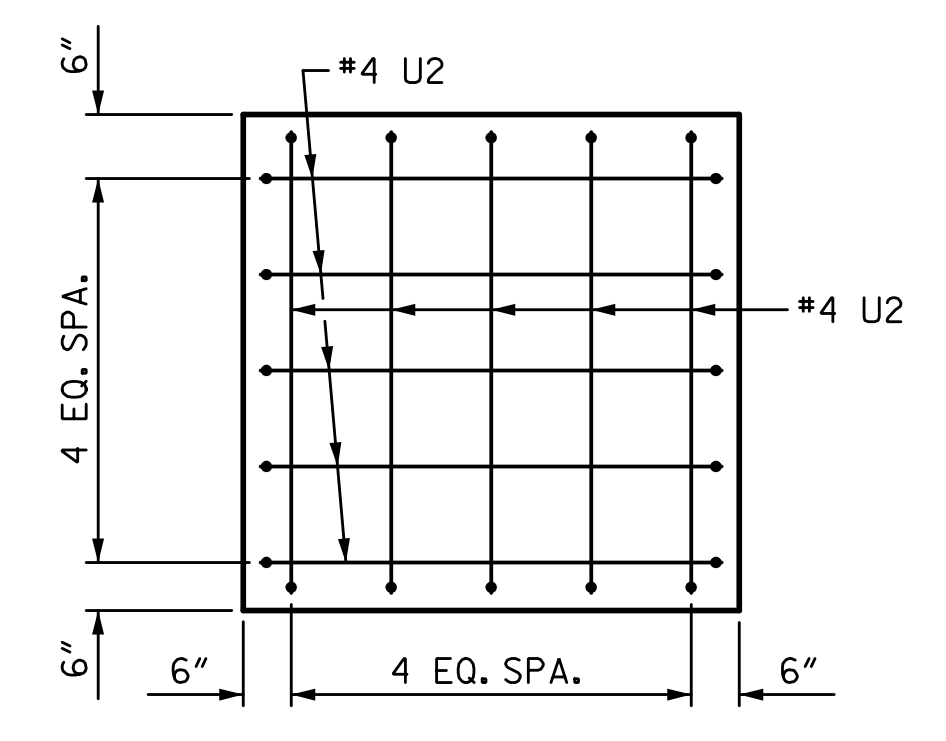
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-29	
1			3			TOTAL SHEETS	
2			4			37	

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

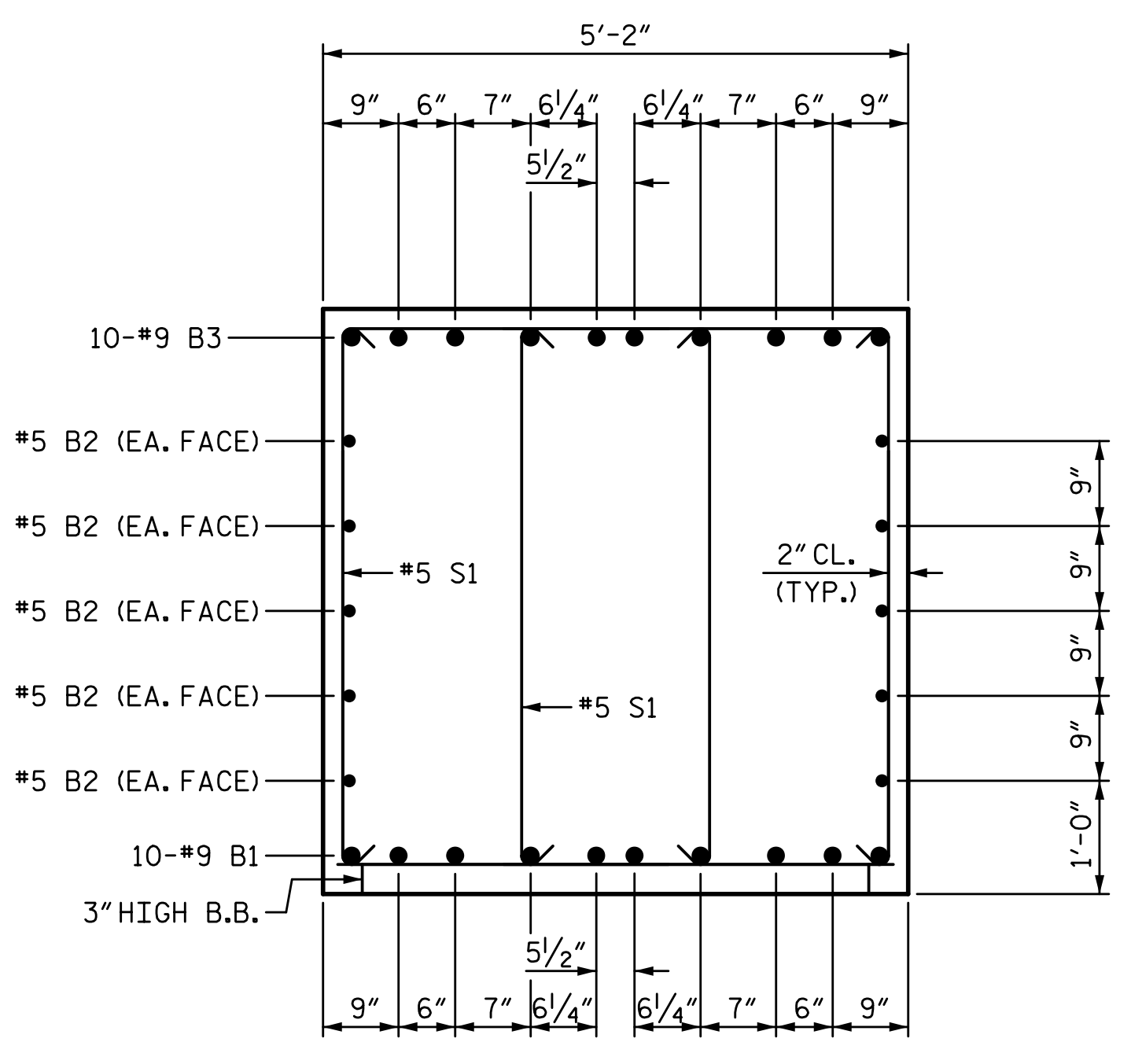
3/21/2022 9:08:58 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_B1.dgn



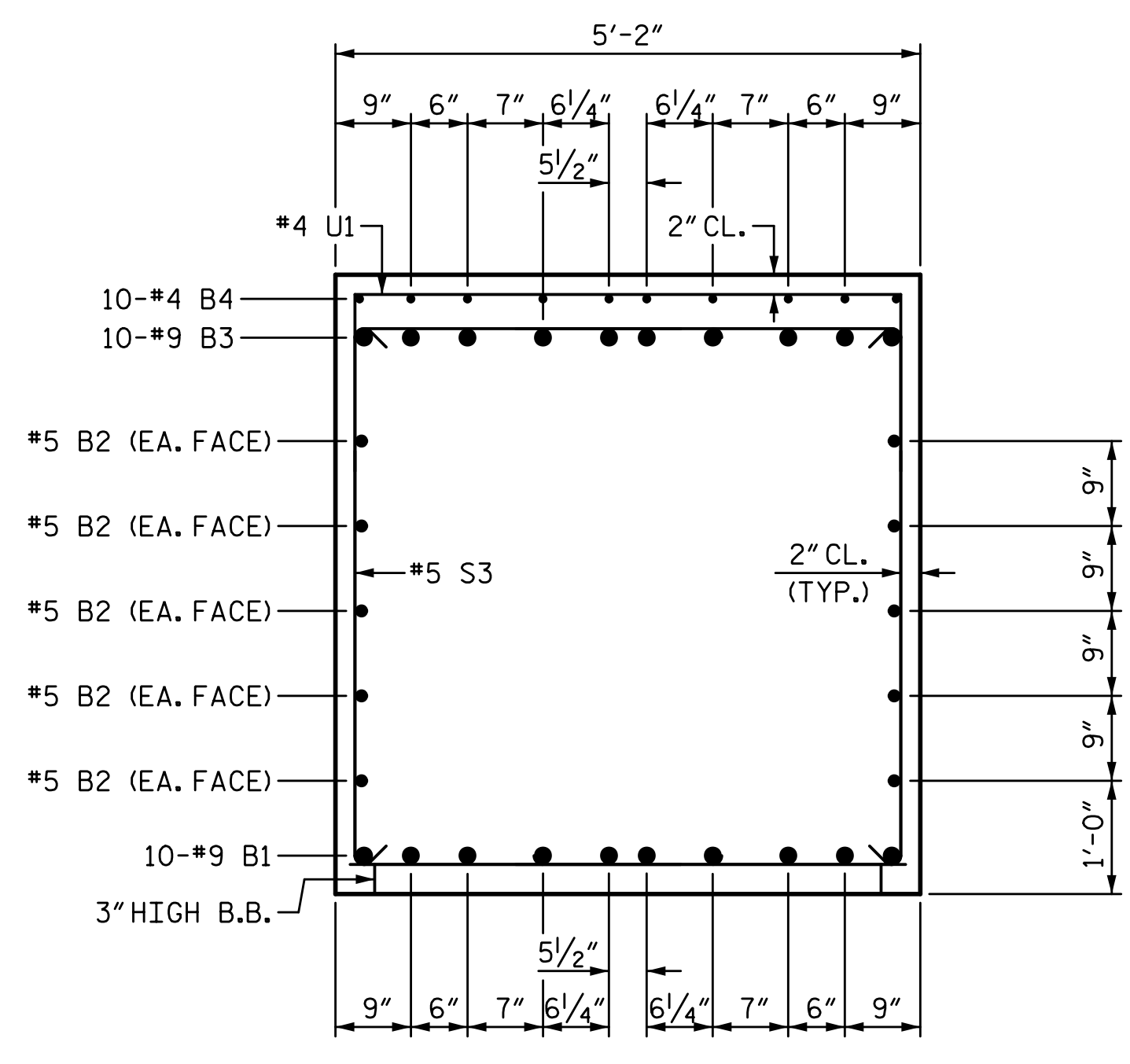
PLAN OF COLUMN
(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN)



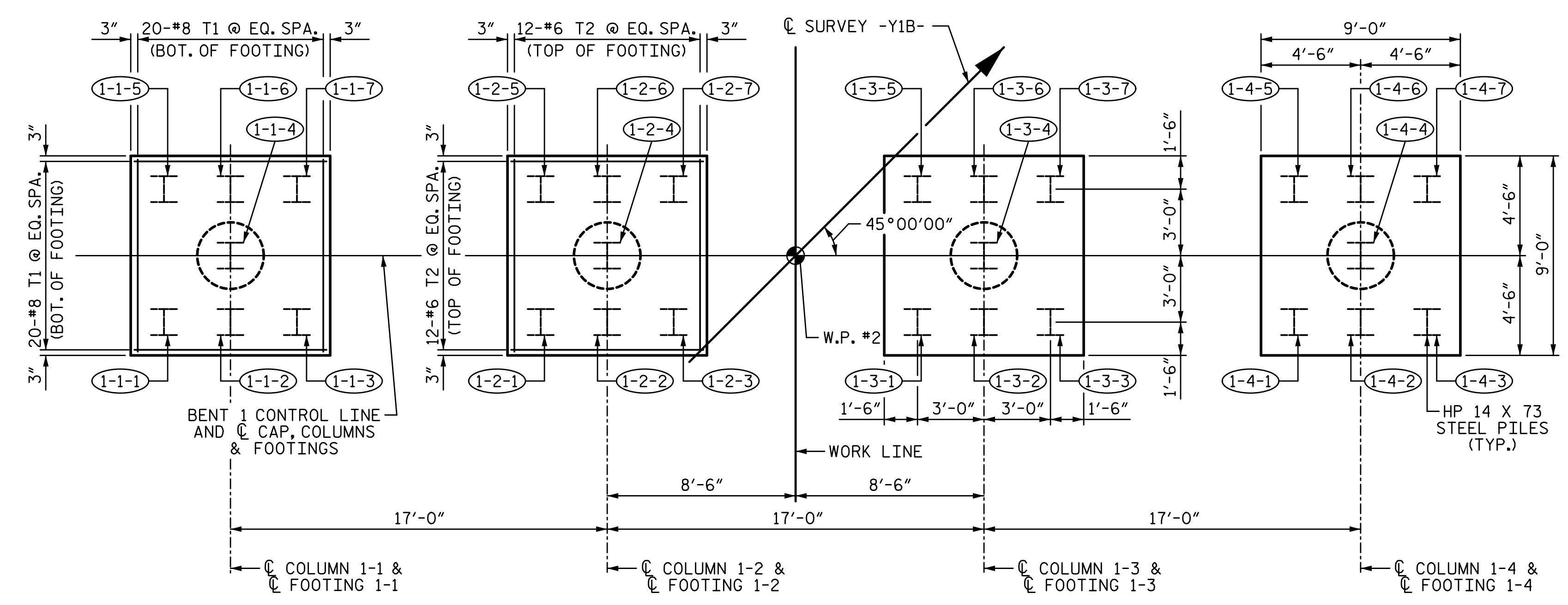
VIEW X-X



SECTION A-A

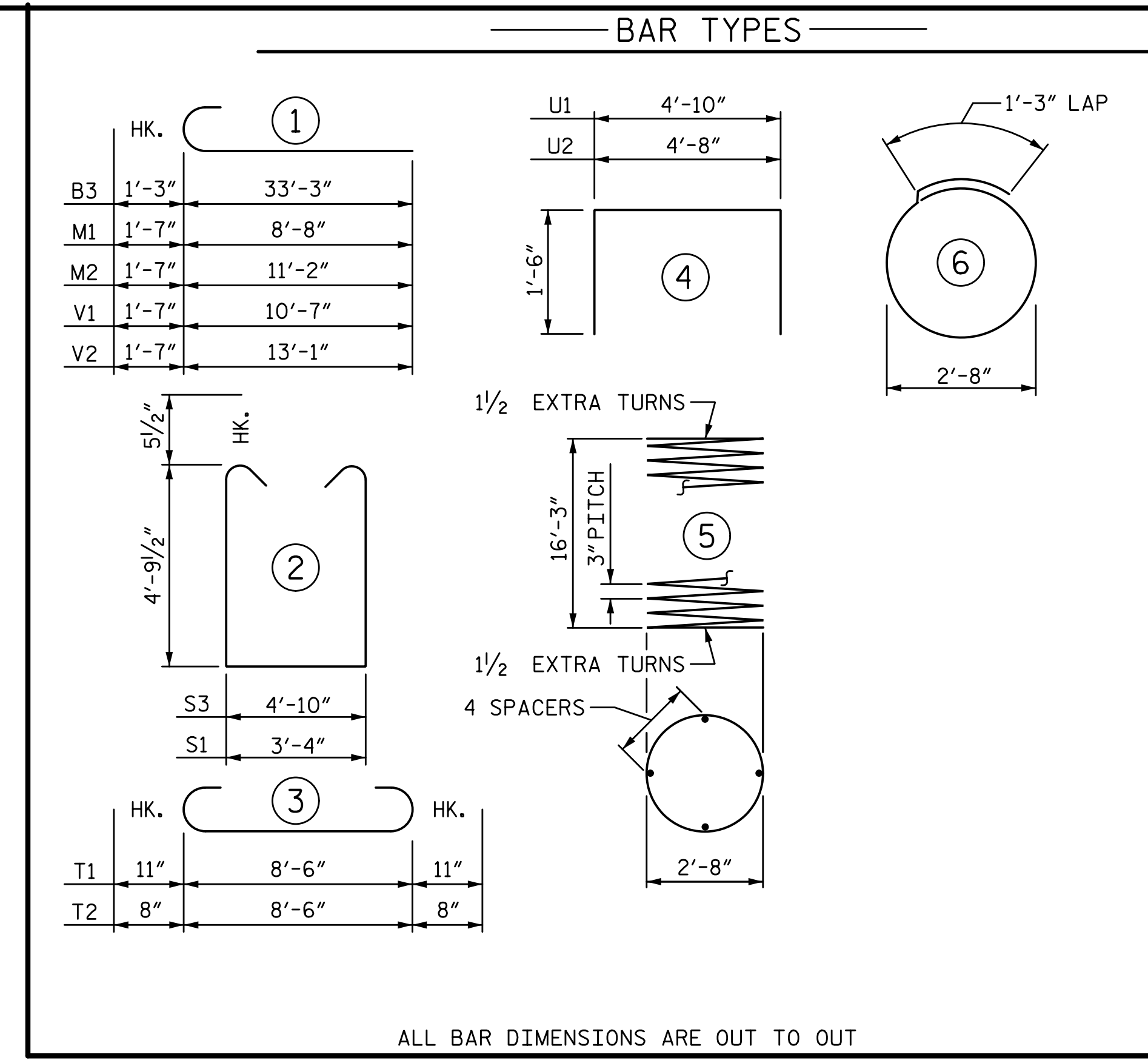


SECTION B-B



PLAN OF COLUMNS & FOOTINGS
(DIMENSIONS ARE TYPICAL FOR EACH COLUMN & FOOTING)

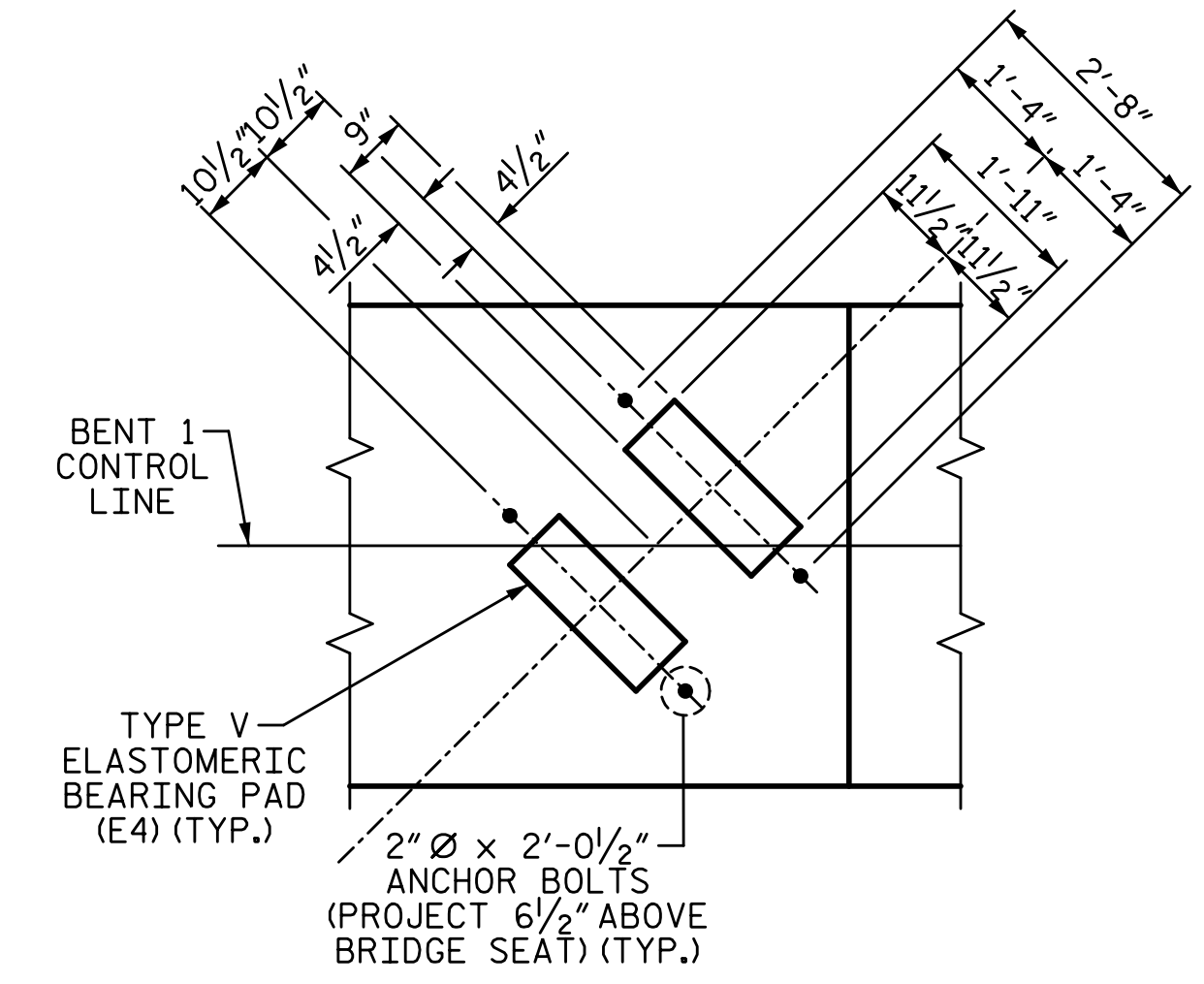
DRAWN BY: S.D. COOPER DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
BENT 1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	20	#9	STR	32'-7"	2216
B2	20	#5	STR	32'-0"	668
B3	20	#9	1	34'-6"	2346
B4	10	#4	STR	3'-10"	26
M1	28	#11	1	10'-3"	1525
M2	28	#11	1	12'-9"	1897
S1	104	#5	2	13'-10"	1501
S2	44	#4	6	9'-8"	284
S3	19	#5	2	15'-4"	304
T1	160	#8	3	10'-4"	4414
T2	96	#6	3	9'-10"	1418
U1	56	#4	4	7'-10"	293
U2	20	#4	4	7'-8"	102
V1	28	#11	1	12'-2"	1810
V2	28	#11	1	14'-8"	2182
SP-1	4	**	5	558'-10"	2331
REINFORCING STEEL					20986 LB
SPIRAL COL. REINF. STEEL					2331 LB
CLASS "A" CONCRETE BREAKDOWN					
POUR 1 (FOOTINGS)					51.1 CY
POUR 2 (COLUMNS)					16.8 CY
POUR 3 (CAP)					62.4 CY
TOTAL					130.3 CY

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORM BAR

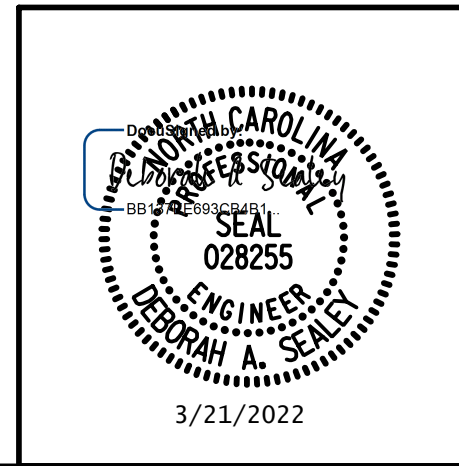


DETAIL "A"
(TYP. EA. GIRDER)

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

SHEET 2 OF 2

WVGI
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

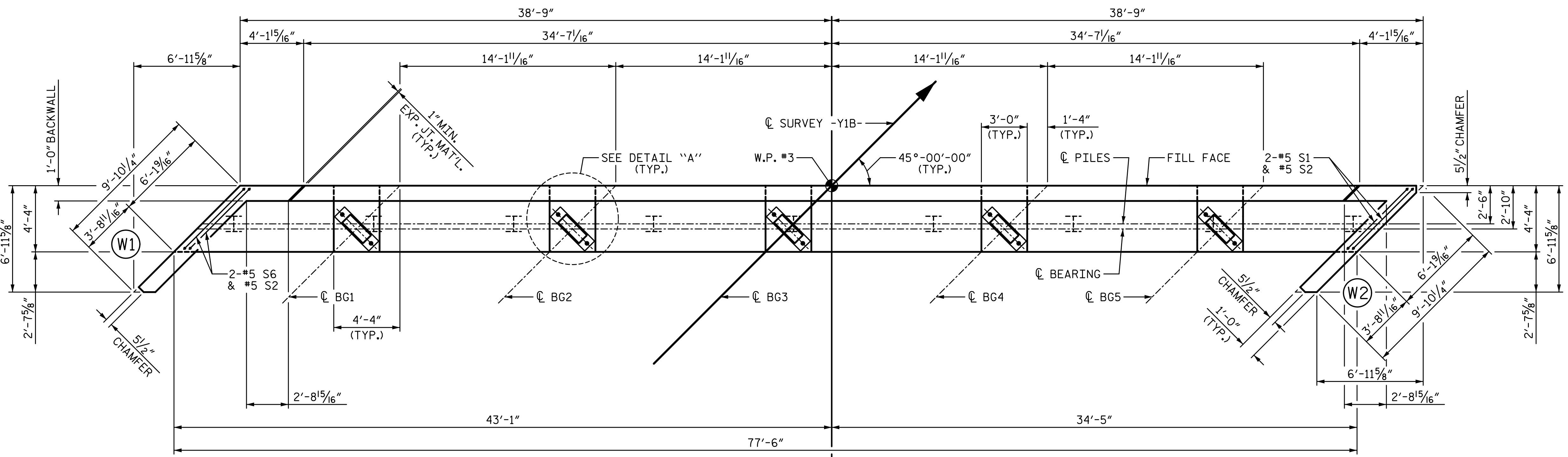


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE					
BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S7-30				
TOTAL SHEETS 37				

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

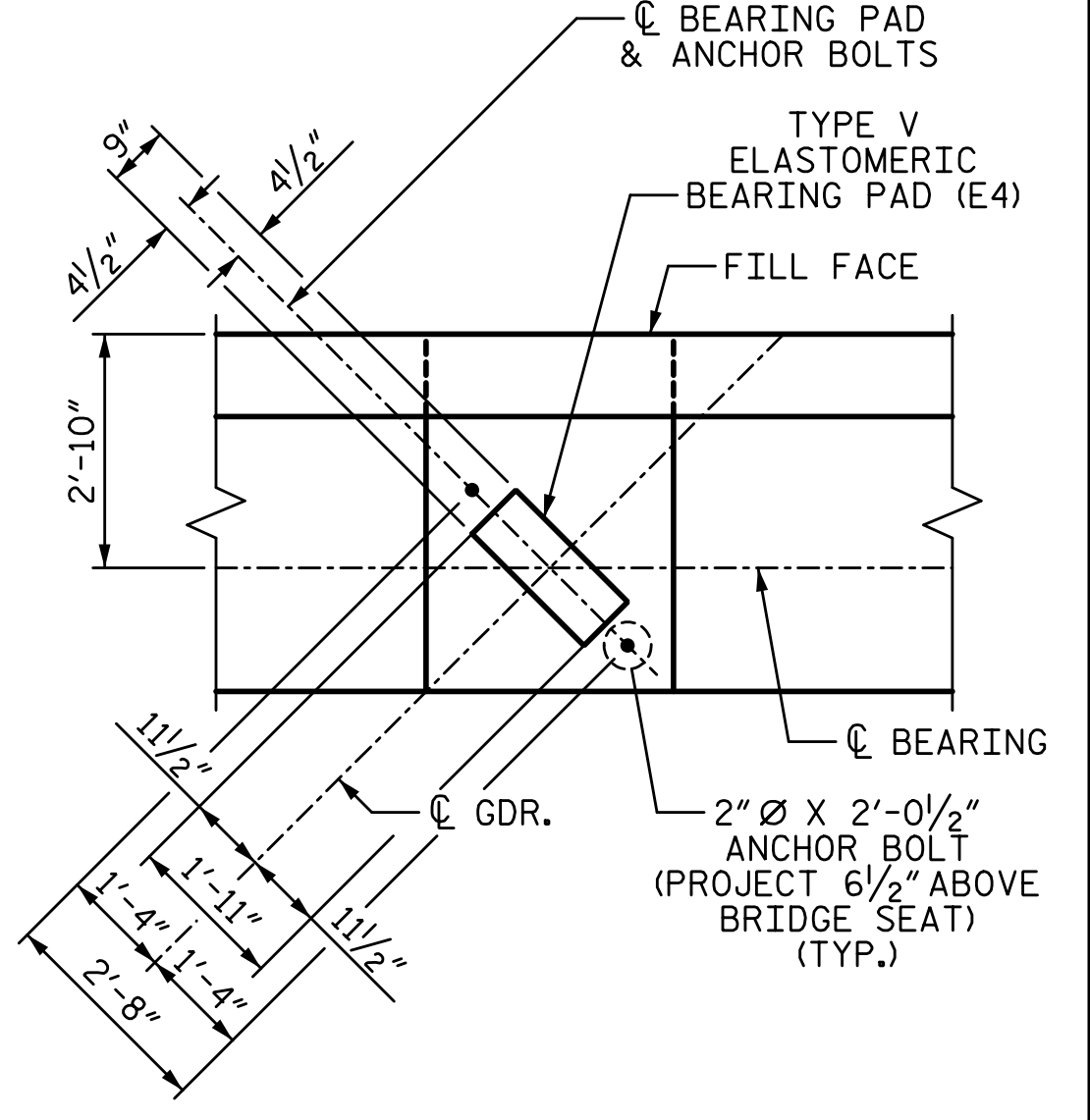
3/21/2022 9:08:59 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 7 (Y1B over L:\Drawings\Find\I5987B_SMU_E2.dgn



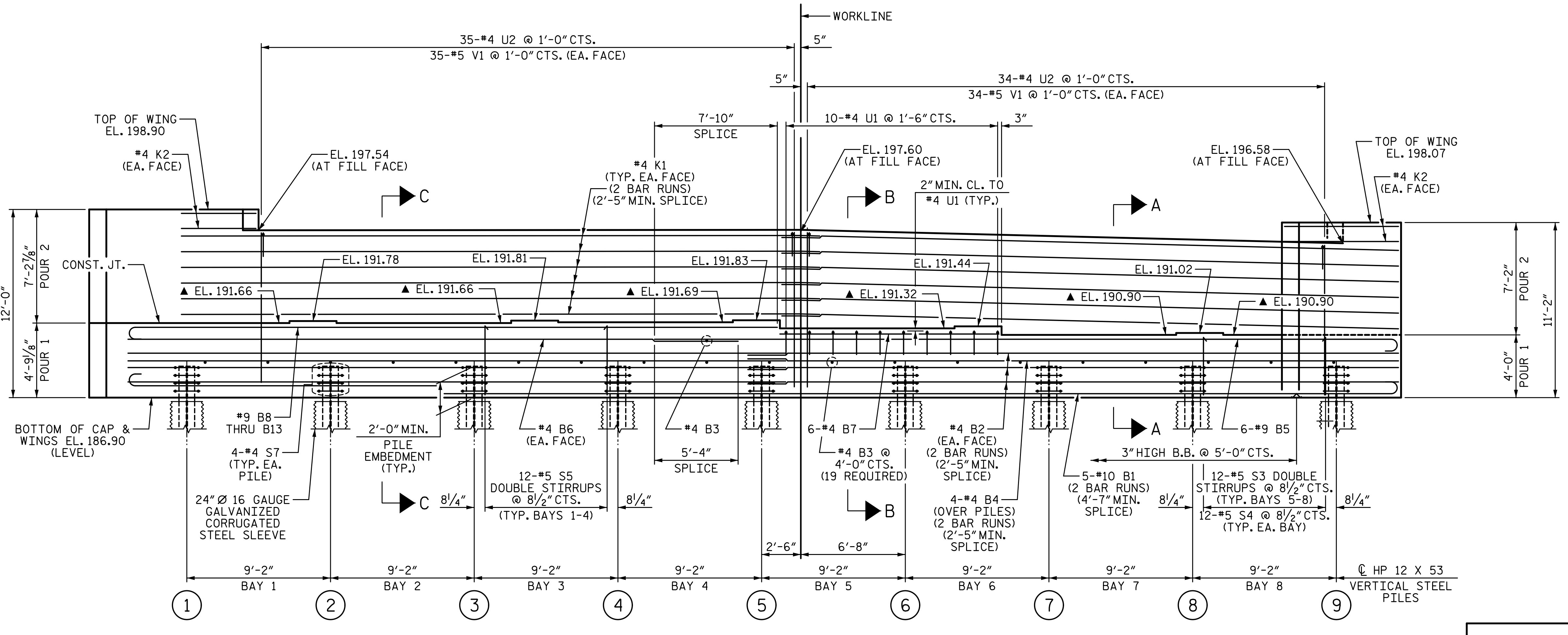
PLAN

NOTES:

- STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXPECT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE 2%.
SEE GENERAL DRAWING "FOUNDATION LAYOUT" FOR ADDITIONAL NOTES FOR DRIVING PILES.
FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SECTIONS A-A AND B-B SHEET 3 OF 3.
WING LENGTHS BASED ON A 6" ASSUMED MSE RETAINING WALL THICKNESS.

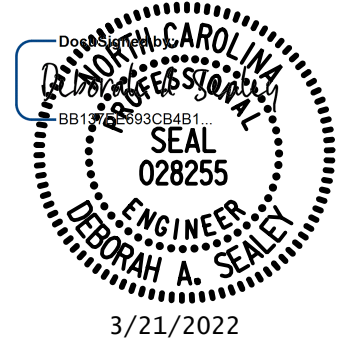


DETAIL "A" (TYP. EA. GIRDER)



ELEVATION

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 29+51.04 -Y1B-
SHEET 1 OF 3



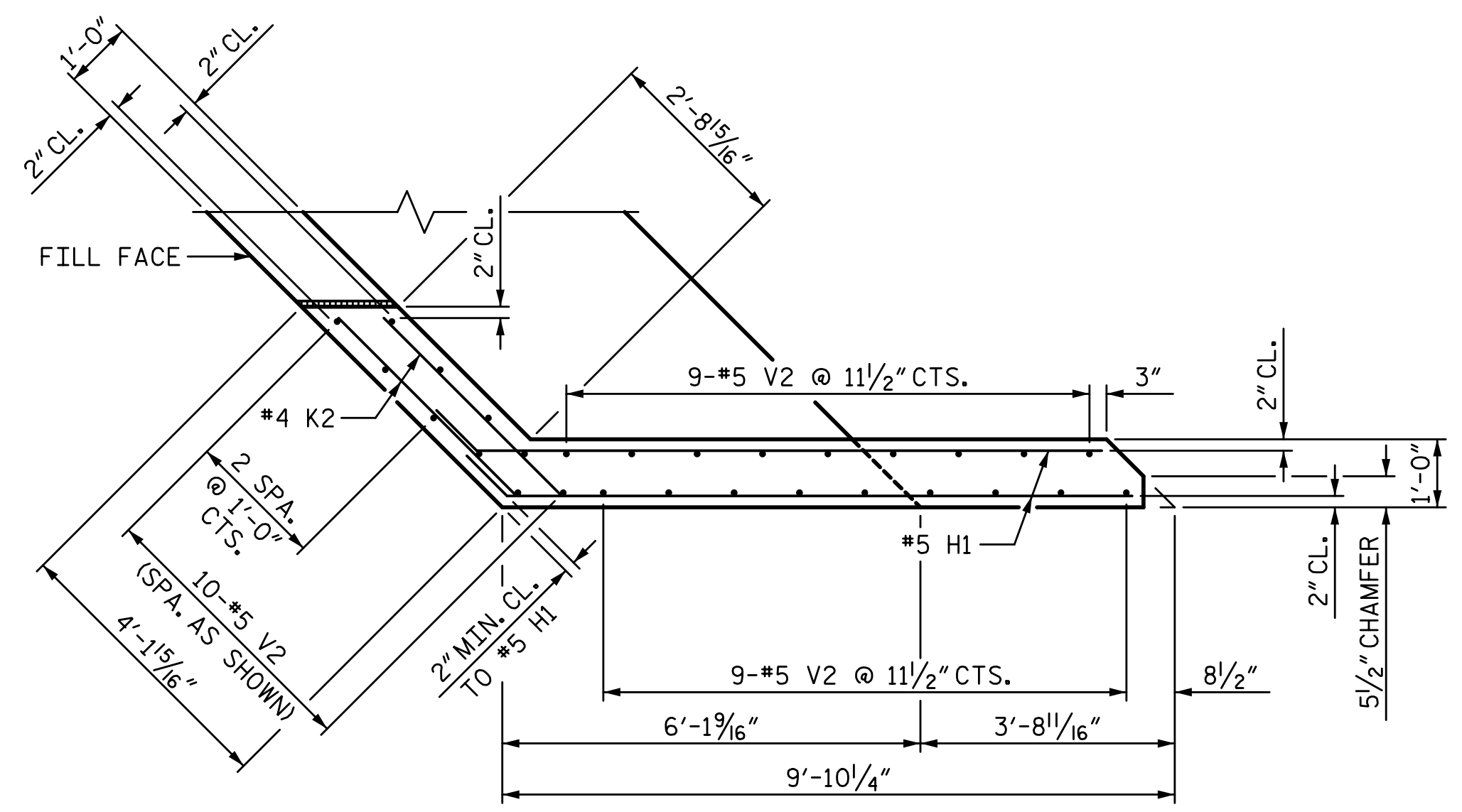
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 2

Table with columns for DRAWN BY, CHECKED BY, DESIGN ENGINEER OF RECORD, DATE, and values: T. BANKOVICH, D.A. SEALEY, D.A. SEALEY, 3-22.

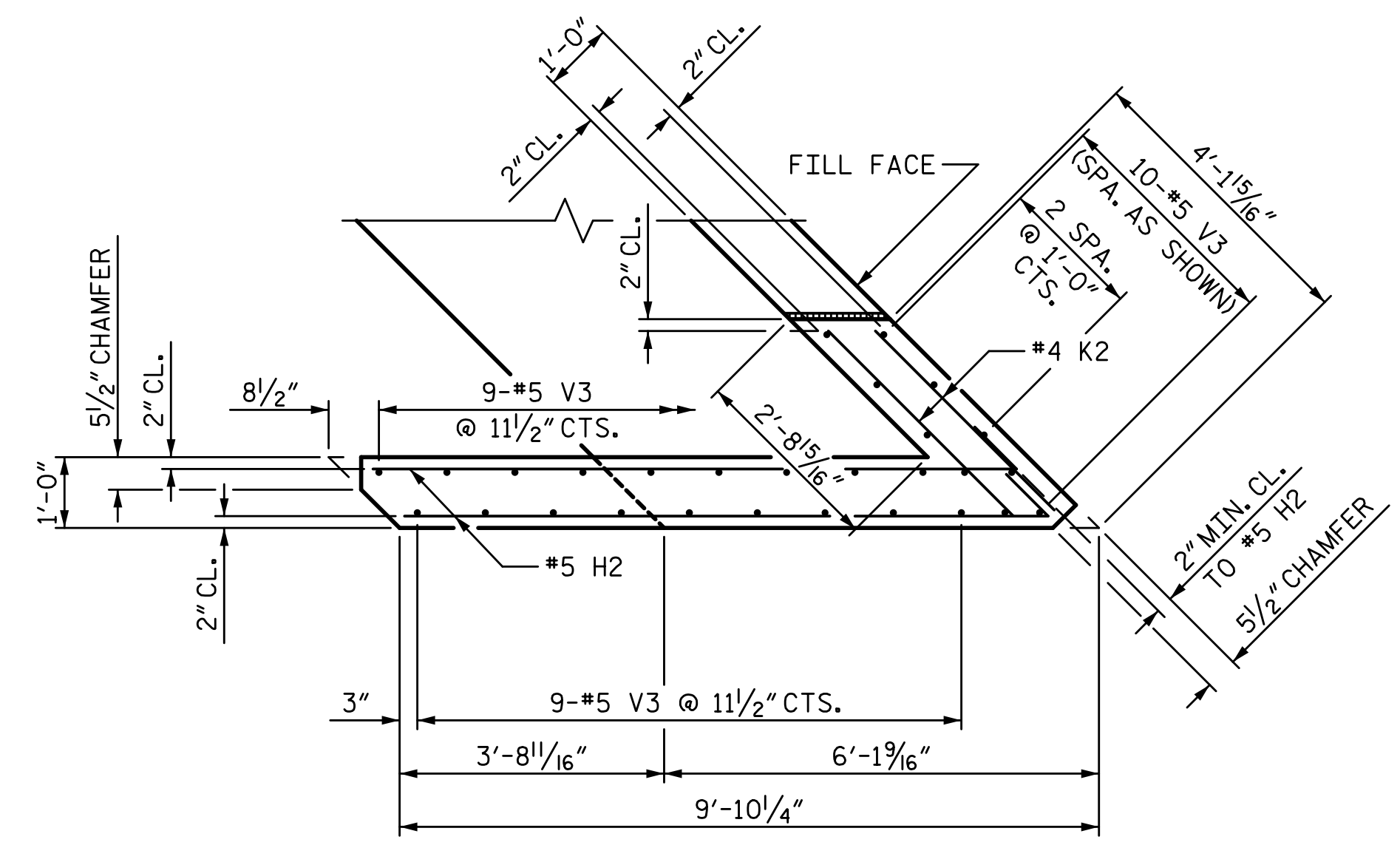
Table with columns for REVISIONS (NO., BY, DATE) and SHEET NO. (S7-31, TOTAL SHEETS 37).

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

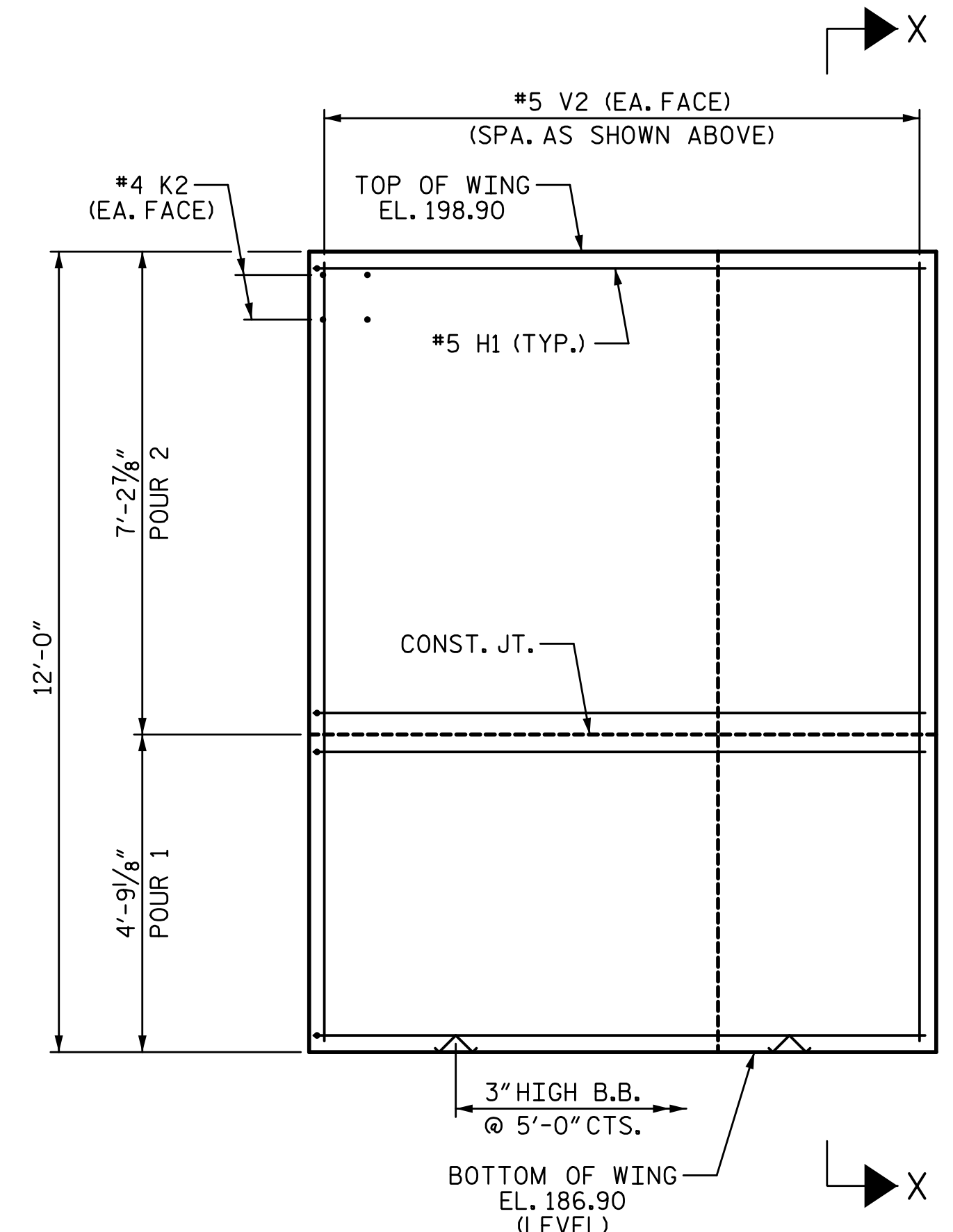
3/21/2022 9:09:00 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_E2.dgn



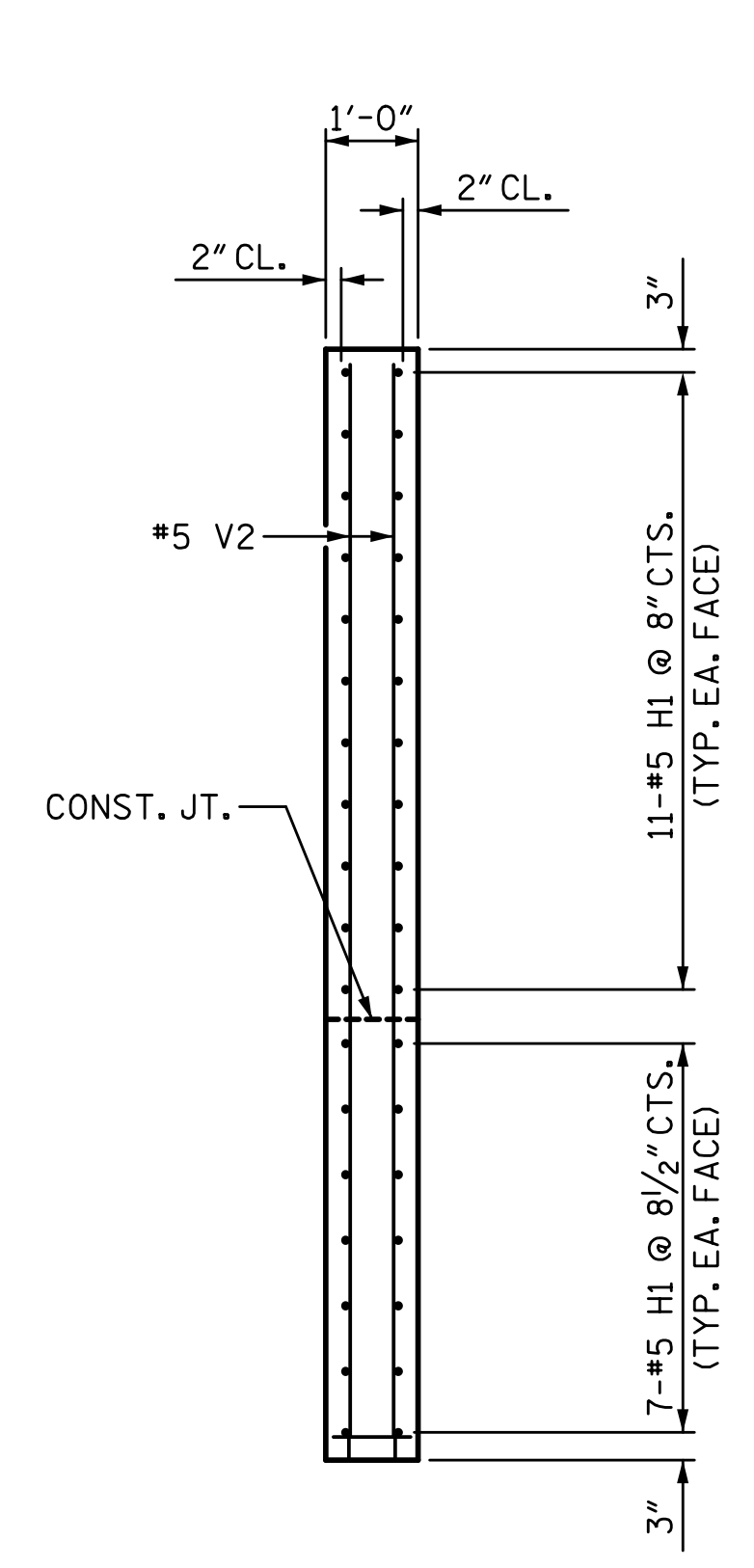
PLAN OF WING (W1)



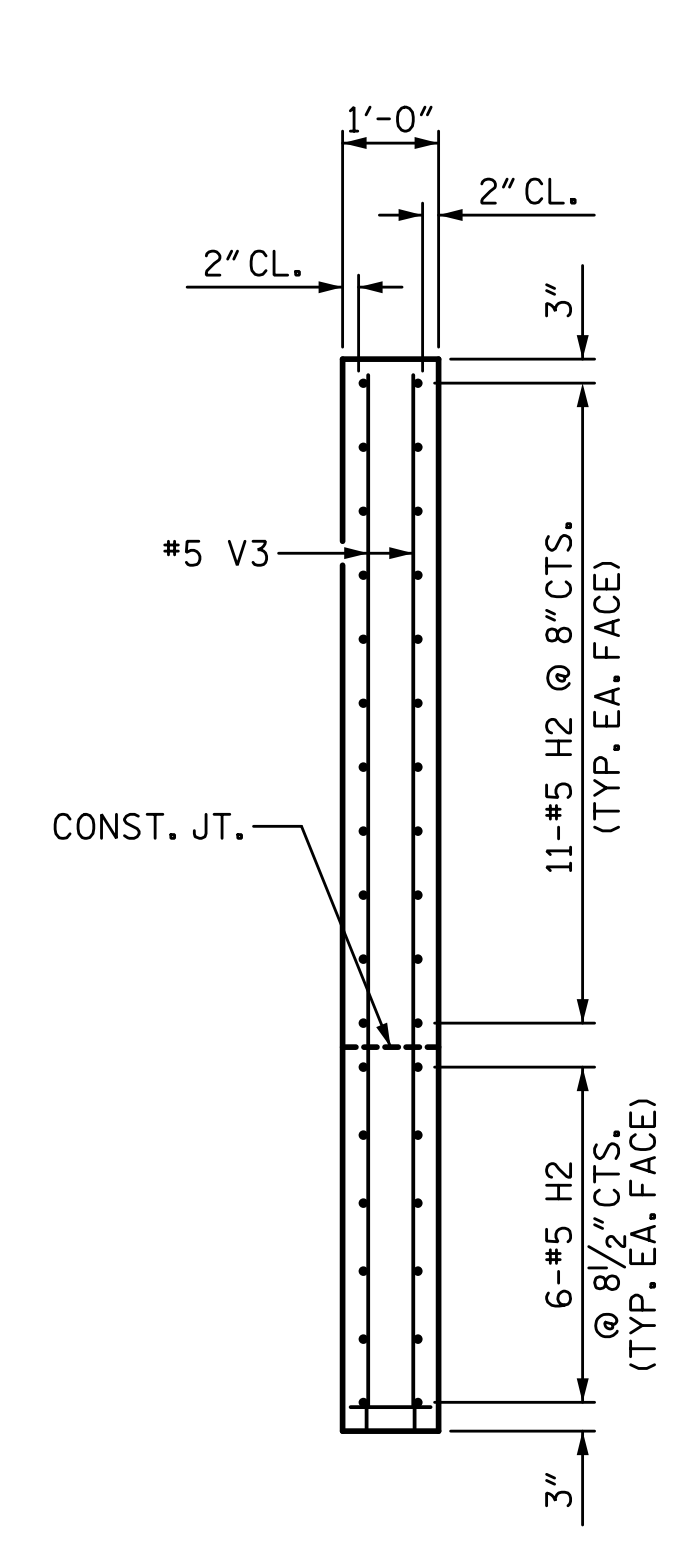
PLAN OF WING (W2)



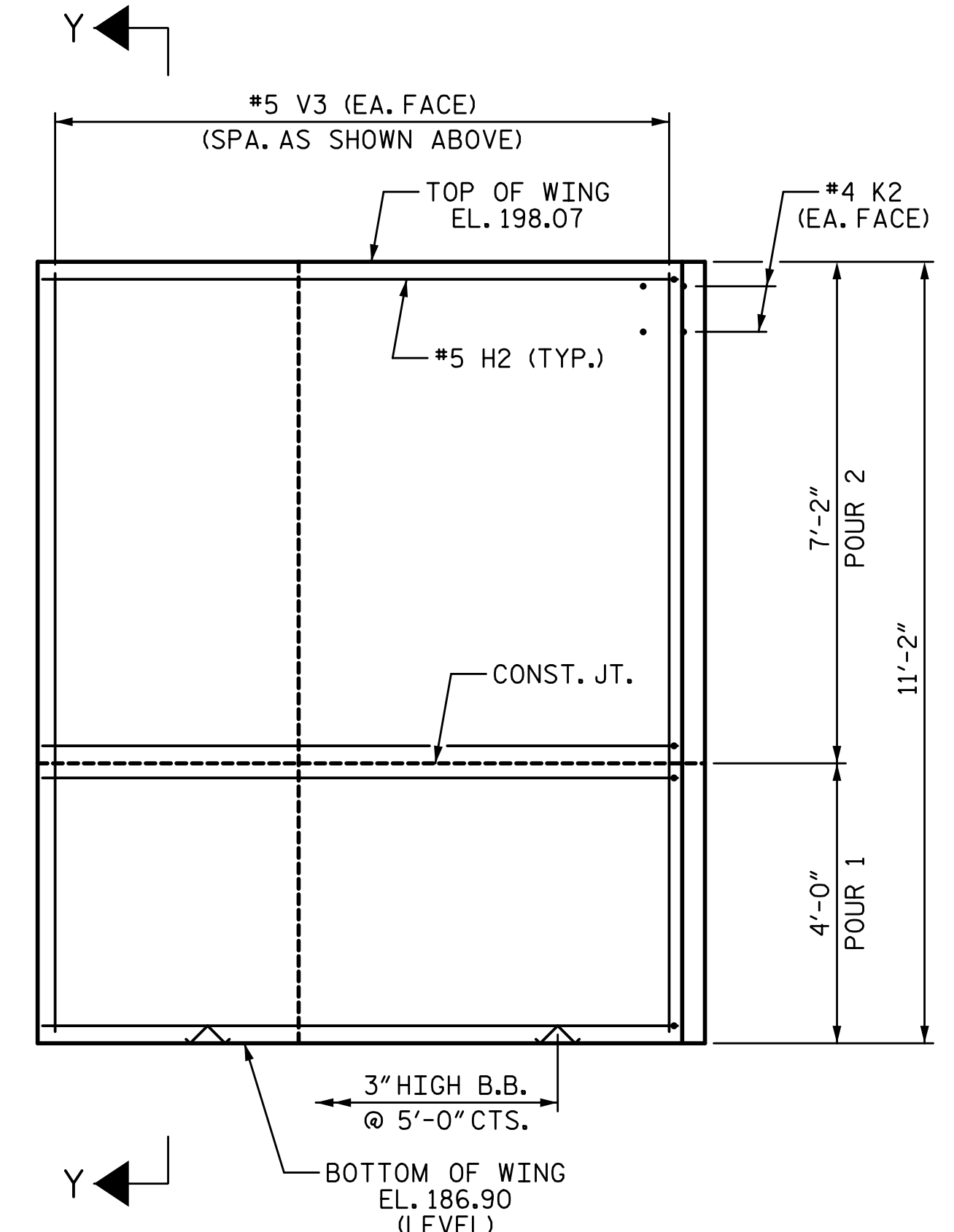
ELEVATION OF WING (W1)



SECTION X-X



SECTION Y-Y



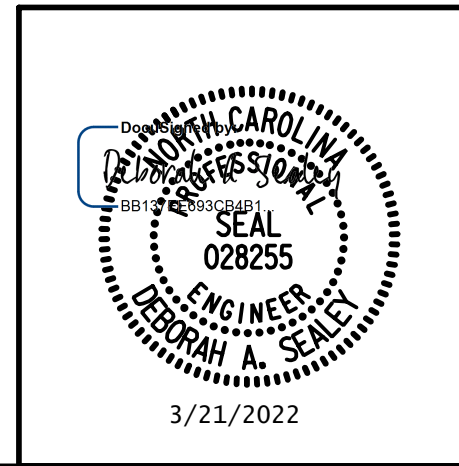
ELEVATION OF WING (W2)

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

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 2

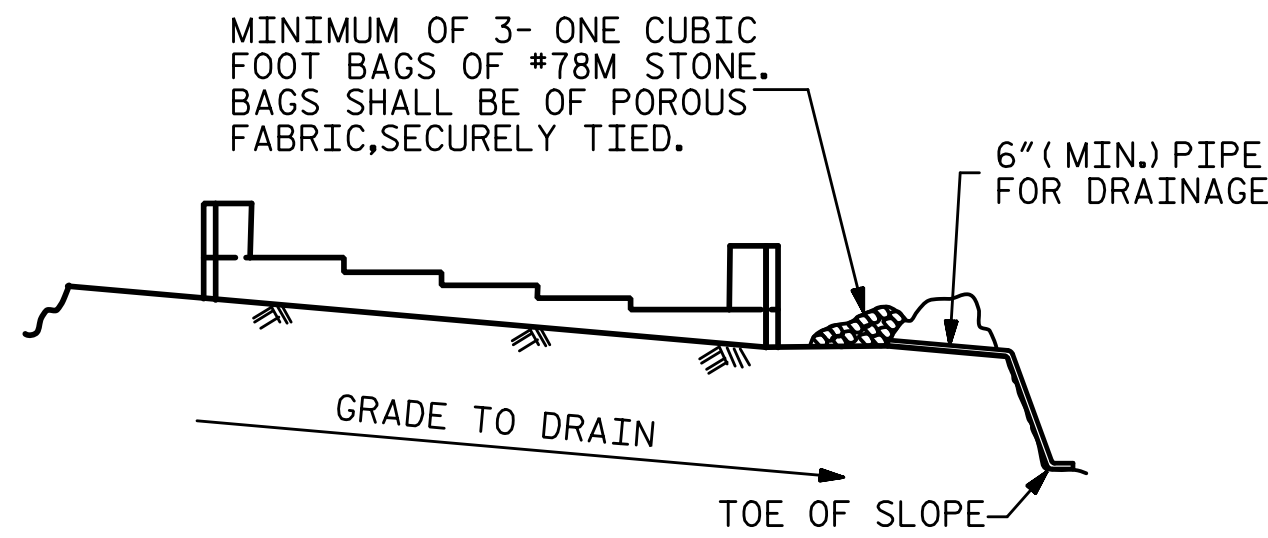


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-32
1			3			TOTAL SHEETS
2			4			37

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/21/2022 9:09:00 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 7 (Y1B) over L:\Drawings\Final\I5987B-SMU_E2.dgn

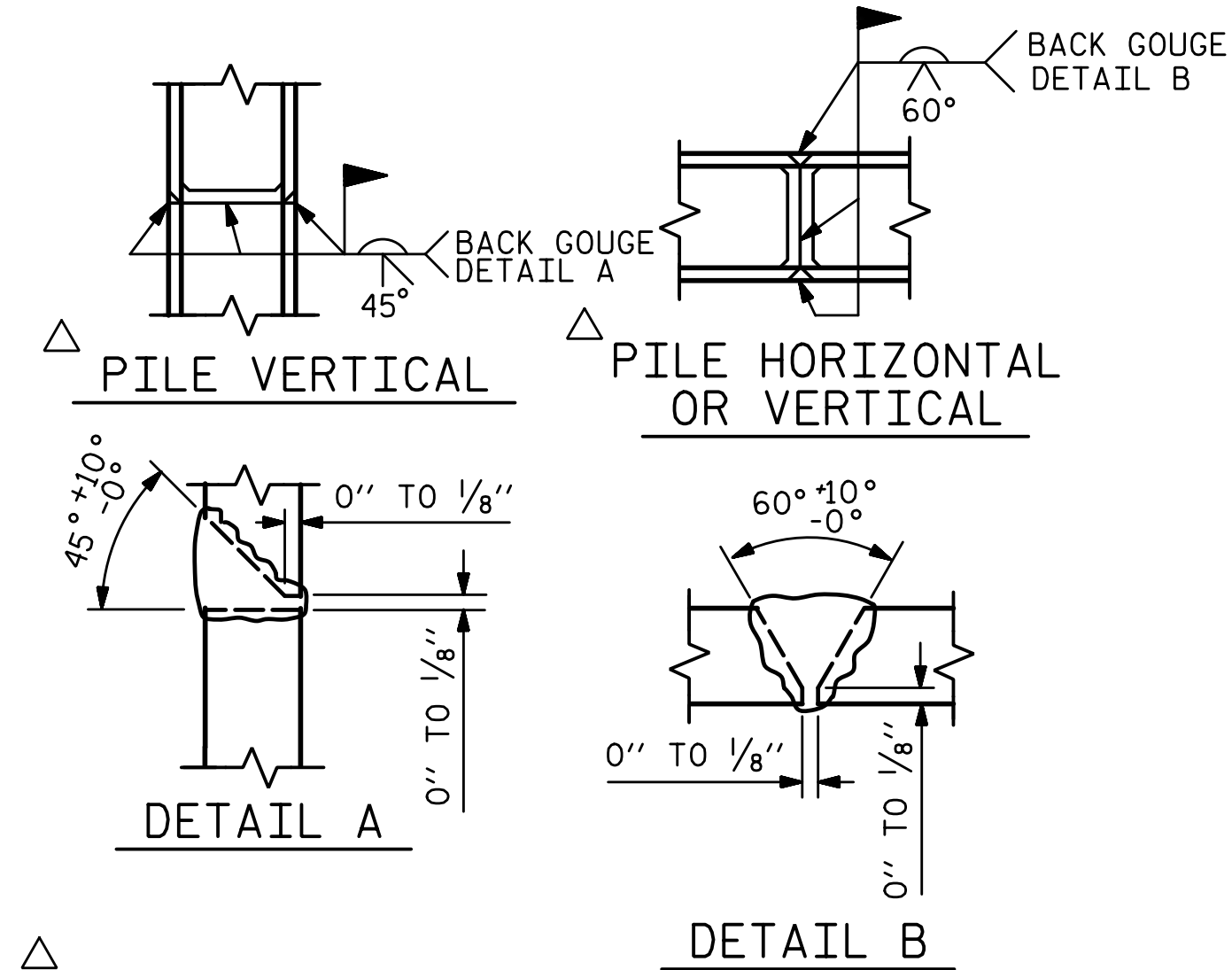
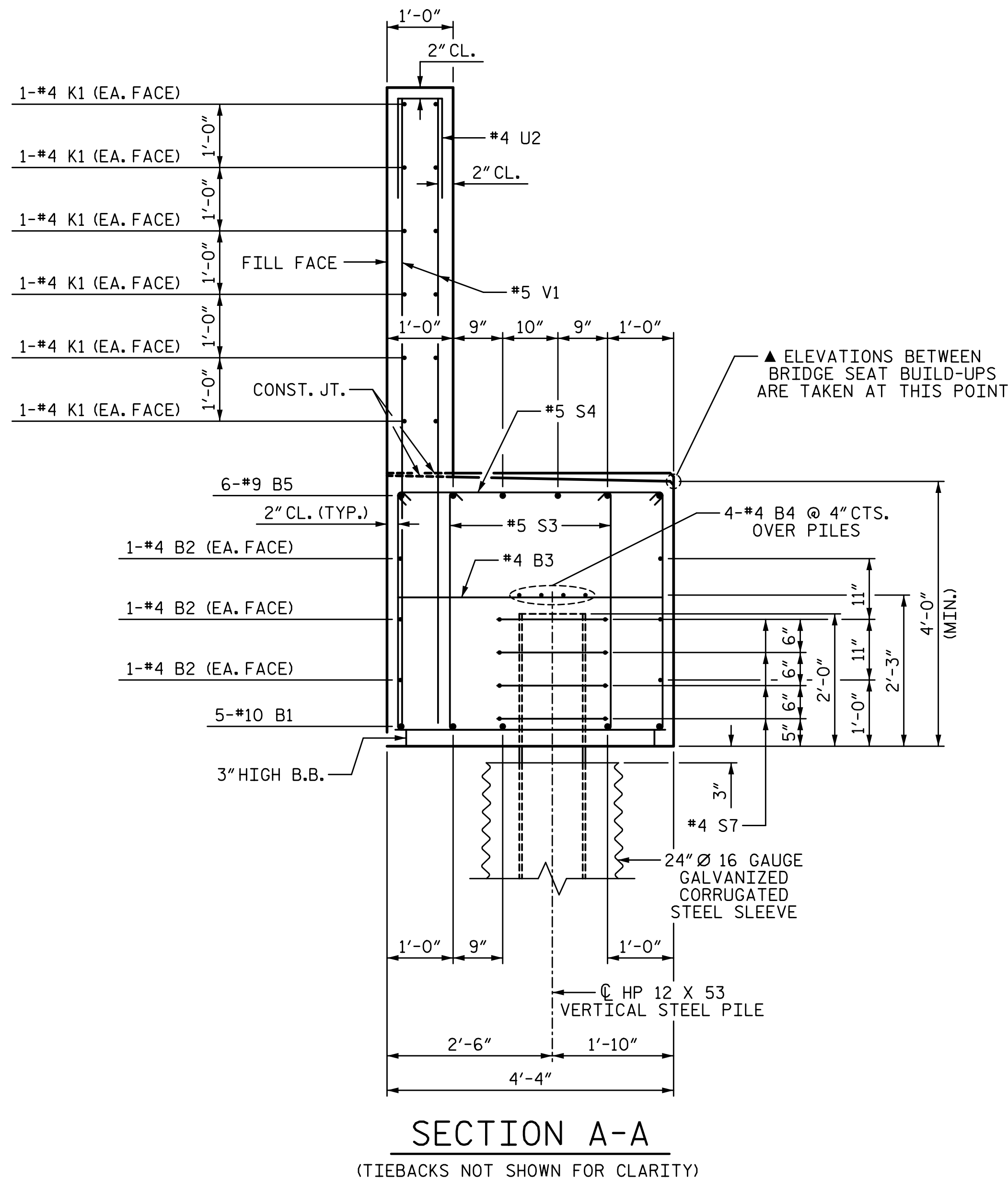


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

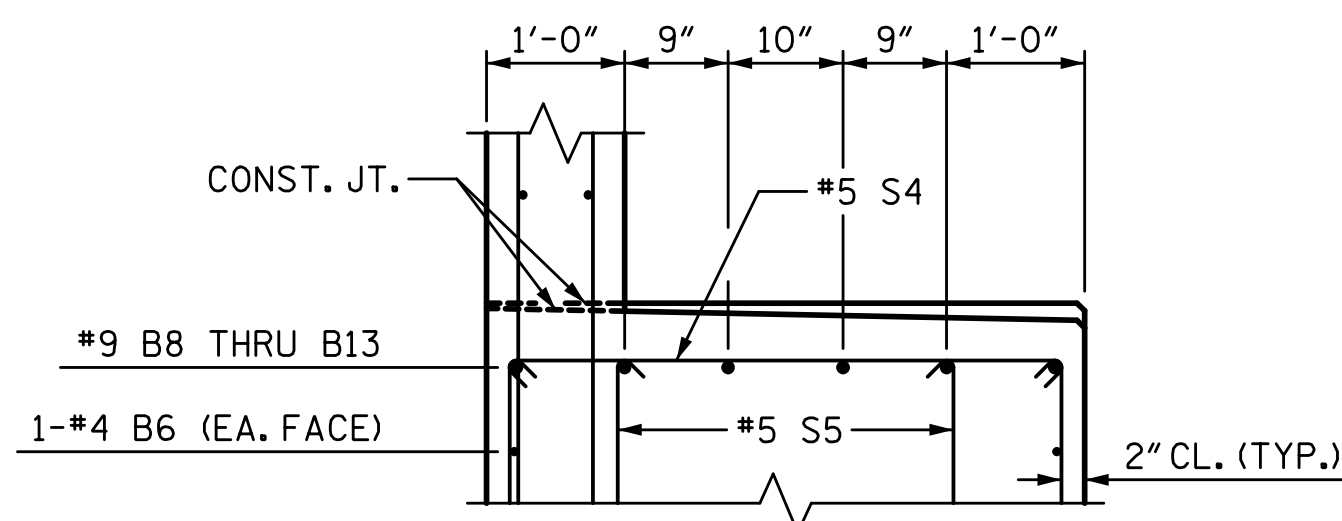
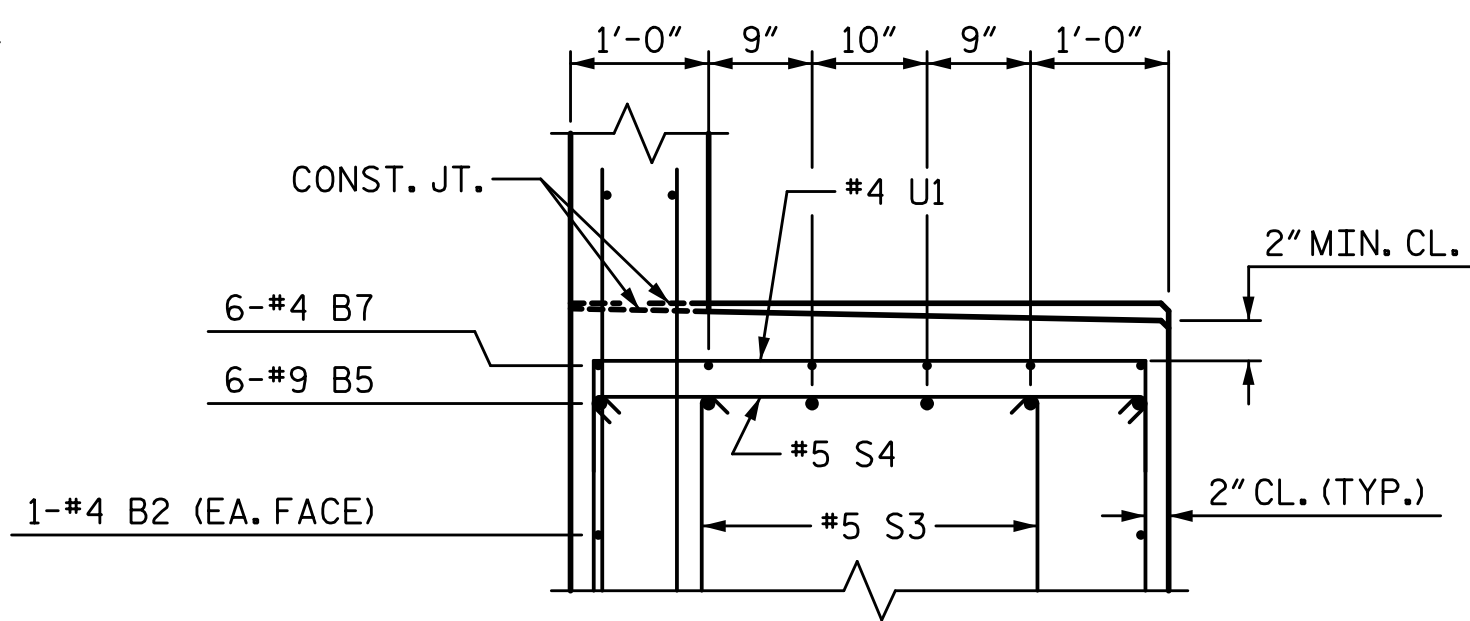
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

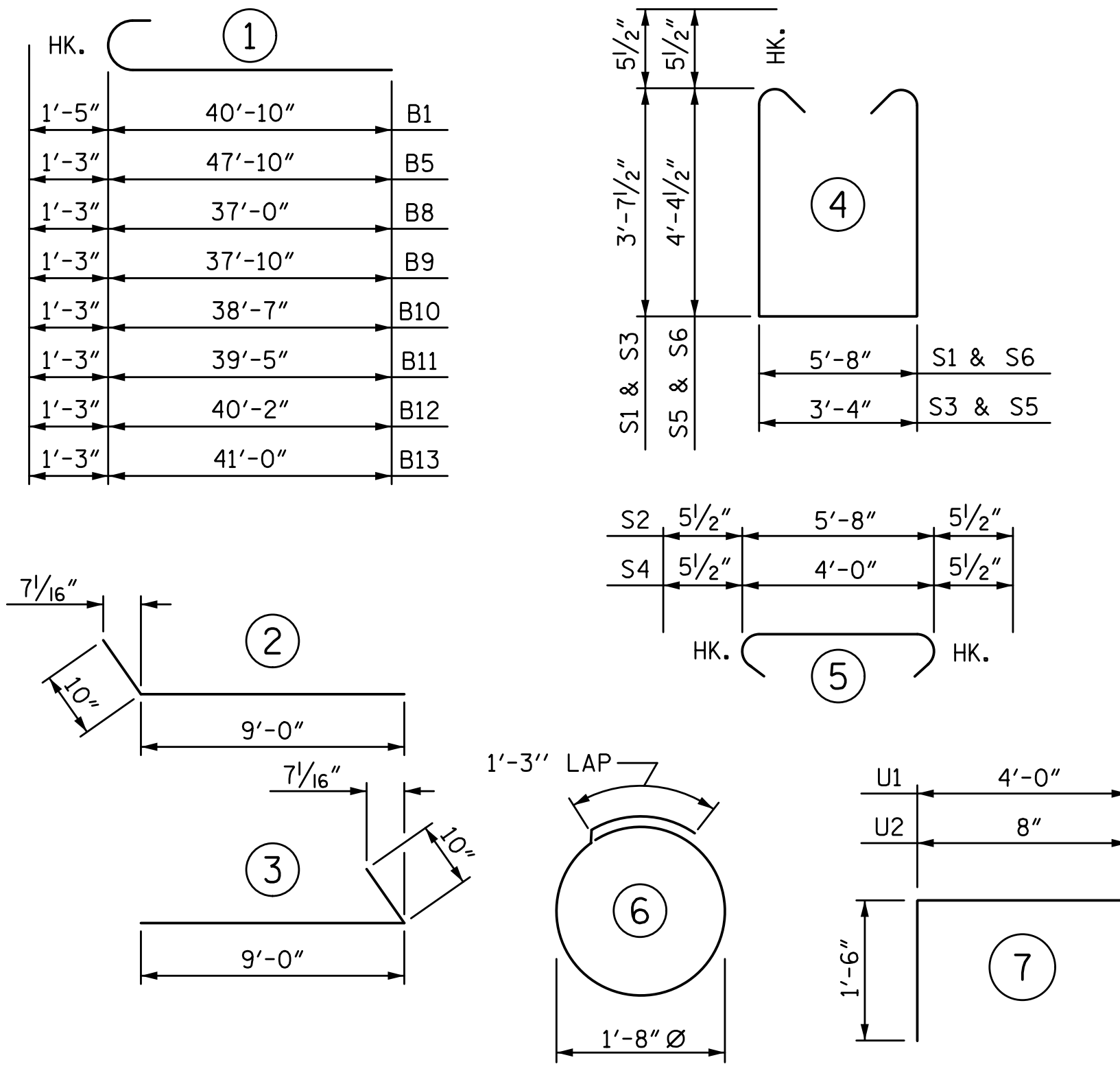


POSITION OF PILE DURING WELDING.

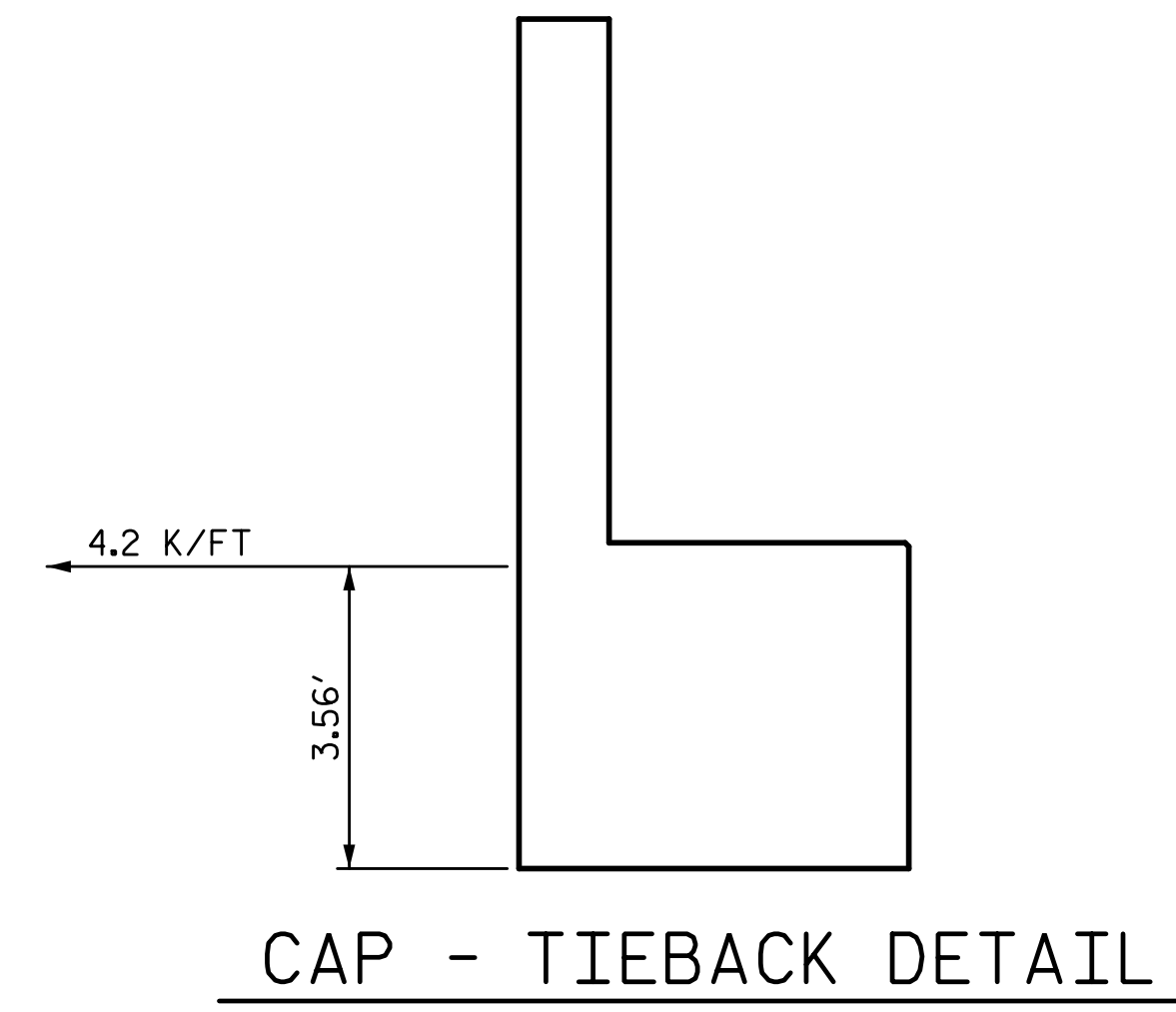
PILE SPLICE DETAILS



BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

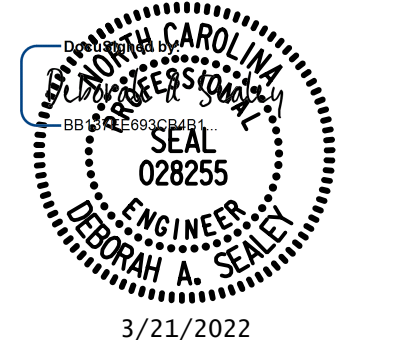


BILL OF MATERIAL

END BENT 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#10	1	42'-3"	1818
B2	12	#4	STR	39'-10"	319
B3	20	#4	STR	4'-0"	53
B4	8	#4	STR	39'-10"	213
B5	6	#9	1	49'-1"	1001
B6	2	#4	STR	34'-7"	46
B7	6	#4	STR	14'-0"	56
B8	1	#9	1	38'-3"	130
B9	1	#9	1	39'-1"	133
B10	1	#9	1	39'-10"	135
B11	1	#9	1	40'-8"	138
B12	1	#9	1	41'-5"	141
B13	1	#9	1	42'-3"	144
H1	36	#5	2	9'-10"	369
H2	34	#5	3	9'-10"	349
K1	24	#4	STR	39'-10"	639
K2	8	#4	STR	3'-4"	18
S1	2	#5	4	13'-10"	29
S2	4	#5	5	6'-7"	27
S3	96	#5	4	11'-6"	1151
S4	96	#5	5	4'-11"	492
S5	96	#5	4	13'-0"	1302
S6	2	#5	4	15'-4"	32
S7	36	#4	6	6'-6"	156
U1	10	#4	7	7'-0"	47
U2	69	#4	7	3'-8"	169
V1	138	#5	STR	9'-6"	1367
V2	28	#5	STR	11'-7"	338
V3	28	#5	STR	10'-9"	314
TOTAL REINFORCING STEEL					11126 LB
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP & LOWER WINGS) 57.1 CY					
POUR 2 (UPPER WINGS & BACKWALL) 22.0 CY					
TOTAL CLASS A CONCRETE					79.1 CY

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 29+51.04 -Y1B-
 SHEET 3 OF 3

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



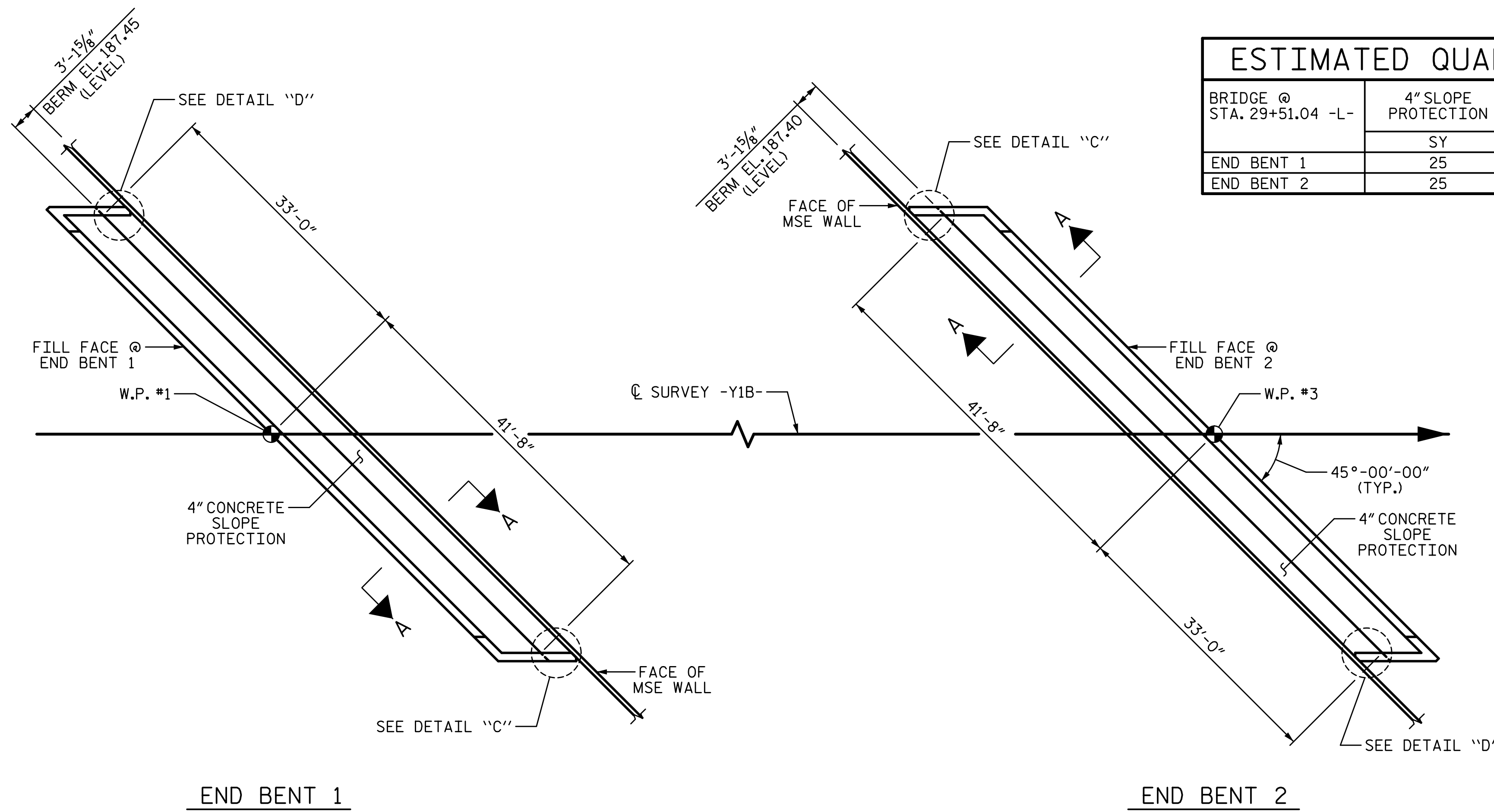
LICENSURE NO. C-4434

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:	S7-33
1			3			TOTAL SHEETS
2			4			37

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/21/2022 9:09:02 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_SP.dgn

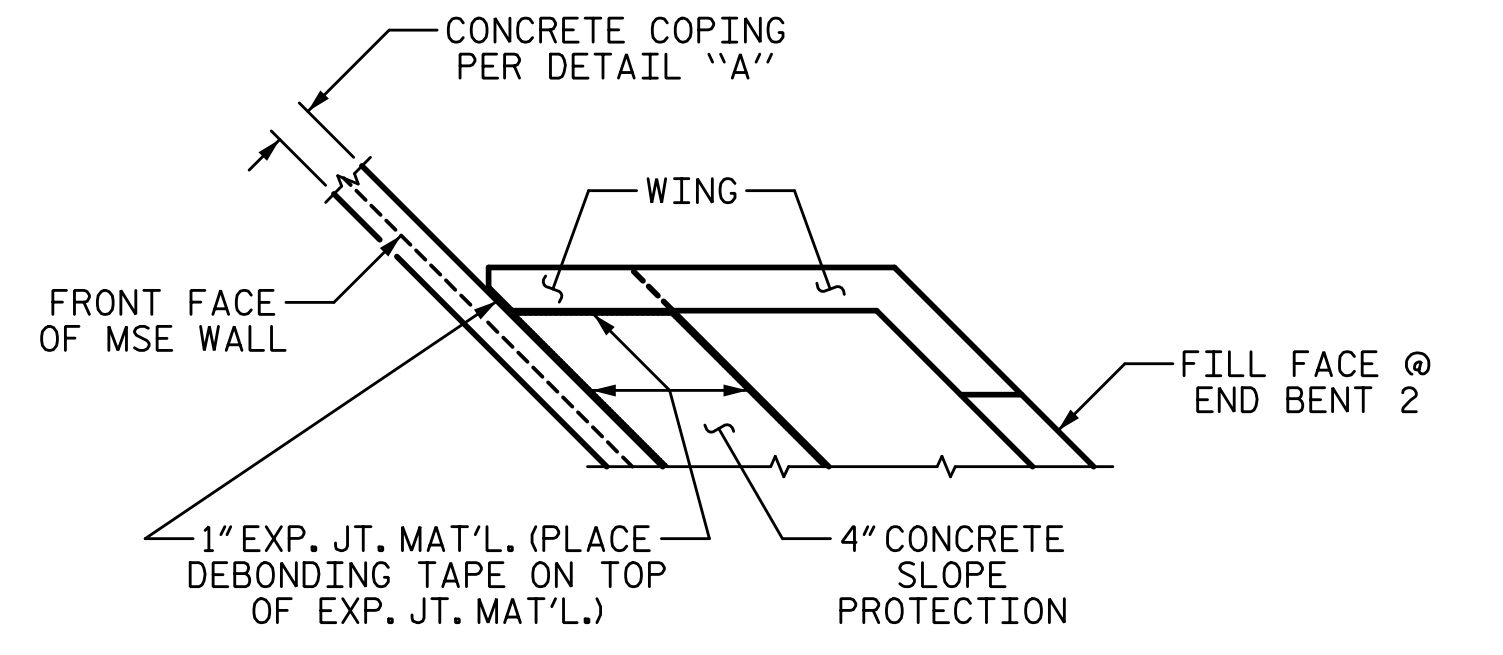


ESTIMATED QUANTITIES		
BRIDGE @ STA. 29+51.04 -L-	4" SLOPE PROTECTION	* WELDED WIRE FABRIC 60" WIDE
	SY	APPROX. LF
END BENT 1	25	45
END BENT 2	25	45

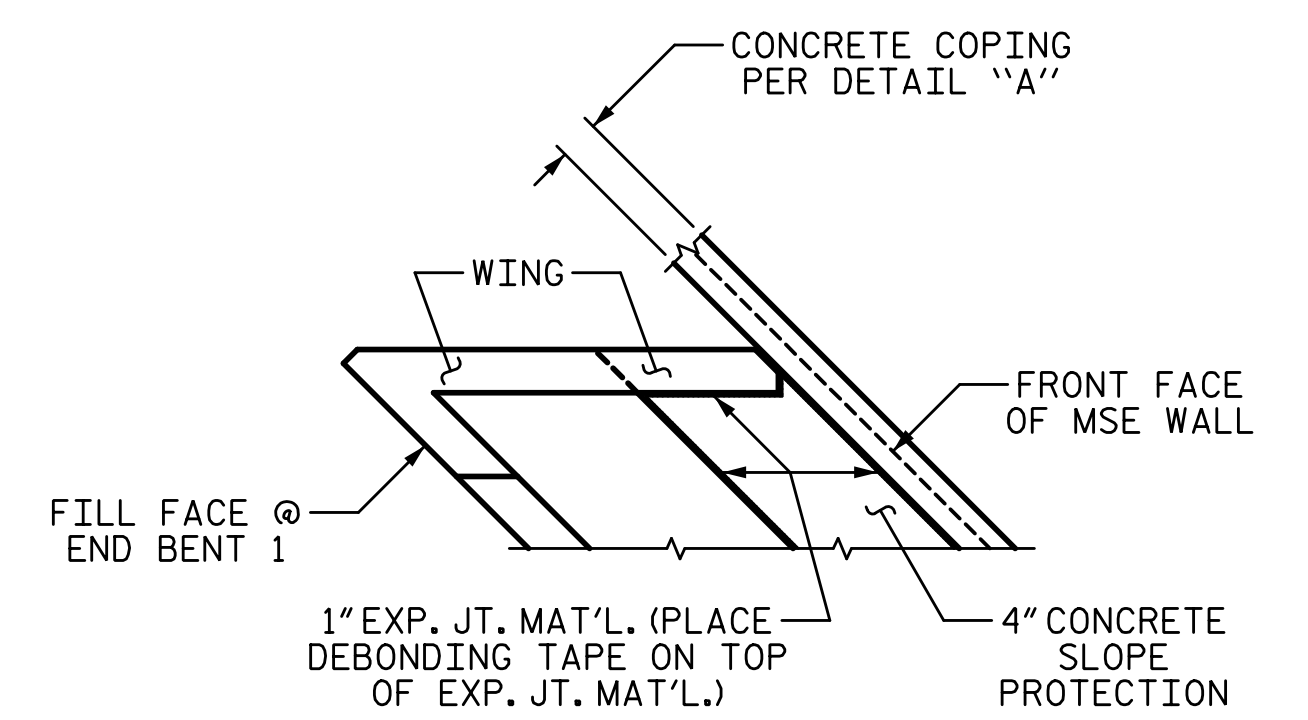
NOTES:

SLOPE PROTECTION SHALL CONSIST OF 4" POUR-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4. THE COST OF THE WELDED WIRE FABRIC SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD OF SLOPE PROTECTION.

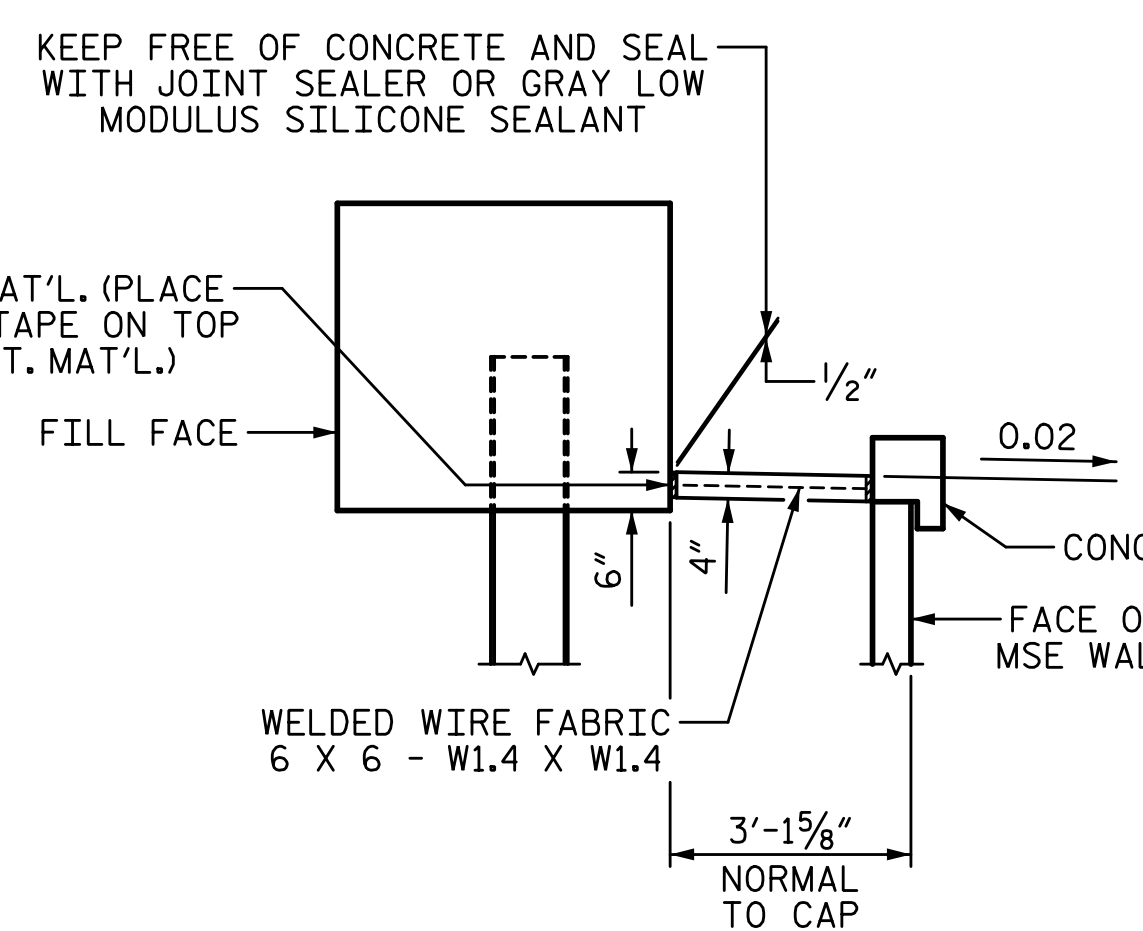
THE SLOPE PROTECTION IS DETAILED TO FIT WITH THE MSE WALL COPING DETAIL A. IF MSE WALL COPING DETAIL B IS USED, SLOPE PROTECTION SHALL BE ADJUSTED TO FIT. COORDINATE WITH THE MSE WALL FABRICATION FOR ACTUAL WALL THICKNESS AND COPING TO BE USED. ADJUST SLOPE PROTECTION QUANTITIES AS NECESSARY TO FIT COPING USED.



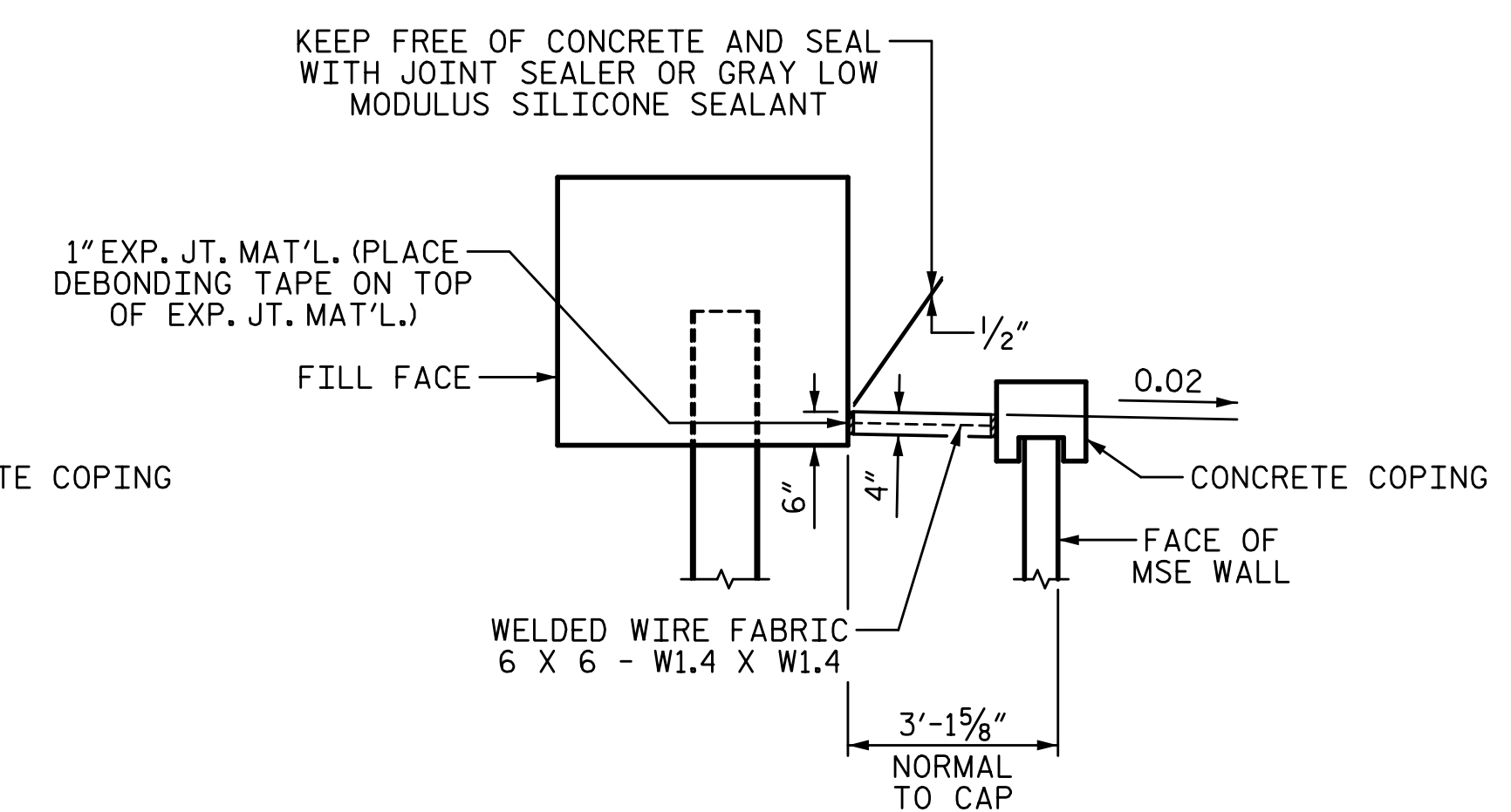
DETAIL "C"
END BENT 2 SHOWN, END BENT 1 SIMILAR



DETAIL "D"
END BENT 1 SHOWN, END BENT 2 SIMILAR

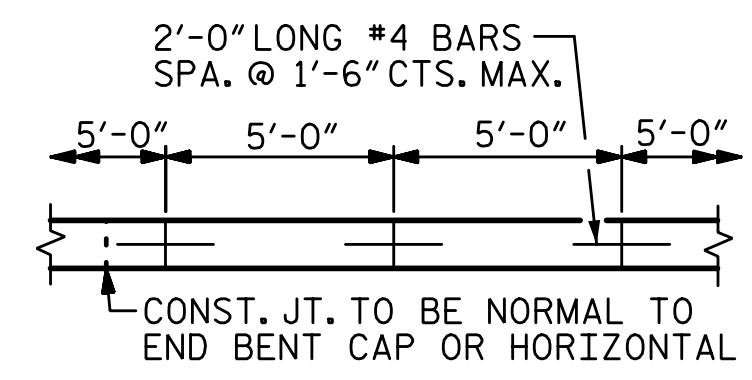


DETAIL "A"

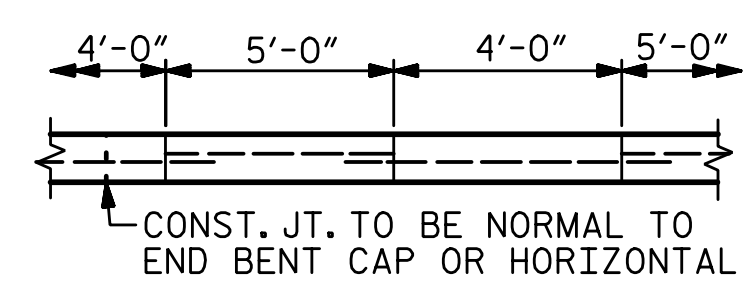


DETAIL "B"

COPING DETAILS
THE CONTRACTOR HAS THE OPTION OF USING COPING IN DETAILS "A" OR "B"



POURING DETAIL

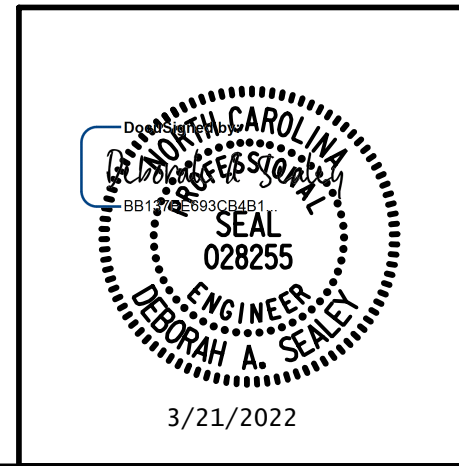


OPTIONAL POURING DETAIL

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE SLOPE PROTECTION

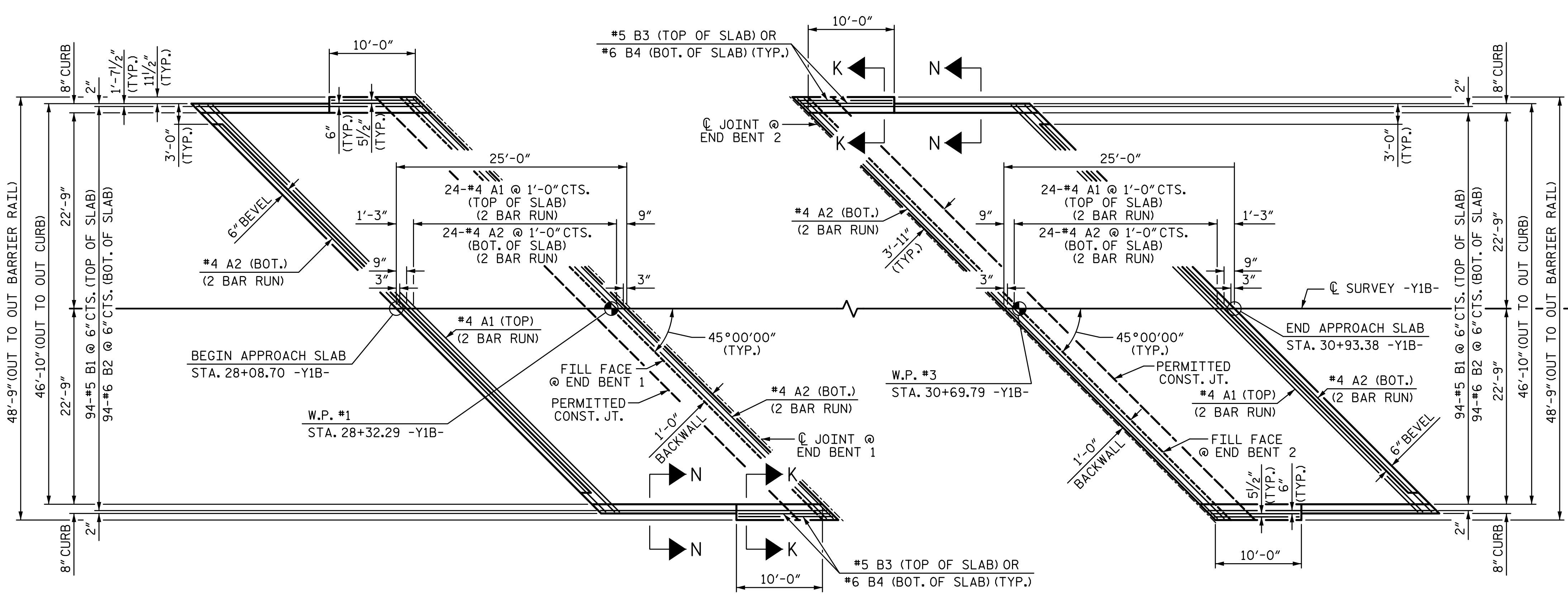


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/21/2022 9:09:03 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_AS.dgn



PLAN AT END BENT 1

PLAN AT END BENT 2

(DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS)

NOTES:

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, MSE WALL REINFORCEMENT AND BACKFILL MATERIAL SEE ROADWAY PLANS.

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

BACKFILL MATERIAL SHALL BE THE SAME MATERIAL USED IN THE MSE REINFORCED ZONE.

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

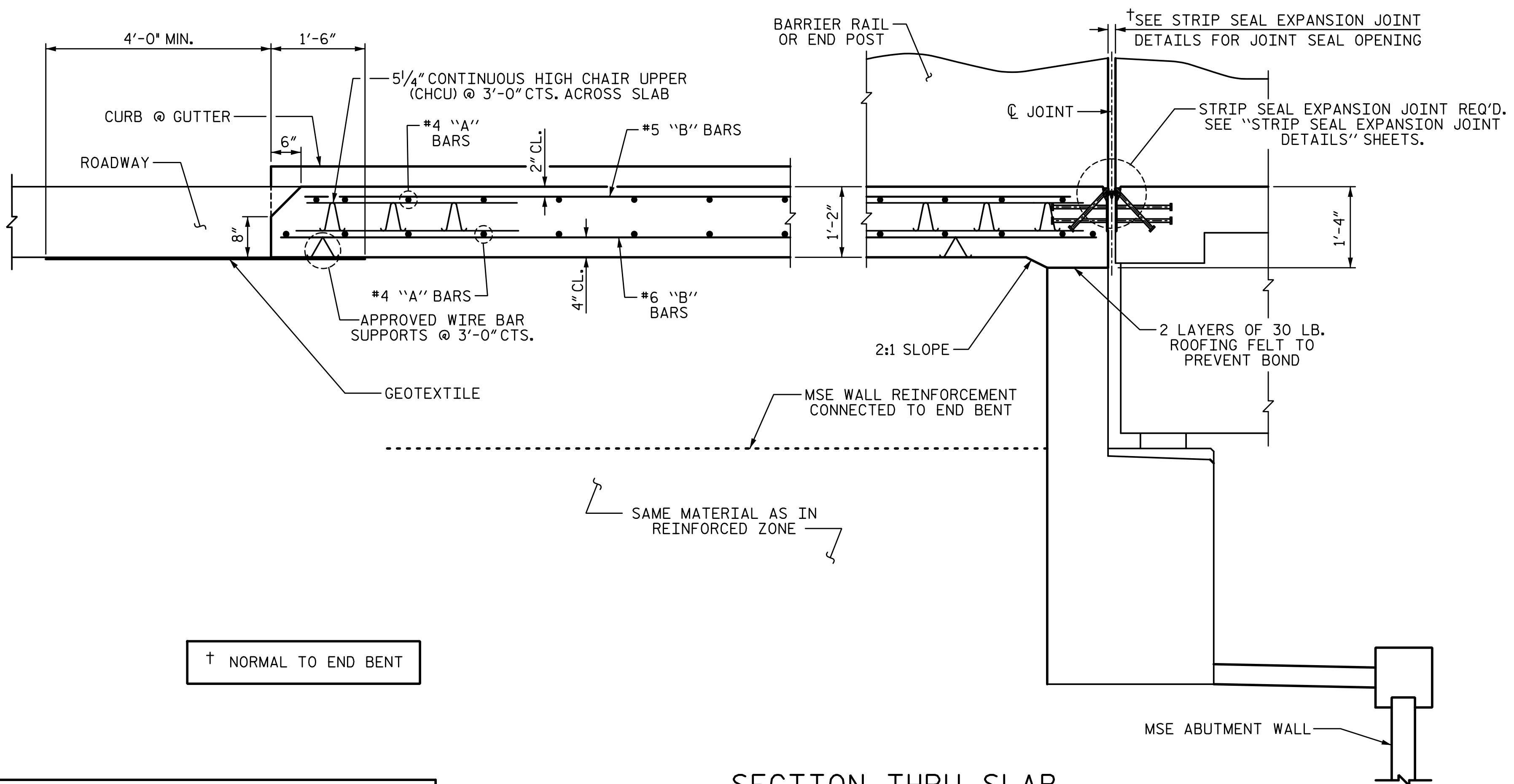
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	35'-4"	1180
A2	52	#4	STR	35'-2"	1222
*B1	94	#5	STR	23'-9"	2328
B2	94	#6	STR	24'-7"	3471
*B3	4	#5	STR	9'-8"	40
B4	4	#6	STR	9'-8"	58
REINFORCING STEEL					4751 LB
* EPOXY COATED REINFORCING STEEL					3548 LB
CLASS "AA" CONCRETE					51.9 CY

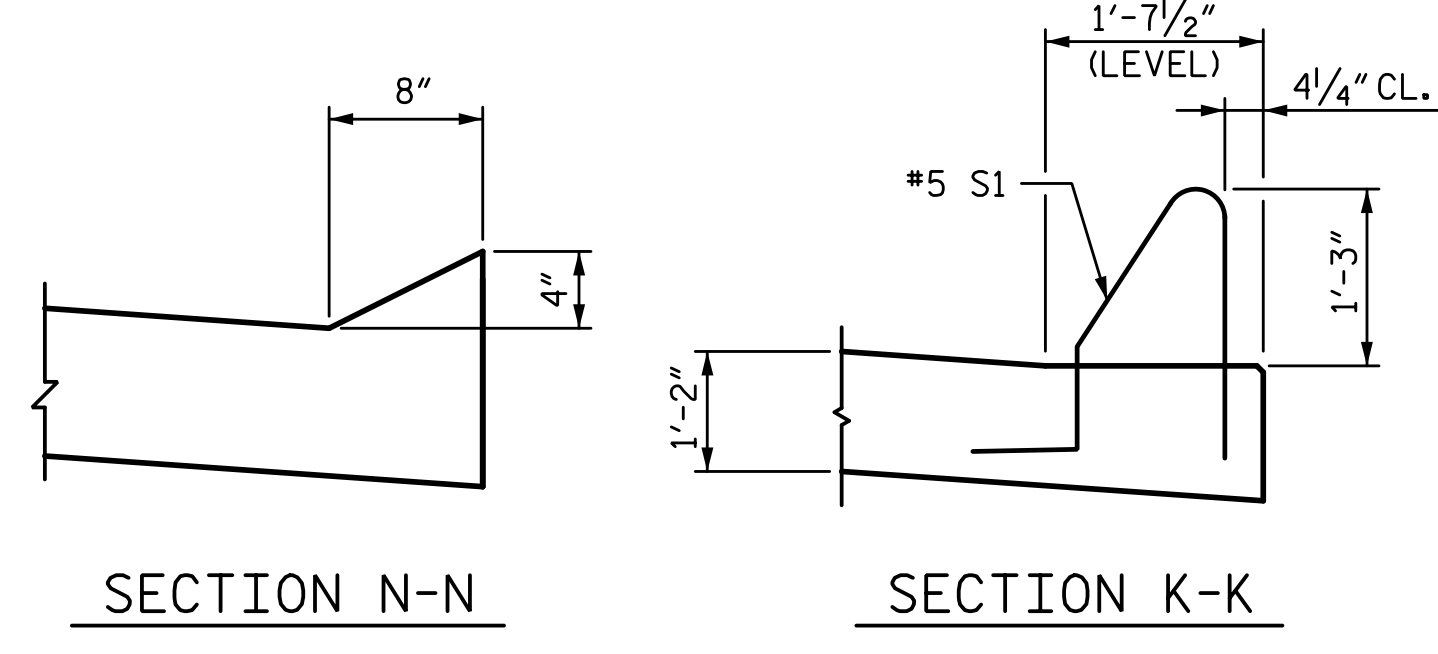
BILL OF MATERIAL					
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	35'-4"	1180
A2	52	#4	STR	35'-2"	1222
*B1	94	#5	STR	23'-9"	2328
B2	94	#6	STR	24'-7"	3471
*B3	4	#5	STR	9'-8"	40
B4	4	#6	STR	9'-8"	58
REINFORCING STEEL					4751 LB
* EPOXY COATED REINFORCING STEEL					3548 LB
CLASS "AA" CONCRETE					51.9 CY

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 2 OF 3.



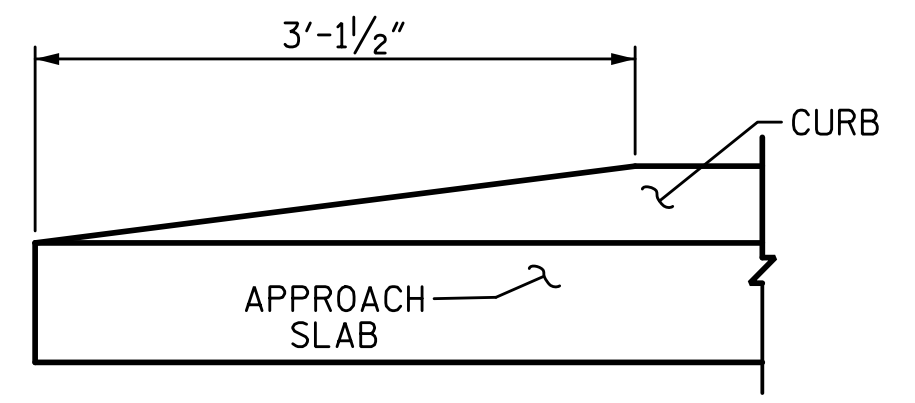
SECTION THRU SLAB

END BENT 1 SHOWN, END BENT 2 SIMILAR



SECTION N-N

SECTION K-K



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

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

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

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB



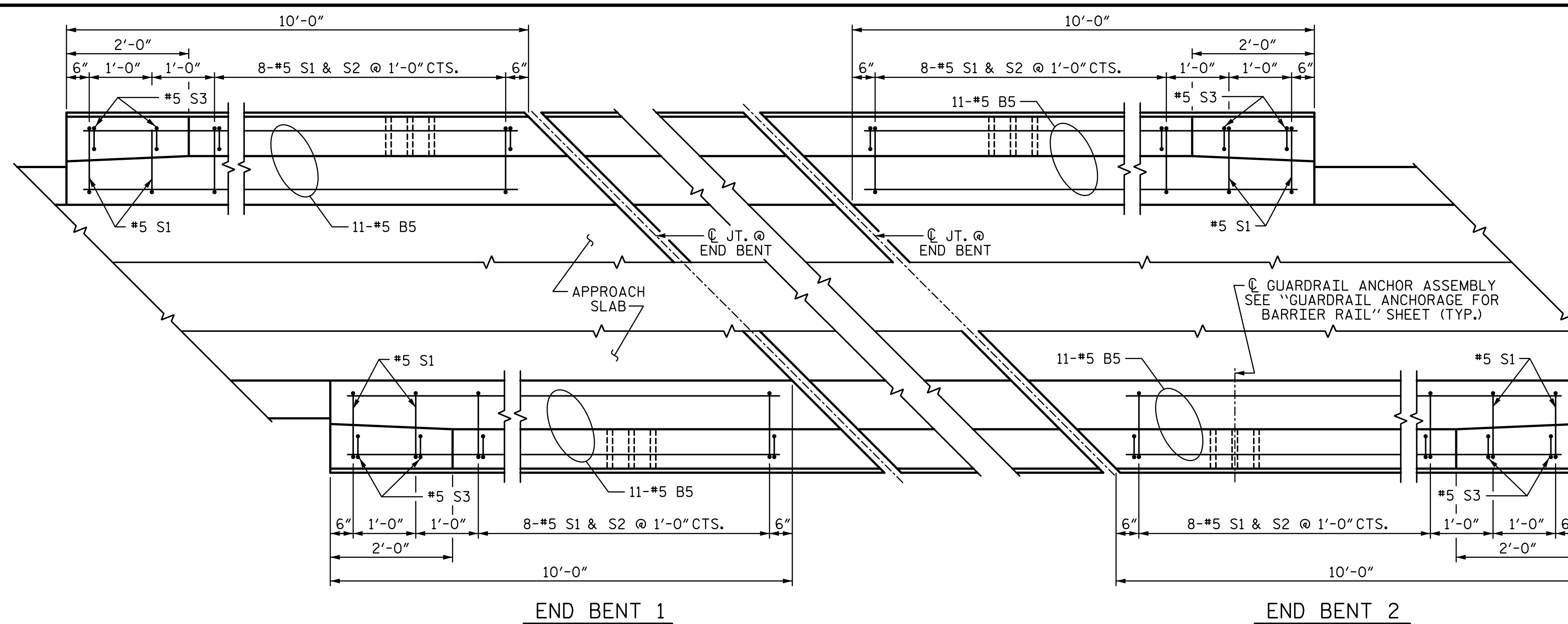
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S7-35
 TOTAL SHEETS 37

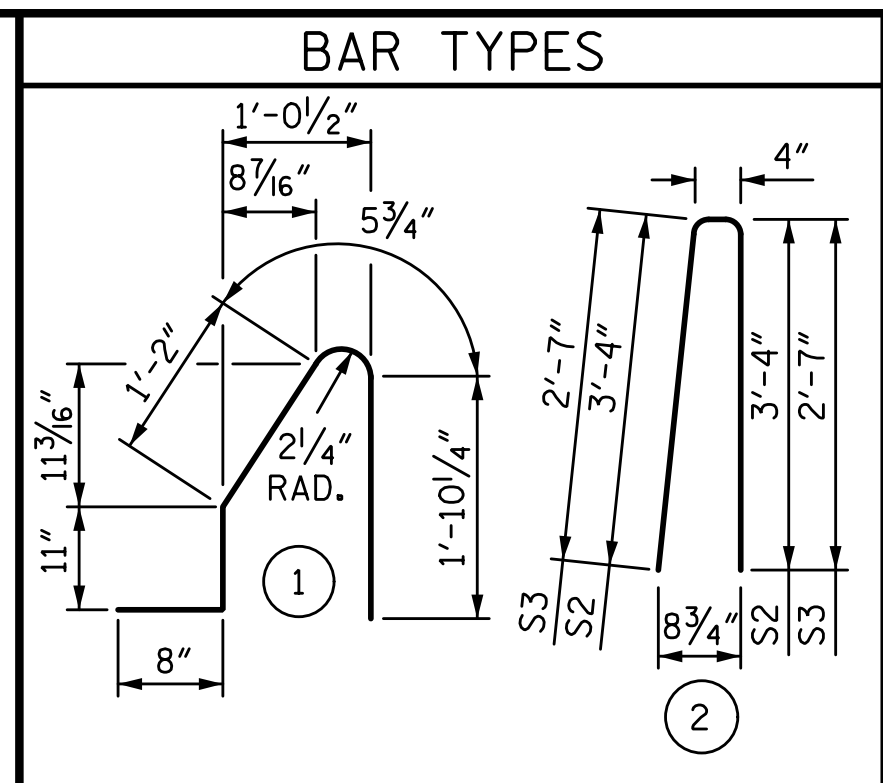
DRAWN BY: S.D. COOPER DATE: 3-22
 CHECKED BY: D.A. SEALEY DATE: 3-22
 DESIGN ENGINEER OF RECORD: D.A. SEALEY DATE: 3-22

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/21/2022 9:09:03 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_AS.dgn



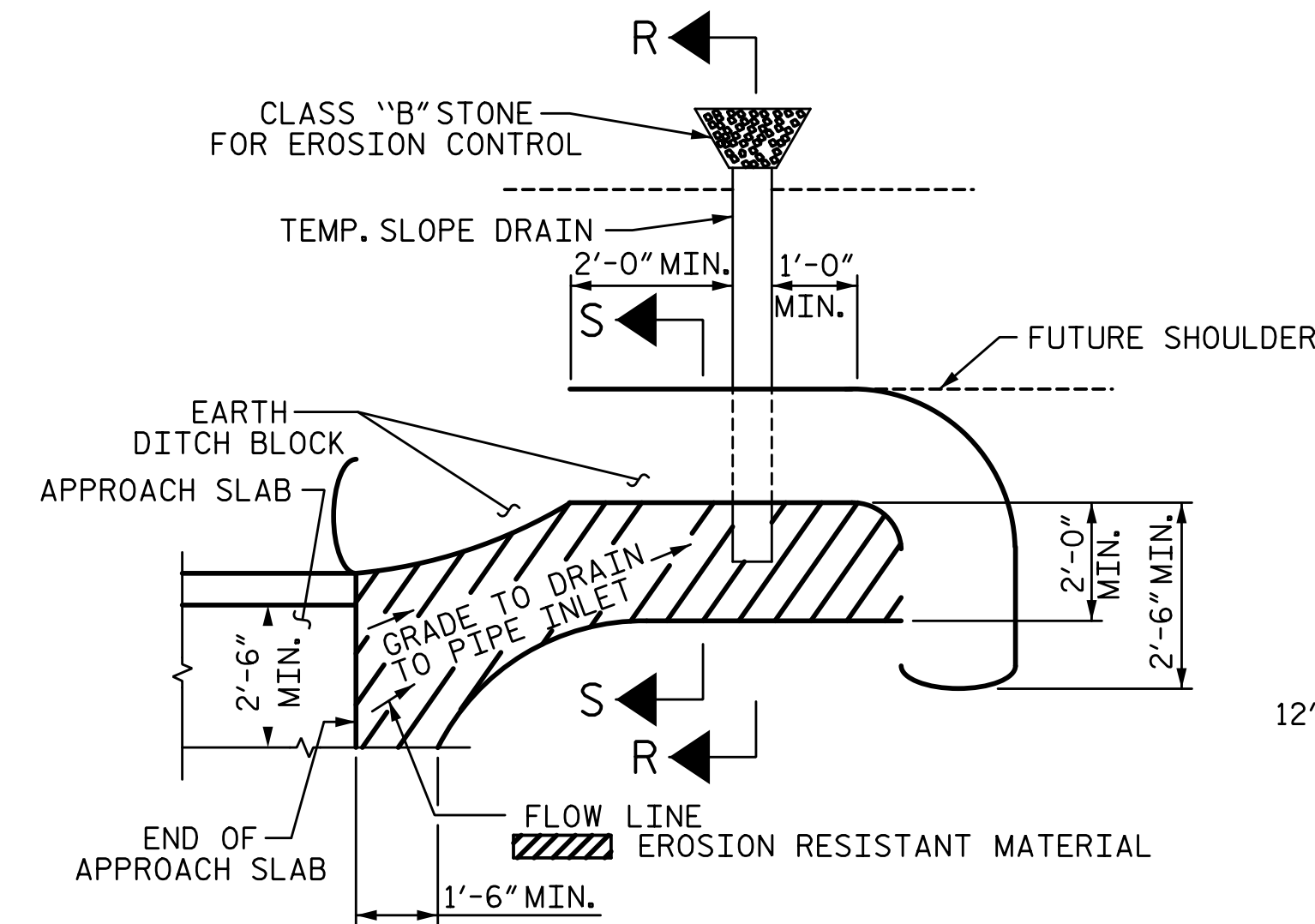
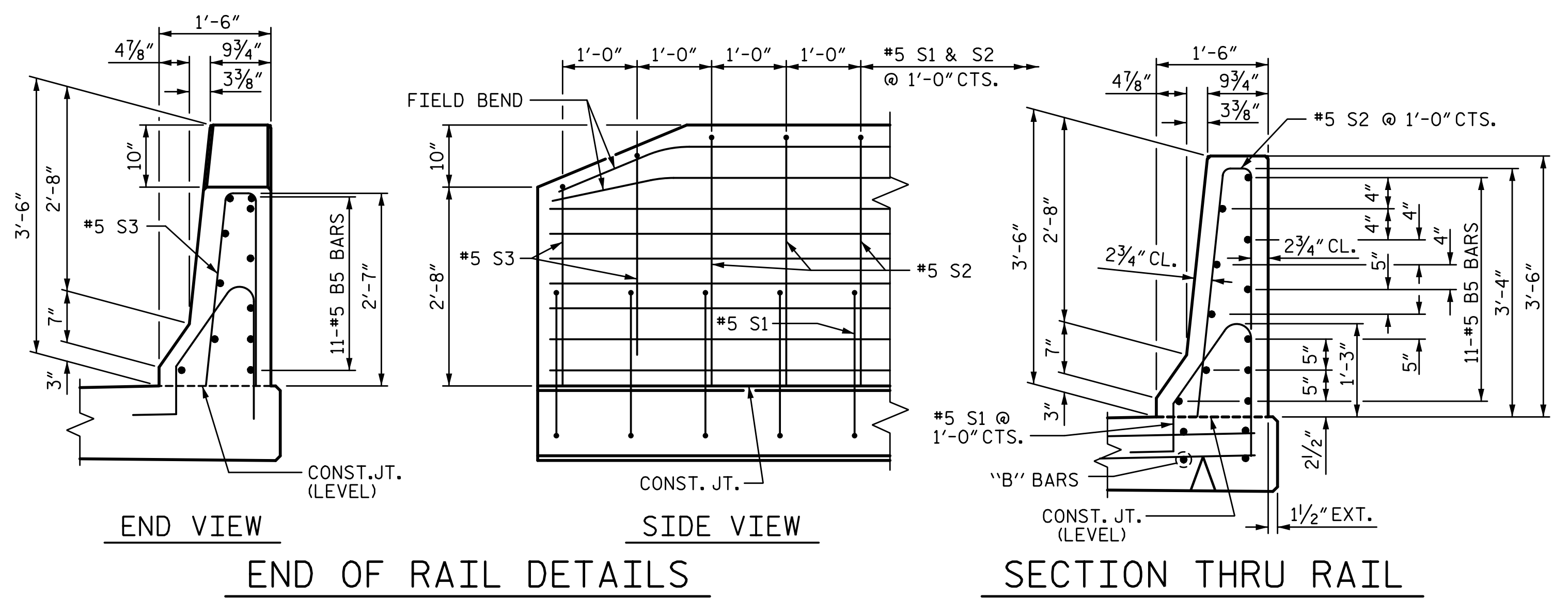
NOTES:
 THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".
 THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
 ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.



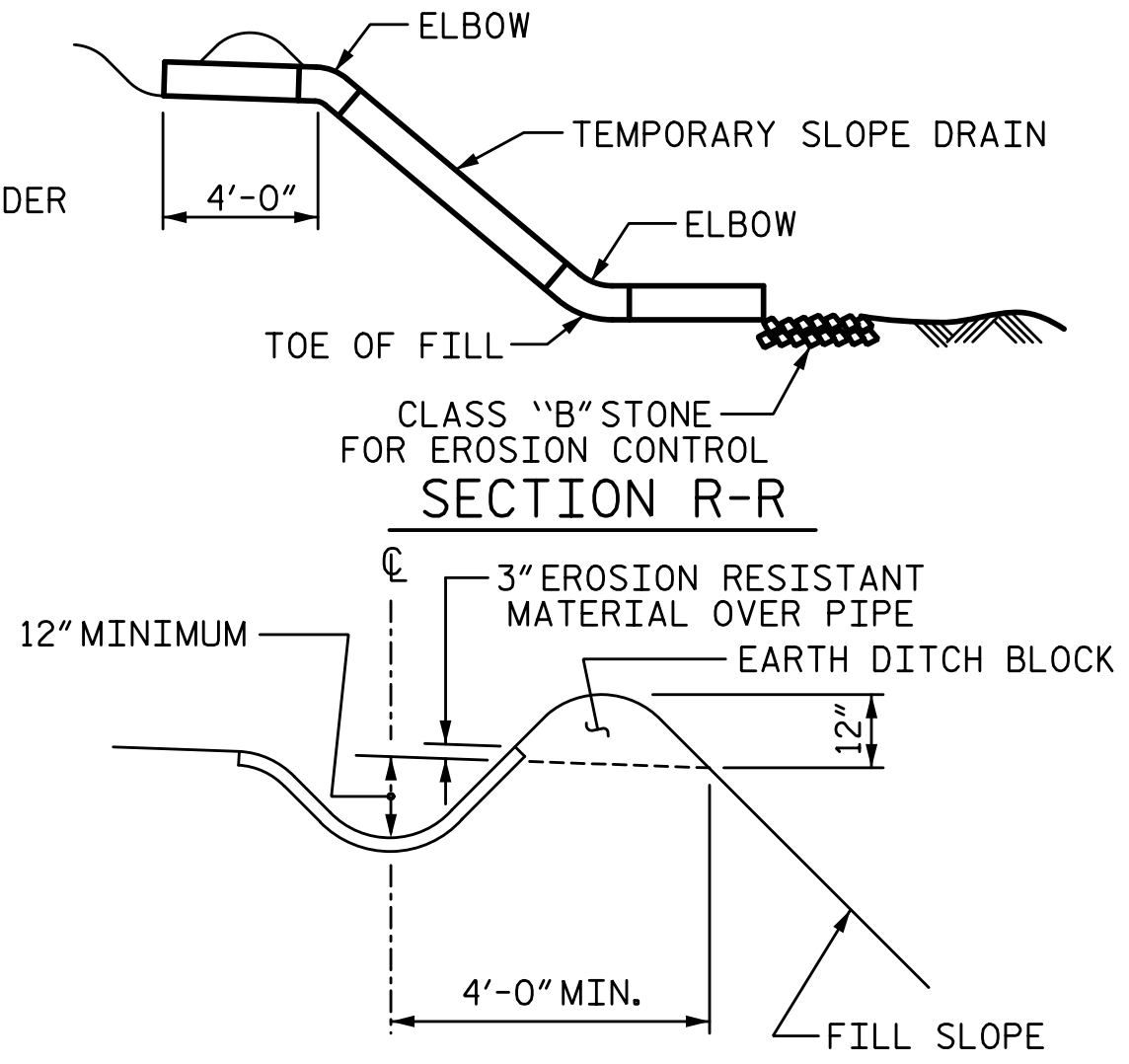
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
BARRIER RAIL ONLY					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B5	44	#5	STR	9'-11"	455
*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					947 LB
CLASS AA CONCRETE					5.4 CY
CONCRETE BARRIER RAIL					43.0 LF

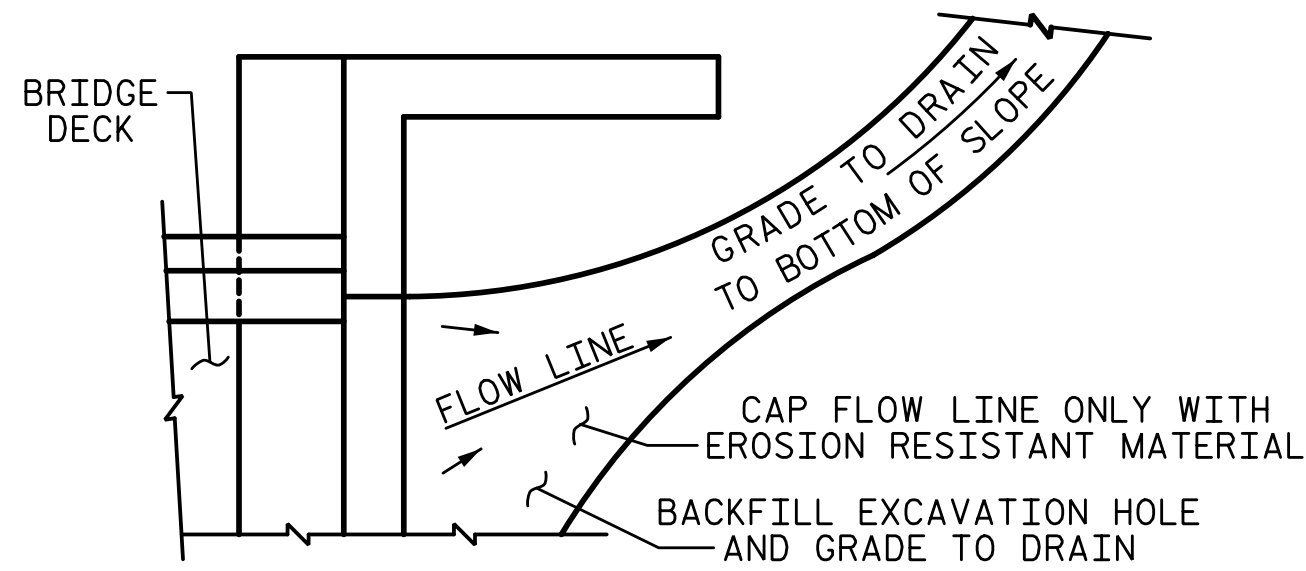
PLAN OF BARRIER RAIL



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



SECTION R-R



SECTION S-S

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

TEMPORARY DRAINAGE DETAIL



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

SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S7-36
 TOTAL SHEETS 37

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

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/21/2022 9:09:04 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 7 (Y1B over L)\Drawings\Final\I5987B_SMU_AS.dgn

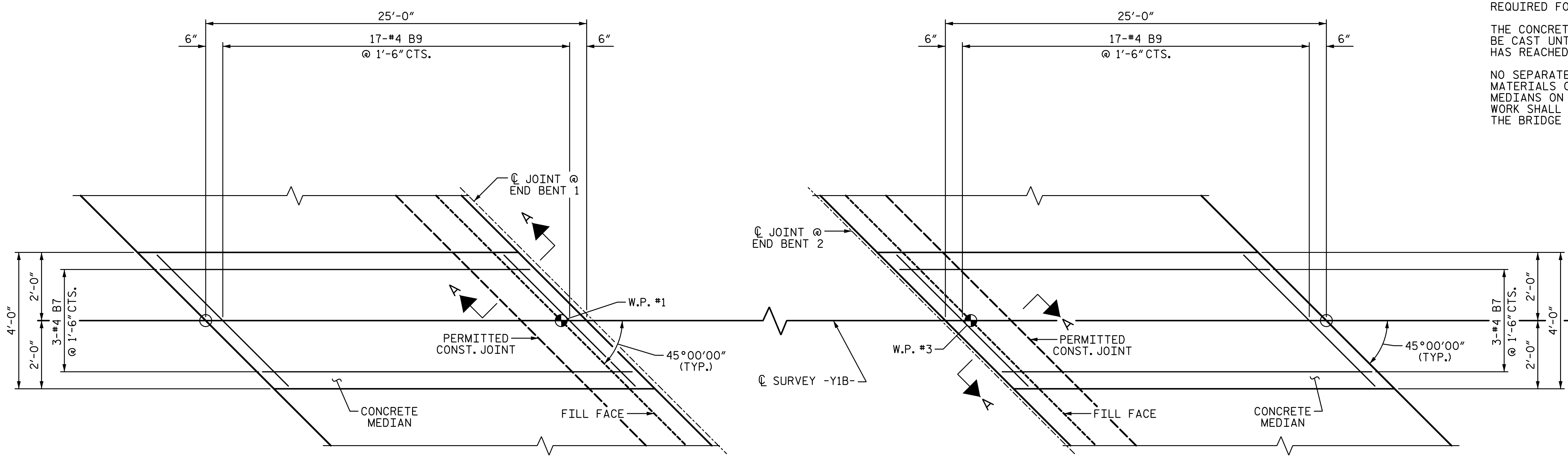
NOTES:

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 ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ITS APPROACH SLAB HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

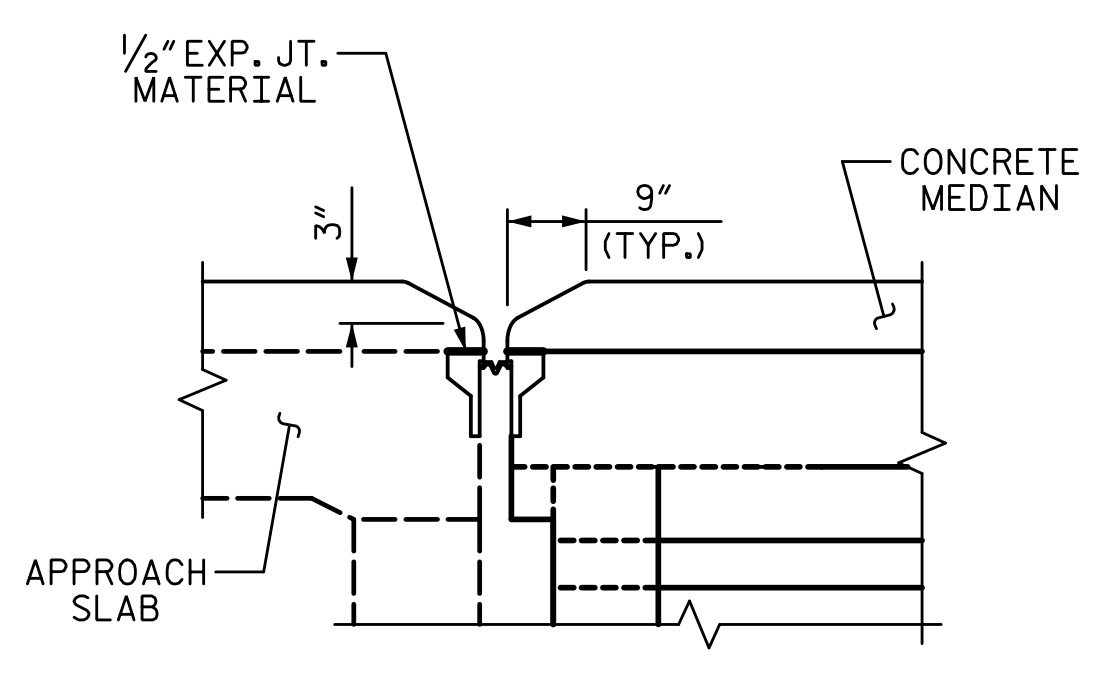
NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR MATERIALS OR LABOR REQUIRED TO CONSTRUCT THE CONCRETE MEDIANS ON THE APPROACH SLABS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR THE BRIDGE APPROACH SLABS.



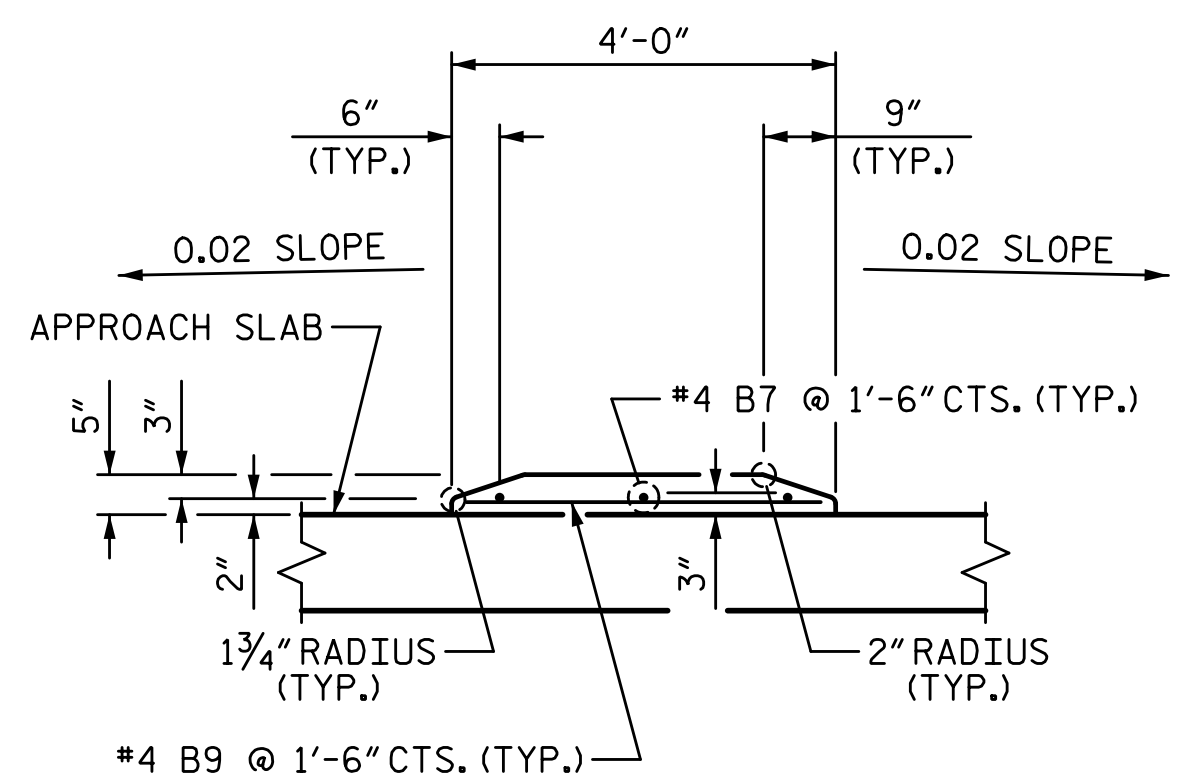
PLAN OF CONCRETE MEDIAN AT END BENT 1

PLAN OF CONCRETE MEDIAN AT END BENT 2

BILL OF MATERIAL					
FOR TWO CONCRETE MEDIANS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B7	6	#4	STR	24'-8"	99
*B9	34	#4	STR	5'-3"	119
* EPOXY COATED REINFORCING STEEL					218 LB
CLASS "AA" CONCRETE					2.8 CY



SECTION A-A



REINFORCING STEEL DETAILS

CONCRETE MEDIAN DETAILS

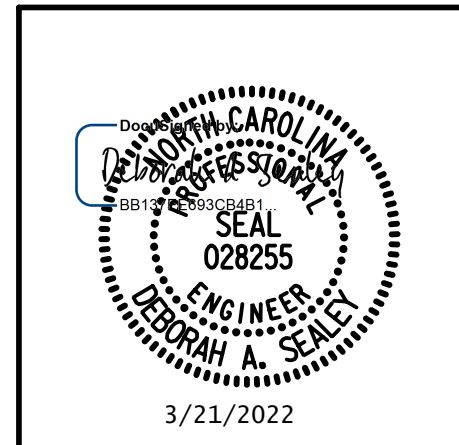
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 29+51.04 -Y1B-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH SLAB
 CONCRETE MEDIAN**

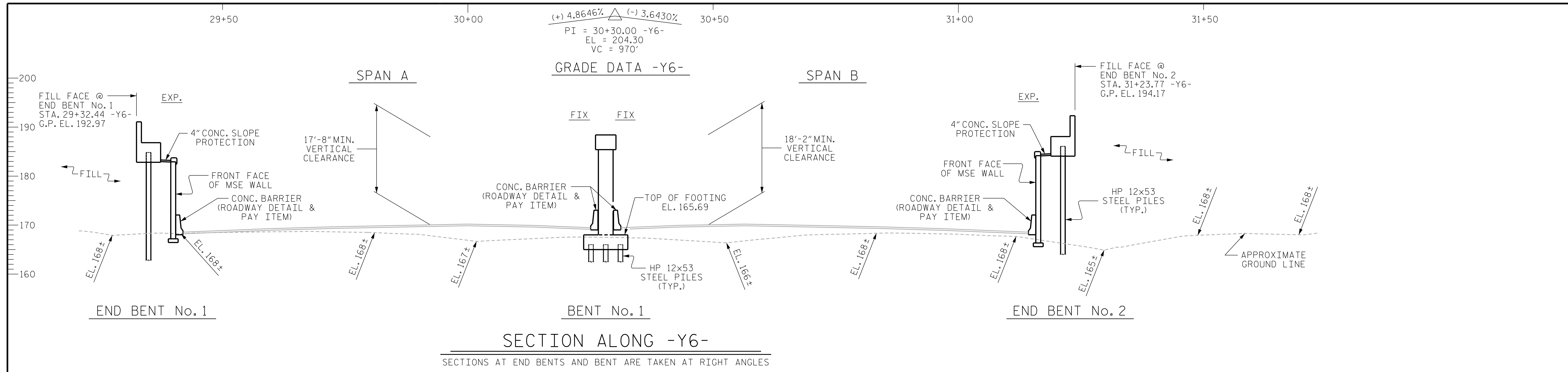
DRAWN BY: S.D. COOPER	DATE: 3-22
CHECKED BY: D.A. SEALEY	DATE: 3-22
DESIGN ENGINEER OF RECORD: D.A. SEALEY	DATE: 3-22



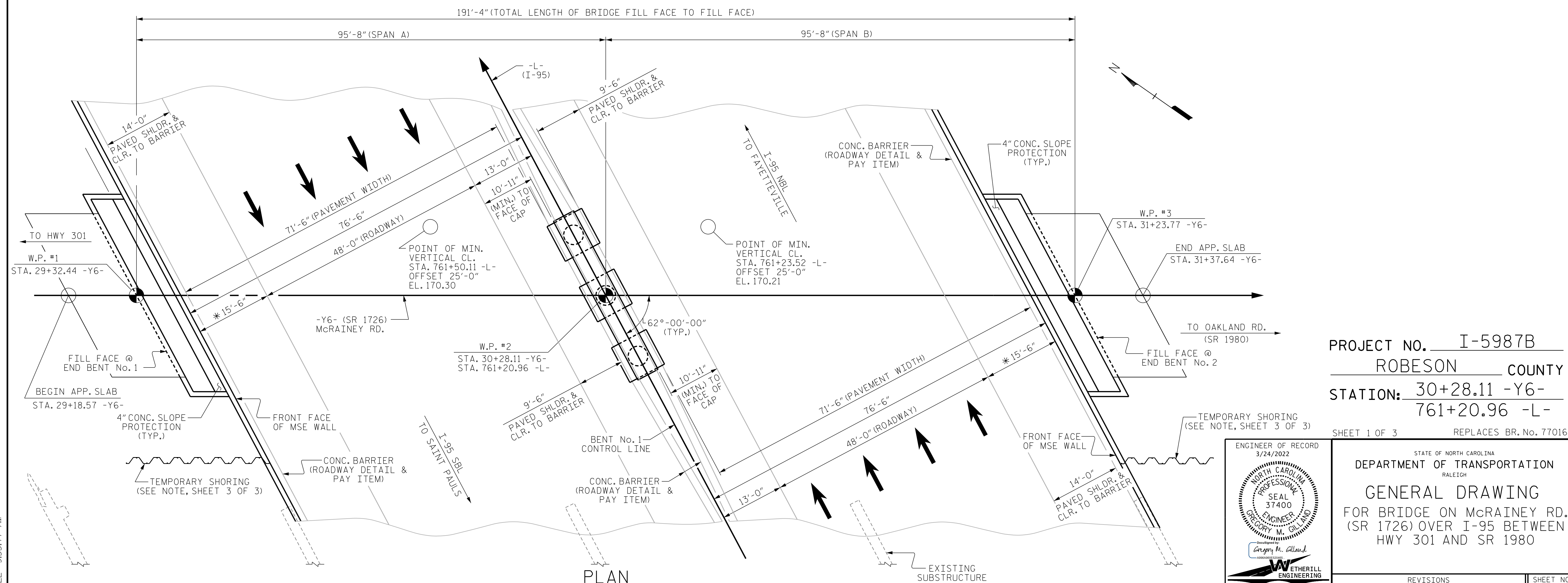
LICENSURE NO. C-4434

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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



SECTION ALONG -Y6-
SECTIONS AT END BENTS AND BENT ARE TAKEN AT RIGHT ANGLES



PLAN

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY

* MIN. CLR. TO FACE OF MSE WALL

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
761+20.96 -L-

SHEET 1 OF 3 REPLACES BR. No. 770162

ENGINEER OF RECORD
 3/24/2022

 Gregory M. Gilliland
 WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON McRAINEY RD.
 (SR 1726) OVER I-95 BETWEEN
 HWY 301 AND SR 1980

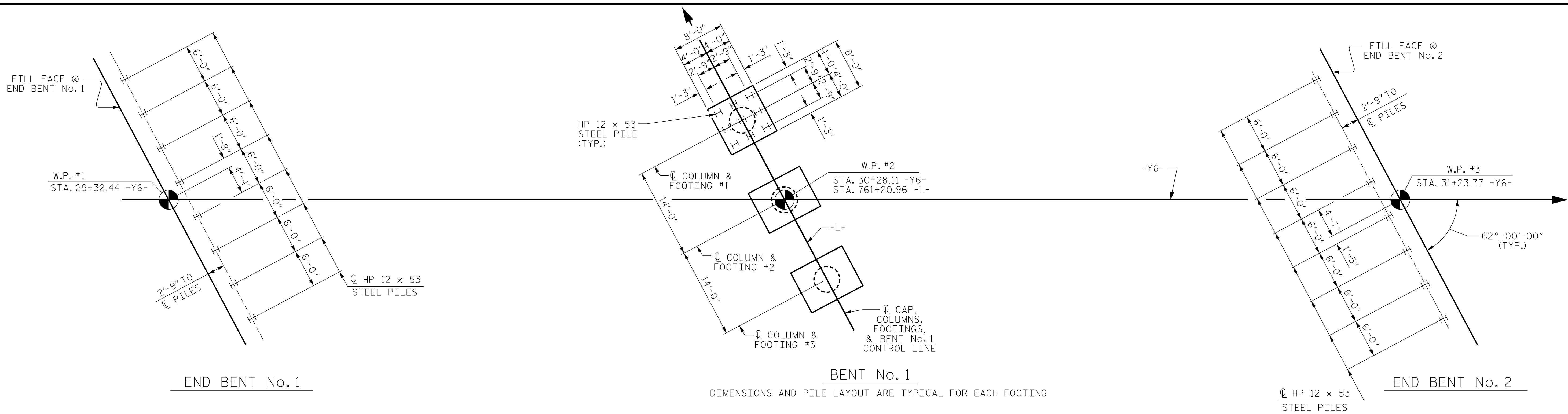
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S8-1
TOTAL SHEETS 28

DRAWN BY: JP/DAH DATE: 11/21
 CHECKED BY: G. GILLAND DATE: 12/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

P:\2020\20380\01-I-5987B-T95 Structures\DWG\401_001-I-5987B-SHW_GD_001.dgn
 3/24/2022 9:33:41 AM



FOUNDATION LAYOUT

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 11/08/21.

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 PDA'S MAY BE REQUIRED.

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 BENT 1, OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MSE ABUTMENT WALL TO WITHIN 1 FT OF THE BOTTOM OF CAP ELEVATION. THEN, INSTALL PILES THROUGH THE CORRUGATED STEEL PIPES AND FILL PIPES WITH LOOSE UNCOMPACTED SAND BEFORE CONSTRUCTING END BENT CAP. FOR PILE SLEEVES, SEE MSE RETAINING WALL PLANS AND PROVISION. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

INSTALL PILE SLEEVES BEFORE CONSTRUCTING THE MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL AT END BENT 2, OBSERVE A 3 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MSE ABUTMENT WALL TO WITHIN 1 FT OF THE BOTTOM OF CAP ELEVATION. THEN, INSTALL PILES THROUGH THE CORRUGATED STEEL PIPES AND FILL PIPES WITH LOOSE UNCOMPACTED SAND BEFORE CONSTRUCTING END BENT CAP. 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 REINFORCING BRIDGE APPROACH FILL, SEE TYPE A ALTERNATE APPROACH FILL AT MSE WALLS (SPECIAL) PROVISION.

SUMMARY OF PDA/PILE ORDER LENGTHS (BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)					
PILE DRIVING ANALYZER (PDA)			PILE ORDER LENGTHS		
END BENT/ BENT No.	PDA TESTING REQUIRED? (YES OR MAYBE)	PDA TEST PILE LENGTH (FT)	TOTAL PDA TESTING QUANTITY (EACH)	END BENT/ BENT No. (s)	PILE ORDER LENGTH BASIS* (EST OR PDA)
END BENT 1, PILES (1-8)	MAYBE	75	1		
BENT 1, PILES (1-27)	MAYBE	70			
END BENT 2, PILES (1-8)	MAYBE	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 DOWDRAG LOAD PER PILE (TONS)	FACTORED DEAD LOAD* PER PILE (TONS)	DYNAMIC RESISTANCE FACTOR	NOMINAL DOWDRAG RESISTANCE PER PILE (TONS)	NOMINAL SCOUR RESISTANCE PER PILE (TONS)	SCOUR RESISTANCE FACTOR (DEFAULT = 1.00)
END BENT 1, PILES (1-8)	92			0.60			1.00
BENT 1, PILES (1-27)	88			0.60			1.00
END BENT 2, PILES (1-8)	92			0.60			1.00

*FACTORED DEAD LOAD IS FACTORED WEIGHT OF PILE ABOVE GROUND LINE.

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 NOT IN SOIL PER PILE (LIN FT)	PILE EXC IN SOIL PER PILE (LIN FT)
END BENT 1, PILES (1-8)	95	183.81	70			160	22					
BENT 1, PILES (1-27)	90	163.44	65		150							
END BENT 2, PILES (1-8)	95	185.07	85		160							

*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 = FACTORED RESISTANCE + FACTORED DOWDRAG LOAD + FACTORED DEAD LOAD + NOMINAL DOWDRAG RESISTANCE + NOMINAL SCOUR RESISTANCE / DYNAMIC RESISTANCE FACTOR + SCOUR RESISTANCE FACTOR

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON McRAINEY RD.
 (SR 1726) OVER I-95 BETWEEN
 HWY 301 AND SR 1980

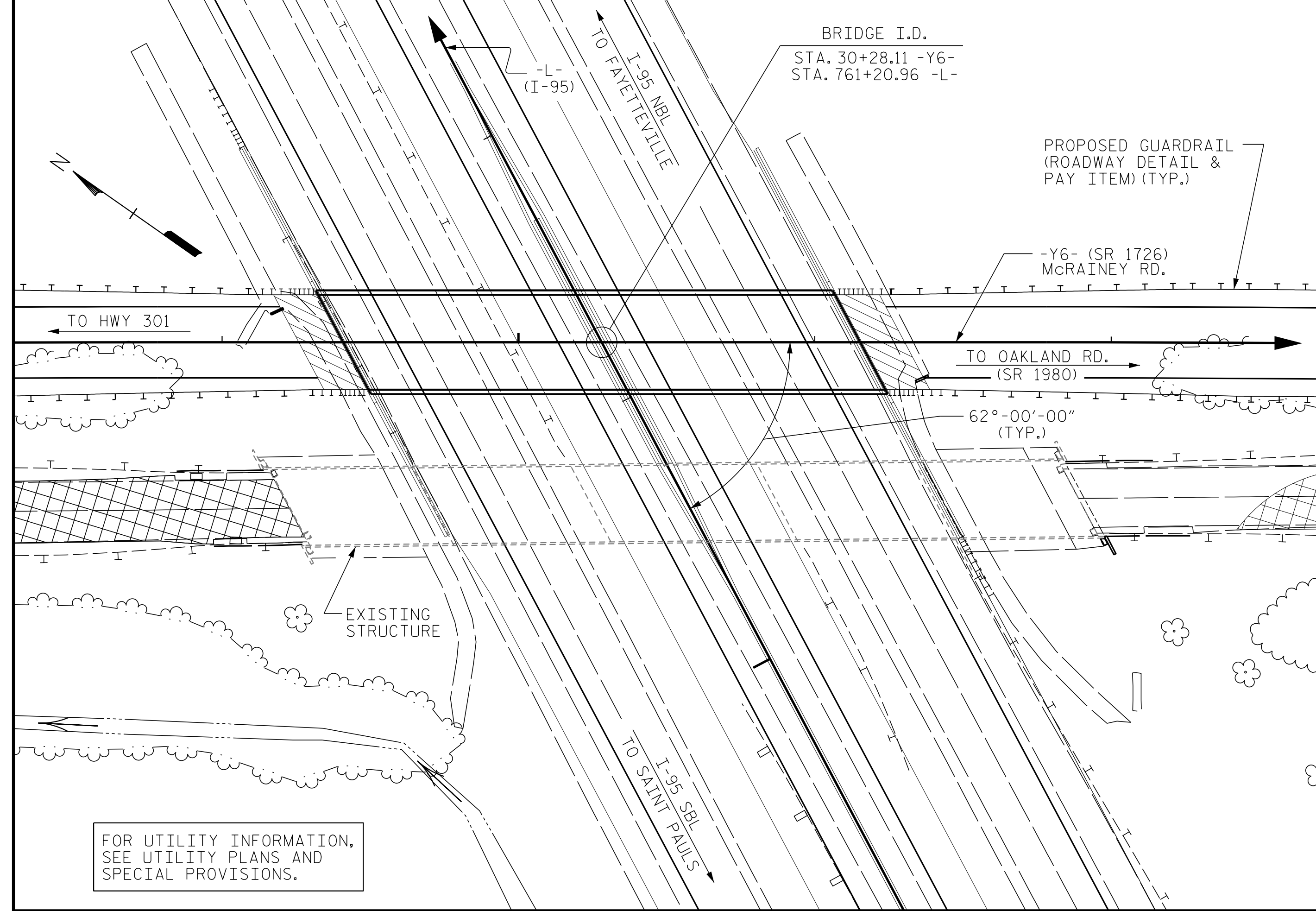
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8-2
1			3			TOTAL SHEETS 28
2			4			

DRAWN BY : D. HODGE DATE : 11/21
 CHECKED BY : G. GILLAND DATE : 12/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

PA-2020-20380.01-I-5987B-T95 Structures DGN 401_001_15987B_SBU_GD_001.dgn
 3/8/2022 3:24:53 PM

BM #57: TIE SPIKE SET IN 22" PINE, 147' RIGHT OF STA. 771+17.58 -L- EL. 171.31



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 SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.
- REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
- NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
- 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".
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 1 SPAN AT 49'-0", 1 SPAN AT 57'-10", 2 SPANS AT 58'-0" AND 1 SPAN AT 48'-8" WITH PRECAST PRESTRESSED CONCRETE CORED SLABS WITH ASPHALT OVERLAY WITH 27'-0" OUT TO OUT DECK ON REINFORCED CONCRETE CAP BENTS AND END BENTS AND LOCATED BESIDE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

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

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	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	54" PRESTRESSED CONCRETE GIRDERS		PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 x 53 STEEL PILES		PILE REDRIVES	CONCRETE BARRIER RAIL	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	
	LUMP SUM	LUMP SUM	LUMP SUM	EACH	SO.FT.	SO.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	No.	LIN.FT.	EA.	NO.	LIN.FT.	EA.	LIN.FT.	SO. YDS.	LUMP SUM	LUMP SUM	
SUPERSTRUCTURE					6,661	6,221					8	747.00					377.76				
END BENT 1							47.8		5,926				8	8	560				9.9		
BENT 1							69.8		12,081	2,879			27	27	1,755						
END BENT 2							47.1		5,798				8	8	680				9.9		
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	1	6,661	6,221	164.7	LUMP SUM	23,805	2,879	8	747.00	43	43	2,995	22	377.76	19.8	LUMP SUM	LUMP SUM	

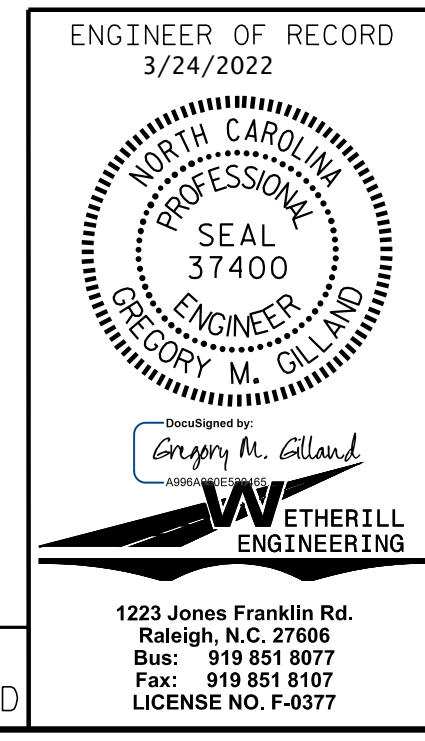
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-

SHEET 3 OF 3

P:\2020\20380\01_I-5987B_I-5987B_T95 Structures\DWG\401_001_I-5987B_SBU_GD_001.dgn
 3/24/2022 9:33:55 AM

DRAWN BY : JP/DAH DATE : 11/21
 CHECKED BY : G. GILLAND DATE : 12/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON McRAINEY RD.
 (SR 1726) OVER I-95 BETWEEN
 HWY 301 AND SR 1980

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8-3
1			3			TOTAL SHEETS
2			4			28

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ _L)	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 _L)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.06	--	1.75	0.820	1.290	1	4	45.980	1.000	1.440	1	2	83.340	0.80	0.750	1.060	1	2	45.980	1	
	HL-93 (OPERATING)	N/A		1.68	--	1.35	0.820	1.680	1	4	45.980	1.000	1.890	1	2	83.340	N/A	--	--	--	--	--	1	
	HS-20 (INVENTORY)	36.000	②	1.45	52.200	1.75	0.820	1.770	1	4	45.980	1.000	1.920	1	2	83.340	0.80	0.750	1.450	1	2	45.980	1	
	HS-20 (OPERATING)	36.000		2.29	82.440	1.35	0.820	2.290	1	4	45.980	1.000	2.520	1	2	83.340	N/A	--	--	--	--	--	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.41	46.035	1.40	0.820	5.190	1	4	45.980	1.000	6.110	1	2	83.340	0.80	0.750	3.410	1	2	45.980	1
		SNGARBS2	20.000		2.49	49.800	1.40	0.820	3.780	1	4	45.980	1.000	4.260	1	2	83.340	0.80	0.750	2.490	1	2	45.980	1
		SNAGRIS2	22.000		2.33	51.260	1.40	0.820	3.550	1	4	45.980	1.000	3.930	1	2	83.340	0.80	0.750	2.330	1	2	45.980	1
		SNCOTTS3	27.250		1.70	46.325	1.40	0.820	2.580	1	4	45.980	1.000	2.990	1	2	83.340	0.80	0.750	1.700	1	2	45.980	1
		SNAGGRS4	34.925		1.40	48.895	1.40	0.820	2.120	1	4	45.980	1.000	2.430	1	2	83.340	0.80	0.750	1.400	1	2	45.980	1
		SNS5A	35.550		1.37	48.704	1.40	0.820	2.080	1	4	45.980	1.000	2.440	1	2	83.340	0.80	0.750	1.370	1	2	45.980	1
		SNS6A	39.950		1.24	49.538	1.40	0.820	1.890	1	4	45.980	1.000	2.210	1	2	83.340	0.80	0.750	1.240	1	2	45.980	1
	SNS7B	42.000		1.18	49.560	1.40	0.820	1.800	1	4	45.980	1.000	2.150	1	2	83.340	0.80	0.750	1.180	1	2	45.980	1	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.51	49.830	1.40	0.820	2.300	1	4	45.980	1.000	2.660	1	2	83.340	0.80	0.750	1.510	1	2	45.980	1
		TNT4A	33.075		1.52	50.274	1.40	0.820	2.310	1	4	45.980	1.000	2.600	1	2	83.340	0.80	0.750	1.520	1	2	45.980	1
		TNT6A	41.600		1.23	51.168	1.40	0.820	1.880	1	4	45.980	1.000	2.260	1	2	83.340	0.80	0.750	1.230	1	2	45.980	1
		TNT7A	42.000		1.24	52.080	1.40	0.820	1.880	1	4	45.980	1.000	2.220	1	2	83.340	0.80	0.750	1.240	1	2	45.980	1
		TNT7B	42.000		1.27	53.340	1.40	0.820	1.930	1	4	45.980	1.000	2.110	1	2	83.340	0.80	0.750	1.270	1	2	45.980	1
		TNAGRIT4	43.000		1.21	52.030	1.40	0.820	1.850	1	4	45.980	1.000	2.040	1	2	83.340	0.80	0.750	1.210	1	2	45.980	1
TNAGT5A		45.000		1.15	51.750	1.40	0.820	1.750	1	4	45.980	1.000	2.010	1	2	83.340	0.80	0.750	1.150	1	2	45.980	1	
TNAGT5B	45.000	③	1.14	51.300	1.40	0.820	1.730	1	4	45.980	1.000	1.940	1	2	83.340	0.80	0.750	1.140	1	2	45.980	1		

LOAD FACTORS:

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

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. SPAN A AND SPAN B SIMILAR

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

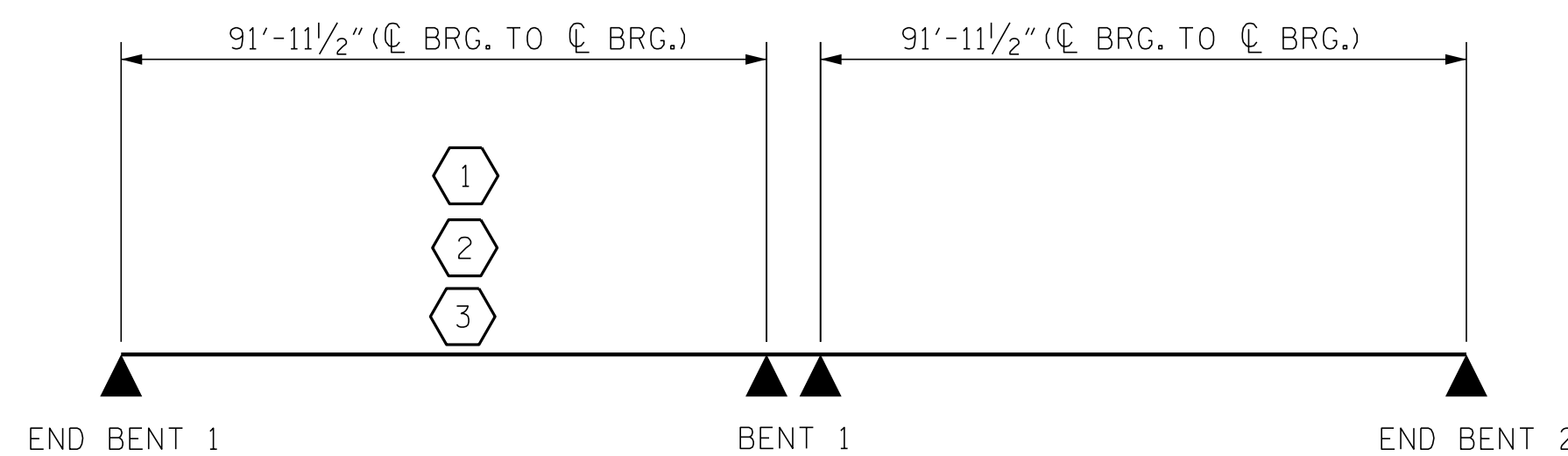
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-

P:\2020\20380\01-I-5987B-T95 Structures\06\401_001-I-5987B-SHU_LR_001.dgn
 3/8/2022 3:25:35 PM

DRAWN BY: J. PENDERGRAFT DATE: 4-21
 CHECKED BY: J. A. DILWORTH DATE: 4-21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
3/24/2022

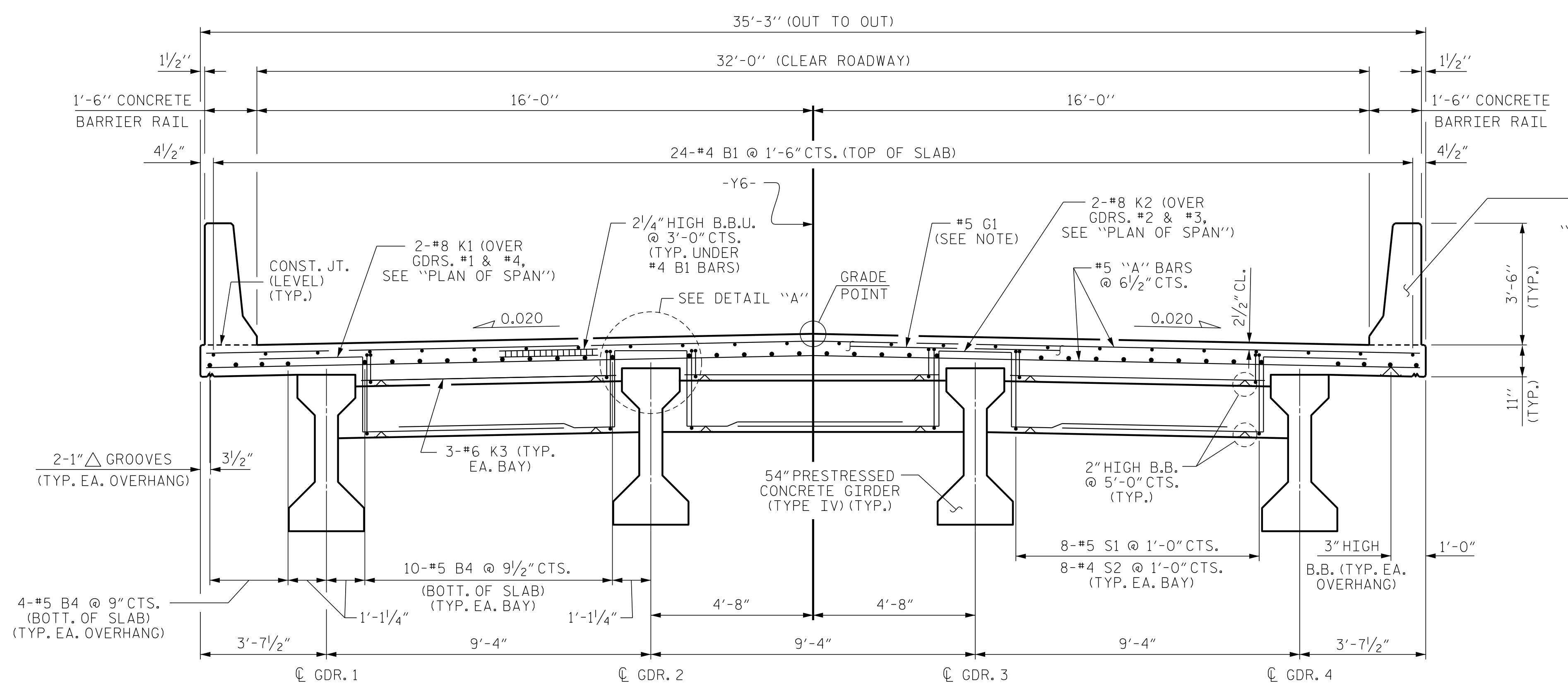
Gregory M. Gilland
ETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8-4
1			3			TOTAL SHEETS
2			4			28



TYPICAL SECTION AT END BENT DIAPHRAGM

FOR BARRIER RAIL REINFORCING STEEL AND DETAILS, SEE "CONCRETE BARRIER RAIL" SHEET. (TYP.)

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

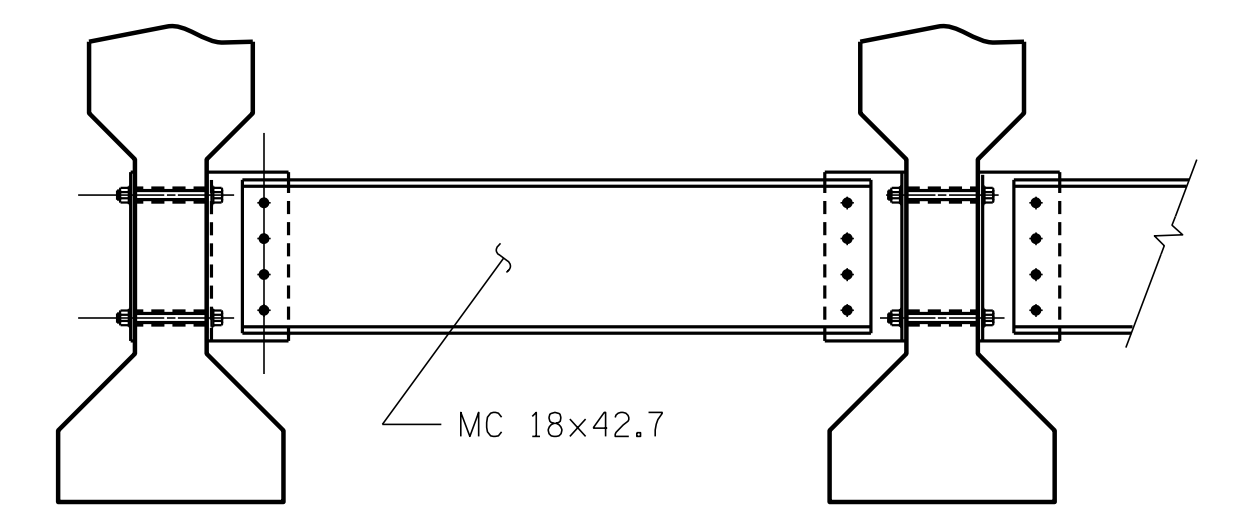
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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

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

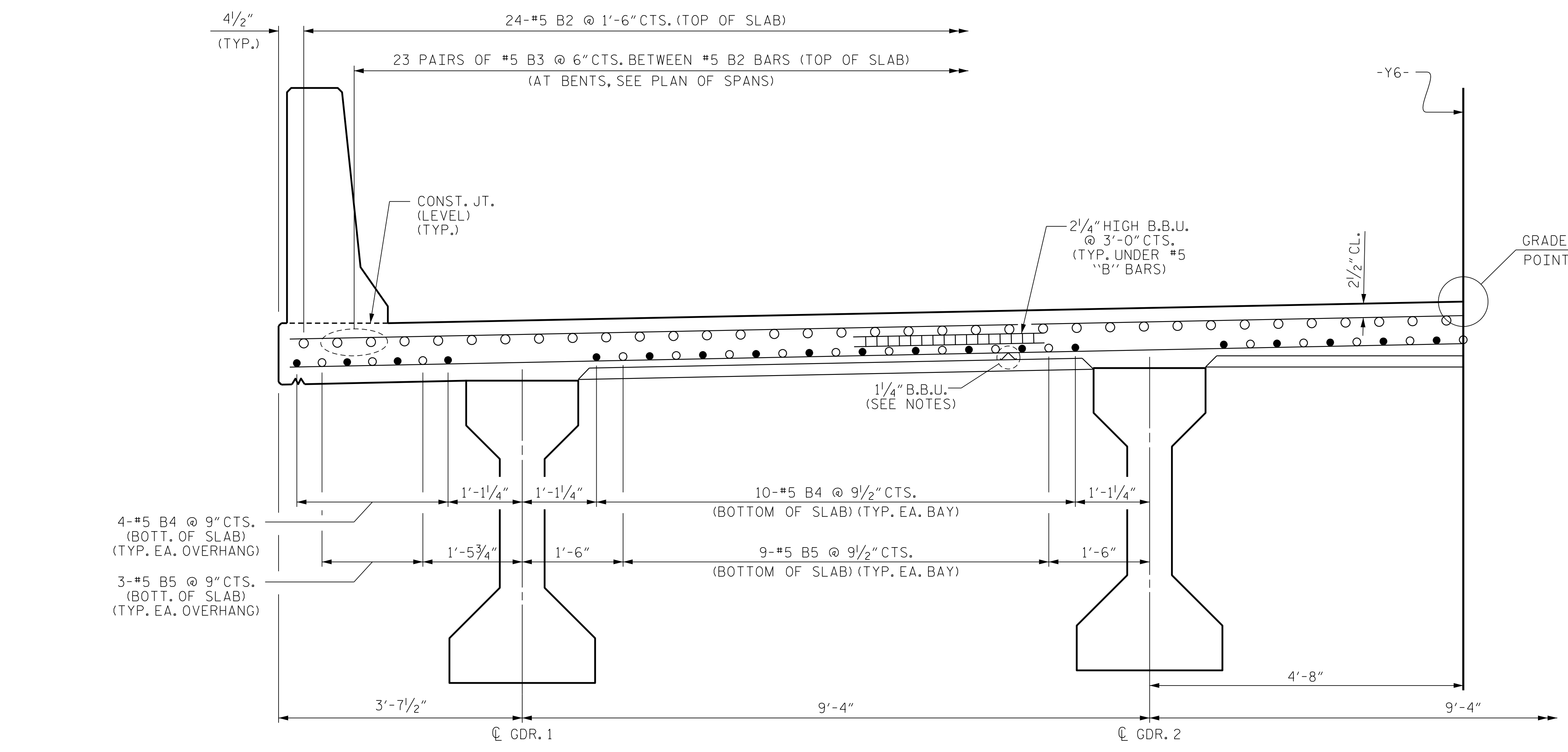
#5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

NO WELDING OF FORMS OR FALSEWORK TO THE TOP OF THE GIRDER WILL BE PERMITTED IN THE LINK SLAB AREA.

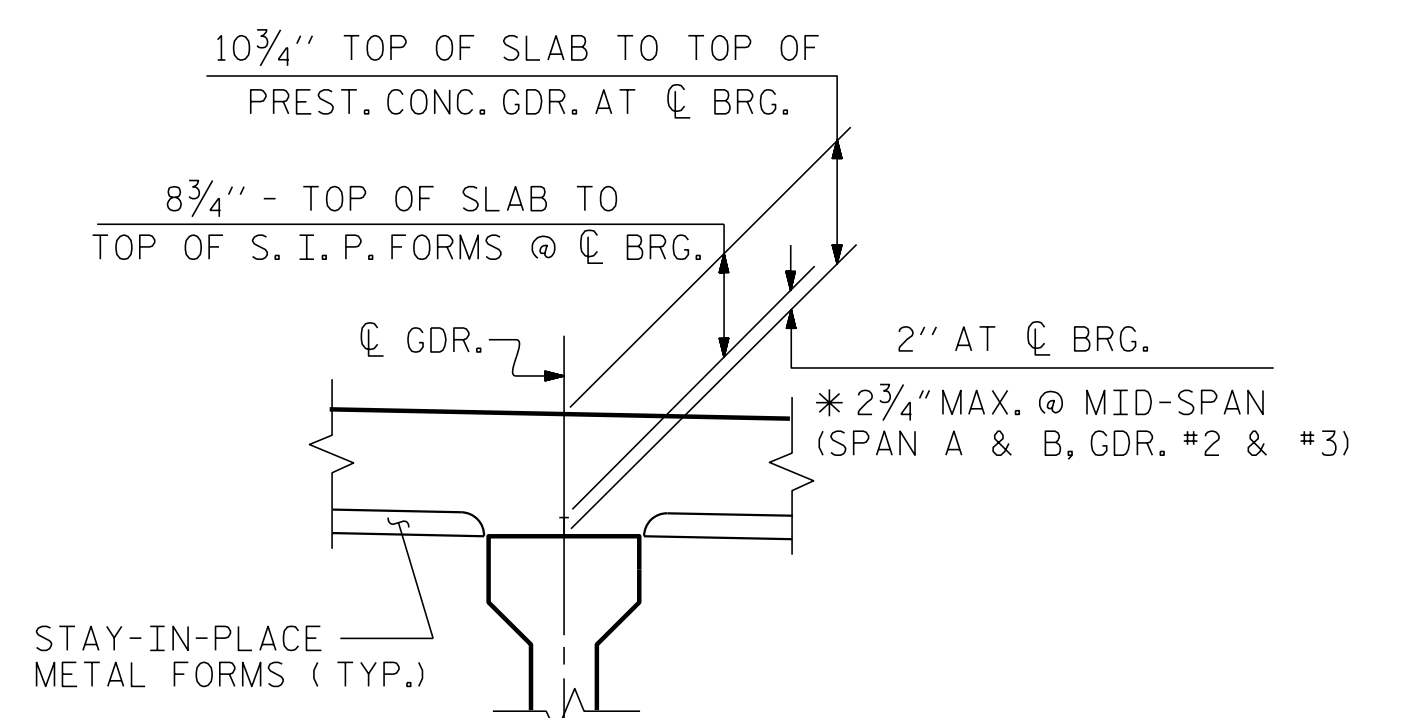


TYPICAL INTERMEDIATE DIAPHRAGM

SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS" SHEET FOR DETAILS



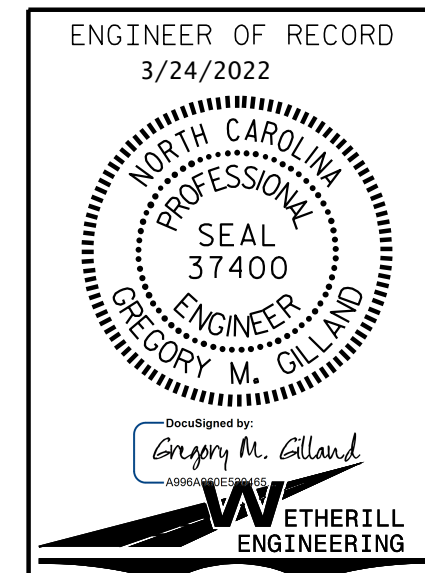
TYPICAL HALF SECTION THRU LINK SLAB @ BENT



DETAIL "A"
 * BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

- INDICATES CONTINUOUS REINFORCING
- INDICATES ADDITIONAL REINFORCING IN LINK SLAB

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8-5
1			3			TOTAL SHEETS
2			4			28

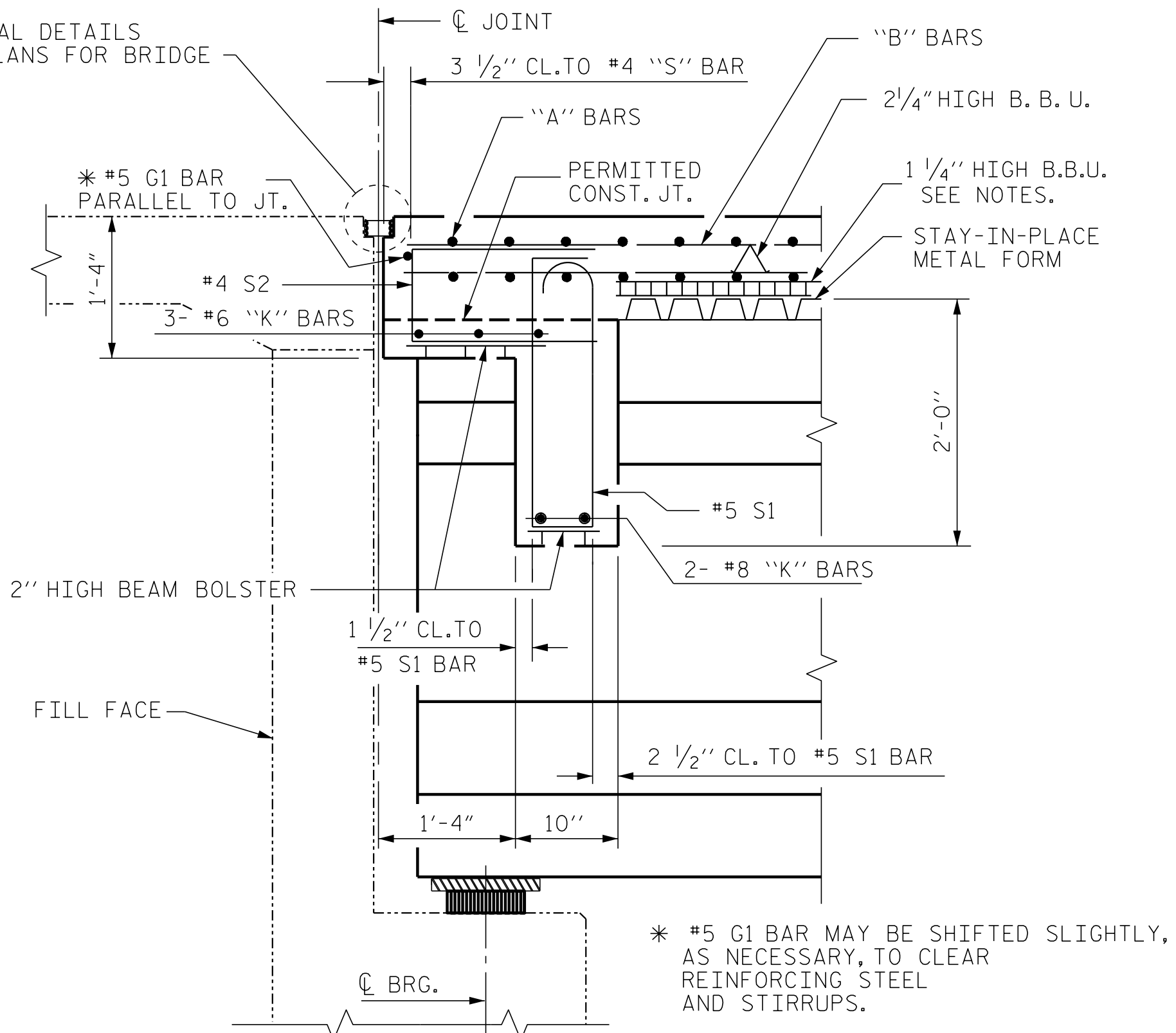
ENGINEER OF RECORD
 3/24/2022
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

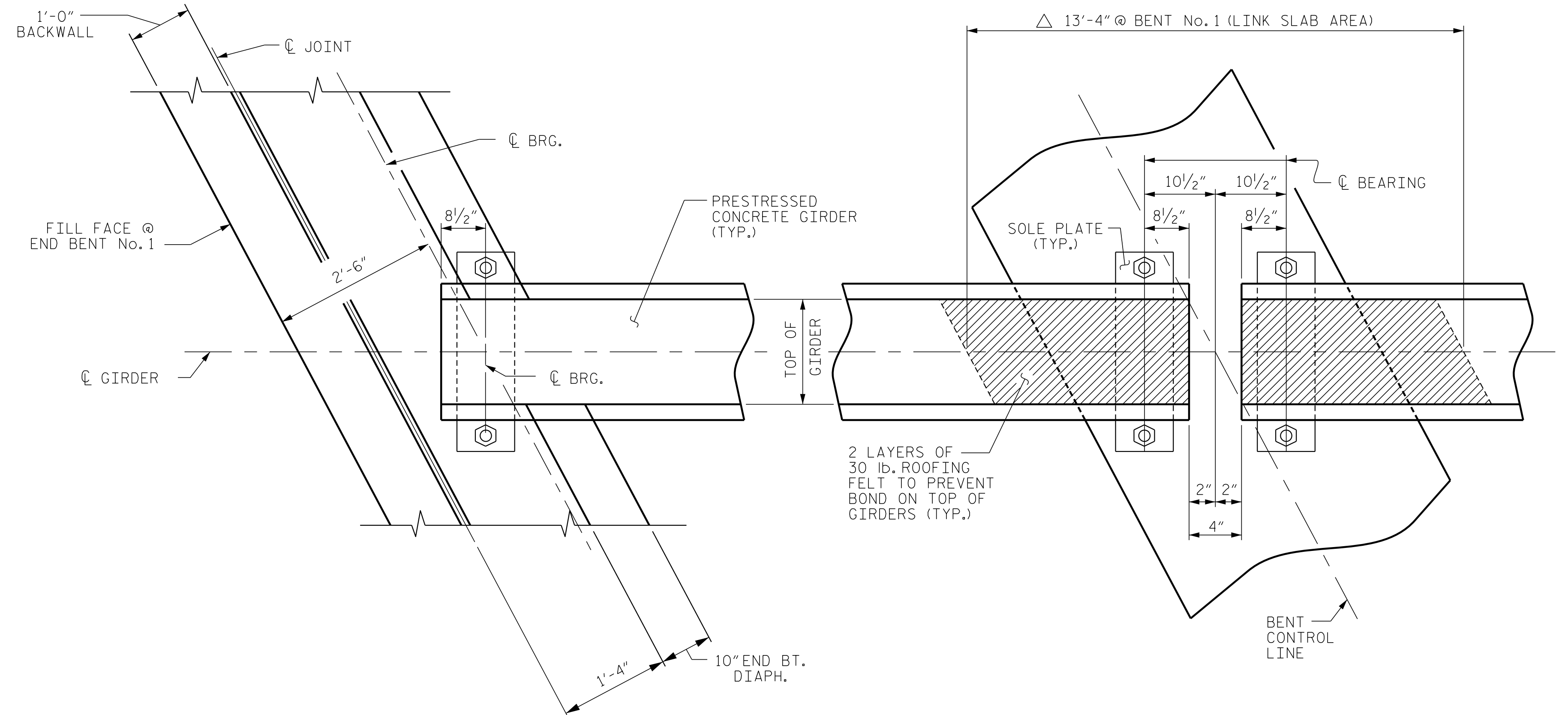
P:\2020\20380\01-I-5987B-T95 Structures\DCM\401_001-I-5987B-SMU-TS_001.dgn
 3/8/2022 3:26:07 PM

DRAWN BY: DAH/GMG DATE: 11/21
 CHECKED BY: J. DILWORTH DATE: 11/21

FOR FOAM JOINT SEAL DETAILS AT END BENT, SEE PLANS FOR BRIDGE APPROACH SLAB.



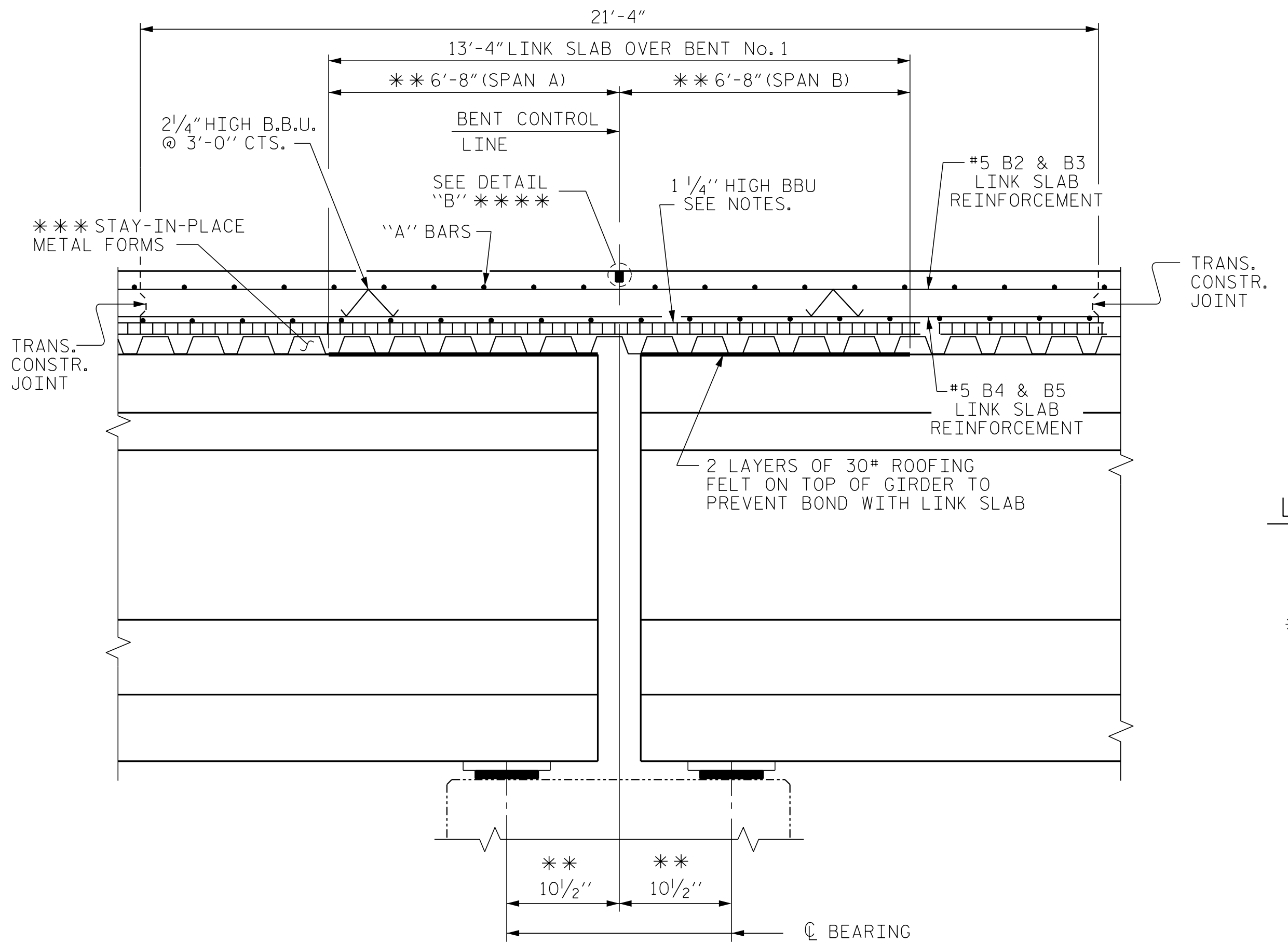
SECTION THRU END BENT DIAPHRAGM



PLAN OF GIRDER @ END BENT

PLAN OF LINK SLAB @ BENT

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

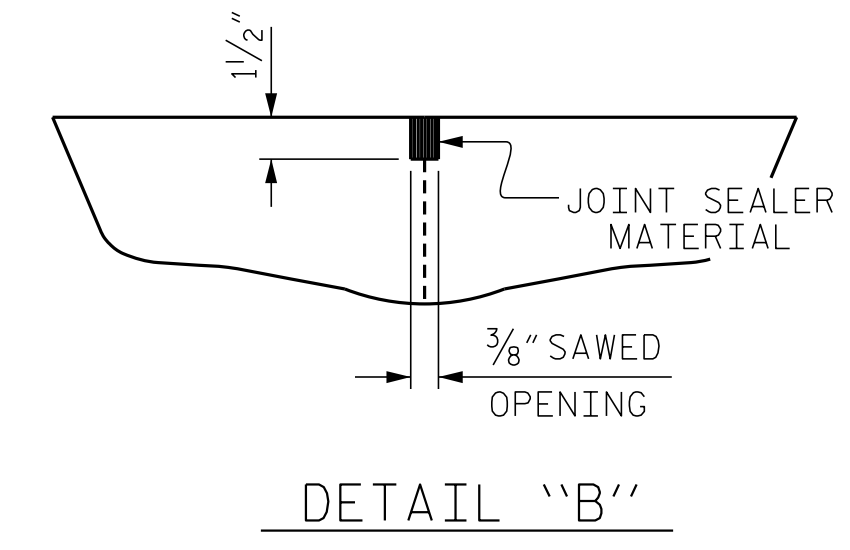


SECTION THRU LINK SLAB @ BENT

(SHOWN PERPENDICULAR TO BENT CONTROL LINE)
 ** DIMENSION IS MEASURED ALONG THE C GIRDER

LINK SLAB NOTES:

- *** METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO THE GIRDER FLANGES IN THE REGION OF THE LINK SLAB.
- *** A 1 1/2" DEEP, 3/8" WIDE 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 SPECIFICATION.



DETAIL "B"

PROJECT NO. I-5987B
 ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 2 OF 2

ENGINEER OF RECORD
 3/24/2022

 Gregory M. Gulland
 WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

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

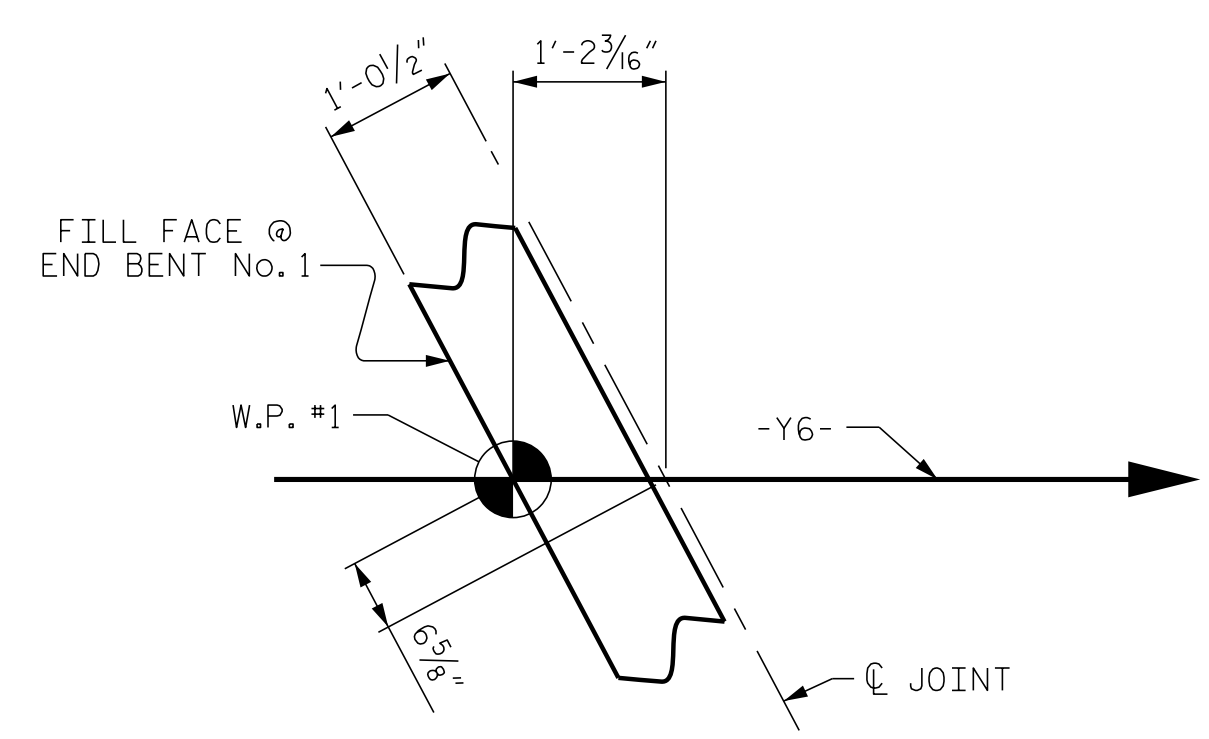
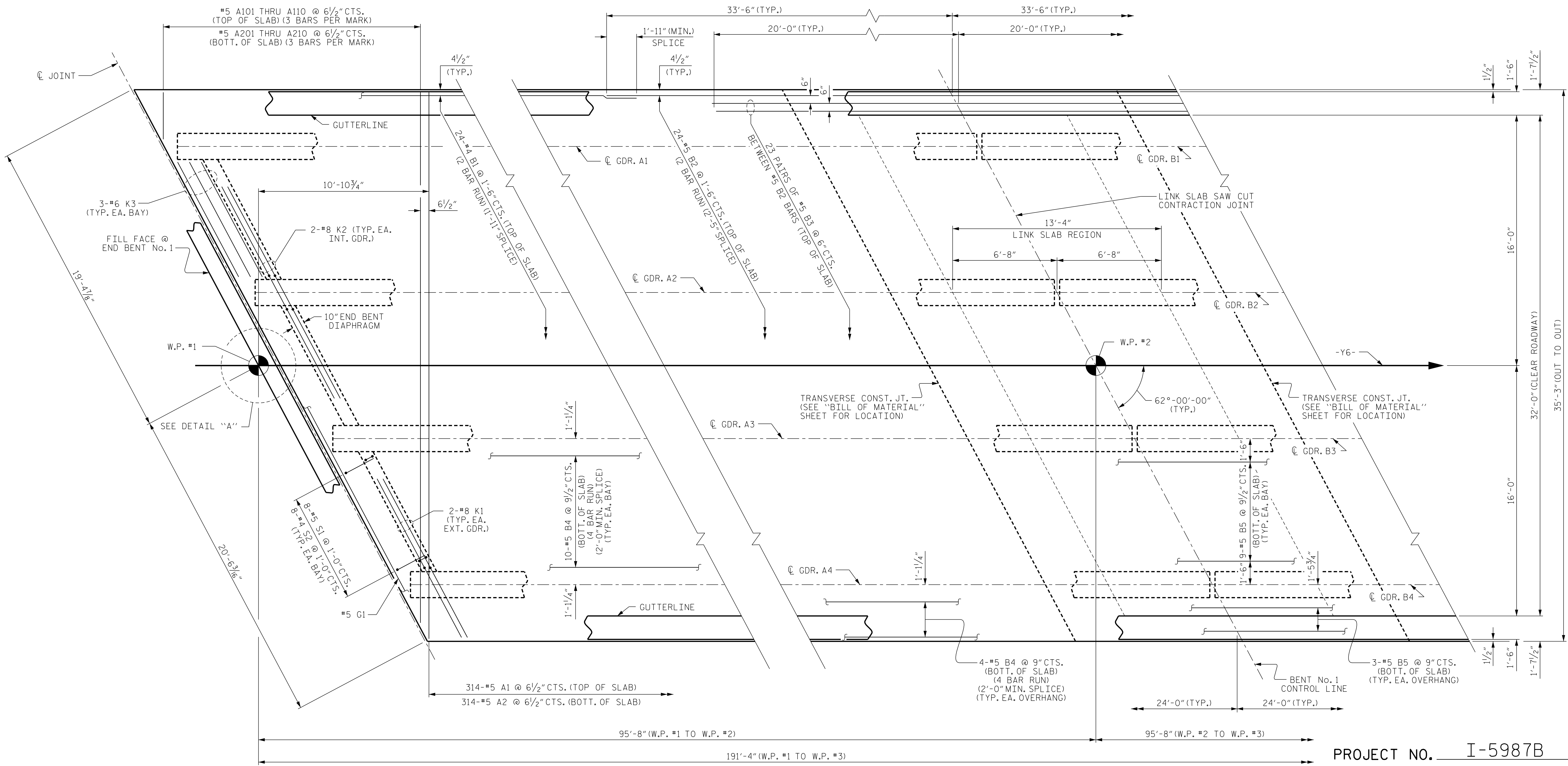
SHEET NO. S8-6
 TOTAL SHEETS 28

DRAWN BY: DAH/GMG DATE: 11/21
 CHECKED BY: J. DILWORTH DATE: 11/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

PA-2020-20380-01-I-5987B-T95 Structures DGN401_001_15987B_SBU_TS_001.dgn
 3/8/2022 3:26:19 PM

PA-2020-20380.01-I-5987B-T95 Structures\DWG\401_001-I-5987B-SHU-PS_001.dgn
3/8/2022 3:27:01 PM



PLAN OF SPAN A

FOR LOCATIONS OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "GIRDER LAYOUT" SHEET.

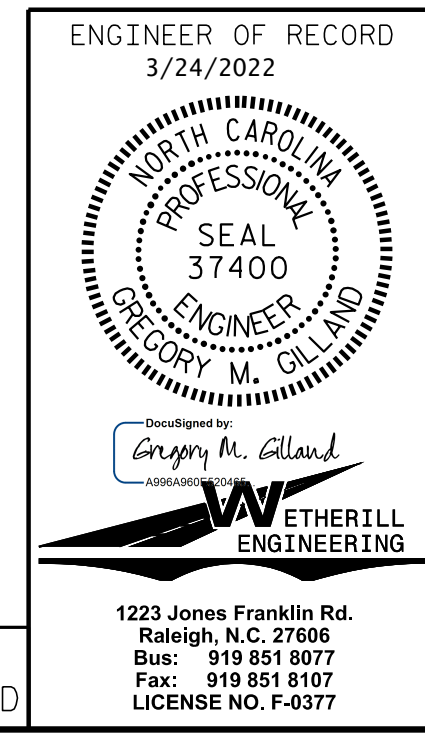
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-

SHEET 1 OF 2

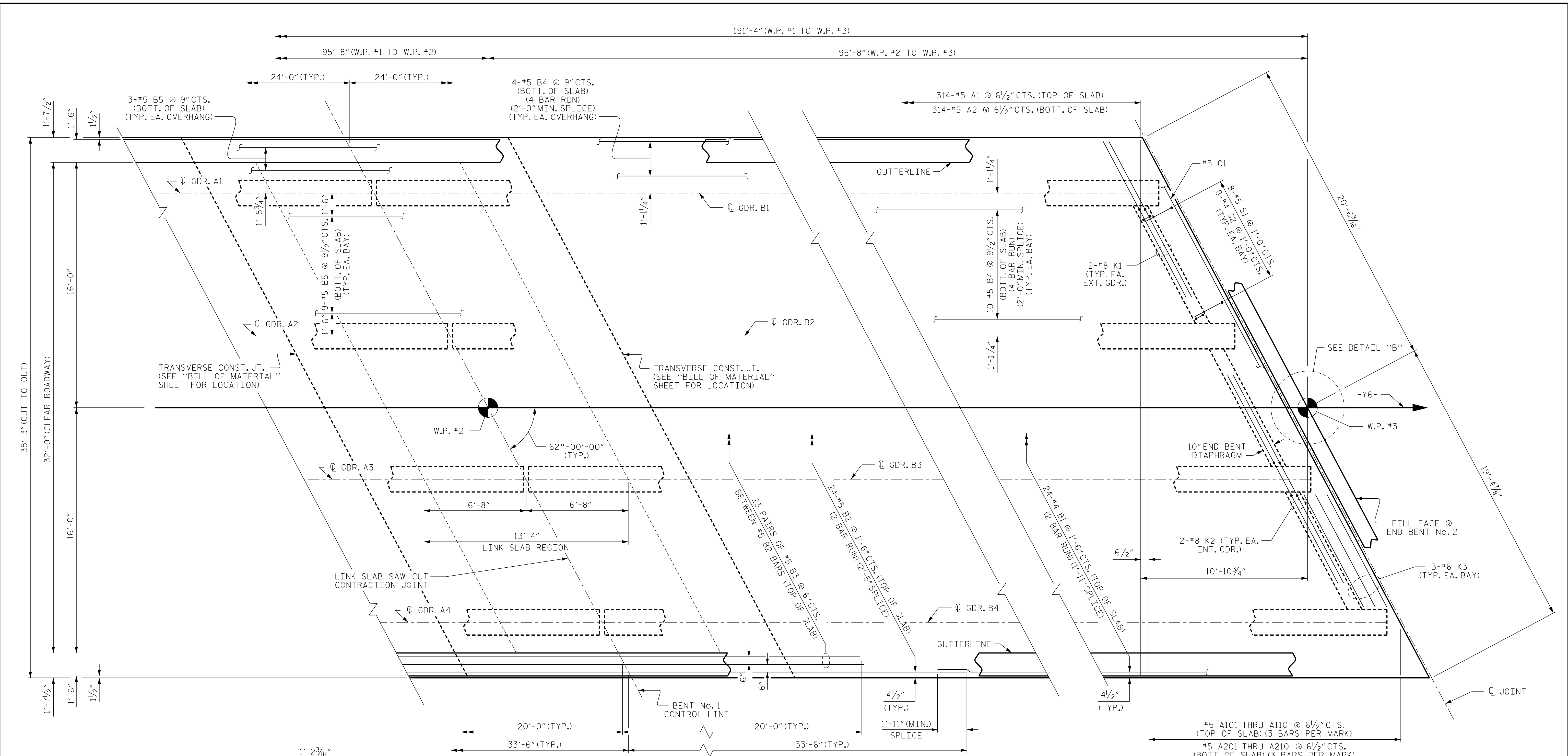
DRAWN BY: DAH/GMG DATE: 11/21
 CHECKED BY: J. DILWORTH DATE: 11/21

DETAIL "A"

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

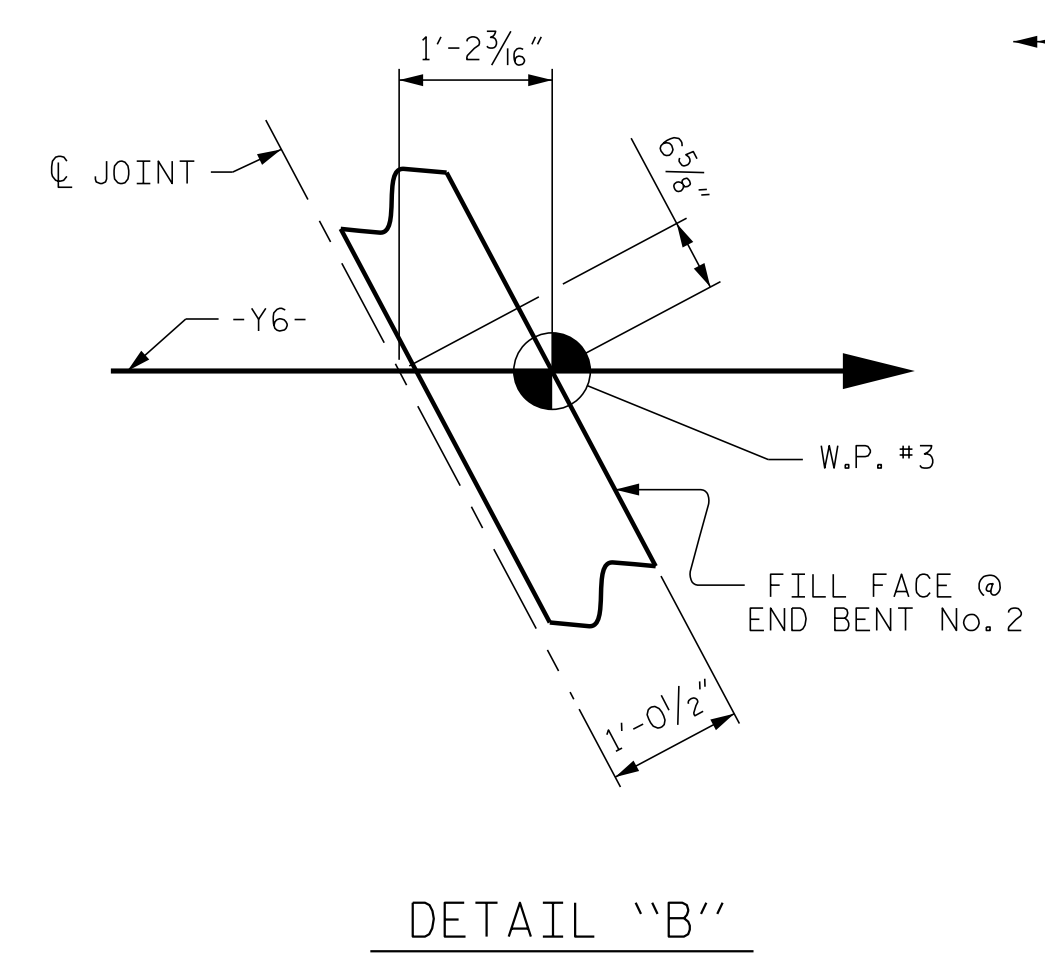


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPANS SPAN A					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S8-7					TOTAL SHEETS 28

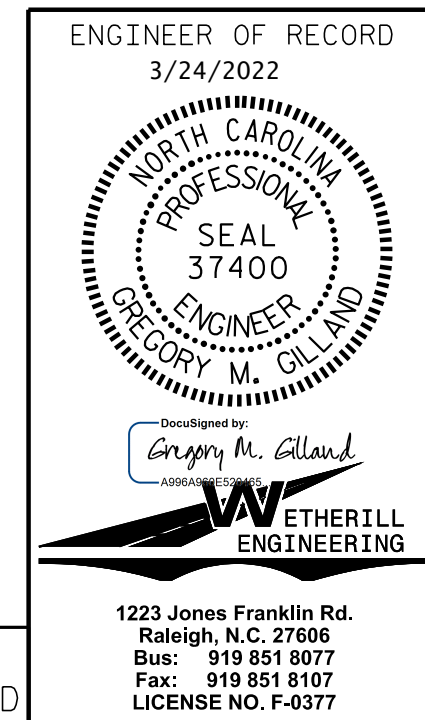


PLAN OF SPAN B

FOR LOCATIONS OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "GIRDER LAYOUT" SHEET.



PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 2 OF 2



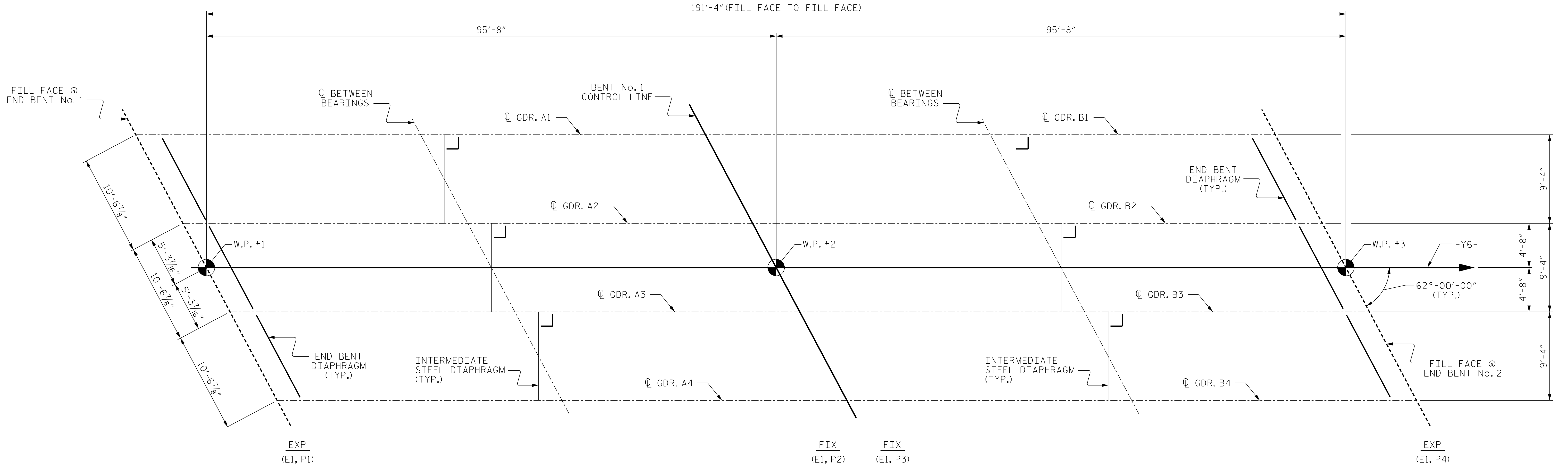
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPANS SPAN B					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S8-8
					TOTAL SHEETS 28

DRAWN BY: DAH/GMG DATE: 11/21
 CHECKED BY: J. DILWORTH DATE: 11/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

P:\2020\20380\01-I-5987B-T95 Structures\DCM\401_001-I-5987B-SWU-PS_001.dgn
 3/8/2022 3:26:45 PM



SPAN A

SPAN B

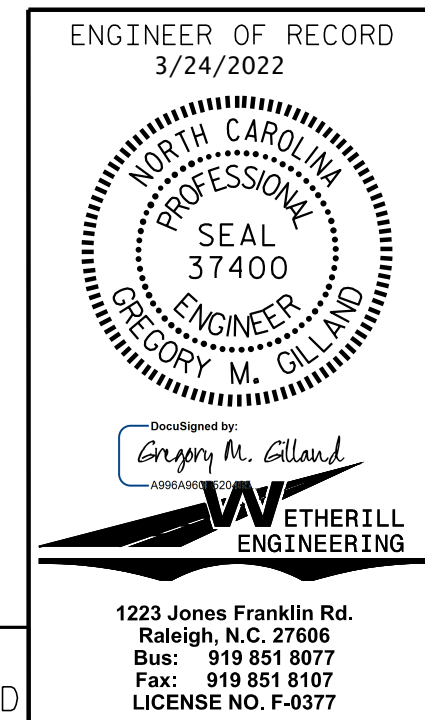
GIRDER LAYOUT

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-

P:\2020\20380\01-I-5987B-T95 Structures\DCM\401_001_I-5987B_SNU_FP_001.dgn
 3/8/2022 3:27:32 PM

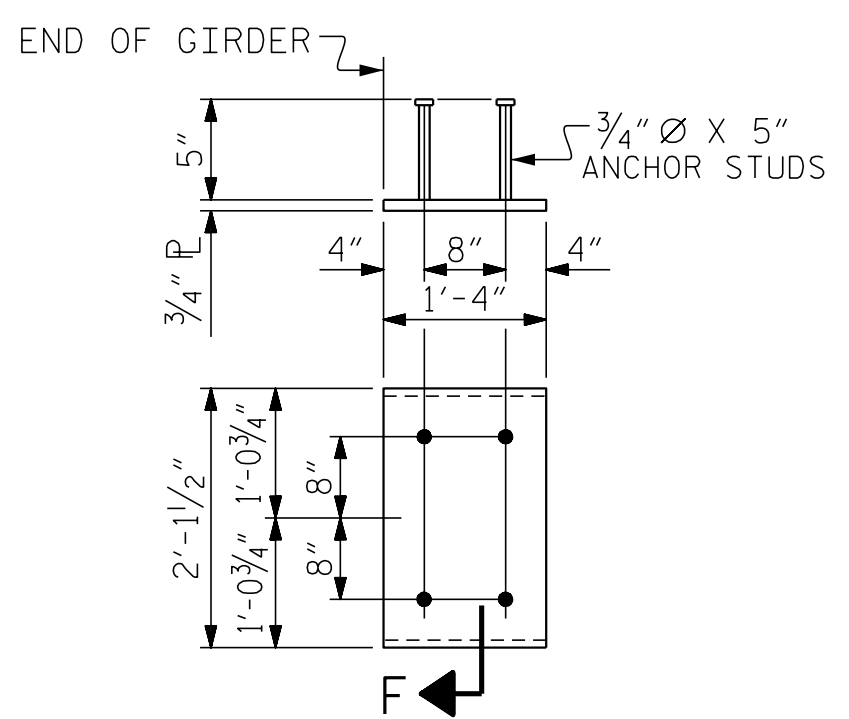
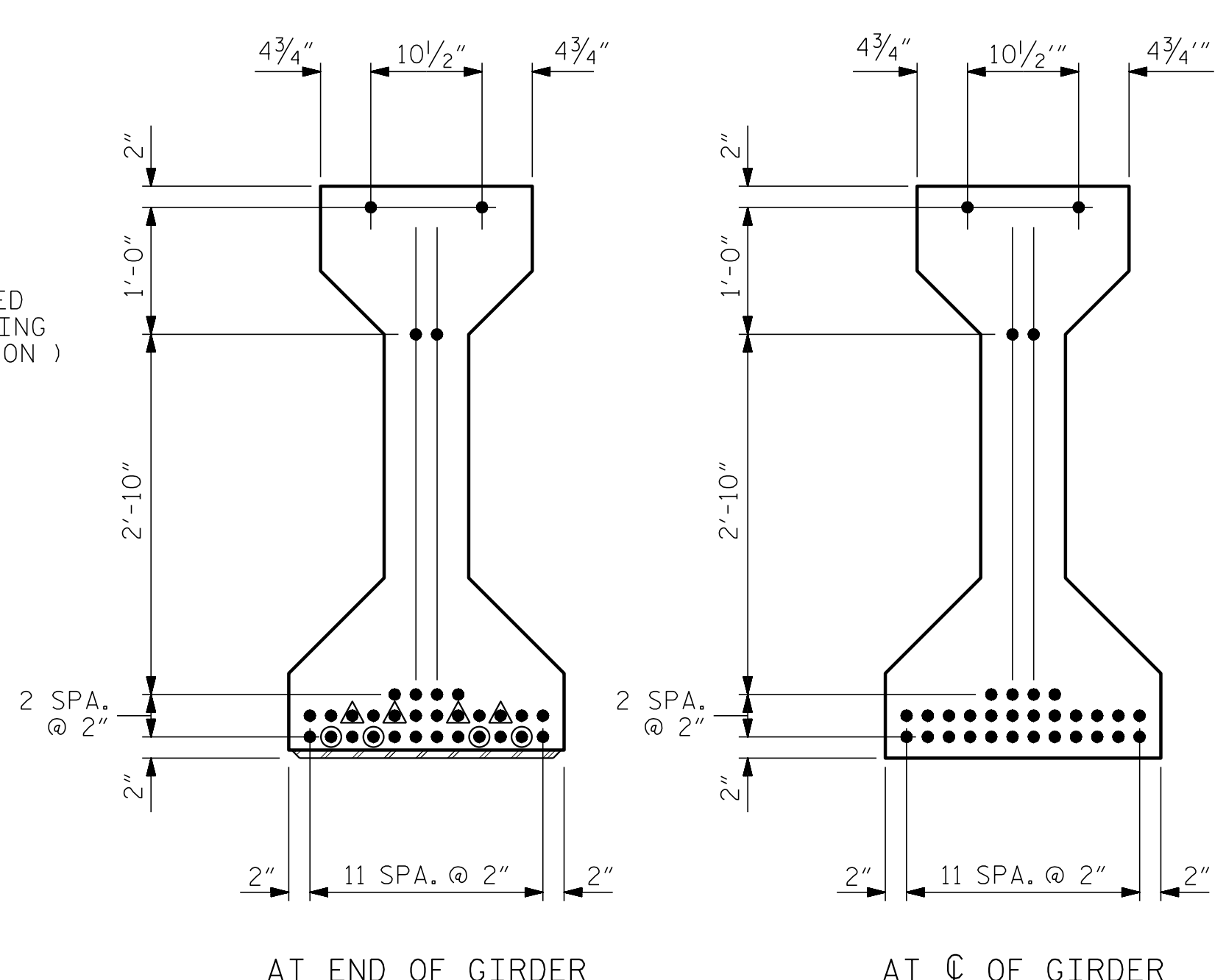
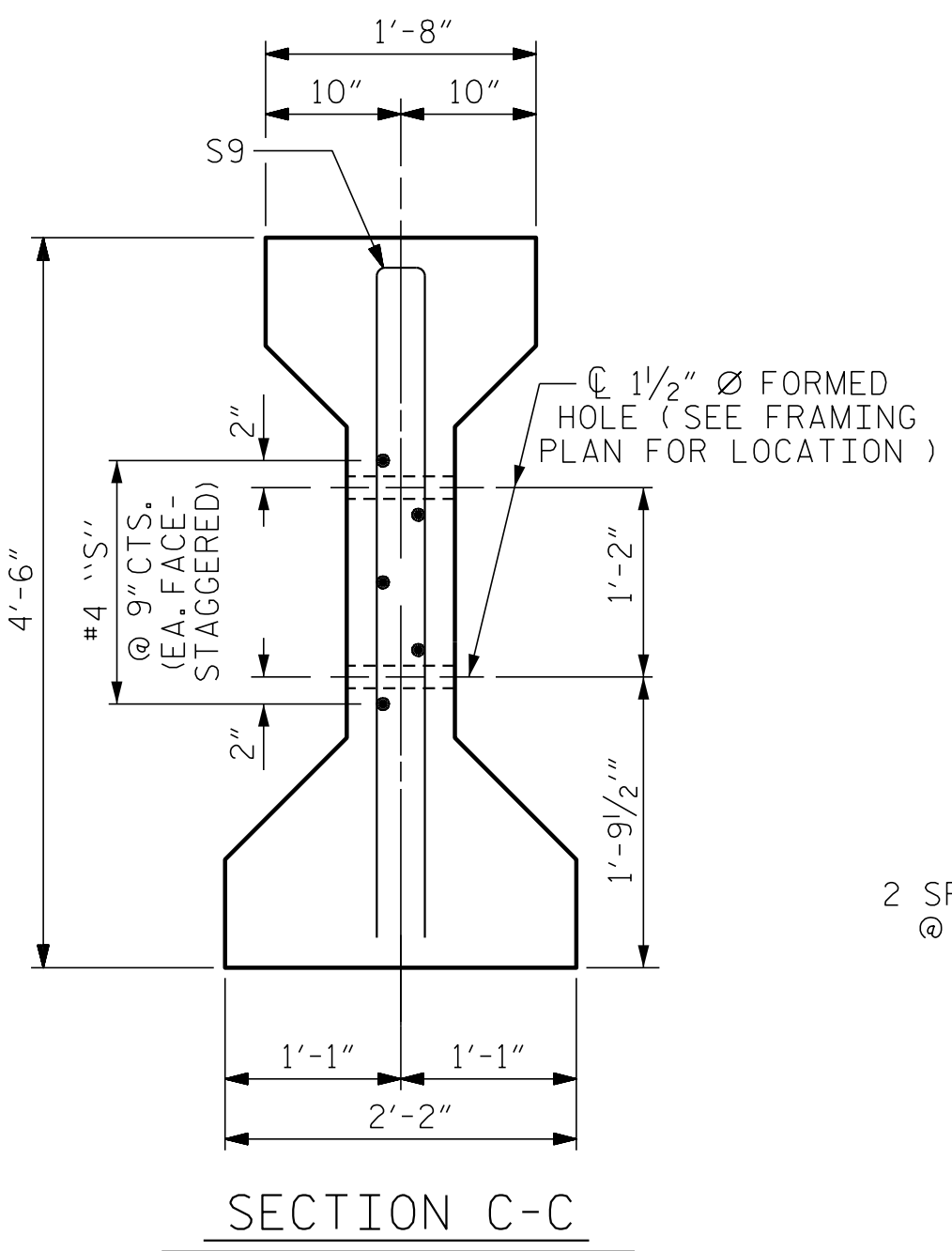
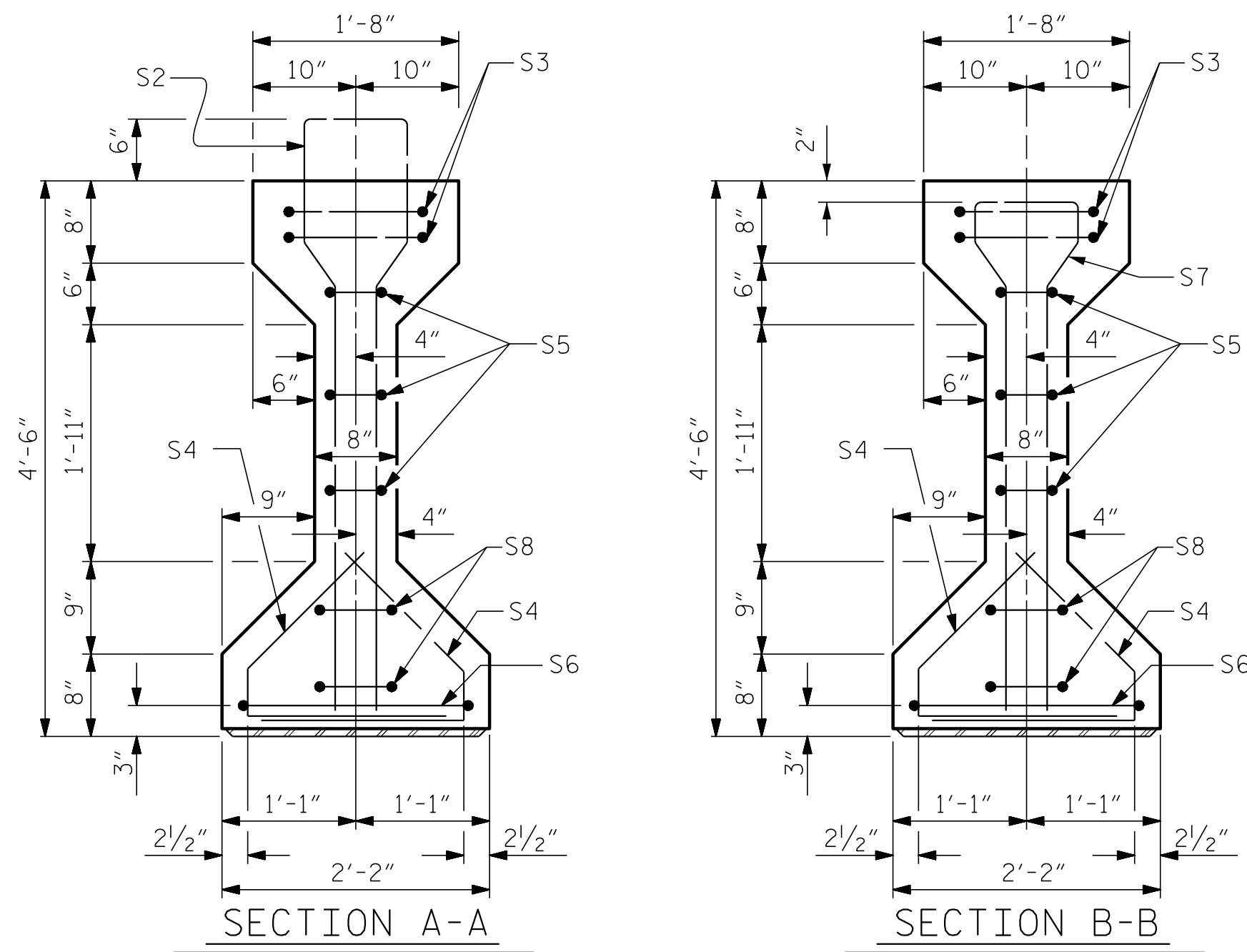
DRAWN BY: D. HODGE DATE: 9/21
 CHECKED BY: J. DILWORTH DATE: 9/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



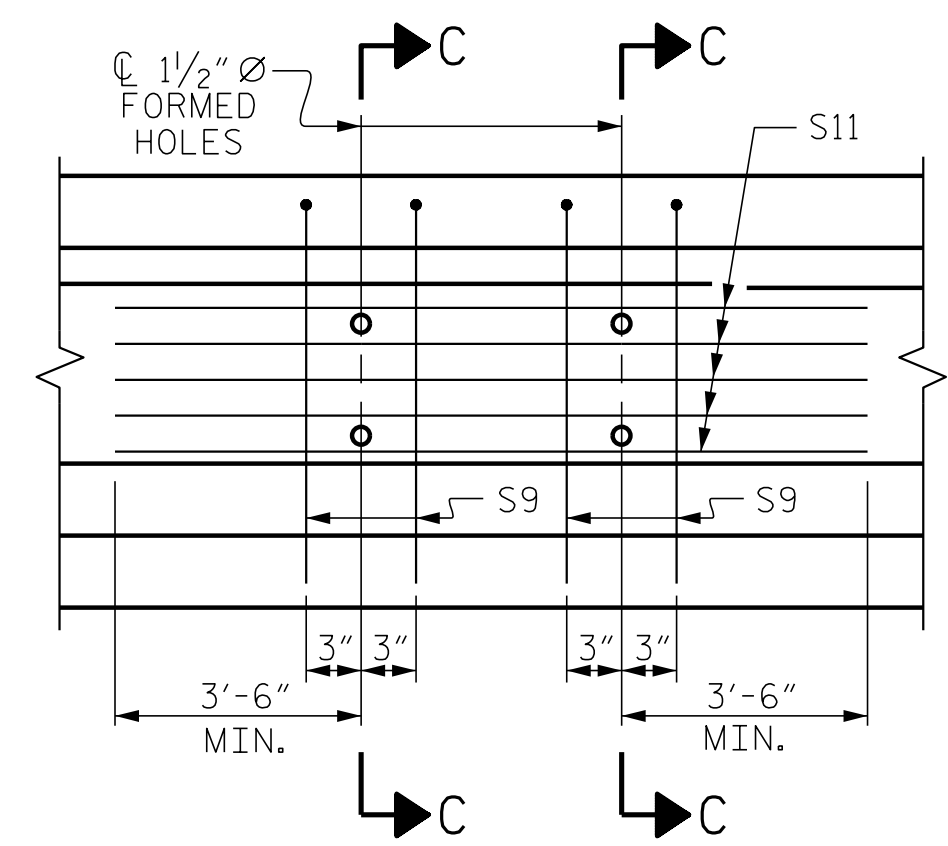
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE GIRDER LAYOUT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					28

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

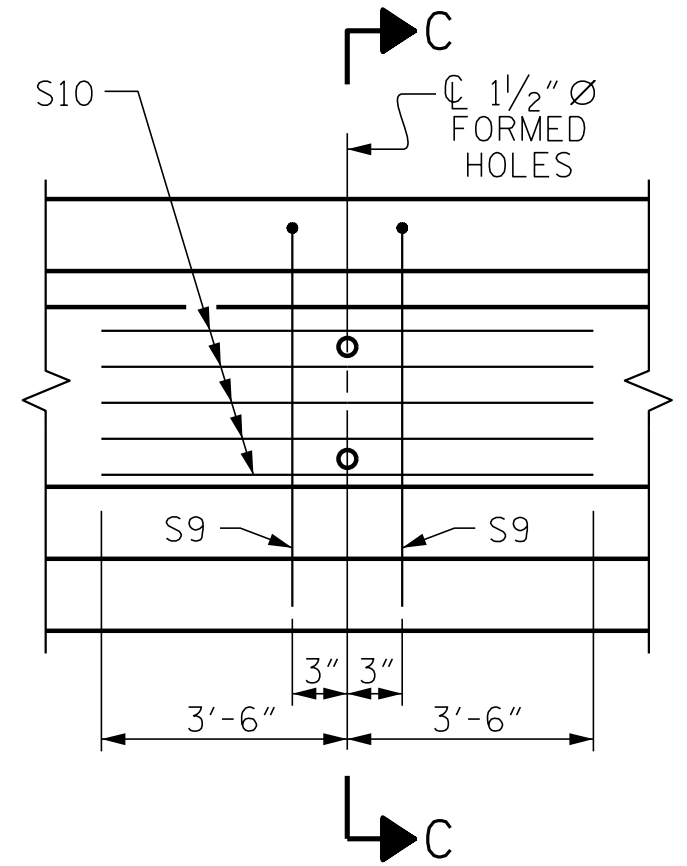


EMBEDDED PLATE "B-1" DETAILS
TWO EMBEDDED PLATES "B-1" ARE REQUIRED FOR EACH GIRDER.

- ▲ DEBONDING LENGTH = 4'-0"
- DEBONDING LENGTH = 8'-0"



PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDER Nos. 2 & 3



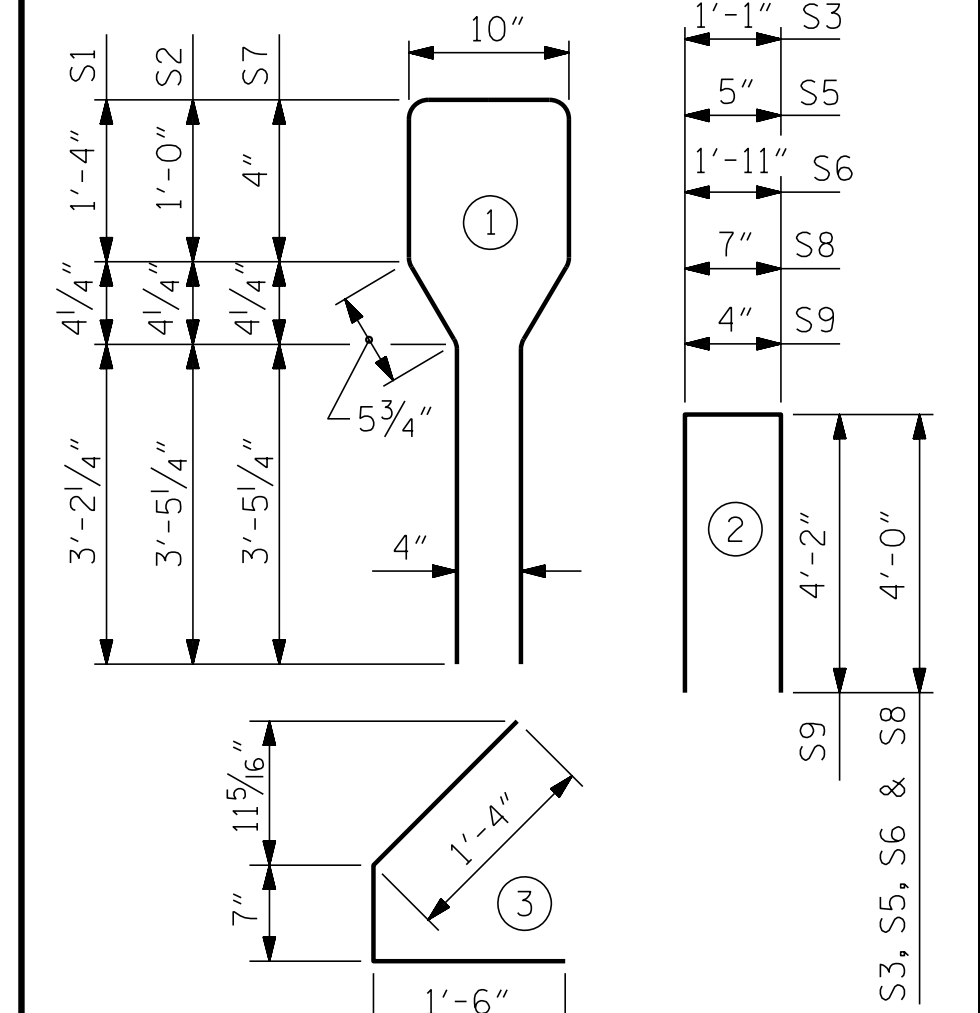
PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDER Nos. 1 & 4

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 GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	80	#4	1	10'-10"	579
S2	16	#6	1	10'-8"	256
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
S6	2	#4	2	9'-11"	13
S7	15	#6	1	9'-4"	210
S8	4	#4	2	8'-7"	23
S9	2	#5	2	8'-8"	18
S9	4	#5	2	8'-8"	36
S10	5	#4	STR	7'-0"	23
S11	5	#4	STR	12'-0"	40

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	8000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	1,326	18.9	32
INTERIOR GIRDER	1,361	18.9	32

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
8	93'-4 1/2"	747.00'

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-
SHEET 1 OF 2

ENGINEER OF RECORD
3/24/2022

Gregory M. Gilling
ETHERILL
ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
AASHTO TYPE IV
PRESTRESSED CONCRETE GIRDER
FOR LINK SLAB
SPANS A & B

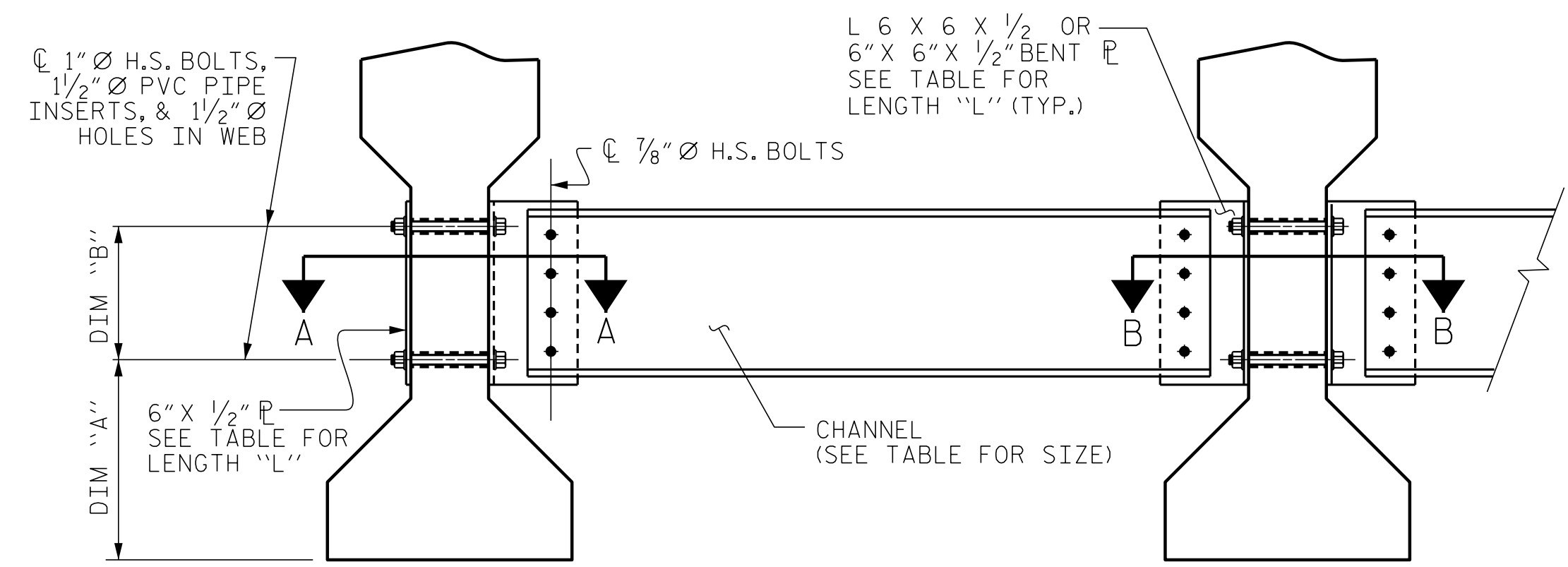
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

TOTAL SHEETS: 28

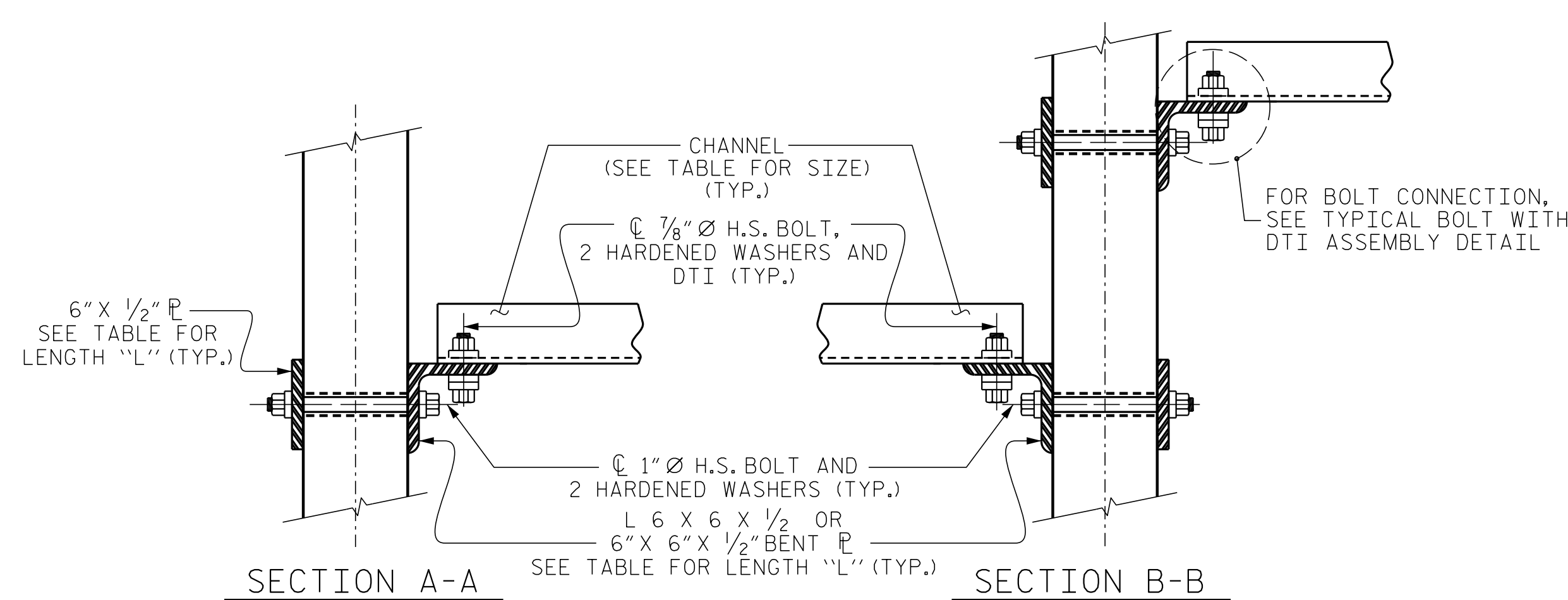
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PA-2020-20380.01-I-5987B-T95 Structures\DM401_001_15987B_SMU_PCG_001.dgn
 3/8/2022 3:28:01 PM

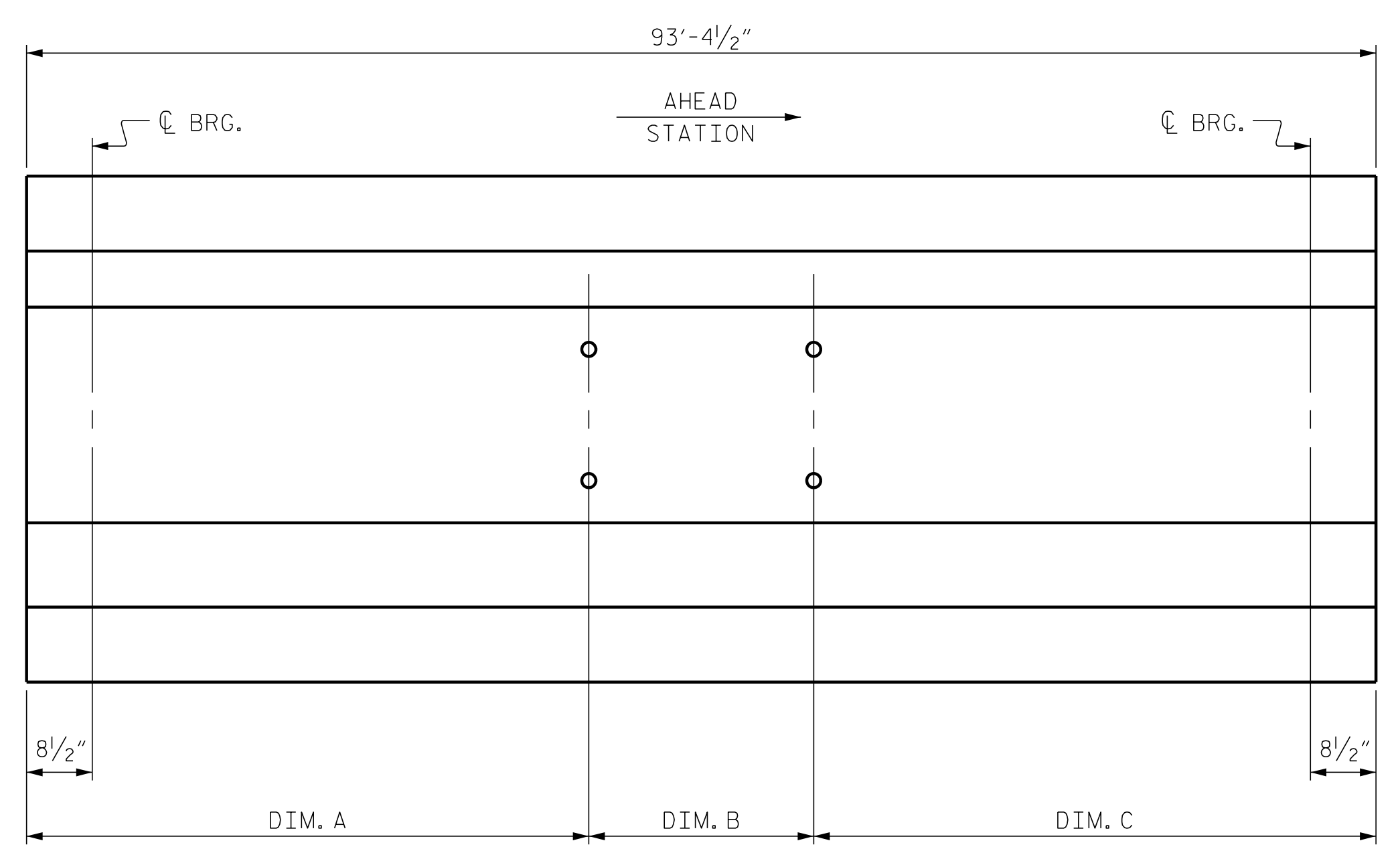
ASSEMBLED BY : D. HODGE	DATE : 12/21
CHECKED BY : J. DILWORTH/GMG	DATE : 12/21
DRAWN BY : BNB 09/21	REV.
CHECKED BY : AAI 09/21	REV.



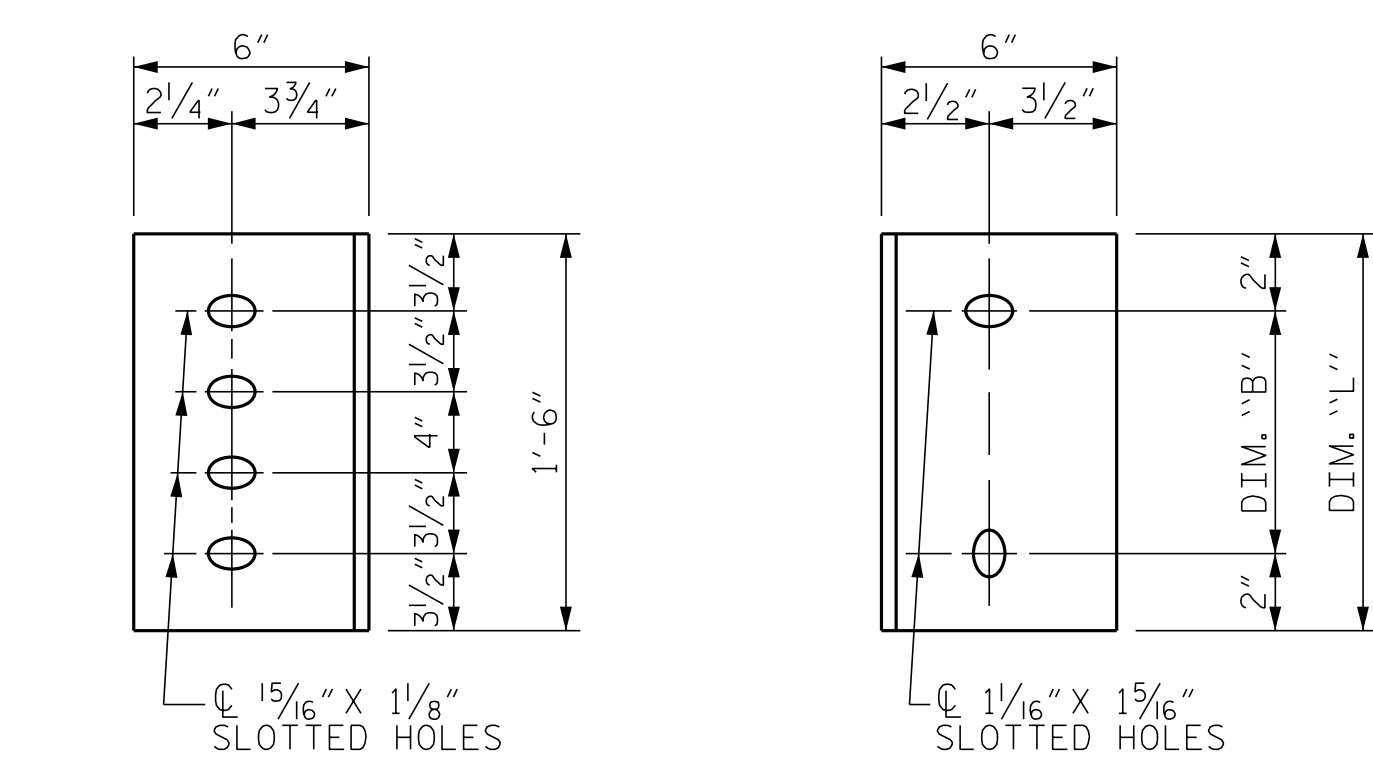
EXTERIOR GIRDER INTERIOR GIRDER
PART SECTION AT INTERMEDIATE DIAPHRAGM
(TYPE IV GIRDER SHOWN)



SECTION A-A SECTION B-B
CONNECTION DETAILS



LOCATION OF BOLT HOLES IN GIRDERS
FOR DIMENSIONS SEE CHART A



DIAPHRAGM FACE (TYPE IV GDR.) WEB FACE
CONNECTOR PLATE DETAILS

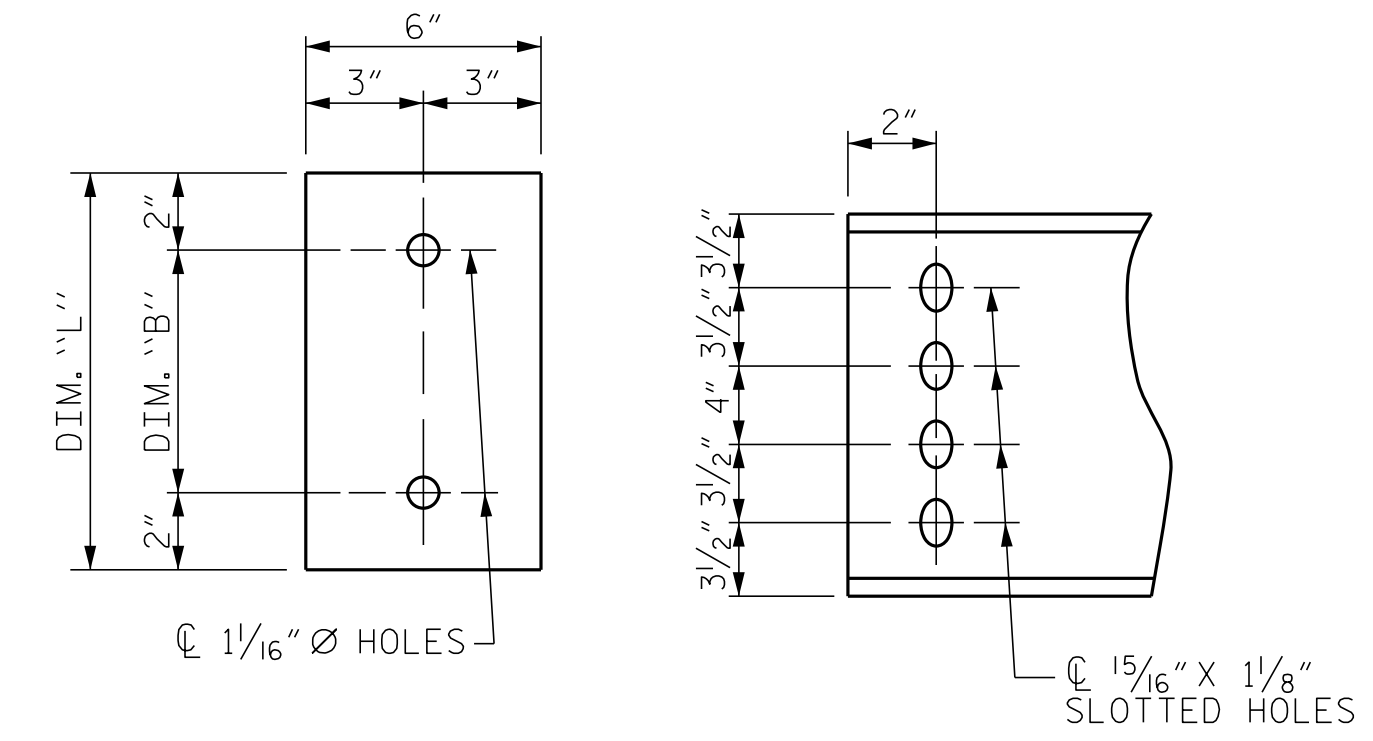


PLATE DETAILS CHANNEL END (TYPE IV GDR.)

CHART A

GIRDER	DIM. A	DIM. B	DIM. C
GDR. A1	49'-2"	0	44'-2 1/2"
GDR. A2	44'-2 1/2"	4'-11 1/2"	44'-2 1/2"
GDR. A3	44'-2 1/2"	4'-11 1/2"	44'-2 1/2"
GDR. A4	44'-2 1/2"	0	49'-2"
GDR. B1	49'-2"	0	44'-2 1/2"
GDR. B2	44'-2 1/2"	4'-11 1/2"	44'-2 1/2"
GDR. B3	44'-2 1/2"	4'-11 1/2"	44'-2 1/2"
GDR. B4	44'-2 1/2"	0	49'-2"

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.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6400 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 SHALL BE RAKED TO A DEPTH OF 1/4" EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER OR IN THE AREA OF THE LINK SLAB.

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 IBS.

STRUCTURAL STEEL NOTES

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

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

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

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

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE 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.

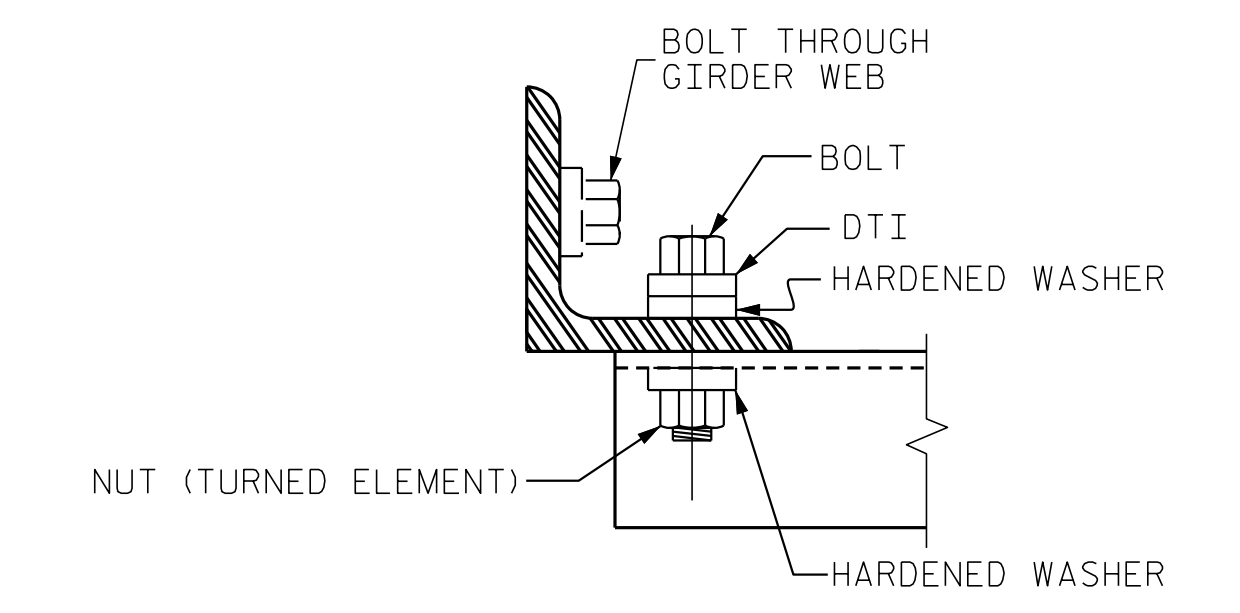
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 2 OF 2

ENGINEER OF RECORD 3/24/2022 GREGORY M. GULLAND ENGINEER 1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-0377		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE IV PRESTRESSED CONCRETE GIRDERS	
REVISIONS			
NO.	BY:	DATE:	SHEET NO.
1			88-11
2			TOTAL SHEETS 28

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PA:2020.20.380.01 - I-5987B - 195 Structures DGN 401_001 - I-5987B - SMU - PCG_001.dgn
 3/8/2022 3:28:14 PM

P:\2020\20380\01_I-5987B_T95 Structures\DWG\01_001_15987B_SWU_DL_001.dgn
 3/8/2022 3:28:41 PM

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" Ø LOW RELAXATION	SPAN A & SPAN B																				
	GIRDERS 1 & 4																				
	TWENTIETH POINTS	0	.050	.100	.150	.200	.250	.300	.350	.400	.450	.500	.550	.600	.650	.700	.750	.800	.850	.900	.950
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.025	0.049	0.072	0.092	0.111	0.127	0.140	0.149	0.154	0.156	0.154	0.149	0.140	0.127	0.111	0.092	0.072	0.049	0.025	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.017	0.034	0.050	0.067	0.080	0.093	0.101	0.109	0.112	0.115	0.112	0.109	0.101	0.093	0.080	0.067	0.050	0.034	0.017	0
FINAL CAMBER ↑	0	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	0

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

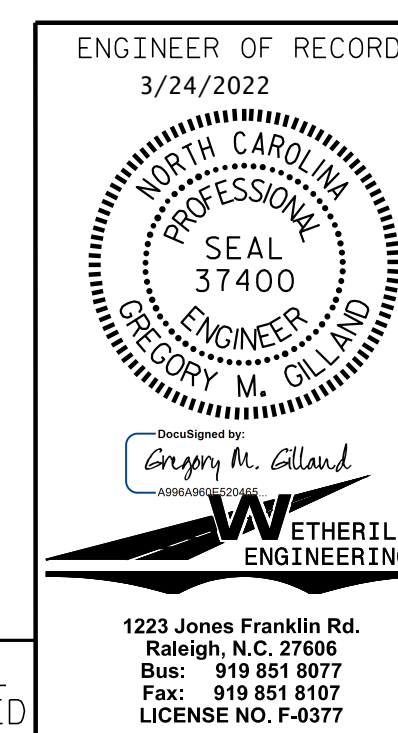
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
0.6" Ø LOW RELAXATION	SPAN A & SPAN B																				
	GIRDERS 2 & 3																				
	TWENTIETH POINTS	0	.050	.100	.150	.200	.250	.300	.350	.400	.450	.500	.550	.600	.650	.700	.750	.800	.850	.900	.950
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.025	0.049	0.072	0.092	0.111	0.127	0.140	0.149	0.154	0.156	0.154	0.149	0.140	0.127	0.111	0.092	0.072	0.049	0.025	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.019	0.038	0.056	0.074	0.089	0.103	0.112	0.121	0.124	0.128	0.124	0.121	0.112	0.103	0.089	0.074	0.056	0.038	0.019	0
FINAL CAMBER ↑	0	1/16"	1/8"	3/16"	3/16"	1/4"	5/16"	5/16"	5/16"	3/8"	3/8"	3/8"	5/16"	5/16"	5/16"	1/4"	3/16"	3/16"	1/8"	1/16"	0

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

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-

DRAWN BY : J. PENDERGRAFT DATE : 4/21
 CHECKED BY : J. DILWORTH DATE : 4/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE DEAD LOAD DEFLECTIONS					
REVISIONS					SHEET NO. S8-12
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 28

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

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.

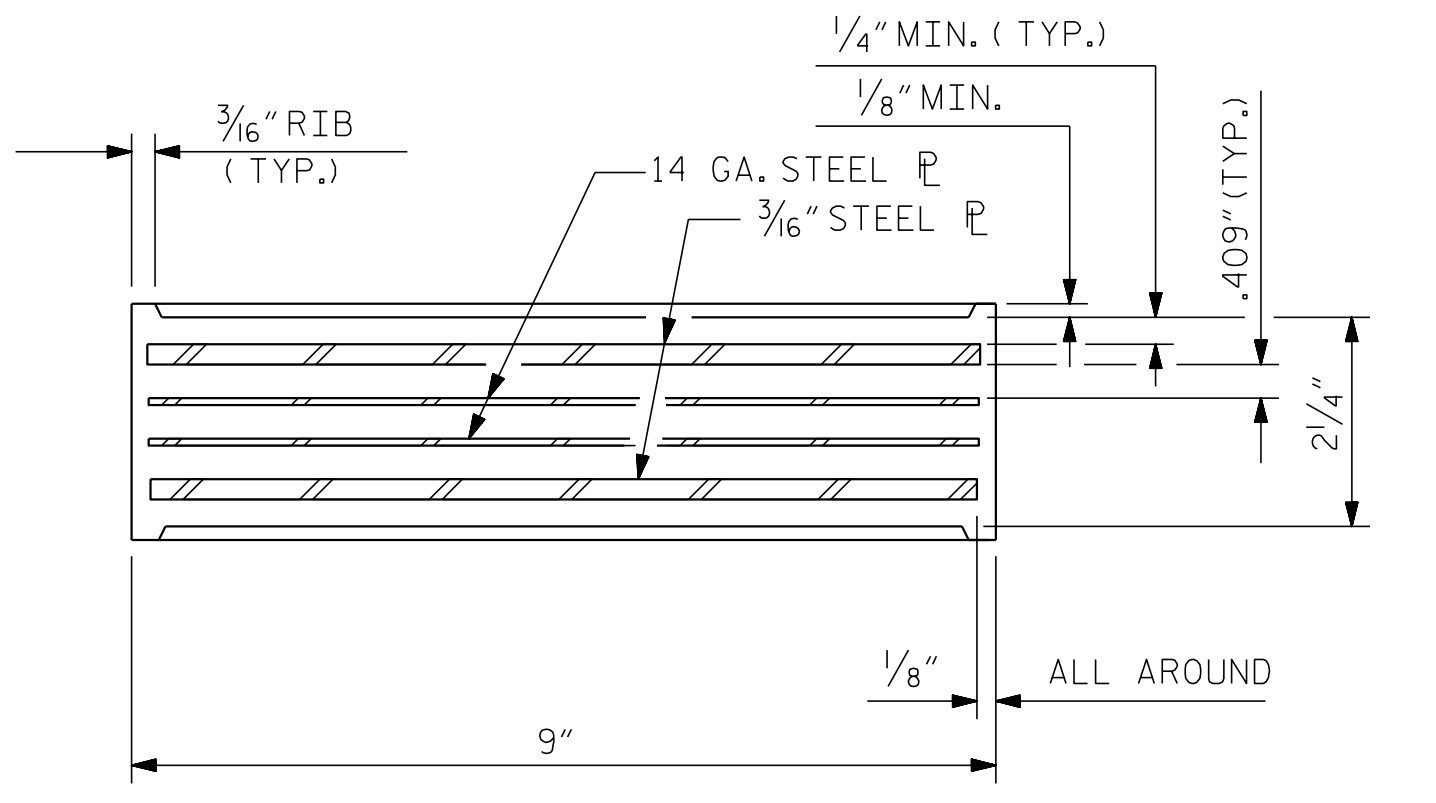
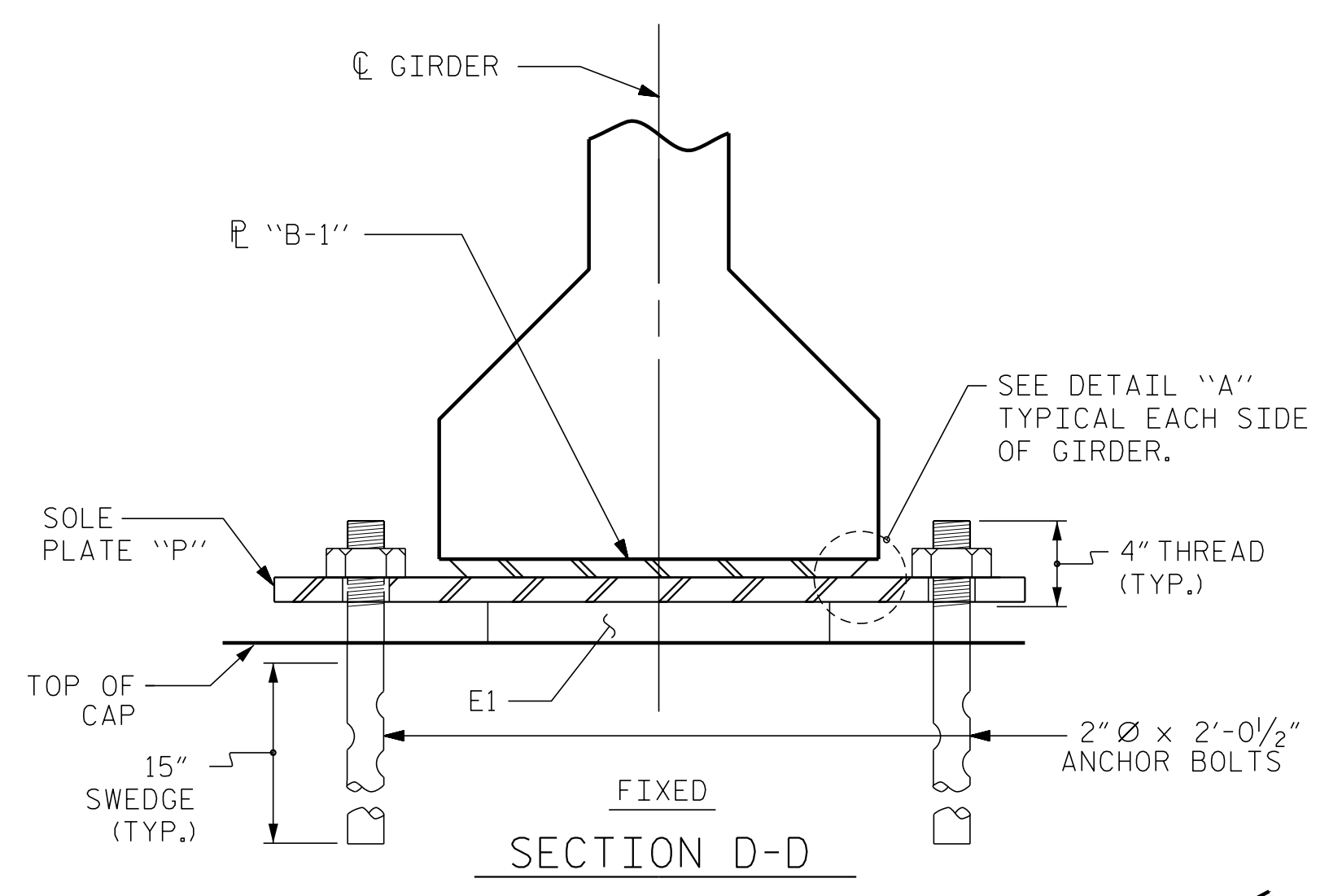
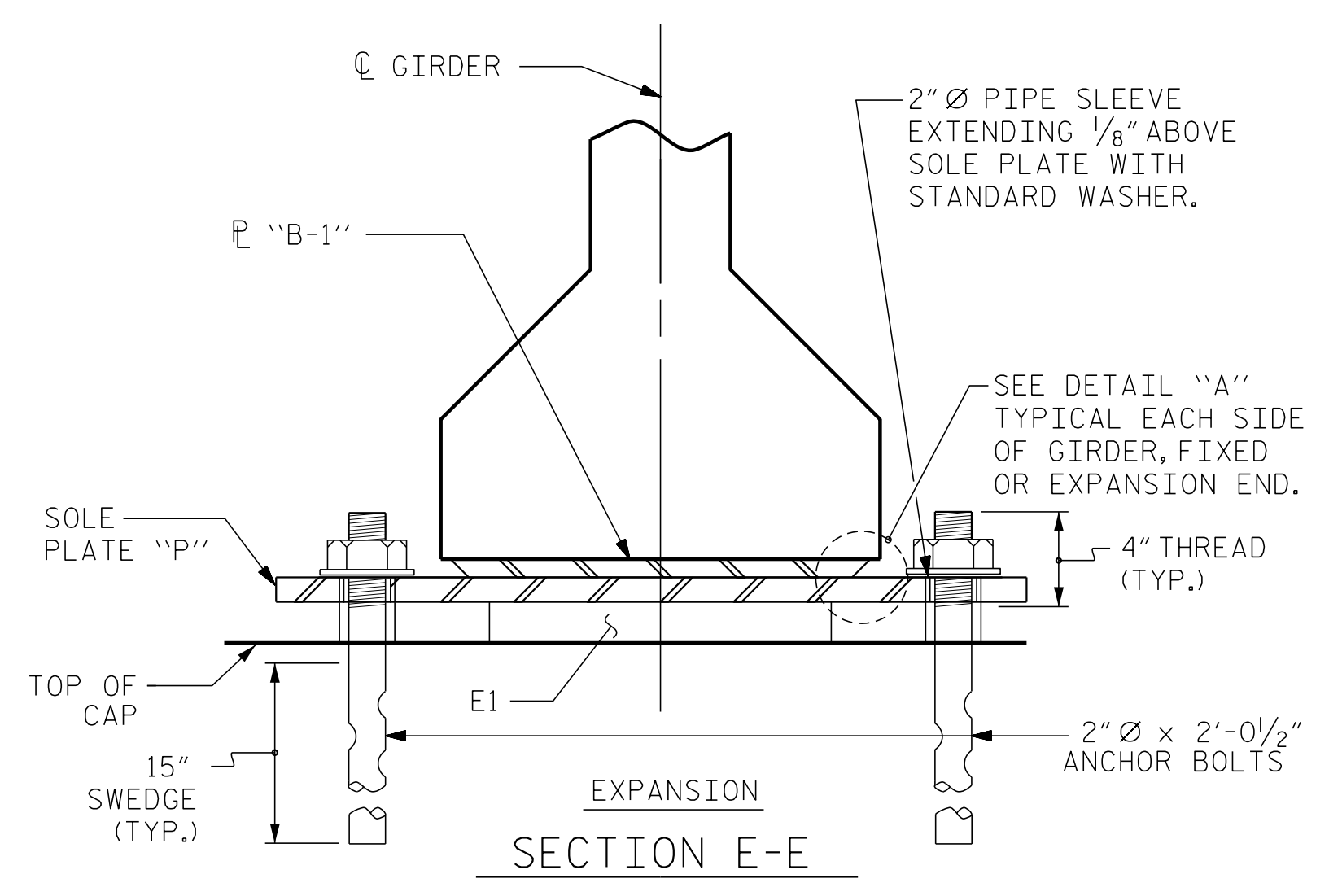
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

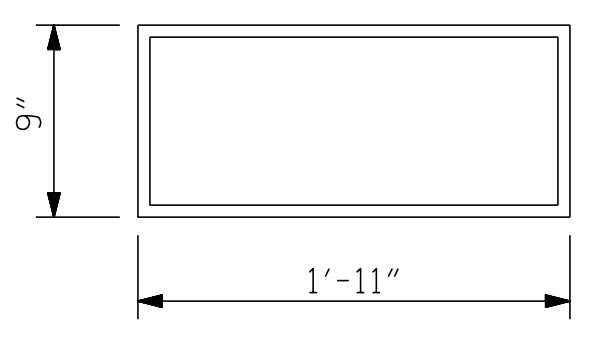
THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

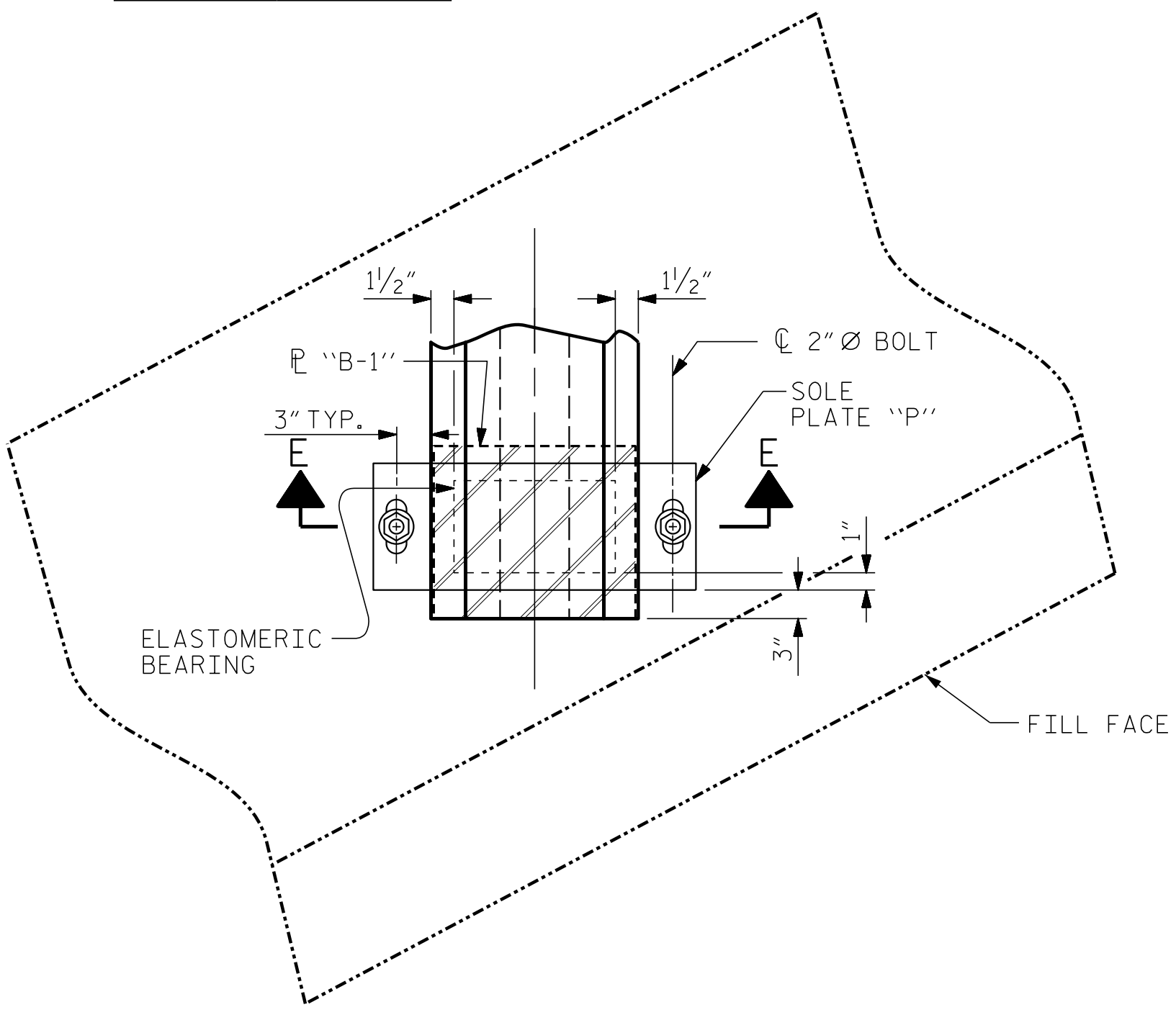
ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.



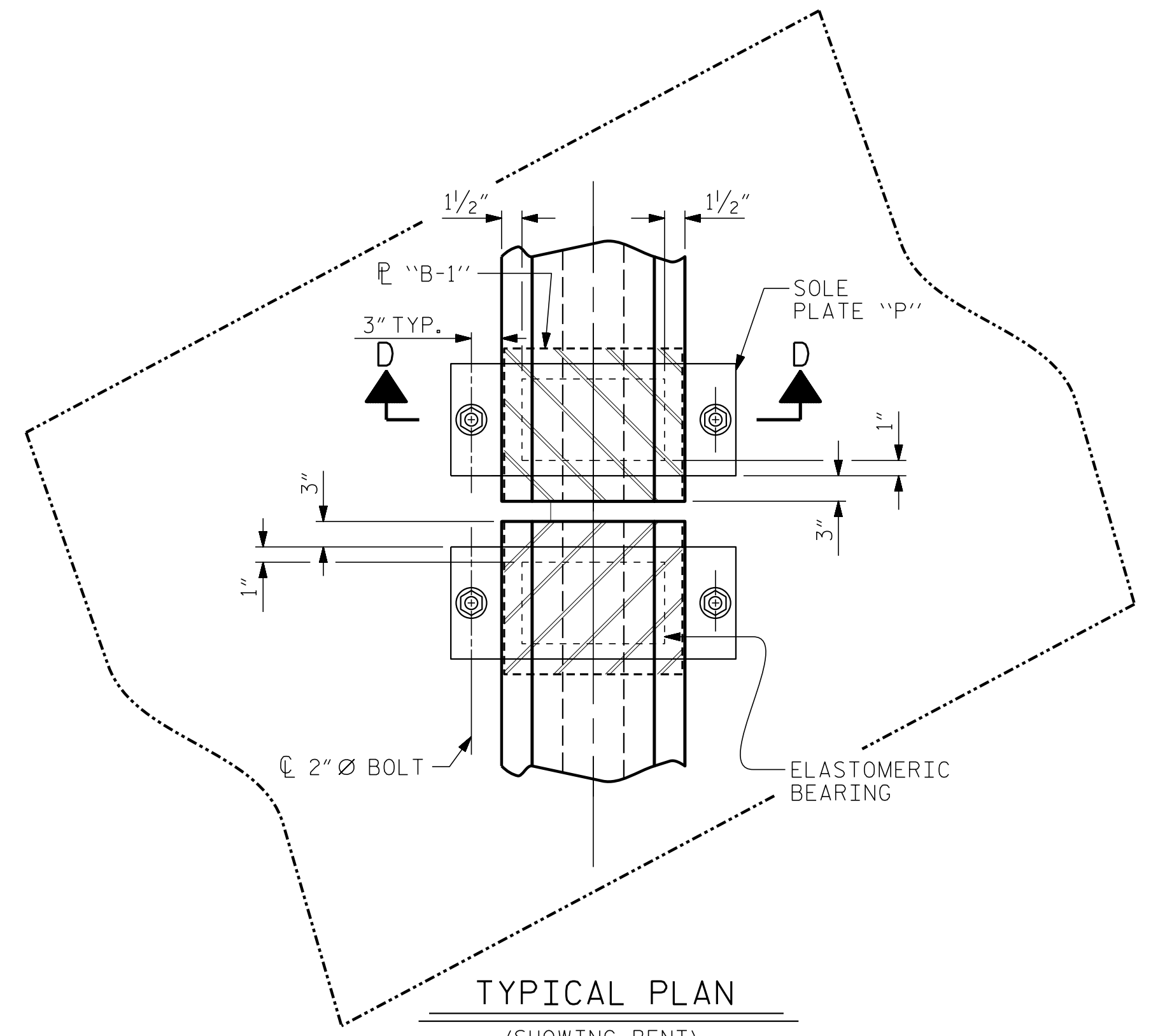
TYPICAL SECTION OF ELASTOMERIC BEARINGS



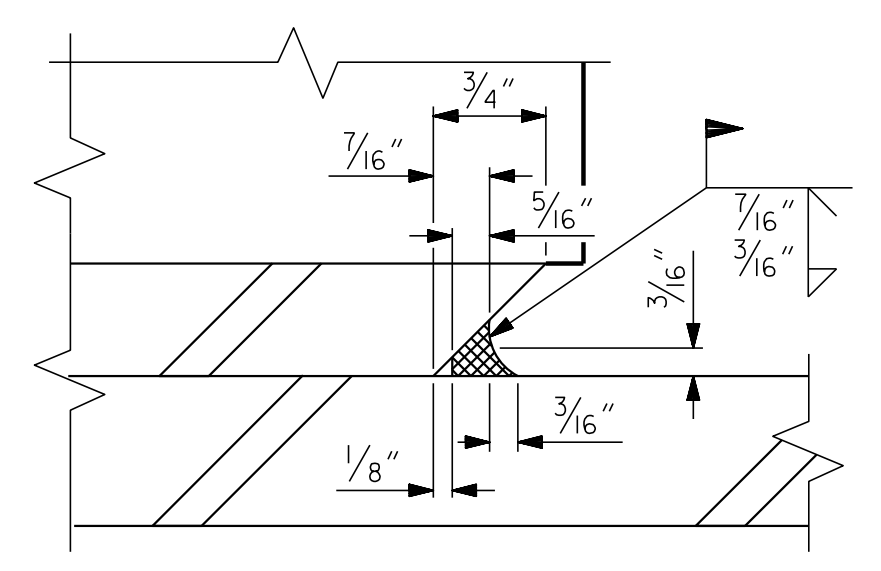
PLAN VIEW OF ELASTOMERIC BEARING
TYPE V



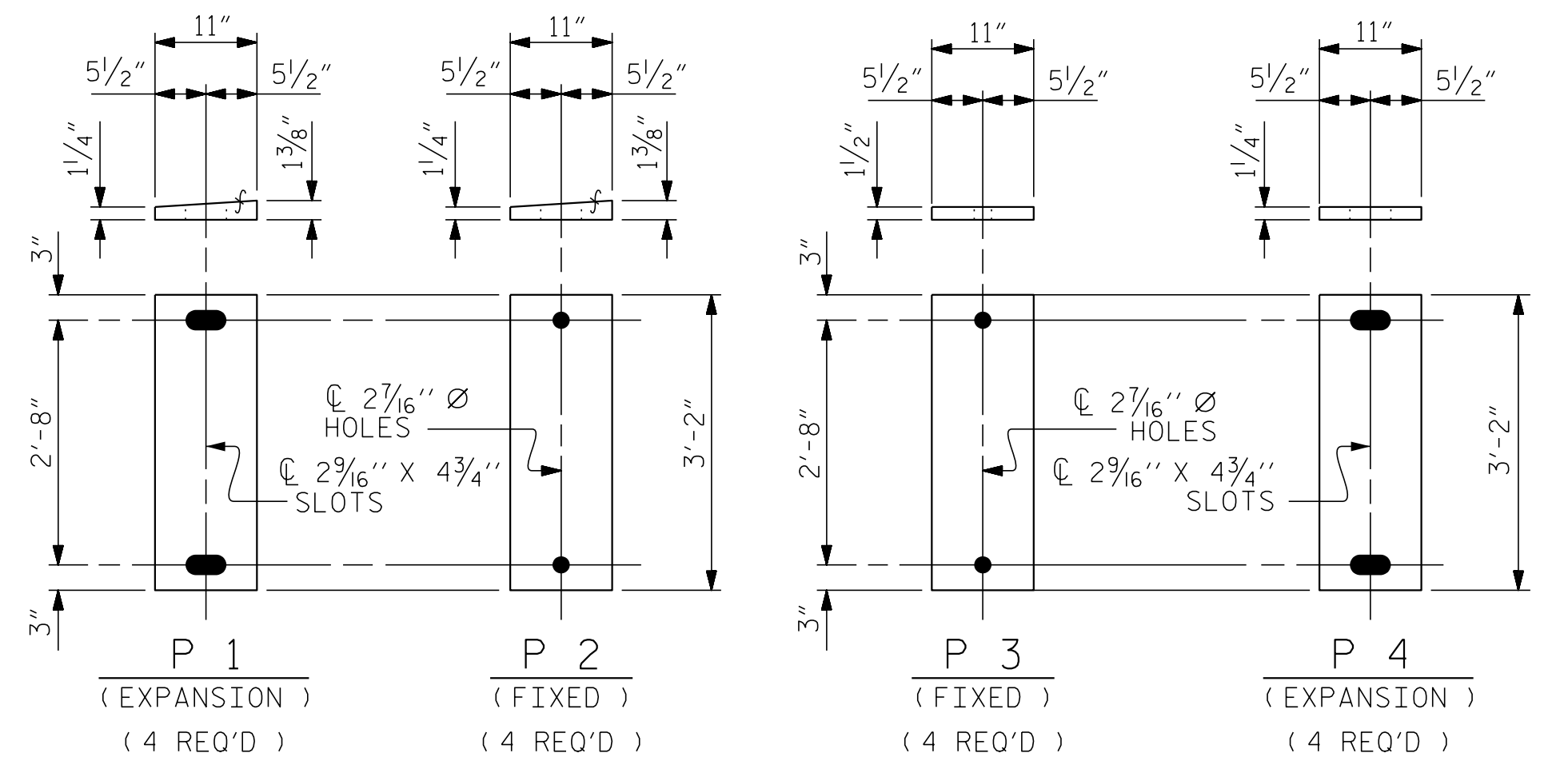
TYPICAL PLAN
(SHOWING END BENT)



TYPICAL PLAN
(SHOWING BENT)

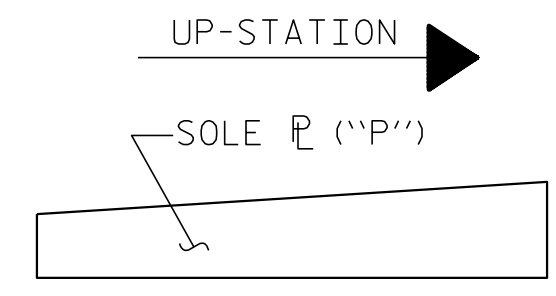


DETAIL "A"



SOLE PLATE DETAILS ("P")

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



SOLE PLACEMENT DETAIL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-

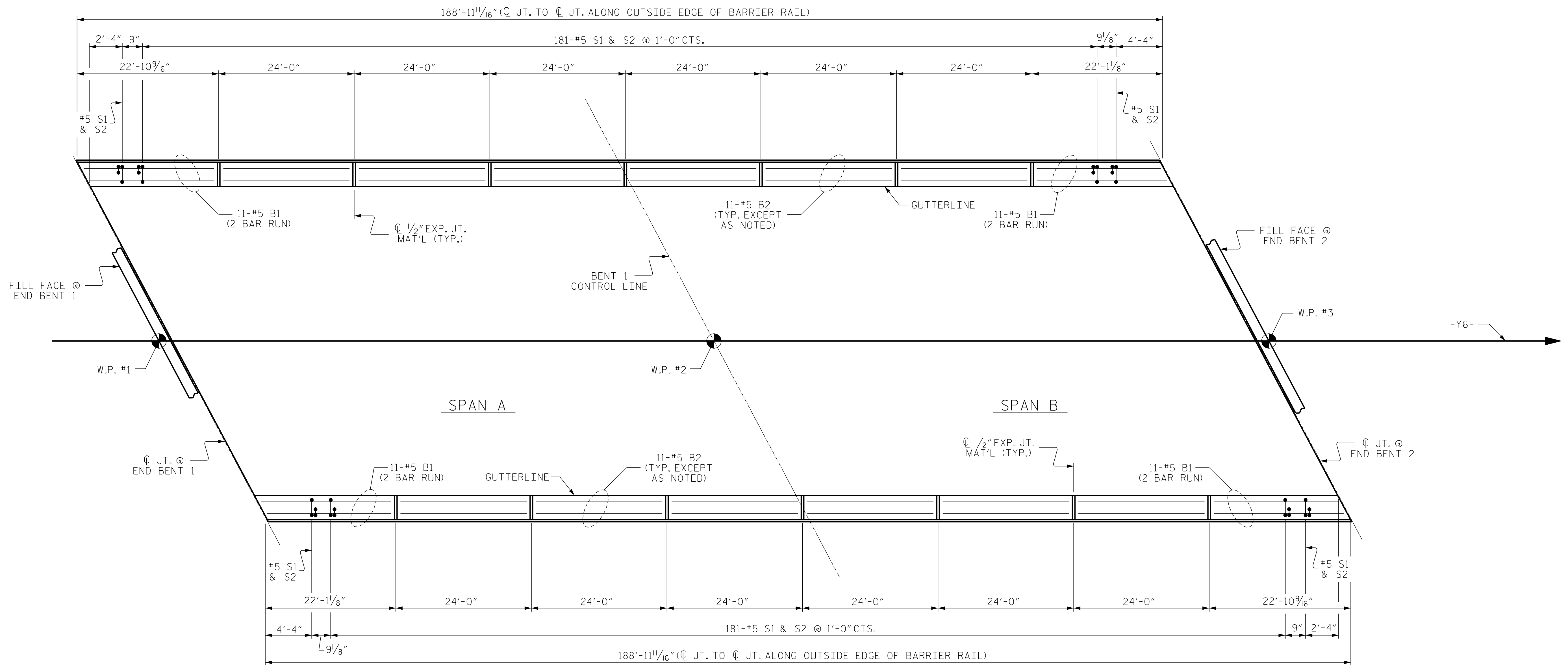
ENGINEER OF RECORD
3/24/2022

Gregory M. Gilliland
ETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD ELASTOMERIC BEARING DETAILS					
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S8-13
					TOTAL SHEETS 28

PA:2020.20.380.01_I-5987B_T95 Structures\DM401_001_I-5987B_SMU_BG_001.dgn
 3/8/2022 3:29:05 PM



PLAN OF CONCRETE BARRIER RAIL

NOTES

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

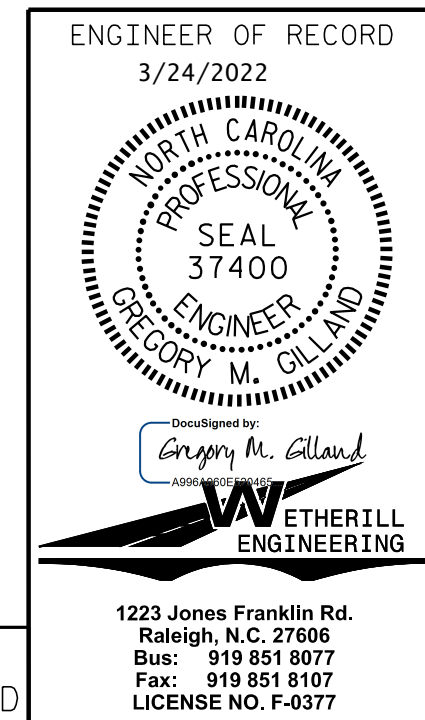
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

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

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-

SHEET 1 OF 2



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CONCRETE BARRIER RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S8-14
TOTAL SHEETS					28

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : D. HODGE DATE : 4/21
 CHECKED BY : J. DILWORTH DATE : 6/21

PA-2020-20380-01-I-5987B-T95 Structures\DM401_001-I-5987B-SHU_CBR_001.dgn
 3/8/2022 3:29:34 PM

NOTES

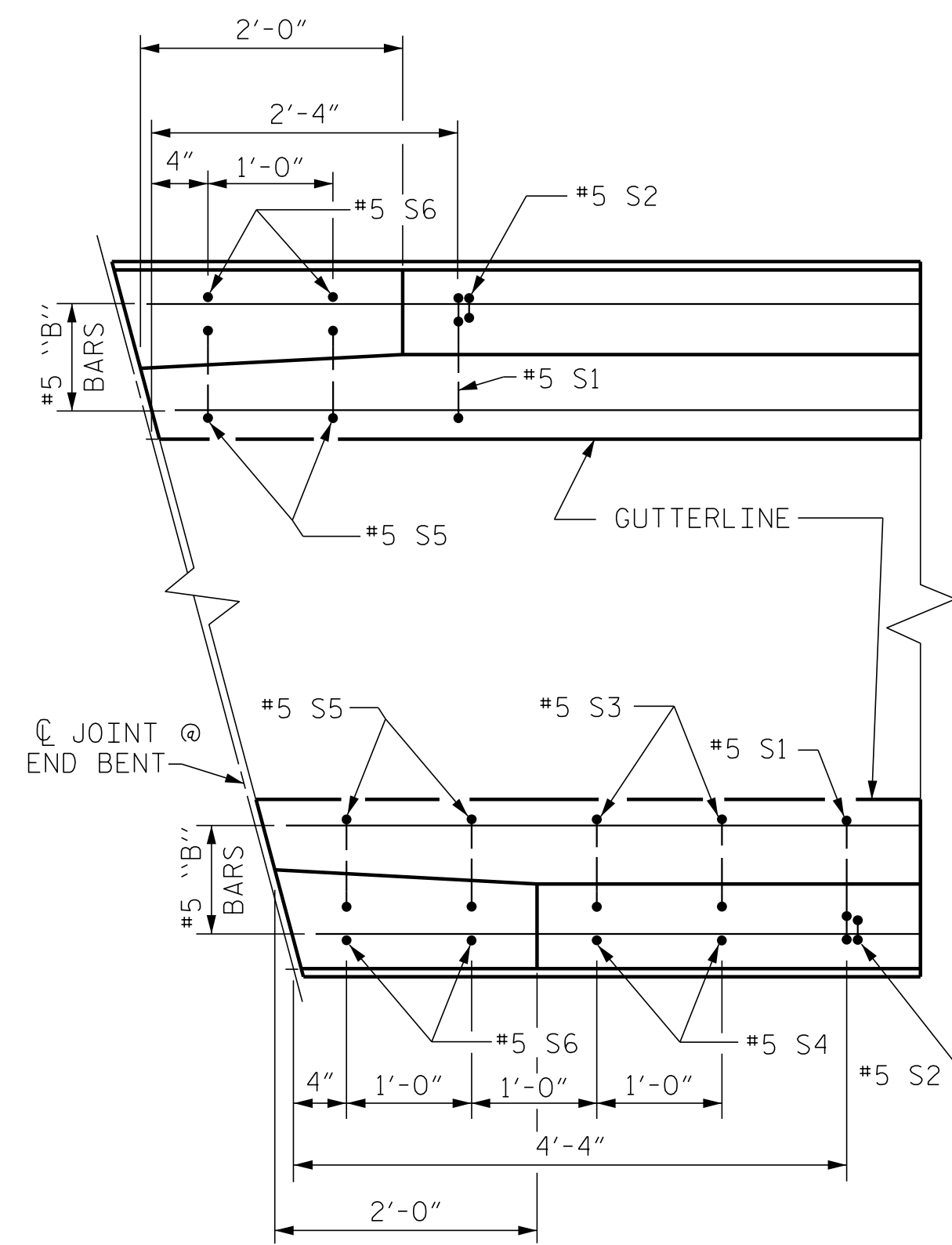
THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

WHEN FOAM JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWSD PRIOR TO THE CASTING OF BARRIER RAIL.

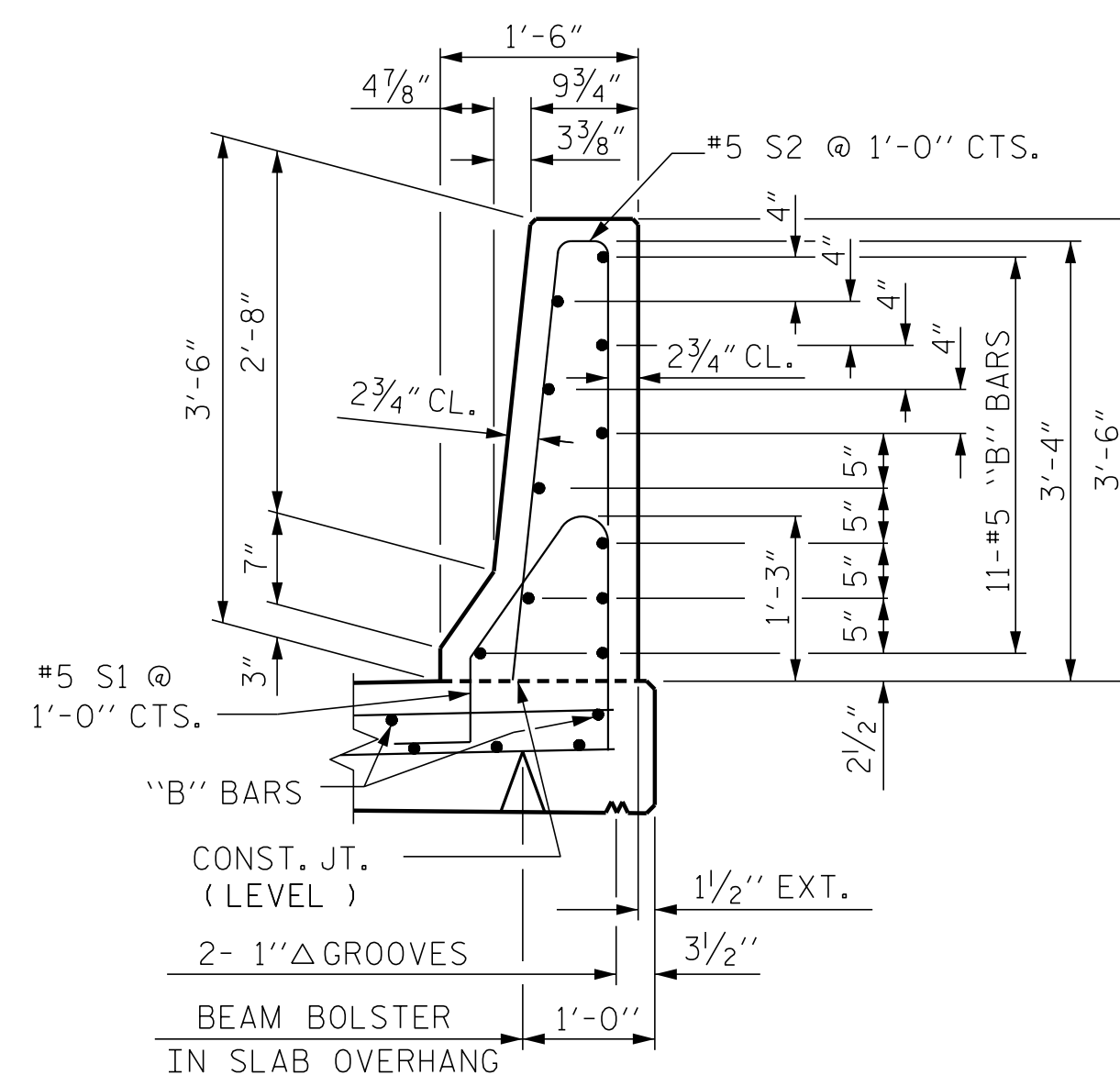
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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.

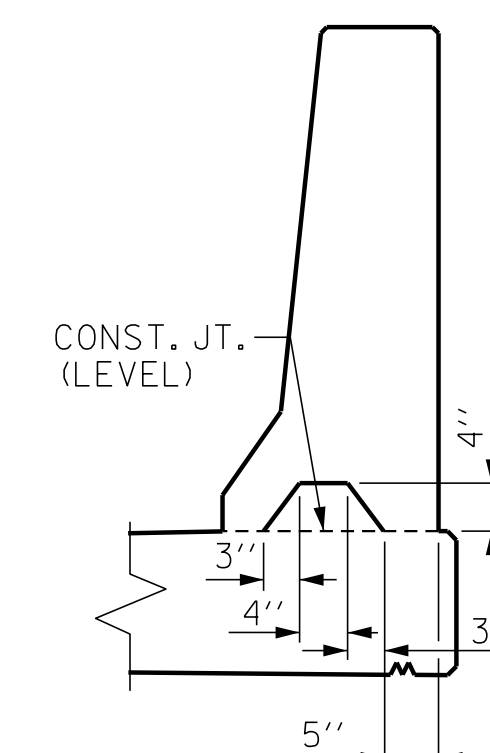
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS 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.



PLAN

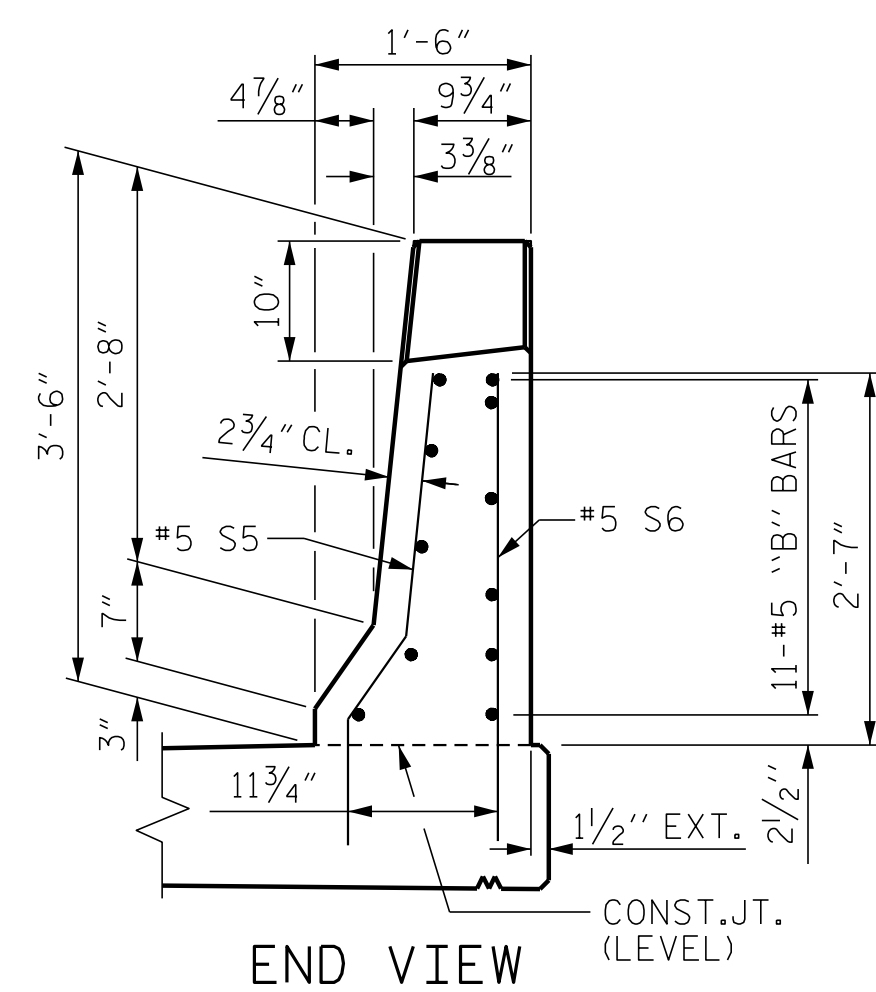


SECTION THRU RAIL

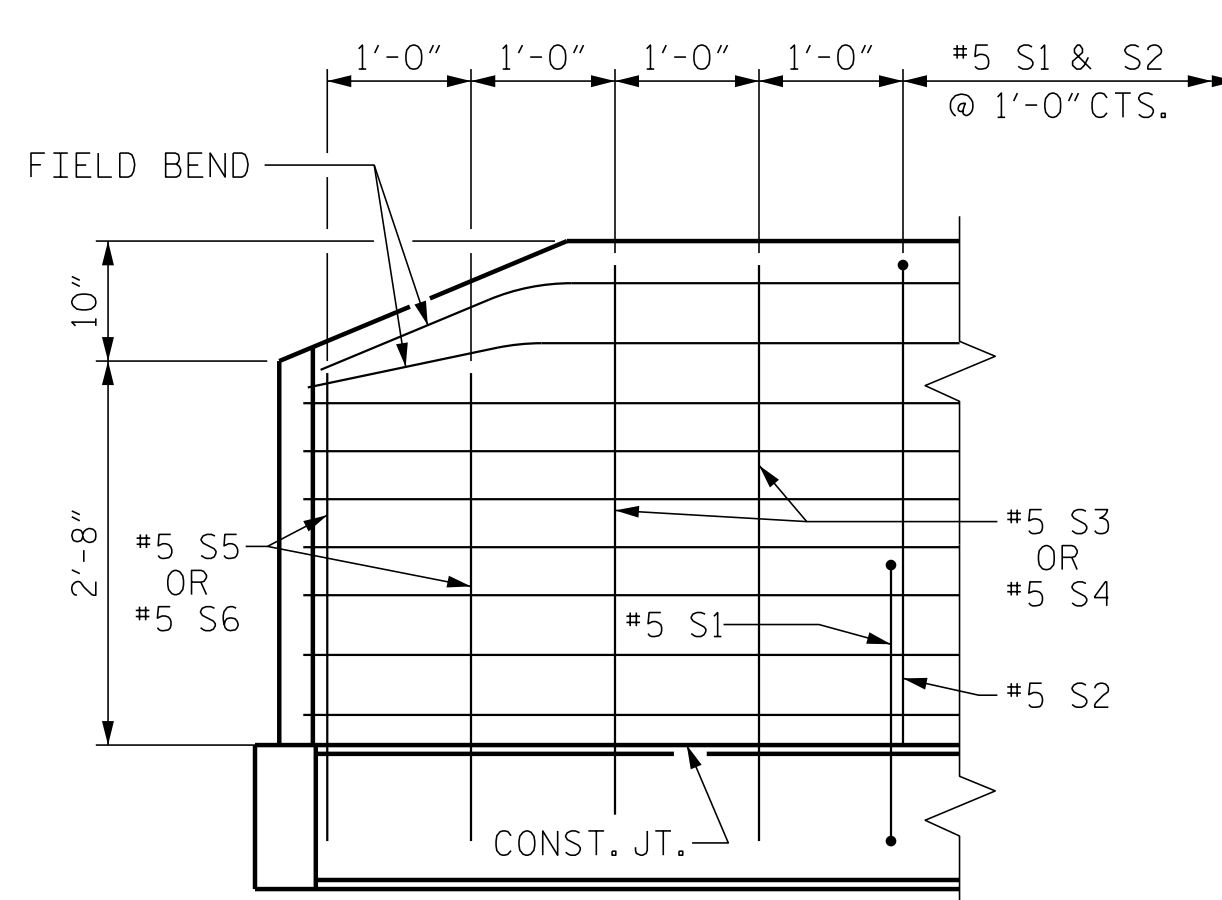


SECTION S-S

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



END VIEW

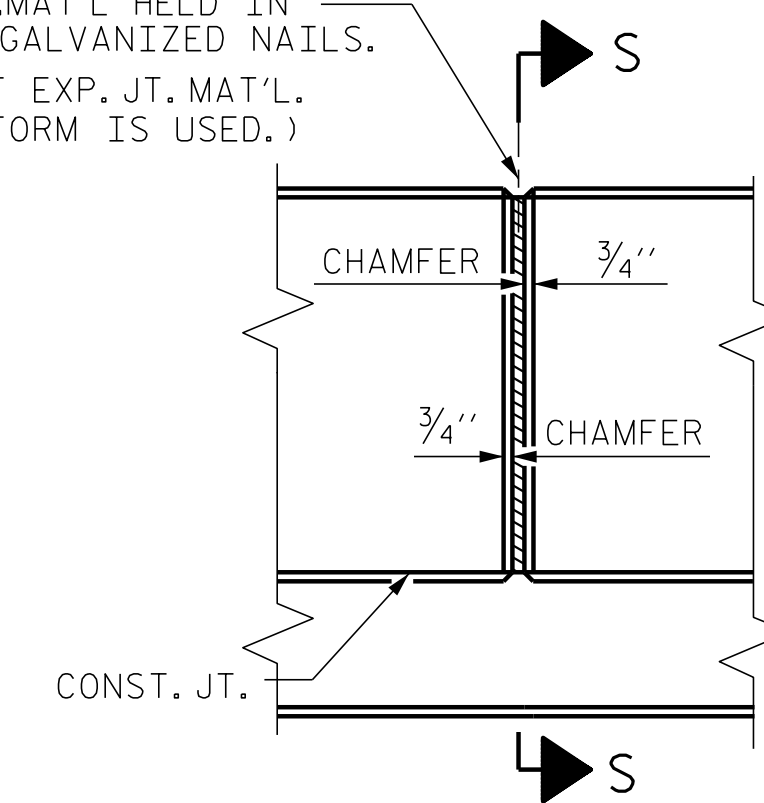


SIDE VIEW

END OF RAIL DETAILS

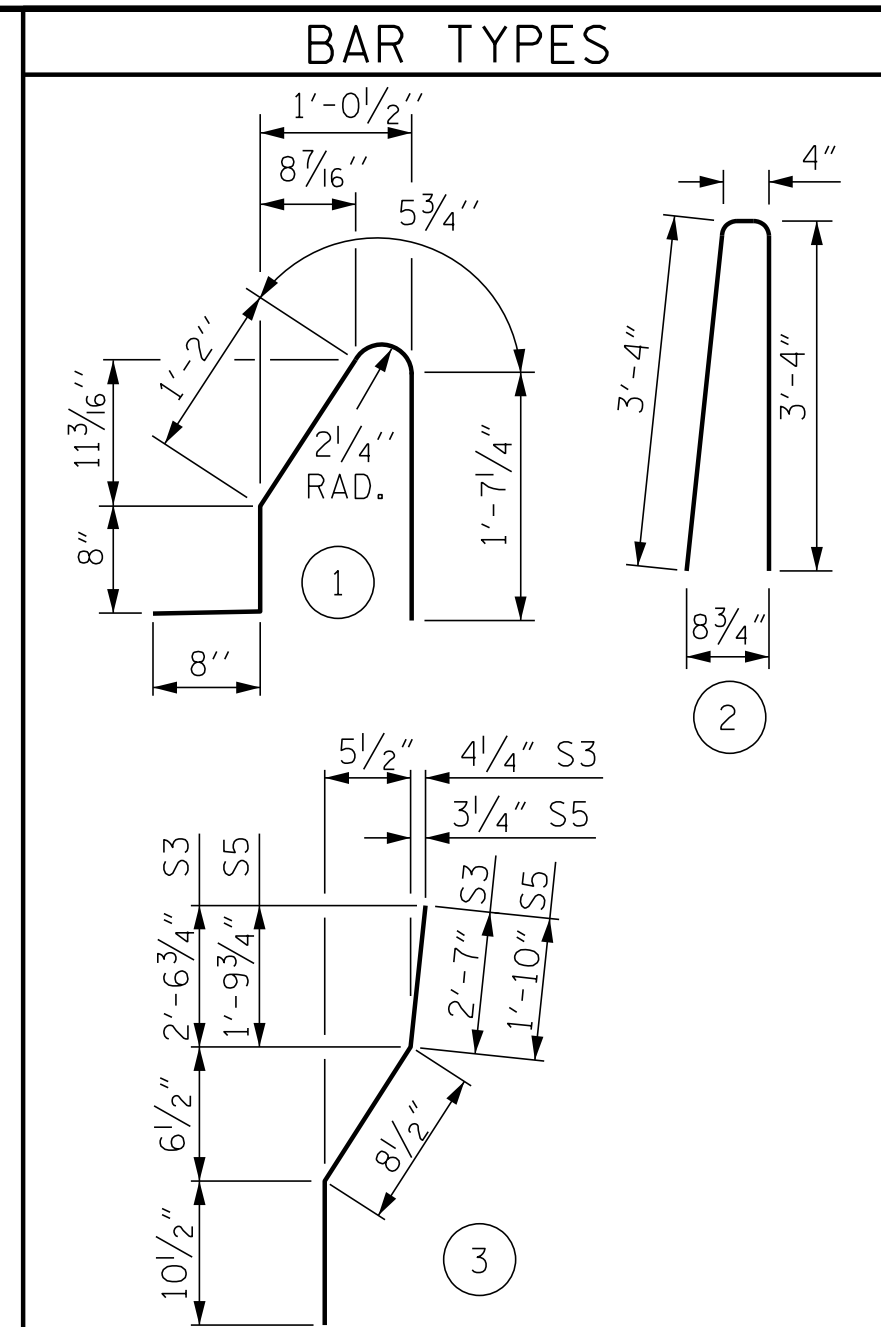
FOR ADHESIVE ANCHORING AT SAWSD JOINTS

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



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

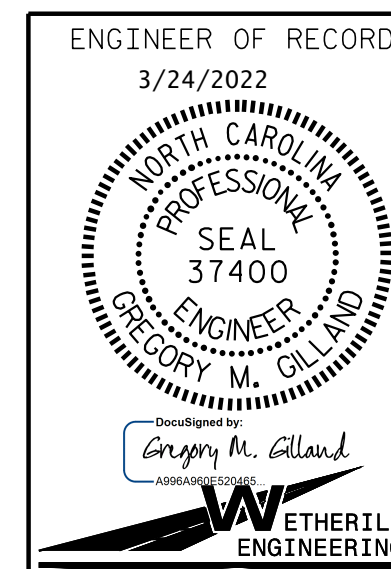
BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	88	#5	STR	12'-9"	1,170
* B2	132	#5	STR	23'-7"	3,247
* S1	366	#5	1	4'-7"	1,750
* S2	366	#5	2	7'-0"	2,672
* S3	4	#5	3	4'-2"	17
* S4	4	#5	STR	4'-0"	17
* S5	8	#5	3	3'-5"	29
* S6	8	#5	STR	3'-3"	27
* EPOXY COATED REINFORCING STEEL					8,929 LBS.
CLASS AA CONCRETE					51.3 CU. YDS.
CONCRETE BARRIER RAIL					377.76 LIN. FT.

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-

SHEET 2 OF 2



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. S8-15
TOTAL SHEETS 28

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

ASSEMBLED BY : D. HODGE	DATE : 4/21
CHECKED BY : J. DILWORTH	DATE : 6/21
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

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.)

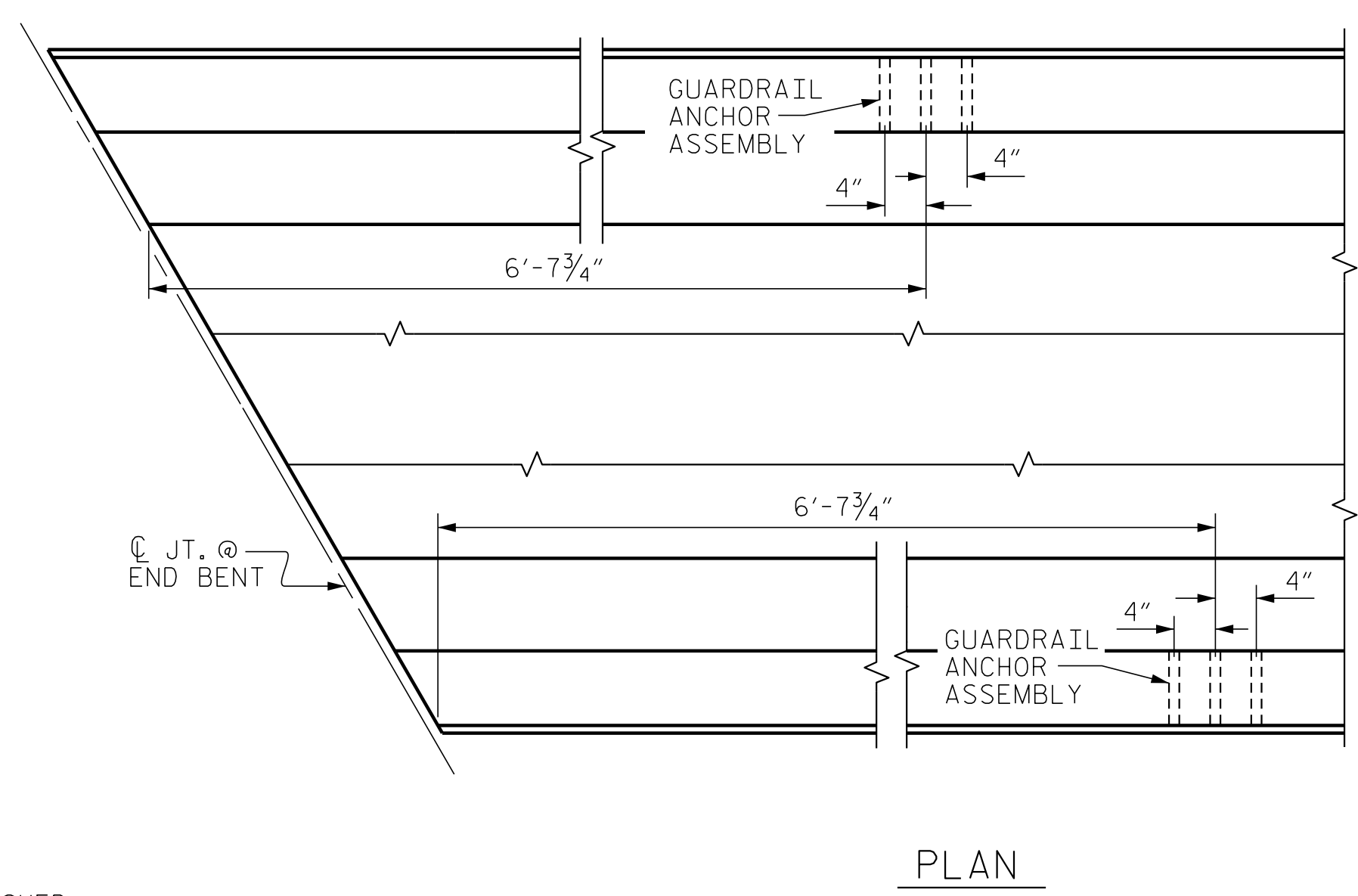
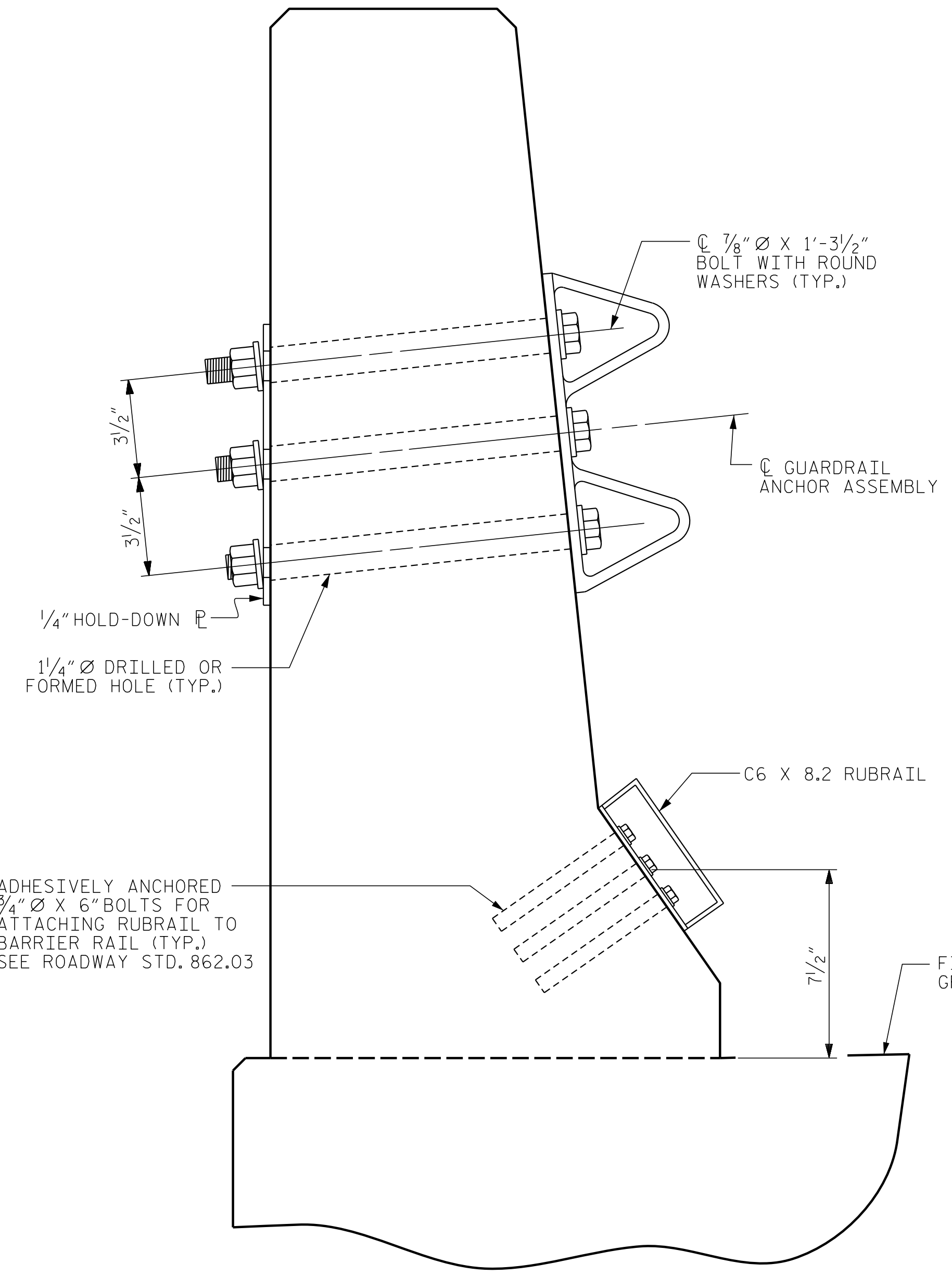
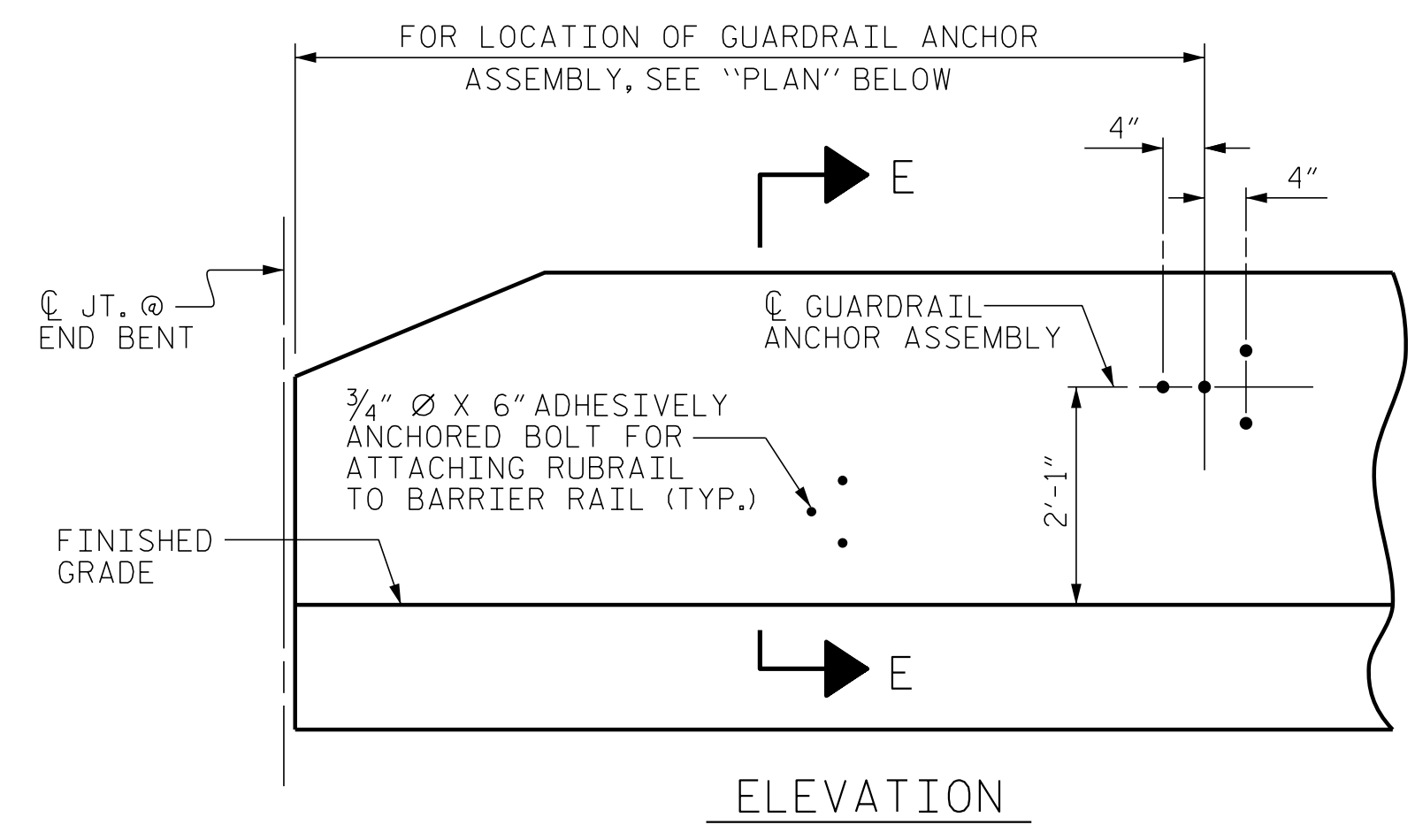
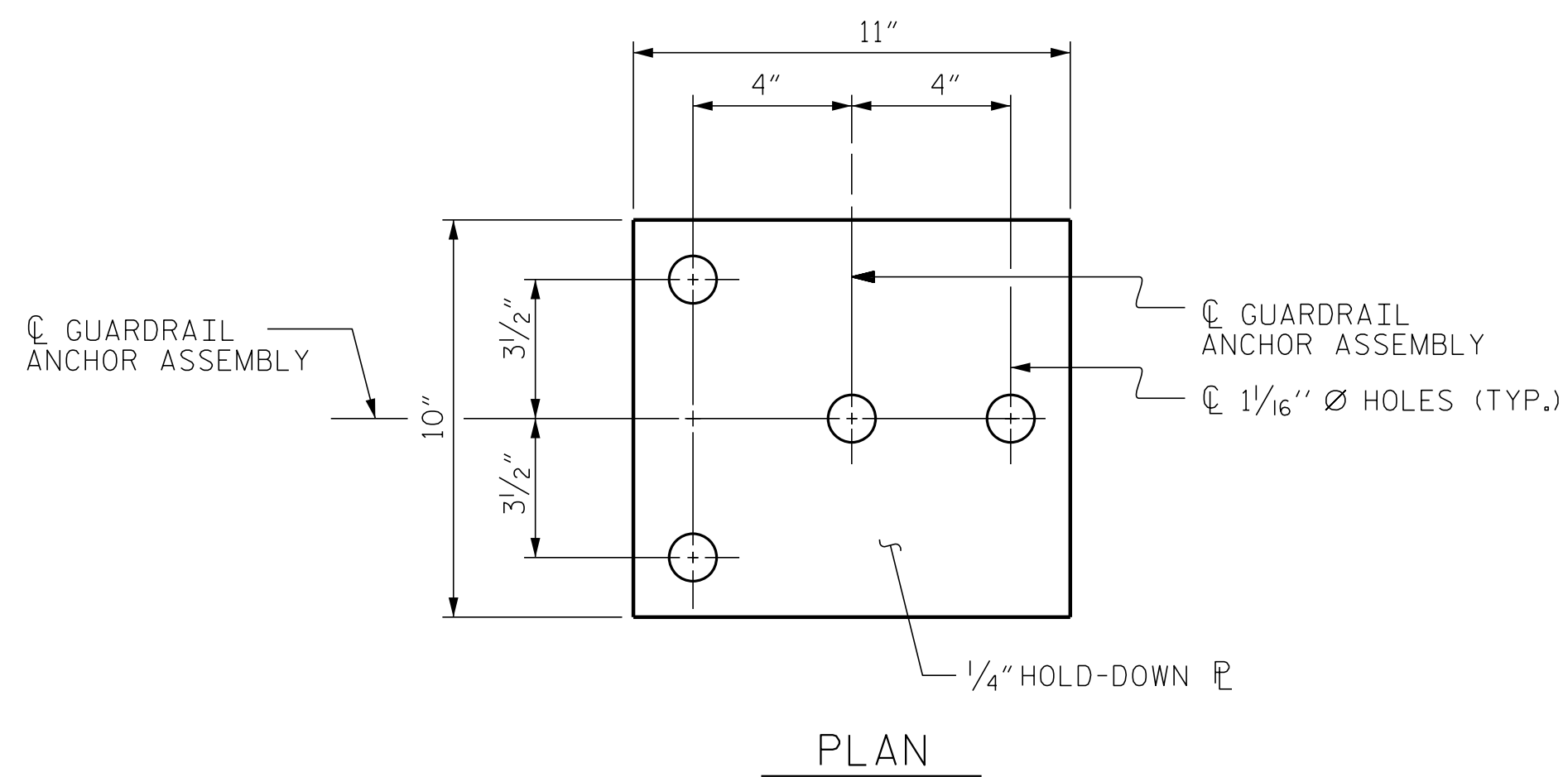
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

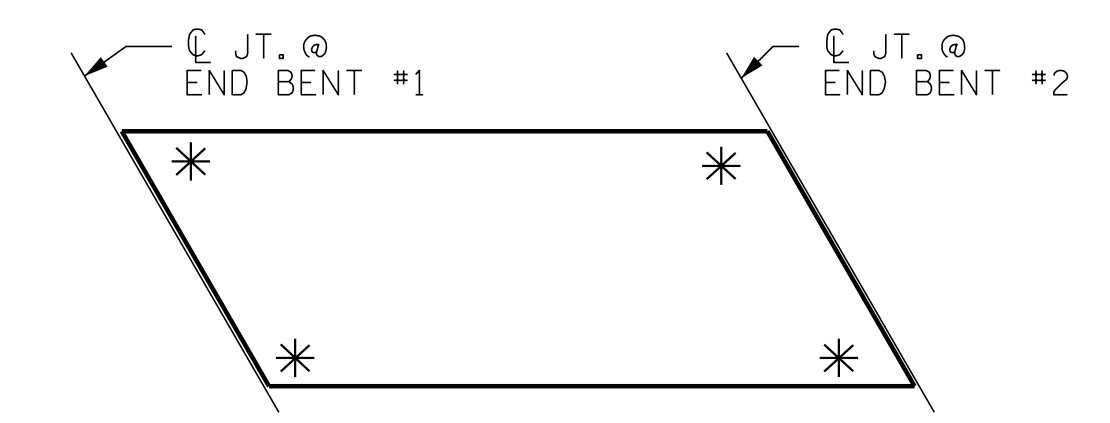
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

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.



LOCATION OF ANCHORS FOR GUARDRAIL

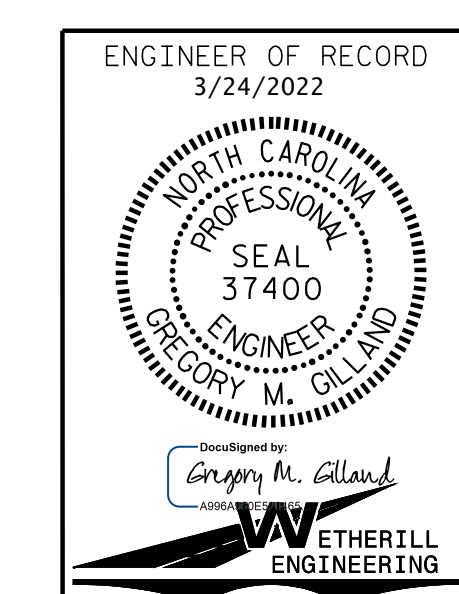
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

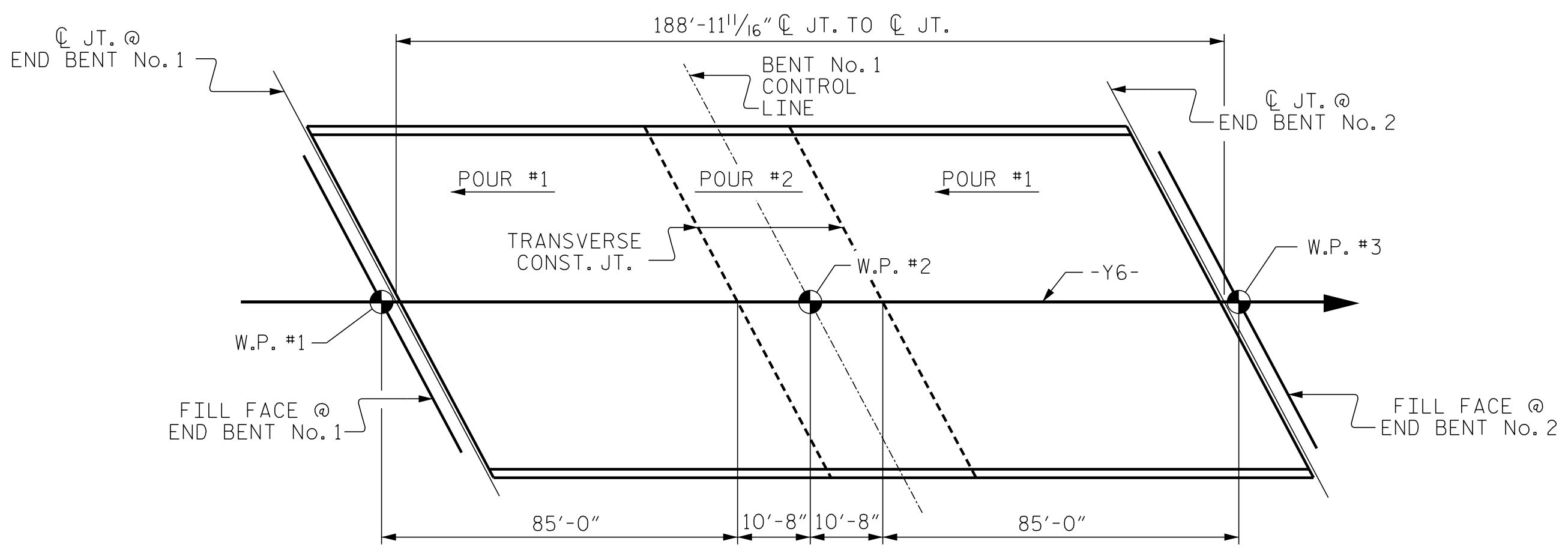
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			28
2			4			

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

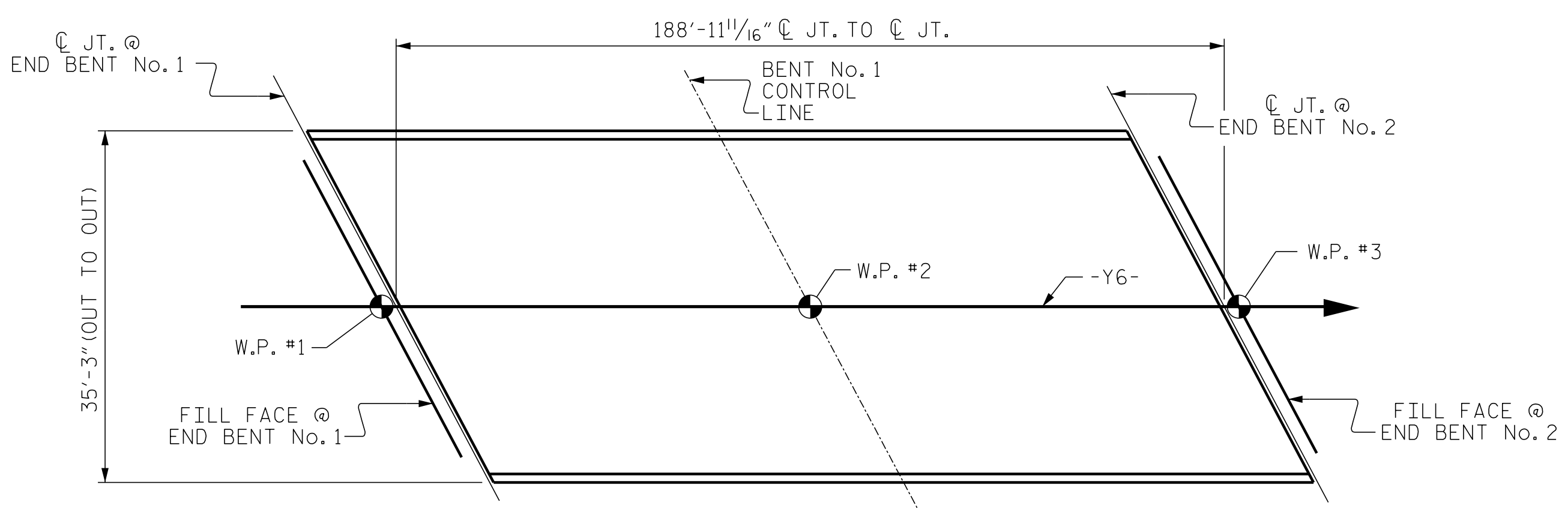
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

PA-2020-20380.01 - I-5987B - T95 Structures DGN 401_001 - I-5987B - SWU - GR - 001.dgn
 3/8/2022 3:30:16 PM

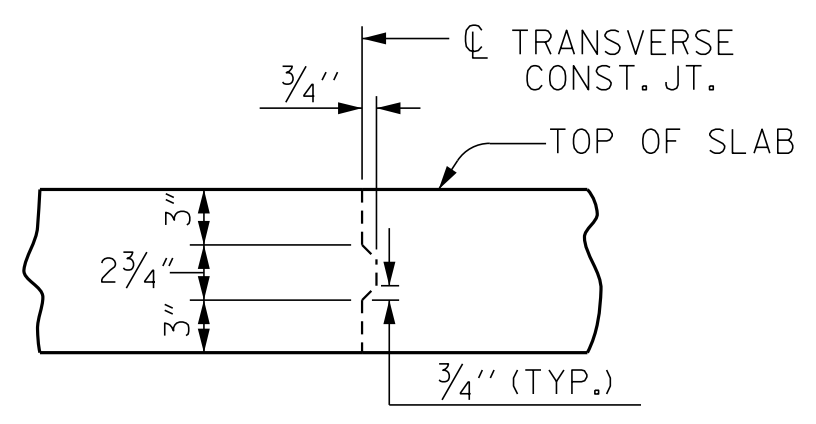
ASSEMBLED BY : D. HODGE	DATE : 4/21
CHECKED BY : J. DILWORTH	DATE : 9/21
DRAWN BY : TLA 5/06	REV. 7/12 MAA/GM
CHECKED BY : GM 5/06	REV. 6/13 MAA/GM
	REV. 12/17 MAA/THC



CONCRETE DECK POUR DETAIL

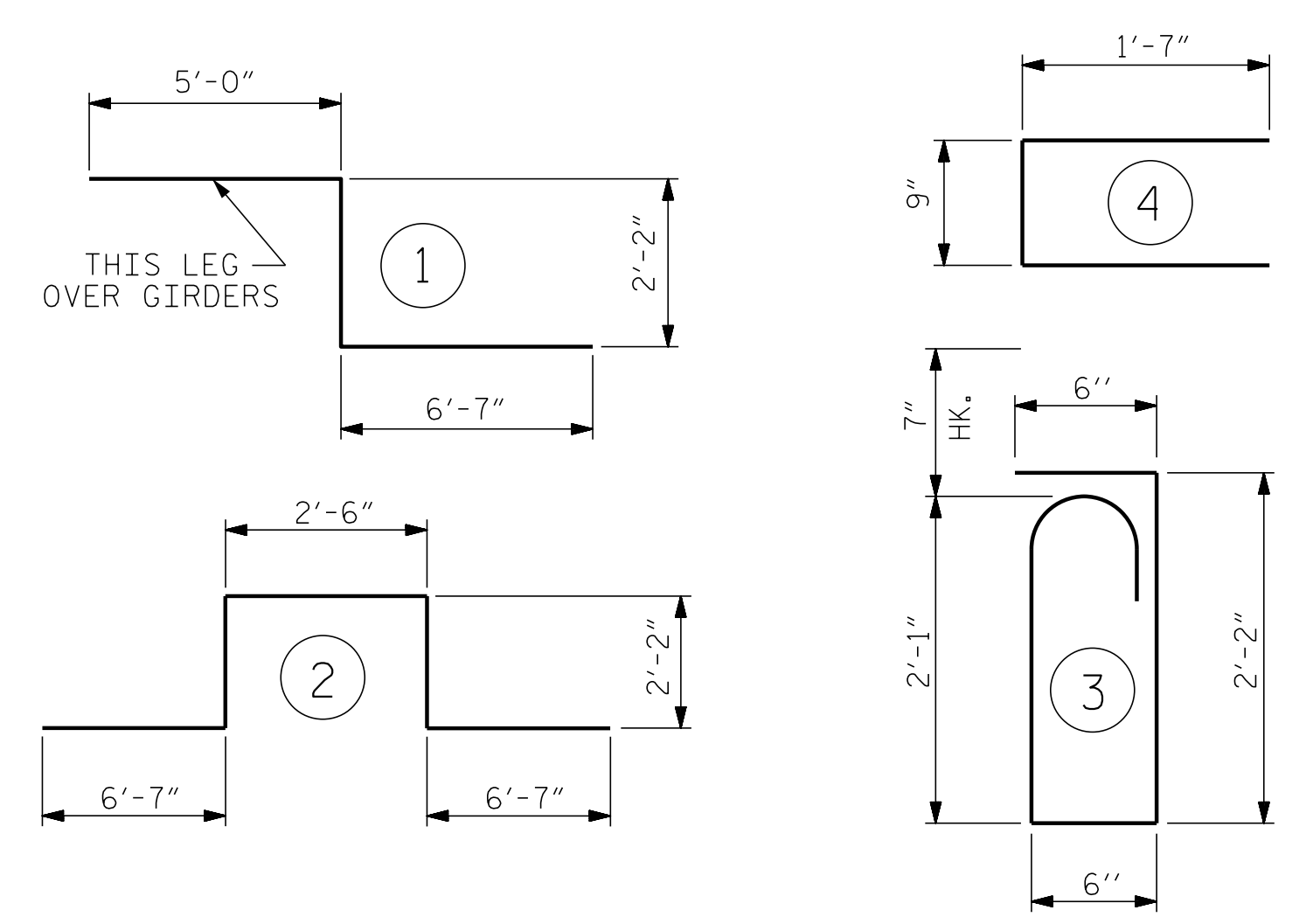


LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 6,661)



TRANSVERSE CONST. JOINT DETAIL
NOTE: SLAB REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	314	#5	STR	34'-11"	11,435
A2	314	#5	STR	34'-11"	11,435
* A101	6	#5	STR	32'-2"	201
* A102	6	#5	STR	29'-2"	183
* A103	6	#5	STR	26'-1"	163
* A104	6	#5	STR	23'-0"	144
* A105	6	#5	STR	20'-0"	125
* A106	6	#5	STR	16'-11"	106
* A107	6	#5	STR	13'-10"	87
* A108	6	#5	STR	10'-10"	68
* A109	6	#5	STR	7'-9"	48
* A110	6	#5	STR	4'-8"	29
A201	6	#5	STR	32'-2"	201
A202	6	#5	STR	29'-2"	183
A203	6	#5	STR	26'-1"	163
A204	6	#5	STR	23'-0"	144
A205	6	#5	STR	20'-0"	125
A206	6	#5	STR	16'-11"	106
A207	6	#5	STR	13'-10"	87
A208	6	#5	STR	10'-10"	68
A209	6	#5	STR	7'-9"	48
A210	6	#5	STR	4'-8"	29

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	* EPOXY COATED REINFORCING STEEL (LBS.)
TOTALS**	214.3	22,181	19,542

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

* B1	96	#4	STR	32'-4"	2,073
* B2	48	#5	STR	34'-9"	1,740
* B3	46	#5	STR	40'-0"	1,919
B4	152	#5	STR	48'-8"	7,715
B5	33	#5	STR	48'-0"	1,652
* G1	2	#5	STR	39'-6"	82
* K1	8	#8	1	13'-9"	294
* K2	8	#8	2	20'-0"	427
K3	18	#6	STR	8'-4"	225
* S1	48	#5	3	5'-10"	292
* S2	48	#4	4	3'-11"	126

REINFORCING STEEL	LBS.	22,181
* EPOXY COATED REINFORCING STEEL	LBS.	19,542

* THESE BARS ARE EPOXY COATED.

GROOVING BRIDGE FLOORS

APPROACH SLABS	785 SQ.FT.
BRIDGE DECK	5,436 SQ.FT.
TOTAL	6,221 SQ.FT.

CONCRETE BREAKDOWN

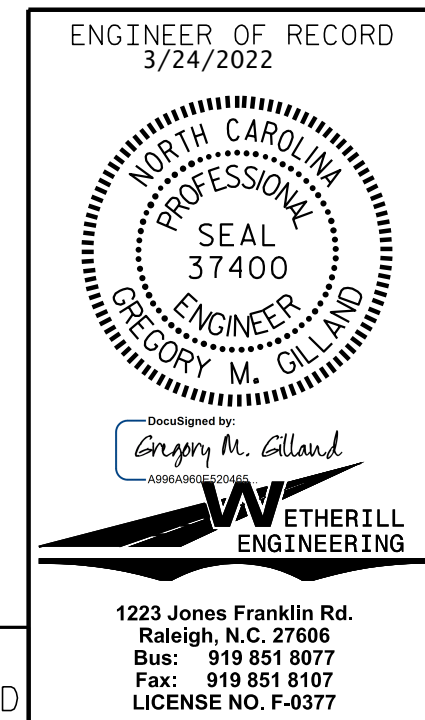
	CLASS AA CONCRETE (CU. YDS.)
POUR #1	190.7
POUR #2	23.6
TOTALS ***	214.3

*** QUANTITIES FOR BARRIER RAILS ARE NOT INCLUDED

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

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

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-



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

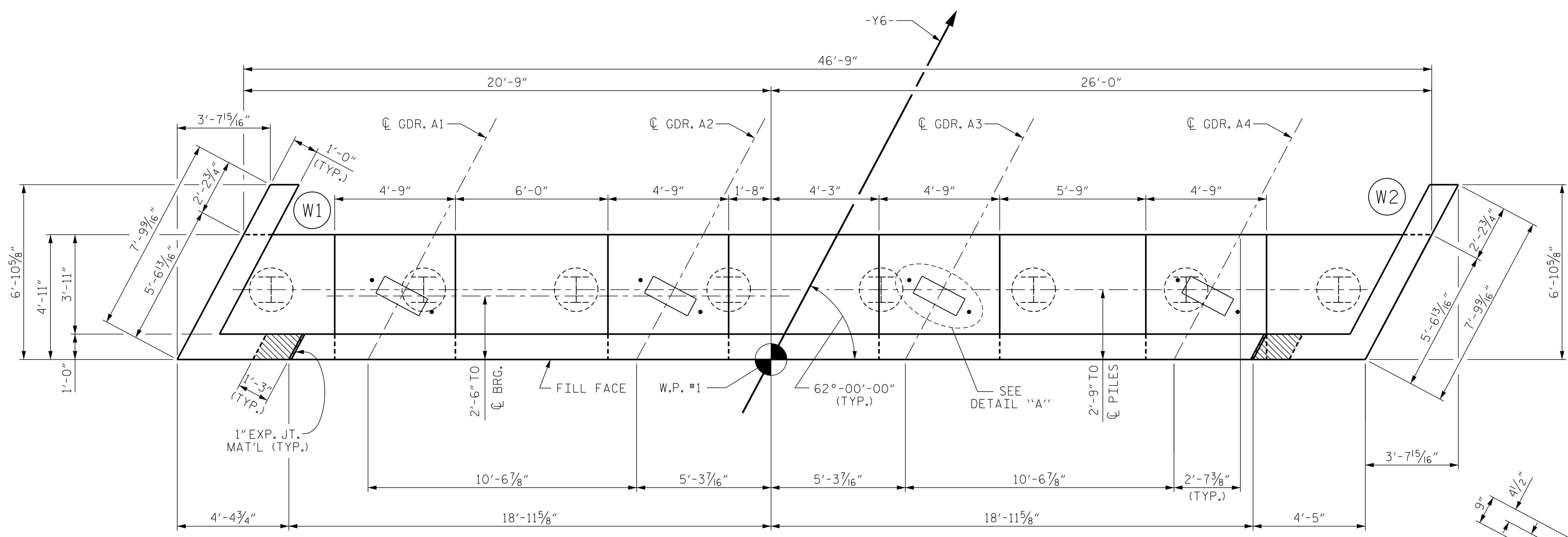
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : DAH/GMG DATE : 11/21
CHECKED BY : J. DILWORTH DATE : 11/21

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

PA-2020-20380-01-I-5987B-T95 Structures DGN 401_001_15987B_SBU_BM_00 1.dgn
 3/8/2022 3:30:39 PM



NOTES:

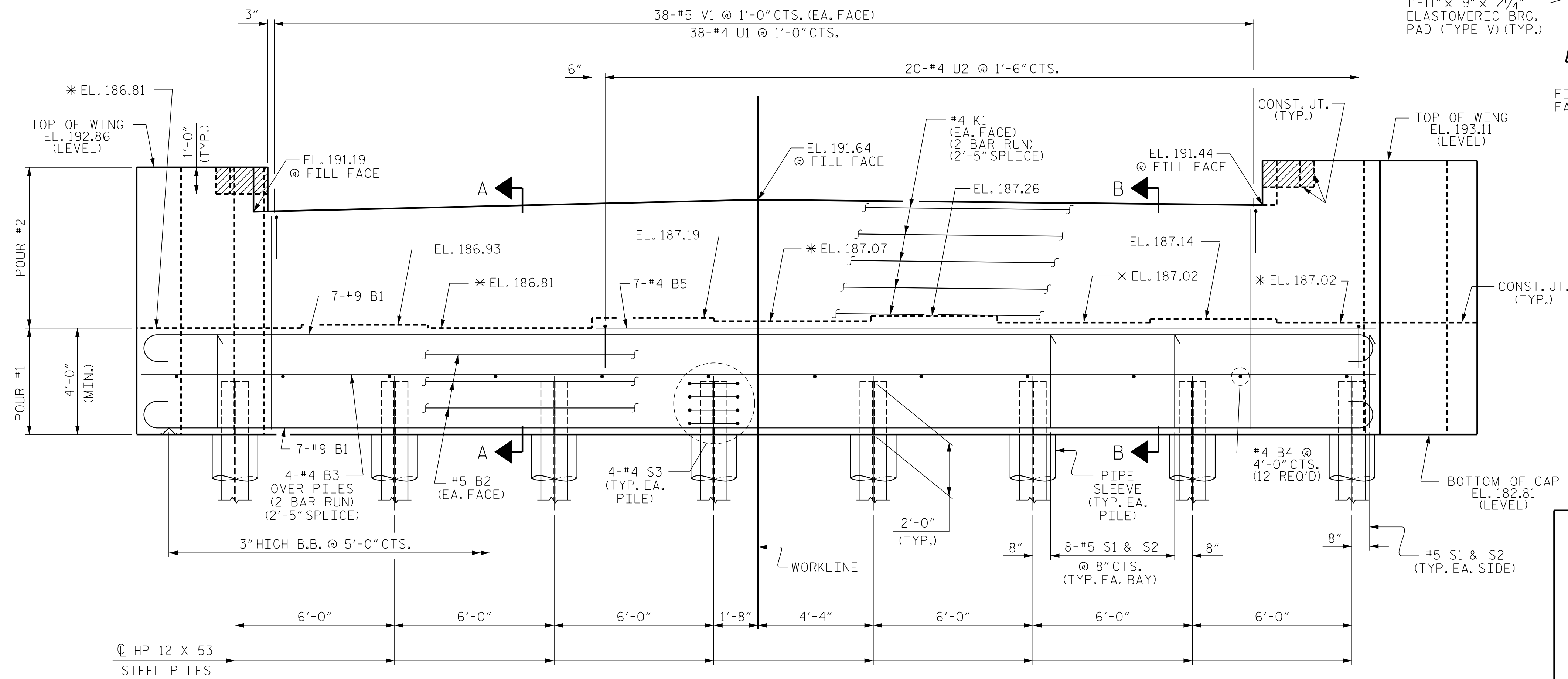
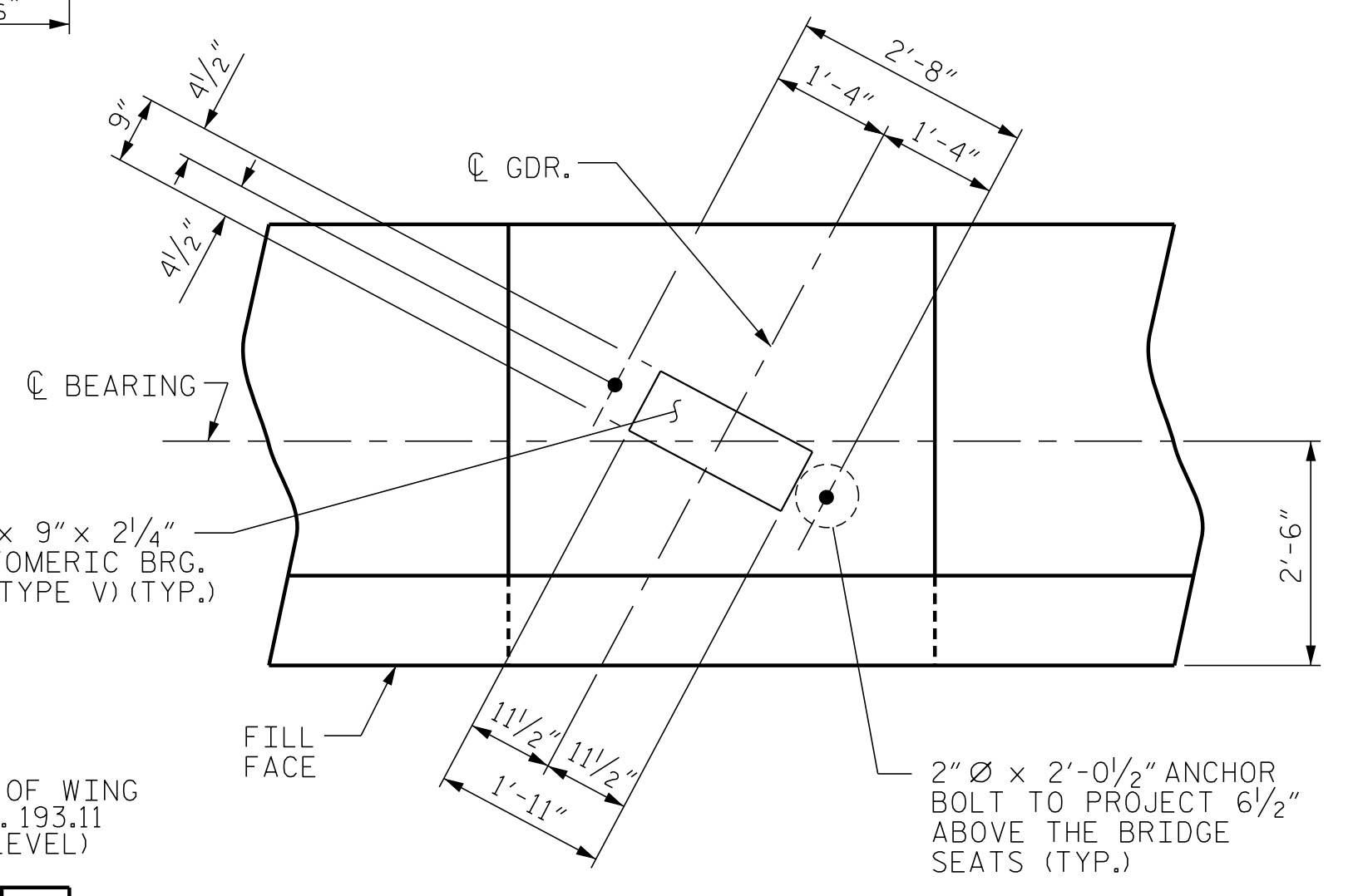
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

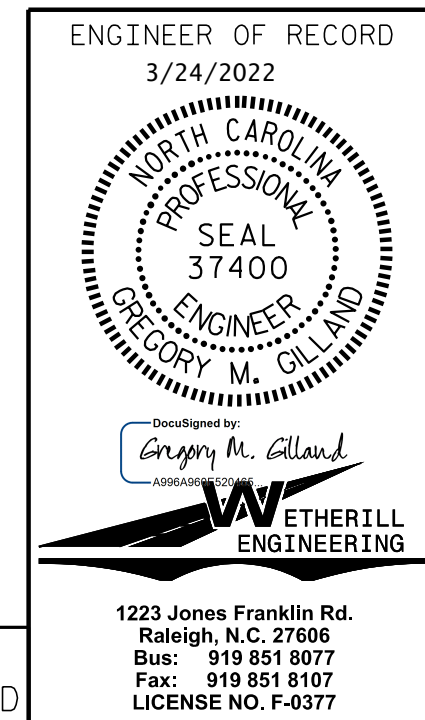
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

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



DETAIL "A"
(TYP. EA. GIRDER)

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-
SHEET 1 OF 3



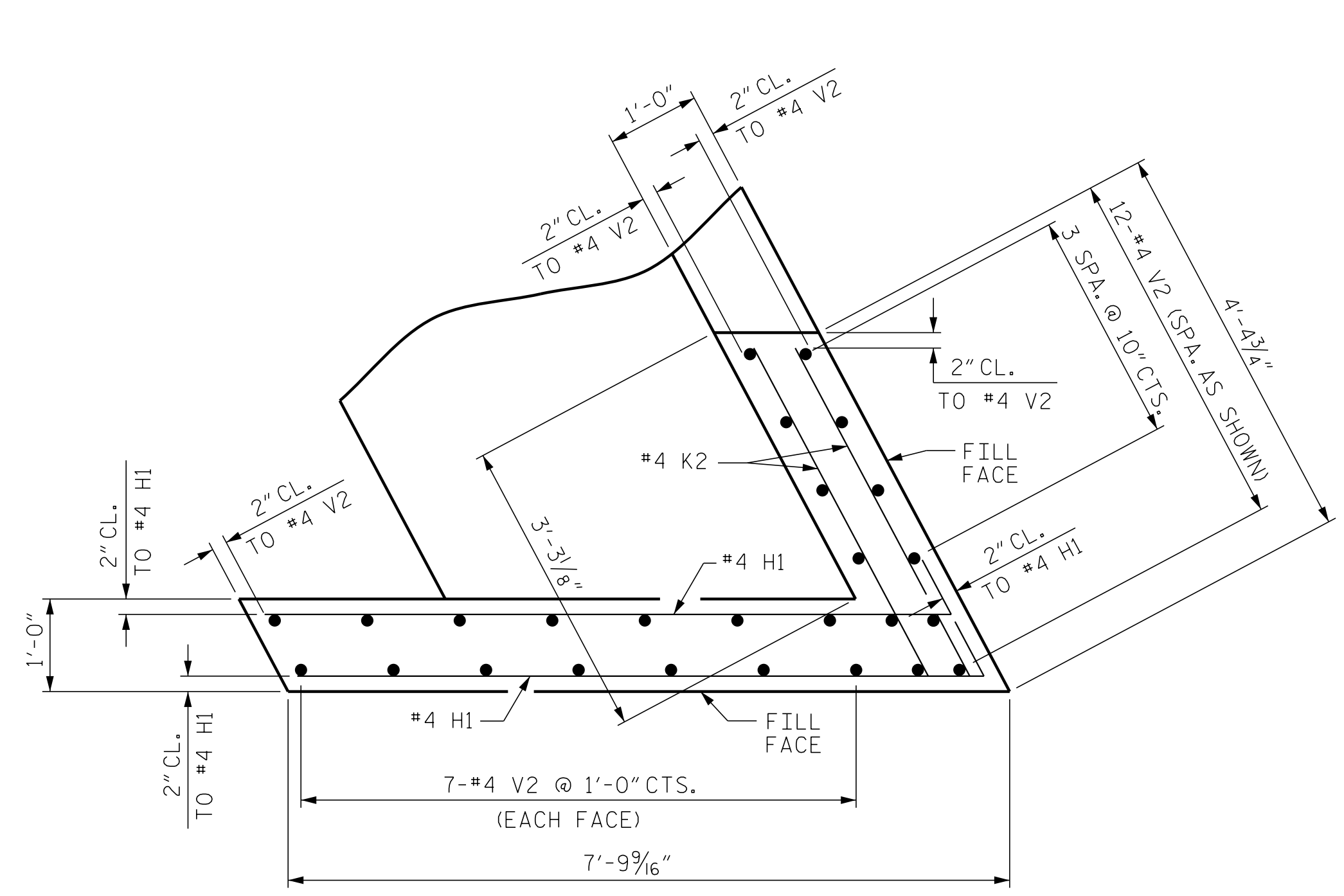
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S8-18
TOTAL SHEETS					28

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

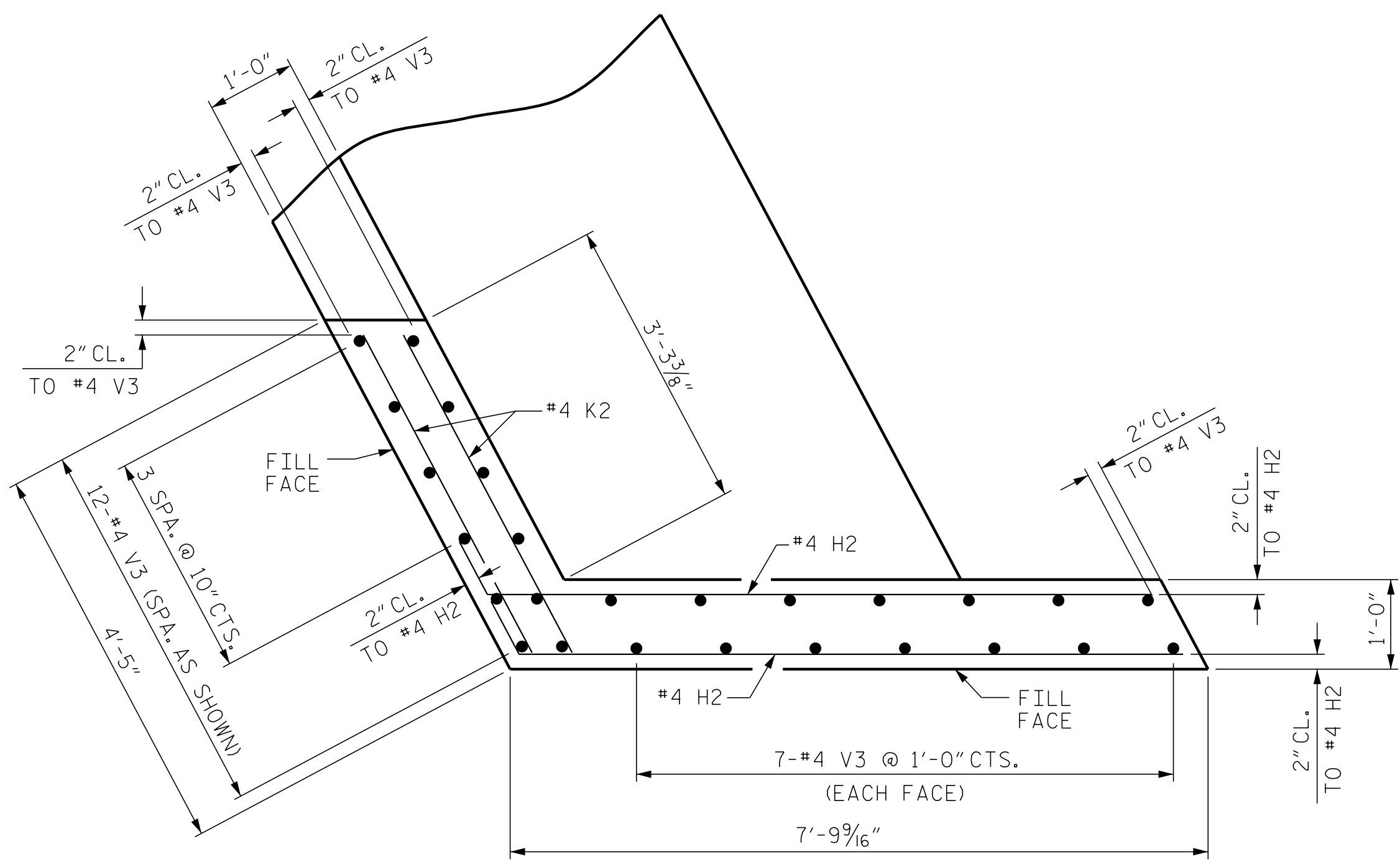
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PA-2020-20380-01-I-5987B-T95 Structures\DCM401_001_I-5987B-SWU_EB_00 1.dgn
 3/8/2022 3:31:11 PM

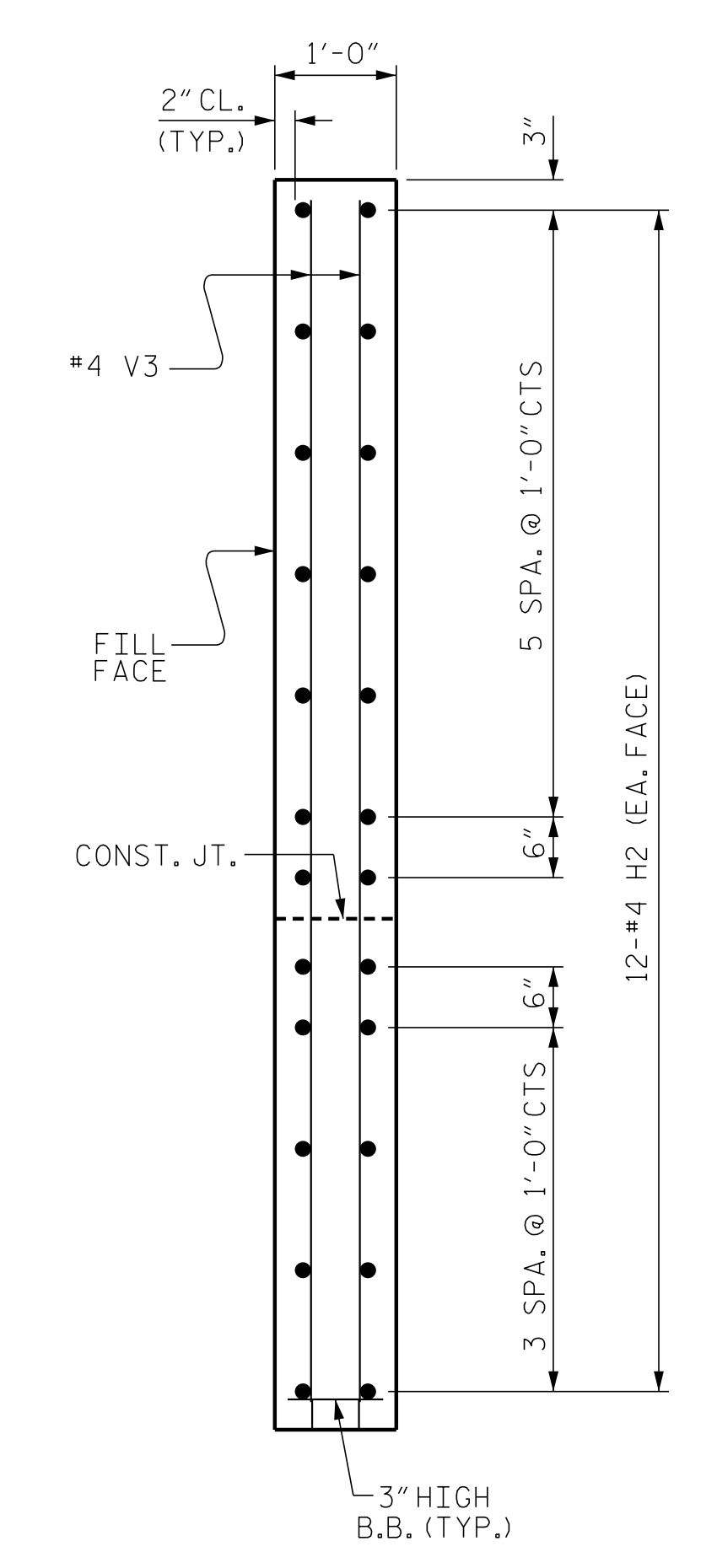
DRAWN BY: D. HODGE DATE: 9/21
CHECKED BY: JAD/GMG DATE: 11/21



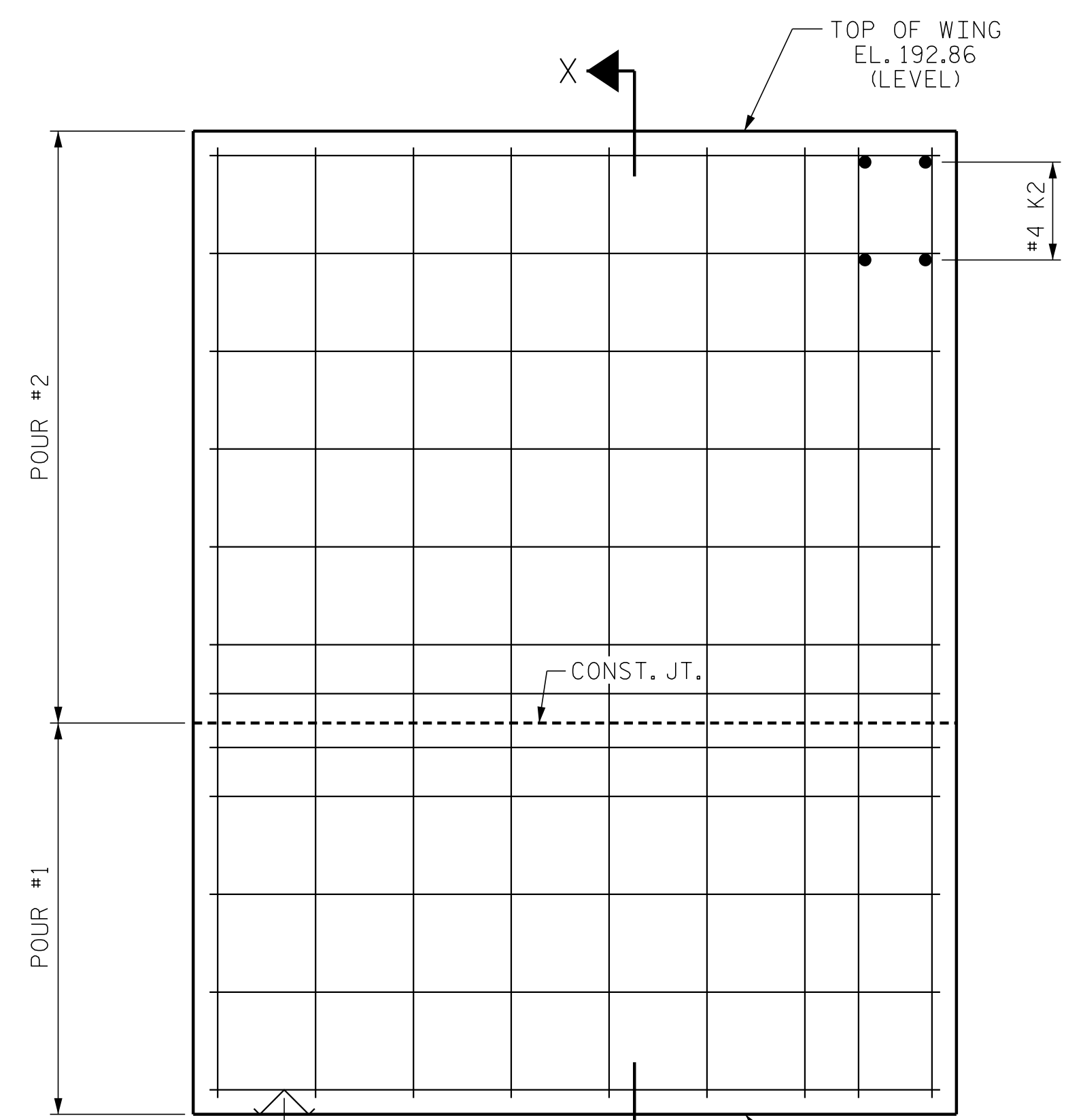
PLAN OF WING - (W1)



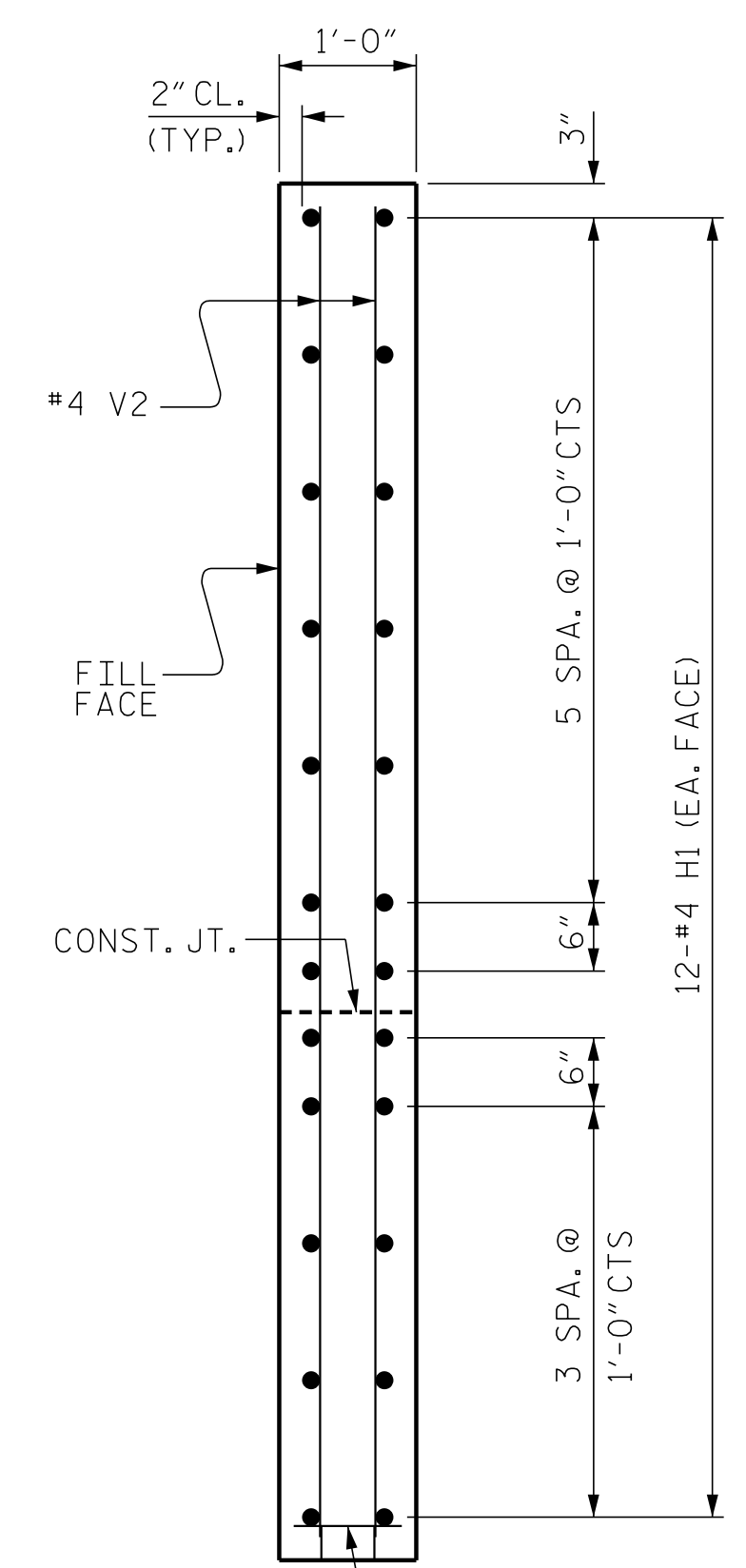
PLAN OF WING - (W2)



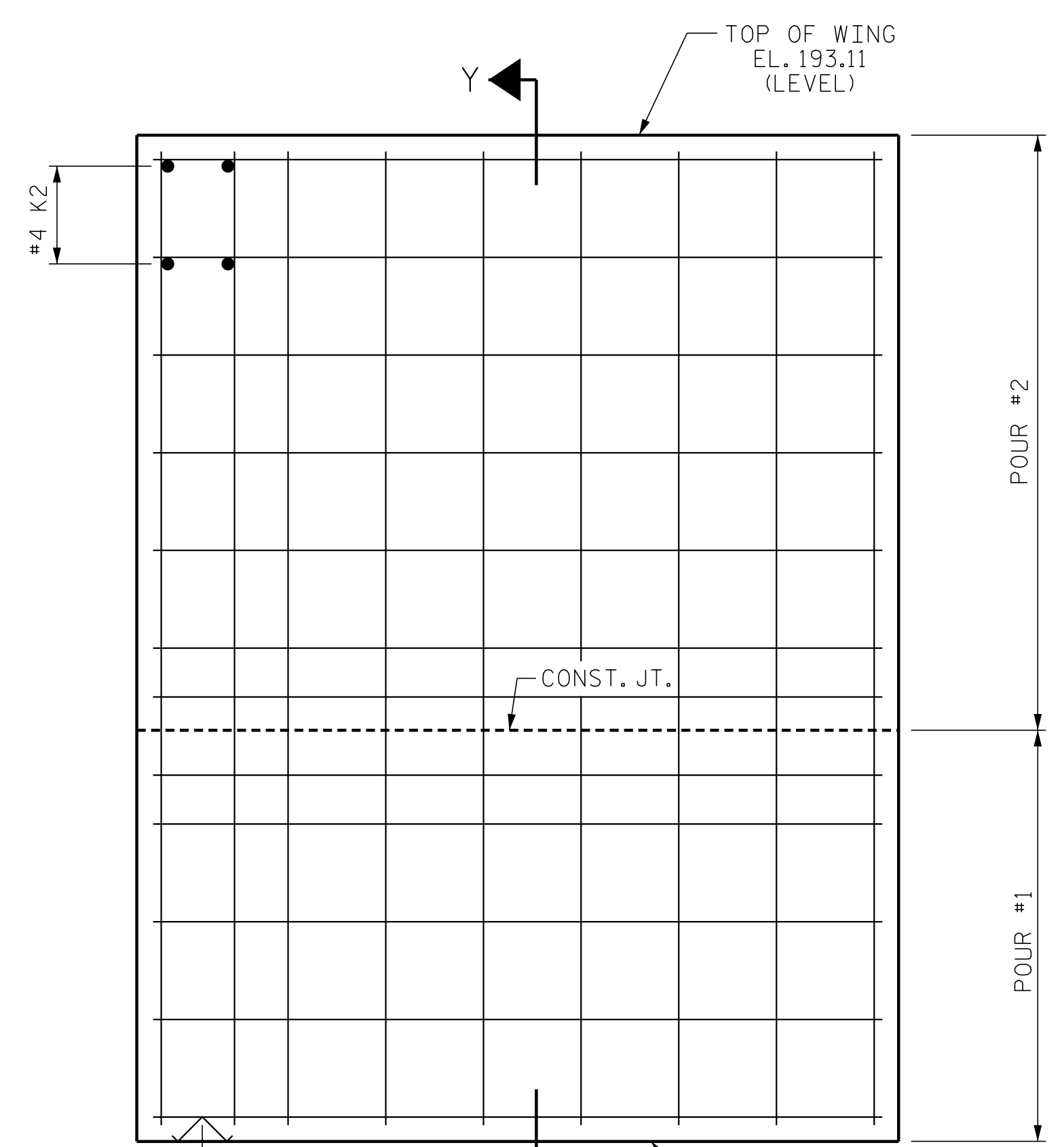
SECTION Y-Y



ELEVATION OF WING - (W1)

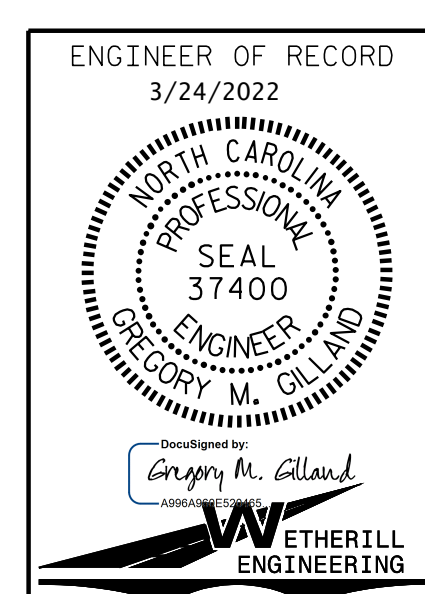


SECTION X-X



ELEVATION OF WING - (W2)

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1

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

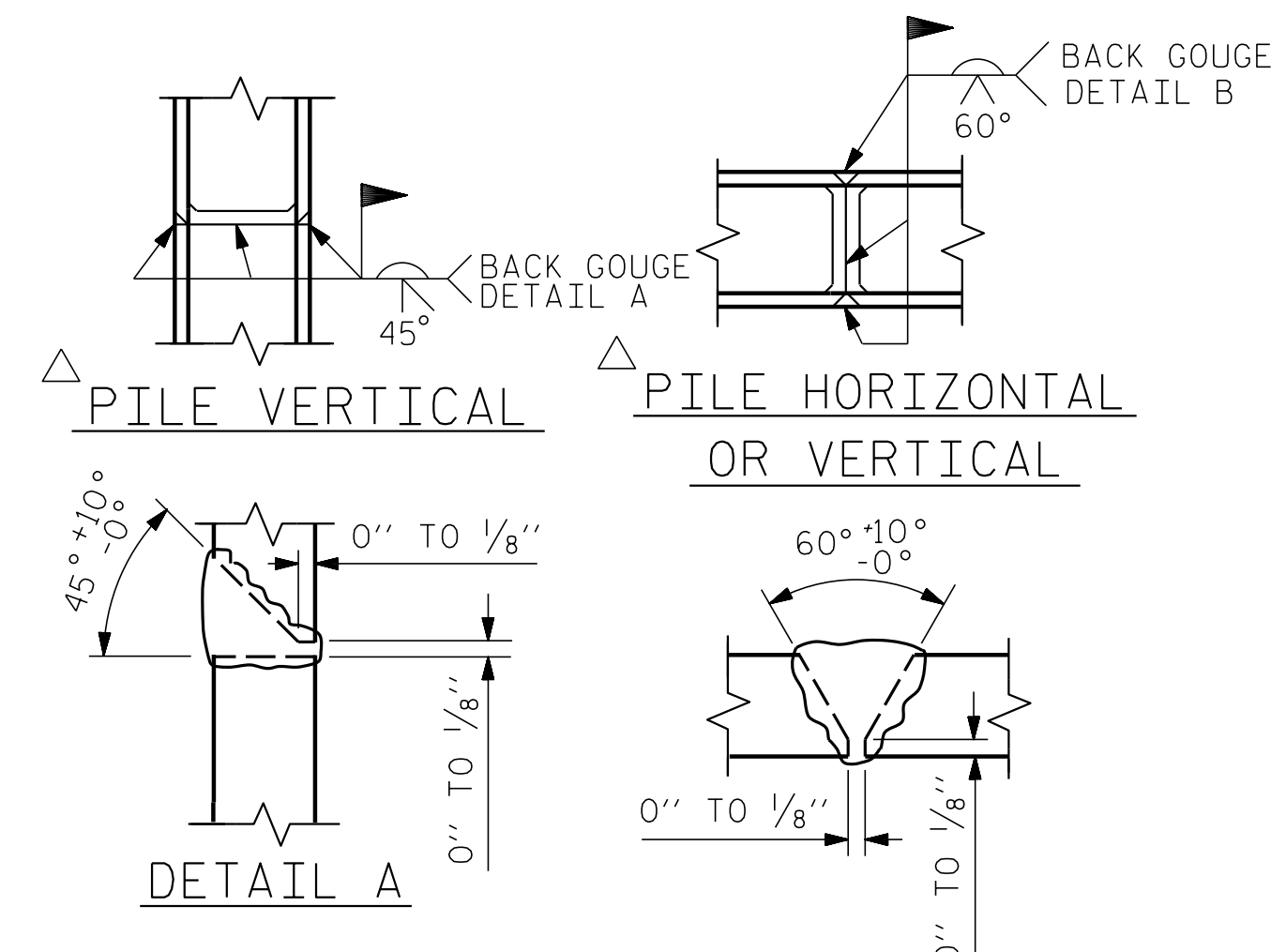
SHEET NO. S8-19
 TOTAL SHEETS 28

DRAWN BY: D. HODGE DATE: 9/21
 CHECKED BY: JAD/GMG DATE: 11/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

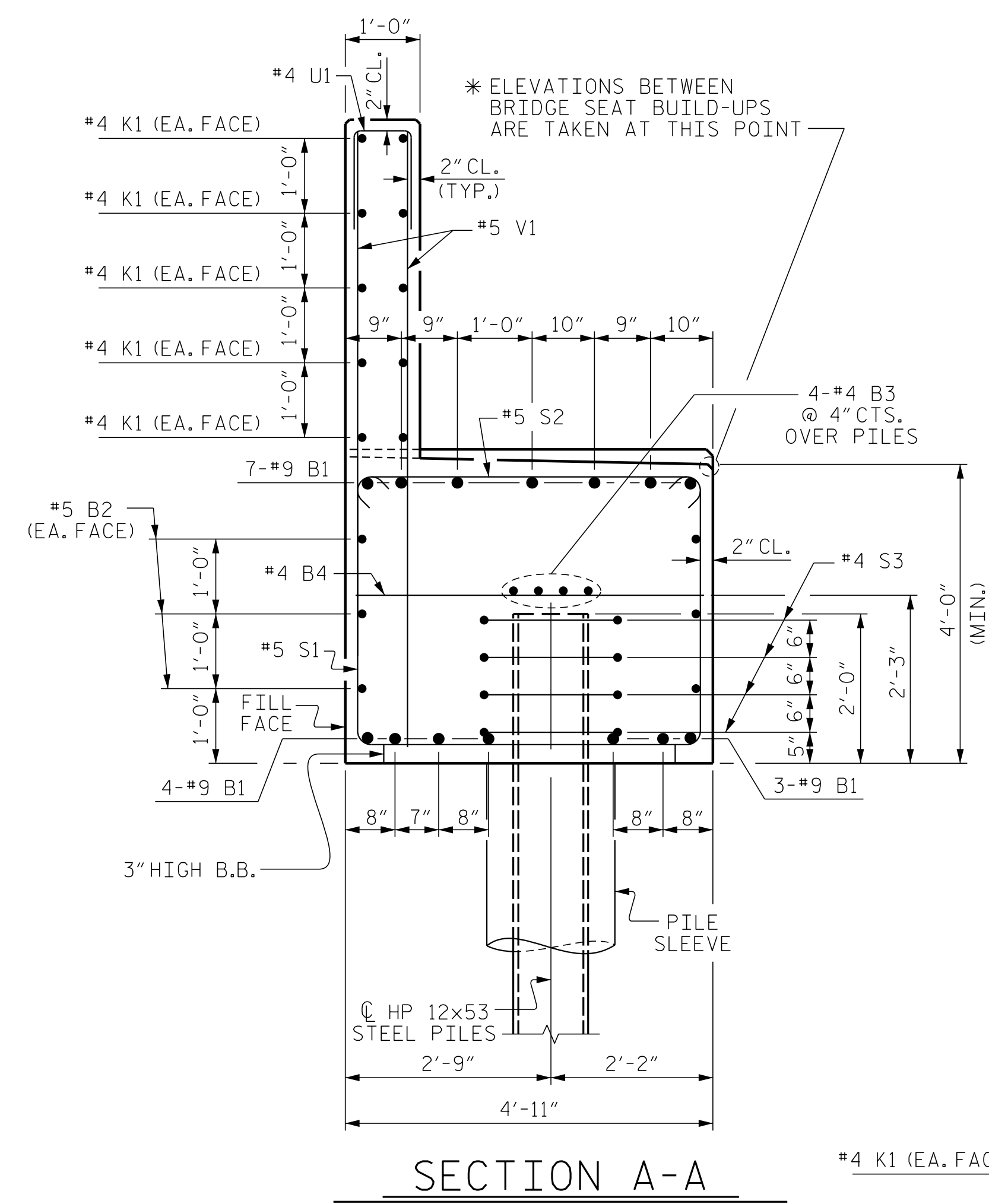
1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

PA-2020-20380-01-I-5987B-T95 Structures\DCM401_001-I-5987B-SMU_EB_00 1.dgn
 3/8/2022 3:31:26 PM

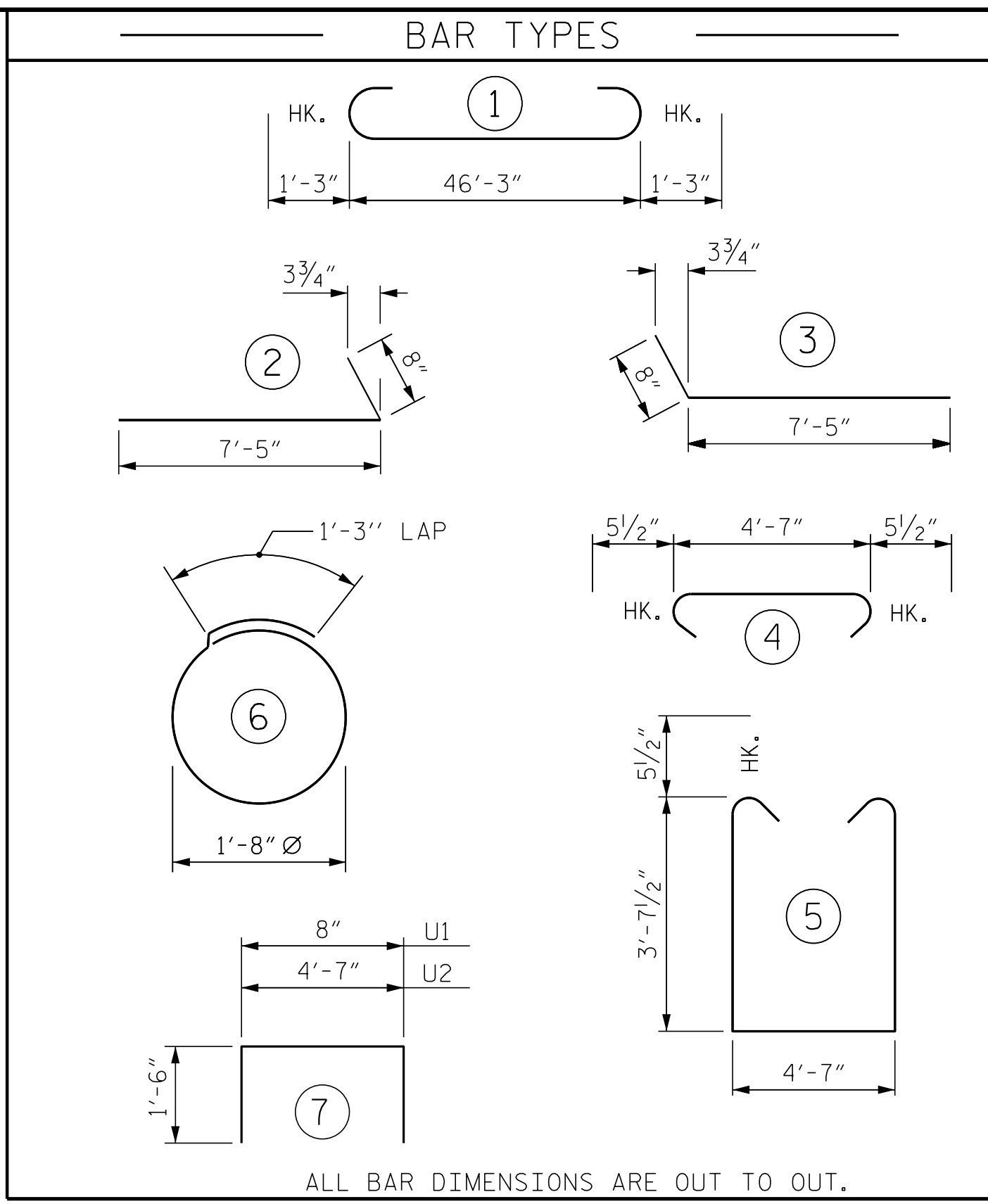


PILE SPlice DETAILS

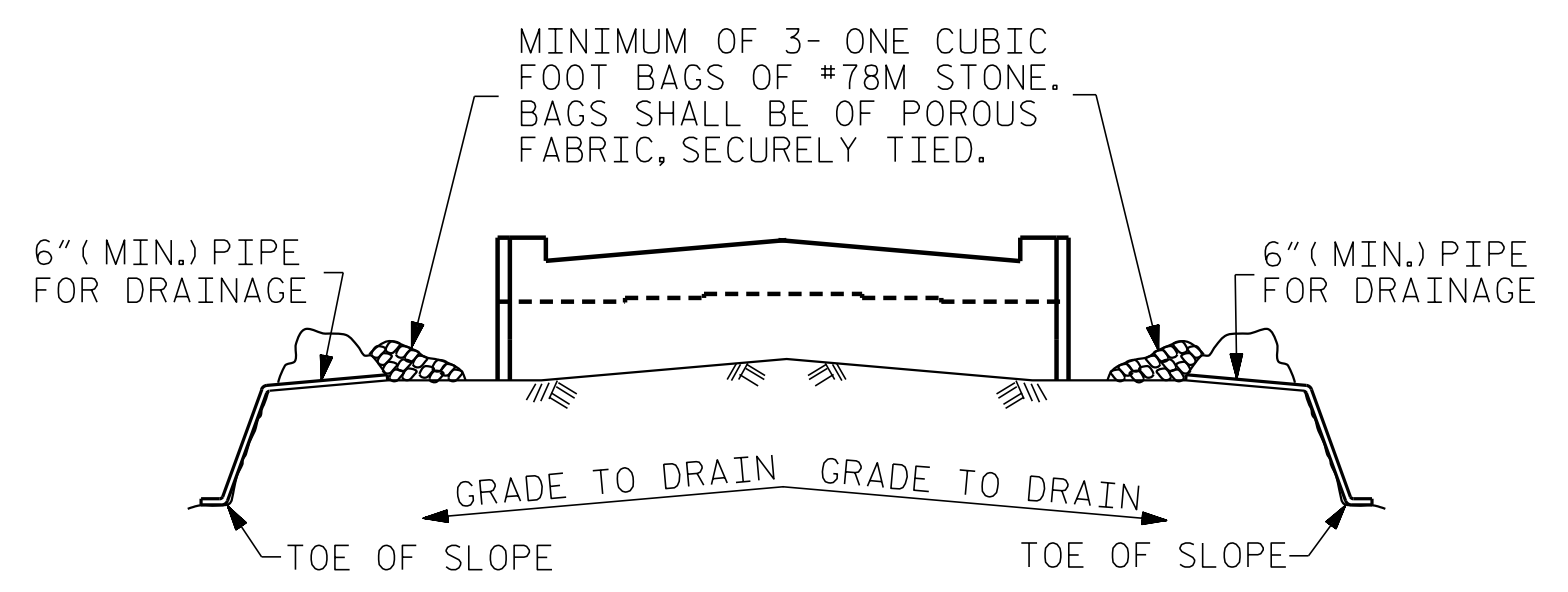
POSITION OF PILE DURING WELDING.



SECTION A-A



BILL OF MATERIAL					
END BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	#9		48'-9"	2,321
B2	6	#5	STR	46'-5"	290
B3	8	#4	STR	24'-5"	130
B4	12	#4	STR	4'-7"	37
B5	14	#4	STR	17'-3"	161
H1	22	#4		8'-1"	119
H2	22	#4		8'-1"	119
K1	20	#4	STR	24'-5"	326
K2	8	#4	STR	4'-0"	21
S1	58	#5		12'-9"	771
S2	58	#5		5'-6"	333
S3	32	#4		6'-6"	139
U1	38	#4		3'-8"	93
U2	20	#4		7'-7"	101
V1	76	#5	STR	7'-11"	628
V2	26	#4	STR	9'-7"	166
V3	26	#4	STR	9'-10"	171
REINFORCING STEEL					5,926 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP & LOWER PART OF WINGS					36.6 C.Y.
POUR #2 BACKWALL AND UPPER PART OF WINGS					11.2 C.Y.
TOTAL CLASS A CONCRETE					47.8 C.Y.
HP 12 X 53 STEEL PILES					
NO: 8					560 L.F.
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES					8 EA.

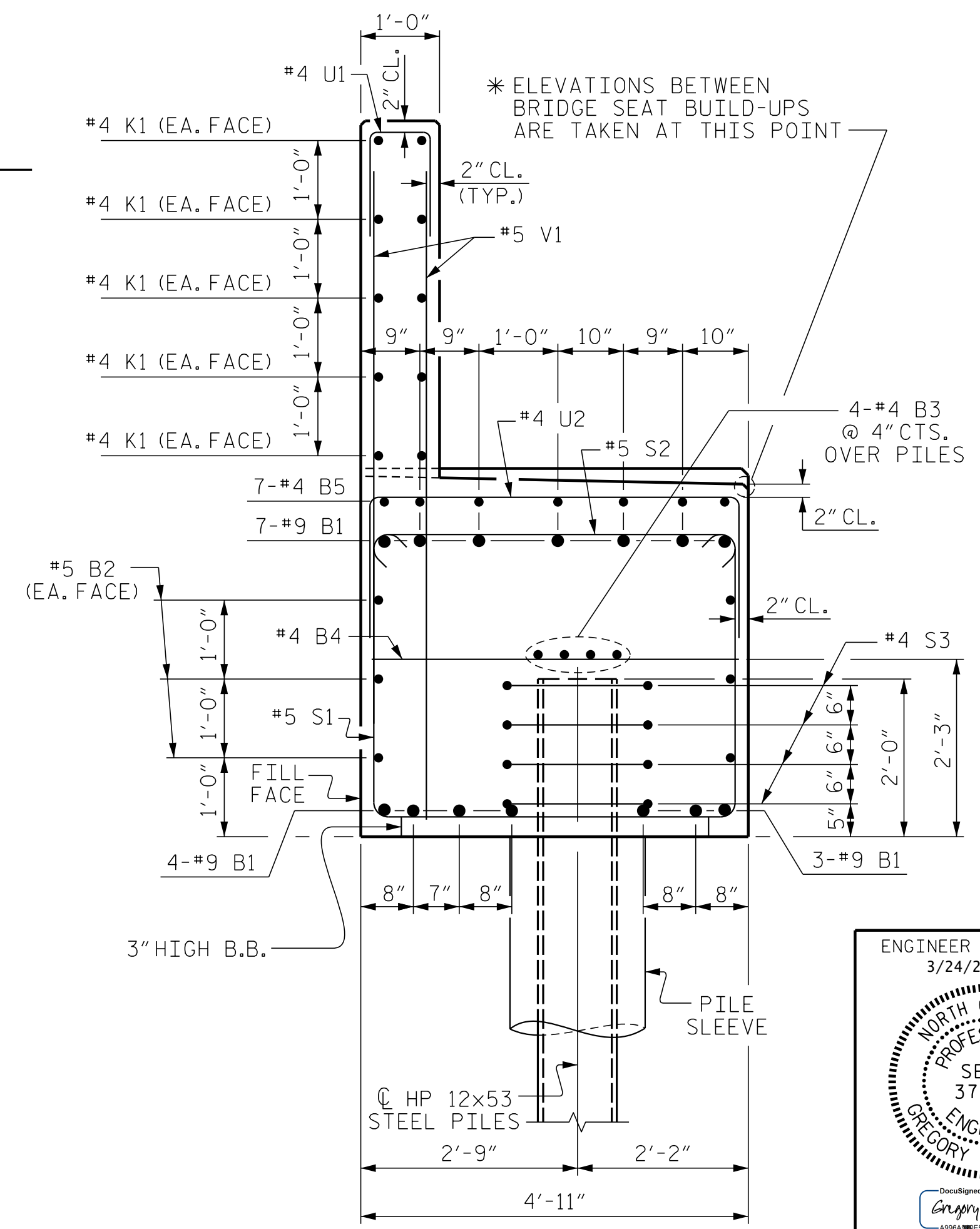


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



SECTION B-B

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 3 OF 3

ENGINEER OF RECORD
 3/24/2022

 Gregory M. Gulland
 ETHERILL ENGINEERING

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 1

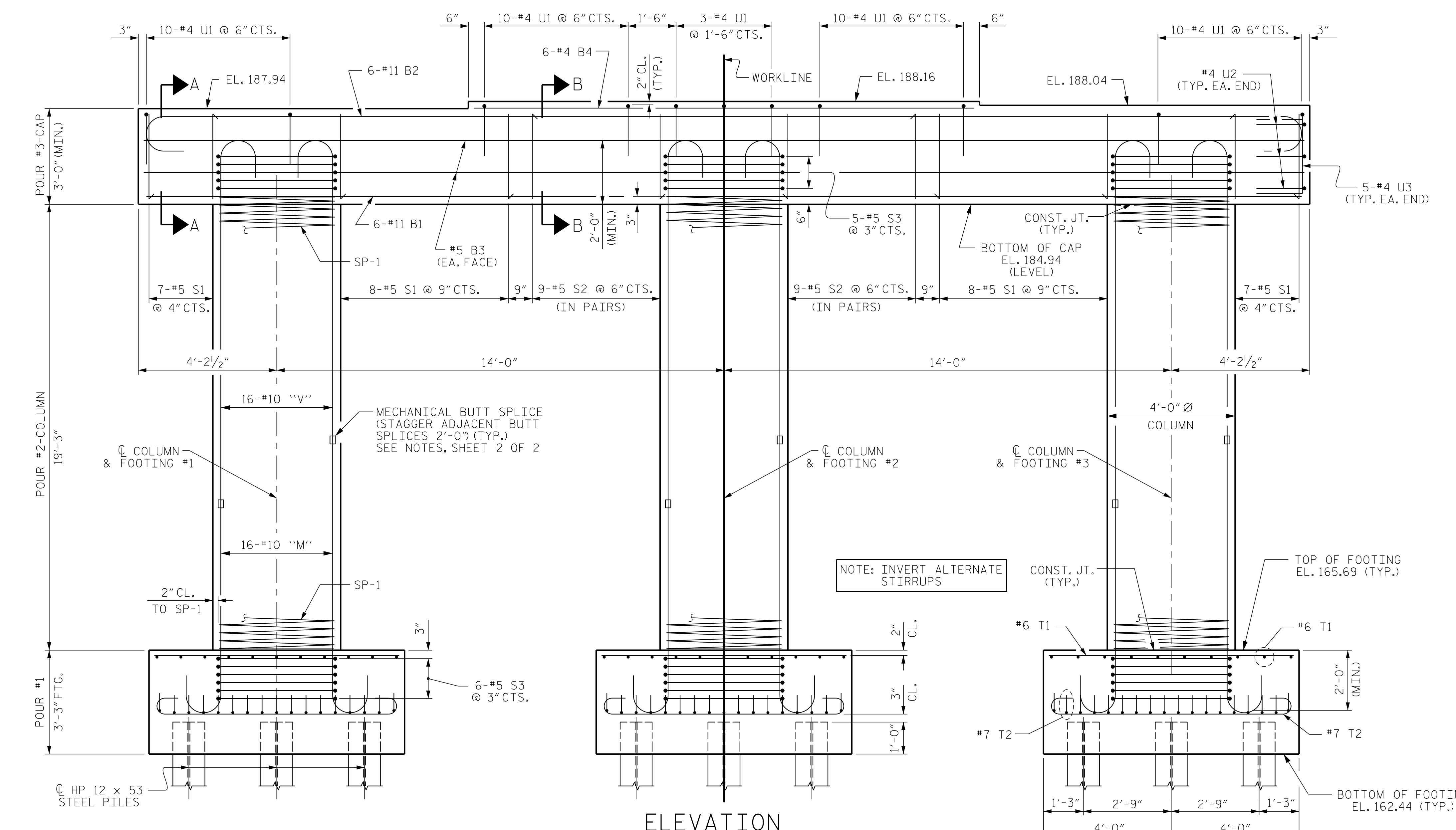
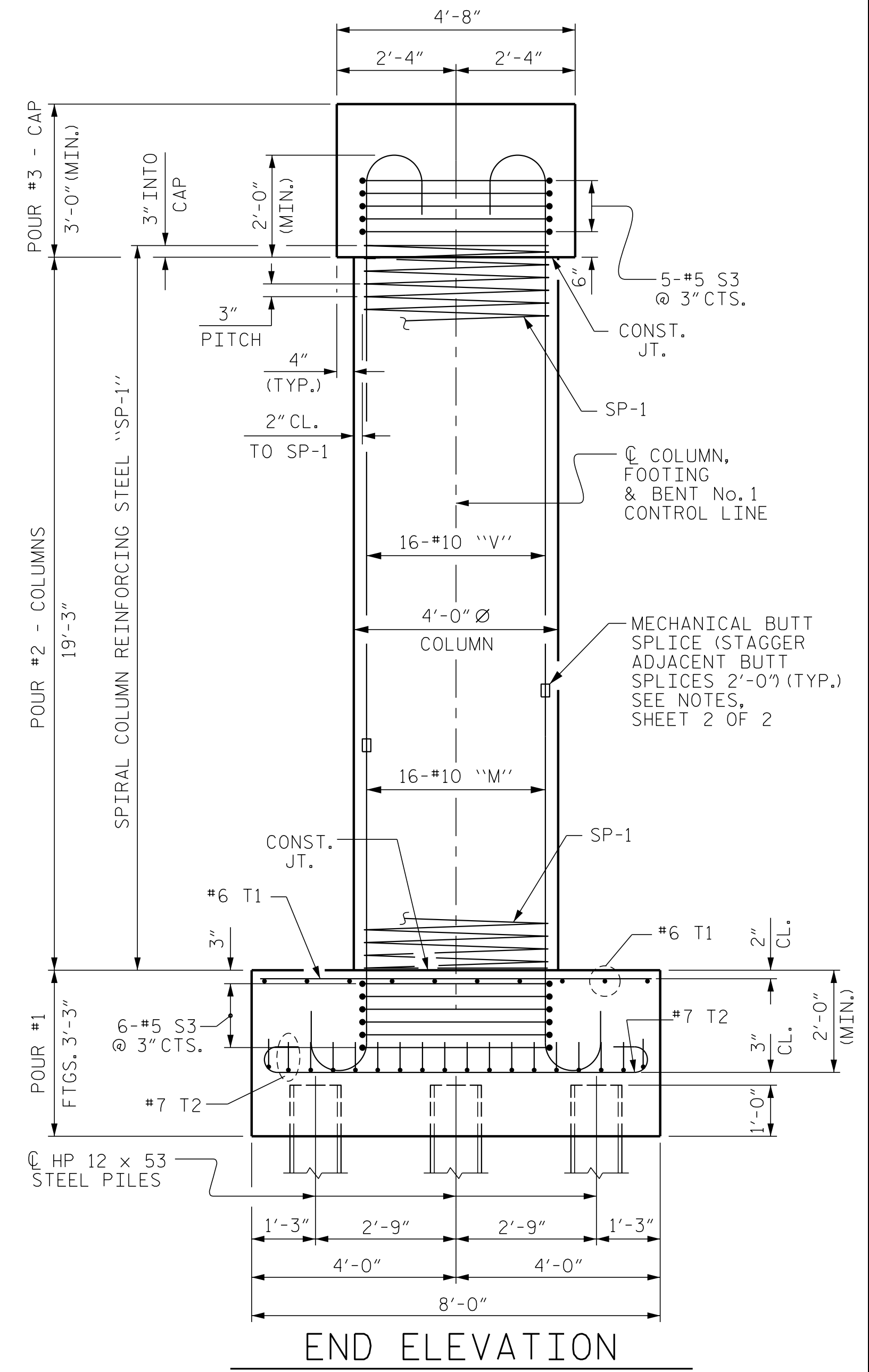
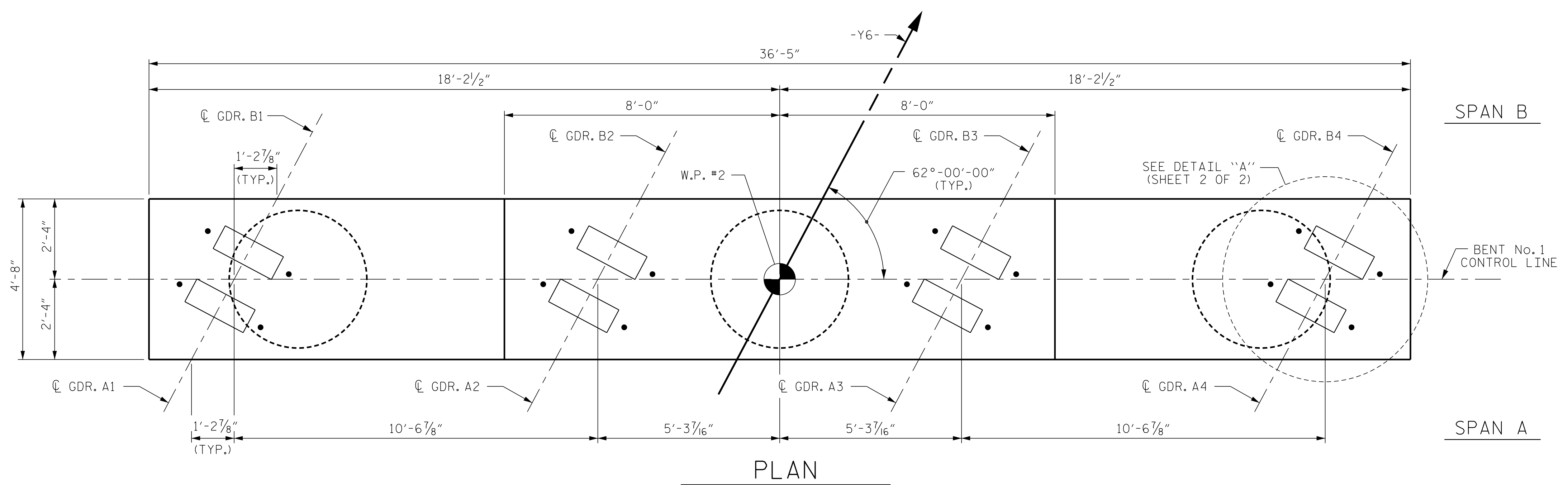
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S8-20
 TOTAL SHEETS 28

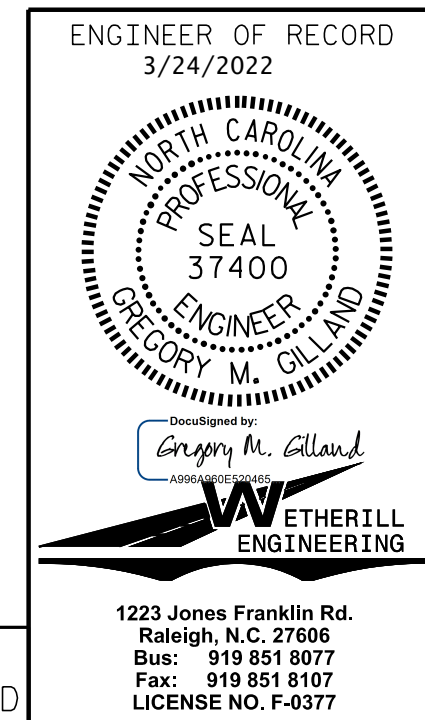
DRAWN BY: D. HODGE DATE: 9/21
 CHECKED BY: JAD/GMG DATE: 11/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

PA:2020.20.380.01-I-5987B-T95 Structures\DCM401_001-I-5987B-SHW-EB-00 1.dgn
 3/8/2022 3:31:41 PM



PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 1 OF 2



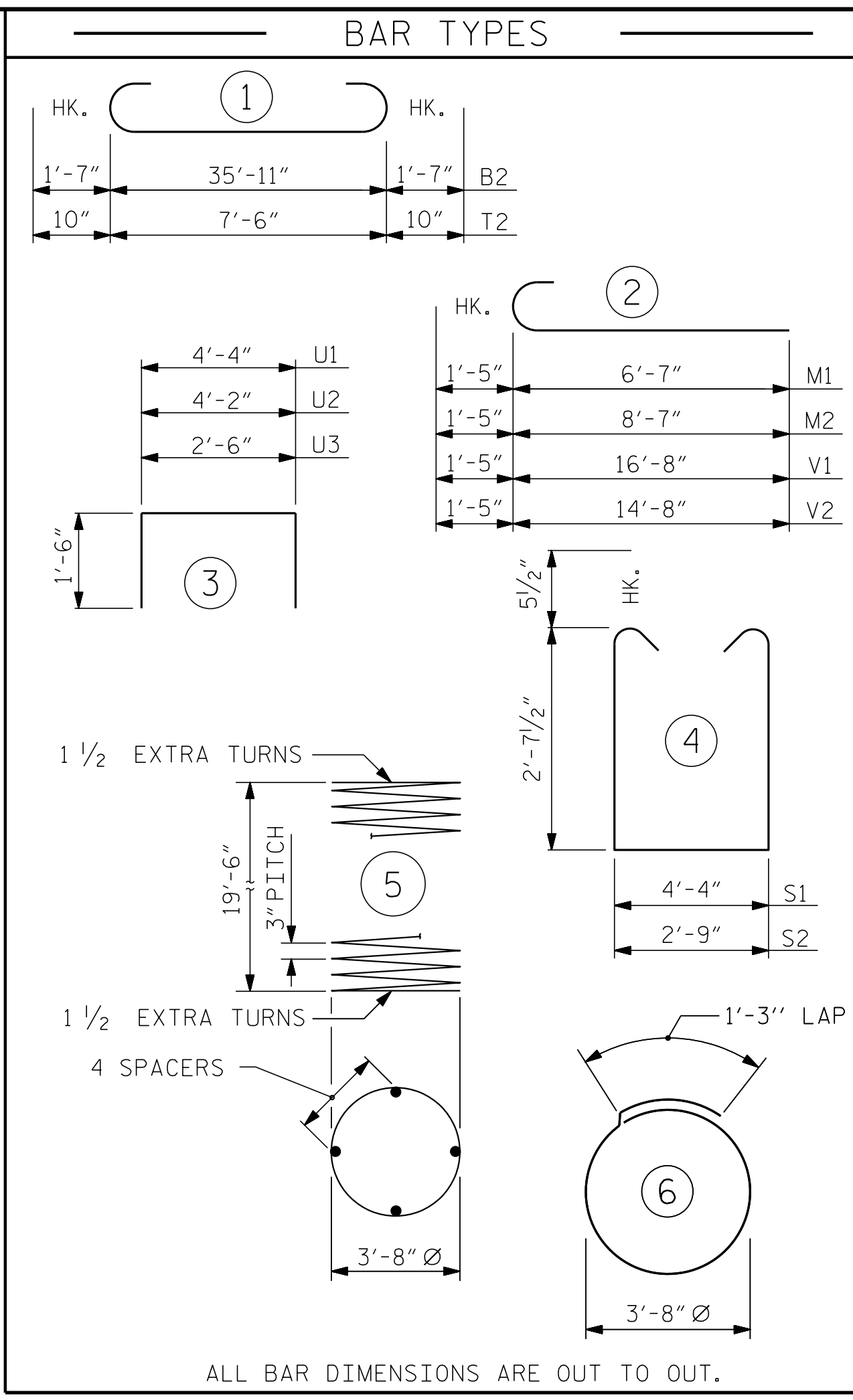
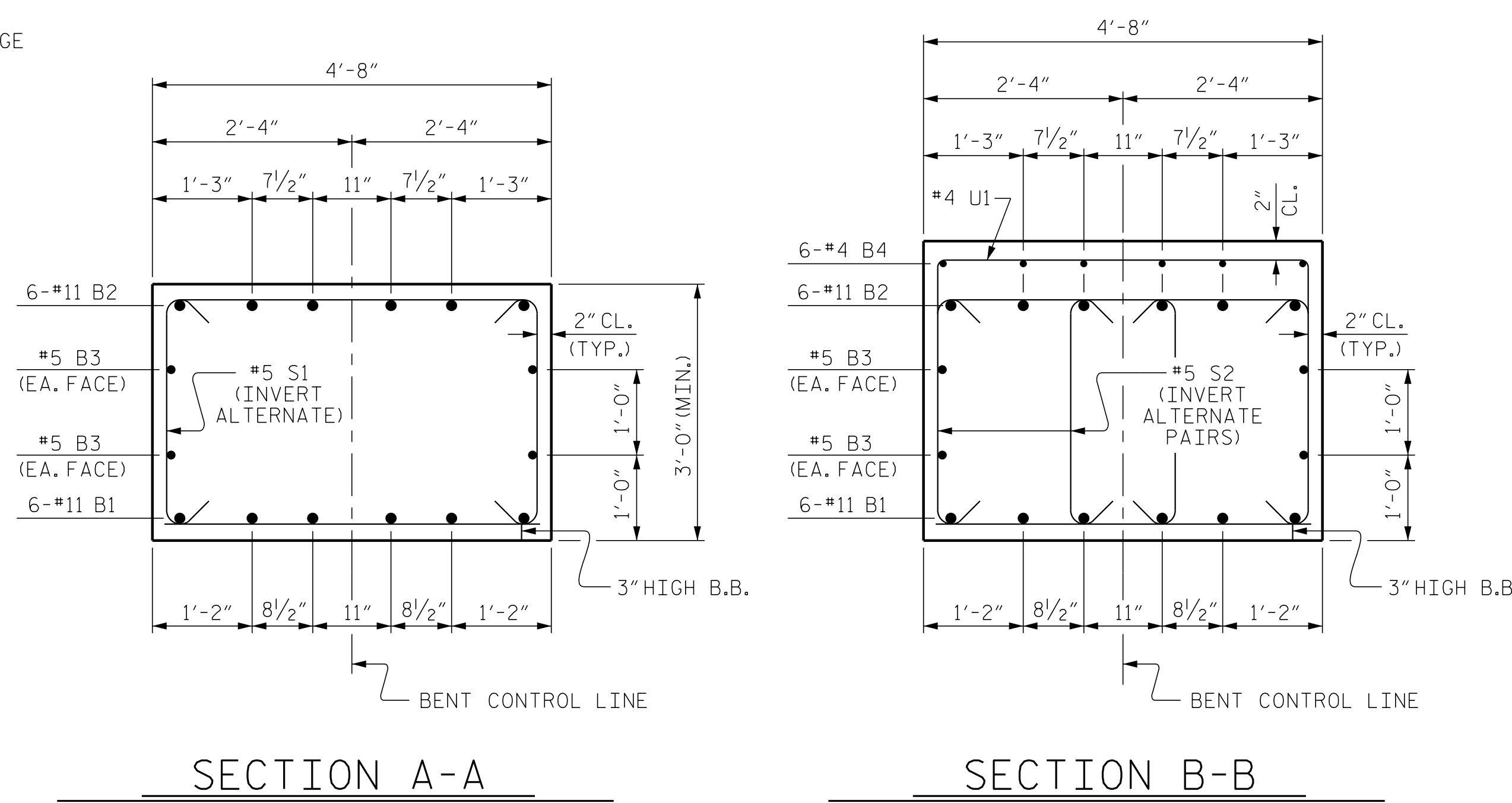
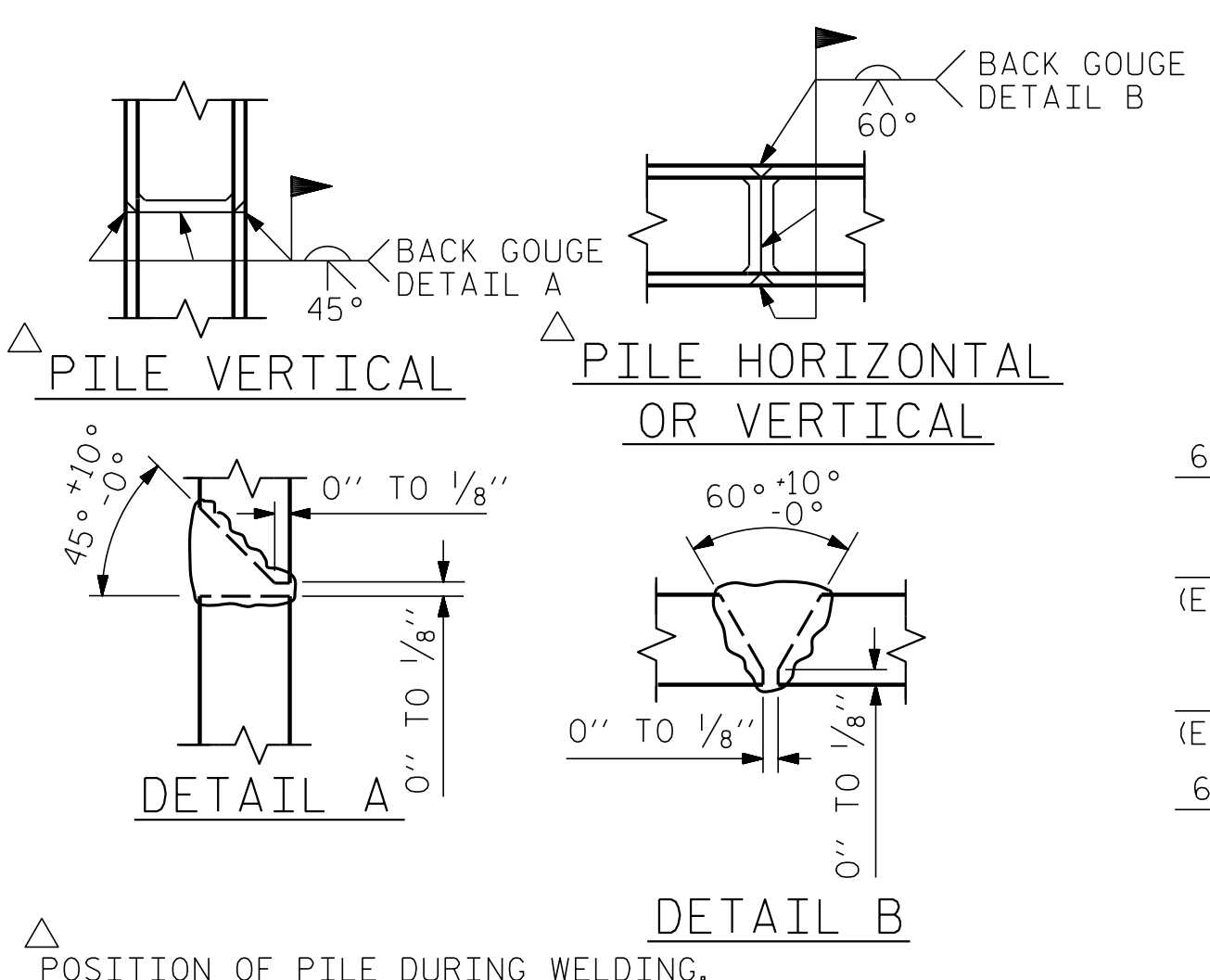
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH		SUBSTRUCTURE BENT No. 1	
REVISIONS			
NO.	BY:	DATE:	SHEET NO.
1			S8-21
2			TOTAL SHEETS 28

DRAWN BY: D. HODGE DATE: 9/21
 CHECKED BY: G. GILLAND DATE: 10/21

PILE PLACEMENT, REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH FOOTING AND COLUMN.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PA:2020.20.380.01-I-5987B-T95 Structures\DCM401_001_I-5987B_SMU_BT_001.dgn
 3/21/2022 2:29:35 PM



BILL OF MATERIAL

BENT No. 1

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	6	#11	STR	36'-1"	1,150
B2	6	#11	1	39'-1"	1,246
B3	4	#5	STR	36'-1"	151
B4	6	#4	STR	15'-8"	63
M1	24	#10	2	8'-0"	826
M2	24	#10	2	10'-0"	1,033
S1	30	#5	4	10'-6"	329
S2	36	#5	4	8'-11"	335
S3	33	#5	6	12'-10"	442
T1	60	#6	STR	7'-6"	676
T2	108	#7	1	9'-2"	2,024
U1	43	#4	3	7'-4"	211
U2	6	#4	3	7'-2"	29
U3	10	#4	3	5'-6"	37
V1	24	#10	2	18'-1"	1,868
V2	24	#10	2	16'-1"	1,661

REINFORCING STEEL 12,081 LBS.

SP-1 3 ** 5 920'-1" 2,879

SPIRAL COLUMN REINFORCING STEEL 2,879 LBS.

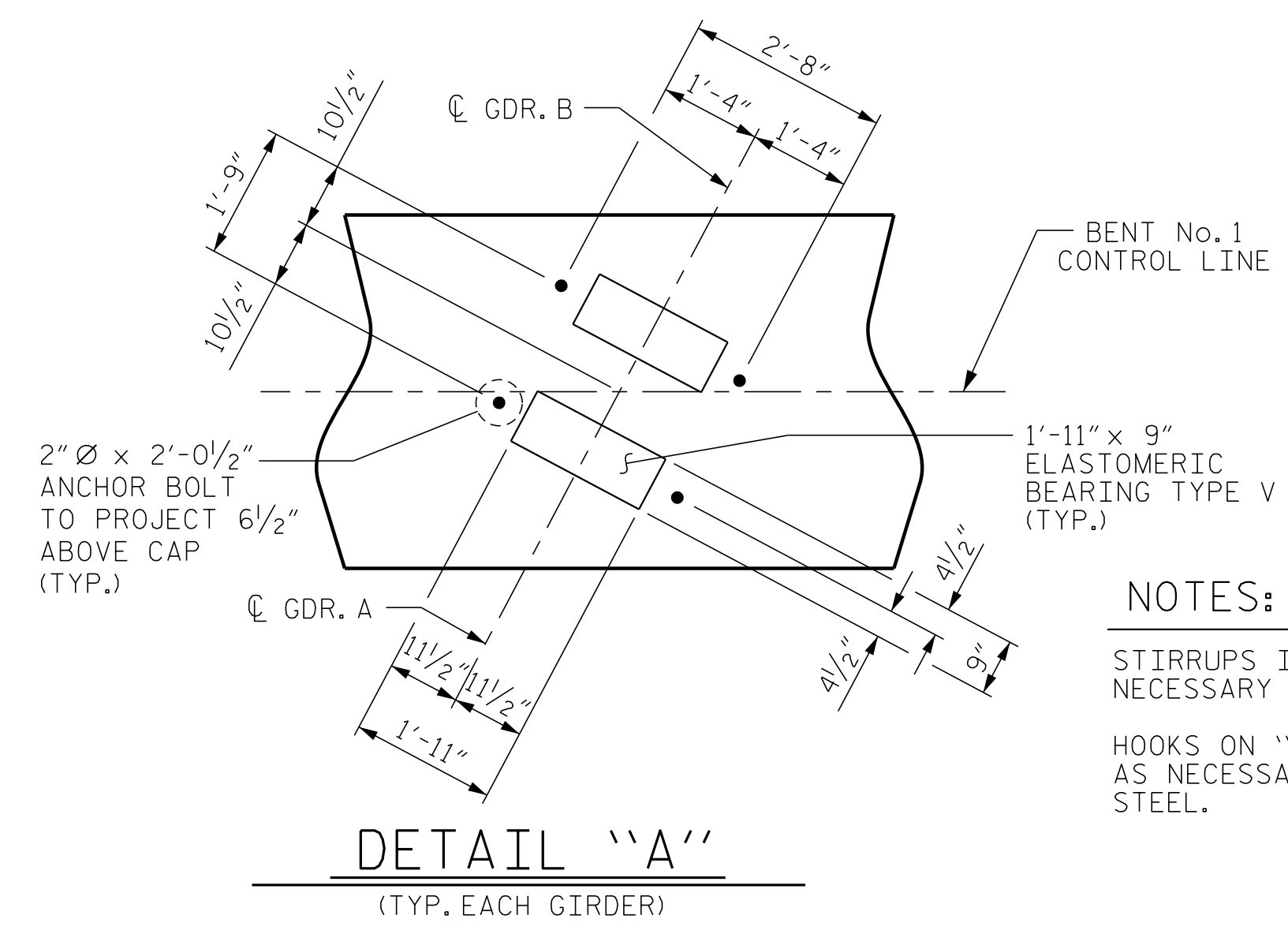
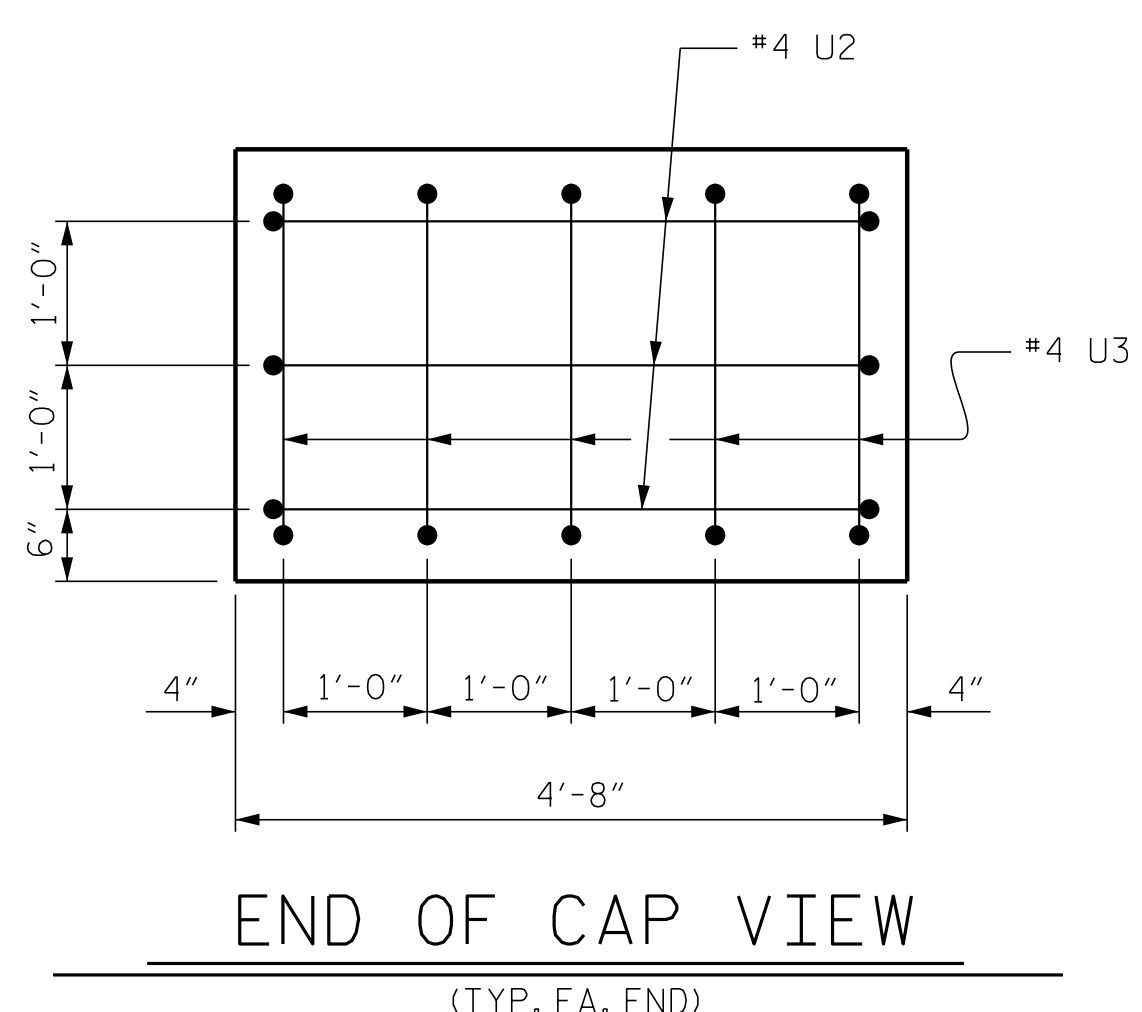
CLASS A CONCRETE BREAKDOWN

POUR #1	FOOTINGS	23.1 C.Y.
POUR #2	COLUMNS	26.9 C.Y.
POUR #3	CAP	19.8 C.Y.
TOTAL CLASS A CONCRETE		69.8 C.Y.

HP 12 X 53 STEEL PILES
NO: 27 LIN. FT. = 1,755

FOUNDATION EXCAVATION LUMP SUM

PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES 27 EA.



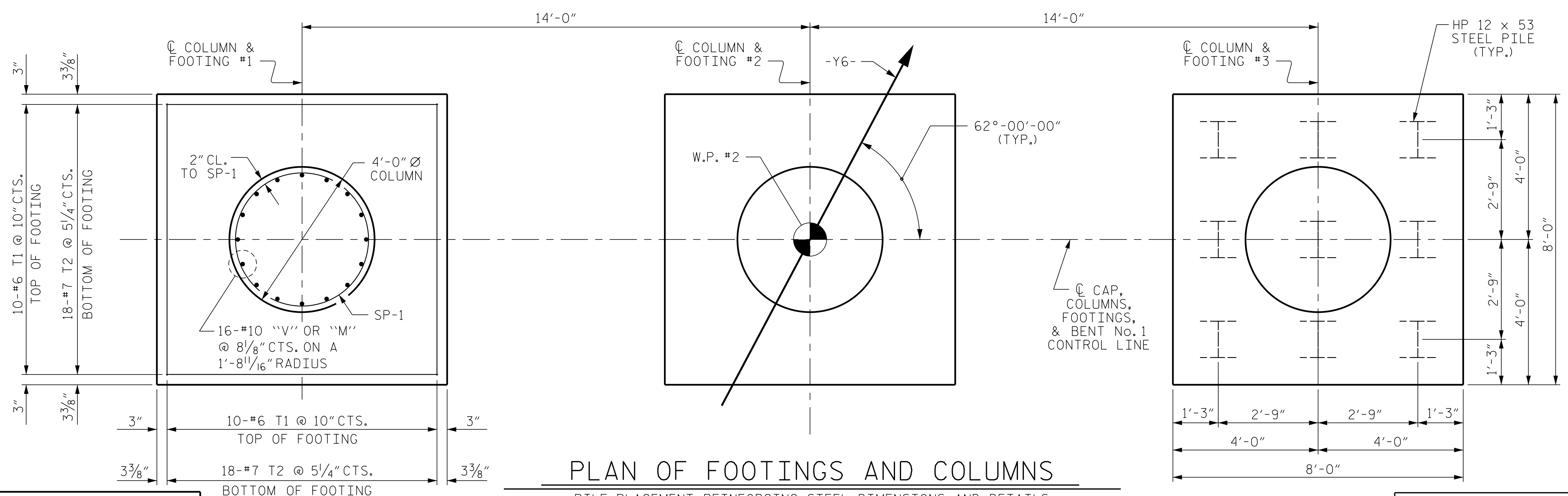
NOTES:

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

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

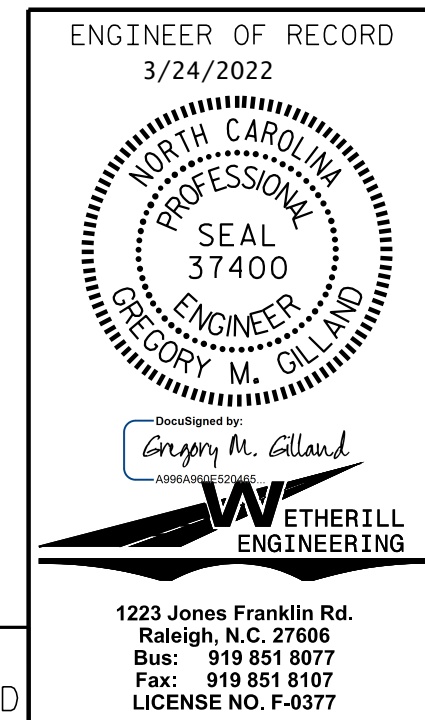
LONGITUDINAL COLUMN REINFORCING STEEL SHALL BE SPLICED USING MECHANICAL BUTT SPLICES. NO LAP SPLICES ALLOWED. MECHANICAL BUTT SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND SUBMITTED FOR APPROVAL. ADJACENT SPLICES SHALL BE STAGGERED AT 2'-0". NO EXTRA PAYMENT WILL BE MADE FOR USING MECHANICAL BUTT SPLICES OR MODIFYING BAR LENGTHS. THE COST WILL BE INCIDENTAL TO REINFORCING STEEL.

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.



PILE PLACEMENT, REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH FOOTING AND COLUMN.

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT No. 1

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

TOTAL SHEETS 28

DRAWN BY: D. HODGE DATE: 9/21
 CHECKED BY: G. GILLAND DATE: 10/21

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PA:2020.20.380.01_I-5987B_T95 Structures DGN 401_001_15987B_SMU_BT_001.dgn
 3/21/2022 2:30:01 PM

NOTES:

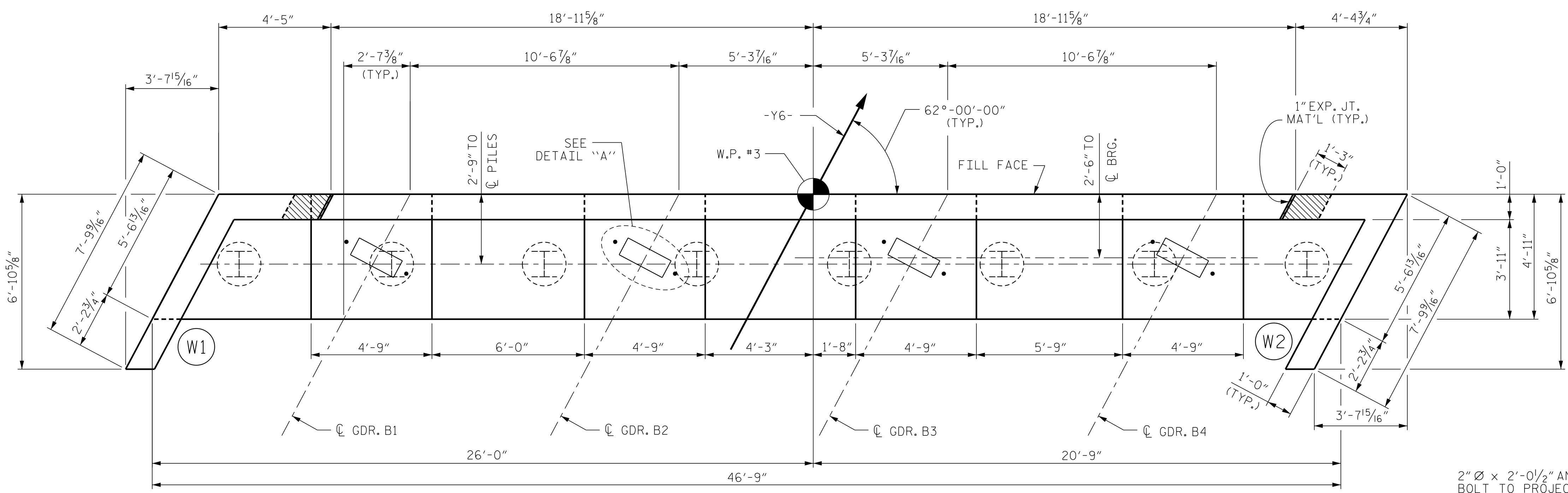
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

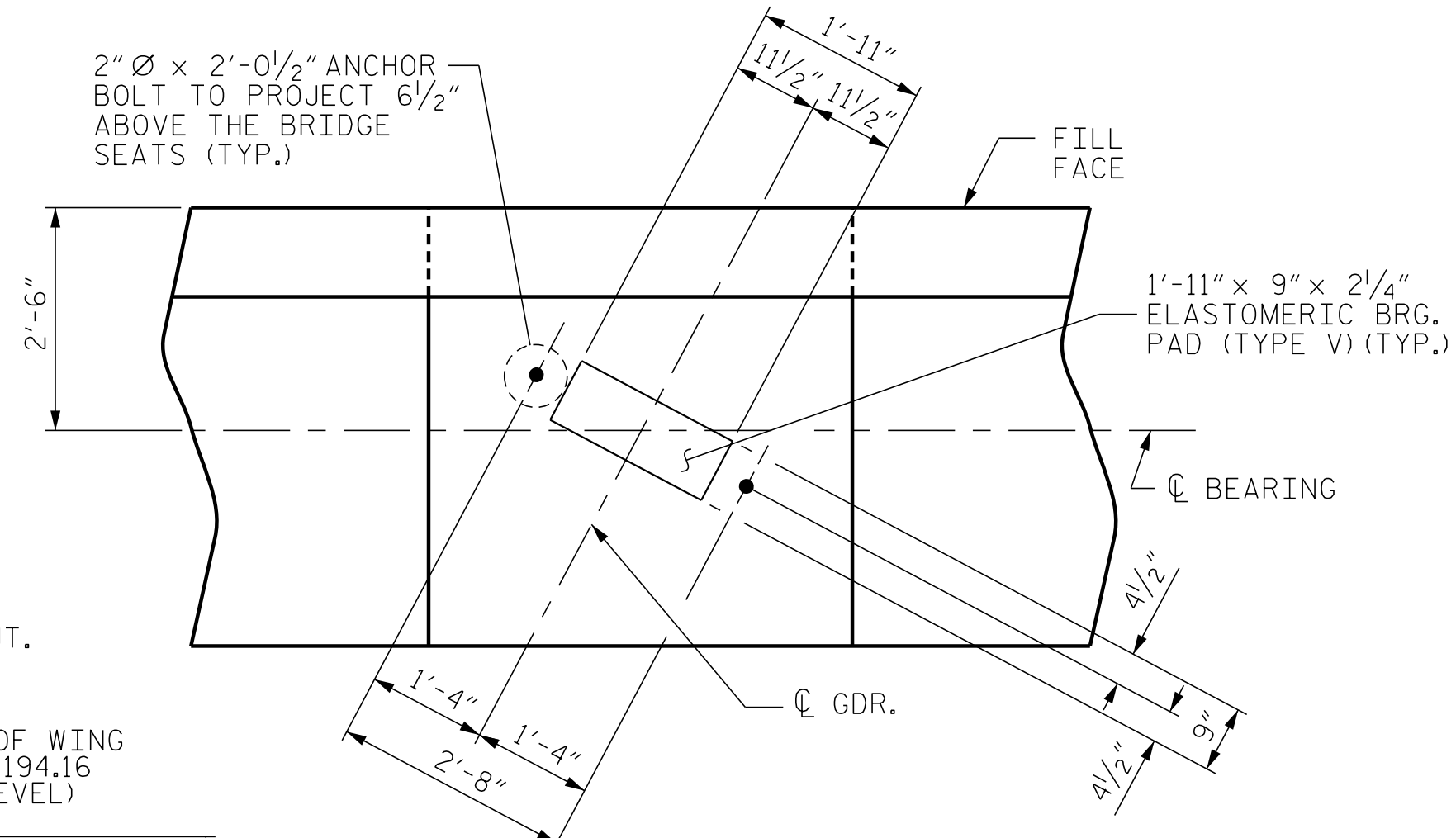
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

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

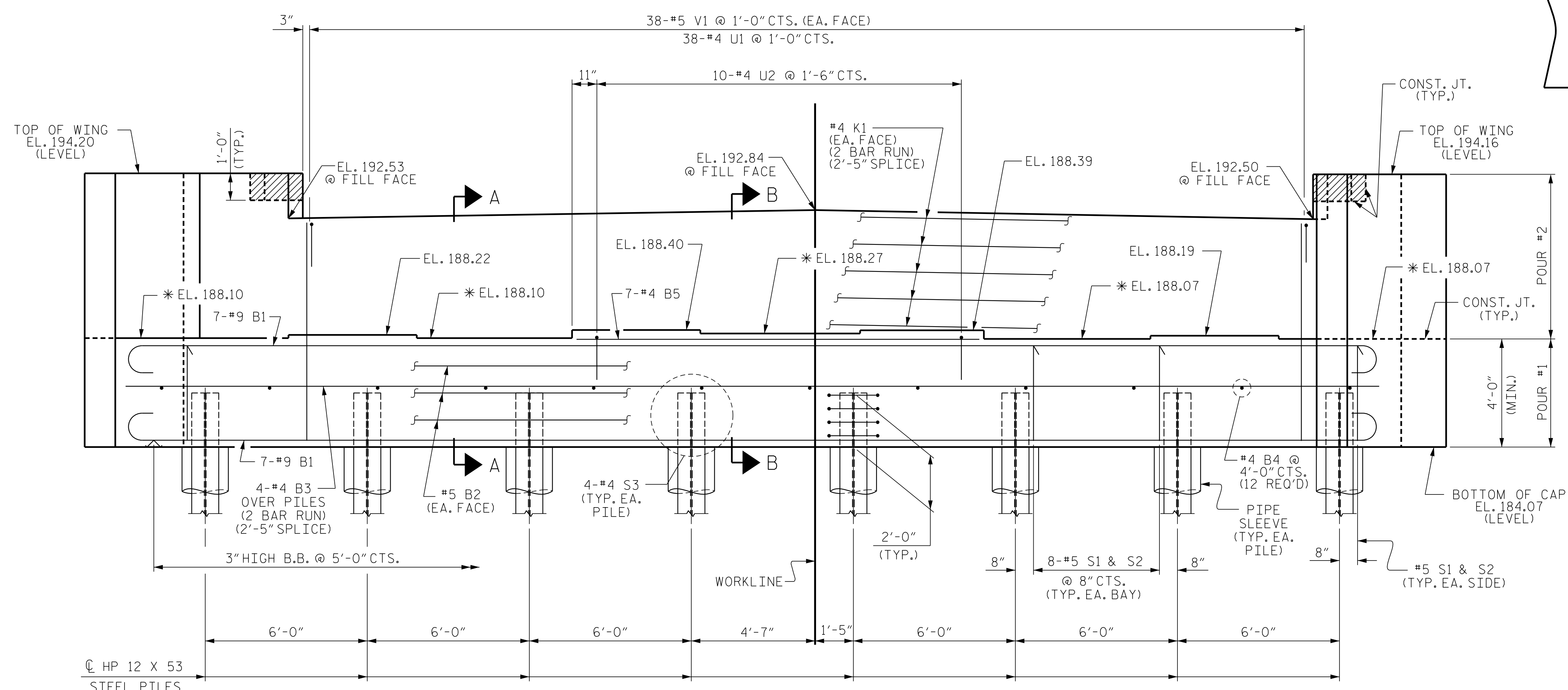
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAILS ARE CAST IF SLIP FORMING IS USED.



PLAN



DETAIL "A"
(TYP. EA. GIRDER)



ELEVATION

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-
SHEET 1 OF 3

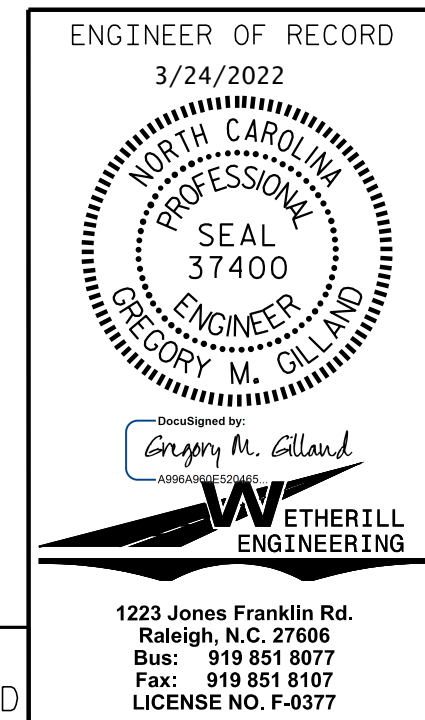


Table with project information and a revisions table.

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

SHEET NO. S8-23
TOTAL SHEETS 28

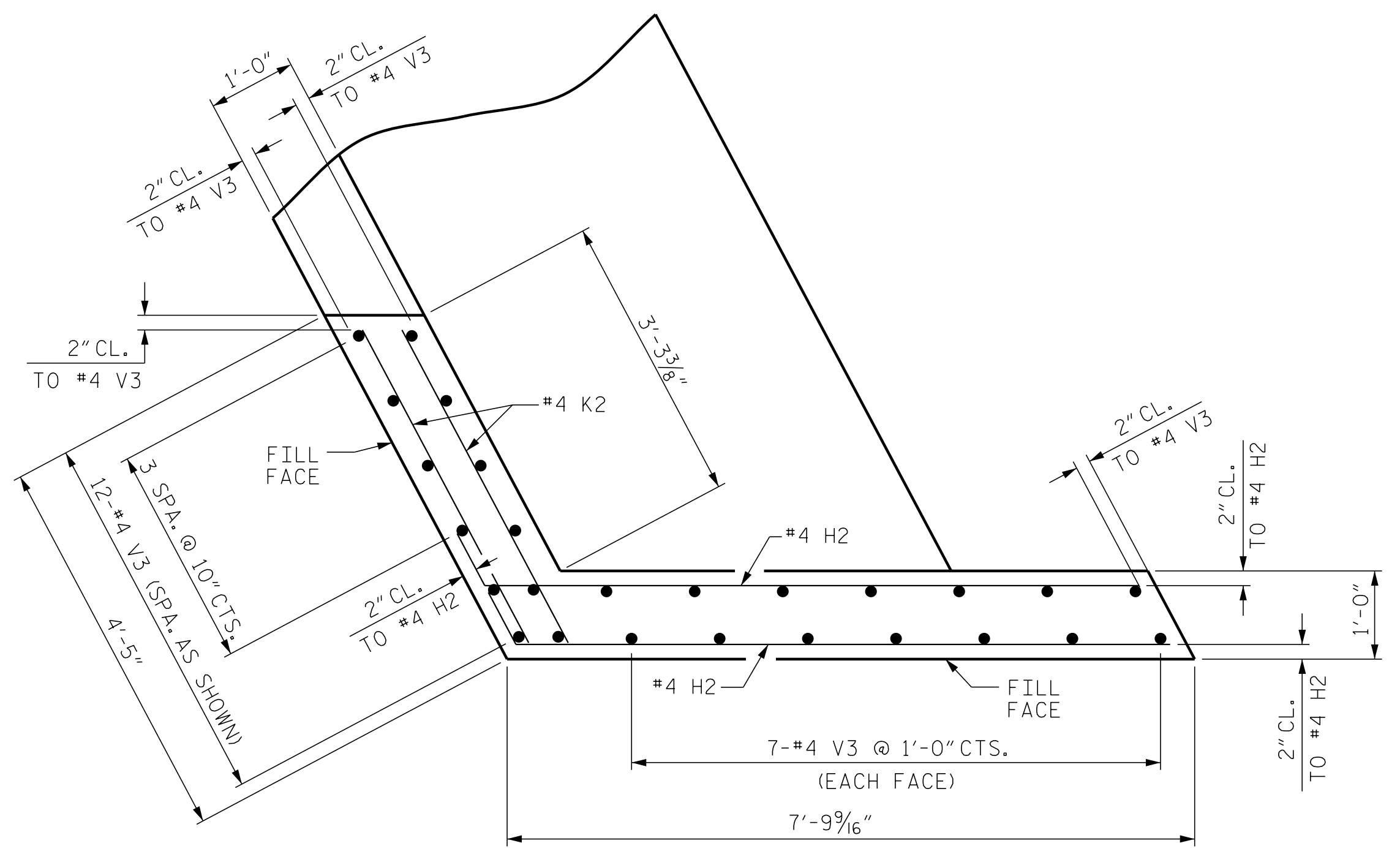
* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTIONS A-A & B-B, SHEET 3 OF 3.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

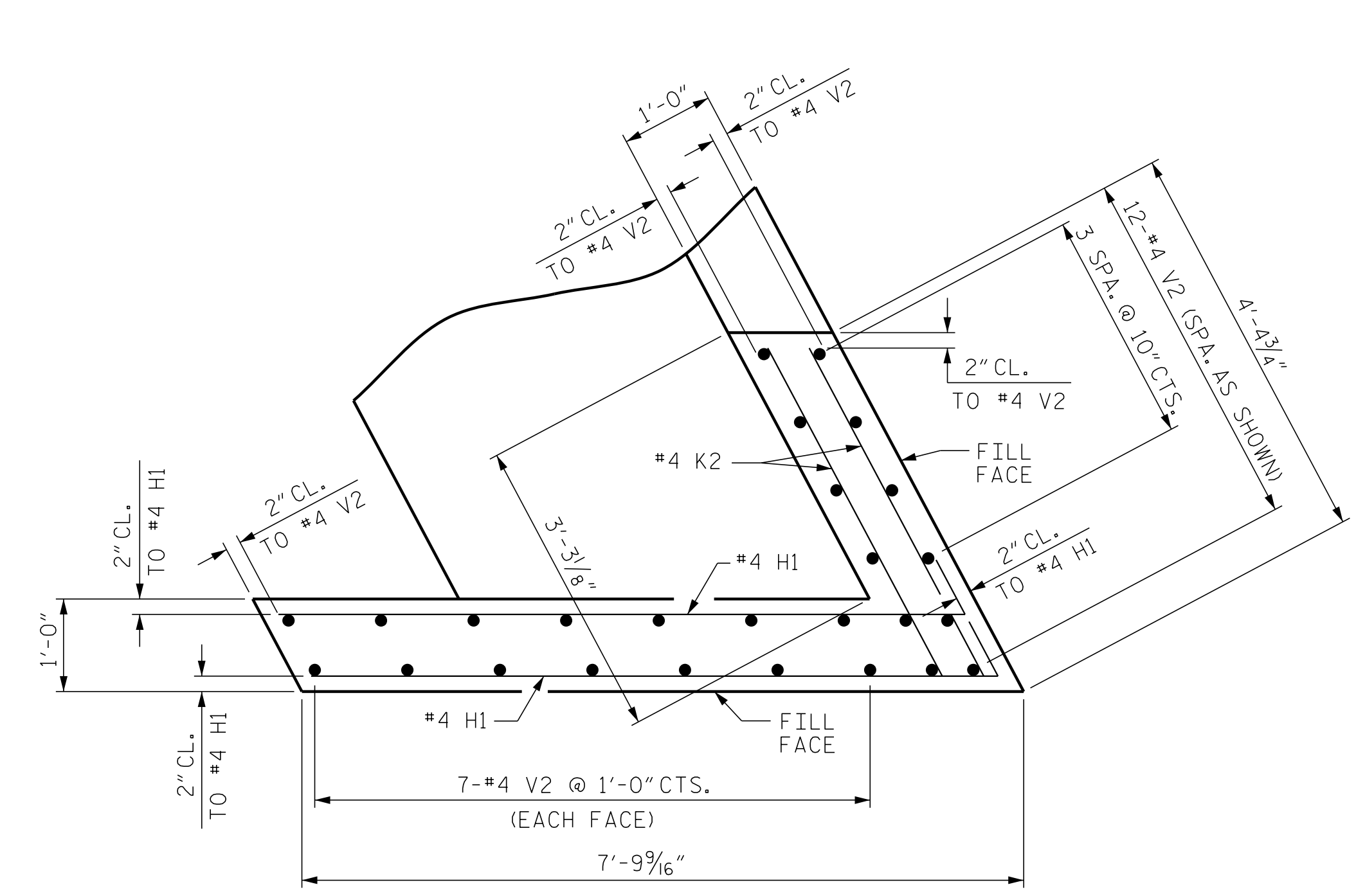
PA:2020\20380\01_I-5987B_T95 Structures\DCM\401_001_I-5987B_SMU_EB_00 1.dgn
3/8/2022 3:31:59 PM

DRAWN BY: D. HODGE DATE: 9/21
CHECKED BY: JAD/GMG DATE: 11/21

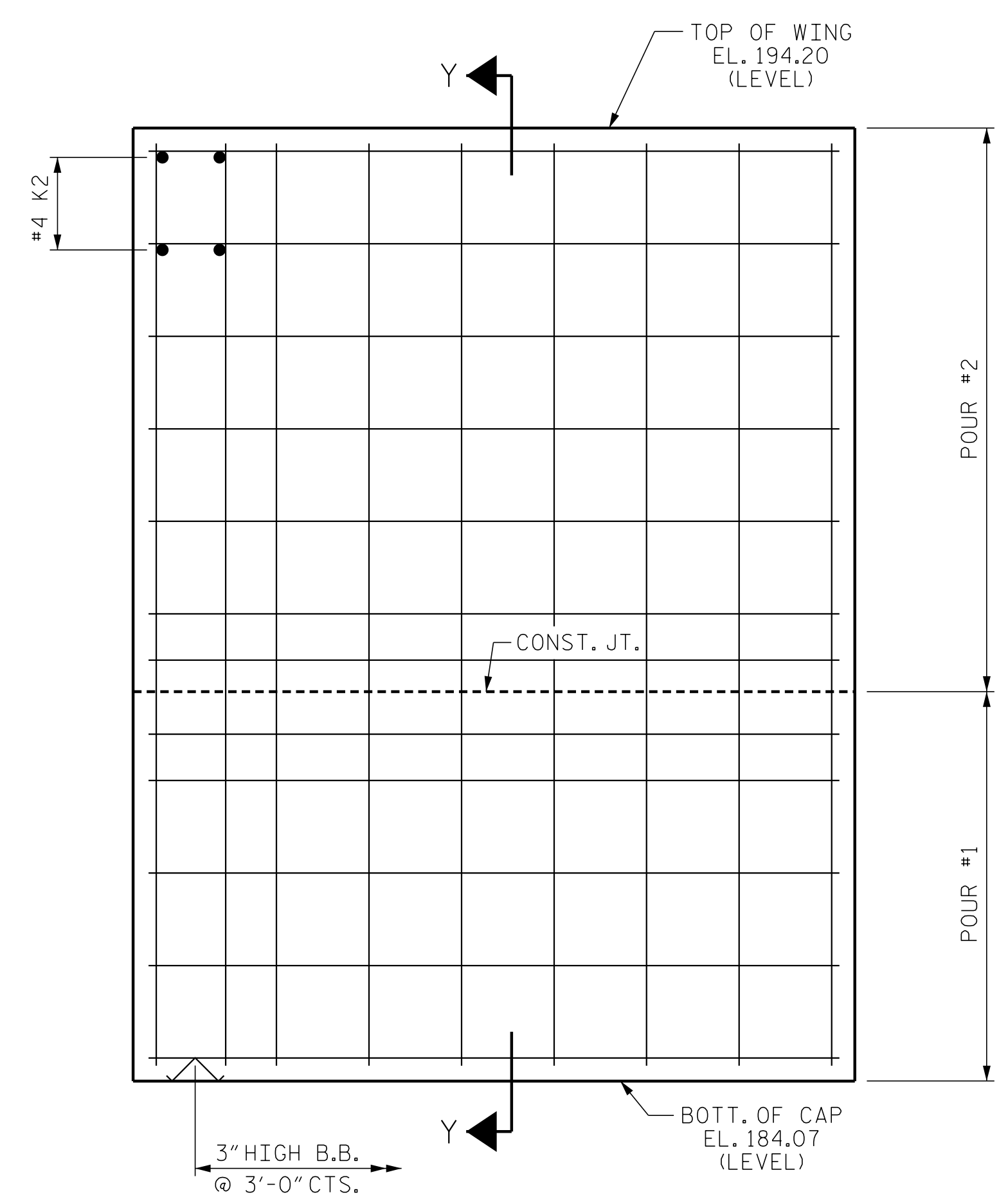
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377



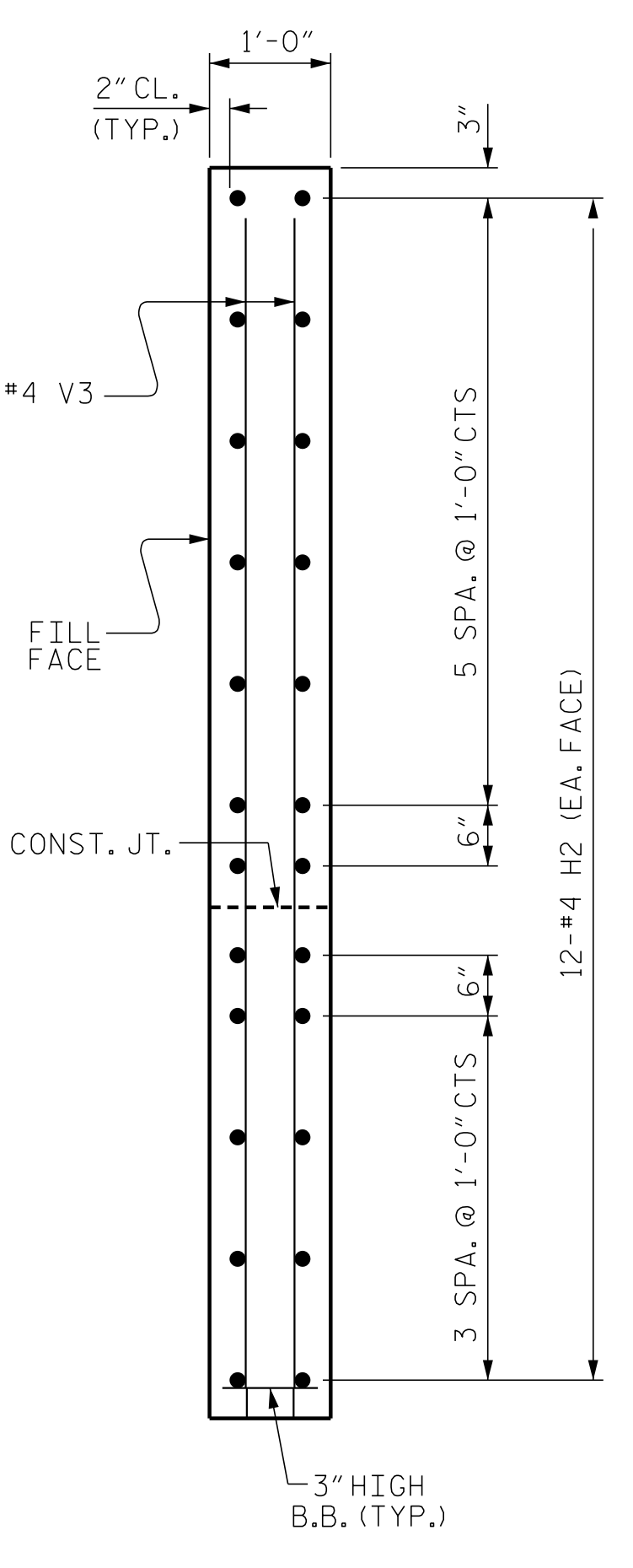
PLAN OF WING - (W1)



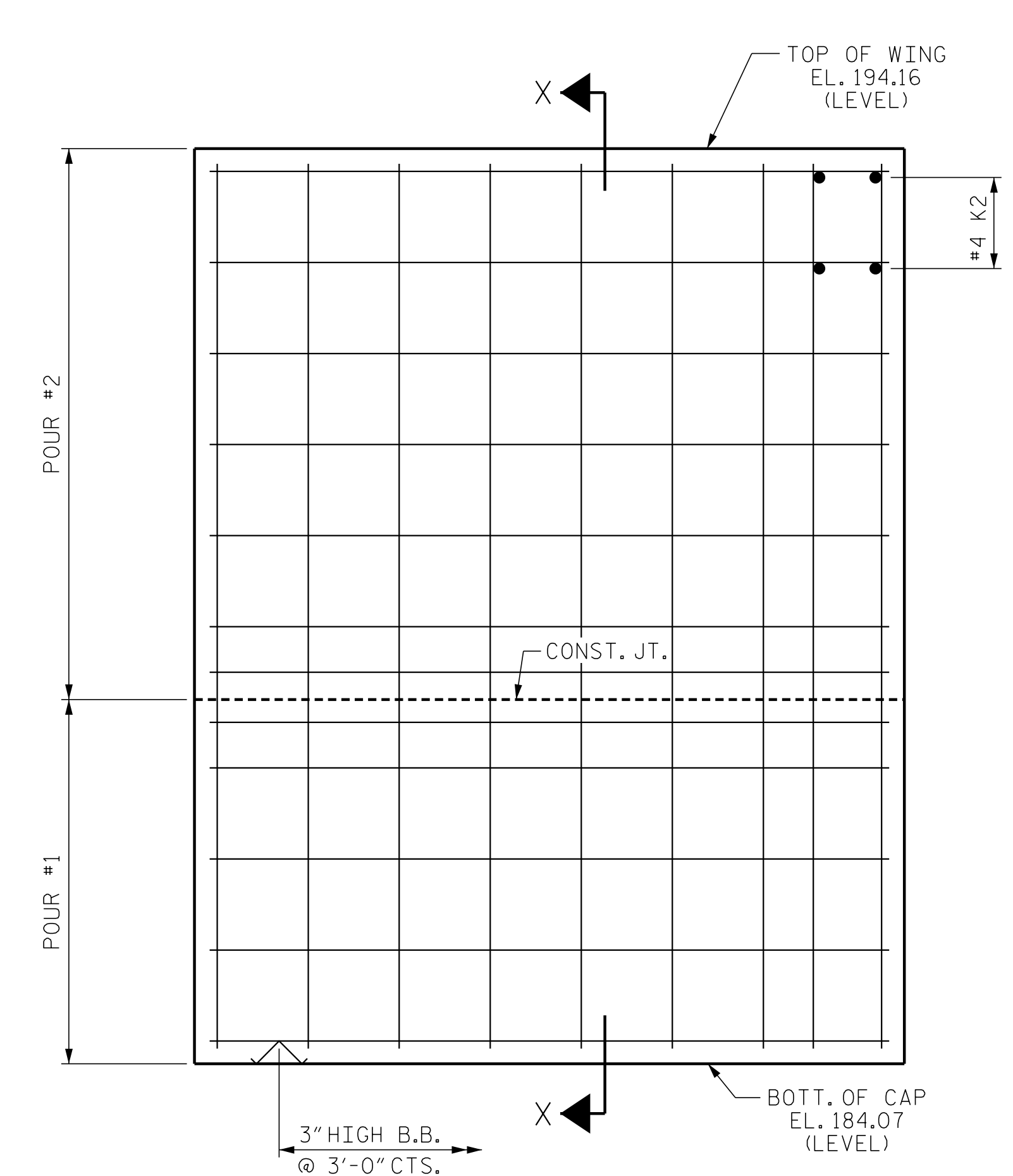
PLAN OF WING - (W2)



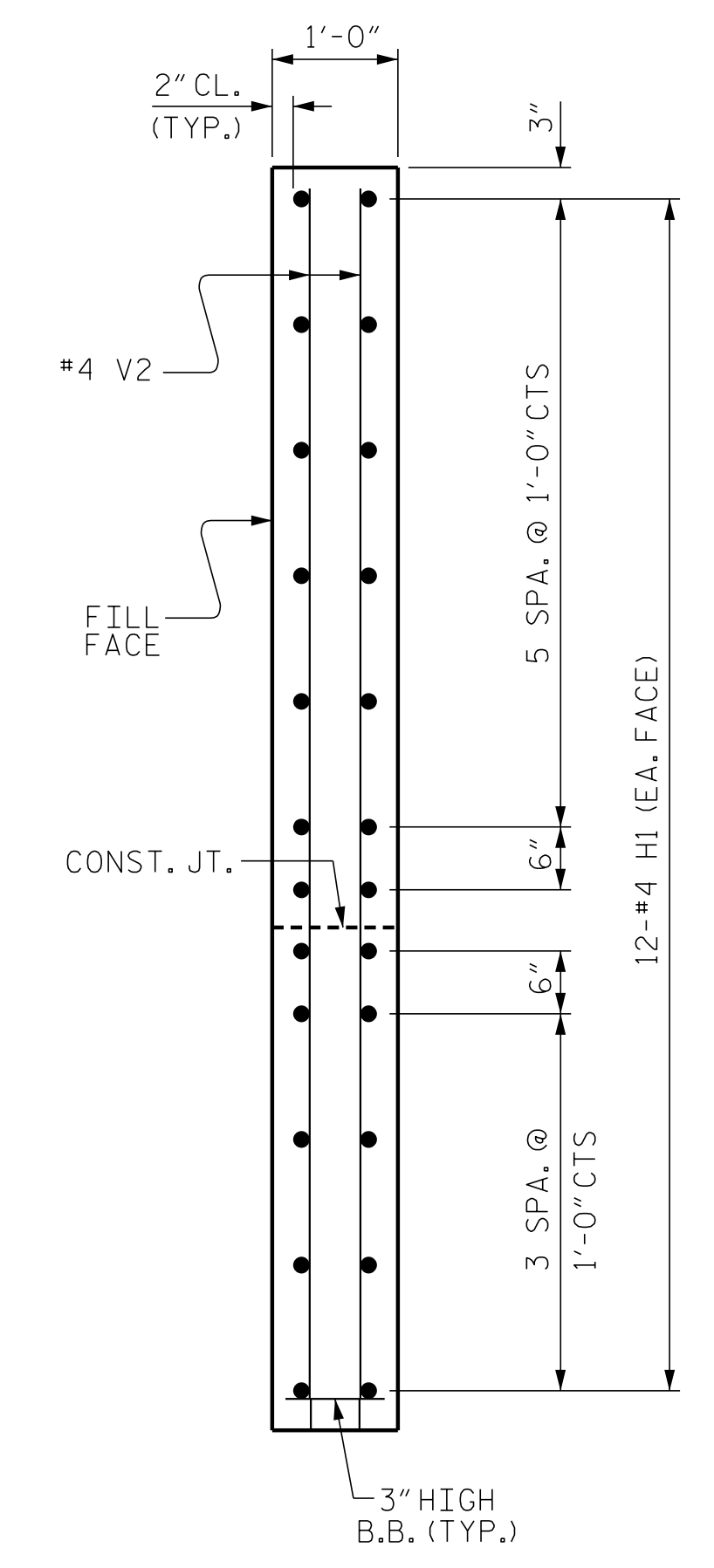
ELEVATION OF WING - (W1)



SECTION Y-Y

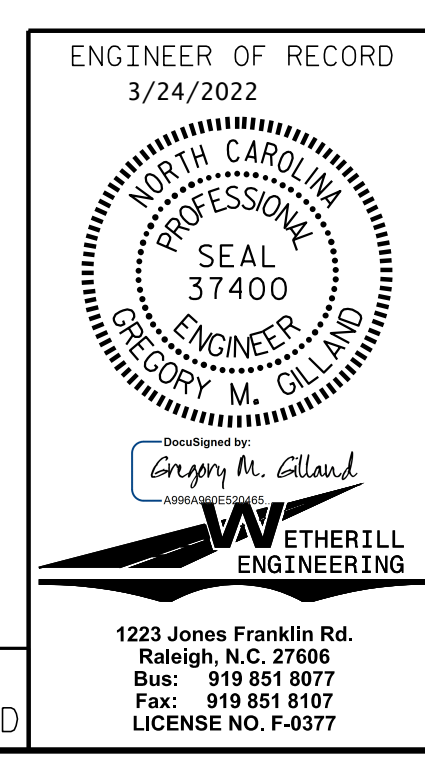


ELEVATION OF WING - (W2)



SECTION X-X

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 2 OF 3



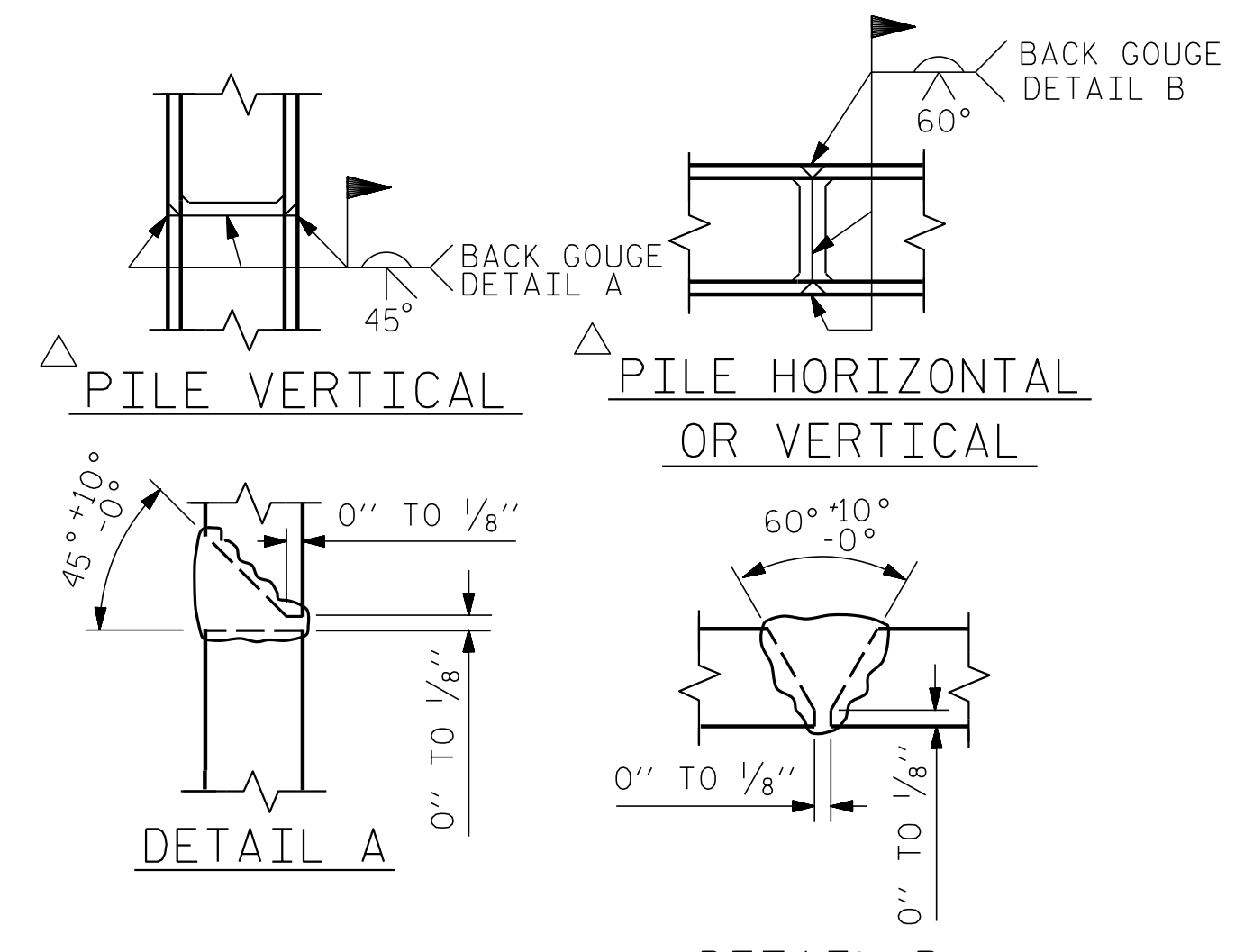
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8-24
1			3			TOTAL SHEETS
2			4			28

PA:2020\20380\01_I-5987B_T95 Structures\DCM\401_001_I-5987B_SWU_EB_00 1.dgn
 3/8/2022 3:32:13 PM

DRAWN BY: D. HODGE DATE: 9/21
 CHECKED BY: JAD/GMG DATE: 11/21

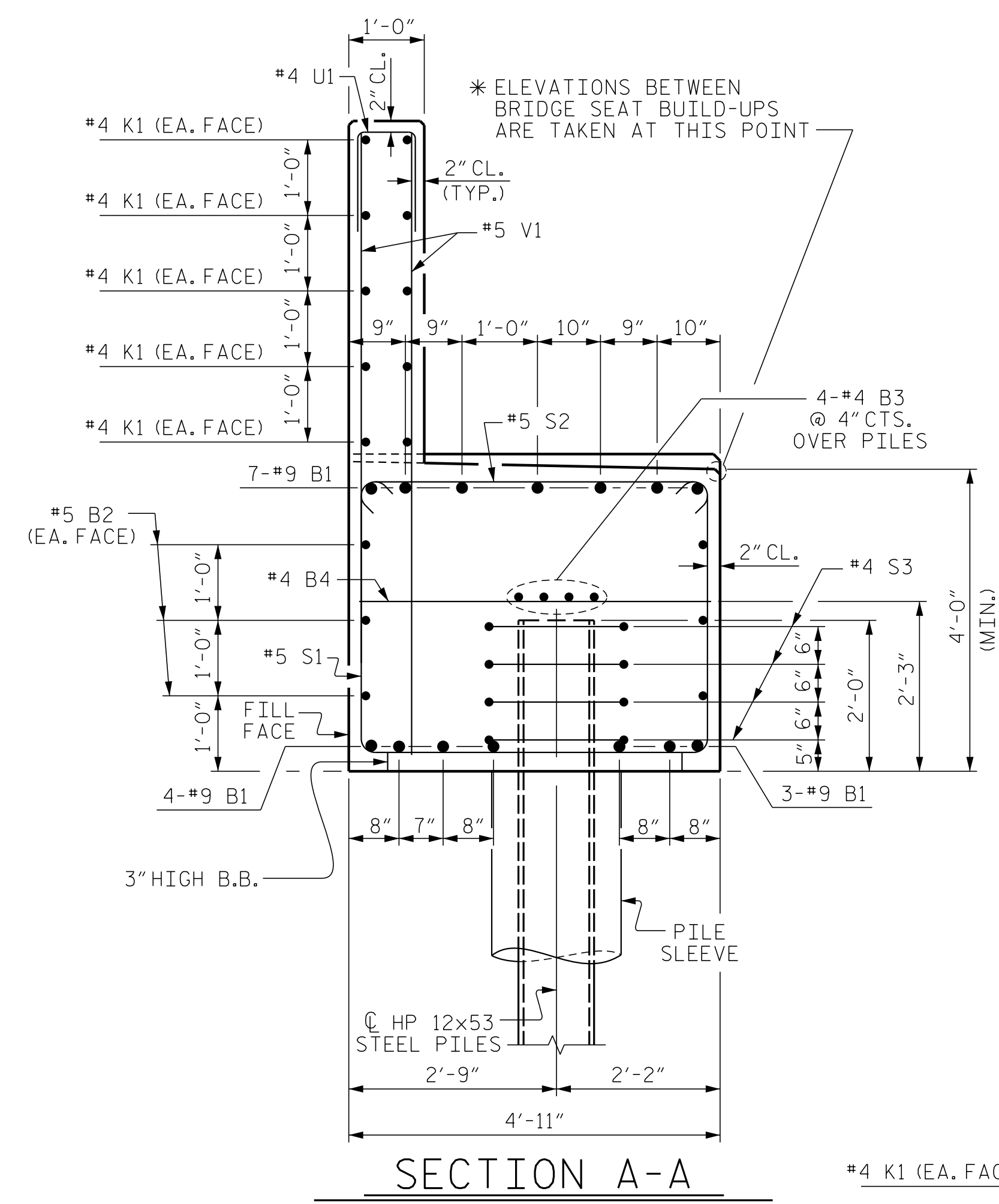
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

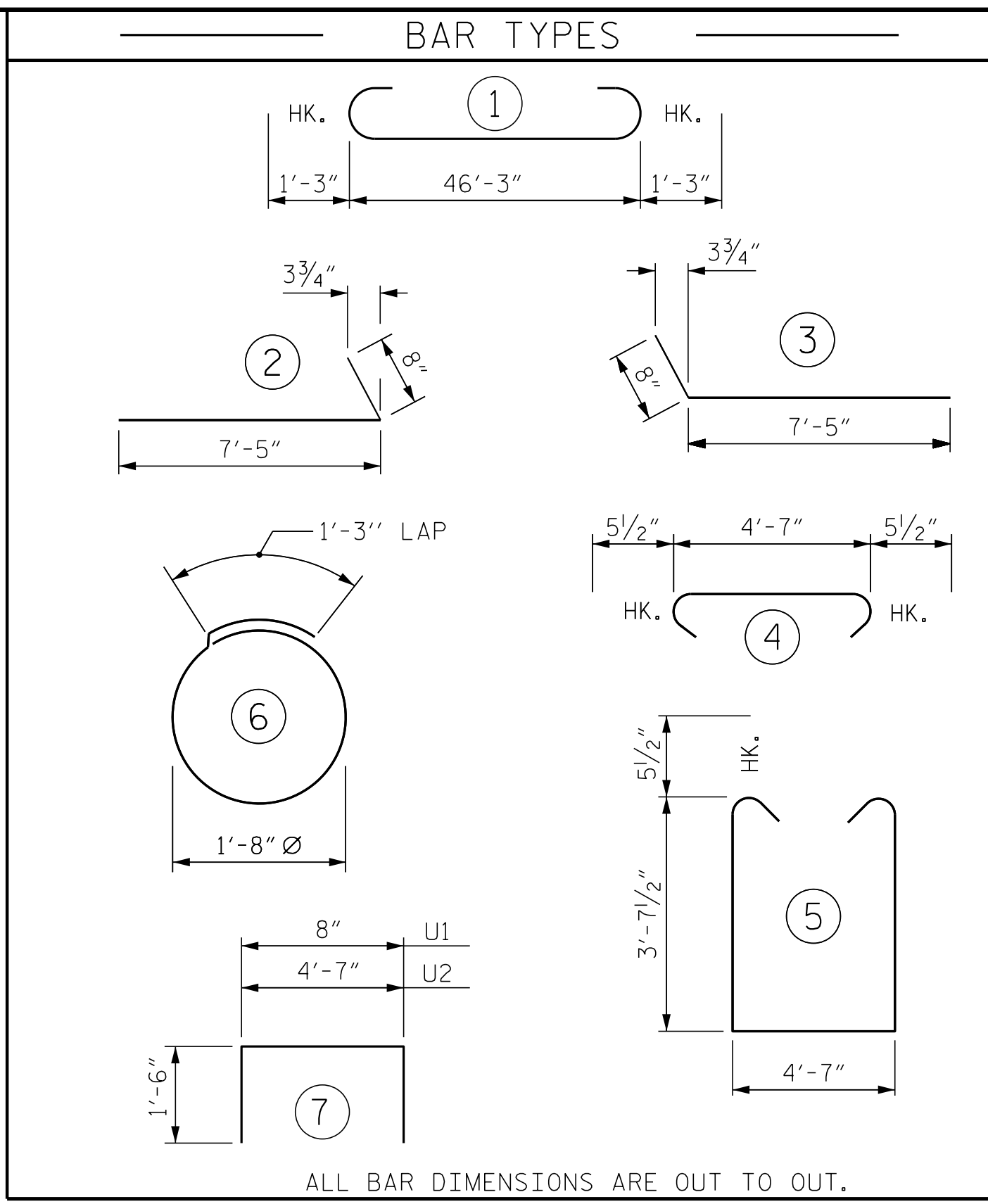


PILE SPlice DETAILS

POSITION OF PILE DURING WELDING.

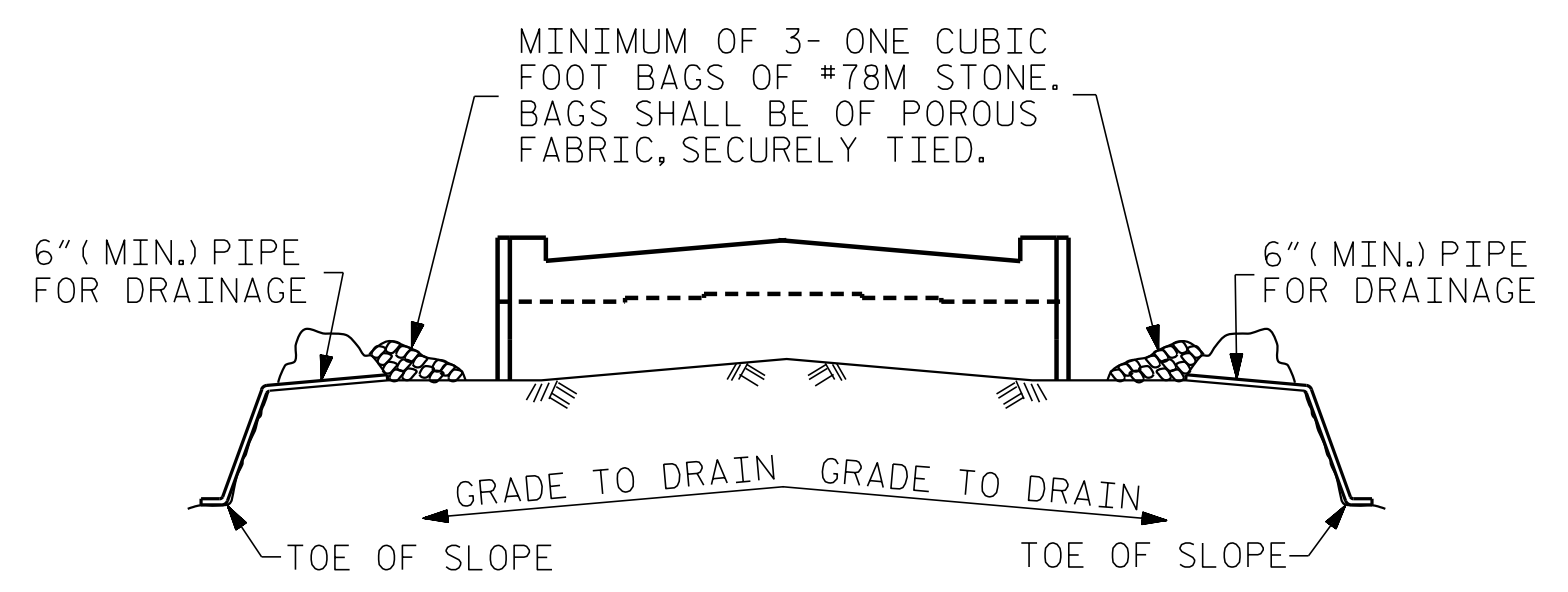


SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT No. 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	#9		48'-9"	2,321
B2	6	#5	STR	46'-5"	290
B3	8	#4	STR	24'-5"	130
B4	12	#4	STR	4'-7"	37
B5	7	#4	STR	15'-1"	71
H1	22	#4		8'-1"	119
H2	22	#4		8'-1"	119
K1	20	#4	STR	24'-5"	326
K2	8	#4	STR	4'-0"	21
S1	58	#5		12'-9"	771
S2	58	#5		5'-6"	333
S3	32	#4		6'-6"	139
U1	38	#4		3'-8"	93
U2	10	#4		7'-7"	51
V1	26	#5	STR	8'-1"	641
V2	76	#4	STR	9'-8"	168
V3	26	#4	STR	9'-8"	168
REINFORCING STEEL					5,798 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP & LOWER PART OF WINGS					35.8 C.Y.
POUR #2 BACKWALL AND UPPER PART OF WINGS					11.3 C.Y.
TOTAL CLASS A CONCRETE					47.1 C.Y.
HP 12 X 53 STEEL PILES					
NO: 8					680 L.F.
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES					8 EA.

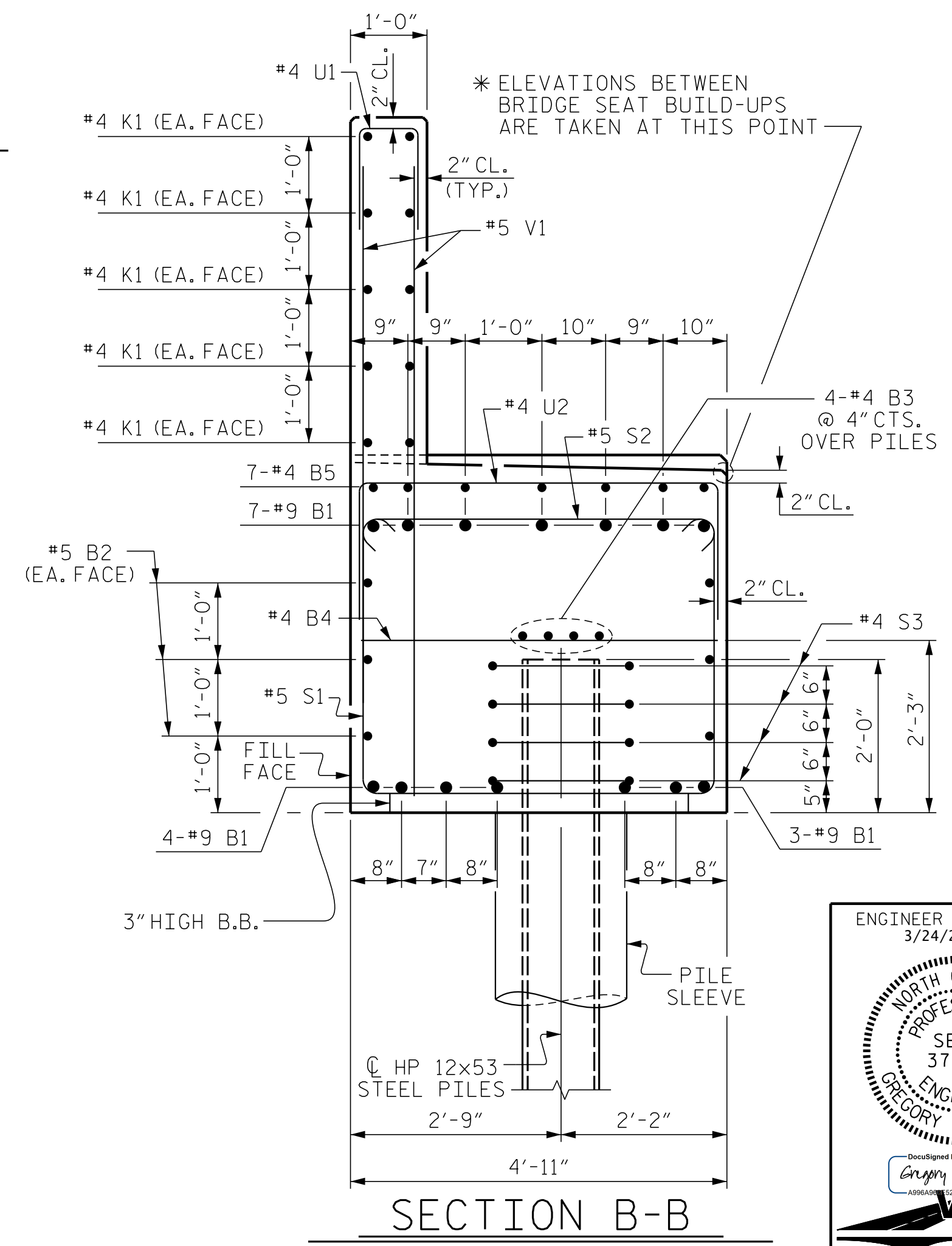


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

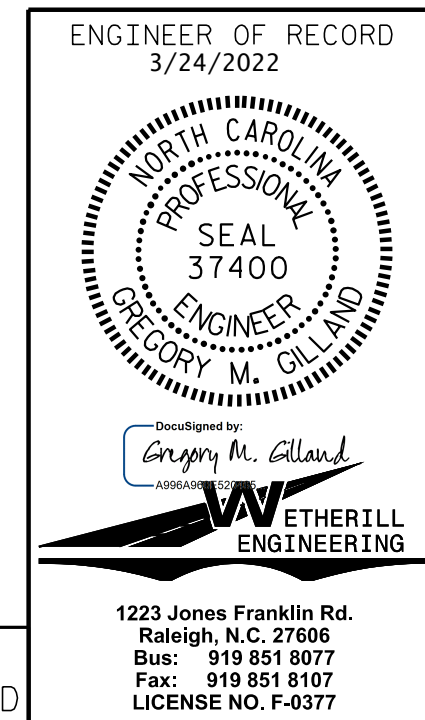
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



SECTION B-B

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-
 SHEET 3 OF 3



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

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 2

DRAWN BY: D. HODGE DATE: 9/21
 CHECKED BY: JAD/GMG DATE: 11/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

SHEET NO.
S8-25
 TOTAL SHEETS
28

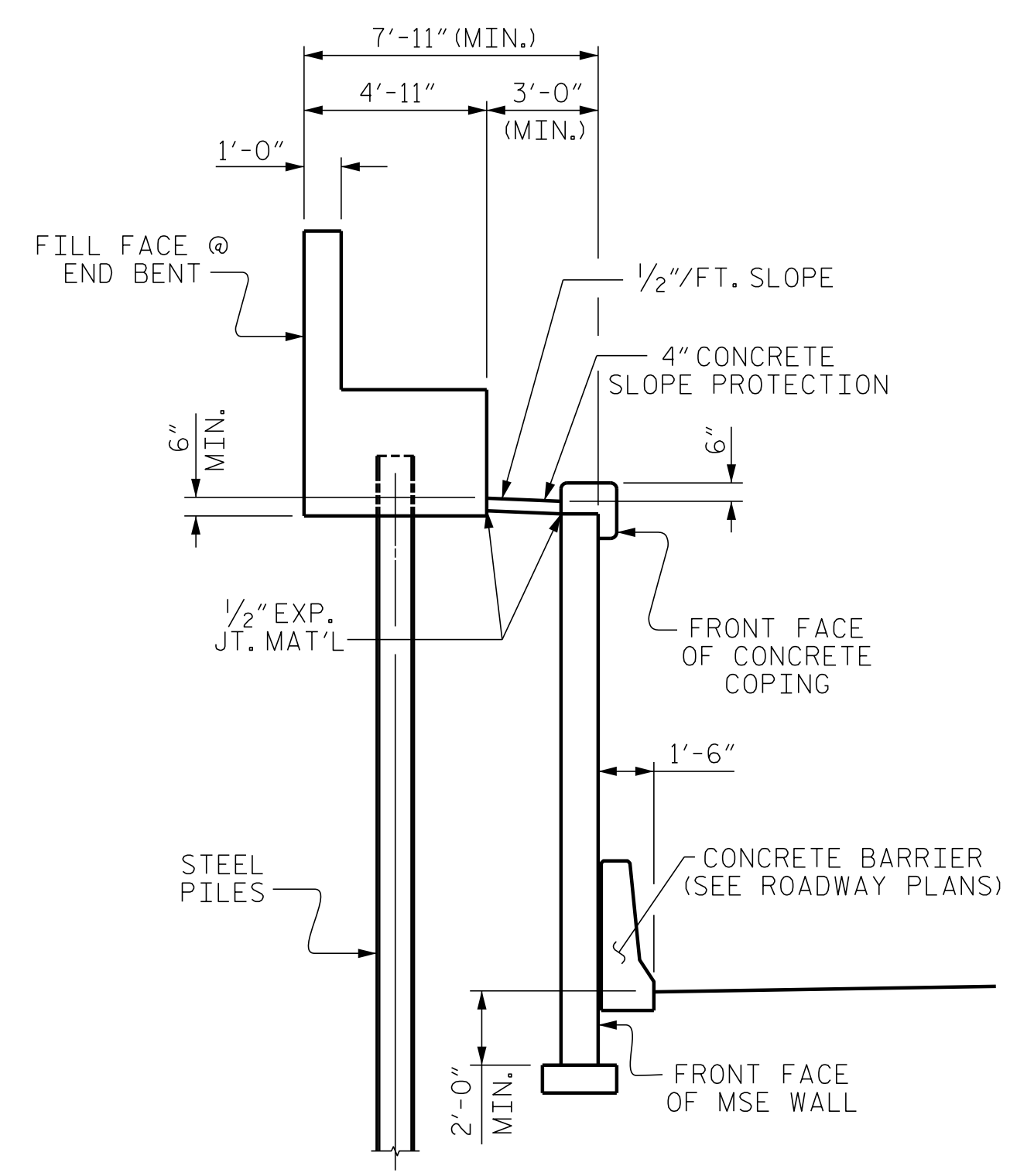
P:\2020\20380\01-I-5987B-195 Structures\DCM\401_001-I-5987B-SHW-EB-00 1.dgn
 3/8/2022 3:32:26 PM



END BENT No. 1

PLAN

END BENT No. 2



SECTION A-A
(NORMAL TO FILL FACE)

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. 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.

BRIDGE @ STA. 30+28.11 -Y6- 761+ 20.96 -L-	4" SLOPE PROTECTION	WELDED WIRE FABRIC 20 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	9.9	45.2
END BENT 2	9.9	45.2
TOTAL	19.8	90.4

* QUANTITIES BASED ON DIMENSION SHOWN. FIELD ADJUST AS REQUIRED BASED ON WALL PANEL AND COPING USED.

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 30+28.11 -Y6-

ENGINEER OF RECORD
 3/24/2022

 Gregory M. Gulland
 WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

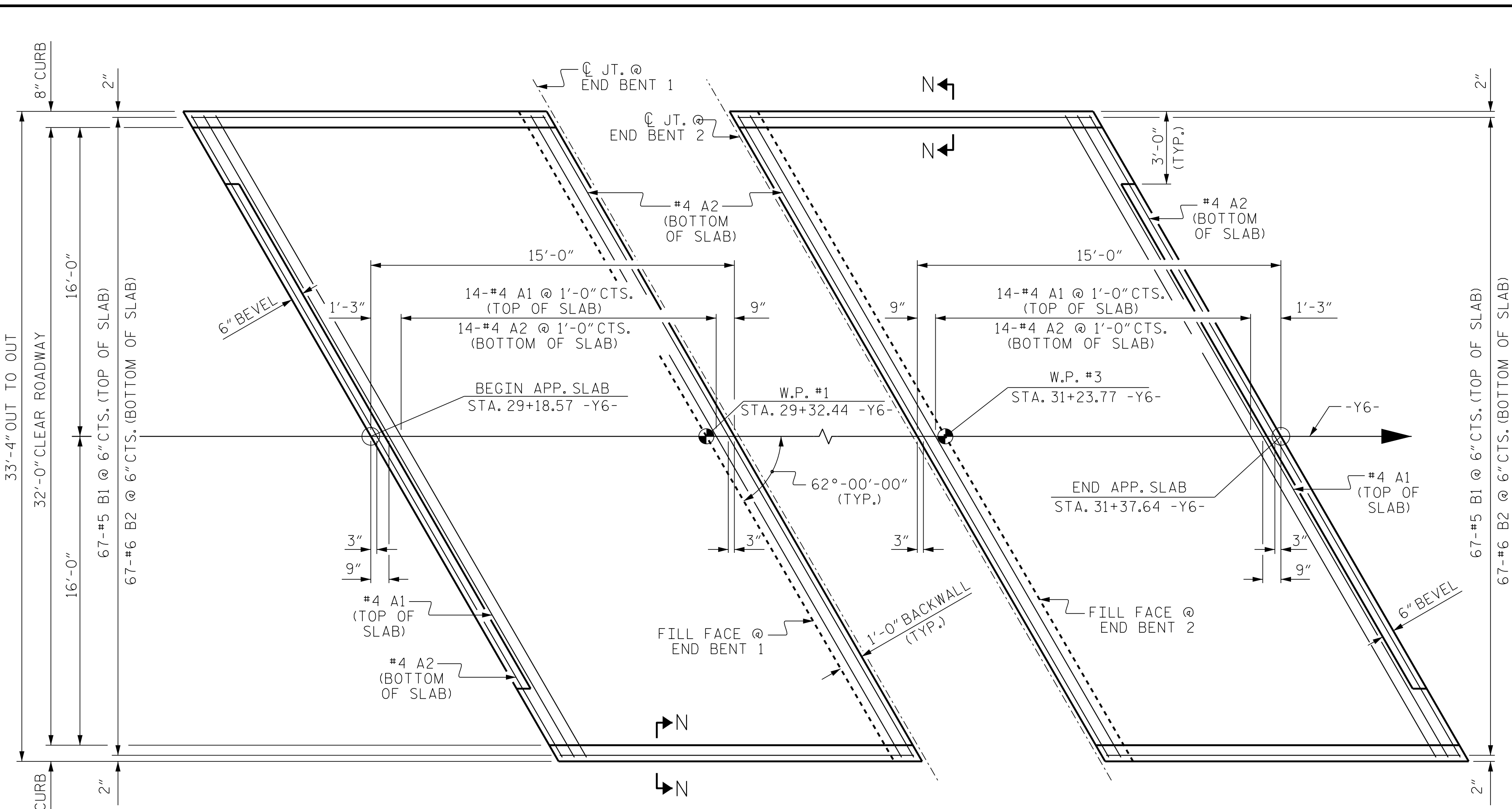
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SLOPE PROTECTION DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8-26
1			3			TOTAL SHEETS
2			4			28

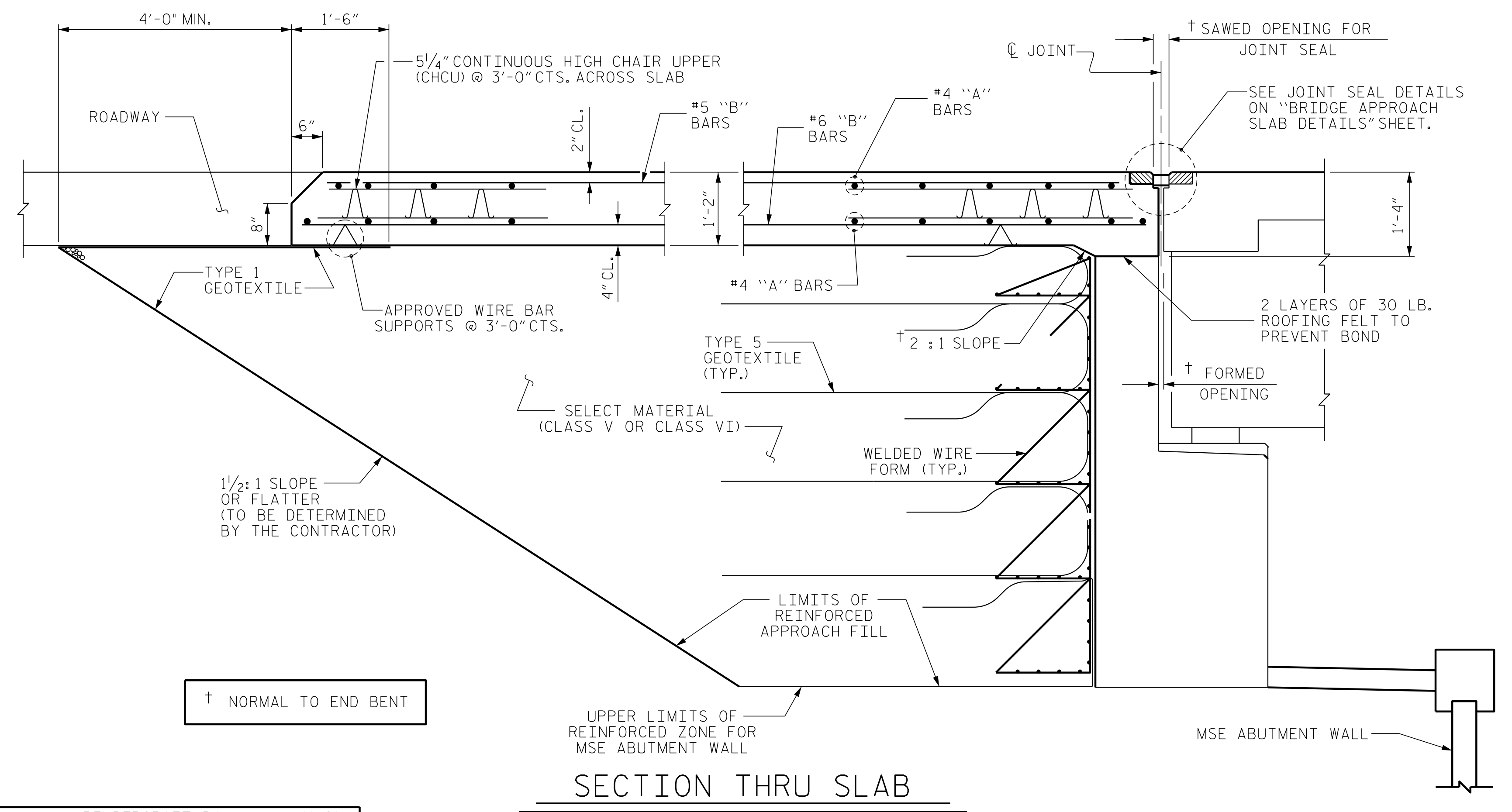
DRAWN BY : T. DIFFEE DATE : 10/21
 CHECKED BY : J. DILWORTH DATE : 10/21

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

P:\2020\20380\01_I-5987B_T95 Structures\DCM\401_001_I-5987B_SMU_SP_001.dgn
 3/8/2022 3:34:09 PM



PLAN @ END BENT 1 PLAN @ END BENT 2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB
(SPECIAL BRIDGE APPROACH FILL)

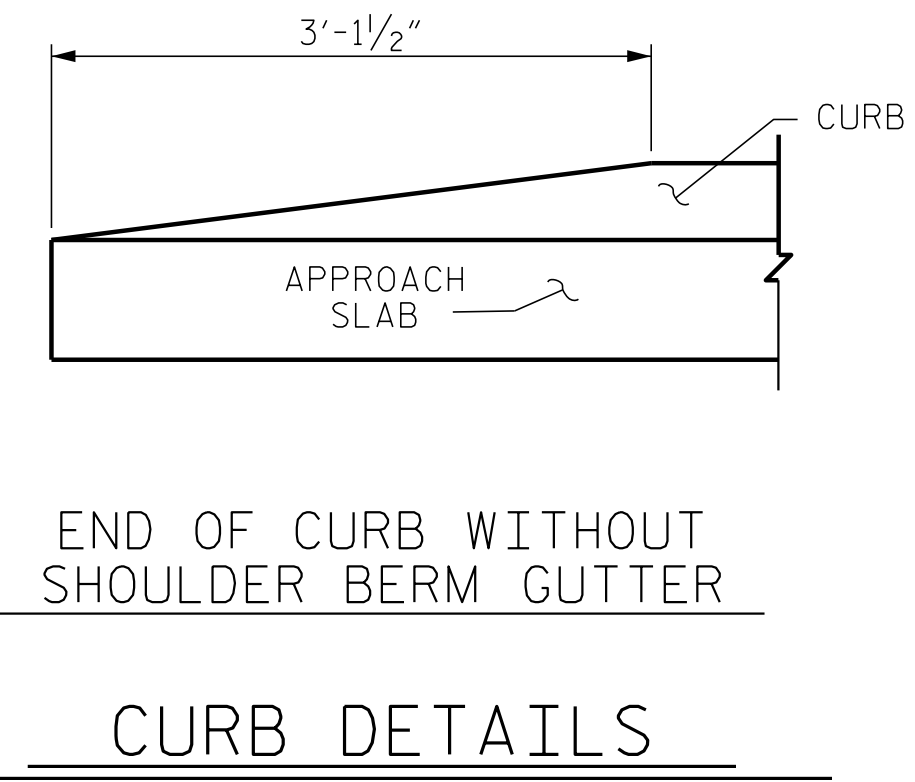
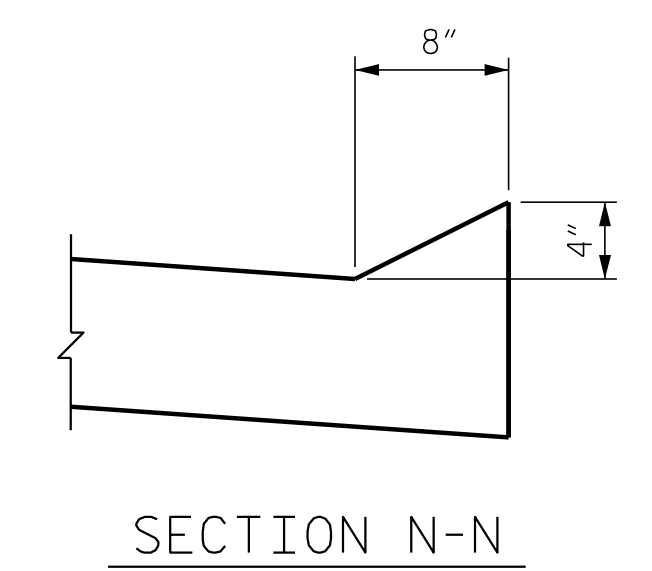
NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
FOR TEMPORARY GEOTEXTILE WALL INCLUDING GEOTEXTILE, WELDED WIRE FORM, MSE WALL REINFORCEMENT AND SELECT MATERIAL, SEE ROADWAY PLANS.
GEOTEXTILE (TYPE 1 OR TYPE 5) SHALL BE 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.
THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL.
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

WITH FOAM JOINT SEAL
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL					
APPROACH SLAB AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	15	#4	STR	37'-4"	374
A2	16	#4	STR	37'-4"	399
*B1	67	#5	STR	13'-6"	943
B2	67	#6	STR	14'-7"	1468
REINFORCING STEEL					LBS. 1867
*EPOXY COATED REINFORCING STEEL					LBS. 1317
CLASS AA CONCRETE					C. Y. 21.9
APPROACH SLAB AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	15	#4	STR	37'-4"	374
A2	16	#4	STR	37'-4"	399
*B1	67	#5	STR	13'-6"	943
B2	67	#6	STR	14'-7"	1468
REINFORCING STEEL					LBS. 1867
*EPOXY COATED REINFORCING STEEL					LBS. 1317
CLASS AA CONCRETE					C. Y. 21.9

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



PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-
SHEET 1 OF 2

ENGINEER OF RECORD
4/4/2022
NORTH CAROLINA PROFESSIONAL SEAL
37400
GREGORY M. GILLAND
Gregory M. Gilland
ETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

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

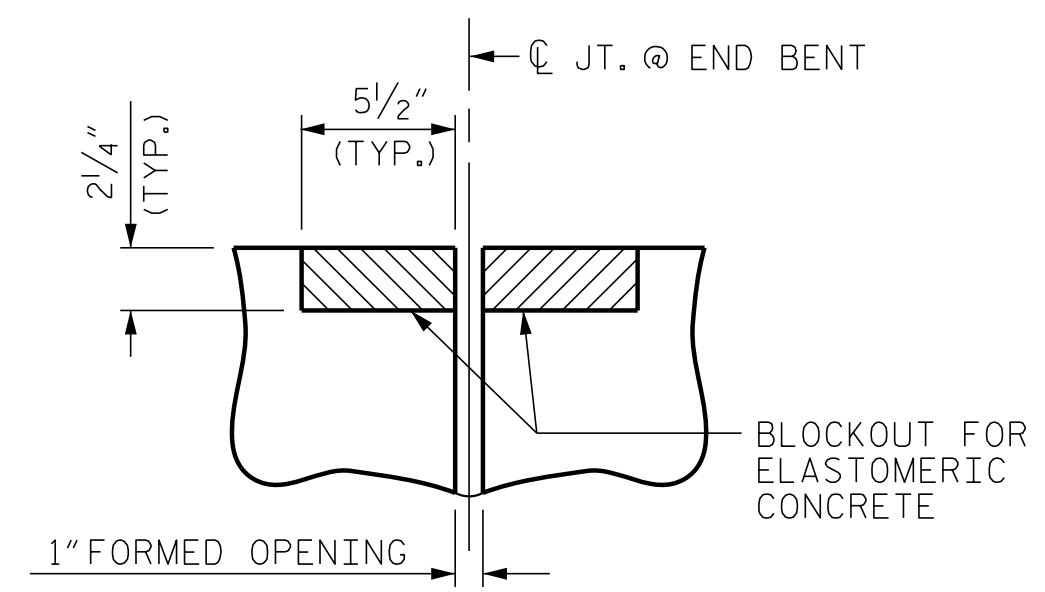
SHEET NO. S8-27
TOTAL SHEETS 28

P:\2020\20380\01_I-5987B_T95 Structures\DWG\401_001_15987B_SMU_AS_001.dgn
4/4/2022 9:08:08 AM

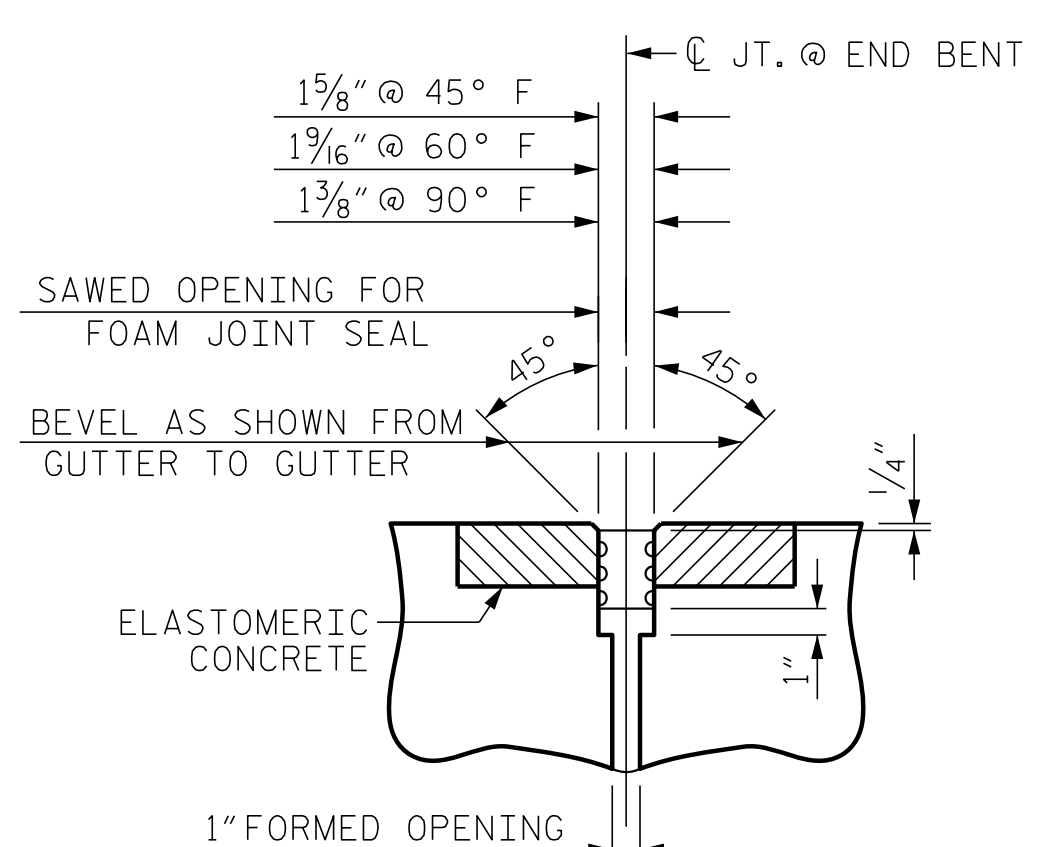
DRAWN BY: J. PENDERGRAFT/DAH DATE: 11-21
CHECKED BY: JAD/GMG DATE: 11-21

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. BAS2



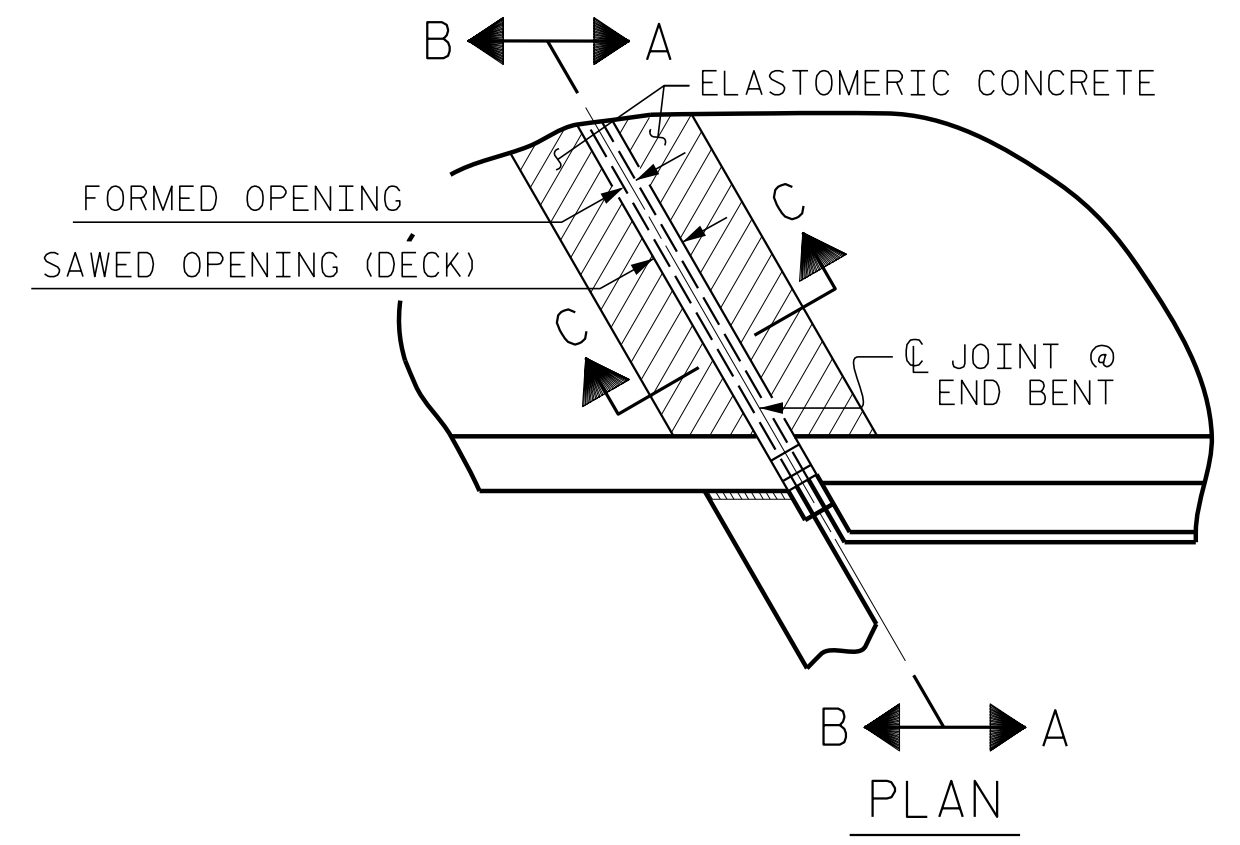
SECTION C-C
FOAM JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



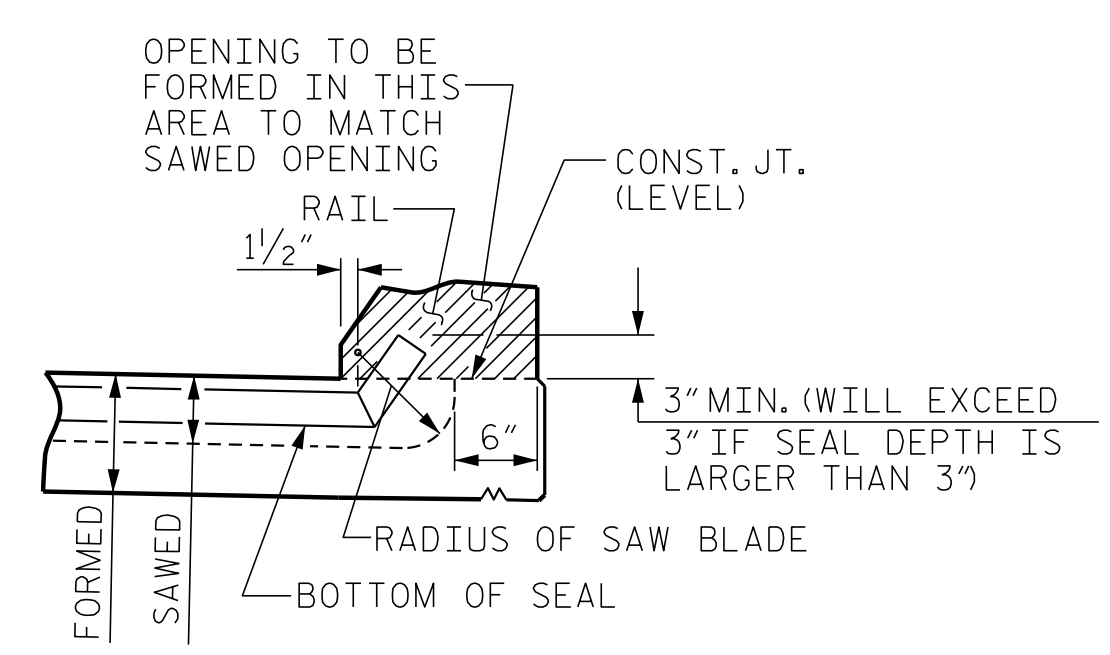
SECTION C-C
FOAM JOINT SEAL
(EXPANSION)

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.25
2	6.25
TOTAL	12.5

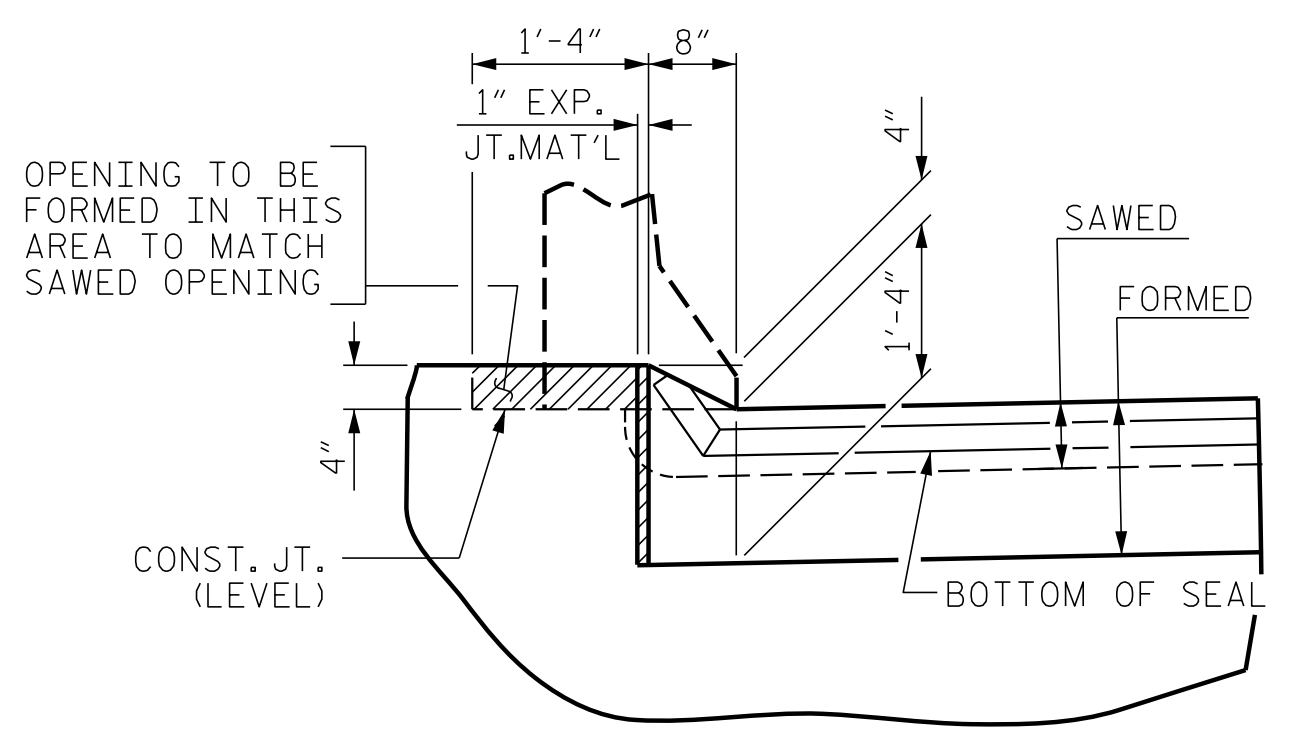
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN



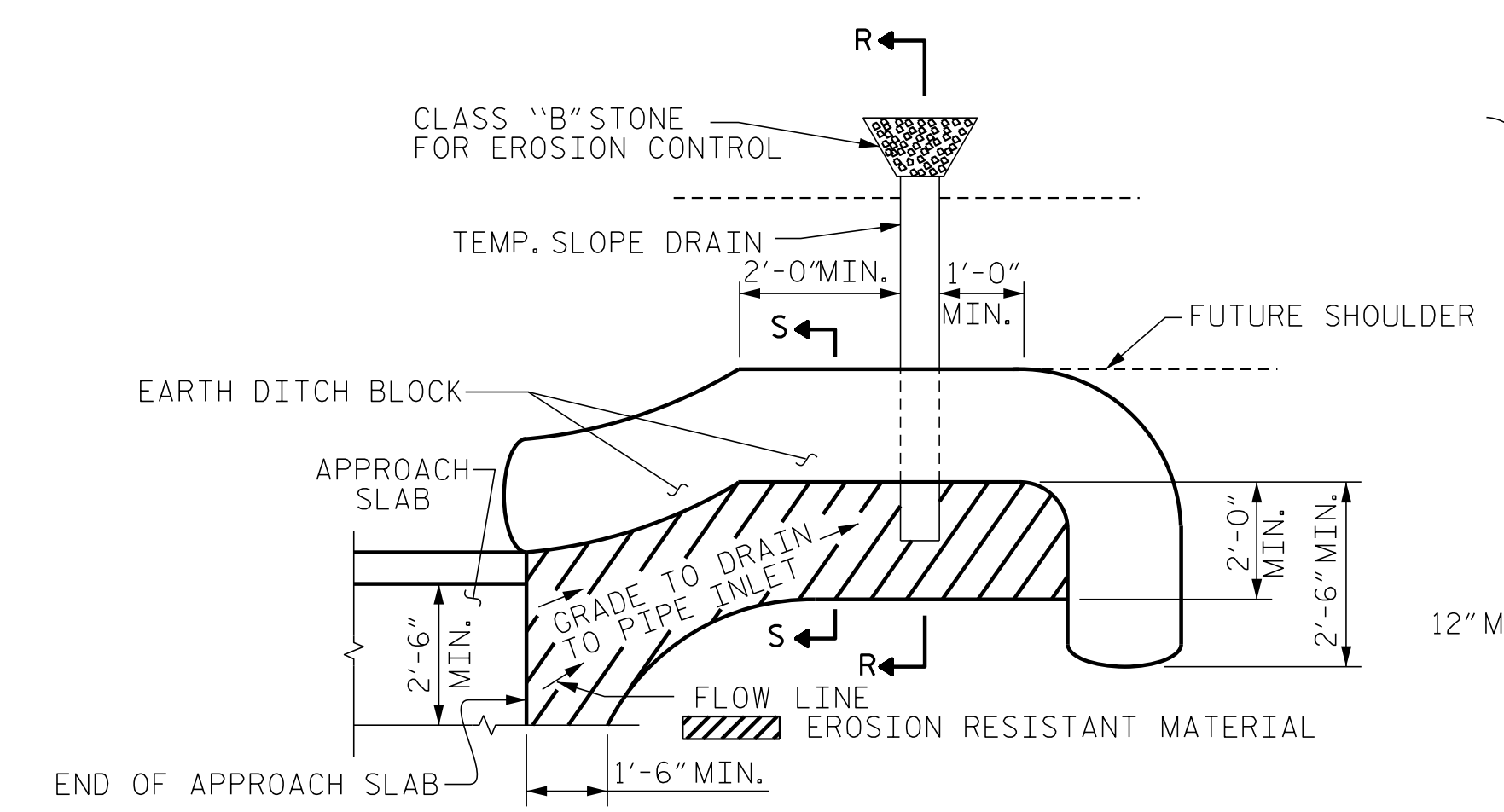
SECTION A-A



SECTION B-B

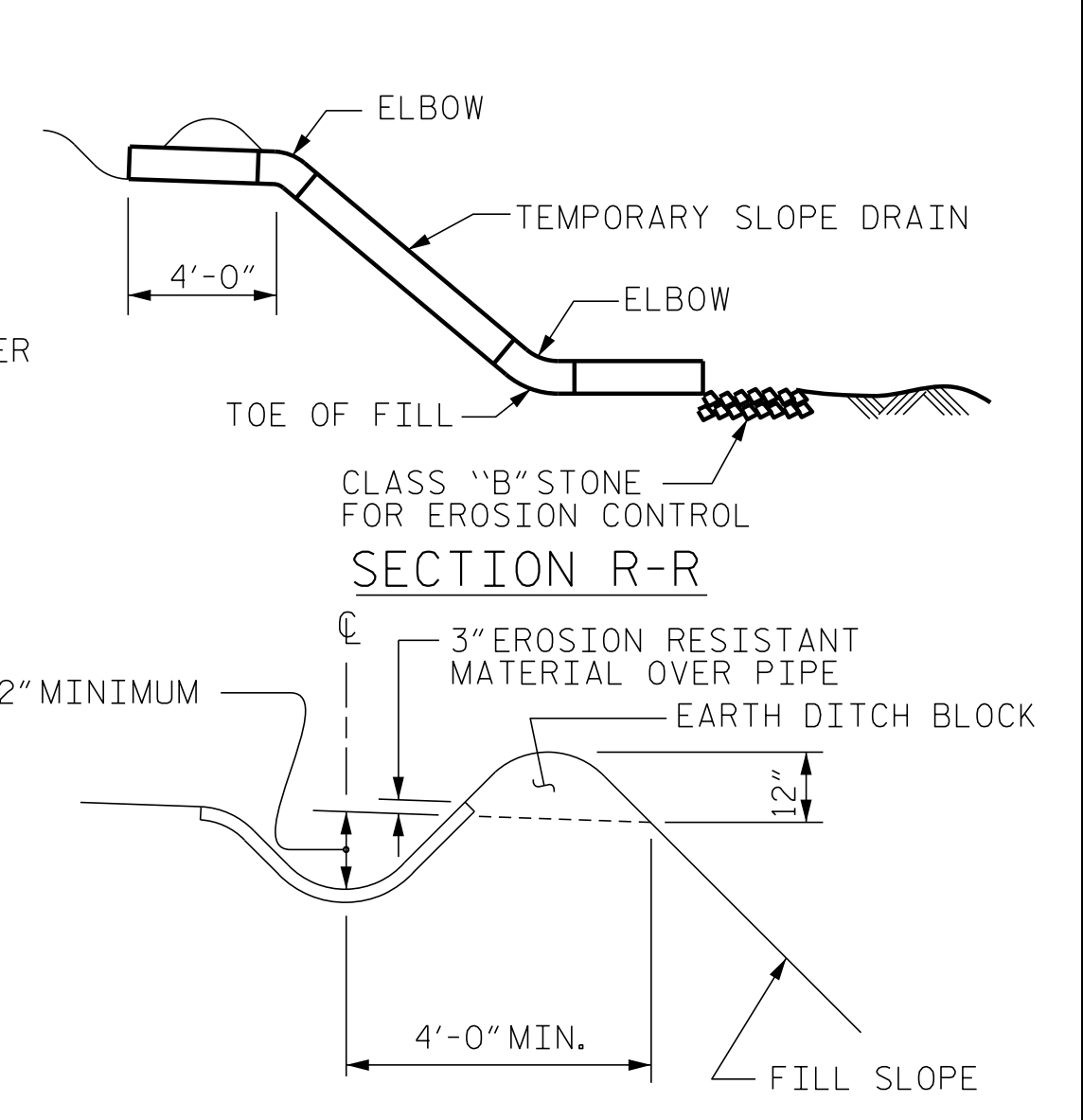
JOINT SEAL DETAILS @ END BENT

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



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\"/>

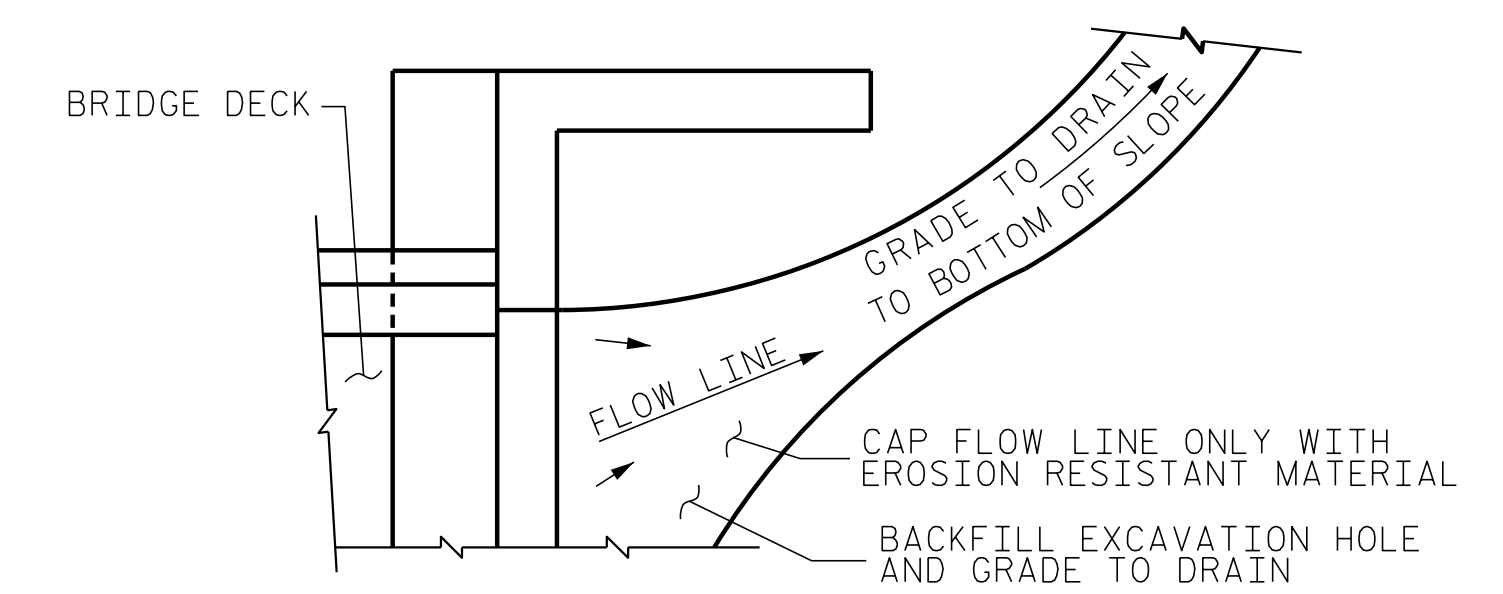
PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 30+28.11 -Y6-

SHEET 2 OF 2

ENGINEER OF RECORD
3/24/2022

Gregory M. Gulland
WETHERILL ENGINEERING

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

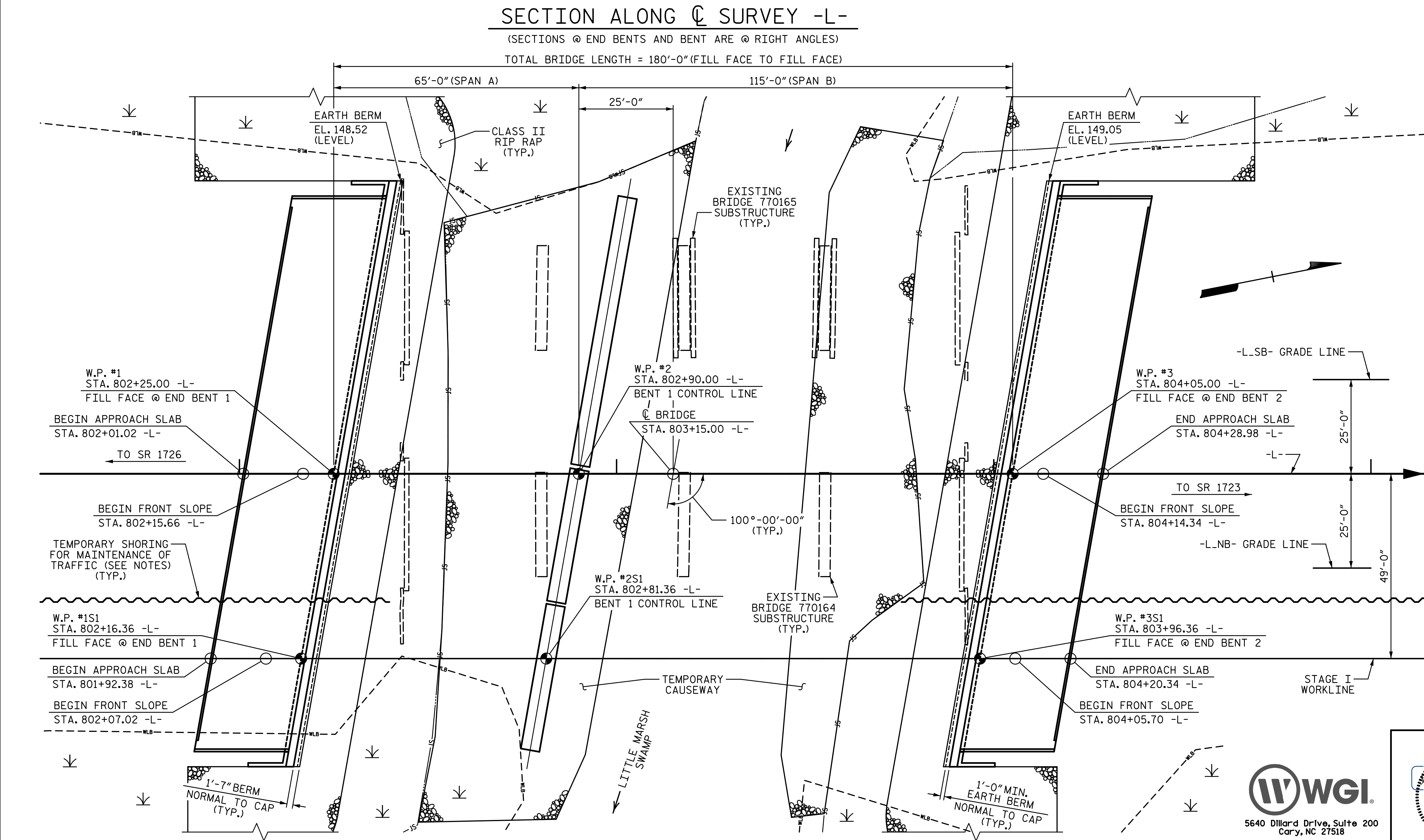
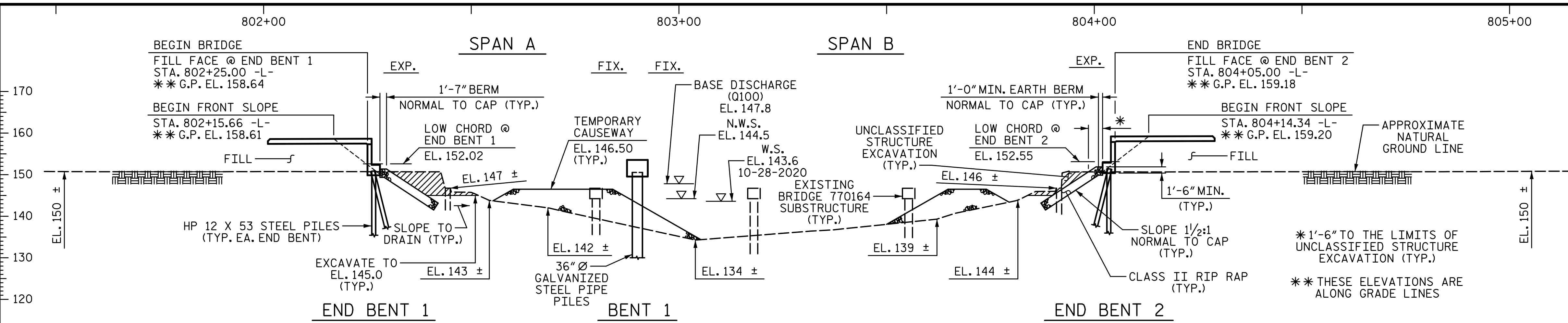
ASSEMBLED BY : J. PENDERGRAFT	DATE : 2-21
CHECKED BY : J. DILWORTH	DATE : 2-21
DRAWN BY : FCJ 11/88	REV. 6/13 MAA/GM
CHECKED BY : ARB 11/88	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SHEET NO.	S8-28
TOTAL SHEETS	28

P:\2020\20380\01_I-5987B_T95 Structures\06\401_001_I-5987B_SMU_AS_001.dgn
 3/8/2022 3:35:08 PM

3/18/2022 11:06:10 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_GD_770164.dgn



HYDRAULIC DATA:

DESIGN DISCHARGE	= 3600 CFS
FREQUENCY OF DESIGN FLOOD	= 100 YEAR
DESIGN HIGH WATER ELEVATION	= 147.8
DRAINAGE AREA	= 37.2 SQ. MI.
BASE DISCHARGE (Q 100)	= 3600 CFS
BASE HIGH WATER ELEVATION	= 147.8

OVERTOPPING FLOOD DATA:

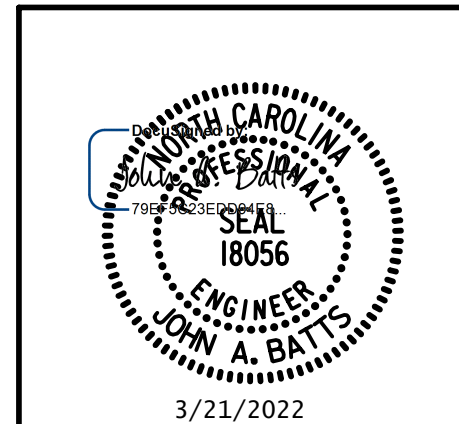
OVERTOPPING DISCHARGE	= 4900+ CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YEAR
OVERTOPPING FLOOD ELEVATION	= 154.0 **
** OVERTOPPING OCCURS AT LOW SIDE STA. 791+44.24 -L- ON SB, EL. 154.0	

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 1 OF 5 BRIDGE #770538

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON I-95
 OVER LITTLE MARSH SWAMP
 BETWEEN SR 1726 AND SR 1723

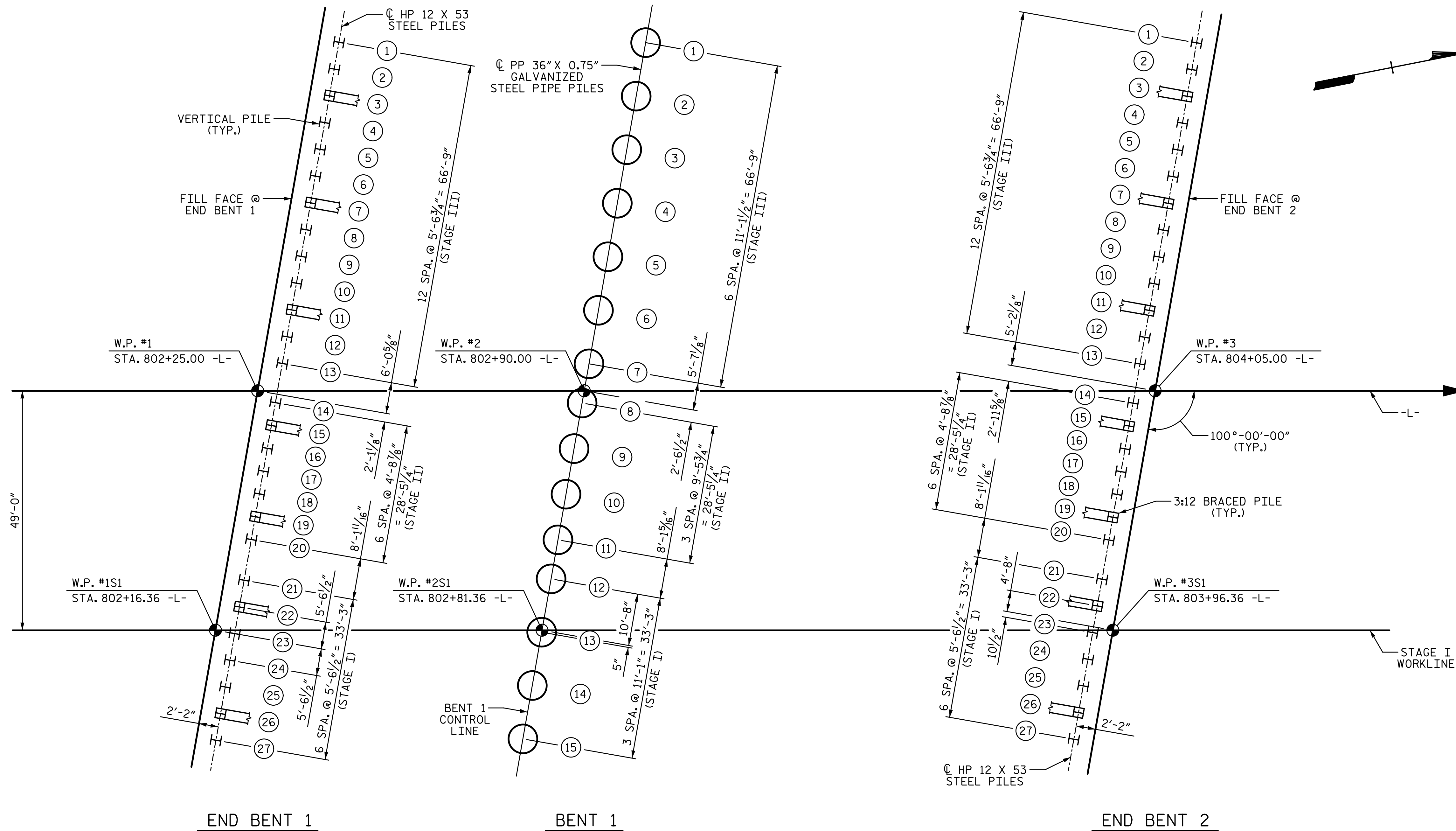


DRAWN BY: T. BANKOVICH DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-1
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:11 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_FL_770164.dgn



FOUNDATION LAYOUT

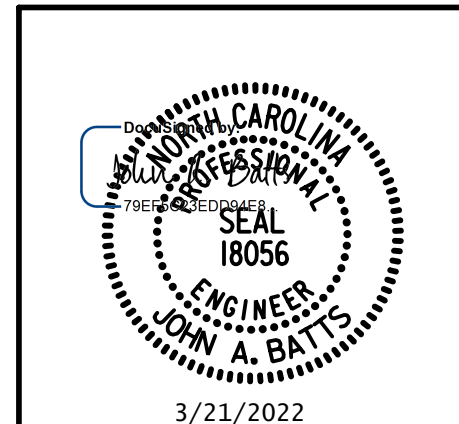
(DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES AT BOTTOM OF CAP)

⊙ INDICATES PILE NUMBER

FOUNDATION NOTES:

FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.
 IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 65 TO 150 KIP-FT PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

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



PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON I-95
 OVER LITTLE MARSH SWAMP
 BETWEEN SR 1726 AND SR 1723

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-2
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #.# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles		Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT
End Bent 1, Piles 1-27	85	150.11	70			145						
End Bent 2, Piles 1-27	115	150.63	80			195						
Bent 1, Piles 1-15	315	148.91	90	122	87.0	435	35					

*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	MAYBE	75	3		
End Bent 2	MAYBE	85			
Bent 1	YES	95			

*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 1-27	83			0.60			
End Bent 2, Piles 1-27	112			0.60			
Bent 1, Piles 1-15	313			0.75		13	1.00

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

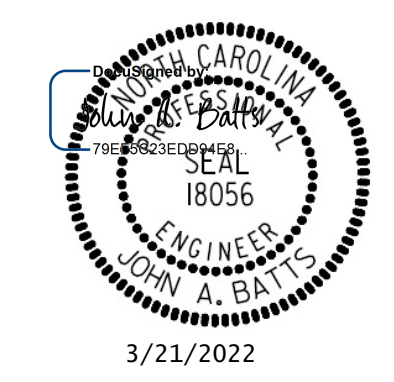
PROJECT NO. I-5987B

ROBESON COUNTY

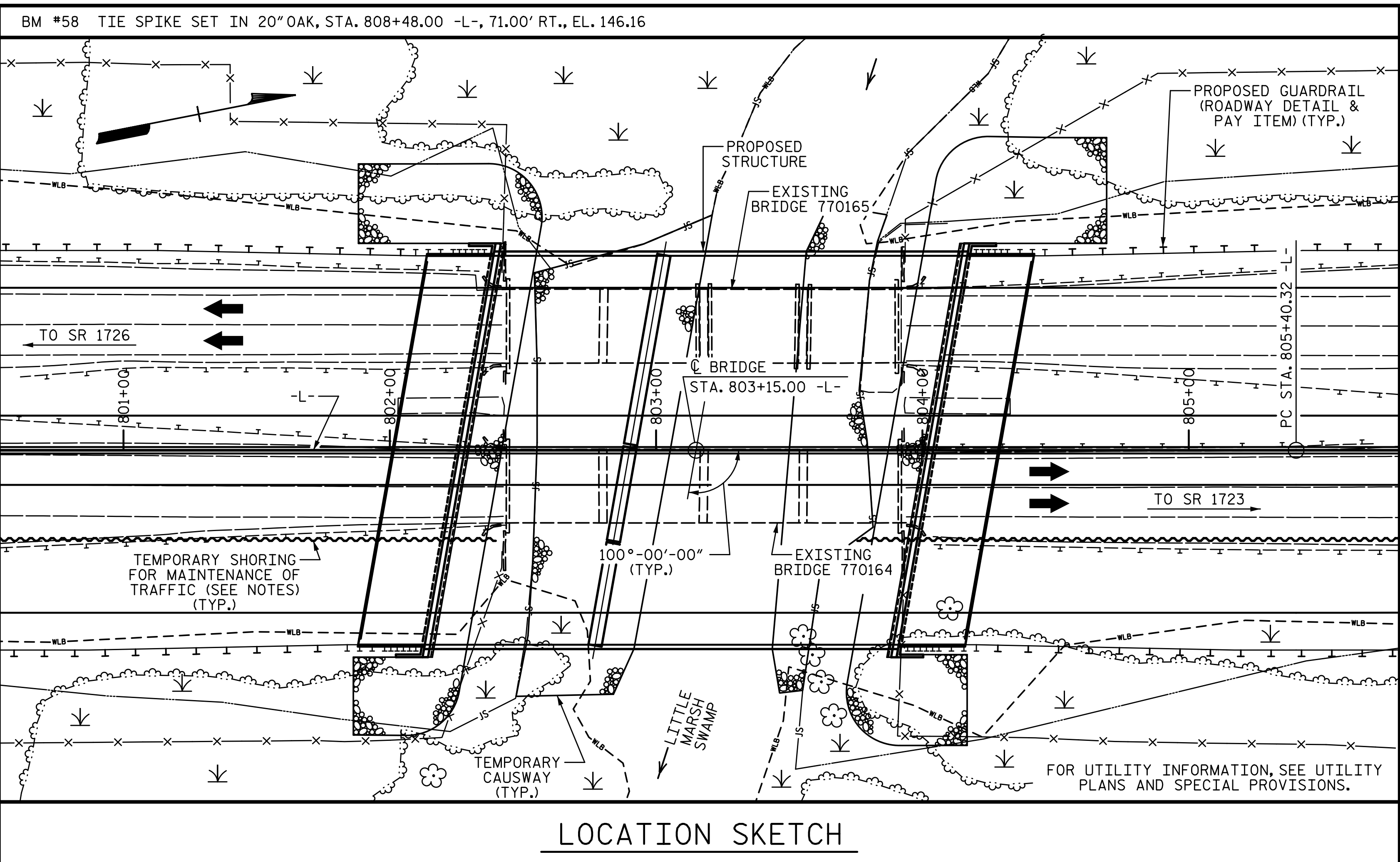
STATION: -L- 803+15.00

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.

	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						PILE FOUNDATION TABLES	
	SIGNATURE _____ DATE _____							SHEET NO. S9-3
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED							REVISIONS NO. BY: DATE: NO. BY: DATE:	TOTAL SHEETS 69
1 2							3 4	69

3/18/2022 11:06:12 AM G:\Projects\2020\Division 6 (Mott+Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_CD_770164.dgn



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP. ACCESS AT STA. 803+15.00 -L-	REMOVAL OF EXISTING STRUCTURES AT STA. 803+15.00 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STA. 803+15.00 -L-	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE
	LS	LS	LS	EA	LS	SF	SF	CY
SUPERSTRUCTURE						26,529	30,888	
END BENT 1					LS			101.9
BENT 1								124.1
END BENT 2					LS			102.4
TOTAL	LS	LS	LS	3	LS	26,529	30,888	328.4

TOTAL BILL OF MATERIAL

	BRIDGE APPROACH SLABS STA. 803+15.00 -L-	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 36 X 0.75 GALVANIZED STEEL PILES	HP 12 X 53 STEEL PILES	PP 36 X 0.75 GALVANIZED STEEL PILES	PILE REDRIVES	CONCRETE BARRIER RAIL
	LS	LB	EA	EA	NO.	LF	EA	LF
SUPERSTRUCTURE								396.78
END BENT 1		15,146	27		27	1,890		
BENT 1		13,542		15			15	1,350
END BENT 2		15,071	27		27	2,160		
TOTAL	LS	43,759	54	15	54	4,050	15	1,350

TOTAL BILL OF MATERIAL

	CONCRETE MEDIAN BARRIER	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	54" PRESTRESSED CONCRETE FLORIDA I-BEAMS
	LF	TONS	SY	LS	LS	NO. LF
SUPERSTRUCTURE	227.97			LS	LS	30 2,641.25
END BENT 1		525	585			
BENT 1						
END BENT 2		555	615			
TOTAL	227.97	1,080	1,200	LS	LS	30 2,641.25

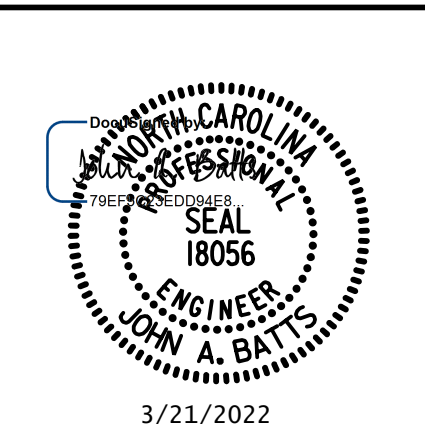
DRAWN BY: T. BANKOVICH DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

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 (770164) CONSISTING OF 4 SPANS, 1 SPAN @ 37'-10", 2 @ 37'-6", AND 1 @ 37'-10" SHALL BE REMOVED. THE SUPERSTRUCTURE HAS A CLEAR ROADWAY WIDTH OF 28'-0" WITH REINFORCED CONCRETE DECK ON PRESTRESSED PRECAST CONCRETE GIRDERS. THE END BENTS AND INTERIOR BENTS CONSIST OF PRESTRESSED PRECAST CONCRETE CAPS ON PRESTRESSED PRECAST CONCRETE PILES. 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.
 AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE (770165) CONSISTING OF 4 SPANS, 1 SPAN @ 37'-10", 2 @ 37'-6", AND 1 @ 37'-10" SHALL BE REMOVED. THE SUPERSTRUCTURE HAS A CLEAR ROADWAY WIDTH OF 28'-0" WITH REINFORCED CONCRETE DECK ON PRESTRESSED PRECAST CONCRETE GIRDERS. THE END BENTS AND INTERIOR BENTS CONSIST OF PRESTRESSED PRECAST CONCRETE CAPS ON PRESTRESSED PRECAST CONCRETE PILES. INTERIOR CRUTCH BENTS CONSISTING OF STEEL I-BEAM CAPS ON STEEL PILES ARE LOCATED AT BENTS 2 AND 3. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
 THE SUBSTRUCTURES OF THE EXISTING BRIDGES INDICATED ON THE PLANS ARE 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 SUBSTRUCTURES 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.
 AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 803+15.00 -L-.
 NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 73 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
 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.
 REMOVAL OF THE EXISTING BRIDGES SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18- EVALUATING SCOUR AT BRIDGES."
 THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 122.0. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 FOR INTERIOR BENT 1, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.
 THE EXISTING BRIDGES WILL BE IN SERVICE DURING CONSTRUCTION OF THE REPLACEMENT STRUCTURE. FOR DETAILS REGARDING CONSTRUCTION STAGING AND REQUIREMENTS FOR TEMPORARY SHORING, SEE TRAFFIC MANAGEMENT PLANS.
 REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
 THE EXISTING PAVEMENT WITHIN THE AREA OF THE END BENT PILES SHALL BE REMOVED AND THE ROADBED SCARIFIED TO A MINIMUM DEPTH OF 2'-0".

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 4 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON I-95
 OVER LITTLE MARSH SWAMP
 BETWEEN SR 1726 AND SR 1723

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-4
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:13 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_LRFR_770164.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 _L)	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 _L)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.12	--	1.75	0.818	1.58	B	I	55.771	1.059	1.20	B	I	11.154	0.80	0.818	1.12	B	I	55.771		
	HL-93 (OPERATING)	N/A		1.59	--	1.35	0.818	2.05	B	I	55.771	1.059	1.59	B	I	11.154	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.60	57.6	1.75	0.818	2.26	B	I	55.771	1.059	1.69	B	I	11.154	0.80	0.818	1.60	B	I	55.771		
	HS-20 (OPERATING)	36.000		2.22	79.9	1.35	0.818	2.93	B	I	55.771	1.059	2.22	B	I	11.154	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500		4.18	52.3	1.40	0.818	7.38	B	I	55.771	1.059	5.92	B	I	11.154	0.80	0.818	4.18	B	I	55.771	
		S3C	21.500		2.44	52.5	1.40	0.818	4.31	B	I	55.771	1.059	3.42	B	I	11.154	0.80	0.818	2.44	B	I	55.771	
		S3A	22.750		2.31	52.6	1.40	0.818	4.08	B	I	55.771	1.059	3.24	B	I	11.154	0.80	0.818	2.31	B	I	55.771	
		S4A	26.750		2.02	54.0	1.40	0.818	3.56	B	I	55.771	1.059	2.79	B	I	11.154	0.80	0.818	2.02	B	I	55.771	
		S5A	30.500		1.78	54.3	1.40	0.818	3.14	B	I	55.771	1.059	2.52	B	I	11.154	0.80	0.818	1.78	B	I	55.771	
		S6A	34.500		1.60	55.2	1.40	0.818	2.83	B	I	55.771	1.059	2.25	B	I	11.154	0.80	0.818	1.60	B	I	55.771	
		S7B	38.500		1.45	55.8	1.40	0.818	2.57	B	I	55.771	1.059	2.07	B	I	11.154	0.80	0.818	1.45	B	I	55.771	
		S7A	40.000	③	1.43	57.2	1.40	0.818	2.52	B	I	55.771	1.059	2.07	B	I	11.154	0.80	0.818	1.43	B	I	55.771	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250		1.97	55.7	1.40	0.818	3.48	B	I	55.771	1.059	2.69	B	I	11.154	0.80	0.818	1.97	B	I	55.771	
		T5B	32.000		1.73	55.4	1.40	0.818	3.06	B	I	55.771	1.059	2.49	B	I	11.154	0.80	0.818	1.73	B	I	55.771	
		T6A	36.000		1.58	56.9	1.40	0.818	2.78	B	I	55.771	1.059	2.26	B	I	11.154	0.80	0.818	1.58	B	I	55.771	
		T7A	40.000		1.45	58.0	1.40	0.818	2.56	B	I	55.771	1.059	2.06	B	I	11.154	0.80	0.818	1.45	B	I	55.771	
	T7B	40.000		1.52	60.8	1.40	0.818	2.68	B	I	55.771	1.059	1.97	B	I	11.154	0.80	0.818	1.52	B	I	55.771		

LOAD FACTORS:

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

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
 ALLOWABLE STRESS FOR SERVICE III 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)

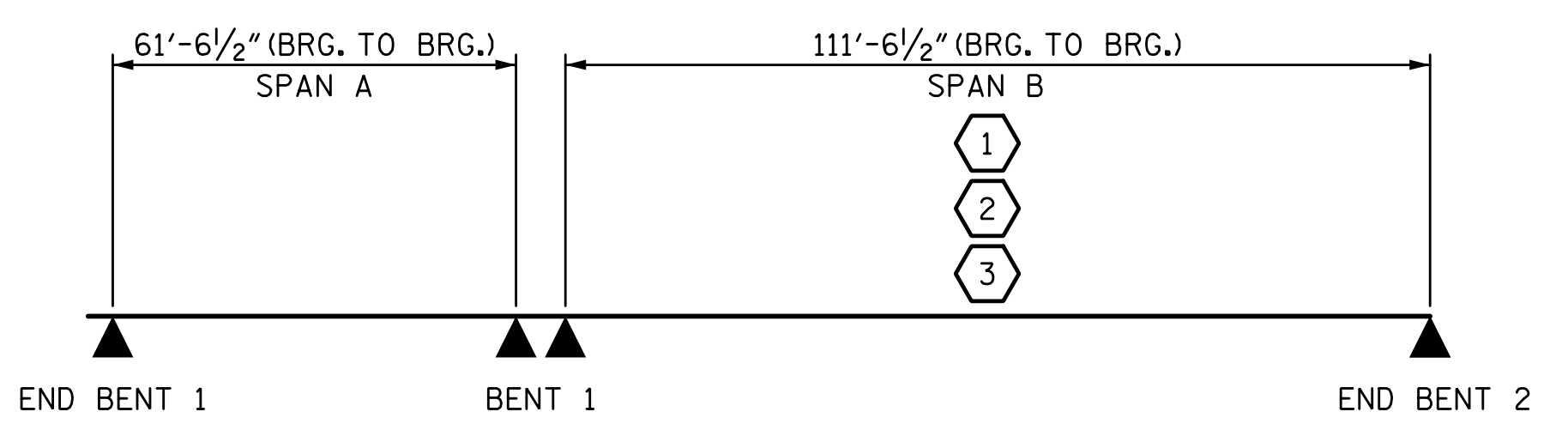
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

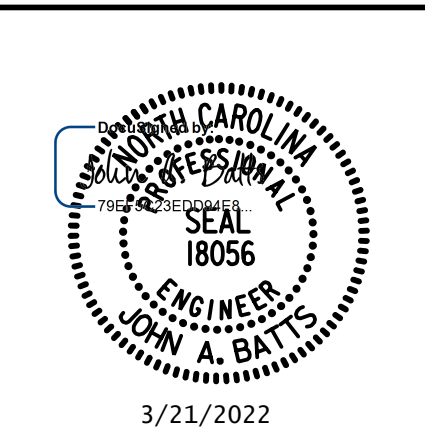


LRFR SUMMARY

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 5 OF 5

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

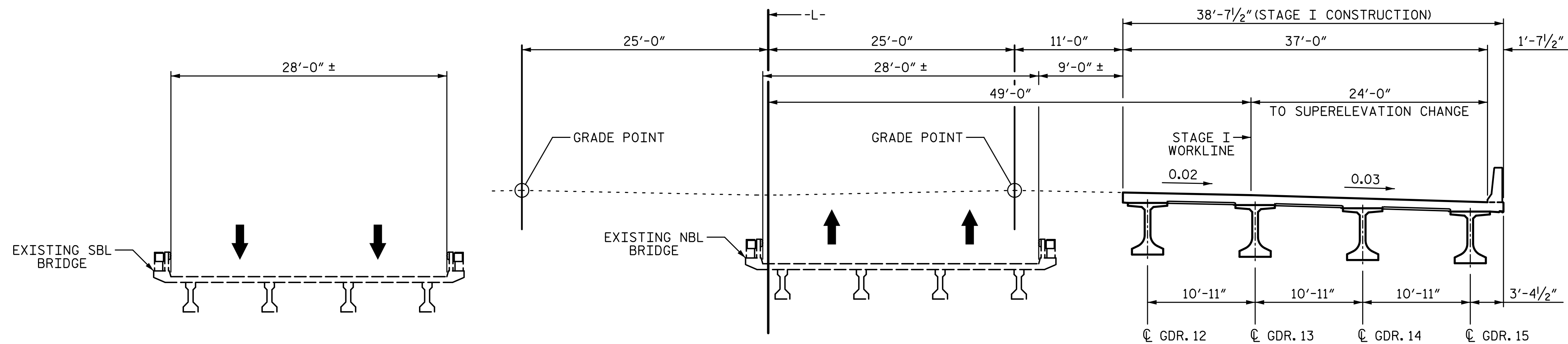


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 LRFR SUMMARY
 FOR PRESTRESSED
 CONCRETE GIRDERS
 (INTERSTATE TRAFFIC)

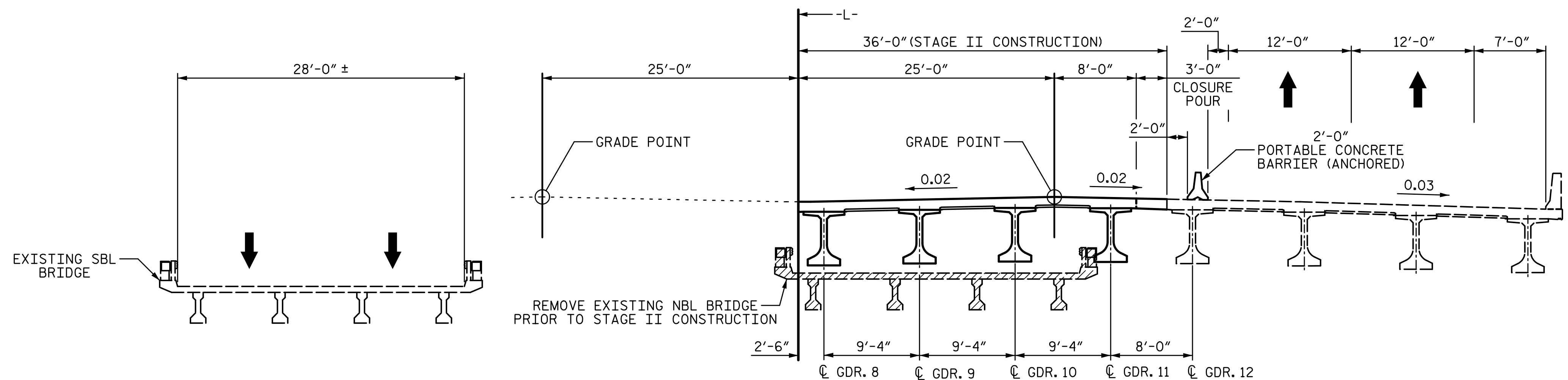
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-5
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

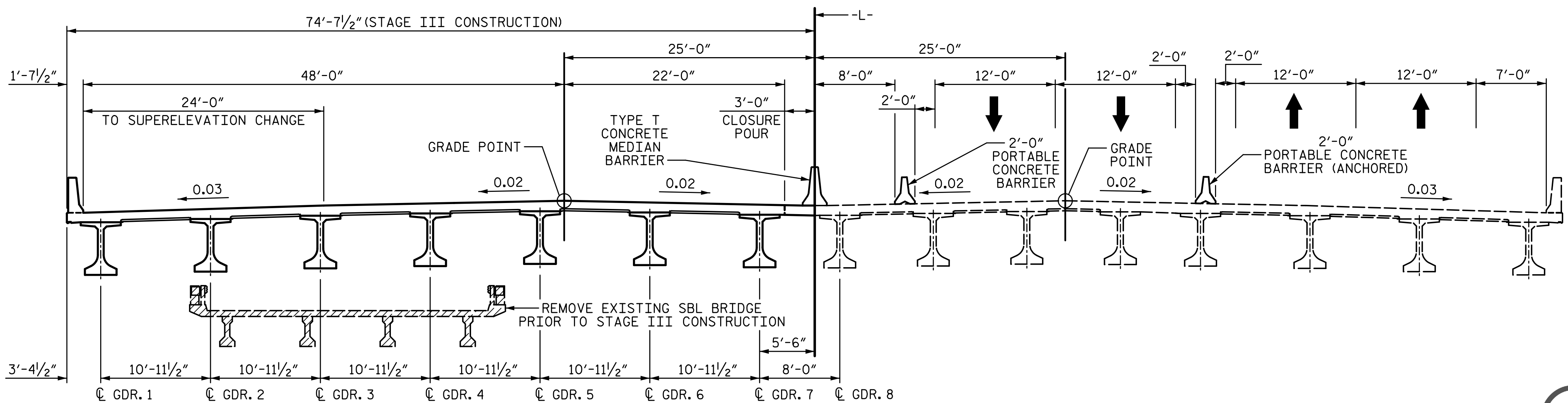
3/18/2022 11:06:14 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_PC_770164.dgn



STAGE I CONSTRUCTION



STAGE II CONSTRUCTION

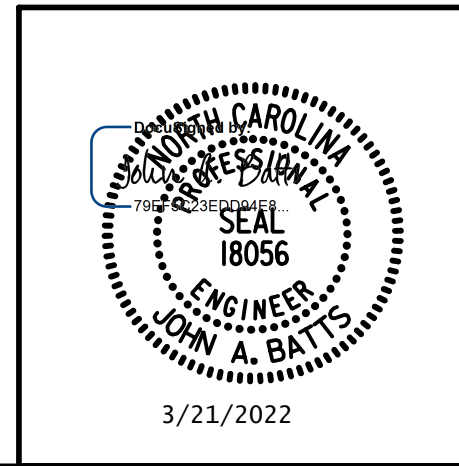


STAGE III CONSTRUCTION

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONSTRUCTION SEQUENCE



W WGI

5640 Dillard Drive, Suite 200
 Cary, NC 27518

LICENSURE NO. C-4434

DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATT'S	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATT'S	DATE: 3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			69
2			4			

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:15 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn

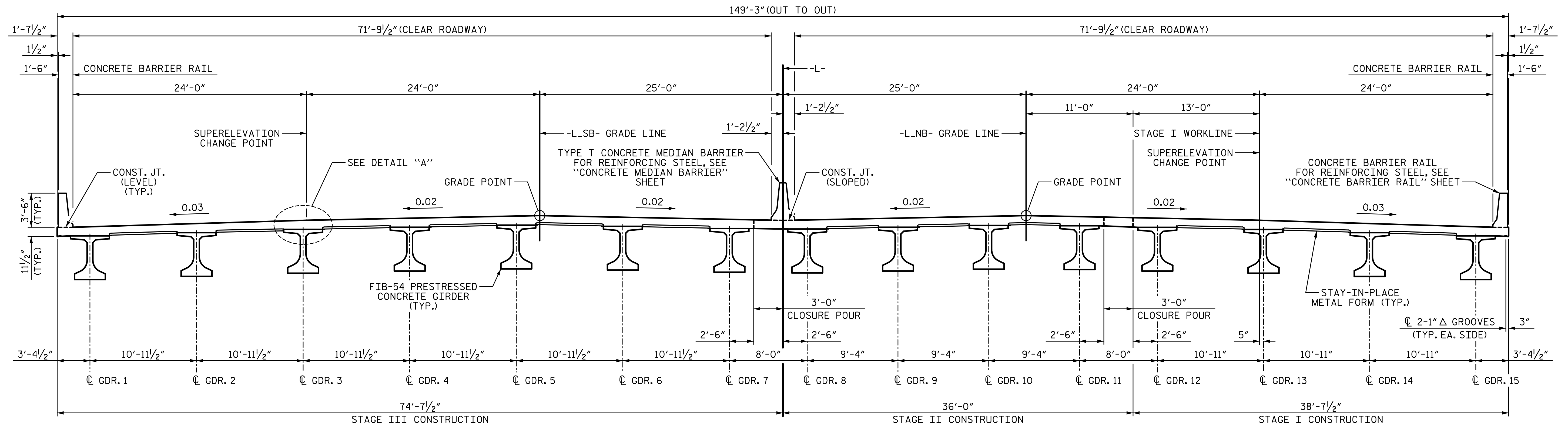
NOTES:

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

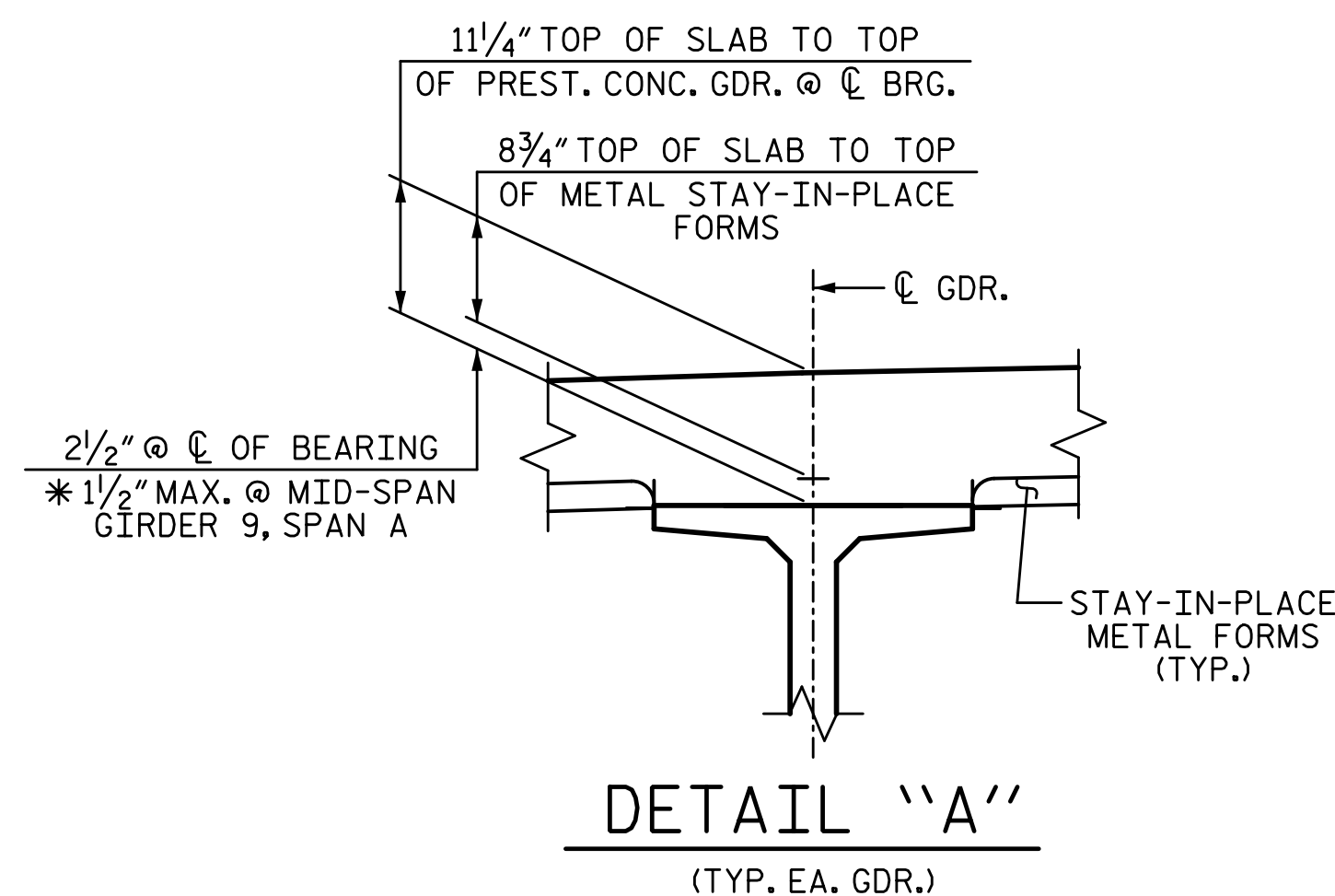
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

CONCRETE BARRIER RAIL AND MEDIAN BARRIER 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 3,000 PSI.

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.



TYPICAL SECTION



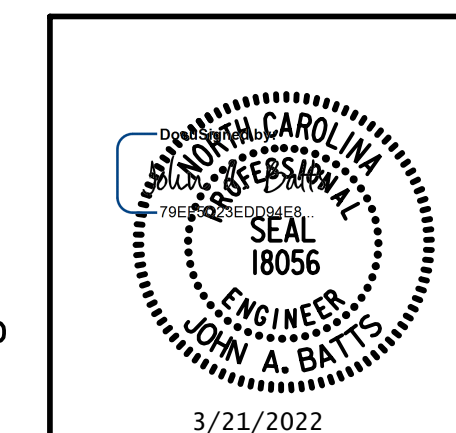
(* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS)

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 1 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

TYPICAL SECTION



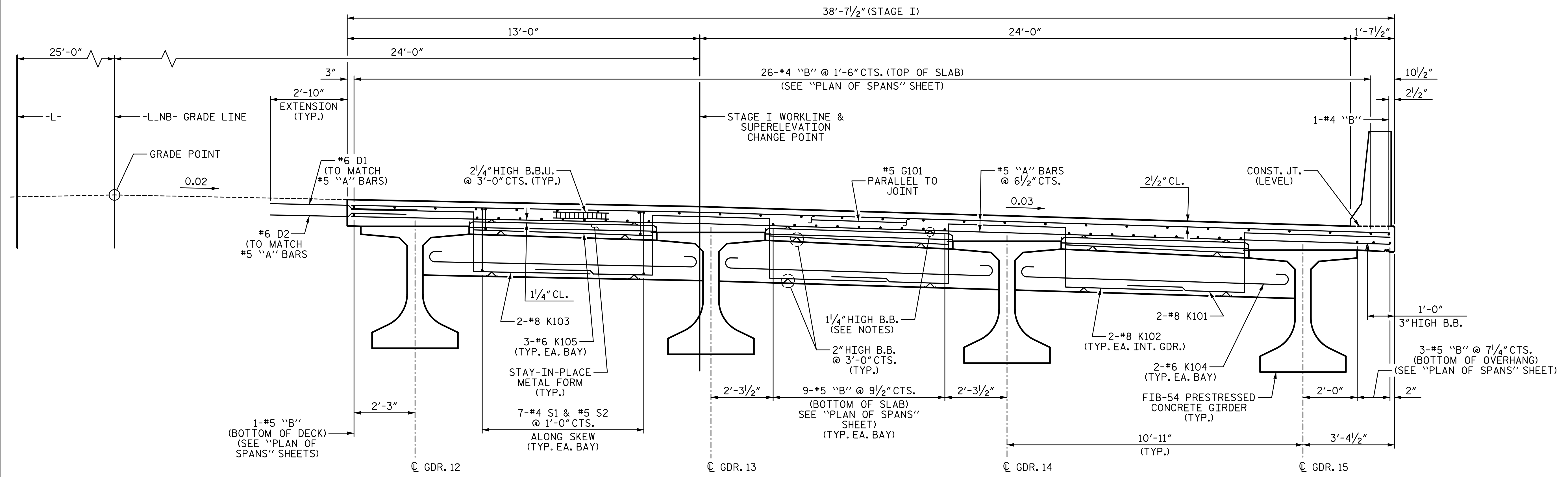
DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS	DATE: 3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-7
1			3			TOTAL SHEETS
2			4			69

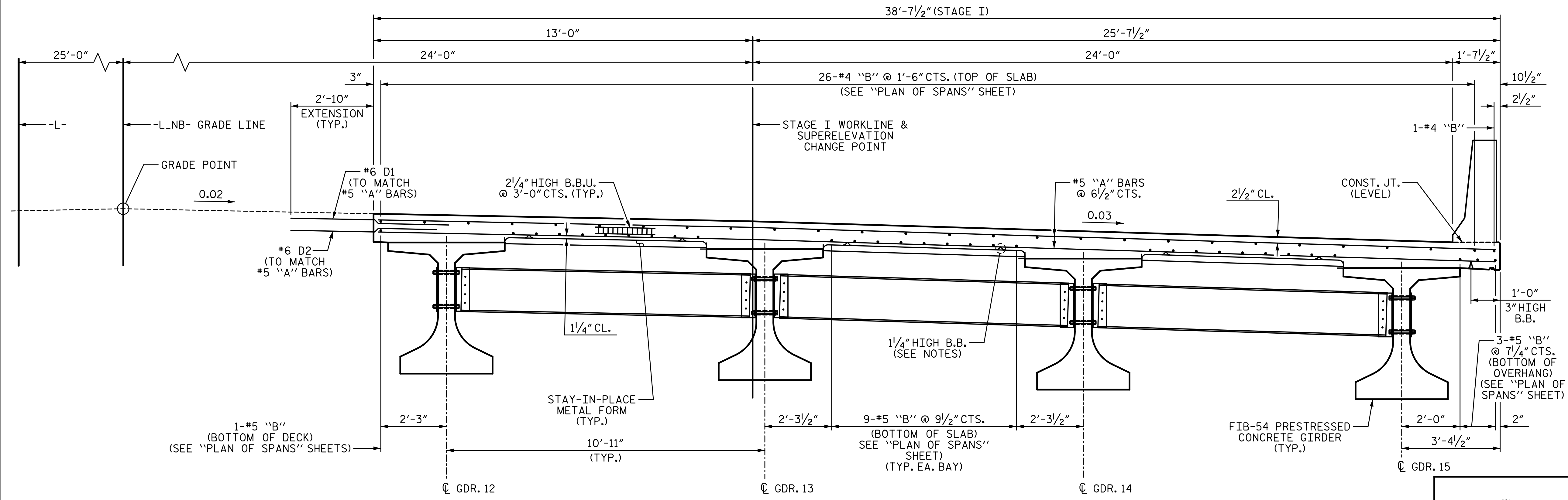
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LICENSURE NO. C-4434

3/18/2022 11:06:15 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn



TYPICAL SECTION
(SHOWING END BENT DIAPHRAGMS)



TYPICAL SECTION
(SHOWING INTERMEDIATE DIAPHRAGMS)

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

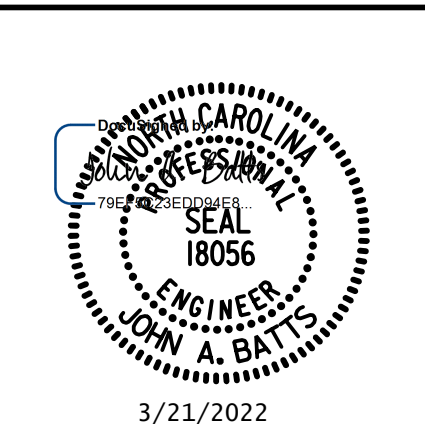
SHEET 2 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

TYPICAL SECTION

STAGE I

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

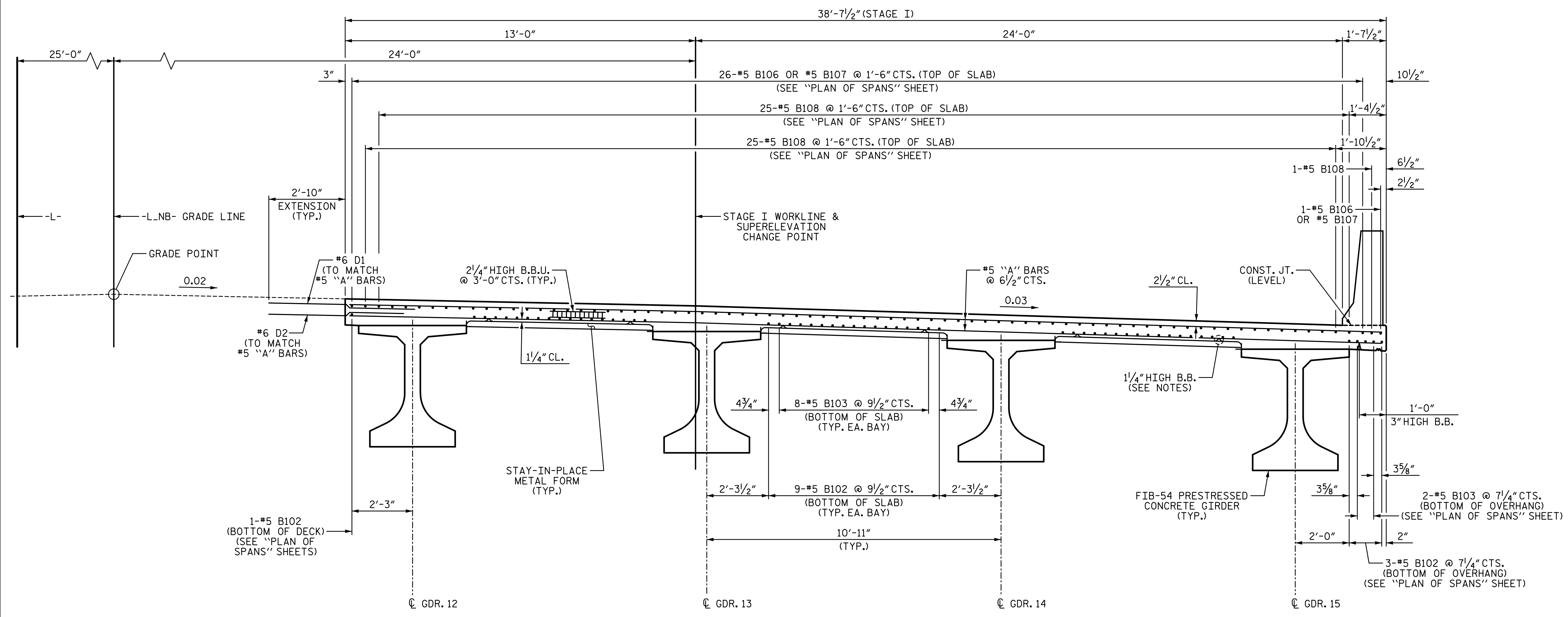


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS	DATE: 3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-8
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:16 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn



TYPICAL SECTION
(SHOWING LINK SLAB REGION AT INTERIOR BENT)

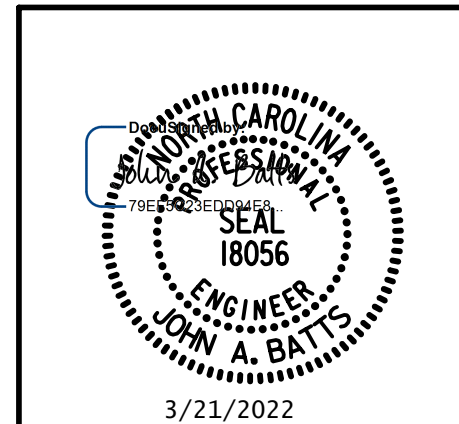
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

TYPICAL SECTION

STAGE I

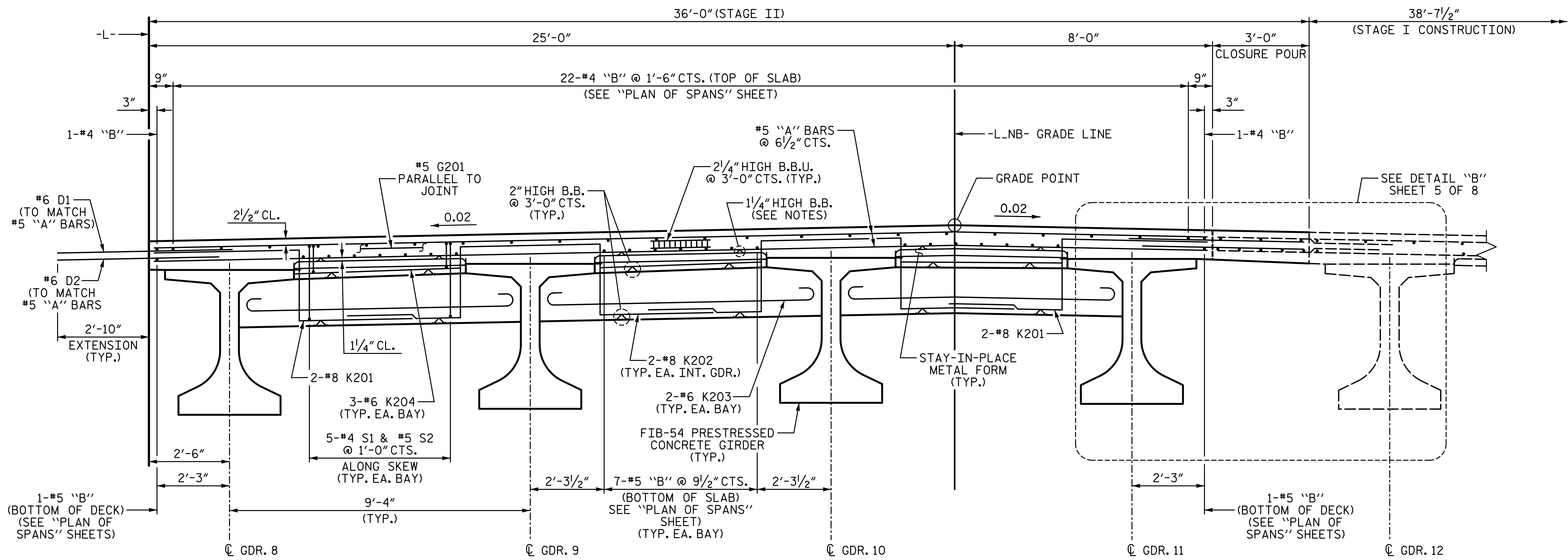


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS	DATE: 3-22

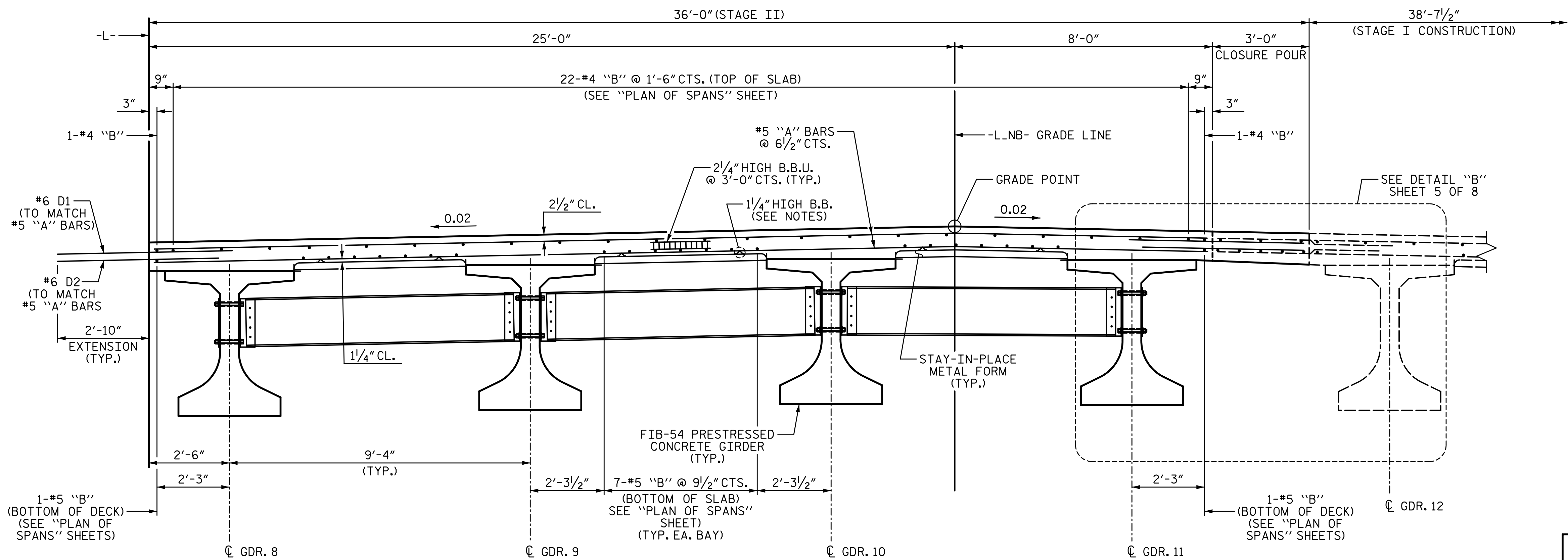
REVISIONS						SHEET NO. S9-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 69
2			4			

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:16 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn



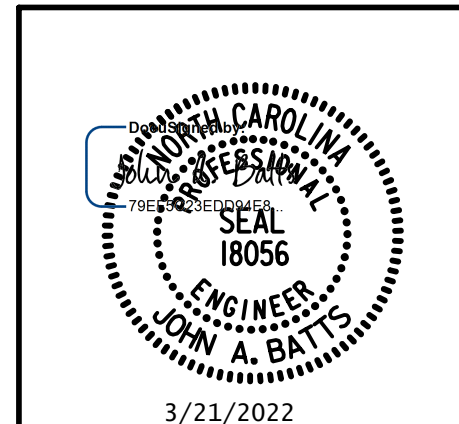
TYPICAL SECTION
(SHOWING END BENT DIAPHRAGMS)



TYPICAL SECTION
(SHOWING INTERMEDIATE DIAPHRAGMS)

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 803+15.00 -L-
SHEET 4 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
STAGE II

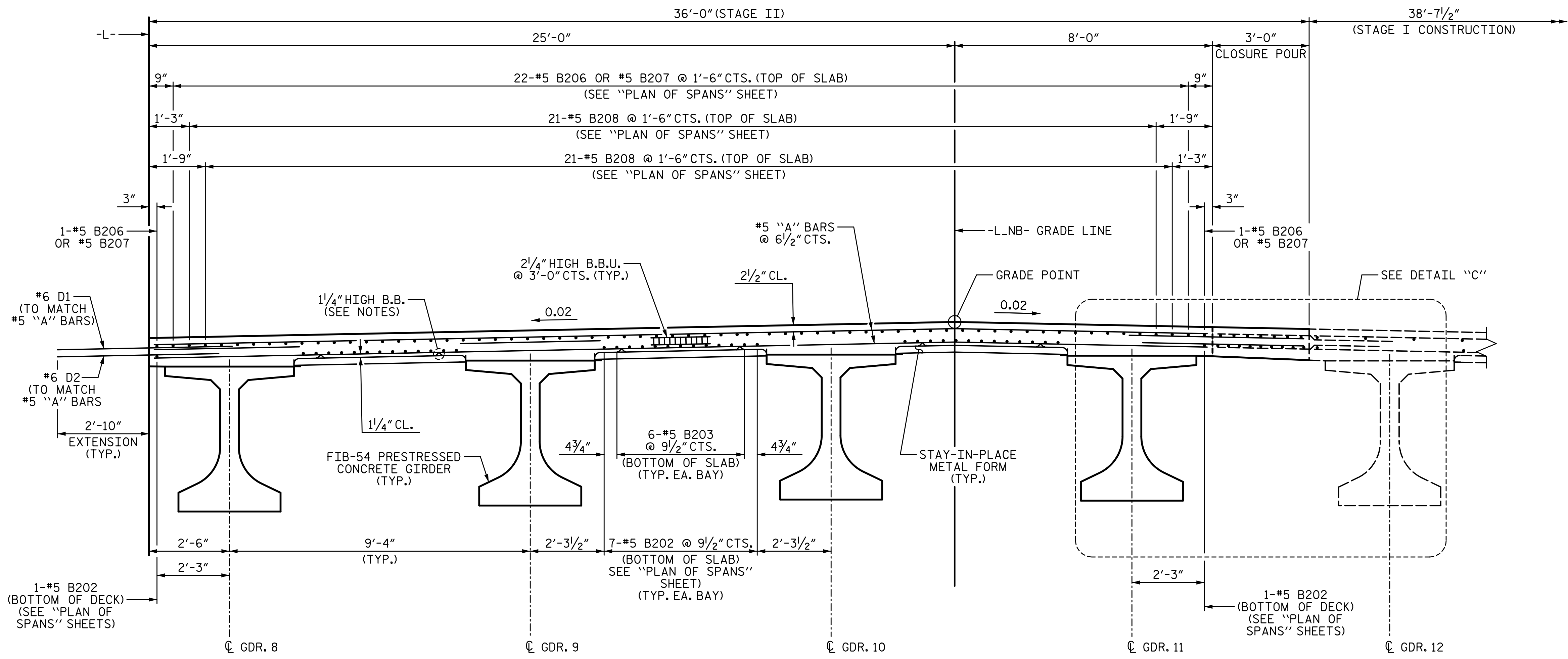


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS	DATE: 3-22

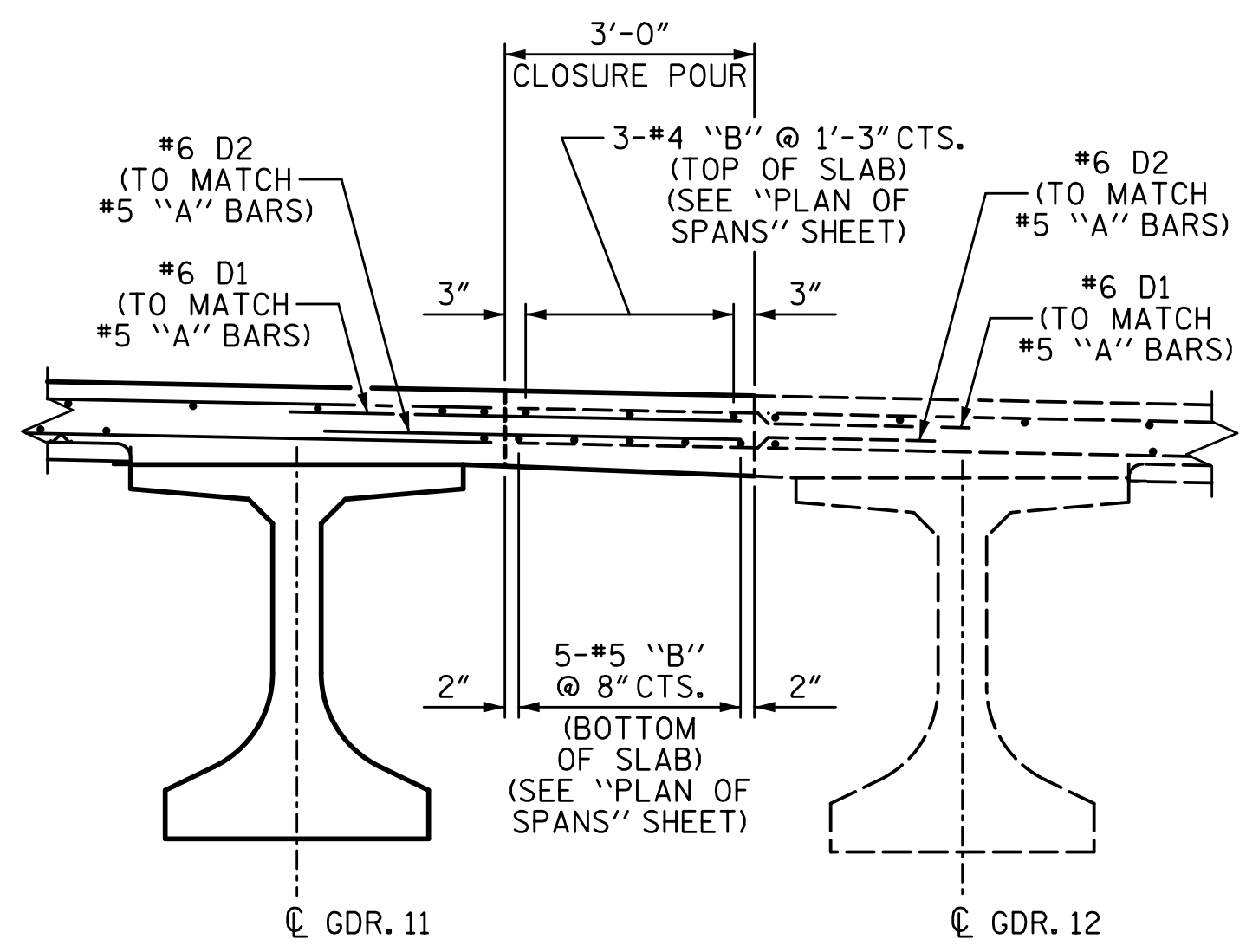
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-10
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

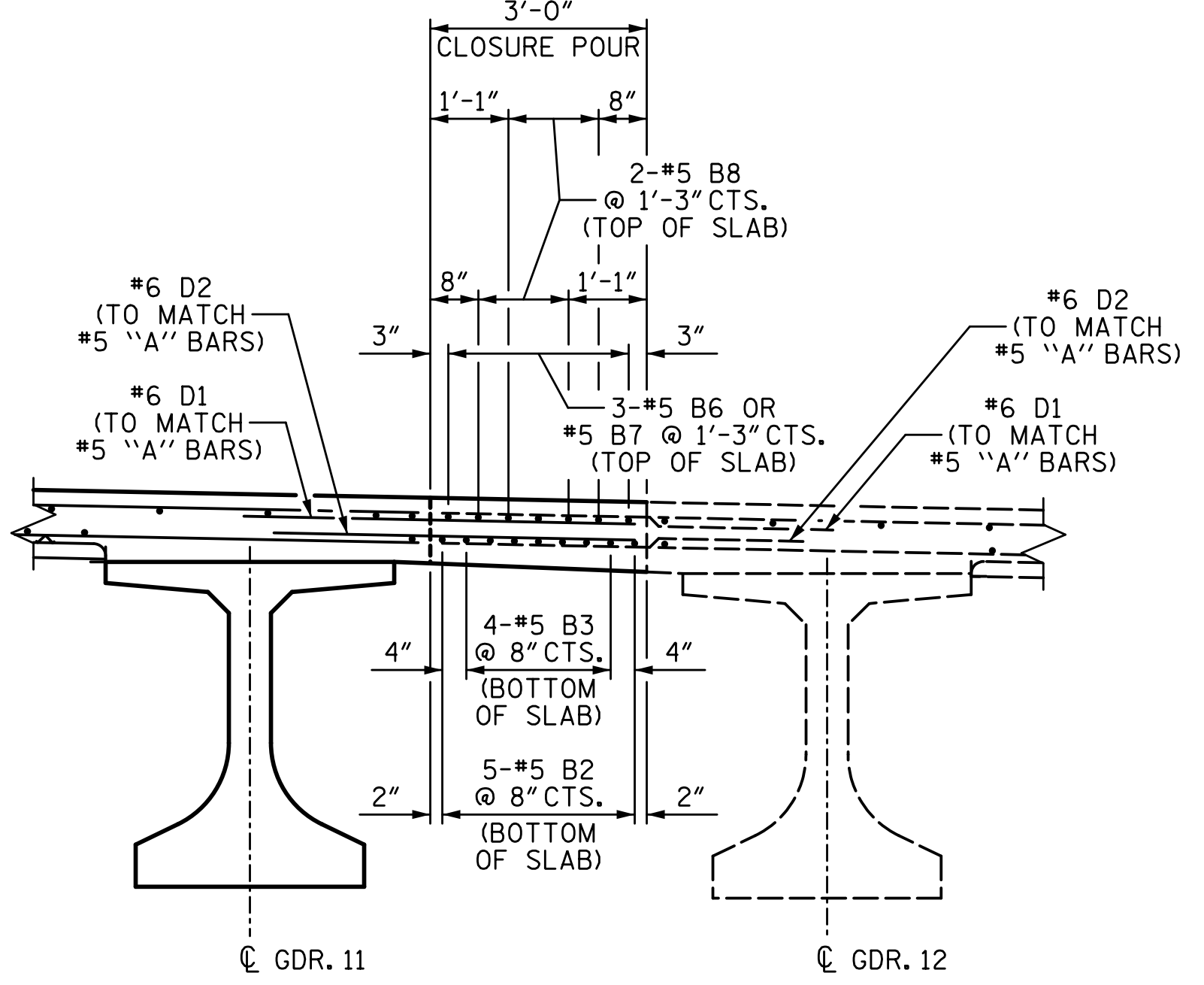
3/18/2022 11:06:17 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn



TYPICAL SECTION
(SHOWING LINK SLAB REGION AT INTERIOR BENT)



DETAIL "B"
#6 DOWELS EXTEND 2'-10" INTO CLOSURE POUR



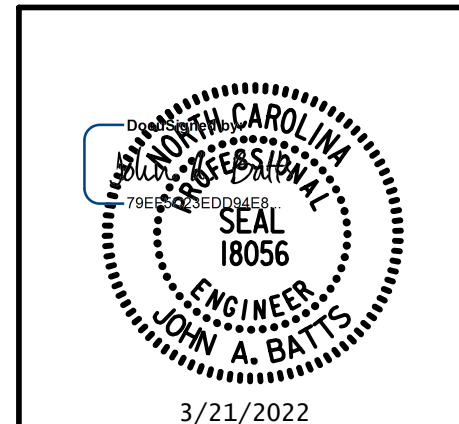
DETAIL "C"
#6 DOWELS EXTEND 2'-10" INTO CLOSURE POUR

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-
 SHEET 5 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

TYPICAL SECTION

STAGE II



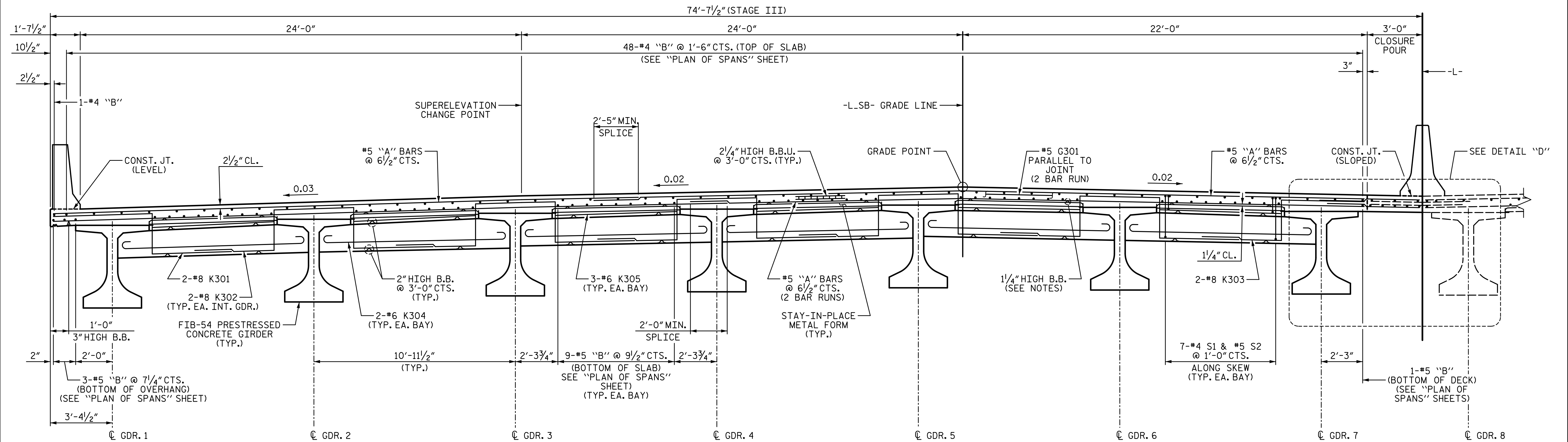
W WGI
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

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

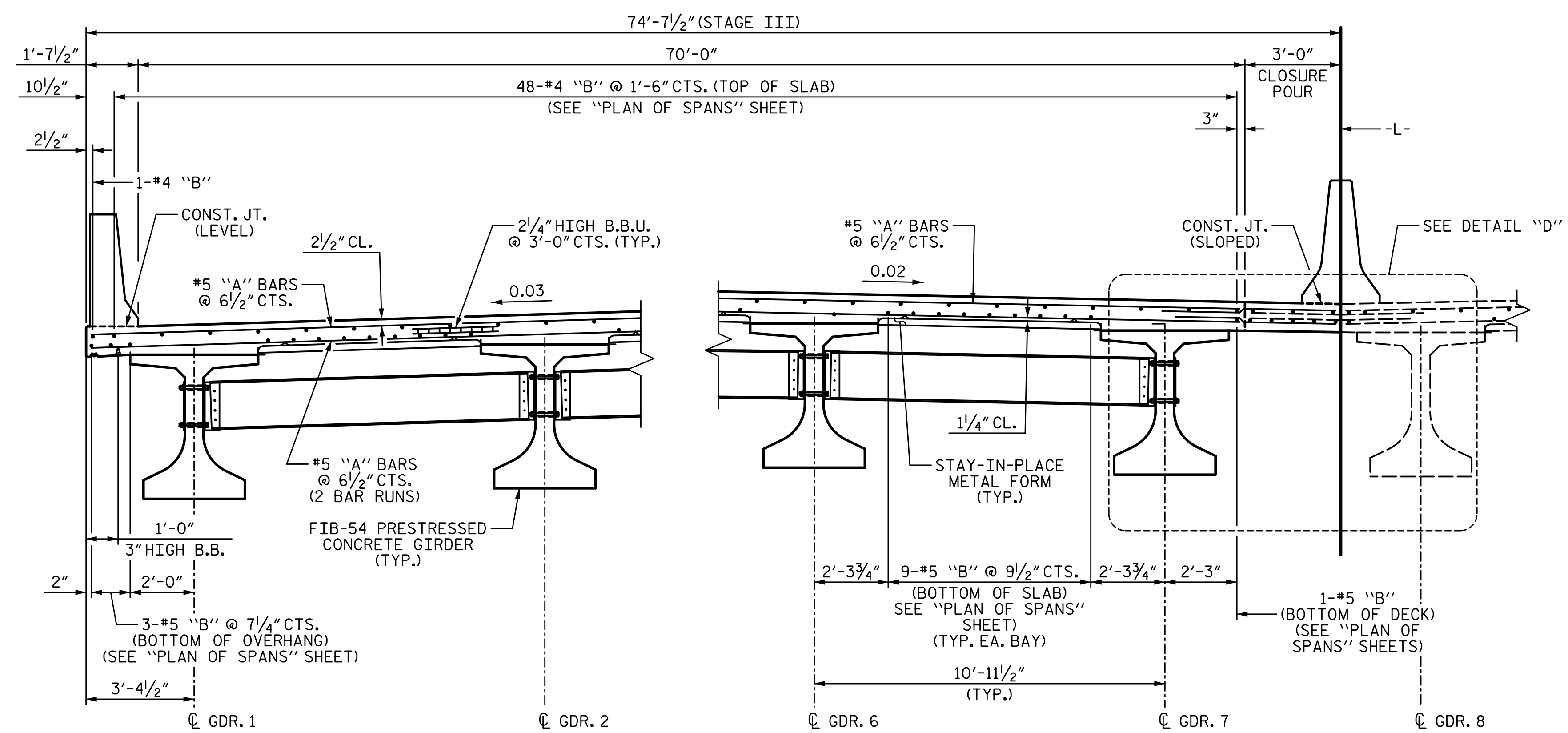
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-11
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:17 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn



TYPICAL SECTION
(SHOWING END BENT DIAPHRAGMS)



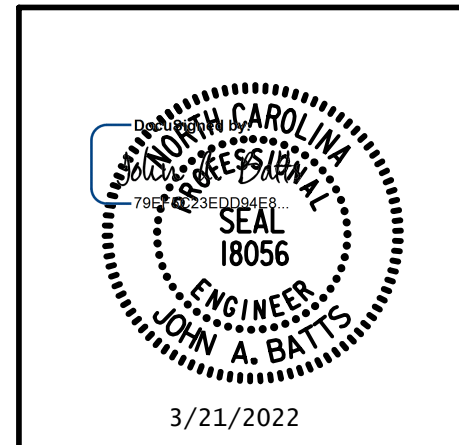
PARTIAL TYPICAL SECTION
(SHOWING INTERMEDIATE DIAPHRAGMS)

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-
 SHEET 6 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

TYPICAL SECTION

STAGE III

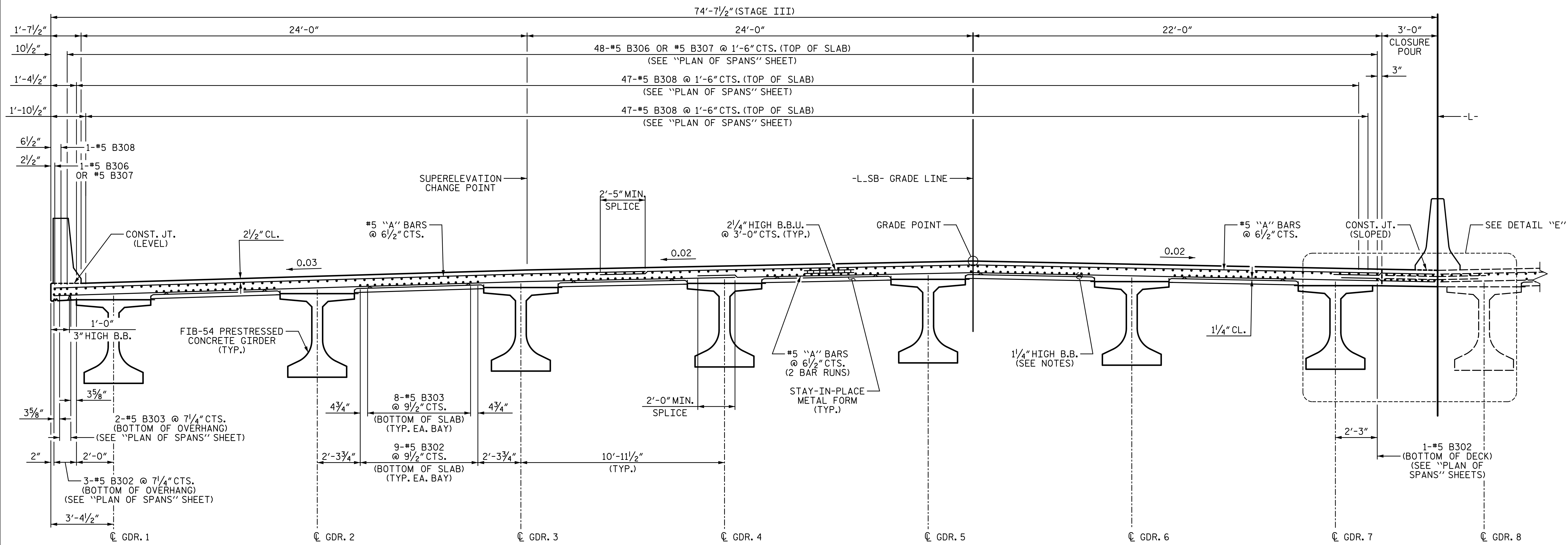


DRAWN BY: T. BANKOVICH DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

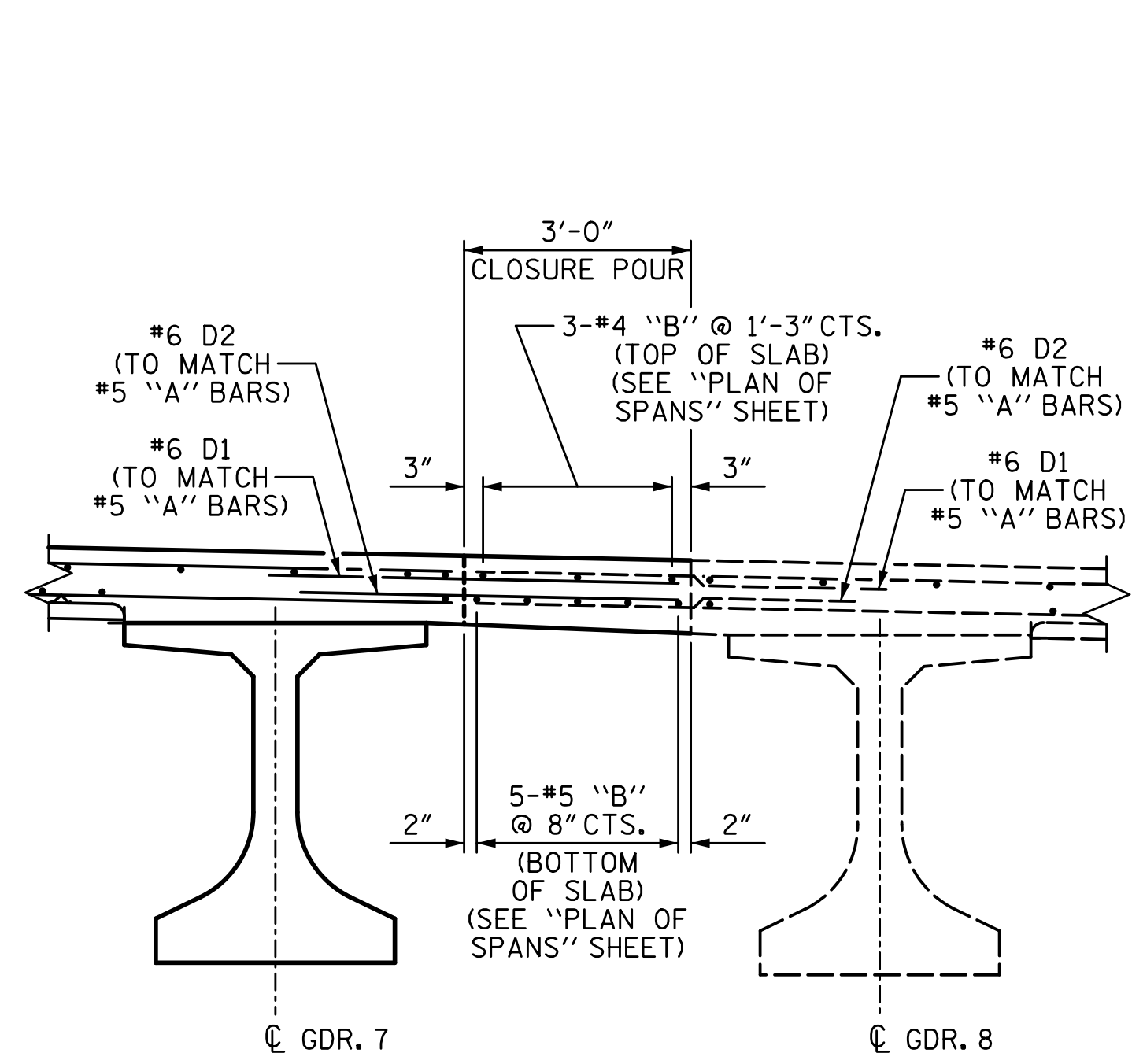
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-12
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:18 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn

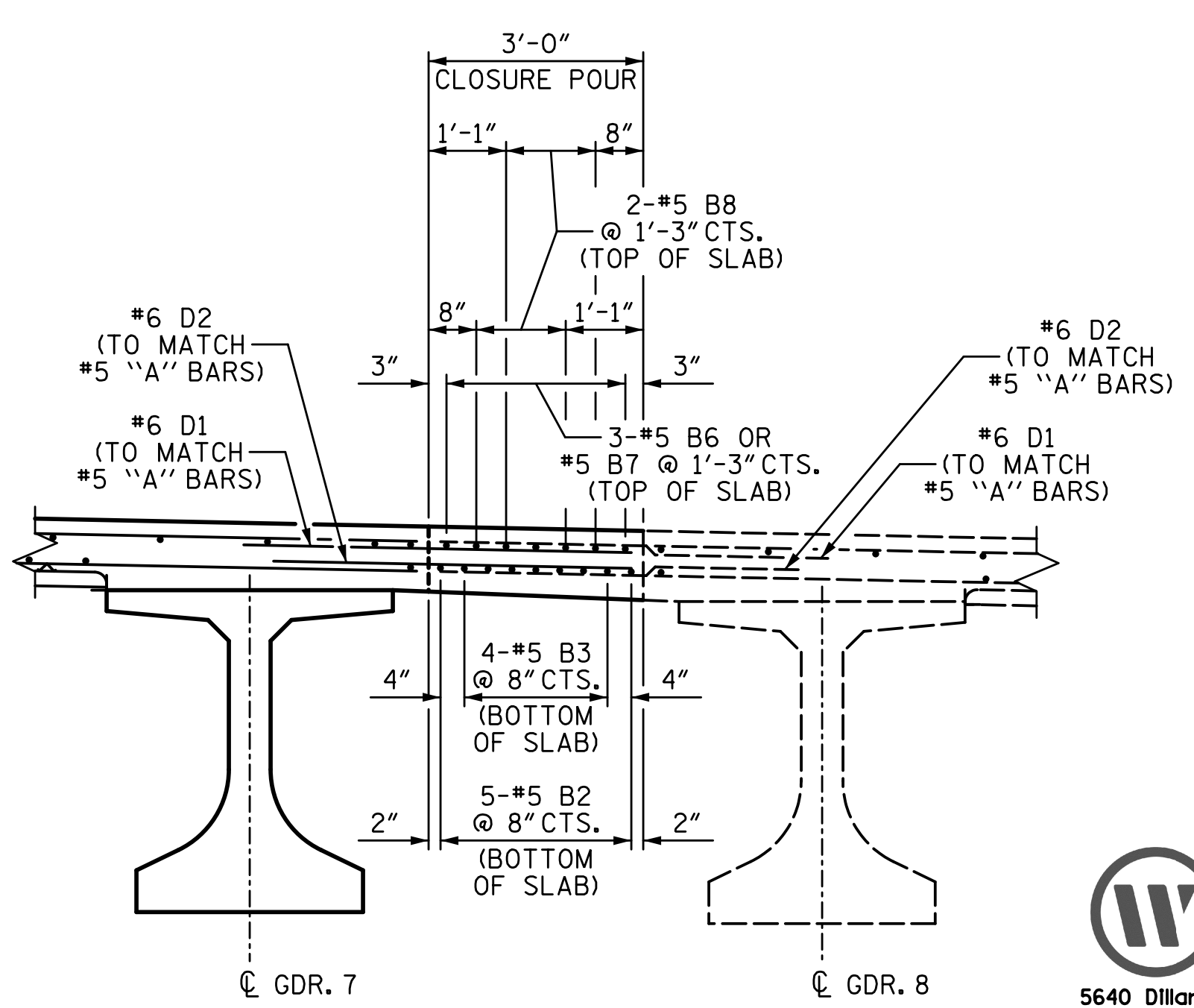


TYPICAL SECTION
(SHOWING LINK SLAB REGION AT INTERIOR BENT)



DETAIL "D"

#6 DOWELS EXTEND 2'-10" INTO CLOSURE POUR



DETAIL "E"

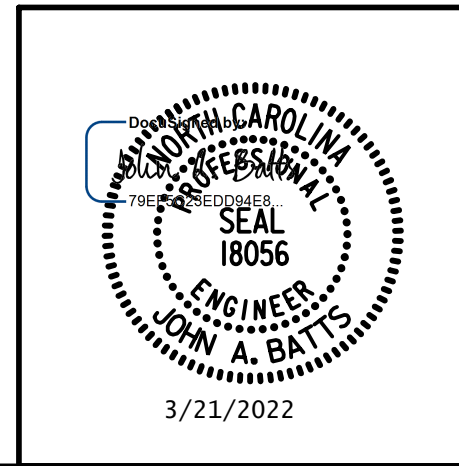
#6 DOWELS EXTEND 2'-10" INTO CLOSURE POUR

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-
 SHEET 7 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

TYPICAL SECTION

STAGE III



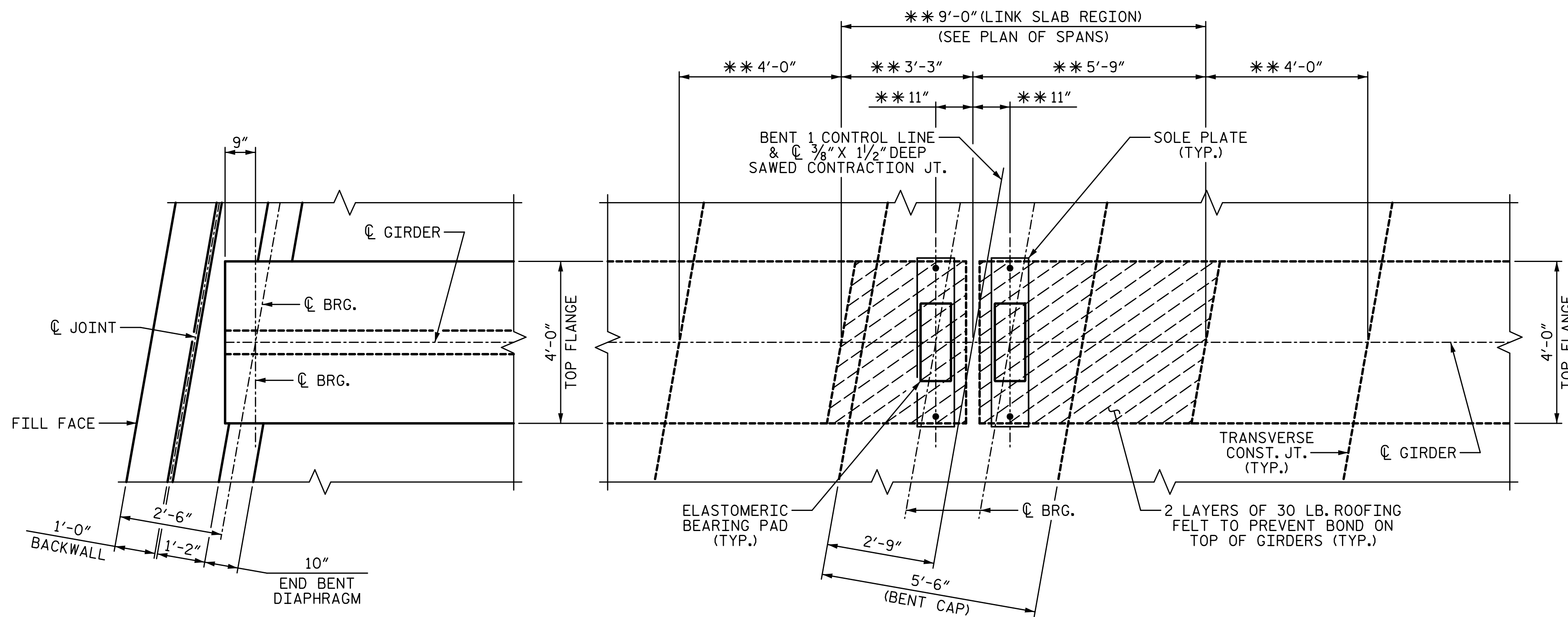
W.W.G.I.
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-13
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:18 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_TS_770164.dgn



PLAN OF GIRDER AT END BENT

(END BENT 1 SHOWN, END BENT 2 SIMILAR)

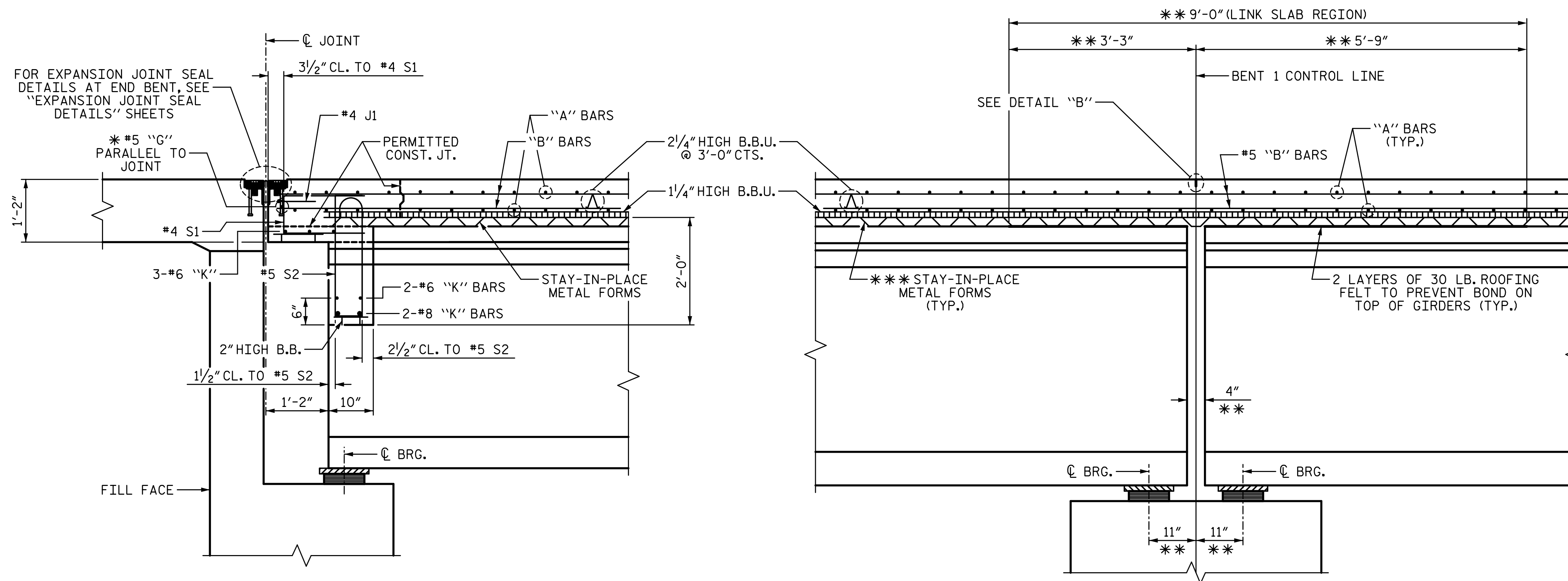
PLAN OF GIRDER AT BENT - LINK SLAB

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.

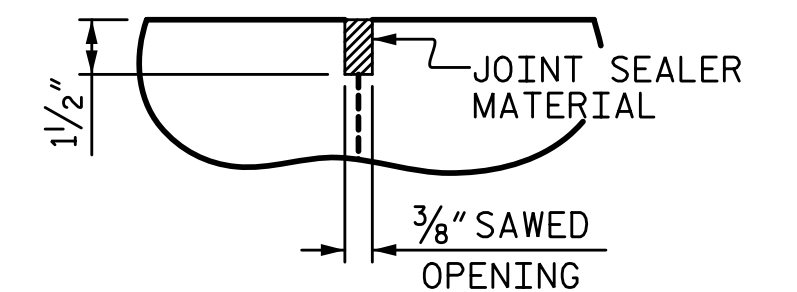


SECTION A-A

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

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

SECTION B-B



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.

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 803+15.00 -L-

SHEET 8 OF 8

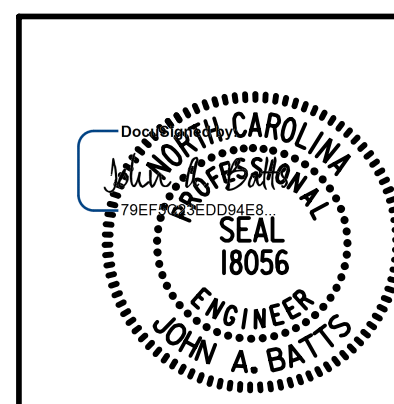
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

TYPICAL SECTION
DETAILS



5640 Dillard Drive, Suite 200
Cary, NC 27518

LICENSURE NO. C-4434



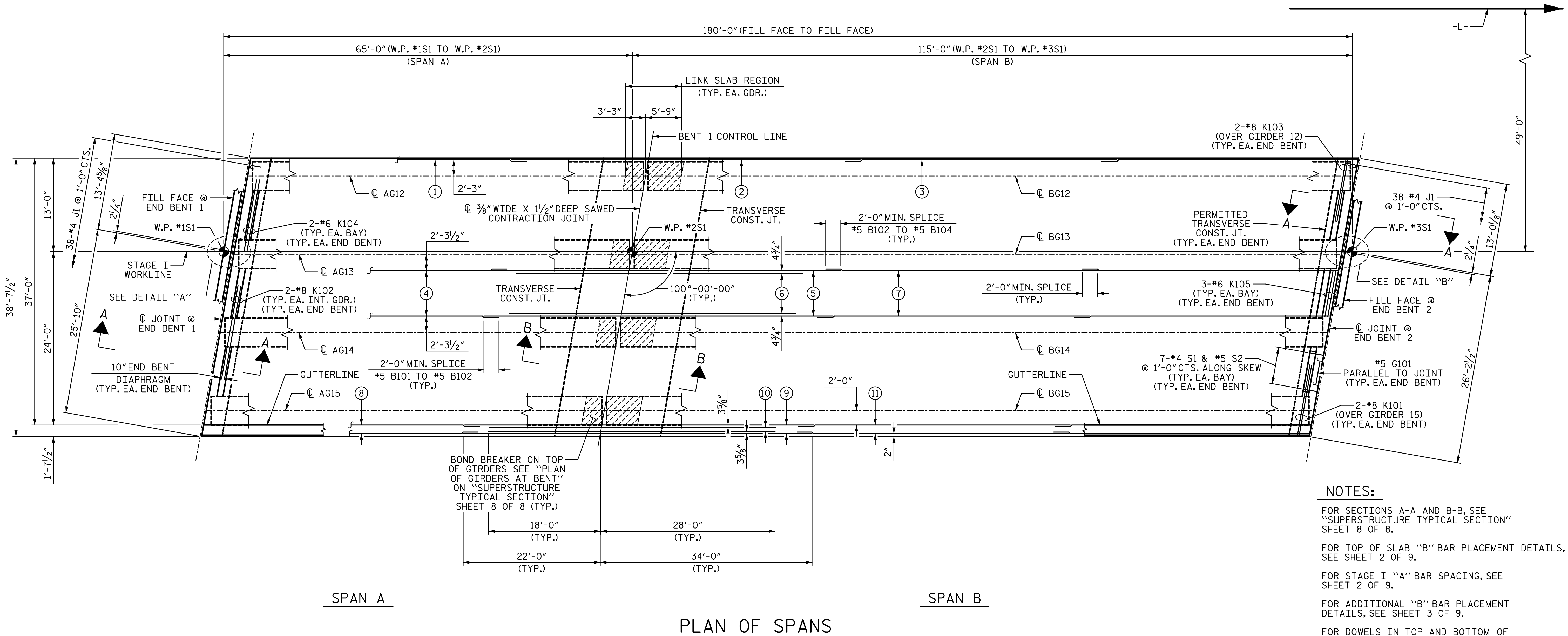
3/21/2022

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

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					69

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:20 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



NOTES:

FOR SECTIONS A-A AND B-B, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 8 OF 8.

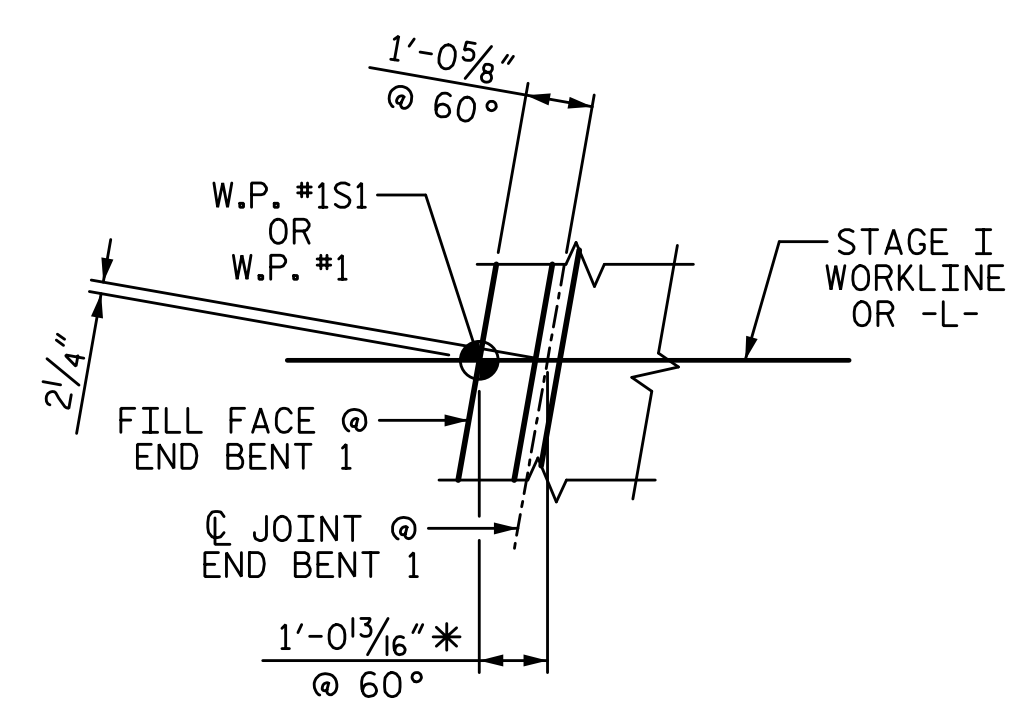
FOR TOP OF SLAB "B" BAR PLACEMENT DETAILS, SEE SHEET 2 OF 9.

FOR STAGE I "A" BAR SPACING, SEE SHEET 2 OF 9.

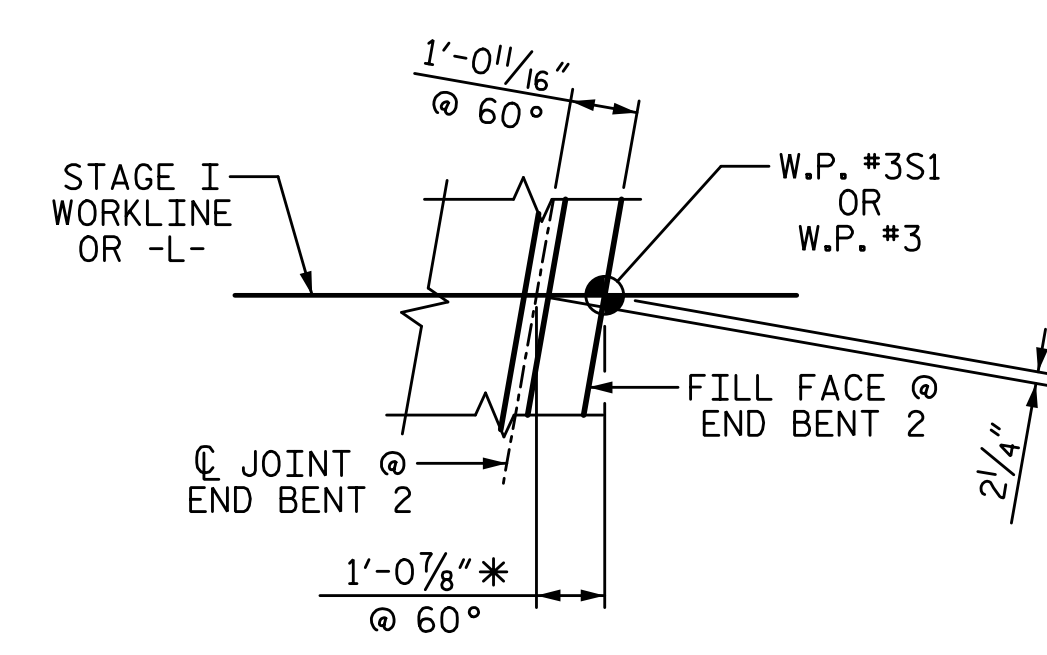
FOR ADDITIONAL "B" BAR PLACEMENT DETAILS, SEE SHEET 3 OF 9.

FOR DOWELS IN TOP AND BOTTOM OF SLAB, SEE SHEET 2 OF 9.

SEE "SUPERSTRUCTURE CONCRETE BARRIER RAIL" AND "CONCRETE MEDIAN BARRIER" SHEETS FOR ADDITIONAL REINFORCING STEEL IN DECK AND RAILS AND MEDIAN BARRIER.



* MEASURED ALONG STAGE I WORKLINE OR -L-



* MEASURED ALONG STAGE I WORKLINE OR -L-

- ① 1-#5 B101 (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ② 1-#5 B102 (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ③ 1-#5 B104 (2 BAR RUNS) (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ④ 9-#5 B101 @ 9 1/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑤ 9-#5 B102 @ 9 1/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑥ 8-#5 B103 @ 9 1/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑦ 9-#5 B104 @ 9 1/2" CTS. (2 BAR RUNS) (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑧ 3-#5 B101 @ 7 1/4" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑨ 3-#5 B102 @ 7 1/4" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑩ 2-#5 B103 @ 7 1/4" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑪ 3-#5 B104 @ 7 1/4" CTS. (2 BAR RUNS) (BOTTOM OF SLAB) (SEE TYPICAL SECTION)

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 1 OF 9

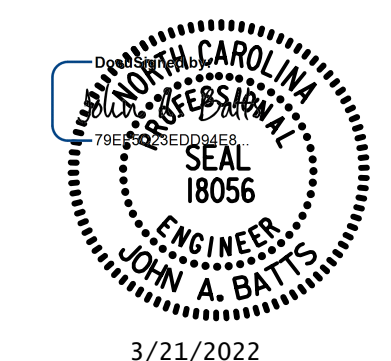
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

STAGE I

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

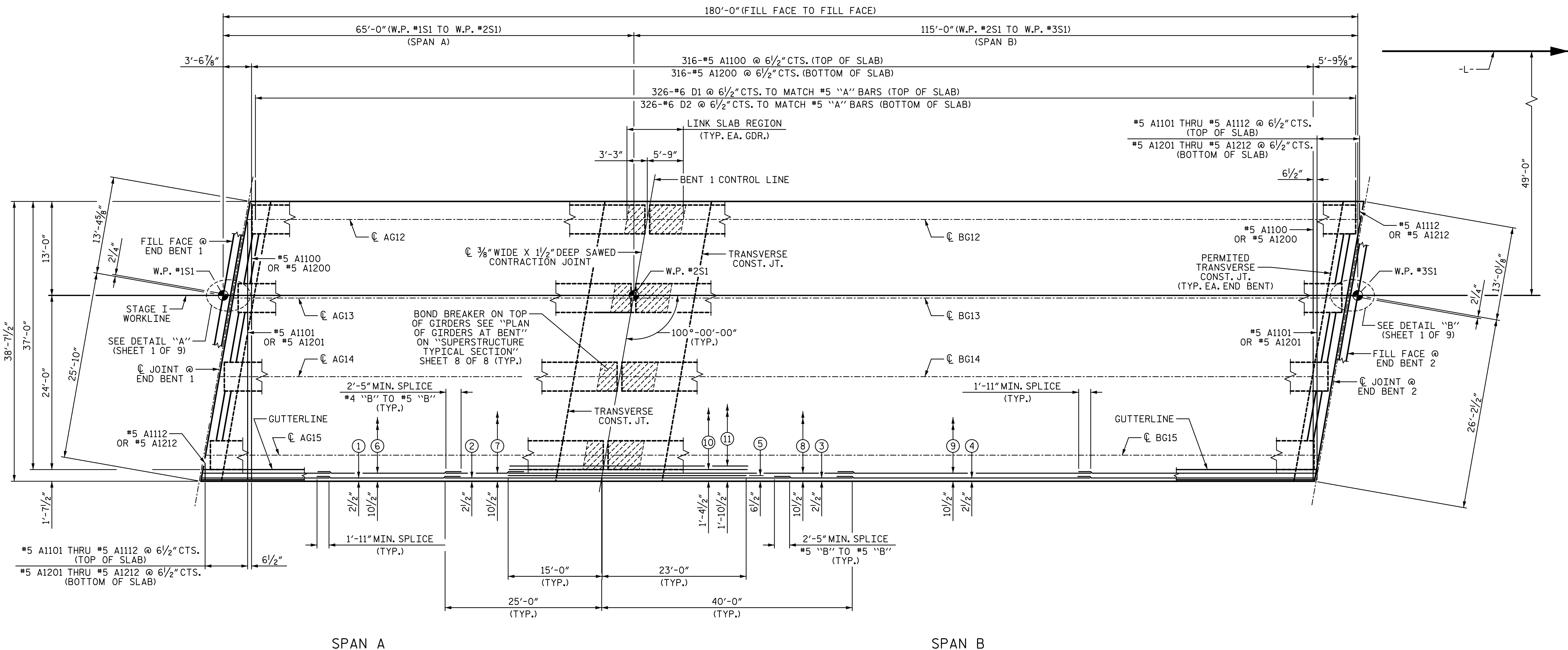
TOTAL SHEETS
69



**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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

3/18/2022 11:06:20 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



PLAN OF SPANS

- ① 1-*4 B105 (2 BAR RUN) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ② 1-*5 B106 (TOP OF SLAB) (SEE TYPICAL SECTION)
- ③ 1-*5 B107 (TOP OF SLAB) (SEE TYPICAL SECTION)
- ④ 1-*4 B109 (2 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑤ 1-*5 B108 (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑥ 26-*4 B105 @ 1'-6" CTS. (2 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑦ 26-*5 B107 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑧ 26-*5 B106 @ 1'-6" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑨ 26-*4 B109 @ 1'-6" CTS. (2 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑩ 25-*5 B108 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑪ 25-*5 B108 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)

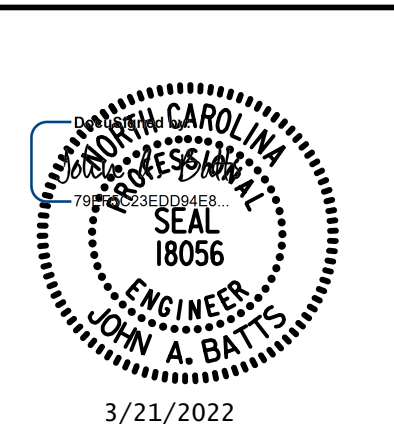
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 2 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

STAGE I

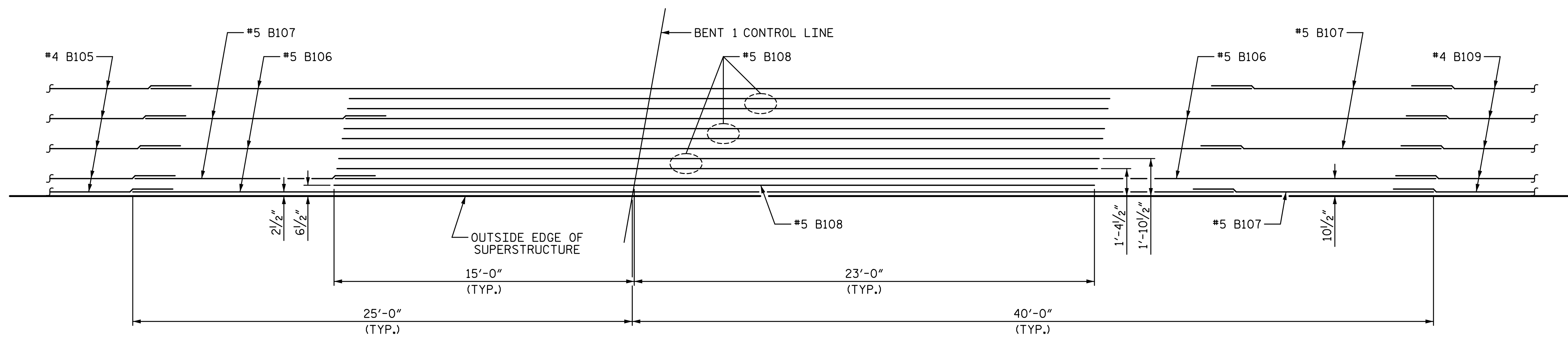


DRAWN BY: T. BANKOVICH DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

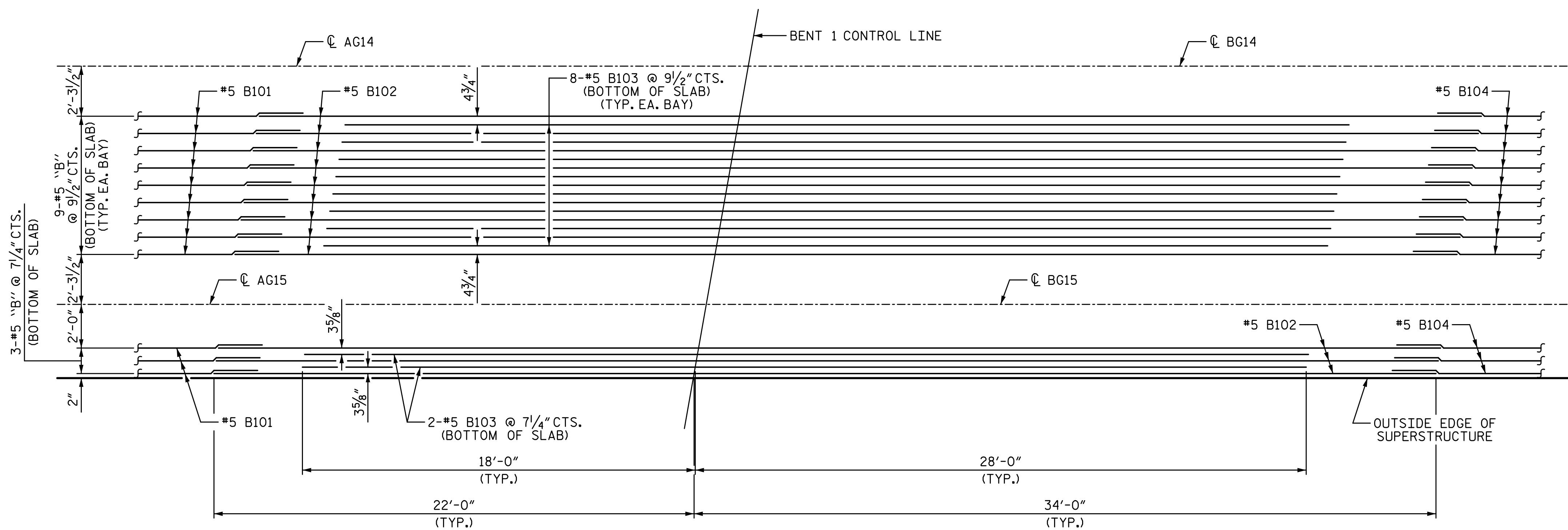
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-16
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:21 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



TOP OF DECK "B" BAR PLACEMENT
AT BENT



BOTTOM OF DECK "B" BAR PLACEMENT
AT BENT

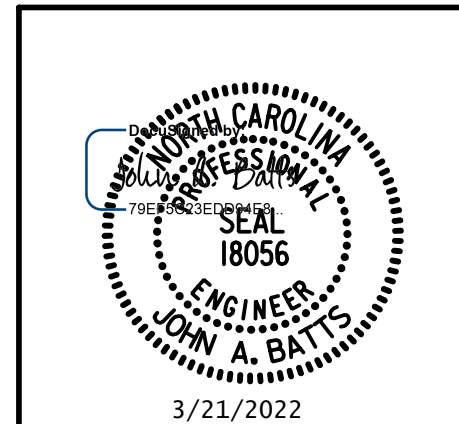
PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 803+15.00 -L-

SHEET 3 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPANS

STAGE I

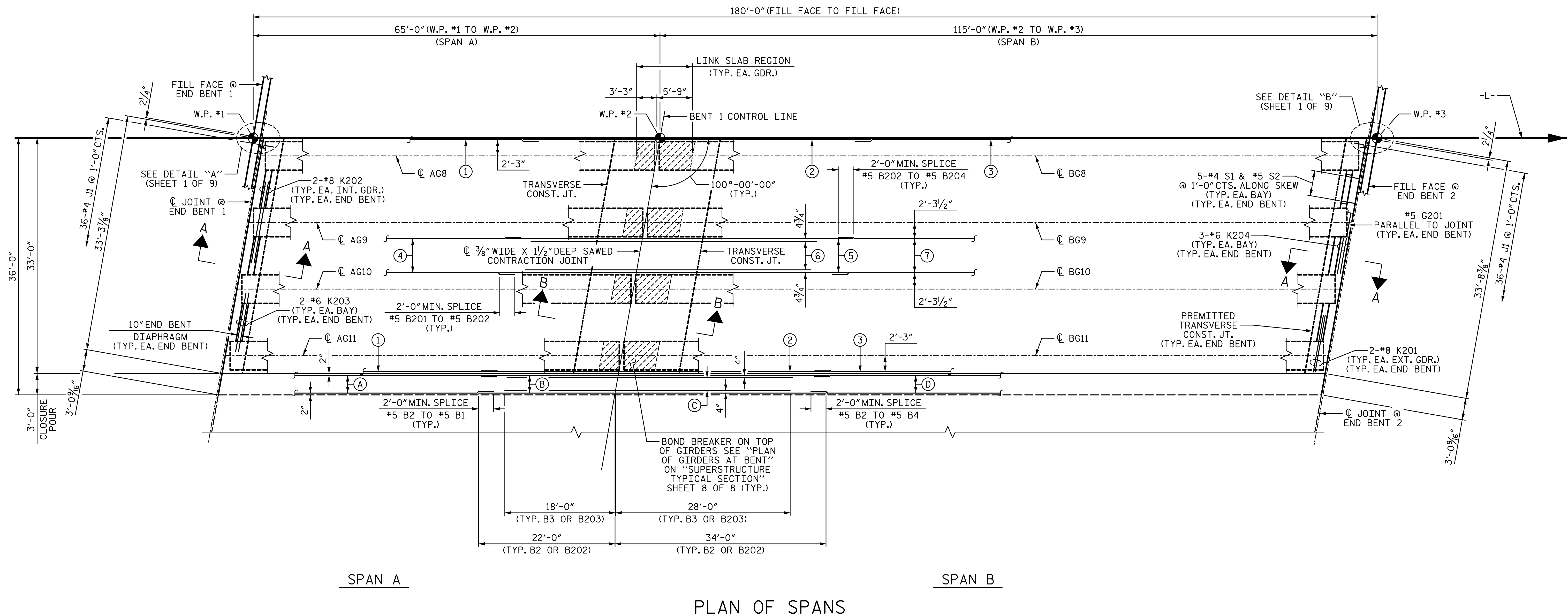


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS	DATE: 3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-17
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:21 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



PLAN OF SPANS

- | | |
|--|--|
| <ul style="list-style-type: none"> ① 1-#5 B201 (BOTTOM OF SLAB) (SEE TYPICAL SECTION) ② 1-#5 B202 (BOTTOM OF SLAB) (SEE TYPICAL SECTION) ③ 1-#5 B204 (2 BAR RUN) (BOTTOM OF SLAB) (SEE TYPICAL SECTION) ④ 7-#5 B201 @ 9/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION) ⑤ 7-#5 B202 @ 9/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION) ⑥ 6-#5 B203 @ 9/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION) | <ul style="list-style-type: none"> ⑦ 7-#5 B204 @ 9/2" CTS. (2 BAR RUNS) (BOTTOM OF SLAB) (SEE TYPICAL SECTION) Ⓐ 5-#5 B1 @ 8" CTS. (BOTTOM OF CLOSURE POUR) (SEE TYPICAL SECTION) Ⓑ 5-#5 B2 @ 8" CTS. (BOTTOM OF CLOSURE POUR) (SEE TYPICAL SECTION) Ⓒ 4-#5 B3 @ 8" CTS. (BOTTOM OF CLOSURE POUR) (SEE TYPICAL SECTION) Ⓓ 5-#5 B4 @ 8" CTS. (2 BAR RUNS) (BOTTOM OF CLOSURE POUR) (SEE TYPICAL SECTION) |
|--|--|

NOTES:

FOR SECTIONS A-A AND B-B, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 8 OF 8.

FOR TOP OF SLAB "B" BAR PLACEMENT DETAILS, SEE SHEET 5 OF 9.

FOR STAGE II "A" BAR SPACING, SEE SHEET 5 OF 9.

FOR ADDITIONAL "B" BAR PLACEMENT DETAILS, SEE SHEET 6 OF 9.

FOR DOWELS IN TOP AND BOTTOM OF SLAB, SEE SHEET 5 OF 9.

SEE "SUPERSTRUCTURE CONCRETE BARRIER RAIL" AND "CONCRETE MEDIAN BARRIER" SHEETS FOR ADDITIONAL REINFORCING STEEL IN DECK AND RAILS AND MEDIAN BARRIER.

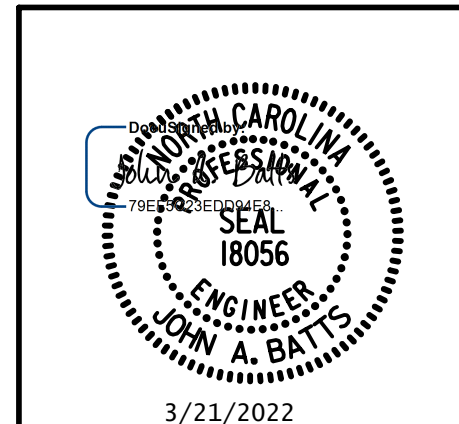
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 4 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

STAGE II



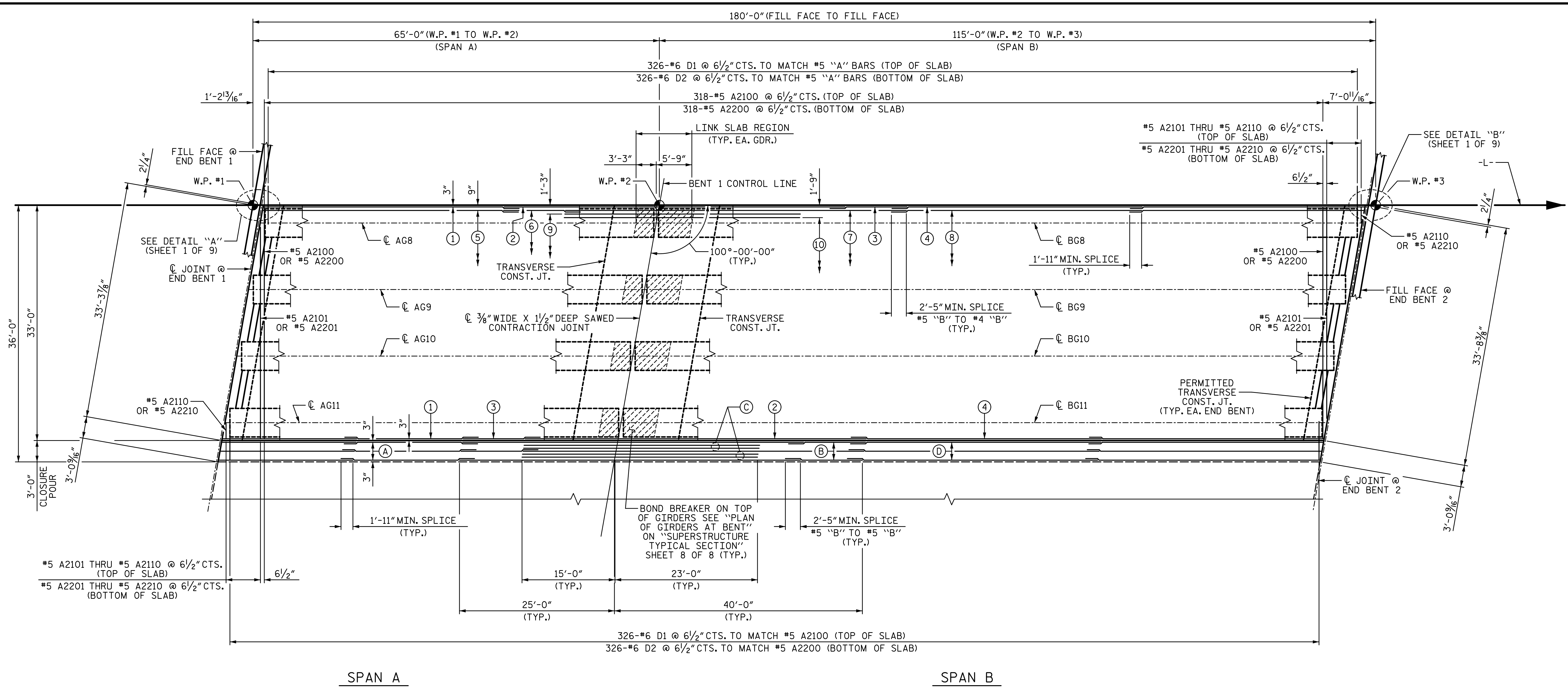
W.W.G.I.
 5640 Dillard Drive, Suite 200
 Cary, NC 27518
 LICENSURE NO. C-4434

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-18
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:22 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



PLAN OF SPANS

- ① 1-#4 B205 (2 BAR RUN) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ② 1-#5 B206 (TOP OF SLAB) (SEE TYPICAL SECTION)
- ③ 1-#5 B207 (TOP OF SLAB) (SEE TYPICAL SECTION)
- ④ 1-#4 B209 (2 BAR RUN) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑤ 22-#4 B205 @ 1'-6" CTS. (2 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑥ 22-#5 B207 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑦ 22-#5 B206 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑧ 22-#4 B209 @ 1'-6" CTS. (2 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑨ 21-#5 B208 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑩ 21-#5 B208 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- Ⓐ 3-#4 B5 @ 1'-3" CTS. (2 BAR RUNS) (TOP OF CLOSURE POUR) (SEE TYPICAL SECTION)
- Ⓑ 3-#5 B6 OR #5 B7 @ 1'-3" CTS. (TOP OF CLOSURE POUR) (SEE TYPICAL SECTION)
- Ⓒ 4-#5 B8 (TOP OF CLOSURE POUR) (SEE TYPICAL SECTION FOR SPACING)
- Ⓓ 3-#4 B9 @ 1'-3" CTS. (2 BAR RUNS) (TOP OF CLOSURE POUR) (SEE TYPICAL SECTION)

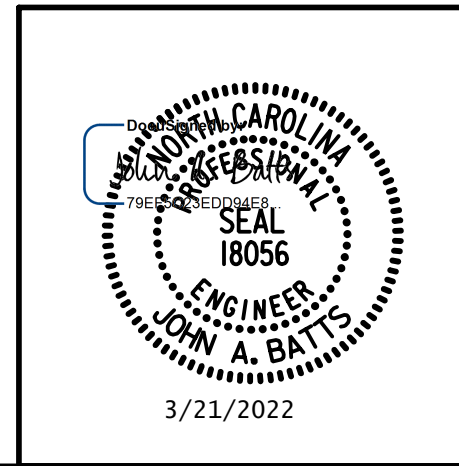
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 5 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

STAGE II



LICENSURE NO. C-4434

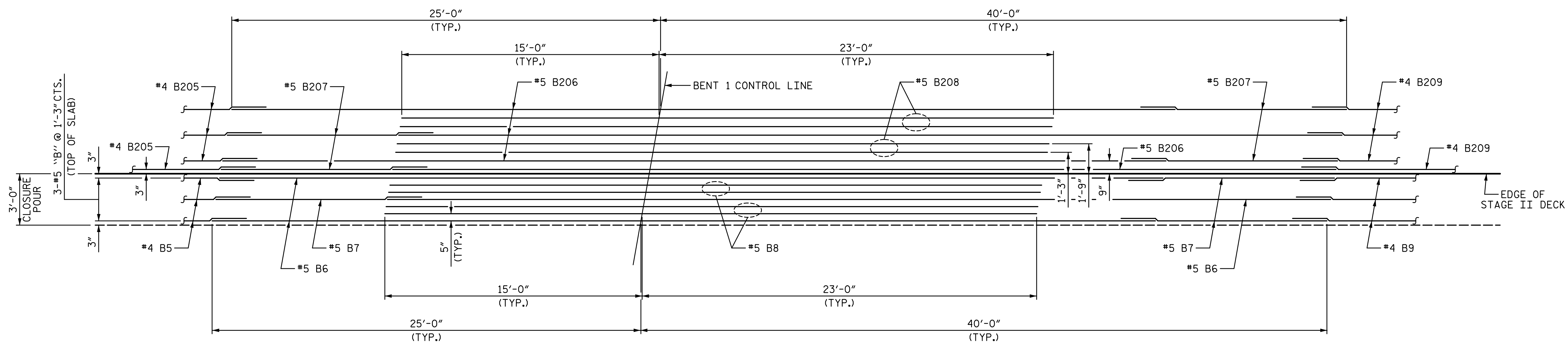
DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS	DATE: 3-22

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

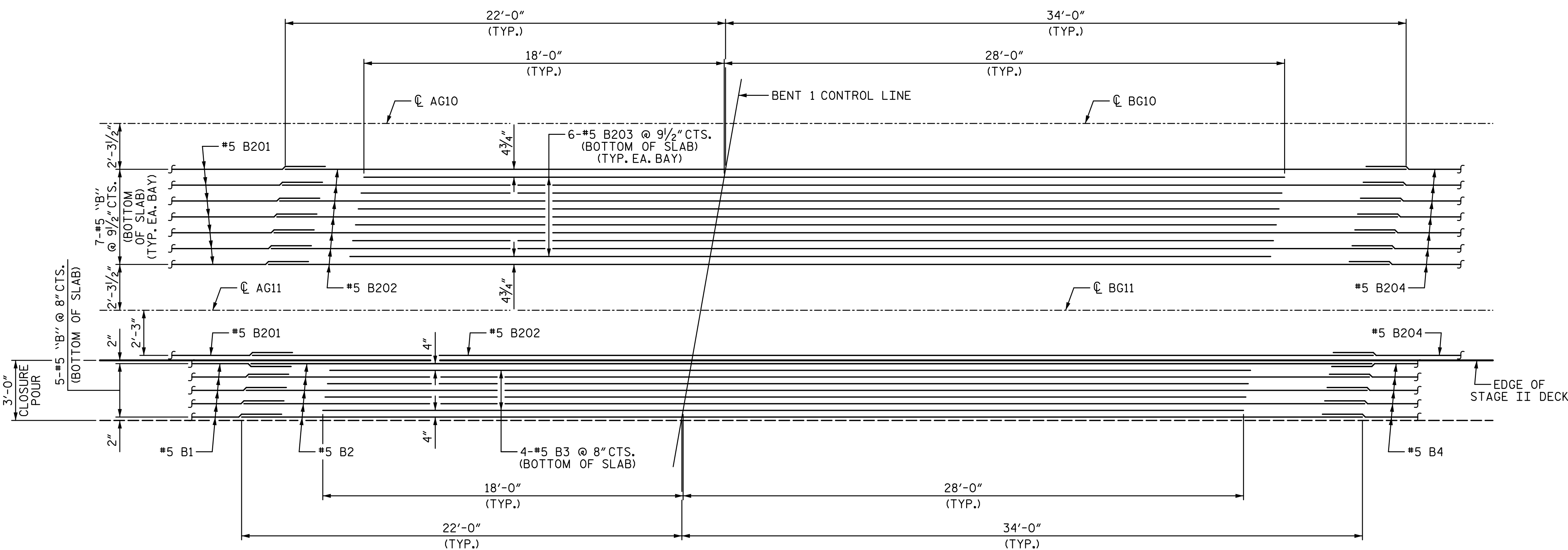
TOTAL SHEETS: 69

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:22 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



TOP OF DECK "B" BAR PLACEMENT
AT BENT



BOTTOM OF DECK "B" BAR PLACEMENT
AT BENT

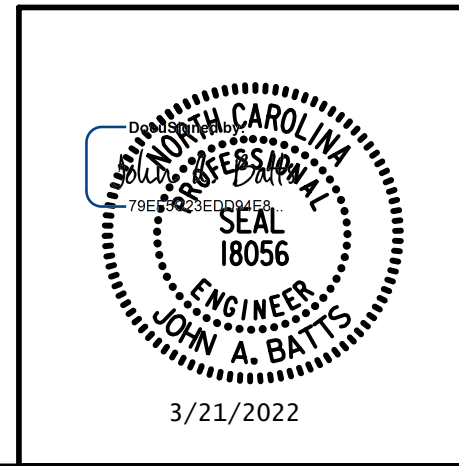
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 6 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

STAGE II

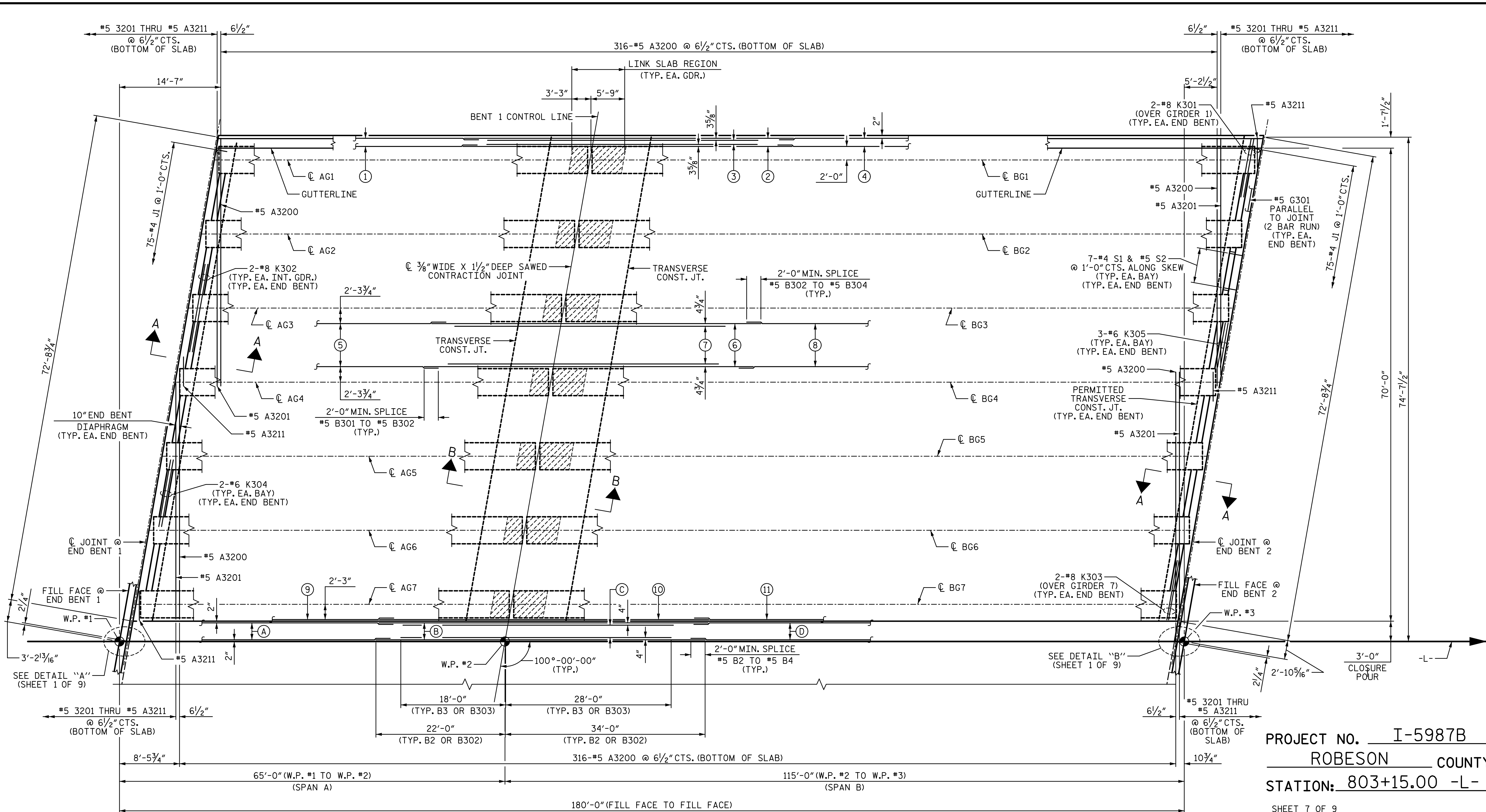


DRAWN BY: T. BANKOVICH DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-20
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:23 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



SPAN A

SPAN B

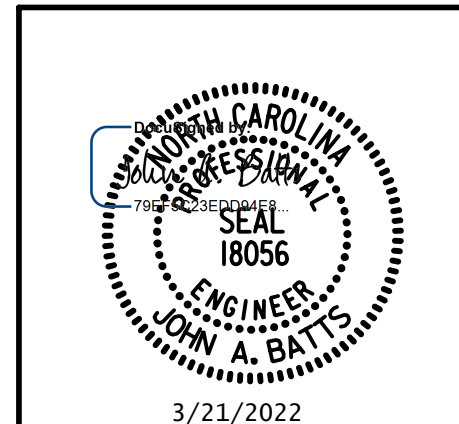
PLAN OF SPANS

FOR CLOSURE POUR REINFORCING STEEL SEE SHEET 4 OF 9.
FOR DOWELS IN TOP AND BOTTOM OF SLAB, SEE SHEET 8 OF 9.

- ① 3-#5 B301 @ 7/4" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ② 3-#5 B302 @ 7/4" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ③ 2-#5 B303 @ 7/4" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ④ 3-#5 B304 @ 7/4" CTS. (2 BAR RUNS) (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑤ 9-#5 B301 @ 9/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑥ 9-#5 B302 @ 9/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)

- ⑦ 8-#5 B303 @ 9/2" CTS. (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑧ 9-#5 B304 @ 9/2" CTS. (2 BAR RUNS) (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑨ 1-#5 B301 (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑩ 1-#5 B302 (BOTTOM OF SLAB) (SEE TYPICAL SECTION)
- ⑪ 1-#5 B304 (2 BAR RUN) (BOTTOM OF SLAB) (SEE TYPICAL SECTION)

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



PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

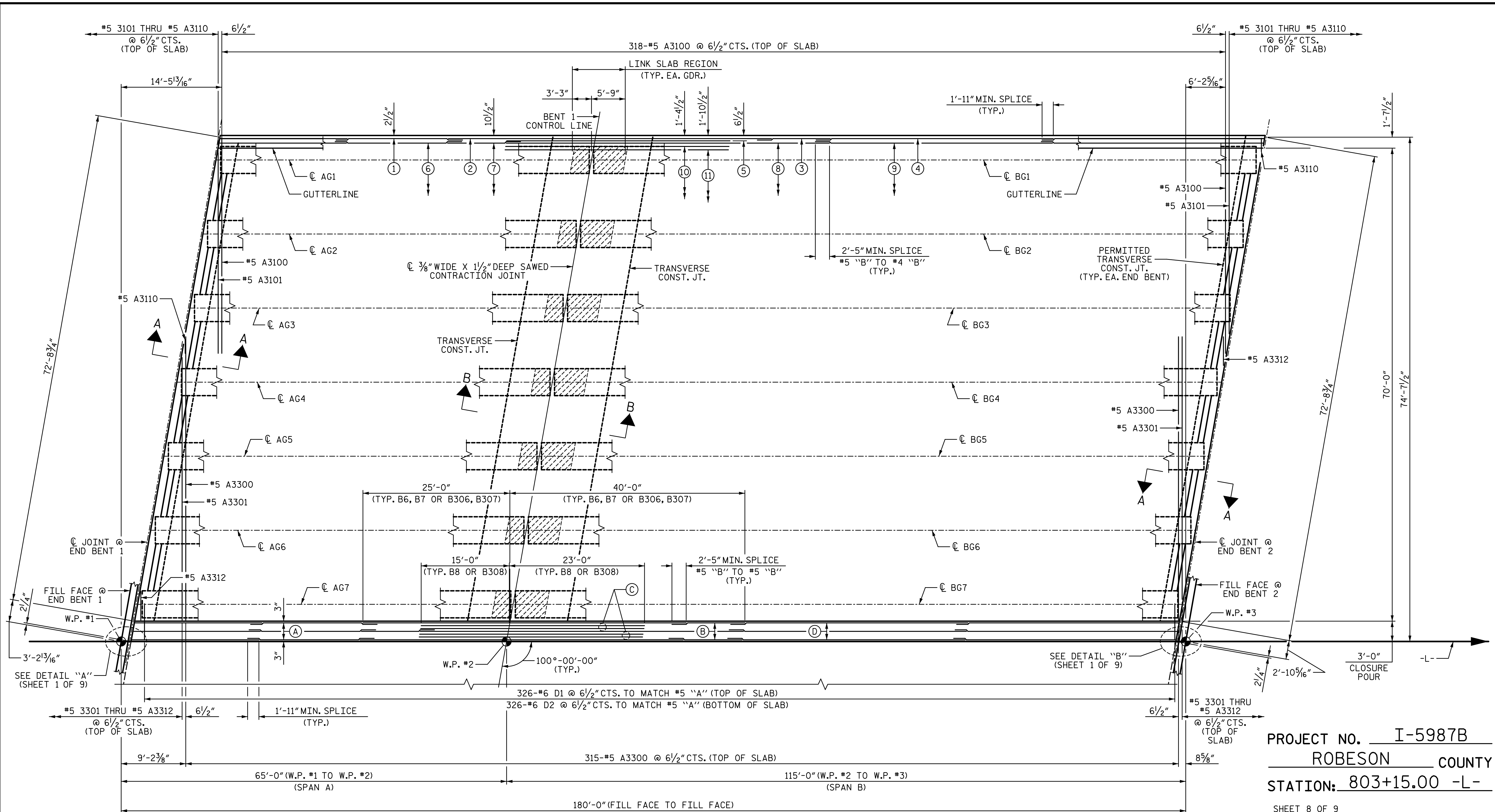
SHEET 7 OF 9

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE					
PLAN OF SPANS					
STAGE III					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S9-21
TOTAL SHEETS 69

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:23 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



- ① 1-#4 B305 (2 BAR RUN) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ② 1-#5 B306 (TOP OF SLAB) (SEE TYPICAL SECTION)
- ③ 1-#5 B307 (TOP OF SLAB) (SEE TYPICAL SECTION)
- ④ 1-#4 B309 (2 BAR RUN) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑤ 1-#5 B308 (TOP OF SLAB) (SEE TYPICAL SECTION)

SPAN A

- ⑥ 48-#4 B305 @ 1'-6" CTS. (2 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑦ 48-#5 B307 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑧ 48-#5 B306 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)

SPAN B

- ⑨ 48-#4 B309 @ 1'-6" CTS. (2 BAR RUNS) (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑩ 47-#5 B308 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)
- ⑪ 47-#5 B308 @ 1'-6" CTS. (TOP OF SLAB) (SEE TYPICAL SECTION)

PLAN OF SPANS

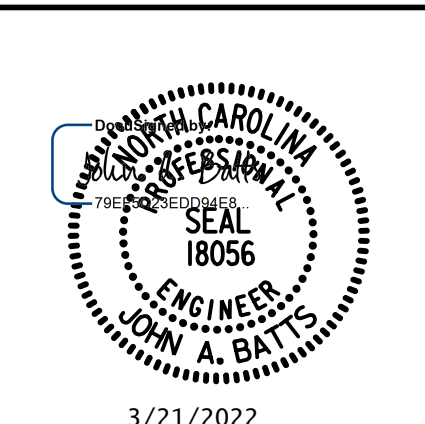
FOR CLOSURE POUR REINFORCING STEEL SEE SHEET 5 OF 9

NOTES:

FOR SECTIONS A-A AND B-B, SEE "SUPERSTRUCTURE TYPICAL SECTION" SHEET 8 OF 8.

SEE "SUPERSTRUCTURE CONCRETE BARRIER RAIL" AND "CONCRETE MEDIAN BARRIER" SHEETS FOR ADDITIONAL REINFORCING STEEL IN DECK AND RAILS AND MEDIAN BARRIER.

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



PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

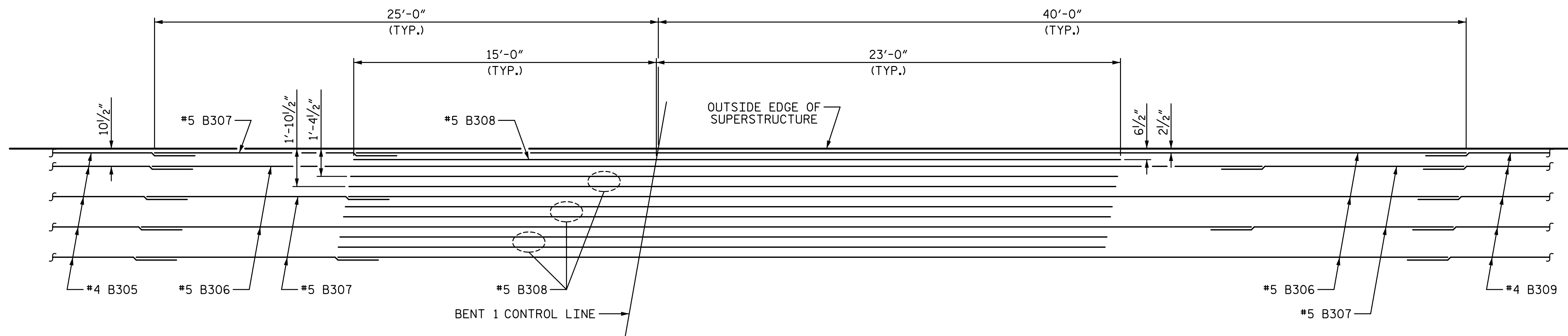
SHEET 8 OF 9

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-22
1			3			TOTAL SHEETS
2			4			69

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

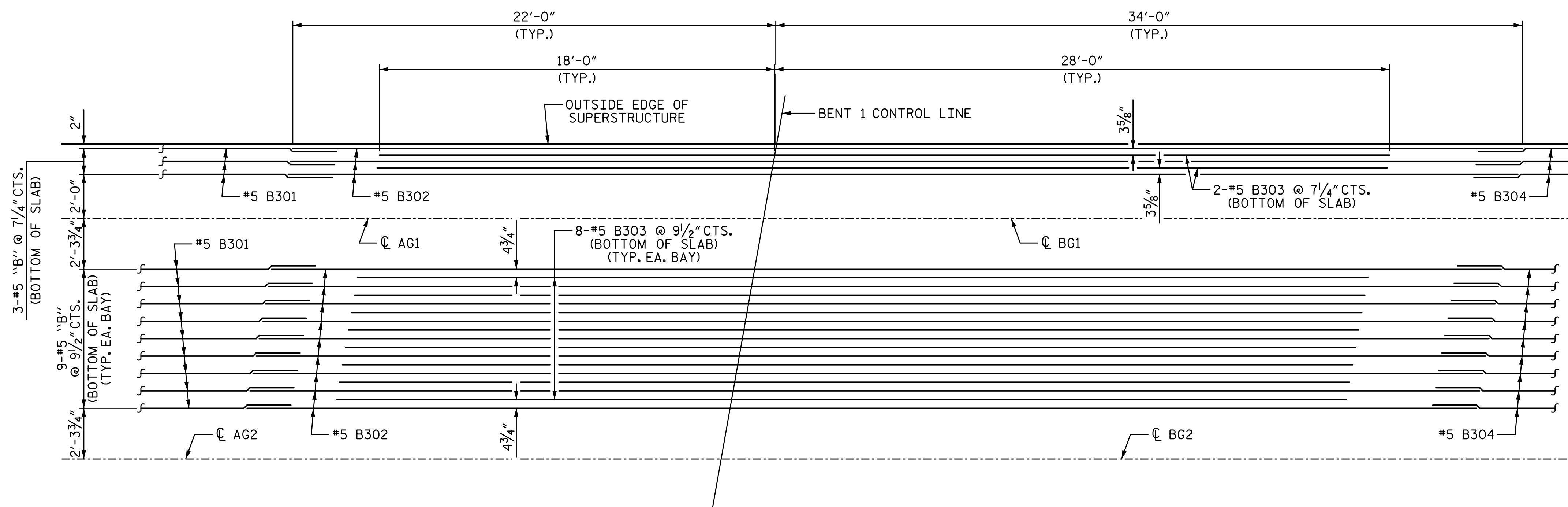
3/18/2022 11:06:24 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_S_770164.dgn



TOP OF DECK "B" BAR PLACEMENT

AT BENT

FOR CLOSURE POUR REINFORCING STEEL SEE SHEET 6 OF 9.



BOTTOM OF DECK "B" BAR PLACEMENT

AT BENT

FOR CLOSURE POUR REINFORCING STEEL SEE SHEET 6 OF 9.

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 9 OF 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

PLAN OF SPANS

STAGE III

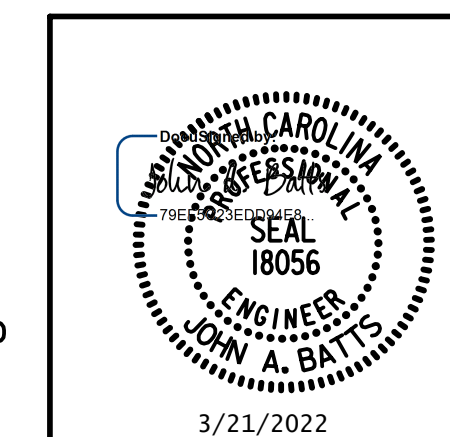
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S9-23
2			4			TOTAL SHEETS 69



5640 Dillard Drive, Suite 200
 Cary, NC 27518

LICENSURE NO. C-4434

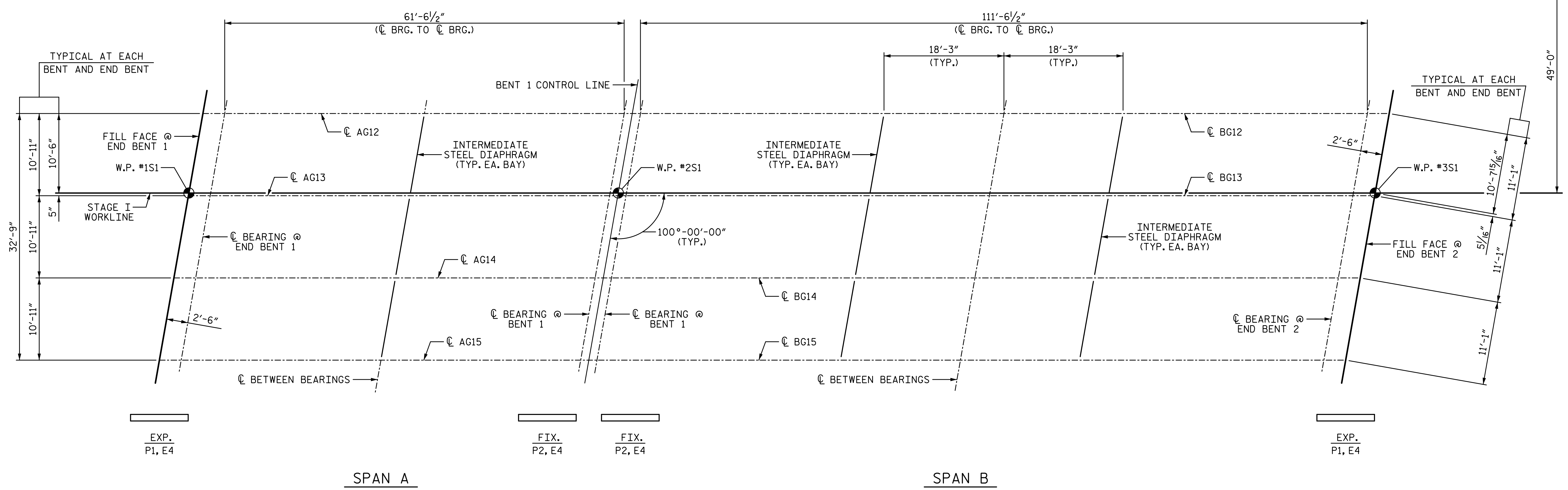


3/21/2022

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

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:25 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_FP_770164.dgn



FRAMING PLAN

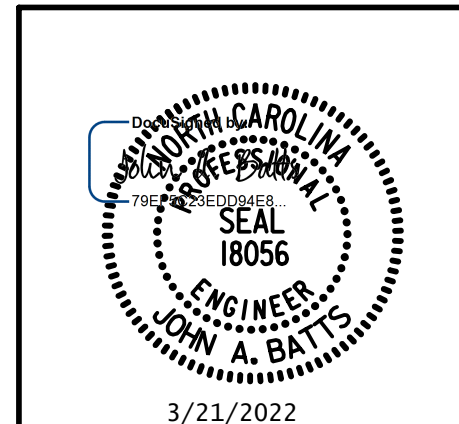
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

FRAMING PLAN

STAGE I

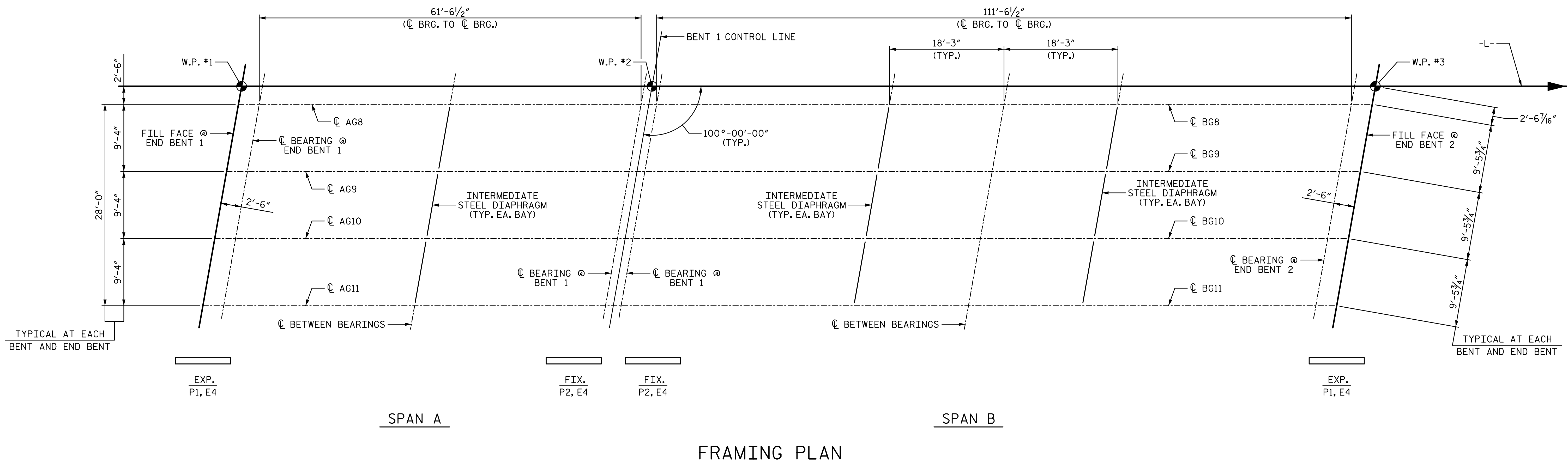


DRAWN BY:	T. BANKOVICH	DATE:	3-22
CHECKED BY:	J.A. BATTS	DATE:	3-22
DESIGN ENGINEER OF RECORD:	J.A. BATTS	DATE:	3-22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-24
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:25 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_FP_770164.dgn

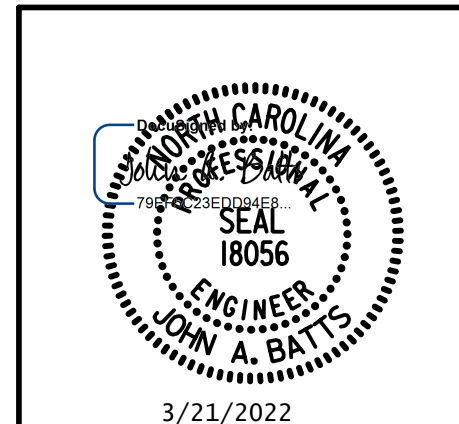


FRAMING PLAN

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 STAGE II

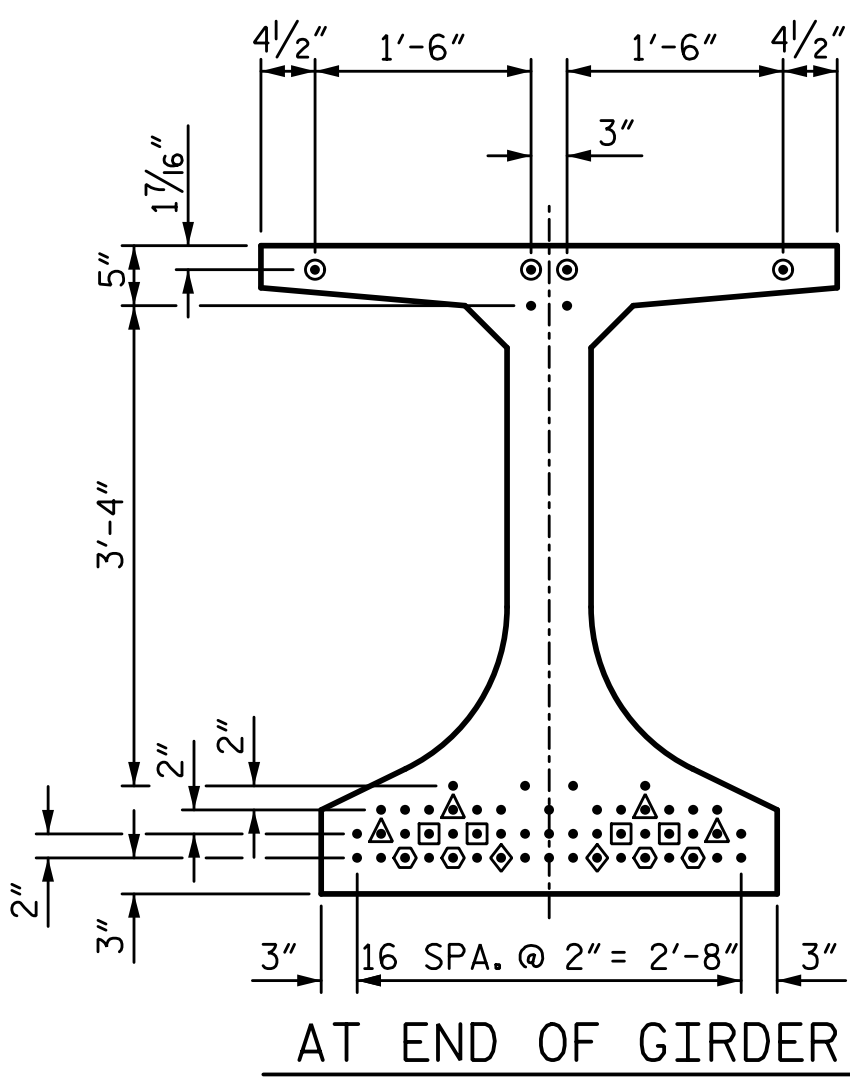


DRAWN BY: T. BANKOVICH	DATE: 3-22
CHECKED BY: J.A. BATTS	DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS	DATE: 3-22

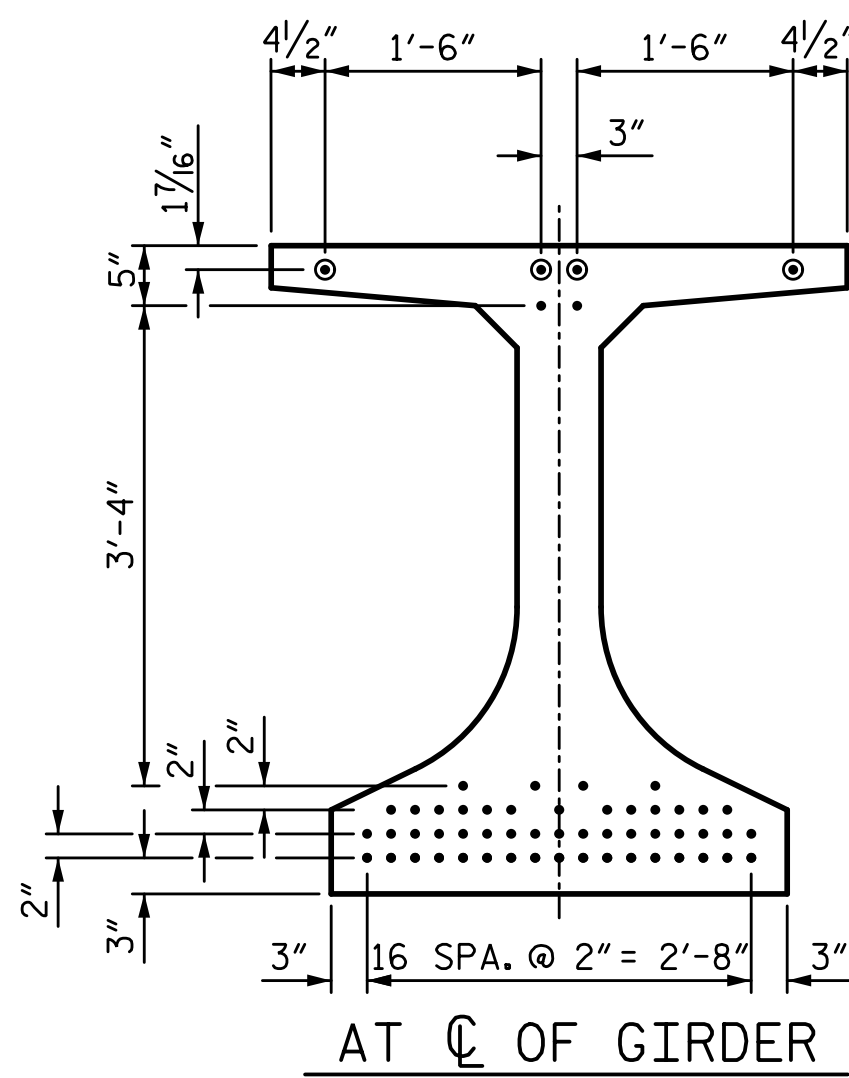
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-25
1			3			TOTAL SHEETS
2			4			69

LICENSURE NO. C-4434
 DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:27 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU.G_770164.dgn



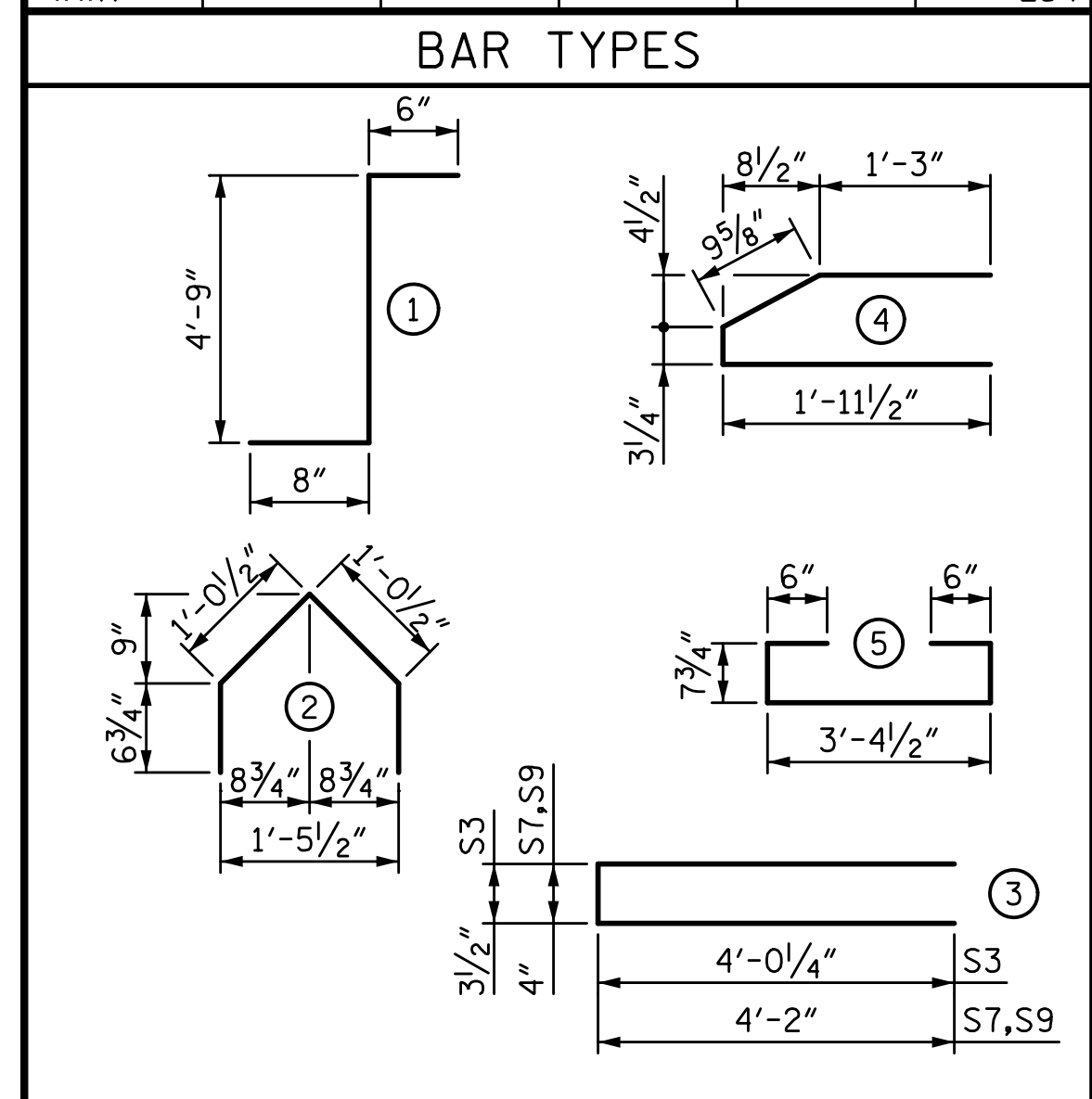
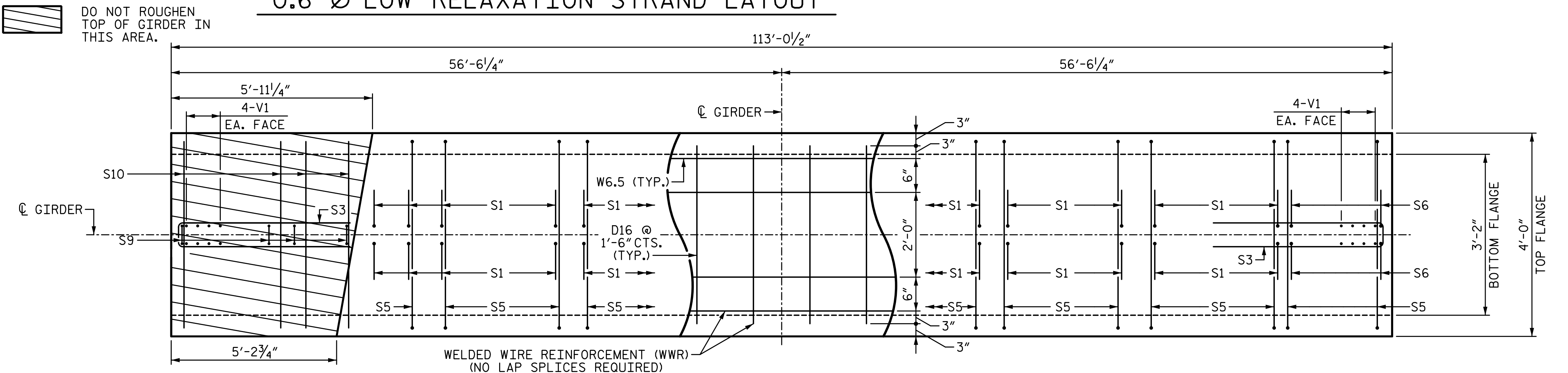
- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - ▲ STRANDS DEBONDED FOR 2'-0" FROM END OF GIRDER
 - STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ⊙ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
 - ◇ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 - 0.6" Ø "SLACK" STRANDS TO BE TENSIONED TO 9400 LBS. (MAX.)



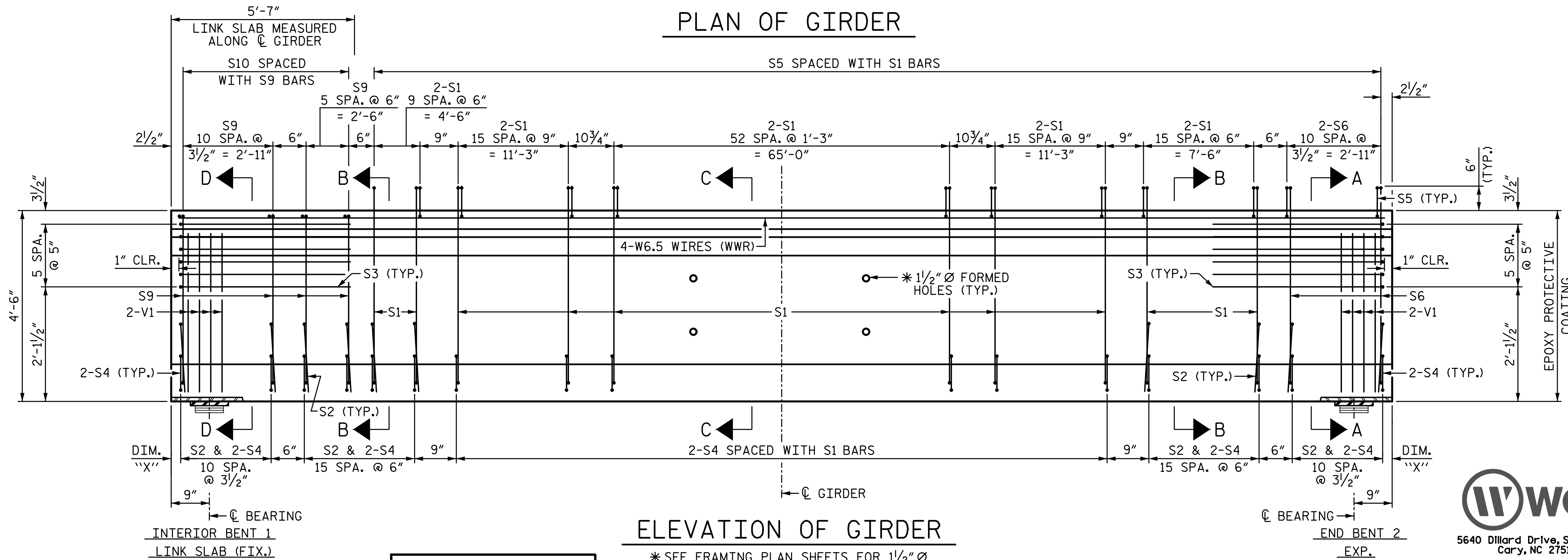
NOTES:
FOR GIRDER SECTIONS SEE SHEET 3 OF 3.

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 GIRDER					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D16	75	#3	STR	3'-8"	103
S1	222	#4	1	5'-11"	877
S2	54	#3	2	3'-3"	66
S3	12	#3	3	8'-4"	38
S4	278	#3	4	4'-4"	453
S5	122	#4	5	5'-8"	462
S6	22	#6	1	5'-11"	196
S7	8	#5	3	8'-8"	72
S8	12	#4	STR	8'-0"	64
S9	17	#6	3	8'-8"	221
S10	17	#4	STR	3'-8"	42
V1	16	#5	STR	3'-10"	64
WWR	-	-	-	-	254

0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

* SEE FRAMING PLAN SHEETS FOR 1/2" Ø FORMED HOLE LOCATIONS ALONG GIRDERS.

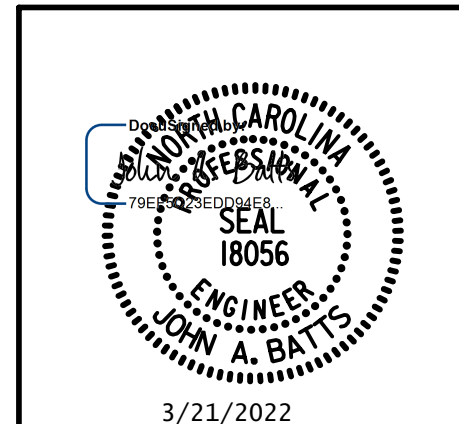
ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER			
WWR	REINF. STEEL	8,500 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	LB.	C.Y.	No.
254	2,658	27.1	57

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
15	113'-0 1/2"	1,695'-7 1/2"

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 803+15.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

54" PRESTRESSED CONCRETE FLORIDA I-BEAM

SPAN B

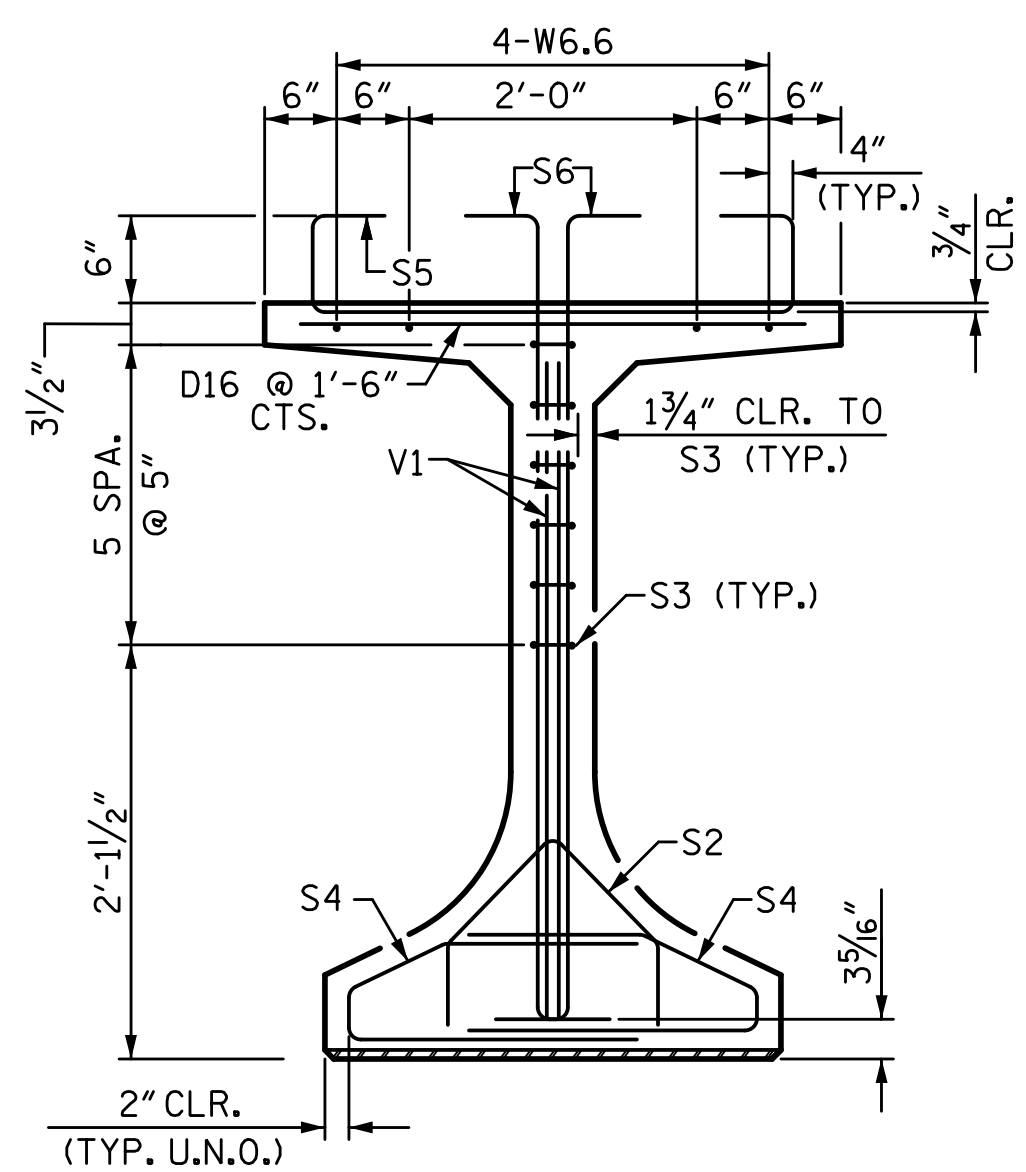
DRAWN BY: S.D. COOPER DATE: 3-22
CHECKED BY: J.A. BATTS DATE: 3-22
DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

DIM. "X":
1 3/16" CLR. TO S2 BARS
1 1/16" MIN. CLR. TO S4 BARS

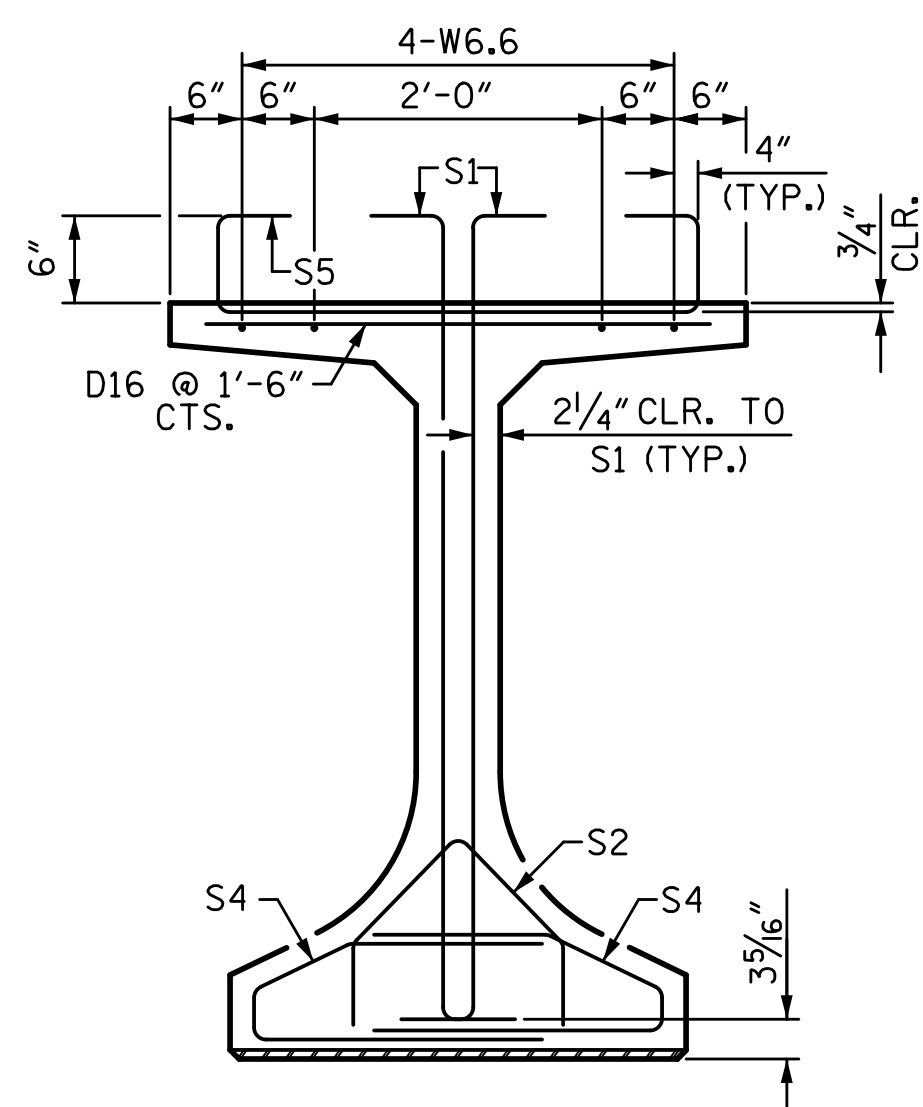
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-28
1			3			TOTAL SHEETS 69
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

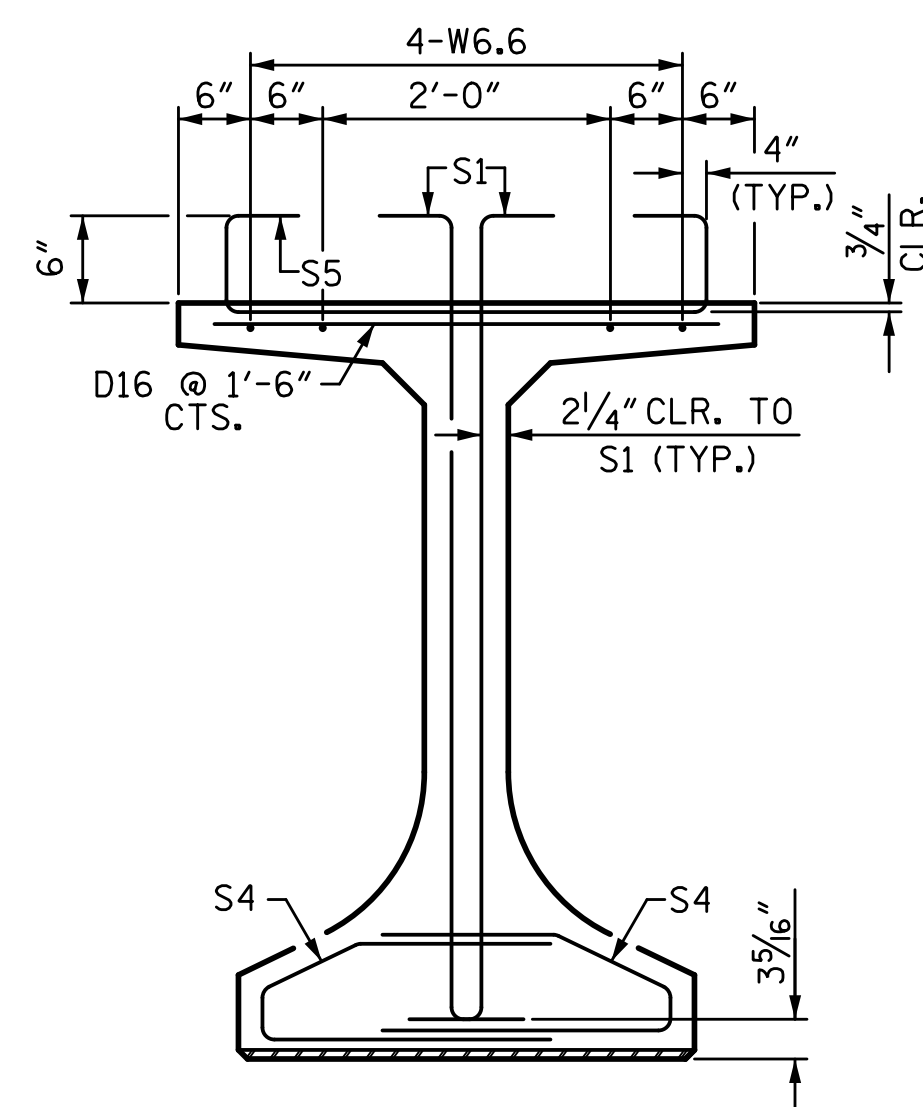
3/18/2022 11:06:28 AM G:\Projects\2020\Division 6 (Mott+Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU.G_770164.dgn



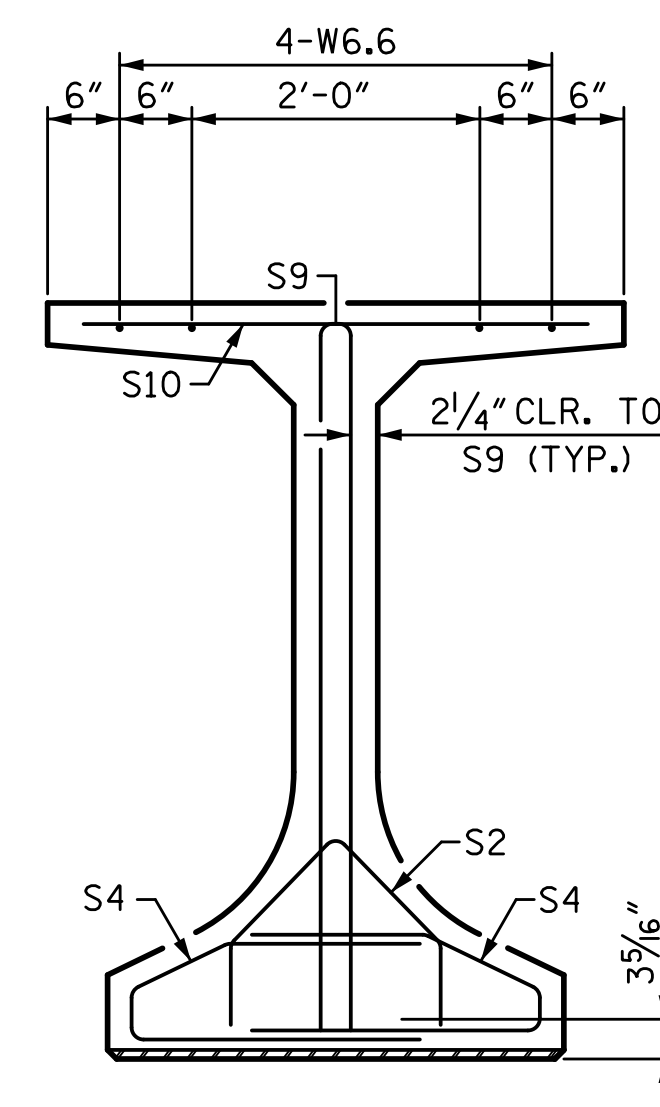
SECTION A-A



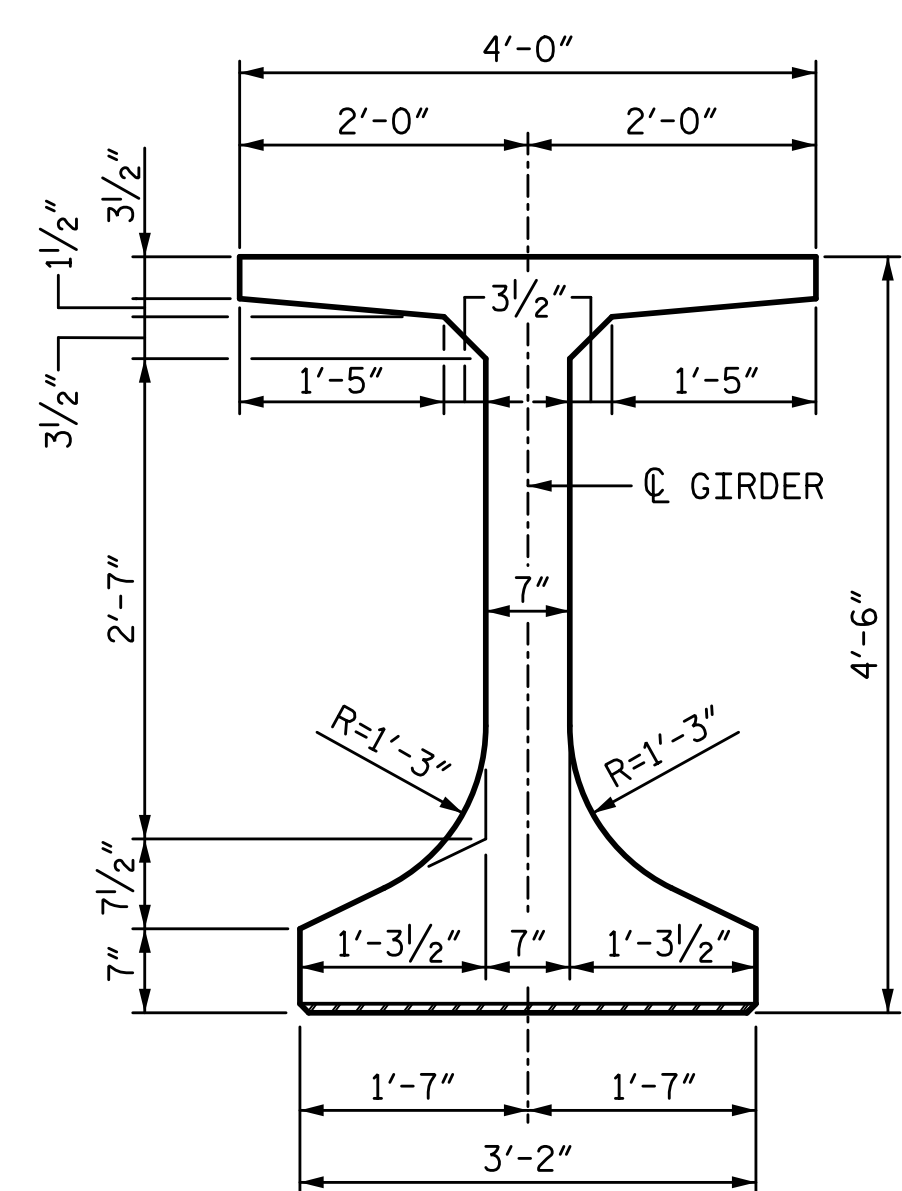
SECTION B-B



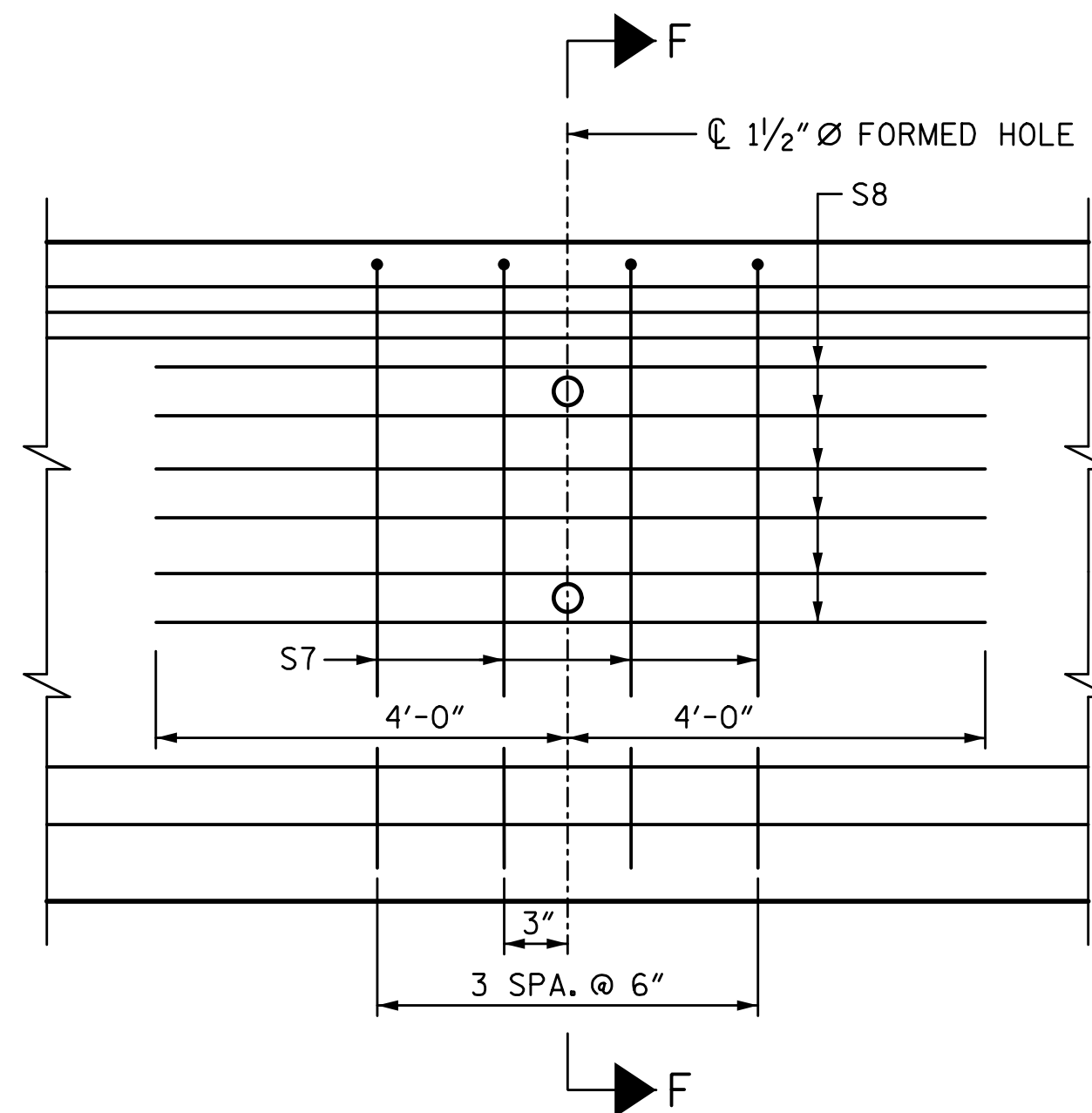
SECTION C-C



SECTION D-D

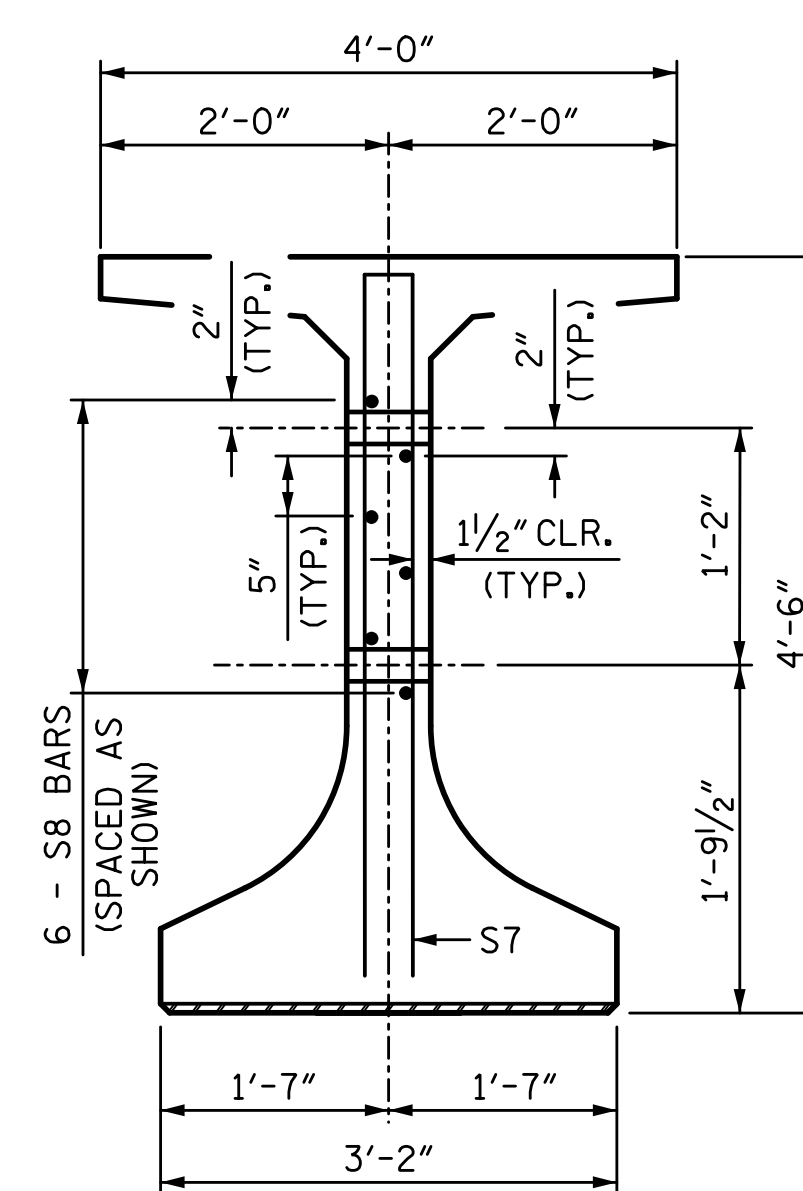


GIRDER OUTSIDE DIMENSIONS



PARTIAL ELEVATION

SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL



SECTION F-F

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.

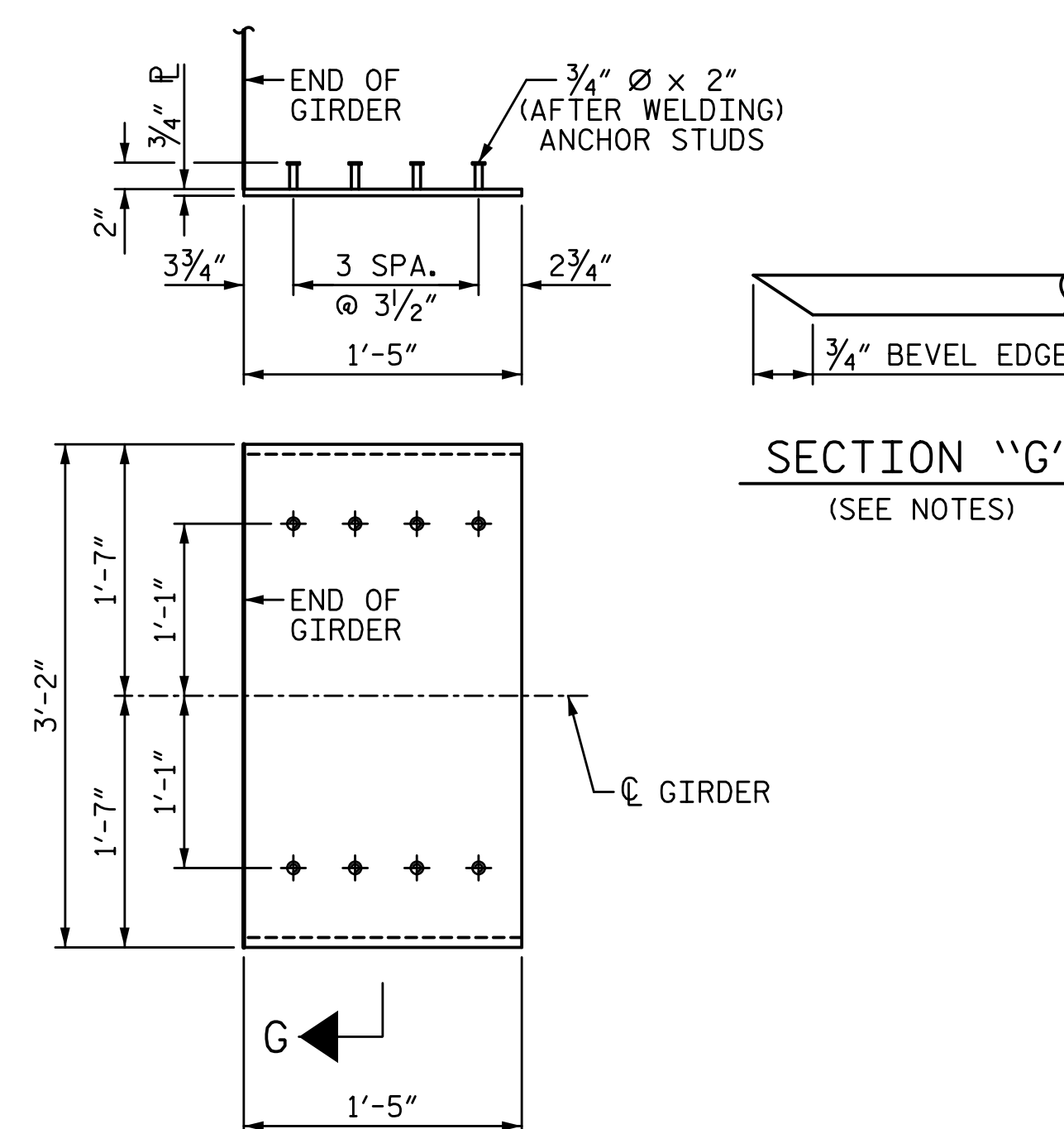
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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 4800 PSI FOR SPAN A AND 6500 PSI FOR SPAN B.

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

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

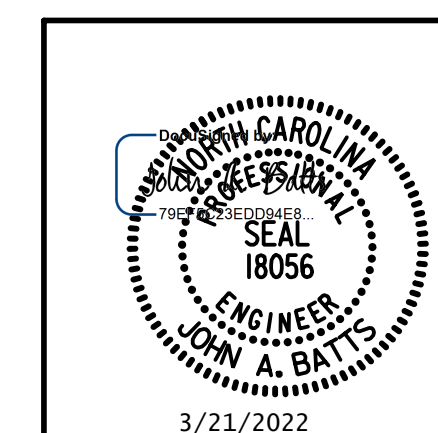


EMBEDDED PLATE "B-1" DETAILS

(2 REQ'D PER GIRDER)

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 3 OF 3



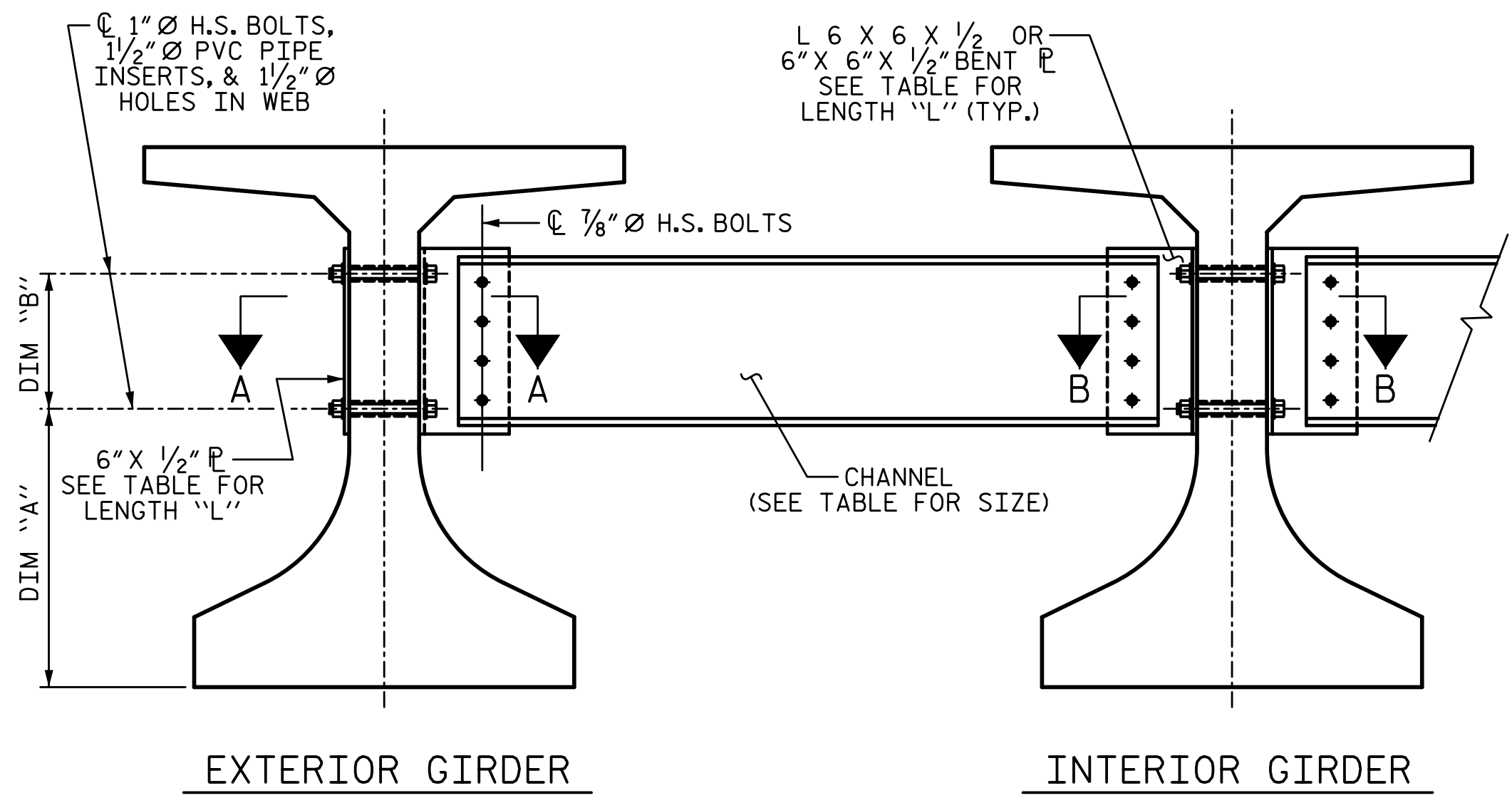
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PRESTRESSED CONCRETE
 GIRDER DETAILS

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

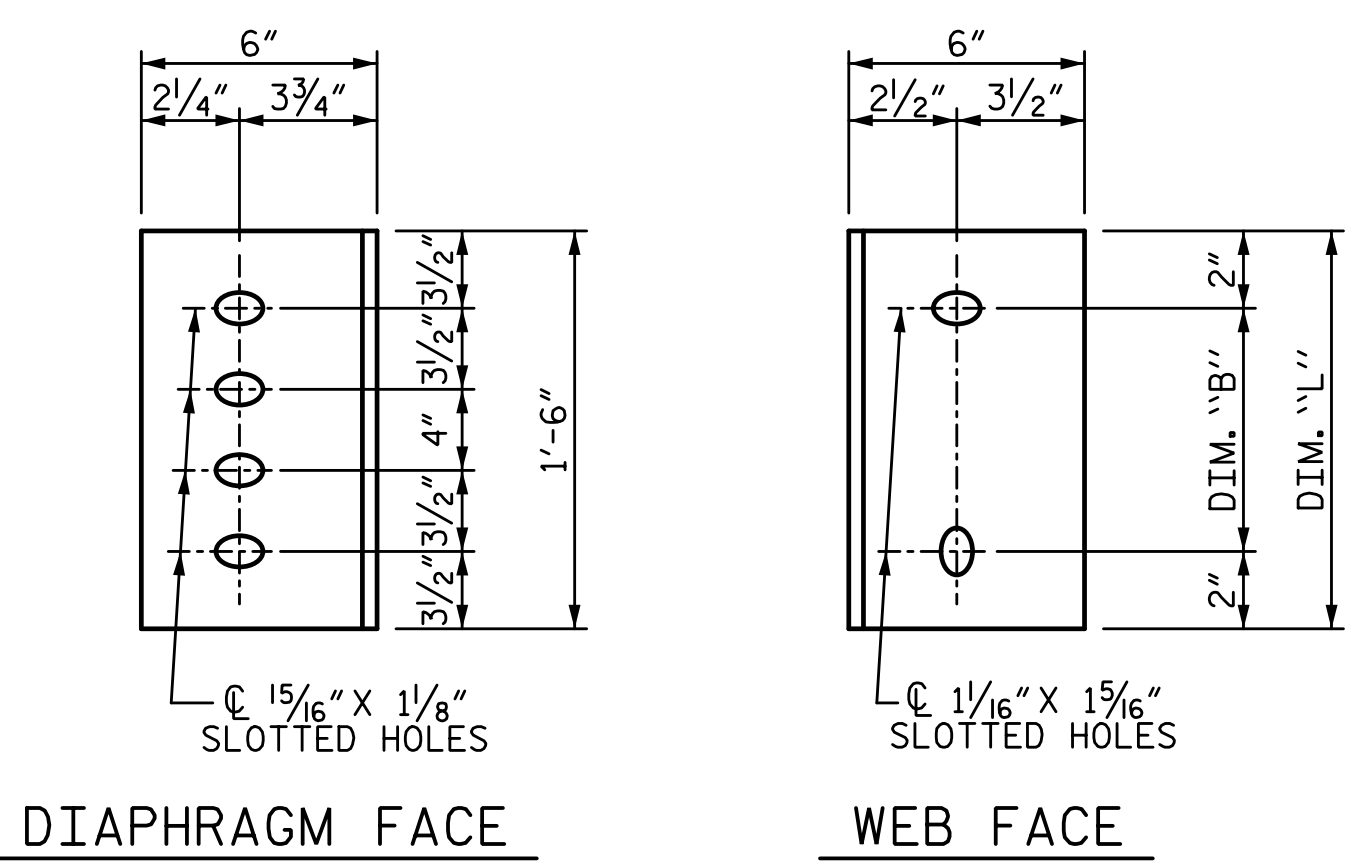
REVISIONS						SHEET NO. S9-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 69
2			4			

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

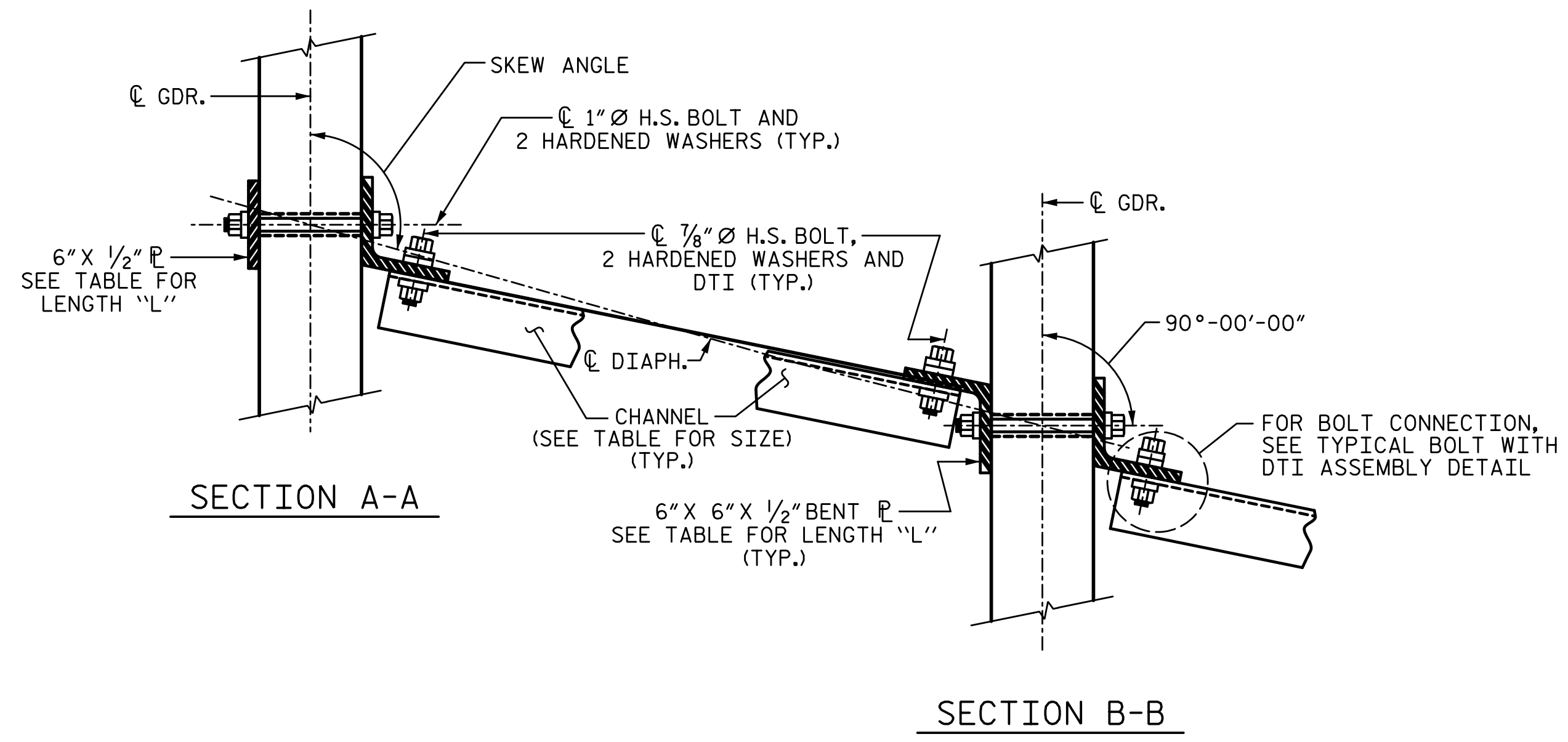
3/18/2022 11:06:28 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU.G - 770164.dgn



PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTOR PLATE DETAILS



CONNECTION DETAILS

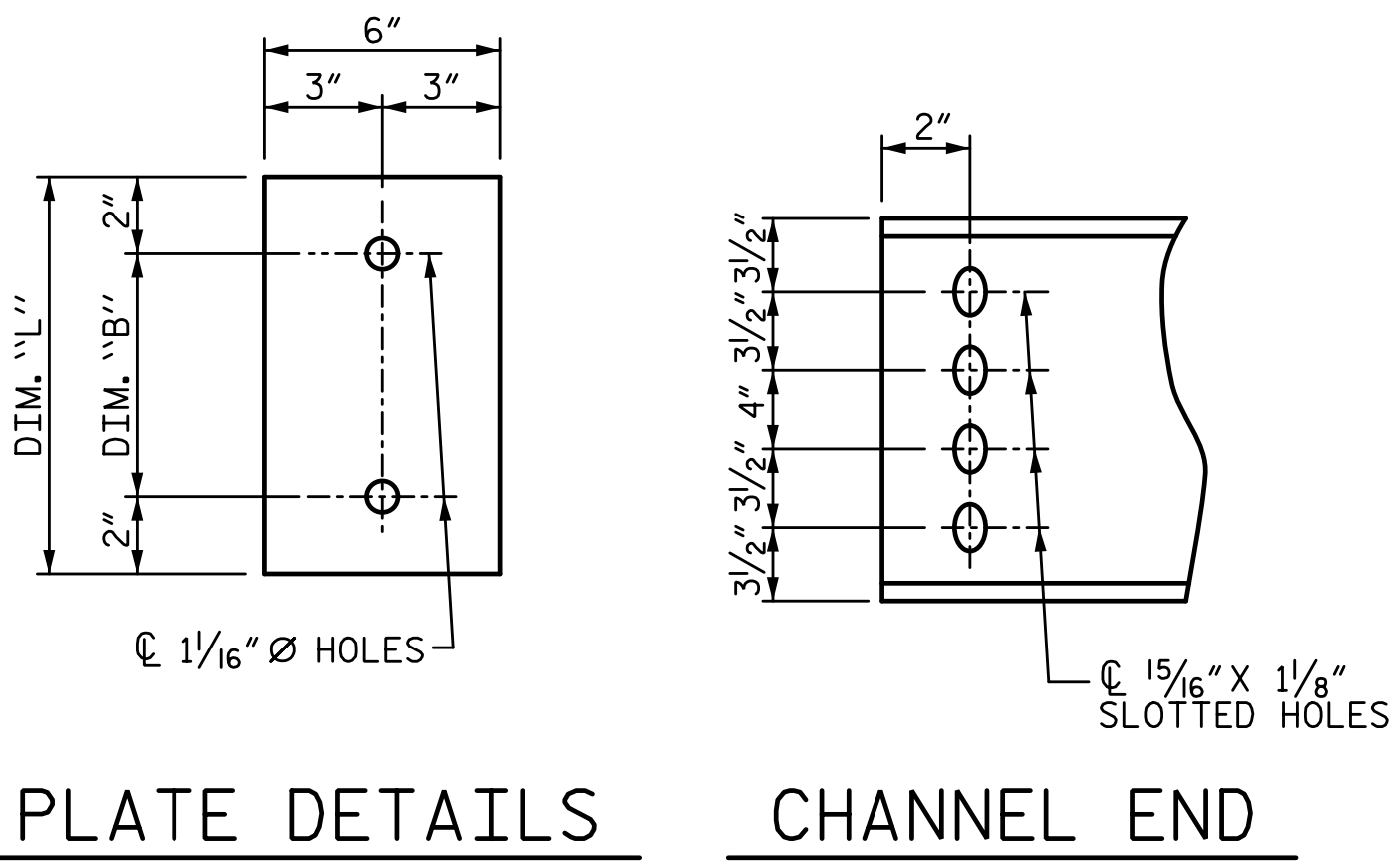
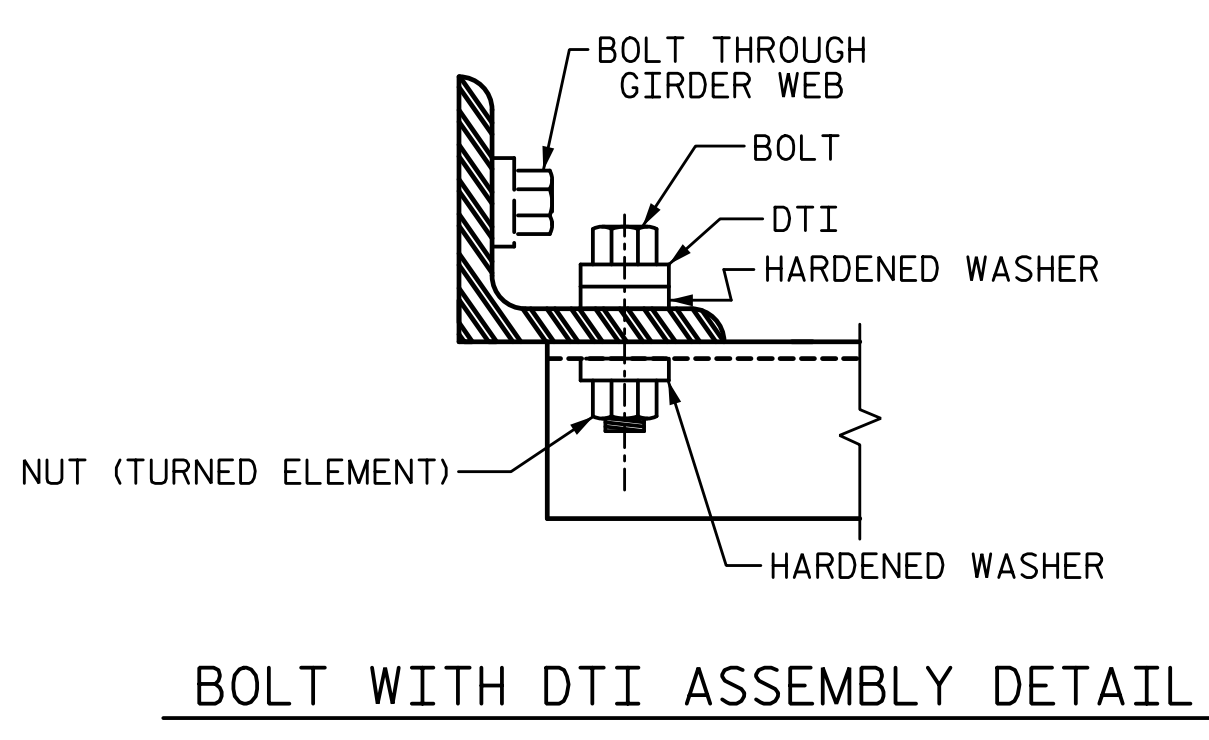


PLATE DETAILS CHANNEL END



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES:

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

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

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

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

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE 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.

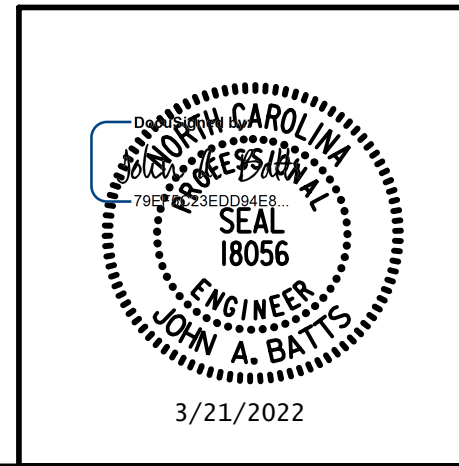
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
FIB-54	MC 18 x 42.7	1'-9 1/2"	1'-2"	1'-6"

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

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



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

INTERMEDIATE STEEL DIAPHRAGMS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-30
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:30 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_DL_770164.dgn

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
SPAN A - STAGE III																					
0.6" Ø LOW RELAXATION GIRDERS AG1-AG7																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.012	0.022	0.032	0.041	0.049	0.056	0.062	0.066	0.068	0.069	0.068	0.066	0.062	0.056	0.049	0.041	0.032	0.022	0.012	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.003	0.007	0.011	0.015	0.018	0.021	0.023	0.025	0.026	0.026	0.026	0.025	0.023	0.021	0.018	0.015	0.011	0.007	0.003	0
FINAL CAMBER ↑	0	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	0
SPAN A - STAGE II																					
0.6" Ø LOW RELAXATION GIRDERS AG8-AG11																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.012	0.022	0.032	0.041	0.049	0.056	0.062	0.066	0.068	0.069	0.068	0.066	0.062	0.056	0.049	0.041	0.032	0.022	0.012	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.003	0.007	0.010	0.014	0.017	0.019	0.021	0.022	0.023	0.024	0.023	0.022	0.021	0.019	0.017	0.014	0.010	0.007	0.003	0
FINAL CAMBER ↑	0	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	1/2"	9/16"	9/16"	9/16"	1/2"	1/2"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	0
SPAN A - STAGE I																					
0.6" Ø LOW RELAXATION GIRDERS AG12-AG15																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.012	0.022	0.032	0.041	0.049	0.056	0.062	0.066	0.068	0.069	0.068	0.066	0.062	0.056	0.049	0.041	0.032	0.022	0.012	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.003	0.007	0.011	0.015	0.018	0.021	0.023	0.025	0.026	0.026	0.026	0.025	0.023	0.021	0.018	0.015	0.011	0.007	0.003	0
FINAL CAMBER ↑	0	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	3/8"	5/16"	1/4"	3/16"	1/8"	0

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

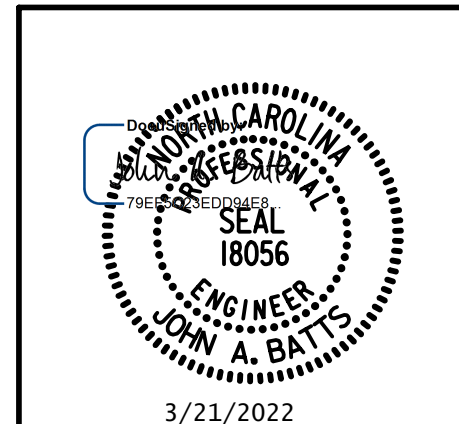
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

GIRDER DEFLECTION
 AND CAMBER TABLES

SPAN A



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

LICENSURE NO. C-4434						DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED						SHEET NO. S9-31	
NO.		BY:		DATE:		NO.		BY:		DATE:		TOTAL SHEETS	
1						3						69	
2						4							

3/18/2022 11:06:30 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_DL_770164.dgn

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN B - STAGE III																																										
0.6" Ø LOW RELAXATION GIRDERS BG1-BG7																																										
FORTIETH POINTS																																										
CAMBER (GIRDER ALONE IN PLACE)	↑	0	.024	.048	.071	.093	.115	.136	.157	.176	.194	.211	.227	.241	.254	.265	.275	.283	.289	.294	.296	.297	.296	.294	.289	.283	.275	.265	.254	.241	.227	.211	.194	.176	.157	.136	.115	.093	.071	.048	.024	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.015	0.036	0.056	0.075	0.094	0.113	0.131	0.147	0.163	0.178	0.192	0.204	0.215	0.225	0.233	0.240	0.246	0.250	0.252	0.253	0.252	0.250	0.246	0.240	0.233	0.225	0.215	0.204	0.192	0.178	0.163	0.147	0.131	0.113	0.094	0.075	0.056	0.036	0.015	0
FINAL CAMBER	↑	0	1/8"	1/8"	3/16"	3/16"	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	9/16"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	7/16"	7/16"	7/16"	3/8"	3/8"	5/16"	5/16"	1/4"	1/4"	3/16"	3/16"	1/8"	1/8"	0

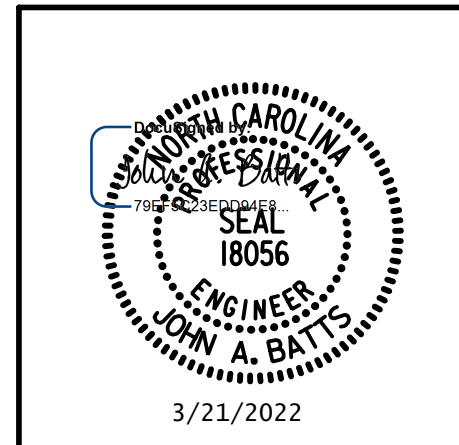
SPAN B - STAGE II																																												
0.6" Ø LOW RELAXATION GIRDERS BG8-BG11																																												
FORTIETH POINTS																																												
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.024	0.048	0.071	0.093	0.115	0.136	0.157	0.176	0.194	0.211	0.227	0.241	0.254	0.265	0.275	0.283	0.289	0.294	0.296	0.297	0.296	0.294	0.289	0.283	0.275	0.265	0.254	0.241	0.227	0.211	0.194	0.176	0.157	0.136	0.115	0.093	0.071	0.048	0.024	0		
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.014	0.032	0.050	0.068	0.086	0.102	0.118	0.134	0.148	0.162	0.174	0.185	0.195	0.204	0.212	0.218	0.223	0.227	0.229	0.229	0.229	0.227	0.223	0.218	0.212	0.204	0.195	0.185	0.174	0.162	0.148	0.134	0.119	0.102	0.086	0.068	0.050	0.032	0.014	0		
FINAL CAMBER	↑	0	1/8"	3/16"	1/4"	5/16"	3/8"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	11/16"	3/4"	3/4"	3/4"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	13/16"	3/4"	3/4"	3/4"	11/16"	11/16"	5/8"	5/8"	9/16"	1/2"	7/16"	3/8"	3/8"	5/16"	5/16"	1/4"	1/4"	3/16"	1/8"	0

SPAN B - STAGE I																																										
0.6" Ø LOW RELAXATION GIRDERS BG12-BG15																																										
FORTIETH POINTS																																										
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.024	0.048	0.071	0.093	0.115	0.136	0.157	0.176	0.194	0.211	0.227	0.241	0.254	0.265	0.275	0.283	0.289	0.294	0.296	0.297	0.296	0.294	0.289	0.283	0.275	0.265	0.254	0.241	0.227	0.211	0.194	0.176	0.157	0.136	0.115	0.093	0.071	0.048	0.024	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.015	0.035	0.055	0.075	0.094	0.112	0.129	0.146	0.162	0.177	0.190	0.202	0.213	0.223	0.231	0.238	0.243	0.247	0.250	0.250	0.250	0.247	0.243	0.238	0.231	0.223	0.213	0.202	0.190	0.177	0.162	0.146	0.129	0.112	0.094	0.075	0.055	0.035	0.015	0
FINAL CAMBER	↑	0	1/8"	1/8"	3/16"	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	7/16"	7/16"	7/16"	1/2"	1/2"	1/2"	9/16"	9/16"	9/16"	9/16"	9/16"	9/16"	9/16"	9/16"	9/16"	1/2"	1/2"	1/2"	7/16"	7/16"	7/16"	3/8"	3/8"	5/16"	5/16"	1/4"	1/4"	3/16"	1/8"	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: 803+15.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

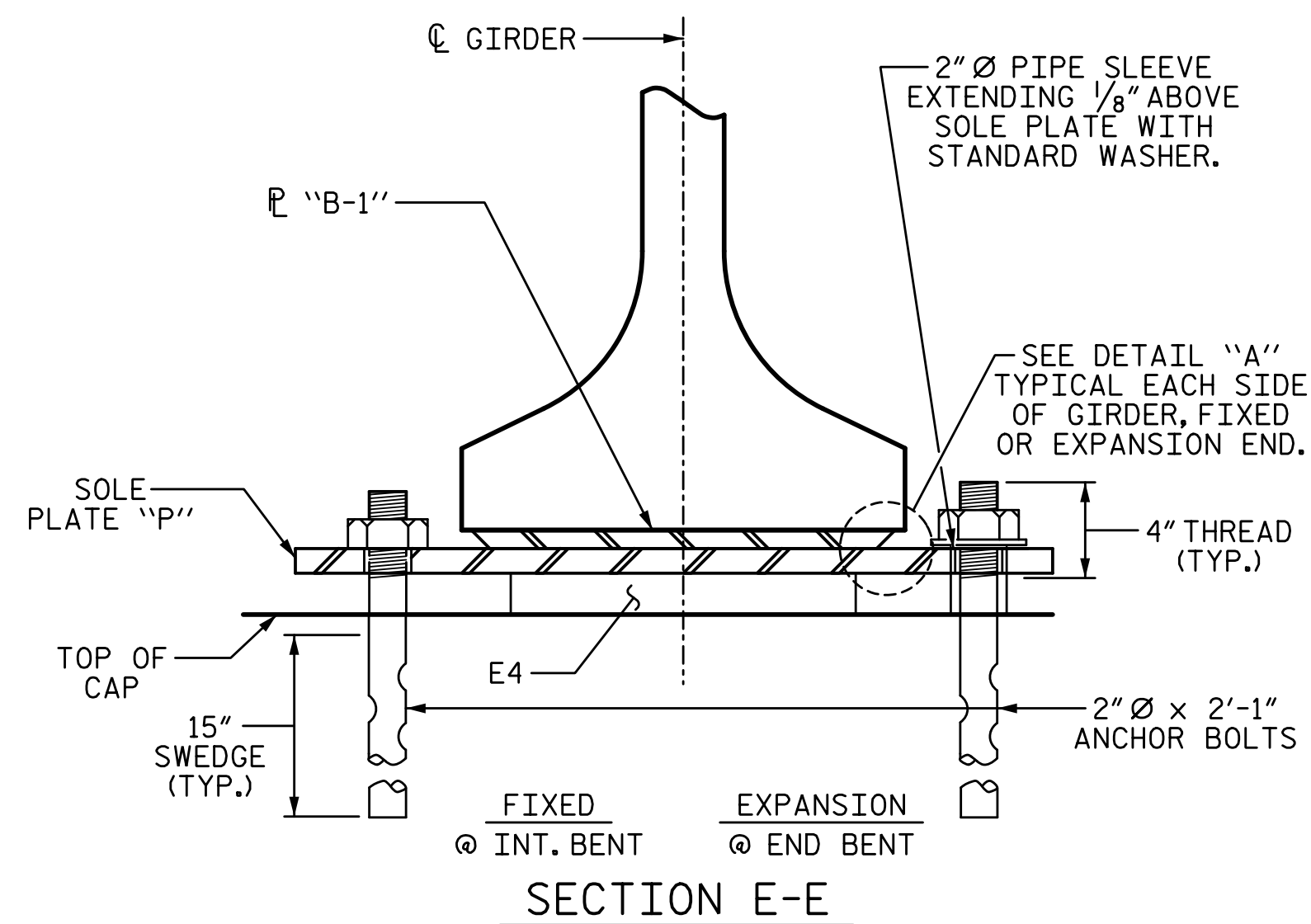
 GIRDER DEFLECTION
 AND CAMBER TABLES

 SPAN B

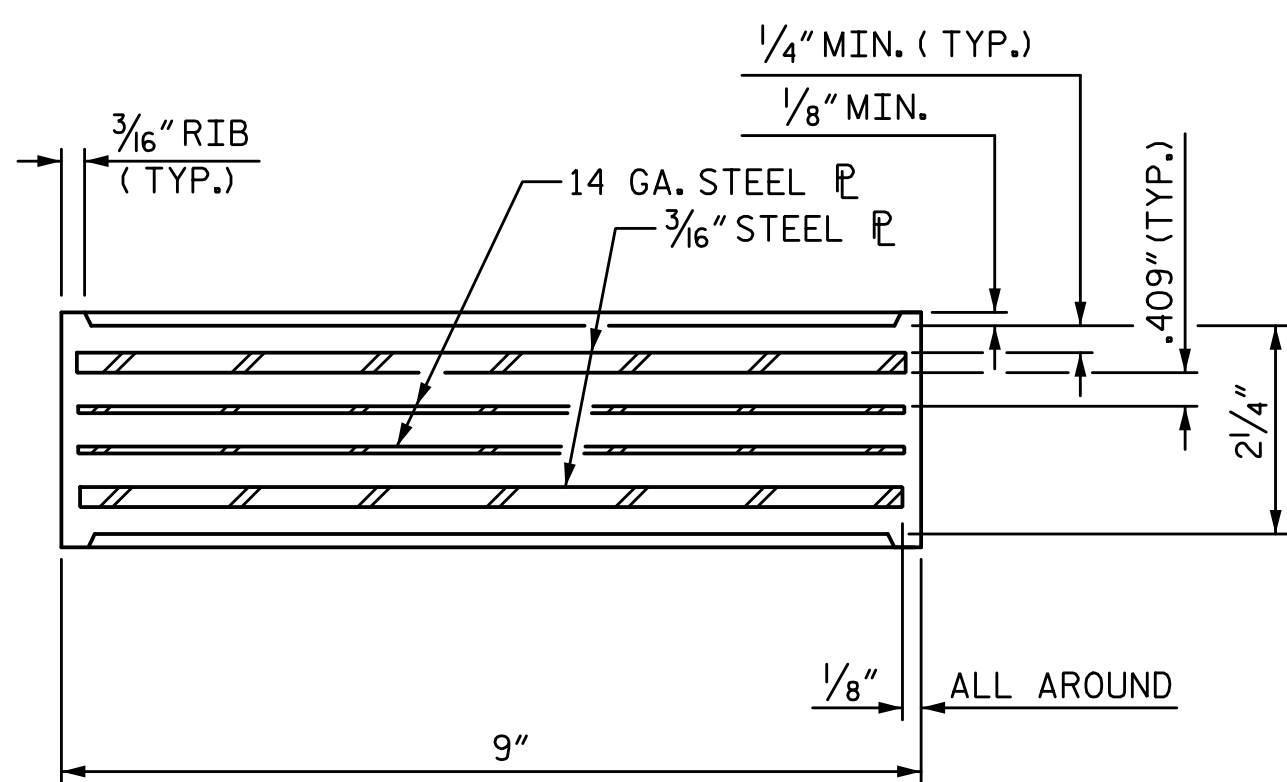
DRAWN BY: S.D. COOPER DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

LICENSURE NO. C-4434						DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED							
NO.		BY:		DATE:		NO.		BY:		DATE:		SHEET NO.	
1						3						S9-32	
2						4						TOTAL SHEETS 69	

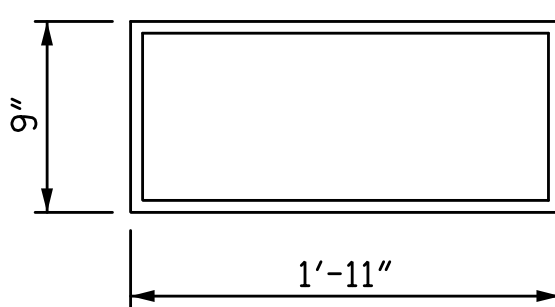
3/18/2022 11:06:31 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_BG_770164.dgn



SECTION E-E



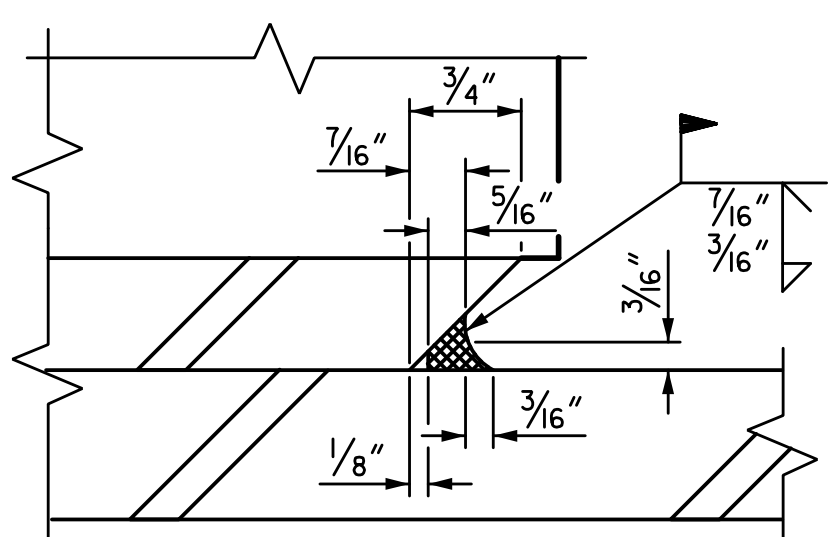
TYPICAL SECTION OF ELASTOMERIC BEARINGS



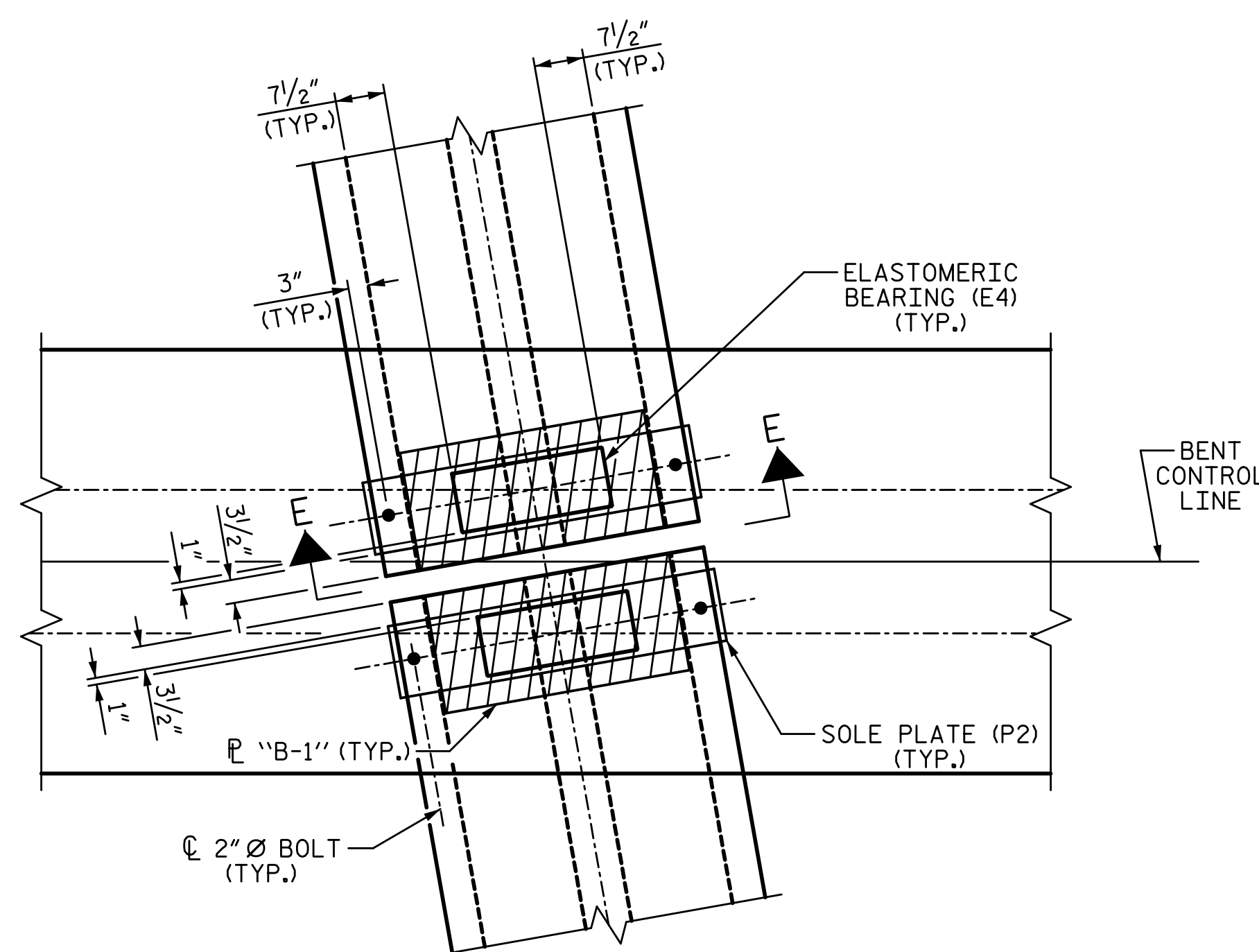
E4 (60 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE V

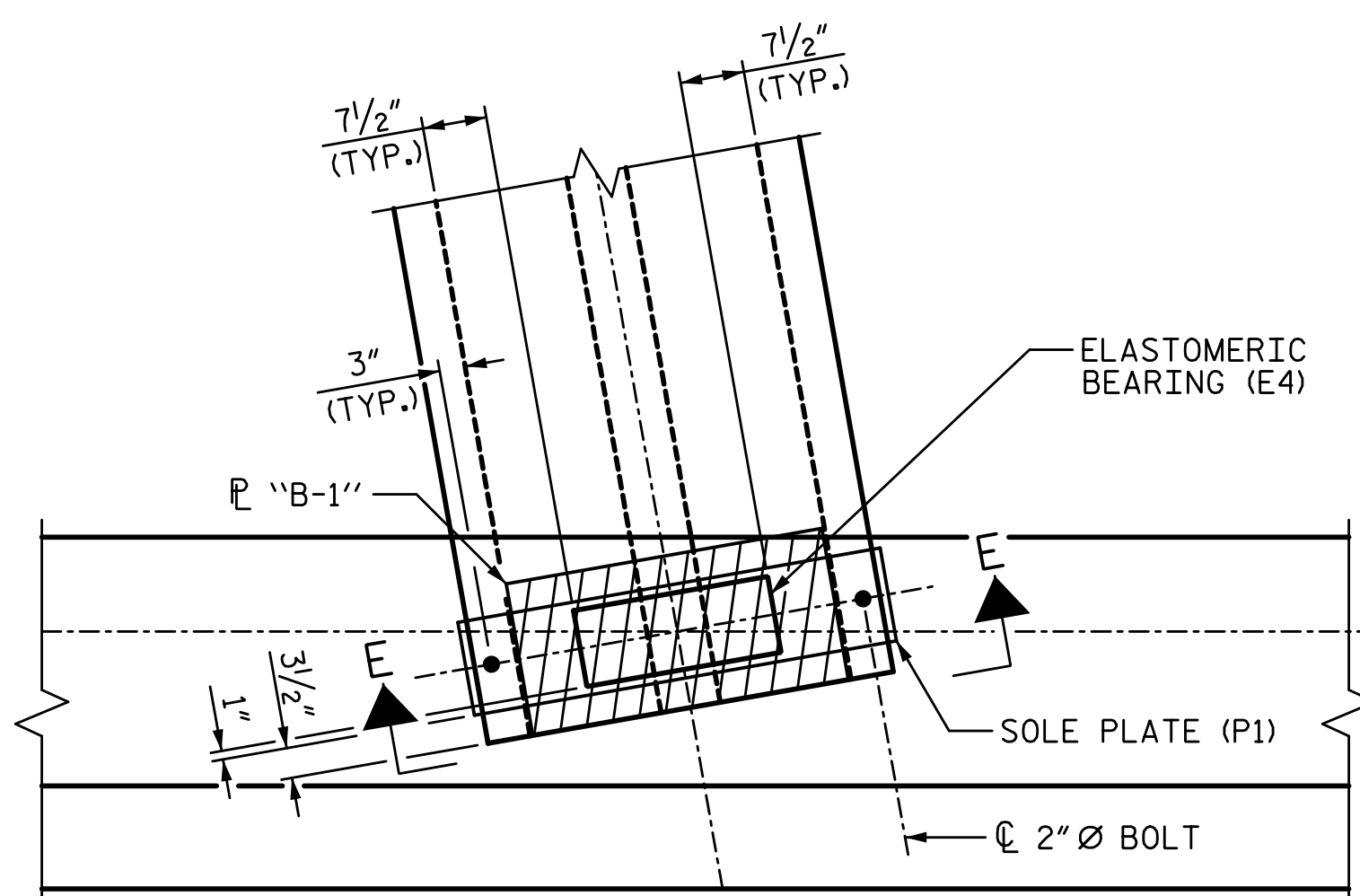


DETAIL "A"



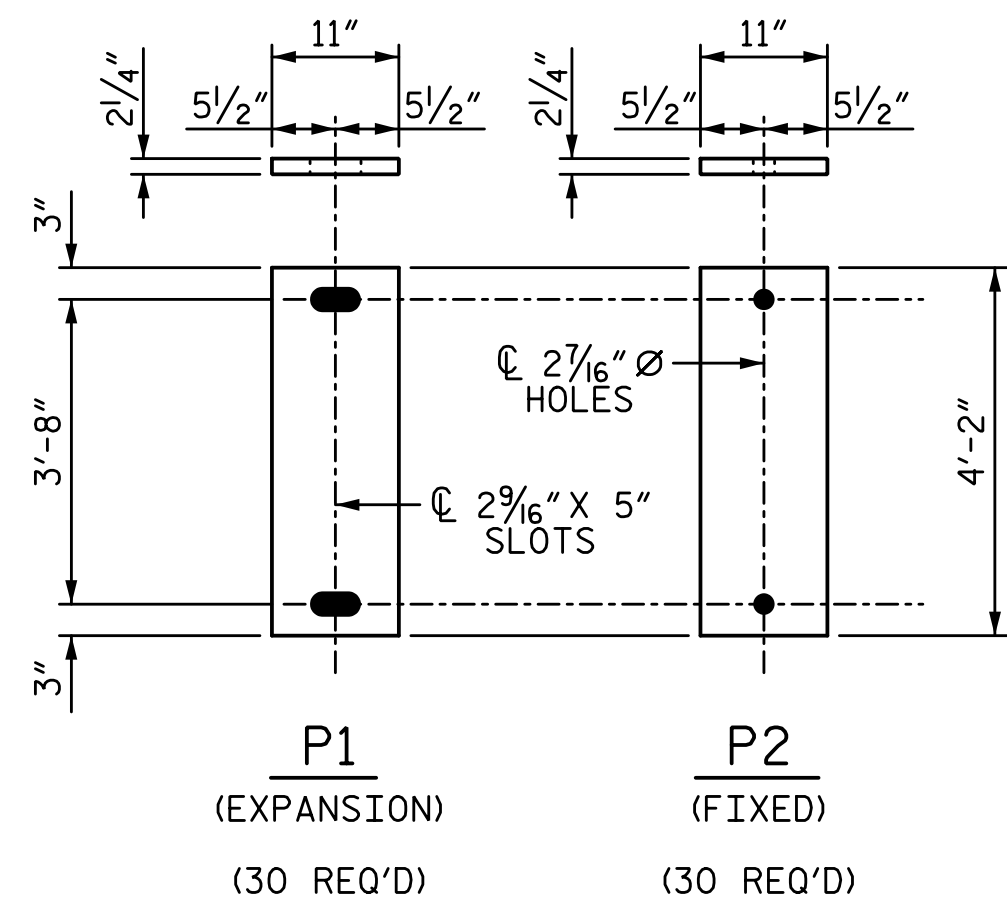
TYPICAL PLAN

(SHOWING LINK SLAB BENT)



TYPICAL PLAN

(SHOWING END BENT)



SOLE PLATE DETAILS ("P")

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.

MAXIMUM ALLOWABLE SERVICE LOADS

D.L.+L.L. (NO IMPACT)

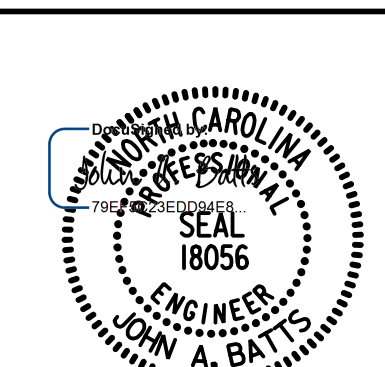
TYPE V	365 k
--------	-------

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-



5640 Dillard Drive, Suite 200
 Cary, NC 27518

LICENSURE NO. C-4434



3/21/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**ELASTOMERIC BEARING
 DETAILS**

REVISIONS

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

SHEET NO.

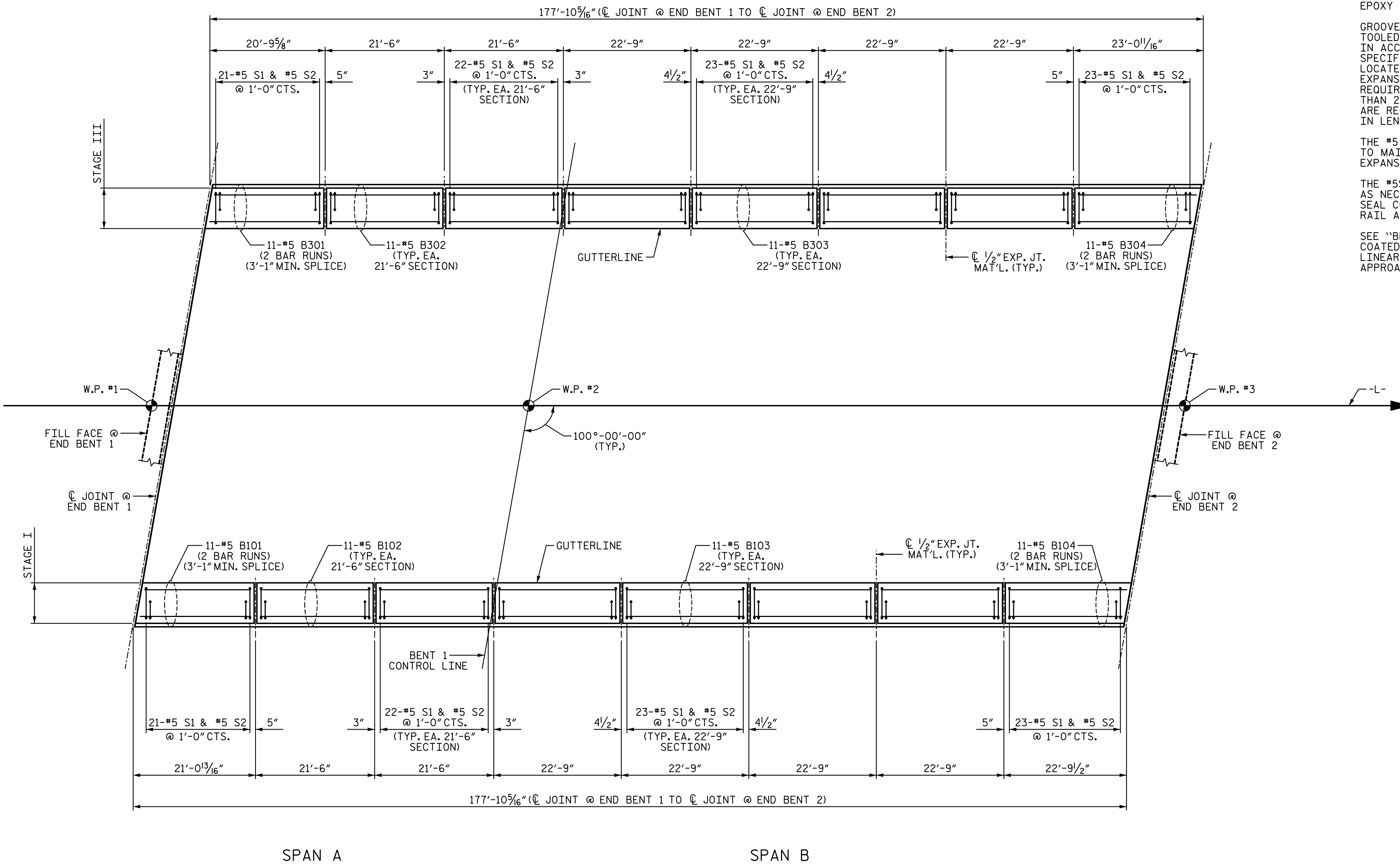
S9-33

TOTAL SHEETS
69

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

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:32 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_BR_770164.dgn



NOTES:

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

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

THE #5S1 BARS MAY BE SHIFTED SLIGHTLY OR FIELD BENT AS NECESSARY IN ORDER TO CLEAR THE EXPANSION JOINT SEAL COVER PLATE ASSEMBLY IN THE CONCRETE BARRIER RAIL AT THE END BENTS.

SEE "BRIDGE APPROACH SLAB" SHEET 3 OF 3 FOR EPOXY COATED REINFORCING STEEL, CLASS AA CONCRETE AND LINEAR FEET QUANTITIES FOR BARRIER RAILS ON THE APPROACH SLABS.

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 803+15.00 -L-

SHEET 1 OF 2

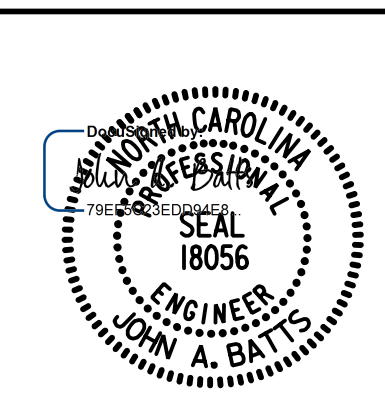
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

CONCRETE BARRIER RAIL



5640 Dillard Drive, Suite 200
Cary, NC 27518

LICENSURE NO. C-4434



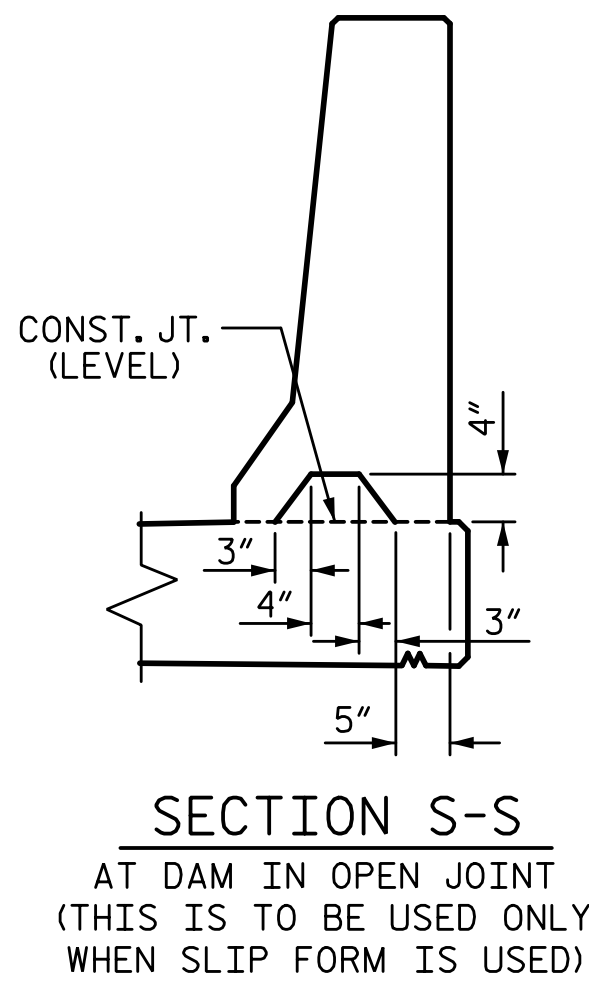
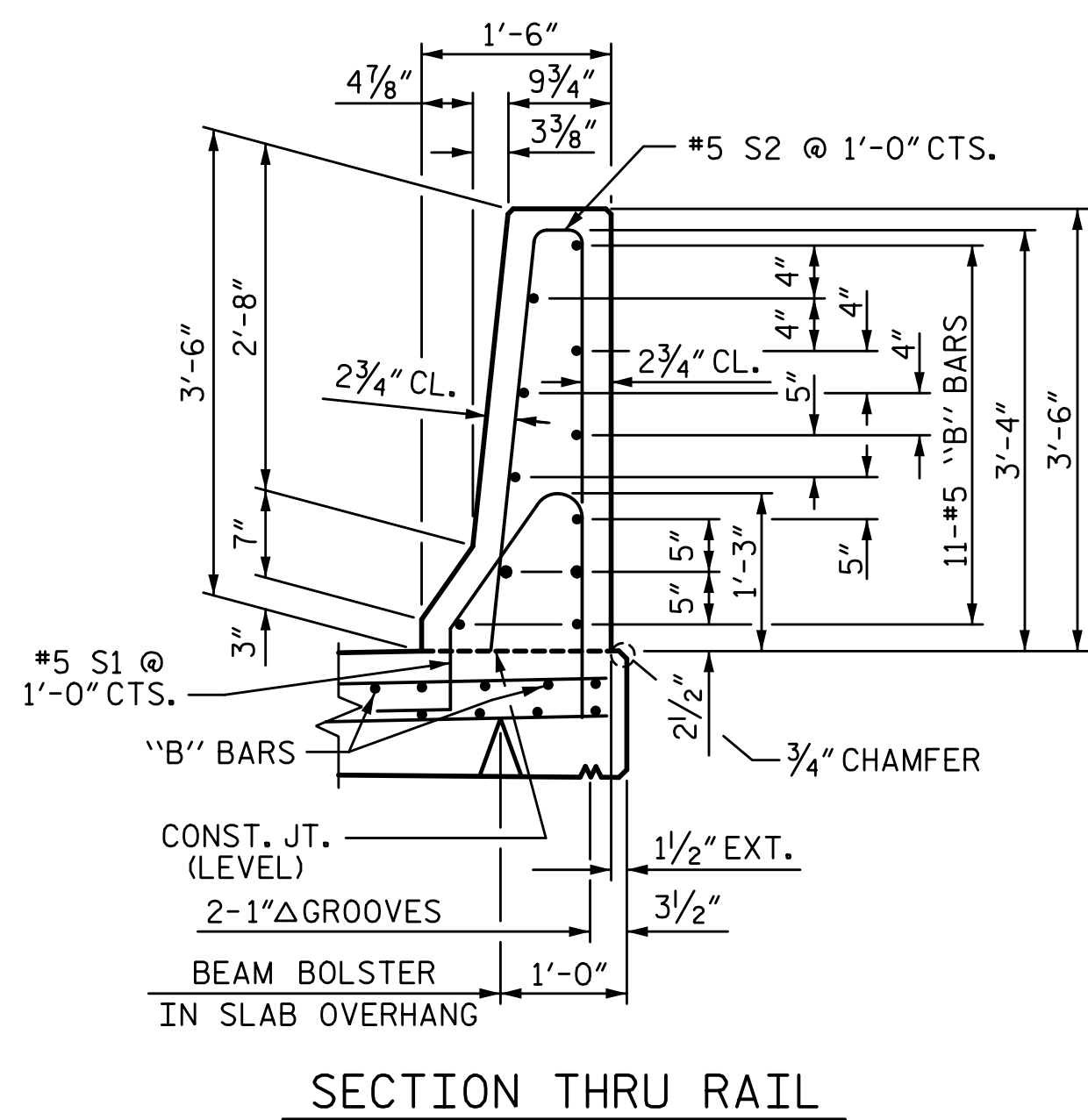
3/21/2022

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

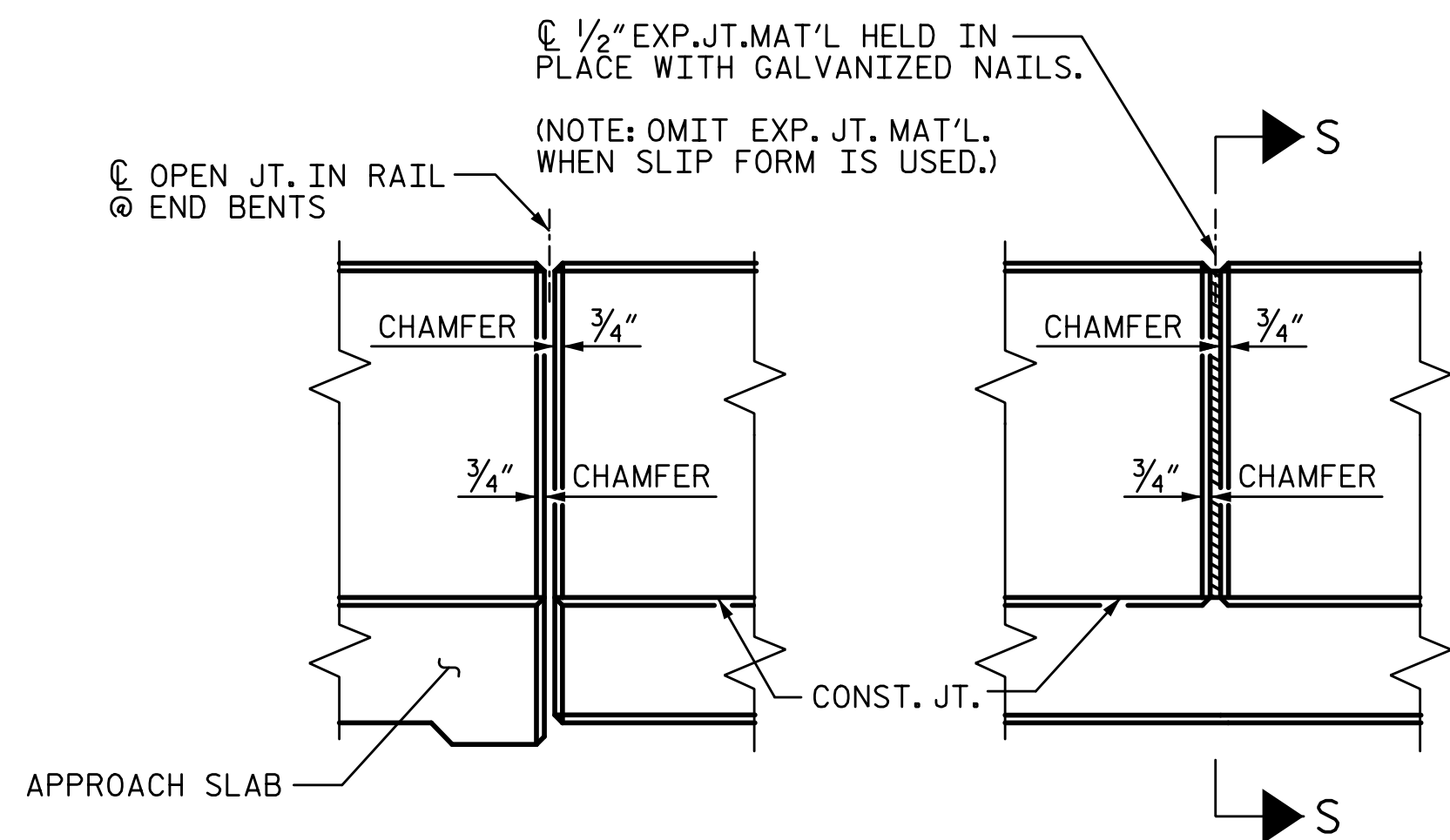
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-34
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:32 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_BR_770164.dgn

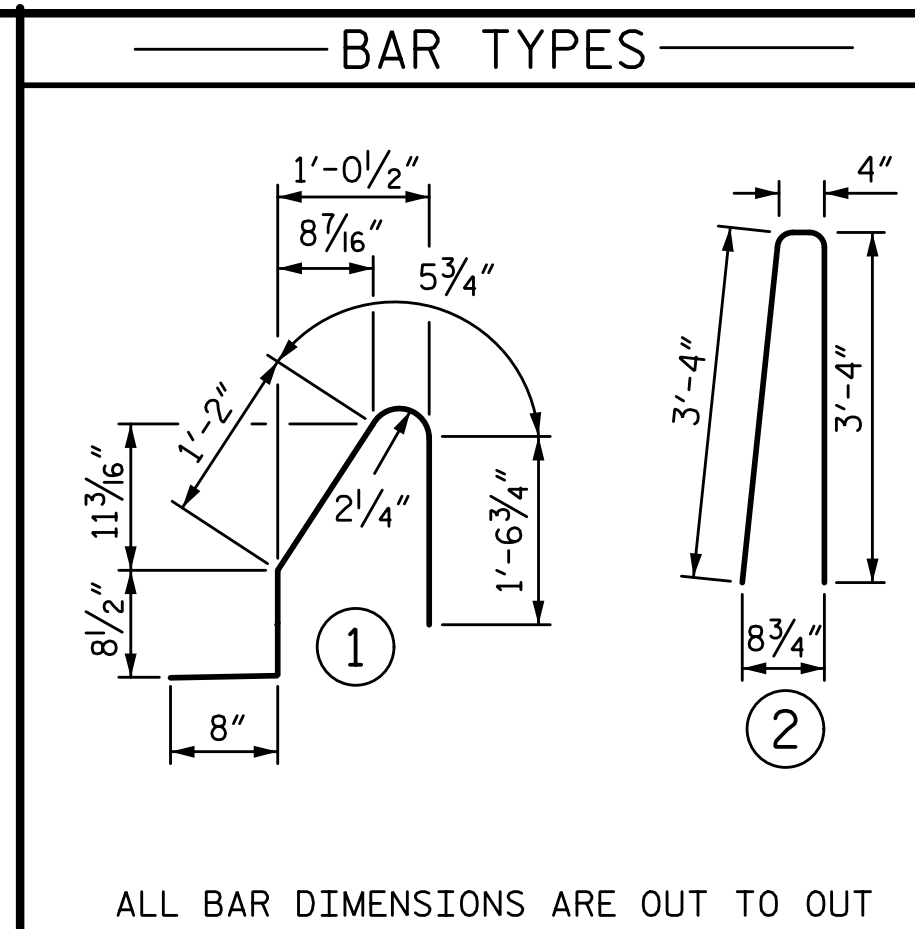


SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS



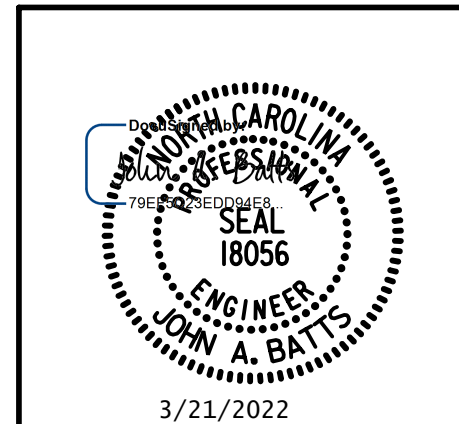
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL STAGE I						BILL OF MATERIAL STAGE III					
FOR CONCRETE BARRIER RAIL ONLY						FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B101	22	#5	STR	11'-11"	273	*B301	22	#5	STR	11'-11"	273
*B102	22	#5	STR	21'-1"	484	*B302	22	#5	STR	21'-1"	484
*B103	44	#5	STR	22'-4"	1025	*B303	44	#5	STR	22'-4"	1025
*B104	22	#5	STR	12'-11"	296	*B304	22	#5	STR	12'-11"	296
*S1	180	#5	1	4'-7"	860	*S1	180	#5	1	4'-7"	860
*S2	180	#5	2	7'-0"	1314	*S2	180	#5	2	7'-0"	1314
* EPOXY COATED REINFORCING STEEL					4252 LB	* EPOXY COATED REINFORCING STEEL					4252 LB
CLASS AA CONCRETE					24.2 CY	CLASS AA CONCRETE					24.2 CY
CONCRETE BARRIER RAIL					177.86 LF	CONCRETE BARRIER RAIL					177.86 LF

* INDICATES EPOXY COATED REINFORCING STEEL

* INDICATES EPOXY COATED REINFORCING STEEL

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



PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

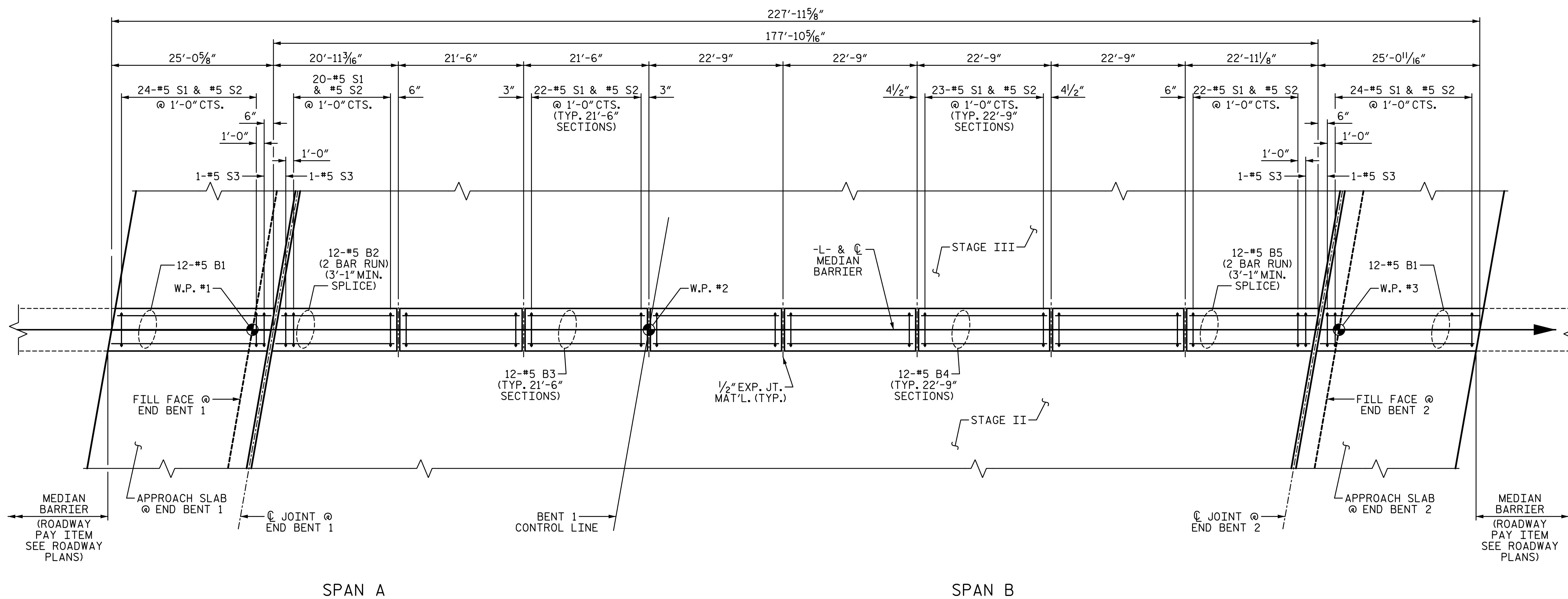
SHEET 2 OF 2

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

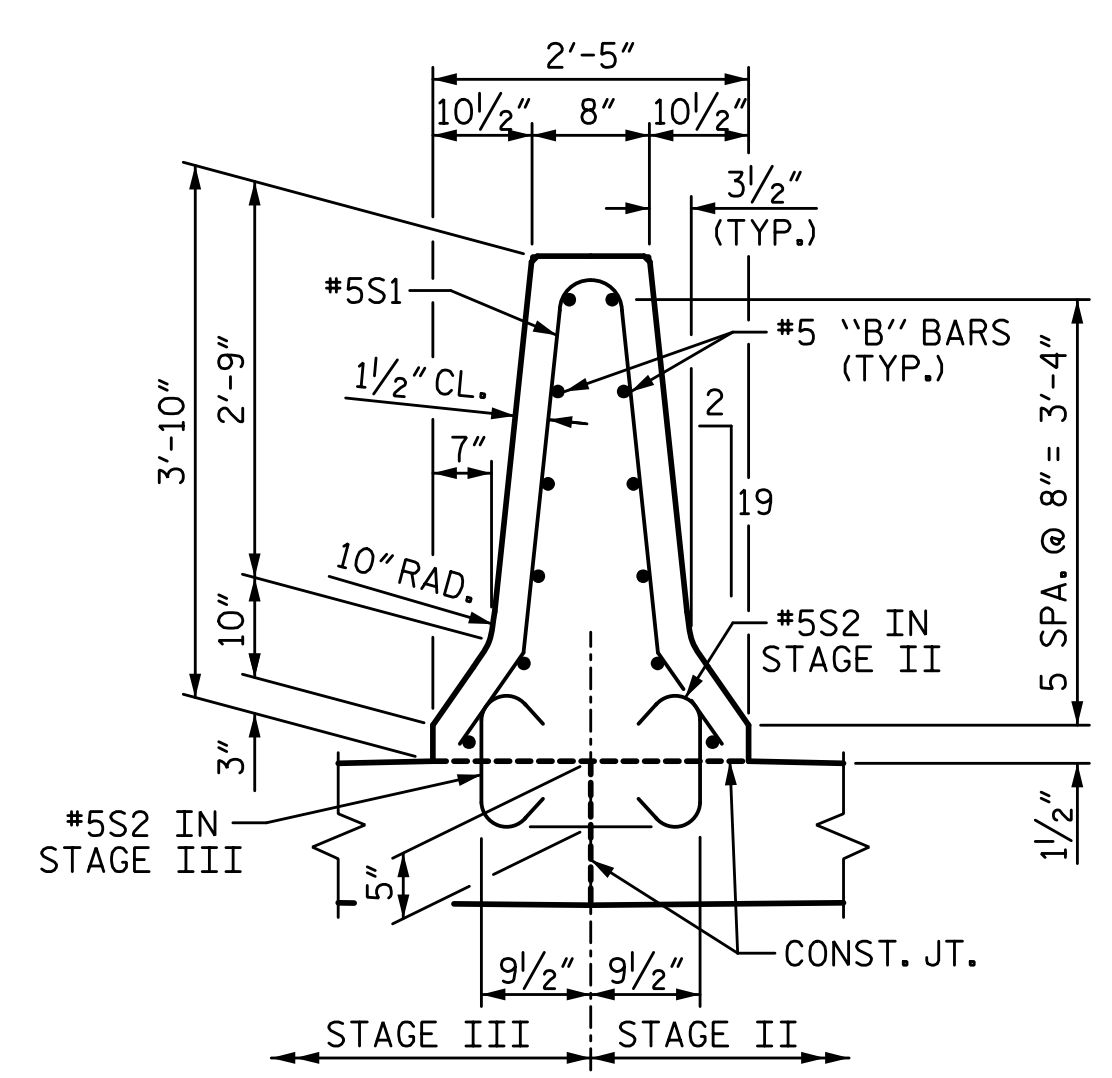
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-35
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

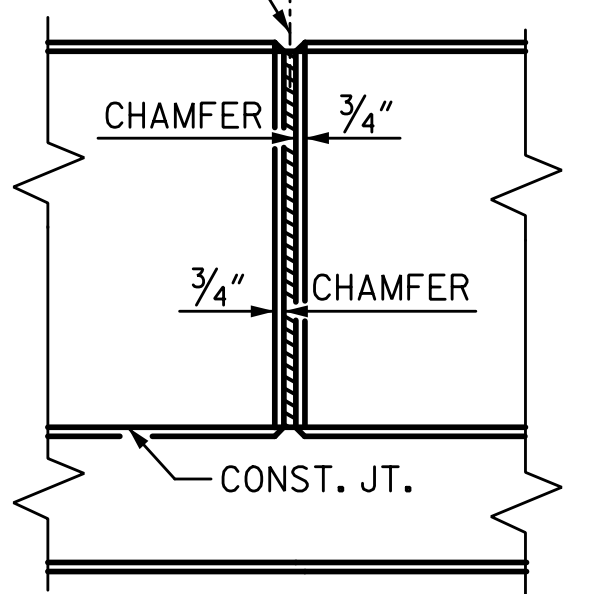
3/18/2022 11:06:33 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_MR_770164.dgn



PLAN OF MEDIAN BARRIER



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



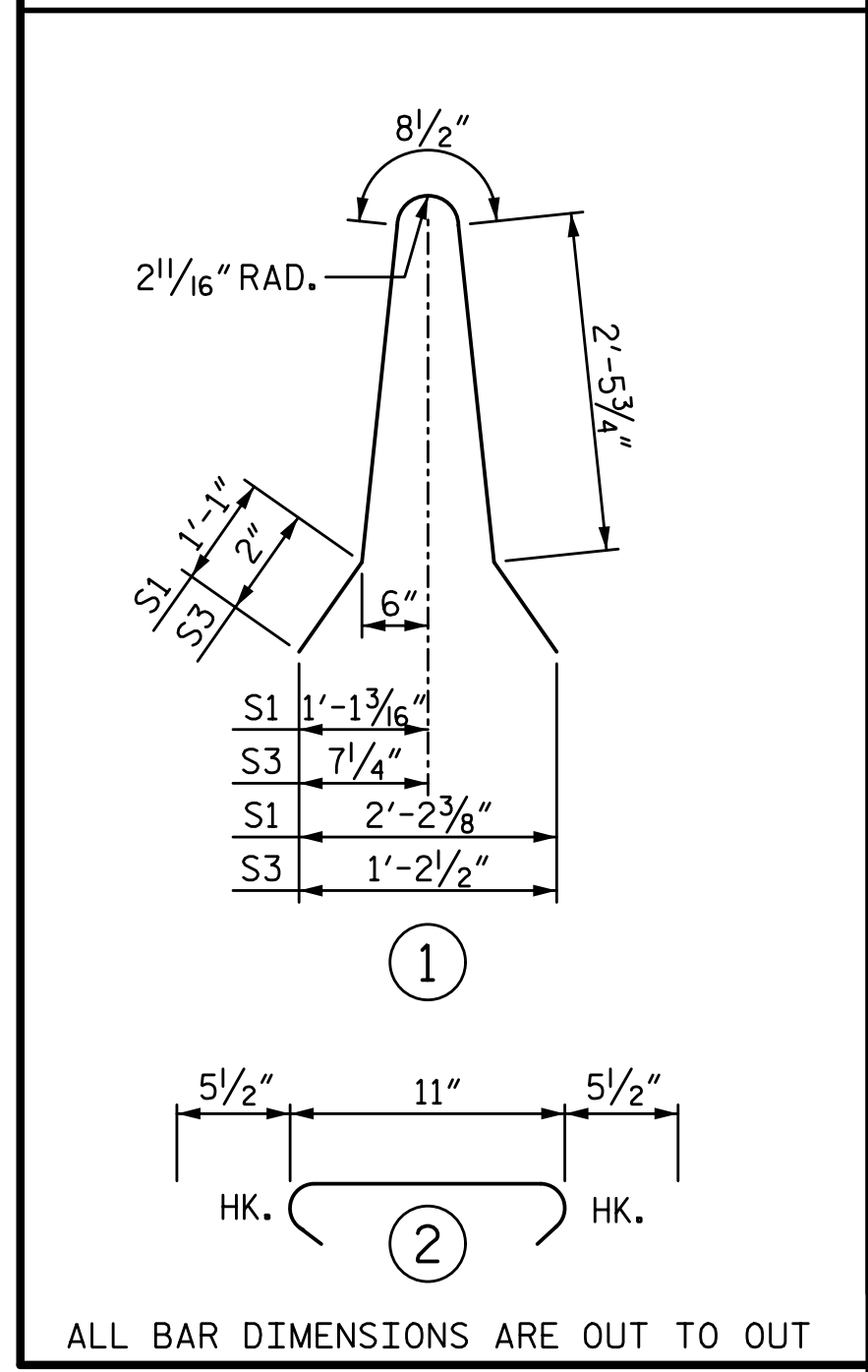
SECTION THRU MEDIAN BARRIER

ELEVATION AT EXPANSION JOINTS

MEDIAN BARRIER DETAILS

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

BILL OF MATERIAL					
FOR MEDIAN BARRIER ONLY					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	24	#5	STR	24'-8"	617
*B2	24	#5	STR	12'-1"	302
*B3	24	#5	STR	21'-1"	528
*B4	48	#5	STR	22'-4"	1118
*B5	24	#5	STR	12'-11"	323
*S1	226	#5	1	7'-10"	1846
*S2	452	#5	2	1'-10"	864
*S3	4	#5	1	6'-0"	25
* EPOXY COATED REINFORCING STEEL					5623 LB
CLASS AA CONCRETE					40.5 CY
CONCRETE MEDIAN BARRIER					227.97 LF



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES:

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

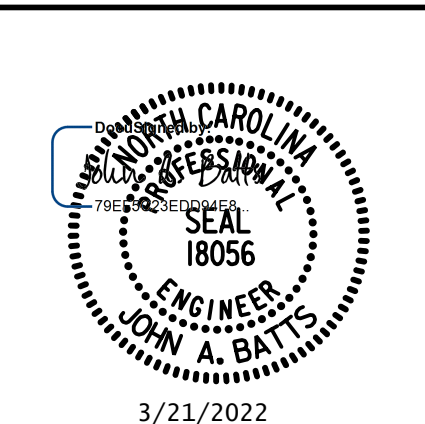
ALL REINFORCING STEEL IN MEDIAN BARRIER SHALL BE EPOXY COATED.

THE #5S2 BARS IN STAGE II AND IN 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.

THE #5 S1 BARS MAYBE SHIFTED SLIGHTLY OR FIELD BENT AS NECESSARY IN ORDER TO CLEAR THE EXPANSION JOINT SEAL COVER PLATE ASSEMBLY IN THE CONCRETE MEDIAN AT THE END BENTS.

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-



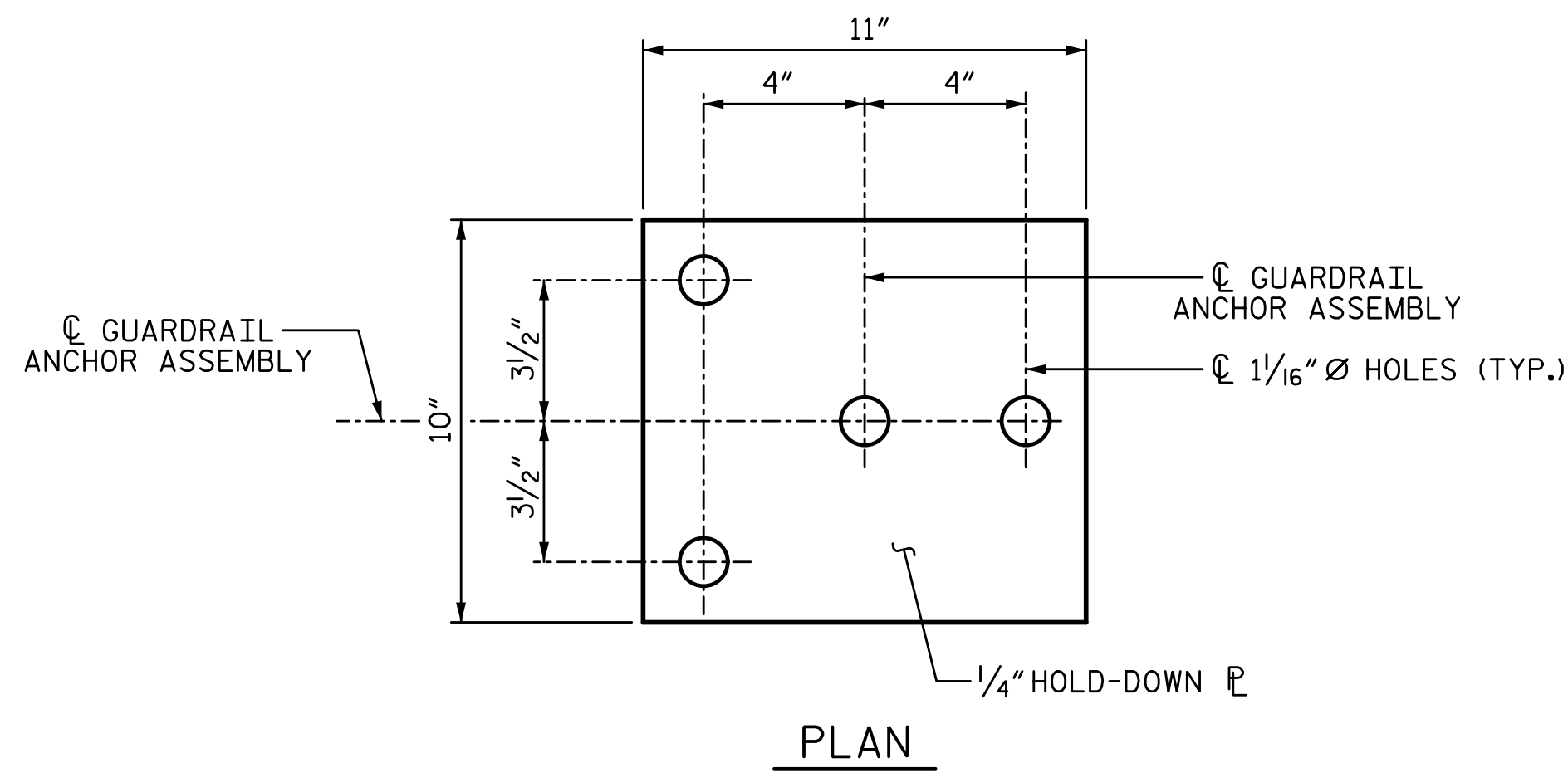
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**CONCRETE
 MEDIAN BARRIER**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-36
1			3			TOTAL SHEETS
2			4			69

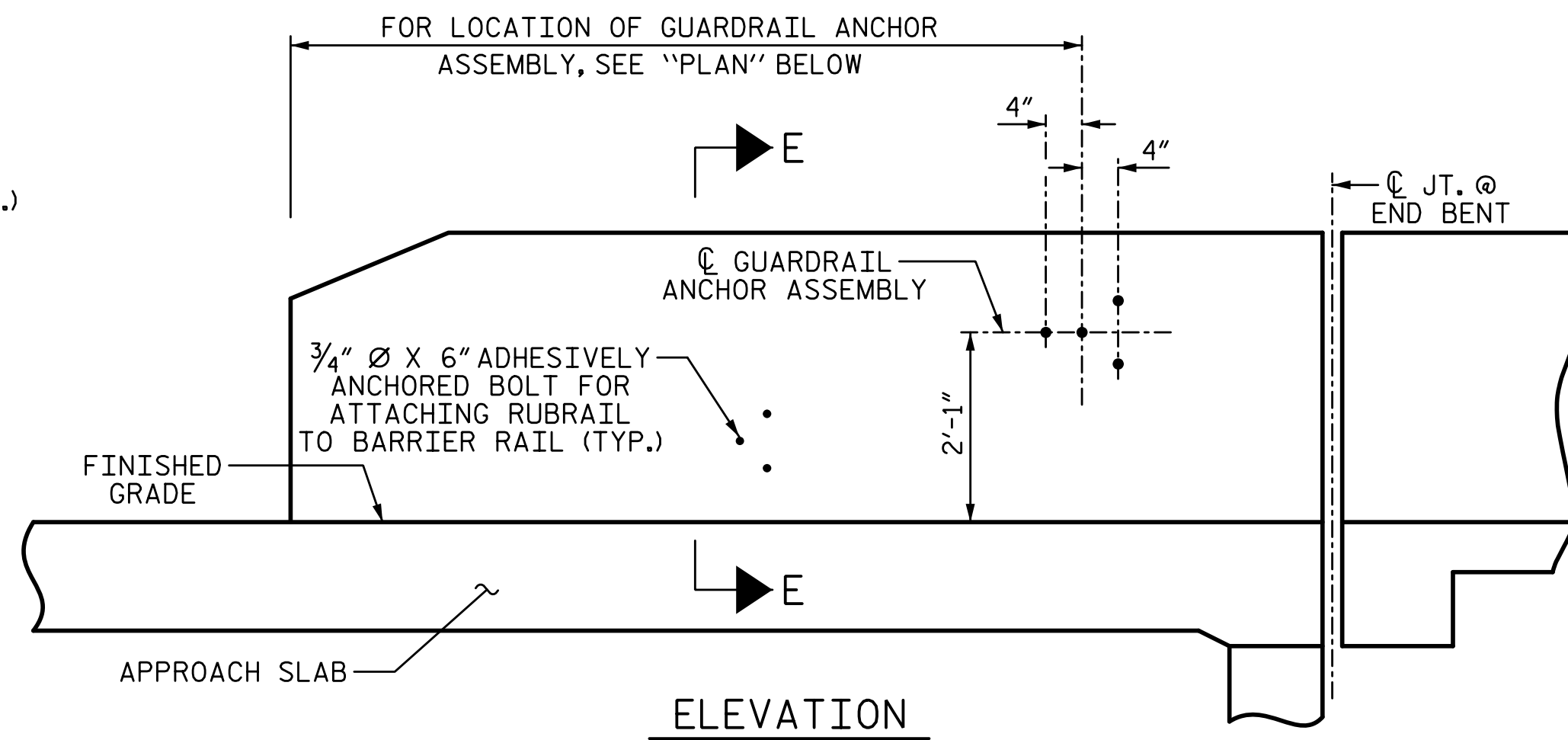
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

LICENSURE NO. C-4434

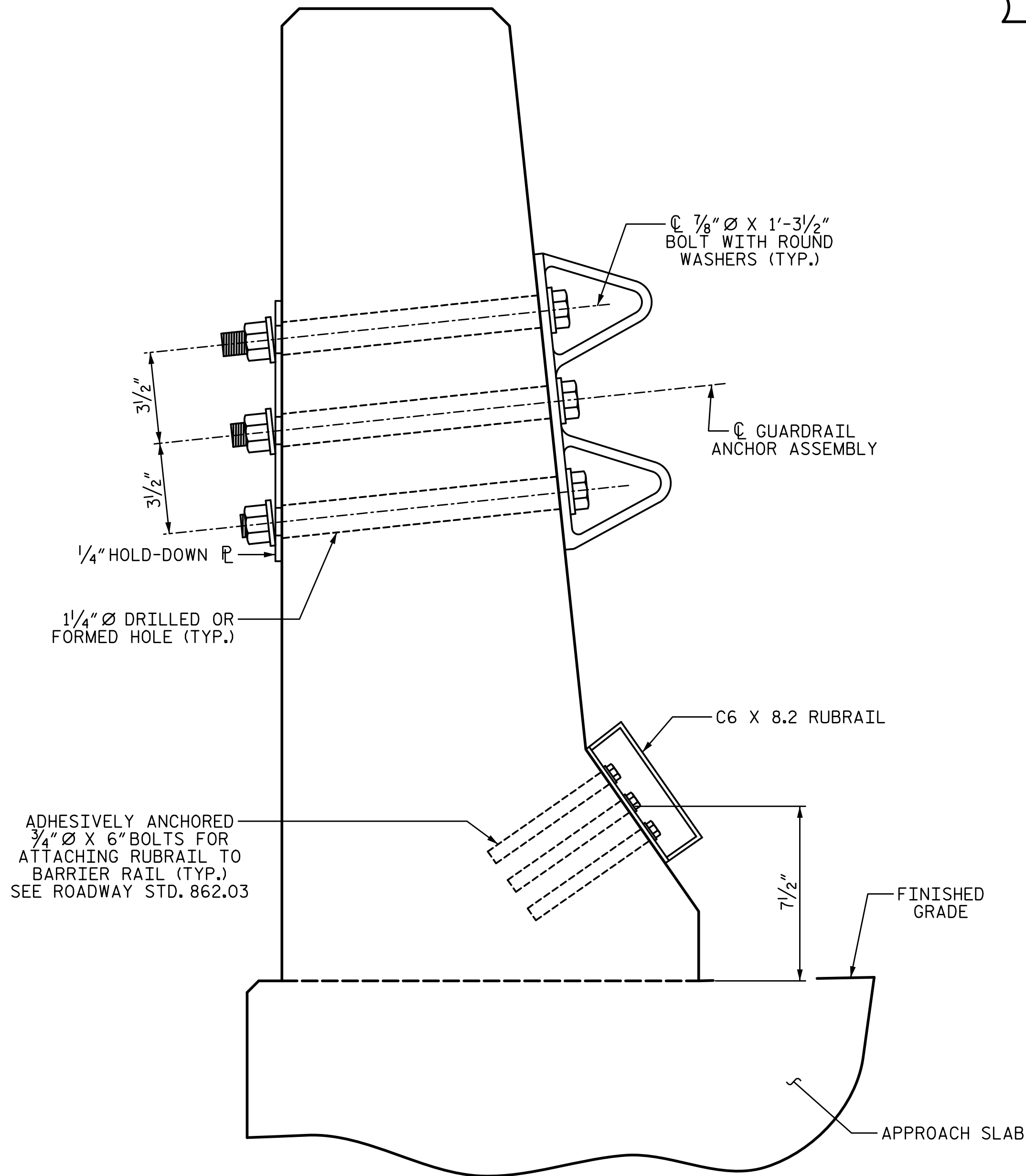
3/18/2022 11:06:34 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_CR_770164.dgn



PLAN

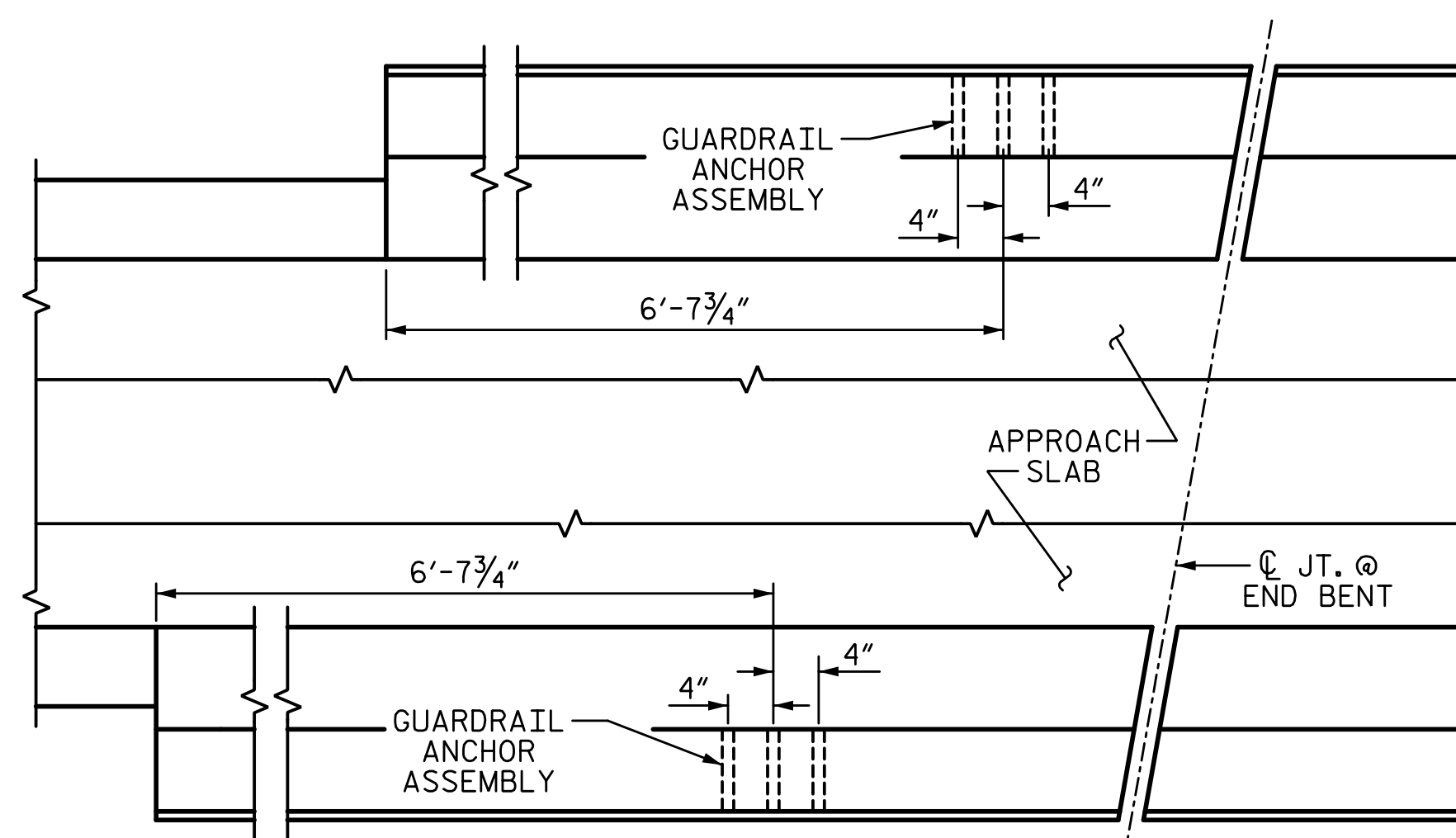


ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

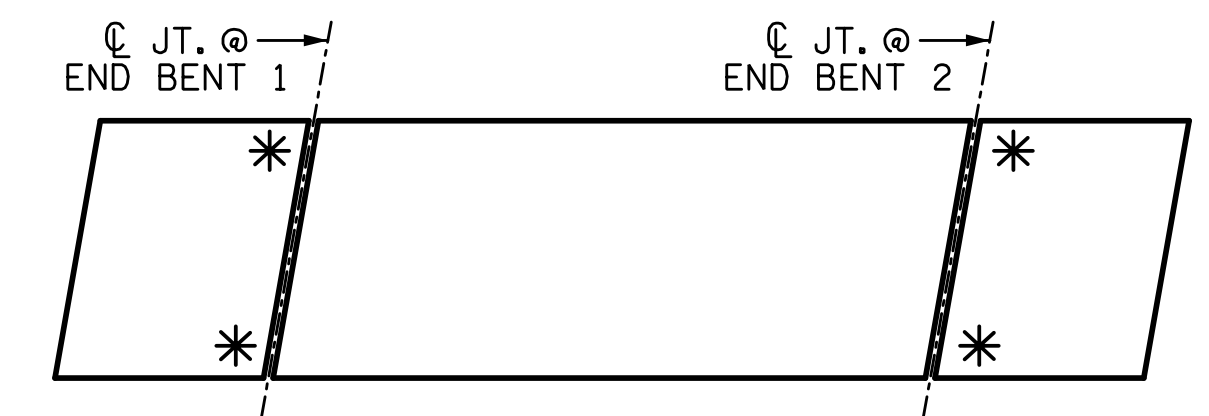


LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

NOTES:

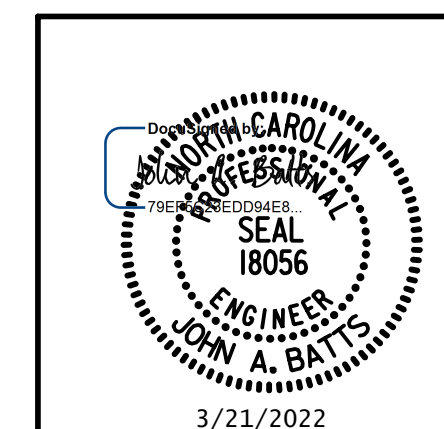
- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1*4" HOLD-DOWN PLATE AND 4 - 7/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.
- THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.
- THE 1/4" 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.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-



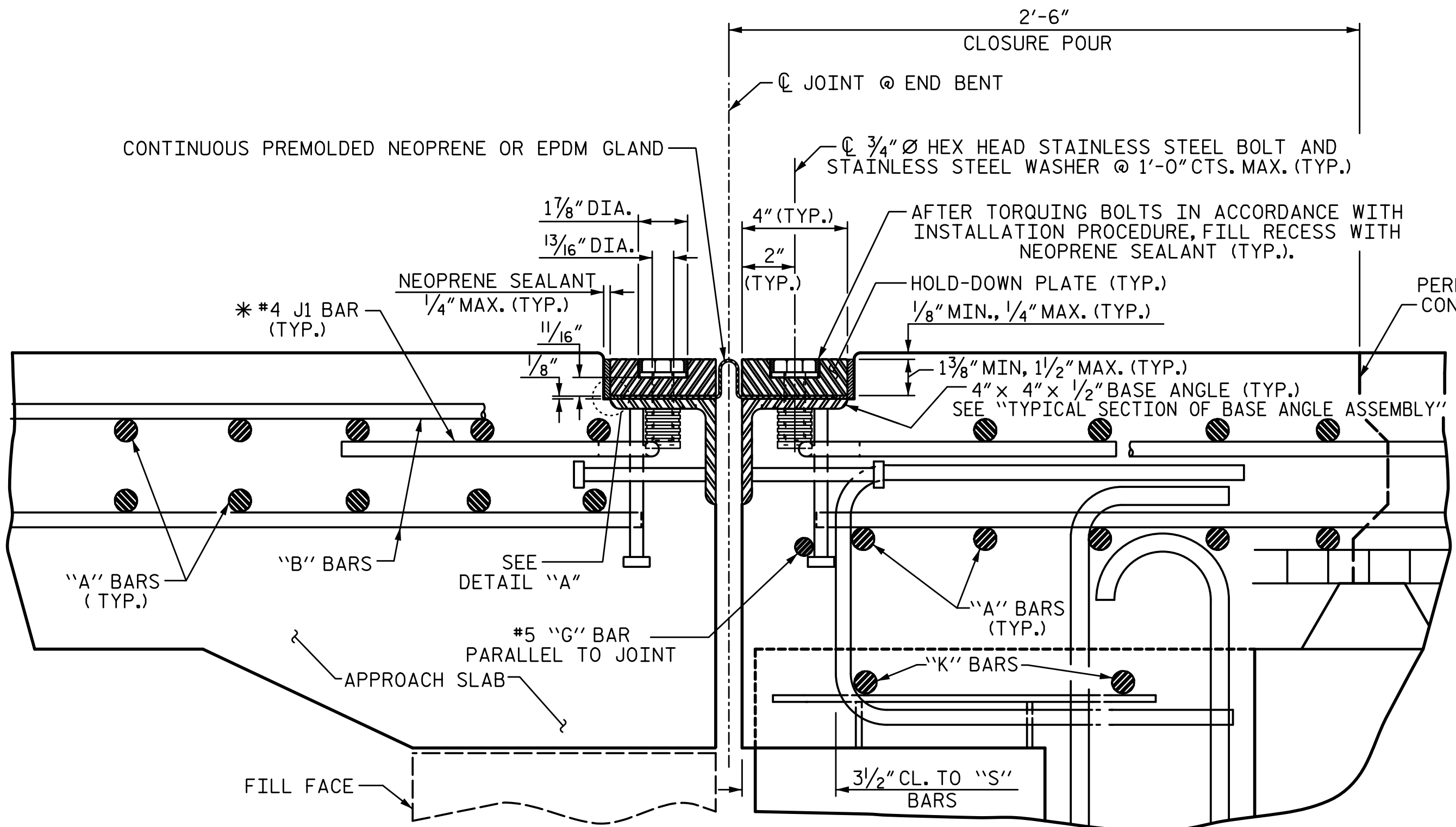
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-37
1			3			TOTAL SHEETS
2			4			69

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:35 AM G:\Projects\2020\Division 6 (Mott+Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_JT_770164.dgn



EXPANSION JOINT DETAILS

(SECTION NORMAL TO JOINT)
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

* THE QUANTITIES OF #4 J1 BARS ON THE SUPERSTRUCTURE BILL OF MATERIAL AND THE APPROACH SLAB BILLS OF MATERIAL ARE 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.

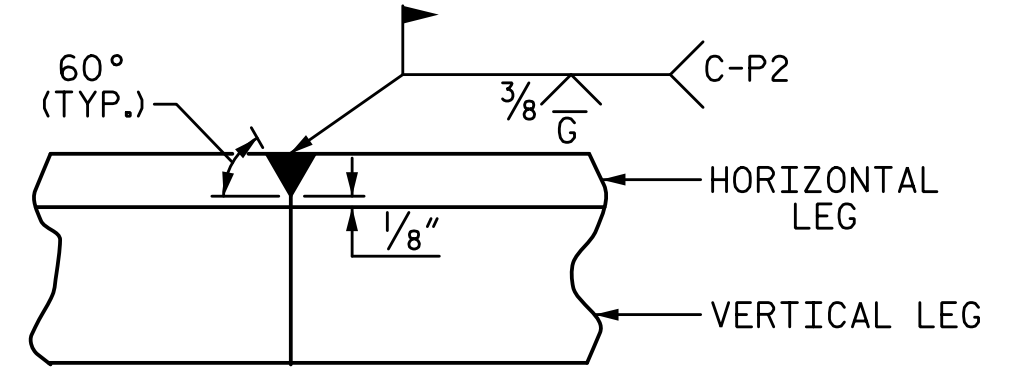
MOVEMENT AND SETTING AT JOINT					
LOCATION	SKIEW ANGLE	TOTAL MOVEMENT (ALONG CL RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	100°-00'-00"	3/8"	1/4"	1 3/16"	1/16"
END BENT 2	100°-00'-00"	1/16"	1/2"	1 3/8"	1/8"

INSTALLATION PROCEDURE:

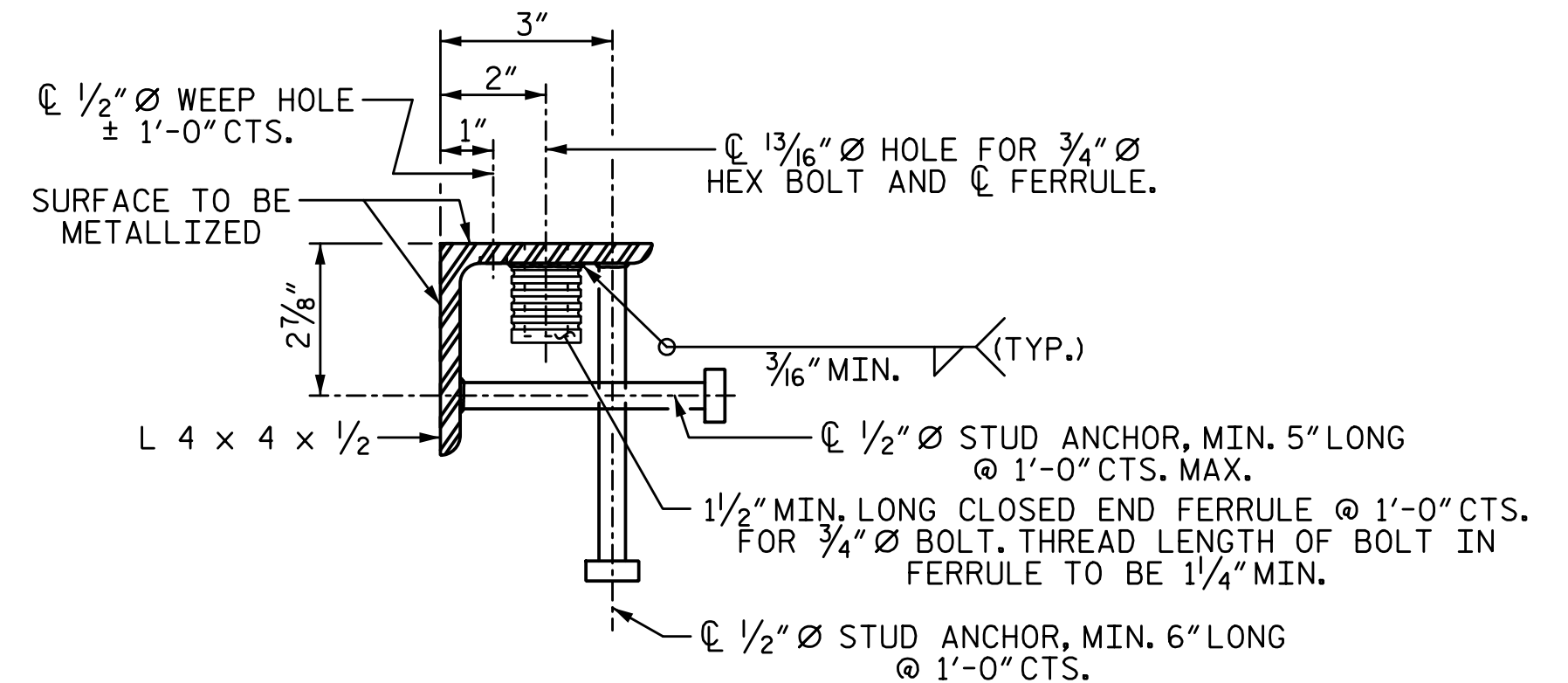
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4/8" TO 4/4" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO 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 1/8" 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:

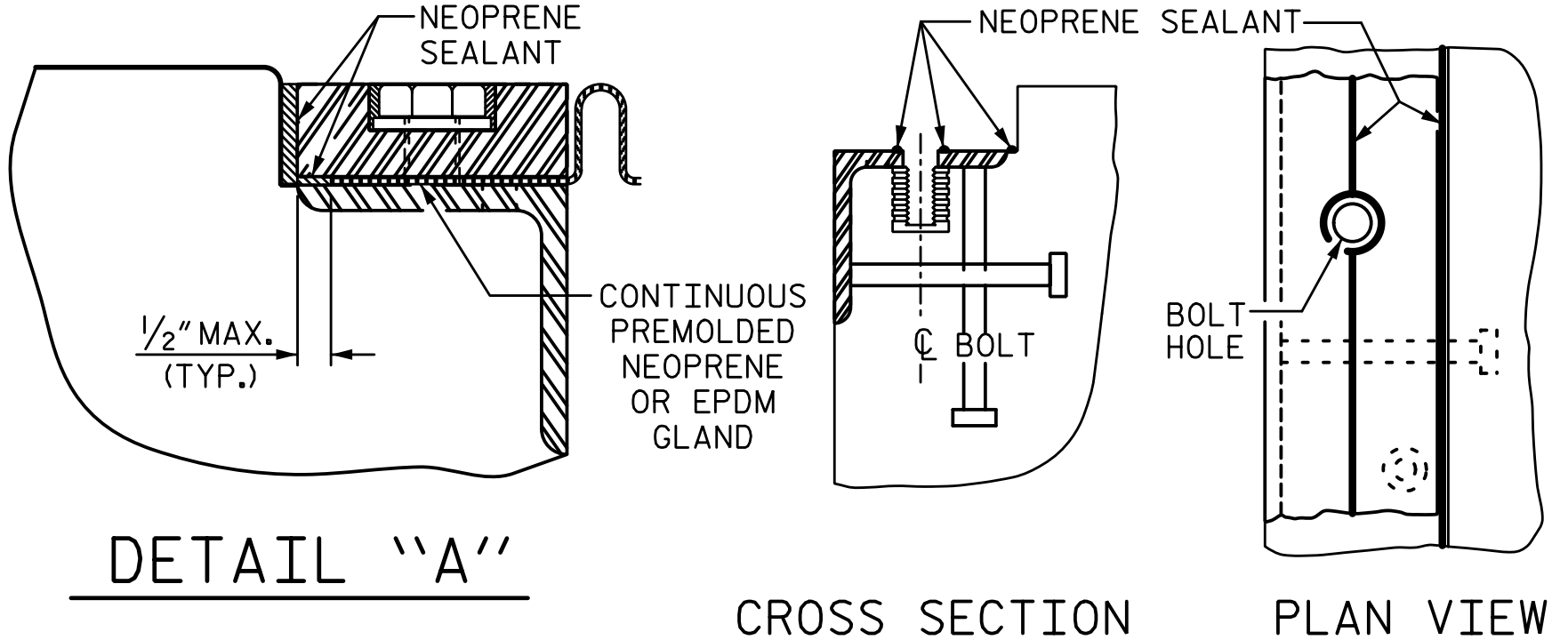
1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS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



DETAIL-FIELD WELD SPLICE OF BASE ANGLE

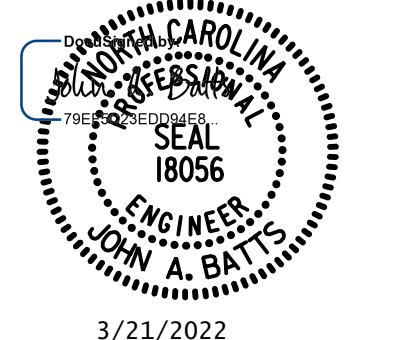


TYPICAL SECTION OF BASE ANGLE ASSEMBLY



INSTALLATION SKETCH

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



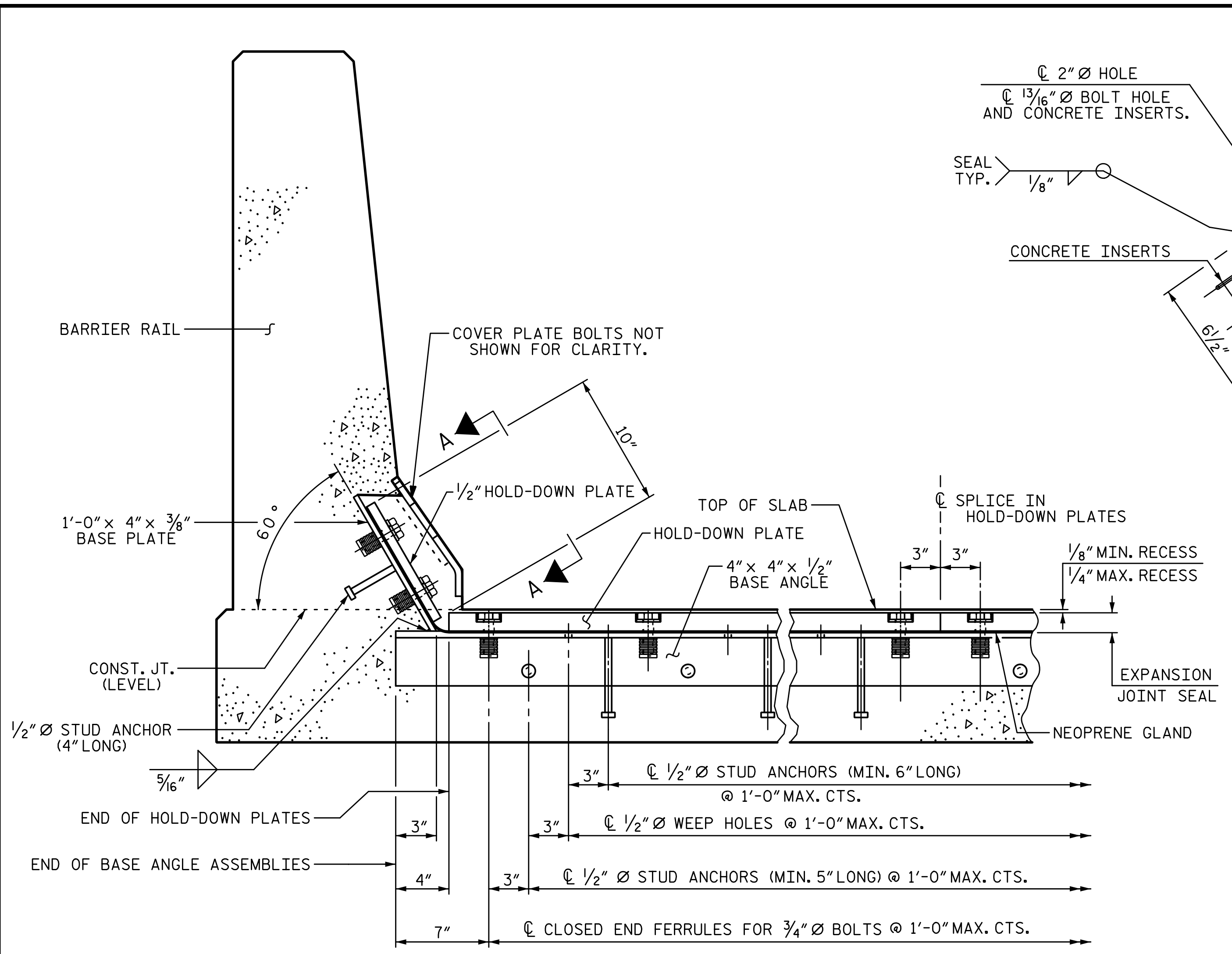
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 1 OF 3

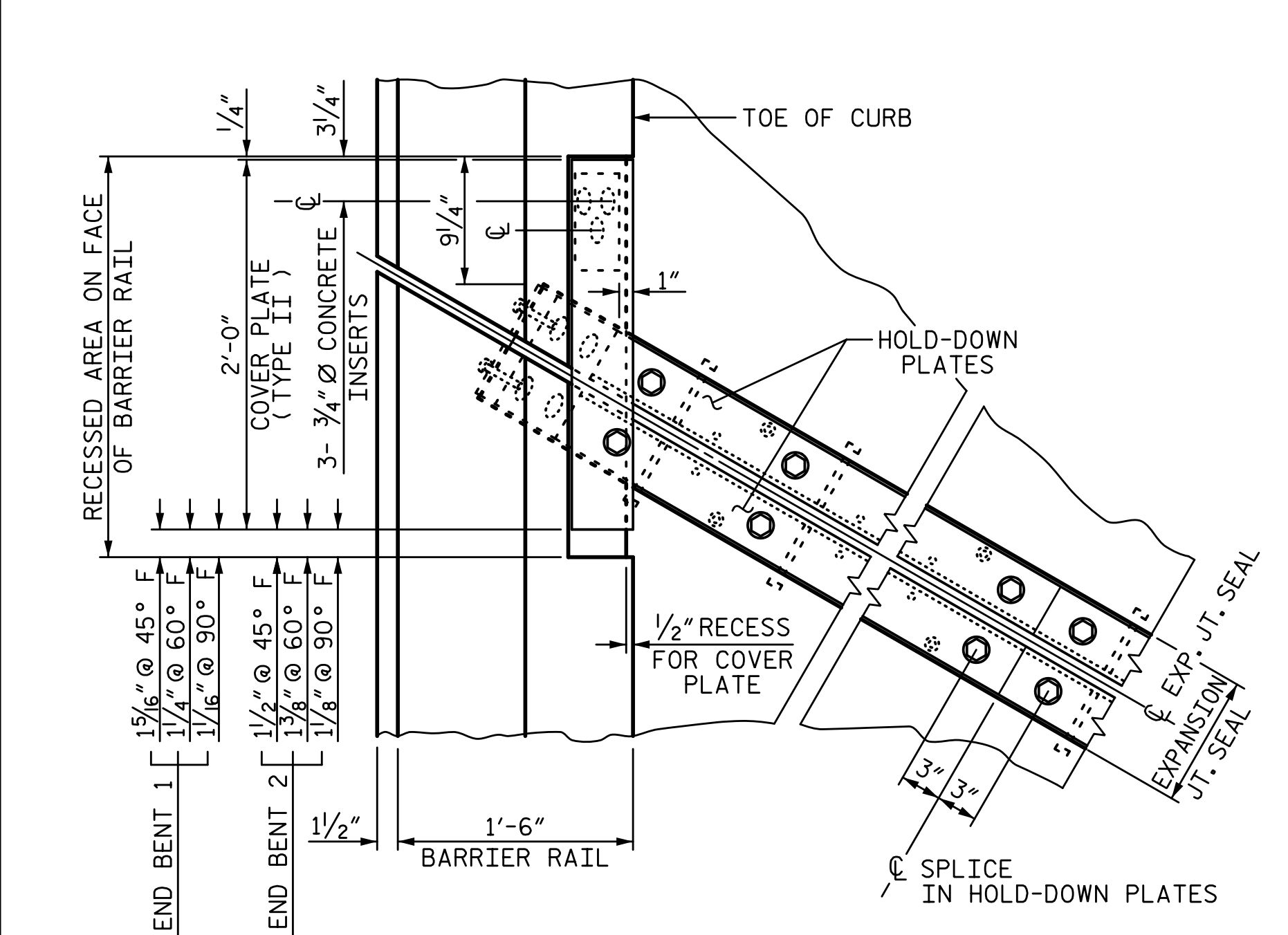
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE					
EXPANSION JOINT SEAL DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 69

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

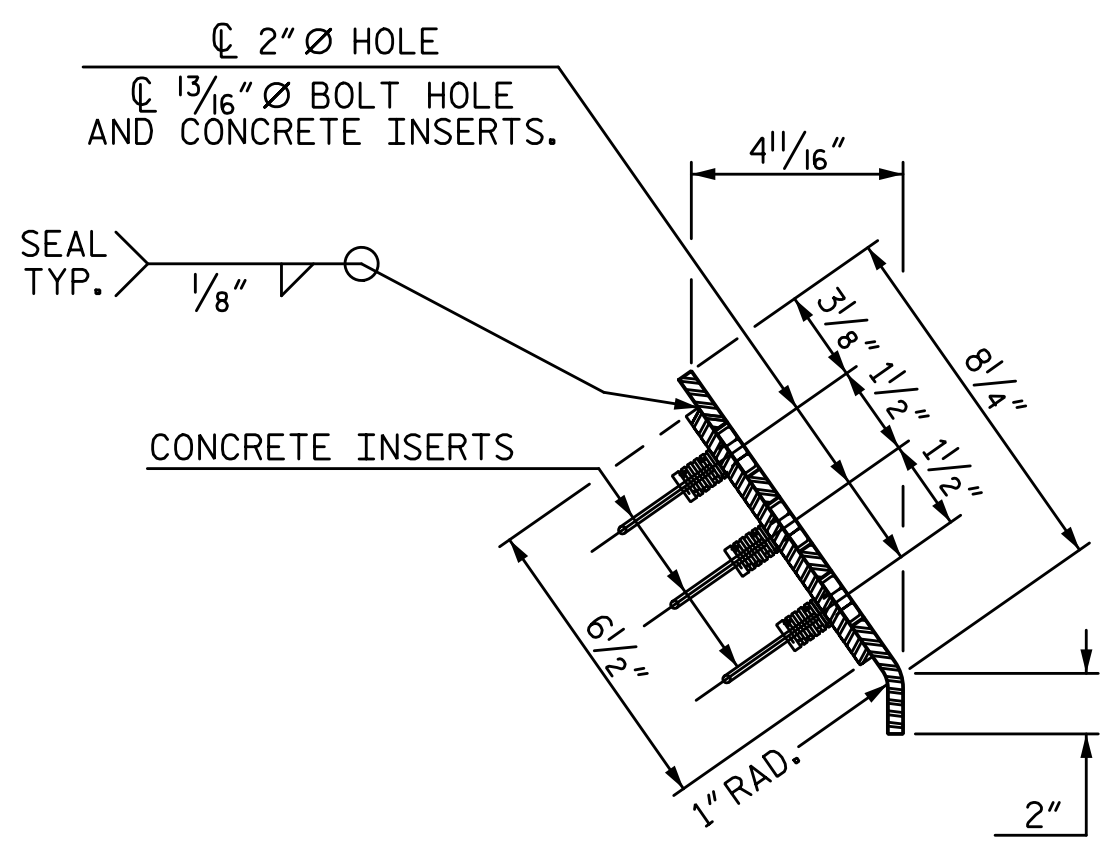
3/18/2022 11:06:36 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_JT_770164.dgn



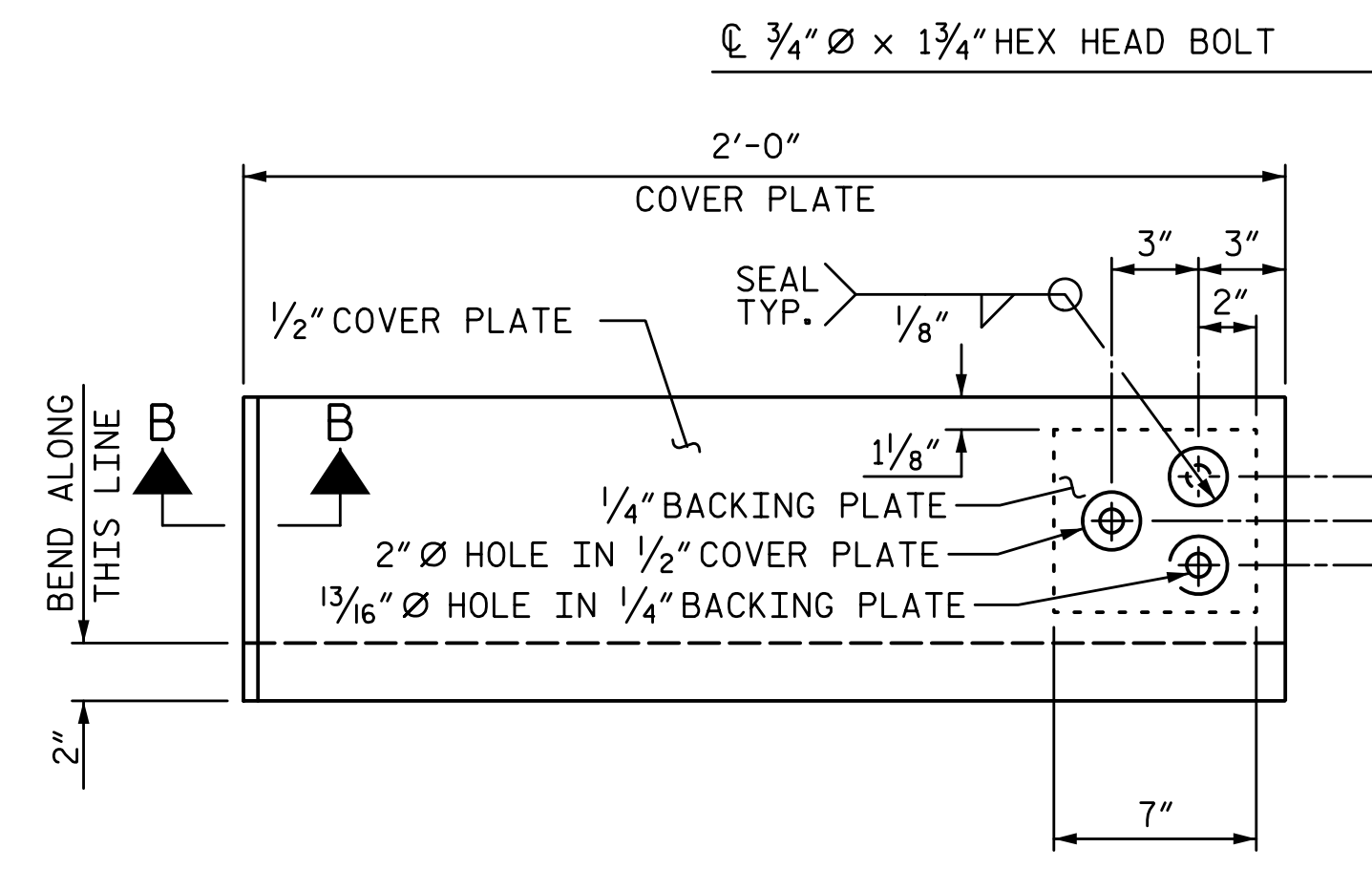
SECTION THRU RAIL NORMAL TO JOINT



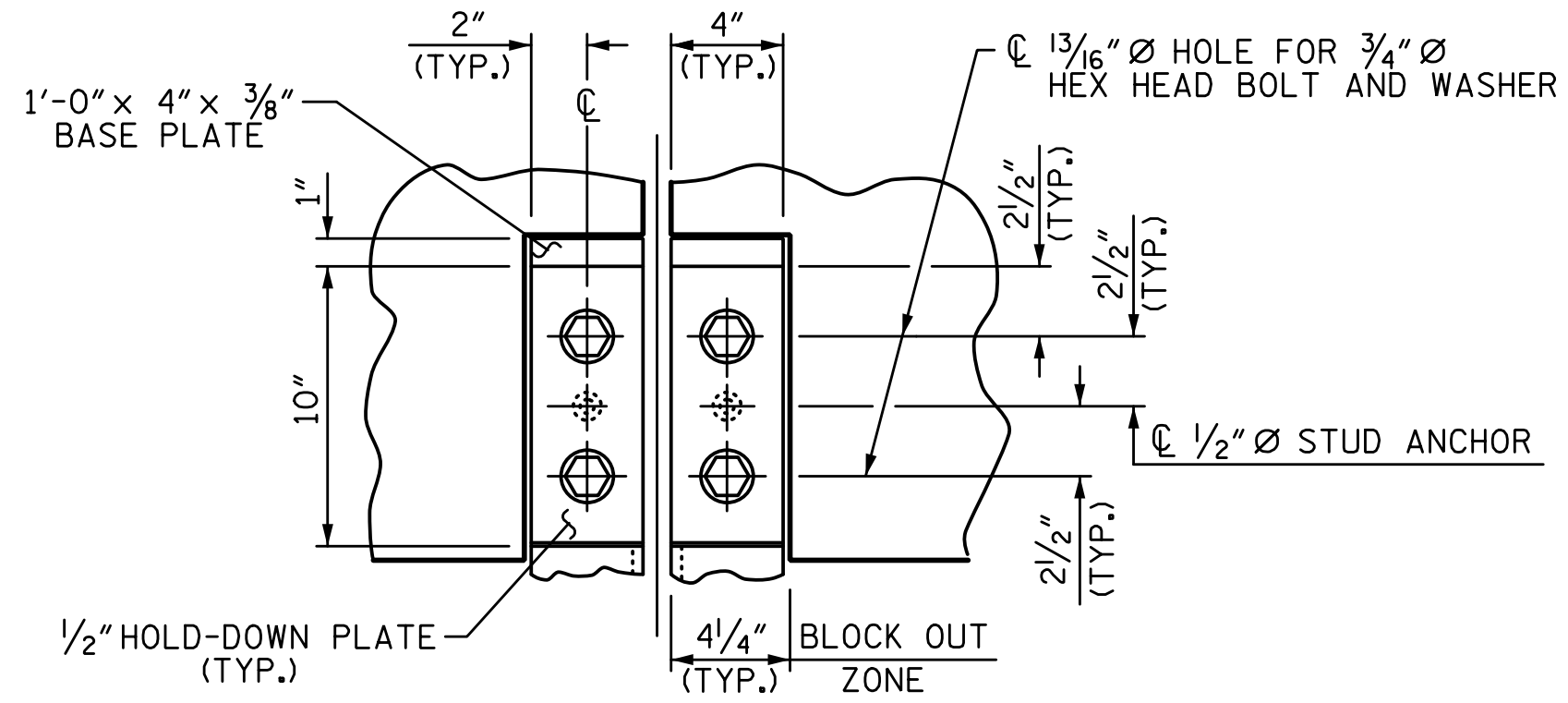
PLAN OF EXPANSION JOINT SEAL



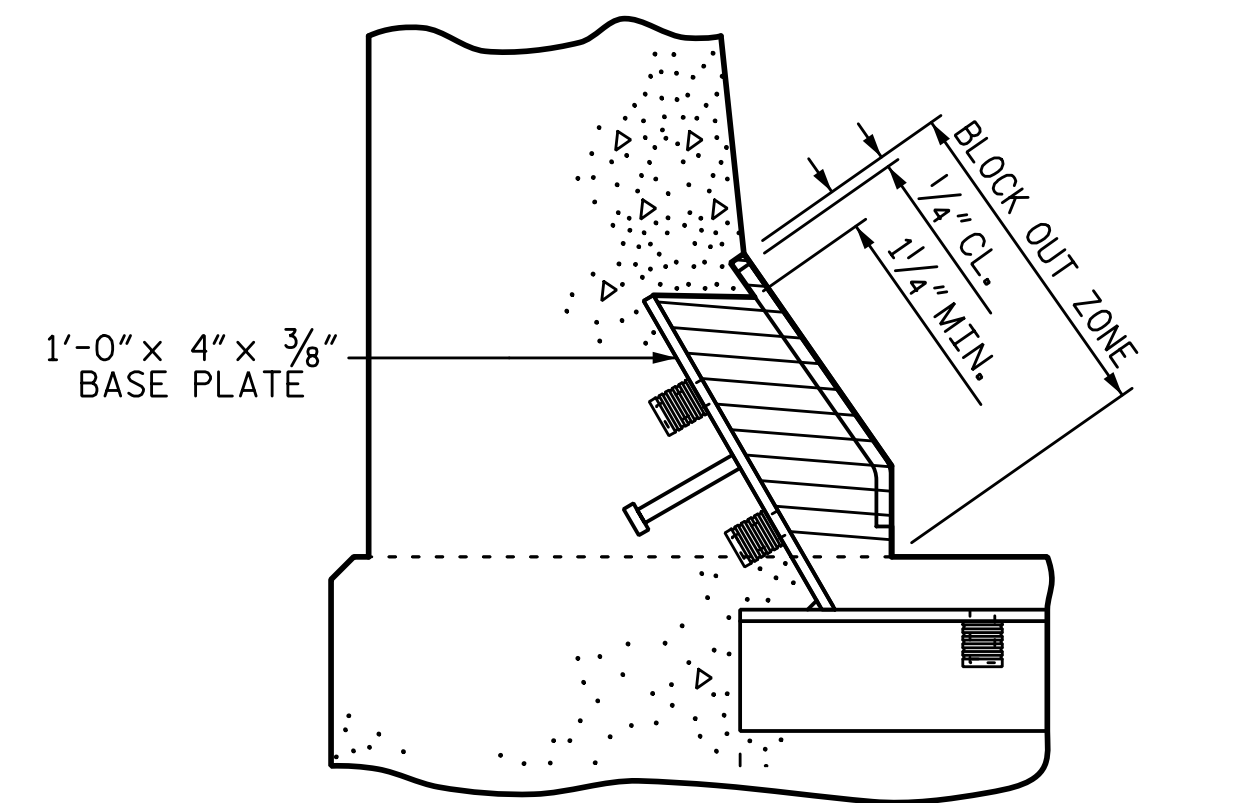
END VIEW



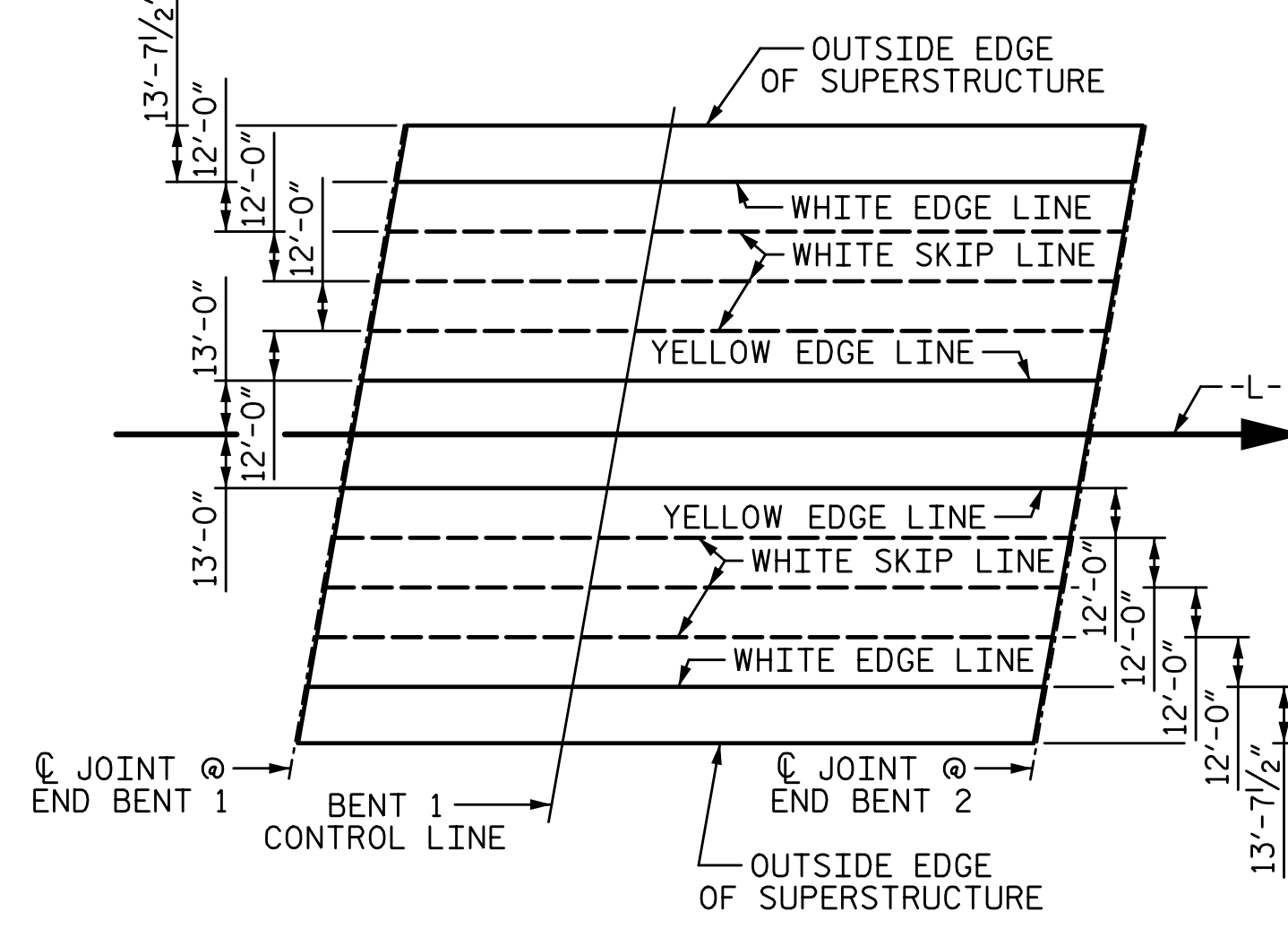
TYPE II - ELEVATION VIEW COVER PLATE DETAILS



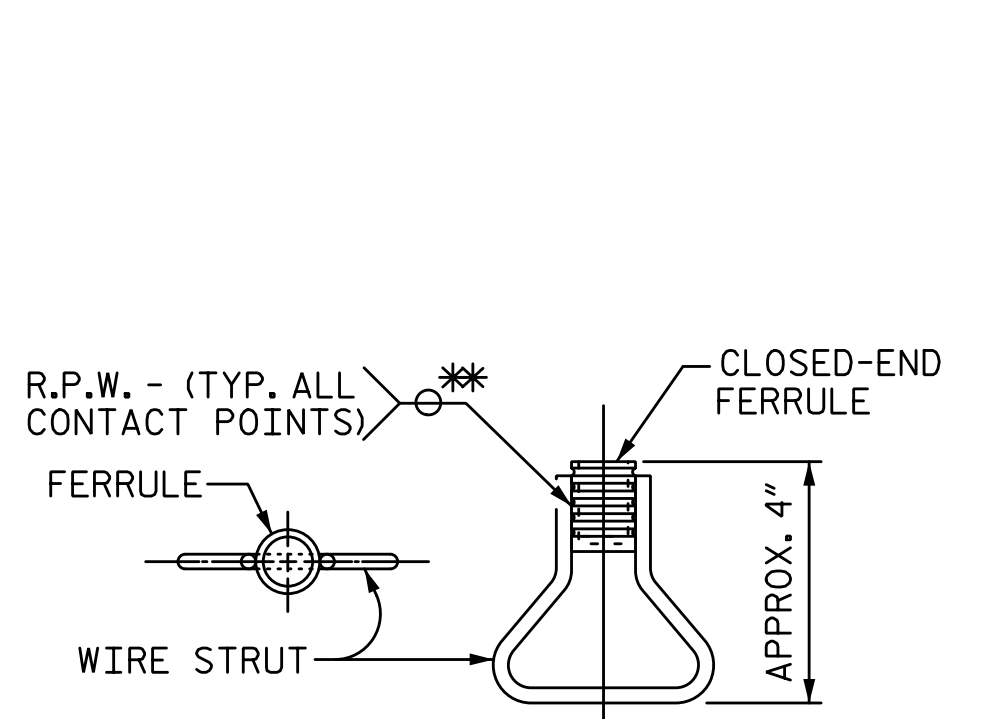
SECTION A-A



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

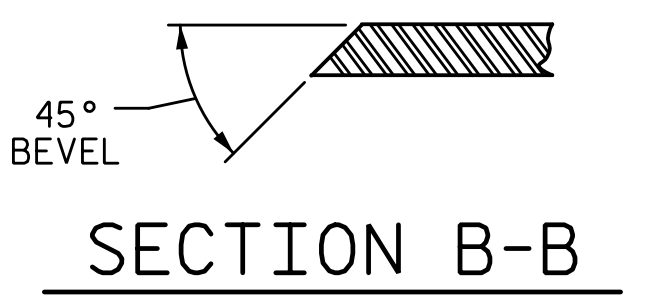
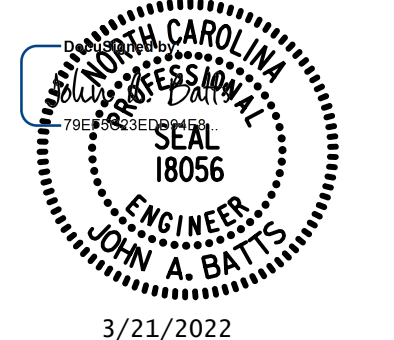


PAVEMENT MARKING ALIGNMENT



CONCRETE INSERT
PLAN ELEVATION

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



SECTION B-B

PROJECT NO. I-5987B
ROBESON COUNTY
STATION: 803+15.00 -L-

SHEET 2 OF 3

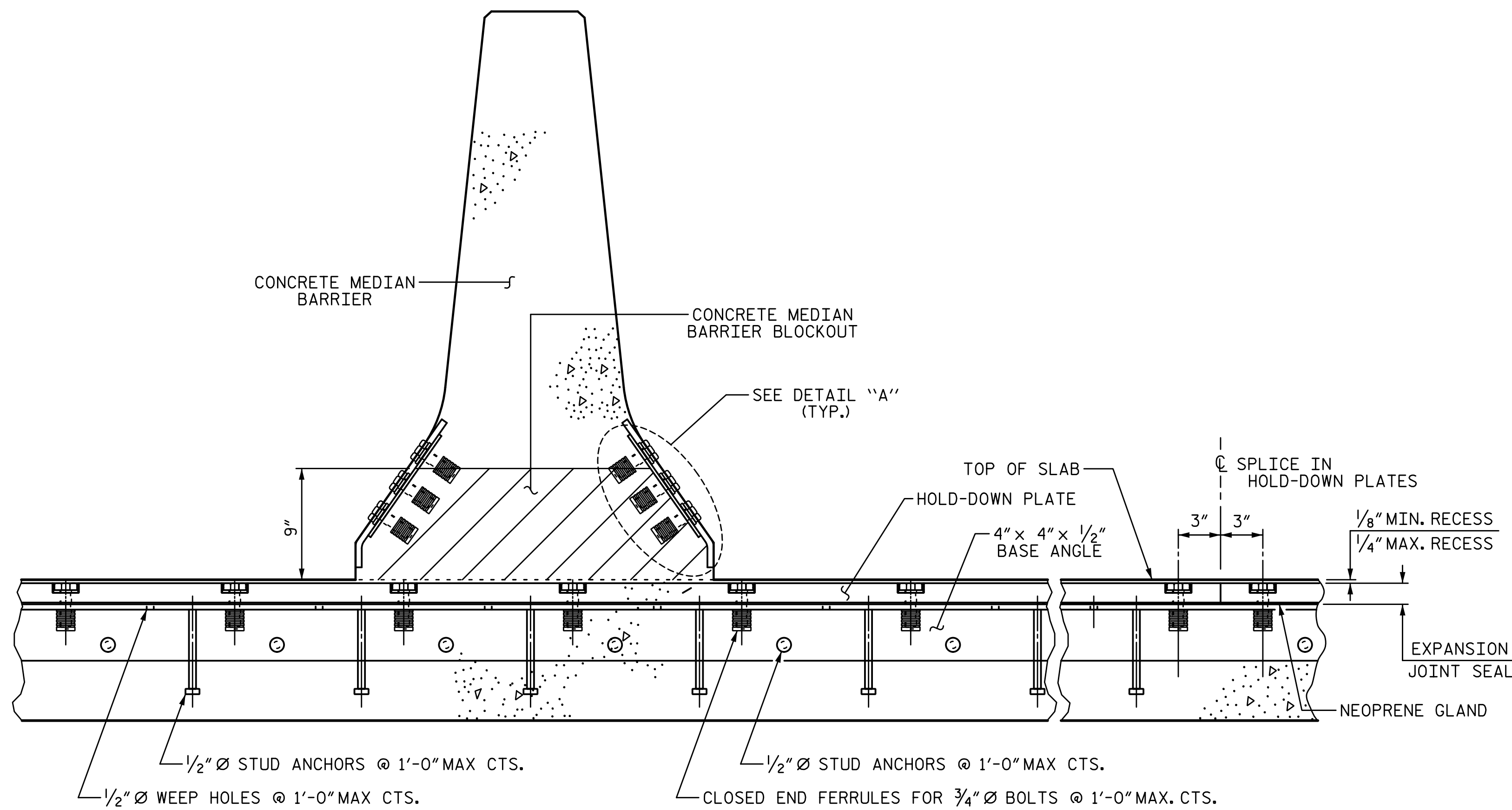
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
EXPANSION JOINT SEAL DETAILS FOR BARRIER RAIL

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

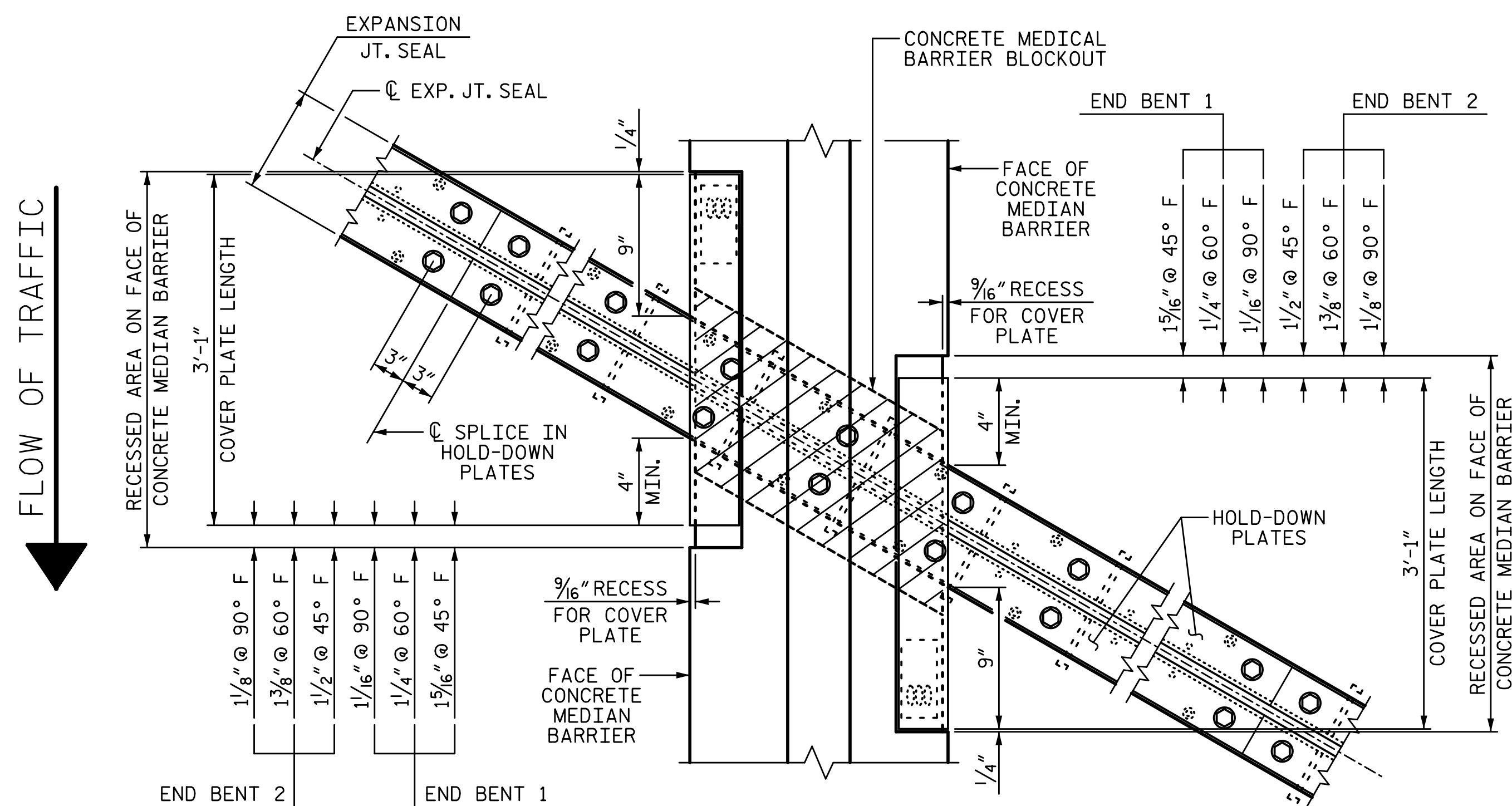
REVISIONS						SHEET NO. S9-39
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 69
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

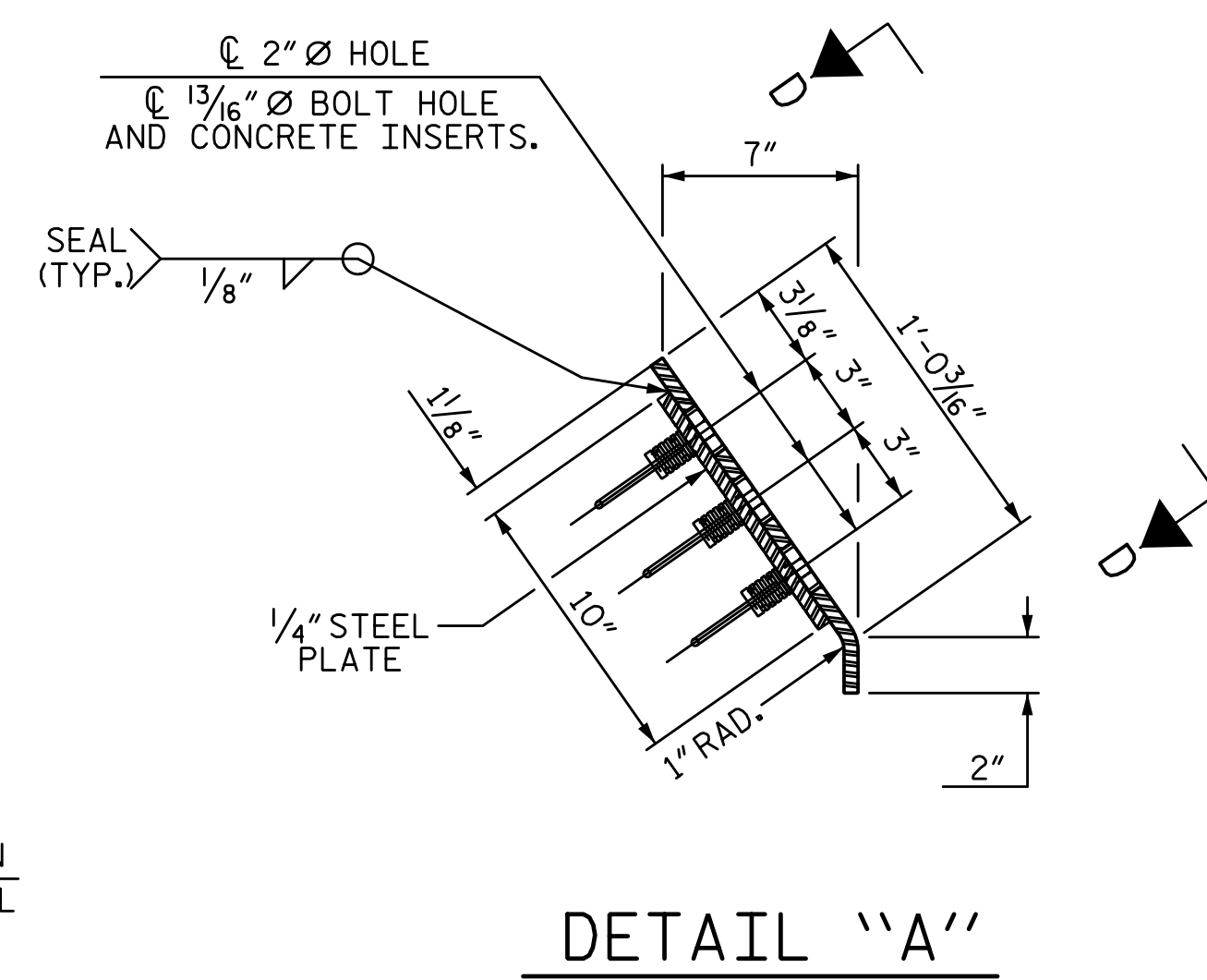
3/18/2022 11:06:36 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_JT_770164.dgn



SECTION THRU MEDIAN BARRIER NORMAL TO JOINT

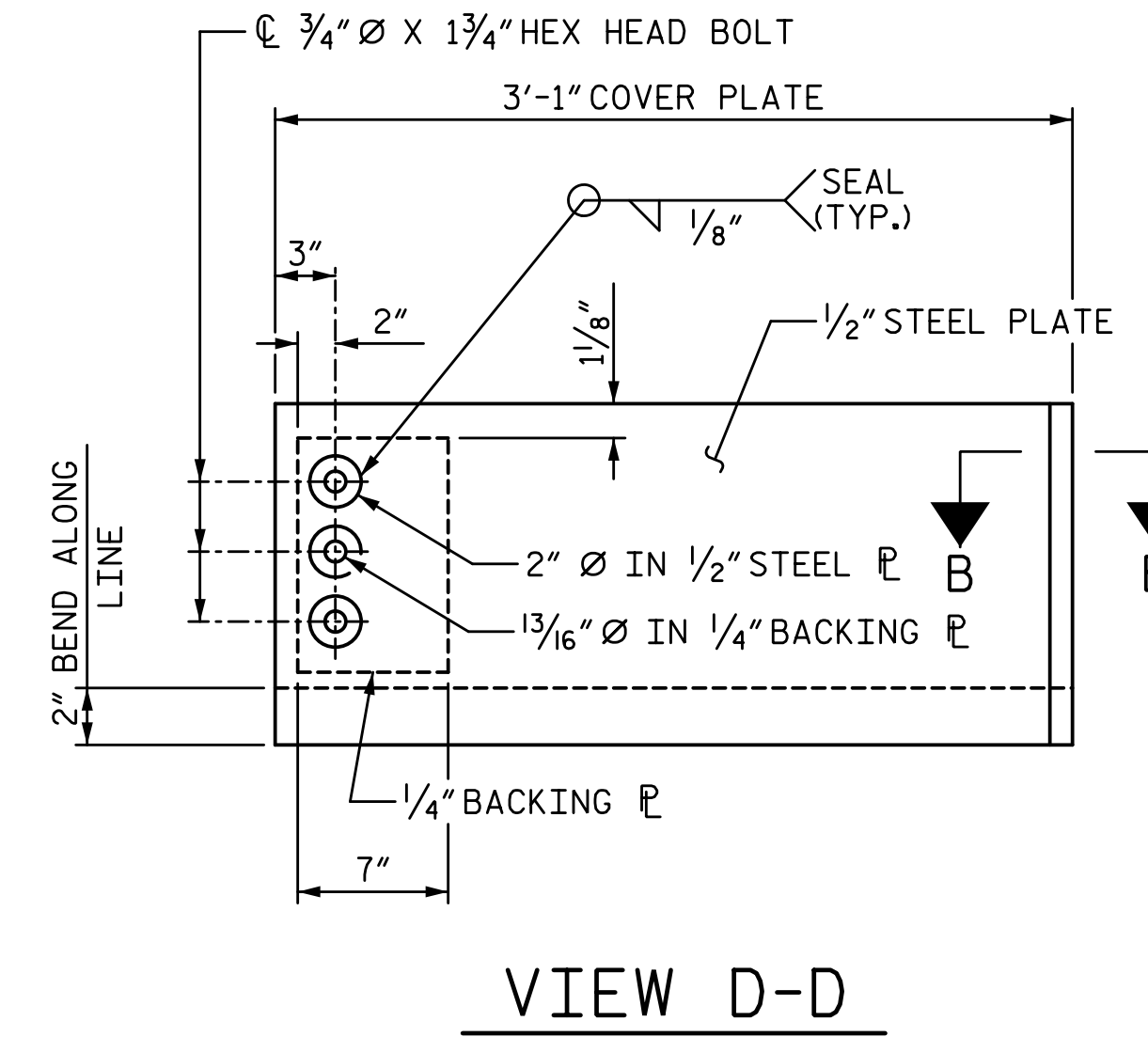


PLAN OF EXPANSION JOINT SEAL AT MEDIAN BARRIER

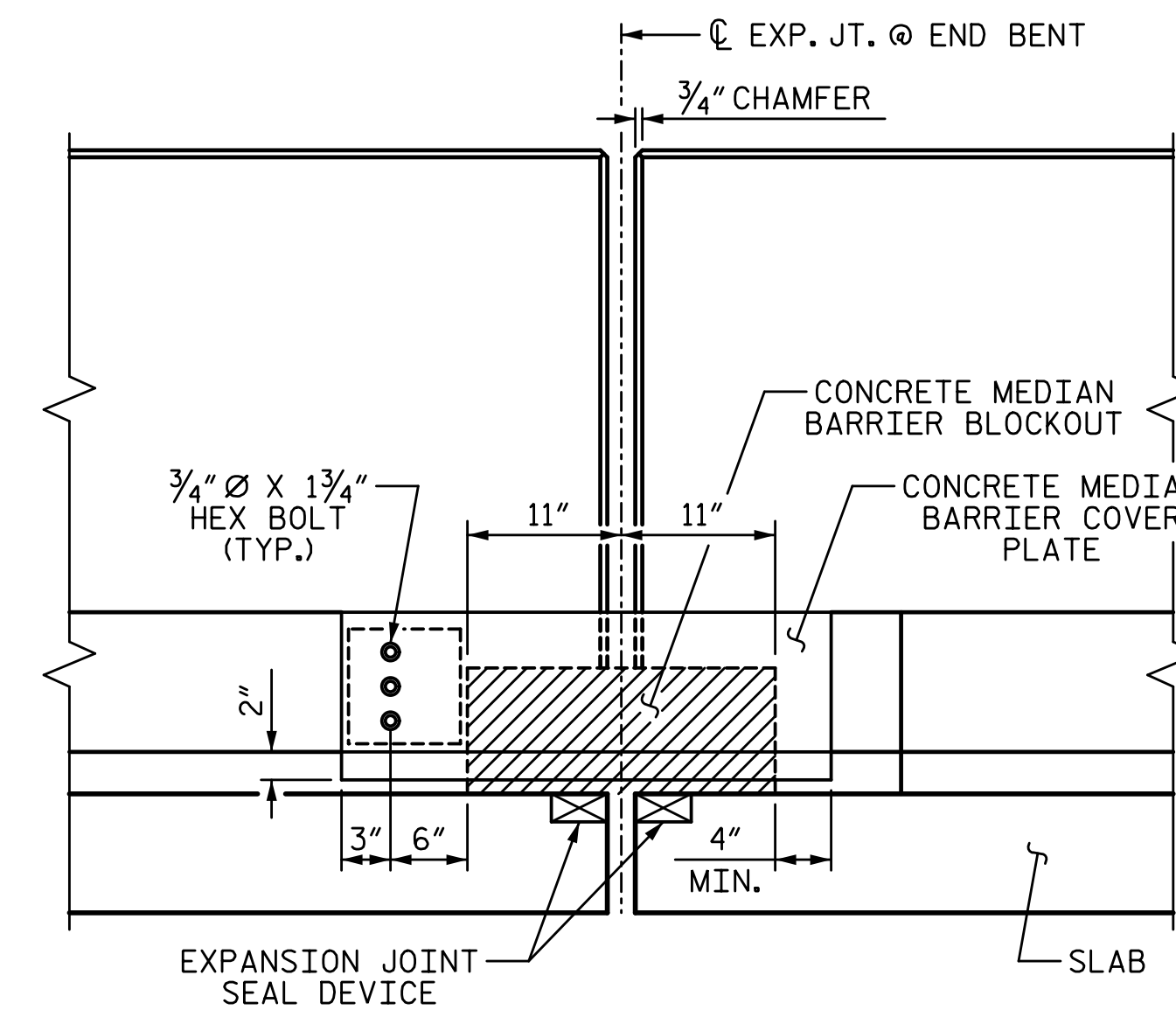


DETAIL "A"

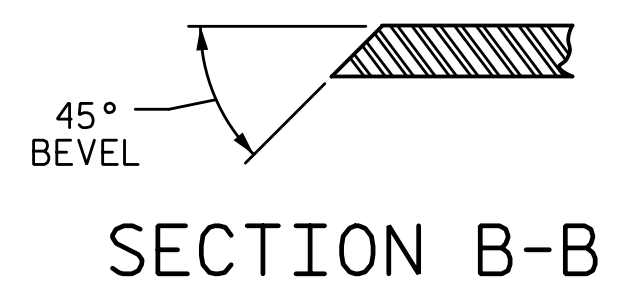
NOTES:
 NO SEPERATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE COVER PLATES. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR "EXPANSION JOINT SEALS".



VIEW D-D



ELEVATION AT EXPANSION JOINT



SECTION B-B

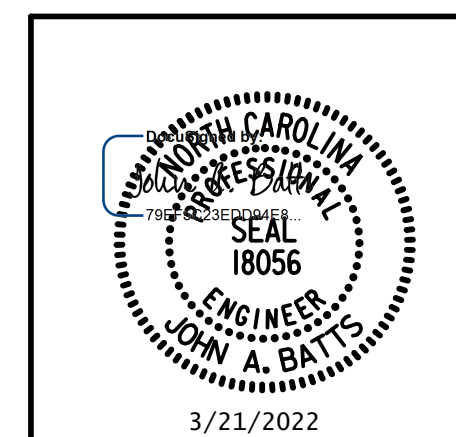
PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 3 OF 3

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



LICENSURE NO. C-4434



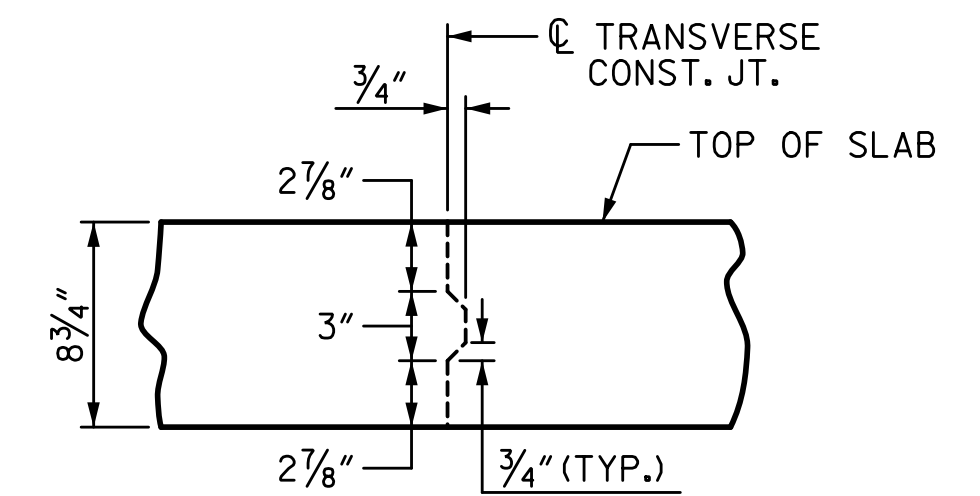
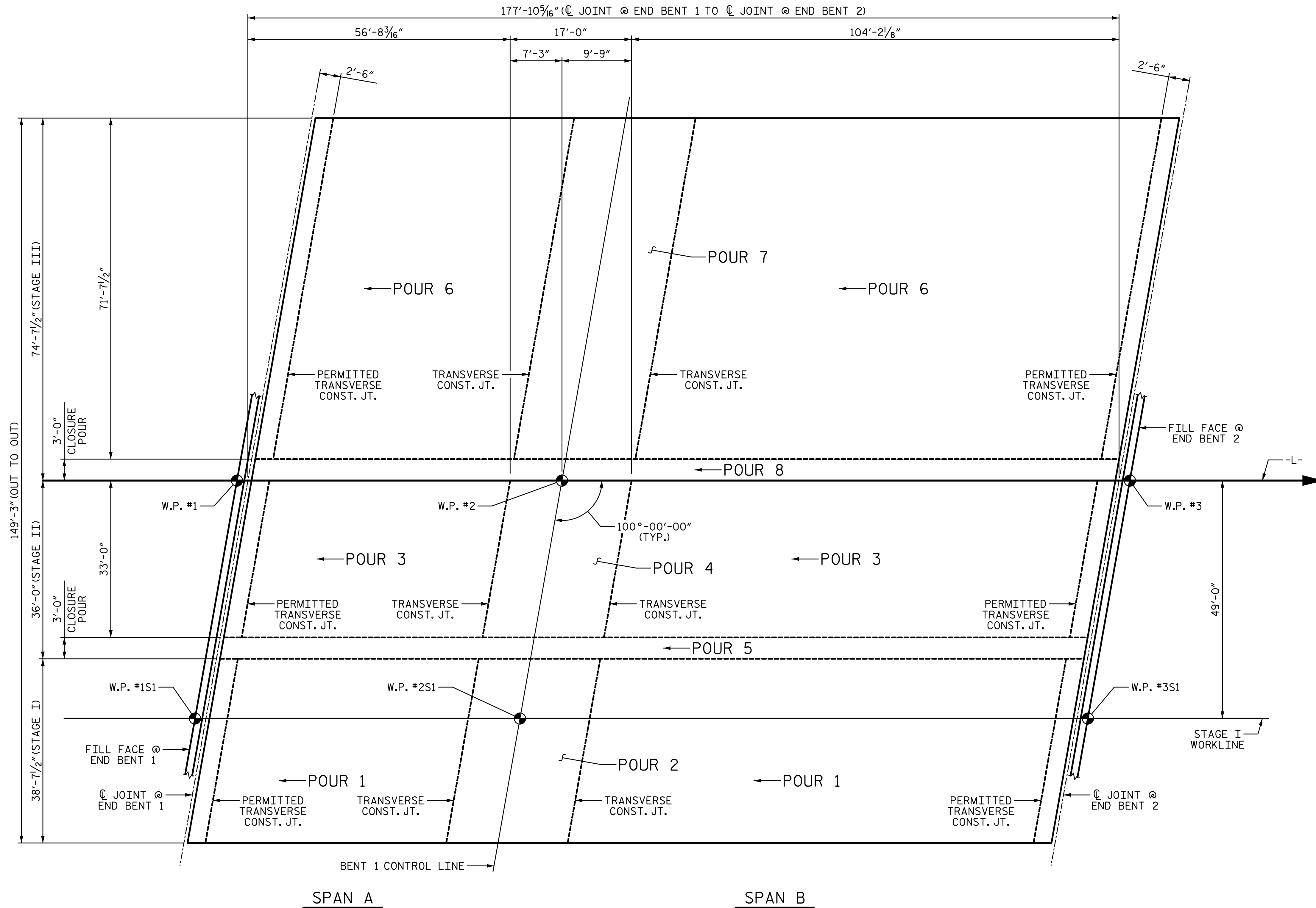
3/21/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 EXPANSION JOINT
 SEAL DETAILS
 FOR CONCRETE MEDIAN
 BARRIER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-40
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

3/18/2022 11:06:37 AM G:\Projects\2020\Division 6 (Mott) Mac - NV5\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_BM_770164.dgn



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

POUR SEQUENCE AND LAYOUT FOR COMPUTING REINFORCED CONCRETE DECK SLAB AREA
(SQ. FT. 26,529)

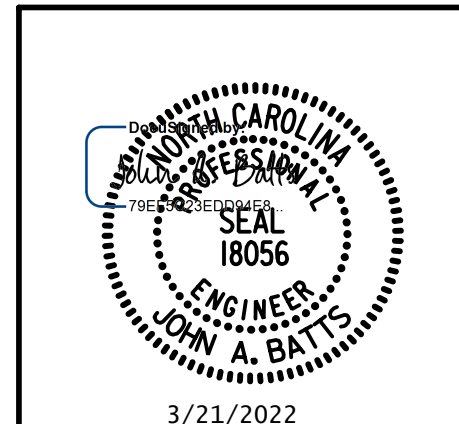
- POUR ② CAN NOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.
- POUR ④ CAN NOT BE STARTED UNTIL BOTH ADJACENT ③ POURS REACH A MINIMUM OF 3000 PSI.
- POUR ⑦ CAN NOT BE STARTED UNTIL BOTH ADJACENT ⑥ POURS REACH A MINIMUM OF 3000 PSI.

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE

BILL OF MATERIAL



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-41
1			3			TOTAL SHEETS
2			4			69

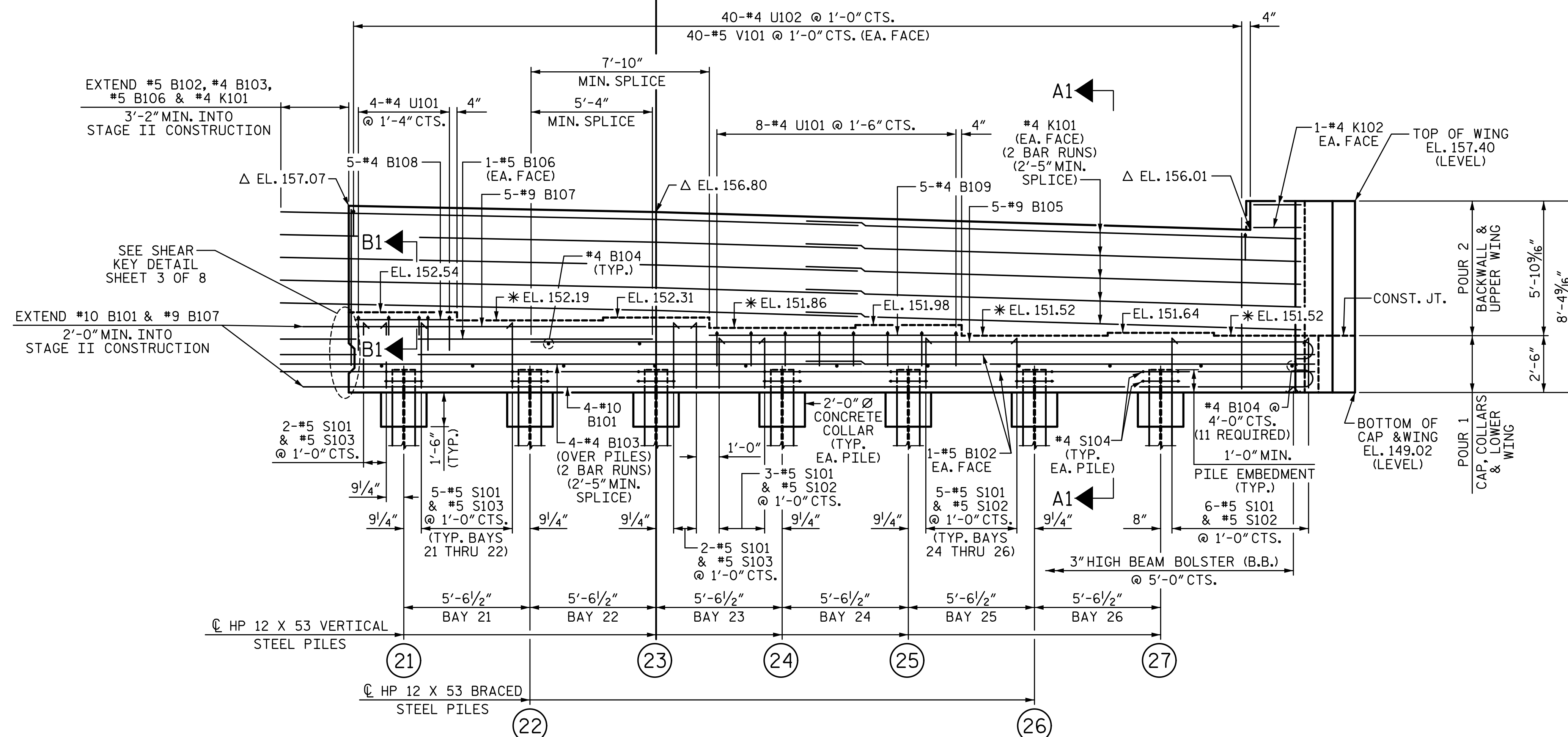
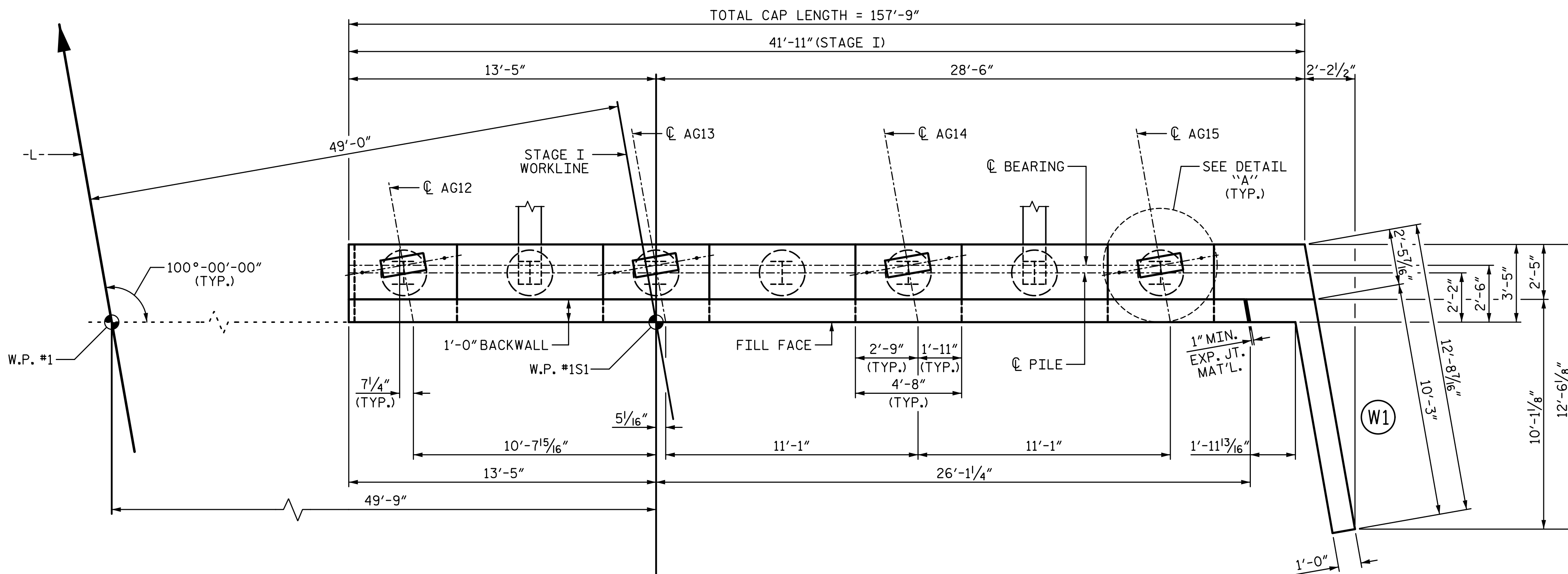
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:38 AM G:\Projects\2020\Division 6 (Mott+Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_BM_770164.dgn

BILL OF MATERIAL

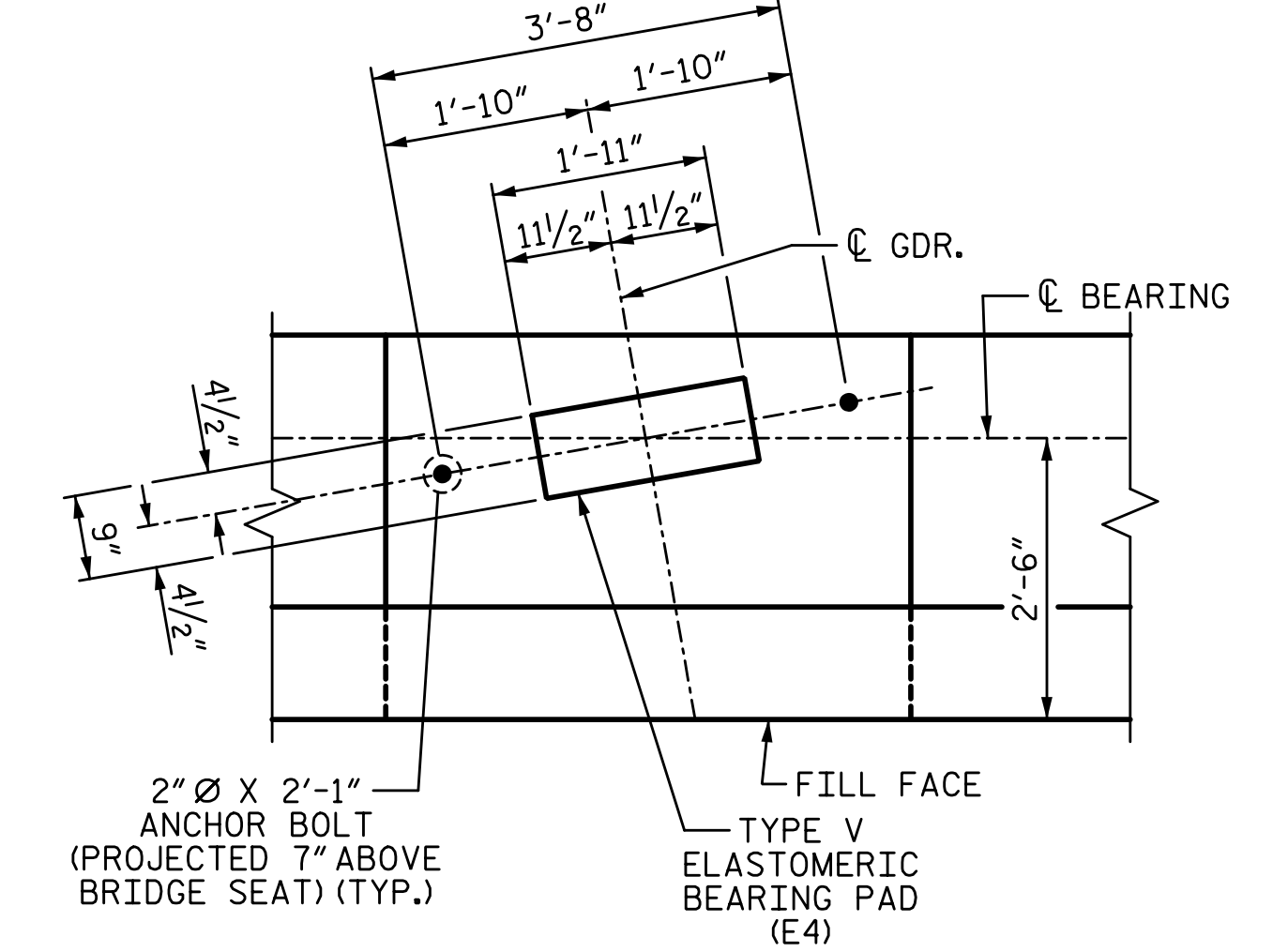
STAGE I						STAGE II						STAGE III																																			
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT																		
*A1100	316	#5	STR	38'-3"	12607	B101	31	#5	STR	43'-9"	1415	*A2100	318	#5	STR	32'-8"	10835	*B209	48	#4	STR	39'-1"	1253	*A3100	318	#5	STR	31'-11"	10586	B301	58	#5	STR	43'-9"	2647												
*A1101	2	#5	STR	35'-5"	74	B102	31	#5	STR	56'-0"	1811	*A2101	2	#5	STR	29'-6"	62							*A3101	2	#5	STR	29'-0"	60	B302	58	#5	STR	56'-0"	3388												
*A1102	2	#5	STR	32'-4"	67	B103	26	#5	STR	46'-0"	1247	*A2102	2	#5	STR	26'-6"	55	B1	5	#5	STR	43'-9"	228	*A3102	2	#5	STR	25'-11"	54	B303	50	#5	STR	46'-0"	2399												
*A1103	2	#5	STR	29'-3"	61	B104	62	#5	STR	41'-11"	2711	*A2103	2	#5	STR	23'-5"	49	B2	5	#5	STR	56'-0"	292	*A3103	2	#5	STR	22'-11"	48	B304	116	#5	STR	41'-11"	5071												
*A1104	2	#5	STR	26'-2"	55	*B105	54	#4	STR	21'-6"	776	*A2104	2	#5	STR	20'-4"	42	B3	4	#5	STR	46'-0"	192	*A3104	2	#5	STR	19'-10"	41	*B305	98	#4	STR	21'-6"	1407												
*A1105	2	#5	STR	23'-2"	48	*B106	27	#5	STR	55'-0"	1549	*A2105	2	#5	STR	17'-3"	36	B4	10	#5	STR	41'-11"	437	*A3105	2	#5	STR	16'-9"	35	*B306	49	#5	STR	55'-0"	2811												
*A1106	2	#5	STR	20'-1"	42	*B107	27	#5	STR	12'-5"	350	*A2106	2	#5	STR	14'-2"	30	*B5	6	#4	STR	21'-6"	86	*A3106	2	#5	STR	13'-8"	29	*B307	49	#5	STR	12'-5"	635												
*A1107	2	#5	STR	17'-0"	35	*B108	51	#5	STR	38'-0"	2021	*A2107	2	#5	STR	11'-1"	23	*B6	3	#5	STR	55'-0"	172	*A3107	2	#5	STR	10'-7"	22	*B308	95	#5	STR	38'-0"	3765												
*A1108	2	#5	STR	13'-11"	29	*B109	54	#4	STR	39'-1"	1410	*A2108	2	#5	STR	8'-0"	17	*B7	3	#5	STR	12'-5"	39	*A3108	2	#5	STR	7'-6"	16	*B309	98	#4	STR	39'-1"	2559												
*A1109	2	#5	STR	10'-10"	23							*A2109	2	#5	STR	5'-0"	10	*B8	4	#5	STR	38'-0"	159	*A3109	2	#5	STR	4'-5"	9																		
*A1110	2	#5	STR	7'-9"	16	*D1	326	#6	STR	5'-10"	2856	*A2110	2	#5	STR	1'-11"	4	*B9	6	#4	STR	39'-1"	157	*A3110	2	#5	STR	1'-5"	3	B1	5	#5	STR	43'-9"	228												
*A1111	2	#5	STR	4'-8"	10	D2	326	#6	STR	5'-5"	2652													B2	5	#5	STR	56'-0"	292																		
*A1112	2	#5	STR	1'-8"	3							A2200	318	#5	STR	32'-8"	10835	*D1	652	#6	STR	5'-10"	5713	A3200	632	#5	STR	36'-8"	24170	B3	4	#5	STR	46'-0"	192												
A1200	316	#5	STR	38'-3"	12607	*G101	2	#5	STR	38'-10"	81	A2201	2	#5	STR	29'-6"	62	D2	652	#6	STR	5'-5"	5305	A3201	4	#5	STR	34'-7"	144	B4	10	#5	STR	41'-11"	437												
A1201	2	#5	STR	35'-5"	74	*J1	76	#4	6	1'-5"	72	A2202	2	#5	STR	26'-6"	55							A3202	4	#5	STR	31'-6"	131	*B5	6	#4	STR	21'-6"	86												
A1202	2	#5	STR	32'-4"	67							A2203	2	#5	STR	23'-5"	49	*G201	2	#5	STR	33'-2"	69	A3203	4	#5	STR	28'-5"	119	*B6	3	#5	STR	55'-0"	172												
A1203	2	#5	STR	29'-3"	61	*K101	4	#8	1	12'-0"	128	A2204	2	#5	STR	20'-4"	42							A3204	4	#5	STR	25'-5"	106	*B7	3	#5	STR	12'-5"	39												
A1204	2	#5	STR	26'-2"	55	*K102	8	#8	2	17'-5"	372	A2205	2	#5	STR	17'-3"	36	*J1	72	#4	6	1'-5"	68	A3205	4	#5	STR	22'-4"	93	*B8	4	#5	STR	38'-0"	159												
A1205	2	#5	STR	23'-2"	48	*K103	4	#8	1	11'-1"	118	A2206	2	#5	STR	14'-2"	30							A3206	4	#5	STR	19'-3"	80	*B9	6	#4	STR	39'-1"	157												
A1206	2	#5	STR	20'-1"	42	*K104	12	#6	3	11'-2"	201	A2207	2	#5	STR	11'-1"	23	*K201	8	#8	1	10'-4"	221	A3207	4	#5	STR	16'-2"	67																		
A1207	2	#5	STR	17'-0"	35	*K105	18	#6	STR	6'-8"	180	A2208	2	#5	STR	8'-0"	17	*K202	8	#8	2	15'-11"	340	A3208	4	#5	STR	13'-1"	55	*D1	326	#6	STR	5'-10"	2856												
A1208	2	#5	STR	13'-11"	29							A2209	2	#5	STR	5'-0"	10	*K203	12	#6	3	9'-7"	173	A3209	4	#5	STR	10'-0"	42	D2	326	#6	STR	5'-5"	2652												
A1209	2	#5	STR	10'-10"	23	*S1	42	#4	4	3'-7"	101	A2210	2	#5	STR	1'-11"	4	*K204	18	#6	STR	5'-0"	135	A3210	4	#5	STR	6'-11"	29																		
A1210	2	#5	STR	7'-9"	16	S2	42	#5	5	5'-11"	259													A3211	4	#5	STR	3'-11"	16	*G301	4	#5	STR	37'-2"	155												
A1211	2	#5	STR	4'-8"	10							B201	23	#5	STR	43'-9"	1050	*S1	30	#4	4	3'-7"	72							*A3300	315	#5	STR	41'-10"	13744	*J1	150	#4	6	1'-5"	142						
A1212	2	#5	STR	1'-8"	3							B202	23	#5	STR	56'-0"	1343	S2	30	#5	5	5'-11"	185	*A3301	2	#5	STR	38'-8"	81							*A3302	2	#5	STR	35'-7"	74	*K301	4	#8	1	12'-1"	129
						REINFORCING STEEL				23165 LB	B203	18	#5	STR	46'-0"	864							*A3303	2	#5	STR	32'-6"	68	*K302	20	#8	2	17'-7"	939													
						*EPOXY COATED					B204	46	#5	STR	41'-11"	2011	REINFORCING STEEL					23070 LB	*A3304	2	#5	STR	29'-6"	62	*K303	4	#8	1	11'-2"	119													
						REINFORCING STEEL				23285 LB	*B205	48	#4	STR	21'-6"	689							*A3305	2	#5	STR	26'-5"	55	*K304	24	#6	3	11'-2"	403													
						*INDICATES EPOXY COATED					*B206	24	#5	STR	55'-0"	1377	*EPOXY COATED					23862 LB	*A3306	2	#5	STR	23'-4"	49	*K305	36	#6	STR	6'-8"	360													
						REINFORCING STEEL					*B207	24	#5	STR	12'-5"	311	REINFORCING STEEL						*A3307	2	#5	STR	20'-3"	42																			
											*B208	42	#5	STR	38'-0"	1665							*A3308	2	#5	STR	17'-2"	36	*S1	84	#4	4	3'-7"	201													
																							*A3309	2	#5	STR	14'-1"	29	S2	84	#5	5	5'-11"	518													
																							*A3310	2	#5	STR	11'-0"	23																			
																							*A3311	2	#5	STR	7'-11"	17	REINFORCING STEEL					42876 LB													
																							*A3312	2	#5	STR	4'-11"	10																			
											</																																				

3/18/2022 11:06:39 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_EI_770164.dgn



NOTES:

- STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- MECHANICAL COUPLERS SHALL BE USED TO JOIN THE #9 AND THE #10 "B" BARS IN STAGE I WITH THE #9 AND THE #10 "B" BARS IN STAGE II. THE LOCATION OF THE COUPLERS SHALL BE STAGGERED ON ALTERNATING BARS BY 1 FOOT AND THE STAGE I BARS SHALL BE CUT ACCORDINGLY TO ALLOW A MINIMUM OF 1'-0" AND A MAXIMUM OF 2'-0" EXTENSION INTO STAGE II CONSTRUCTION.
- FOR MECHANICAL COUPLERS, SEE MECHANICAL BUTT SPLICE FOR REINFORCING STEEL IN STANDARD SPECIFICATIONS.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LENGTHS OF THE #9 AND THE #10 "B" BARS IN THE STAGED CONSTRUCTION JOINT MAY NEED TO BE ADJUSTED DUE TO THE TYPE OF MECHANICAL BUTT SPLICE CHOSEN BY THE CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY ADJUSTMENTS.
- FOR SECTION A1-A1 AND PART SECTION B1-B1, SEE SHEET 3 OF 8.
- * FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS SEE SECTION A1-A1, SEE SHEET 3 OF 8.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXPECT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
- SEE GENERAL DRAWING "FOUNDATION LAYOUT" AND "PILE FOUNDATION TABLES" SHEETS FOR ADDITIONAL NOTES AND INFORMATION FOR STEEL PILES.
- FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 8.
- FOR TEMPORARY DRAINAGE AT END BENT, SEE SHEET 5 OF 8.
- Δ BACKWALL ELEVATIONS ARE GIVEN AT FILL FACE.



PROJECT NO. I-5987B

ROBESON COUNTY

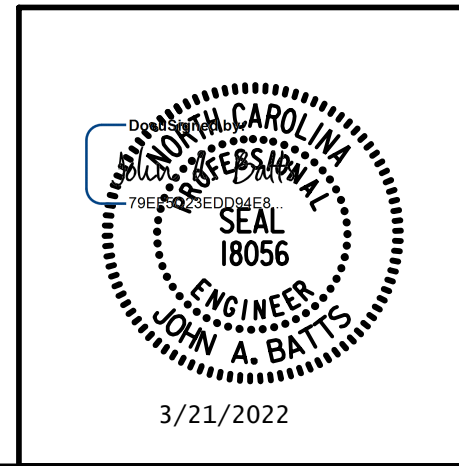
STATION: 803+15.00 -L-

SHEET 1 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 1

STAGE I



DRAWN BY: S.D. COOPER DATE: 3-22

CHECKED BY: J.A. BATTS DATE: 3-22

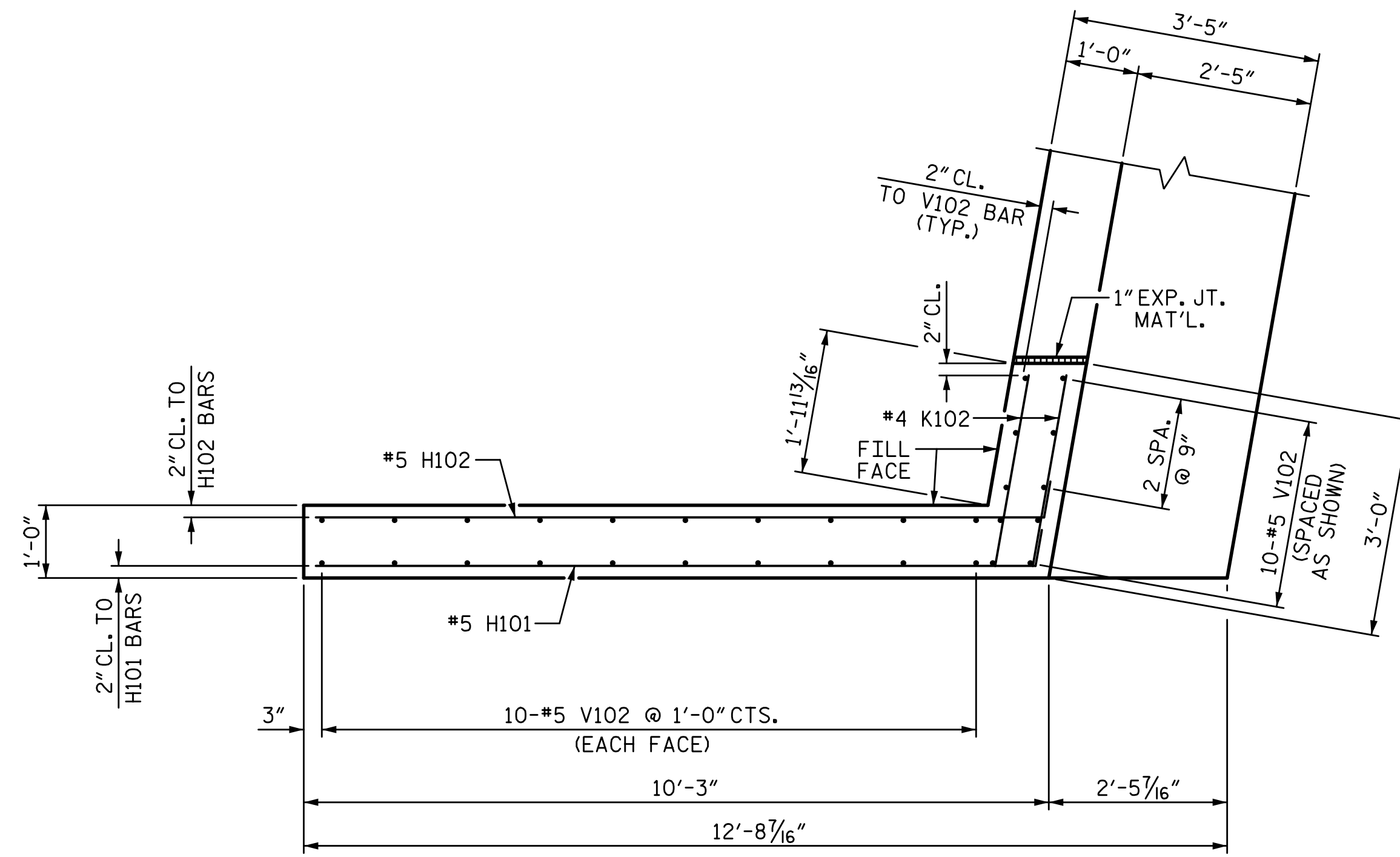
DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

⊕ INDICATES PILE NUMBER

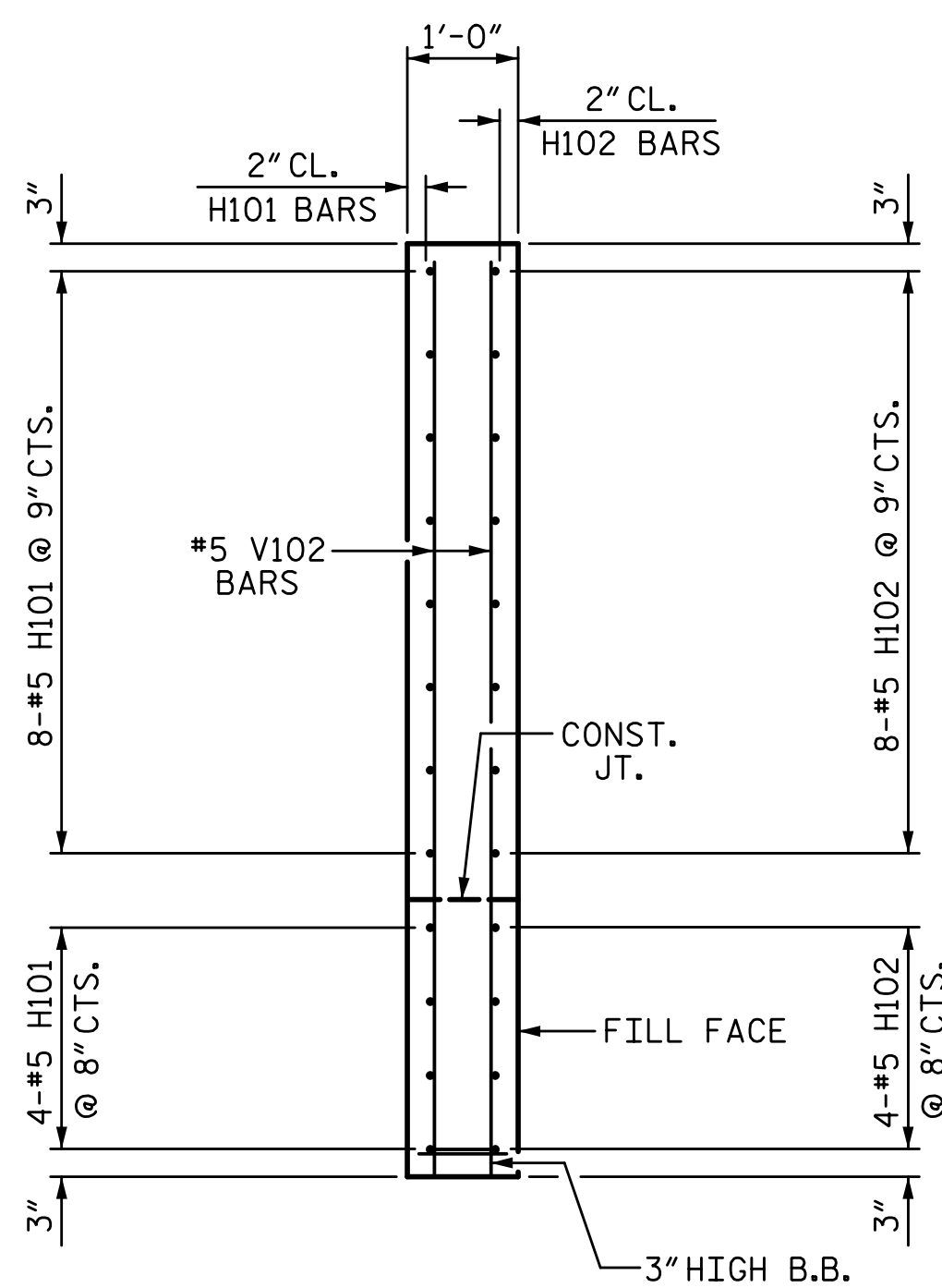
REVISIONS						SHEET NO. S9-43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 69
2			4			

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

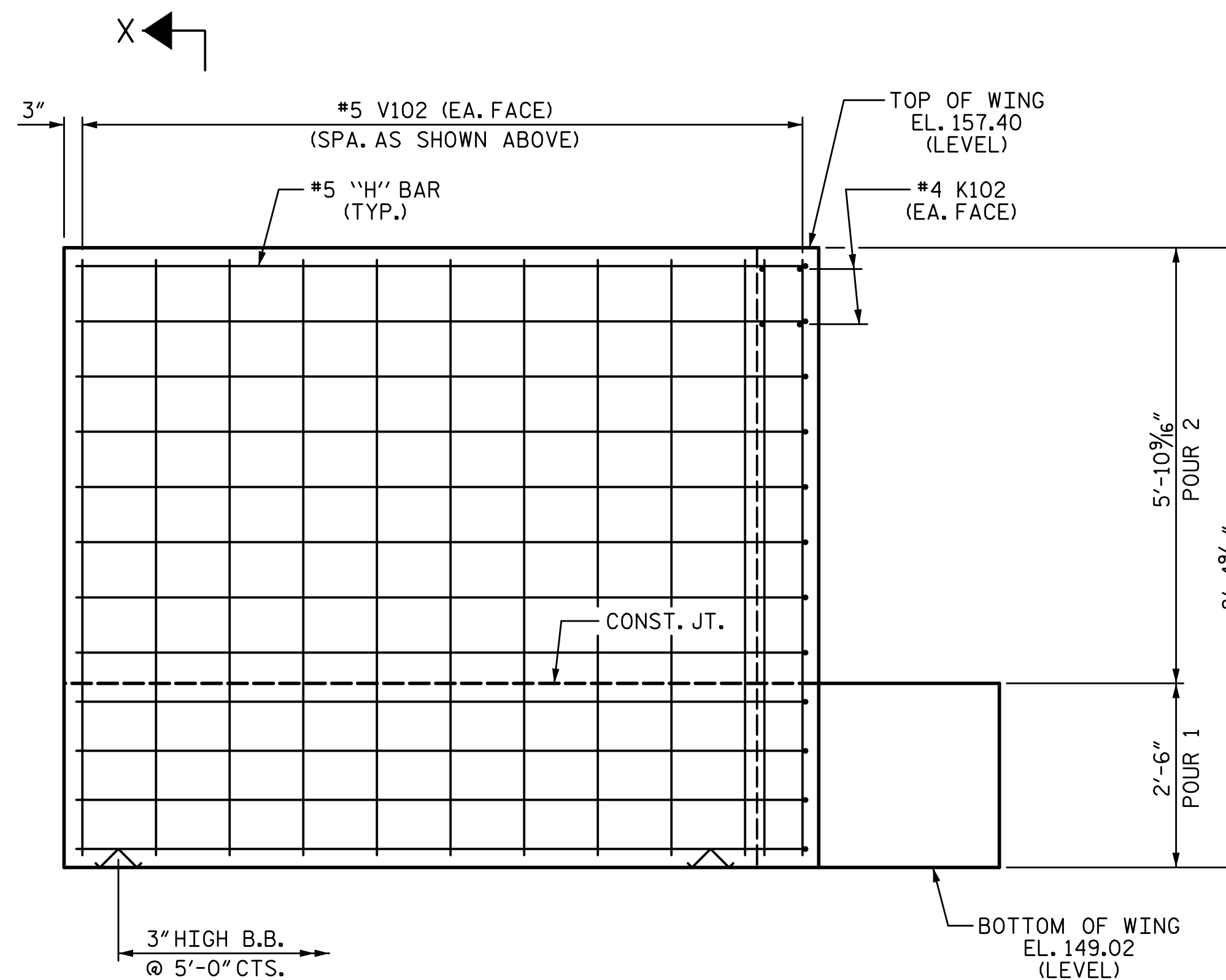
3/18/2022 11:06:40 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_E1_770164.dgn



PLAN OF WING (W1)



SECTION X-X



ELEVATION OF WING (W1)

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 2 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 1

STAGE I

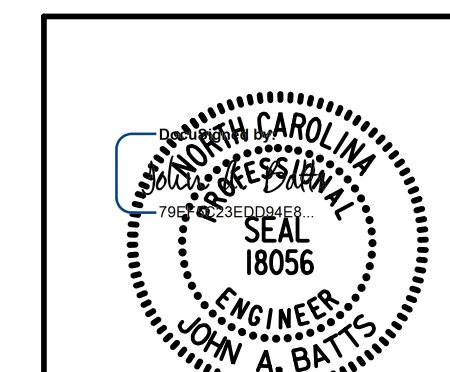
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S9-44
2			4			TOTAL SHEETS 69



5640 Dillard Drive, Suite 200
 Cary, NC 27518

LICENSURE NO. C-4434

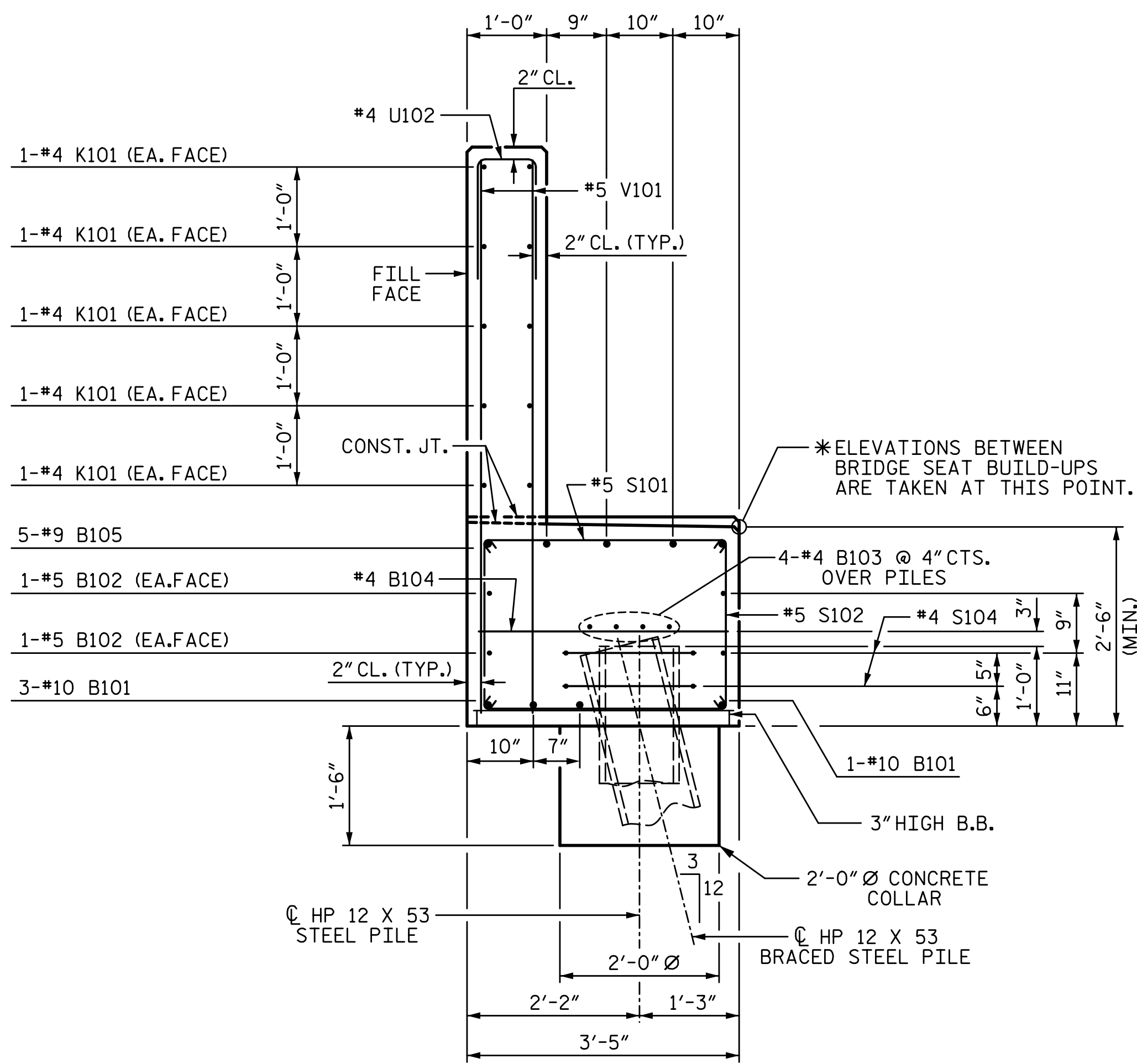


3/21/2022

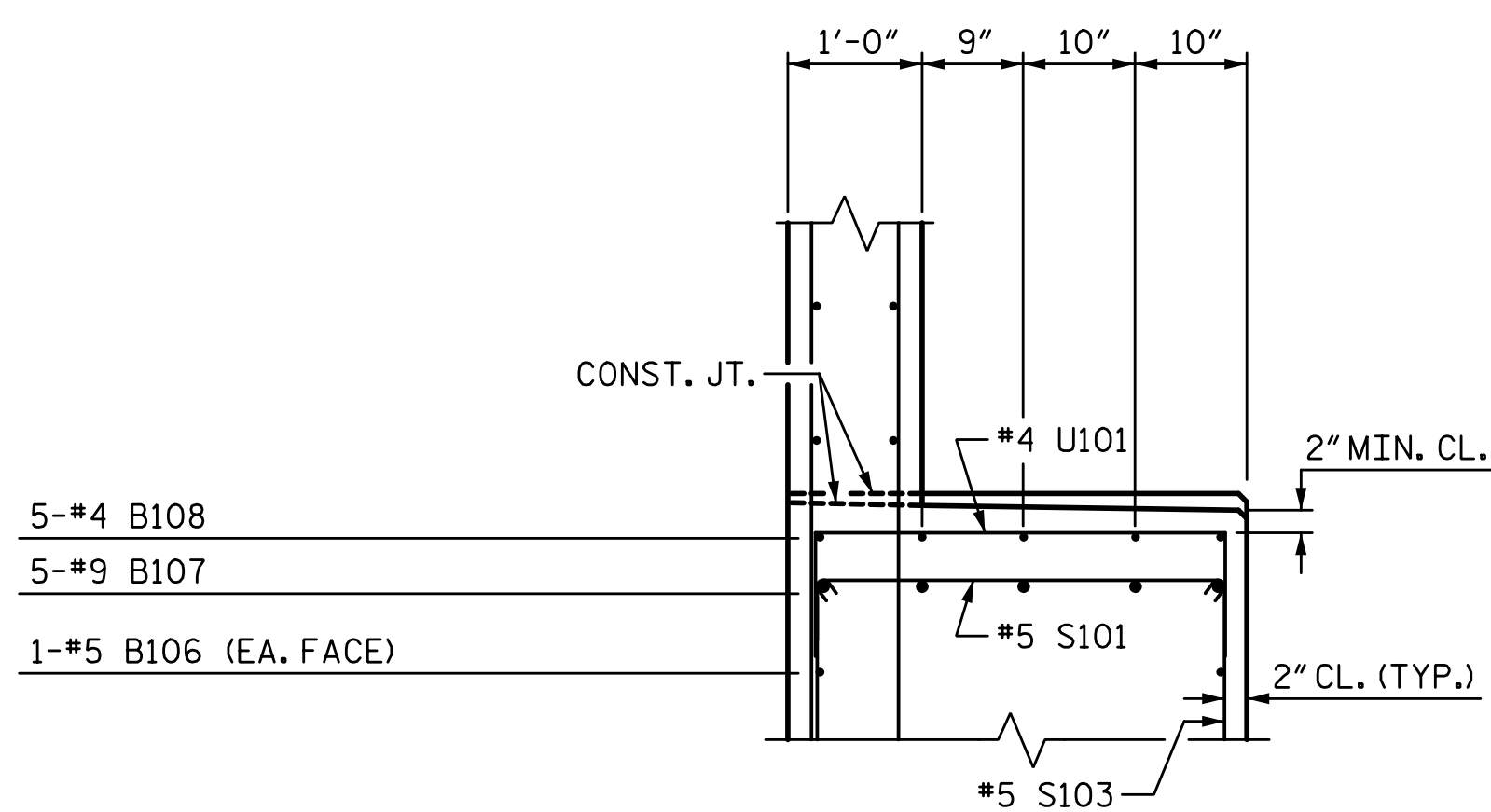
DRAWN BY: S.D. COOPER DATE: 3-22
 CHECKED BY: J.A. BATTS DATE: 3-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE: 3-22

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

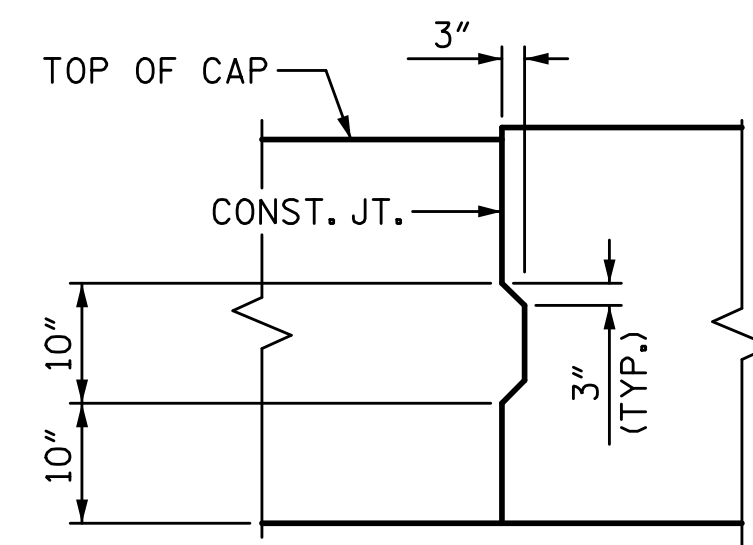
3/18/2022 11:06:40 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_E1_770164.dgn



SECTION A1-A1

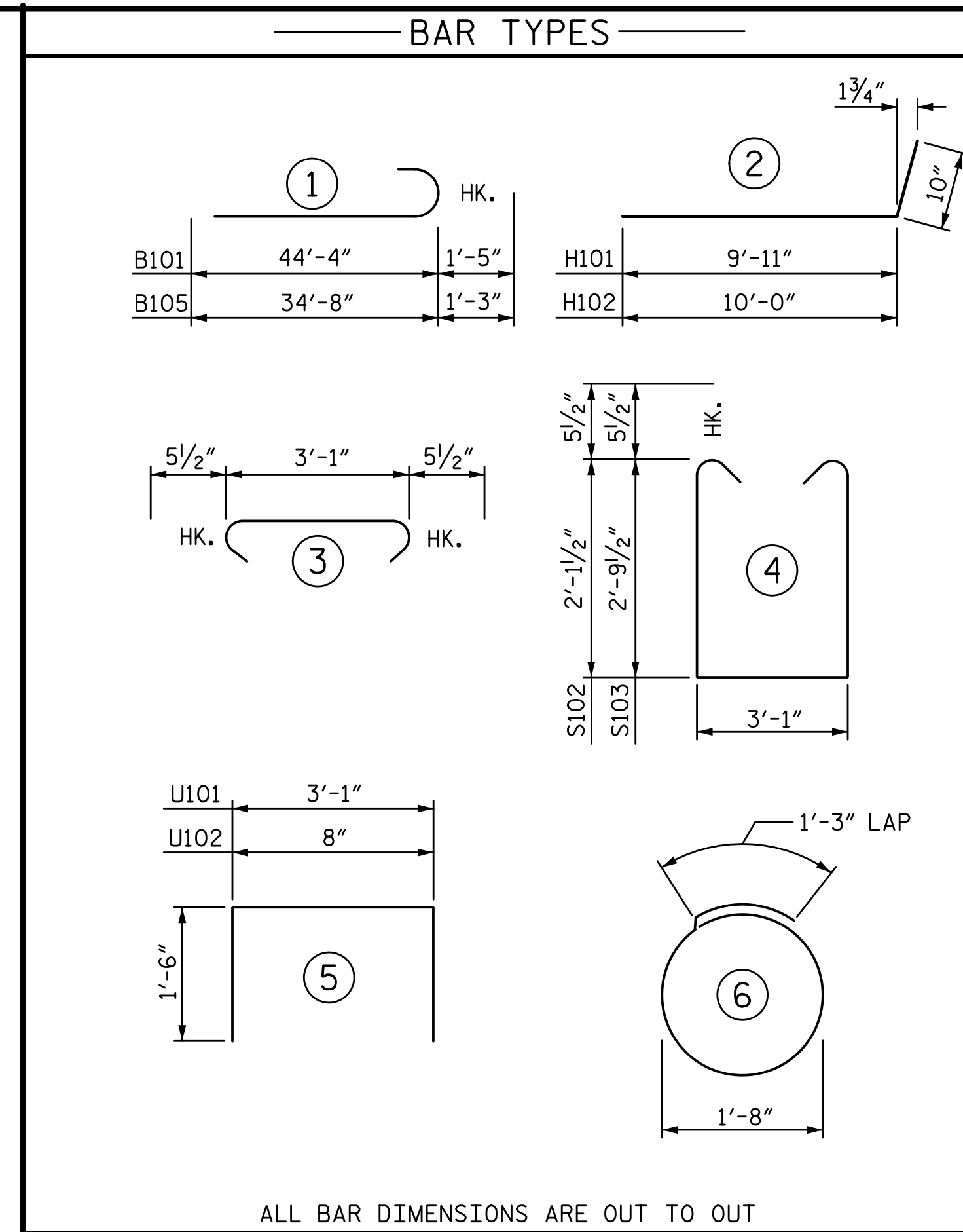


PART SECTION B1-B1



SHEAR KEY DETAIL

REINFORCING STEEL IN CAP NOT SHOWN.
"B" BARS SHALL BE CONTINUOUS THROUGH JOINT.

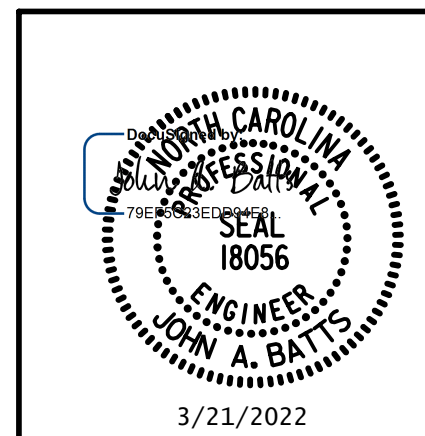


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT 1 - STAGE I					
BAR NO.	QTY	SIZE	TYPE	LENGTH	WEIGHT
B101	4	#10	1	45'-9"	787
B102	4	#5	STR	45'-5"	189
B103	8	#4	STR	23'-11"	128
B104	13	#4	STR	3'-1"	27
B105	5	#9	1	35'-11"	611
B106	2	#5	STR	16'-4"	34
B107	5	#9	STR	17'-8"	300
B108	5	#4	STR	4'-4"	14
B109	5	#4	STR	11'-1"	37
H101	12	#5	2	10'-9"	135
H102	12	#5	2	10'-10"	136
K101	20	#4	STR	23'-11"	320
K102	4	#4	STR	2'-7"	7
S101	38	#5	3	4'-0"	159
S102	24	#5	4	8'-3"	207
S103	14	#5	4	9'-7"	140
S104	14	#4	6	6'-6"	61
U101	12	#4	5	6'-1"	49
U102	40	#4	5	3'-8"	98
V101	80	#5	STR	6'-8"	556
V102	30	#5	STR	8'-0"	250
TOTAL REINFORCING STEEL					4245 LB
CLASS A CONCRETE BREAKDOWN					
POUR 1					
(CAP, COLLARS, & LOWER WING)					17.7 CY
POUR 2					
(BACKWALL & UPPER WING)					9.6 CY
TOTAL CLASS A CONCRETE					27.3 CY

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



PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-

SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

END BENT 1

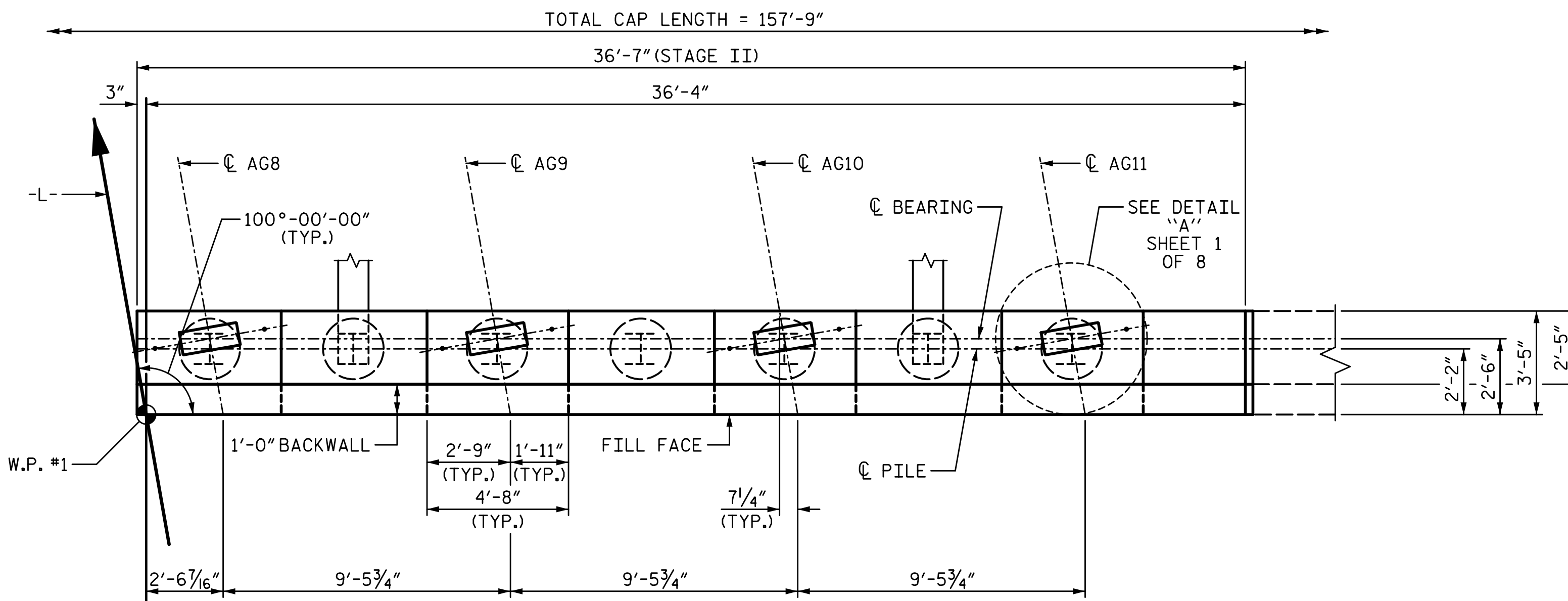
STAGE I

REVISIONS

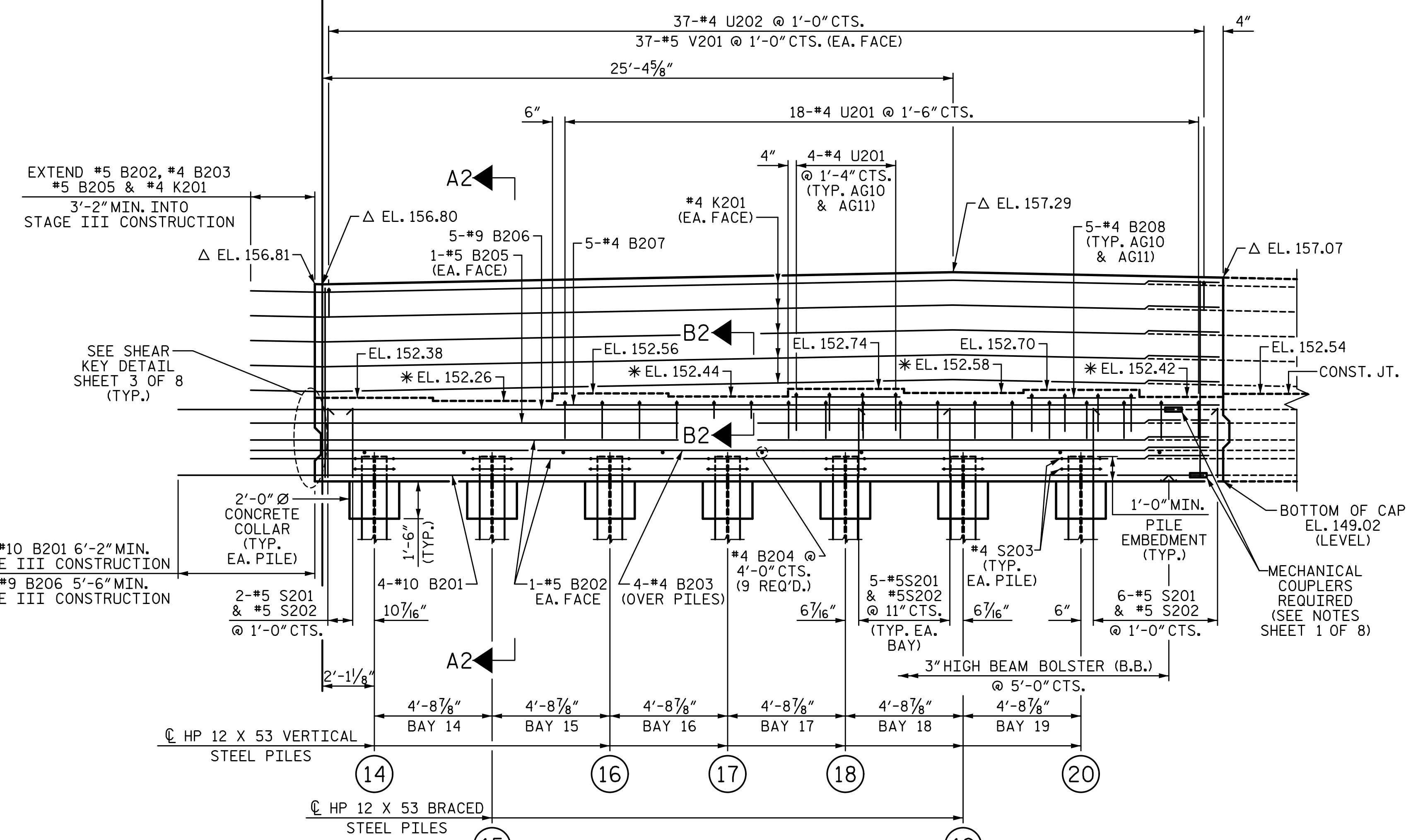
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S9-45
2			4			TOTAL SHEETS 69

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

3/18/2022 11:06:41 AM G:\Projects\2020\Division 6 (Mott Mac - NV5)\I-5987B\Structures\Site 9 (L over Little Marsh Swamp)\Drawings\Final\I5987B_SMU_EI_770164.dgn



PLAN



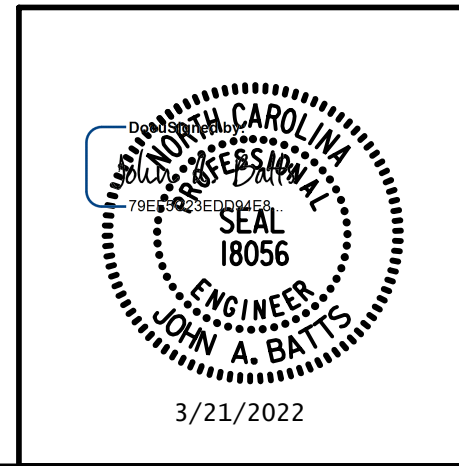
ELEVATION

Ⓜ INDICATES PILE NUMBER

NOTES:
 FOR SECTION A2-A2 AND PART SECTION B2-B2, SEE SHEET 5 OF 8.
 *FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A2-A2 SHEET 5 OF 8.
 FOR ADDITIONAL NOTES, SEE SHEET 1 OF 8.
 Δ BACKWALL ELEVATIONS ARE GIVEN AT FILL FACE

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 803+15.00 -L-
 SHEET 4 OF 8

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



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9-46
1			3			TOTAL SHEETS
2			4			69

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**