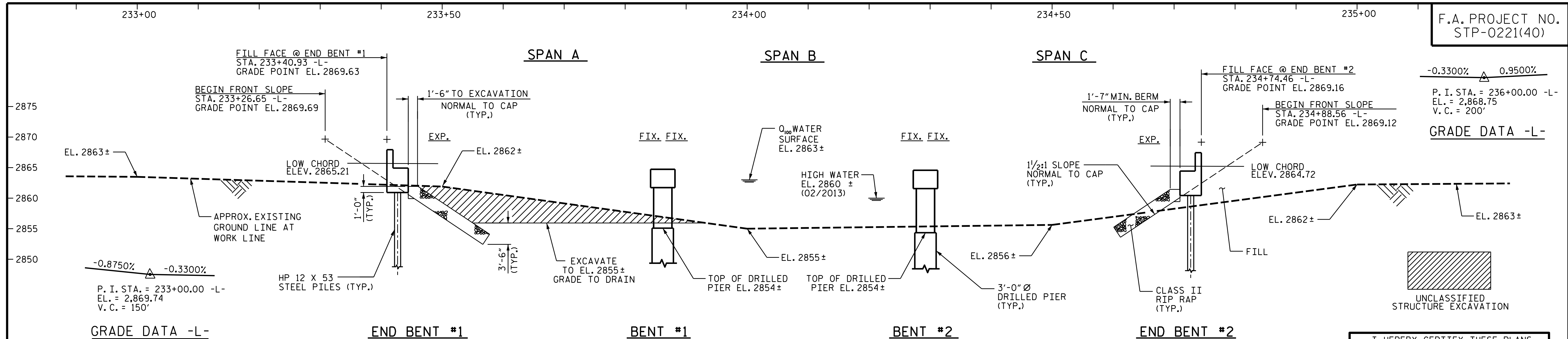


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with their signature on that page.**

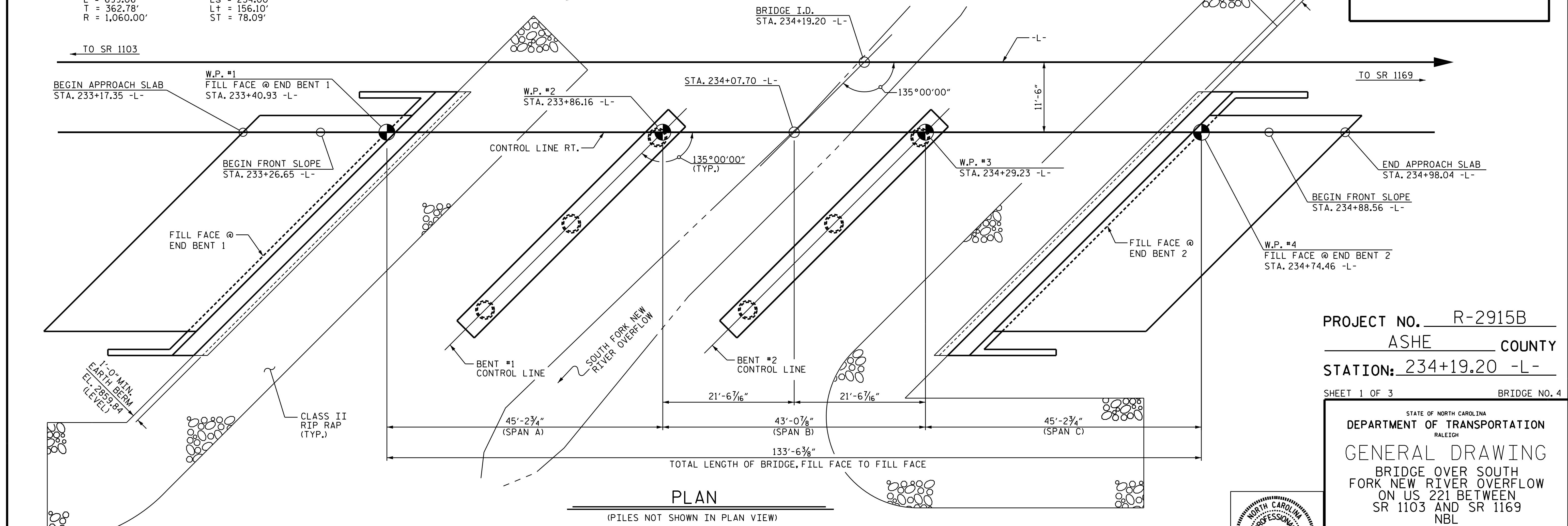
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shall not be considered a certified document.**



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

HORIZ. CURVE DATA -L-

PI = 227+31.63	Pis Sta. = 231+46.01
Δ = 37°-47'-10.6" (LT)	Os = 6°-19'-27.0"
L = 699.06'	Ls = 234.00'
T = 362.78'	Lt = 156.10'
R = 1,060.00'	ST = 78.09'

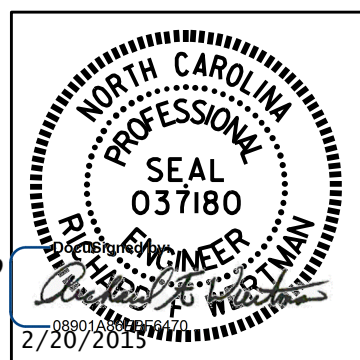


DRAWN BY : T.J. KIRSCHBAUM	DATE : 4/21/14
CHECKED BY : R.F. WERTMAN	DATE : 4/23/14
DESIGN ENGINEER OF RECORD : R.F. WERTMAN	DATE : 4/23/14

PLANS PREPARED BY:

Gannett Fleming
 Excellence Delivered As Promised

1121 Situs Court
 Suite 170
 Raleigh, NC 27606-4279
 (919) 859-4880
 N.C. Lic. No. F-0270



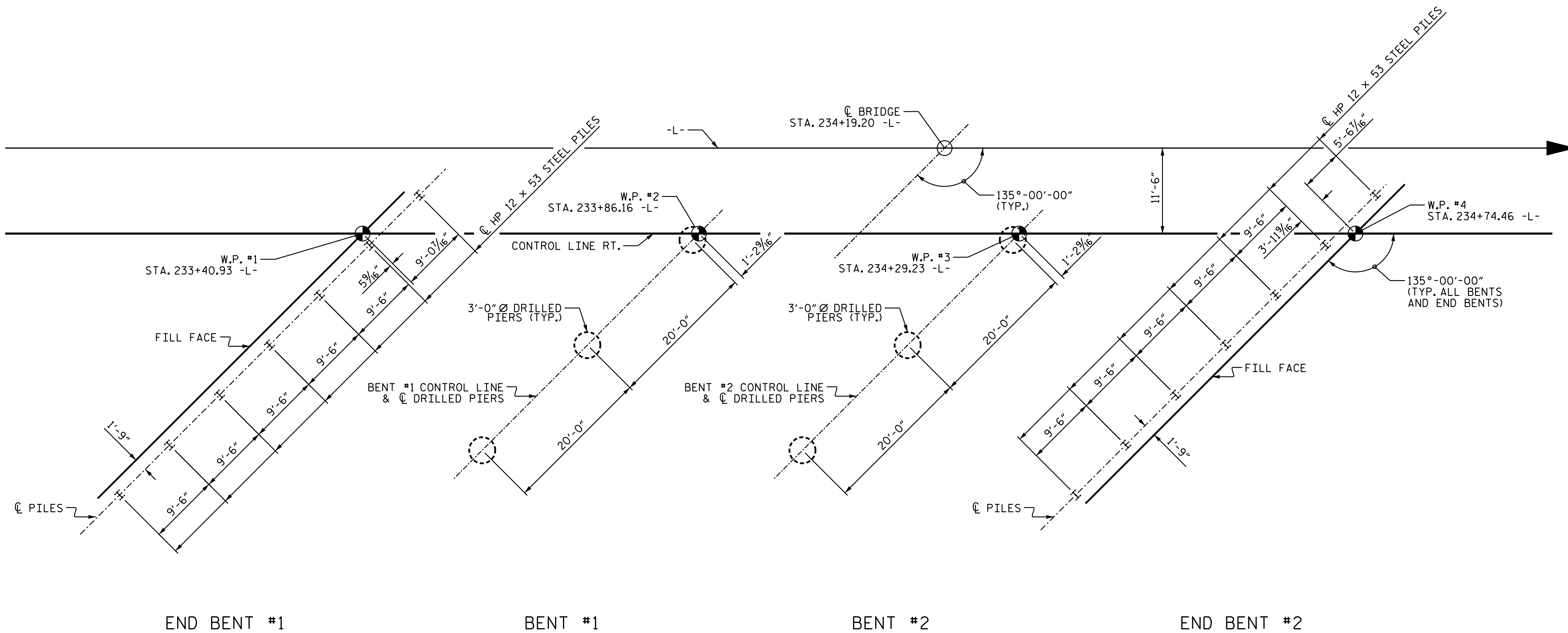
PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-
 SHEET 1 OF 3 BRIDGE NO. 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE OVER SOUTH FORK NEW RIVER OVERFLOW ON US 221 BETWEEN SR 1103 AND SR 1169 NBL

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

SHEET NO. S03-1
 TOTAL SHEETS 30



FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.
 DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO DRILLED PIER CENTERLINE.

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
 FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 INSTALL DRILLED PIERS AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 2823.7 FT AND SATISFY THE REQUIRED TIP RESISTANCE.
 DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 275.0 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30.0 TSF.
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 2838.0 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

INSTALL DRILLED PIERS AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN 2831.1 FT AND SATISFY THE REQUIRED TIP RESISTANCE.
 DRILLED PIERS AT BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 275.0 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30.0 TSF.
 THE SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 2842.0 FT. THE SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 SID INSPECTIONS ARE REQUIRED FOR DRILLED PIERS AT BENTS NO.1 AND 2. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENTS NO.1 AND NO.2. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
 DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

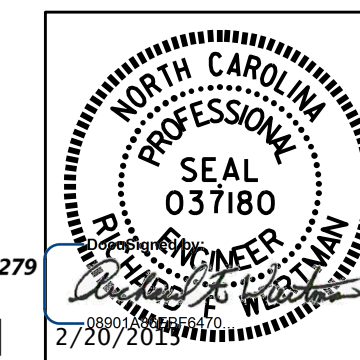
PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 2 OF 3

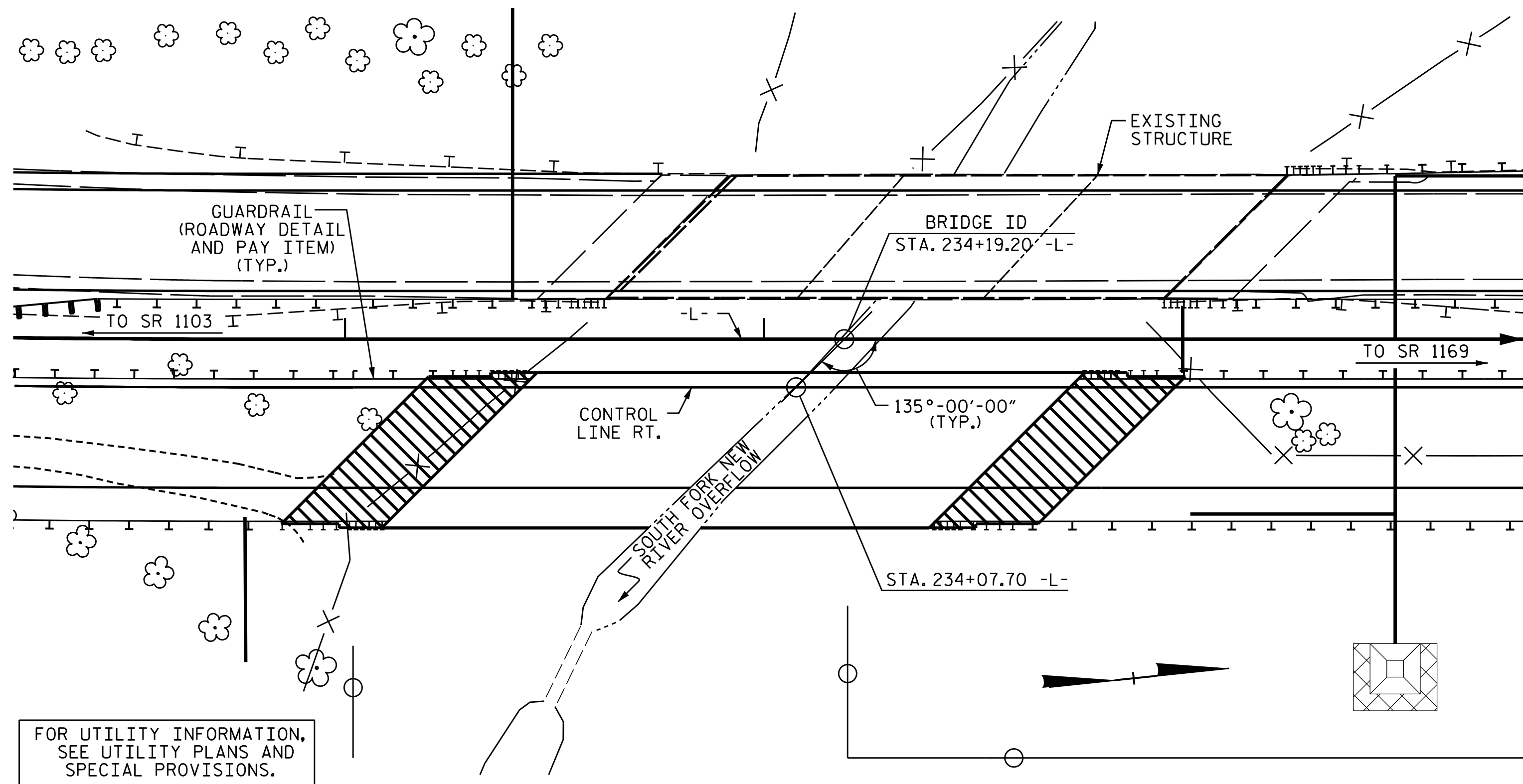
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING BRIDGE OVER SOUTH FORK NEW RIVER OVERFLOW ON US 221 BETWEEN SR 1103 AND SR 1169 NBL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S03-2					TOTAL SHEETS 30

DRAWN BY : T.J. KIRSCHBAUM DATE : 4/21/14
 CHECKED BY : R.F. WERTMAN DATE : 09/05/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 09/05/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Situs Court
 Suite 170
 Raleigh NC 27606-4279
 (919) 859-4880
 NCLic. No. F-0270



BM #9 : RR SPIKE IN ROOT OF 24" FORKED CHERRY TREE, N932968, E1262584, 130' LT., -L- STA. 215+49.00, EL. 2871.28



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 16,000 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 2862.2
DRAINAGE AREA	= 130 SQ. MI.
BASE DISCHARGE (Q100)	= 19,000 C.F.S.
BASE HIGH WATER ELEVATION	= 2863.0

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 24,000+ C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500 YRS.+
OVERTOPPING FLOOD ELEVATION	= 2869.2

NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
- 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.
- THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-5 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 21 FT. LEFT AND 9 FT. RIGHT OF BRIDGE WORK LINE AT END BENT 1 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 EVALUATING SCOUR AT BRIDGES".
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL BILL OF MATERIAL

	3'-0" Ø DRILLED PIERS IN SOIL	3'-0" Ø DRILLED PIERS NOT IN SOIL	SID INSPECTIONS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM
SUPERSTRUCTURE						4,862	5,563		LUMP SUM
END BENT NO.1					LUMP SUM			48.0	
BENT NO.1	49.9	41.0	1					30.9	
BENT NO.2	32.7	36.0	1					30.8	
END BENT NO.2								48.0	
TOTAL	82.6	77.0	2	1	LUMP SUM	4,862	5,563	157.7	LUMP SUM

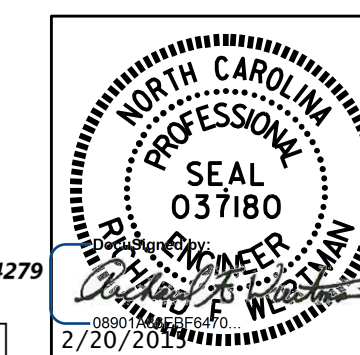
TOTAL BILL OF MATERIAL

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS
	LBS.	LBS.	NO. LIN.FT.	NO. LIN.FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			12 506.9		303.6			LUMP SUM	LUMP SUM
END BENT NO.1	6,712			7 189		175	190		
BENT NO.1	9,203	1,970							
BENT NO.2	8,245	1,596							
END BENT NO.2	6,714			7 154		230	255		
TOTAL	30,874	3,566	12 506.9	14 343	303.6	405	445	LUMP SUM	LUMP SUM

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER SOUTH FORK NEW RIVER OVERFLOW ON US 221 BETWEEN SR 1103 AND SR 1169
 NBL



PLANS PREPARED BY:
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 N.C. Lic. No. F-0270

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-3
1			3			TOTAL SHEETS
2			4			30

DRAWN BY : T.J. KIRSCHBAUM DATE : 4/21/14
 CHECKED BY : R.F. WERTMAN DATE : 4/23/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 4/23/14

LOAD FACTORS:

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								SERVICE III LIMIT STATE								COMMENT NUMBER		
						MOMENT				SHEAR				MOMENT										
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.25	--	1.75	0.771	1.31	A	I	20.4	1.196	1.25	A	I	28.9	0.80	0.771	1.42	A	I	20.4	1:2	
	HL-93 (OPERATING)	N/A	+	1.70	--	1.35	0.771	1.70	A	I	20.4	1.196	2.46	A	I	28.9	N/A	--	--	--	--	+	1:2	
	HS-20 (INVENTORY)	36.000	②	1.61	57.960	1.75	0.771	1.61	A	I	20.4	1.196	1.67	A	I	28.9	0.80	0.771	1.74	A	I	20.4	1:2	
	HS-20 (OPERATING)	36.000	+	2.09	75.240	1.35	0.771	2.09	A	I	20.4	1.196	2.92	A	I	28.9	N/A	--	--	--	--	+	1:2	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	+	3.44	46.440	1.40	0.771	3.97	A	I	20.4	1.196	6.64	A	I	12.0	0.80	0.771	3.44	A	I	20.4	1:2
		SNGRBS2	20.000	+	2.75	55.000	1.40	0.771	3.44	A	I	16.2	1.196	5.03	A	I	12.0	0.80	0.771	2.75	A	I	20.4	1:2
		SNAGRIS2	22.000	+	2.69	59.180	1.40	0.771	3.03	A	I	16.2	1.196	4.80	A	I	12.0	0.80	0.771	2.69	A	I	20.4	1:2
		SNCOTTS3	27.250	+	1.70	46.325	1.40	0.771	1.96	A	I	20.4	1.196	2.62	A	I	24.6	0.80	0.771	1.70	A	I	20.4	1:2
		SNAGGRS4	34.925	+	1.50	52.388	1.40	0.771	1.73	A	I	20.4	1.196	2.24	A	I	28.9	0.80	0.771	1.50	A	I	20.4	1:2
		SNS5A	35.550	+	1.46	51.903	1.40	0.771	1.69	A	I	20.4	1.196	2.52	A	I	24.6	0.80	0.771	1.46	A	I	20.4	1:2
		SNS6A	39.950	+	1.38	55.131	1.40	0.771	1.59	A	I	20.4	1.196	2.22	A	I	28.9	0.80	0.771	1.38	A	I	20.4	1:2
		SNS7B	42.000	③	1.31	55.020	1.40	0.771	1.52	A	I	20.4	1.196	2.32	A	I	24.6	0.80	0.771	1.31	A	I	20.4	1:2
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	+	1.69	55.770	1.40	0.771	1.95	A	I	20.4	1.196	3.46	A	I	28.9	0.80	0.771	1.69	A	I	20.4	1:2
		TNT4A	33.075	+	1.70	56.228	1.40	0.771	1.97	A	I	20.4	1.196	2.74	A	I	28.9	0.80	0.771	1.70	A	I	20.4	1:2
		TNT6A	41.600	+	1.43	49.488	1.40	0.771	1.66	A	I	20.4	1.196	2.52	A	I	24.6	0.80	0.771	1.43	A	I	20.4	1:2
		TNT7A	42.000	+	1.46	61.320	1.40	0.771	1.68	A	I	20.4	1.196	2.25	A	I	28.9	0.80	0.771	1.46	A	I	20.4	1:2
		TNT7B	42.000	+	1.51	63.420	1.40	0.771	1.73	A	I	16.2	1.196	2.42	A	I	28.9	0.80	0.771	1.51	A	I	20.4	1:2
		TNAGRIT4	43.000	+	1.45	62.350	1.40	0.771	1.67	A	I	16.2	1.196	1.95	A	I	28.9	0.80	0.771	1.45	A	I	20.4	1:2
		TNAGT5A	45.000	+	1.35	60.750	1.40	0.771	1.56	A	I	20.4	1.196	2.23	A	I	28.9	0.80	0.771	1.35	A	I	20.4	1:2
TNAGT5B	45.000	+	1.31	58.950	1.40	0.771	1.52	A	I	20.4	1.196	1.72	A	I	28.9	0.80	0.771	1.31	A	I	20.4	1:2		

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, B AND C LENGTHS AND RATING FACTORS ARE EQUAL.
 2. THE REDUCTION OF LOAD DISTRIBUTION FACTOR FOR MOMENT IN LONGITUDINAL BEAMS ON SKEWED SUPPORTS (AASHTO TABLE 4.6.2.2.2E-1) WAS NOT APPLIED.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

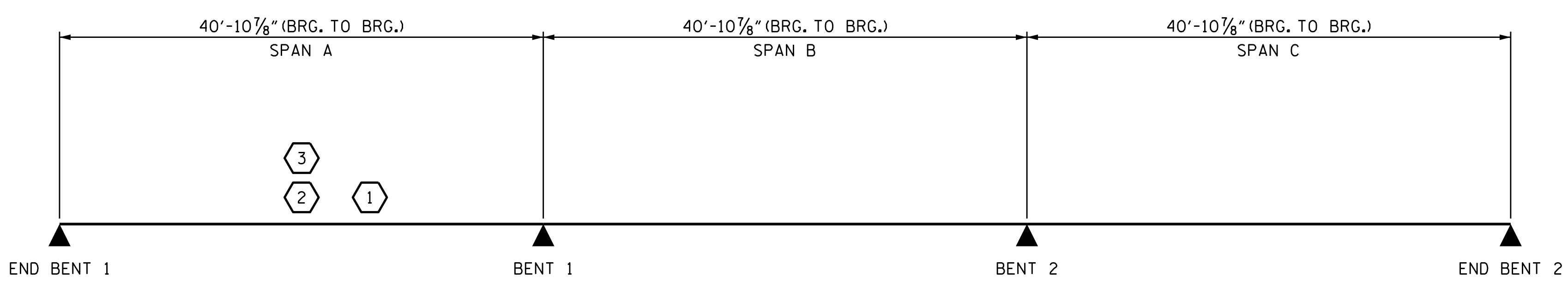
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



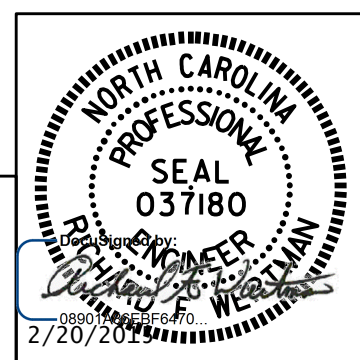
PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

LRFR SUMMARY

ASSEMBLED BY : T.J. KIRSCHBAUM DATE : 4/17/14
 CHECKED BY : R.F. WERTMAN DATE : 7/24/14
 DRAWN BY : MAA 1/08 REV. 11/2/08RR MAA/GM
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM

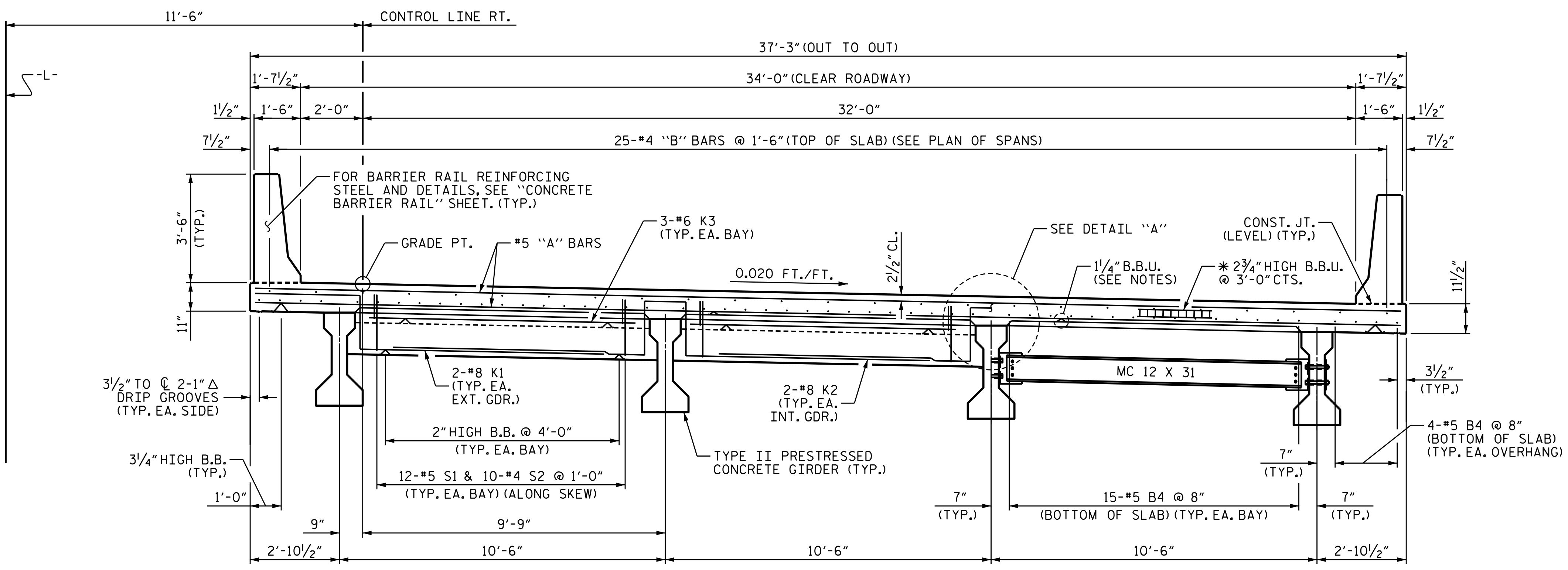
PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Sitis Court
 Suite 170
 Raleigh NC 27606-4279
 (919) 859-4880
 NC Lic. No. F-0270

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

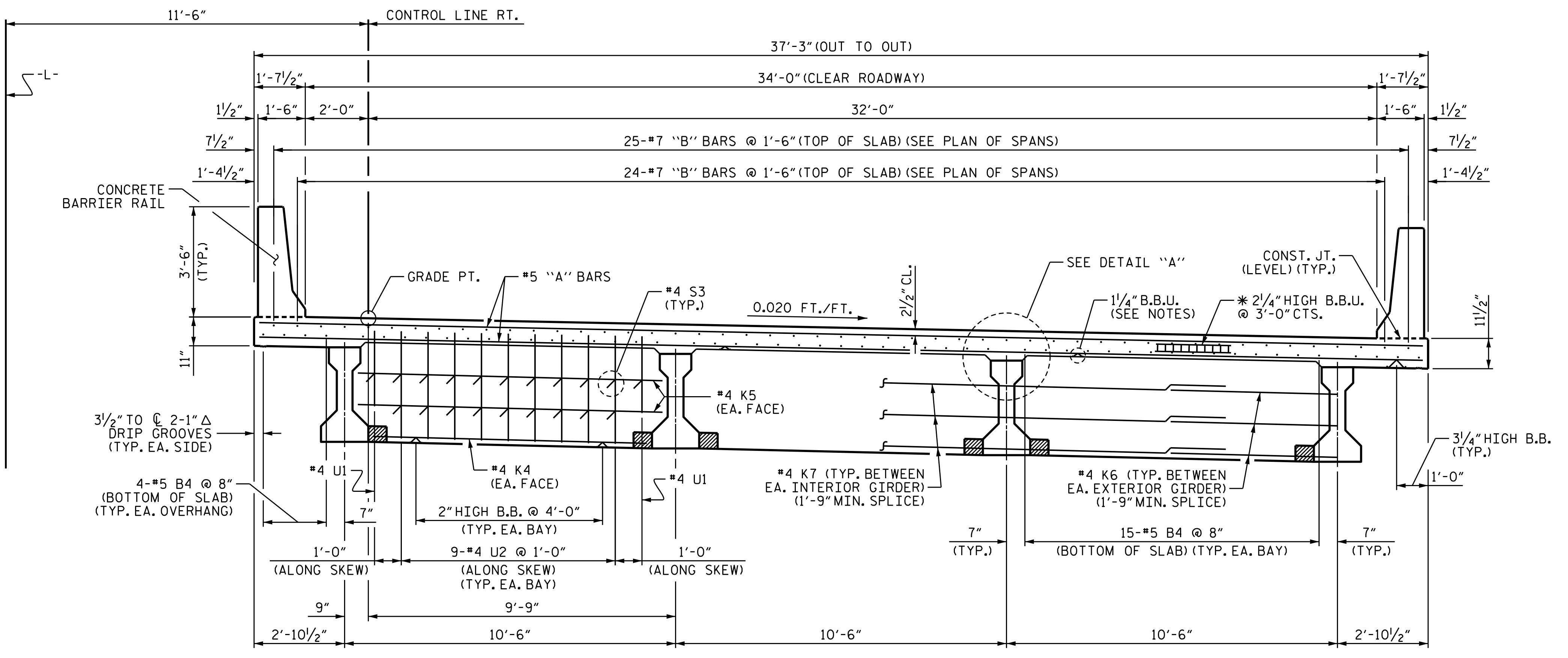


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)
 NBL

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

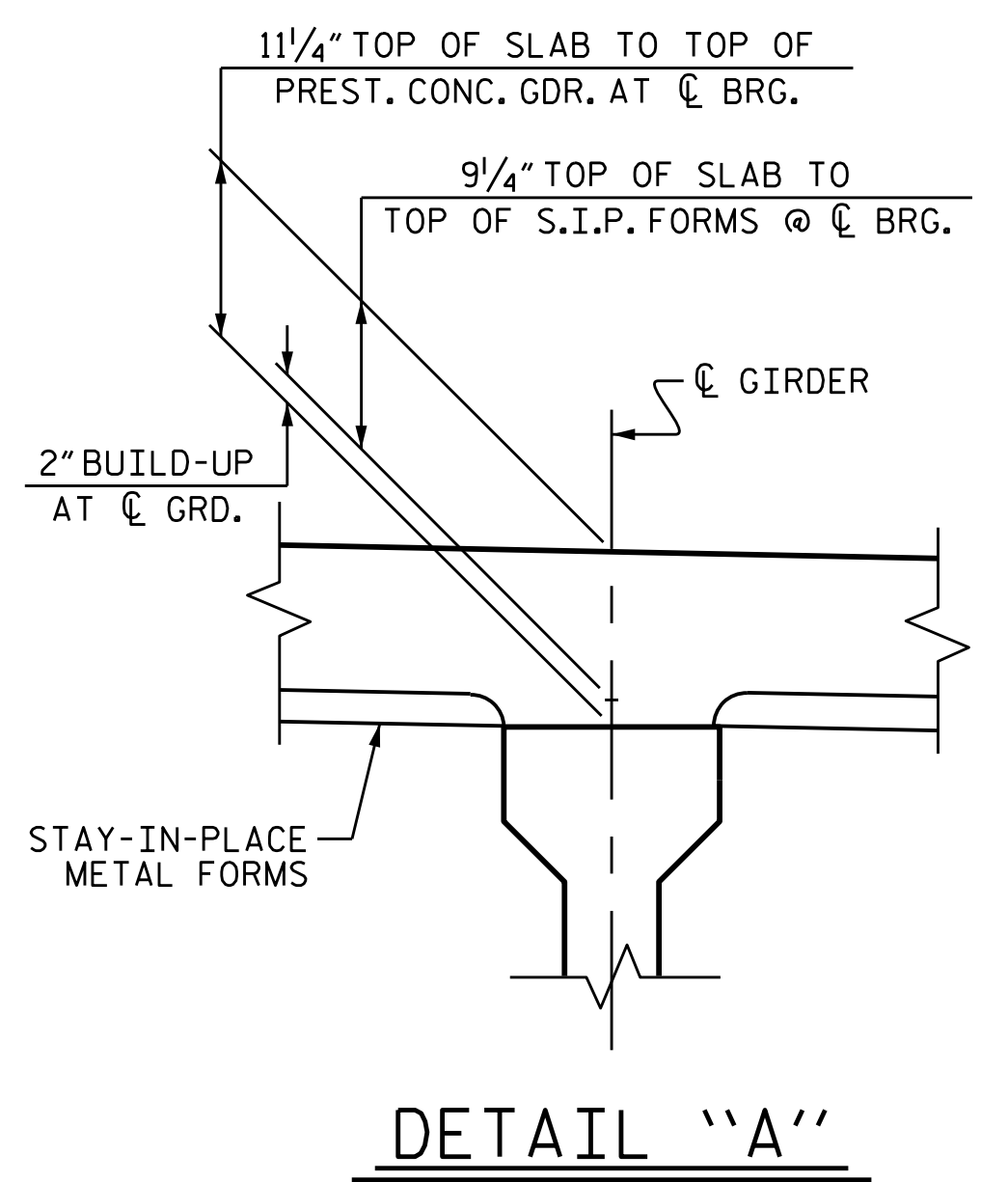


AT END BENT DIAPHRAGM AT INTERMEDIATE DIAPHRAGM
TYPICAL SECTION



TYPICAL SECTION @ BENT DIAPHRAGM

NOTES:
 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.
 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.
 * USE THIS SIZE BAR SUPPORT IN THE AREAS WITH #4 "B" BARS. FOR OTHER AREAS WITH #6 "B" BARS, USE THE BAR SUPPORT AS SHOWN IN TYPICAL SECTION AT BENT.



PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION
 NBL

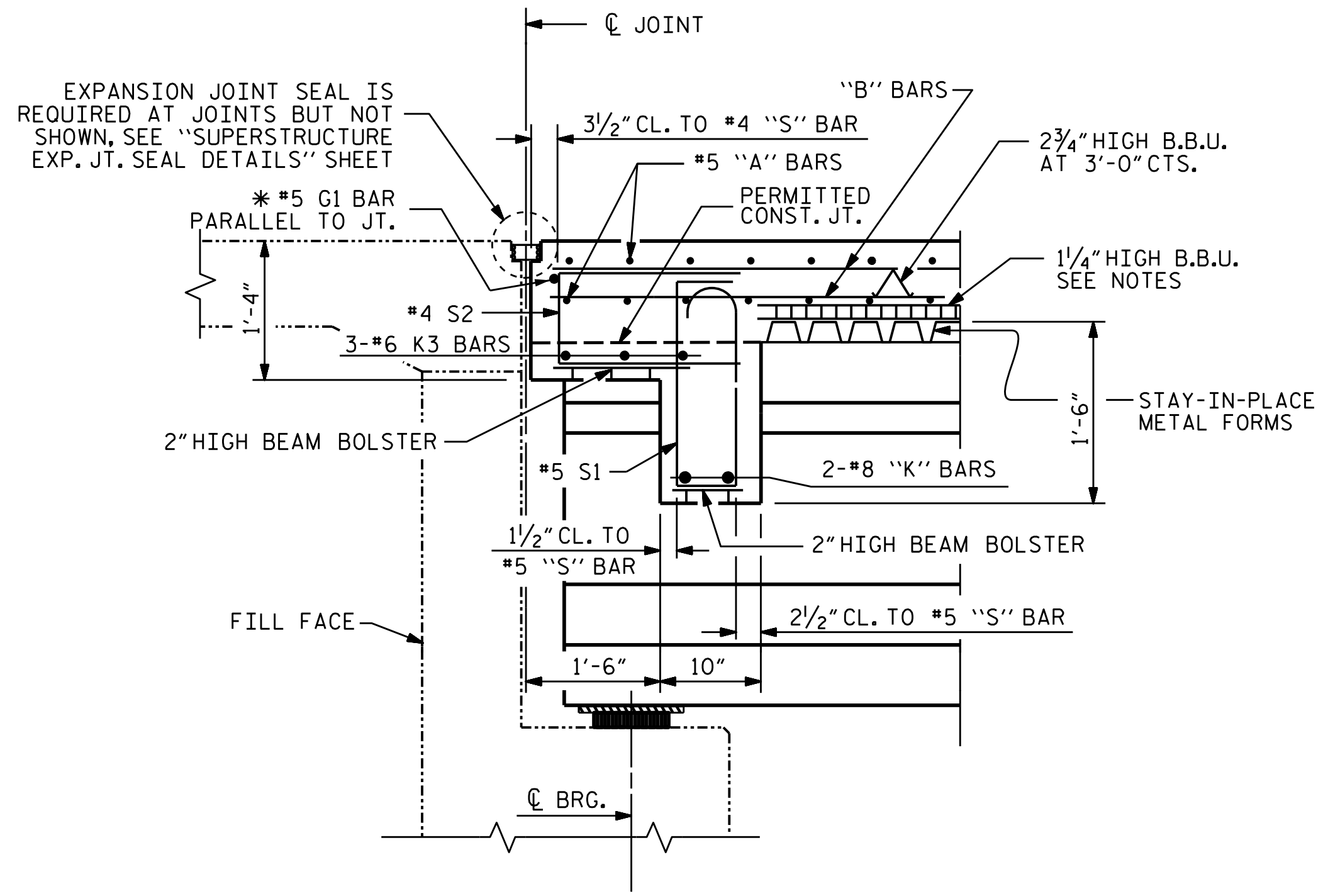
DRAWN BY : T.J. KIRSCHBAUM DATE : 4/14/14
 CHECKED BY : R.F. WERTMAN DATE : 4/25/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 4/25/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised



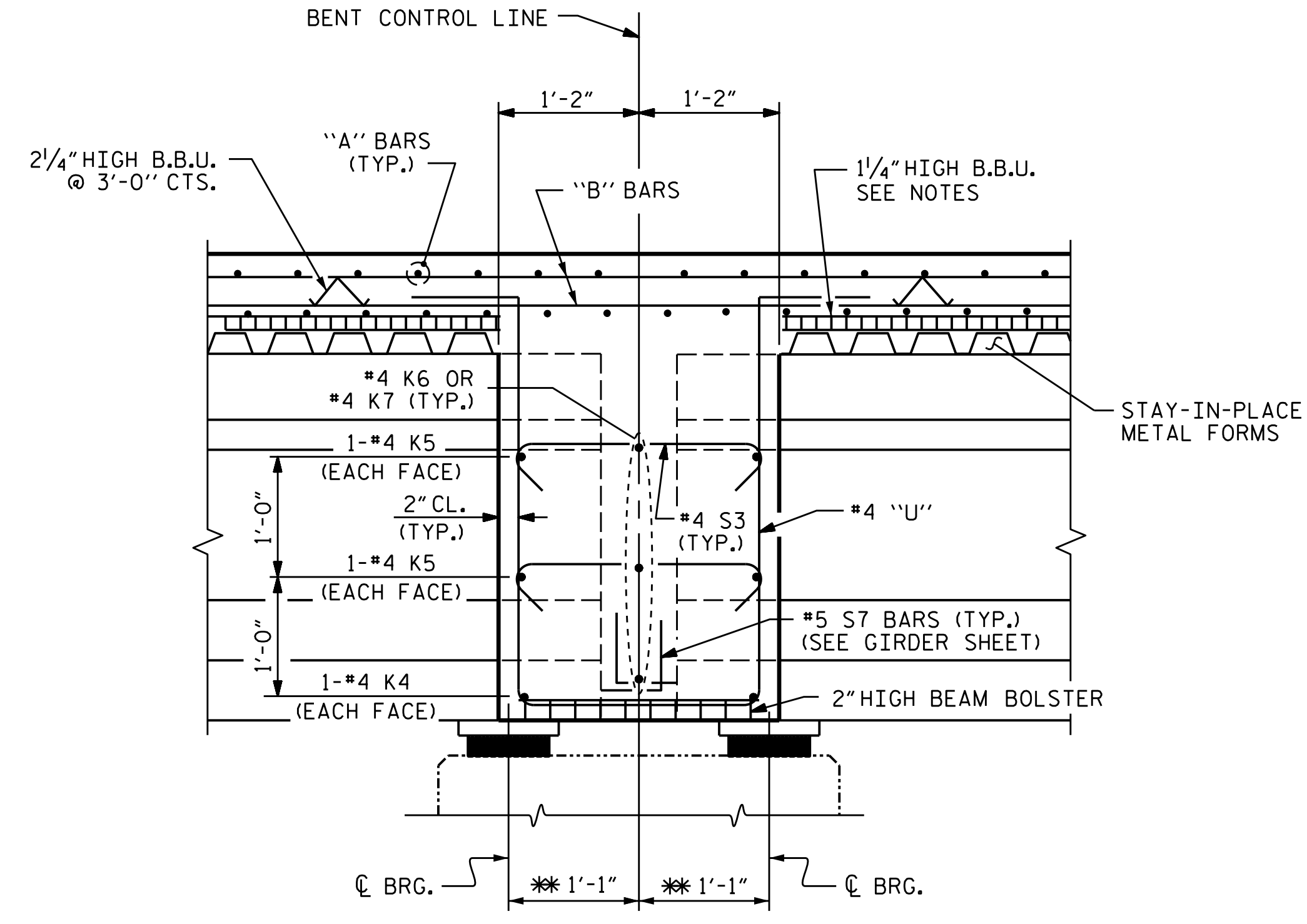
REVISIONS		SHEET NO.			
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 30



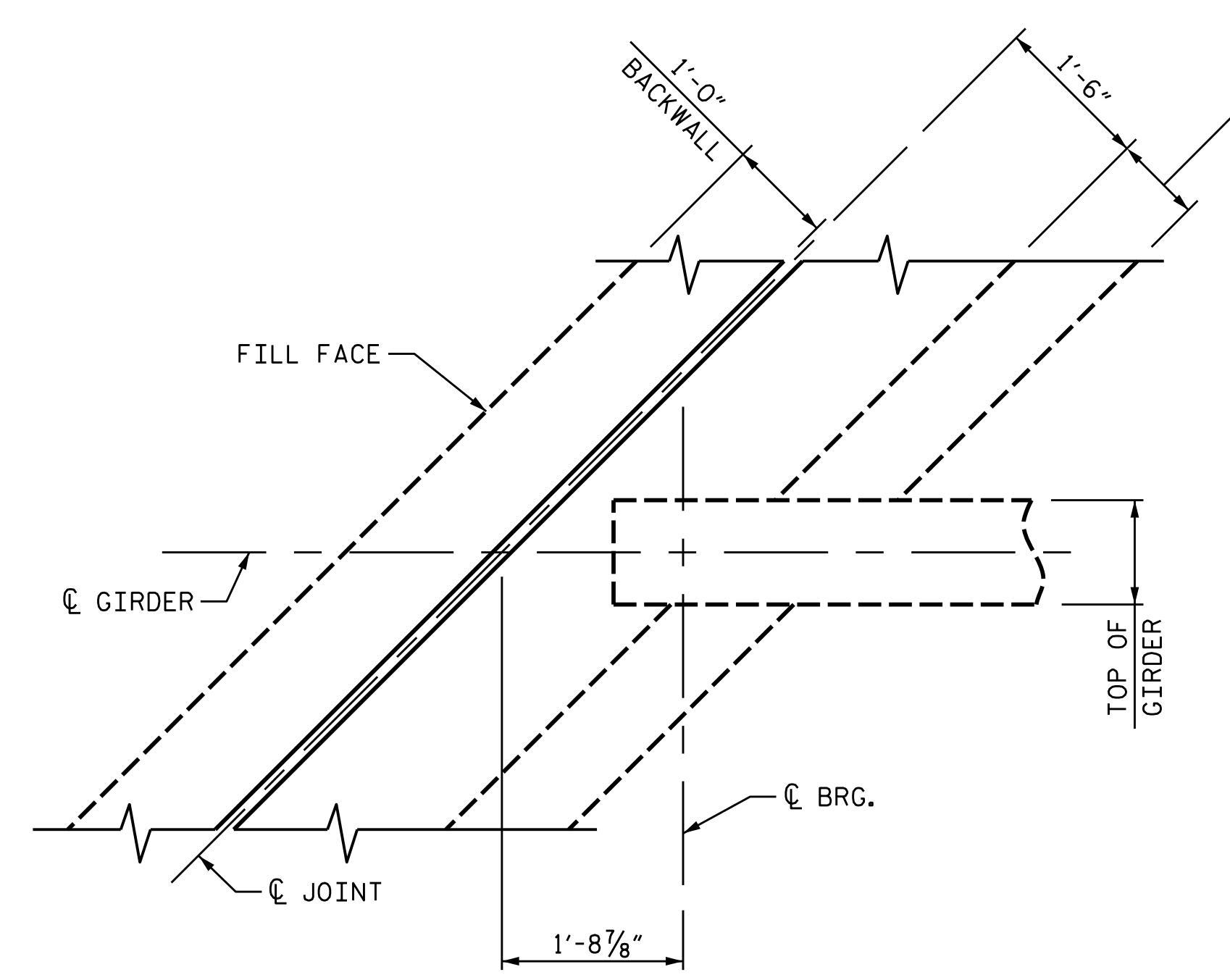
SECTION AT END BENT

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

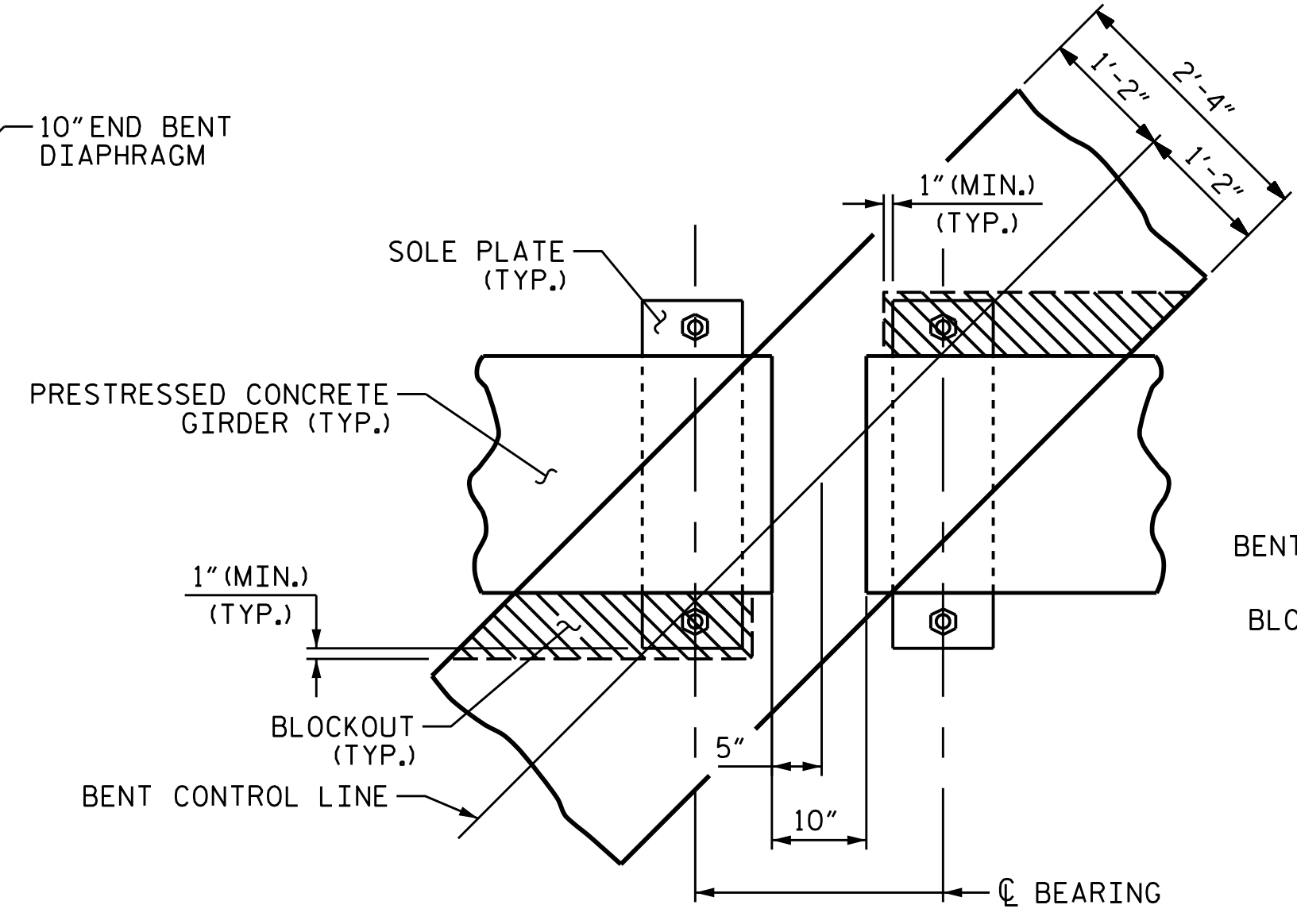


SECTION AT BENT DIAPHRAGM

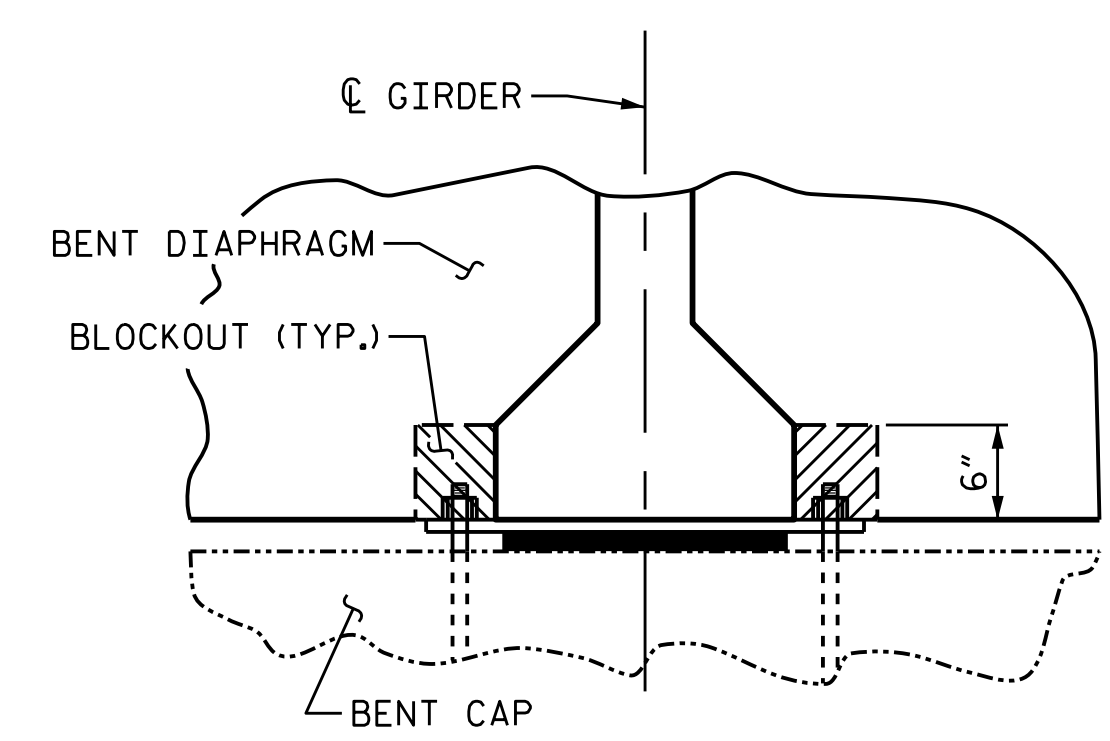
* MEASURED ALONG CL GIRDER



END BENT DIAPHRAGM

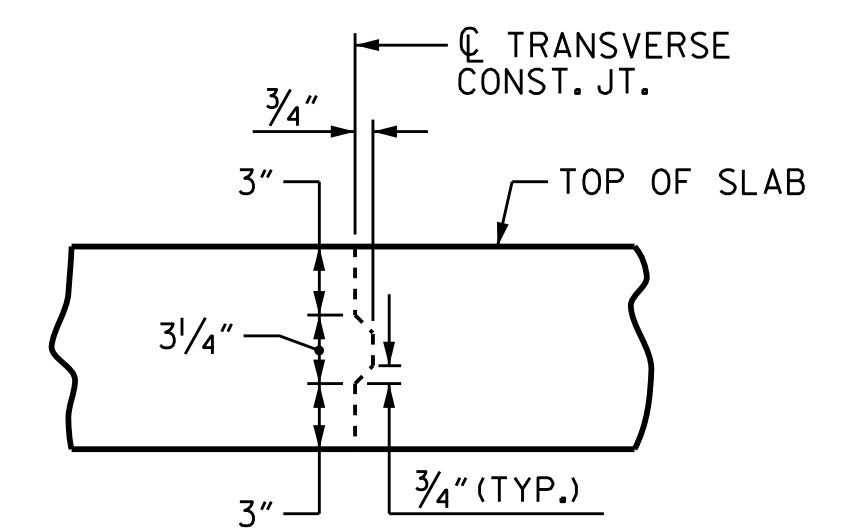


PLAN



SECTION

BENT DIAPHRAGM BLOCK-OUT DETAIL



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION
 DETAILS
 NBL

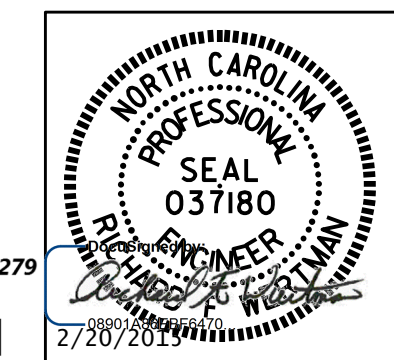
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

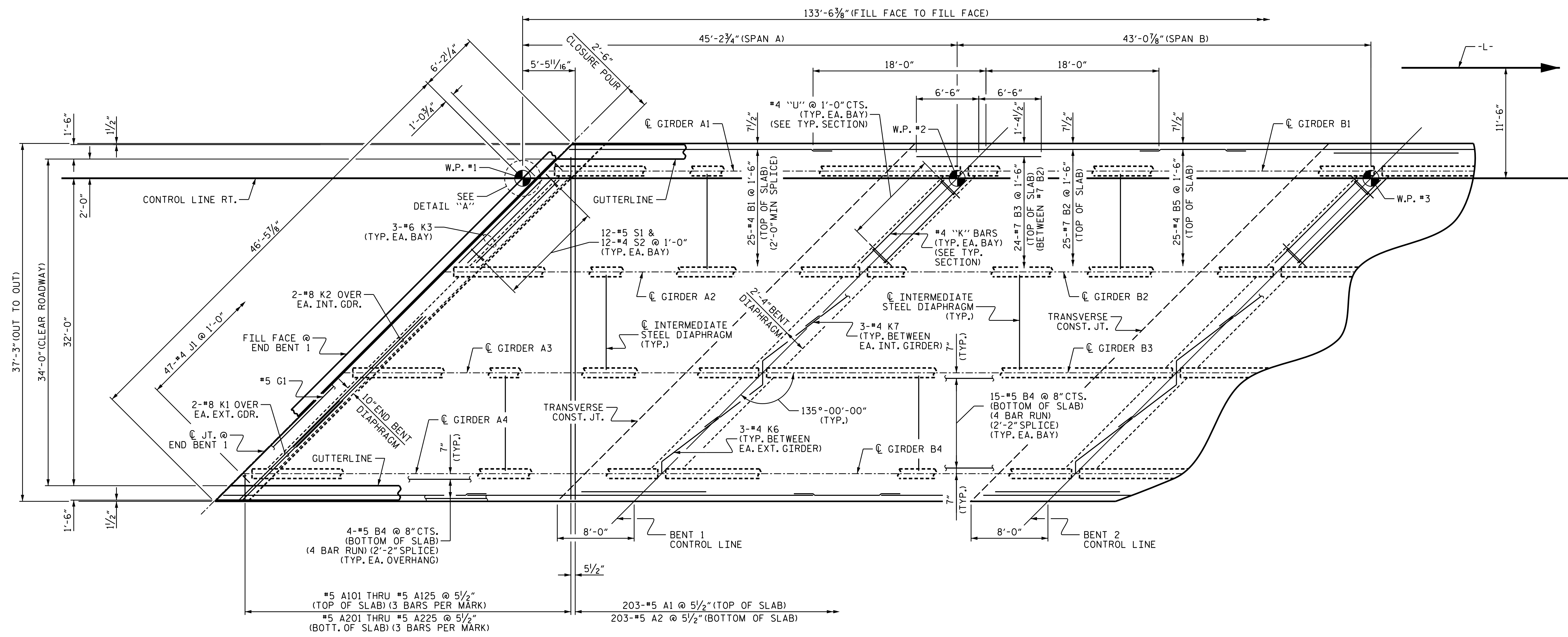
TOTAL SHEETS: 30

DRAWN BY: T.J. KIRSCHBAUM DATE: 4/14/14
 CHECKED BY: R.F. WERTMAN DATE: 4/28/14
 DESIGN ENGINEER OF RECORD: R.F. WERTMAN DATE: 4/28/14

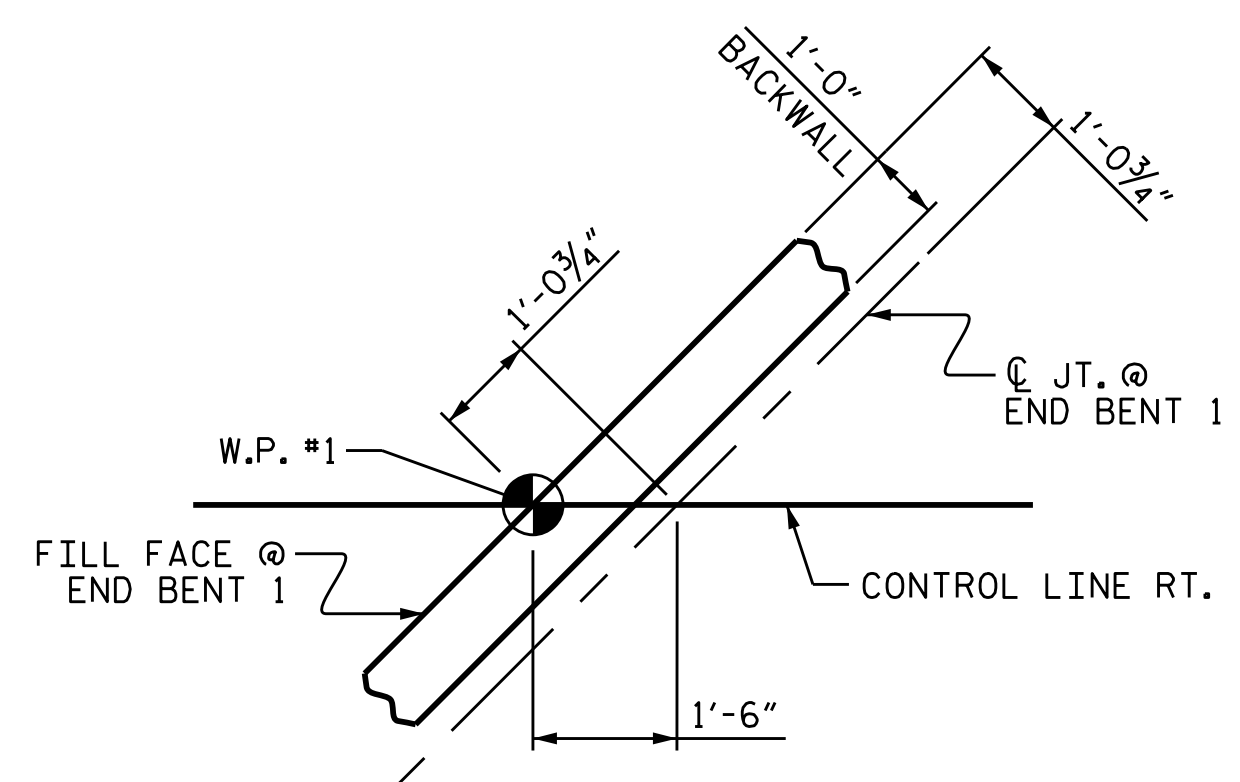
PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised

1121 Situs Court
 Suite 170
 Raleigh, NC 27606-4279
 (919) 859-4880
 NCLic. No. F-0270





PLAN OF SPANS A & B



DETAIL "A"

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

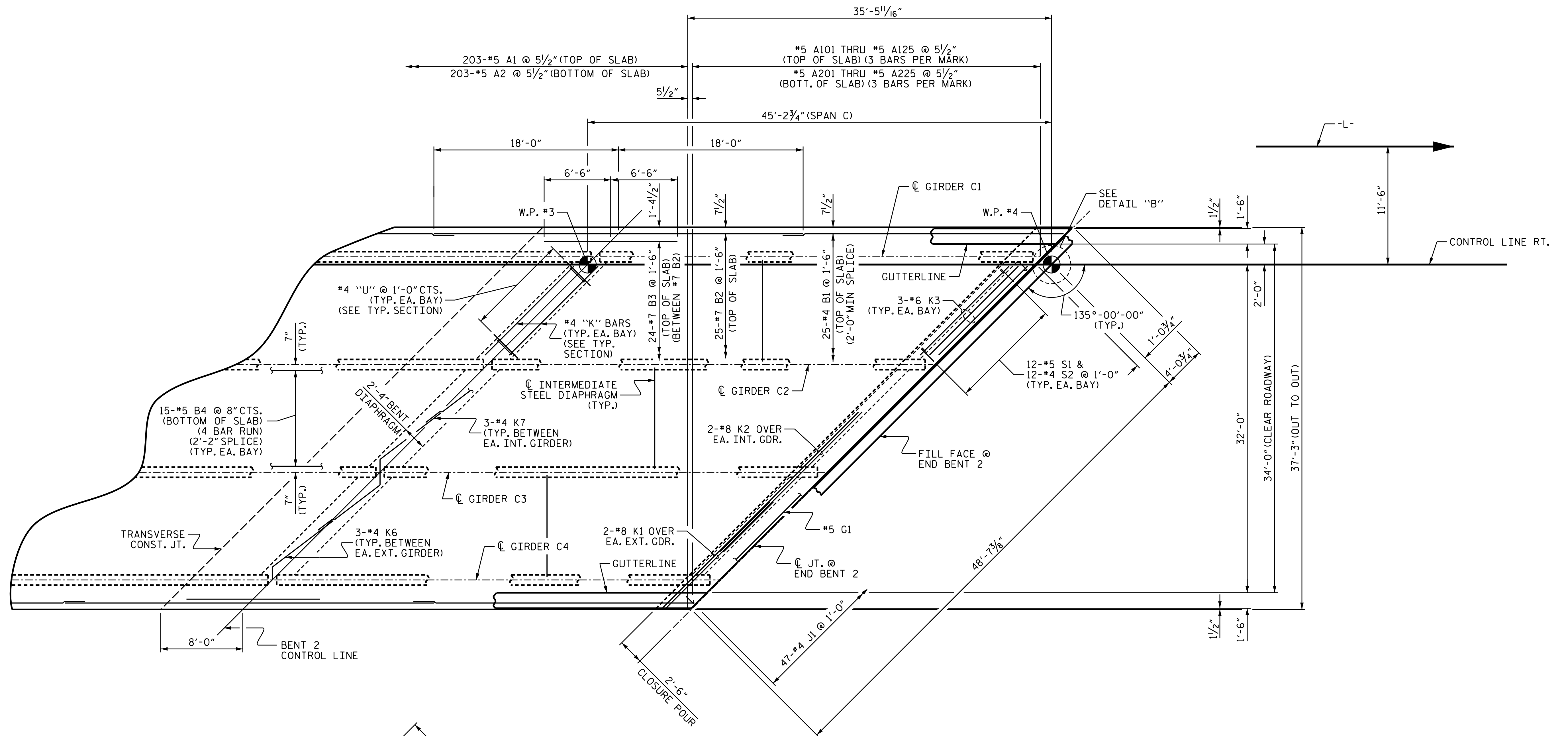
SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS A & B
 NBL

DRAWN BY : T.J. KIRSCHBAUM DATE : 4/14/14
 CHECKED BY : R.F. WERTMAN DATE : 4/28/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 4/28/14

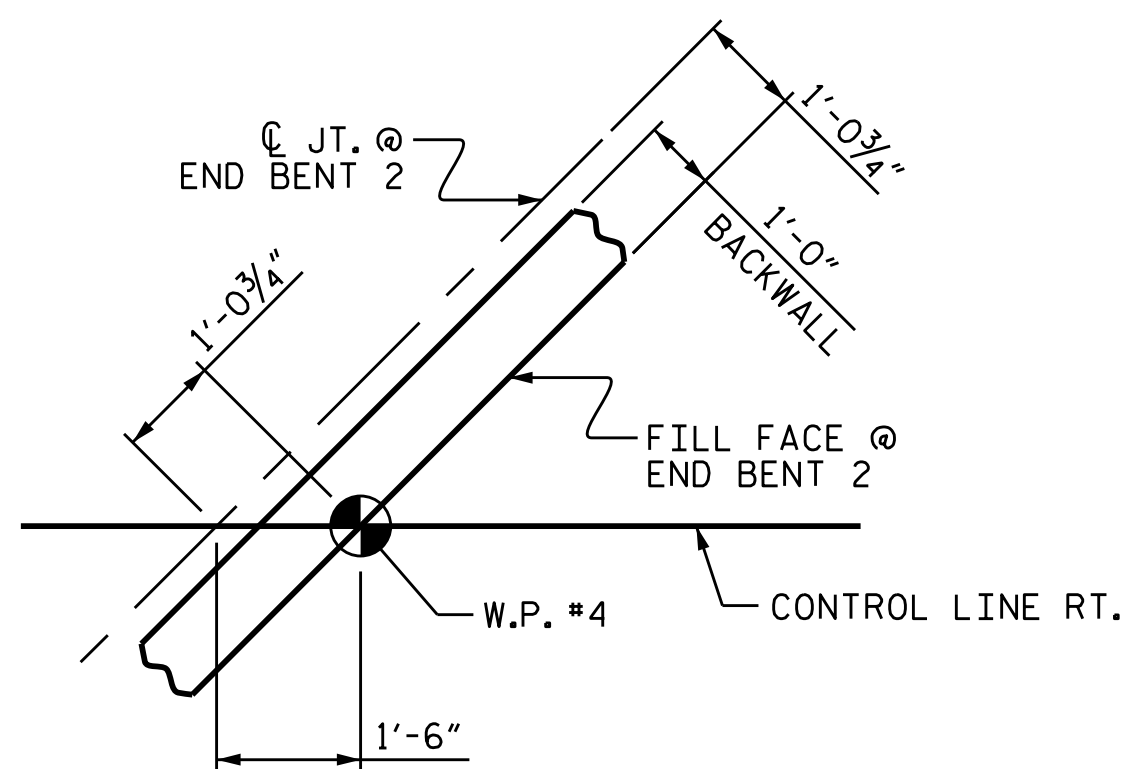
PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Situs Court
 Suite 170
 Raleigh, NC 27606-4279
 (919) 859-4880
 N.C. Lic. No. F-0270



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-7	
1			3			TOTAL SHEETS	
2			4			30	



PLAN OF SPAN C



DETAIL "B"

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 2 OF 2

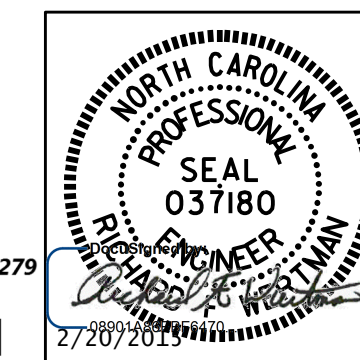
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

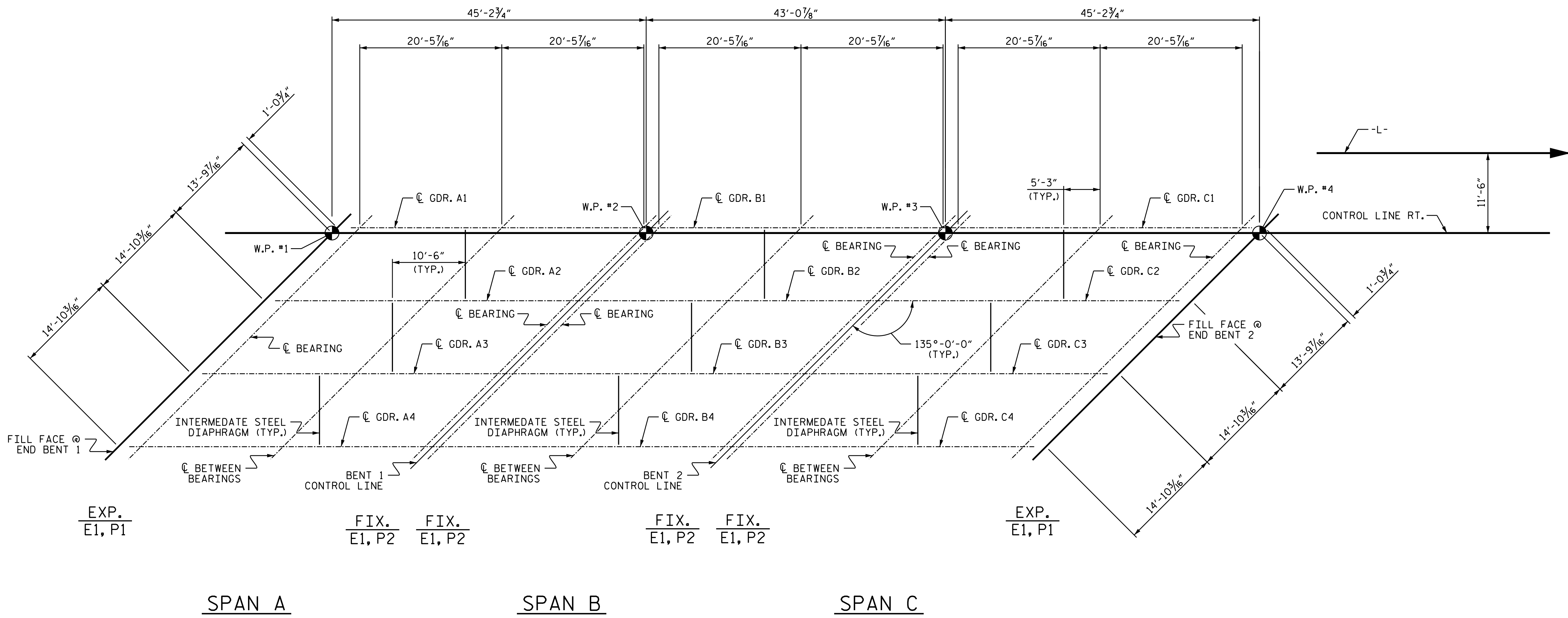
SUPERSTRUCTURE
 PLAN OF SPAN C
 NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-8
1			3			TOTAL SHEETS
2			4			30

DRAWN BY : T.J. KIRSCHBAUM DATE : 4/14/14
 CHECKED BY : R.F. WERTMAN DATE : 4/28/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 4/28/14

PLANS PREPARED BY:
Gannett Fleming
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 Suite 170
 Raleigh NC 27606-4279
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 NCLic. No. F-0270





EXP.
E1, P1

FIX.
E1, P2 FIX.
E1, P2

FIX.
E1, P2 FIX.
E1, P2

EXP.
E1, P1

SPAN A

SPAN B

SPAN C

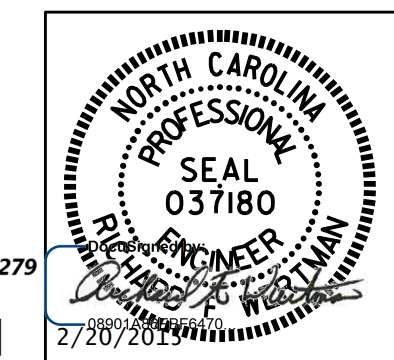
FRAMING PLAN

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

DRAWN BY : T.J. KIRSCHBAUM DATE : 4/14/14
 CHECKED BY : R.F. WERTMAN DATE : 4/30/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 4/30/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised

1121 Situs Court
 Suite 170
 Raleigh NC 27606-4279
 (919) 859-4880
 NCLic. No. F-0270

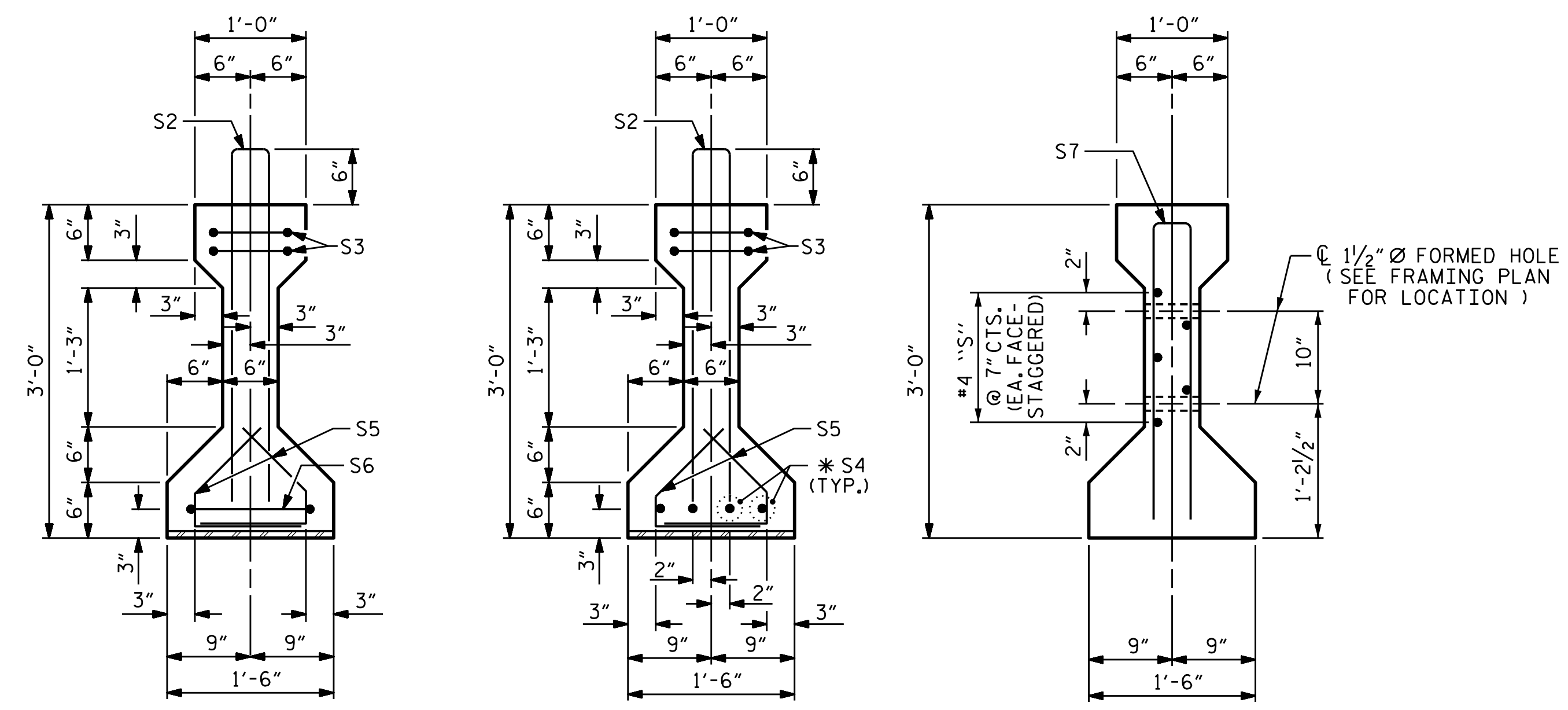


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

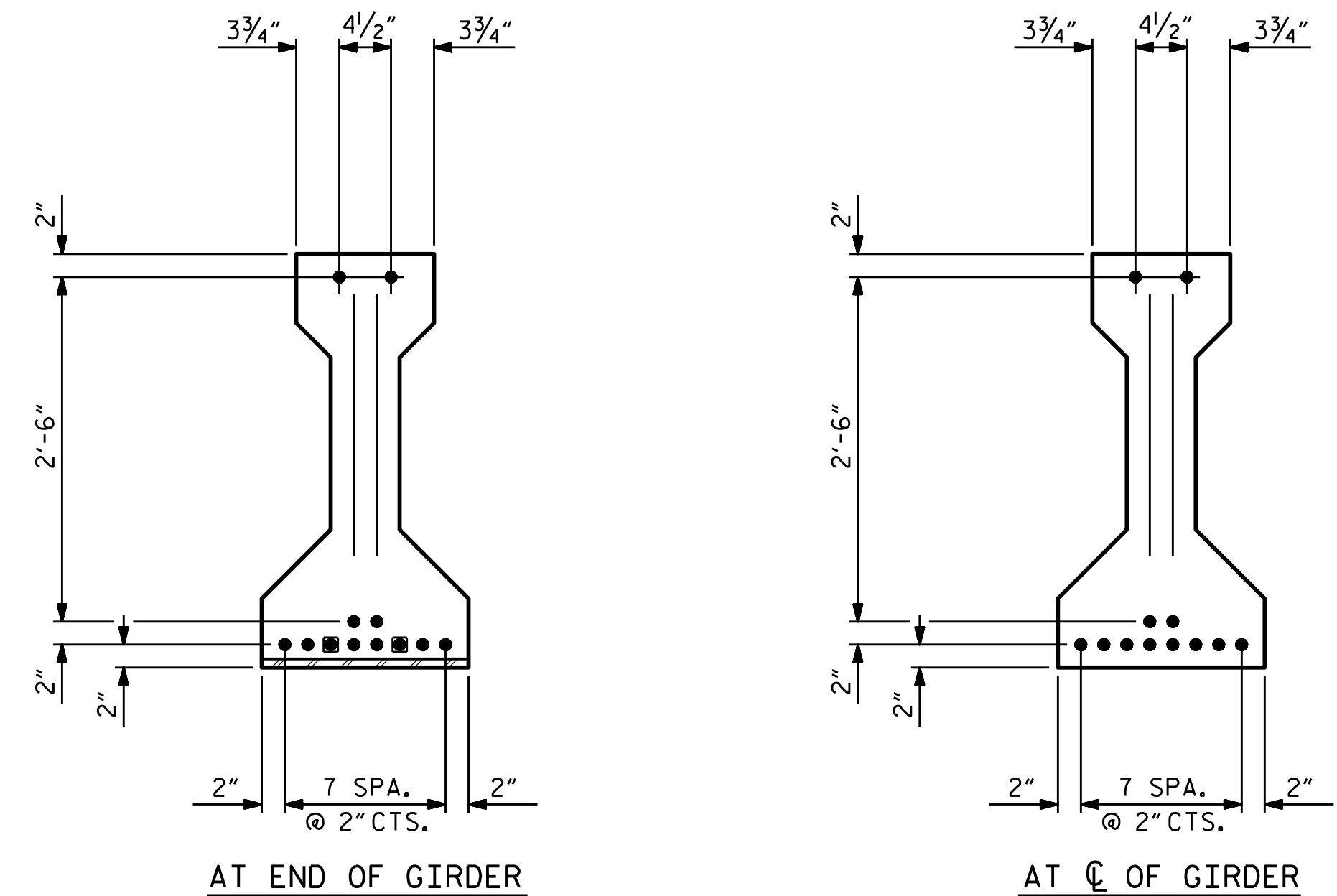
**SUPERSTRUCTURE
 FRAMING PLAN**

NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-9
1			3			TOTAL SHEETS
2			4			30

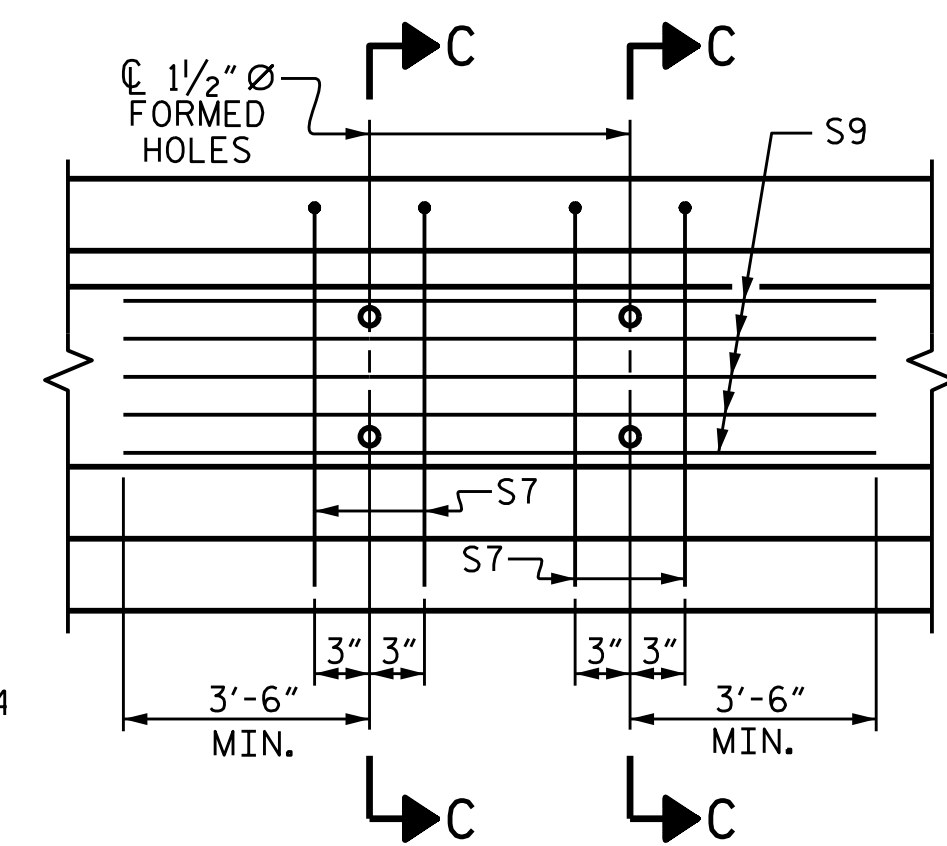


SECTION A-A SECTION B-B SECTION C-C (S1 BARS NOT SHOWN)

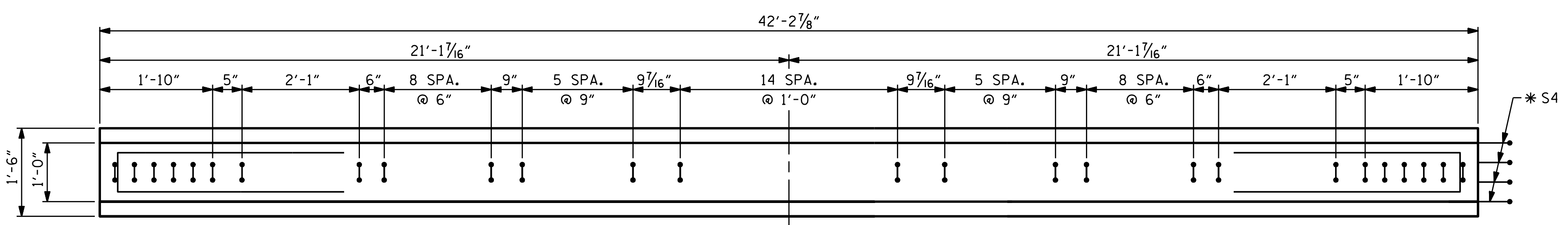


0.6" Ø LOW RELAXATION STRAND LAYOUT

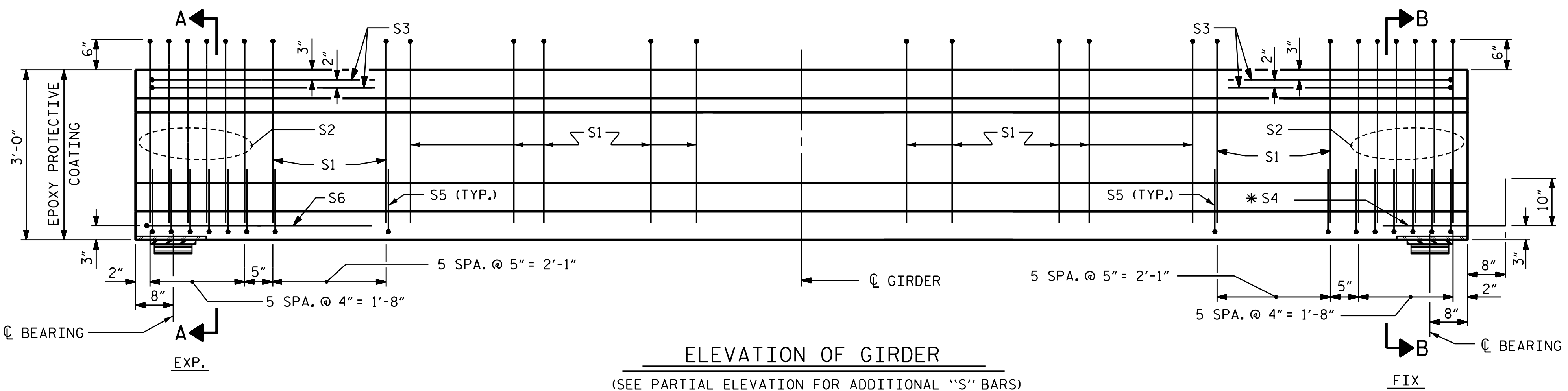
DEBONDING LEGEND
 ● FULLY BONDED STRANDS
 ■ STRANDS DEBONDED FOR 4'-0" FROM ENDS OF GIRDER



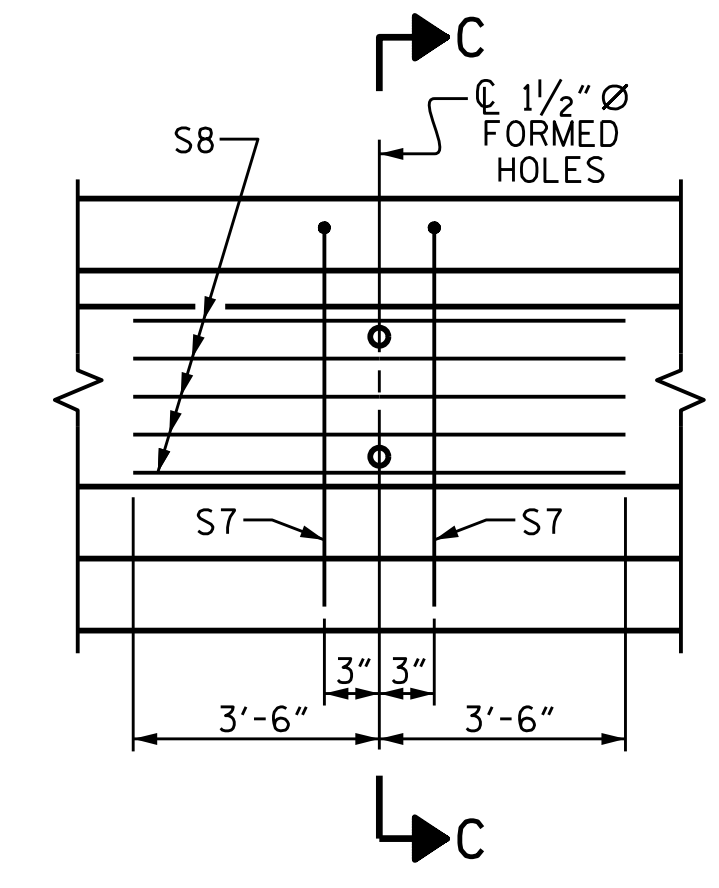
PARTIAL ELEVATION SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR INTERIOR GIRDERS



PLAN OF GIRDER



ELEVATION OF GIRDER (SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR EXTERIOR GIRDERS

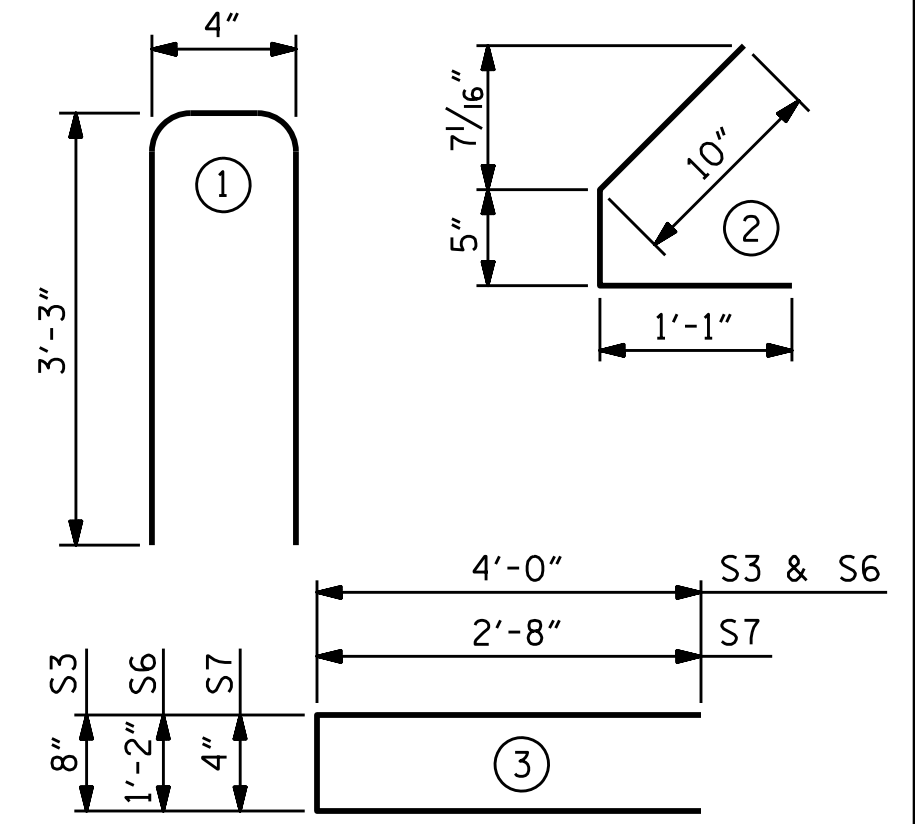
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	57	#4	1	6'-10"	260
INTERIOR GDR.	S1	57	#4	1	6'-10"	260
	S2	12	#5	1	6'-10"	86
	S3	4	#4	3	8'-8"	23
	* S4	4	#5	STR	3'-8"	15
	S5	44	#4	2	2'-4"	69
	S6	1	#4	3	9'-2"	6
EXTERIOR GDR.	S7	2	#5	3	5'-8"	12
INTERIOR GDR.	S7	4	#5	3	5'-8"	24
EXTERIOR GDR.	S8	5	#4	STR	7'-0"	23
INTERIOR GDR.	S9	5	#4	STR	17'-6"	58

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL LB.	8000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
EXTERIOR GIRDER	494	4.0	12
INTERIOR GIRDER	541	4.0	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
8	42'-2 7/8"	337'-11"

PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-

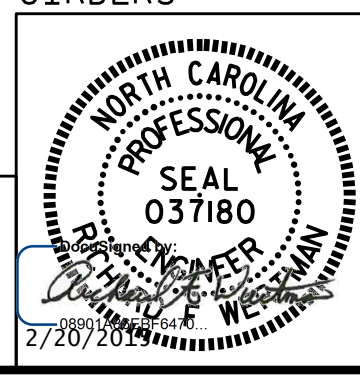
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPANS A & C
 NBL

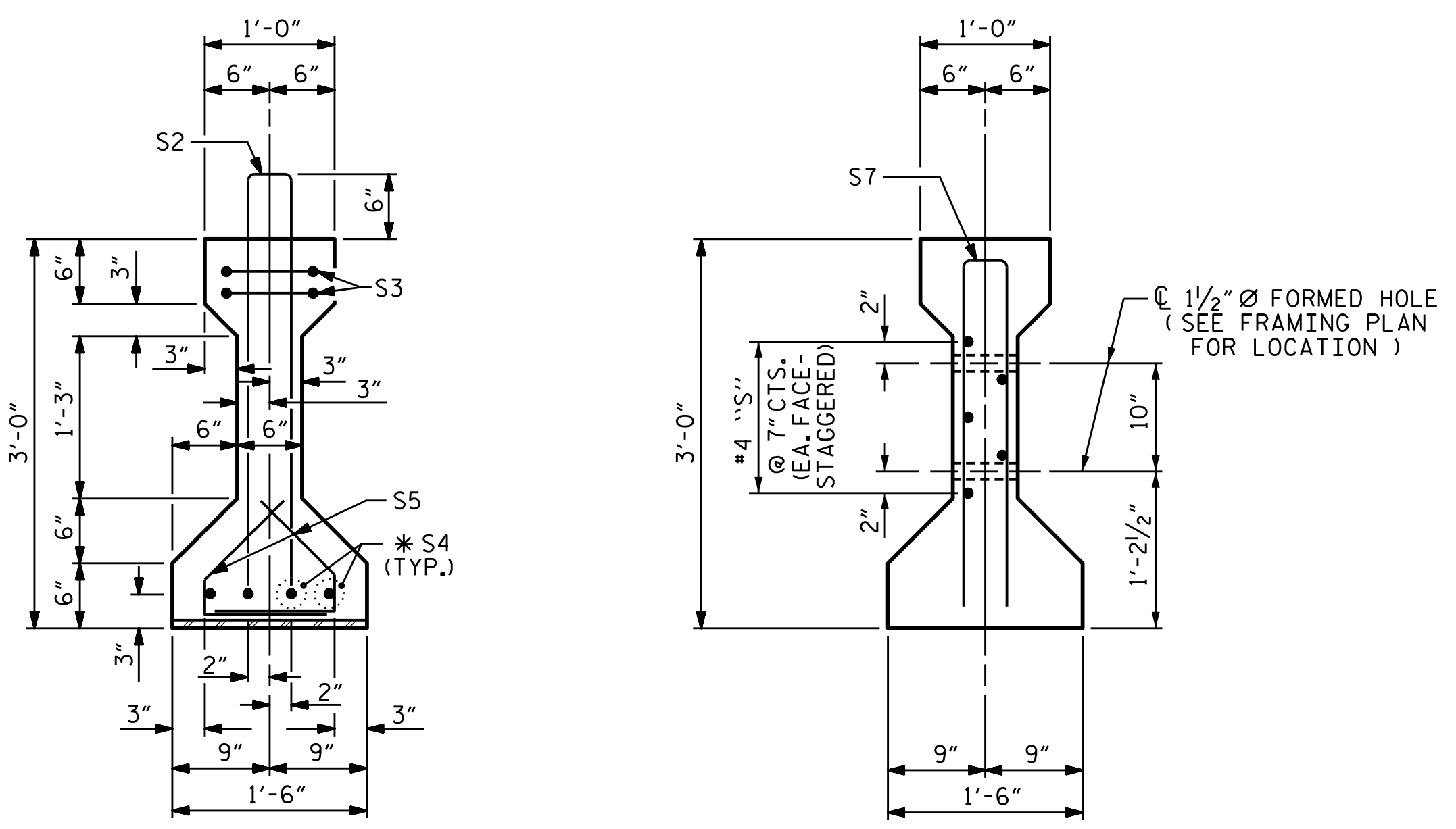
ASSEMBLED BY : T.J. KIRSCHBAUM DATE : 4/16/14
 CHECKED BY : R.F. WERTMAN DATE : 4/30/14
 DRAWN BY : ELR 8/91 REV. 10/17/00R RWW/LES
 CHECKED BY : GRP 8/91 REV. 5/1/06R TLA/GM
 REV. 10/1/11 MAA/GM

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Sitis Court Suite 170 Raleigh NC 27606-4279 (919) 859-4880 NC Lic. No. F-0270

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

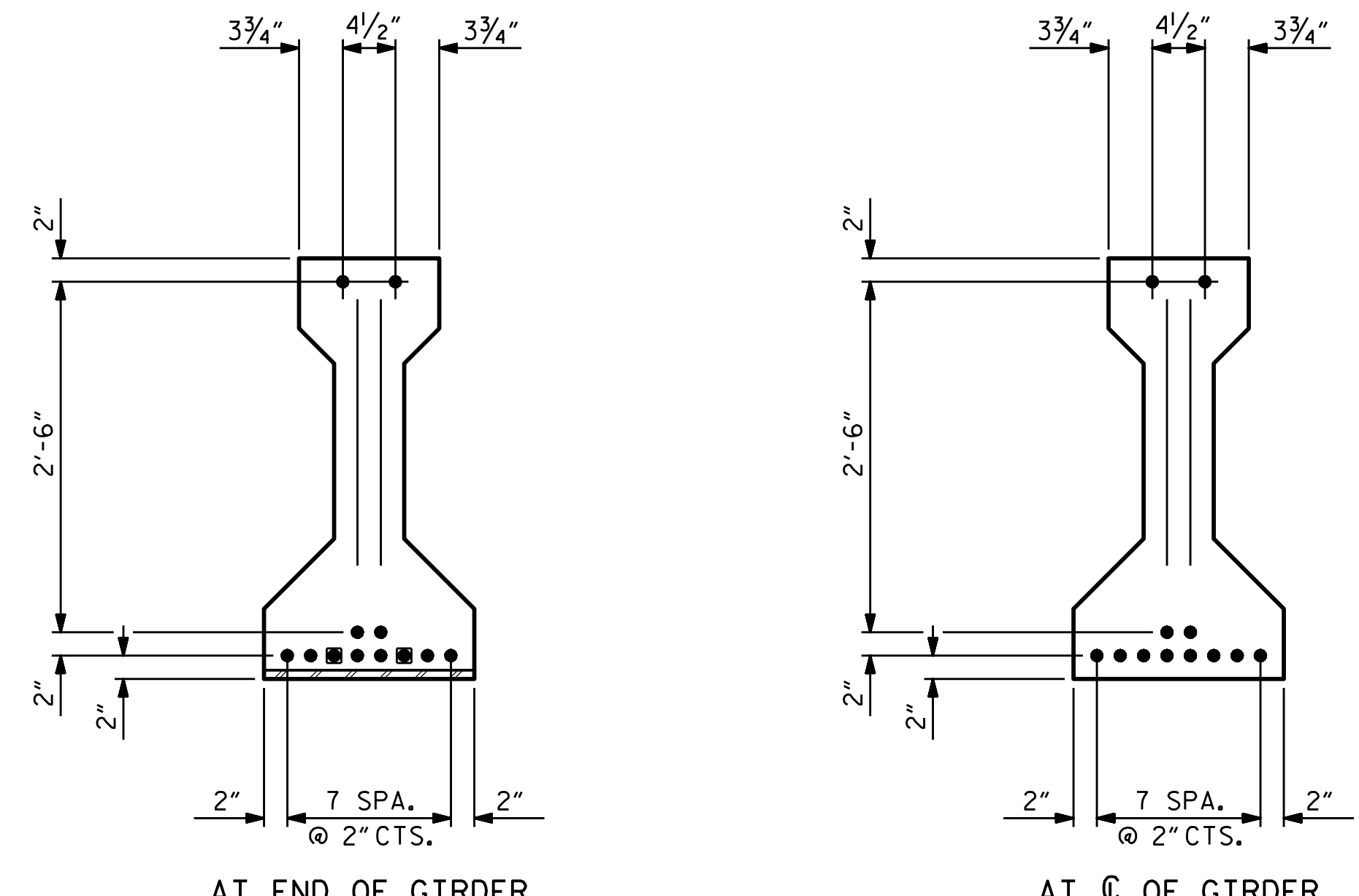


REVISIONS						SHEET NO. S03-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			



SECTION A-A

SECTION B-B
(S1 BARS NOT SHOWN)

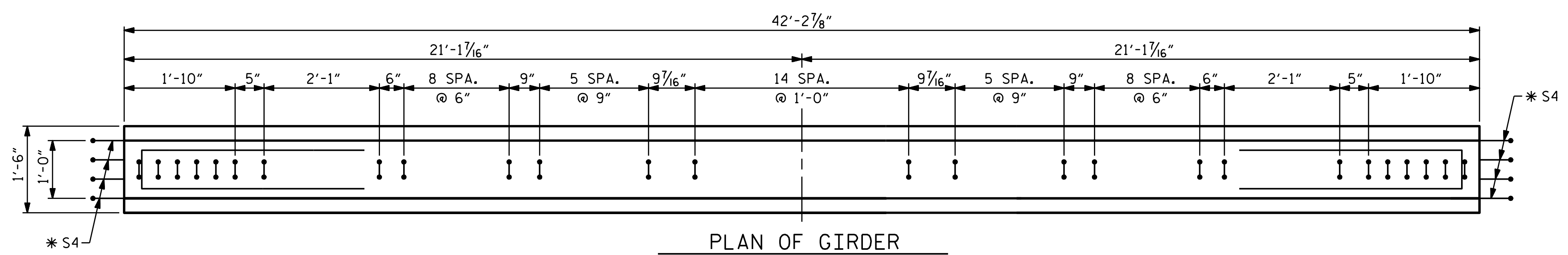


AT END OF GIRDER

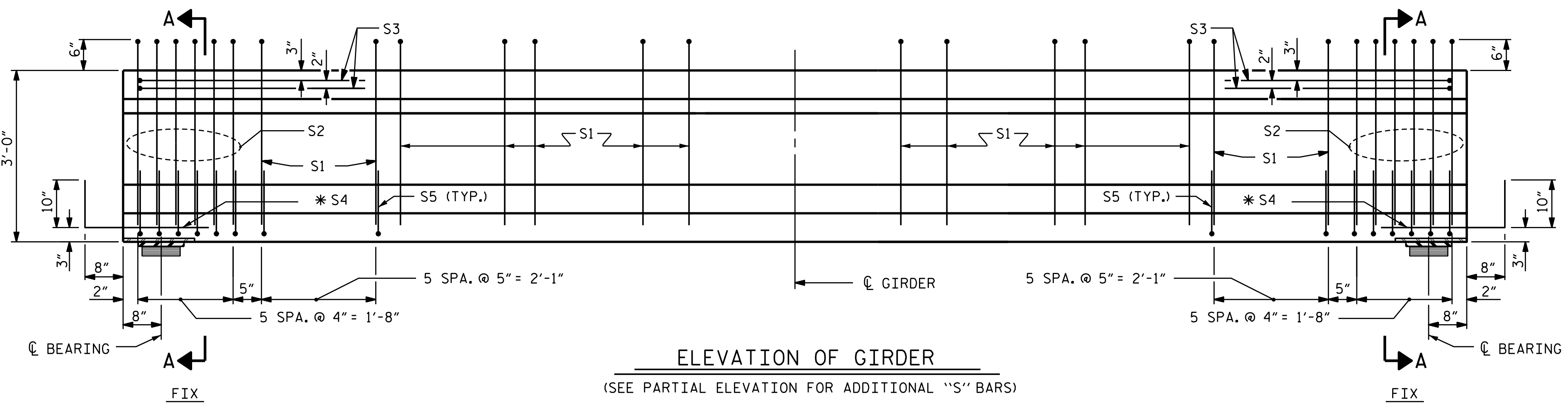
AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 4'-0" FROM ENDS OF GIRDER

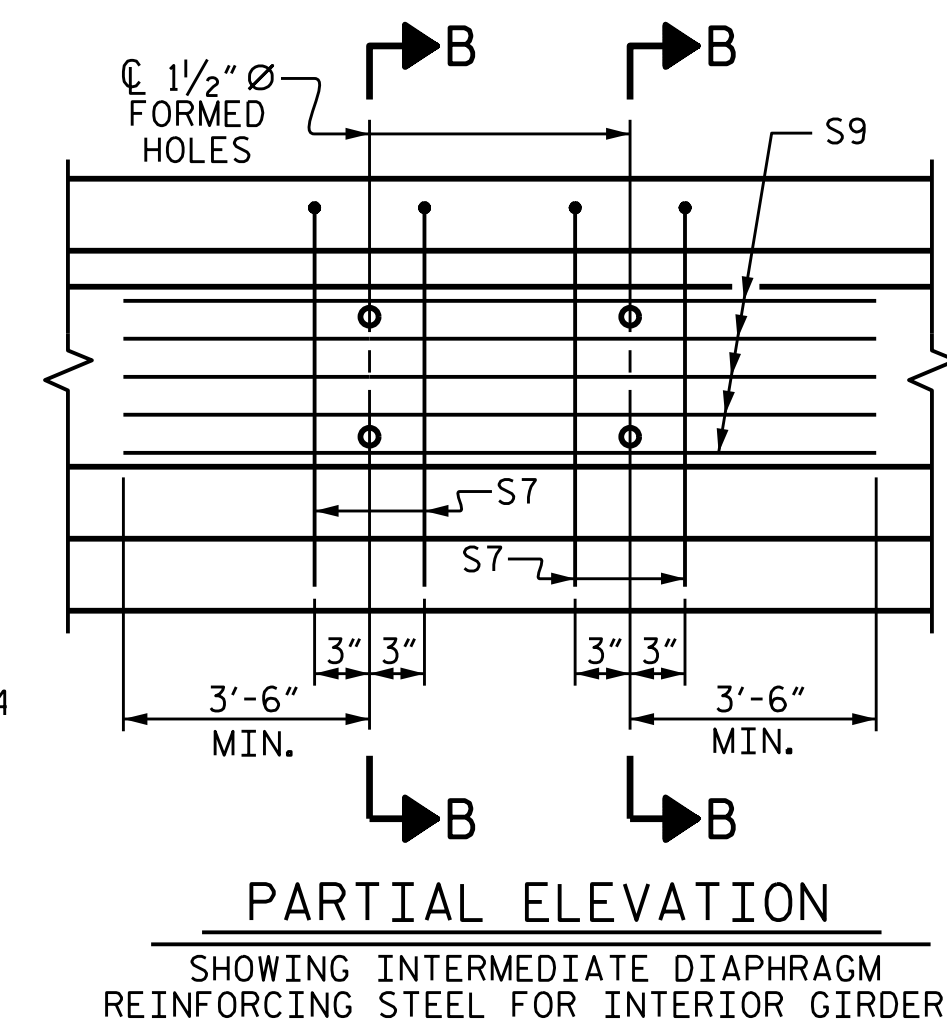


PLAN OF GIRDER



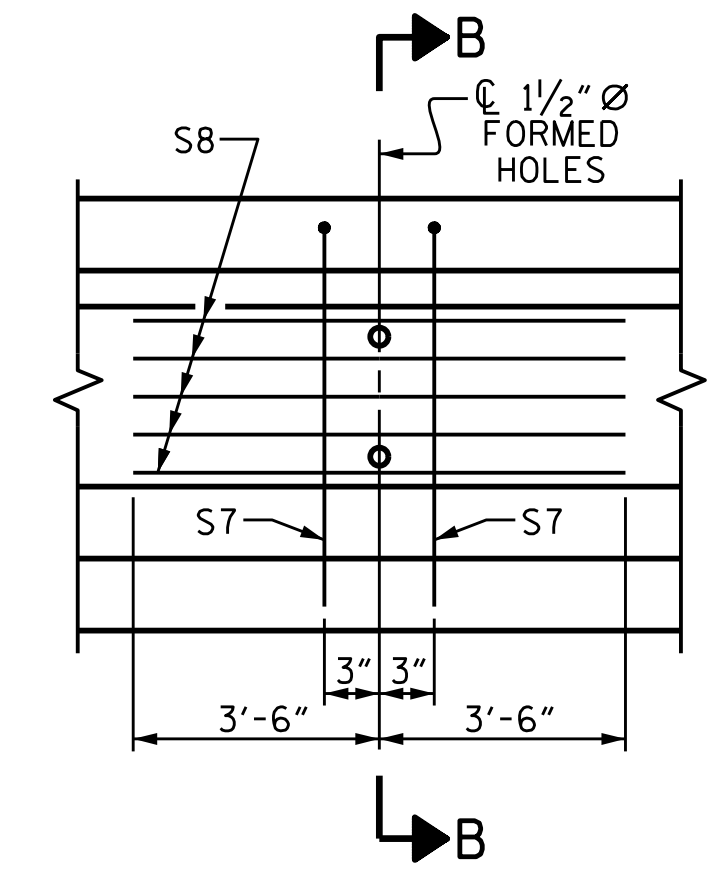
ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR INTERIOR GIRDERS



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR EXTERIOR GIRDERS

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

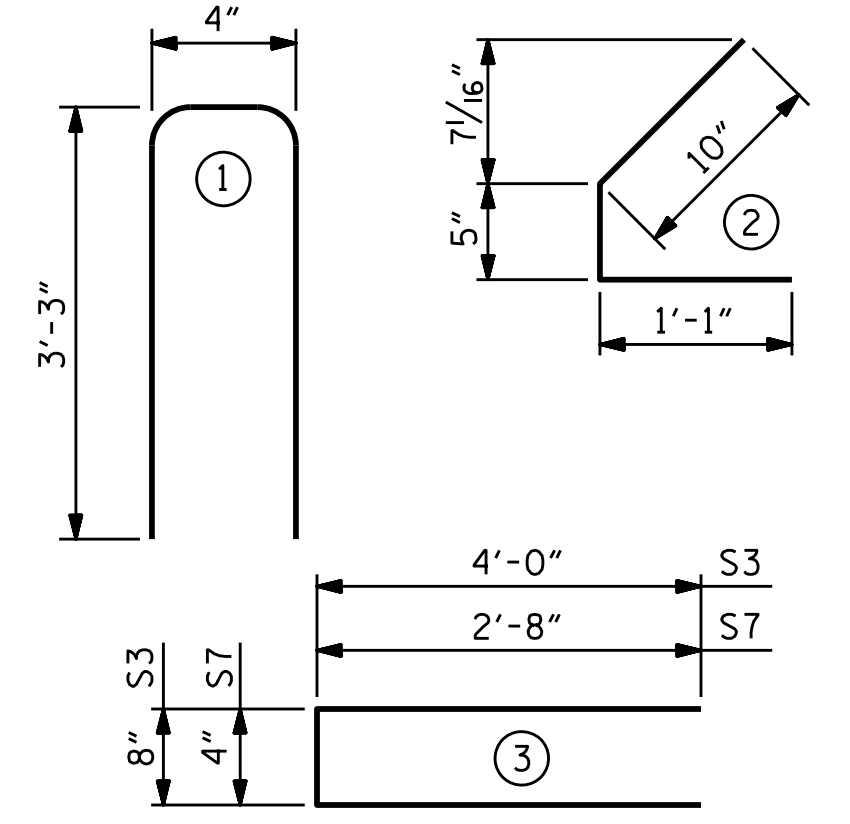
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
EXTERIOR GDR.	S1	#4	1	6'-10"	260
INTERIOR GDR.	S1	#4	1	6'-10"	260
	S2	#5	1	6'-10"	86
	S3	#4	3	8'-8"	23
	* S4	#5	STR	3'-8"	31
	S5	#4	2	2'-4"	69
EXTERIOR GDR.	S7	#5	3	5'-8"	12
INTERIOR GDR.	S7	#5	3	5'-8"	24
EXTERIOR GDR.	S8	#4	STR	7'-0"	23
INTERIOR GDR.	S9	#4	STR	17'-6"	58

* NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL LB.	8000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
EXTERIOR GIRDER	504	4.0	12
INTERIOR GIRDER	550	4.0	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	42'-2 7/8"	168'-11 1/2"

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 2 OF 3

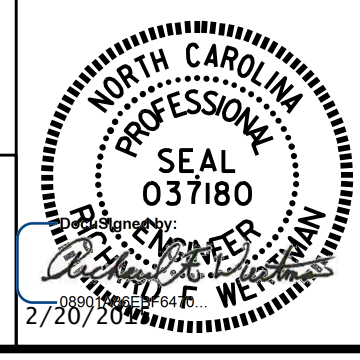
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN B
 NBL

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

ASSEMBLED BY : T.J. KIRSCHBAUM	DATE : 4/16/14
CHECKED BY : R.F. WERTMAN	DATE : 4/30/14
DRAWN BY : ELR 8/91	REV. 10/17/00R RWW/LES
CHECKED BY : GRP 8/91	REV. 5/1/06R TLA/GM
	REV. 10/1/11 MAA/GM

PLANS PREPARED BY:
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 Suite 170
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 NC Lic. No. F-0270

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



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.

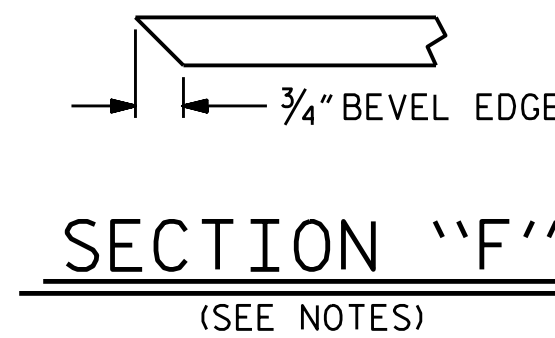
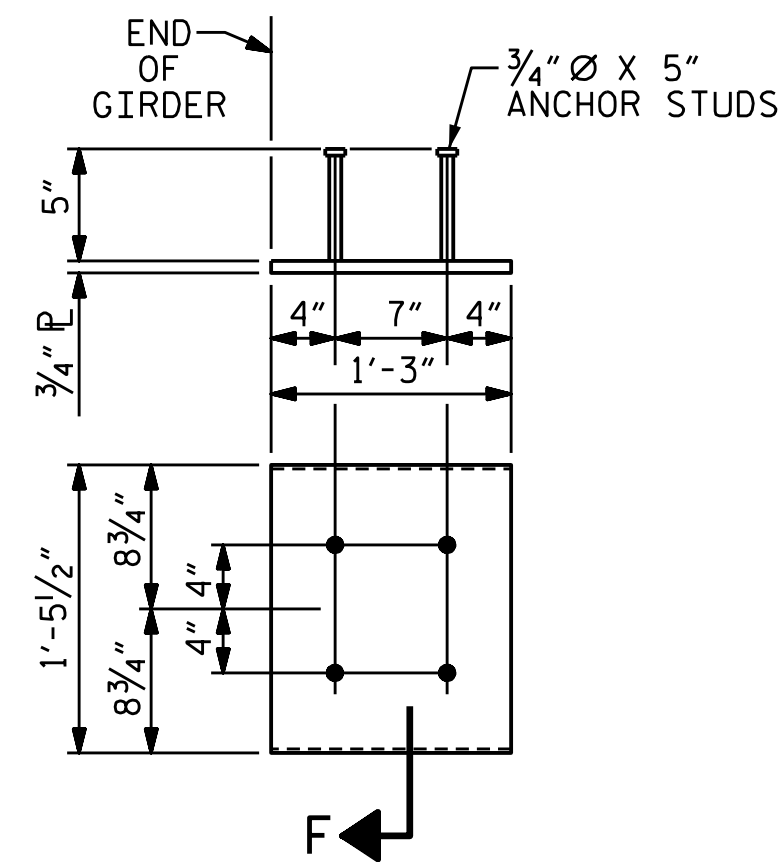
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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 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, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".



**EMBEDDED PLATE "B-1" DETAILS
FOR AASHTO TYPE II GIRDER**
(2 REQ'D PER GIRDER)

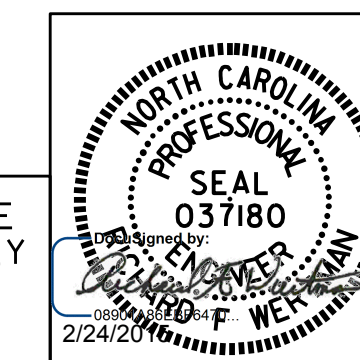
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION	SPANS A, B & C																						
	GIRDERS 1 & 4											GIRDERS 2 & 3											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.015	0.028	0.038	0.045	0.047	0.045	0.038	0.028	0.015	0	0	0.015	0.028	0.038	0.045	0.047	0.045	0.038	0.028	0.015	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.007	0.014	0.020	0.023	0.024	0.023	0.020	0.014	0.007	0	0	0.008	0.017	0.024	0.028	0.030	0.028	0.024	0.017	0.008	0
FINAL CAMBER	↑	0	1/8"	3/16"	1/4"	1/4"	1/4"	1/4"	1/4"	3/16"	1/8"	0	0	1/16"	1/8"	3/16"	3/16"	3/16"	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. R-2915B
ASHE COUNTY
STATION: 234+19.20 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS
NBL



ASSEMBLED BY : T.J. KIRSCHBAUM	DATE : 4/16/14
CHECKED BY : R.F. WERTMAN	DATE : 5/1/14
DRAWN BY : ELR 11/91	REV. 5/1/06 TLA/GM
CHECKED BY : GRP 11/91	REV. 10/1/11 MAA/GM
	REV. 1/15 MAA/TMG

PLANS PREPARED BY:
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Excellence Delivered As Promised
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Suite 170
Raleigh NC 27606-4279
(919) 859-4880
NC Lic. No. F-0270

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-12
1			3			TOTAL SHEETS
2			4			30

STR. NO. 3

STD. NO. PCG9

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 AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE 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.

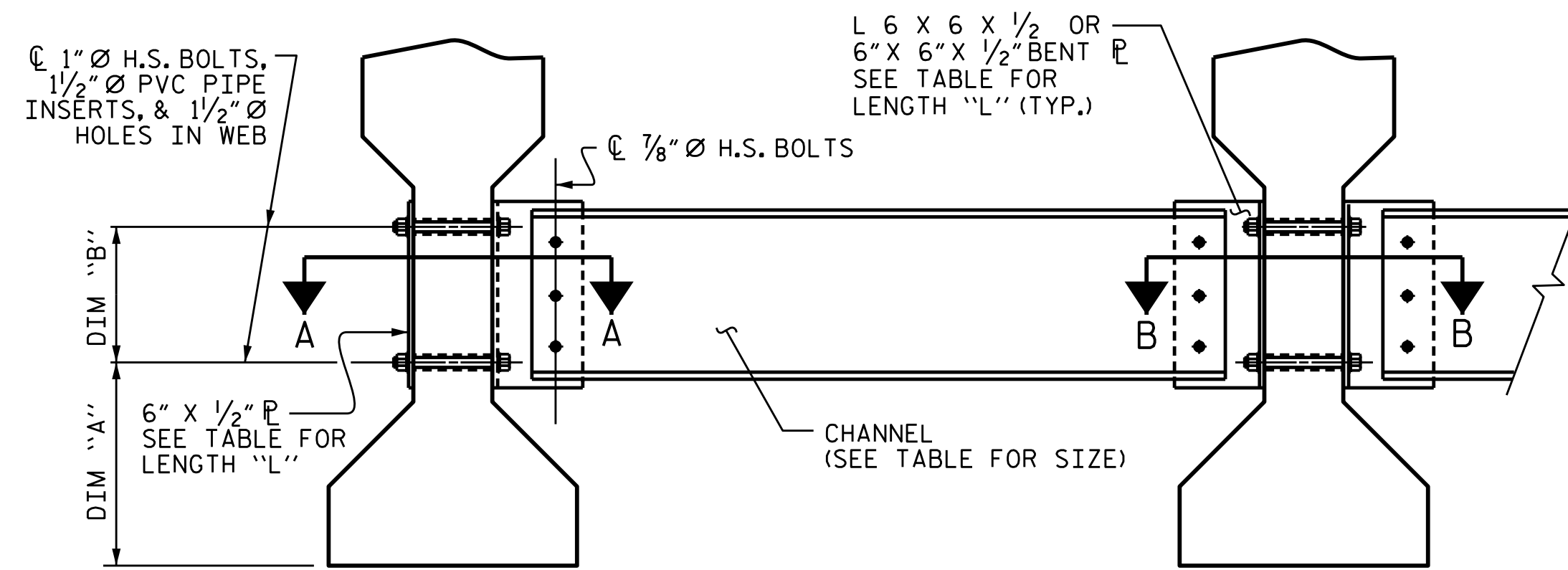
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

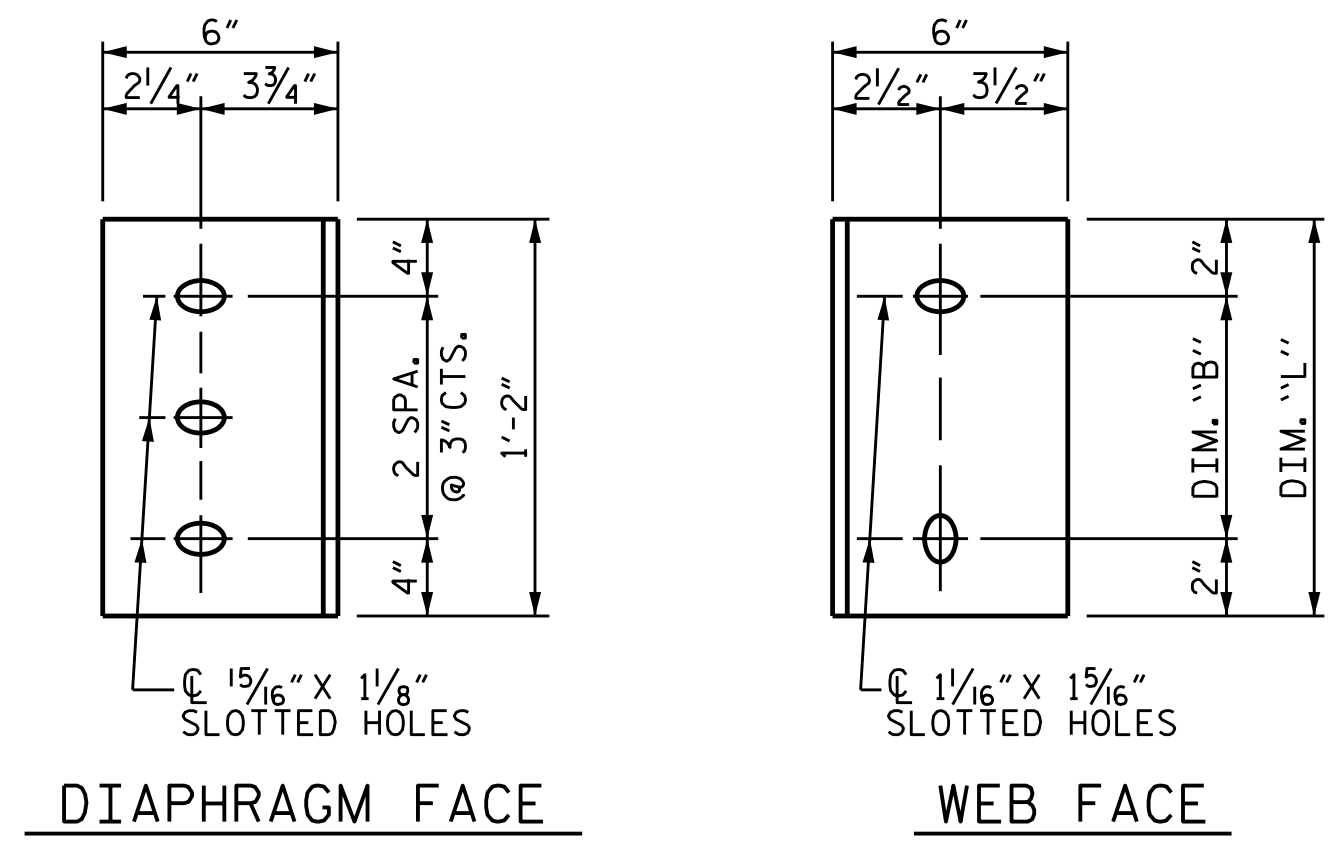
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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.



PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTOR PLATE DETAILS

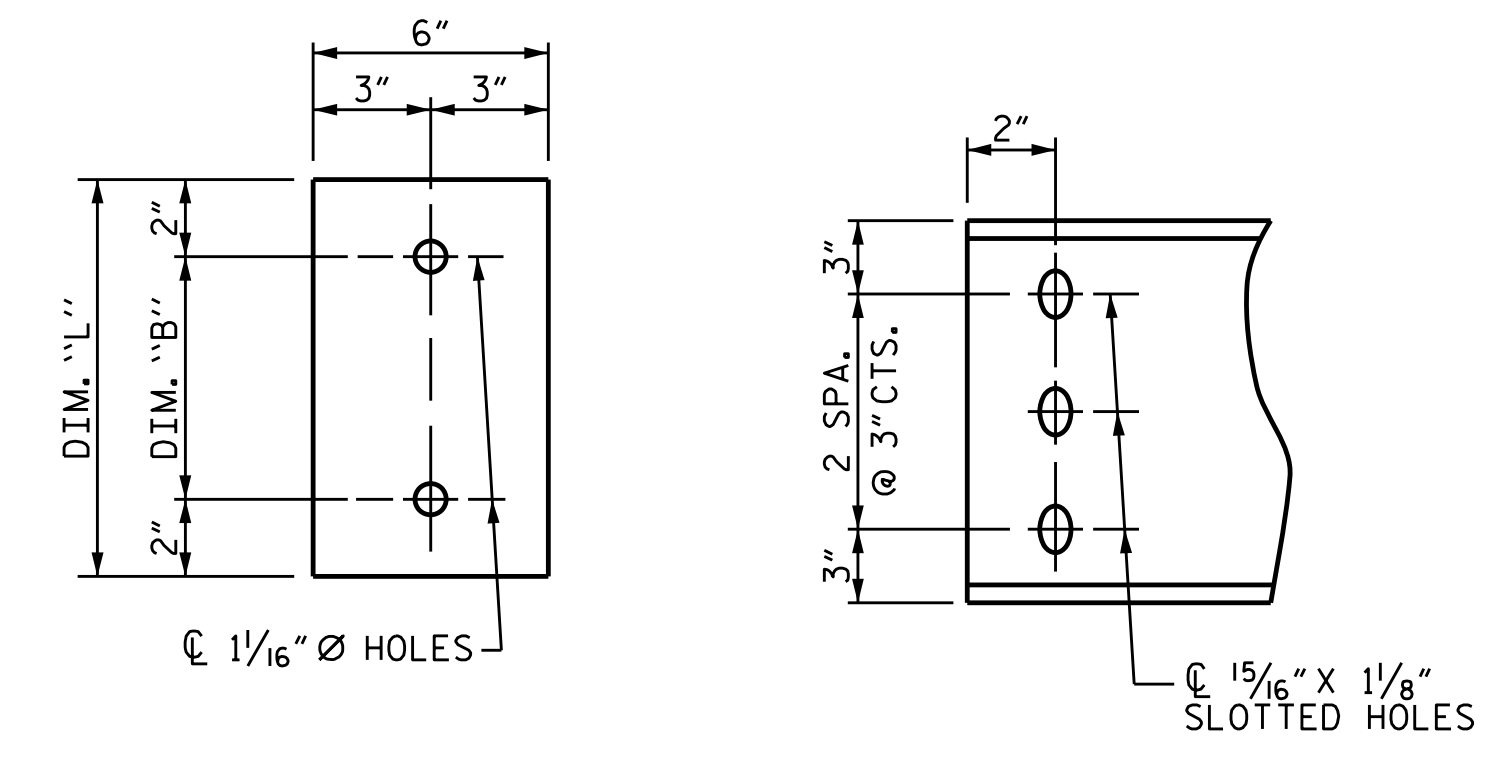
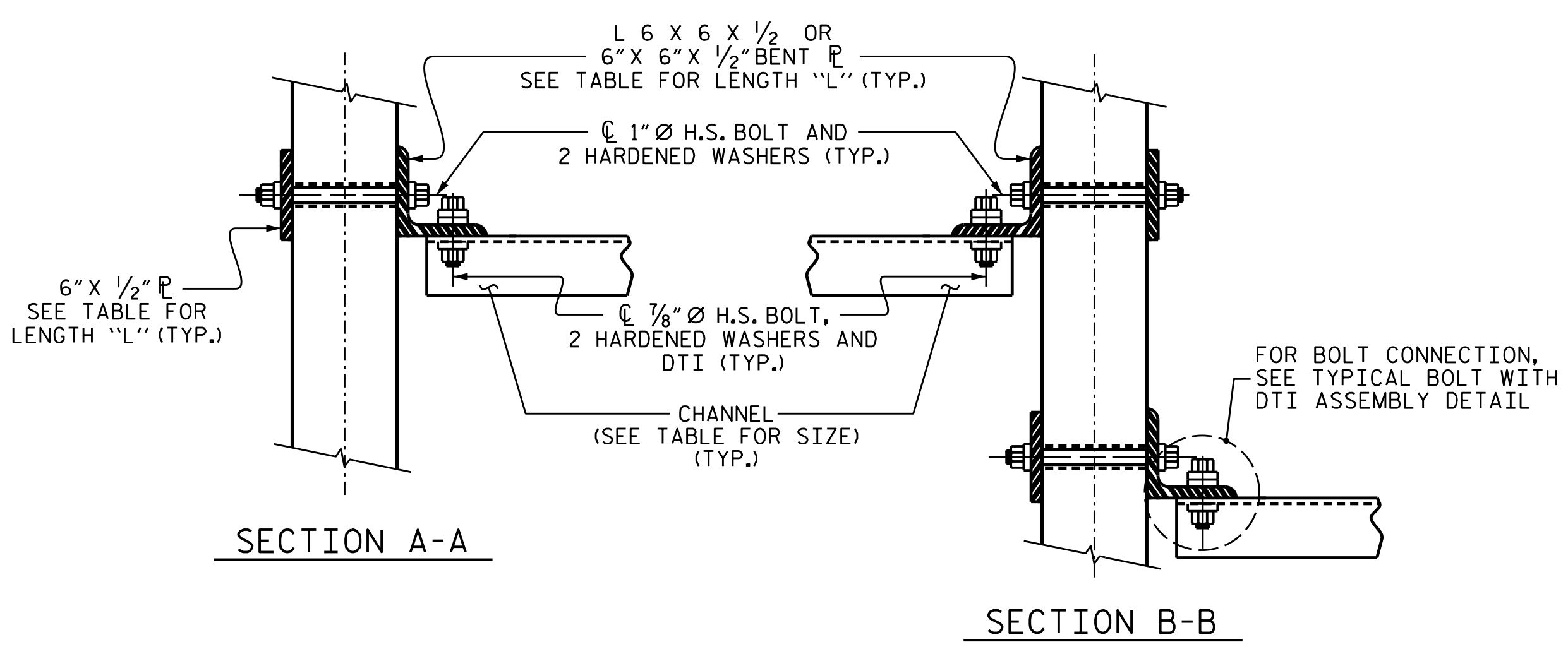


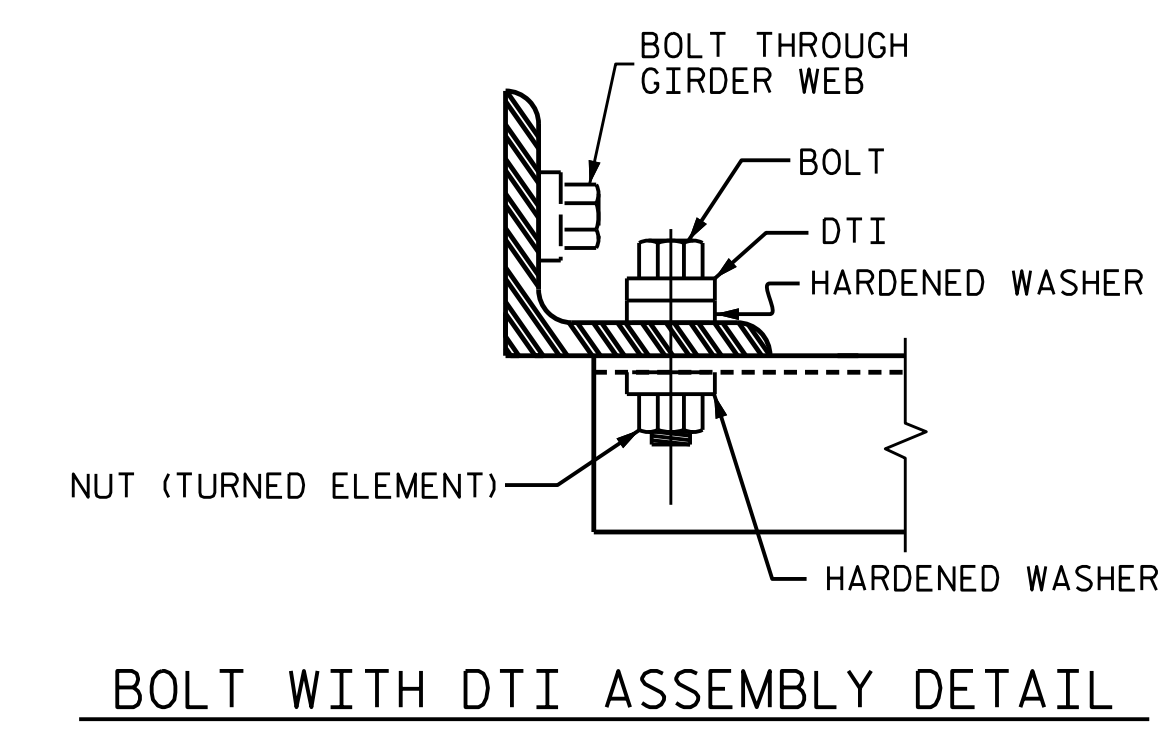
PLATE DETAILS CHANNEL END

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
II	MC 12 x 31	1'-2 1/2"	10"	1'-2"



CONNECTION DETAILS

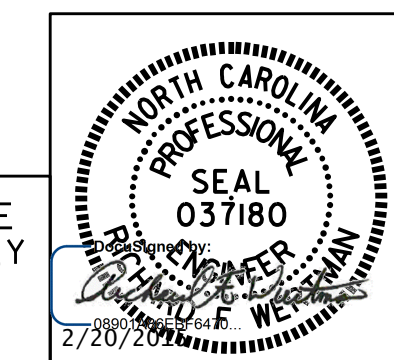


PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

ASSEMBLED BY : T.J. KIRSCHBAUM DATE : 4/15/14
 CHECKED BY : R.F. WERTMAN DATE : 4/29/14
 DRAWN BY : TLA 6/05
 CHECKED BY : VC 6/05
 ADDED 10/21/05
 REV. 5/1/06RRR KMM/GM
 REV. 10/1/11 MAA/GM

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Situs Court
 Suite 170
 Raleigh NC 27606-4279
 (919) 859-4880
 NC Lic. No. F-0270

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-13
1			3			TOTAL SHEETS
2			4			30

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.

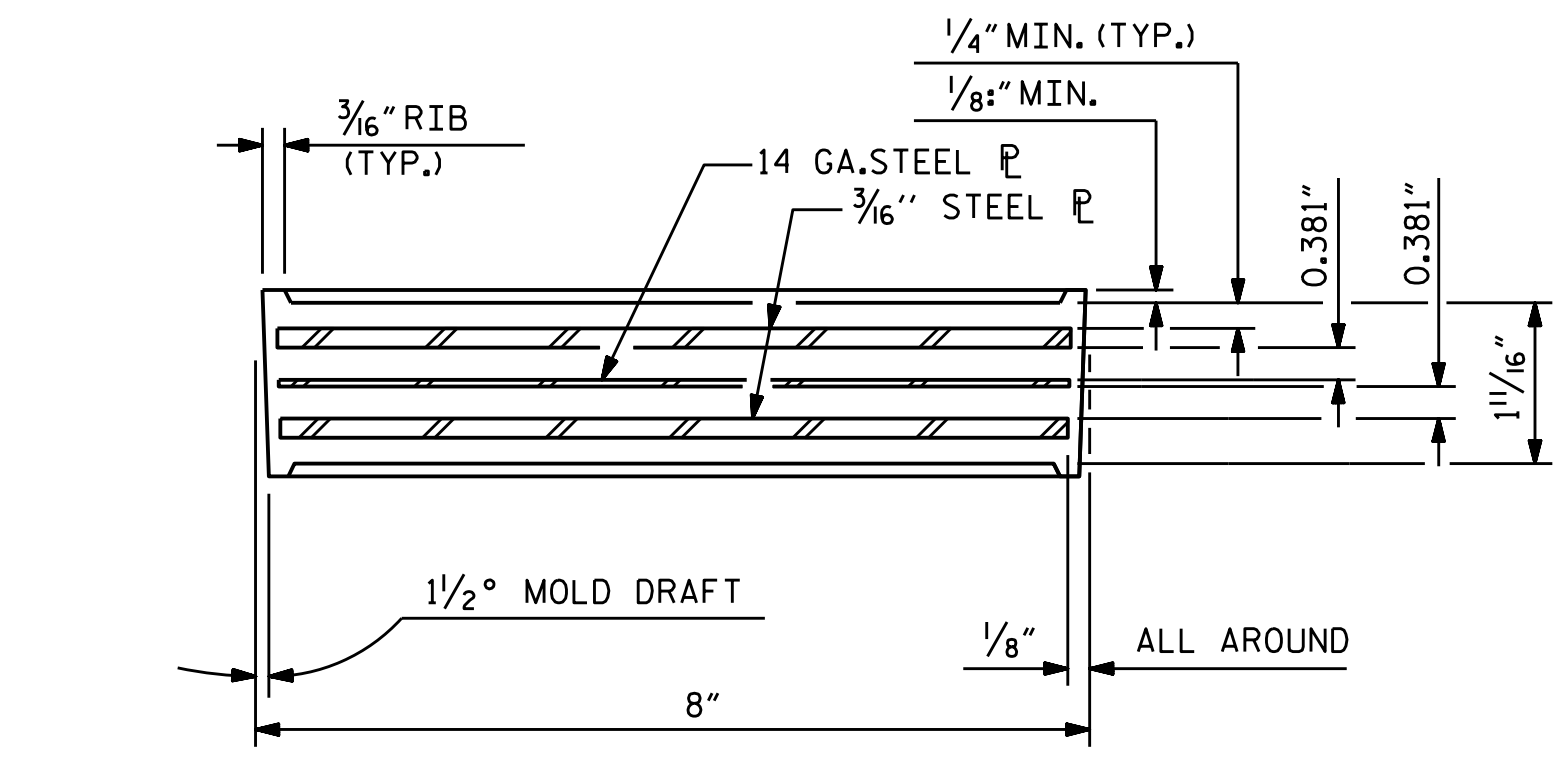
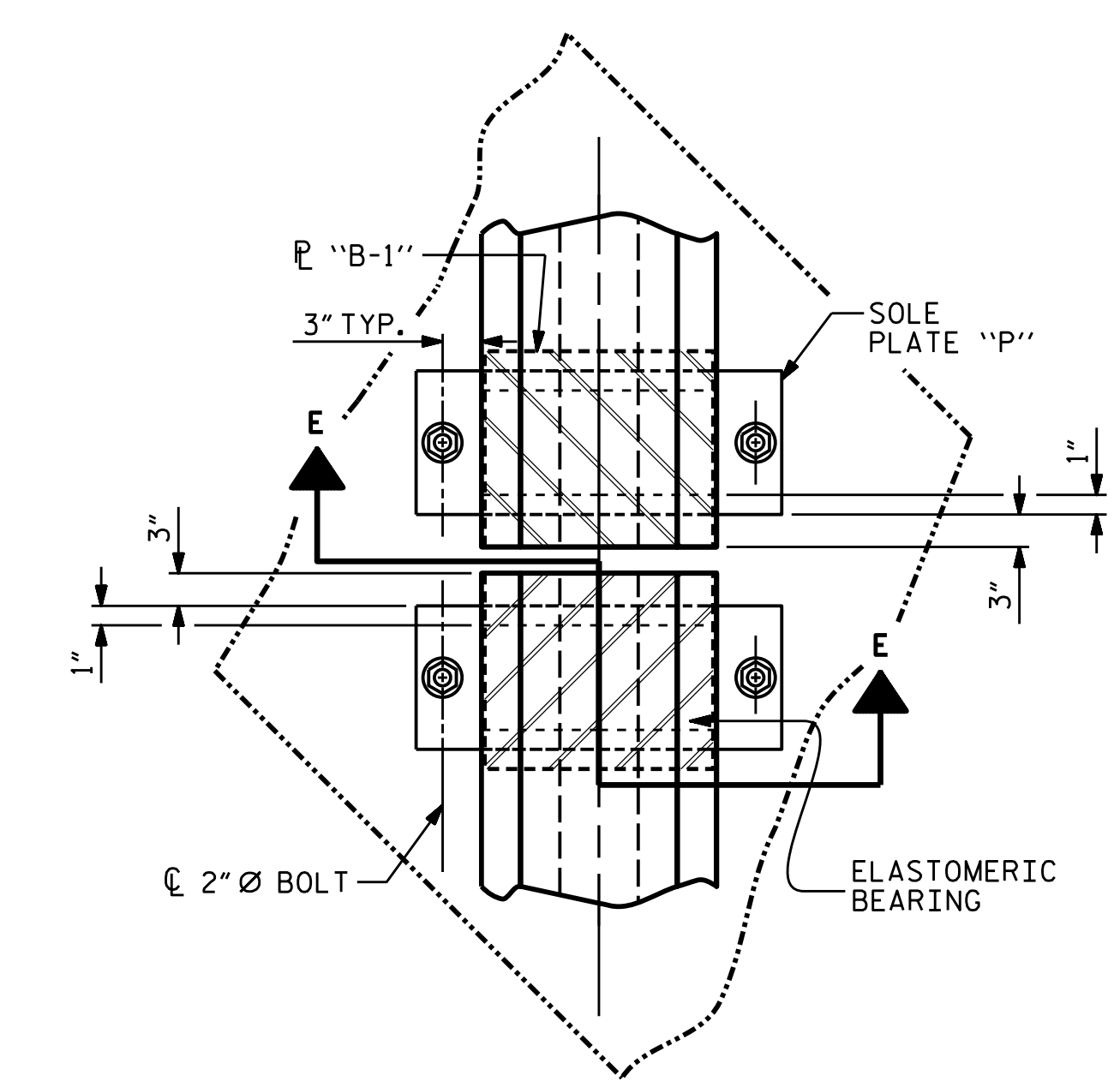
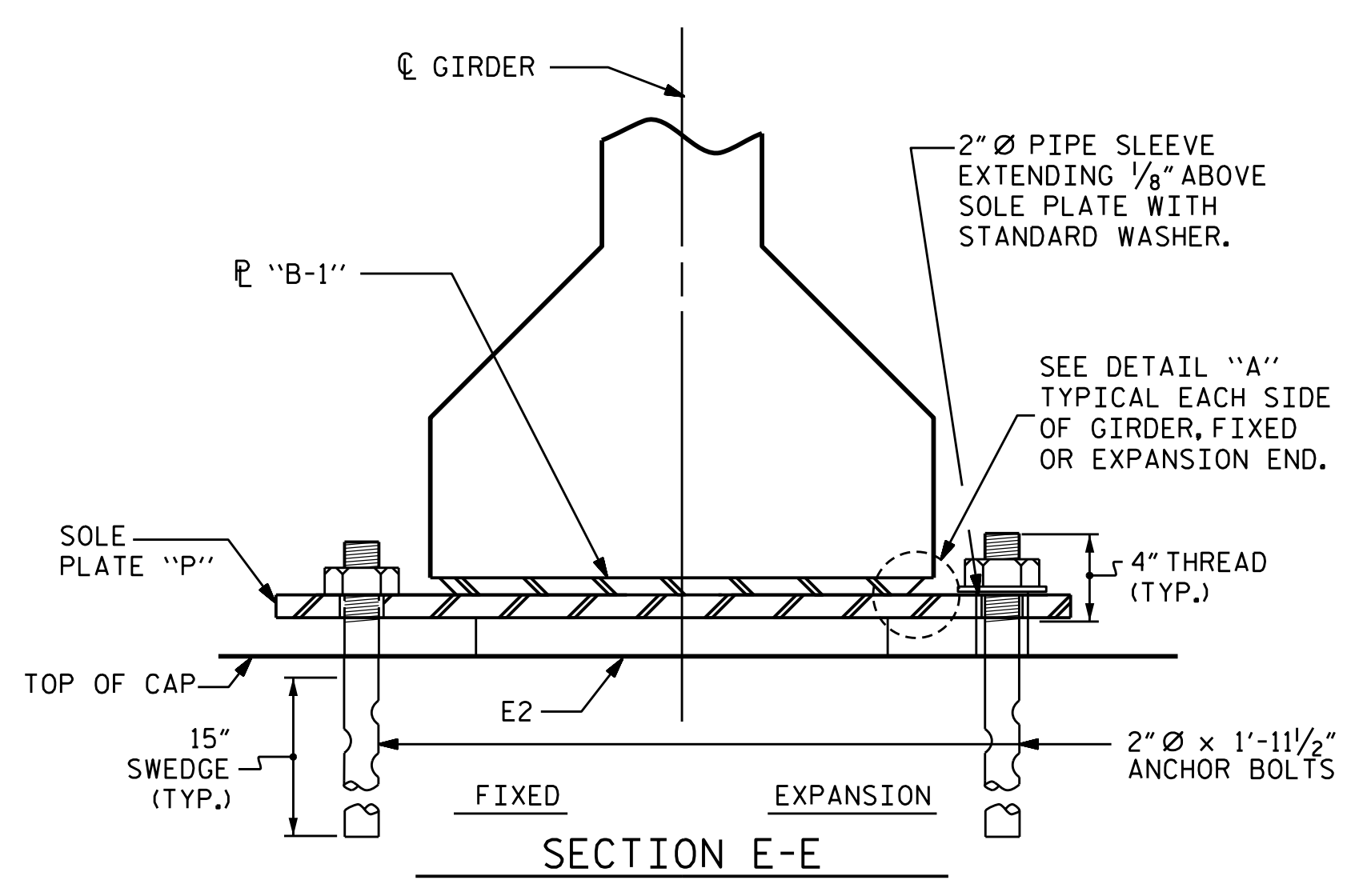
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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.

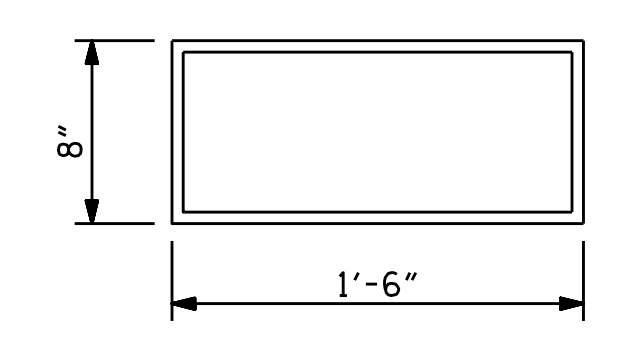
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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.



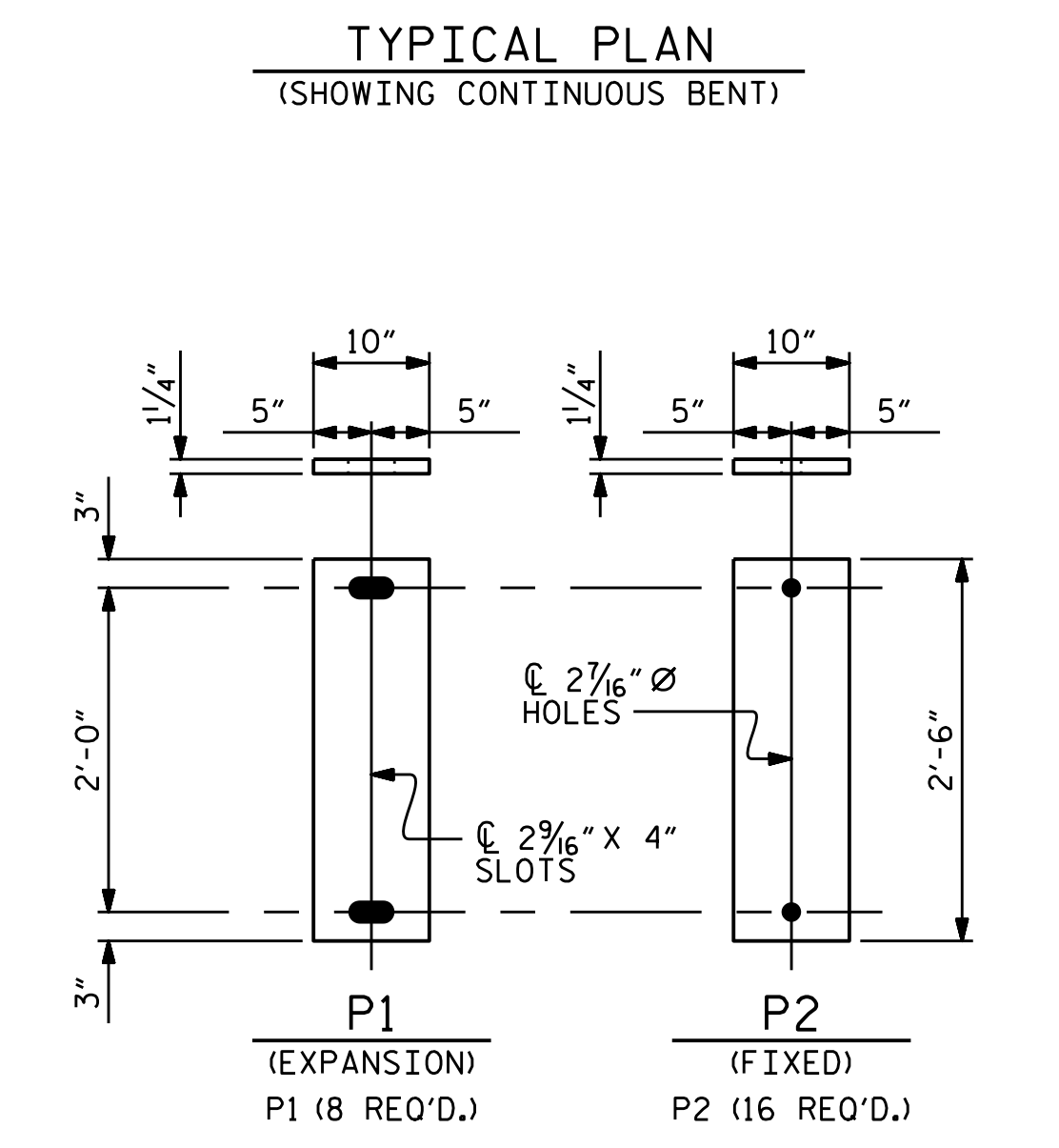
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E1 (24 REQ'D)

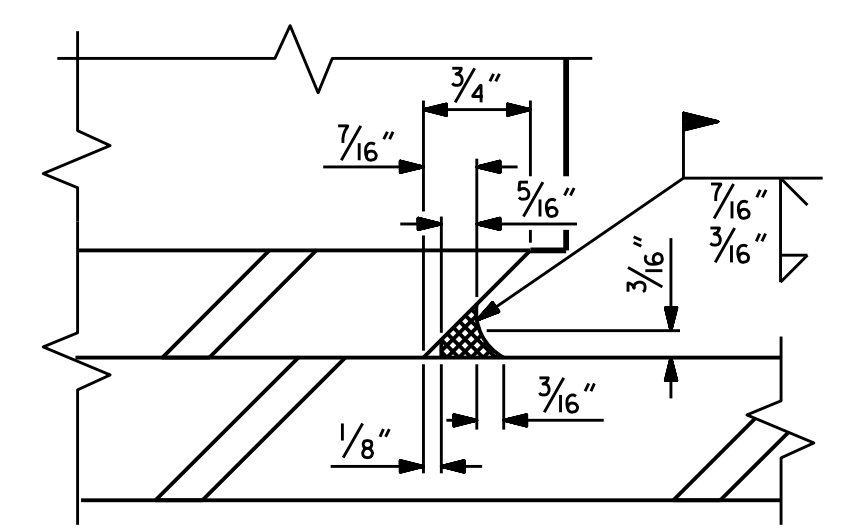
PLAN VIEW OF ELASTOMERIC BEARING

TYPE III



SOLE PLATE DETAILS ("P")

LOAD RATINGS	
TYPE III	MAX. D.L. + L.L.
	155 K



DETAIL "A"

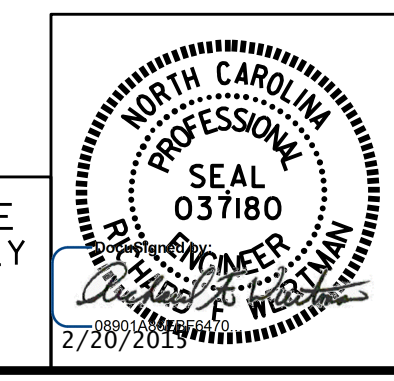
ASSEMBLED BY : T.J. KIRSCHBAUM	DATE : 4/15/14
CHECKED BY : R.F. WERTMAN	DATE : 5/1/14
DRAWN BY : EEM 2/97	REV. 10/1/11 MAA/GM
CHECKED BY : VAP 2/97	REV. 6/13 AAC/MAA
	REV. 1/15 MAA/TMC

PLANS PREPARED BY:

Gannett Fleming
Excellence Delivered As Promised

1121 Sitis Court
Suite 170
Raleigh NC 27606-4279
(919) 859-4880
NC Lic. No. F-0270

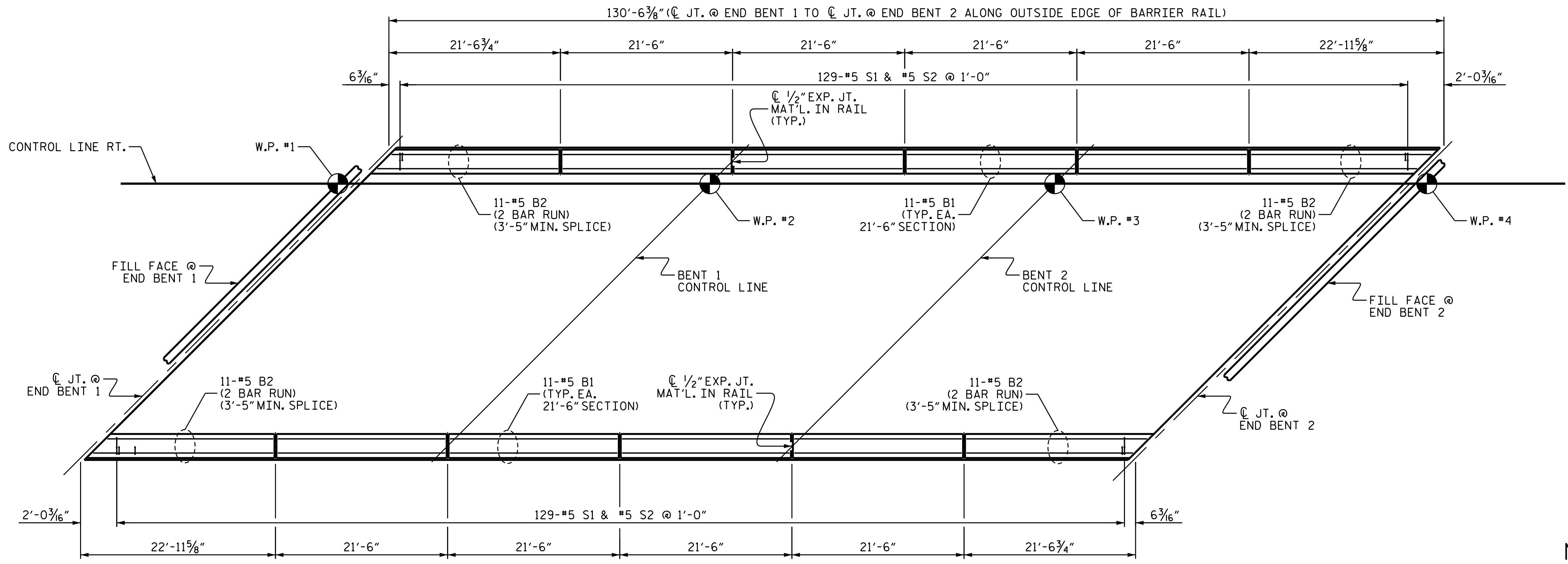
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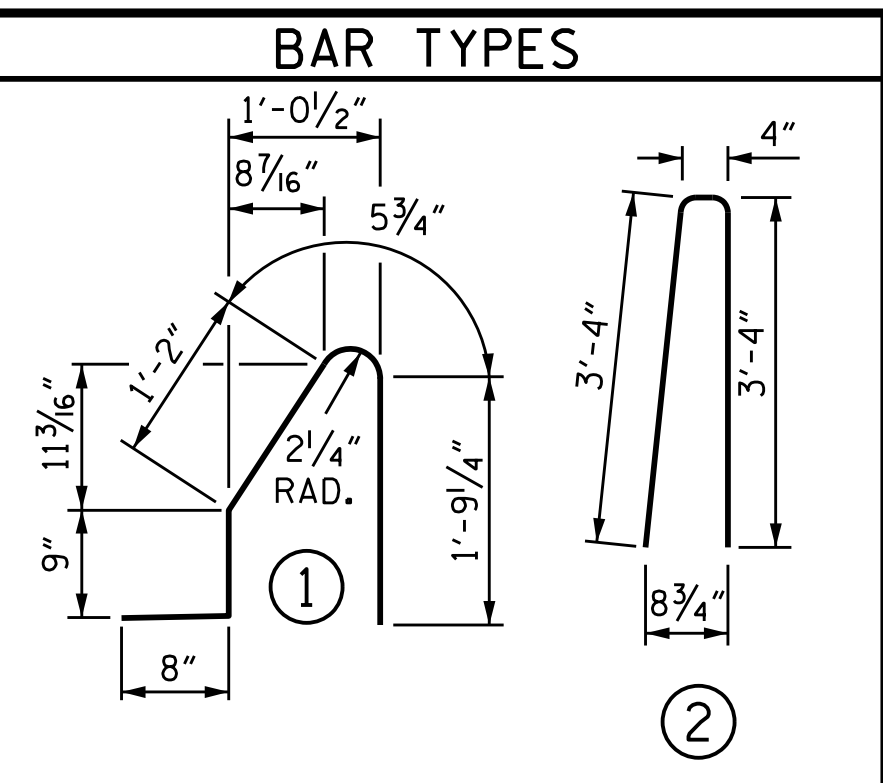
PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-14
1			3			TOTAL SHEETS
2			4			30



PLAN



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	21'-1"	1935
* B2	88	#5	STR	12'-11"	1186
* S1	258	#5	1	4'-10"	1301
* S2	258	#5	2	7'-0"	1884

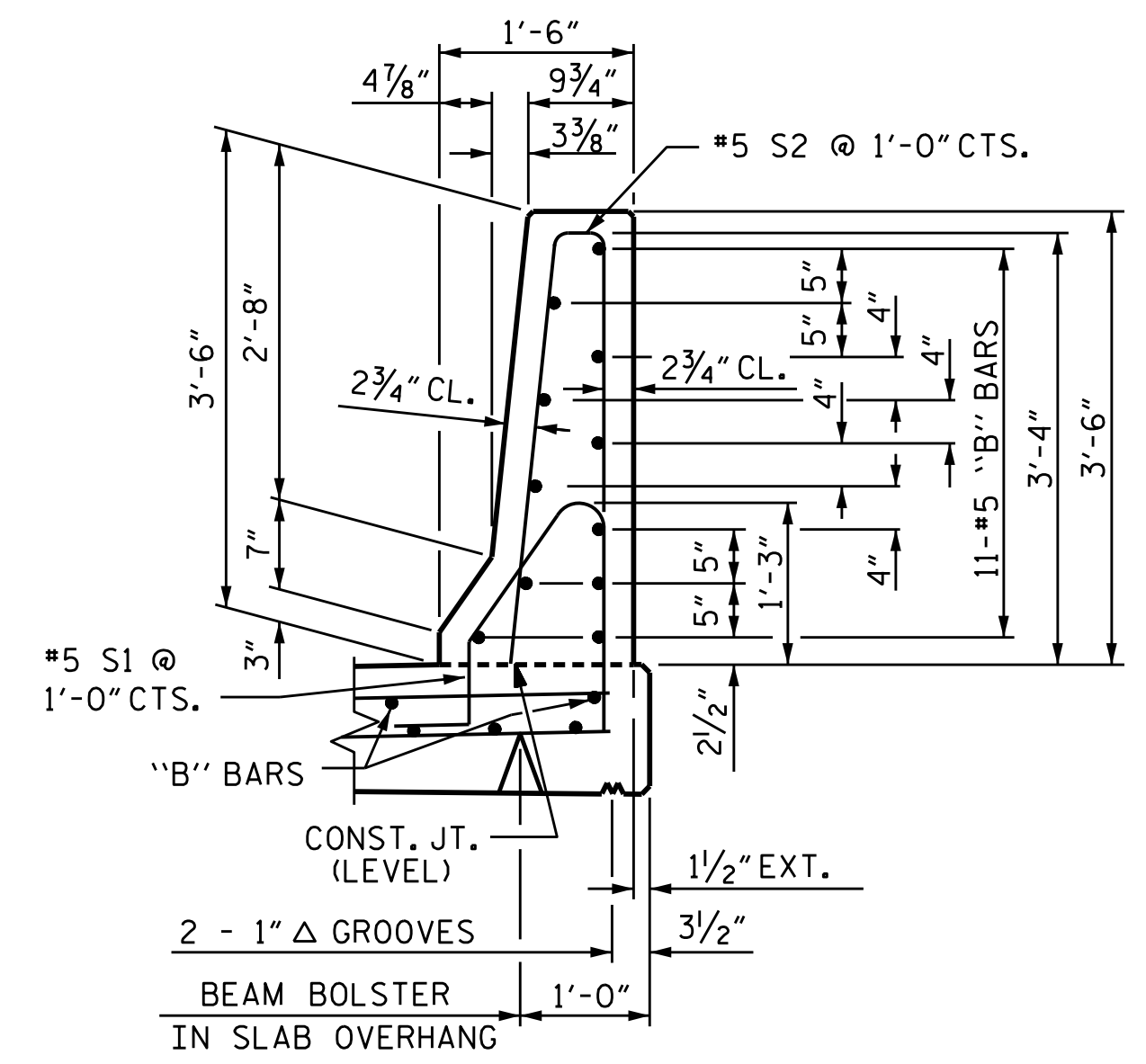
*EPOXY COATED REINFORCING STEEL 6,306 LBS.
 CLASS AA CONCRETE 40.9 CU. YDS.
 ** CONCRETE BARRIER RAIL 303.6 LIN. FT.
 ** INCLUDES BARRIER RAIL ON APPROACH SLAB

NOTES

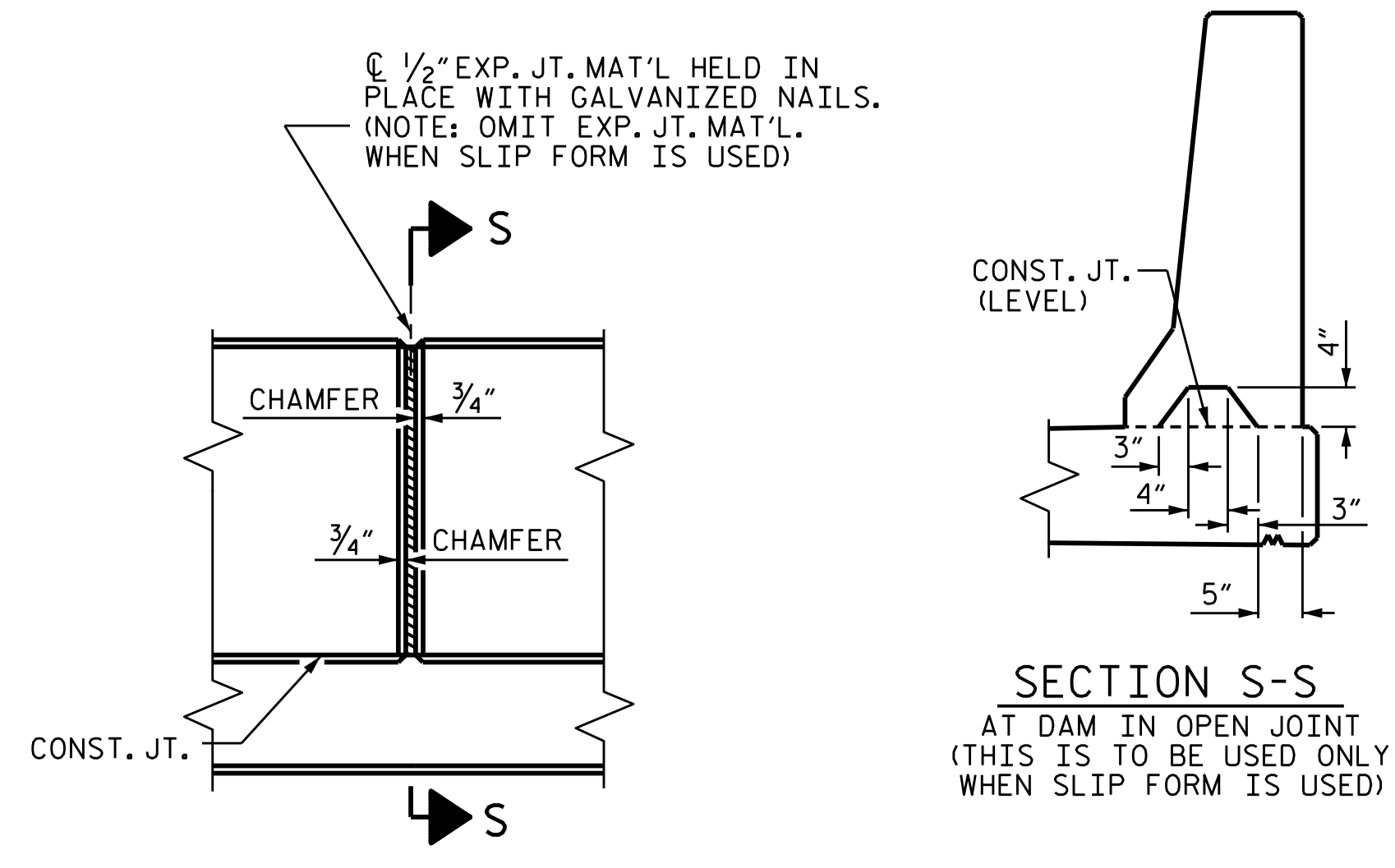
THE BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

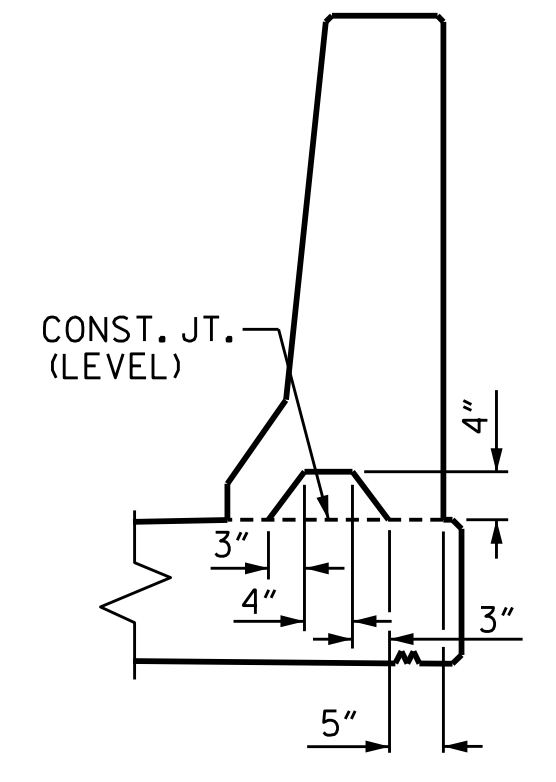
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS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



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS



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

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE BARRIER RAIL

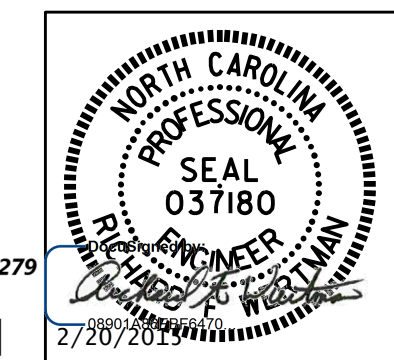
NBL

REVISIONS						SHEET NO. S03-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

DRAWN BY : T.J. KIRSCHBAUM DATE : 4/14/14
 CHECKED BY : R.F. WERTMAN DATE : 5/1/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 5/1/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised

1121 Situs Court
 Suite 170
 Raleigh, NC 27606-4279
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 NCLic. No. F-0270



NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

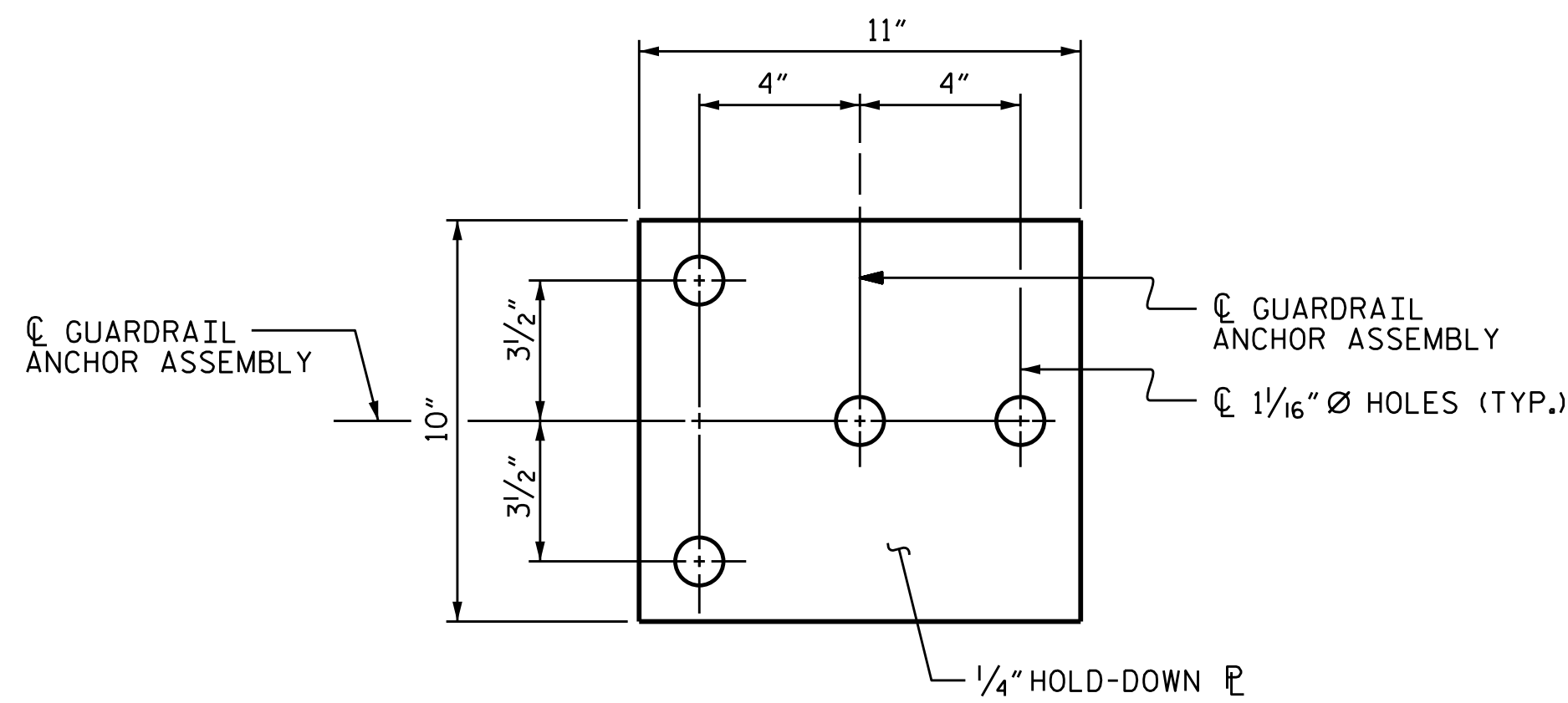
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

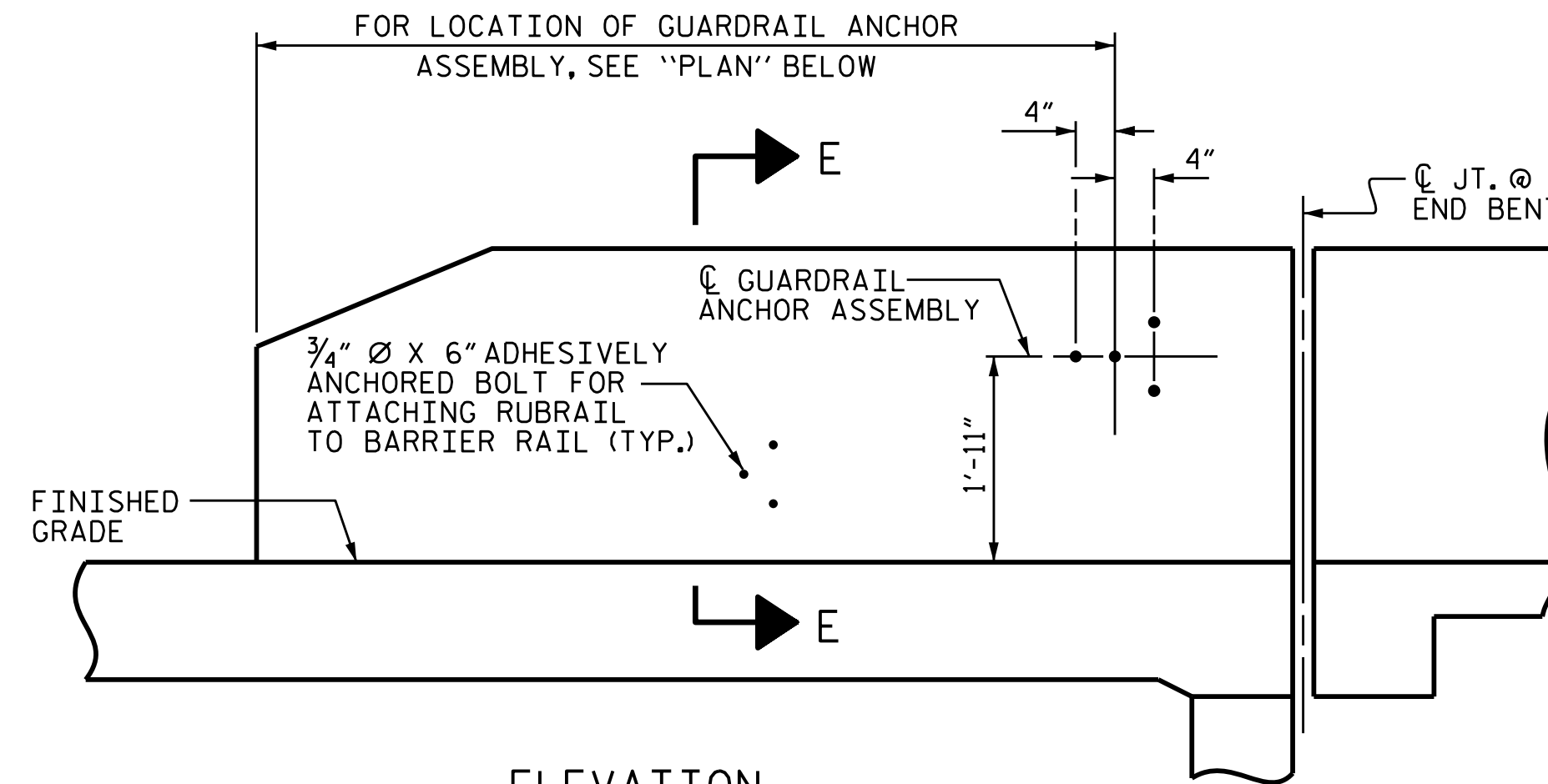
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

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

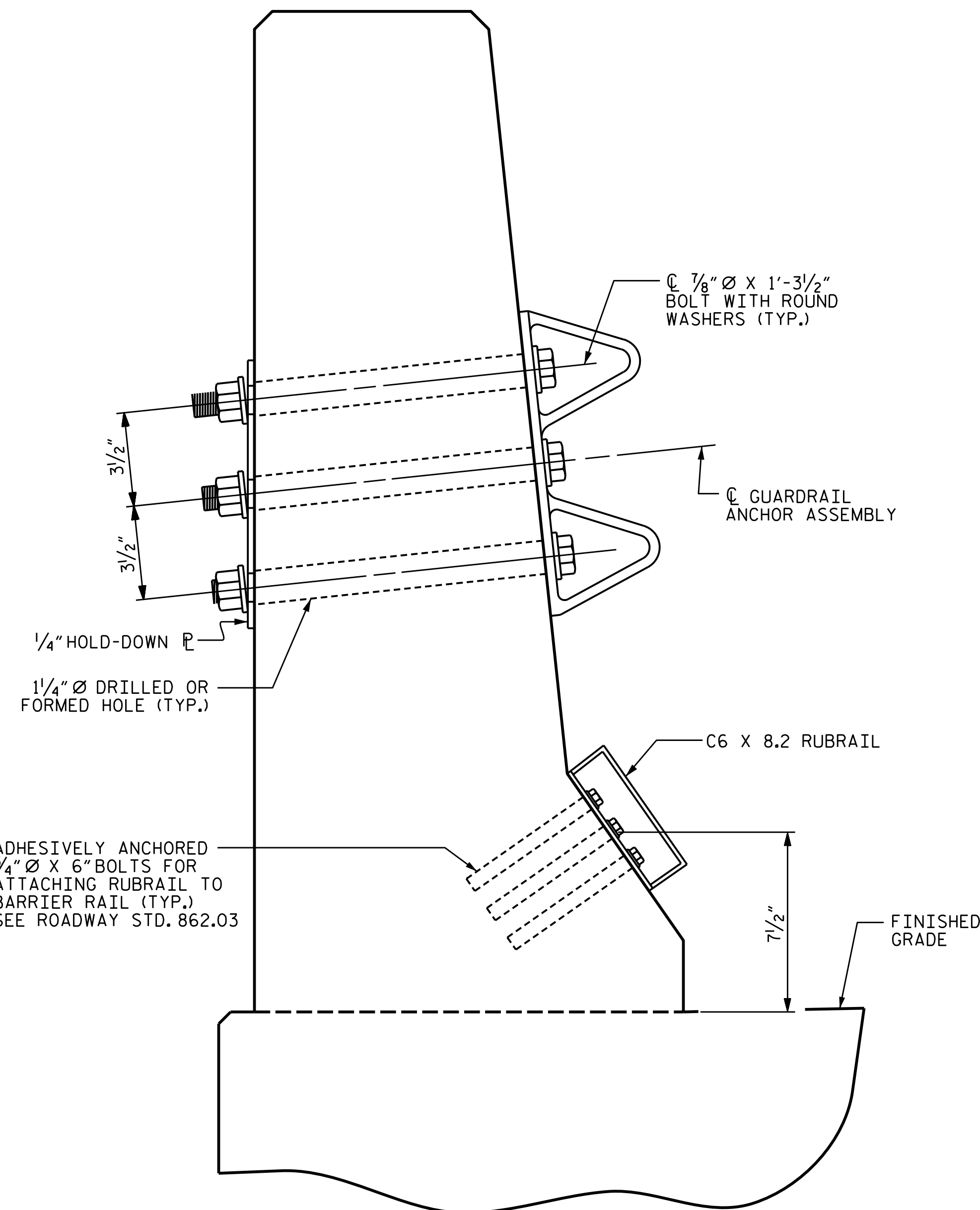


PLAN



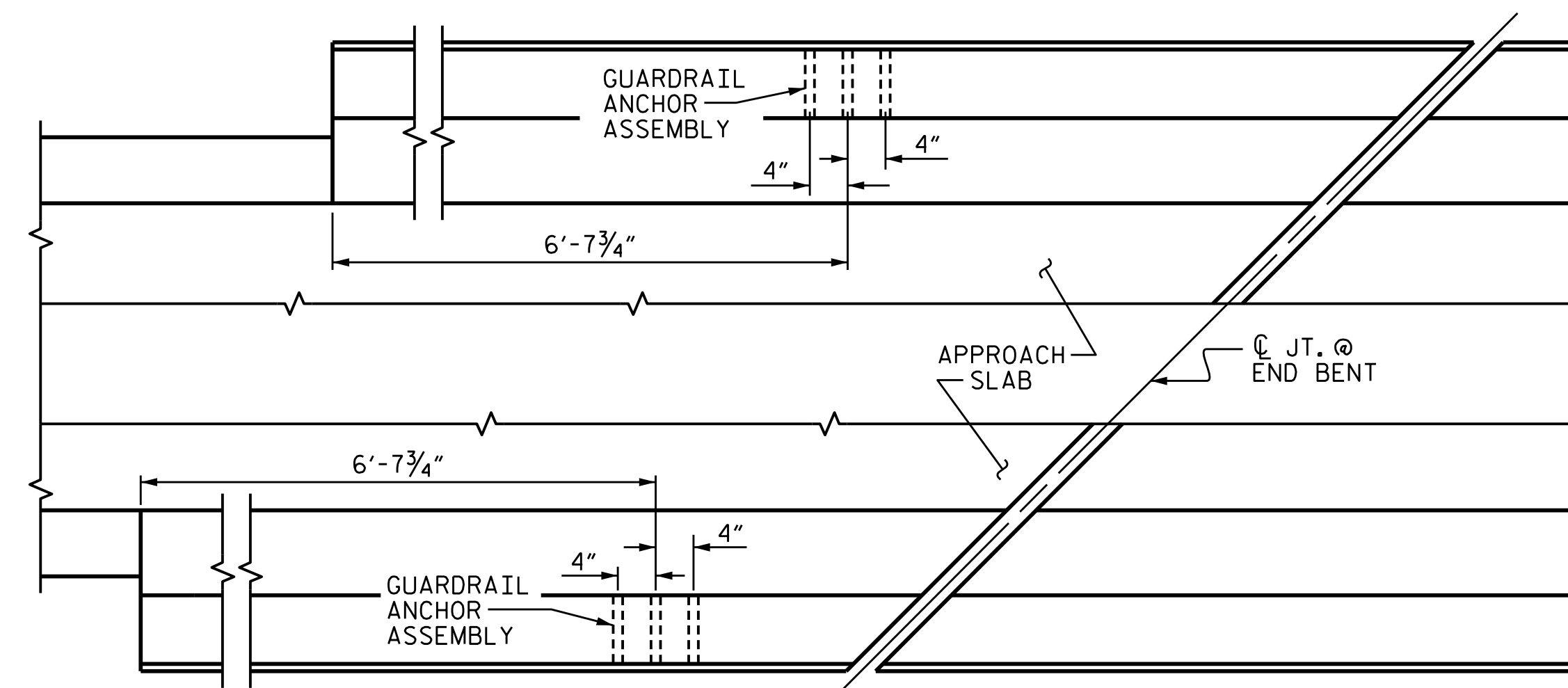
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

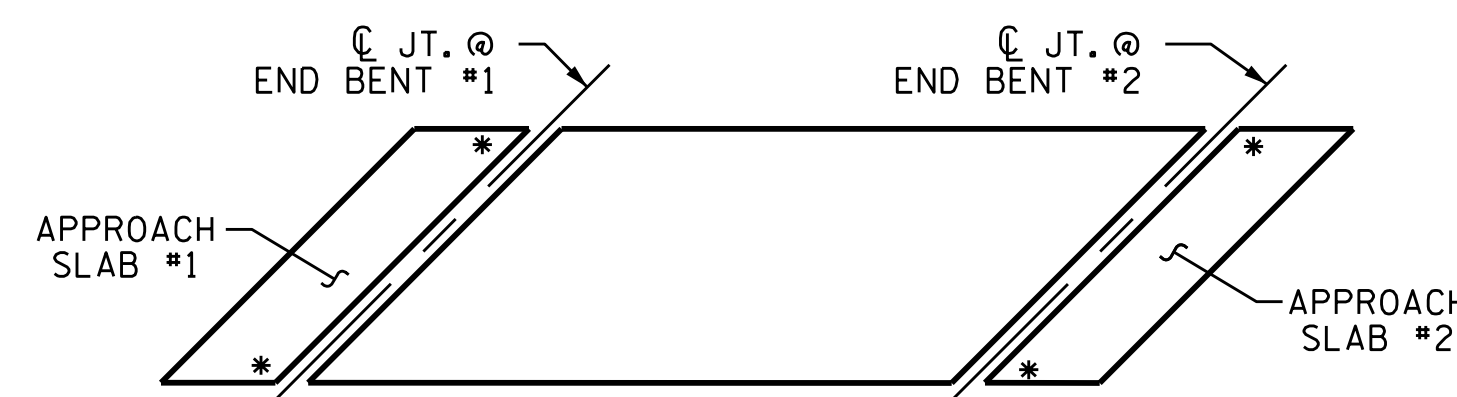
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

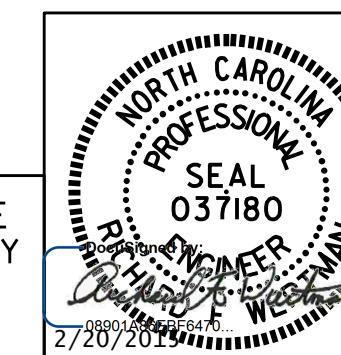
PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

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

ASSEMBLED BY : T.J. KIRSCHBAUM	DATE : 4/15/14
CHECKED BY : R.F. WERTMAN	DATE : 5/1/14
DRAWN BY : TLA 5/06	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/06	REV. 7/12 MAA/GM
	REV. 6/13 MAA/GM

PLANS PREPARED BY:
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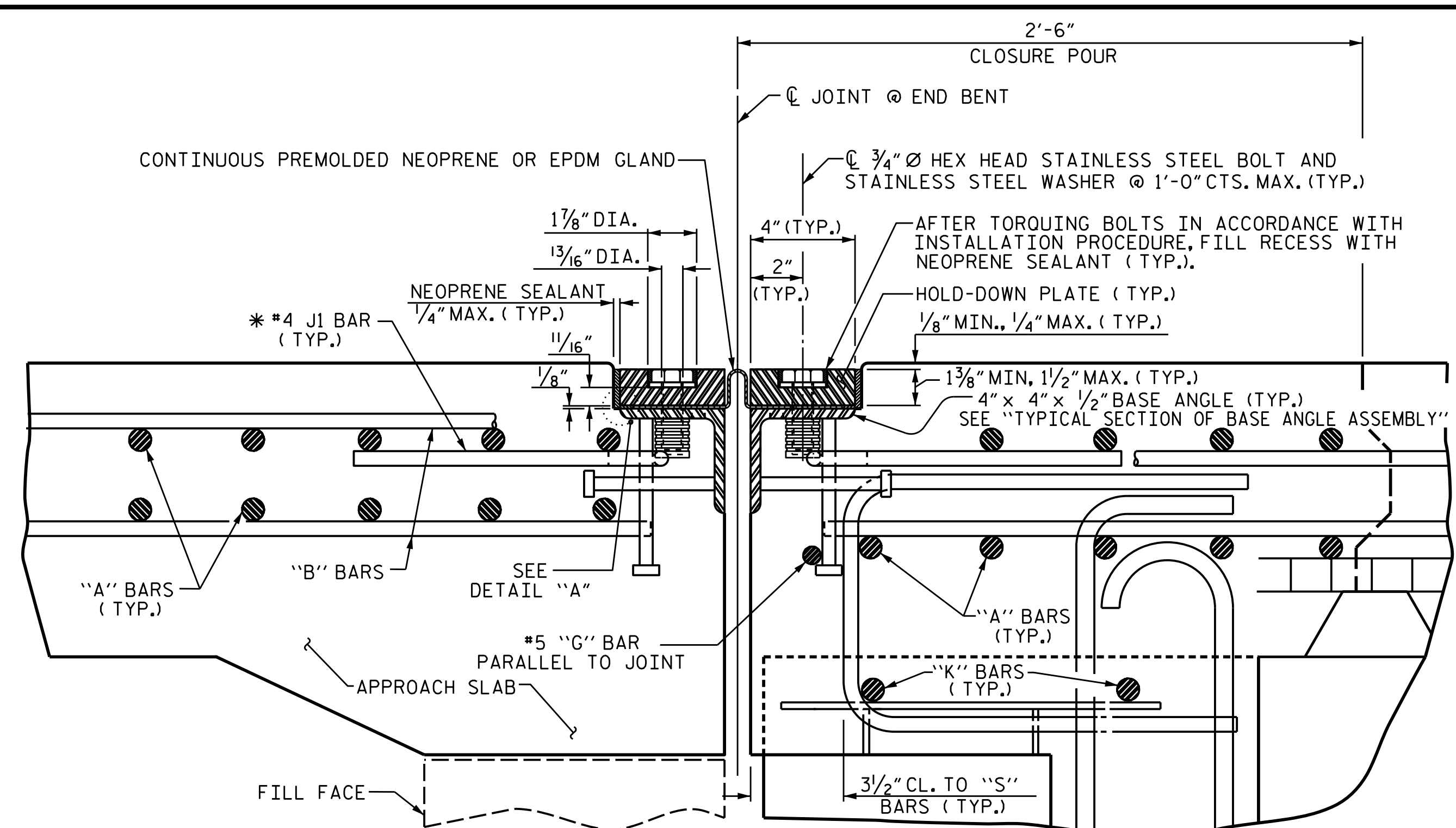
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-16	
1			3			TOTAL SHEETS	
2			4			30	

STR. NO. 3

STD. NO. GRA2



EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE
END BENT 1 SHOWN, END BENT 2 SIMILAR

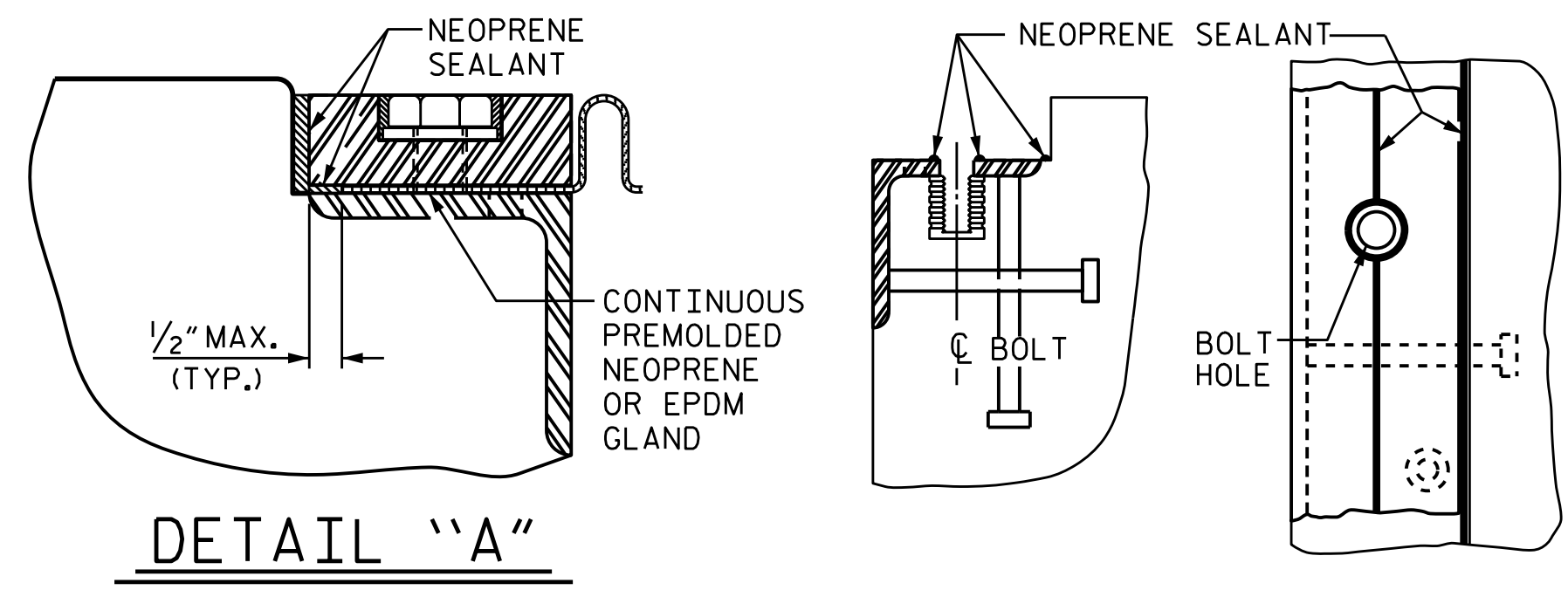
* THE QUANTITY OF #4 JI BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. JI BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF JI BARS SPECIFIED, ADDITIONAL JI BARS WILL NOT BE REQUIRED.

INSTALLATION PROCEDURE

1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4/8" 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 COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
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 AND THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, COMPLETELY. FILL THESE RECESSES WITH NEOPRENE SEALANT.

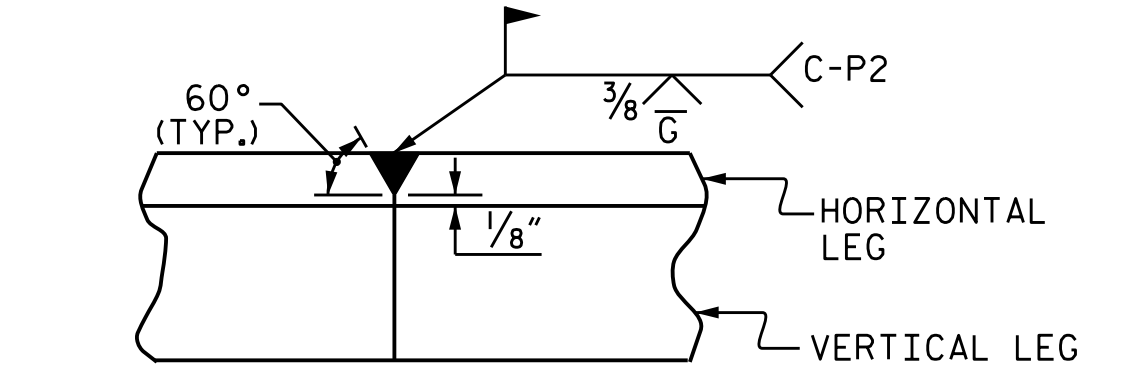
GENERAL NOTES

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. MIN.
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. SEE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
7. 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 GROUND SMOOTH AND COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
8. 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.
9. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
10. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED BOLT 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.

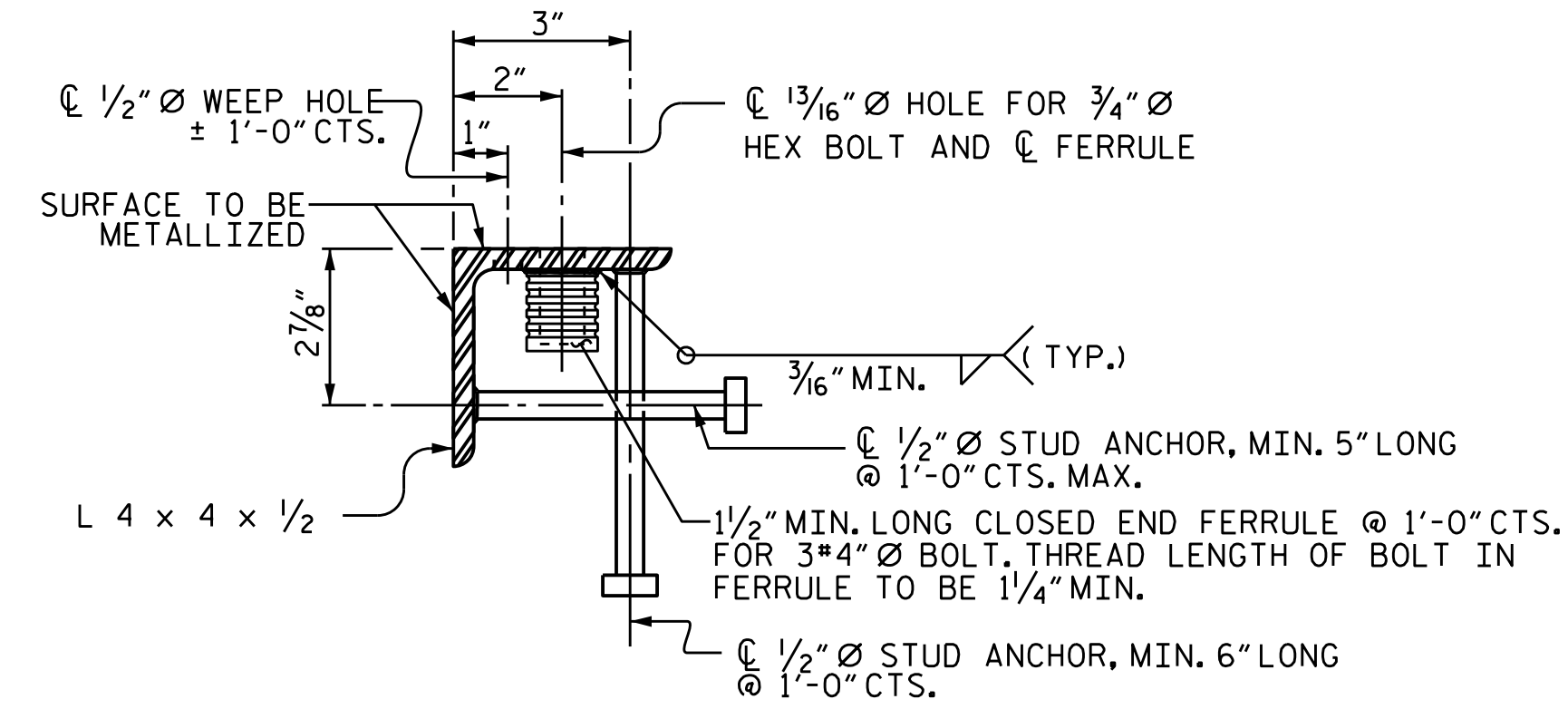


DETAIL "A"

CROSS SECTION PLAN VIEW



DETAIL - FIELD WELD SPLICE OF BASE ANGLE



TYPICAL SECTION OF BASE ANGLE ASSEMBLY

MOVEMENT AND SETTING AT JOINT					
BENT NO.	SKEW ANGLE	TOTAL MOVEMENT (ALONG C RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1 & END BENT 2	135°-00'-00"	3/8"	1 3/16"	1/8"	1/16"

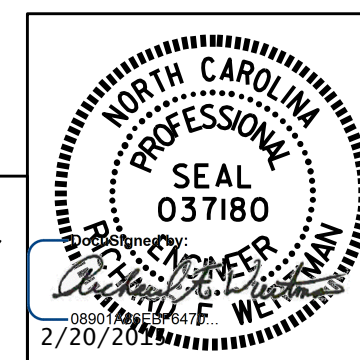
PROJECT NO. R-2915B
ASHE COUNTY
STATION: 234+19.20 -L-

SHEET 1 OF 2

ASSEMBLED BY : T.J. KIRSCHBAUM	DATE : 4/16/14
CHECKED BY : R.F. WERTMAN	DATE : 5/1/14
DRAWN BY : REK 9/87	REV. 5/7/03R RWW/JTE
CHECKED BY : CRK 10/87	REV. 5/1/06 TLA/GM
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PLANS PREPARED BY:
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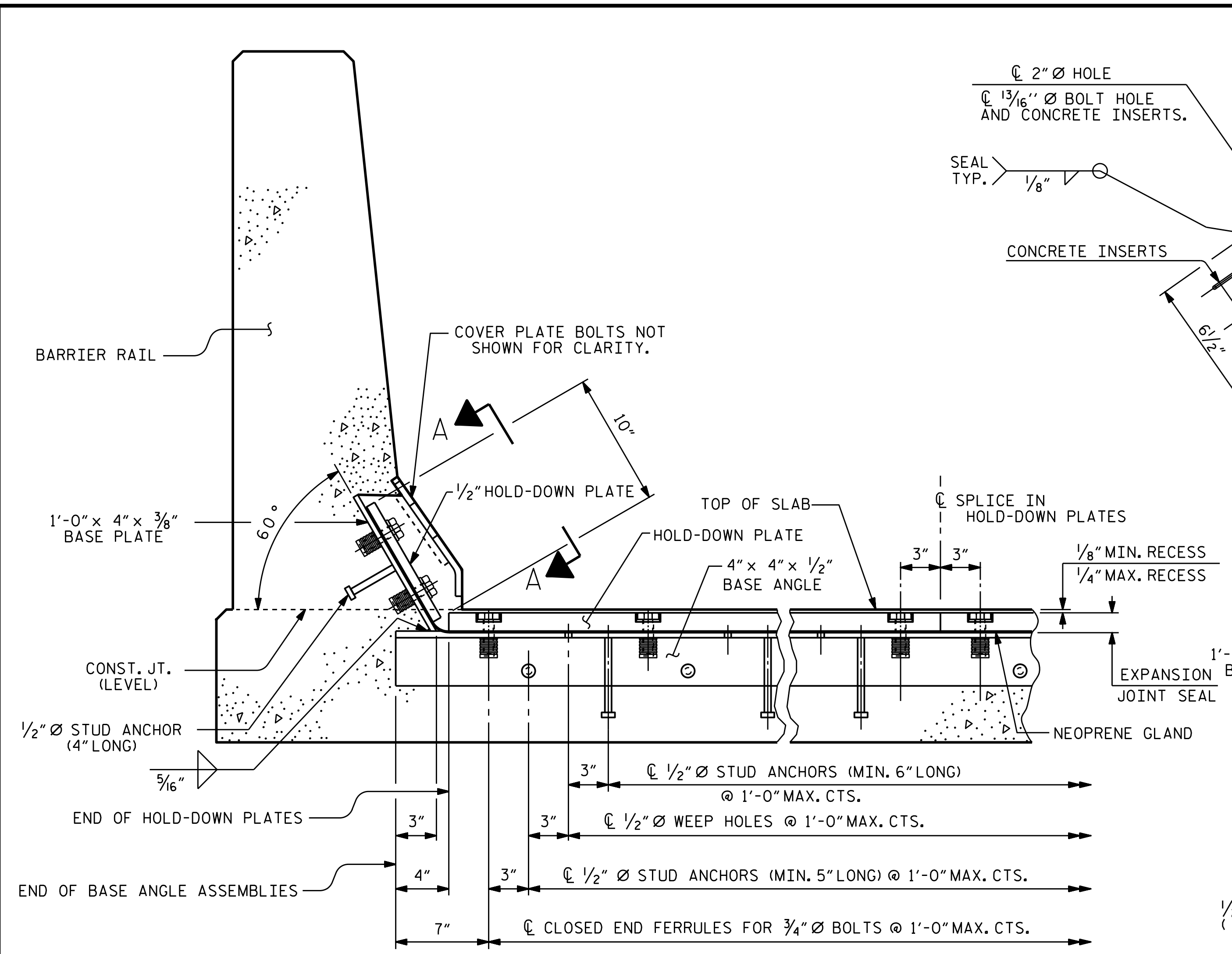
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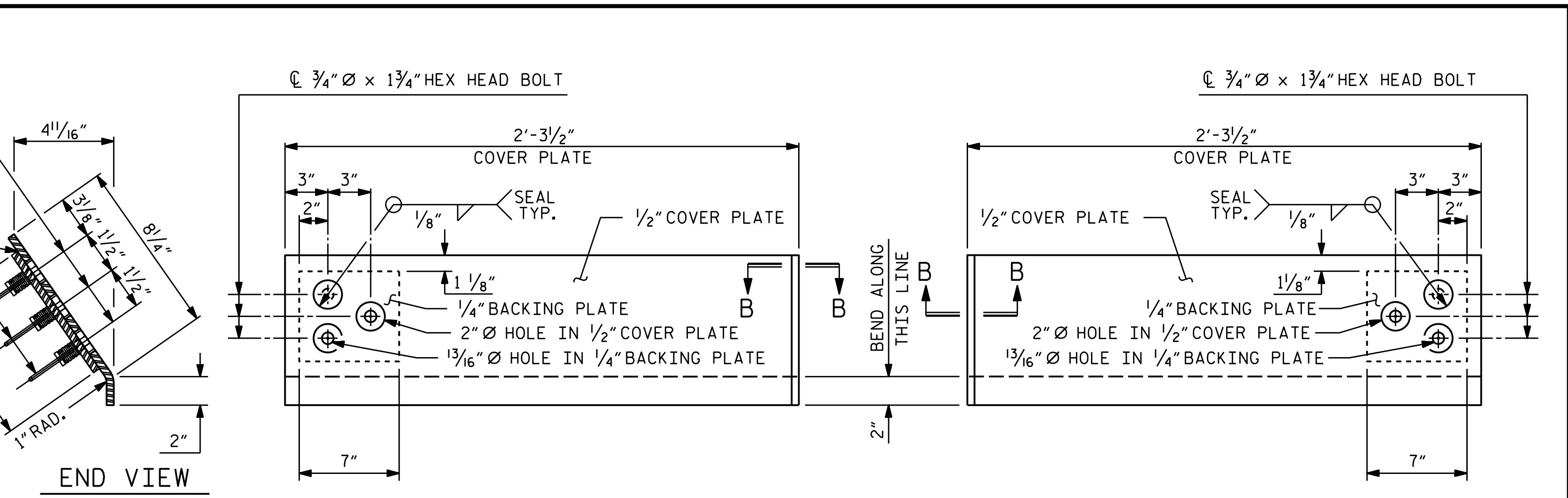
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
EXPANSION JOINT SEAL DETAILS
NBL

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

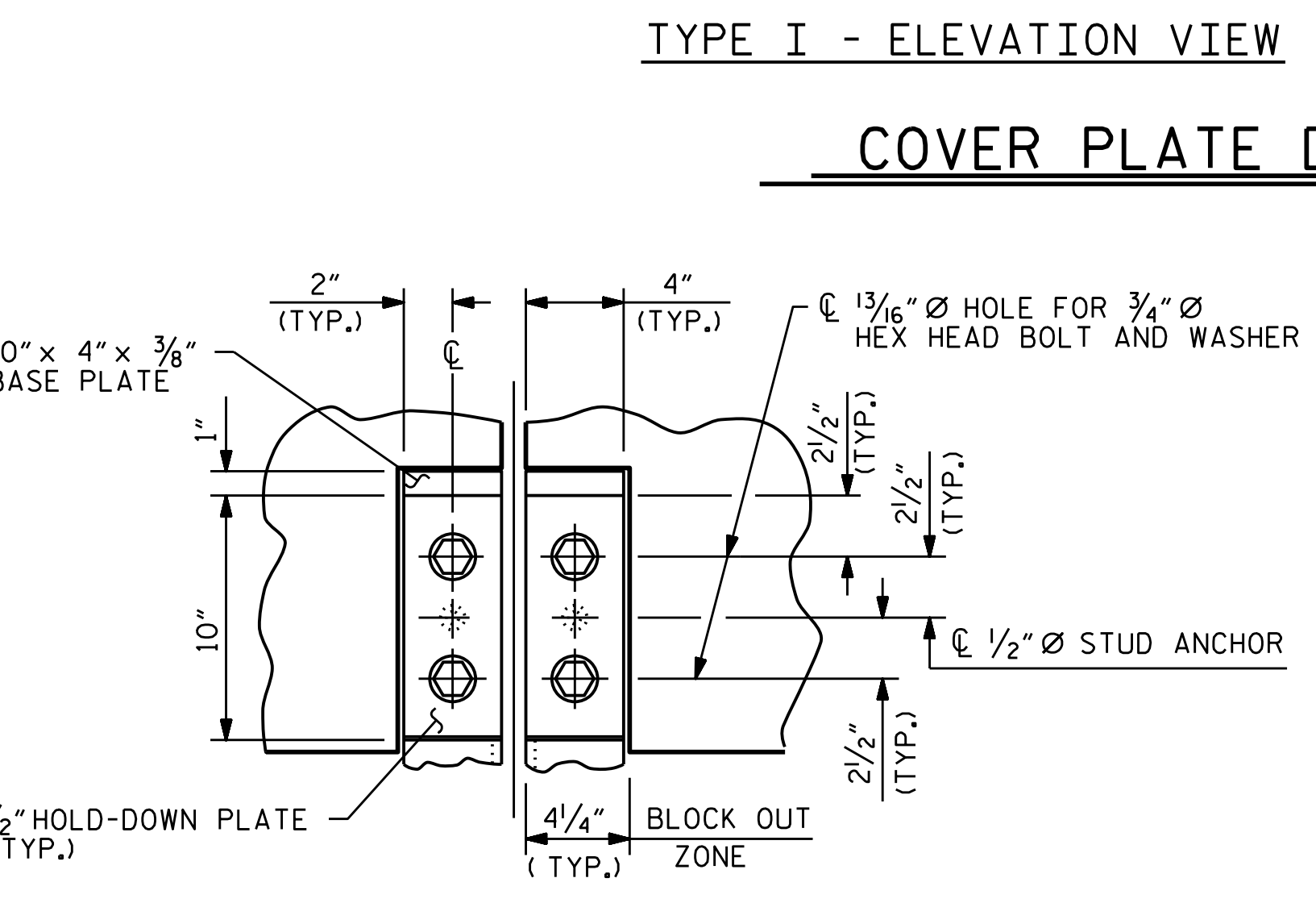
STR. NO. 3 STD. NO. EJS1



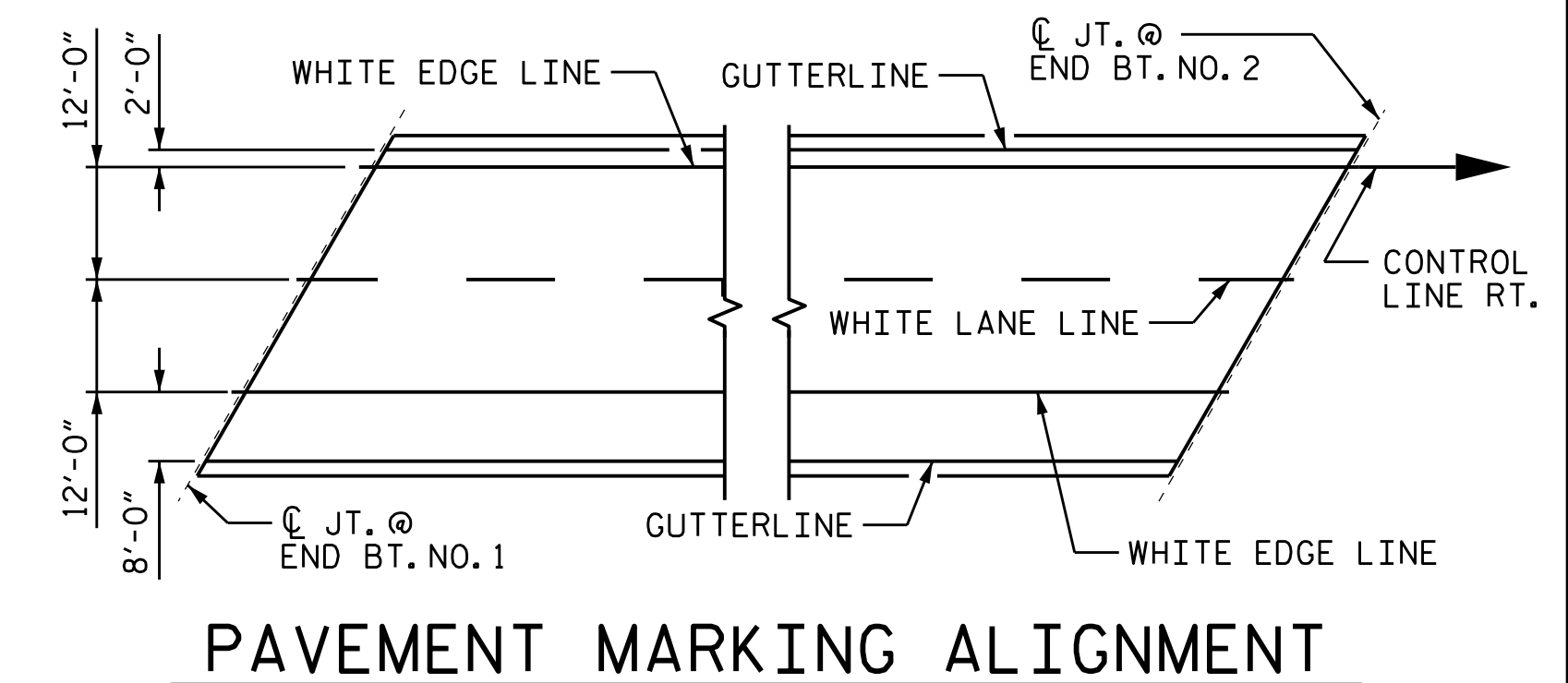
SECTION THRU RAIL NORMAL TO JOINT



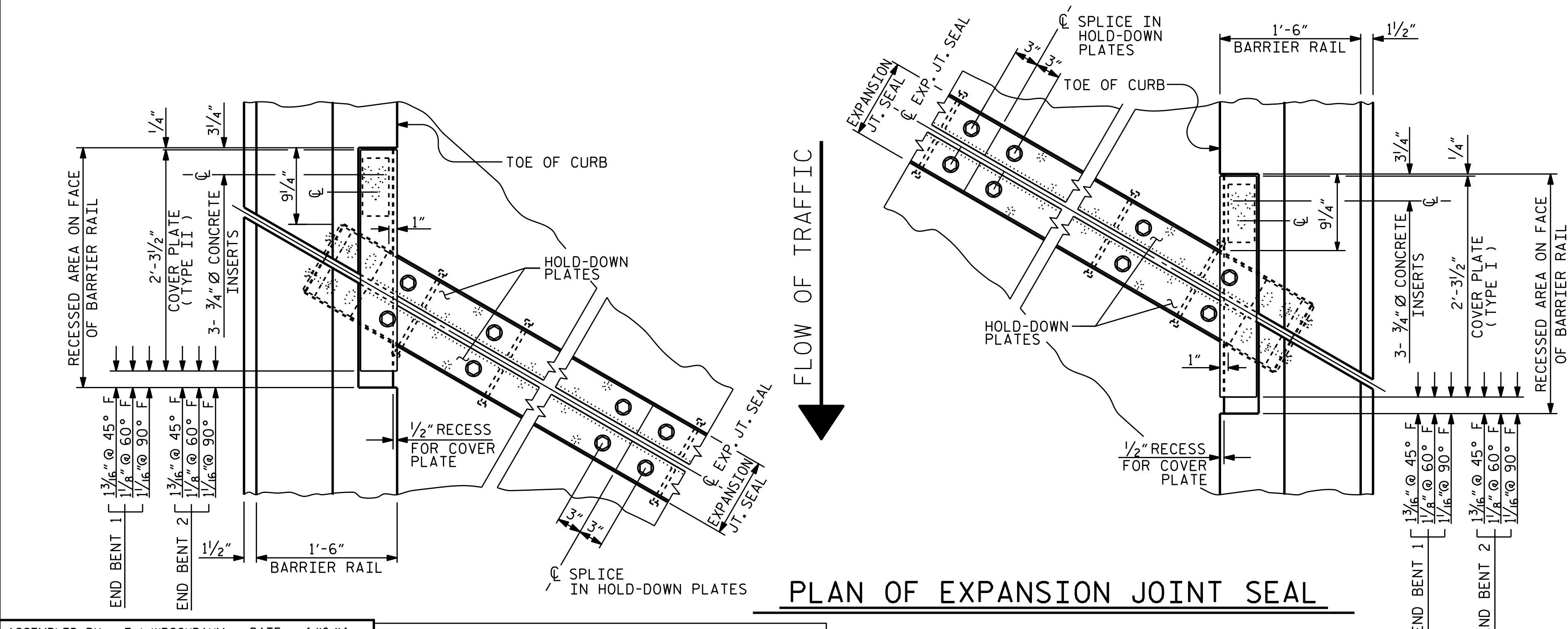
COVER PLATE DETAILS



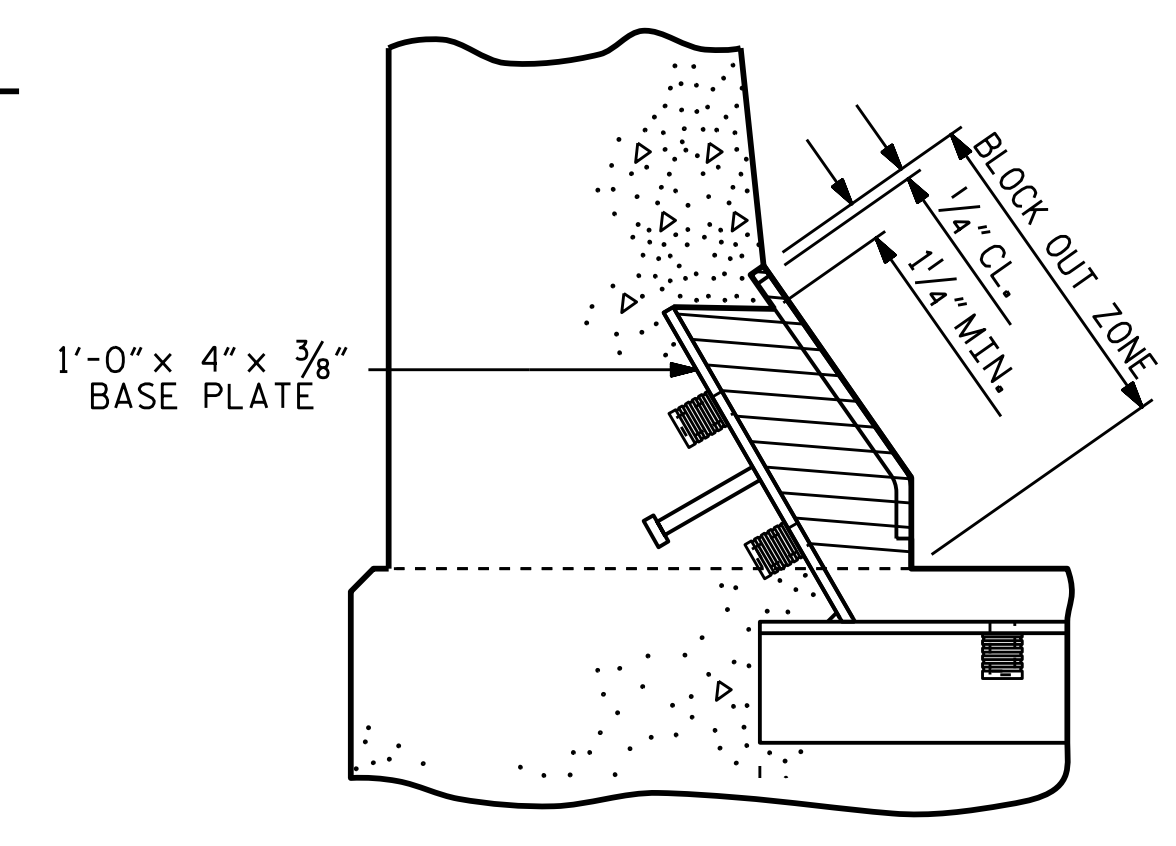
SECTION A - A



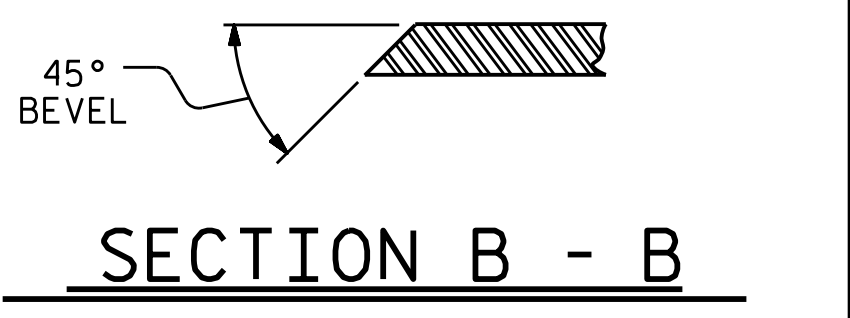
PAVEMENT MARKING ALIGNMENT



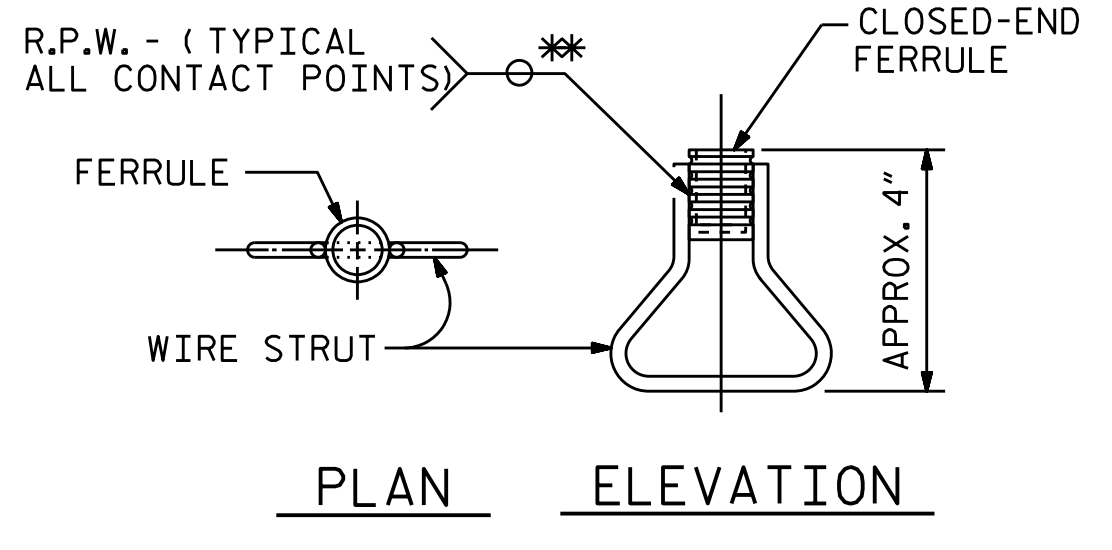
PLAN OF EXPANSION JOINT SEAL



BLOCK OUT DETAIL



SECTION B - B



CONCRETE INSERT

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



PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 2 OF 2

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

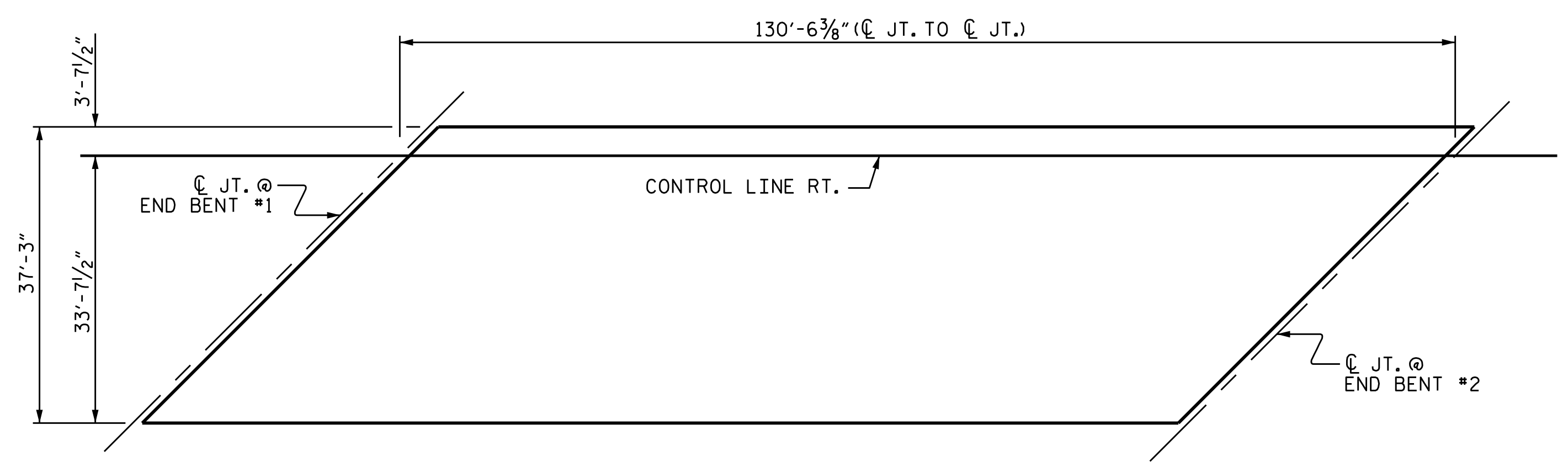
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS 30

ASSEMBLED BY: T.J. KIRSCHBAUM DATE: 4/16/14
 CHECKED BY: R.F. WERTMAN DATE: 5/1/14
 DRAWN BY: REK 9/87 REV. 10/1/11 MAA/GM
 CHECKED BY: CRK 10/87 REV. 7/12 MAA/GM
 REV. 10/12 MAA/GM

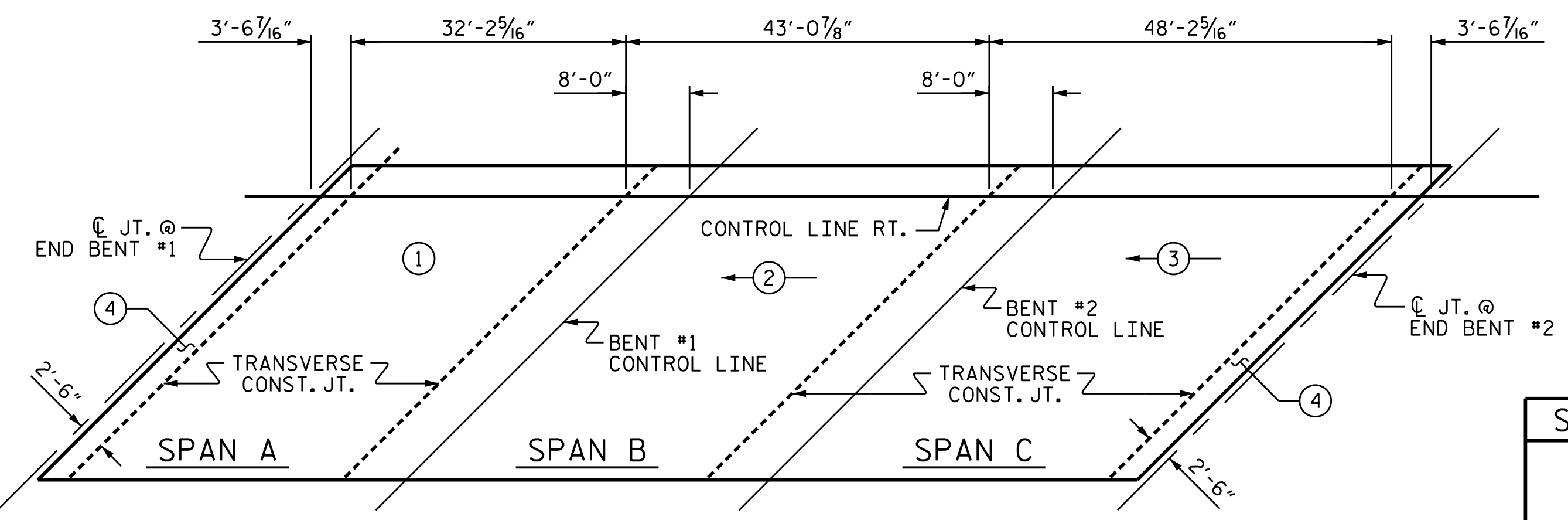
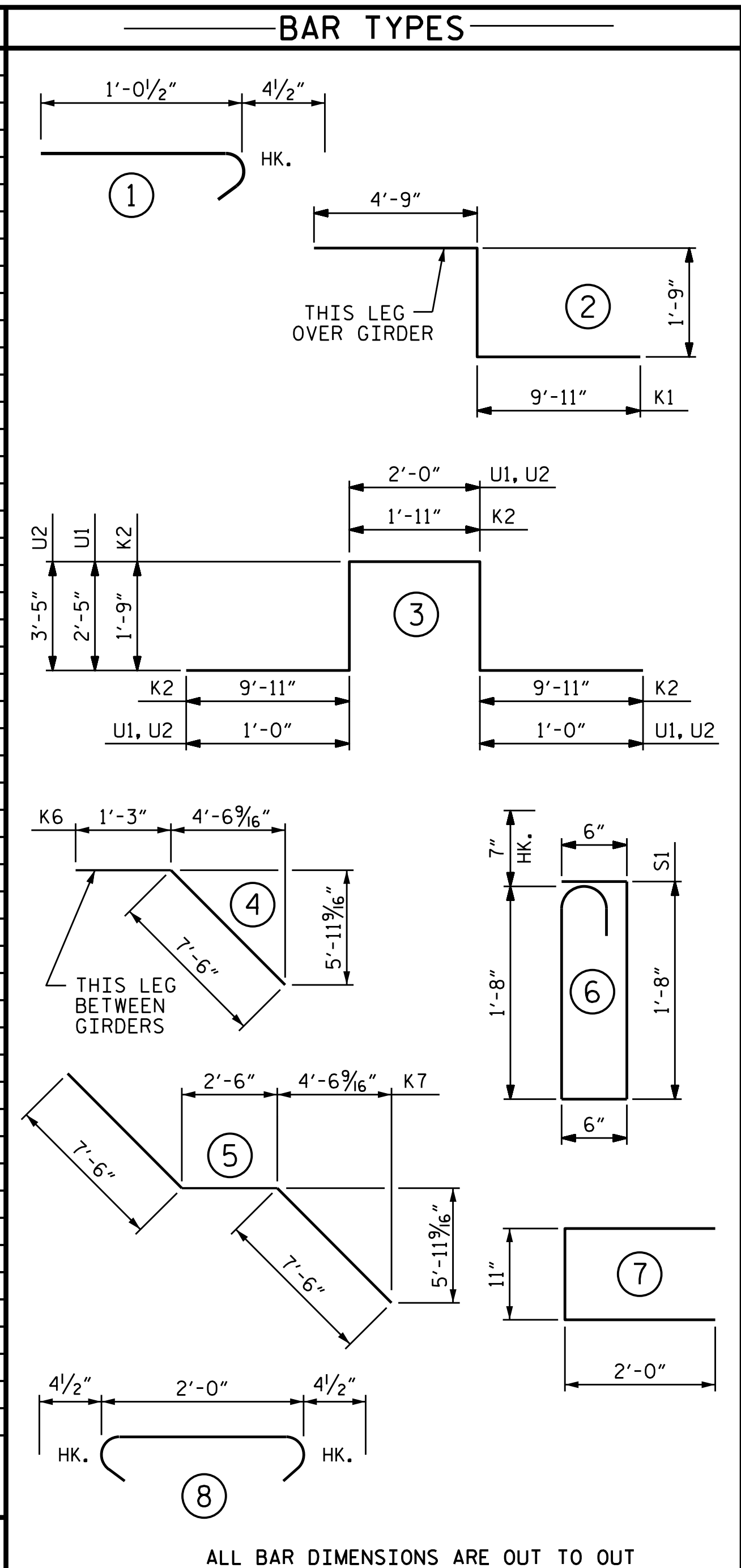
THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Sittus Court
 Suite 170
 Raleigh, NC 27606-4279
 (919) 859-4880
 NC Lic. No. F-0270



LAYOUT FOR COMPUTING AREA
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 4862)

REINFORCING BAR SCHEDULE											
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	203	#5	STR	36'-11"	7816	A201	6	#5	STR	35'-8"	223
A2	203	#5	STR	36'-11"	7816	A202	6	#5	STR	34'-4"	215
*A101	6	#5	STR	35'-8"	223	A203	6	#5	STR	32'-11"	206
*A102	6	#5	STR	34'-4"	215	A204	6	#5	STR	31'-7"	198
*A103	6	#5	STR	32'-11"	206	A205	6	#5	STR	30'-2"	189
*A104	6	#5	STR	31'-7"	198	A206	6	#5	STR	28'-10"	180
*A105	6	#5	STR	30'-2"	189	A207	6	#5	STR	27'-5"	172
*A106	6	#5	STR	28'-10"	180	A208	6	#5	STR	26'-1"	163
*A107	6	#5	STR	27'-5"	172	A209	6	#5	STR	24'-8"	154
*A108	6	#5	STR	26'-1"	163	A210	6	#5	STR	23'-4"	146
*A109	6	#5	STR	24'-8"	154	A211	6	#5	STR	21'-11"	137
*A110	6	#5	STR	23'-4"	146	A212	6	#5	STR	20'-7"	129
*A111	6	#5	STR	21'-11"	137	A213	6	#5	STR	19'-2"	120
*A112	6	#5	STR	20'-7"	129	A214	6	#5	STR	17'-10"	112
*A113	6	#5	STR	19'-2"	120	A215	6	#5	STR	16'-5"	103
*A114	6	#5	STR	17'-10"	112	A216	6	#5	STR	15'-1"	94
*A115	6	#5	STR	16'-5"	103	A217	6	#5	STR	13'-8"	86
*A116	6	#5	STR	15'-1"	94	A218	6	#5	STR	12'-4"	77
*A117	6	#5	STR	13'-8"	86	A219	6	#5	STR	10'-11"	68
*A118	6	#5	STR	12'-4"	77	A220	6	#5	STR	9'-7"	60
*A119	6	#5	STR	10'-11"	68	A221	6	#5	STR	8'-2"	51
*A120	6	#5	STR	9'-7"	60	A222	6	#5	STR	6'-10"	43
*A121	6	#5	STR	8'-2"	51	A223	6	#5	STR	5'-5"	34
*A122	6	#5	STR	6'-10"	43	A224	6	#5	STR	4'-1"	26
*A123	6	#5	STR	5'-5"	34	A225	6	#5	STR	2'-8"	17
*A124	6	#5	STR	4'-1"	26	*B1	50	#4	STR	27'-5"	916
*A125	6	#5	STR	2'-8"	17	*B2	50	#7	STR	36'-0"	3679
						*B3	48	#7	STR	13'-0"	1275
						B4	212	#5	STR	34'-2"	7555
						*B5	25	#4	STR	11'-1"	185
						*G1	2	#5	STR	52'-2"	109
						*J1	94	#5	1	1'-5"	139
						*K1	8	#8	2	16'-5"	351
						*K2	8	#8	3	25'-3"	539
						*K3	18	#6	STR	12'-11"	349
						K4	12	#4	STR	12'-3"	98
						K5	24	#4	STR	13'-8"	219
						K6	12	#4	4	8'-9"	70
						K7	12	#4	5	17'-6"	140
						*S1	72	#5	6	4'-11"	369
						*S2	72	#4	7	4'-11"	236
						S3	120	#4	8	2'-9"	220
						U1	12	#4	3	8'-10"	71
						U2	54	#4	3	10'-10"	391

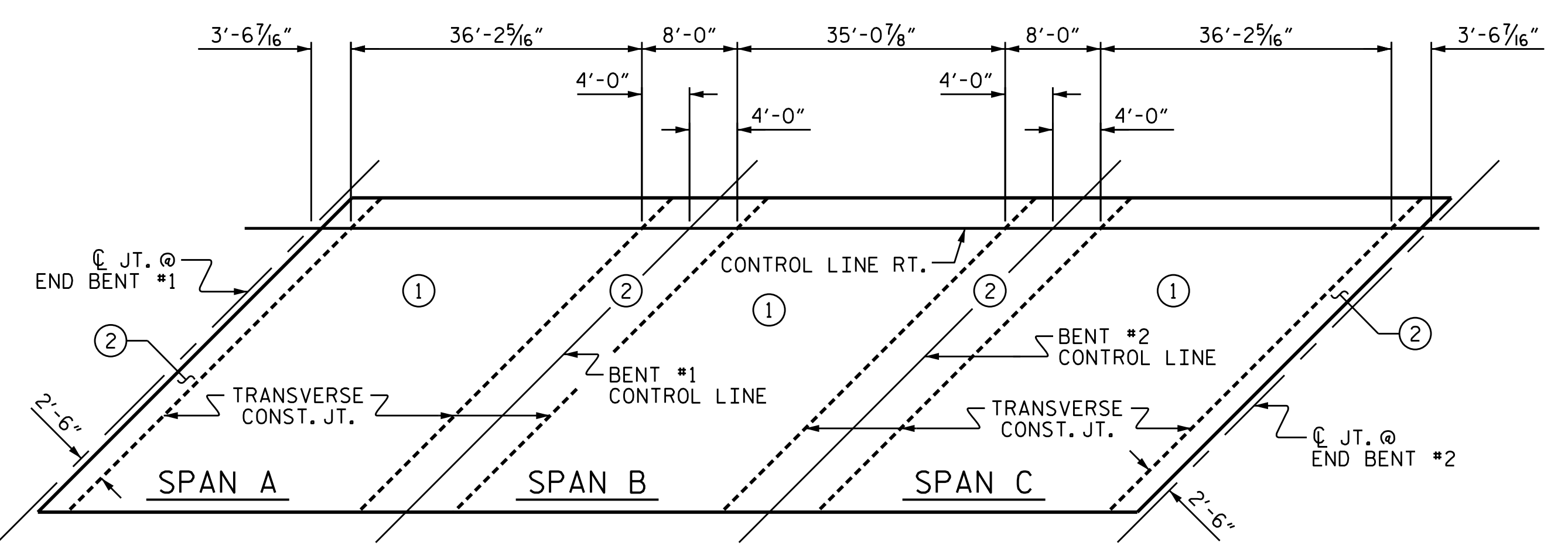


POURING SEQUENCE

SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE	REINFORCING STEEL	*EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR 1	36.0		
POUR 2	59.2		
POUR 3	64.9		
POUR 4	13.5		
TOTALS	173.6	19583	18966

*B1	50	#4	STR	27'-5"	916
*B2	50	#7	STR	36'-0"	3679
*B3	48	#7	STR	13'-0"	1275
B4	212	#5	STR	34'-2"	7555
*B5	25	#4	STR	11'-1"	185
*G1	2	#5	STR	52'-2"	109
*J1	94	#5	1	1'-5"	139
*K1	8	#8	2	16'-5"	351
*K2	8	#8	3	25'-3"	539
*K3	18	#6	STR	12'-11"	349
K4	12	#4	STR	12'-3"	98
K5	24	#4	STR	13'-8"	219
K6	12	#4	4	8'-9"	70
K7	12	#4	5	17'-6"	140
*S1	72	#5	6	4'-11"	369
*S2	72	#4	7	4'-11"	236
S3	120	#4	8	2'-9"	220
U1	12	#4	3	8'-10"	71
U2	54	#4	3	10'-10"	391

REINFORCING STEEL = 19,583
*EPOXY COATED REINF. STEEL = 18,966



OPTIONAL POURING SEQUENCE

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

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	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
*5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
*6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
*7	5'-3"	3'-6"			
*8	6'-10"	4'-7"			

GROOVING BRIDGE FLOORS

BRIDGE DECK	4027 SQ. FT.
APPROACH SLABS	1536 SQ. FT.
TOTAL	5563 SQ. FT.

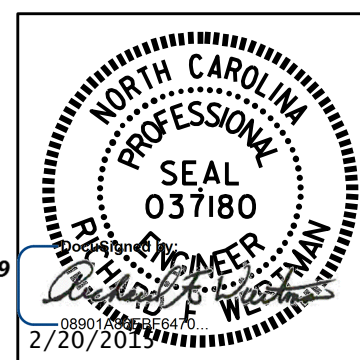
PROJECT NO. R-2915B
ASHE COUNTY
STATION: 234+19.20 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BILL OF MATERIAL
NBL

ASSEMBLED BY : T.J. KIRSCHBUAM	DATE : 4/17/14
CHECKED BY : R.F. WERTMAN	DATE : 5/2/14
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES

PLANS PREPARED BY:
Gannett Fleming
Excellence Delivered As Promised

1121 Situs Court
Suite 170
Raleigh NC 27606-4279
(919) 859-4880
INC Lic. No. F-0270

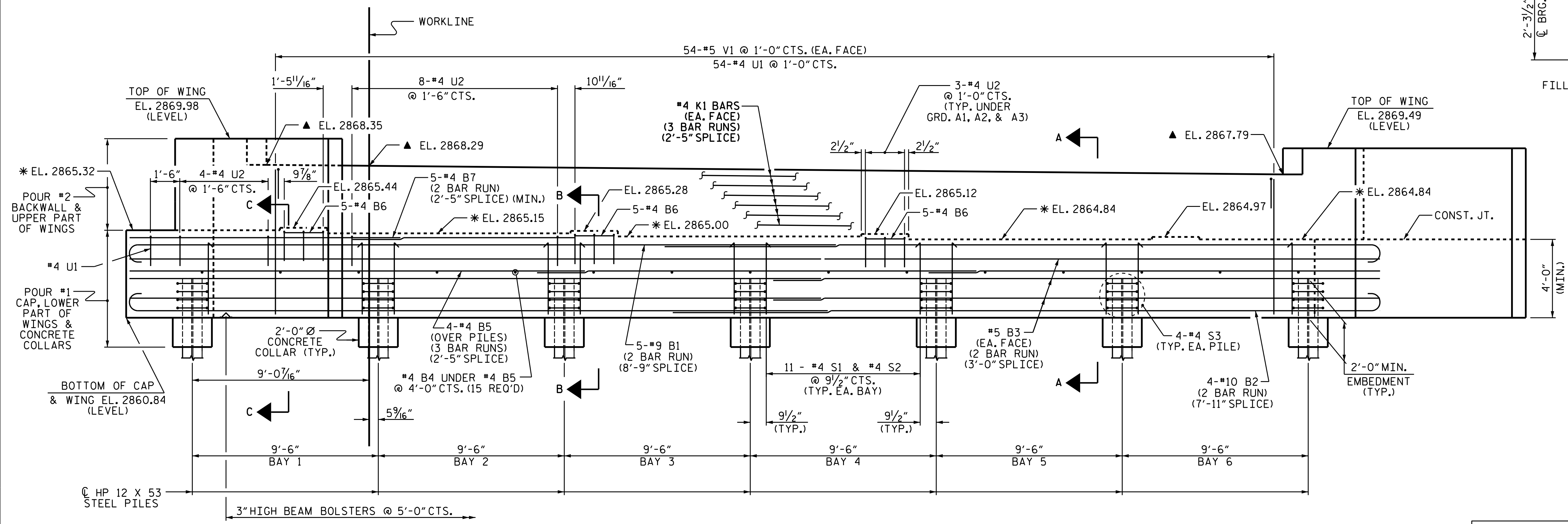
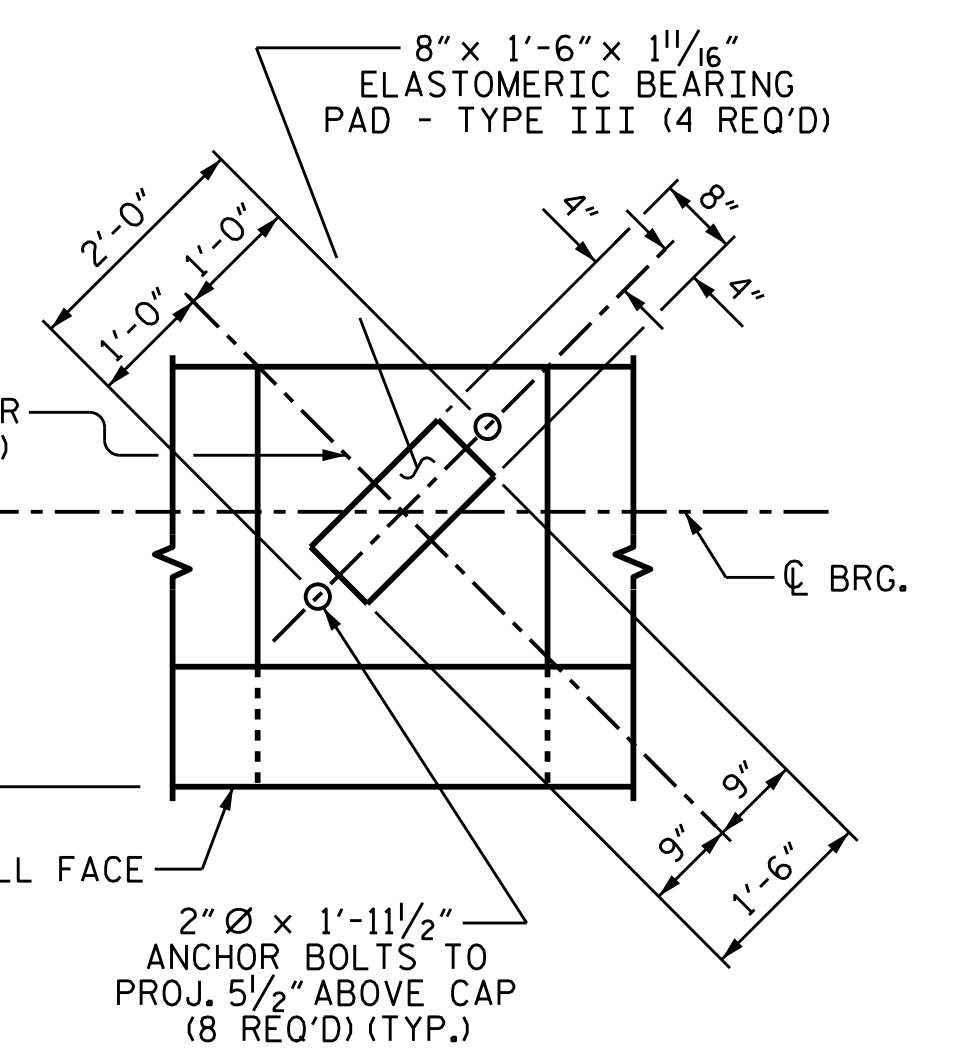
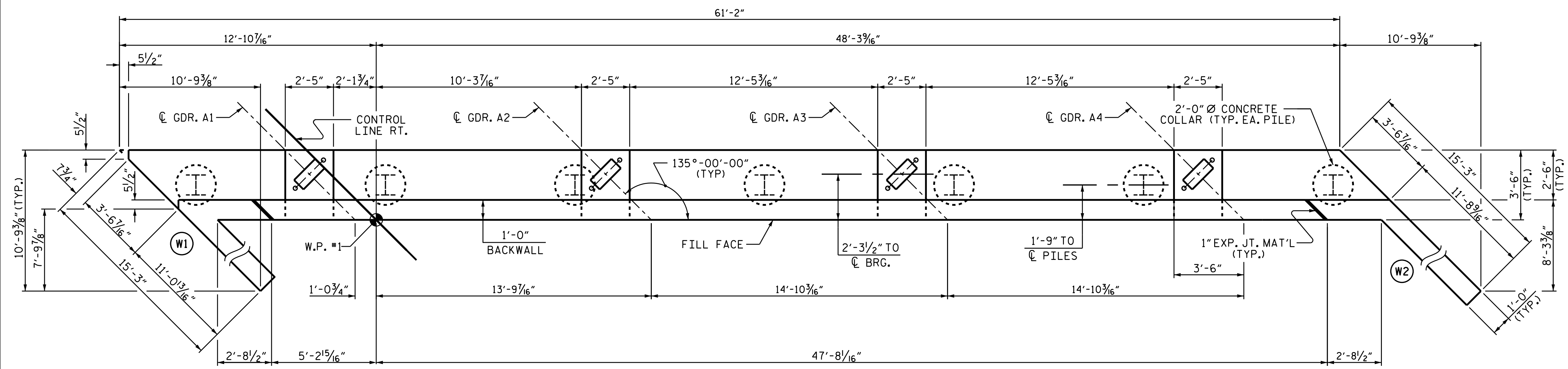


REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS 30

NOTES:

- * FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SECTION A-A ON SHEET 3 OF 3.
- ▲ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.
- STIRRUPS & U2 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 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 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.
- INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

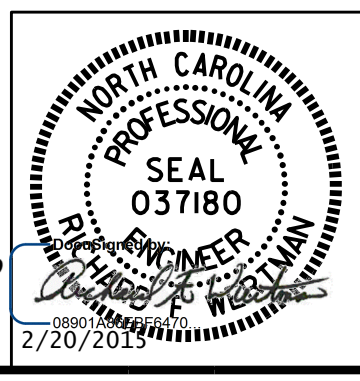
**SUBSTRUCTURE
 END BENT #1**

NBL

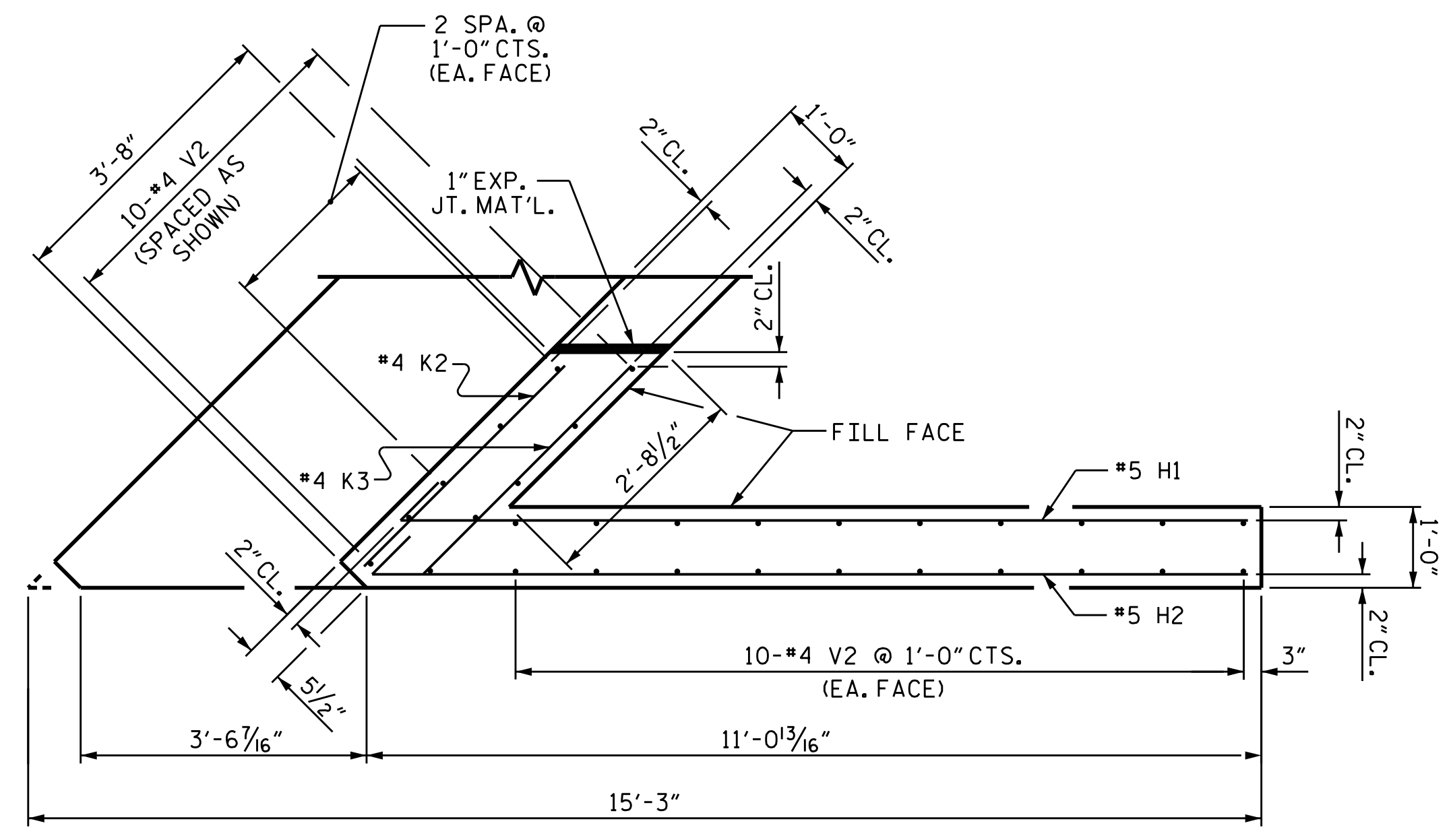
DRAWN BY : T.J. KIRSCHBAUM DATE : 08/28/14
 CHECKED BY : E.E. DEETSCREEK DATE : 09/03/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 09/04/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised

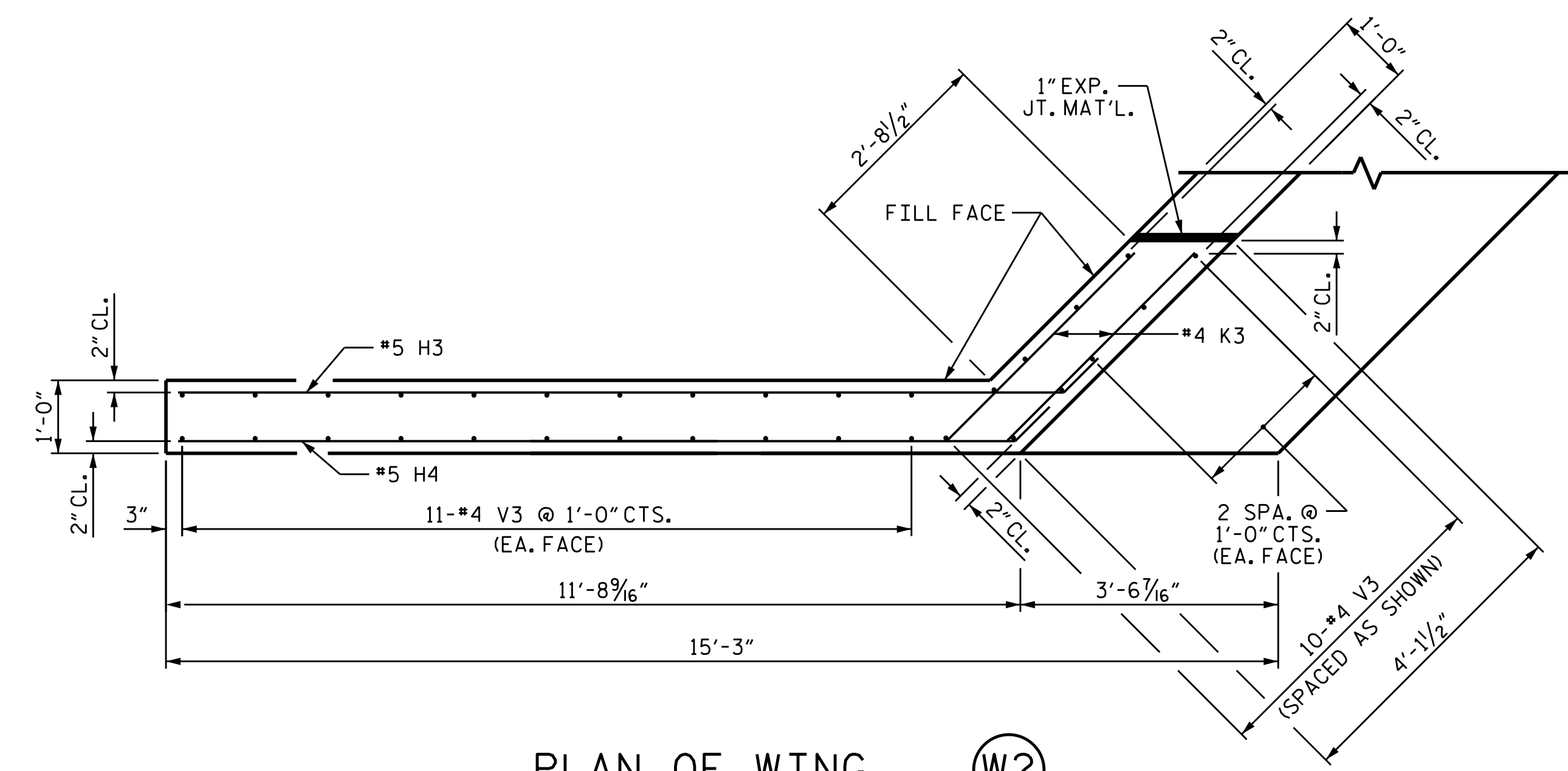
1121 Situs Court
 Suite 170
 Raleigh, NC 27606-4279
 (919) 859-4880
 N.C. Lic. No. F-0270



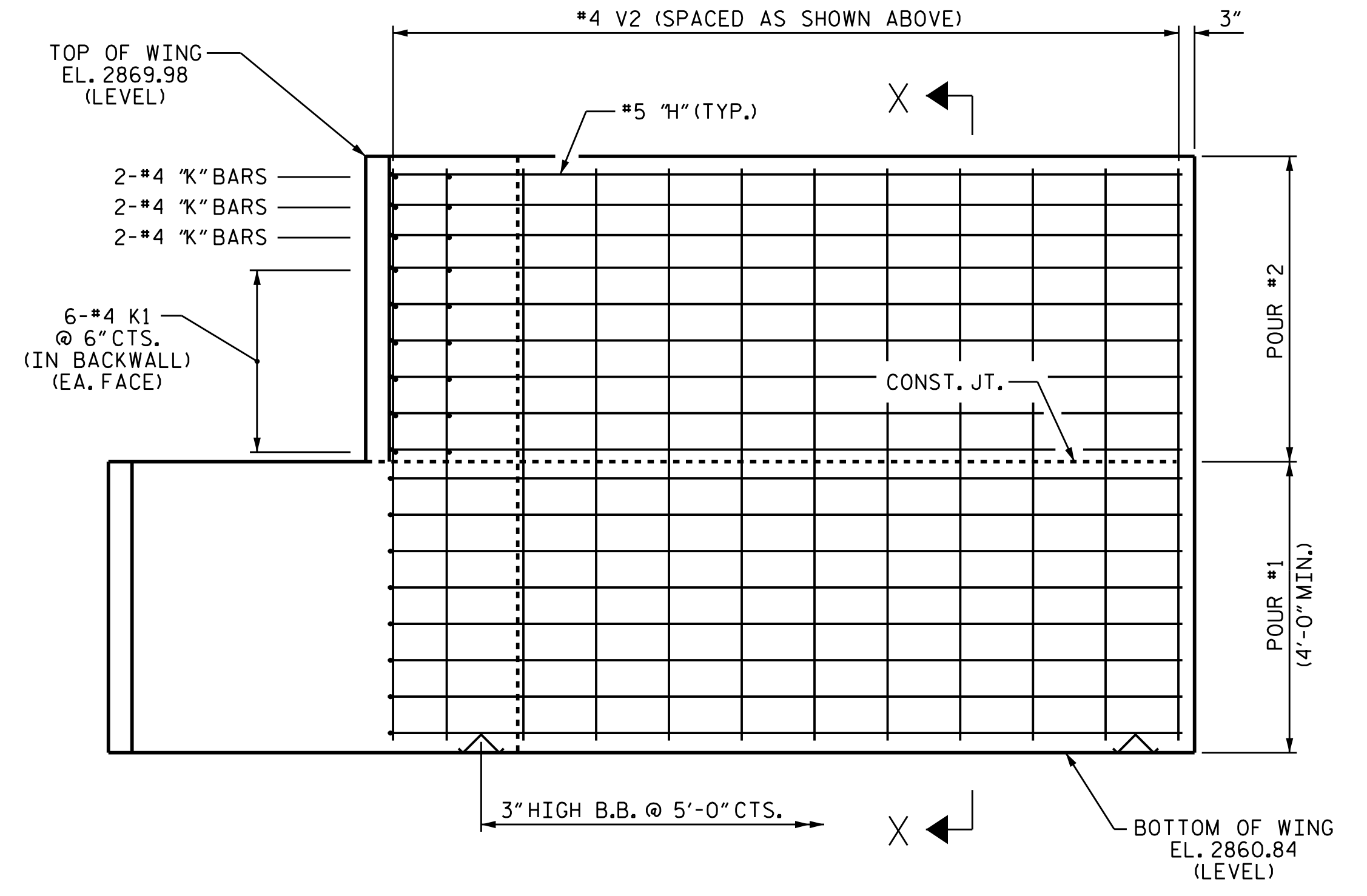
REVISIONS						SHEET NO. S03-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			



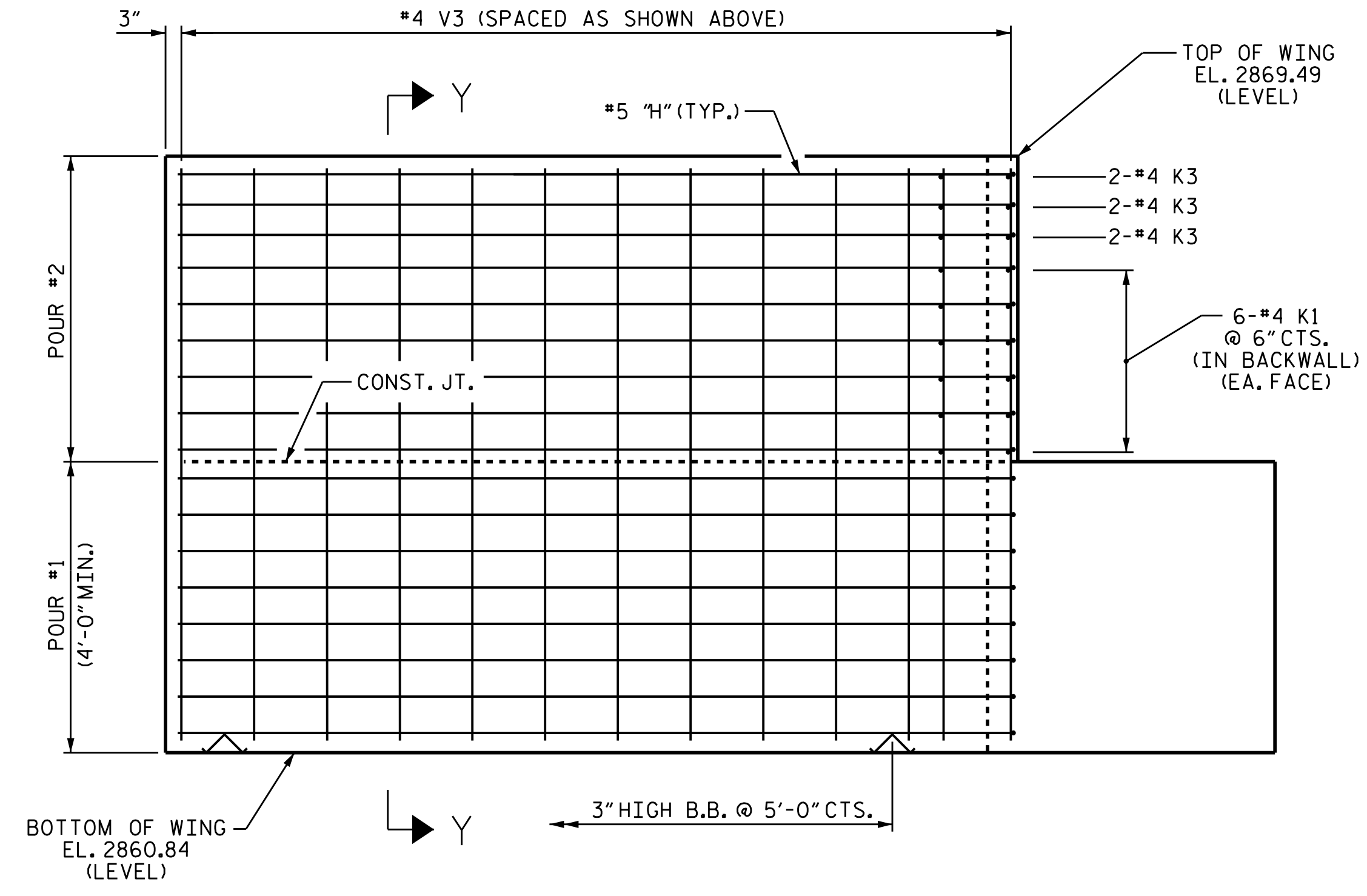
PLAN OF WING (W1)



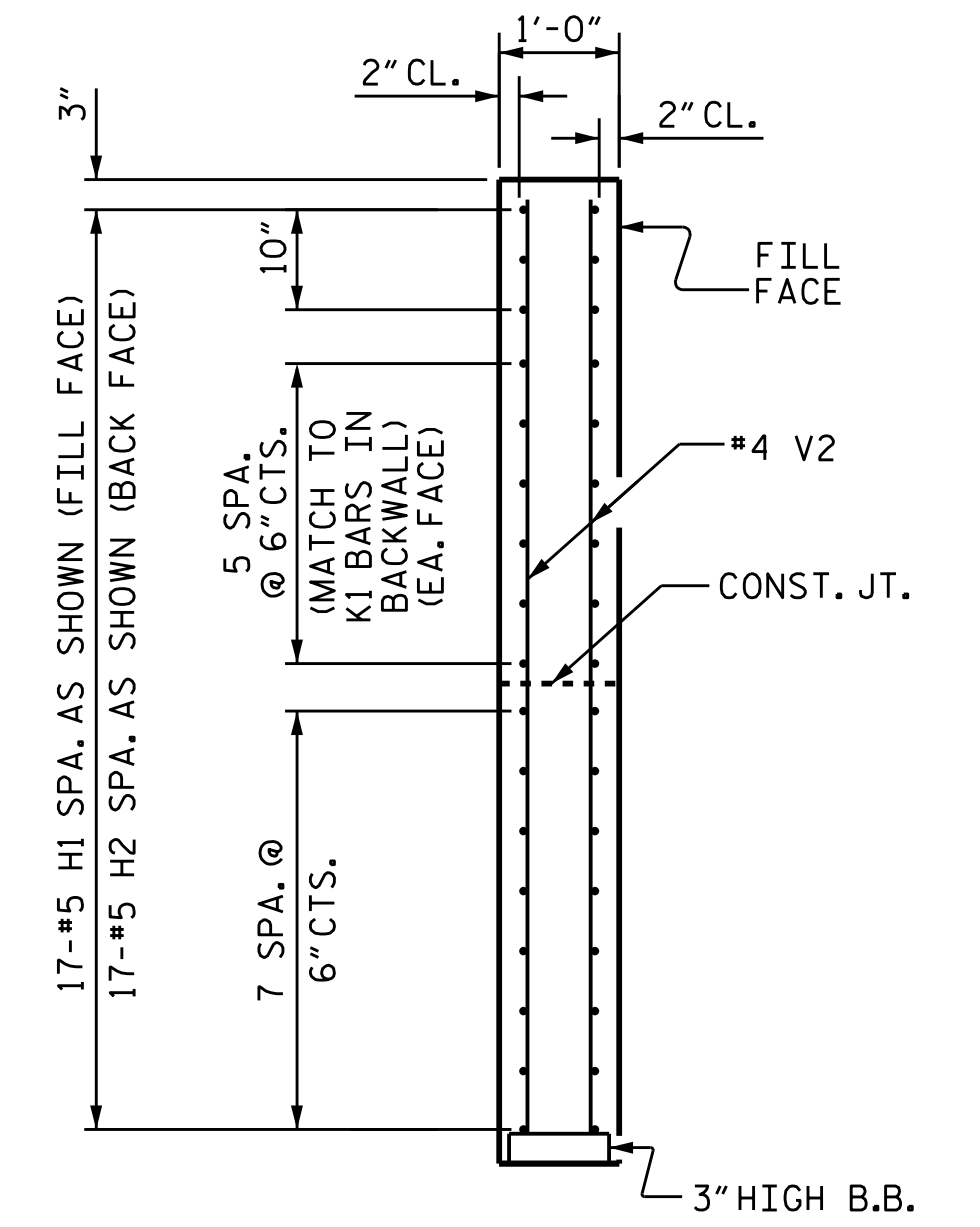
PLAN OF WING (W2)



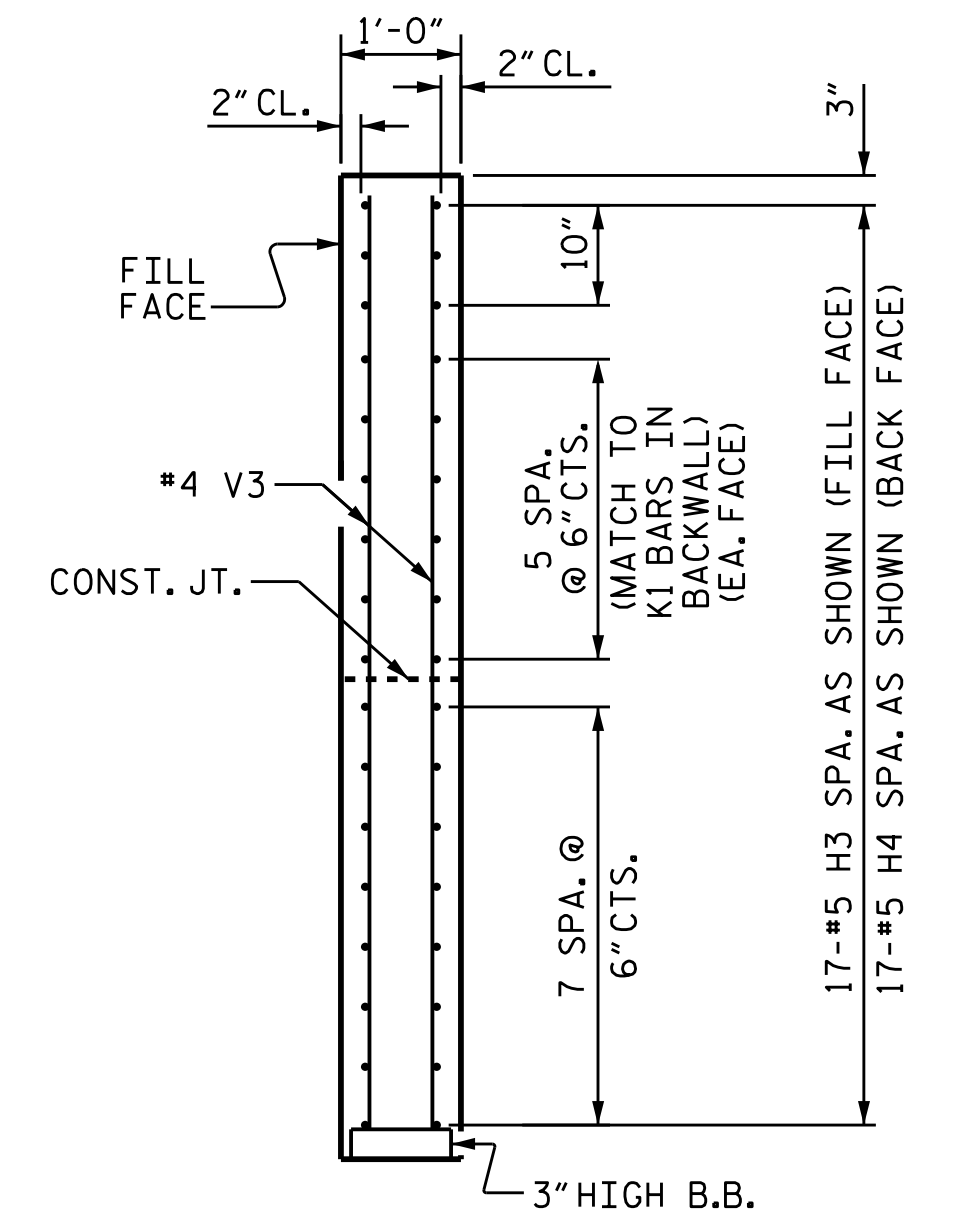
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



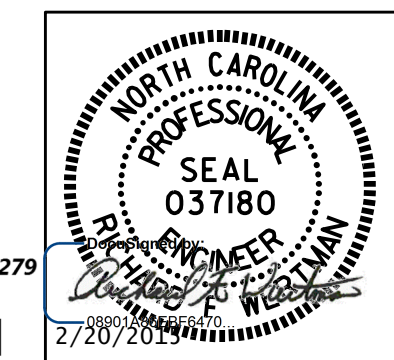
SECTION Y-Y

PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-

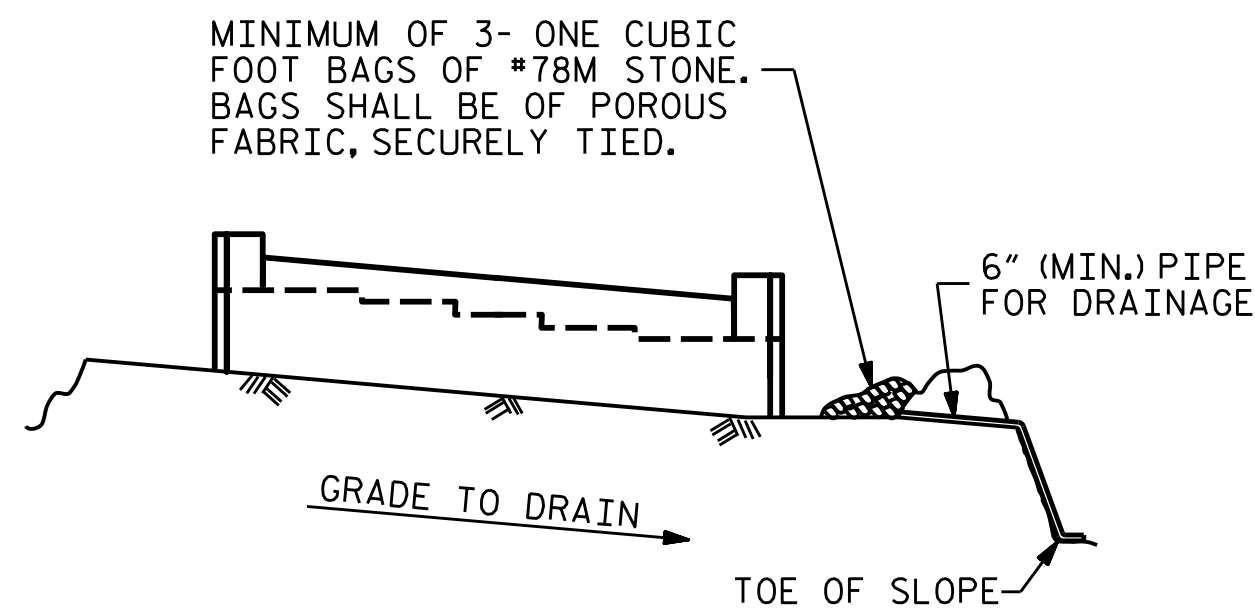
SHEET 2 OF 3
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #1
 NBL

DRAWN BY : T.J. KIRSCHBAUM DATE : 08/28/14
 CHECKED BY : E.E. DEETSCHRECK DATE : 09/03/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 09/04/14

PLANS PREPARED BY:
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 (919) 859-4880
 NCLic. No. F-0270



REVISIONS						SHEET NO. S03-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

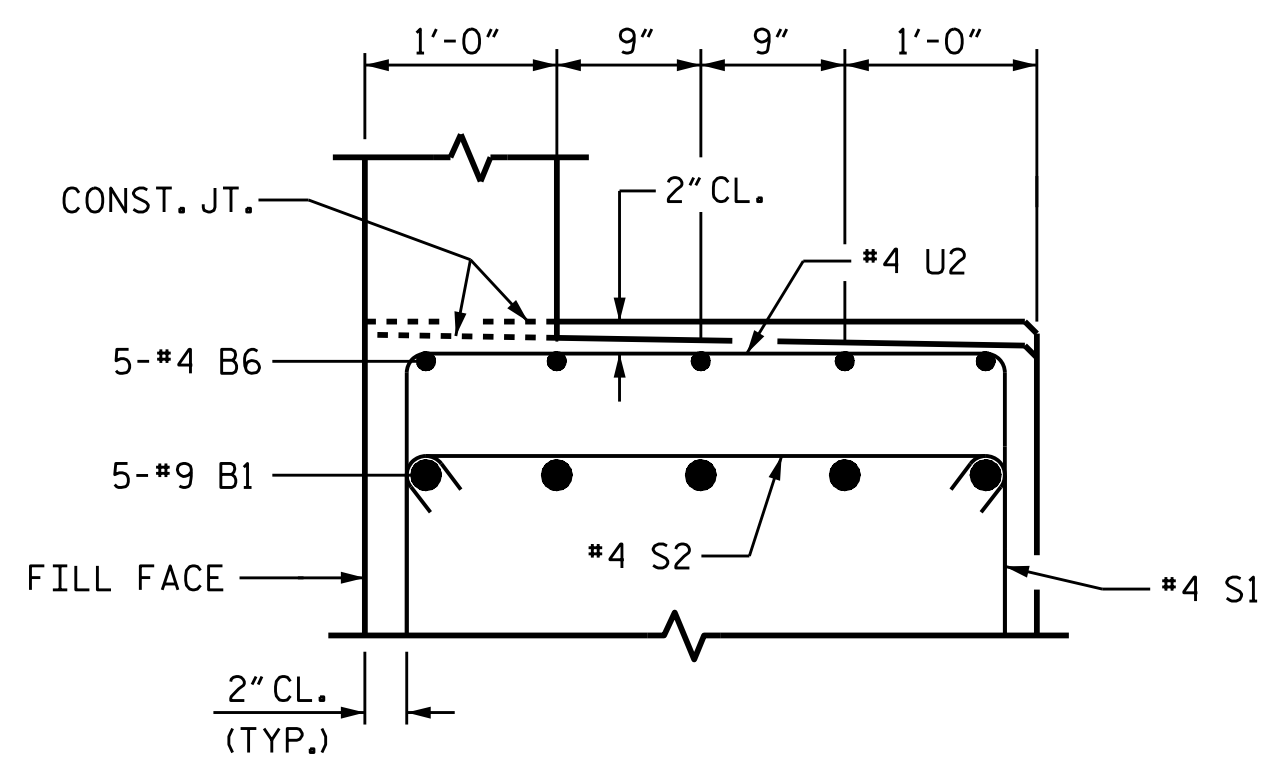


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

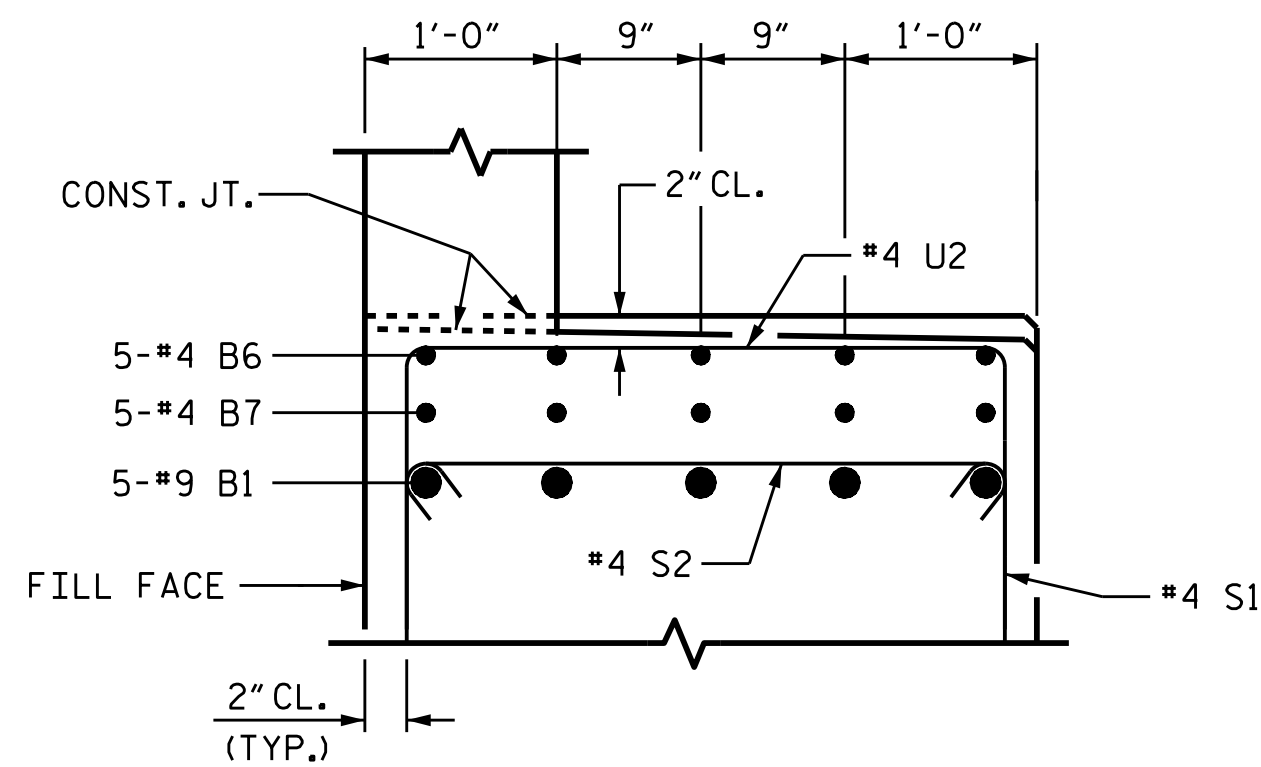
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



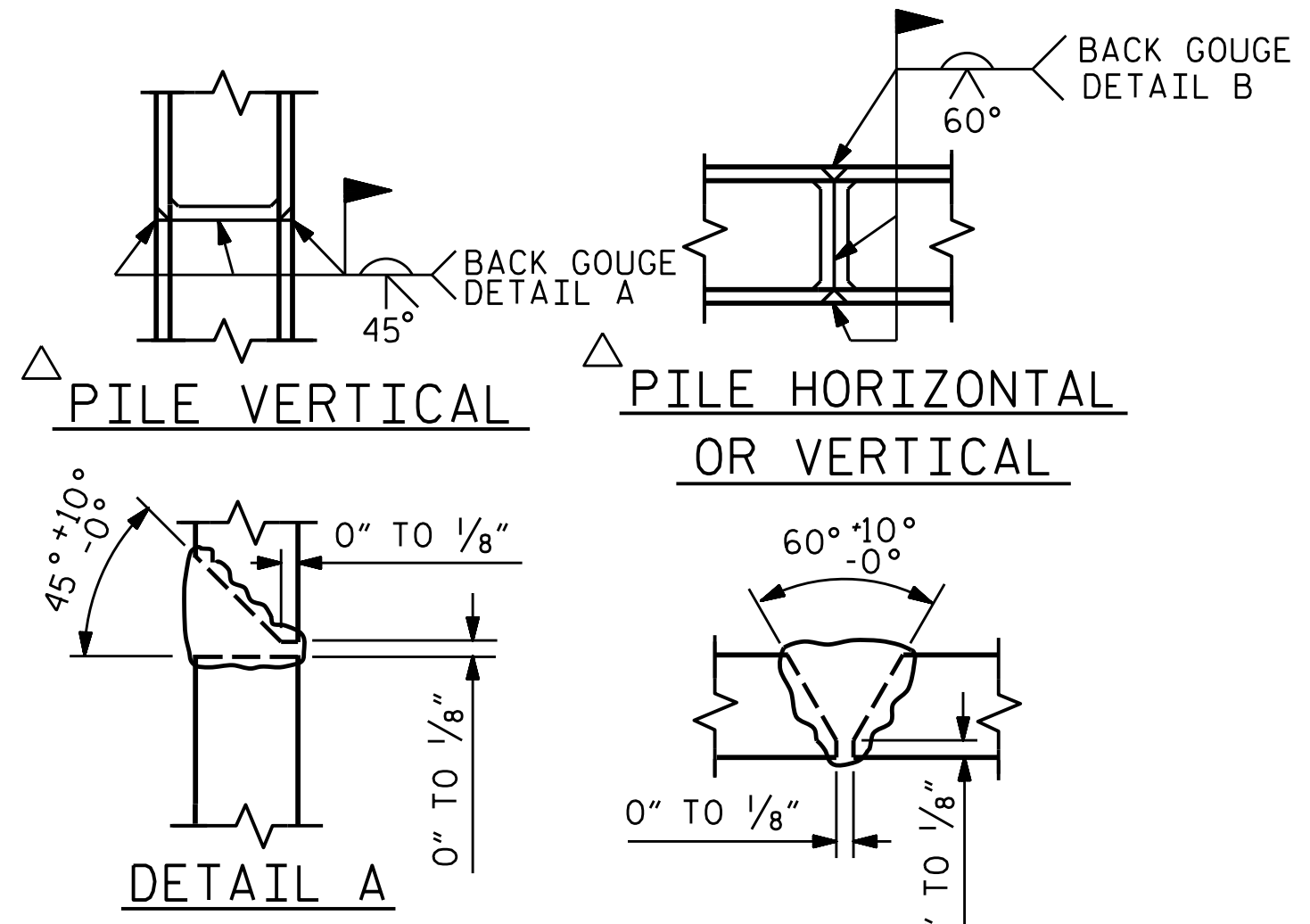
PARTIAL SECTION B-B

(TYP. @ BRG. A2 & A3)



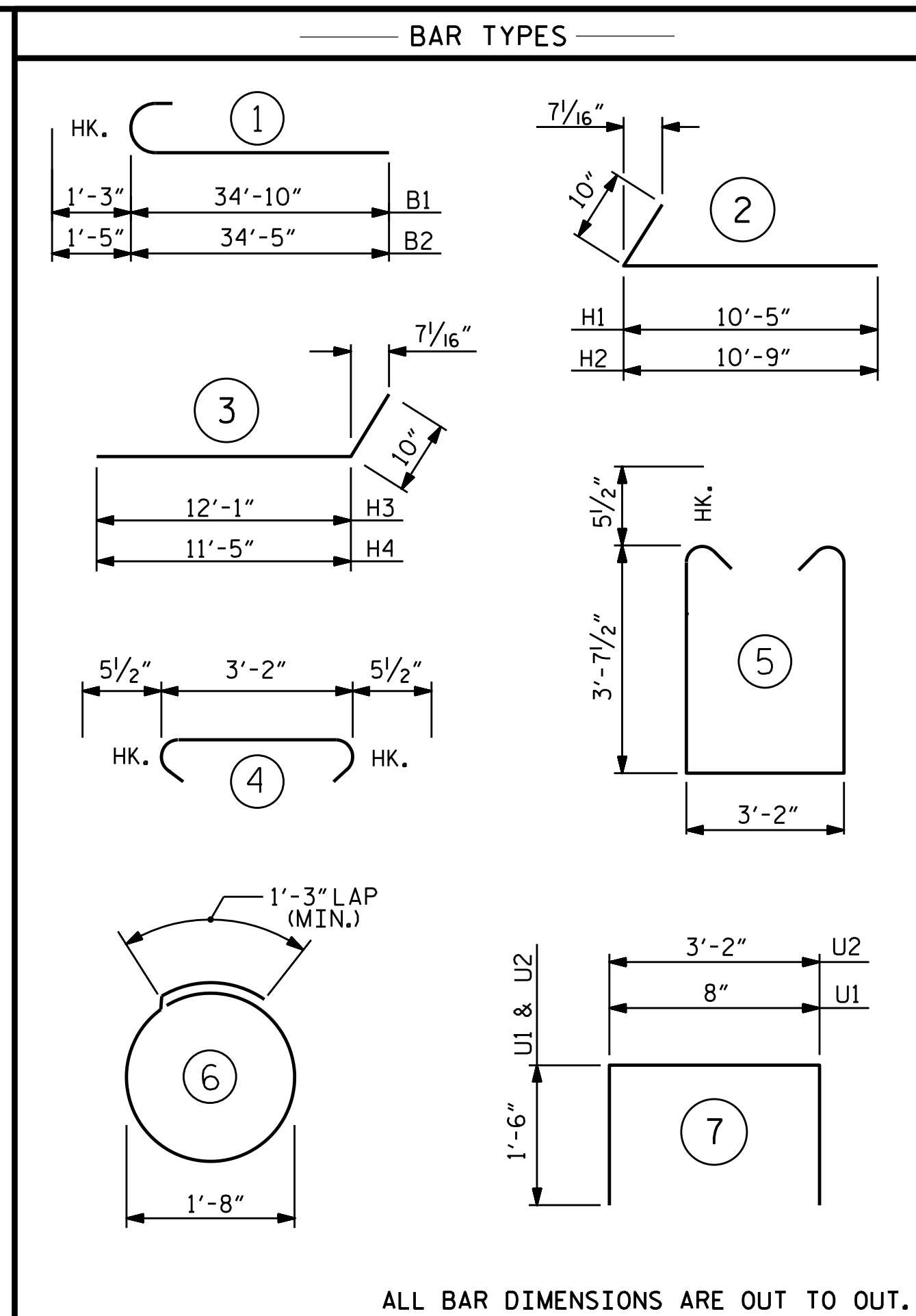
PARTIAL SECTION C-C

(TYP. @ BRG. A1)



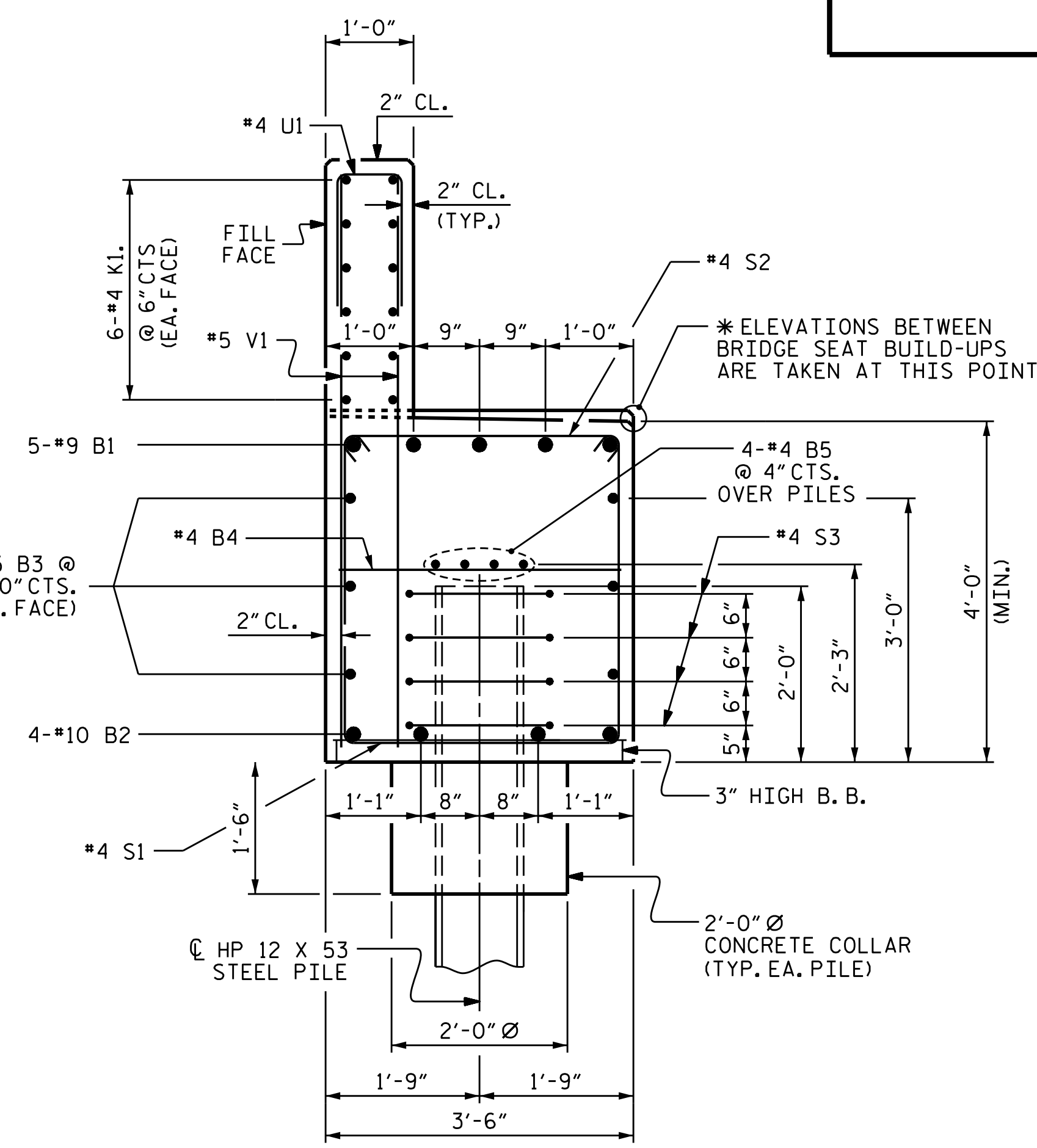
PILE SPLICE DETAILS

POSITION OF PILE DURING WELDING.



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #1					
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	36'-1"	1227
B2	8	#10	1	35'-10"	1234
B3	12	#5	STR	31'-11"	399
B4	15	#4	STR	3'-2"	32
B5	12	#4	STR	21'-11"	176
B6	15	#4	STR	2'-0"	20
B7	10	#4	STR	12'-7"	84
H1	17	#5	2	11'-3"	199
H2	17	#5	2	11'-7"	205
H3	17	#5	3	12'-11"	229
H4	17	#5	3	12'-3"	217
K1	36	#4	STR	21'-11"	527
K2	3	#4	STR	3'-6"	7
K3	9	#4	STR	3'-7"	22
S1	68	#4	5	11'-4"	515
S2	68	#4	4	4'-1"	185
S3	28	#4	6	6'-6"	122
U1	55	#4	7	3'-8"	135
U2	21	#4	7	6'-2"	87
V1	108	#5	STR	6'-7"	742
V2	30	#4	STR	8'-9"	175
V3	32	#4	STR	8'-3"	176
REINFORCING STEEL				6,715 LBS.	
CLASS A CONCRETE					
POUR #1 (CAP, LOWER WINGS & COLLARS)				36.9 C.Y.	
POUR #2 (UPPER WINGS & BACKWALL)				11.1 C.Y.	
TOTAL				48.0 C.Y.	
HP 12 X 53 STEEL PILES					
No. = 7				175 LIN. FT.	



PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 3 OF 3

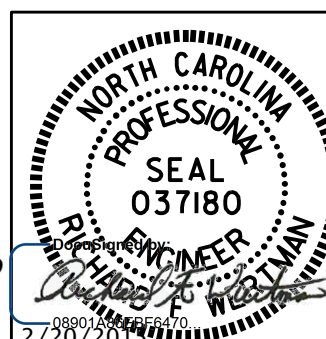
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1 NBL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

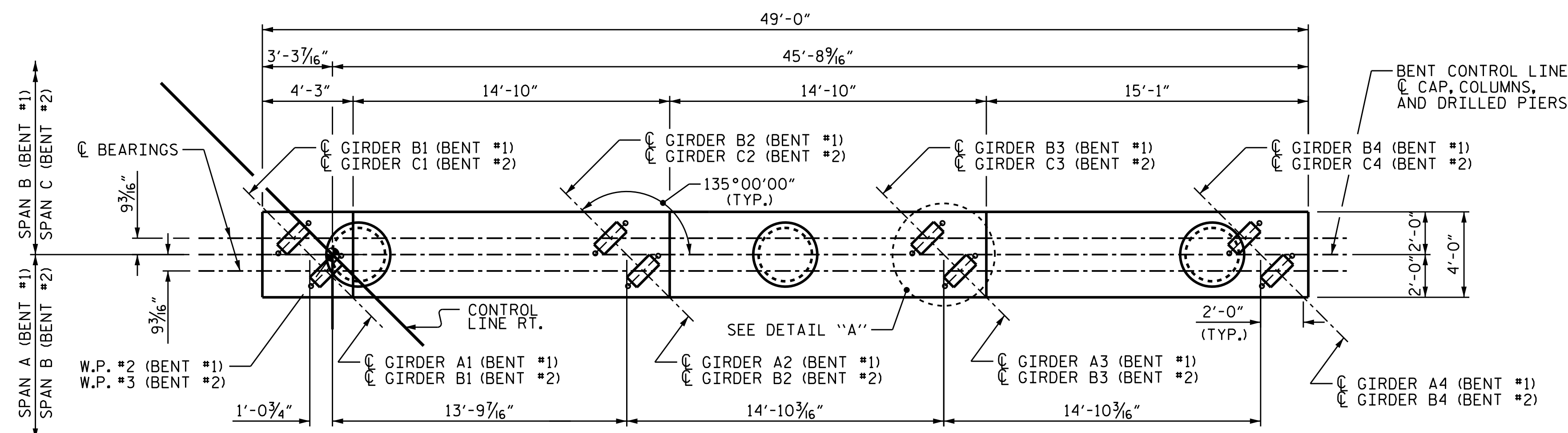
SHEET NO. S03-22			
TOTAL SHEETS 30			

DRAWN BY : T.J. KIRSCHBAUM DATE : 08/28/14
 CHECKED BY : E.E. DEETSCHRECK DATE : 09/03/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 09/04/14

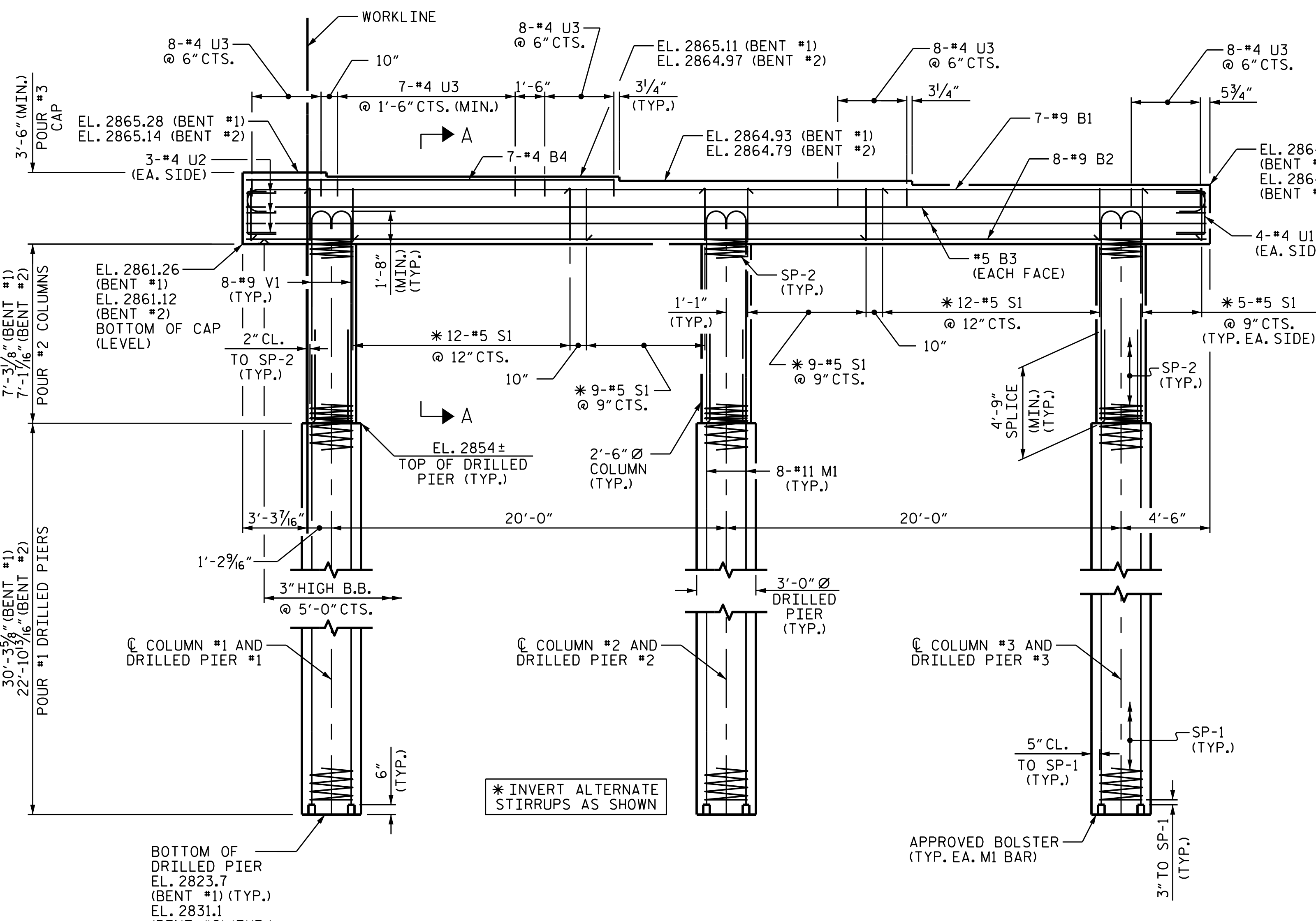
PLANS PREPARED BY:
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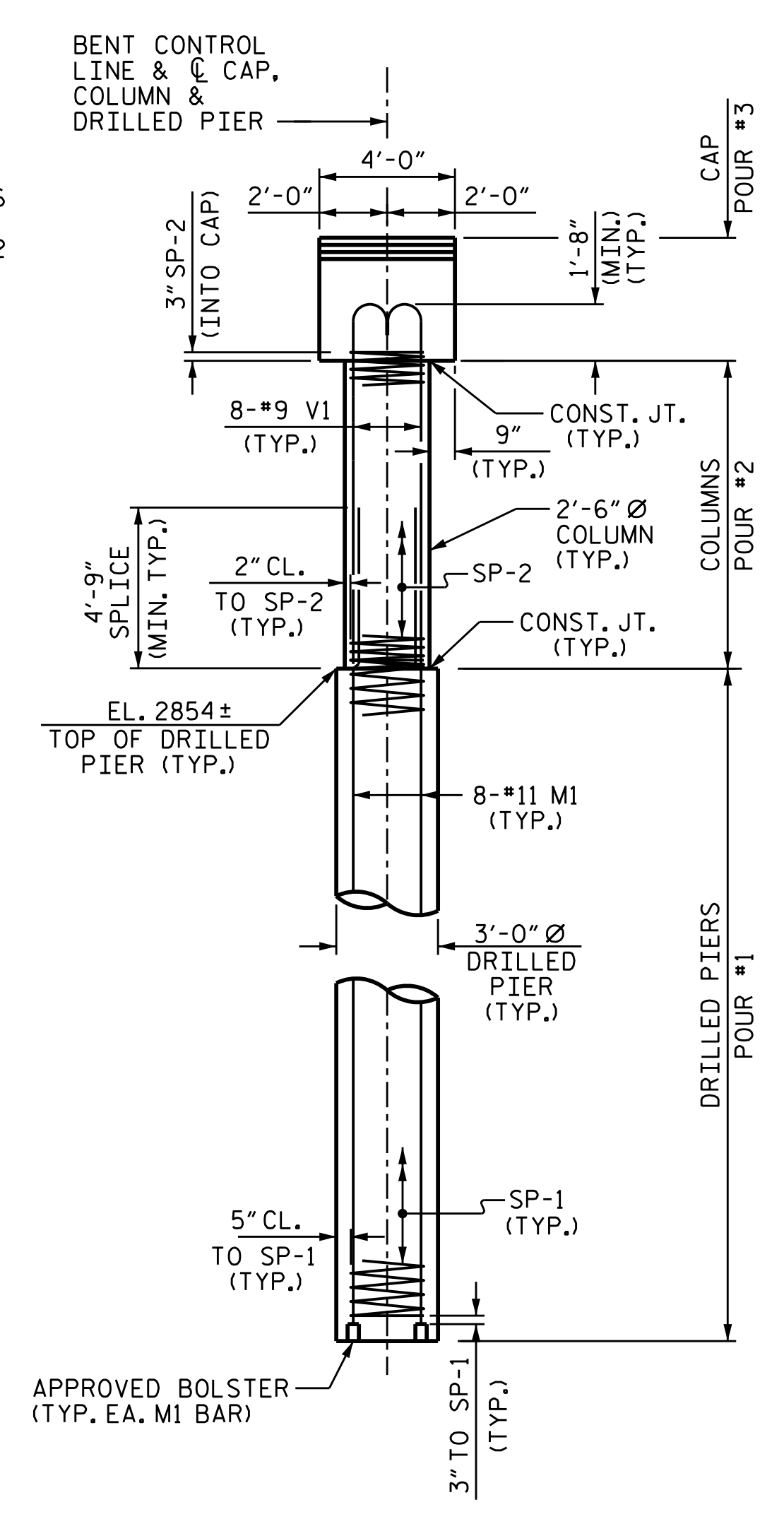




PLAN



ELEVATION



END ELEVATION

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS. HOOKS ON V1 BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

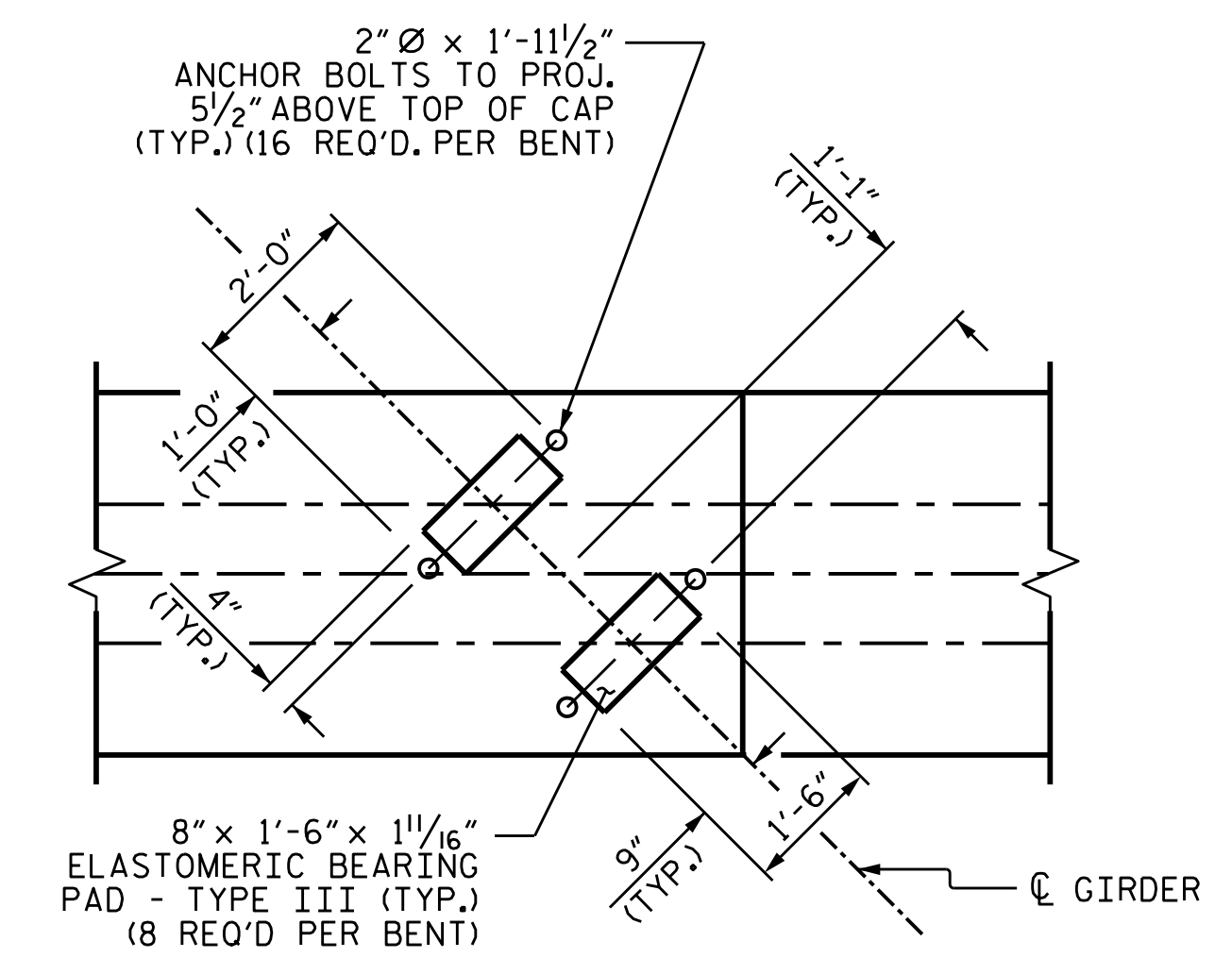
FOR DRILLED PIERS, SEE SECTION 411 OF STANDARD SPECIFICATIONS.

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

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

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

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.



DETAIL A
(TYP. EA. GIRDER)

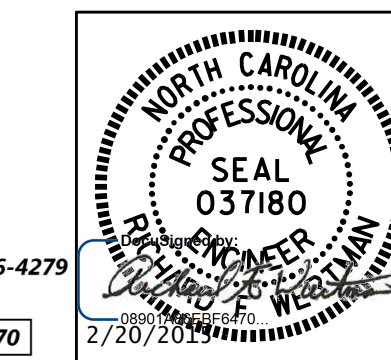
PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENTS #1 & #2
 NBL

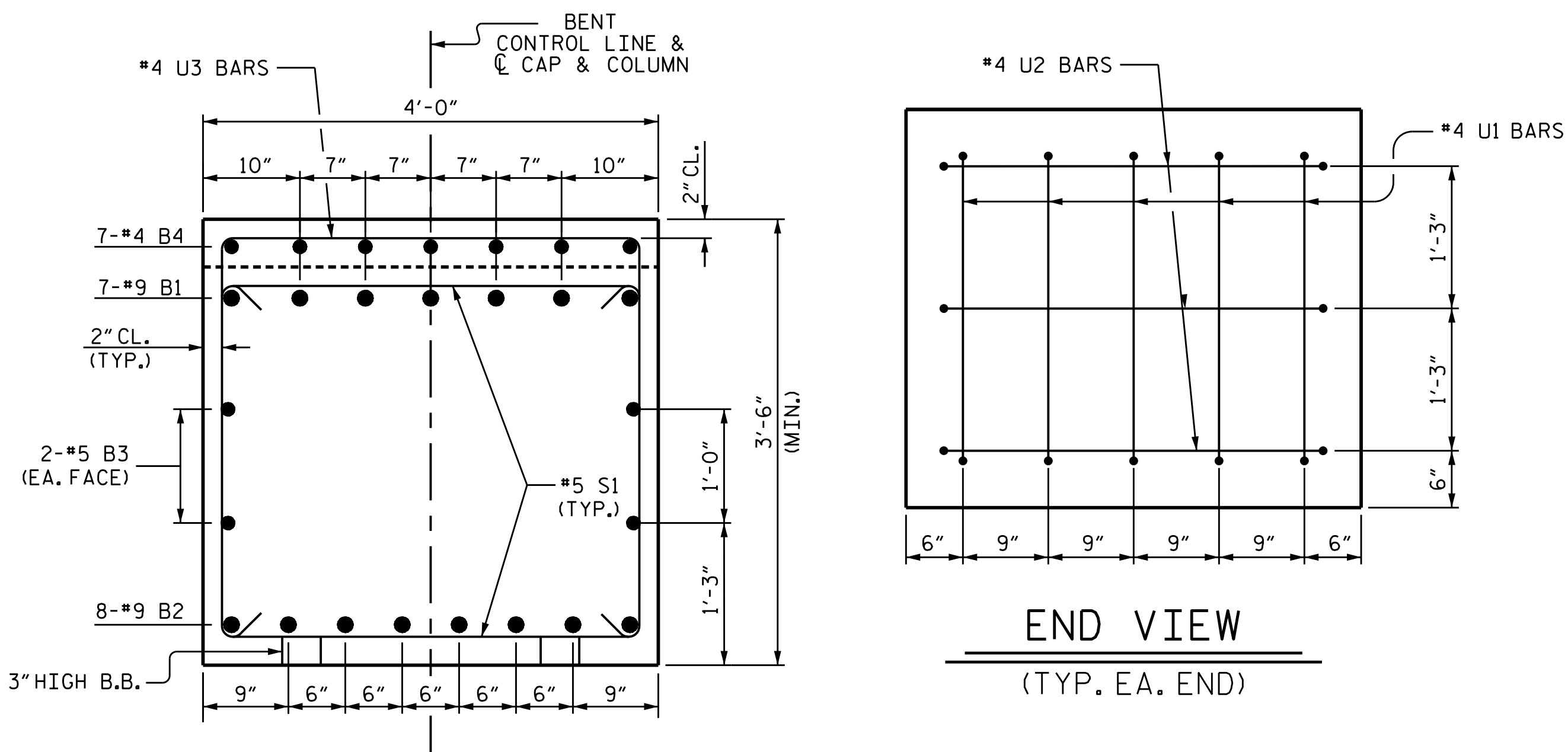
DRAWN BY: T.J. KIRSCHBAUM DATE: 08/19/14
 CHECKED BY: R.F. WERTMAN DATE: 09/04/14
 DESIGN ENGINEER OF RECORD: R.F. WERTMAN DATE: 09/04/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised



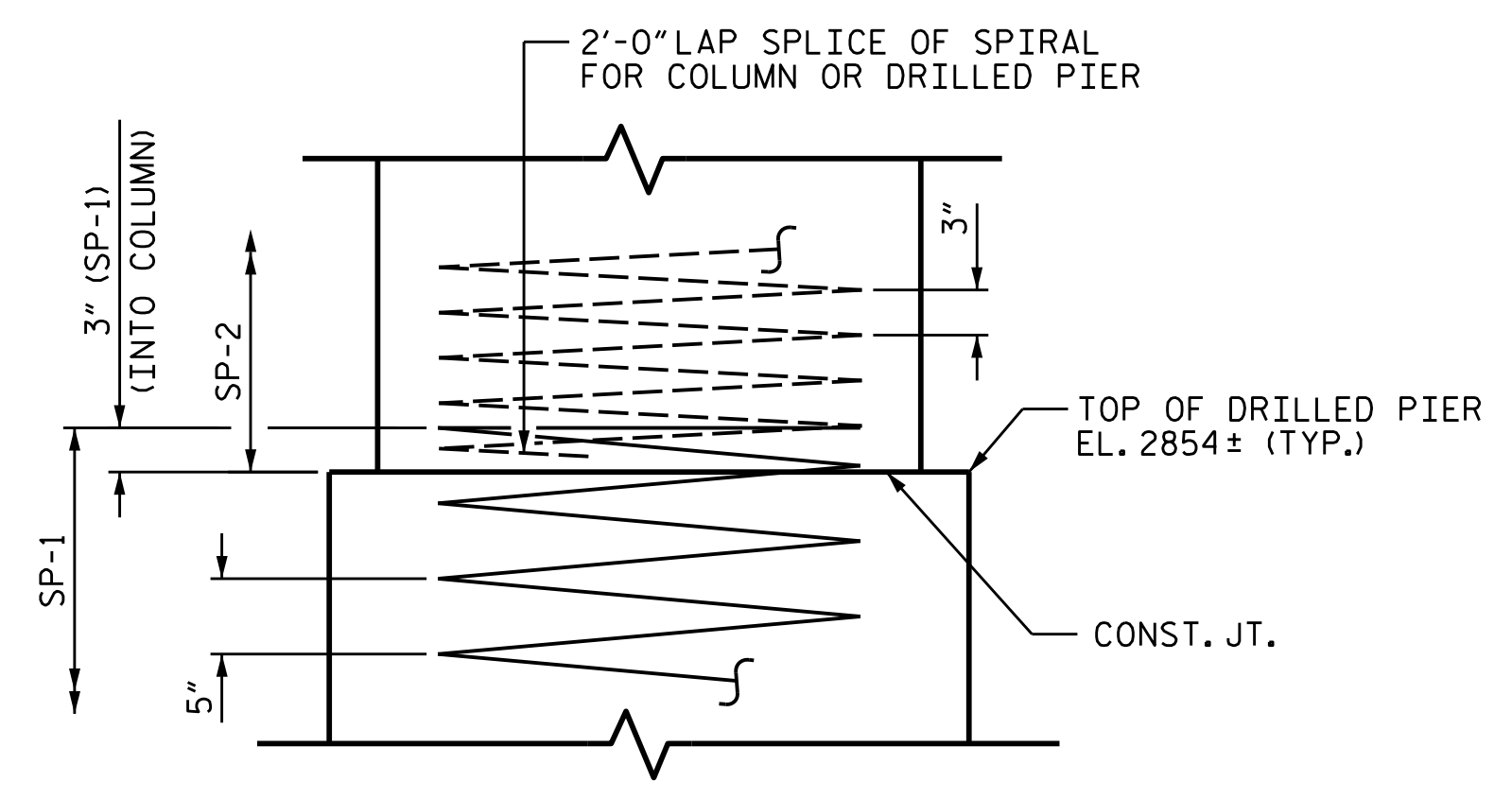
REVISIONS		SHEET NO.	
NO.	DATE	NO.	DATE
1		3	
2		4	

TOTAL SHEETS: 30

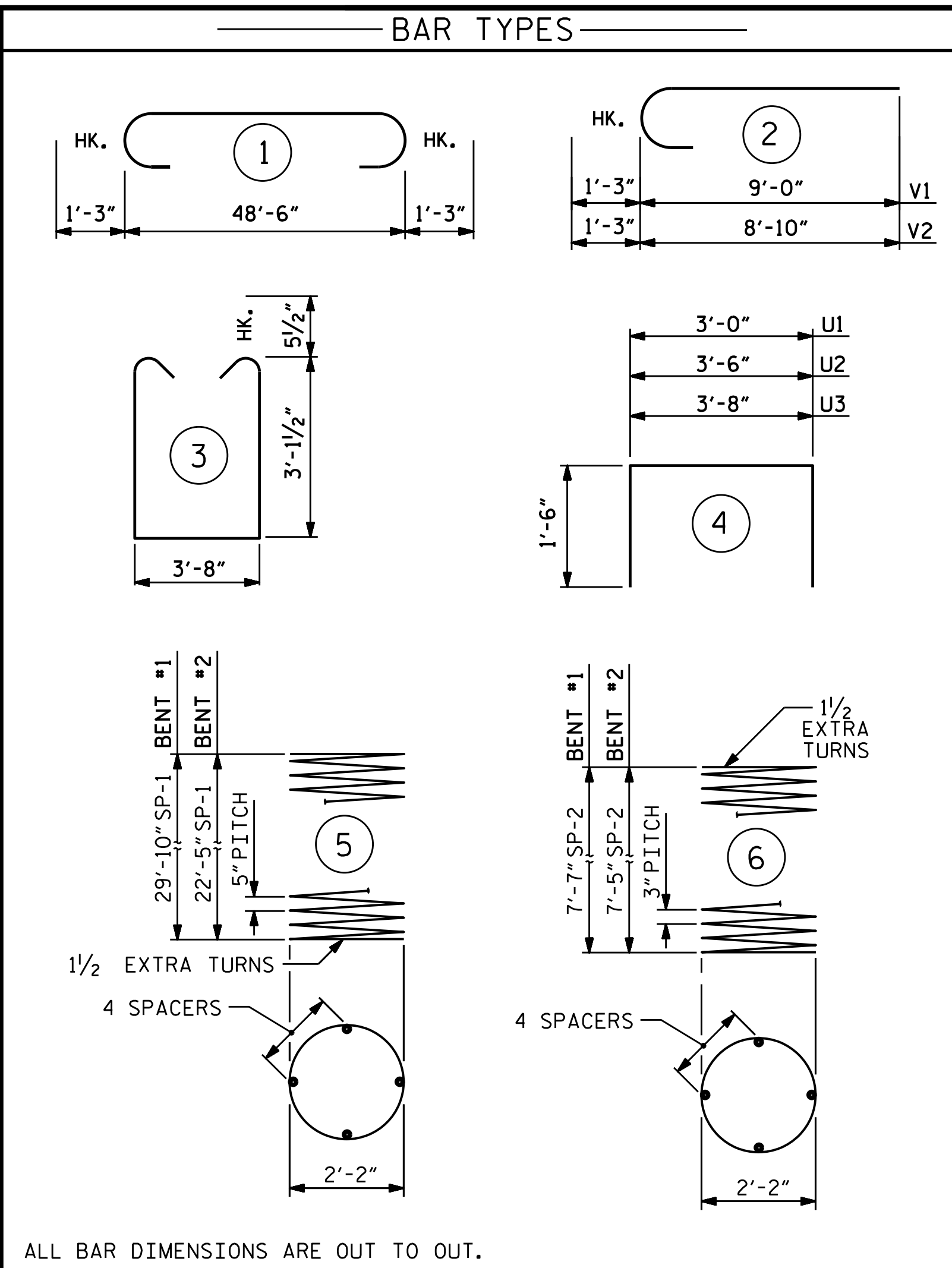


SECTION A-A

END VIEW
(TYP. EA. END)



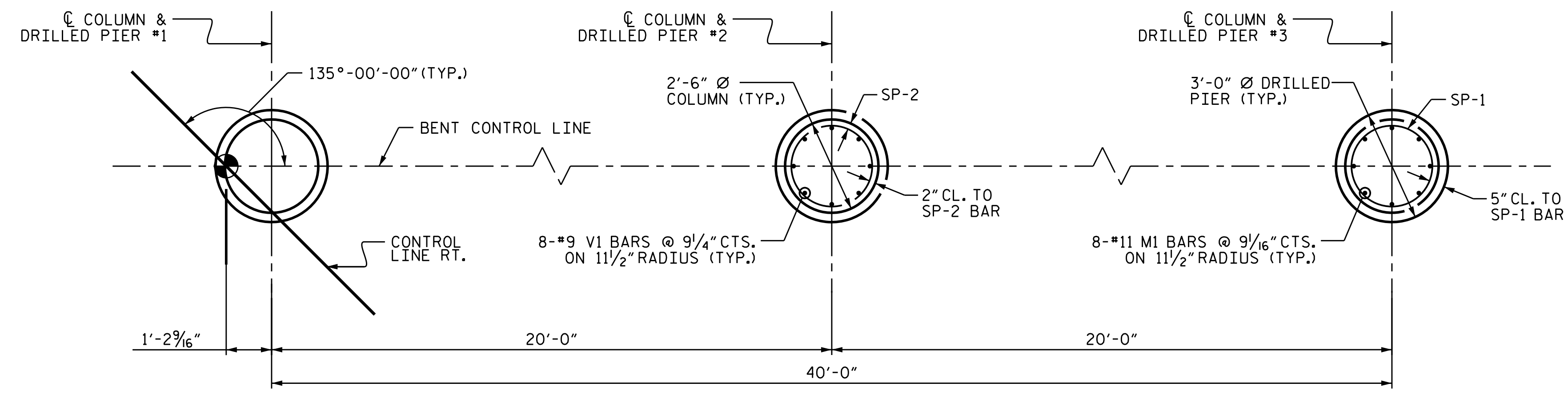
CONSTRUCTION JOINT DETAIL



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL											
BENT #1					BENT #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#9	1	51'-0"	1214	B1	7	#9	1	51'-0"	1214
B2	8	#9	STR	48'-8"	1324	B2	8	#9	STR	48'-8"	1324
B3	4	#5	STR	48'-8"	203	B3	4	#5	STR	48'-8"	203
B4	7	#4	STR	18'-8"	87	B4	7	#4	STR	18'-8"	87
M1	24	#11	STR	37'-7"	4792	M2	24	#11	STR	30'-2"	3847
S1	52	#5	3	10'-10"	588	S1	52	#5	3	10'-10"	588
U1	10	#4	4	6'-0"	40	U1	10	#4	4	6'-0"	40
U2	6	#4	4	6'-6"	26	U2	6	#4	4	6'-6"	26
U3	39	#4	4	6'-8"	174	U3	39	#4	4	6'-8"	174
V1	24	#9	2	10'-3"	836	V2	24	#9	2	10'-1"	823
REINFORCING STEEL					9,284 LBS.	REINFORCING STEEL					8,326 LBS.
SP-1	3	**	5	491'-5"	1538	SP-1	3	**	5	371'-11"	1164
SP-2	3	***	6	215'-4"	432	SP-2	3	***	6	215'-4"	432
SPIRAL COLUMN REINFORCING STEEL					1,970 LBS.	SPIRAL COLUMN REINFORCING STEEL					1,596 LBS.
CLASS A CONCRETE BREAKDOWN						CLASS A CONCRETE BREAKDOWN					
POUR 2 (COLUMNS)					4.0 C.Y.	POUR 2 (COLUMNS)					3.9 C.Y.
POUR 3 (CAPS)					26.9 C.Y.	POUR 3 (CAPS)					26.9 C.Y.
TOTAL CLASS A CONCRETE					30.9 C.Y.	TOTAL CLASS A CONCRETE					30.8 C.Y.
DRILLED PIER CONCRETE BREAKDOWN POUR 1 (DRILLED PIERS)					23.8 C.Y.	DRILLED PIER CONCRETE BREAKDOWN POUR 1 (DRILLED PIERS)					18.0 C.Y.
3'-0" Ø DRILLED PIER IN SOIL : LINEAR FEET					49.9 FT.	3'-0" Ø DRILLED PIER IN SOIL : LINEAR FEET					32.7 FT.
3'-0" Ø DRILLED PIER NOT IN SOIL : LINEAR FEET					41.0 FT.	3'-0" Ø DRILLED PIER NOT IN SOIL : LINEAR FEET					36.0 FT.
CSL TUBES:					382 FT.	CSL TUBES:					293 FT.

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
*** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

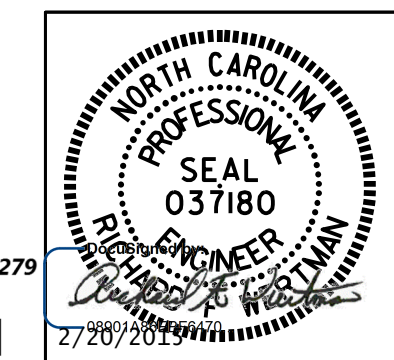


PLAN OF COLUMNS AND DRILLED PIERS

REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL COLUMNS AND DRILLED PIERS (BENT #1 SHOWN, BENT #2 SIMILAR)

DRAWN BY : T.J. KIRSCHBAUM DATE : 08/19/14
 CHECKED BY : R.F. WERTMAN DATE : 09/04/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 09/04/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Situs Court
 Suite 170
 Raleigh NC 27606-4279
 (919) 859-4880
 NCLic. No. F-0270



PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH									
SUBSTRUCTURE BENTS #1 & #2 NBL									
REVISIONS					SHEET NO.				
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-24			
1			3			TOTAL SHEETS			
2			4			30			

NOTES:

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

▲ THIS ELEVATION TAKEN ON FILL FACE OF BACKWALL.

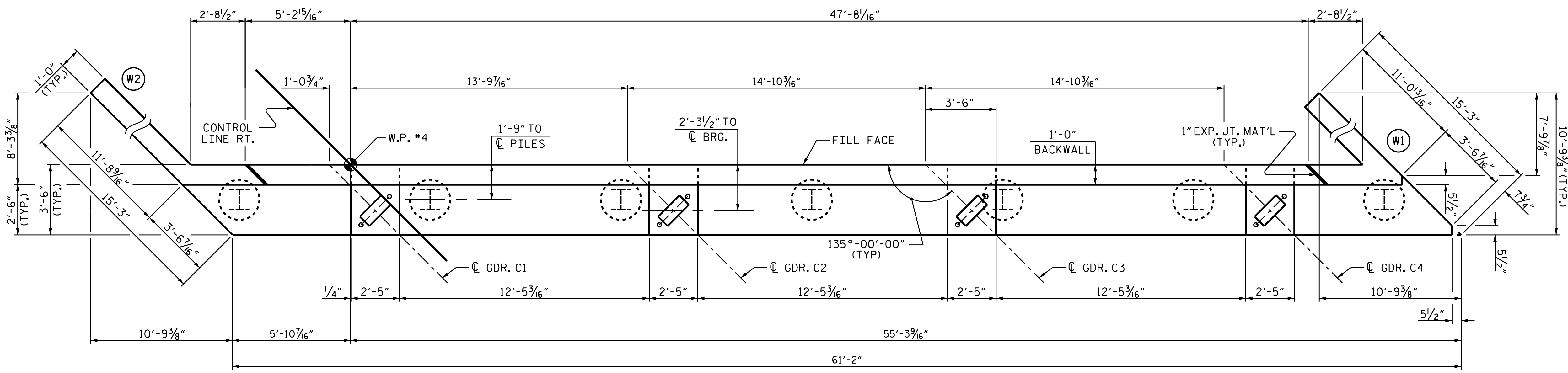
STIRRUPS & U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

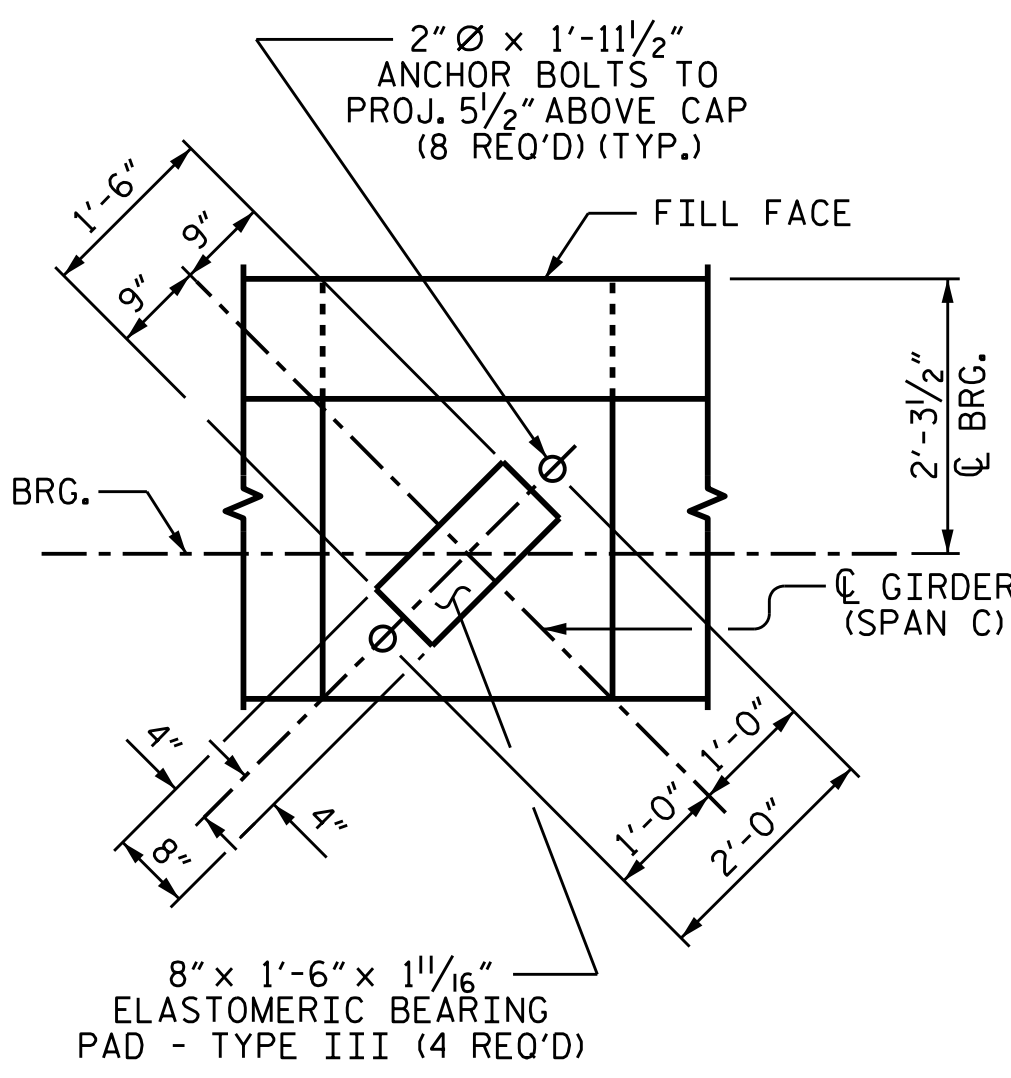
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE 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.

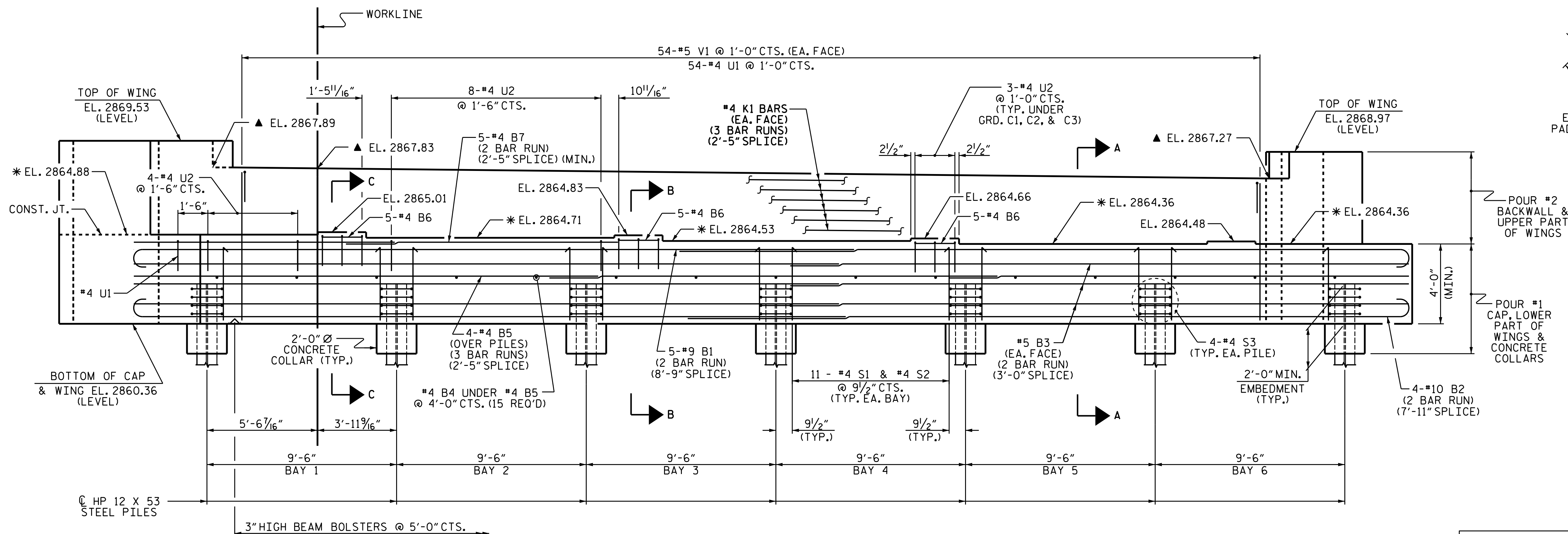
INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN



DETAIL "A"
(TYP. EA. GIRDER)



ELEVATION

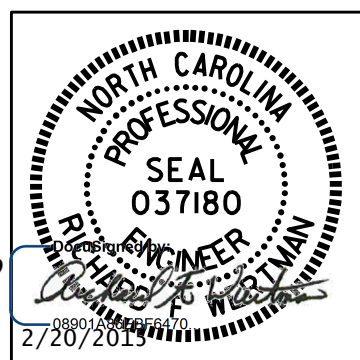
PROJECT NO. R-2915B
ASHE COUNTY
STATION: 234+19.20 -L-
SHEET 1 OF 3

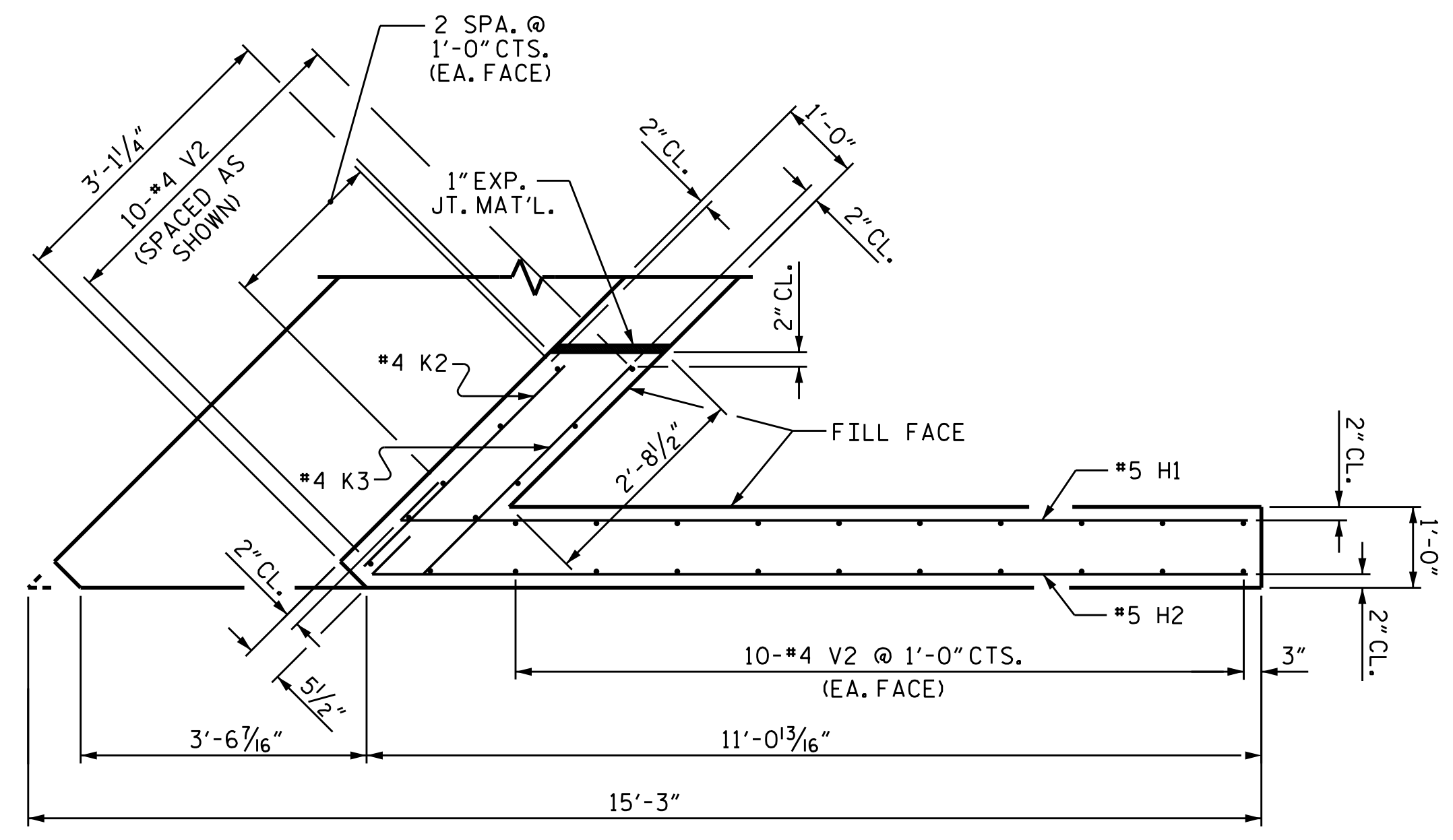
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT #2
NBL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-25	
1			3			TOTAL SHEETS	
2			4			30	

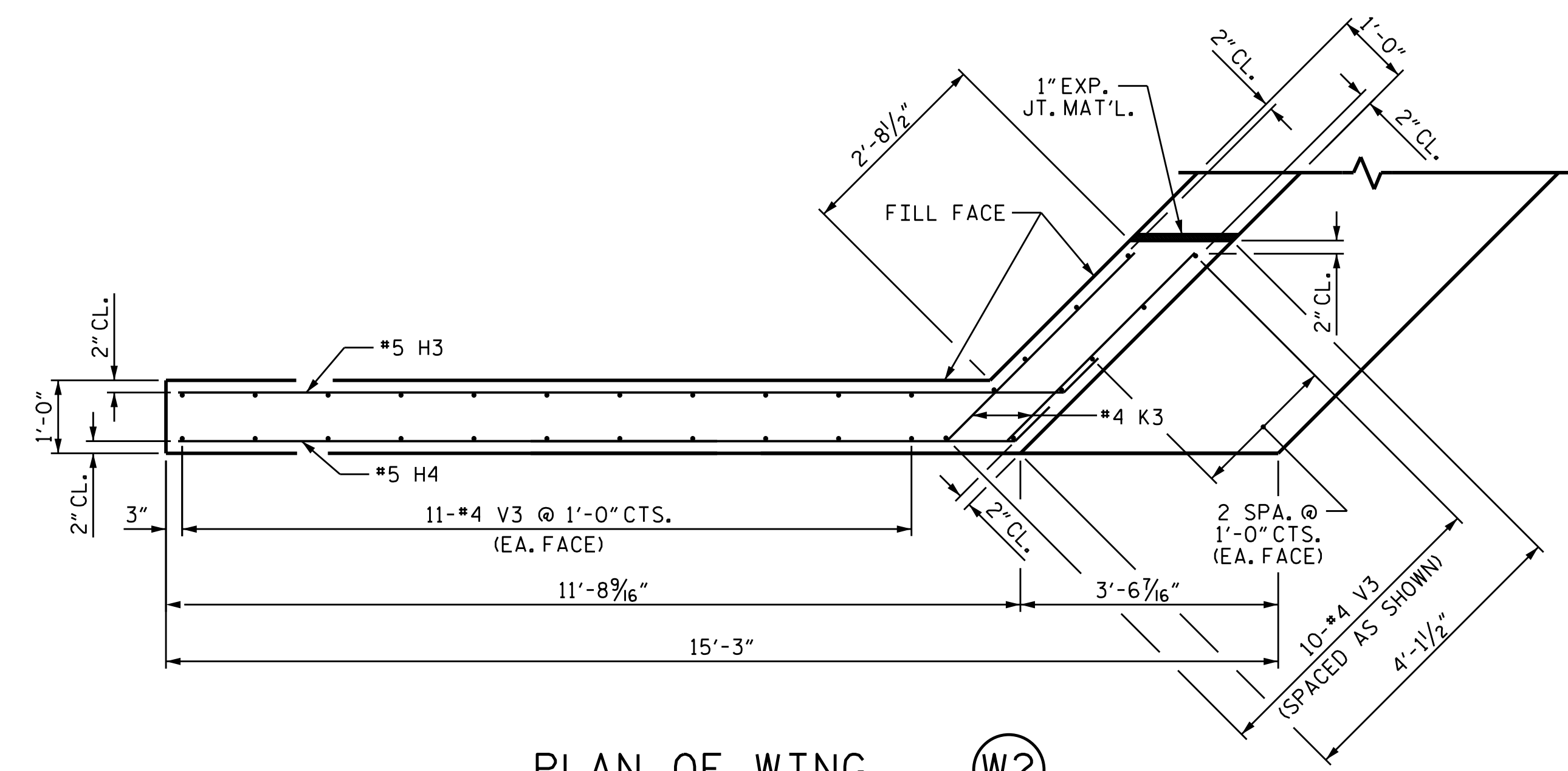
DRAWN BY : T.J. KIRSCHBAUM DATE : 08/28/14
CHECKED BY : E.E. DEETSCREEK DATE : 09/04/14
DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 09/05/14

PLANS PREPARED BY:
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NCLic. No. F-0270

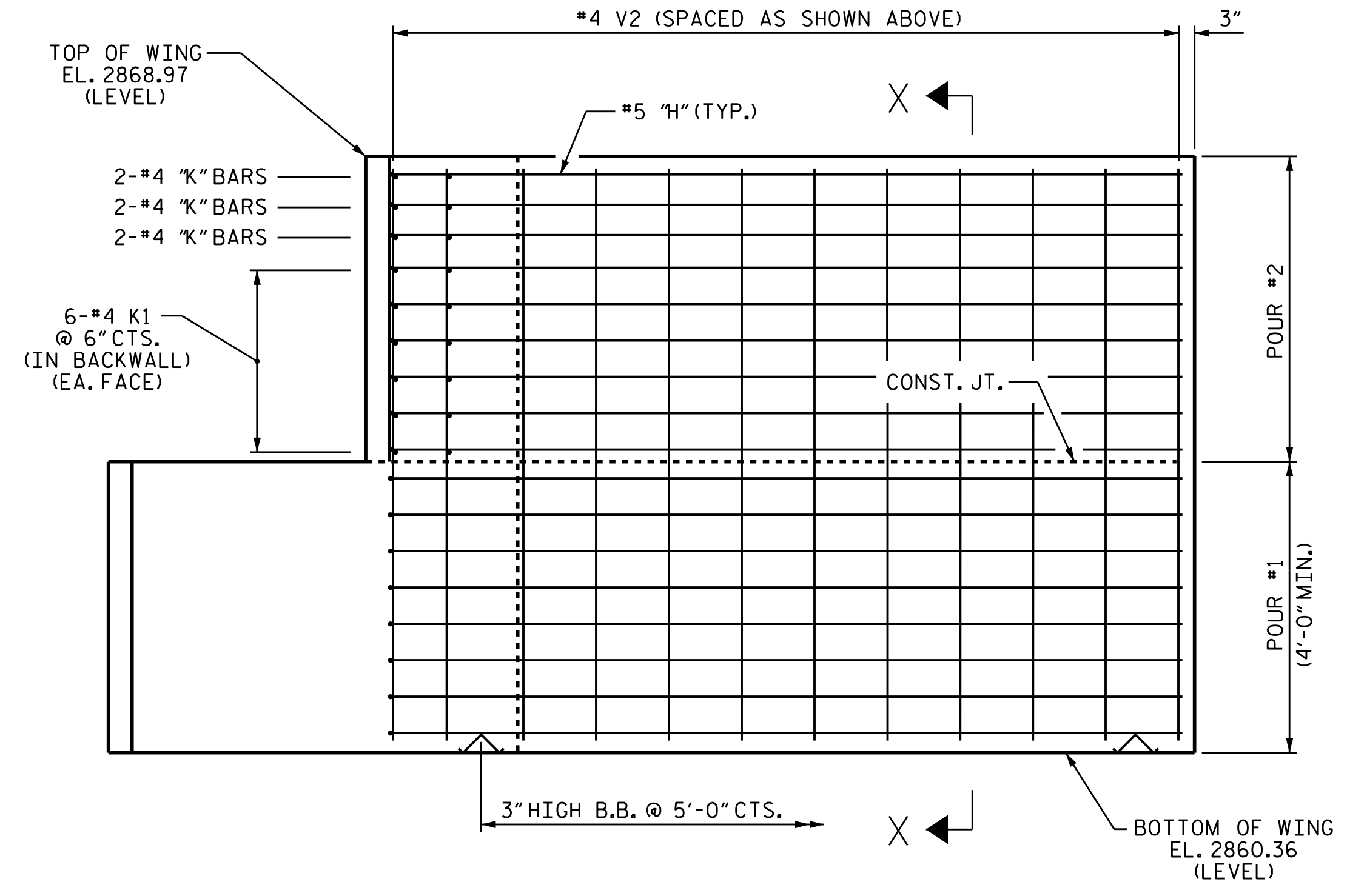




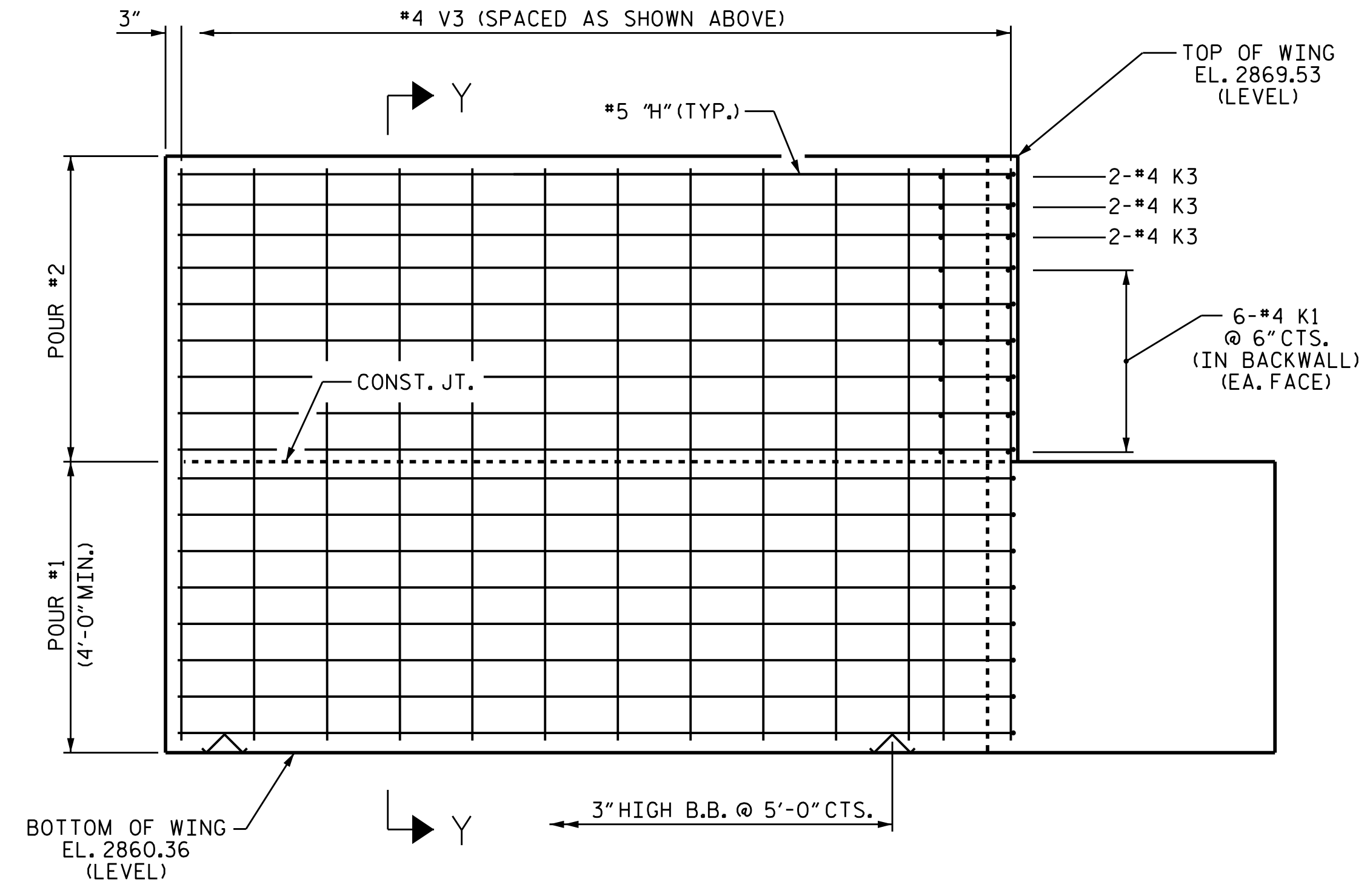
PLAN OF WING (W1)



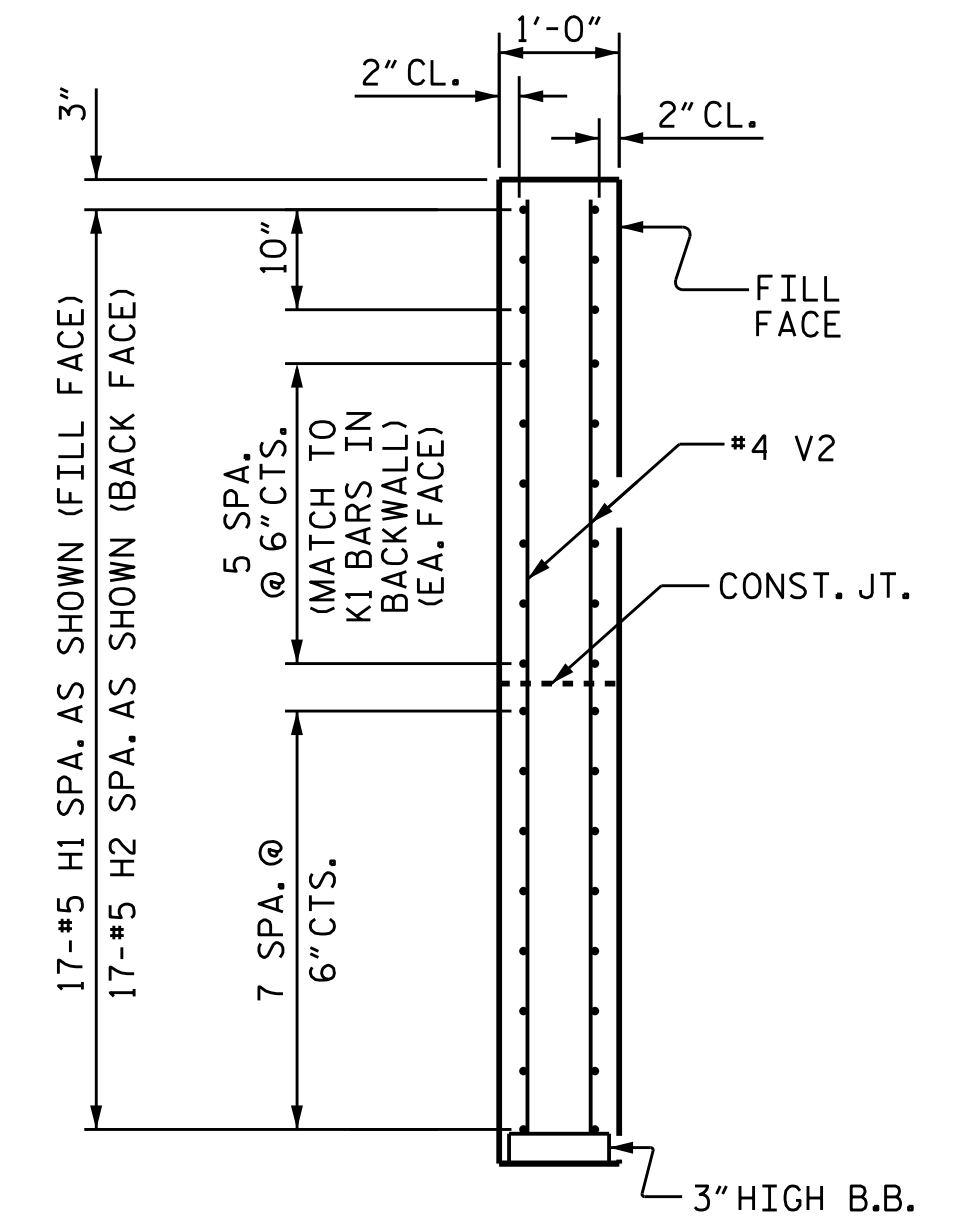
PLAN OF WING (W2)



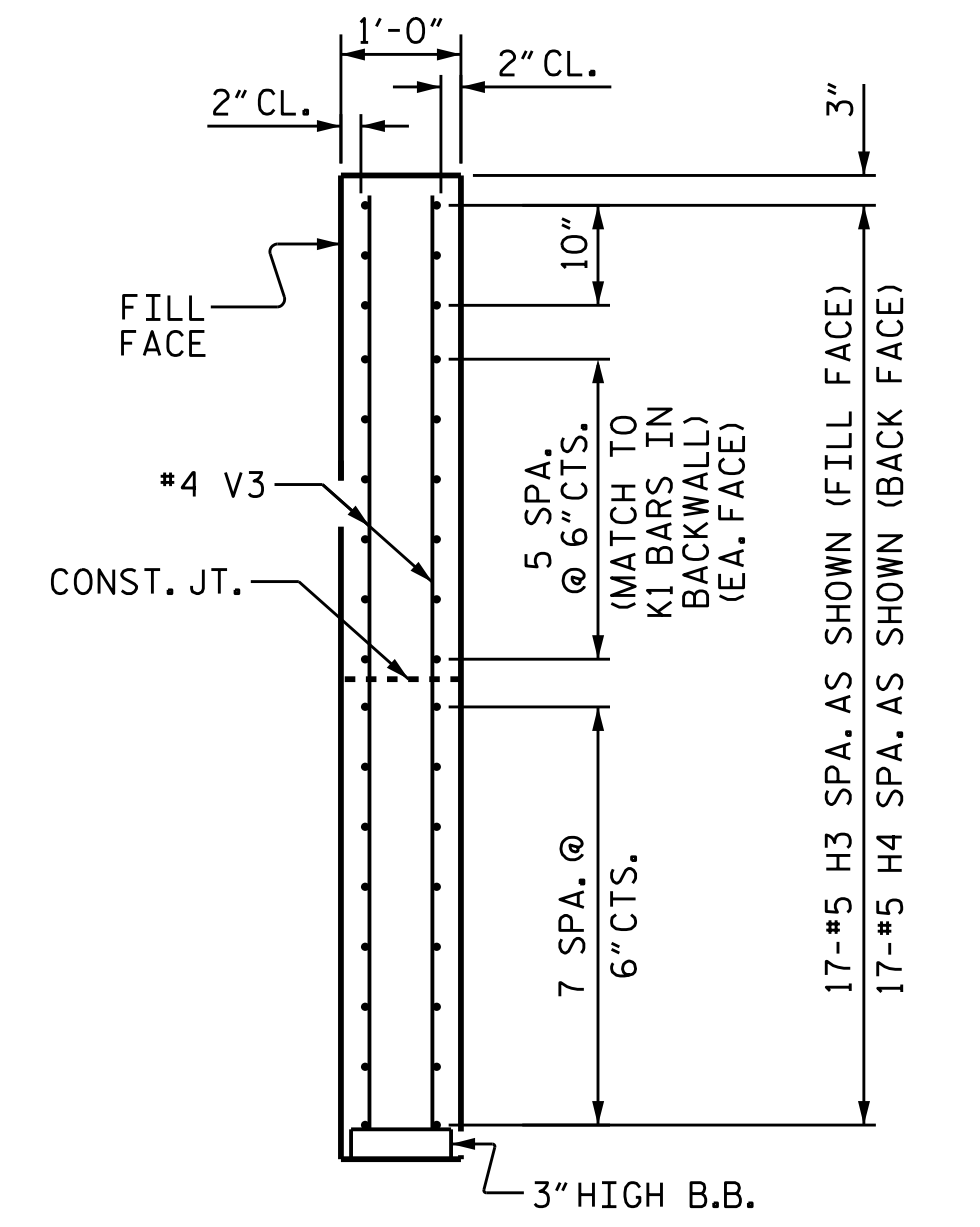
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



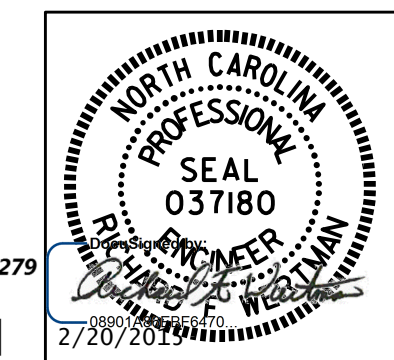
SECTION Y-Y

PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-

SHEET 2 OF 3
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2
 NBL

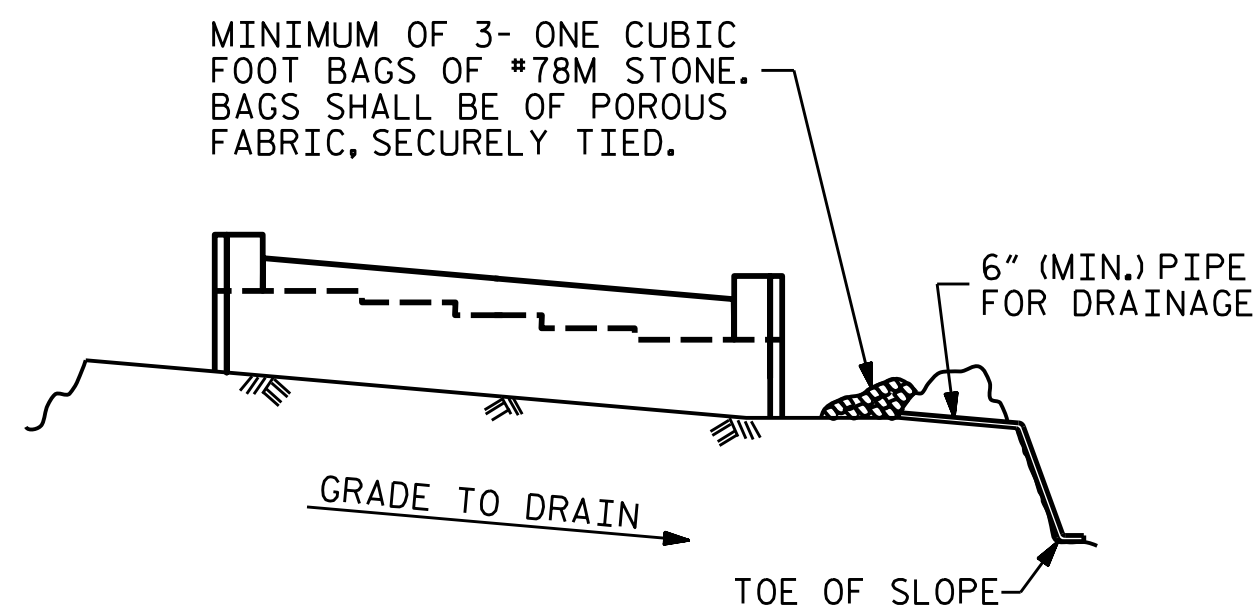
DRAWN BY: T.J. KIRSCHBAUM DATE: 08/28/14
 CHECKED BY: E.E. DEETSCREEK DATE: 09/04/14
 DESIGN ENGINEER OF RECORD: R.F. WERTMAN DATE: 09/05/14

PLANS PREPARED BY:
Gannett Fleming
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REVISIONS						SHEET NO. S03-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

STR. NO. 3

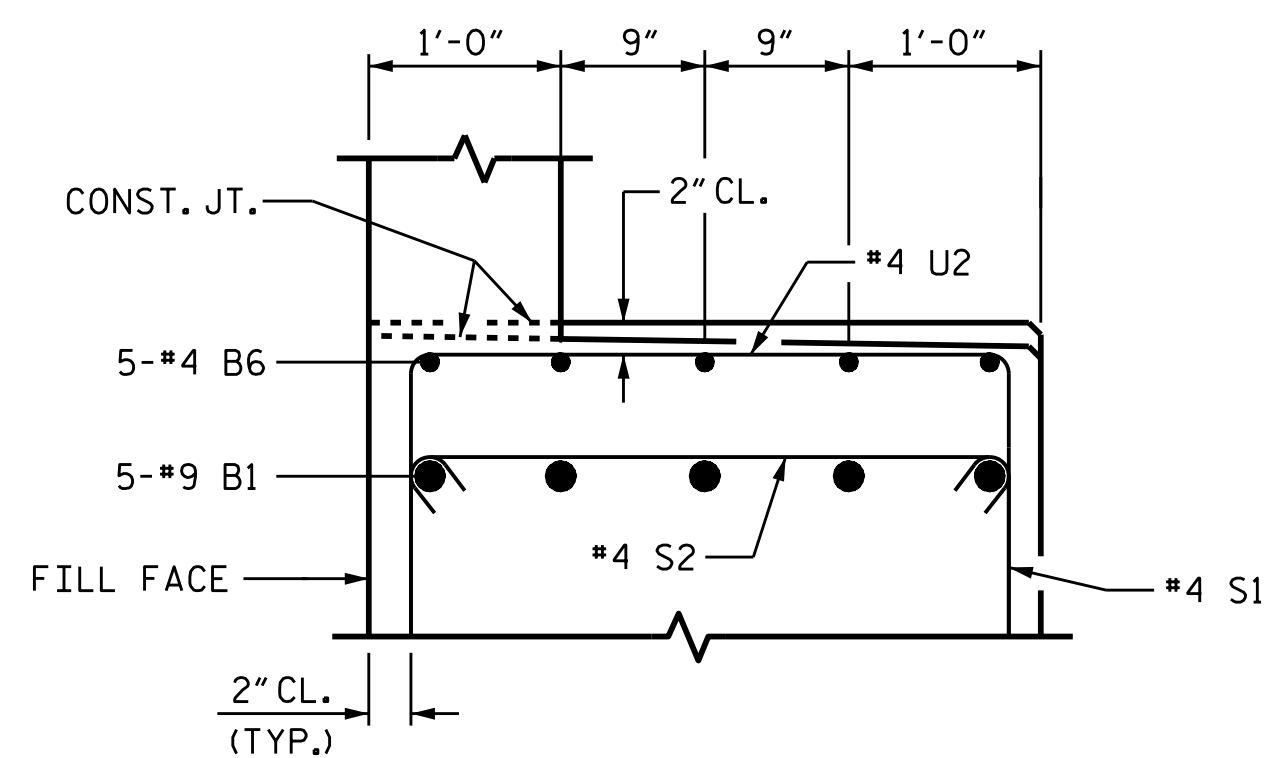


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

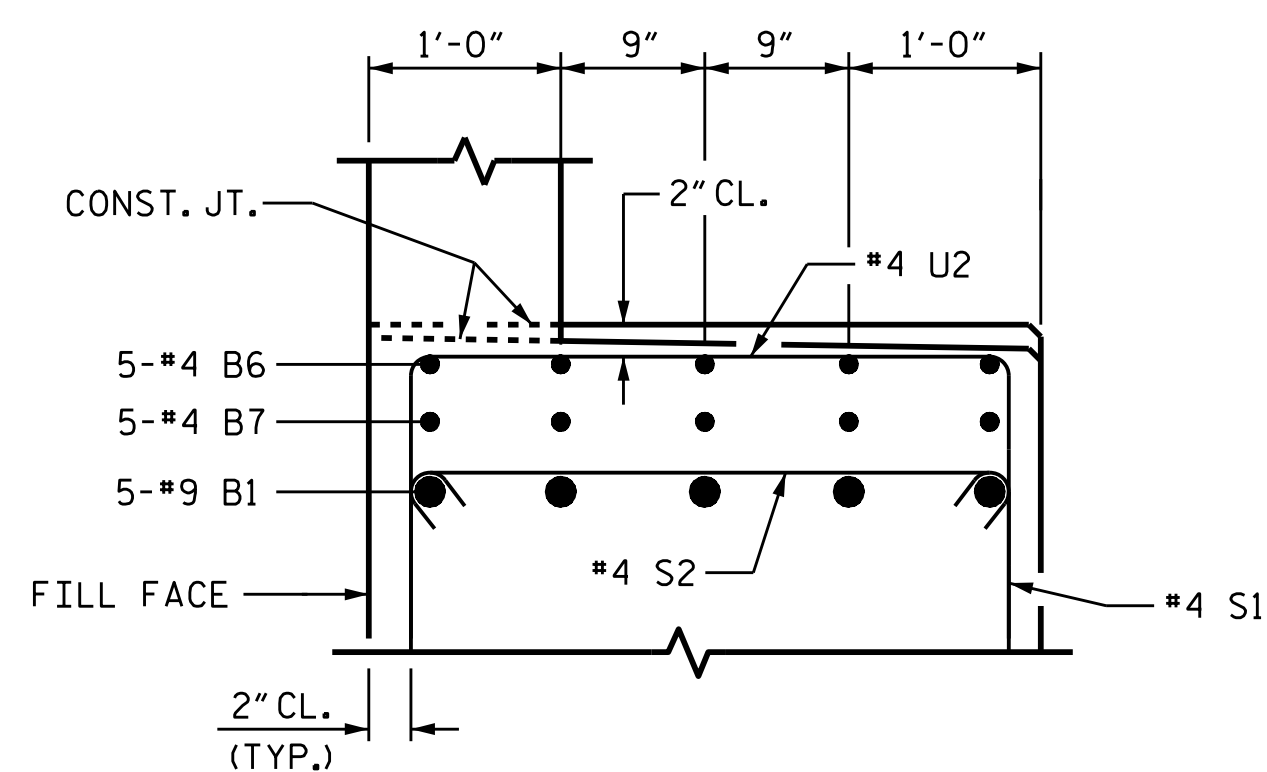
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

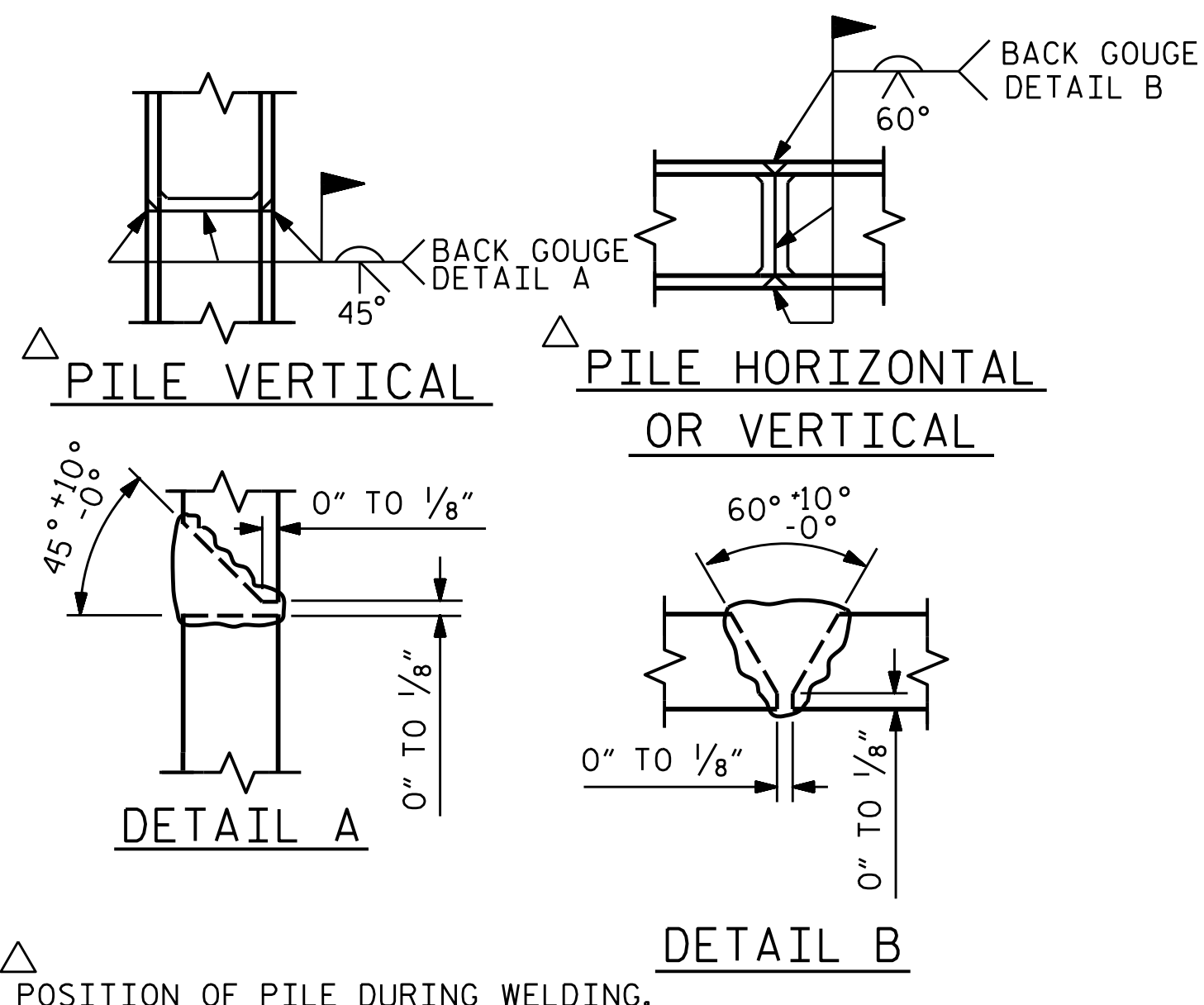
TEMPORARY DRAINAGE AT END BENT



PARTIAL SECTION B-B
(TYP. @ BRG. C2 & C3)

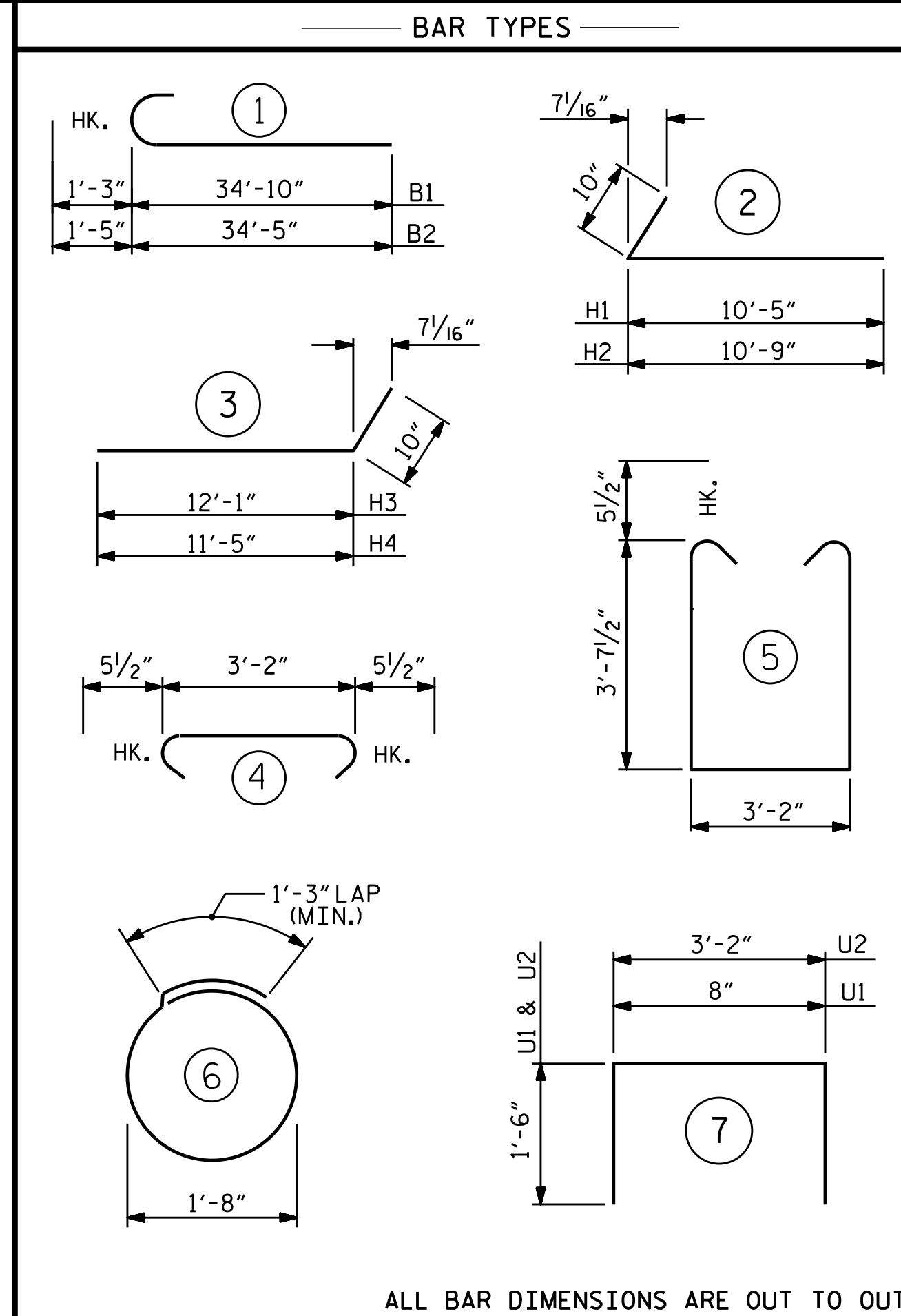


PARTIAL SECTION C-C
(TYP. @ BRG. C1)



PILE SPLICE DETAILS

POSITION OF PILE DURING WELDING.



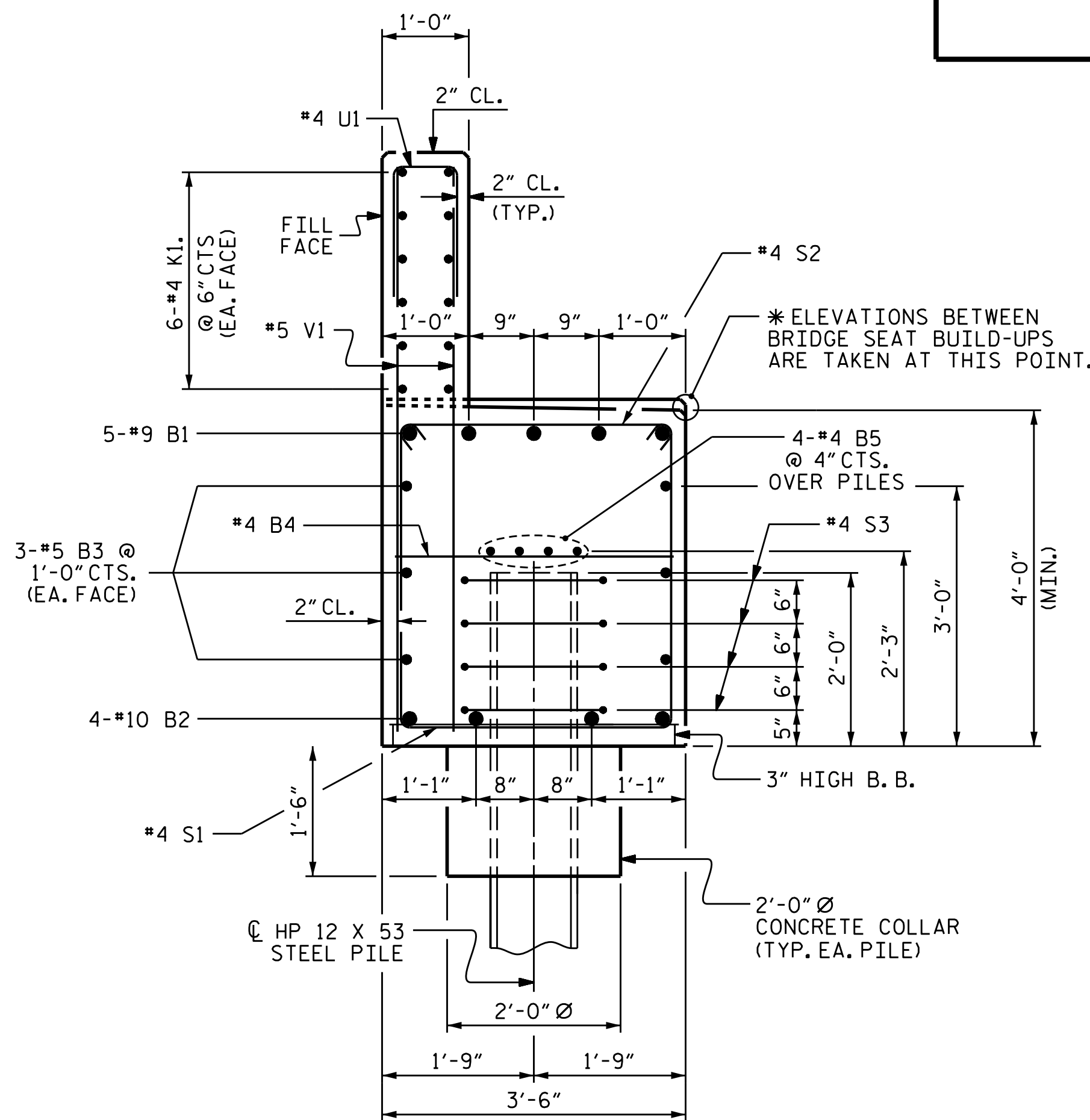
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #2

BAR	No.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	36'-1"	1227
B2	8	#10	1	35'-10"	1234
B3	12	#5	STR	31'-11"	399
B4	15	#4	STR	3'-2"	32
B5	12	#4	STR	21'-11"	176
B6	15	#4	STR	2'-0"	20
B7	10	#4	STR	12'-10"	86
H1	17	#5	2	11'-3"	199
H2	17	#5	2	11'-7"	205
H3	17	#5	3	12'-11"	229
H4	17	#5	3	12'-3"	217
K1	36	#4	STR	21'-11"	527
K2	3	#4	STR	3'-6"	7
K3	9	#4	STR	3'-7"	22
S1	68	#4	5	11'-4"	515
S2	68	#4	4	4'-1"	185
S3	28	#4	6	6'-6"	122
U1	55	#4	7	3'-8"	135
U2	21	#4	7	6'-2"	87
V1	108	#5	STR	6'-7"	742
V2	30	#4	STR	8'-9"	175
V3	32	#4	STR	8'-3"	176

REINFORCING STEEL				6,717 LBS.
CLASS A CONCRETE				
POUR #1 (CAP, LOWER WINGS & COLLARS)				36.9 C.Y.
POUR #2 (UPPER WINGS & BACKWALL)				11.1 C.Y.
TOTAL				48.0 C.Y.
HP 12 X 53 STEEL PILES				No. = 7
				140 LIN. FT.



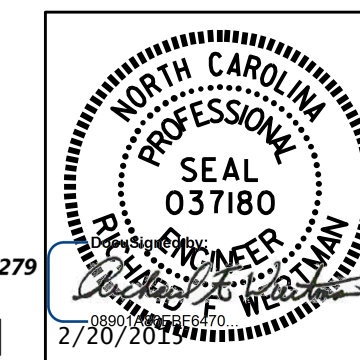
SECTION A-A

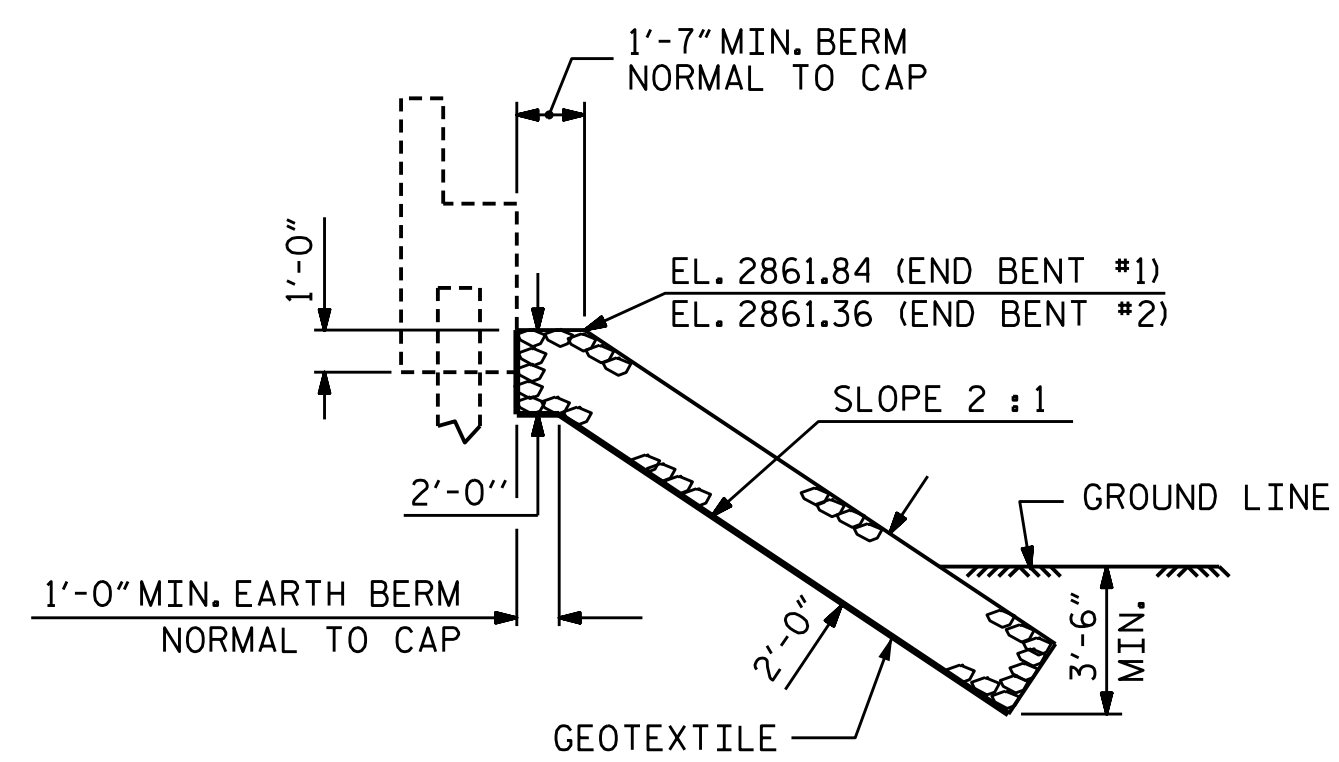
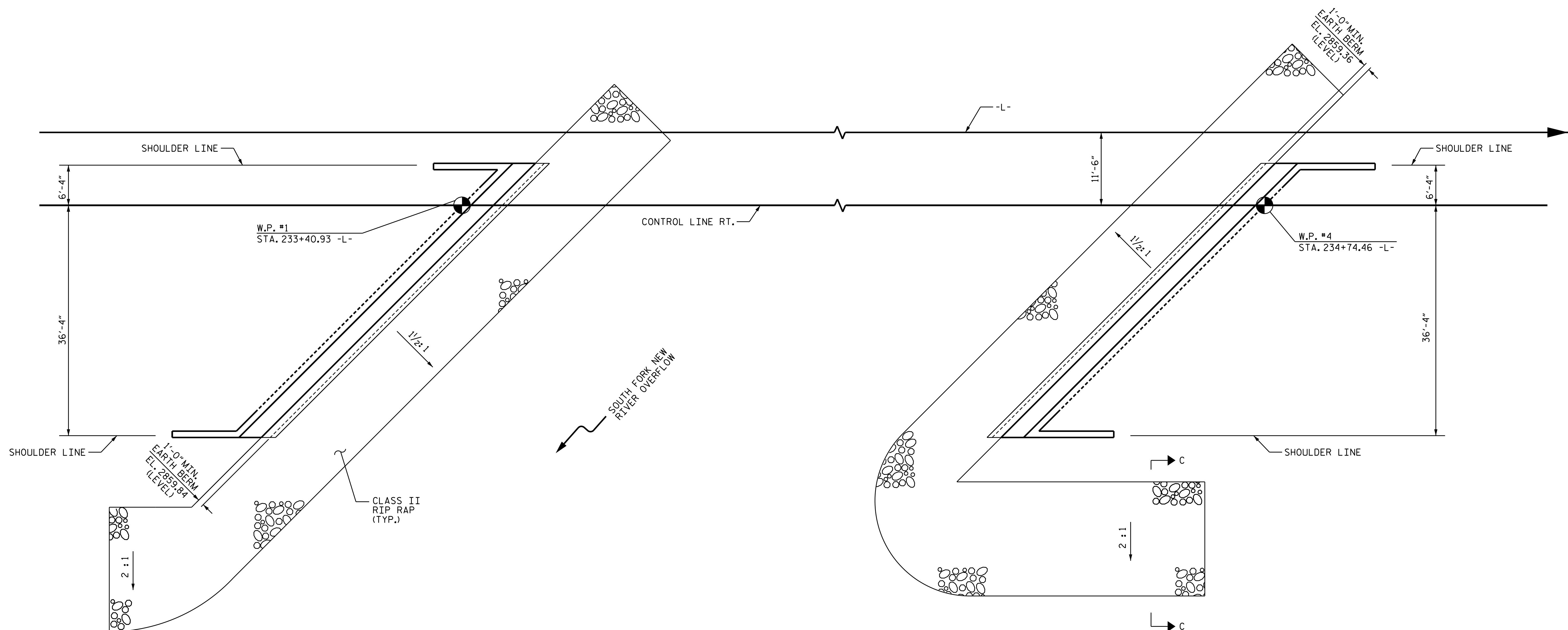
PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2 NBL					
REVISIONS				SHEET NO. S03-27	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					30

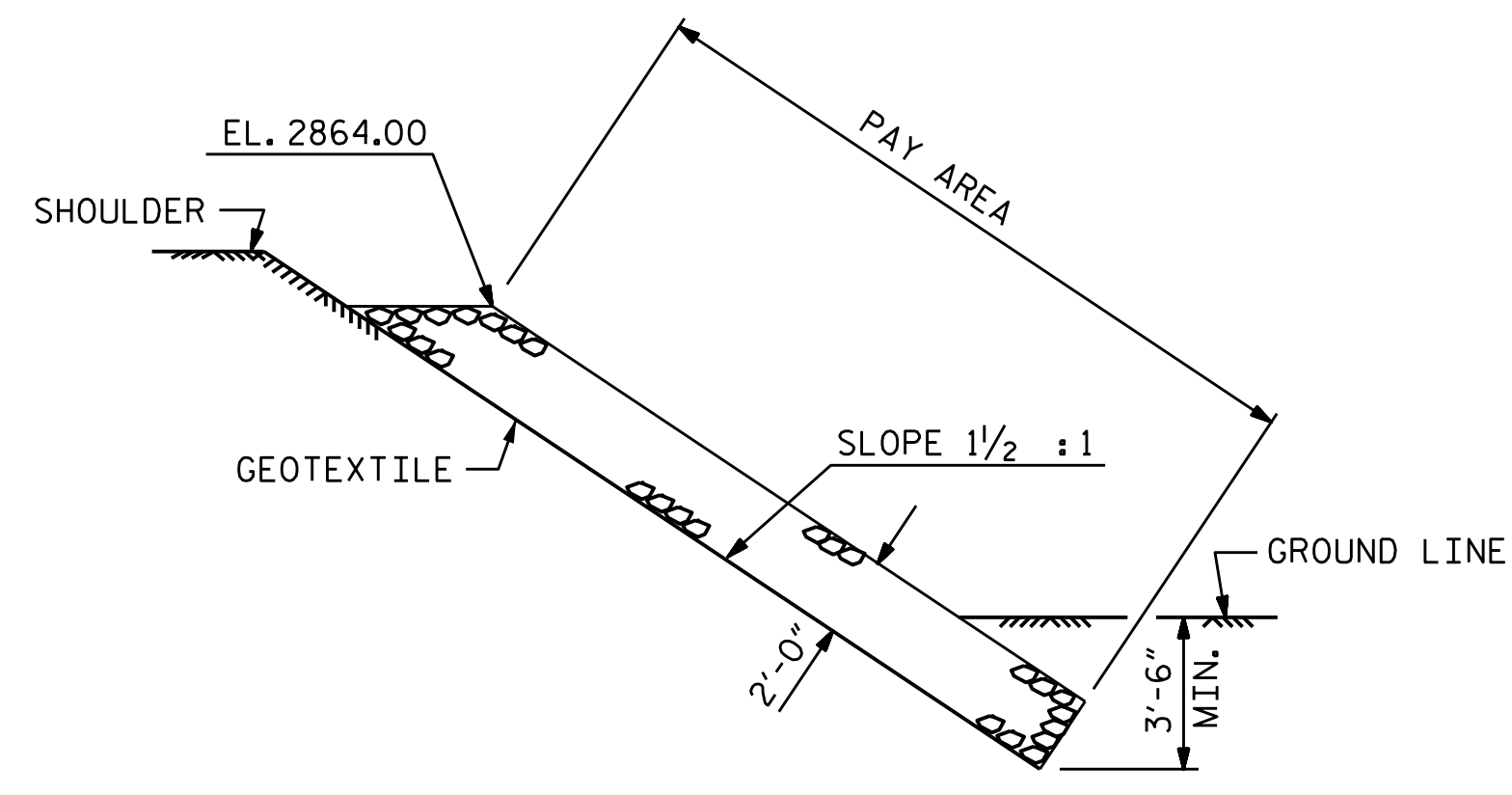
DRAWN BY : T.J. KIRSCHBAUM DATE : 08/28/14
 CHECKED BY : E.E. DEETSREEK DATE : 09/04/14
 DESIGN ENGINEER OF RECORD : R.F. WERTMAN DATE : 09/05/14

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Situs Court
 Suite 170
 Raleigh, NC 27606-4279
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 NCLic. No. F-0270





SECTION BERM RIP RAPPED



SECTION C-C

ESTIMATED QUANTITIES		
BRIDGE @ STA. 234+19.20 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	175	190
END BENT 2	230	255

PROJECT NO. R-2915B
ASHE COUNTY
 STATION: 234+19.20 -L-

ASSEMBLED BY : T.J. KIRSCHBAUM DATE : 09/05/14
 CHECKED BY : R.F. WERTMAN DATE : 09/05/14
 DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM
 CHECKED BY : RDU 1/84 REV. 10/1/11 MAA/GM
 REV. 12/21/11 MAA/GM

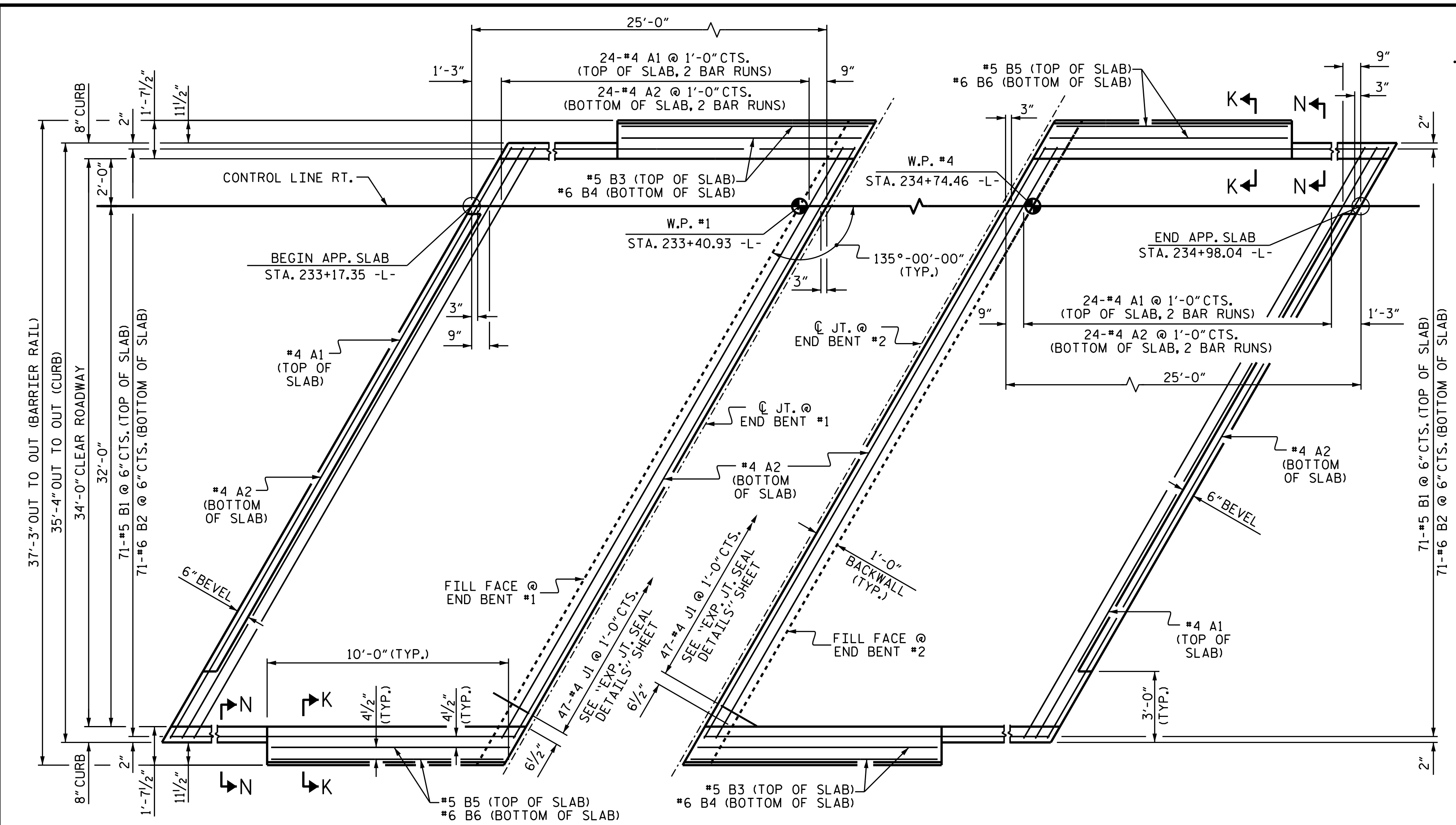
PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
 1121 Sitis Court Suite 170 Raleigh NC 27606-4279 (919) 859-4880 NC Lic. No. F-0270

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
— RIP RAP DETAILS —
 NBL

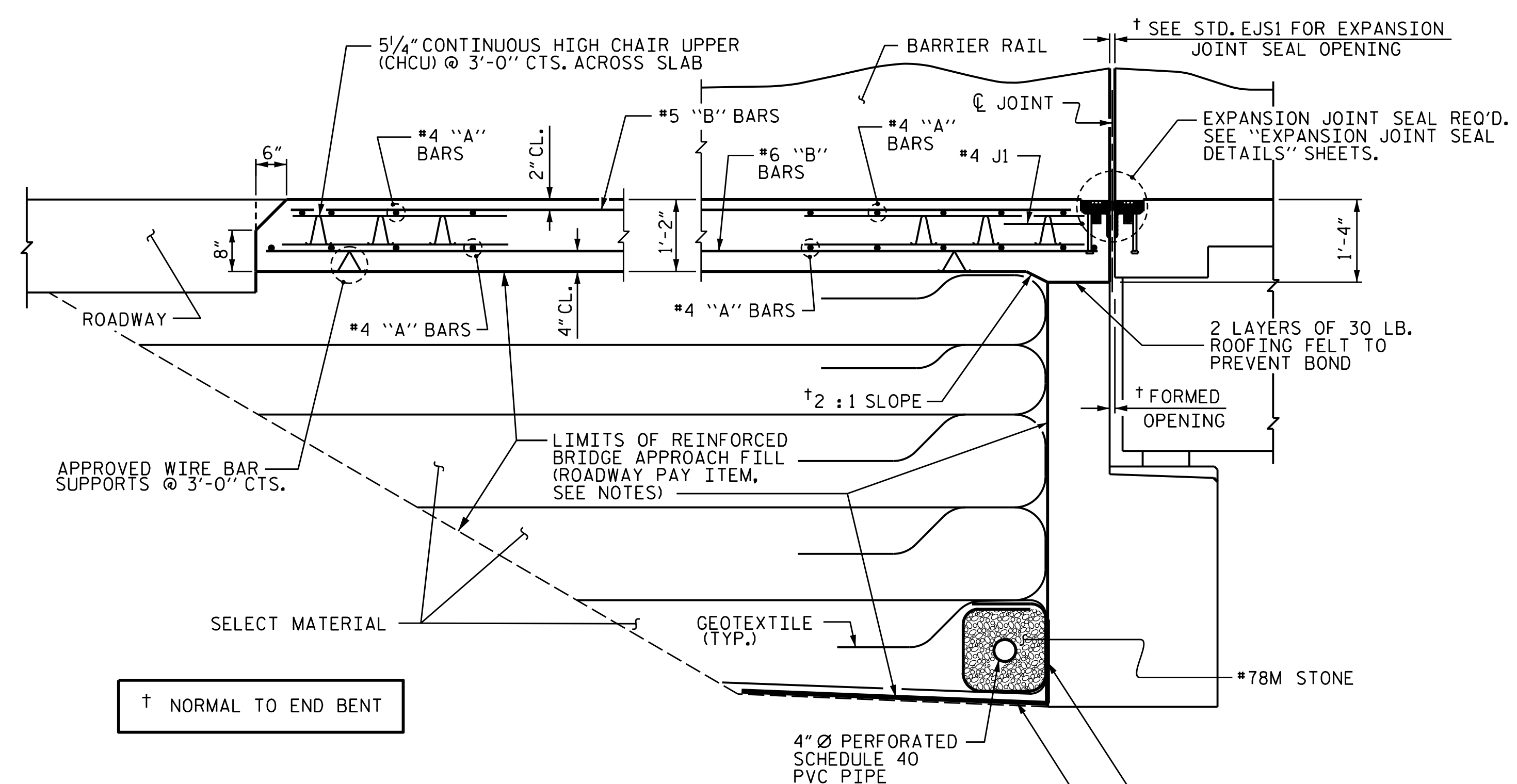
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-28
1			3			TOTAL SHEETS
2			4			30



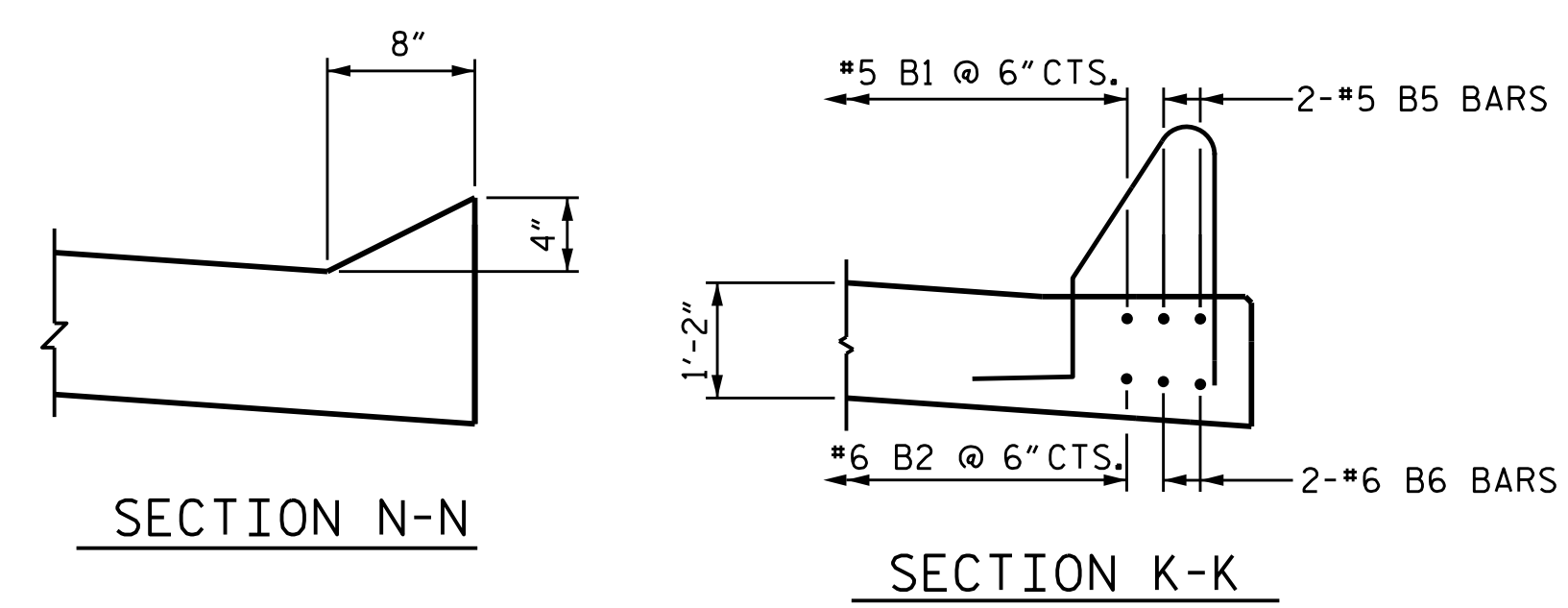
PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

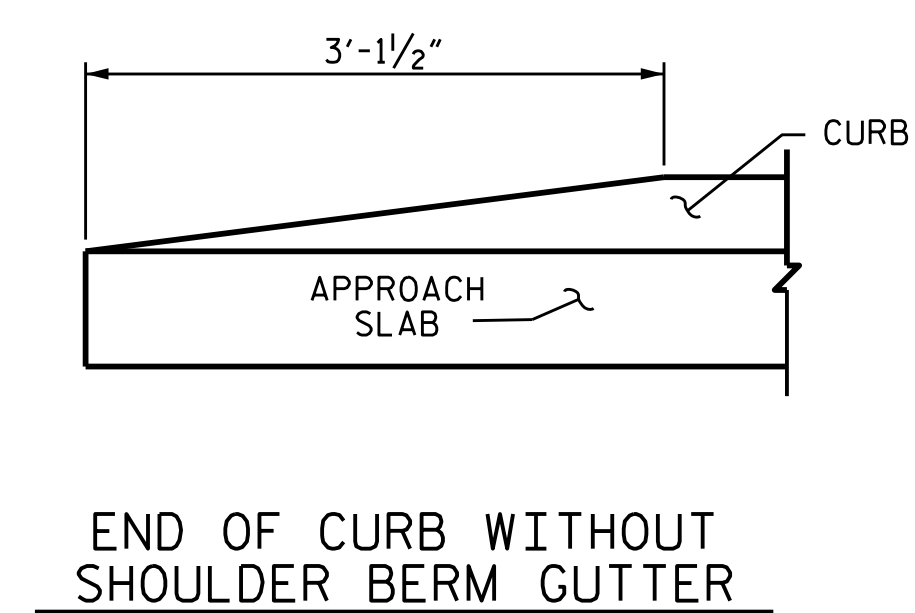


SECTION THRU SLAB



SECTION N-N

SECTION K-K



CURB DETAILS

NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

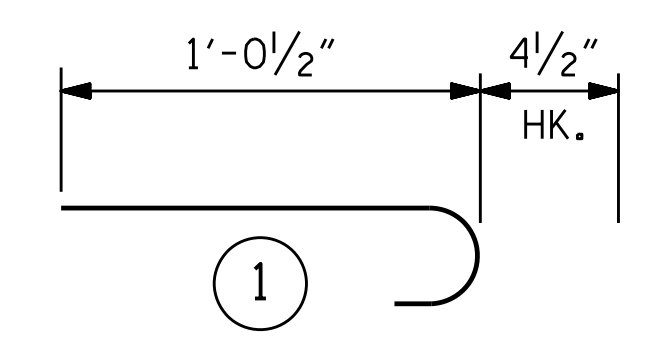
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

SPLICE LENGTHS CHART

BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

BAR TYPES



ALL BAR DIMENSION ARE OUT TO OUT

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	25'-9"	86Q
A2	52	#4	STR	25'-8"	892
*B1	71	#5	STR	23'-9"	1759
B2	71	#6	STR	24'-8"	2631
*B3	2	#5	STR	10'-4"	22
B4	2	#6	STR	10'-4"	31
*B5	2	#5	STR	9'-10"	21
B6	2	#6	STR	9'-10"	3Q
*J1	47	#4	1	1'-5"	44

REINFORCING STEEL LBS. 3584
*EPOXY COATED REINFORCING STEEL LBS. 2706

CLASS AA CONCRETE C. Y. 39.3

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	25'-9"	86Q
A2	52	#4	STR	25'-8"	892
*B1	71	#5	STR	23'-9"	1759
B2	71	#6	STR	24'-8"	2631
*B3	2	#5	STR	10'-4"	22
B4	2	#6	STR	10'-4"	31
*B5	2	#5	STR	9'-10"	21
B6	2	#6	STR	9'-10"	3Q
*J1	47	#4	1	1'-5"	44

REINFORCING STEEL LBS. 3584
*EPOXY COATED REINFORCING STEEL LBS. 2706

CLASS AA CONCRETE C. Y. 39.3

PROJECT NO. R-2915B
ASHE COUNTY
STATION: 234+19.20 -L-

SHEET 1 OF 2

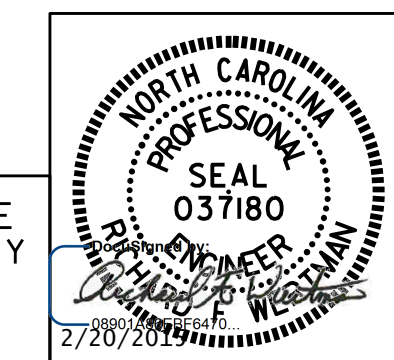
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT
NBL

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

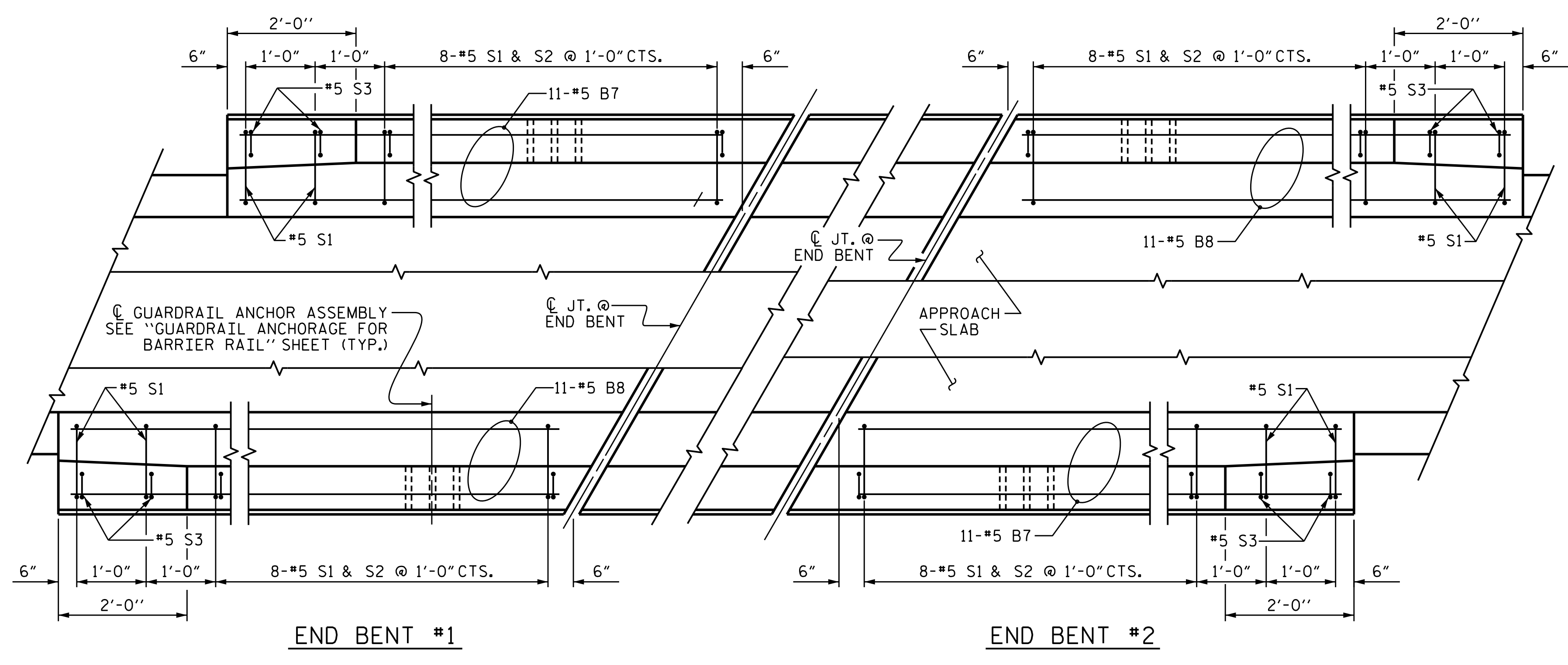
ASSEMBLED BY: T.J. KIRSCHBAUM	DATE: 09/05/14
CHECKED BY: R.F. WERTMAN	DATE: 09/05/14
DRAWN BY: EEM 3/95	REV. 5/1/06RR KMM/GM
CHECKED BY: VAP 3/95	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM

PLANS PREPARED BY:
Gannett Fleming
Excellence Delivered As Promised
1121 Situs Court
Suite 170
Raleigh NC 27606-4279
(919) 859-4880
NC Lic. No. F-0270

THESE PLANS HAVE BEEN PROPERLY EXAMINED BY THE UNDERSIGNED. I HAVE DETERMINED THAT THEY COMPLY WITH EXISTING NORTH CAROLINA CODES, AND HAVE BEEN PROPERLY ADAPTED FOR USE IN THIS AREA.



STD. NO. BAS2



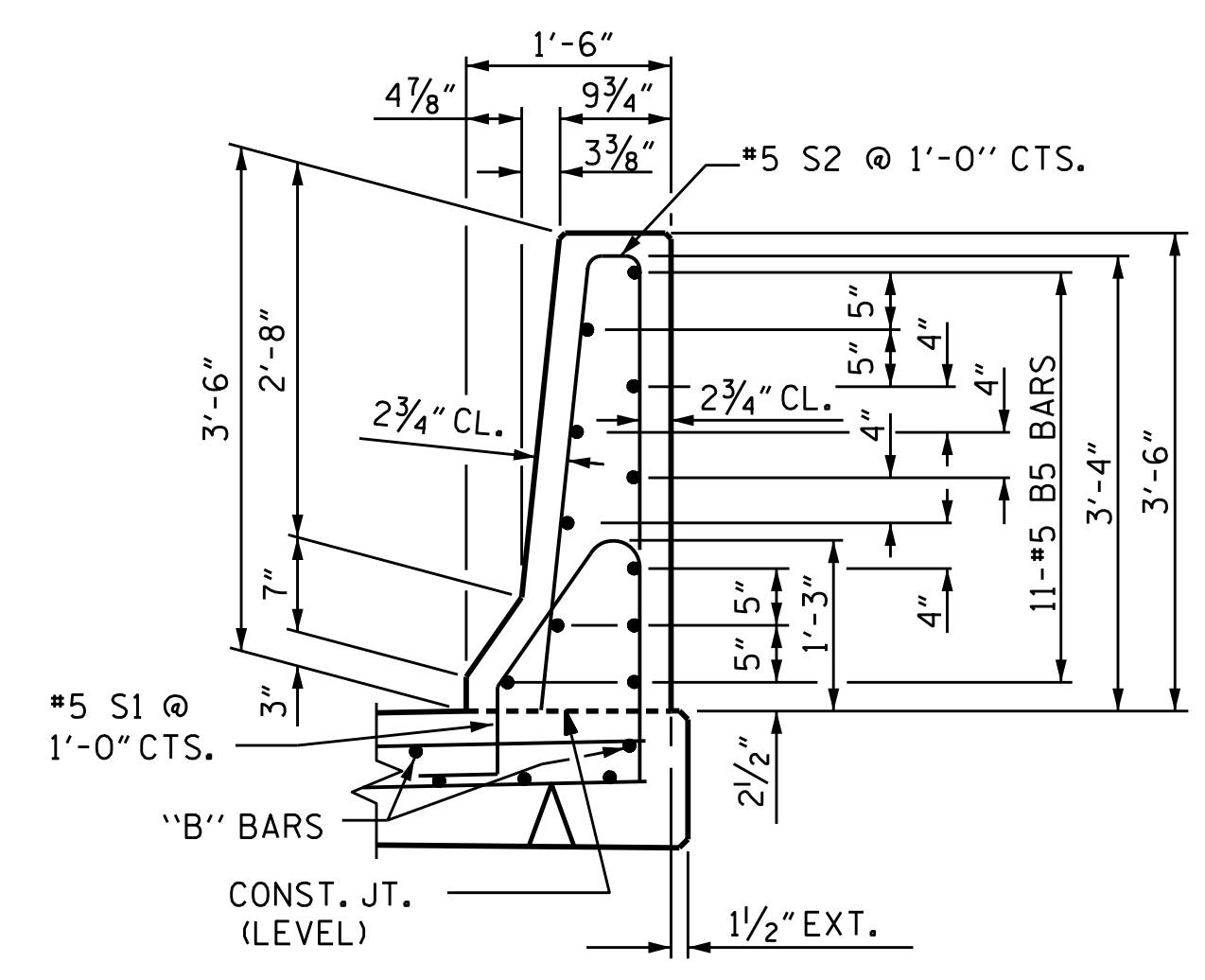
PLAN OF BARRIER RAIL

NOTES

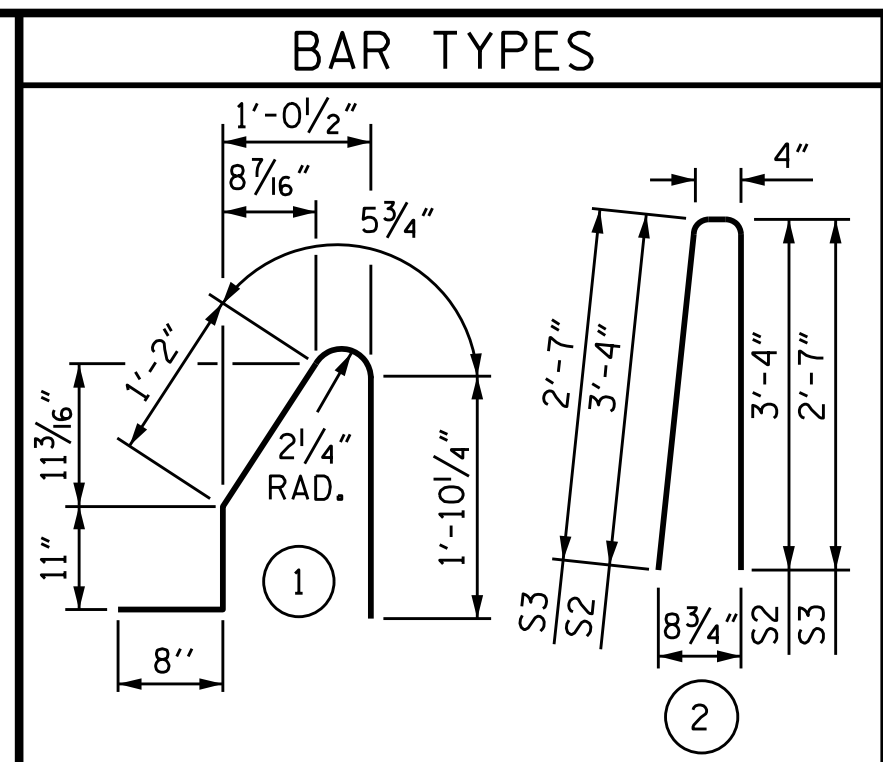
THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

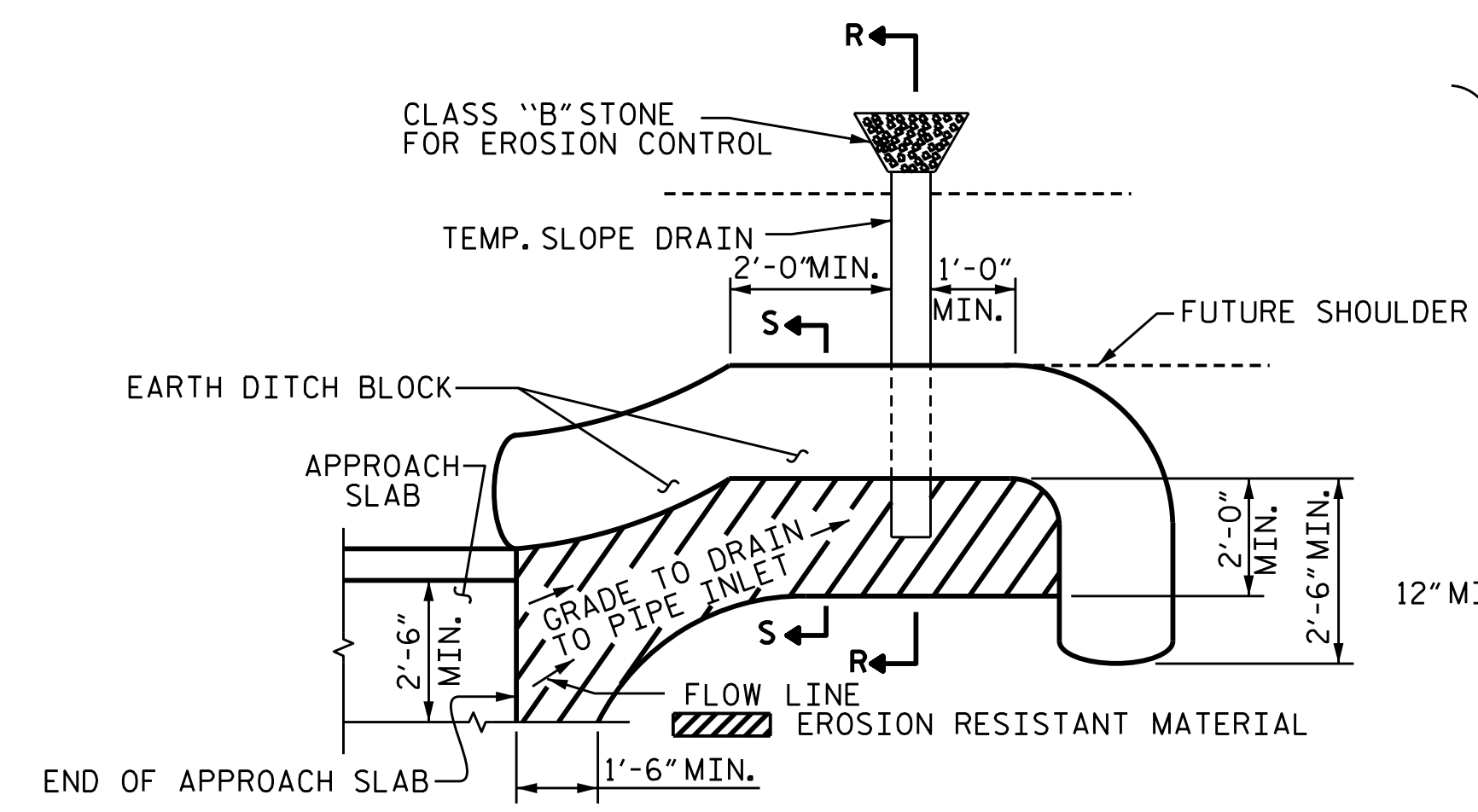


SECTION THRU RAIL

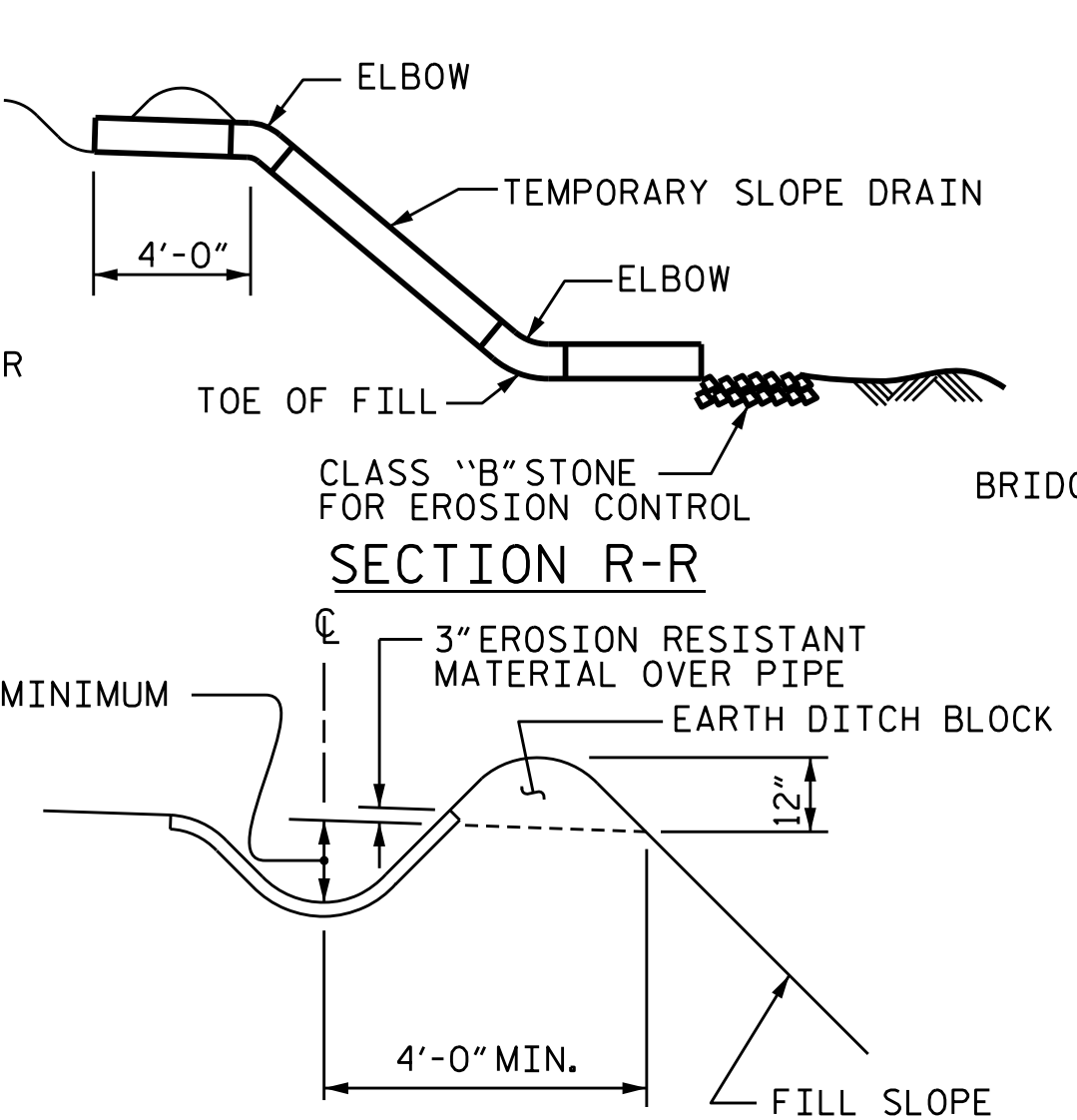


ALL BAR DIMENSIONS ARE OUT TO OUT

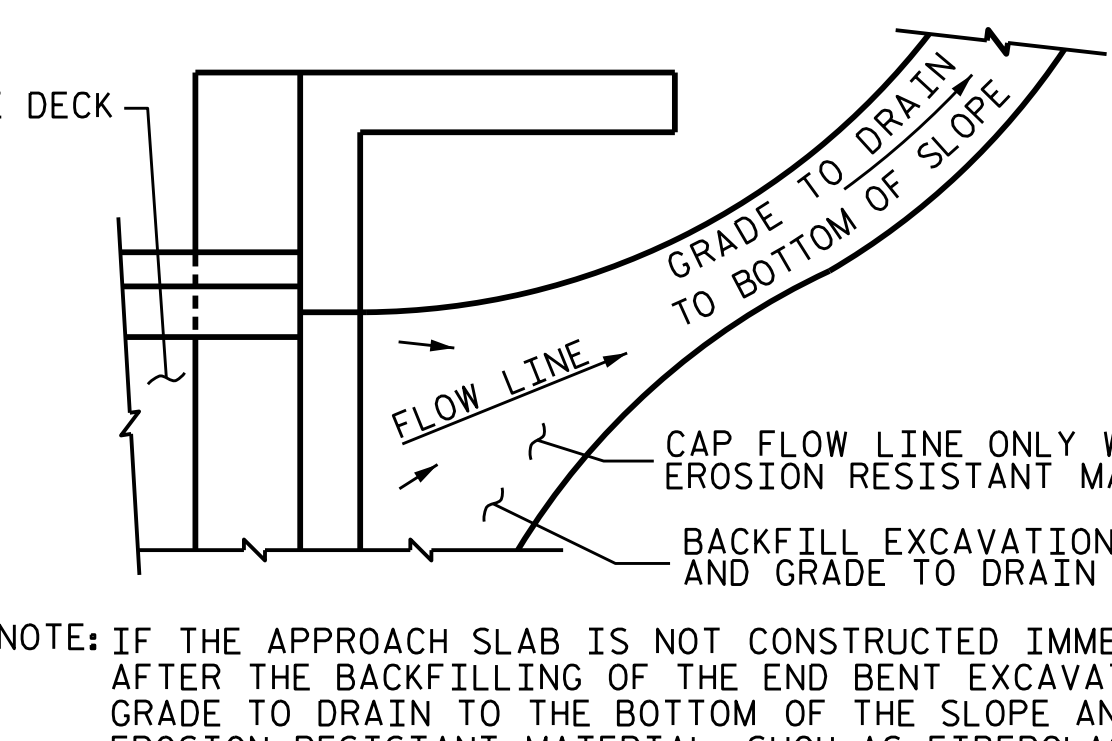
BILL OF MATERIAL					
BARRIER RAIL ONLY					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B7	22	#5	STR	10'-4"	237
* B8	22	#5	STR	9'-10"	226
* S1	40	#5	1	5'-1"	212
* S2	32	#5	2	7'-0"	234
* S3	8	#5	2	5'-6"	46
* EPOXY COATED REINFORCING STEEL				LBS.	955
CLASS AA CONCRETE				C. Y.	5.7
CONCRETE BARRIER RAIL				41.6 LIN. FT.	



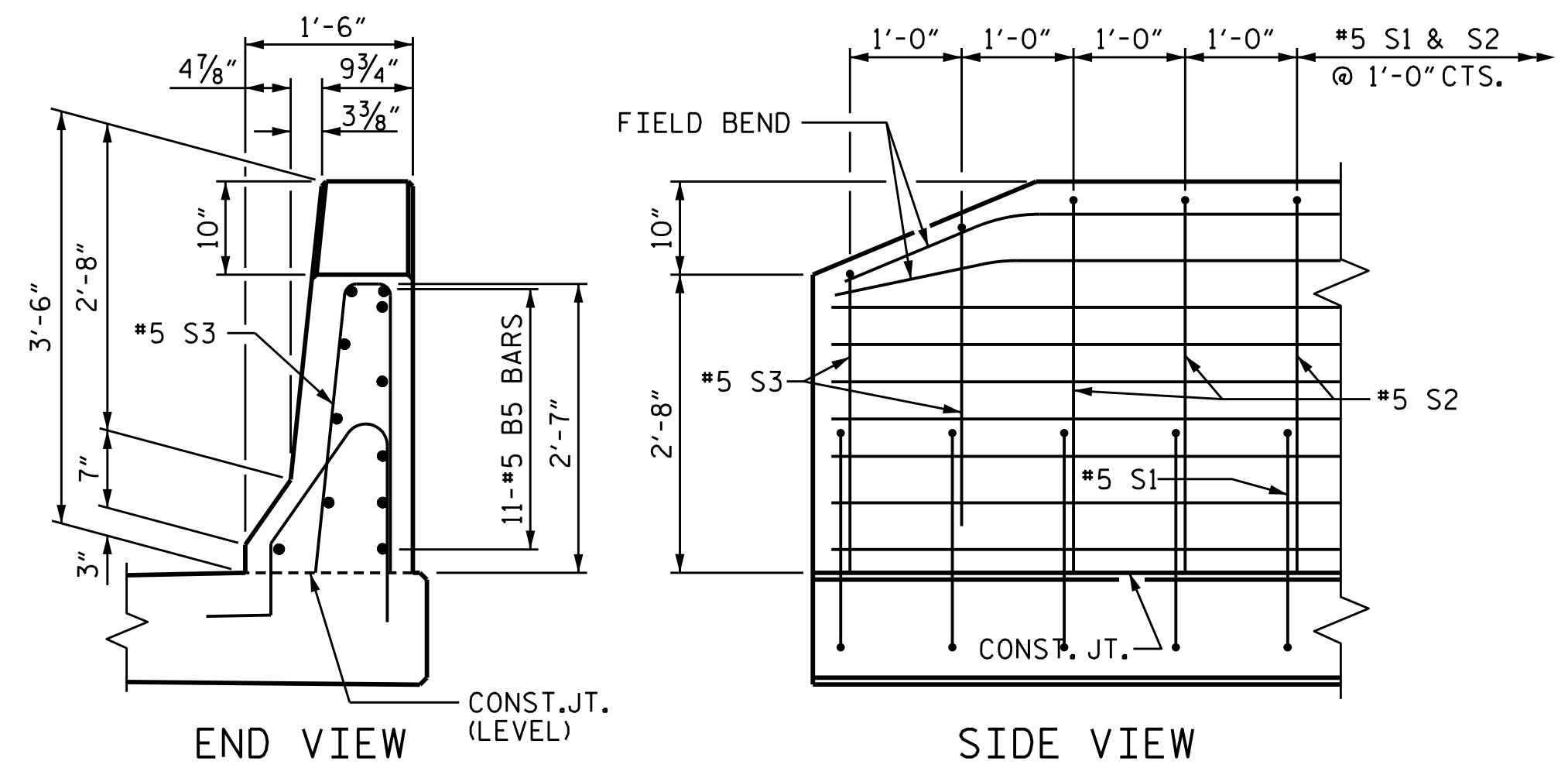
PLAN VIEW



SECTION S-S



TEMPORARY DRAINAGE DETAIL



END VIEW

SIDE VIEW

END OF RAIL DETAILS

PROJECT NO. R-2915B
 ASHE COUNTY
 STATION: 234+19.20 -L-

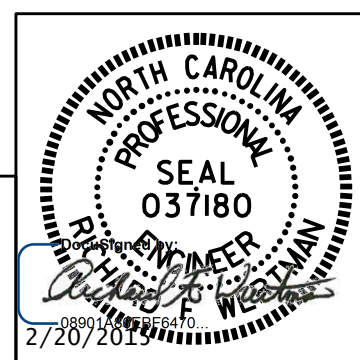
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH
 SLAB DETAILS
 NBL

ASSEMBLED BY : T.J. KIRSCHBAUM DATE : 09/05/14
 CHECKED BY : R.F. WERTMAN DATE : 09/05/14
 DRAWN BY : FCJ 11/88 REV. 5/7/03 RWW/JTE
 CHECKED BY : ARB 11/88 REV. 5/1/06RRR MAA/KMM
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REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S03-30
 TOTAL SHEETS 30