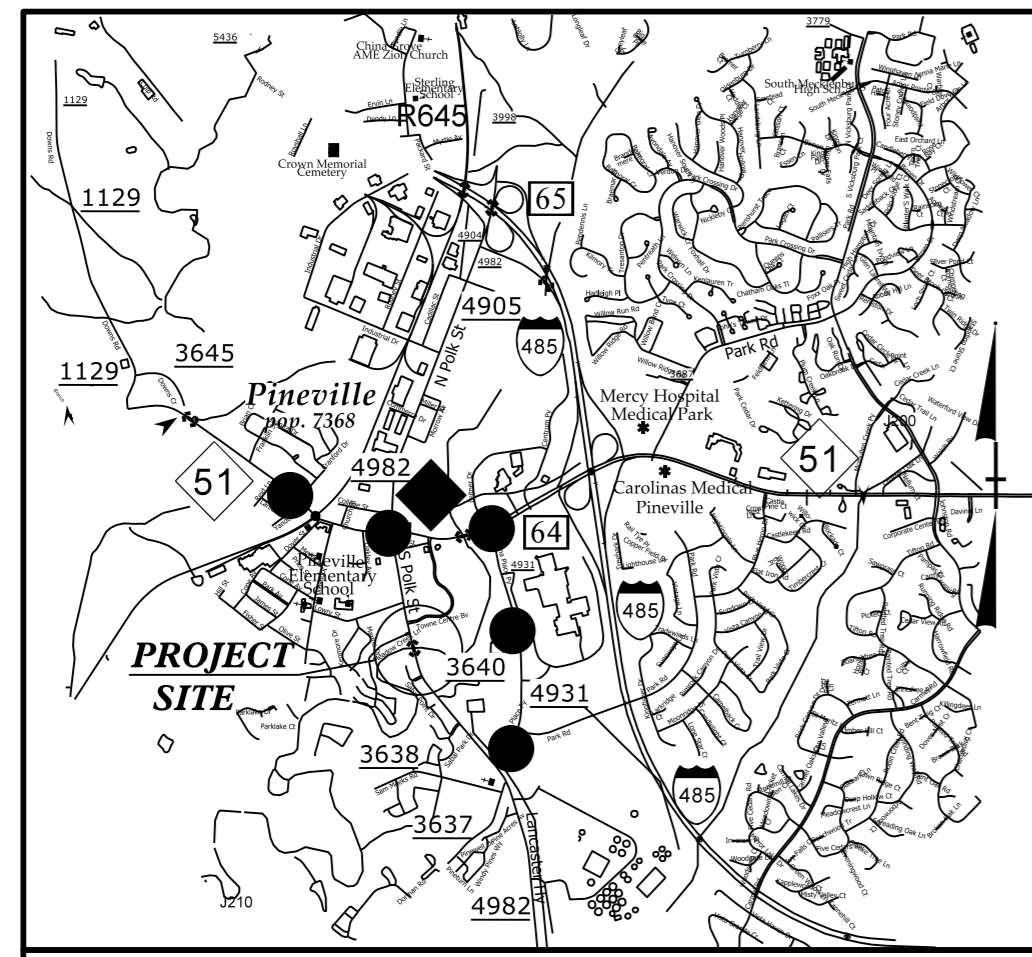


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**This file or an individual page
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CONTRACT: C203550 TIP NO: B-5105



VICINITY MAP

● ● ● ● DETOUR ROUTE

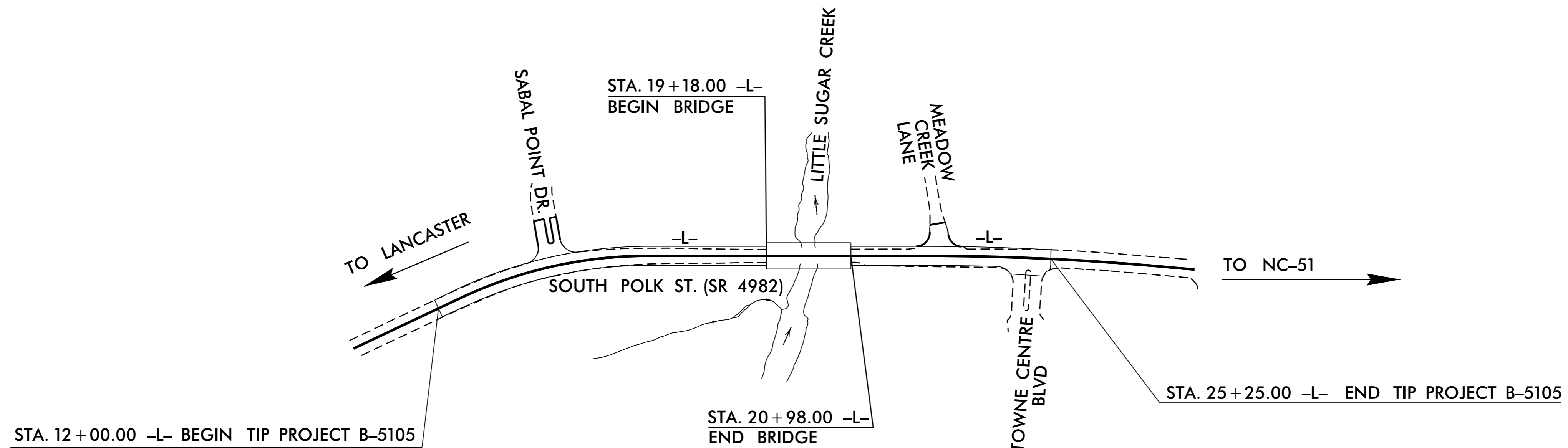
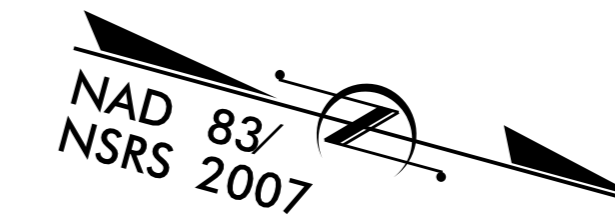
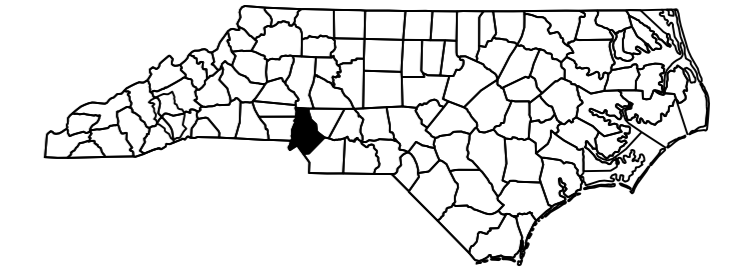
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

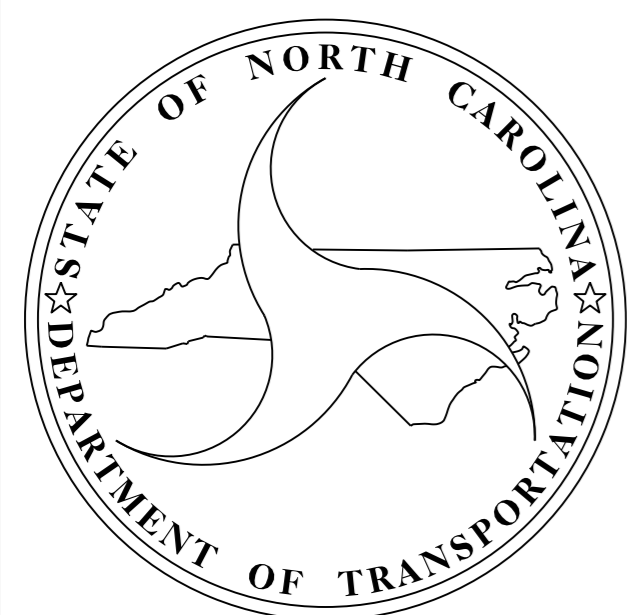
LOCATION: BRIDGE 49 ON SR 4982 (SOUTH POLK ST.)
OVER LITTLE SUGAR CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE
AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5105		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42180.1.1	BRSTP-4982(7)	PE	
42180.2.FD1	BRSTP-4982(7)	RW	
42180.2.FDU1	BRSTP-4982(7)	UTILITIES	
42180.3.FD1	BRSTP-4982(7)	CONST.	



STRUCTURE



DESIGN DATA

ADT 2015 = 17,700
ADT 2035 = 24,600
K = 11 %
D = 65 %
T = 6 % *
V = 40 MPH
* TTST = 1% DUAL 5%
FUNC CLASS =
COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT = 0.217 MILES
LENGTH STRUCTURE OF F.A. PROJECT = 0.034 MILES
TOTAL LENGTH OF STATE PROJECT = 0.251 MILES

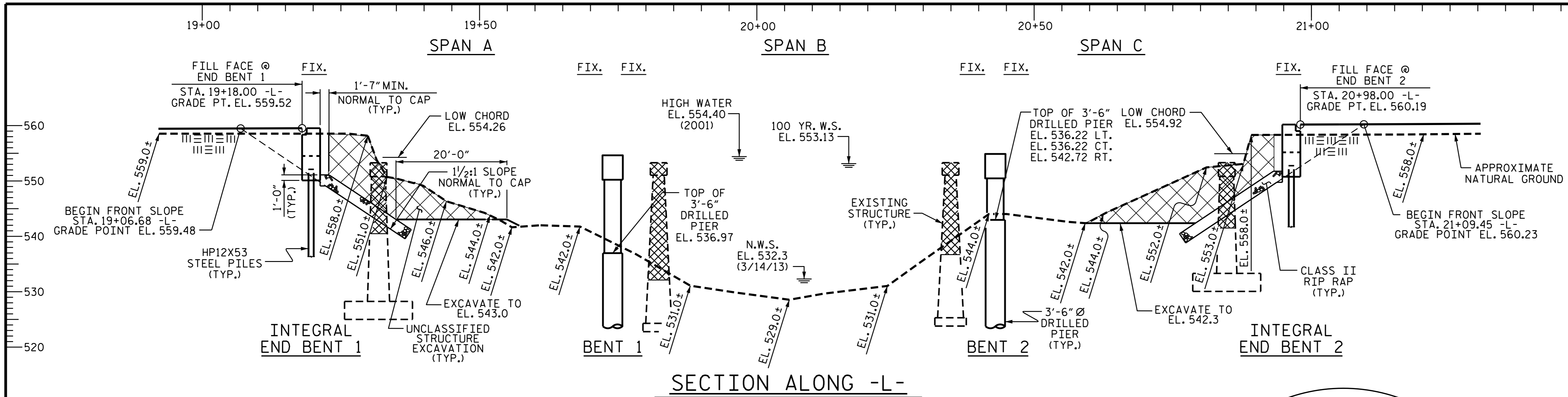
Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE : AUGUST 18, 2015

L.E. SUTTON, PE
PROJECT ENGINEER

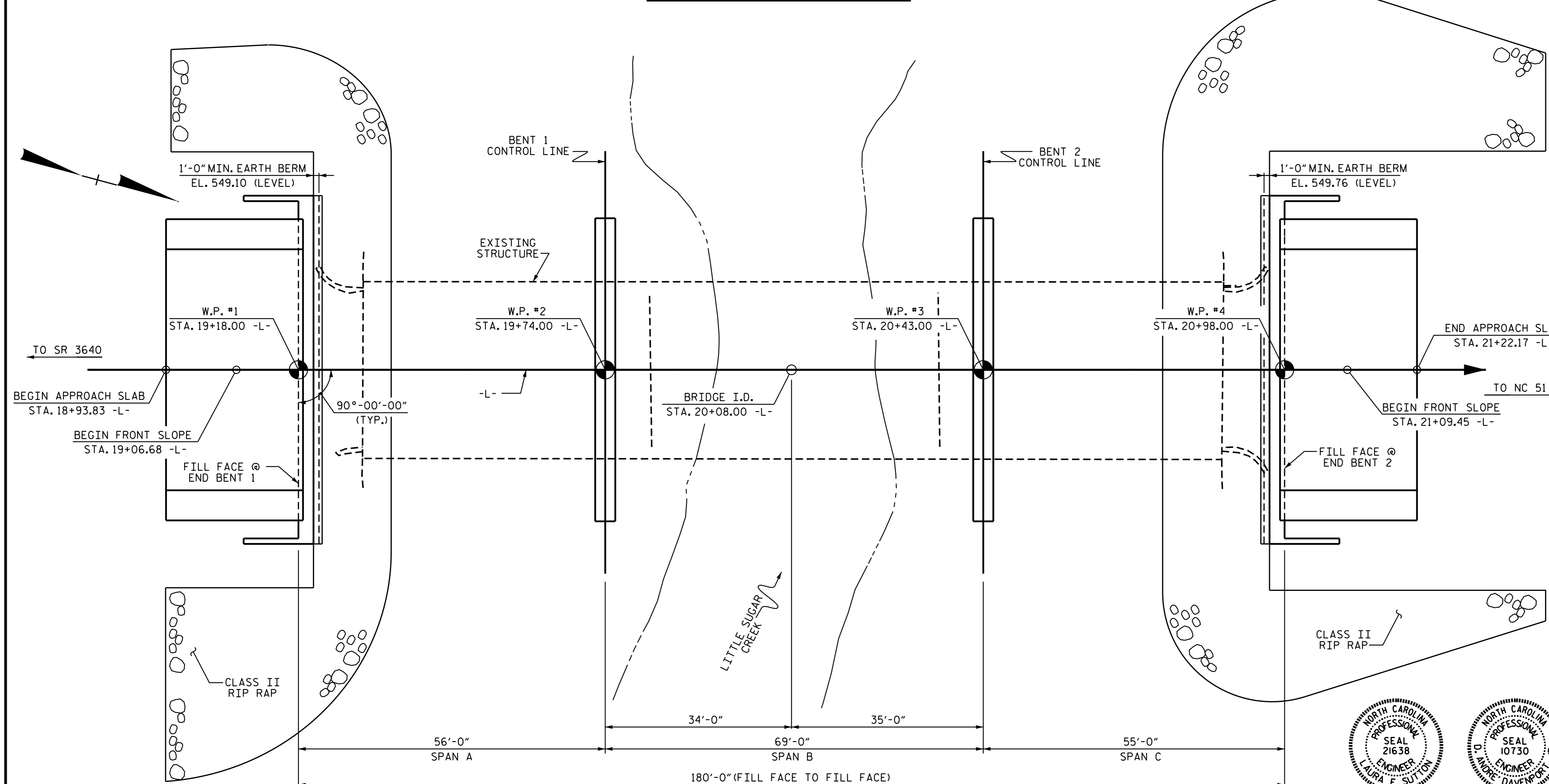
D.A. DAVENPORT, JR., PE
PROJECT DESIGN ENGINEER



GRADE DATA

(+).0.3690% (+).1.7015%

PI = 21+75.00 -L-
 EL. = 560.47
 VC = 140'



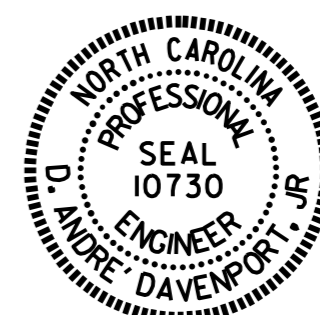
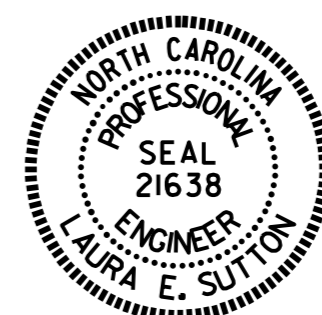
I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-5105
 MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO.49

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 LITTLE SUGAR CREEK
 ON SR 4982 (SOUTH POLK ST.)
 BETWEEN SR 3640 AND NC 51



DRAWN BY : D.A. DAVENPORT DATE : 03/19/14
 CHECKED BY : J.P. MCCARTHA DATE : 06/02/14
 DESIGN ENGINEER OF RECORD : R. PATEL DATE : 6/24/14

(PILES, COLUMNS AND DRILLED PIERS NOT SHOWN FOR CLARITY.)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			38

NOTES

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

DRILLED PIERS AT BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 475 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 40 TSF.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1 OR BENT 2. IF REQUIRED, DO NOT EXTEND CASING BELOW EL. 527.70 AT BENT 1 OR EL. 523.50 AT BENT 2 WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN EL. 521.00 AND WITH THE REQUIRED TIP RESISTANCE AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN EL. 516.50 AND WITH THE REQUIRED TIP RESISTANCE AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS EL. 527.00. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS EL. 522.50. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

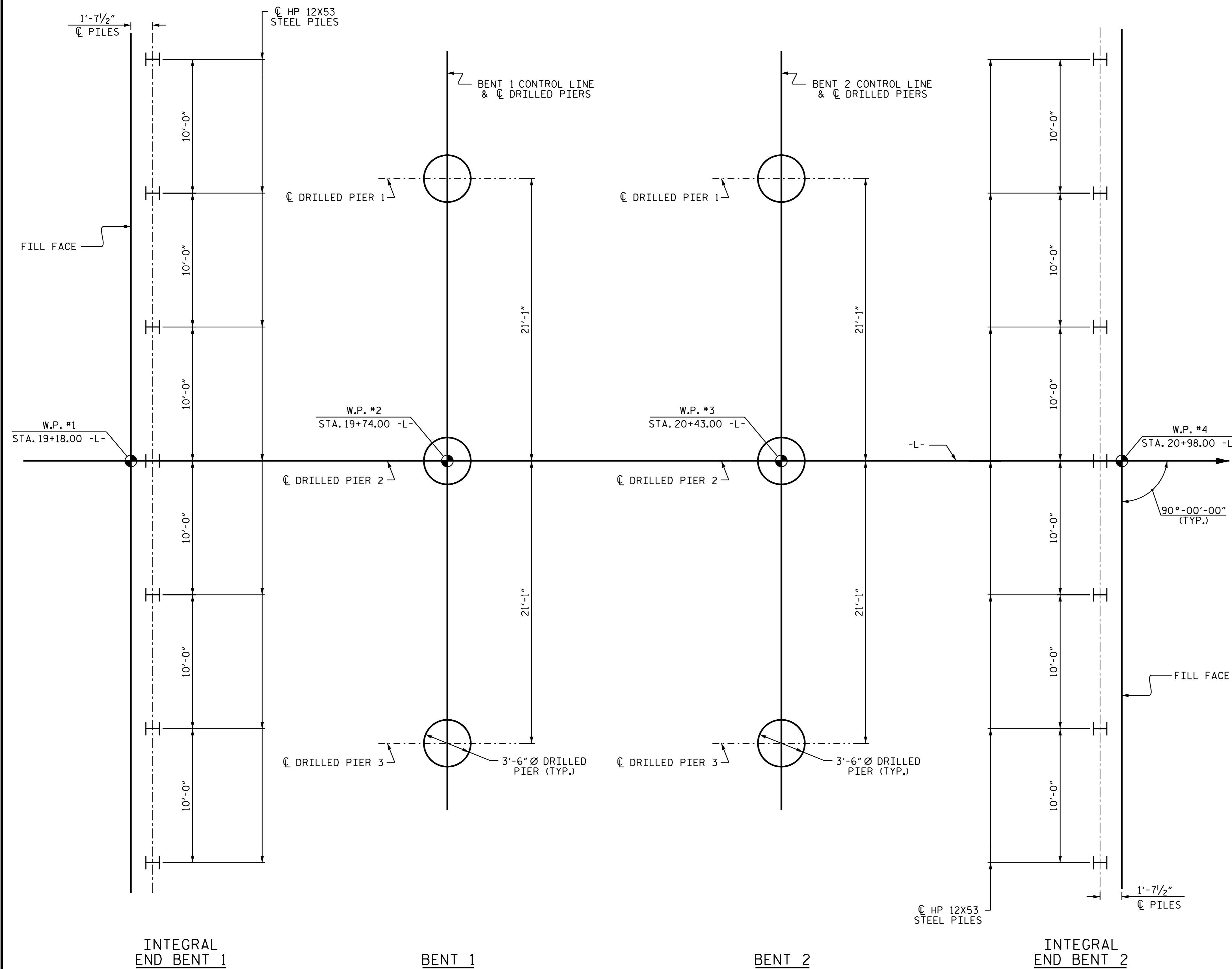
SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 185 TONS PER PILE.



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

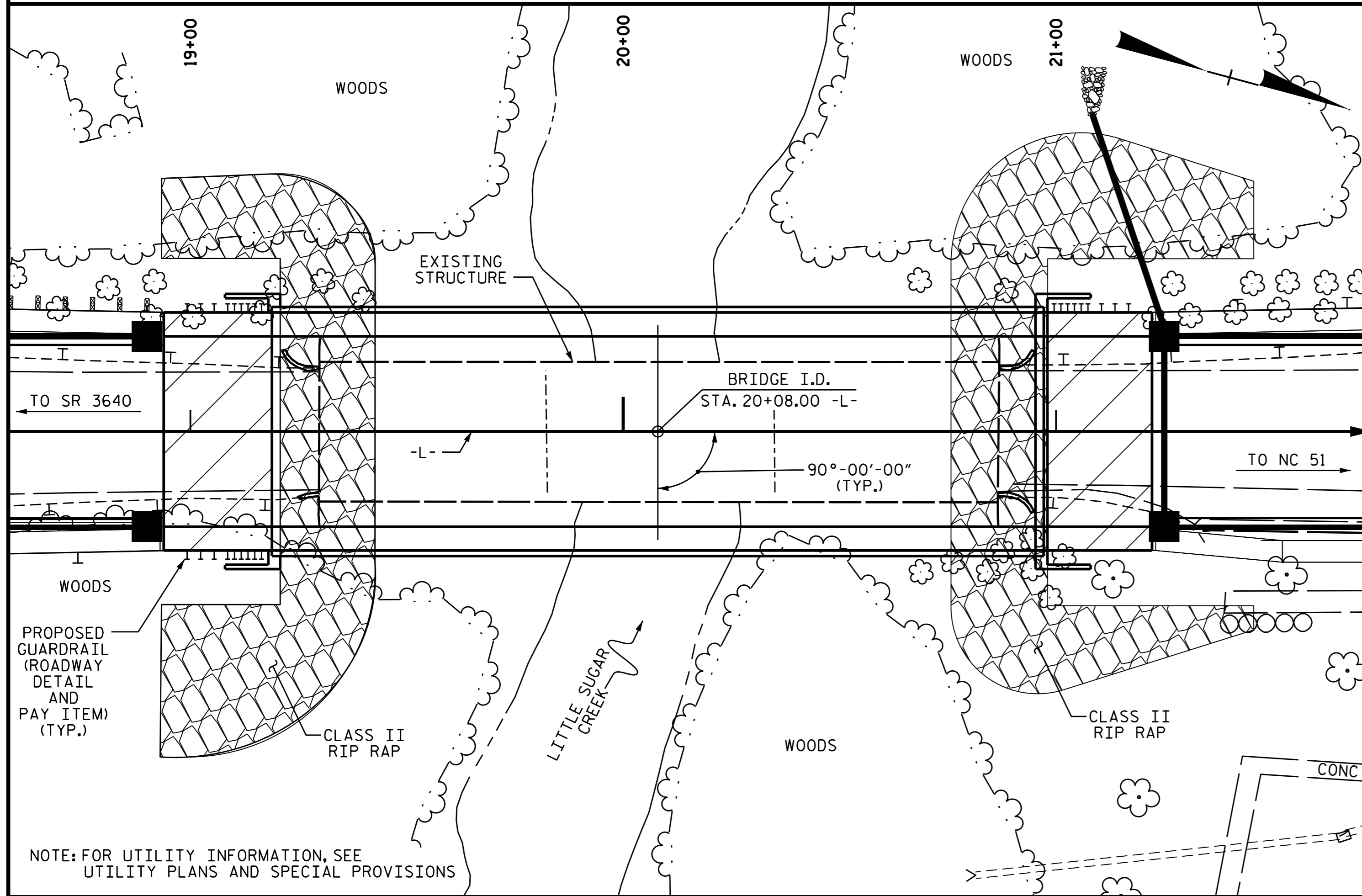
SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE OVER LITTLE SUGAR CREEK ON SR 4982 (SOUTH POLK ST.) BETWEEN SR 3640 AND NC 51					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					38

DRAWN BY : D.A. DAVENPORT DATE : 3/19/14
 CHECKED BY : J.P. MCCARTHA DATE : 06/03/14
 DESIGN ENGINEER OF RECORD: R.P. PATEL DATE : 6/24/14

BM: #3: NCGS MONUMENT "EGB 43", 19' LEFT OF STA. 19+30.00 -L- EL. 558.64



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 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.
 FOR PLACING LOADS ON STRUCTURE MEMBERS, 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 THE REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

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

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

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

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 50 FEET EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 3 SIMPLE SPANS, EACH @ 52'-6" WITH A CLEAR ROADWAY WIDTH OF 28'-0", A 6" ASPHALT WEARING SURFACE, REINFORCED CONCRETE DECK GIRDERS, WIDENED WITH REINFORCED CONCRETE DECK ON PRESTRESSED CONCRETE GIRDERS ON REINFORCED CONCRETE SPILL THROUGH ABUTMENTS AND POST AND WEB INTERIOR BENTS AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED IN ACCORDANCE WITH SECTION 402-2 OF THE STANDARD SPECIFICATIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. IN ADDITION THE OLD BRIDGE ABUTMENT DOWNSTREAM FROM THE EXISTING BRIDGE AND REINFORCING STEEL PROTRUDING FROM THE BASE OF THE EXISTING SLOPE AT END BENT 1 SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

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

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

HYDRAULIC DATA

DESIGN DISCHARGE = 12,261 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YR.
 DESIGN HIGH WATER ELEVATION = 552.0
 DRAINAGE AREA = 49.8 SQ.MI.
 BASE DISCHARGE (Q100) = 13,909 C.F.S.
 BASE HIGH WATER ELEVATION = 553.13

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 25,132 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = 500 YR.+
 OVERTOPPING FLOOD ELEVATION = 559.6

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	3'-6" Ø DRILLED PIERS IN SOIL	3'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIER	SID INSPECTIONS	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	45" PRESTRESSED CONCRETE GIRDERS	HP 12X53 STEEL PILES	THREE BAR METAL RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS		
	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE								10,365	9,280					18	1,058.50			341.58			LUMP SUM
END BENT 1										36.1		4,929			7	140			325	360	
BENT 1		25.00	23.00	27.81						41.7		8,737	1,911								
BENT 2		42.75	23.00	44.66						40.8		9,319	2,201								
END BENT 2										36.1		4,929			7	140			480	535	
TOTAL	LUMP SUM	67.75	46.00	72.47	1	1	LUMP SUM	10,365	9,280	154.7	LUMP SUM	27,914	4,112	18	1,058.50	14	280	341.58	805	895	LUMP SUM

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER
 LITTLE SUGAR CREEK
 ON SR 4982 (SOUTH POLK ST.)
 BETWEEN SR 3640 AND NC 51



DRAWN BY : D.A. DAVENPORT DATE : 4/14/14
 CHECKED BY : J.P. MCCARTHA DATE : 6/04/14
 DESIGN ENGINEER OF RECORD: R. PATEL DATE : 6/24/14

DocuSigned by:
 D. Andre Davenport
 895DC284F664495
 6/23/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			38

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

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			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	①	1.13	--	1.75	0.87	1.45	A	I	26.646	0.968	1.18	A	I	31.975	0.80	0.968	1.13	B	I	33.417		
	HL-93(Opr)	N/A	--	1.54	--	1.35	0.87	1.88	A	I	26.646	0.968	1.54	A	I	31.975	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	②	1.41	50.889	1.75	0.87	1.90	A	I	26.646	0.968	1.41	A	I	31.975	0.80	0.818	1.54	B	I	33.417		
	HS-20(Opr)	36.000	--	1.83	65.967	1.35	0.87	2.47	A	I	26.646	0.968	1.83	A	I	31.975	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.43	46.263	1.40	0.87	4.98	A	I	26.646	0.968	3.63	A	I	31.975	0.80	0.818	3.43	B	I	33.417	
		SNGARBS2	20.000	--	2.58	51.589	1.40	0.87	3.87	A	I	26.646	0.968	2.75	A	I	31.975	0.80	0.818	2.58	B	I	33.417	
		SNAGRIS2	22.000	--	2.45	53.981	1.40	0.87	3.74	A	I	21.317	0.968	2.62	A	I	31.975	0.80	0.818	2.45	B	I	33.417	
		SNCOTTS3	27.250	--	1.71	46.490	1.40	0.87	2.48	A	I	26.646	0.968	1.83	A	I	31.975	0.80	0.818	1.71	B	I	33.417	
		SNAGGRS4	34.925	--	1.44	50.135	1.40	0.87	2.13	A	I	26.646	0.968	1.64	A	I	31.975	0.80	0.818	1.44	B	I	33.417	
		SNS5A	35.550	--	1.40	49.881	1.40	0.87	2.08	A	I	26.646	0.968	1.73	A	I	31.975	0.80	0.818	1.40	B	I	33.417	
		SNS6A	39.950	--	1.29	51.595	1.40	0.87	1.94	A	I	26.646	0.968	1.64	A	I	31.975	0.80	0.818	1.29	B	I	33.417	
	SNS7B	42.000	--	1.23	51.662	1.40	0.87	1.85	A	I	26.646	0.968	1.69	A	I	31.975	0.80	0.818	1.23	B	I	33.417		
	TTST	TNAGRIT3	33.000	--	1.58	52.012	1.40	0.87	2.37	A	I	26.646	0.968	1.90	A	I	31.975	0.80	0.818	1.58	B	I	33.417	
		TNT4A	33.075	--	1.58	52.398	1.40	0.87	2.39	A	I	26.646	0.968	1.79	A	I	31.975	0.80	0.818	1.58	B	I	33.417	
		TNT6A	41.600	--	1.30	54.050	1.40	0.87	1.98	A	I	26.646	0.968	1.95	A	I	31.975	0.80	0.818	1.30	B	I	33.417	
		TNT7A	42.000	--	1.31	54.932	1.40	0.87	2.00	A	I	26.646	0.968	1.73	A	I	31.975	0.80	0.818	1.31	B	I	33.417	
		TNT7B	42.000	--	1.36	57.051	1.40	0.87	2.09	A	I	26.646	0.968	1.58	A	I	31.975	0.80	0.818	1.36	B	I	33.417	
		TNAGRIT4	43.000	--	1.29	55.395	1.40	0.87	1.98	A	I	26.646	0.968	1.52	A	I	31.975	0.80	0.818	1.29	B	I	33.417	
TNACT5A		45.000	--	1.21	54.578	1.40	0.87	1.85	A	I	26.646	0.968	1.61	A	I	31.975	0.80	0.818	1.21	B	I	33.417		
TNACT5B	45.000	③	1.20	53.845	1.40	0.87	1.82	A	I	26.646	0.968	1.43	A	I	31.975	0.80	0.818	1.20	B	I	33.417			

NOTES:

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

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

⊠ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

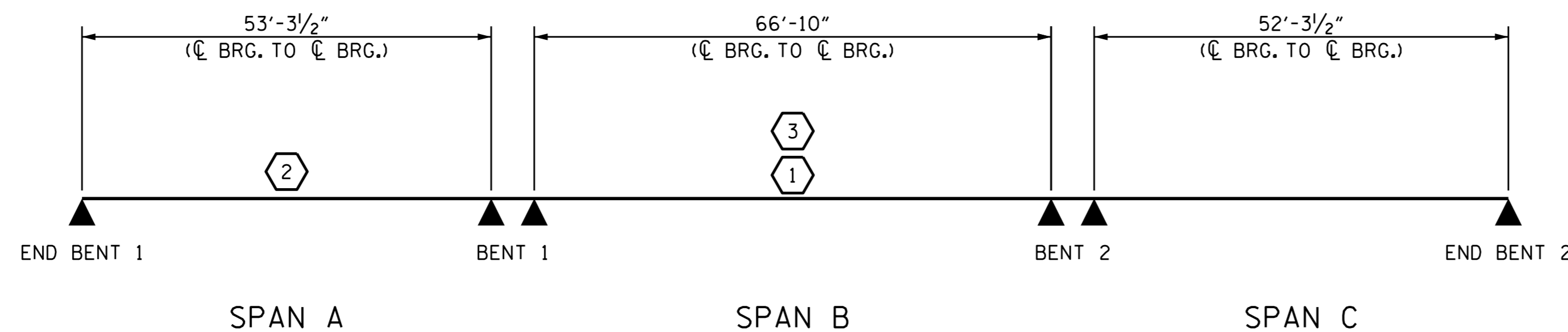
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

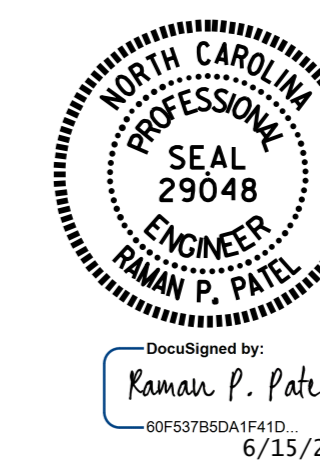
GIRDER LOCATION

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



PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

LRFR SUMMARY



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			38

ASSEMBLED BY : R. P. PATEL DATE : 9-13-13
 CHECKED BY : J. P. MCCARTHA DATE : 9-26-13
 DRAWN BY : MAA 1/08 REV. 11/2/08RR MAA/GM DESIGN ENGINEER OF RECORD:
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM R. P. PATEL DATE : 5-4-15

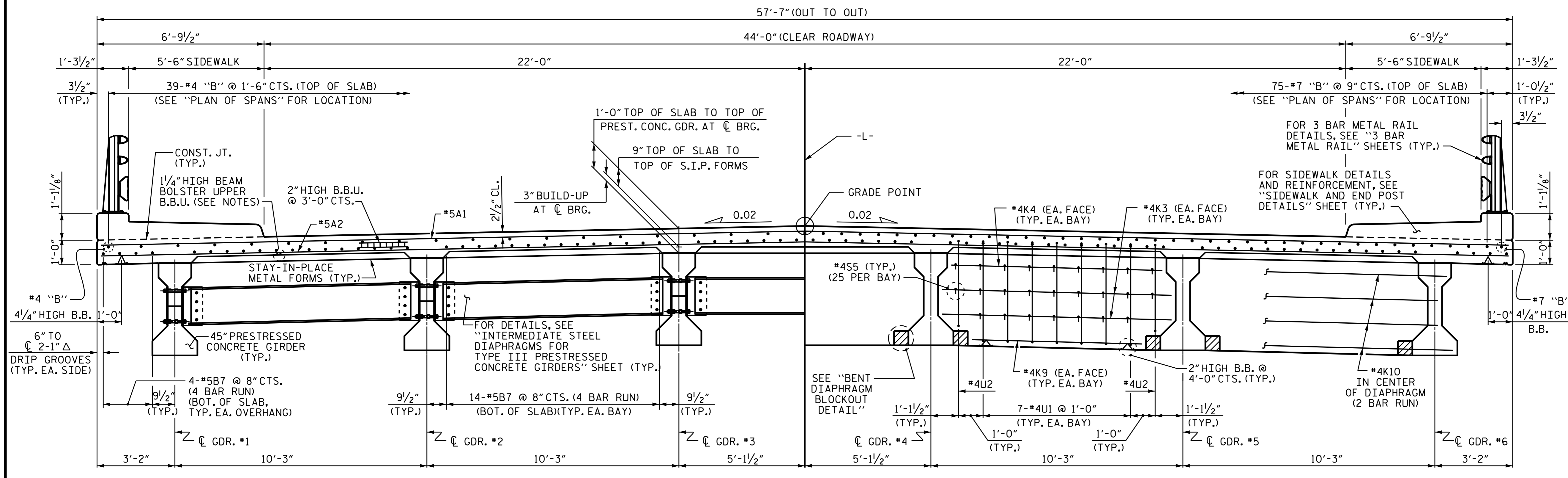
NOTES

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

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

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

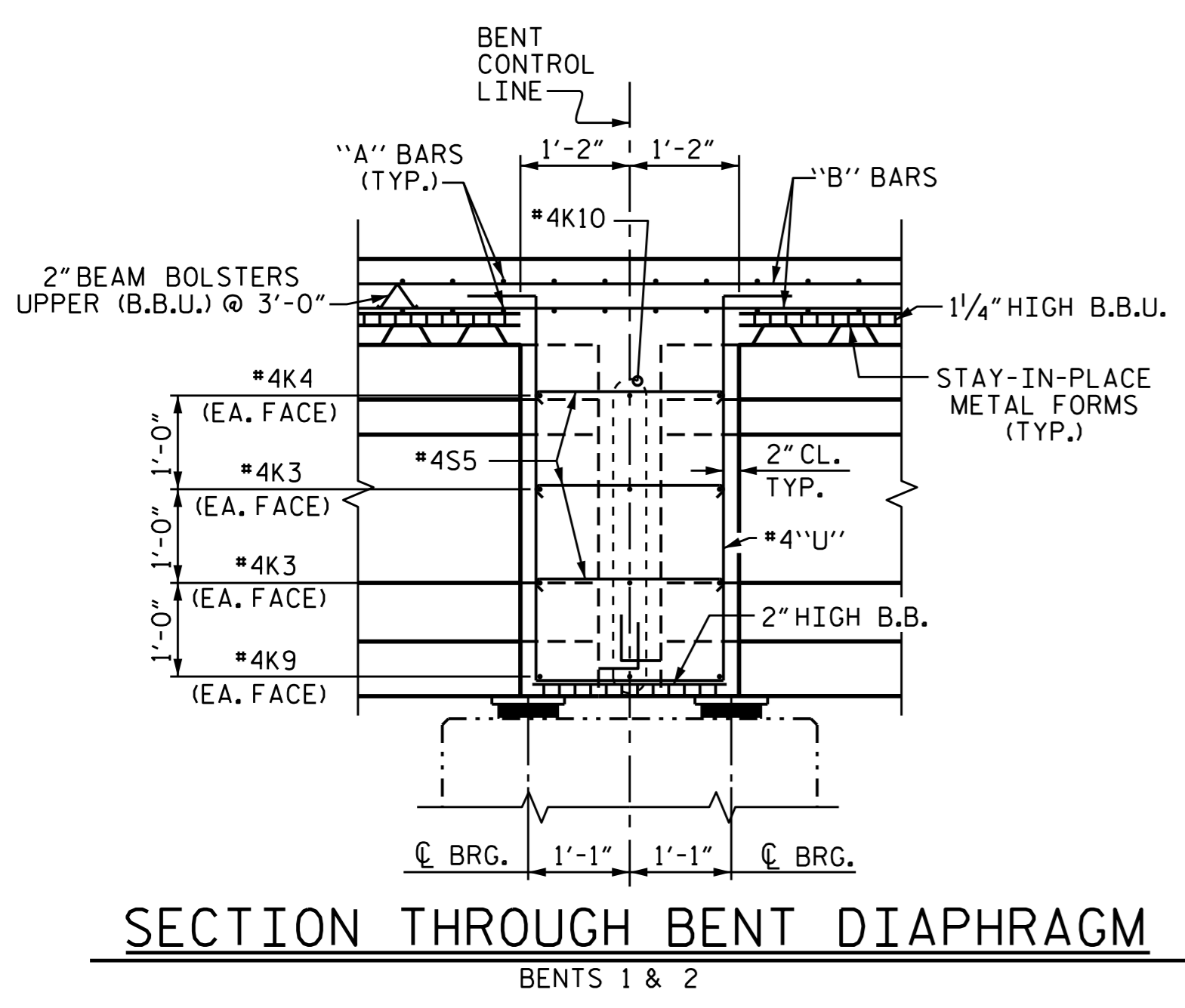
FOR WING ELEVATIONS AND DETAILS, SEE "PLAN OF SPAN DETAILS" SHEETS.



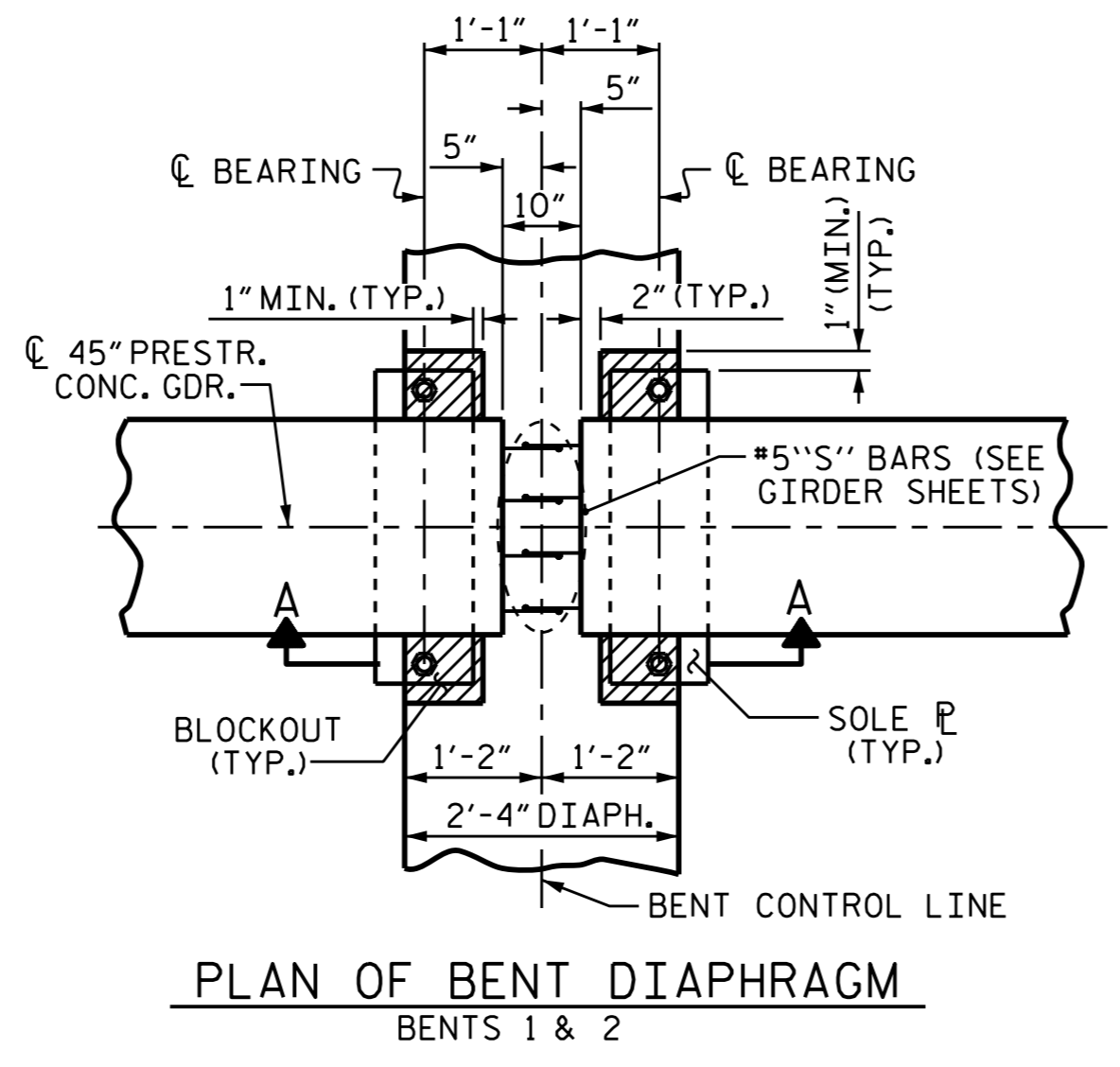
TYPICAL HALF-SECTION AT INTERMEDIATE DIAPHRAGM

TYPICAL HALF-SECTION AT BENTS

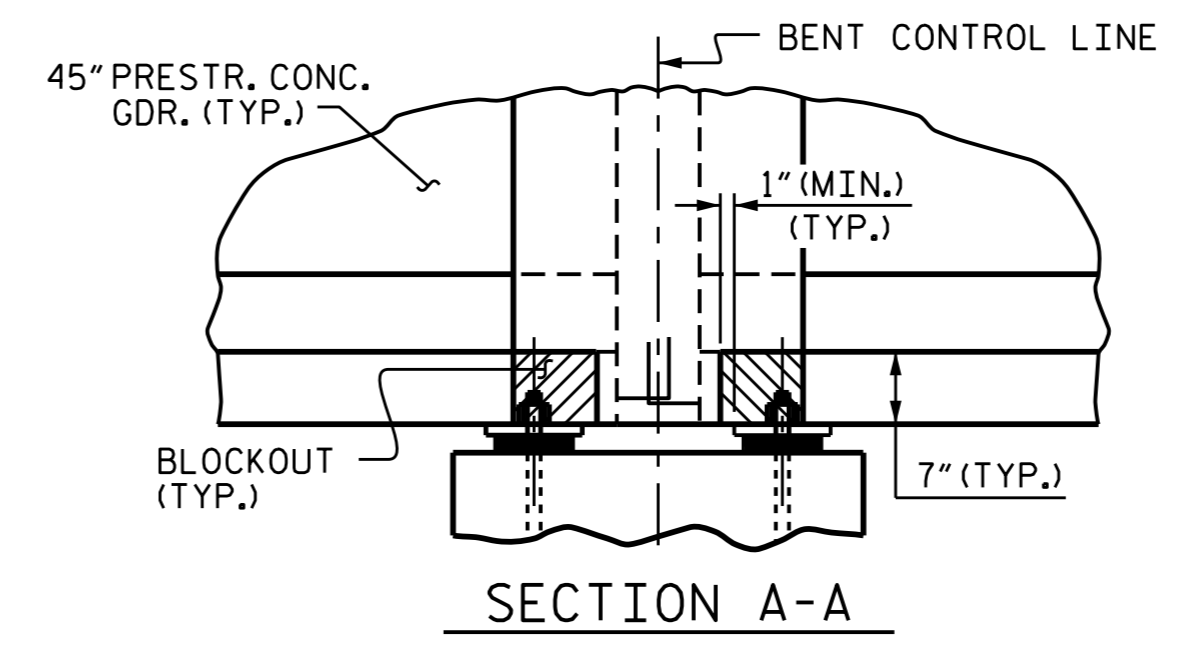
TYPICAL SECTION



SECTION THROUGH BENT DIAPHRAGM



PLAN OF BENT DIAPHRAGM



BENT DIAPHRAGM BLOCKOUT DETAIL

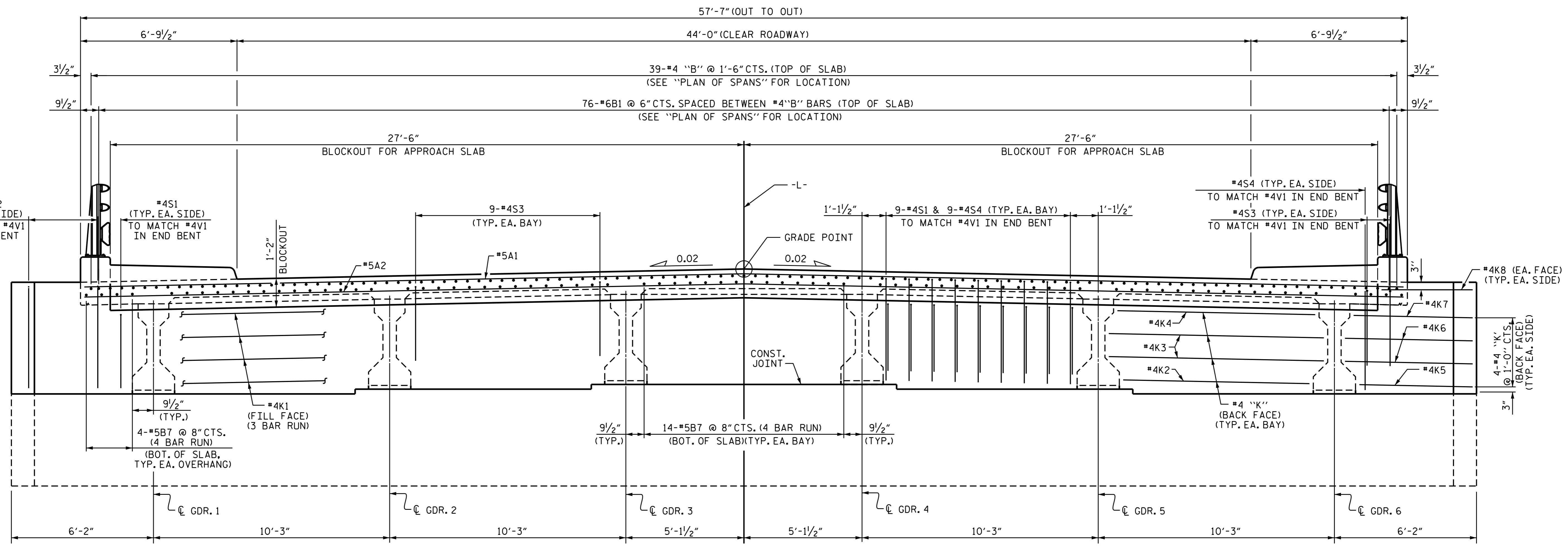
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

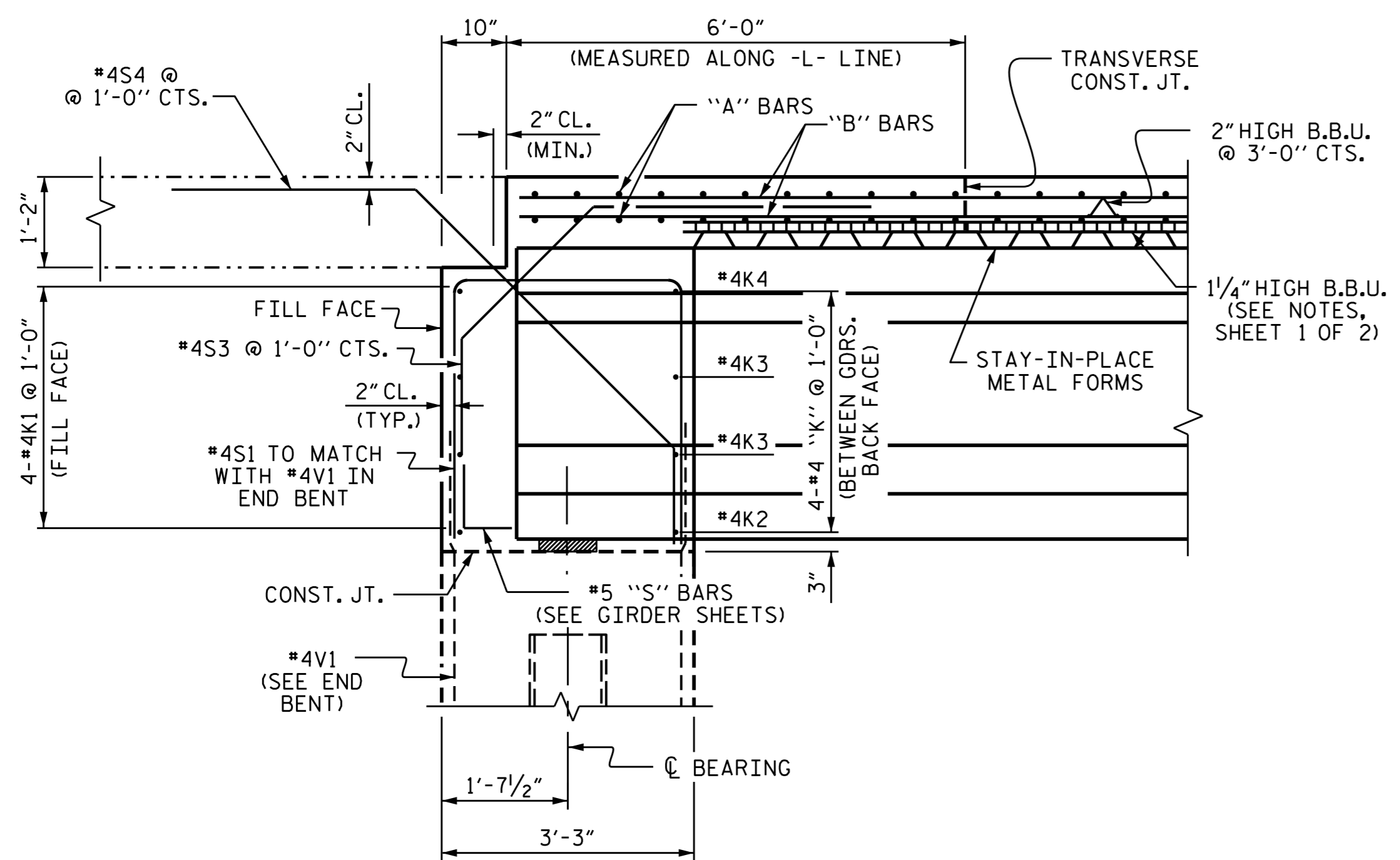


DRAWN BY : K.D. LAYNE DATE : 9-05-13
 CHECKED BY : M. K. BEARD DATE : 10-08-13
 DESIGN ENGINEER OF RECORD : R. P. PATEL DATE : 10-15-13

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					38



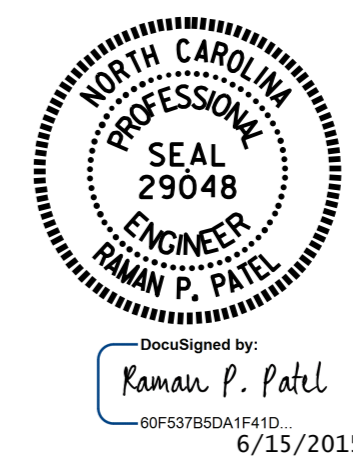
TYPICAL SECTION AT INTEGRAL END BENT



SECTION THROUGH INTEGRAL END BENT

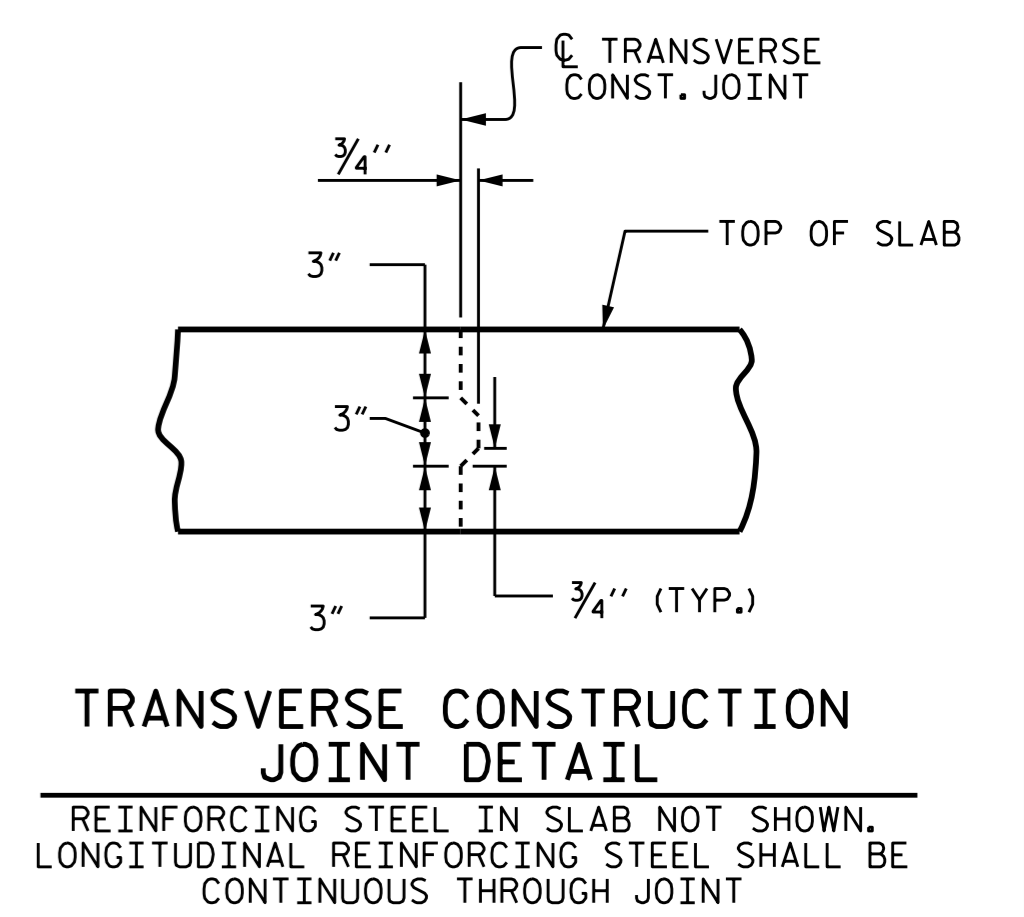
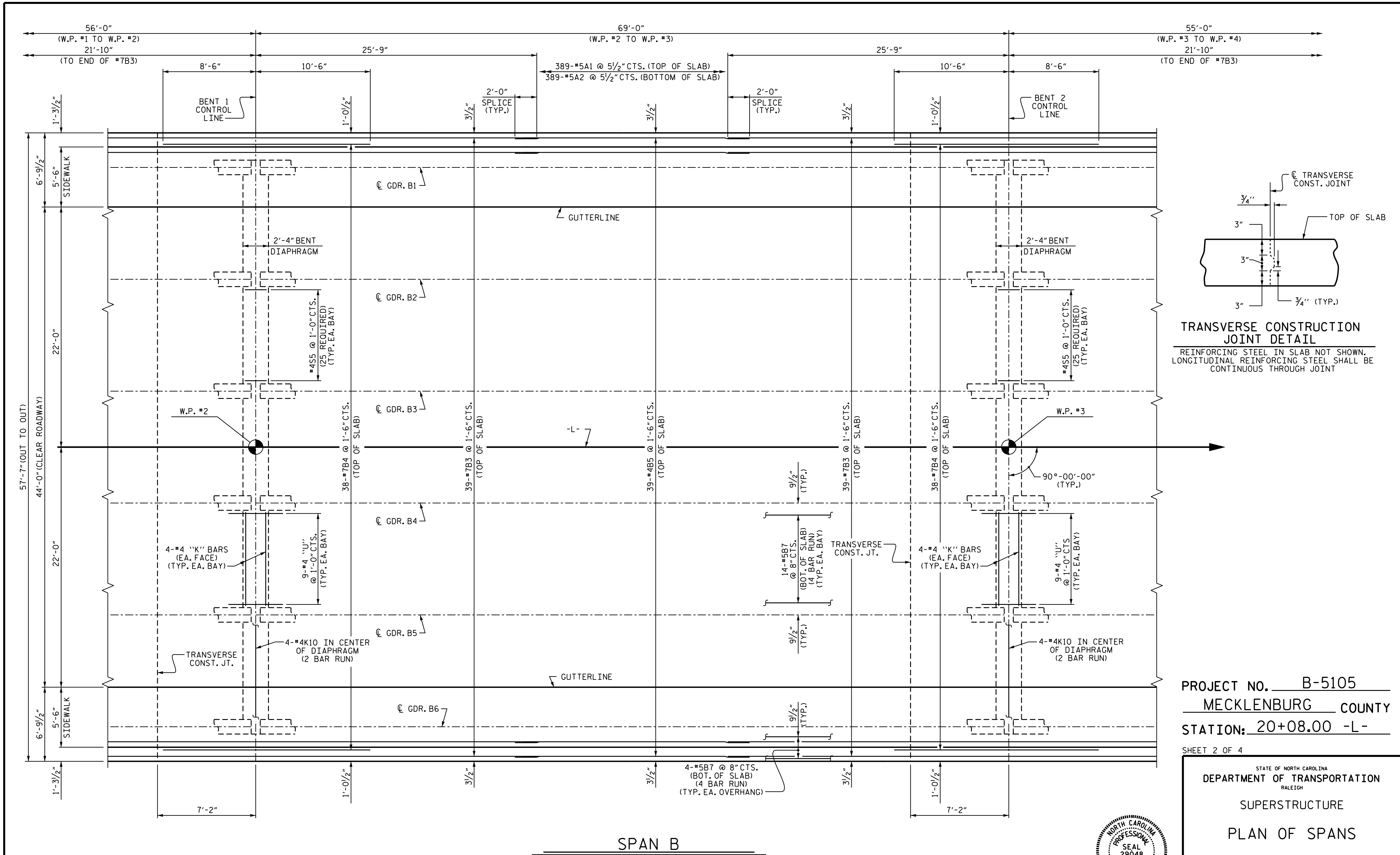
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TYPICAL SECTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-6
TOTAL SHEETS					38



DRAWN BY : K.D. LAYNE DATE : 9-05-13
 CHECKED BY : M. K. BEARD DATE : 10-08-13
 DESIGN ENGINEER OF RECORD : R. P. PATEL DATE : 10-15-13

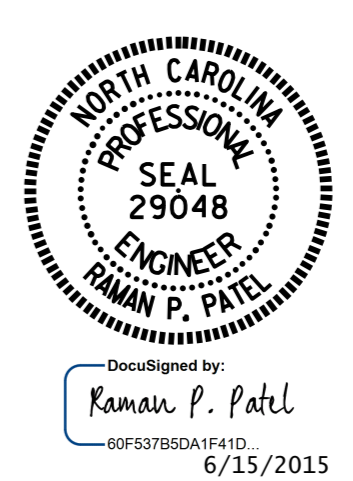
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PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-8
SUPERSTRUCTURE PLAN OF SPANS (SPAN B)						
REVISIONS						TOTAL SHEETS 38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



DRAWN BY: K.D. LAYNE DATE: 9-05-13
 CHECKED BY: M. K. BEARD DATE: 10-08-13
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE: 10-15-13

11-JUN-2015 07:59
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 dadavenport

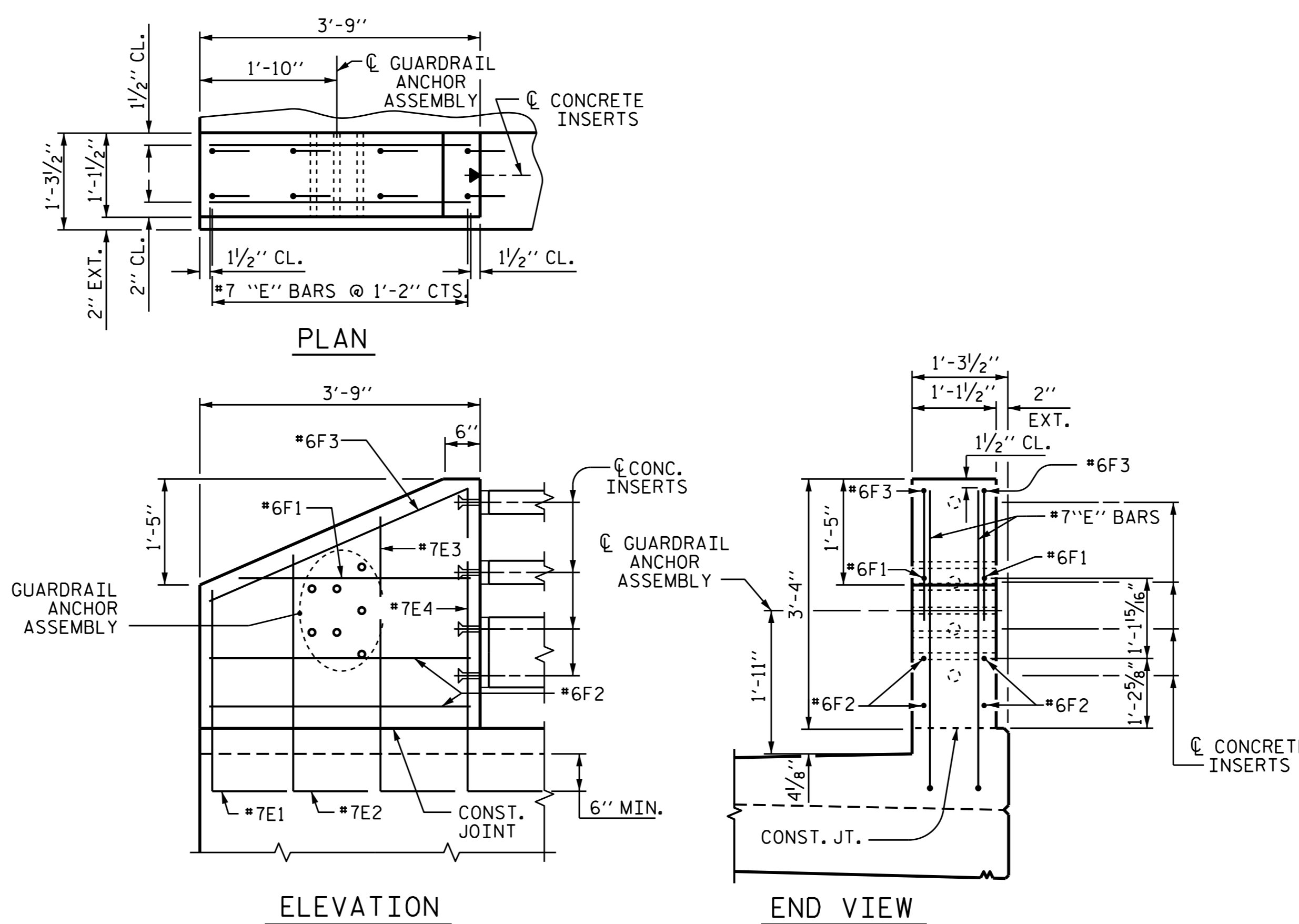
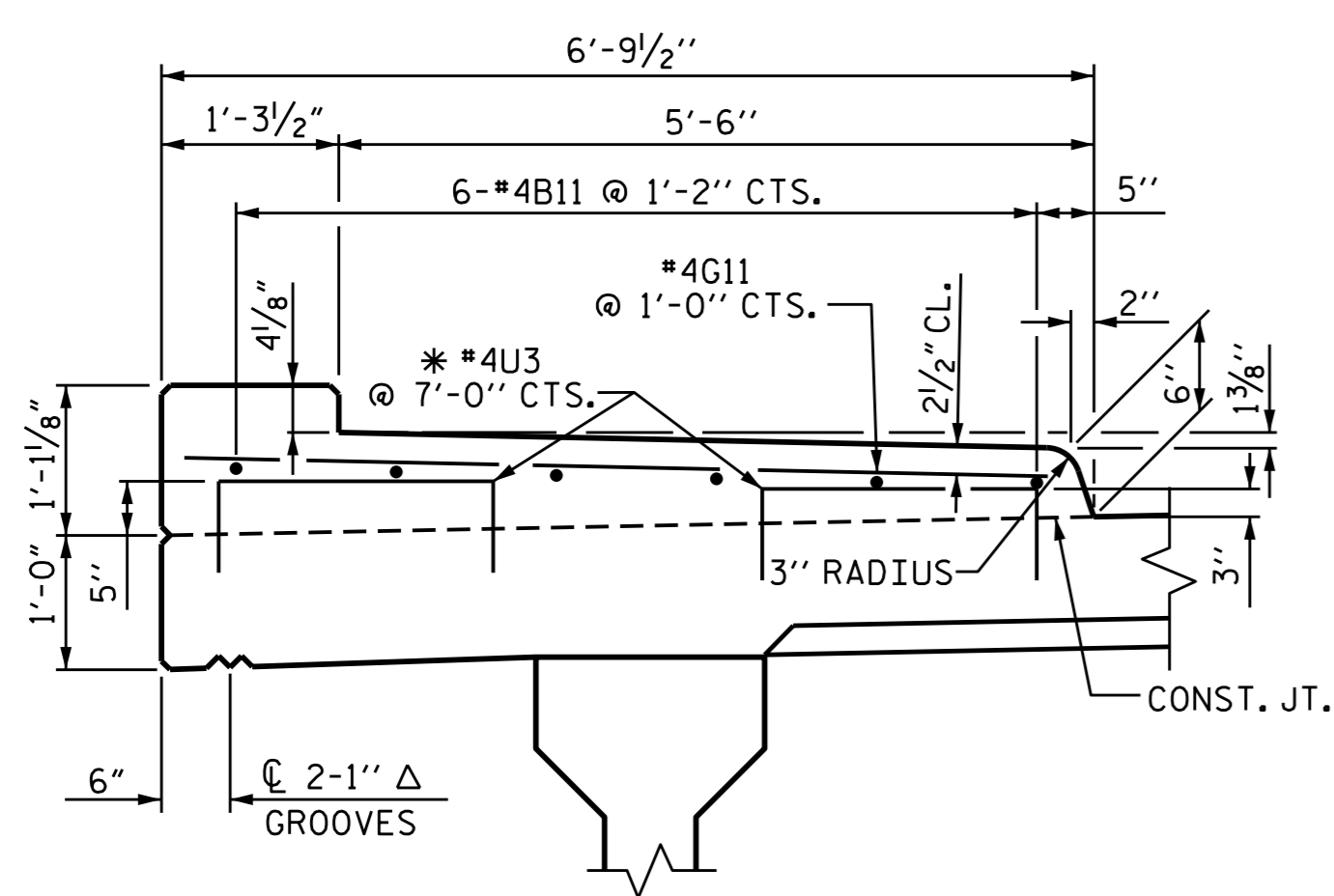
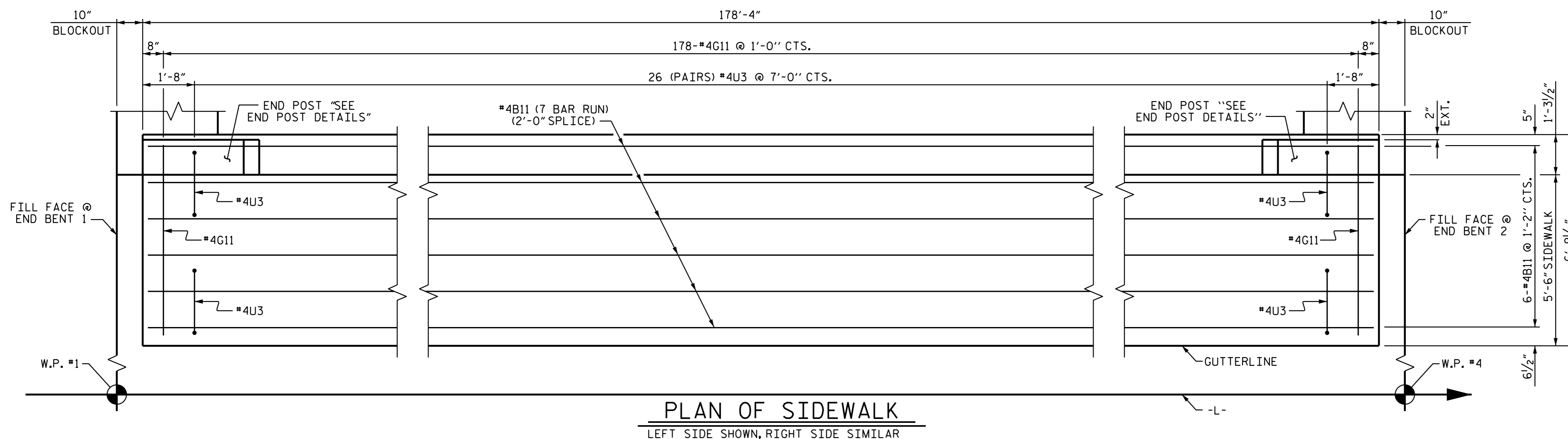
NOTES

PAYMENT FOR SIDEWALK AND END POSTS SHALL BE INCLUDED IN UNIT PRICE FOR "REINFORCED CONCRETE DECK SLAB". SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

SIDEWALK 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.

ALL REINFORCING STEEL IN SIDEWALKS AND END POSTS SHALL BE EPOXY COATED.

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



PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 SIDEWALK AND
 END POST DETAILS

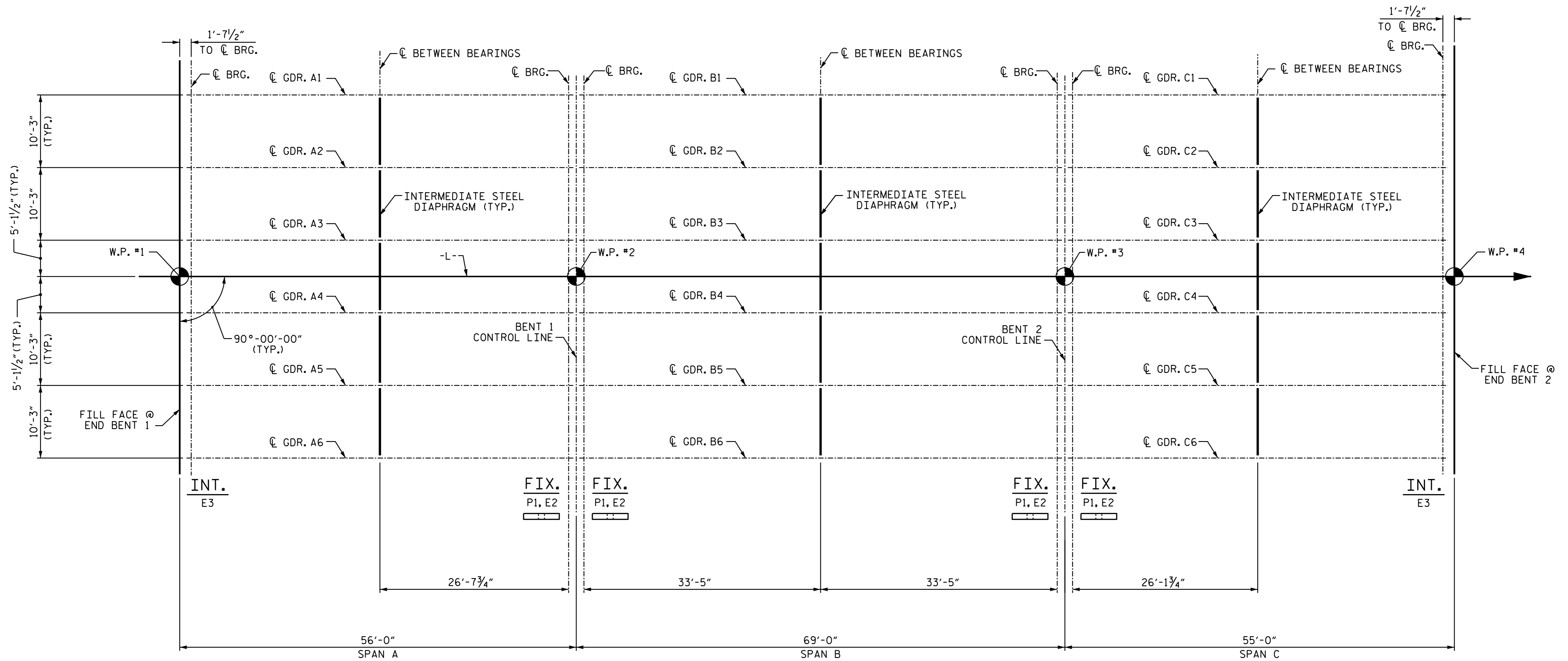


DRAWN BY: K.D. LAYNE DATE: 9-05-13
 CHECKED BY: M. K. BEARD DATE: 10-08-13

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 dadavenport

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-11
1			3			TOTAL SHEETS
2			4			38

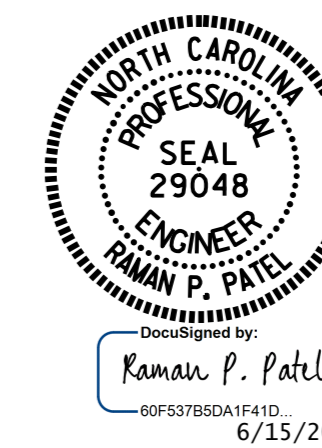
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 D. Andre Davenport,
 895DC284F664495,
 6/15/2015



GIRDER LAYOUT

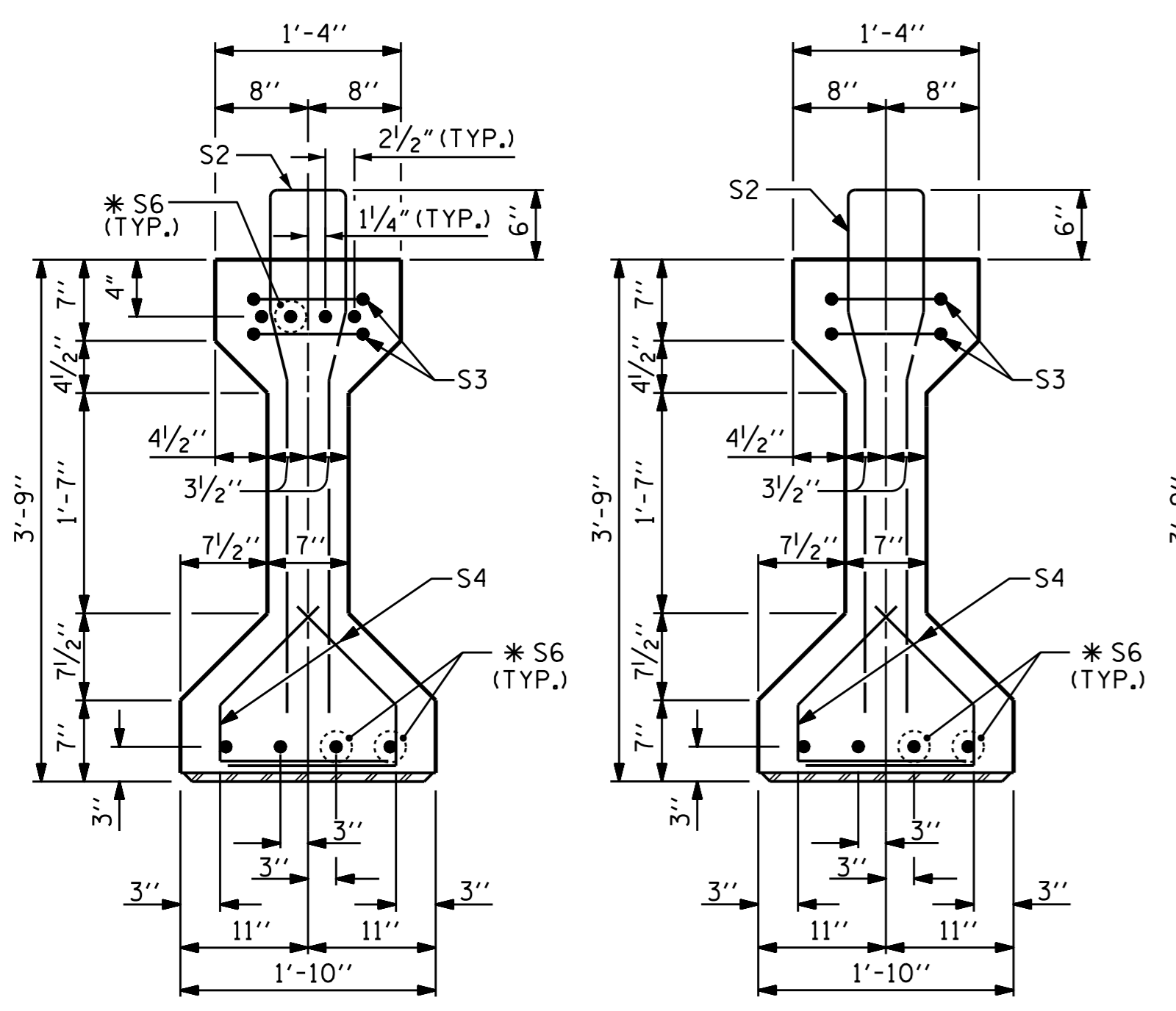
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT

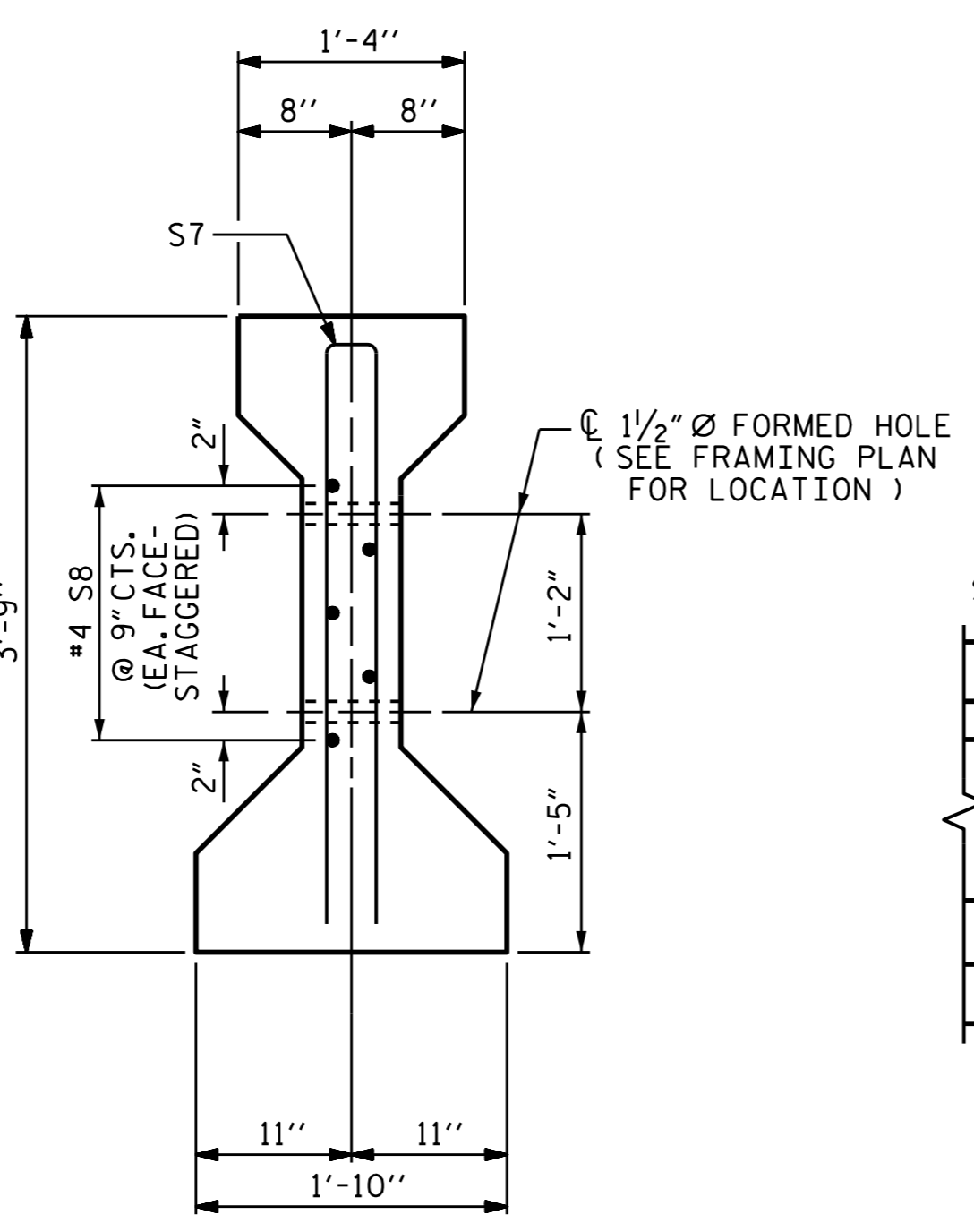


DRAWN BY : R. P. PATEL DATE : 9-5-13
 CHECKED BY : J. P. MCCARTHA DATE : 9-27-13
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 5-4-15

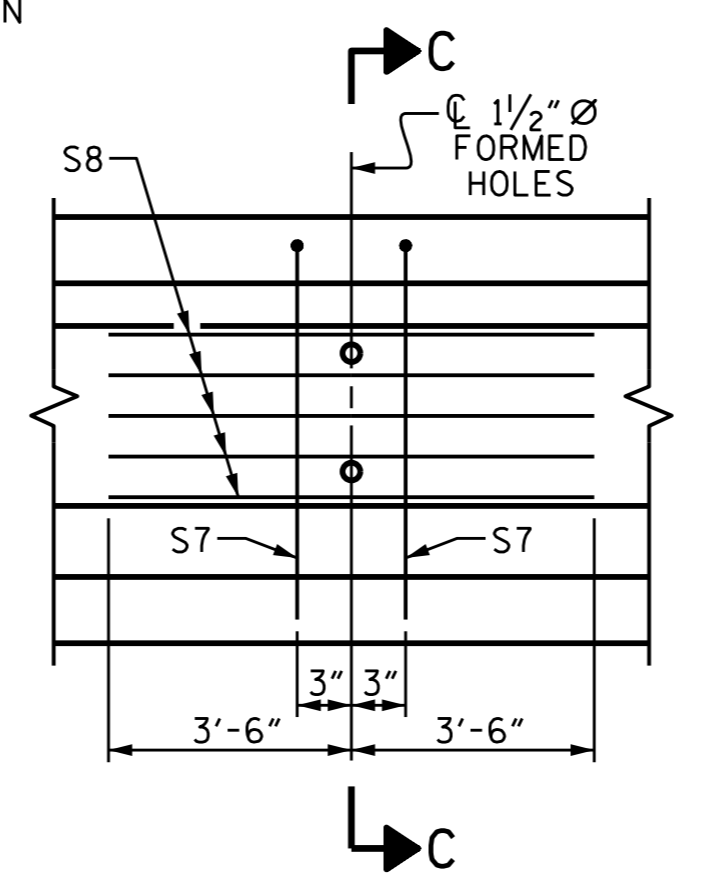
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			38



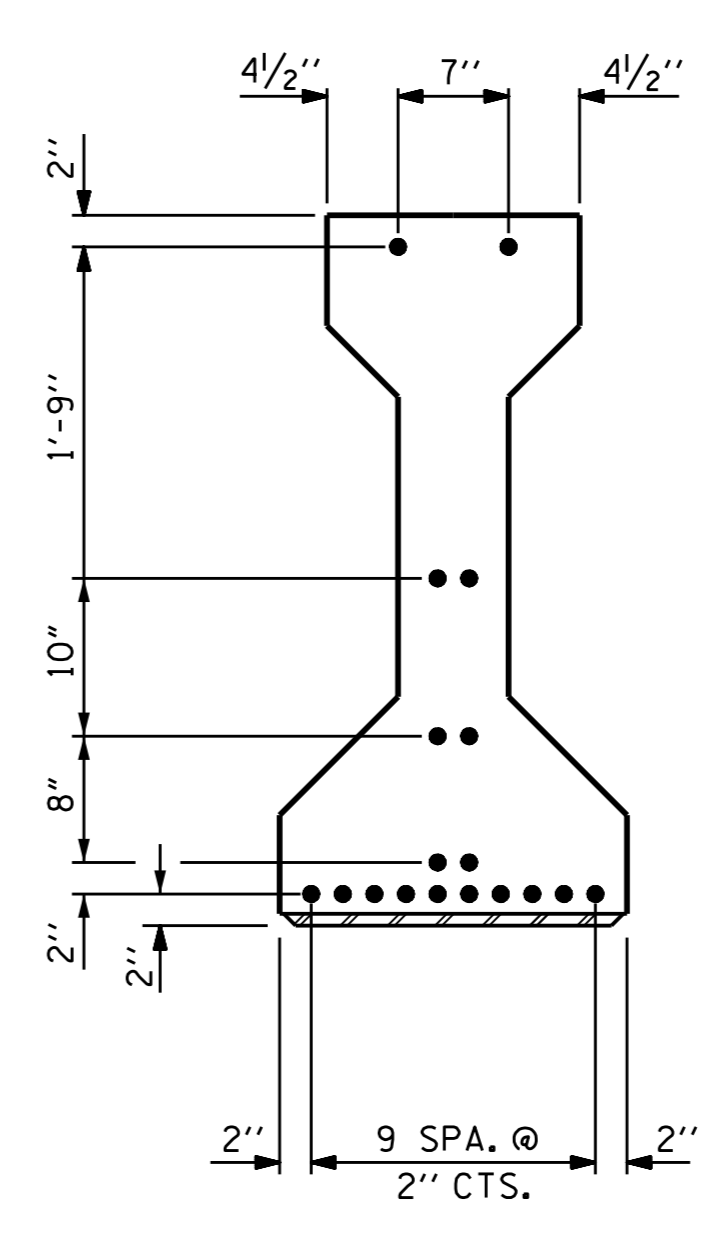
SECTION A-A
SECTION B-B



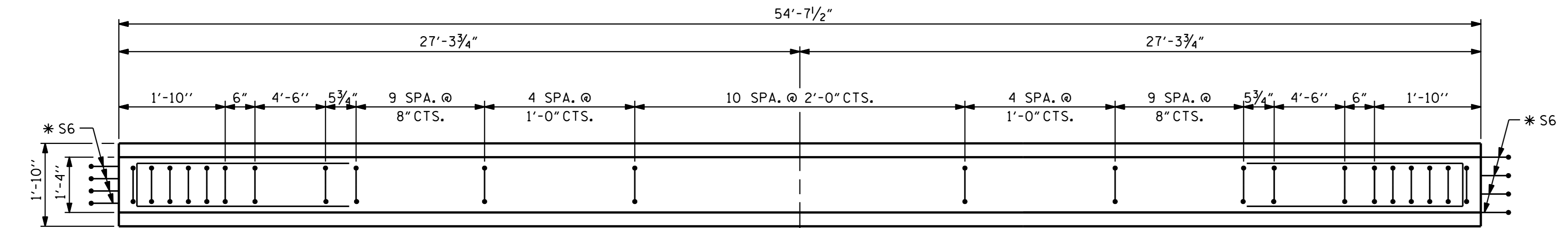
SECTION C-C
(S1 BARS NOT SHOWN)



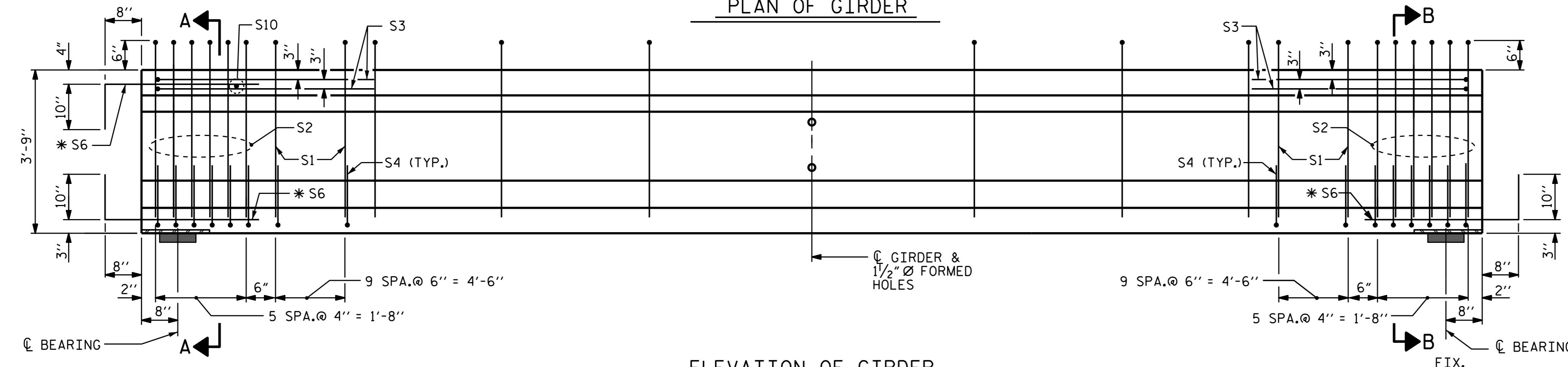
PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDERS.



0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



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

0.6" Ø L. R. GRADE 270 STRANDS

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

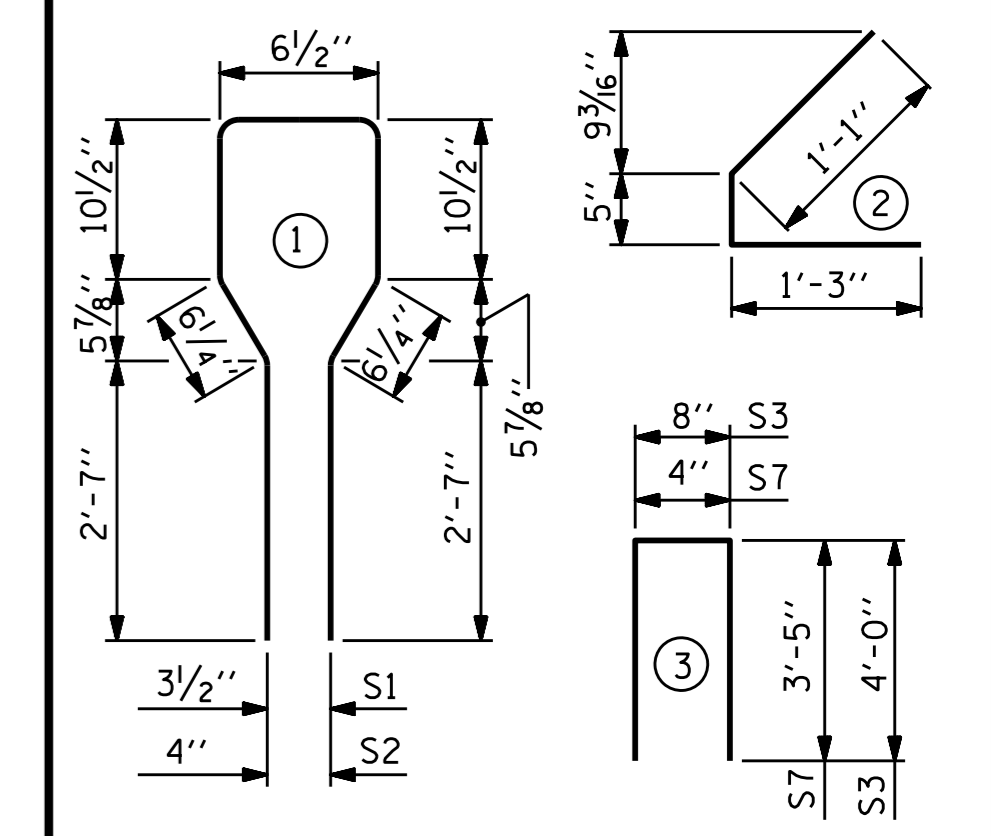
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	57	#4	1	8'-6"	324
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	64	#4	2	2'-9"	118
*S6	12	#5	STR	3'-8"	46
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23
S10	1	#3	STR	1'-0"	1

*NOTE: S6 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

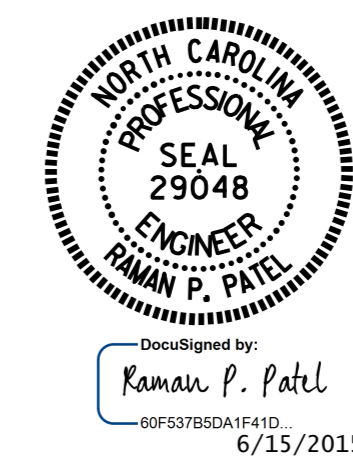
REINFORCING STEEL	5,500 PSI CONCRETE	0.6" Ø L. R. STRANDS
LB.	C.Y.	No.
703	7.9	18

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
6	54'-7 1/2"	327'-9"

PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-

SHEET 1 OF 4

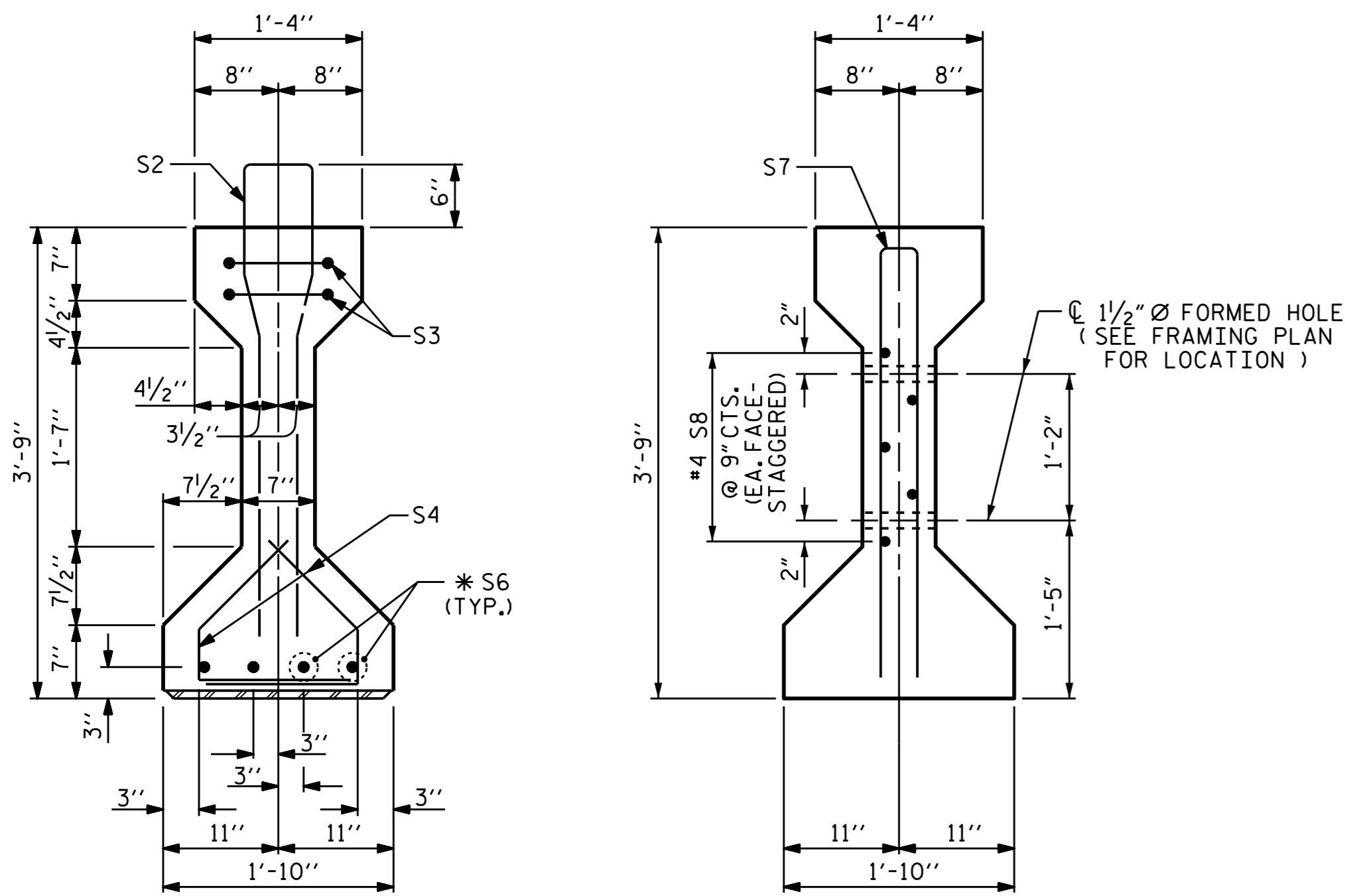


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE III
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
(SPAN A)

REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

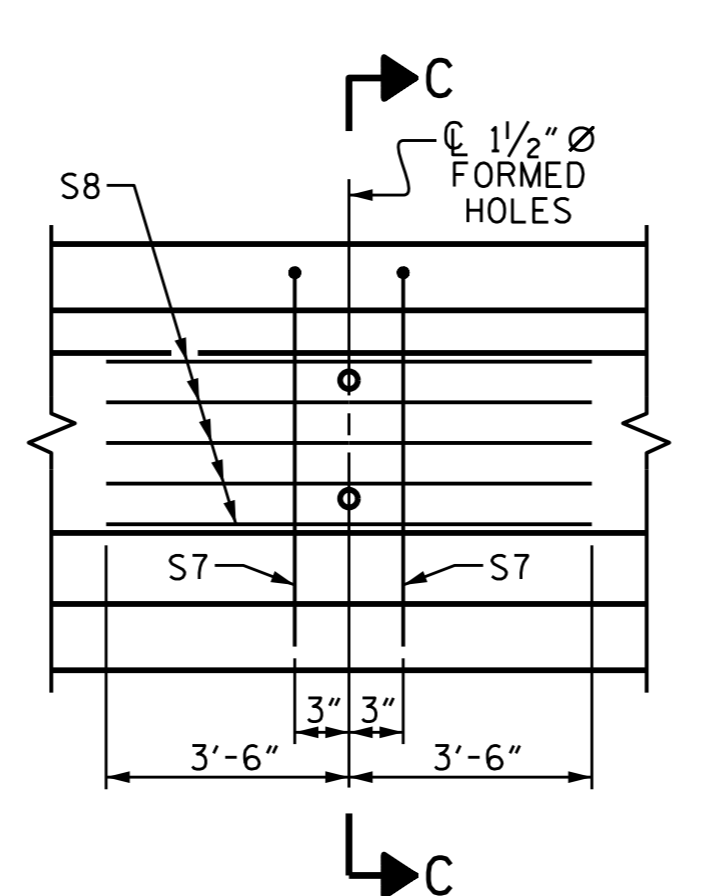
ASSEMBLED BY : R. P. PATEL DATE : 9-13-13
CHECKED BY : J. P. MCCARTHA DATE : 9-27-13
DRAWN BY : ELR 8/91 REV. 5/1/06R TLA/GM DESIGN ENGINEER OF RECORD:
CHECKED BY : GRP 8/91 REV. 10/1/11 MAA/GM R. P. PATEL DATE : 5-4-15
REV. 1/15 MAA/TMG

11-JUN-2015 07:59
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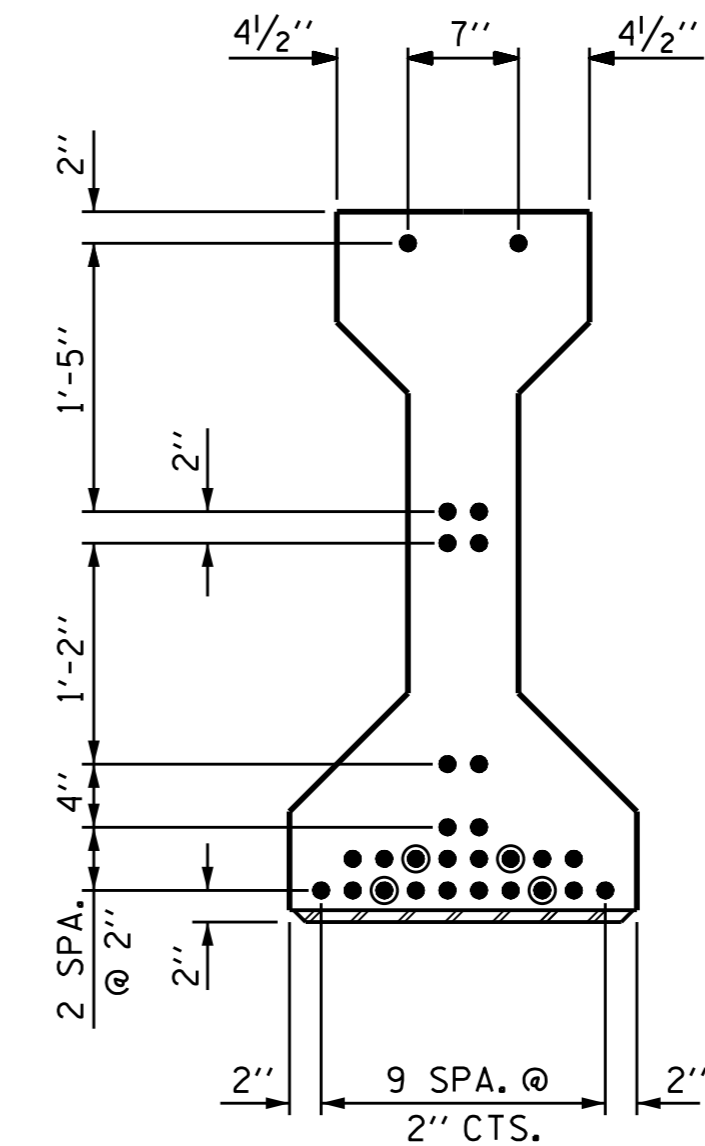
SECTION B-B

SECTION C-C
(S1 BARS NOT SHOWN)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDERS.



0.6" Ø LOW RELAXATION STRAND LAYOUT

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ⊙ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER

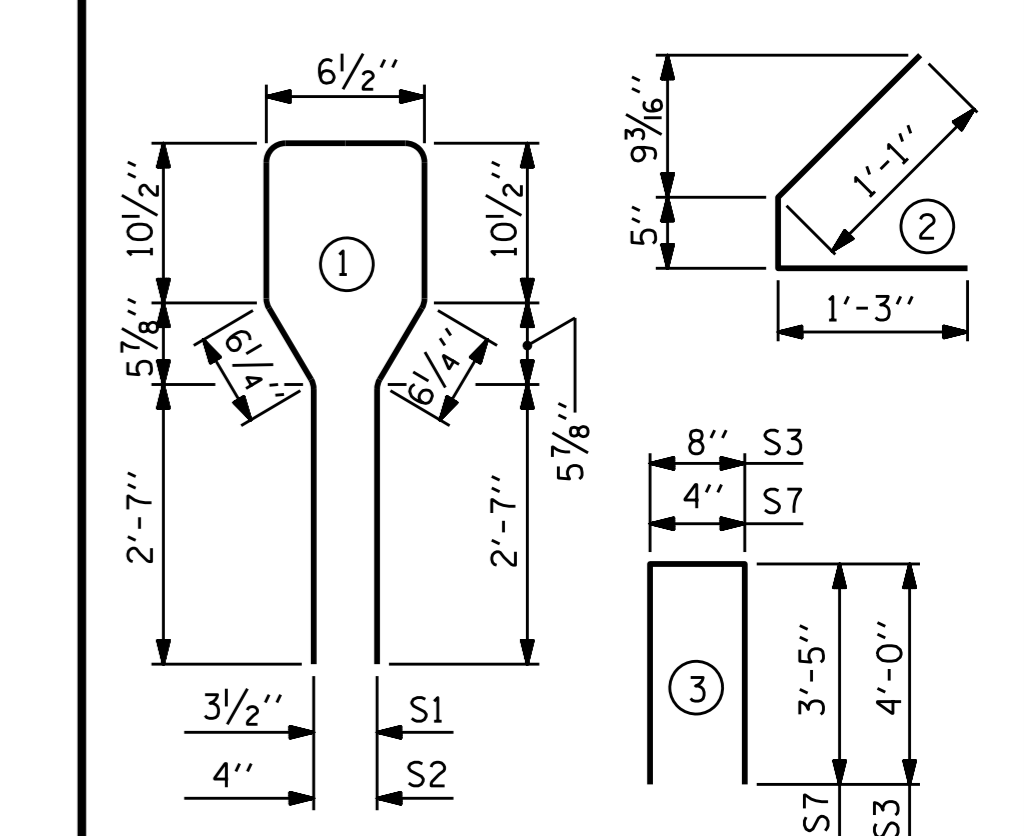
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	90	#4	1	8'-6"	511
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	76	#4	2	2'-9"	140
*S6	8	#5	STR	3'-8"	31
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

* NOTE: S6 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

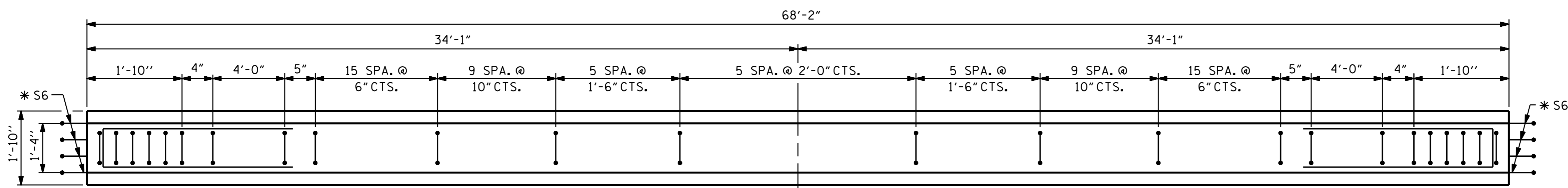
BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT

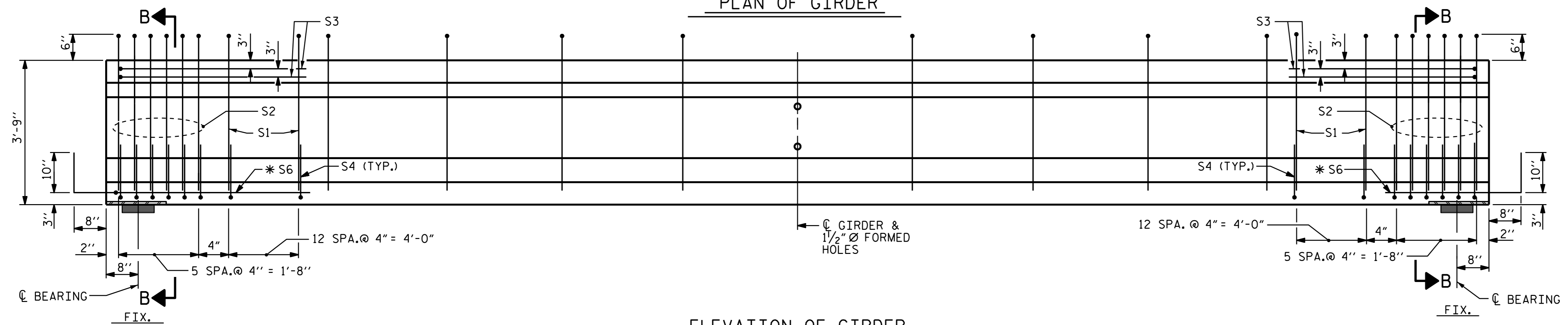


QUANTITIES FOR ONE GIRDER		
REINFORCING STEEL	7,500 PSI CONCRETE	0.6" Ø L. R. STRANDS
LB.	C.Y.	No.
896	9.8	28

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
6	68'-2"	409'-0"



PLAN OF GIRDER

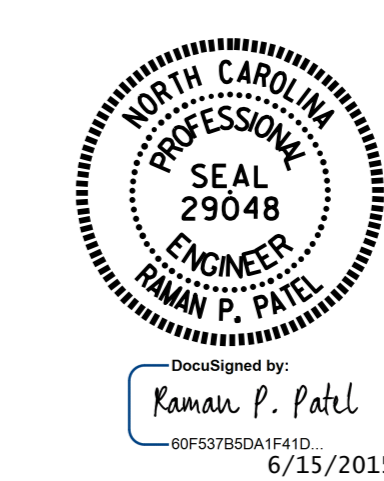


ELEVATION OF GIRDER

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

PROJECT NO. B-5105
 MECKLENBURG COUNTY
 STATION: 20+08.00 -L-
 SHEET 2 OF 4

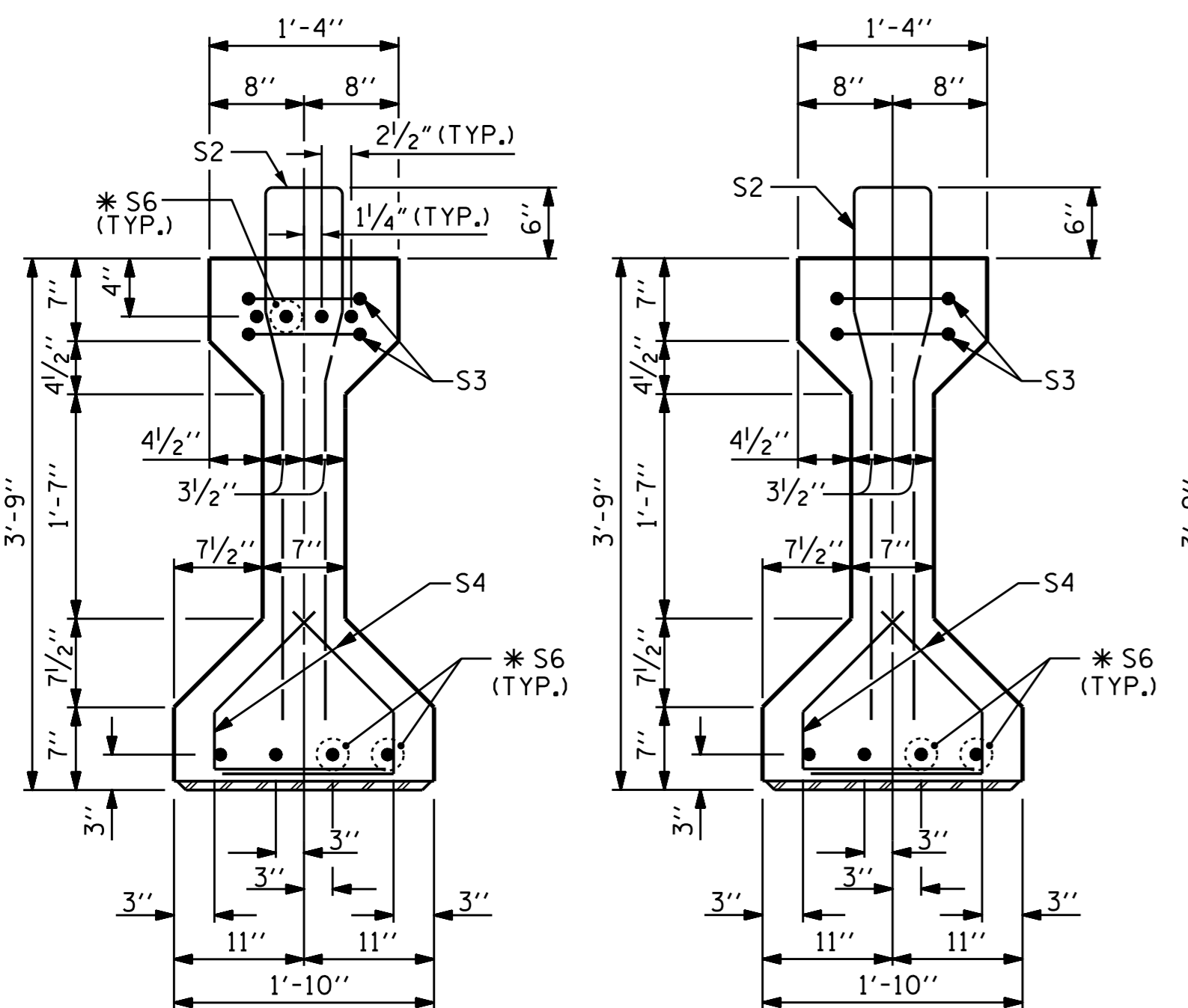
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE III
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 (SPAN B)



ASSEMBLED BY : R. P. PATEL	DATE : 9-13-13	DESIGN ENGINEER OF RECORD:	R. P. PATEL	DATE : 5-4-15
CHECKED BY : J. P. MCCARTHA	DATE : 9-27-13			
DRAWN BY : ELR 8/91	REV. 5/1/06R	TLA/GM		
CHECKED BY : GRP 8/91	REV. 10/1/11	MAA/GM		
	REV. 1/15	MAA/TMG		

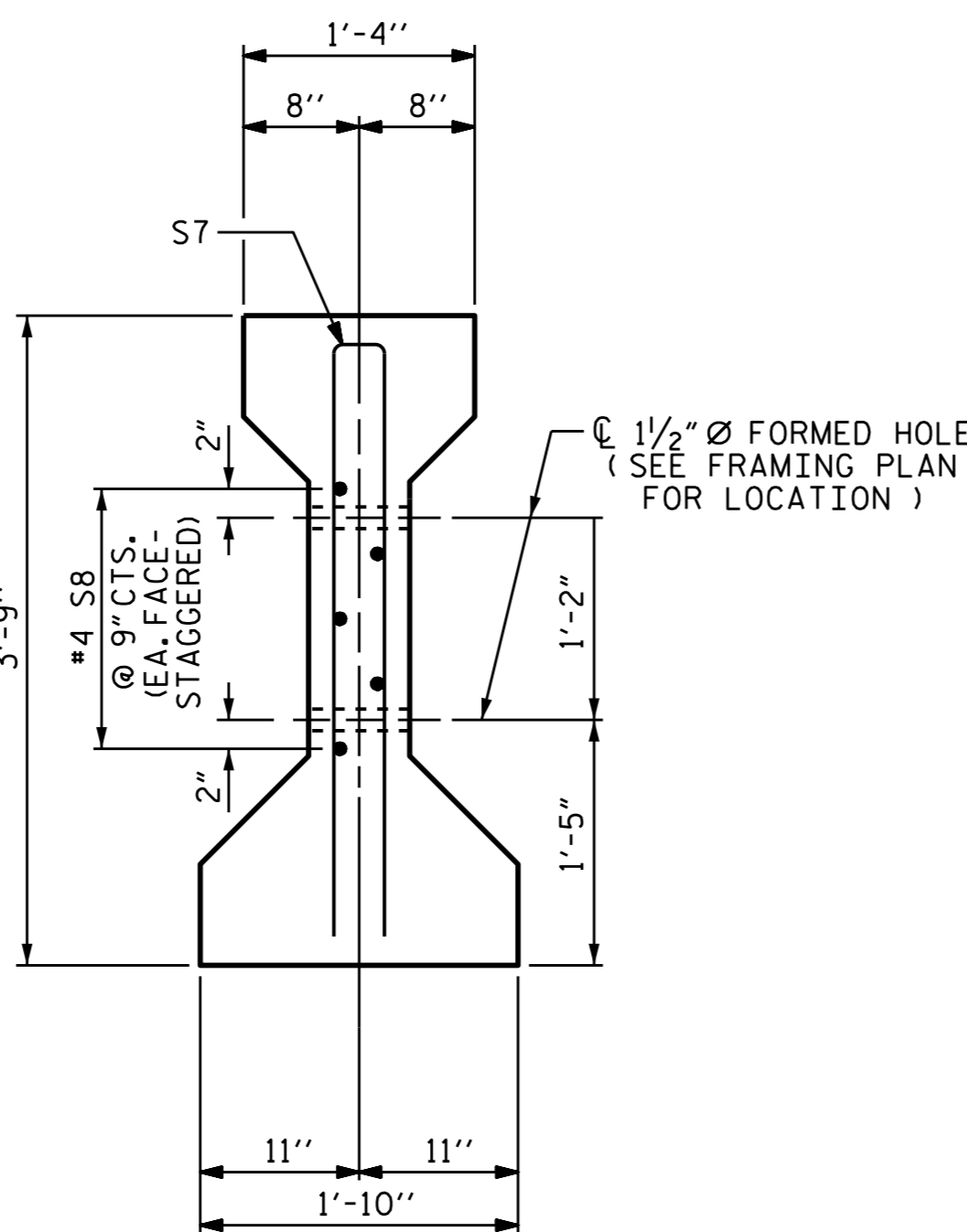
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1			3		
2			4		

TOTAL SHEETS 38
 STD. NO. PCC6

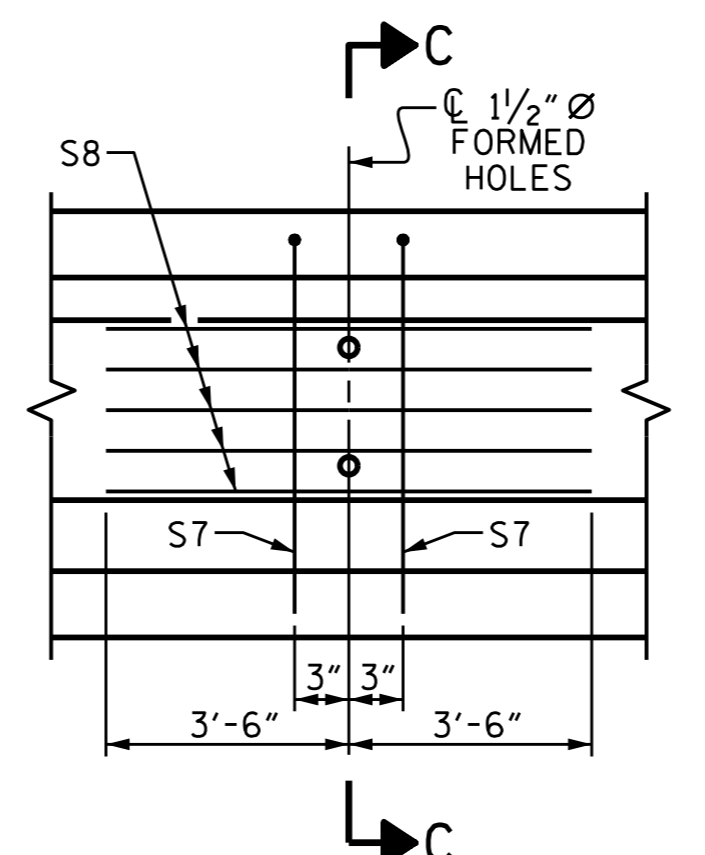


SECTION A-A

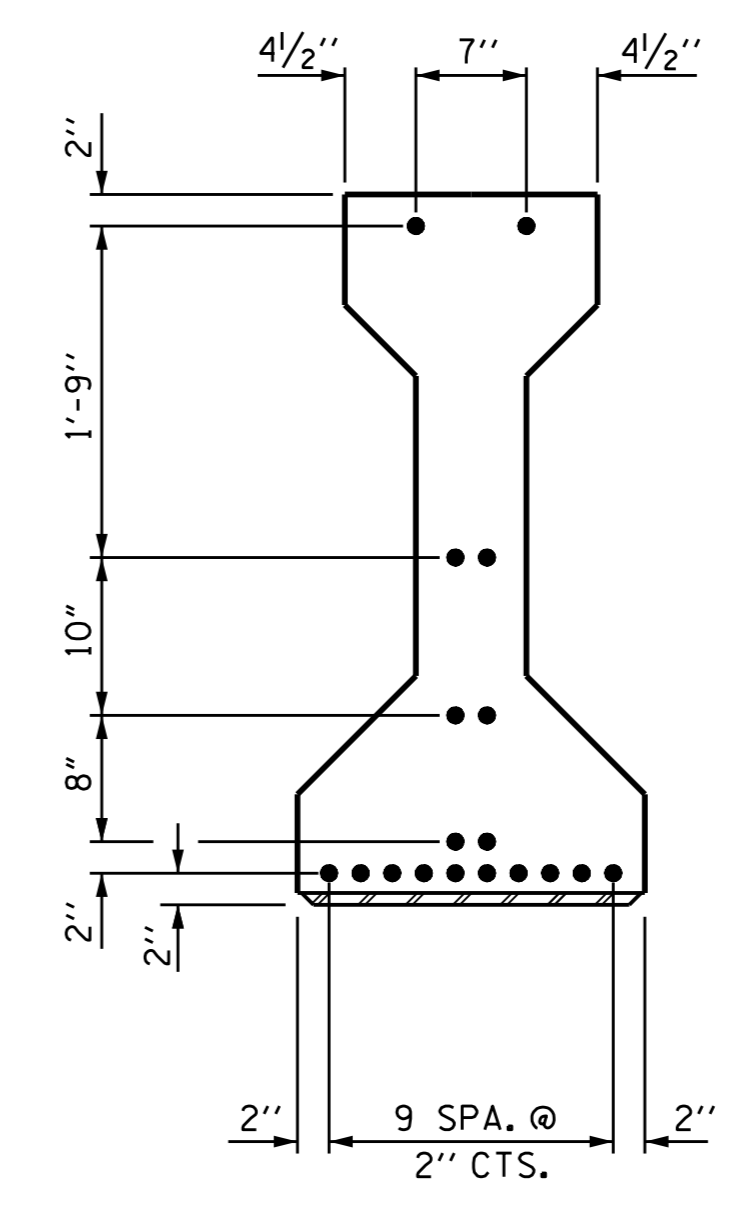
SECTION B-B



SECTION C-C
(S1 BARS NOT SHOWN)



PARTIAL ELEVATION
SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDERS.



0.6" Ø LOW RELAXATION STRAND LAYOUT

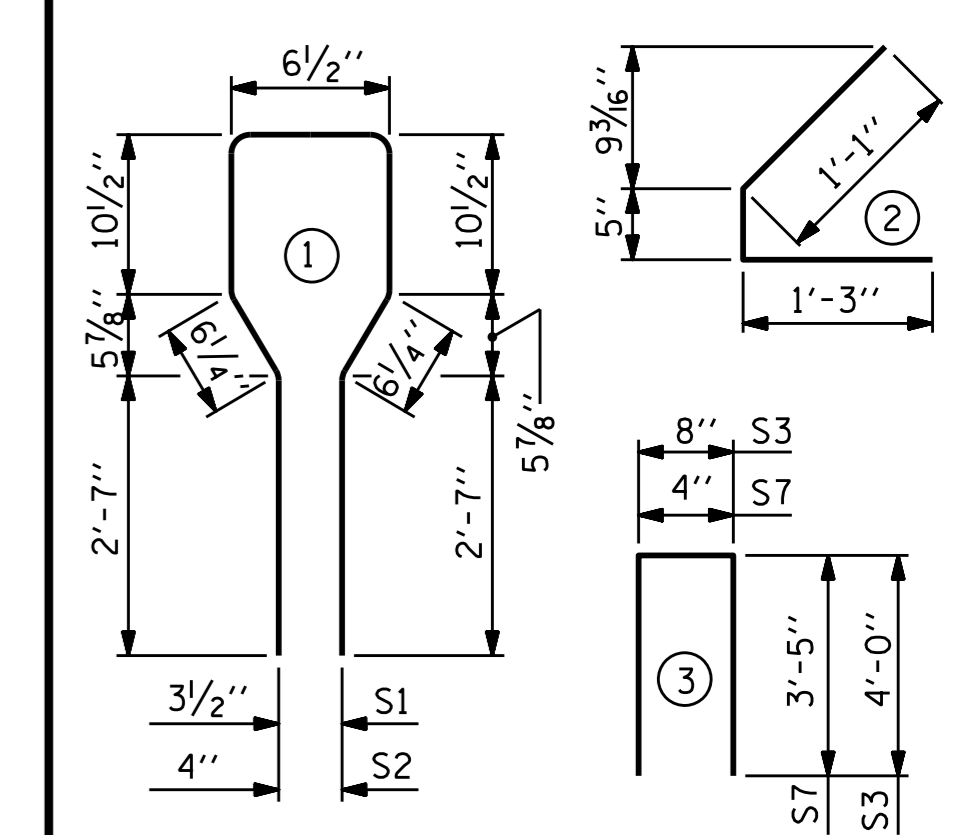
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	58	#4	1	8'-6"	329
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	68	#4	2	2'-9"	125
*S6	12	#5	STR	3'-8"	46
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23
S10	1	#3	STR	1'-0"	1

*NOTE: S6 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT

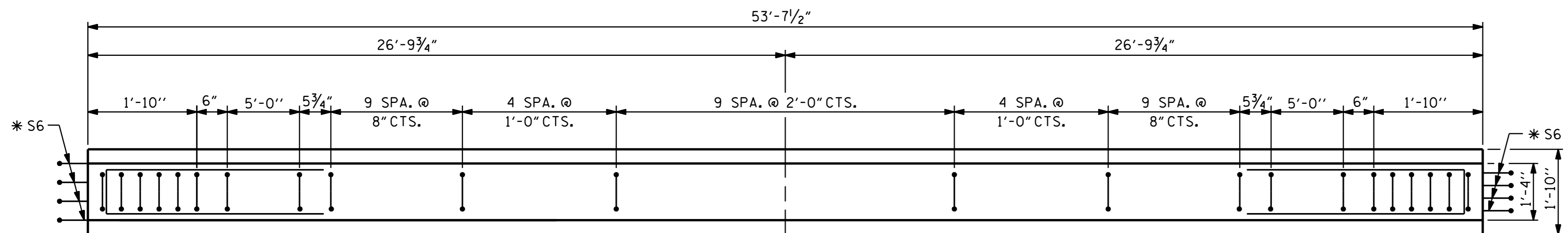


QUANTITIES FOR ONE GIRDER

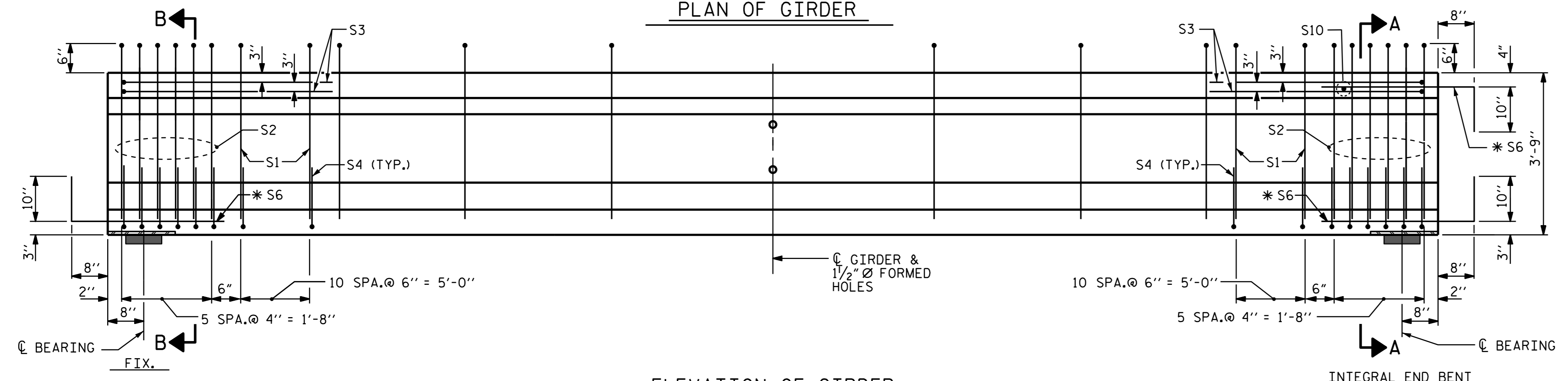
REINFORCING STEEL	5,500 PSI CONCRETE	0.6" Ø L. R. STRANDS
LB.	C.Y.	No.
715	7.7	18

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
6	53'-7 1/2"	321'-9"

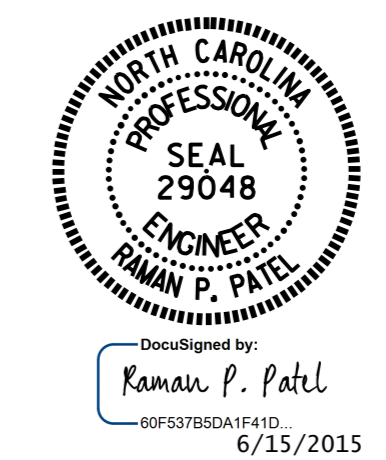


PLAN OF GIRDER



ELEVATION OF GIRDER

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



ASSEMBLED BY : R. P. PATEL	DATE : 9-13-13
CHECKED BY : J. P. MCCARTHA	DATE : 9-27-13
DRAWN BY : ELR 8/91	REV. 5/1/06R TLA/GM
CHECKED BY : GRP 8/91	REV. 10/1/11 MAA/GM
	REV. 1/15 MAA/TMG
DESIGN ENGINEER OF RECORD:	
R. P. PATEL DATE : 5-4-15	

PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
STANDARD AASHTO TYPE III PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD (SPAN C)			
REVISIONS			SHEET NO.
NO.	BY:	DATE:	S-15
1			TOTAL SHEETS 38
2			
3			
4			

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.

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

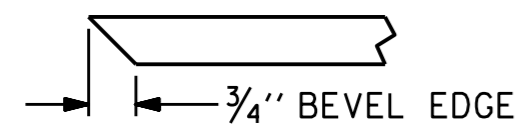
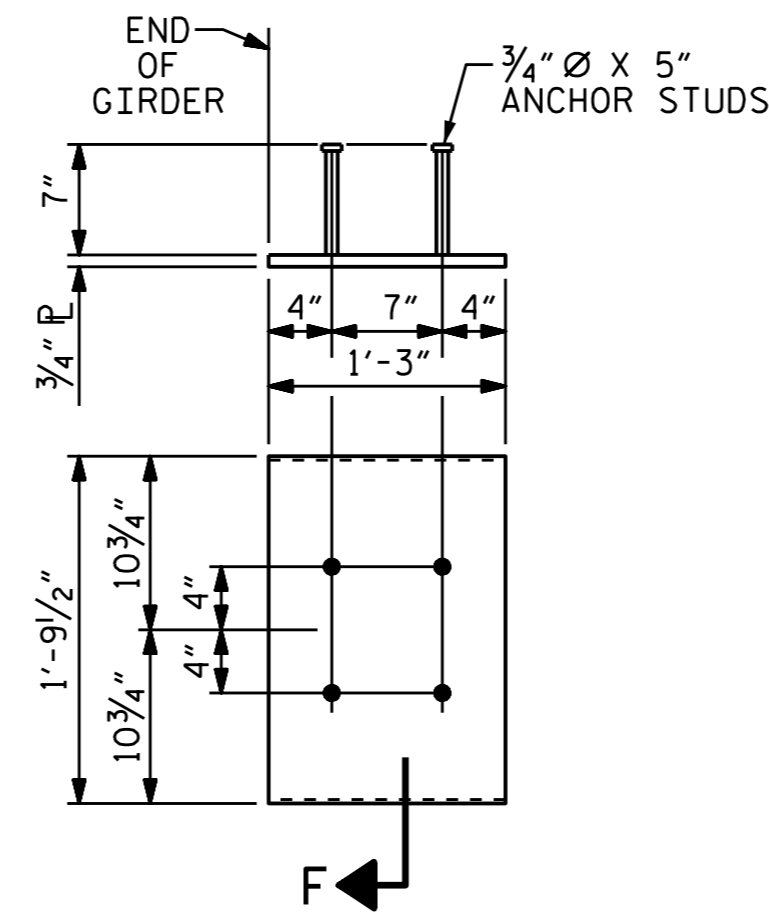
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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 4,100 PSI FOR SPANS A & C AND NOT LESS THAN 5,900 PSI FOR SPAN B.

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

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



SECTION "F"

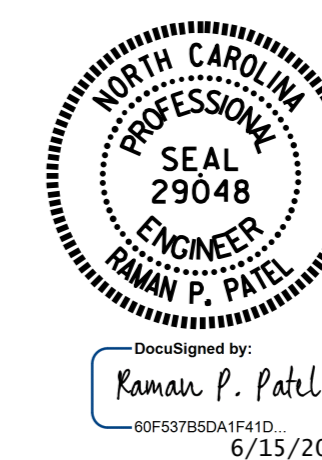
(SEE NOTES)

**EMBEDDED PLATE "B-1" DETAILS
FOR AASHTO TYPE III GIRDER**

(2 REQ'D PER GIRDER)

PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-

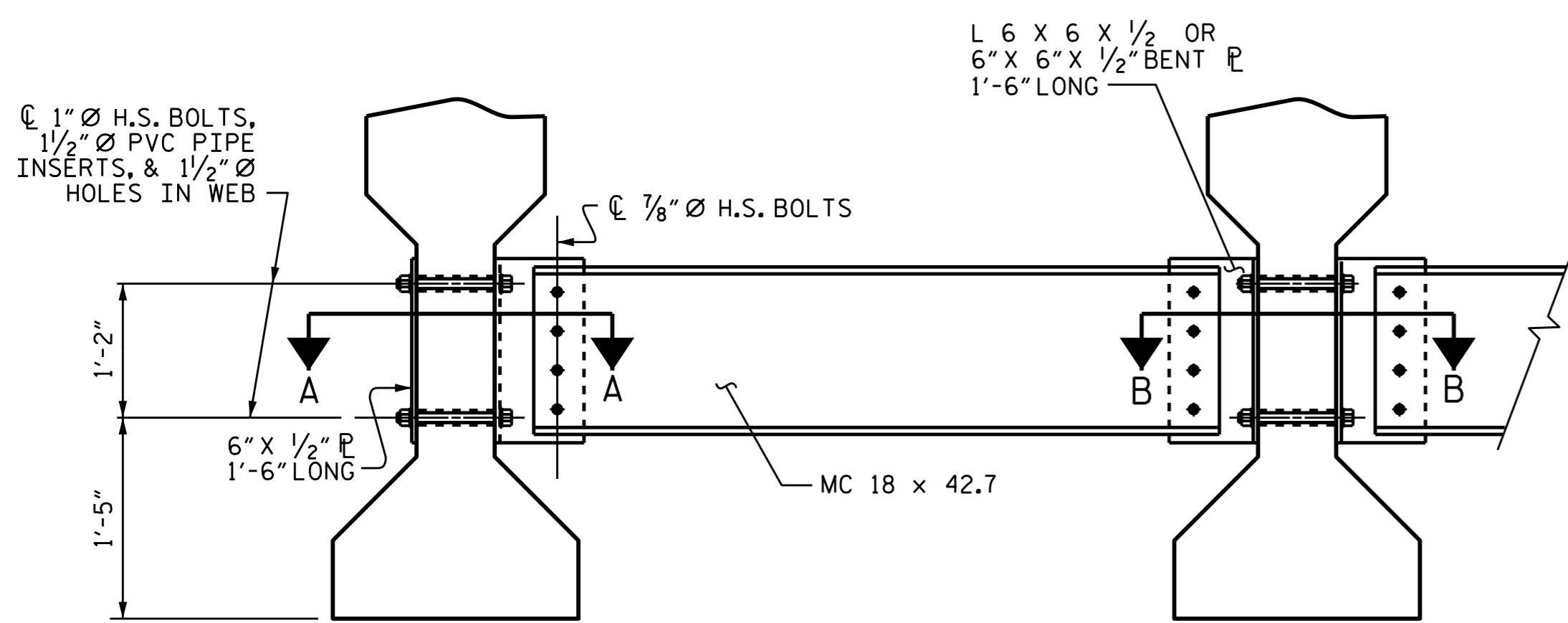
SHEET 4 OF 4



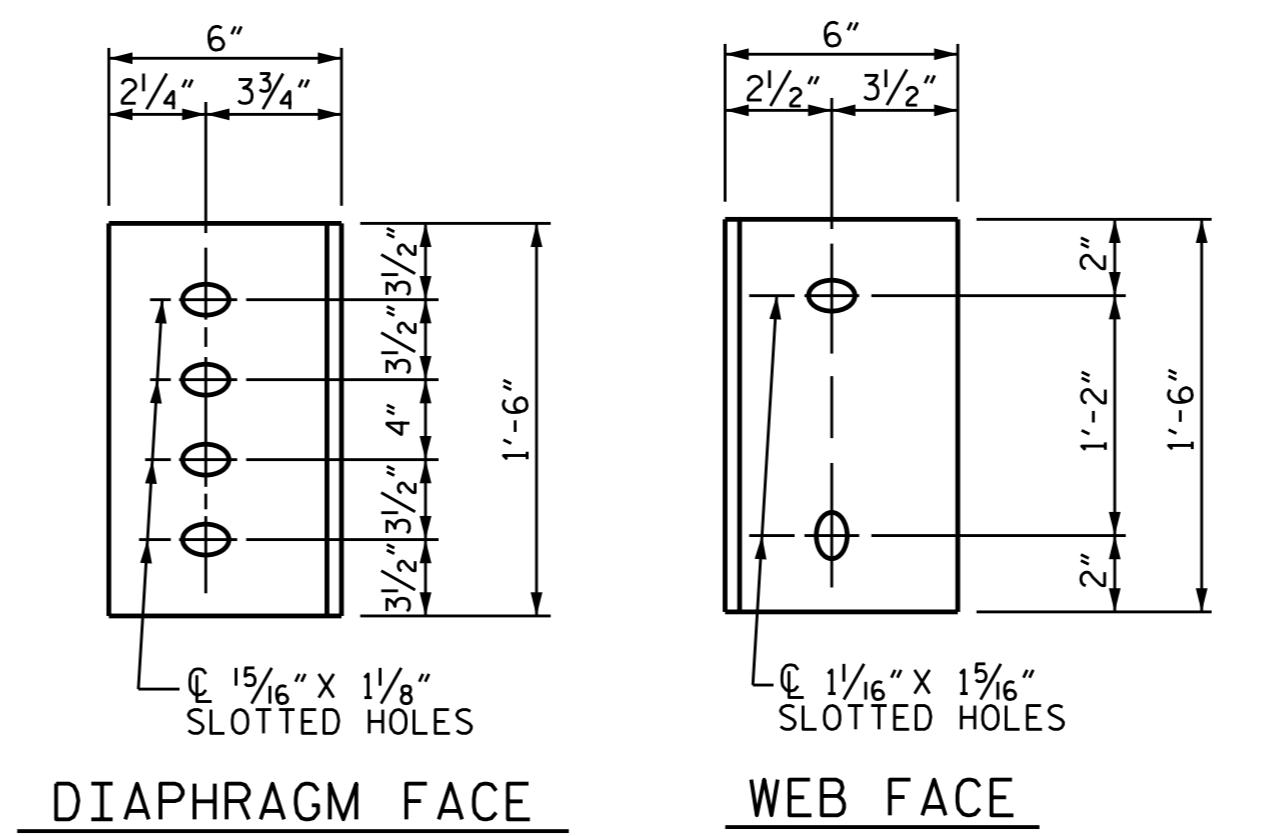
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS						S-16
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	38
1			3			
2			4			

ASSEMBLED BY : R. P. PATEL DATE : 9-13-13
CHECKED BY : J. P. MCCARTHA DATE : 9-27-13

DRAWN BY : ELR 11/91 REV. 10/1/11 MAA/GM DESIGN ENGINEER OF RECORD:
CHECKED BY : GRP 11/91 REV. 1/15 MAA/TMG R. P. PATEL DATE : 5-4-15
REV. 2/15 MAA/TMG



EXTERIOR GIRDER INTERIOR GIRDER
PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE WEB FACE
CONNECTOR PLATE DETAILS

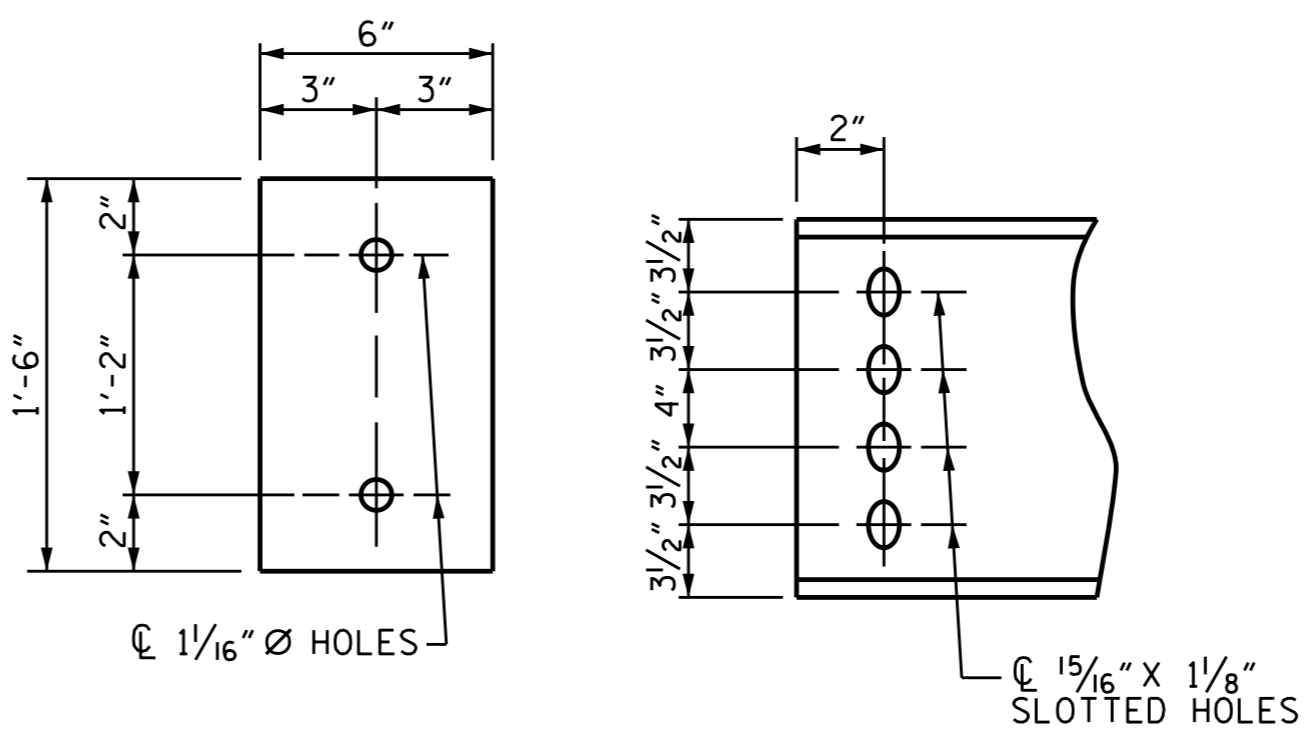
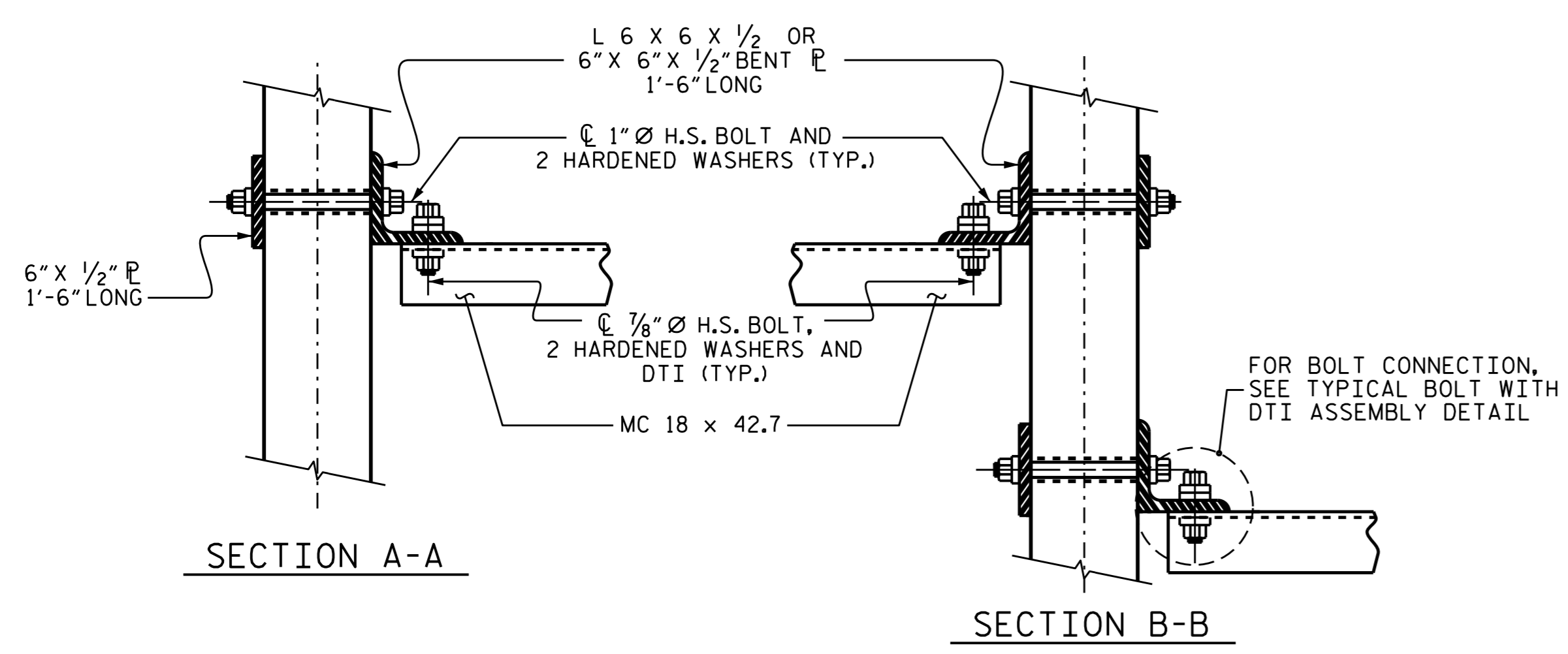
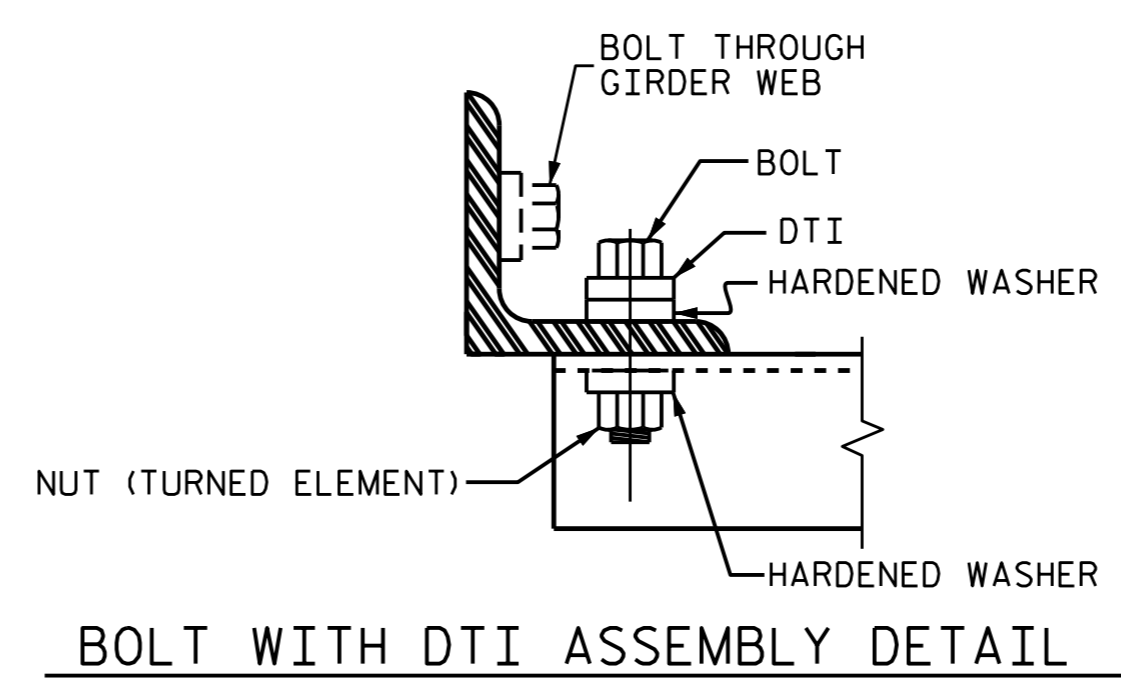


PLATE DETAILS CHANNEL END



SECTION A-A SECTION B-B
CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

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

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

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

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

FOR METALLIZATION, APPLY 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\"/>

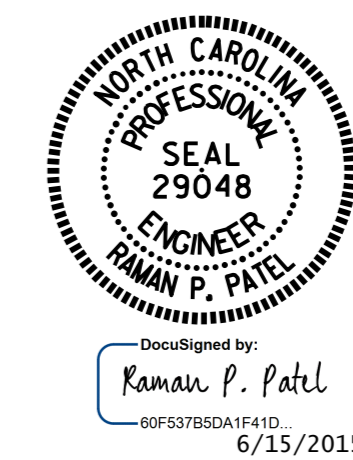
INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

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.

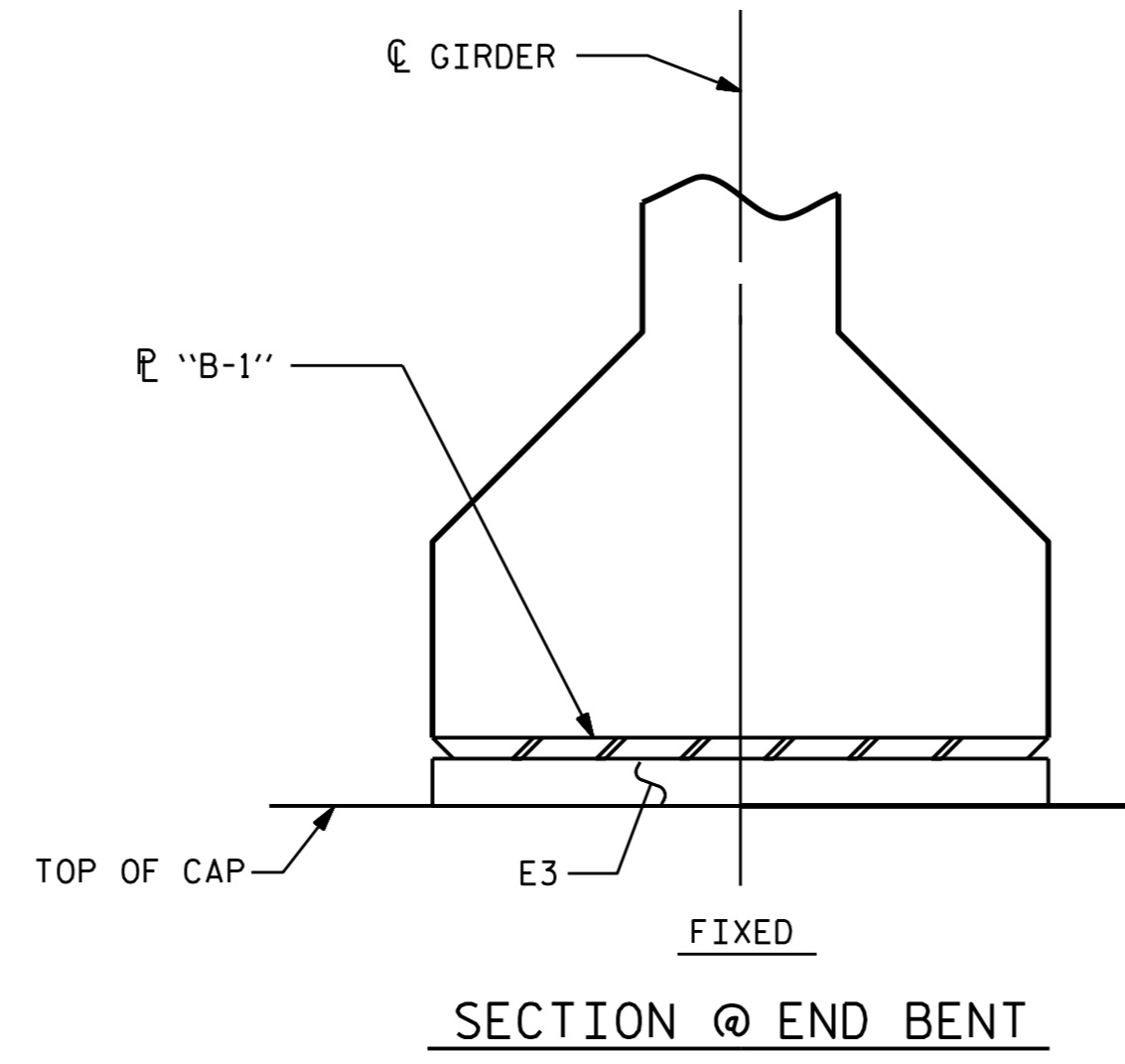
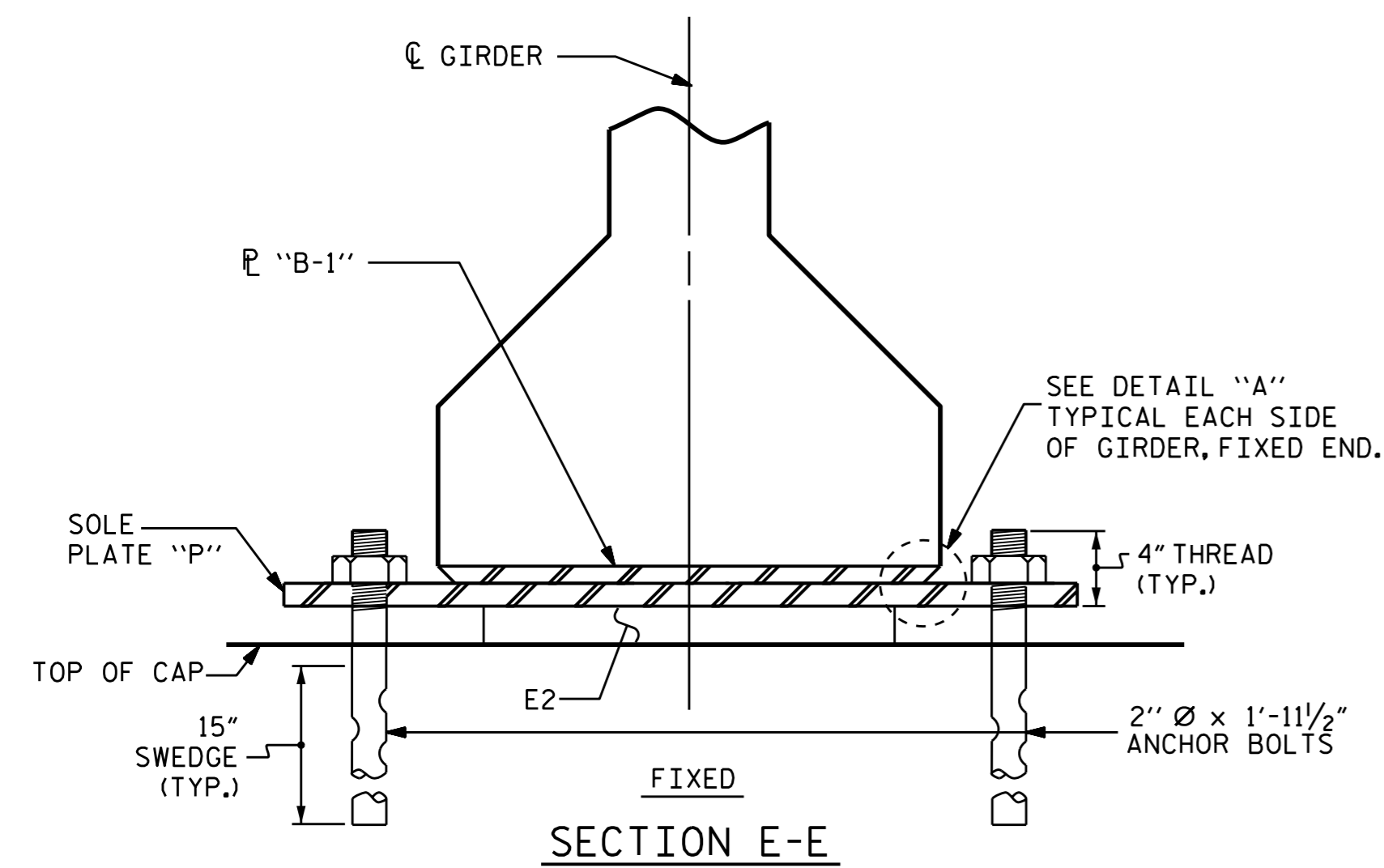
PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-



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

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

ASSEMBLED BY : R. P. PATEL	DATE : 9-5-13
CHECKED BY : J. P. MCCARTHA	DATE : 9-27-13
DRAWN BY : TLA 6/05	ADDED 10/21/05
CHECKED BY : VC 6/05	REV. 5/1/06RRR KMM/GM
	REV. 10/1/11 MAA/GM



MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE III	205 k
TYPE IV	225 k

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.

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.

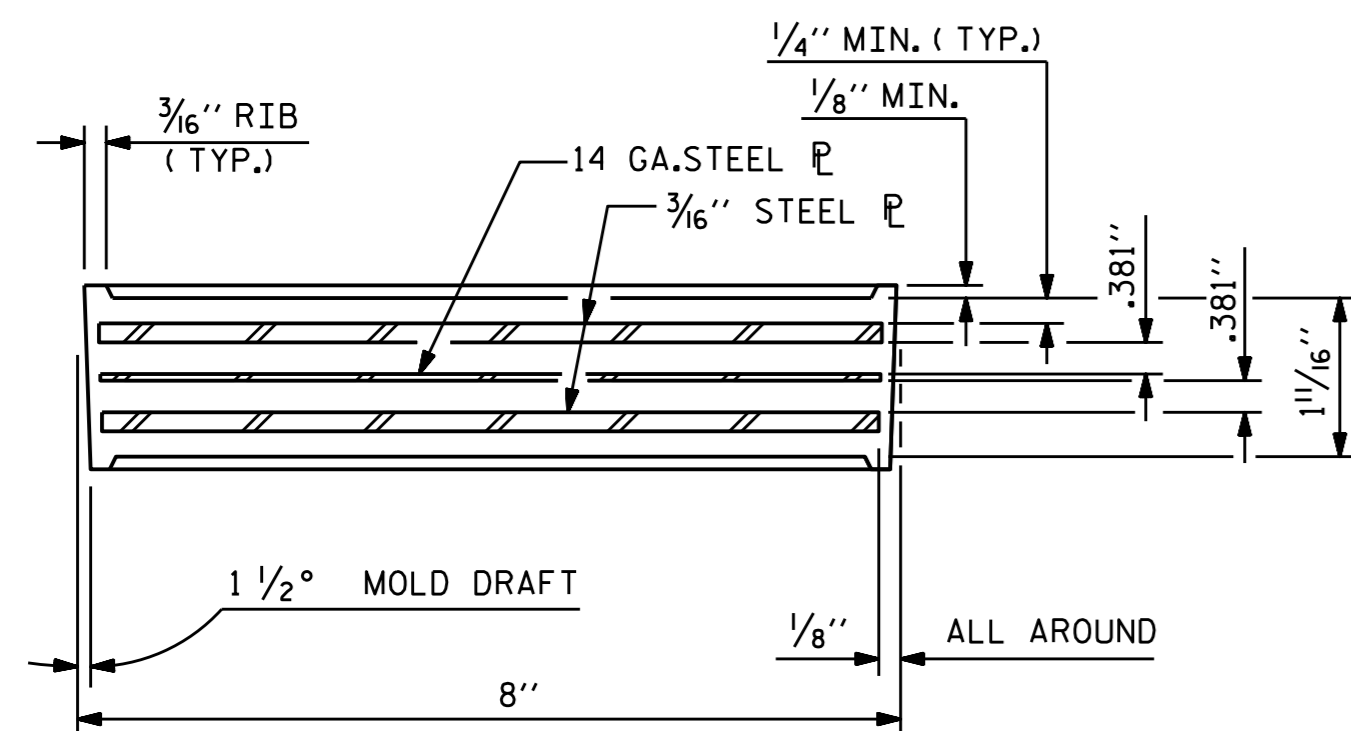
SOLE PLATE 'P', BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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

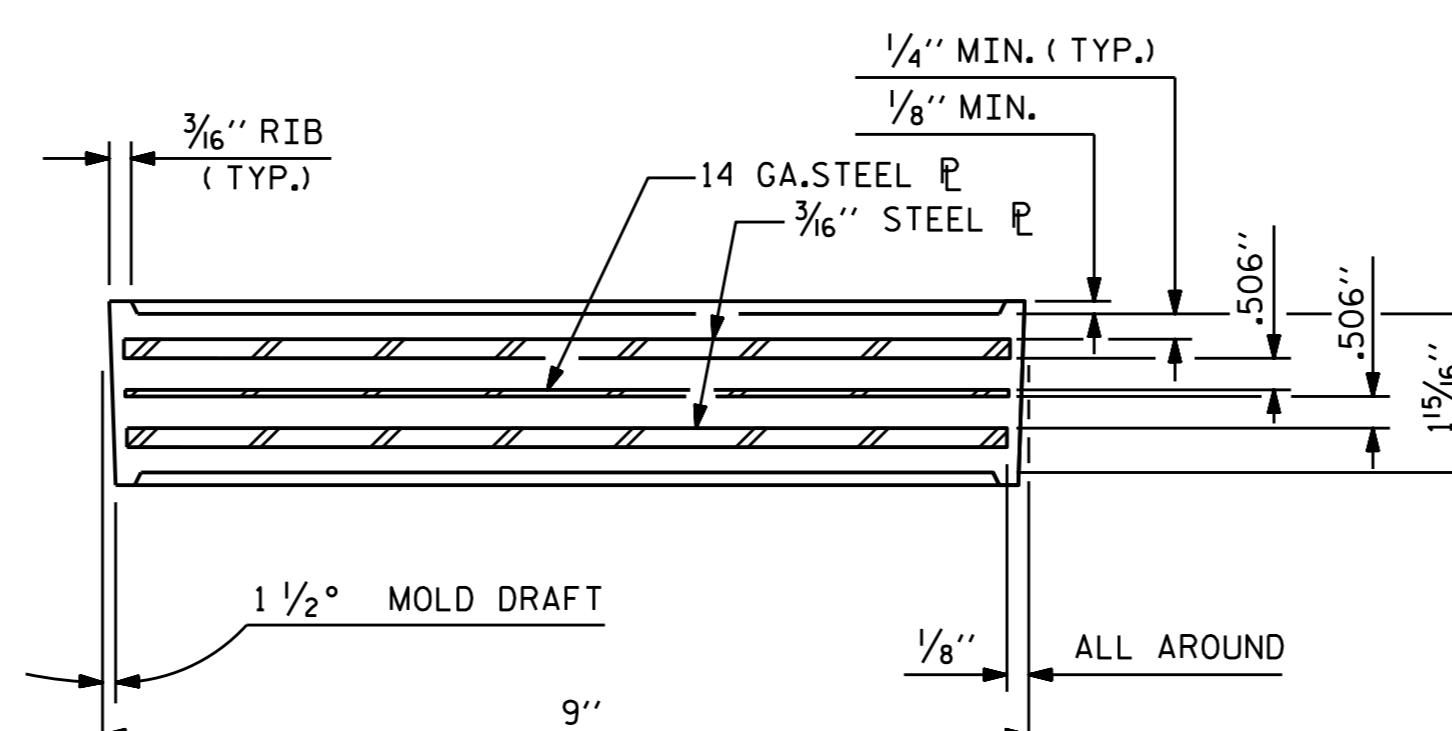
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

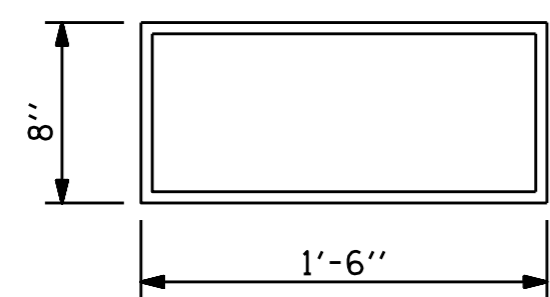
FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.



TYPICAL SECTION OF ELASTOMERIC BEARINGS



TYPICAL SECTION OF ELASTOMERIC BEARINGS

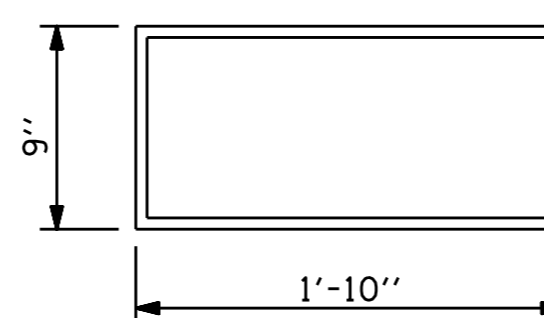


E2 (24 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE III

(BENTS 1 & 2)

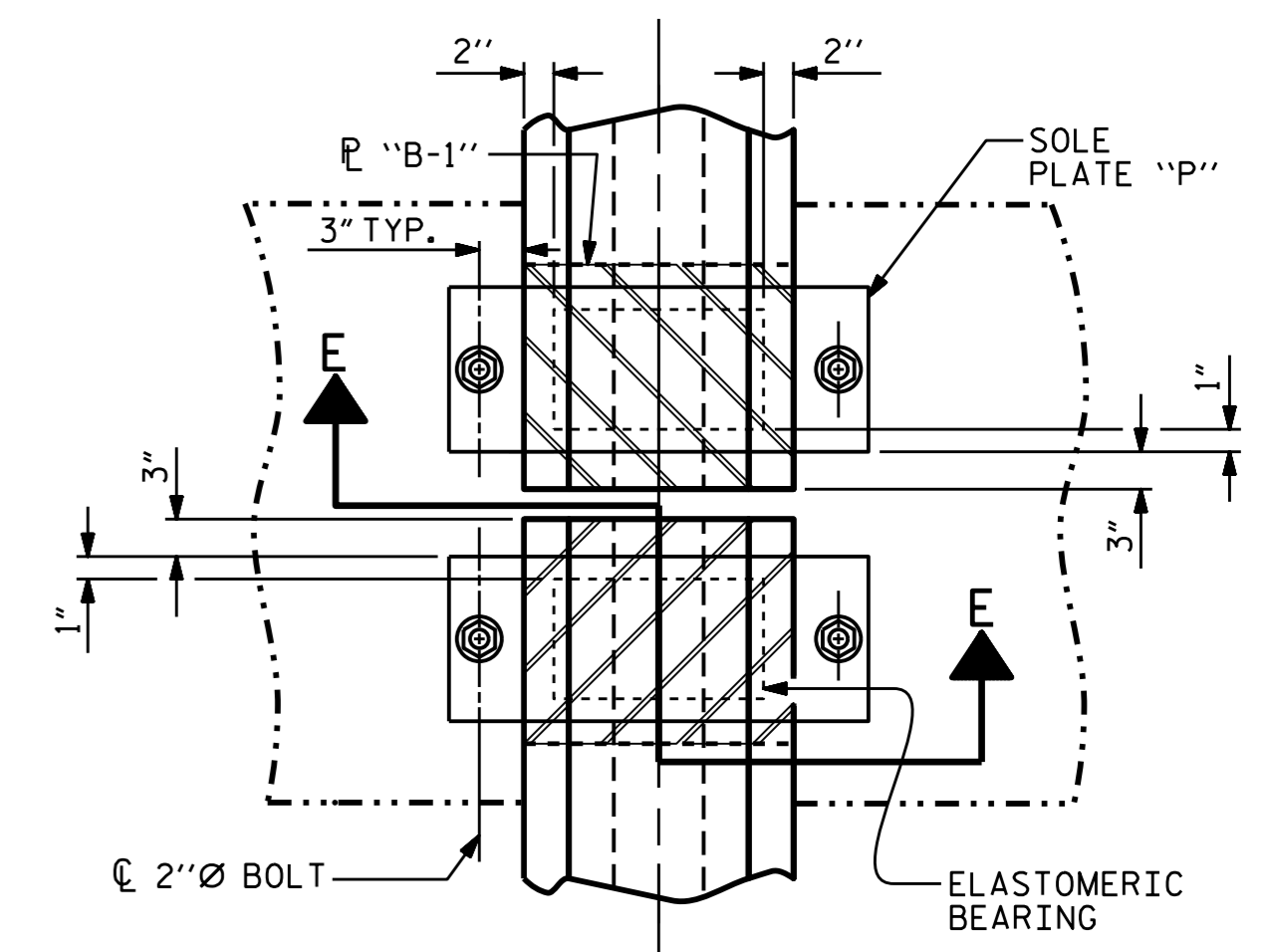


E3 (12 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

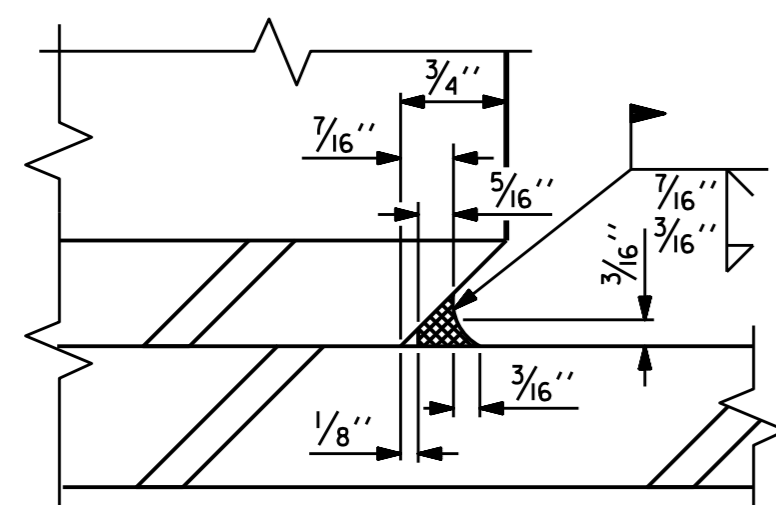
TYPE IV

(END BENTS 1 & 2)

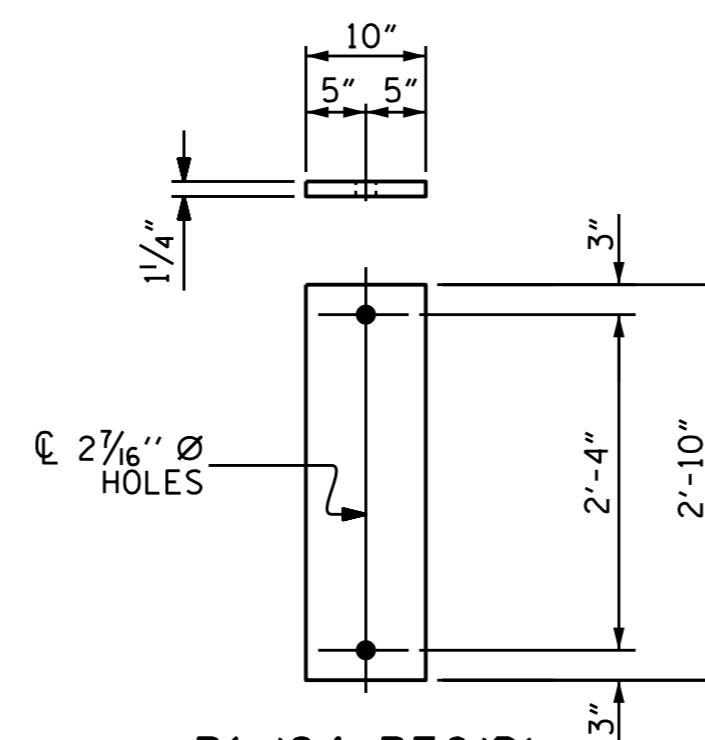


TYPICAL PLAN

(CONTINUOUS BENT)



DETAIL "A"



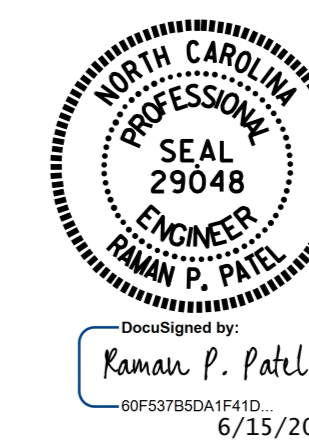
P1 (24 REQ'D)

(FIXED)

SOLE PLATE DETAILS (P1)

ASSEMBLED BY : R. P. PATEL	DATE : 9-13-13
CHECKED BY : J. P. MCCARTHA	DATE : 9-27-13
DRAWN BY : WJH 8/89	REV. 10/1/11
CHECKED BY : CRK 8/89	REV. 6/13
	REV. 1/15
DESIGN ENGINEER OF RECORD:	MAA/GM
R. P. PATEL	AAC/MAA
DATE : 5/5/15	MAA/TMG

11-JUN-2015 07:59
R:\Structures\Plans\B5105.sd.BG.01.dgn
dadavenport



PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-

STATE OF NORTH CAROLINA						SHEET NO. S-18
DEPARTMENT OF TRANSPORTATION						
RALEIGH						
STANDARD						
ELASTOMERIC BEARING						
DETAILS						
PRESTRESSED CONCRETE GIRDER						
SUPERSTRUCTURE						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			38
2			4			

STD. NO. EB3

DEAD LOAD DEFLECTION TABLE

SPAN A																																		
GIRDERS 1 & 6												GIRDERS 2 & 5										GIRDERS 3 & 4												
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0	0	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0	0	0.024	0.045	0.061	0.072	0.075	0.072	0.061	0.045	0.024	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.011	0.022	0.029	0.034	0.036	0.034	0.029	0.022	0.011	0	0	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0	0	0.013	0.024	0.033	0.039	0.041	0.039	0.033	0.024	0.013	0
FINAL CAMBER	↑	0	1/8"	1/4"	3/8"	7/16"	1/2"	7/16"	3/8"	1/4"	1/8"	0	0	1/8"	1/4"	5/16"	3/8"	3/8"	3/8"	5/16"	1/4"	1/8"	0	0	1/8"	1/4"	5/16"	3/8"	7/16"	3/8"	5/16"	1/4"	1/8"	0

DEAD LOAD DEFLECTION TABLE

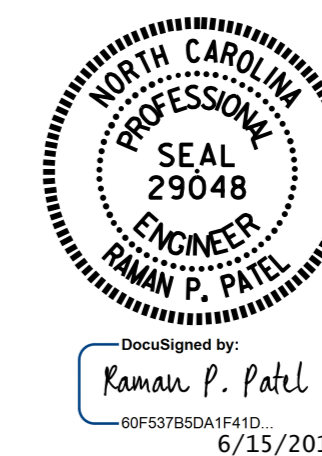
SPAN B																																		
GIRDERS 1 & 6												GIRDERS 2 & 5										GIRDERS 3 & 4												
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.041	0.078	0.107	0.125	0.131	0.125	0.107	0.078	0.041	0	0	0.041	0.078	0.107	0.125	0.131	0.125	0.107	0.078	0.041	0	0	0.041	0.078	0.107	0.125	0.131	0.125	0.107	0.078	0.041	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.024	0.046	0.063	0.073	0.077	0.073	0.063	0.046	0.024	0	0	0.028	0.052	0.072	0.084	0.088	0.084	0.072	0.052	0.028	0	0	0.027	0.052	0.071	0.083	0.087	0.083	0.071	0.052	0.027	0
FINAL CAMBER	↑	0	3/16"	3/8"	9/16"	5/8"	5/8"	5/8"	9/16"	3/8"	3/16"	0	0	3/16"	5/16"	7/16"	1/2"	1/2"	1/2"	7/16"	5/16"	3/16"	0	0	3/16"	5/16"	7/16"	1/2"	9/16"	1/2"	7/16"	5/16"	3/16"	0

DEAD LOAD DEFLECTION TABLE

SPAN C																																		
GIRDERS 1 & 6												GIRDERS 2 & 5										GIRDERS 3 & 4												
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.023	0.044	0.060	0.070	0.074	0.070	0.060	0.044	0.023	0	0	0.023	0.044	0.060	0.070	0.074	0.070	0.060	0.044	0.023	0	0	0.023	0.044	0.060	0.070	0.074	0.070	0.060	0.044	0.023	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.011	0.020	0.027	0.032	0.034	0.032	0.027	0.020	0.011	0	0	0.012	0.023	0.031	0.037	0.039	0.037	0.031	0.023	0.012	0	0	0.012	0.023	0.031	0.036	0.038	0.036	0.031	0.023	0.012	0
FINAL CAMBER	↑	0	1/8"	5/16"	3/8"	7/16"	1/2"	7/16"	3/8"	5/16"	1/8"	0	0	1/8"	1/4"	3/8"	3/8"	7/16"	3/8"	3/8"	1/4"	1/8"	0	0	1/8"	1/4"	3/8"	7/16"	7/16"	7/16"	3/8"	1/4"	1/8"	0

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

PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

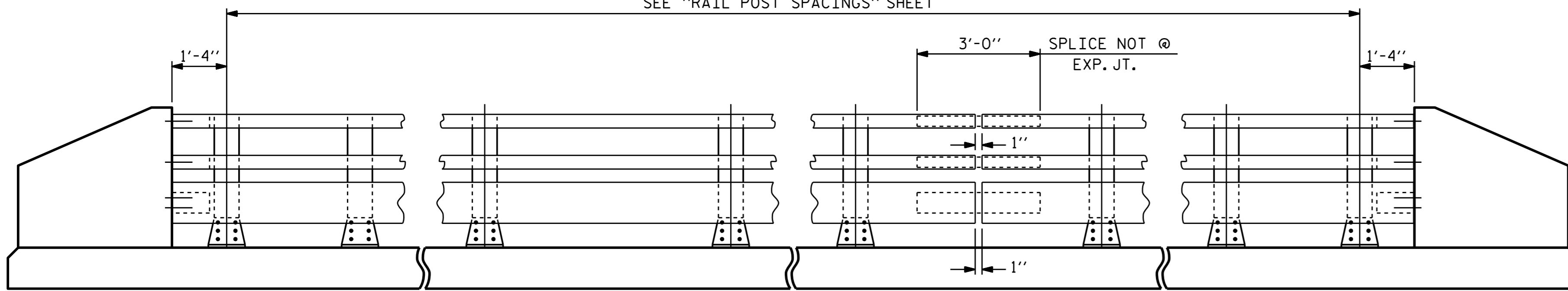
SUPERSTRUCTURE
DEAD LOAD DEFLECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			38

ASSEMBLED BY : R. P. PATEL DATE : 9-13-13
CHECKED BY : J. P. MCCARTHA DATE : 4-1-15

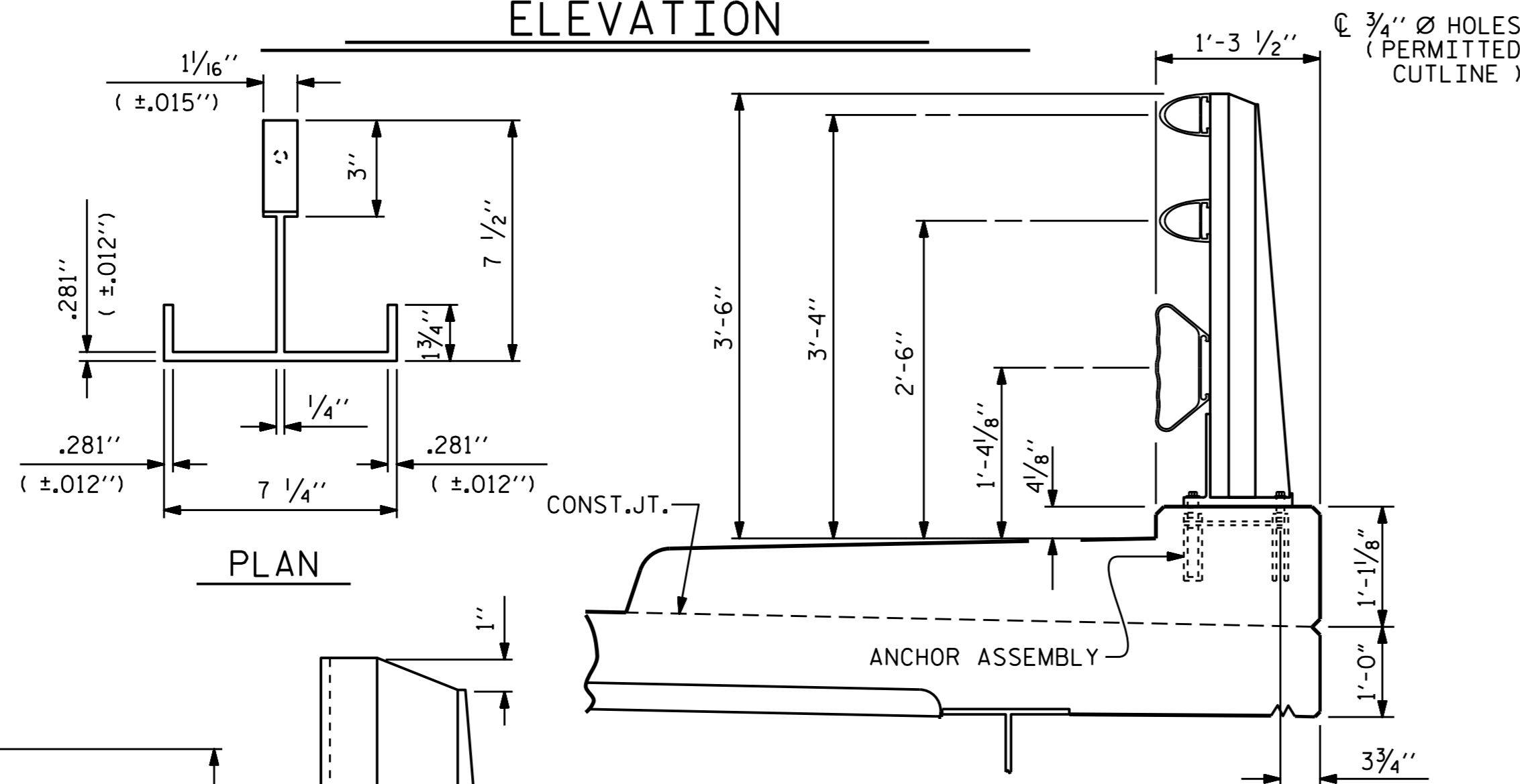
DRAWN BY : ELR 11/91 REV. 7/10/OIRR LES/RDR
CHECKED BY : GRP 11/91 REV. 5/1/06 TLA/GM
DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 5-4-15
REV. 10/1/11 MAA/GM

SEE "RAIL POST SPACINGS" SHEET



NOTE:
FOR ATTACHMENT OF METAL RAIL TO END
POST, SEE STANDARD NO. BMR7.

ELEVATION

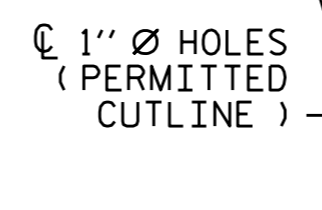


PLAN

CONST. JT.

SECTION THROUGH RAIL

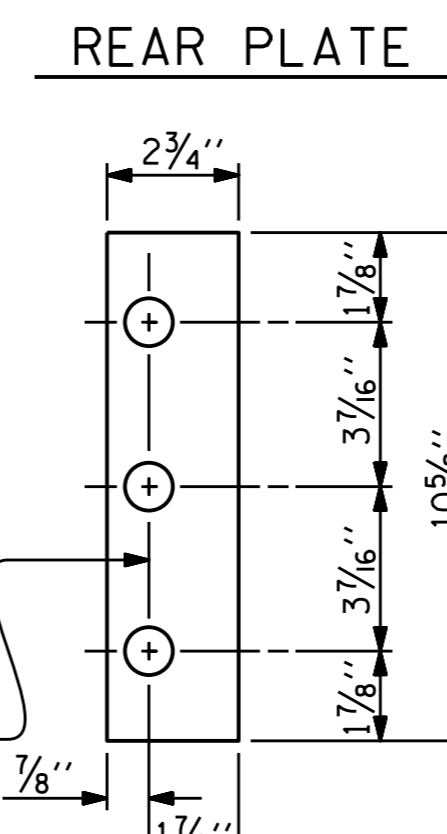
FOR ANCHOR ASSEMBLY, SEE "3 BAR METAL RAIL"
STD.No.BMR6



RIVET DETAIL

NOTE:
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR
SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

FRONT PLATE
SHIM DETAILS



REAR PLATE

FRONT PLATE
SHIM DETAILS

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS : AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPliced AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS. PLACE ONE JOINT SPLICE JUST BEYOND THE 3RD RAIL POST FROM EACH END, TYPICALLY 14' FROM THE END. PLACE OTHER JOINTS AS NEEDED.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR7.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS FOR RAIL ATTACHMENT SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

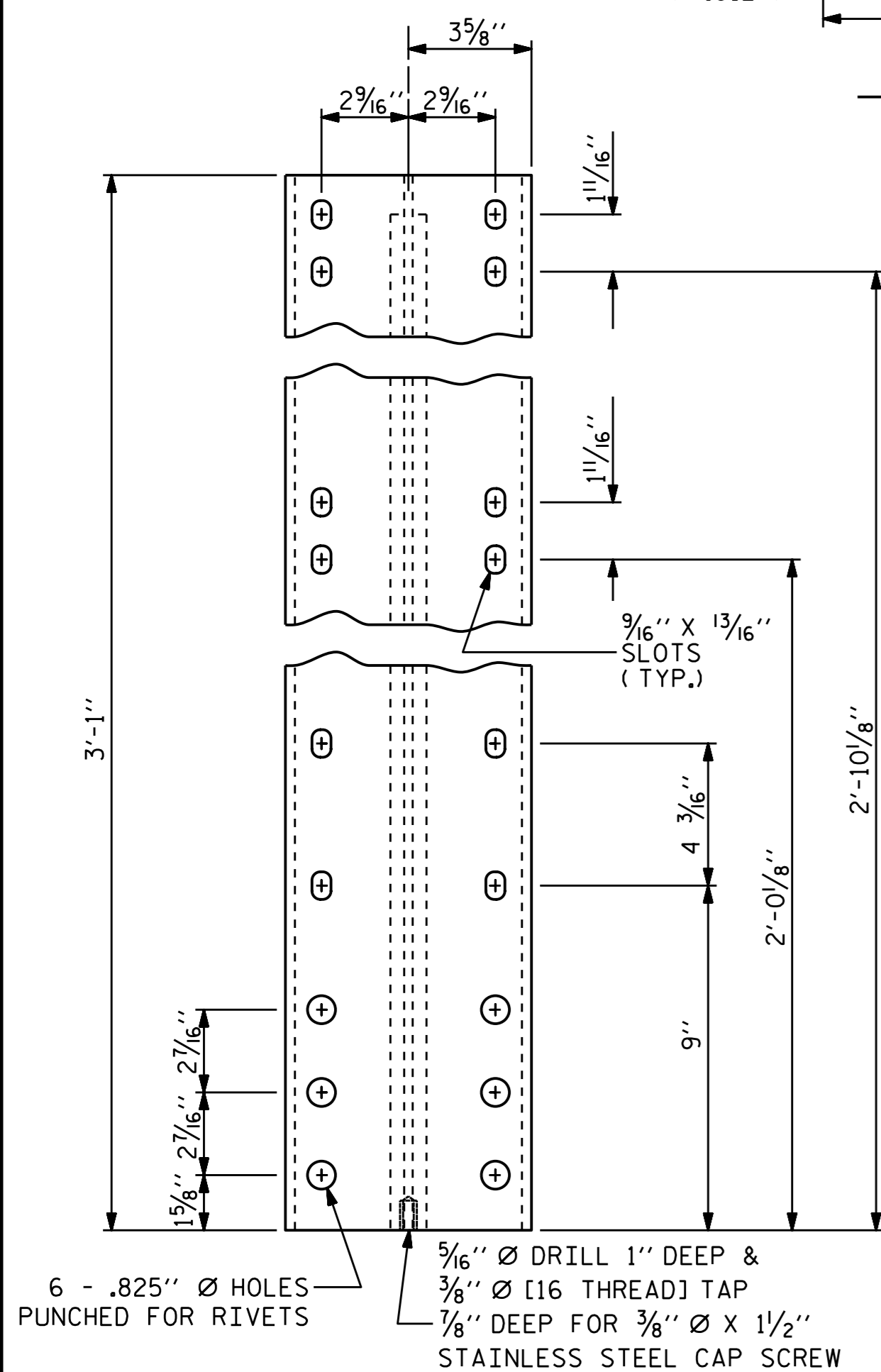
TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAIN VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

PAY LENGTH = 341.58 LIN.FT.



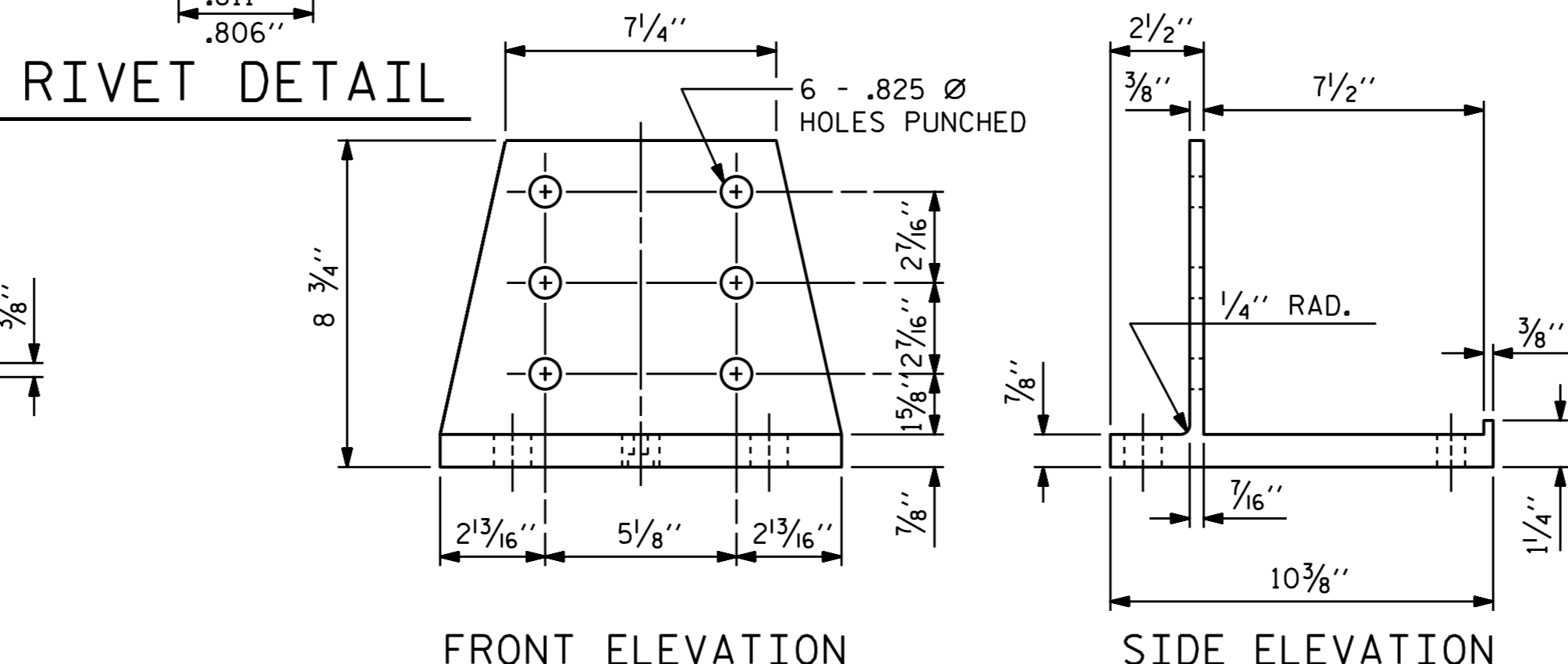
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST

ASSEMBLED BY : K.D. LAYNE DATE : 8-15-13
CHECKED BY : M. K. BEARD DATE : 10-08-13
DRAWN BY : JMB 1/88 REV. 5/7/03 RWW/JTE
CHECKED BY : GGH 1/88 REV. 5/1/06 TLA/GM
REV. 10/1/11 MAA/GM

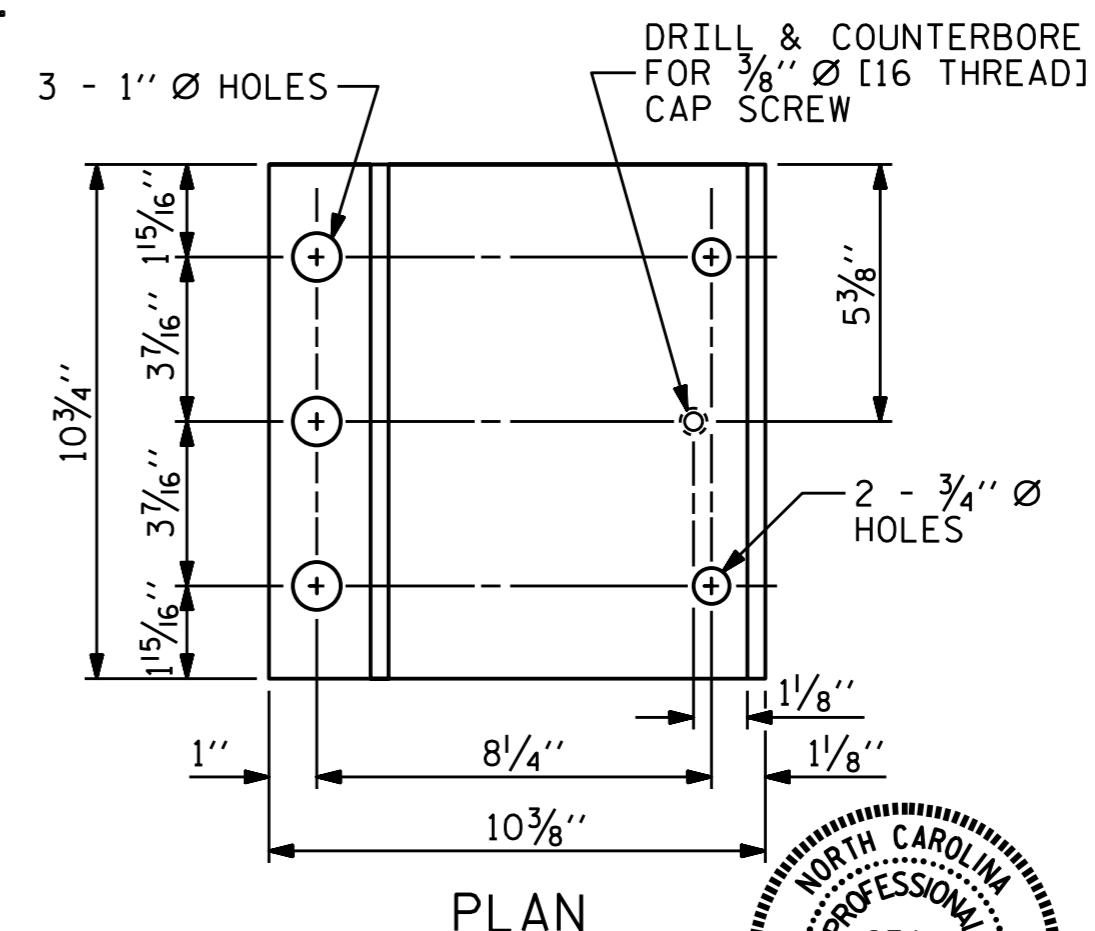
11-JUN-2015 07:59
R:\S\structures\Plans\B5105.sd_MR.01.dgn
dadavenport



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS

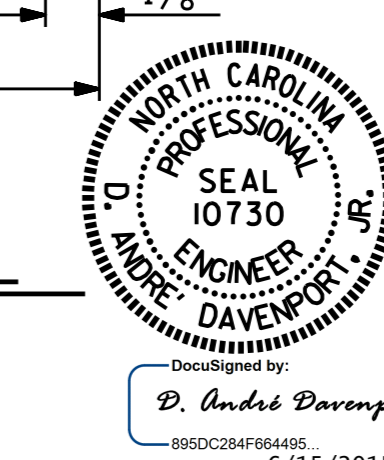


PLAN

PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-

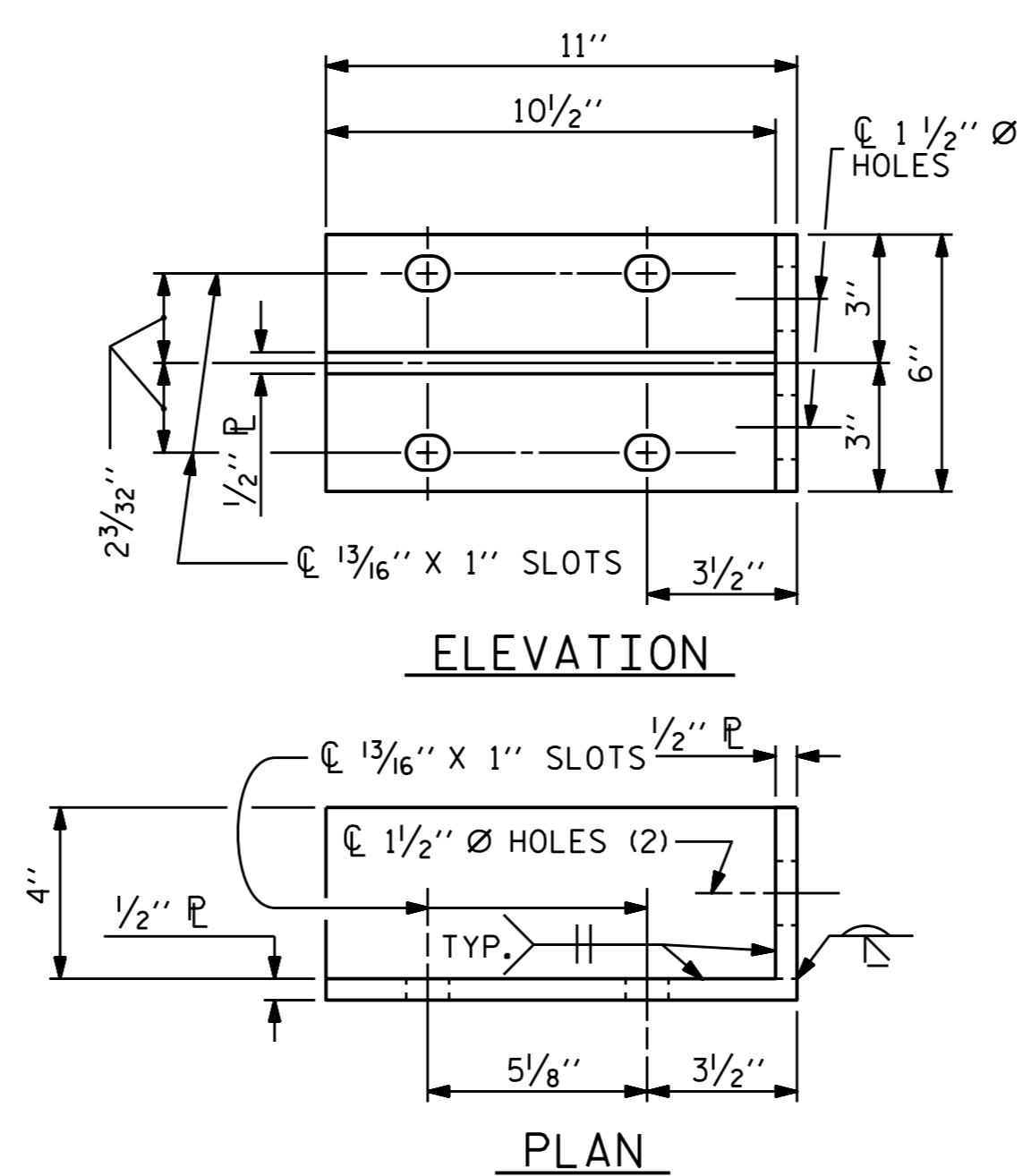
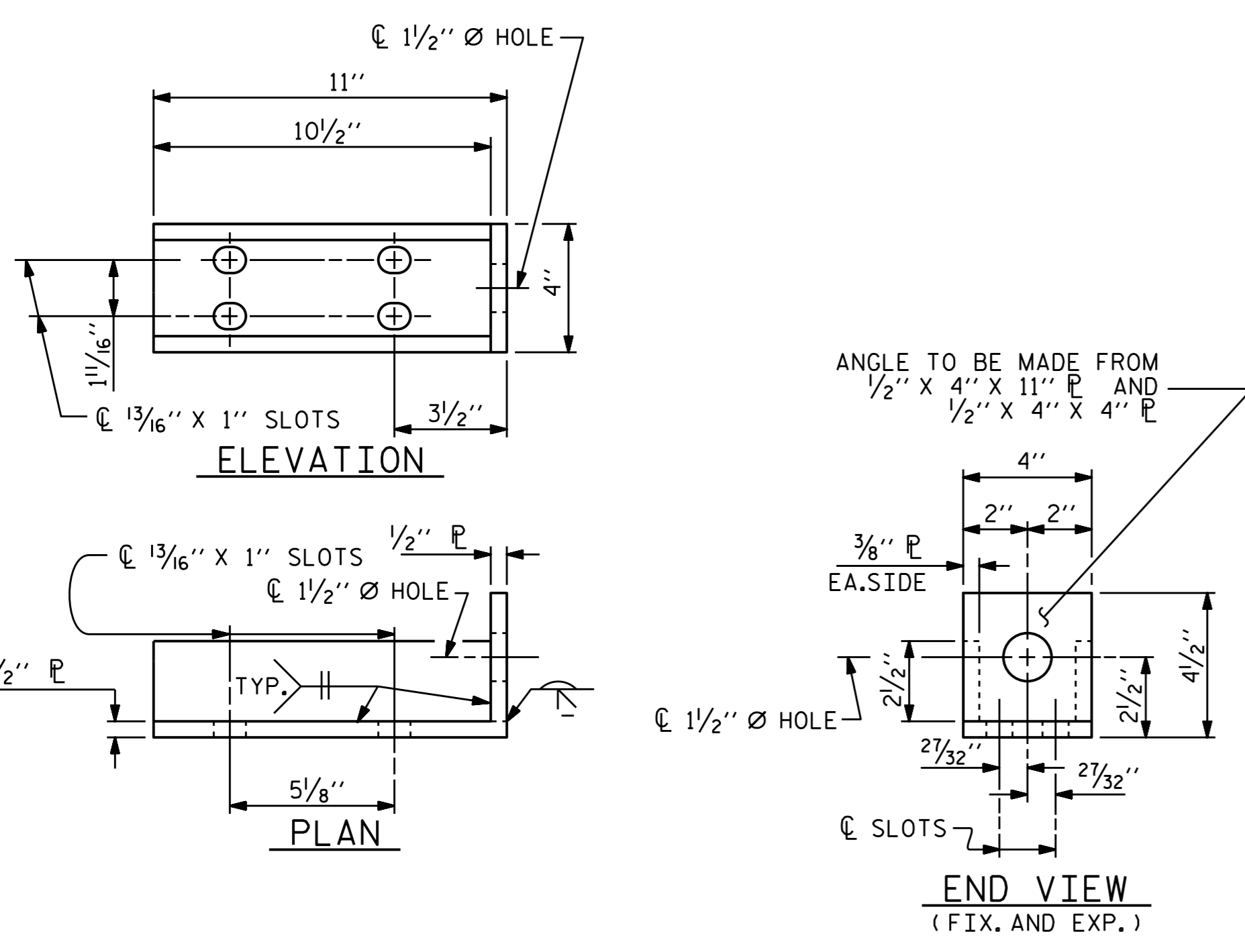
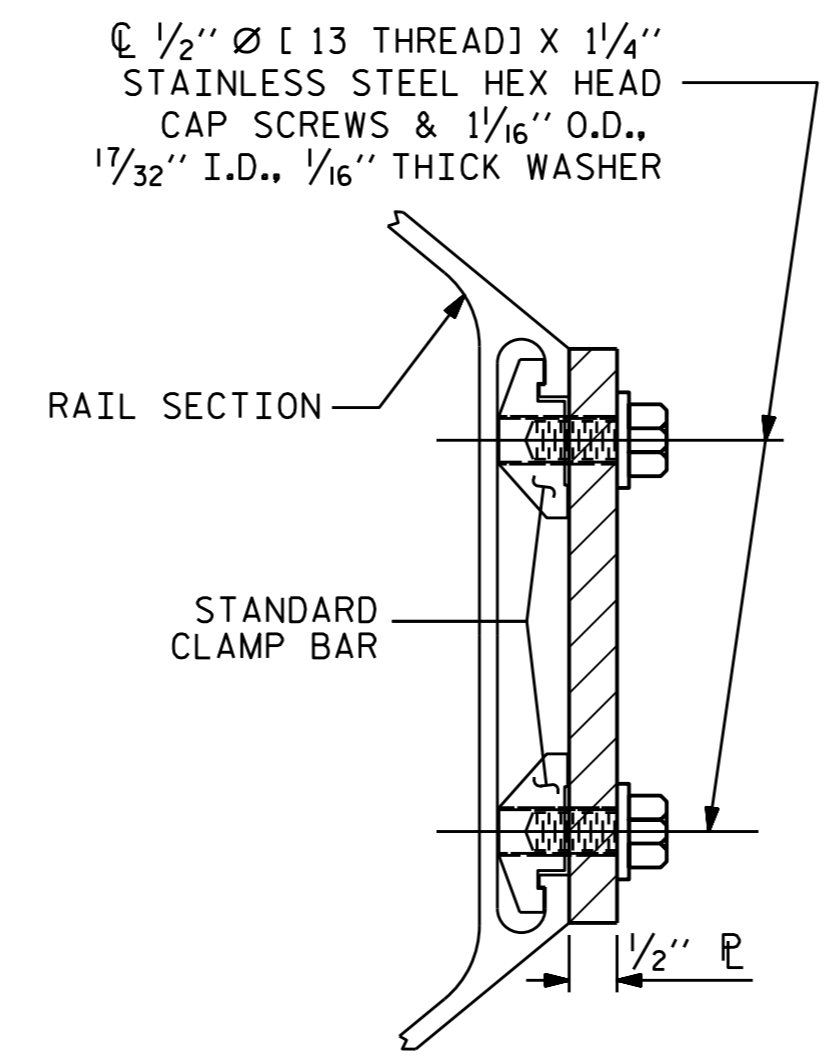
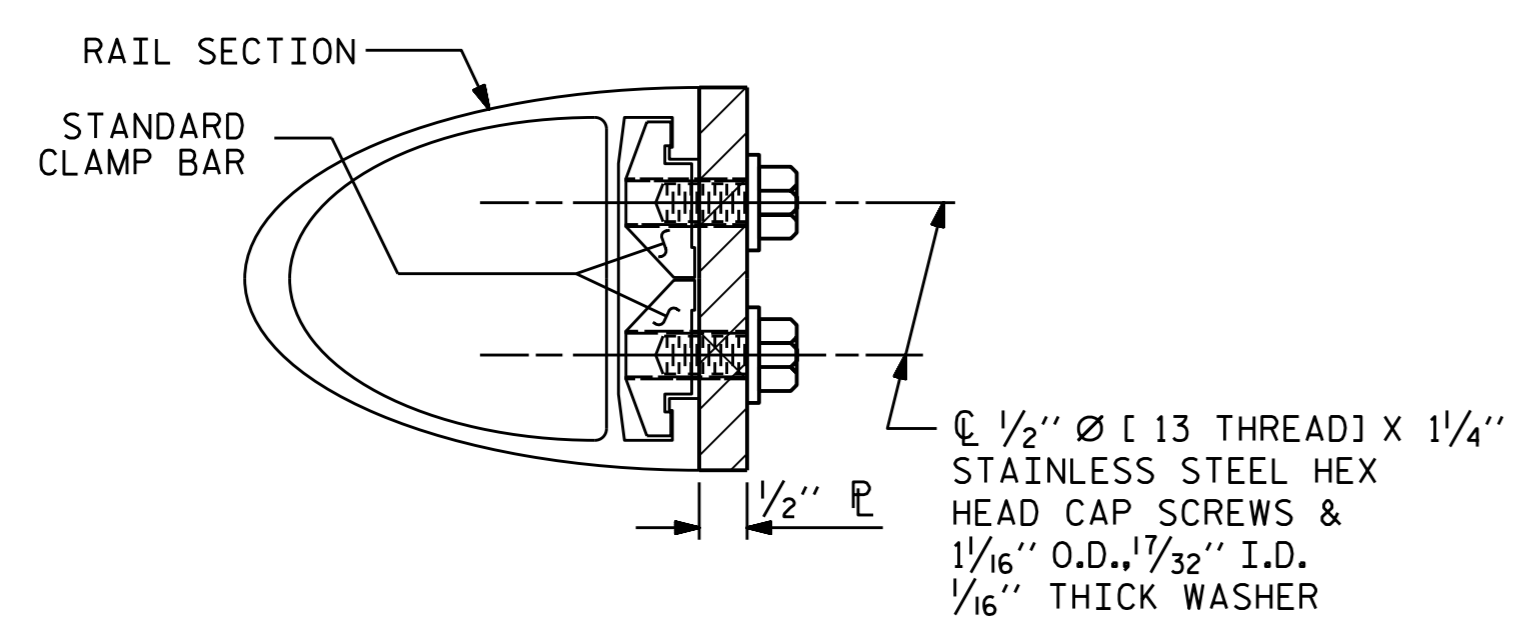
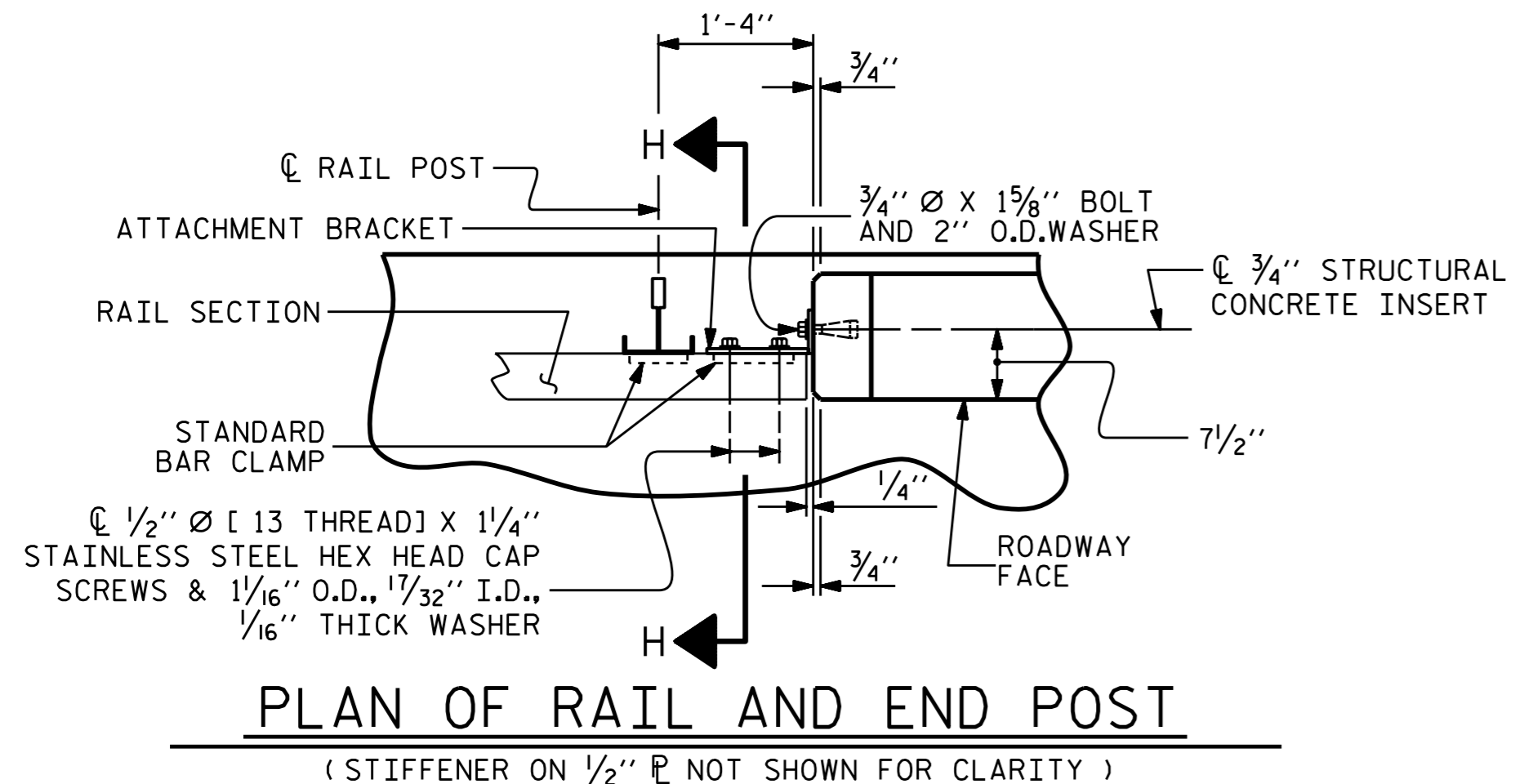
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3 BAR METAL RAIL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			38

STD. NO. BMR5

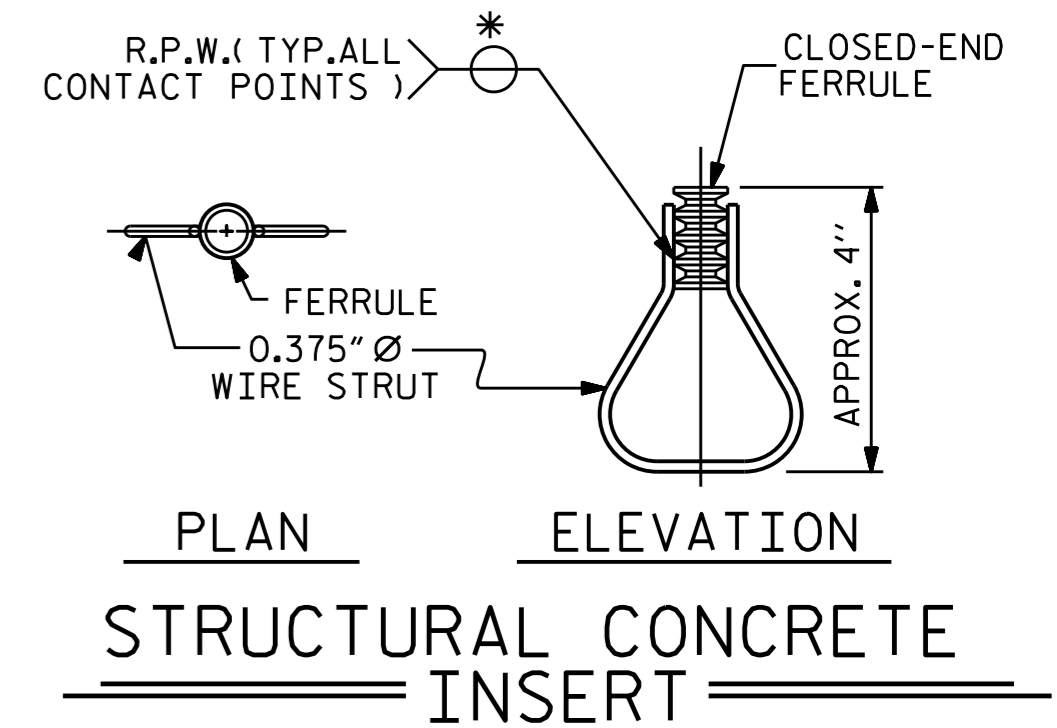


NOTES

- METAL RAIL TO END POST CONNECTION
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS, THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.
 - C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F. WASHERS FOR RAIL ATTACHMENT SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.
 - D. STANDARD CLAMP BARS (STD. No. BMR6).
- THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 3 BAR METAL RAIL.
- THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
- THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

NOTES

- STRUCTURAL CONCRETE INSERT
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
 - C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

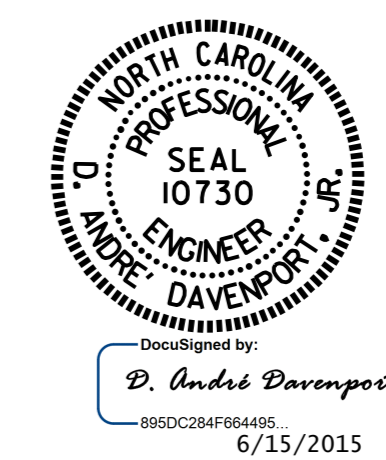


* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

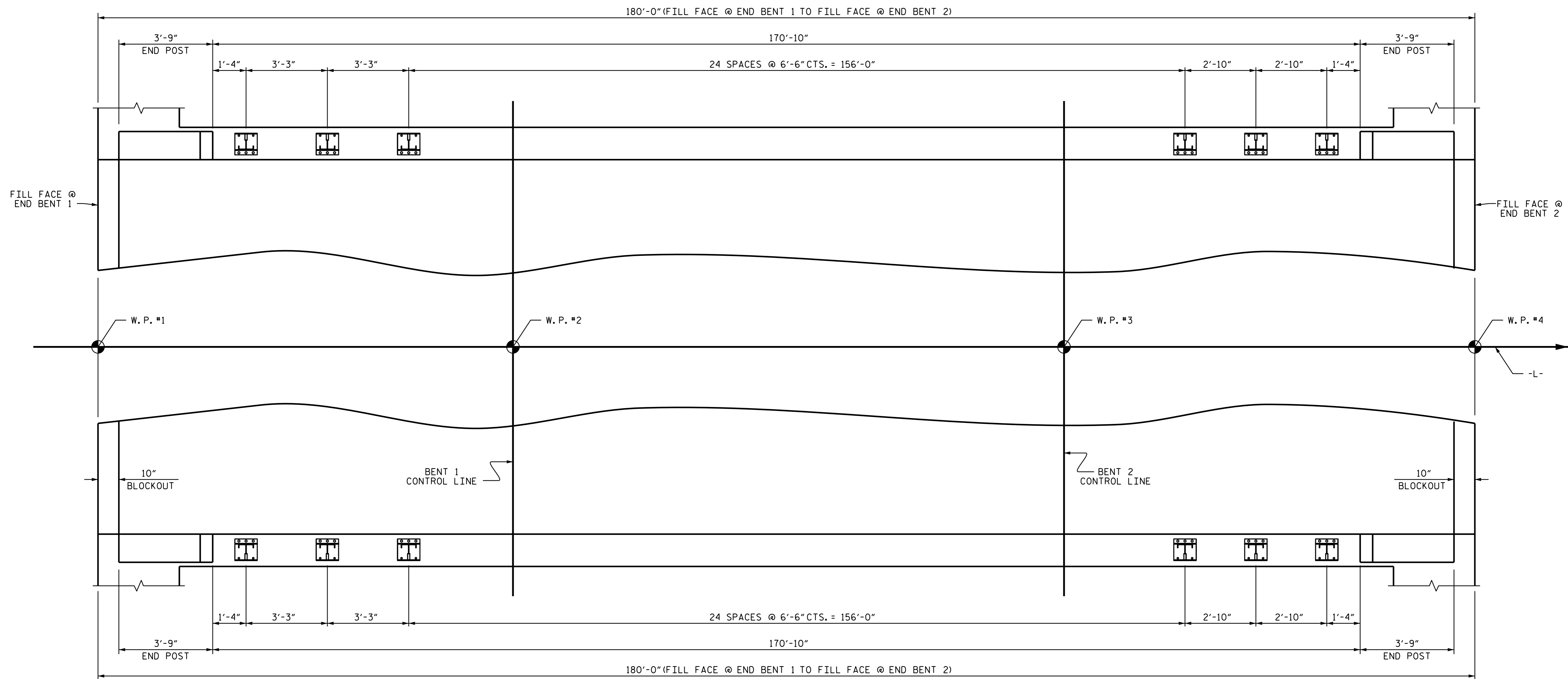
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 3 OF 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			38

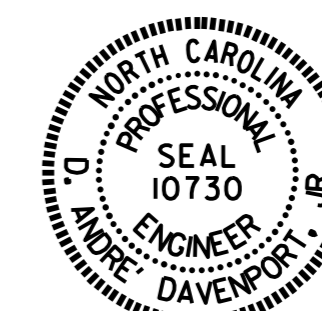


ASSEMBLED BY : K.D. LAYNE	DATE : 8-15-13
CHECKED BY : M. K. BEARD	DATE : 10-08-13
DRAWN BY : JMB 1/88	REV. 5/7/03 RWW/JTE
CHECKED BY : GGH 1/88	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM



PLAN OF RAIL POST SPACINGS

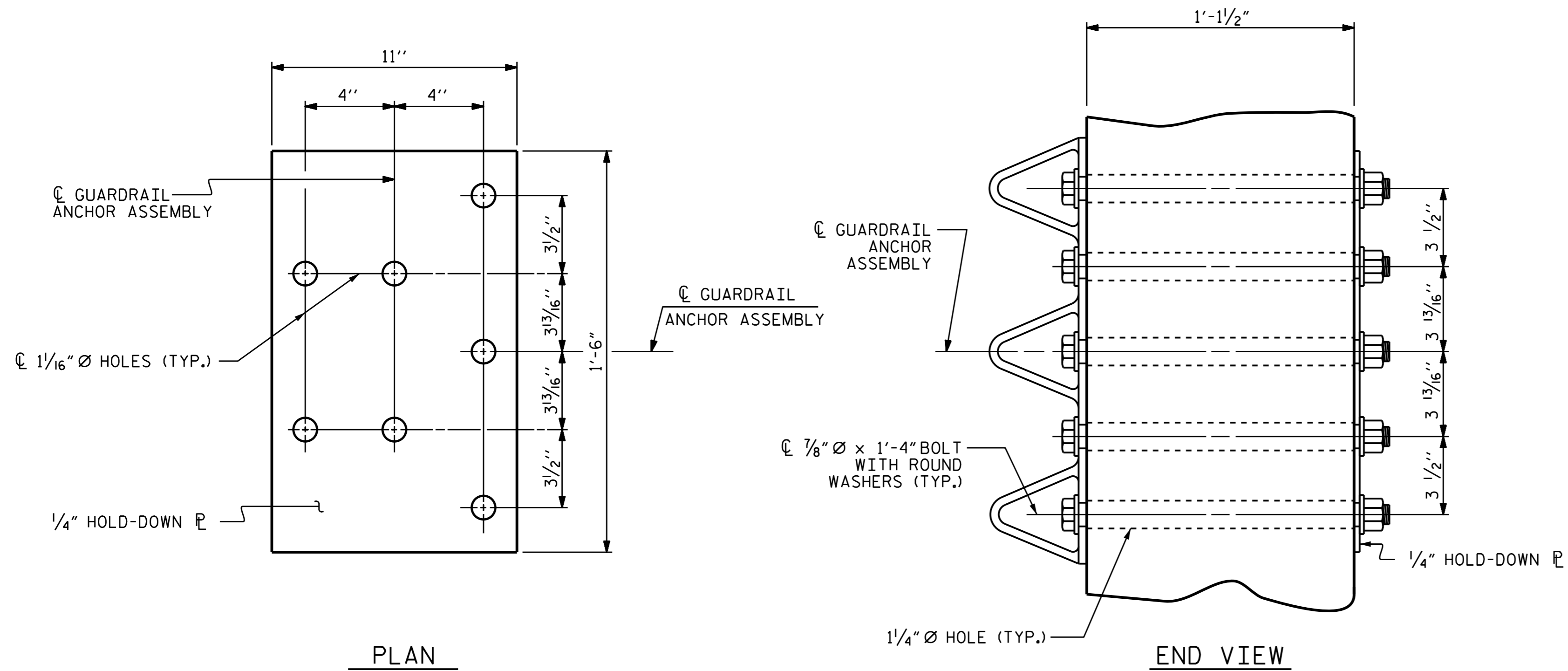
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-



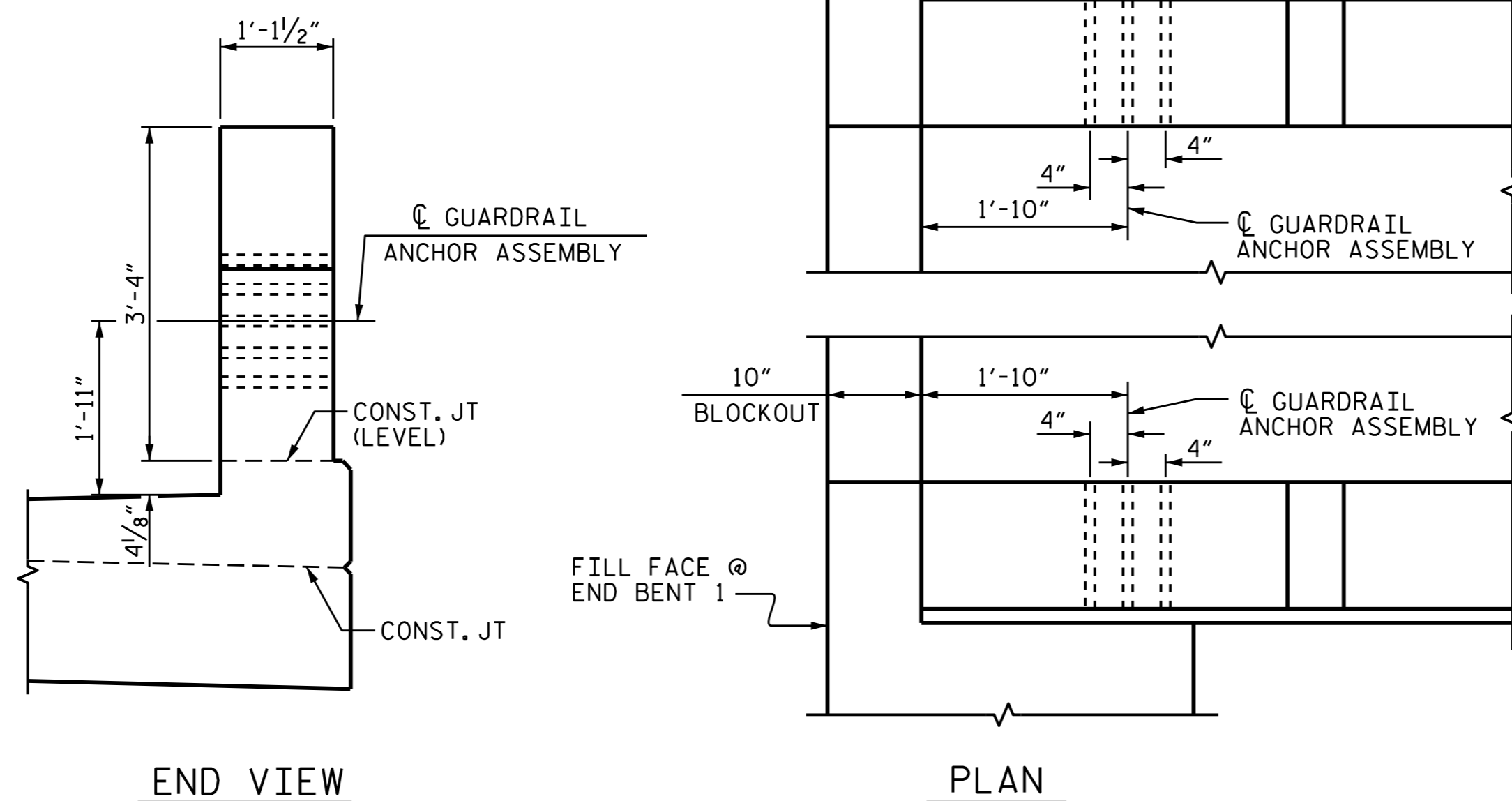
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-23
SUPERSTRUCTURE RAIL POST SPACINGS						
REVISIONS						TOTAL SHEETS 38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : K.D. LAYNE DATE : 8-15-13
 CHECKED BY : M. K. BEARD DATE : 10-08-13

DocuSigned by:
 D. Andre Davenport,
 895DC284F66495,
 6/15/2015



GUARDRAIL ANCHOR ASSEMBLY DETAILS

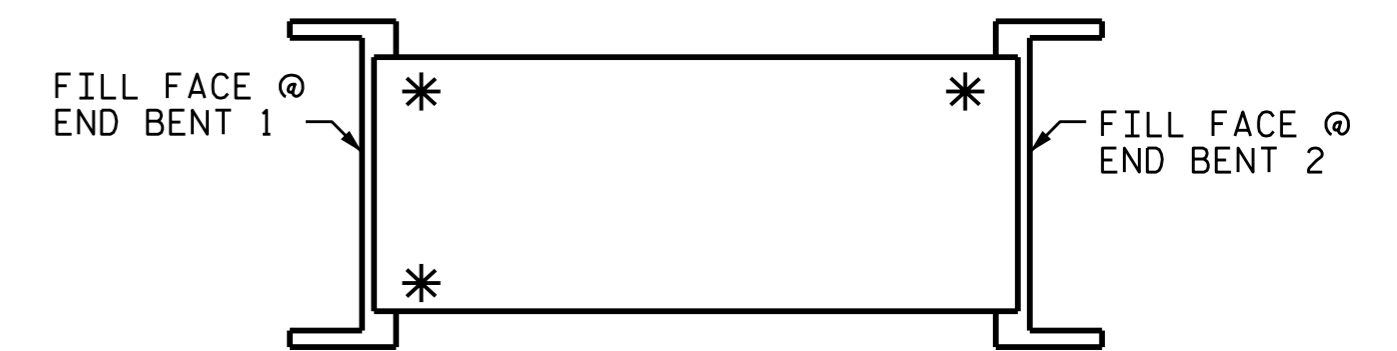


LOCATION OF GUARDRAIL ANCHOR AT END POST

END BENT 1 SHOWN, END BENT 2 SIMILAR

NOTES

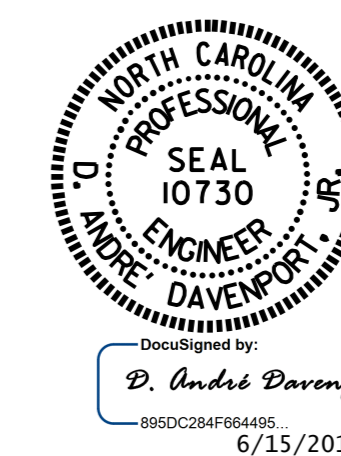
- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. 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 ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.
- 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.



SKETCH SHOWING POINTS OF ATTACHMENT

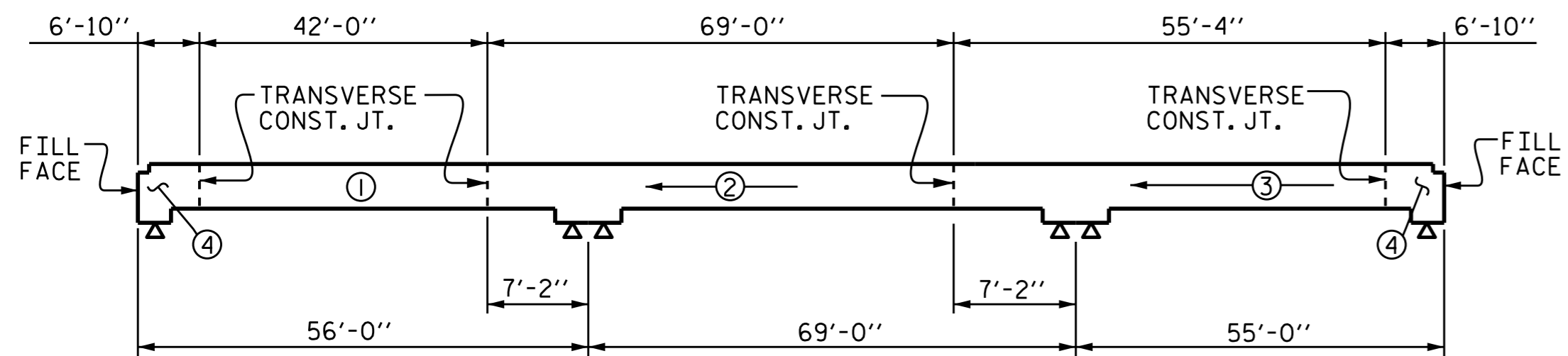
* LOCATION OF GUARDRAIL ATTACHMENT

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-



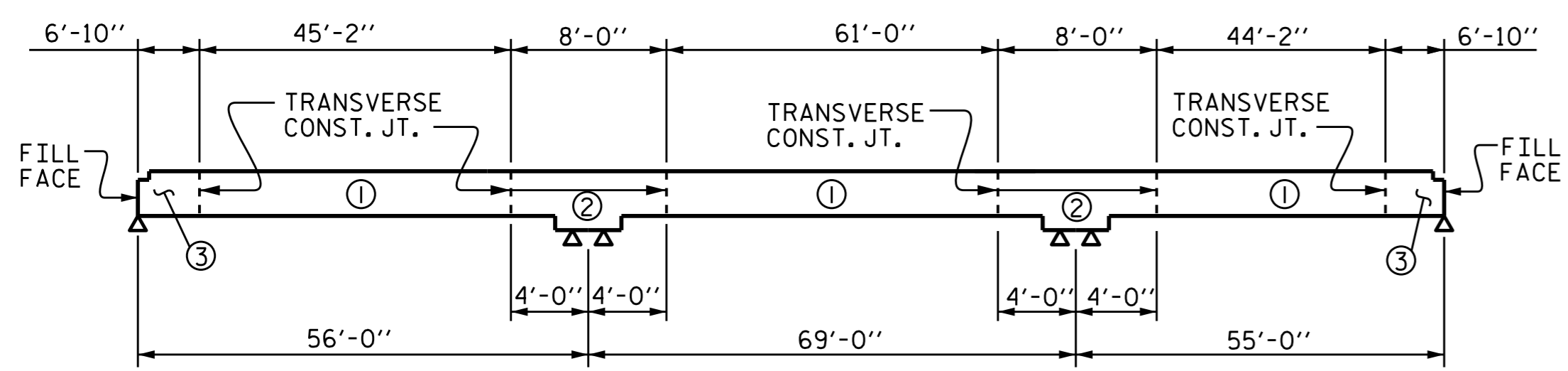
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					38

ASSEMBLED BY : K.D. LAYNE	DATE : 5-6-15
CHECKED BY : M. K. BEARD	DATE : 5-6-15
DRAWN BY : MAA 5/10	REV. 12/5/11 MAA/GM
CHECKED BY : GM 5/10	REV. 6/13 MAA/GM
	REV. 1/15 MAA/TMG



POUR SEQUENCE

⊕ = INDICATES POUR NUMBER AND DIRECTION OF POUR



OPTIONAL POUR 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"			

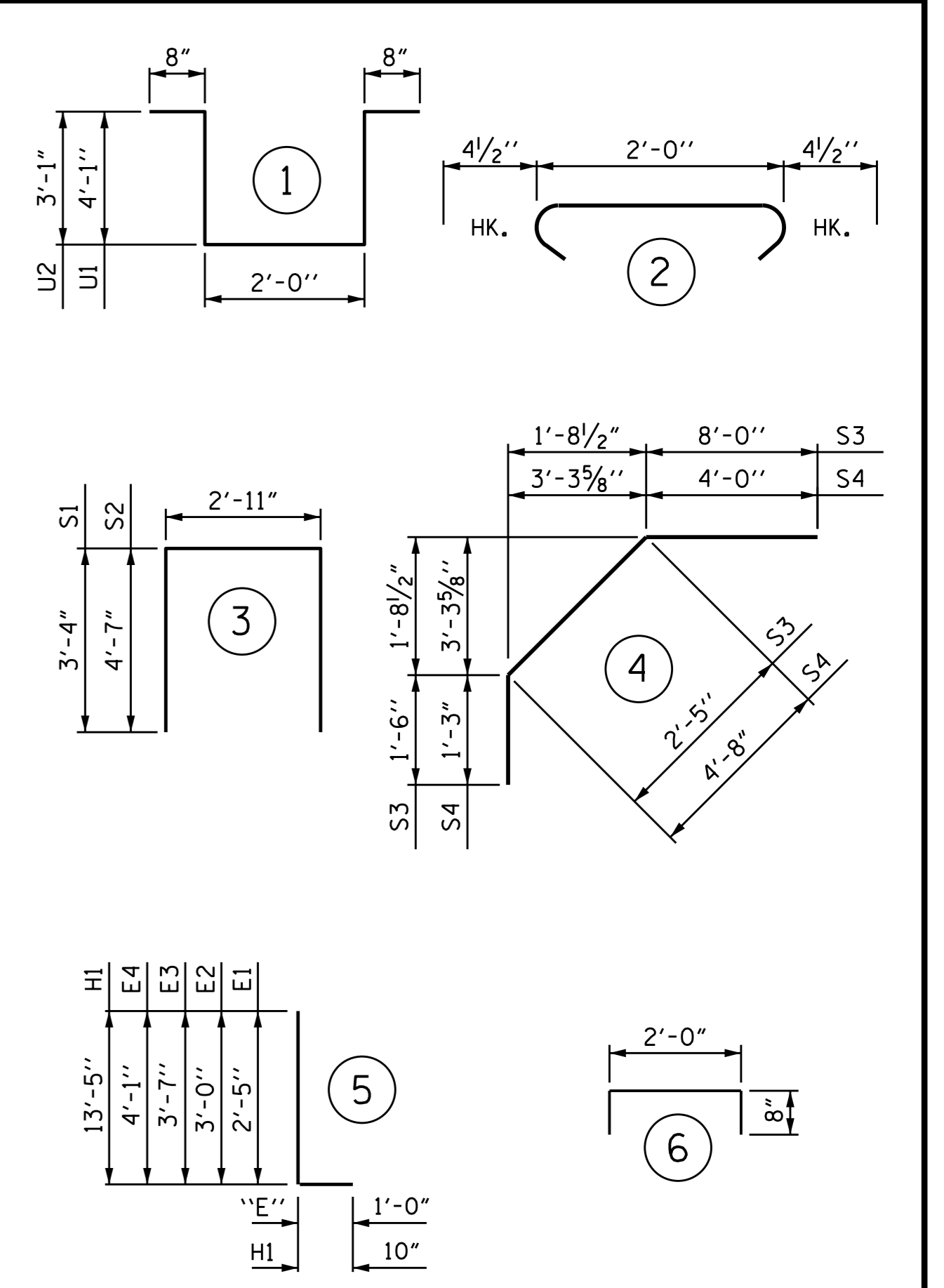
GROOVING BRIDGE FLOORS

APPROACH SLABS	1,982 SO.FT.
BRIDGE DECK	7,298 SO.FT.
TOTAL	9,280 SO.FT.

BILL OF MATERIAL

SPANS A, B & C					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	389	#5	STR	57'-3"	23,228
A2	389	#5	STR	57'-3"	23,228
* B1	152	#6	STR	11'-1"	2,530
* B2	78	#4	STR	18'-7"	968
* B3	78	#7	STR	47'-7"	7,586
* B4	76	#7	STR	19'-0"	2,952
* B5	39	#4	STR	21'-6"	560
* B6	78	#4	STR	18'-3"	951
B7	312	#5	STR	46'-2"	15,023
* B11	84	#4	STR	27'-2"	1,524
* G11	356	#4	STR	6'-3"	1,486
* E1	8	#7	5	3'-5"	56
* E2	8	#7	5	4'-0"	65
* E3	8	#7	5	4'-7"	75
* E4	8	#7	5	5'-1"	83
* F1	8	#6	STR	3'-1"	37
* F2	16	#6	STR	3'-5"	82
* F3	8	#6	STR	3'-9"	45
H1	40	#5	5	14'-3"	595
K1	24	#4	STR	22'-3"	357
K2	10	#4	STR	8'-1"	54
K3	60	#4	STR	9'-4"	374
K4	30	#4	STR	8'-7"	172
K5	4	#4	STR	4'-11"	13
K6	8	#4	STR	5'-6"	29
K7	4	#4	STR	5'-2"	14
K8	8	#4	STR	3'-11"	21
K9	20	#4	STR	6'-11"	92
K10	16	#4	STR	26'-8"	285
S1	94	#4	3	9'-7"	602
* S2	16	#4	3	12'-1"	129
* S3	98	#4	4	11'-11"	780
S4	94	#4	4	9'-11"	623
S5	250	#4	2	2'-9"	459
U1	70	#4	1	11'-6"	538
U2	20	#4	1	9'-6"	127
* U3	104	#4	6	3'-4"	232
REINFORCING STEEL		LBS.			42,606
* EPOXY COATED REINFORCING STEEL		LBS.			43,369

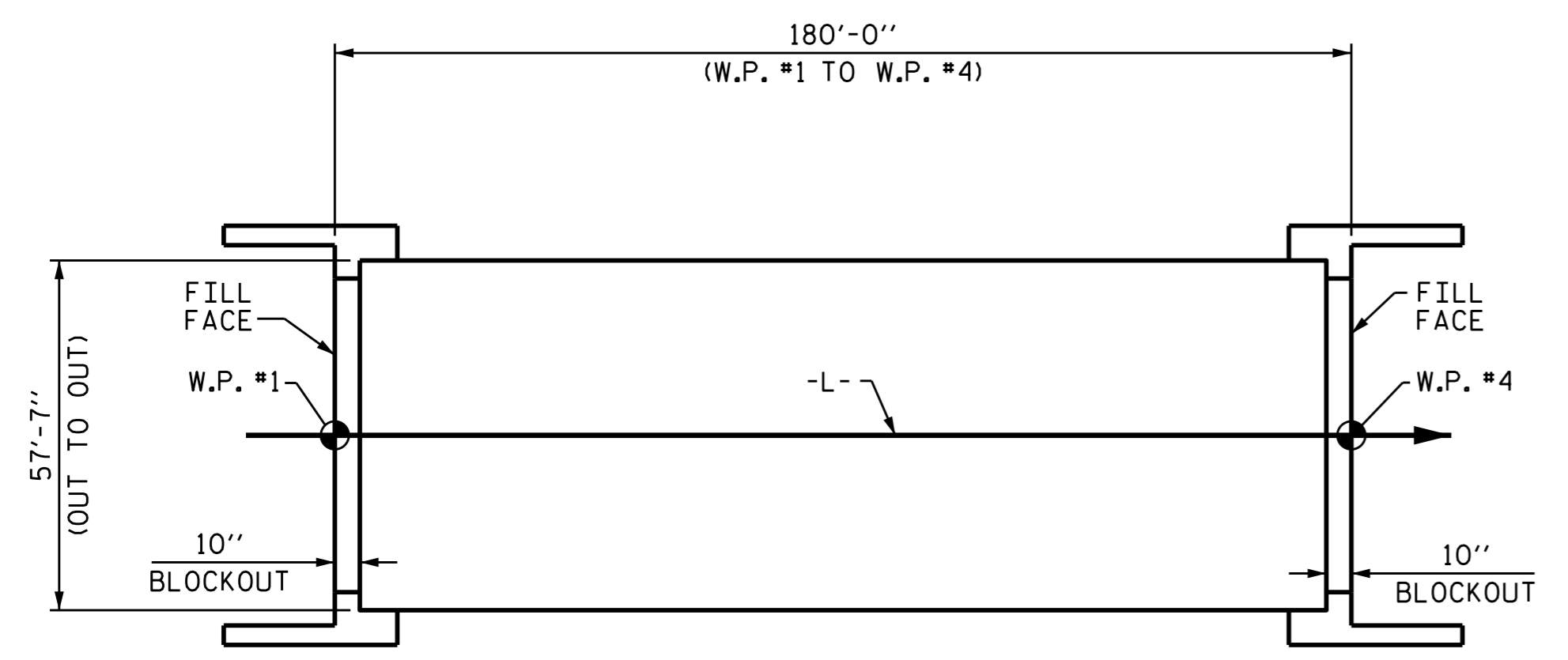
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	* EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	78.3		
POUR #2	144.6		
POUR #3	119.1		
POUR #4	81.2		
SIDEWALK & END POSTS	63.9		
TOTALS**	487.1	42,606	43,369



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 10,365)

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

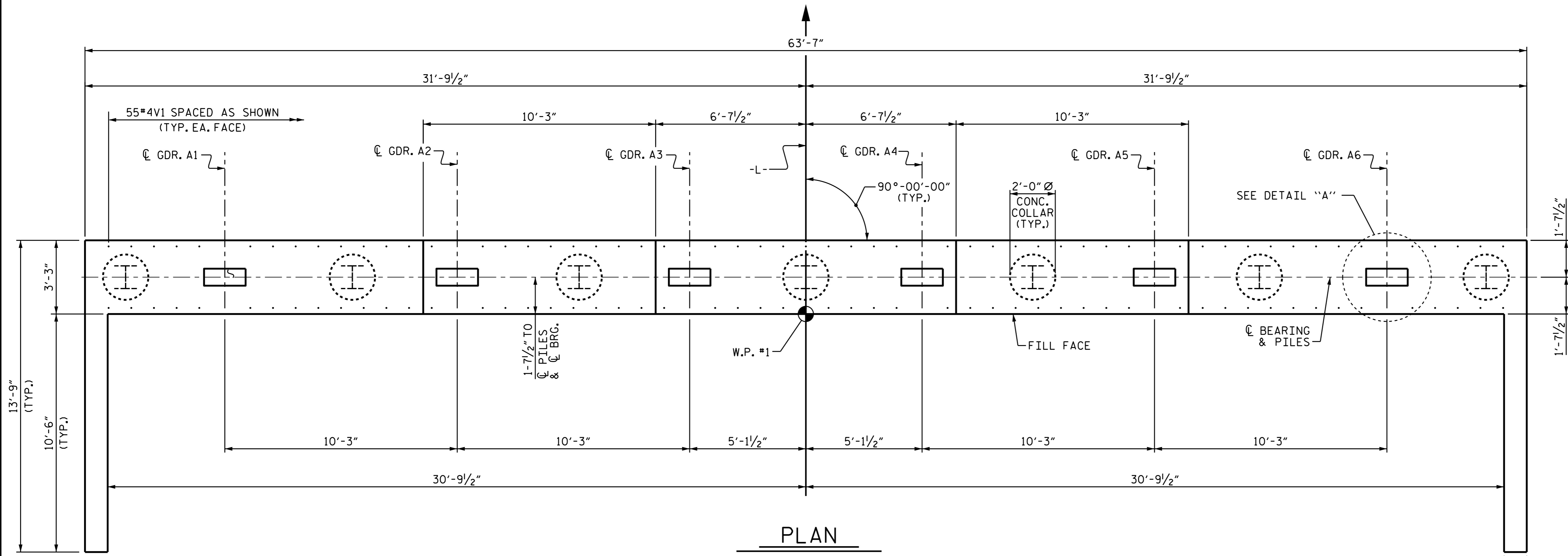


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

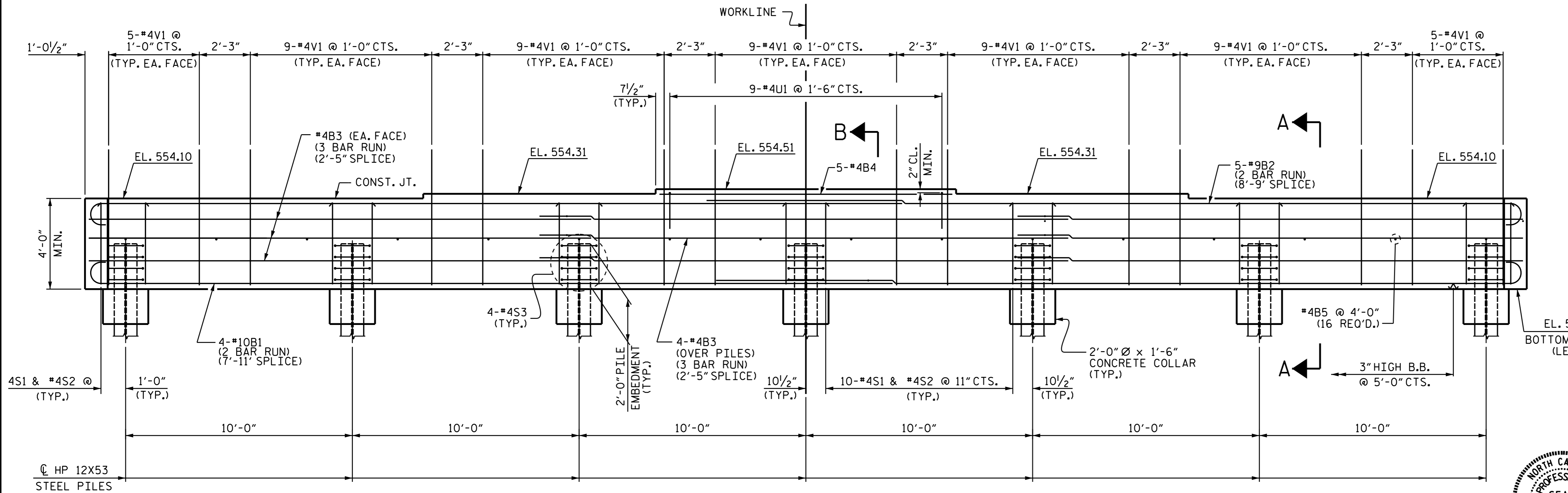
STANDARD SUPERSTRUCTURE BILL OF MATERIAL

REVISIONS						SHEET NO. S-25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

ASSEMBLED BY : K.D. LAYNE	DATE : 8-15-13
CHECKED BY : M. K. BEARD	DATE : 10-08-13
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES
	REV. 5/1/06 TLA/GM

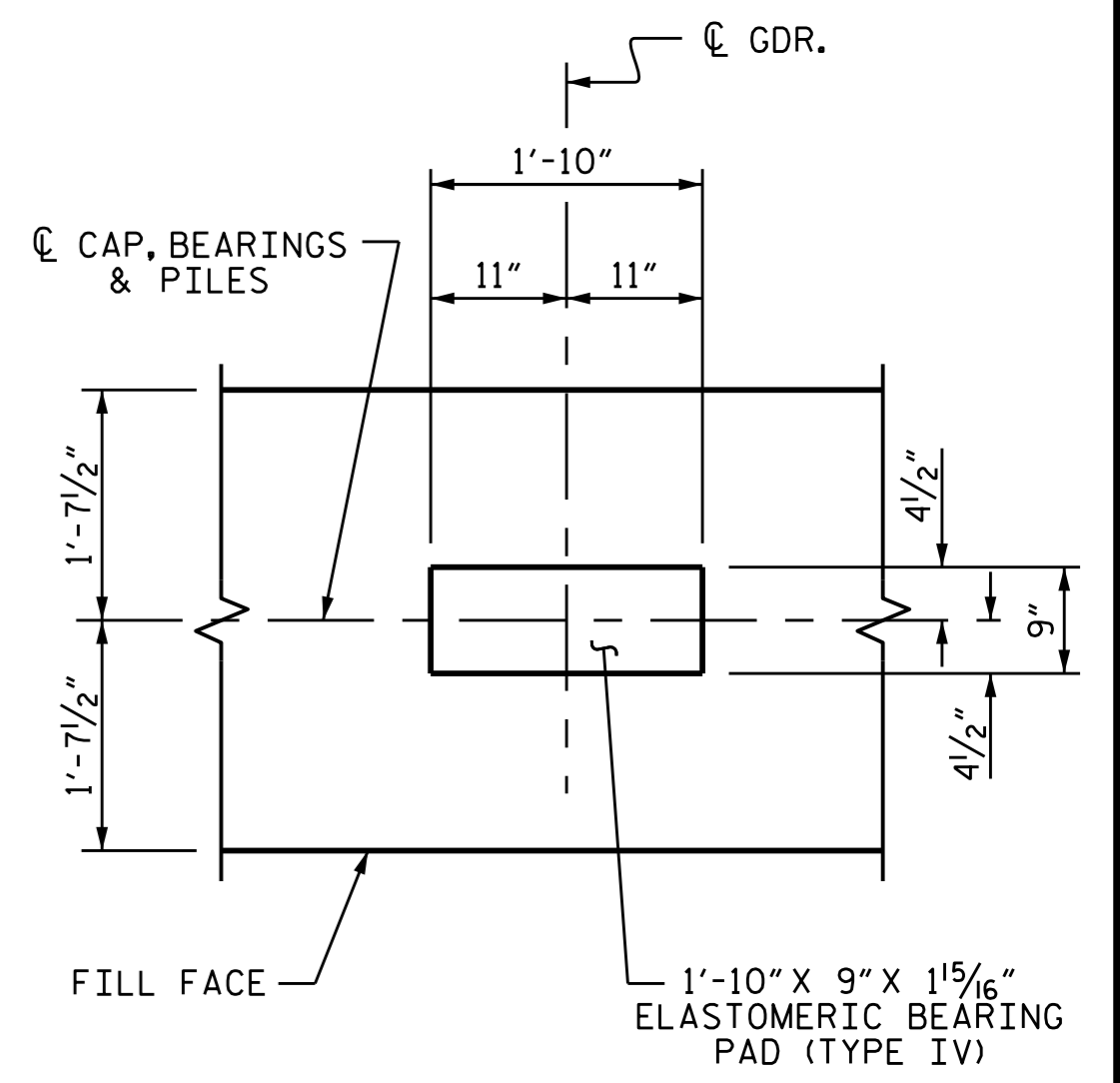


PLAN



ELEVATION

NOTES
 THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIALS. FOR DETAILS, SEE SUPERSTRUCTURE PLANS.
 THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".



DETAIL "A"

(DETAILS AND DIMENSIONS ARE TYPICAL FOR EACH BEARING)

PROJECT NO. B-5105
 MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 1 OF 3

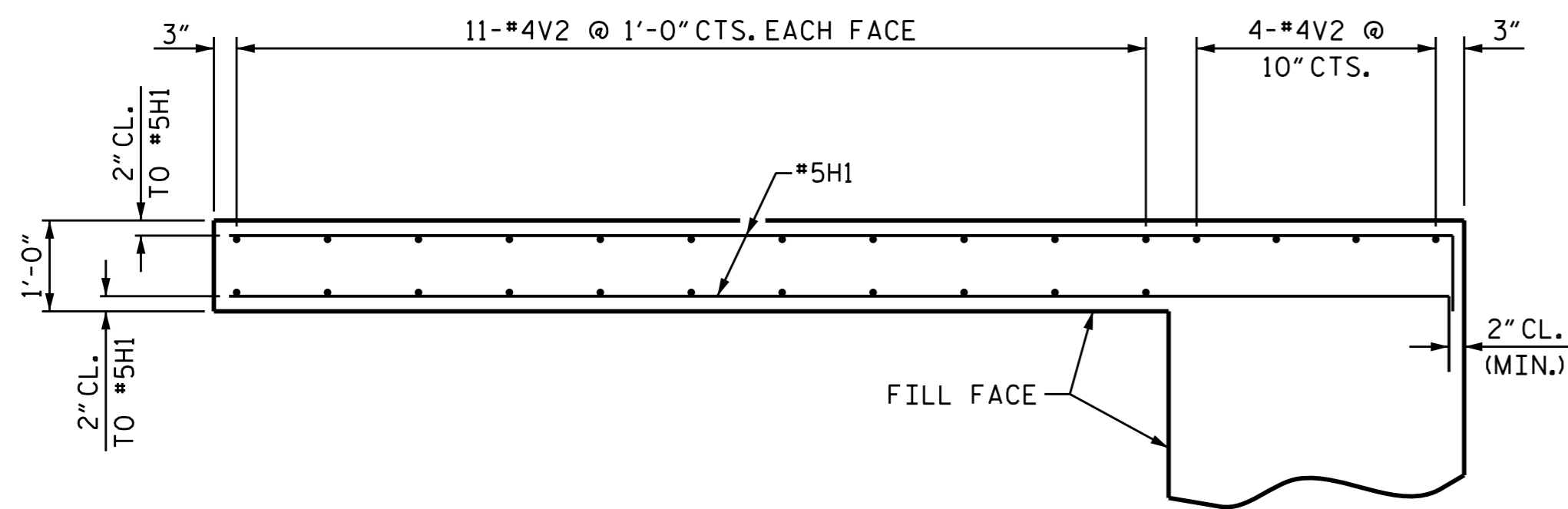
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 INTEGRAL
 END BENT 1



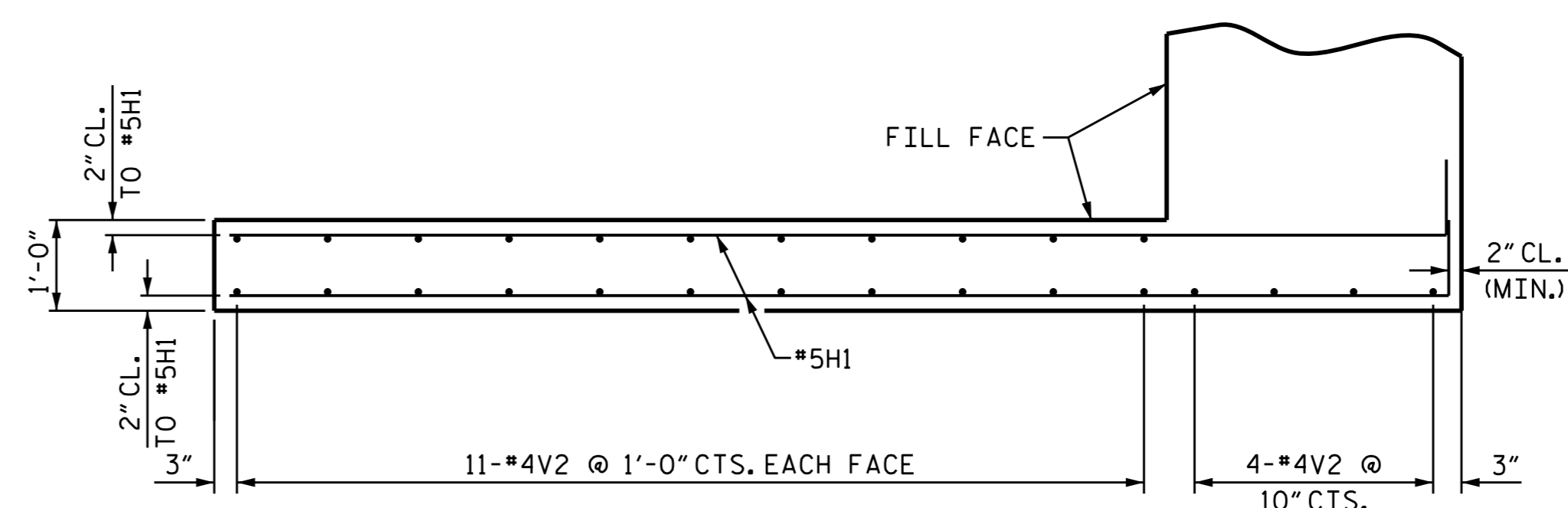
DRAWN BY : R. P. PATEL DATE : 9-17-13
 CHECKED BY : R. L. CHESSON DATE : 10-7-13
 DESIGN ENGINEER OF RECORD : R. P. PATEL DATE : 3-18-14

11-JUN-2015 07:59
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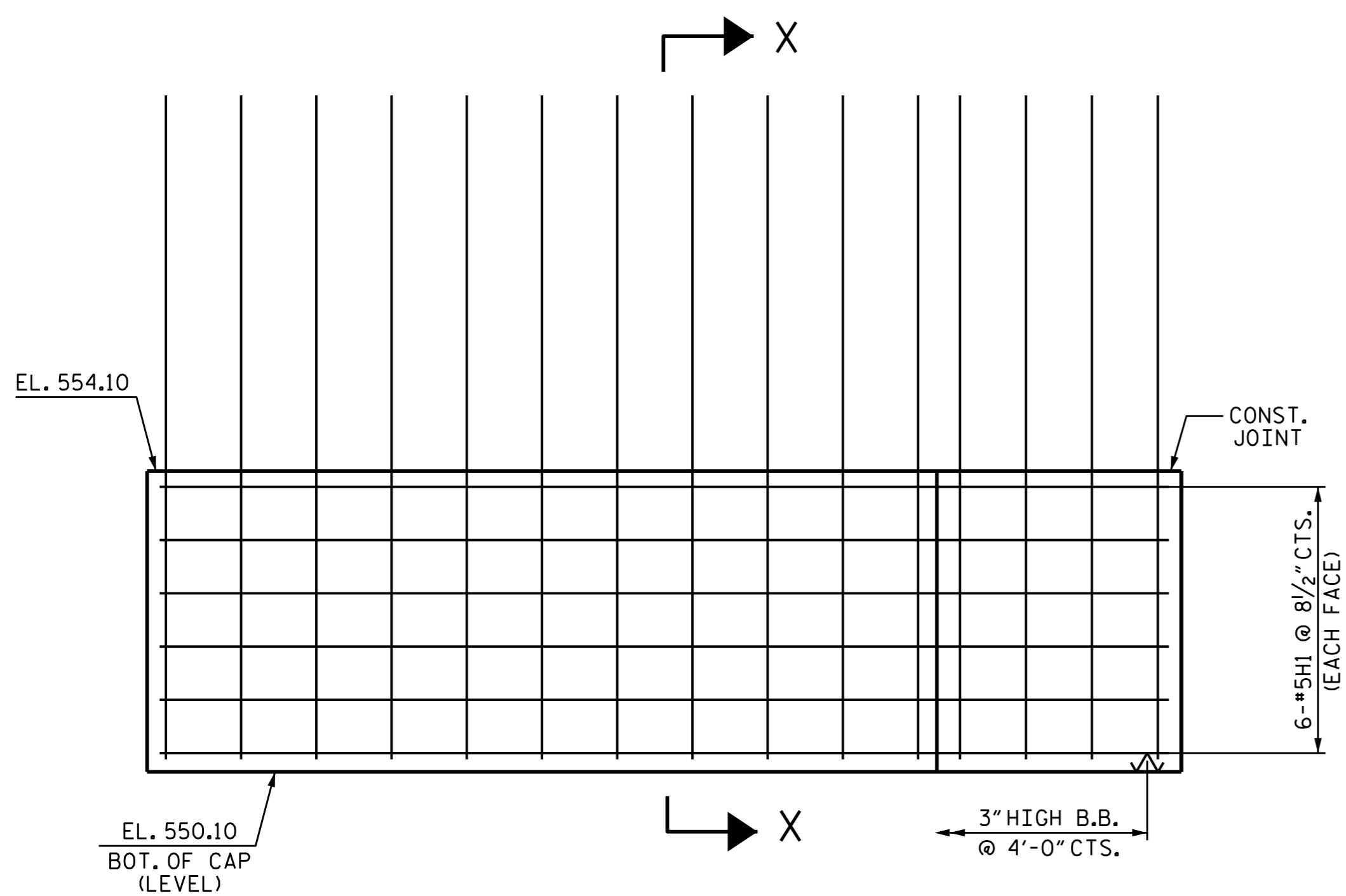
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26	
1			3			TOTAL SHEETS	
2			4			38	



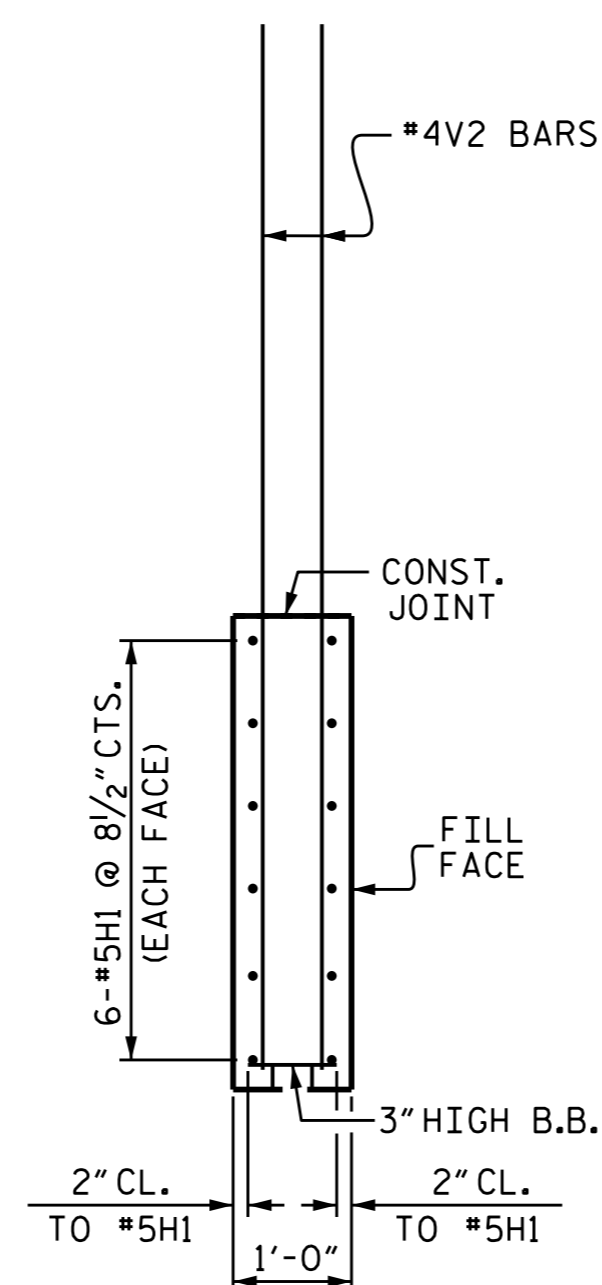
PLAN OF LEFT WING



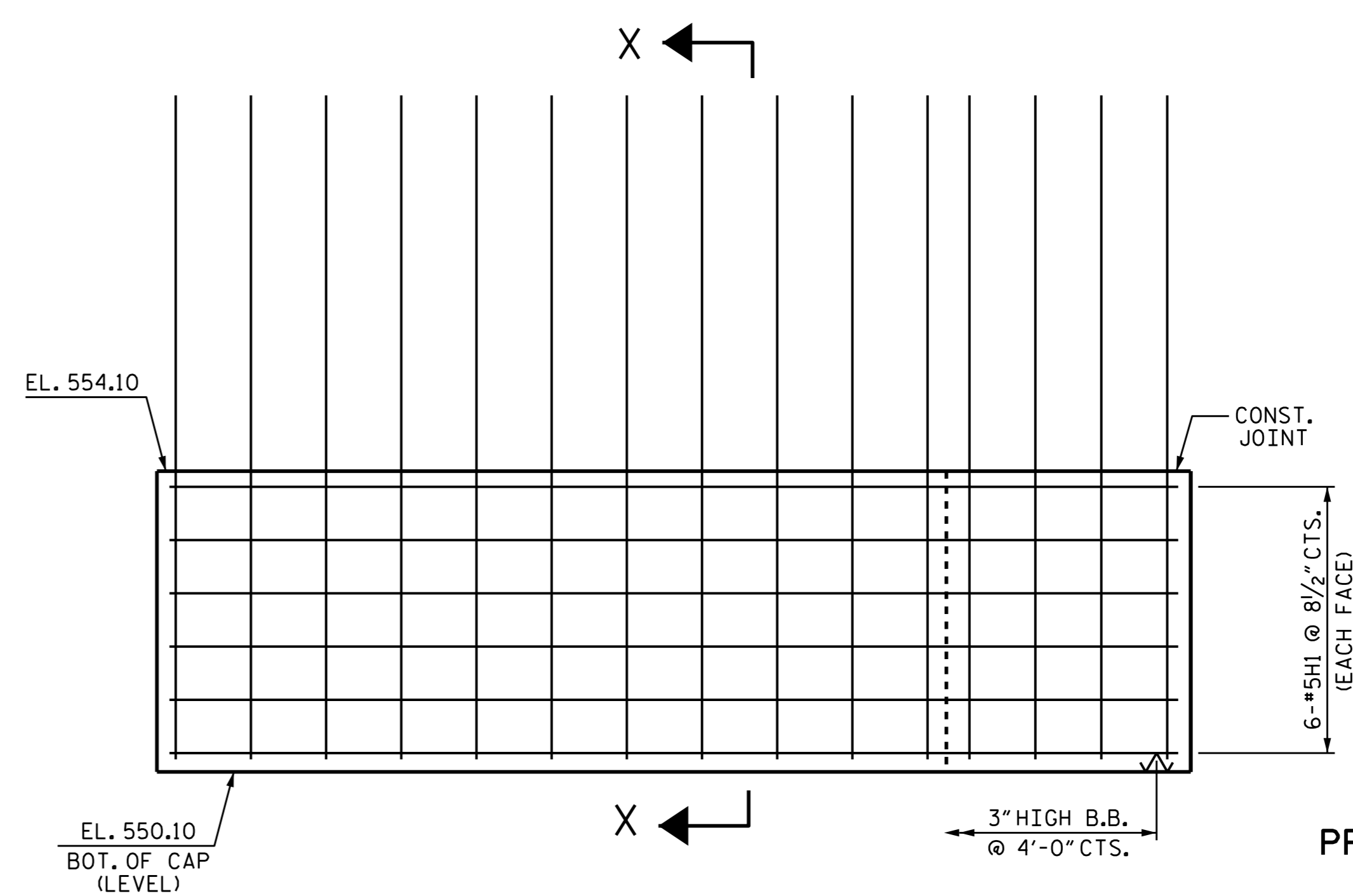
PLAN OF RIGHT WING



ELEVATION OF LEFT WING



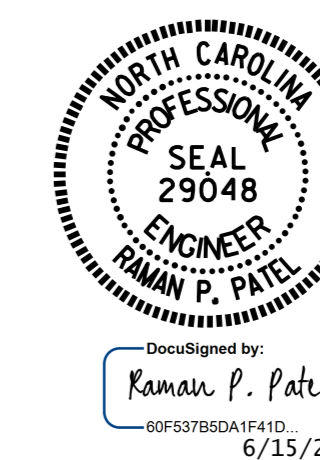
SECTION X-X



ELEVATION OF RIGHT WING

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
INTEGRAL END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					38

DRAWN BY : R. P. PATEL DATE : 9-17-13
 CHECKED BY : R. L. CHESSON DATE : 10-7-13
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 3-18-14

NOTES

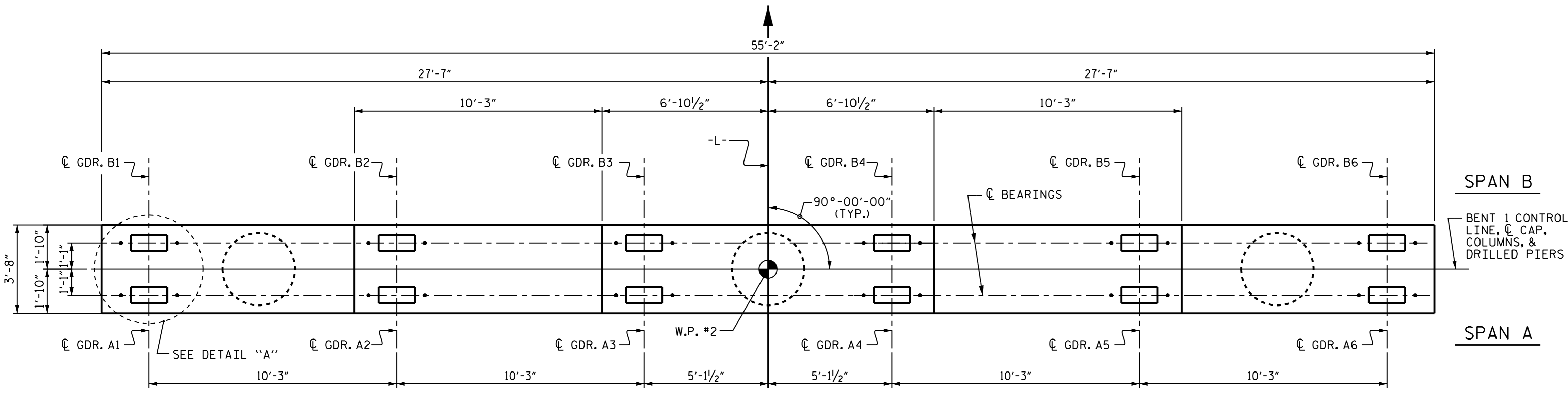
STIRRUPS AND U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

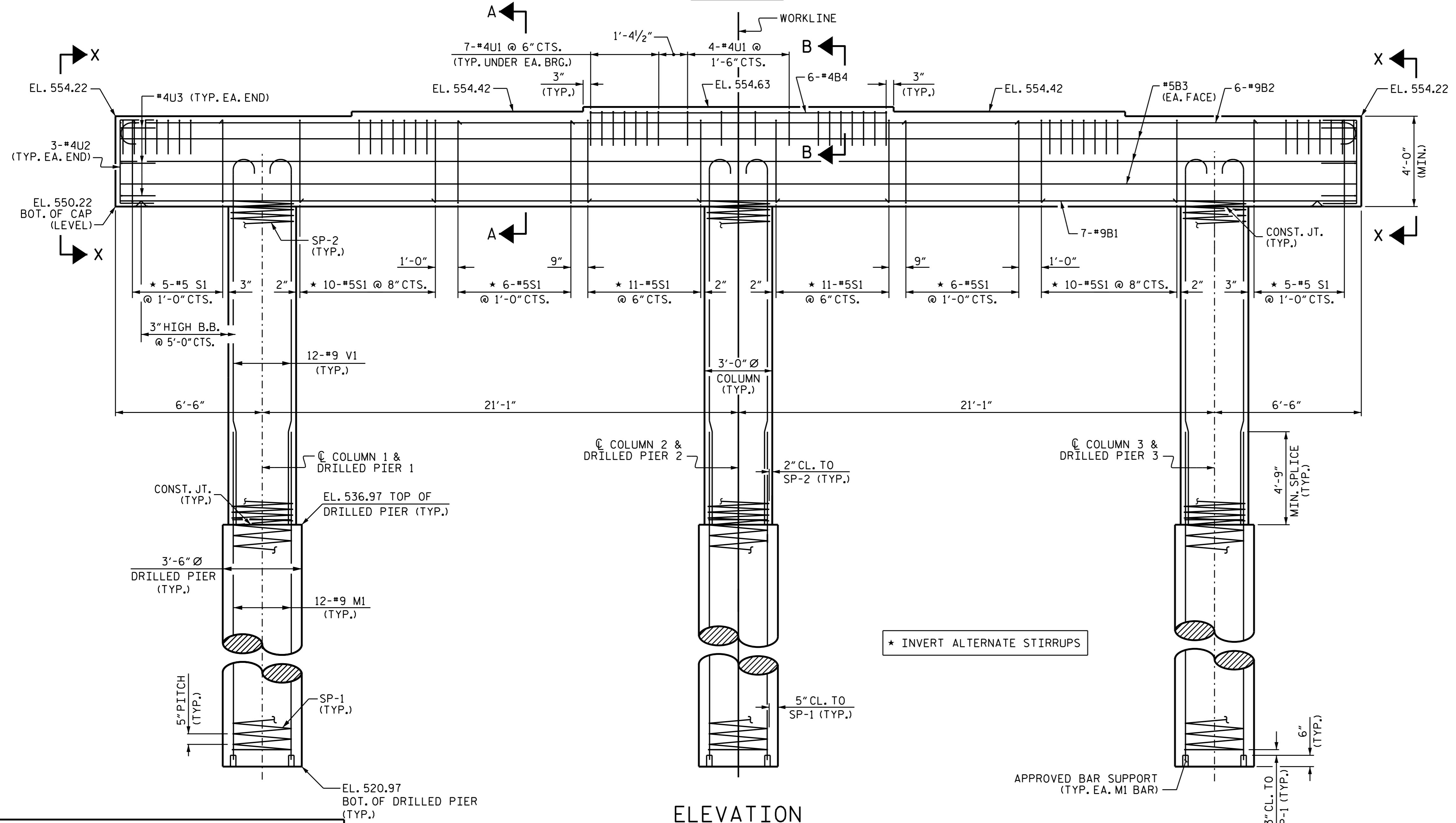
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

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 ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.

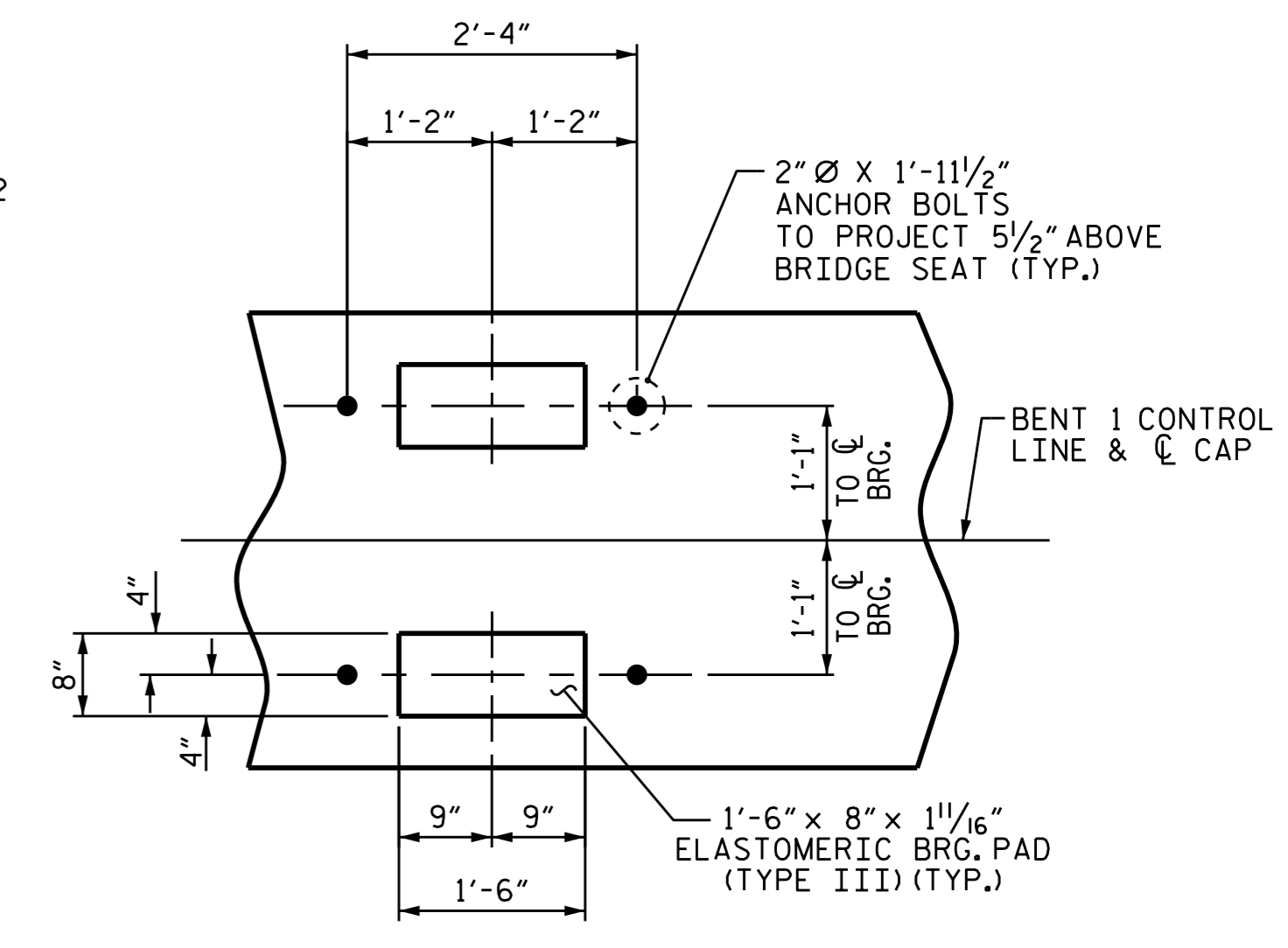


PLAN



ELEVATION

REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH COLUMN.



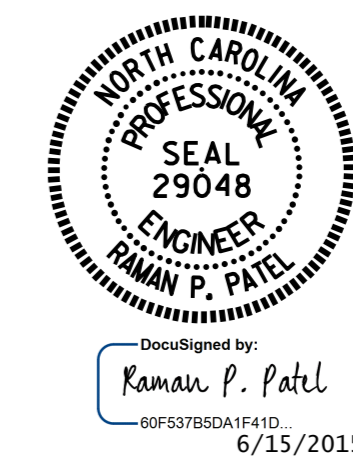
DETAIL "A"

(TYP. EA. GDR.)

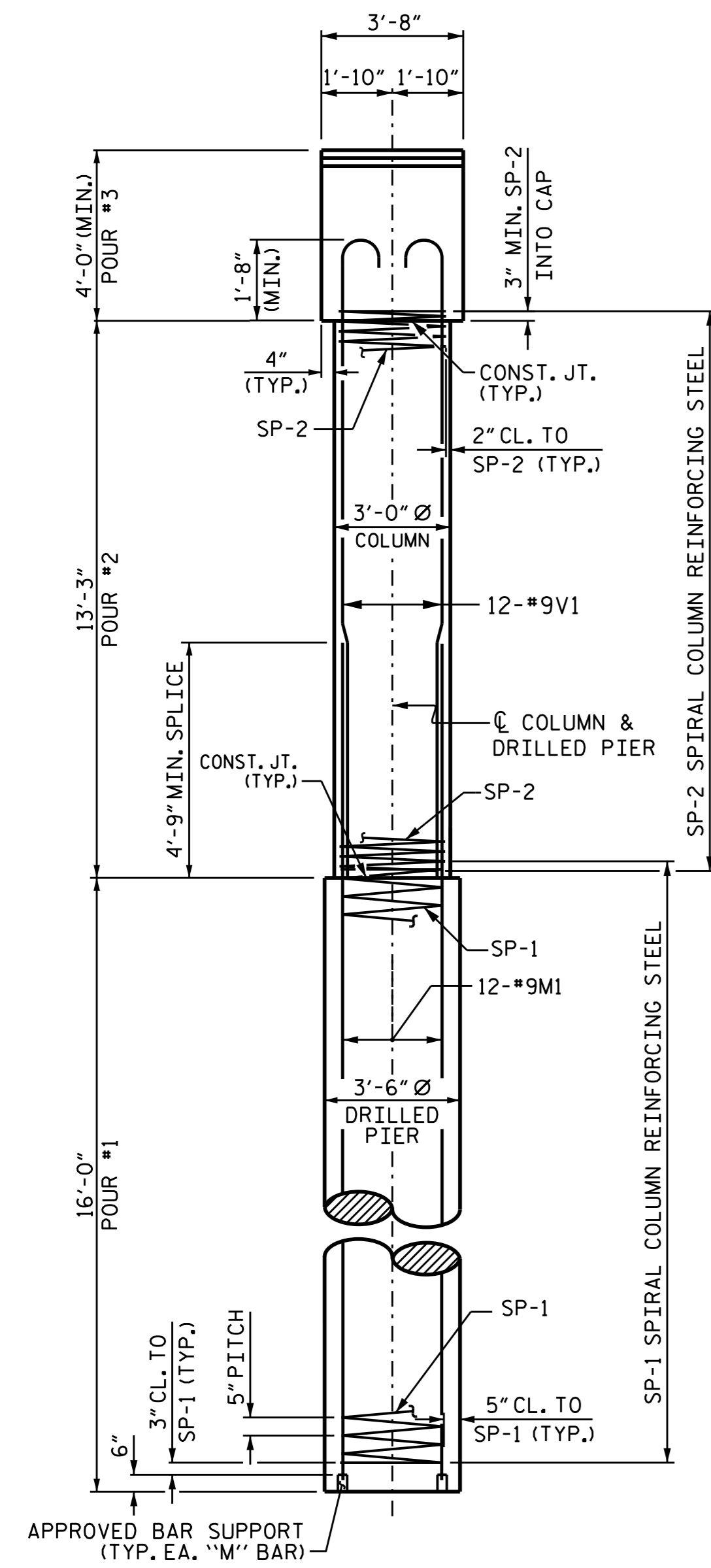
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 1 OF 2

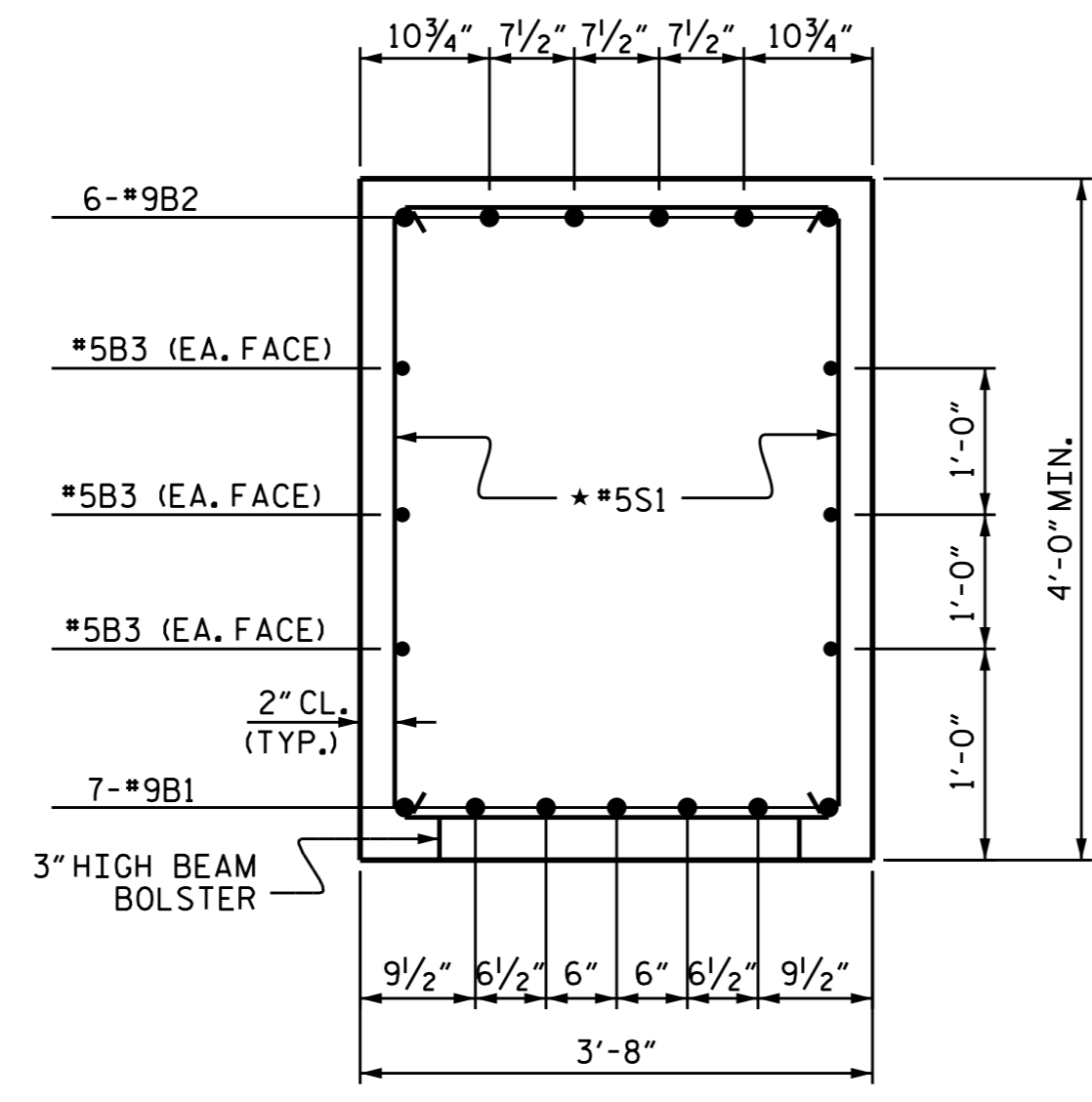
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-29
SUBSTRUCTURE						
BENT 1						
REVISIONS						TOTAL SHEETS 38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



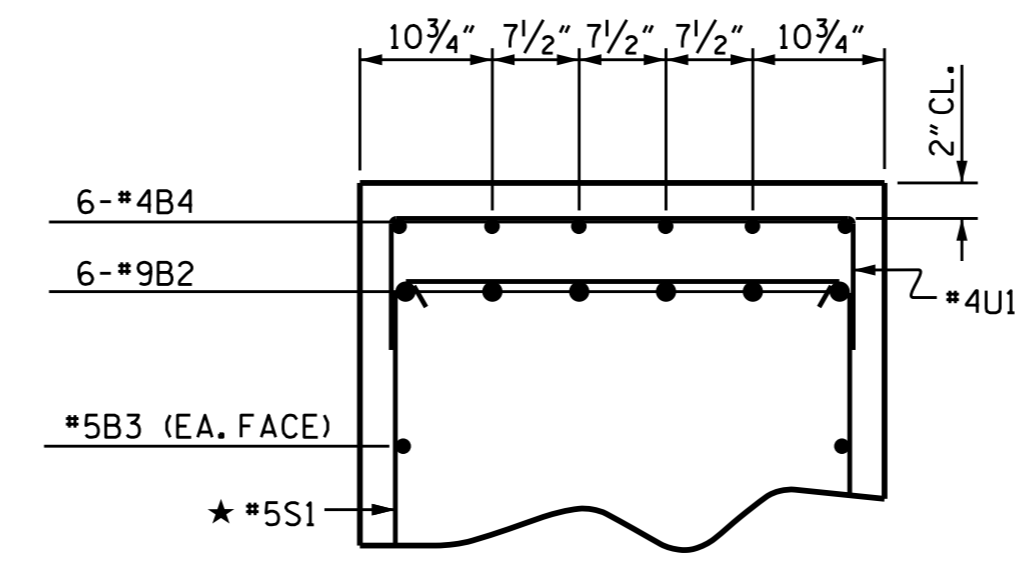
DRAWN BY: R.P. PATEL DATE: 3-20-14
 CHECKED BY: K.D. LAYNE DATE: 3-25-14
 DESIGN ENGINEER OF RECORD: R.P. PATEL DATE: 6-2-14



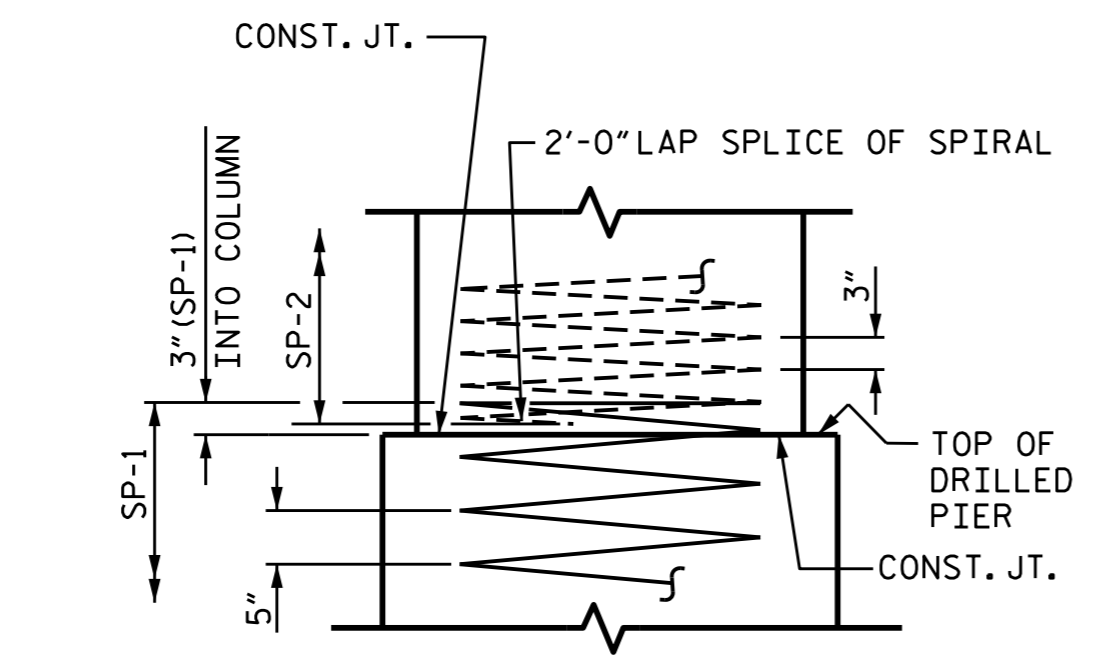
END ELEVATION



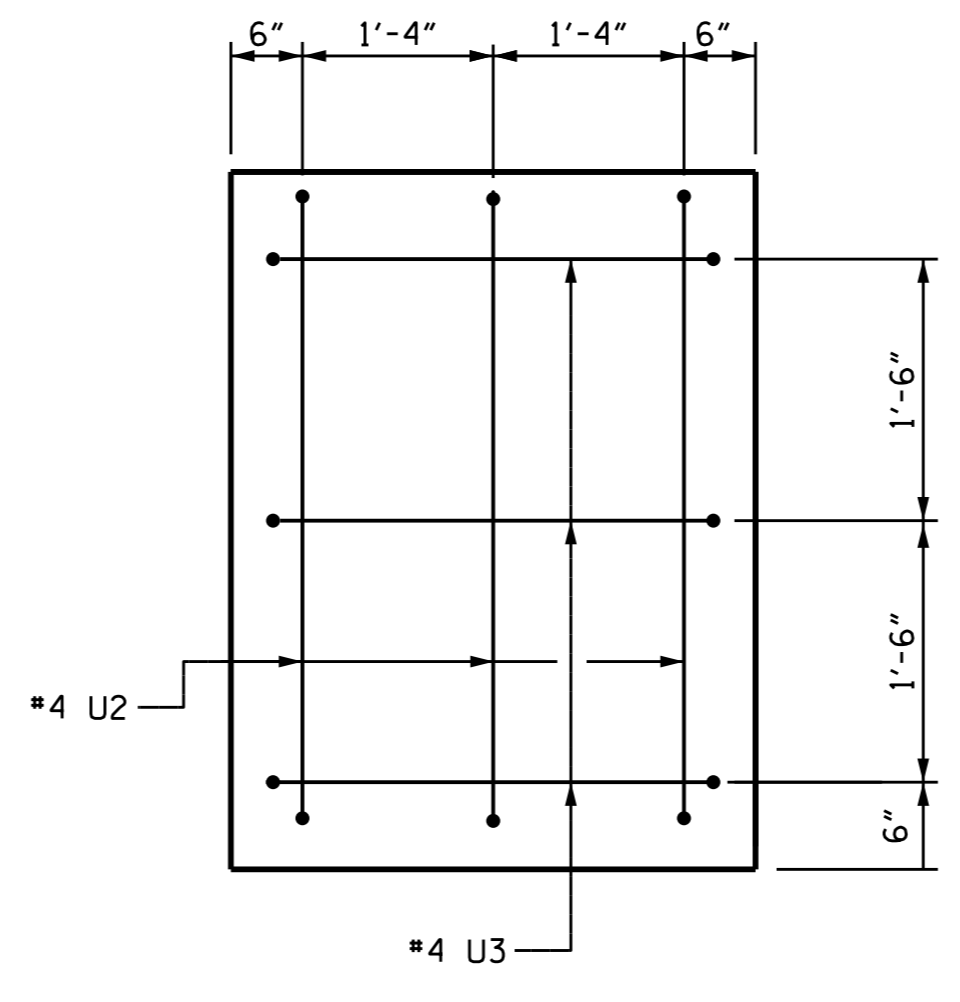
SECTION A-A



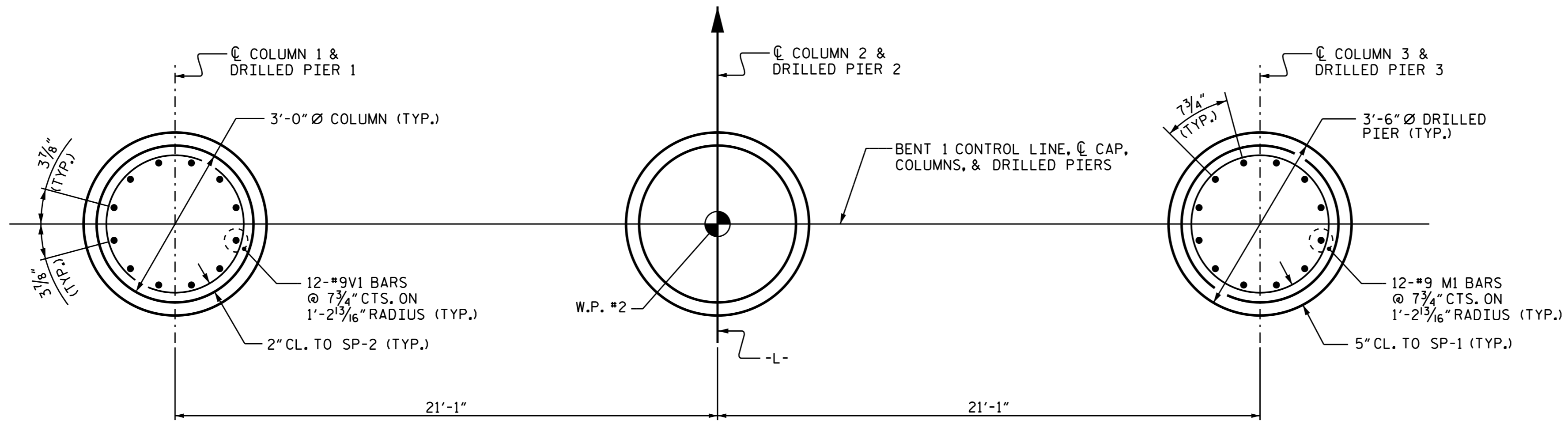
PARTIAL SECTION B-B



CONSTRUCTION JOINT DETAIL

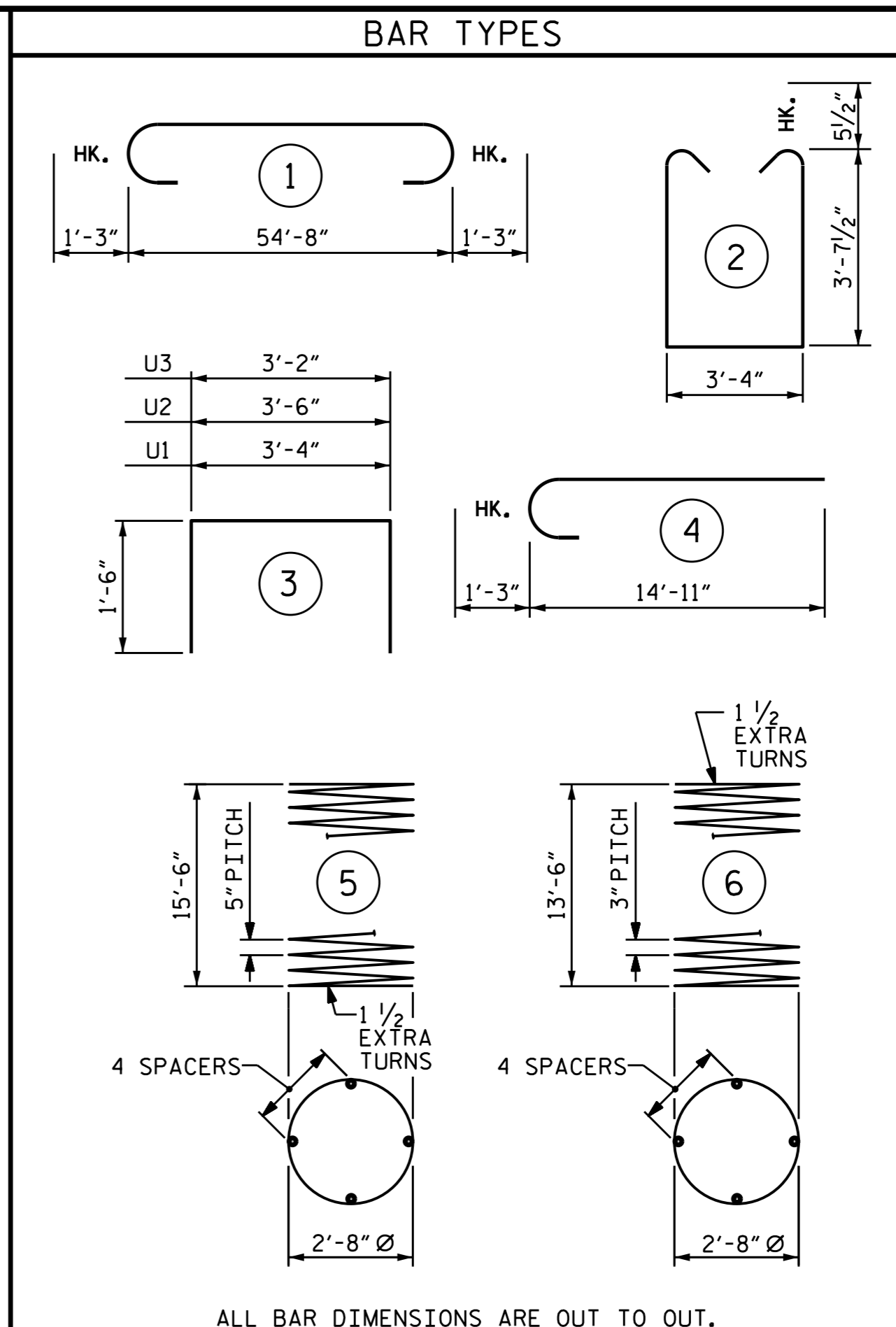


VIEW X-X



PLAN OF DRILLED PIERS & COLUMNS

(DETAILS ARE TYPICAL EACH DRILLED PIER & COLUMN)

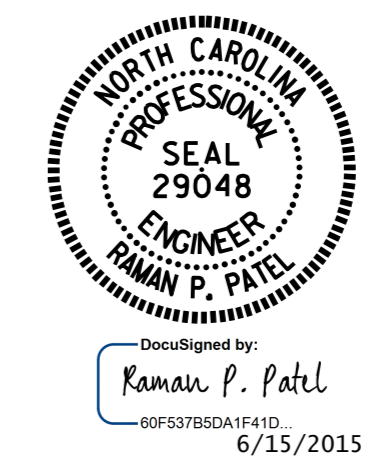


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	#9	STR	54'-10"	1305
B2	6	#9	1	57'-2"	1166
B3	6	#5	STR	54'-10"	343
B4	6	#4	STR	13'-5"	54
M1	36	#9	STR	23'-6"	2876
S1	64	#5	2	11'-6"	768
U1	46	#4	3	6'-4"	195
U2	6	#4	3	6'-6"	26
U3	6	#4	3	6'-2"	25
V1	36	#9	4	16'-2"	1979
REINFORCING STEEL =					LBS 8,737
SP-1	3	*	5	318'-1"	995
SP-2	3	**	6	457'-0"	916
SPIRAL COLUMN REINFORCING STEEL					LBS. 1,911
CLASS A CONCRETE					
POUR #2 (COLUMNS)					C.Y. 10.4
POUR #3 (CAP)					C.Y. 31.3
TOTAL CLASS A CONCRETE					C.Y. 41.7
DRILLED PIERS:					
DRILLED PIER CONCRETE					
POUR #1 (DRILLED PIERS) IN SOIL					C.Y. 23.4
3'-6" Ø DRILLED PIERS IN SOIL					LIN. FT. 25.00
3'-6" Ø DRILLED PIERS NOT IN SOIL					LIN. FT. 23.00
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS					LIN. FT. 27.81
CSL TUBES					LIN. FT. 210.00

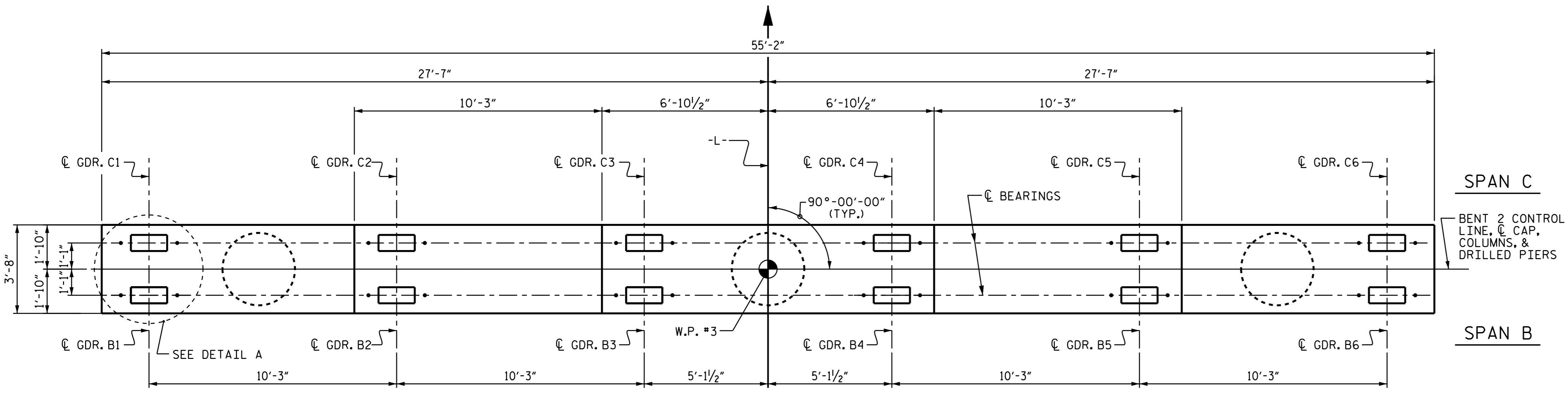
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

DRAWN BY : R.P. PATEL DATE : 3-20-14
 CHECKED BY : K.D. LAYNE DATE : 3-25-14
 DESIGN ENGINEER OF RECORD : R.P. PATEL DATE : 6-2-14

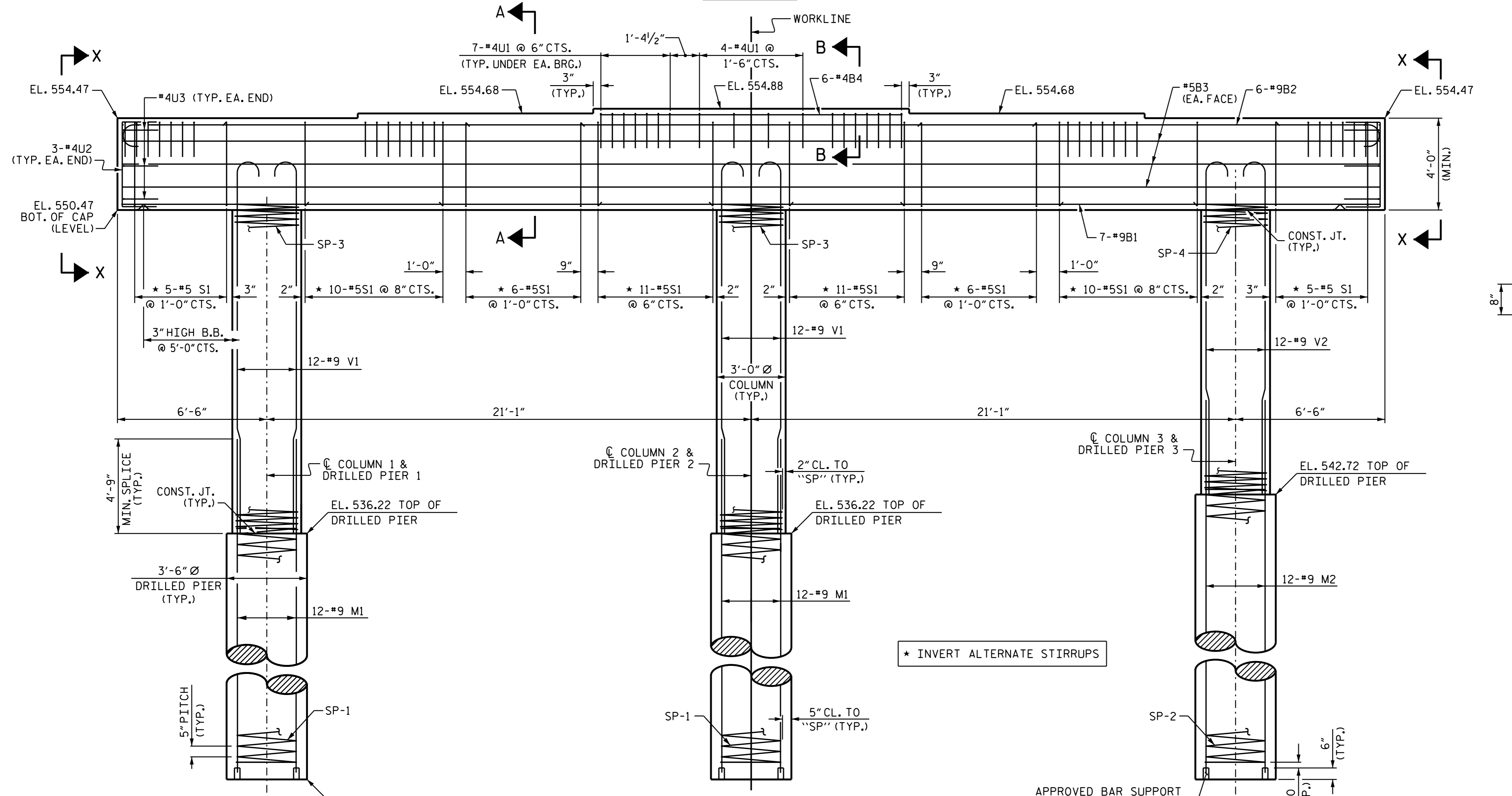


PROJECT NO. B-5105
 MECKLENBURG COUNTY
 STATION: 20+08.00 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					38

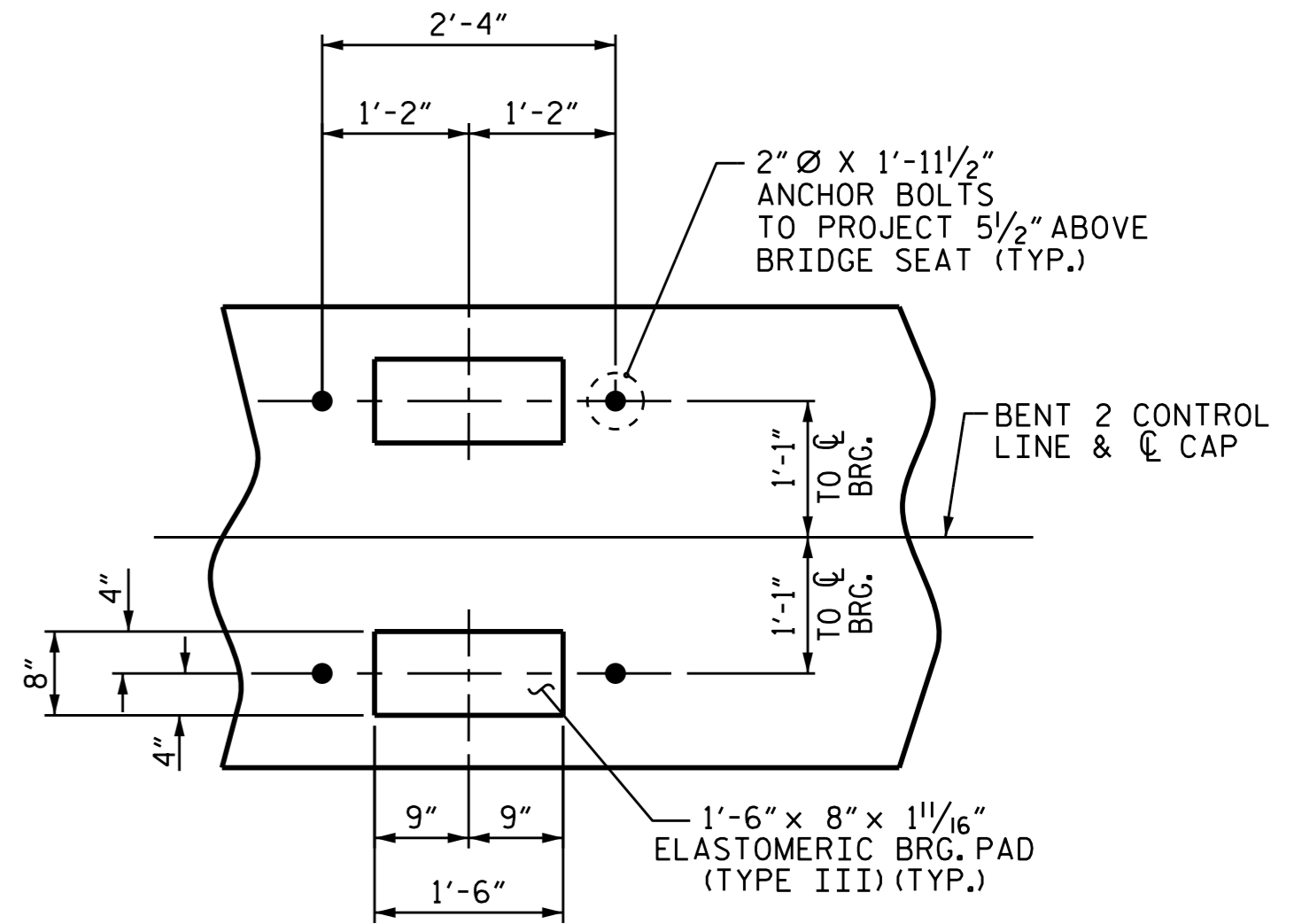


PLAN



ELEVATION

REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR EACH COLUMN.



DETAIL A

(TYP. EA. GDR.)

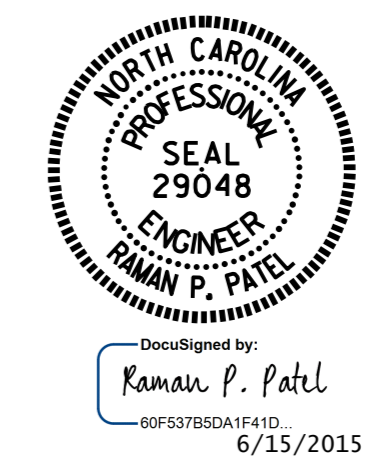
NOTES

- STIRRUPS AND U1 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- THE HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- 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 ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.

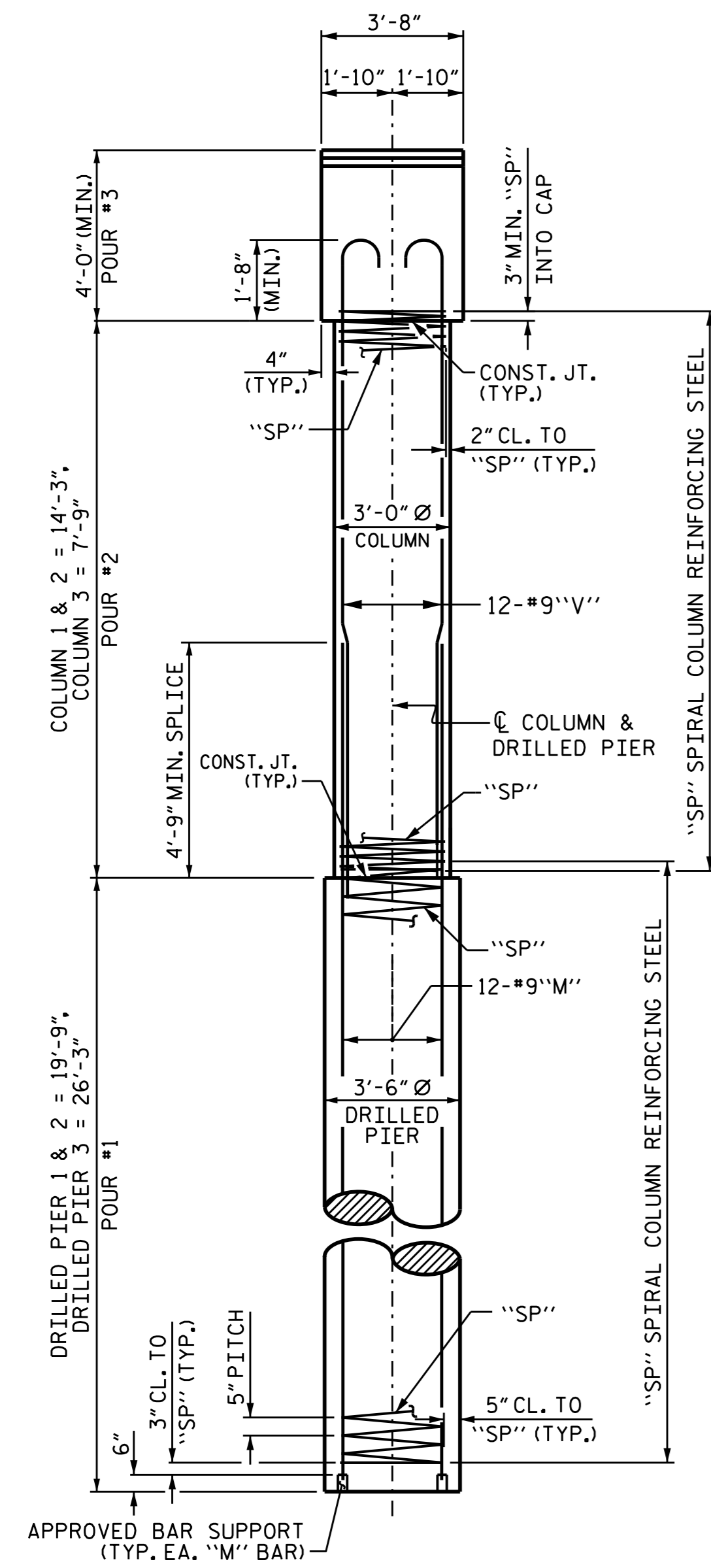
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 1 OF 2

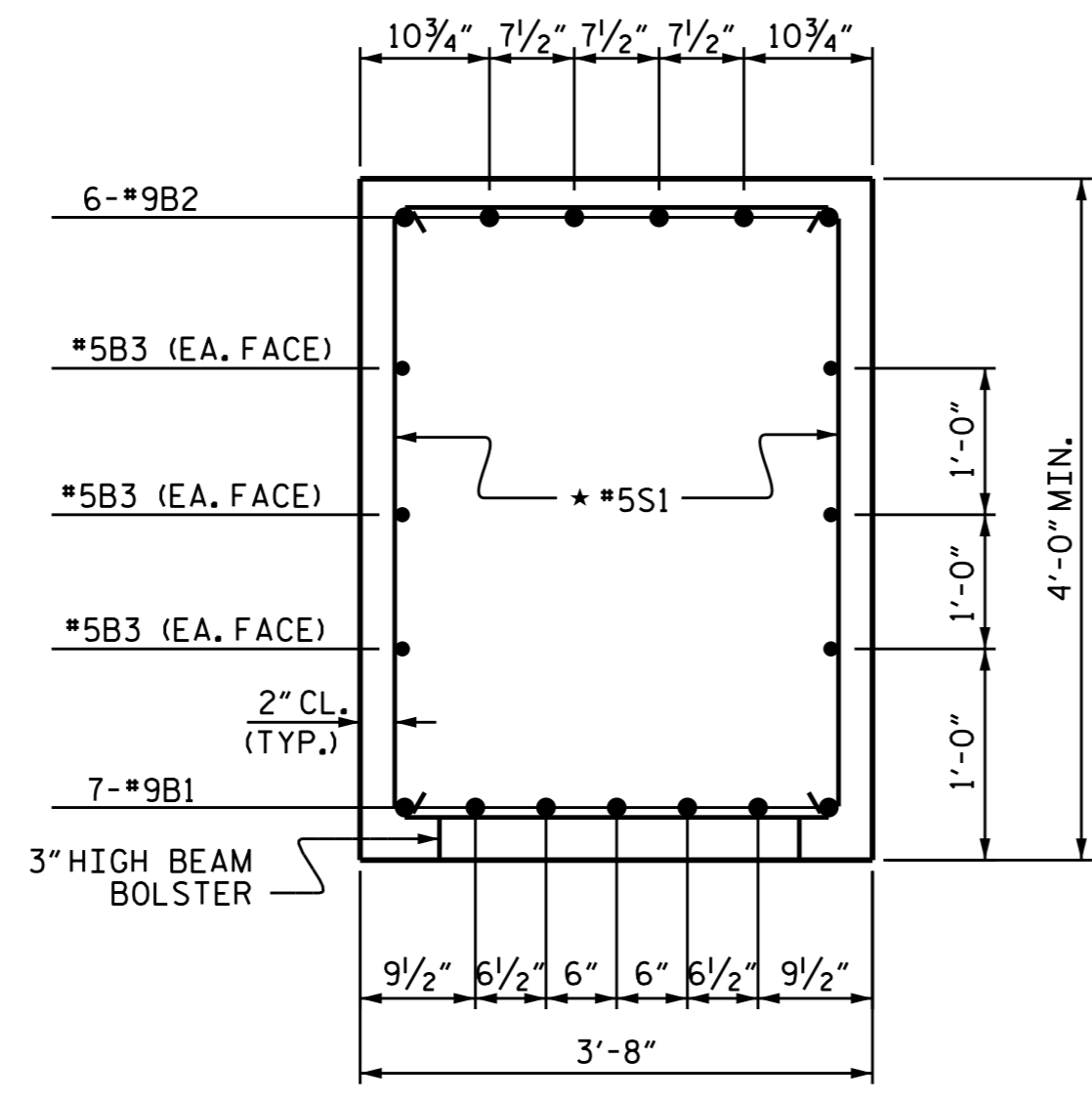
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-31
SUBSTRUCTURE						
BENT 2						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			
TOTAL SHEETS						38



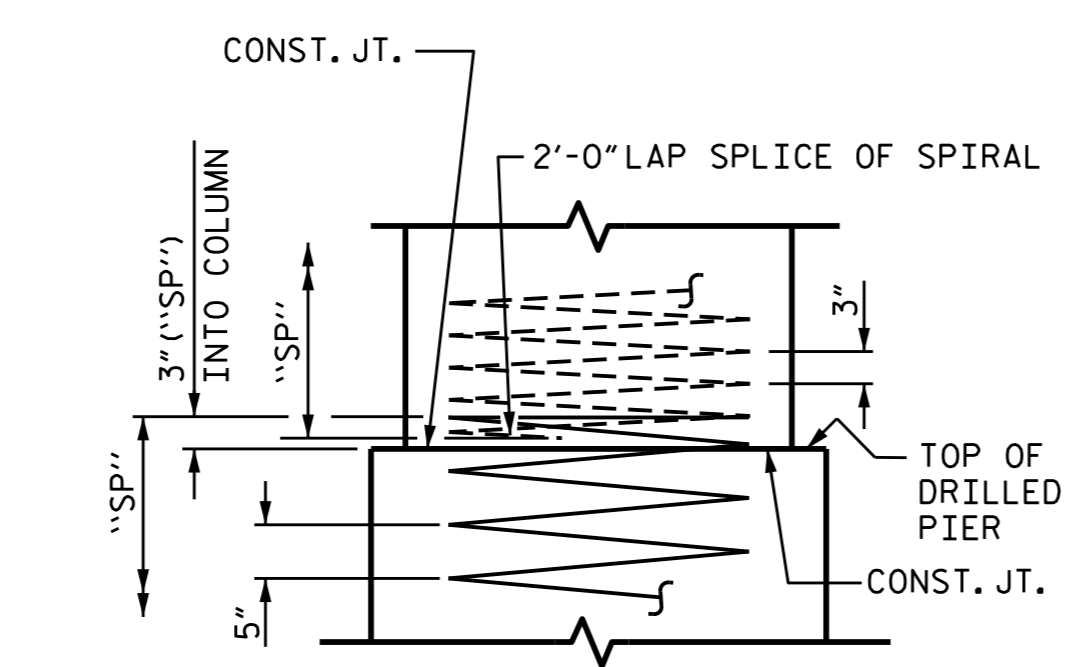
DRAWN BY: R.P. PATEL DATE: 3-20-14
 CHECKED BY: K.D. LAYNE DATE: 3-25-14
 DESIGN ENGINEER OF RECORD: R.P. PATEL DATE: 6-2-14



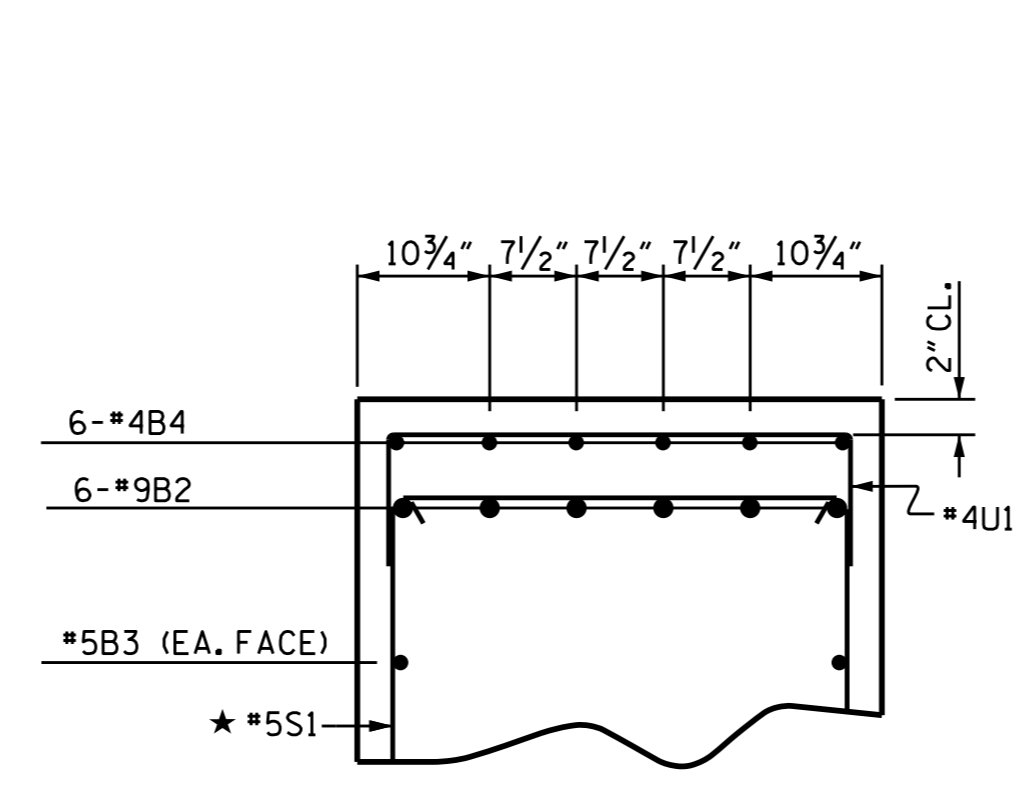
END ELEVATION



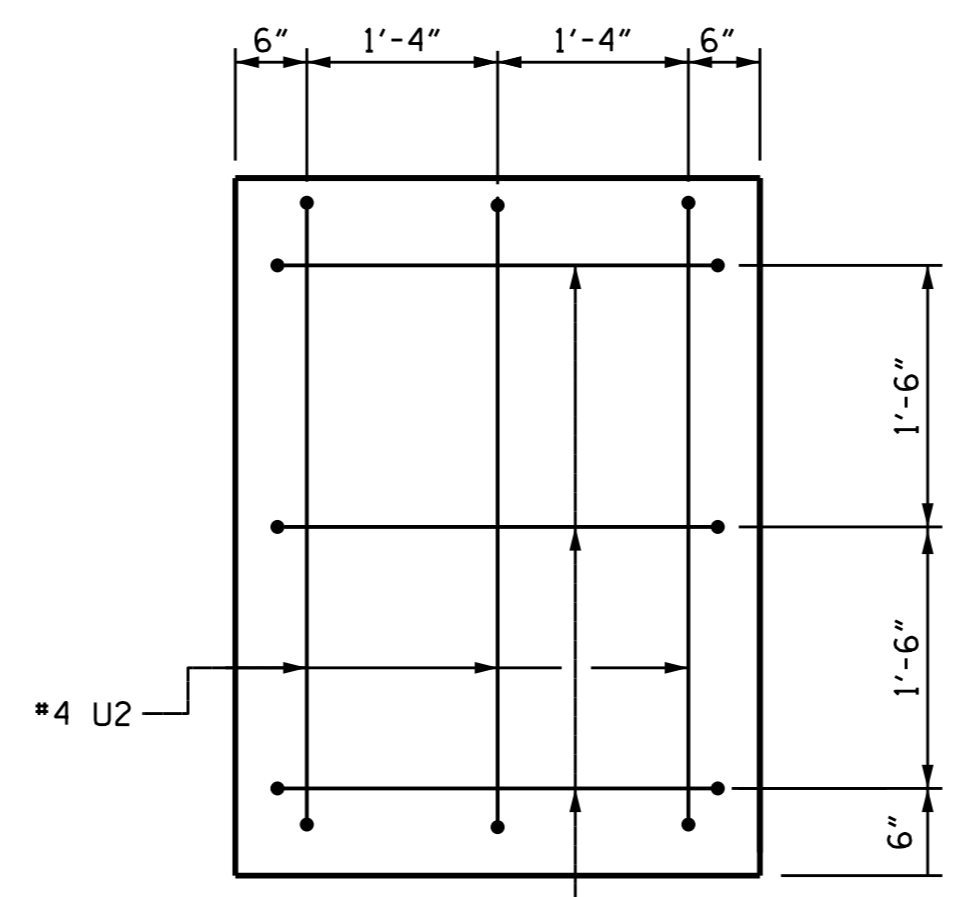
SECTION A-A



CONSTRUCTION JOINT DETAIL



PARTIAL SECTION B-B



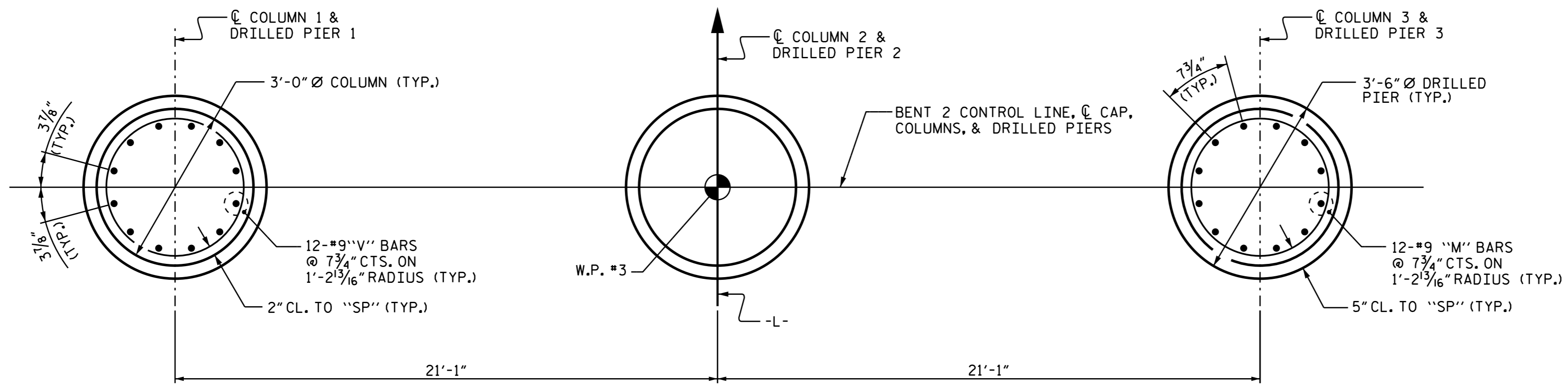
VIEW X-X

BAR TYPES

BILL OF MATERIAL

BENT 2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	7	#9	STR	54'-10"	1305
B2	6	#9	1	57'-2"	1166
B3	6	#5	STR	54'-10"	343
B4	6	#4	STR	13'-5"	54
M1	24	#9	STR	27'-3"	2224
M2	12	#9	STR	33'-9"	1377
S1	64	#5	2	11'-6"	768
U1	46	#4	3	6'-4"	195
U2	6	#4	3	6'-6"	26
U3	6	#4	3	6'-2"	25
V1	24	#9	4	17'-2"	1401
V2	12	#9	4	10'-8"	435
REINFORCING STEEL =				LBS	9,319
SP-1	2	*	5	392'-0"	818
SP-2	1	*	5	521'-3"	544
SP-3	2	**	6	490'-0"	655
SP-4	1	**	6	275'-11"	184
SPIRAL COLUMN REINFORCING STEEL				LBS	2,201
CLASS A CONCRETE					
POUR #2 (COLUMNS)				C.Y.	9.5
POUR #3 (CAP)				C.Y.	31.3
TOTAL CLASS A CONCRETE				C.Y.	40.8
DRILLED PIERS:					
DRILLED PIER CONCRETE				C.Y.	23.4
POUR #1 (DRILLED PIERS)				C.Y.	23.4
3'-6" Ø DRILLED PIERS IN SOIL				LIN. FT.	42.75
3'-6" Ø DRILLED PIERS NOT IN SOIL				LIN. FT.	23.0
PERMANENT STEEL CASING FOR 3'-6" Ø DRILLED PIERS				LIN. FT.	44.66
CSL TUBES				LIN. FT.	281.00

ALL BAR DIMENSIONS ARE OUT TO OUT.

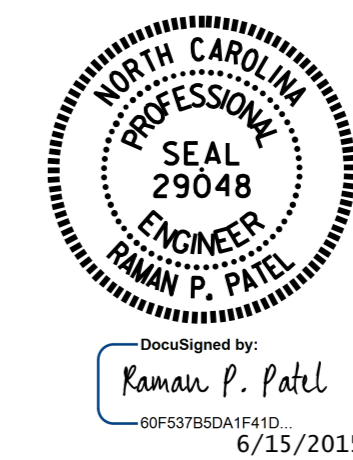


PLAN OF DRILLED PIERS & COLUMNS

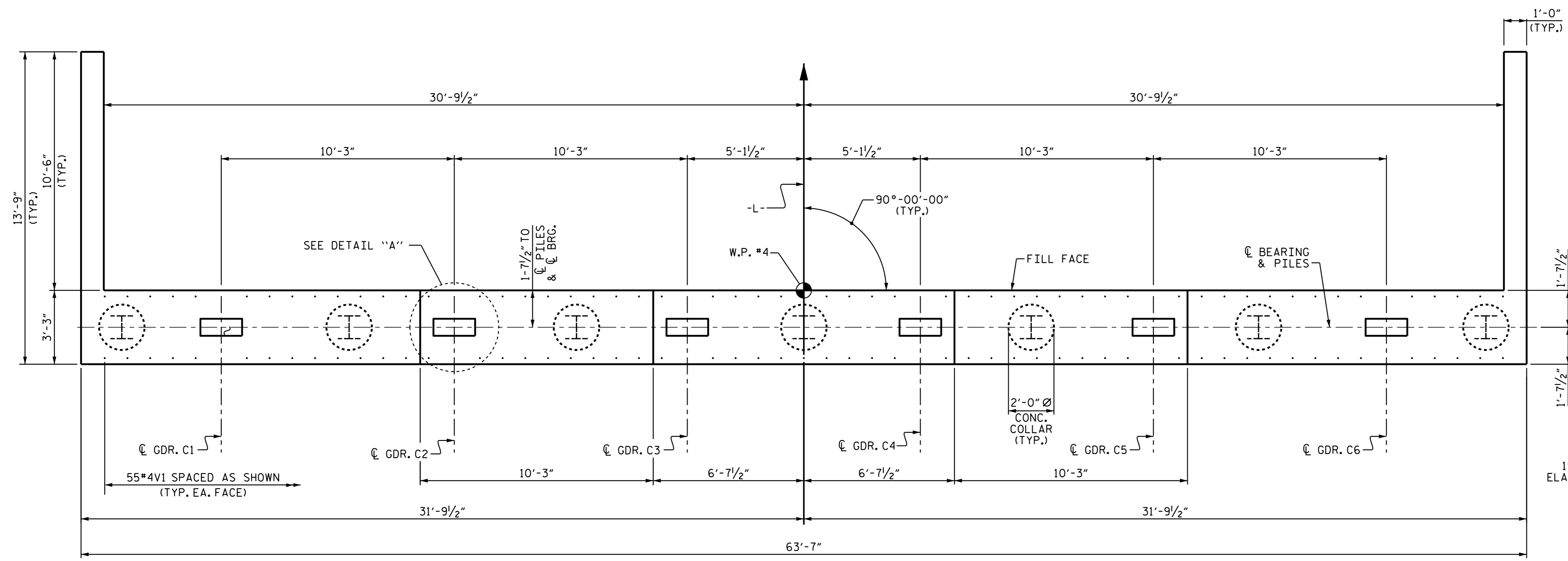
(DETAILS ARE TYPICAL EACH DRILLED PIER & COLUMN)

PROJECT NO. B-5105
 MECKLENBURG COUNTY
 STATION: 20+08.00 -L-
 SHEET 2 OF 2

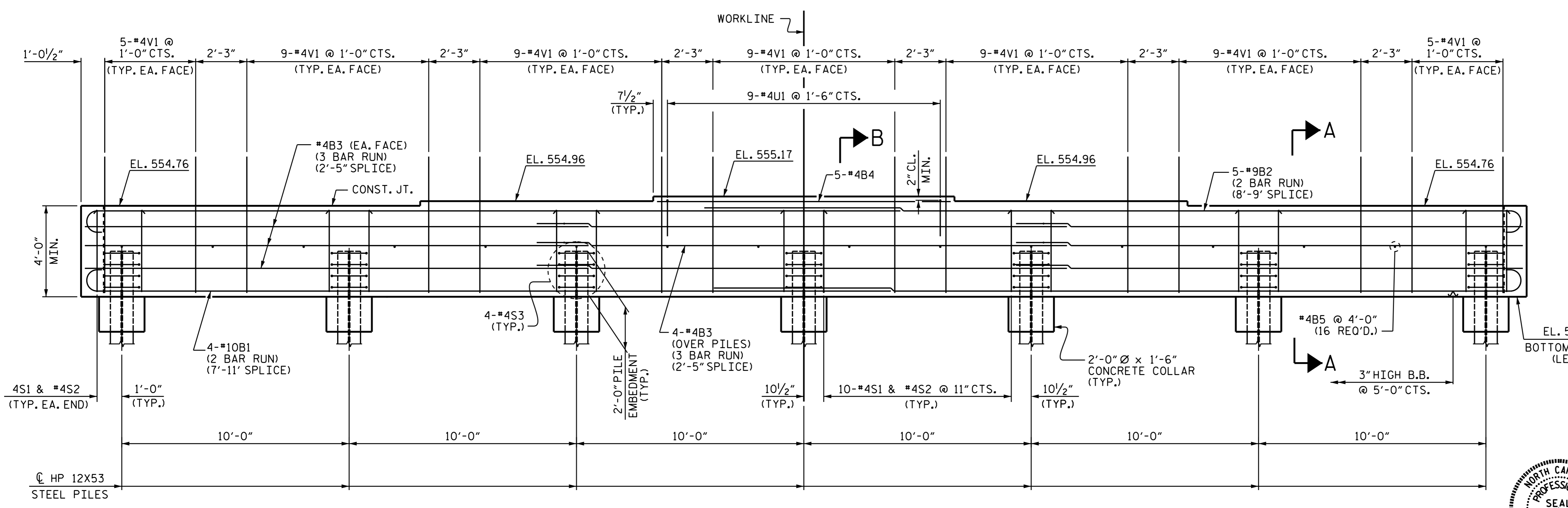
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					38



DRAWN BY: R.P. PATEL DATE: 3-20-14
 CHECKED BY: K.D. LAYNE DATE: 3-25-14
 DESIGN ENGINEER OF RECORD: R.P. PATEL DATE: 6-2-14

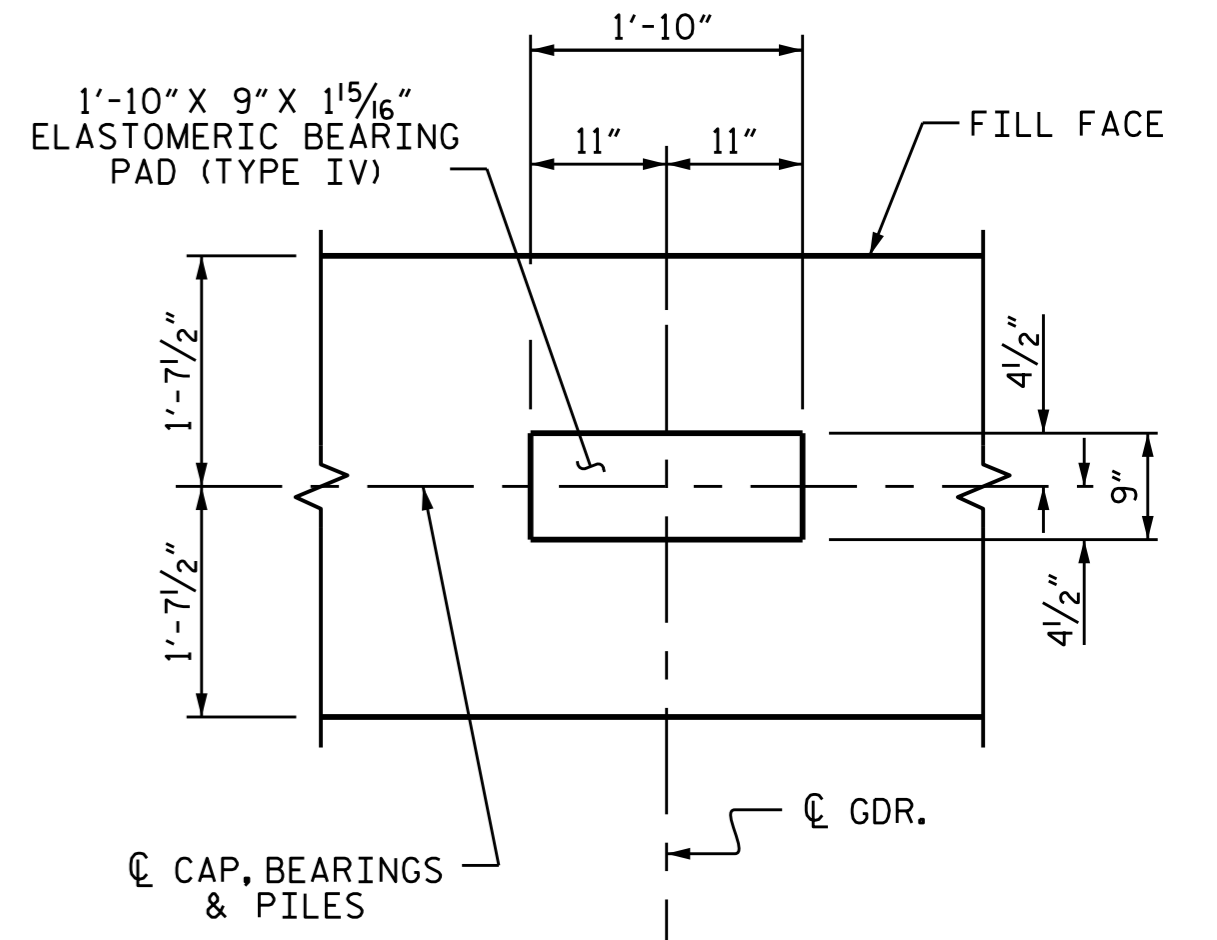


PLAN



ELEVATION

NOTES
 THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE BILL OF MATERIALS. FOR DETAILS, SEE SUPERSTRUCTURE PLANS.
 THE TOP SURFACE OF THE END BENT CAP AND WINGS, EXCEPT THE BEARING AREA, SHALL BE RAKED TO A DEPTH OF 1/4".



DETAIL "A"

(DETAILS AND DIMENSIONS ARE TYPICAL FOR EACH BEARING)

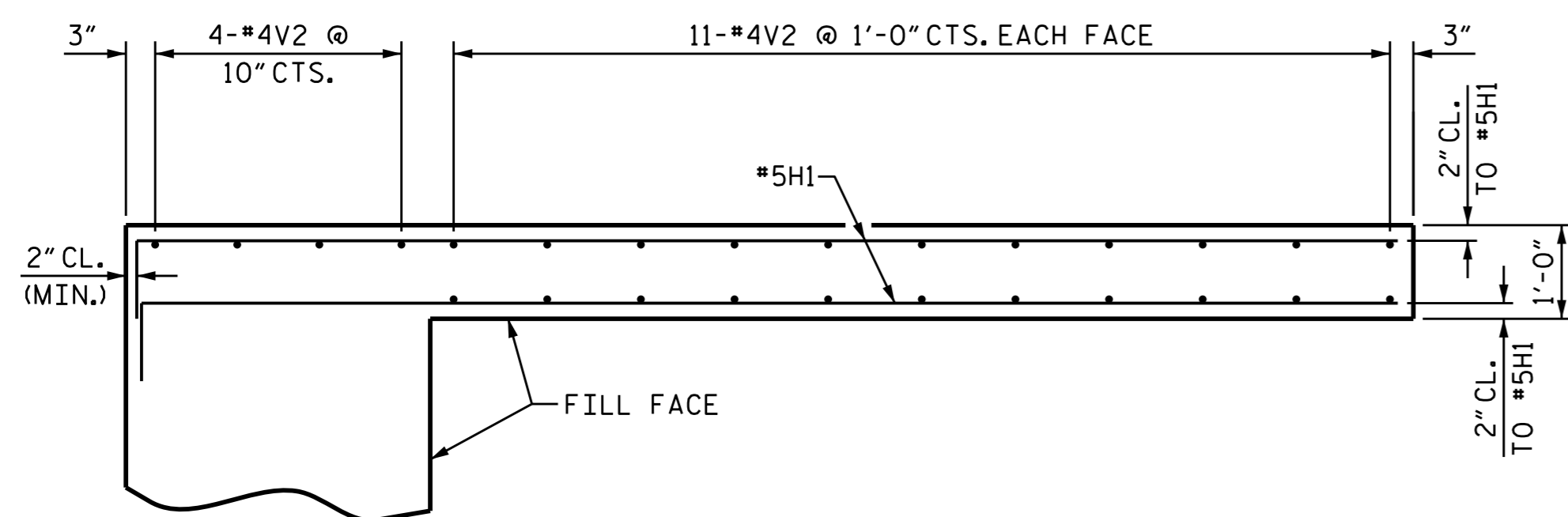
PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 1 OF 3

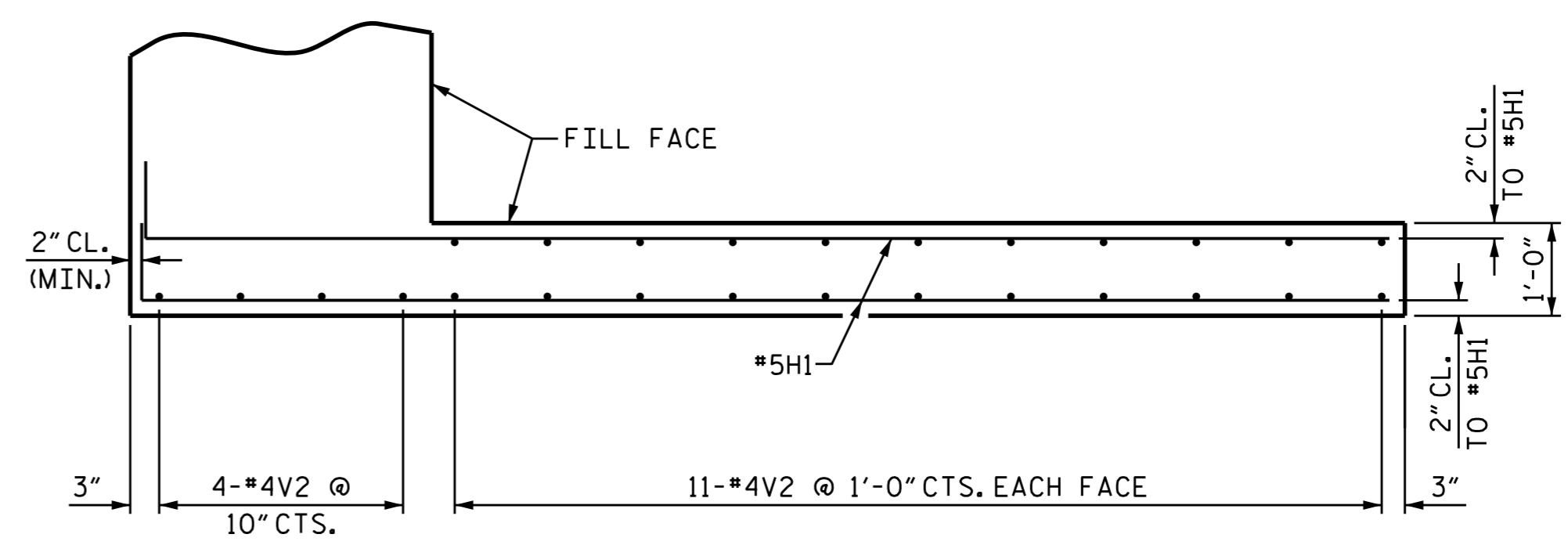


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					38

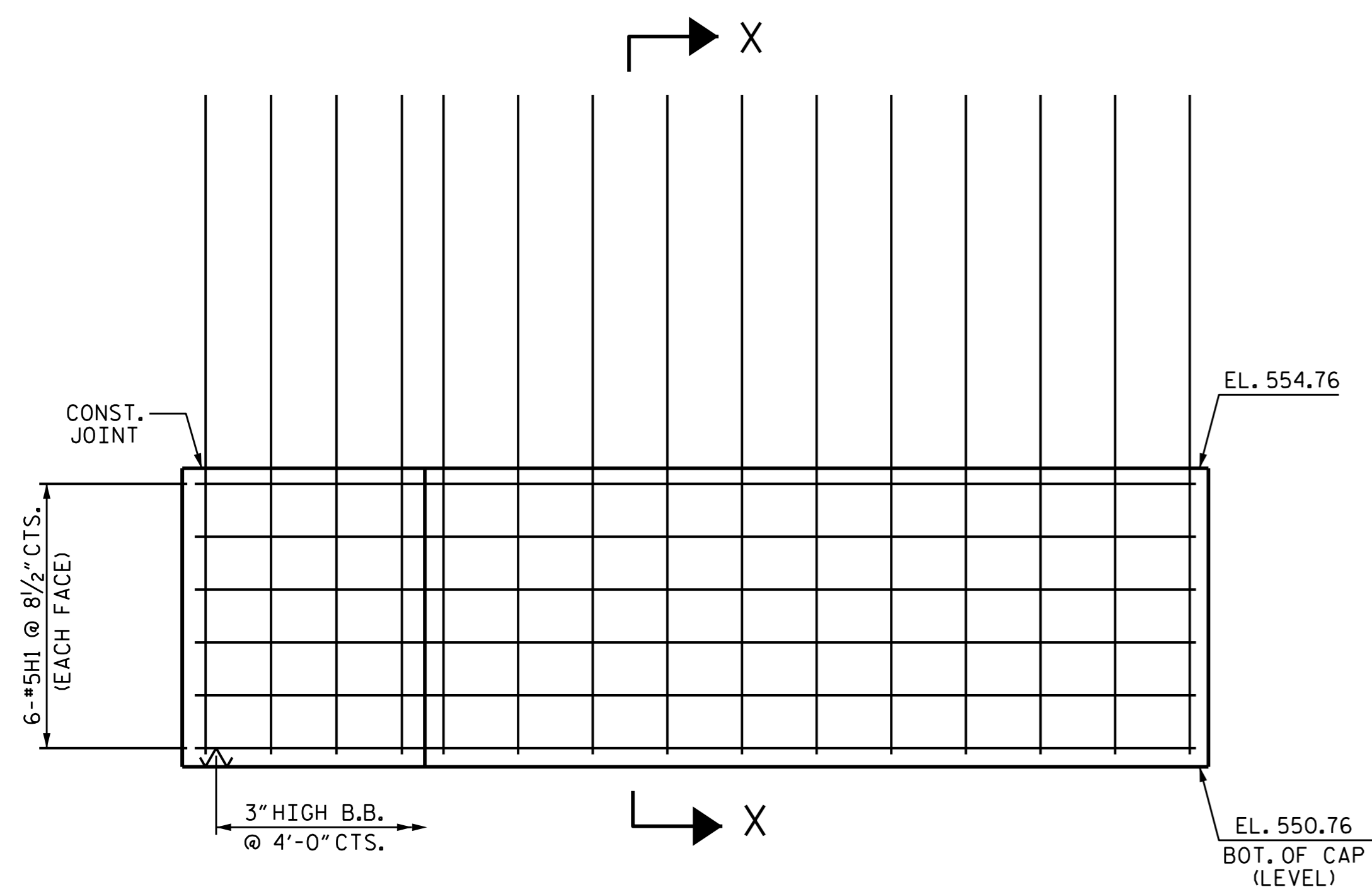
DRAWN BY: R. P. PATEL DATE: 9-17-13
 CHECKED BY: R. L. CHESSON DATE: 10-7-13
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE: 3-18-14



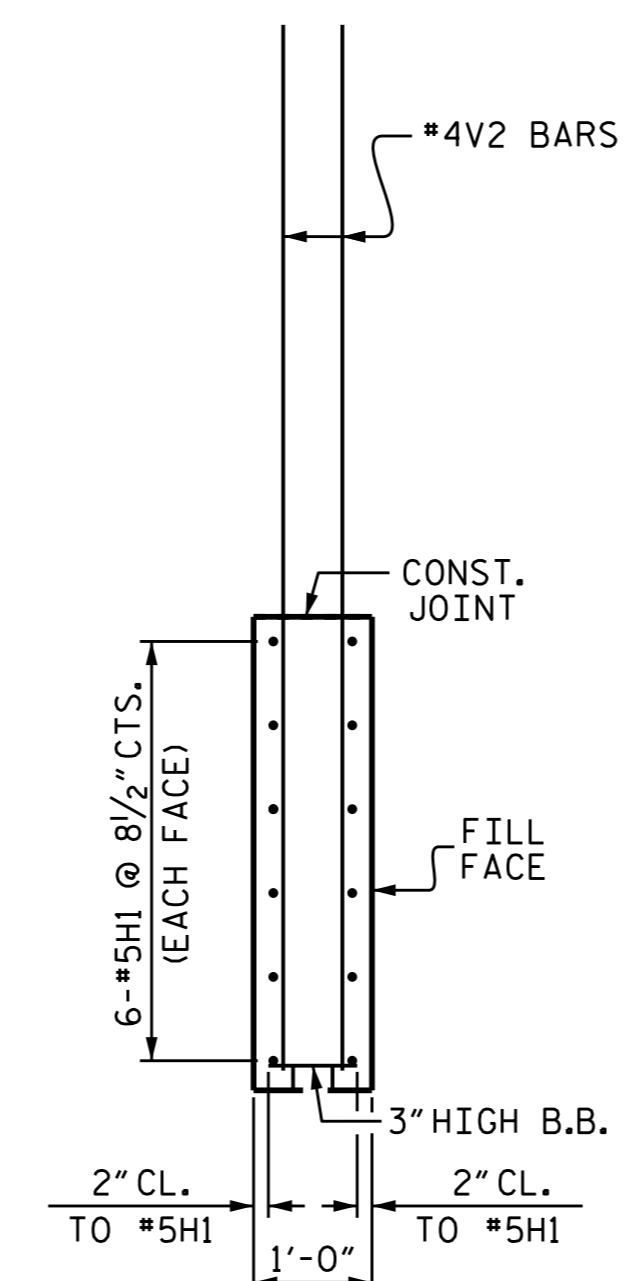
PLAN OF LEFT WING



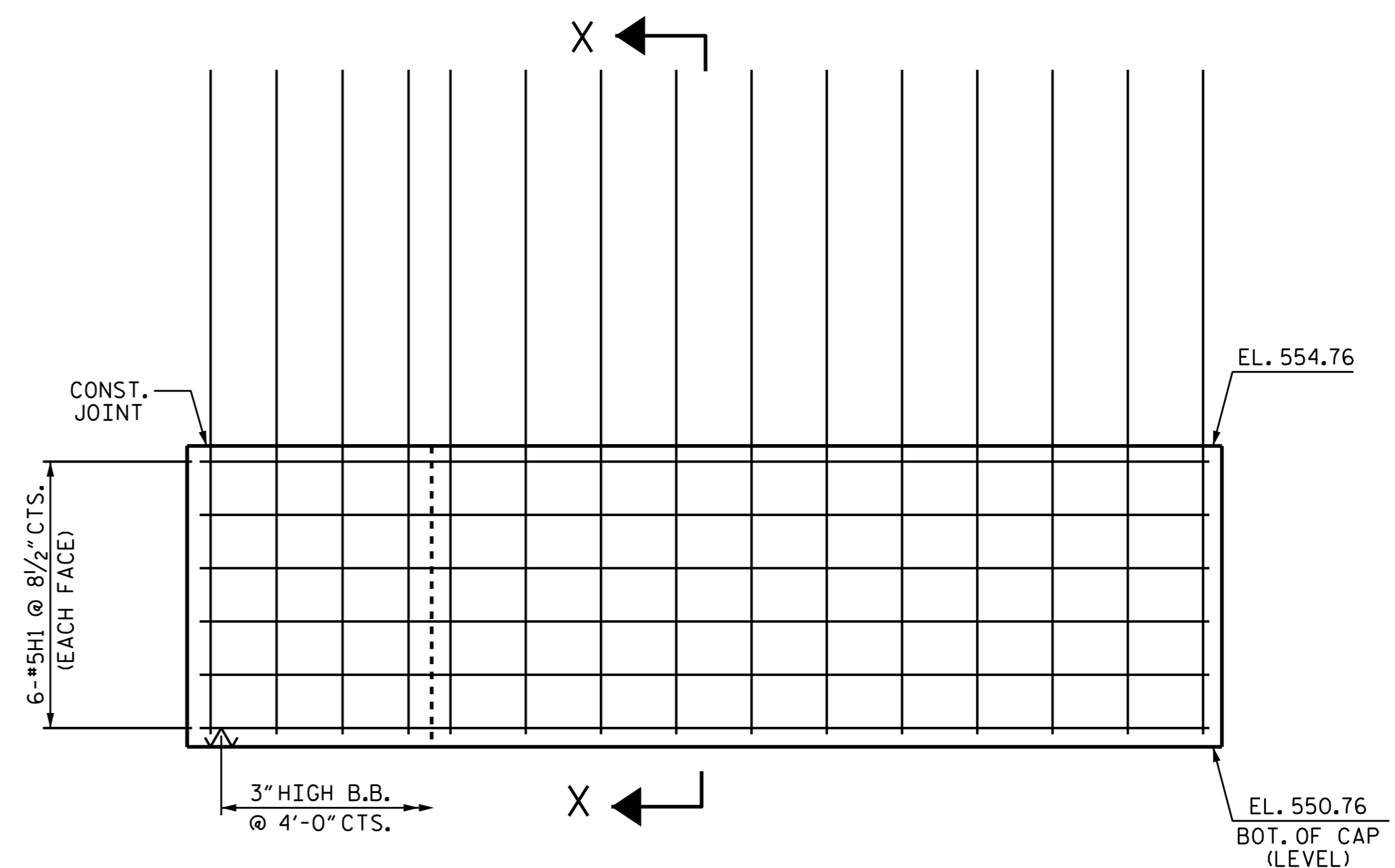
PLAN OF RIGHT WING



ELEVATION OF LEFT WING



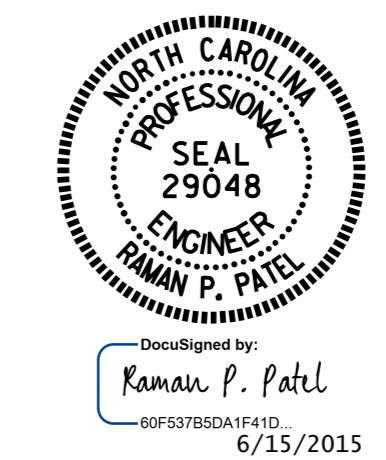
SECTION X-X



ELEVATION OF RIGHT WING

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

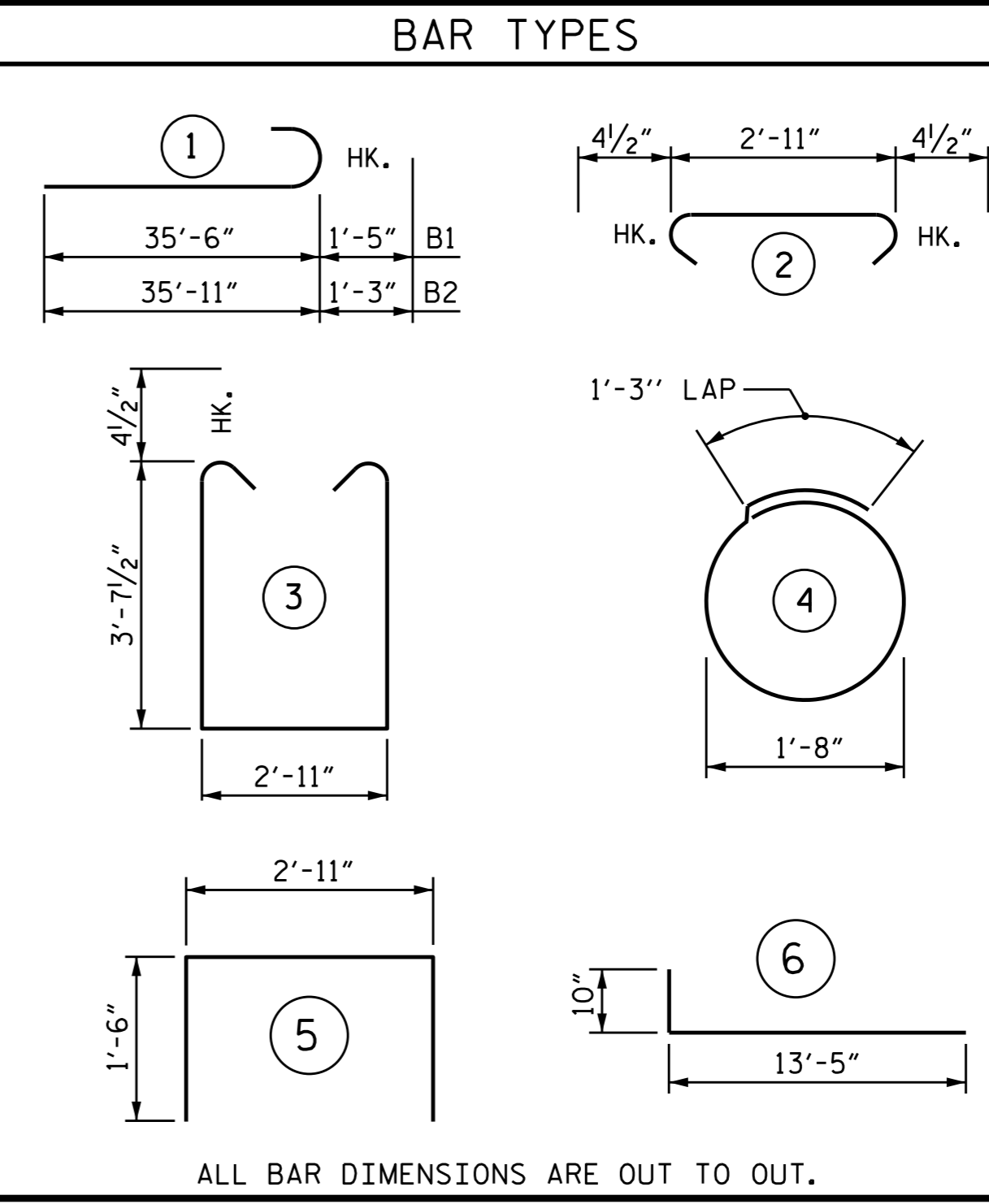
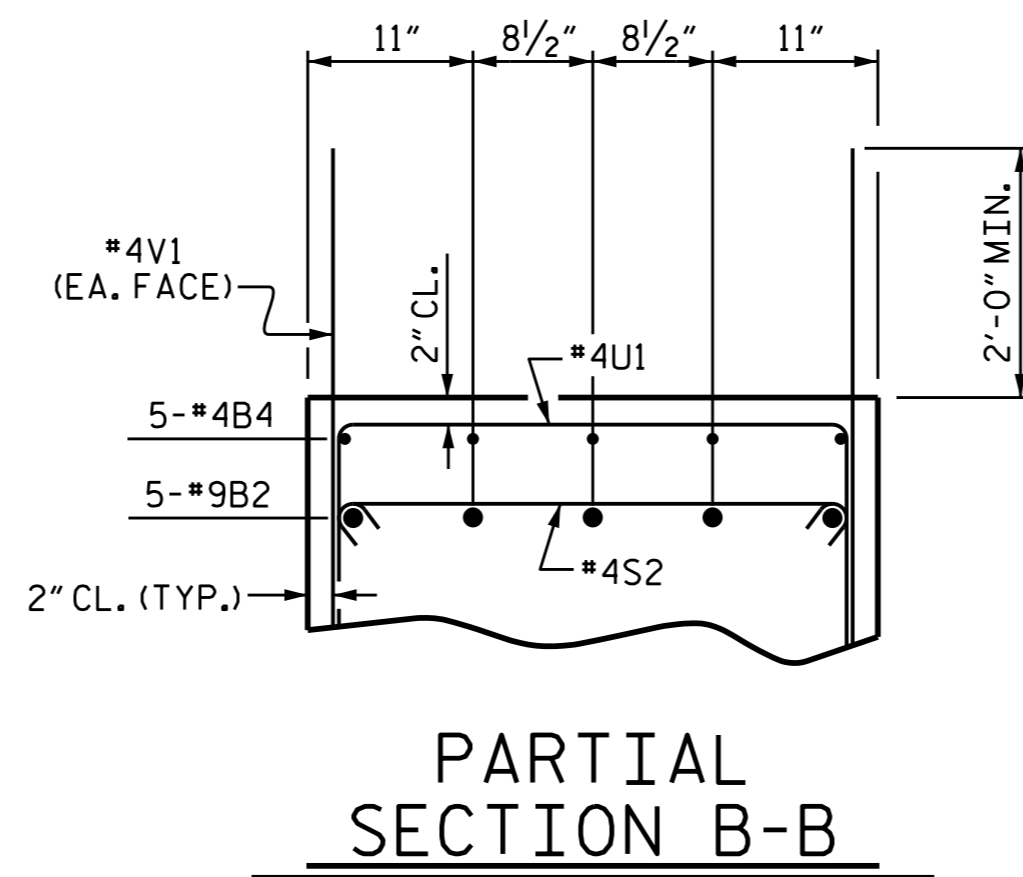
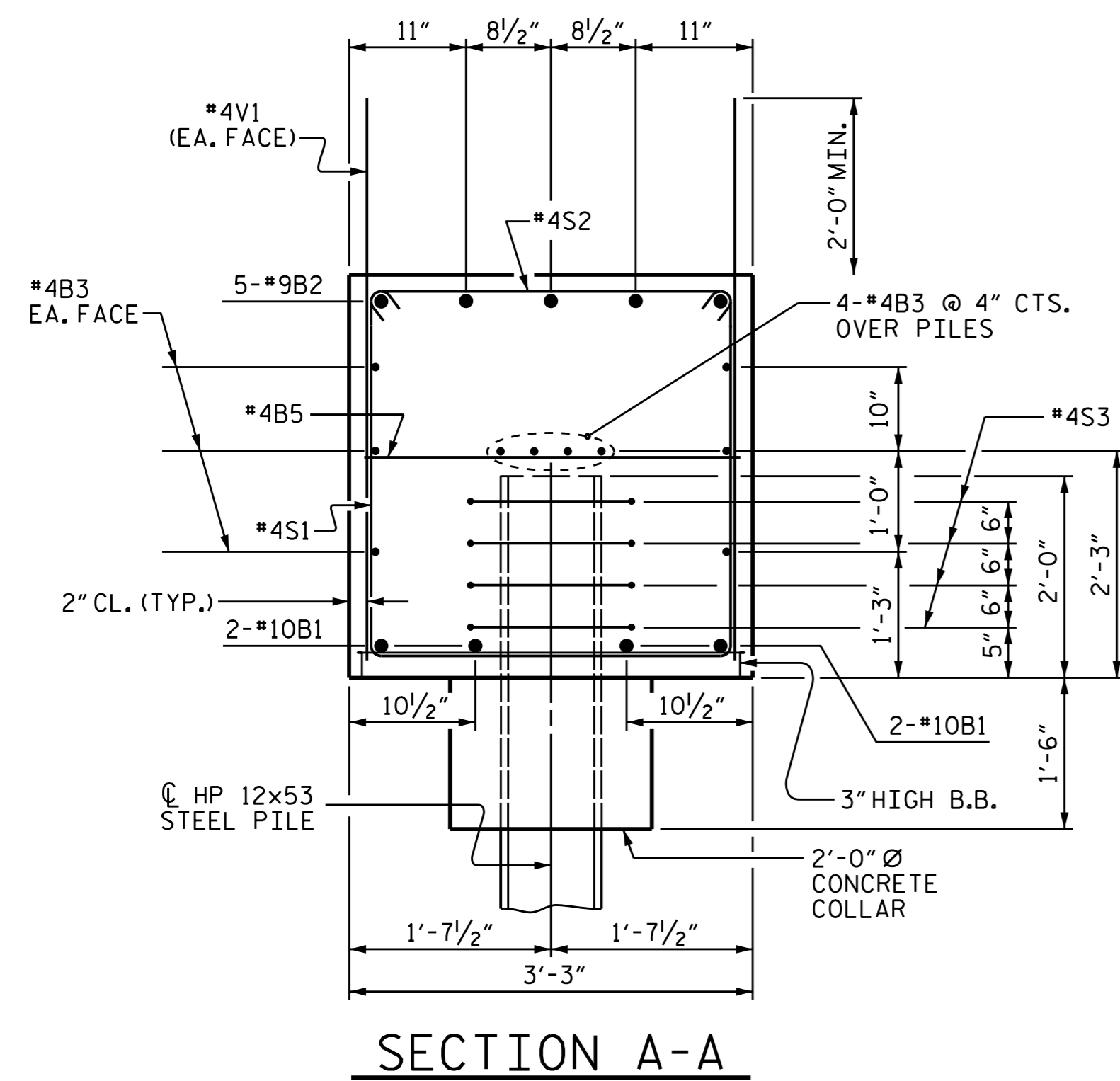
SHEET 2 OF 3



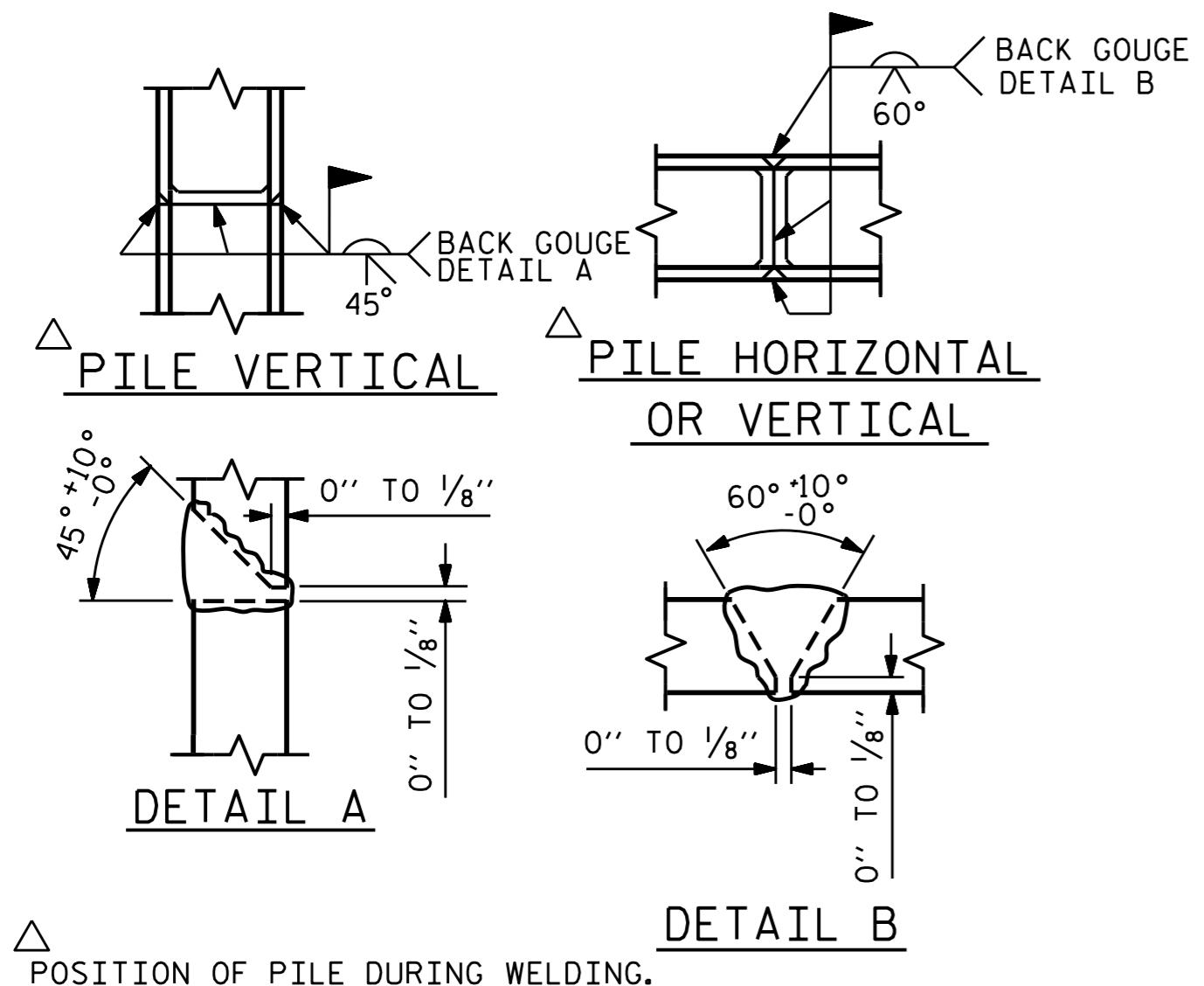
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-34
SUPERSTRUCTURE INTEGRAL END BENT 2						
REVISIONS						TOTAL SHEETS 38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : R. P. PATEL DATE : 9-17-13
 CHECKED BY : R. L. CHESSON DATE : 10-7-13
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 3-18-14

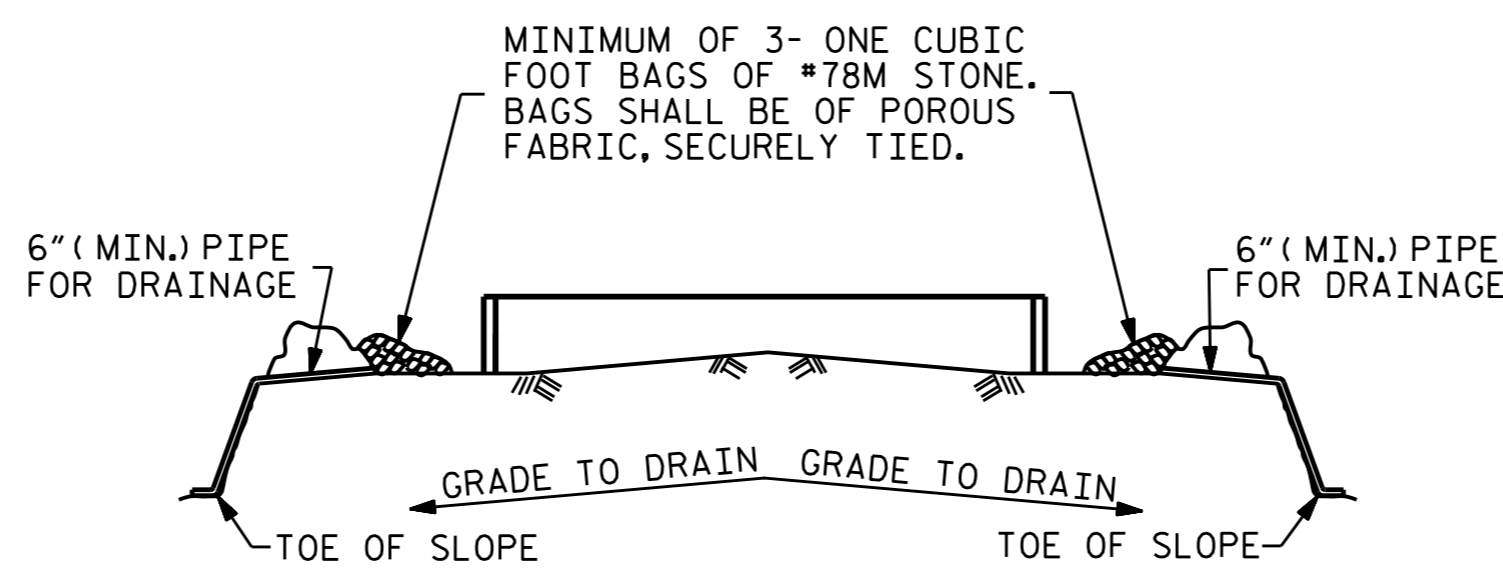
11-JUN-2015 07:59
 R:\Structures\Plans\B5105.sd.E2.01.dgn
 dadavenport



BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	1	36'-11"	1,271
B2	10	#9	1	37'-2"	1,264
B3	30	#4	STR	22'-9"	456
B4	5	#4	STR	12'-11"	43
B5	16	#4	STR	2'-11"	31
H1	24	#5	6	14'-3"	357
S1	62	#4	3	10'-11"	452
S2	62	#4	2	3'-8"	152
S3	28	#4	4	6'-6"	122
U1	9	#4	5	5'-11"	36
V1	110	#4	STR	6'-2"	453
V2	52	#4	STR	8'-5"	292
REINFORCING STEEL					LBS. 4,929
CLASS A CONCRETE CAP, LOWER WINGS. & COLLARS					C.Y. 36.1
HP 12X53 STEEL PILES NO. 7					LIN. FT. 140



PILE SPLICE DETAILS



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

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

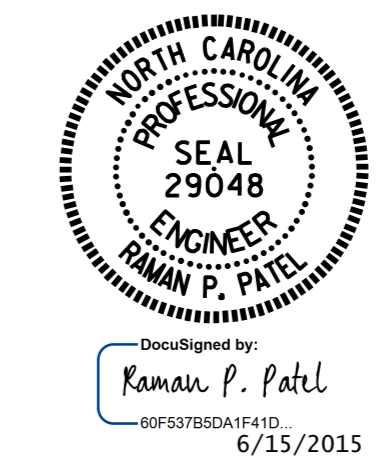
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

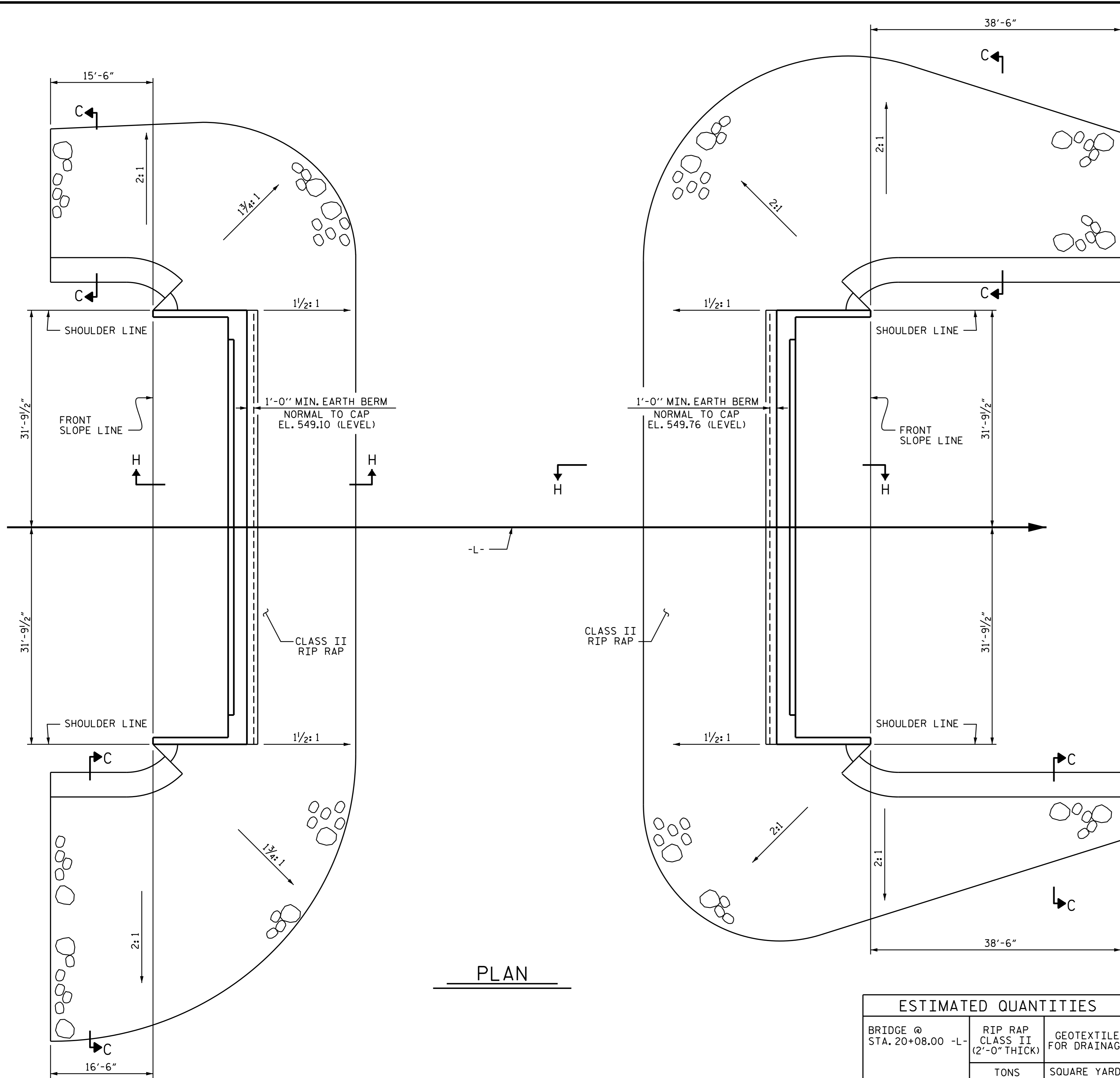
TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-
 SHEET 3 OF 3

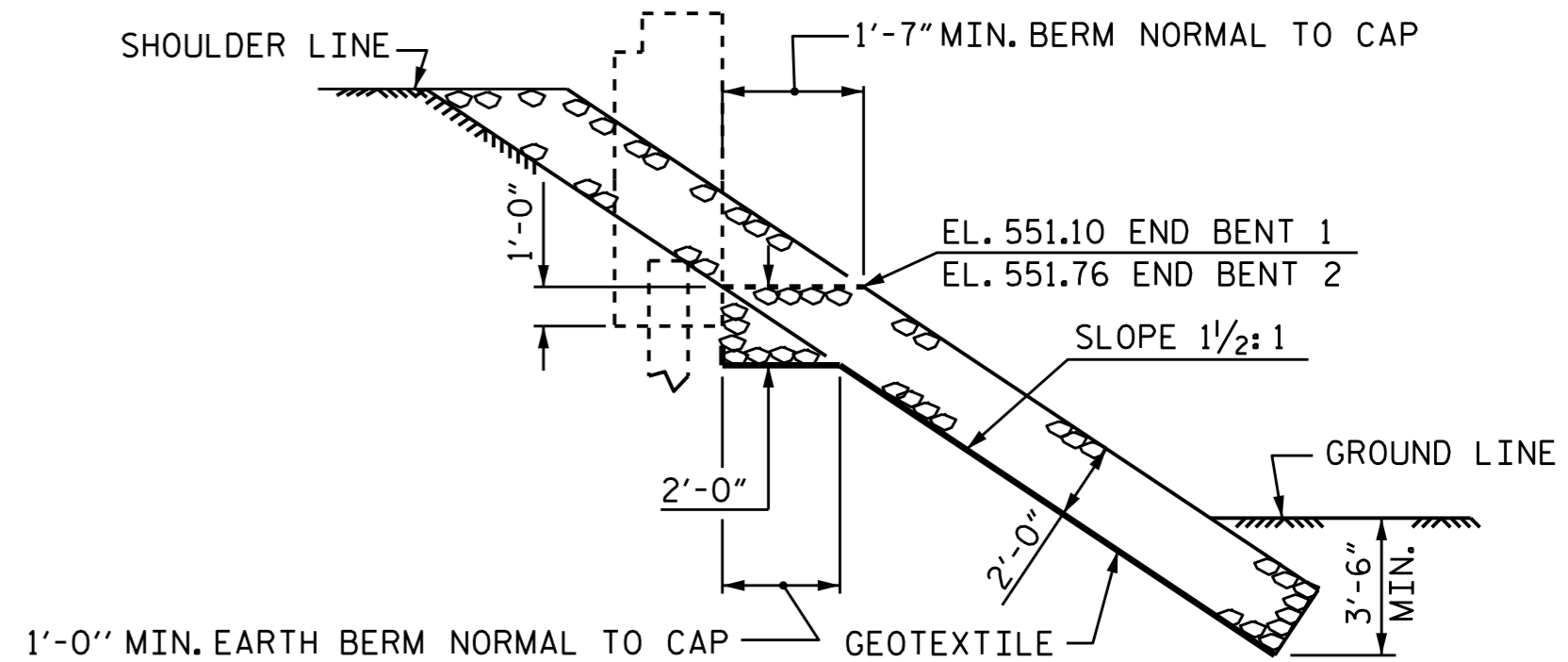
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
INTEGRAL END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					38



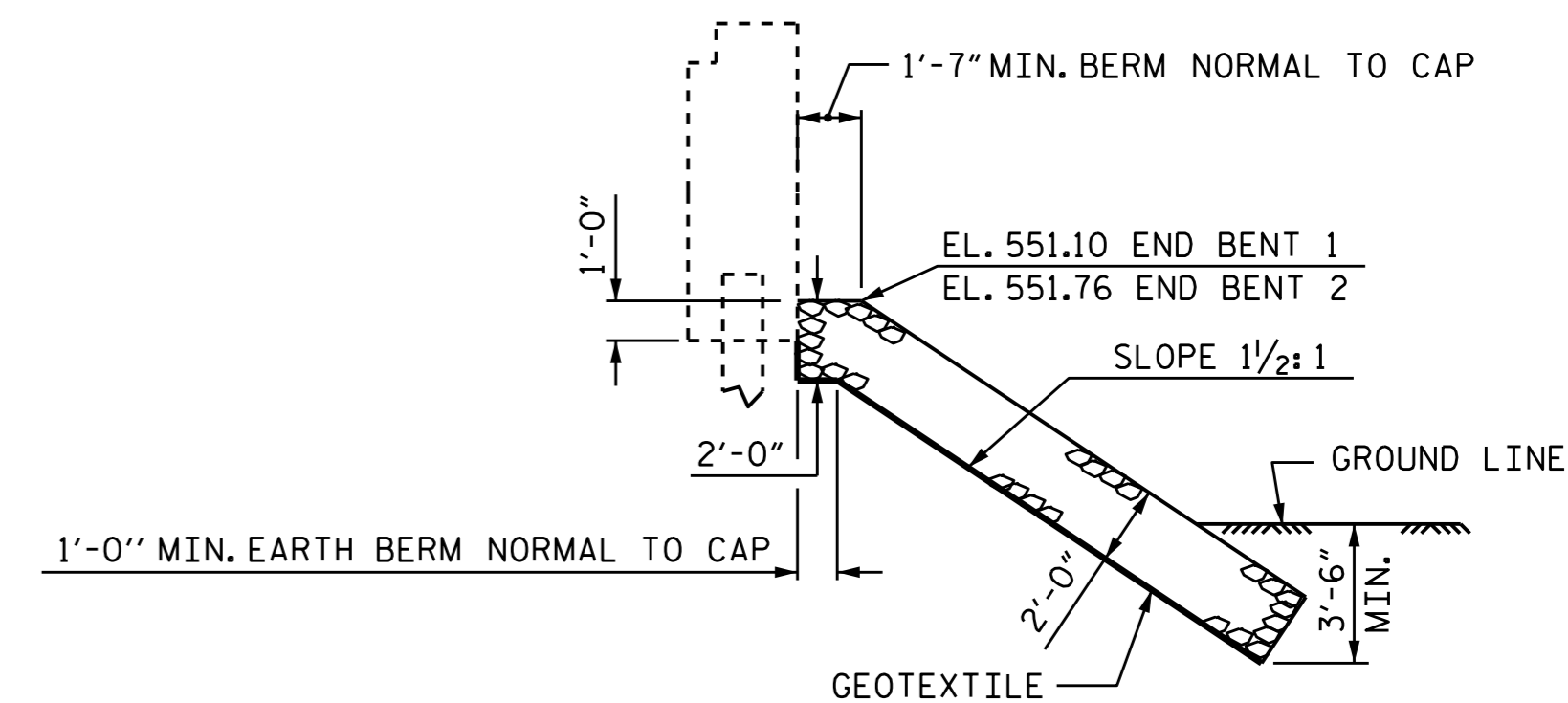
DRAWN BY : R. P. PATEL DATE : 9-17-13
 CHECKED BY : R. L. CHESSON DATE : 10-7-13
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 3-18-14



PLAN



SECTION H-H



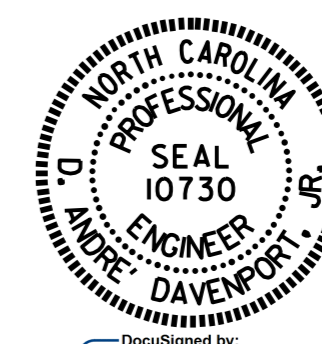
SECTION C-C

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

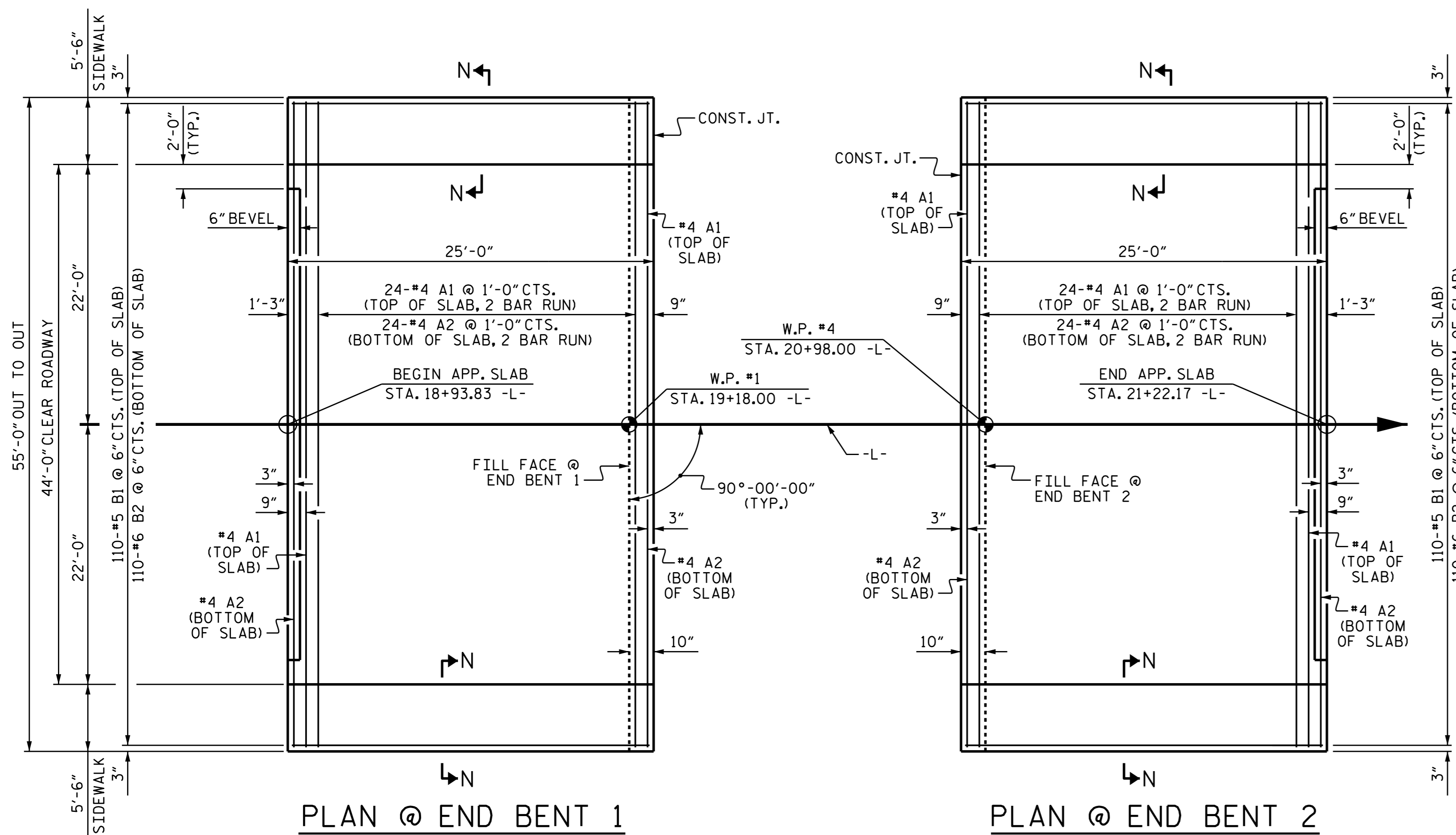
RIP RAP DETAILS

ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+08.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	325	360
END BENT 2	480	535

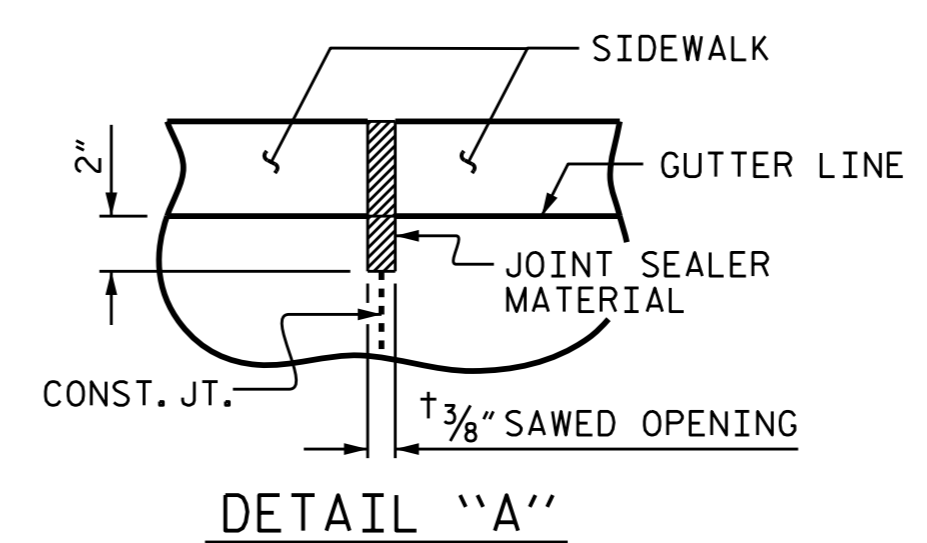
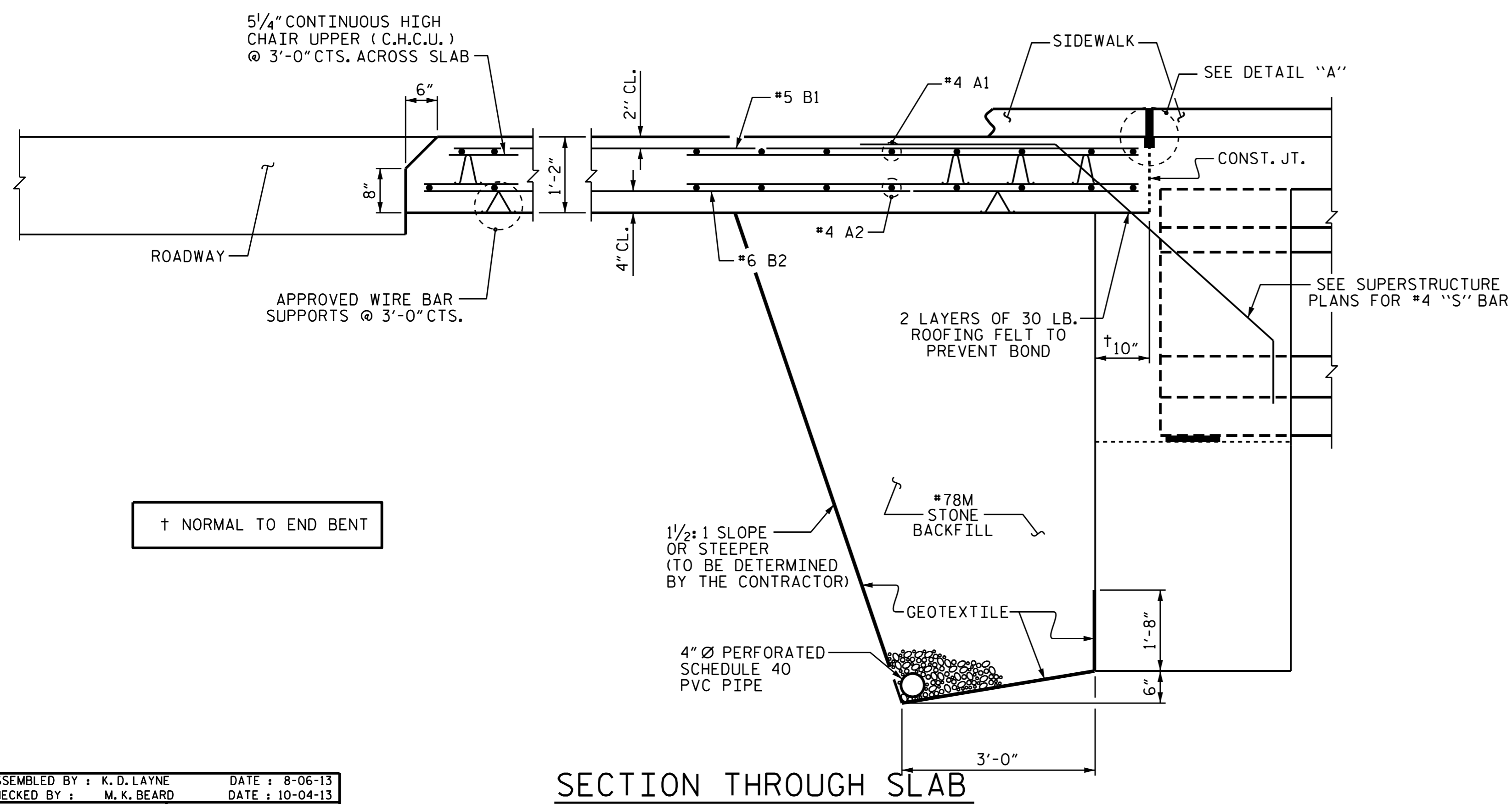


DRAWN BY: K.D. LAYNE DATE: 8-06-13
 CHECKED BY: M.K. BEARD DATE: 10-04-13

REVISIONS						SHEET NO. S-36
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			



DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS.
FOR SECTION N-N, SEE SHEET 2 OF 2.



NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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

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.

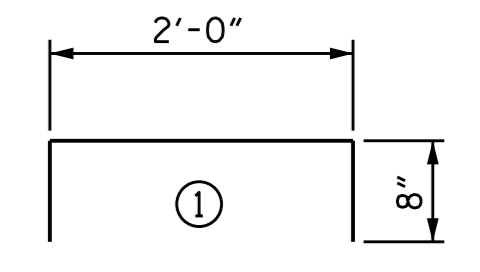
THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST AND PRIOR TO SIDEWALK CONSTRUCTION. THE SIDEWALK SHALL BE FORMED TO MATCH THE SAWED OPENING. THE JOINT SHALL THEN BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

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

BAR TYPE



BILL OF MATERIAL

FOR ONE APPROACH SLAB
(2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	52	#4	STR	28'-4"	984
A2	52	#4	STR	28'-3"	981
* B1	110	#5	STR	24'-3"	2,782
B2	110	#6	STR	24'-8"	4,075
* B3	10	#4	STR	24'-7"	164
* G2	50	#4	STR	5'-0"	167
* U1	16	#4	1	3'-4"	36
REINFORCING STEEL				LBS.	5,056
* EPOXY COATED REINFORCING STEEL				LBS.	4,133
CLASS AA CONCRETE					
POUR #1	APPROACH SLAB	CU. YDS.	59.2		
POUR #2	SIDEWALK	CU. YDS.	6.1		
TOTAL				CU. YDS.	65.3

PROJECT NO. B-5105
MECKLENBURG COUNTY
STATION: 20+08.00 -L-

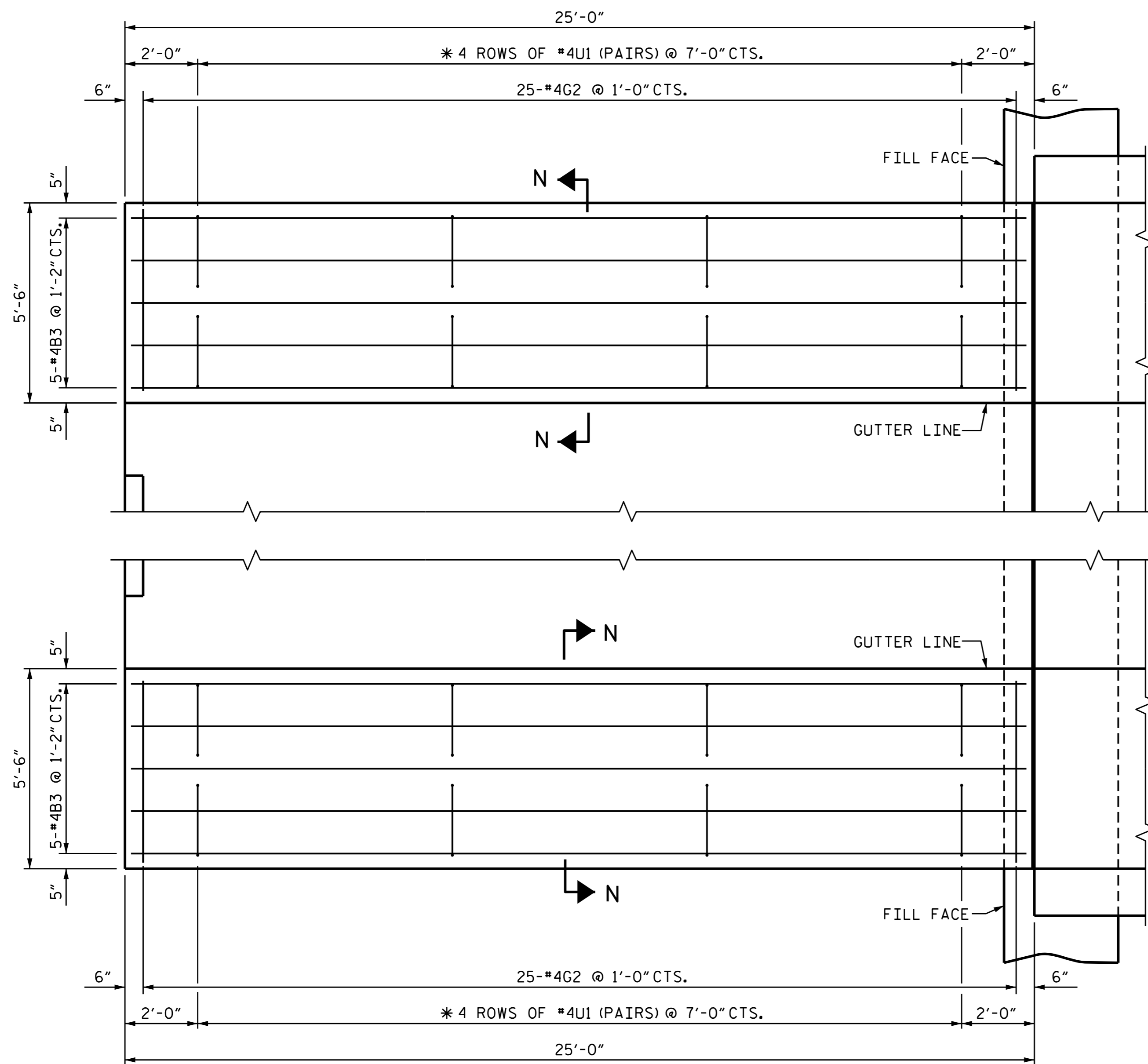
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT

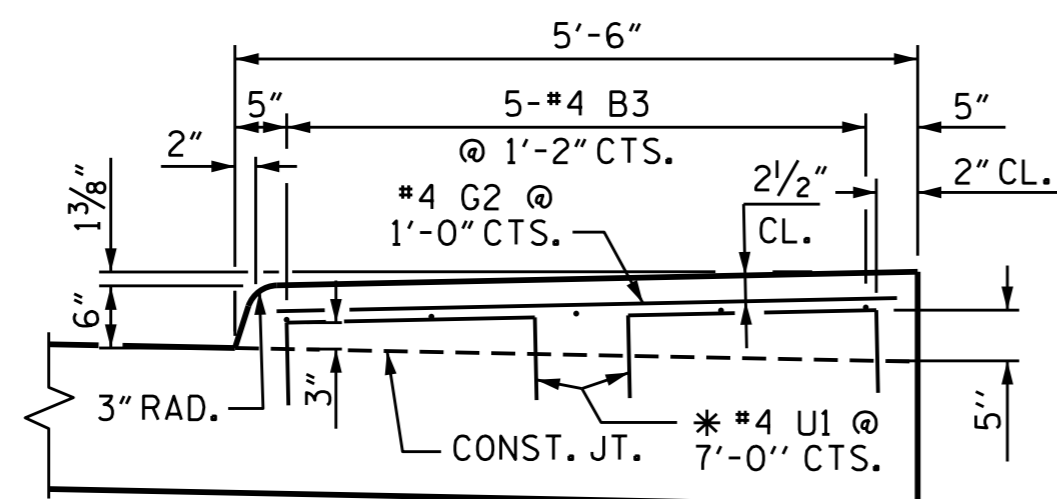


REVISIONS						SHEET NO. S-37
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

ASSEMBLED BY : K. D. LAYNE	DATE : 8-06-13
CHECKED BY : M. K. BEARD	DATE : 10-04-13
DRAWN BY : TLA 10/05	REV. 10/1/11 MAA/GM
CHECKED BY : GM 5/06	REV. 12/21/11 MAA/GM
	REV. 6/13 MAA/GM



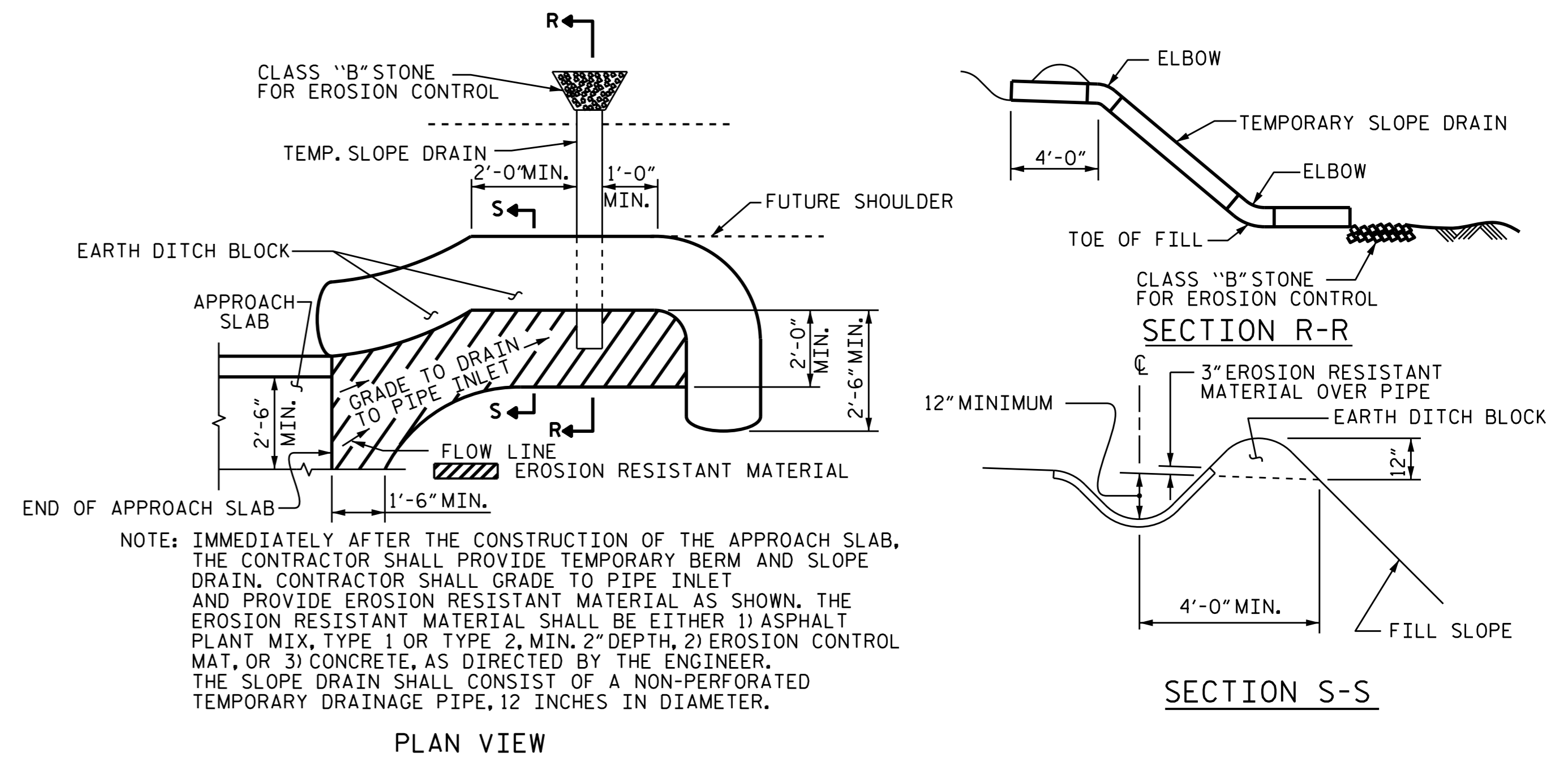
PLAN



SECTION N-N

DETAILS OF SIDEWALK ON APPROACH SLAB

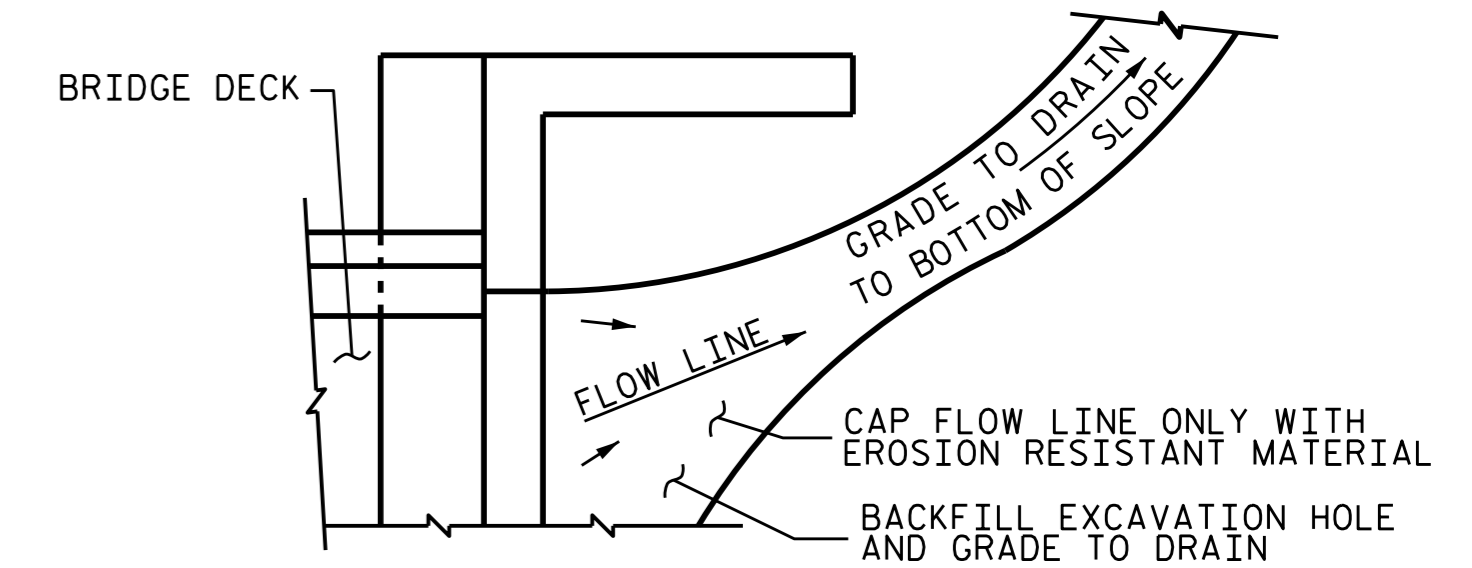
* #4U1 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER APPROACH SLAB HAS BEEN SCREEDED OFF. END BENT 1 SHOWN, END BENT 2 SIMILAR



PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



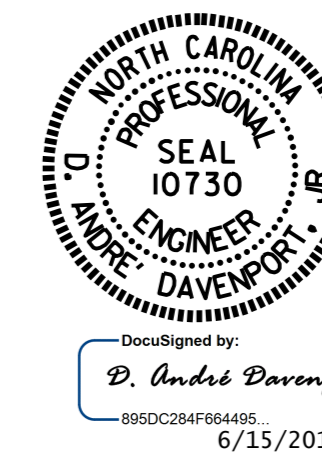
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-5105
MECKLENBURG COUNTY
 STATION: 20+08.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-38
STANDARD BRIDGE APPROACH SLAB DETAILS						
REVISIONS						TOTAL SHEETS 38
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY : K. D. LAYNE	DATE : 8-06-13
CHECKED BY : M. K. BEARD	DATE : 10-04-13
DRAWN BY : FCJ 11/88	REV. 10/11/11
CHECKED BY : ARB 11/88	REV. 7/12
	REV. 6/13
MAA/GM	
MAA/GM	
MAA/GM	

