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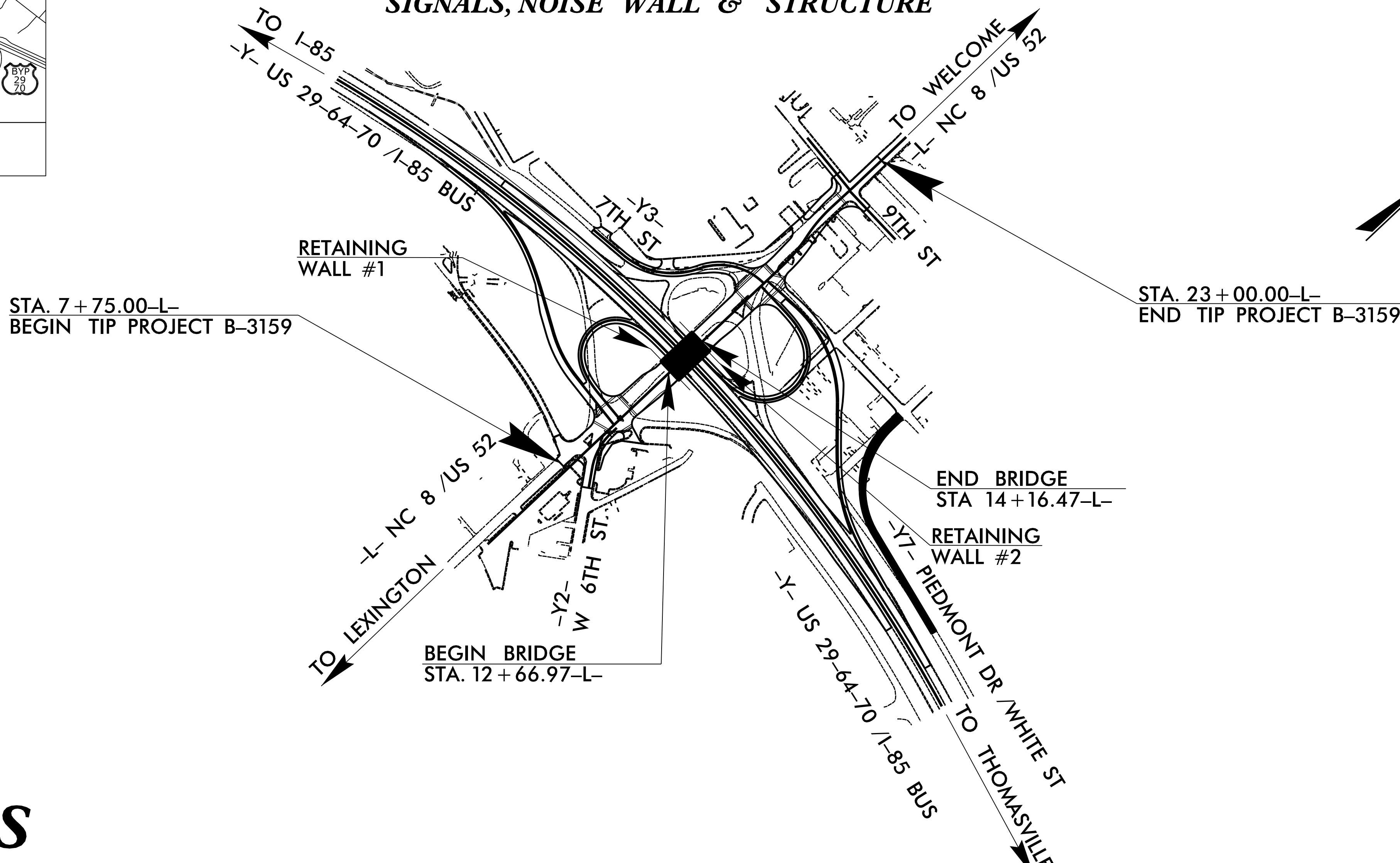
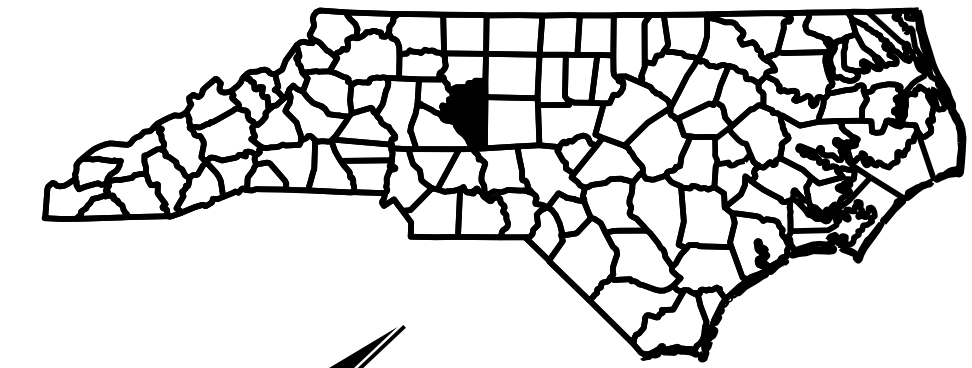
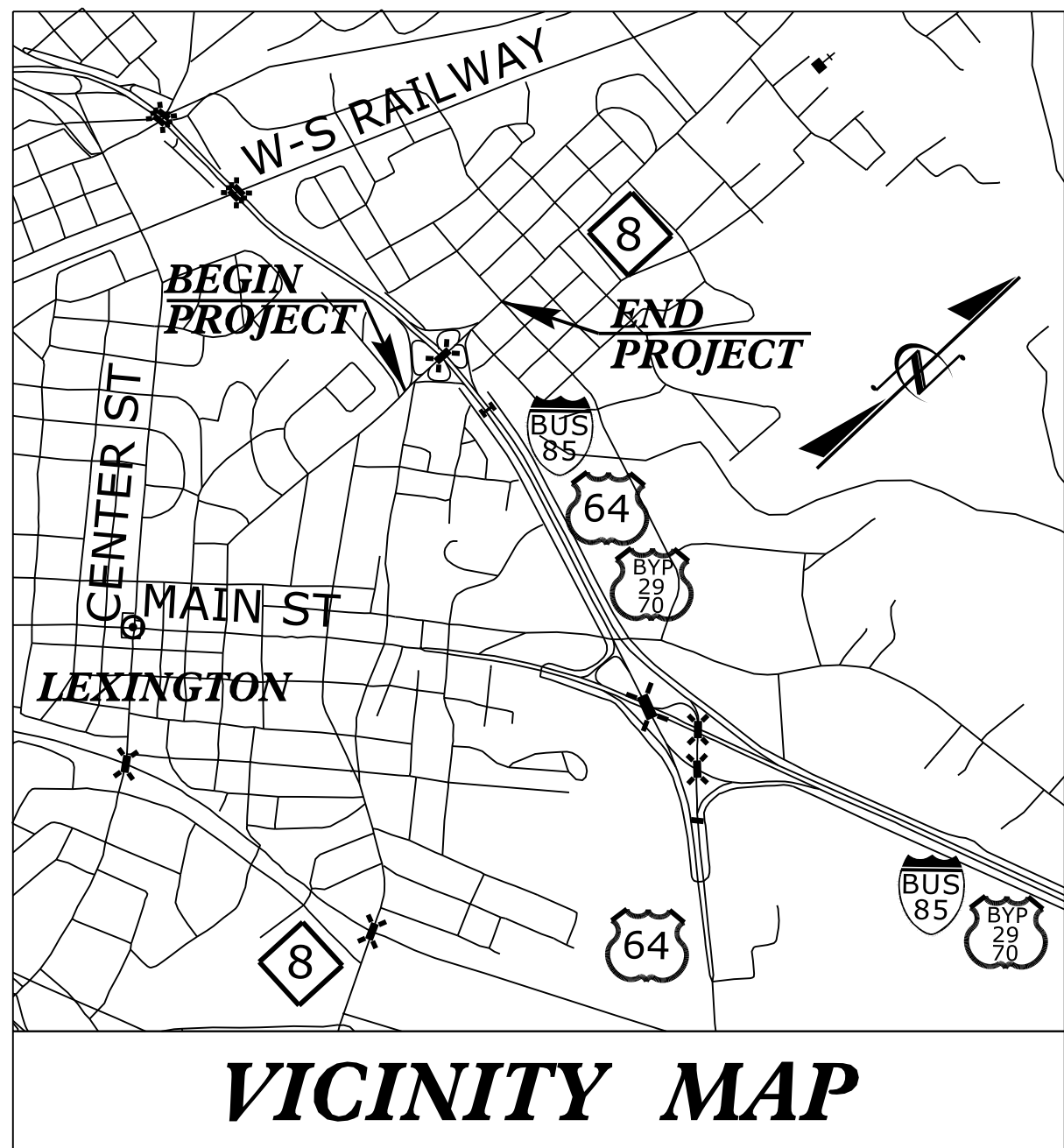
CONTRACT: C203587 TIP NO: B-3159

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

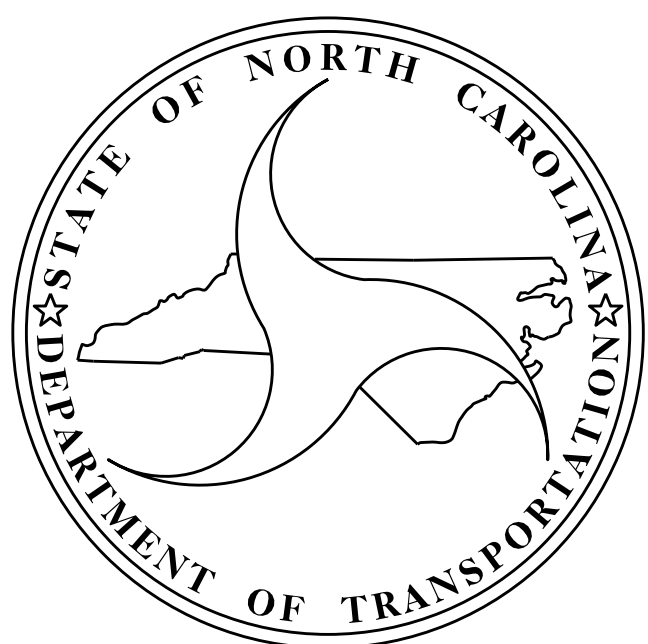
DAVIDSON COUNTY

LOCATION: BRIDGE NO. 27 OVER US. 29-64-70 /I-85 BUS LOOP ON NC 8 /US 52
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALLS, SIGNALS, NOISE WALL & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3159		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38331.1.1	STPNHS-0052(31)	PE	
38331.2.FR1	STPNHS-0052(31)	RW, UTL	
38331.3.FR1	STPNHS-0052(31)	CONST.	



STRUCTURES



DESIGN DATA

ADT 2015 =	25,000
ADT 2035 =	28,600
DHV =	10 %
D =	60 %
T =	5 % *
V =	40 MPH
* TTST =	2 DUAL 3
FUNC CLASS =	ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT B-3159 =	0.261 MILES
LENGTH STRUCTURE OF TIP PROJECT B-3159 =	0.028 MILES
TOTAL LENGTH OF TIP PROJECT B-3159 =	0.289 MILES

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

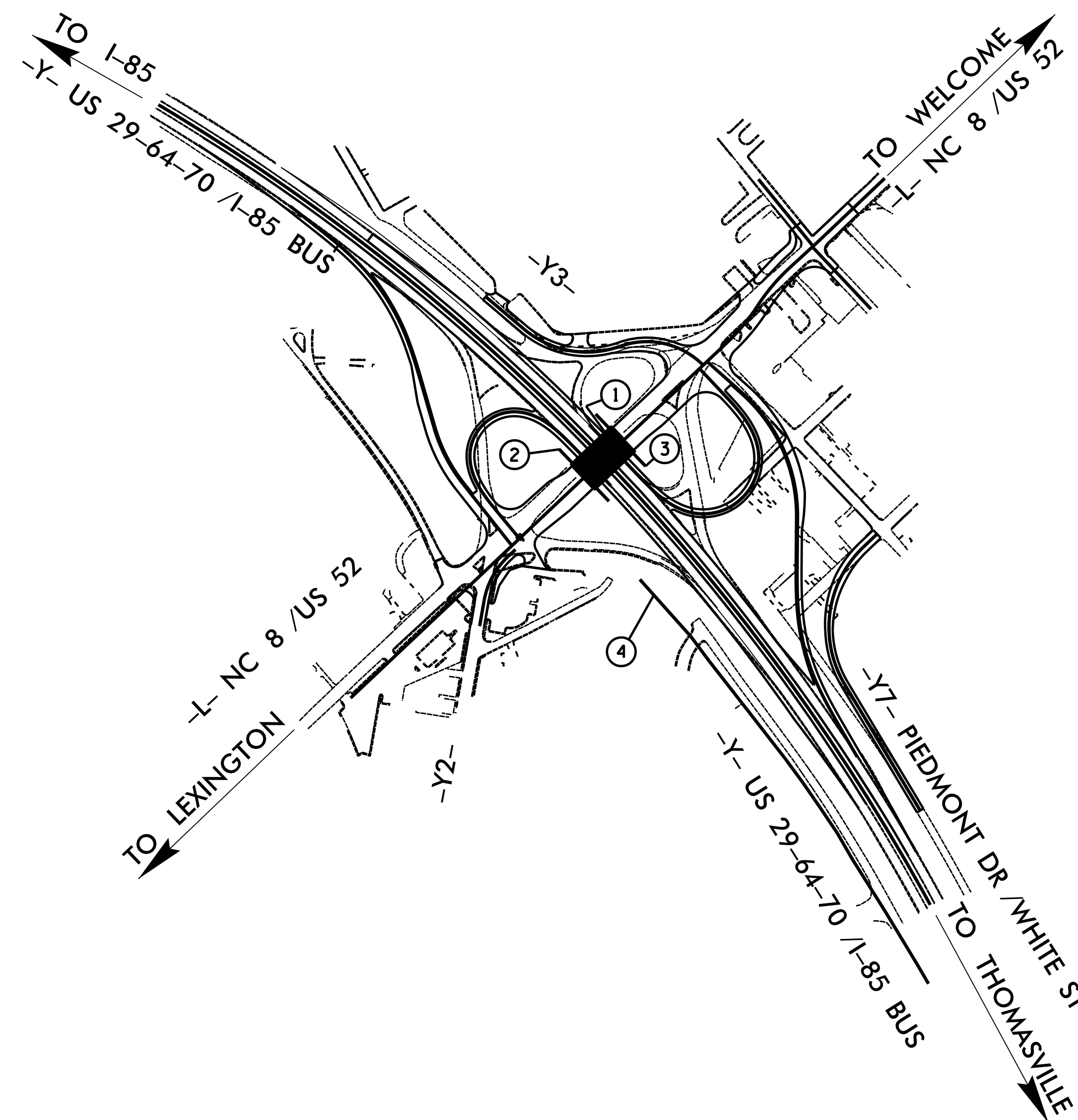
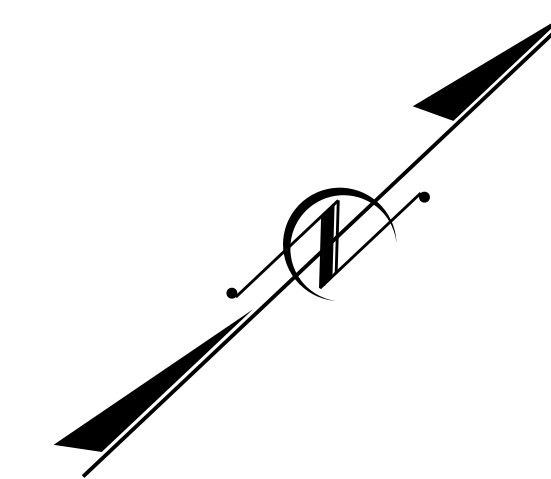
2012 STANDARD SPECIFICATIONS

LETTING DATE :
OCTOBER 20, 2015

L.E. SUTTON, P.E.
PROJECT ENGINEER

D.A. DAVENPORT, JR., P.E.
PROJECT DESIGN ENGINEER

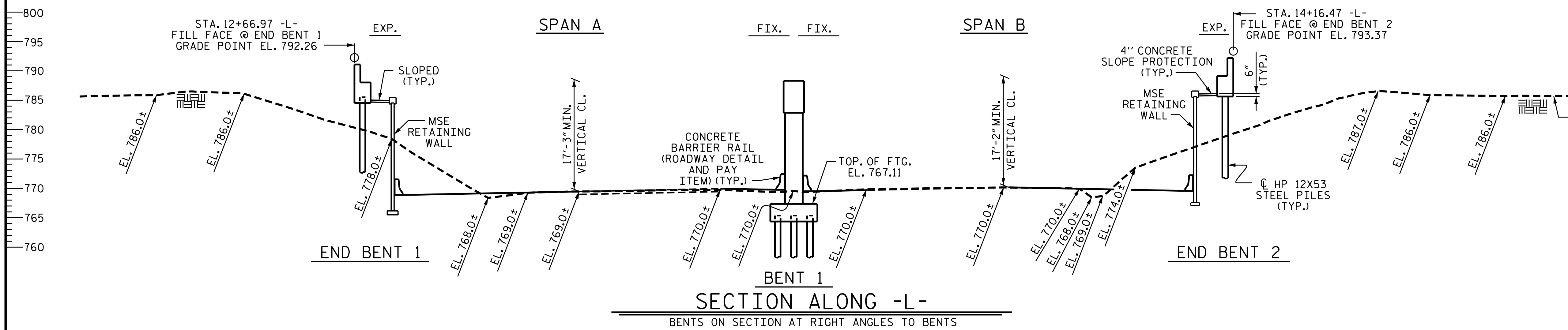
INDEX			
STR. NO.	STATION	DESCRIPTION	SHEET NUMBERS
①	13+41.72 -L-	BRIDGE OVER US 64 ON SR 1162 BETWEEN SR 1318 AND SR 1168	S-1 THROUGH S-43
②	24+39.00 -Y- TO 26+37.38 -Y-	MSE RETAINING WALL 1	W-1 THROUGH W-5
③	24+42.00 -Y- TO 26+35.67 -Y-	MSE RETAINING WALL 2	W-1 THROUGH W-5
④	29+06.92 -Y- TO 39+03.27 -Y-	SOUND BARRIER WALL 1	W-6 THROUGH W-8



PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: -

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

DRAWN BY : D.A. DAVENPORT DATE : 7/8/15
 CHECKED BY : R.P. PATEL DATE : 8/4/15

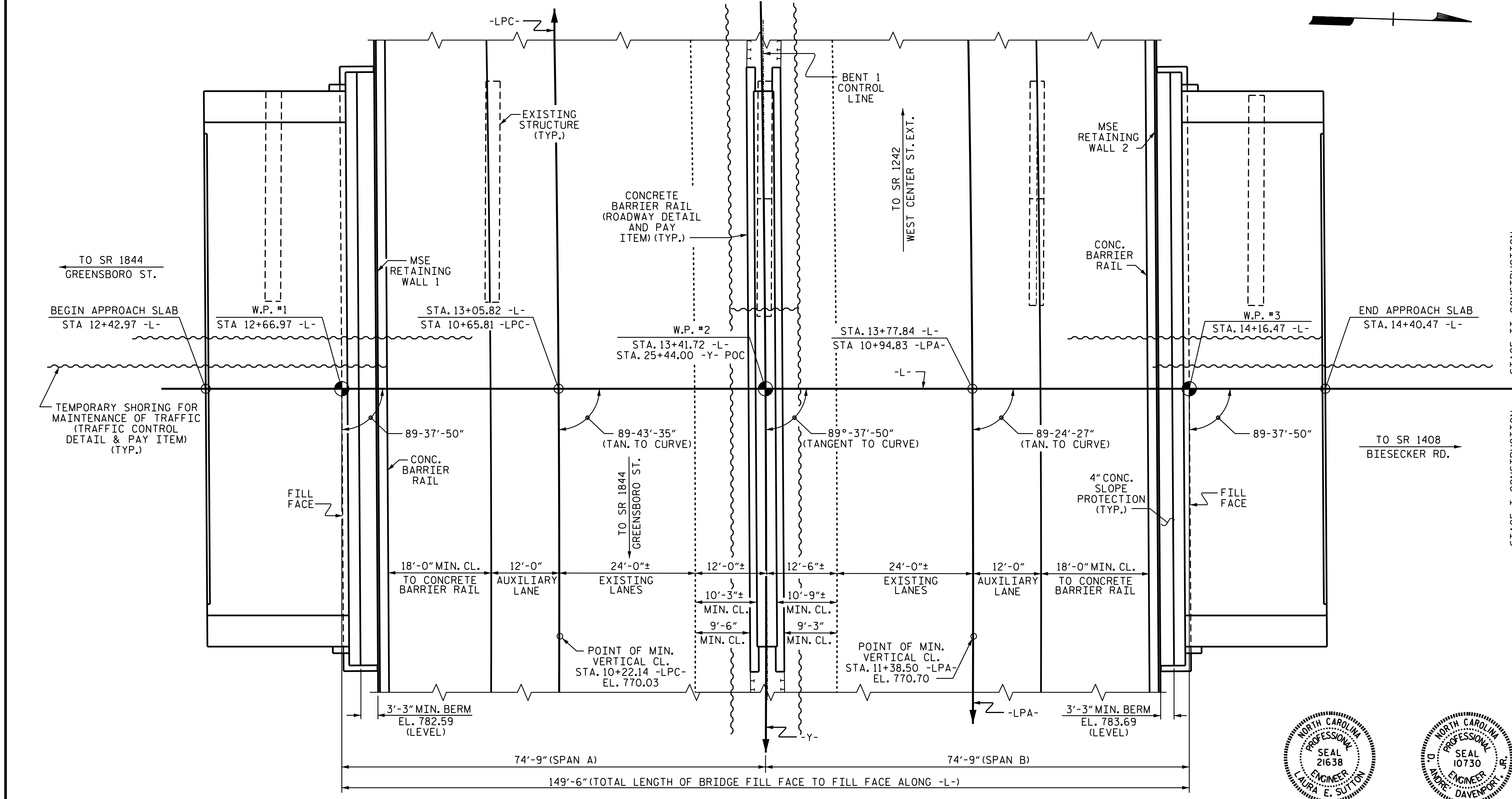


HORIZONTAL CURVE DATA

-LPC-
 PI STA. 10+81.05
 D = 1°-26'-15.2" (LT.)
 D = 1°-00'-42.0"
 L = 142.10'
 T = 71.05'
 R = 5,663.48'

-LPA-
 PI STA. 10+02.32 PIs STA. 10+65.97
 D = 0°-02'-46.5" (RT.) Δ = 0°-55'-01.7"
 D = 0°-59'-48.8" Ls = 184.00'
 L = 4.64' LT = 122.67'
 T = 2.32' ST = 61.33'
 R = 5,747.48'

-Y-
 PI STA. 25+58.78
 Δ = 30°-35'-22.0" (RT.)
 D = 1°-00'-18.7"
 L = 3,043.15'
 T = 1,558.78'
 R = 5,700.00'



PROJECT NO. B-3159
 DAVIDSON COUNTY
 STATION: 13+41.72 -L-
25+44.00 -Y-
 SHEET 1 OF 3 REPLACES BRIDGE 27

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 US 29-64-70 / I-85 BUS. LOOP
 ON NC 8 / US 52 BETWEEN
 SR 1844 AND SR 1408

DRAWN BY: K.D. LAYNE DATE: 5-28-15
 CHECKED BY: J.D. HAWK DATE: 6-8-15
 DESIGN ENGINEER OF RECORD: R. L. CHESSON DATE: 6/10/15

PROFESSIONAL ENGINEER
 SEAL 21638
 LAURA E. SUTTON
 8/24/2015

PROFESSIONAL ENGINEER
 SEAL 10730
 DAVID AVENPORT, JR.
 8/24/2015

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

24-AUG-2015 12:27
 R:\Structures\Plans\B3159.sd.GD.01.dgn
 dadavenport

NOTES

FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PILE.

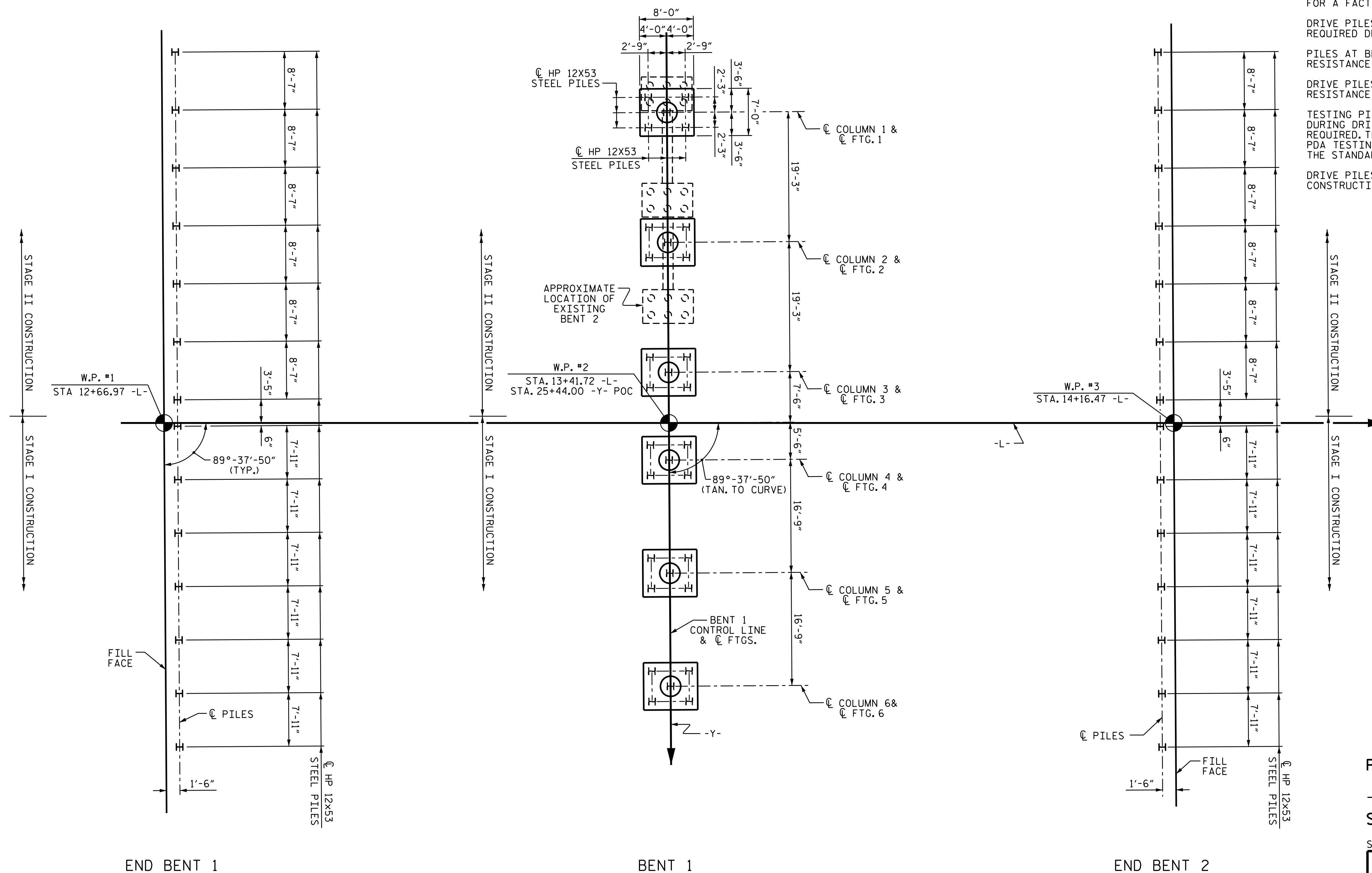
DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.

PILES AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE.

DRIVE PILES AT BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE.

TESTING PILES WITH A PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING, OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

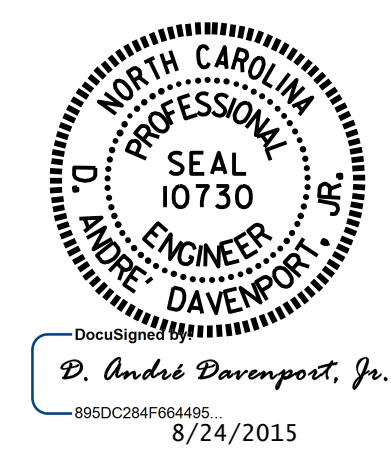
DRIVE PILES AT END BENT 1 AND 2 PRIOR TO CONSTRUCTION OF THE MSE RETAINING WALLS.



FOUNDATION LAYOUT
 DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES.
 ALL FOOTINGS AND PILE SPACINGS ARE IDENTICAL AT BENT 1.

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

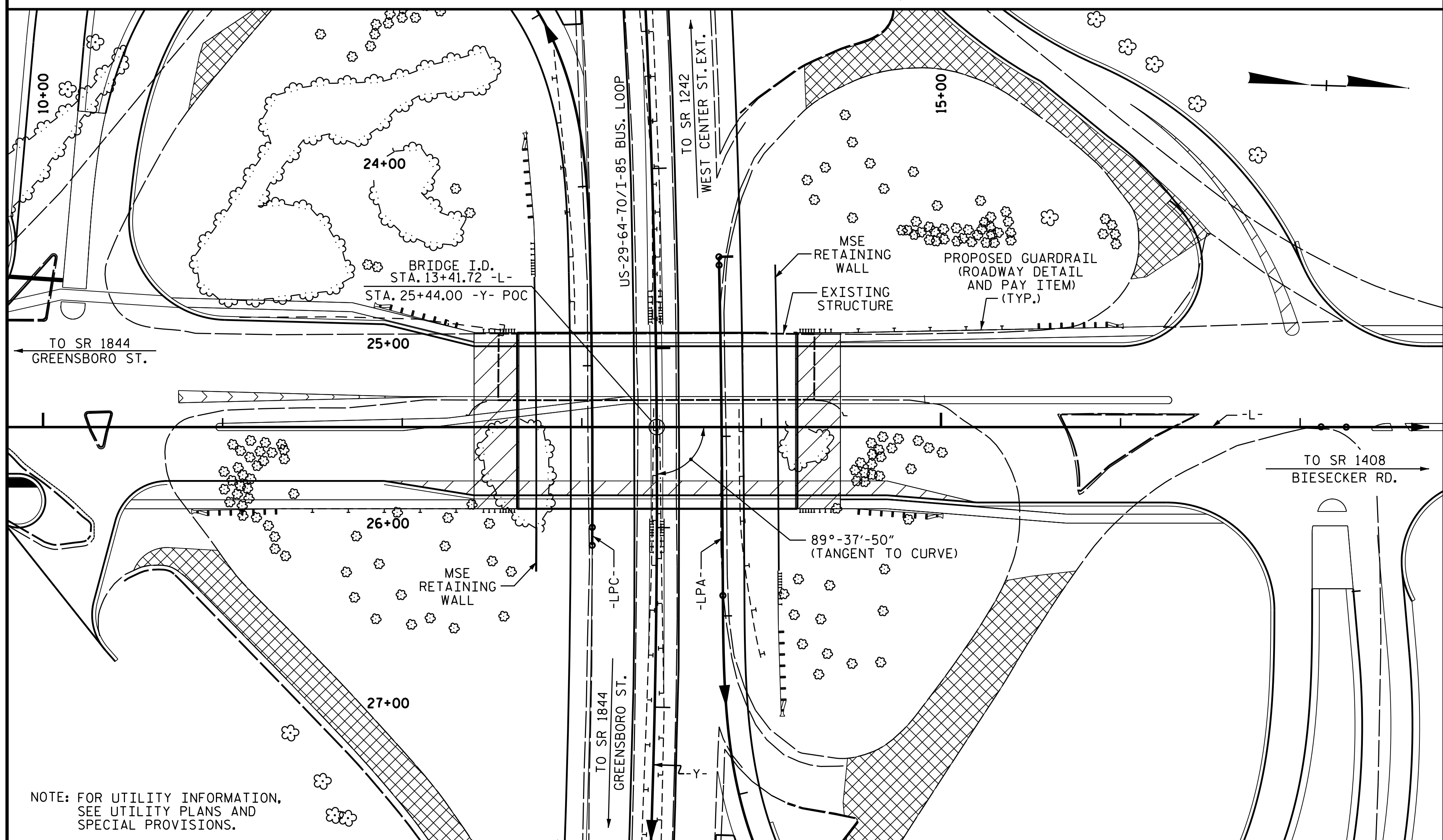
GENERAL DRAWING

FOR BRIDGE OVER
 US 29-64-70 / I-85 BUS. LOOP
 ON NC 8 / US 52 BETWEEN
 SR 1844 AND SR 1408

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

DRAWN BY : K.D. LAYNE DATE : 5-28-15
 CHECKED BY : J.D. HAWK DATE : 6-8-15
 DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE : 6/10/15

BM. 1: RAILROAD SPIKE SET IN ROOT OF FORKED WILLOW OAK, 87' LEFT OF STA. 15+29.00 -Y- (BETWEEN 7TH. ST. AND US 29/70 S. BOUND), EL. 753.48



LOCATION SKETCH

NOTES

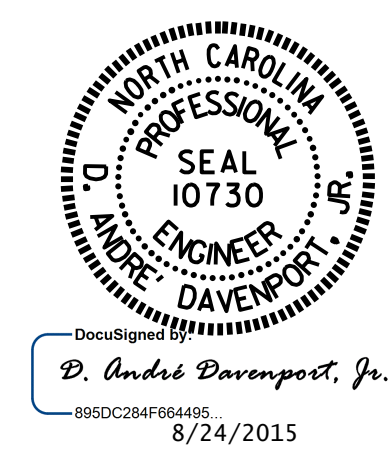
ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR PLACING LOAD 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 REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
 THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATIONS ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.
 FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.
 REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.
 ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.
 NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.
 FOR PATTERNED CONCRETE SIDEWALK, SEE SPECIAL PROVISIONS.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+41.72 -L-".
 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.
 FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC MANAGEMENT PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
 AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 4 SPANS (1 @ 40'-0", 2 @ 48'-0", & 1 @ 40'-0") WITH 3.5" ASPHALT WEARING SURFACE ATOP 6.75" REINFORCED CONCRETE DECK ON I-BEAMS; WITH A CLEAR ROADWAY WIDTH OF 37.0' ON REINFORCED CONCRETE CAP AND TIMBER PILES AT END BENTS; POST AND BEAM BENTS WITH STRAPPED CONCRETE FOOTINGS ON TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SITE 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, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION FOR BENT	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	45" PRESTRESSED CONCRETE GIRDERS	HP 12x53 STEEL PILES	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	ELECTRICAL CONDUIT SYSTEM	CLASSIC CONCRETE BRIDGE RAIL	PATTERNED CONCRETE SIDEWALK		
	LUMP SUM	LUMP SUM	EACH	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	SQ. YDS.	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	SQ. FT.		
SUPERSTRUCTURE	LUMP SUM			14,788	14,928		LUMP SUM			24	1,752.00		LUMP SUM	LUMP SUM	LUMP SUM	306.30	1,972.92		
END BENT 1						67.5		8,684			14	595	38						
BENT 1		LUMP SUM				125.3		18,711	2,212		30	525							
END BENT 2						67.5		8,684			14	665	38						
TOTAL	LUMP SUM	LUMP SUM	1	14,788	14,928	260.3	LUMP SUM	36,079	2,212	24	1,752.00	58	1,785	76	LUMP SUM	LUMP SUM	LUMP SUM	306.30	1,972.92

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 US 29-64-70 / I-85 BUS. LOOP
 ON NC 8 / US 52 BETWEEN
 SR 1844 AND SR 1408

DRAWN BY : K.D. LAYNE DATE : 5-28-15
 CHECKED BY : J.D. HAWK DATE : 6-8-15
 DESIGN ENGINEER OF RECORD: R. L. CHESSON DATE : 6/10/15

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

LOAD FACTORS:

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

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						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 (INVENTORY)	N/A	①	1.01	--	1.75	0.821	1.66	A	EL	35.833	0.919	2.43	A	I	35.833	0.80	0.919	1.01	A	I	35.833		
	HL-93 (OPERATING)	N/A	--	2.16	--	1.35	0.821	2.16	A	EL	35.833	0.919	3.15	A	I	35.833	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.32	47.660	1.75	0.821	2.17	A	EL	35.833	0.919	2.87	A	I	35.833	0.80	0.769	1.32	A	I	35.833		
	HS-20 (OPERATING)	36.000	--	2.82	101.460	1.35	0.821	2.82	A	EL	35.833	0.919	3.72	A	I	35.833	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.98	40.226	1.40	0.821	6.12	A	EL	35.833	0.919	7.63	A	I	35.833	0.80	0.769	2.98	A	I	35.833	
		SNGARBS2	20.000	--	2.22	44.484	1.40	0.821	4.57	A	EL	35.833	0.919	5.70	A	I	35.833	0.80	0.769	2.22	A	I	35.833	
		SNAGRIS2	22.000	--	2.11	46.374	1.40	0.821	4.33	A	EL	35.833	0.919	5.40	A	I	35.833	0.80	0.769	2.11	A	I	35.833	
		SNCOTTS3	27.250	--	1.48	40.409	1.40	0.821	3.04	A	EL	35.833	0.919	3.84	A	I	35.833	0.80	0.769	1.48	A	I	35.833	
		SNAGGRS4	34.925	--	1.24	43.329	1.40	0.821	2.55	A	EL	35.833	0.919	3.38	A	I	35.833	0.80	0.769	1.24	A	I	35.833	
		SNS5A	35.550	--	1.21	43.126	1.40	0.821	2.49	A	EL	35.833	0.919	3.53	A	I	35.833	0.80	0.769	1.21	A	I	35.833	
		SNS6A	39.950	--	1.11	44.489	1.40	0.821	2.29	A	EL	35.833	0.919	3.31	A	I	35.833	0.80	0.769	1.11	A	I	35.833	
	SNS7B	42.000	--	1.06	44.543	1.40	0.821	2.18	A	EL	35.833	0.919	3.38	A	I	35.833	0.80	0.769	1.06	A	I	35.833		
	TTST	TNAGRIT3	33.000	--	1.36	44.820	1.40	0.821	2.79	A	EL	35.833	0.919	3.87	A	I	35.833	0.80	0.769	1.36	A	I	35.833	
		TNT4A	33.075	--	1.36	45.125	1.40	0.821	2.80	A	EL	35.833	0.919	3.68	A	I	35.833	0.80	0.769	1.36	A	I	35.833	
		TNT6A	41.600	--	1.12	46.428	1.40	0.821	2.29	A	EL	35.833	0.919	3.86	A	I	35.833	0.80	0.769	1.12	A	I	35.833	
		TNT7A	42.000	--	1.12	47.121	1.40	0.821	2.30	A	EL	35.833	0.919	3.73	A	I	35.833	0.80	0.769	1.12	A	I	35.833	
		TNT7B	42.000	--	1.16	48.779	1.40	0.821	2.38	A	EL	35.833	0.919	3.21	A	I	35.833	0.80	0.769	1.16	A	I	35.833	
		TNAGRIT4	43.000	--	1.10	47.485	1.40	0.821	2.27	A	EL	35.833	0.919	3.08	A	I	35.833	0.80	0.769	1.10	A	I	35.833	
TNAGT5A		45.000	--	1.04	46.844	1.40	0.821	2.14	A	EL	35.833	0.919	3.20	A	I	35.833	0.80	0.769	1.04	A	I	35.833		
TNAGT5B	45.000	③	1.03	46.267	1.40	0.821	2.11	A	EL	35.833	0.919	2.91	A	I	35.833	0.80	0.769	1.03	A	I	35.833			

NOTES:

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

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

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

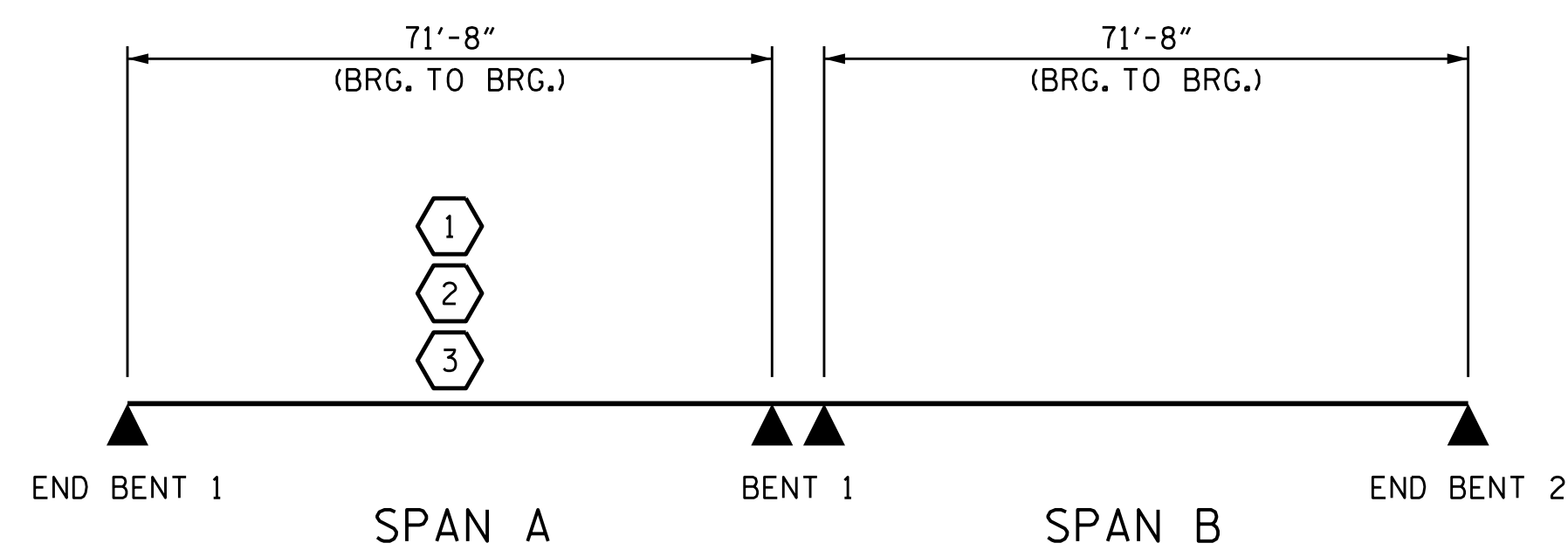
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

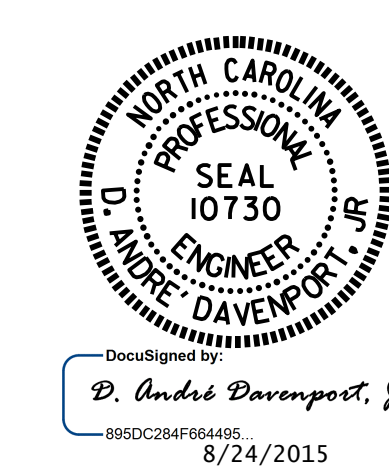
GIRDER LOCATION

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



LRFR SUMMARY

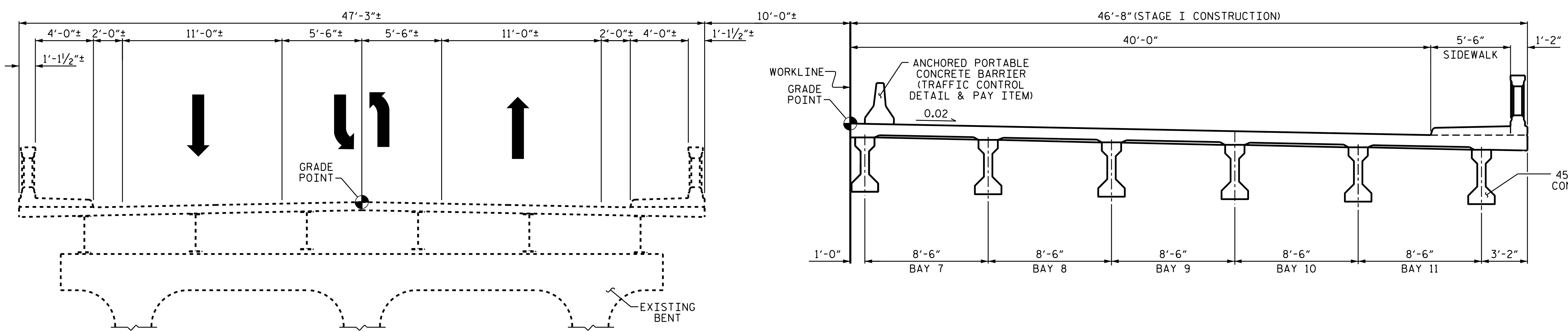
PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-



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

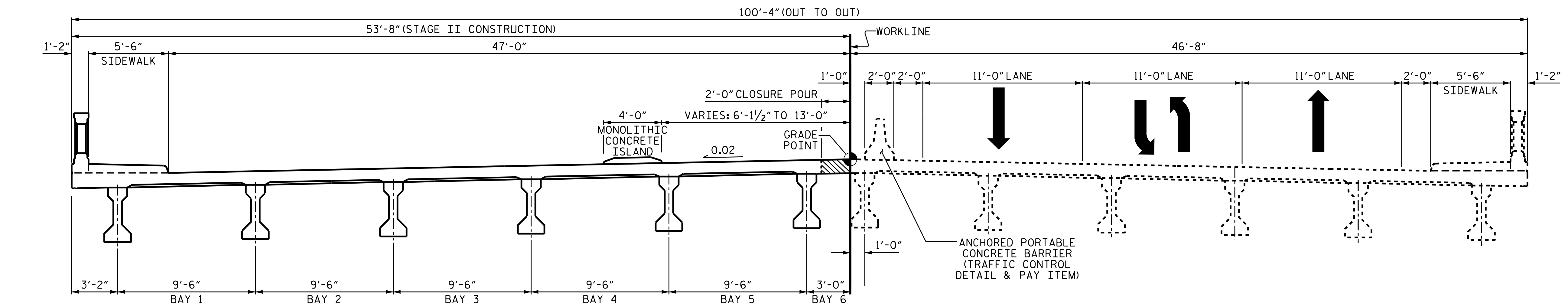
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS 43
2			4			

ASSEMBLED BY : H.A. LOCKLEAR DATE : 7/13/2015
 CHECKED BY : T.R. PETERSON DATE : 7/13/2015
 DRAWN BY : MAA 1/08
 CHECKED BY : GM/DI 2/08
 REV. 11/2/08RR MAA/GM
 REV. 10/1/11 MAA/GM
 DESIGN ENGINEER OF RECORD:
 H.A. LOCKLEAR DATE : 7/14/15

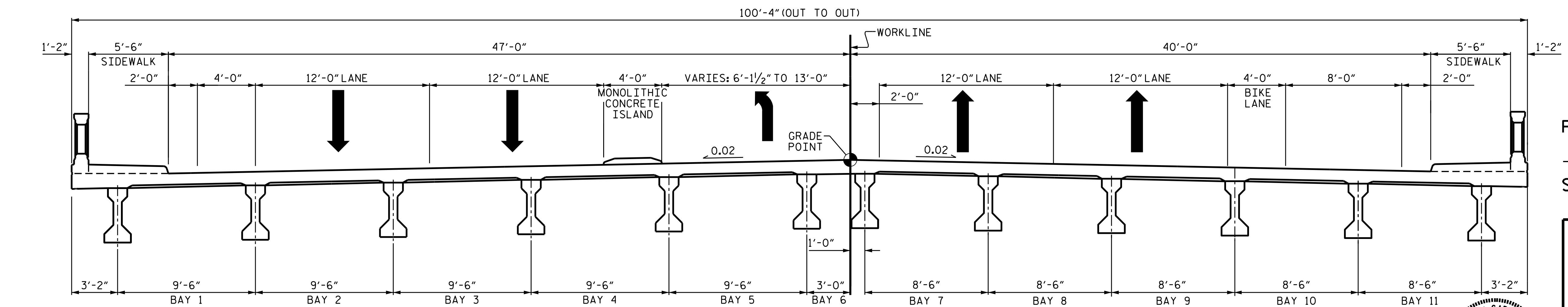


NOTE
SEE TRAFFIC MANAGEMENT PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

STAGE I
MAINTAIN 2-WAY TRAFFIC ON EXISTING STRUCTURE. CONSTRUCT STAGE I OF PROPOSED STRUCTURE.



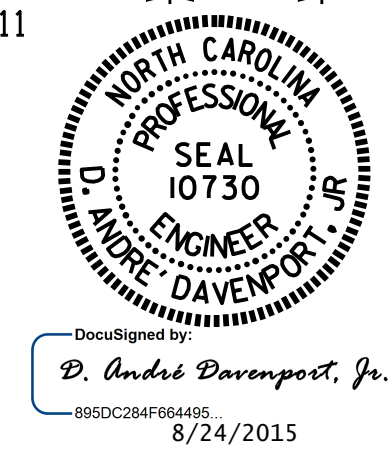
STAGE II
SHIFT 2-WAY TRAFFIC TO NEW STRUCTURE. REMOVE EXISTING STRUCTURE. CONSTRUCT STAGE II OF PROPOSED STRUCTURE.



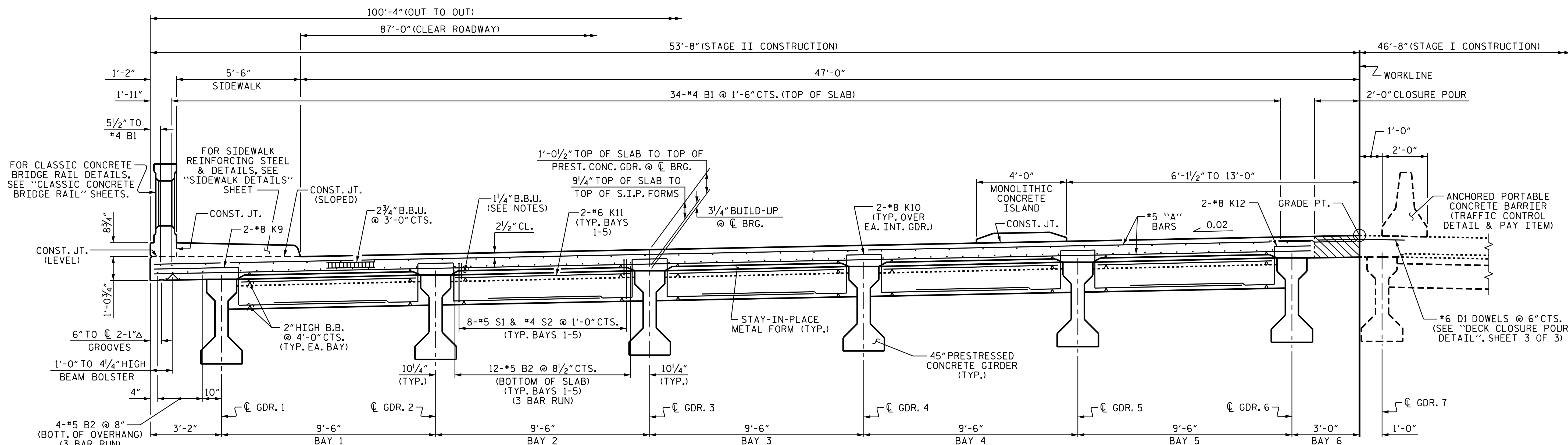
FINAL
AFTER STAGE II CONSTRUCTION IS COMPLETE, REMOVE PORTABLE CONCRETE BARRIER AND SHIFT TRAFFIC TO FINAL 2-WAY TRAFFIC PATTERN.

PROJECT NO. B-3159
DAVIDSON COUNTY
STATION: 13+41.72 -L-

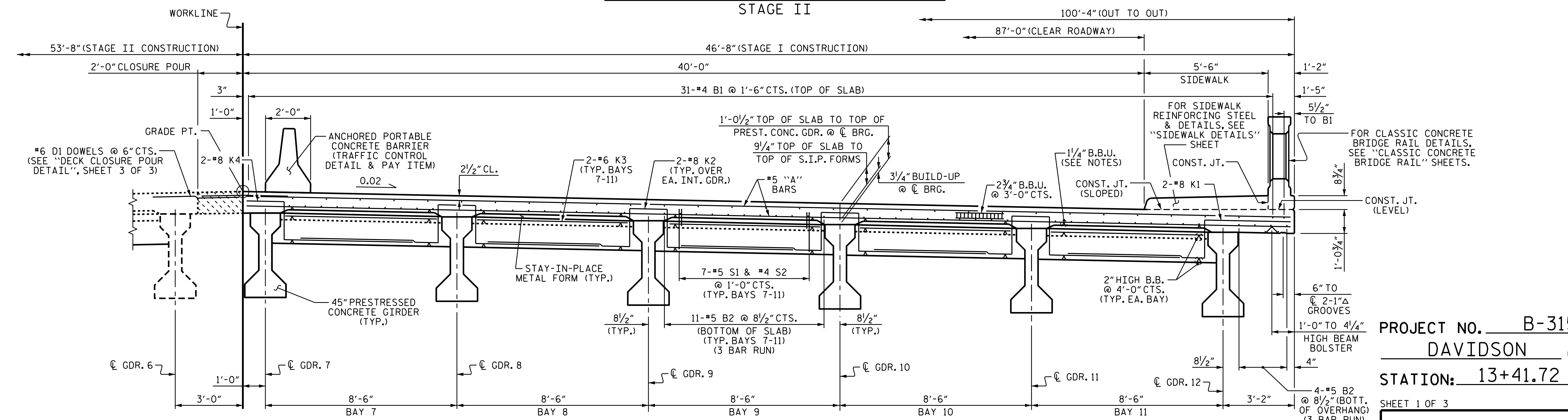
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CONSTRUCTION SEQUENCE					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 43



DRAWN BY: D.A. DAVENPORT DATE: 11/06/14
CHECKED BY: M.K. BEARD DATE: 11/7/14
DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE: 6/10/15

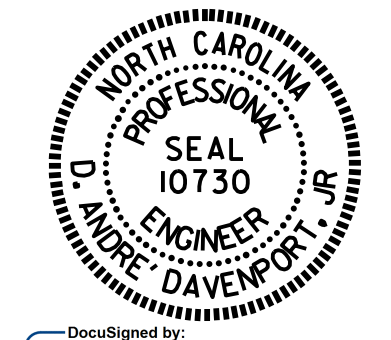


TYPICAL SECTION @ END BENT
STAGE II



TYPICAL SECTION @ END BENT
STAGE I

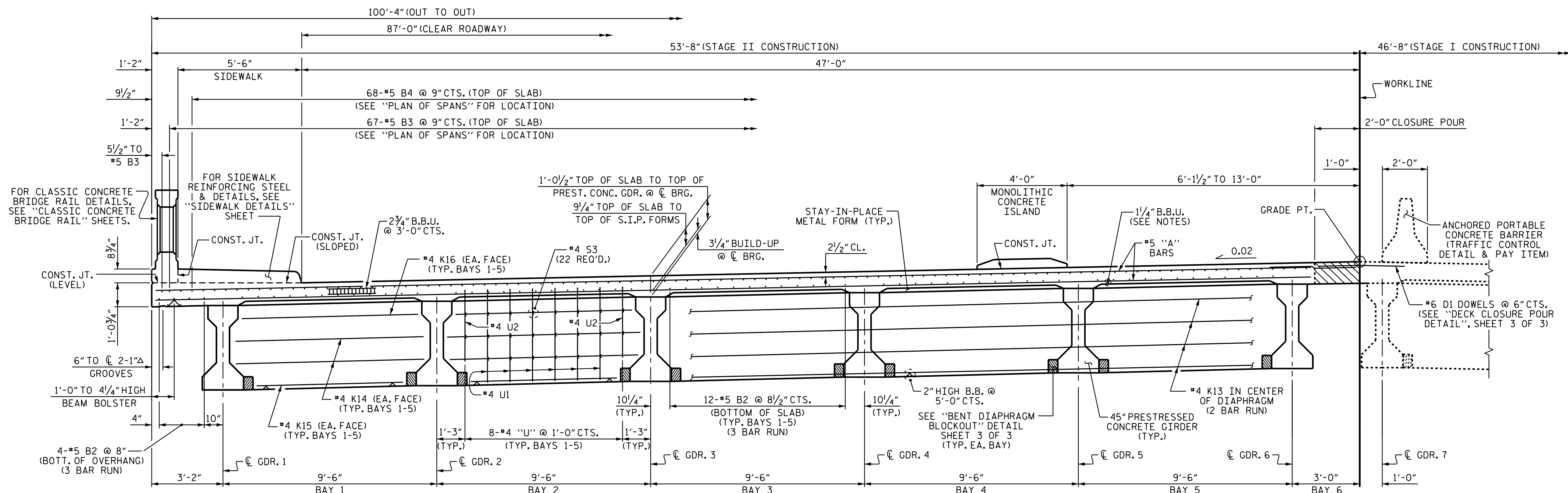
PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 1 OF 3



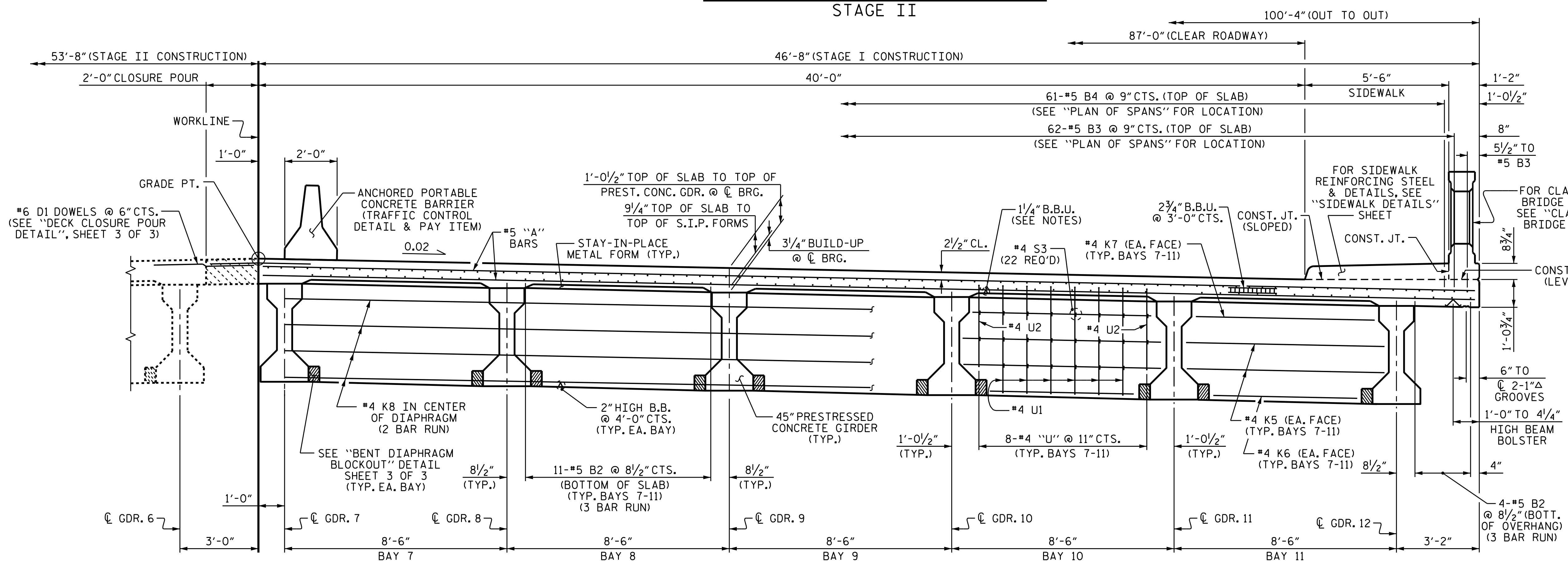
DRAWN BY : M.K. BEARD DATE : 8/1/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15
 DESIGN ENGINEER OF RECORD : R.L. CHESSON DATE : 6/10/15

24-AUG-2015 12:27
 R:\Structures\Plans\B3159.SD.TS.01.dgn
 dadavenport

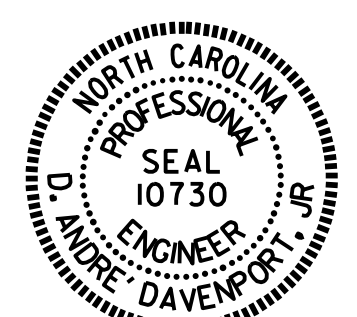
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					43



TYPICAL SECTION @ BENT
STAGE II



TYPICAL SECTION @ BENT
STAGE I



David Davenport, Jr.
8/24/2015

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION
 AT BENT

DRAWN BY: M.K. BEARD DATE: 8/1/14
 CHECKED BY: J.D. HAWK DATE: 2/12/15
 DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE: 6/10/15

24-AUG-2015 12:27
 R:\Structures\Plans\B3159.SD.TS.01.dgn
 dadavenport

REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

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.

FOR EACH STAGE, 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.

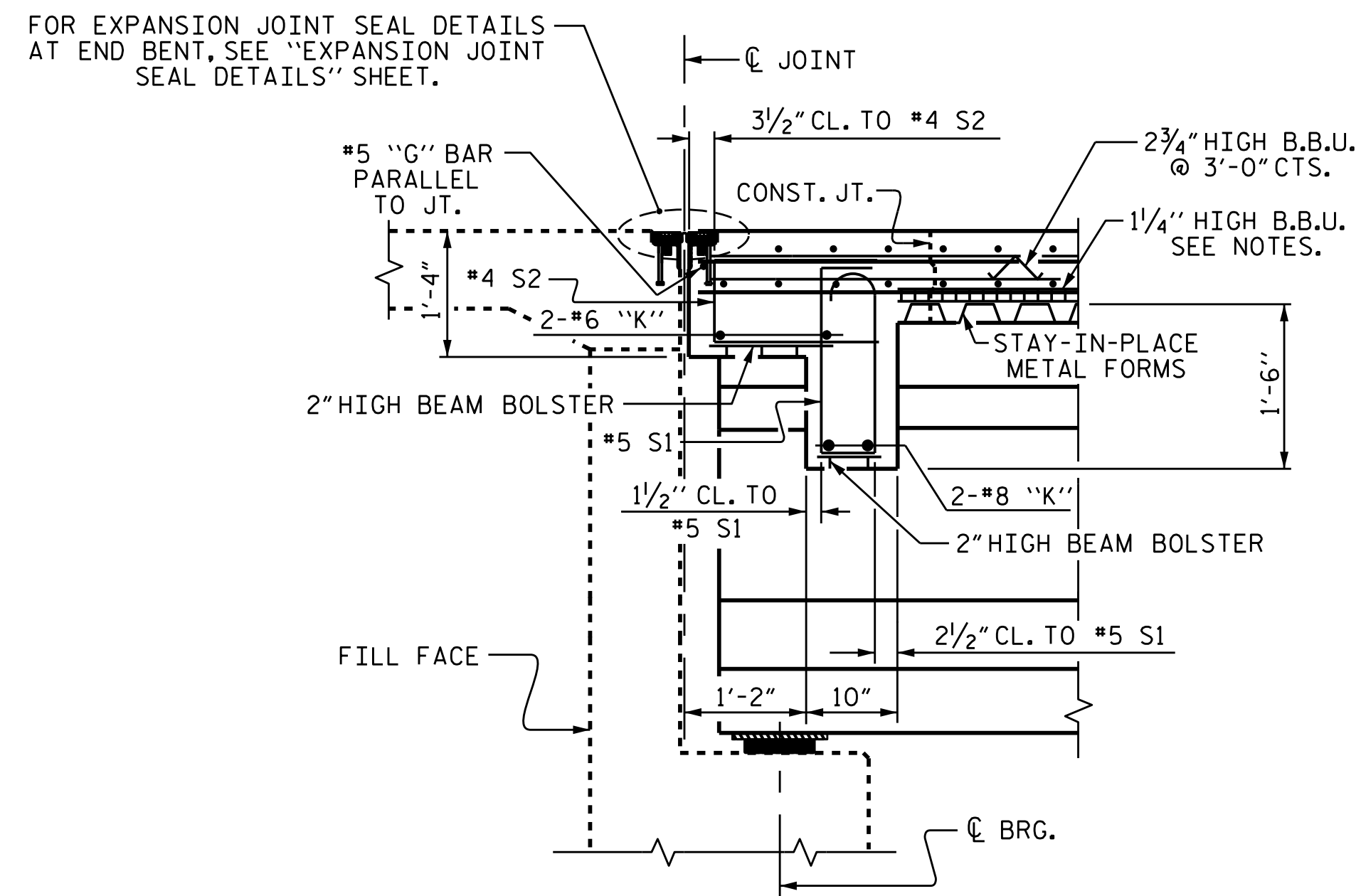
*5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

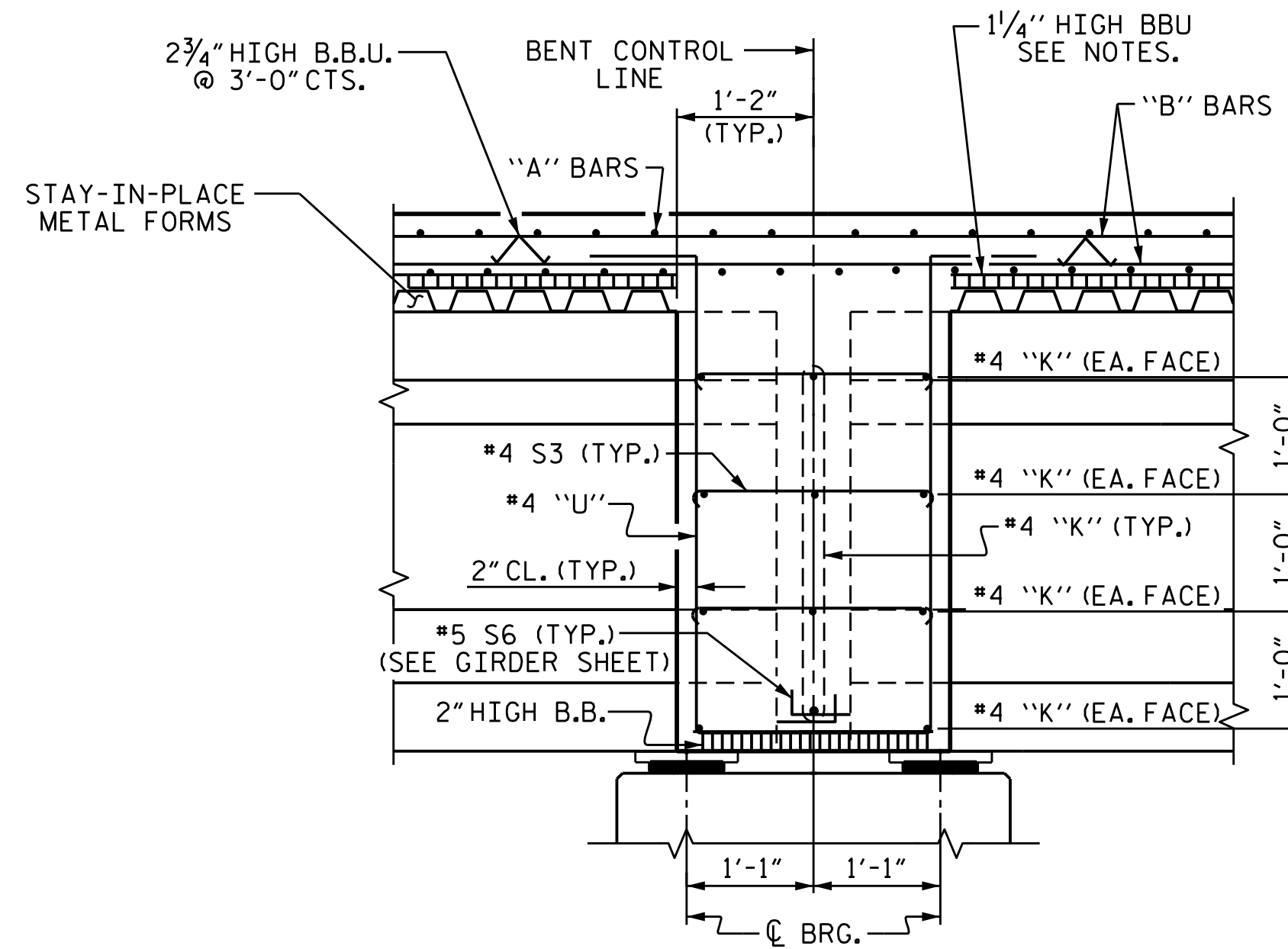
ALL REINFORCING STEEL IN SIDEWALK AND MONOLITHIC CONCRETE ISLAND SHALL BE EPOXY COATED.

NO SEPARATE PAYMENT WILL BE MADE FOR THE SIDEWALK AND MONOLITHIC CONCRETE ISLAND AS THEY ARE INCLUDED IN THE REINFORCED CONCRETE DECK SLAB PAY ITEM.

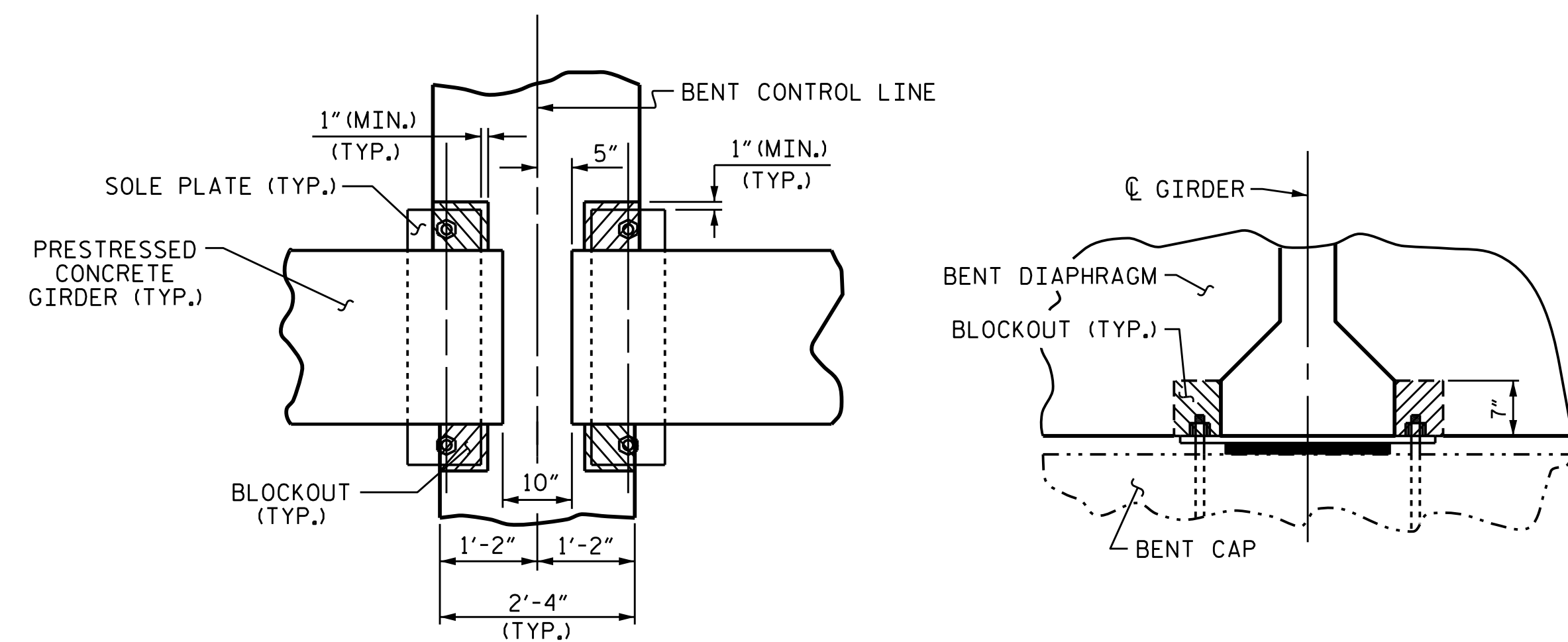
FOR ADDITIONAL DETAILS, SEE "SIDEWALK DETAILS" AND "MONOLITHIC CONCRETE ISLAND DETAILS" SHEETS.



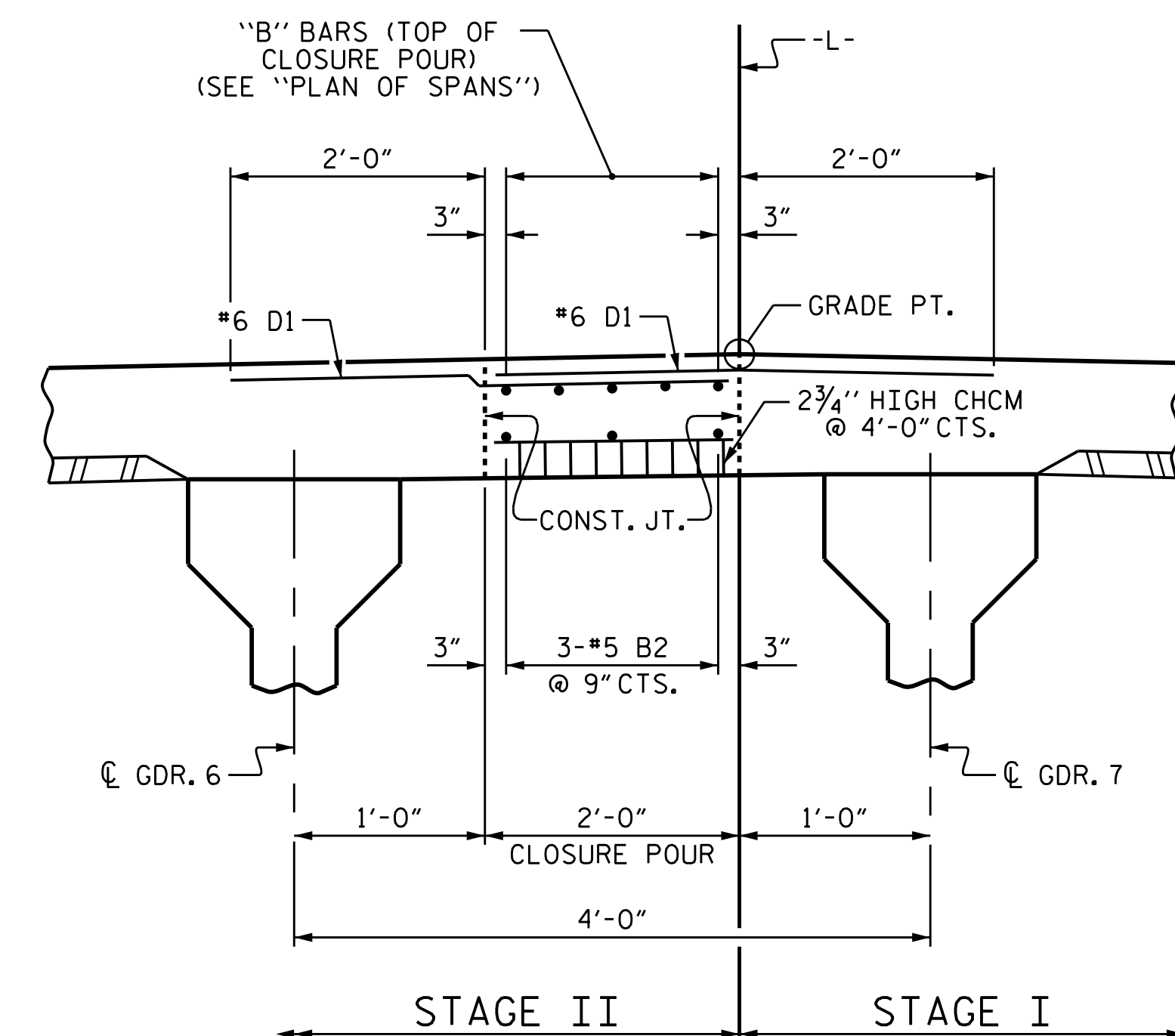
SECTION THRU END BENT DIAPHRAGM



SECTION THRU BENT DIAPHRAGM



BENT DIAPHRAGM BLOCKOUT DETAIL

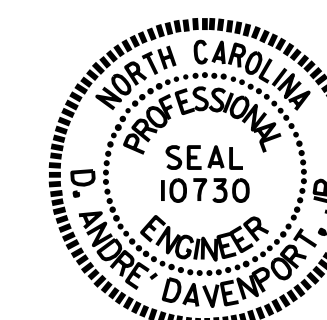


DECK CLOSURE POUR DETAIL

*6 D1 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP REINFORCING STEEL AND EXTEND 1'-9" INTO CLOSURE POUR.

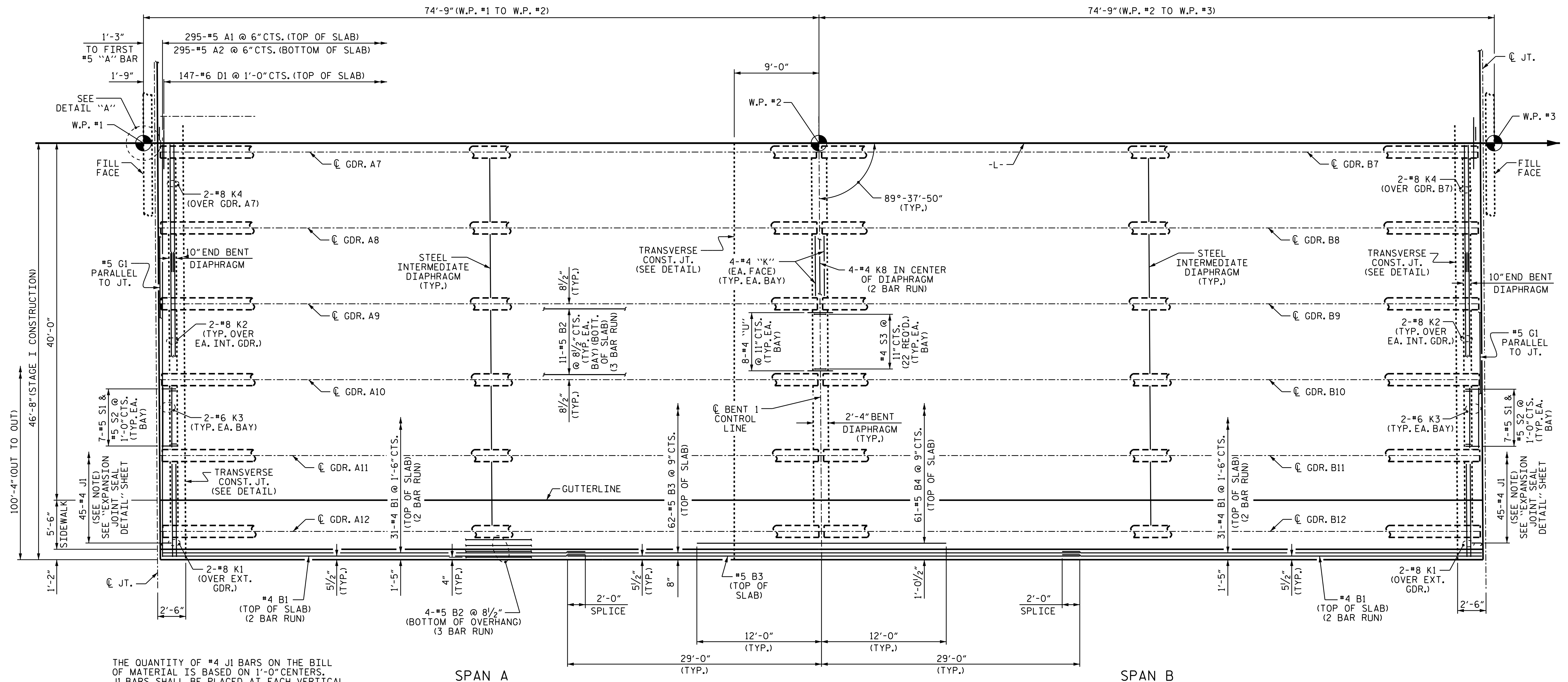
PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 3 OF 3



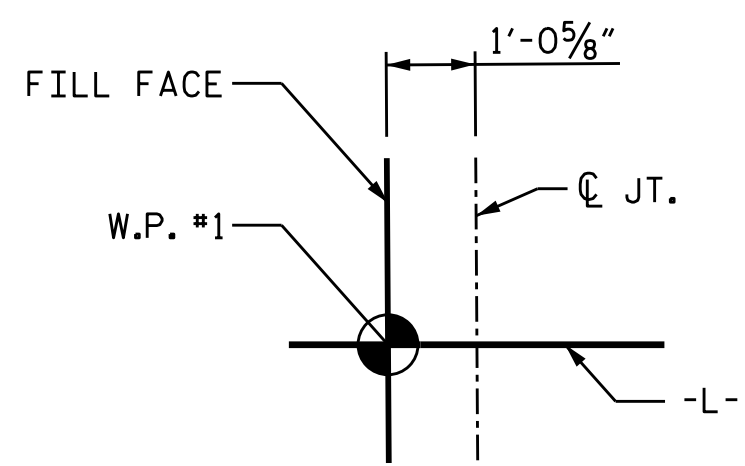
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-8
SUPERSTRUCTURE TYPICAL SECTION DETAILS						
REVISIONS						TOTAL SHEETS 43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : M.K. BEARD DATE : 8/1/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15
 DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE : 6/10/15

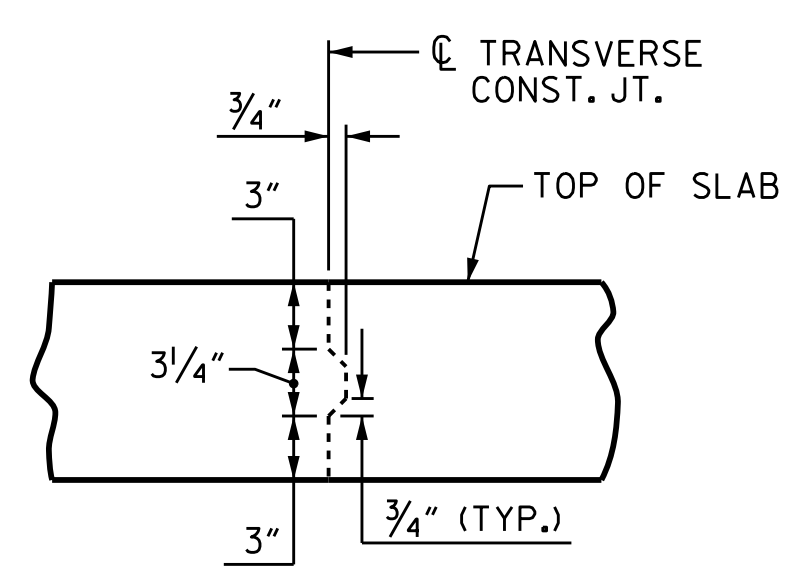


THE QUANTITY OF #4 JI BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. JI BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF JI BARS SPECIFIED, ADDITIONAL JI BARS WILL NOT BE REQUIRED.

PLAN OF SPANS



DETAIL "A"

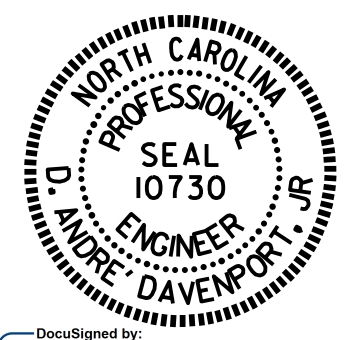


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

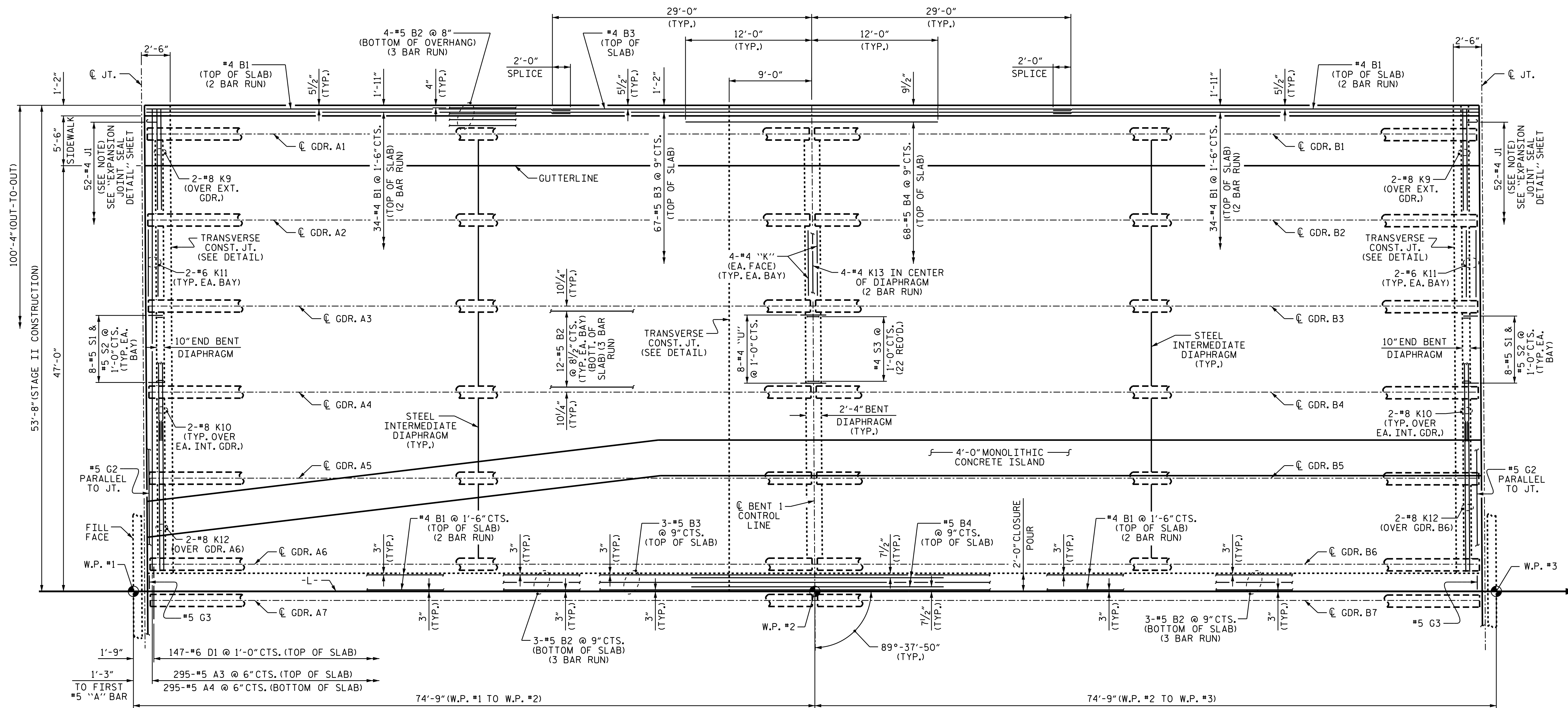
PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 1 OF 2

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



DRAWN BY : M.K. BEARD DATE : 8/12/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15
 DESIGN ENGINEER OF RECORD : R.L. CHESSON DATE : 6/10/15

REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

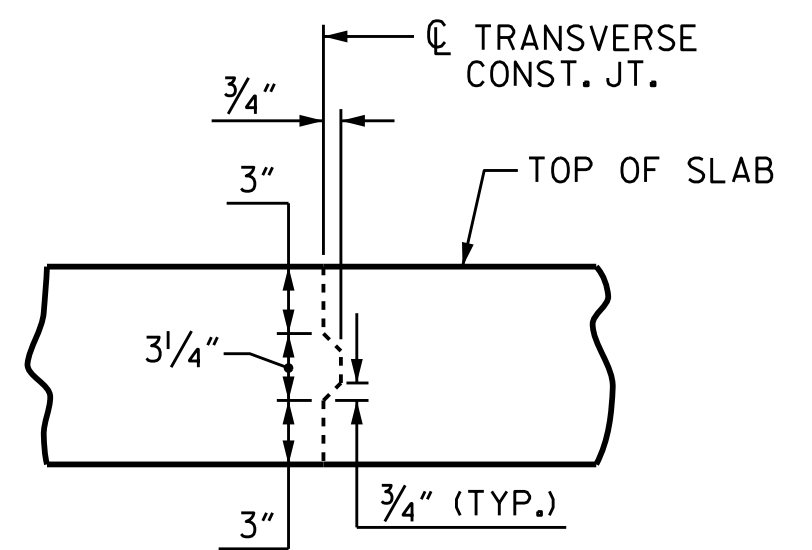


SPAN A

SPAN B

PLAN OF SPANS

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

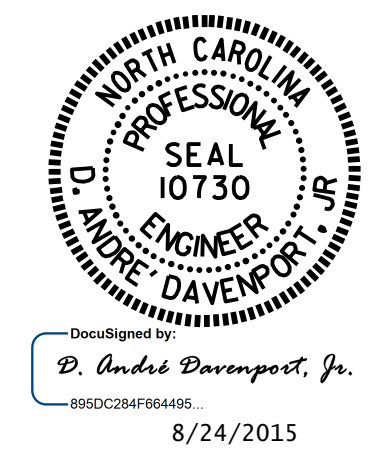


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 2 OF 2

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



DRAWN BY : M.K. BEARD DATE : 8/6/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15
 DESIGN ENGINEER OF RECORD : R.L. CHESSON DATE : 6/10/15

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

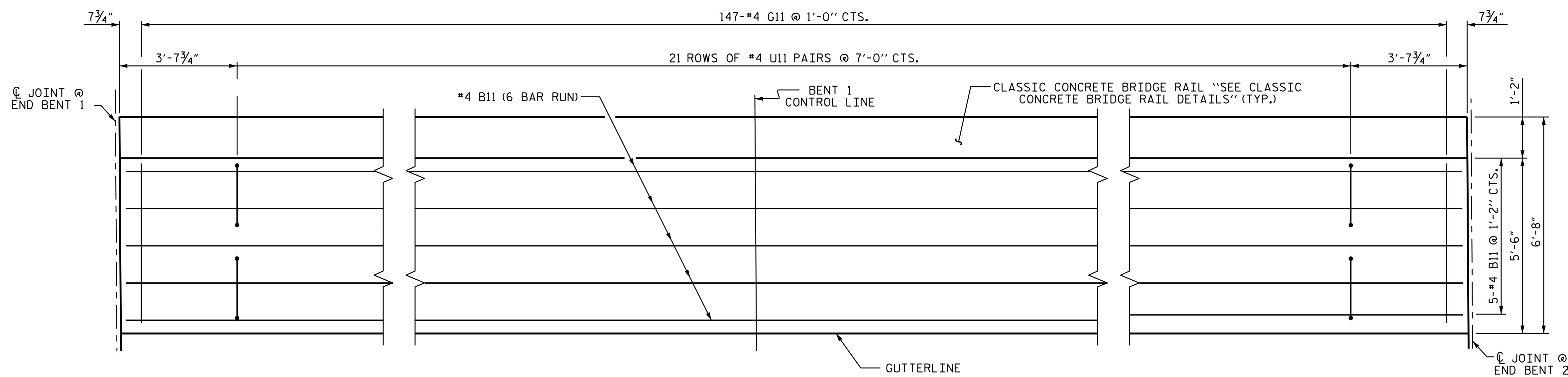
NOTES

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

PAYMENT FOR SIDEWALK SHALL BE INCLUDED IN UNIT PRICE BID FOR "REINFORCED CONCRETE DECK SLAB".

THE PATTERNED FINISH SHALL BE PAID FOR AS SQUARE FEET OF "PATTERNED CONCRETE SIDEWALK". FOR PATTERNED CONCRETE SIDEWALK, SEE SPECIAL PROVISIONS.

PAY QUANTITY	
STAGE I	736.46 SQ. FT.
STAGE II	736.46 SQ. FT.
TOTAL	1,472.92 SQ. FT.



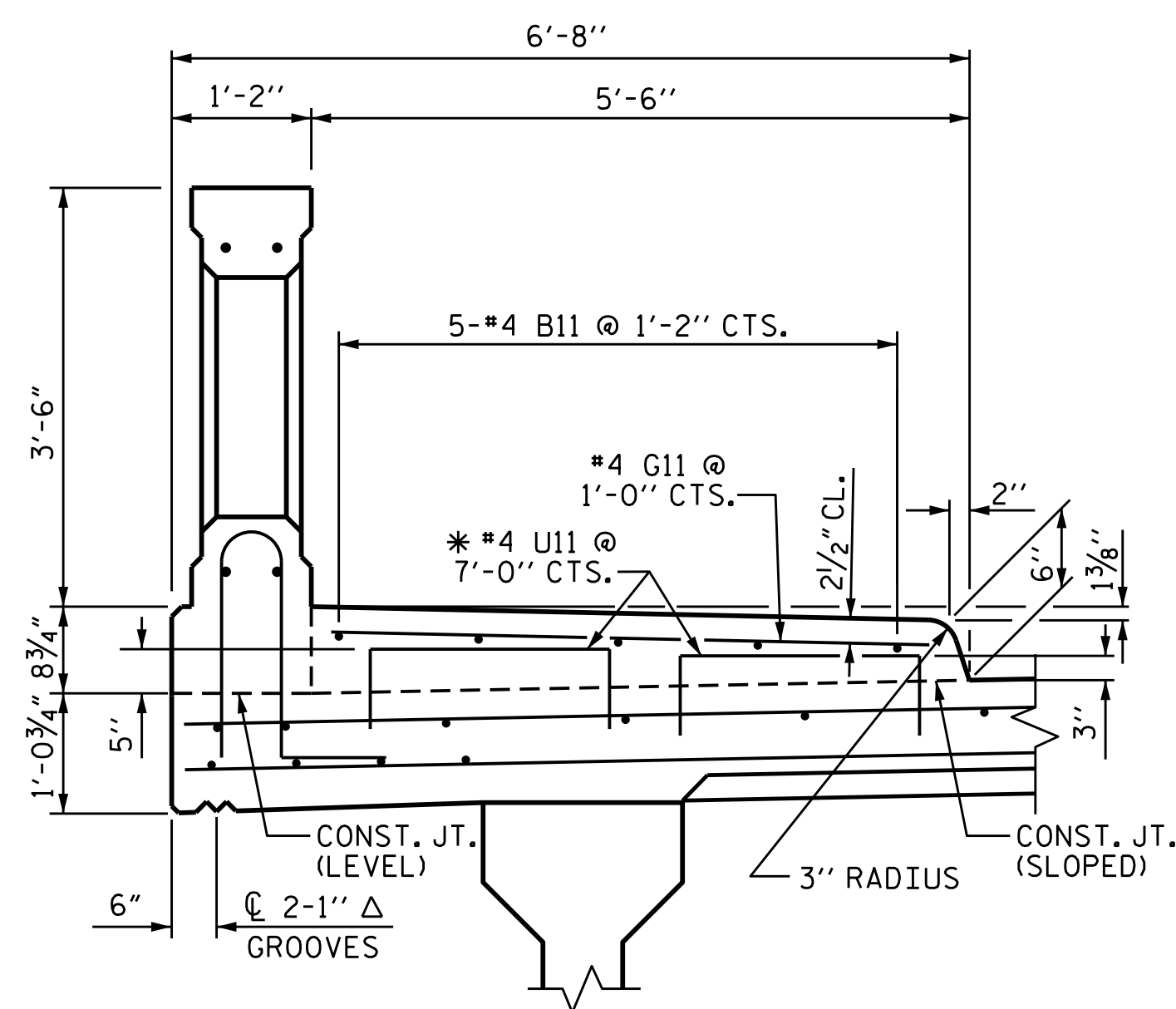
SPAN A

SPAN B

PLAN OF SIDEWALK

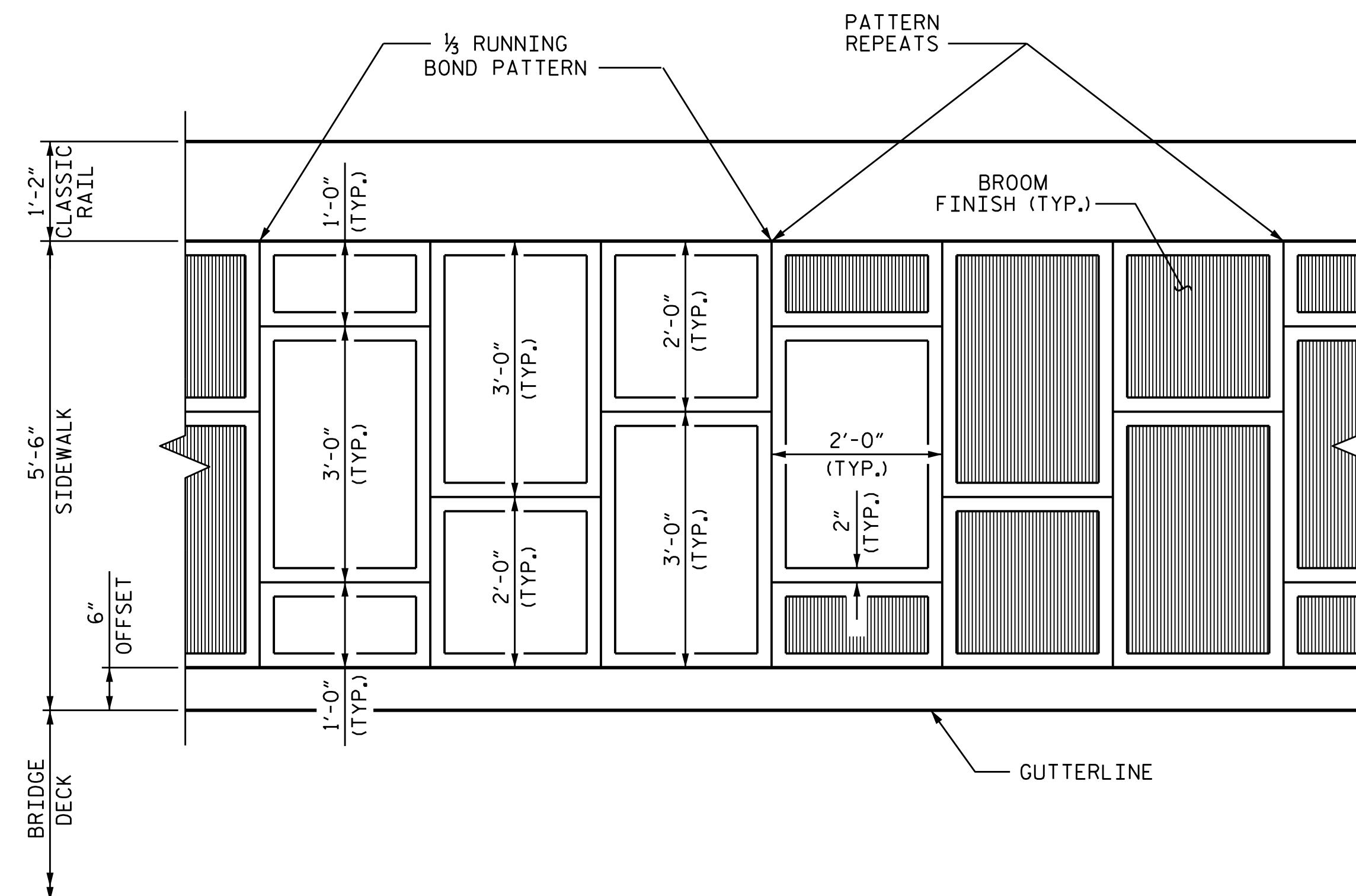
LEFT SIDE SHOWN, RIGHT SIDE SIMILAR

FOR SIDEWALK ON APPROACH SLABS, SEE "BRIDGE APPROACH SLAB" SHEETS.



SECTION THROUGH SIDEWALK

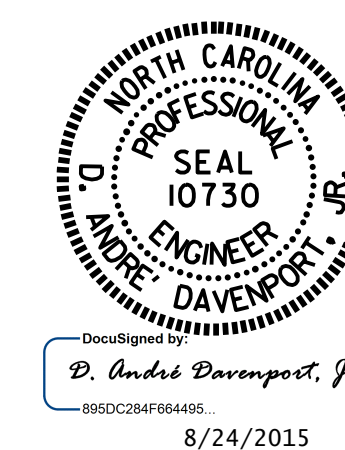
*U11 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREEDED OFF.



PATTERN DETAIL

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41+72 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 SIDEWALK
 DETAILS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			43

DRAWN BY: K.D. LAYNE DATE: 4-21-14
 CHECKED BY: J.D. HAWK DATE: 5-12-15

NOTES

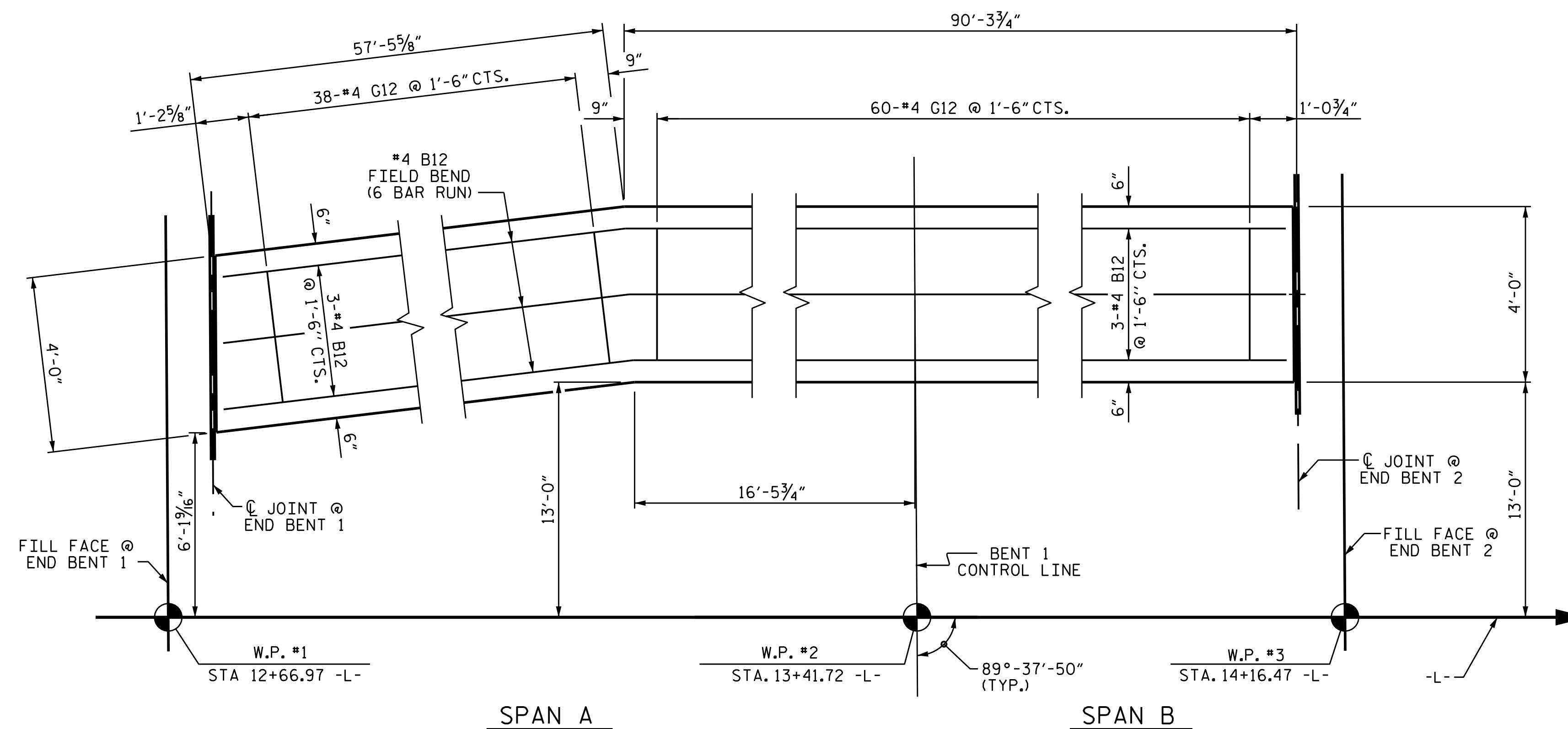
THE MONOLITHIC CONCRETE ISLAND IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN THE MONOLITHIC CONCRETE ISLAND SHALL BE EPOXY COATED.

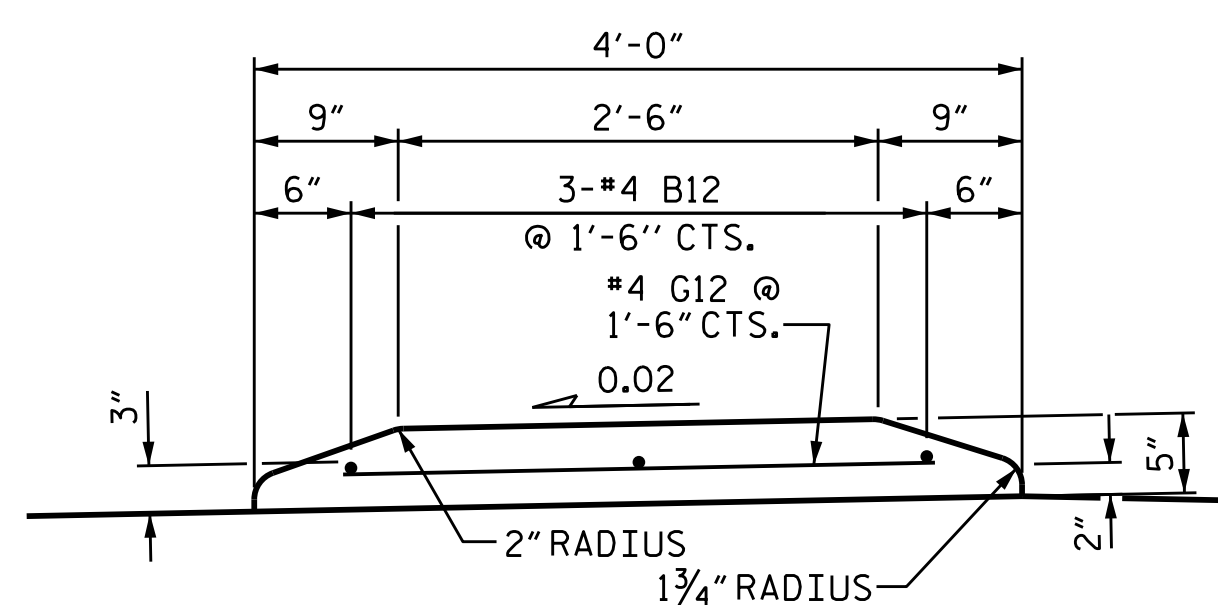
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE MONOLITHIC CONCRETE ISLAND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS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

PAYMENT FOR THE MONOLITHIC CONCRETE ISLAND SHALL BE INCLUDED IN UNIT PRICE FOR "REINFORCED CONCRETE DECK SLAB".

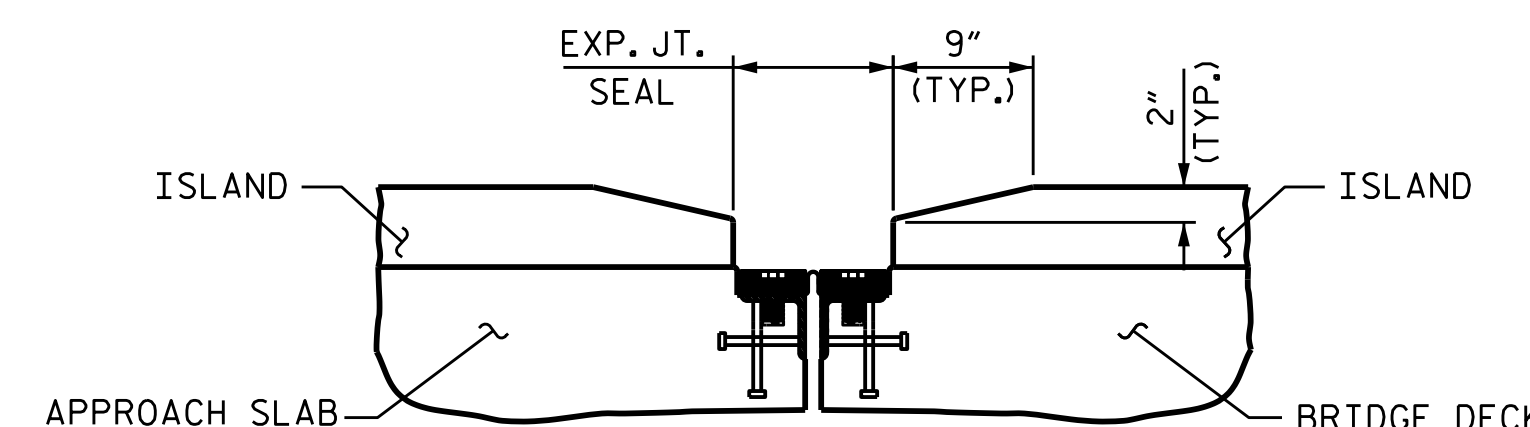
ALL REINFORCING STEEL IN MONOLITHIC CONCRETE ISLAND SHALL BE EPOXY COATED.



PLAN OF MONOLITHIC CONCRETE ISLAND

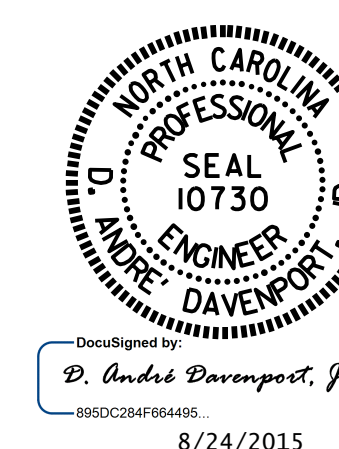


SECTION THROUGH MONOLITHIC CONCRETE ISLAND



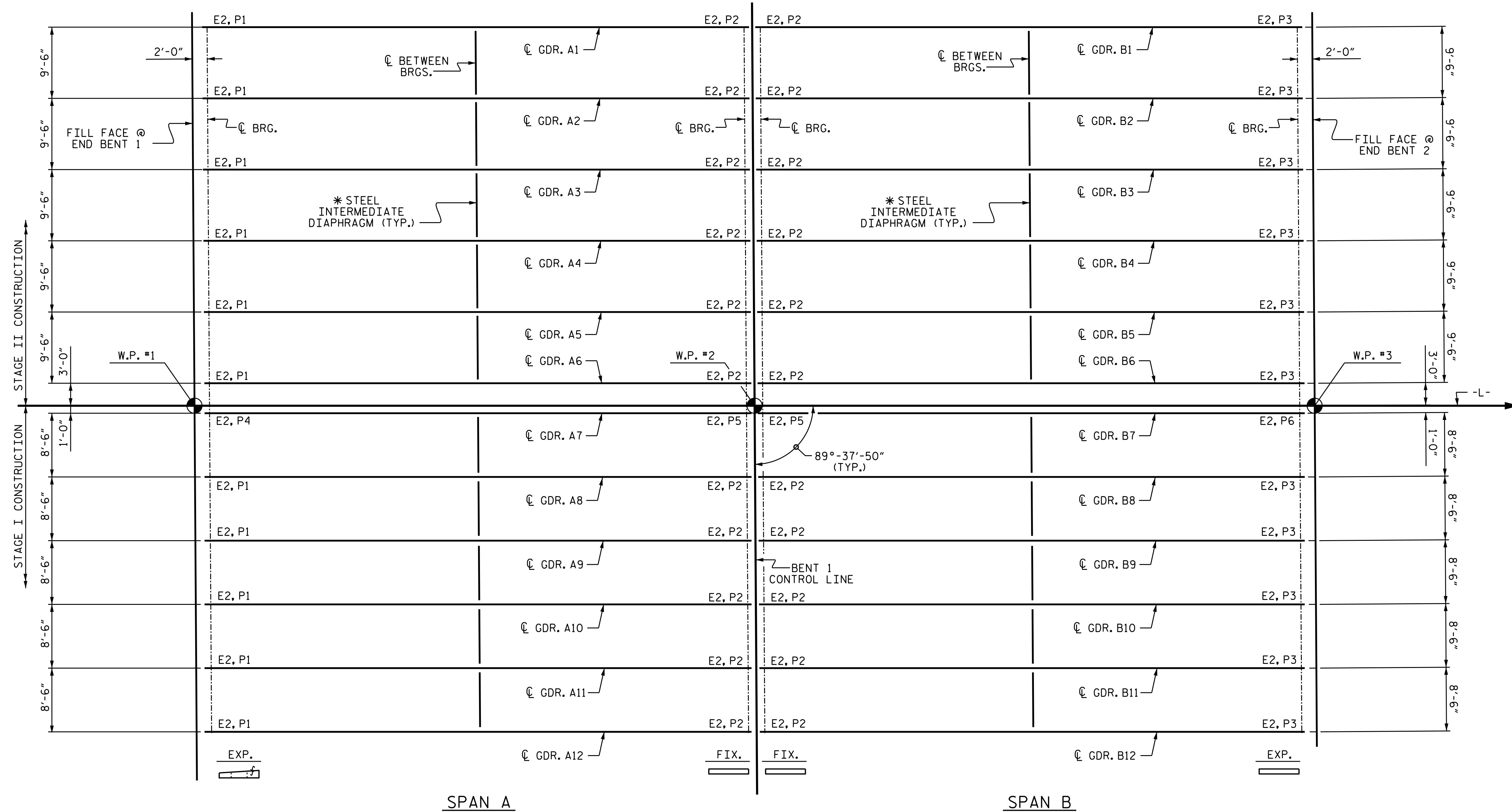
DETAILS AT EXPANSION JOINT SEAL

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41+72 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-12
SUPERSTRUCTURE MONOLITHIC CONCRETE ISLAND DETAILS						
REVISIONS						TOTAL SHEETS 43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : K. D. LAYNE DATE : 4-21-14
 CHECKED BY : J. D. HAWK DATE : 2-12-15



GIRDER LAYOUT

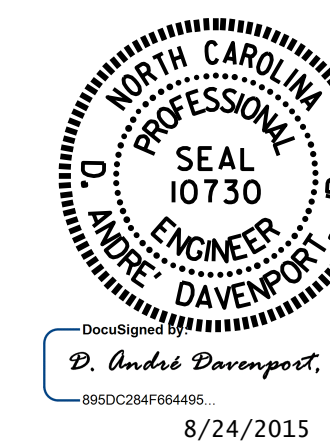
* SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III PRESTRESSED CONCRETE GIRDERS" SHEET.

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

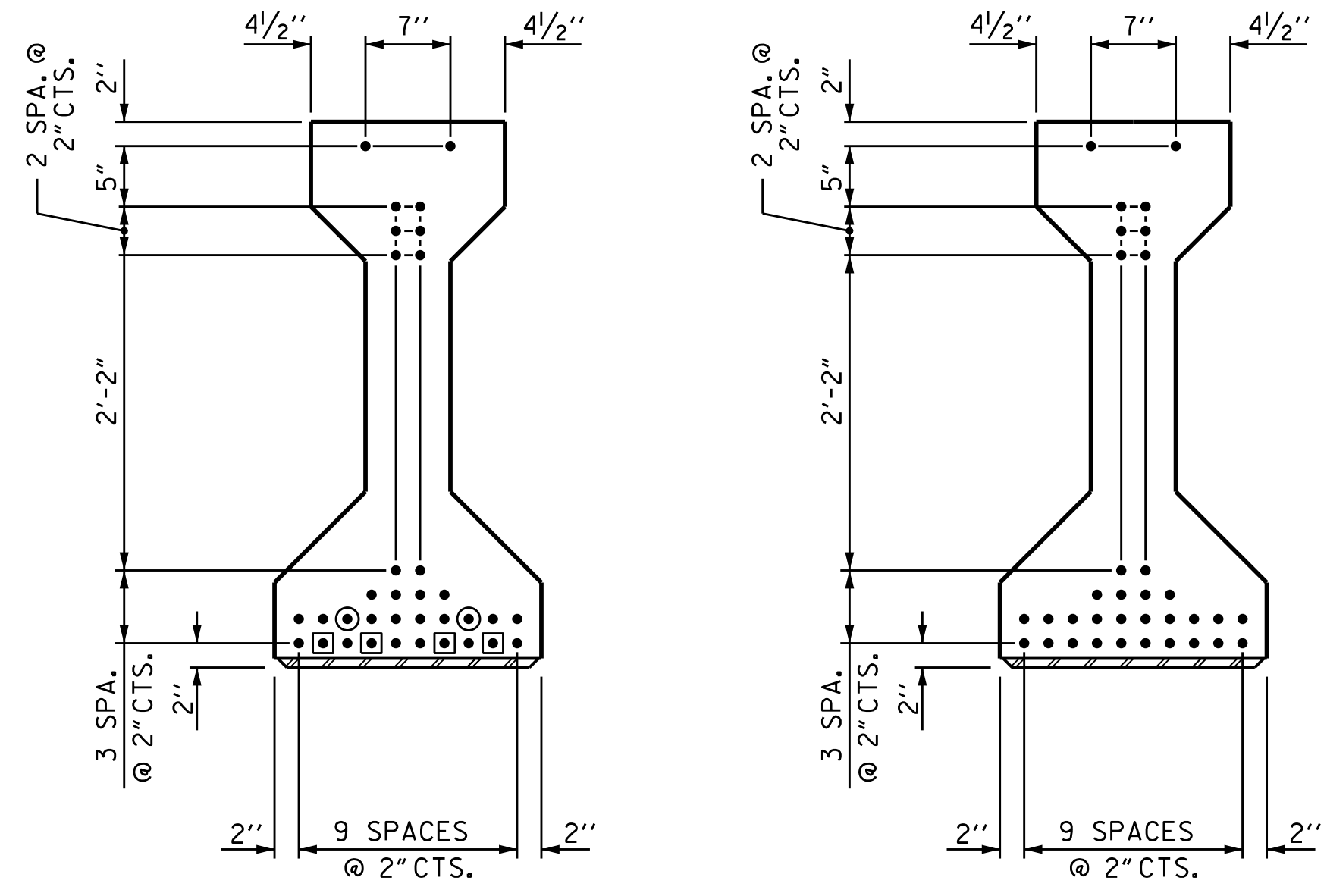
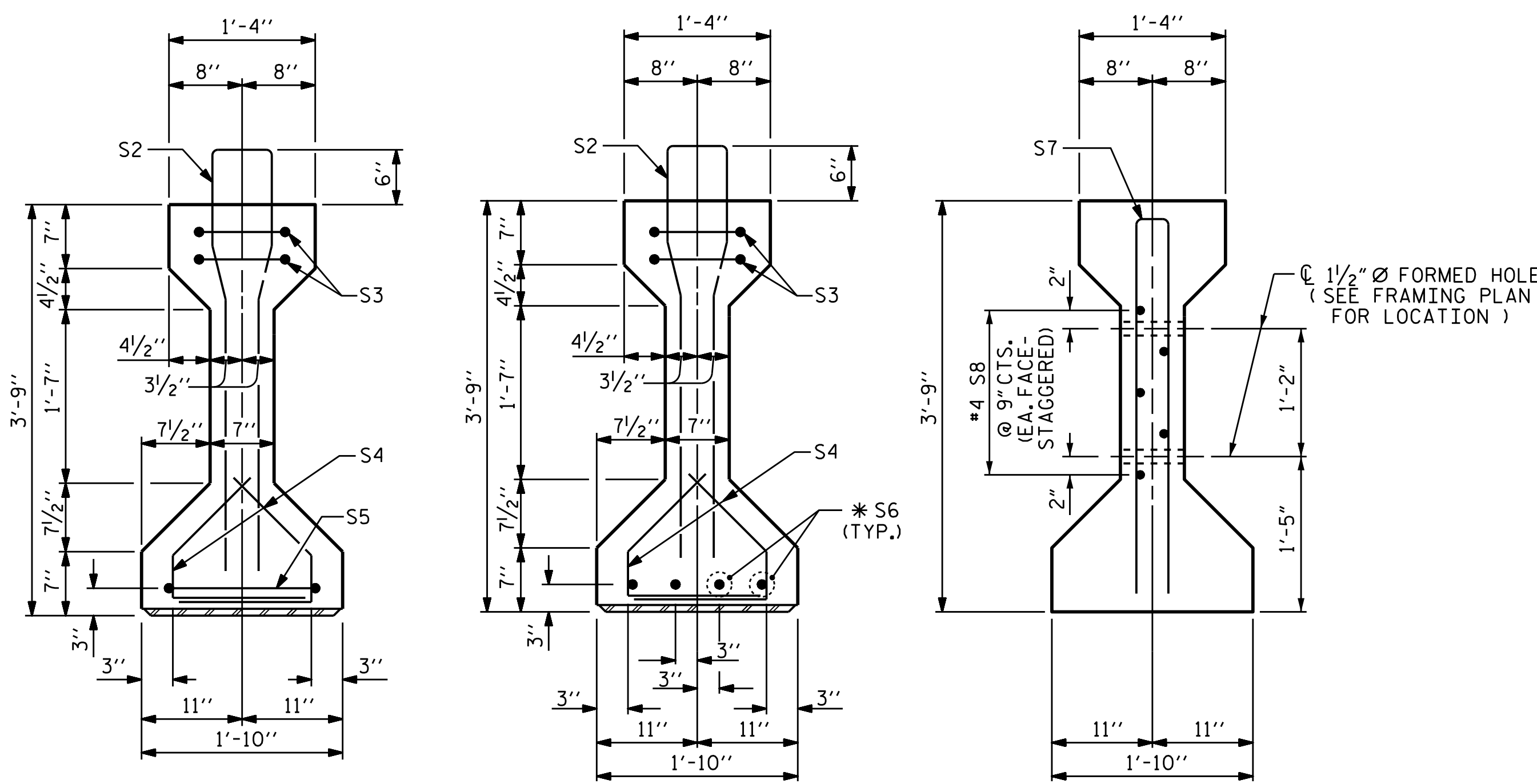
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 GIRDER LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			43



DRAWN BY : K. D. LAYNE DATE : 4-10-14
 CHECKED BY : J. D. HAWK DATE : 2-12-15
 DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE : 6-10-15



0.6" Ø LOW RELAXATION STRAND LAYOUT

- DEBOND STRAND 12'-0" FROM END OF GIRDER
- DEBOND STRAND 4'-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

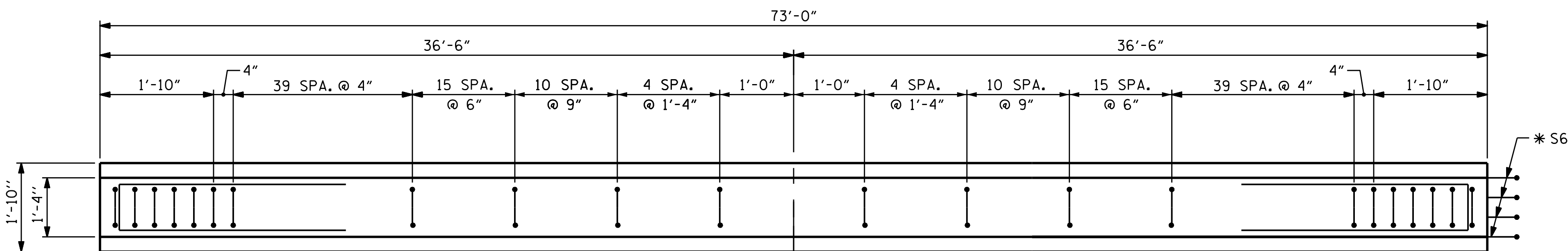
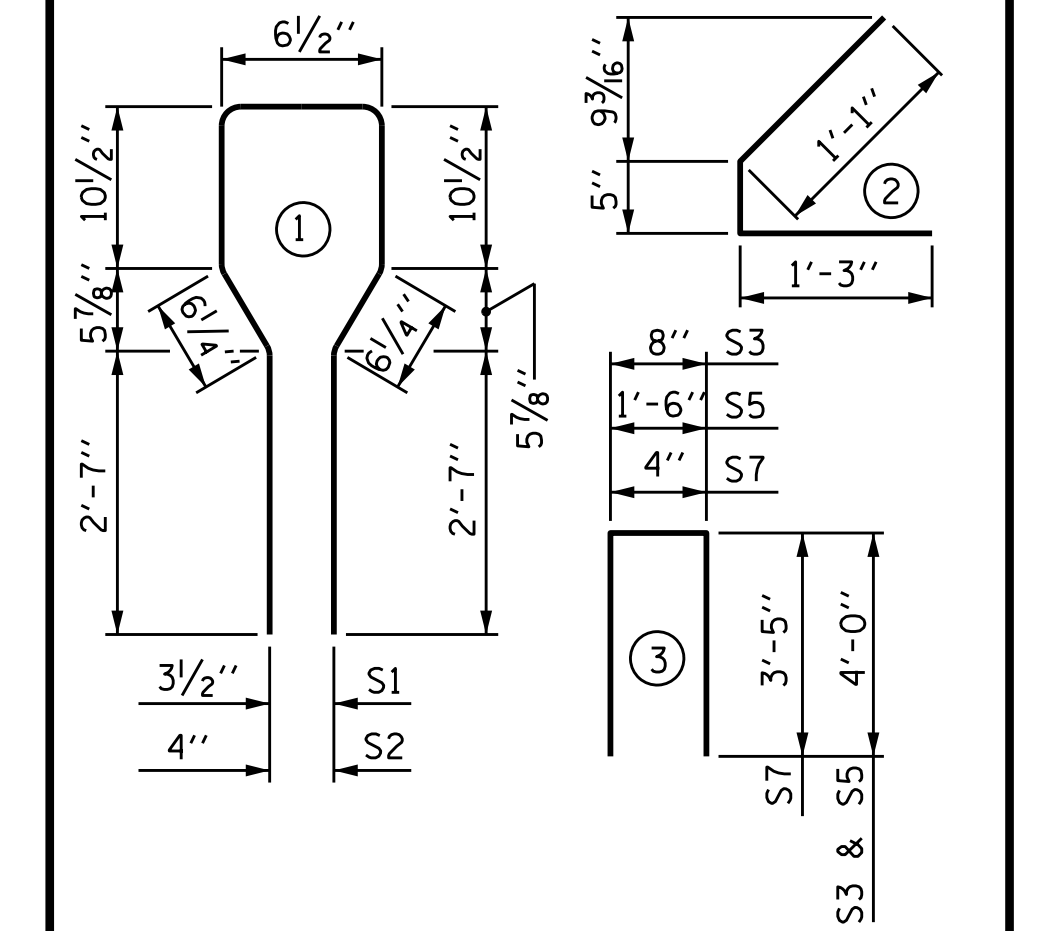
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	138	#4	1	8'-6"	784
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	72	#4	2	2'-9"	132
S5	1	#4	3	9'-6"	6
*S6	4	#5	STR	3'-8"	15
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

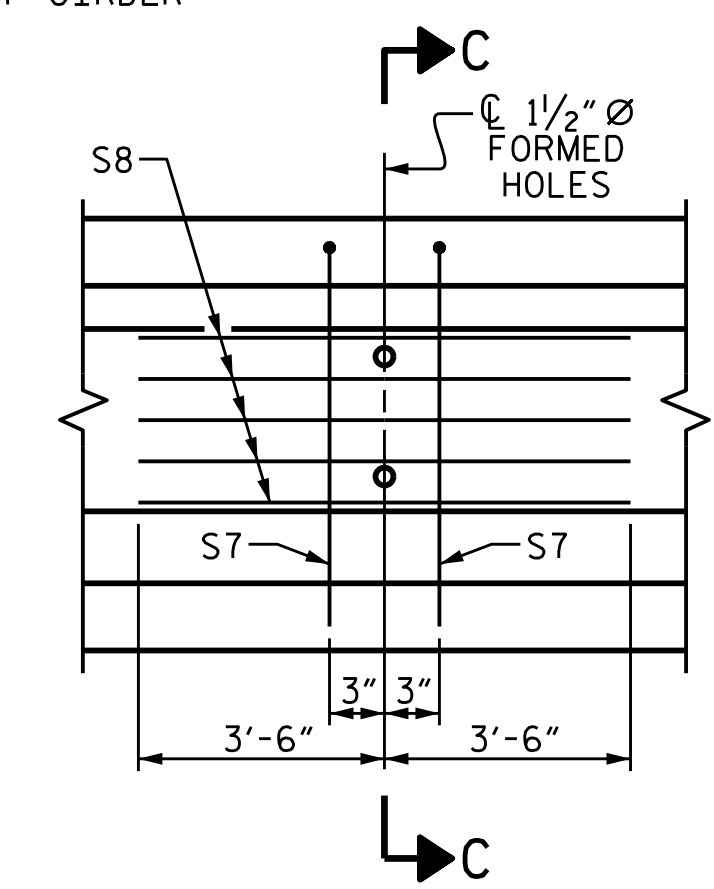
*NOTE: S6 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

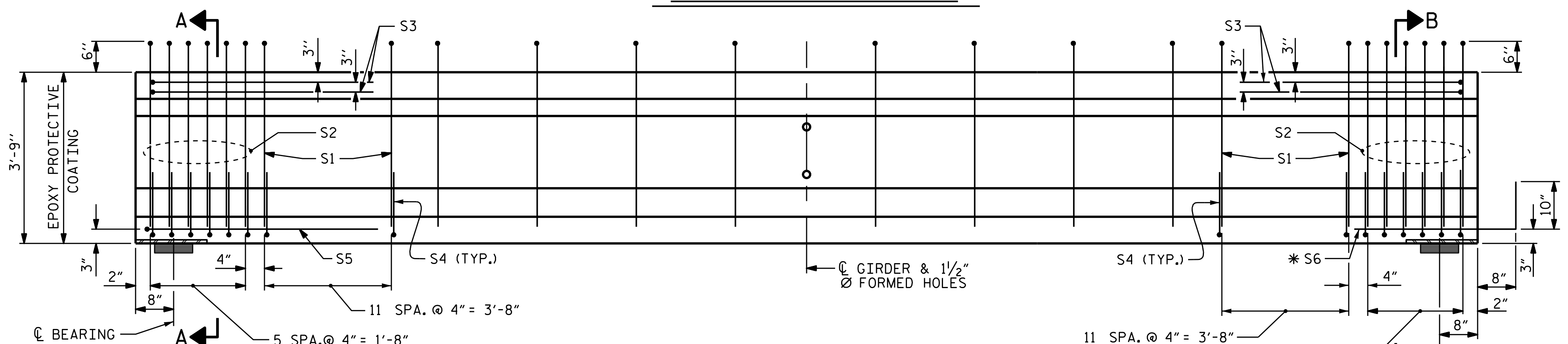
ALL BAR DIMENSIONS ARE OUT-TO-OUT.



PLAN OF GIRDER



PARTIAL ELEVATION



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

QUANTITIES FOR ONE GIRDER

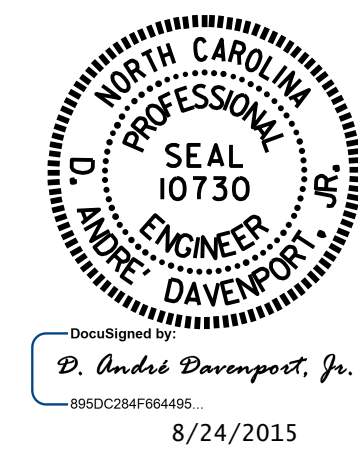
REINFORCING STEEL LBS.	8,000 PSI CONCRETE C.Y.	0.6" Ø L.R. STRANDS No.
1,151	10.5	34

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
24	73'-0"	1752'-0"

PROJECT NO. B-3159
DAVIDSON COUNTY
STATION: 13+41.72 -L-

SHEET 1 OF 2



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS 43
2			4			

ASSEMBLED BY : M.K. BEARD	DATE : 8/13/14		
CHECKED BY : J.D. HAWK	DATE : 2/12/15		
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	H.A. LOCKLEAR
	REV. 1/15	MAA/TMG	DATE : 7/14/15

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																	
0.6" Ø LOW RELAXATION	SPANS A & B																																
	GIRDERS 1 THROUGH 5, 10, 11 & 12											GIRDERS 6 & 7										GIRDERS 8 & 9											
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0.0	0.038	0.073	0.099	0.116	0.122	0.116	0.099	0.073	0.038	0.0	0.0	0.038	0.073	0.099	0.116	0.122	0.116	0.099	0.073	0.038	0.0	0.0	0.038	0.073	0.099	0.116	0.122	0.116	0.099	0.073	0.038	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.0	0.032	0.061	0.084	0.098	0.103	0.098	0.084	0.061	0.032	0.0	0.0	0.023	0.043	0.059	0.069	0.072	0.069	0.059	0.043	0.023	0.0	0.0	0.029	0.055	0.075	0.088	0.092	0.088	0.075	0.055	0.029	0.0
FINAL CAMBER ↑	0	1/16"	1/8"	3/16"	3/16"	1/4"	3/16"	3/16"	1/8"	1/16"	0	0	3/16"	3/8"	1/2"	9/16"	5/8"	9/16"	1/2"	3/8"	3/16"	0	0	1/8"	3/16"	5/16"	5/16"	3/8"	5/16"	5/16"	3/16"	1/8"	0

* INCLUDES FUTURE WEARING SURFACE

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

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

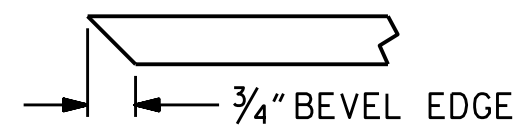
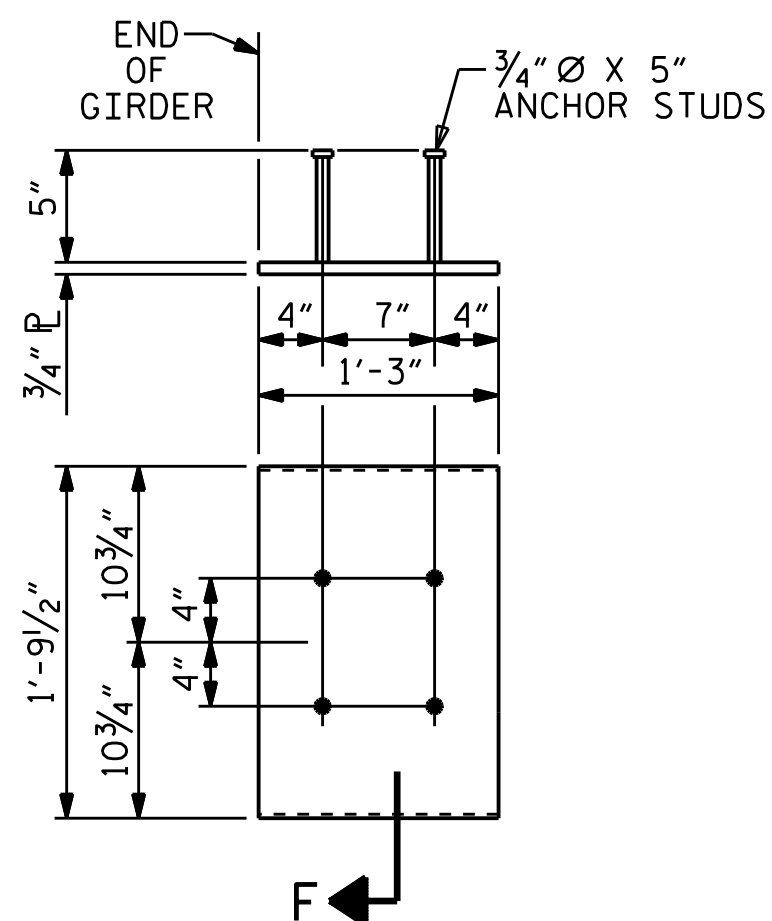
ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,300 PSI.

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

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



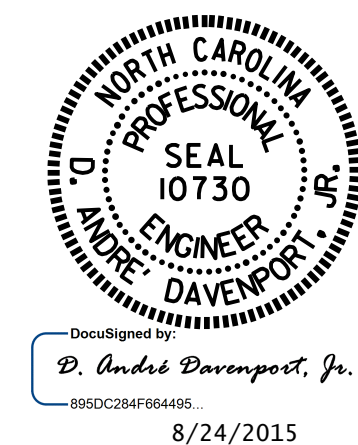
SECTION "F"
(SEE NOTES)

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

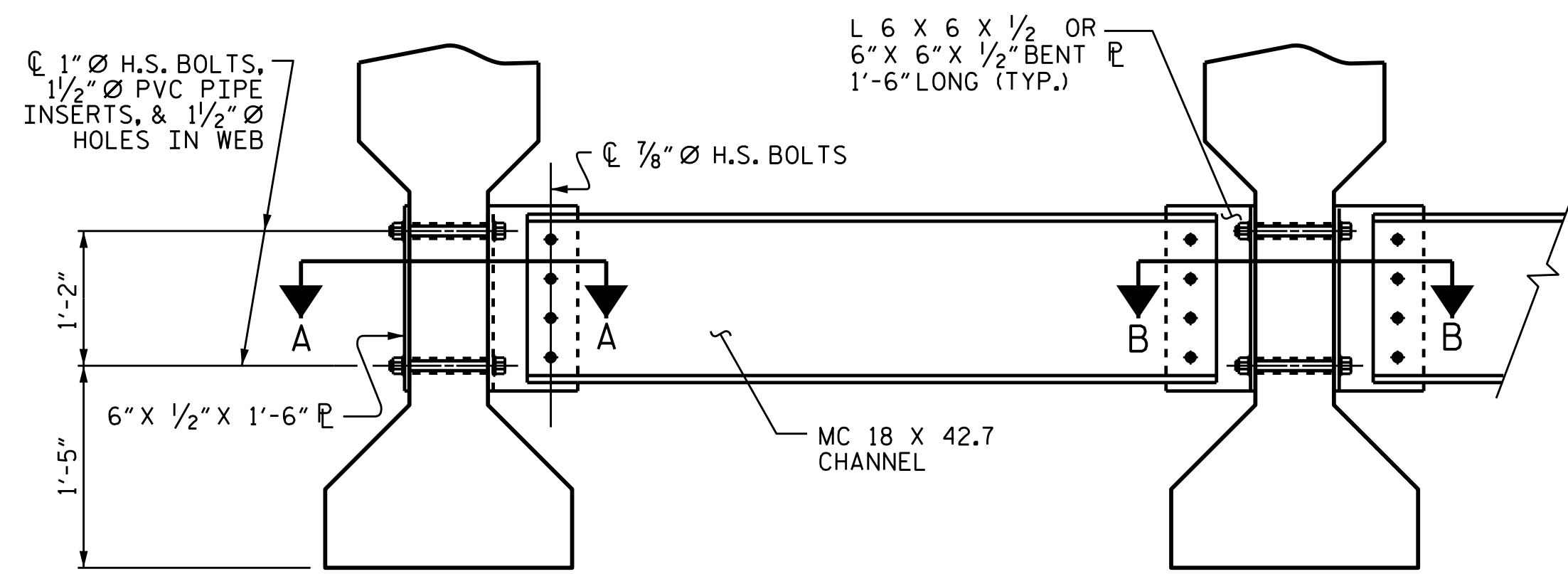
PROJECT NO. B-3159
DAVIDSON COUNTY
STATION: 13+41.72 -L-

SHEET 2 OF 2

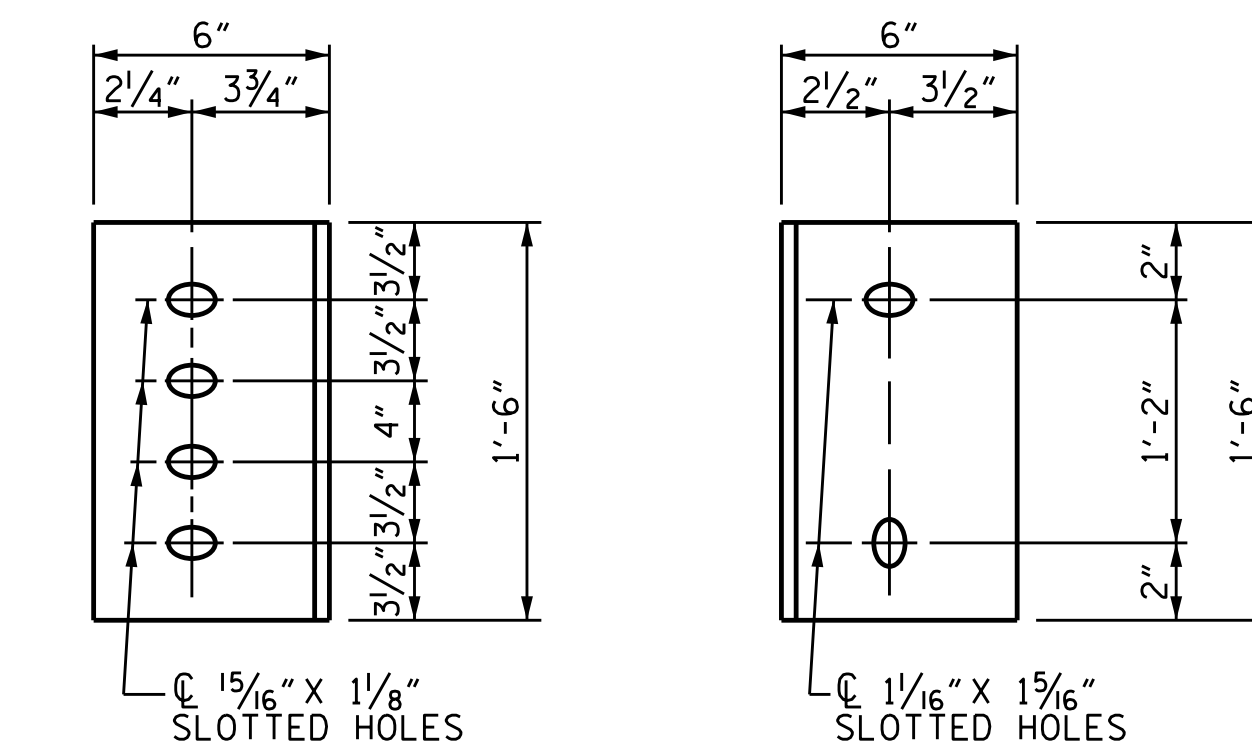
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS					
REVISIONS					SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS 43					



ASSEMBLED BY : M.K. BEARD	DATE : 7/14/15		
CHECKED BY : J.K. BOWLES	DATE : 7/14/15		
DRAWN BY : ELR 11/91	REV. 10/1/11	MAA/GM	DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 7/14/15
CHECKED BY : GRP 11/91	REV. 1/15	MAA/TMG	
	REV. 2/15	MAA/TMG	



EXTERIOR GIRDER INTERIOR GIRDER
PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE WEB FACE
CONNECTOR PLATE DETAILS

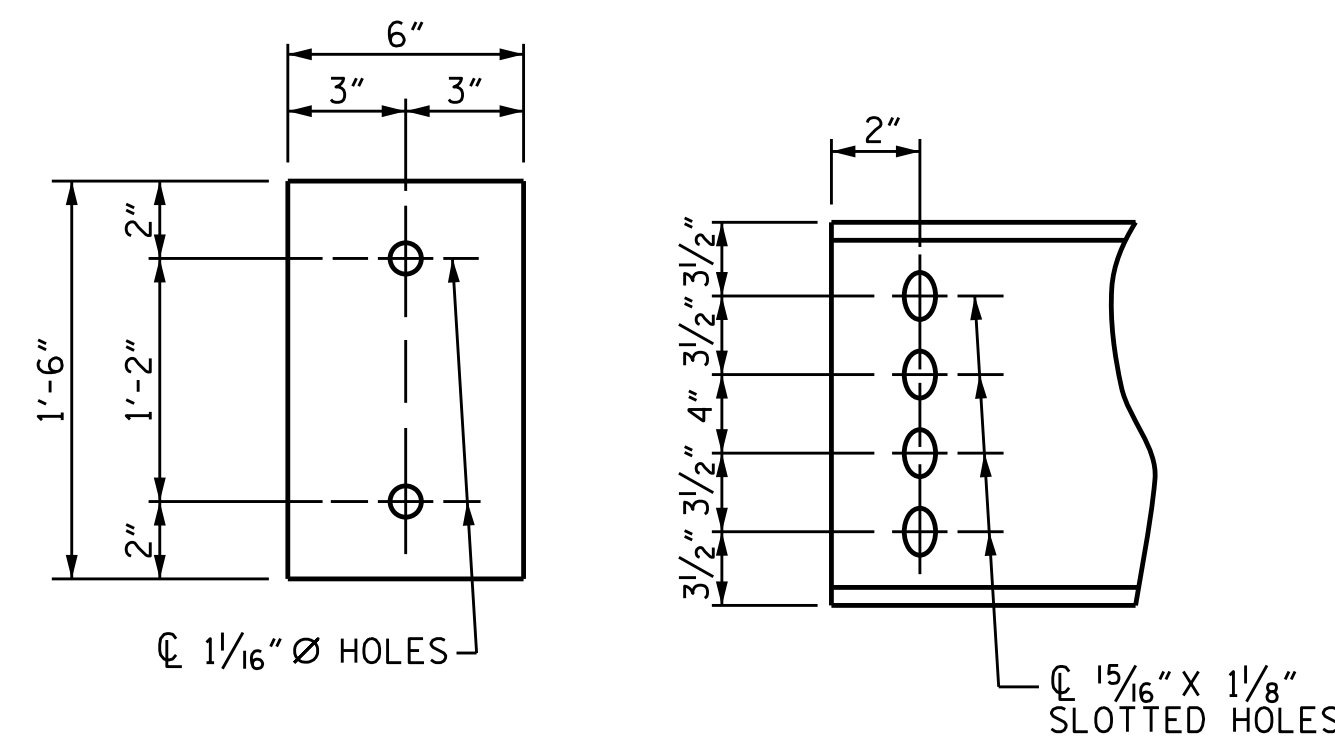
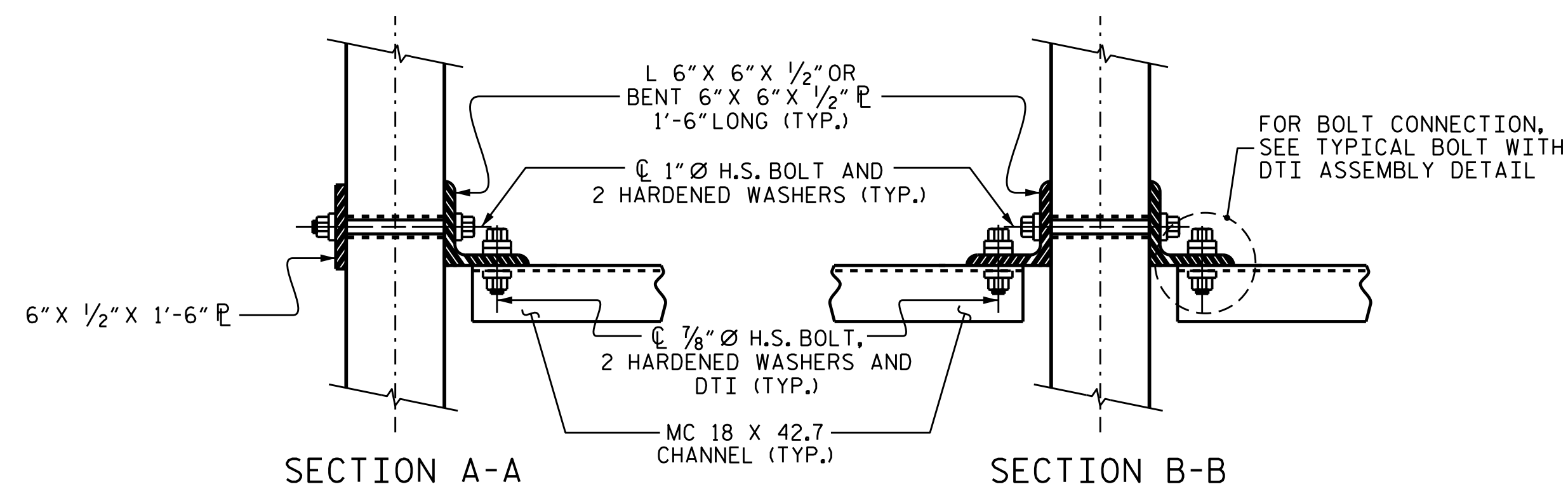
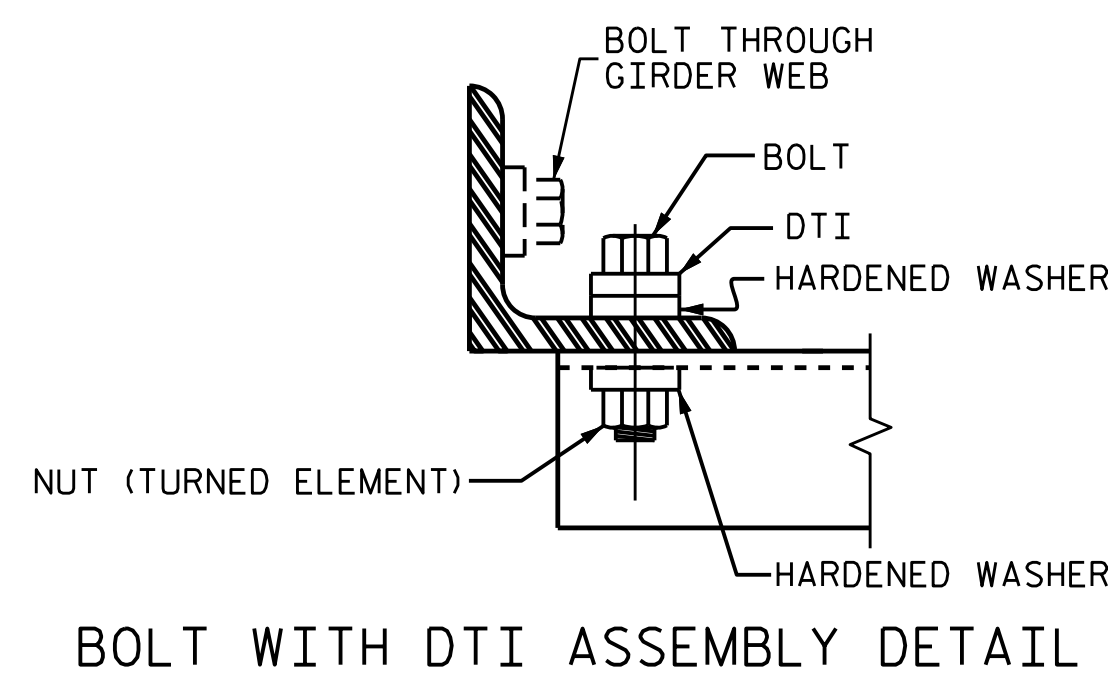


PLATE DETAILS CHANNEL END



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" PROJECTION BEYOND THE NUT.

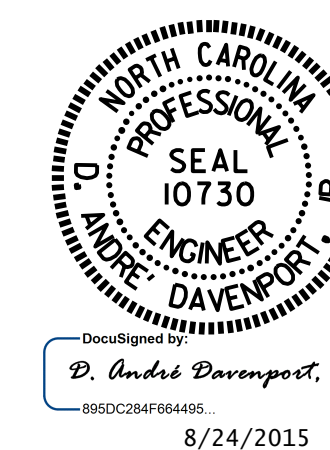
INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

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

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

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

PROJECT NO. B-3159
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STATION: 13+41.72 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III PRESTRESSED CONCRETE GIRDERS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					43

ASSEMBLED BY : K.D. LAYNE	DATE : 4/9/15
CHECKED BY : J.D. HAWK	DATE : 2/12/15
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

NOTES

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

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

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

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

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

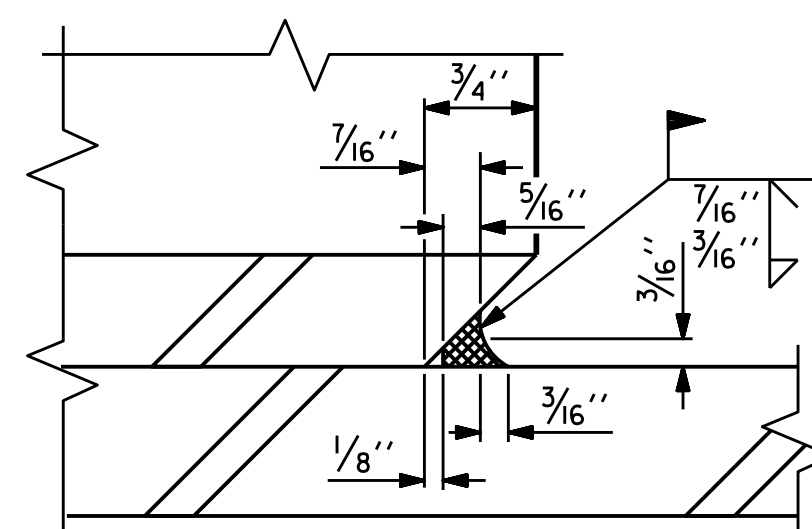
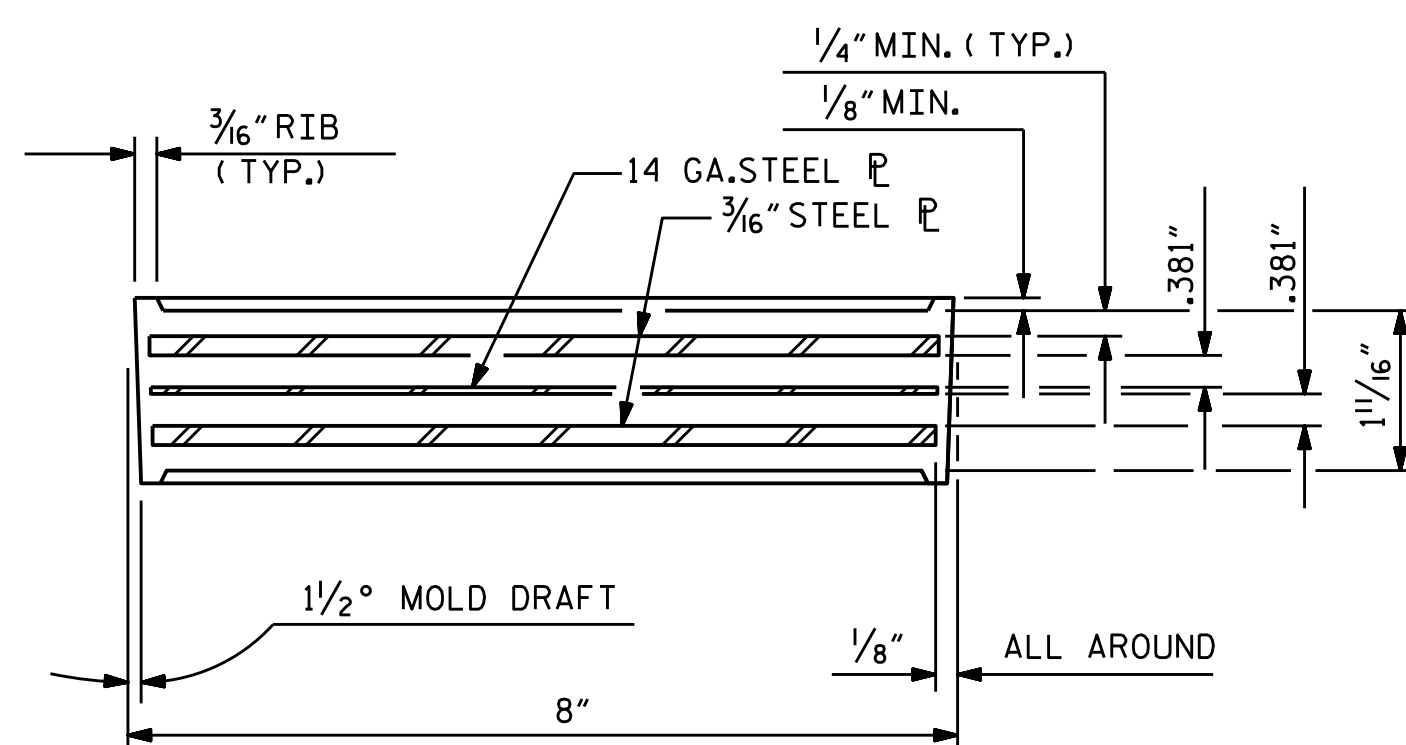
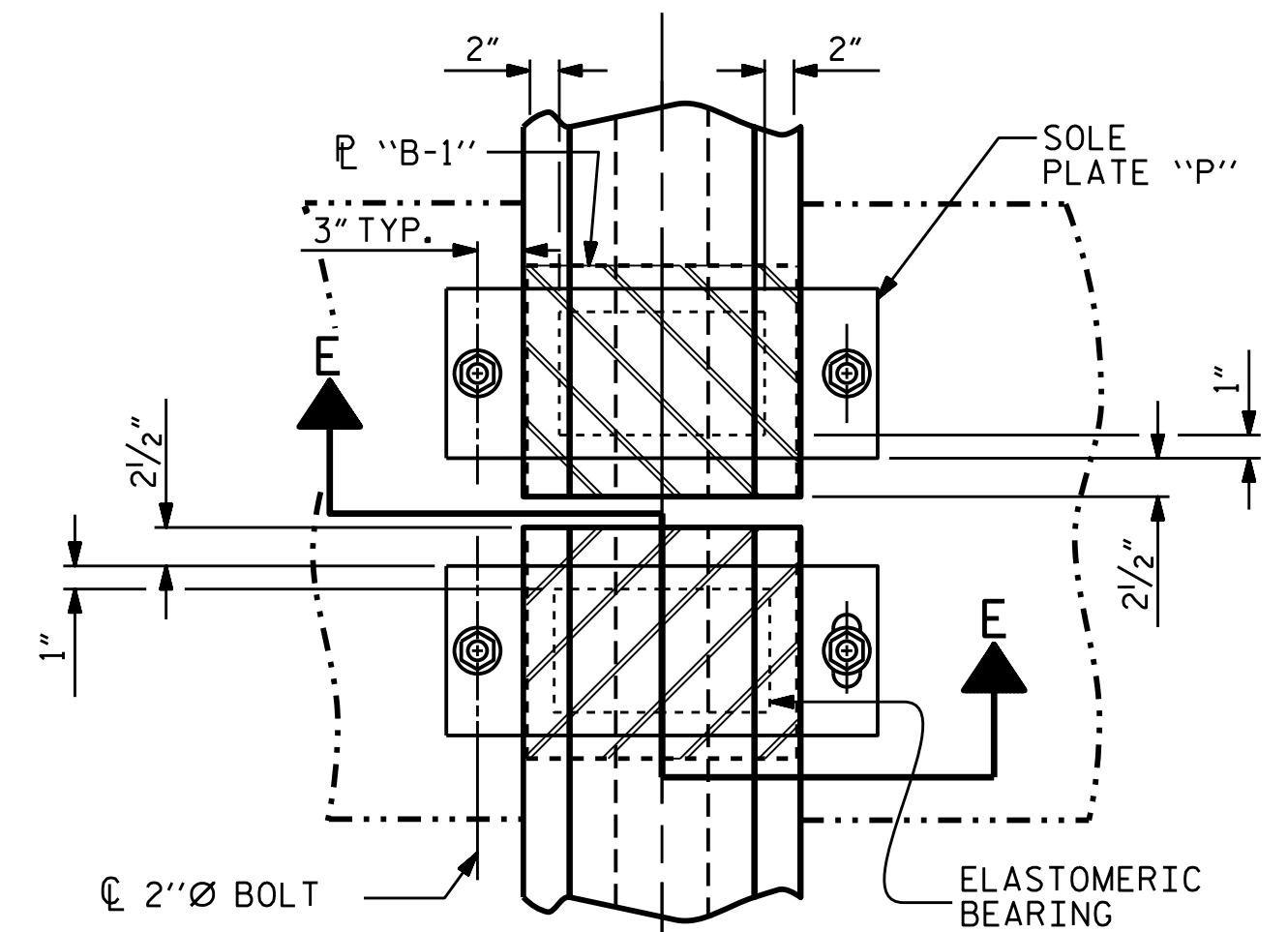
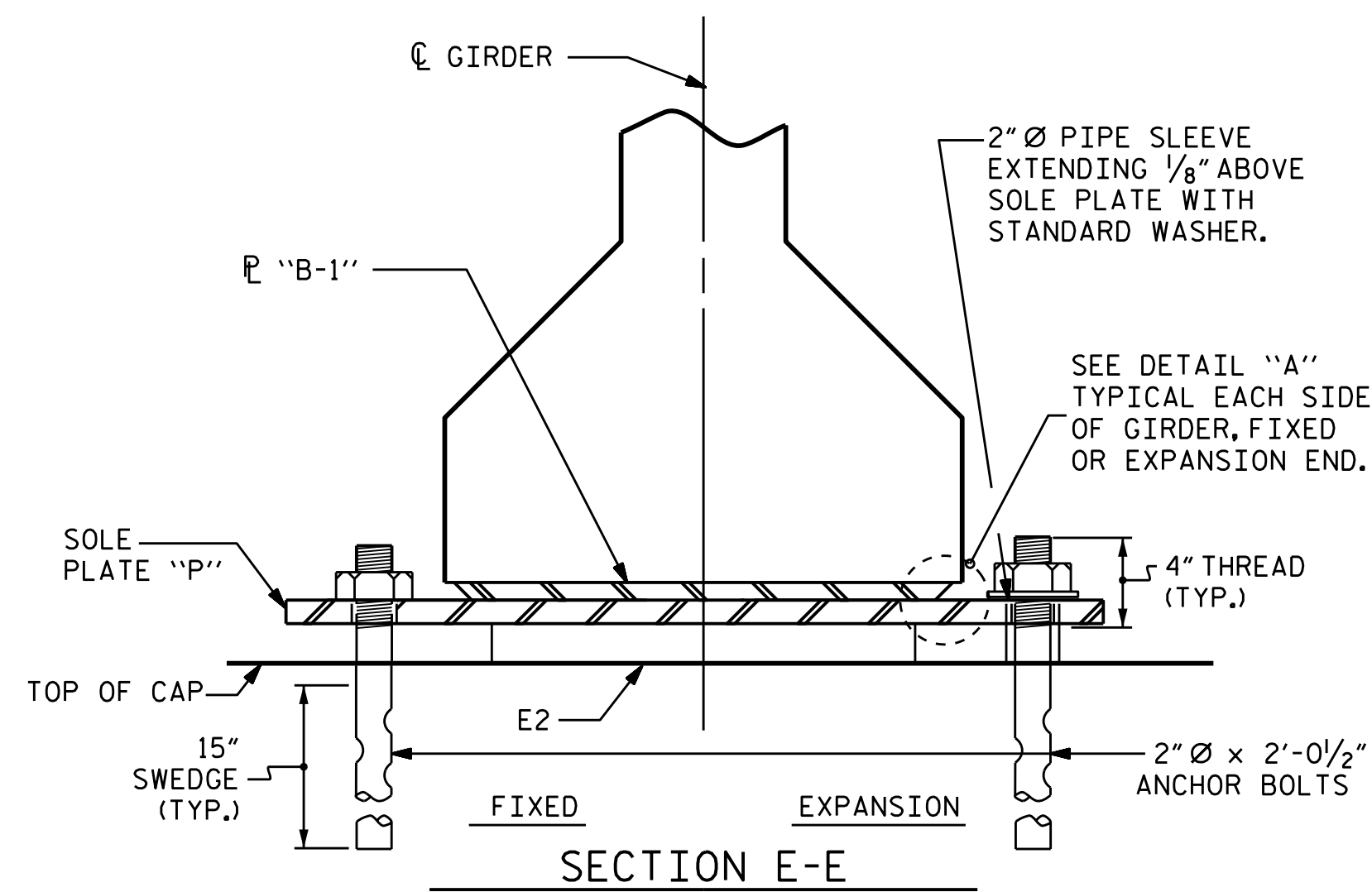
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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

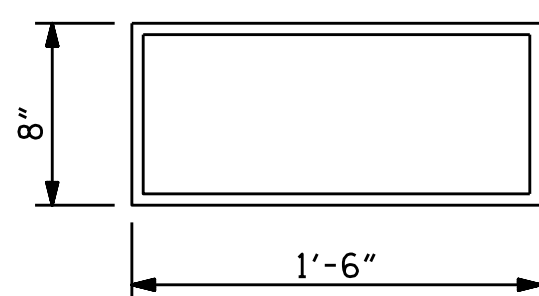
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.



TYPICAL SECTION OF ELASTOMERIC BEARINGS

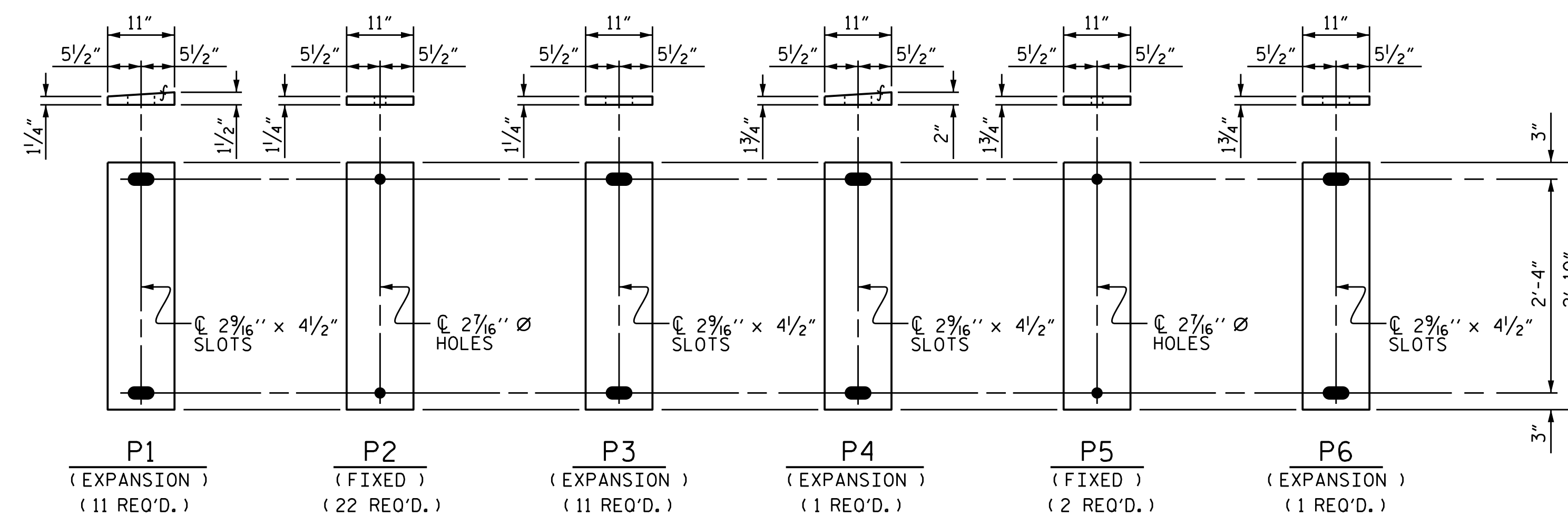


E2 (48 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE III

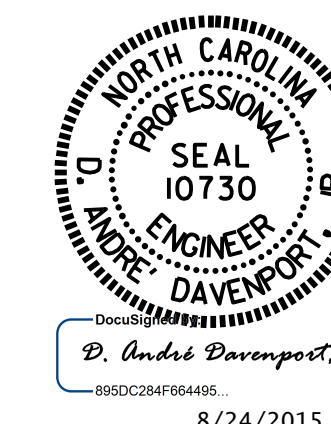
MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE III	205 k



SOLE PLATE DETAILS ("P")

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

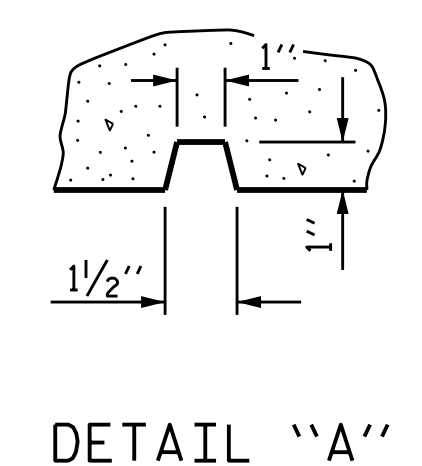
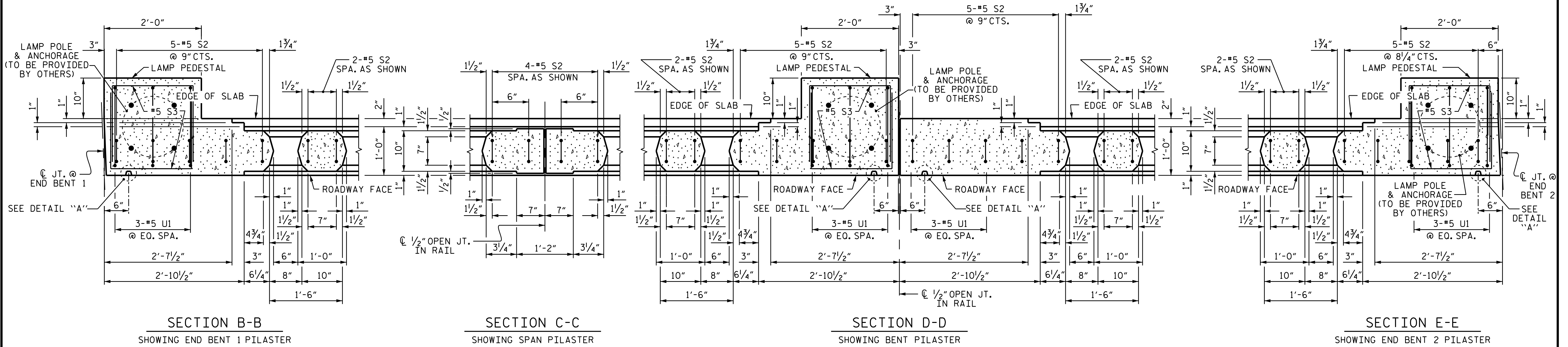
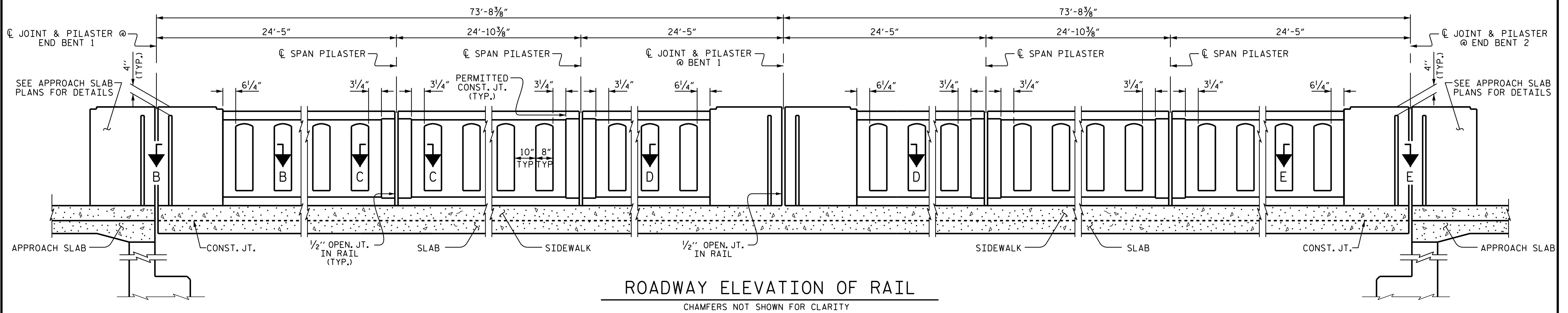
ASSEMBLED BY : K.D. LAYNE	DATE : 4-9-14	DESIGN ENGINEER OF RECORD:
CHECKED BY : J.D. HAWK	DATE : 2-12-15	R.L. CHESSON
DRAWN BY : WJH 8/89	REV. 10/1/11	DATE : 6/10/15
CHECKED BY : CRK 8/89	REV. 6/13	
	REV. 1/15	



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			43

STD. NO. EB3



NOTES

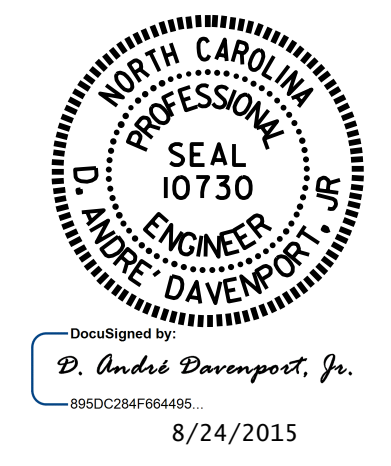
CLASSIC CONCRETE BRIDGE RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

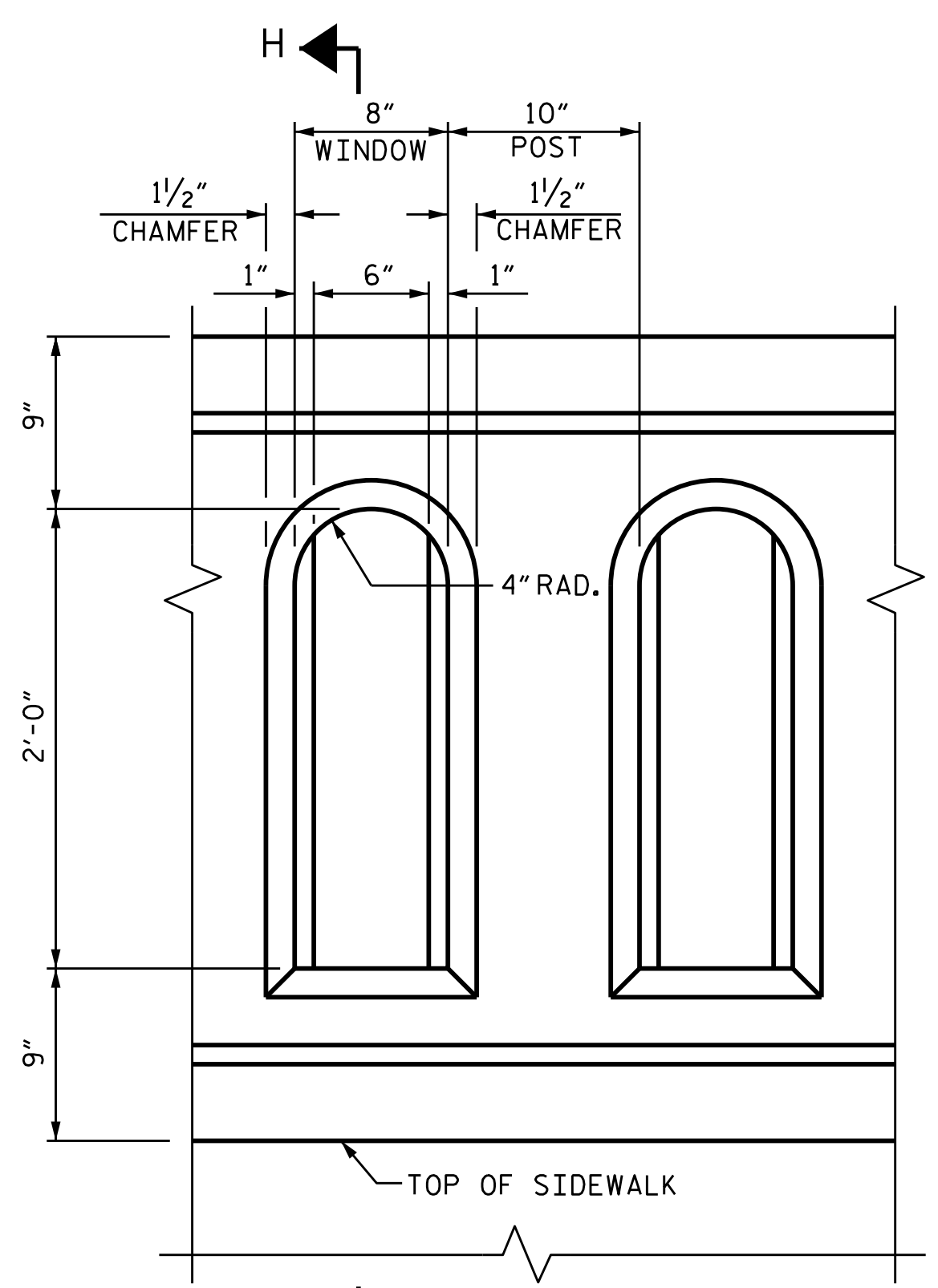
ALL REINFORCING STEEL IN THE CLASSIC CONCRETE BRIDGE RAIL SHALL BE EPOXY COATED.

PROJECT NO. B-3159
 COUNTY DAVIDSON
 STATION: 13+41.72 -L-
 SHEET 1 OF 3

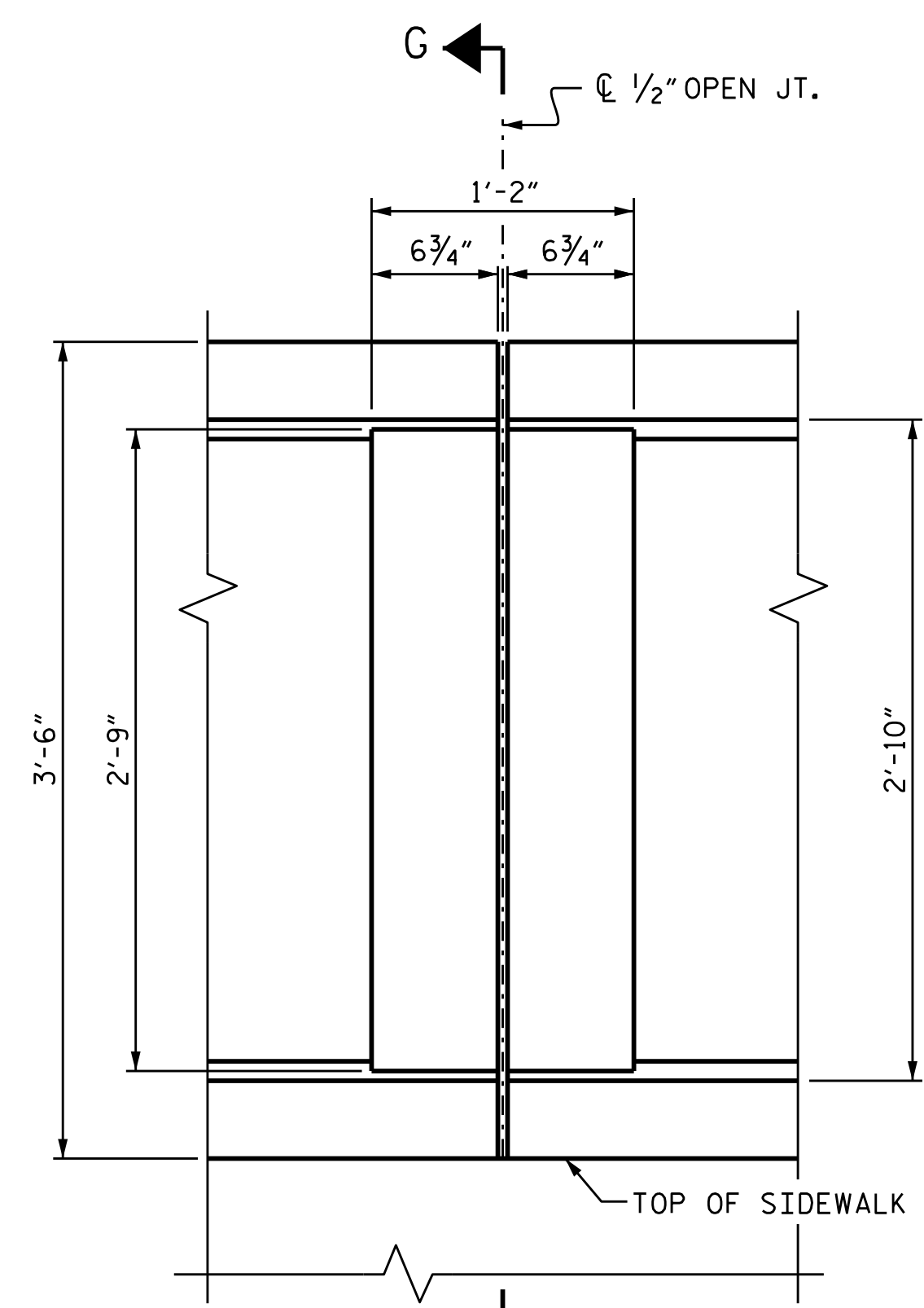
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				SHEET NO. S-18	
SUPERSTRUCTURE CLASSIC CONCRETE BRIDGE RAIL WITH SIDEWALK				TOTAL SHEETS 43	
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : D.A. DAVENPORT DATE : 05/22/14
 CHECKED BY : J.D. HAWK DATE : 02/12/15
 DESIGN ENGINEER OF RECORD: D.A. DAVENPORT DATE : 4/27/15

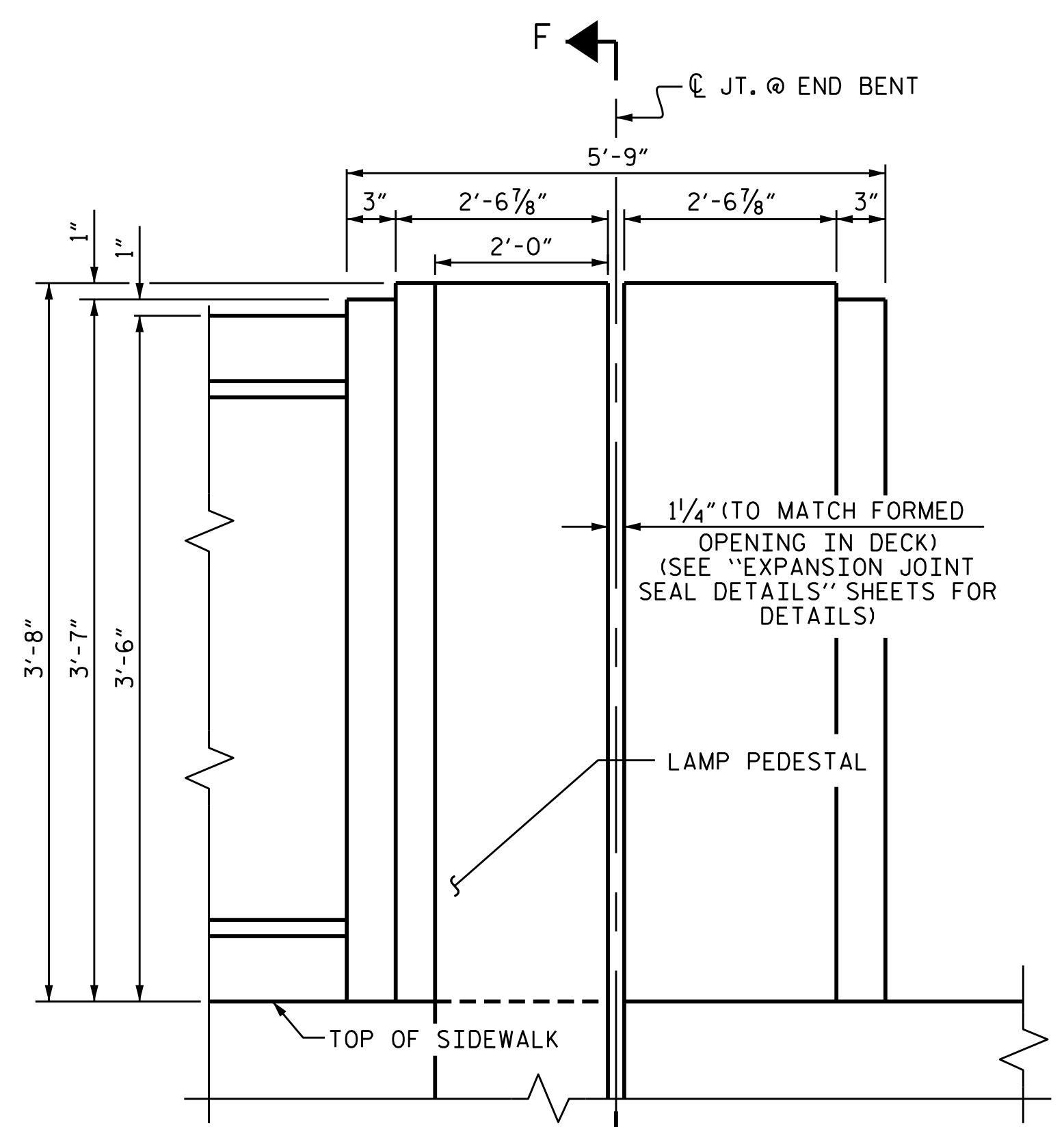




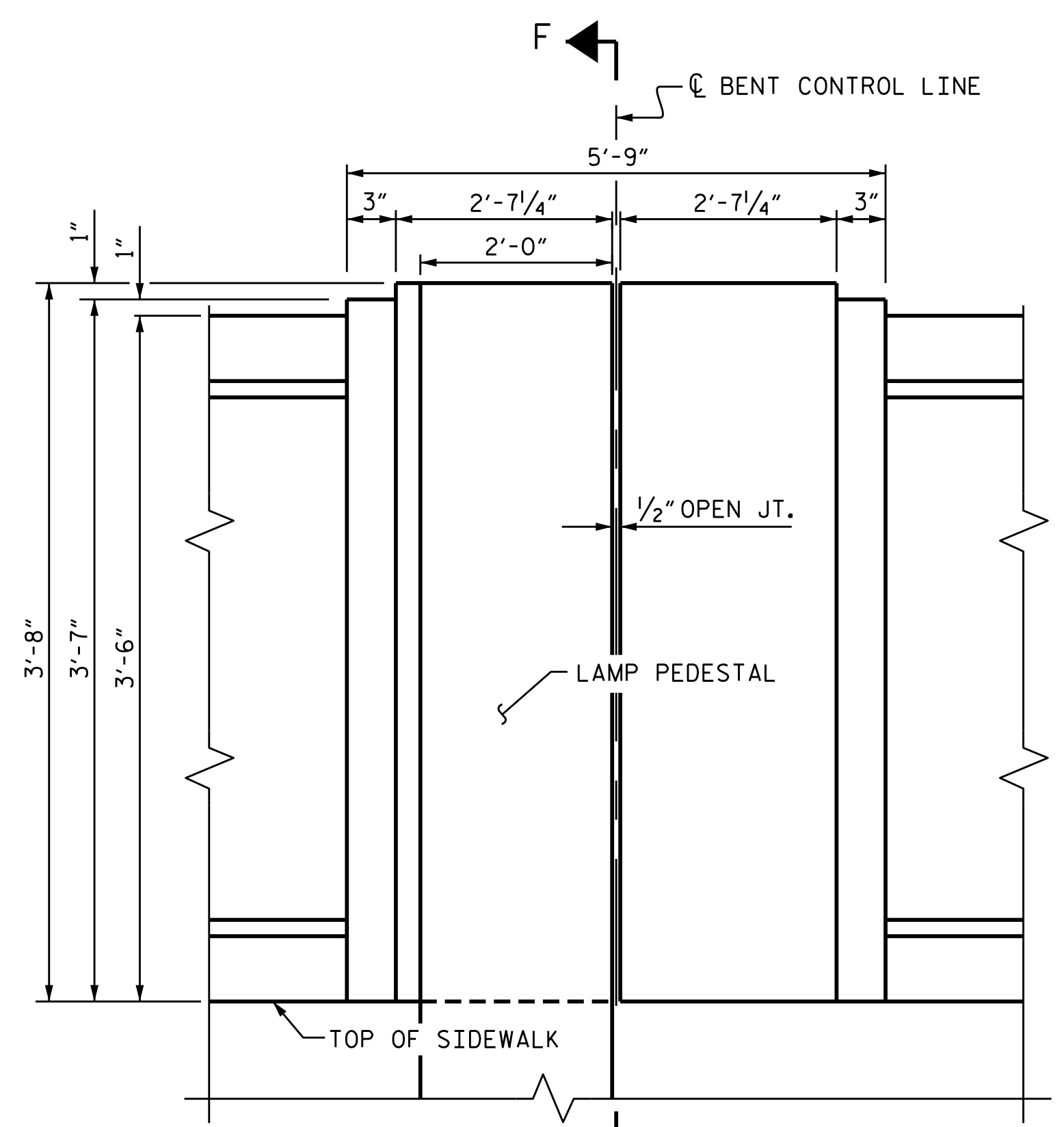
WINDOW DETAIL



SPAN PILASTER

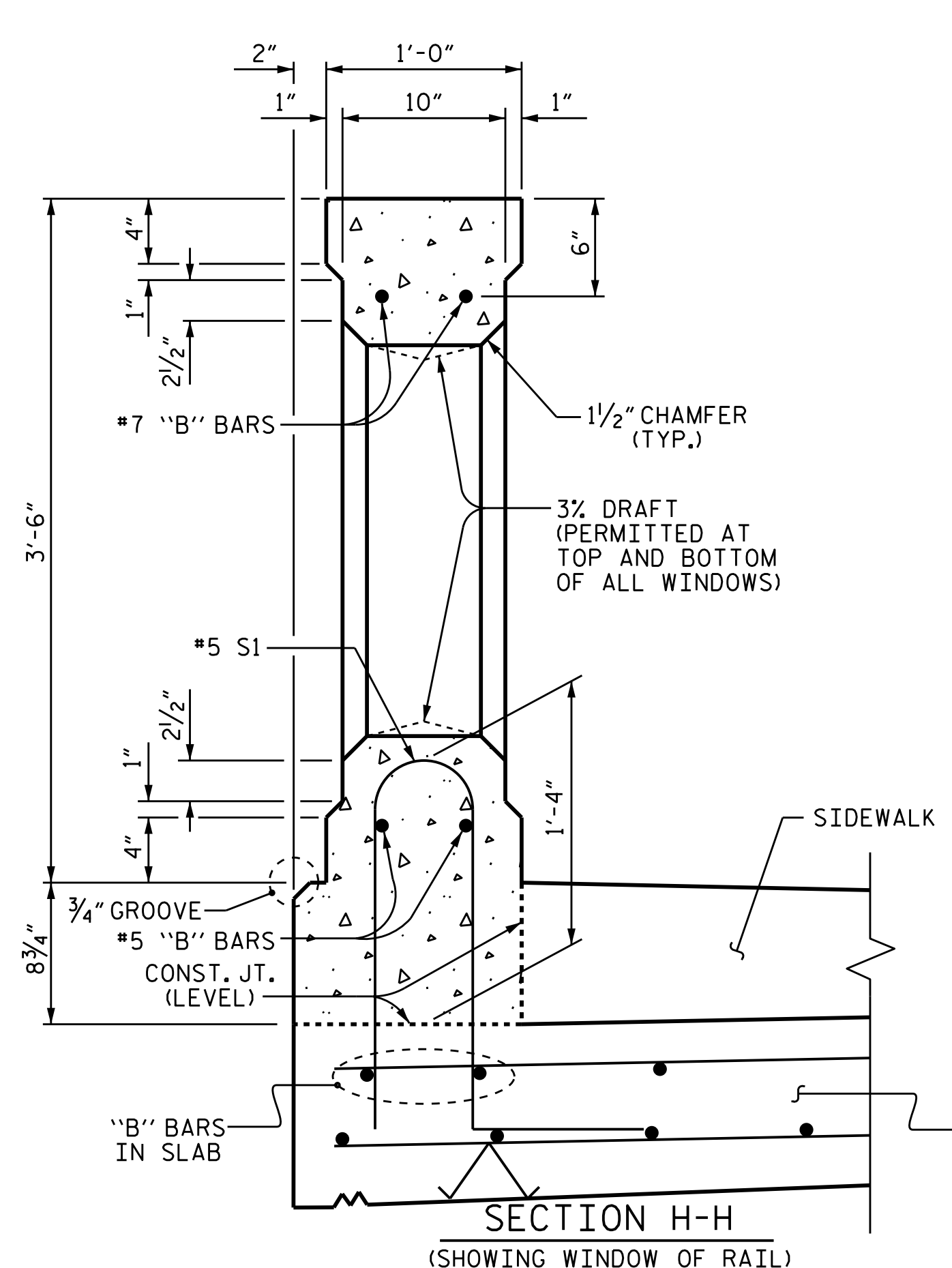


END BENT PILASTER
(END BENT 2 SHOWN)

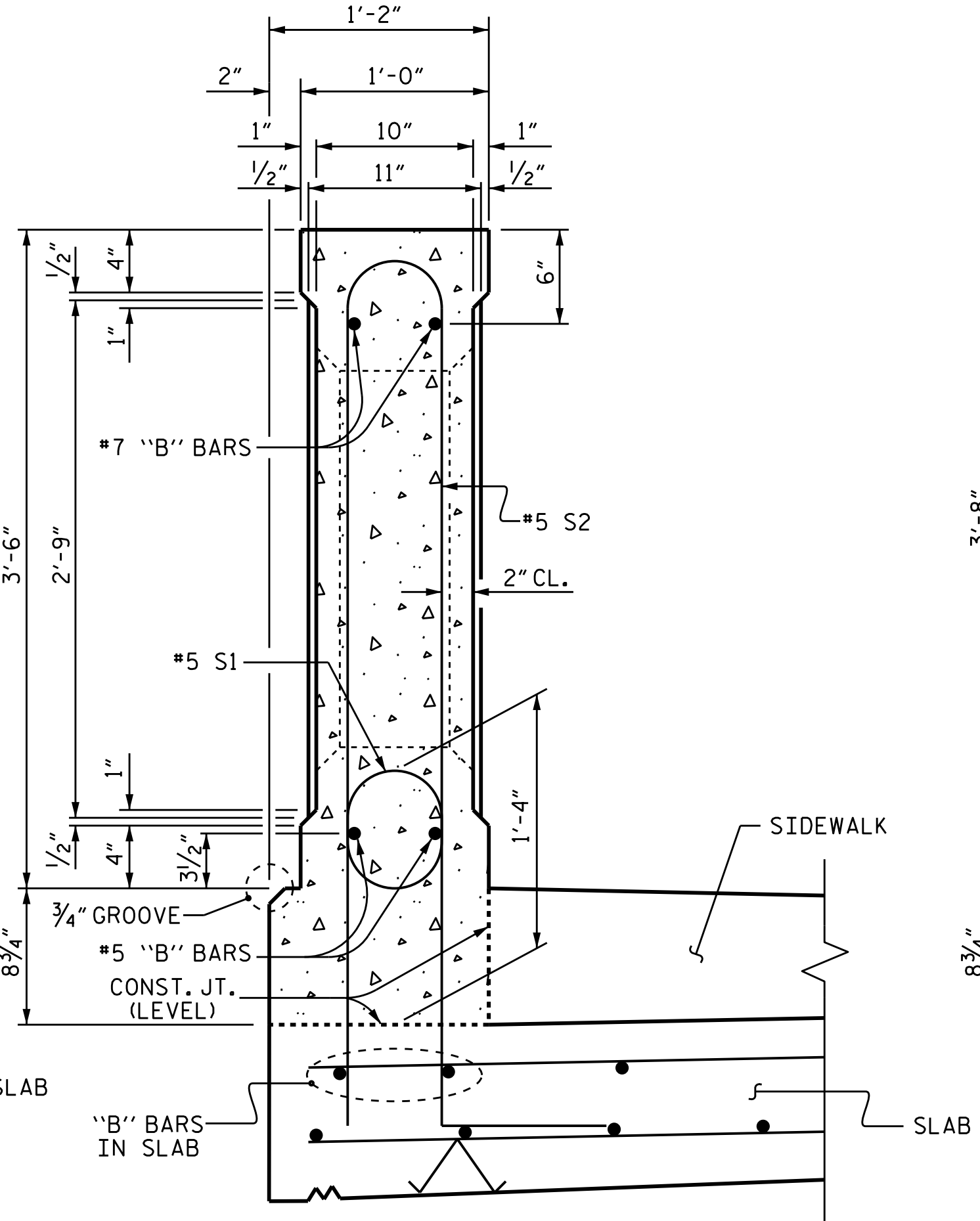


BENT PILASTER

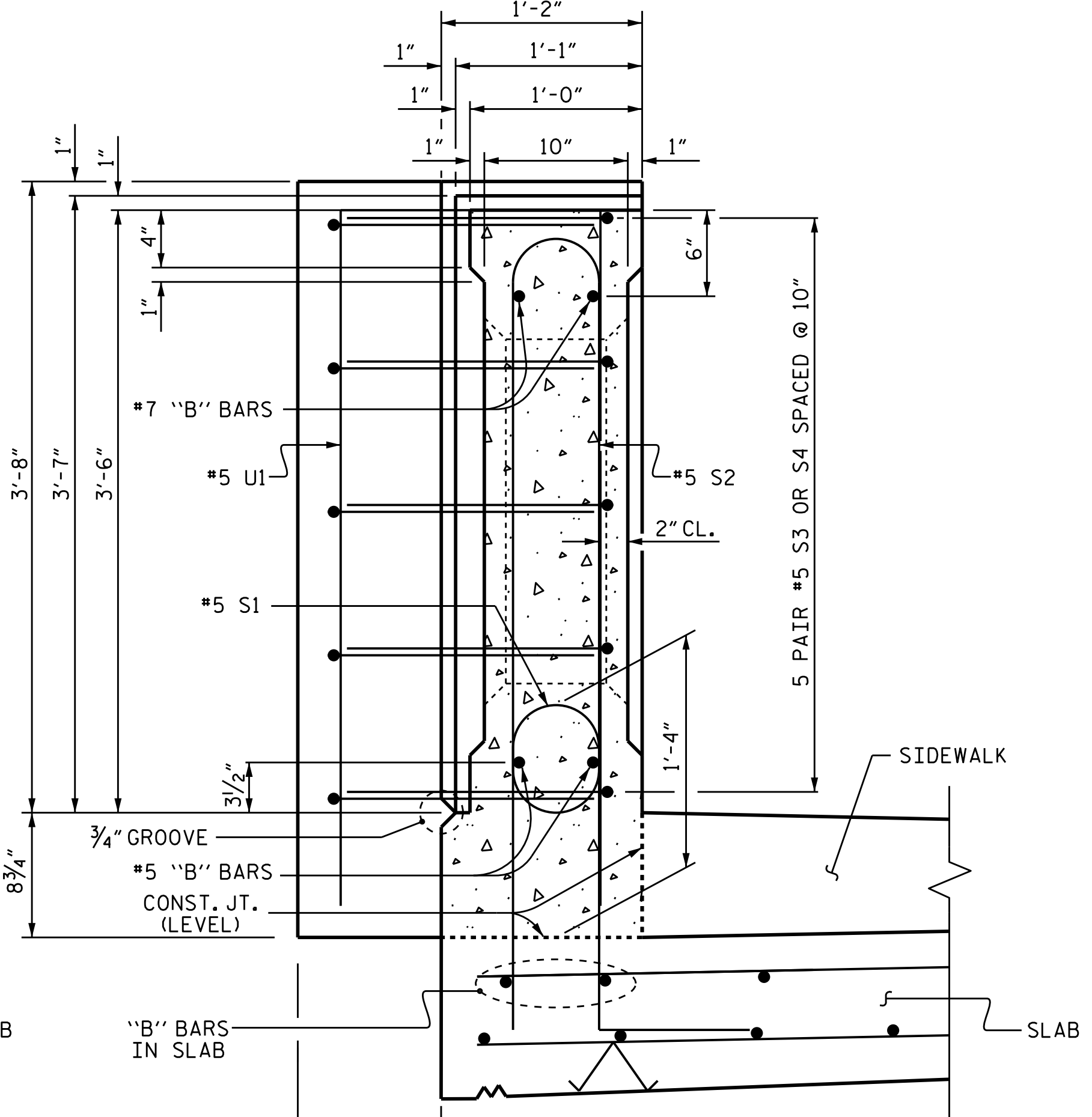
EXTERIOR PILASTER ELEVATIONS



SECTION H-H
(SHOWING WINDOW OF RAIL)



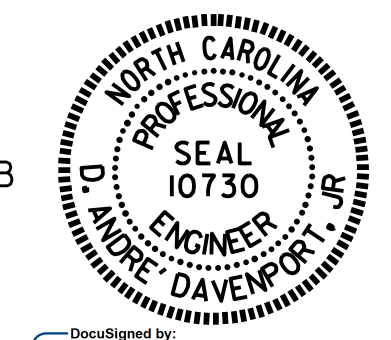
SECTION G-G
(SHOWING SPAN PILASTER)



SECTION F-F
(SHOWING BENT PILASTER & LAMP PEDESTAL)

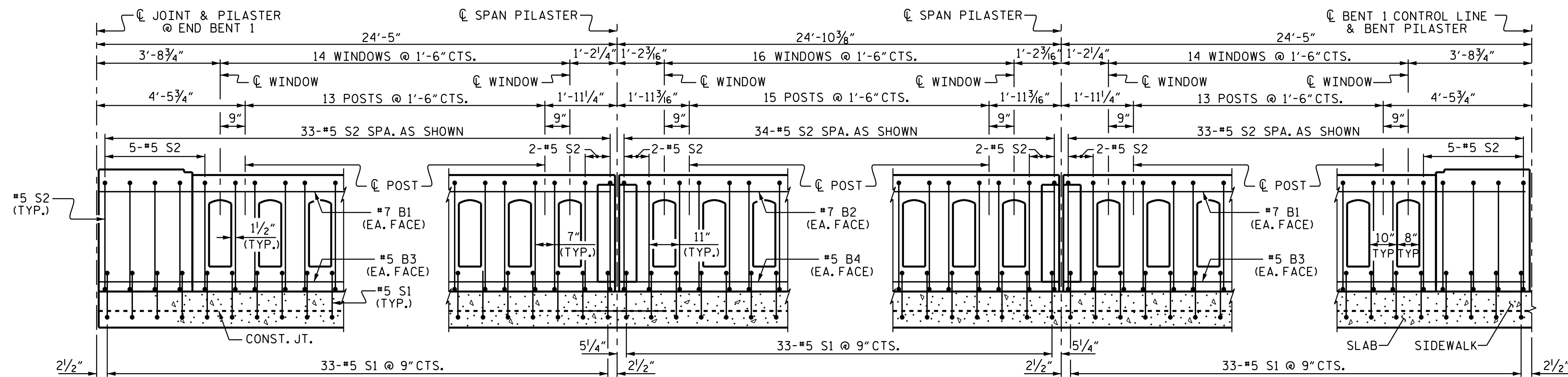
DRAWN BY : D.A. DAVENPORT DATE : 5/22/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15
 DESIGN ENGINEER OF RECORD : D.A. DAVENPORT DATE : 4/27/15

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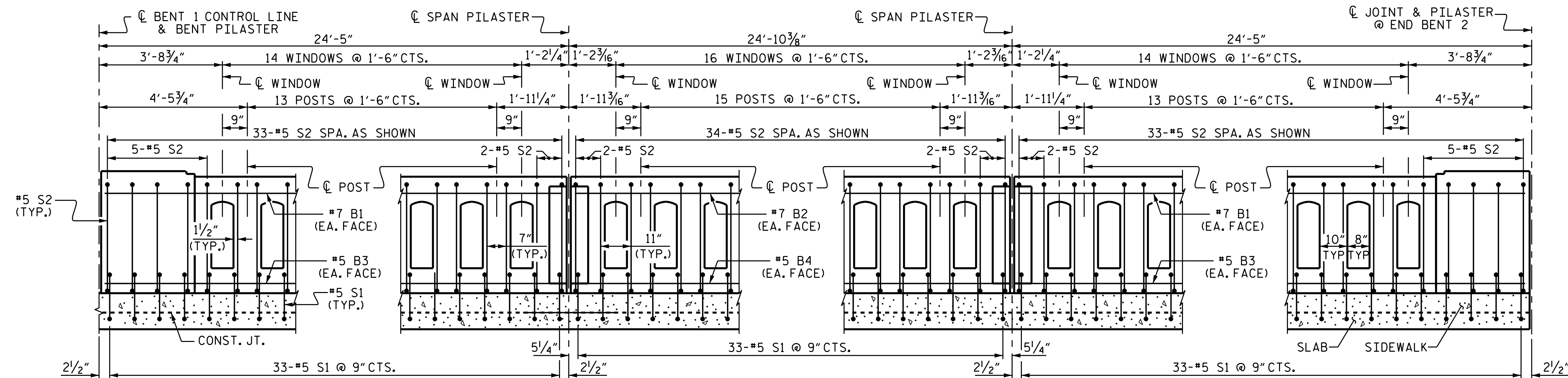
PROJECT NO. B-3159
 DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-19
SUPERSTRUCTURE CLASSIC CONCRETE BRIDGE RAIL WITH SIDEWALK						
REVISIONS						TOTAL SHEETS 43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



REINFORCING PLACEMENT- SPAN "A"

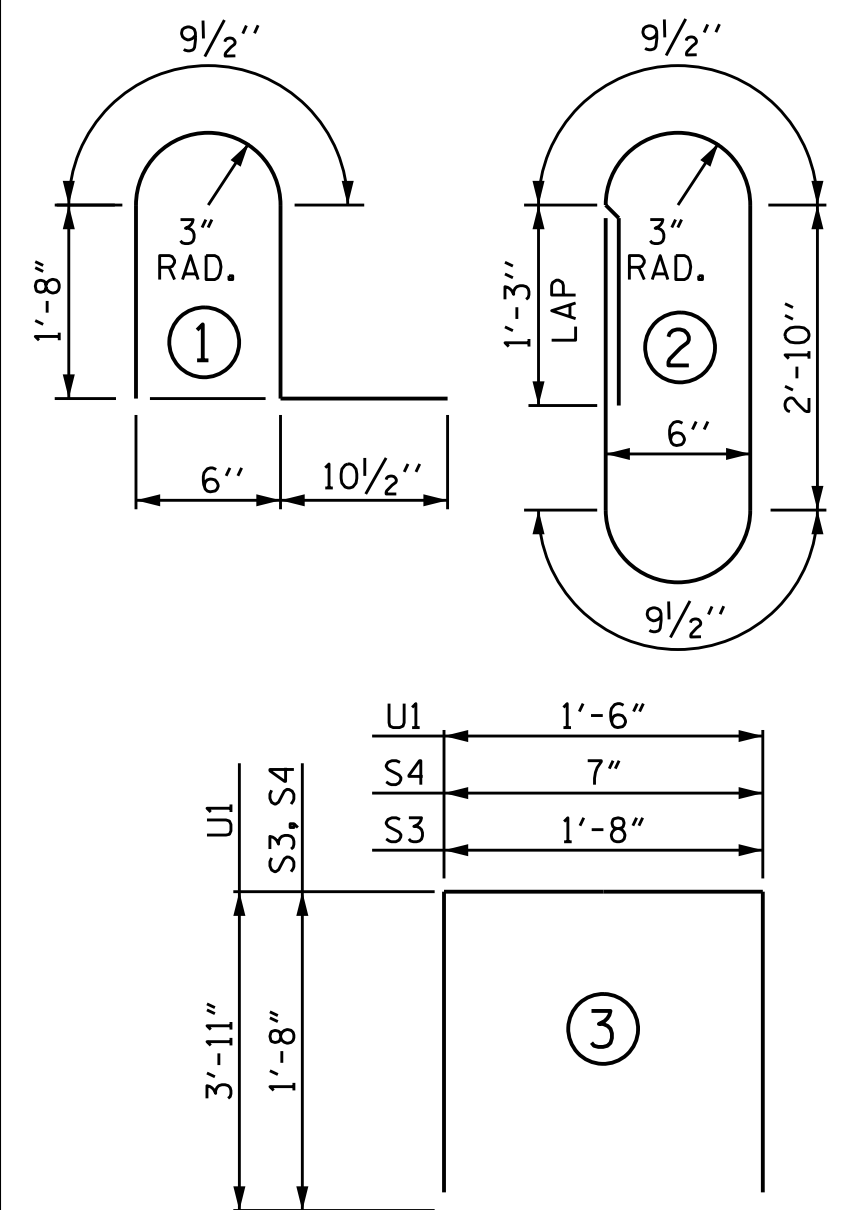
DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL



REINFORCING PLACEMENT- SPAN "B"

DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CLASSIC CONCRETE BRIDGE RAIL ONLY

STAGE I OR STAGE II

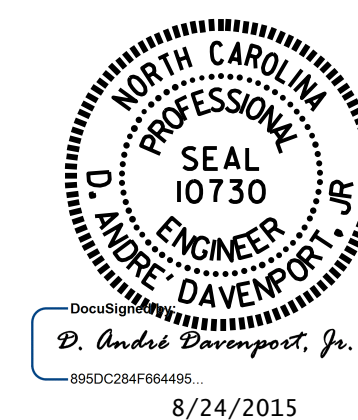
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	8	#7	STR	23'-11"	391
* B2	4	#7	STR	24'-6"	200
* B3	8	#5	STR	23'-11"	200
* B4	4	#5	STR	24'-6"	102
* S1	198	#5	1	5'-0"	1033
* S2	200	#5	2	8'-6"	1773
* S3	20	#5	3	5'-0"	104
* S4	20	#5	3	3'-11"	82
* U1	10	#5	3	9'-4"	97

* EPOXY COATED REINFORCING STEEL	3982 LBS.
CLASS AA CONCRETE	16.1 CU. YDS.
CLASSIC CONCRETE BRIDGE RAIL	147.40 LIN. FT.

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 3 OF 3

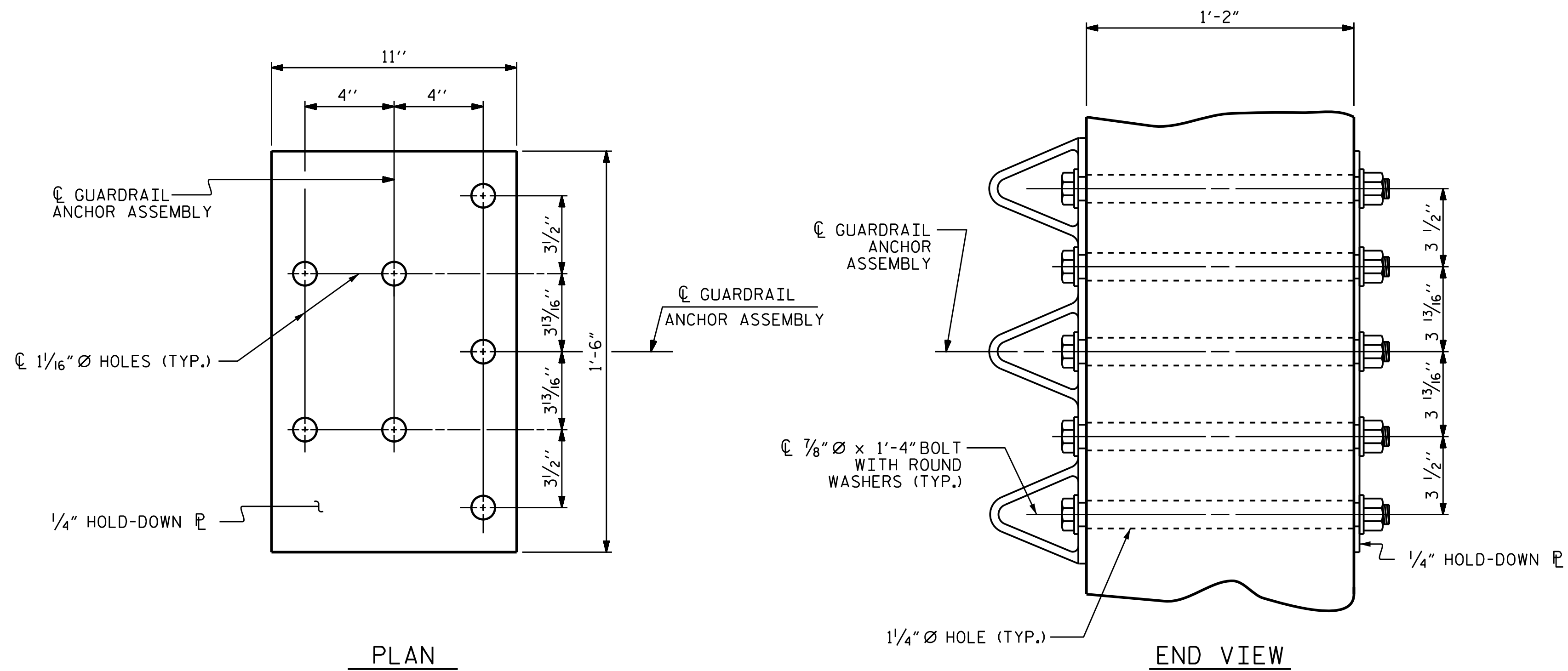
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK



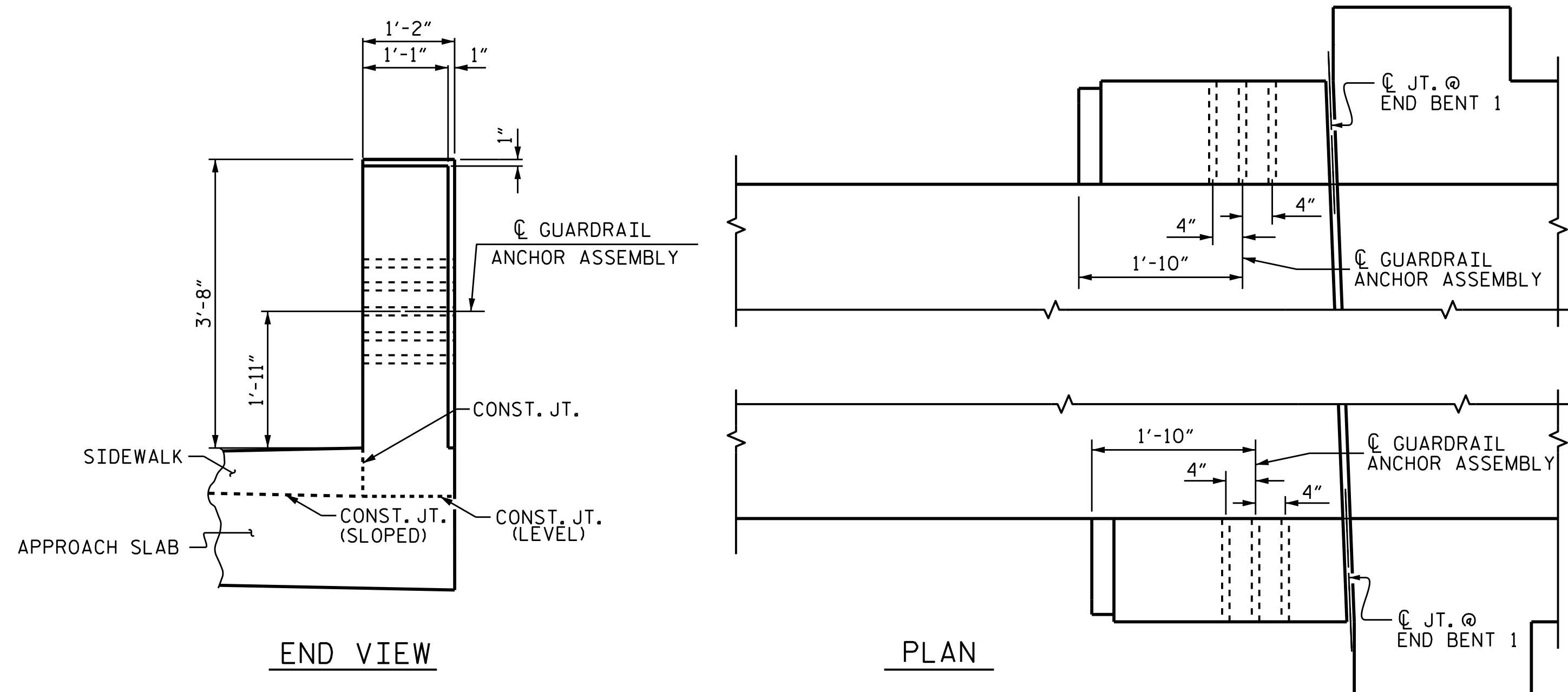
DRAWN BY : D.A. DAVENPORT DATE : 5/28/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15
 DESIGN ENGINEER OF RECORD : D.A. DAVENPORT DATE : 4/27/15

24-AUG-2015 12:27
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 43
2			4			



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR AT END POST

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

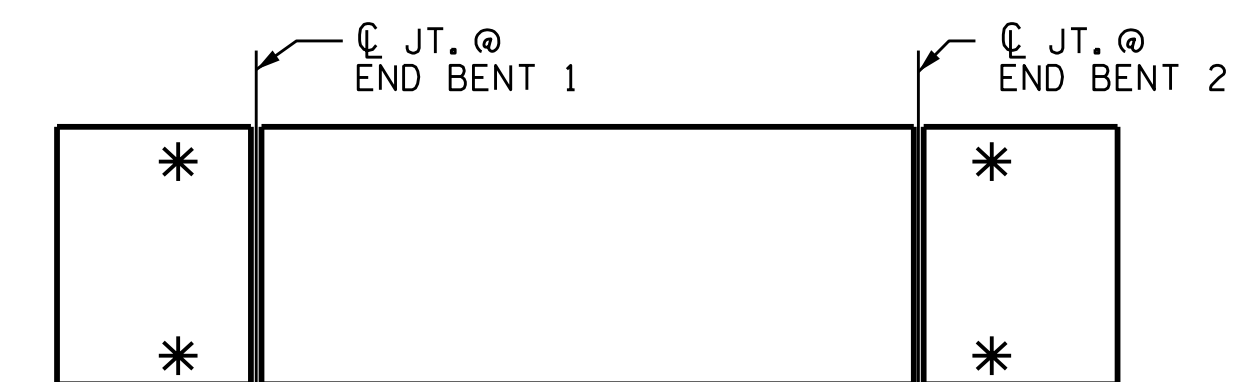
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END PILASTER TO CLEAR ASSEMBLY BOLTS.

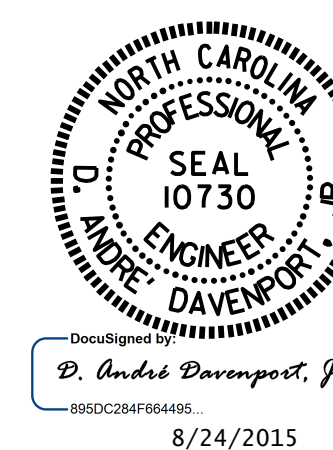
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GUARDRAIL ANCHORAGE FOR CLASSIC CONCRETE BRIDGE RAIL					
REVISIONS					SHEET NO. S-21
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS 43					

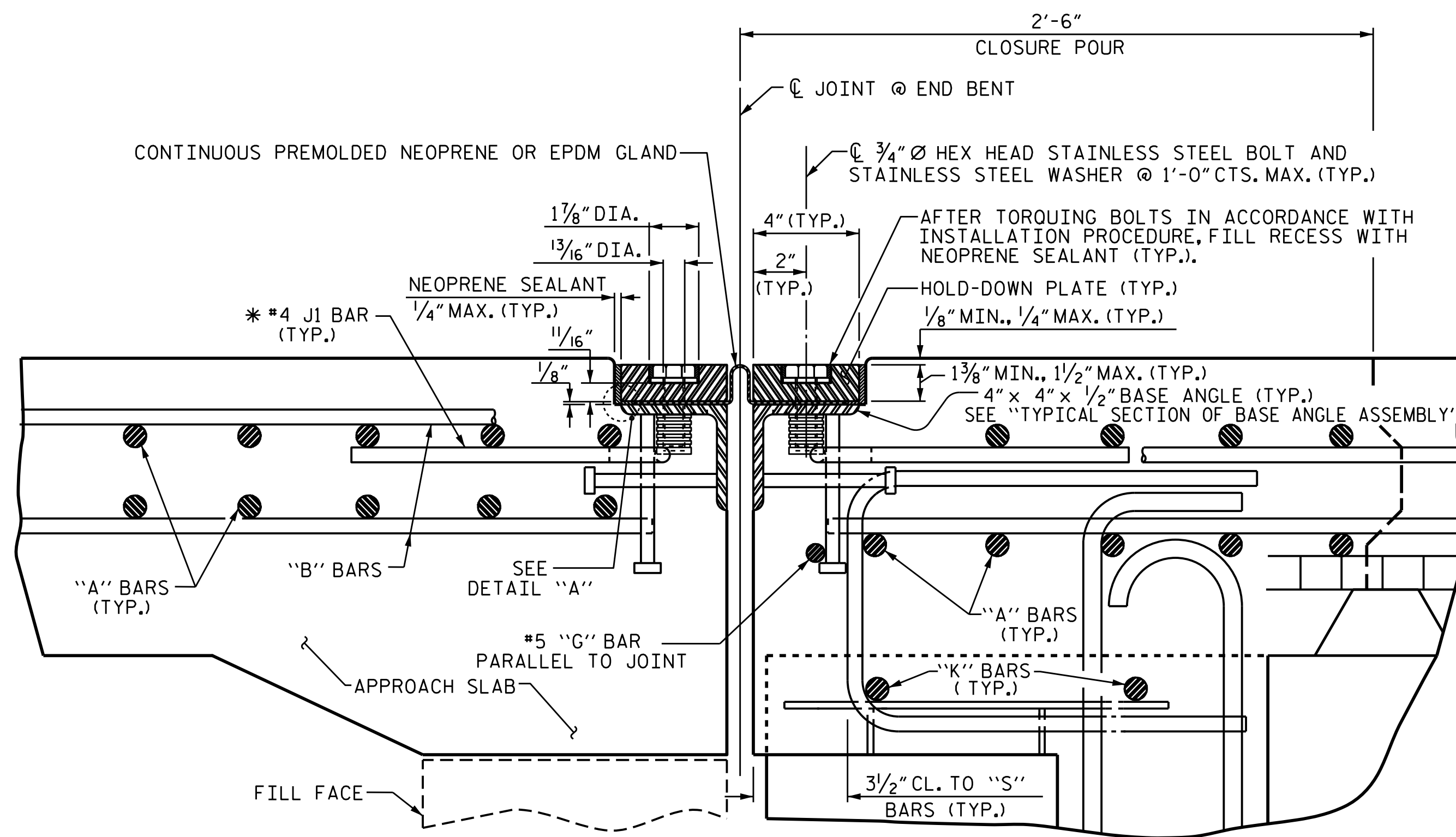
DRAWN BY : K.D. LAYNE DATE : 4-10-14
 CHECKED BY : J.D. HAWK DATE : 2/12/15

INSTALLATION PROCEDURE

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

GENERAL NOTES

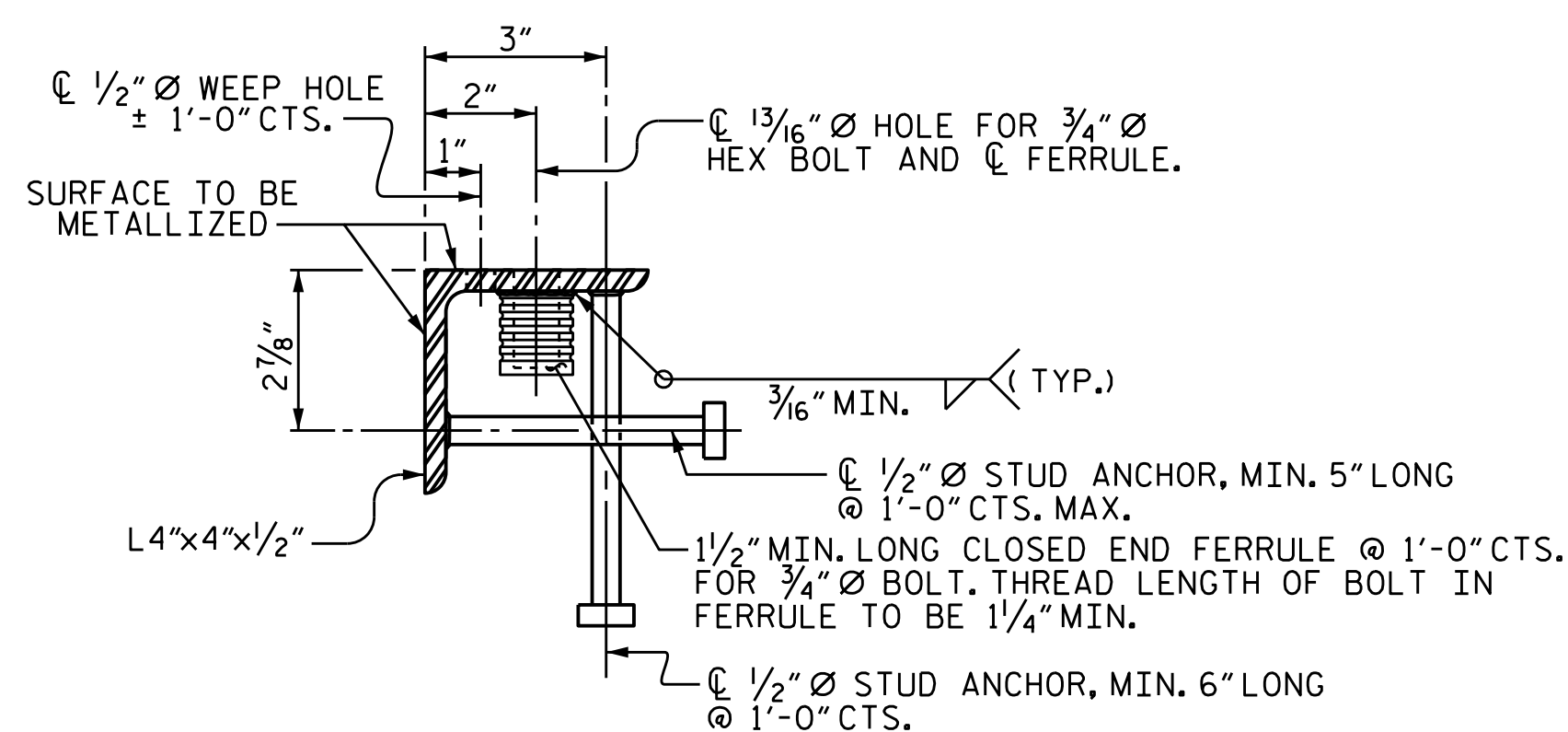
1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS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



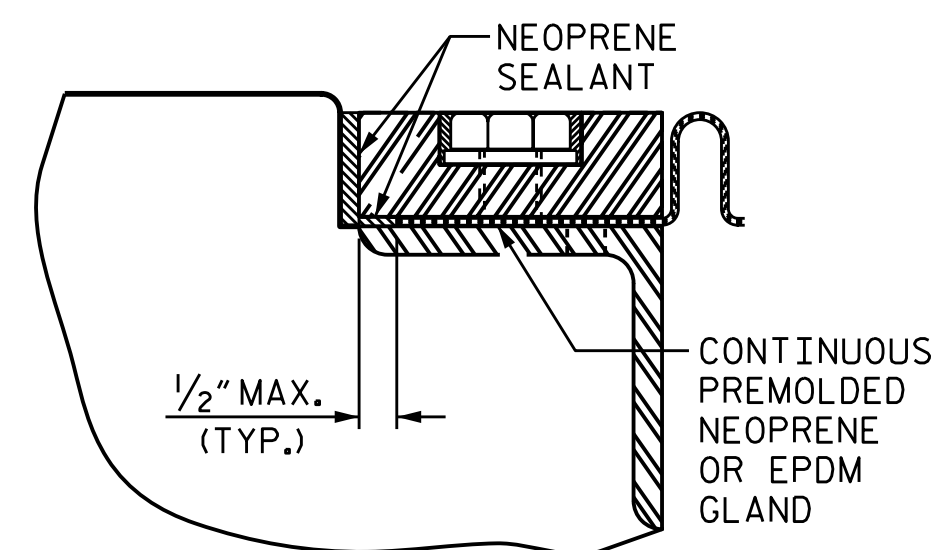
EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

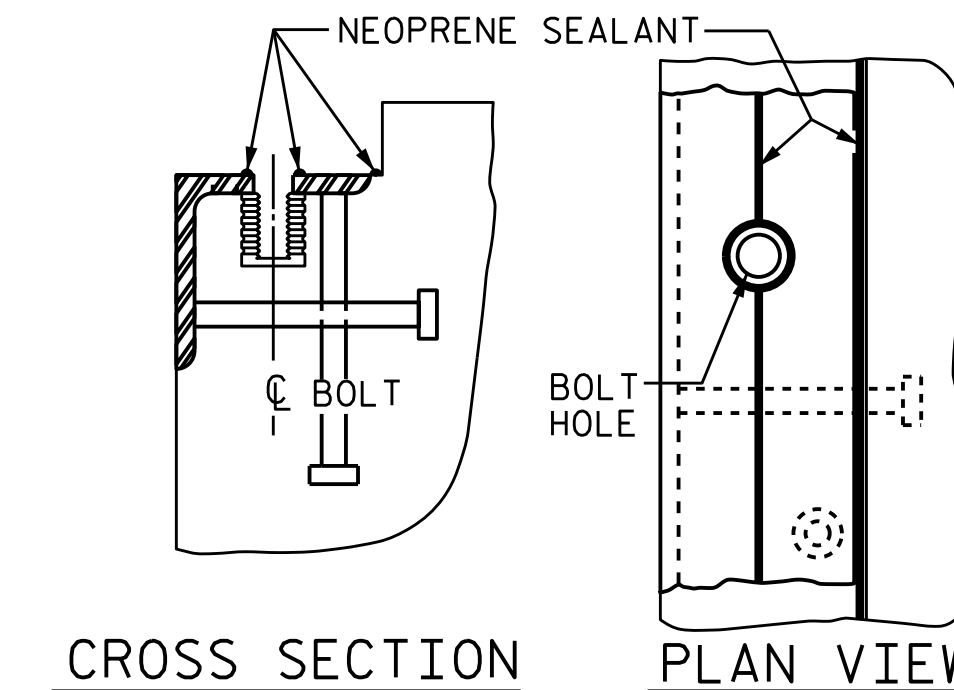
*THE QUANTITY OF #4 JI BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. JI BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF JI BARS SPECIFIED, ADDITIONAL JI BARS WILL NOT BE REQUIRED.



TYPICAL SECTION OF BASE ANGLE ASSEMBLY



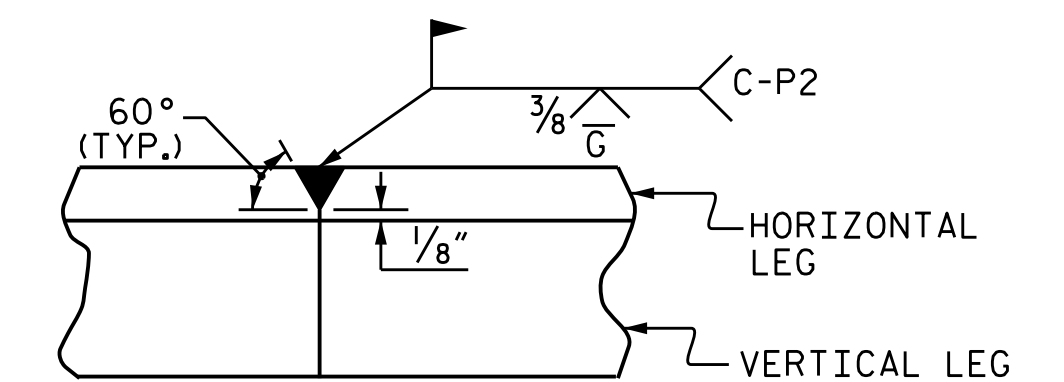
DETAIL "A"



CROSS SECTION

PLAN VIEW

INSTALLATION SKETCH



DETAIL - FIELD WELD SPLICE OF BASE ANGLE

MOVEMENT AND SETTING AT JOINT					
END BENT	SKEW ANGLE	TOTAL MOVEMENT (ALONG \varnothing RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	$89^\circ-37'-50"$	$\frac{7}{16}"$	$1\frac{5}{16}"$	$1\frac{1}{4}"$	$1\frac{1}{16}"$
2	$89^\circ-37'-50"$	$\frac{7}{16}"$	$1\frac{5}{16}"$	$1\frac{1}{4}"$	$1\frac{1}{16}"$

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 1 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD EXPANSION JOINT SEAL DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 43

ASSEMBLED BY : R.L. CHESSON DATE : 06/05/2014
 CHECKED BY : J.D. HAWK DATE : 02/12/2015

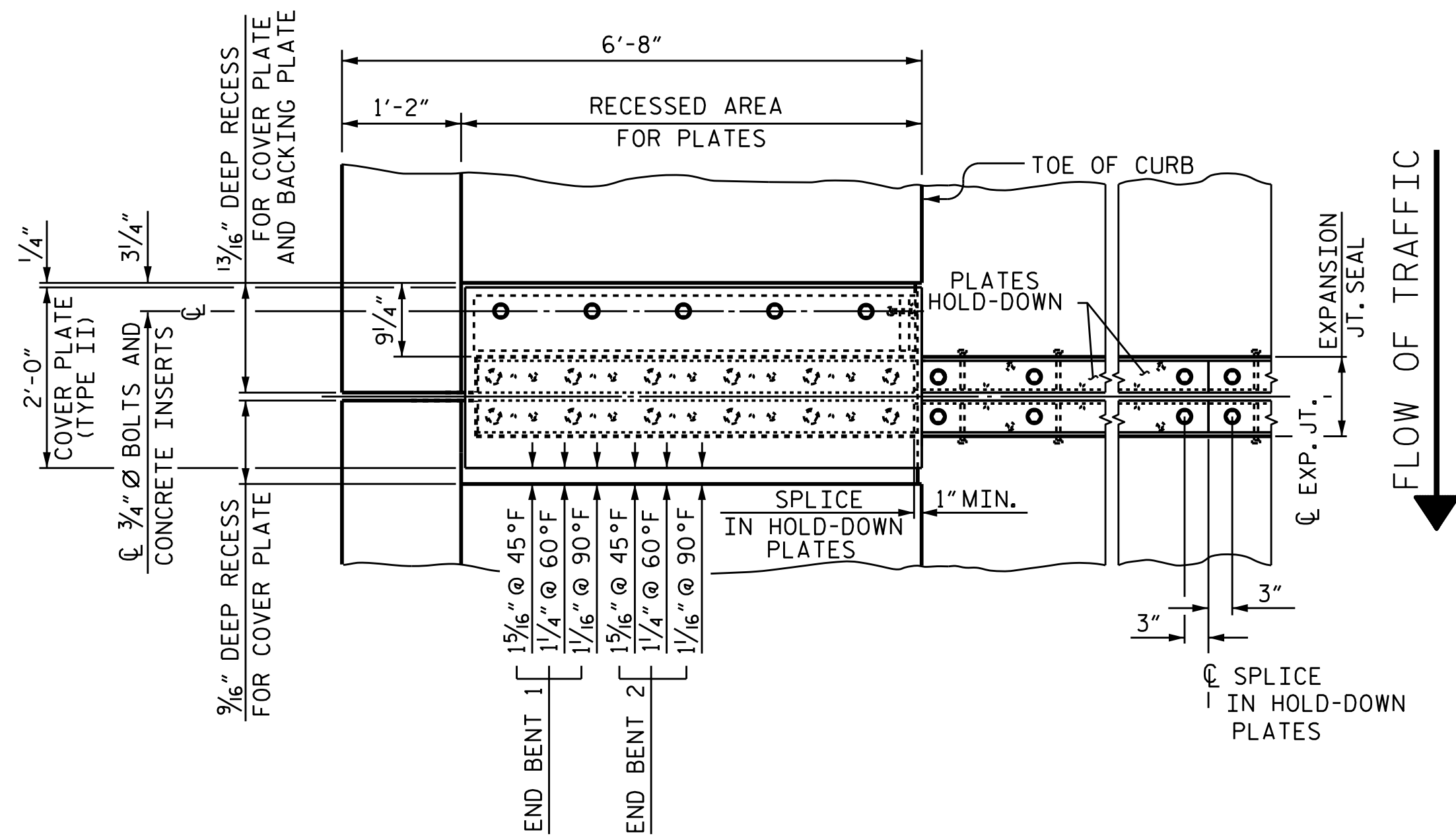
DRAWN BY : REK 9/87 REV. 5/7/03R RWW/JTE
 CHECKED BY : CRK 10/87 REV. 5/1/06R TLA/GM
 REV. 10/1/11 MAA/GM

DESIGN ENGINEER OF RECORD:
 R.L. CHESSON DATE : 6/10/15

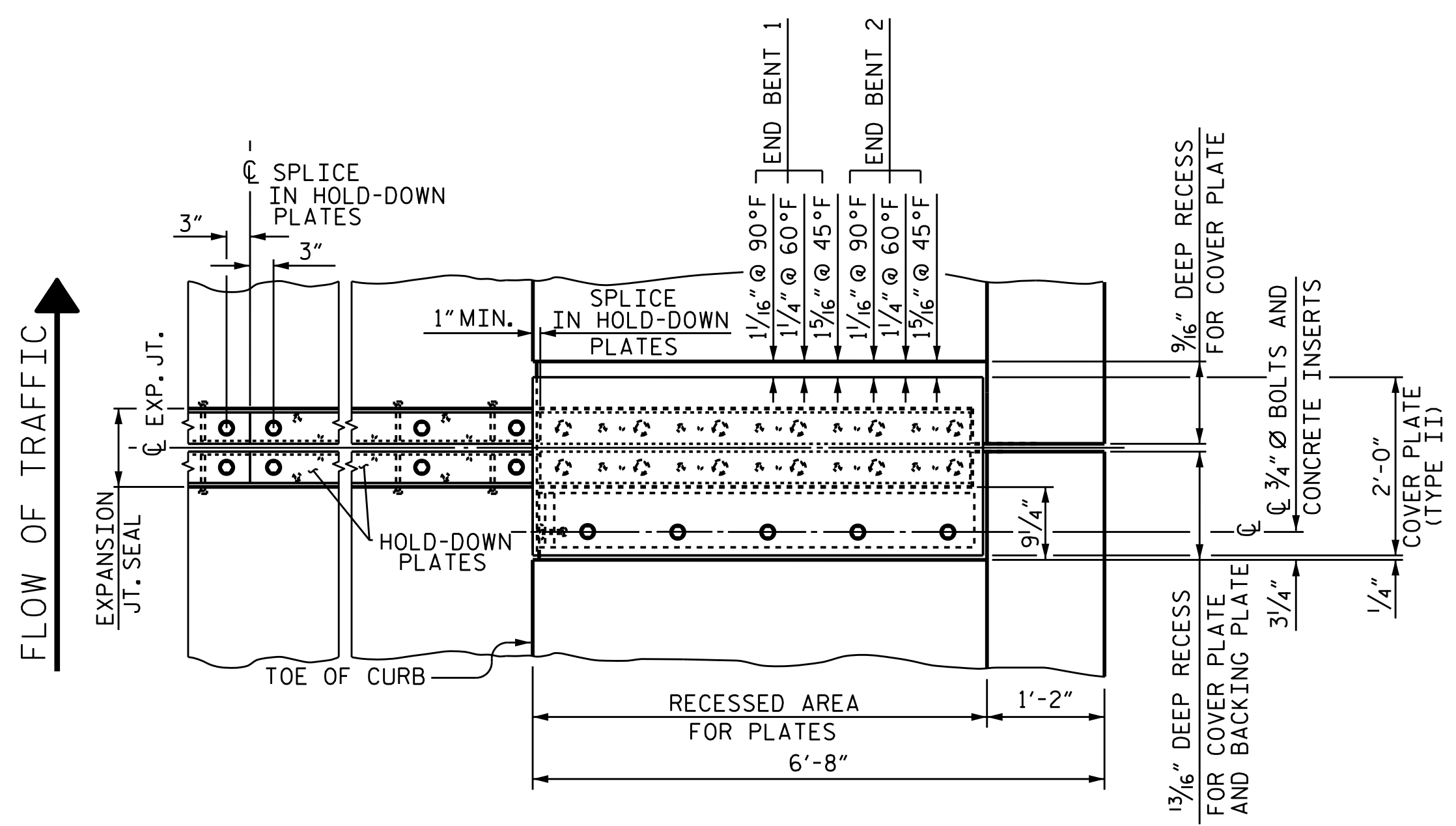
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 ddavenport

B. Andre Davenport, Jr.
 8/24/2015

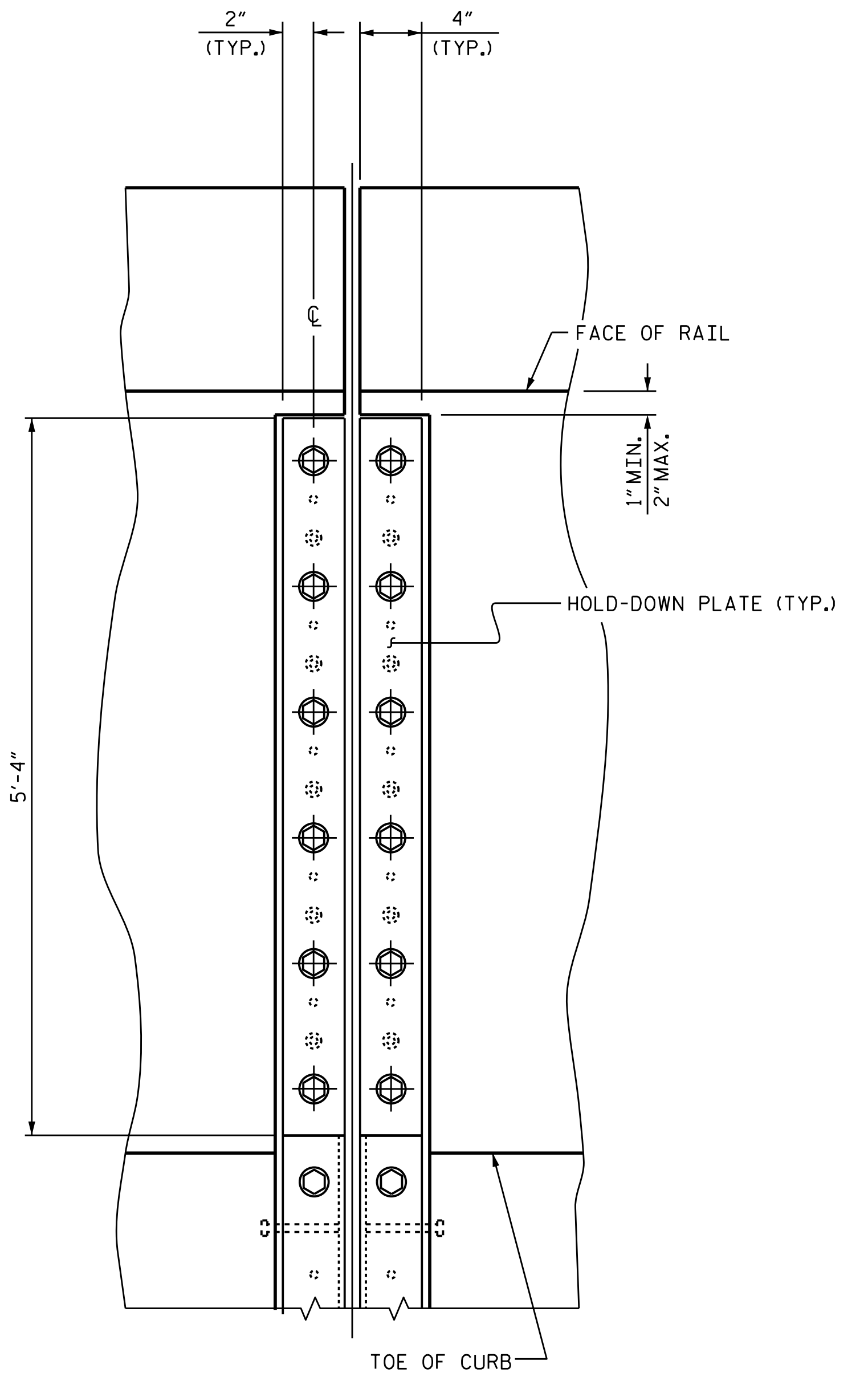
STD. NO. EJS1



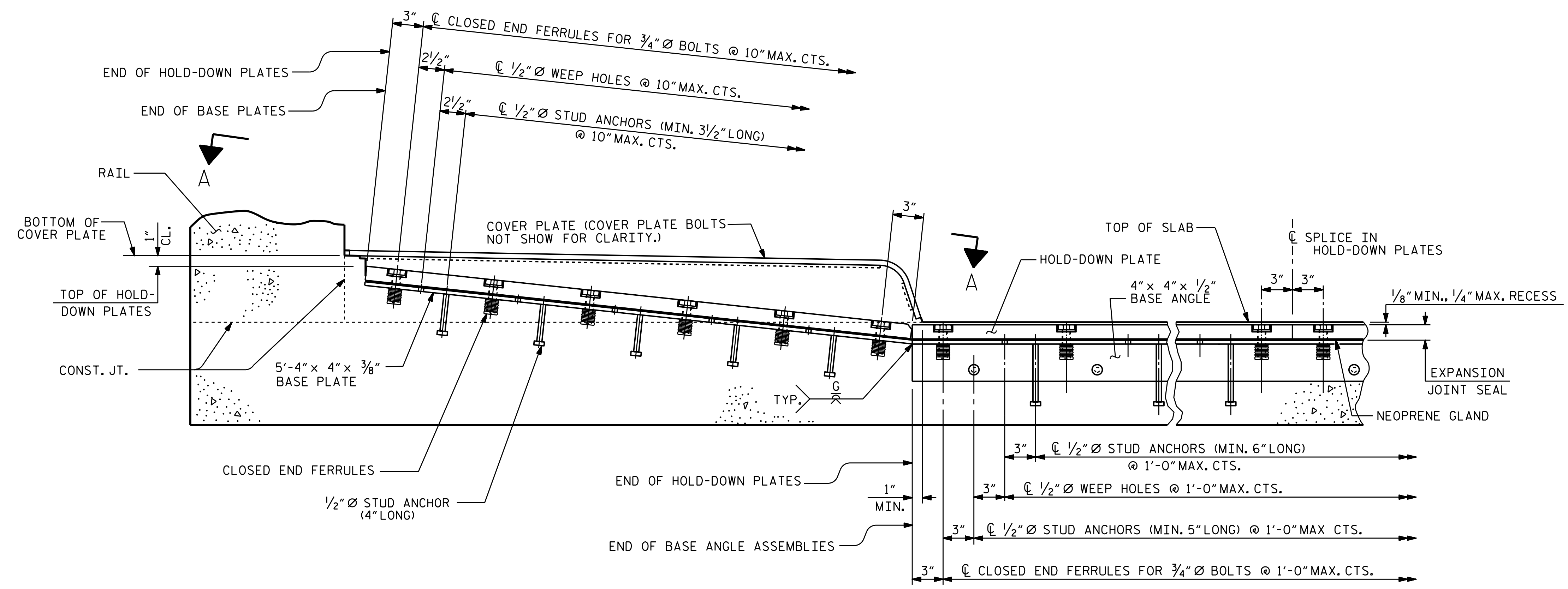
PLAN OF EXPANSION JOINT SEAL - LEFT SIDE



PLAN OF EXPANSION JOINT SEAL - RIGHT SIDE



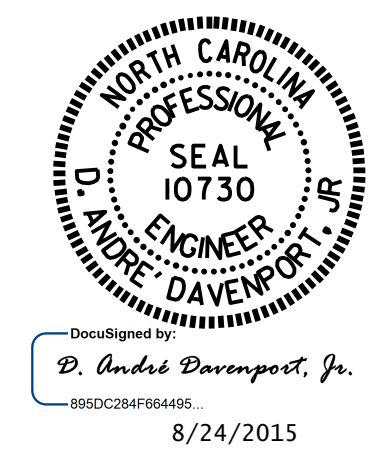
SECTION A - A



SECTION THROUGH SIDEWALK NORMAL TO JOINT

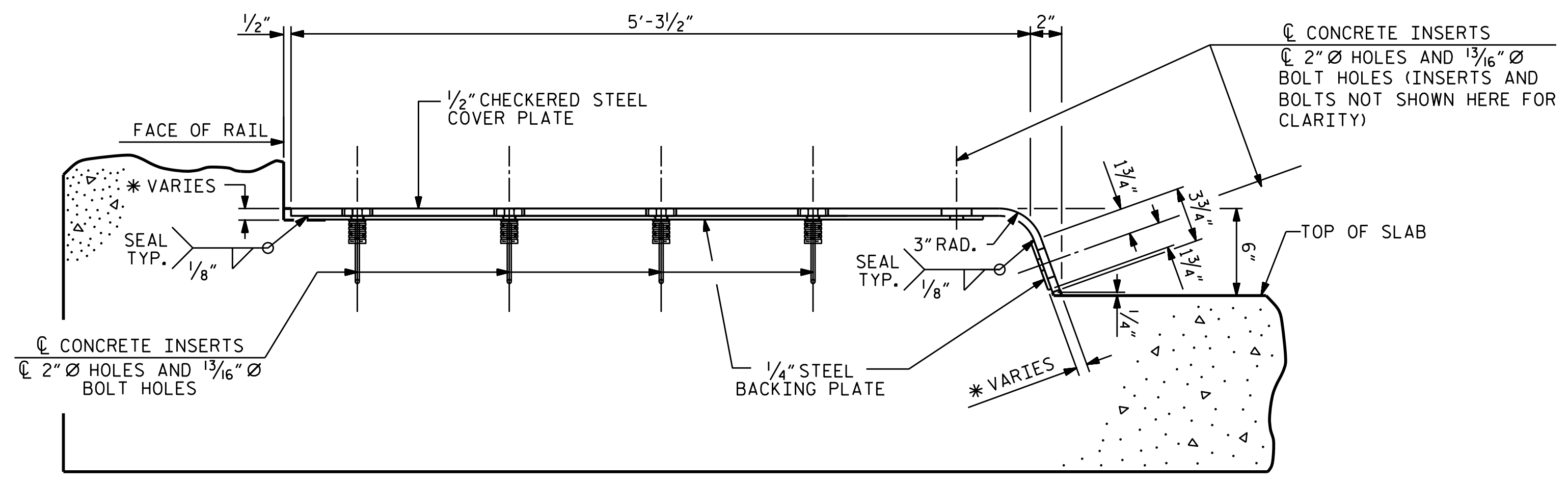
PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 EXPANSION JOINT
 SEAL DETAILS
 FOR SIDEWALK



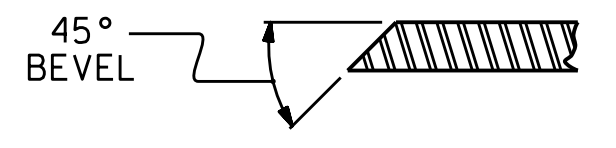
ASSEMBLED BY : R.L. CHESSON	DATE : 06/05/2014	DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE : 6/10/15
CHECKED BY : J.D. HAWK	DATE : 02/12/2015	
DRAWN BY : REK 10/87	REV. 2/6/97 EEM/RGW	
CHECKED BY : CRK 1/88	REV. 5/1/06 TLA/GM	
	REV. 10/1/11 MAA/GM	

REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

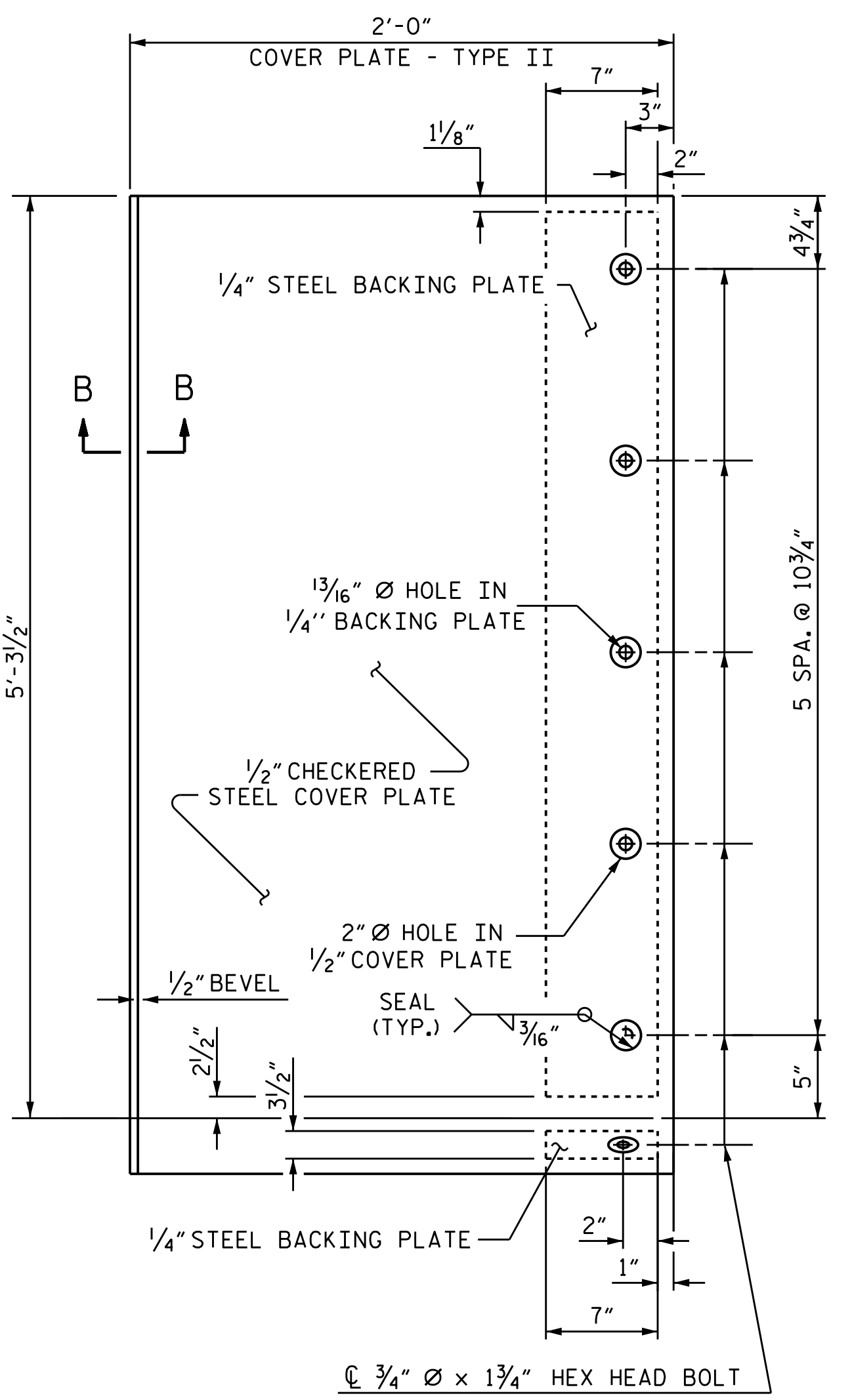


END VIEW
(NORMAL TO SIDEWALK)

* CONCRETE RECESS DIMENSIONS:
 1 3/16" FOR THE SIDE OF THE JOINT HAVING THE 1/2" COVER PLATE WITH A 1/4" BACKING PLATE.
 3/16" FOR THE SIDE OF THE JOINT HAVING ONLY THE 1/2" COVER PLATE.

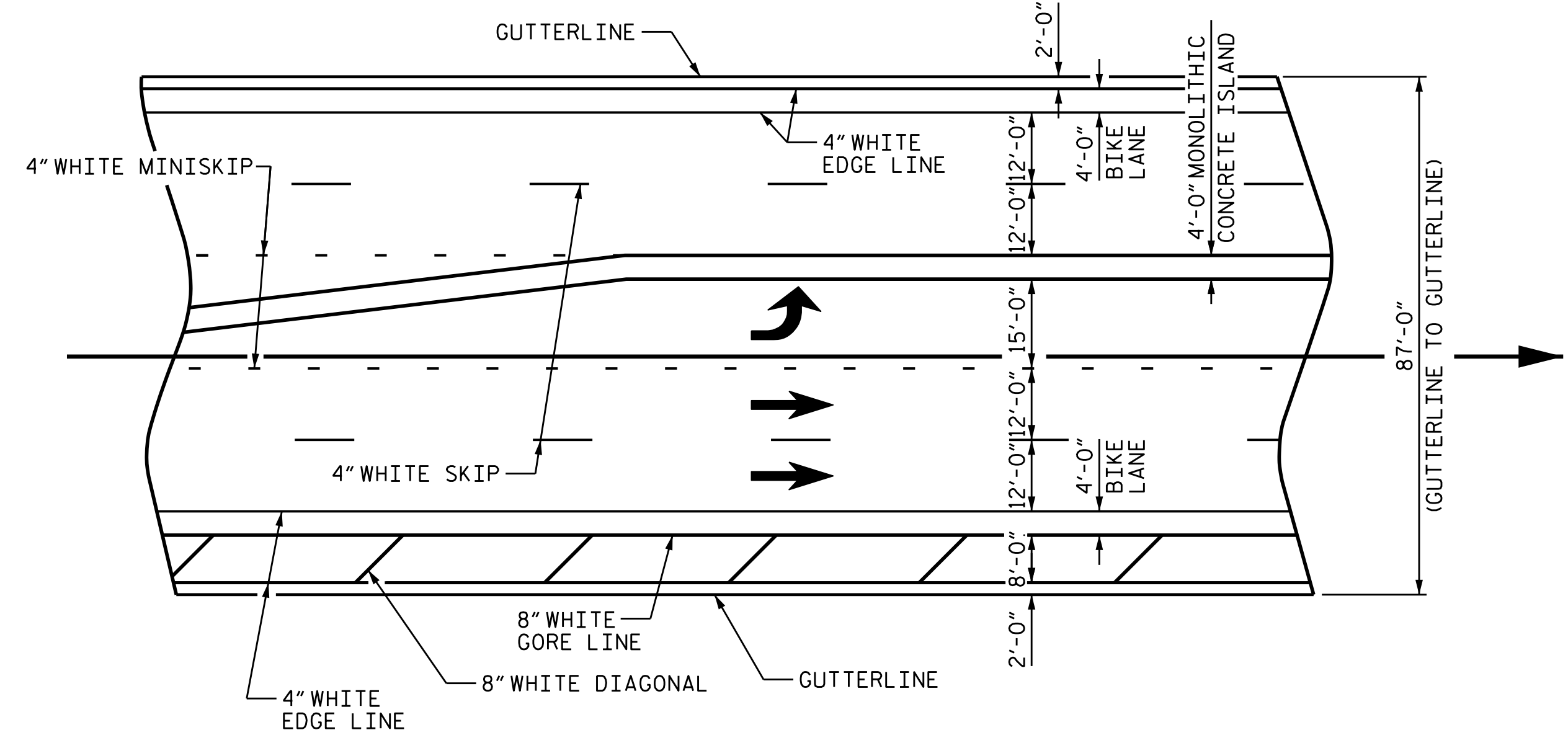


SECTION B - B

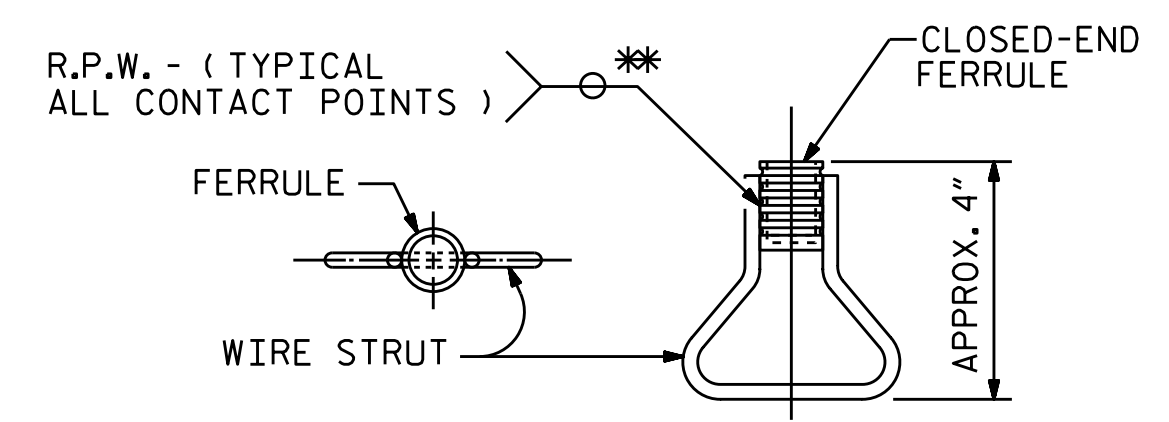


TYPE II - PLAN VIEW
(4 REQUIRED)

COVER PLATE DETAILS



PAVEMENT MARKING ALIGNMENT



PLAN ELEVATION

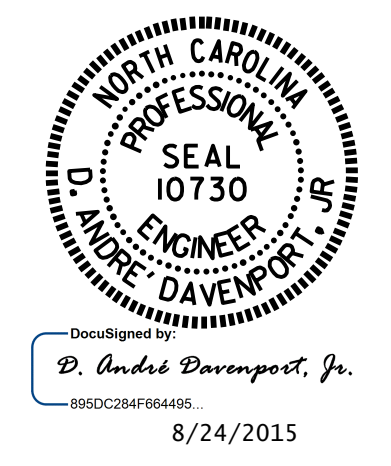
CONCRETE INSERT

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

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

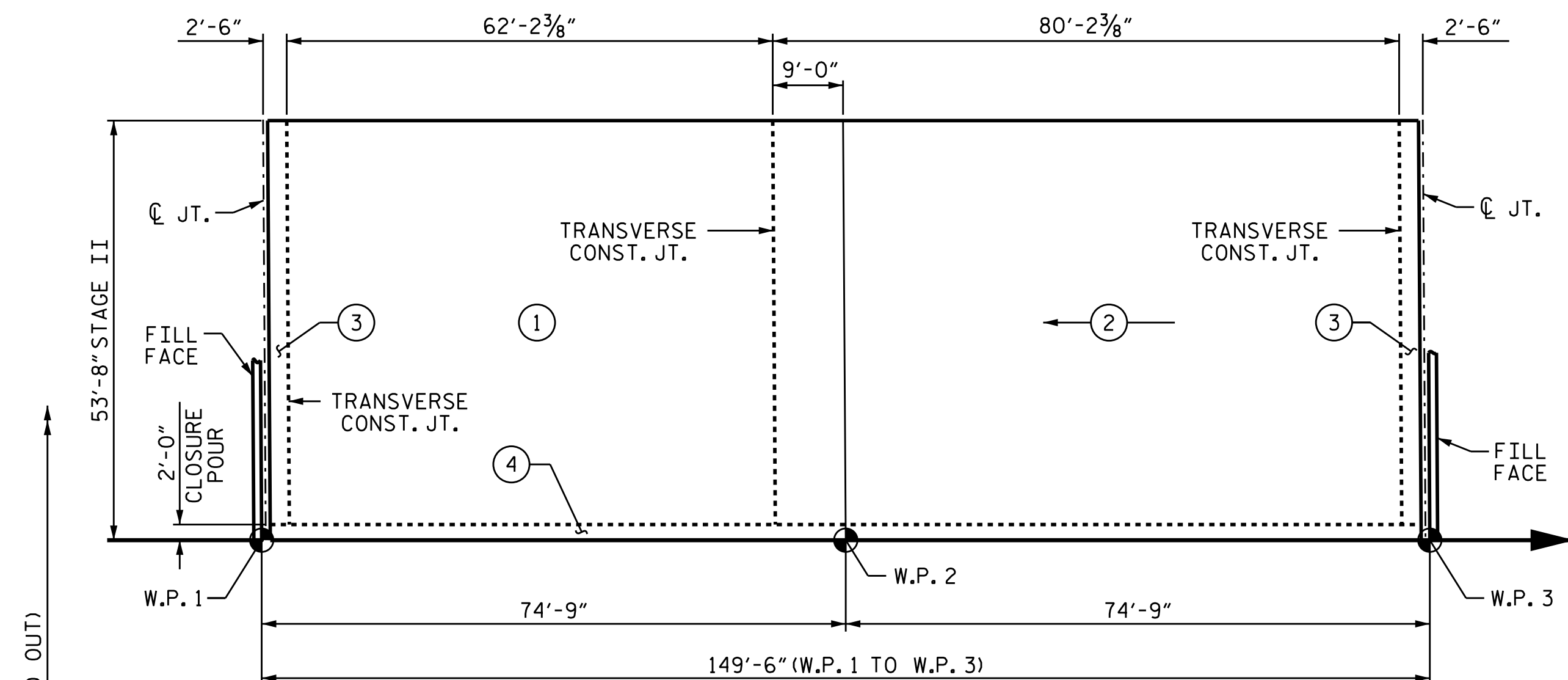
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 EXPANSION JOINT
 SEAL DETAILS
 FOR SIDEWALK



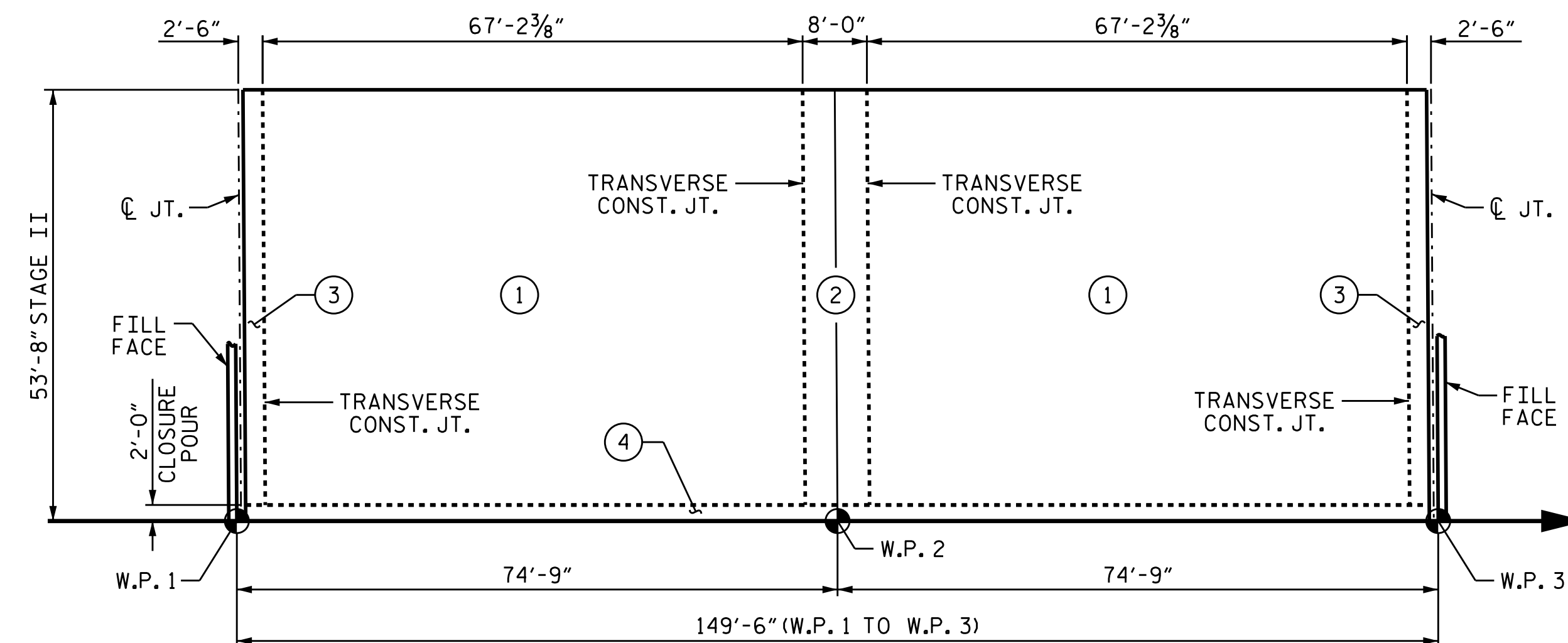
REVISIONS						SHEET NO. S-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

ASSEMBLED BY : R.L. CHESSON	DATE : 06/05/2014
CHECKED BY : J.D. HAWK	DATE : 02/12/2015
DRAWN BY : REK 10/87	REV. 10/17/00 RWW/LES
CHECKED BY : CRK 1/88	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM
DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE : 6/10/15	



POUR SEQUENCE - STAGE II

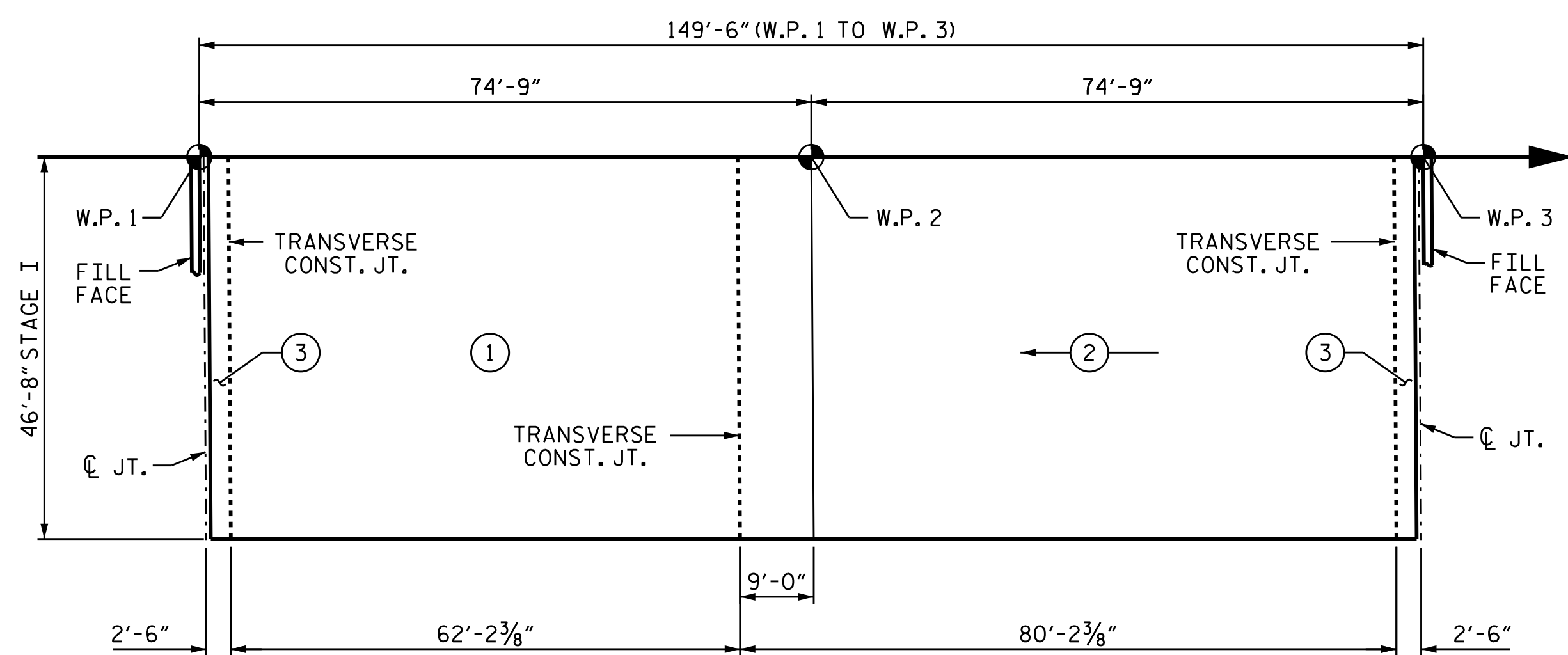
⊕ = INDICATES POUR NUMBER AND DIRECTION OF POUR



OPTIONAL POUR SEQUENCE - STAGE II

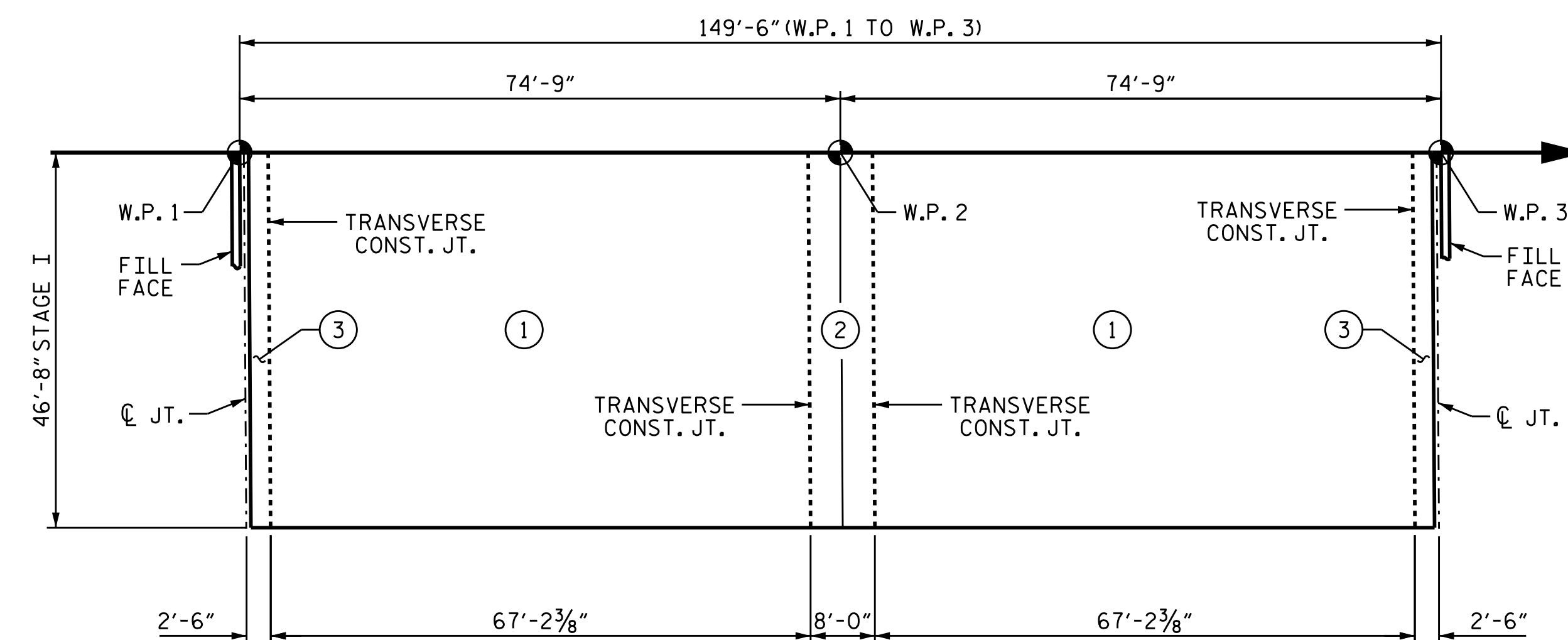
POUR ② CANNOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MINIMUM OF 3000 PSI.

100'-4" (OUT TO OUT)



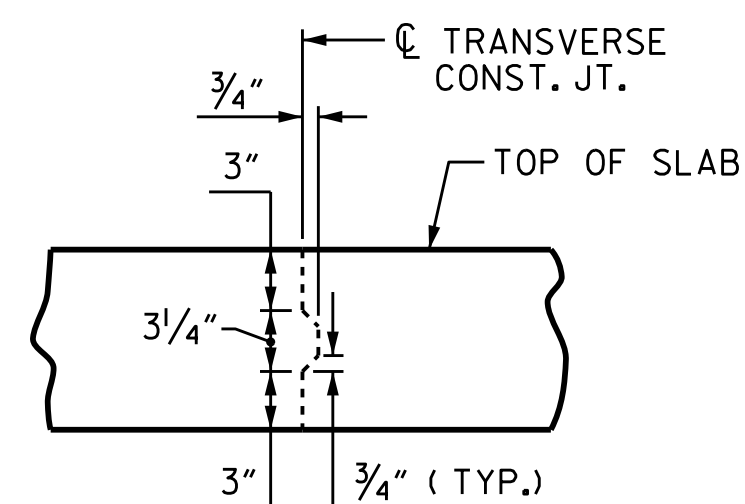
POUR SEQUENCE - STAGE I

⊕ = INDICATES POUR NUMBER AND DIRECTION OF POUR



OPTIONAL POUR SEQUENCE - STAGE I

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

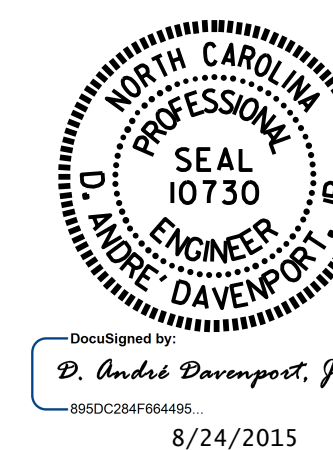


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

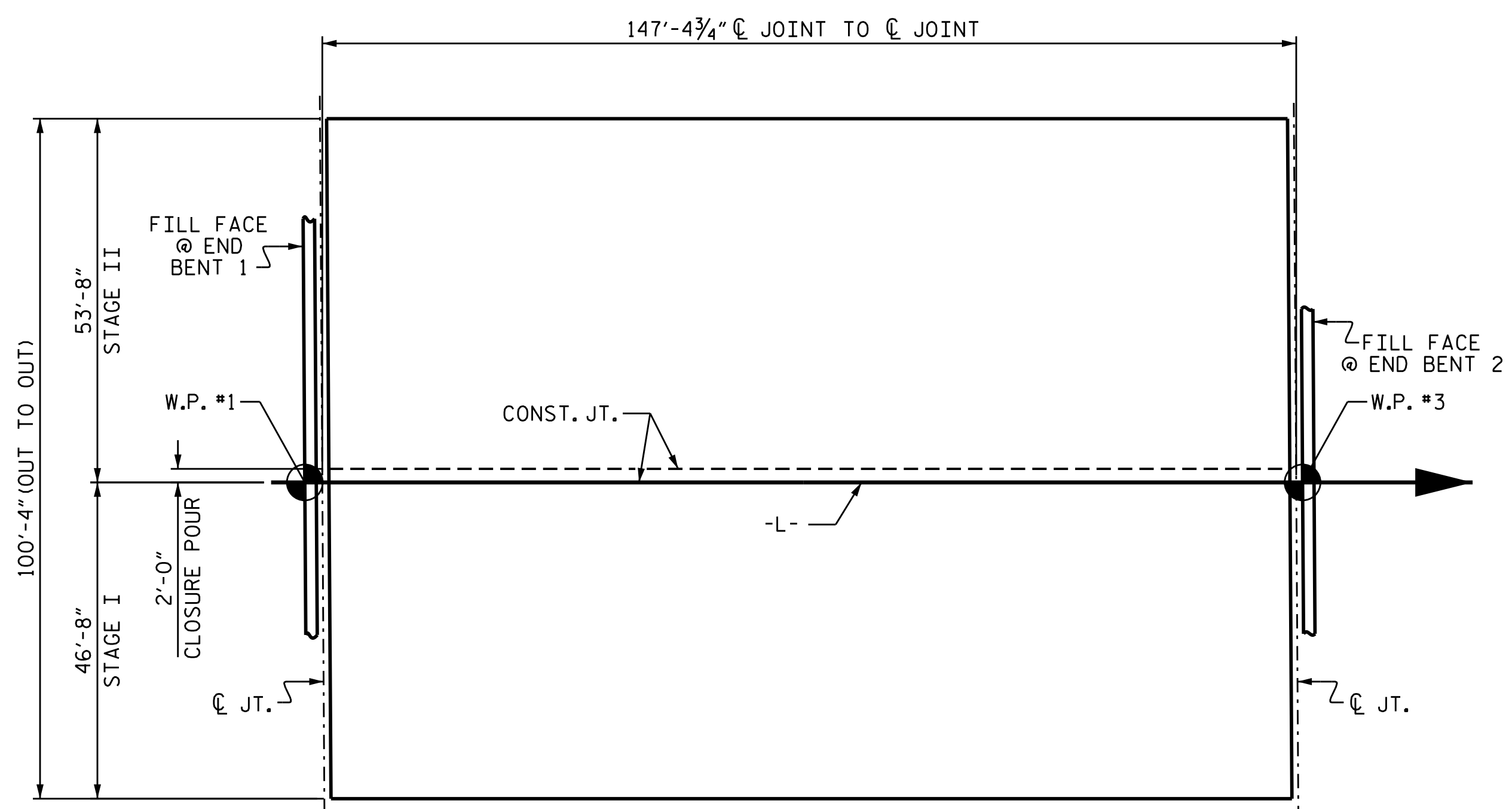
PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-25
SUPERSTRUCTURE POUR SEQUENCE						
REVISIONS						TOTAL SHEETS 43
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



DRAWN BY : M.K. BEARD DATE : 8/20/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15
 DESIGN ENGINEER OF RECORD: R.L. CHESSON DATE : 6/10/15

24-AUG-2015 12:27
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LAYOUT FOR COMPUTING AREA
 REINFORCED CONCRETE DECK SLAB

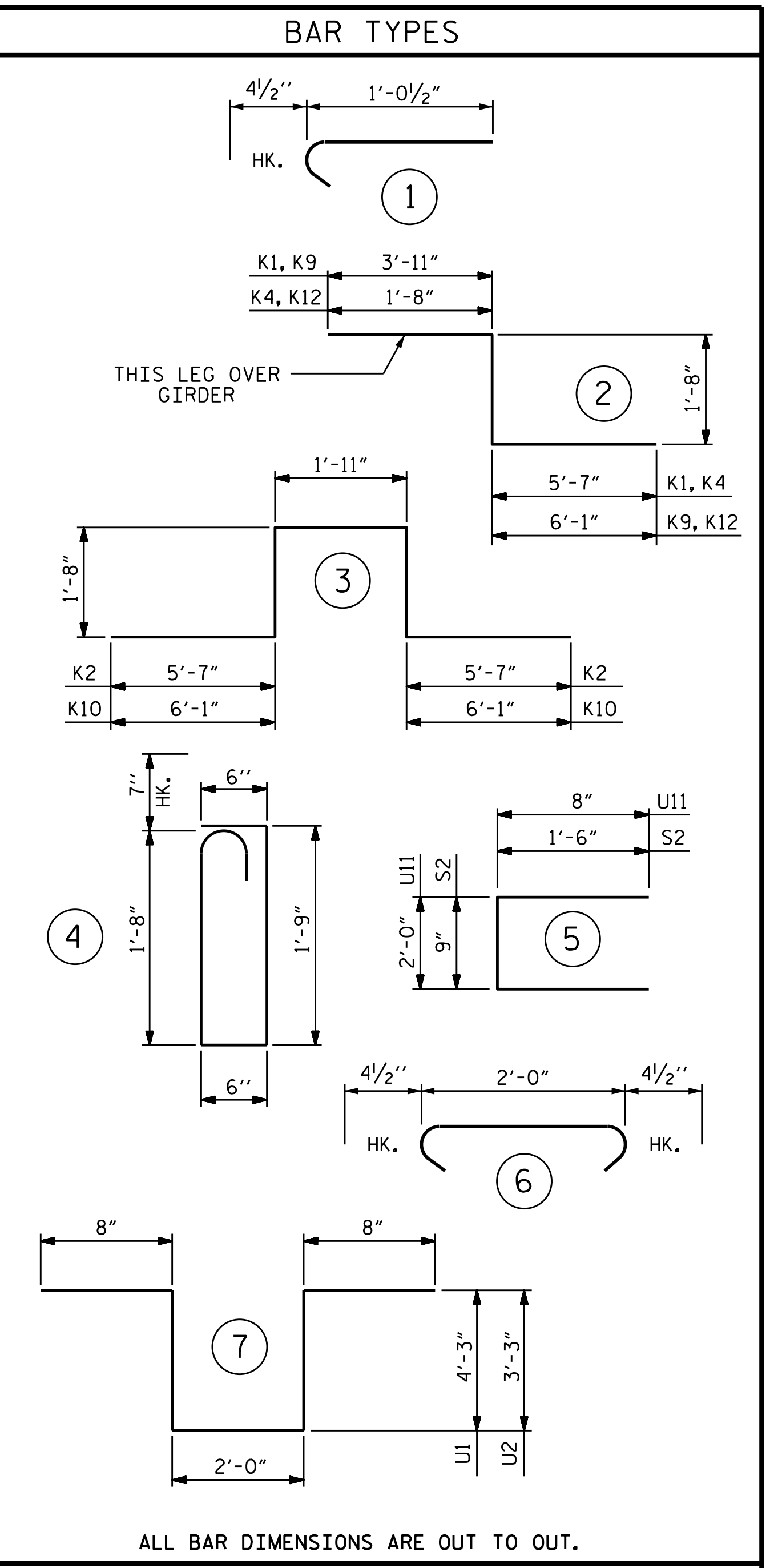
STAGE I = 6,878 SQ. FT.
 STAGE II = 7,910 SQ. FT.
 TOTAL = 14,788 SQ. FT.

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"			

BILL OF MATERIAL

STAGE I						STAGE II					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	295	#5	STR	46'-4"	14256	*A3	295	#5	STR	51'-4"	15795
A2	295	#5	STR	46'-4"	14256	A4	295	#5	STR	51'-4"	15795
*B1	128	#4	STR	24'-3"	2073	*B1	148	#4	STR	24'-3"	2397
B2	177	#5	STR	50'-6"	9323	B2	201	#5	STR	50'-6"	10587
*B3	63	#5	STR	58'-0"	3811	*B3	71	#5	STR	58'-0"	4295
*B4	61	#5	STR	24'-0"	1527	*B4	70	#5	STR	24'-0"	1752
*B11	30	#4	STR	26'-2"	524	*B11	30	#4	STR	26'-2"	524
						*B12	18	#4	STR	26'-3"	316
*D1	147	#6	STR	3'-9"	828						
						*D1	147	#6	STR	3'-9"	828
G1	2	#5	STR	46'-4"	97	G2	2	#5	STR	51'-4"	107
*G11	147	#4	STR	5'-0"	491	G3	2	#5	STR	1'-8"	3
						*G11	147	#4	STR	5'-0"	491
J1	90	#4	1	1'-5"	85	*G12	98	#4	STR	3'-2"	207
K1	4	#8	2	11'-2"	119	J1	104	#4	1	1'-5"	98
K2	16	#8	3	16'-5"	701						
K3	20	#6	STR	6'-10"	205	K9	4	#8	2	11'-8"	125
K4	4	#8	2	8'-11"	95	K10	16	#8	3	17'-5"	744
K5	20	#4	STR	7'-7"	101	K11	20	#6	STR	7'-10"	235
K6	10	#4	STR	5'-2"	35	K12	4	#8	2	9'-5"	101
K7	10	#4	STR	6'-10"	46	K13	8	#4	STR	25'-4"	135
K8	8	#4	STR	22'-10"	122	K14	20	#4	STR	8'-7"	115
						K15	10	#4	STR	6'-2"	41
*S1	70	#5	4	5'-0"	365	K16	10	#4	STR	7'-10"	52
*S2	70	#4	5	3'-9"	175						
S3	110	#4	6	2'-9"	202						
						*S1	80	#5	4	5'-0"	417
U1	30	#4	7	11'-10"	237	*S2	80	#4	5	3'-9"	200
U2	10	#4	7	9'-10"	66	S3	110	#4	6	2'-9"	202
*U11	42	#4	5	3'-4"	94						
						U1	30	#4	7	11'-10"	237
						U2	10	#4	7	9'-10"	66
						*U11	42	#4	5	3'-4"	94
REINFORCING STEEL				25,690 LBS.		REINFORCING STEEL				28,643 LBS.	
*EPOXY COATED REINFORCING STEEL				24,144 LBS.		*EPOXY COATED REINFORCING STEEL				27,316 LBS.	



SUPERSTRUCTURE BILL OF MATERIAL

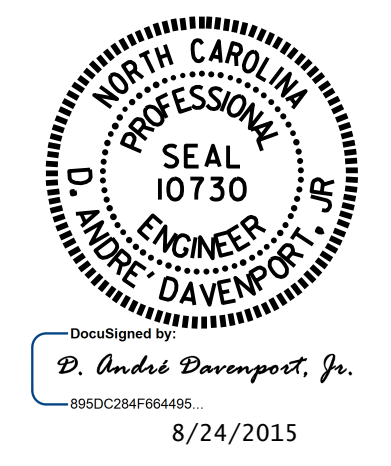
	CLASS AA CONCRETE		REINFORCING STEEL (LBS.)	*EPOXY COATED REINFORCING STEEL (LBS.)
	(CU. YDS.)	(LBS.)		
STAGE I	POUR 1	97.6	25,690	24,144
	POUR 2	139.5		
	POUR 3	13.4		
	SIDEWALK	18.1		
	STAGE I TOTAL	268.6		
STAGE II	POUR 1	107.5	28,643	27,316
	POUR 2	154.0		
	POUR 3	14.9		
	POUR 4	11.4		
	SIDEWALK	18.1		
CONCRETE ISLAND	8.1			
STAGE II TOTAL	314.0			
TOTALS **	582.6	54,333	51,460	

** QUANTITIES FOR CLASSIC CONCRETE BRIDGE RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

	STAGE I SO. FT.	STAGE II SO. FT.	TOTAL SO. FT.
APPROACH SLABS	1,691	1,976	3,667
BRIDGE DECK	5,192	6,069	11,261
TOTAL	6,883	8,045	14,928

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL

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

TOTAL SHEETS 43

ASSEMBLED BY : M.K. BEARD DATE : 8/25/14
 CHECKED BY : J.D. HAWK DATE : 2/12/15

DRAWN BY : JMB 5/87 REV. 8/16/99 RWW/LES
 CHECKED BY : SJD 9/87 REV. 5/1/06 TLA/GM
 REV. 10/1/11 MAA/GM

NOTES

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

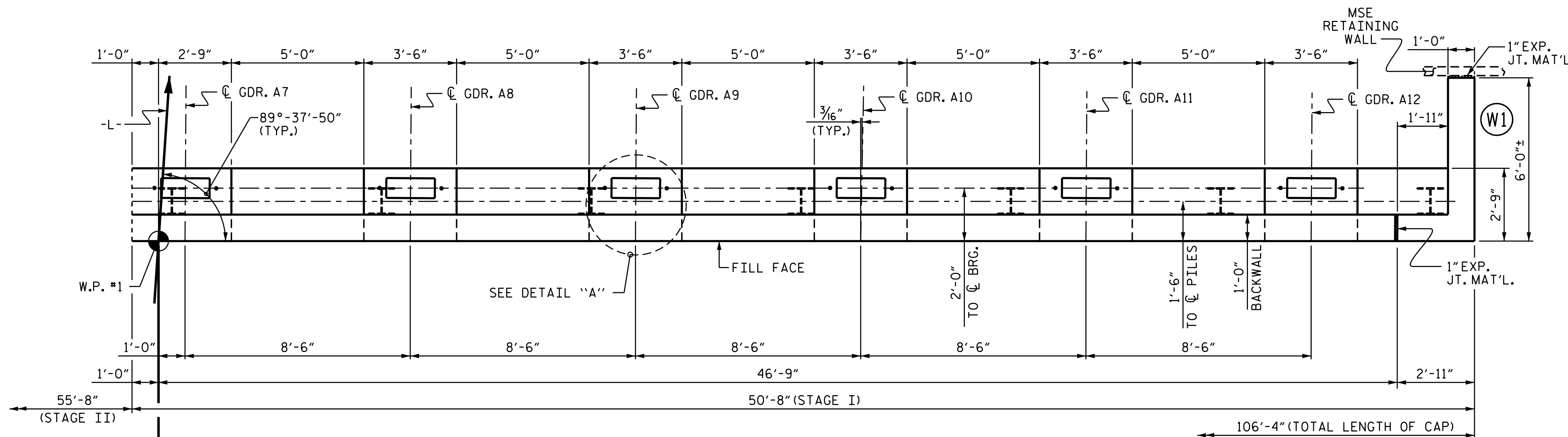
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

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

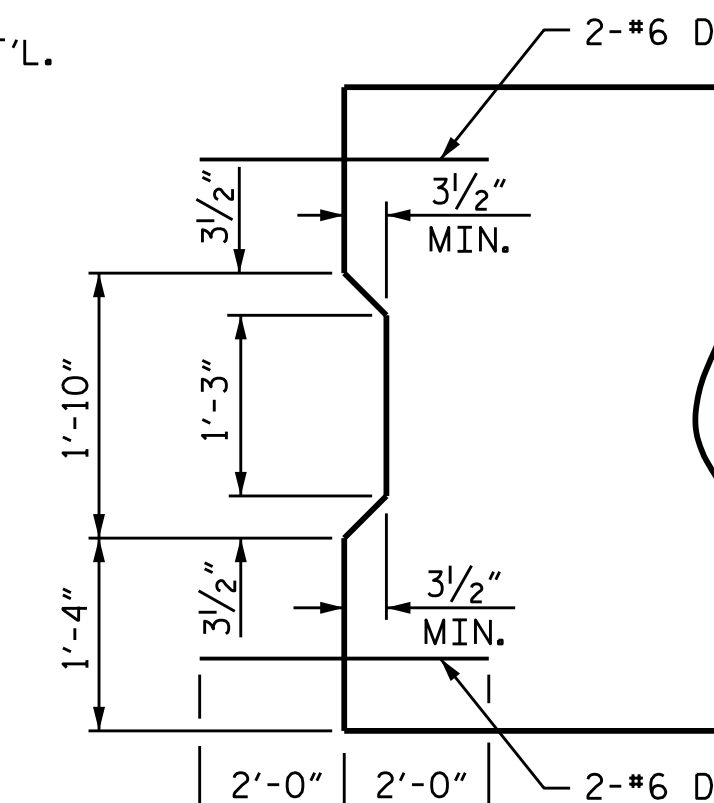
★ FOR LOCATION OF ELEVATIONS BETWEEN BUILDUPS, SEE SECTIONS ON SHEET 4 OF 4.

FOR TEMPORARY DRAINAGE AT END BENT, SEE END BENT 2, SHEET 4 OF 4.

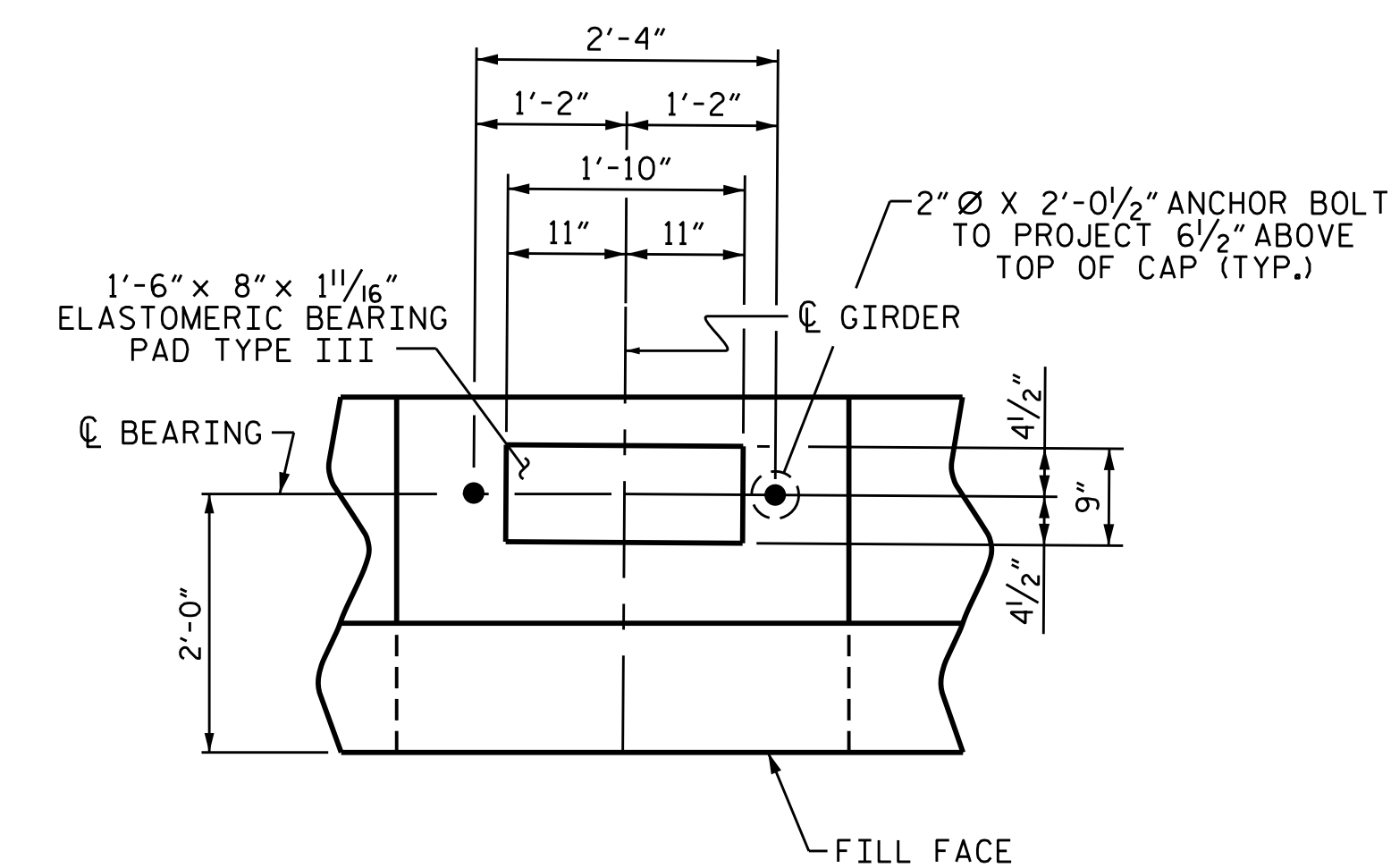
FOR MSE RETAINING WALLS, SEE SPECIAL PROVISIONS.



PLAN

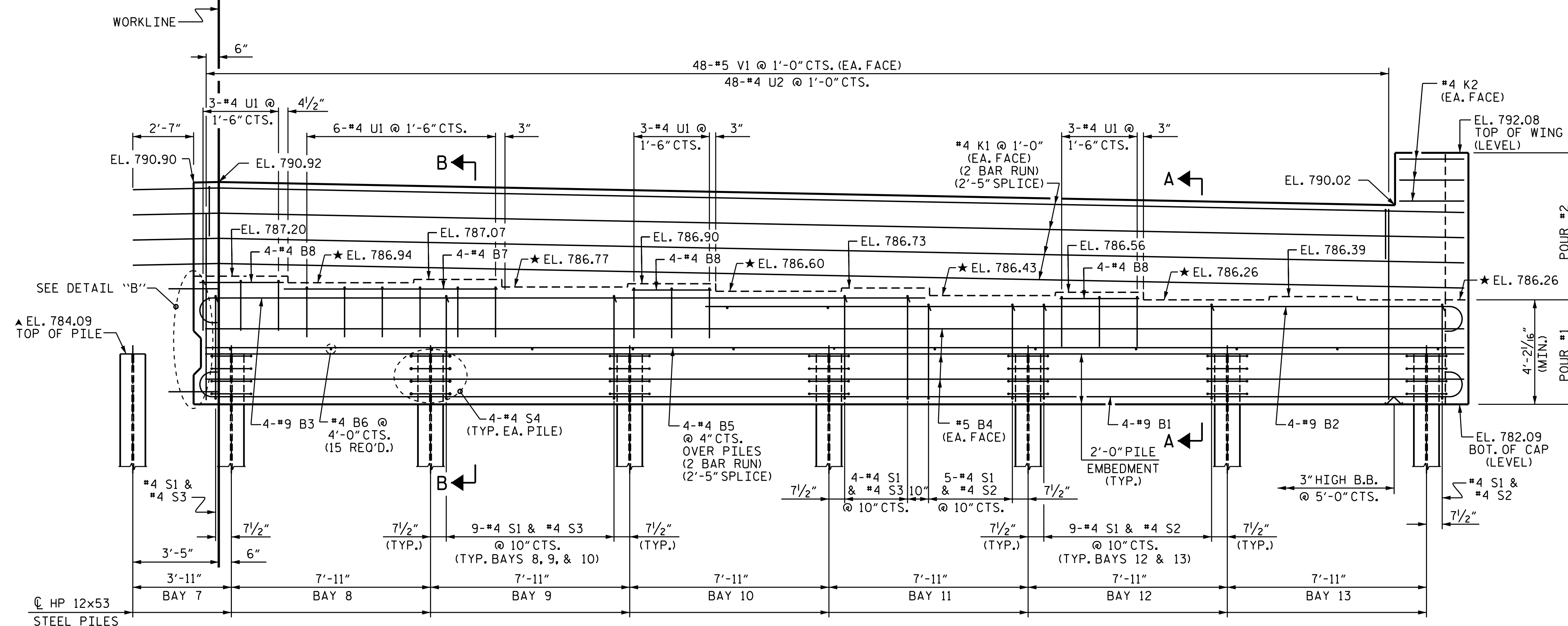


DETAIL "B"



DETAIL "A"

(TYP. EACH GDR.)



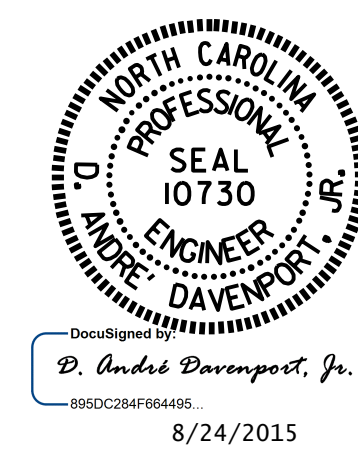
ELEVATION

▲ DRIVE PILE WITH STAGE I.
FOR "TIE BACK DETAILS", FOR MSE RETAINING WALL, SEE SHEET 2 OF 4.

PROJECT NO. B-3159
DAVIDSON COUNTY
STATION: 13+41.72 -L-

SHEET 1 OF 4

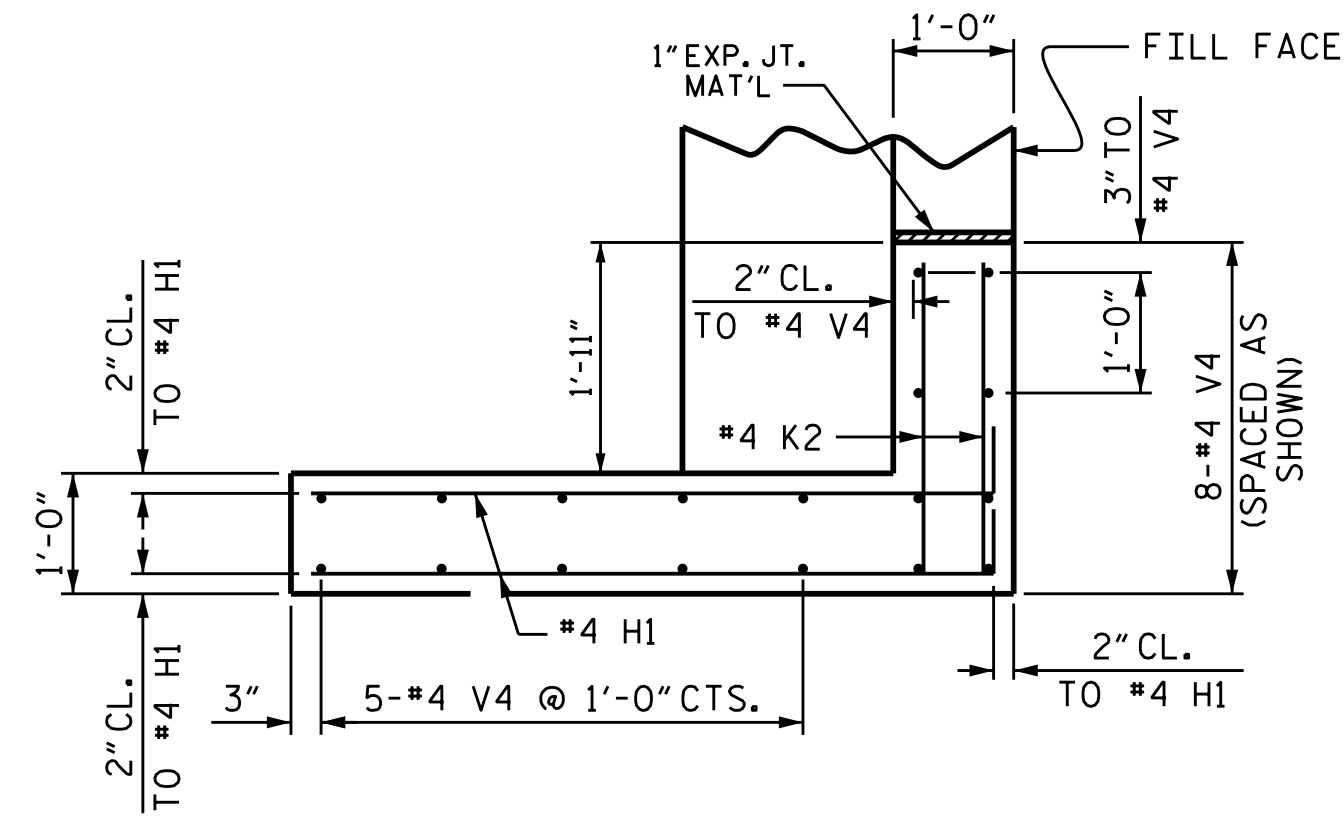
STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION		RALEIGH	
SUBSTRUCTURE					
END BENT 1					
STAGE I					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO.
					S-27
					TOTAL SHEETS
					43



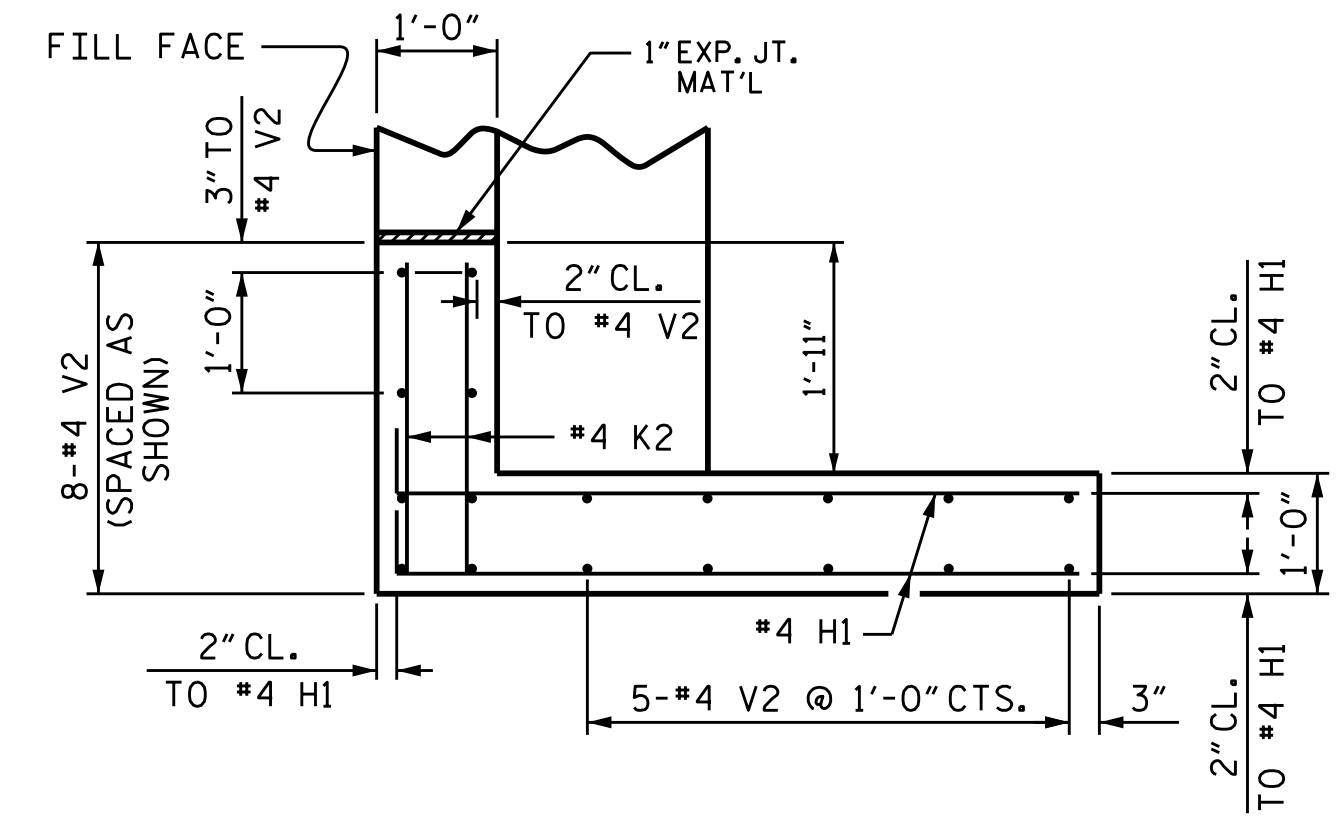
DRAWN BY : K. D. LAYNE DATE : 5/15/15
CHECKED BY : H. P. KIM DATE : 5/28/15
DESIGN ENGINEER OF RECORD : R. L. CHESSON DATE : 6/10/15

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dadavenport

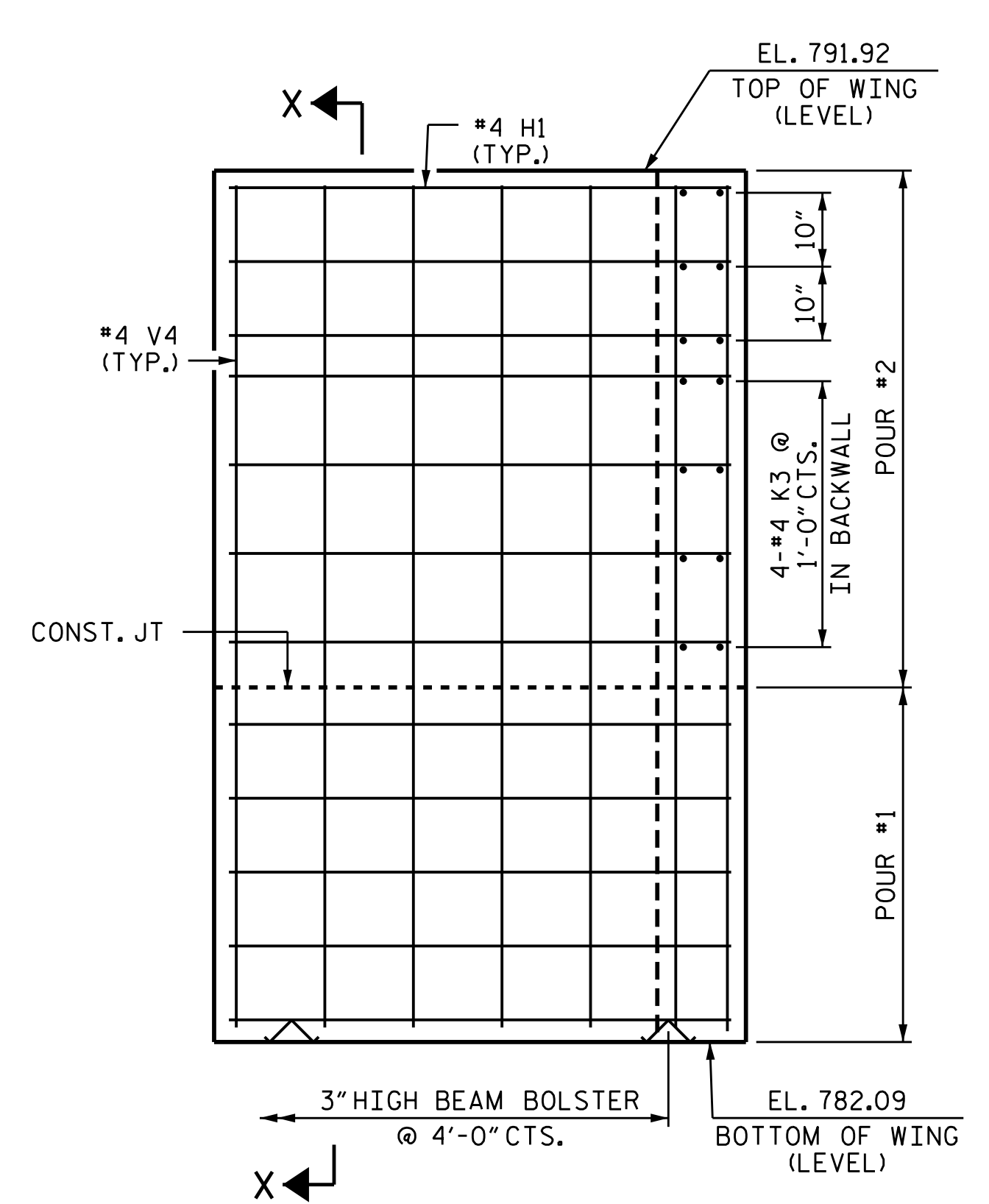
STR. #1



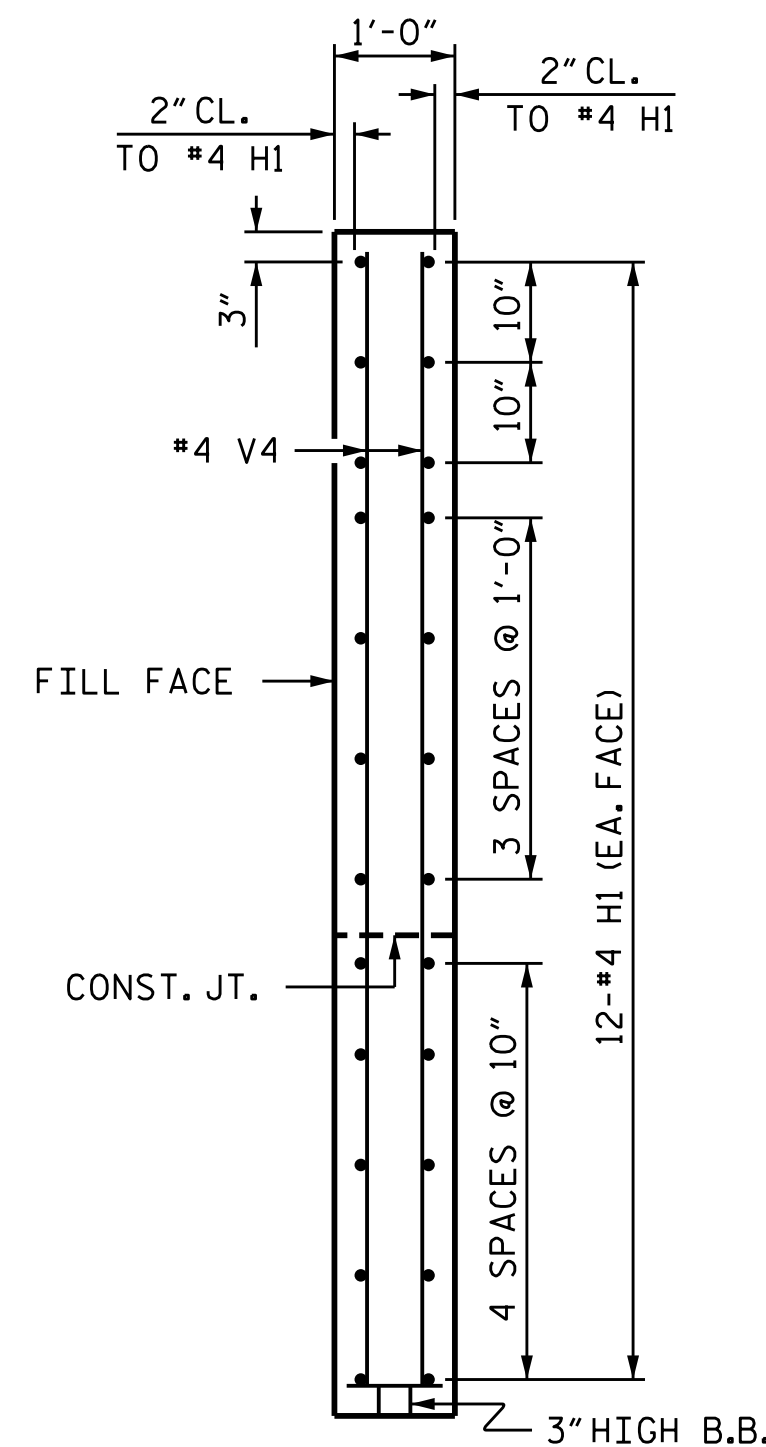
PLAN OF LEFT WING (W2)
(STAGE II)



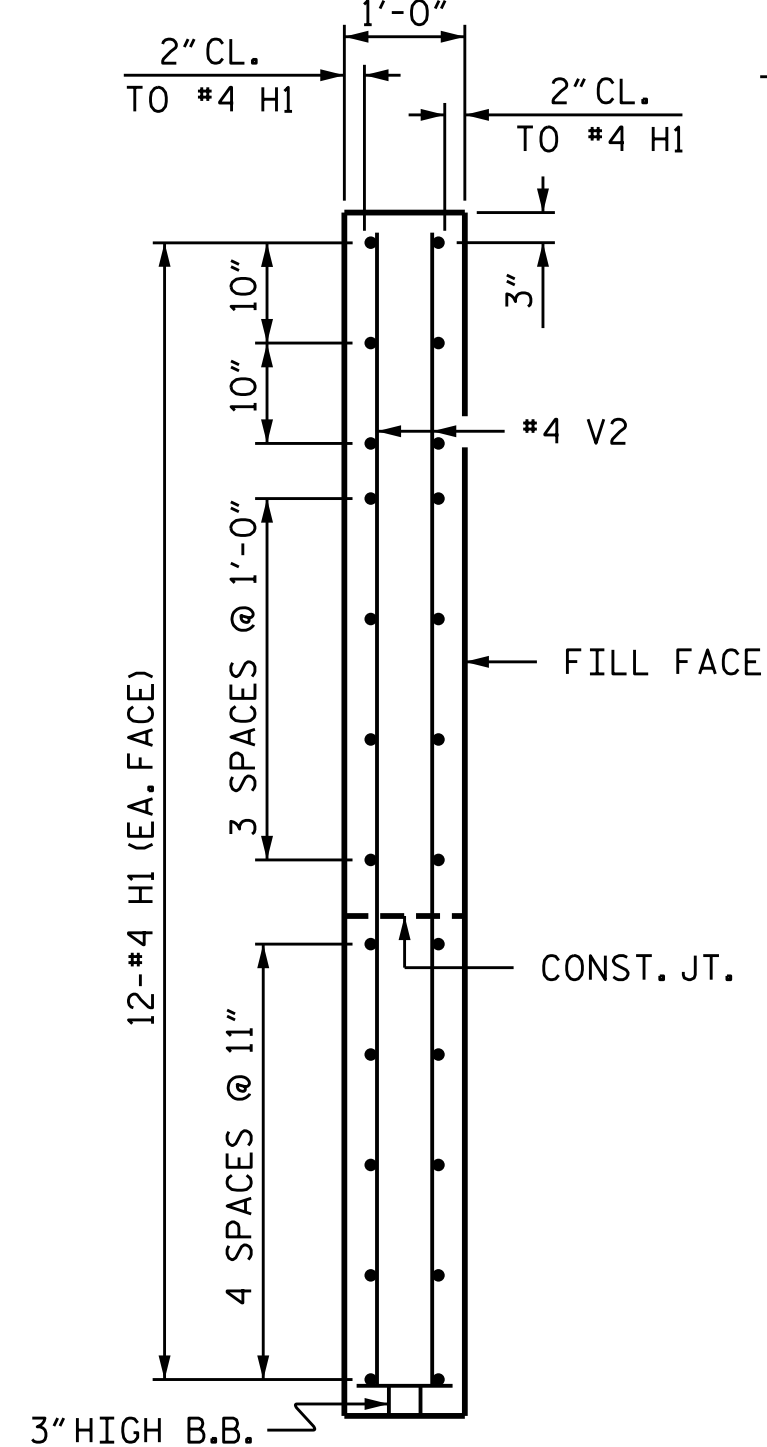
PLAN OF RIGHT WING (W1)
(STAGE I)



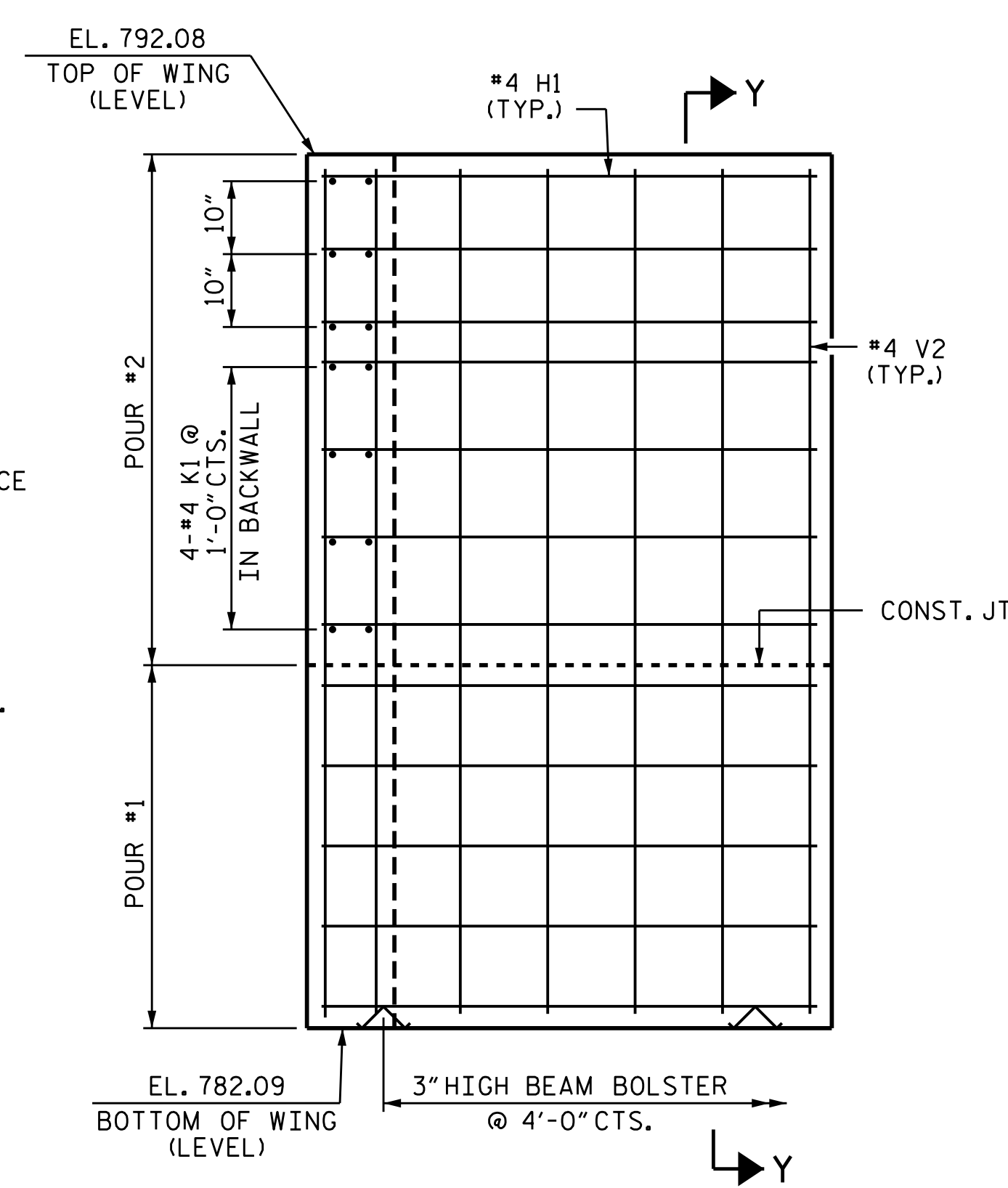
ELEVATION OF LEFT WING (W2)
(STAGE II)



SECTION X-X
(STAGE II)



SECTION Y-Y
(STAGE I)

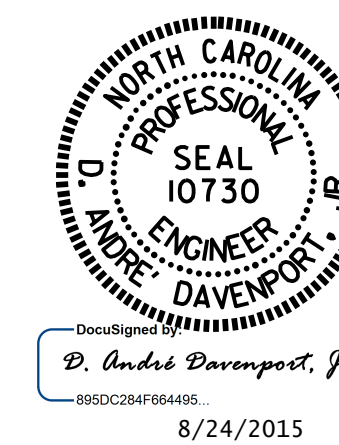


ELEVATION OF RIGHT WING (W1)
(STAGE I)

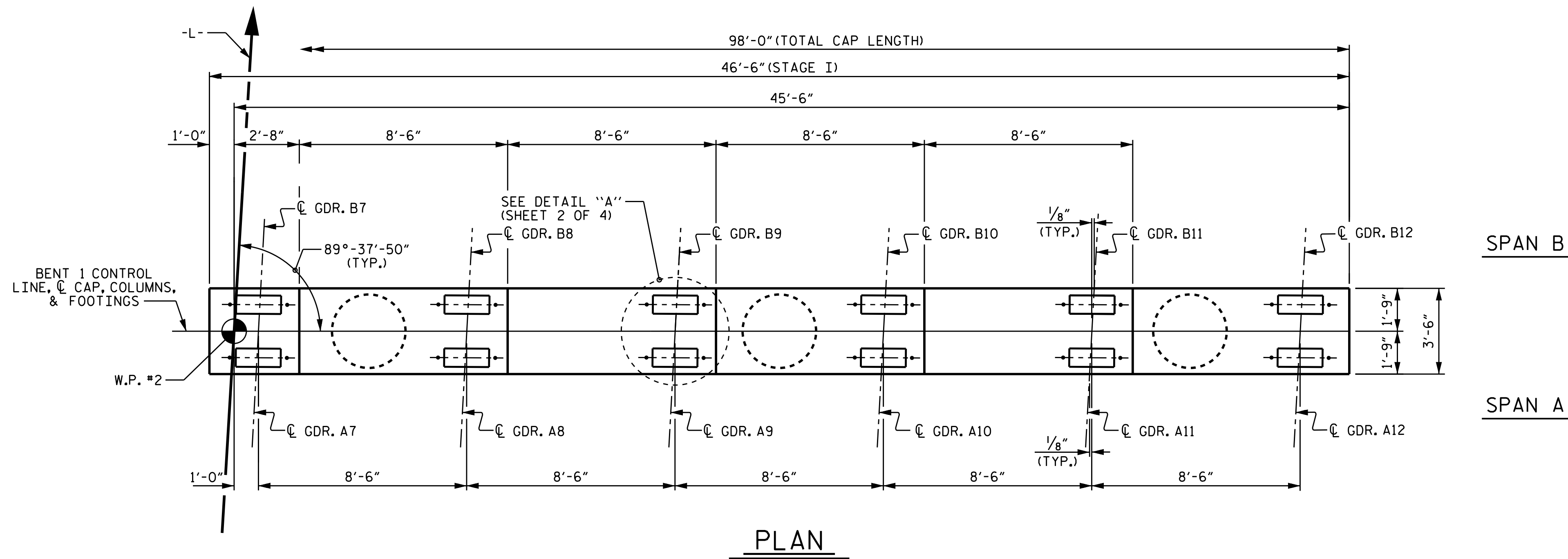
PROJECT NO. B-3159
DAVIDSON COUNTY
STATION: 13+41.72 -L-

SHEET 3 OF 4

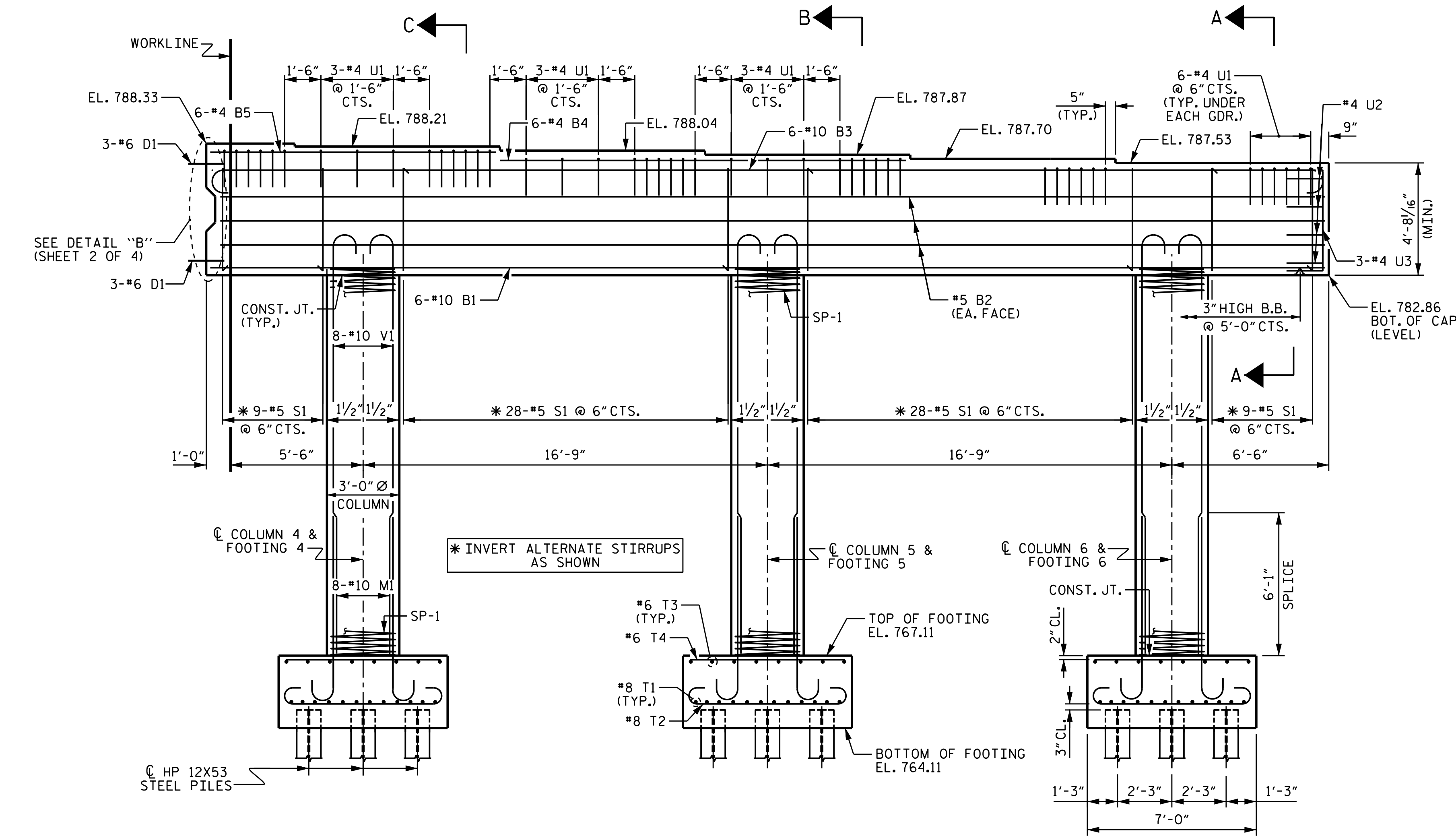
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-29
SUBSTRUCTURE						
END BENT 1						TOTAL SHEETS 43
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



DRAWN BY : K. D. LAYNE DATE : 5/15/15
CHECKED BY : H. P. KIM DATE : 5/28/15
DESIGN ENGINEER OF RECORD: R. L. CHESSON DATE : 6/10/15



PLAN

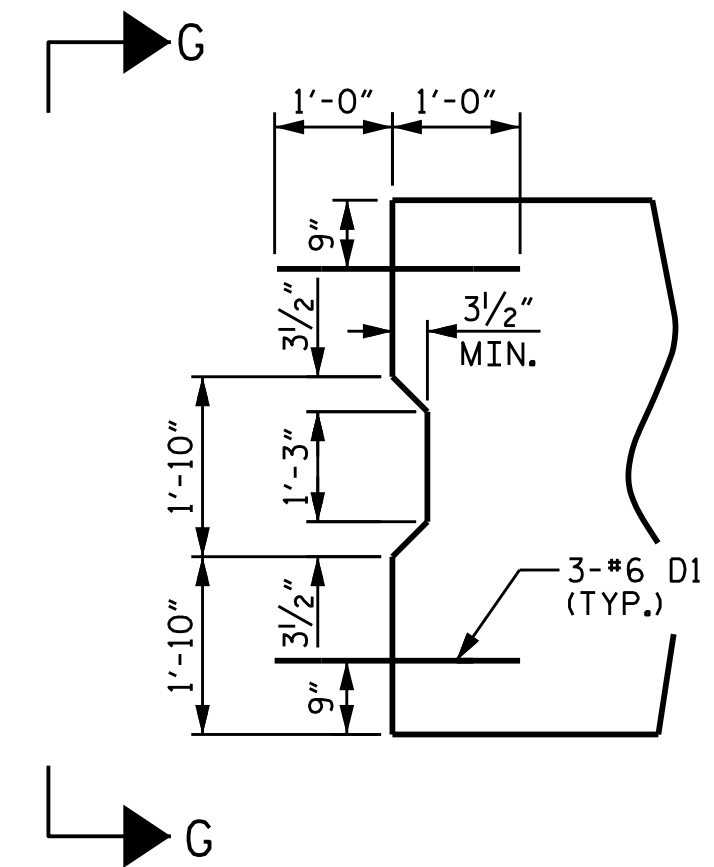


ELEVATION

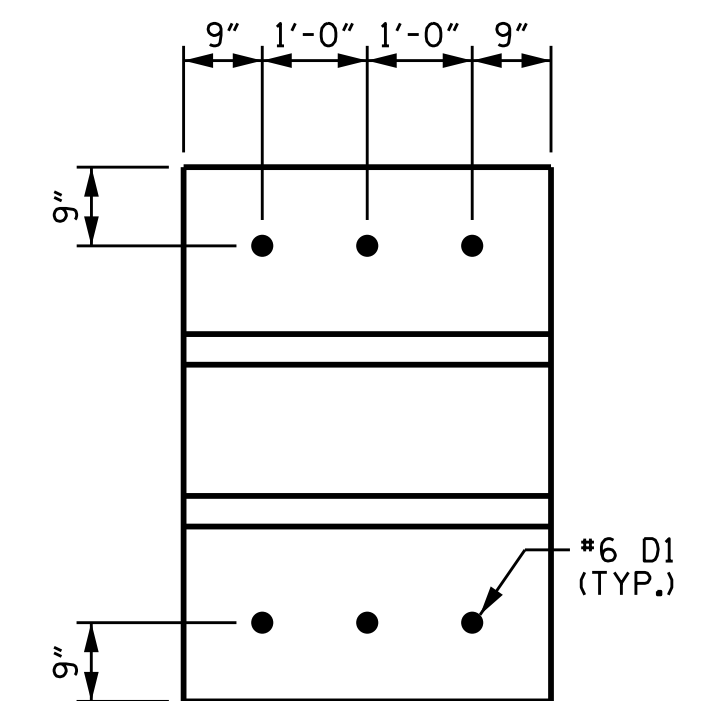
REINFORCING STEEL, DIMENSIONS AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING

NOTES

STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON V1 BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 FOR PILE SPLICE DETAILS, SEE END BENT 1, SHEET 4 OF 4.



DETAIL "B"



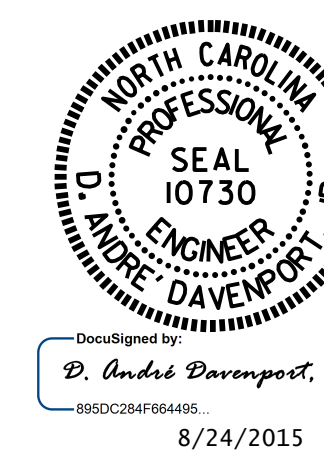
VIEW G-G

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

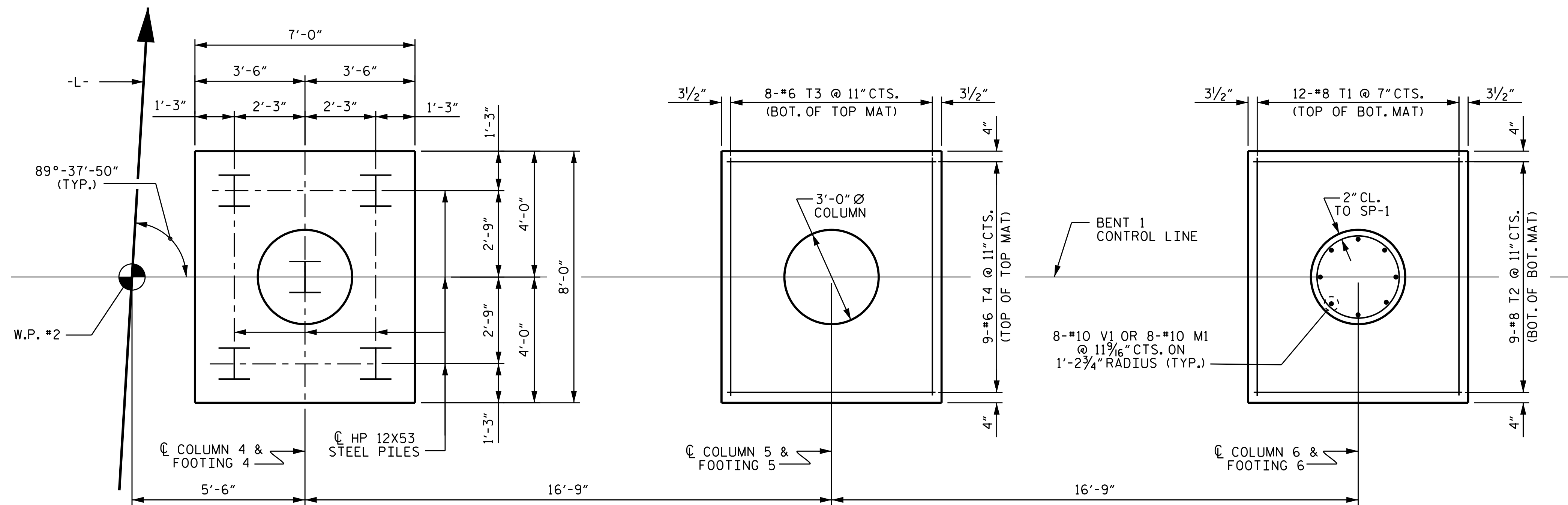
SHEET 1 OF 4

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			43

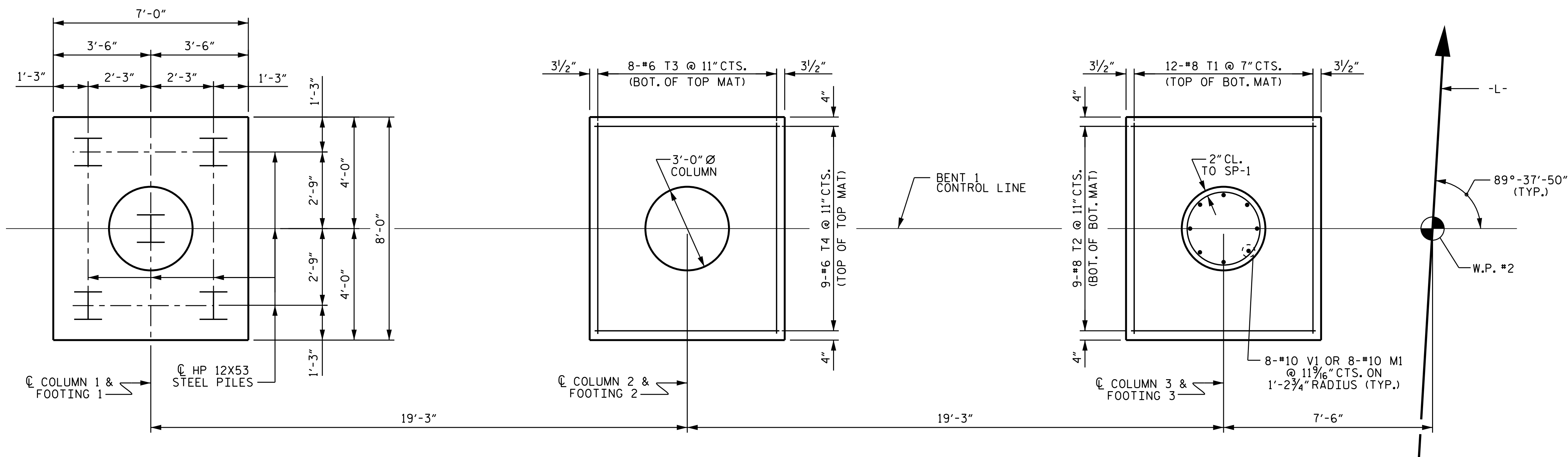


DRAWN BY: J. K. BOWLES DATE: 6/1/15
 CHECKED BY: N. D'AIUTO DATE: 6/2/15
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE: 6/6/15



PLAN OF FOOTINGS & COLUMNS - STAGE I

PILES, REINFORCING STEEL, DIMENSIONS, AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED



PLAN OF FOOTINGS & COLUMNS - STAGE II

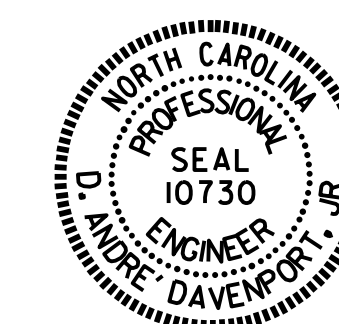
PILES, REINFORCING STEEL, DIMENSIONS, AND DETAILS ARE TYPICAL FOR EACH COLUMN AND FOOTING UNLESS OTHERWISE NOTED

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 1

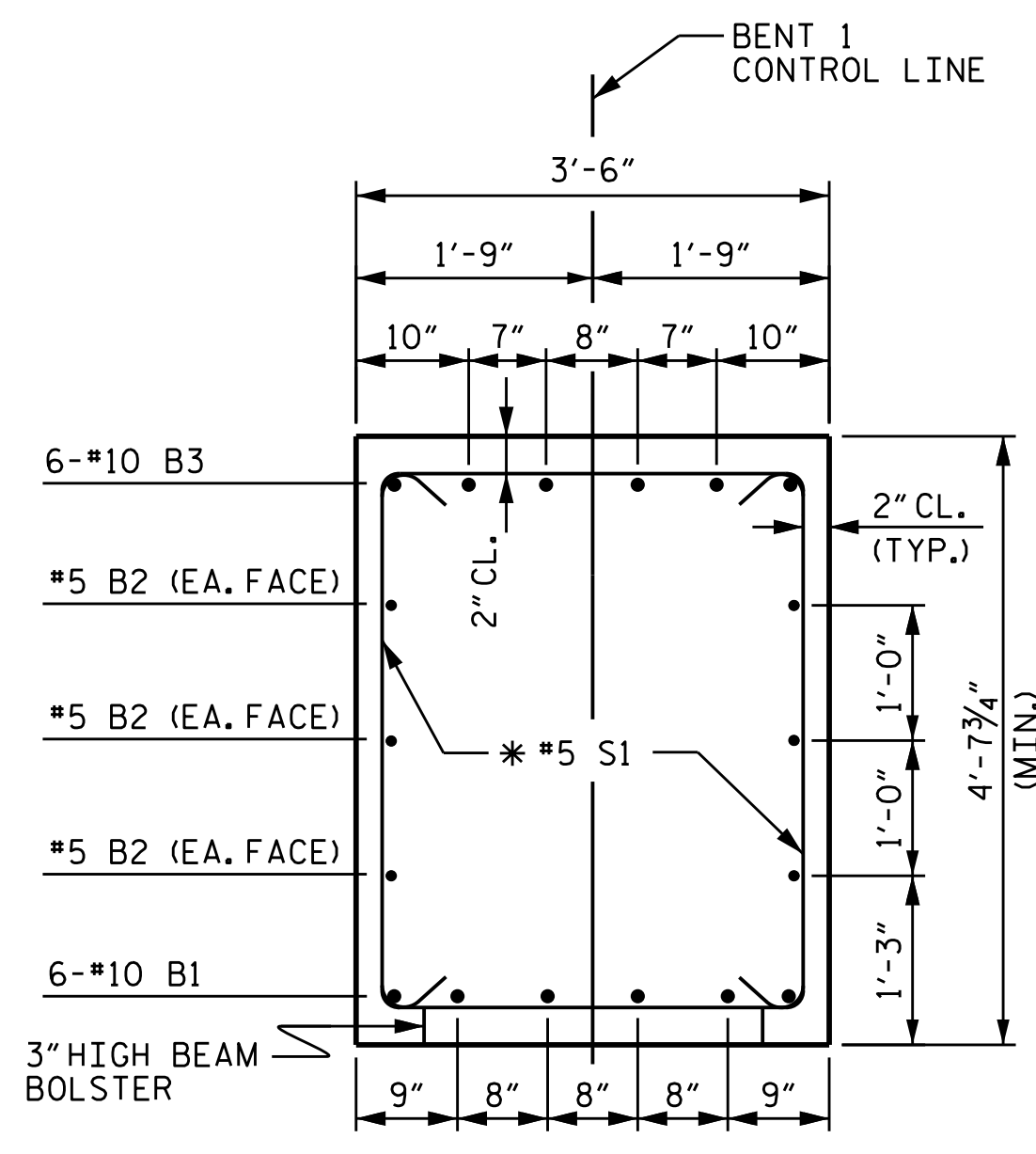


Revised by:
 P. Andrei Davenport, Jr.
 8/24/2015

DRAWN BY : J. K. BOWLES DATE : 6/1/15
 CHECKED BY : N. D'AIUTO DATE : 6/2/15
 DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 6/6/15

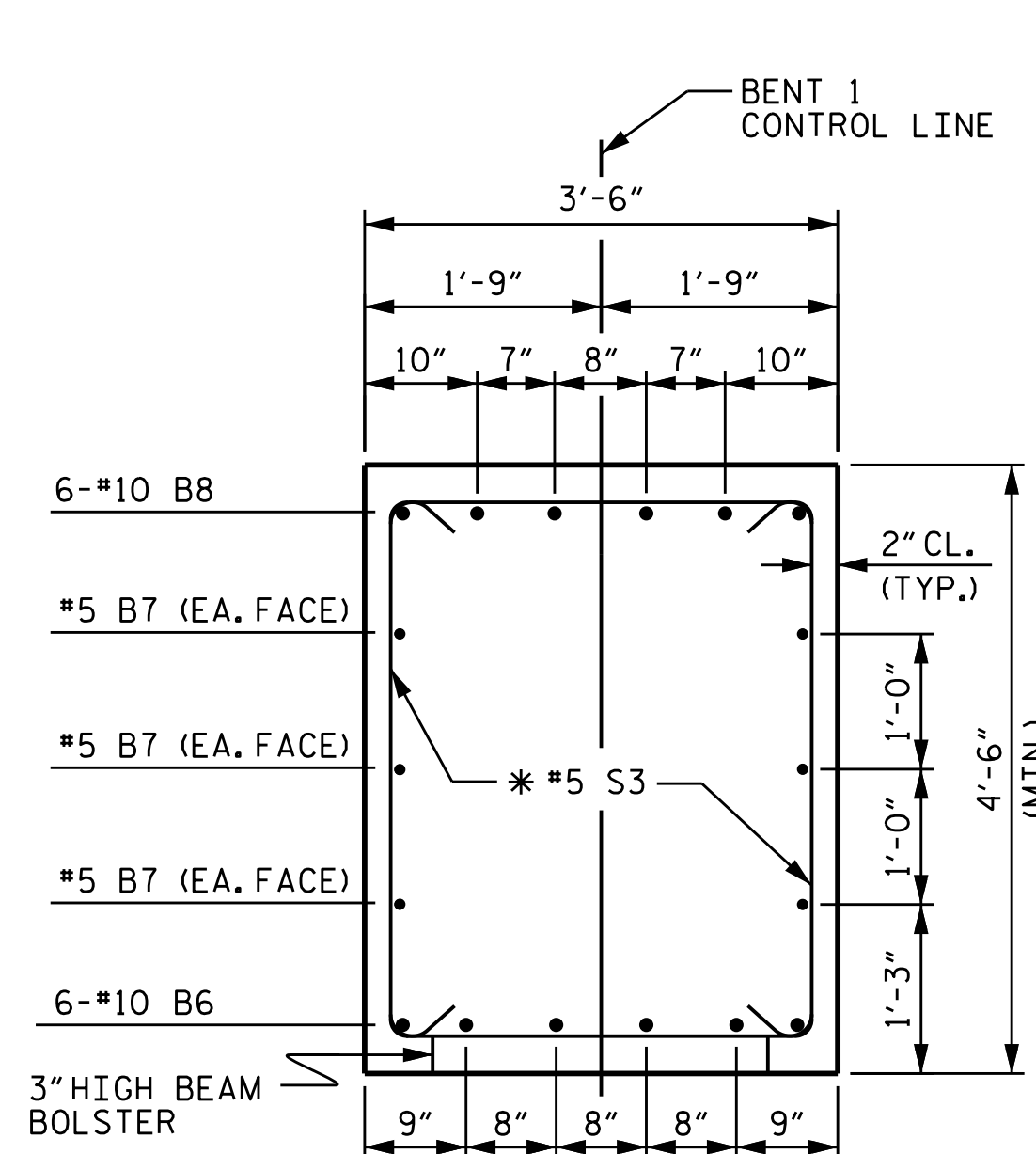
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			43



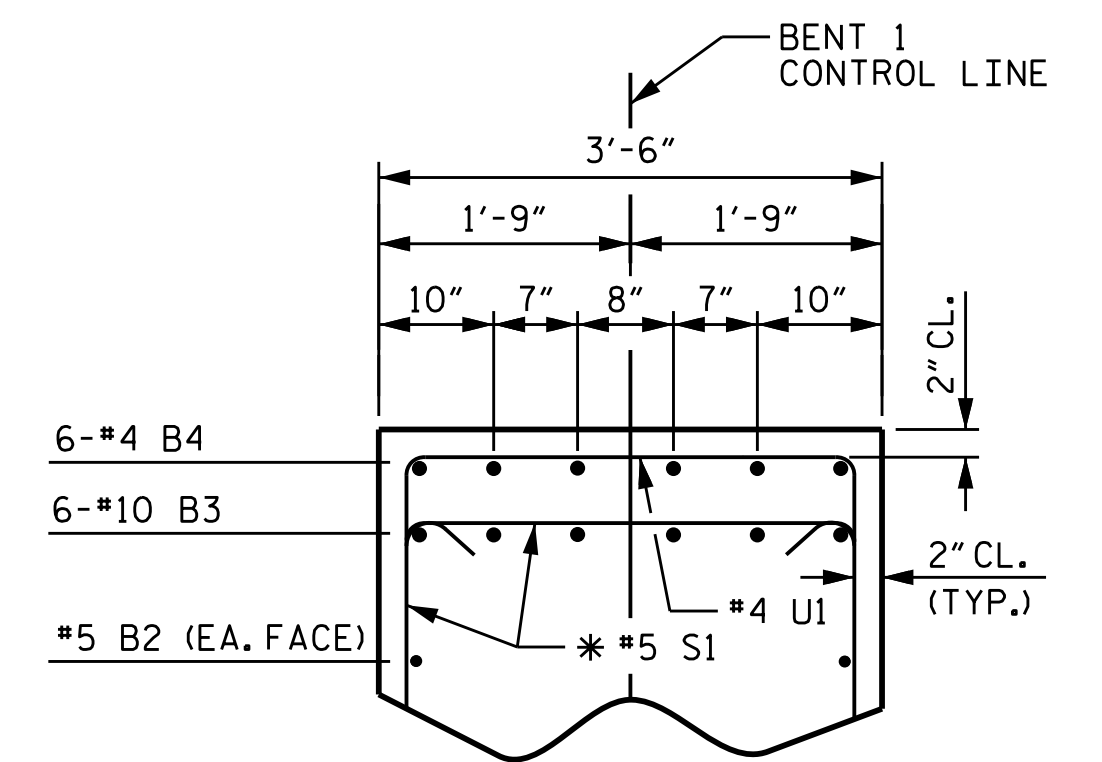
SECTION A-A

* INVERT ALTERNATE STIRRUPS



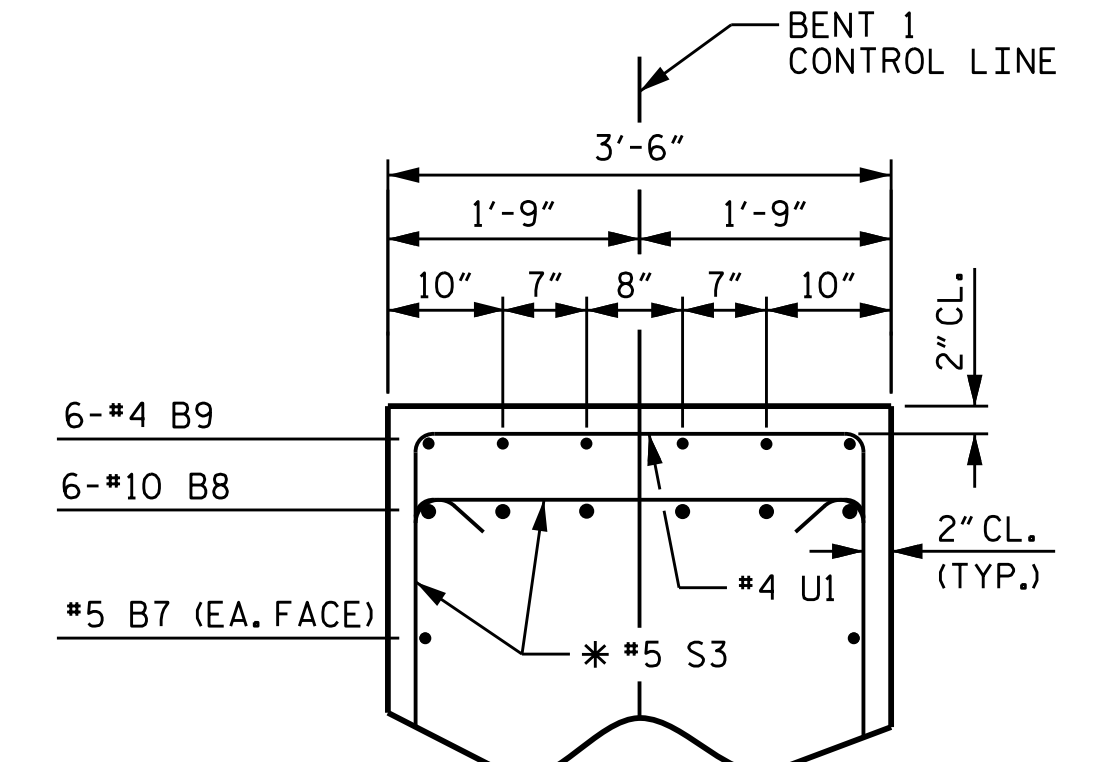
SECTION D-D

* INVERT ALTERNATE STIRRUPS



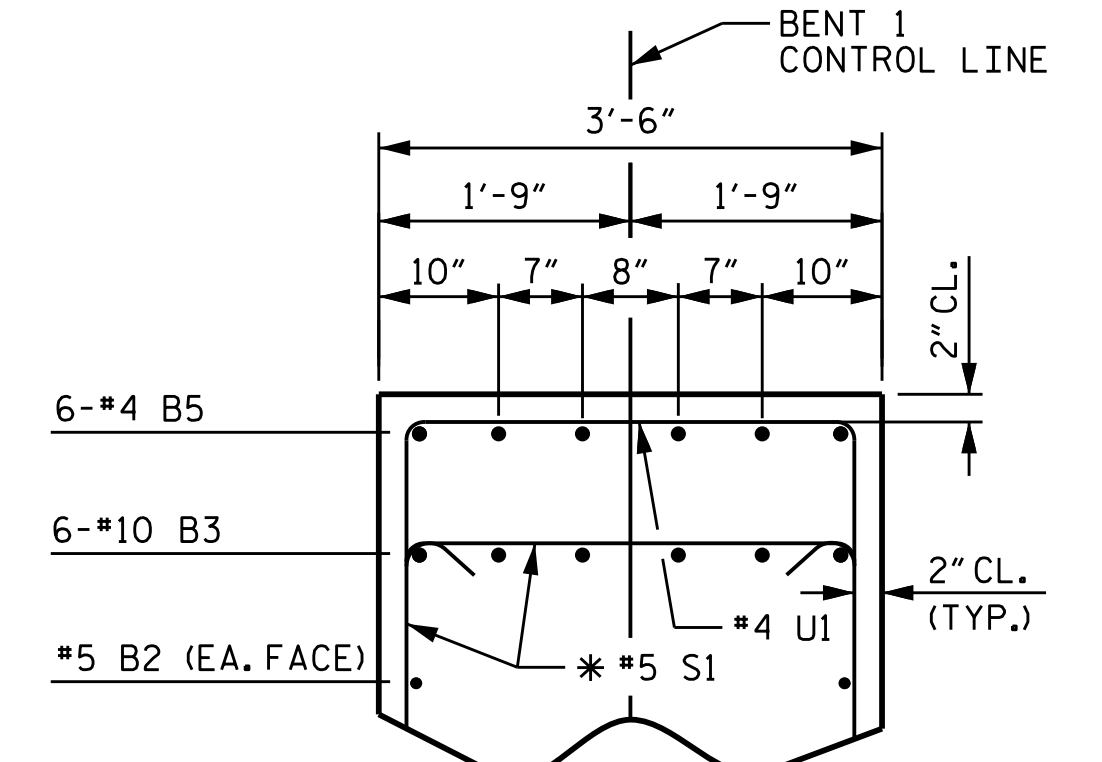
PART SECTION B-B

* INVERT ALTERNATE STIRRUPS



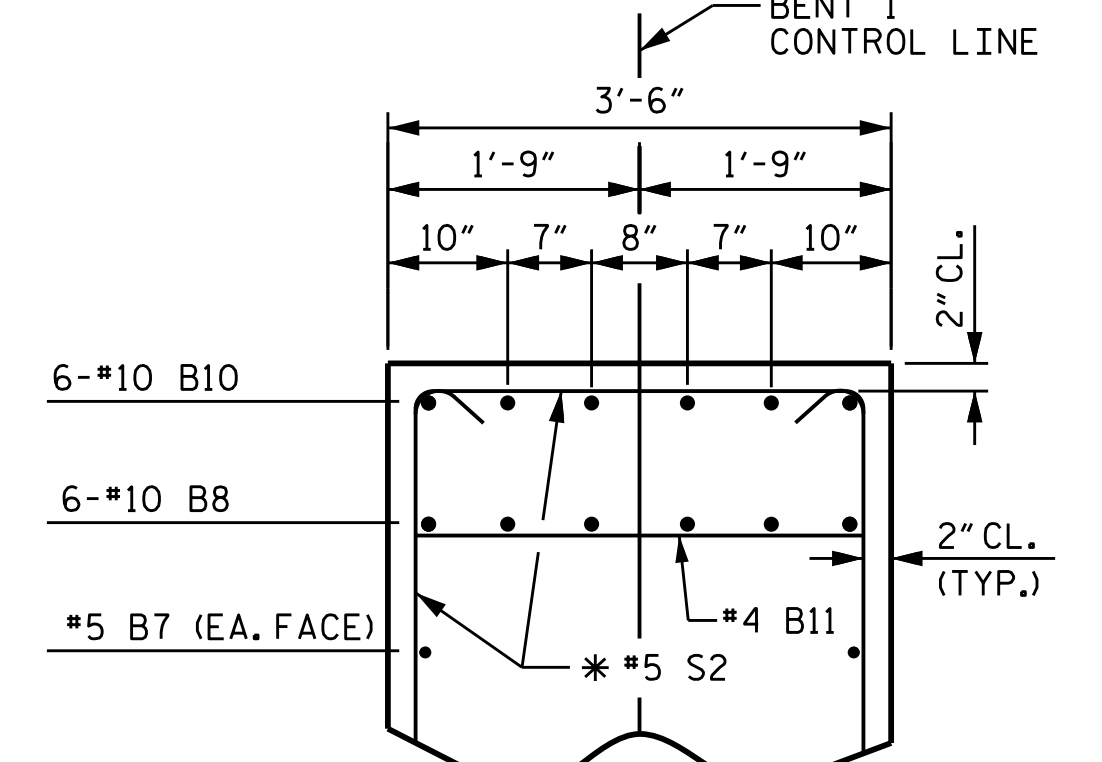
PART SECTION E-E

* INVERT ALTERNATE STIRRUPS



PART SECTION C-C

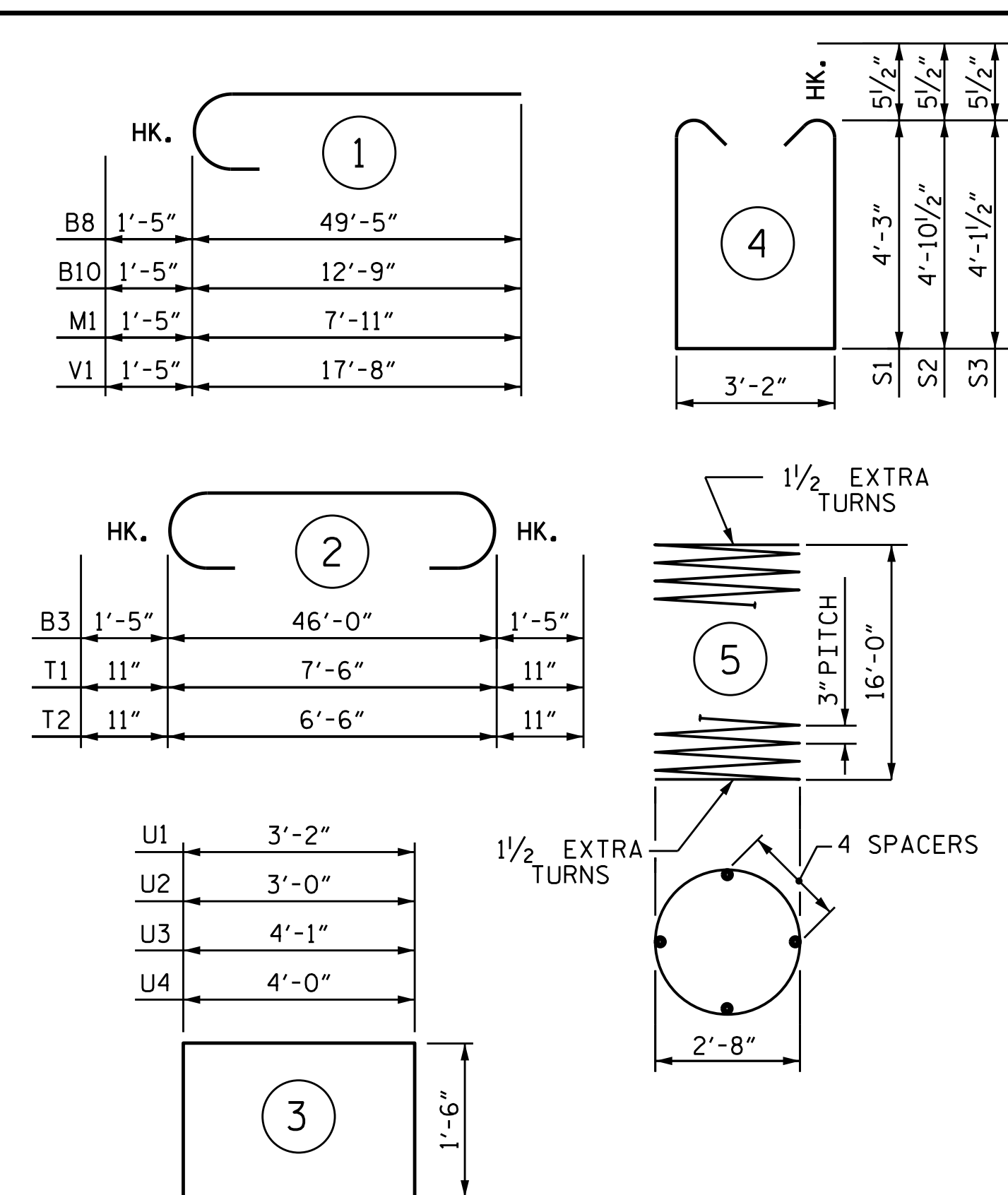
* INVERT ALTERNATE STIRRUPS



PART SECTION F-F

* INVERT ALTERNATE STIRRUPS

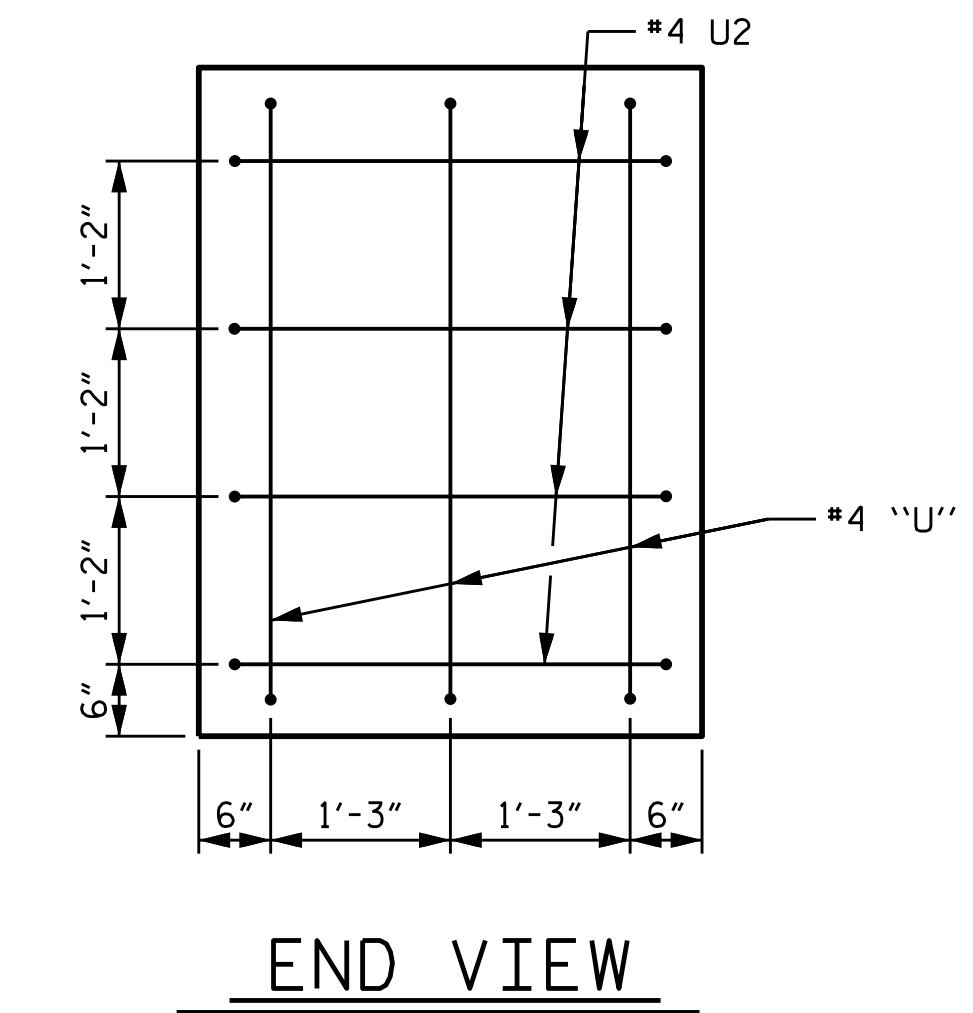
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

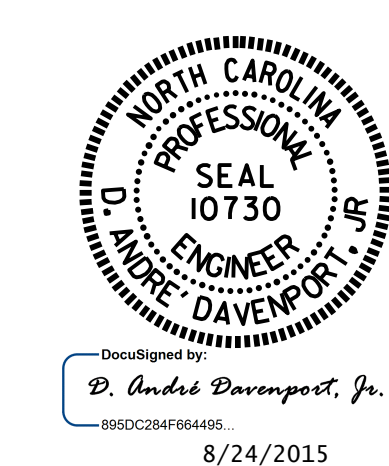
BILL OF MATERIAL

STAGE I					STAGE II						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	STR	46'-2"	1192	B6	6	#10	STR	51'-2"	1321
B2	6	#5	STR	45'-10"	287	B7	6	#5	STR	51'-2"	320
B3	6	#10	2	48'-10"	1261	B8	6	#10	1	50'-10"	1312
B4	6	#4	STR	16'-10"	67	B9	6	#4	STR	18'-10"	75
B5	6	#4	STR	11'-10"	47	B10	6	#10	1	14'-2"	366
						B11	2	#4	STR	3'-2"	4
D1	6	#6	STR	2'-0"	18						
						M1	24	#10	1	9'-4"	964
M1	24	#10	1	9'-4"	964	S2	19	#5	4	13'-10"	274
S1	74	#5	4	12'-7"	971	S3	65	#5	4	12'-4"	836
T1	36	#8	2	9'-4"	897	T1	36	#8	2	9'-4"	897
T2	27	#8	2	8'-4"	601	T2	27	#8	2	8'-4"	601
T3	24	#6	STR	7'-6"	270	T3	24	#6	STR	7'-6"	270
T4	27	#6	STR	6'-6"	264	T4	27	#6	STR	6'-6"	264
U1	45	#4	3	6'-2"	185	U1	44	#4	3	6'-2"	181
U2	4	#4	3	6'-0"	16	U2	4	#4	3	6'-0"	16
U3	3	#4	3	7'-1"	14	U4	3	#4	3	7'-0"	14
V1	24	#10	1	19'-1"	1971	V1	24	#10	1	19'-1"	1971
REINFORCING STEEL					LBS. 9,025	REINFORCING STEEL					LBS. 9,686
SP-1	3	**	5	551'-9"	1,106	SP-1	3	**	5	551'-9"	1,106
SPIRAL COLUMN REINFORCING STEEL					LBS. 1,106	SPIRAL COLUMN REINFORCING STEEL					LBS. 1,106
** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W-20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.						** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W-20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.					
CLASS A CONCRETE BREAKDOWN:						CLASS A CONCRETE BREAKDOWN:					
POUR #1 - FOOTINGS	C.Y.	18.7				POUR #1 - FOOTINGS	C.Y.	18.7			
POUR #2 - COLUMNS	C.Y.	12.4				POUR #2 - COLUMNS	C.Y.	12.4			
POUR #3 - CAP	C.Y.	30.2				POUR #3 - CAP	C.Y.	32.9			
TOTAL CLASS A CONCRETE	C.Y.	61.3				TOTAL CLASS A CONCRETE	C.Y.	64.0			
HP 12X53 STEEL PILES						HP 12X53 STEEL PILES					
No. 15	LIN. FT.	225				No. 15	LIN. FT.	300			
FOUNDATION EXCAVATION FOR BENT					LUMP SUM	FOUNDATION EXCAVATION FOR BENT					LUMP SUM



END VIEW

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 4 OF 4



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE BENT 1									
REVISIONS									
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.			
1			3			S-34			
2			4			TOTAL SHEETS 43			

DRAWN BY : J. K. BOWLES DATE : 6/1/15
 CHECKED BY : N. D'AIUTO DATE : 6/2/15
 DESIGN ENGINEER OF RECORD : R. P. PATEL DATE : 6/6/15

NOTES

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

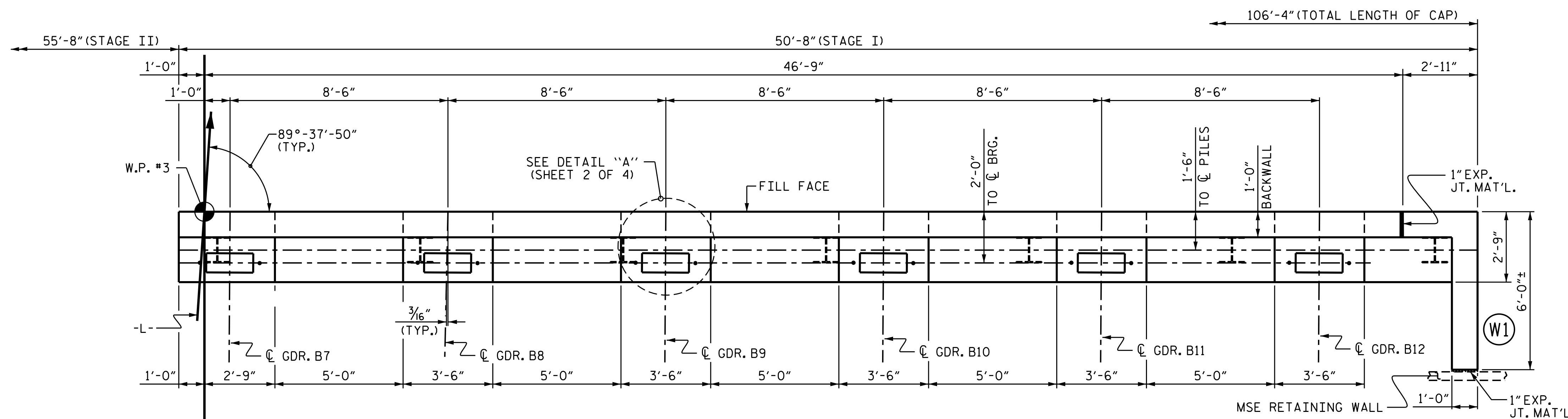
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

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

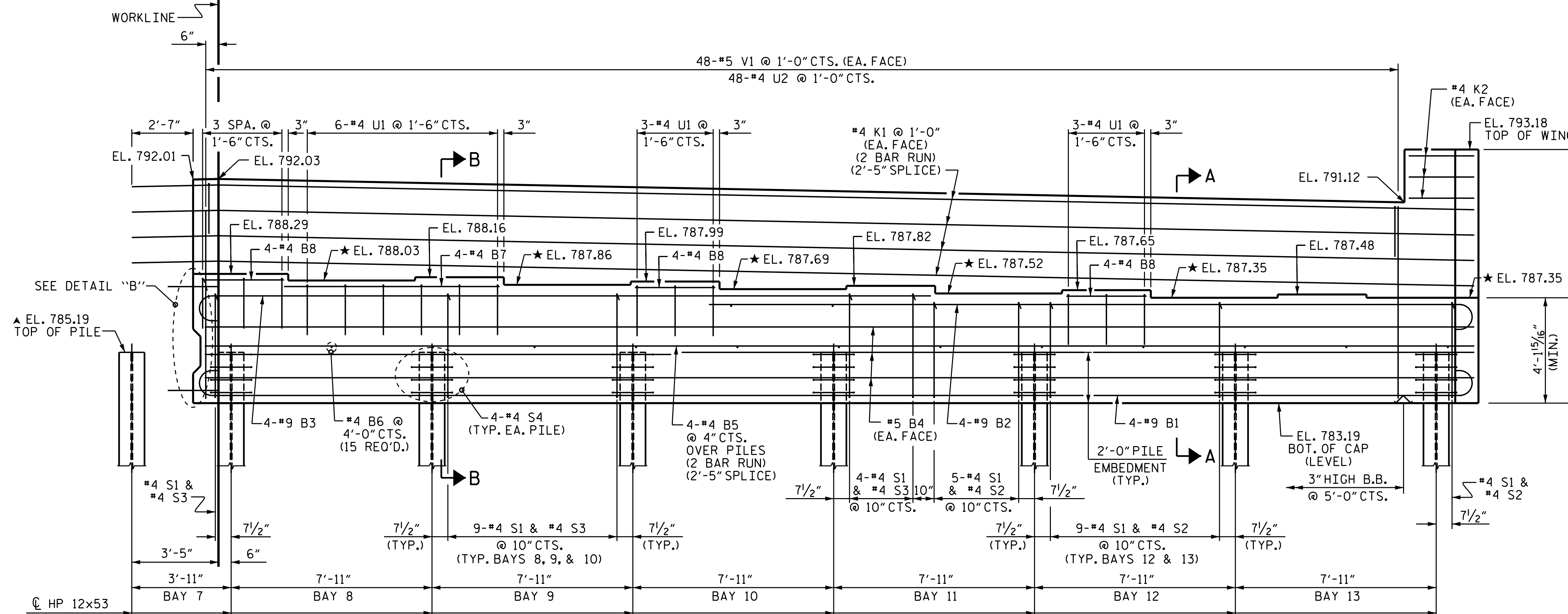
★ FOR LOCATION OF ELEVATIONS BETWEEN BUILDUPS, SEE SECTIONS ON SHEET 4 OF 4.

FOR PILE SPLICE DETAILS, SEE END BENT 1, SHEET 4 OF 4.

FOR MSE RETAINING WALLS, SEE SPECIAL PROVISIONS.



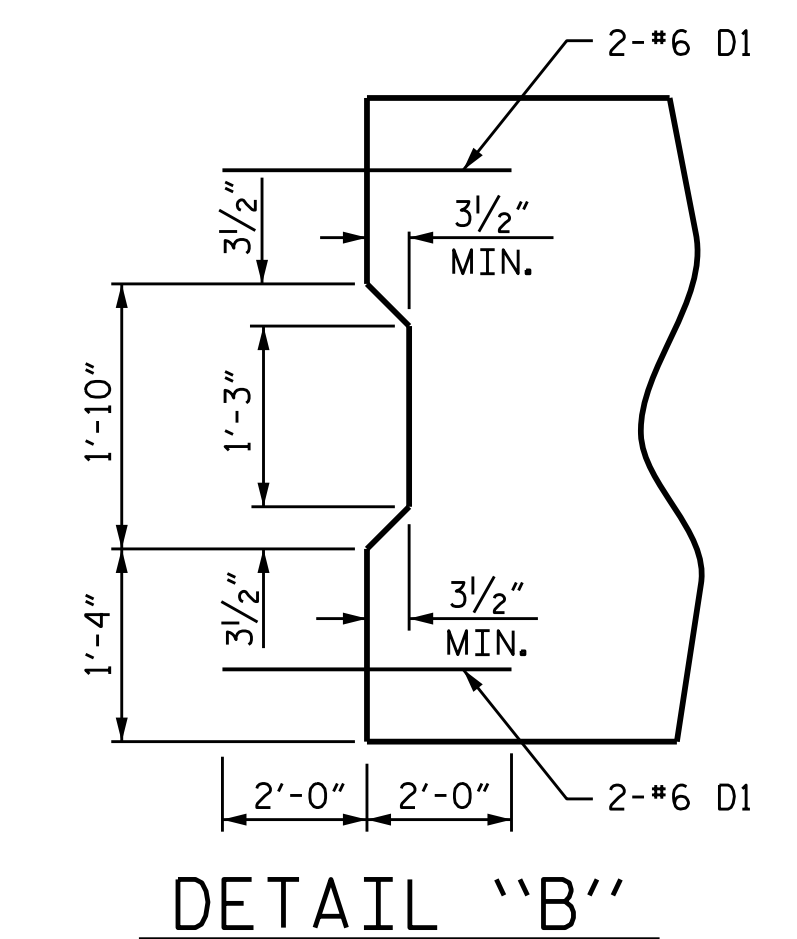
PLAN



ELEVATION

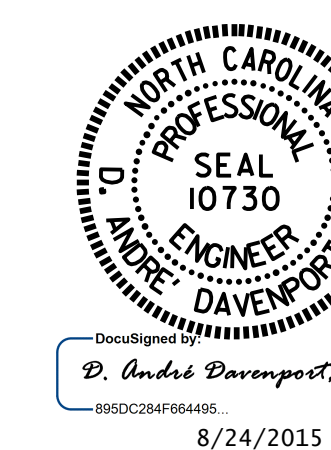
▲ DRIVE PILE WITH STAGE I.

FOR "TIE BACK DETAILS", FOR MSE RETAINING WALL, SEE SHEET 2 OF 4.



PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

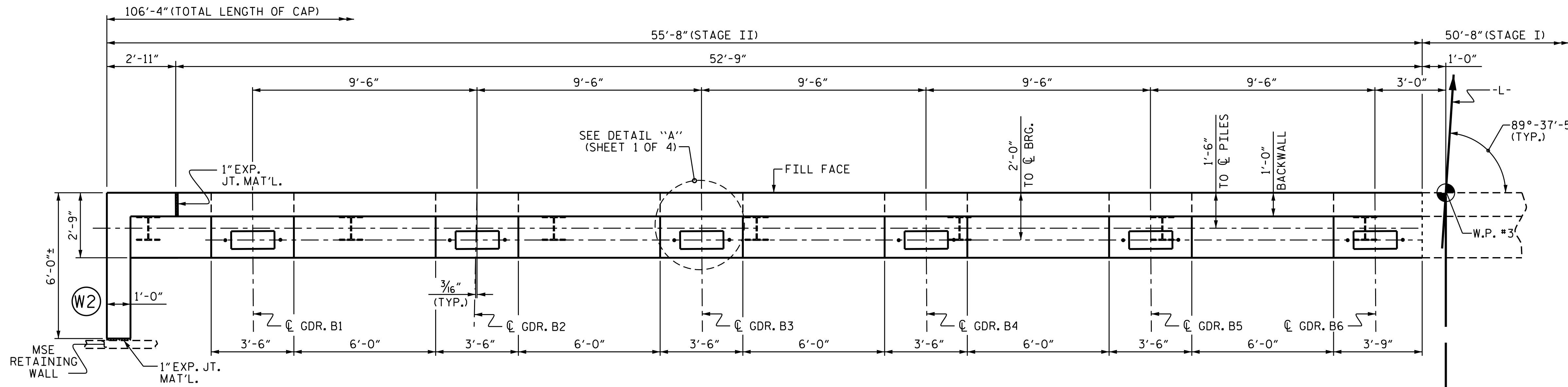
SHEET 1 OF 4



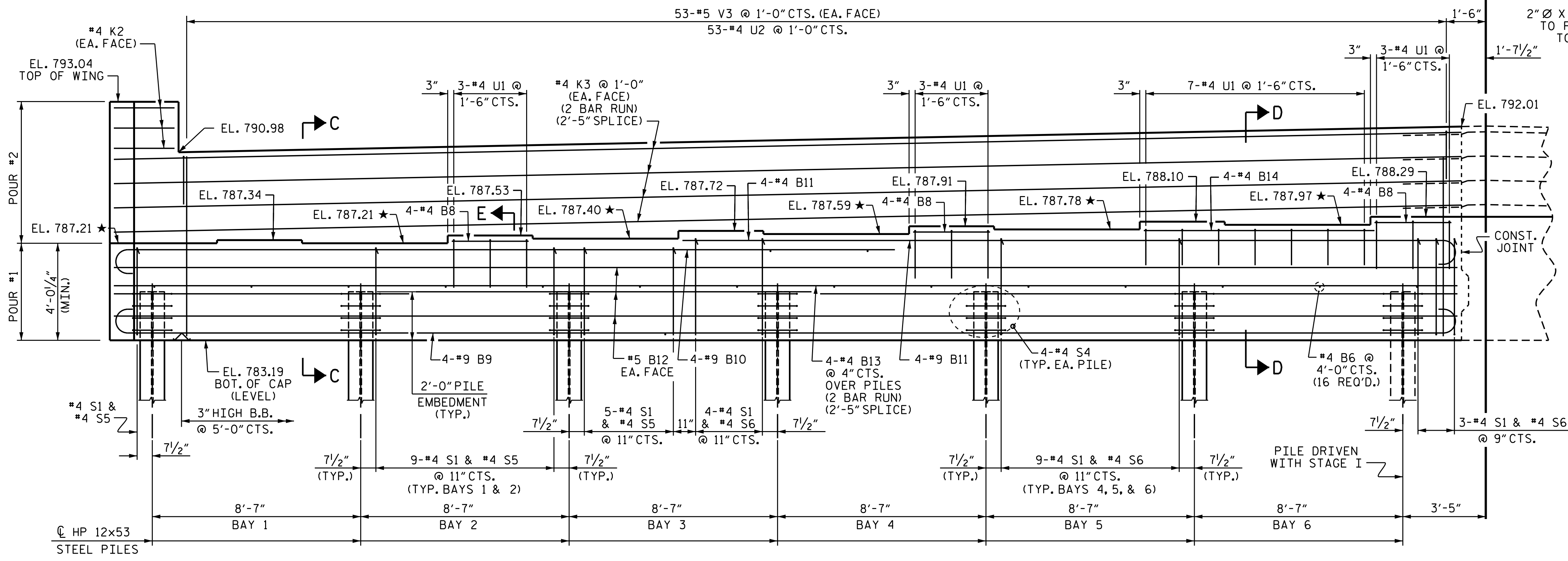
STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION		RALEIGH	
SUBSTRUCTURE		END BENT 2		STAGE I	
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-35
TOTAL SHEETS					43

DRAWN BY : K. D. LAYNE DATE : 5/15/15
 CHECKED BY : H. P. KIM DATE : 5/28/15
 DESIGN ENGINEER OF RECORD : R. L. CHESSON DATE : 6/10/15

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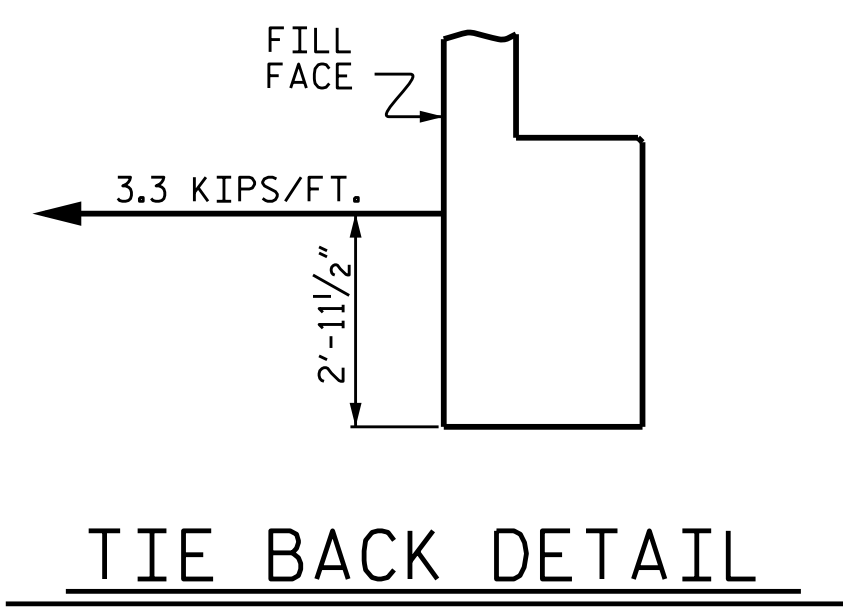


PLAN

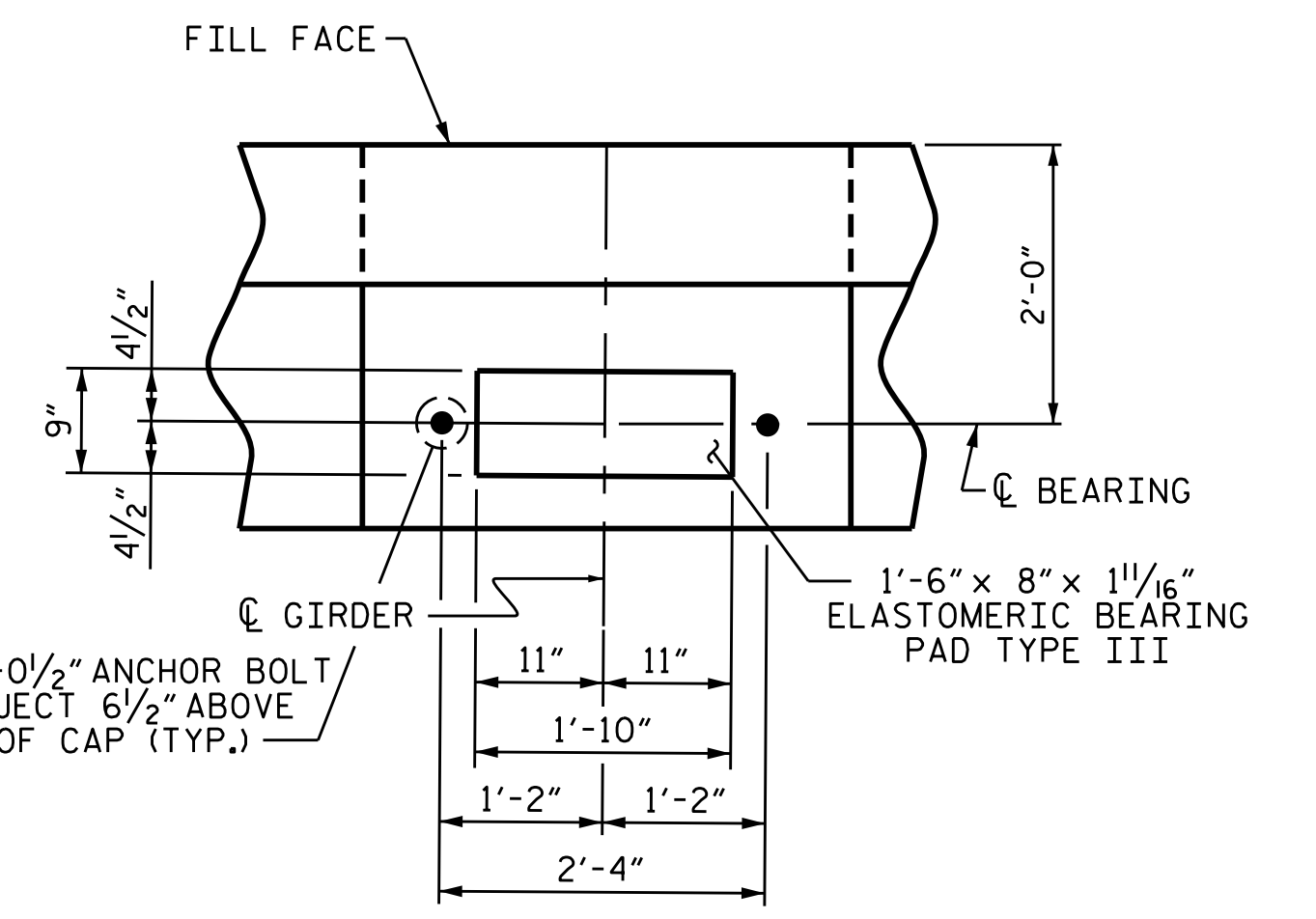


ELEVATION

★ FOR LOCATION OF ELEVATIONS BETWEEN BUILDUPS, SEE SECTIONS ON SHEET 4 OF 4.



TIE BACK DETAIL

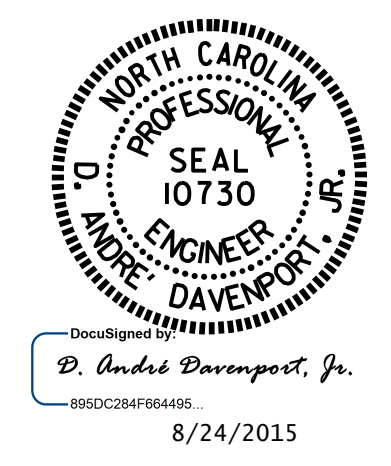


DETAIL "A"
(TYP. EACH GDR.)

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

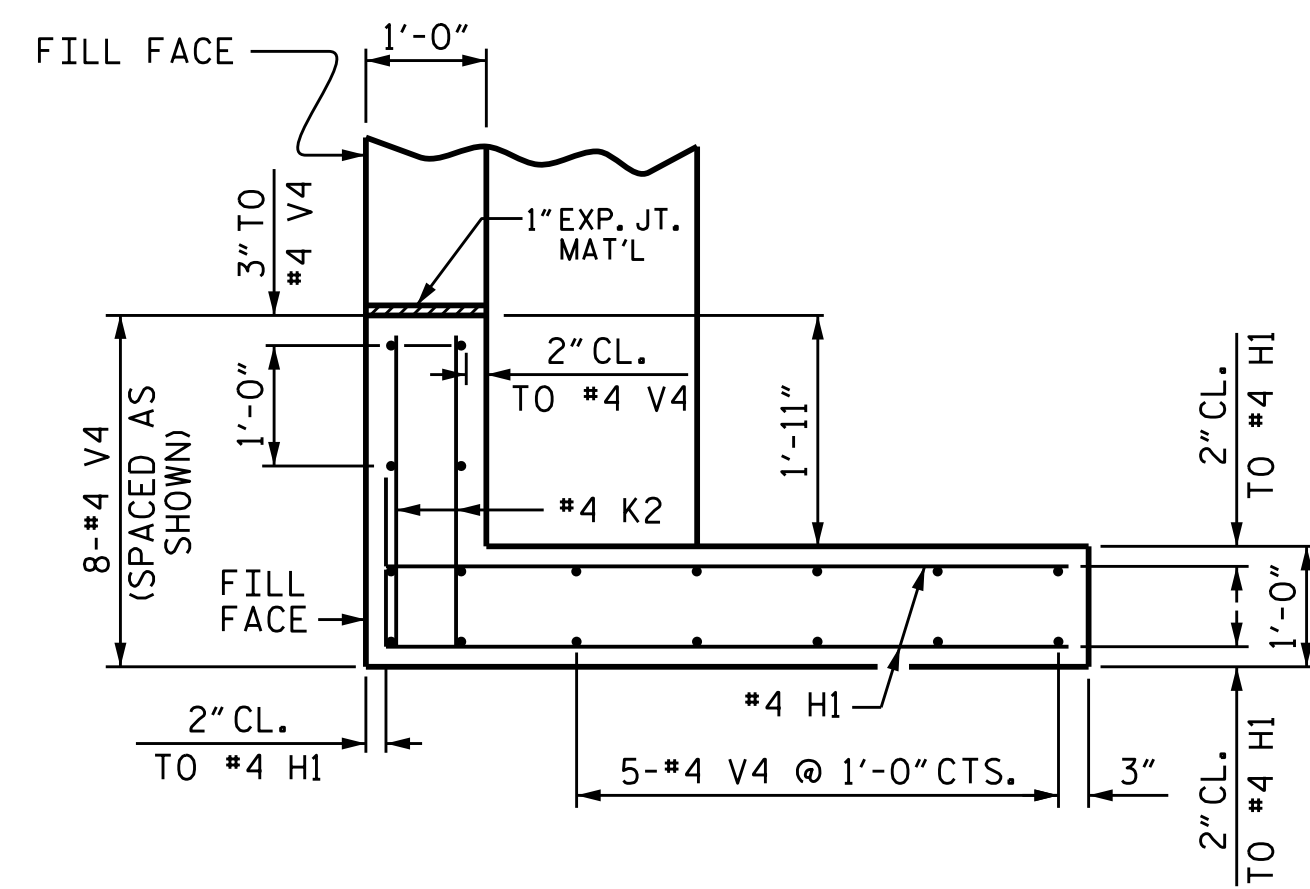
SHEET 2 OF 4

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

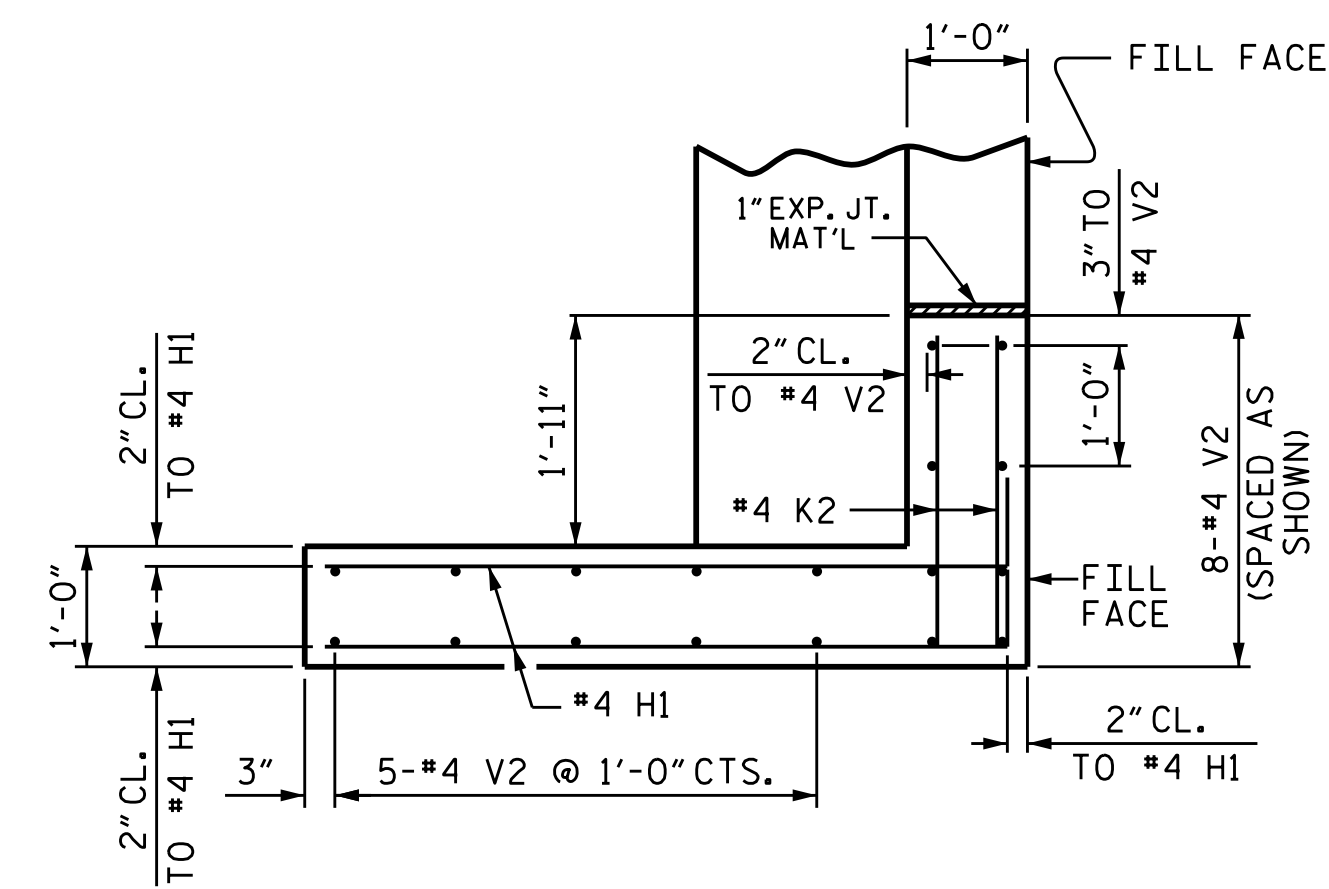


REVISIONS						SHEET NO. S-36
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 43
2			4			

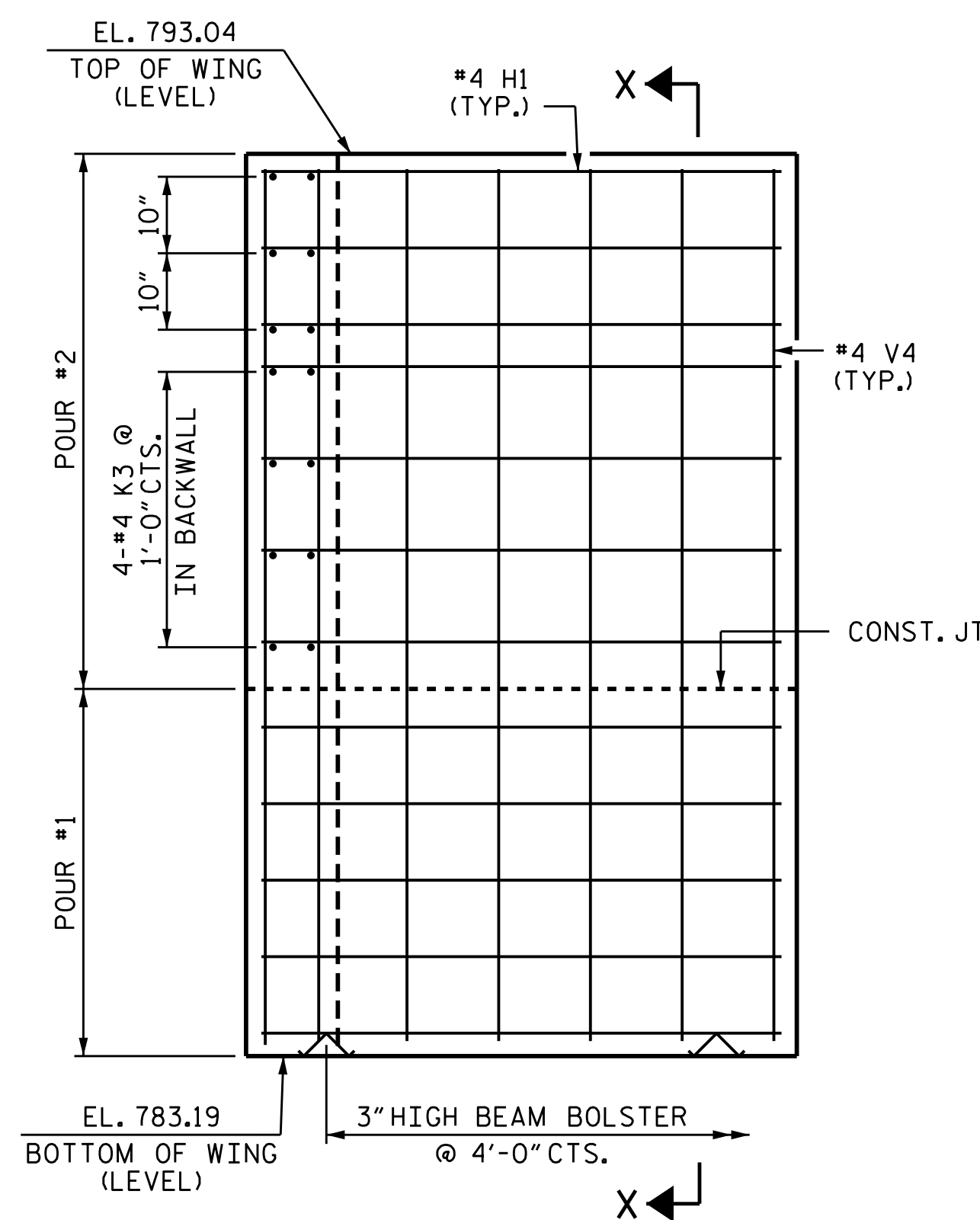
DRAWN BY : K. D. LAYNE DATE : 5/15/15
 CHECKED BY : H. P. KIM DATE : 5/28/15
 DESIGN ENGINEER OF RECORD: R. L. CHESSON DATE : 6/10/15



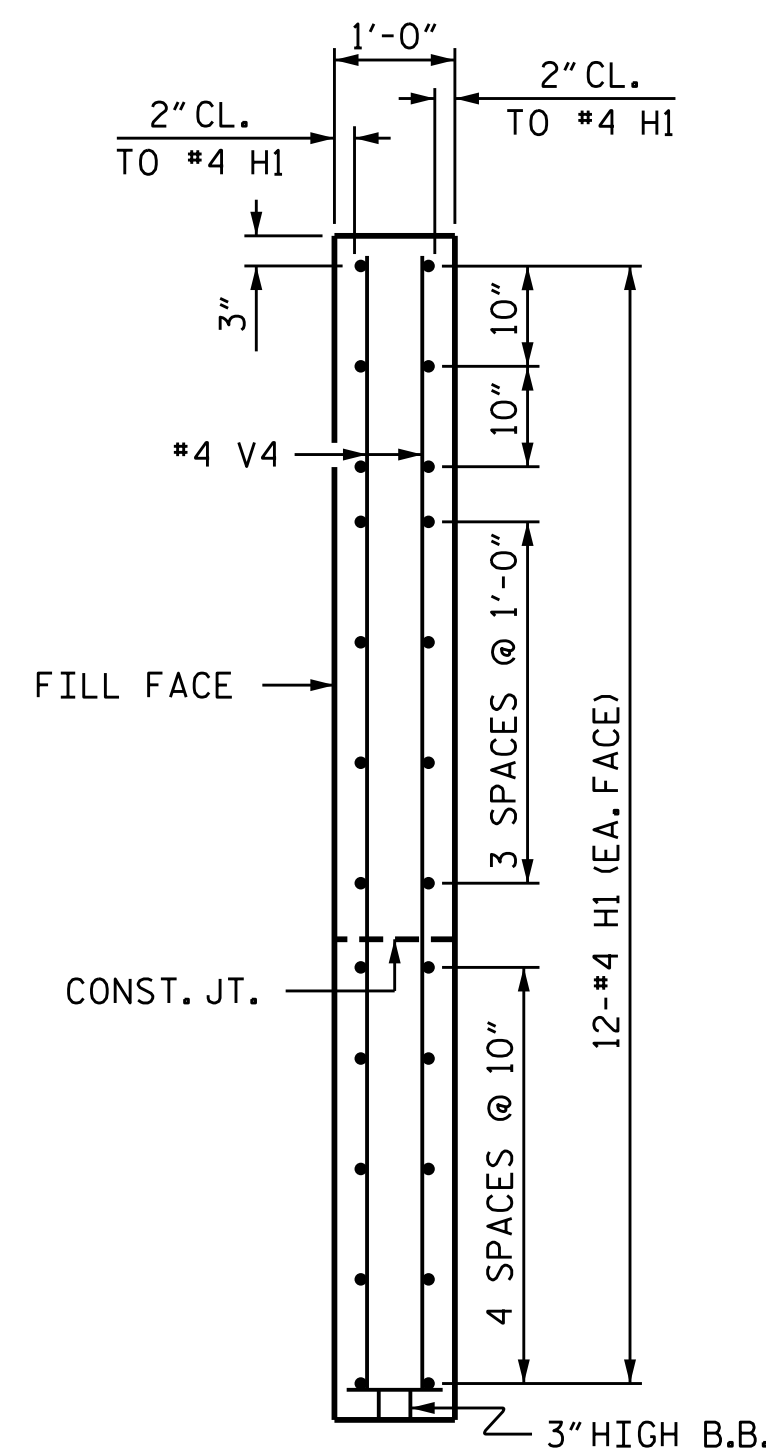
PLAN OF LEFT WING (W2)
(STAGE II)



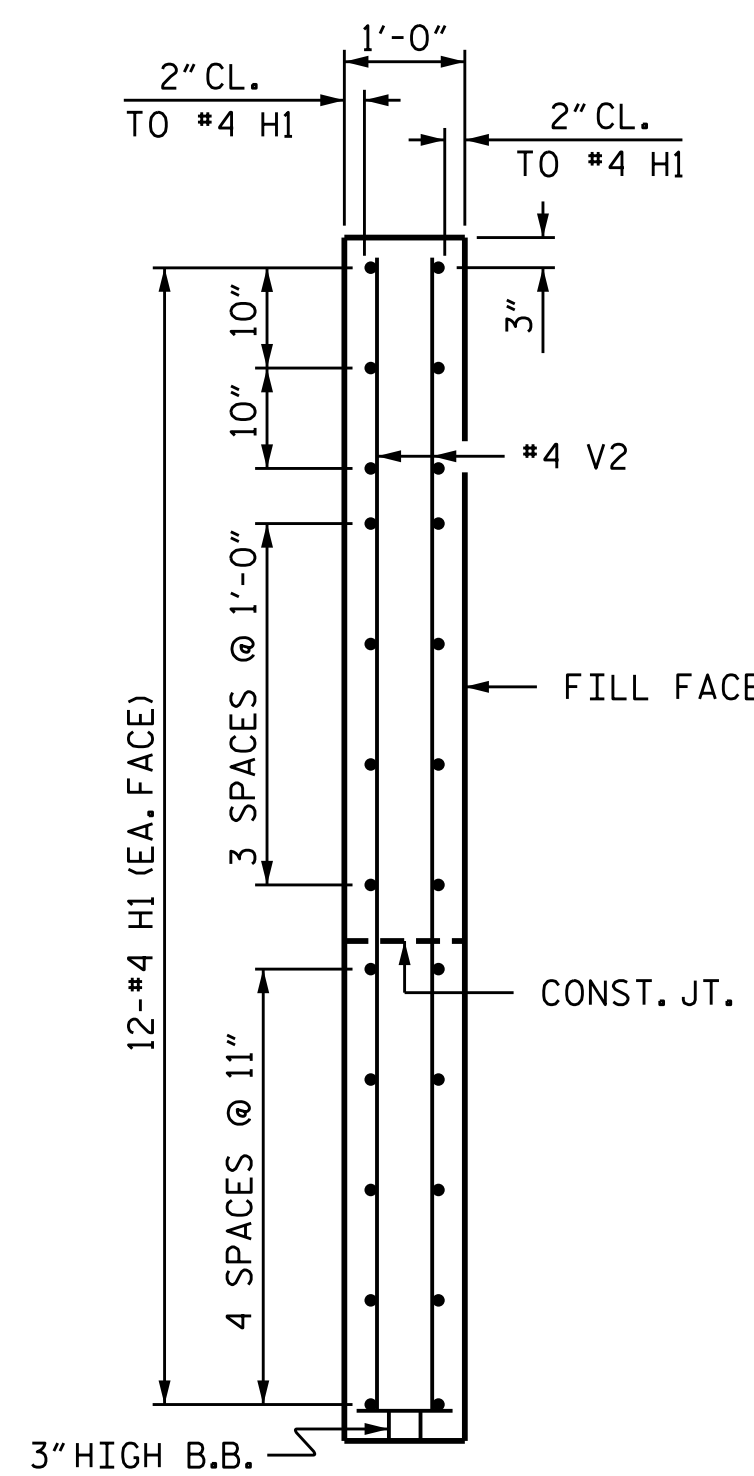
PLAN OF RIGHT WING (W1)
(STAGE I)



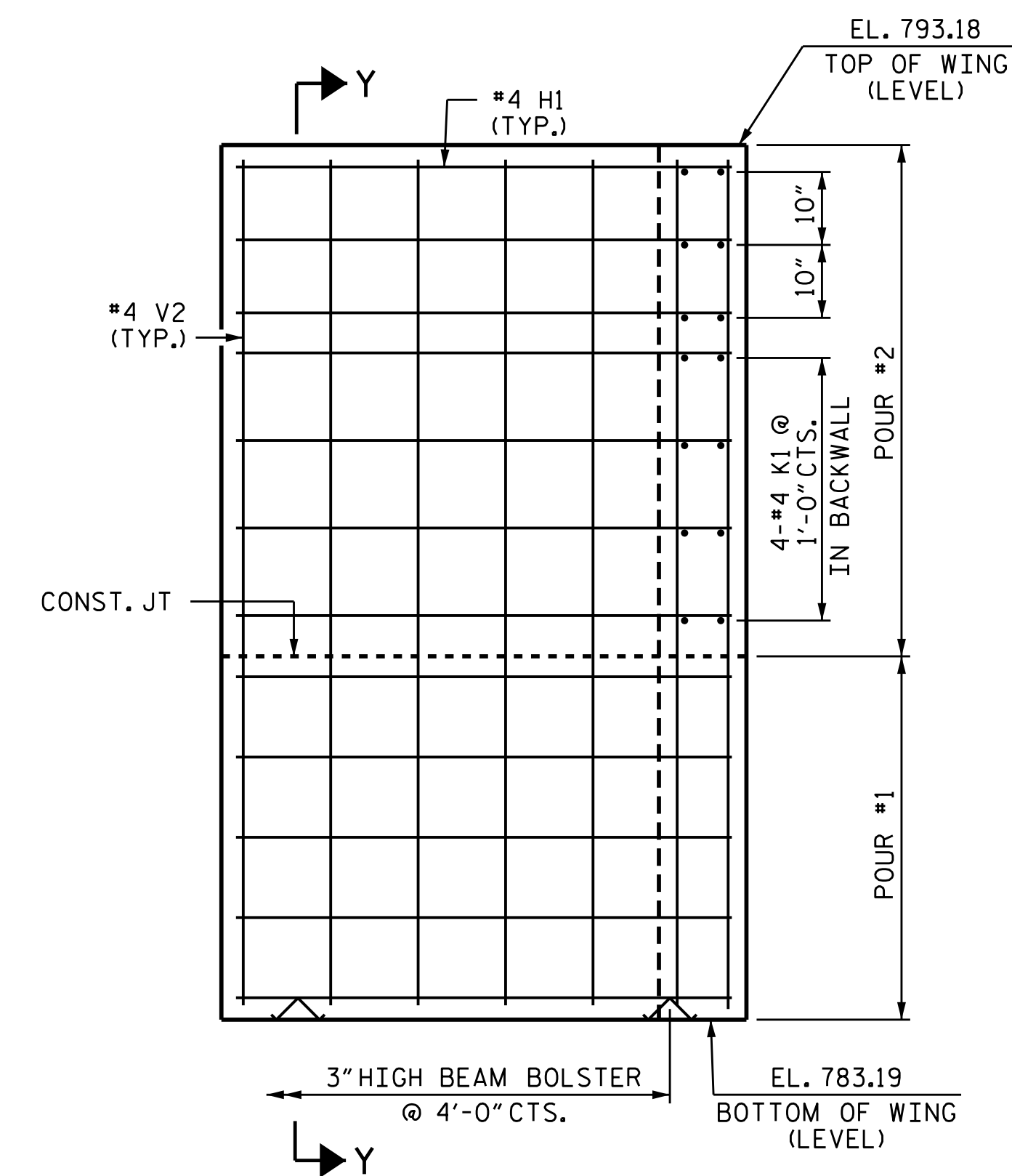
ELEVATION OF LEFT WING (W2)
(STAGE II)



SECTION X-X (STAGE II)



SECTION Y-Y (STAGE I)

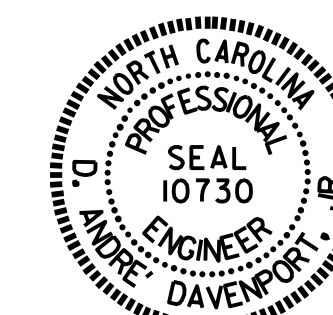


ELEVATION OF RIGHT WING (W1)
(STAGE I)

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 3 OF 4

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

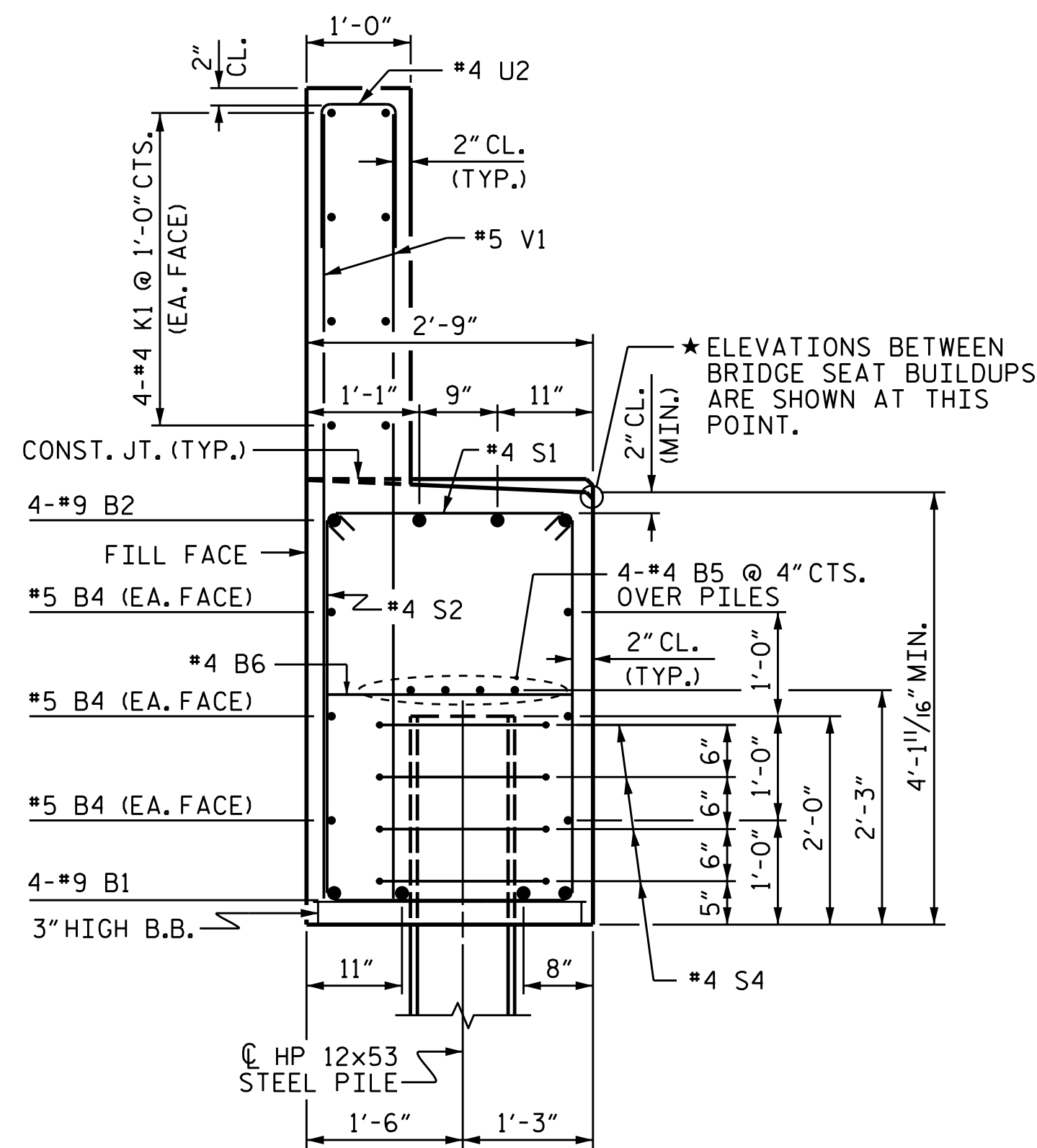


P. Andre Davenport, Jr.
 8/24/2015

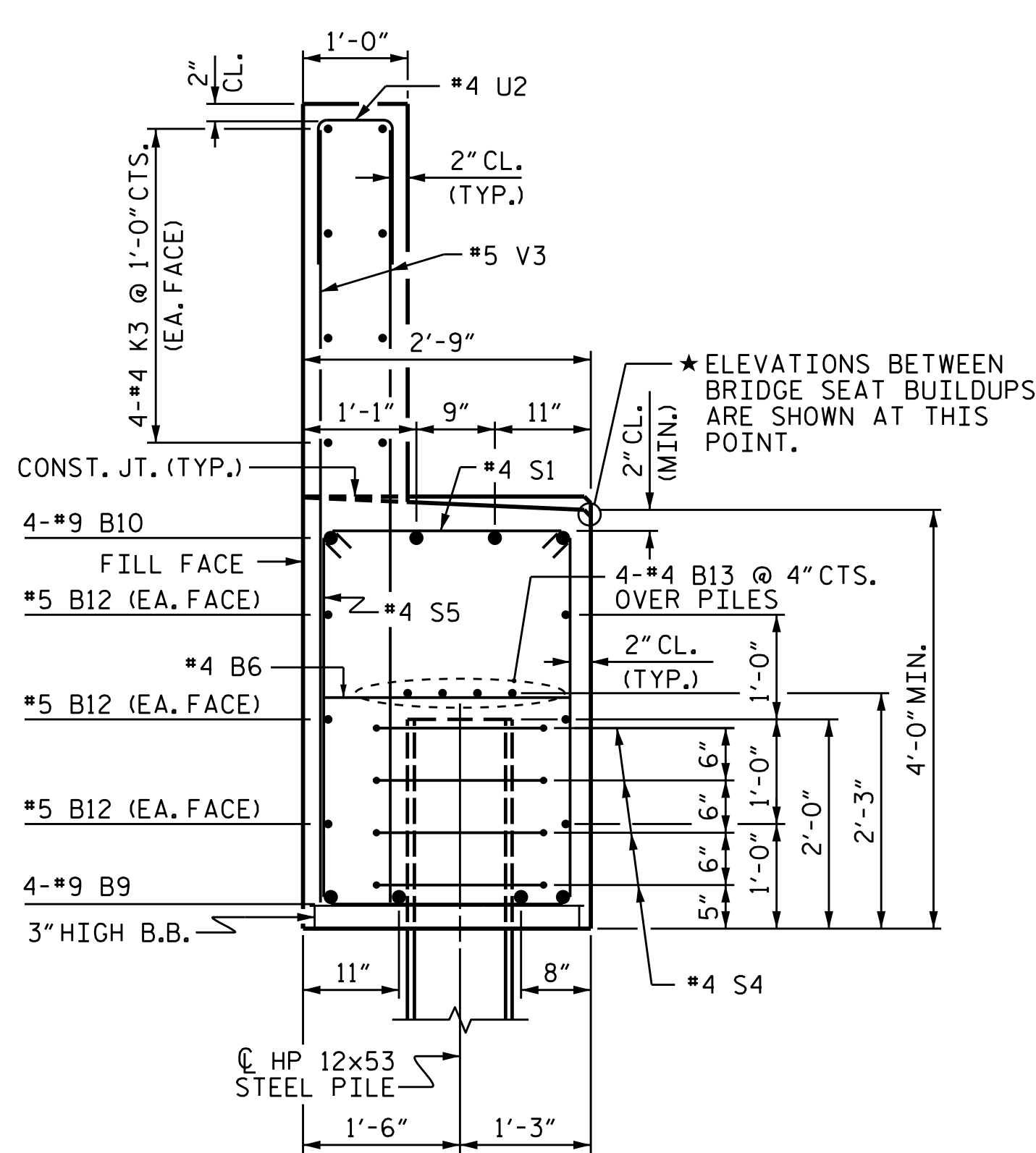
DRAWN BY : K. D. LAYNE DATE : 5/15/15
 CHECKED BY : H. P. KIM DATE : 5/28/15
 DESIGN ENGINEER OF RECORD: R. L. CHESSON DATE : 6/10/15

24-AUG-2015 12:28
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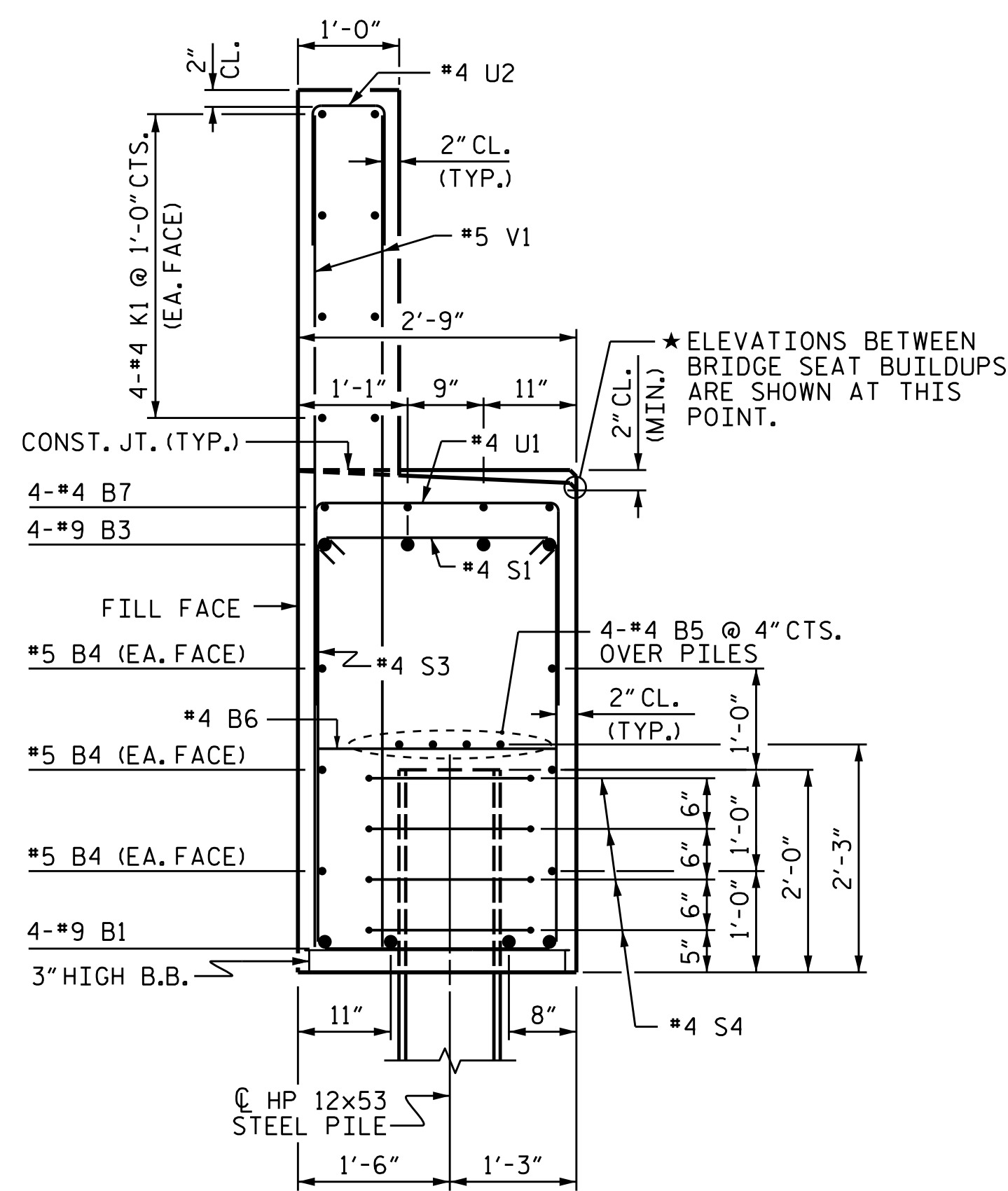
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			43



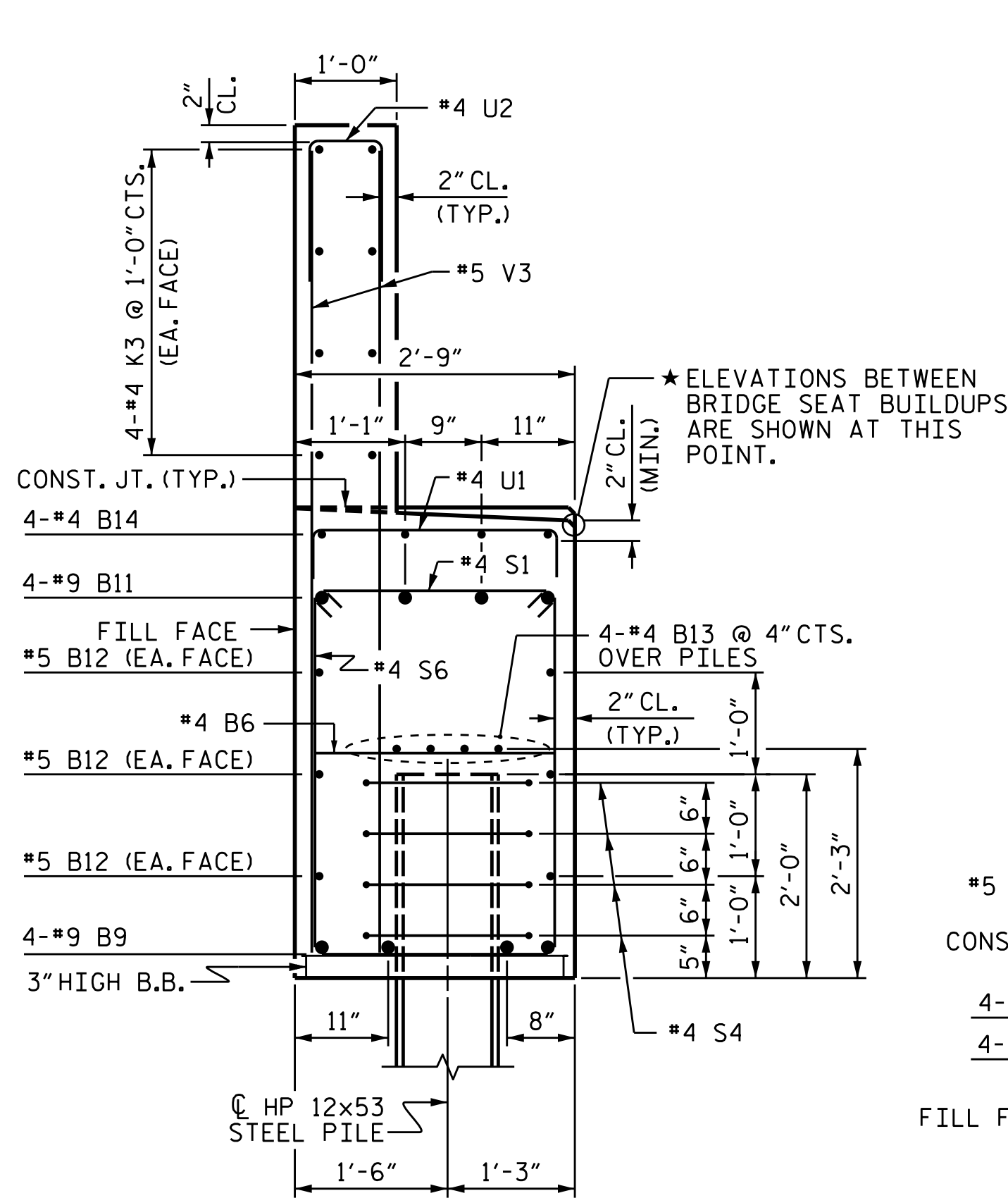
SECTION A-A



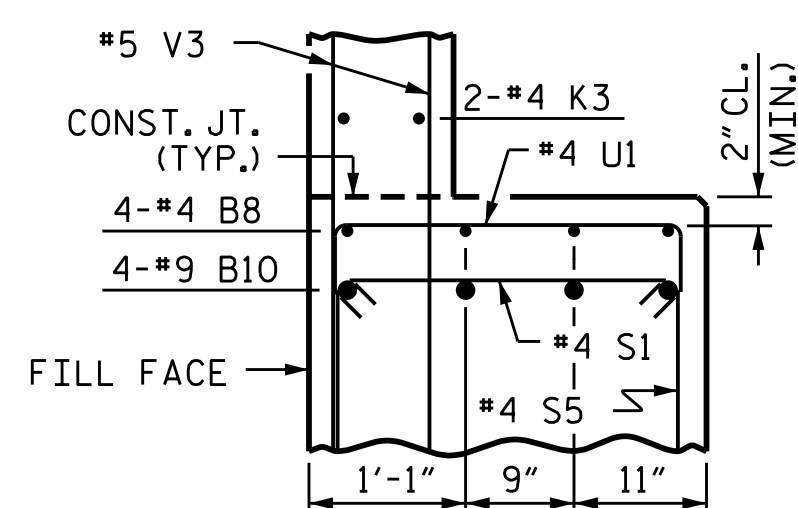
SECTION C-C



SECTION B-B

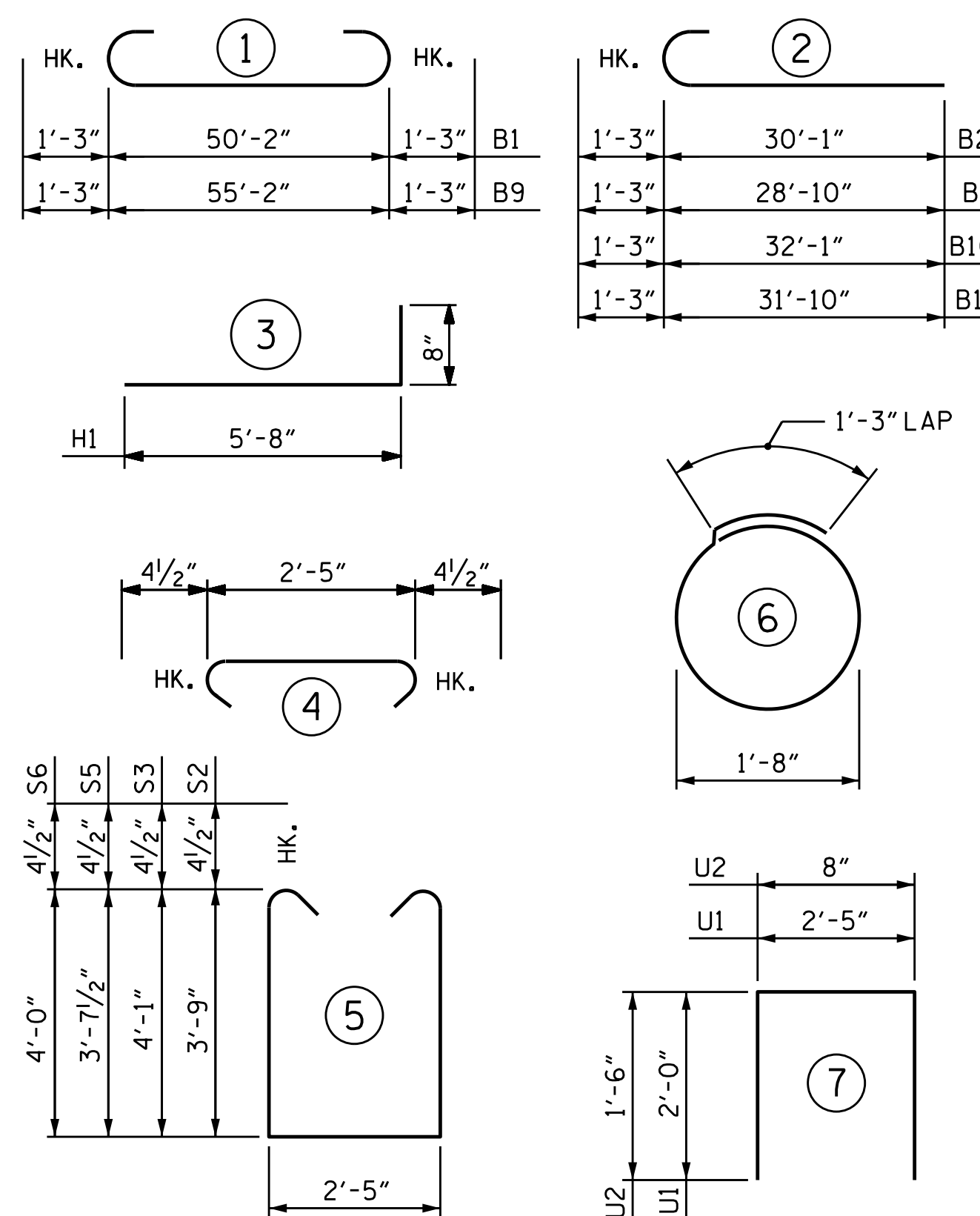


SECTION D-D



SECTION E-E

BAR TYPES

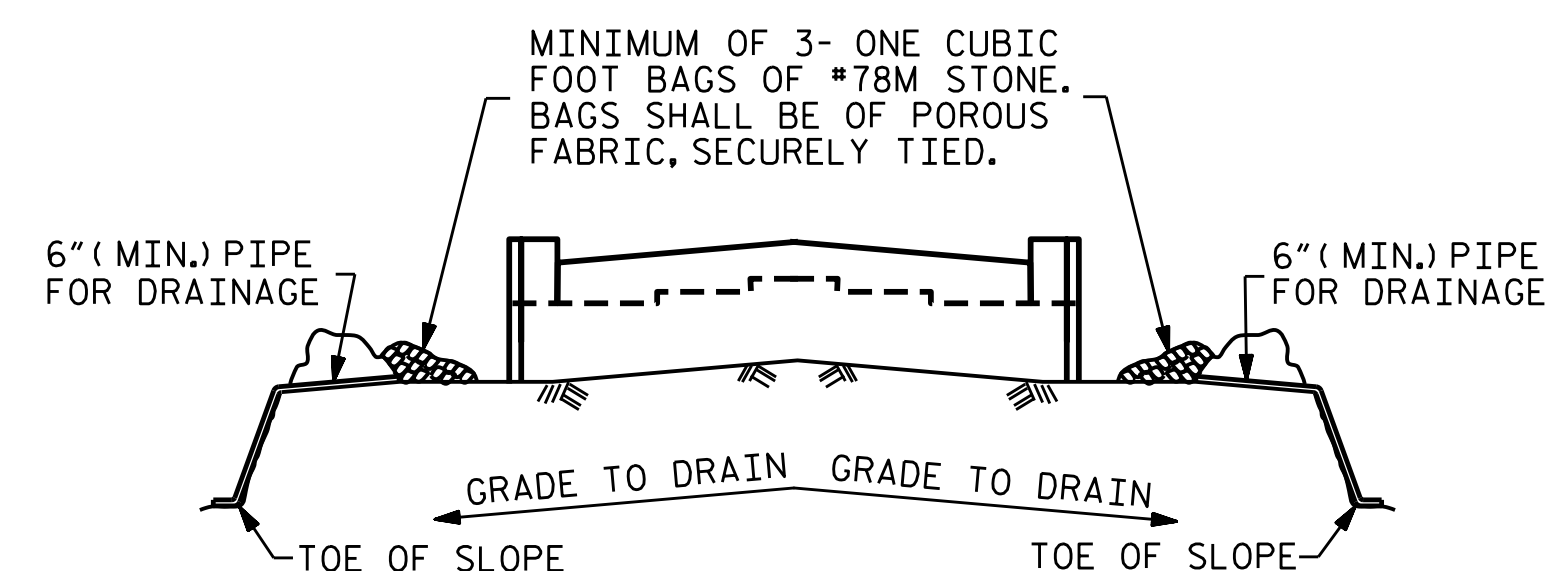


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

STAGE I					STAGE II						
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	4	#9	1	52'-8"	716	B6	16	#4	STR	2'-5"	26
B2	4	#9	2	31'-4"	426	B8	12	#4	STR	3'-2"	25
B3	4	#9	2	30'-1"	409	B9	4	#9	1	57'-8"	784
B4	6	#5	STR	50'-0"	313	B10	4	#9	2	33'-4"	453
B5	8	#4	STR	26'-5"	141	B11	4	#9	2	33'-1"	450
B6	15	#4	STR	2'-5"	24	B12	6	#5	STR	55'-4"	346
B7	4	#4	STR	8'-6"	23	B13	8	#4	STR	28'-11"	155
B8	12	#4	STR	3'-2"	25	B14	4	#4	STR	9'-6"	25
D1	4	#6	STR	4'-0"	24						
H1	24	#4	3	6'-4"	102	H1	24	#4	2	6'-4"	102
K1	16	#4	STR	27'-9"	297	K2	6	#4	STR	2'-7"	10
K2	6	#4	STR	2'-7"	10	K3	16	#4	STR	28'-11"	309
S1	56	#4	4	3'-2"	118	S1	58	#4	4	3'-2"	123
S2	24	#4	5	10'-8"	171	S4	28	#4	6	6'-6"	122
S3	32	#4	5	11'-4"	242	S5	24	#4	5	10'-5"	167
S4	28	#4	6	6'-6"	122	S6	34	#4	5	11'-2"	254
U1	15	#4	7	6'-5"	64	U1	16	#4	6	6'-5"	69
U2	48	#4	7	3'-8"	118	U2	53	#4	6	3'-8"	130
V1	96	#5	STR	7'-6"	751	V3	106	#5	STR	7'-4"	811
V2	18	#4	STR	9'-6"	114	V4	18	#4	STR	9'-5"	113
REINFORCING STEEL				LBS.	4,210	REINFORCING STEEL				LBS.	4,474
CLASS A CONCRETE BREAKDOWN					CLASS A CONCRETE BREAKDOWN						
POUR #1	CAP & LOWER PART OF WING W1	C.Y.	24.0		POUR #1	CAP & LOWER PART OF WING W2	C.Y.	25.8			
POUR #2	BACKWALL & UPPER PART OF WING W1	C.Y.	8.5		POUR #2	BACKWALL & UPPER PART OF WING W2	C.Y.	9.2			
TOTAL				C.Y.	32.5	TOTAL				C.Y.	35.0
HP 12x53 STEEL PILES				LIN. FT.	425	HP 12x53 STEEL PILES				LIN. FT.	240

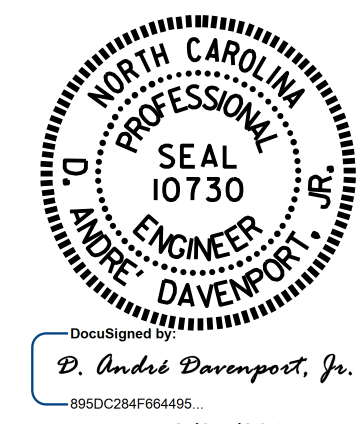


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



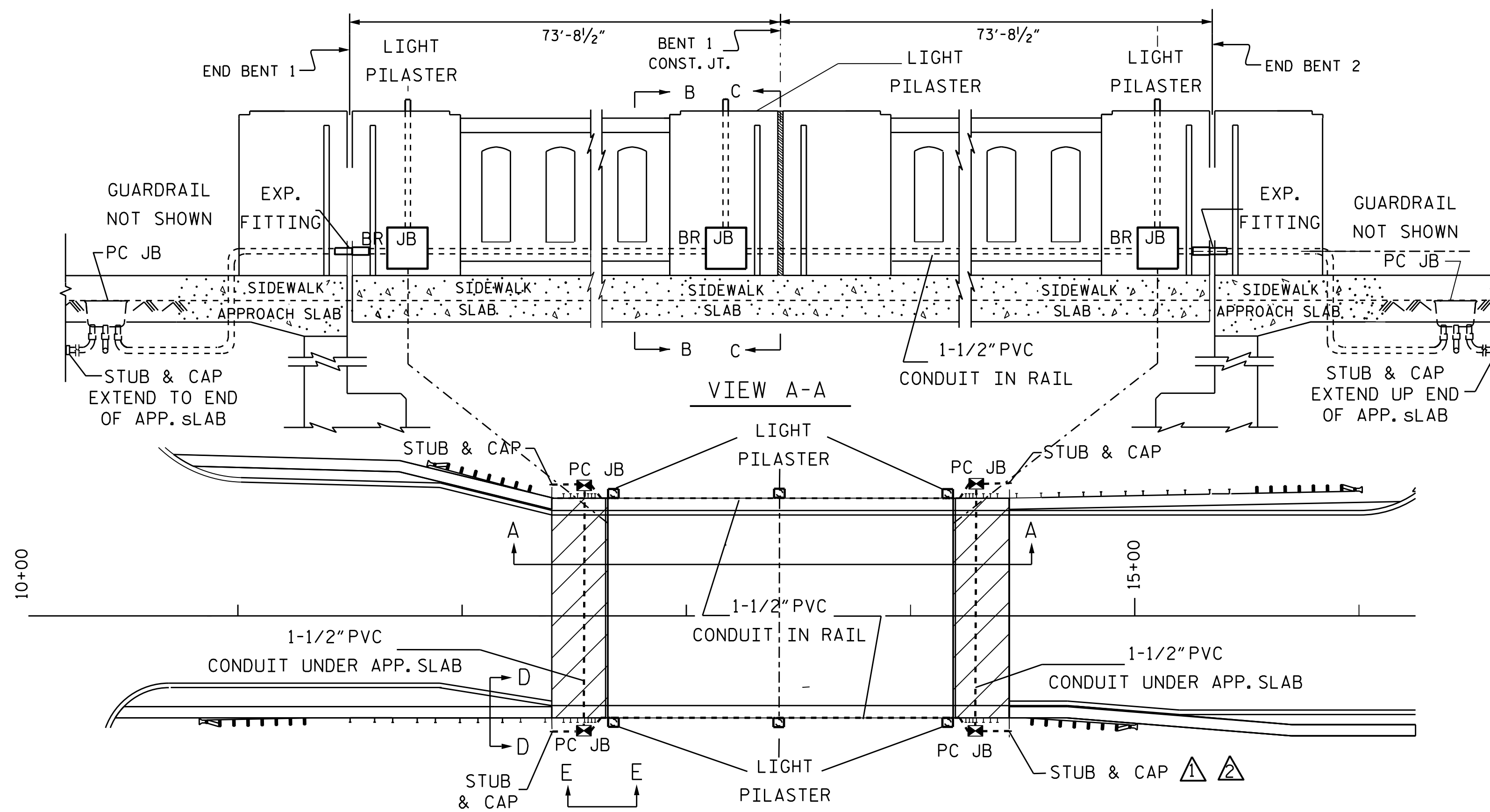
PROJECT NO. B-3159
 DAVIDSON COUNTY
 STATION: 13+41.72 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-38
TOTAL SHEETS					43

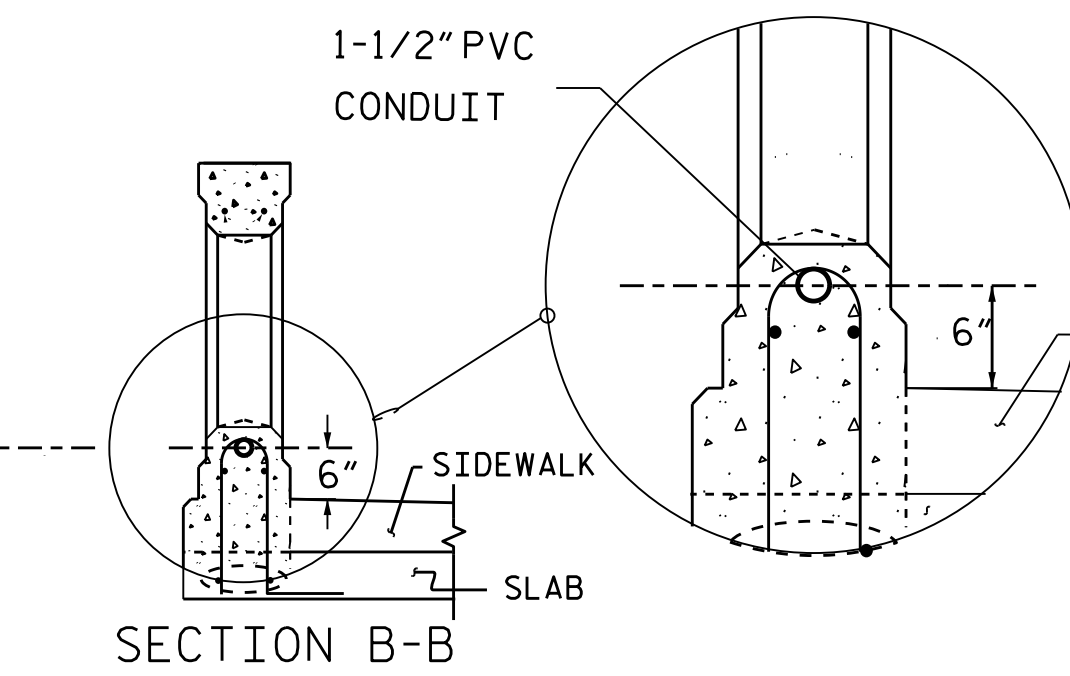
DRAWN BY : K. D. LAYNE DATE : 5/15/15
 CHECKED BY : H. P. KIM DATE : 5/28/15
 DESIGN ENGINEER OF RECORD: R. L. CHESSON DATE : 6/10/15

USE FOR ELECTRICAL CONDUIT SYSTEM ONLY

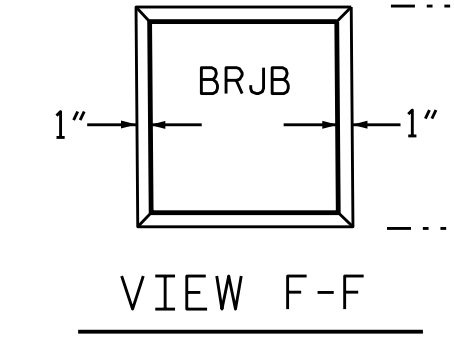


VIEW A-A

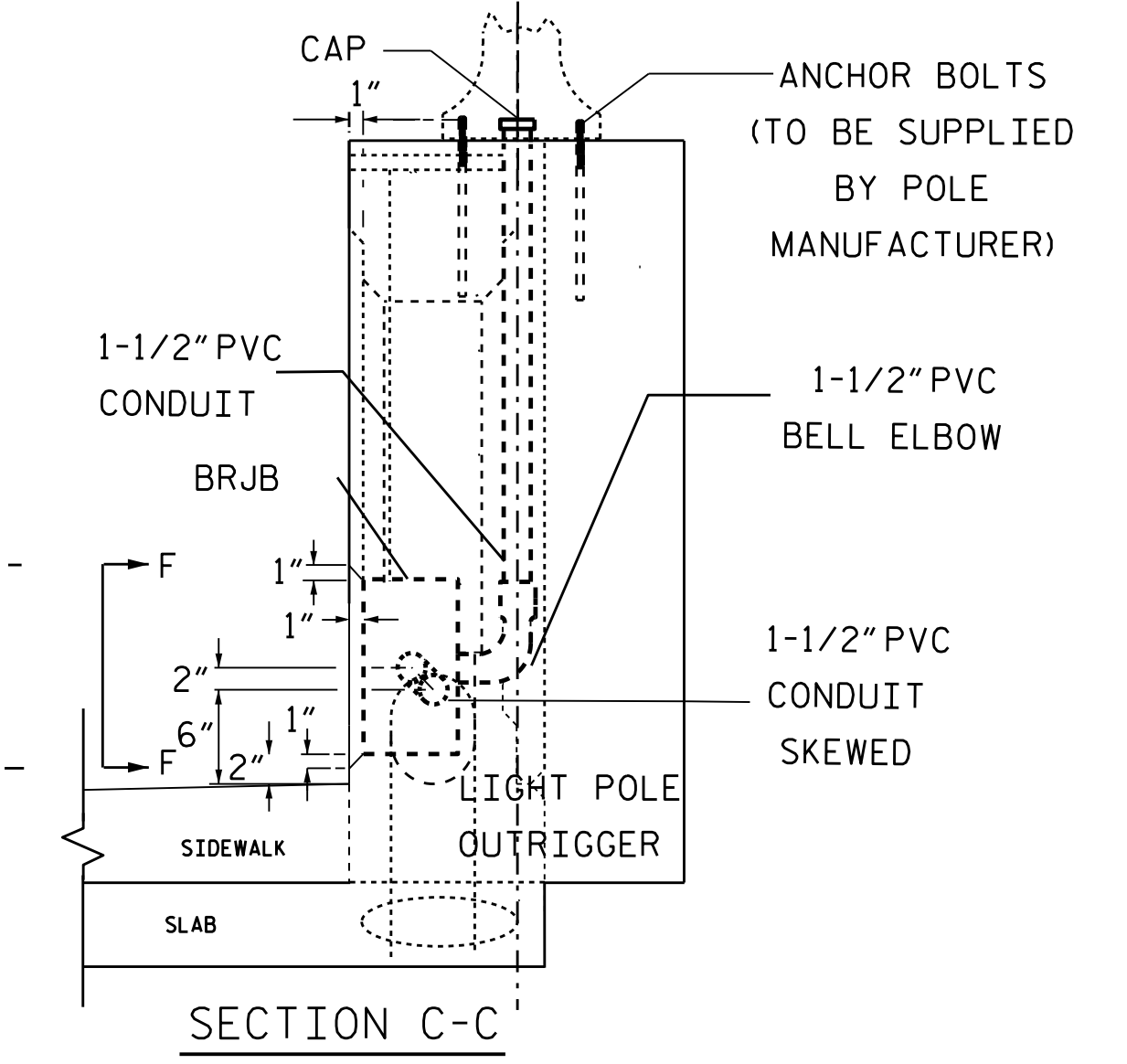
CONDUIT LAYOUT
BRIDGE I.D. STA. 13+41.72 -L-



SECTION B-B



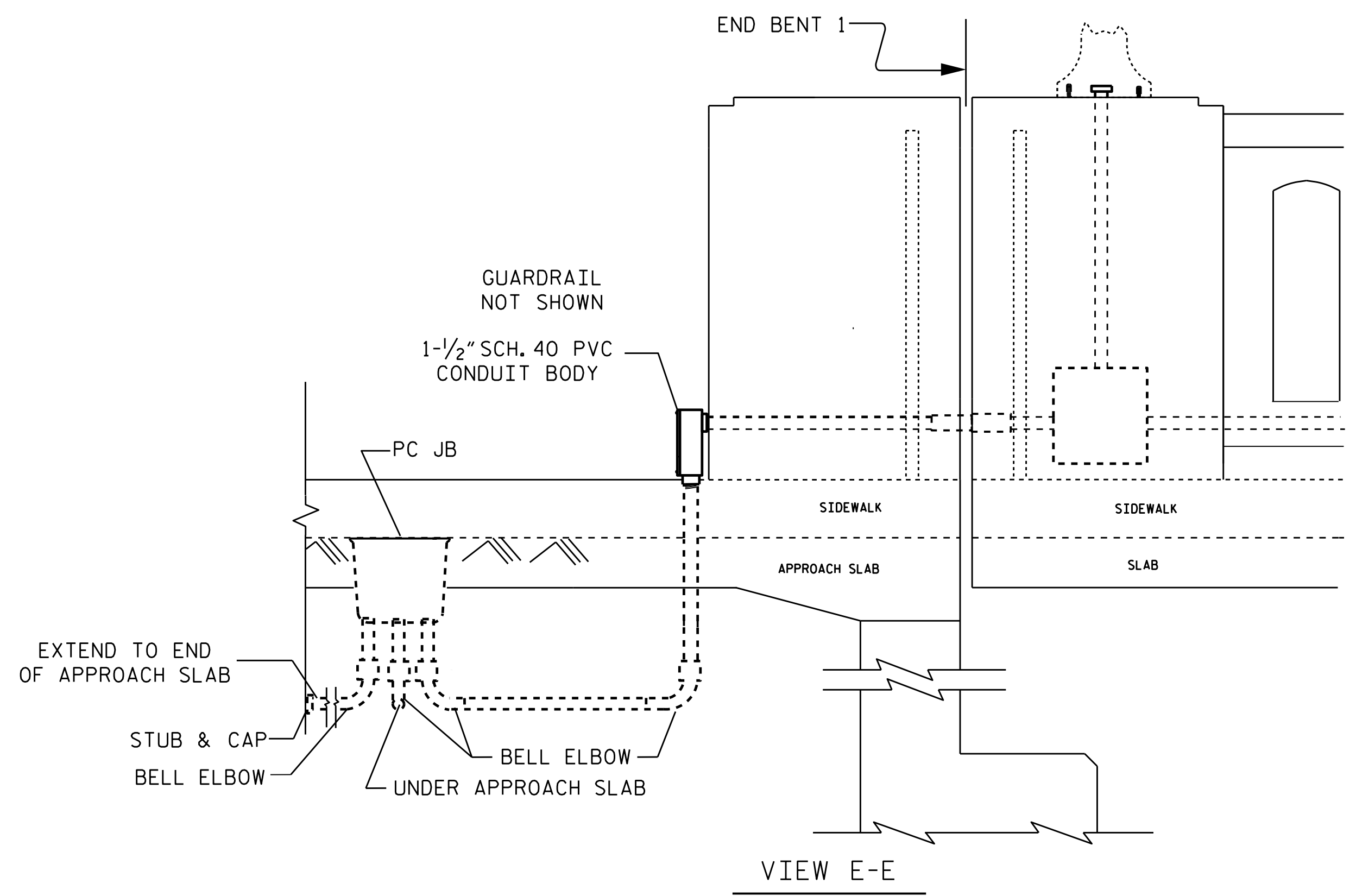
VIEW F-F



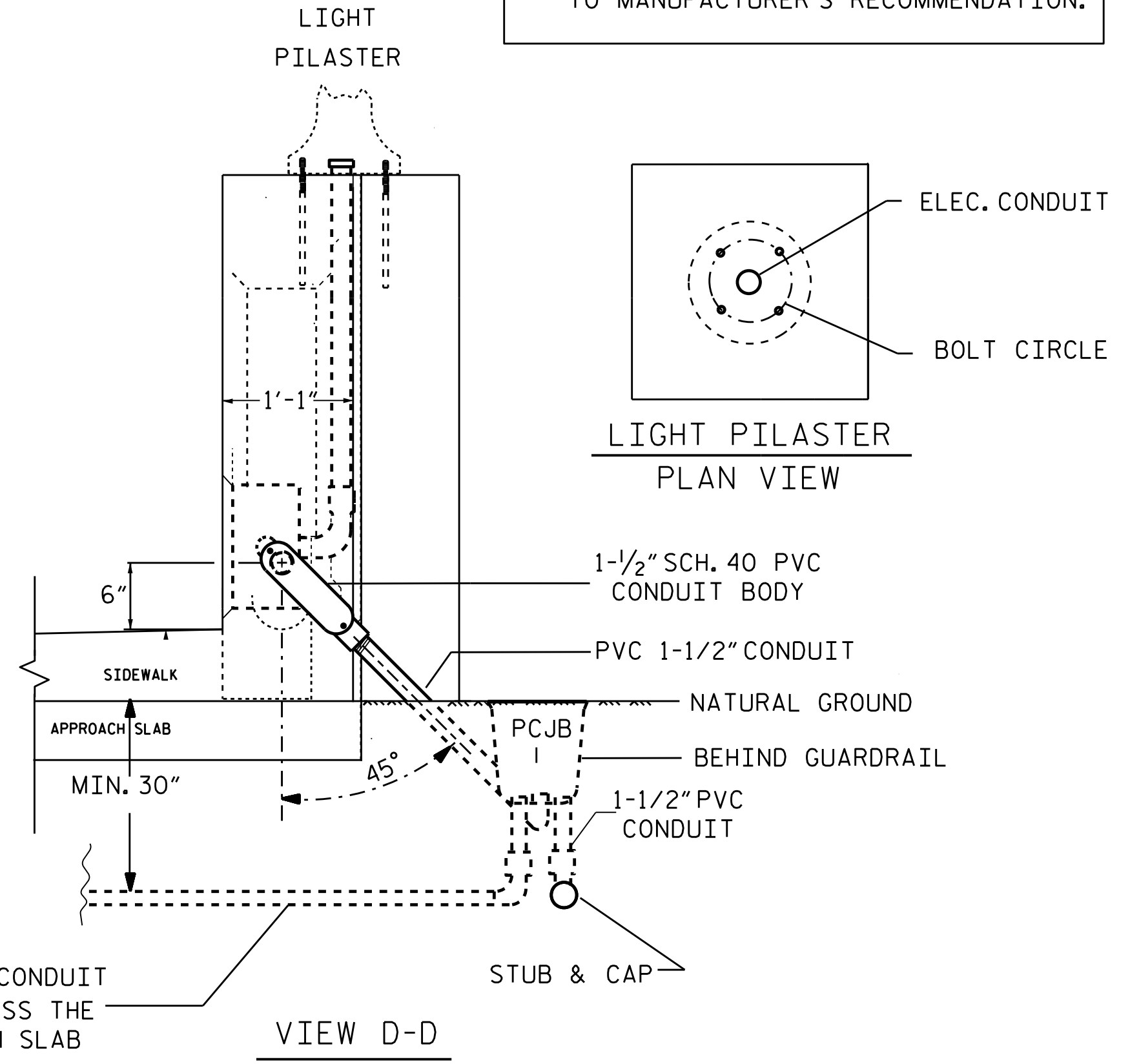
SECTION C-C

- NOTES
- △ COORDINATE POWER SERVICE WITH THE CITY.
 - △ COORDINATE CONNECTION OF CONDUIT WITH CITY.
 - △ SEE STRUCTURE PLANS FOR LOCATION OF LIGHT PEDESTALS.
 - △ INSTALL ANCHOR BOLTS ACCORDING TO MANUFACTURER'S RECOMMENDATION.

ESTIMATED BILL OF MATERIALS		
UNIT	ITEM	QNTY
EA	PCJB: 12"x11"x18" POLYMER CONCRETE JUNCTION BOX	4
EA	BRJB : 12"x12"x4" CAST IRON FLUSH MOUNT JUNCTION BOX	6
EA	1-1/2" PVC CONDUIT	540
EA	1-1/2" PVC 90 BELL ELBOW	22
EA	1-1/2" PVC COUPLING	22
EA	1-1/2" PVC EXPANSION FITTINGS	4
FT	PULL LINE	600

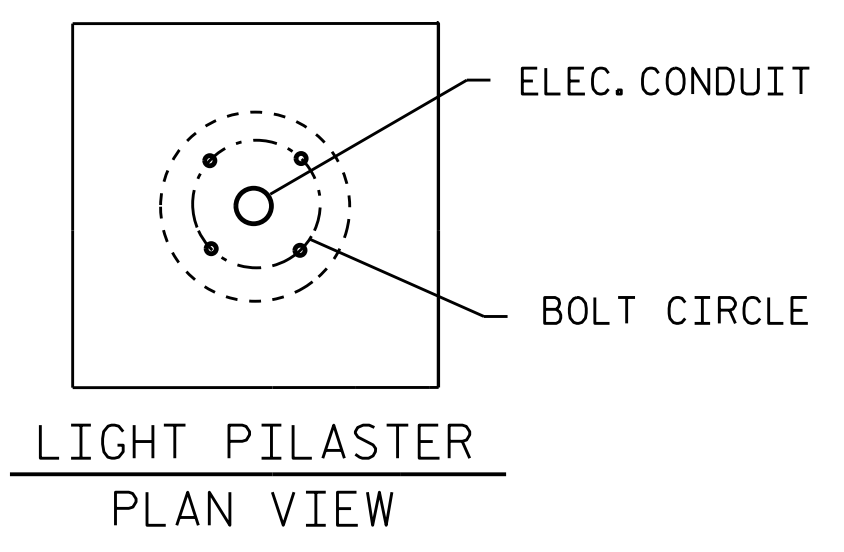


VIEW E-E



VIEW D-D

END PILASTER ON APPROACH SLAB

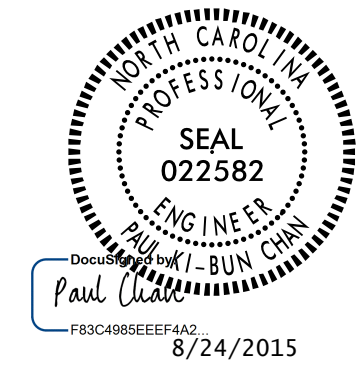


LIGHT PILASTER
PLAN VIEW

PROJECT NO. B-3159
DAVIDSON COUNTY
STATION: 13+41.72 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL CONDUIT SYSTEM
BRIDGE OVER US 29-64-70/I-85
BUS. ON NC 8/US 52 BETWEEN
SR 1844 AND SR 1408



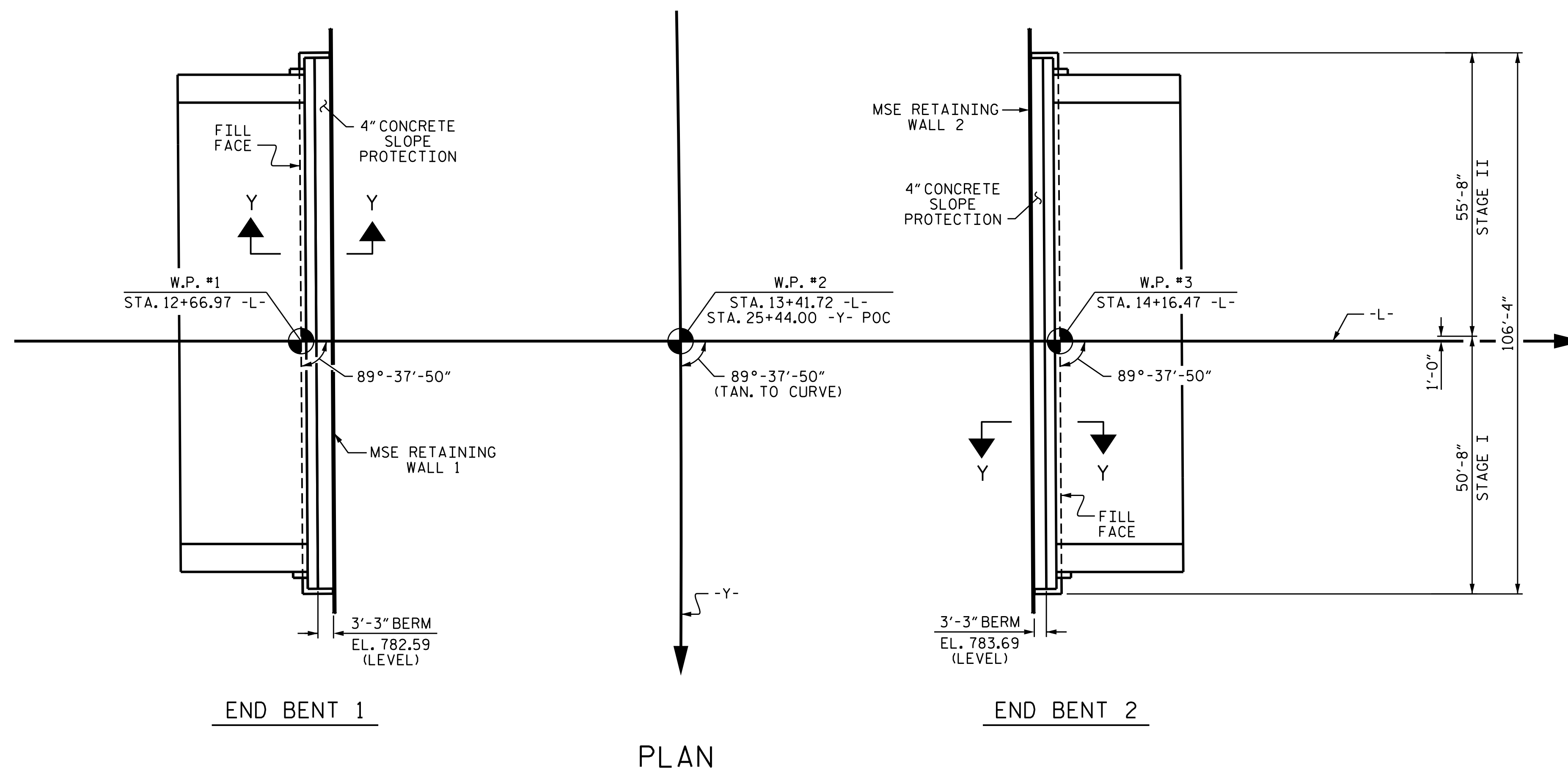
DRAWN BY : SKS LIGHTING & ELECTRICAL DATE : 6/25/15
CHECKED BY : _____ DATE : _____

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1	SKS		3		

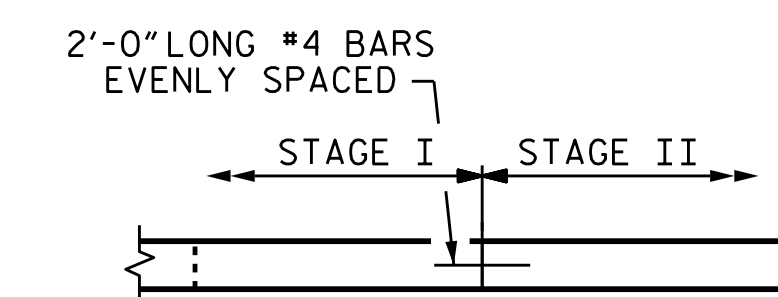
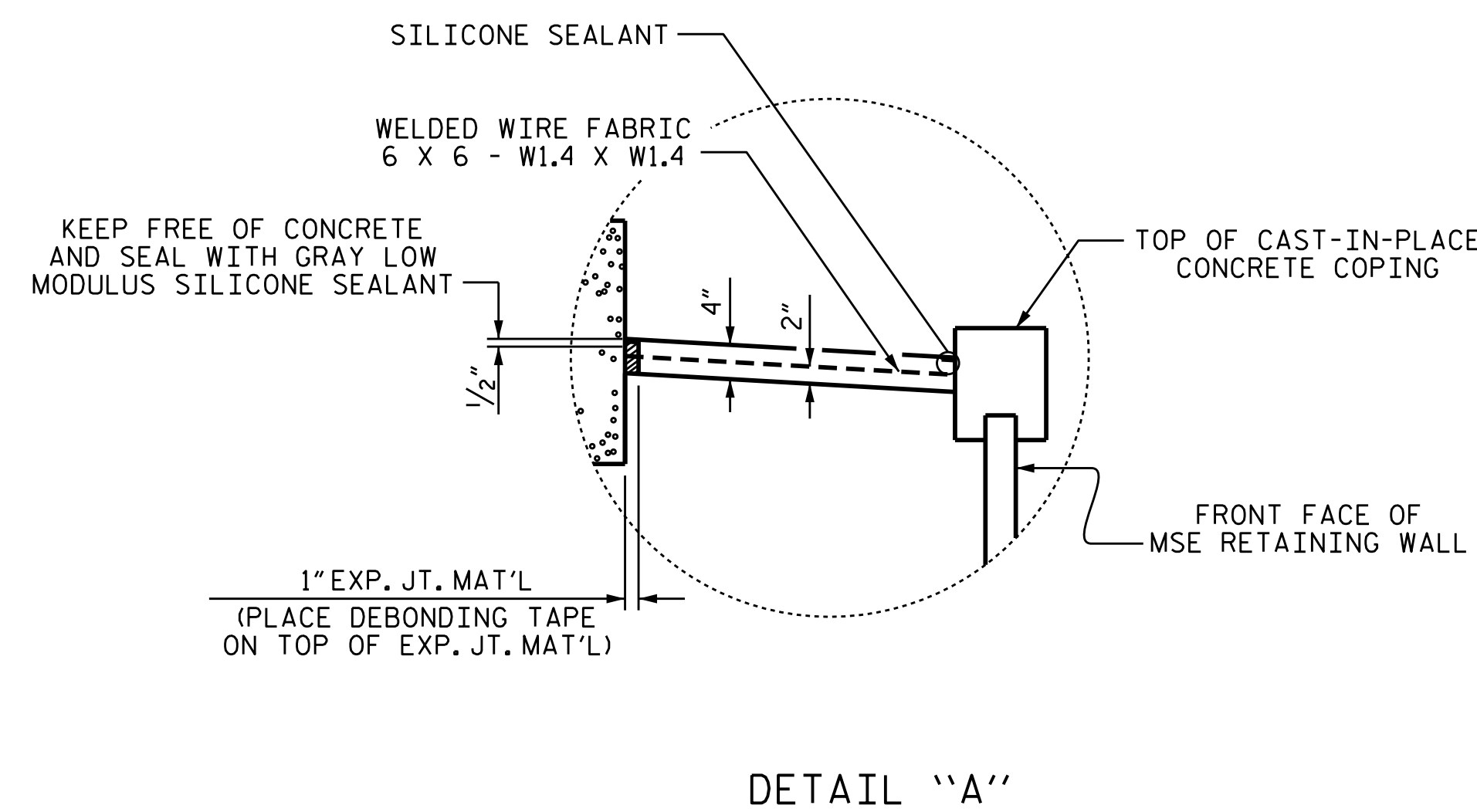
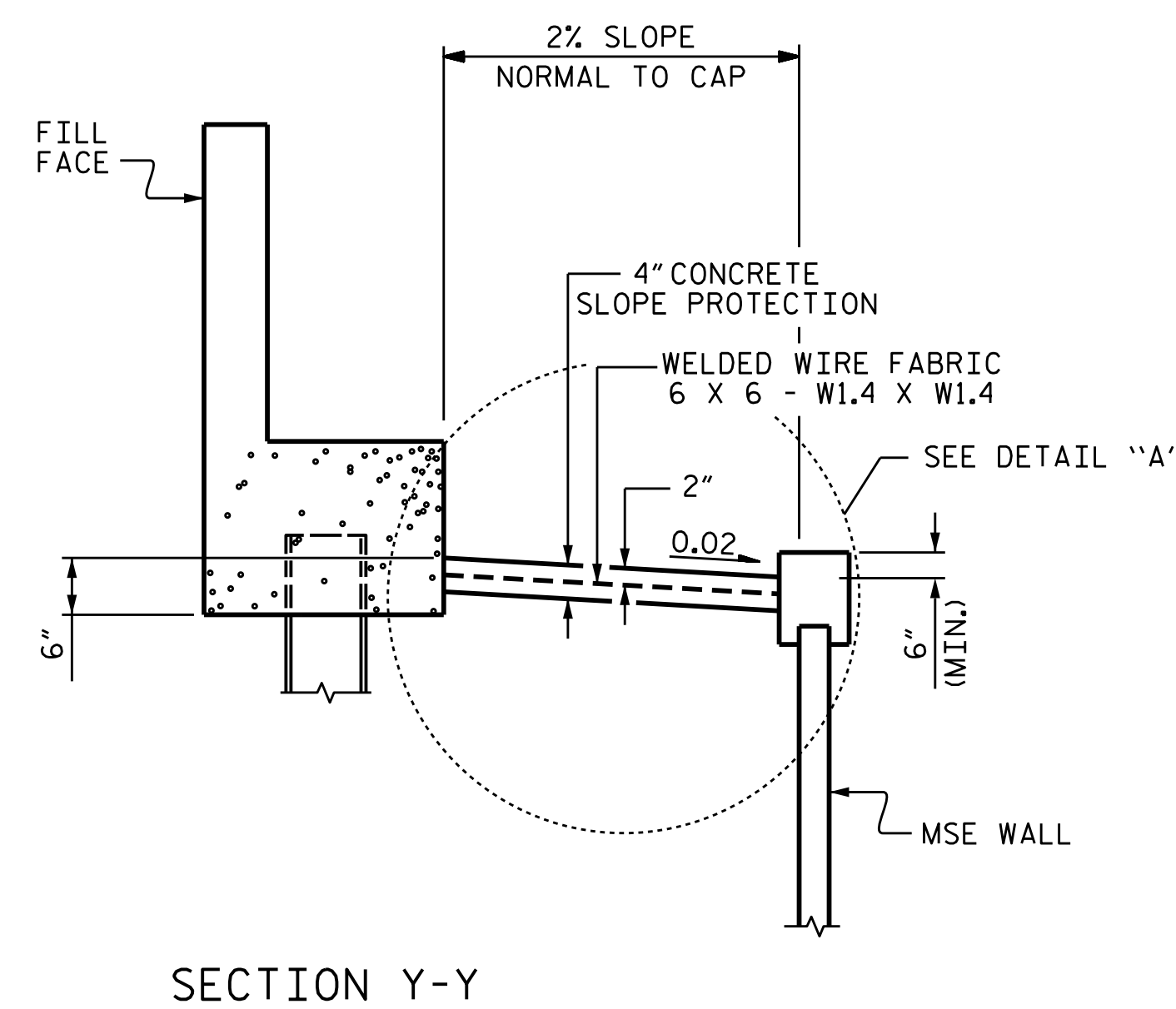
NOTES

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

SLOPE PROTECTION SHALL CONSIST OF 4"POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60"WIDE. THE COST OF THE WELDED WIRE FABRIC AND #4 BARS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.



BRIDGE @ STA. 13+41.72 -L-	4 INCH SLOPE PROTECTION	WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1		
STAGE I	18	36
STAGE II	20	40
TOTAL	38	76
END BENT 2		
STAGE I	18	36
STAGE II	20	40
TOTAL	38	76

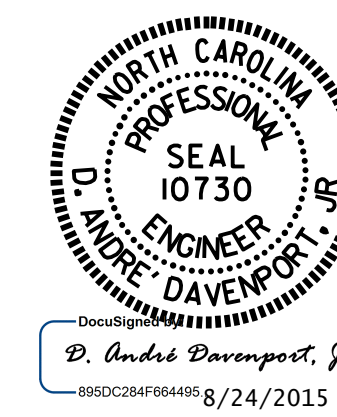


PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-

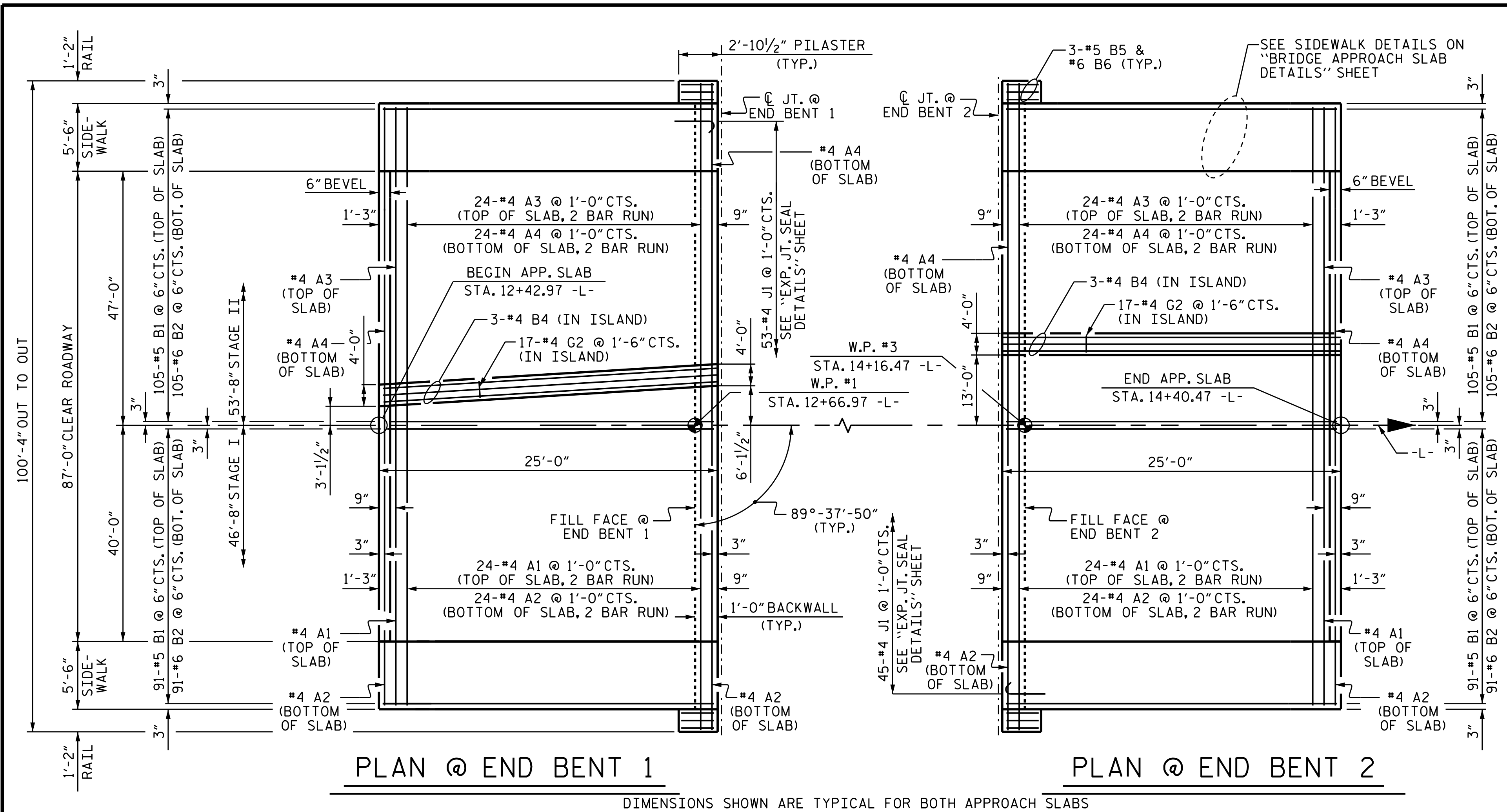
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SLOPE PROTECTION
 DETAILS**

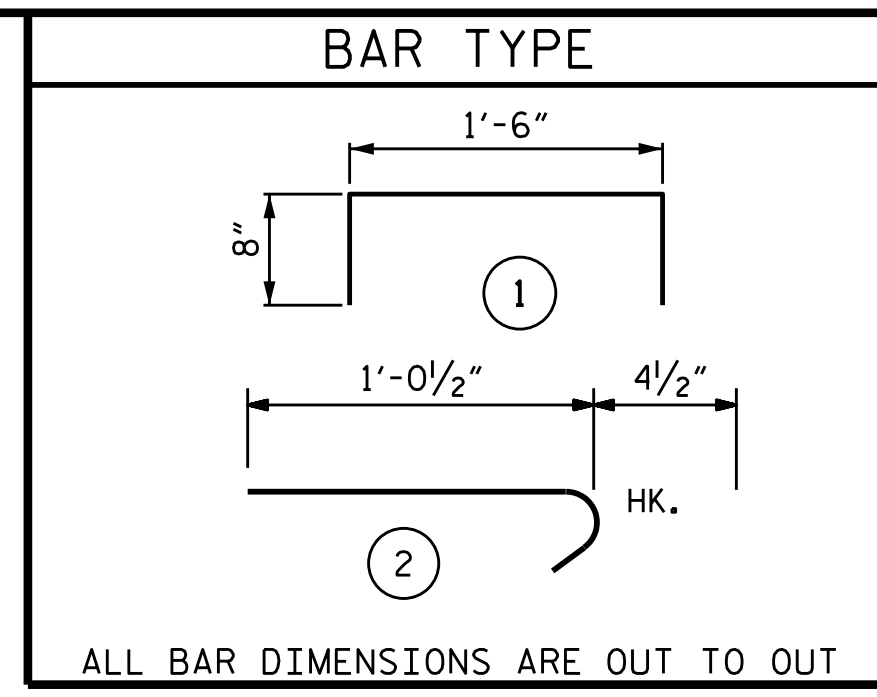
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			43



ASSEMBLED BY : N.D.AIUTO DATE : 5/29/15
 CHECKED BY : J.D.HAWK DATE : 6/10/15



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



BILL OF MATERIAL					
STAGE I - FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	24'-2"	807
A2	52	#4	STR	24'-1"	837
*B1	91	#5	STR	23'-11"	2270
B2	91	#6	STR	24'-8"	3371
*B3	4	#4	STR	24'-7"	66
*B5	3	#5	STR	2'-6"	8
B6	3	#6	STR	2'-6"	11
*G1	25	#4	STR	5'-0"	84
*J1	45	#4	2	1'-5"	43
*U1	8	#4	1	2'-10"	15
REINFORCING STEEL				LBS.	4,219
*EPOXY COATED REINFORCING STEEL				LBS.	3,293
CLASS AA CONCRETE					
POUR 1 - APPROACH SLAB				C. Y.	49.8
POUR 2 - SIDEWALK				C. Y.	2.8
TOTAL				C. Y.	52.6
PATTERNED CONCRETE SIDEWALK				SO. FT.	250.00
STAGE II - FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	50	#4	STR	27'-8"	924
A4	52	#4	STR	27'-7"	958
*B1	105	#5	STR	23'-11"	2619
B2	105	#6	STR	24'-8"	3890
*B3	4	#4	STR	24'-7"	66
*B4	6	#4	STR	24'-8"	99
*B5	3	#5	STR	2'-6"	8
B6	3	#6	STR	2'-6"	11
*G1	25	#4	STR	5'-0"	84
*G2	17	#4	STR	2'-9"	31
*J1	53	#4	2	1'-5"	50
*U1	8	#4	1	2'-10"	15
REINFORCING STEEL				LBS.	4,859
*EPOXY COATED REINFORCING STEEL				LBS.	3,896
CLASS AA CONCRETE					
POUR 1 - APPROACH SLAB				C. Y.	57.0
POUR 2 - SIDEWALK				C. Y.	2.8
POUR 3 - ISLAND				C. Y.	1.3
TOTAL				C. Y.	61.1
PATTERNED CONCRETE SIDEWALK				SO. FT.	250.00

NOTES

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

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

FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

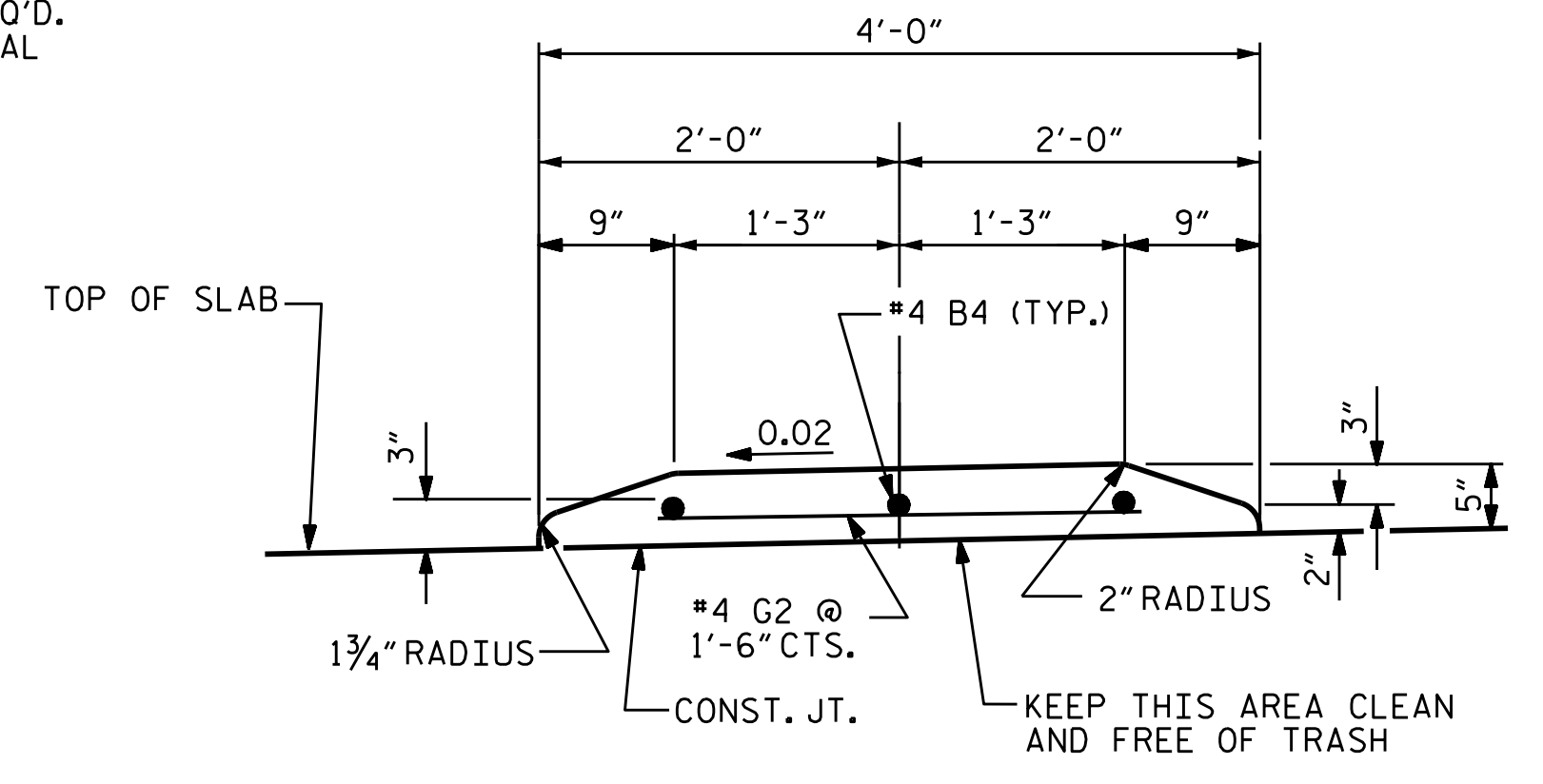
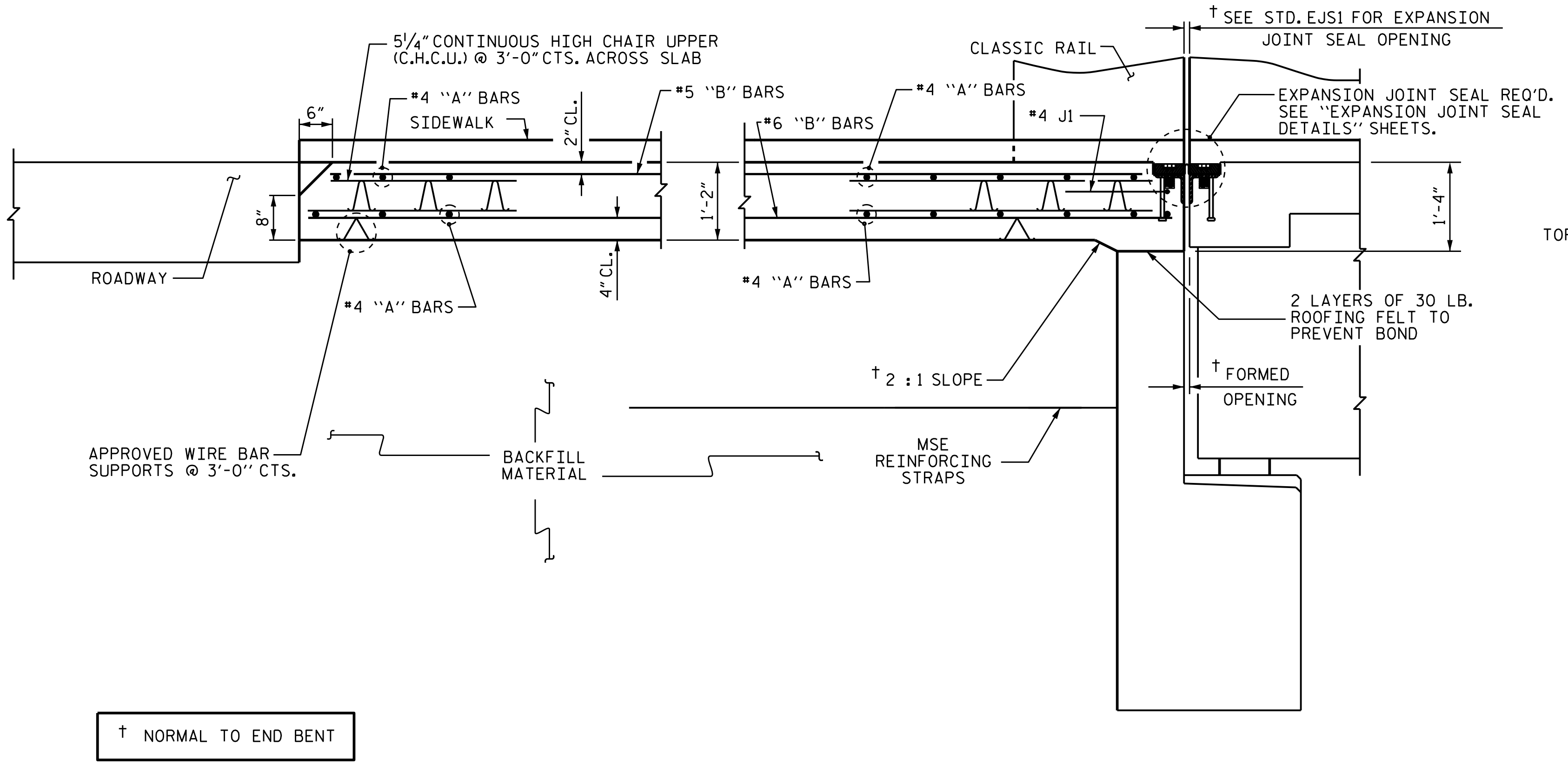
FOR GALVANIZED REINFORCING STRAPS AND BACKFILL MATERIAL, SEE MSE RETAINING WALL PLANS AND SPECIAL PROVISIONS.

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

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

PAYMENT FOR THE SIDEWALK AND MONOLITHIC CONCRETE ISLAND SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "BRIDGE APPROACH SLABS".

FOR PATTERNED SIDEWALK FINISH DETAIL, SEE "SIDEWALK DETAILS" SHEET. THE PATTERNED FINISH SHALL BE PAID FOR AS SQUARE FEET OF "PATTERNED CONCRETE SIDEWALK". FOR PATTERNED CONCRETE SIDEWALK, SEE SPECIAL PROVISIONS.



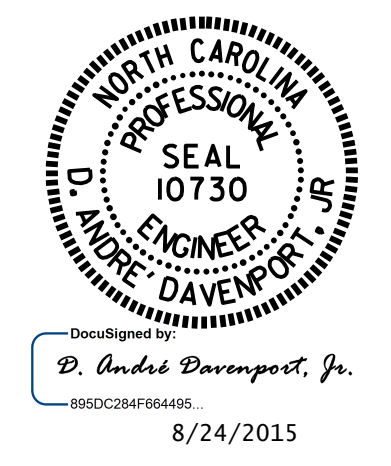
SECTION THROUGH MONOLITHIC CONCRETE ISLAND

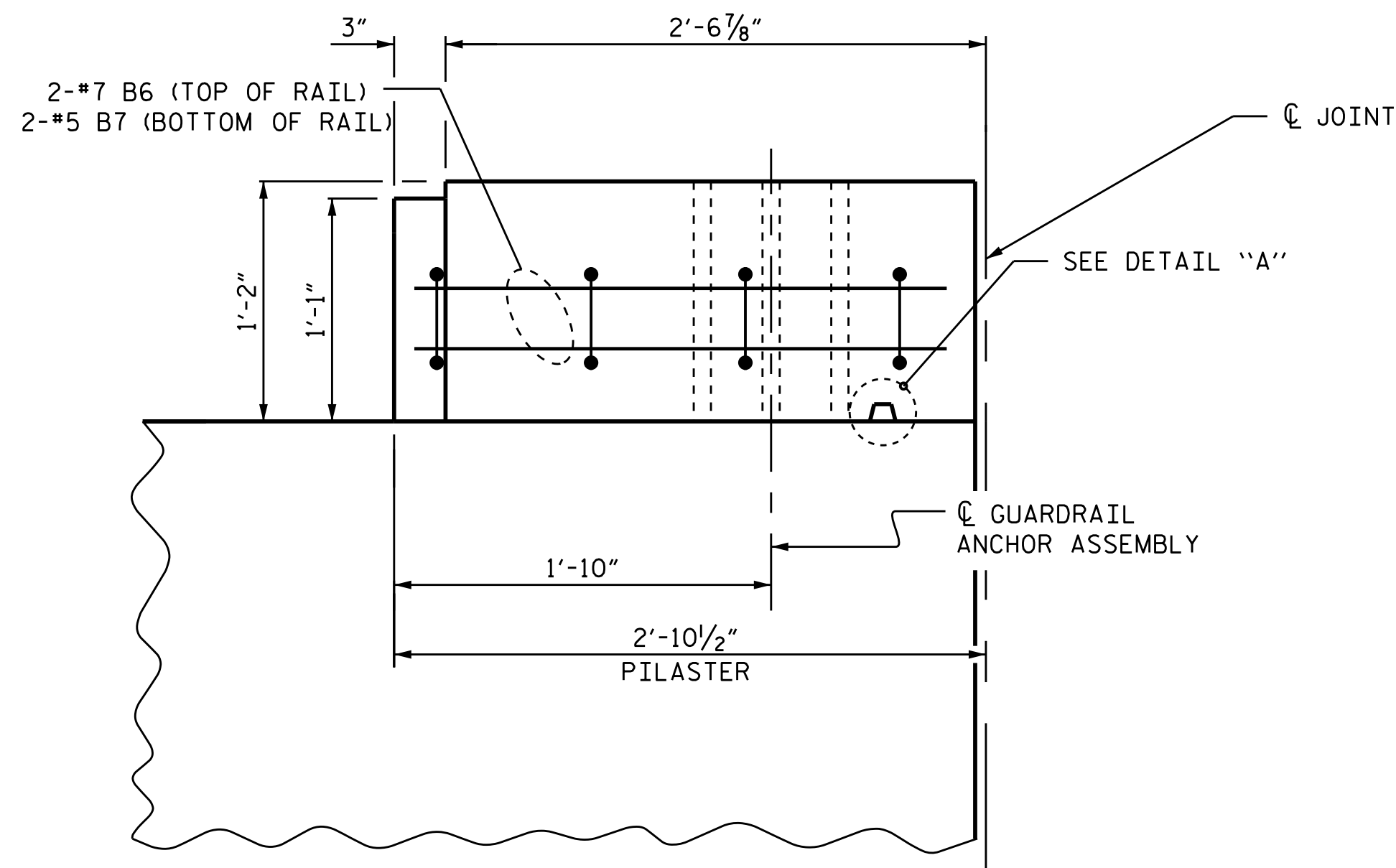
SEE "DETAILS AT EXPANSION JOINT SEALS" ON "MONOLITHIC CONCRETE ISLAND DETAILS" SHEET FOR JOINT BETWEEN APPROACH SLAB AND BRIDGE

PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. 5-41					TOTAL SHEETS 43

ASSEMBLED BY :	R.L. CHESSON	DATE :	6-5-14
CHECKED BY :	R. P. PATEL	DATE :	6-9-14
DRAWN BY :	EEM 3/95	REV. 10/1/11	MAA/GM
CHECKED BY :	VAP 3/95	REV. 12/21/11	MAA/GM
		REV. 6/13	MAA/GM
DESIGN ENGINEER OF RECORD:		DATE :	
R.L. CHESSON		6/10/15	





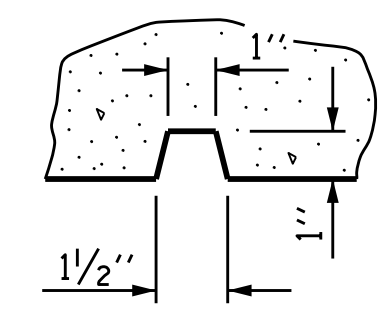
SECTION J-J

NOTES

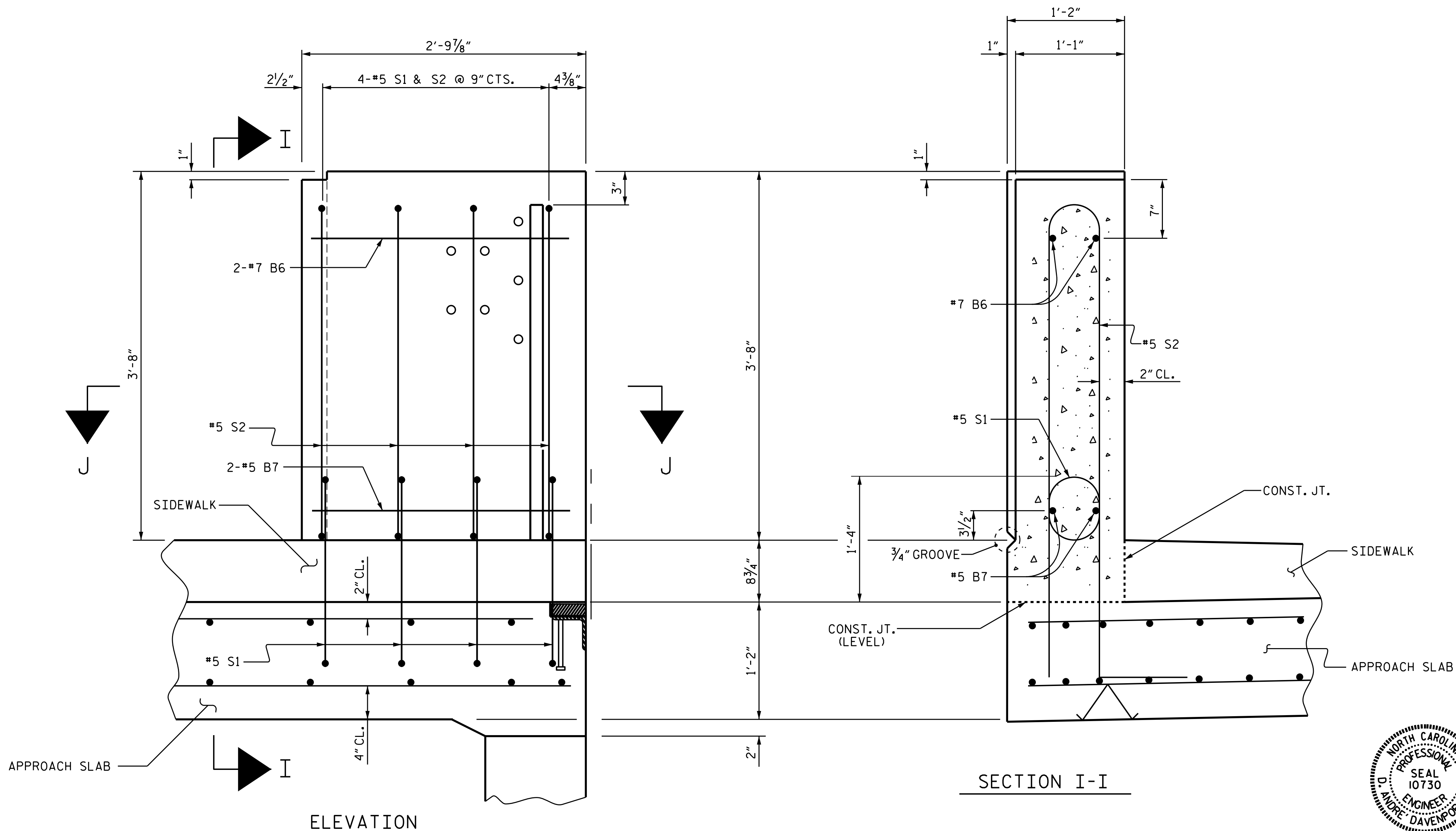
CLASSIC CONCRETE BRIDGE RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN THE CLASSIC CONCRETE BRIDGE RAIL SHALL BE EPOXY COATED.

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



DETAIL "A"



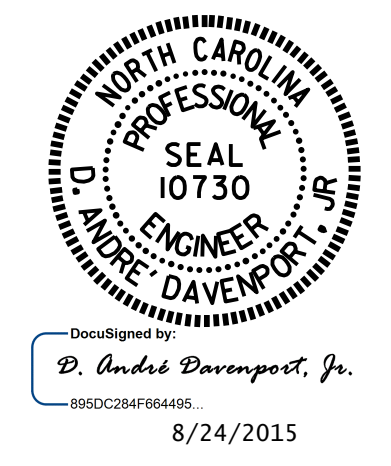
ELEVATION

SECTION I-I

BILL OF MATERIAL					
END PILASTERS - STAGE I					
CLASSIC CONCRETE BRIDGE RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B6	4	#7	STR	2'-6"	20
*B7	4	#5	STR	2'-6"	10
*S1	8	#5	1	5'-0"	42
*S2	8	#5	2	8'-6"	71
* EPOXY COATED REINFORCING STEEL					LBS. 143
CLASS AA CONCRETE					C. Y. 1.1
CLASSIC CONCRETE BRIDGE RAIL					LIN. FT. 5.75
END PILASTERS - STAGE II					
CLASSIC CONCRETE BRIDGE RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B6	4	#7	STR	2'-6"	20
*B7	4	#5	STR	2'-6"	10
*S1	8	#5	1	5'-0"	42
*S2	8	#5	2	8'-6"	71
* EPOXY COATED REINFORCING STEEL					LBS. 143
CLASS AA CONCRETE					C. Y. 1.1
CLASSIC CONCRETE BRIDGE RAIL					LIN. FT. 5.75
BAR TYPES					
ALL BAR DIMENSIONS ARE OUT TO OUT.					

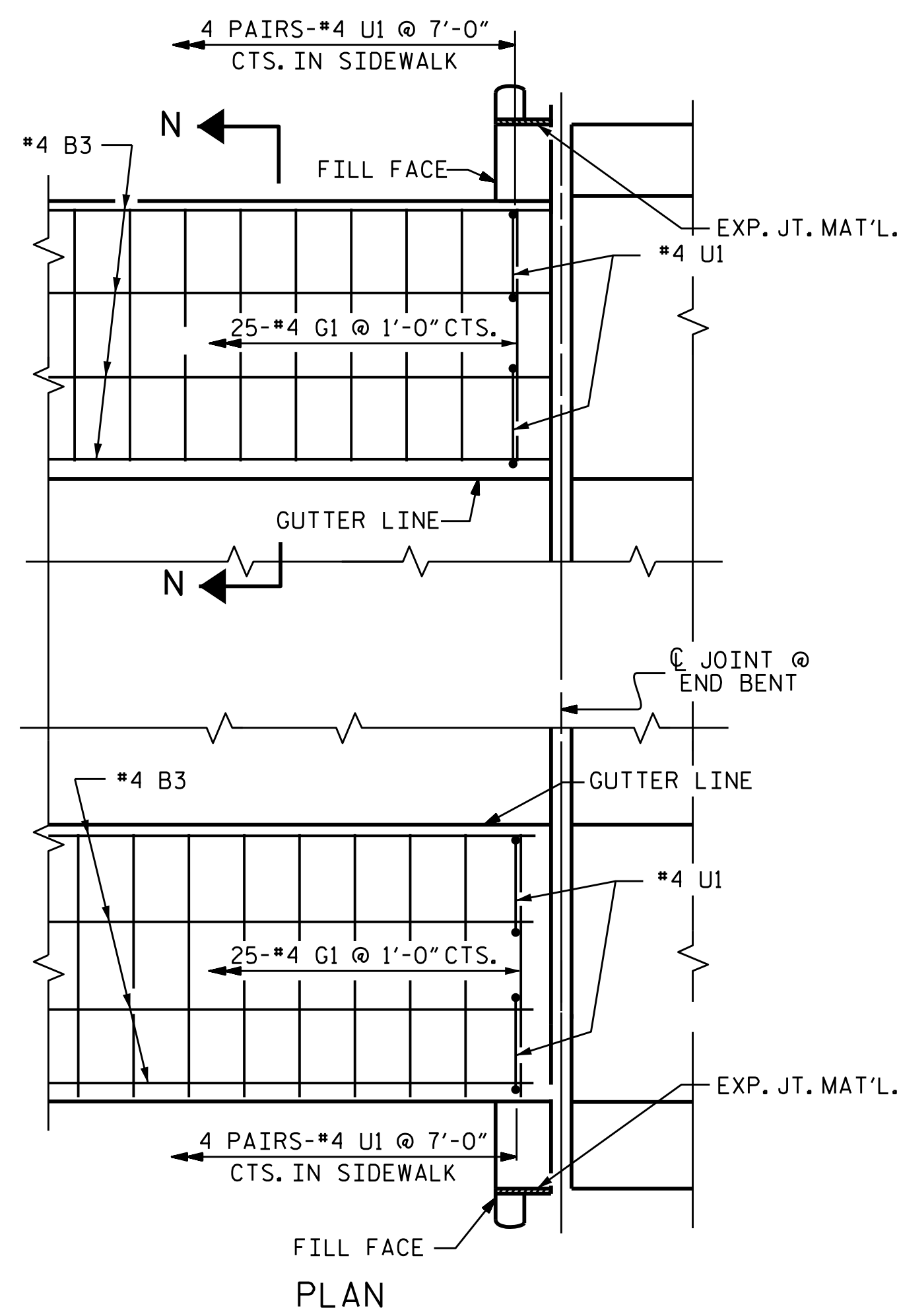
PROJECT NO. B-3159
DAVIDSON COUNTY
 STATION: 13+41.72 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BRIDGE APPROACH
 SLAB DETAILS
 FOR CLASSIC CONCRETE
 BRIDGE RAIL PILASTERS

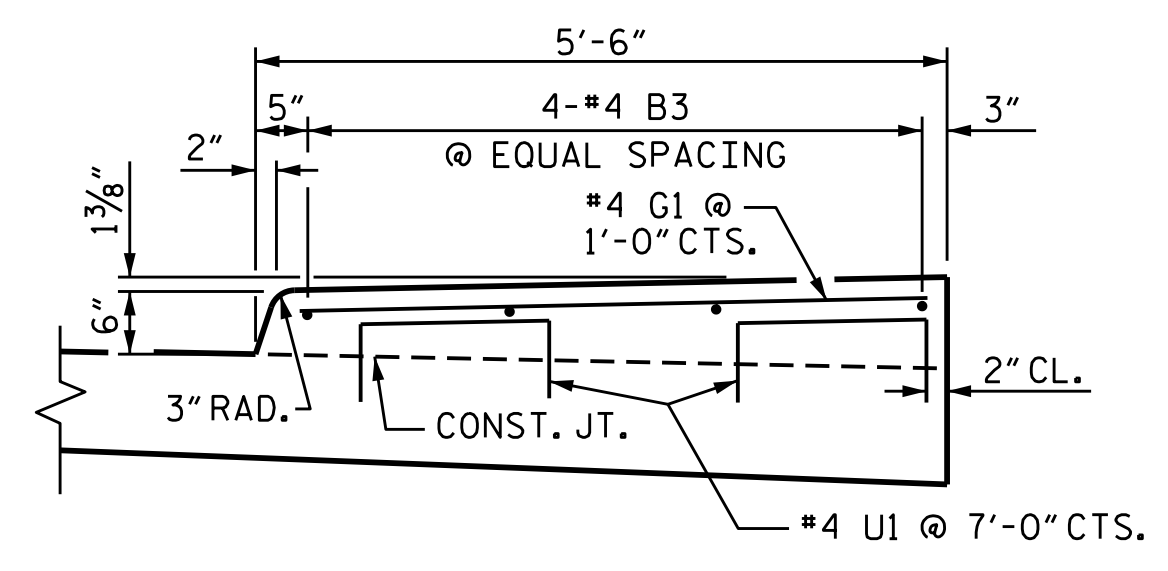


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS 43
2			4			

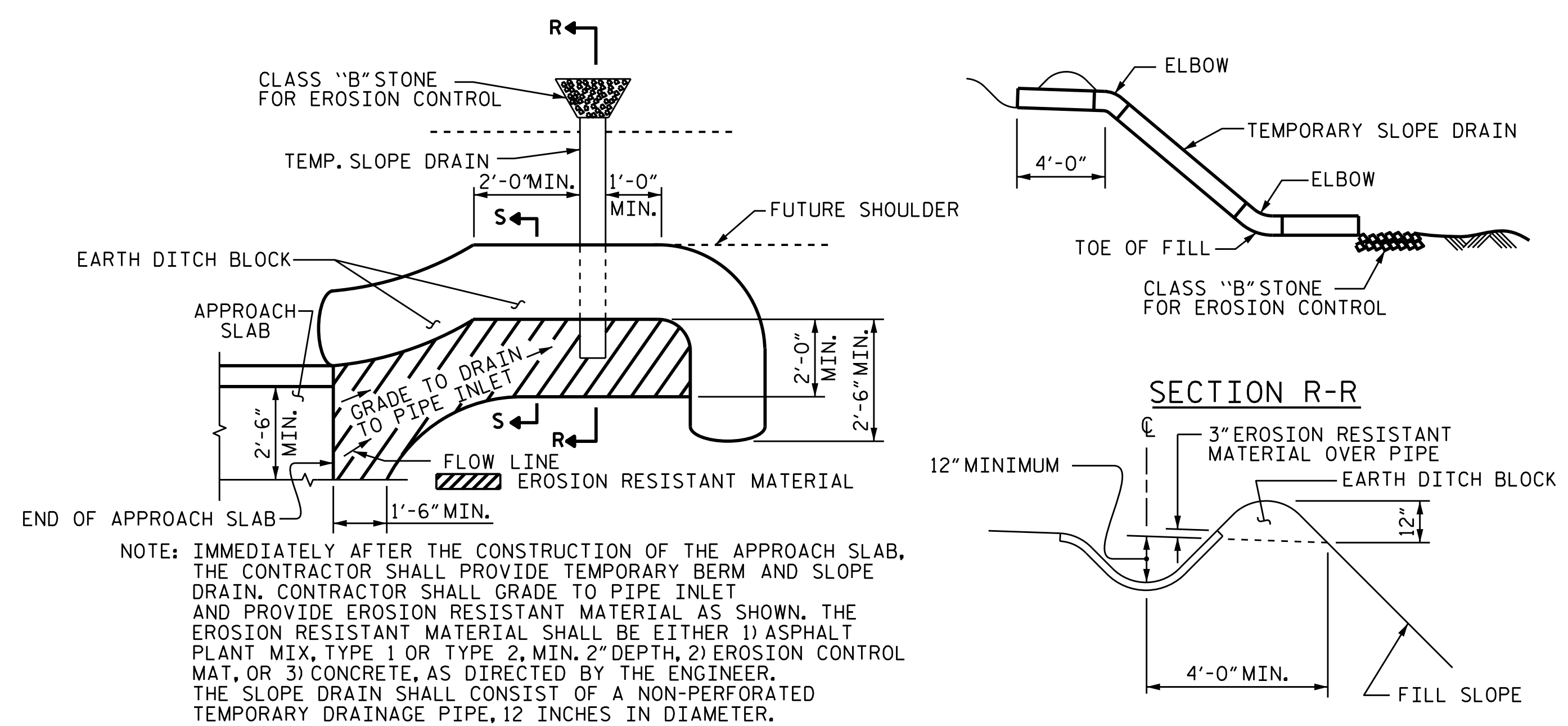
DRAWN BY: R.L. CHESSON DATE: 6-16-14
 CHECKED BY: R.P. PATEL DATE: 6-9-14



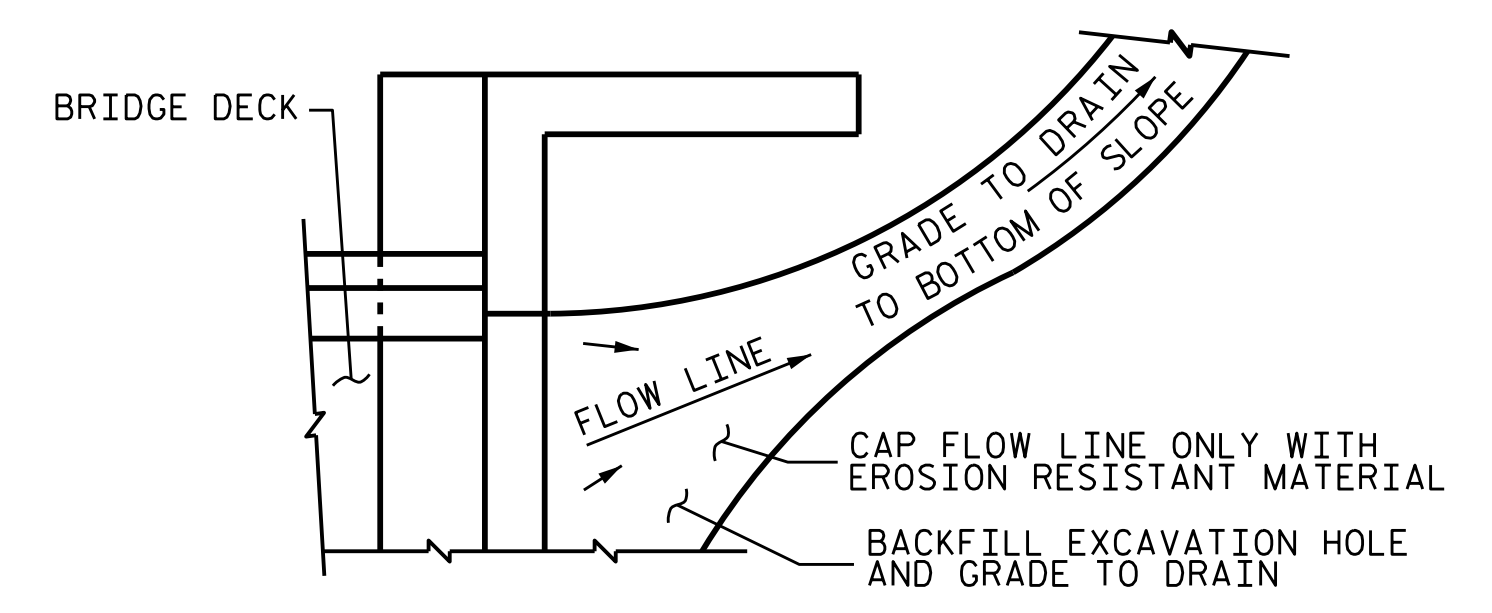
DETAILS OF SIDEWALK ON APPROACH SLAB



**SECTION N-N
SIDEWALK DETAILS**



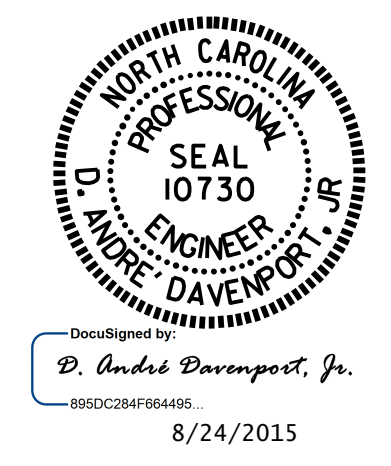
**PLAN VIEW
SECTION R-R
SECTION S-S
TEMPORARY BERM AND SLOPE DRAIN DETAILS**
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

PROJECT NO. B-3159
DAVIDSON COUNTY
STATION: 13+41.72 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
REVISIONS					SHEET NO. S-43
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS 43					



ASSEMBLED BY :	R.L. CHESSON	DATE :	6-4-14
CHECKED BY :	R. P. PATEL	DATE :	6-9-14
DRAWN BY :	FCJ	11/88	REV. 5/7/03 RWW/JTE
CHECKED BY :	ARB	11/88	REV. 5/1/06RRR MAA/KMM
			REV. 10/1/11 MAA/GM