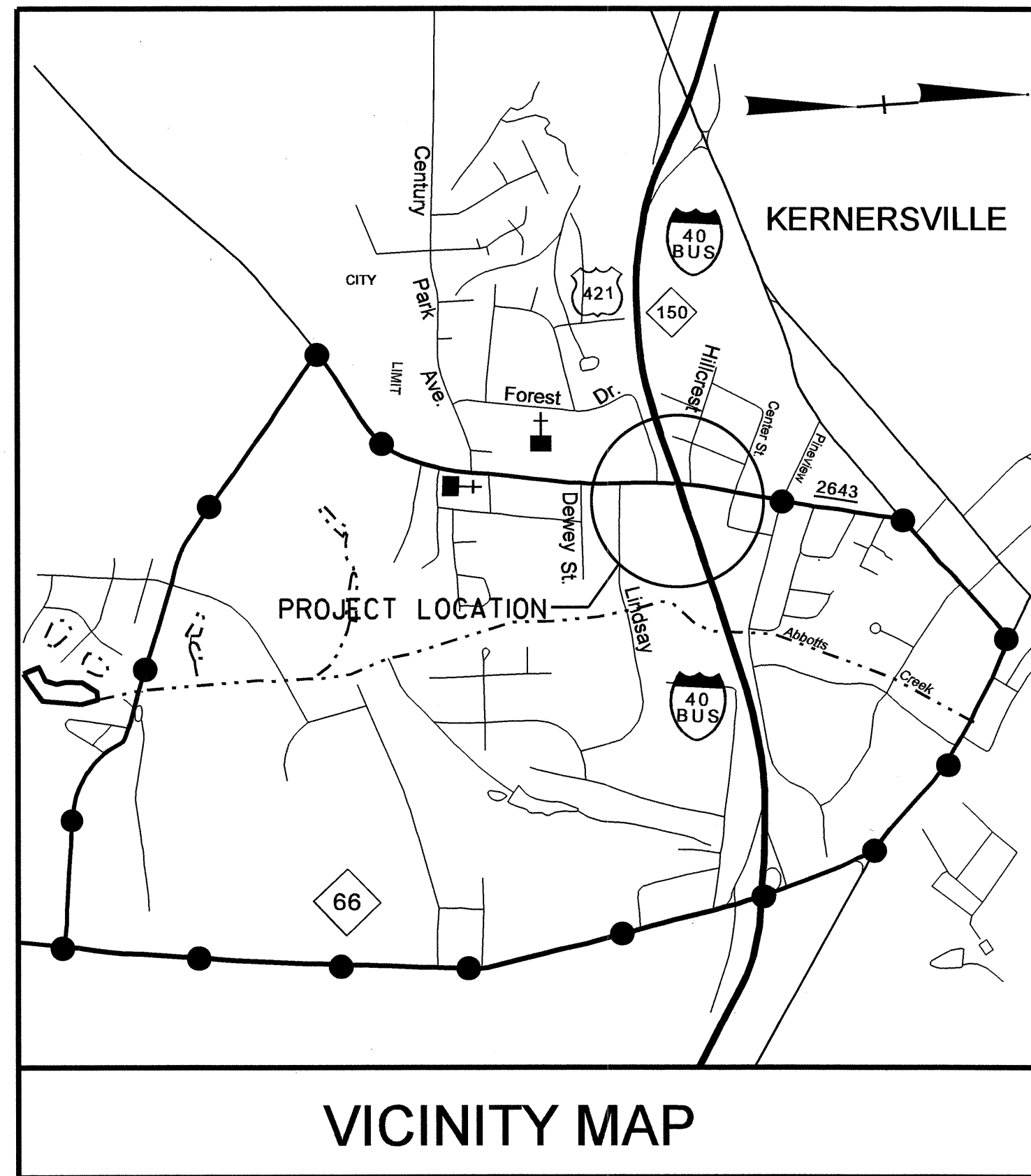


CONTRACT: C202601 TIP PROJECT: B-4510

STRUCTURE

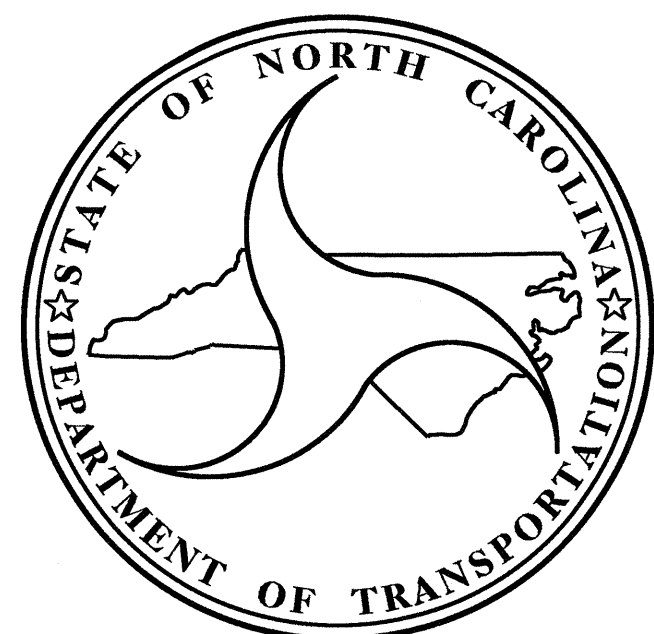
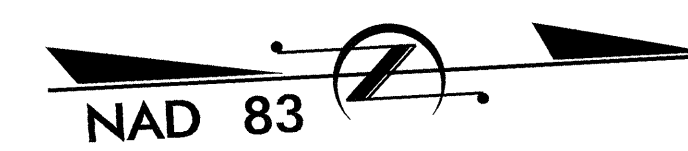
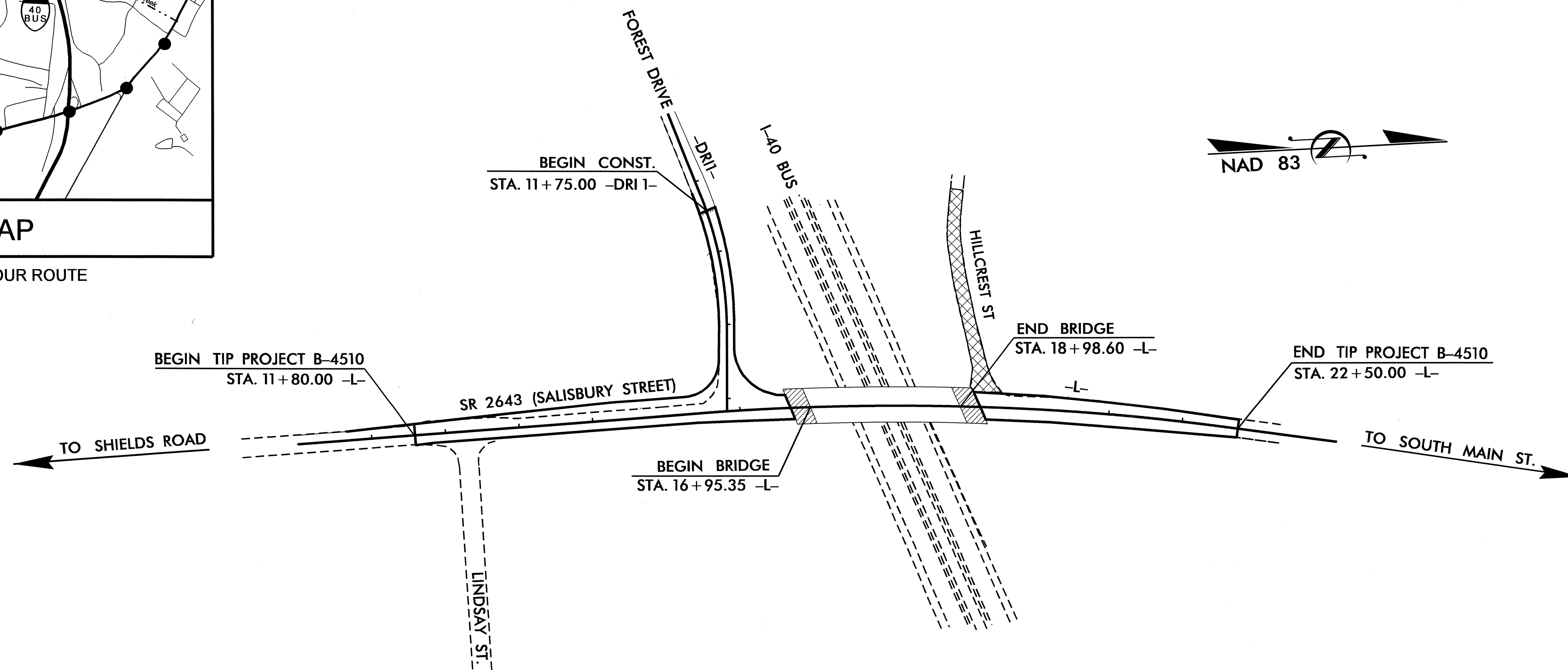


●●●●●●●●●● DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
FORSYTH COUNTY

**LOCATION: BRIDGE NO. 368 OVER I-40 BUSINESS
ON SR 2643 (SALISBURY STREET) IN KERNERSVILLE**
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4510		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33731.1.1	BRSTP-2643(1)	P.E.	
33731.2.1	BRSTP-2643(1)	UTIL. & RW	
33731.3.1	BRSTP-2643(4)	CONST.	



DESIGN DATA

ADT 2010 =	11568
ADT 2035 =	16300
DHV =	10 %
D =	60 %
T =	3 % *
V =	40 MPH
* TTST 1%	DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4510	=	0.165 mi.
LENGTH STRUCTURE TIP PROJECT B-4510	=	0.038 mi.
TOTAL LENGTH TIP PROJECT B-4510	=	0.203 mi.

Prepared In the Office of:
DIVISION OF HIGHWAYS
2006 STANDARD SPECIFICATIONS

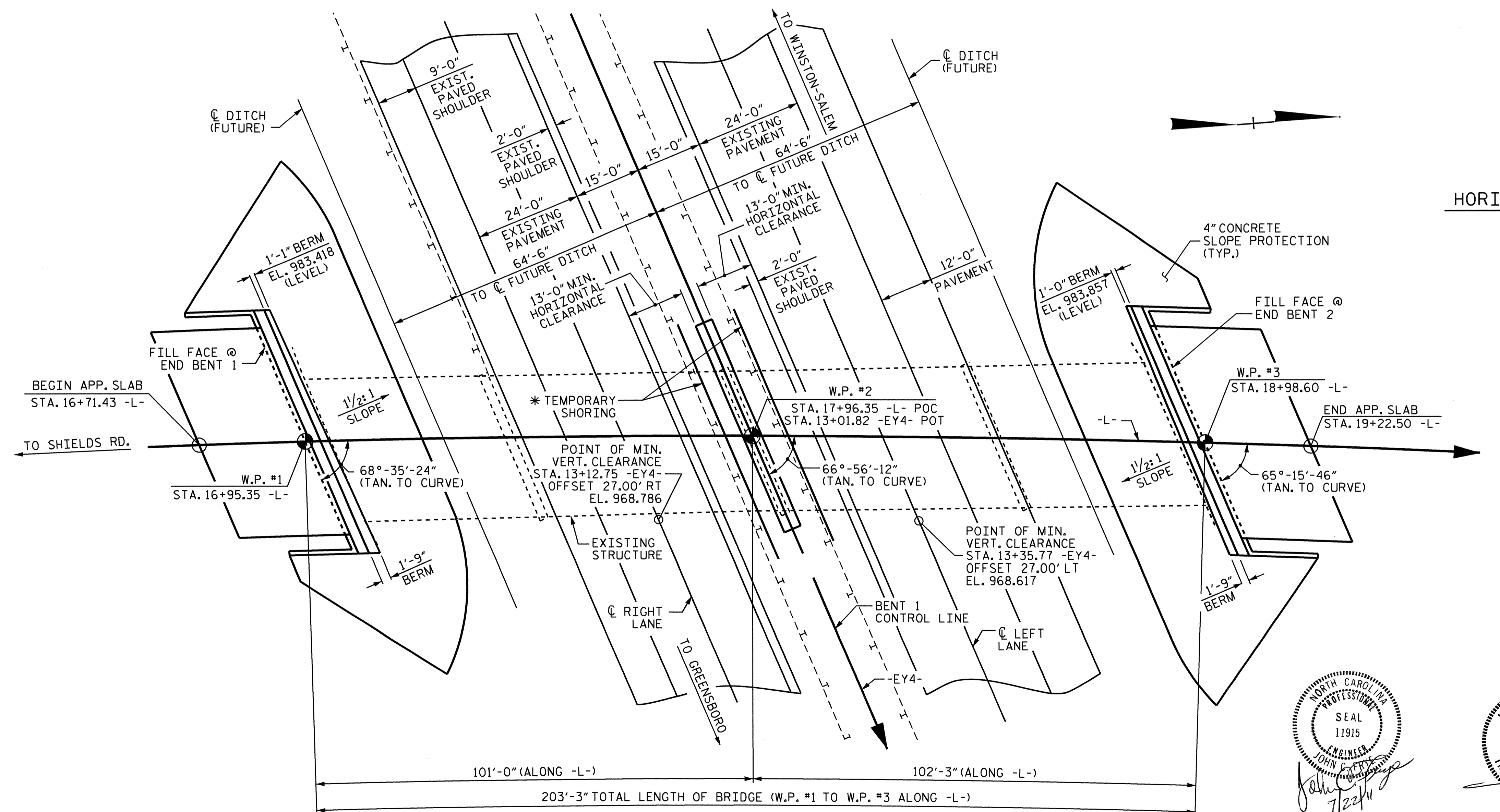
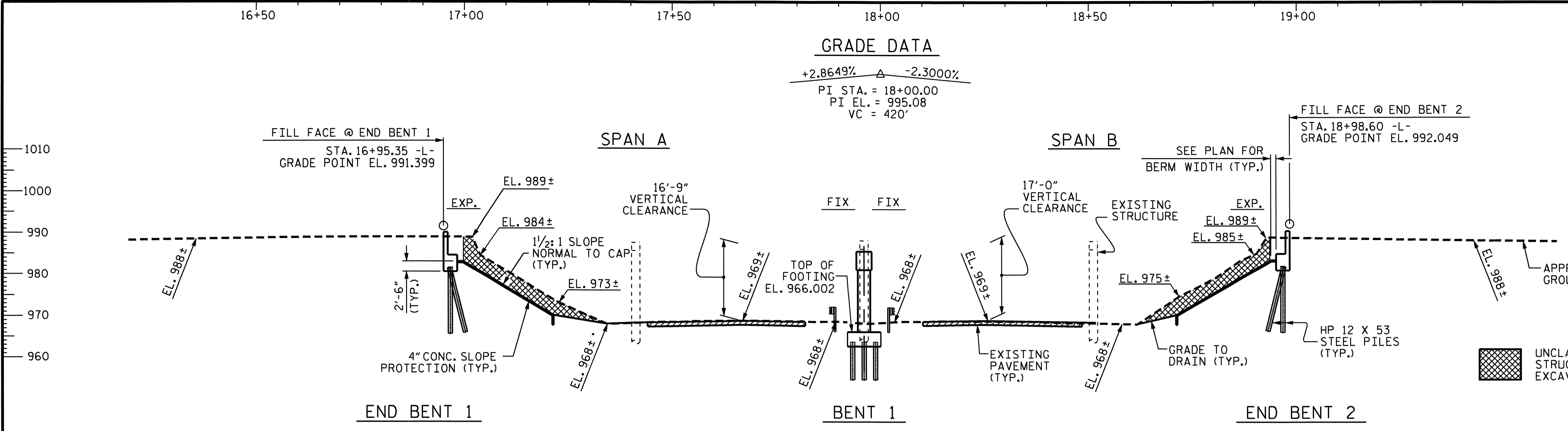
LETTING DATE : <u>SEPT 20, 2011</u>	<u>J. C. FRYE, P.E.</u> PROJECT ENGINEER <u>T. H. FANG, P.E.</u> PROJECT DESIGN ENGINEER
---	---

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE DESIGN ENGINEER P.E.
**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED _____
DIVISION ADMINISTRATOR DATE



DRAWN BY: S. DOMBROWSKI DATE: 8/09
 CHECKED BY: O.T. NGUYEN DATE: 6/10

22-JUL-2011 11:11
 Z:\B4510\Structures\Final Plans\B4510.sd.gd.gn
 qtnguyen

PLAN
 PILES AND FOOTINGS NOT SHOWN FOR CLARITY

Professional Engineer seals for JOHN P. EY4 and TIG ENGINEERING, INC. with dates 7/22/11 and 7/22/11.

* TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L- POC
13+01.82 -EY4- POT
 SHEET 1 OF 4 REPLACES BRIDGE NO. 368

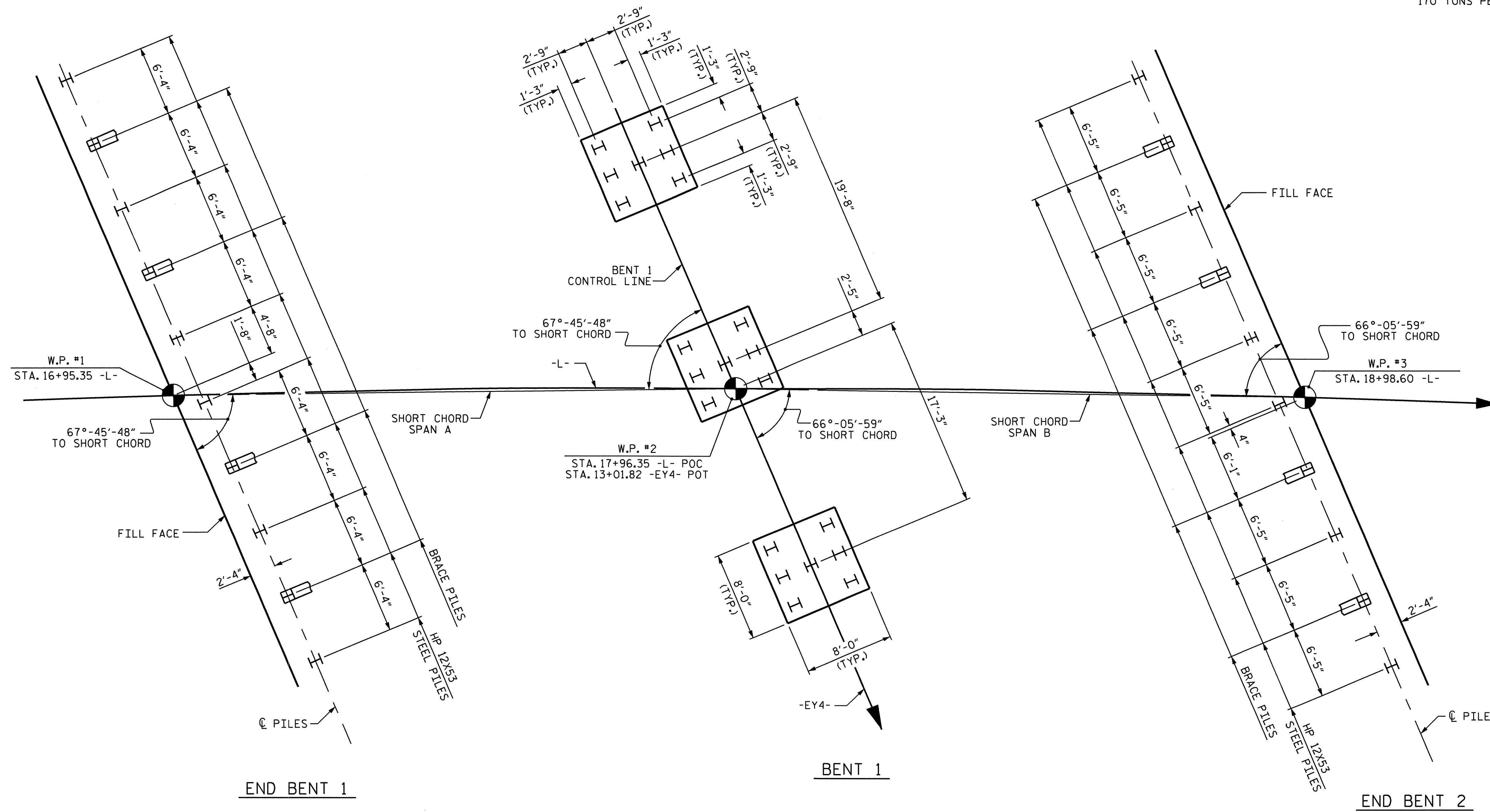
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON SR 2643
 (SALISBURY ST.)
 OVER I-40 BUS./US 421 IN
 KERNERSVILLE

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

NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENTS 1 AND 2 AND BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.



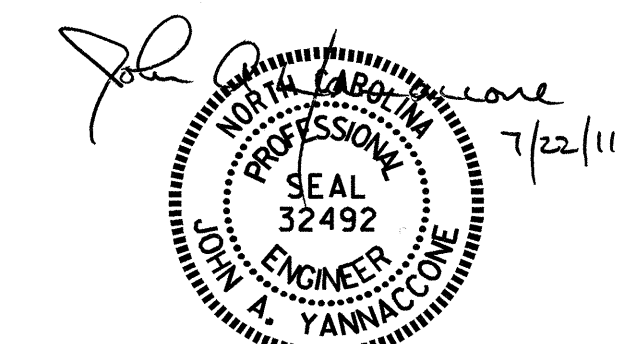
FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE AT THE BOTTOM OF CAP OR FOOTING.

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

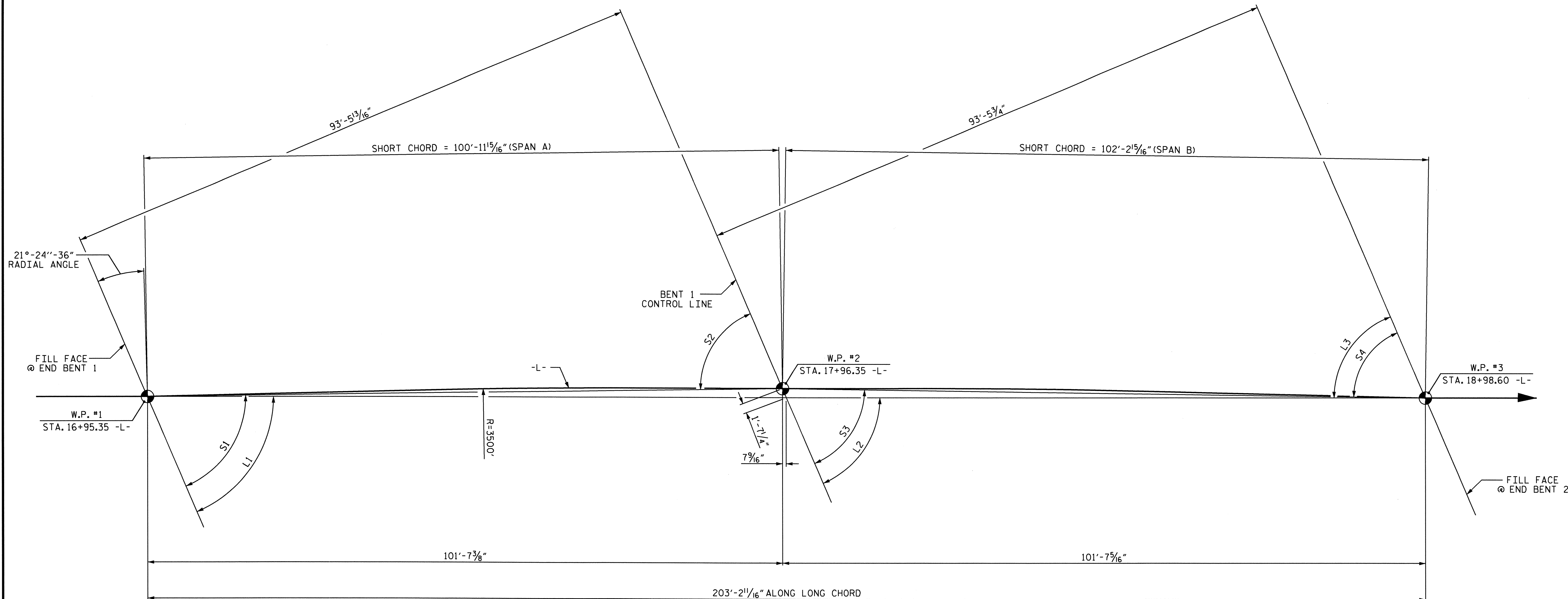
SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON SR 2643
 (SALISBURY ST.)
 OVER I-40 BUS./US 421 IN
 KERNERSVILLE



DRAWN BY : S. DOMBROWSKI DATE : 12/10
 CHECKED BY : O.T. NGUYEN DATE : 6/10

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



ANGLES			
LONG CHORD		SHORT CHORD	
L1	66°55'35"	S1	67°45'48"
L2	66°55'35"	S2	67°45'48"
L3	66°55'35"	S3	66°05'59"
		S4	66°05'59"

HORIZONTAL CURVE DATA -L-

P.I. STA. 19+09.86
 $\Delta = 12^\circ-01'-12.4"$ (RT)
 $D = 1^\circ-38'-13.3"$
 $L = 734.27'$
 $T = 368.49'$
 $R = 3,500.00'$

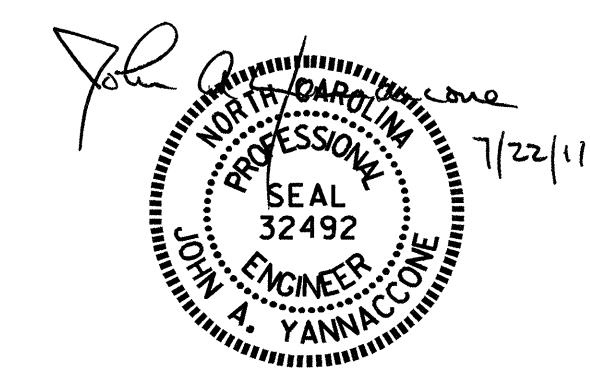
LONG CHORD LAYOUT

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 2643
 (SALISBURY ST.)
 OVER I-40 BUS./US 421 IN
 KERNERSVILLE



DRAWN BY: S. DOMBROWSKI DATE: 12/10
 CHECKED BY: Q.T. NGUYEN DATE: 6/10

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

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 63" PRESTRESSED CONCRETE GIRDER	HP 12 X 53 STEEL PILES	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	ELECTRICAL CONDUIT SYSTEM	CLASSIC CONCRETE BRIDGE RAIL
	LUMP SUM	LUMP SUM	LUMP SUM	SO. FT.	SO. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO. LIN. FT.	NO. LIN. FT.	SO. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.
SUPERSTRUCTURE				10,015	8,265					10 990.03			LUMP SUM	LUMP SUM	LUMP SUM	401.93
END BENT 1						53.0		6,683			10 750	330				
BENT 1		LUMP SUM				74.3		10,725	1,058		21 1,155					
END BENT 2						55.7		6,754			10 550	335				
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	10,015	8,265	183.0	LUMP SUM	24,162	1,058	10 990.03	41 2,455	665	LUMP SUM	LUMP SUM	LUMP SUM	401.93

NOTES

ASSUMED LIVE LOAD = HL- 93 OR ALTERNATE LOADING.

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

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

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

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, 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 EXISTING STRUCTURE CONSISTING OF 4 SPANS: 1 @ 40'-0" 2 @ 55'-0" 1 @ 40'-0" 24'-0" CLEAR ROADWAY WIDTH AND REINFORCED CONCRETE DECK GIRDERS; END BENTS CONSISTING OF RC CAPS ON PILES, INTERIOR BENT CONSISTING OF 3 COLUMNS RCP&B ON PILE FOOTINGS, AND LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 50 FT. EACH SIDE OF CENTERLINE ROADWAY AT END BENTS 1 AND 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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 LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

STEEL SHEET PILING REQUIRED FOR SHORING SHALL BE HOT ROLLED.

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 GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CLASSIC CONCRETE BRIDGE RAIL, SEE SPECIAL PROVISIONS.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

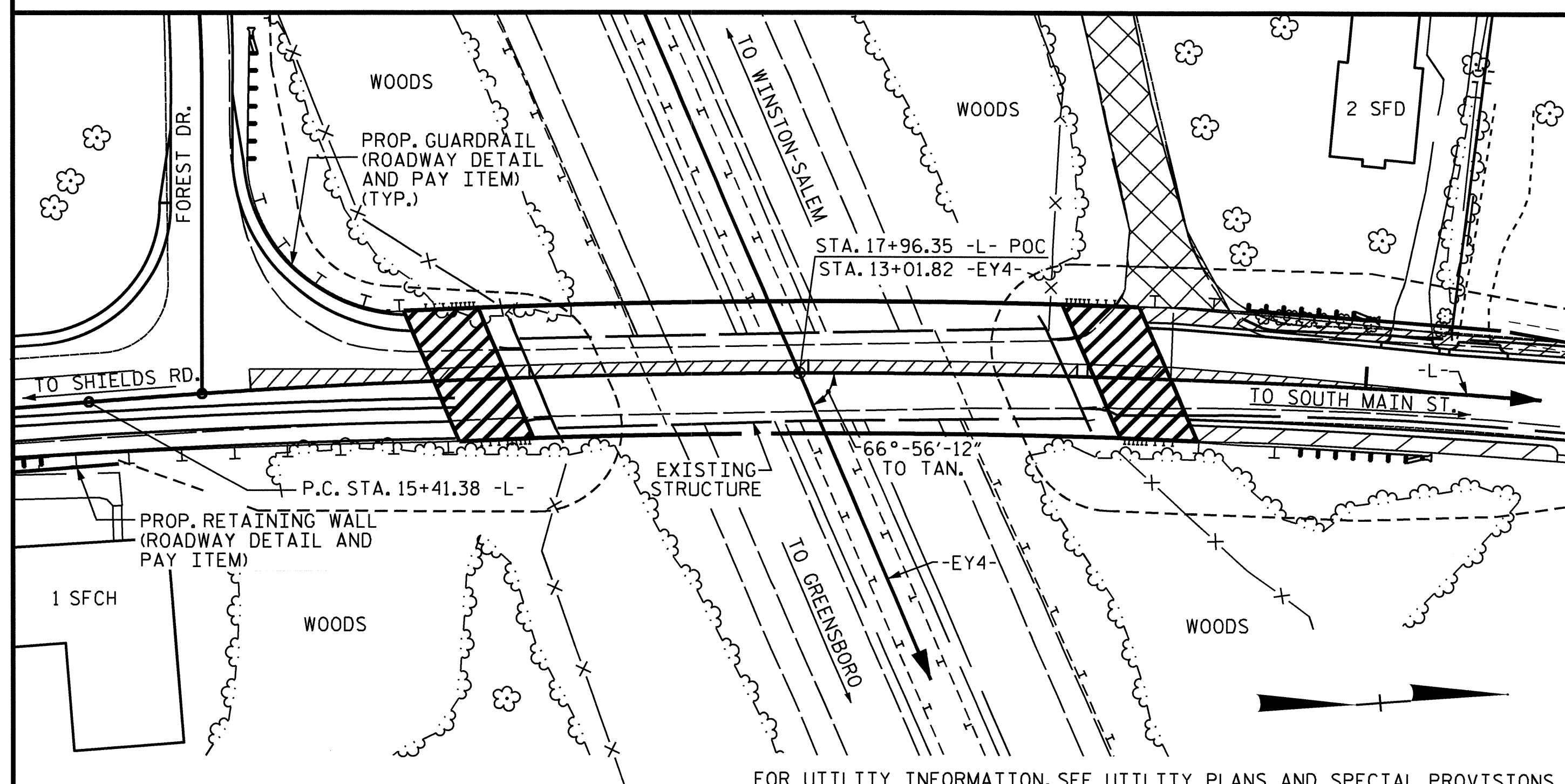
FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR FORMS FOR CONCRETE BRIDGE DECKS, SEE SPECIAL PROVISIONS.

FOR ELECTRICAL CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.

BM. #4: -L- STA. 21+43.00, 361.00' LT., EL. 990.490



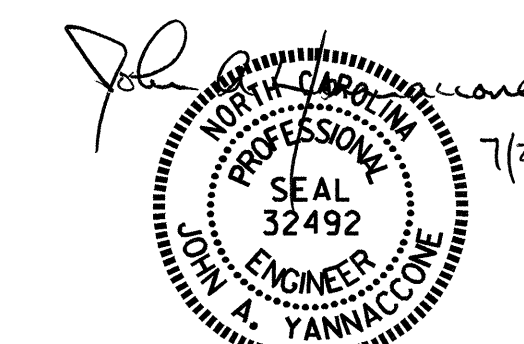
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 2643
 (SALISBURY ST.)
 OVER I-40 BUS./US 421 IN
 KERNERSVILLE



DRAWN BY : S. DOMBROWSKI DATE : 10/30/08
 CHECKED BY : O.T. NGUYEN DATE : 6/10

22-JUL-2011 11:11
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			34

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 (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.141	--	1.75	0.943	1.62	B	ER	49.155	1.001	1.41	B	ER	29.493	0.80	0.943	1.14	B	ER	49.155		
	HL-93 (OPERATING)	N/A		1.830	--	1.35	0.943	2.11	B	ER	49.155	1.001	1.83	B	ER	29.493	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.585	57.076	1.75	0.943	2.26	B	ER	49.155	1.001	1.79	B	ER	29.493	0.80	0.943	1.59	B	ER	49.155		
	HS-20 (OPERATING)	36.000		2.322	83.590	1.35	0.943	2.93	B	ER	49.155	1.001	2.32	B	ER	29.493	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.757	50.720	1.40	0.943	6.69	B	ER	49.155	1.001	5.36	B	ER	29.493	0.80	0.943	3.76	B	ER	49.155	
		SNGARBS2	20.000		2.722	54.441	1.40	0.943	4.84	B	ER	49.155	1.001	3.80	B	ER	29.493	0.80	0.943	2.72	B	ER	49.155	
		SNAGRIS2	22.000		2.547	56.023	1.40	0.943	4.53	B	ER	49.155	1.001	3.53	B	ER	29.493	0.80	0.943	2.55	B	ER	49.155	
		SNCOTTS3	27.250		1.867	50.885	1.40	0.943	3.32	B	ER	49.155	1.001	2.68	B	ER	29.493	0.80	0.943	1.87	B	ER	49.155	
		SNAGGRS4	34.925		1.531	53.454	1.40	0.943	2.72	B	ER	49.155	1.001	2.21	B	ER	29.493	0.80	0.943	1.53	B	ER	49.155	
		SNS5A	35.550		1.499	53.279	1.40	0.943	2.67	B	ER	49.155	1.001	2.24	B	ER	29.493	0.80	0.943	1.50	B	ER	49.155	
		SNS6A	39.950		1.363	54.446	1.40	0.943	2.43	B	ER	49.155	1.001	2.04	B	ER	29.493	0.80	0.943	1.36	B	ER	49.155	
		SNS7B	42.000		1.297	54.491	1.40	0.943	2.31	B	ER	49.155	1.001	2.00	B	ER	29.493	0.80	0.943	1.30	B	ER	49.155	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.658	54.725	1.40	0.943	2.95	B	ER	49.155	1.001	2.43	B	ER	29.493	0.80	0.943	1.66	B	ER	49.155	
		TNT4A	33.075		1.662	54.982	1.40	0.943	2.96	B	ER	49.155	1.001	2.37	B	ER	29.493	0.80	0.943	1.66	B	ER	49.155	
		TNT6A	41.600		1.348	56.068	1.40	0.943	2.4	B	ER	49.155	1.001	2.12	B	ER	29.493	0.80	0.943	1.35	B	ER	49.155	
		TNT7A	42.000		1.349	56.637	1.40	0.943	2.4	B	ER	49.155	1.001	2.08	B	ER	29.493	0.80	0.943	1.35	B	ER	49.155	
		TNT7B	42.000		1.380	57.978	1.40	0.943	2.46	B	ER	49.155	1.001	1.95	B	ER	29.493	0.80	0.943	1.38	B	ER	49.155	
		TNAGRIT4	43.000		1.324	56.934	1.40	0.943	2.36	B	ER	49.155	1.001	1.89	B	ER	29.493	0.80	0.943	1.32	B	ER	49.155	
TNAGT5A	45.000		1.254	56.410	1.40	0.943	2.23	B	ER	49.155	1.001	1.88	B	ER	29.493	0.80	0.943	1.25	B	ER	49.155			
TNAGT5B	45.000		③	1.243	55.935	1.40	0.943	2.21	B	ER	49.155	1.001	1.80	B	ER	29.493	0.80	0.943	1.24	B	ER	49.155		

NOTES:

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

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

COMMENTS:

-
-
-
-

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

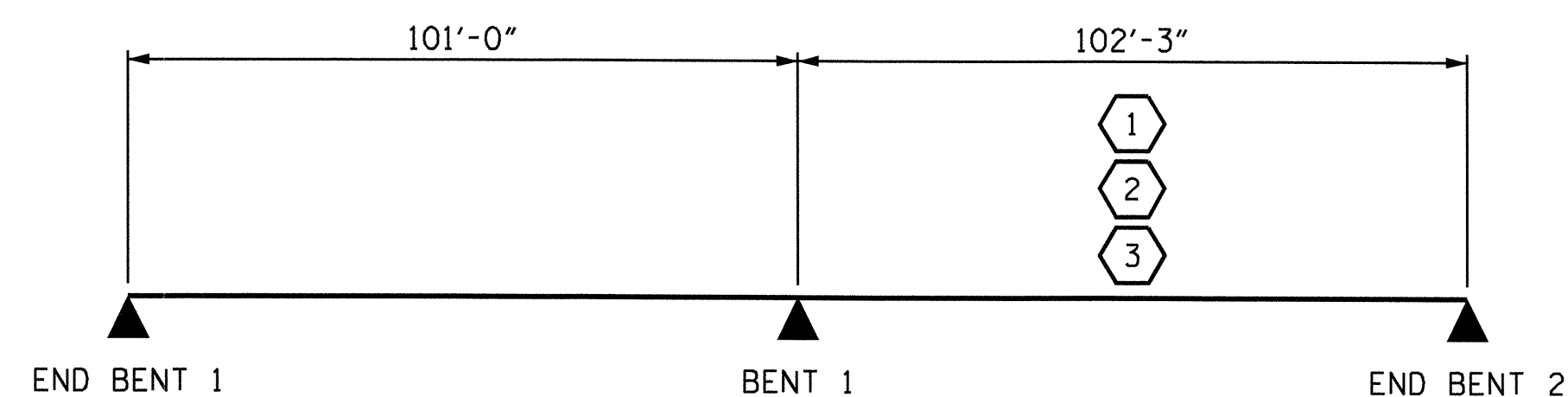
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

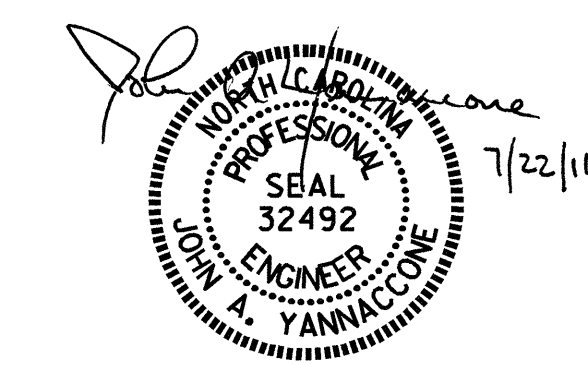
GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -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-5
1			3			TOTAL SHEETS
2			4			34

ASSEMBLED BY : S. DOMBROWSKI	DATE : 5/25/10
CHECKED BY : J.A. YANNAACONE	DATE : 6/15/11
DRAWN BY : MAA I/OB	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	

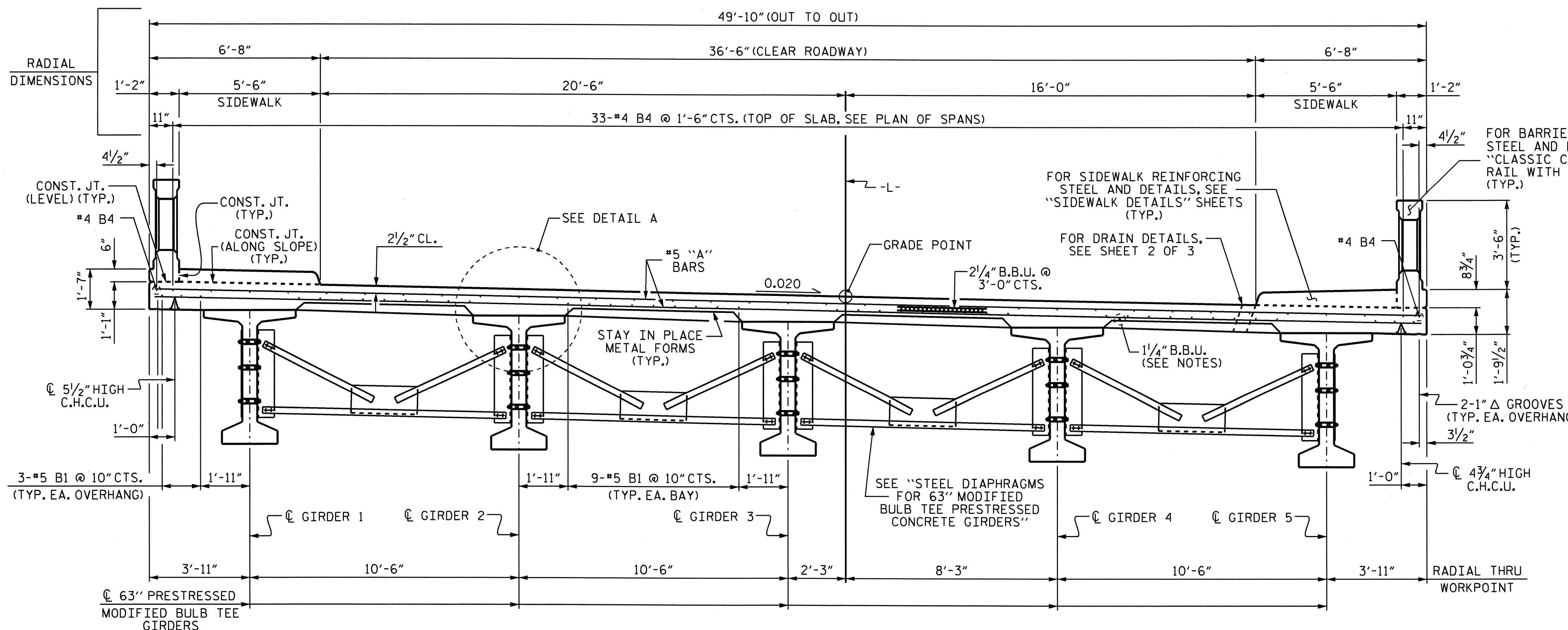
NOTES

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

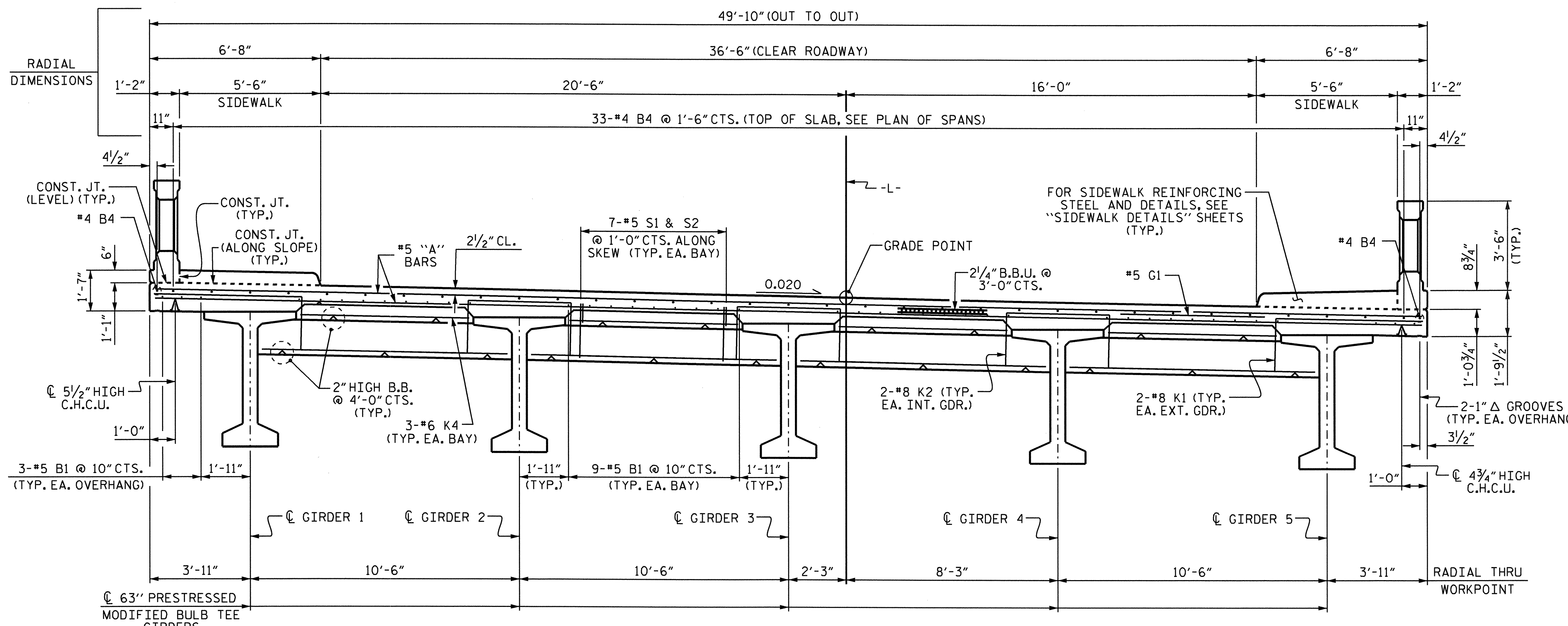
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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

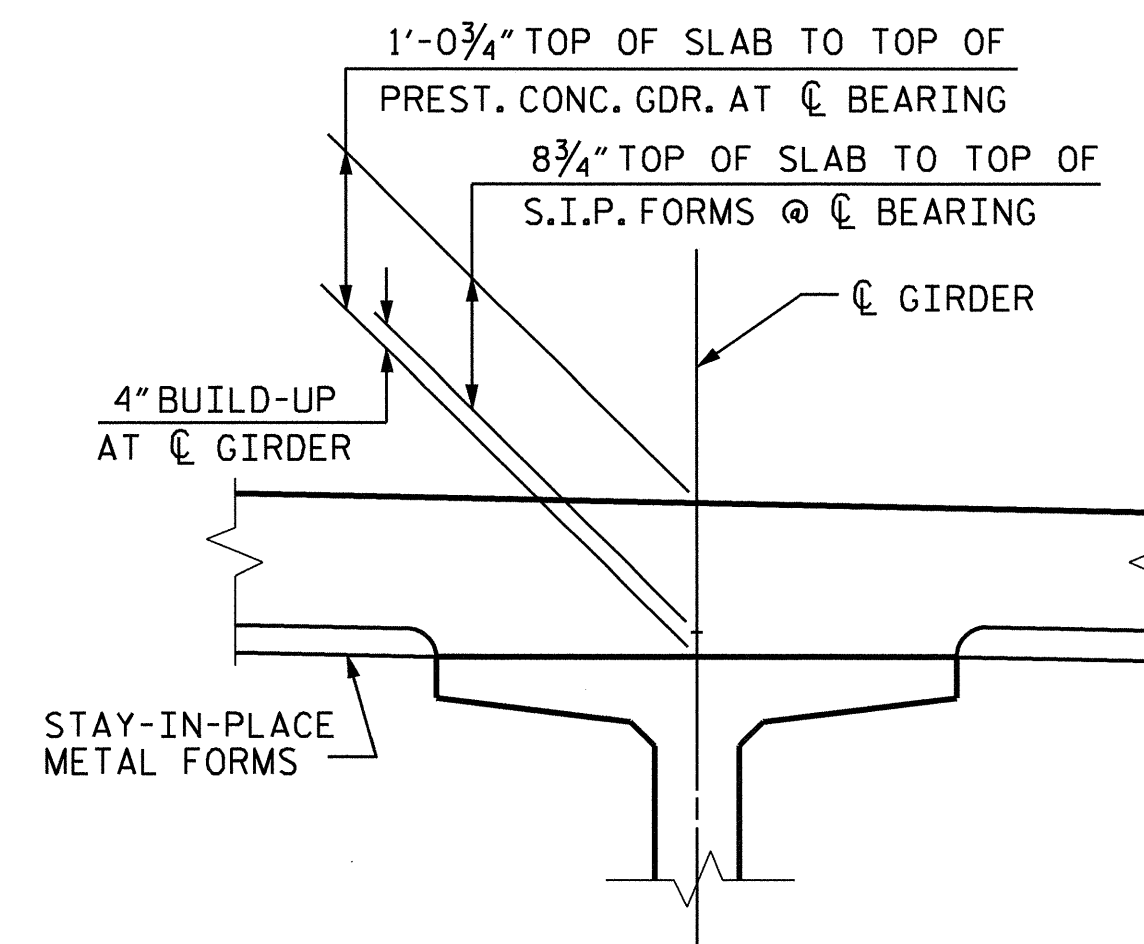
BARRIER RAIL AND SIDEWALK IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.



TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGM



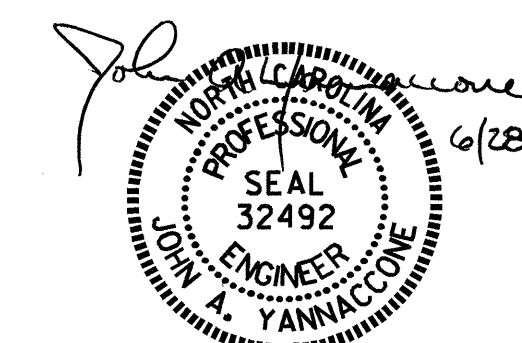
TYPICAL SECTION
SHOWING END BENT DIAPHRAGM



DETAIL A

PROJECT NO. B-4510
FORSYTH COUNTY
STATION: 17+96.35 -L-

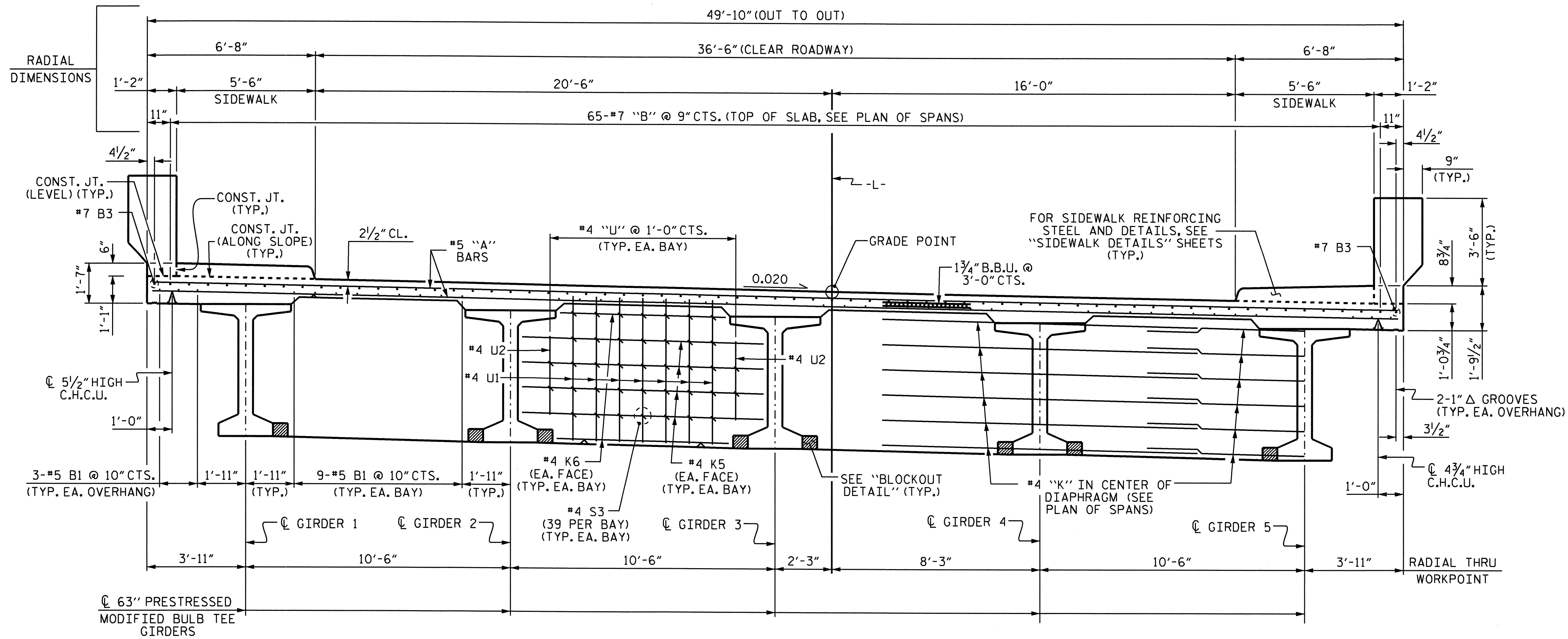
SHEET 1 OF 3



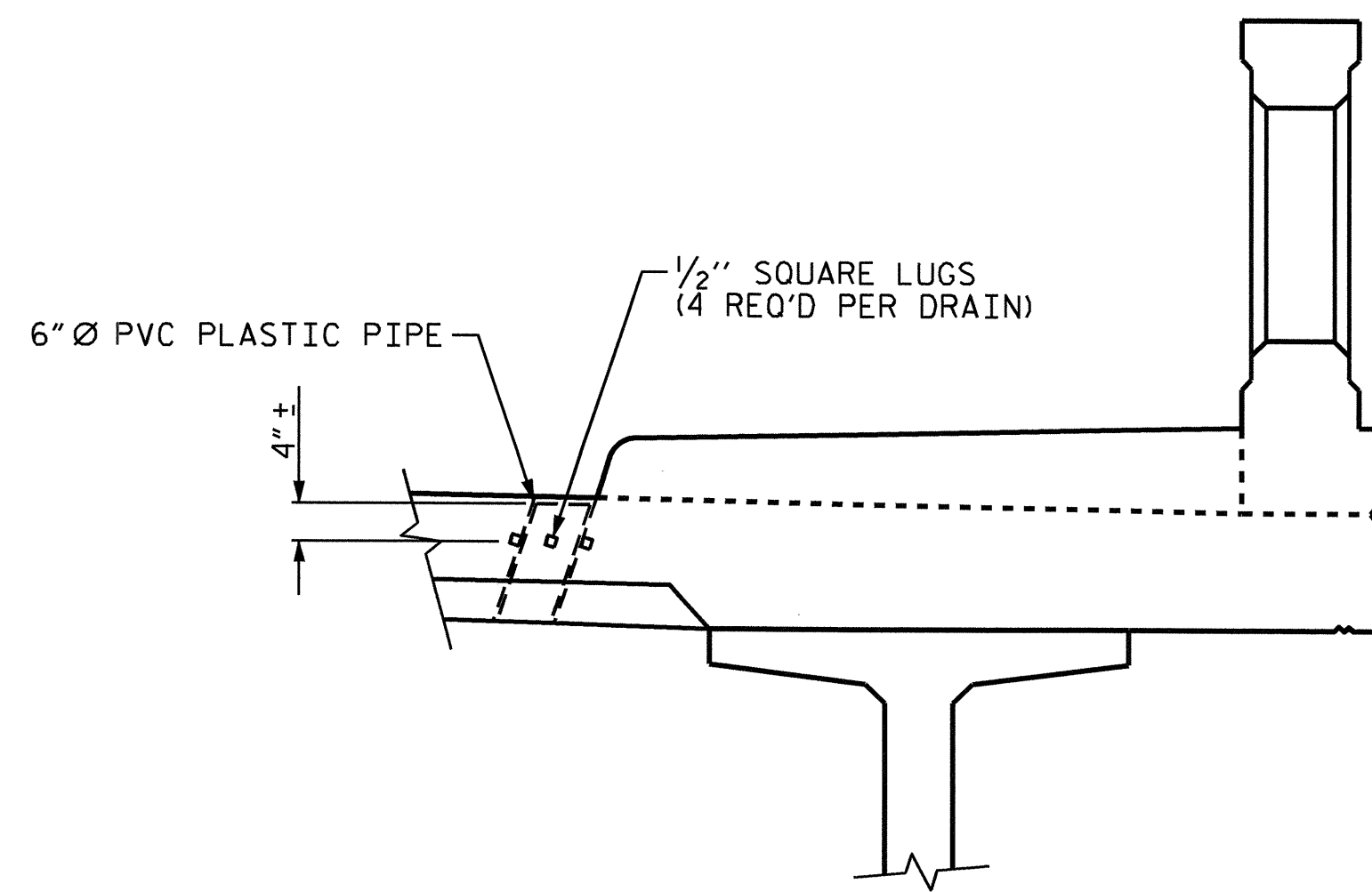
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			34

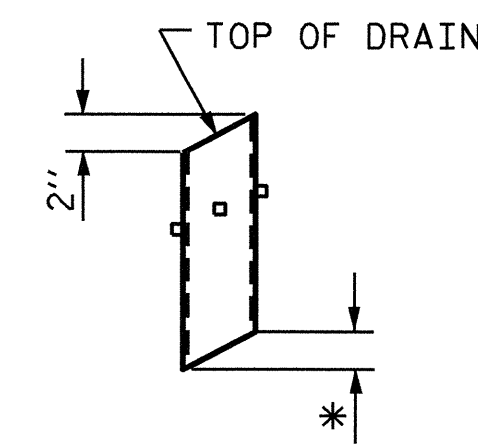
DRAWN BY: S. DOMBROWSKI DATE: 3/22/10
CHECKED BY: Q.T. NGUYEN DATE: 6/10



TYPICAL SECTION
SHOWING BENT DIAPHRAGM



ELEVATION



* TO BE SET TO MATCH SLOPE OF BOTTOM OF SLAB (13 DRAINS REQUIRED)

PIPE DETAIL

TOP OF FLOOR DRAINS TO BE SET 3/8" BELOW SURFACE OF SLAB.
4 - 1/2" SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.

THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

DRAIN DETAILS

FOR DRAIN LOCATIONS, SEE "PLAN OF SPAN" SHEETS.

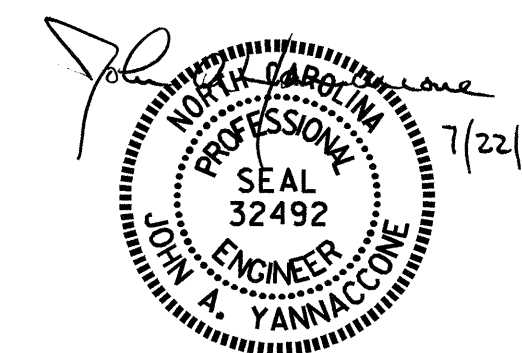
PROJECT NO. B-4510
FORSYTH COUNTY
STATION: 17+96.35 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

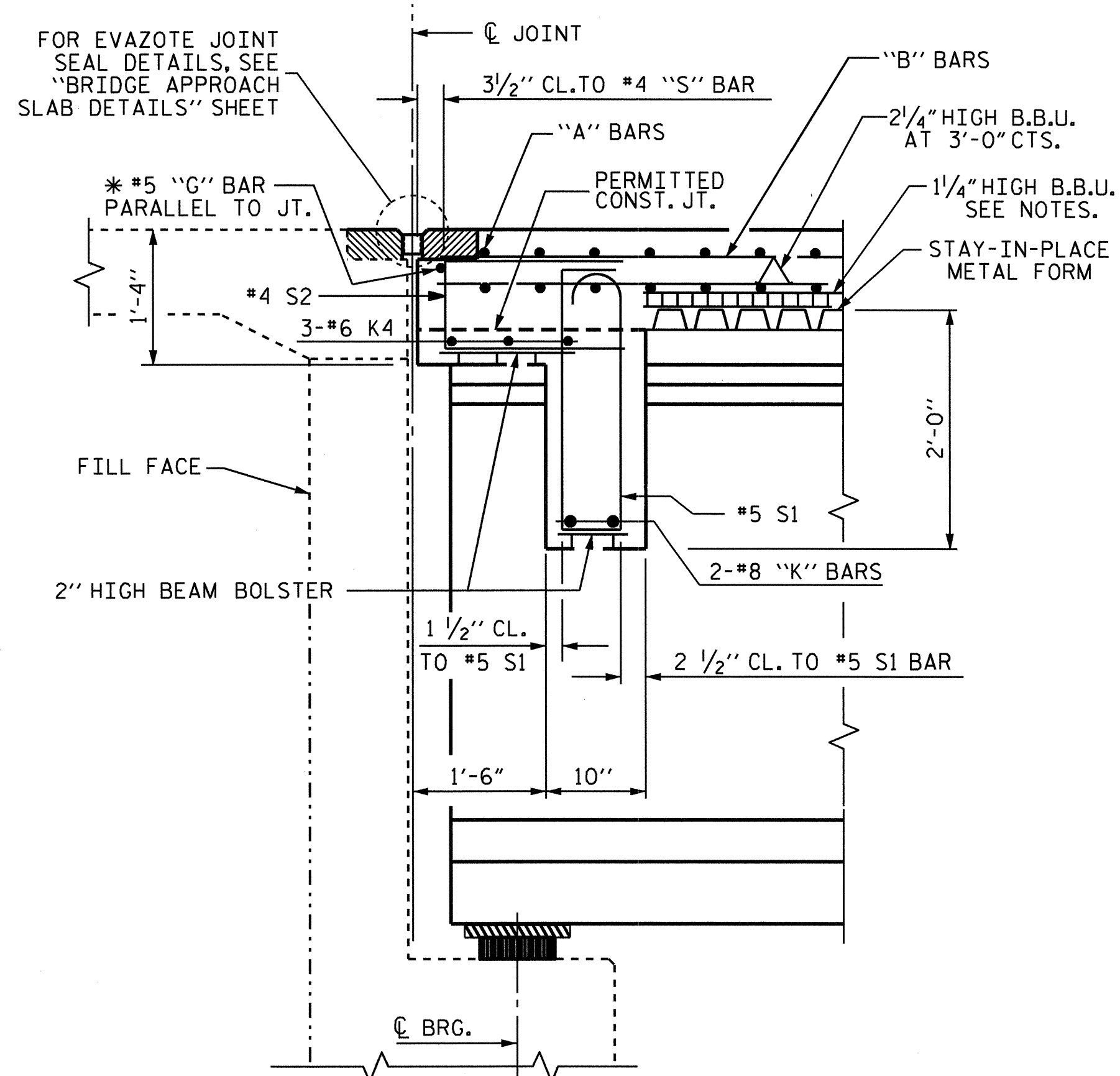
TYPICAL SECTION



DRAWN BY: S. DOMBROWSKI DATE: 3/22/10
CHECKED BY: O.T. NGUYEN DATE: 6/10

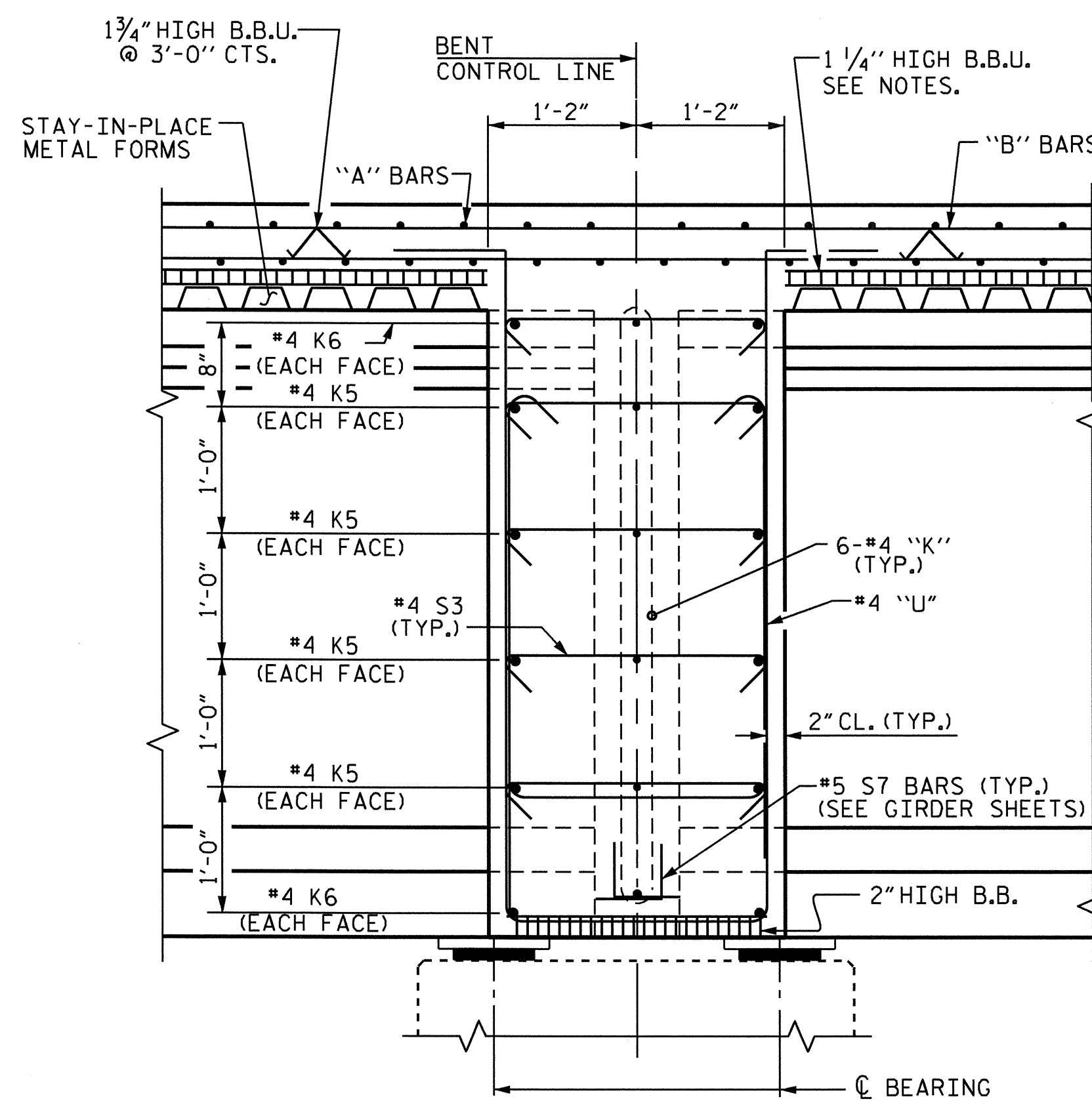
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qtnguyen

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			34

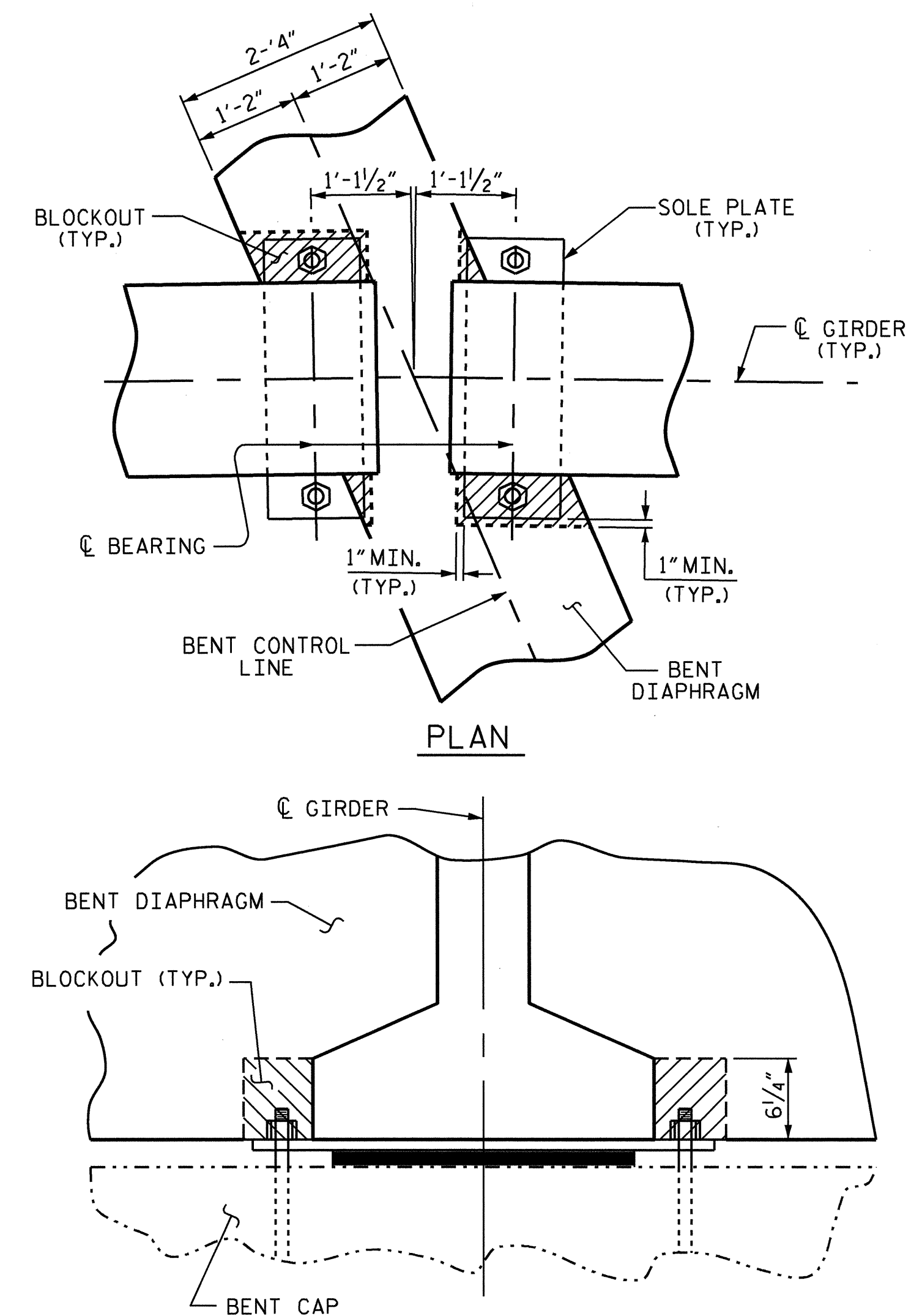


SECTION THRU END BENT DIAPHRAGM

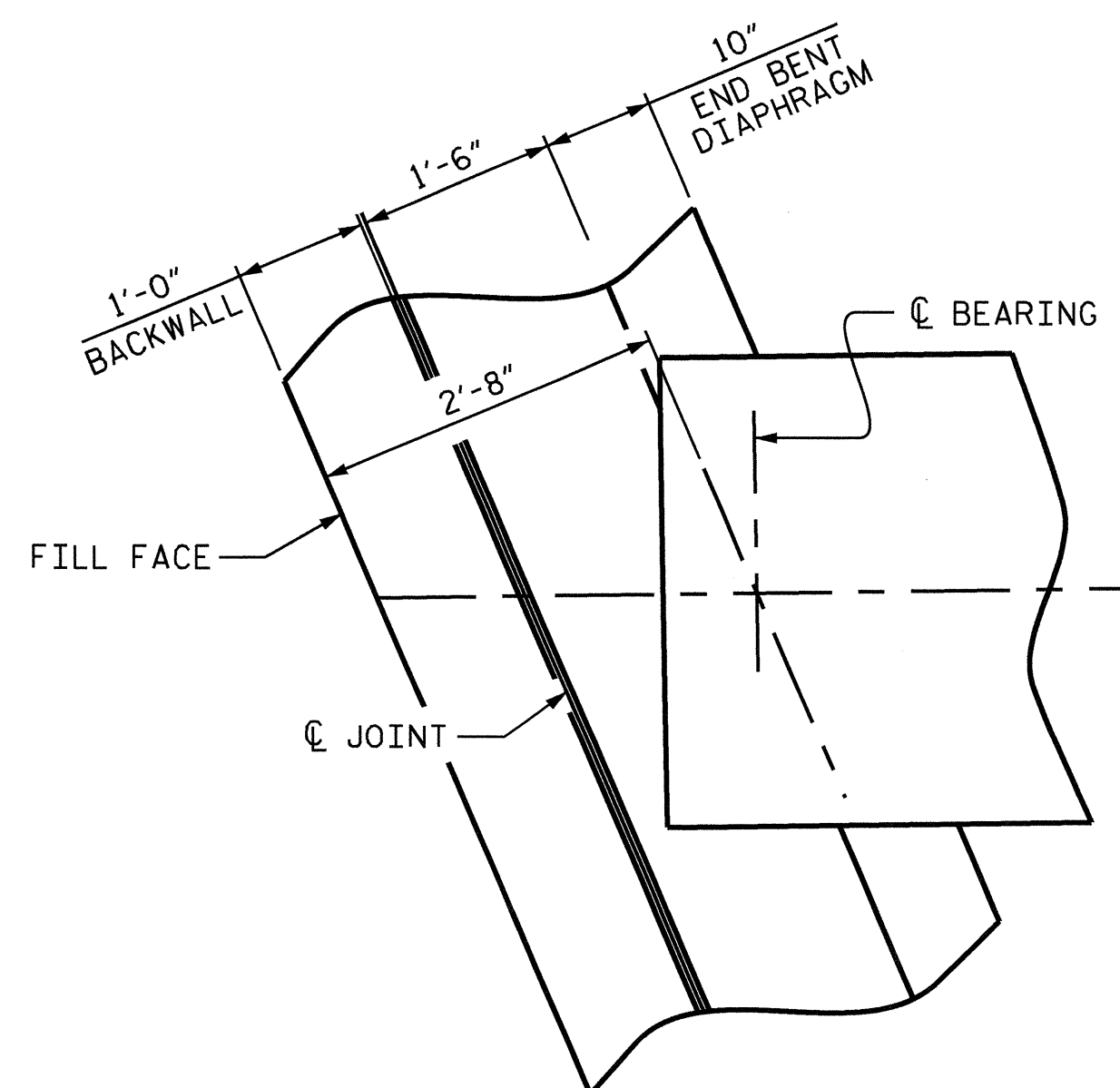
*#5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



SECTION THRU BENT DIAPHRAGM



**SECTION
BENT DIAPHRAGM BLOCKOUT DETAIL**



END BENT DIAPHRAGM

END BENT 1 SHOWN, END BENT 2 SIMILAR

DRAWN BY: S. DOMBROWSKI DATE: 3/22/10
CHECKED BY: Q.T. NGUYEN DATE: 6/10

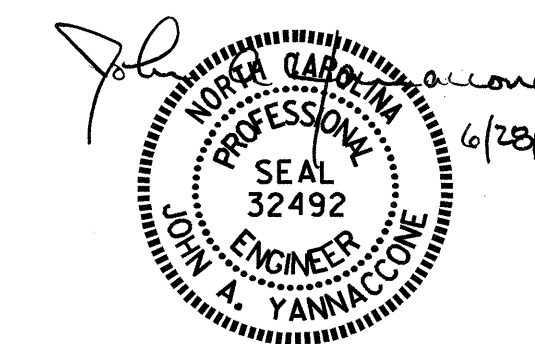
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qtnguyen

PROJECT NO. B-4510
FORSYTH COUNTY
STATION: 17+96.35 -L-

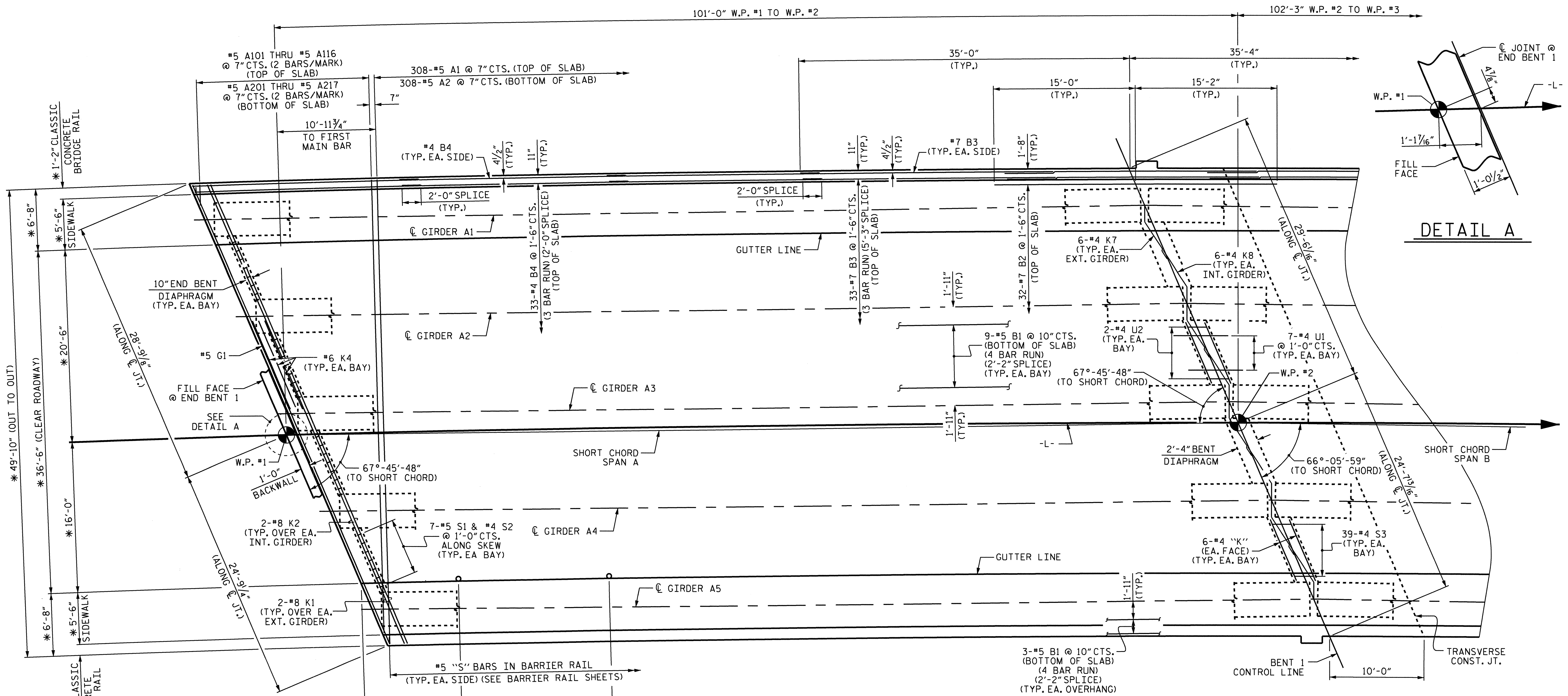
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION

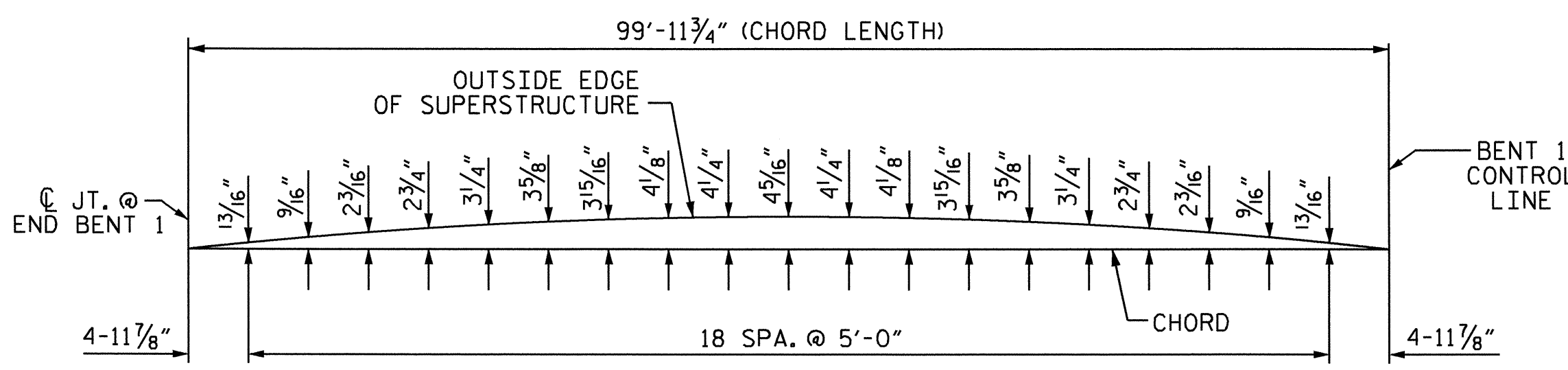
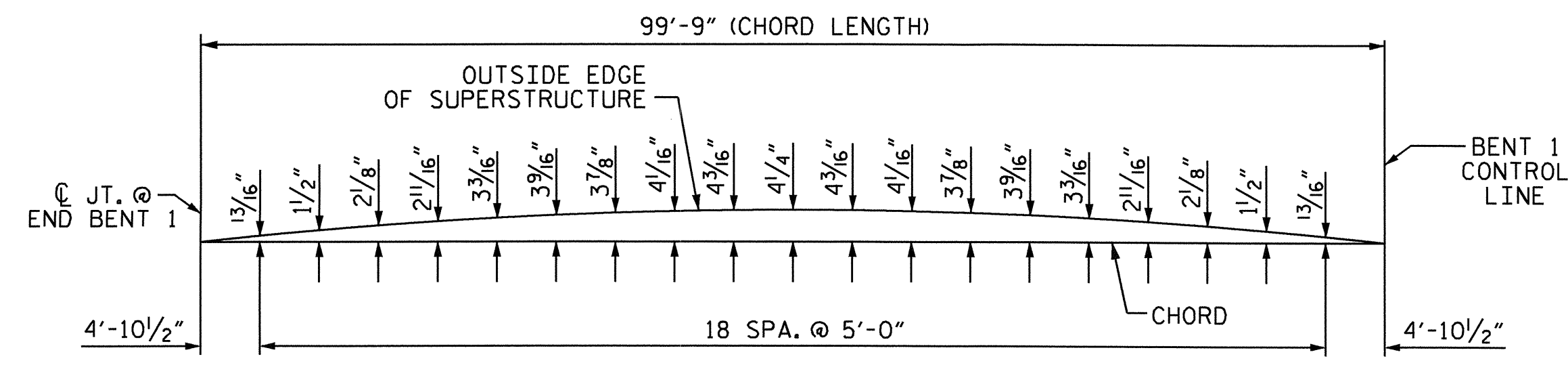


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			34



PLAN OF SPAN A

* RADIAL DIMENSIONS



ARC OFFSETS

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-
 SHEET 1 OF 2

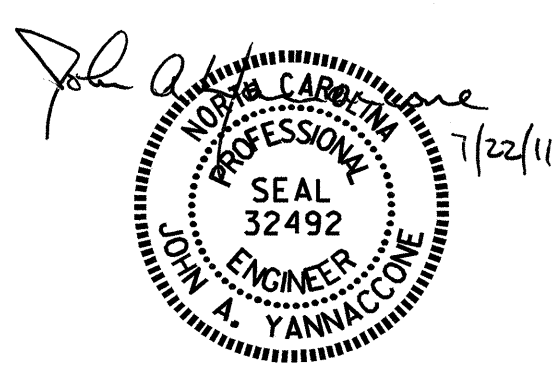
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

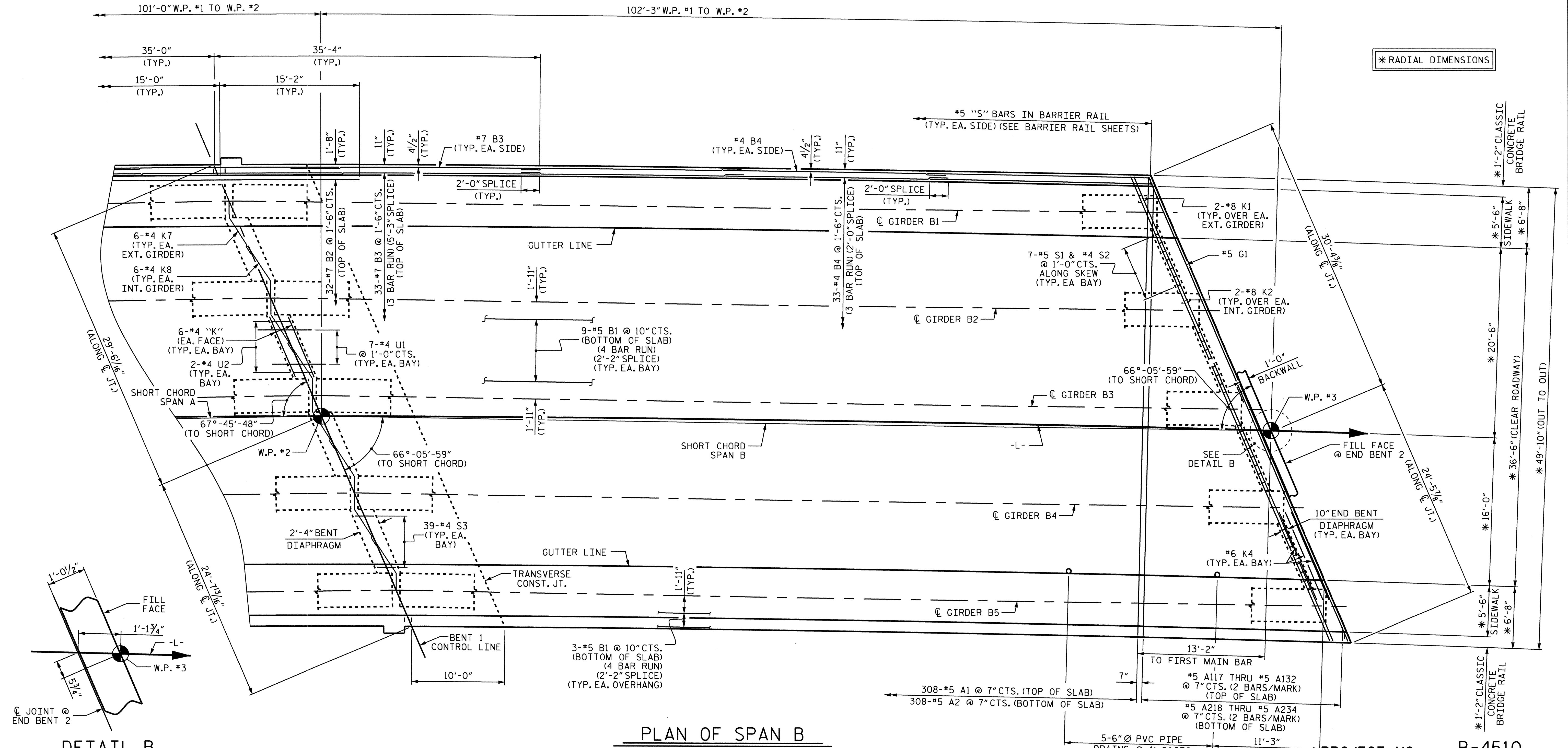
SUPERSTRUCTURE
 PLAN OF SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			34

DRAWN BY: S. DOMBROWSKI DATE: 5/10
 CHECKED BY: O.T. NGUYEN DATE: 6/10

22-JUL-2011 11:11
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 qtnguyen





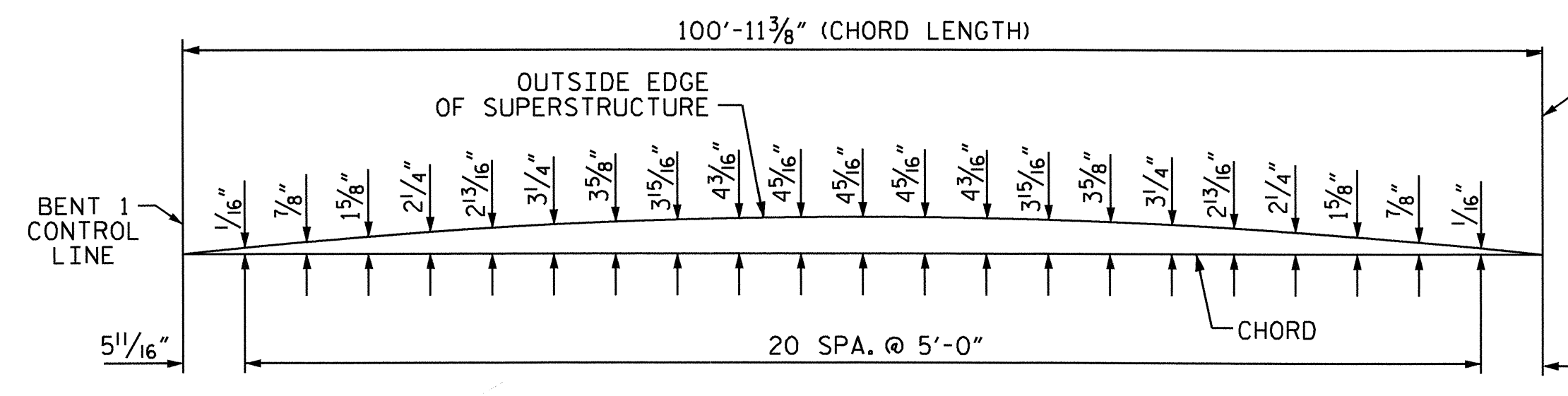
* RADIAL DIMENSIONS

DETAIL B

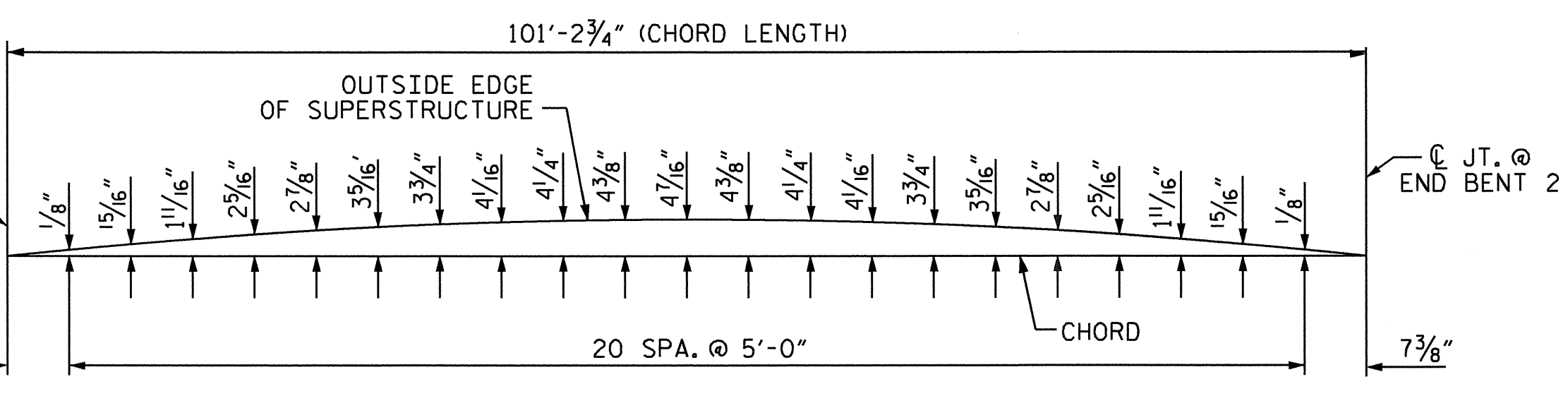
PLAN OF SPAN B

PROJECT NO. **B-4510**
FORSYTH COUNTY
 STATION: **17+96.35 -L-**

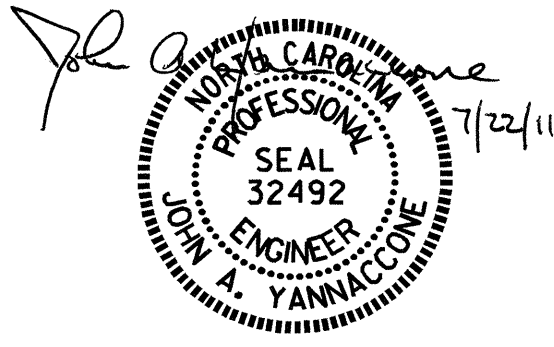
SHEET 2 OF 2



ARC OFFSETS



RIGHT OUTSIDE EDGE

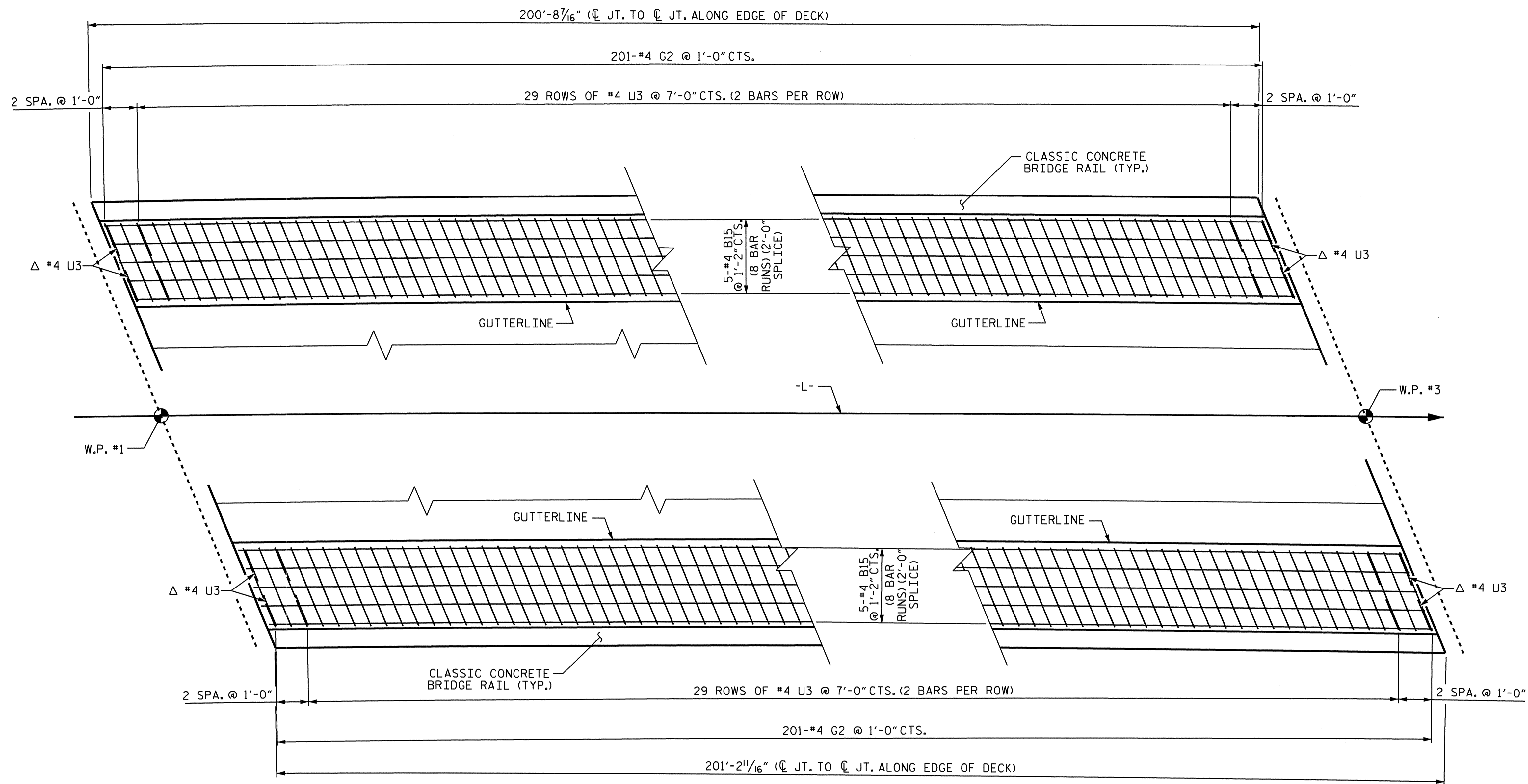


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN B

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS 34	
2			4				

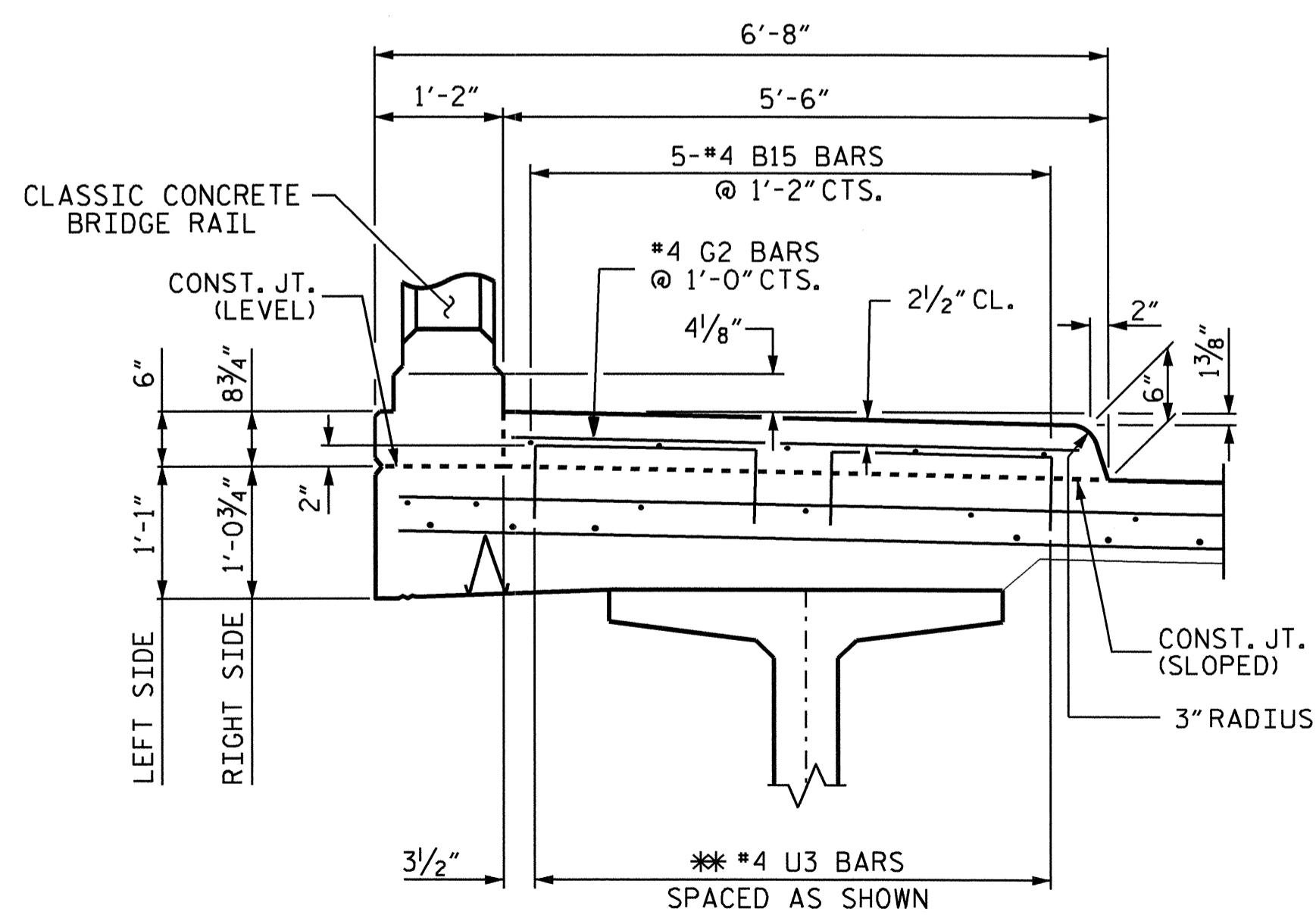
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 CHECKED BY: Q.T. NGUYEN DATE: 6/10

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 JAYannaccone



PLAN OF SIDEWALK

(SPANS A & B)



SECTION THRU SIDEWALK

** #4 U3 BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREEDED OFF.

NOTES :

Δ THESE U3 BARS ARE TO BE PLACED AFTER SAWING OF THE JOINT. THE HOLES SHALL BE DRILLED AND THE BARS GROUTED IN PLACE.

FOR CLASSIC CONCRETE BRIDGE RAIL REINFORCING STEEL AND DETAILS, SEE "CLASSIC CONCRETE BRIDGE RAIL" SHEETS.

THE #4 G2 AND #4 U3 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN 2" CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN SIDEWALK.

THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF THE SIDEWALK.

GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF SIDEWALK 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 JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

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

SIDEWALK ON THE BRIDGE IS PAID FOR AS PART OF THE REINFORCED CONCRETE DECK PAY ITEM.

ALL REINFORCING STEEL IN SIDEWALK SHALL BE EPOXY COATED.

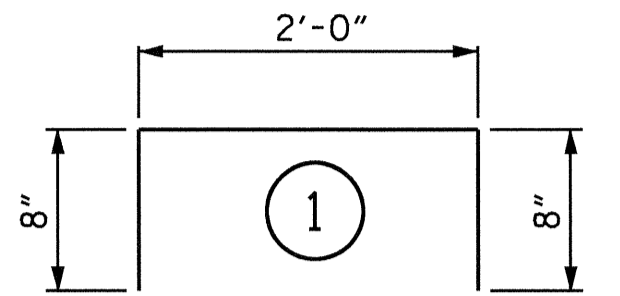
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR SIDEWALK ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B15	80	#4	STR	26'-11"	1438
* G2	402	#4	STR	5'-0"	1343
* U3	124	#4	1	3'-4"	276

* EPOXY COATED REINFORCING STEEL 3057 LBS.
CLASS AA CONCRETE 44.8 CU.YDS.

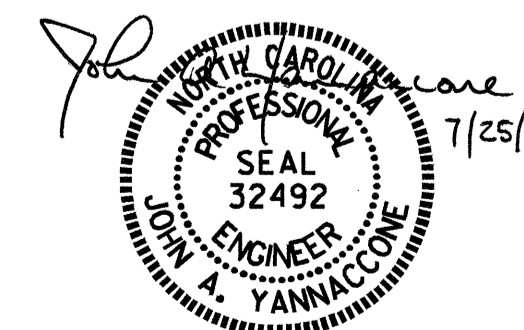


ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-4510
FORSYTH COUNTY
STATION: 17+96.35 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

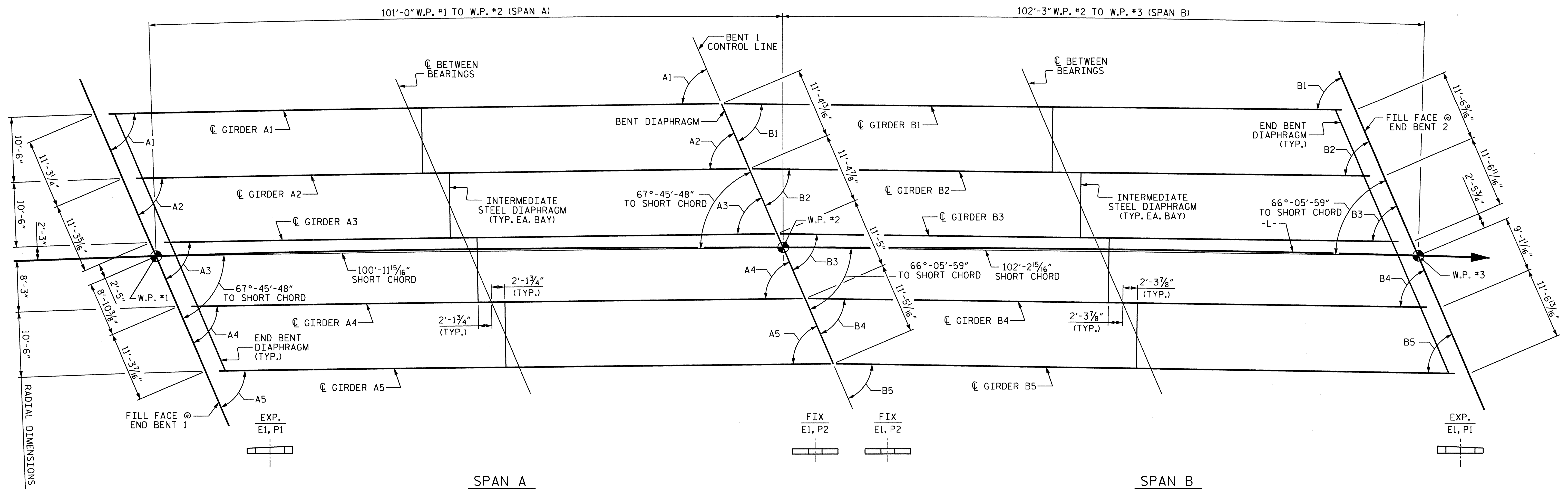
SUPERSTRUCTURE
SIDEWALK DETAILS



DRAWN BY : S. DOMBROWSKI DATE : 3/31/10
CHECKED BY : O.T. NGUYEN DATE : 06/10

25-JUL-2011 08:38
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JAYannaccone

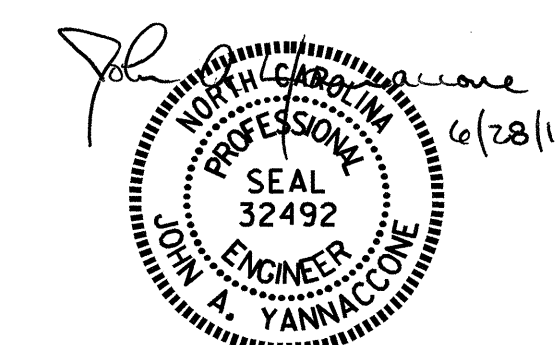
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			34



FRAMING PLAN

GIRDER SKEW ANGLES					
GIRDER No.		SPAN A		SPAN B	
1	A1	67°-55'-04"	B1	66°-16'-02"	
2	A2	67°-50'-54"	B2	66°-11'-31"	
3	A3	67°-46'-42"	B3	66°-06'-58"	
4	A4	67°-42'-29"	B4	66°-02'-23"	
5	A5	67°-38'-14"	B5	65°-57'-46"	

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			34

DRAWN BY : S. DOMBROWSKI DATE : 3/26/10
 CHECKED BY : Q. T. NGUYEN DATE : 08/10

0.6" Ø L. R. GRADE 270 STRANDS

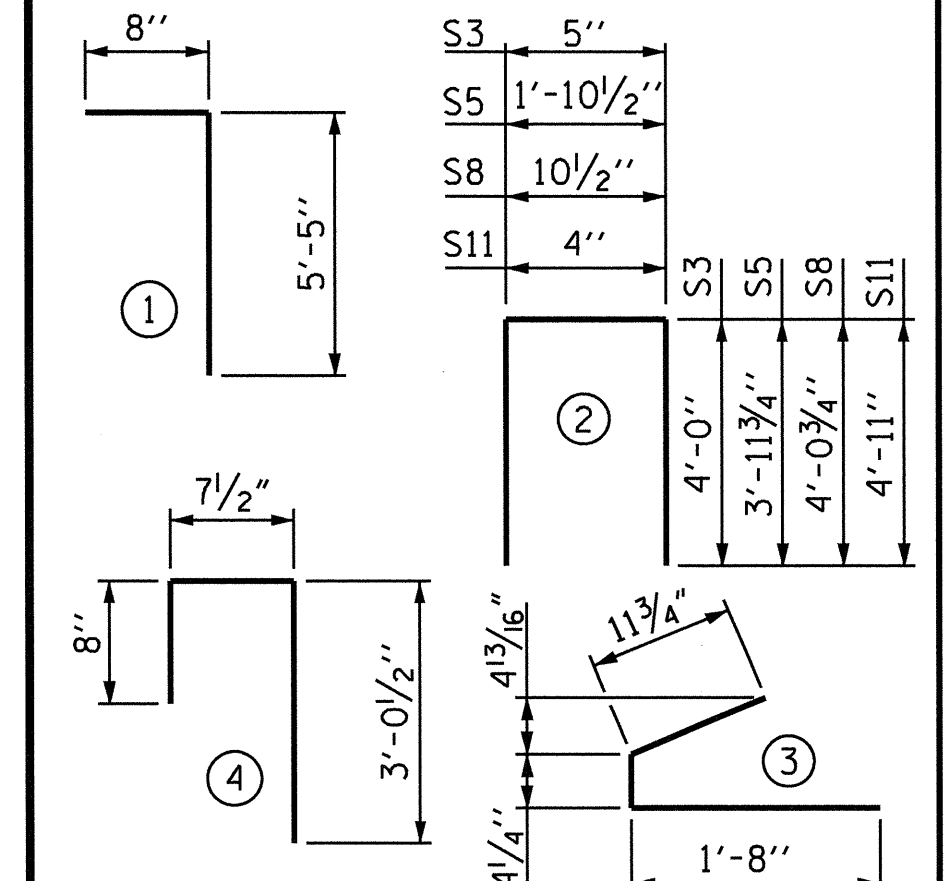
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR.

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	164	#4	1	6'-1"	666	
S2	24	#5	1	6'-1"	152	
S3	12	#4	2	8'-5"	67	
S4	72	#4	3	3'-0"	144	
S5	1	#5	2	9'-10"	10	
S6	188	#5	4	4'-4"	850	
*S7	10	#5	STR	3'-8"	38	
S8	2	#5	2	9'-0"	19	
S9	29	#5	STR	3'-3"	98	
S10	1	#3	STR	1'-10"	1	
EXTERIOR GDR.	S11	4	#5	2	10'-2"	42
INTERIOR GDR.	S11	8	#5	2	10'-2"	85
EXTERIOR GDR.	S12	8	#4	STR	8'-0"	43
INTERIOR GDR.	S13	8	#4	STR	12'-4"	66

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL		9500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.	No.
EXT. GDR.	2130	19.5	42	
INT. GDR.	2196	19.5	42	

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
5	SEE CHART	491.99

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-

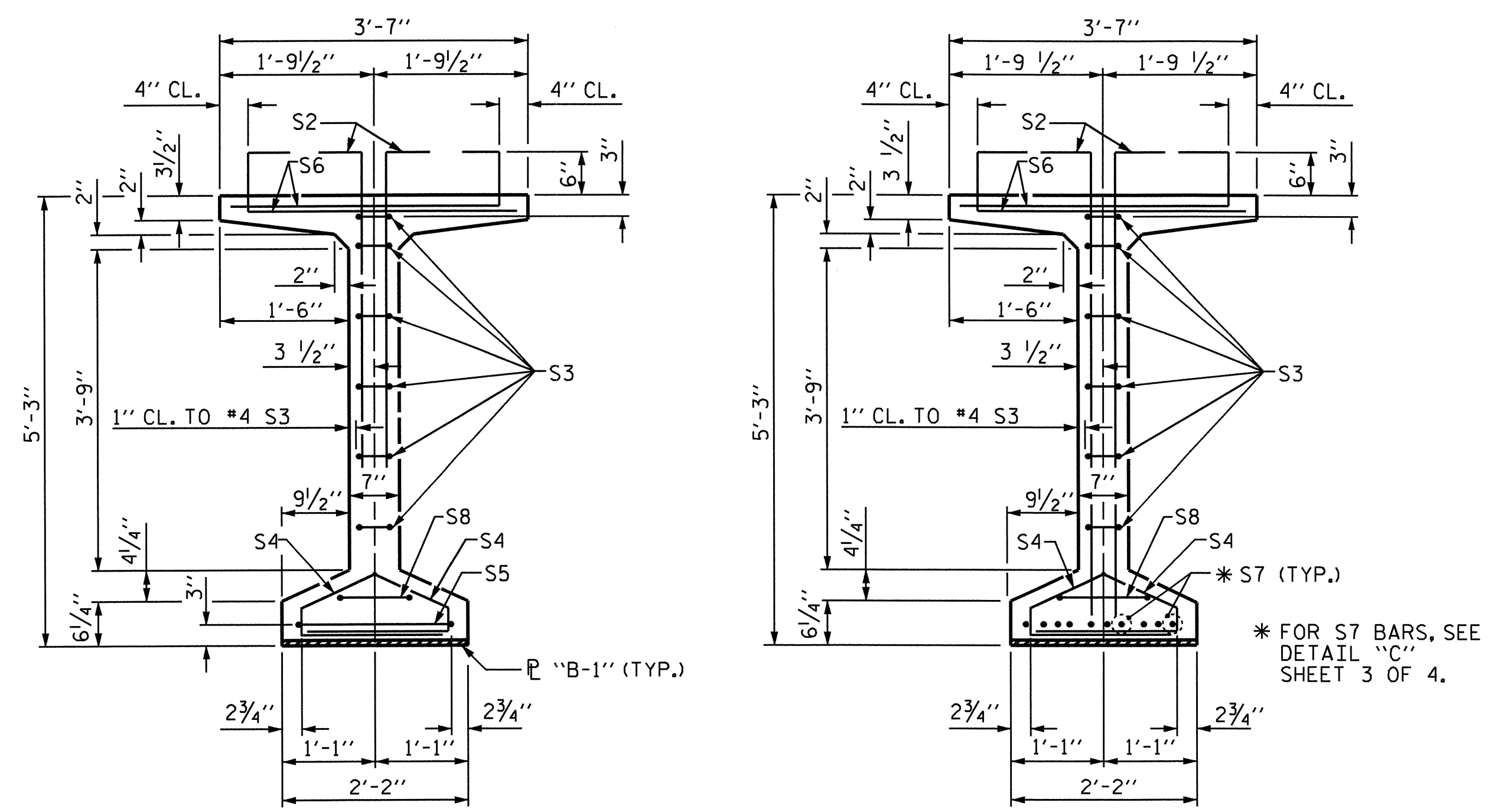
SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN A

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

TOTAL SHEETS 34

STD. NO. PCG9 (Sht. 1)



SECTION A-A

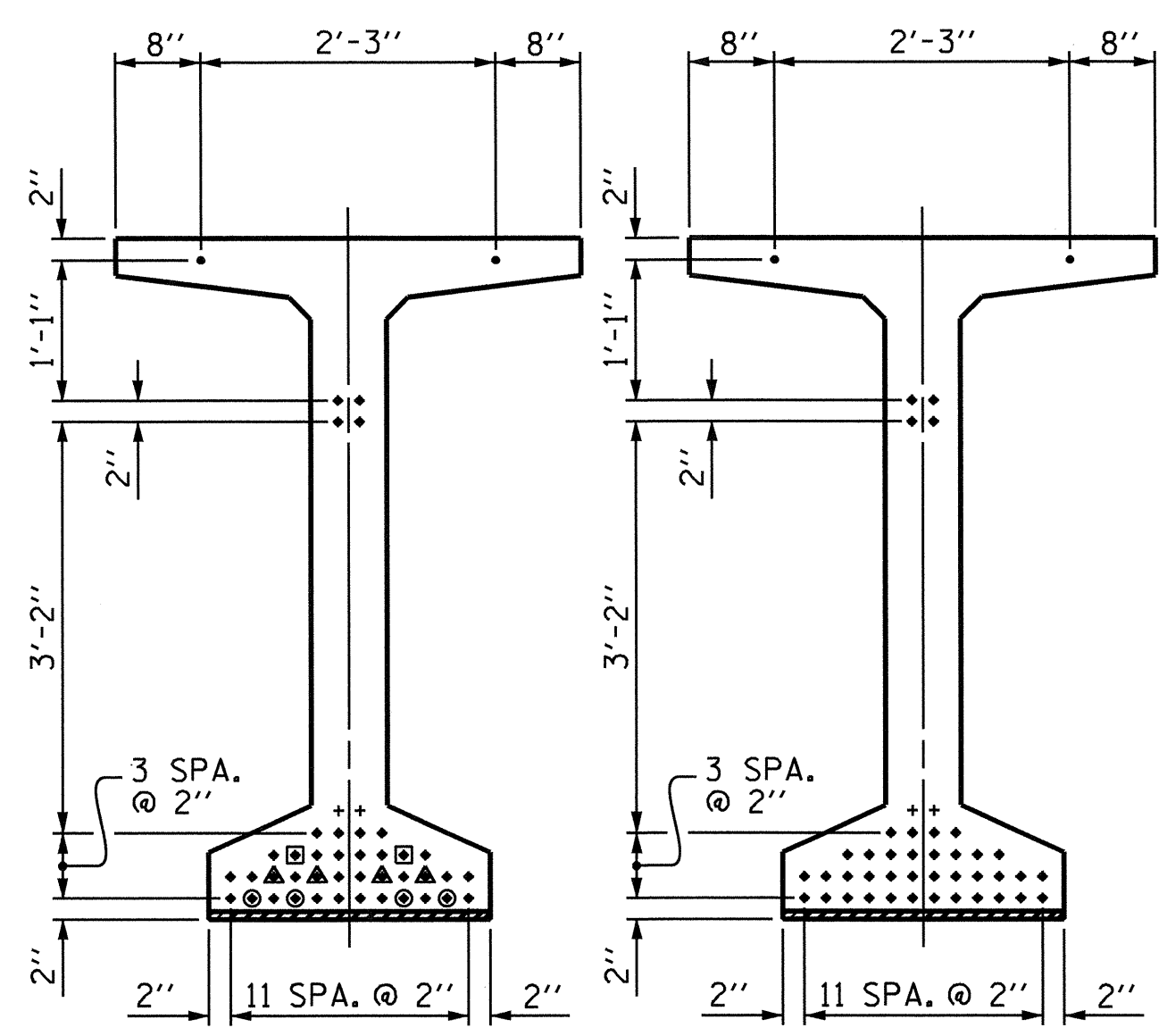
FOR EMBEDDED "B-1" DETAILS, SEE SHEET 3 OF 4

SECTION B-B

* FOR S7 BARS, SEE DETAIL "C" SHEET 3 OF 4.

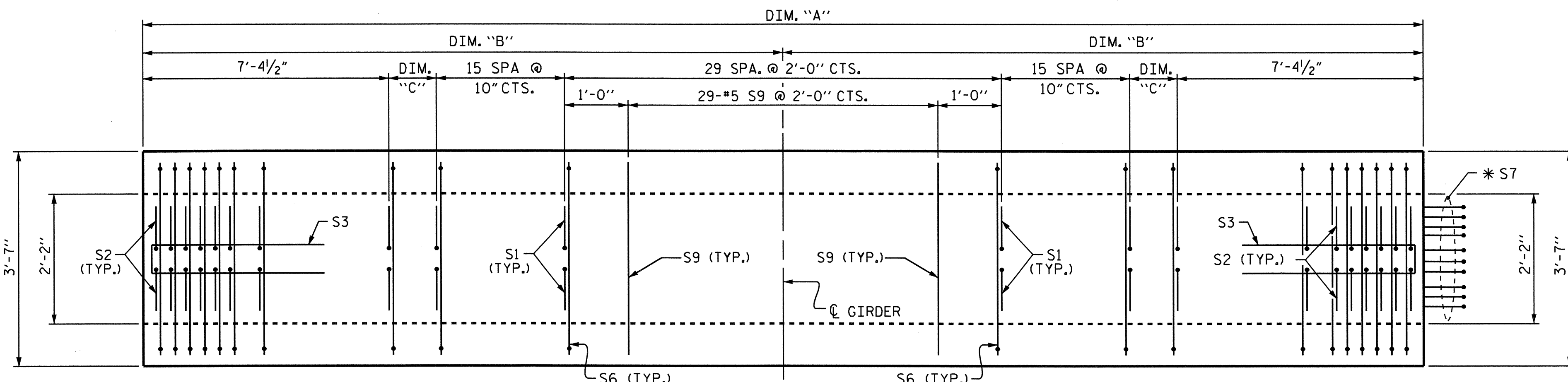
DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ▲ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



0.6" Ø LOW RELAXATION STRAND LAYOUT

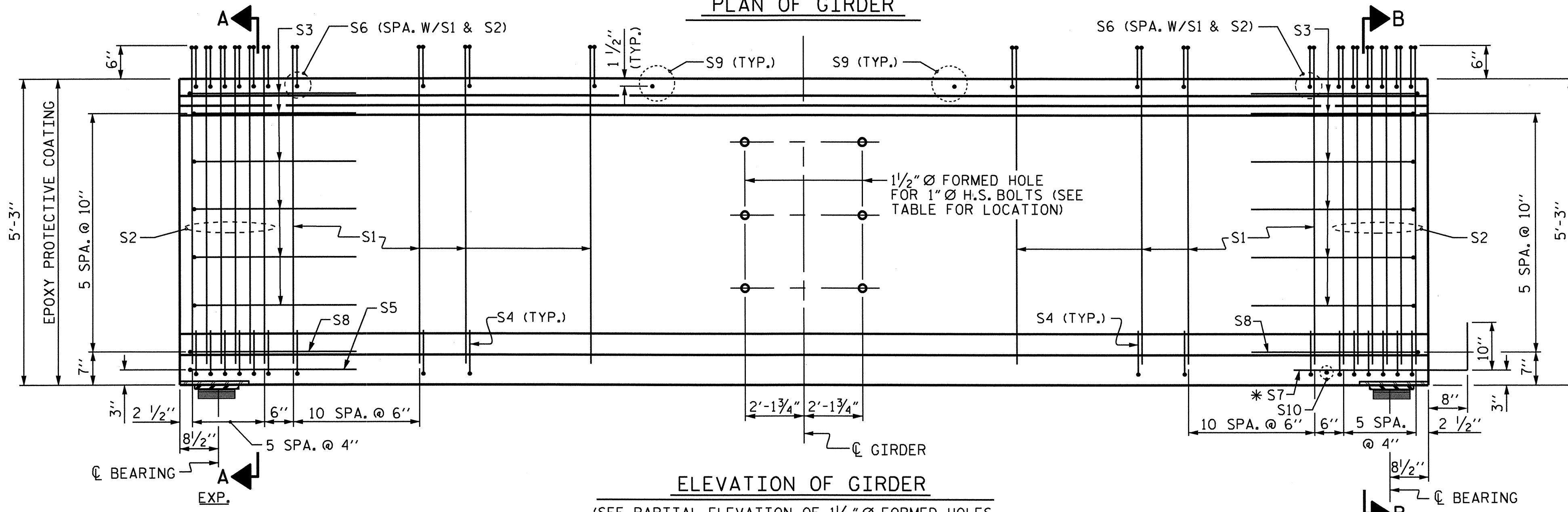
(42 STRANDS, ALL STRAIGHT, 10 DEBONDED STRANDS)



PLAN OF GIRDER

GIRDER DIMENSIONS - SPAN A

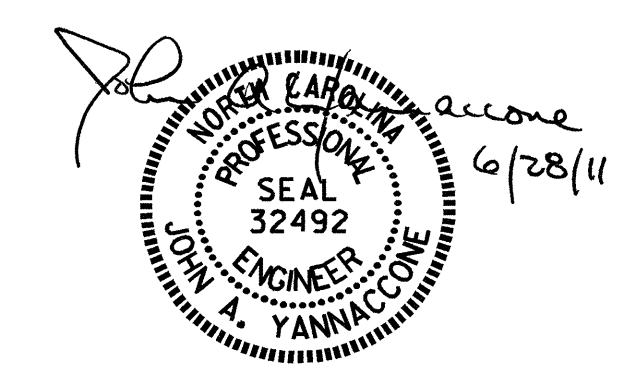
	DIM. "A"	DIM. "B"	DIM. "C"
GIRDER 1	98'-3 5/8"	49'-1 13/16"	3 5/16"
GIRDER 2	98'-4 1/8"	49'-2 1/16"	3 7/16"
GIRDER 3	98'-4 3/4"	49'-2 3/8"	3 7/8"
GIRDER 4	98'-5 3/8"	49'-2 11/16"	4 3/16"
GIRDER 5	98'-6"	49'-3"	4 1/2"

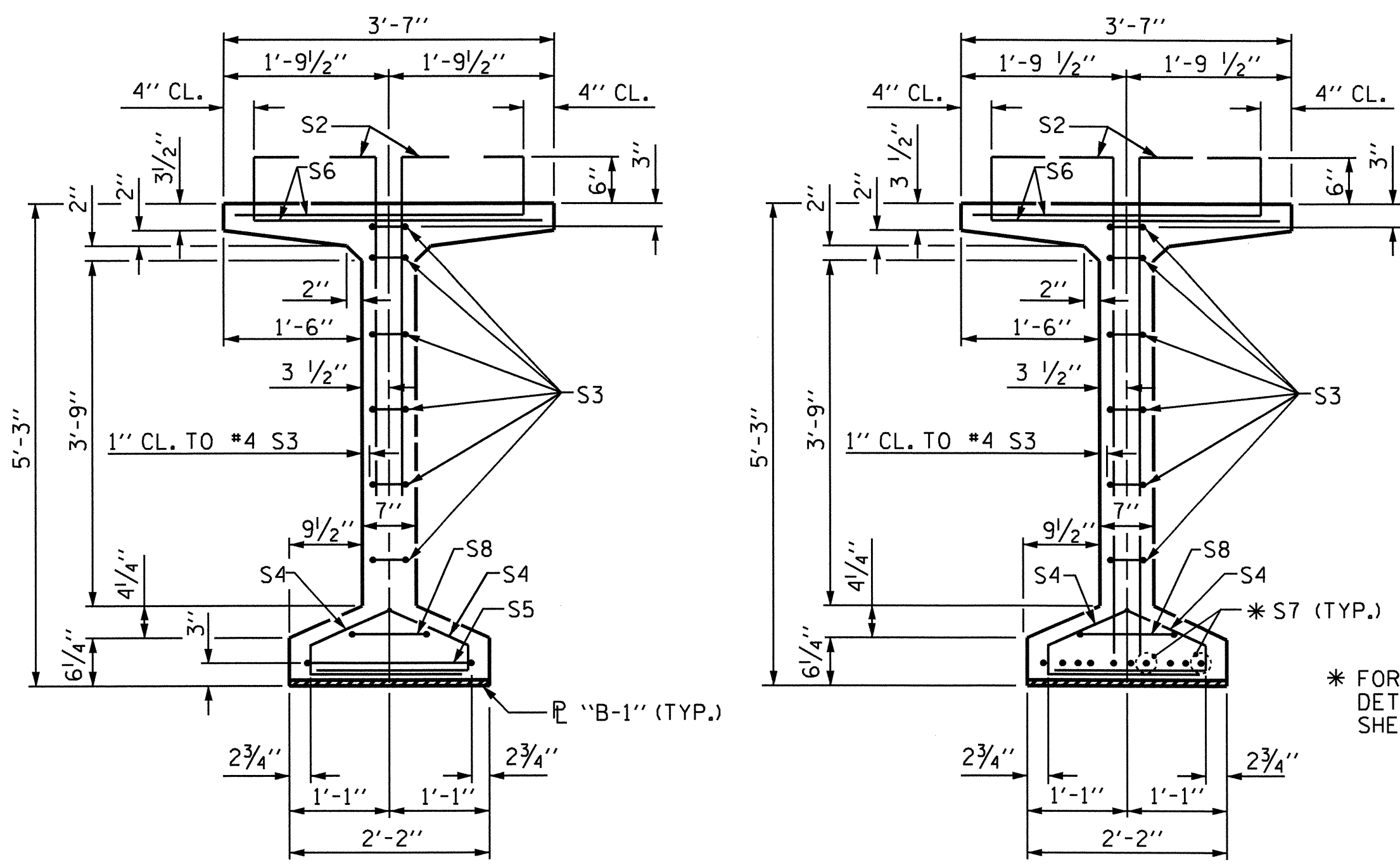


ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION OF 1/2" Ø FORMED HOLES FOR ADDITIONAL "S" BARS IN THE INTERMEDIATE DIAPHRAGM AREA ON SHEET 3 OF 4)

ASSEMBLED BY : S. DOMBROWSKI	DATE : 05/10
CHECKED BY : O.T. NGUYEN	DATE : 06/10
DRAWN BY : EEM 2/6/97	REV. 8/16/99 RWW/LES
CHECKED BY : VAP 2/6/97	REV. 10/17/00 RWW/LES
	REV. 5/1/06R TLA/GM





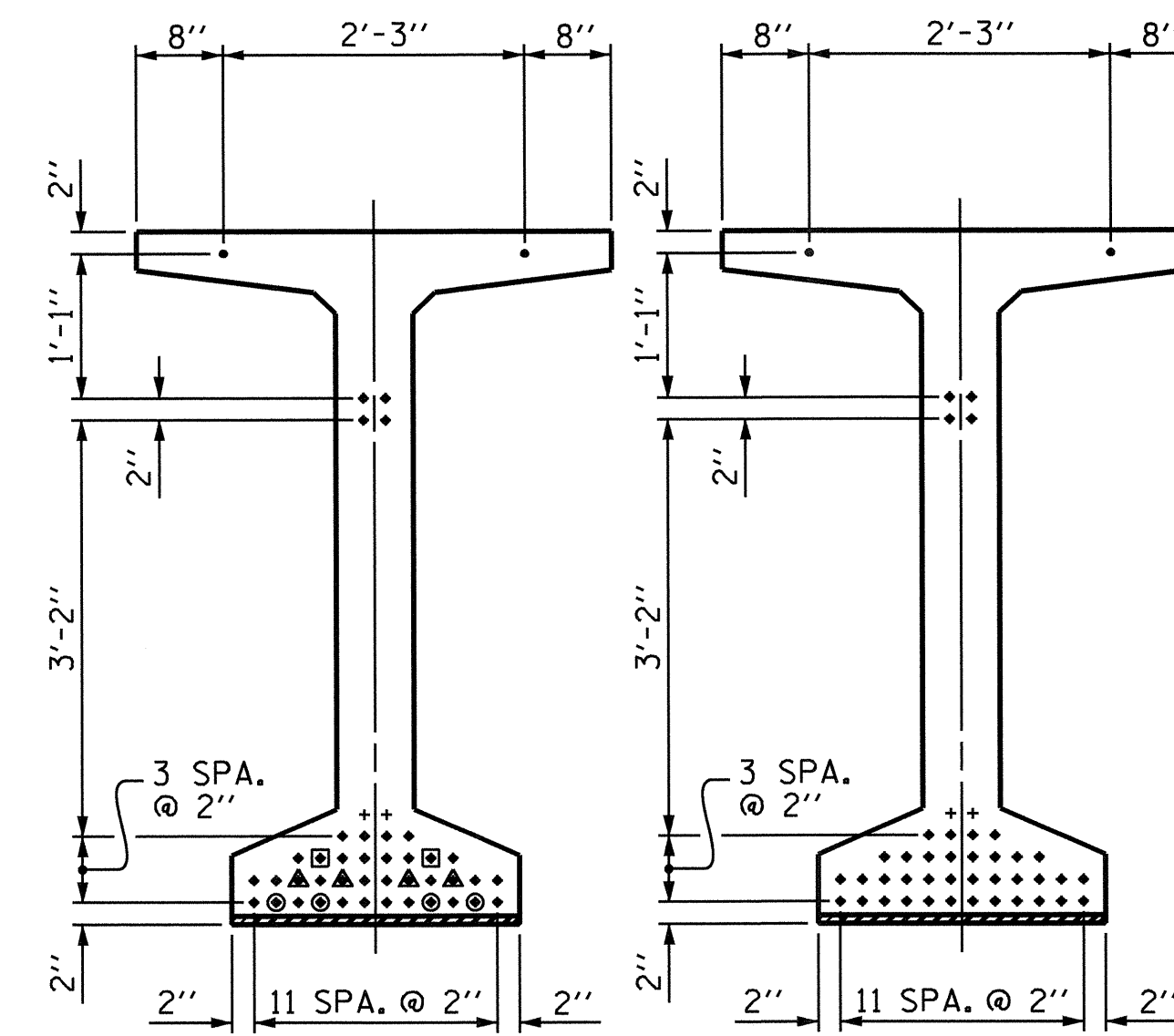
SECTION A-A

FOR EMBEDDED "B-1" DETAILS, SEE SHEET 3 OF 4

SECTION B-B

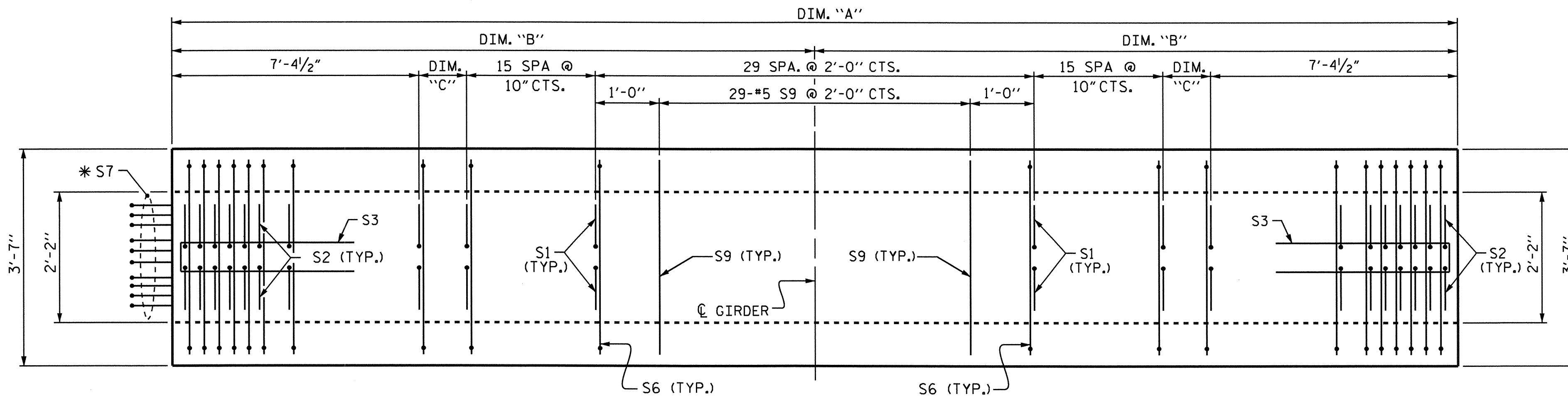
DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ▲ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



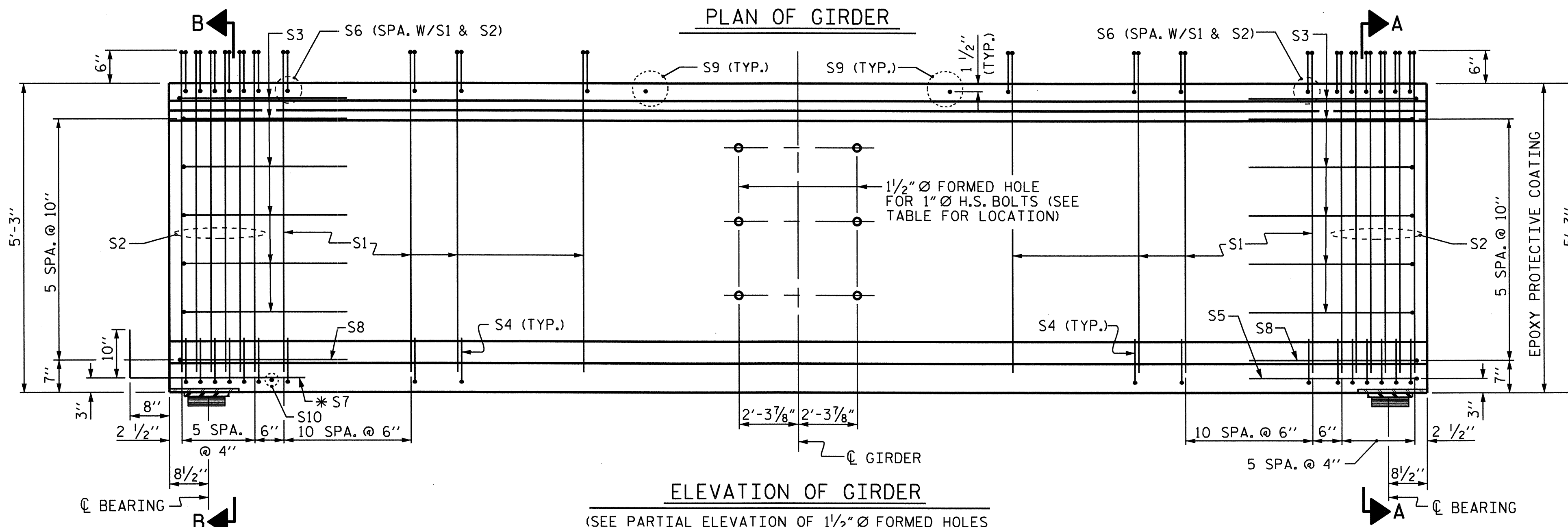
AT END OF GIRDER AT C OF GIRDER
0.6" Ø LOW RELAXATION STRAND LAYOUT

(42 STRANDS, ALL STRAIGHT, 10 DEBONDED STRANDS)



GIRDER DIMENSIONS - SPAN B

	DIM. "A"	DIM. "B"	DIM. "C"
GIRDER 1	99'-5 5/8"	49'-8 5/16"	10 7/16"
GIRDER 2	99'-6 5/8"	49'-9 5/16"	10 3/16"
GIRDER 3	99'-7 1/4"	49'-9 5/8"	11 1/8"
GIRDER 4	99'-8"	49'-10"	11 1/2"
GIRDER 5	99'-8 3/4"	49'-10 3/8"	11 7/8"



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION OF 1 1/2" Ø FORMED HOLES FOR ADDITIONAL "S" BARS IN THE INTERMEDIATE DIAPHRAGM AREA ON SHEET 3 OF 4)

EXTERIOR GDR. S11 4 #5 2 10'-2" 42
INTERIOR GDR. S11 8 #5 2 10'-2" 85
EXTERIOR GDR. S12 8 #4 STR 8'-0" 43
INTERIOR GDR. S13 8 #4 STR 12'-8" 68

0.6" Ø L. R. GRADE 270 STRANDS

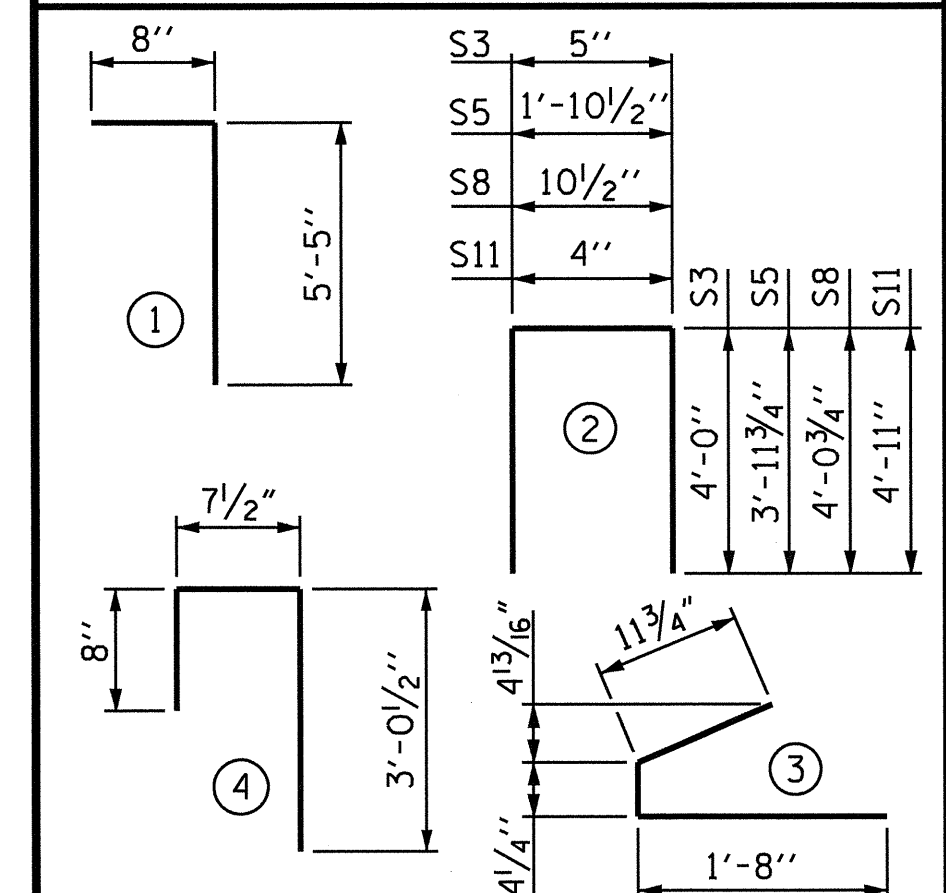
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR.

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	164	#4	1	6'-1"	666
S2	24	#5	1	6'-1"	152
S3	12	#4	2	8'-5"	67
S4	72	#4	3	3'-0"	144
S5	1	#5	2	9'-10"	10
S6	188	#5	4	4'-4"	850
* S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	29	#5	STR	3'-3"	98
S10	1	#3	STR	1'-10"	1
S11	4	#5	2	10'-2"	42
S11	8	#5	2	10'-2"	85
S12	8	#4	STR	8'-0"	43
S13	8	#4	STR	12'-8"	68

* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER

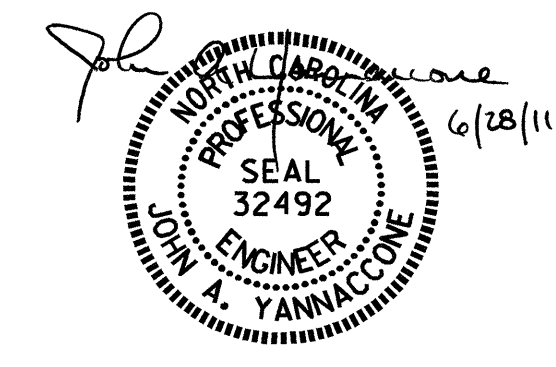
	REINFORCING STEEL		9500 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.		
EXT. GDR.	2130	19.7	42	
INT. GDR.	2198	19.7	42	

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
5	SEE CHART	498.04

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 2 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN B

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

TOTAL SHEETS: 34

ASSEMBLED BY: S. DOMBROWSKI	DATE: 05/10
CHECKED BY: O.T. NGUYEN	DATE: 06/10
DRAWN BY: EEM 2/6/97	REV. 8/16/99 RWW/LES
CHECKED BY: VAP 2/6/97	REV. 10/17/00 RWW/LES
	REV. 5/17/06R TLA/GM

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. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

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 7500 PSI.

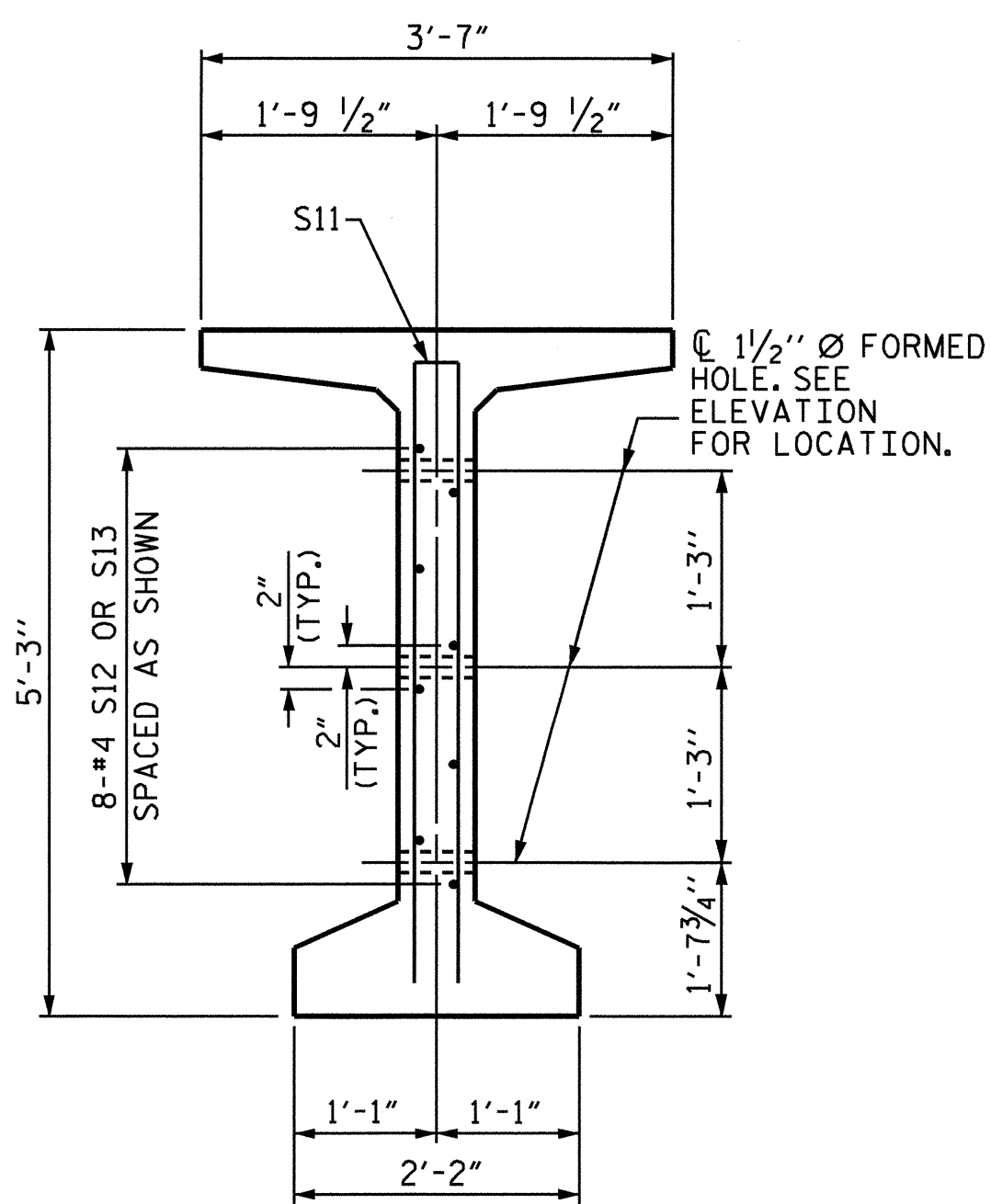
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

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

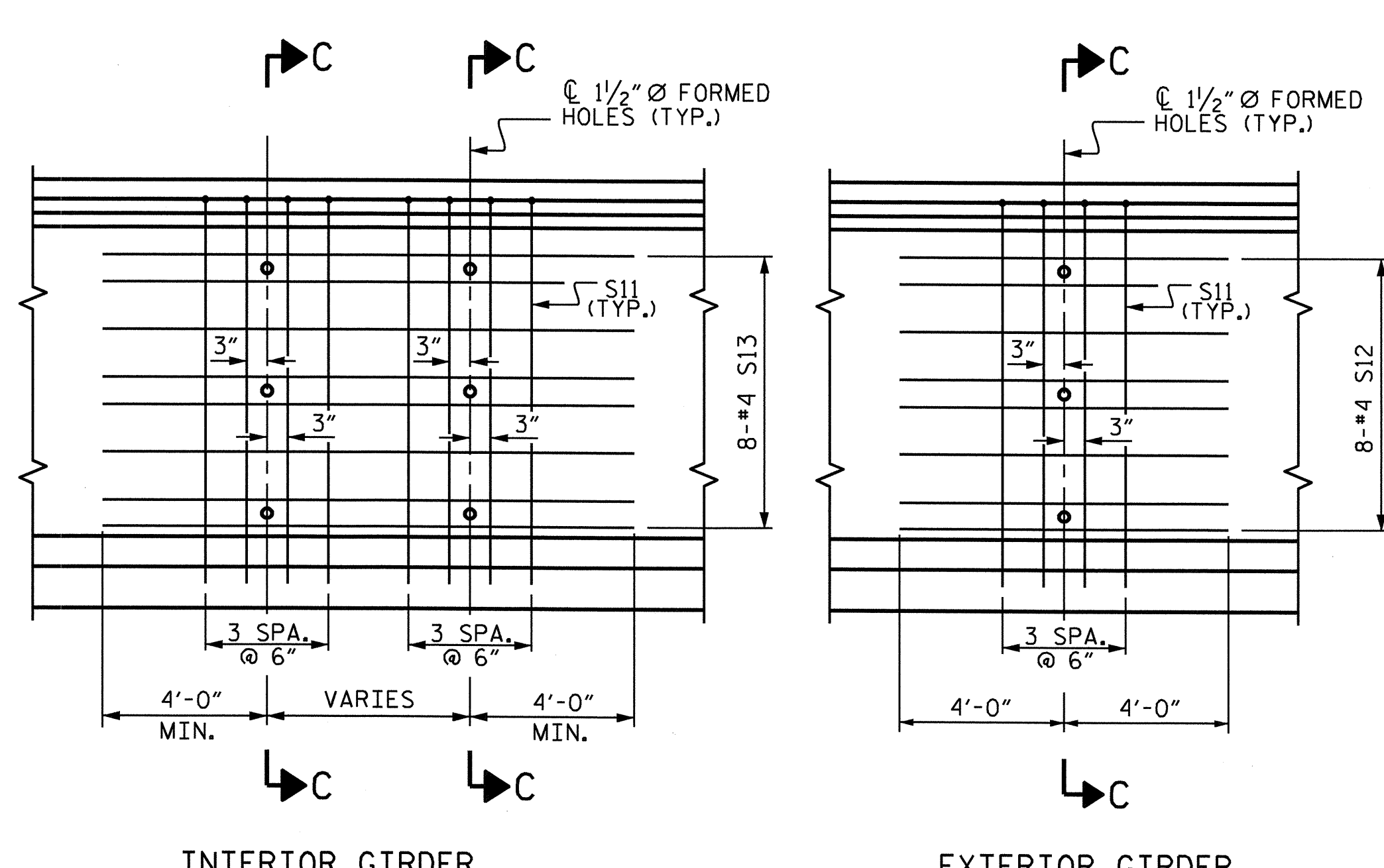
A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" MODIFIED BULB TEES ONLY.

THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 LBS.

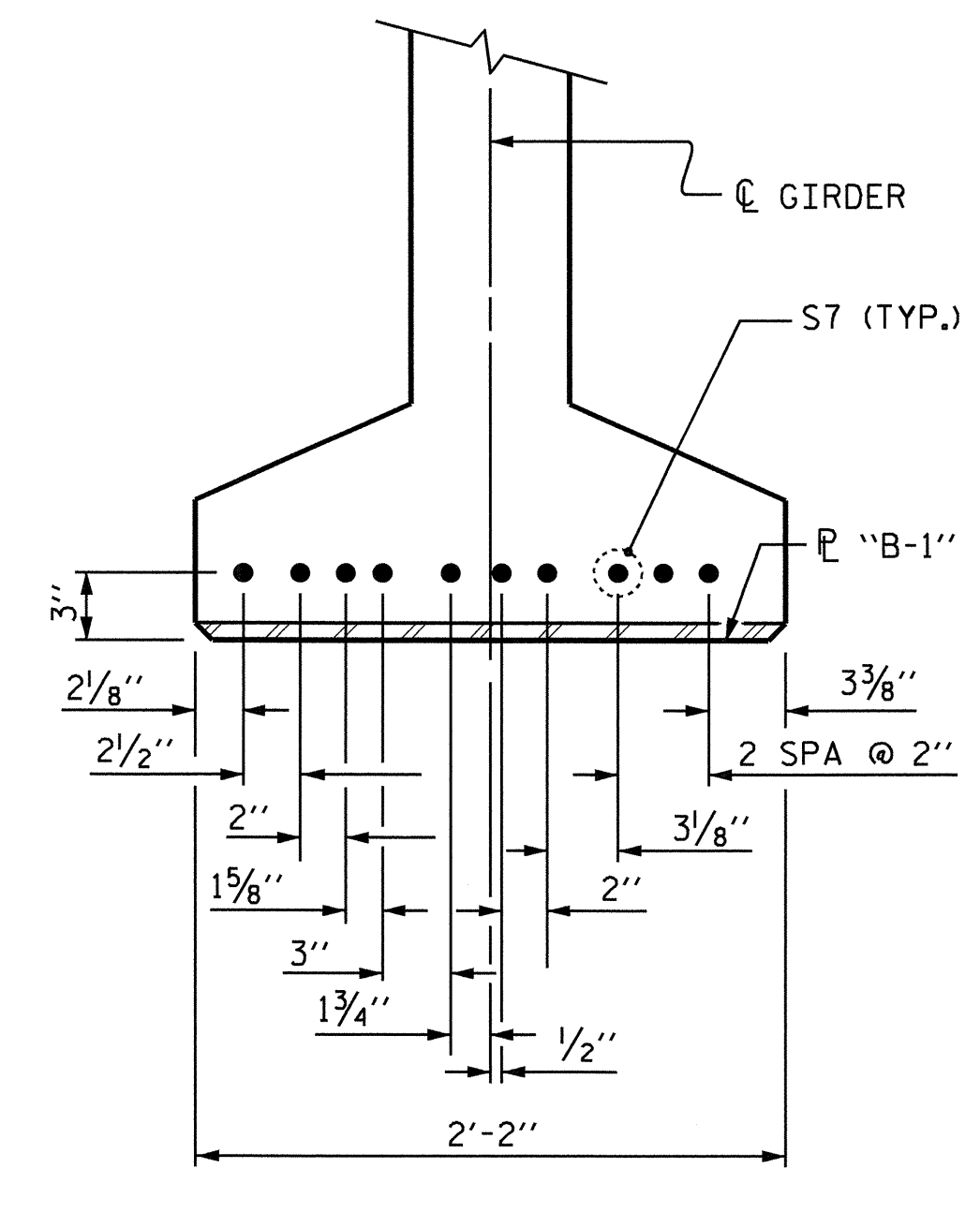
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



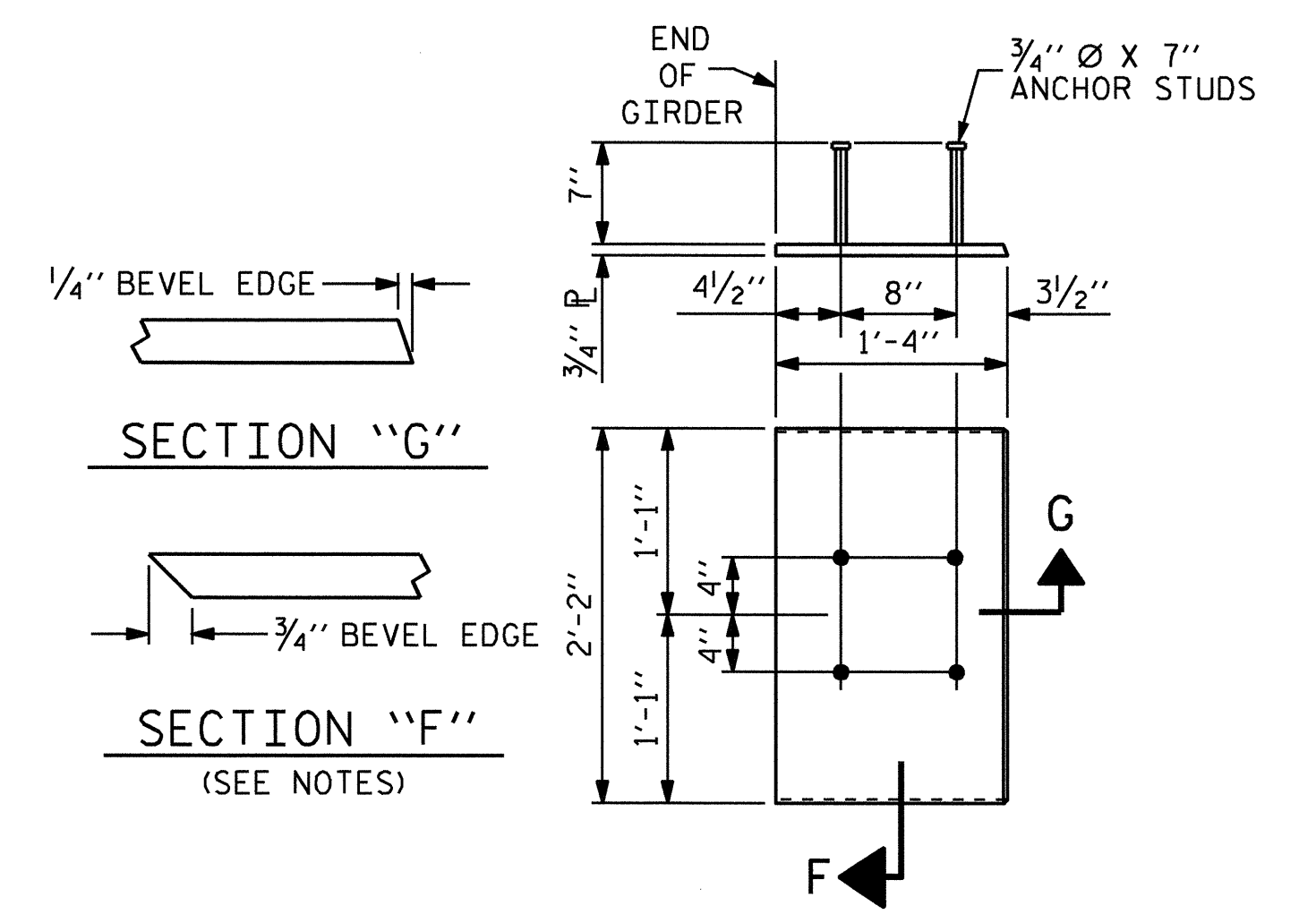
SECTION C-C
(S1, S6 AND S9 BARS NOT SHOWN)



PARTIAL ELEVATION
SHOWING INTERMEDIATE STEEL DIAPHRAGM
REINFORCING STEEL FOR GIRDERS



DETAIL "C"
(FOR 63" MODIFIED BULB TEES)



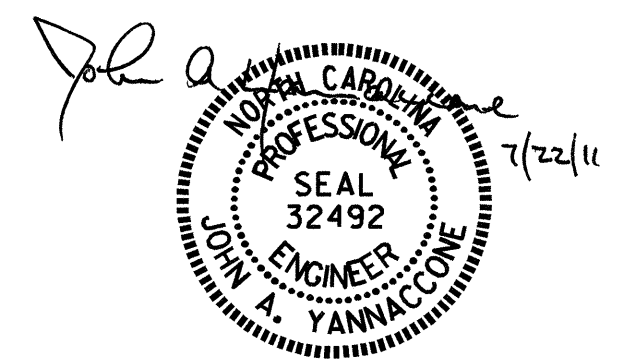
EMBEDDED PLATE "B-1" DETAILS
(2 REQ'D PER GIRDER)

DEAD LOAD DEFLECTION TABLE																						
	SPAN A											SPAN B										
	GIRDER 1											GIRDER 1										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.110	0.209	0.286	0.334	0.351	0.334	0.286	0.209	0.110	0	0	0.112	0.212	0.290	0.340	0.357	0.340	0.290	0.212	0.112	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.035	0.067	0.091	0.107	0.112	0.107	0.091	0.067	0.035	0	0	0.037	0.070	0.096	0.112	0.118	0.112	0.096	0.070	0.037	0
FINAL CAMBER ↑	0	7/8"	1 1/16"	2 3/16"	2 3/4"	2 7/8"	2 3/4"	2 3/16"	1 1/16"	7/8"	0	0	7/8"	1 1/16"	2 3/16"	2 3/4"	2 7/8"	2 3/4"	2 3/16"	1 1/16"	7/8"	0
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.111	0.209	0.286	0.335	0.352	0.335	0.286	0.209	0.111	0	0	0.112	0.213	0.291	0.341	0.358	0.341	0.291	0.213	0.112	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.037	0.071	0.097	0.113	0.119	0.113	0.097	0.071	0.037	0	0	0.039	0.074	0.102	0.119	0.125	0.119	0.102	0.074	0.039	0
FINAL CAMBER ↑	0	7/8"	1 1/16"	2 1/4"	2 11/16"	2 13/16"	2 11/16"	2 1/4"	1 1/16"	7/8"	0	0	7/8"	1 1/16"	2 1/4"	2 11/16"	2 13/16"	2 11/16"	2 1/4"	1 1/16"	7/8"	0
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.111	0.209	0.286	0.335	0.352	0.335	0.286	0.209	0.111	0	0	0.112	0.213	0.291	0.341	0.358	0.341	0.291	0.213	0.112	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.035	0.066	0.091	0.107	0.112	0.107	0.091	0.066	0.035	0	0	0.037	0.070	0.096	0.112	0.118	0.112	0.096	0.070	0.037	0
FINAL CAMBER ↑	0	7/8"	1 1/16"	2 3/8"	2 3/4"	2 7/8"	2 3/4"	2 3/8"	1 1/16"	7/8"	0	0	7/8"	1 1/16"	2 3/8"	2 3/4"	2 7/8"	2 3/4"	2 3/8"	1 1/16"	7/8"	0

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

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 3 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 DETAILS

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

TOTAL SHEETS: 34

ASSEMBLED BY : S. DOMBROWSKI DATE : 3/30/10
 CHECKED BY : O.T. NGUYEN DATE : 06/10
 DRAWN BY : ELR 11/91 REV. 10/17/00 RWW/LES
 CHECKED BY : GRP 11/91 REV. 7/10/01RR LES/RDR
 REV. 5/1/06 TLA/GM

STRUCTURAL STEEL NOTES

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

TENSION ON THE AASHTO M164 BOLTS THROUGH THE ANGLE MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISION.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, ANGLES, AND PLATE WASHERS 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 PROVISIONS AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

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

USE A MINIMUM 7/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. HARDENED WASHERS AND DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS IN THE L 3 X 3 X 5/16 ANGLE MEMBER CONNECTION.

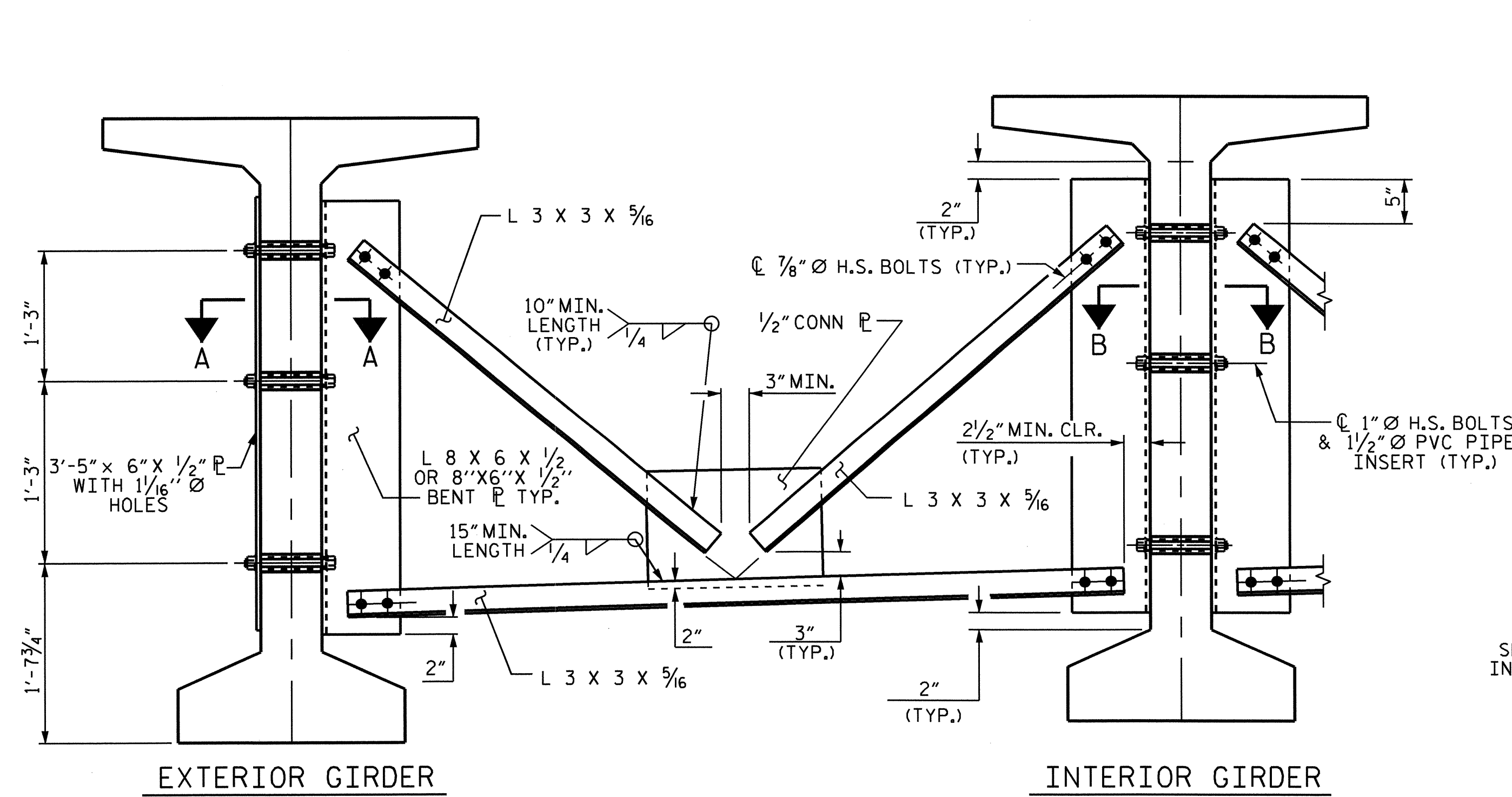
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

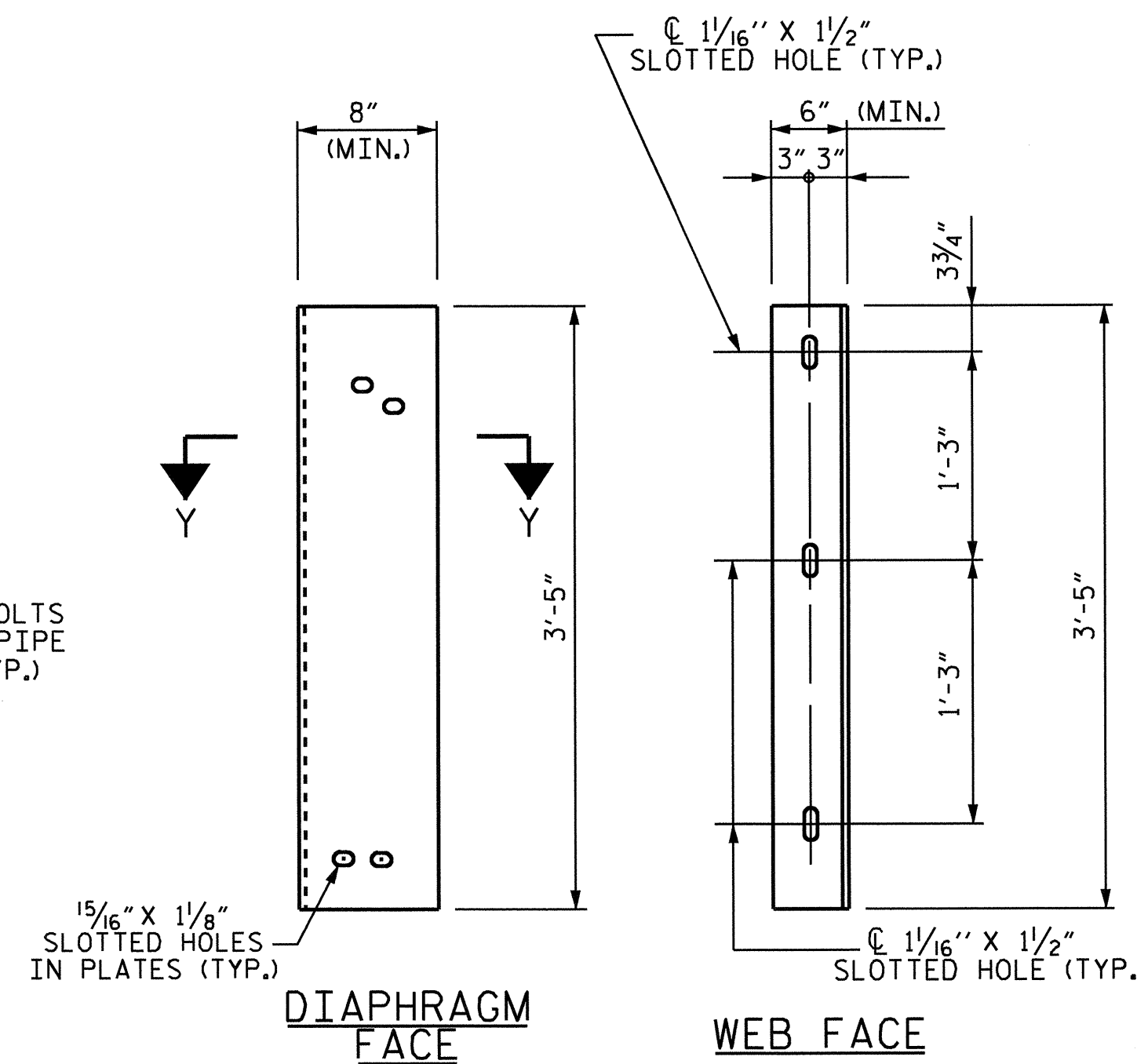
CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

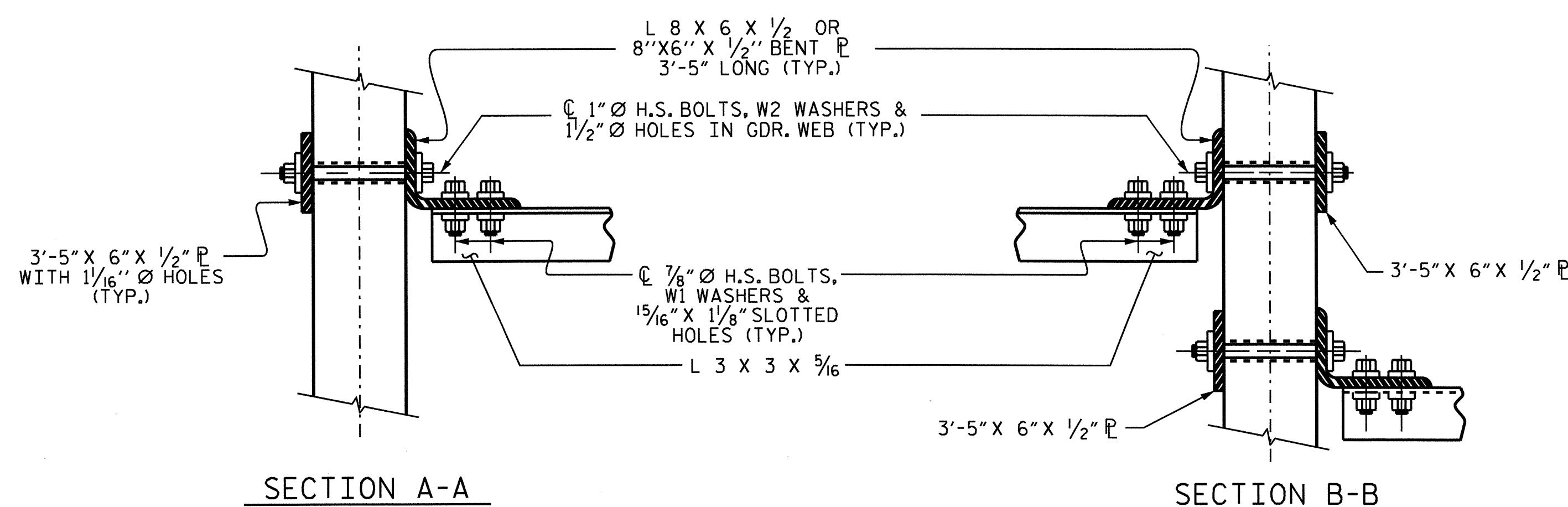
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



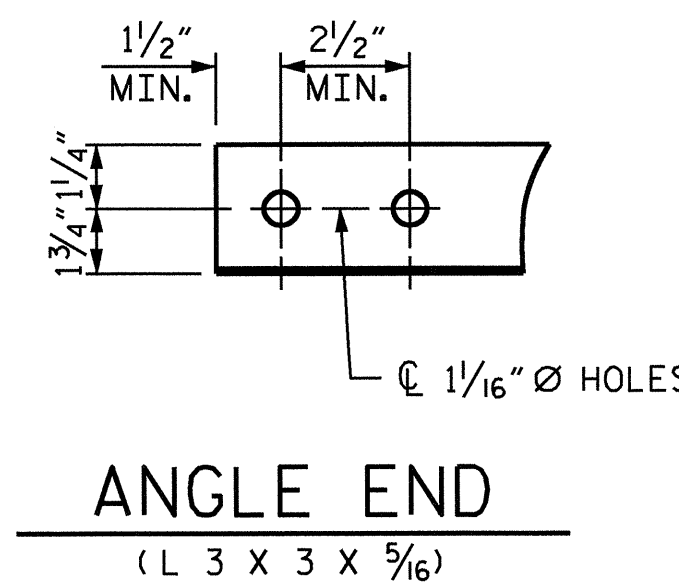
PART SECTION AT INTERMEDIATE DIAPHRAGM



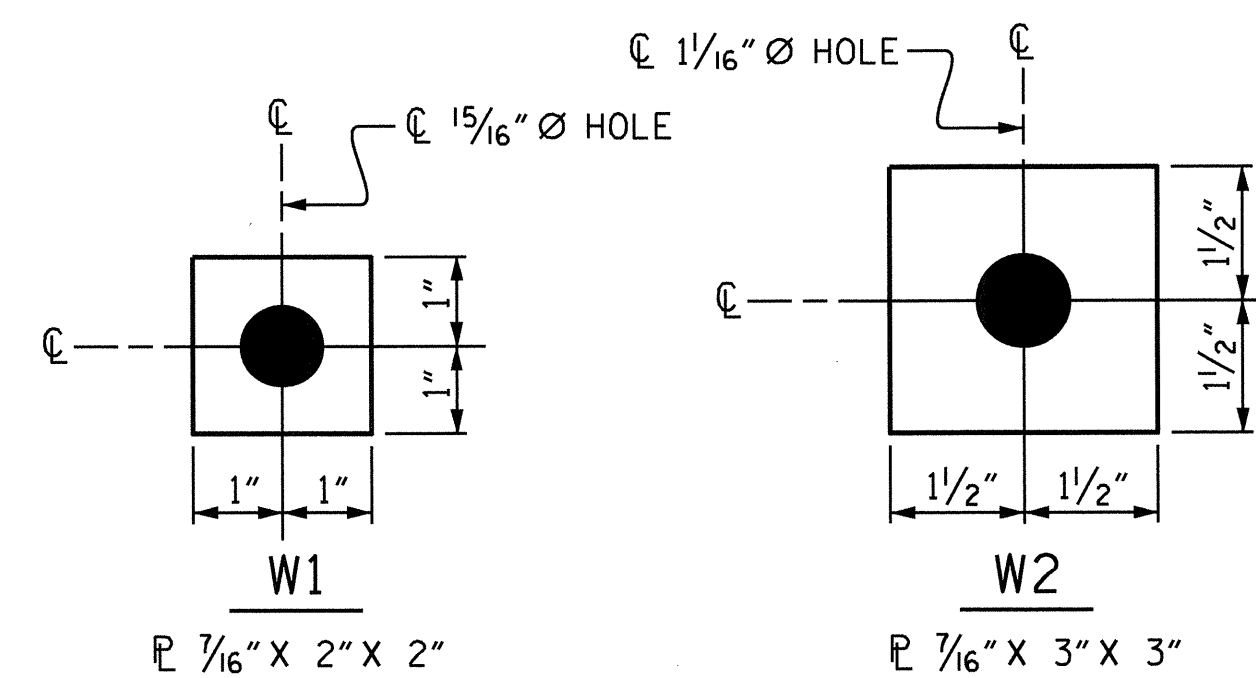
CONNECTOR PLATE DETAILS



CONNECTION DETAILS



ANGLE END (L 3 X 3 X 5/16)



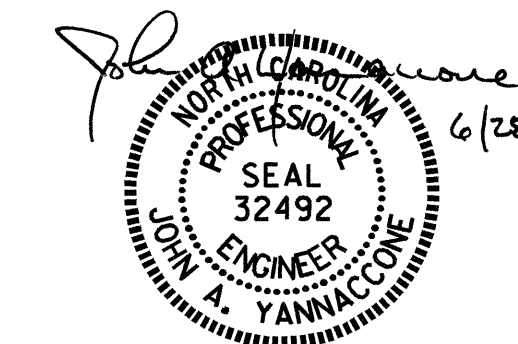
USE WITH 7/8" Ø HVY. HEX NUTS & DIRECT TENSION INDICATOR WASHERS AT DIAPHRAGM ANGLE TO CONNECTOR PLATE CONNECTIONS

USE WITH 1" Ø HVY. HEX NUTS AT CONNECTOR PLATE TO GIRDER CONNECTIONS

WASHER DETAILS

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 INTERMEDIATE
 STEEL DIAPHRAGMS
 FOR 63" MODIFIED
 BULB TEE PRESTRESSED
 CONCRETE GIRDERS

ASSEMBLED BY : S. DOMBROWSKI	DATE : 3/30/10
CHECKED BY : O.T. NGUYEN	DATE : 06/10
DRAWN BY : RWW 11/09	ADDED 11/23/09
CHECKED BY : GM 11/09	

28-JUN-2011 09:09
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 qtnguyen

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			34

STD. NO. PCG13

NOTES

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

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

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

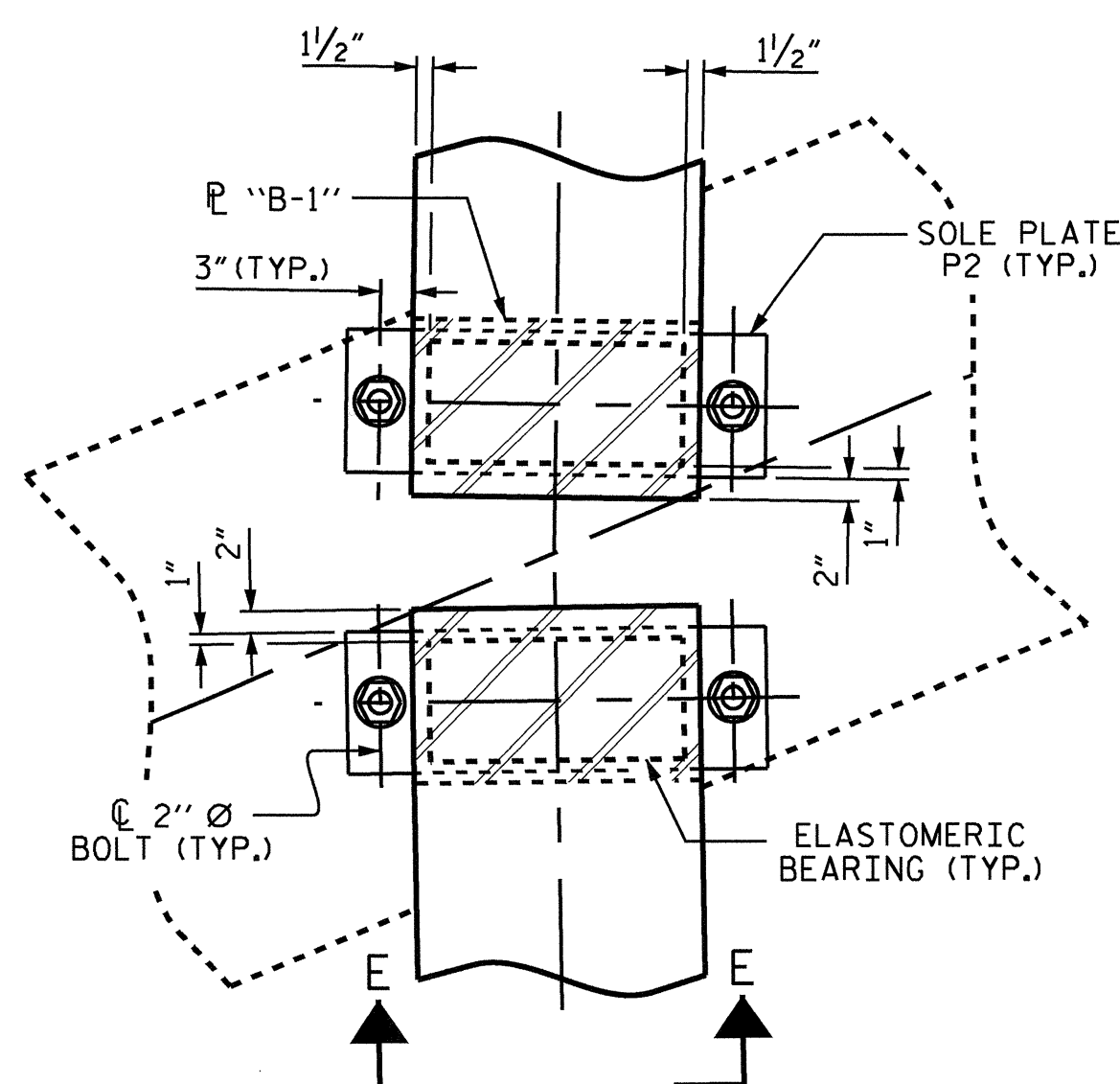
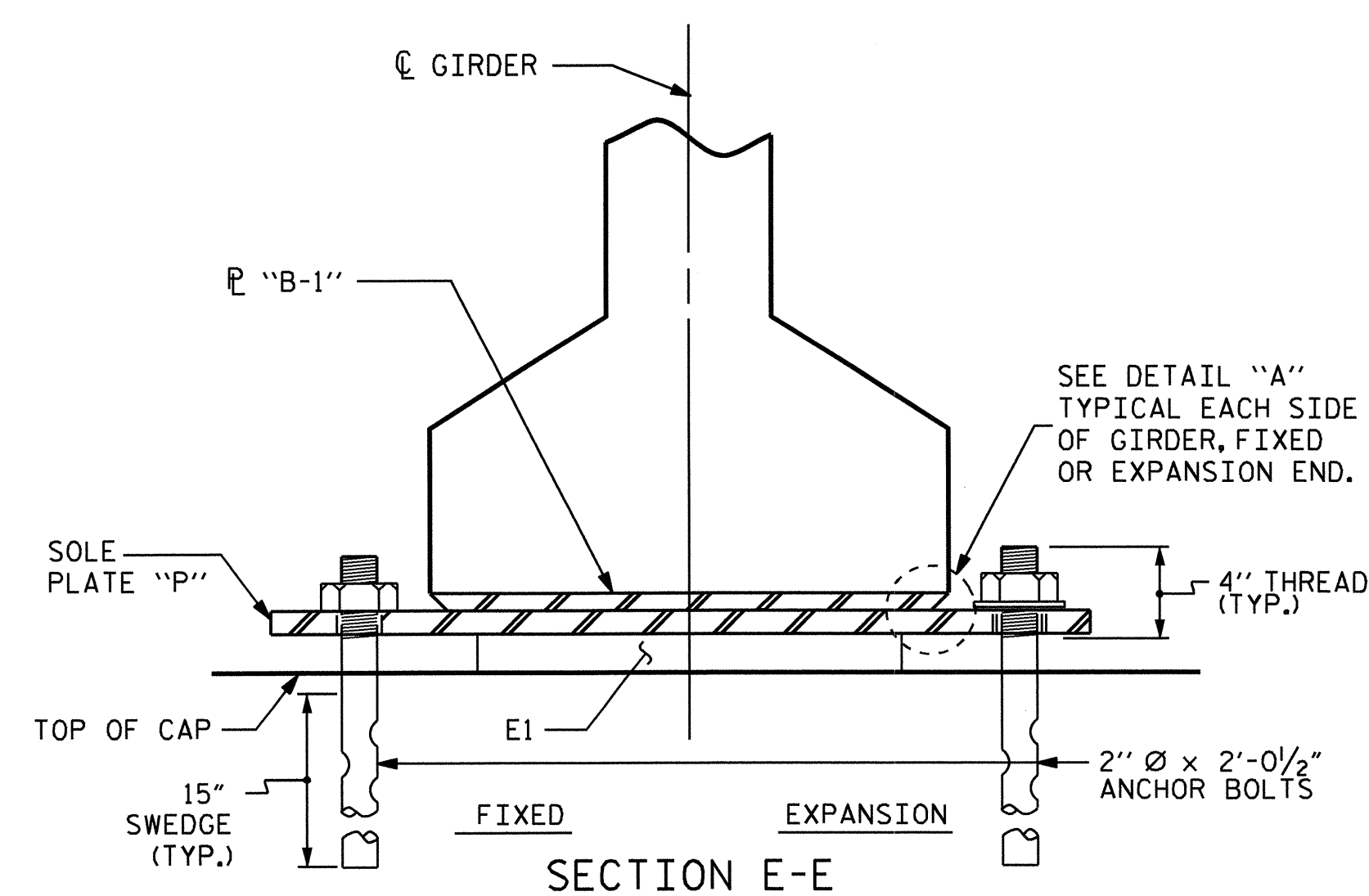
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

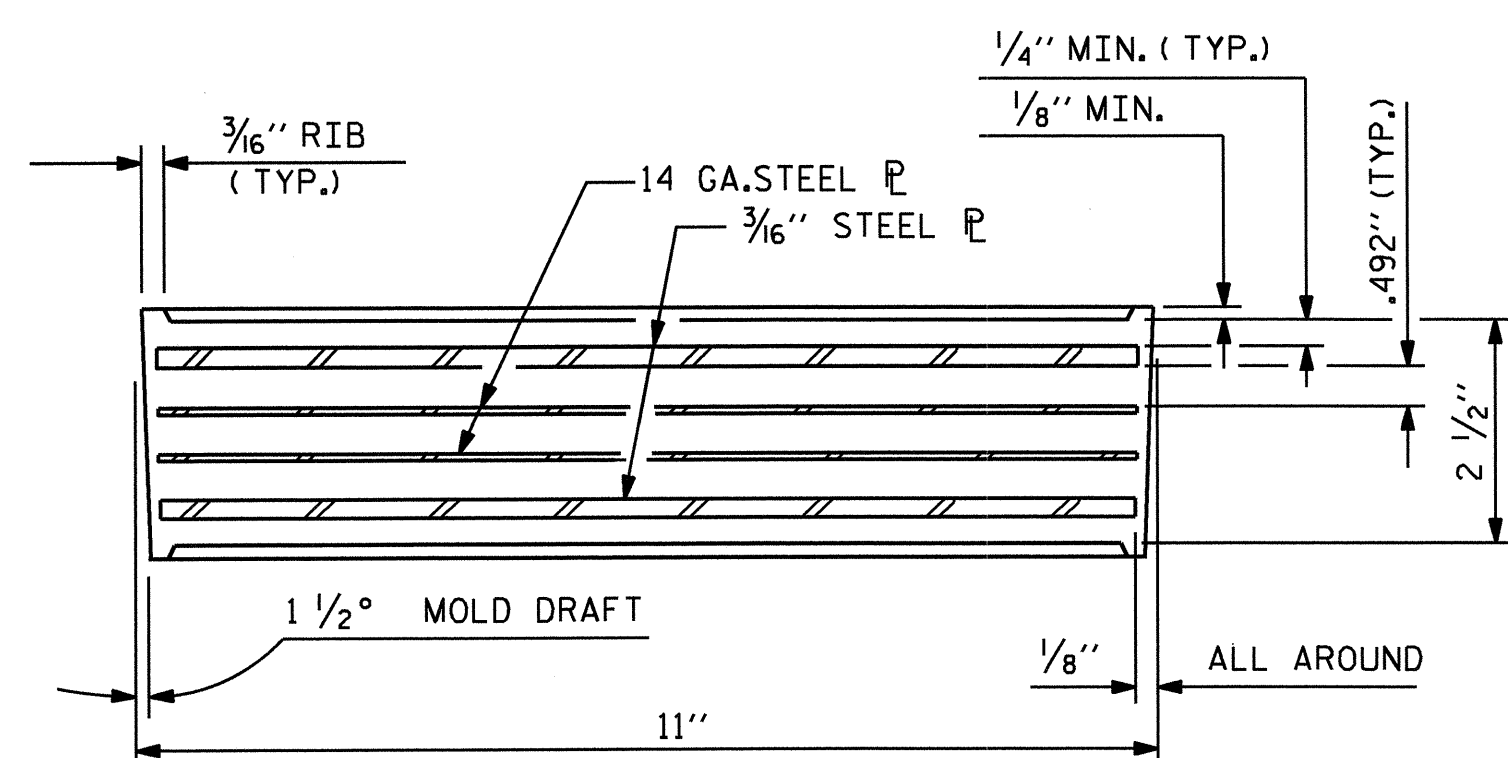
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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

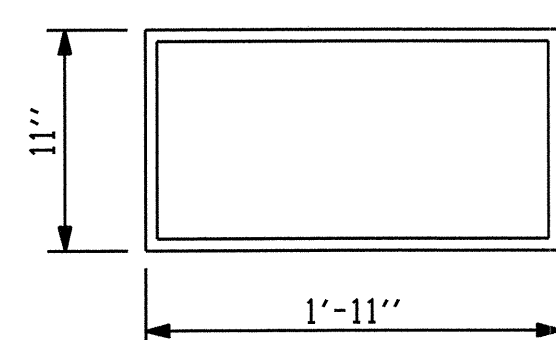
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



TYPICAL PLAN @ BENT



TYPICAL SECTION OF ELASTOMERIC BEARINGS



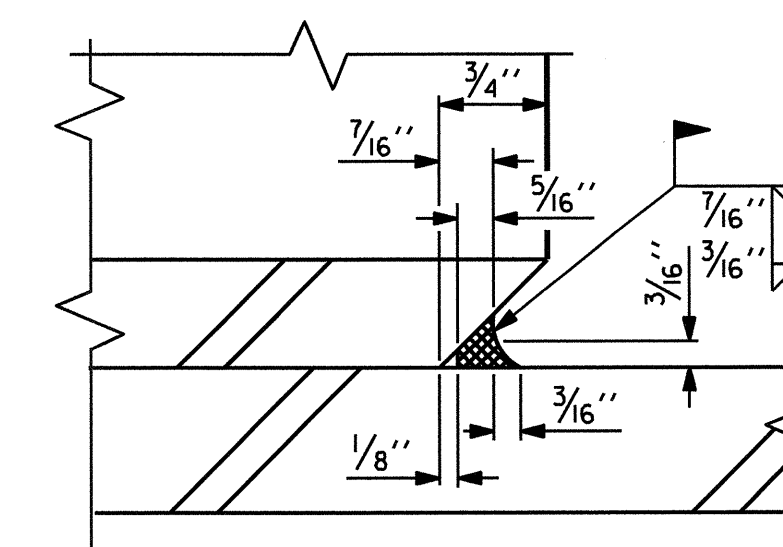
E1 (20 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

TYPE VI

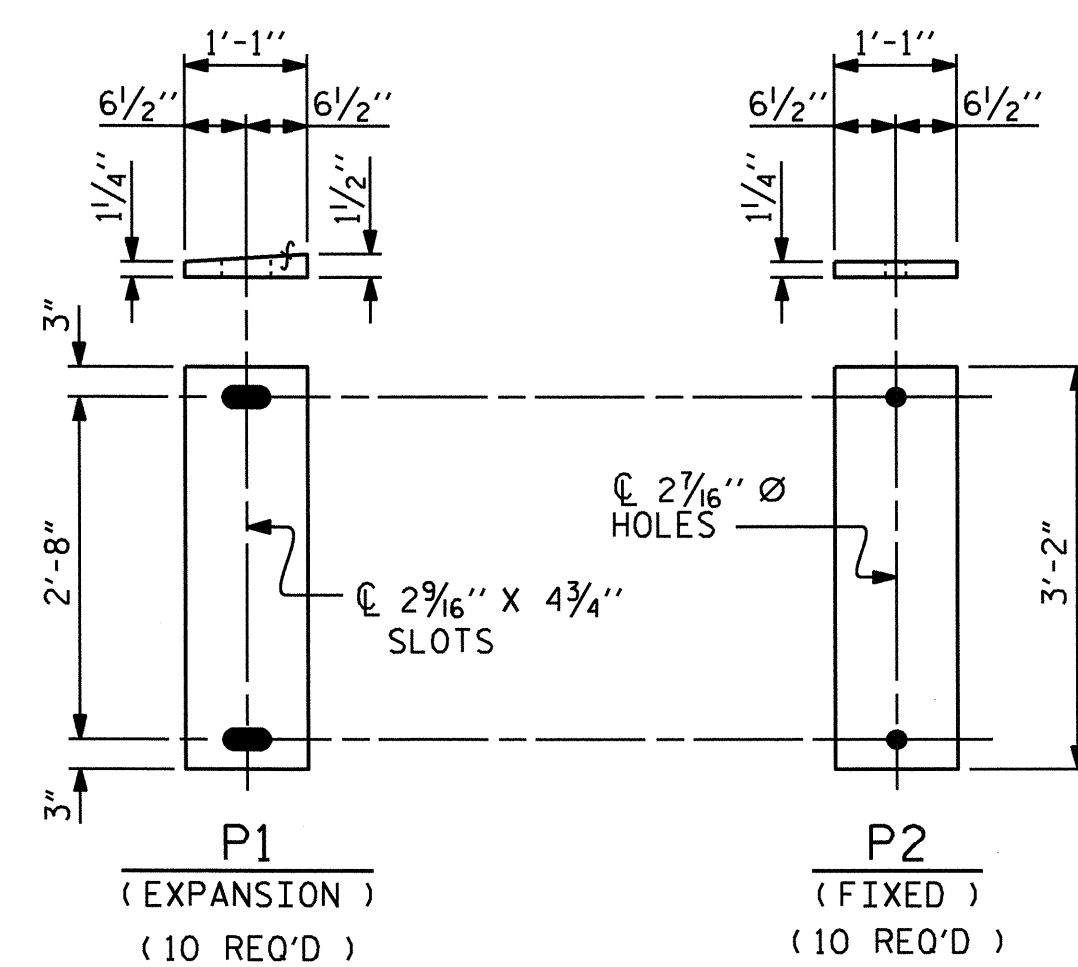
UP-STATION →



SOLE P PLACEMENT DETAIL



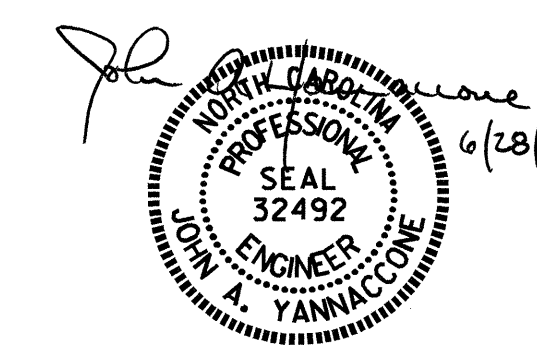
DETAIL "A"



SOLE PLATE DETAILS ("P")

— LOAD RATINGS —	
	MAX.D.L.+ L.L.
TYPE VI	263 K

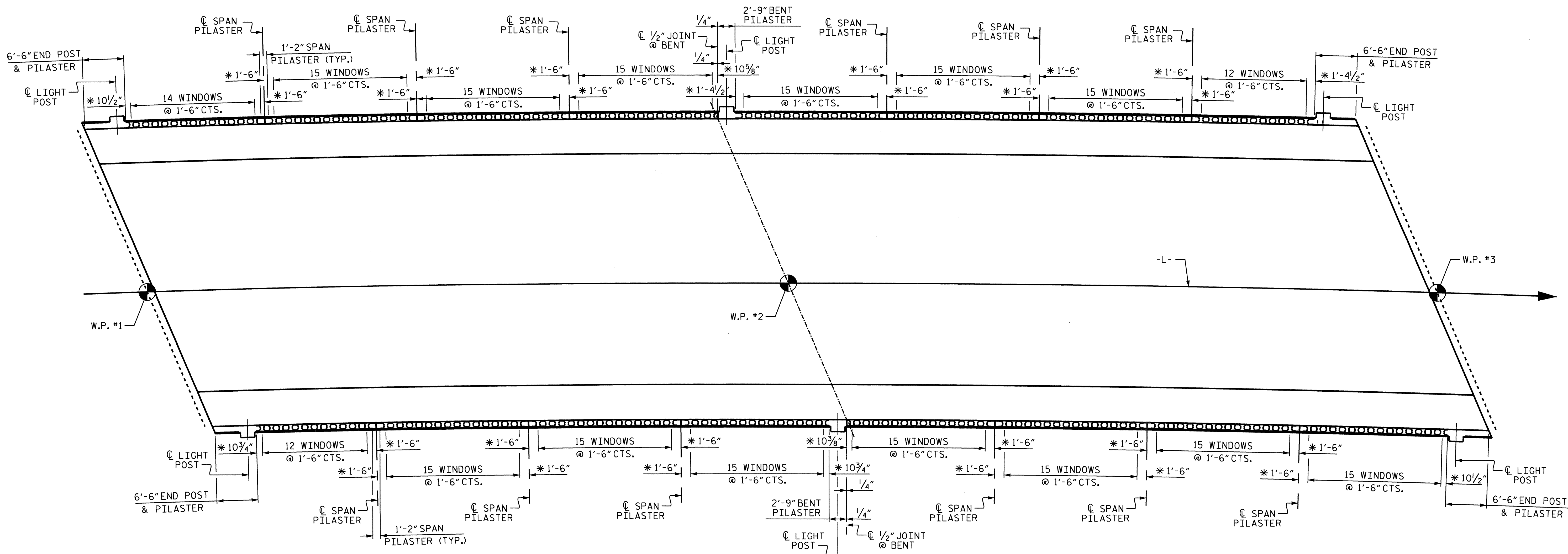
PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-



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

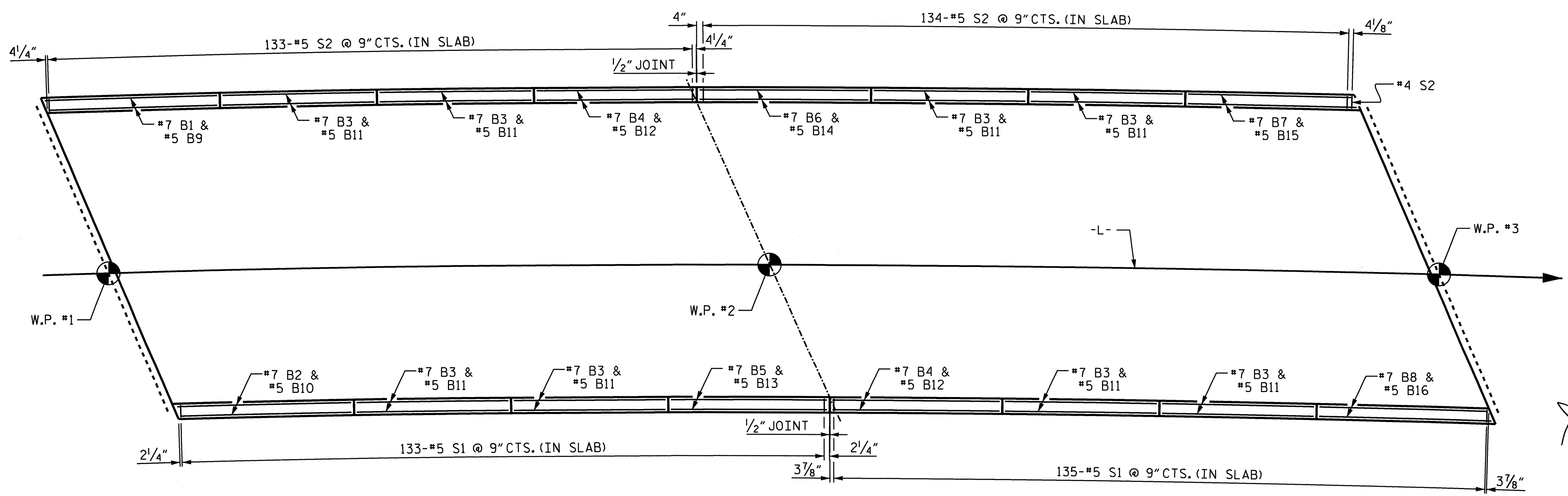
ASSEMBLED BY : S. DOMBROWSKI	DATE : 3/30/10
CHECKED BY : O.T. NGUYEN	DATE : 06/10
DRAWN BY : EEM 2/97	REV. 8/16/99 RWW/LES
CHECKED BY : VAP 2/97	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			34



PLAN OF RAIL LAYOUT

*DISTANCE TO C FIRST WINDOW IN SECTION.
LIGHT POSTS BY OTHERS.



PLAN OF REINFORCING

S1 AND S2 BARS MAY BE SHIFTED TO PROVIDE
MINIMUM 2\"/>

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 1 OF 3

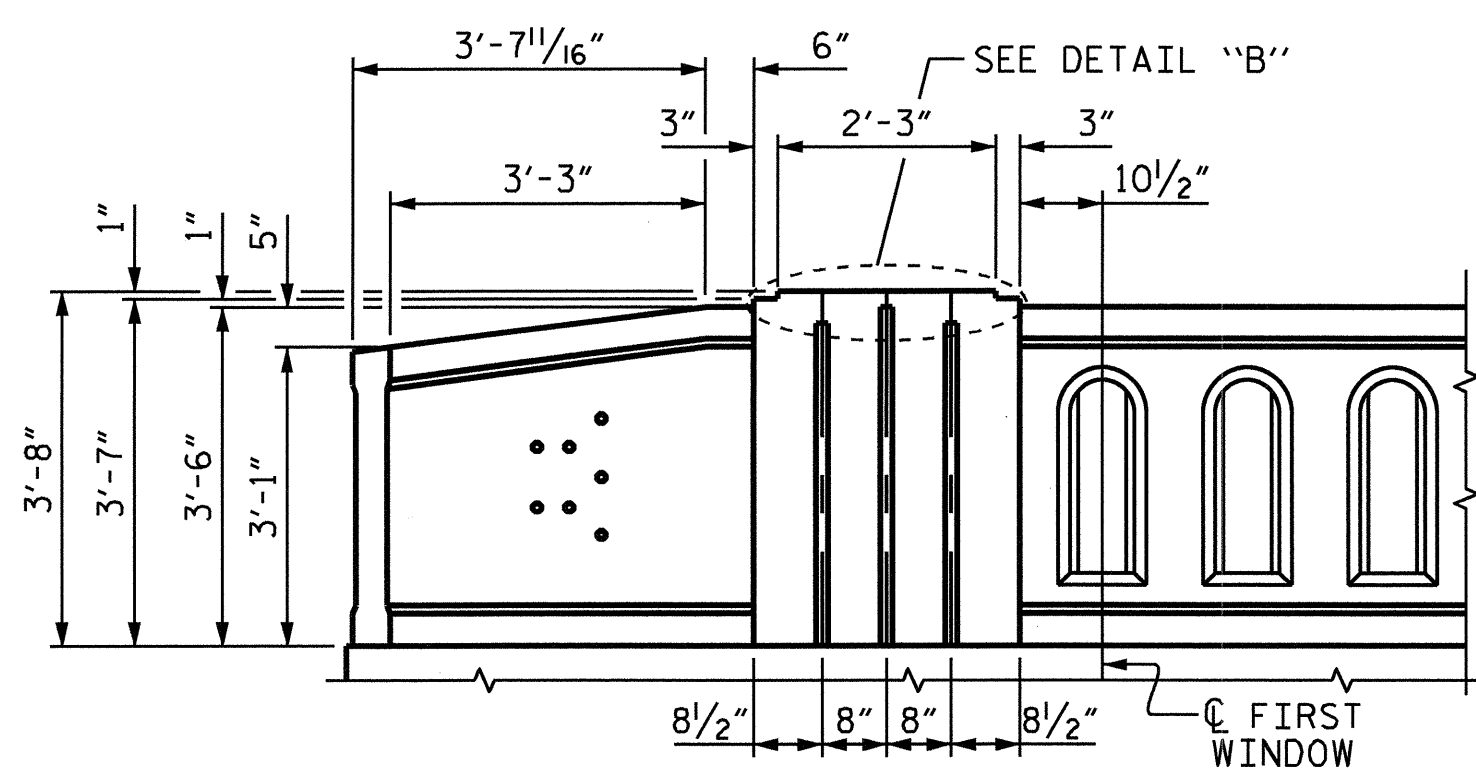
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK



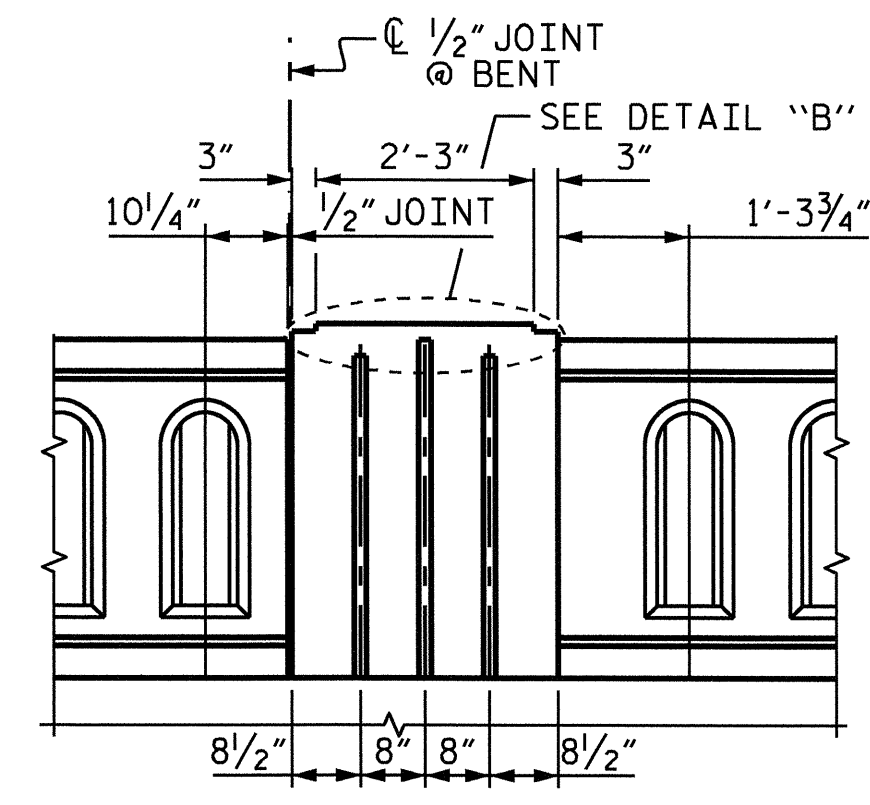
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			34

DRAWN BY : S. DOMBROWSKI DATE : 2/18/10
 CHECKED BY : O.T. NGUYEN DATE : 06/10

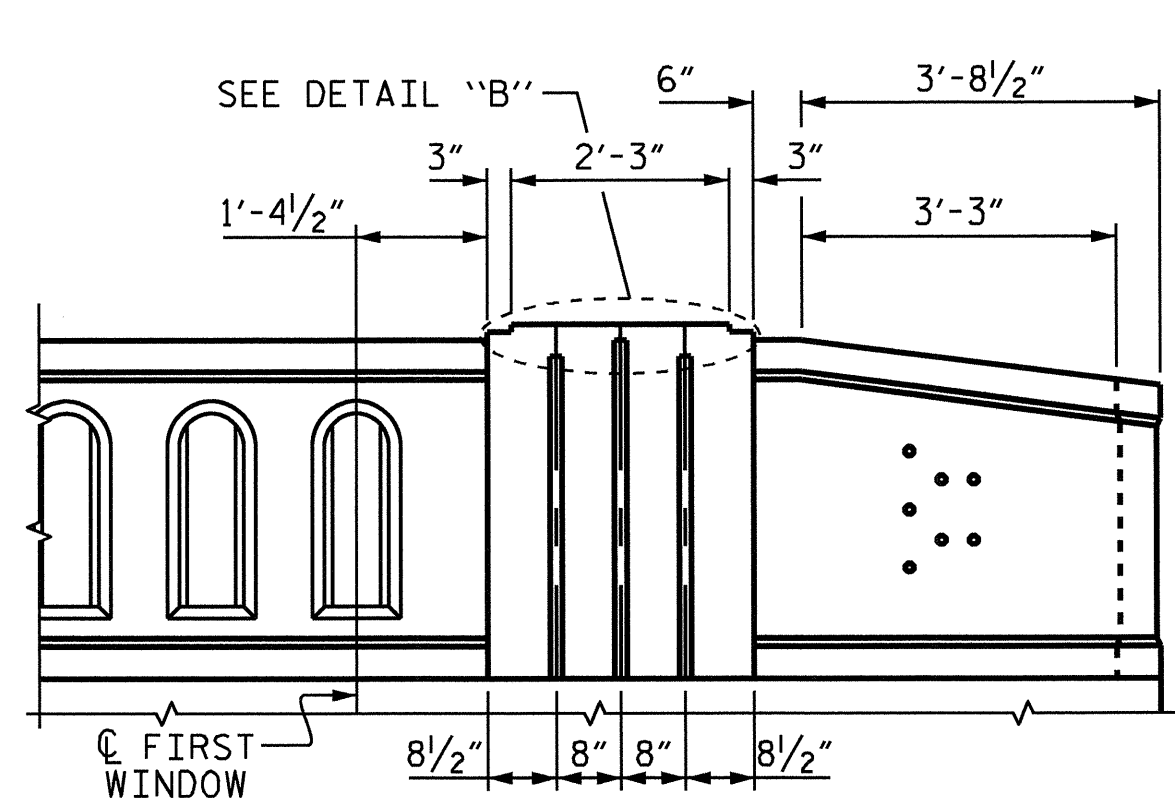
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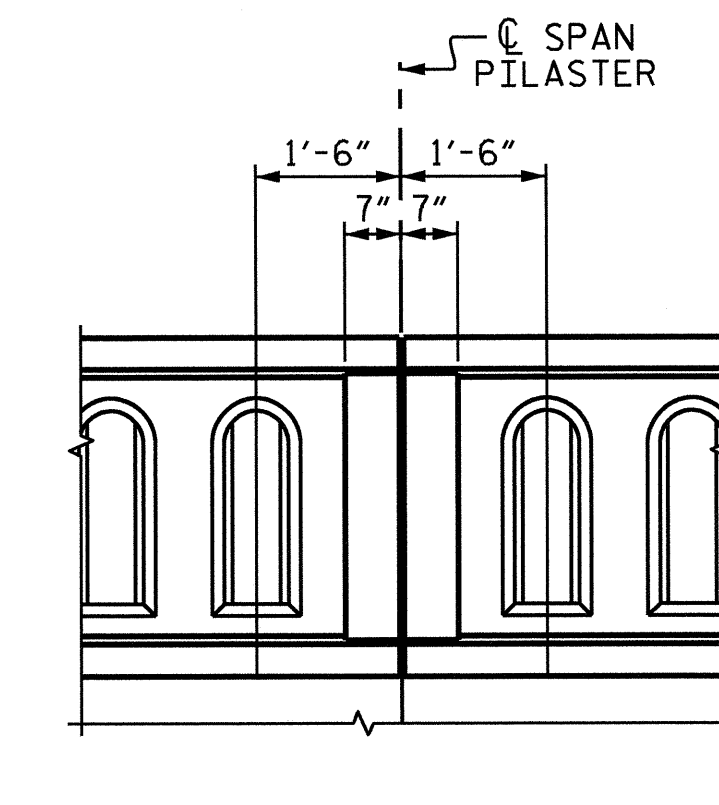
LEFT INTERIOR ELEVATION



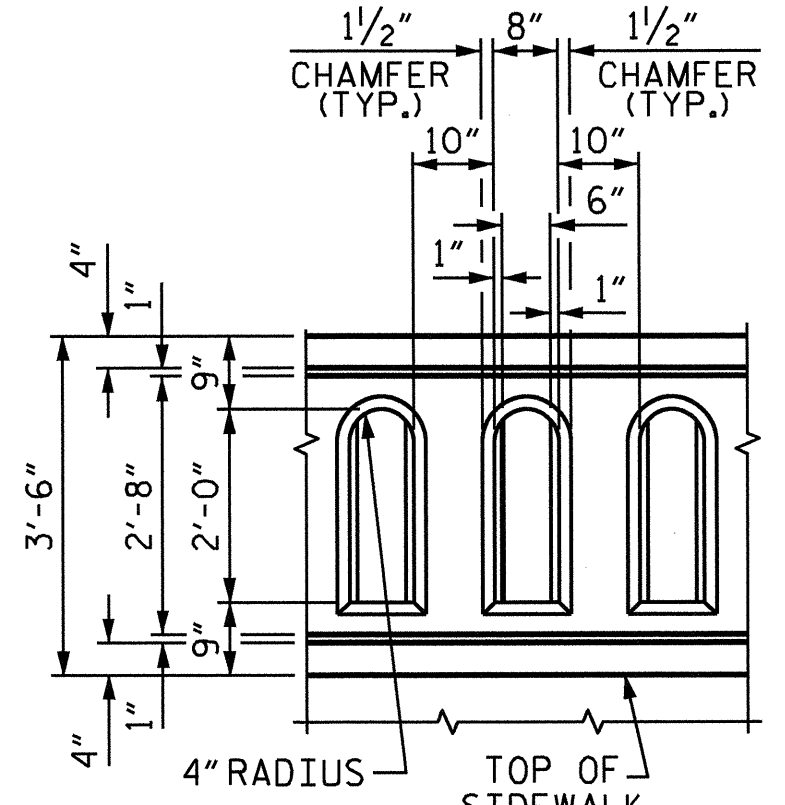
LEFT INTERIOR ELEVATION



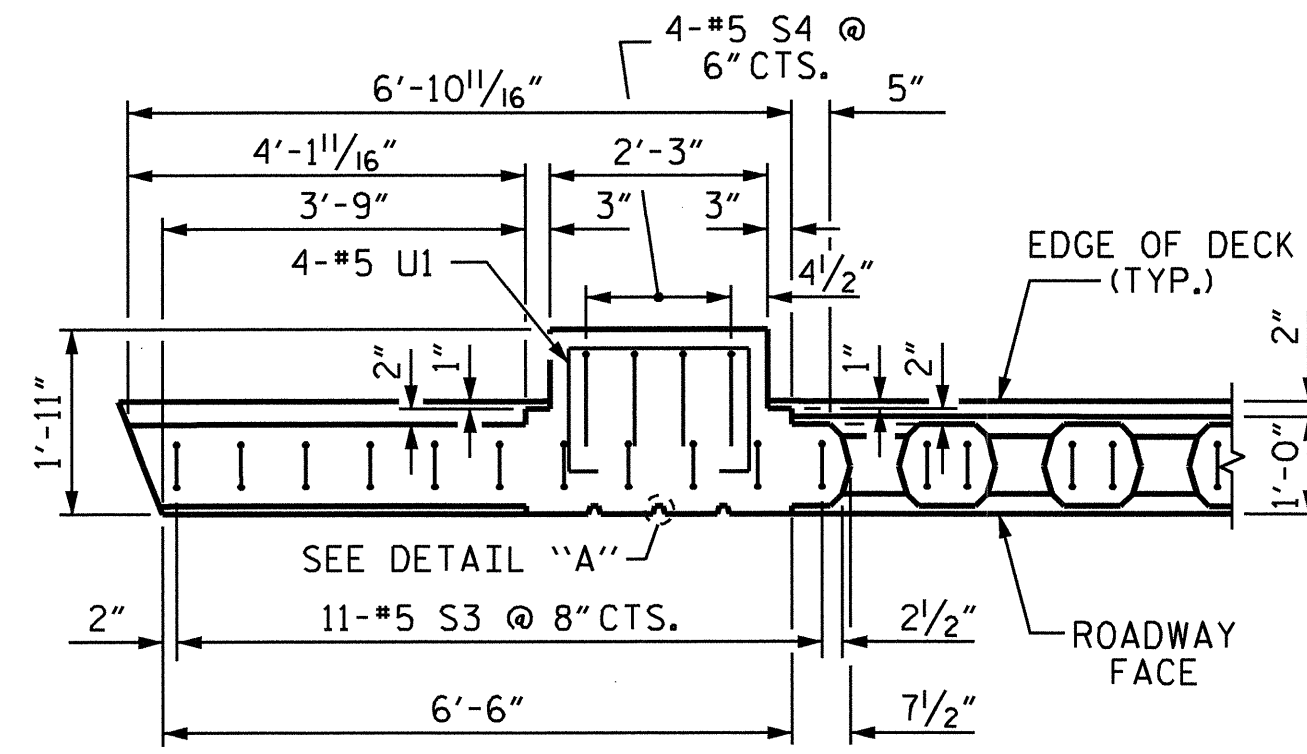
LEFT INTERIOR ELEVATION



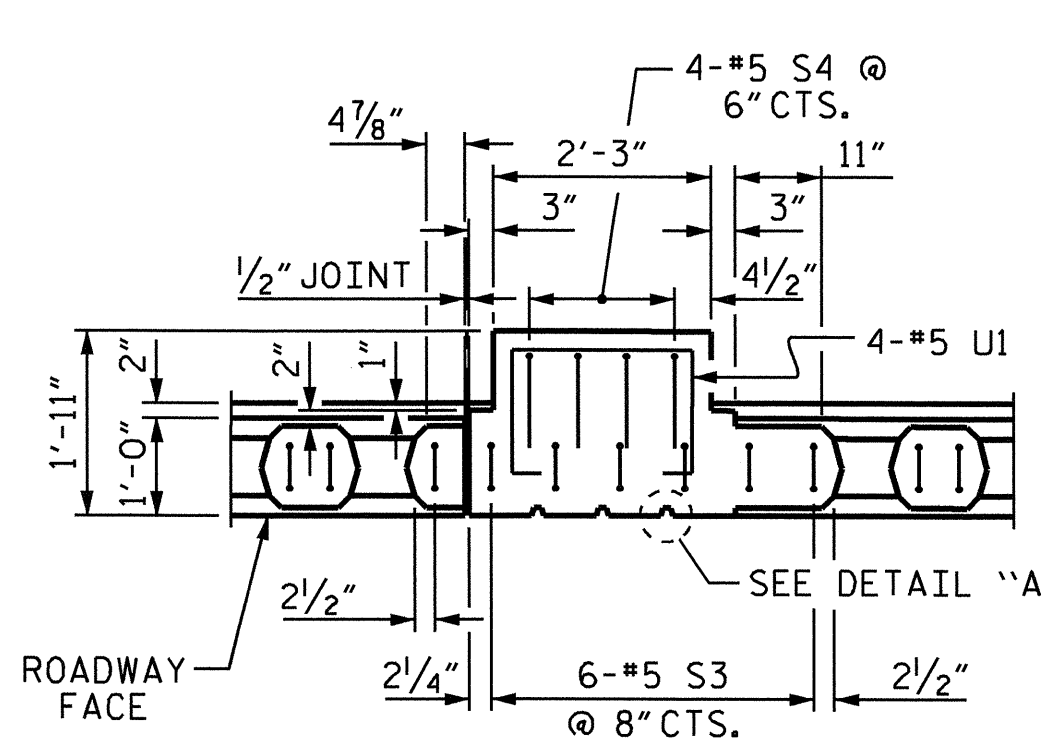
ELEVATION



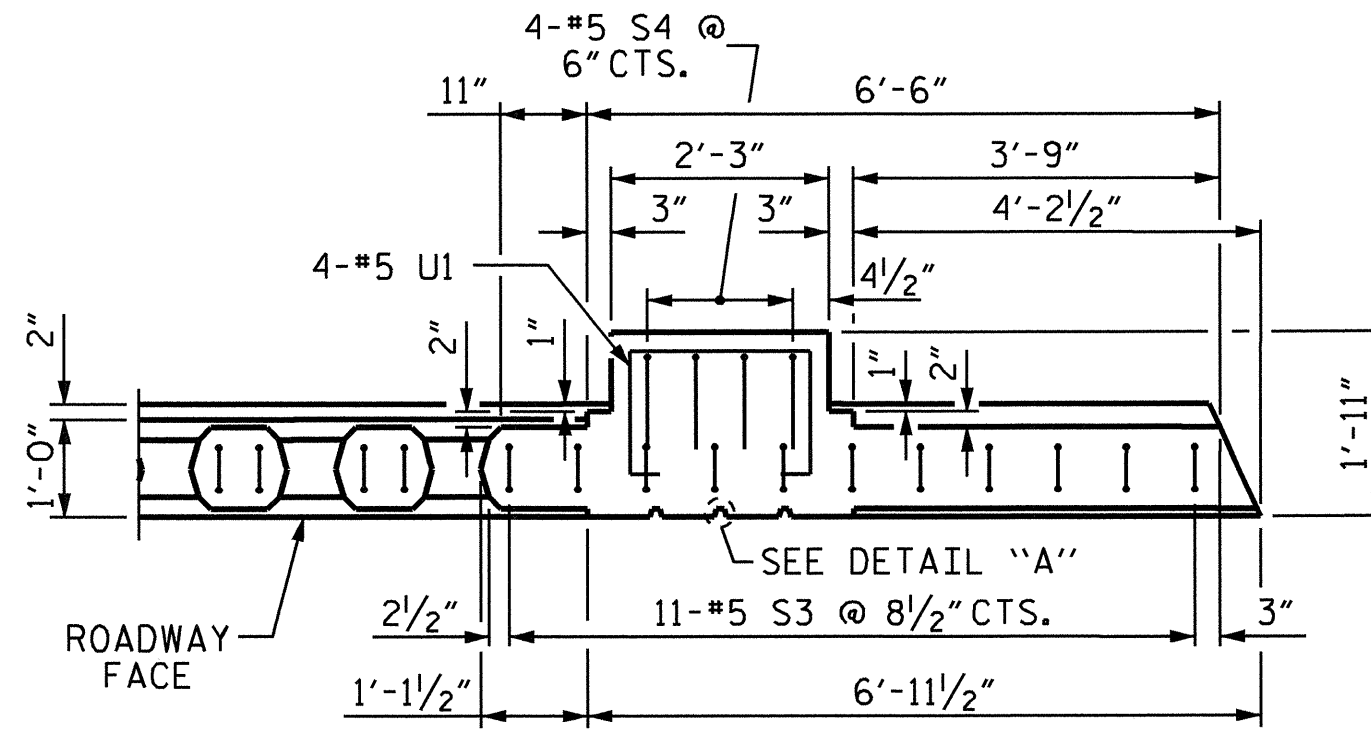
ELEVATION



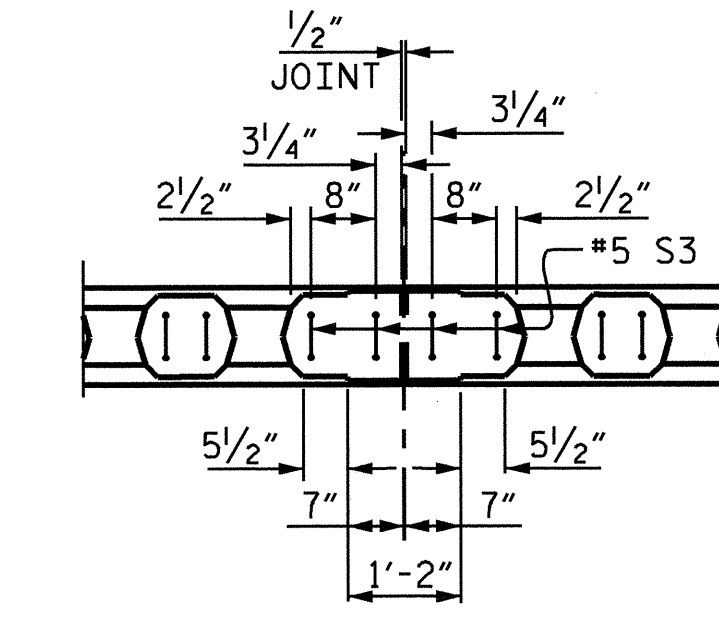
LEFT SIDE PLAN



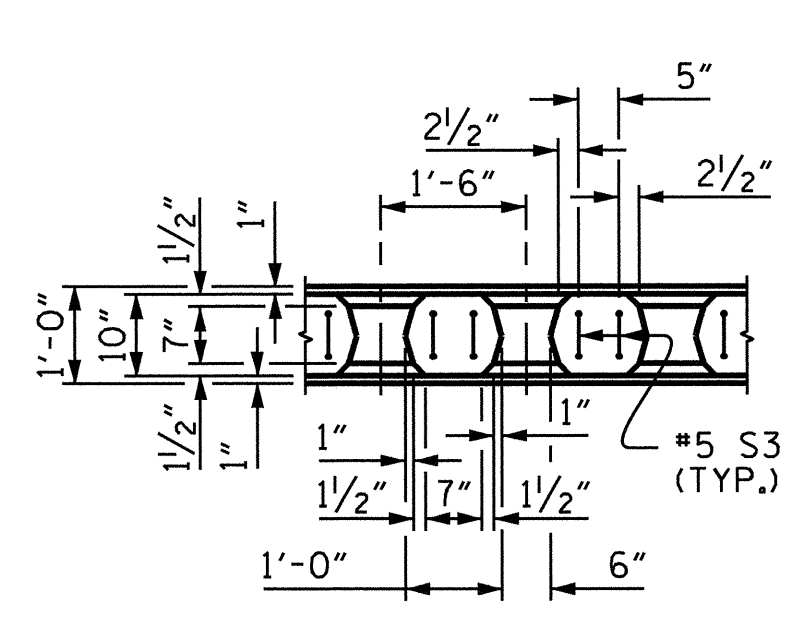
LEFT SIDE PLAN



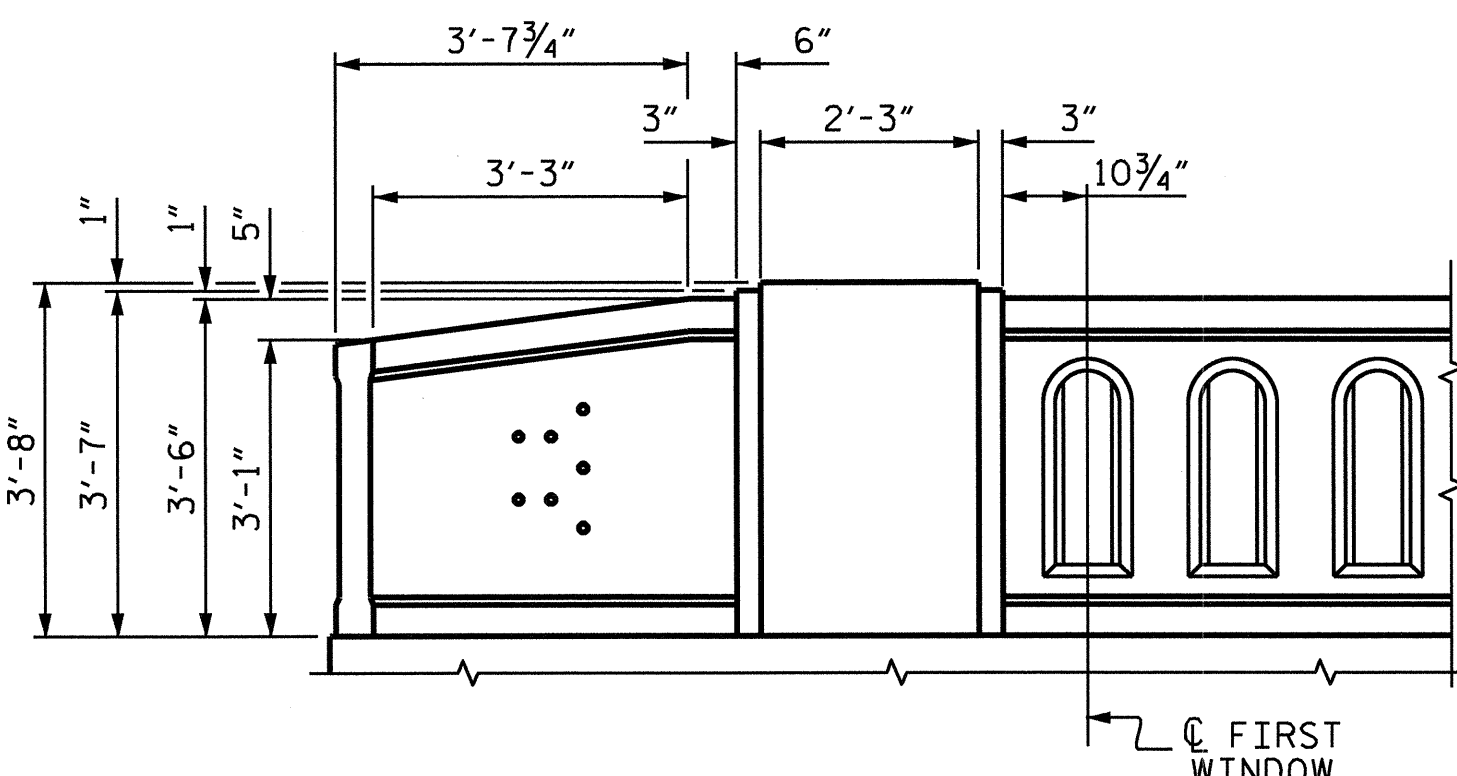
LEFT SIDE PLAN



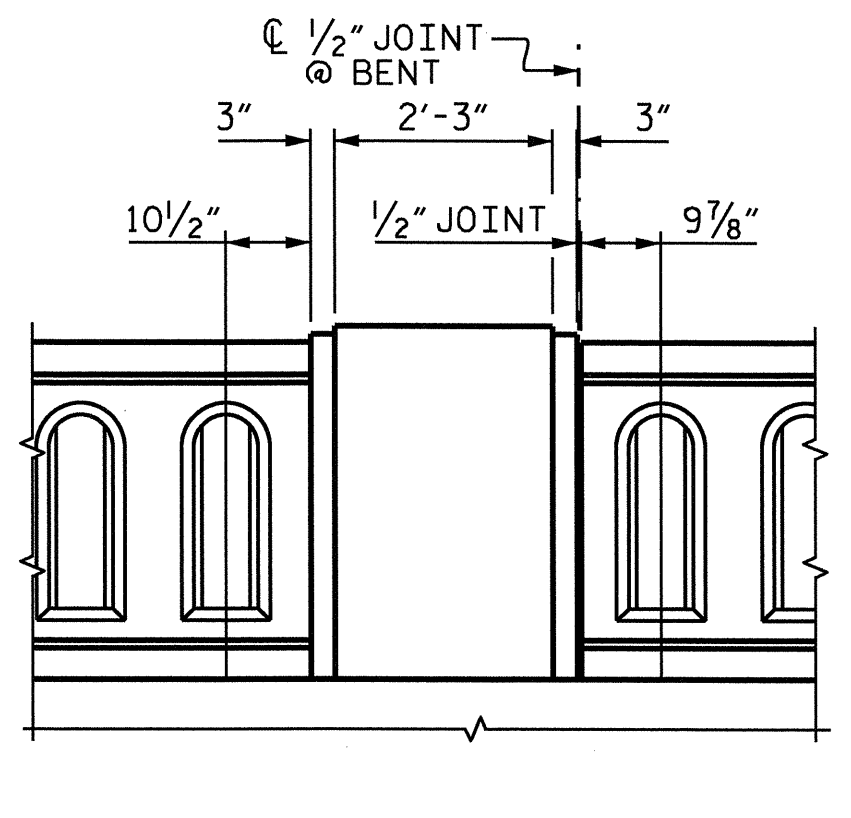
PLAN



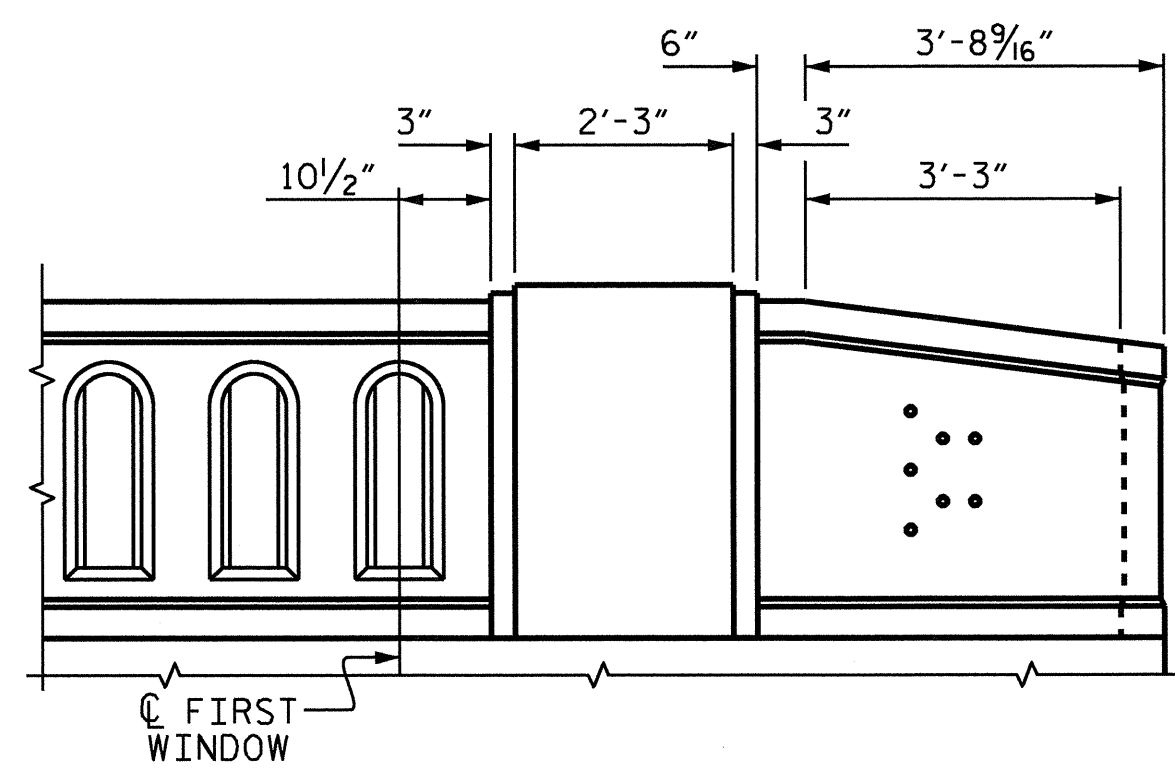
PLAN



RIGHT EXTERIOR ELEVATION



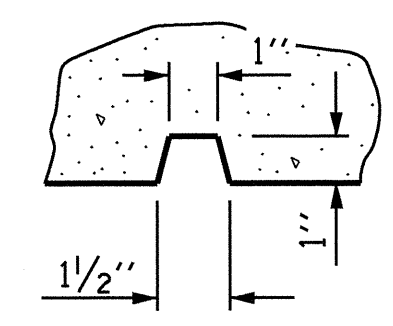
RIGHT EXTERIOR ELEVATION



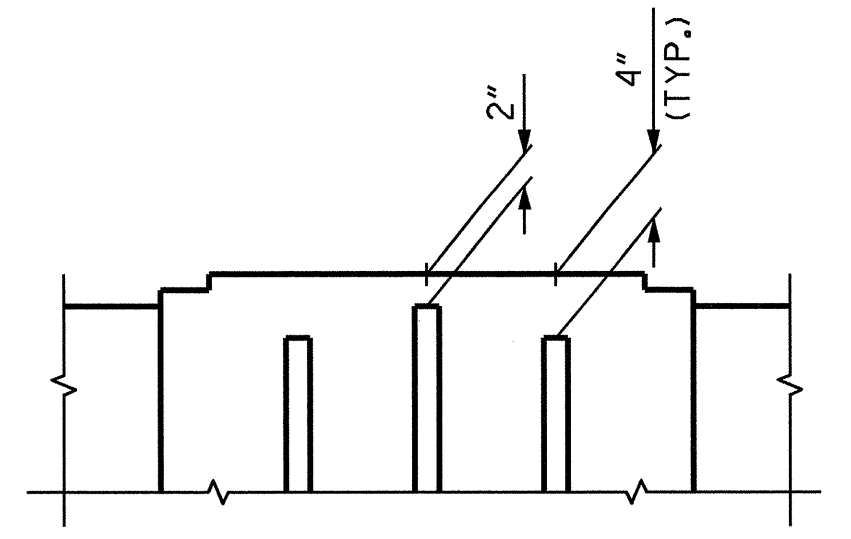
RIGHT EXTERIOR ELEVATION

SPAN PILASTER

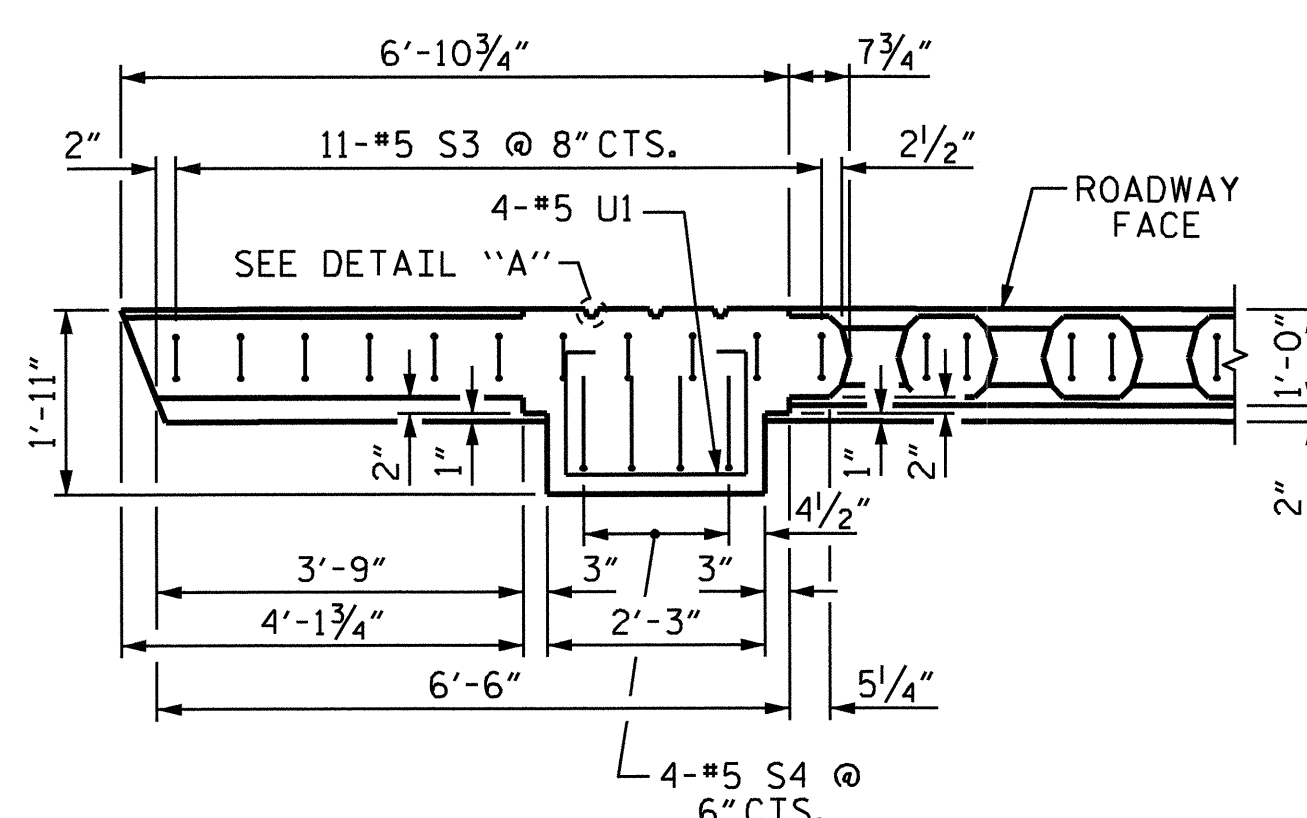
WINDOW DETAIL



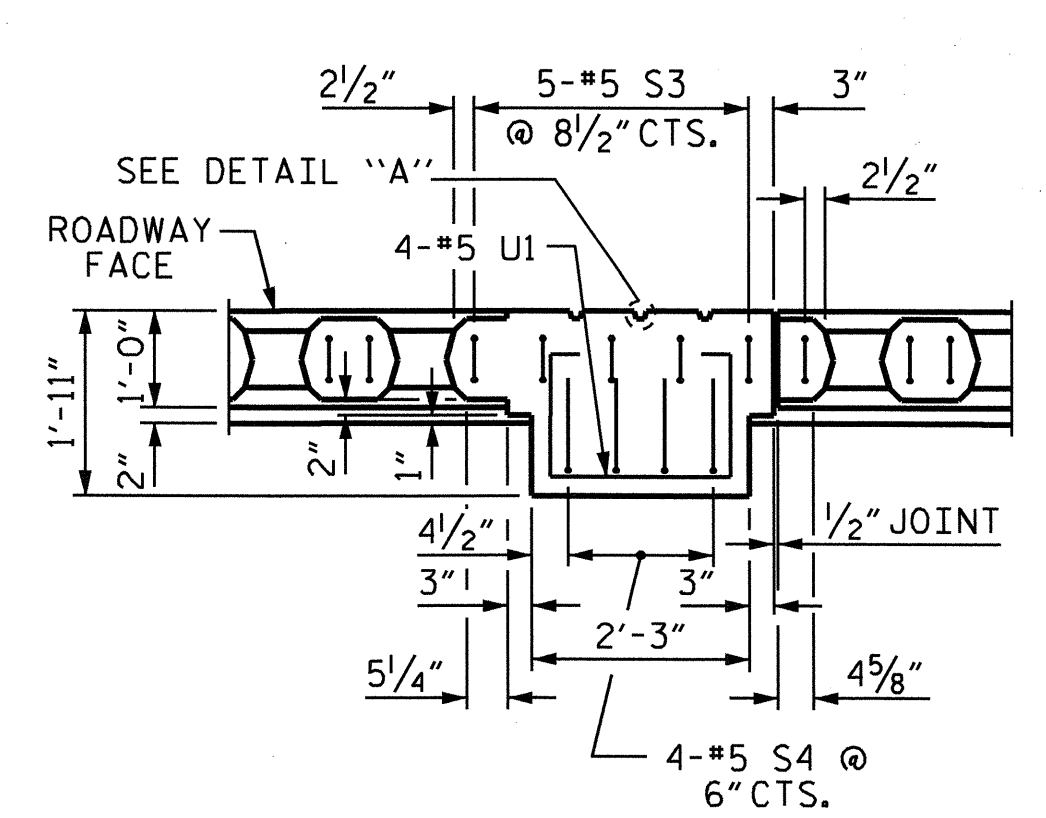
DETAIL "A"



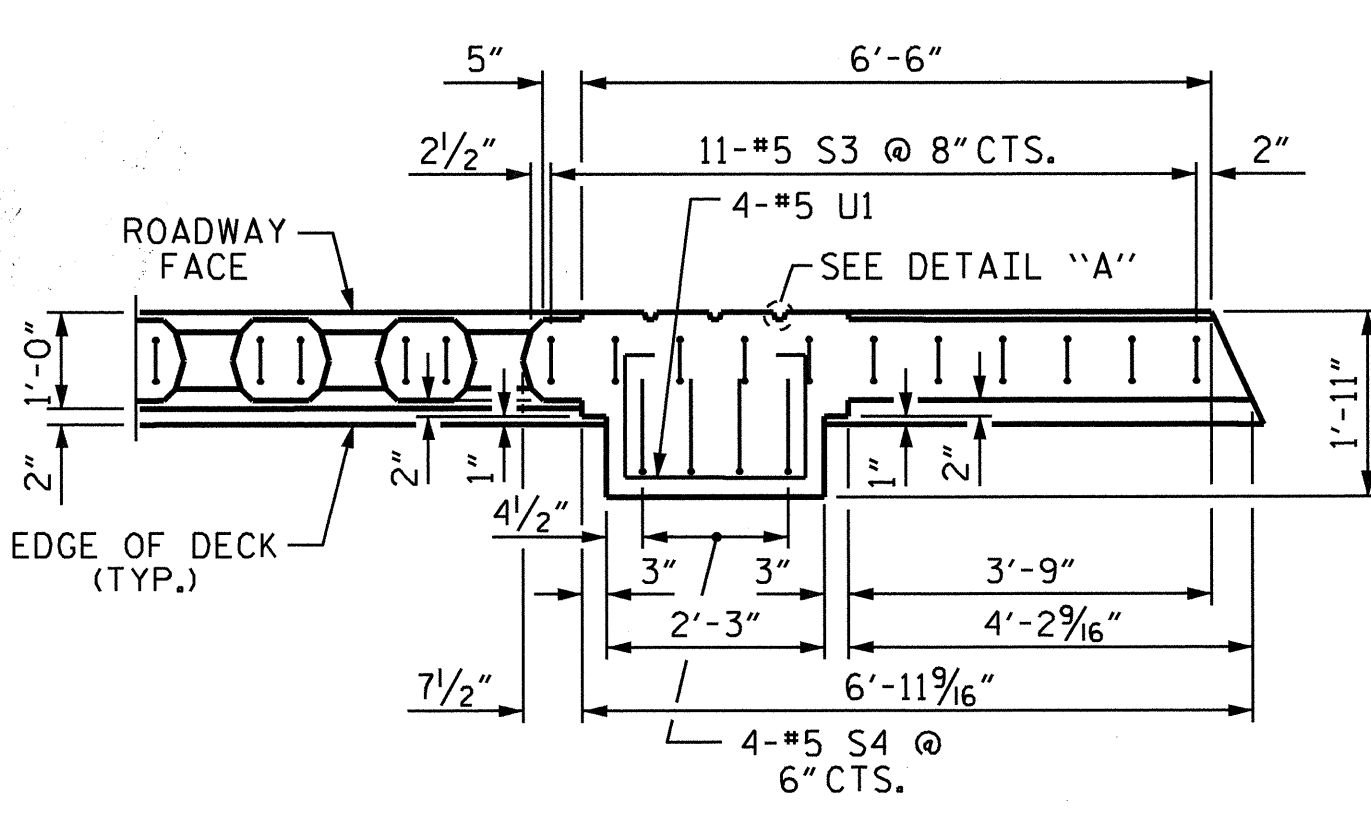
DETAIL "B"



RIGHT SIDE PLAN



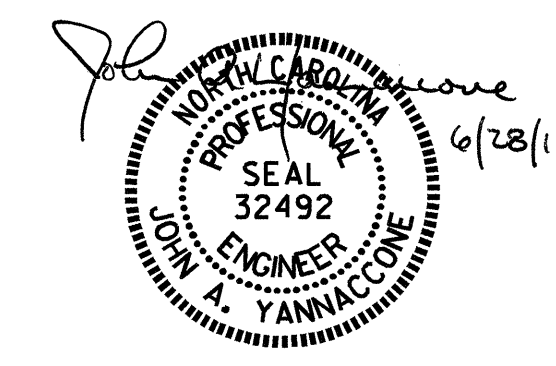
RIGHT SIDE PLAN



RIGHT SIDE PLAN

FOR LIGHT POST FOUNDATION, SEE SHEET 3 OF 3.

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-
 SHEET 2 OF 3

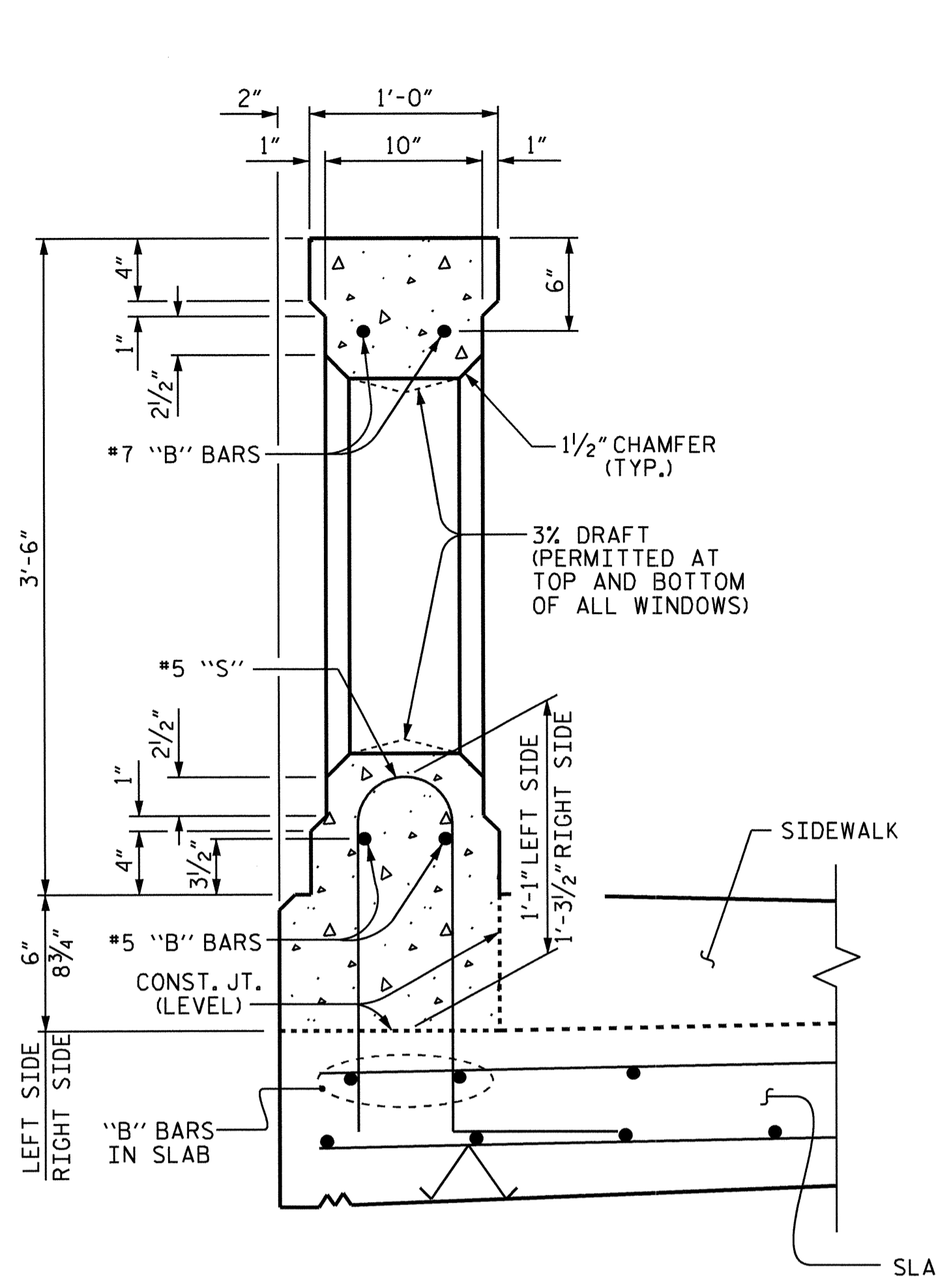


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

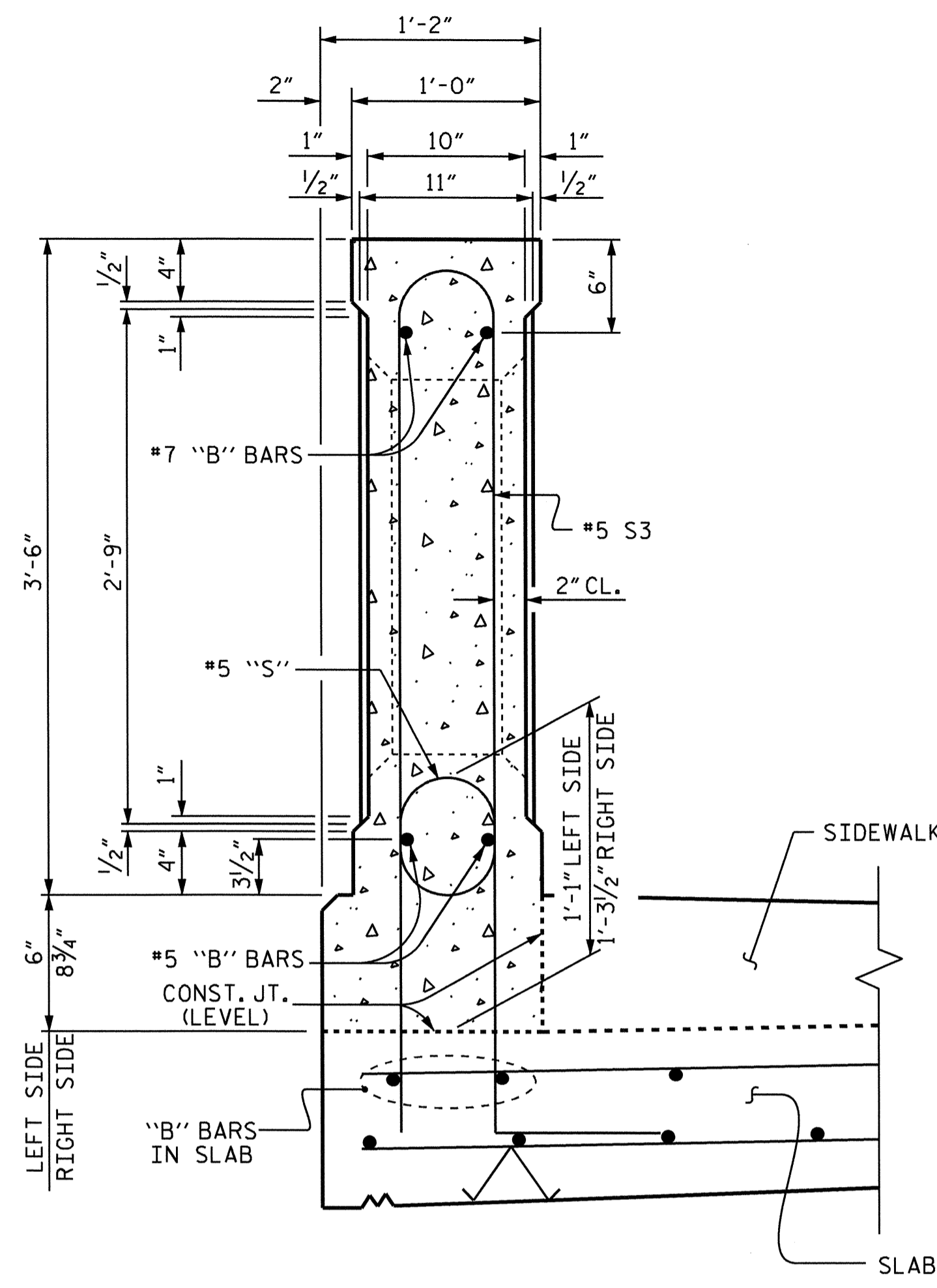
DRAWN BY: S. DOMBROWSKI DATE: 2/18/10
 CHECKED BY: Q.T. NGUYEN DATE: 06/10

28-JUN-2011 09:09
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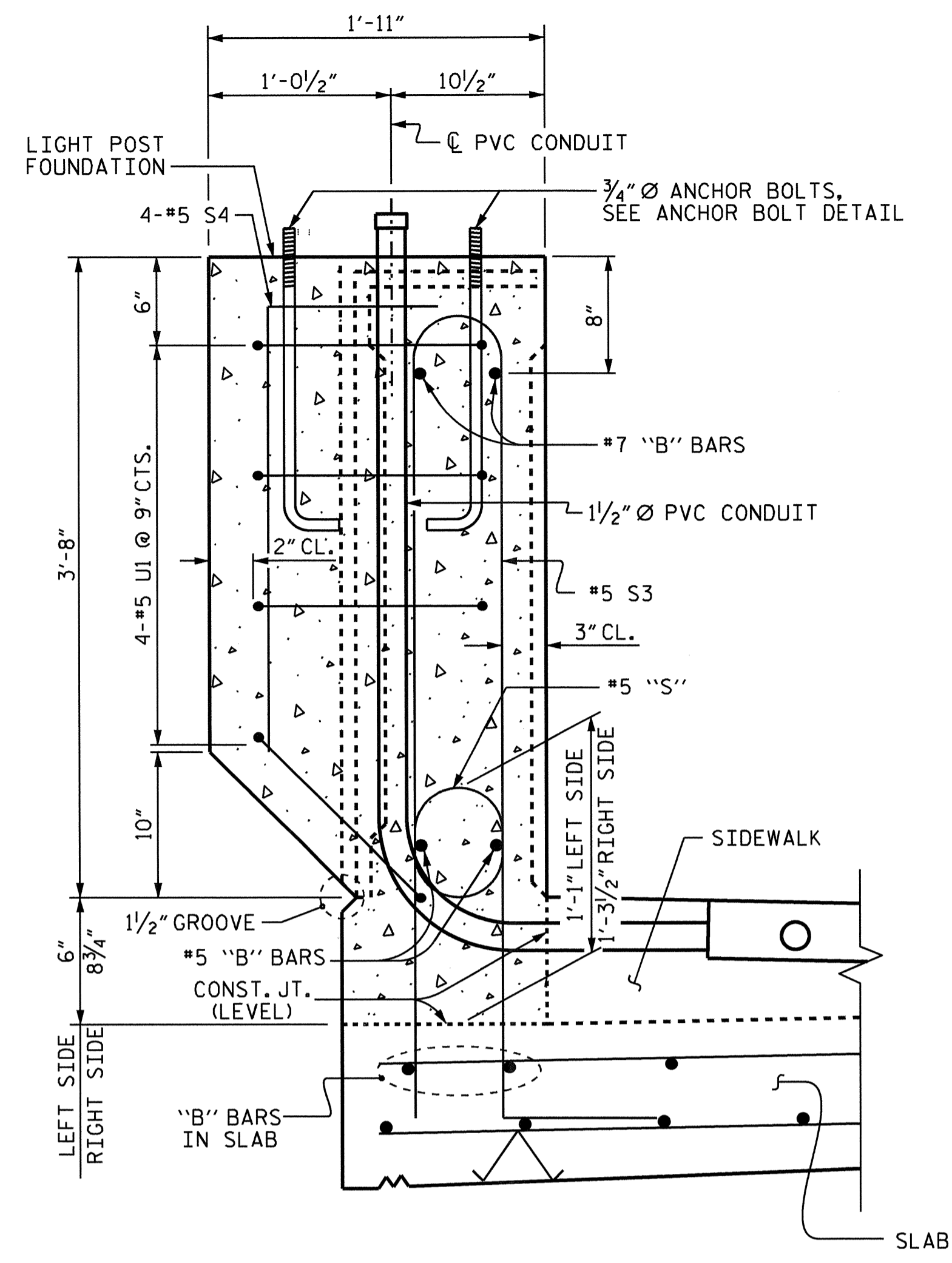
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	34
2			4				



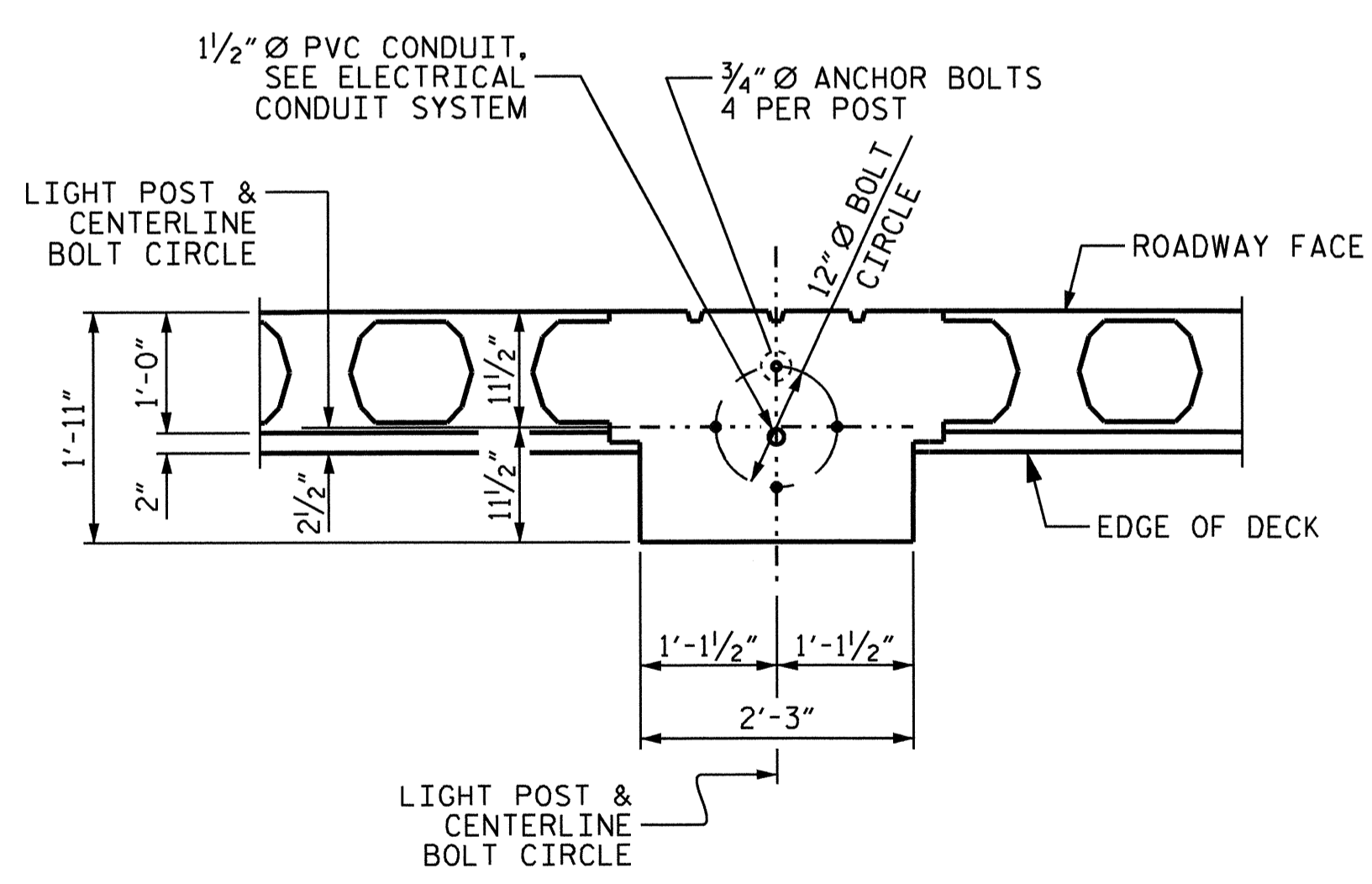
SECTION THRU RAIL WINDOW



SECTION THRU SPAN PILASTER



SECTION THRU BENT & END BENT PILASTER



LIGHT POST FOUNDATION

REINFORCING STEEL NOT SHOWN FOR CLARITY. BENT PILASTER SHOWN. END BENT PILASTER SIMILAR. LIGHT POSTS BY OTHERS.

NOTES

ALL PARTS OF THE CLASSIC BRIDGE RAILING INCLUDING BUT NOT LIMITED TO THE REINFORCING STEEL, CLASS AA CONCRETE, ANCHOR BOLTS AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT FOR "CLASSIC CONCRETE BRIDGE RAIL". NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THESE ITEMS.

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 MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

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

PROVIDE A CLASS I SURFACE FINISH FOR ALL EXPOSED SURFACES.

FOR CLASSIC CONCRETE BRIDGE RAIL, SEE SPECIAL PROVISIONS.

FOR ELECTRICAL CONDUIT DETAILS, SEE ELECTRICAL CONDUIT SYSTEM SHEET.

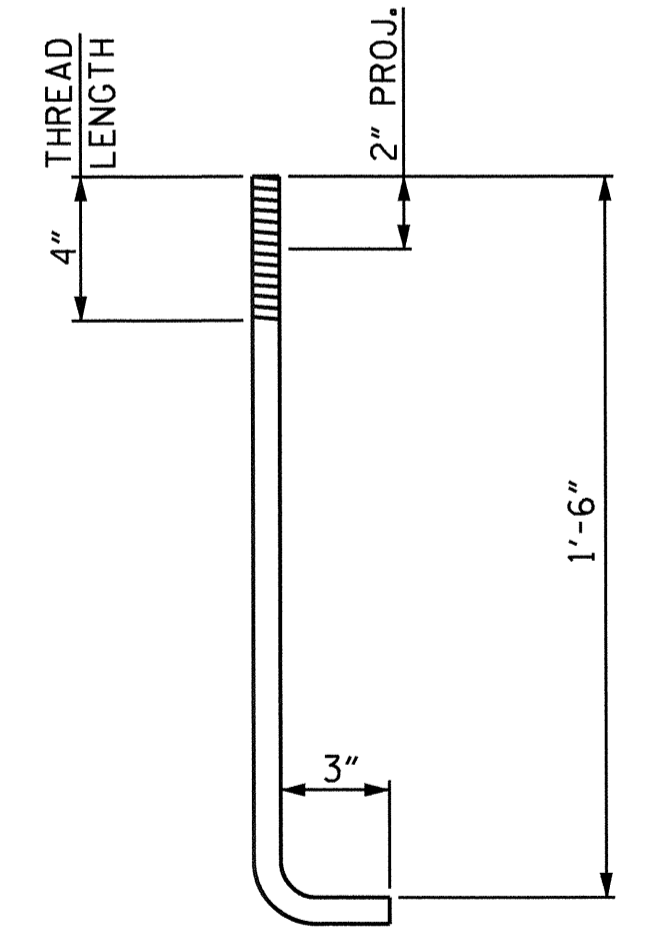
PROVIDE AND SET ANCHOR BOLTS FOR LIGHT POSTS AS SHOWN ON THE PLANS.

PROVIDING AND INSTALLING LIGHT POSTS IS BY OTHERS AND NOT PART OF THIS WORK. BEFORE ORDERING AND INSTALLING ANCHOR BOLTS, THE CONTRACTOR SHALL COORDINATE WITH THE TOWN OF KERNERSVILLE FOR CONSISTENCY OR CHANGES TO THE TOWN'S PREFERRED LIGHT POST. THESE PLANS ARE PREPARED USING A HOLOPHANE NORTH YORKSHIRE LAMP POST WITH A 17" BASE DIAMETER AND A 12" DIAMETER BOLT CIRCLE.

ANCHOR BOLTS SHALL CONFORM TO AASHTO M314 OR ASTM F1554 GRADE 55. NUTS AND WASHERS SHALL CONFORM TO AASHTO M314-90 OR ASTM F1554. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. SHOP DRAWINGS ARE REQUIRED. SHOP INSPECTION IS NOT REQUIRED.

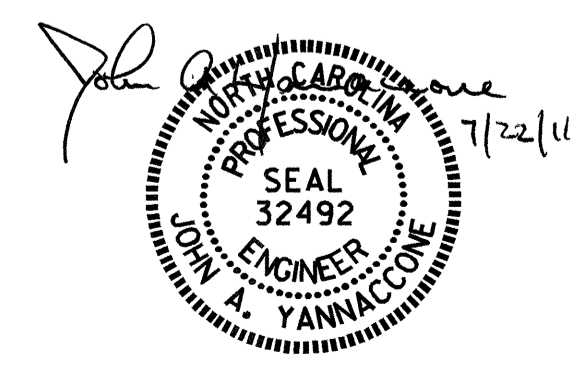
PLACE ANCHOR BOLTS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEFORE CASTING CONCRETE, TURN NUT TO BOTTOM OF THREADS AND PLACE WASHER ON TOP OF NUT. SECURE WASHER WITH TACK WELD BETWEEN WASHER AND NUT. EMBED NUT AND WASHER IN CONCRETE.

THE COST OF THE ANCHOR BOLTS, NUTS AND WASHERS, INSTALLED IN THE CONCRETE RAIL SHALL BE INCLUDED IN THE PAY ITEM FOR "CLASSIC CONCRETE BRIDGE RAIL".

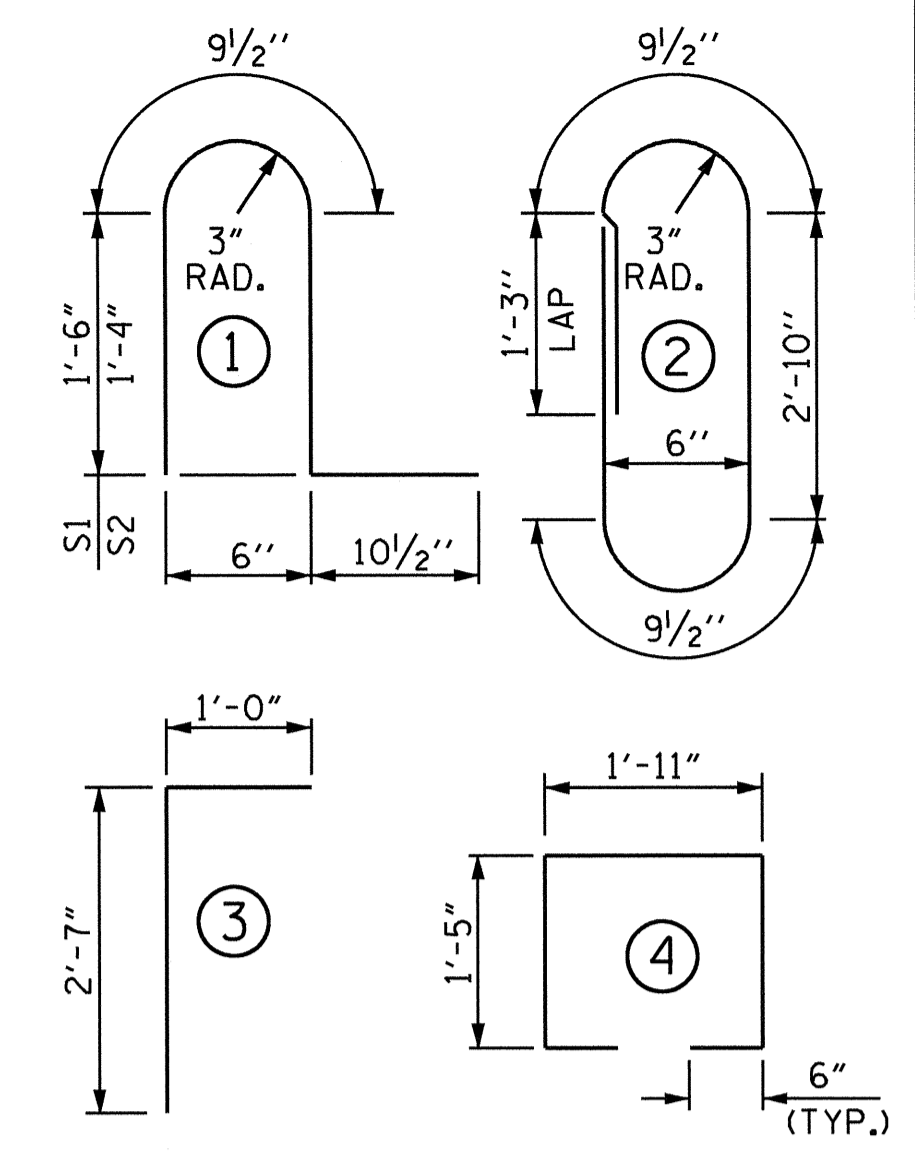


ANCHOR BOLT DETAIL

4 ANCHOR BOLTS, NUTS & WASHERS PER LIGHT POST



BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CLASSIC CONCRETE BRIDGE RAIL ONLY

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	2	#7	STR	28'-0"	114
*B2	2	#7	STR	25'-0"	102
*B3	16	#7	STR	23'-7"	771
*B4	4	#7	STR	23'-0"	188
*B5	2	#7	STR	25'-9"	105
*B6	2	#7	STR	26'-2"	107
*B7	2	#7	STR	25'-5"	104
*B8	2	#7	STR	29'-6"	121
*B9	2	#5	STR	28'-0"	58
*B10	2	#5	STR	25'-0"	52
*B11	16	#5	STR	23'-7"	394
*B12	4	#5	STR	23'-0"	96
*B13	2	#5	STR	25'-9"	54
*B14	2	#5	STR	26'-2"	55
*B15	2	#5	STR	25'-5"	53
*B16	2	#5	STR	29'-6"	62
*S1	268	#5	1	4'-8"	1304
*S2	267	#5	1	4'-4"	1207
*S3	539	#5	2	8'-6"	4779
*S4	24	#5	3	3'-7"	90
*U1	24	#5	4	6'-1"	152

* EPOXY COATED REINFORCING STEEL	9968 LBS.
CLASS AA CONCRETE	49.1 C.Y.
CLASSIC CONCRETE BRIDGE RAIL	401.93 LIN. FT.

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 3 OF 3

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 34
2			4			

DRAWN BY: S. DOMBROWSKI DATE: 3/31/10
 CHECKED BY: Q.T. NGUYEN DATE: 06/10

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

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

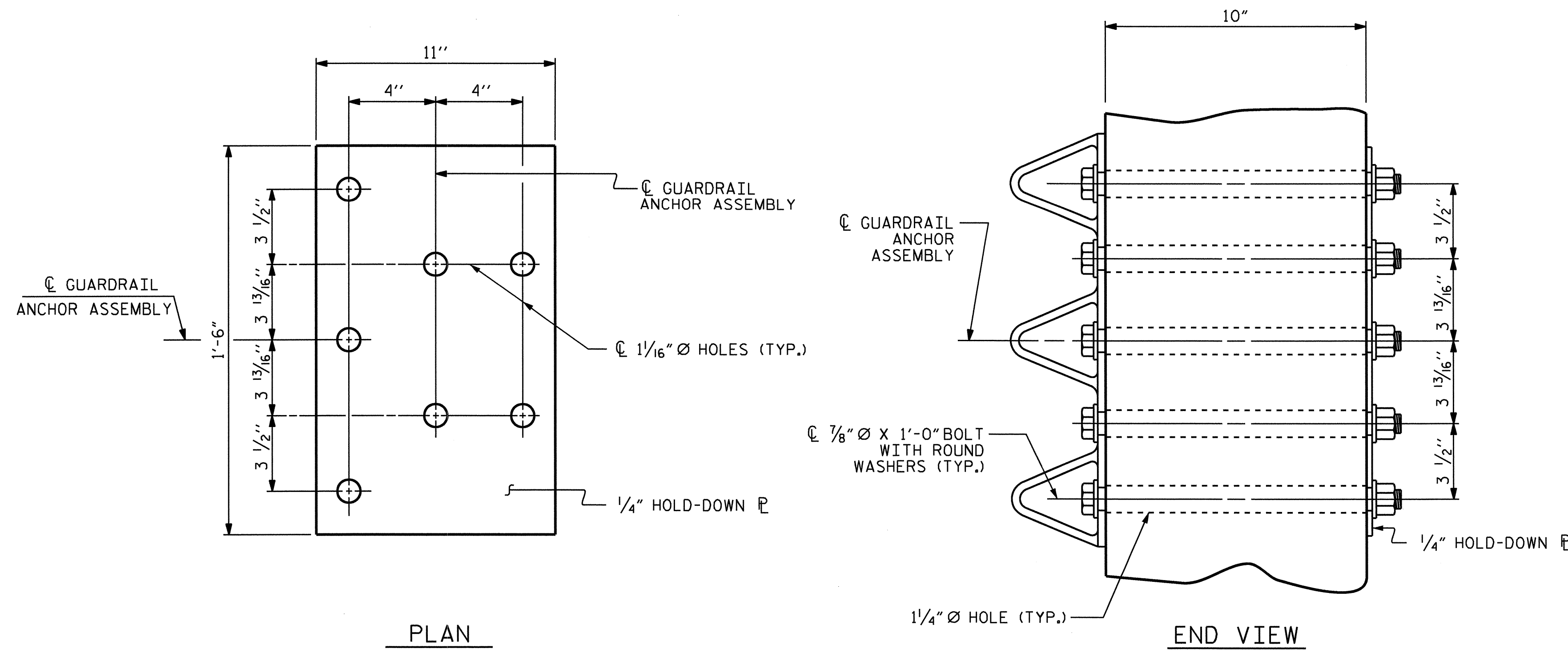
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A309. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

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

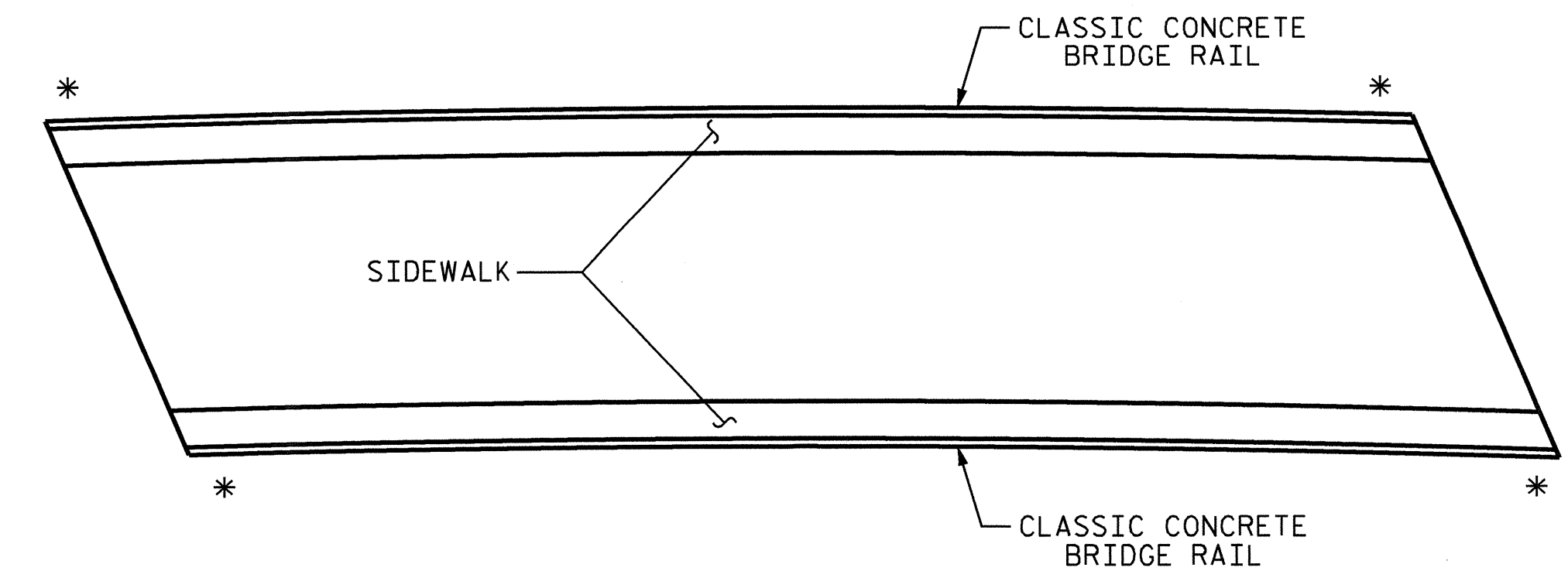
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

THE 1 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.

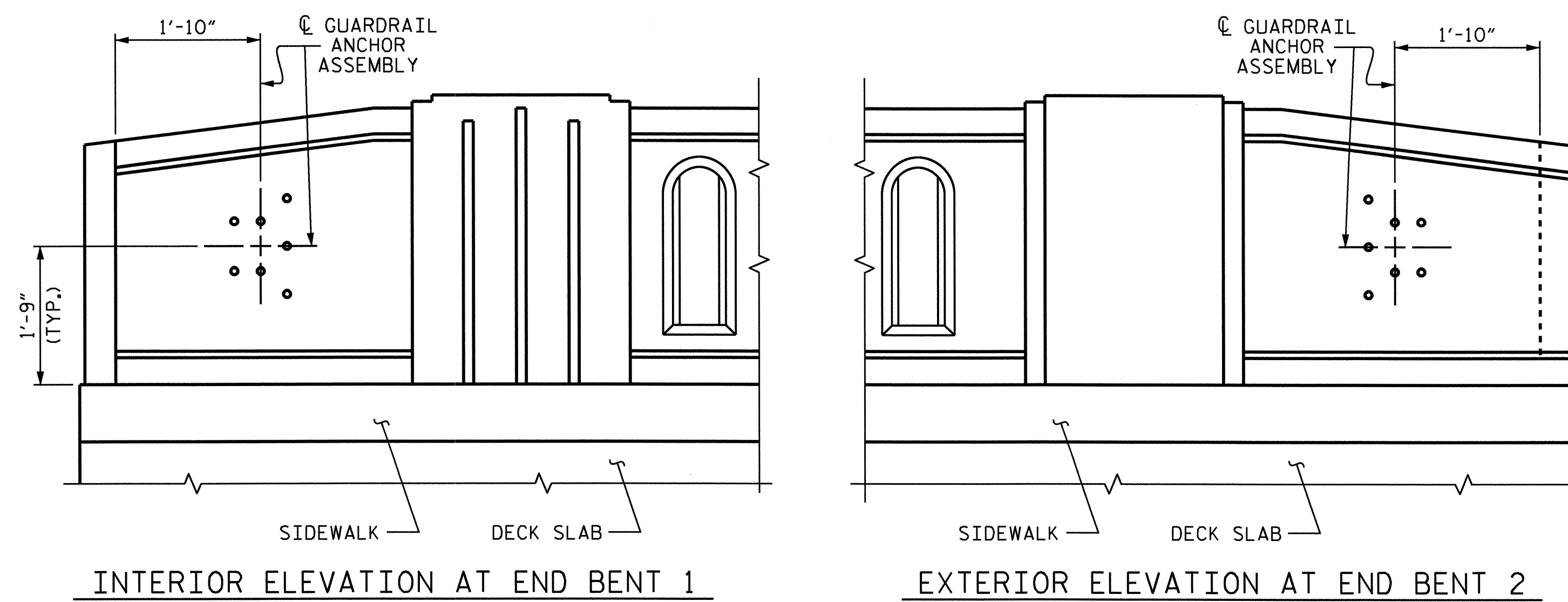


GUARDRAIL ANCHOR ASSEMBLY DETAILS



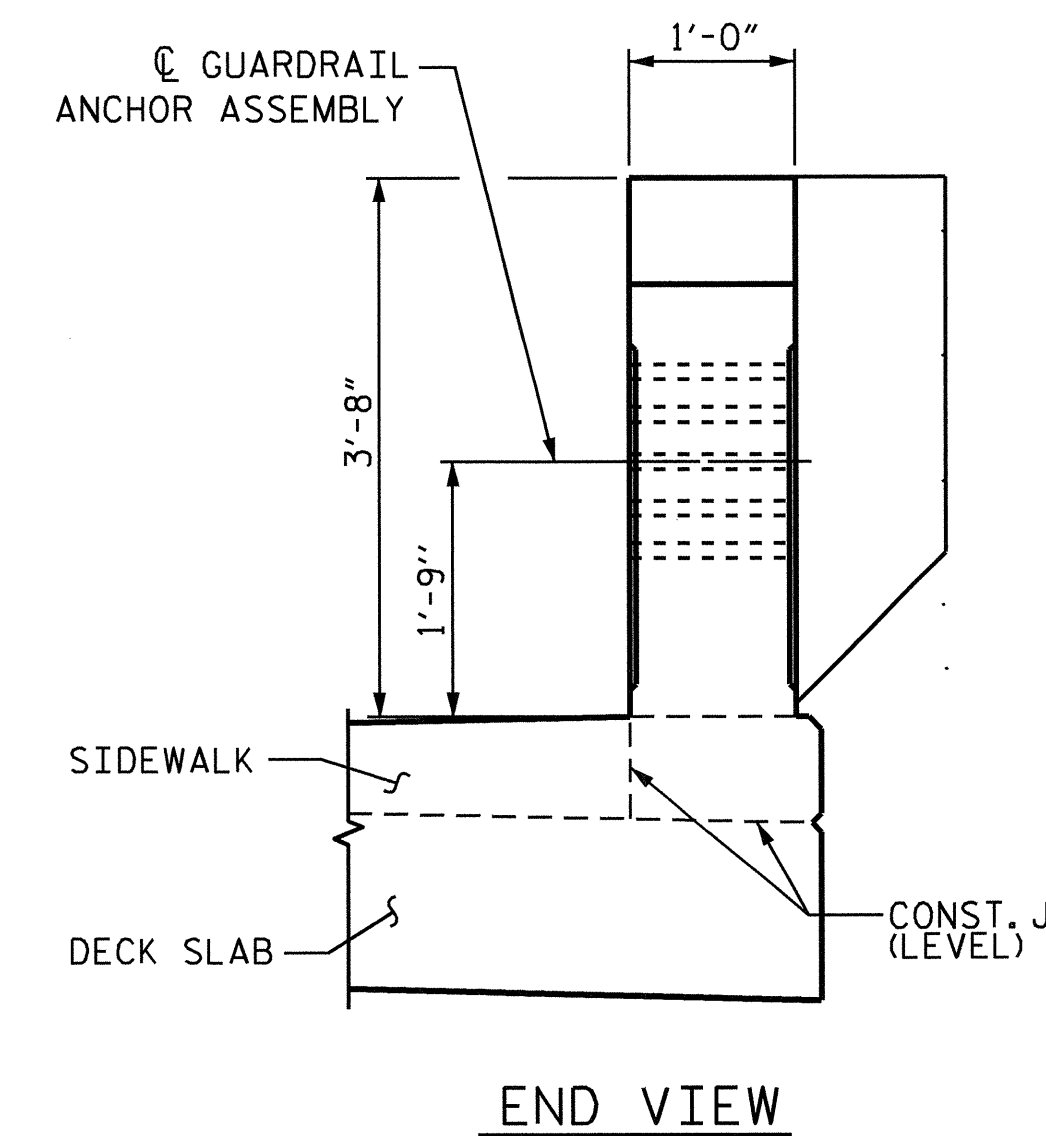
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT

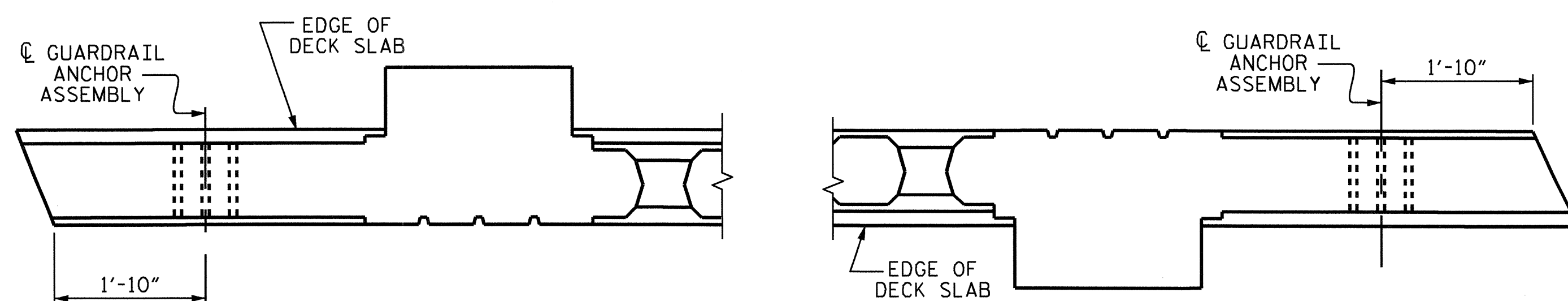


INTERIOR ELEVATION AT END BENT 1

EXTERIOR ELEVATION AT END BENT 2



END VIEW



PLAN AT END BENT 1

PLAN AT END BENT 2

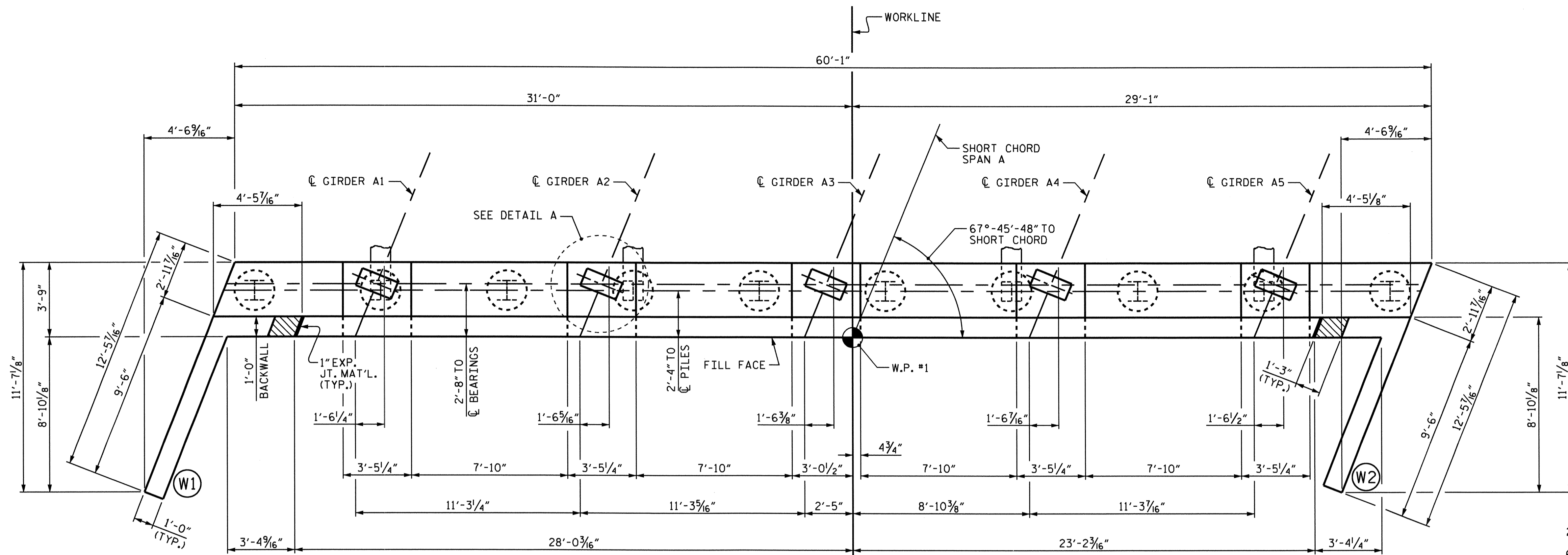
LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

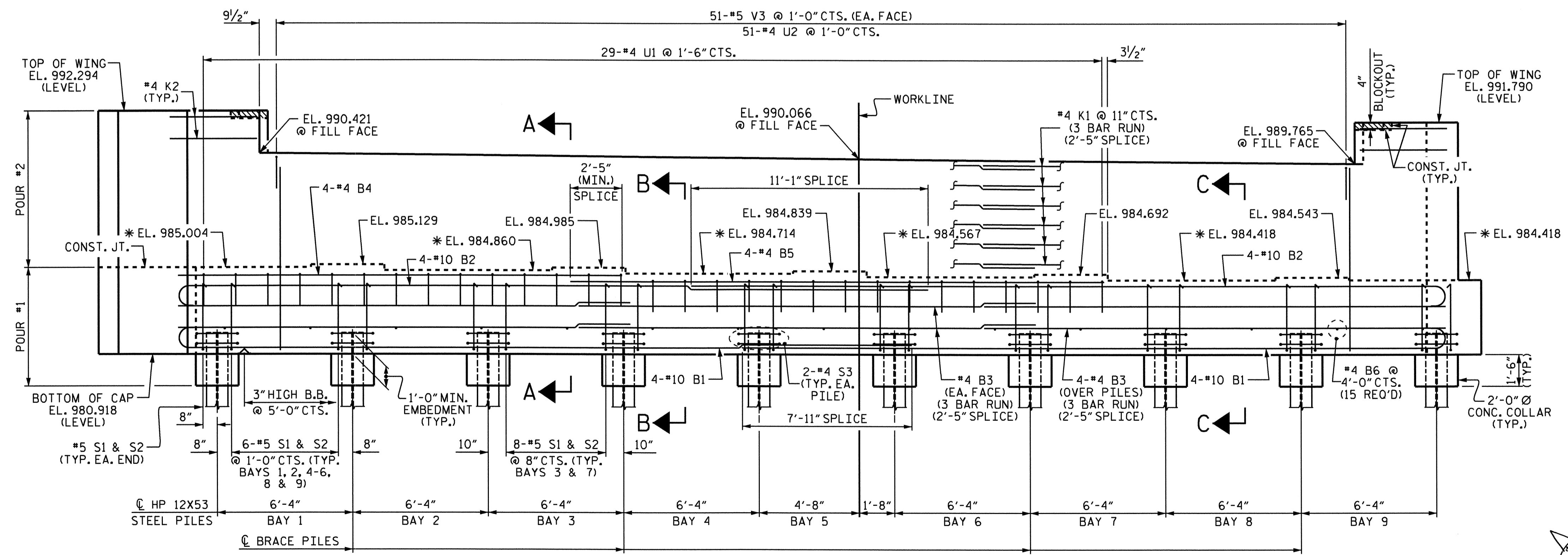


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
GUARDRAIL ANCHORAGE DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-21
					TOTAL SHEETS 34

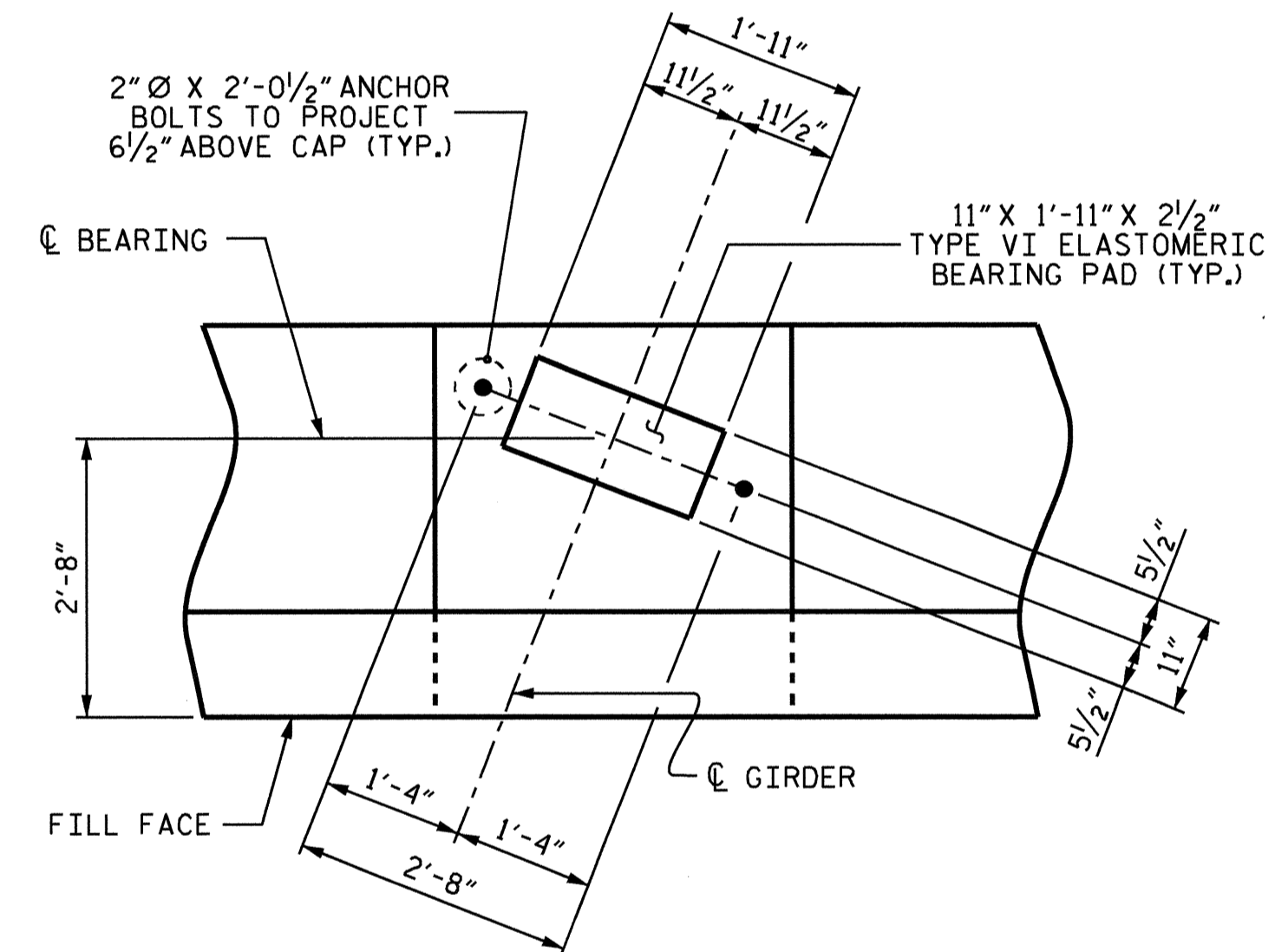
ASSEMBLED BY : S. DOMBROWSKI	DATE : 3/31/10
CHECKED BY : O.T. NGUYEN	DATE : 06/10
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM



PLAN



ELEVATION
(RIGHT WING NOT SHOWN FOR CLARITY)



DETAIL A

NOTES

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

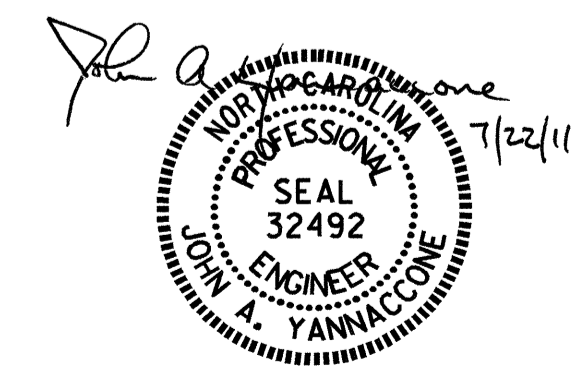
* THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE FRONT FACE AT THE RATE OF 2%.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-
 SHEET 1 OF 3

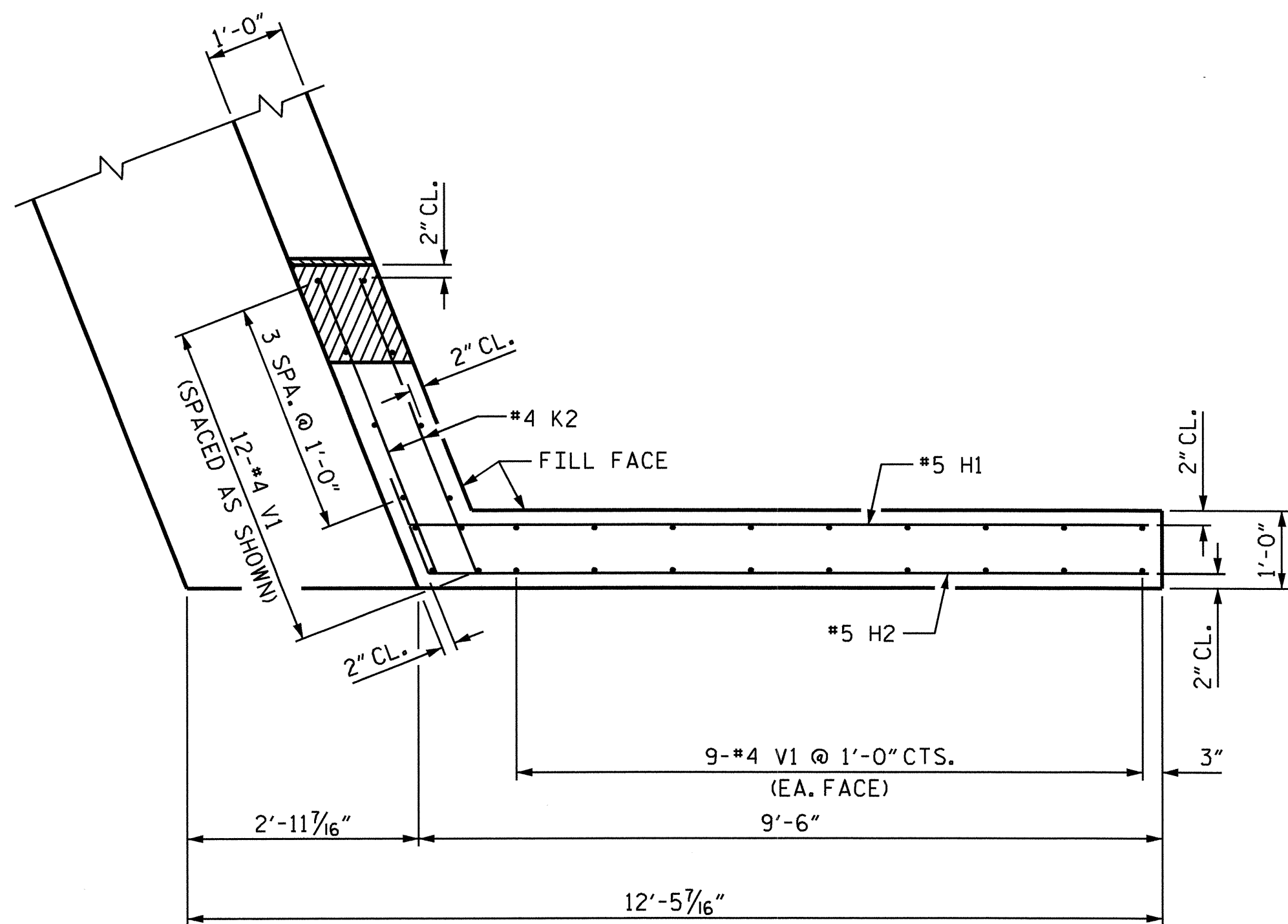
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1



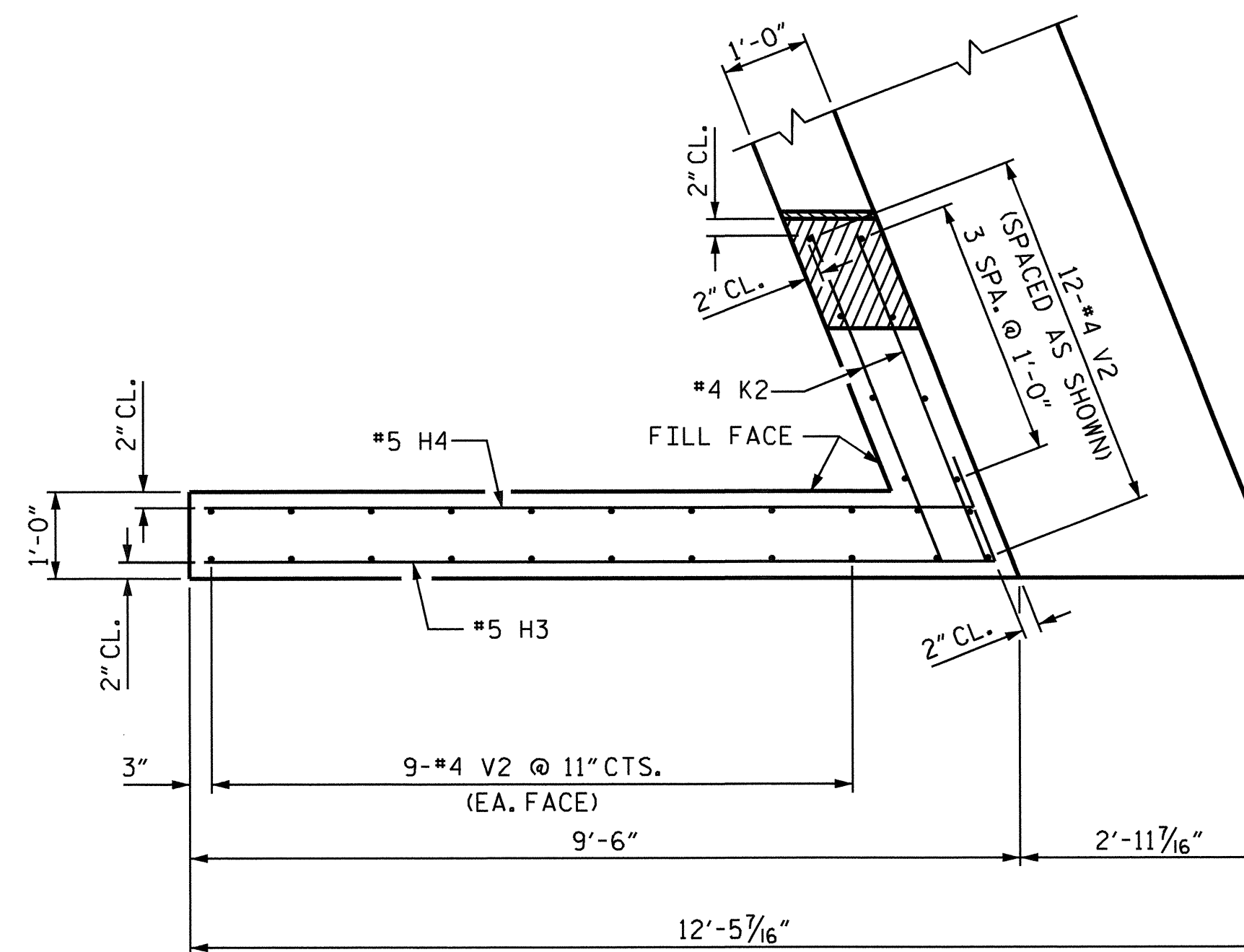
* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SHEET 3 OF 3.

DRAWN BY : S. DOMBROWSKI DATE : 4/12/10
 CHECKED BY : Q.T. NGUYEN DATE : 08/10

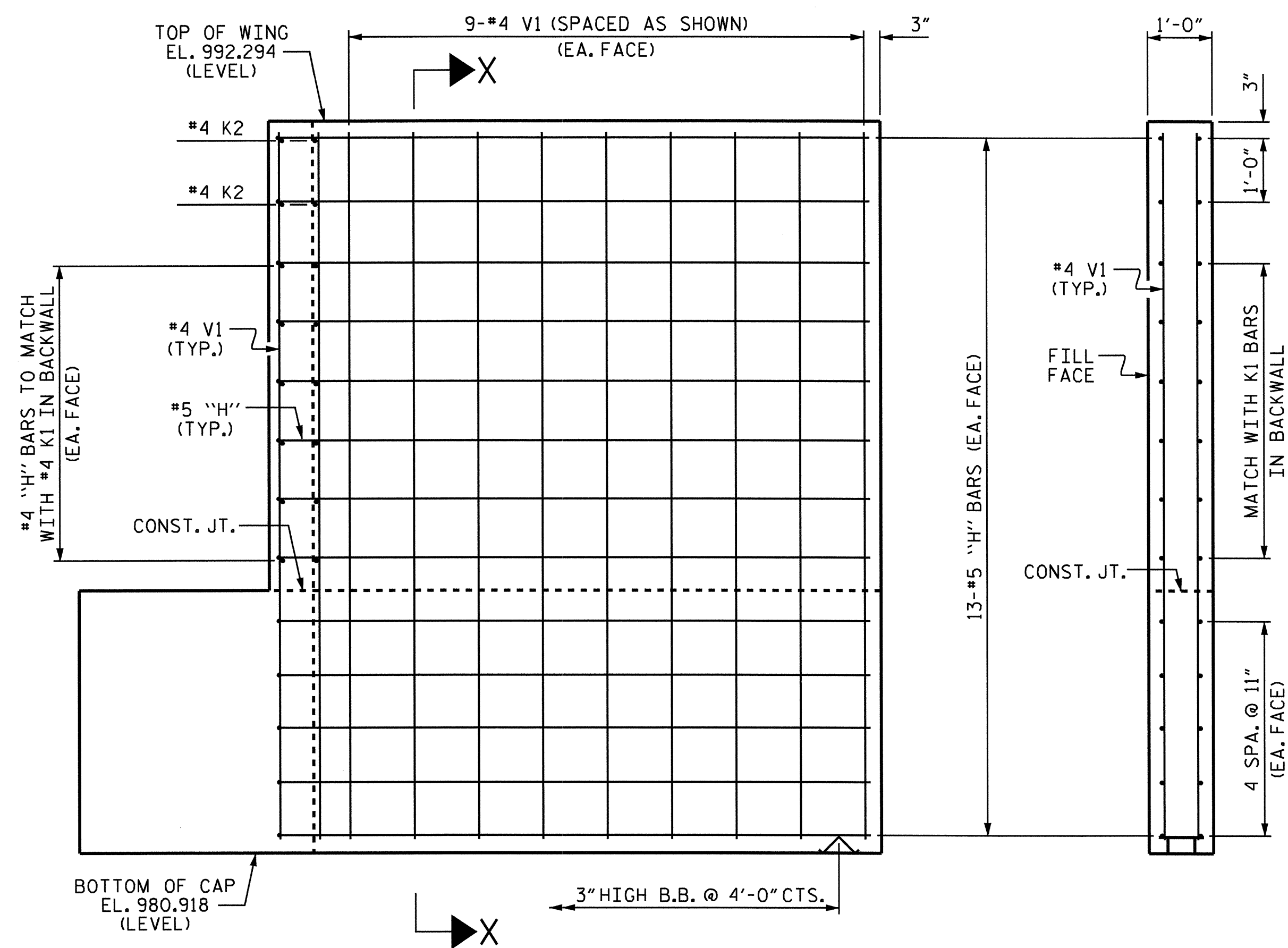
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1			3			TOTAL SHEETS	
2			4			34	



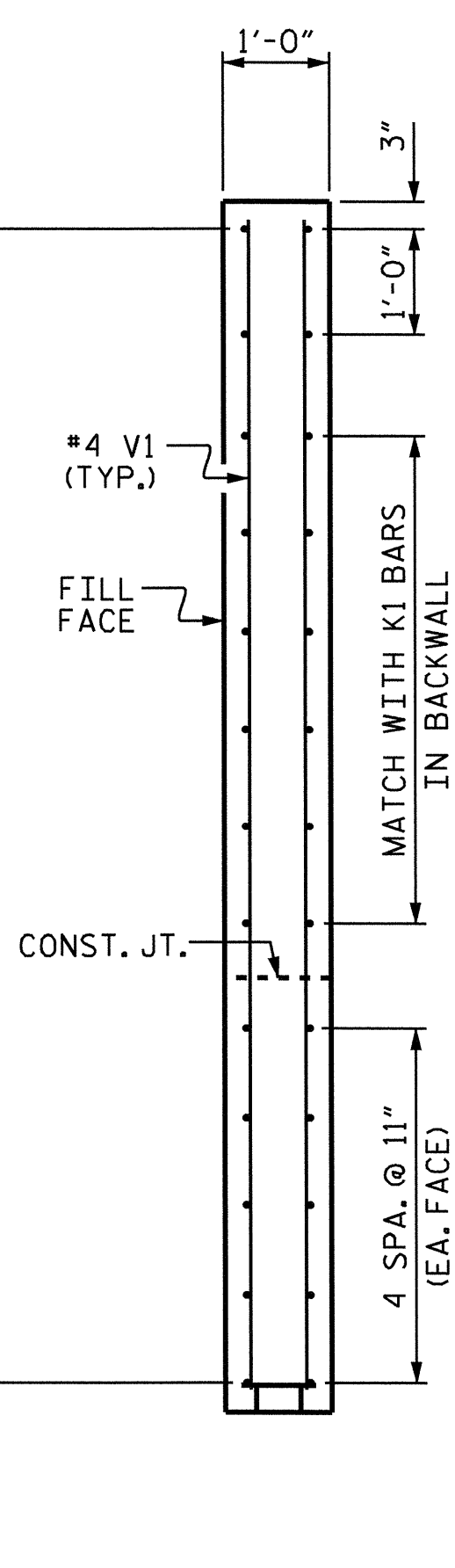
PLAN OF WING W1



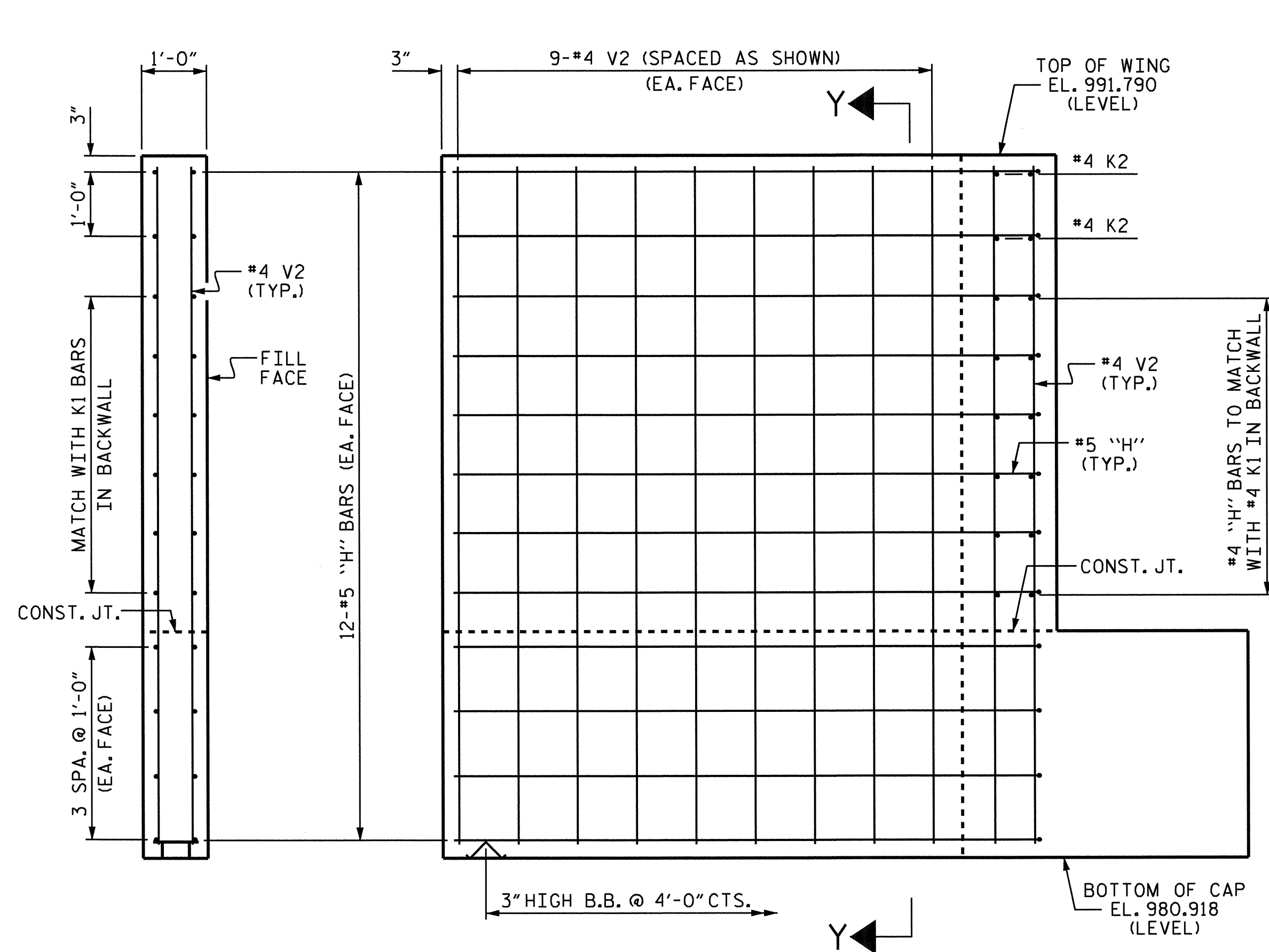
PLAN OF WING W2



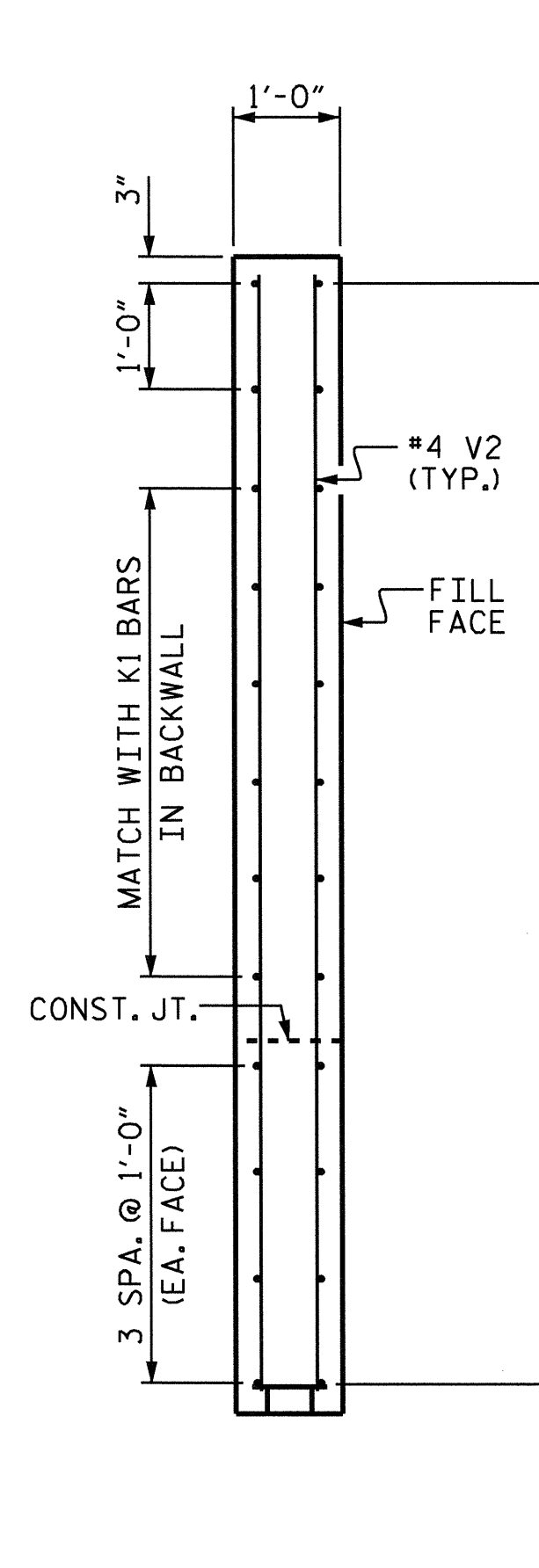
ELEVATION OF WING W1



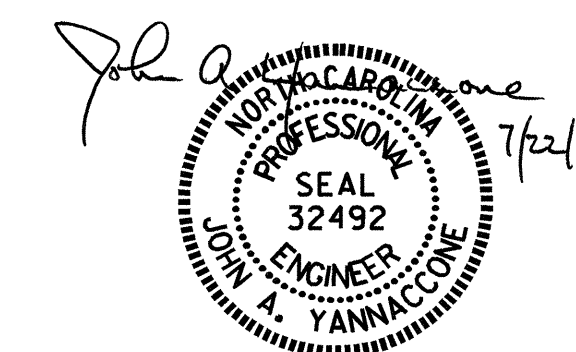
SECTION X-X



ELEVATION OF WING W2



SECTION Y-Y



PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 2 OF 3

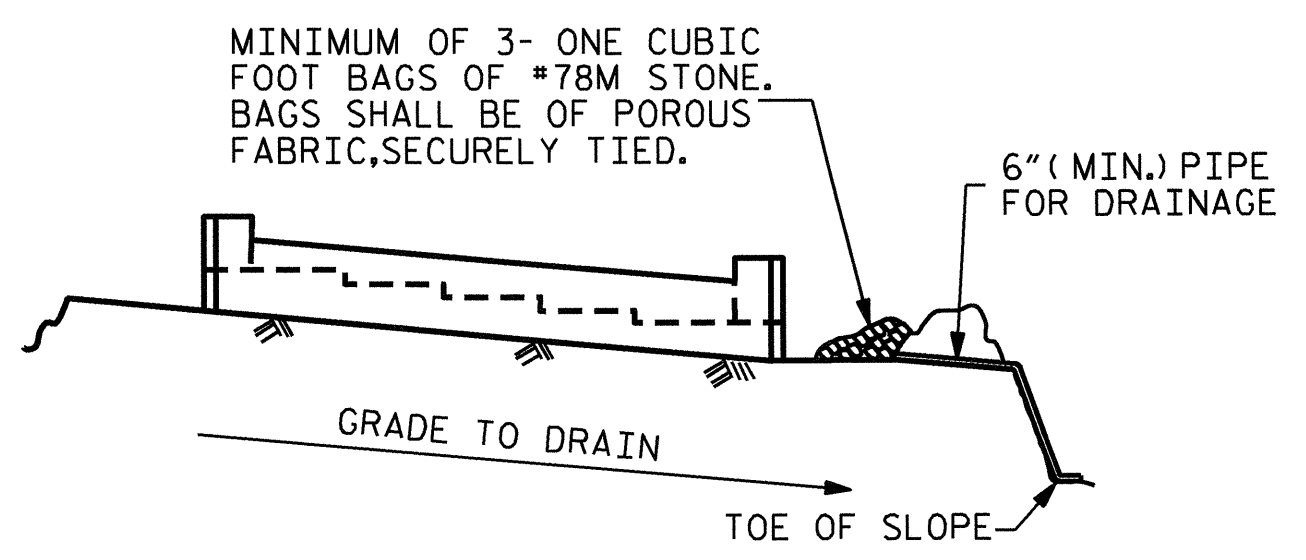
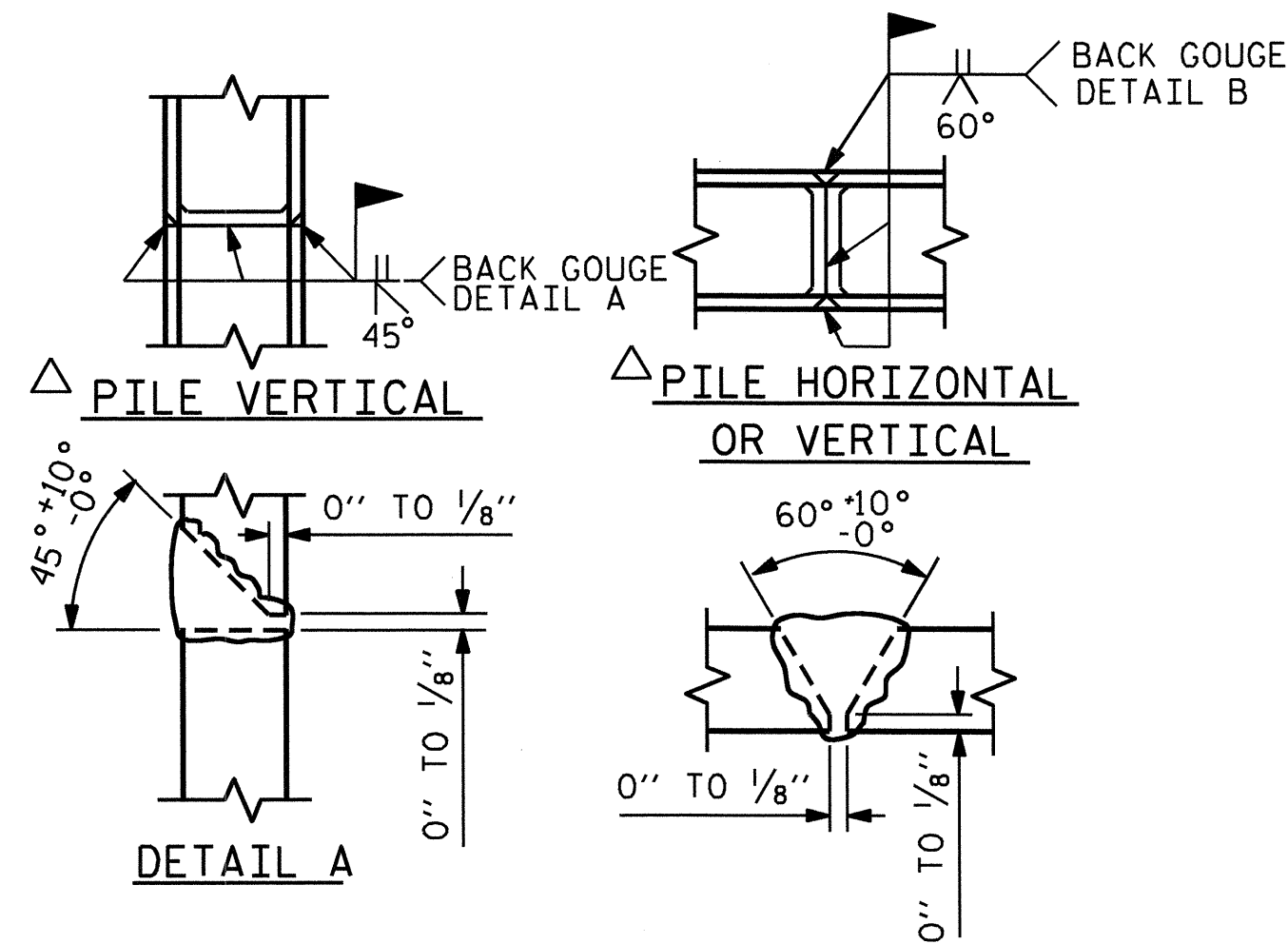
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

DRAWN BY: S. DOMBROWSKI DATE: 4/14/10
 CHECKED BY: O.T. NGUYEN DATE: 08/10

22-JUL-2011 11:10
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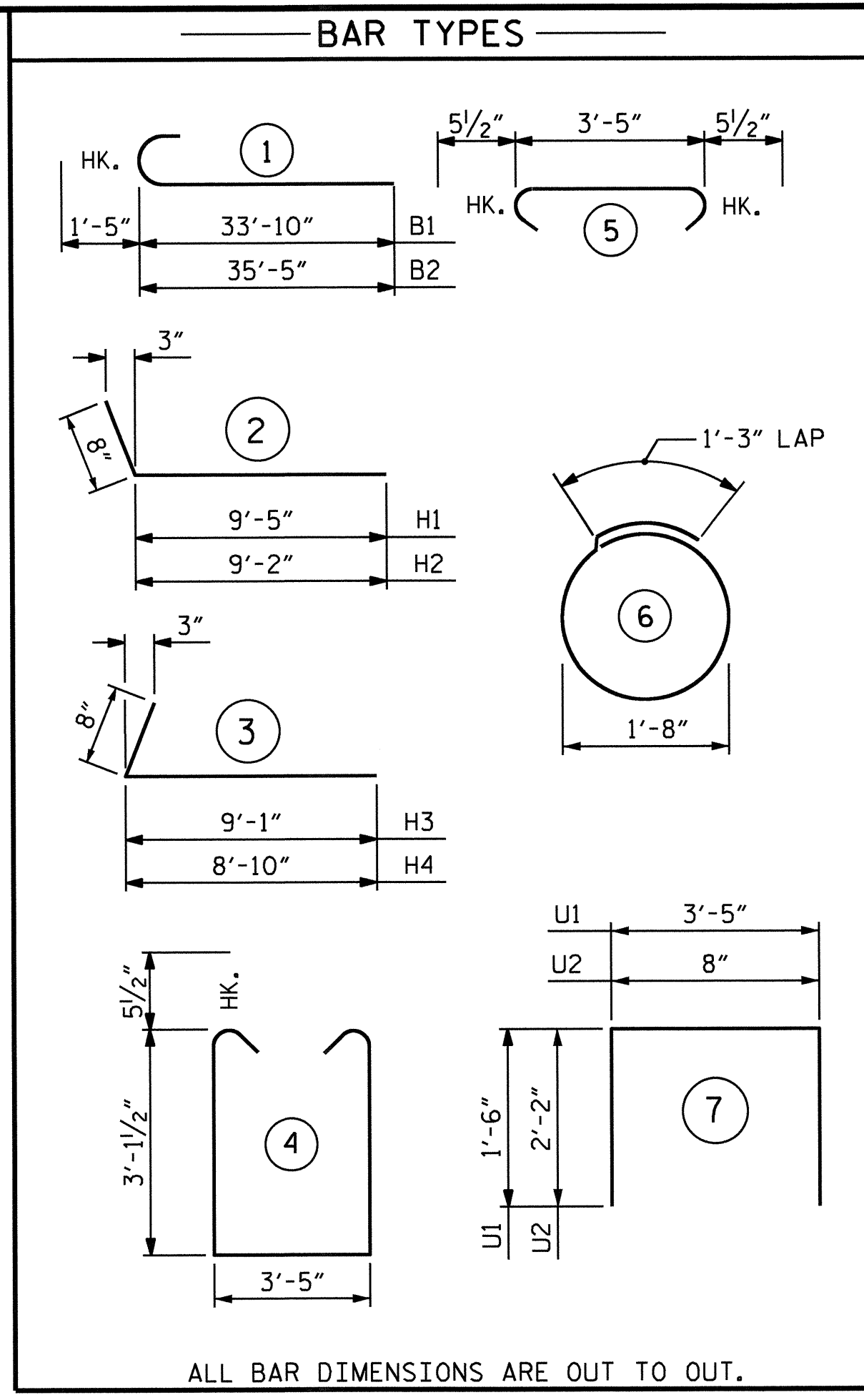


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

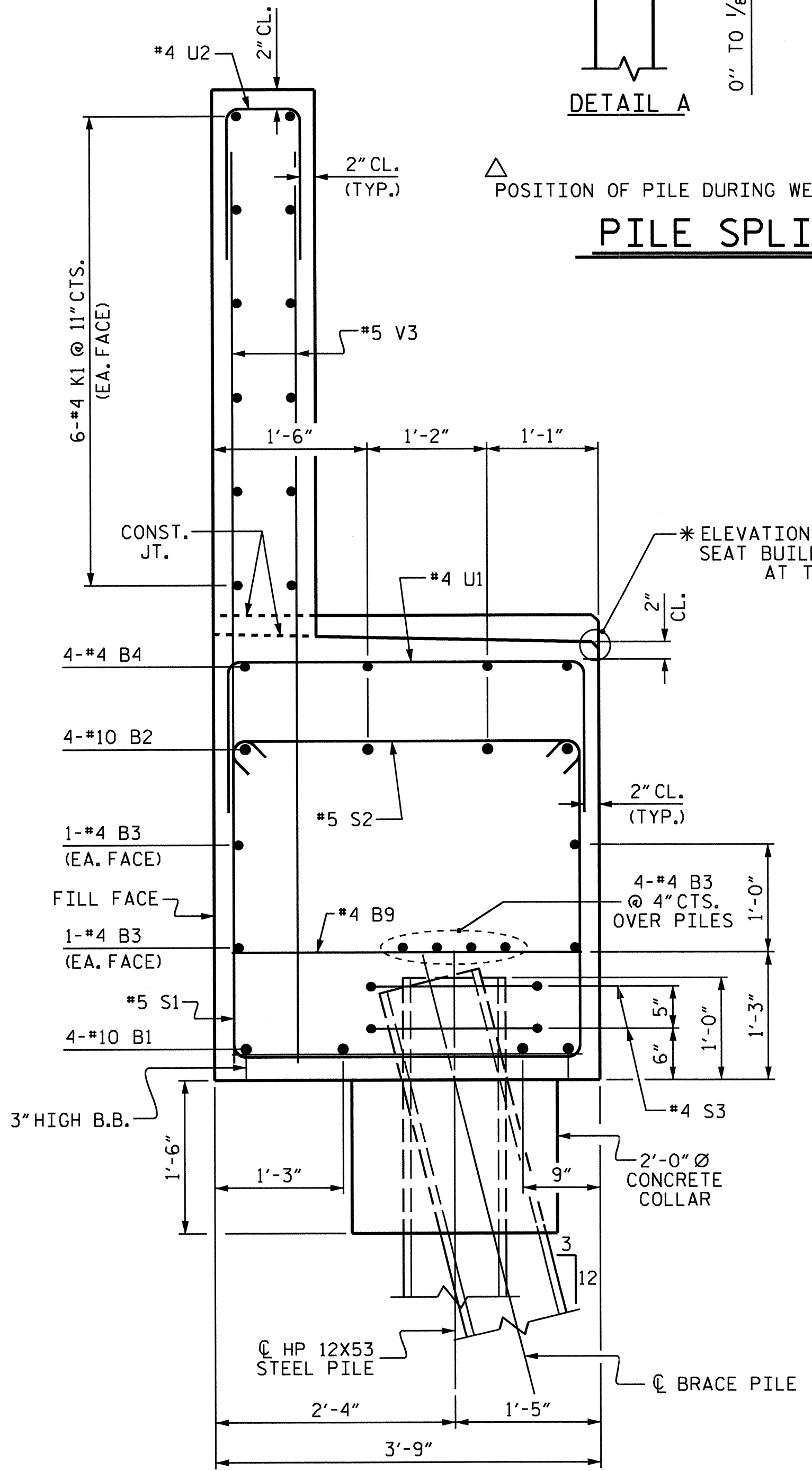
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

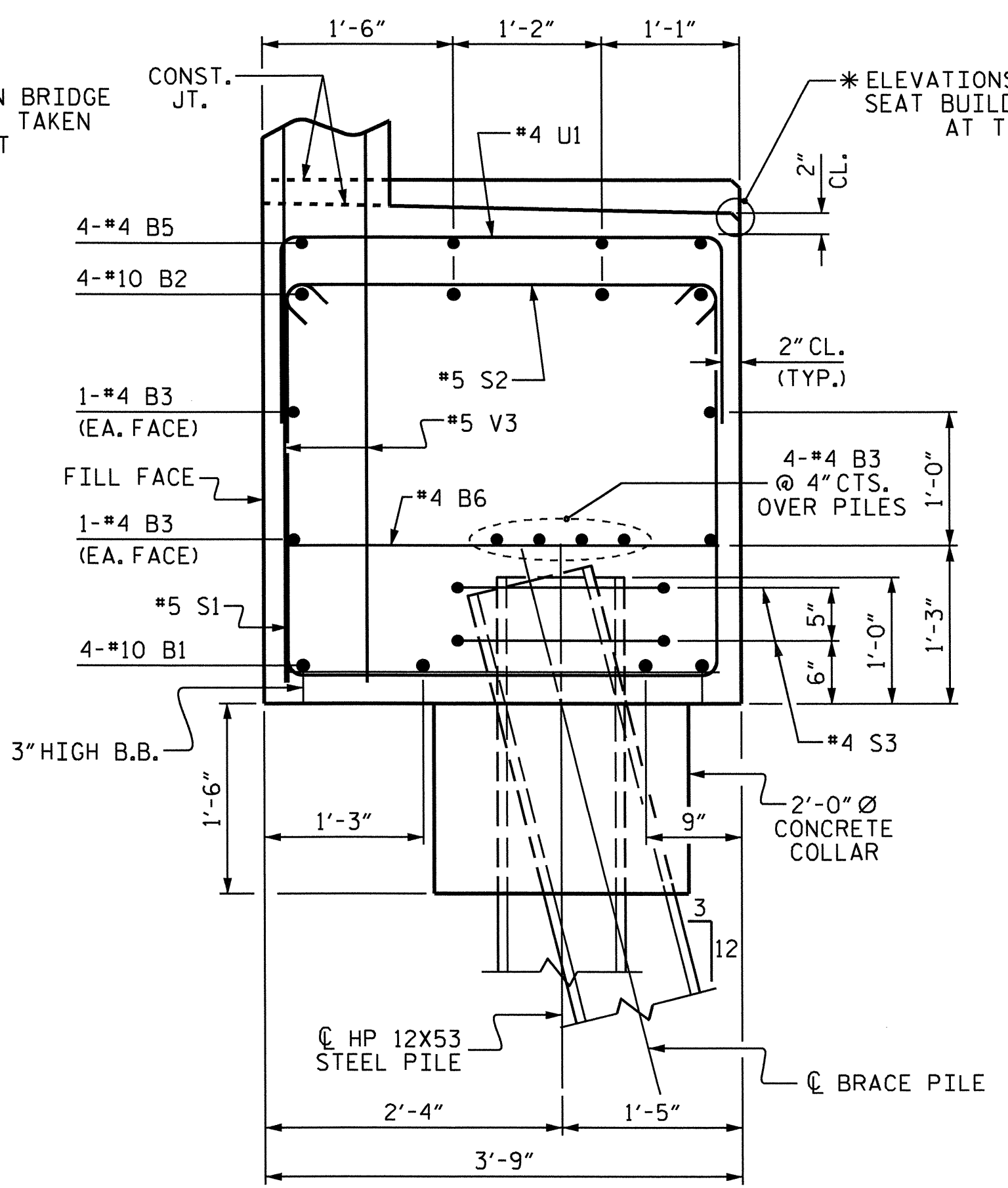
TEMPORARY DRAINAGE AT END BENT



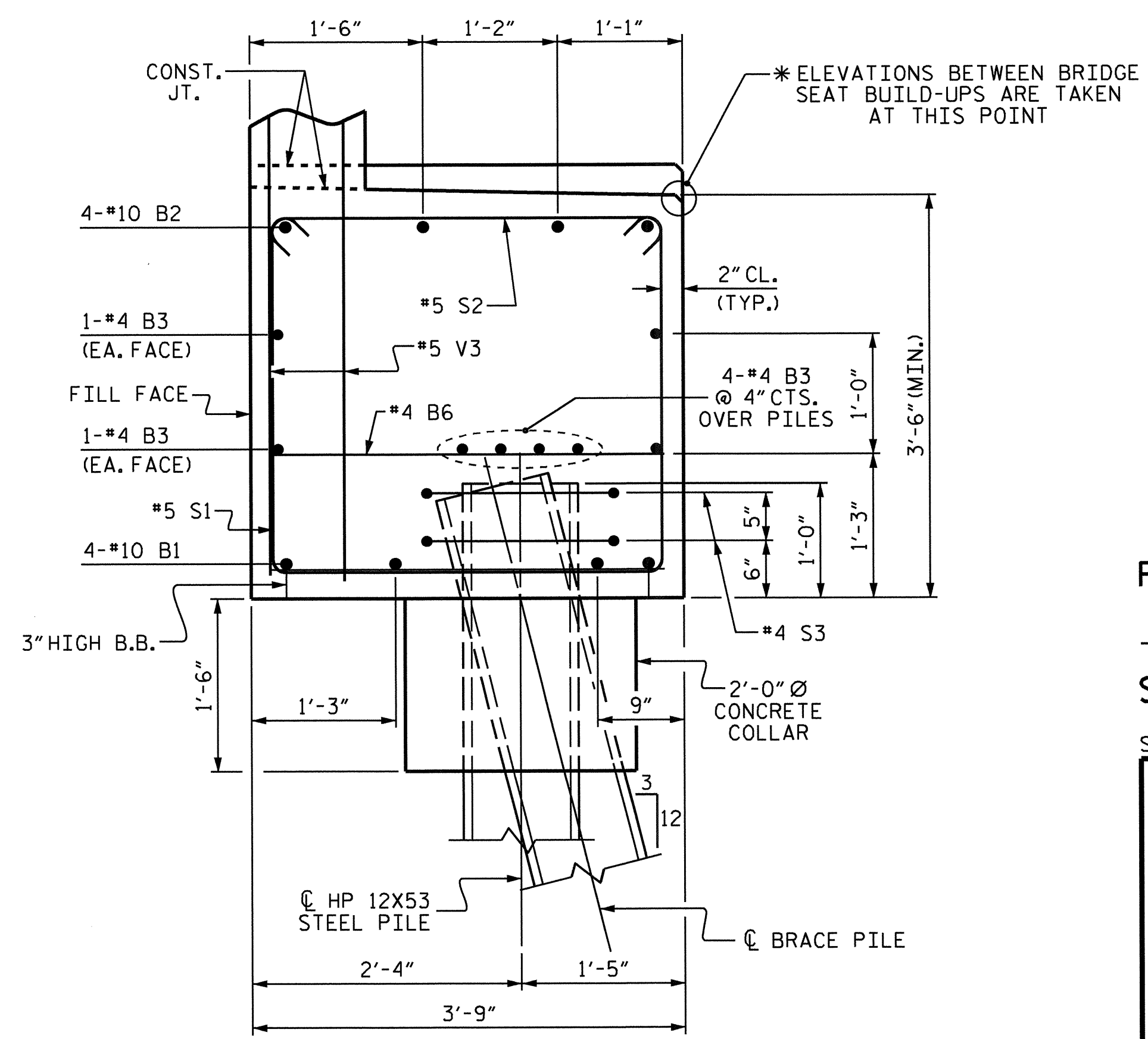
BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	1	35'-3"	1213
B2	8	#10	1	36'-10"	1268
B3	24	#4	STR	21'-7"	346
B4	4	#4	STR	19'-10"	53
B5	4	#4	STR	26'-3"	70
B6	15	#4	STR	3'-5"	34
H1	13	#5	2	10'-1"	137
H2	13	#5	2	9'-10"	133
H3	12	#5	3	9'-9"	122
H4	12	#5	3	9'-6"	119
K1	36	#4	STR	21'-7"	519
K2	8	#4	STR	4'-0"	21
S1	60	#5	4	10'-7"	662
S2	60	#5	5	4'-4"	271
S3	20	#4	6	6'-6"	87
U1	29	#4	7	6'-5"	124
U2	51	#4	7	5'-0"	170
V1	30	#4	STR	11'-0"	220
V2	30	#4	STR	10'-6"	210
V3	102	#5	STR	8'-6"	904
REINFORCING STEEL					6,683 LBS.
CLASS A CONCRETE					
POUR 1 (CAP, LOWER WINGS & COLLARS)					35.8 C.Y.
POUR 2 (BACKWALL & UPPER WINGS)					17.2 C.Y.
TOTAL					53.0 C.Y.
HP 12 X 53 STEEL PILES					
NUMBER = 10					LIN. FT. = 750



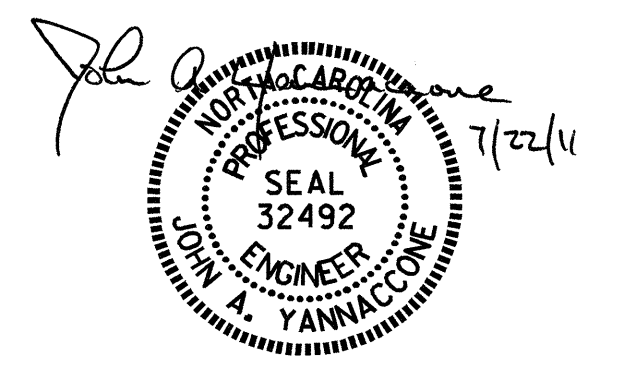
SECTION A-A



SECTION B-B



SECTION C-C



PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

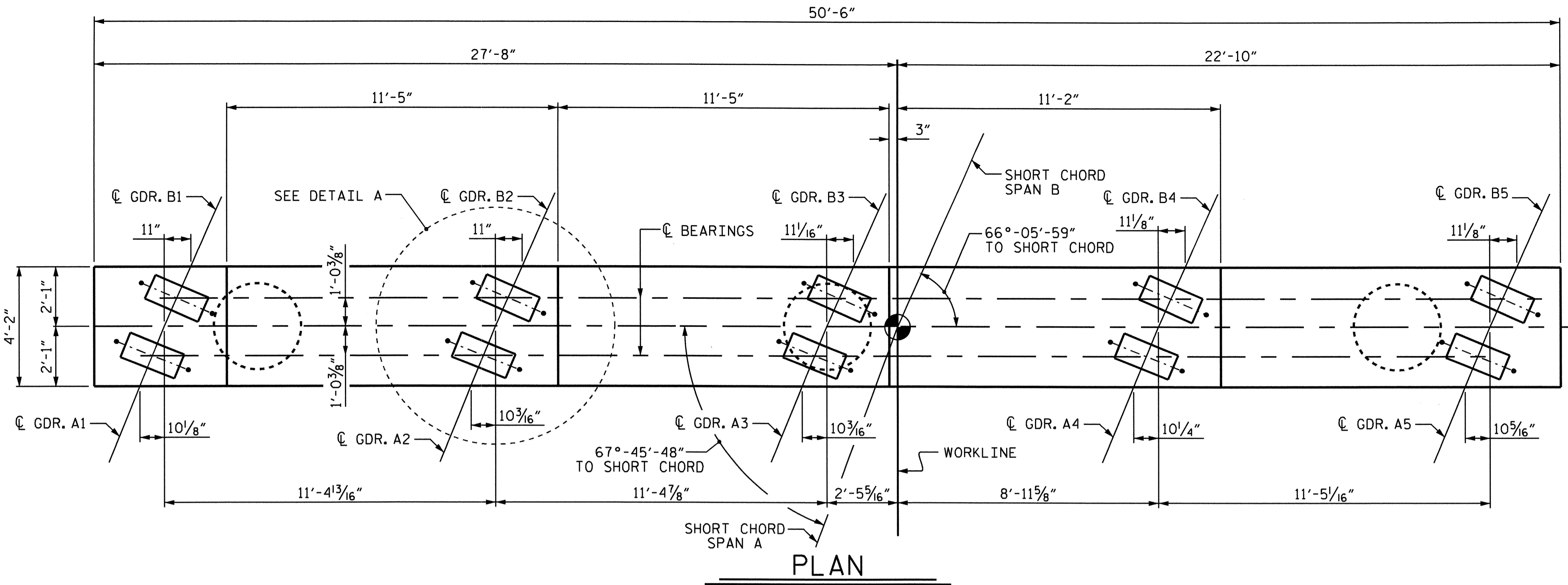
SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25	
1			3			TOTAL SHEETS	
2			4			34	

DRAWN BY: S. DOMBROWSKI DATE: 4/14/10
 CHECKED BY: O.T. NGUYEN DATE: 08/10

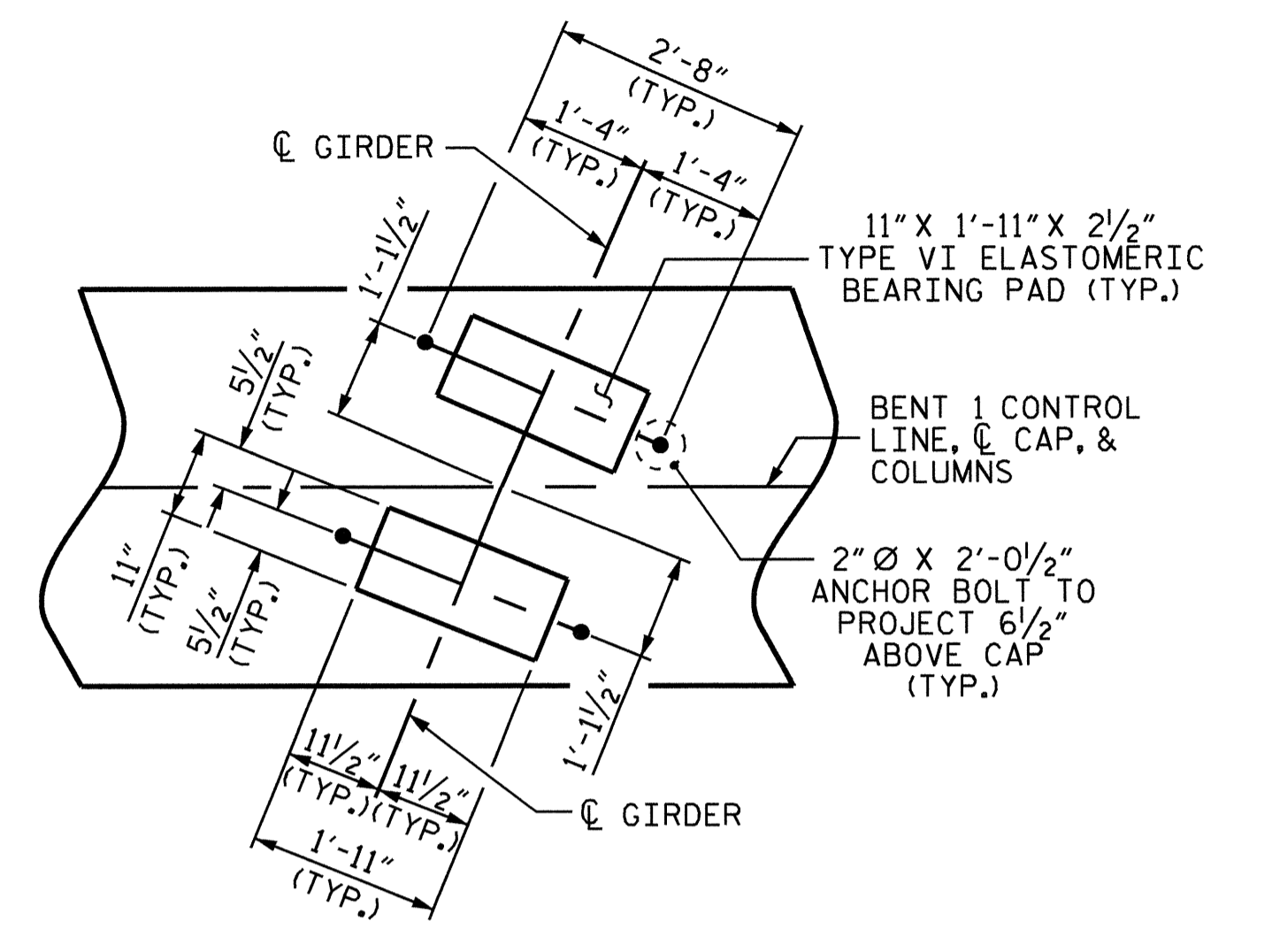
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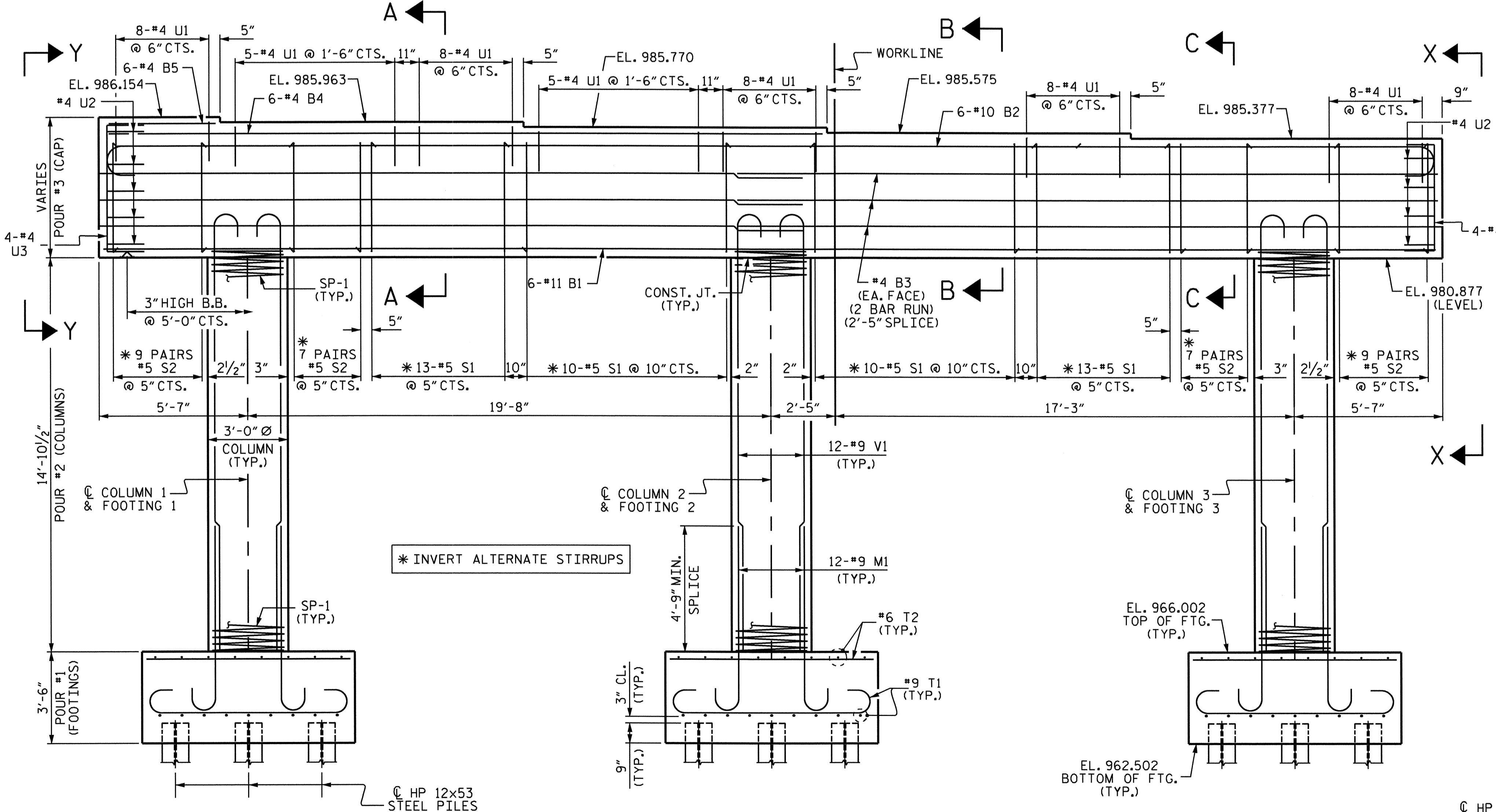
PLAN

NOTES

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

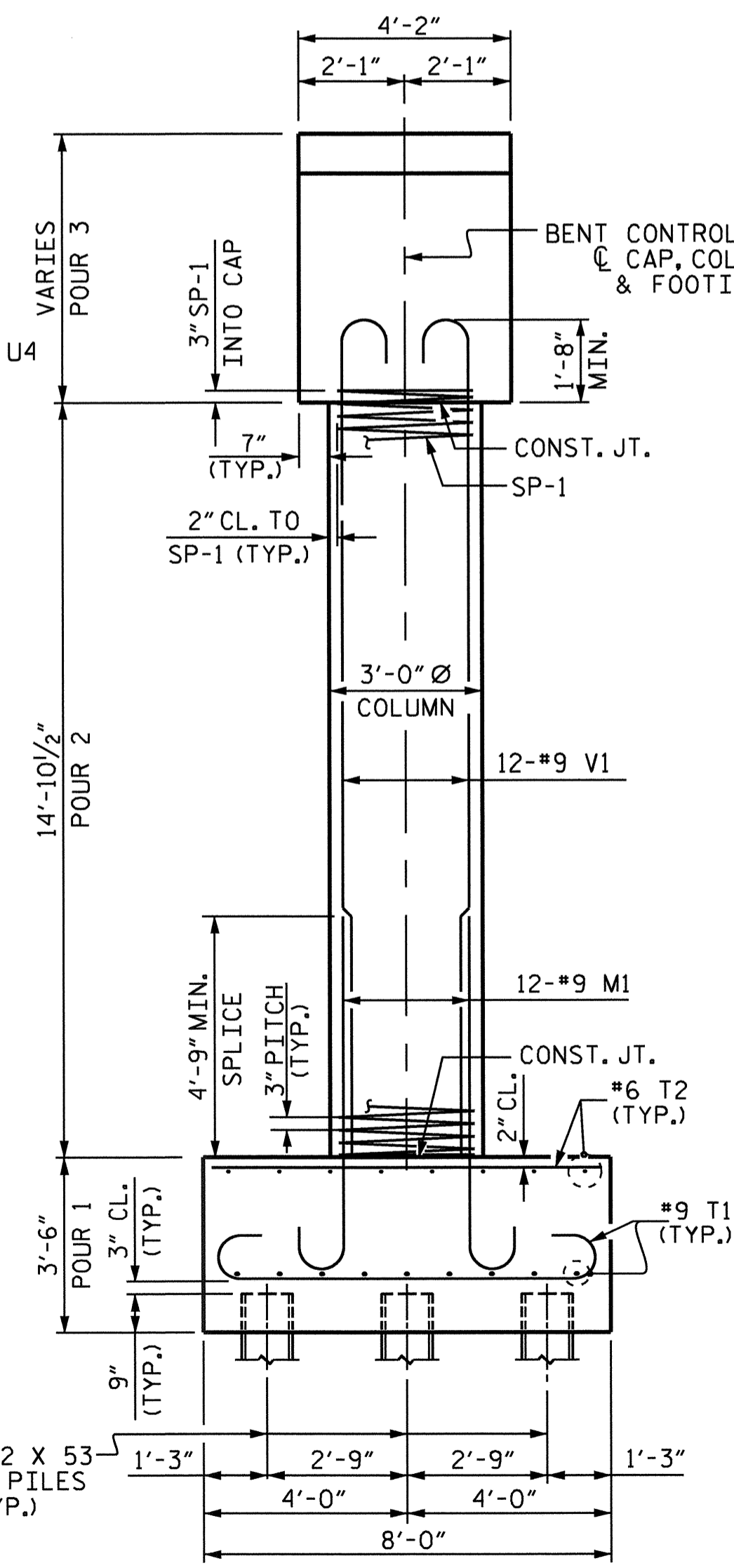


DETAIL A

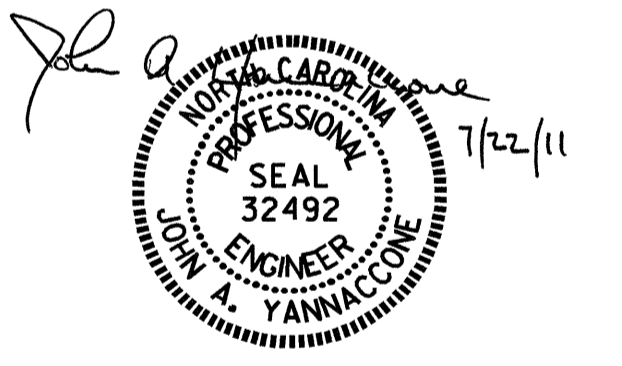


ELEVATION

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



END ELEVATION

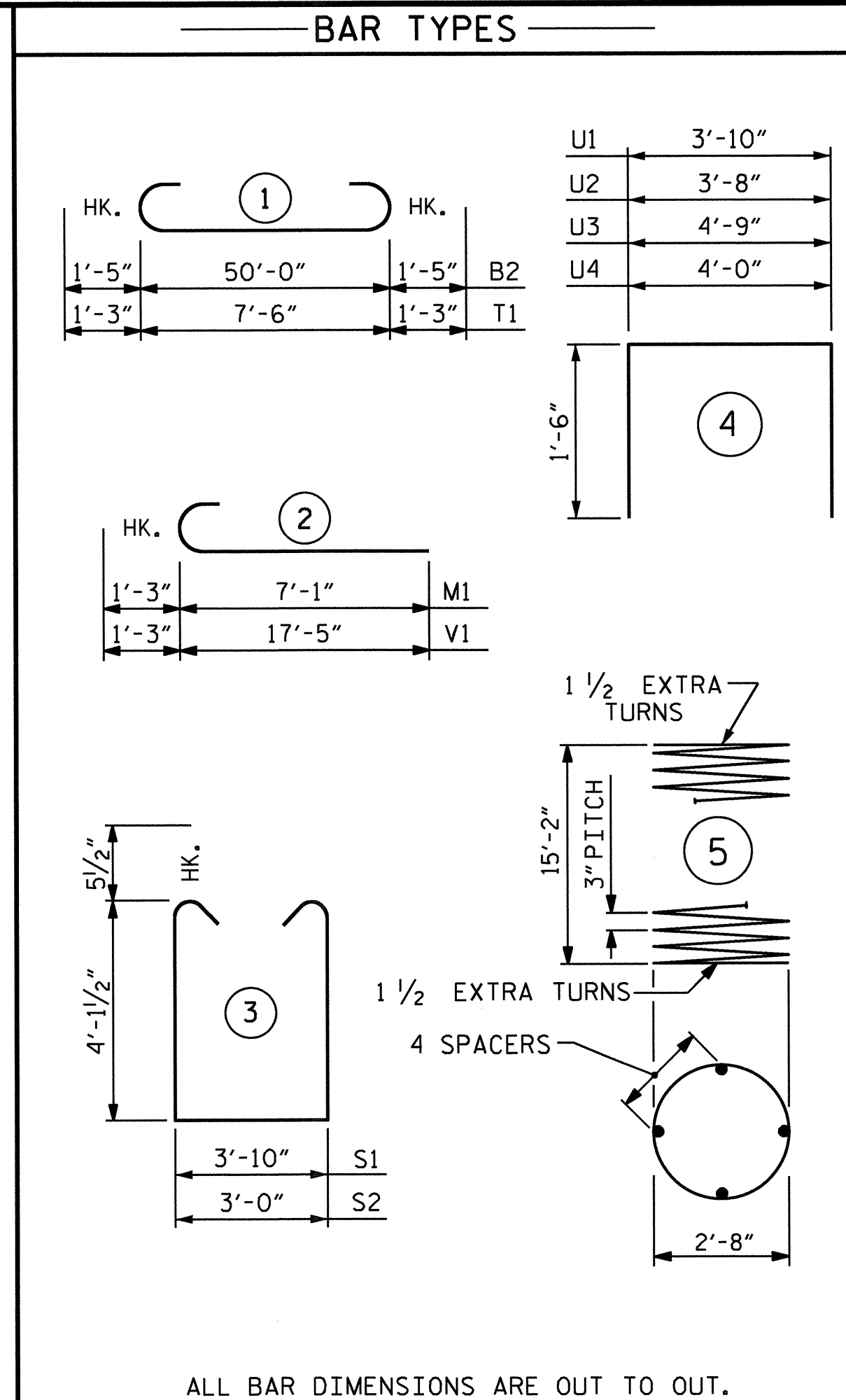
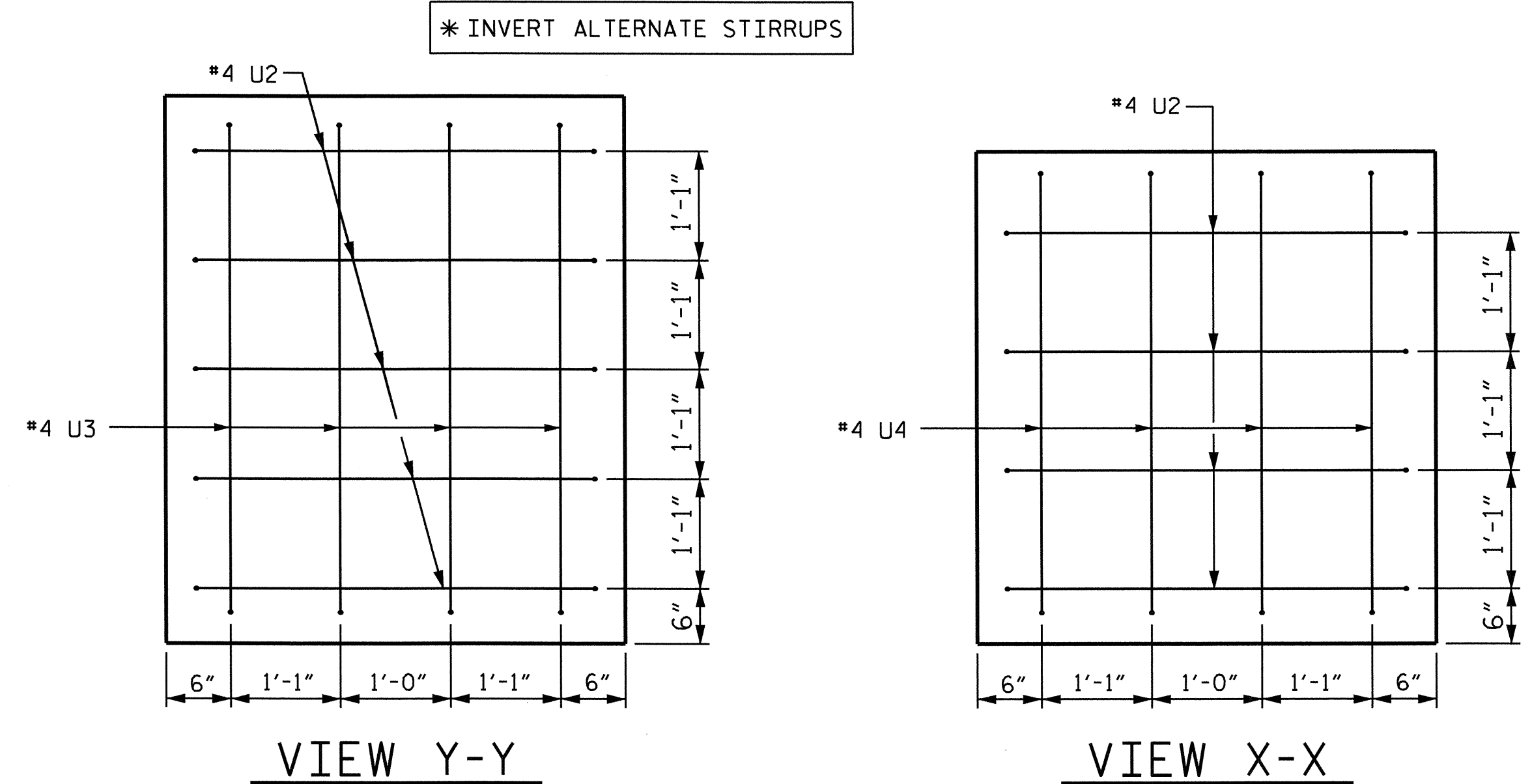
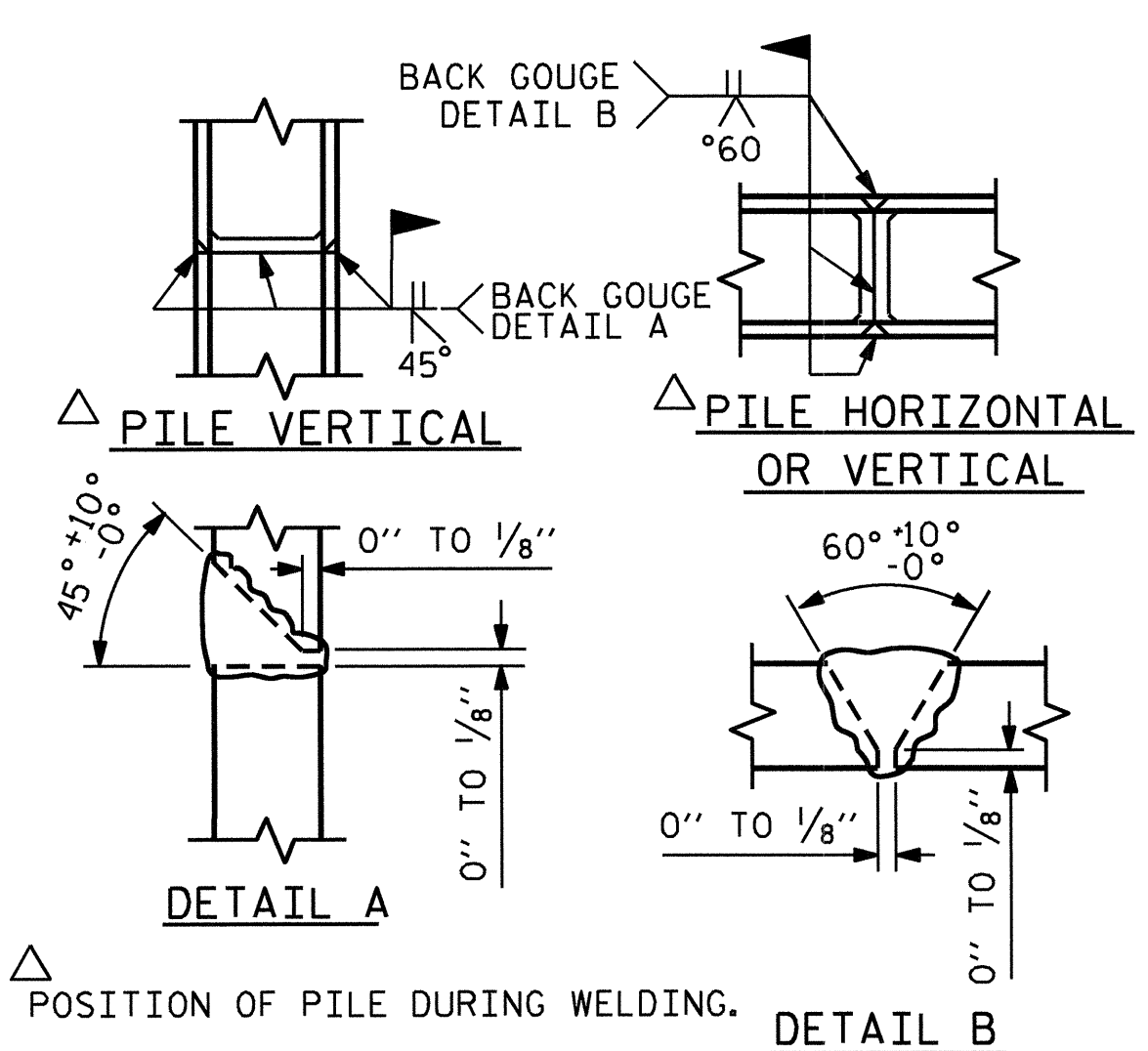
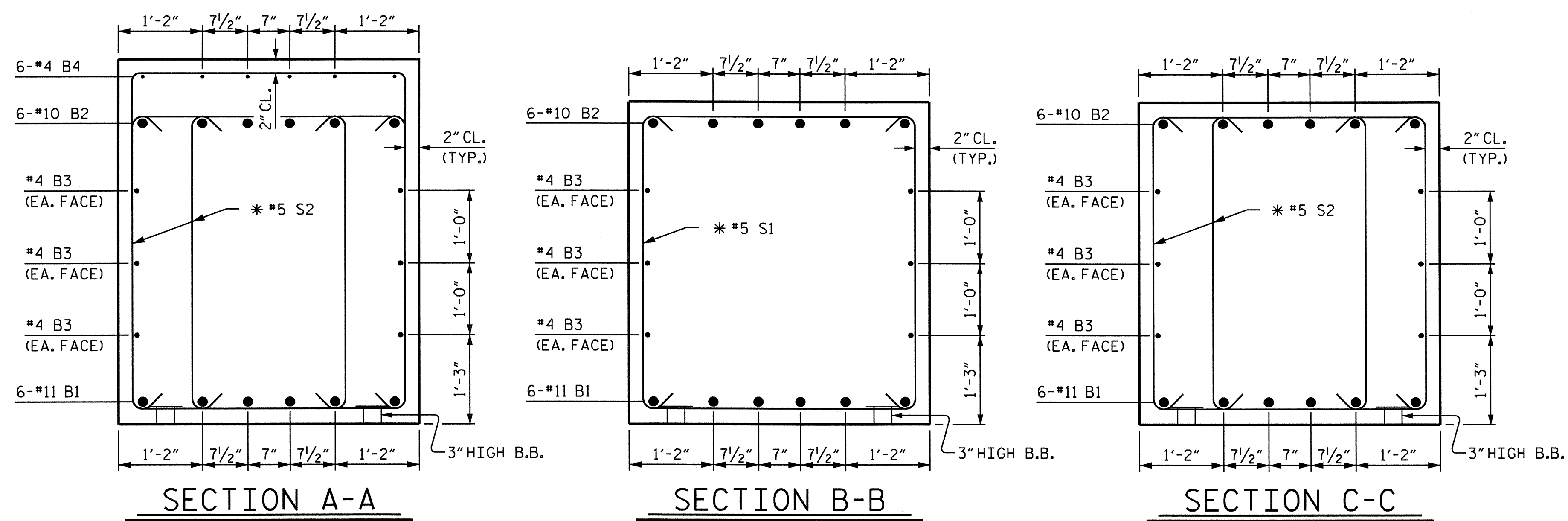


PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-

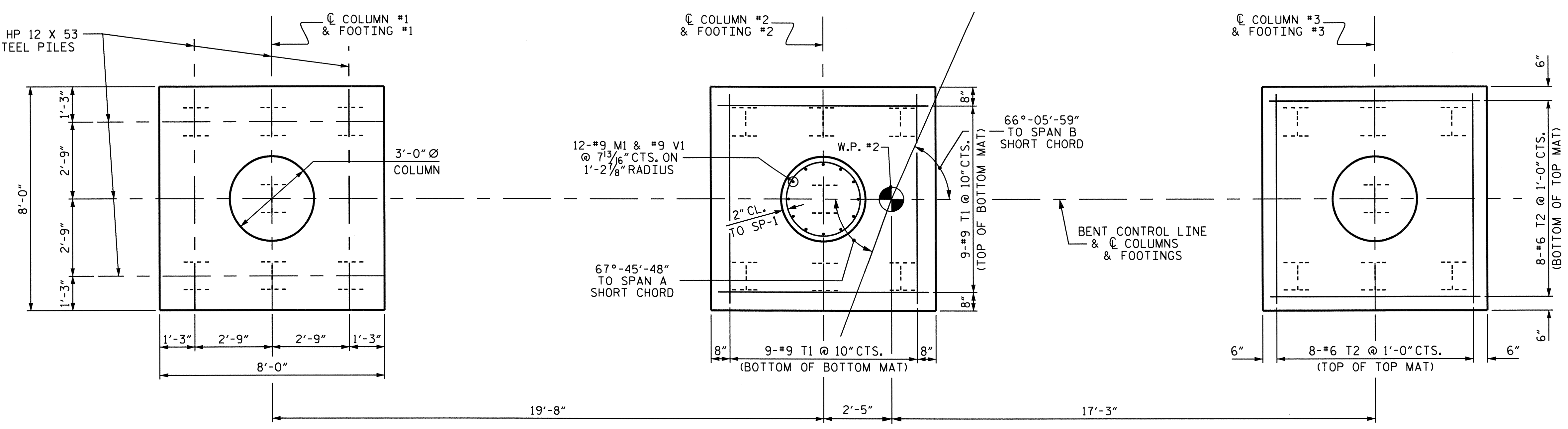
SHEET 1 OF 2

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

DRAWN BY: S. DOMBROWSKI DATE: 9/22/10
 CHECKED BY: Q.T. NGUYEN DATE: 08/10



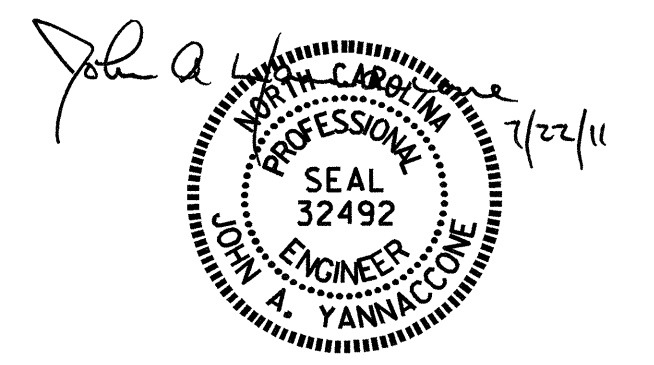
BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	STR	50'-2"	1599
B2	6	#10	1	52'-10"	1364
B3	12	#4	STR	26'-4"	211
B4	6	#4	STR	27'-0"	108
B5	6	#4	STR	4'-2"	17
M1	36	#9	2	8'-4"	1020
S1	46	#5	3	13'-0"	624
S2	64	#5	3	12'-2"	812
T1	54	#9	1	10'-0"	1836
T2	48	#6	STR	7'-6"	541
U1	50	#4	4	6'-10"	228
U2	9	#4	4	6'-8"	40
U3	4	#4	4	7'-9"	21
U4	4	#4	4	7'-0"	19
V1	36	#9	2	18'-6"	2285
REINFORCING STEEL				10,725 LBS.	
SP-1	3	**	5	528'-1"	1058
SPIRAL COLUMN REINFORCING STEEL				1,058 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR 1 (FOOTINGS)				24.9 C.Y.	
POUR 2 (COLUMNS)				11.7 C.Y.	
POUR 3 (CAP)				37.7 C.Y.	
TOTAL				74.3 C.Y.	
HP 12 X 53 STEEL PILES				NUMBER = 21 LIN. FT. = 1155	
FOUNDATION EXCAVATION				LUMP SUM	



PLAN OF FOOTINGS & COLUMNS

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

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W-20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-
 SHEET 2 OF 2

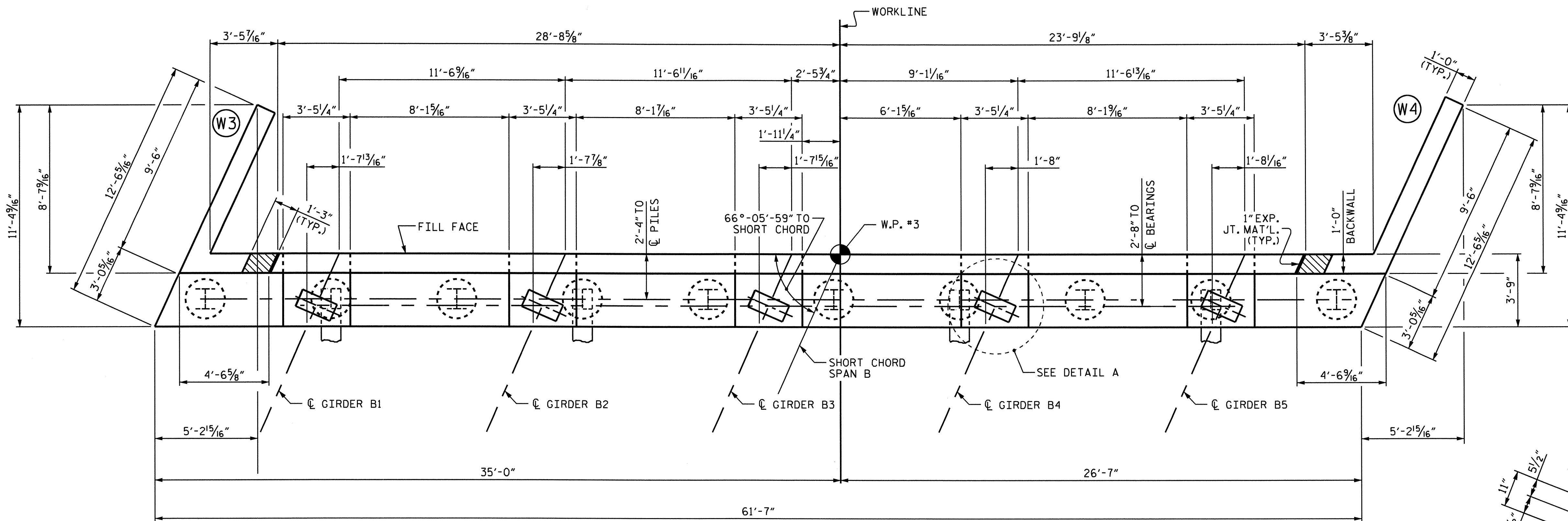
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1

DRAWN BY: S. DOMBROWSKI DATE: 9-22-10
 CHECKED BY: O.T. NGUYEN DATE: 10/10

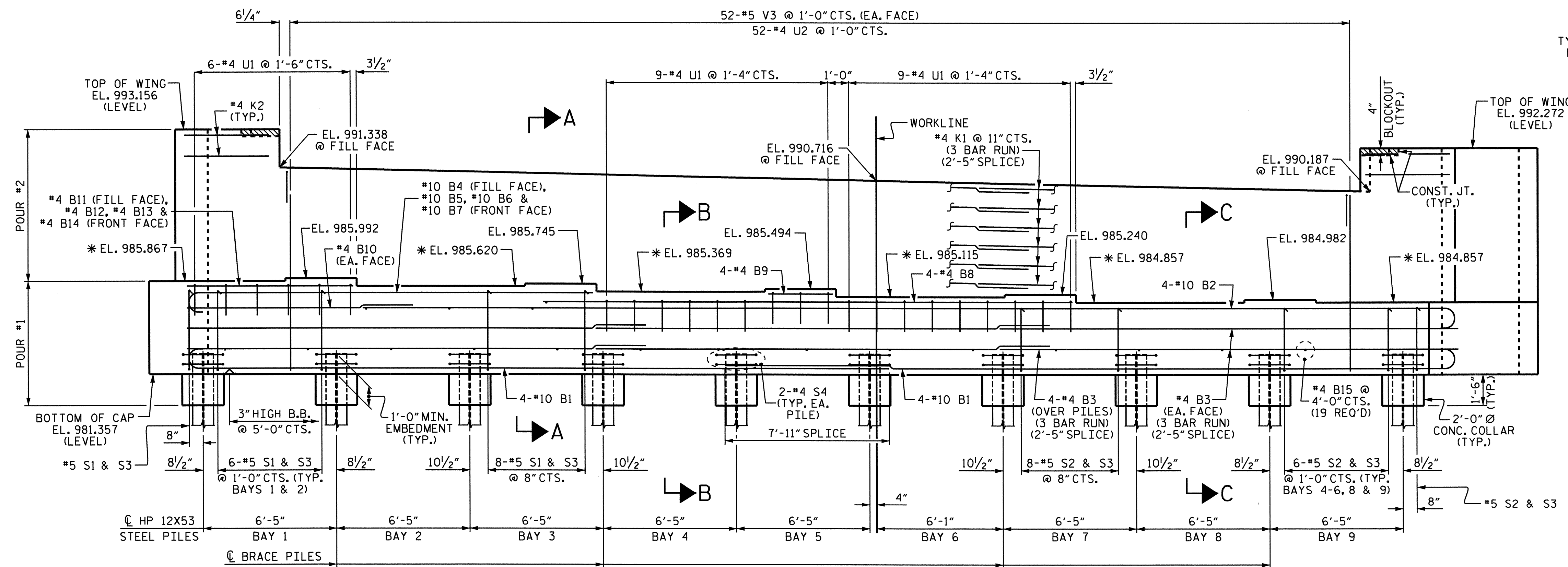
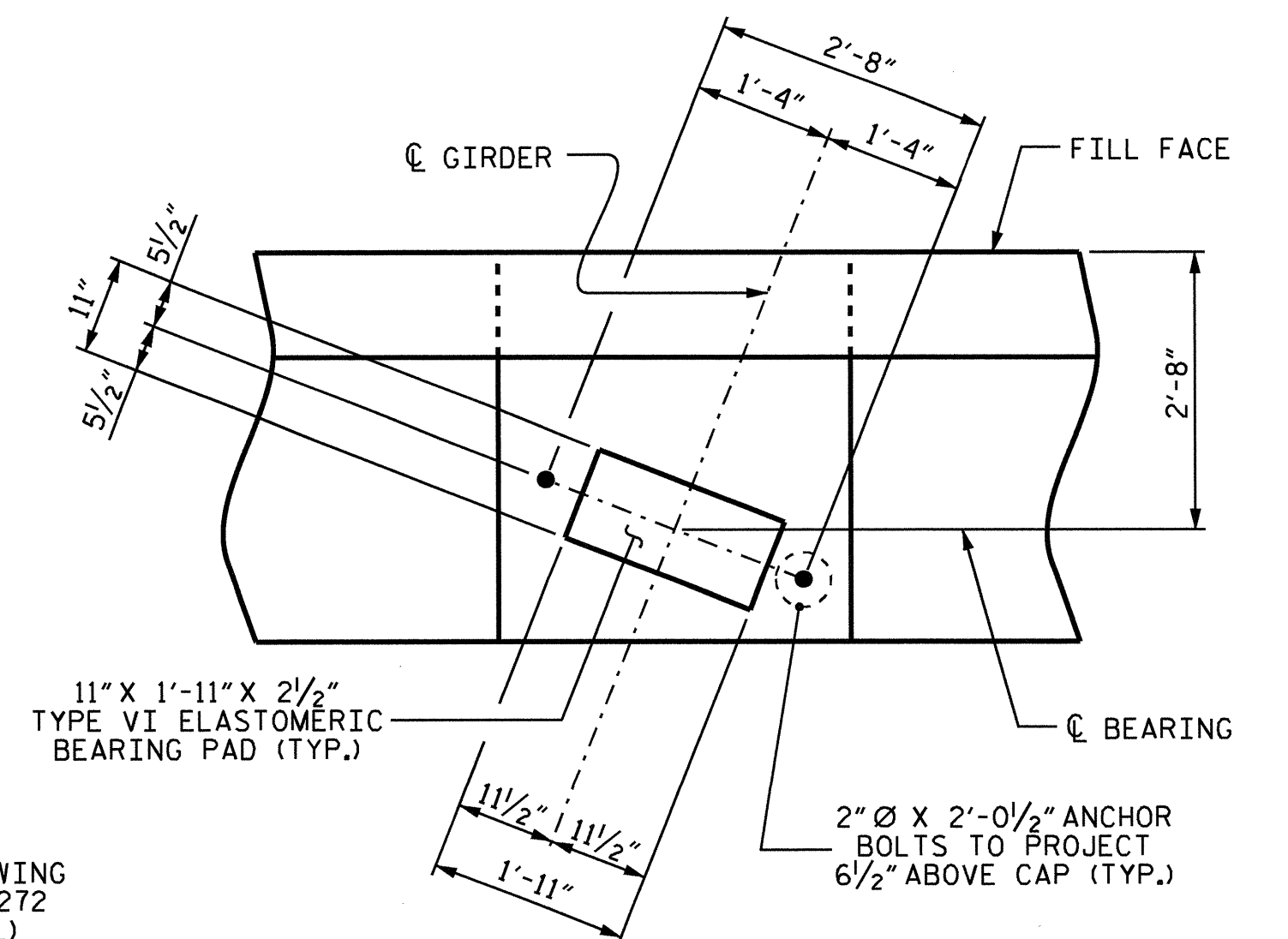
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
 S-27
 TOTAL SHEETS
 34



NOTES

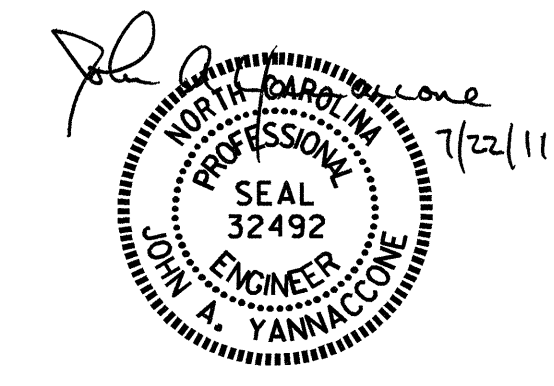
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- * THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE FRONT FACE AT THE RATE OF 2%.
- THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS; SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 1 OF 3

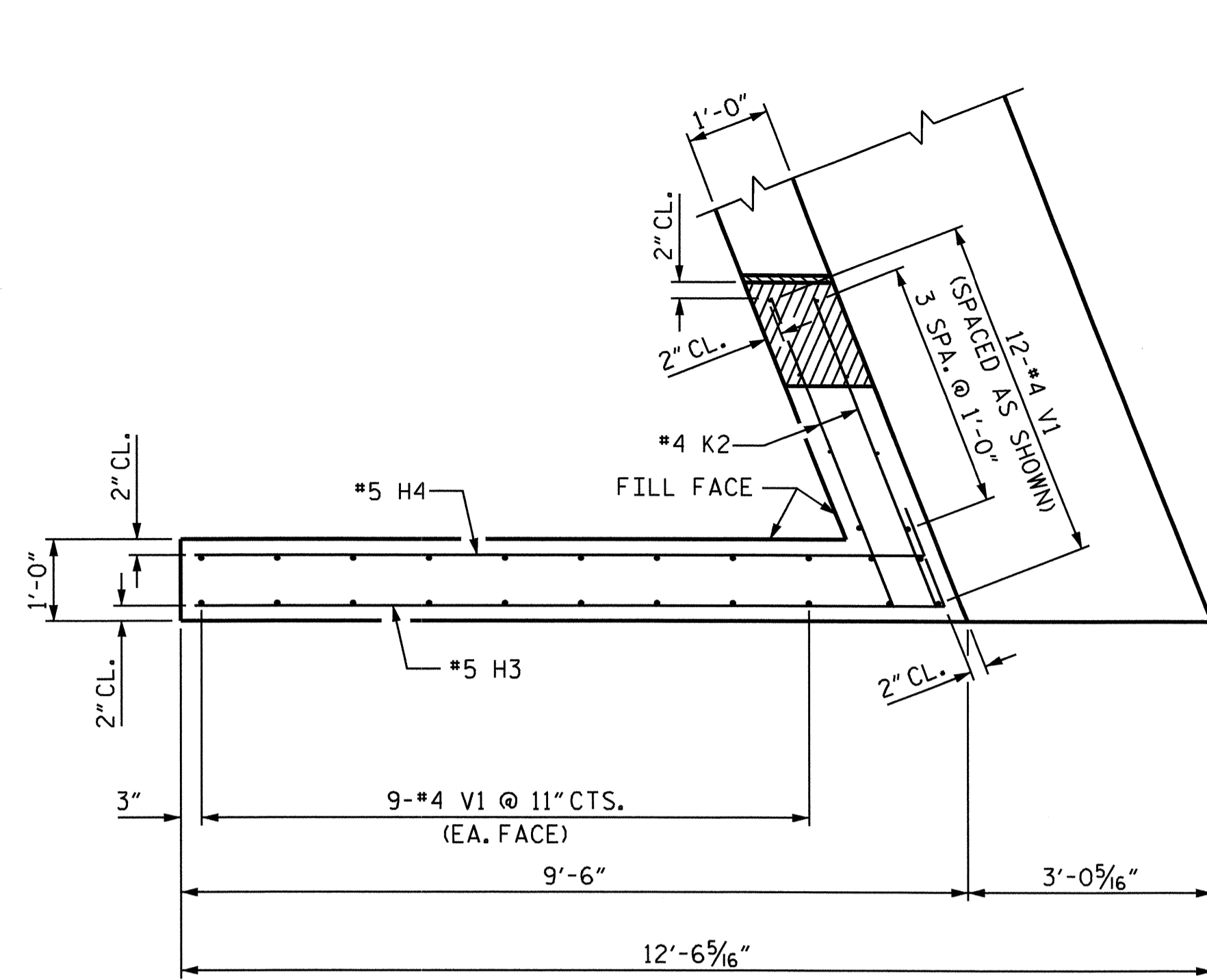
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



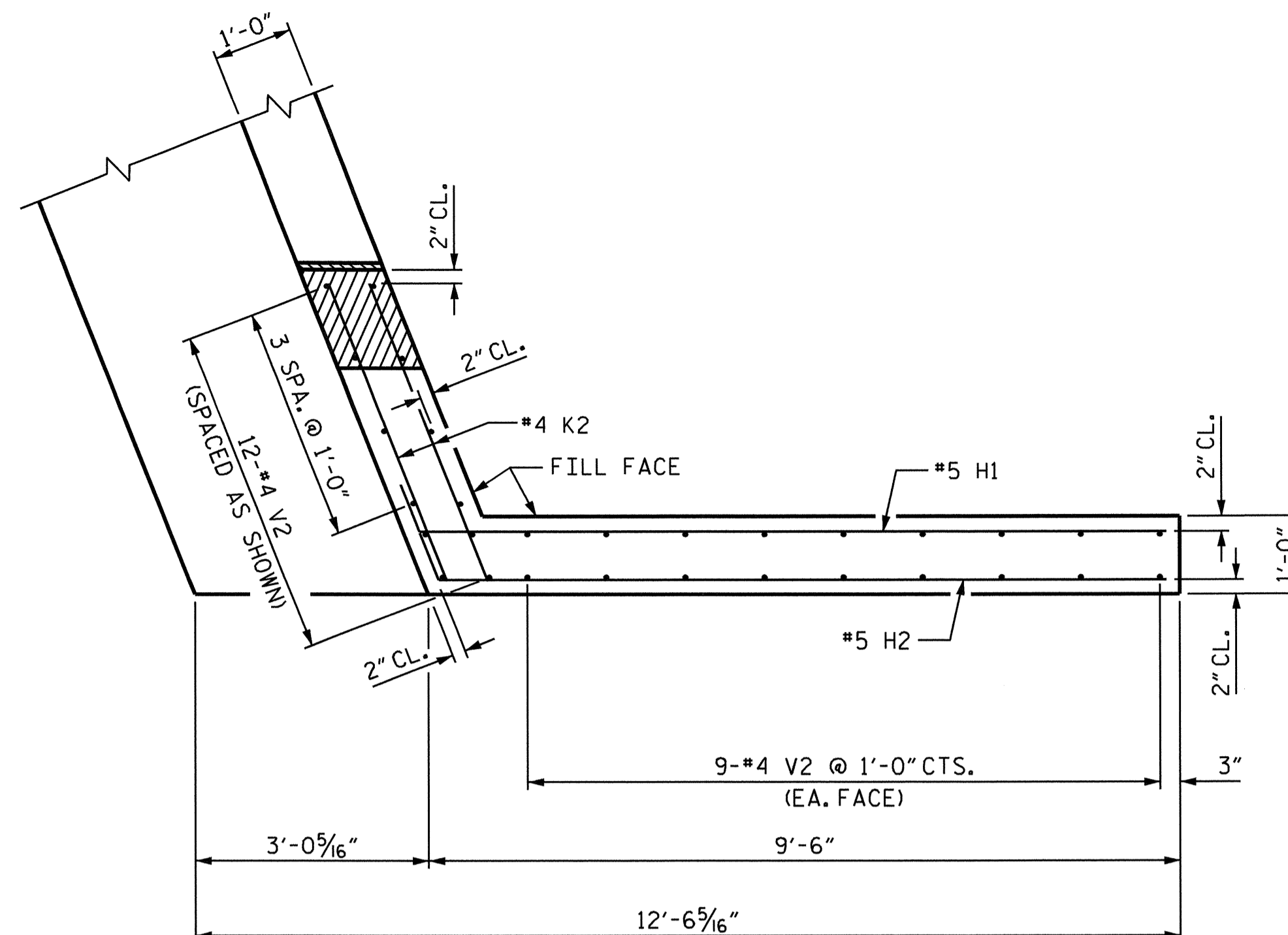
* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS, SEE SHEET 3 OF 3.

DRAWN BY: S. DOMBROWSKI DATE: 9/21/10
 CHECKED BY: O.T. NGUYEN DATE: 08/10

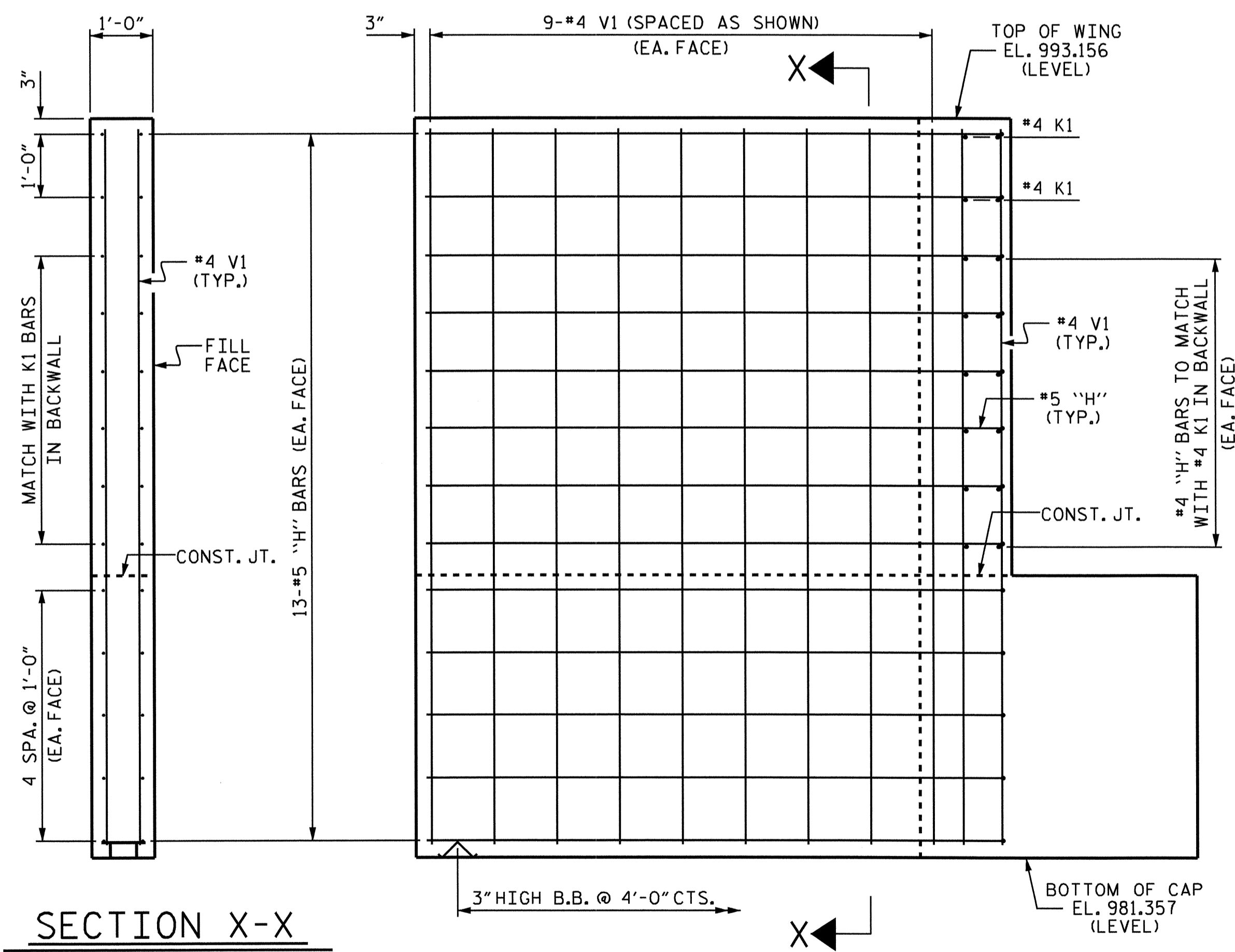
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS	
2			4			34	



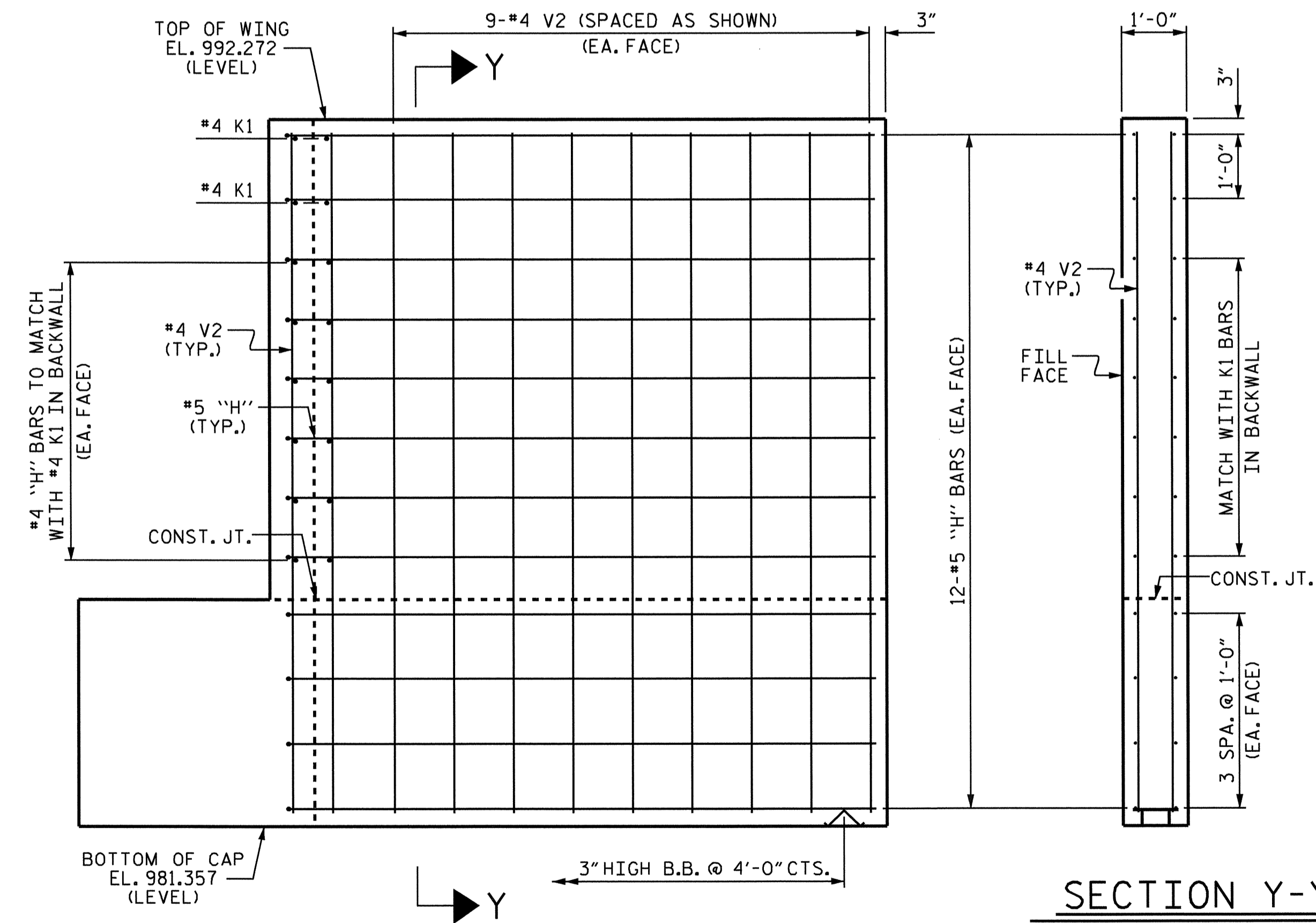
PLAN OF WING W3



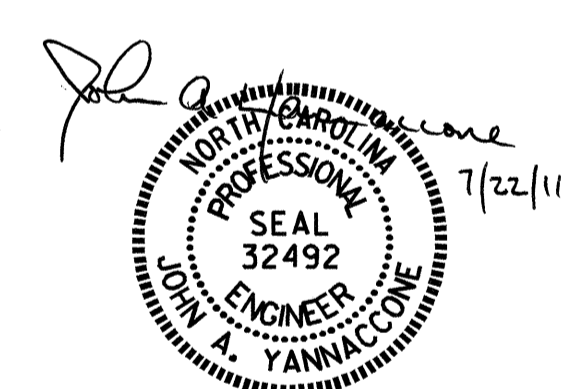
PLAN OF WING W4



ELEVATION OF WING W3



ELEVATION OF WING W4



PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 2 OF 3

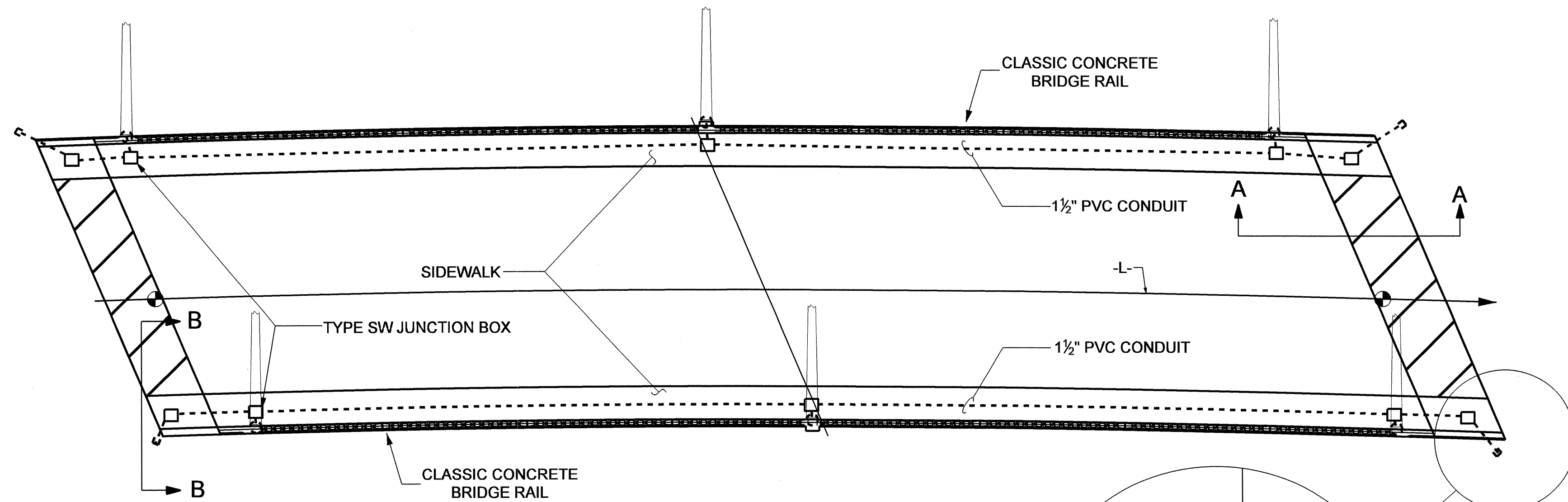
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

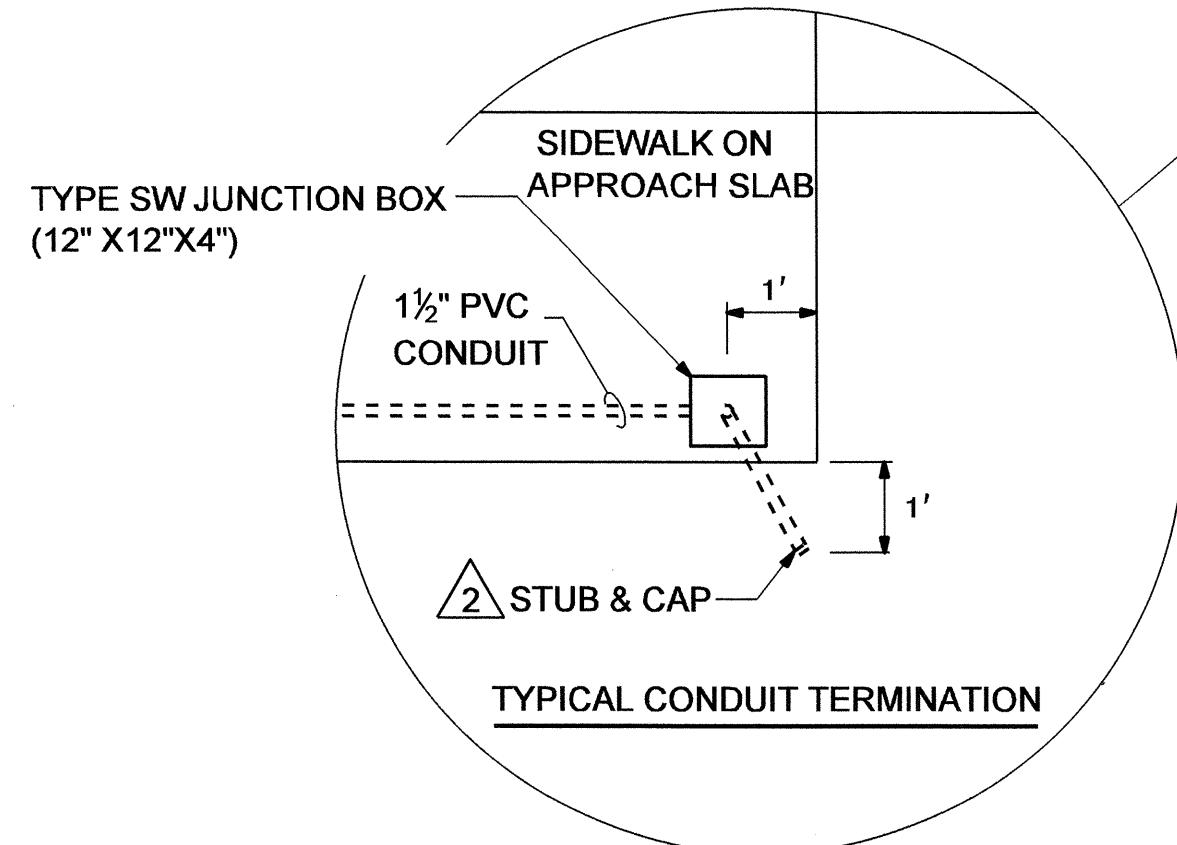
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29	
1			3			TOTAL SHEETS	
2			4			34	

DRAWN BY: S. DOMBROWSKI DATE: 9/21/10
 CHECKED BY: O.T. NGUYEN DATE: 08/10

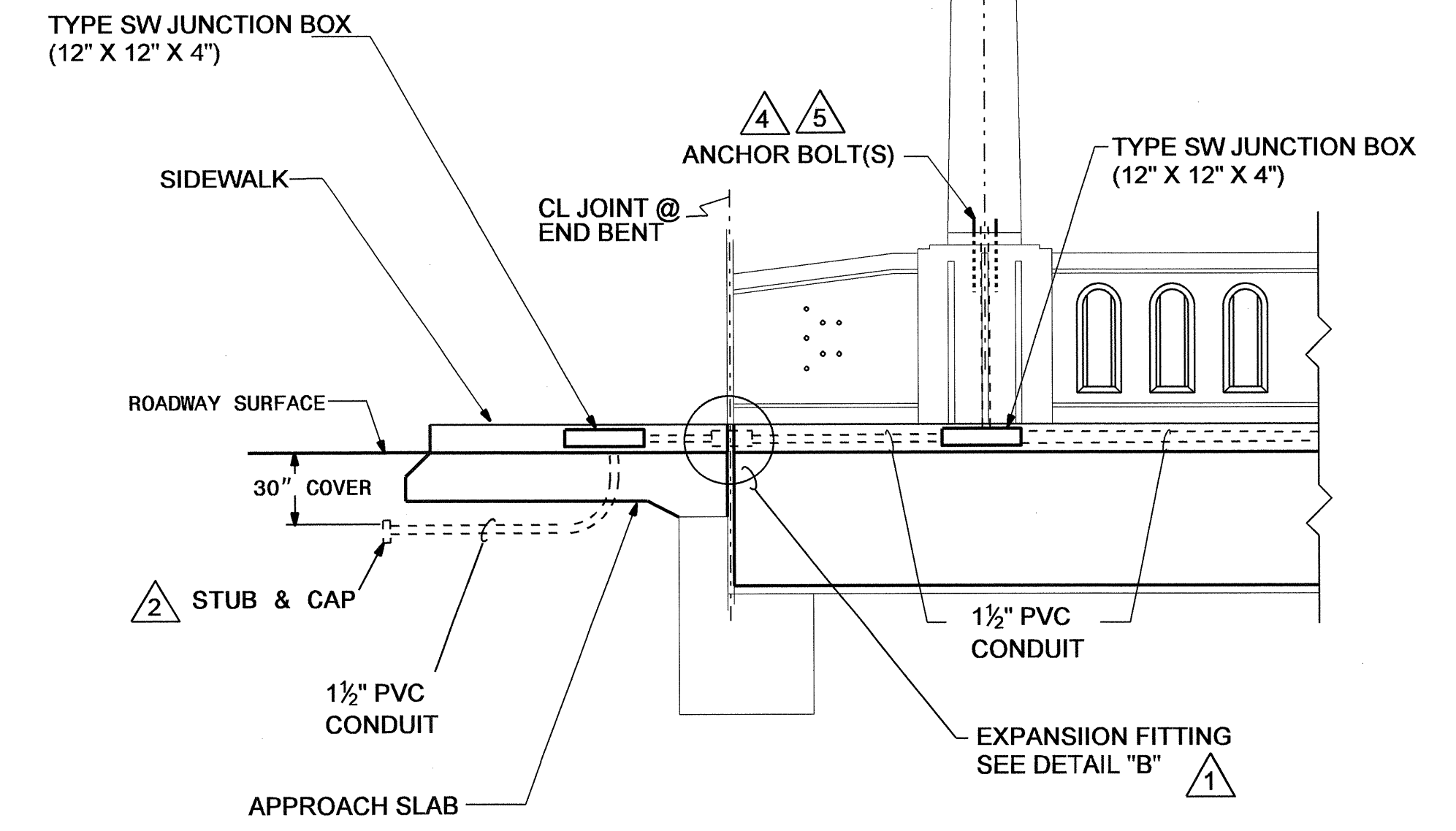
USE FOR LIGHTING CONSTRUCTION ONLY



CONDUIT SYSTEM LAYOUT

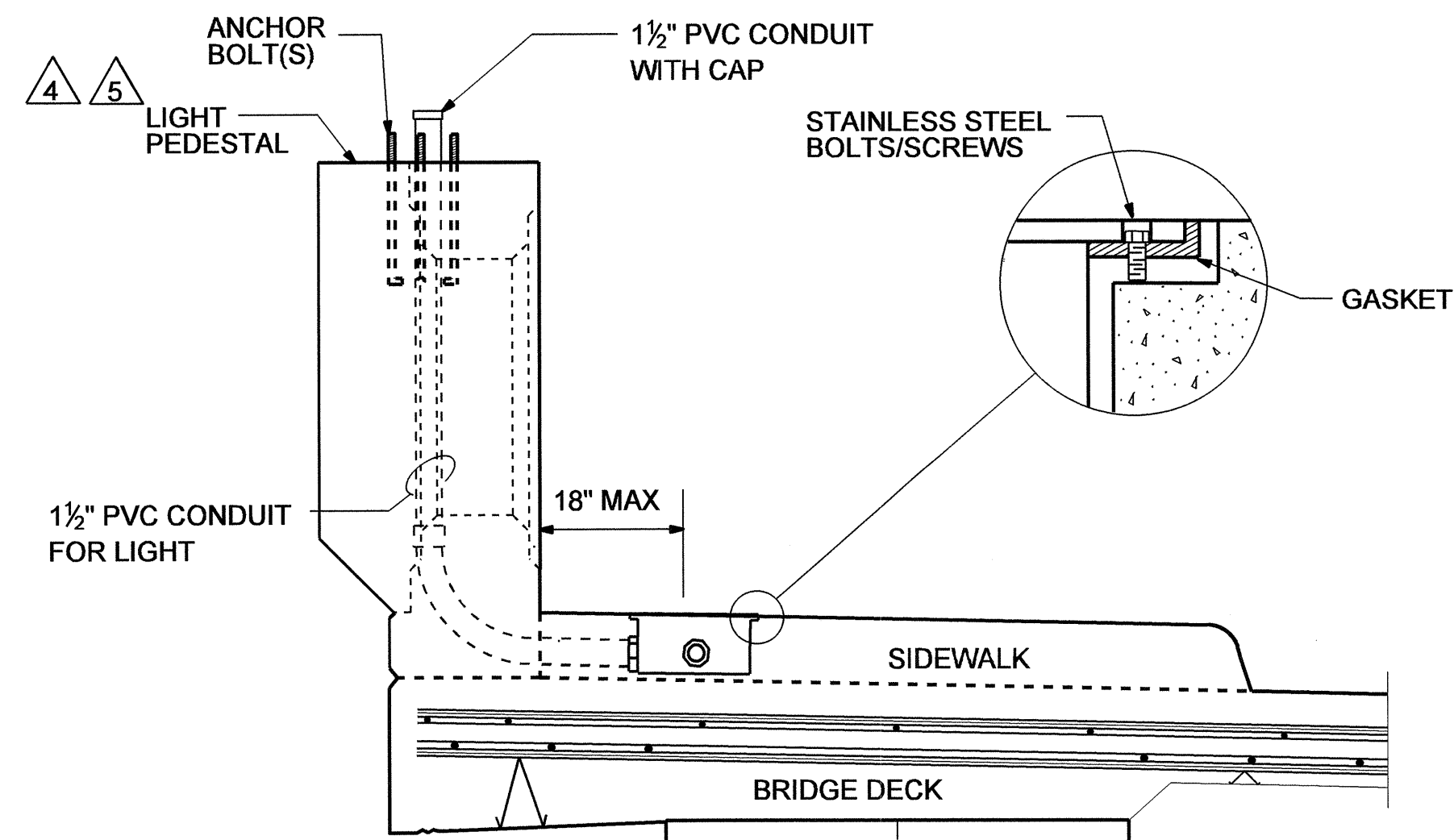


TYPICAL CONDUIT TERMINATION



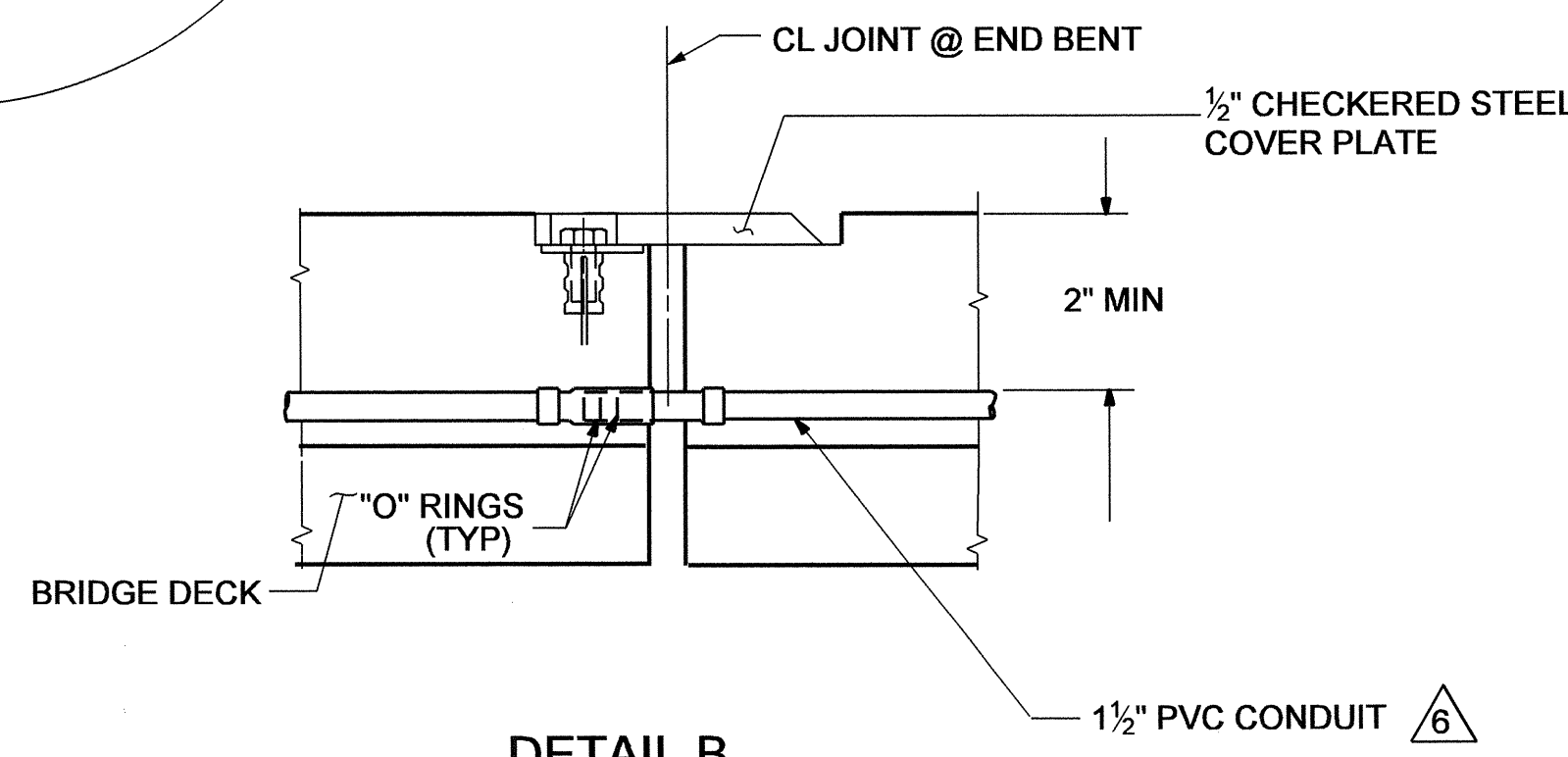
VIEW A-A

LIGHT STANDARD INSTALLATION AT END BENTS



VIEW B-B

CONDUIT AND JUNCTION BOX INSTALLATION AT LIGHT PEDESTALS



DETAIL B

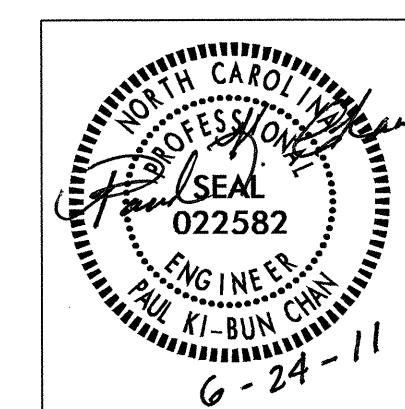
1 1/2" PVC EXPANSION FITTING INSTALLATION

NOTES

- 1 POWER SERVICE FROM EACH END OF BRIDGE, TIE TO LIGHTING CIRCUIT IN AREA.
- 2 COORDINATE CONNECTION OF CONDUIT WITH OTHERS. ENSURE THAT CONDUIT IS NOT IN CONFLICT WITH GUARD RAIL POSTS.
- 3 SEE STRUCTURE PLANS FOR LOCATION AND DETAILS FOR LIGHT PEDESTALS.
- 4 INSTALL ANCHOR BOLTS ACCORDING TO MANUFACTURER'S RECOMMENDATION.
- 5 COORDINATE WITH THE TOWN OF KERNERSVILLE TO INSTALL ANCHOR BOLTS ACCORDING TO POLE MANUFACTURER SPECIFICATIONS.
- 6 POLES AND LUMINAIRES PROVIDED AND INSTALLED BY OTHERS.

ESTIMATED BILL OF MATERIAL ELECTRICAL CONDUIT SYSTEM		
UNIT	ITEMS	QTY
EA.	TYPE SW JN. BOX (12" X 12" X 4")	10
FT	1 1/2" PVC CONDUIT	540
EA.	1 1/2" PVC EXPANSION JOINT	4
FT	POLYETHYLENE PULL LINE	560

PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-



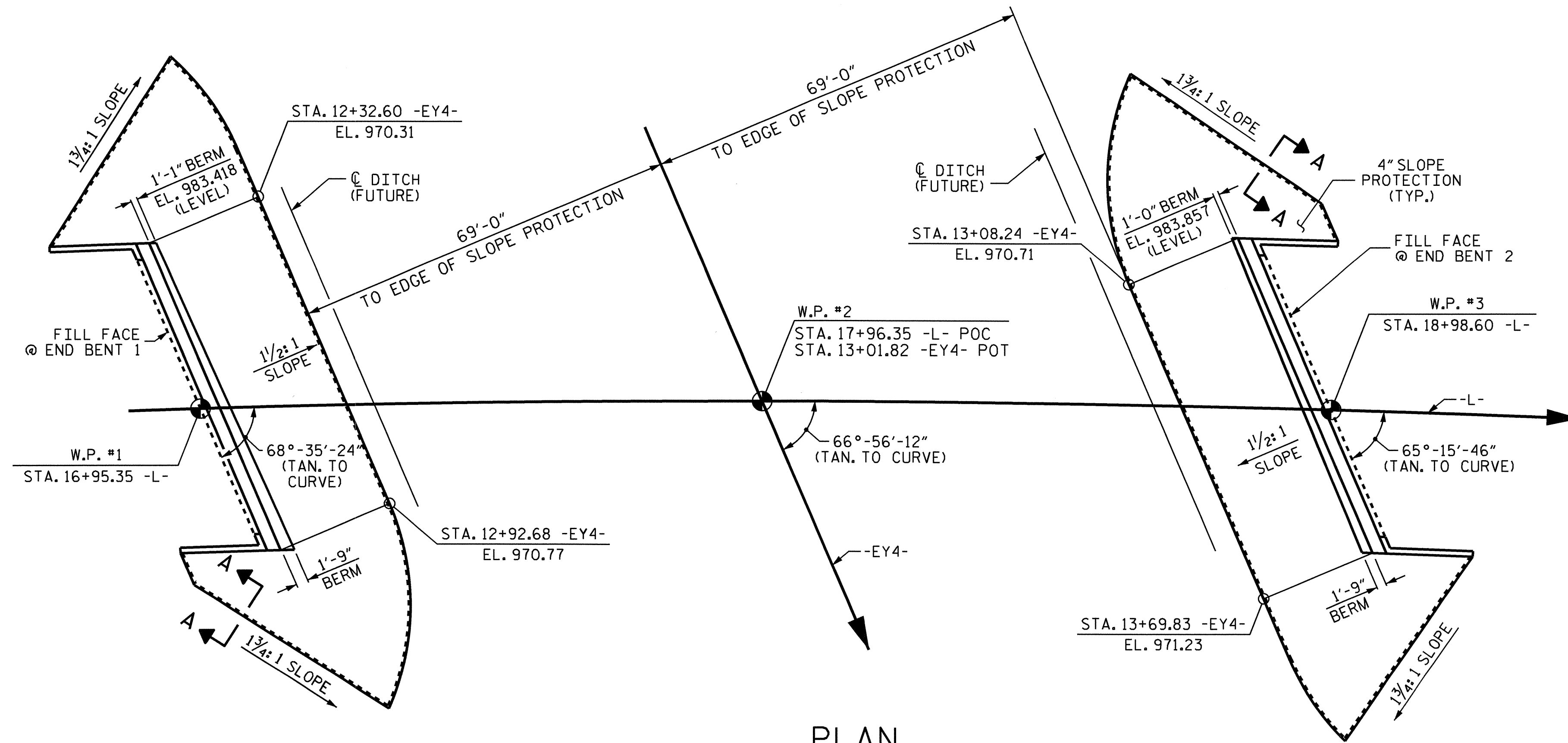
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ROADWAY DESIGN LIGHTING & ELECTRICAL
ELECTRICAL CONDUIT SYSTEM
 BRIDGE NO. 368 OVER I-40 BUSINESS
 ON SR 2643 (SALISBURY STREET)
 IN KERNERSVILLE

DRAWN BY: A. BROWN DATE: 6-24-11
 CHECKED BY: P. Chan DATE: 6-24-11

SEE PROJECT SPECIAL PROVISIONS TITLED "ELECTRICAL CONDUIT SYSTEM" FOR MATERIALS CONSTRUCTION METHODS AND PAYMENT.

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

TOTAL SHEETS: 34



PLAN

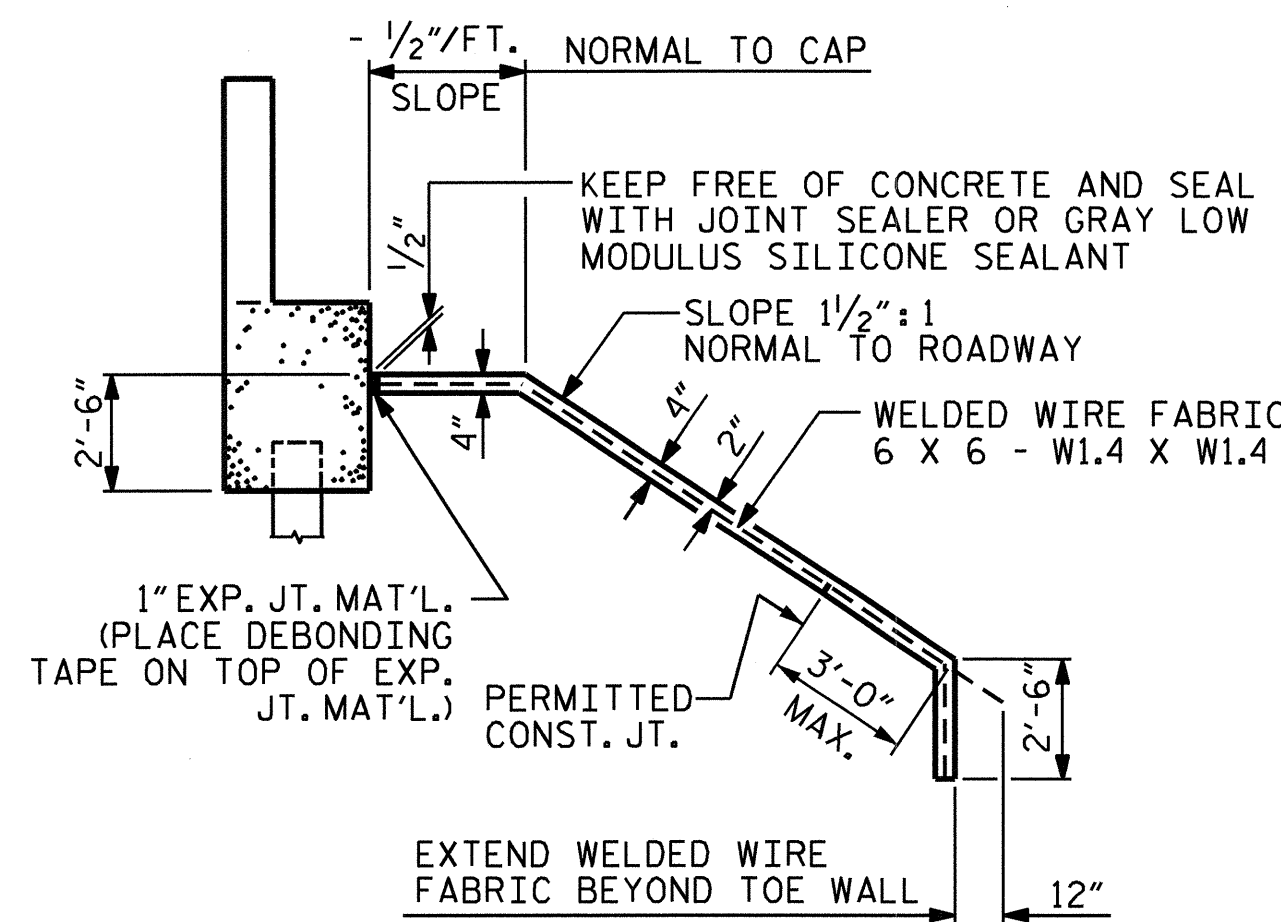
NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

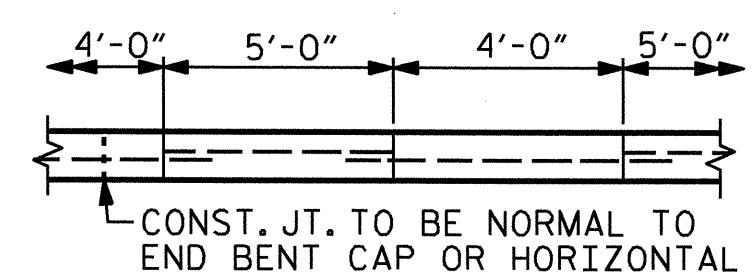
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

BRIDGE @ STA. 17+96.35 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	330	594
END BENT 2	335	603

* QUANTITY SHOWN IS BASED ON 5' POURS.

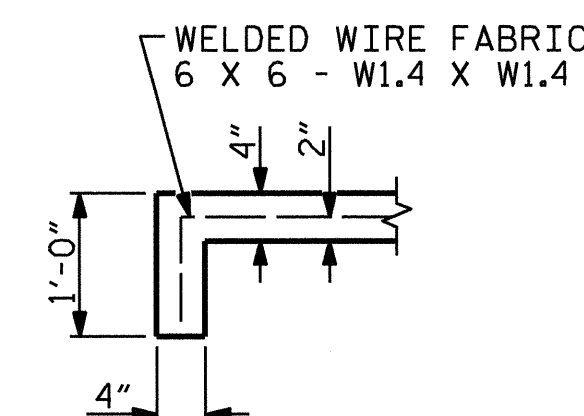


SECTION ALONG C ROADWAY

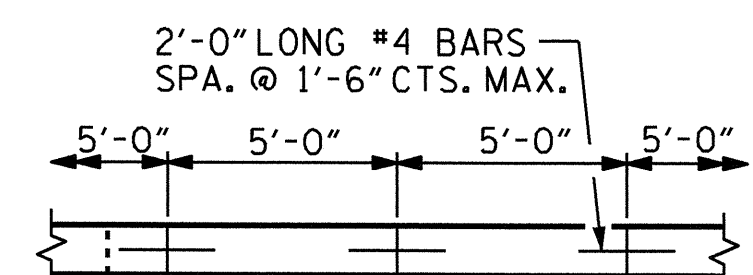


POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL



SECTION A-A



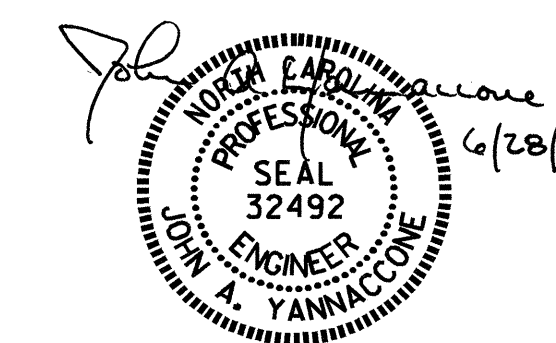
CONST. JT. TO BE NORMAL TO END BENT CAP OR HORIZONTAL

STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL

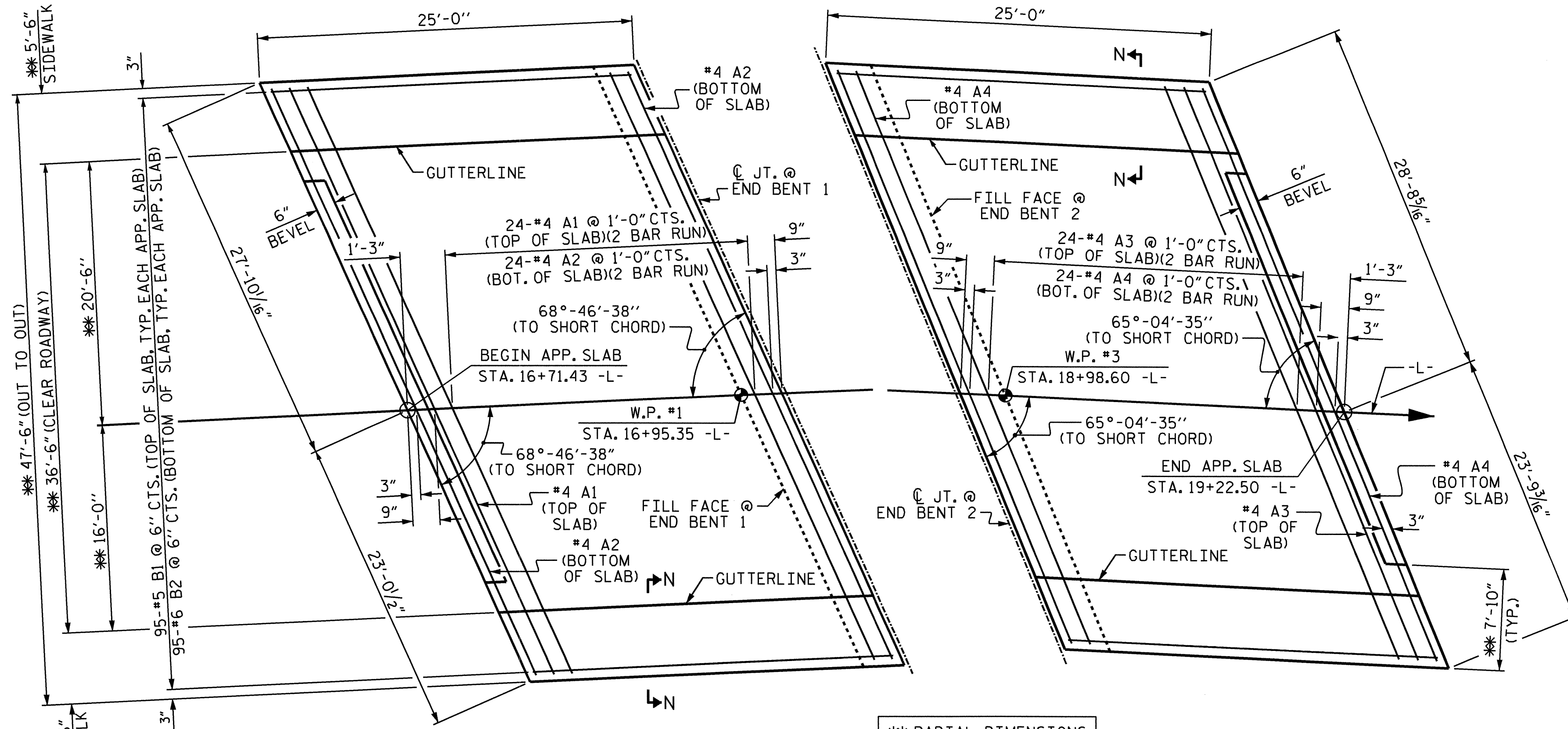
PROJECT NO. B-4510
FORSYTH COUNTY
 STATION: 17+96.35 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SLOPE PROTECTION
 DETAILS



ASSEMBLED BY : Z. H. BROWN DATE : 3/18/10
 CHECKED BY : O. T. NGUYEN DATE : 5/3/10
 DRAWN BY : ELR 5/92 REV. 7/10/01 LES/RDR
 CHECKED BY : GRP 6/92 REV. 5/7/03 RWW/JTE
 REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			34



AT END BENT 1 AT END BENT 2

PLAN OF APPROACH SLABS

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS. ARC OFFSETS ARE NEGLIGIBLE.

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
 FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

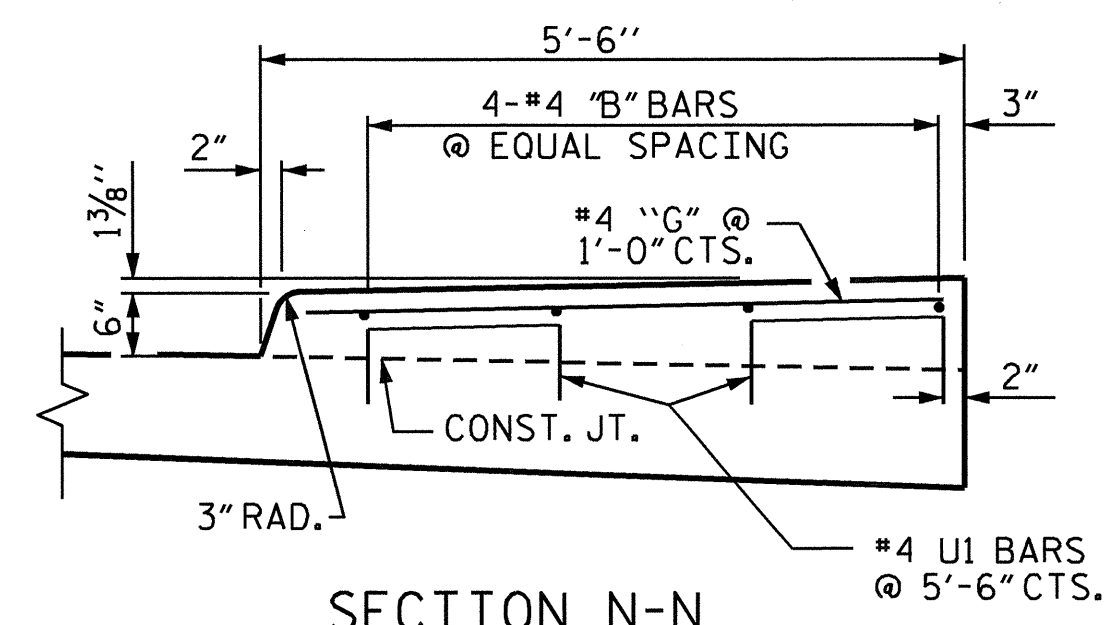
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE SIDEWALK. SIDEWALK REINFORCING STEEL AND CONCRETE ON APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM FOR BRIDGE APPROACH SLAB.

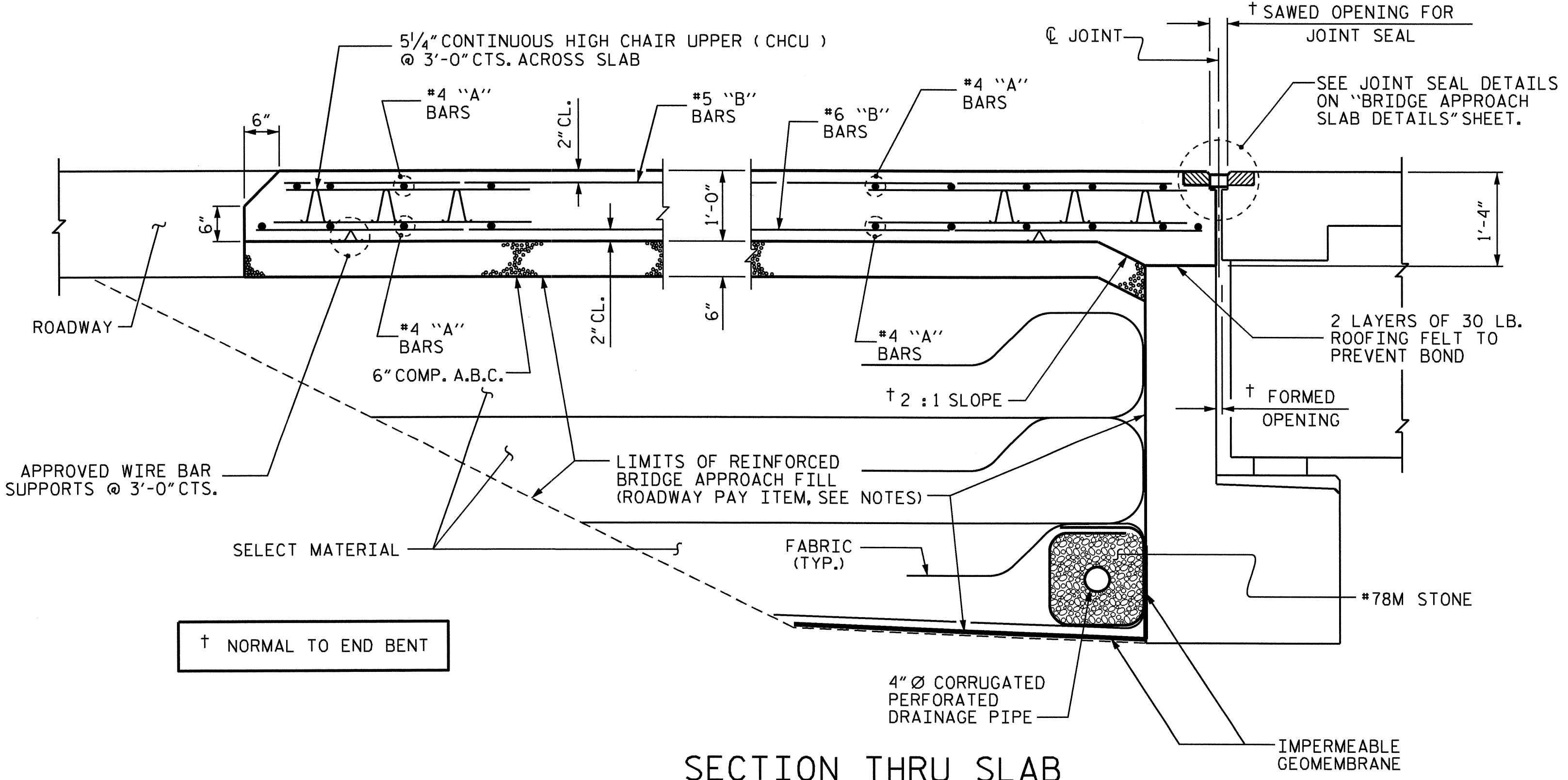
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 7/8".

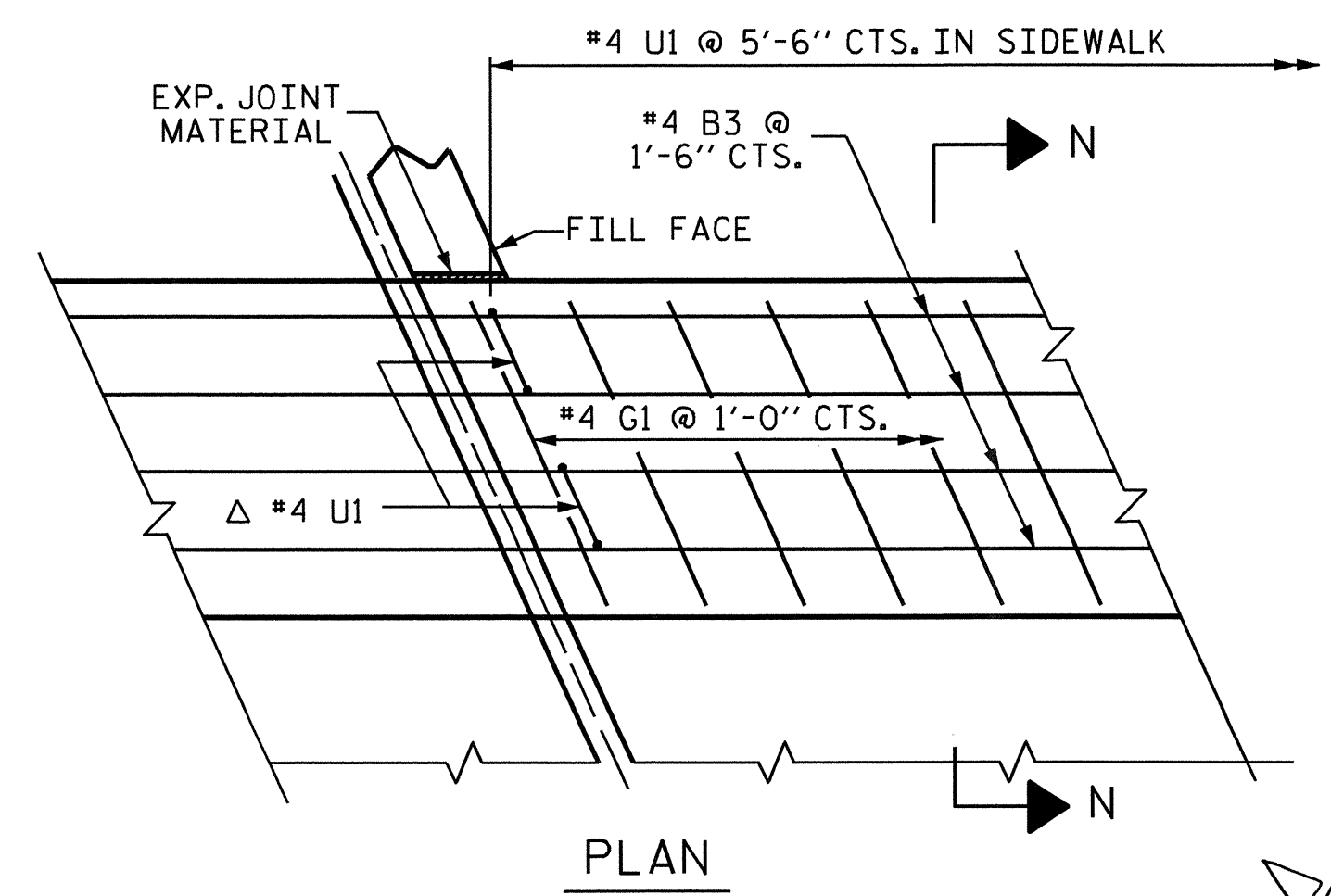
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



SECTION N-N



SECTION THRU SLAB



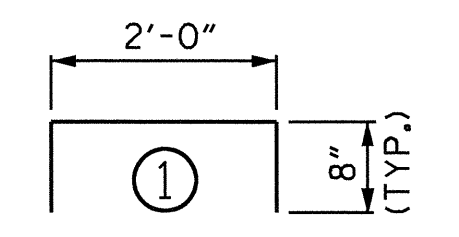
SIDEWALK DETAILS

Δ UI BARS MAY BE PUSHED INTO GREEN CONCRETE AFTER APPROACH SLABS HAVE BEEN SCREEDED OFF.

BILL OF MATERIAL

AT END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	26'-5"	882
A2	52	#4	STR	26'-3"	912
*B1	95	#5	STR	23'-6"	2328
B2	95	#6	STR	24'-7"	3508
*B3	8	#4	STR	24'-7"	131
*UI	20	#4	1	3'-4"	45
*G1	50	#4	STR	4'-11"	164
REINFORCING STEEL				LBS.	4,420
*EPOXY COATED REINFORCING STEEL				LBS.	3,550
CLASS AA CONCRETE				C. Y.	50.2

AT END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A3	50	#4	STR	27'-1"	905
A4	52	#4	STR	27'-0"	938
*B1	95	#5	STR	23'-6"	2328
B2	95	#6	STR	24'-7"	3508
*B3	8	#4	STR	24'-7"	131
*UI	20	#4	1	3'-4"	45
*G1	50	#4	STR	4'-11"	164
REINFORCING STEEL				LBS.	4,446
*EPOXY COATED REINFORCING STEEL				LBS.	3,573
CLASS AA CONCRETE				C. Y.	50.3



BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTH CHART

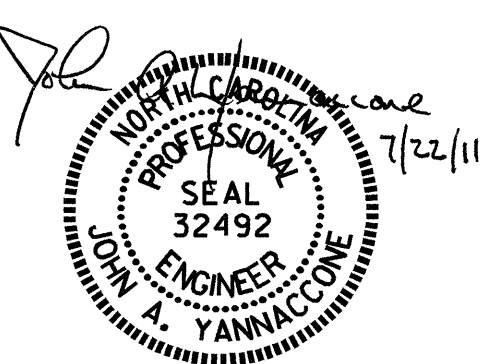
BAR	SIZE	SPLICE LENGTH
*A1 & *A3	#4	2'-0"
A2 & A4	#4	1'-9"

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 1 OF 2

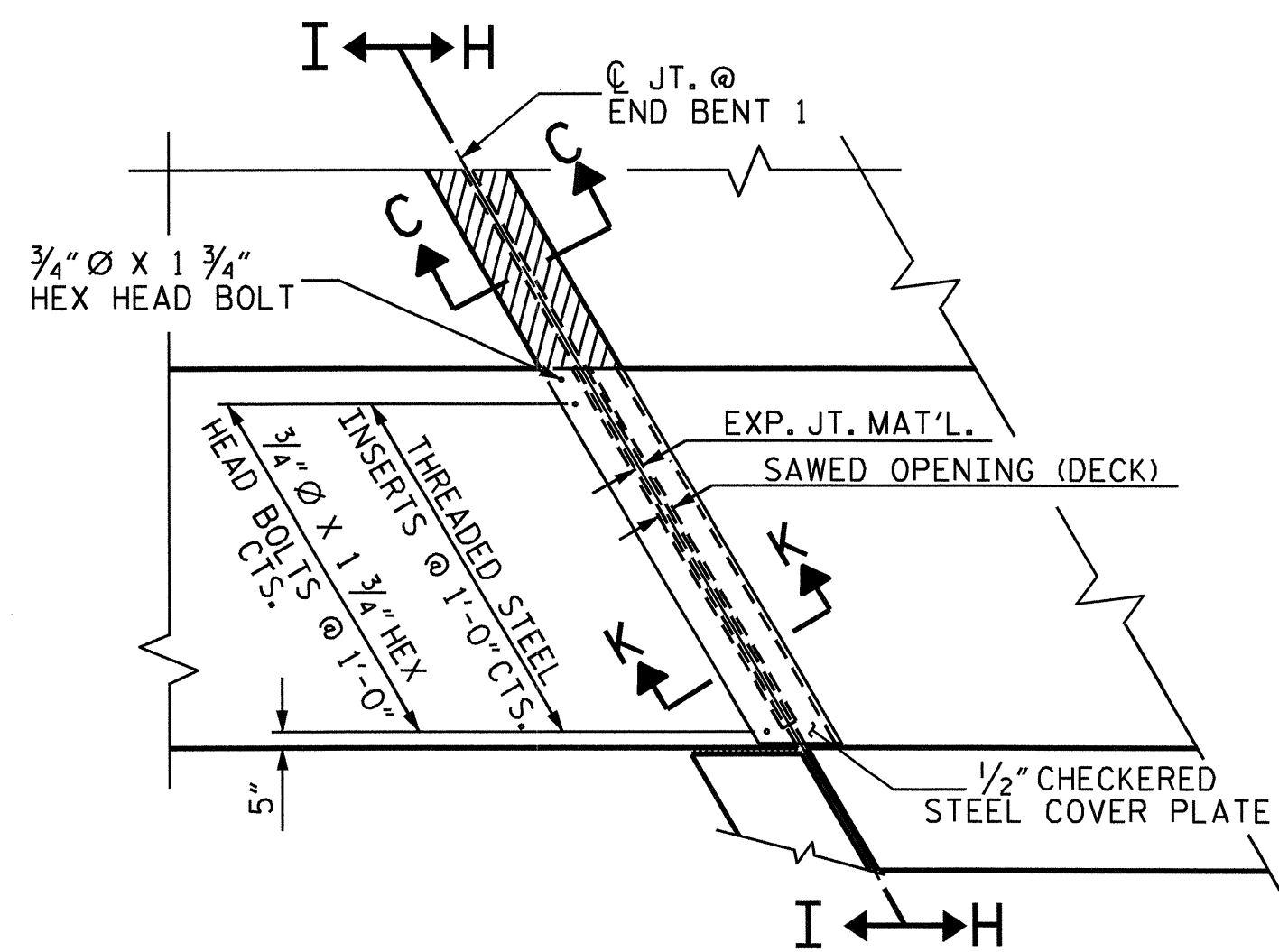
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

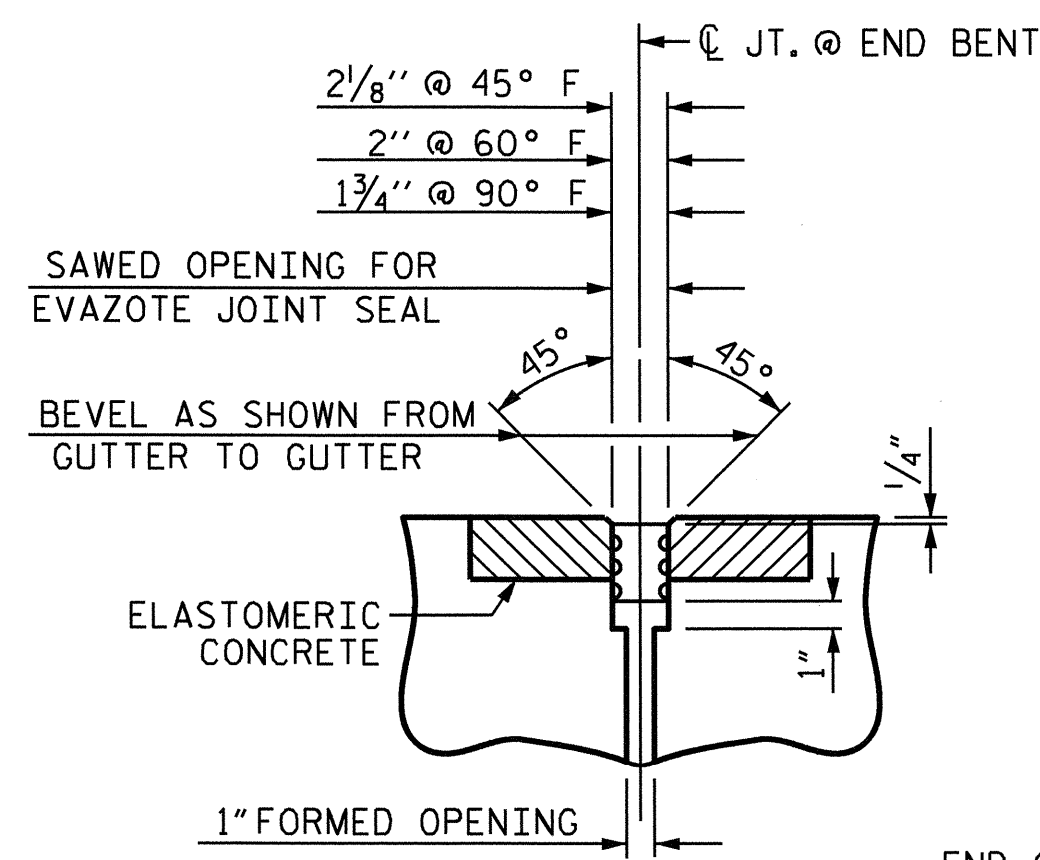


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33	
1			3			TOTAL SHEETS 34	
2			4				

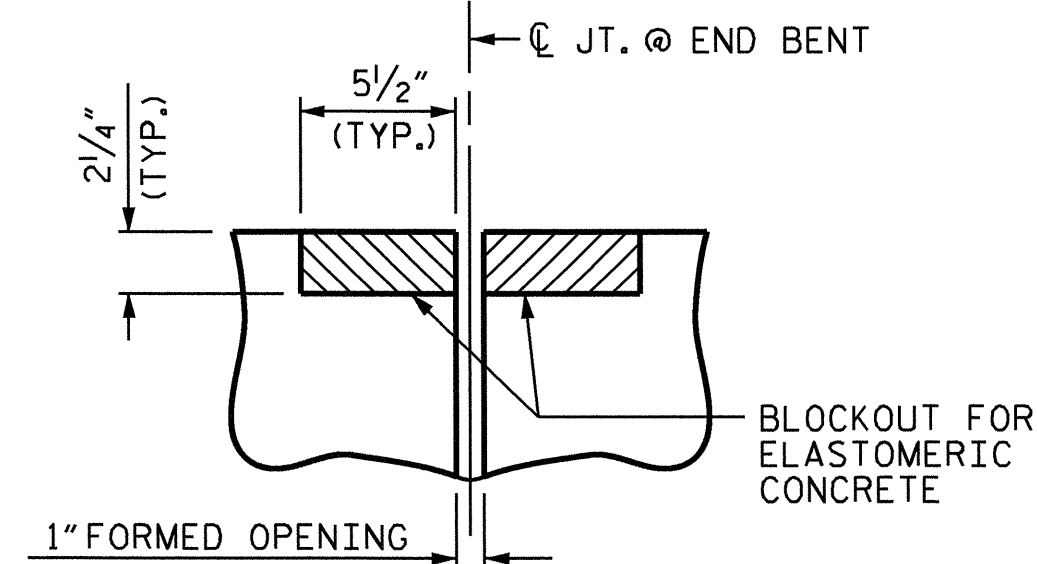
ASSEMBLED BY : Z. H. BROWN	DATE : 3/17/10
CHECKED BY : O. T. NGUYEN	DATE : 5/3/10
DRAWN BY : EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY : VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM



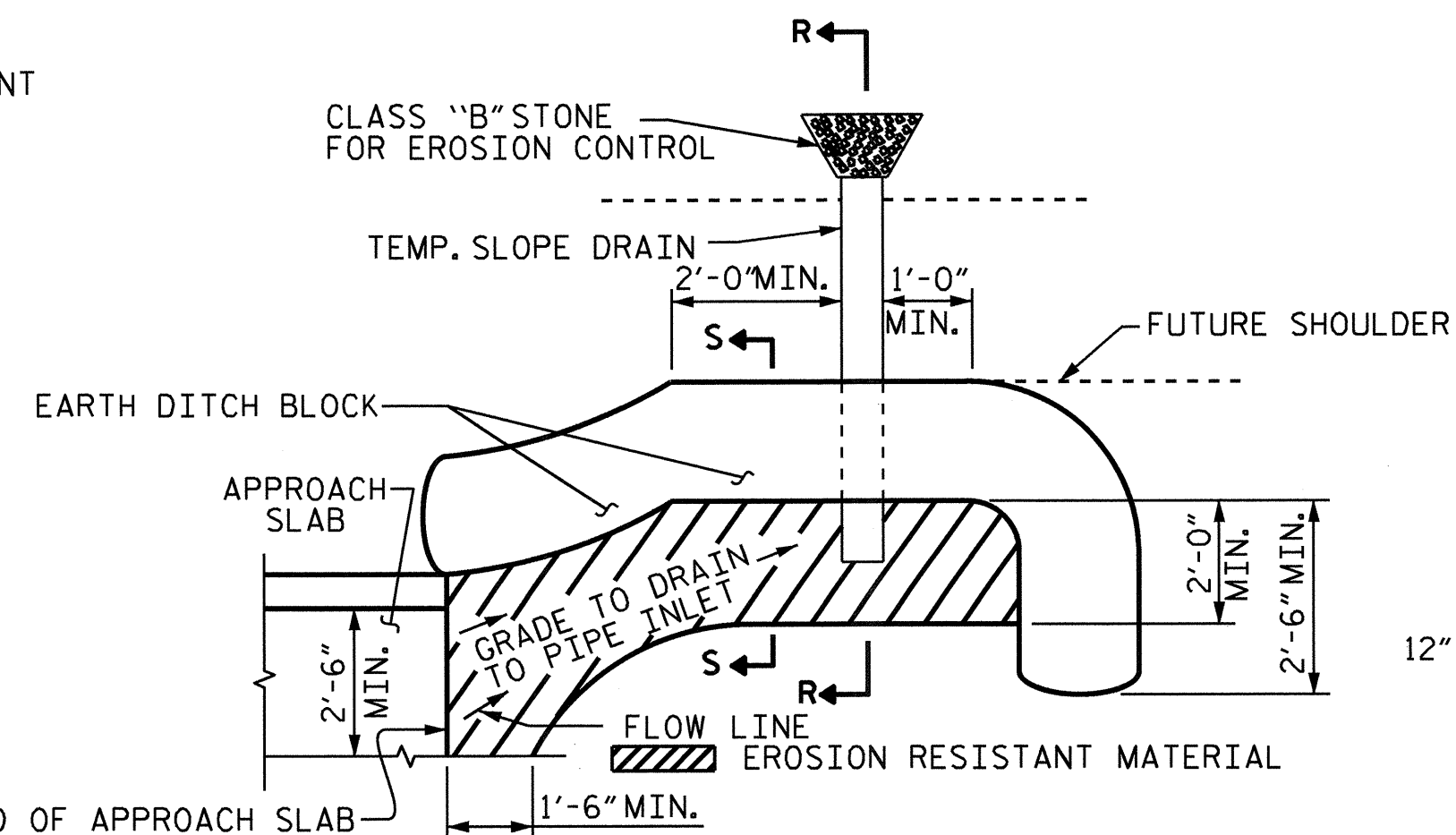
PLAN VIEW OF EVAZOTE JOINT SEAL @ END BENT FOR SIDEWALK



SECTION C-C EVAZOTE JOINT SEAL (EXPANSION)



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

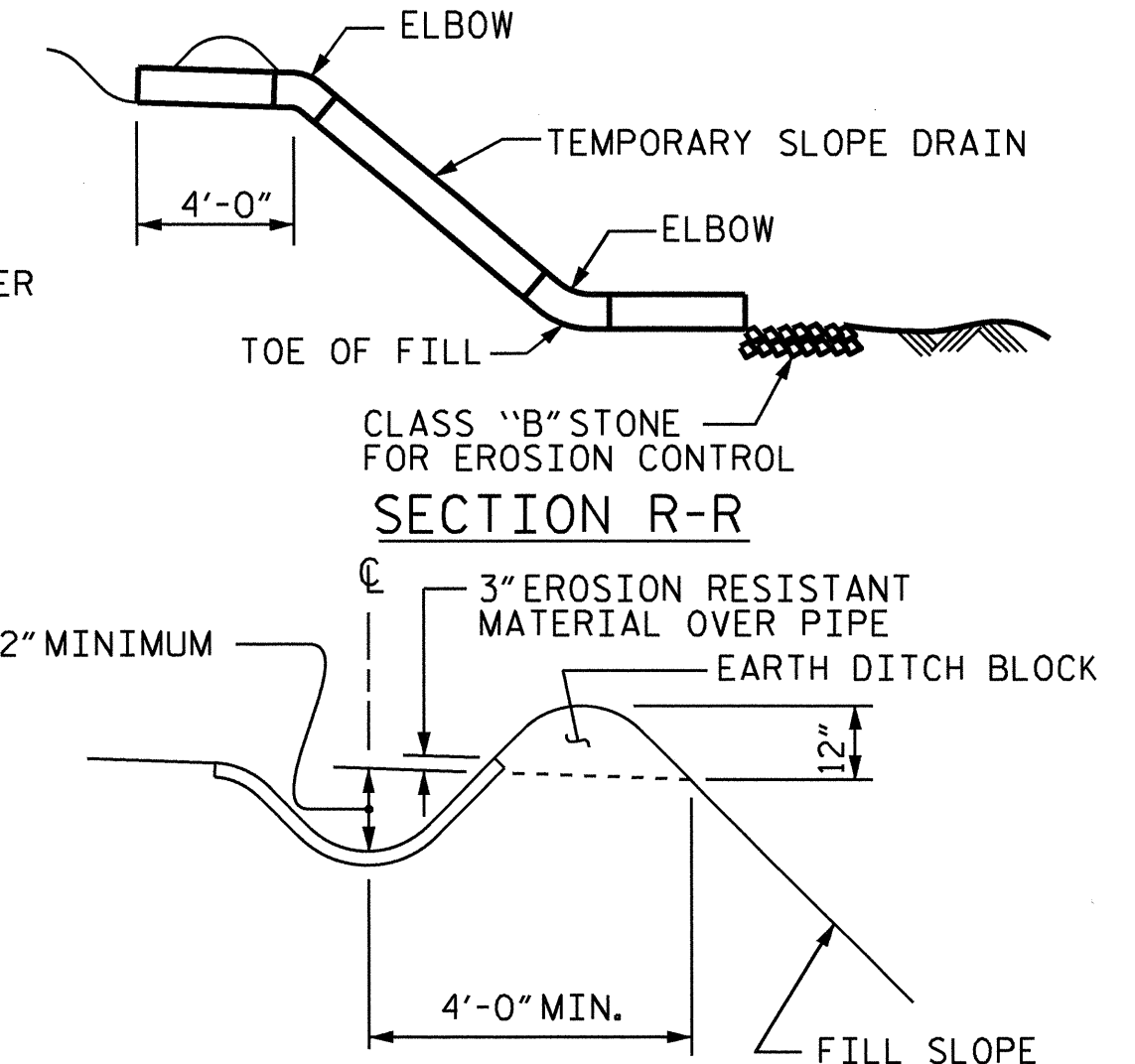


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

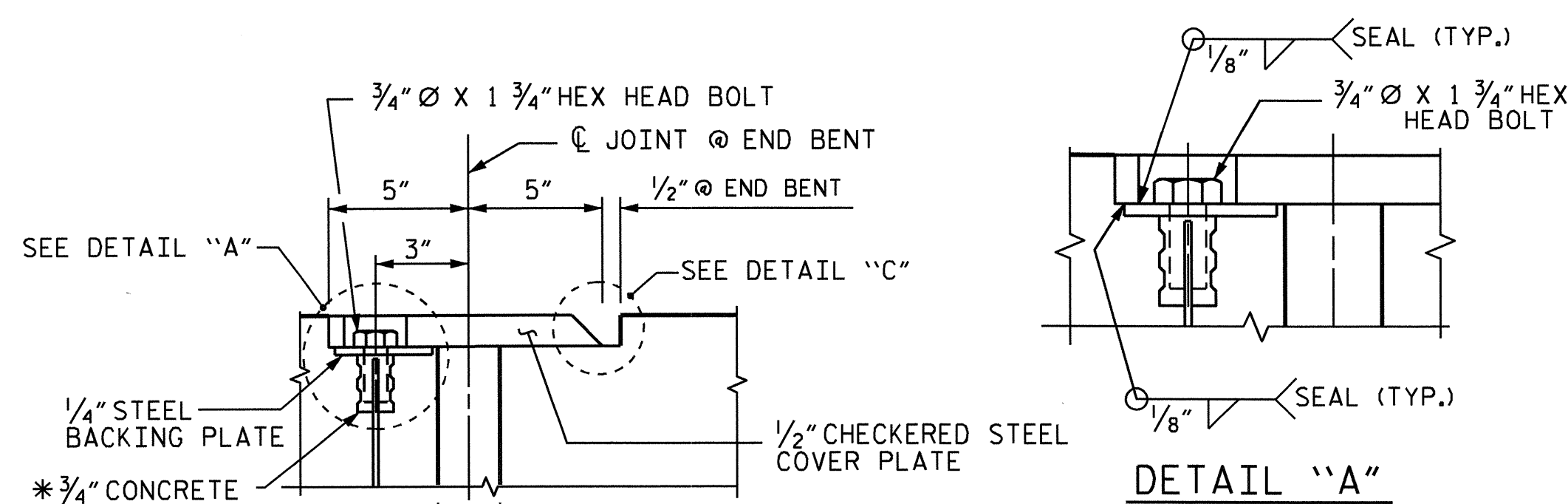
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



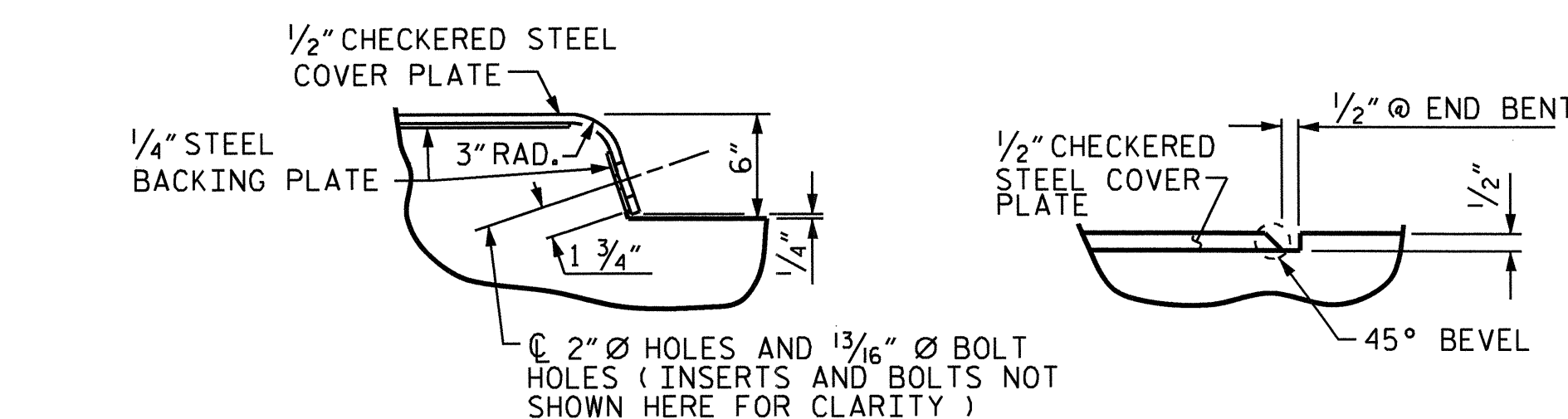
SECTION S-S



DETAIL "A"

*THE 3/4\"/>

SECTION K-K



DETAIL "B"

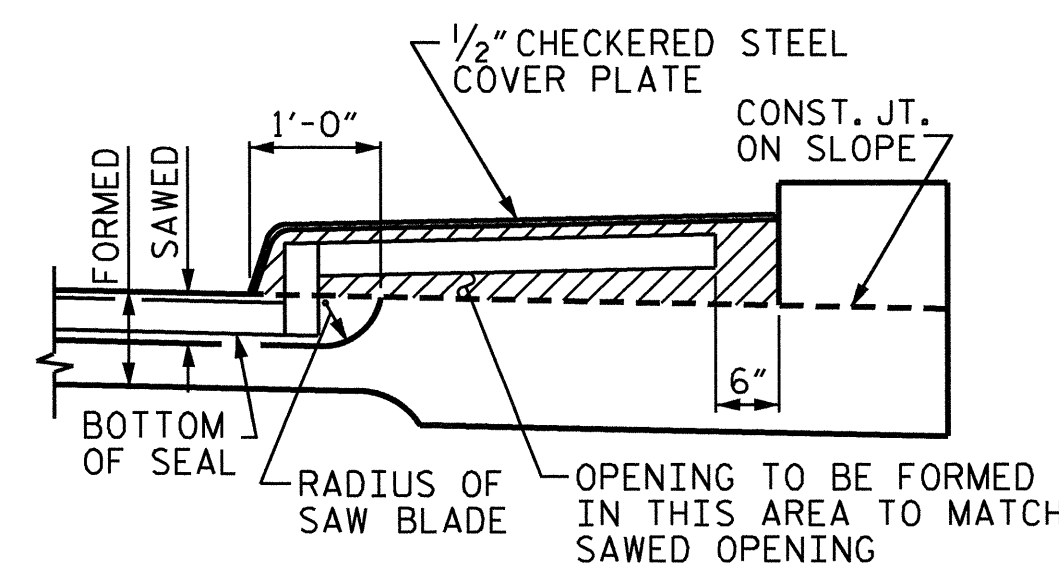
DETAIL "C"

JOINT SEAL DETAILS @ END BENT

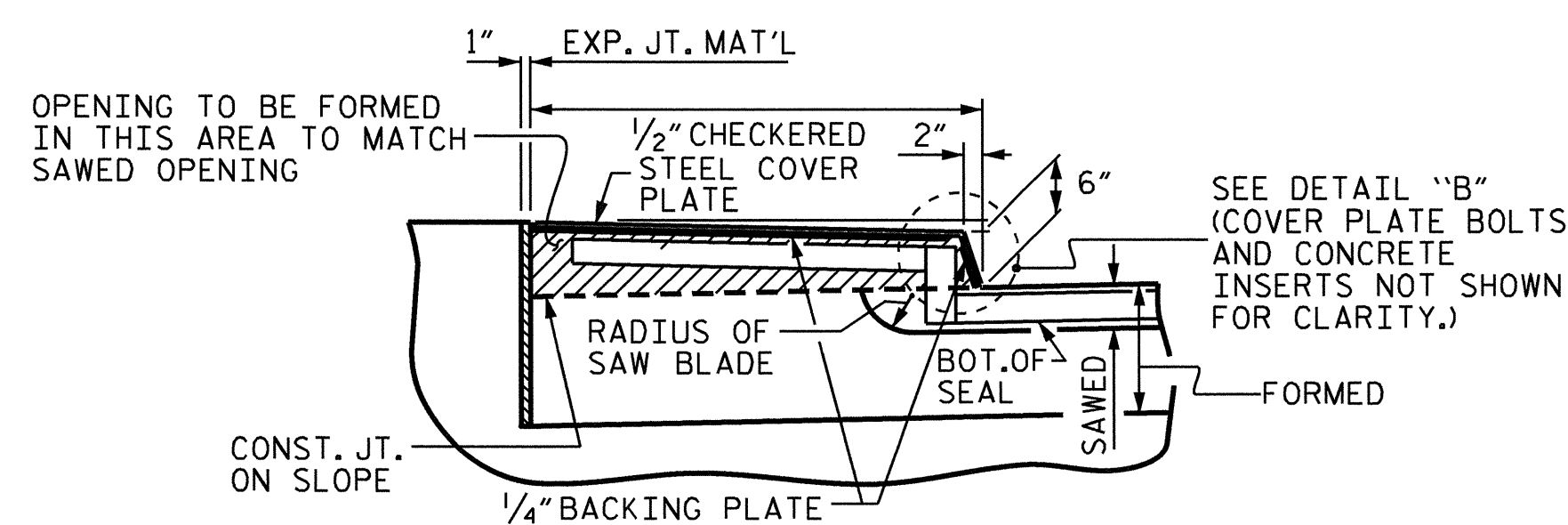
THE STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR APPROVED EQUAL. AFTER FABRICATION, THE PLATES SHALL BE COMMERCIALY BLAST CLEANED AND EITHER COATED WITH A MINIMUM THICKNESS OF 4 MILS (DRY) OF ZINC-RICH PAINT, GALVANIZED OR METALLIZED TO A MINIMUM THICKNESS OF 6 MILS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE 3/4\"/>

NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE COVER PLATE. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR "EVAZOTE JOINT SEALS".



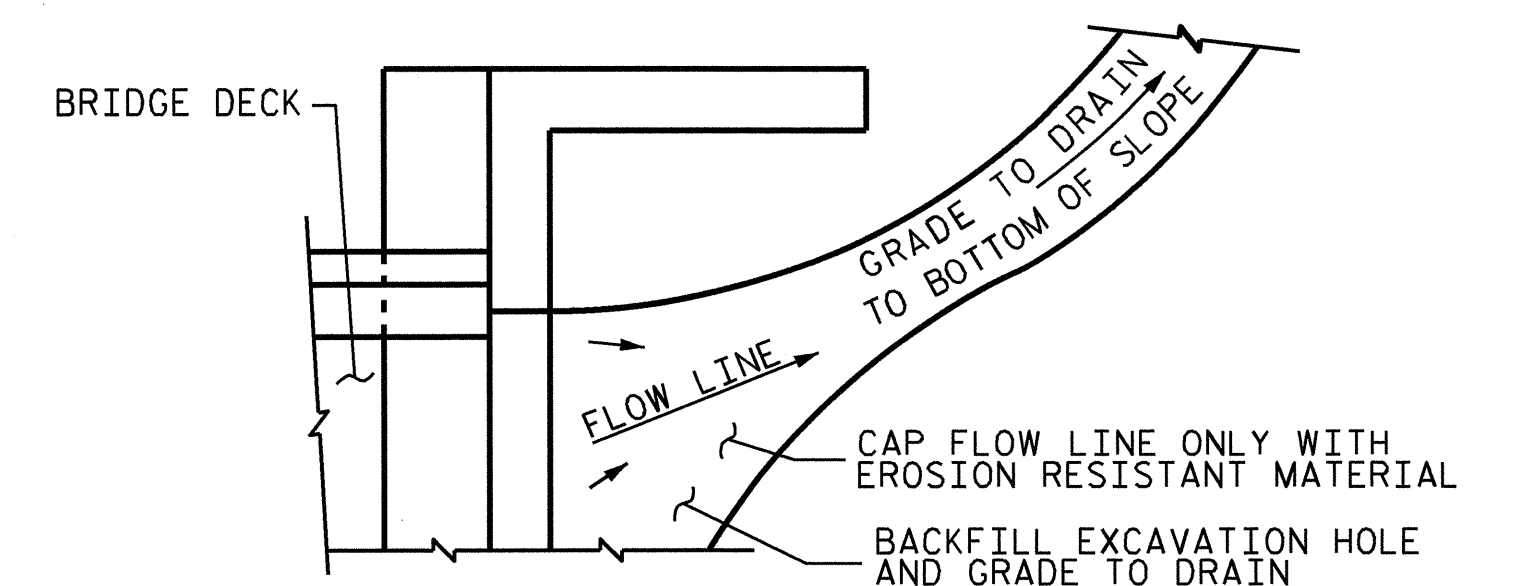
SECTION H-H



SECTION I-I

ELASTOMERIC CONCRETE	
END BENT	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.7
2	6.9
TOTAL	13.6

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



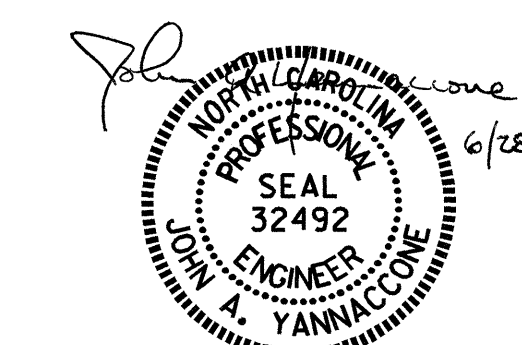
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4510
 FORSYTH COUNTY
 STATION: 17+96.35 -L-

SHEET 2 OF 2

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



ASSEMBLED BY : Z. H. BROWN	DATE : 3/17/10
CHECKED BY : O. T. NGUYEN	DATE : 5/3/10
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWN/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWN/JTE
	REV. 5/1/06RR MAA/KMM

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

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN