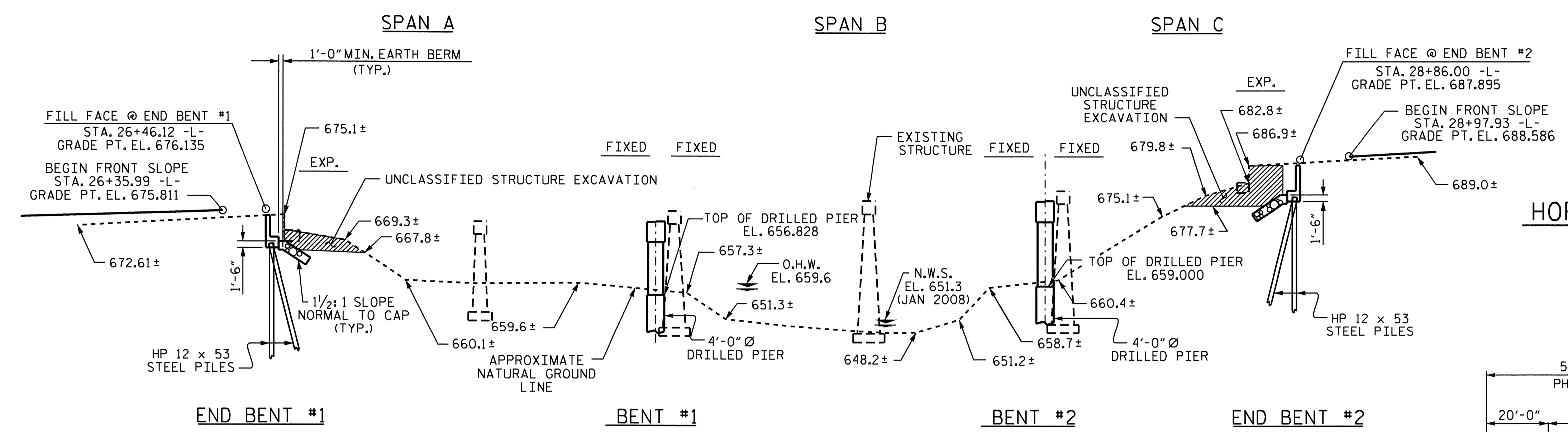
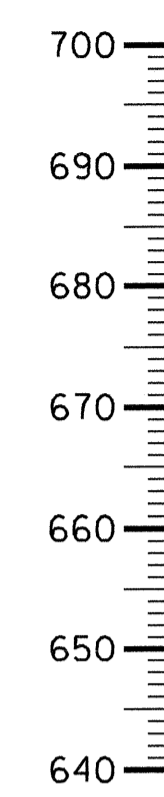
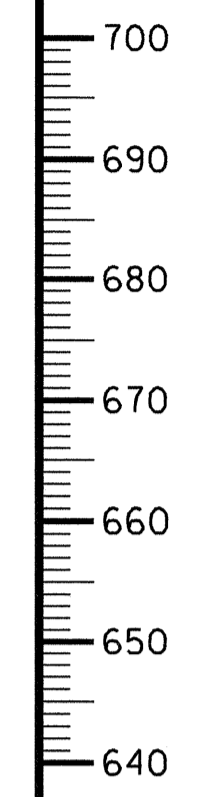


(-)-3.6332% (+)-5.7501%
 PI = 25+00.00 -L-
 EL = 665.70'
 VC = 620'

(+)-5.7501% (+)-5.2290%
 PI = 29+50.00 -L-
 EL = 691.58'
 VC = 100'

GRADE DATA

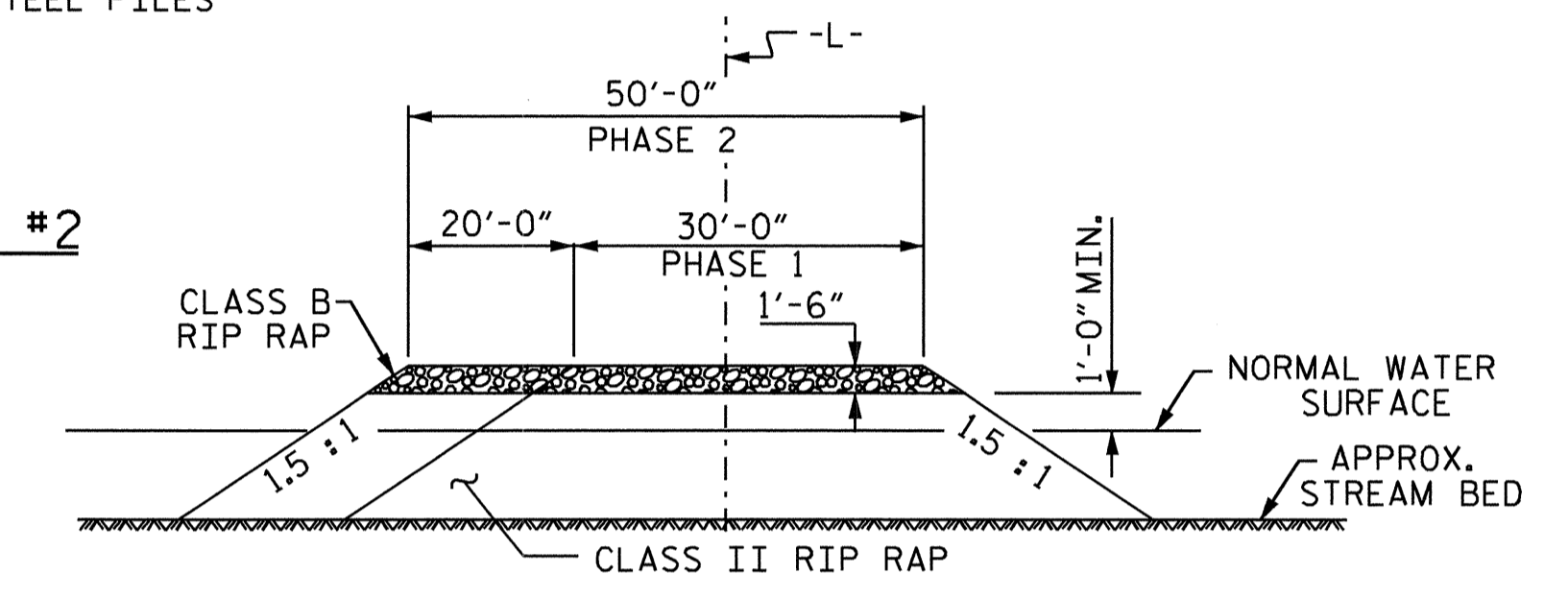
GRADE DATA



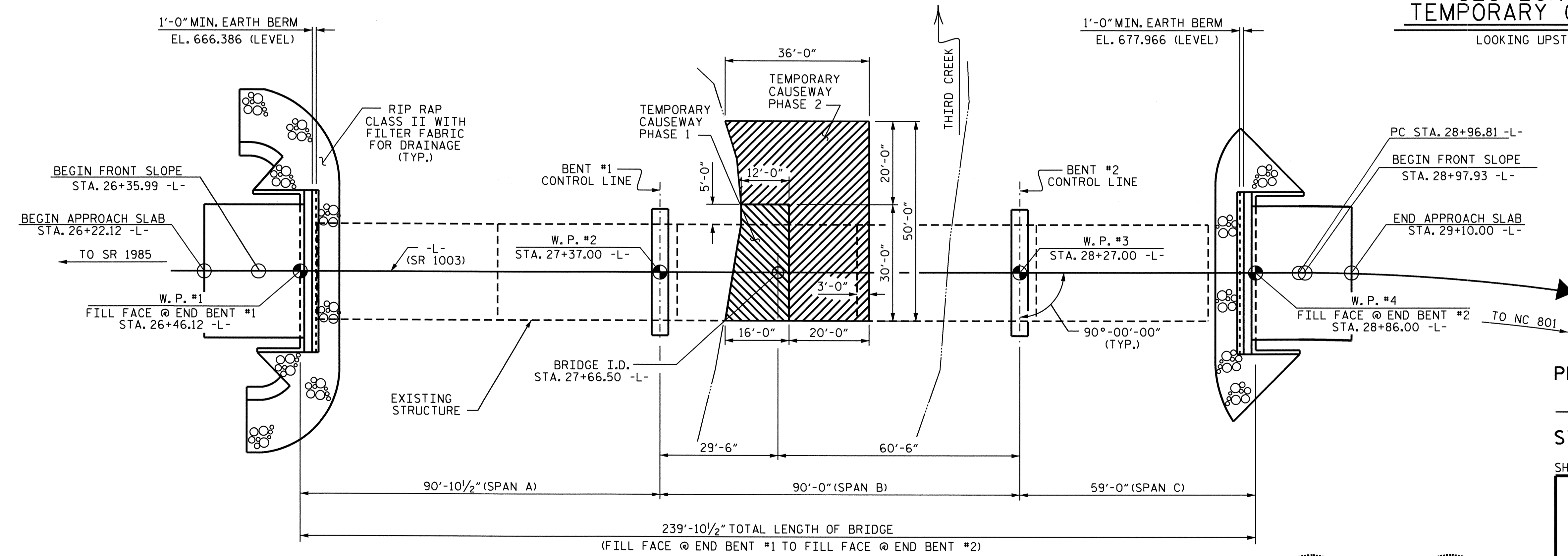
**SECTION ALONG -L-
 (END BENTS SHOWN AT RIGHT ANGLES)**

HORIZONTAL CURVE DATA

PI STA. = 29+85.87
 Δ = 20° 48' 38.1" (RT)
 D = 11° 48' 48.8"
 L = 176.16'
 T = 89.06'
 R = 485.00'



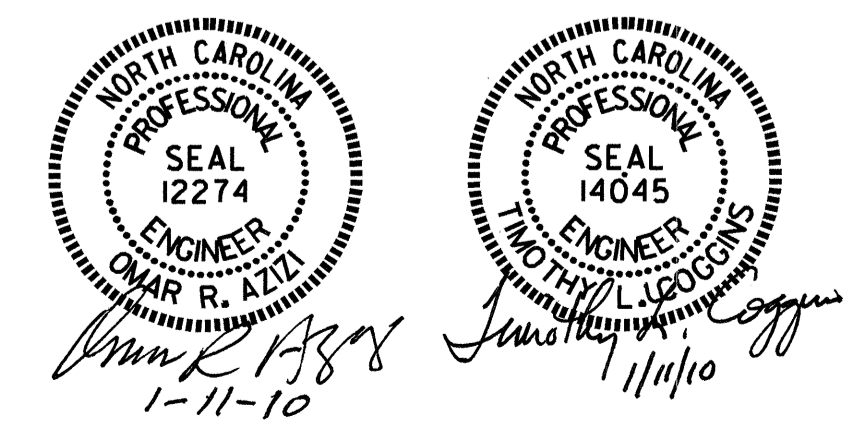
**SECTION THRU
 TEMPORARY CAUSEWAY
 LOOKING UPSTATION**



**PLAN
 (PILES NOT SHOWN FOR CLARITY)**

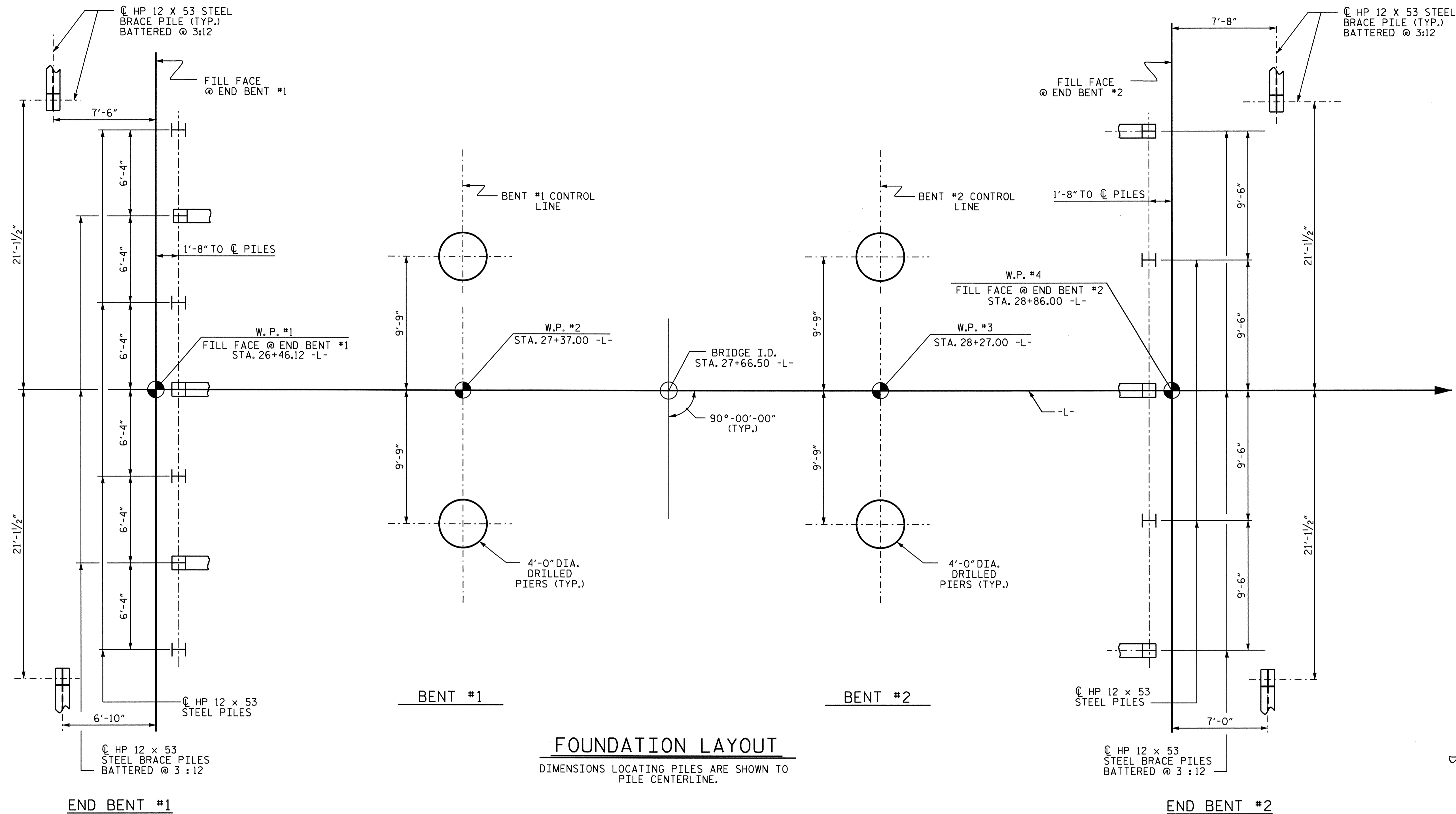
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 26

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 THIRD CREEK ON
 SR 1003 BETWEEN
 SR 1985 AND NC 801



DRAWN BY: B.N. BARODAWALA DATE: 10-9-09
 CHECKED BY: J. B. WILSON DATE: 10-19-09

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



FOUNDATION LAYOUT

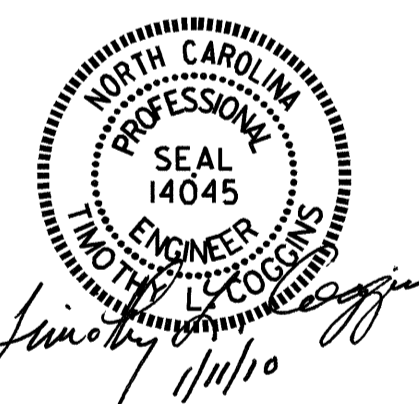
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.

FOUNDATION NOTES:

DRIVE PILES AT END BENT #1 TO REFUSAL OR ROCK.
 DRIVE PILES AT END BENT #2 TO REFUSAL OR ROCK.
 FOR PILES, SEE PILES SPECIAL PROVISION.
 PILES AT END BENT #1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 167 TONS PER PILE.
 STEEL H-PILE POINTS ARE REQUIRED FOR H-PILES AT END BENT #1. FOR STEEL PILE POINTS, SEE PILES SPECIAL PROVISION.
 FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISIONS.
 DRILLED PIERS AT BENT #1 ARE DESIGNED FOR FACTORED RESISTANCE OF 590 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 55 TSF.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT #1. IF REQUIRED, DO NOT EXTEND CASING BELOW ELEVATION 649.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.
 INSTALL DRILLED PIERS AT BENT #1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 640.0 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.
 THE SCOUR CRITICAL ELEVATION FOR BENT #1 IS ELEVATION 645.5 FT. (LT), 644.5 FT. (RT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 DRILLED PIERS AT BENT #2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 500 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 50 TSF.
 PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT #2. IF REQUIRED, DO NOT EXTEND CASING BELOW ELEVATION 651.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

INSTALL DRILLED PIERS AT BENT #2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 637.0 FT. (LT), 641.0 FT. (RT) AND SATISFY THE REQUIRED TIP RESISTANCE.
 THE SCOUR CRITICAL ELEVATION FOR BENT #2 IS ELEVATION 644.5 FT. (LT), 646.0 (RT). SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
 SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.
 CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.
 PILES AT END BENT #2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 183 TONS PER PILE.
 STEEL H-PILE POINTS ARE REQUIRED FOR H-PILES AT END BENT #2. FOR STEEL PILE POINTS, SEE PILES SPECIAL PROVISION.



PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
 THIRD CREEK ON
 SR 1003 BETWEEN
 SR 1985 AND NC 801

REVISIONS

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

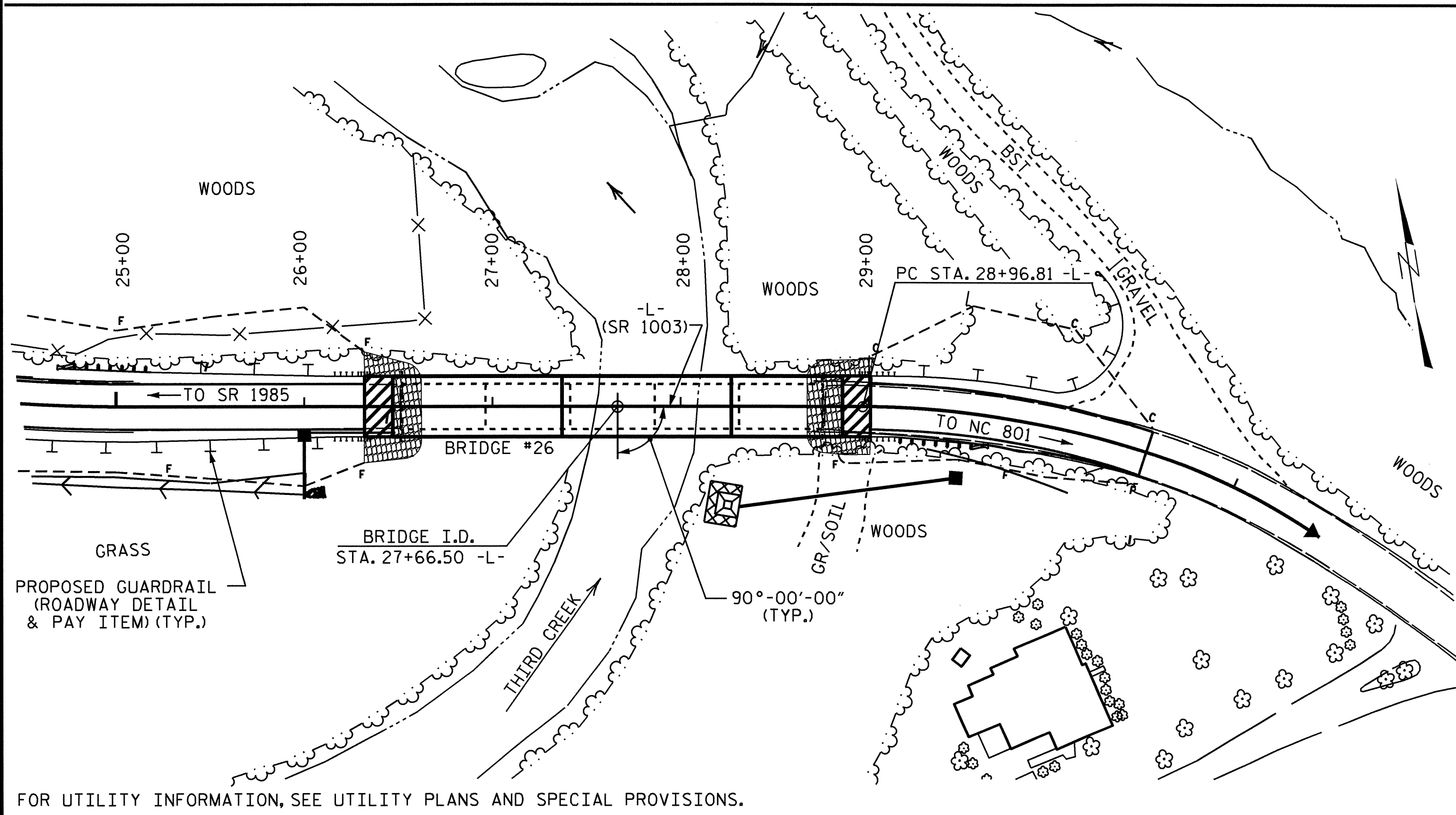
DRAWN BY : B.N.BARODAWALA DATE : 10-9-09
 CHECKED BY : J.B.WILSON DATE : 10-19-09

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	4'-0" DIA. DRILLED PIERS IN SOIL	4'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-0" DIA DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	54" PRESTRESSED CONCRETE GIRDERS	HP 12 x 53 STEEL PILES	STEEL PILE POINTS	2-BAR METAL RAIL	1'-2" X 2'-6" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS		
	LUMP SUM	LUMP SUM	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE									8224	8242					12	942.50									
END BENT 1											32.0		4840			9	225					105	117		
BENT 1			18.67	15.00	15.66						32.0		7743	1515											
BENT 2			24.00	16.00	16.00						33.8		8291	1806											
END BENT 2											32.6		4919			7	70					170	189		
TOTAL	LUMP SUM	LUMP SUM	42.67	31.0	31.66	1	1	LUMP SUM	8224	8242	130.4	LUMP SUM	25793	3321	12	942.50	16	295	16	460.42	475.58	275	306	LUMP SUM	LUMP SUM

NOTES:

BM #2 - 8" SPIKE IN ROOT OF 30" BIRCH TREE @ STA. 24+51.57 -L-; 200.09' RT; ELEV.= 664.64



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE = 9,300 CFS
 FREQUENCY OF DESIGN FLOOD = 25 YR.
 DESIGN HIGH WATER ELEVATION = 669.3'
 DRAINAGE AREA = 100.5 Sq. MILES
 BASIC DISCHARGE (Q100) = 13,000 CFS
 BASIC HIGH WATER ELEVATION = 671.2'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 16,000 CFS
 FREQUENCY OF OVERTOPPING FLOOD = 100+ YR.
 OVERTOPPING FLOOD ELEVATION = 672.6'

DRAWN BY : B.N.BARODAWALA DATE : 10-9-09
 CHECKED BY : J.B.WILSON DATE : 10-13-09

11-JAN-2010 12:08
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 toverette

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

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.

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

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 45'-3", 3 SPANS @ 45'-0" WITH AN ASPHALT WEARING SURFACE OVER A REINFORCED CONCRETE DECK ON I-BEAMS SUPPORTED ON A REINFORCED CONCRETE CAP ON STEEL PILES @ END BENT #1 AND A REINFORCED CONCRETE SPILL-THROUGH ABUTMENT @ END BENT #2 AND REINFORCED CONCRETE POST AND BEAM INTERIOR BENTS WITH A CLEAR ROADWAY WIDTH OF 24.1 FT. 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 DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 27+66.50-L-".

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 27+66.50-L-.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR FORMS FOR CONCRETE BRIDGE DECKS, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

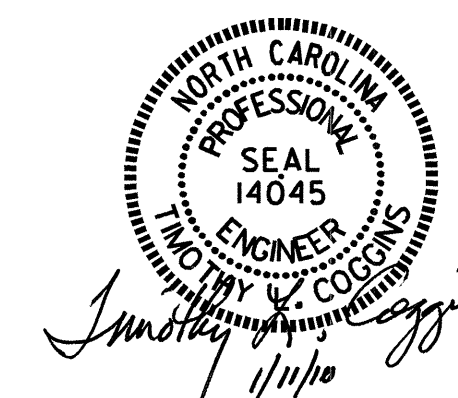
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
 THIRD CREEK ON
 SR 1003 BETWEEN
 SR 1985 AND NC 801



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

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.00	--	1.75	0.853	1.54	A	EL	43.875	0.890	1.00	A	I	4.388	0.80	0.853	1.26	A	EL	43.875		
	HL-93 (OPERATING)	N/A		1.30	--	1.35	0.853	2.00	A	EL	43.875	0.890	1.30	A	I	4.388	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.18	42.480	1.75	0.853	2.04	A	EL	43.875	0.890	1.18	C	I	5.588	0.80	0.853	1.38	A	EL	43.875		
	HS-20 (OPERATING)	36.000		1.57	56.520	1.35	0.853	2.72	A	EL	43.875	0.890	1.57	C	I	5.588	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.20	43.200	1.40	0.853	6.02	A	EL	43.875	0.890	3.42	C	I	5.588	0.80	0.853	3.20	A	EL	43.875	
		SNGARBS2	20.000		2.34	46.800	1.40	0.853	4.41	A	EL	43.875	0.890	2.48	C	I	5.588	0.80	0.853	2.34	A	EL	43.875	
		SNAGRIS2	22.000		2.20	48.400	1.40	0.853	4.14	A	EL	43.875	0.890	2.31	C	I	5.588	0.80	0.853	2.20	A	EL	43.875	
		SNCOTTS3	27.250		1.59	43.328	1.40	0.853	3.00	A	EL	43.875	0.890	1.71	C	I	5.588	0.80	0.853	1.59	A	EL	43.875	
		SNAGGRS4	34.925		1.31	45.752	1.40	0.853	2.47	A	EL	43.875	0.890	1.45	C	I	5.588	0.80	0.853	1.31	A	EL	43.875	
		SNS5A	35.550		1.29	45.860	1.40	0.853	2.42	A	EL	43.875	0.890	1.49	C	I	5.588	0.80	0.853	1.29	A	EL	43.875	
		SNS6A	39.950		1.18	47.141	1.40	0.853	2.21	A	EL	43.875	0.890	1.37	C	I	5.588	0.80	0.853	1.18	A	EL	43.875	
		SNS7B	42.000		1.11	46.620	1.40	0.853	2.10	A	EL	43.875	0.890	1.36	C	I	5.588	0.80	0.853	1.11	A	EL	43.875	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.43	47.190	1.40	0.853	2.69	A	EL	43.875	0.890	1.62	C	I	5.588	0.80	0.853	1.43	A	EL	43.875	
		TNT4A	33.075		1.43	47.297	1.40	0.853	2.69	A	EL	43.875	0.890	1.56	C	I	5.588	0.80	0.853	1.43	A	EL	43.875	
		TNT6A	41.600		1.16	48.256	1.40	0.853	2.19	A	EL	43.875	0.890	1.48	C	I	5.588	0.80	0.853	1.16	A	EL	43.875	
		TNT7A	42.000		1.16	48.720	1.40	0.853	2.20	A	EL	43.875	0.890	1.40	C	I	5.588	0.80	0.853	1.16	A	EL	43.875	
		TNT7B	42.000		1.20	50.400	1.40	0.853	2.25	A	EL	43.875	0.890	1.32	C	I	5.588	0.80	0.853	1.20	A	EL	43.875	
		TNAGRIT4	43.000		1.15	49.450	1.40	0.853	2.16	A	EL	43.875	0.890	1.27	C	I	5.588	0.80	0.853	1.15	A	EL	43.875	
TNAGT5A	45.000		1.09	49.050	1.40	0.853	2.04	A	EL	43.875	0.890	1.28	C	I	5.588	0.80	0.853	1.09	A	EL	43.875			
TNAGT5B	45.000		③	1.08	48.600	1.40	0.853	2.02	A	EL	43.875	0.890	1.21	C	I	5.588	0.80	0.853	1.08	A	EL	43.875		

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2010	63
FUTURE	2030	101

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1. SPANS A AND B ARE IDENTICAL.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

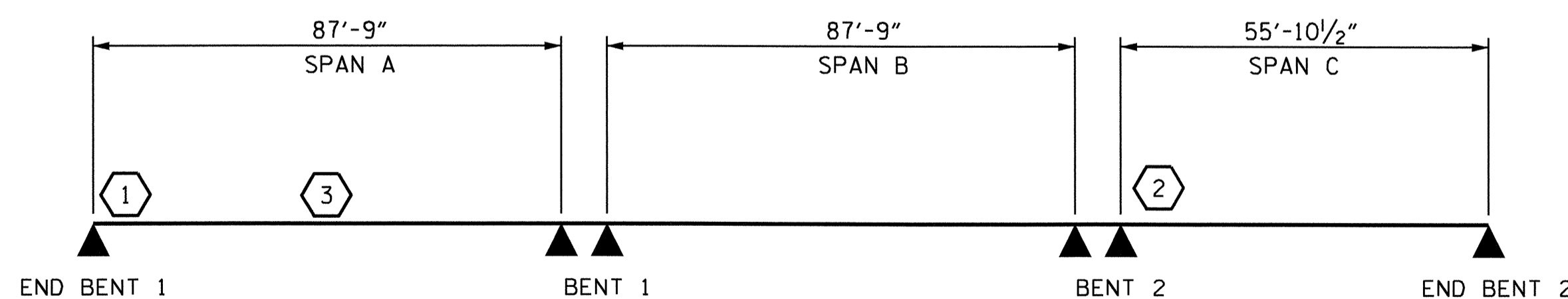
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

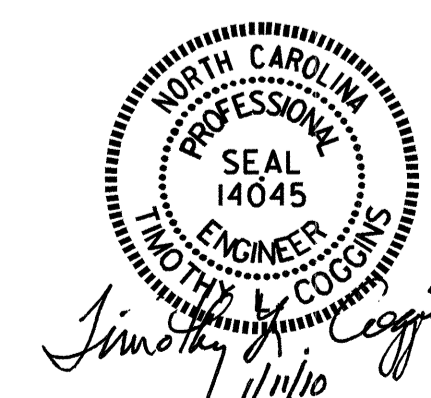
GIRDER LOCATION

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



LRFR SUMMARY

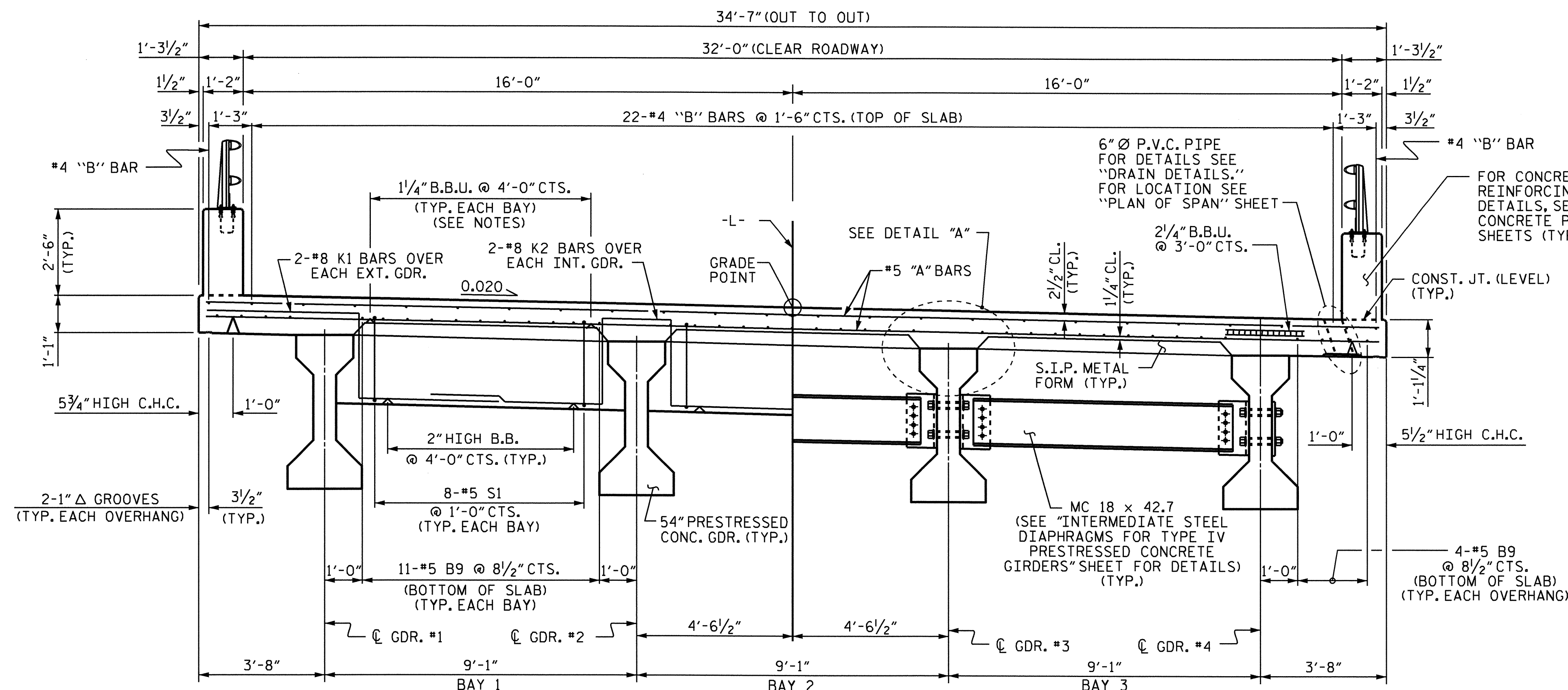
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-



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

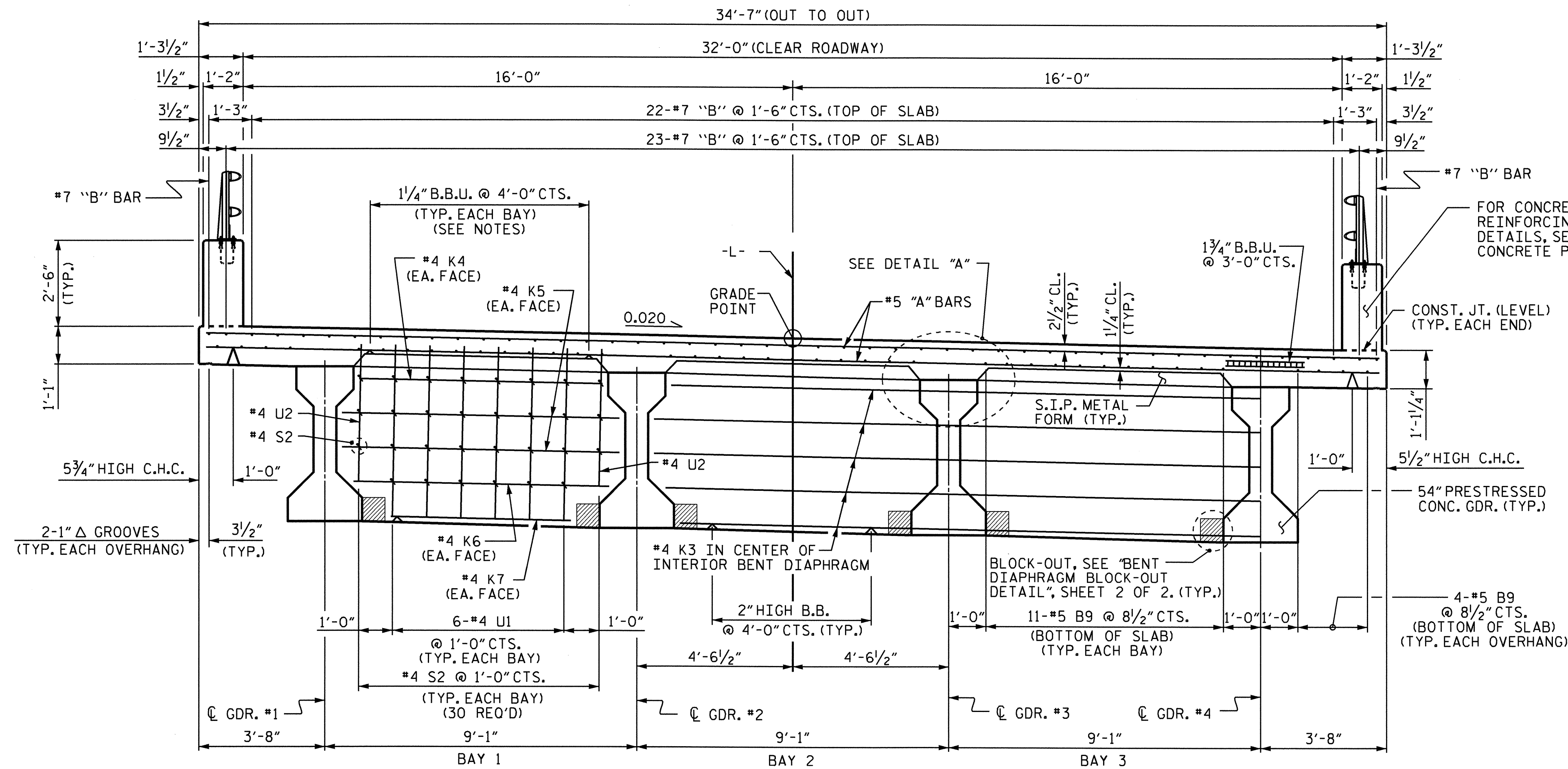
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
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ASSEMBLED BY : B.N.BARODAWALA DATE : 10/30/09
 CHECKED BY : PEGGY PARISI DATE : 11/2/09
 DRAWN BY : MAA 1/08 REV. 11/2/08RRR MAA/GM
 CHECKED BY : GM/DI 2/08



TYPICAL HALF SECTION
SHOWING END BENT DIAPHRAGMS

TYPICAL HALF SECTION
SHOWING INTERMEDIATE DIAPHRAGMS



TYPICAL SECTION
SHOWING BENT DIAPHRAGMS

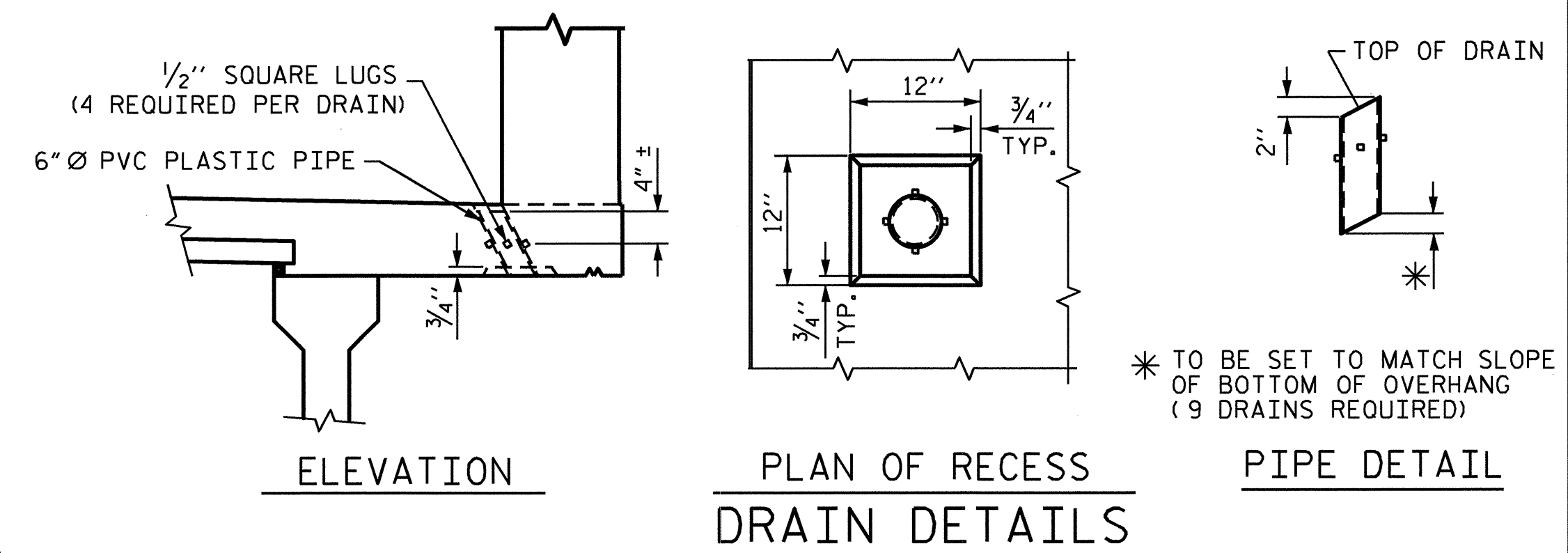
NOTES

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.

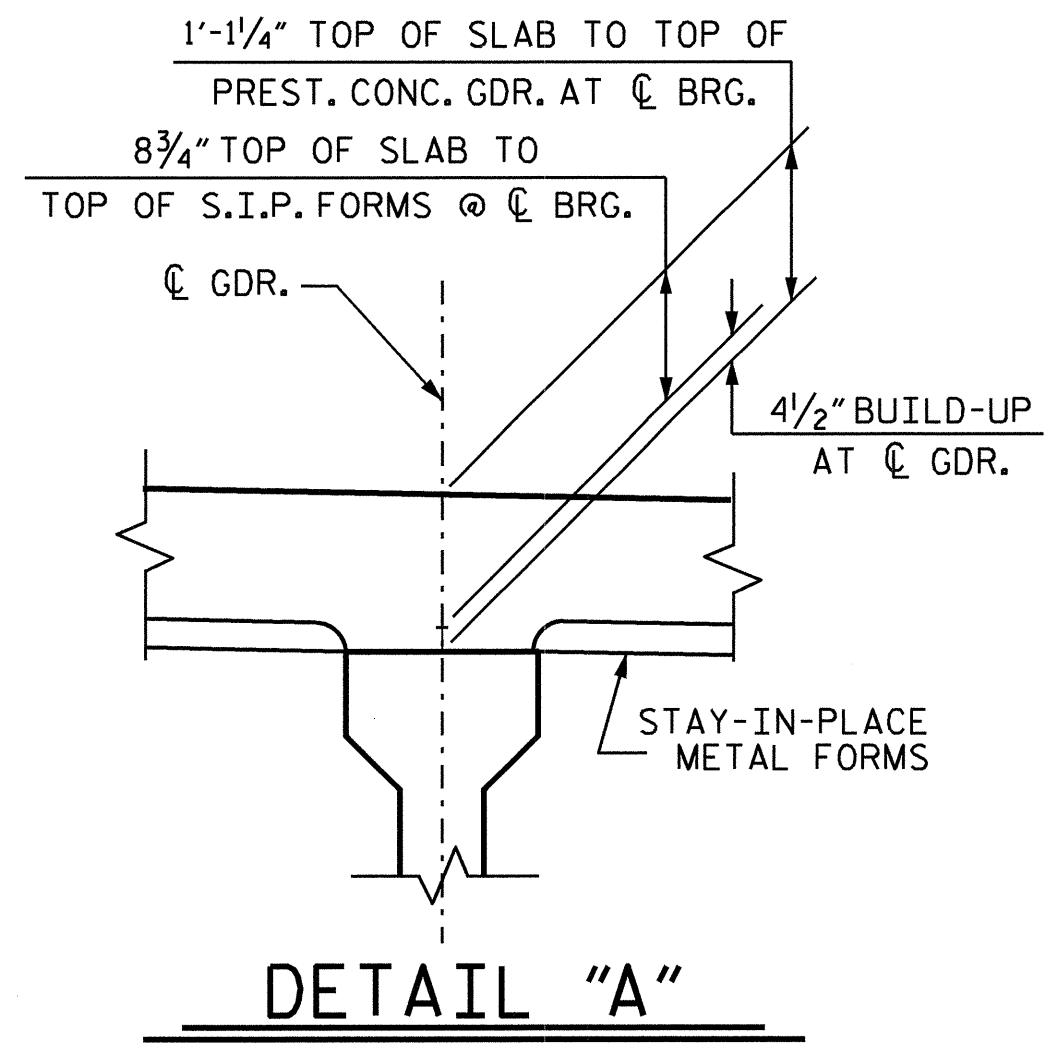
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

THE CONCRETE PARAPET 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.



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.

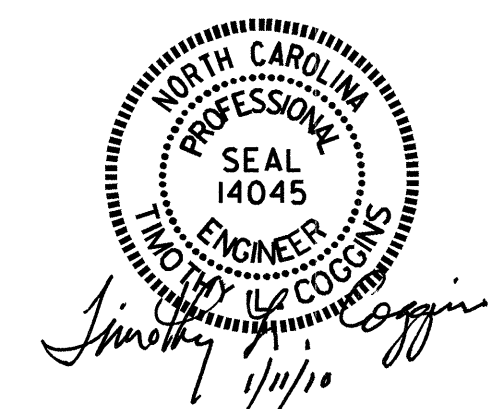


DETAIL "A"

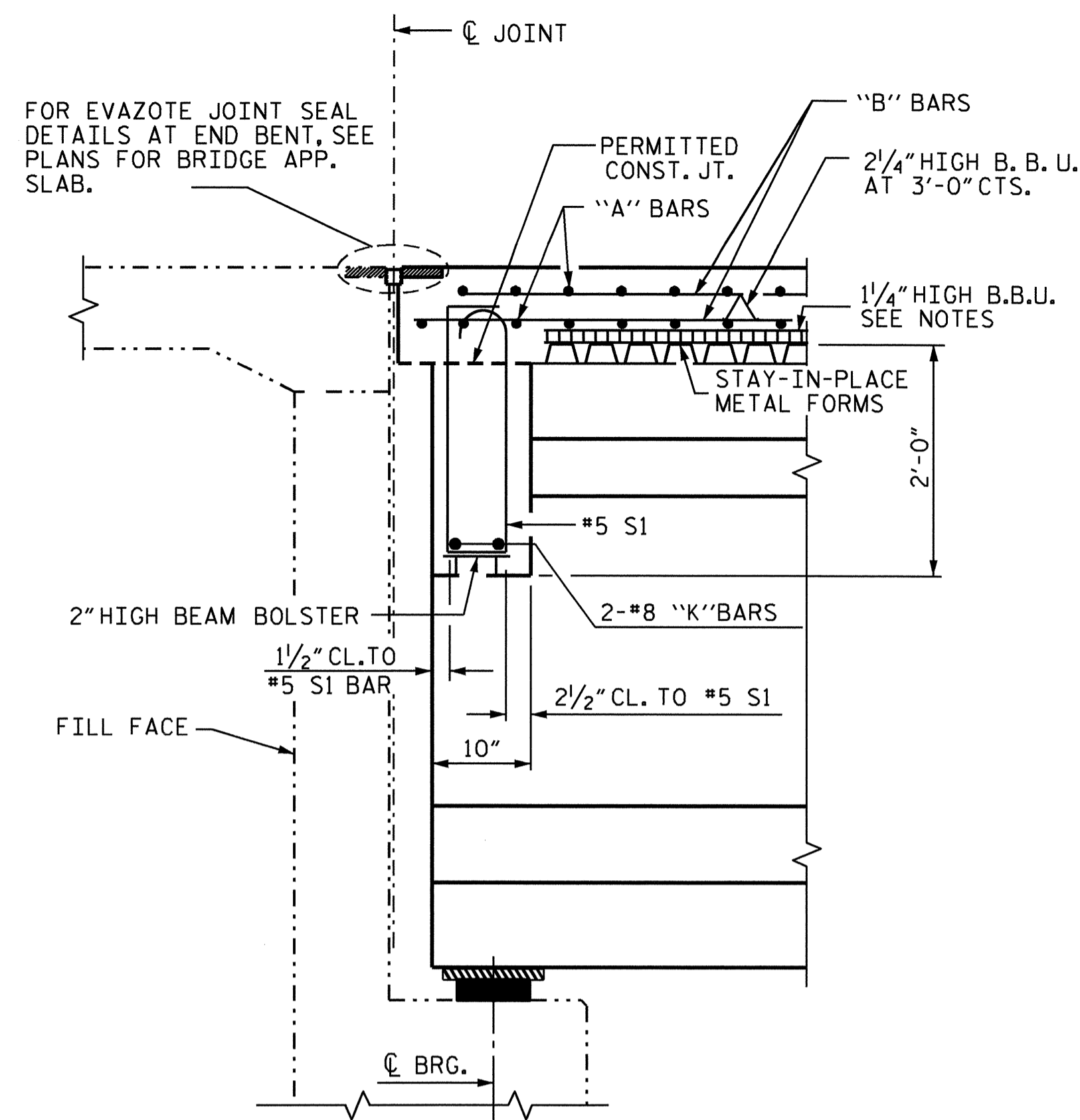
PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-

SHEET 1 OF 2

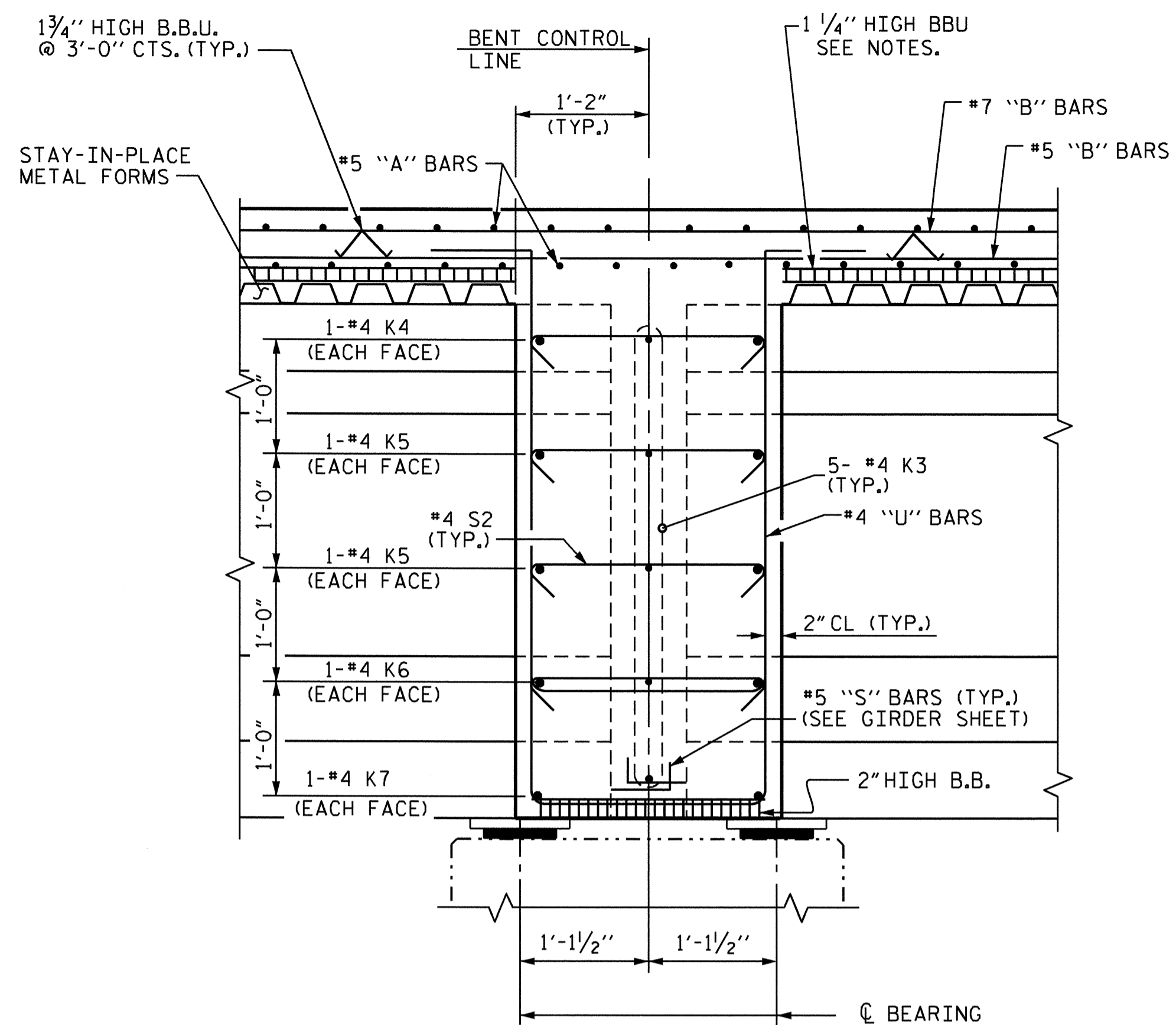
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION					
REVISIONS					SHEET NO.
NO.	By:	DATE:	NO.	By:	DATE:
1			3		
2			4		
TOTAL SHEETS					38



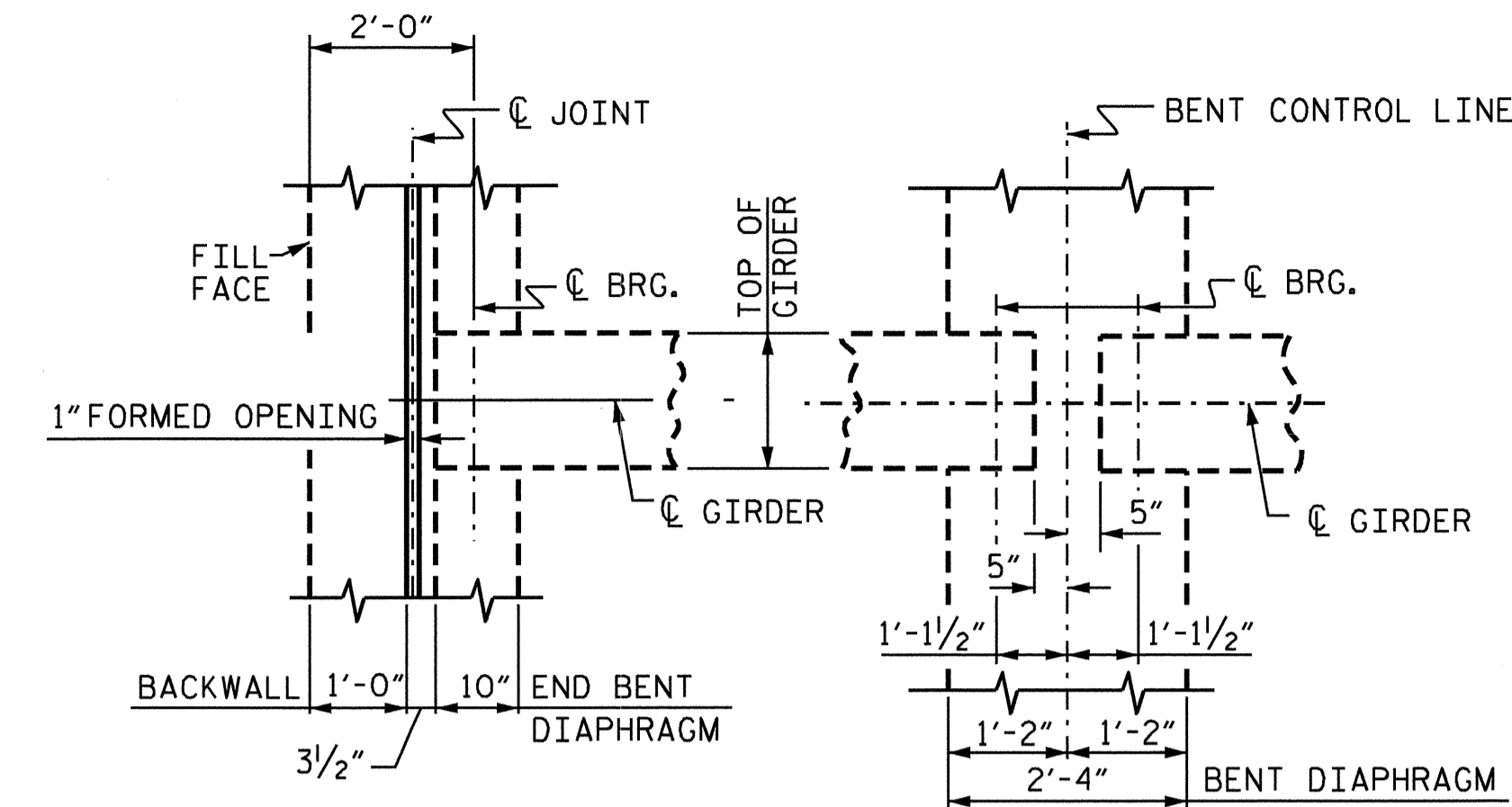
DRAWN BY : B.N.BARODAWALA DATE : 2/16/09
CHECKED BY : PEGGY PARISI DATE : 7/1/09



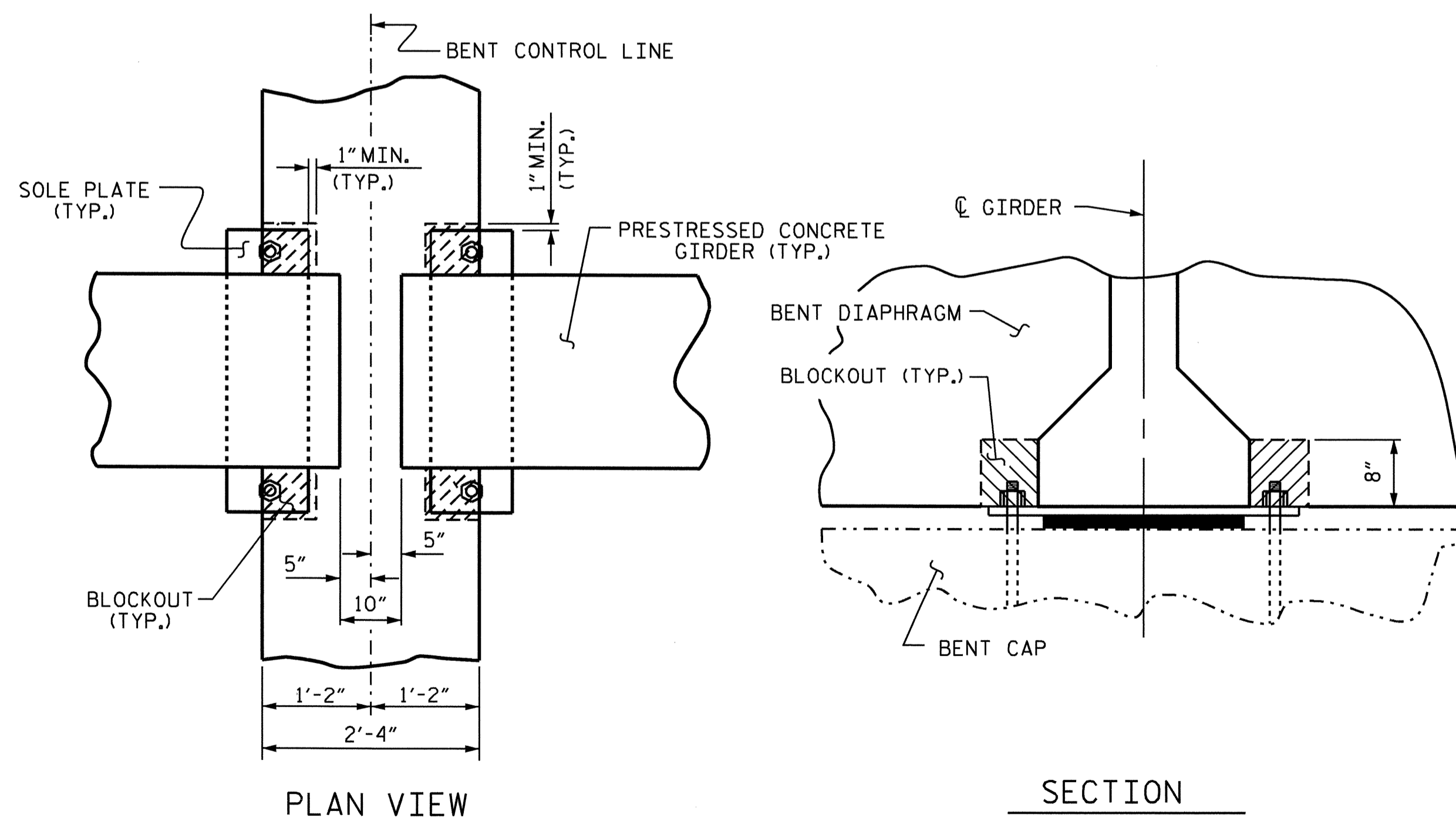
SECTION A-A
SECTION THRU END BENT DIAPHRAGMS



SECTION B-B
SECTION THRU BENT DIAPHRAGMS



END BENT DIAPHRAGM **BENT DIAPHRAGM**
PLAN

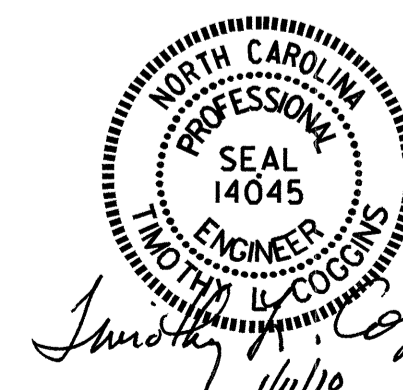


PLAN VIEW **SECTION**
BENT DIAPHRAGM BLOCK-OUT DETAIL

PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-

SHEET 2 OF 2

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



DRAWN BY : B.N.BARODAWALA DATE : 2/16/09
CHECKED BY : PEGGY PARISI DATE : 7/1/09

11-JAN-2010 12:07
G:\TIP\Projects-B\B4627\Structures\B4627\Final Plans\B4627.sd.ts.01.dgn
foverett

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			38

239'-10 1/2" (TOTAL LENGTH OF BRIDGE) (W.P. #1 TO W.P. #4)

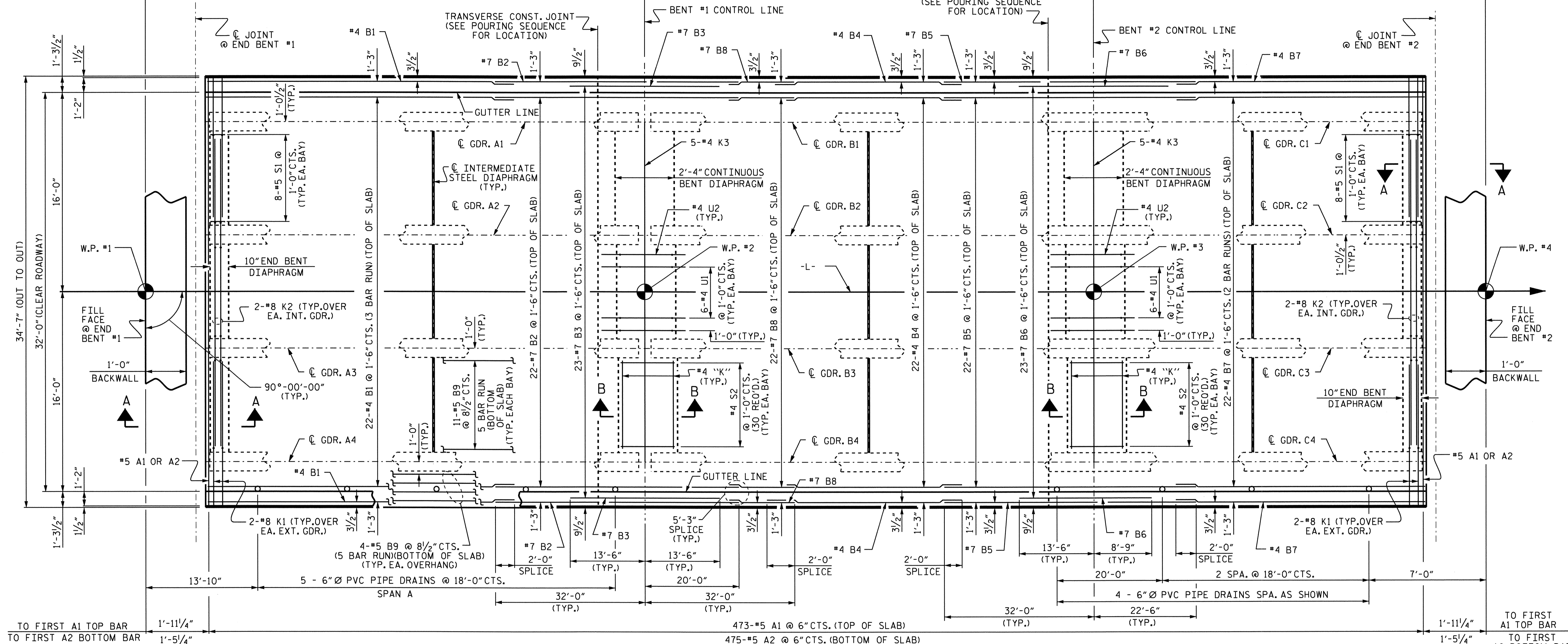
90'-10 1/2" (W.P. #1 TO W.P. #2)

90'-0" (W.P. #2 TO W.P. #3)

59'-0" (W.P. #3 TO W.P. #4)

SPAN B

SPAN C



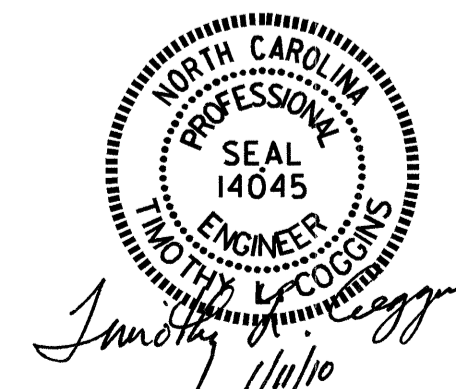
PLAN OF SPANS A, B AND C

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "GIRDER LAYOUT."
FOR SECTIONS A-A AND B-B, SEE "TYPICAL SECTION" SHEET 2 OF 2.

PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

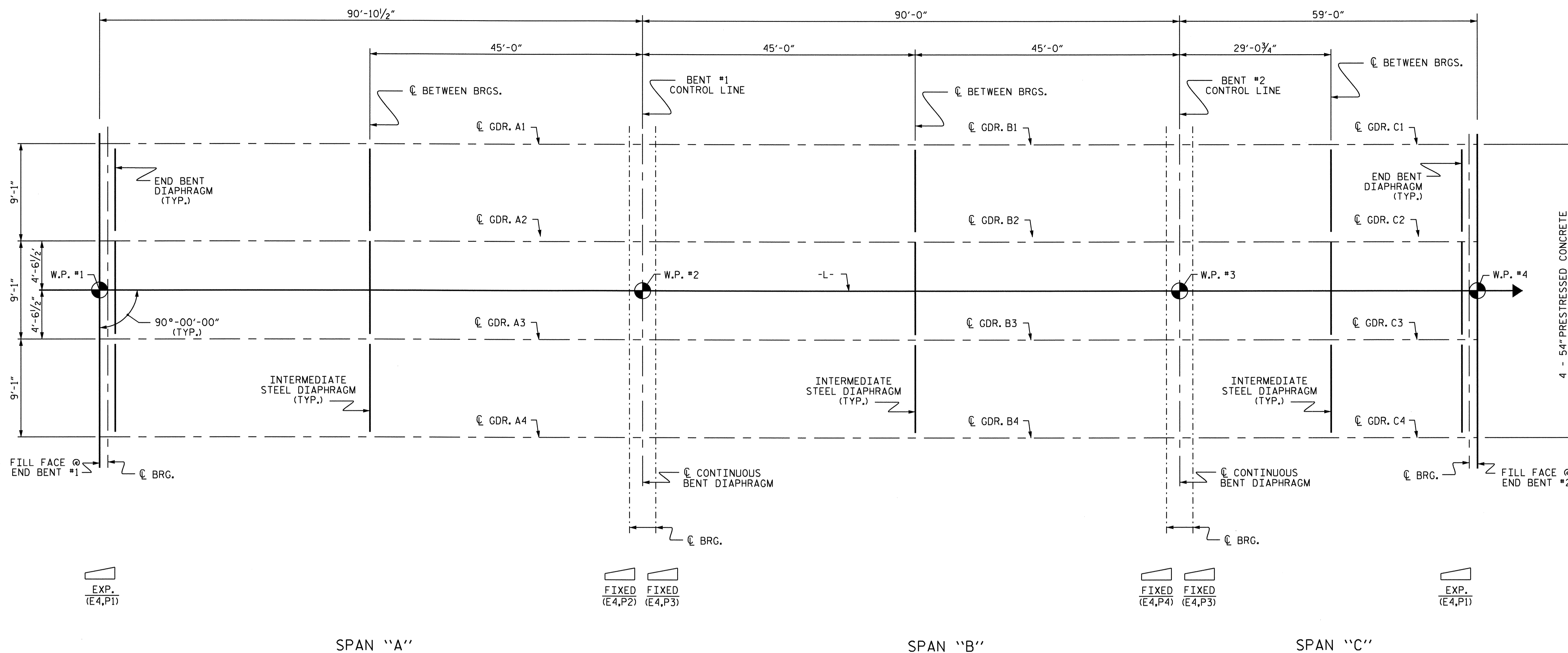
SUPERSTRUCTURE
PLAN OF SPANS



DRAWN BY : B.N. BARODAWALA DATE : 2/16/09
CHECKED BY : PEGGY PARISI DATE : 7/1/09

11-JAN-2010 12:07
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foverette

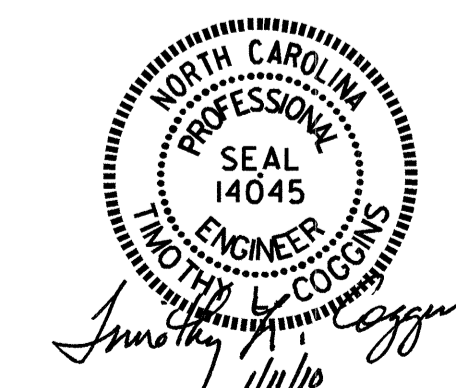
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			38



GIRDER LAYOUT

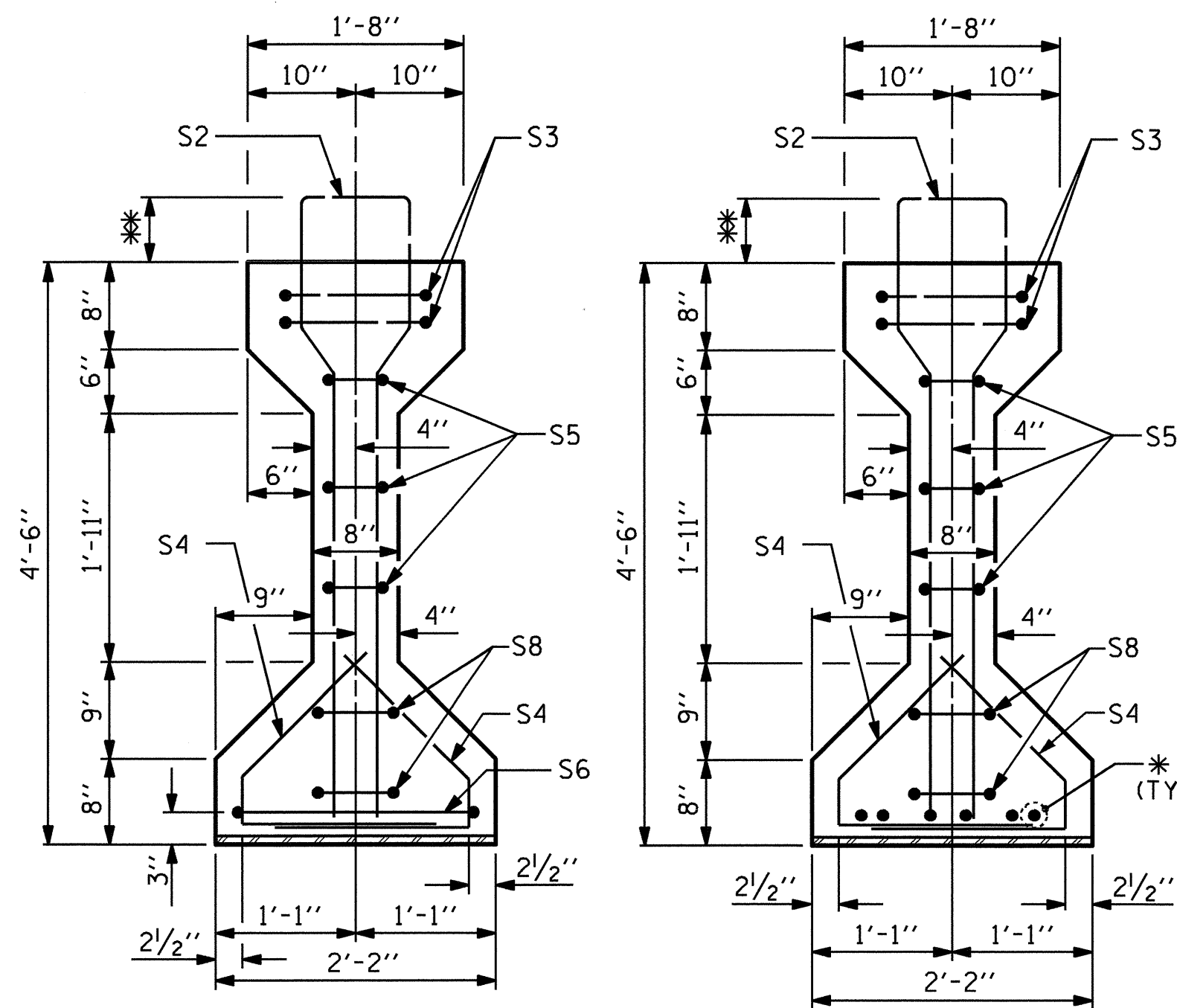
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

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



DRAWN BY : B.N.BARODAWALA DATE : 2/16/09
 CHECKED BY : PEGGY PARISI DATE : 7/1/09

11-JAN-2010 12:06
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 toverette

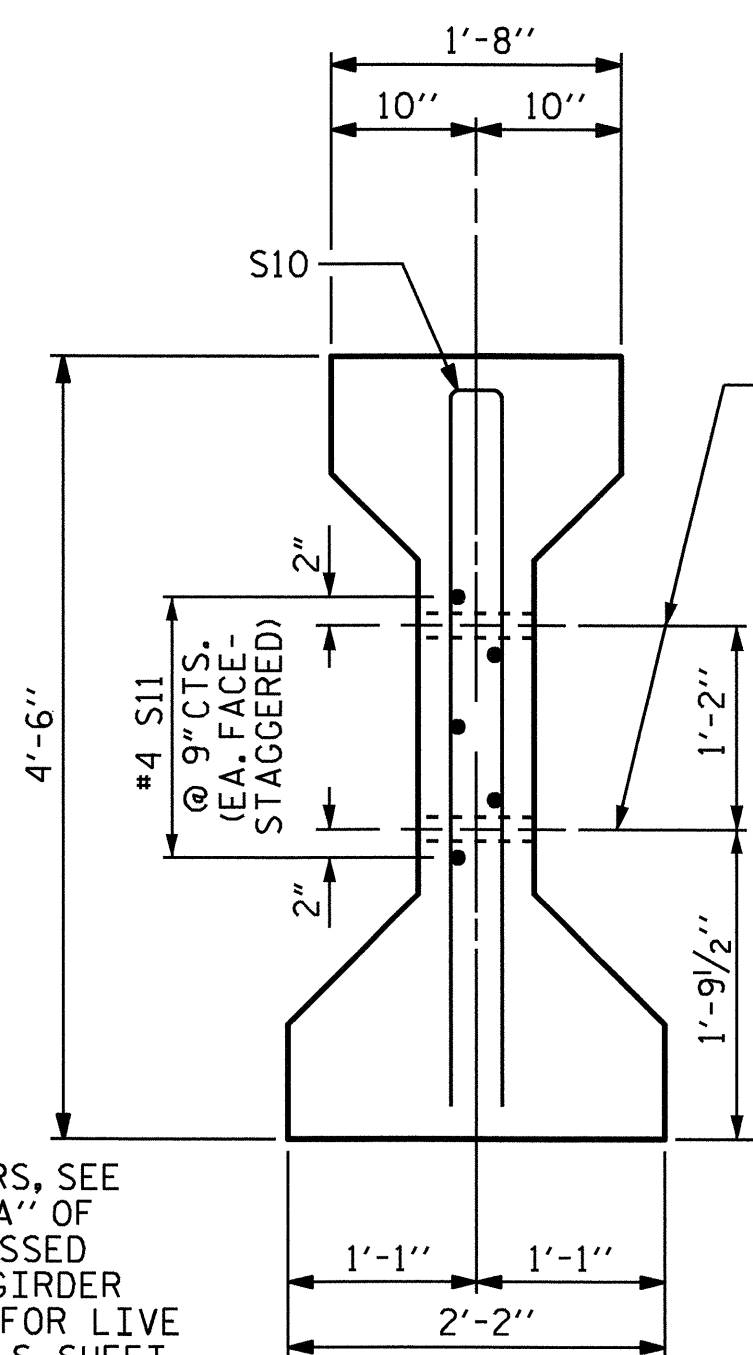


SECTION A-A

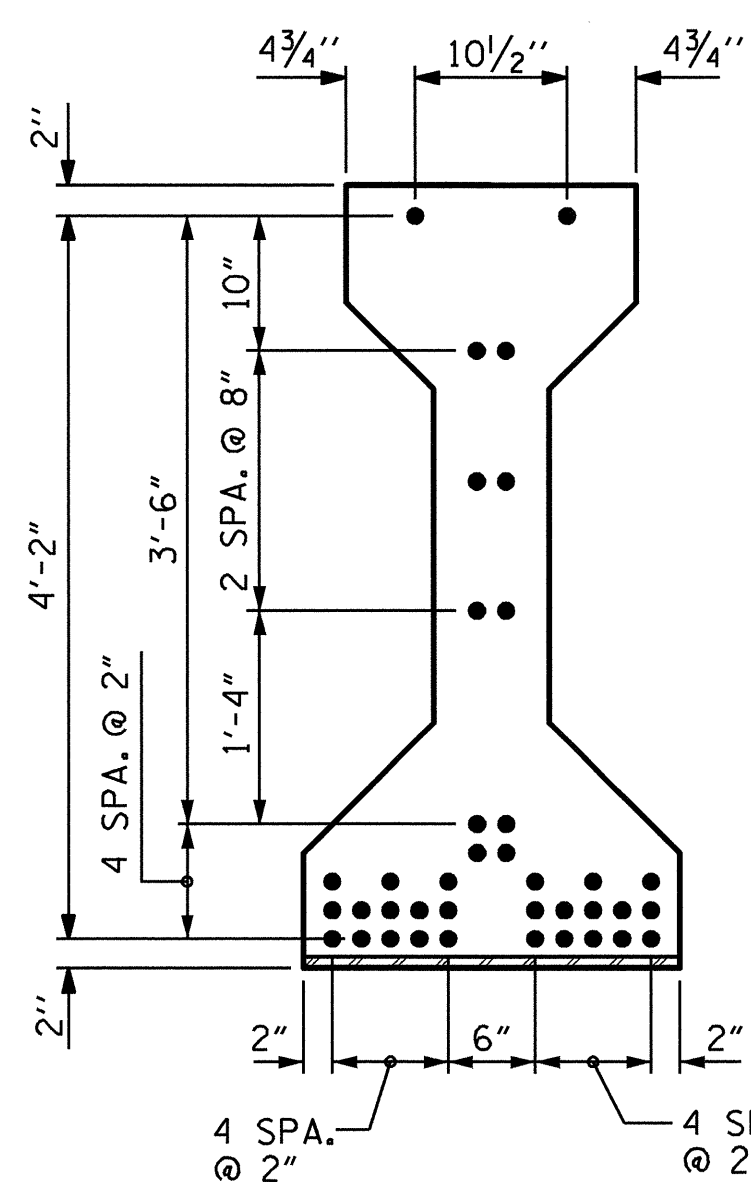
SECTION B-B

** NOTE: THE PROJECTION OF THE S2 & S12 BARS IS 7 1/2". THE PROJECTION OF S1 BARS IS 6".

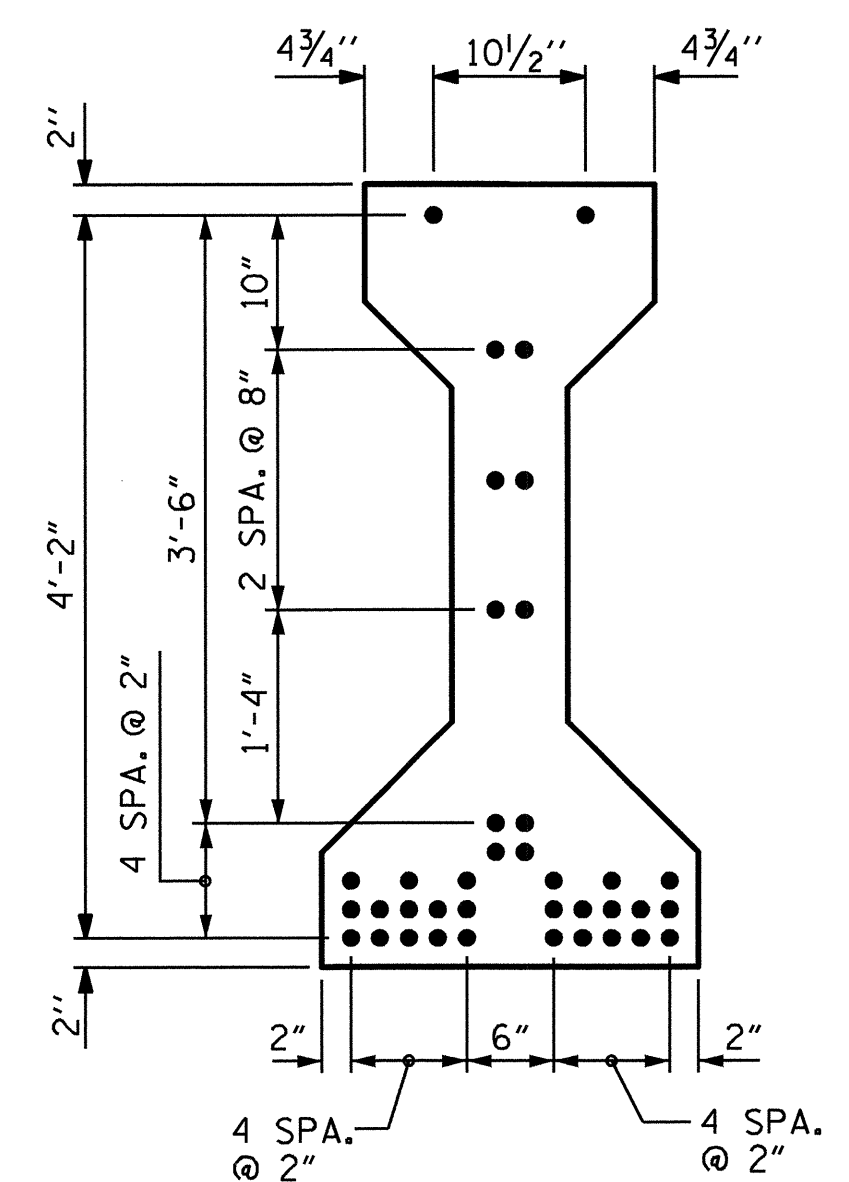
* FOR S7 BARS, SEE DETAIL "A" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET



SECTION C-C
(S1 BARS NOT SHOWN)



AT END OF GIRDER



AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

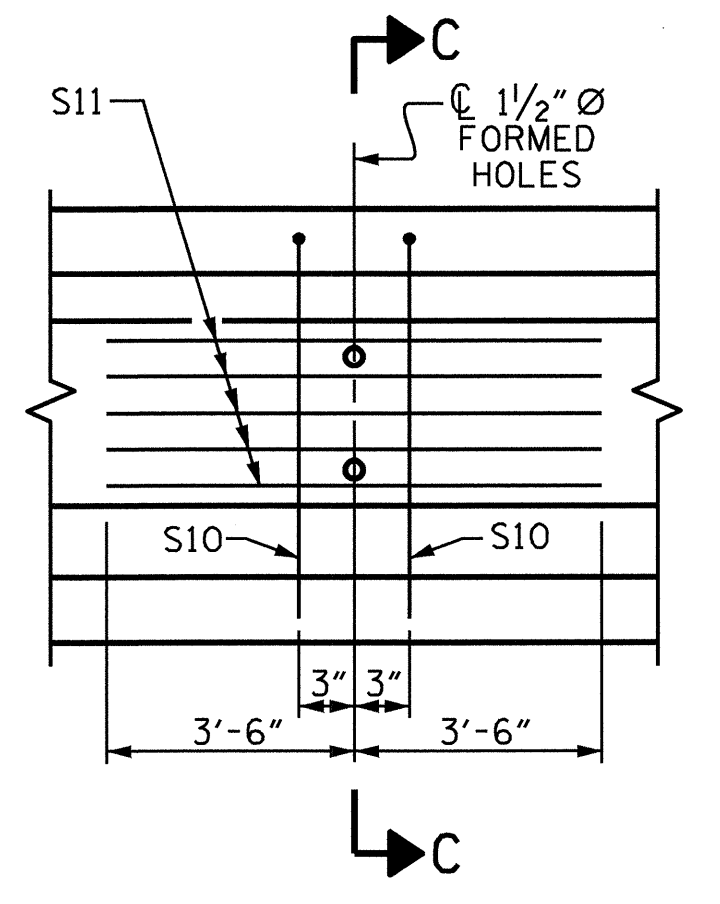
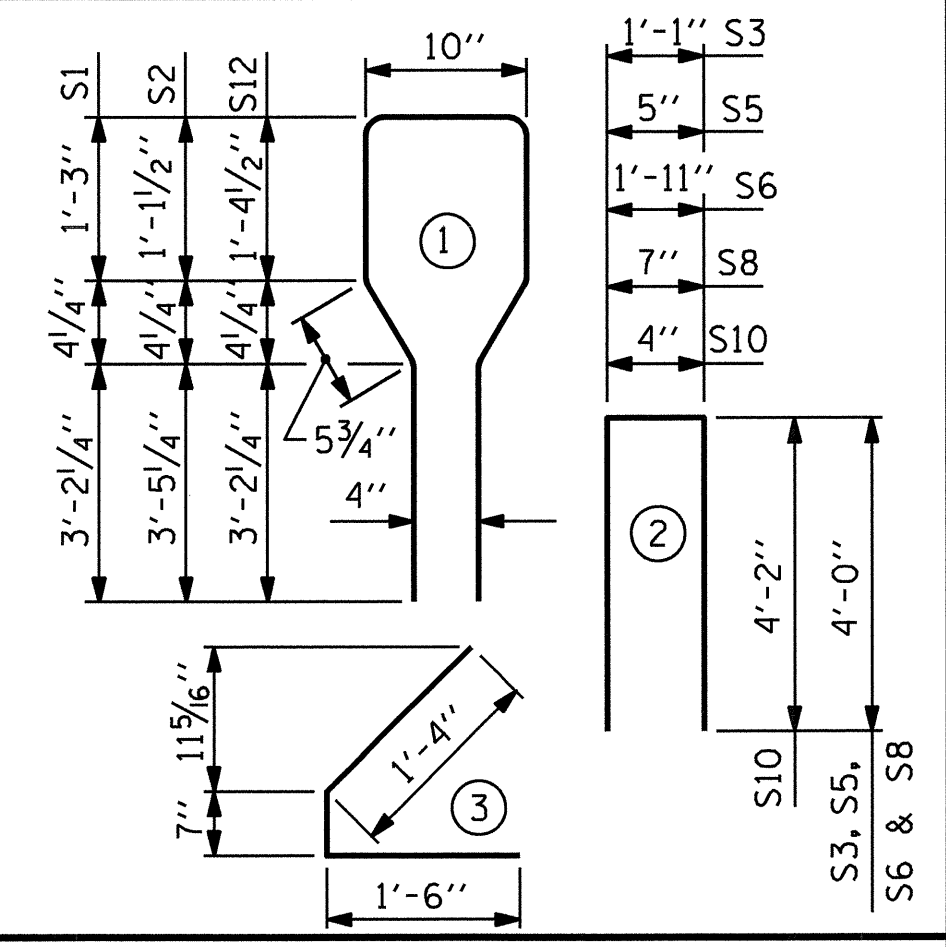
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	93	#4	1	10'-8"	663
S2	12	#7	1	10'-11"	268
S3	4	#4	2	9'-11"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
S6	1	#4	2	9'-11"	7
* S7	6	#5	STR	3'-8"	23
S8	4	#4	2	8'-7"	23
S9	1	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23
S12	42	#4	1	10'-11"	306

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

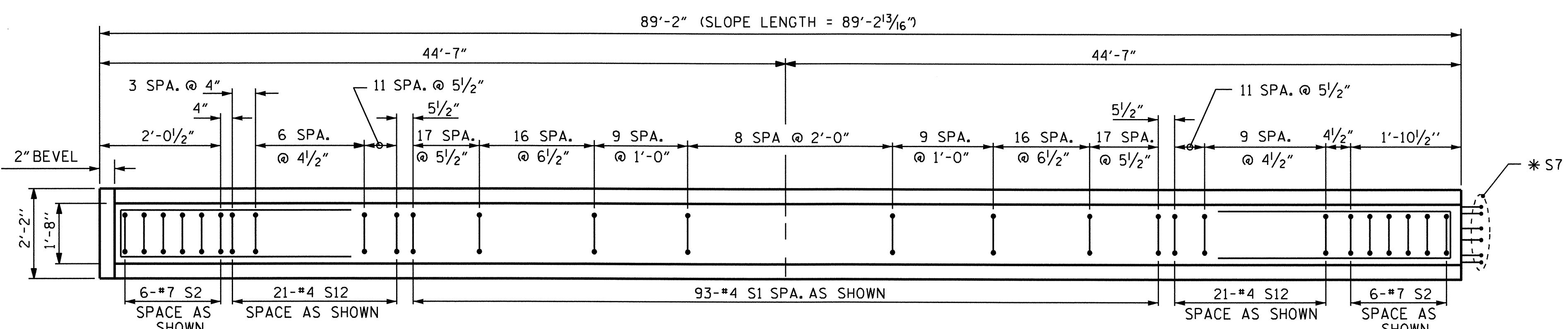
BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT

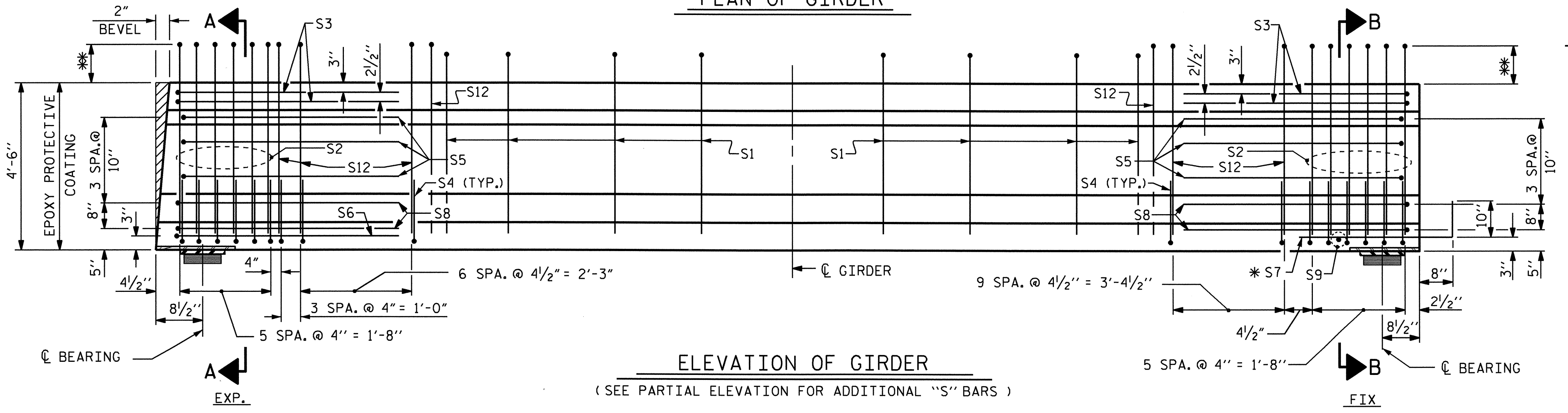


PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDERS A1 THRU A4



PLAN OF GIRDER



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

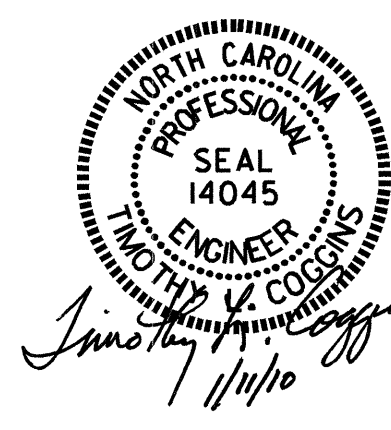
QUANTITIES FOR ONE GIRDER			
SPAN A	REINFORCING STEEL	7000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN A	1536	18.1	38

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	89'-2"	356'-8"

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 1 OF 5

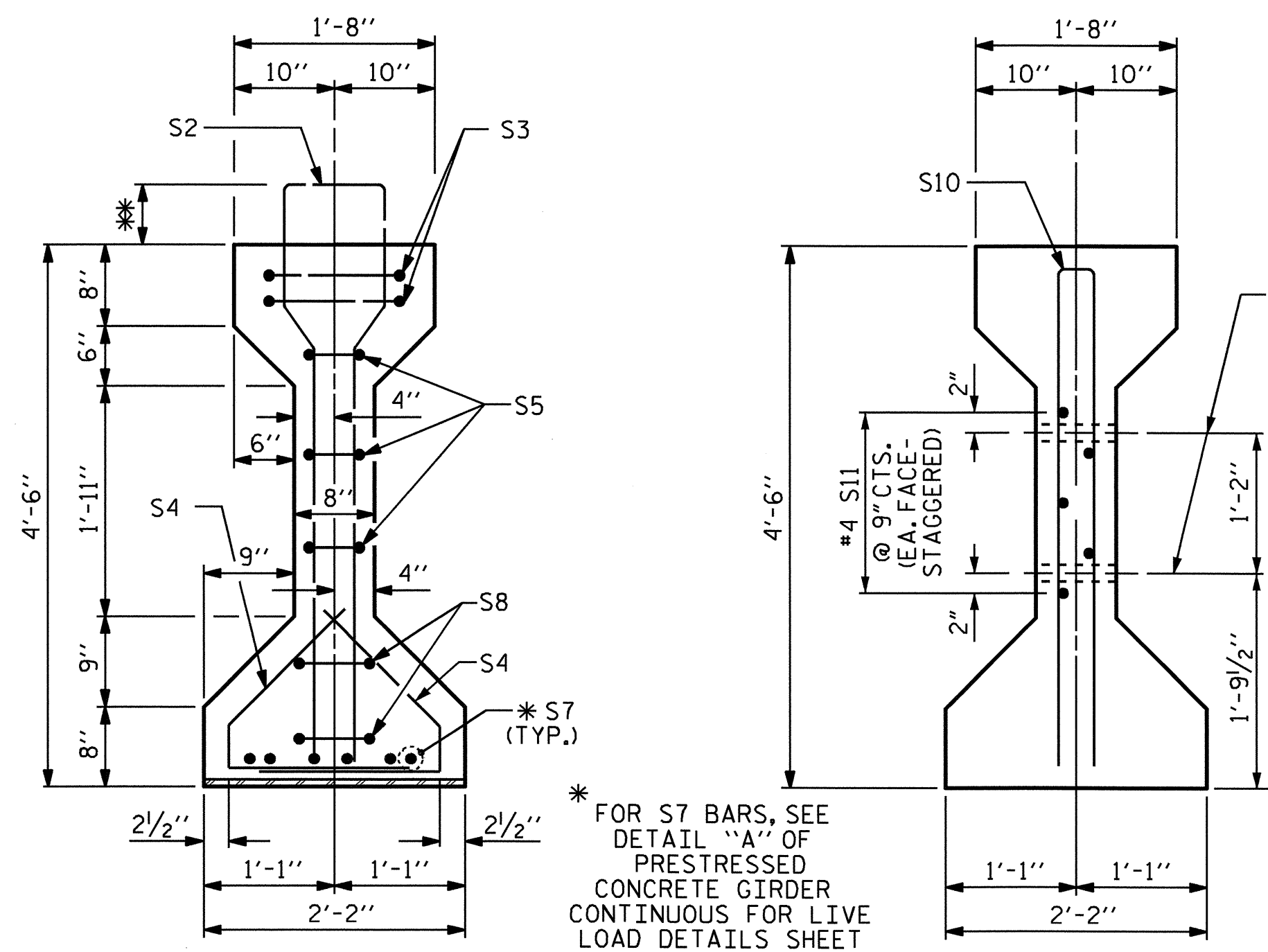
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE IV
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN A



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

SHEET NO. S-9
 TOTAL SHEETS 38
 STD. NO. PCG6

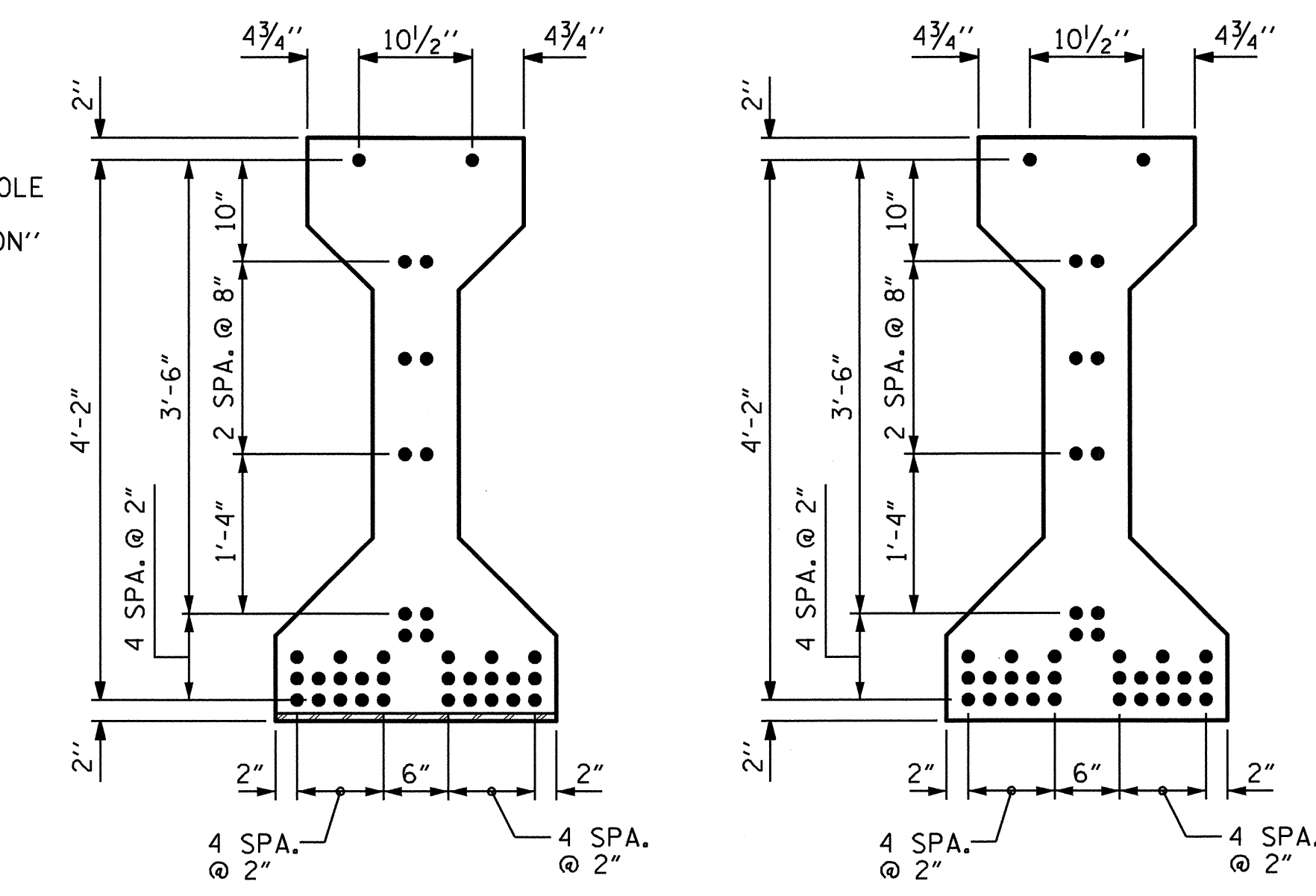
ASSEMBLED BY: B.N. BARODAWALA DATE: 5-29-09
 CHECKED BY: PEGGY PARISI DATE: 10-6-09
 DRAWN BY: ELR 8/91 REV. 7/17/98 RWW/LES
 CHECKED BY: GRP 8/91 REV. 10/17/00R RWW/LES
 REV. 5/1/06 TLA/GM



SECTION B-B

SECTION C-C

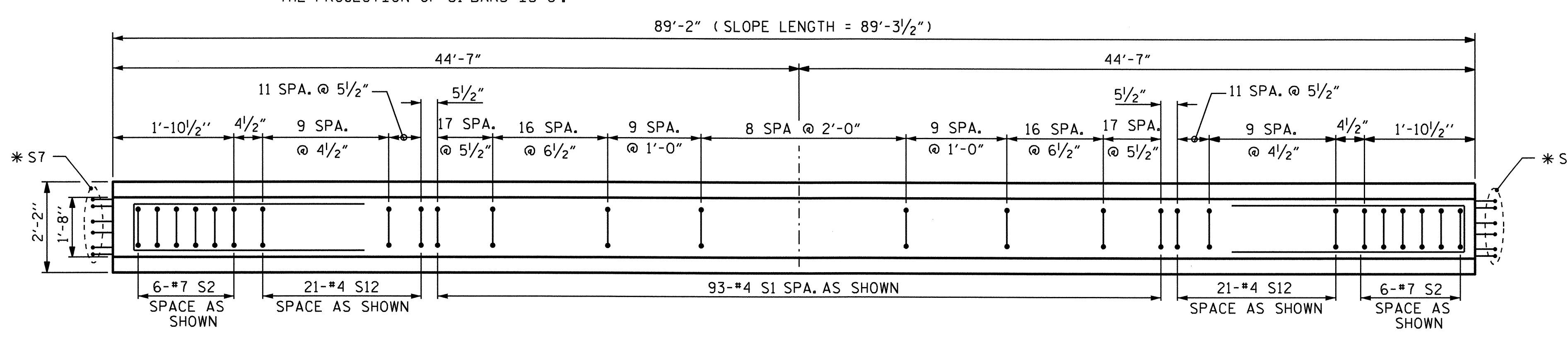
** NOTE: THE PROJECTION OF THE S2 & S12 BARS IS 7 1/2". THE PROJECTION OF S1 BARS IS 6".



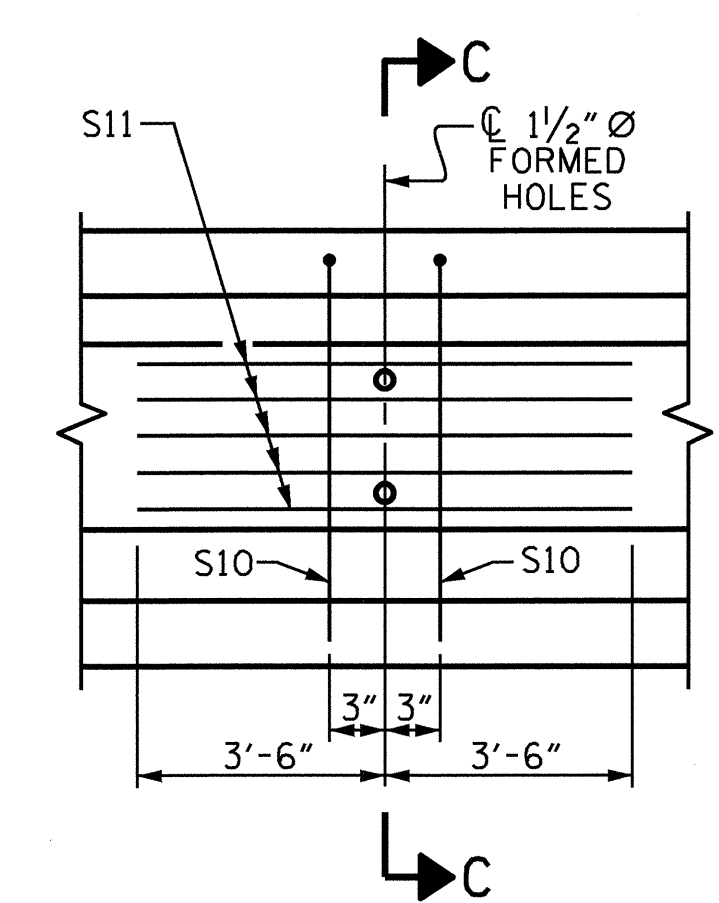
AT END OF GIRDER

AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

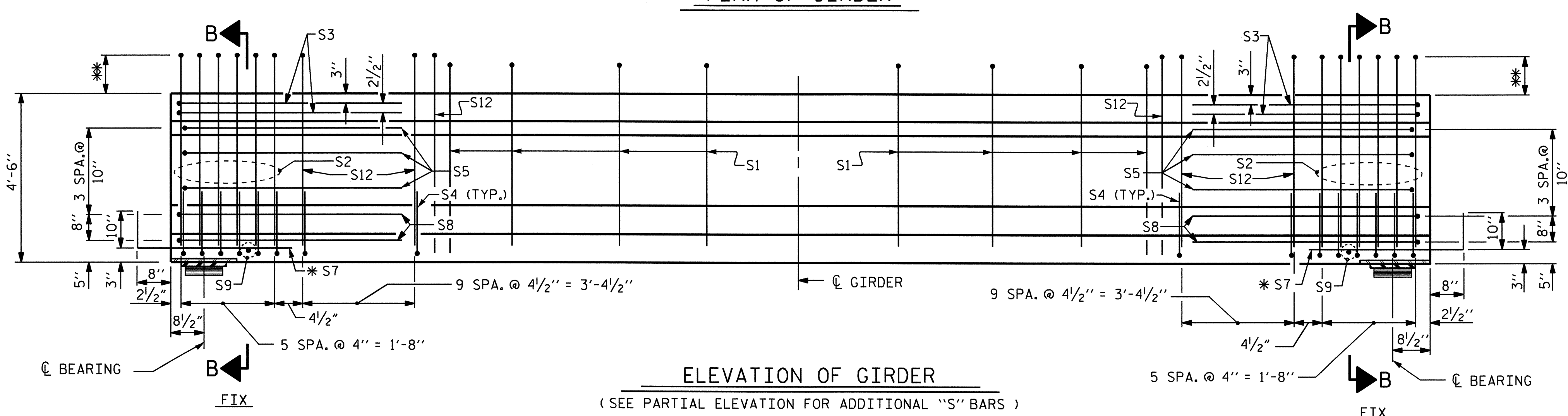


PLAN OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR GIRDERS B1 THRU B4



ELEVATION OF GIRDER

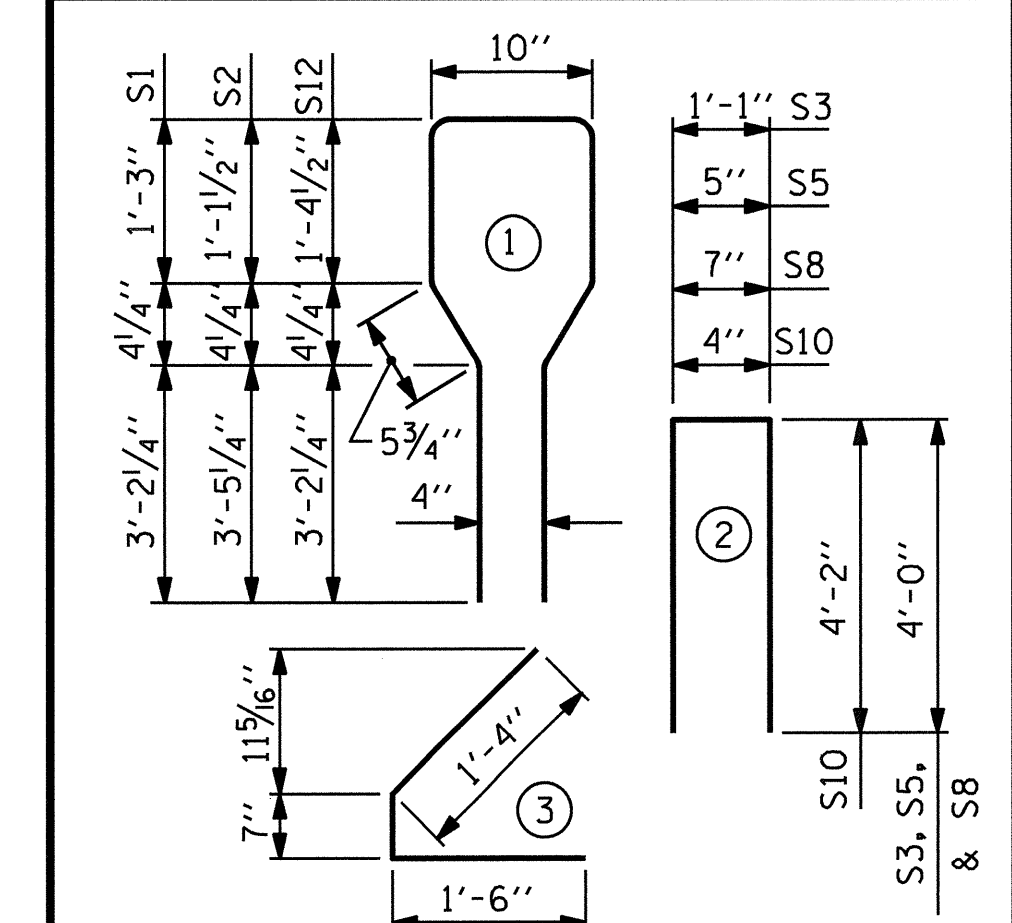
(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

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

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	93	#4	1	10'-8"	663
S2	12	#7	1	10'-11"	268
S3	4	#4	2	9'-1"	24
S4	64	#4	3	3'-5"	146
S5	6	#4	2	8'-5"	34
*S7	12	#5	STR	3'-8"	46
S8	4	#4	2	8'-7"	23
S9	2	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23
S12	42	#4	1	10'-11"	306

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

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT

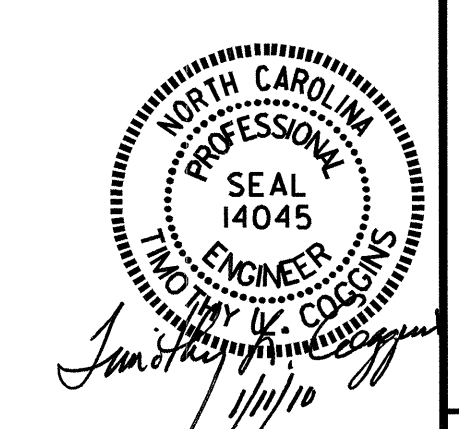


QUANTITIES FOR ONE GIRDER			
SPAN B	REINFORCING STEEL	7000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN B	1552	18.1	38

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	89'-2"	356'-8"

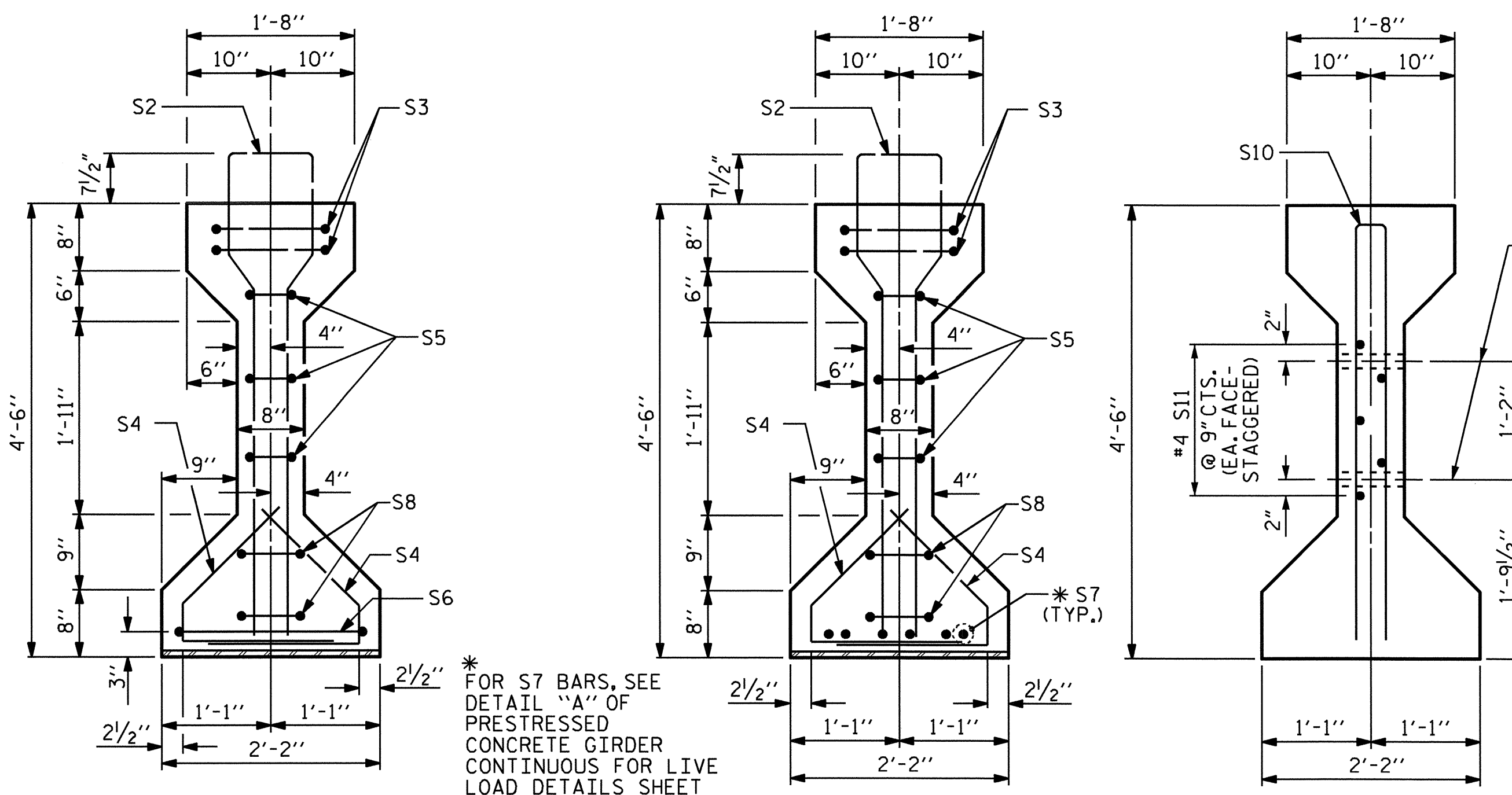
PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-

SHEET 2 OF 5
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE IV
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN B



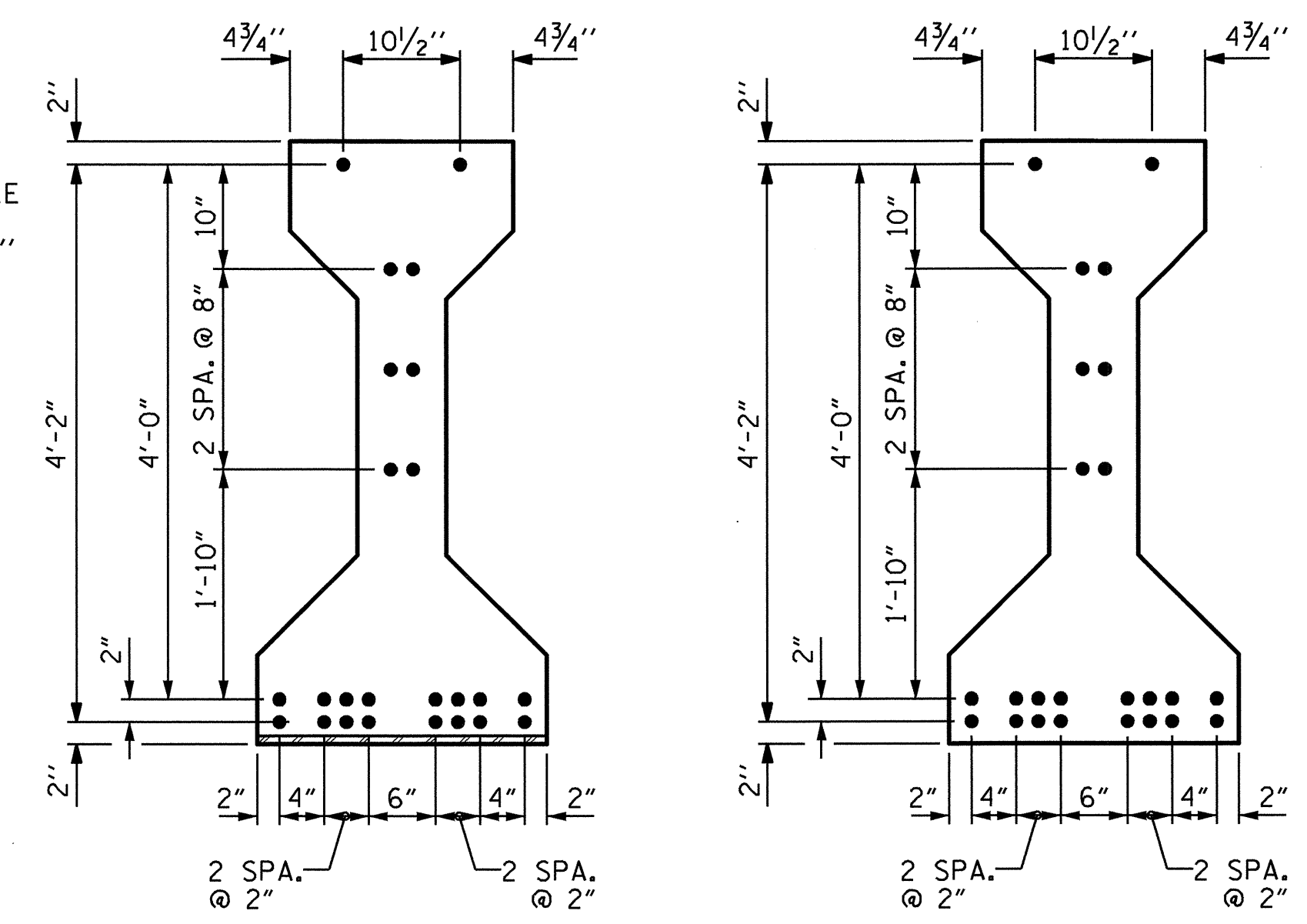
ASSEMBLED BY: B.N. BARODAWALA DATE: 5-29-09
CHECKED BY: PEGGY PARISI DATE: 10-6-09
DRAWN BY: ELR 8/91 REV. 7/17/98 RWW/LES
CHECKED BY: GRP 8/91 REV. 10/17/00R RWW/LES
REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 38
2			4			



* FOR S7 BARS, SEE
DETAIL "A" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET

Ø 1/2" FORMED HOLE
(SEE "GIRDER
LAYOUT - ELEVATION"
ON SHEET 4 OF 5
FOR LOCATION)



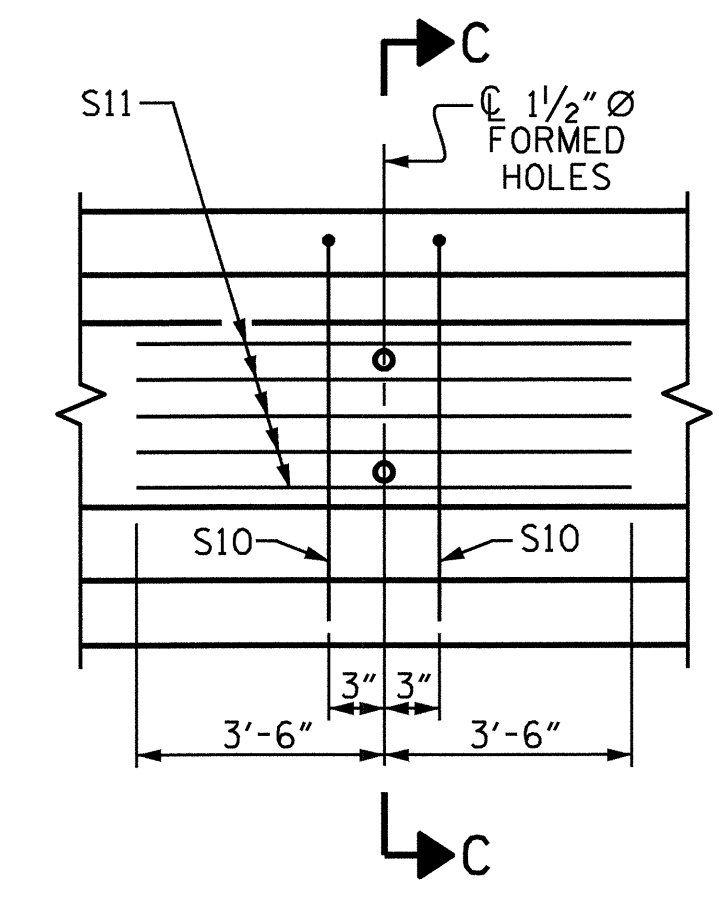
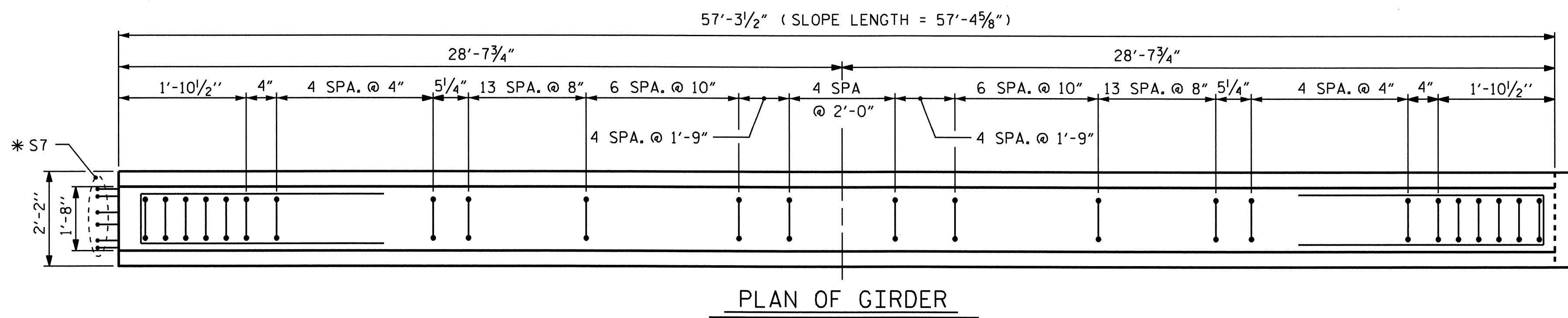
AT END OF GIRDER
AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

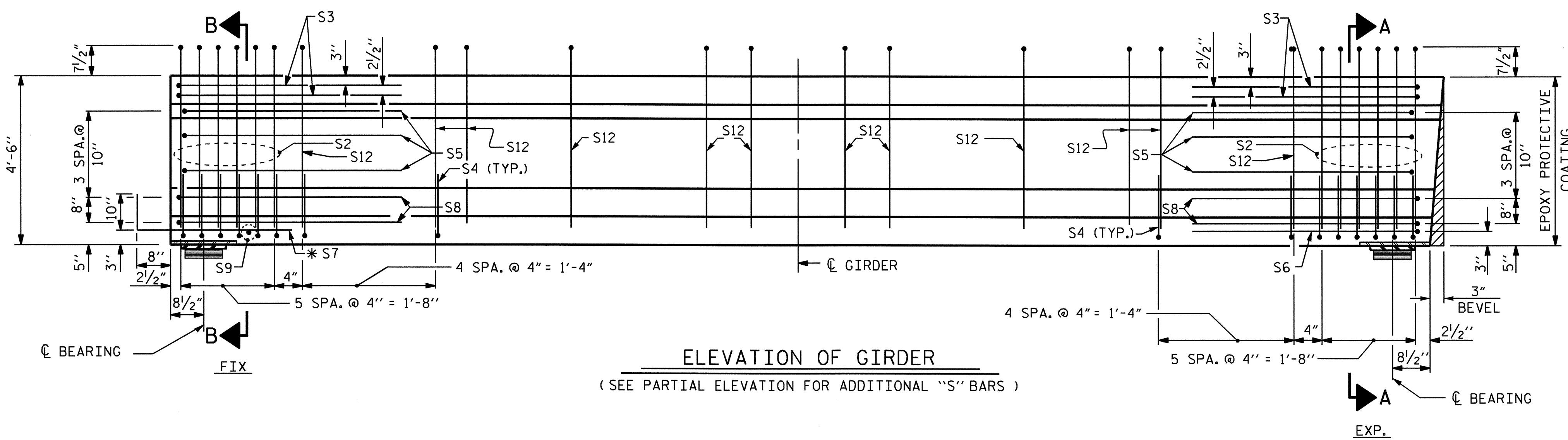
SECTION A-A

SECTION B-B

SECTION C-C



SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR GIRDERS
C1 THRU C4



0.6" Ø L.R. GRADE 270 STRANDS

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

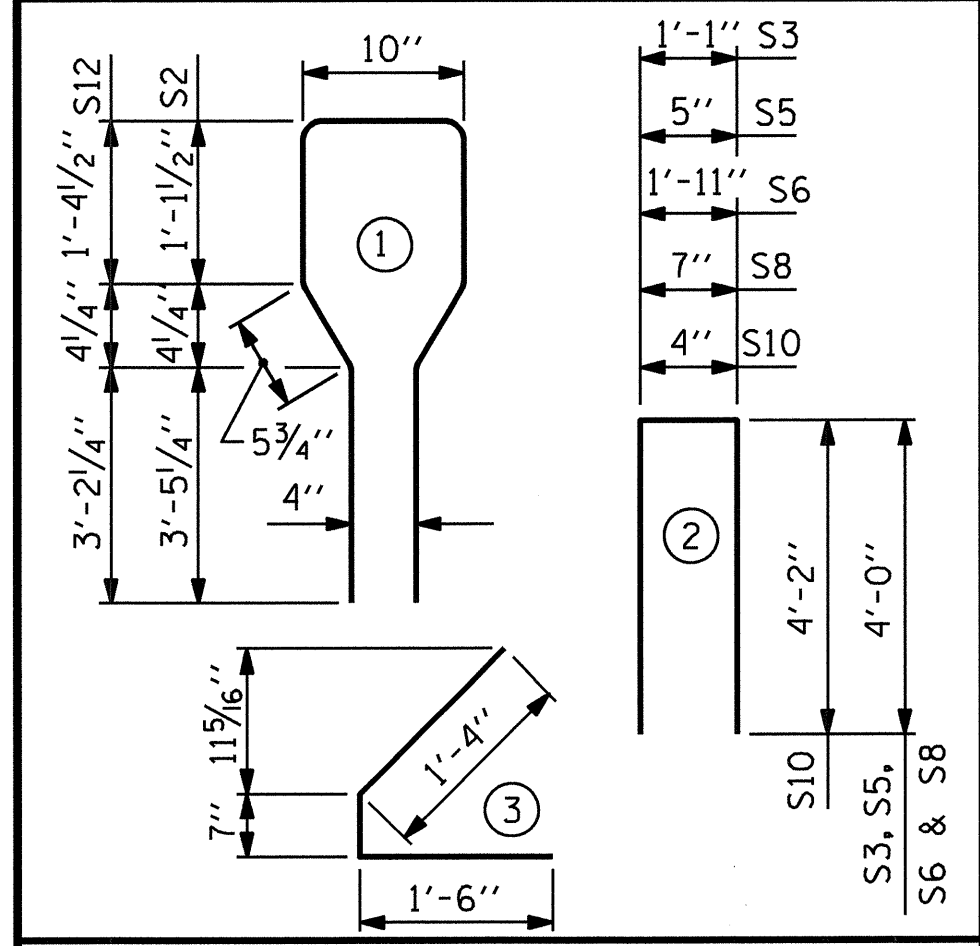
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S2	12	#6	1	10'-11"	197
S3	4	#4	2	9'-1"	24
S4	44	#4	3	3'-5"	100
S5	6	#4	2	8'-5"	34
S6	1	#4	2	9'-11"	7
* S7	6	#5	STR	3'-8"	23
S8	4	#4	2	8'-7"	23
S9	1	#3	STR	1'-10"	1
S10	2	#5	2	8'-8"	18
S11	5	#4	STR	7'-0"	23
S12	61	#4	1	10'-11"	445

* 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	5000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
SPAN C	895	11.6	24

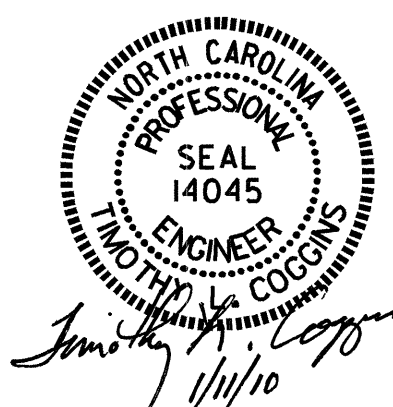
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	57'-3/2"	229'-2"

PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE IV
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN C



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

ASSEMBLED BY : B.N.BARODAWALA	DATE : 5-29-09
CHECKED BY : PEGGY PARISI	DATE : 7/1/09
DRAWN BY : ELR 8/91	REV. 7/17/98 RWW/LES
CHECKED BY : GRP 8/91	REV. 10/17/00R RWW/LES
	REV. 5/1/06 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.

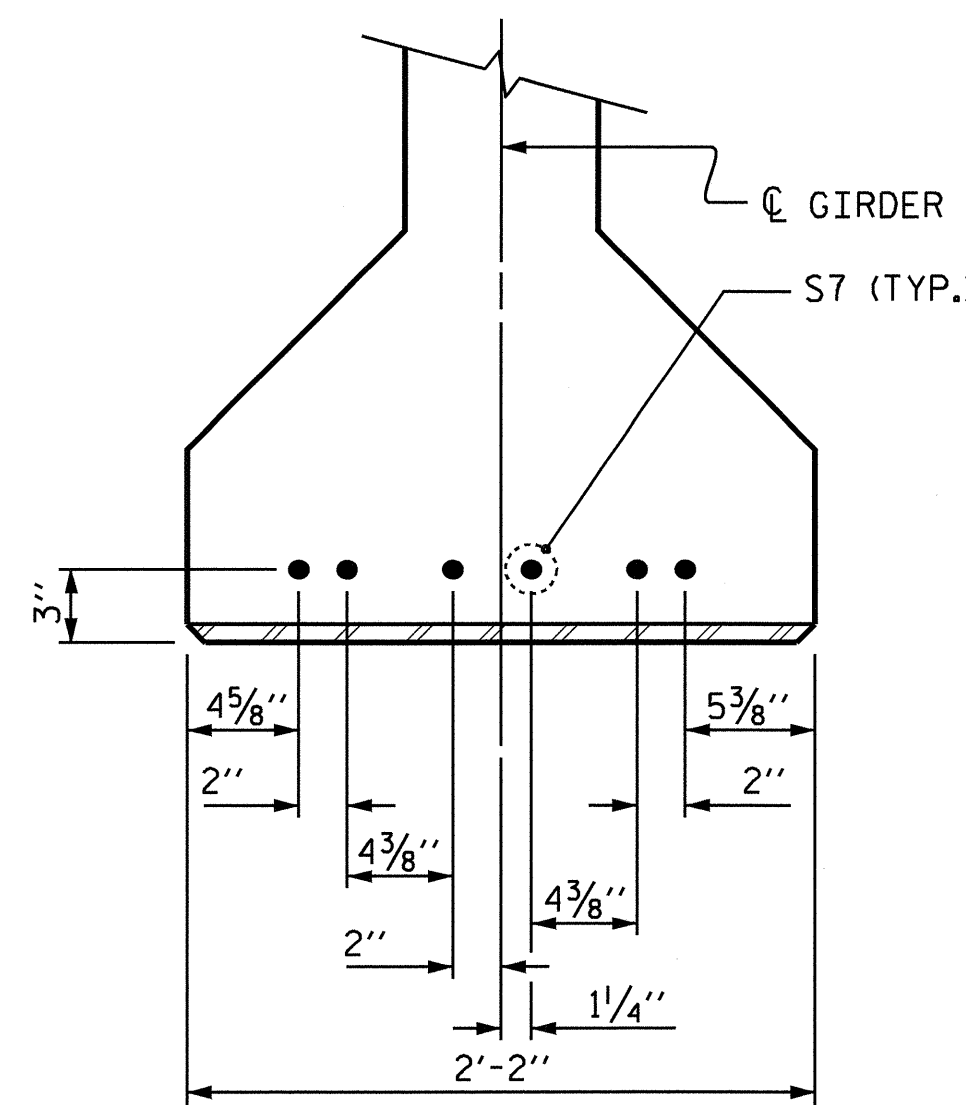
AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS, OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6300 PSI FOR SPAN A & B AND 4000 PSI FOR SPAN C.

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

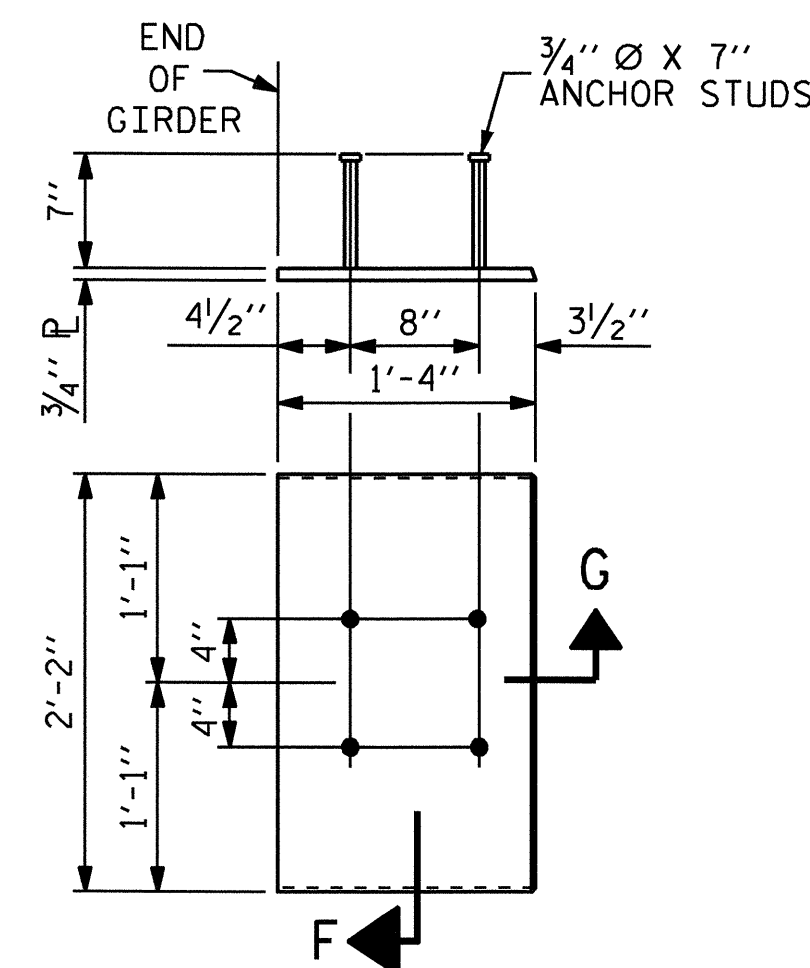
THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



DETAIL "A"

(FOR AASHTO TYPE IV GIRDERS)

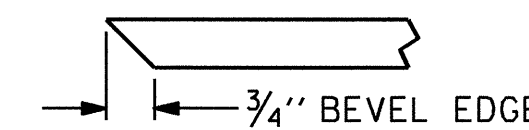


EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER

(2 REQ'D PER GIRDER)

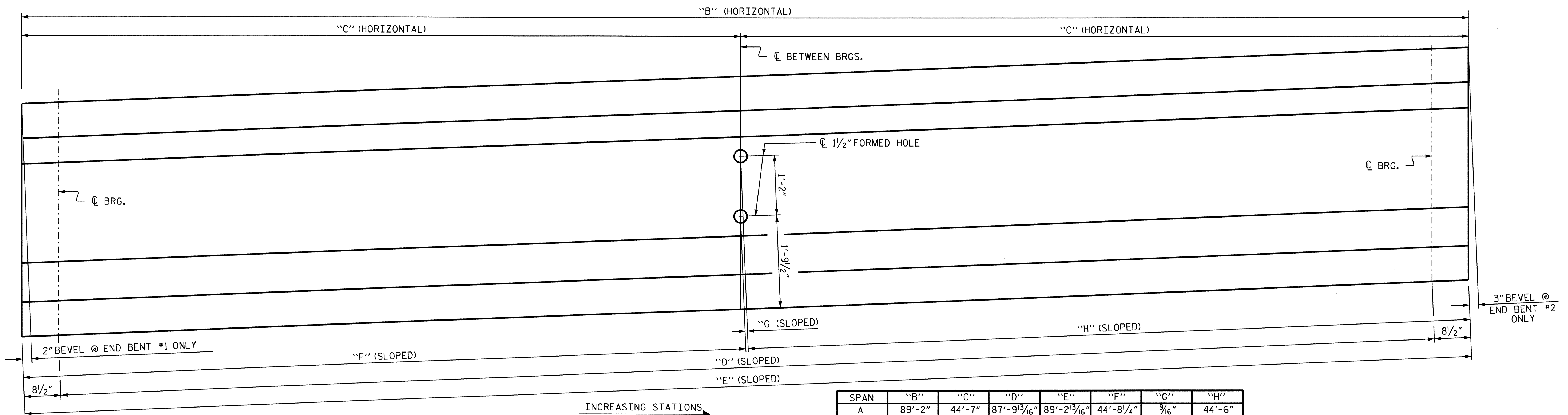


SECTION "G"



SECTION "F"

(SEE NOTES)



GIRDER LAYOUT - ELEVATION

SPAN	"B"	"C"	"D"	"E"	"F"	"G"	"H"
A	89'-2"	44'-7"	87'-9 3/16"	89'-2 3/16"	44'-8 1/4"	3/16"	44'-6"
B	89'-2"	44'-7"	87'-10 1/2"	89'-3 1/2"	44'-8 1/8"	3/4"	44'-5 1/8"
C	57'-3 1/2"	28'-7 3/4"	55'-11 5/8"	57'-4 7/8"	28'-9 3/16"	1 3/16"	28'-6 1/4"

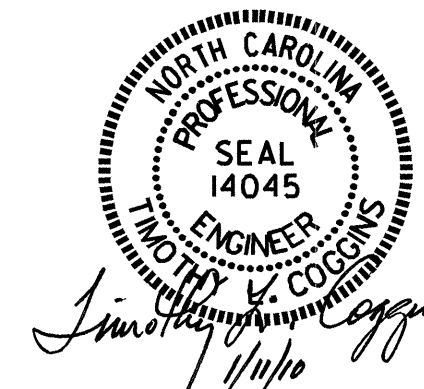
GIRDER DIMENSIONS

DEAD LOAD DEFLECTION TABLE FOR SPANS A & B											
0.6" Ø LOW RELAXATION GIRDER 1 THRU 4											
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.0	0.079	0.149	0.204	0.239	0.251	0.239	0.204	0.149	0.079	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓ 0.0	0.037	0.071	0.097	0.113	0.119	0.113	0.097	0.071	0.037	0.0
FINAL CAMBER	↑ 0.0	1/2"	1 5/16"	1 5/16"	1 1/2"	1 1/16"	1 1/2"	1 5/16"	1 5/16"	1/2"	0.0

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

DEAD LOAD DEFLECTION TABLE FOR SPAN C											
0.6" Ø LOW RELAXATION GIRDER 1 THRU 4											
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.0	0.020	0.038	0.052	0.061	0.064	0.061	0.052	0.038	0.020	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓ 0.0	0.007	0.014	0.019	0.022	0.023	0.022	0.019	0.014	0.007	0.0
FINAL CAMBER	↑ 0.0	1/8"	5/16"	3/8"	1/2"	1/2"	1/2"	3/8"	5/16"	1/8"	0.0

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



PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 4 OF 5

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

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

ASSEMBLED BY : B.N.BARODAWAL	DATE : 2/16/09
CHECKED BY : PEGGY PARISI	DATE : 7/1/09
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 CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

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

THE CHANNELS, ANGLES, WASHERS, PLATE WASHERS, AND DIRECT TENSION INDICATORS 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, AND WASHERS 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. DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS.

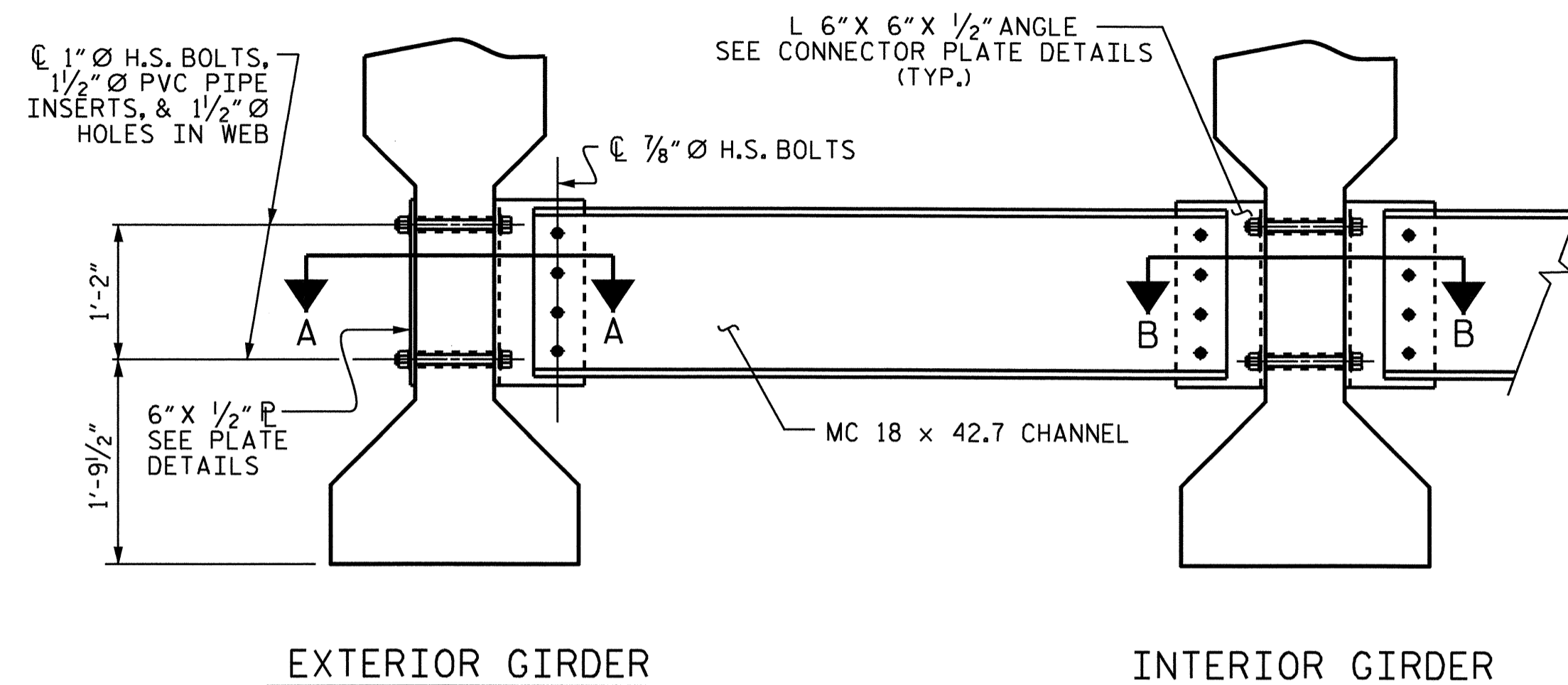
PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMMODATE WASHERS, DIRECT TENSION INDICATORS, THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

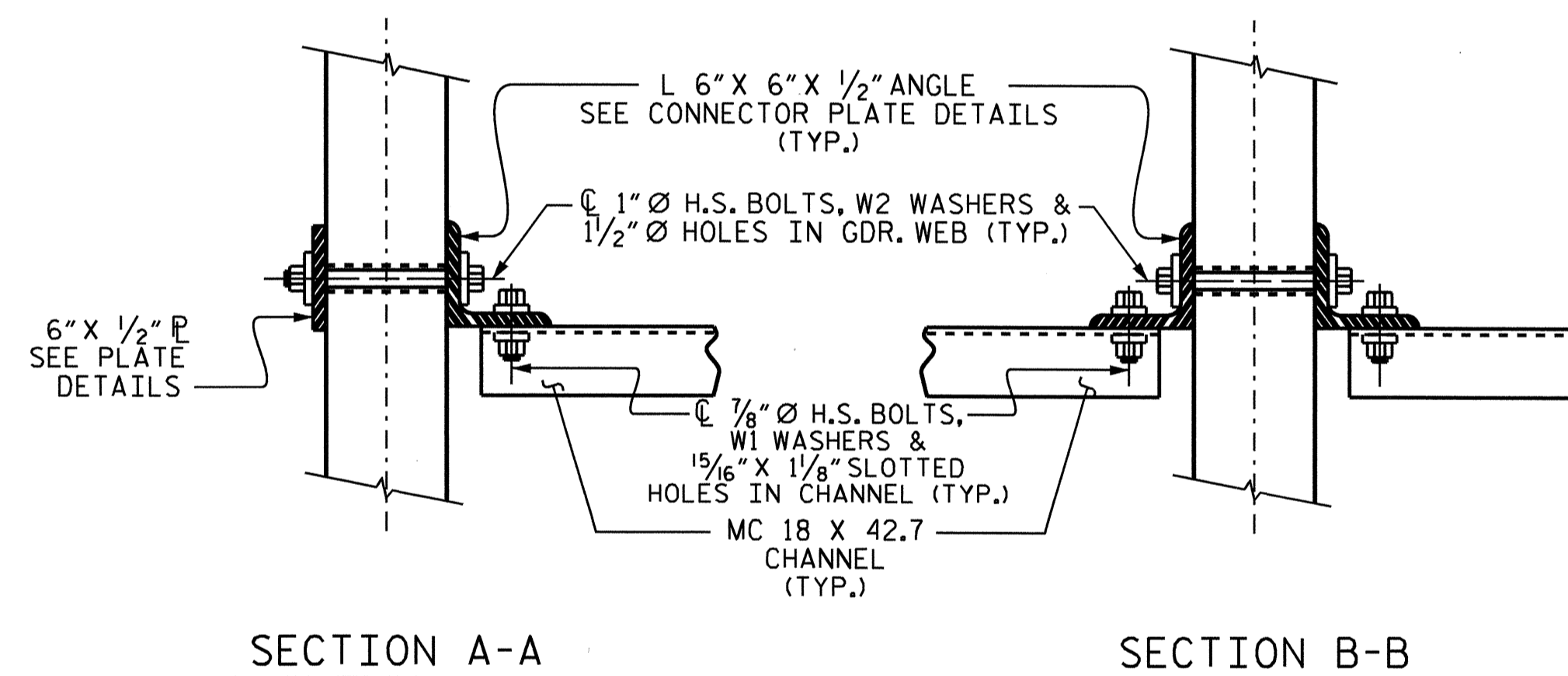
CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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.

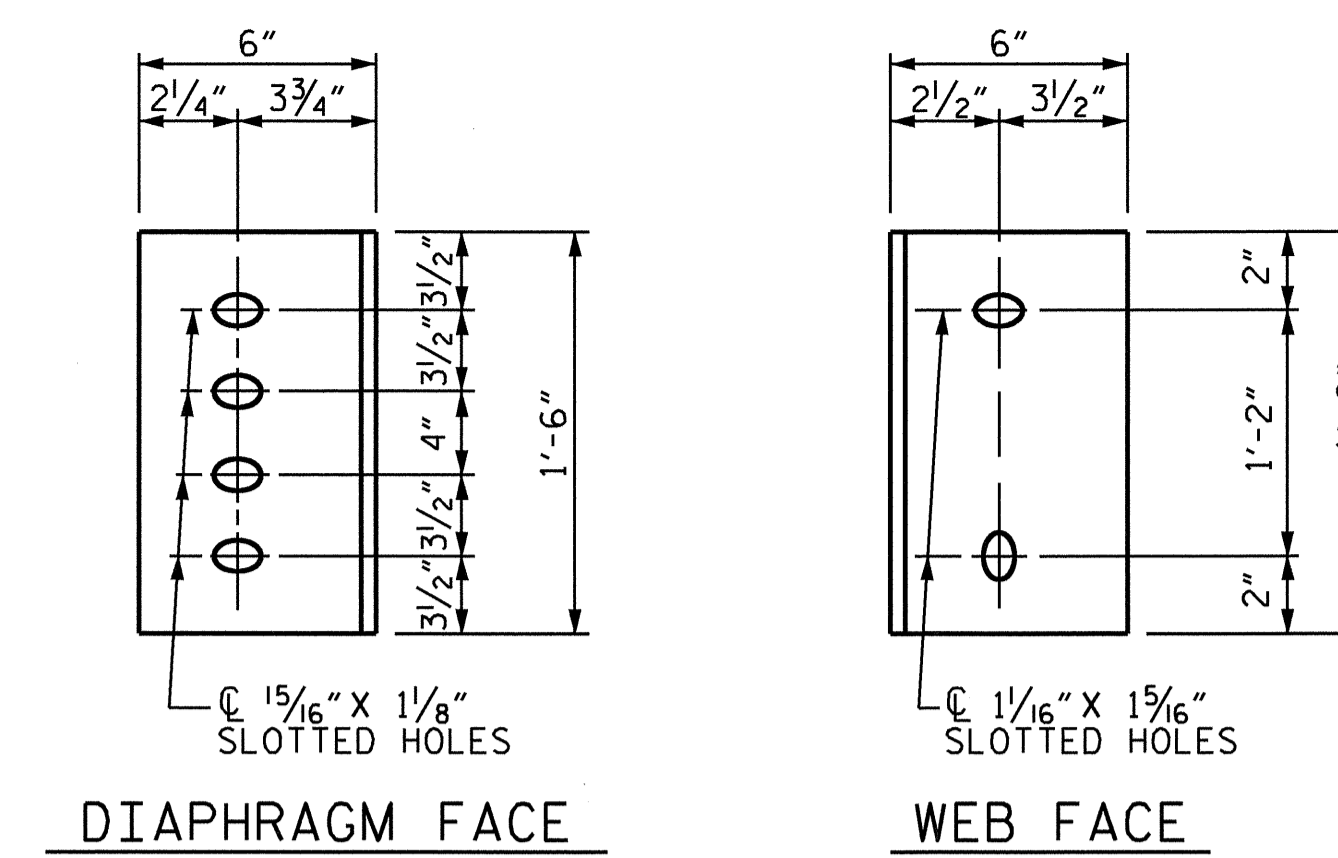
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTION DETAILS



CONNECTOR PLATE DETAILS

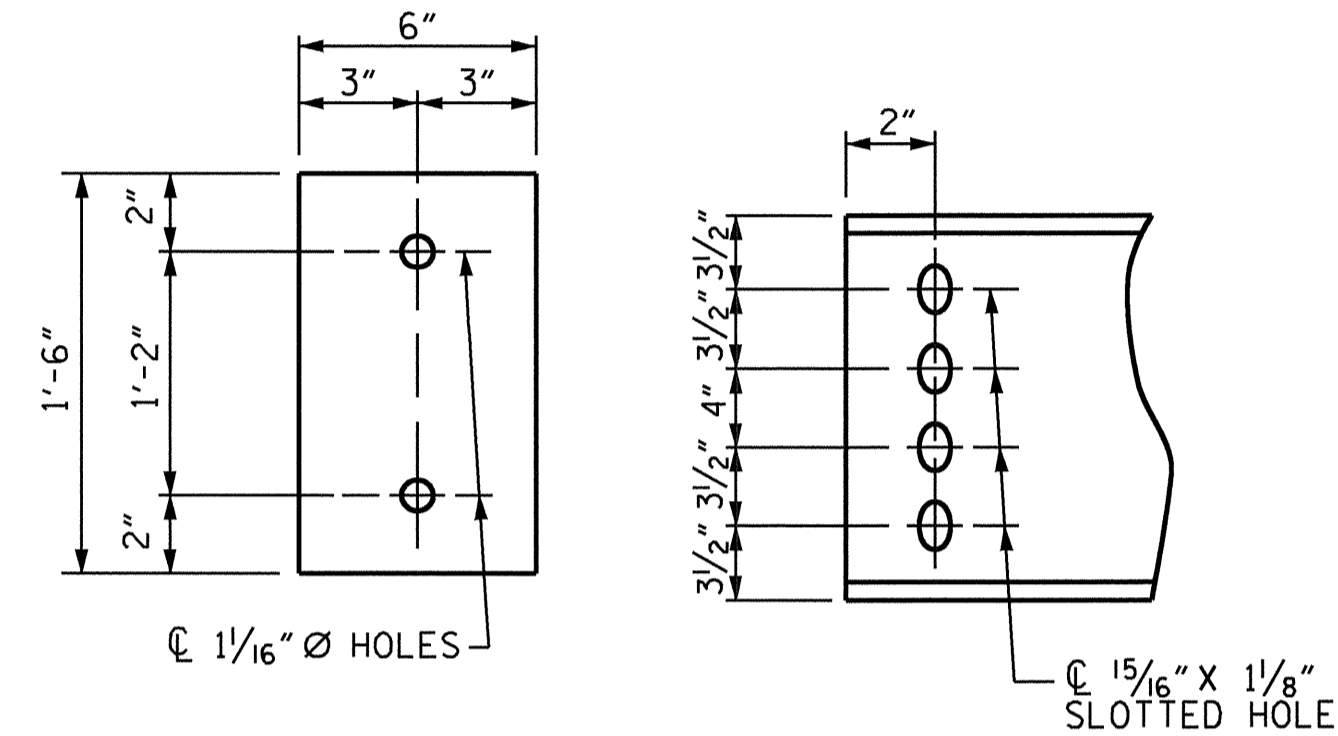
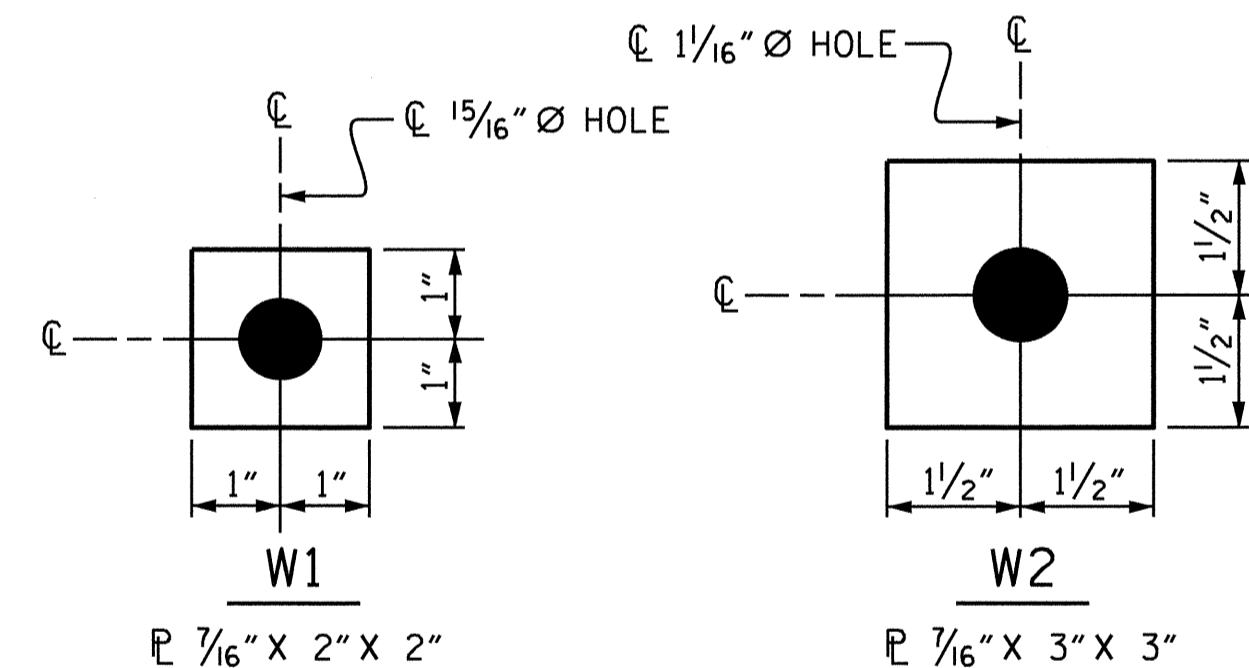


PLATE DETAILS CHANNEL END



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

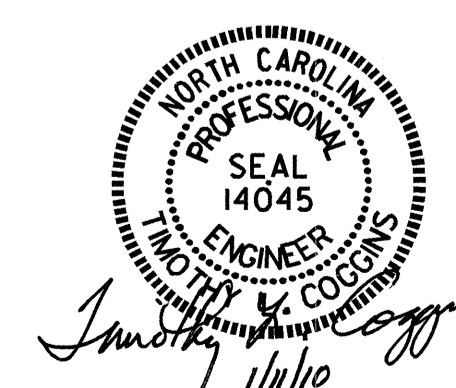
USE WITH 1" Ø HVY. HEX NUTS AT CONNECTOR PLATE TO GIRDER CONNECTIONS

WASHER DETAILS

PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 5 OF 5

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



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

ASSEMBLED BY : B.N.BARODAWALA DATE : 2-16-09
CHECKED BY : PEGGY PERISI DATE : 7/1/09
DRAWN BY : TLA 6/05
CHECKED BY : VC 6/05
ADDED 10/21/05
REV. 5/1/06R KMM/GM

NOTES

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

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

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

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

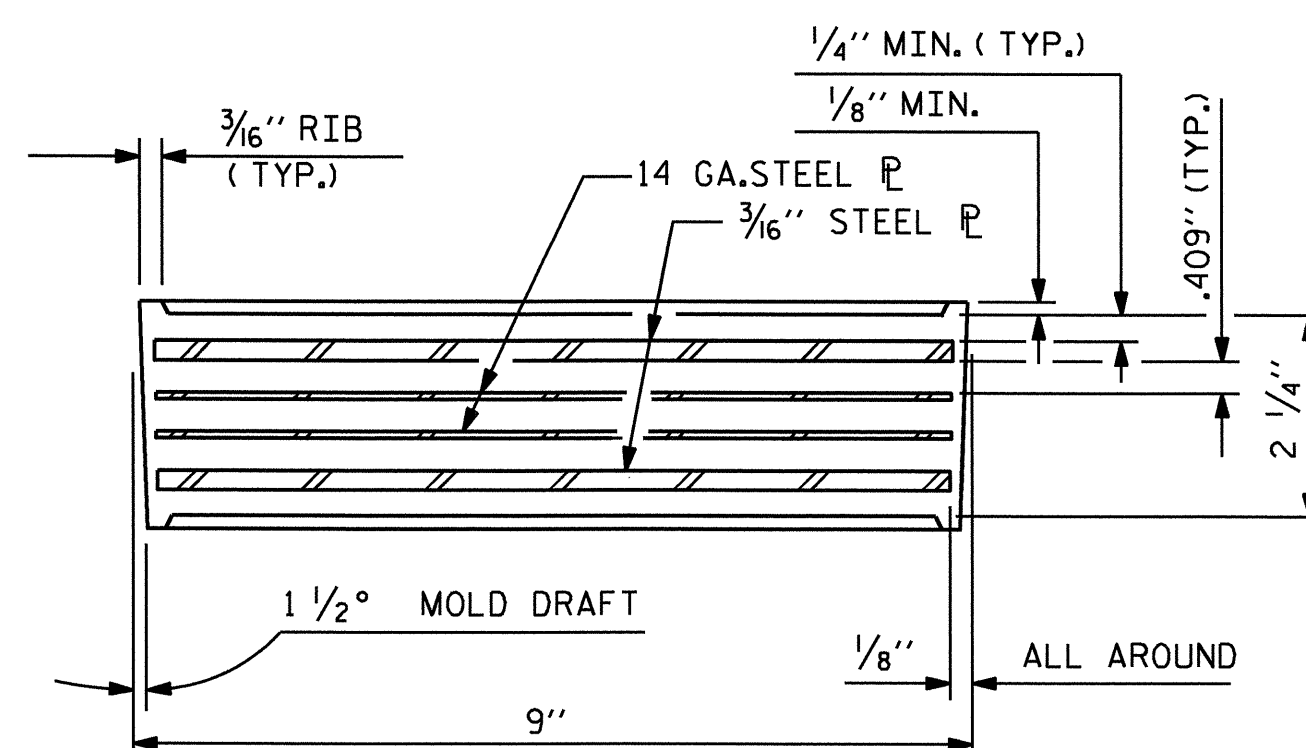
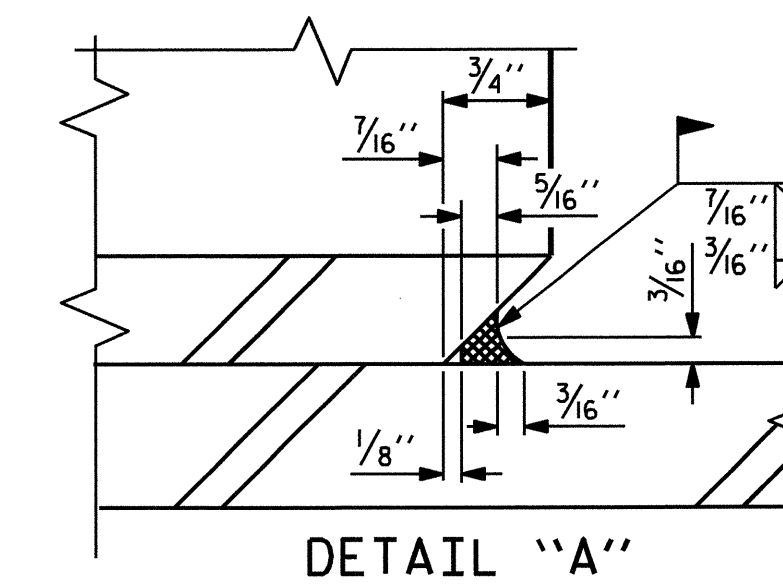
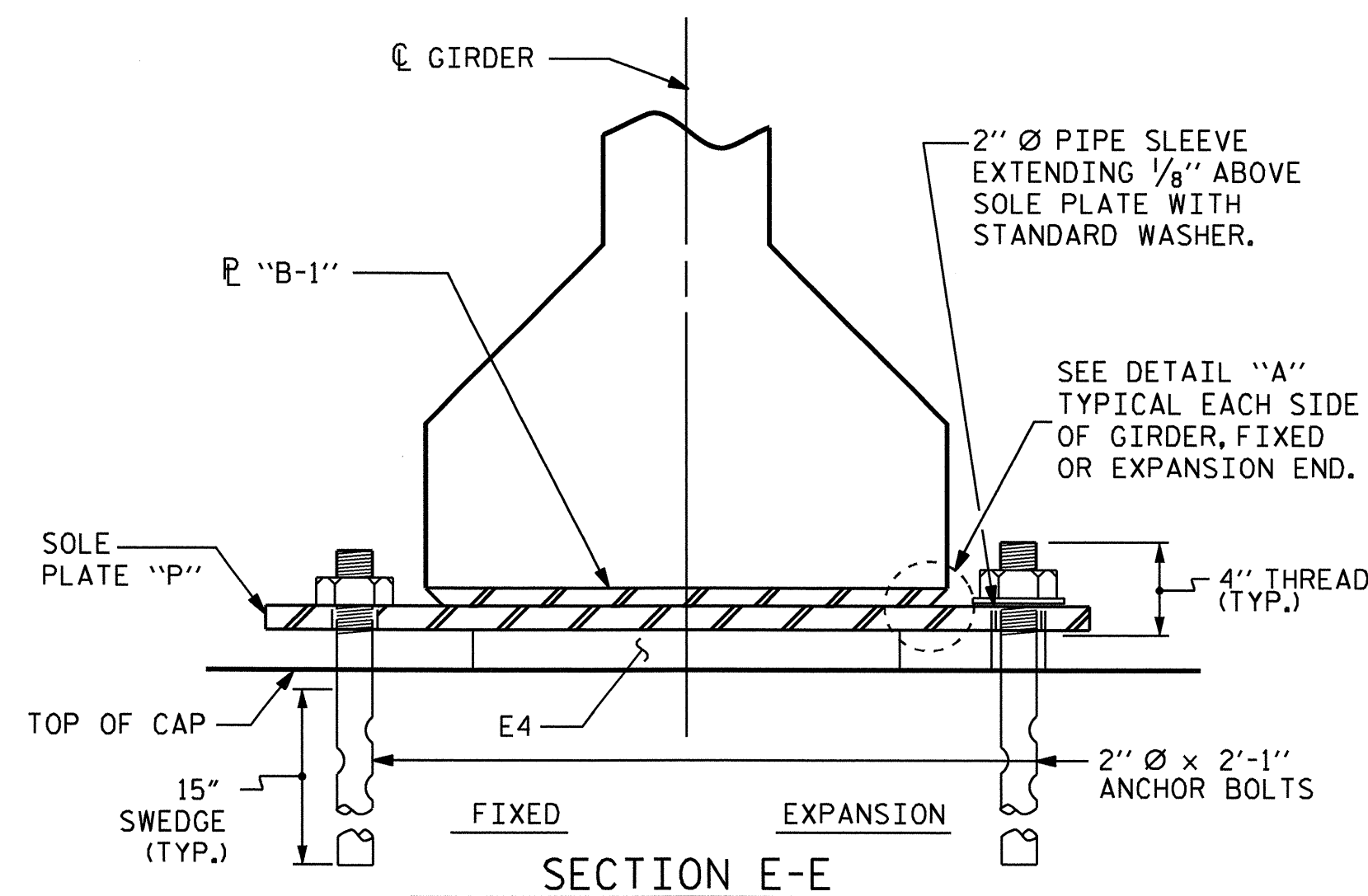
WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

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

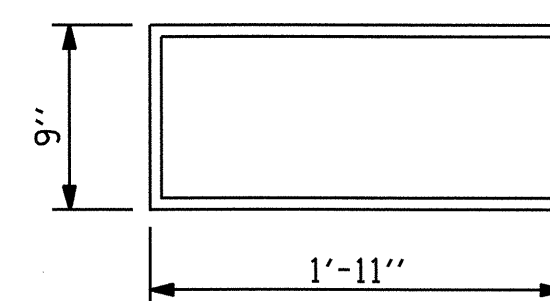
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. NO SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

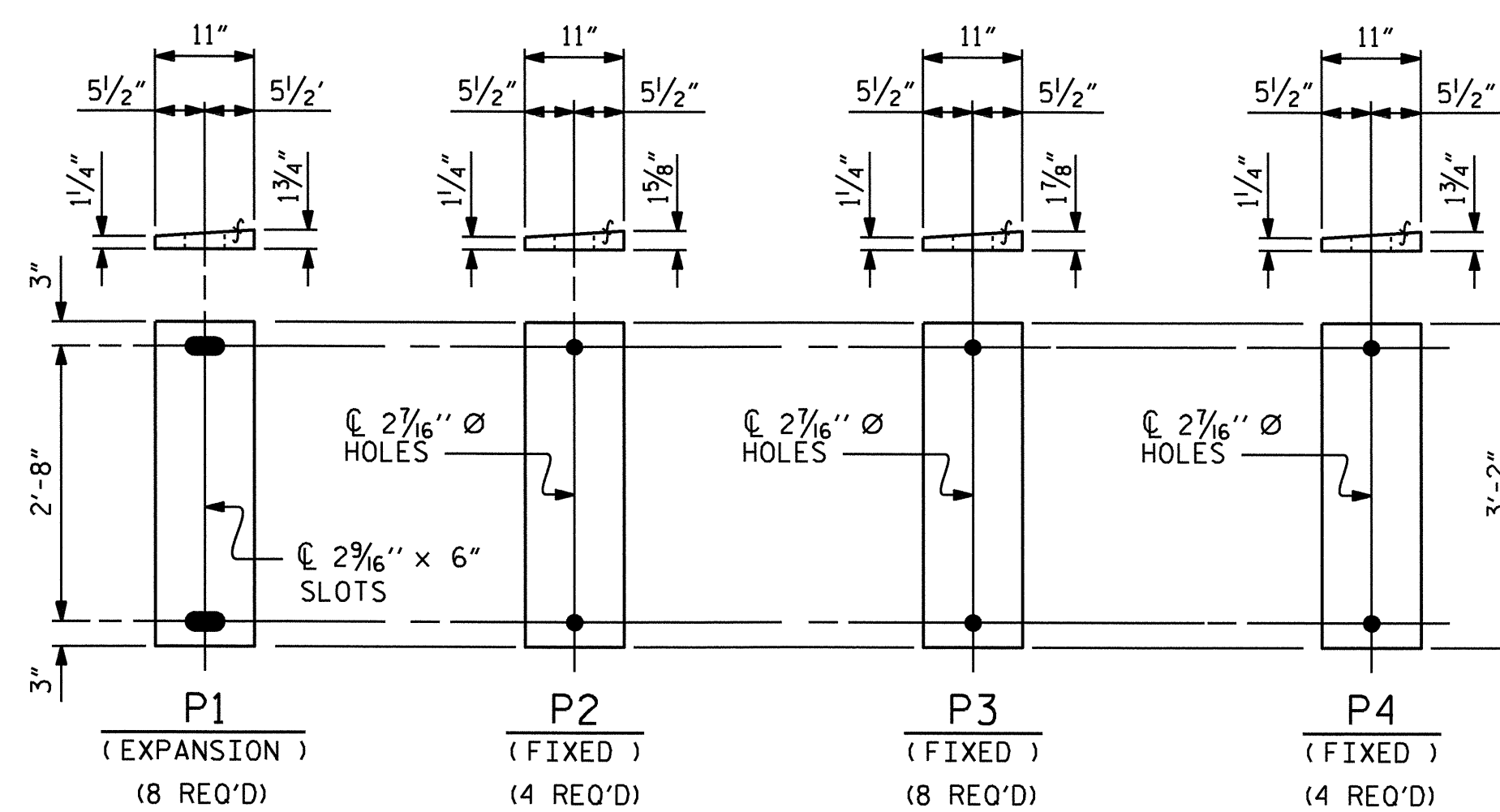


TYPICAL SECTION OF ELASTOMERIC BEARINGS



E4 (24 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

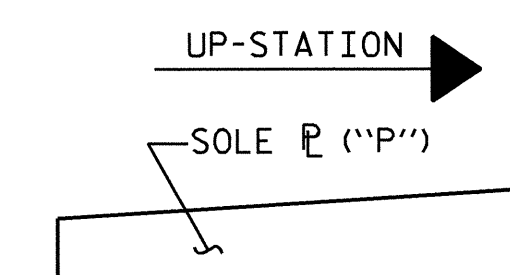
TYPE V



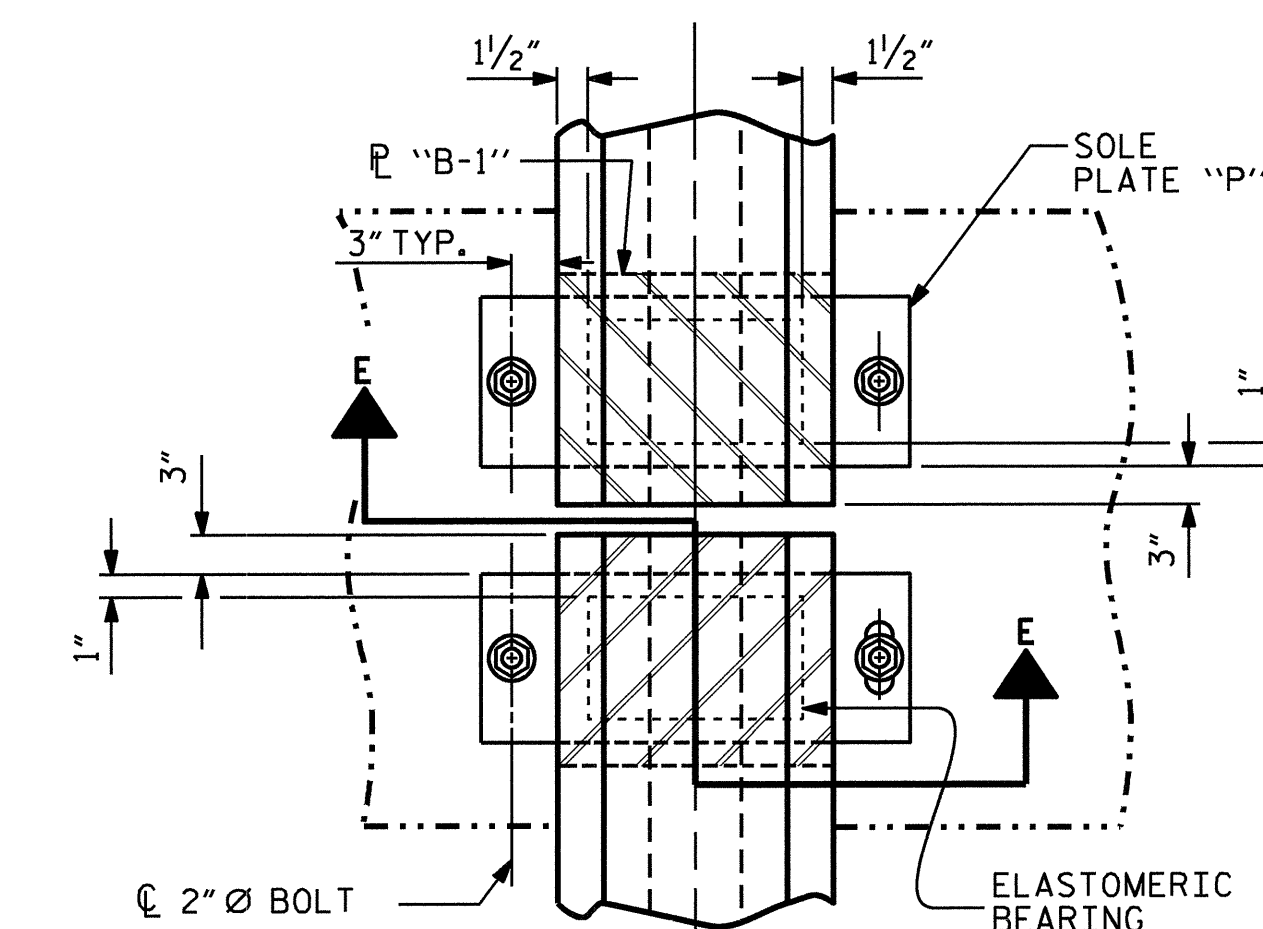
SOLE PLATE DETAILS ("P")

— LOAD RATINGS —

	MAX.D.L.+ L.L.
TYPE V	180 K

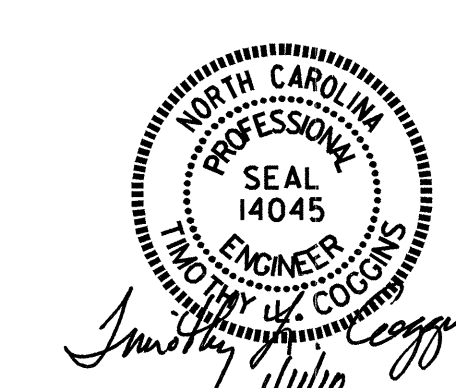


SOLE "P" PLACEMENT DETAIL



TYPICAL HALF-PLAN (SHOWING CONTINUOUS BENT) TYPICAL HALF-PLAN (SHOWING SIMPLE SPAN BENT)

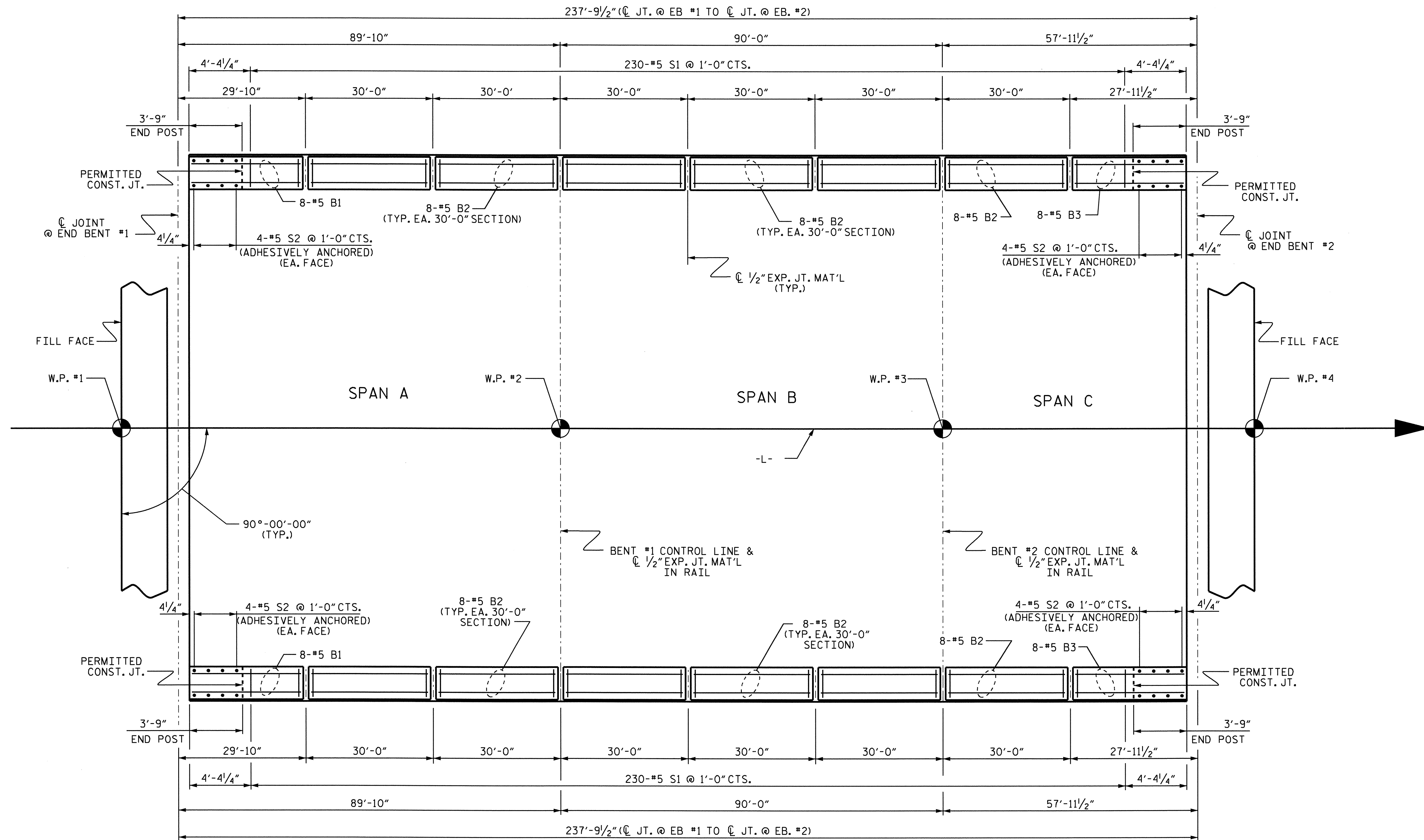
PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			38

ASSEMBLED BY: B.N.BARODAWALA DATE: 2-16-09
 CHECKED BY: PEGGY PARISI DATE: 10-9-09
 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



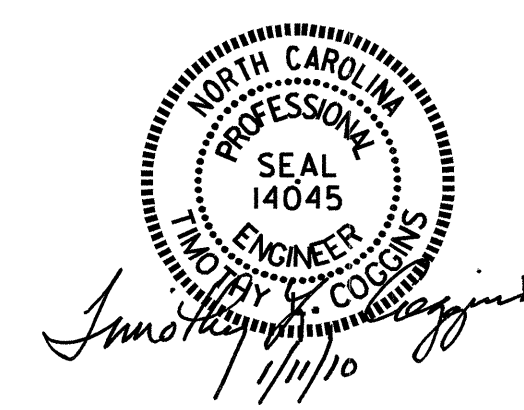
PLAN OF PARAPET

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 1 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

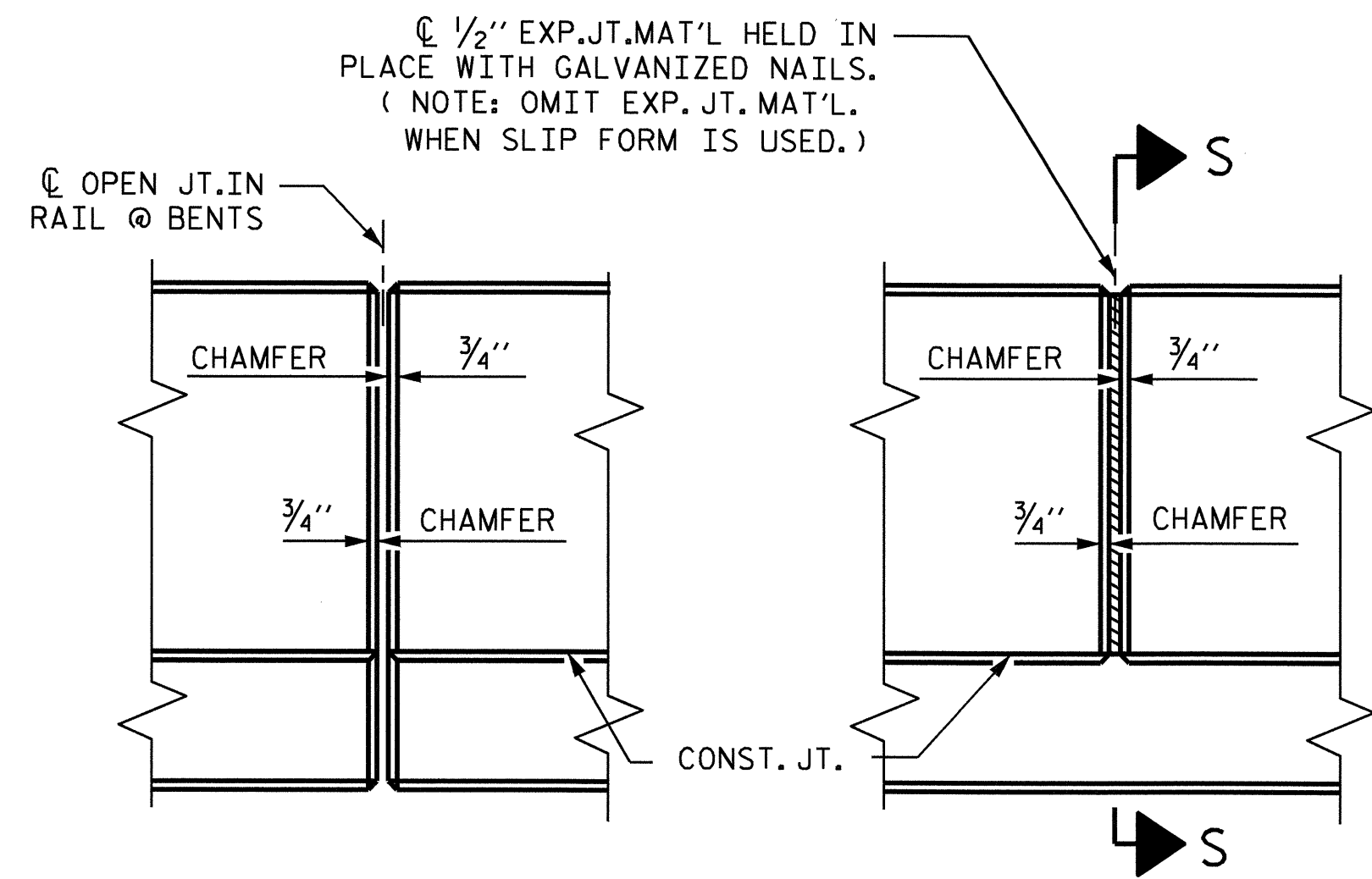
SUPERSTRUCTURE
 1'-2" x 2'-6"
 CONCRETE PARAPET



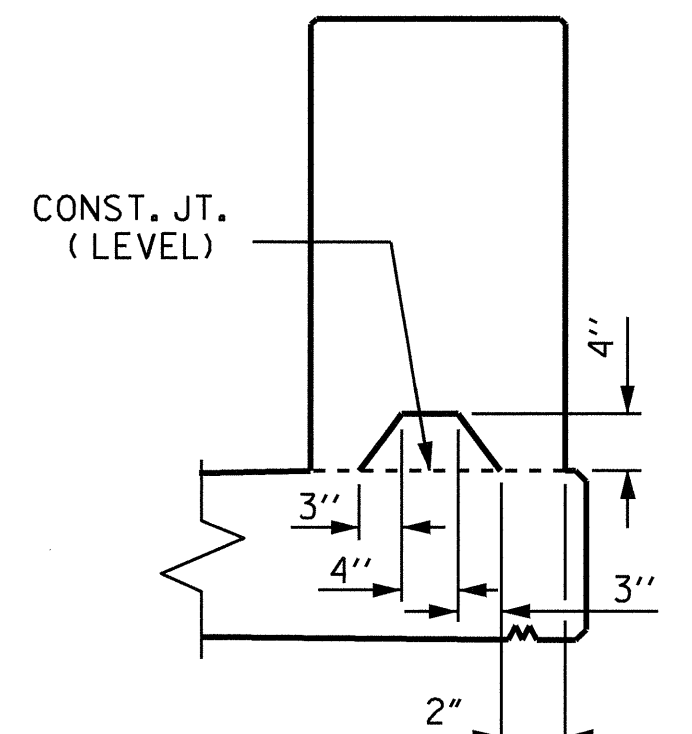
DRAWN BY : B.N.BARODAWALA DATE : 2/16/09
 CHECKED BY : PEGGY PARISI DATE : 7/1/09

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	38
2			4				

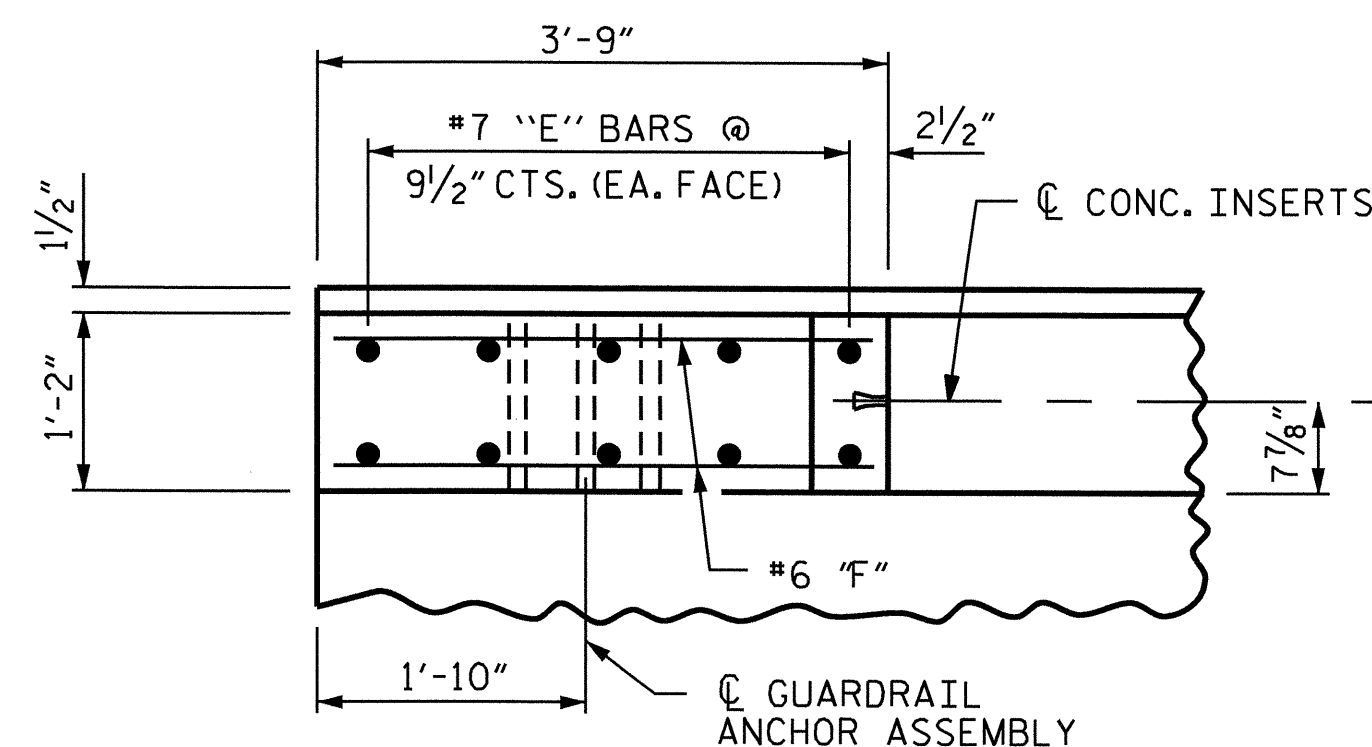
11-JAN-2010 12:03
 G:\TIP\Projects-B\B4627\Structures\B4627\Final Plans\B4627_sd_2mr_01.dgn
 toverette



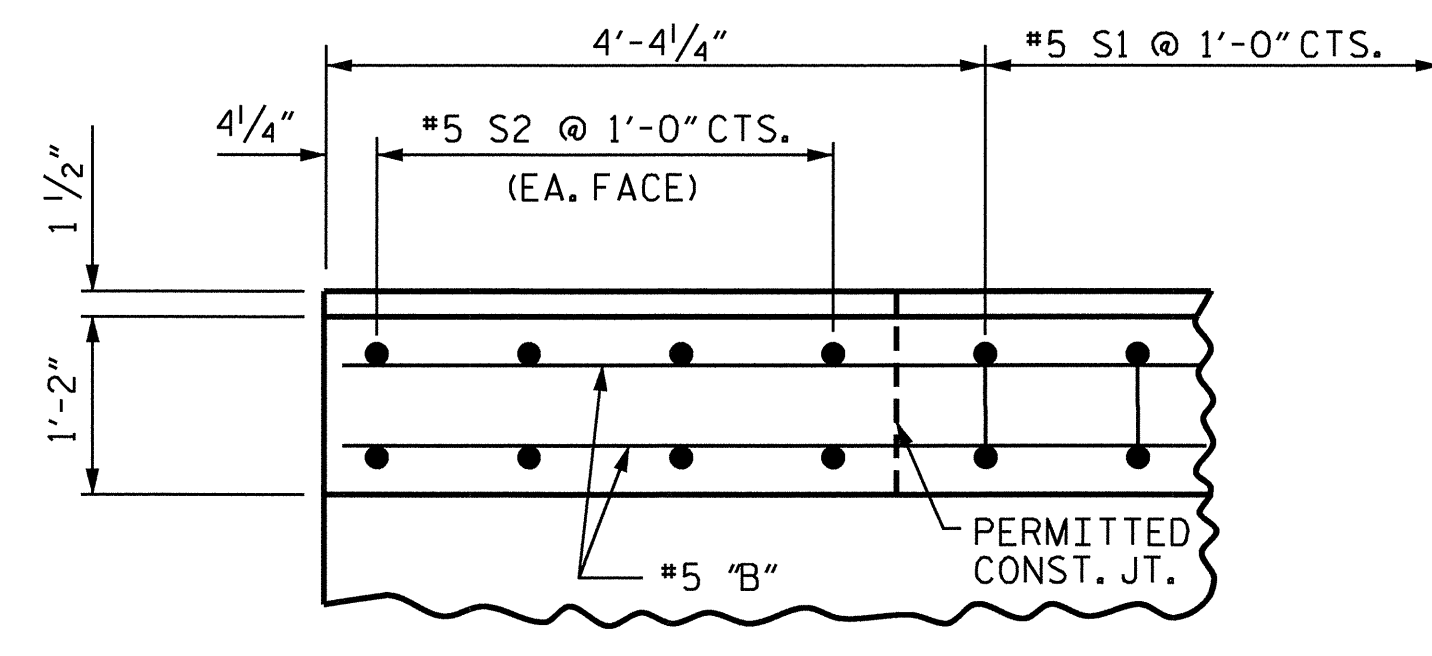
ELEVATION AT EXPANSION JOINTS



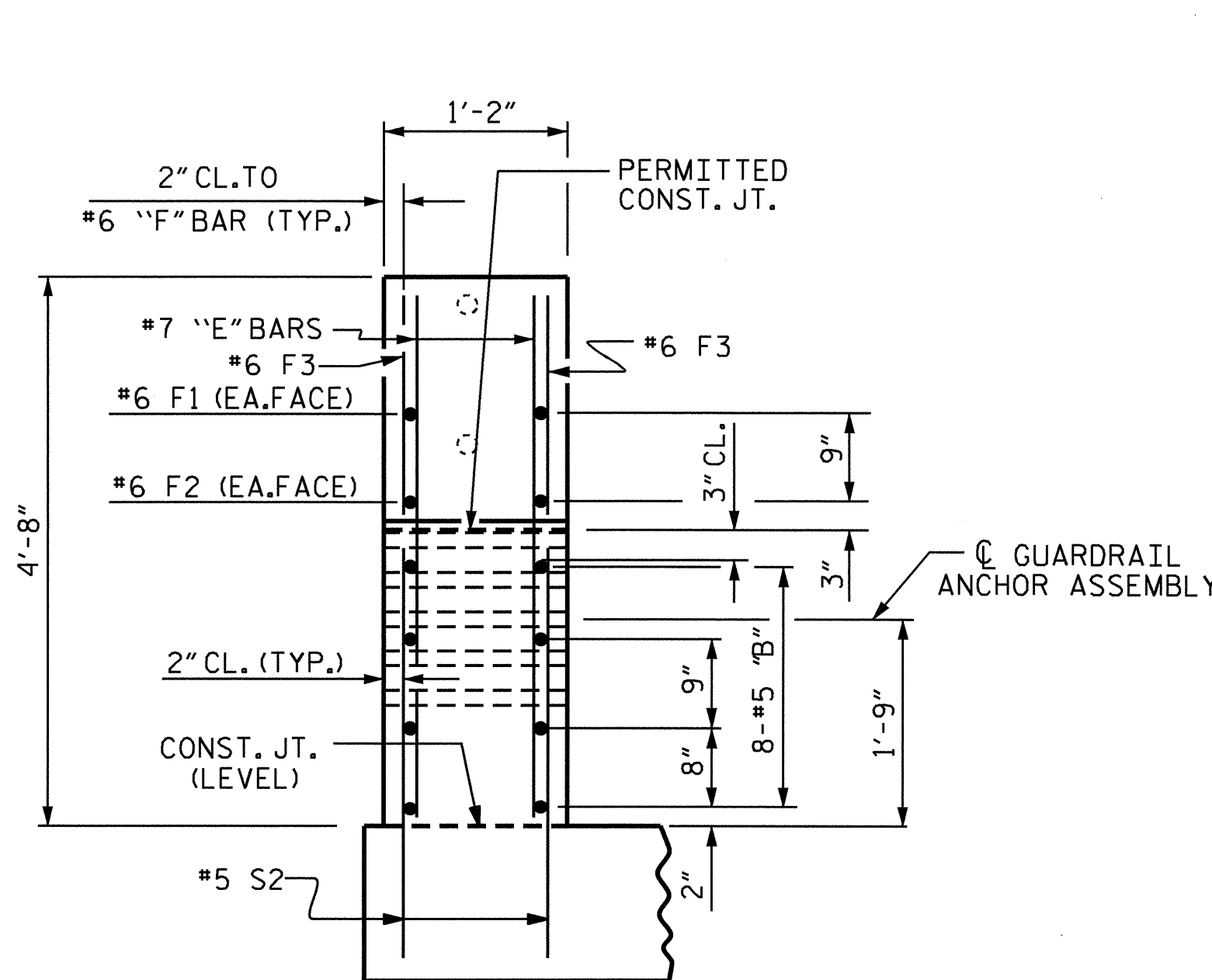
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



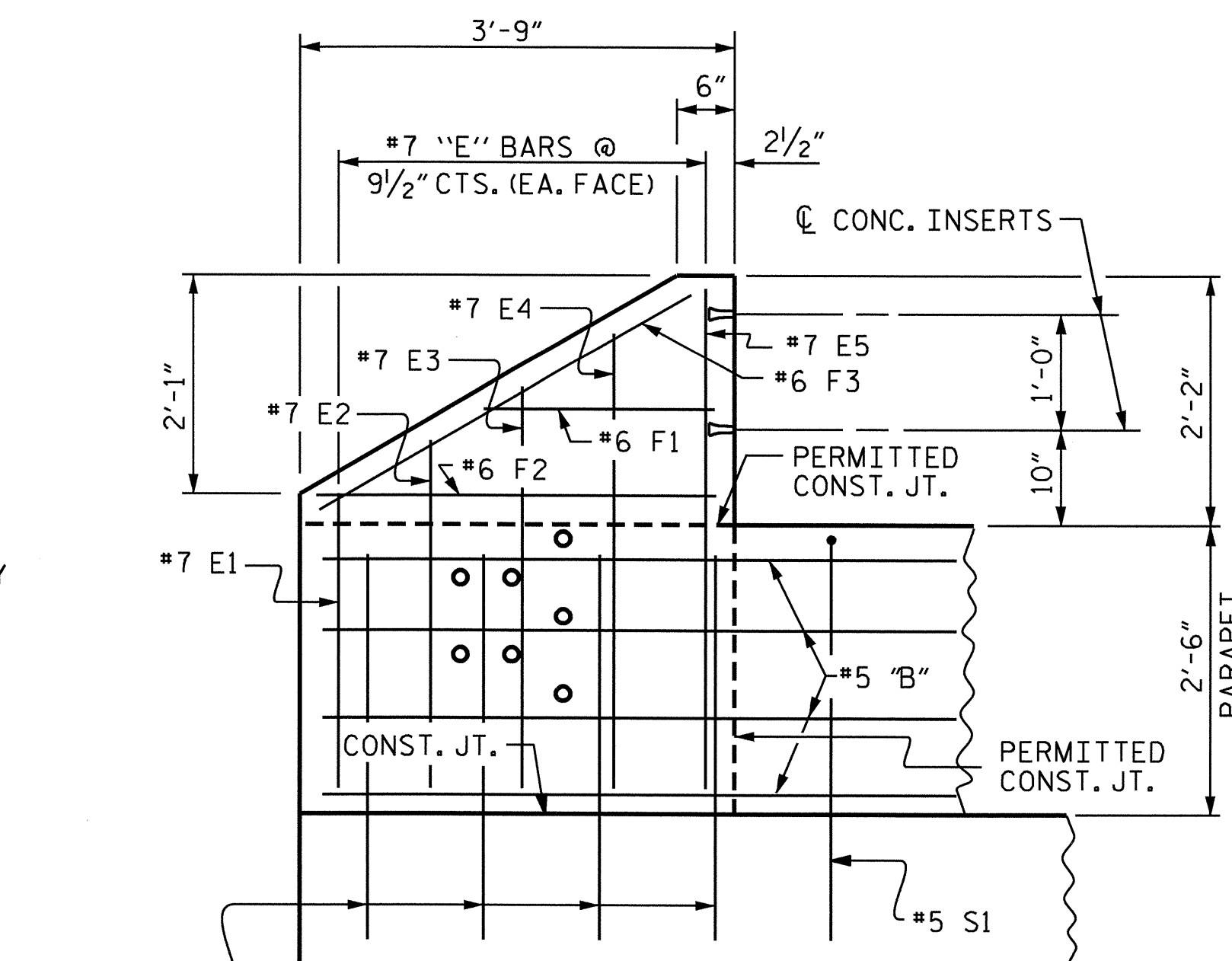
PLAN OF END POST



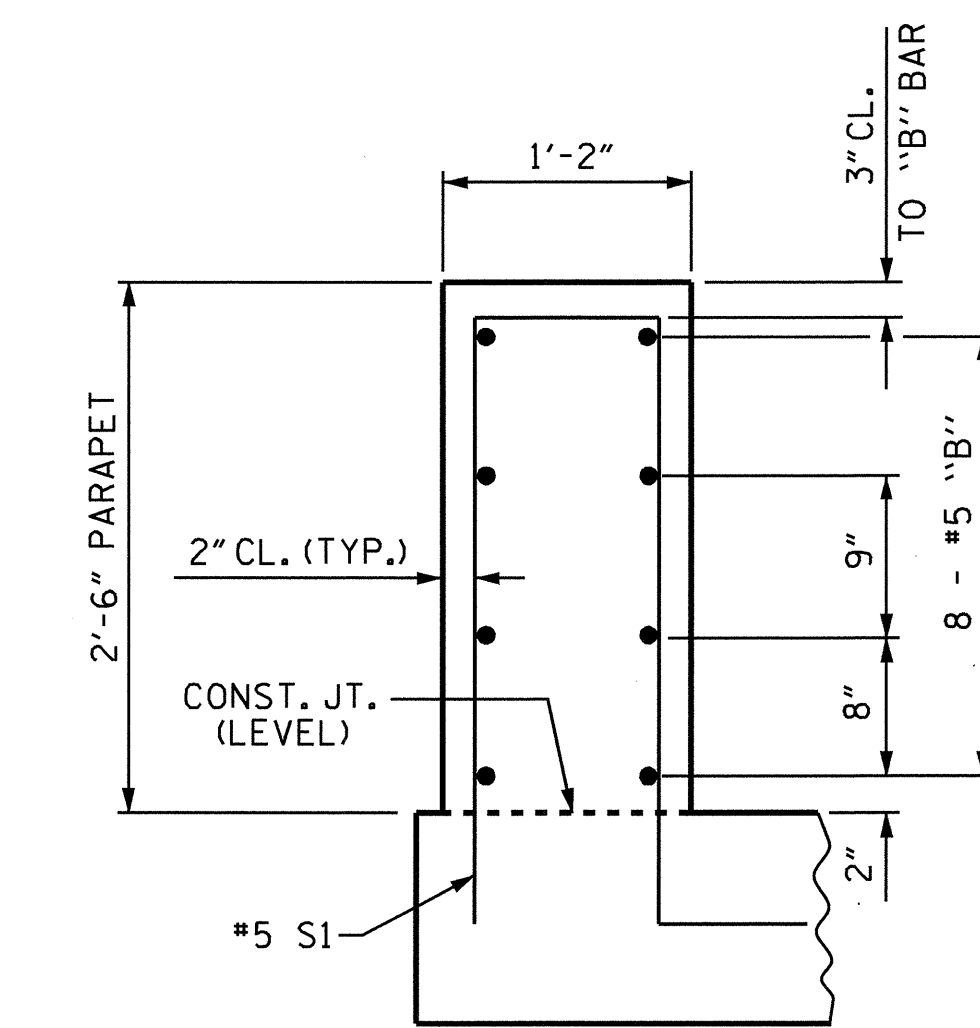
PLAN OF PARAPET



END VIEW



ELEVATION



SECTION THRU PARAPET

NOTES

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

ALL REINFORCING STEEL IN CONCRETE PARAPETS SHALL BE EPOXY COATED.

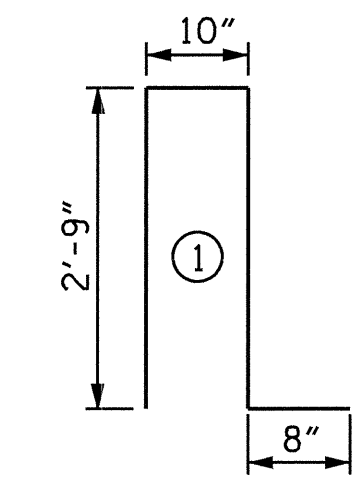
THE #5 S2 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. LEVEL TWO FIELD TESTING IS REQUIRED AND THE YIELD LOAD FOR THE #5 S2 BAR IS 18.6 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

SEE "END OF RAIL DETAILS" SHEET FOR CONCRETE INSERT DETAILS.

SEE "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS" SHEET FOR GUARDRAIL ANCHOR ASSEMBLY.

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

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

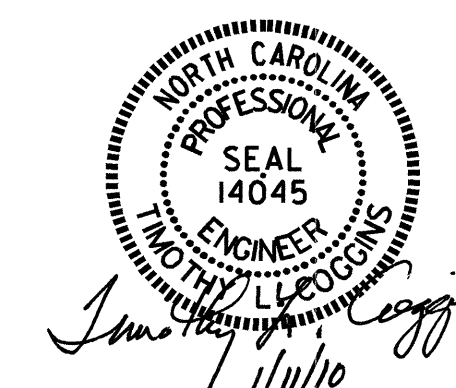
PARAPET & FOUR END POSTS						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B1	16	#5	STR	29'-5"	491	
*B2	96	#5	STR	29'-7"	2962	
*B3	16	#5	STR	27'-6"	459	
*E1	8	#7	STR	2'-6"	41	
*E2	8	#7	STR	3'-0"	49	
*E3	8	#7	STR	3'-6"	57	
*E4	8	#7	STR	4'-0"	65	
*E5	8	#7	STR	4'-4"	71	
*F1	8	#6	STR	1'-10"	22	
*F2	8	#6	STR	3'-0"	36	
*F3	8	#6	STR	3'-4"	40	
*S1	460	#5	1	7'-0"	3358	
*S2	32	#5	STR	3'-0"	100	
* EPOXY COATED REINFORCING STEEL				LBS.	7751	
1'-2" x 2'-6" CONCRETE PARAPET				LN. FT.	475.58	
CLASS AA CONCRETE				CU. YD.	52.2	

PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-

SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
1'-2" x 2'-6"
CONCRETE PARAPET

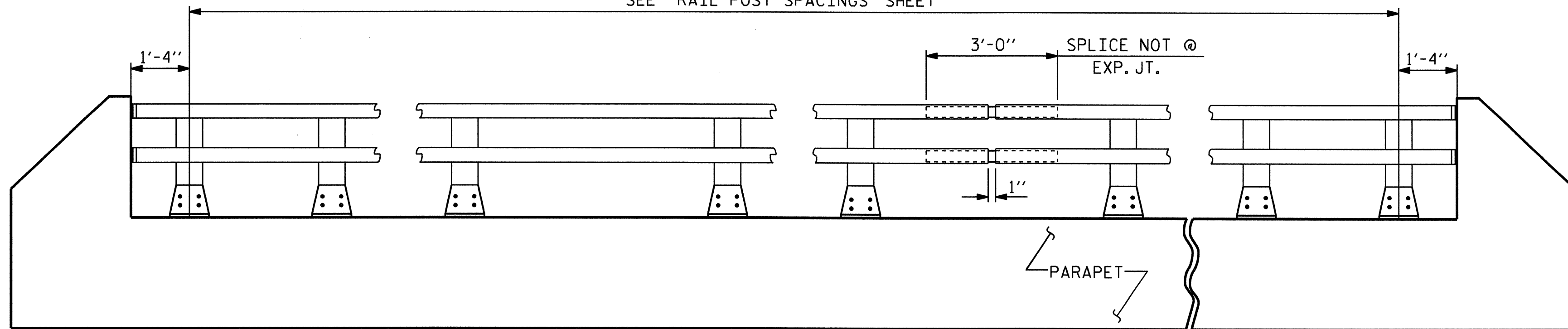


REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-16
2			4			TOTAL SHEETS 38

DRAWN BY: B.N.BARODAWALA DATE: 2/16/09
CHECKED BY: PEGGY PARISI DATE: 7/1/09

SEE "RAIL POST SPACINGS" SHEET



ELEVATION

NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.

NOTES

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

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

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

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

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

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

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

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

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

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

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

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

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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

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

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

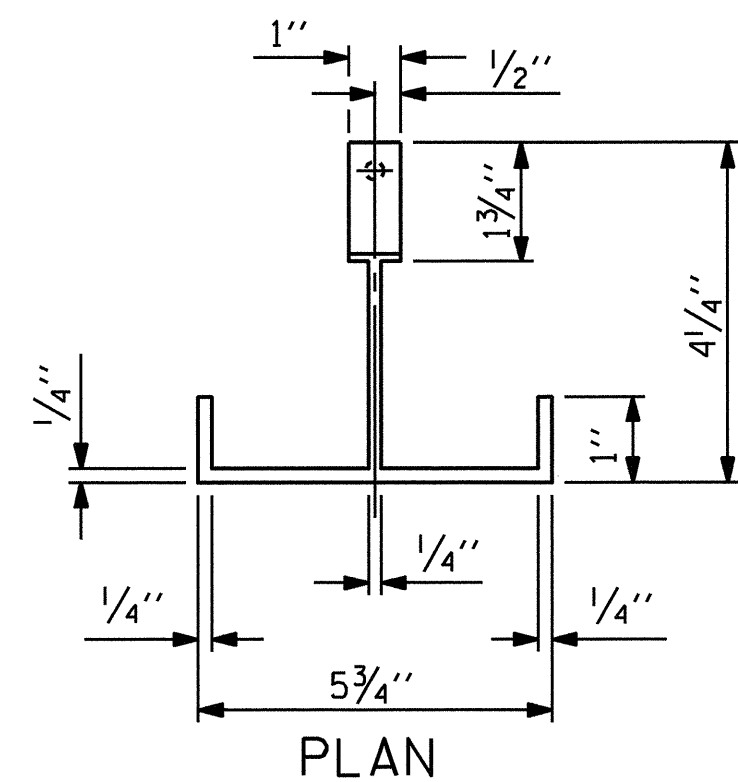
SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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

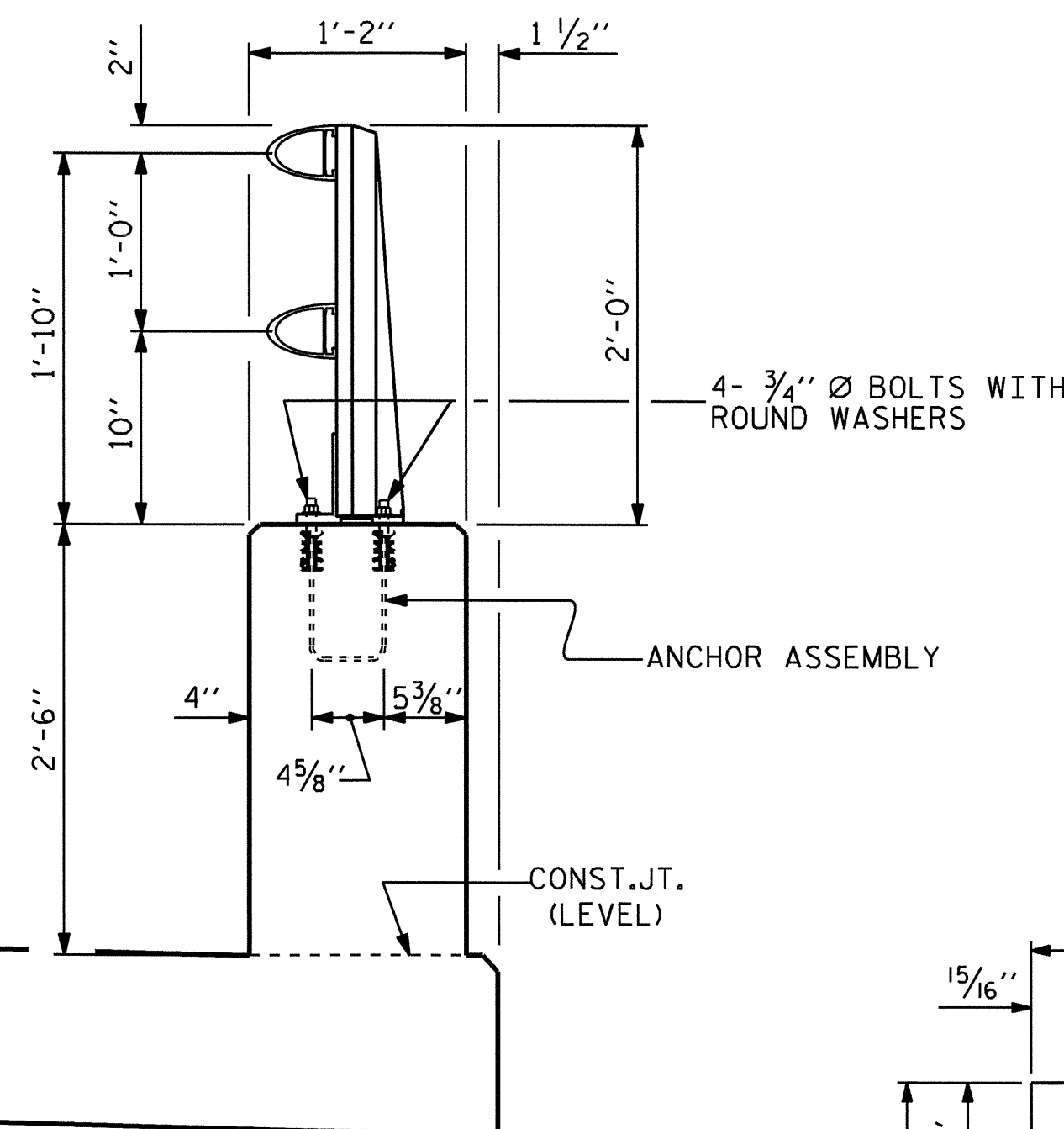
MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

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

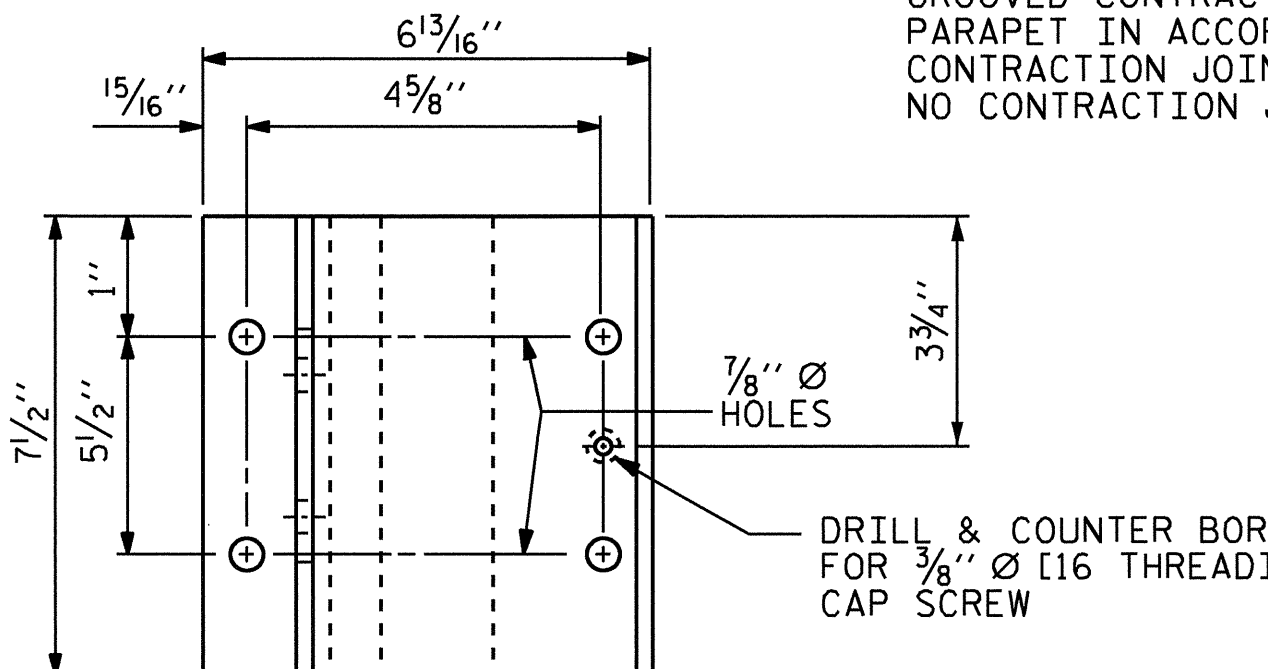
PAY LENGTH = 460.42 LIN. FT.



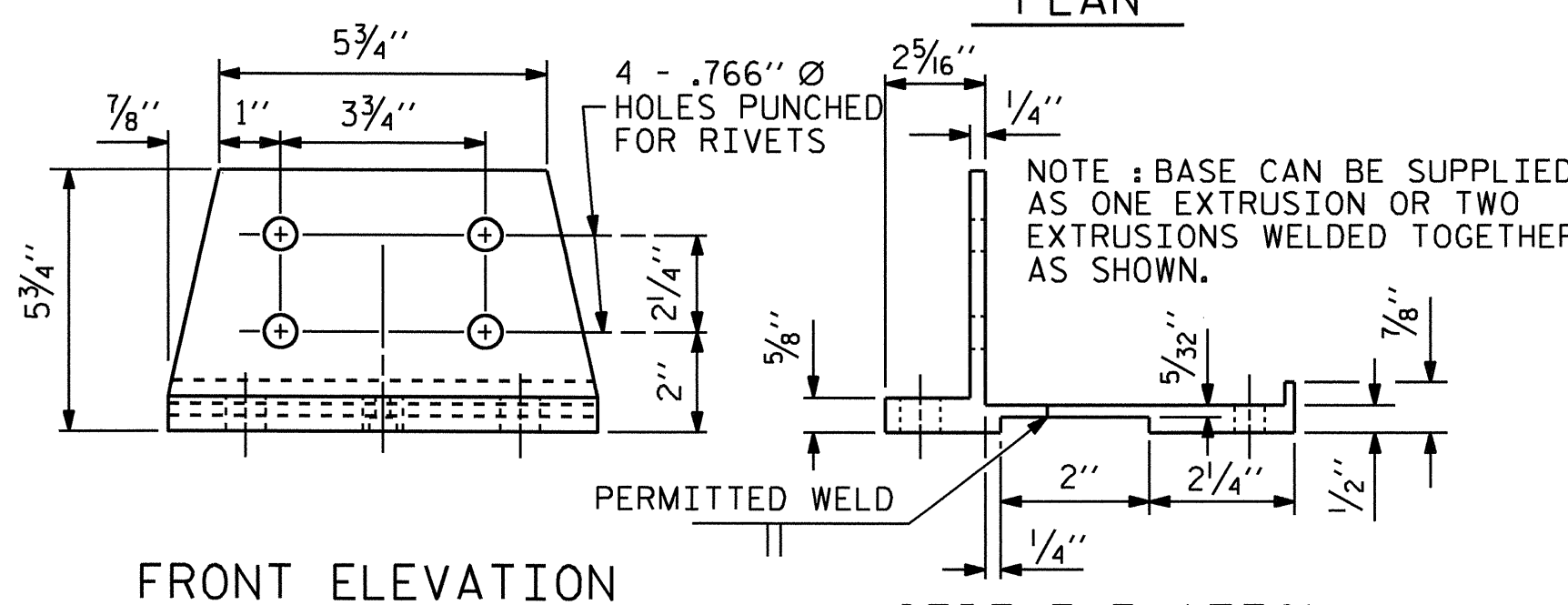
PLAN



SECTION THRU PARAPET AND RAIL



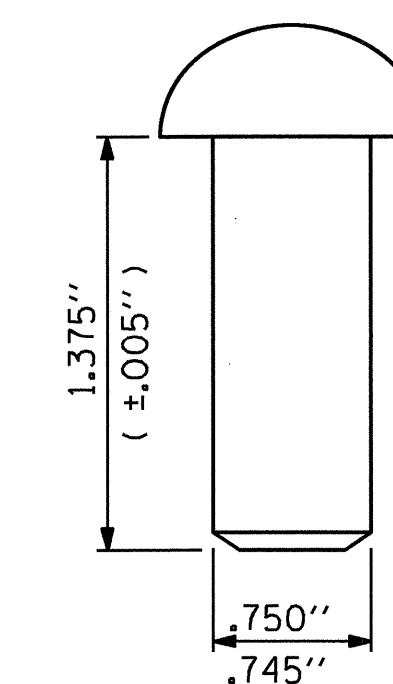
PLAN



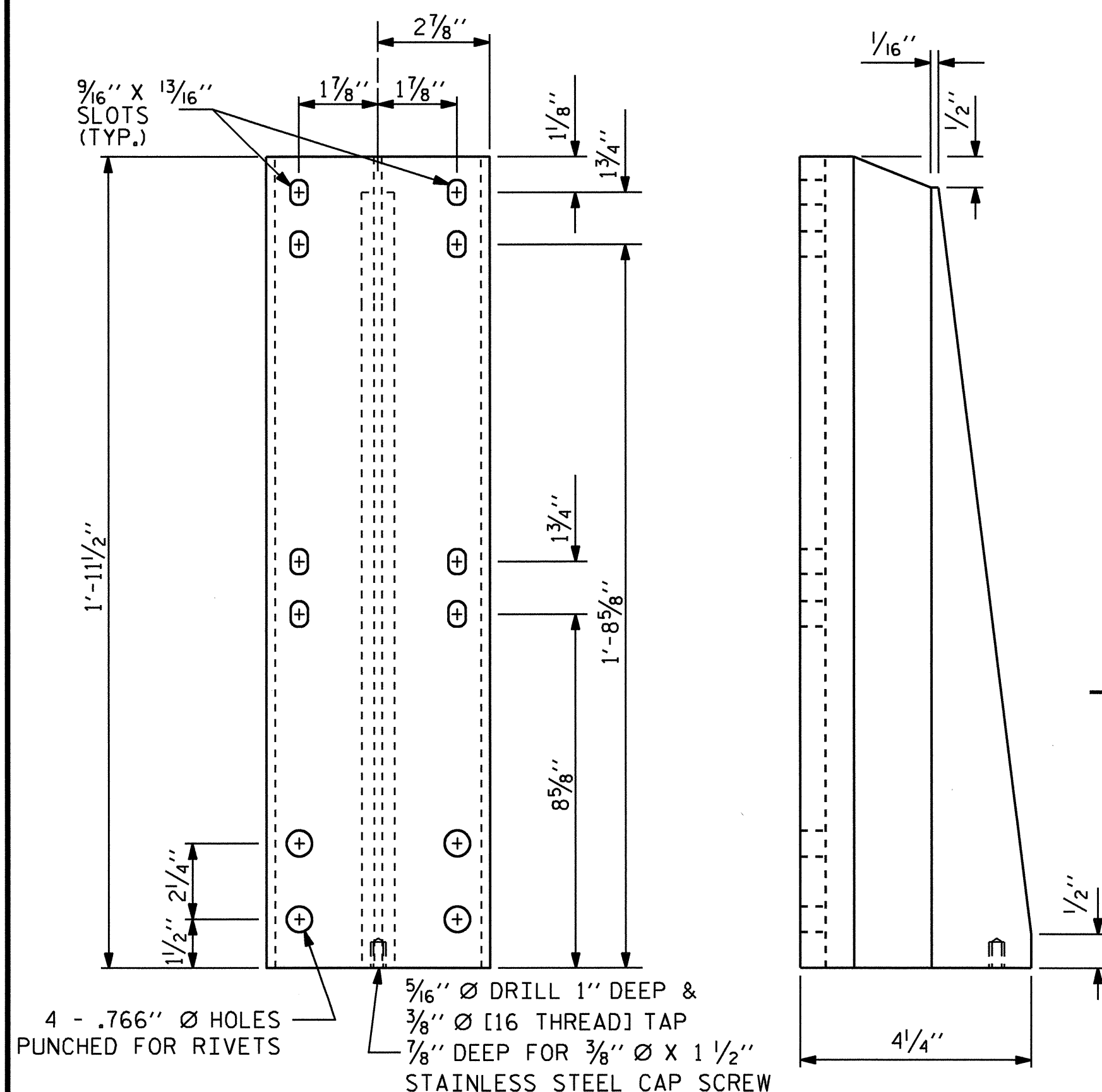
FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL



FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST

ASSEMBLED BY : B.N.BARODAWALA DATE : 2/16/09
 CHECKED BY : PEGGY PARISI DATE : 7/1/09
 DRAWN BY : EEM 6/94 REV. 10/17/00 LES/RDR
 CHECKED BY : RGW 6/94 REV. 5/7/03R RWW/JTE
 REV. 5/1/06 TLA/GM

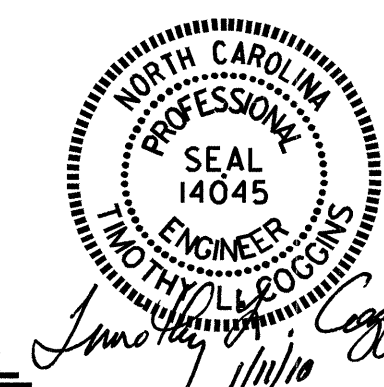
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

2 BAR METAL RAIL



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

TOTAL SHEETS 38

STD. NO. BMR3

NOTES

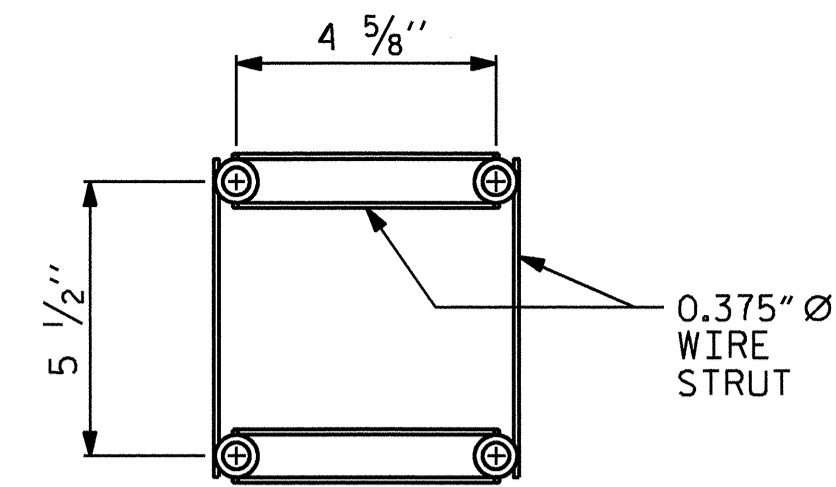
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

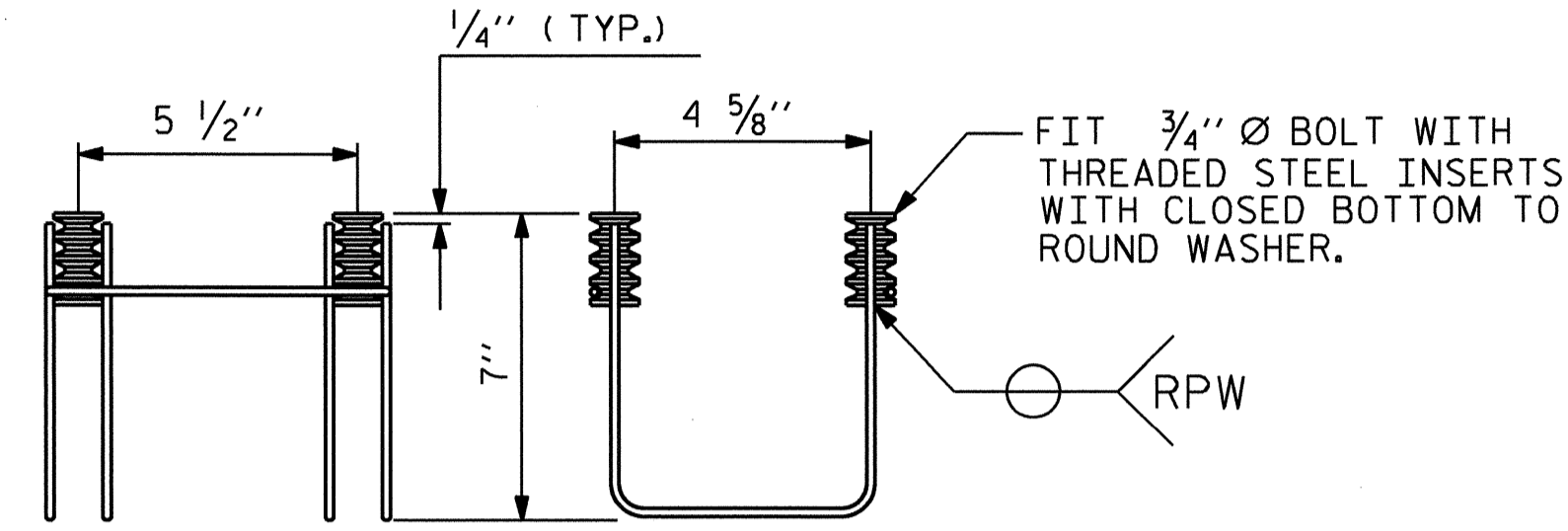
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLY TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN



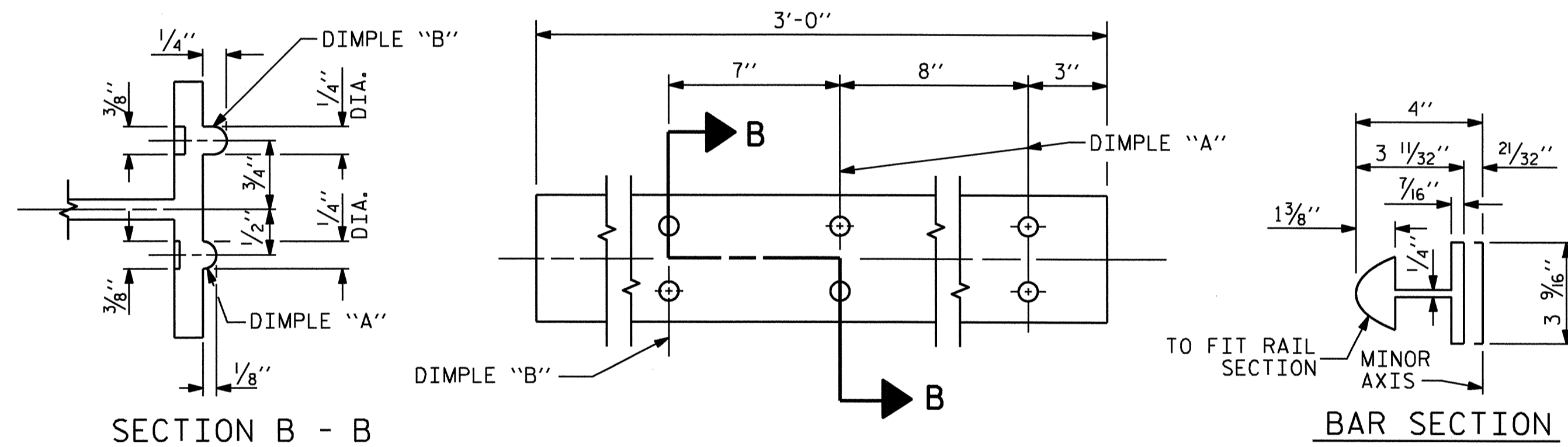
SIDE VIEW

ELEVATION

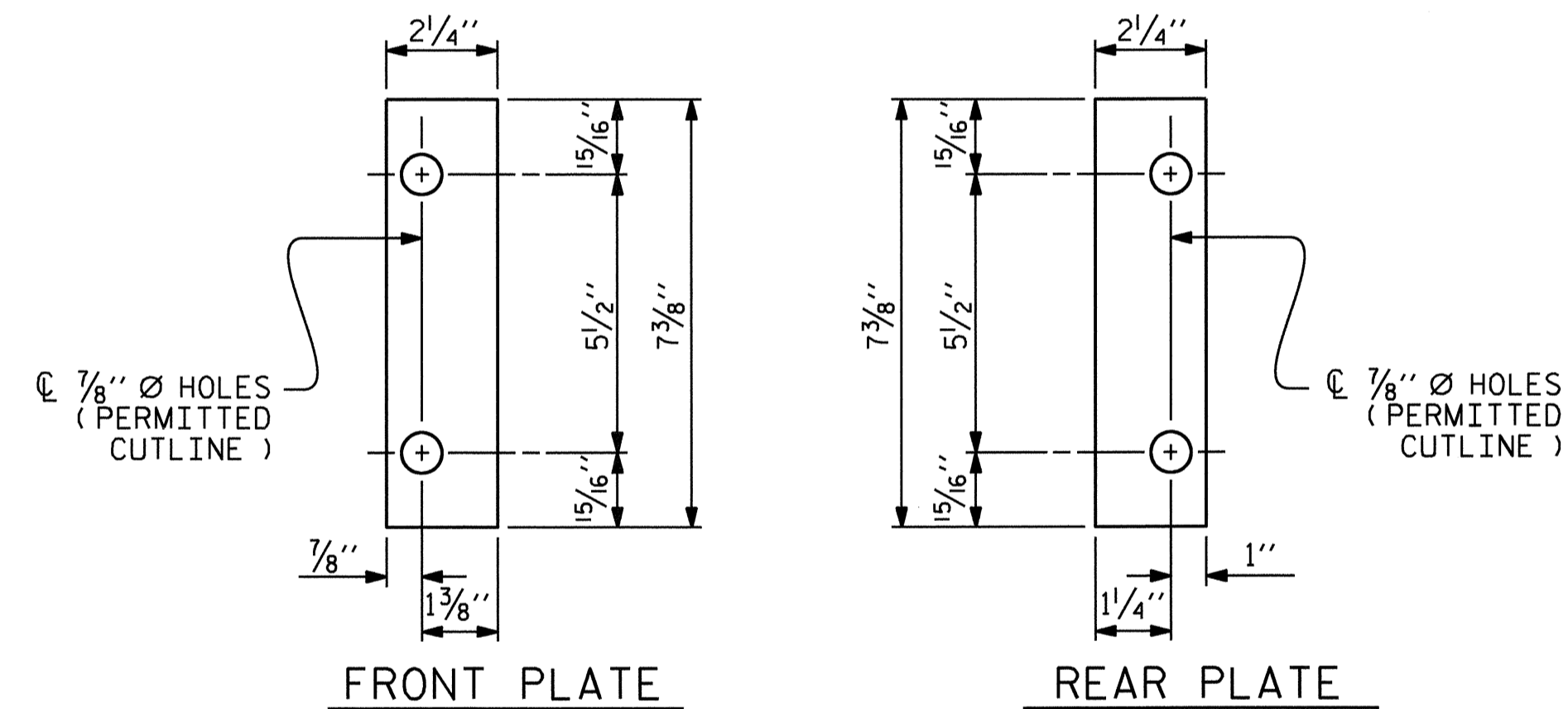
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

(80 ASSEMBLIES REQUIRED)



EXPANSION BAR DETAILS

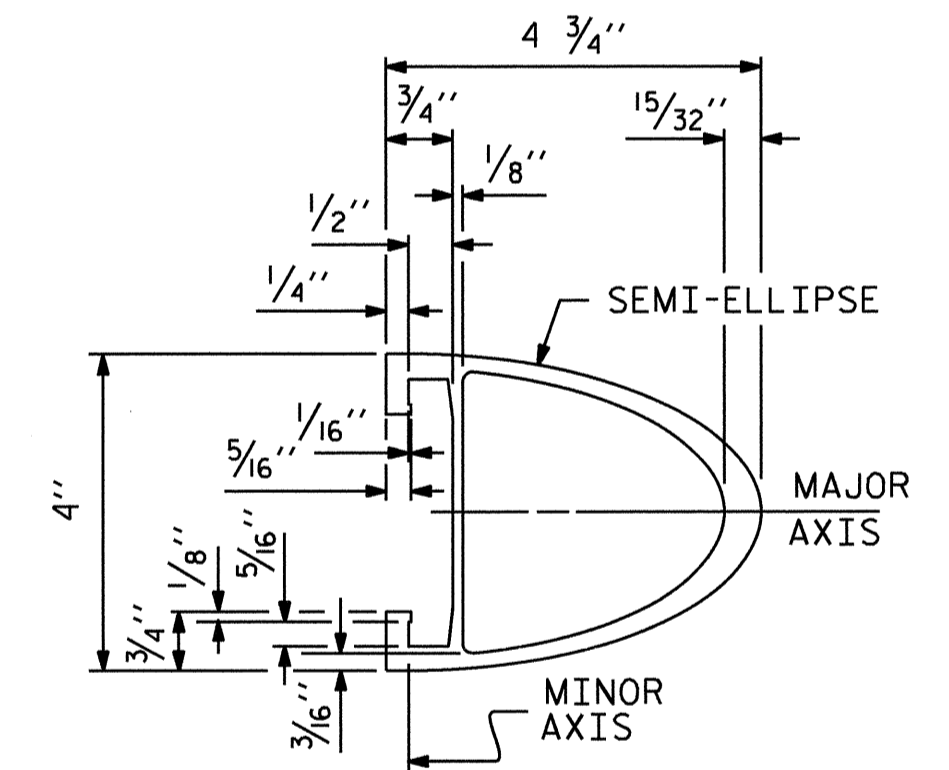


FRONT PLATE

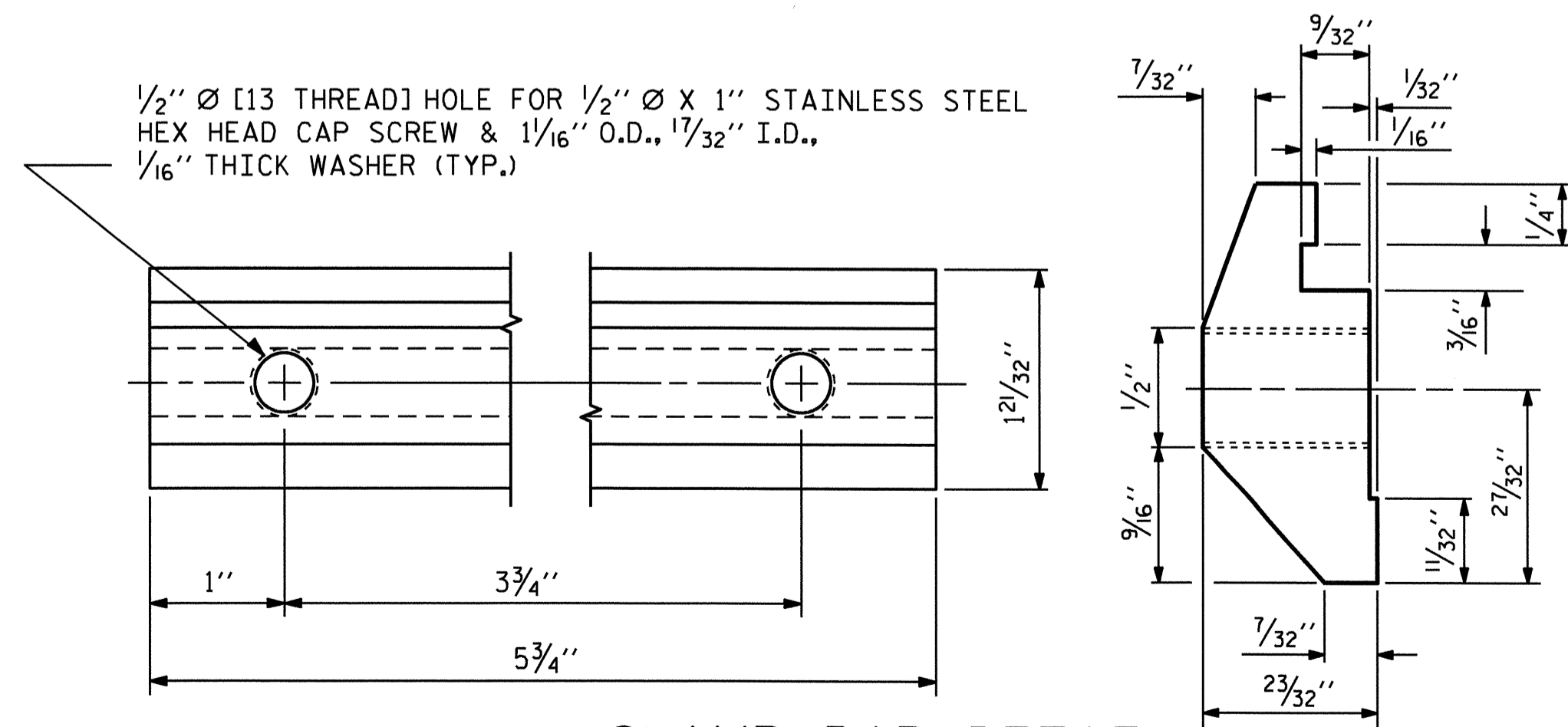
REAR PLATE

SHIM DETAILS

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

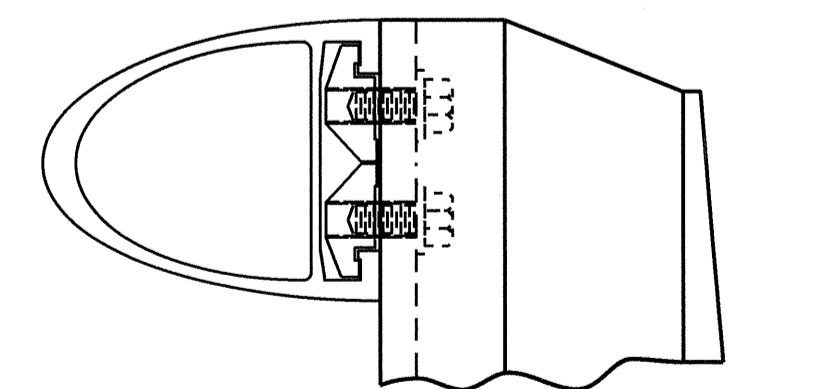


RAIL SECTION

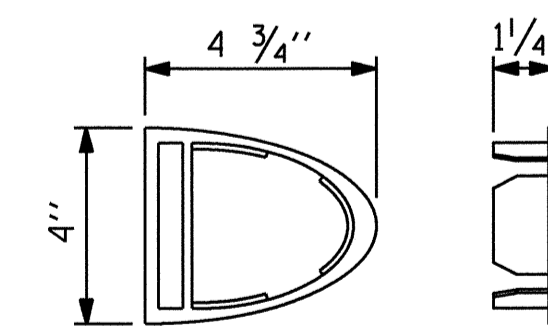


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



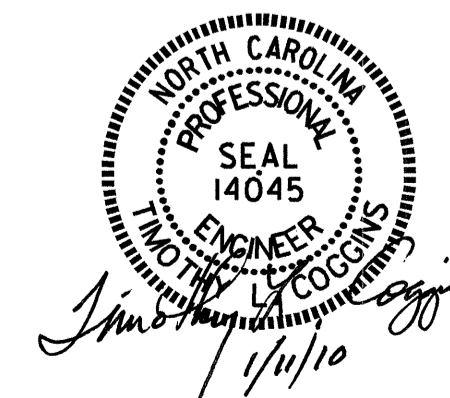
RAIL CAP

PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

2 BAR METAL RAIL



ASSEMBLED BY : B.N.BARODAWALA DATE : 2/16/09
 CHECKED BY : PEGGY PARISI DATE : 7/1/09
 DRAWN BY : EEM 6/94 REV. 2/6/97 EEM/RGW
 CHECKED BY : RGW 6/94 REV. 8/16/99 MAB/LES
 REV. 5/1/06R KMM/GM

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
1			3			TOTAL SHEETS	
2			4			38	

STD. NO. BMR4

NOTES

STRUCTURAL CONCRETE INSERT

- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

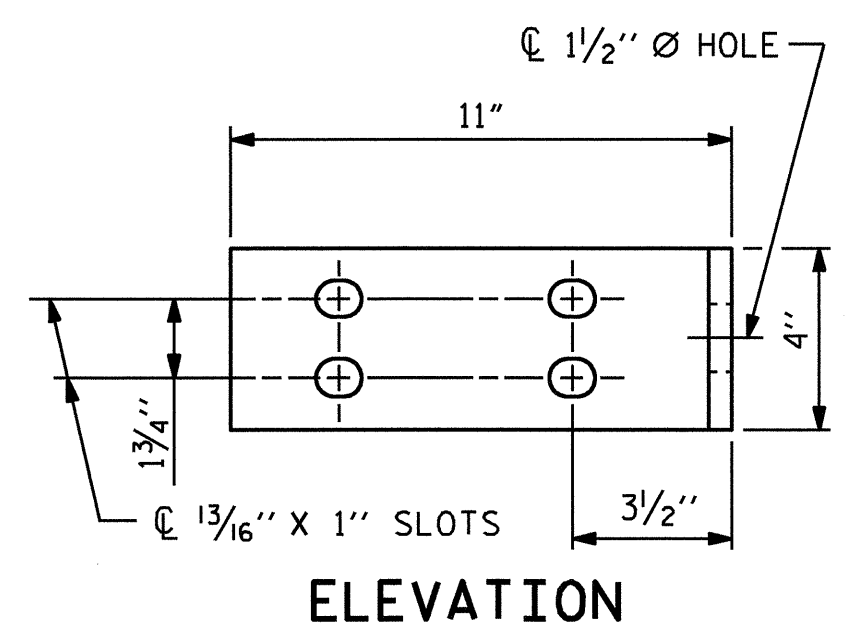
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
 - C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
 - D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 2 BAR METAL RAILS.

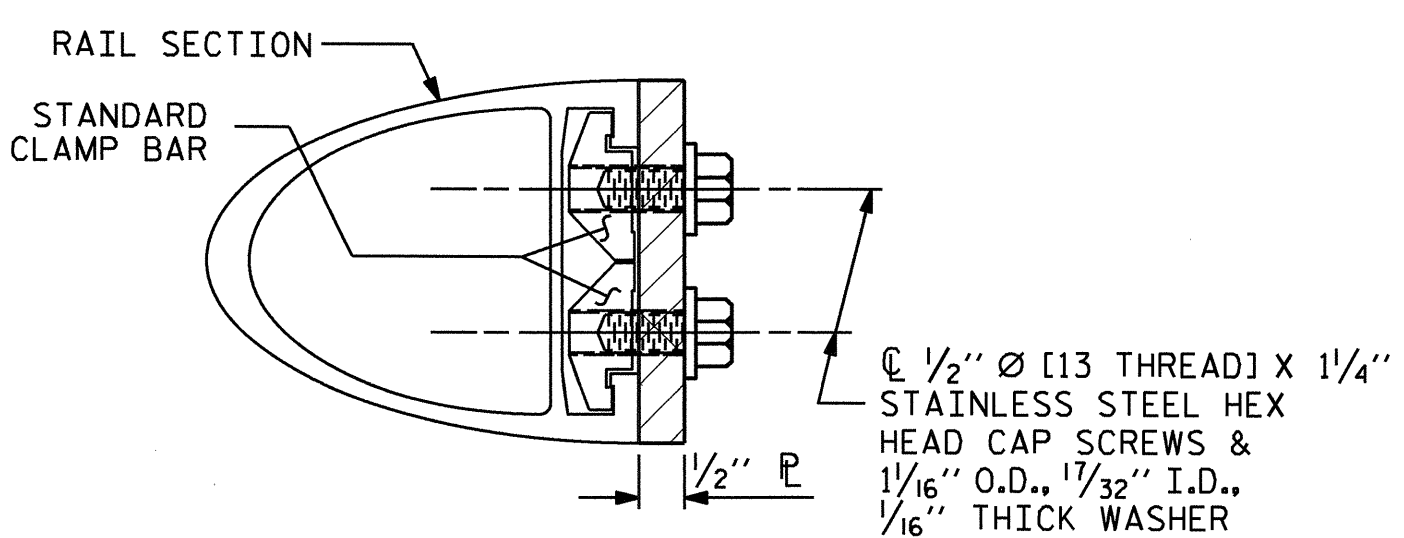
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

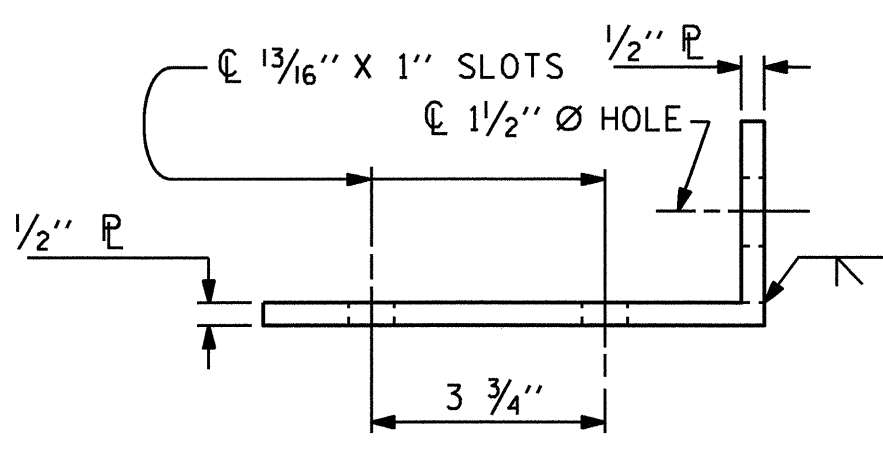
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



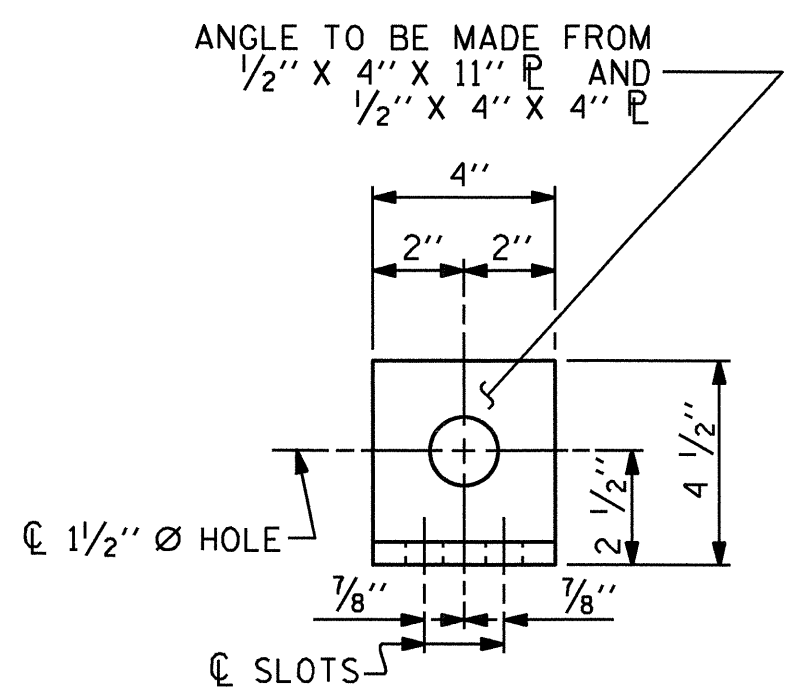
ELEVATION



SECTION H-H

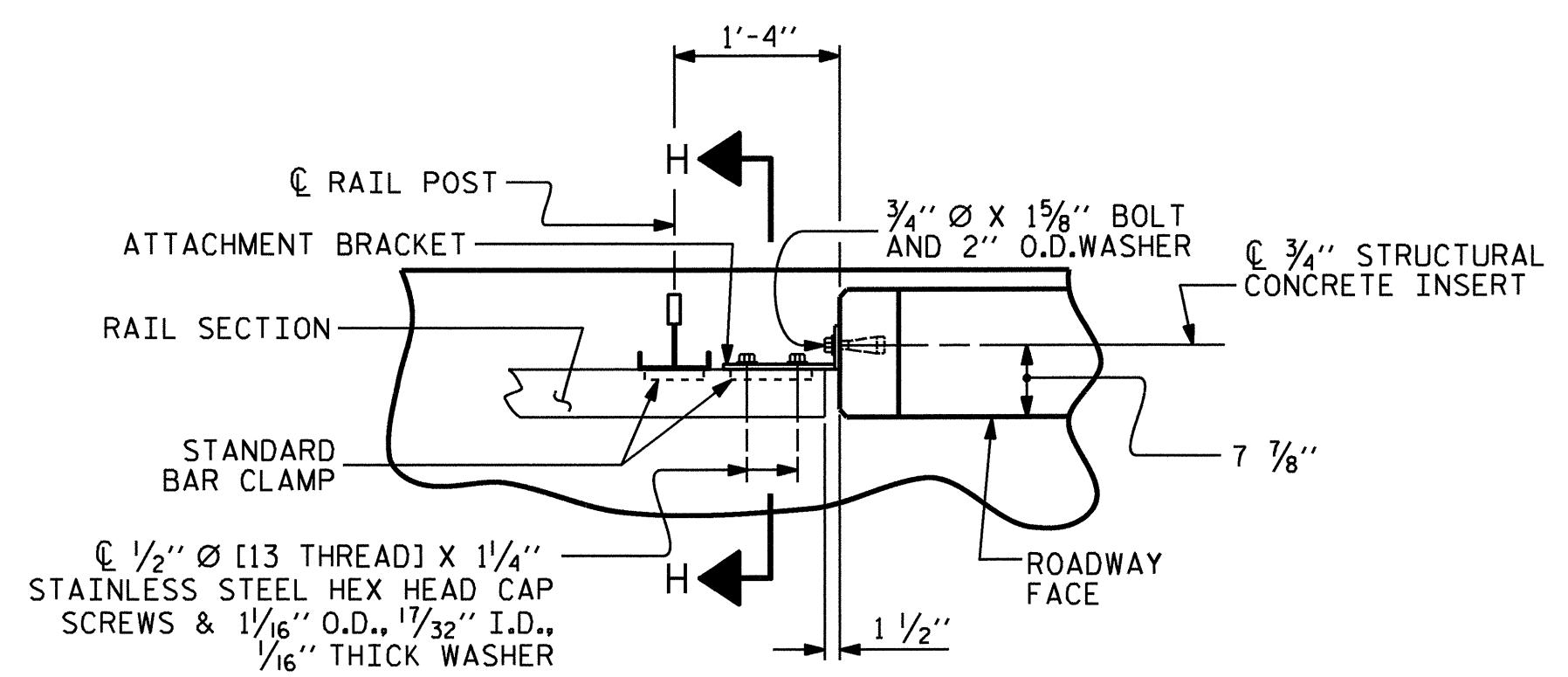


TOP VIEW

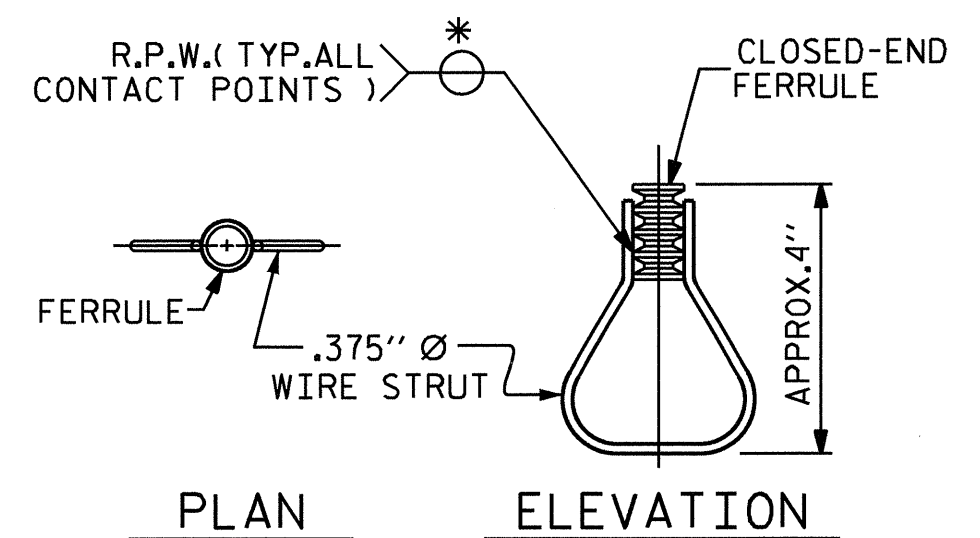


END VIEW

DETAILS FOR ATTACHING METAL RAIL TO END POST



PLAN - RAIL AND END POST



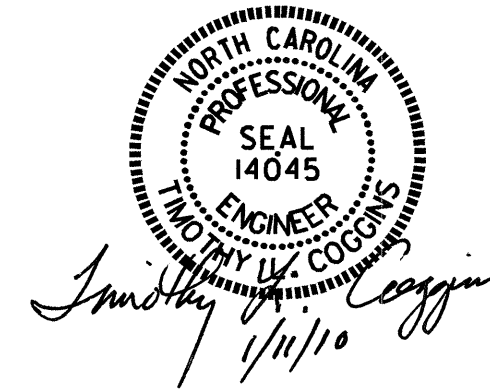
STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 5 OF 7

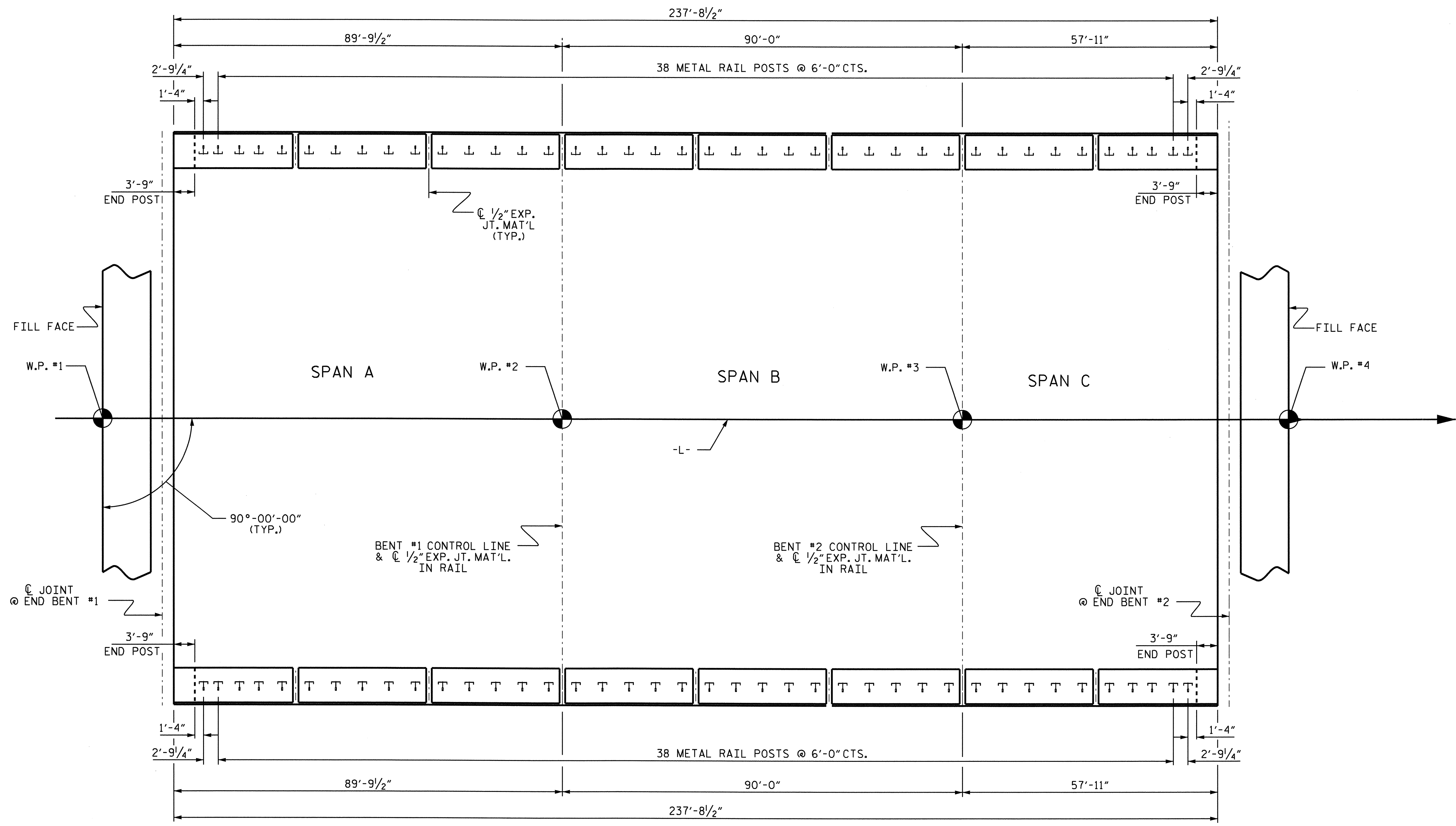
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 END OF RAIL DETAILS
 FOR TWO BAR METAL RAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	
2			4			38	

STD. NO. BMR2

ASSEMBLED BY : B.N.BARODAWALA	DATE : 2/16/09
CHECKED BY : PEGGY PARISI	DATE : 7/1/09
DRAWN BY : FCJ	1/88
CHECKED BY : CRK	3/89
REV. 10/17/00	LES/RDR
REV. 5/7/03	RHW/JTE
REV. 5/1/06	TLA/GM



PLAN OF RAIL POST SPACINGS

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 RAIL POST SPACINGS



DRAWN BY : B.N.BARODAWALA DATE : 2/16/09
 CHECKED BY : PEGGY PARISI DATE : 7/1/09

11-JAN-2010 12:02
 G:\TIP\Projects-B\B4627\Structures\B4627\Final Plans\B4627_sd_2mr_01.dgn
 toverette

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

NOTES

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

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

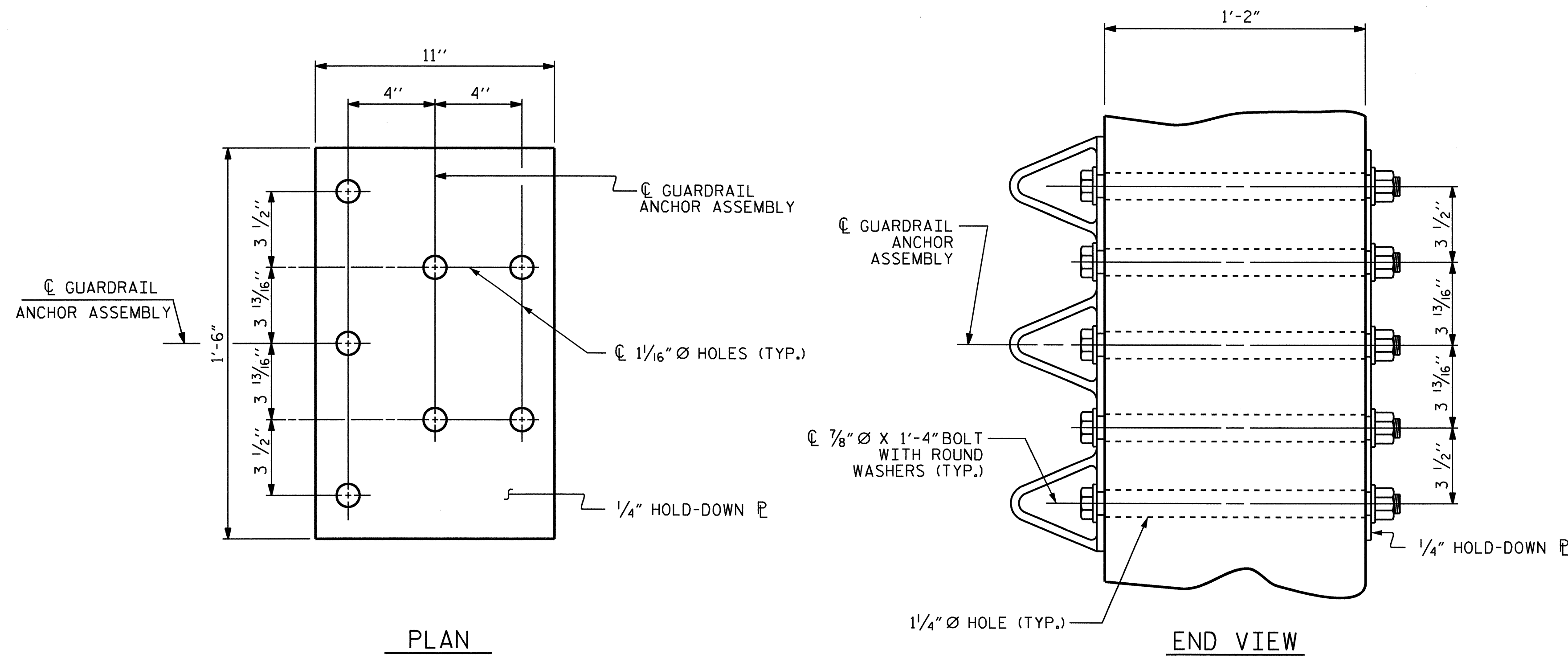
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

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

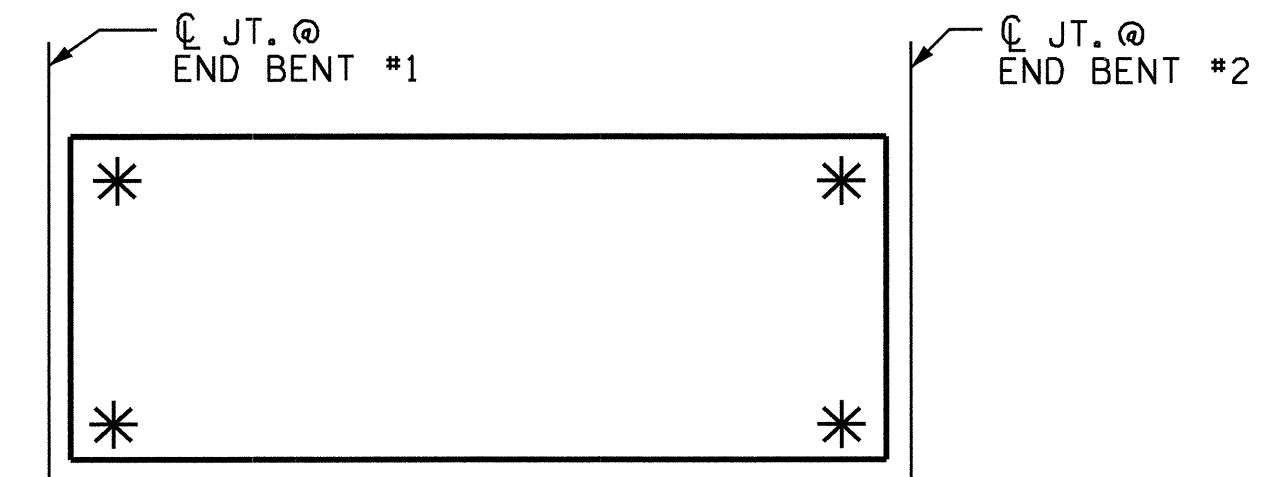
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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.

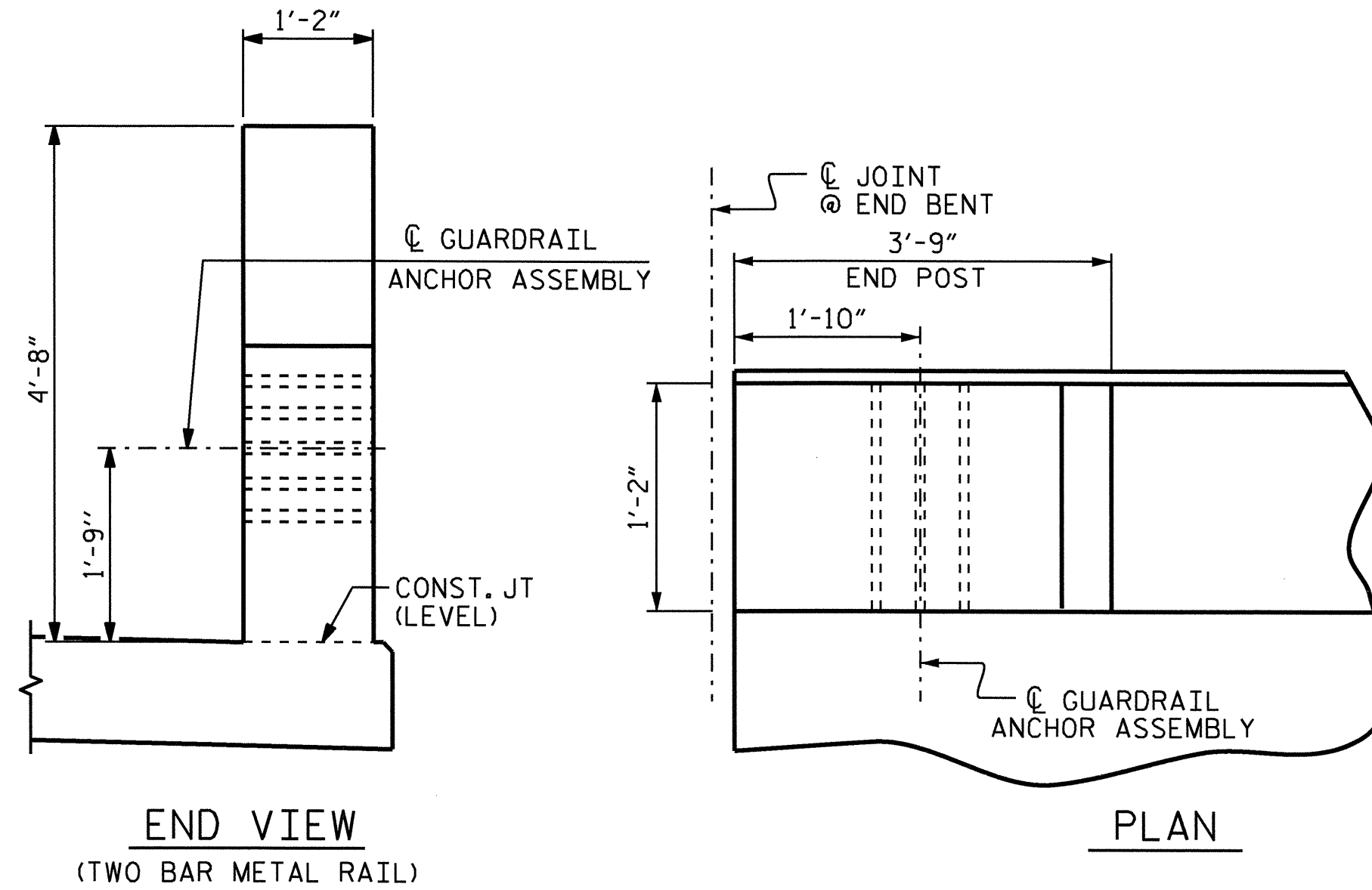


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

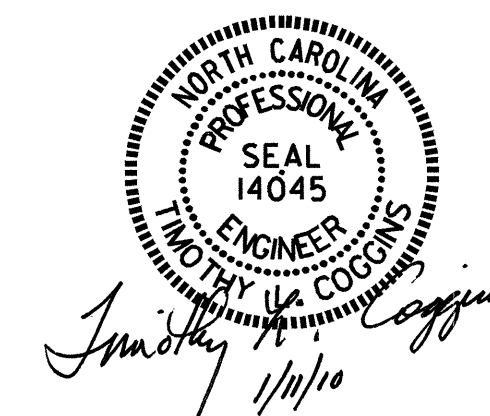
* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

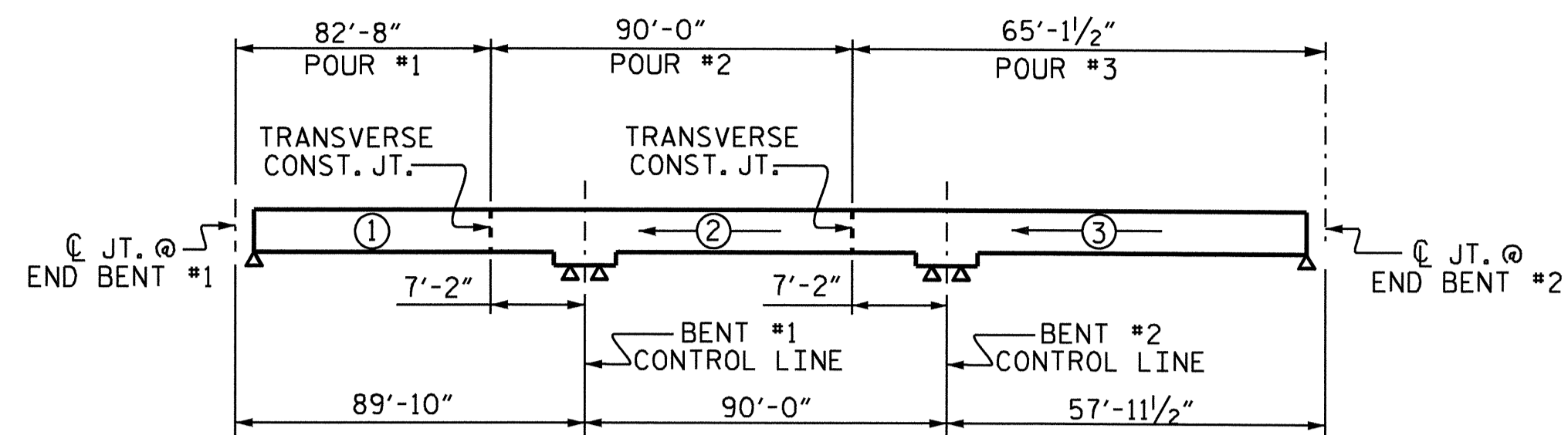
PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 7 OF 7

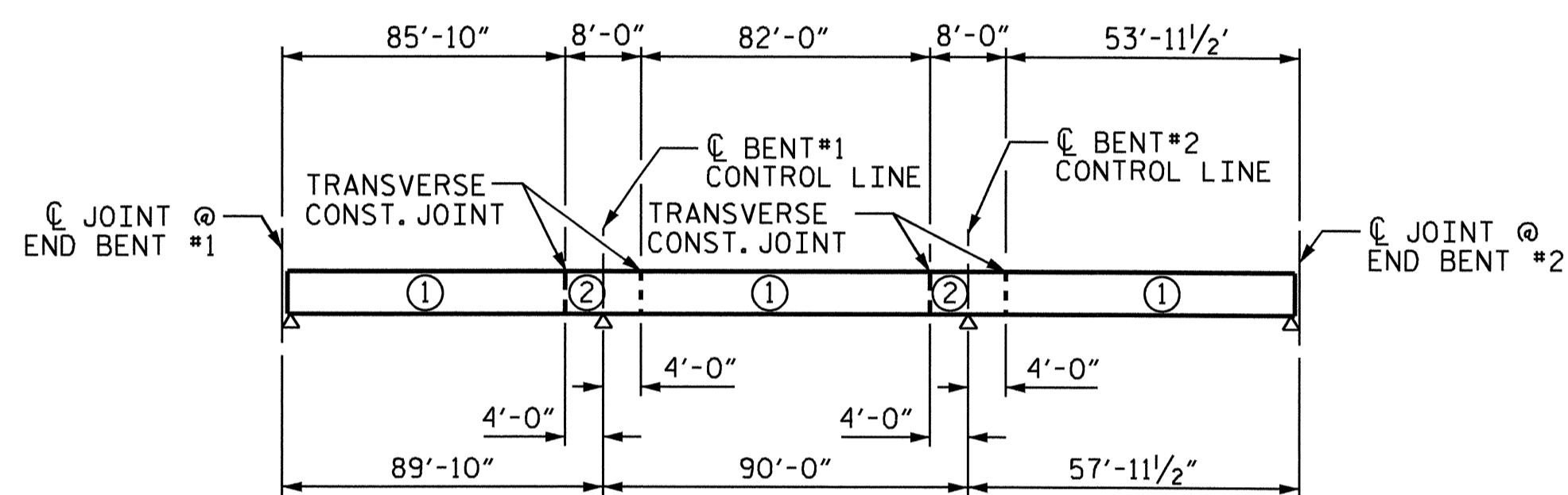


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-21
					TOTAL SHEETS 38

ASSEMBLED BY : B.N.BARODAWALA DATE : 2/16/09
 CHECKED BY : PEGGY PARISI DATE : 7/1/09
 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

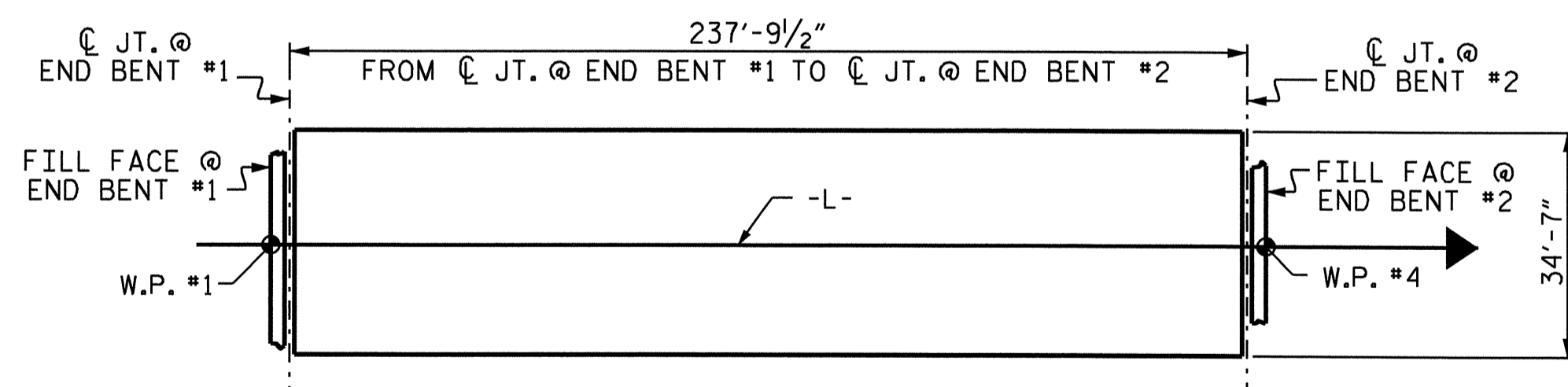


POURING SEQUENCE



OPTIONAL POURING SEQUENCE

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



LAYOUT FOR COMPUTING AREA OF
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 8224)

—SUPERSTRUCTURE BILL OF MATERIAL—

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
SPAN "A"	POUR 1 101.5	28299	28911
SPAN "B"	POUR 2 119.4		
SPAN "C"	POUR 3 90.7		
TOTALS**	311.6	28299	28911

** QUANTITIES FOR TWO BAR METAL RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

APPROACH SLABS	1385	SQ.FT.
BRIDGE DECK	6857	SQ.FT.
TOTAL	8242	SQ.FT.

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

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

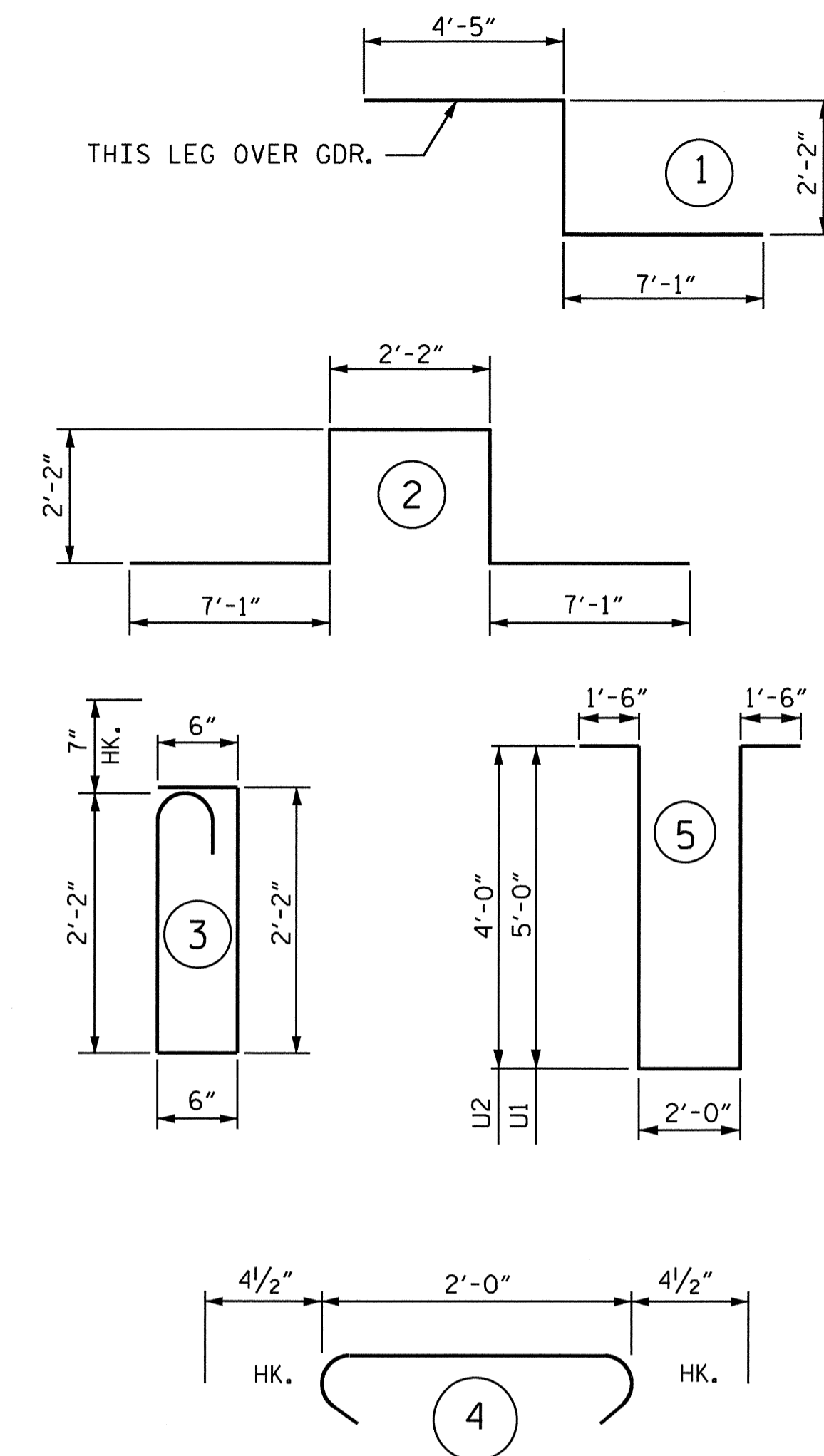
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	473	#5	STR	34'-3"	16897
A2	475	#5	STR	34'-3"	16968
*B1	72	#4	STR	21'-3"	1022
*B2	24	#7	STR	52'-0"	2551
*B3	23	#7	STR	27'-0"	1269
*B4	24	#4	STR	30'-0"	481
*B5	24	#7	STR	54'-6"	2674
*B6	23	#7	STR	22'-3"	1046
*B7	48	#4	STR	19'-8"	631
*B8	24	#7	STR	17'-3"	846
B9	205	#5	STR	49'-3"	10530
*K1	8	#8	1	13'-8"	292
*K2	8	#8	2	20'-8"	441
K3	10	#4	STR	27'-3"	182
K4	12	#4	STR	7'-1"	57
K5	24	#4	STR	8'-1"	130
K6	12	#4	STR	7'-5"	59
K7	12	#4	STR	5'-3"	42
*S1	48	#5	3	5'-11"	296
S2	180	#4	4	2'-9"	331
*U1	36	#4	5	15'-0"	361
*U2	12	#4	5	13'-0"	104

REINFORCING STEEL = 28299 LBS.

* EPOXY COATED
REINFORCING STEEL = 28911 LBS.

BAR TYPES

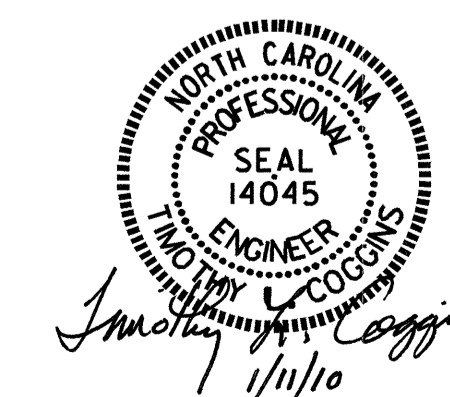


ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL



ASSEMBLED BY: B.N. BARODAWALA DATE: 2/18/09
 CHECKED BY: PEGGY PARISI DATE: 7/1/09
 DRAWN BY: JMB 5/87 REV. 6/1/94 EEM/GRP
 CHECKED BY: SJD 9/87 REV. 8/16/99 RWW/LES
 REV. 5/1/06 TLA/GM

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

STD. NO. BOM2

NOTES

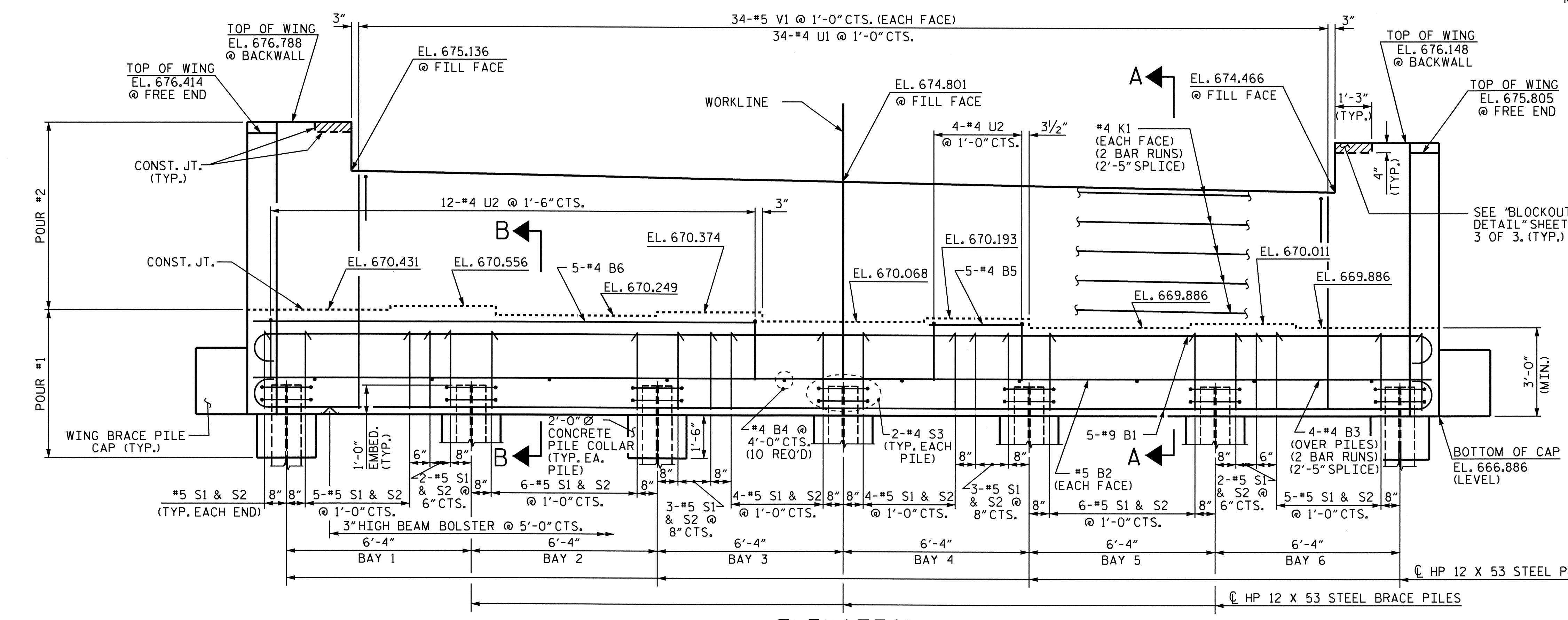
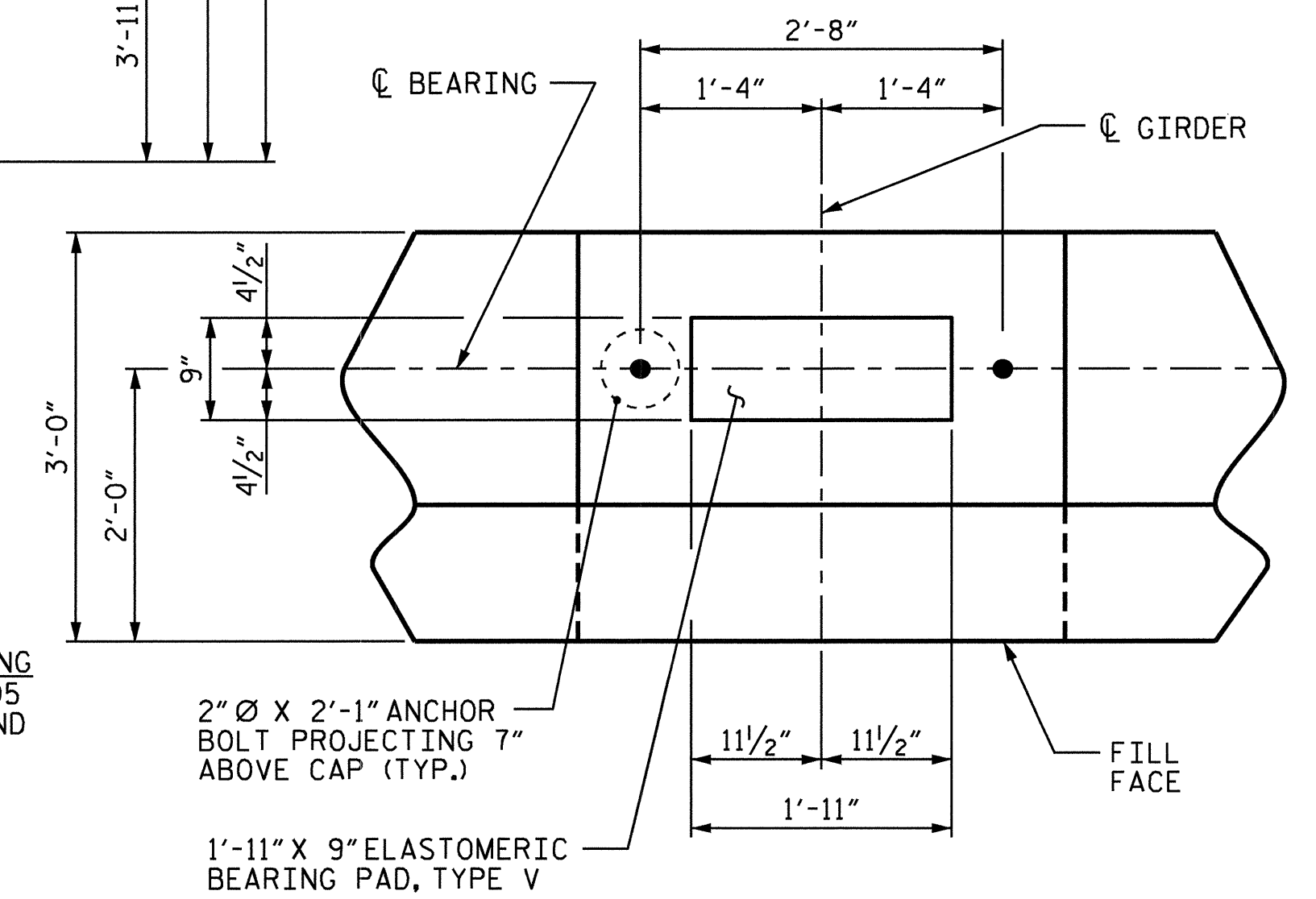
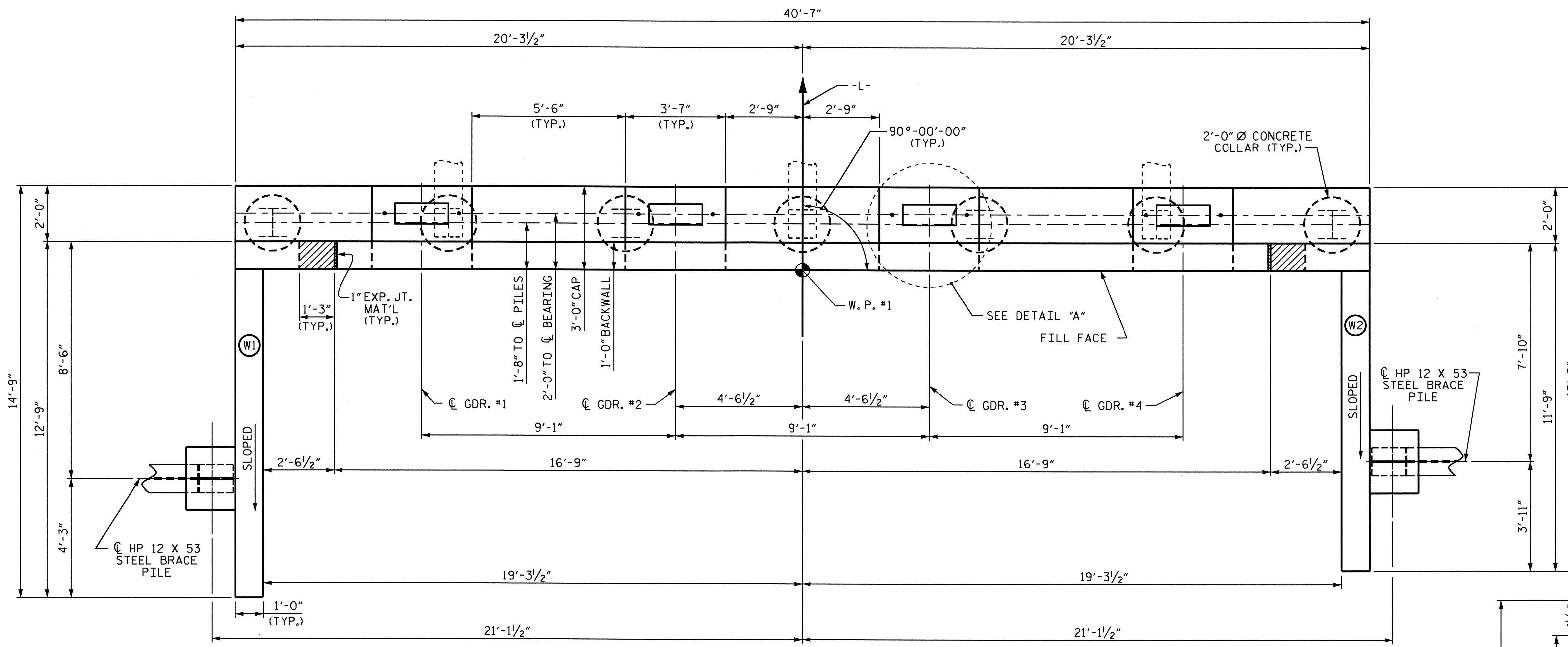
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

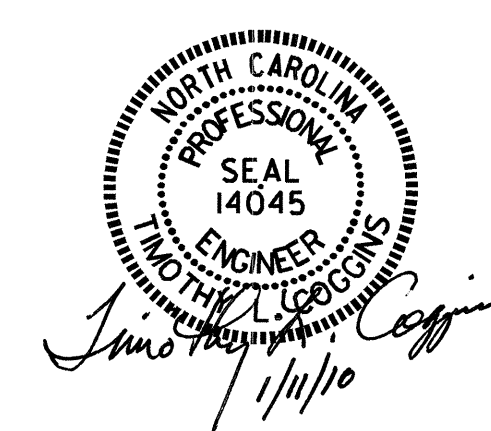
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE 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 PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.



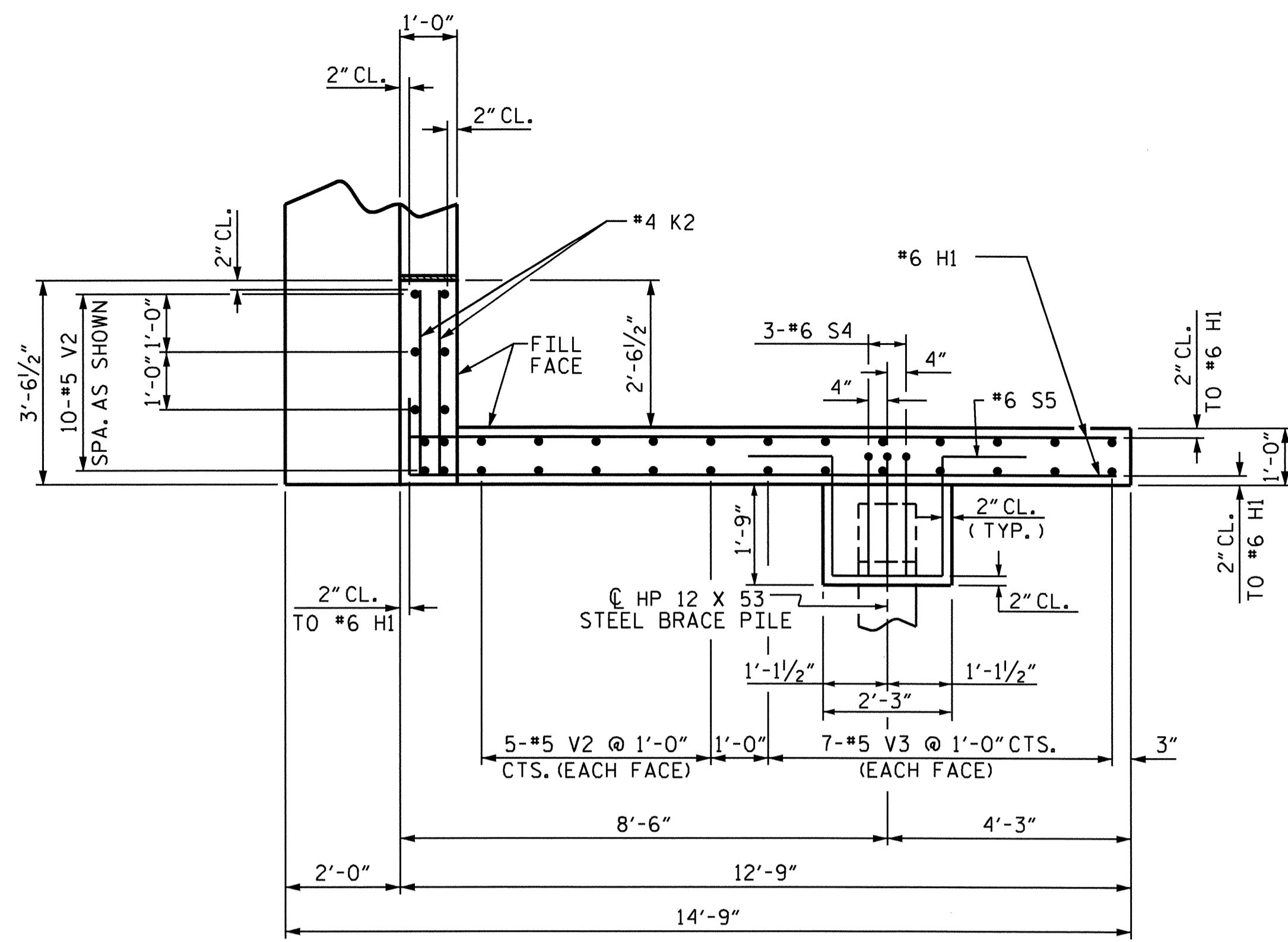
PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-
 SHEET 1 OF 3

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

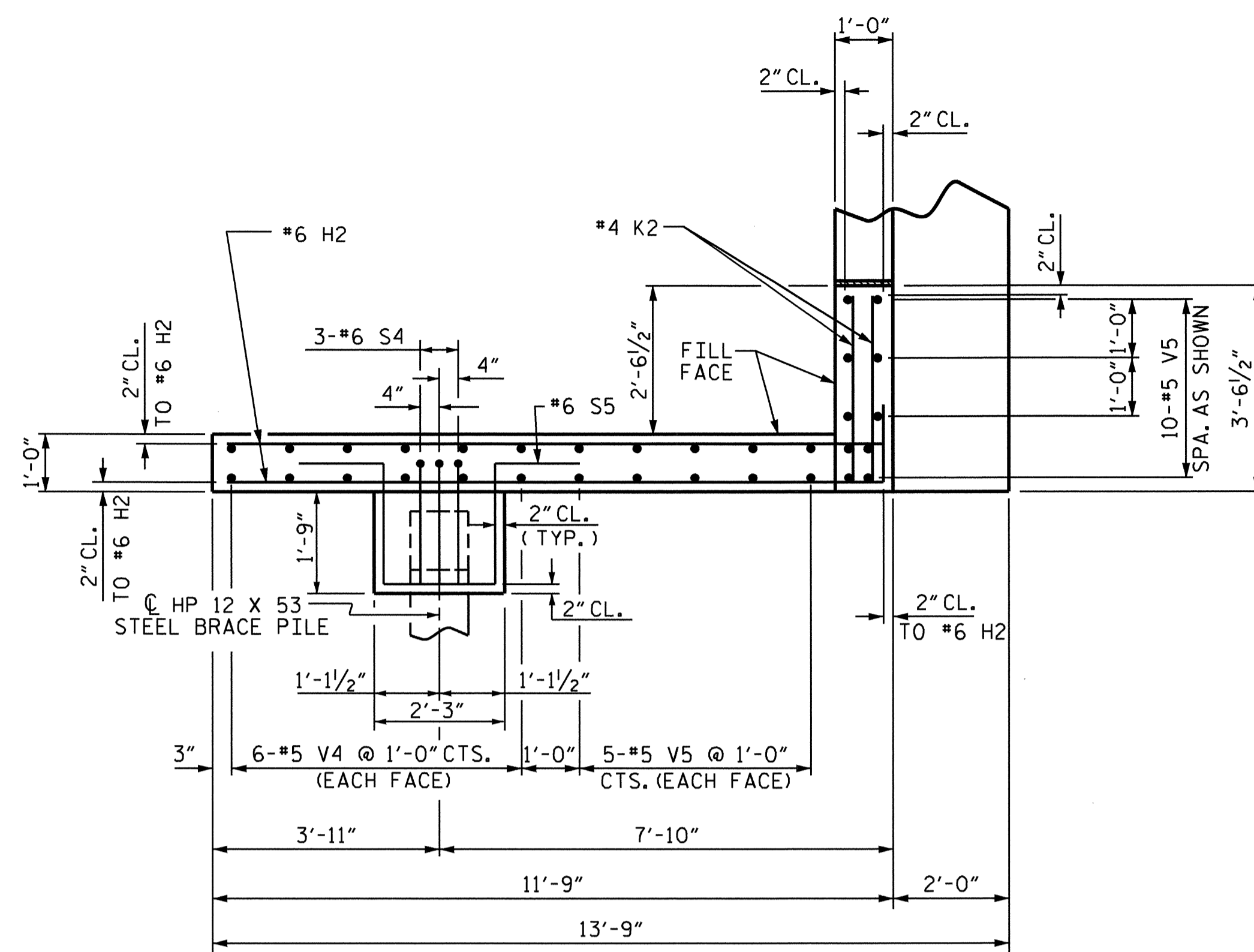


DRAWN BY : PEGGY PARISI DATE : 9-9-09
 CHECKED BY : B.N. BARODAWALA DATE : 10-5-09

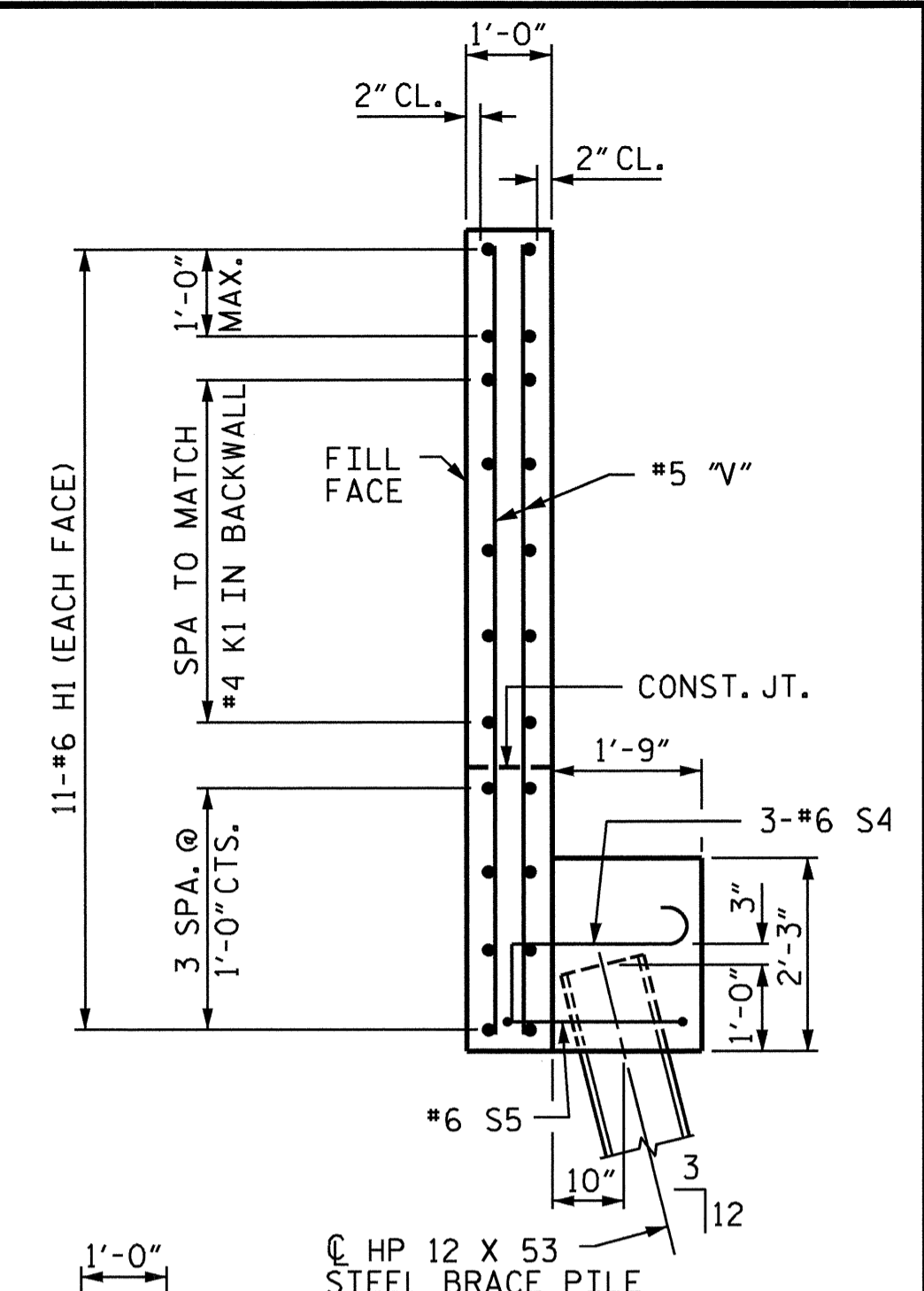
PILES AND REINFORCING STEEL NOT SHOWN IN WING BRACE PILE CAP FOR CLARITY, SEE WING DETAILS, SHEET 2 OF 3.



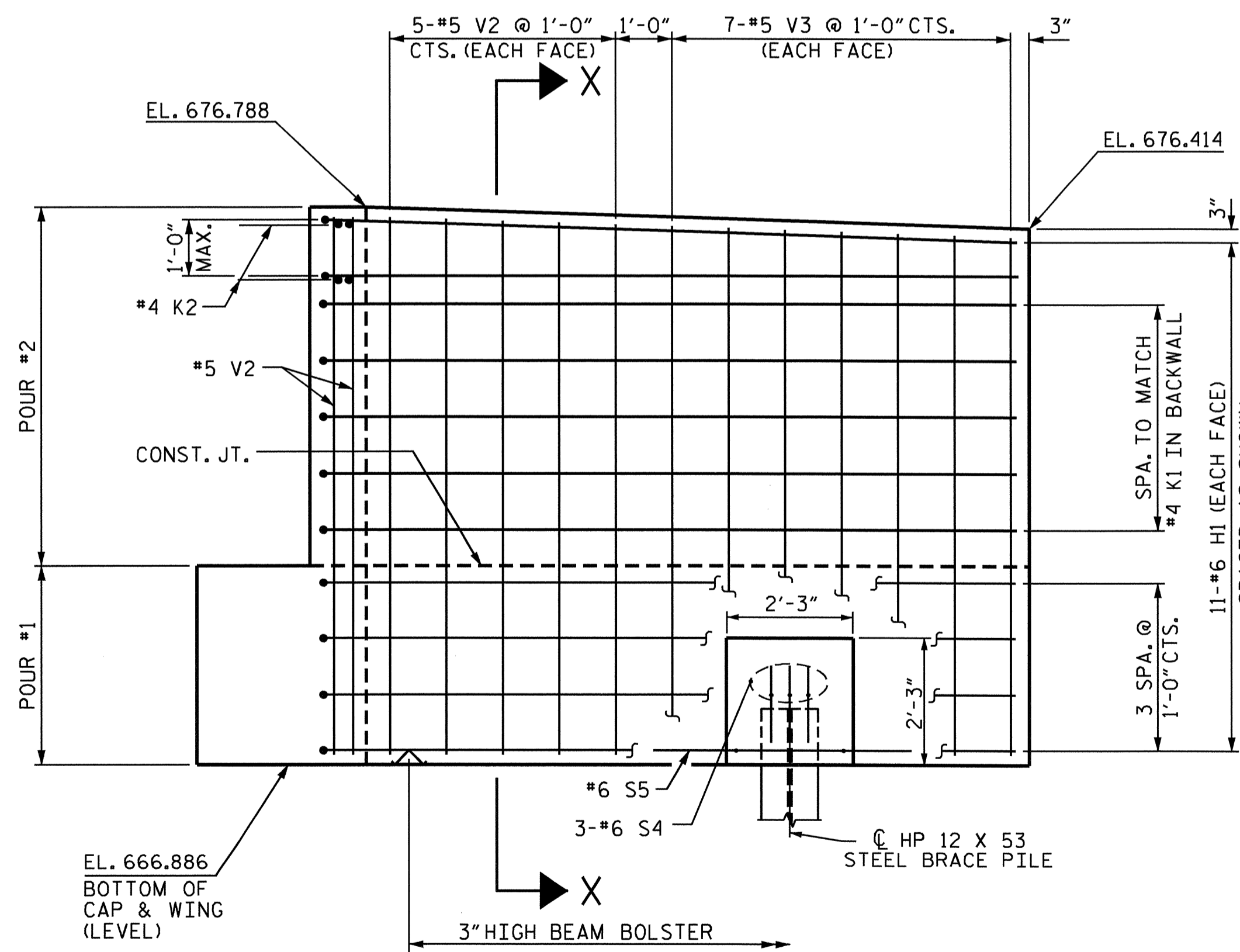
PLAN OF WING W1



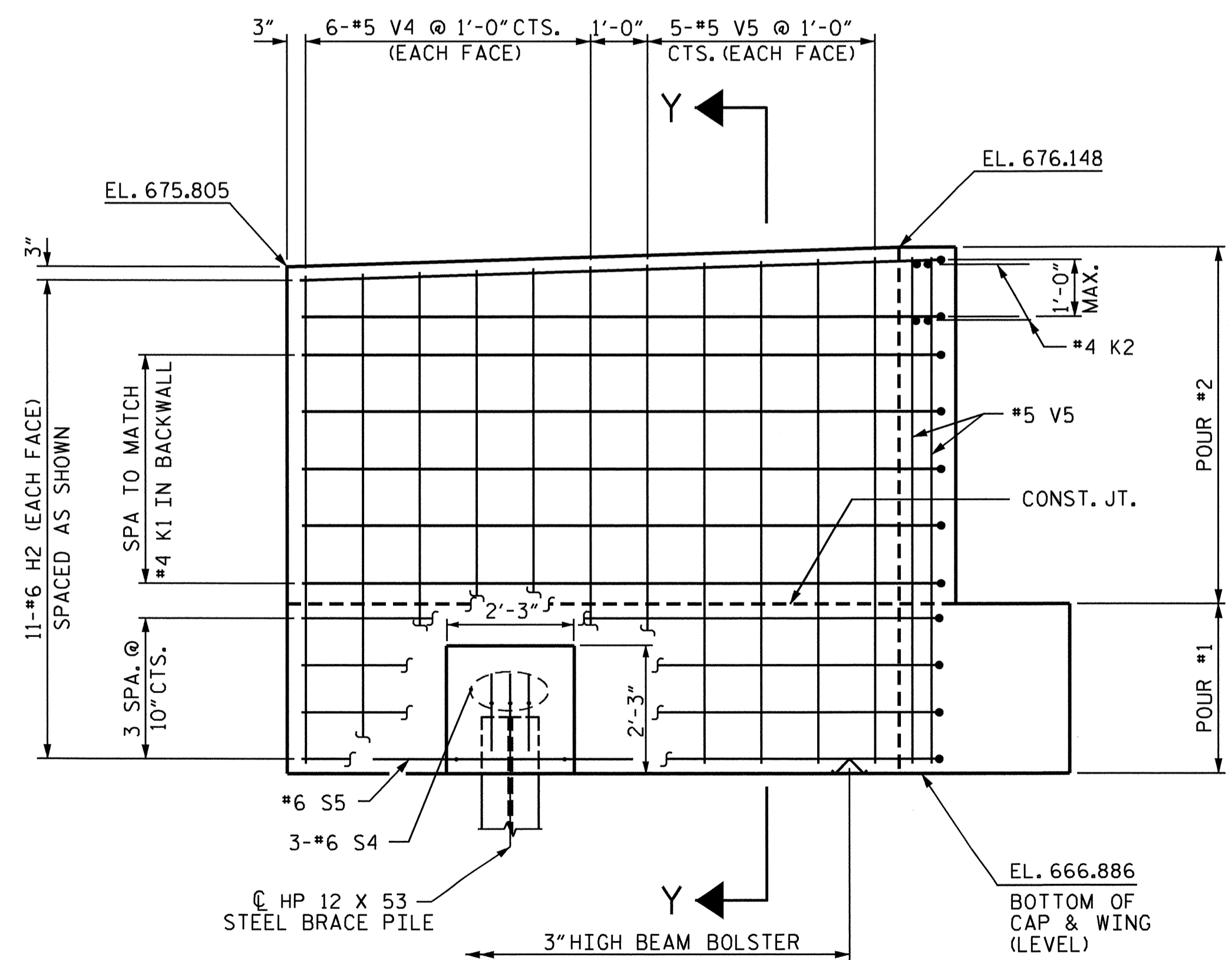
PLAN OF WING W2



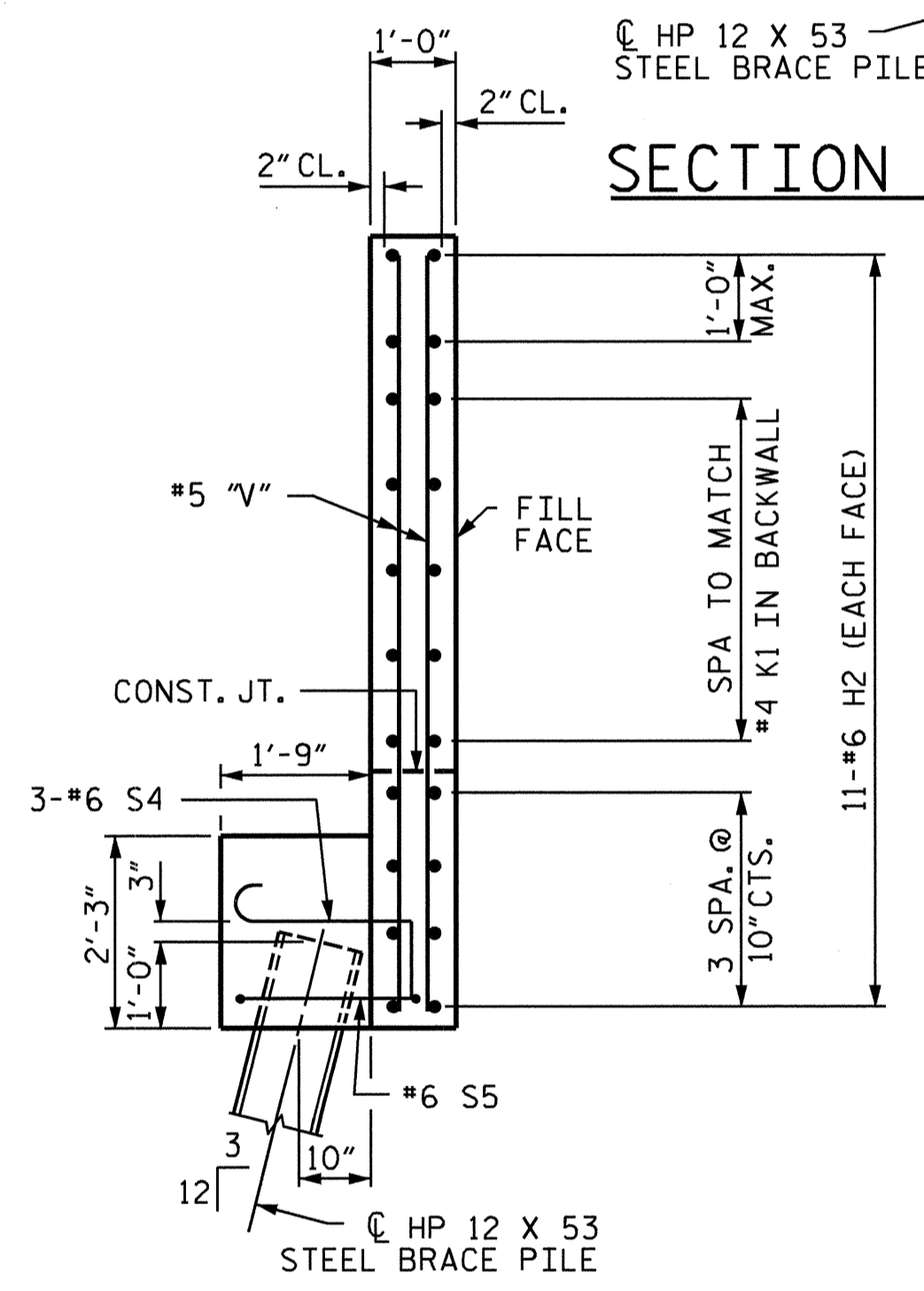
SECTION X-X



ELEVATION OF WING W1



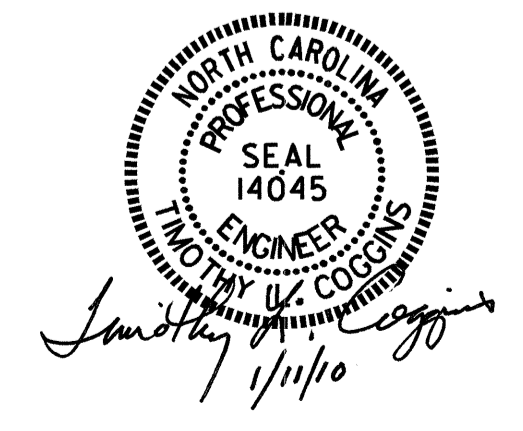
ELEVATION OF WING W2



SECTION Y-Y

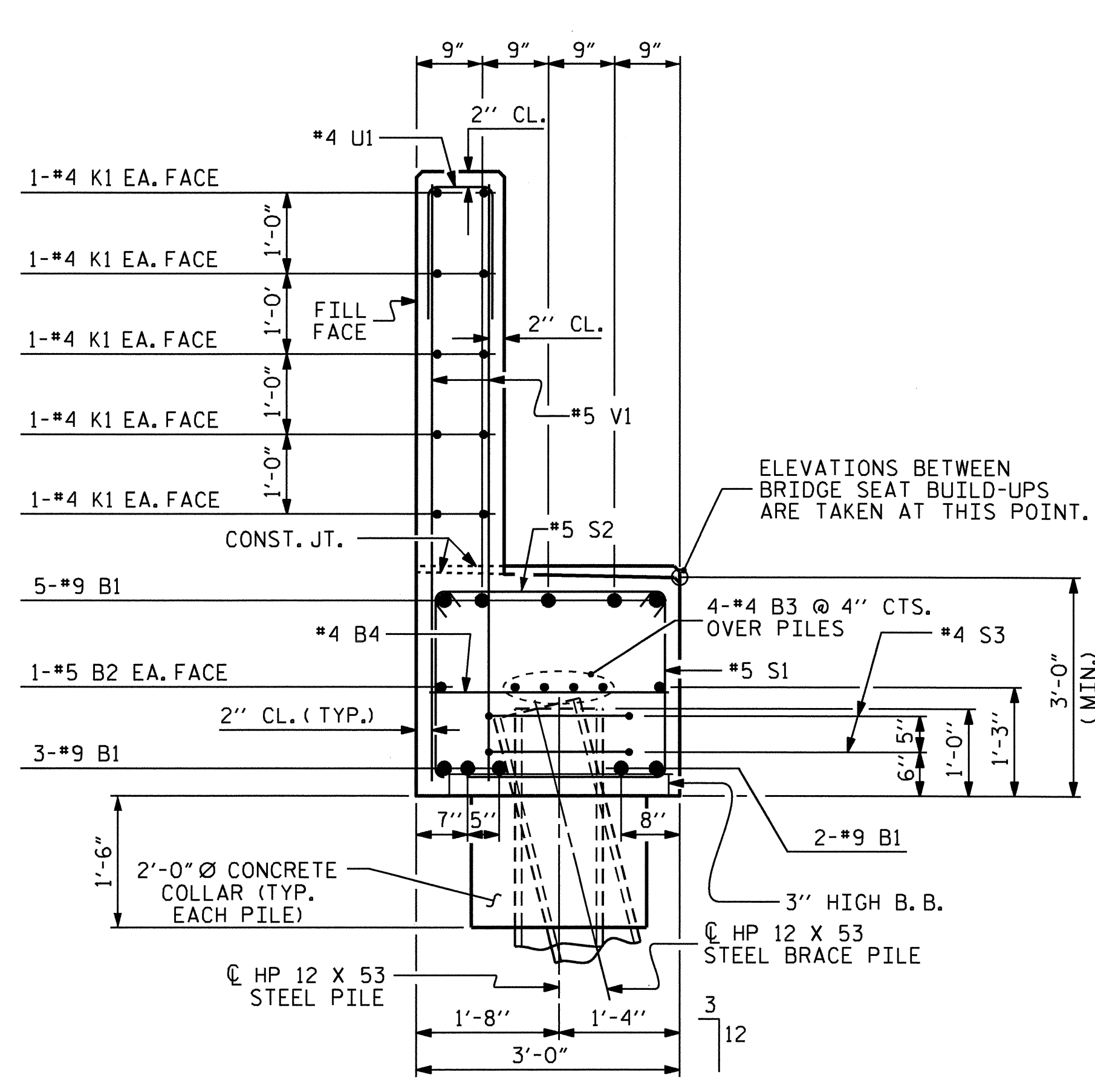
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-
 SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-24					TOTAL SHEETS 38

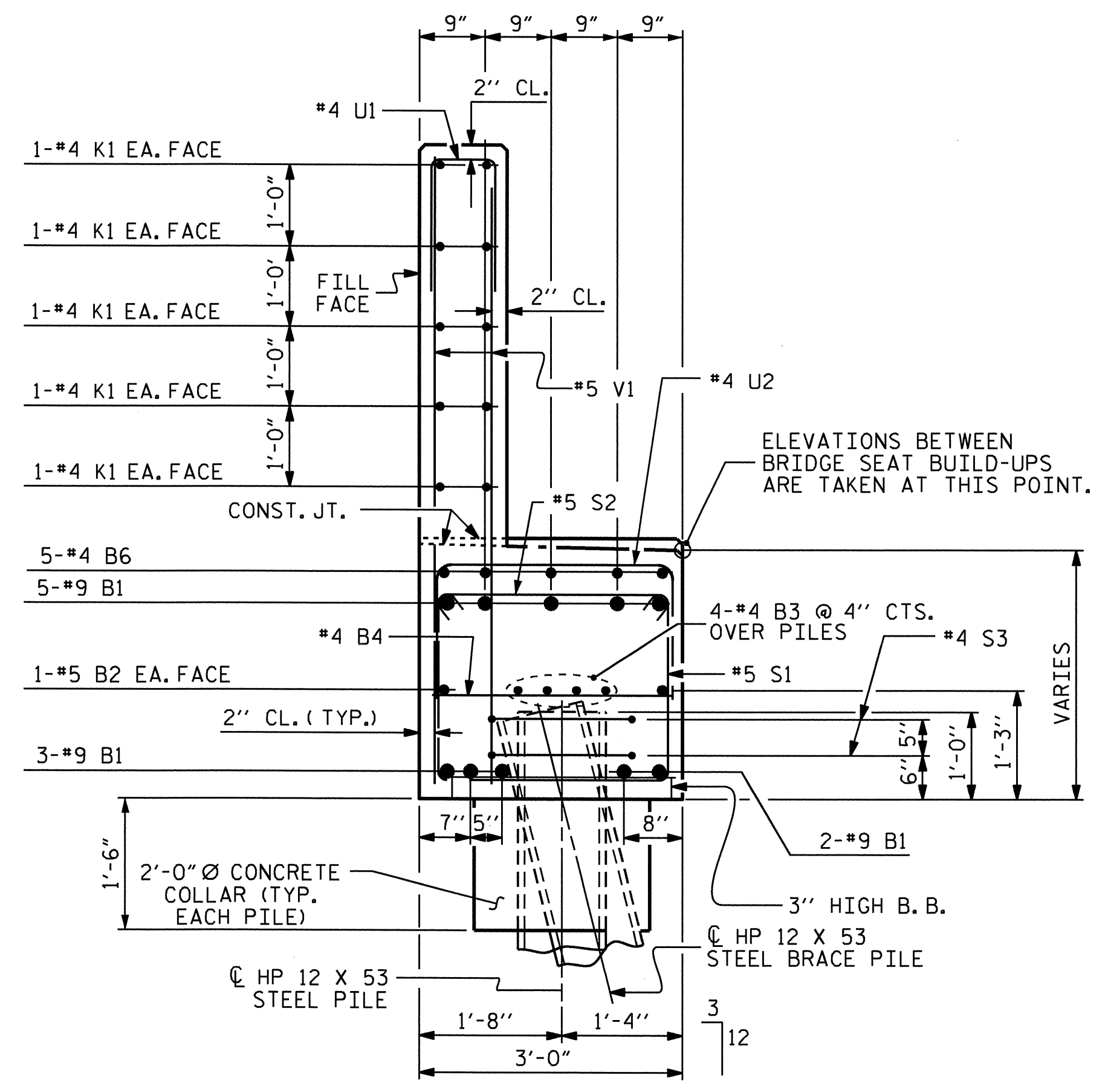


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 CHECKED BY : B.N. BARODAWALA DATE : 10-5-09

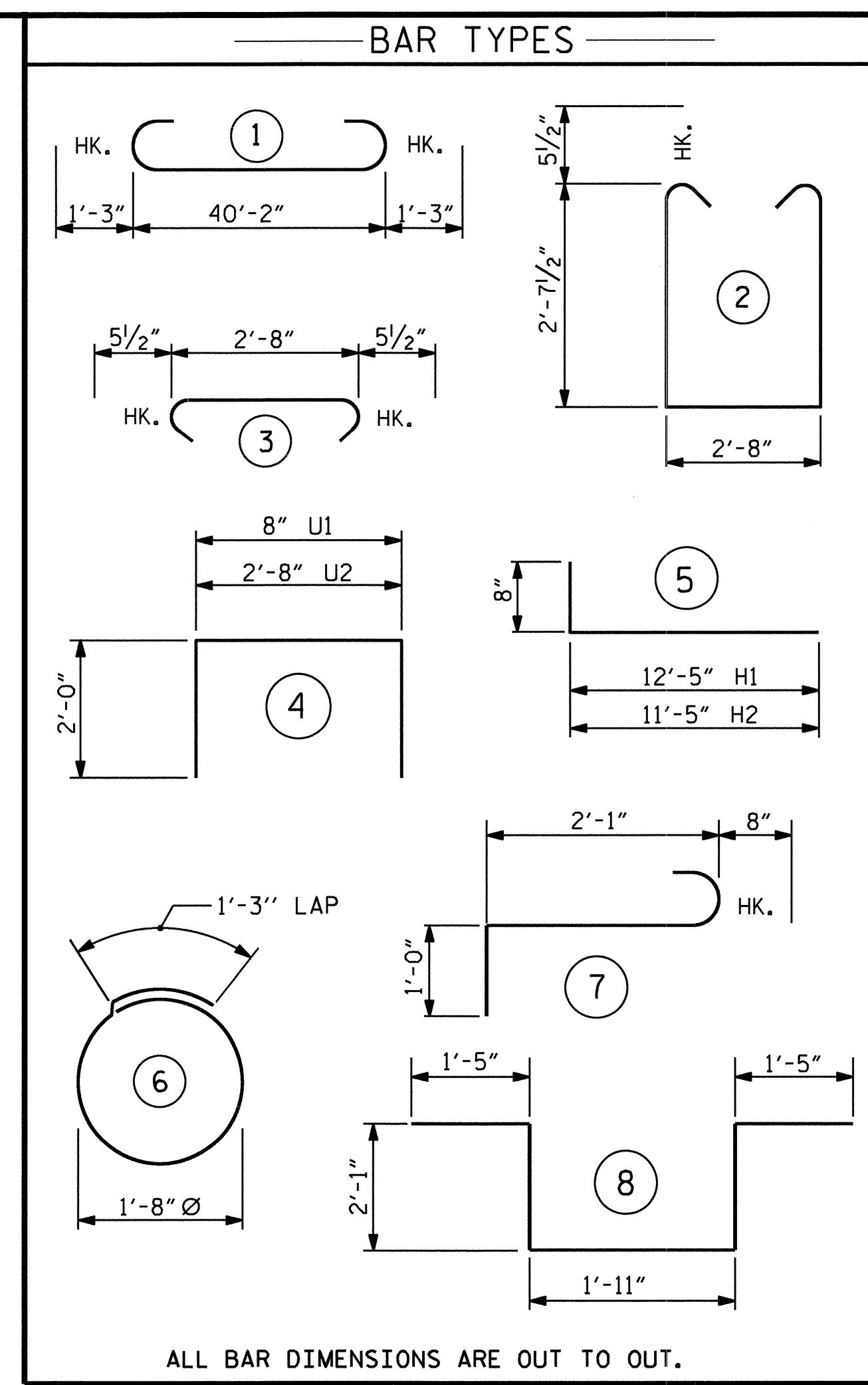
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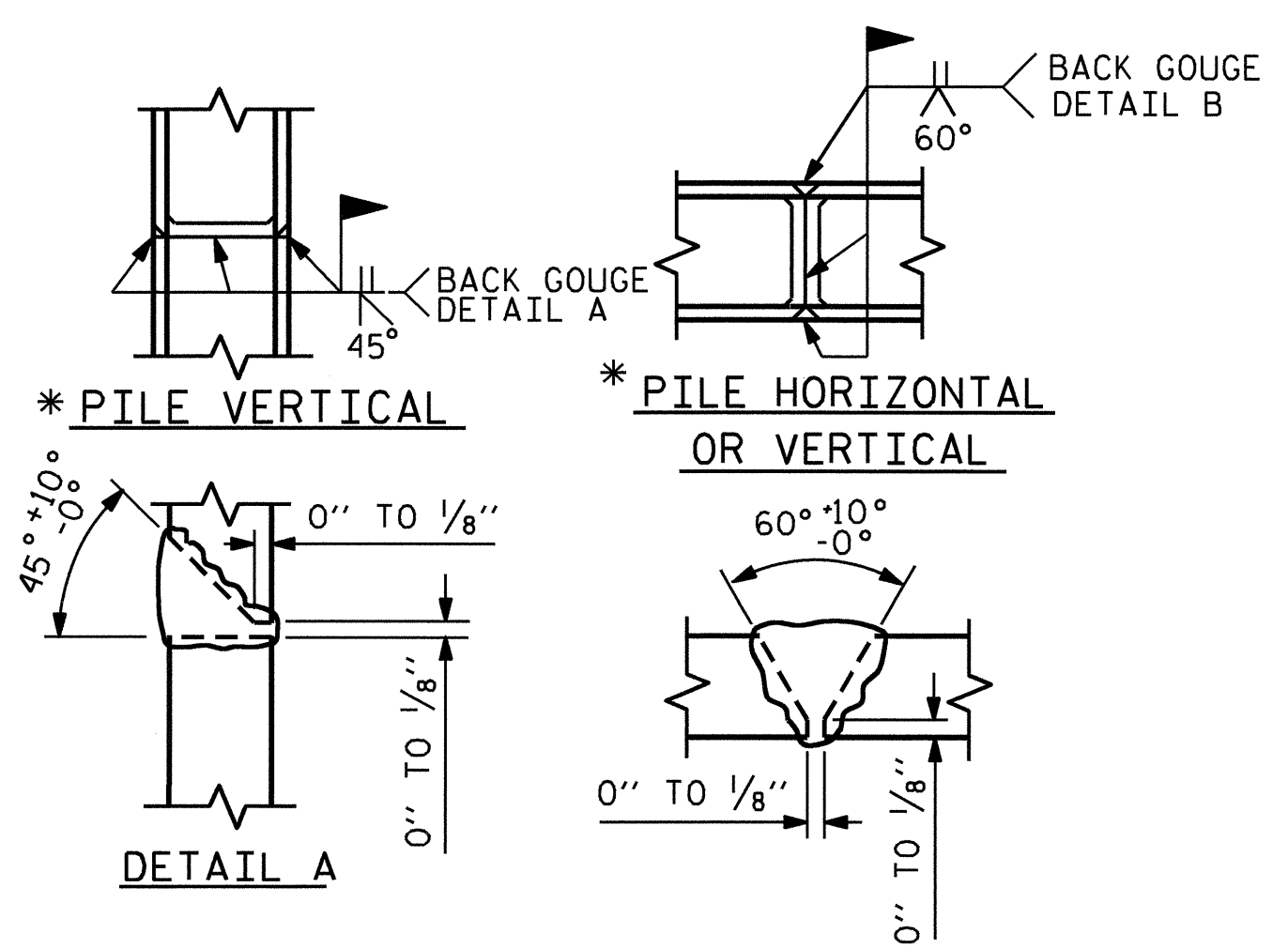
SECTION A-A



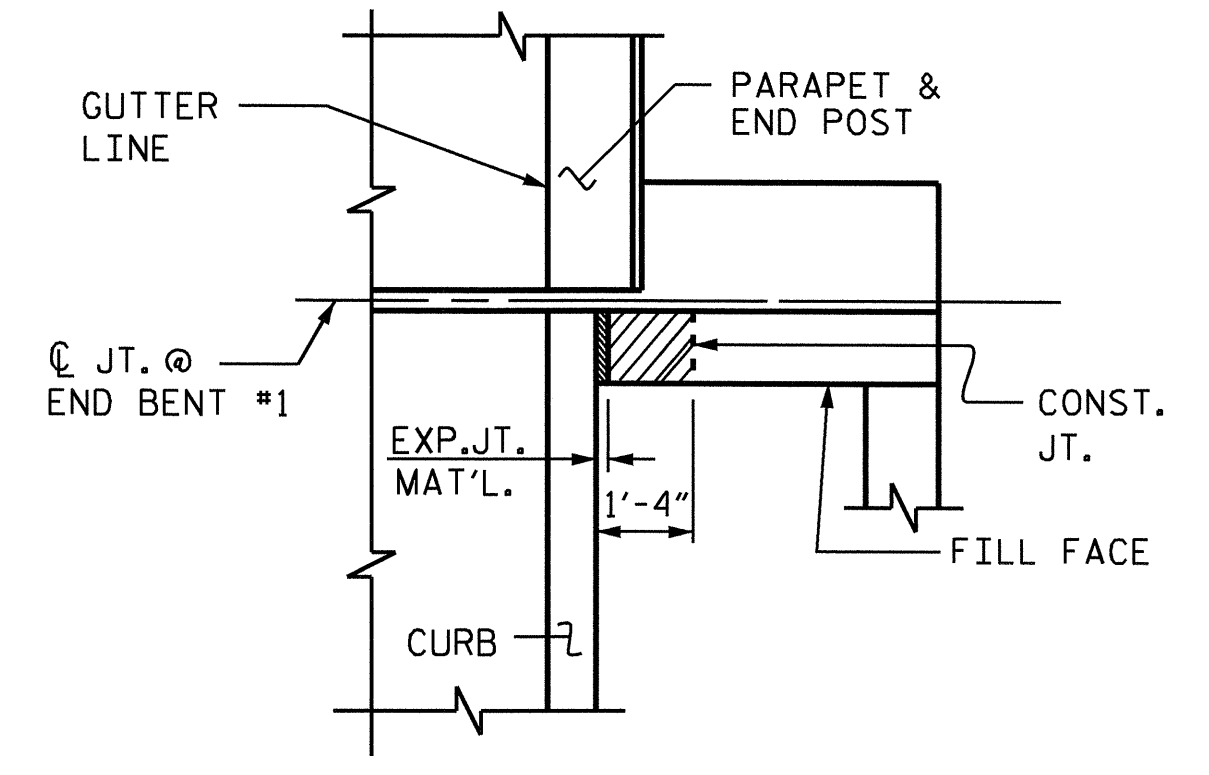
SECTION B-B



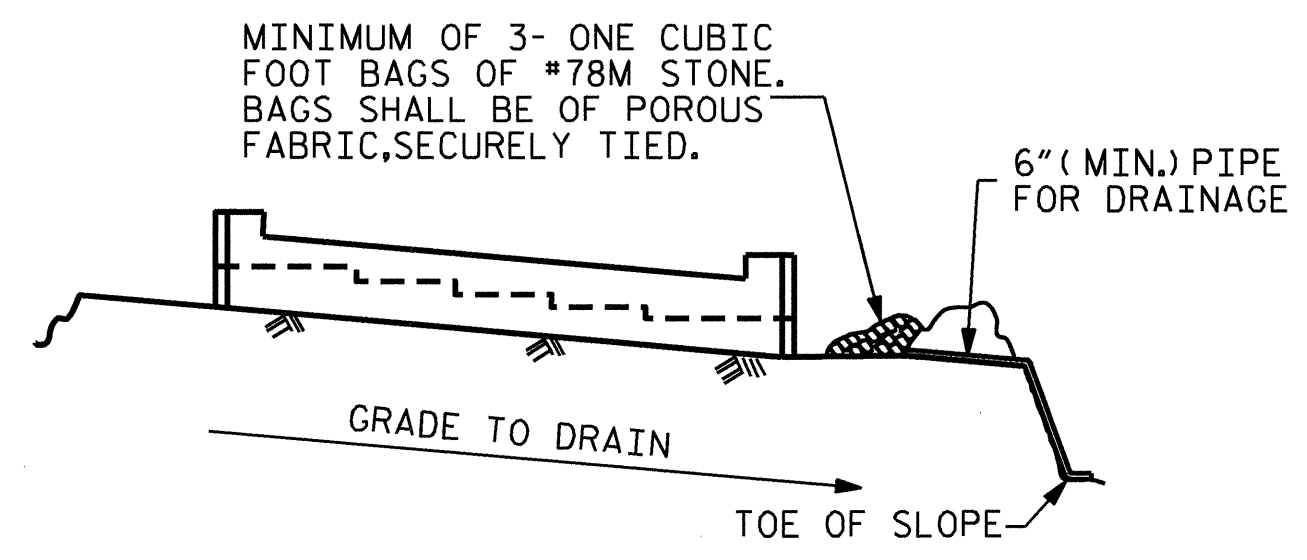
BILL OF MATERIAL					
END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	42'-8"	1451
B2	2	#5	STR	40'-3"	84
B3	8	#4	STR	21'-4"	114
B4	10	#4	STR	2'-8"	18
B5	5	#4	STR	3'-3"	11
B6	5	#4	STR	17'-2"	57
H1	22	#6	5	13'-1"	432
H2	22	#6	5	12'-1"	399
K1	20	#4	STR	21'-4"	285
K2	8	#4	STR	3'-2"	17
S1	42	#5	2	8'-10"	387
S2	42	#5	3	3'-7"	157
S3	14	#4	6	6'-6"	61
S4	6	#6	7	3'-9"	34
S5	2	#6	8	8'-11"	27
U1	34	#4	4	4'-8"	106
U2	16	#4	4	6'-8"	71
V1	68	#5	STR	7'-2"	508
V2	20	#5	STR	9'-5"	196
V3	14	#5	STR	9'-2"	134
V4	12	#5	STR	8'-7"	107
V5	20	#5	STR	8'-10"	184
TOTAL REINFORCING STEEL					4840 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, LOWER PART OF WINGS, PILE COLLARS & WING BRACE PILE CAPS) 19.4 CU. YDS.					
POUR #2 (BACKWALL & UPPER PART OF WINGS) 12.6 CU. YDS.					
TOTAL CLASS A CONCRETE 32.0 CU. YDS.					
HP 12 X 53 STEEL PILES					
NO. 9					225 LIN. FT.
STEEL PILE POINTS					9 EACH



PILE SPLICE DETAILS



PLAN

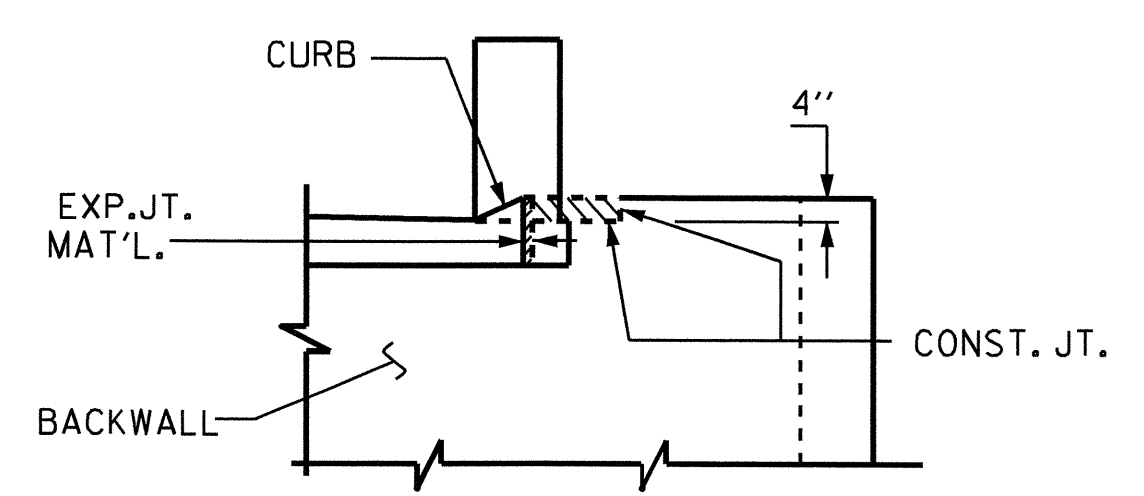


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



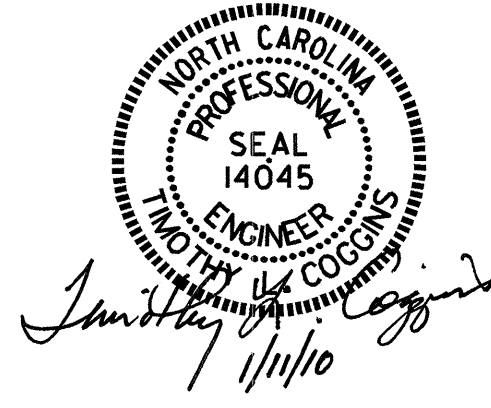
ELEVATION

BLOCKOUT IN WING WALL

NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

DRAWN BY : PEGGY PARISI DATE : 9-16-09
 CHECKED BY : B.N. BARODAWALA DATE : 10-5-09

11-JAN-2010 12:00
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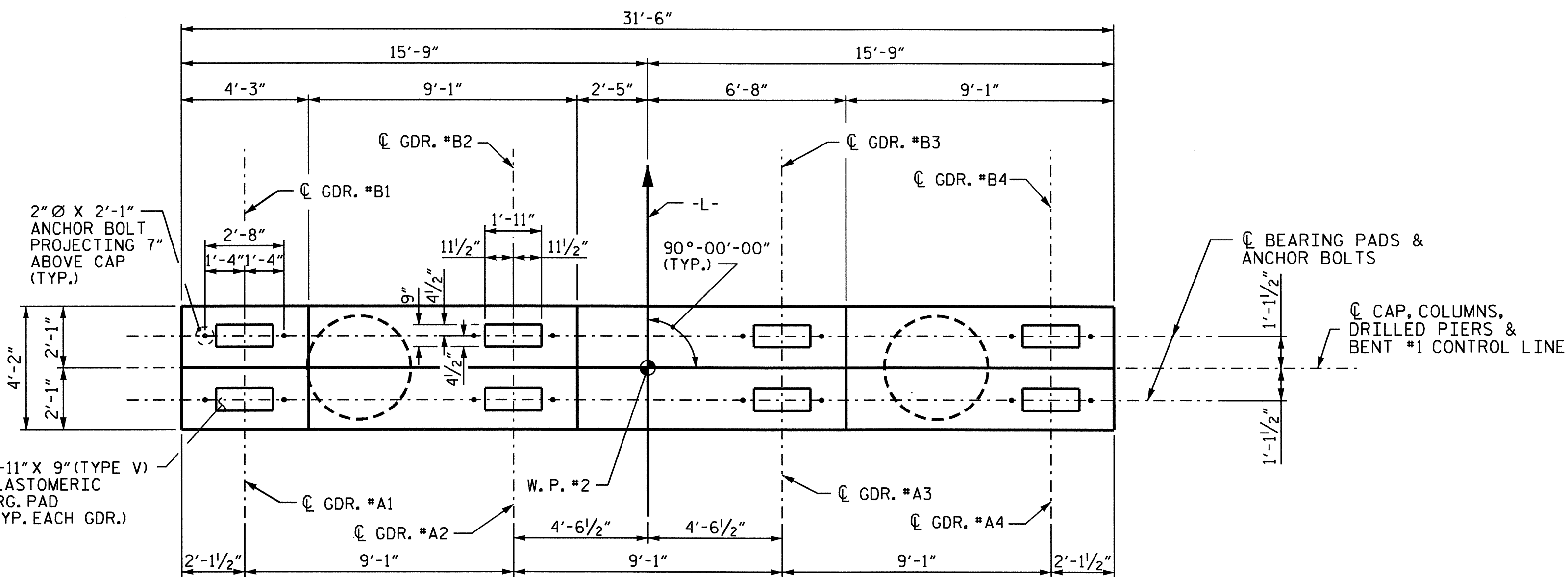
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-
 SHEET 3 OF 3

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

SHEET NO. S-25
 TOTAL SHEETS 38

SPAN B

SPAN A



PLAN
DIMENSIONS FOR BEARING PADS AND ANCHOR BOLTS ARE TYPICAL FOR EACH GIRDER.

NOTES:

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

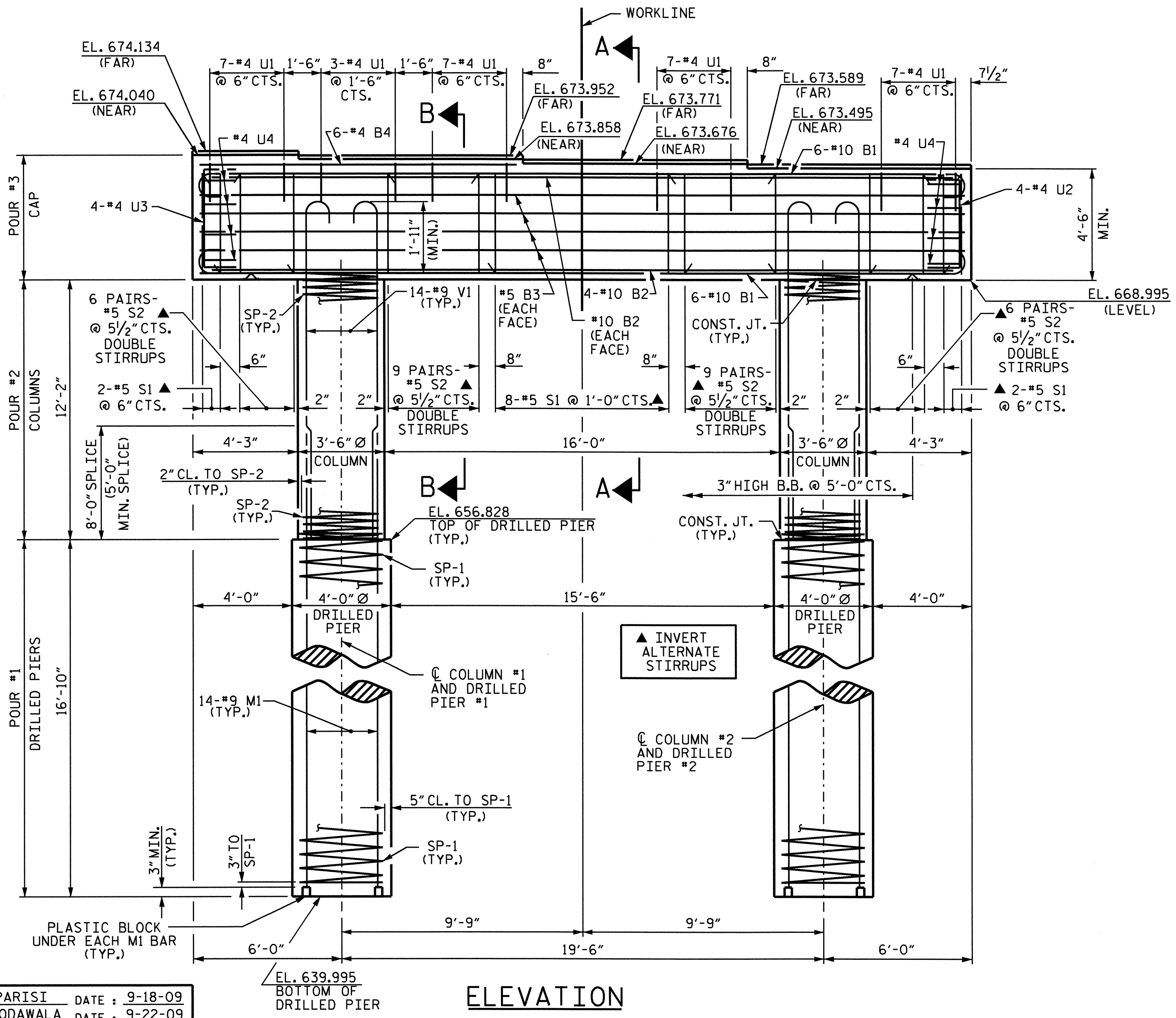
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3'-0" OF EXTRA LENGTH.

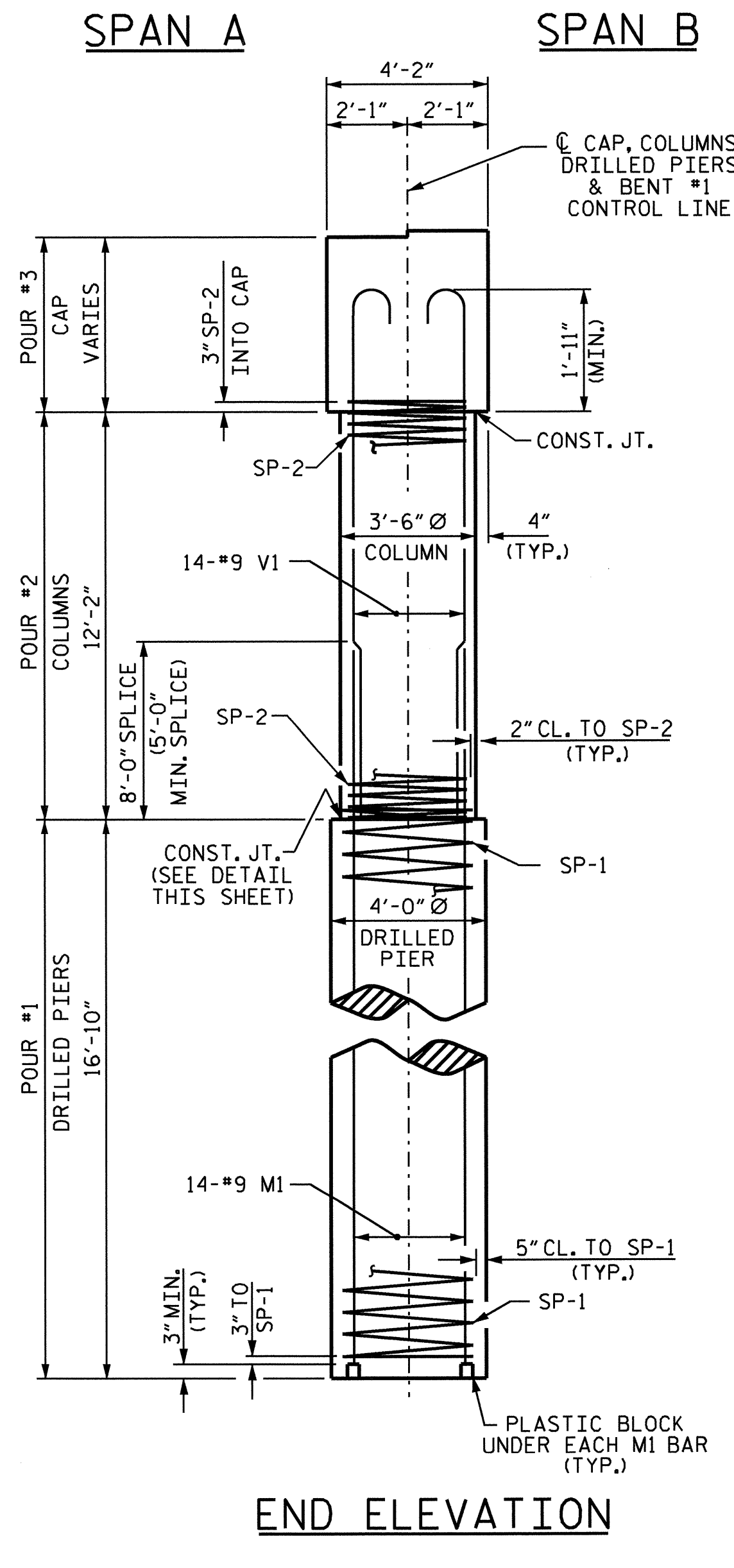
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

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

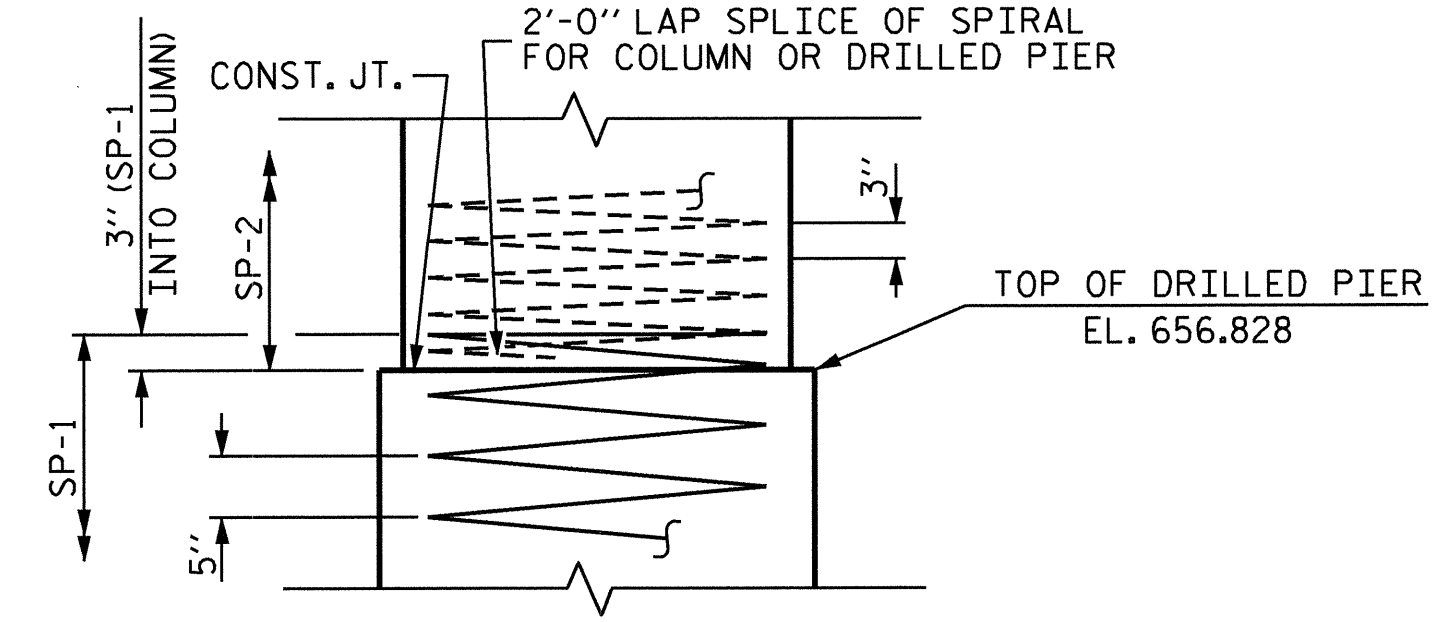
FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.



ELEVATION



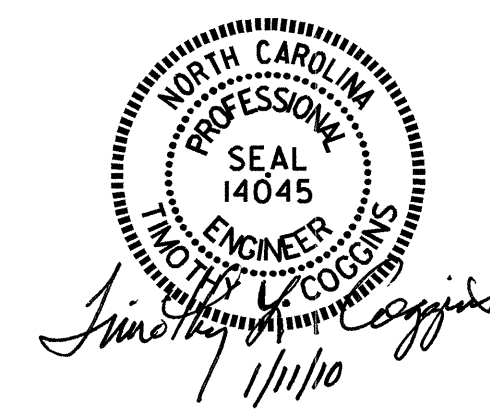
END ELEVATION



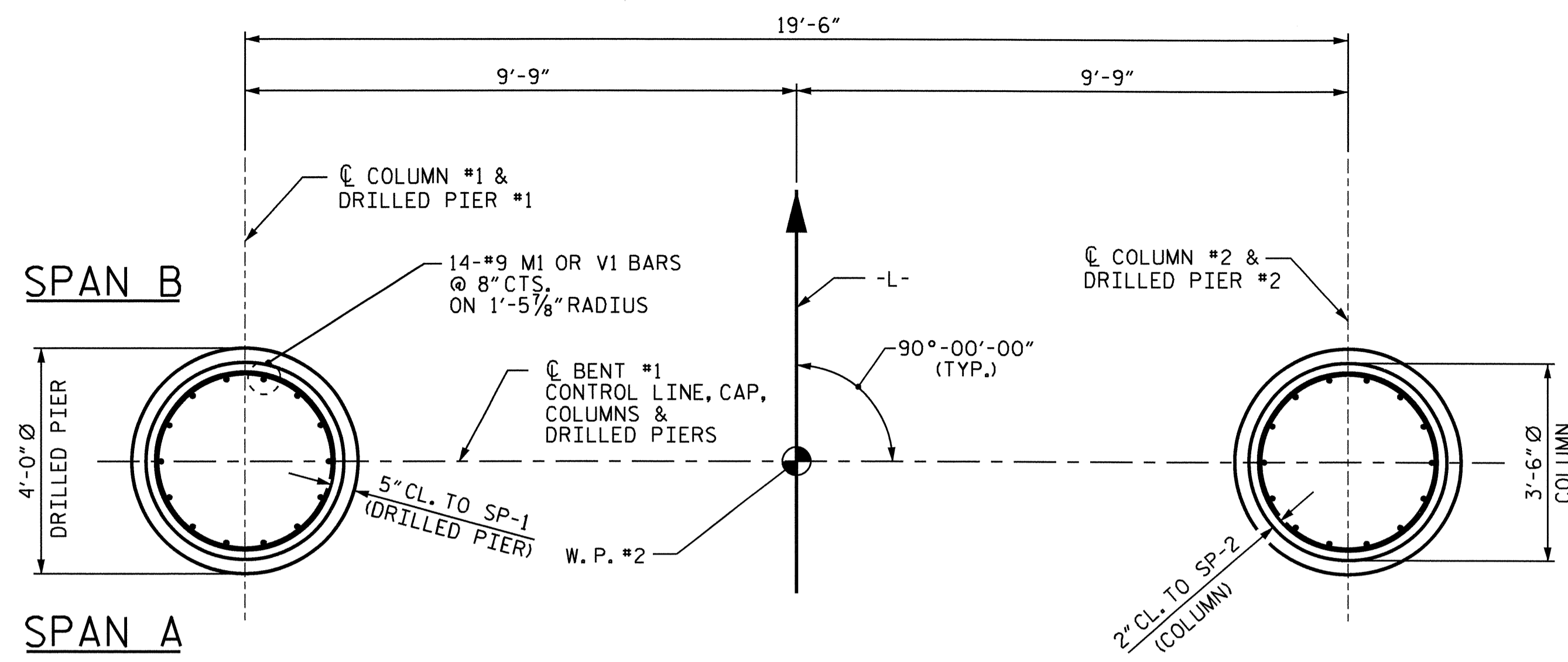
CONSTRUCTION JOINT DETAIL

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-
 SHEET 1 OF 2

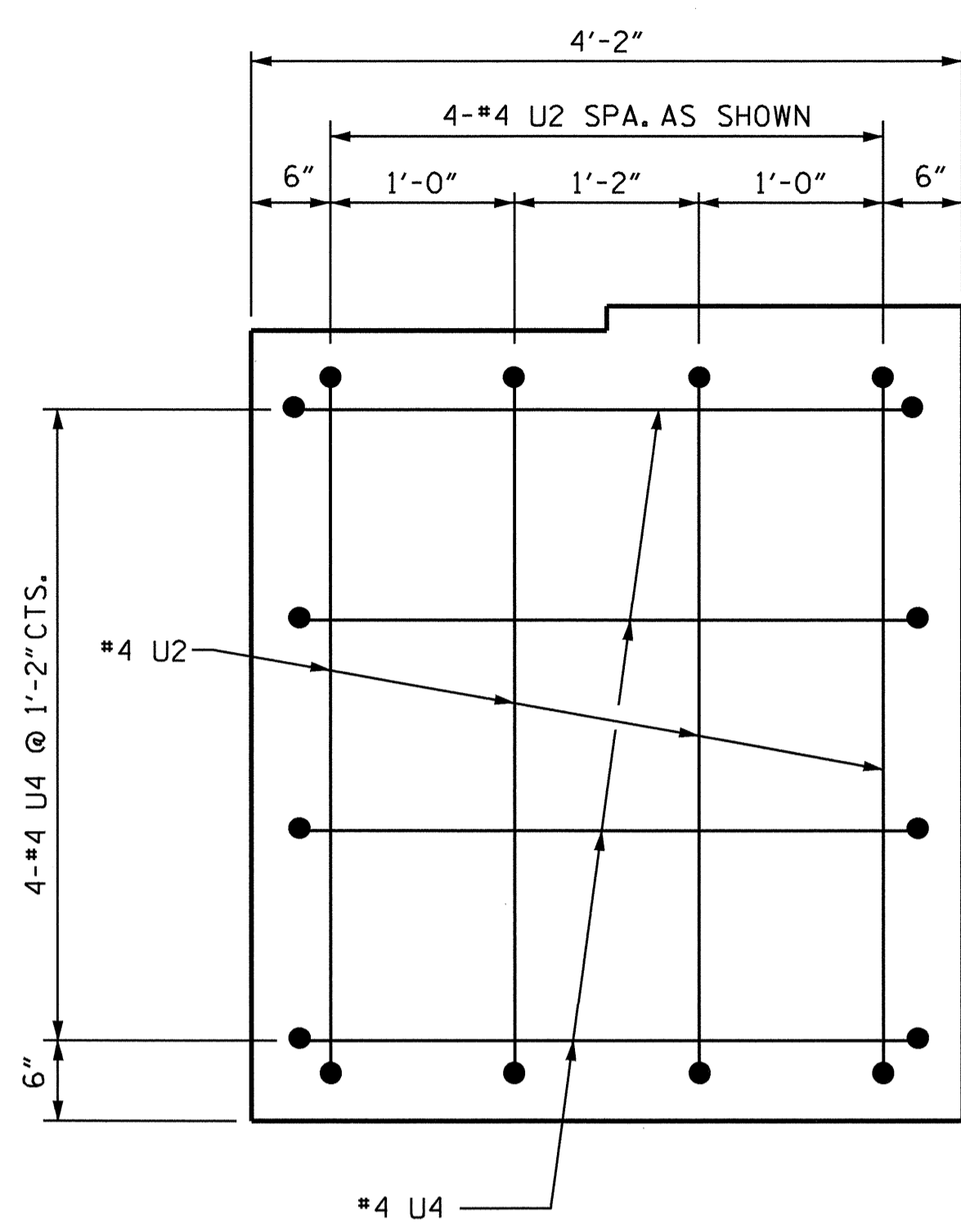
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 38



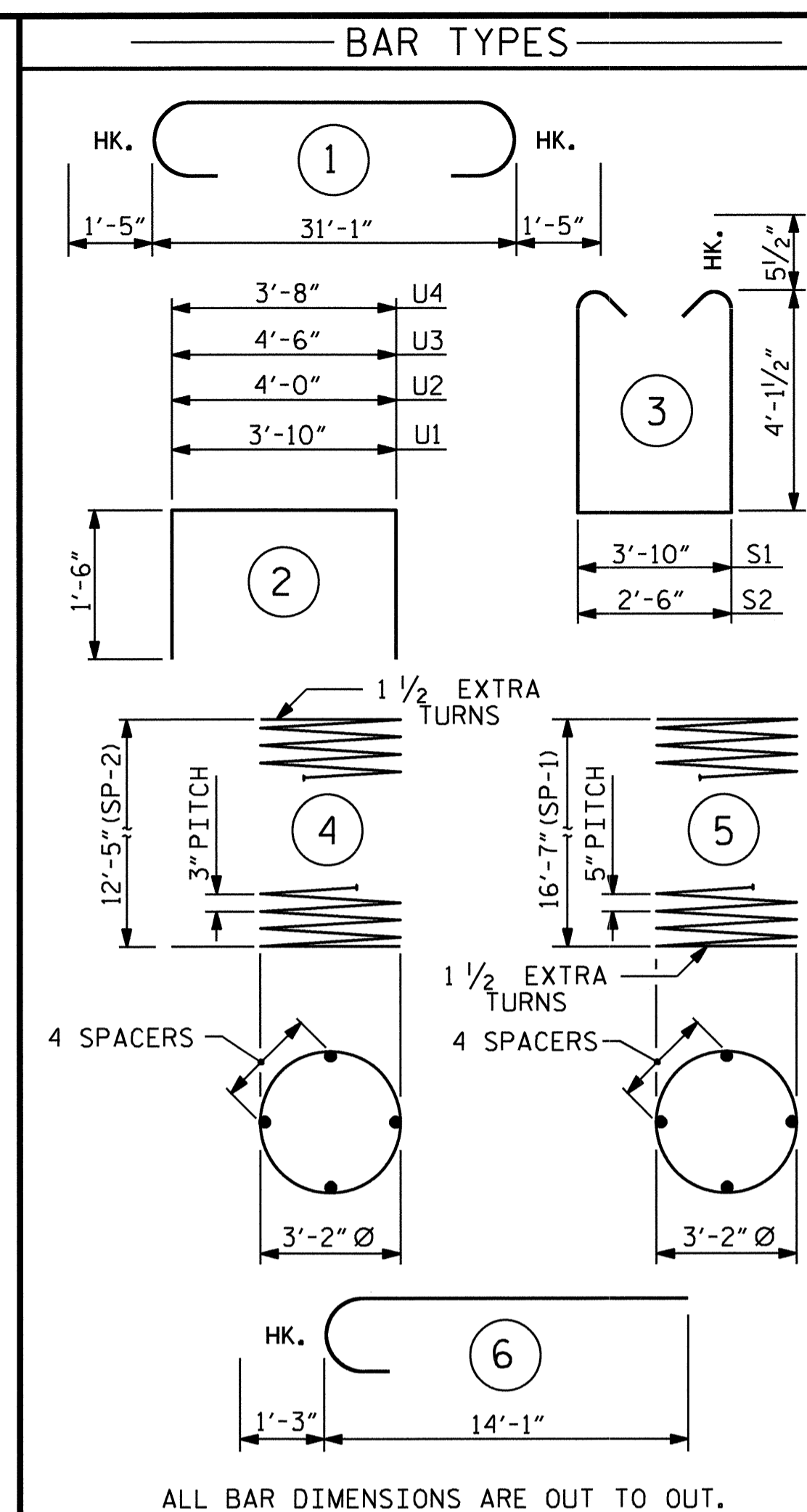
DRAWN BY: PEGGY PARISI DATE: 9-18-09
 CHECKED BY: B.N. BARODAWALA DATE: 9-22-09



PLAN OF DRILLED PIERS AND COLUMNS
(DIM. & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)



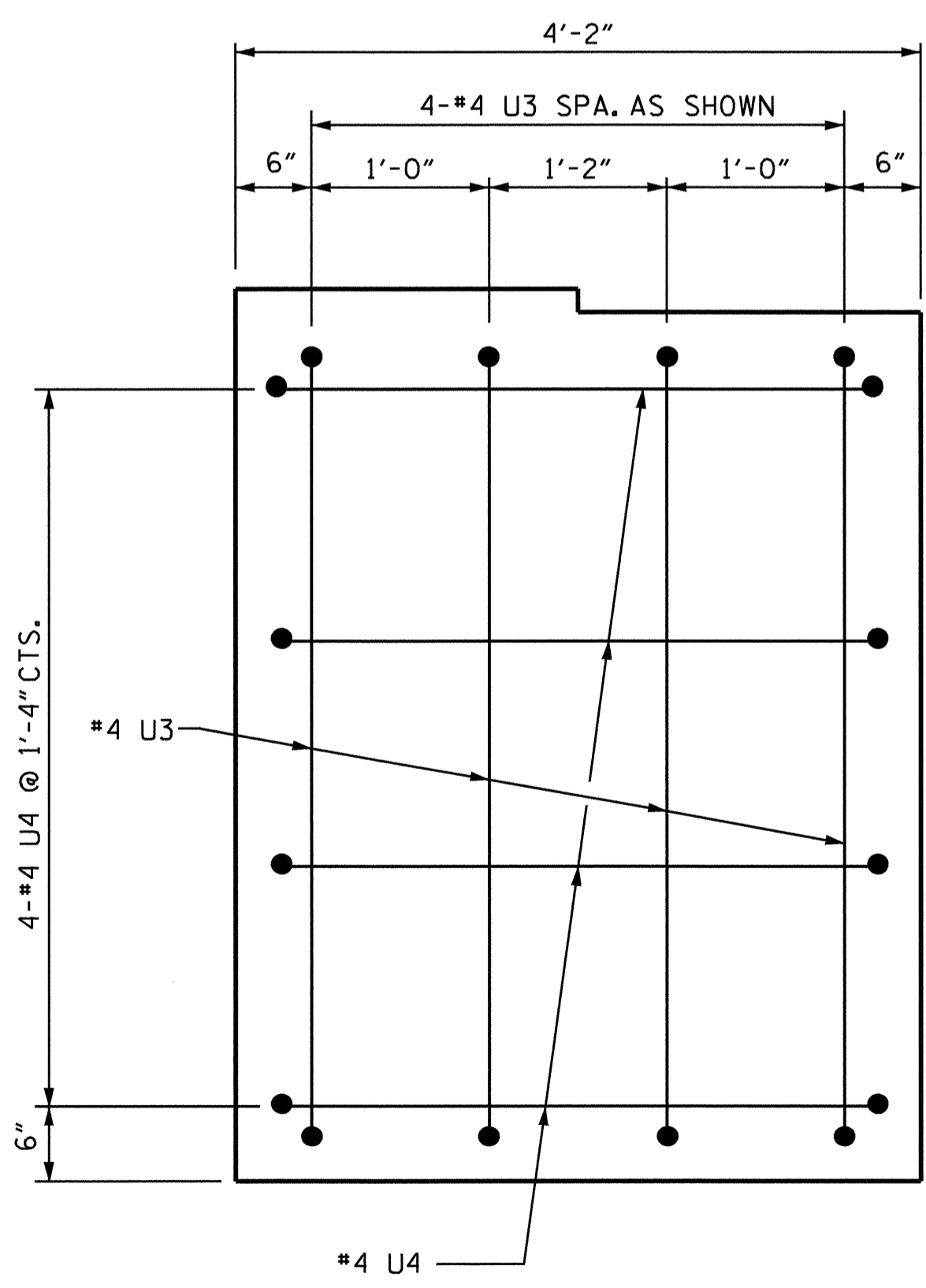
RIGHT END VIEW



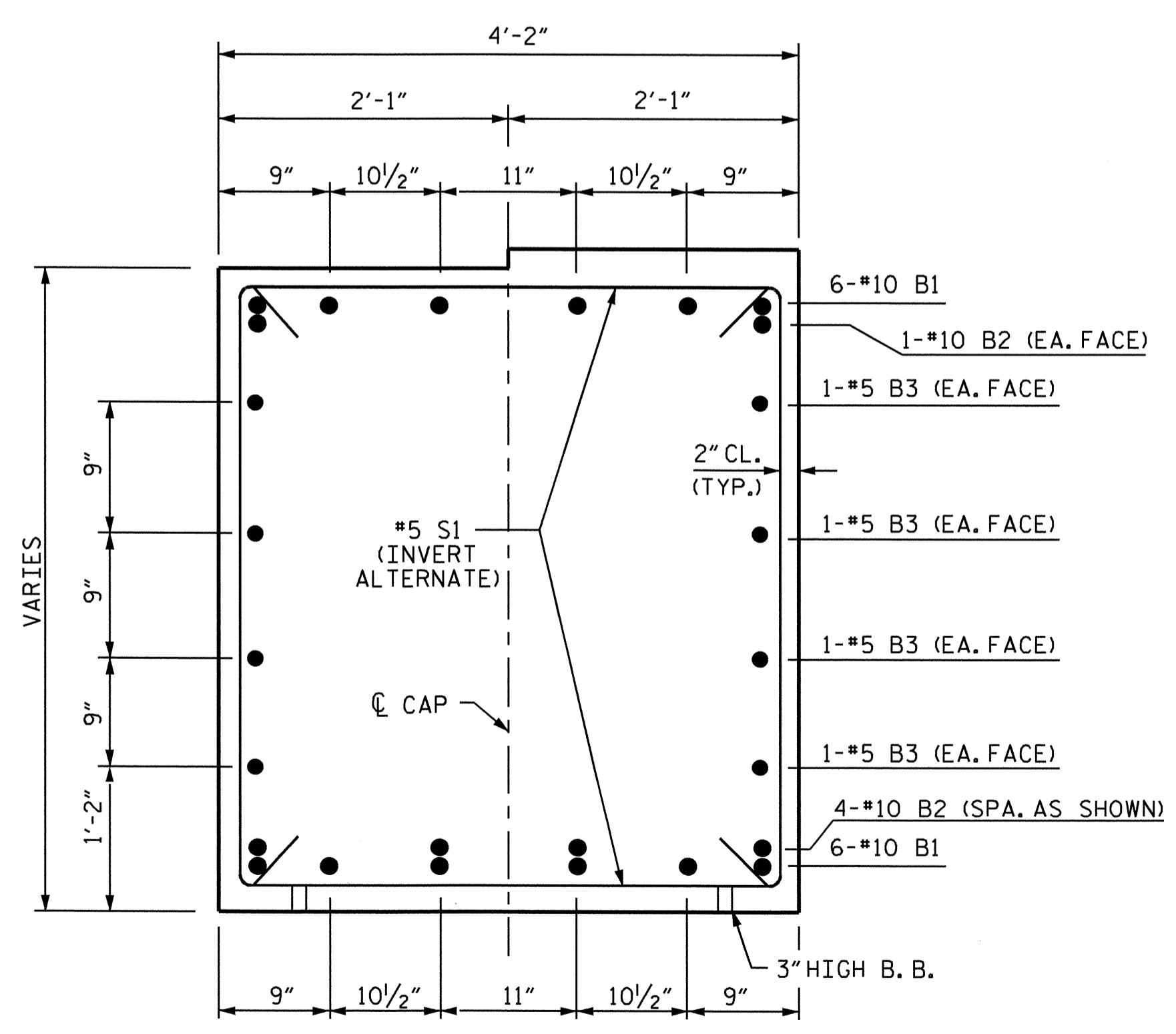
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#10	1	33'-11"	1751
B2	6	#10	STR	29'-10"	770
B3	8	#5	STR	31'-2"	260
B4	6	#4	STR	13'-0"	52
M1	28	#9	STR	24'-7"	2340
S1	12	#5	3	13'-0"	163
S2	60	#5	3	11'-8"	730
U1	31	#4	2	6'-10"	142
U2	4	#4	2	7'-0"	19
U3	4	#4	2	7'-6"	20
U4	8	#4	2	6'-8"	36
V1	28	#9	6	15'-4"	1460
REINFORCING STEEL					7743 LBS.
SP-1	2	**	5	404'-6"	844
SP-2	2	*	4	502'-6"	671
SPIRAL COLUMN REINFORCING STEEL					1515 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #2 COLUMN				CU. YD.	8.7
POUR #3 CAP				CU. YD.	23.3
TOTAL CLASS A CONCRETE CU. YD.					32.0
DRILLED PIERS					
DRILLED PIER CONCRETE				CU. YD.	15.7
POUR #1 DRILLED PIERS				CU. YD.	15.7
4'-0" DRILLED PIERS NOT IN SOIL					LIN. FT. 15.00
4'-0" DRILLED PIERS IN SOIL					LIN. FT. 18.67
PERMANENT STEEL CASING FOR 4'-0" DRILLED PIER					LIN. FT. 15.66

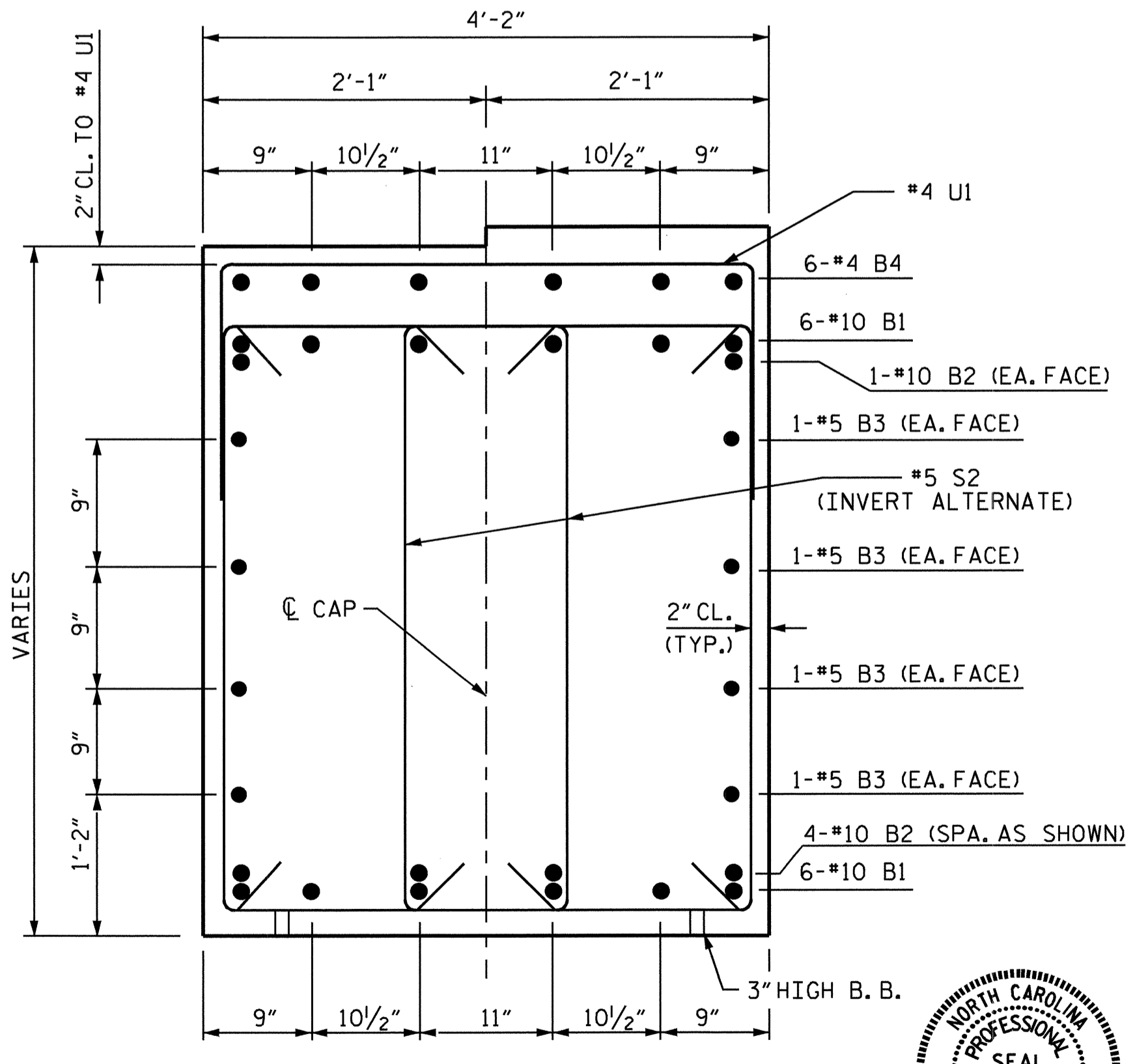
* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.



LEFT END VIEW



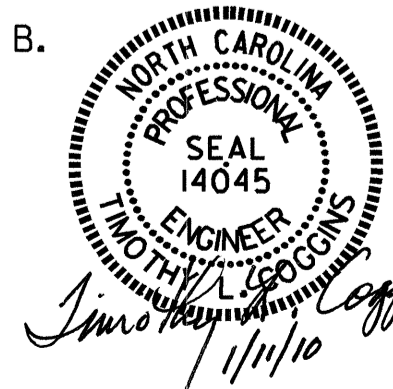
SECTION A-A



SECTION B-B

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-
 SHEET 2 OF 2

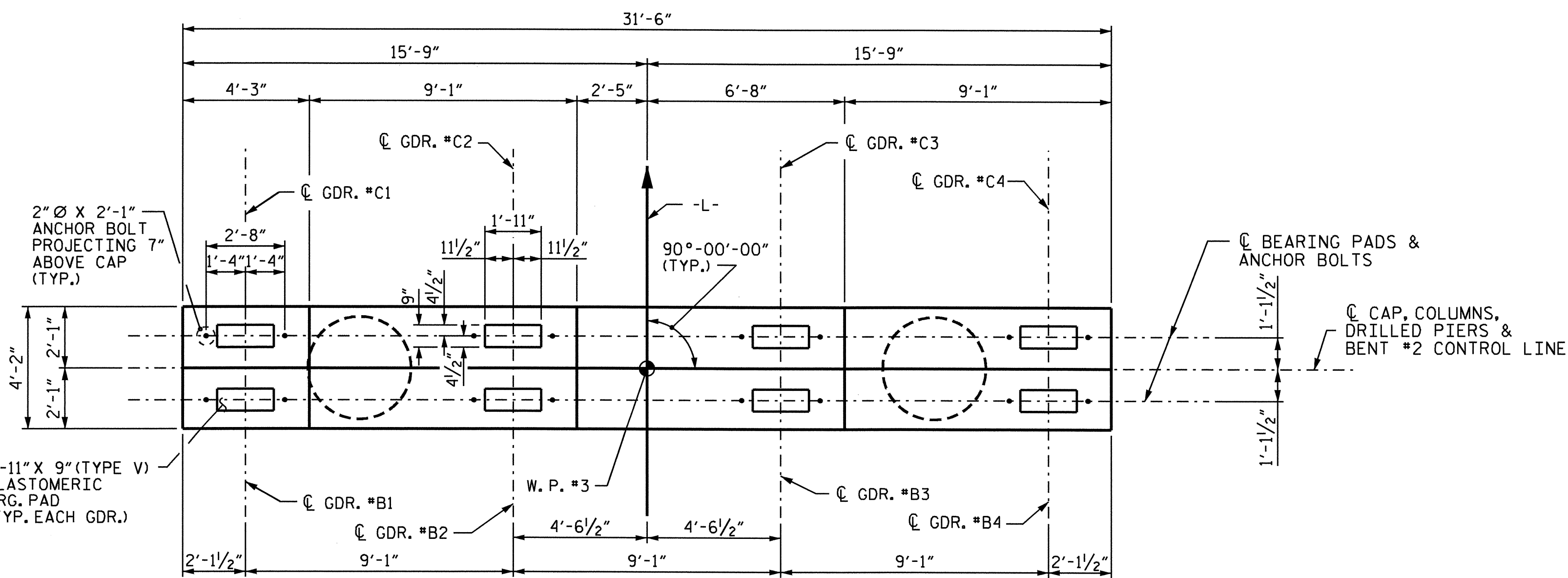
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SUBSTRUCTURE					
BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-27					TOTAL SHEETS 38



DRAWN BY : PEGGY PARISI DATE : 9-22-09
 CHECKED BY : B.N. BARODAWALA DATE : 9-23-09

SPAN C

SPAN B



PLAN

DIMENSIONS FOR BEARING PADS AND ANCHOR BOLTS ARE TYPICAL FOR EACH GIRDER.

NOTES:

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

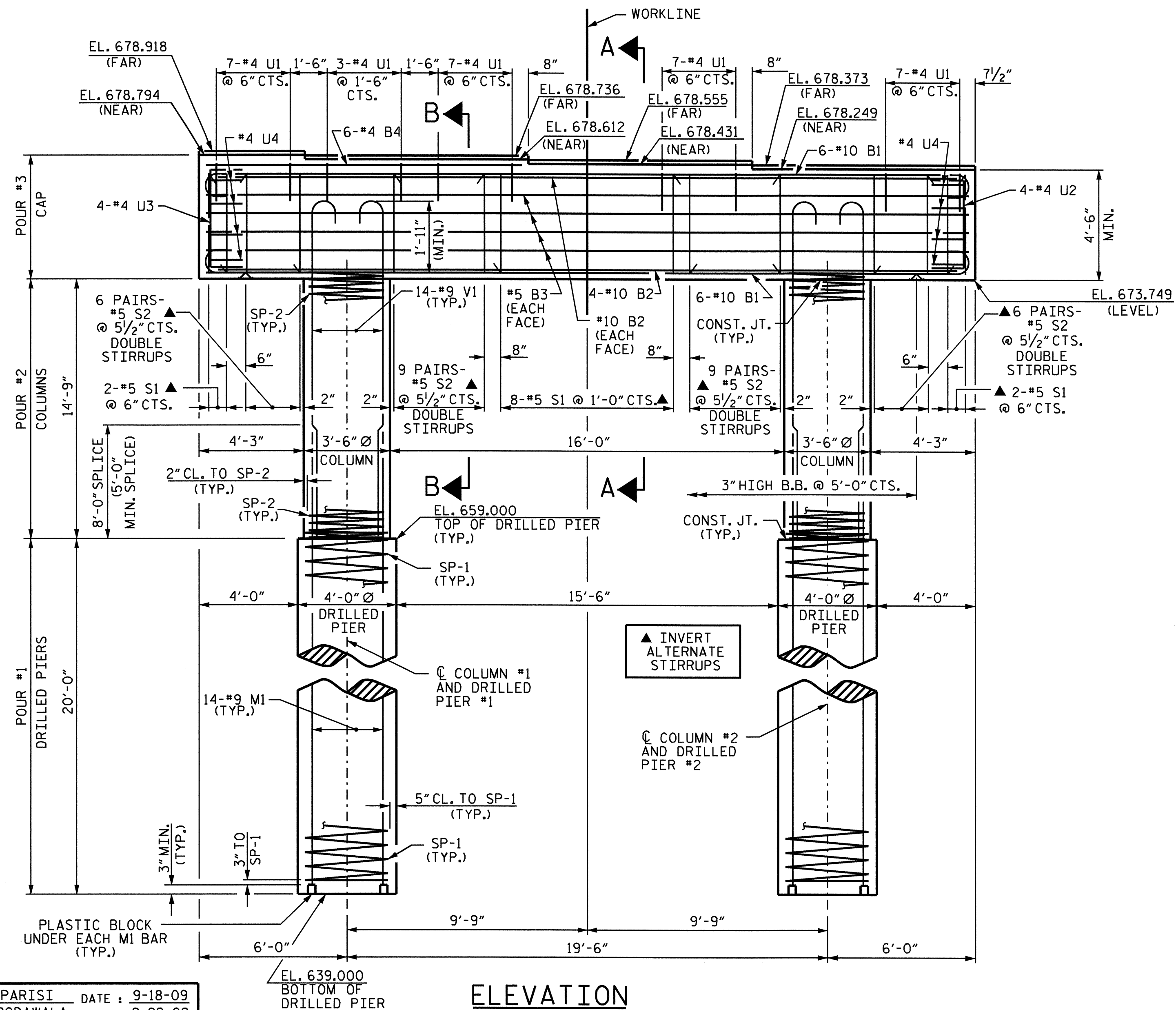
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCING FOR THE DRILLED PIERS IS DETAILED WITH 3'-0" OF EXTRA LENGTH.

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

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

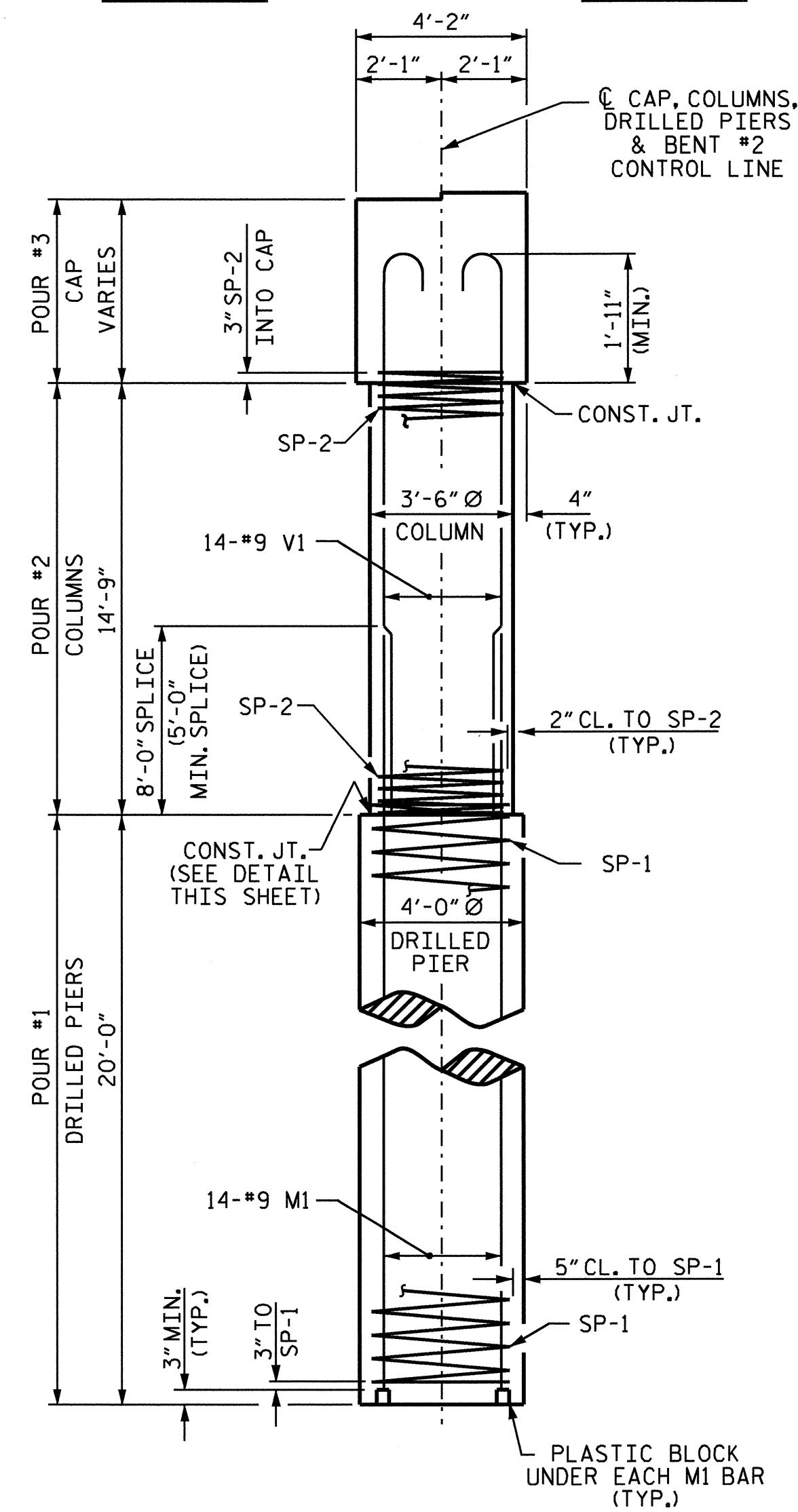
FOR DRILLED PIERS, SEE SPECIAL PROVISION.



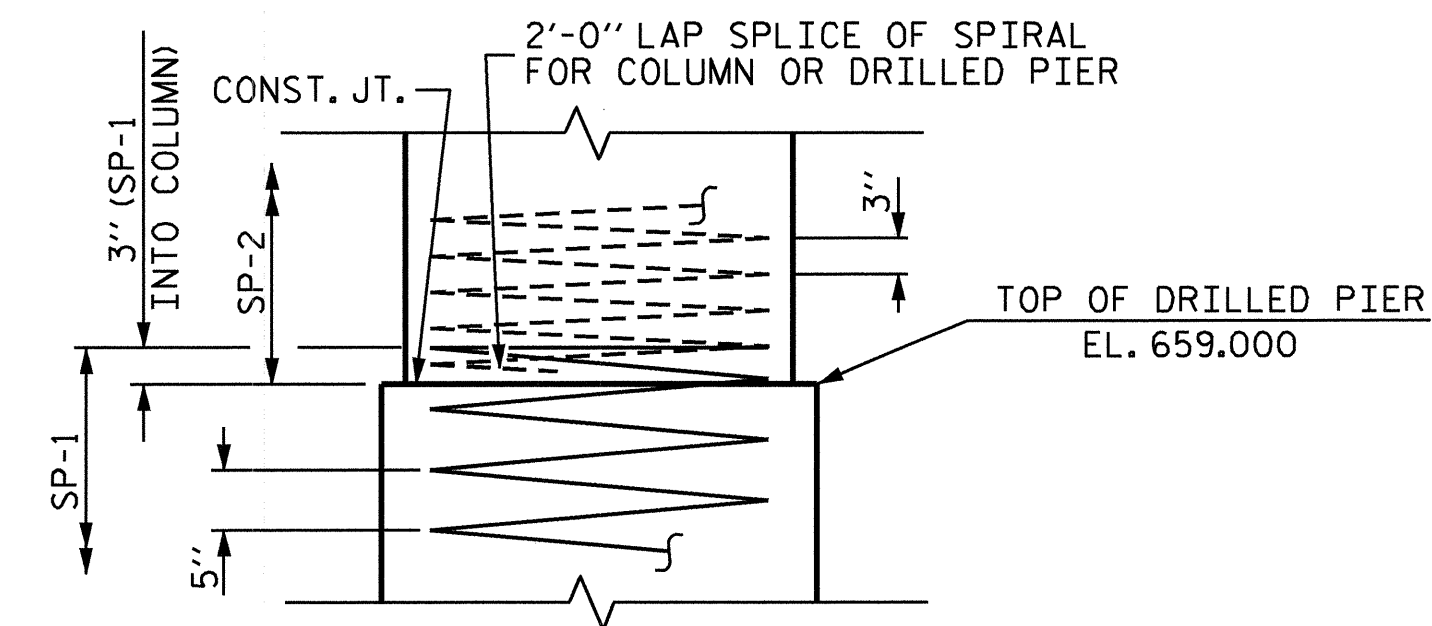
ELEVATION

SPAN B

SPAN C



END ELEVATION



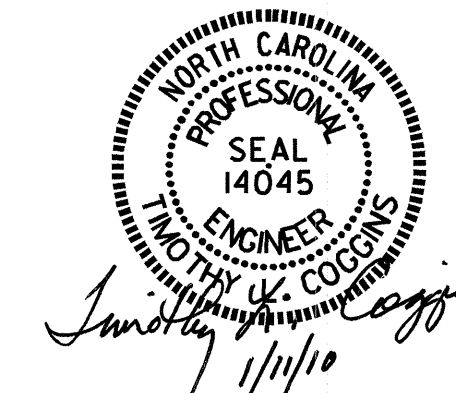
CONSTRUCTION JOINT DETAIL

PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #2

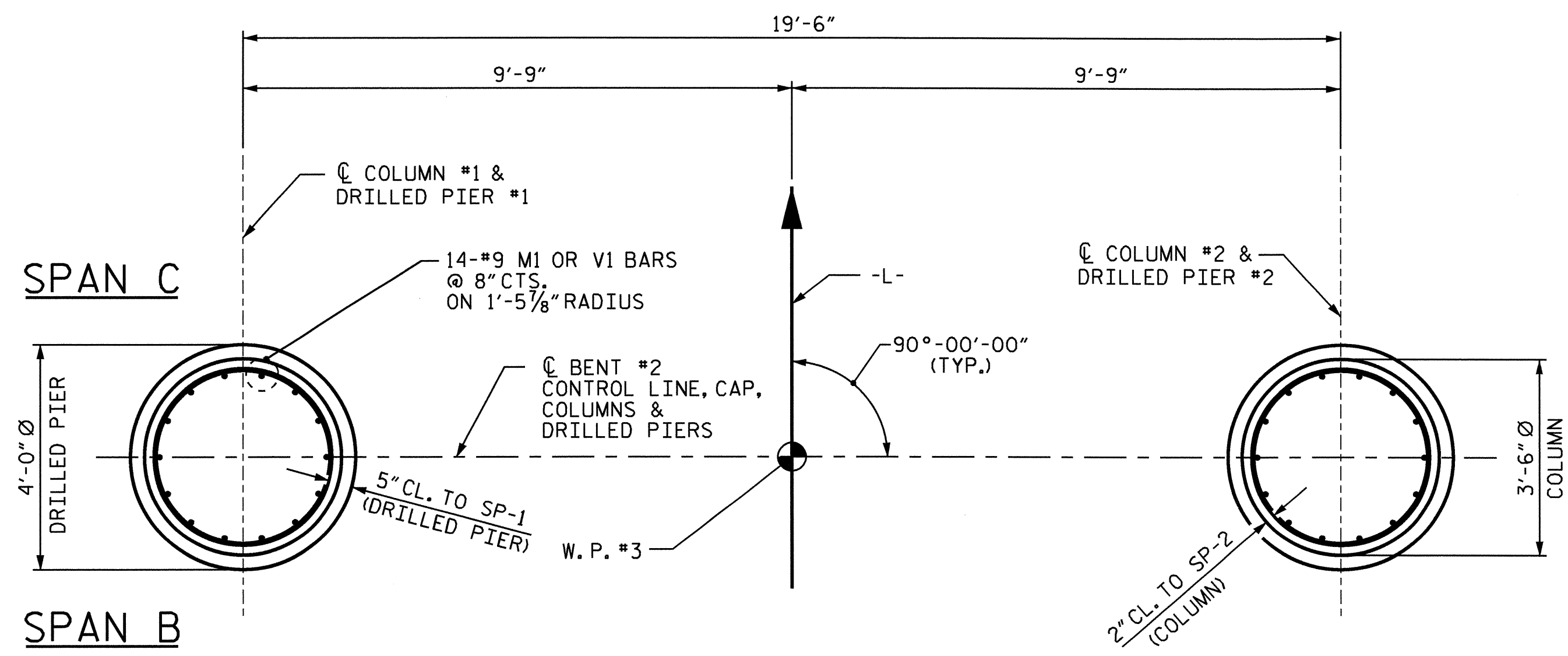


REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

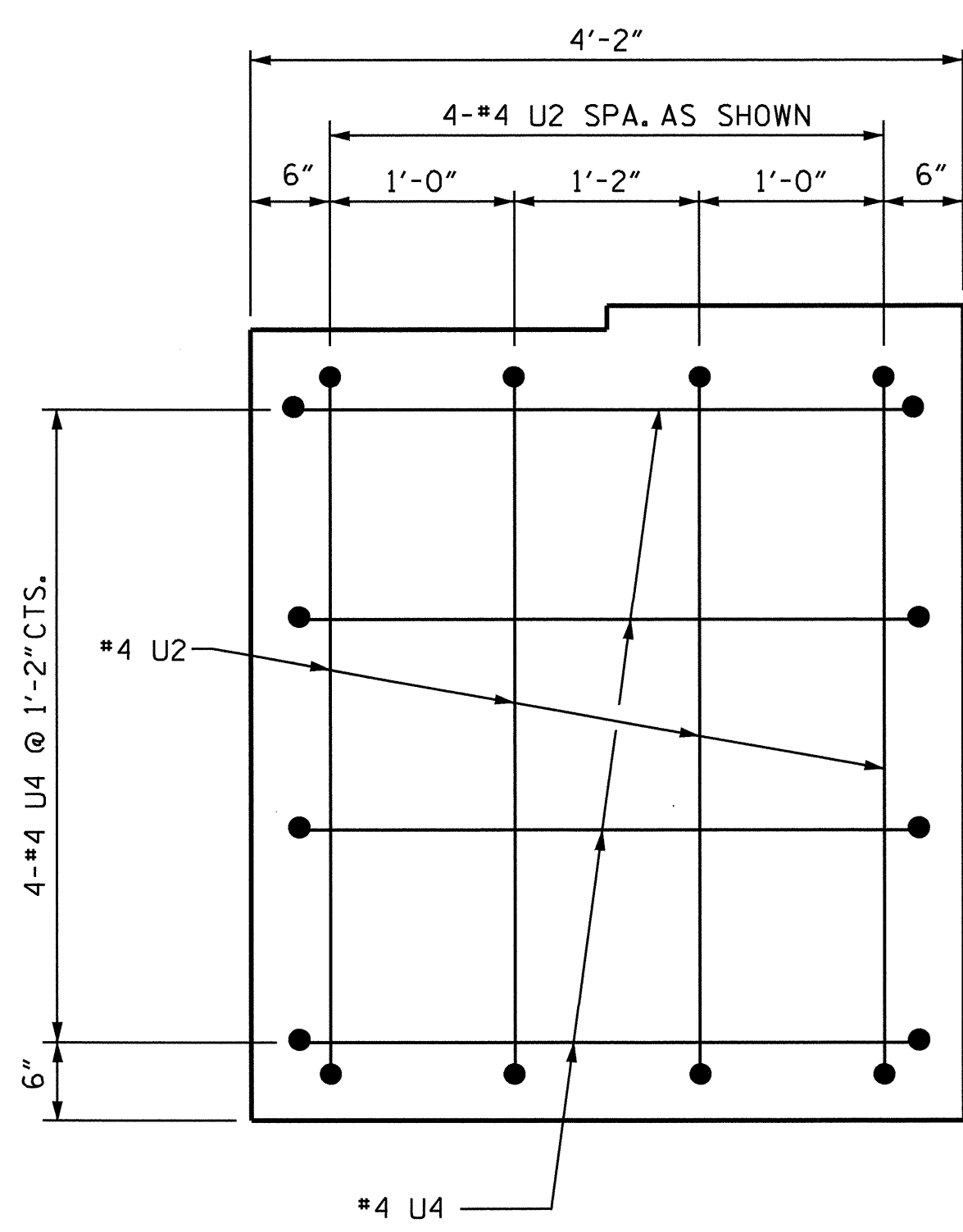
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 CHECKED BY : B.N. BARODAWALA DATE : 9-22-09

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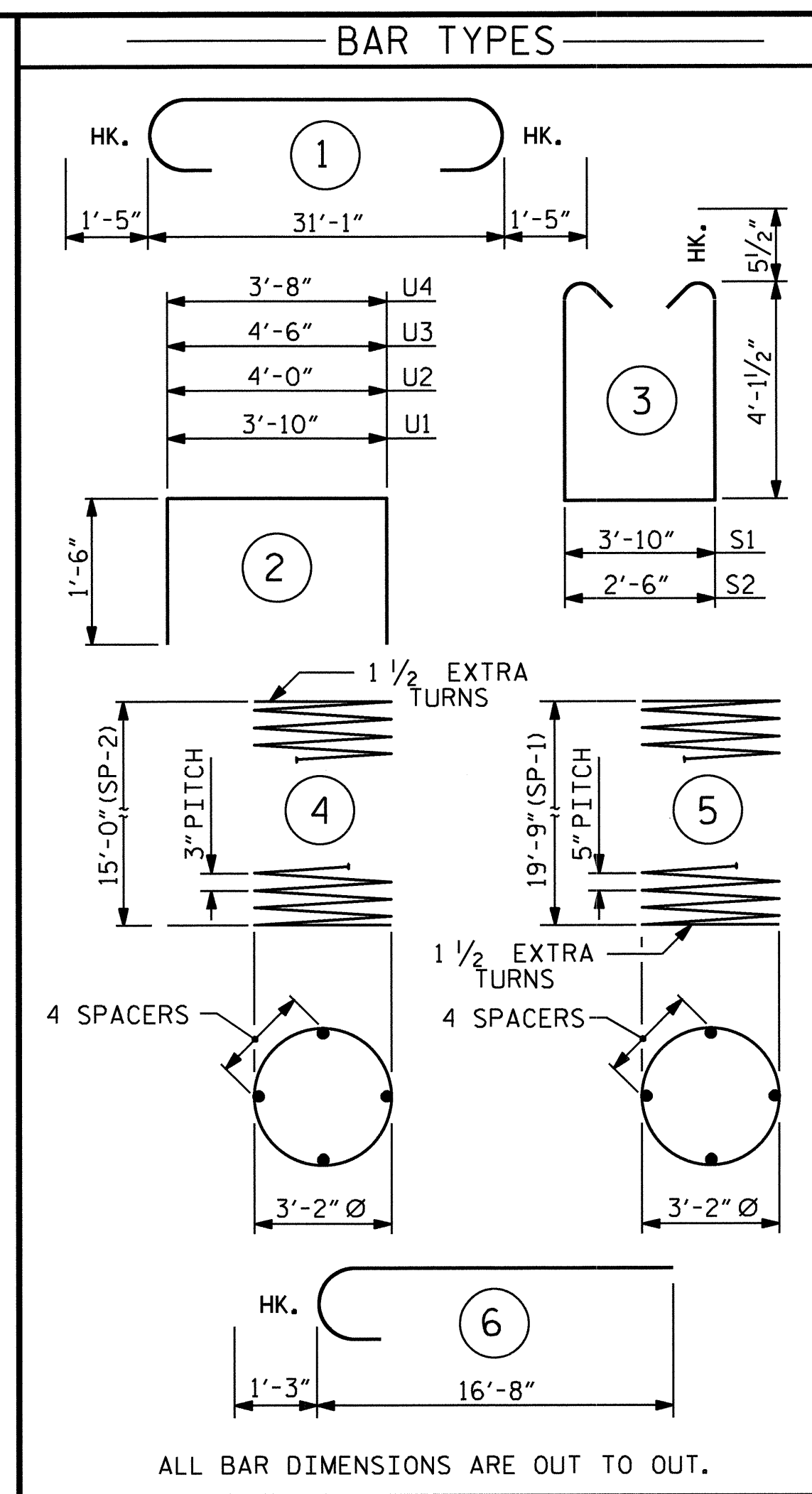
S-28
 TOTAL SHEETS
 38



PLAN OF DRILLED PIERS AND COLUMNS
(DIM. & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)

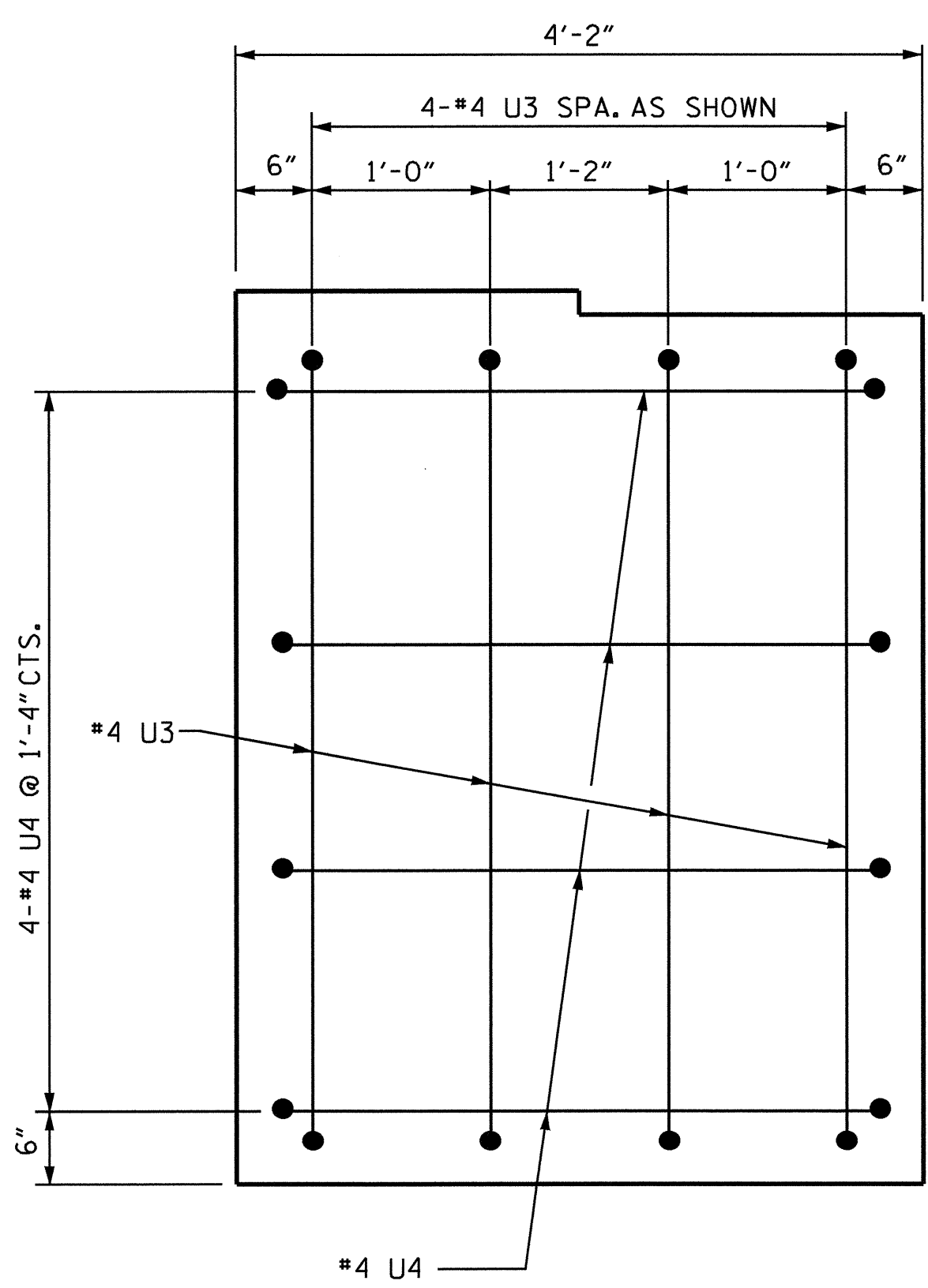


RIGHT END VIEW

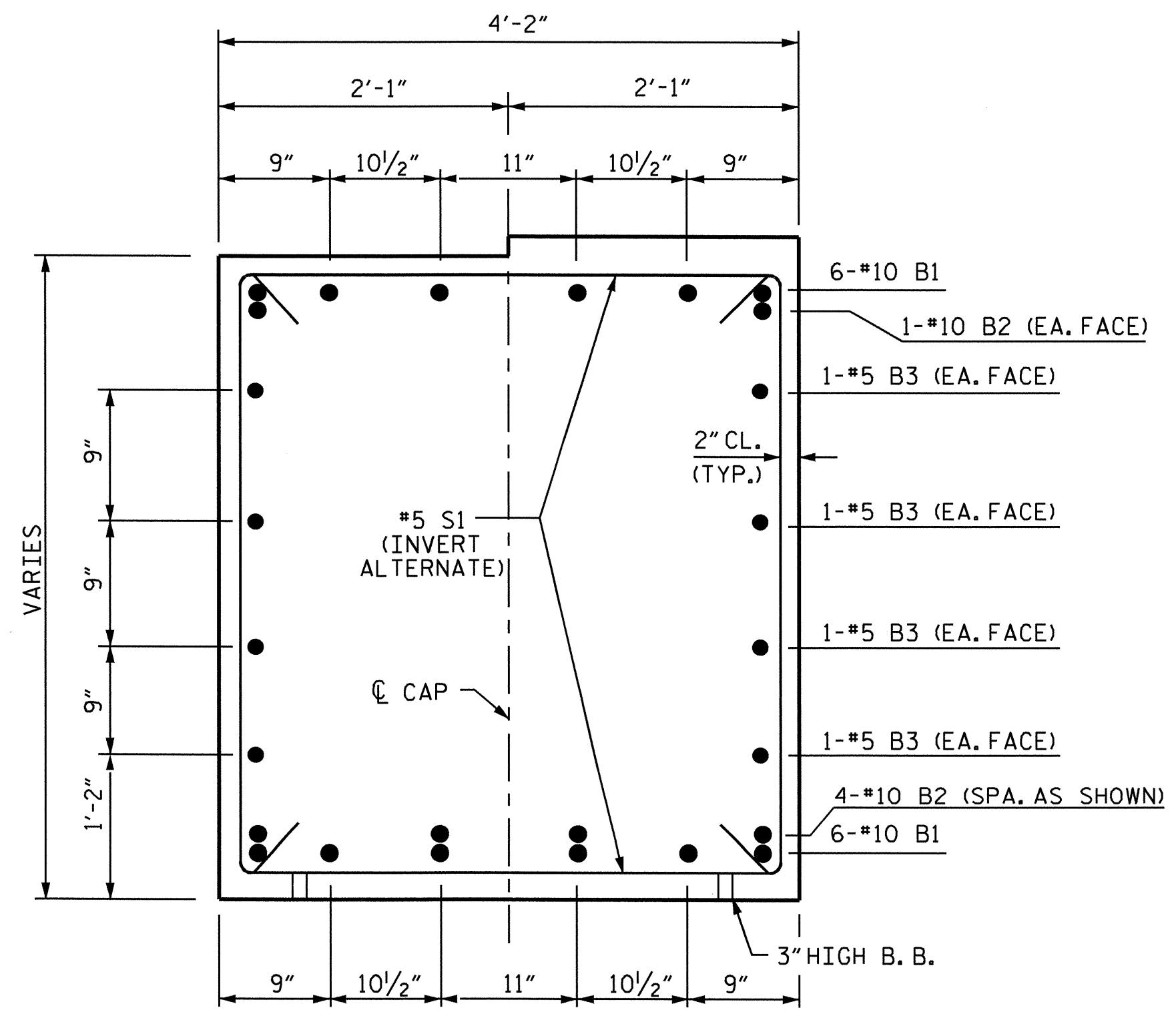


BILL OF MATERIAL					
BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#10	1	33'-11"	1751
B2	6	#10	STR	29'-10"	770
B3	8	#5	STR	31'-2"	260
B4	6	#4	STR	13'-0"	52
M1	28	#9	STR	27'-9"	2642
S1	12	#5	3	13'-0"	163
S2	60	#5	3	11'-8"	730
U1	31	#4	2	6'-10"	142
U2	4	#4	2	7'-0"	19
U3	4	#4	2	7'-6"	20
U4	8	#4	2	6'-8"	36
V1	28	#9	6	17'-11"	1706
REINFORCING STEEL					8291 LBS.
SP-1	2	**	5	478'-11"	999
SP-2	2	*	4	604'-0"	807
SPIRAL COLUMN REINFORCING STEEL					1806 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #2 COLUMN				CU. YD.	10.5
POUR #3 CAP				CU. YD.	23.3
TOTAL CLASS A CONCRETE CU. YD.					33.8
DRILLED PIERS					
DRILLED PIER CONCRETE				CU. YD.	18.6
POUR #1 DRILLED PIERS				CU. YD.	18.6
4'-0" DRILLED PIERS NOT IN SOIL				LIN. FT.	16.00
4'-0" DRILLED PIERS IN SOIL				LIN. FT.	24.00
PERMANENT STEEL CASING FOR 4'-0" DRILLED PIER				LIN. FT.	16.00

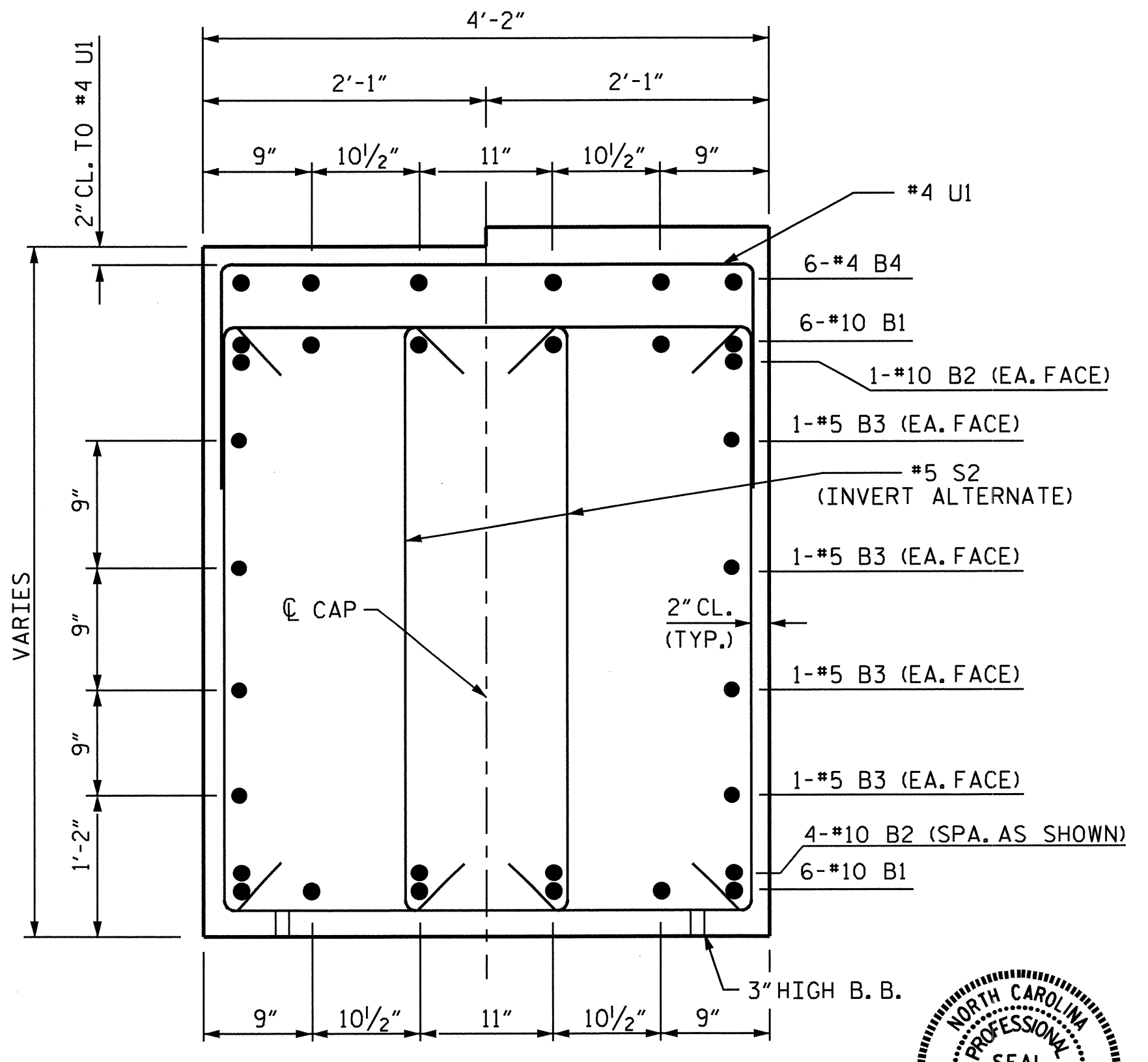
* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.



LEFT END VIEW



SECTION A-A

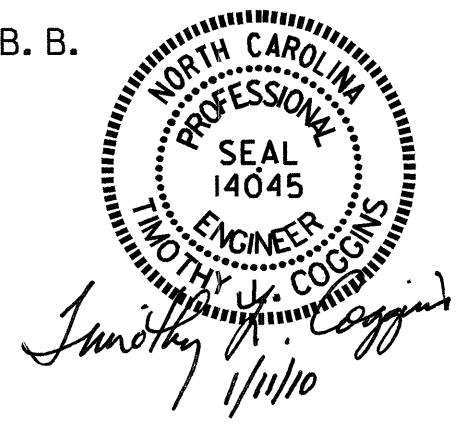


SECTION B-B

PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-
SHEET 2 OF 2

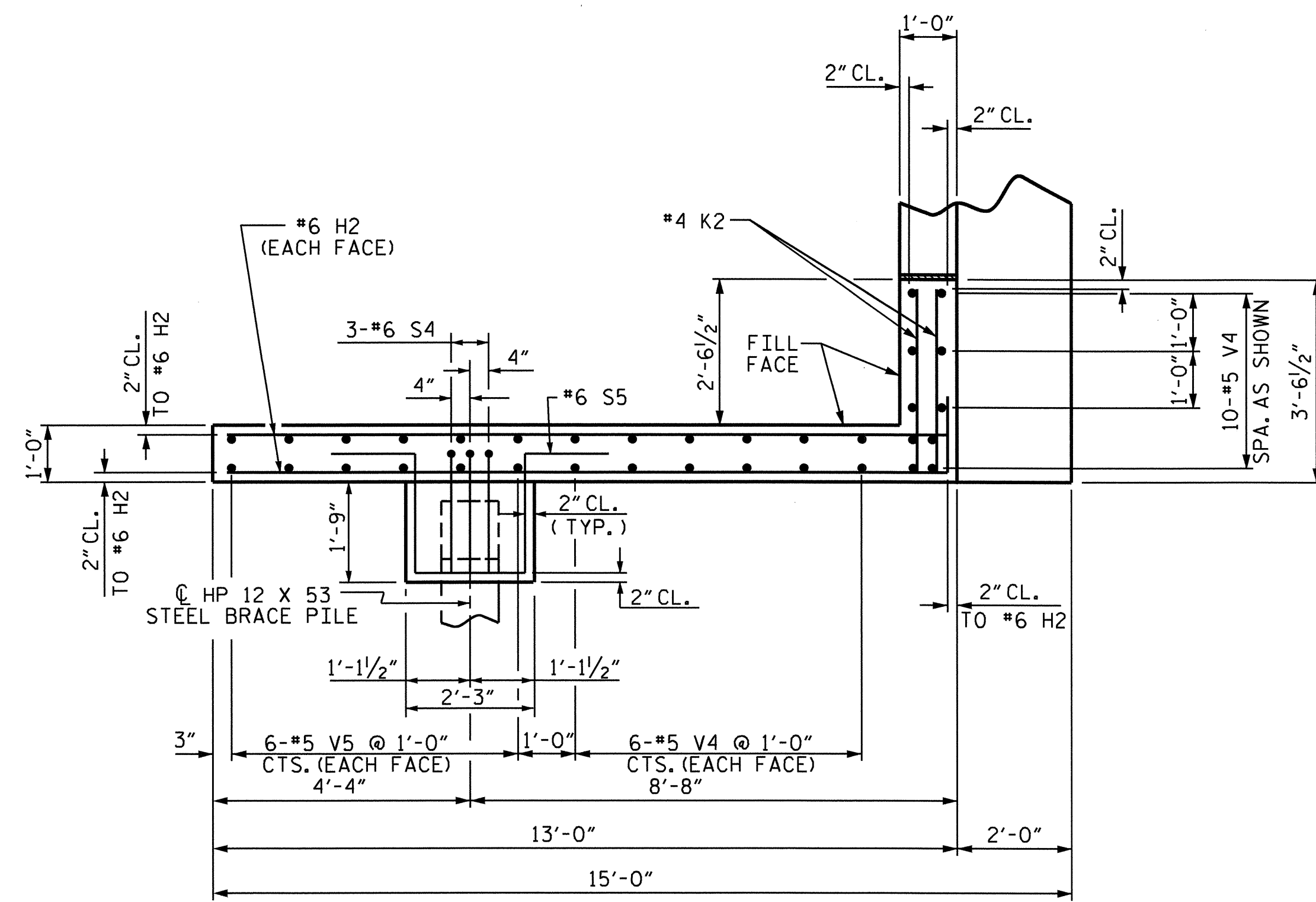
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #2

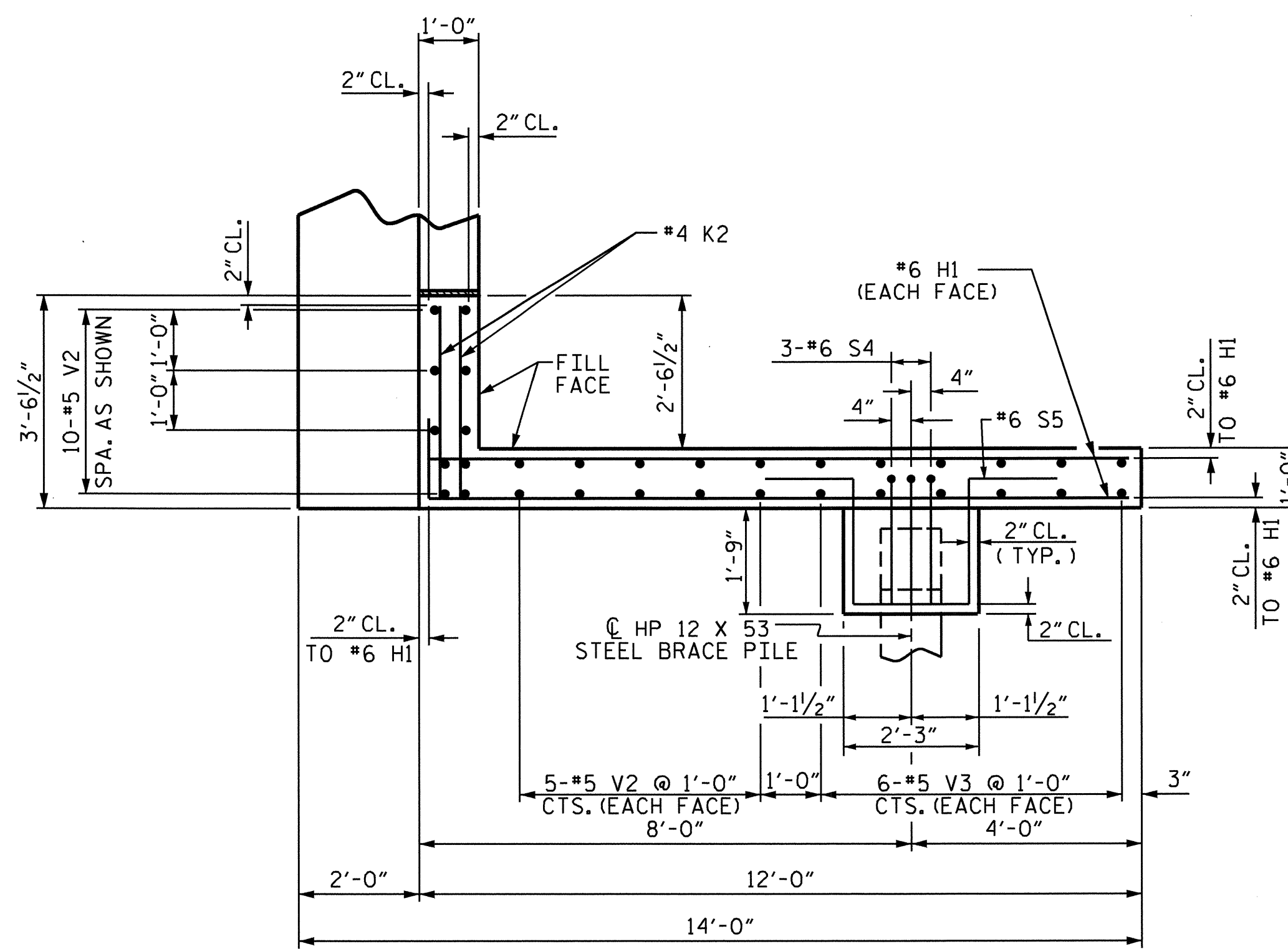


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29	
1			3			TOTAL SHEETS	38
2			4				

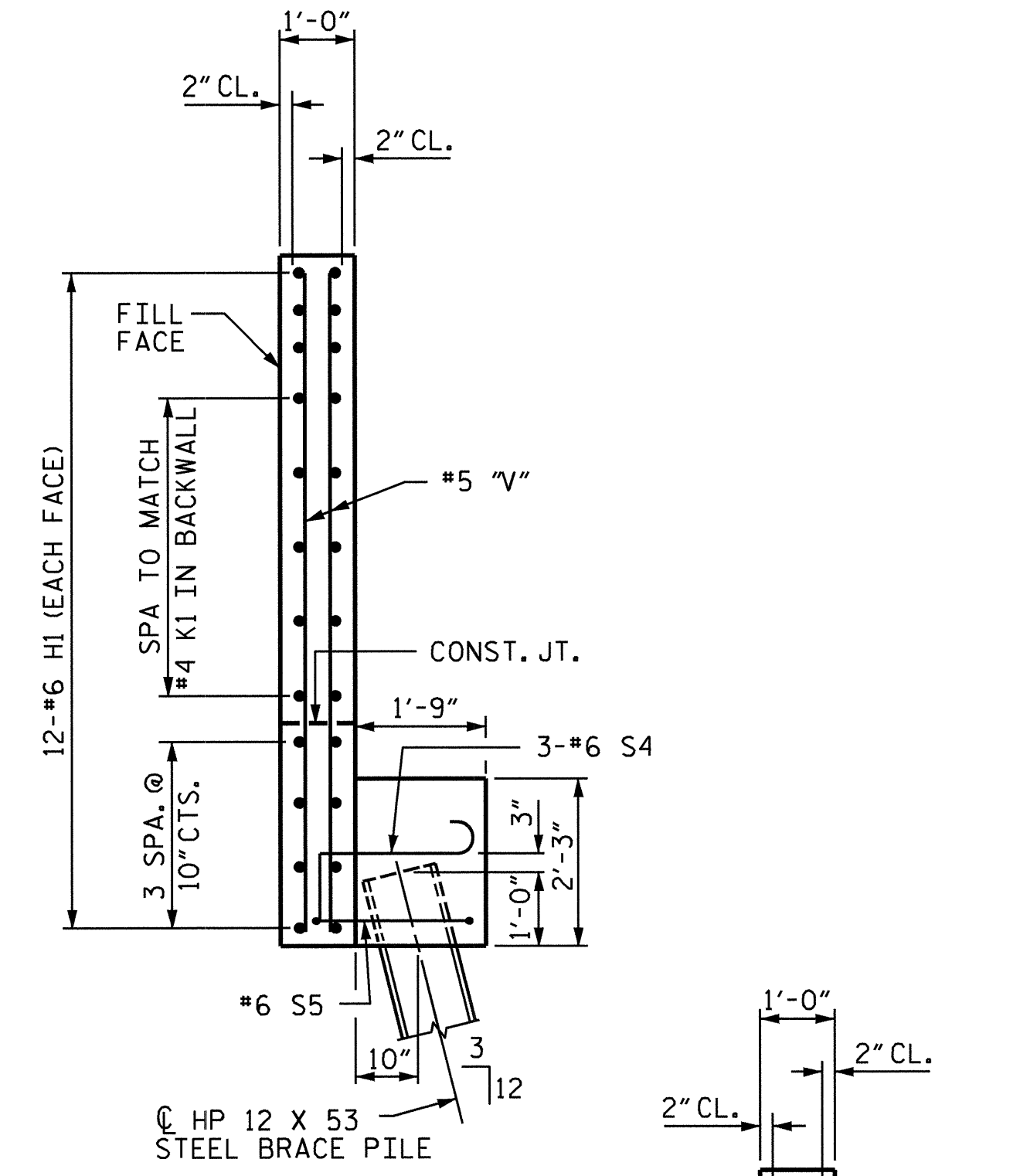
DRAWN BY : PEGGY PARISI DATE : 9-22-09
CHECKED BY : B.N. BARODAWALA DATE : 9-23-09



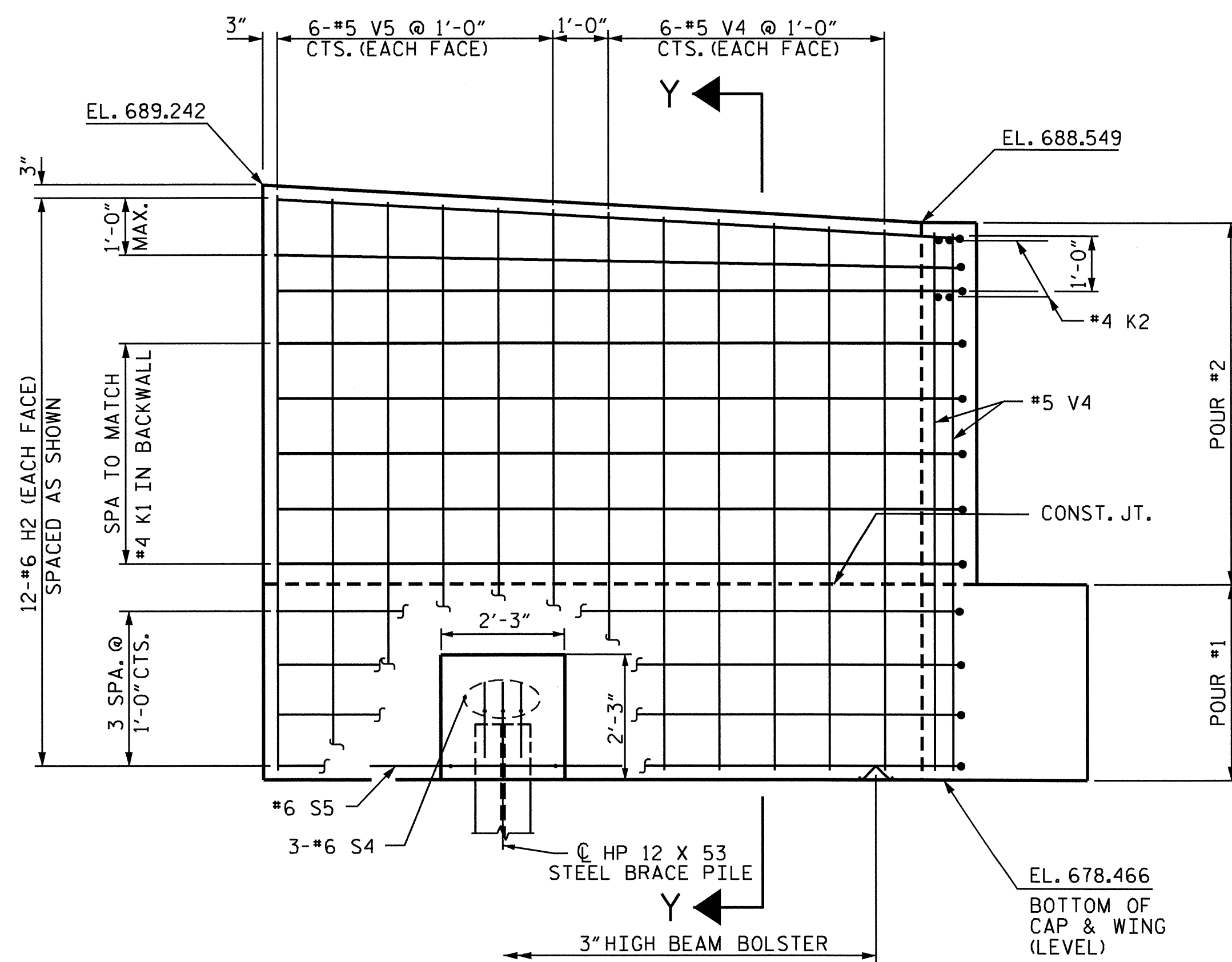
PLAN OF WING W1



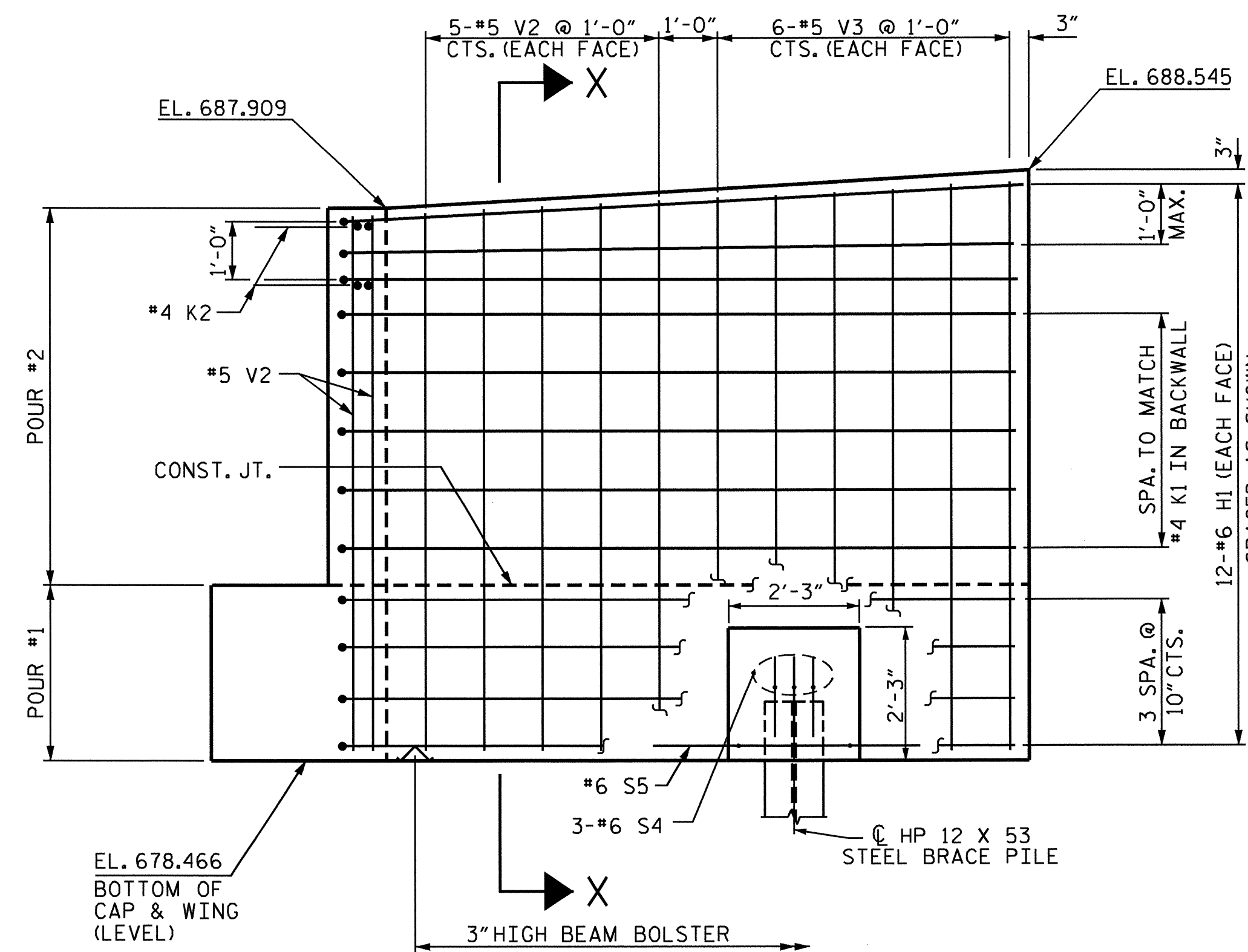
PLAN OF WING W2



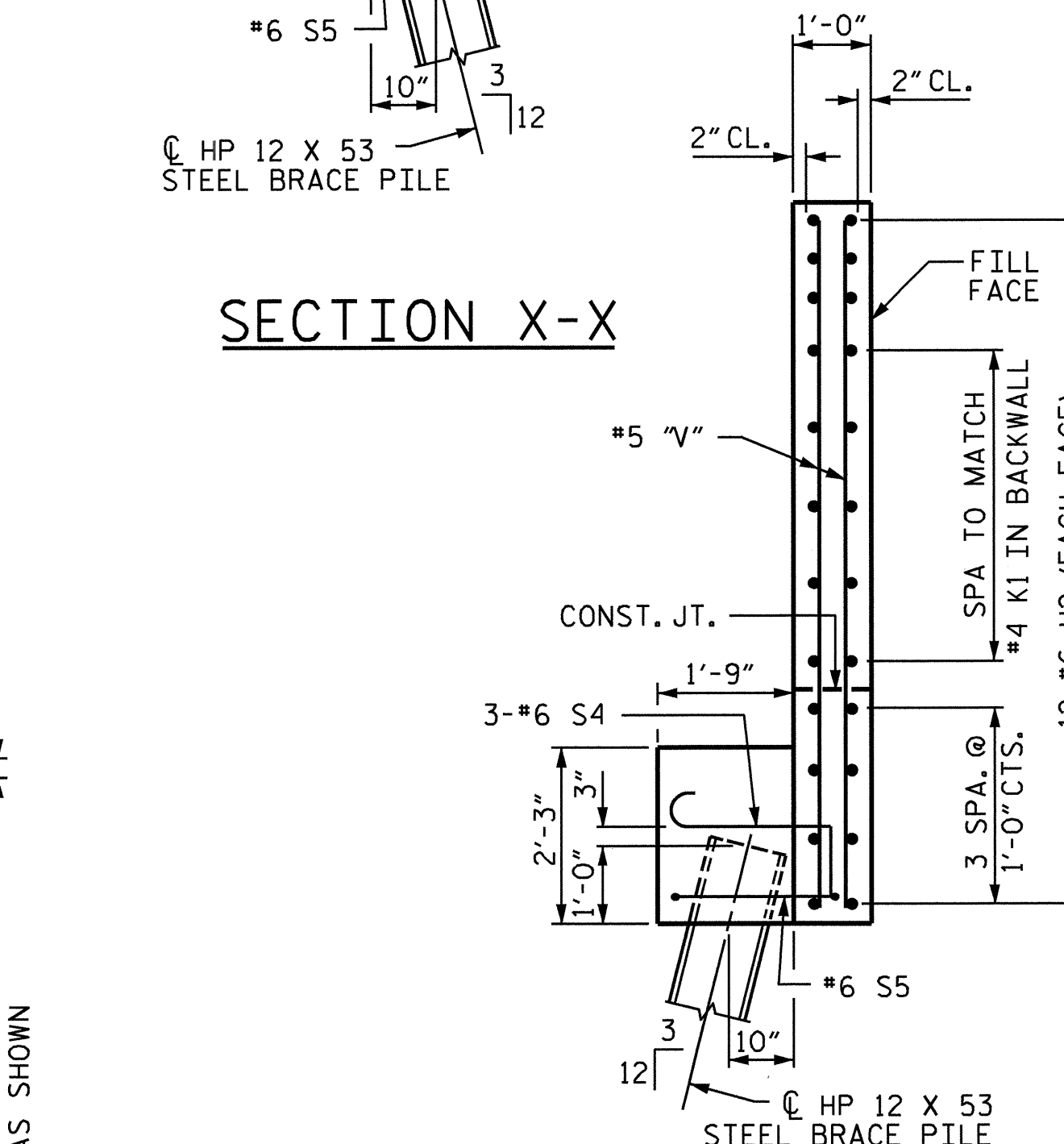
SECTION X-X



ELEVATION OF WING W1



ELEVATION OF WING W2



SECTION Y-Y

PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

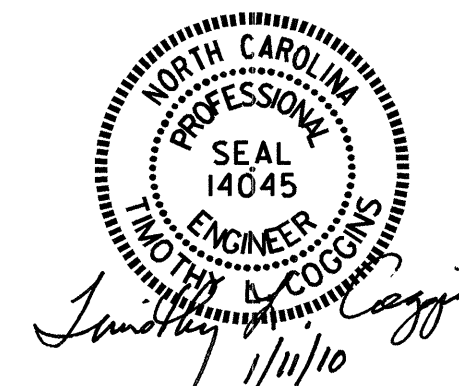
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

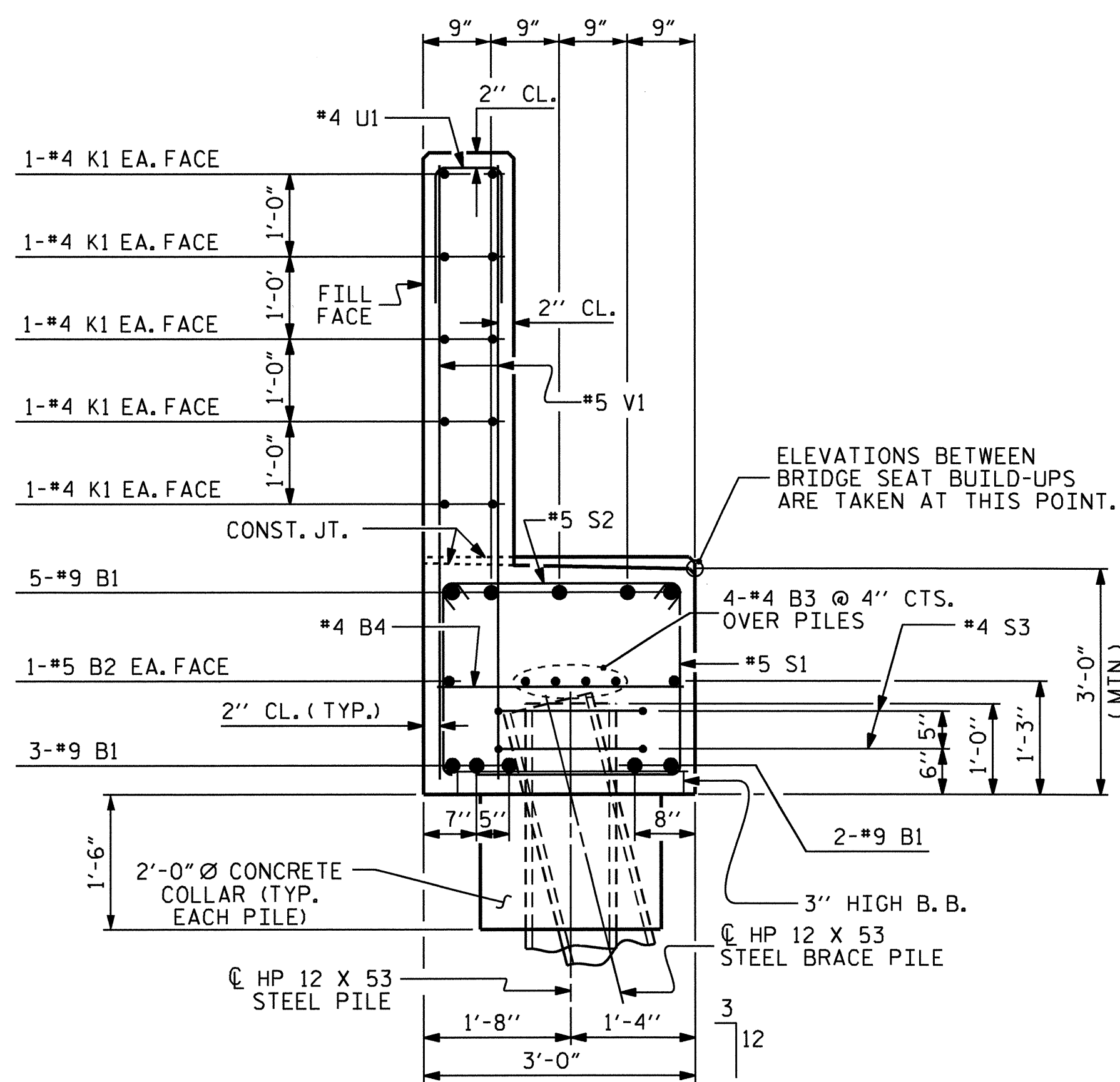
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	38
1			3			
2			4			

SHEET NO. S-31

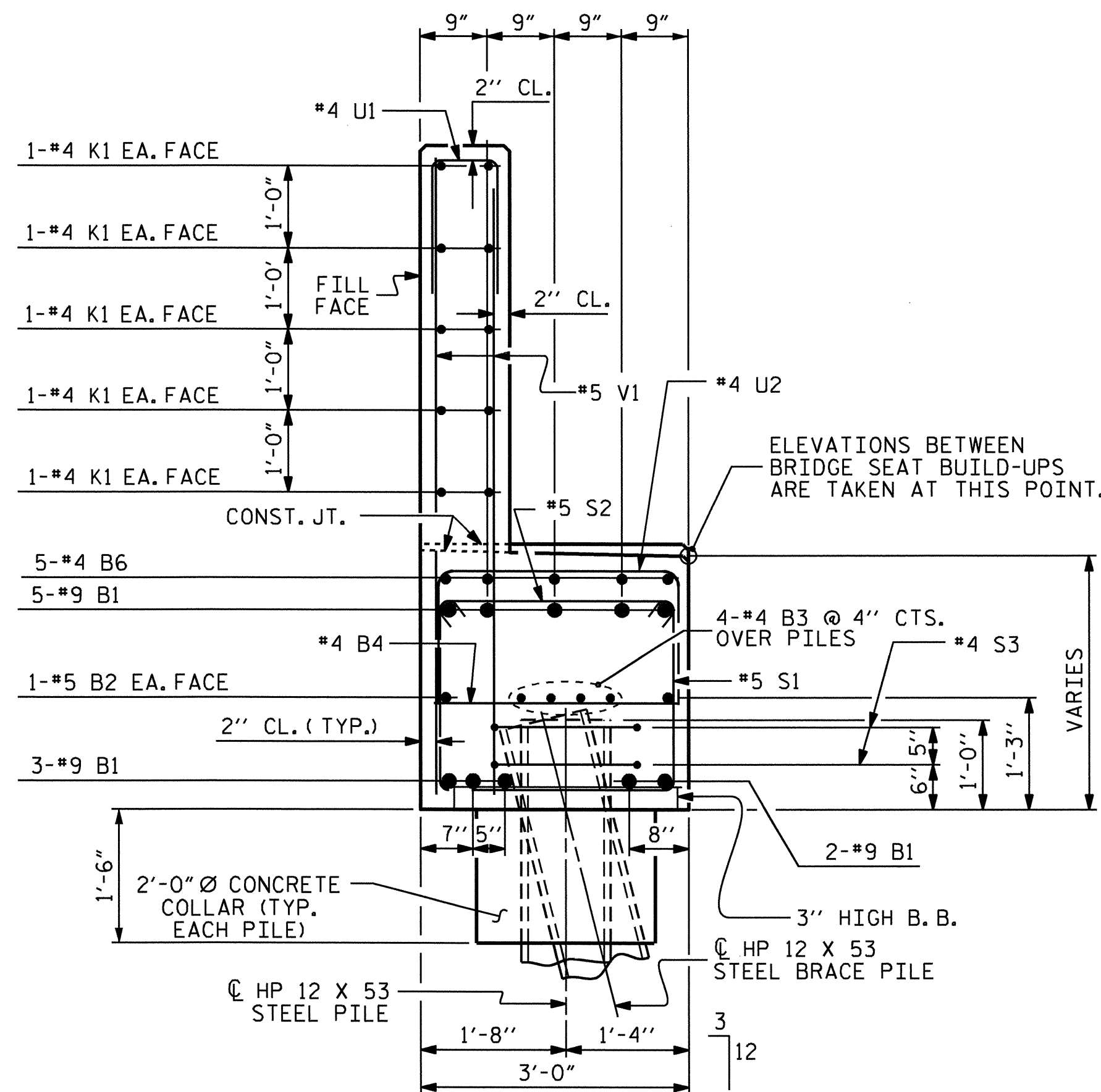


DRAWN BY: PEGGY ADKINS DATE: 9-16-09
 CHECKED BY: B.N. BARODAWALA DATE: 10-5-09

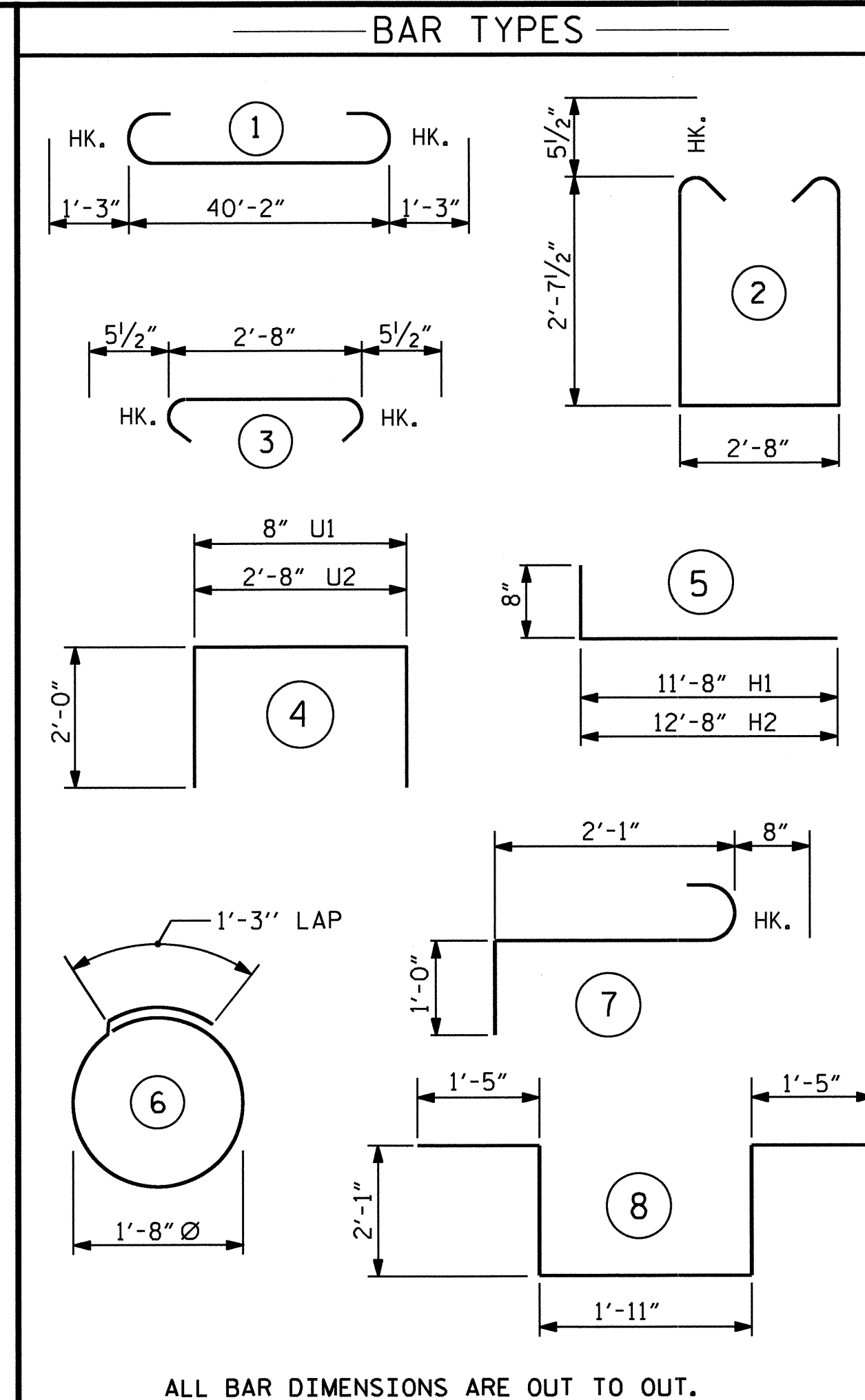
11-JAN-2010 11:58
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SECTION A-A

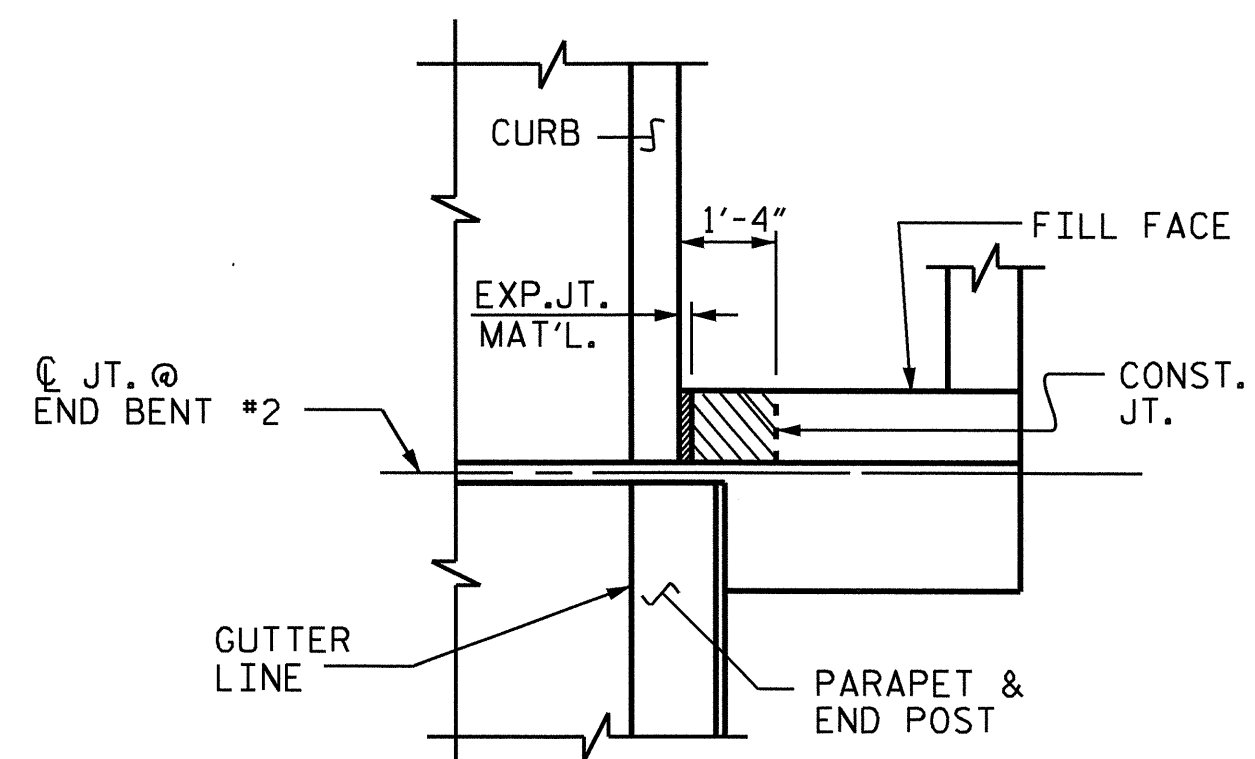


SECTION B-B

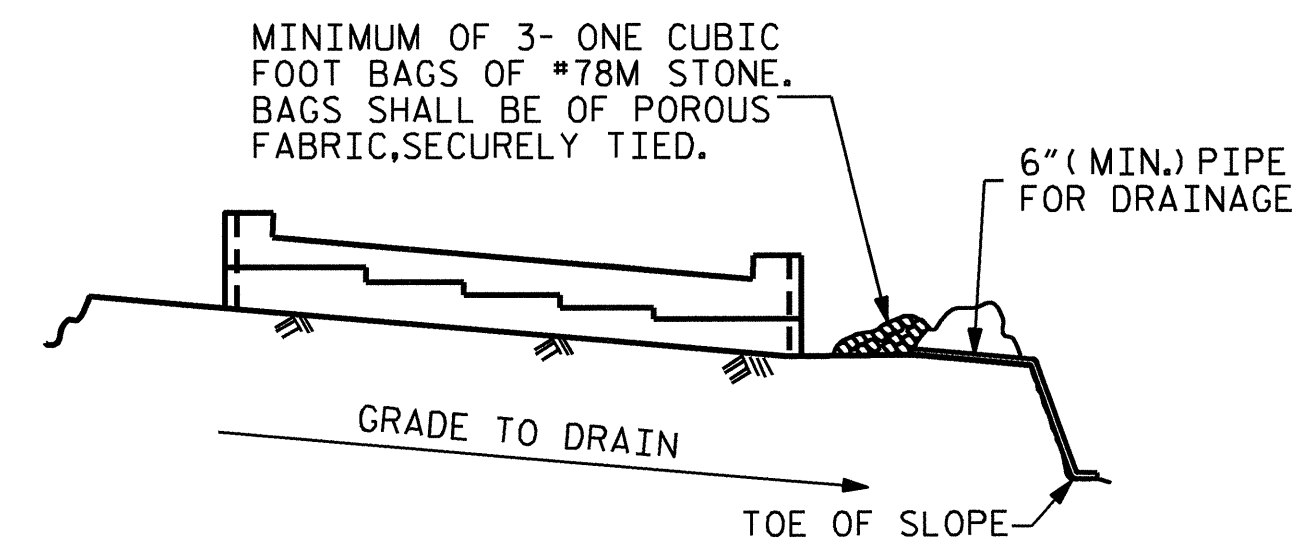


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	42'-8"	1451
B2	2	#5	STR	40'-3"	84
B3	8	#4	STR	21'-4"	114
B4	10	#4	STR	2'-8"	18
B5	5	#4	STR	3'-3"	11
B6	5	#4	STR	17'-2"	57
H1	24	#6	5	12'-4"	445
H2	24	#6	5	13'-4"	481
K1	20	#4	STR	21'-4"	285
K2	8	#4	STR	3'-2"	17
S1	38	#5	2	8'-10"	350
S2	38	#5	3	3'-7"	142
S3	10	#4	6	6'-6"	43
S4	6	#6	7	3'-9"	34
S5	2	#6	8	8'-11"	27
U1	34	#4	4	4'-8"	106
U2	16	#4	4	6'-8"	71
V1	68	#5	STR	7'-5"	526
V2	20	#5	STR	9'-1"	189
V3	12	#5	STR	9'-5"	118
V4	22	#5	STR	9'-9"	224
V5	12	#5	STR	10'-1"	126
TOTAL REINFORCING STEEL				4919 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, LOWER PART OF WINGS, PILE COLLARS & WING BRACE PILE CAPS) 19.1 CU. YDS.					
POUR #2 (BACKWALL & UPPER PART OF WINGS) 13.5 CU. YDS.					
TOTAL CLASS A CONCRETE				32.6 CU. YDS.	
HP 12 X 53 STEEL PILES					
NO. 7				70 LIN. FT.	
STEEL PILE POINTS				EACH 7	



PLAN



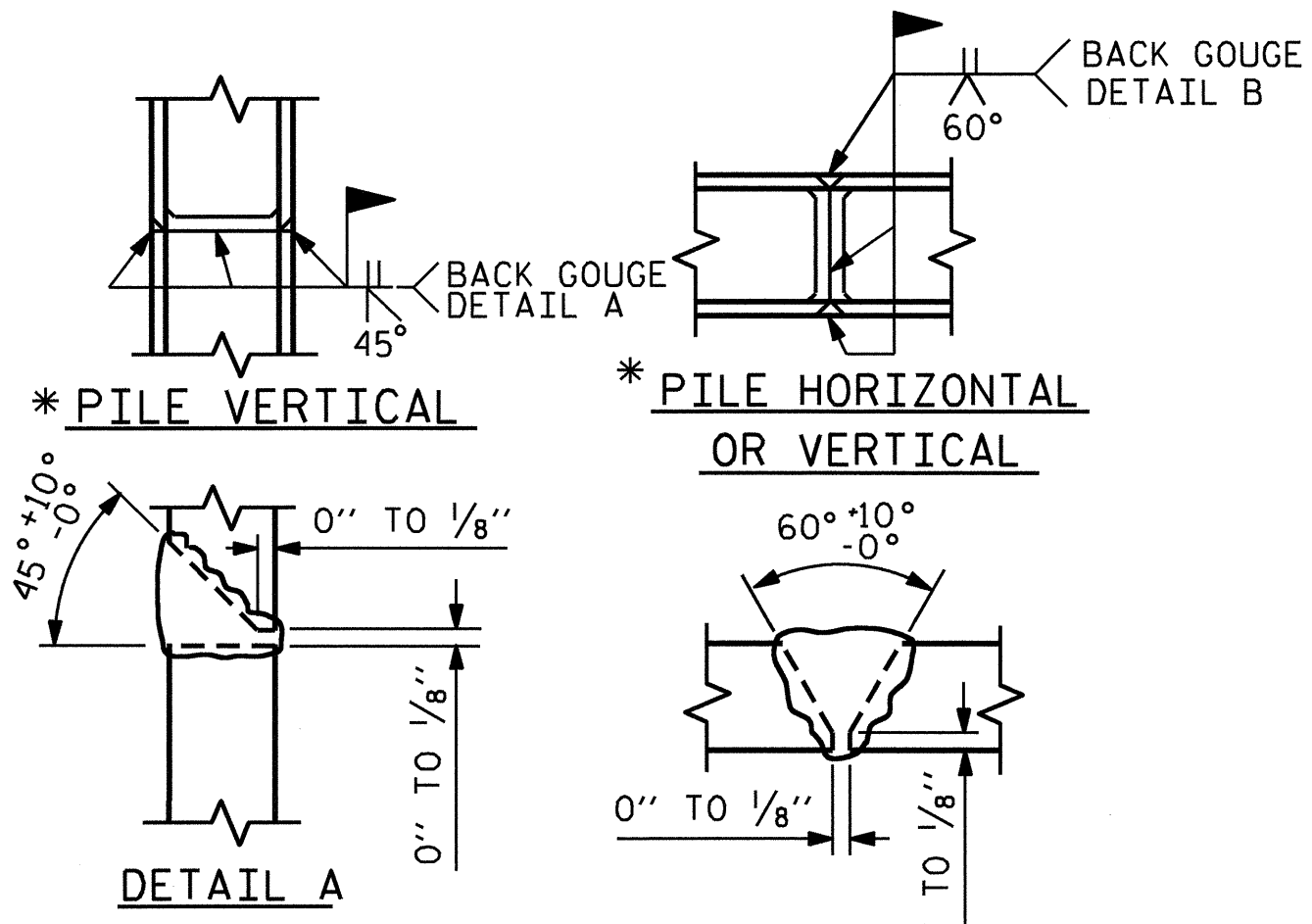
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

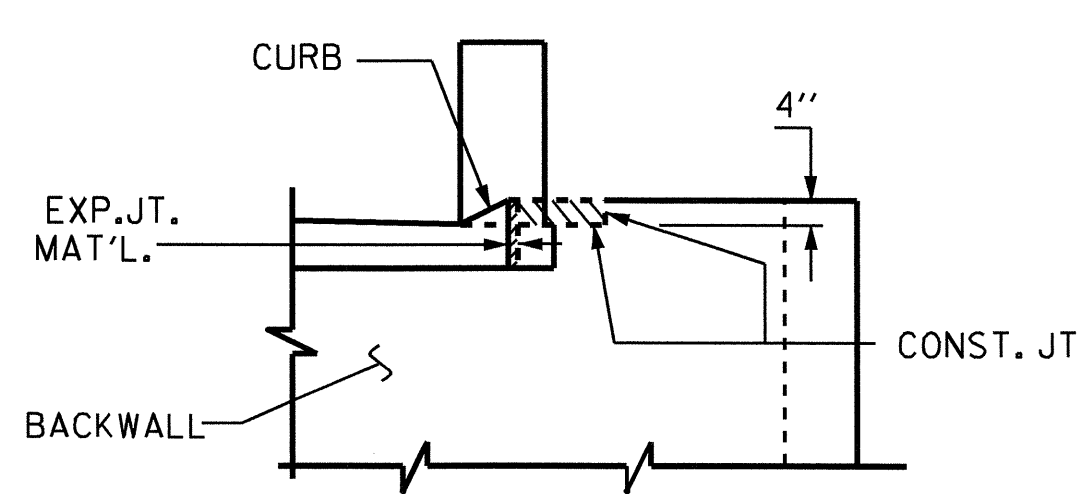
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



ELEVATION

BLOCKOUT IN WING WALL

NOTE: THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND APPROACH SLAB HAS BEEN SAWED AND THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

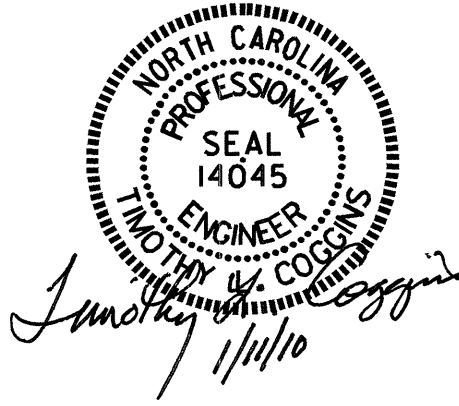
DRAWN BY: PEGGY PARISI DATE: 9-16-09
CHECKED BY: B.N. BARODAWALA DATE: 10-5-09

11-JAN-2010 11:58
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towerette

PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

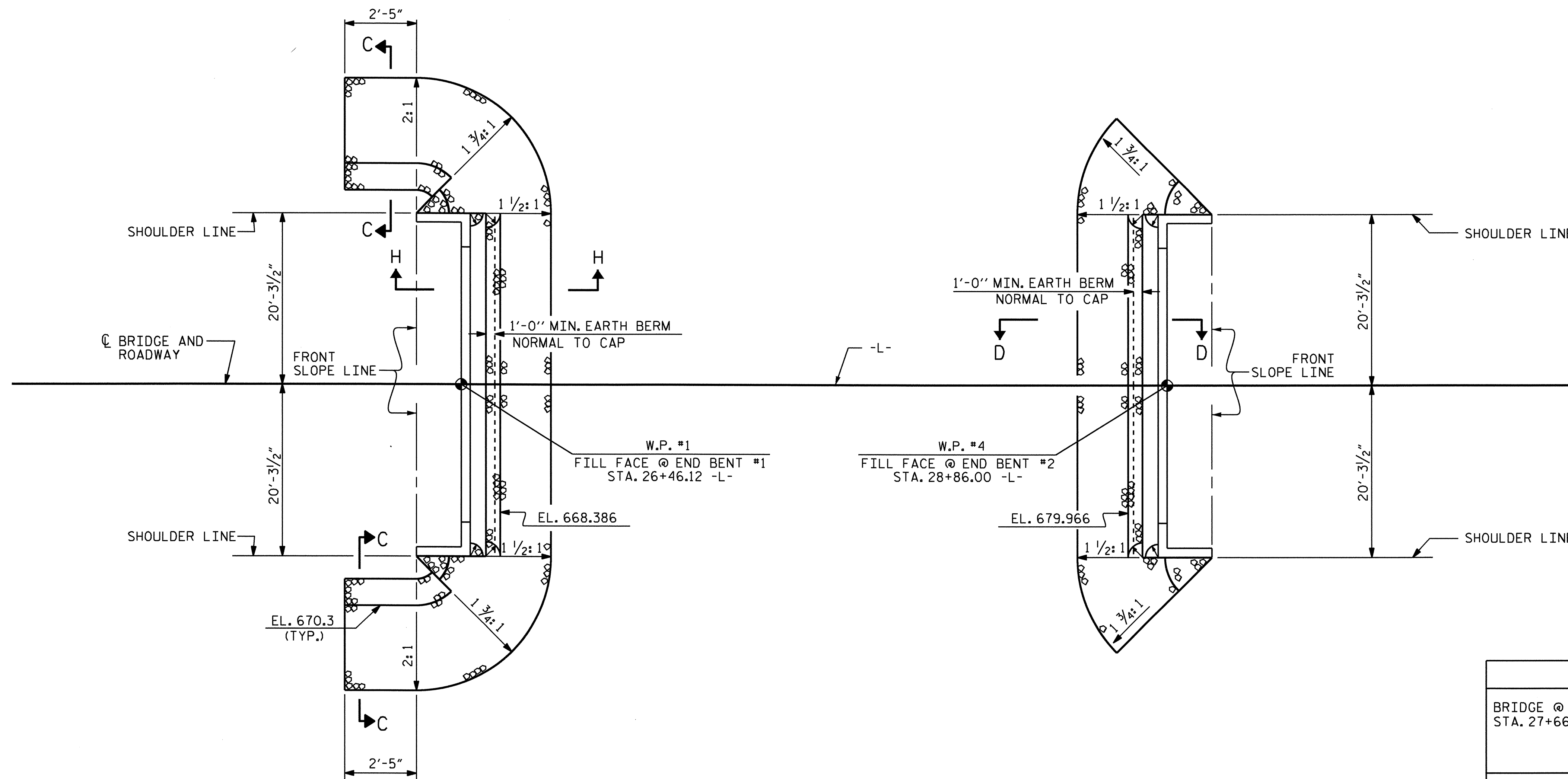
SUBSTRUCTURE
END BENT #2



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

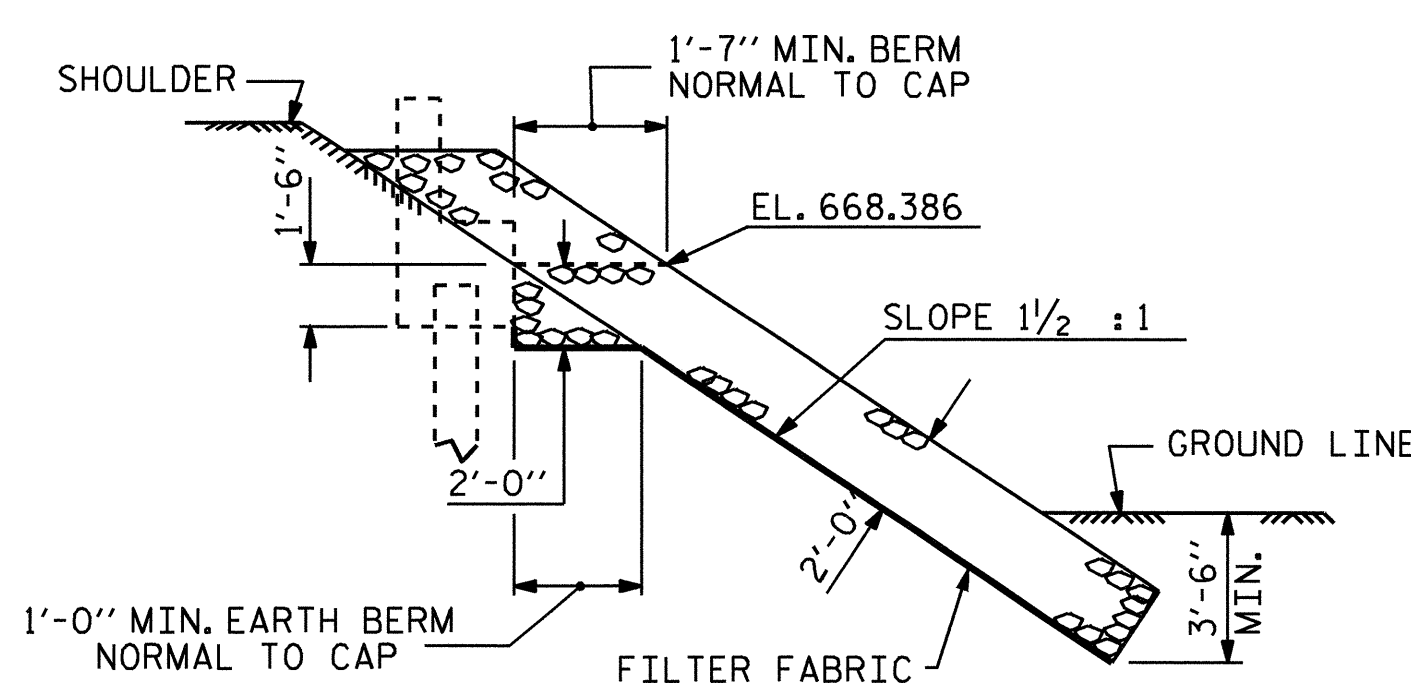
SHEET NO. S-32
TOTAL SHEETS 38

NOTES :
 FOR BERM WIDTH DIMENSIONS AND ELEVATIONS, SEE
 GENERAL DRAWING.

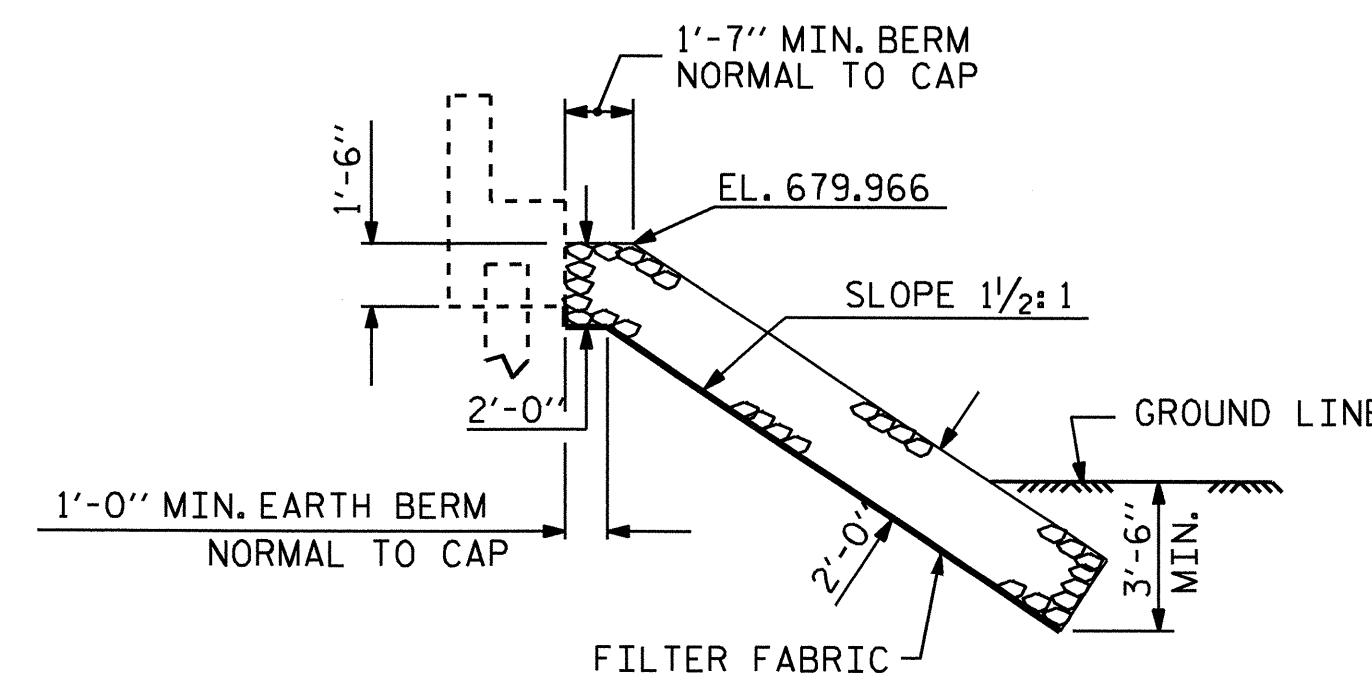


PLAN

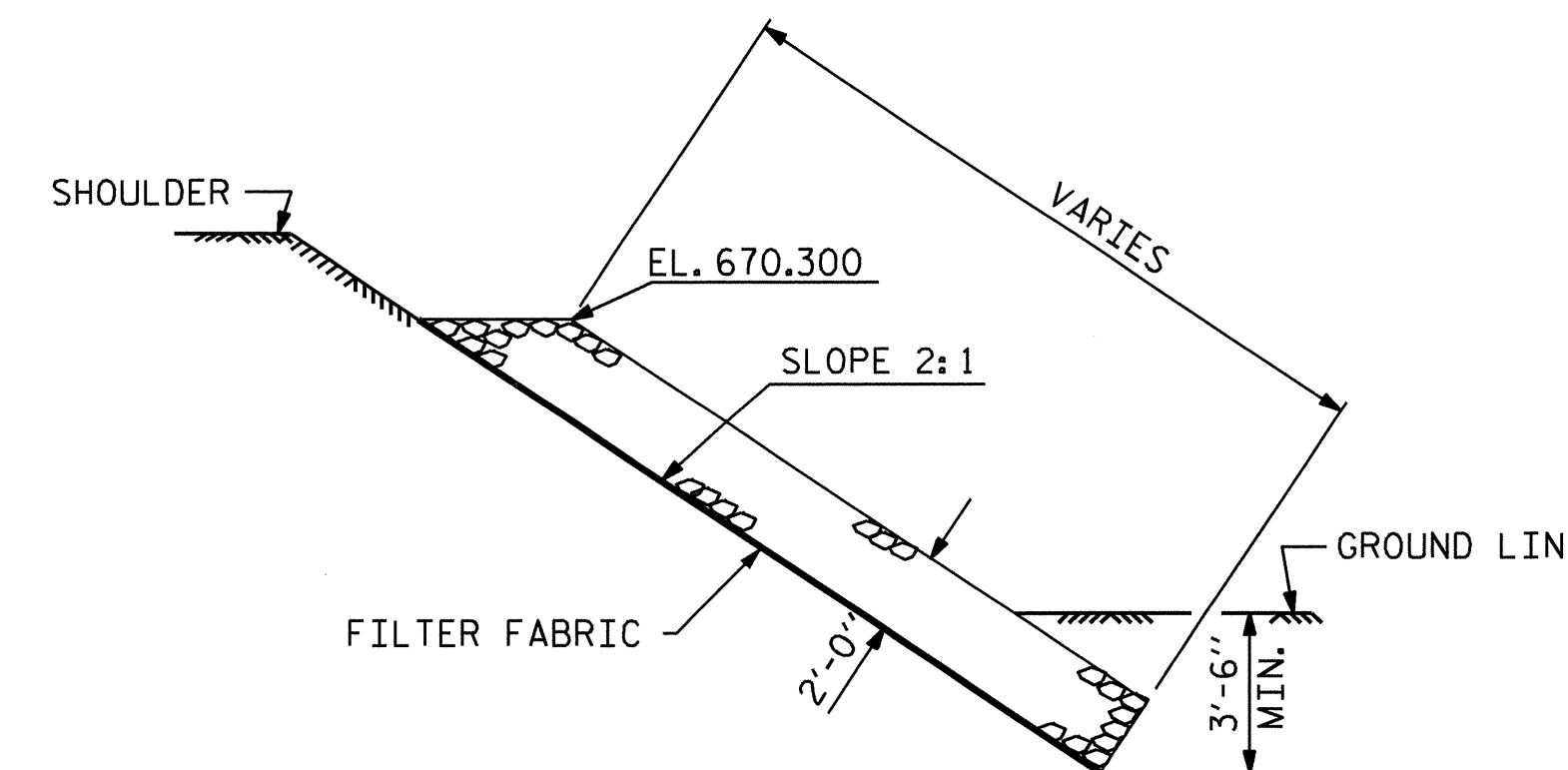
ESTIMATED QUANTITIES		
BRIDGE @ STA. 27+66.50 -L-	RIE RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	105	117
END BENT #2	170	189



SECTION H-H

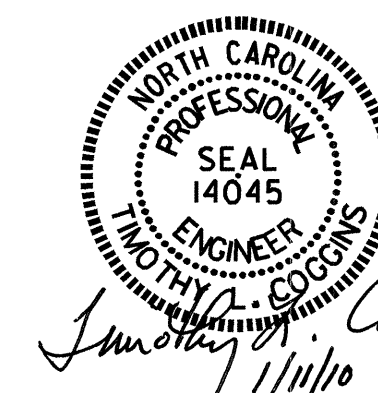


SECTION D-D



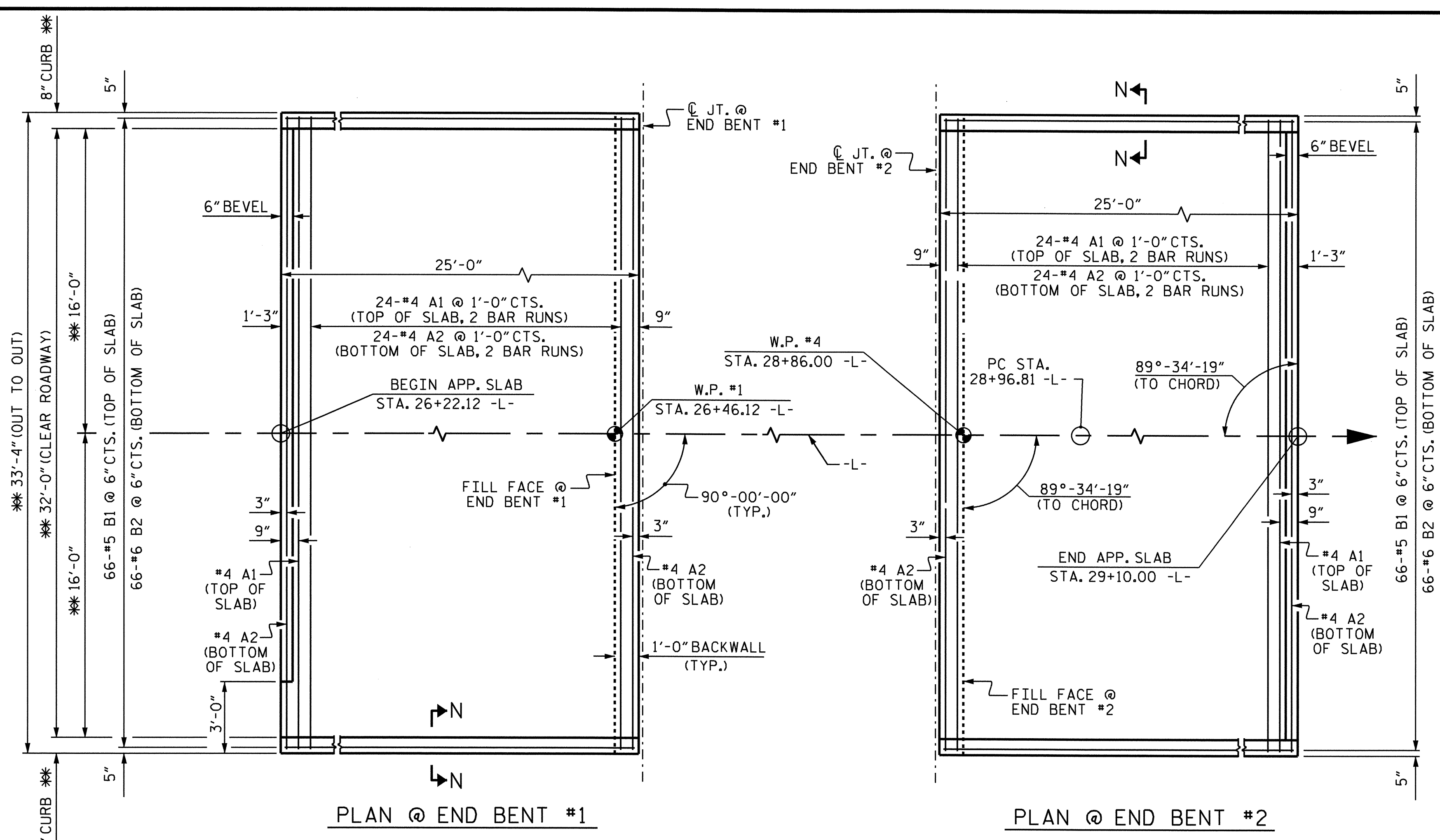
SECTION C-C

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

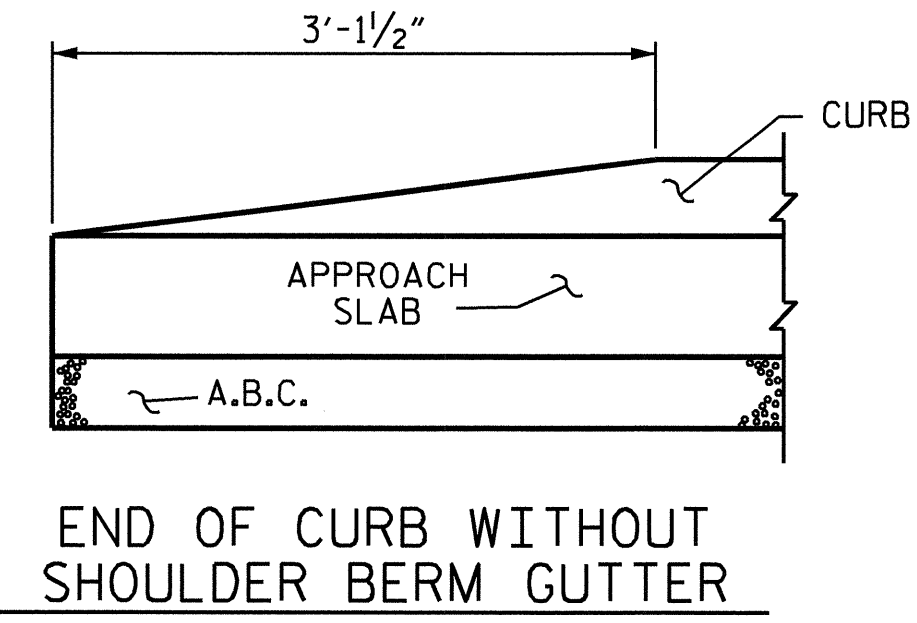
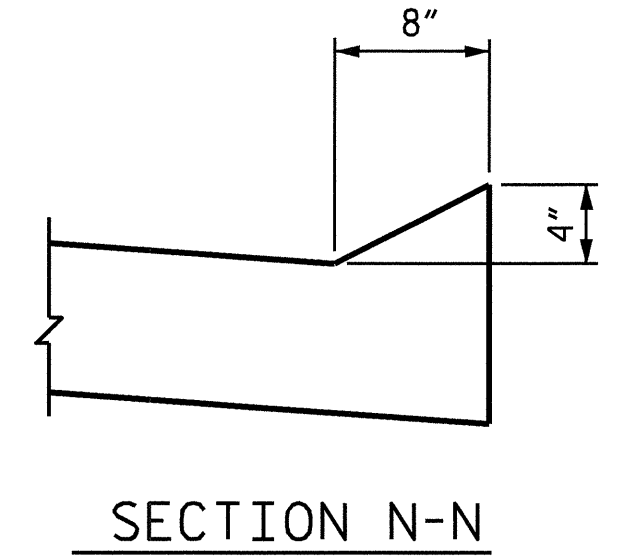
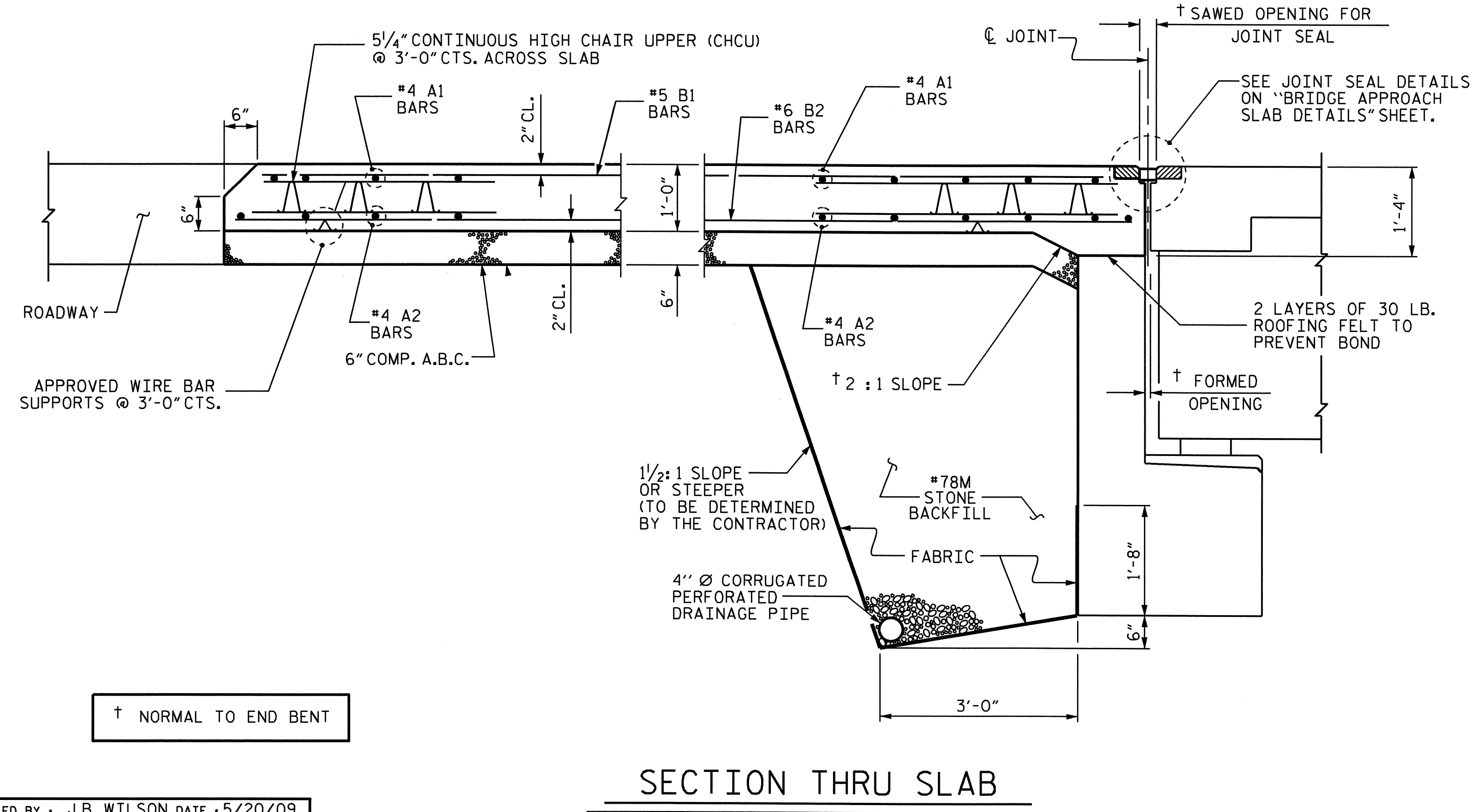


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-33					TOTAL SHEETS 38

ASSEMBLED BY : J.B. WILSON DATE : 6/30/09
 CHECKED BY : M.D. PISO DATE : 9/11/09
 DRAWN BY : FCJ 2/88 REV. 8/16/99 RWW/LES
 CHECKED BY : ARB 8/88 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM



DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS
 ** DIMENSIONS SHOWN ARE RADIAL FROM PC STATION TO END OF APP. SLAB #2 ONLY



NOTES

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

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

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

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

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

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

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

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 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 SAWED PRIOR TO THE CASTING OF THE PARAPET AND END POST.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

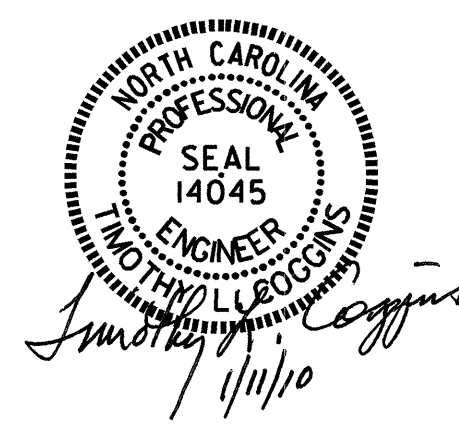
BILL OF MATERIAL
 FOR ONE APPROACH SLAB
 (2 REQ'D.)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	17'-6"	585
A2	52	#4	STR	17'-5"	605
*B1	66	#5	STR	23'-8"	1629
B2	66	#6	STR	24'-8"	2445
REINFORCING STEEL				LBS.	3050
*EPOXY COATED REINFORCING STEEL				LBS.	2214
CLASS AA CONCRETE				C. Y.	31.4

SPLICE LENGTH CHART

BAR	MIN. SPLICE
* #4 A1	2'-0"
#4 A2	1'-9"

ASSEMBLED BY : J.B. WILSON DATE : 5/20/09
 CHECKED BY : M.D. PISO DATE : 10/05/09
 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



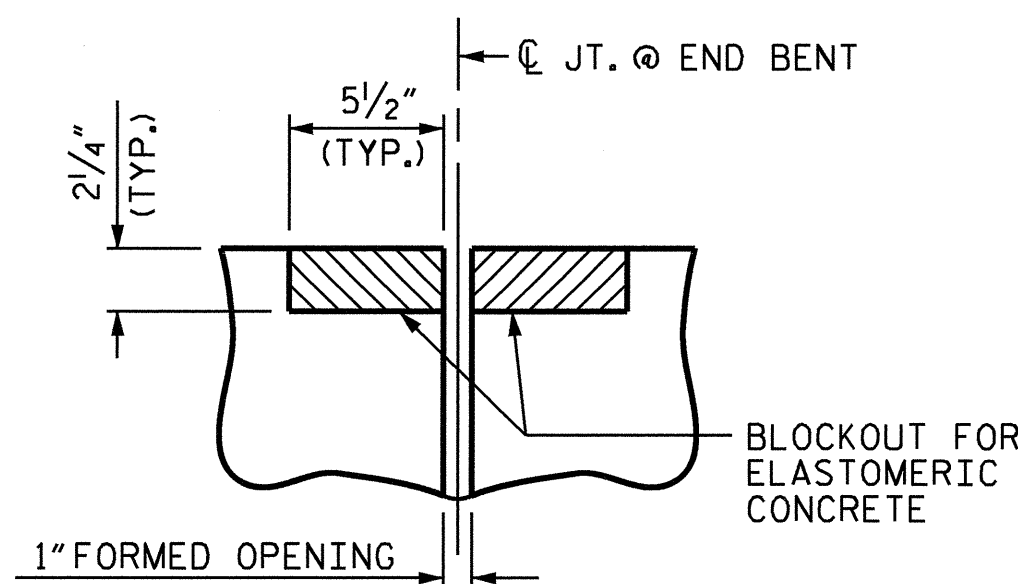
PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

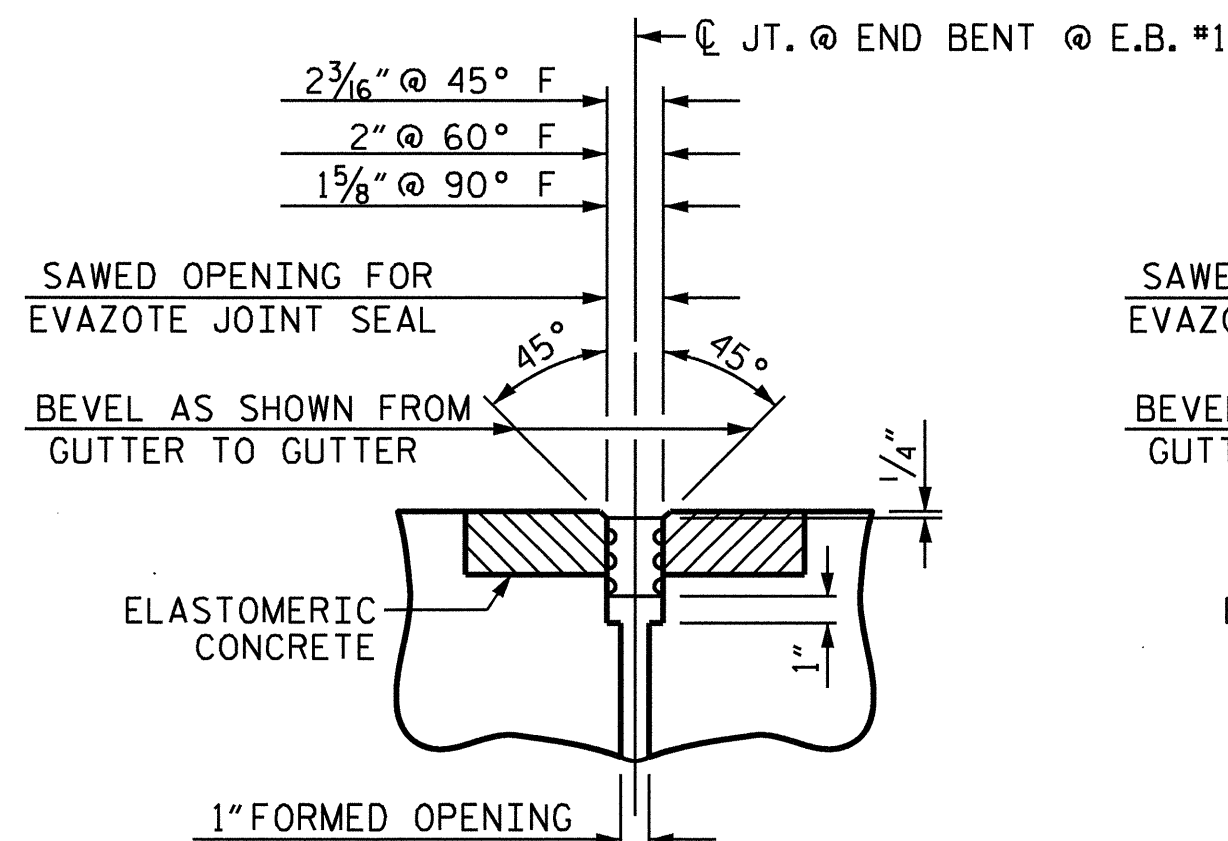
STANDARD BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT

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

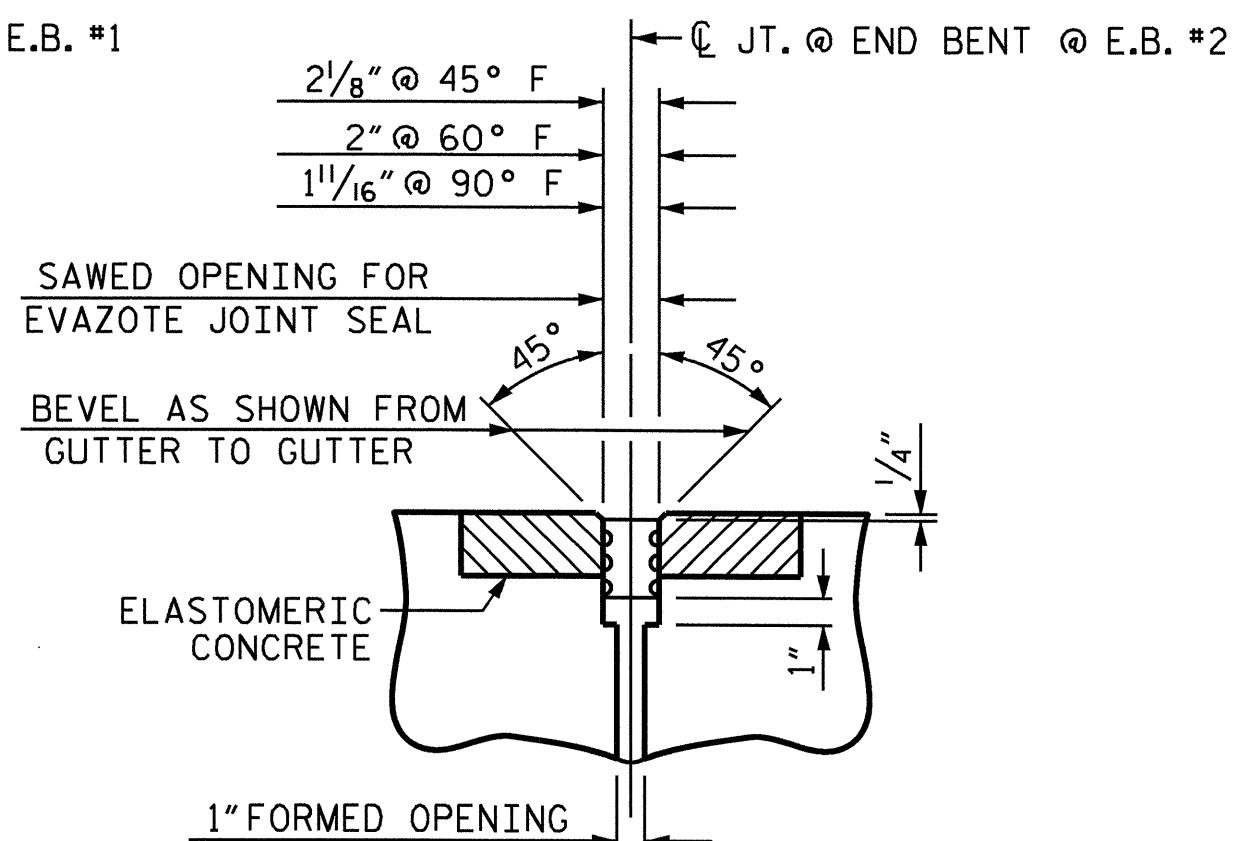
TOTAL SHEETS: 38



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



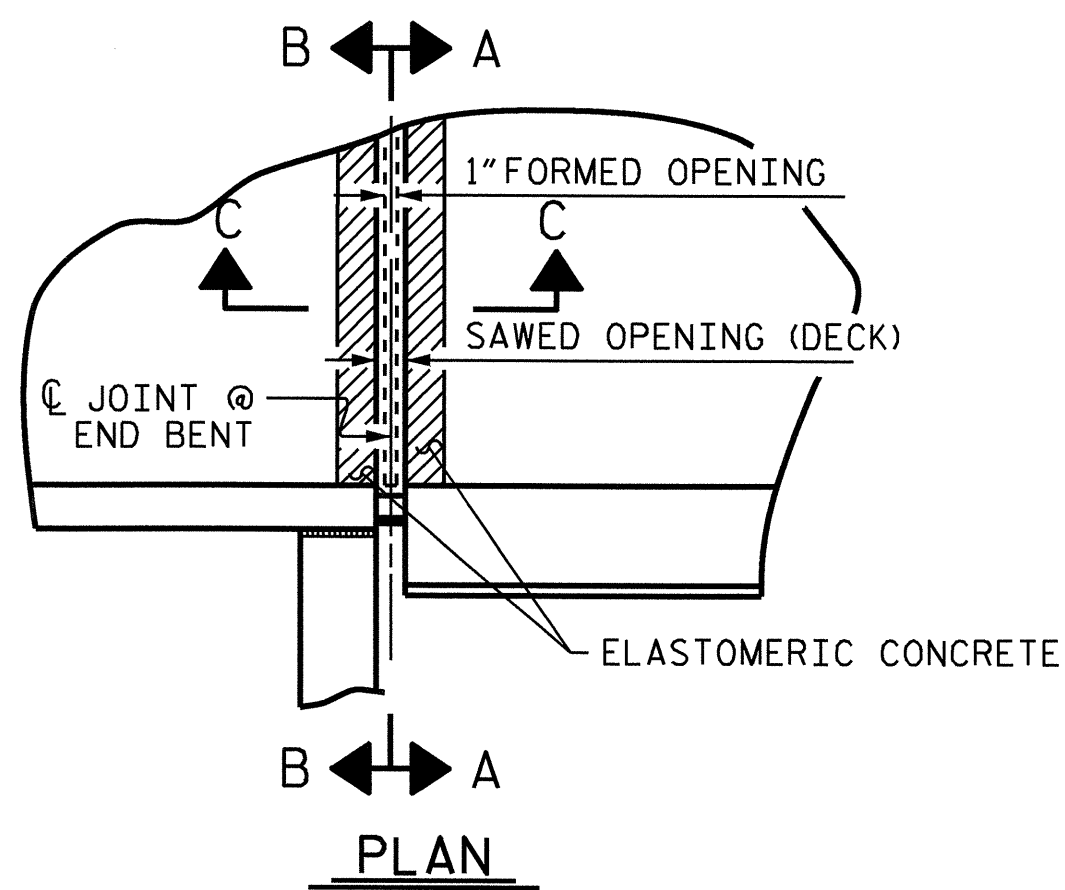
SECTION C-C
EVAZOTE JOINT SEAL
(EXPANSION)



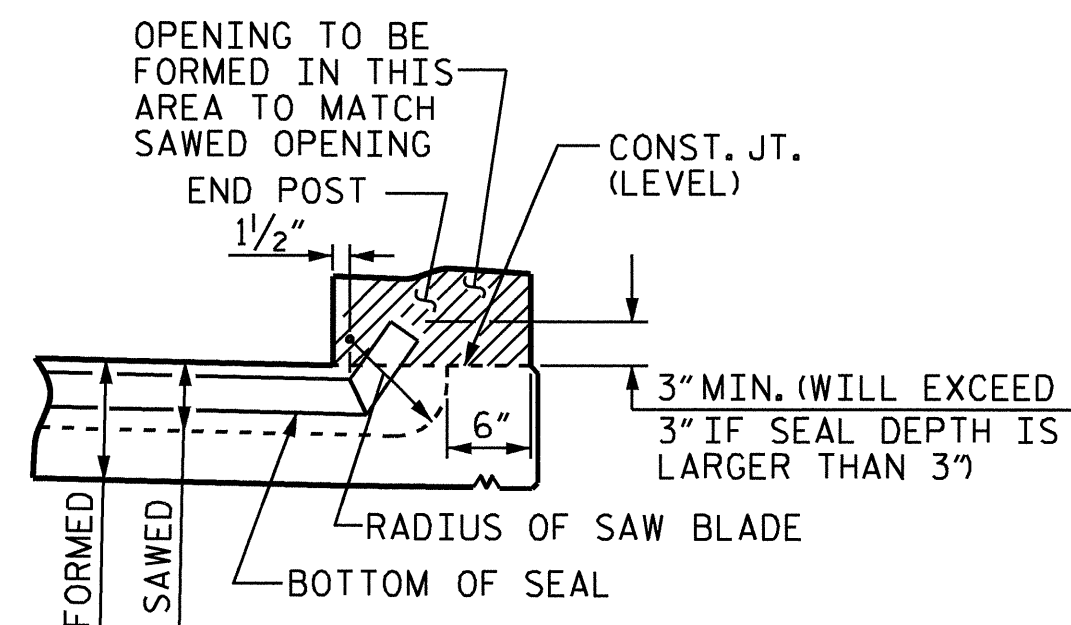
SECTION C-C
EVAZOTE JOINT SEAL
(EXPANSION)

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.5
2	5.5
TOTAL	11.0

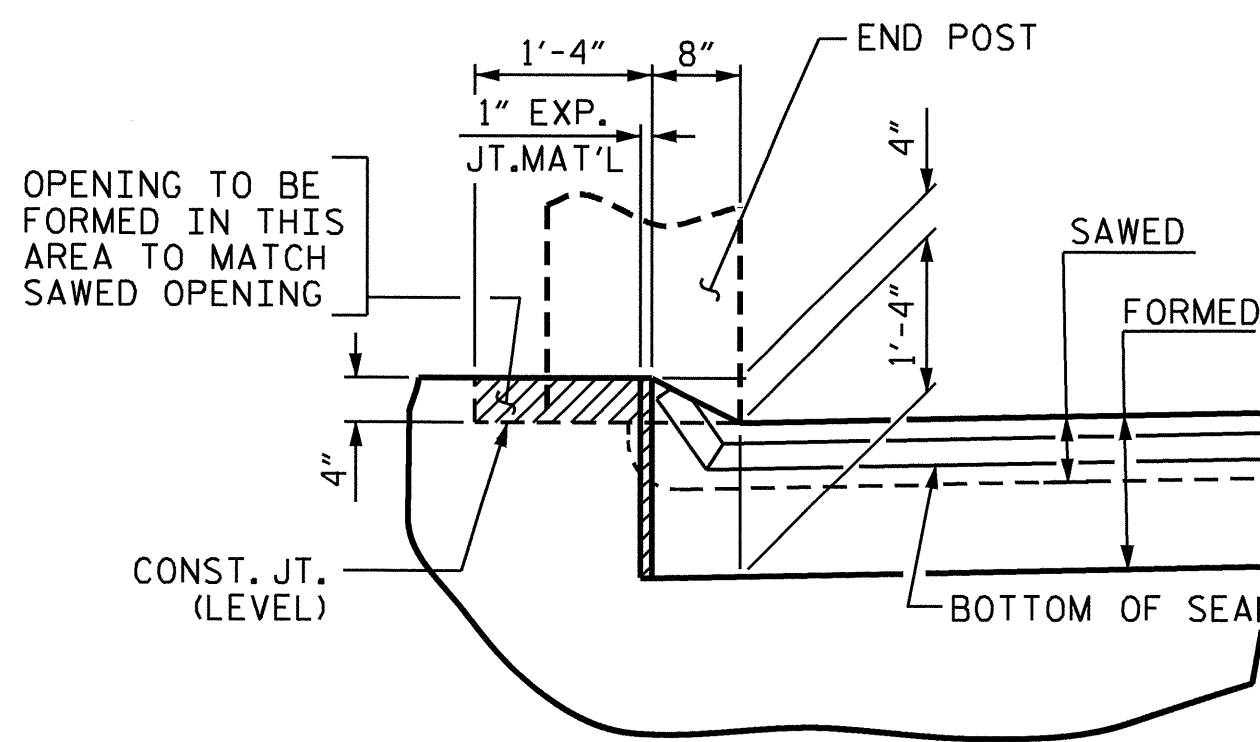
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN



SECTION A-A

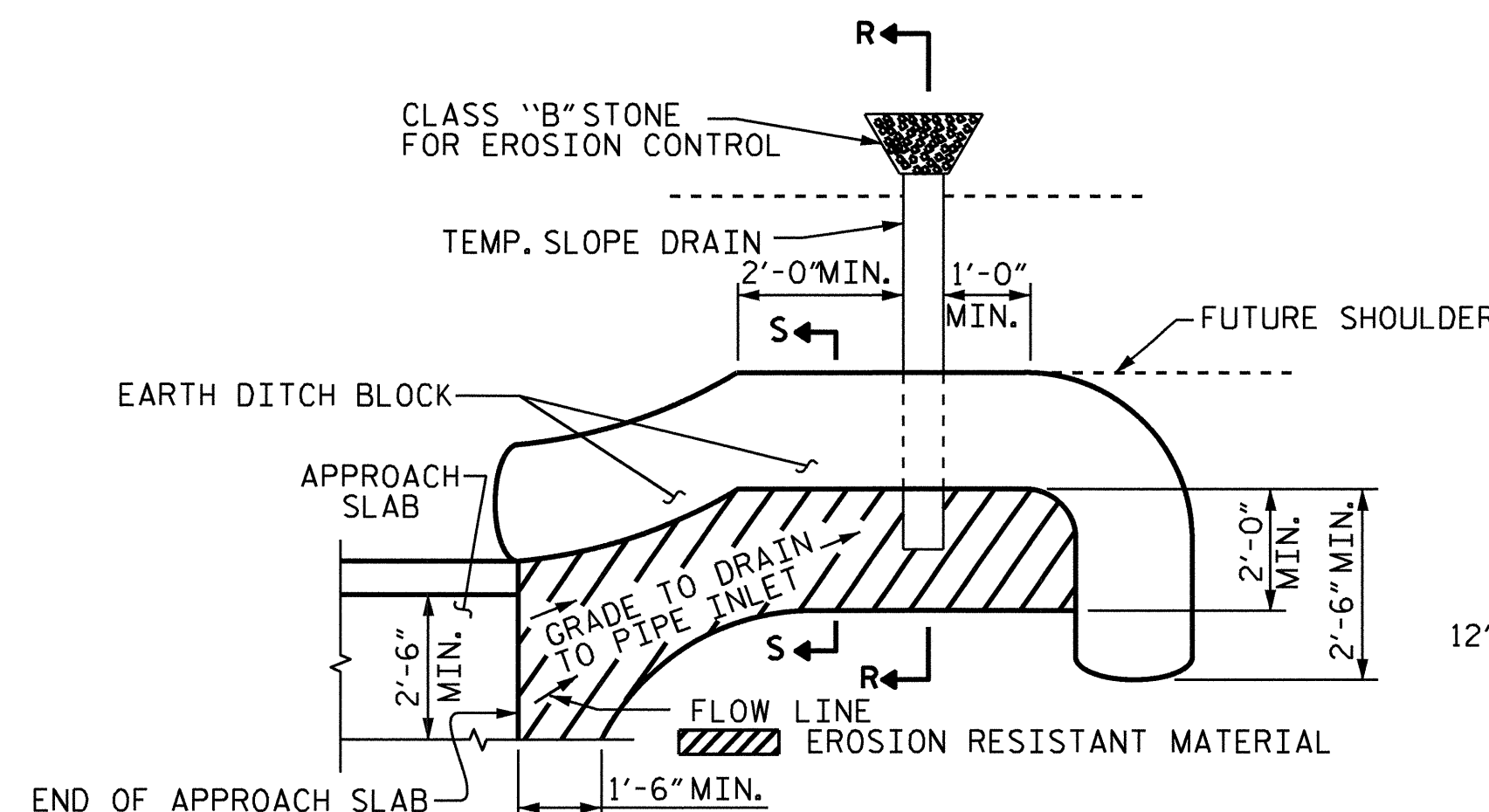


SECTION B-B

JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE END POST.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE PARAPET & END POST.

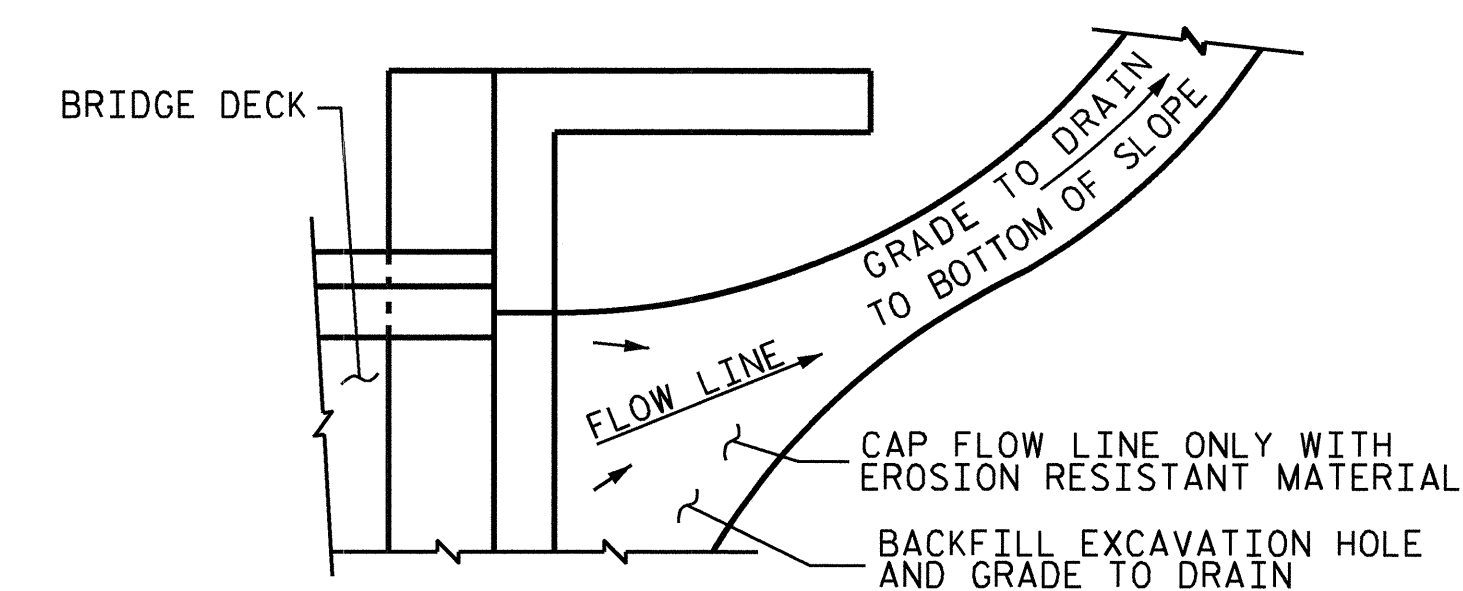


PLAN VIEW

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" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



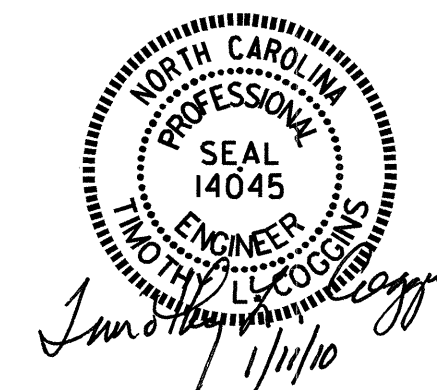
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4627
ROWAN COUNTY
STATION: 27+66.50 -L-

SHEET 2 OF 2

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



REVISIONS						SHEET NO. S-35
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

STD. NO. BAS10

ASSEMBLED BY :	J.B. WILSON	DATE :	5/20/09
CHECKED BY :	M.D. PISO	DATE :	10/05/09
DRAWN BY :	FCJ	11/88	REV. 10/17/00 RWW/LES
CHECKED BY :	ARB	11/88	REV. 5/7/03 RWW/JTE
			REV. 5/1/06R MAA/KMM

OVERHANG BRACKET CALCULATION INSTRUCTIONS

AASHTO SHAPES - TYPES III, IV, V, AND VI

- RECORD KNOWN INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- CALCULATE THE MAXIMUM SCREED LOAD PER BRACKET (SLPB) WITH AN ESTIMATED $R = 1.5$. $SLPB = R \times W$. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE ESTIMATED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE THE BRACKET SPACING, S.
- CALCULATE S/D1 AND S/D2, ROUNDING UP TO NEAREST VALUE IN TABLE 2. ENTER TABLE 2 AND DETERMINE R VALUE.
- CALCULATE REVISED SLPB. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
- WITH THE REVISED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3 OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE REVISED BRACKET SPACING, S.
- CONTINUE ITERATIONS OF STEPS 4-6 UNTIL THE REVISED BRACKET SPACING, S, IS THE SAME AS THE PREVIOUS S VALUE.
- CHECK LUMBER JOIST SPACING: WITH BRACKET SPACING VALUE, S, ROUND THIS VALUE UP TO THE NEAREST VALUE OF ALLOWABLE SPAN LENGTH OF JOIST OF TABLE 3. USING THIS VALUE, ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE, DETERMINE JOIST SPACING FROM TABLE 3. IF NECESSARY, ADJUST LUMBER JOIST SIZE AND/OR JOIST SPACING TO MEET ALLOWABLE SPAN LENGTH OF JOIST.
- CONVERSELY, IF THE DESIRED JOIST SPACING IS KNOWN, USE THIS ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE TO DETERMINE IF ALLOWABLE SPAN LENGTH OF JOIST IS GREATER THAN THE BRACKET SPACING, S. IF NECESSARY, ADJUST LUMBER JOIST SIZE TO MEET REQUIREMENTS OF ALLOWABLE SPAN LENGTH OF JOIST AND JOIST SPACING.
- RECORD REMAINING INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" FORM.
- SUBMIT FORM AND CALCULATIONS FOR REVIEW AND APPROVAL.

TABLE 1-1 (FOR USE ON UP TO 2'-0" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30	3'-6"	4'-0"	4'-5"	2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	4000
	40	3'-6"	4'-0"	4'-5"	2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	4000
	50	3'-6"	4'-0"	4'-5"	2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	4000
12	30	3'-2"	3'-7"	4'-1"	2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	4000	
	40	3'-2"	3'-7"	4'-1"	2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	4000	
	50	3'-2"	3'-7"	4'-1"	2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	4000	
14	30	2'-10"	3'-4"	3'-9"	2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	4000	
	40	2'-10"	3'-4"	3'-9"	2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	4000	
	50	2'-10"	3'-4"	3'-9"	2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	4000	
16	30	2'-8"	3'-0"	3'-5"	2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	4000	
	40	2'-8"	3'-0"	3'-5"	2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	4000	
	50	2'-8"	3'-0"	3'-5"	2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	4000	

TABLE 1-2 (FOR USE ON OVER 2'-0" TO 2'-6" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30	3'-1"	3'-6"	4'-0"	2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	4000	
	40	3'-1"	3'-6"	4'-0"	2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	4000	
	50	3'-1"	3'-6"	4'-0"	2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	4000	
12	30	2'-9"	3'-2"	3'-7"	2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000	
	40	2'-9"	3'-2"	3'-7"	2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000	
	50	2'-9"	3'-2"	3'-7"	2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000	
14	30	2'-6"	2'-10"	3'-3"	2'-3"	2'-7"	3'-0"	4'-1"	4000		
	40	2'-6"	2'-10"	3'-3"	2'-3"	2'-7"	3'-0"	4'-1"	4000		
	50	2'-6"	2'-10"	3'-3"	2'-3"	2'-7"	3'-0"	4'-1"	4000		
16	30	2'-3"	2'-7"	2'-11"	2'-1"	2'-5"	2'-9"	3'-9"	4000		
	40	2'-3"	2'-7"	2'-11"	2'-1"	2'-5"	2'-9"	3'-9"	4000		
	50	2'-3"	2'-7"	2'-11"	2'-1"	2'-5"	2'-9"	3'-9"	4000		

TABLE 1-3 (FOR USE ON OVER 2'-6" TO 3'-0" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30				2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000	
	40				2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000	
	50	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6000	
12	30				3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	4000	
	40	2'-5"	2'-10"	3'-2"	3'-6"	3'-11"	4'-3"	4'-8"	5'-0"	6000	
	50	2'-5"	2'-10"	3'-2"	3'-6"	3'-11"	4'-3"	4'-8"	5'-0"	6000	
14	30				3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	4000	
	40	2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	6000	
	50	2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	6000	
16	30				2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	4000	
	40	2'-0"	2'-4"	2'-7"	2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	4000	
	50	2'-0"	2'-4"	2'-7"	2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	4000	

TABLE 1-4 (FOR USE ON OVER 3'-0" TO 3'-6" OVERHANG & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS (in)	BRACKET DIMENSION (in)	SCREED LOAD PER BRACKET									45° HANGER SWL (lbs)
		2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	
		BRACKET SPACING									
10	30				2'-3"	2'-11"	3'-7"	4'-3"	5'-9"	4000	
	40				2'-4"	3'-0"	3'-7"	4'-1"	4'-9"	4000	
	50	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	6000	
12	30				2'-1"	2'-8"	3'-4"	3'-11"	5'-2"	4000	
	40				2'-2"	2'-9"	3'-4"	3'-7"	3'-11"	4000	
	50	2'-1"	2'-4"	2'-8"	3'-0"	3'-4"	3'-7"	3'-11"	4'-3"	6000	
14	30				2'-0"	2'-6"	3'-1"	3'-8"	4'-8"	4000	
	40				2'-0"	2'-7"	3'-0"	3'-3"	3'-6"	4000	
	50				2'-2"	2'-5"	2'-8"	3'-0"	3'-3"	6000	
16	30				2'-4"	2'-10"	3'-5"	4'-3"	4000		
	40				2'-0"	2'-7"	3'-0"	3'-3"	3'-6"	4000	
	50				2'-2"	2'-5"	2'-8"	2'-11"	3'-3"	6000	

DEFINITIONS

- SLPB = SCREED LOAD PER BRACKET (R x W)
- R = SCREED LOAD FACTOR, OBTAINED FROM TABLE 2
- W = WHEEL LOAD
- S = BRACKET SPACING
- T = AVERAGE SLAB THICKNESS
- SWL = SAFE WORKING LOAD
- K = DIMENSION DEFINED ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
- L = OVERHANG MEASURED FROM EDGE OF TOP FLANGE TO EDGE OF SUPERSTRUCTURE

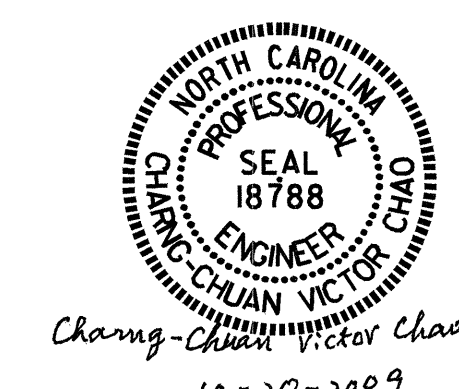
PROJECT NO. B-4627
 ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK

AASHTO TYPES
 III, IV, V, AND VI

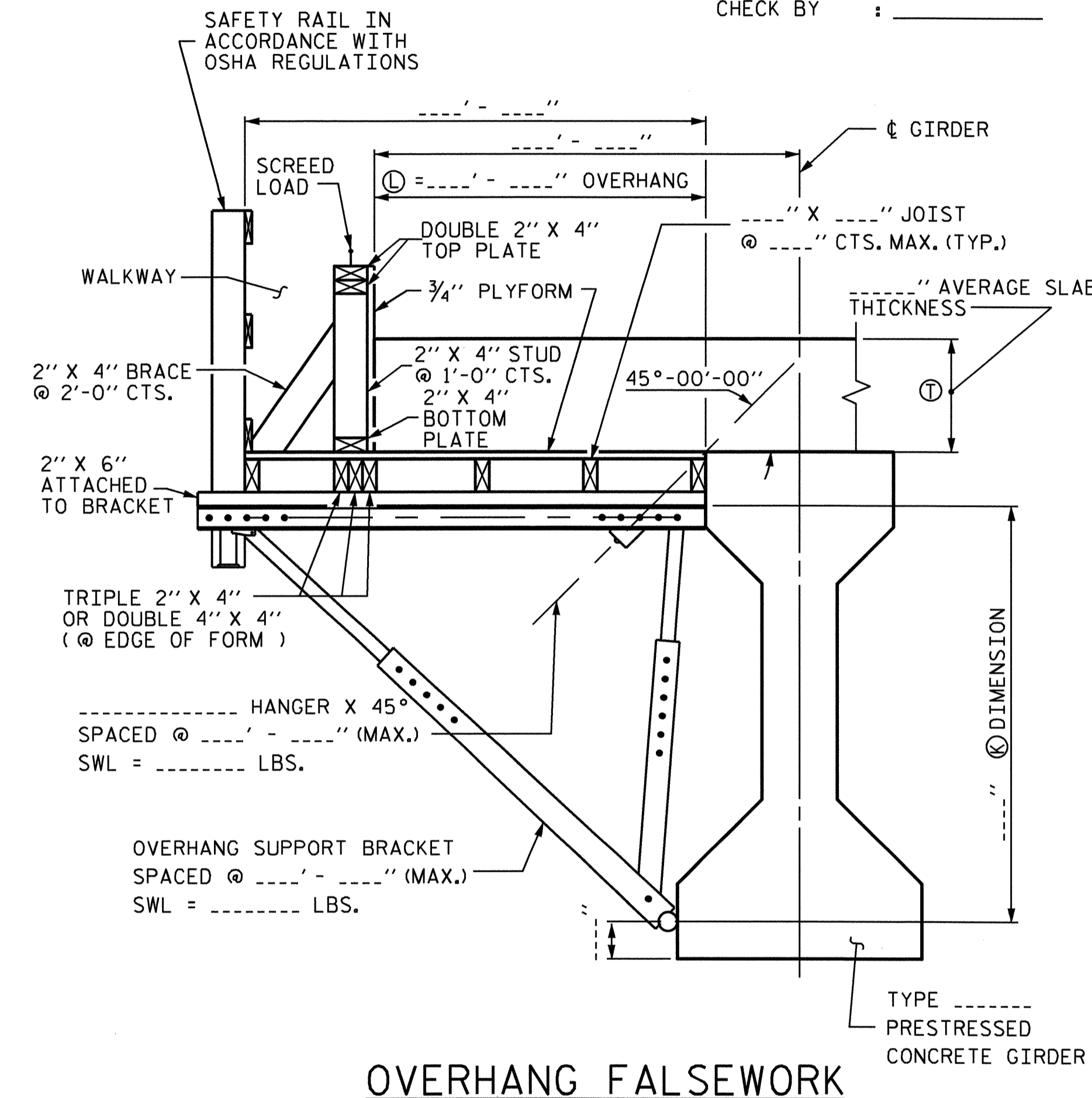


REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY: DATE:
 CHECKED BY: DATE:
 DRAWN BY: R. WRIGHT 06/04 REV.
 CHECKED BY: C. V. CHAO 06/04

BRIDGE OVERHANG BRACKET SUMMARY

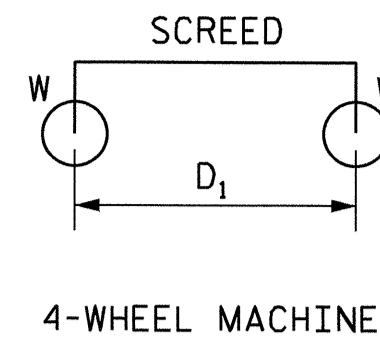
TOTAL SCREED WEIGHT = _____ LBS. PROJECT No. : _____
 NUMBER OF SCREED WHEELS = _____ COUNTY : _____
 SCREED WHEEL LOAD (W) = _____ LBS. STATION : _____
 SCREED LOAD PER BRACKET = _____ LBS. DESCRIPTION : _____
 DATE : _____
 DESIGN BY : _____
 CHECK BY : _____



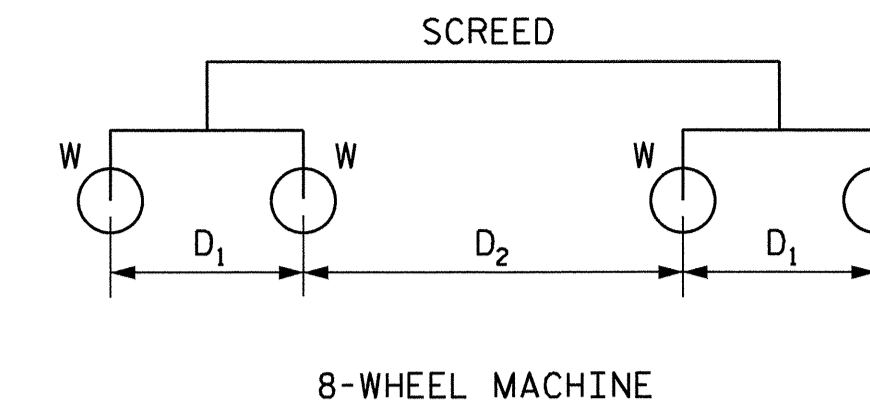
OVERHANG FALSEWORK

NOTES

DESIGN INCLUDES CONSTRUCTION LIVE LOAD 20 PSF ON THE AREA SUPPORTED AND 75 PLF AT THE OUTSIDE DECK OF OVERHANGS.
 REQUIRED MINIMUM DIAGONAL LEG CAPACITY: 3600 LB WORKING LOAD
 THE CONTRACTOR HAS THE OPTION OF SUBMITTING HIS OWN DESIGN FOR OVERHANG FALSEWORK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
 SUBMITTALS UTILIZING THE INSTRUCTIONS AND PROCEDURES DESCRIBED ON SHEET 1 OF 3 SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS, EXCEPT THAT CALCULATIONS FOR OVERHANG FALSEWORK NEED NOT BE SEALED BY A REGISTERED ENGINEER.
 FOR OVERHANG FALSEWORK BRACING DESIGN, SEE SHEET 3 OF 3.



4-WHEEL MACHINE



8-WHEEL MACHINE

TABLE 2: SCREED LOAD FACTOR "R"

4 WHEEL MACHINE	
S/D1	R
<= 1.0	1.00
1.1	1.09
1.2	1.17
1.3	1.23
1.4	1.29
1.5	1.33
1.6	1.38
1.7	1.41
1.8	1.44
1.9	1.47
2.0	1.50
2.2	1.55
2.4	1.58
2.6	1.62
2.8	1.64
3.0	1.67
3.5	1.71
4.0	1.75

		THE SCREED LOAD FACTOR R (FOR 8 WHEEL MACHINE)																	
		S/D ₂																	
		<= 1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.5	4.0
S/D ₁	<= 1.0	1.00	1.09	1.17	1.23	1.29	1.33	1.38	1.41	1.44	1.47	1.50	1.55	1.58	1.62	1.64	1.67	1.71	1.75
	1.1	1.09	1.18	1.26	1.32	1.38	1.42	1.47	1.50	1.54	1.56	1.59	1.64	1.67	1.71	1.73	1.76	1.81	1.84
	1.2	1.17	1.26	1.33	1.40	1.45	1.50	1.54	1.58	1.61	1.64	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92
	1.3	1.23	1.32	1.40	1.46	1.52	1.56	1.61	1.64	1.68	1.70	1.73	1.78	1.81	1.85	1.87	1.90	1.95	1.98
	1.4	1.29	1.38	1.45	1.52	1.57	1.62	1.66	1.70	1.73	1.76	1.79	1.83	1.87	1.90	1.93	1.95	2.00	2.07
	1.5	1.33	1.42	1.50	1.56	1.62	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92	1.95	1.98	2.00	2.10	2.17
	1.6	1.38	1.47	1.54	1.61	1.66	1.71	1.75	1.79	1.82	1.85	1.88	1.92	1.96	1.99	2.04	2.08	2.18	2.25
	1.7	1.41	1.50	1.58	1.64	1.70	1.75	1.79	1.82	1.86	1.89	1.91	1.96	2.00	2.05	2.11	2.16	2.25	2.32
	1.8	1.44	1.54	1.61	1.68	1.73	1.78	1.82	1.86	1.89	1.92	1.94	1.99	2.06	2.11	2.18	2.23	2.28	2.38
	1.9	1.47	1.56	1.64	1.70	1.76	1.81	1.85	1.89	1.92	1.95	1.97	2.04	2.11	2.18	2.23	2.28	2.38	2.45
	2.0	1.50	1.59	1.67	1.73	1.79	1.83	1.88	1.91	1.94	1.97	2.00	2.09	2.17	2.23	2.29	2.33	2.43	2.50
2.2	1.55	1.64	1.71	1.78	1.83	1.88	1.92	1.96	1.99	2.04	2.09	2.18	2.26	2.32	2.38	2.42	2.52	2.59	
2.4	1.58	1.67	1.75	1.81	1.87	1.92	1.96	2.00	2.06	2.11	2.17	2.26	2.33	2.40	2.45	2.50	2.60	2.67	
2.6	1.62	1.71	1.78	1.85	1.90	1.95	1.99	2.05	2.12	2.18	2.23	2.32	2.40	2.46	2.52	2.56	2.66	2.73	
2.8	1.64	1.73	1.81	1.87	1.93	1.98	2.04	2.11	2.17	2.23	2.29	2.38	2.45	2.52	2.57	2.62	2.71	2.79	
3.0	1.67	1.76	1.83	1.90	1.95	2.00	2.08	2.16	2.22	2.28	2.33	2.42	2.50	2.56	2.62	2.67	2.76	2.83	
3.5	1.71	1.81	1.88	1.95	2.00	2.10	2.18	2.25	2.32	2.38	2.43	2.52	2.60	2.66	2.71	2.76	2.86	2.93	
4.0	1.75	1.84	1.92	1.98	2.07	2.17	2.25	2.32	2.39	2.45	2.50	2.59	2.67	2.73	2.79	2.83	2.93	3.00	

TABLE 3: ALLOWABLE SPAN LENGTH OF JOISTS AND JOIST SPACINGS

AVG. SLAB THICKNESS (IN)	LUMBER JOIST SIZE (IN X IN)	JOIST SPACINGS			
		15 IN	12 IN	10 IN	8 IN
10	2 X 4	—	4' - 6"	4' - 9"	5' - 0"
	4 X 4	5' - 9"	6' - 3"	6' - 6"	6' - 7"
12	2 X 4	—	4' - 3"	4' - 9"	5' - 0"
	4 X 4	5' - 3"	6' - 0"	6' - 3"	6' - 5"
14	2 X 4	—	4' - 0"	4' - 6"	5' - 0"
	4 X 4	—	5' - 6"	6' - 0"	6' - 4"
16	2 X 4	—	4' - 0"	4' - 3"	4' - 9"
	4 X 4	—	5' - 3"	5' - 9"	6' - 3"

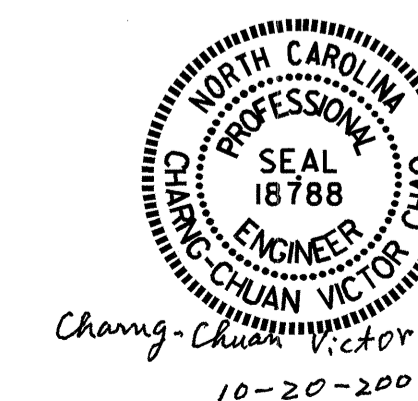
PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK

AASHTO TYPES III, IV, V, AND VI



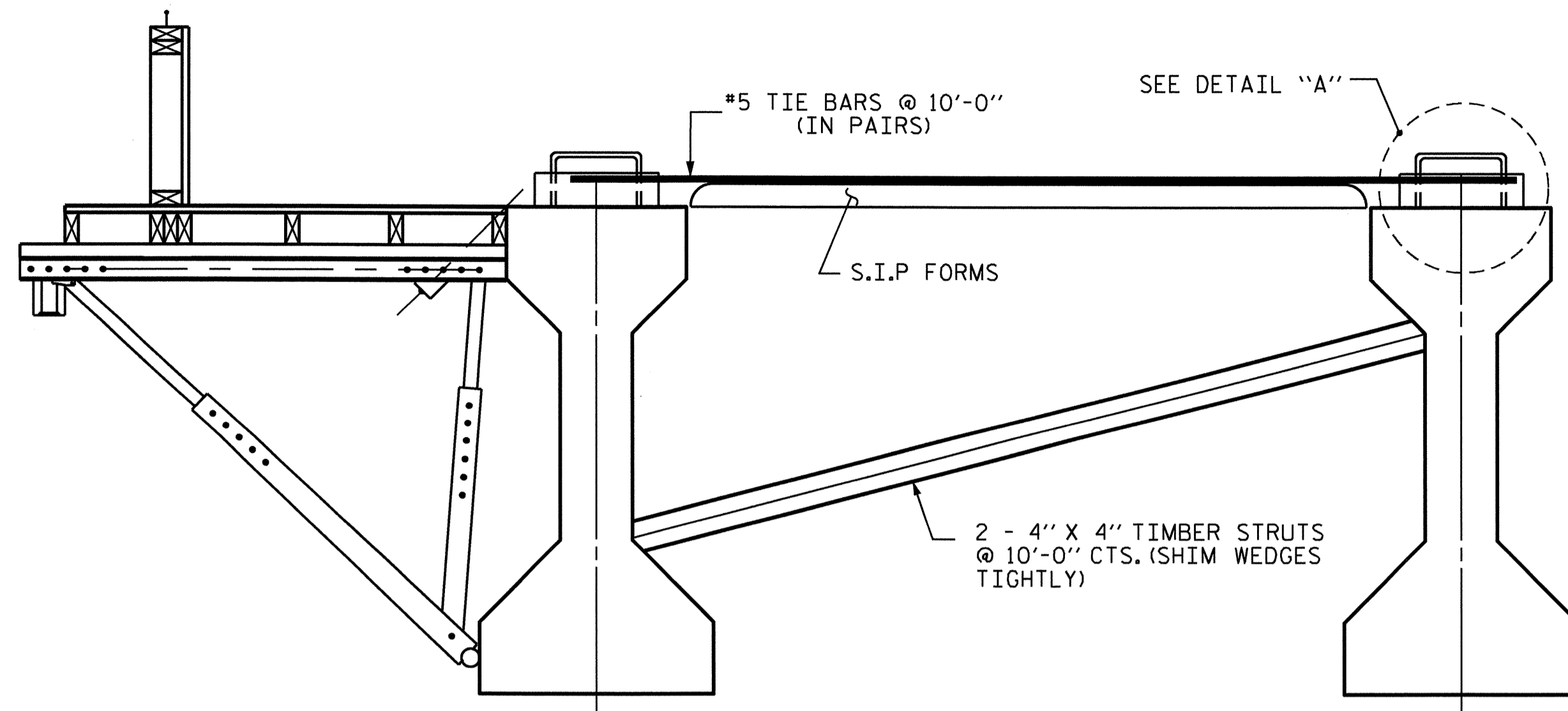
Chang-Chuan Victor Chao
 10-20-2009

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1			3		
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SHEET NO. 5-37
 TOTAL SHEETS 38

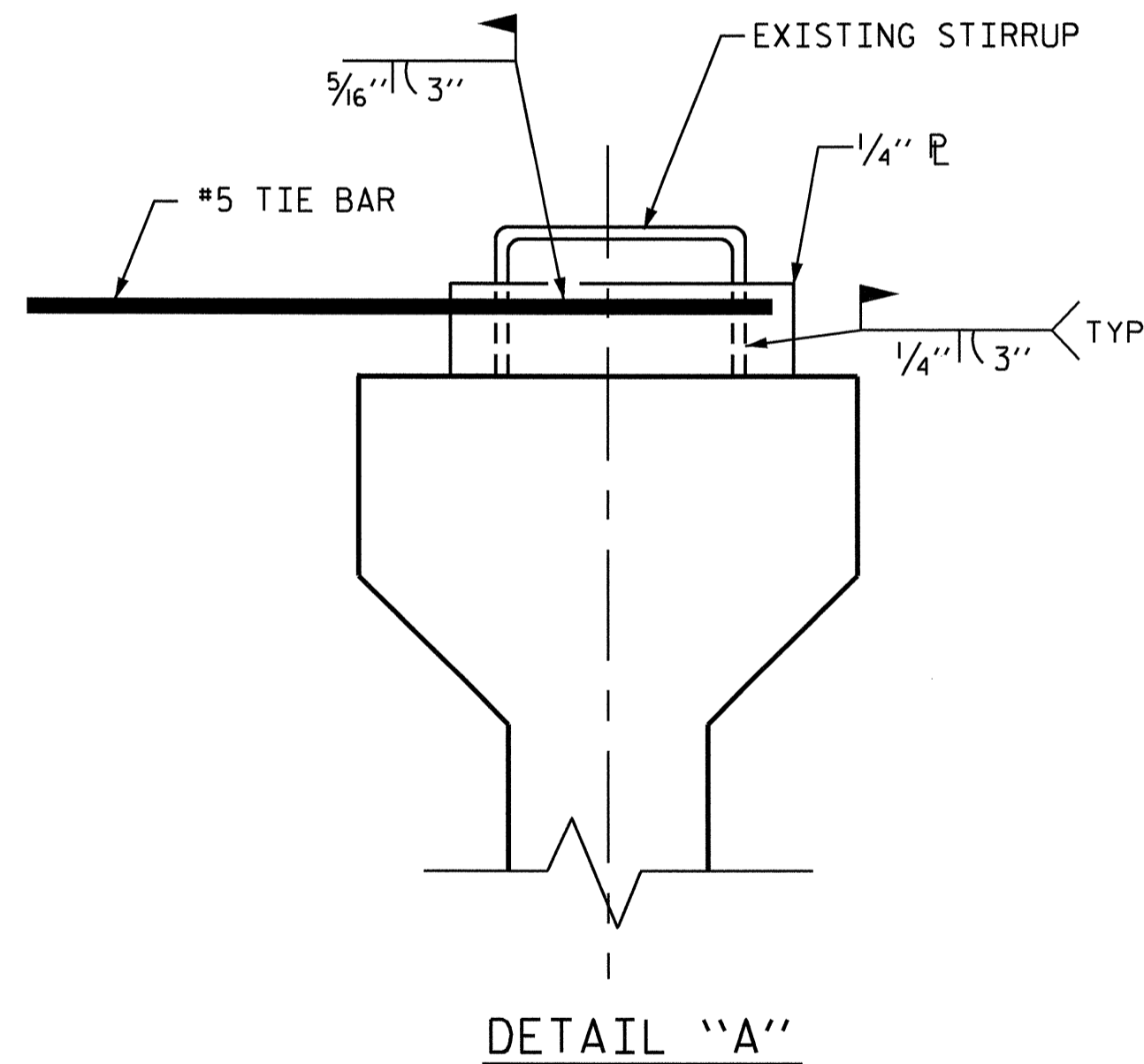
ASSEMBLED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 DRAWN BY: R. WRIGHT 06/04 REV. _____
 CHECKED BY: C. V. CHAO 06/04



EXTERIOR GIRDER

INTERIOR GIRDER

DETAIL OF REQUIRED OVERHANG FALSEWORK BRACING SYSTEM



NOTES:

EACH #5 TIE BAR SHALL BE WELDED TO ONE STIRRUP LOOP AS SHOWN IN DETAIL "A". #5 TIE BARS SHALL BE WELDED TO TWO ADJACENT STIRRUPS OF THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER BETWEEN PERMANENT DIAPHRAGMS. WELD STEEL PLATES IN BETWEEN THE TIE BARS AND THE STIRRUP LOOP. WELDING TWO TIE BARS TO THE SAME STIRRUP LOOP SHALL NOT BE PERMITTED.

MAXIMUM SPACING BETWEEN THE BRACING (TIE BARS-TIMBER STRUT) IS 10'-0" CTS. #5 TIE BARS SHALL BE LOCATED OVER A TIMBER STRUT.

INSTALL TIE BARS AND TIMBER STRUTS PRIOR TO PLACEMENT OF CONCRETE OR SCREED WEIGHT ONTO THE OVERHANG FALSEWORK.

PROJECT NO. B-4627
ROWAN COUNTY
 STATION: 27+66.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD OVERHANG FALSEWORK
 AASHTO TYPES
 III, IV, V, AND VI



Chuan Victor Chao
 10-20-2009

REVISIONS

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

DRAWN BY: R. WRIGHT 06/04
 CHECKED BY: C. V. CHAO 06/04

DATE : _____
 DATE : _____

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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