

09/08/09

TIP PROJECT: B-1037

CONTRACT: C202165

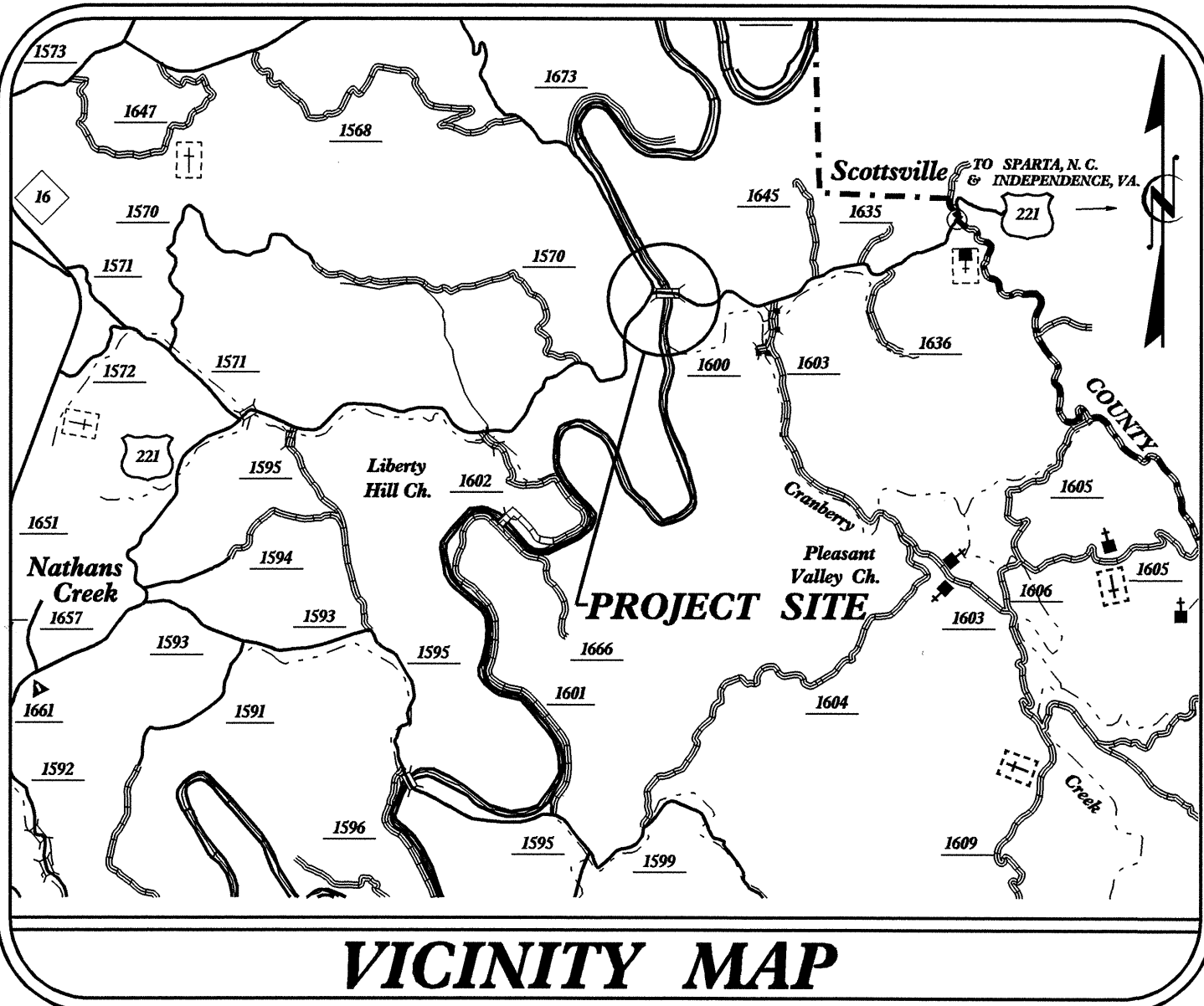
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

**LOCATION: BRIDGE NO. 39 OVER SOUTH FORK NEW RIVER
ON US 221 NORTHEAST OF JEFFERSON.**

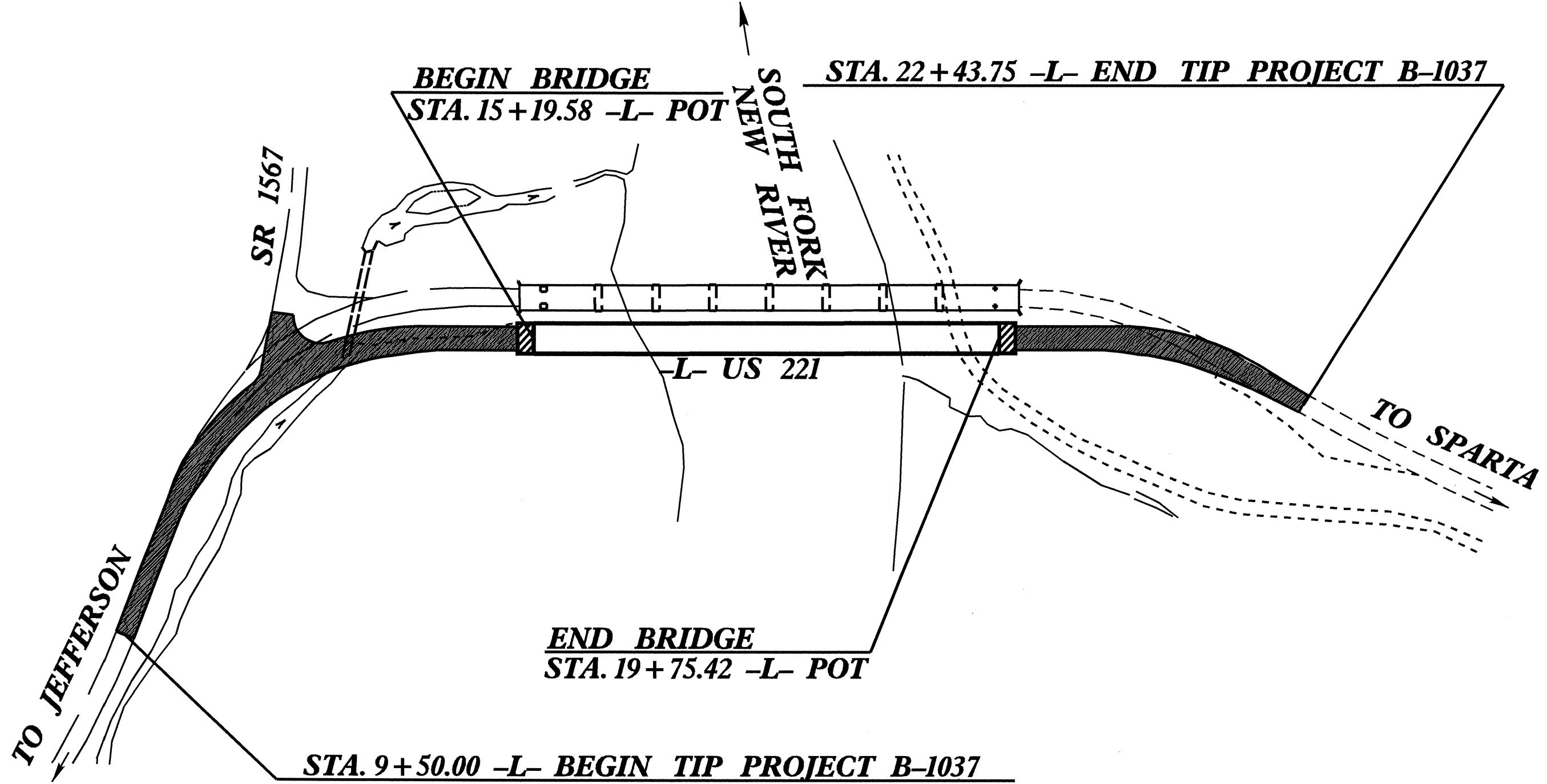
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-1037		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32579.1.1	BRSTP-221(6)	P.E.	
32579.3.1	BRSTP-0221(20)	RW & UTIL	
32579.2.3	BRSTP-0221(29)	CONST.	

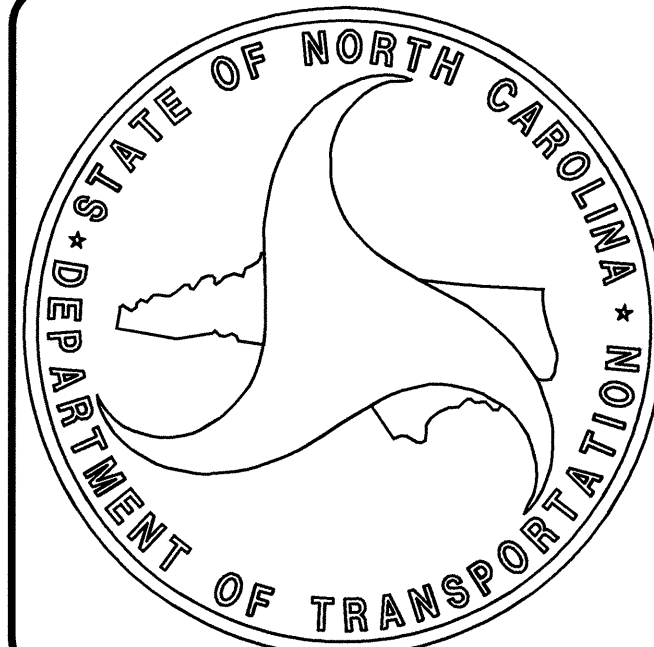


VICINITY MAP

NEAREST SHIPPING POINT: NORTH WILKESBORO ON
YADKIN VALLEY RAIL ROAD, 30 MILES FROM BRIDGE.



STRUCTURE



DESIGN DATA

ADT 2009	=	800
ADT 2030	=	1300
DHV	=	14 %
D	=	55 %
T	=	4 % *
V	=	30 MPH
FUNC CLASS	=	COLLECTOR
* TTST	1% DUAL	3%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-1037	=	0.159 mi.
LENGTH STRUCTURE TIP PROJECT B-1037	=	0.086 mi
TOTAL LENGTH TIP PROJECT B-1037	=	0.245 mi.

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610

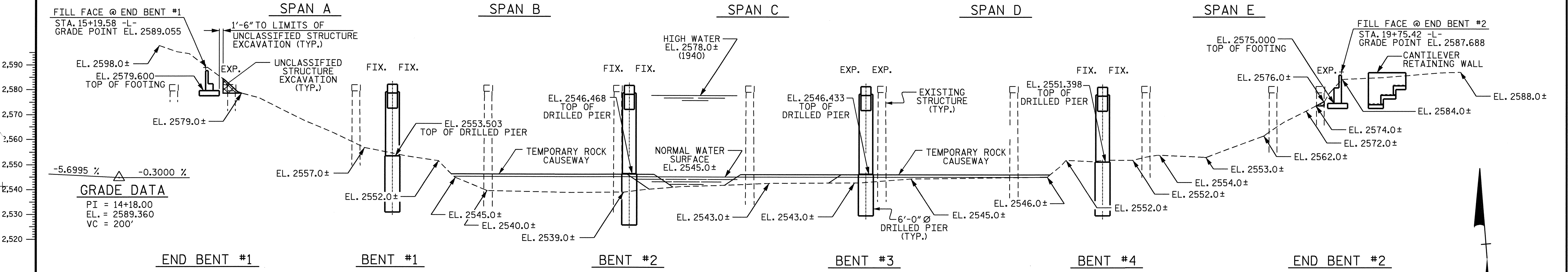
2006 STANDARD SPECIFICATIONS	J.M. BAILEY, P.E. PROJECT ENGINEER
LETTING DATE: JANUARY 19, 2010	D.A. DAVENPORT, JR., P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 Birch Ridge Dr.
Raleigh, NC 27610

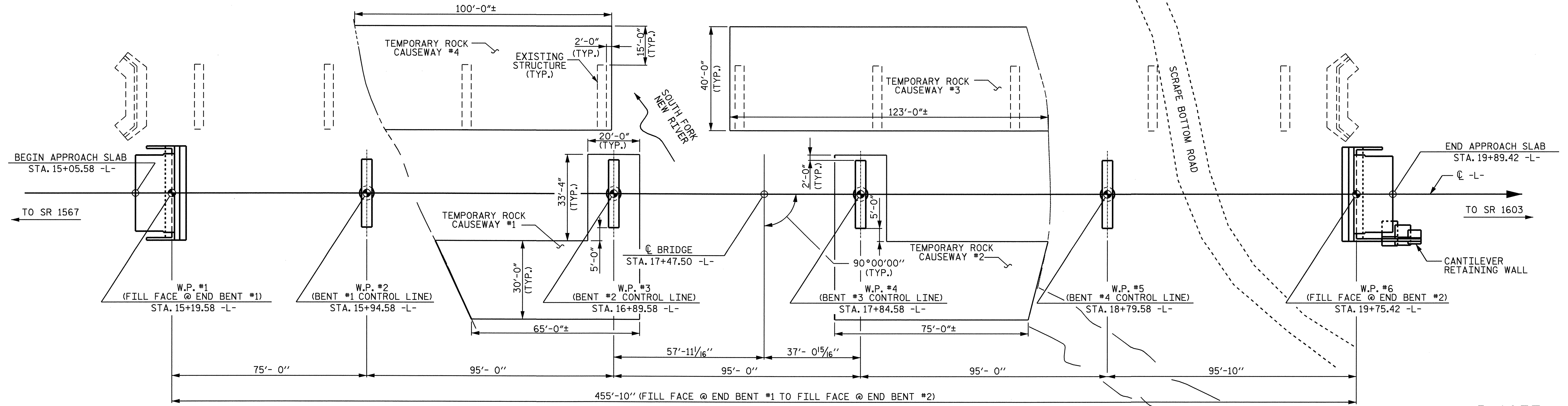
**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE DESIGN ENGINEER	P.E.
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED DIVISION ADMINISTRATOR	DATE

20-NOV-2009 09:15
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adavenport



SECTION ALONG C-L-



PLAN

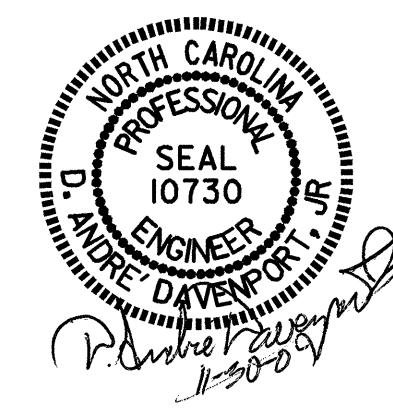
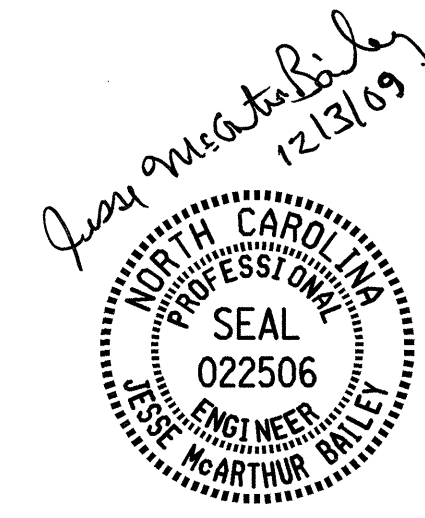
ONLY ONE TEMPORARY CAUSEWAY WILL BE IN PLACE AT A TIME.

PROJECT NO. B-1037
 ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 1 OF 5 REPLACES BRIDGE #39

DRAWN BY: D. A. GLADDEN DATE: 6-2-08
 CHECKED BY: W. B. HILL DATE: 8-9-09

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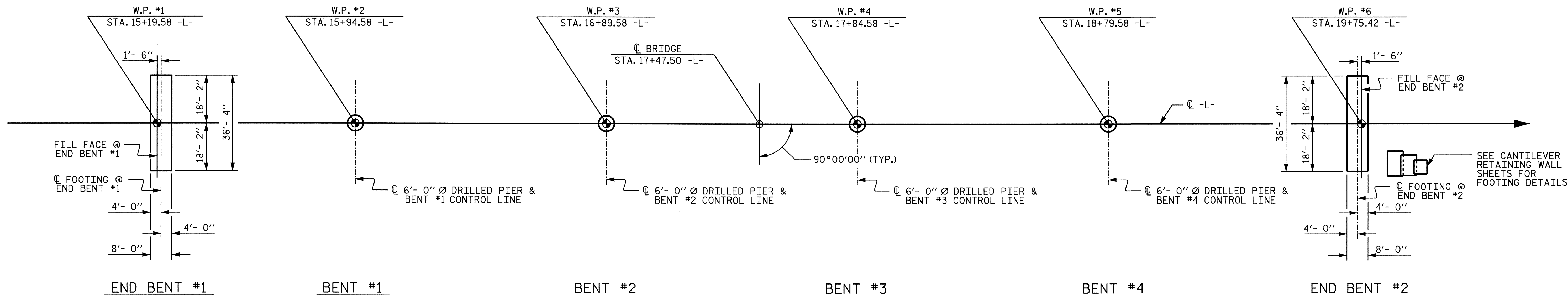


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER SOUTH FORK
 NEW RIVER ON US 221 BETWEEN
 SR 1567 AND SR 1603

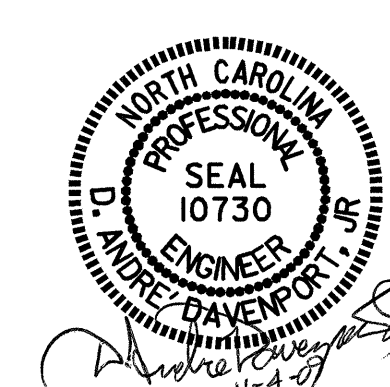
REVISIONS						SHEET NO. S-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			



FOUNDATION LAYOUT

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

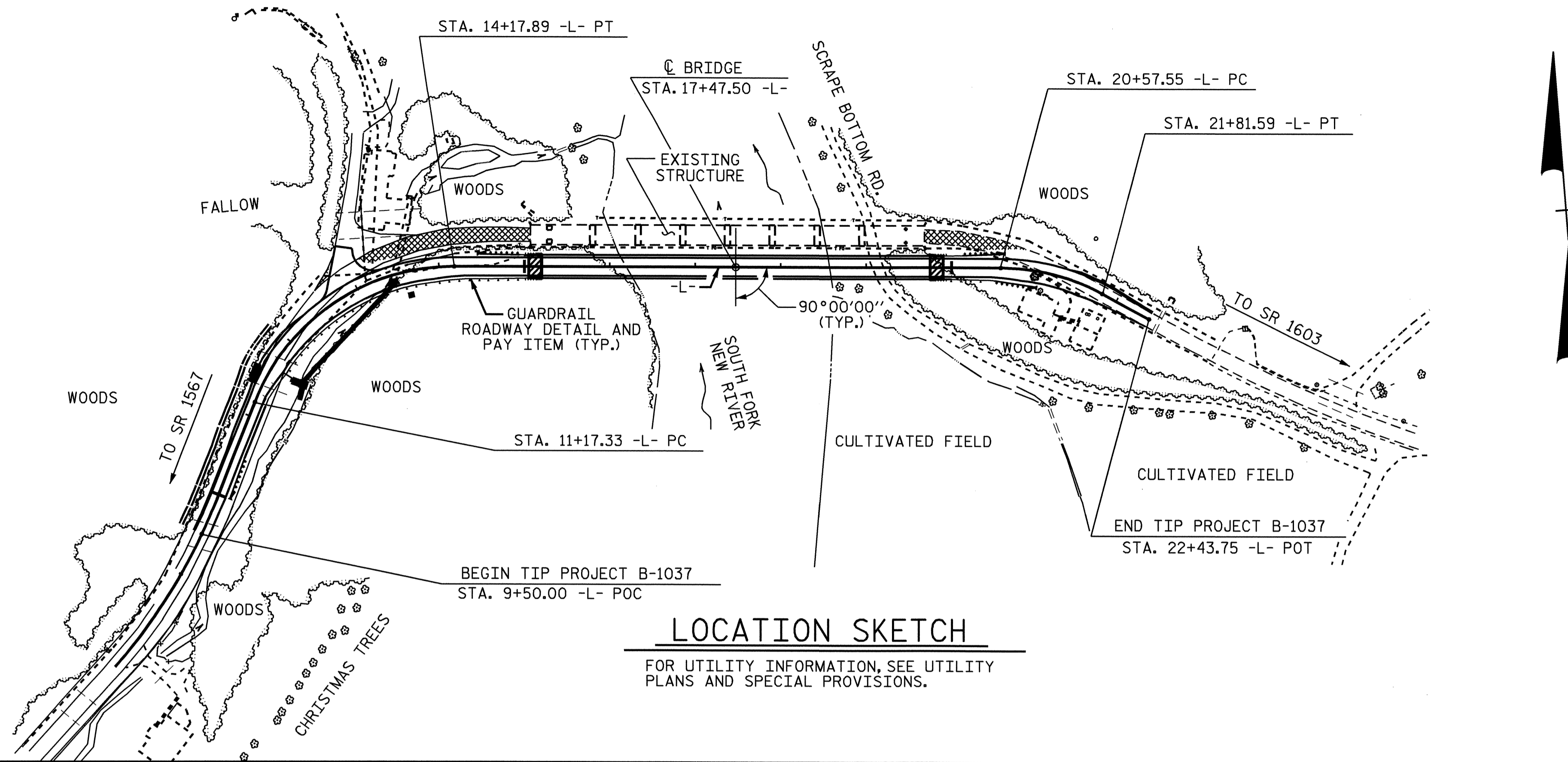
SHEET 2 OF 5



STATE OF NORTH CAROLINA						SHEET NO. S-2
DEPARTMENT OF TRANSPORTATION						
RALEIGH						TOTAL SHEETS 54
GENERAL DRAWING						
FOR BRIDGE OVER SOUTH FORK NEW RIVER ON US 221 BETWEEN SR 1567 AND SR 1603						
REVISIONS						SHEET NO. S-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: D. A. GLADDEN DATE: 6-2-08
 CHECKED BY: W. B. HILL DATE: 8-9-09

BENCH MARK #1 : RAIL ROAD SPIKE IN BASE OF 12" Ø OAK TREE, LEFT OF STA. 12+13.42-BL- EL. 2632.800 DATUM: NGVD 1929



HYDRAULIC DATA

DESIGN DISCHARGE = 25,000 C.F.S.
 FREQUENCY OF DESIGN FLOOD = 50 YEARS
 DESIGN HIGH WATER ELEVATION = 2565.000
 DRAINAGE AREA = 260 SQ. MI.
 BASIC DISCHARGE (Q100) = 34,000 C.F.S.
 BASIC HIGH WATER ELEVATION = 2568.700

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = >63,000 C.F.S.
 FREQUENCY OF OVERTOPPING FLOOD = >500 YEAR
 OVERTOPPING FLOOD ELEVATION = 2587.100

LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	6'-0" Ø DRILLED PIERS IN SOIL	6'-0" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 6'-0" Ø DRILLED PIERS	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	MODIFIED 63" PRESTRESSED CONCRETE GIRDERS	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	FOUNDATION EXCAVATION	STRUCTURE DRAINAGE SYSTEM	CLASSIC CONCRETE BRIDGE RAIL
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	LIN. FT.	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE									13764	11970		LUMP SUM			1351.50	LUMP SUM	LUMP SUM		LUMP SUM	907.33
END BENT NO. 1											45.9		6541					175.00		
BENT NO. 1			11.5	11.0							45.4		11242	1761						
BENT NO. 2			7.5	13.0	9.5						51.4		11847	1966						
BENT NO. 3			4.0	12.5	5.4						51.1		11294	1796						
BENT NO. 4			6.9	14.5							46.5		11263	1767						
END BENT NO. 2											61.4		7561					155.00		
TOTAL	LUMP SUM	LUMP SUM	29.9	51.0	14.9	2	2	LUMP SUM	13764	11970	301.7	LUMP SUM	59748	7290	1351.50	LUMP SUM	LUMP SUM	330.00	LUMP SUM	907.33

PROJECT NO. B-1037
 ASHE _____ COUNTY
 STATION: 17+47.50 -L-

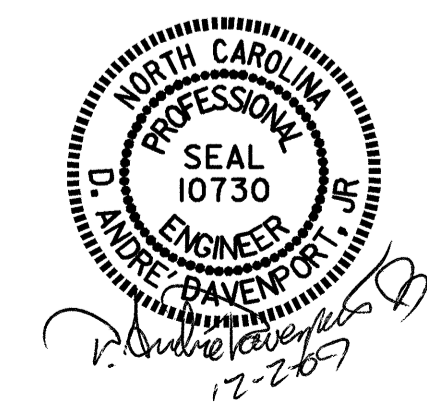
SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER SOUTH FORK NEW RIVER ON US 221 BETWEEN SR 1567 AND SR 1603

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS 54
2			4			



DRAWN BY : D. A. GLADDEN DATE : 6-2-08
 CHECKED BY : W. B. HILL DATE : 8-9-09

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NOTES

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.

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

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF TEN SPANS 1 @ 22'-3", 1 @ 51'-6", 6 @ 52'-6", 1 @ 51'-1", AND 1 @ 22'-3" REINFORCED CONCRETE DECK GIRDERS WITH A CLEAR ROADWAY WIDTH OF 20'-0" ON A REINFORCED CONCRETE DECK WITH A 1" ASPHALT WEARING SURFACE ON SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE ABUTMENTS @ END BENTS 1 & 2, REINFORCED CONCRETE POST & BEAM @ BENTS 1 & 9, AND REINFORCED CONCRETE POST & WEB/ROCK @ BENTS 2 THROUGH 8, AND LOCATED APPROXIMATELY 37 FEET DOWNSTREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEAGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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 20 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.

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

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

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

DRILLED PIERS AT BENT 1 THROUGH BENT 4 ARE DESIGNED FOR A FACTORED RESISTANCE OF 825 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 30 TSF.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT 2 AND BENT 3. DO NOT EXTEND CASING BELOW ELEVATION 2,537 FT. FOR BENT 2 OR ELEVATION 2,541 FOR BENT 3 WITHOUT PRIOR APPROVAL FROM ENGINEER.

INSTALL DRILLED PIER AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2,531 FT., SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A MINIMUM PENETRATION OF 5 FT. INTO ROCK AS DEFINE BY THE DRILLED PIERS PROVISION.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STA. 17+47.50-L-, SEE SPECIAL PROVISIONS.

FOR CROSSHOLE SONIC LOGGING, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC, SEE SPECIAL PROVISIONS.

INSTALL DRILLED PIERS AT BENT 2 THROUGH BENT 4 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2,526 FT. FOR BENT 2, 2530 FT. FOR BENT 3 AND 2530 FT. FOR BENT 4, SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A MINIMUM PENETRATION OF 10 FT. INTO ROCK AS DEFINE BY THE DRILLED PIERS PROVISION.

THE SCOUR CRITICAL ELEVATIONS ARE AS FOLLOWS: FOR BENT 1 EL. 2,551 FT. FOR BENT 2, EL. 2,537 FT., FOR BENT 3, EL. 2541 FT. AND FOR BENT 4 EL. 2544 FT.. 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 DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CROSSHOLE SONIC LOGGING, SEE SPECIAL PROVISIONS.

THE SPREAD FOOTINGS AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 4 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 12 TSF JUST BEFORE PLACING CONCRETE.

CARRY IN SPREAD FOOTINGS AT END BENT 1 AND END BENT 2 AT LEAST 12" INTO ROCK WITH A MINIMUM THICKNESS AS SHOWN ON THE PLANS.

FOR ROCK BLASTING , SEE ROADWAY SPECIAL PROVISION.

FOR BUILDING SURVEYS, SEE ROADWAY SPECIAL PROVISION.

THE BOTTOM OF FOOTING ELEVATIONS AT END BENT 1 AND END BENT 2 MAY BE LOWERED TO SATISFY THE REQUIRED RESISTANCE. IF FOOTINGS ARE LOWERED, REPLACE EXCAVATED MATERIAL WITH CONCRETE.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR FORMS FOR CONCRETE BRIDGE DECKS, SEE SPECIAL PROVISIONS.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

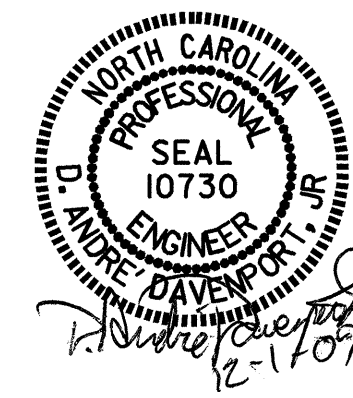
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER SOUTH FORK
 NEW RIVER ON US 221 BETWEEN
 SR 1567 AND SR 1603



DRAWN BY : D. A. GLADDEN DATE : 6-2-08
 CHECKED BY : W. B. HILL DATE : 8-9-09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			54

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2009	18
FUTURE	2030	29

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.

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	1.000	--	1.75	0.982	1.44	B	ER	46.375	1.018	1.00	B	I	9.275	0.80	0.982	1.30	B	ER	46.375		
	HL-93 (OPERATING)	N/A		1.297	--	1.35	0.982	1.87	B	ER	46.375	1.018	1.30	B	I	9.275	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.171	42.140	1.80	0.994	1.53	A	ER	35.958	1.018	1.17	A	I	21.575	1.00	0.931	1.41	A	I	35.958		
	HS-20 (OPERATING)	36.000		1.561	56.186	1.35	0.994	2.03	A	ER	35.958	1.018	1.56	A	I	21.575	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.447	46.531	1.40	0.994	4.42	A	ER	35.958	1.018	3.45	A	I	21.575	0.80	0.931	3.18	A	I	35.958	
		SNGARBS2	20.000		2.493	49.854	1.40	0.994	3.30	A	ER	35.958	1.018	2.49	A	I	21.575	0.80	0.931	2.36	A	I	35.958	
		SNAGRIS2	22.000		2.330	51.263	1.40	0.994	3.12	A	ER	35.958	1.018	2.33	A	I	21.575	0.80	0.931	2.25	A	I	35.958	
		SNCOTTS3	27.250		1.725	47.004	1.40	0.994	2.20	A	ER	35.958	1.018	1.72	A	I	21.575	0.80	0.931	1.58	A	I	35.958	
		SNAGGRS4	34.925		1.461	51.024	1.40	0.994	1.84	A	ER	35.958	1.018	1.46	A	I	21.575	0.80	0.931	1.33	A	I	35.958	
		SNS5A	35.550		1.496	53.168	1.40	0.994	1.80	A	ER	35.958	1.018	1.50	A	I	21.575	0.80	0.931	1.29	A	I	35.958	
		SNS6A	39.950		1.377	55.012	1.40	0.994	1.65	A	ER	35.958	1.018	1.38	A	I	21.575	0.80	0.931	1.19	A	I	35.958	
		SNS7B	42.000		1.370	57.526	1.40	0.994	1.57	A	ER	35.958	1.018	1.37	A	I	21.575	0.80	0.931	1.13	A	I	35.958	
	TRUCK TRACTOR SEMI-TRAILER (TTS)	TNAGRIT3	33.000		1.629	53.743	1.40	0.994	2.01	A	ER	35.958	1.018	1.63	A	I	21.575	0.80	0.931	1.45	A	I	35.958	
		TNT4A	33.075		1.574	52.058	1.40	0.994	2.02	A	ER	35.958	1.018	1.57	A	I	21.575	0.80	0.931	1.45	A	I	35.958	
		TNT6A	41.600		1.489	61.961	1.40	0.994	1.65	A	ER	35.958	1.018	1.49	A	I	21.575	0.80	0.931	1.19	A	I	35.958	
		TNT7A	42.000		1.454	61.077	1.40	0.994	1.66	A	ER	35.958	1.018	1.45	A	I	21.575	0.80	0.931	1.20	A	I	35.958	
		TNT7B	42.000		1.325	55.656	1.40	0.994	1.72	A	ER	35.958	1.018	1.33	A	I	21.575	0.80	0.931	1.24	A	I	35.958	
		TNAGRIT4	43.000		1.279	54.980	1.40	0.994	1.64	A	ER	35.958	1.018	1.28	A	I	21.575	0.80	0.931	1.18	A	I	35.958	
		TNAGRIT5A	45.000		1.290	58.049	1.40	0.994	1.54	A	ER	35.958	1.018	1.29	A	I	21.575	0.80	0.931	1.11	A	I	35.958	
		TNAGRIT5B	45.000	3	1.214	54.624	1.40	0.994	1.52	A	ER	35.958	1.018	1.21	A	I	21.575	0.80	0.931	1.10	A	I	35.958	

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

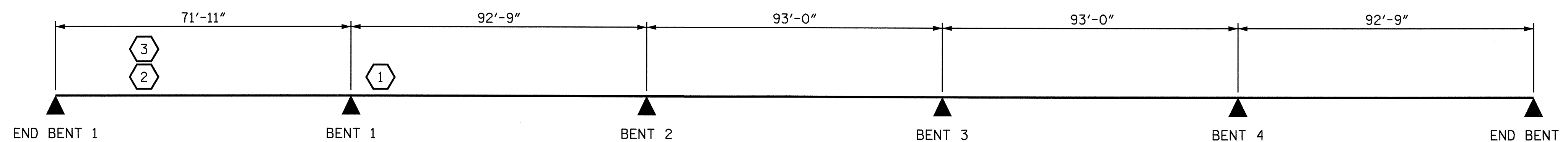
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



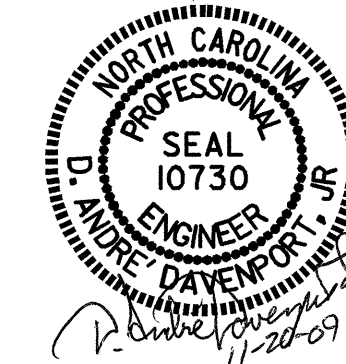
LRFR SUMMARY

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

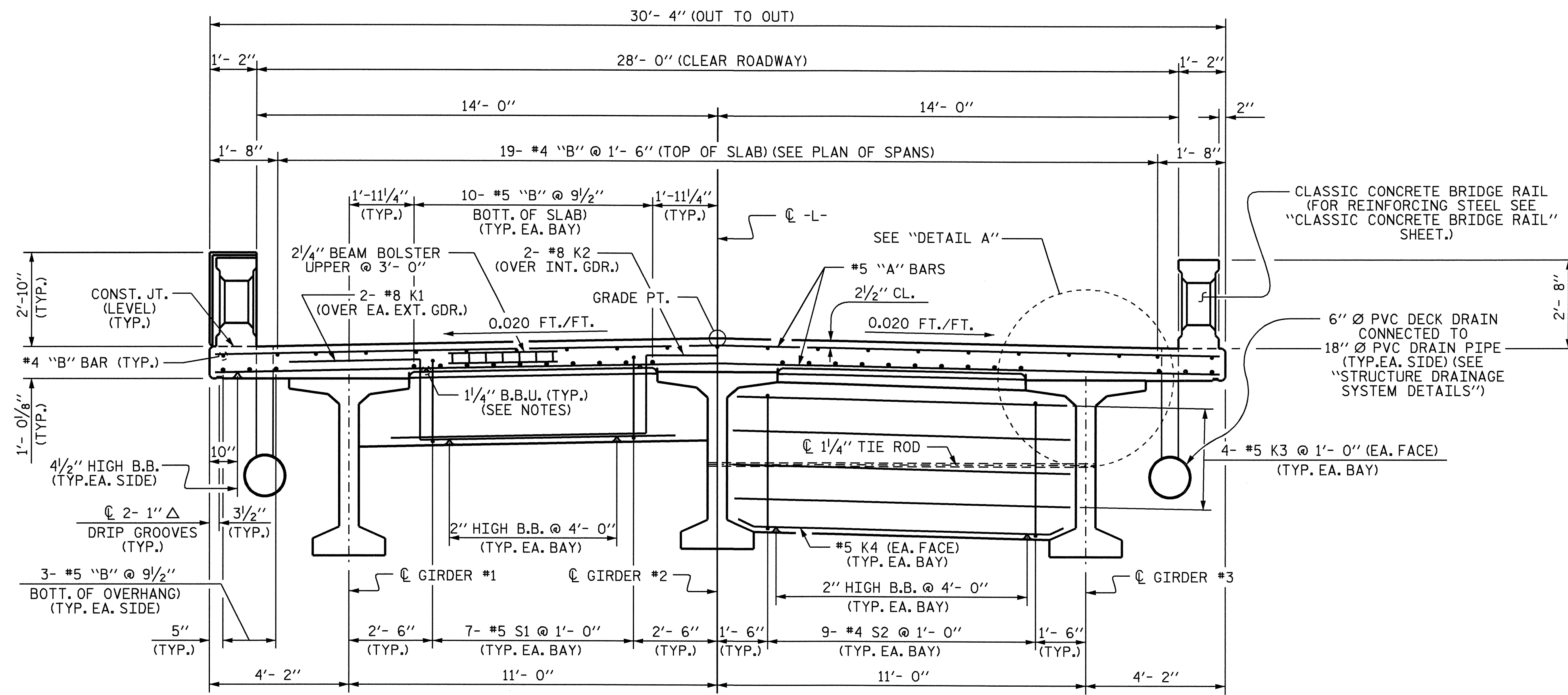
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO. S-5 TOTAL SHEETS 54
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY : G.W. DICKEY DATE : 09/09
 CHECKED BY : M.HALI DATE : 09/09
 DRAWN BY : MAA 1/08 REV. 11/2/08R MAA/GM
 CHECKED BY : GM/DI 2/08

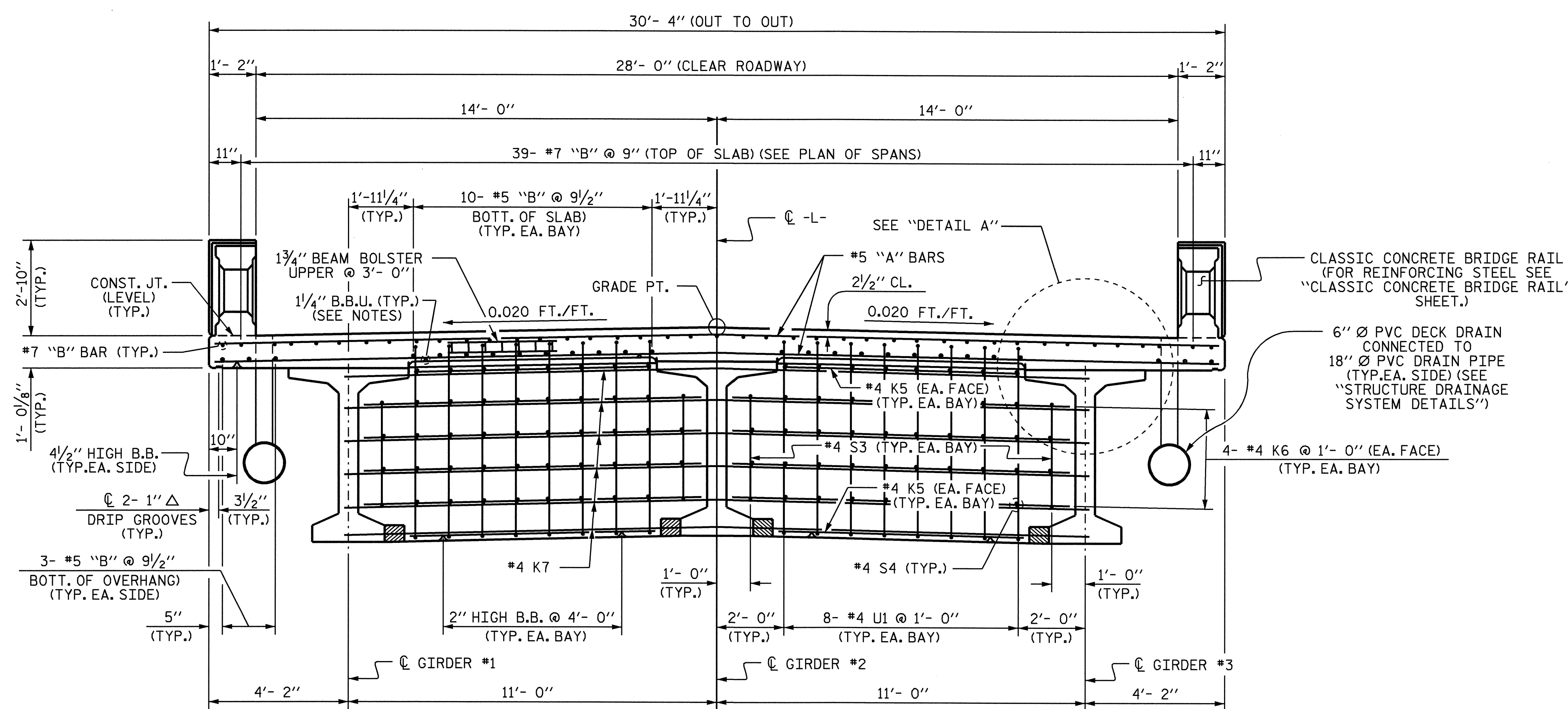


PART TYPICAL SECTION

(SHOWING END BENT DIAPHRAGMS & BENT #3 DIAPHRAGM)

PART TYPICAL SECTION

(SHOWING INTERMEDIATE DIAPHRAGMS)



TYPICAL SECTION

(SHOWING BENT #1, BENT #2 & BENT #4 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.

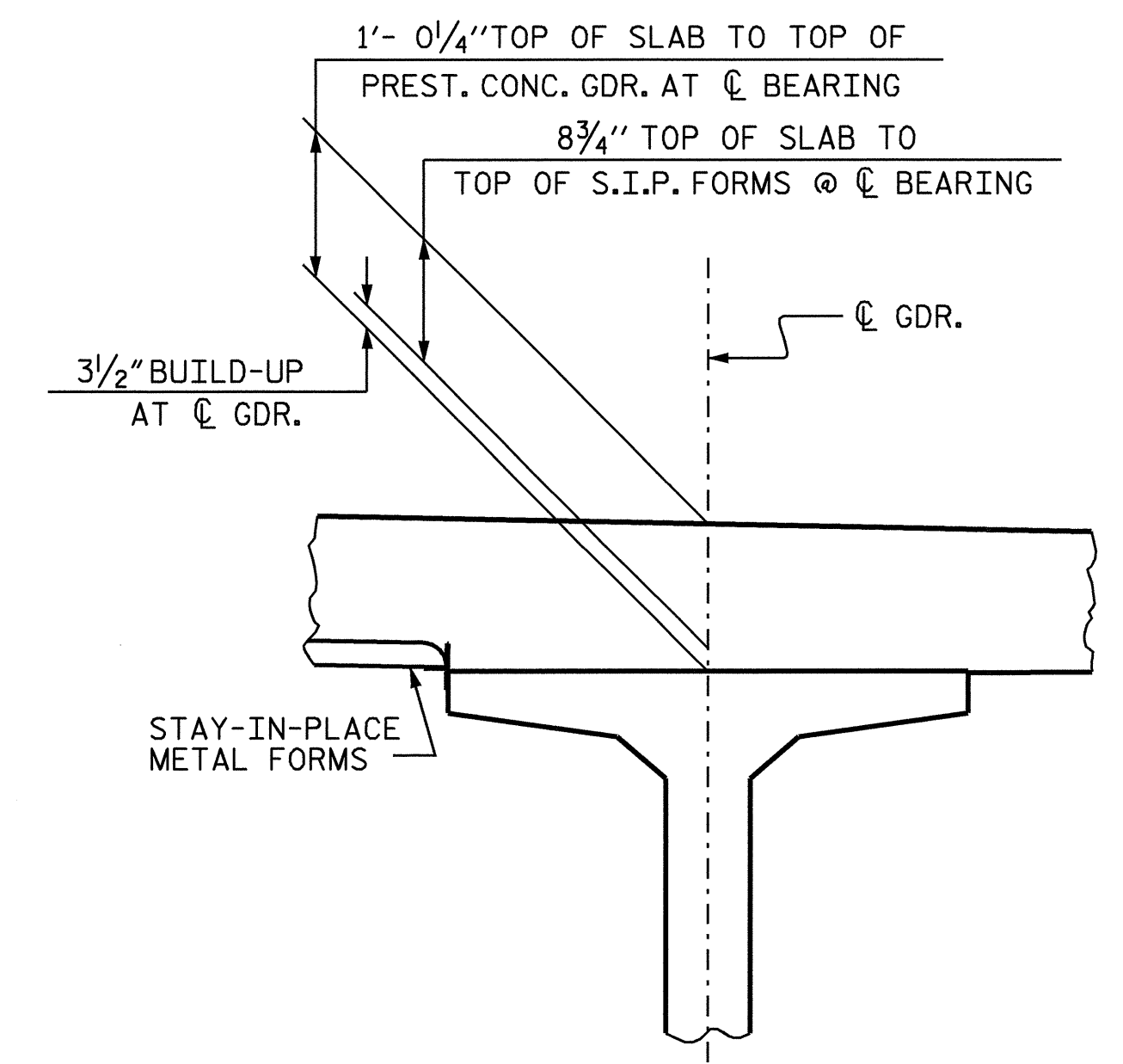
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS, AND THE NUTS ON THE 1 1/4" DIA. TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN BENT #3 AND INTERMEDIATE DIAPHRAGMS MAY BE CLASS A IN LIEU OF CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

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



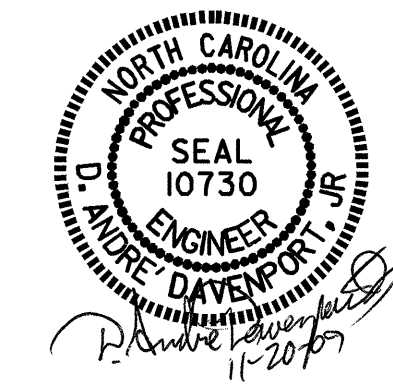
DETAIL A

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 1 OF 2

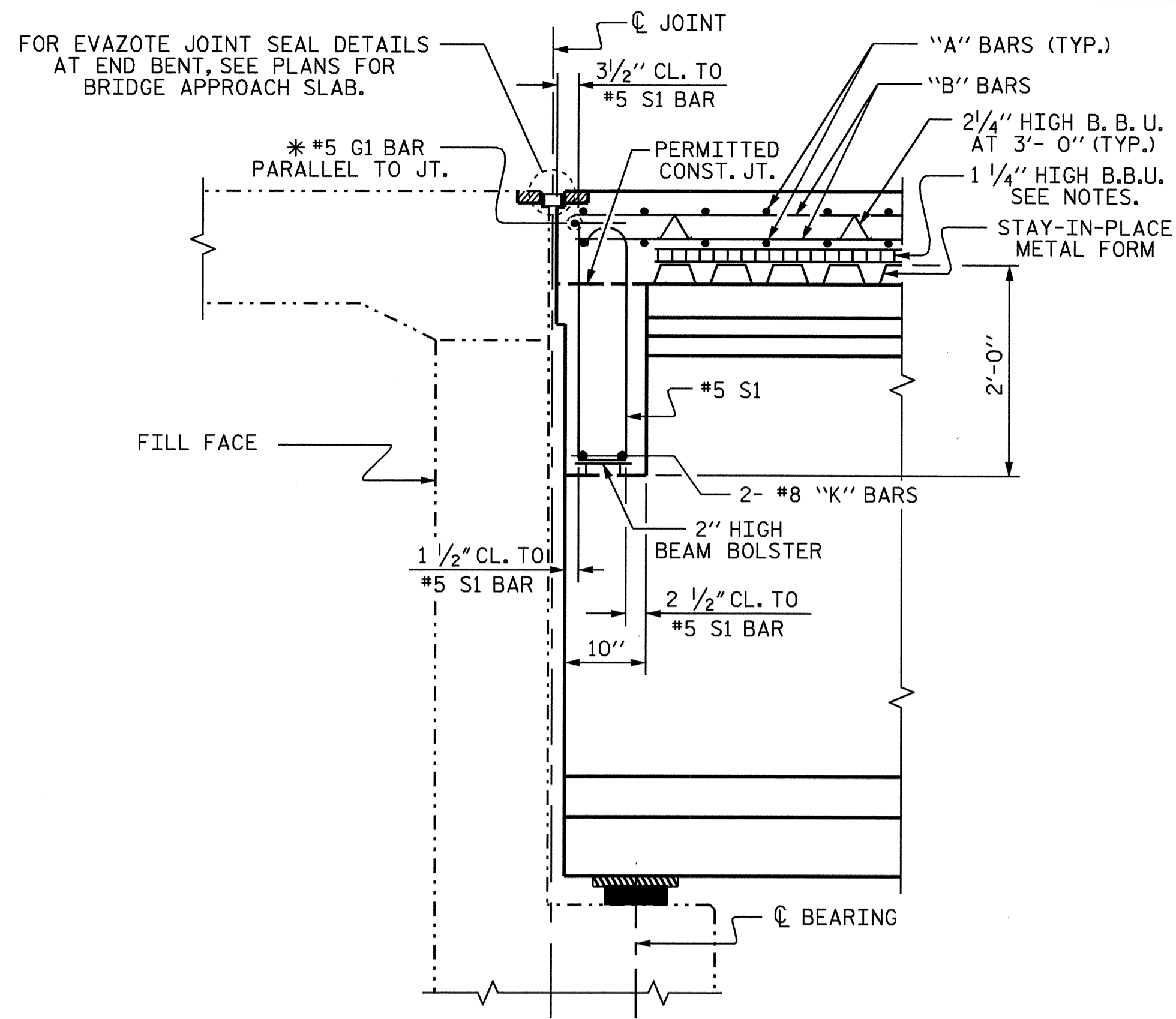
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION**



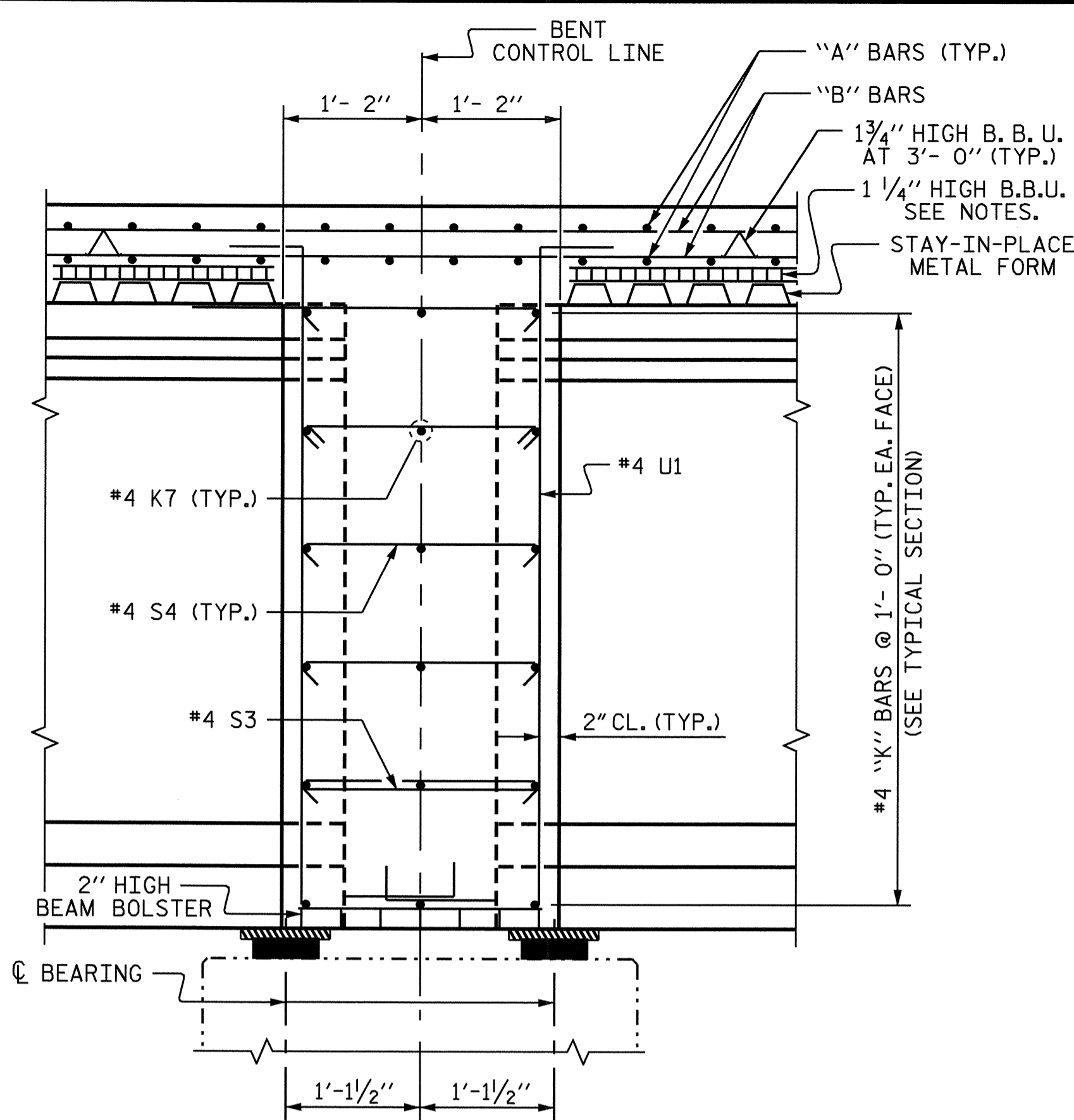
REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			

DRAWN BY: D. A. GLADDEN DATE: 6-12-08
 CHECKED BY: A. DAVENPORT DATE: 2-9-09

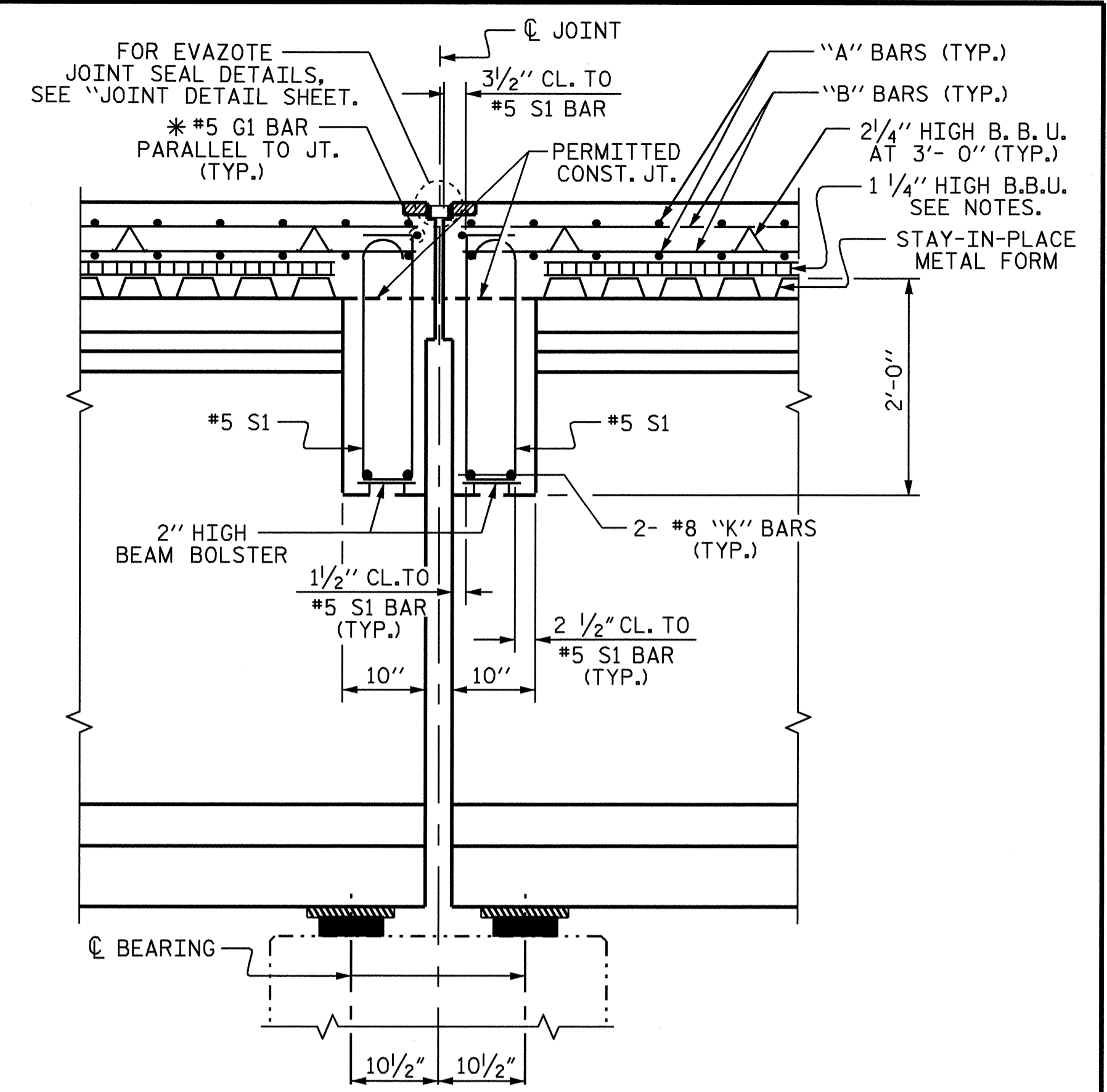


SECTION THROUGH END BENT DIAPHRAGM

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

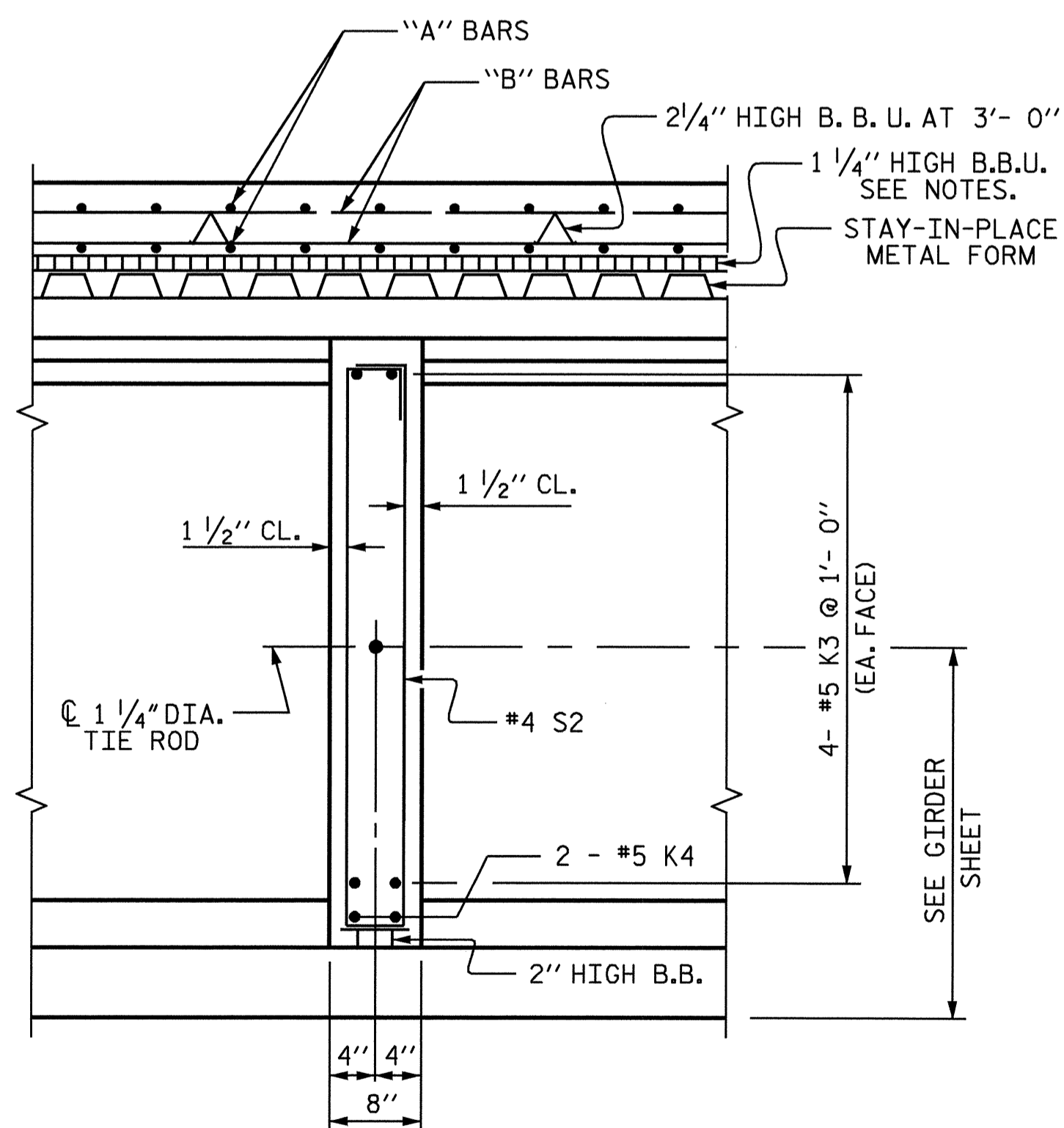


SECTION THROUGH BENTS #1, #2, & #4 DIAPHRAGMS

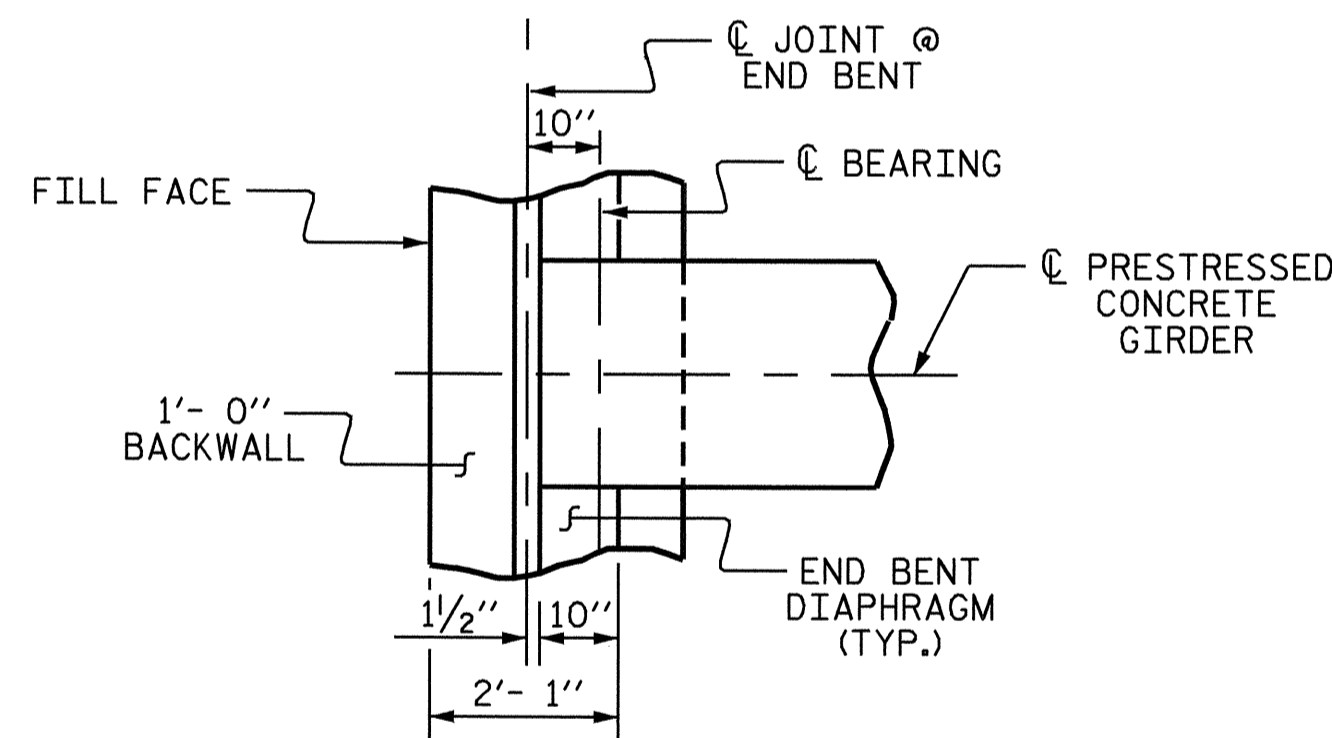


SECTION THROUGH BENT #3 DIAPHRAGM

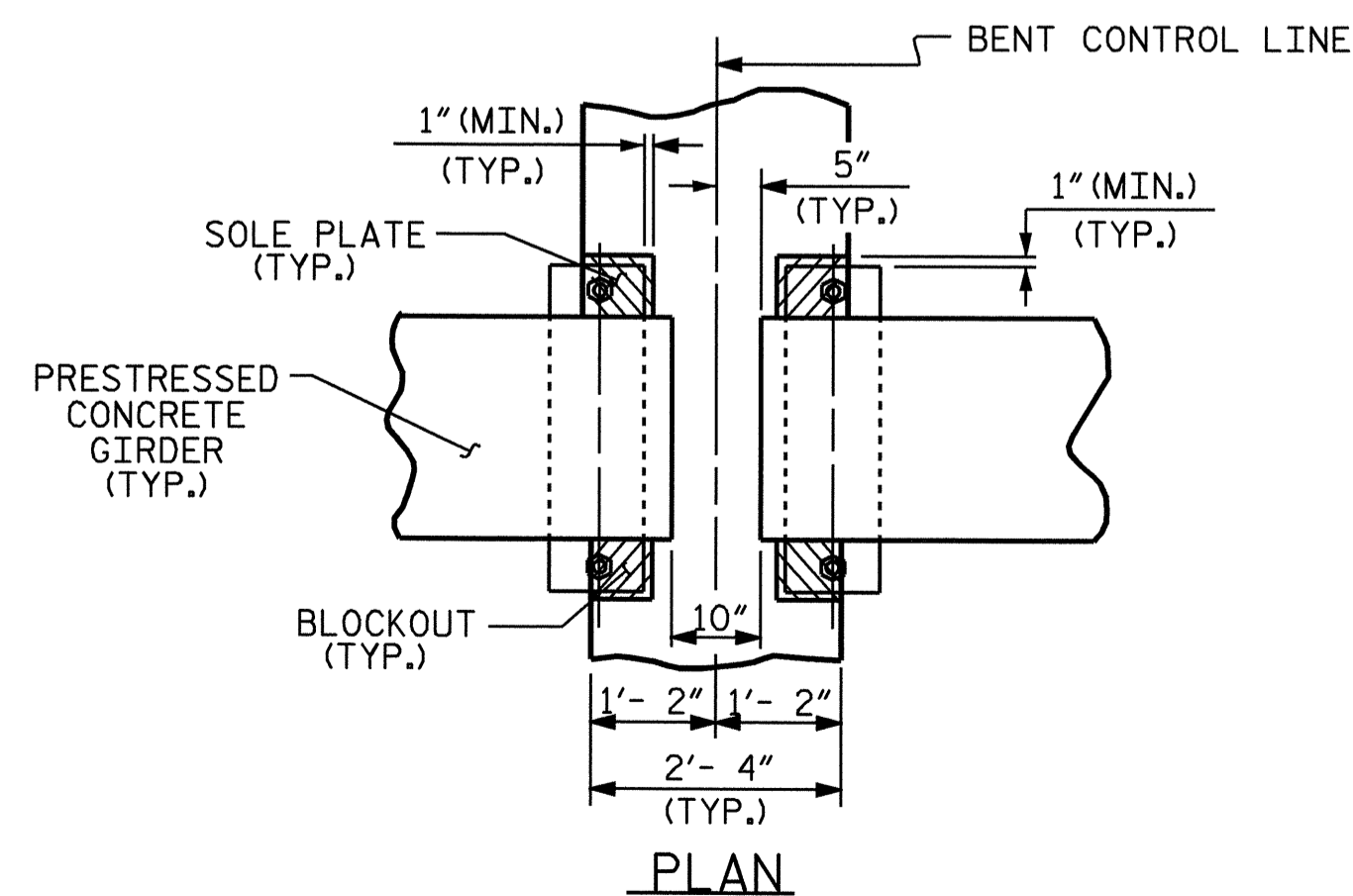
* #5 G1 MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND STIRRUPS.



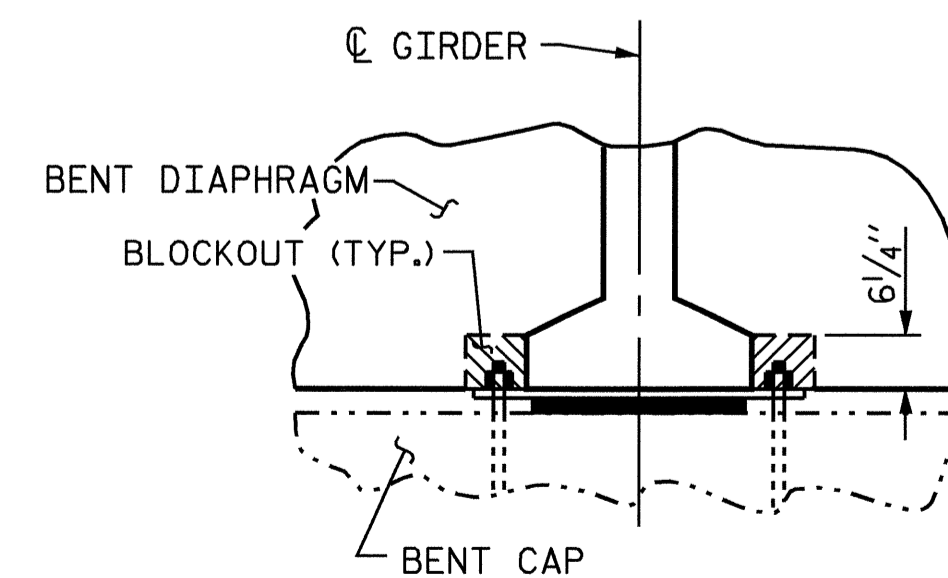
SECTION THRU INTERMEDIATE DIAPHRAGM



PLAN OF END BENT DIAPHRAGM



BENTS #1, #2, & #4 DIAPHRAGM BLOCKOUT DETAIL



SECTION

DRAWN BY: D. A. GLADDEN DATE: 6-12-08
 CHECKED BY: A. DAVENPORT DATE: 2-9-09

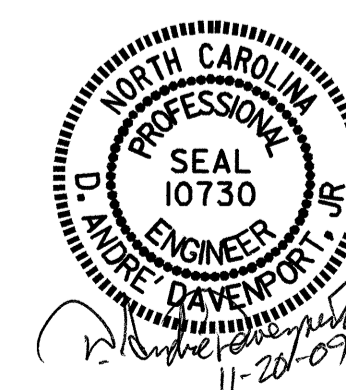
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PROJECT NO. B-1037
 ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 2

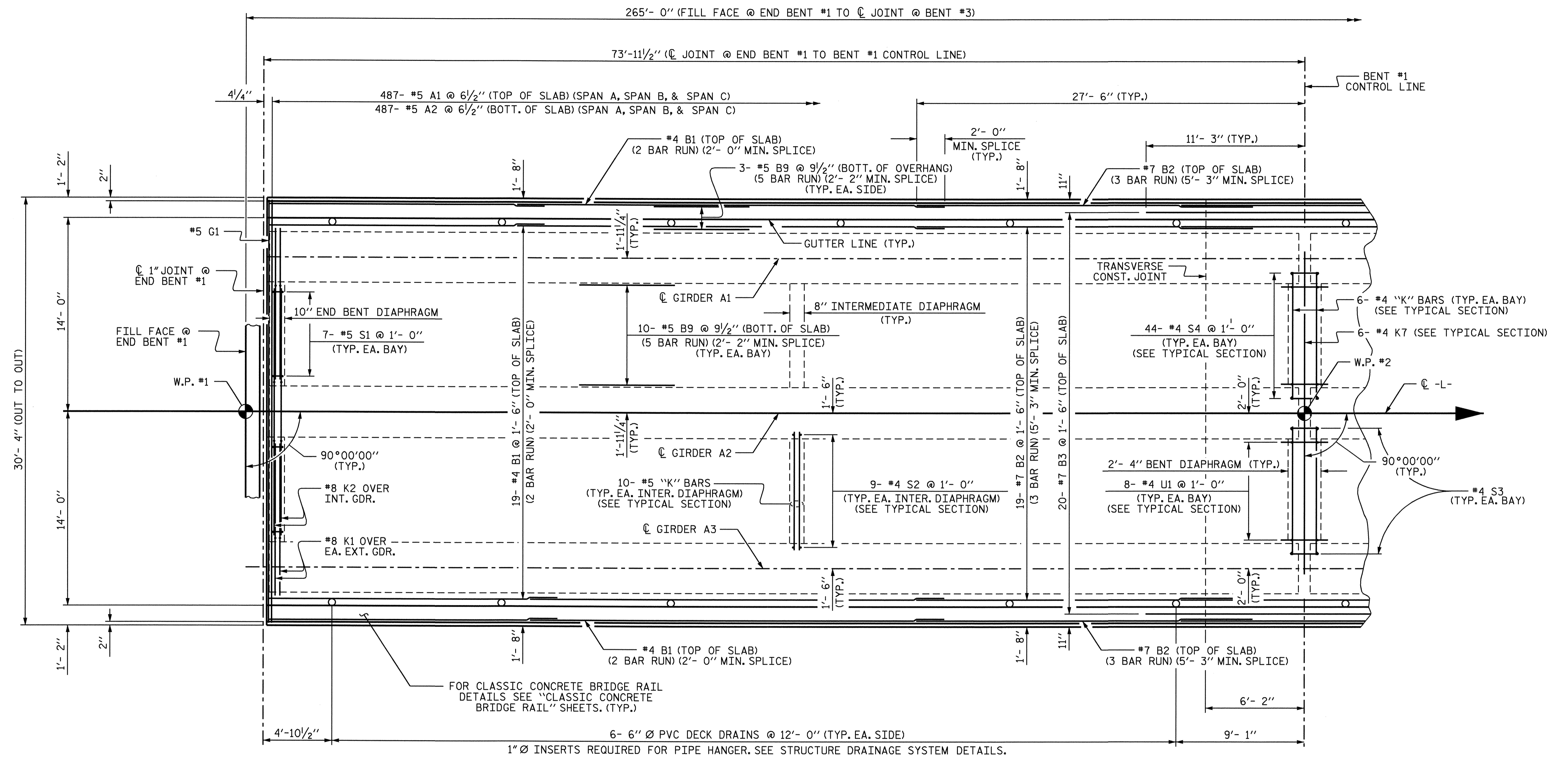
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 TYPICAL SECTION



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

S-7
 TOTAL SHEETS
 54

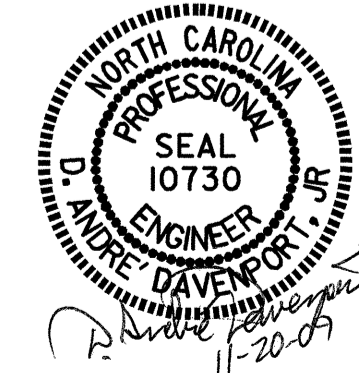


PLAN OF SPAN A

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

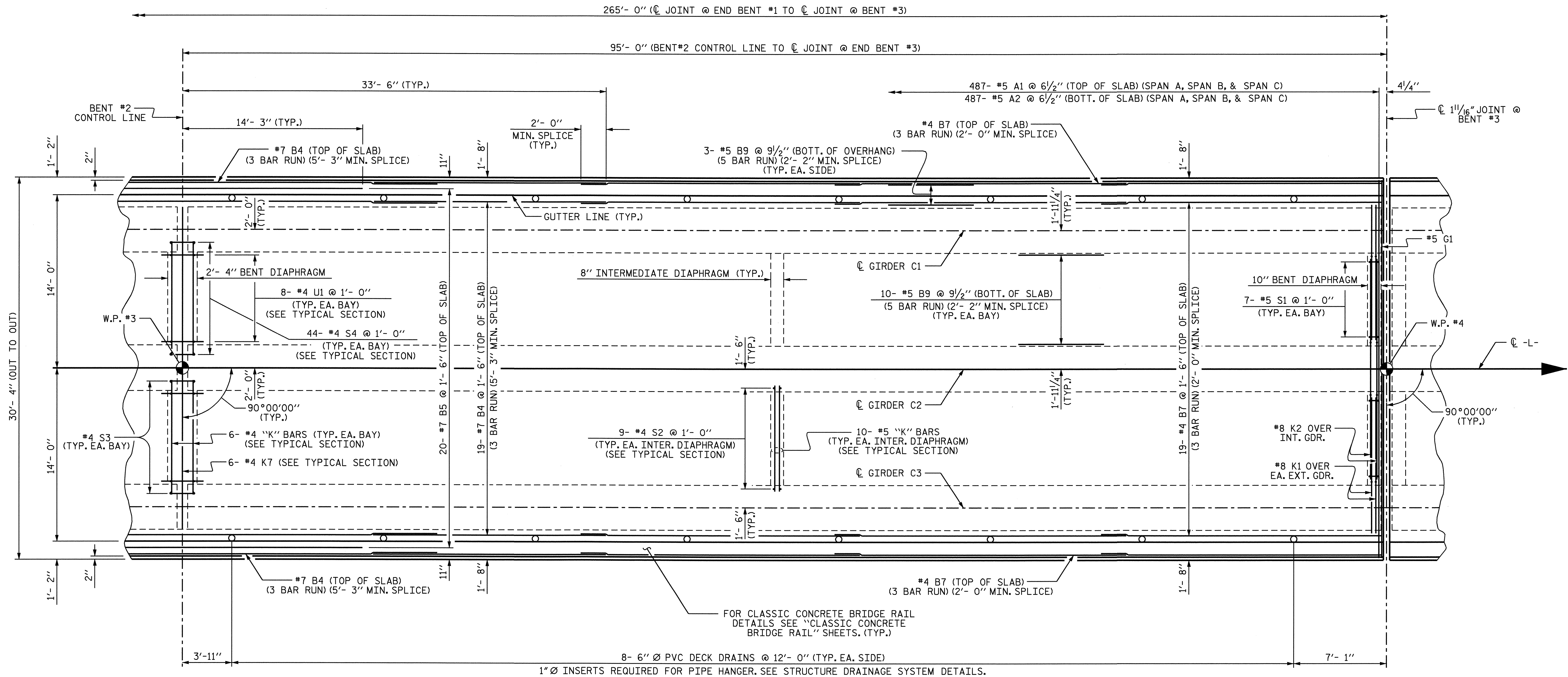
SHEET 1 OF 5

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



DRAWN BY : D. A. GLADDEN DATE : 7-1-08
 CHECKED BY : A. DAVENPORT DATE : 2-9-09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			54



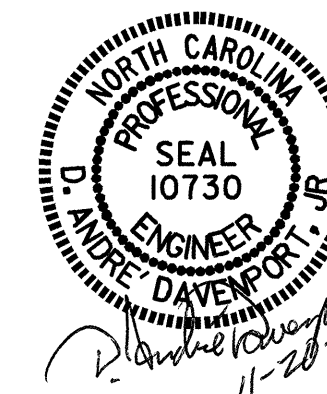
PLAN OF SPAN C

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

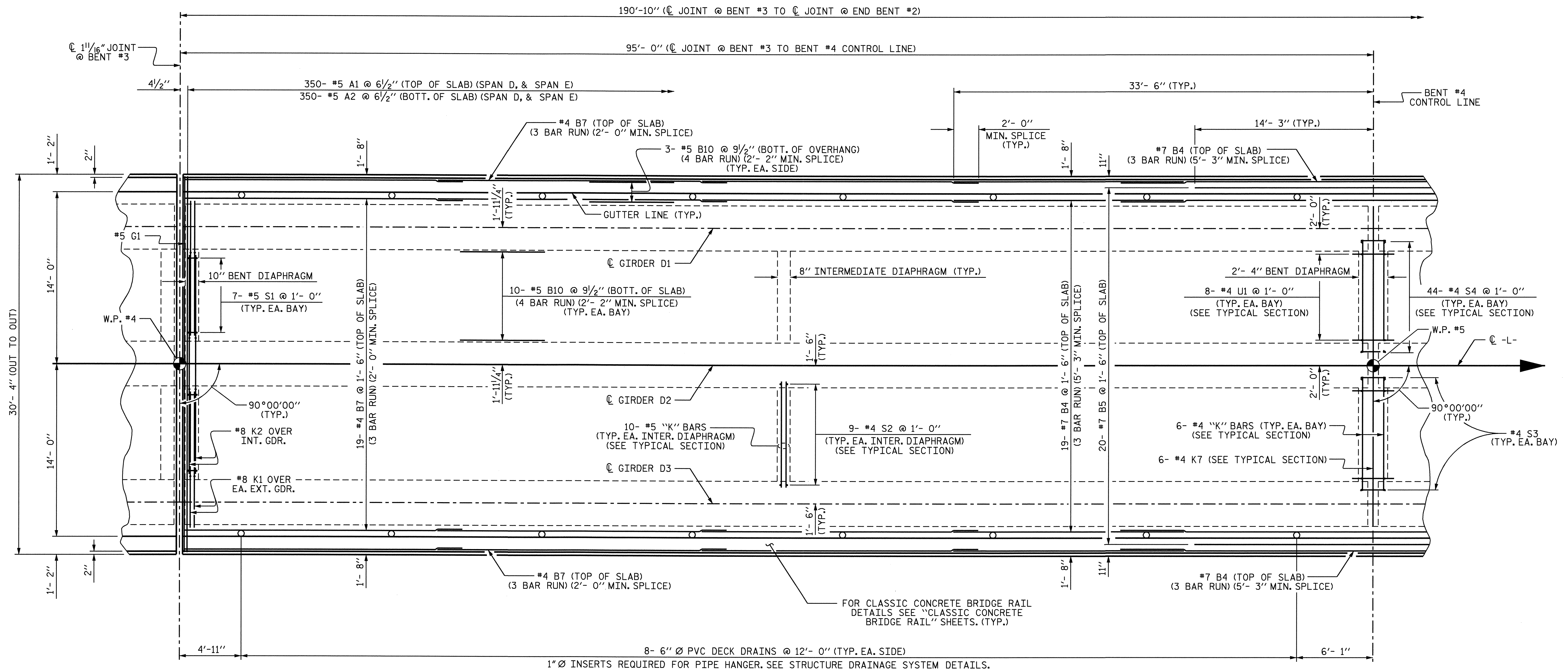
SUPERSTRUCTURE
 PLAN OF SPAN C



DRAWN BY: D. A. GLADDEN DATE: 7-1-08
 CHECKED BY: A. DAVENPORT DATE: 2-9-09

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1			3			TOTAL SHEETS
2			4			54



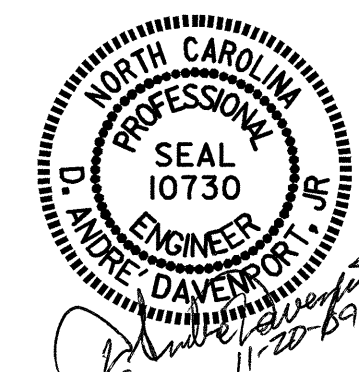
PLAN OF SPAN D

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

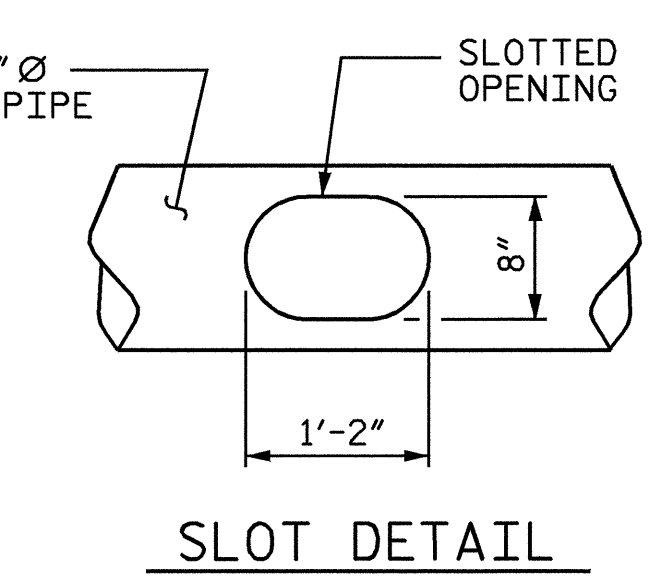
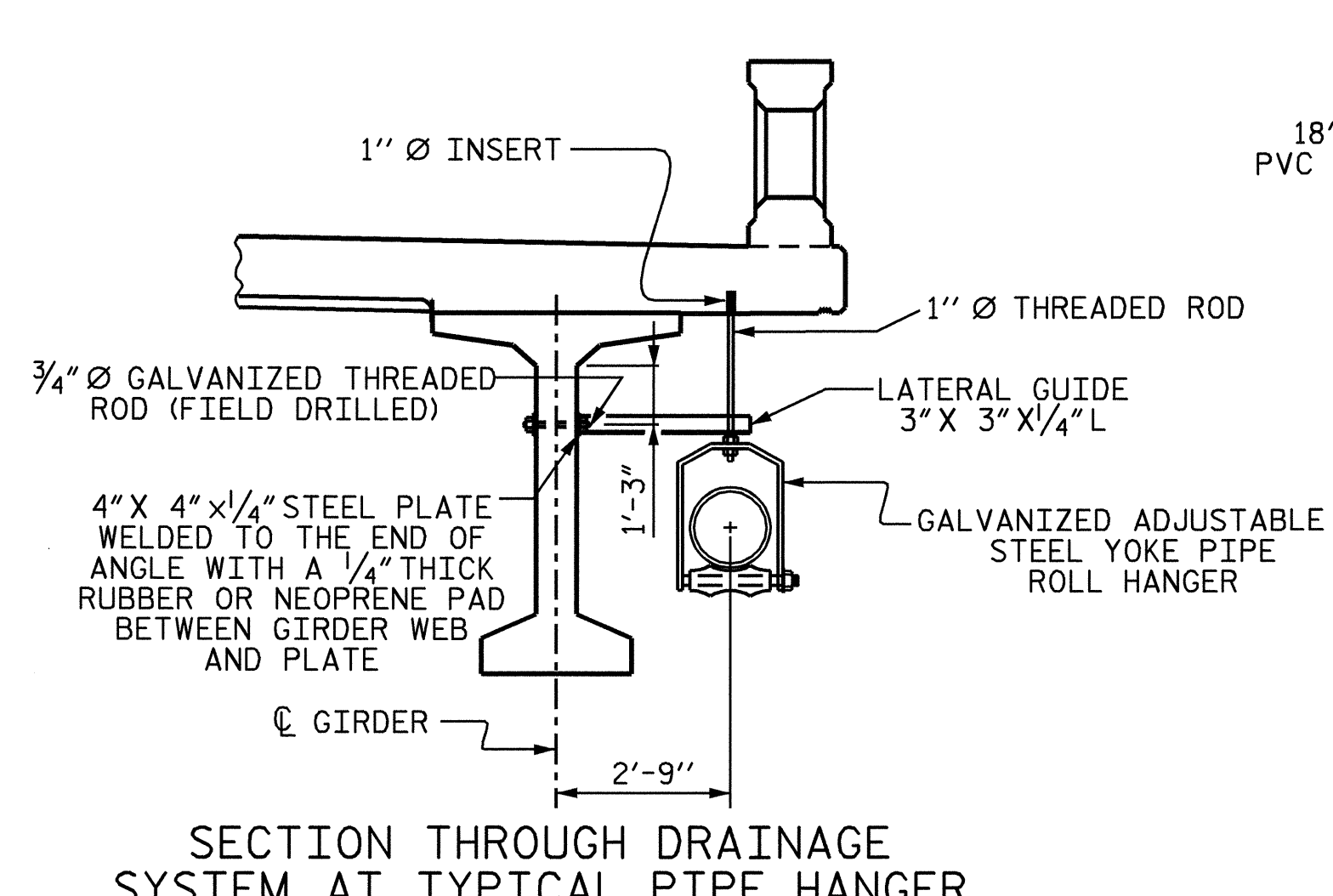
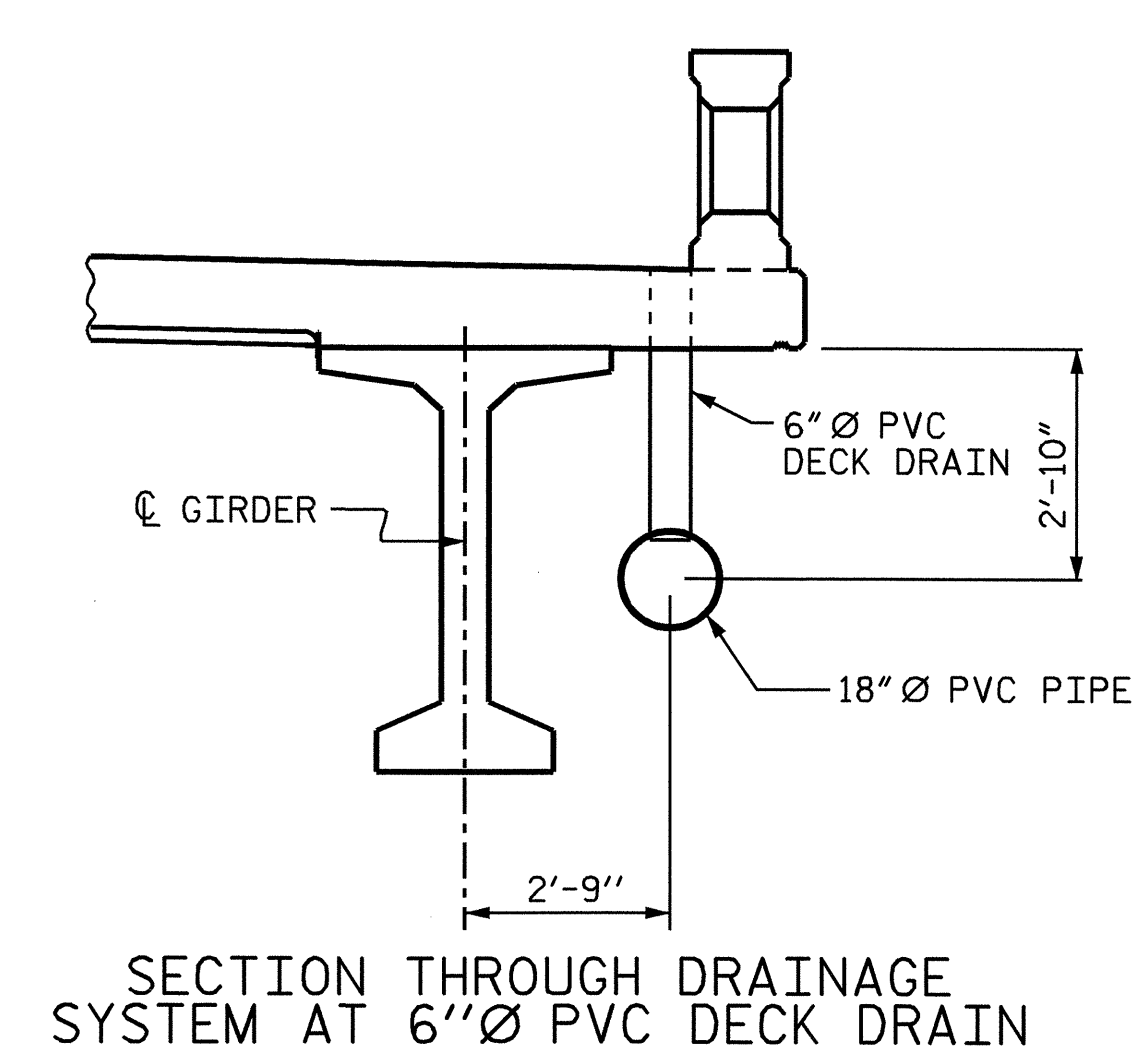
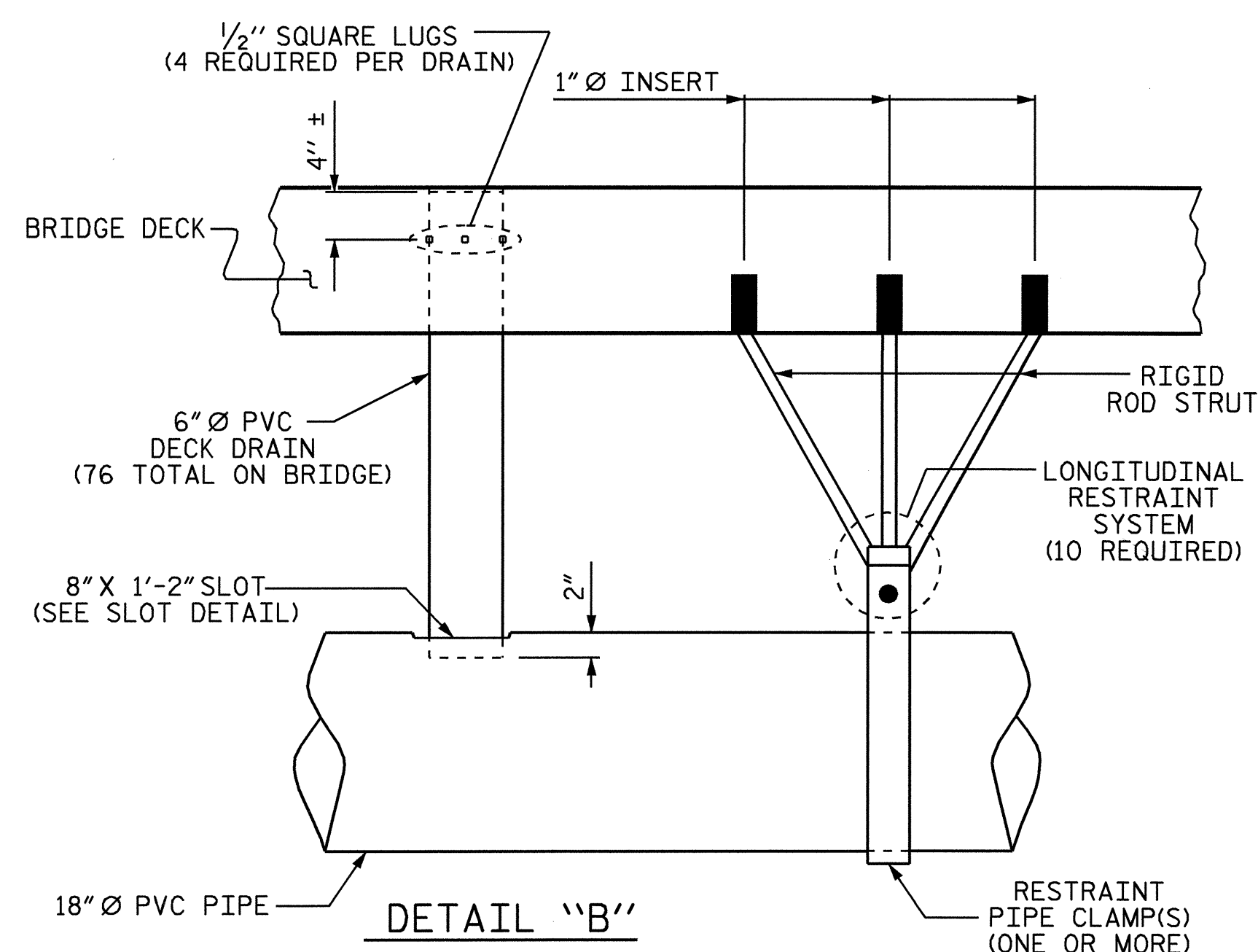
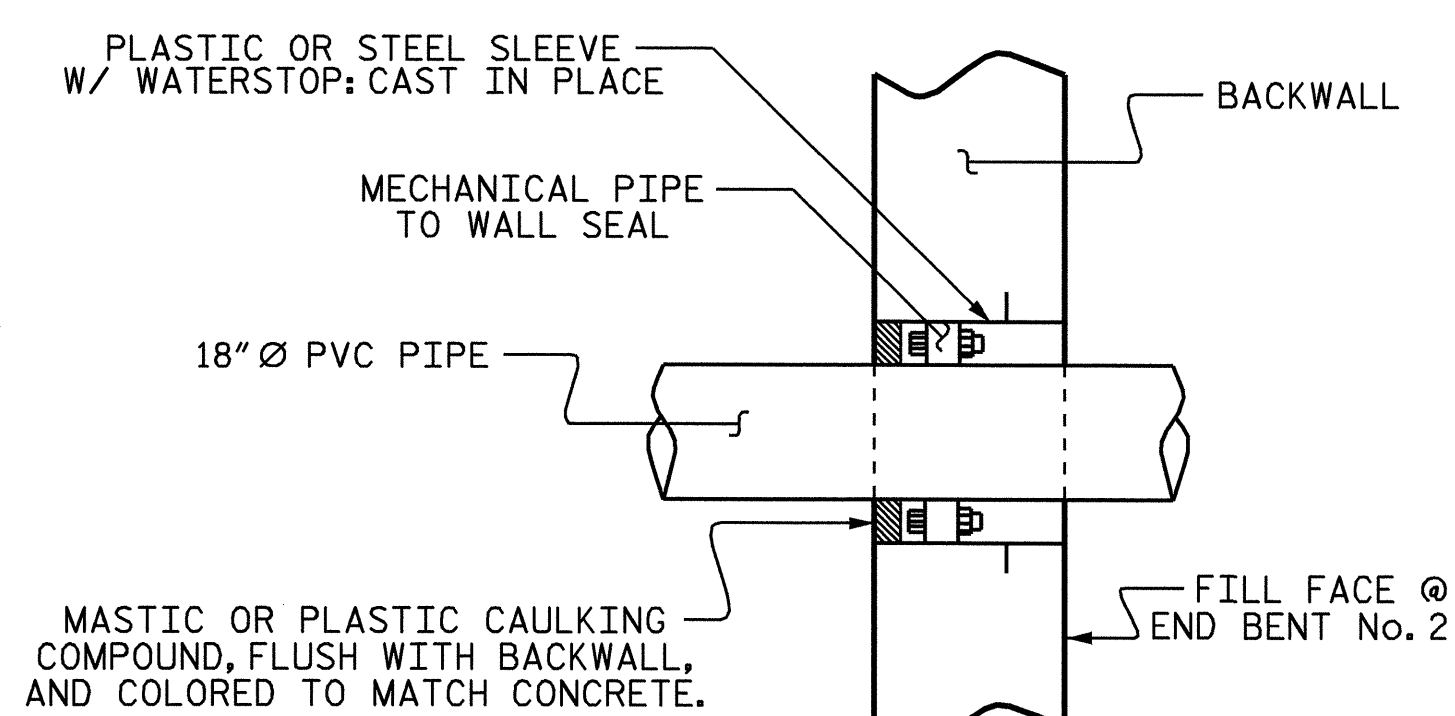
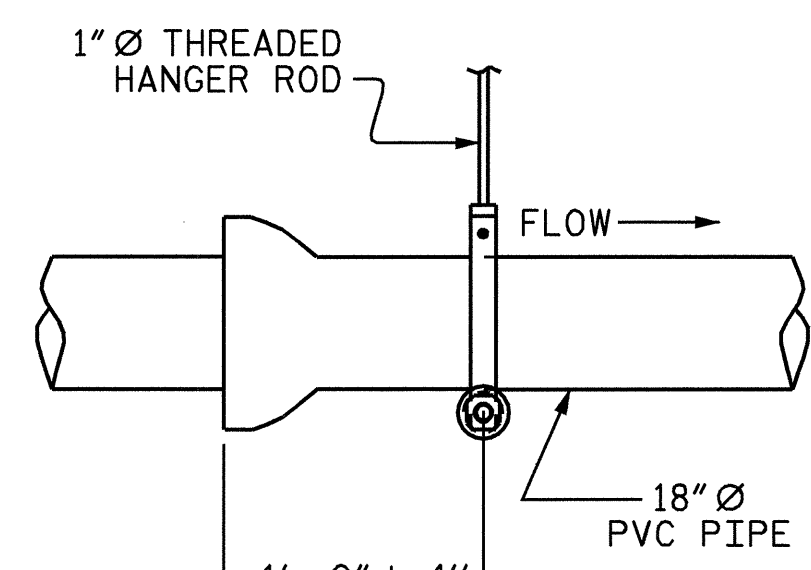
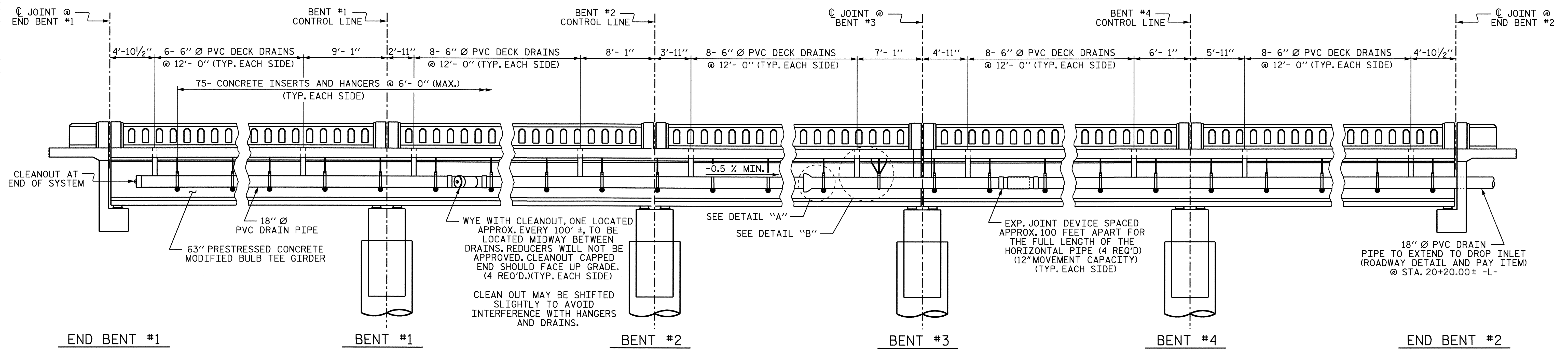
**SUPERSTRUCTURE
 PLAN OF SPAN D**



DRAWN BY : D. A. GLADDEN DATE : 7-1-08
 CHECKED BY : A. DAVENPORT DATE : 2-9-09

20-NOV-2009 09:10
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			54



NOTES

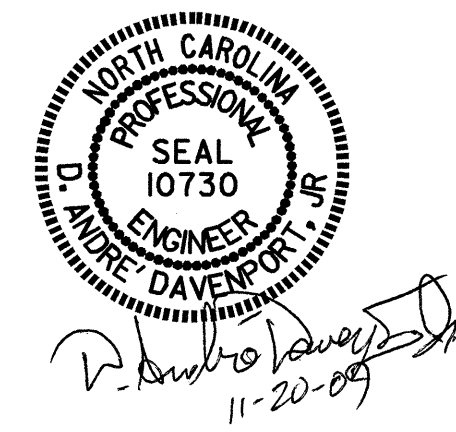
- EXPANSION JOINT DEVICES SHALL BE SPACED A MAXIMUM OF 100' APART FOR THE FULL LENGTH OF EACH HORIZONTAL PIPE. PROVIDE EXPANSION JOINT DEVICES IN THE DRAIN PIPE AT A MAXIMUM SPACING OF 100'-0" WITH A 12" MINIMUM EXPANSION CAPACITY.
- GASKETED JOINTS SHALL BE POSITIONED TO OCCUR APPROXIMATELY 12" FROM PIPE SUPPORTS. SEE DETAIL A.
- LATERAL GUIDE INSERTS, IN THE GIRDER WEB, MAY BE SHIFTED VERTICALLY DUE TO POSSIBLE INTERFERENCE WITH A GIRDER STRAND.
- A LONGITUDINAL RESTRAINT SHOULD BE LOCATED WITHIN THE FIRST 10 FEET OF THE BEGINNING AND ENDING OF ANY CONTINUOUS SECTION OF DRAINAGE SYSTEM.
- LONGITUDINAL RESTRAINTS ON THE 18" TRUNK LINE WILL BE PLACED AT A MAXIMUM SPACING OF 100 FEET. THESE RESTRAINTS SHOULD BE LOCATED MIDWAY BETWEEN EXPANSION JOINTS.
- AN OPTIONAL DETAIL FOR THE LATERAL GUIDES AND LONGITUDINAL RESTRAINTS MAY BE SUBMITTED FOR APPROVAL.
- THE PVC DRAINAGE SYSTEM SHALL BE PAINTED WITH TWO COATS OF PRIMER MEETING THE REQUIREMENTS OF ARTICLE 1080-12 OF THE STANDARD SPECIFICATIONS. EACH COAT SHALL BE 2 DRY MILS THICK. THE PVC DRAINAGE SYSTEM SHALL BE ROUGHENED PRIOR TO PAINTING. NO SEPARATE PAYMENT WILL BE MADE FOR PAINTING THE PVC DRAINAGE SYSTEM AS THIS IS INCLUDED IN THE LUMP SUM BID PRICE FOR STRUCTURE DRAINAGE SYSTEM.
- SEE ROADWAY PLANS FOR DETAILS AND PAY ITEM FOR DROP INLET AT APPROXIMATE STATION 20+20.00 -L-.
- THE DRAINAGE SYSTEM DETAILS ARE SCHEMATIC DRAWINGS ONLY.
- THE CONTRACTOR SUBMITTAL SHALL INCLUDE THE ESTIMATED FORCE REQUIRED TO ACTUATE THE SLIP OF THE EXPANSION JOINT.
- THE CONTRACTOR SHALL SUBMIT AN ERECTION PLAN FOR THE DRAINAGE SYSTEM, INCLUDING, BUT NOT LIMITED TO, ATTACHMENTS TO THE BRIDGE, PIPE ALIGNMENT AND PIPE LENGTHS, AND ALL NECESSARY FITTINGS, WYES, ADAPTERS, GUIDES AND JOINTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE PVC DRAINAGE SYSTEM USING NECESSARY FITTINGS, TEES, AND WYES TO PROVIDE A CONTINUOUS DRAINAGE SYSTEM.
- DRAINAGE SYSTEM WILL BE PAID FOR UNDER THE PAY ITEM "STRUCTURE DRAINAGE SYSTEM". FOR "STRUCTURE DRAINAGE SYSTEM", SEE SPECIAL PROVISIONS.
- BOLTS, NUTS, AND WASHERS SHALL BE HIGH STRENGTH AND GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- CONCRETE INSERTS SHALL BE OF AN APPROVED GALVANIZED TYPE HAVING A MINIMUM WORKING LOAD TENSION CAPACITY OF 2.5 KIPS.
- DECK DRAIN PIPES AND FITTINGS SHALL BE SCH. 40 PVC, ASTM D 1785. JOINT FITTINGS SHALL BE SOLVENT CEMENT TYPE.
- COLLECTOR PIPES SHALL BE ASTM D2241, SDR 26, IPS OD 18. JOINTS SHALL BE GASKETED ELASTOMERIC TYPE.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

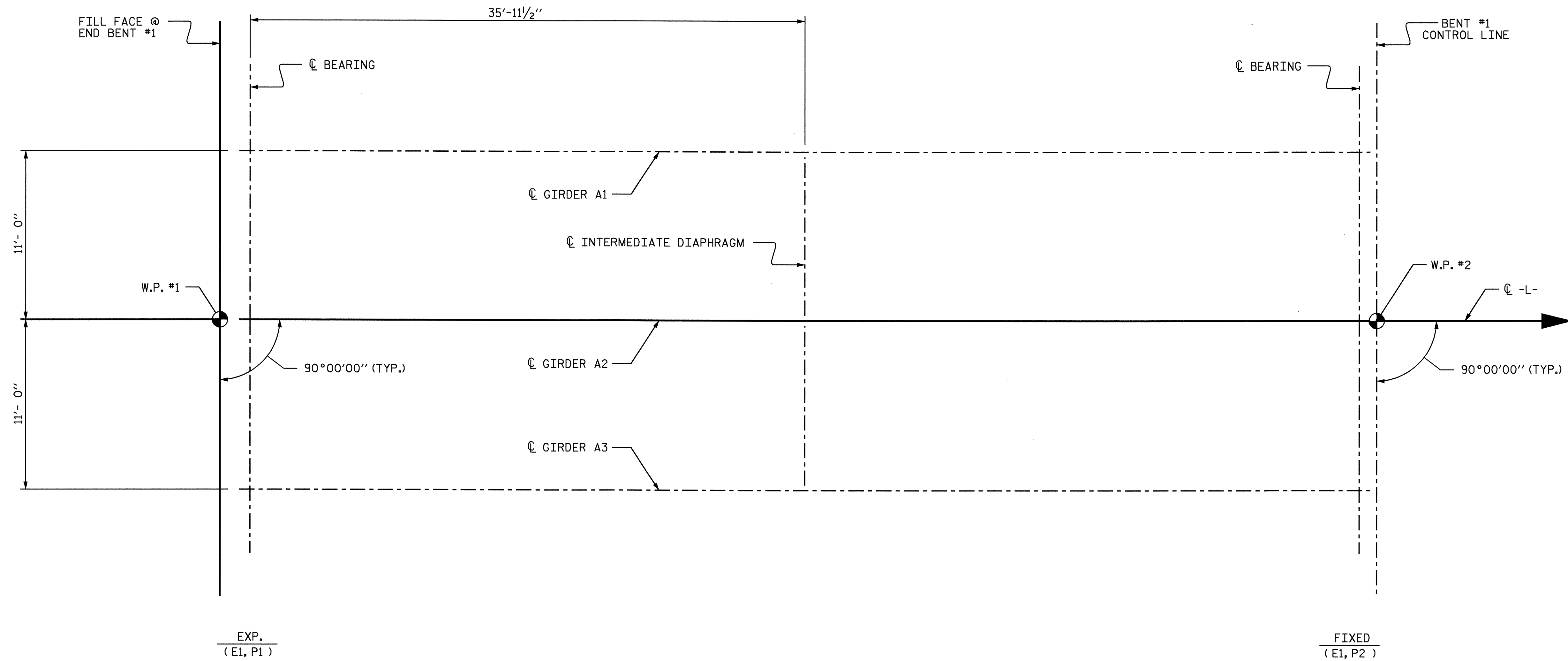
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STRUCTURE DRAINAGE SYSTEM DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			54



DRAWN BY: D. A. GLADDEN DATE: 3-5-09
 CHECKED BY: A. DAVENPORT DATE: 3-19-09



FRAMING PLAN (SPAN A)

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 1 OF 5

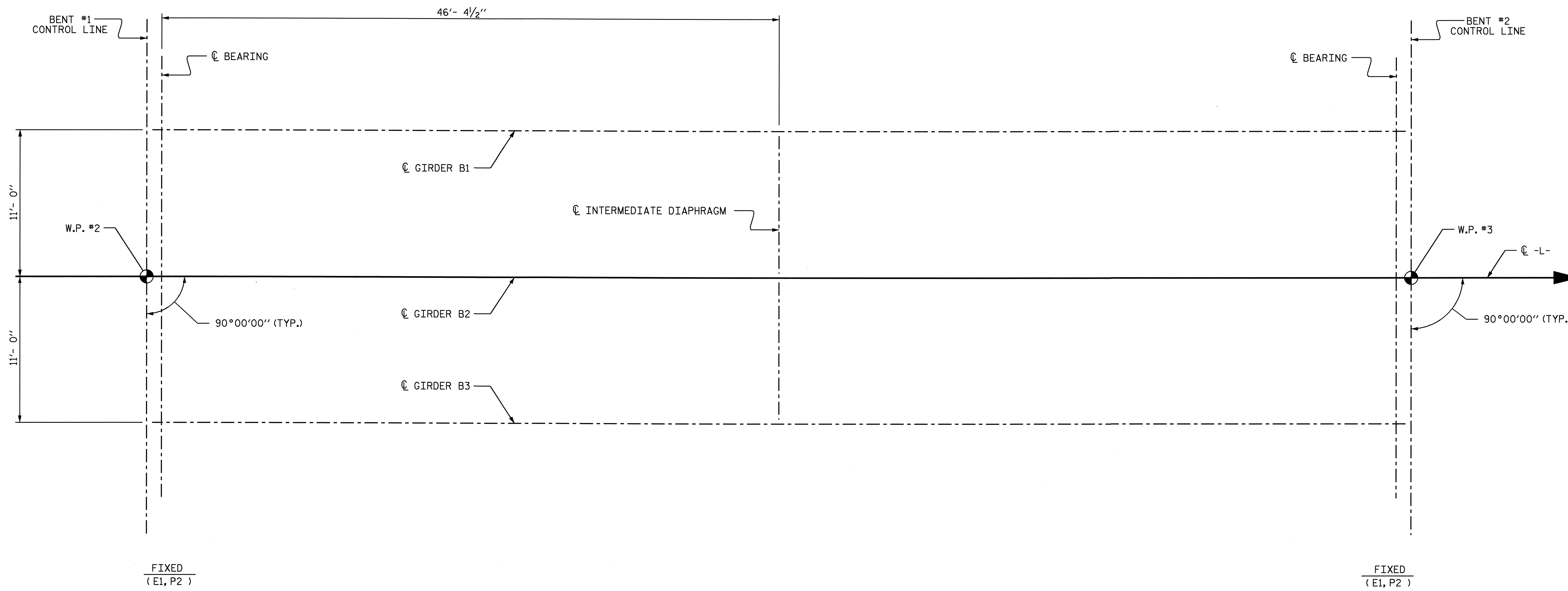
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 (SPAN A)



DRAWN BY : D. A. GLADDEN DATE : 7-24-08
 CHECKED BY : A. DAVENPORT DATE : 2-9-09

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			54



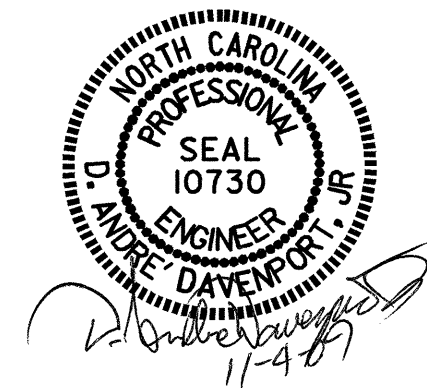
FRAMING PLAN (SPAN B)

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

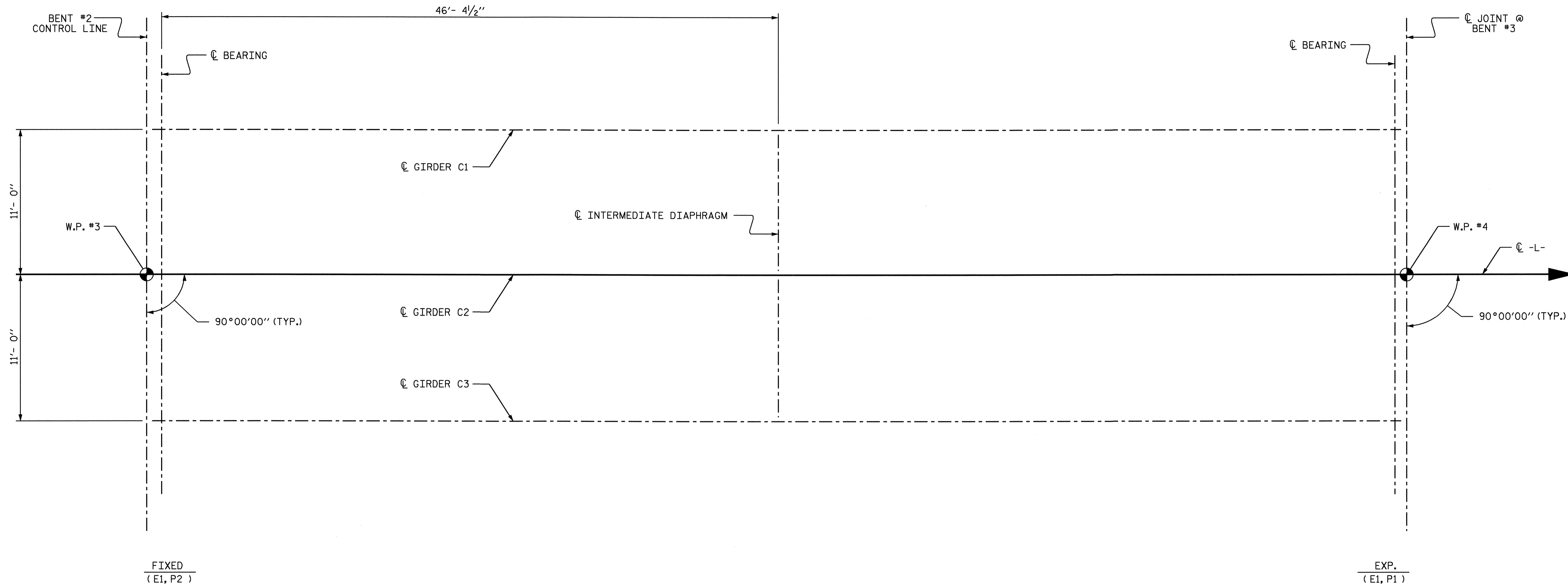
SUPERSTRUCTURE
 FRAMING PLAN
 (SPAN B)



DRAWN BY : D. A. GLADDEN DATE : 7-24-08
 CHECKED BY : A. DAVENPORT DATE : 2-9-09

04-NOV-2009 09:52
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			54



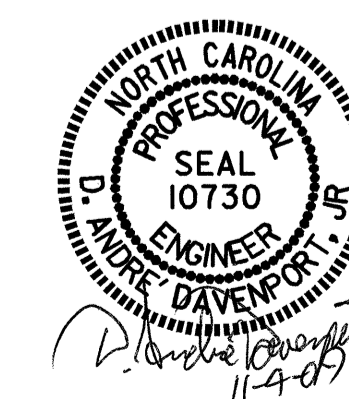
FRAMING PLAN (SPAN C)

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

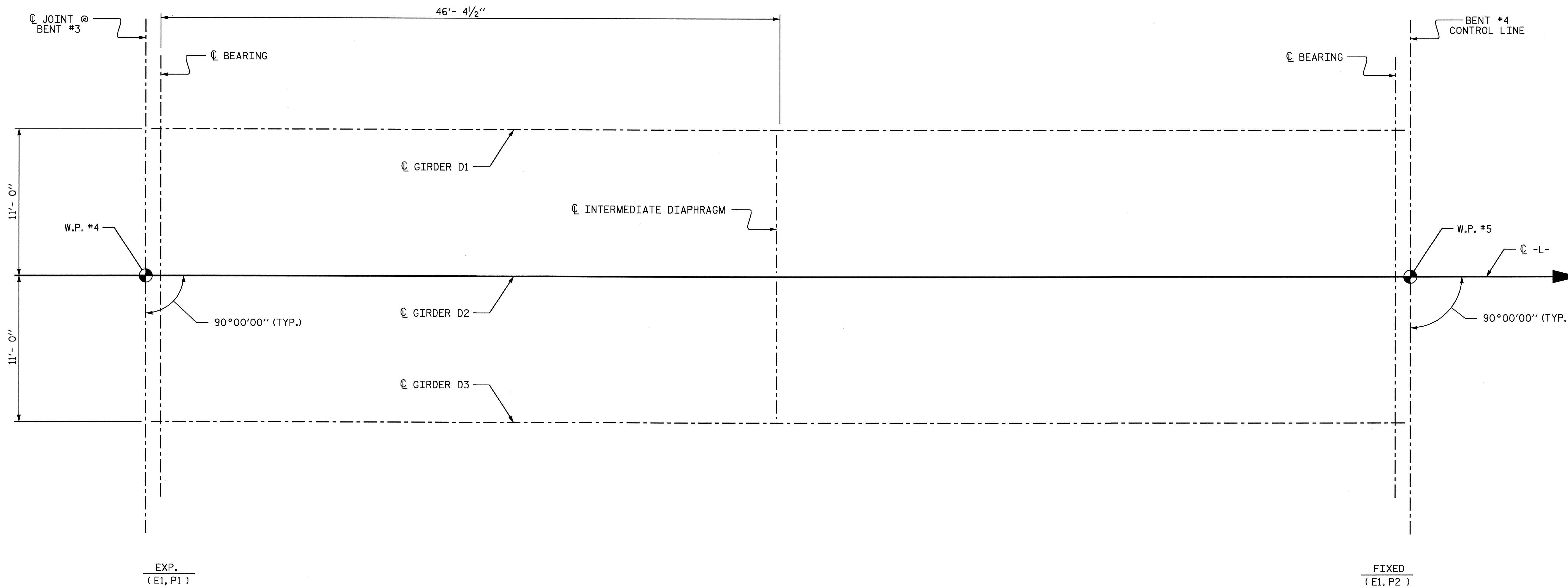
SUPERSTRUCTURE
 FRAMING PLAN
 (SPAN C)



DRAWN BY : D. A. GLADDEN DATE : 7-24-08
 CHECKED BY : A. DAVENPORT DATE : 2-9-09

04-NOV-2009 09:52
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			54



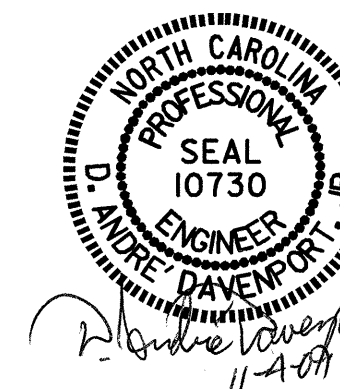
FRAMING PLAN (SPAN D)

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

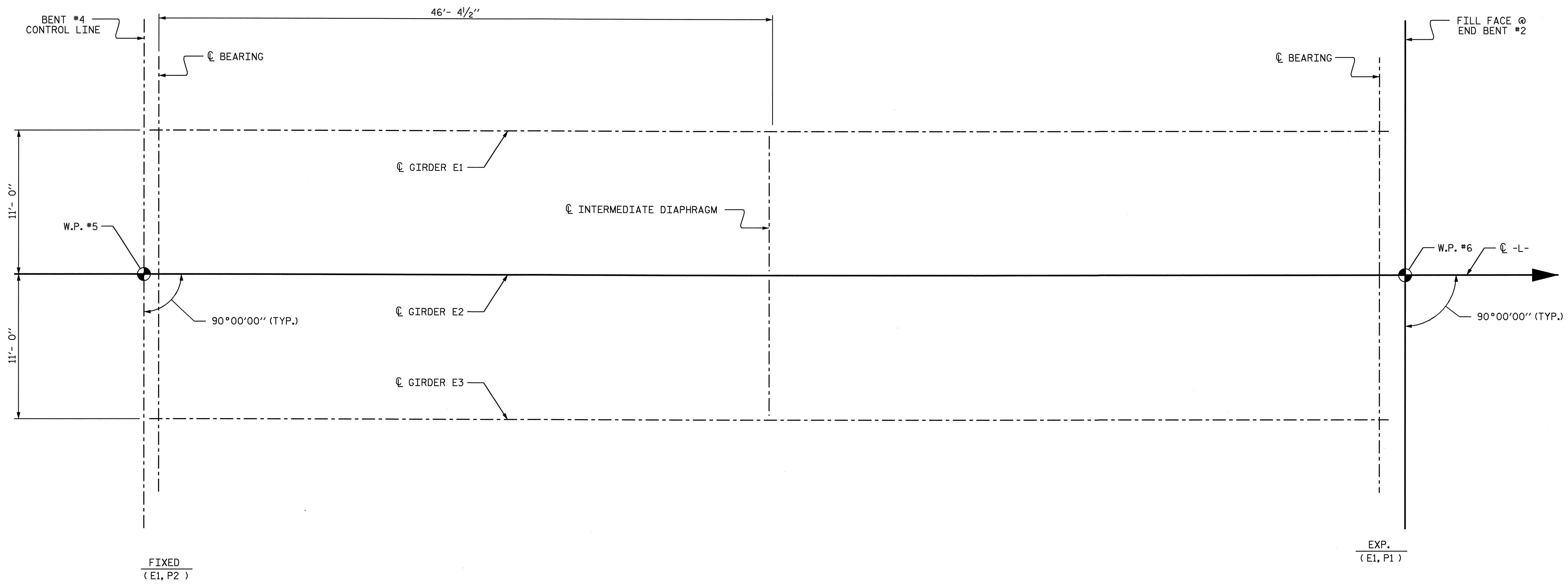
SUPERSTRUCTURE
 FRAMING PLAN
 (SPAN D)



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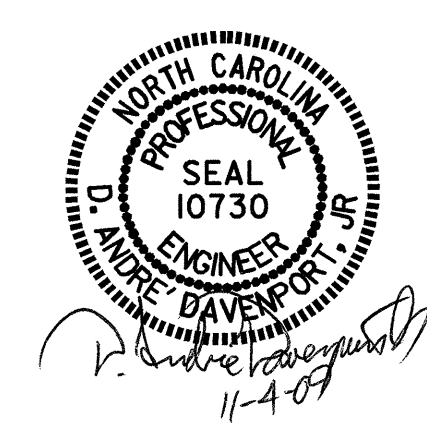
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			



FRAMING PLAN (SPAN E)

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-
 SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 (SPAN E)



DRAWN BY : D. A. GLADDEN DATE : 7-24-08
 CHECKED BY : A. DAVENPORT DATE : 2-9-09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			54

0.6" Ø L. R. GRADE 270 STRANDS

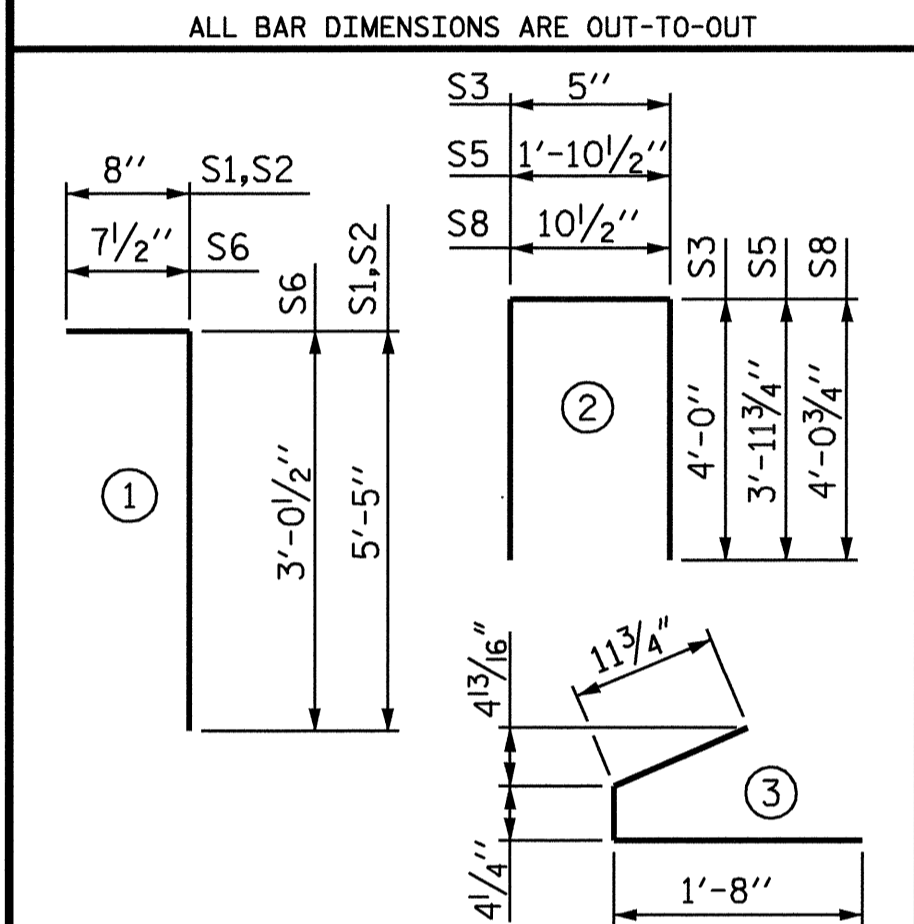
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	114	#4	1	6'-1"	463
S2	24	#5	1	6'-1"	152
S3	12	#4	2	8'-5"	67
S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	138	#5	1	3'-8"	528
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	26	#5	STR	3'-3"	88
S10	1	#3	STR	1'-10"	1

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

BAR TYPES



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	5300 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
1534	14.5	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
3	73'- 4"	220'- 0"

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

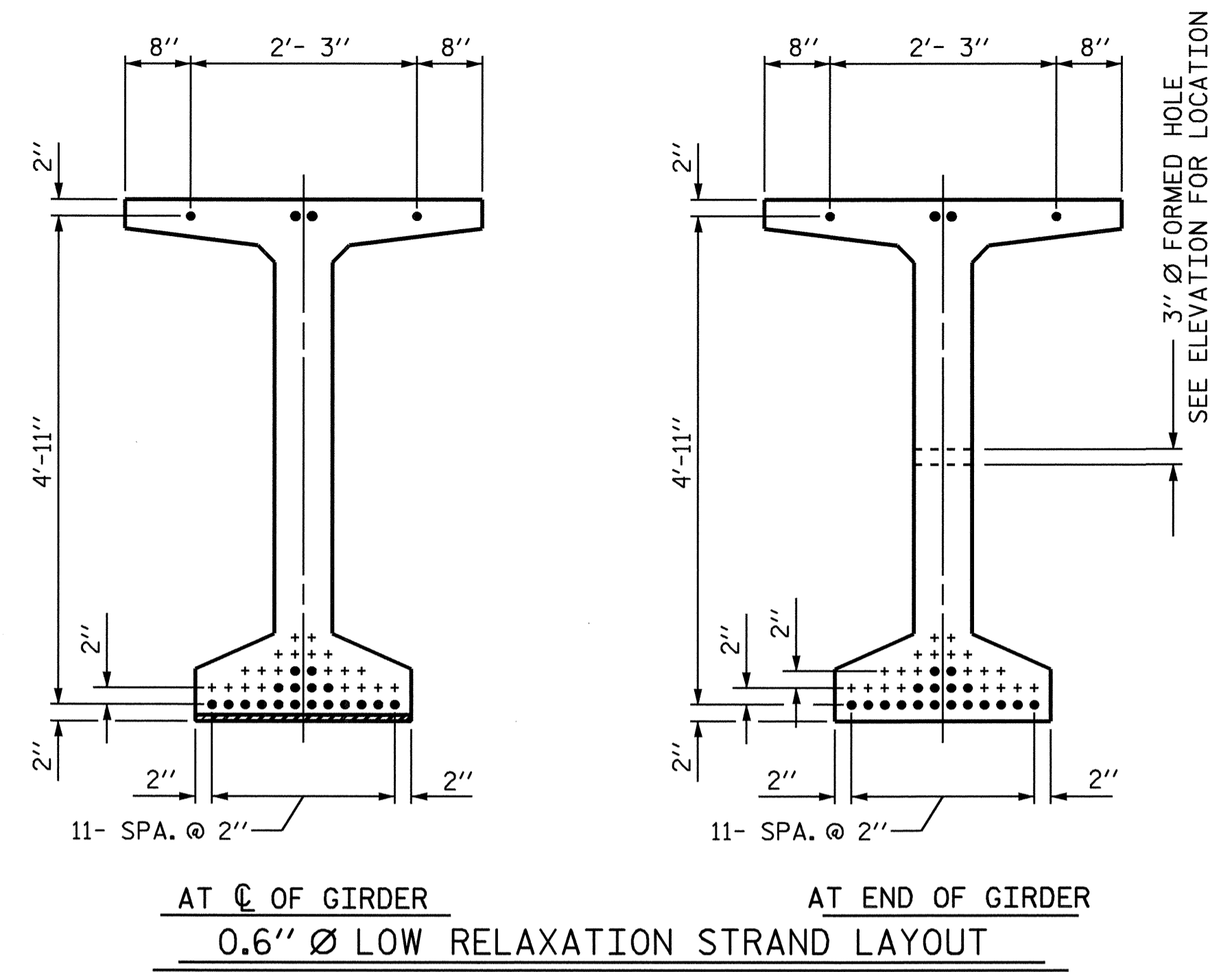
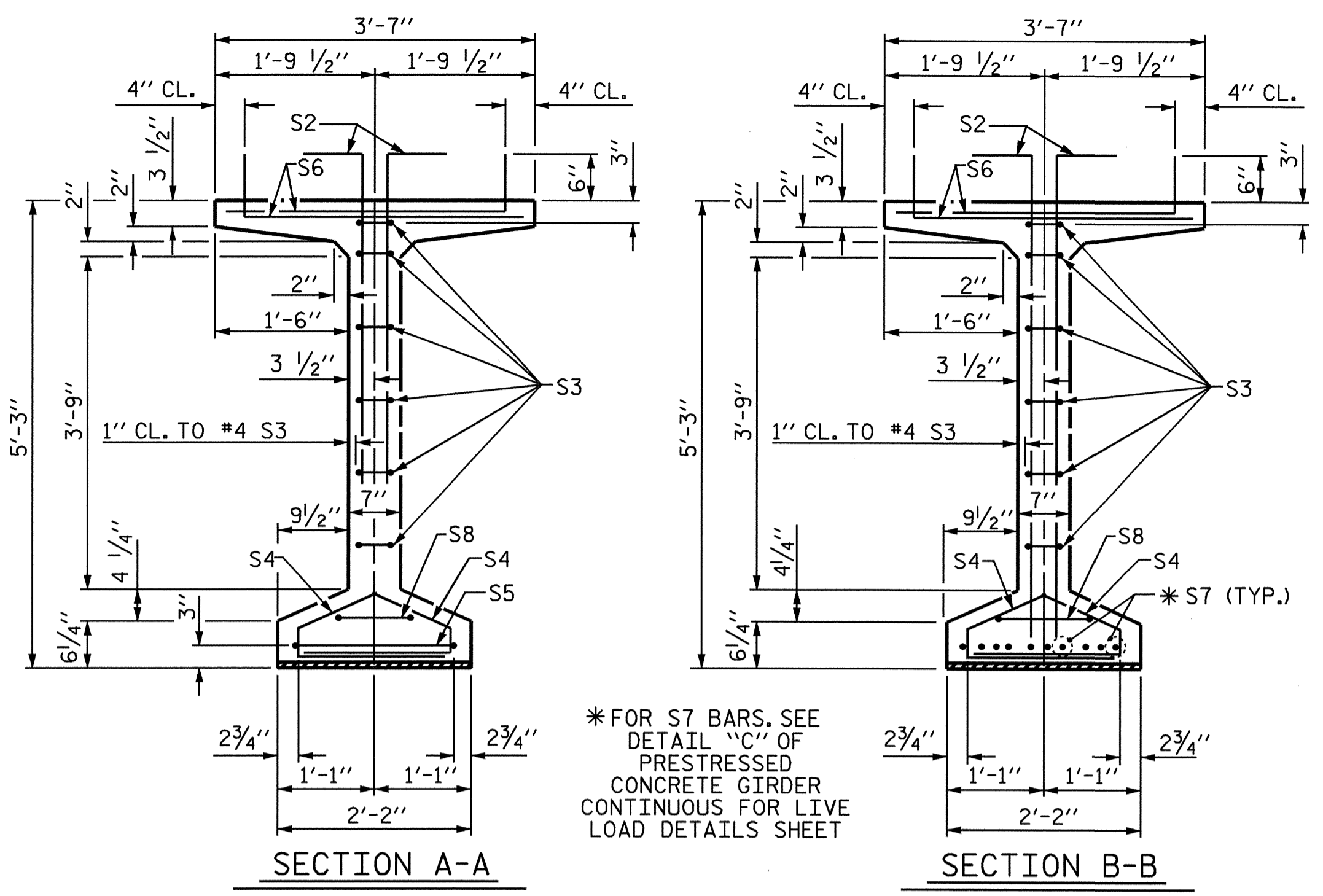
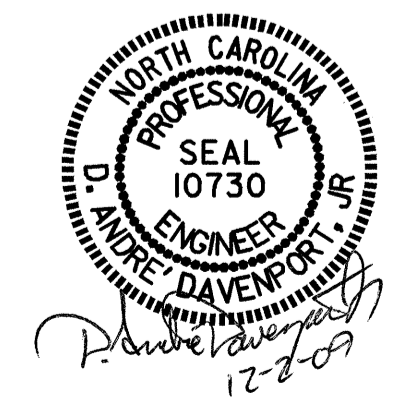
SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

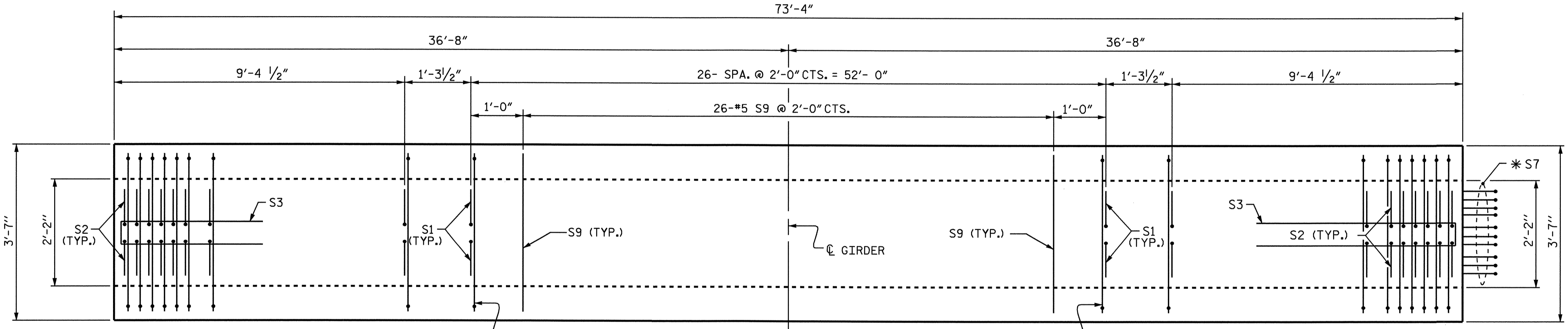
63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN A

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

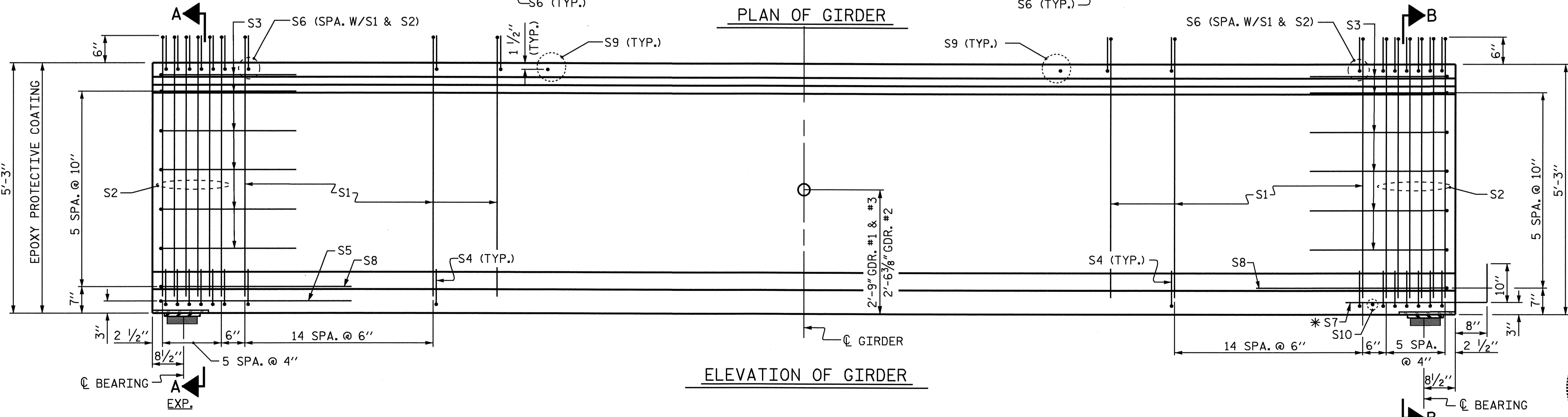
STD. NO. PCGD9



● FULLY BONDED STRANDS



PLAN OF GIRDER

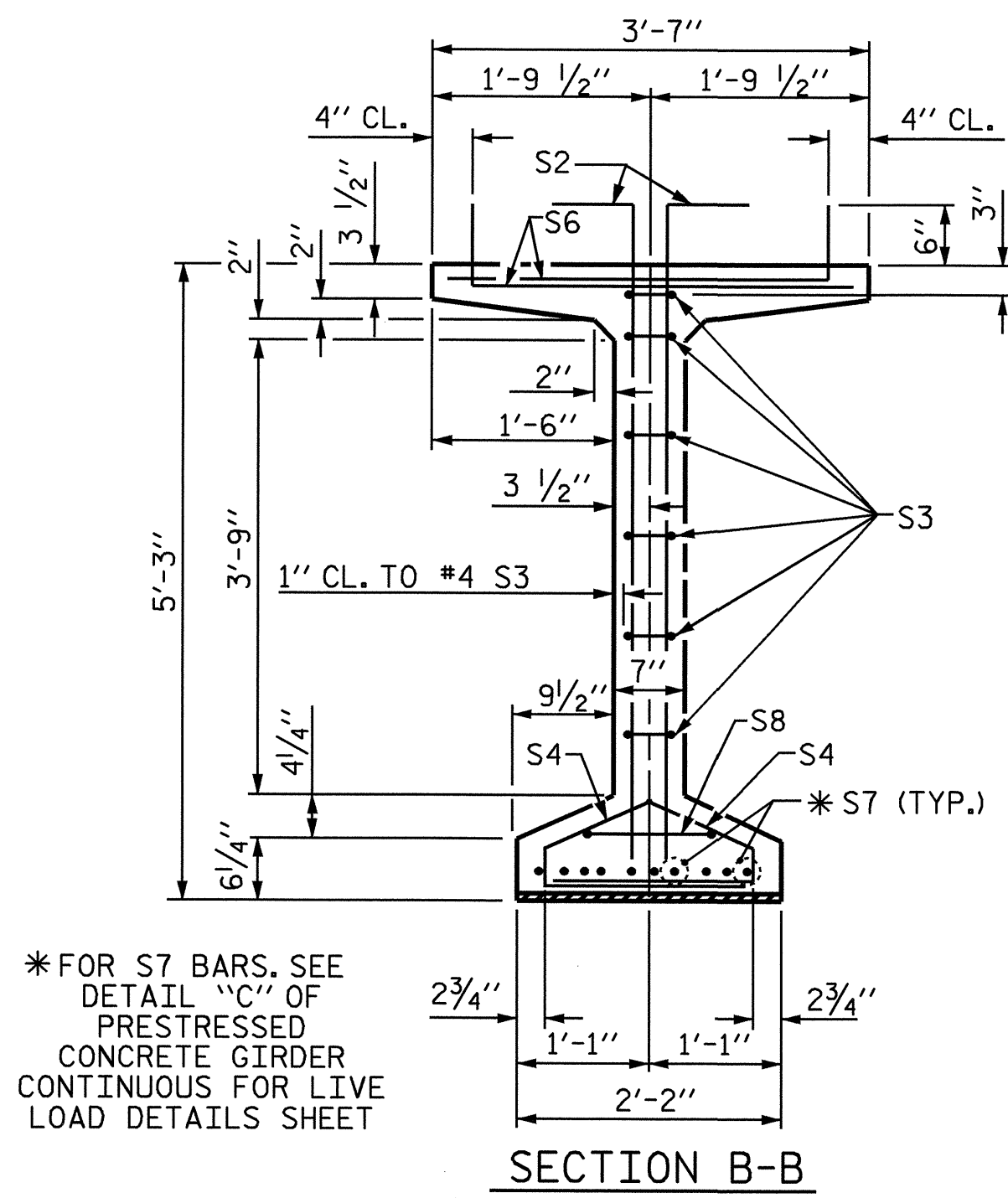


ELEVATION OF GIRDER

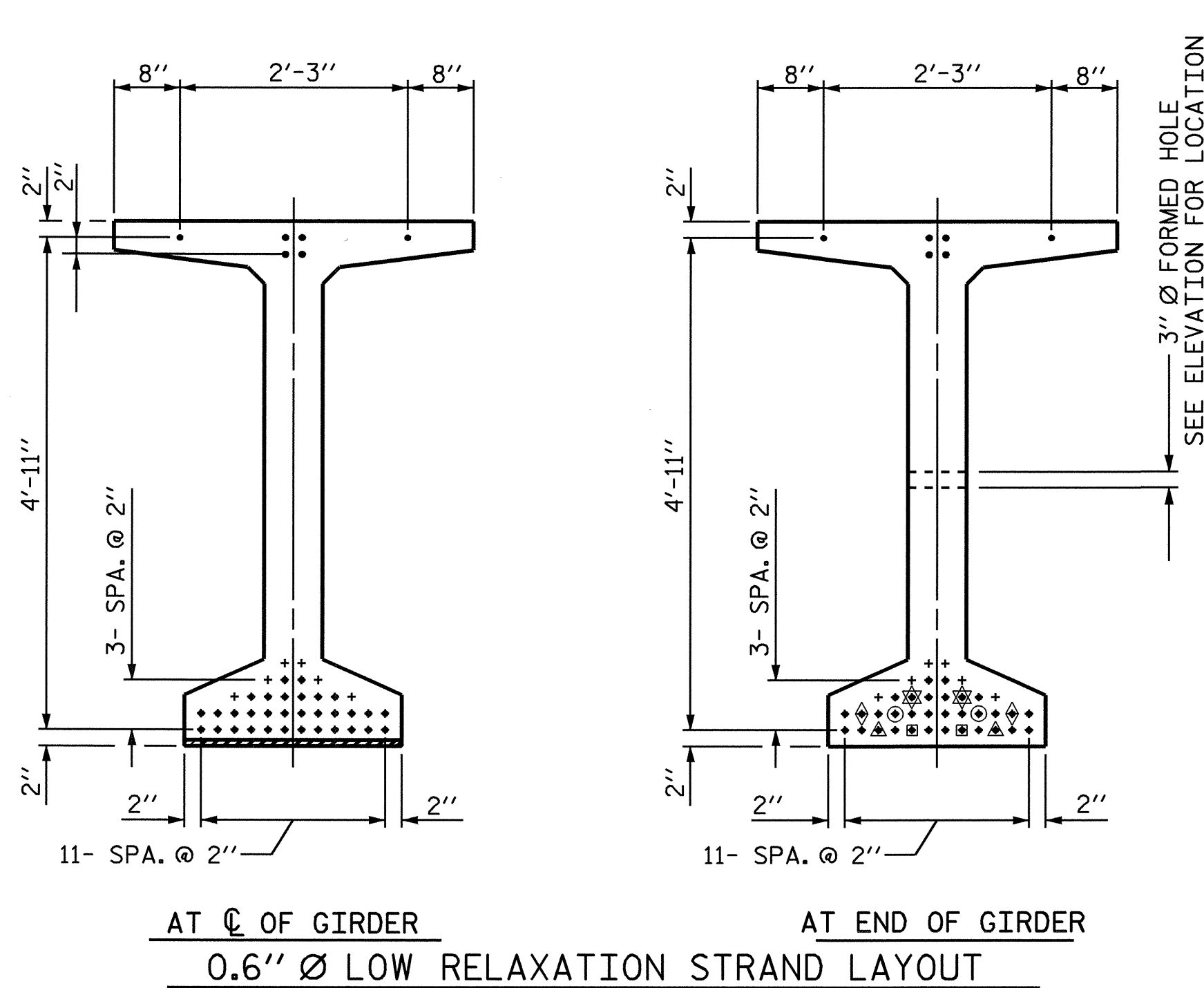
SPAN A

ASSEMBLED BY: D. A. GLADDEN DATE: 7-15-08
 CHECKED BY: A. DAVENPORT DATE: 1-9-09
 DRAWN BY: RWW 9/19/02
 CHECKED BY: GM 9/19/02

ADDED 9/19/02
 REV. 5/1/06 TLA/GM



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



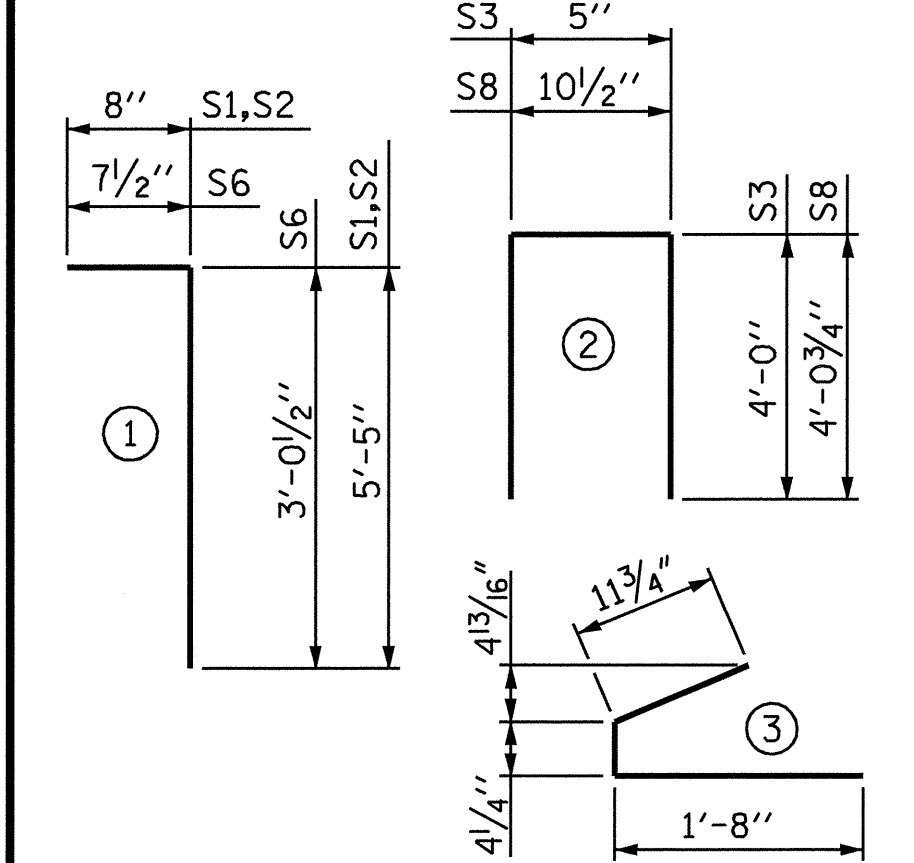
- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

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

REINFORCING STEEL FOR ONE GDR					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	134	#4	1	6'-1"	545
S2	24	#5	1	6'-1"	152
S3	12	#4	2	8'-5"	67
S4	84	#4	3	3'-0"	168
S6	158	#5	1	3'-8"	604
* S7	20	#5	STR	3'-8"	76
S8	2	#5	2	9'-0"	19
S9	36	#5	STR	3'-3"	122
S10	2	#3	STR	1'-10"	1

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

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT

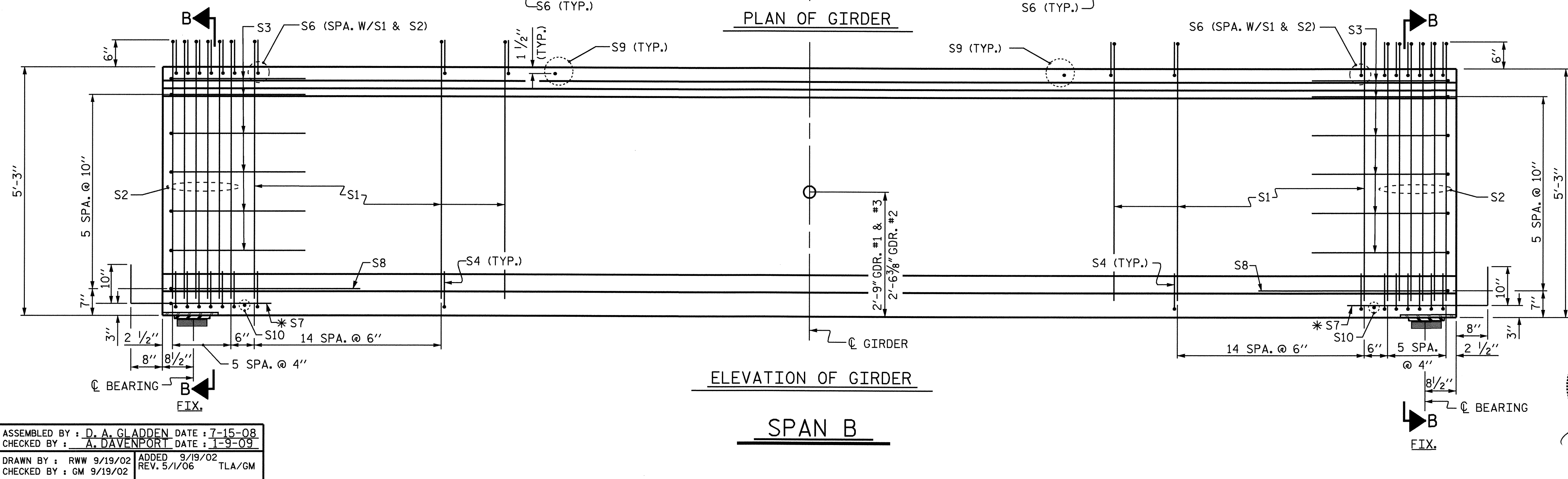
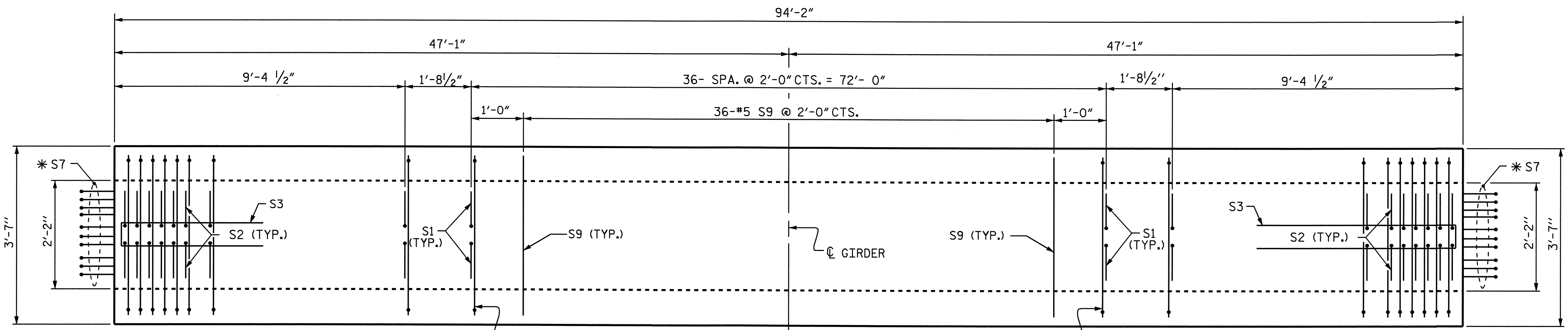


QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	8000 PSI CONCRETE		0.6" Ø L.R. STRANDS
	LB.	C.Y.	
	1754	18.7	38

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
3	94'- 2"	282'- 6"

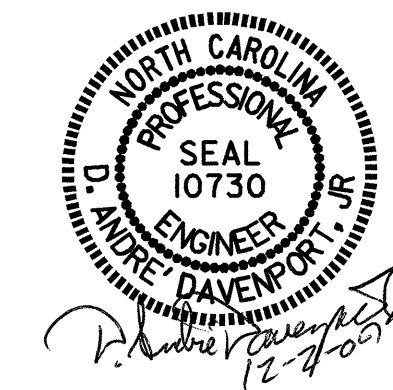


PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø PARTIALLY
 DEBONDED STRANDS)
 SPAN B



ASSEMBLED BY: D. A. GLADDEN DATE: 7-15-08
 CHECKED BY: A. DAVENPORT DATE: 1-9-09
 DRAWN BY: RWW 9/19/02
 CHECKED BY: GM 9/19/02

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

TOTAL SHEETS 54

0.6" Ø L. R. GRADE 270 STRANDS

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

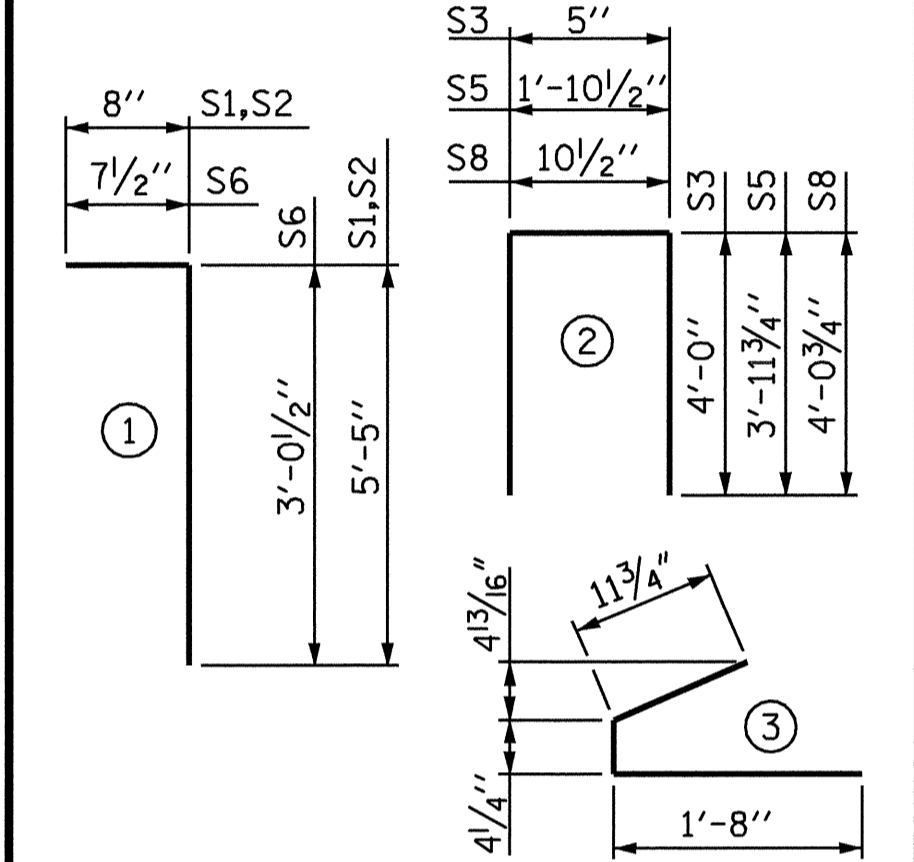
REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	134	#4	1	6'-1"	545
S2	24	#5	1	6'-1"	152
S3	12	#4	2	8'-5"	67
S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	158	#5	1	3'-8"	604
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	36	#5	STR	3'-3"	122
S10	1	#3	STR	1'-10"	1

* 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	BOOD PSI CONCRETE		0.6" Ø L.R. STRANDS
	LB.	C.Y.	
	1726	18.7	38

GIRDERS REQUIRED

SPAN	NUMBER	LENGTH	TOTAL LENGTH
C	3	94'- 5"	283'- 3"
D	3	94'- 5"	283'- 3"
TOTAL			566'- 6"

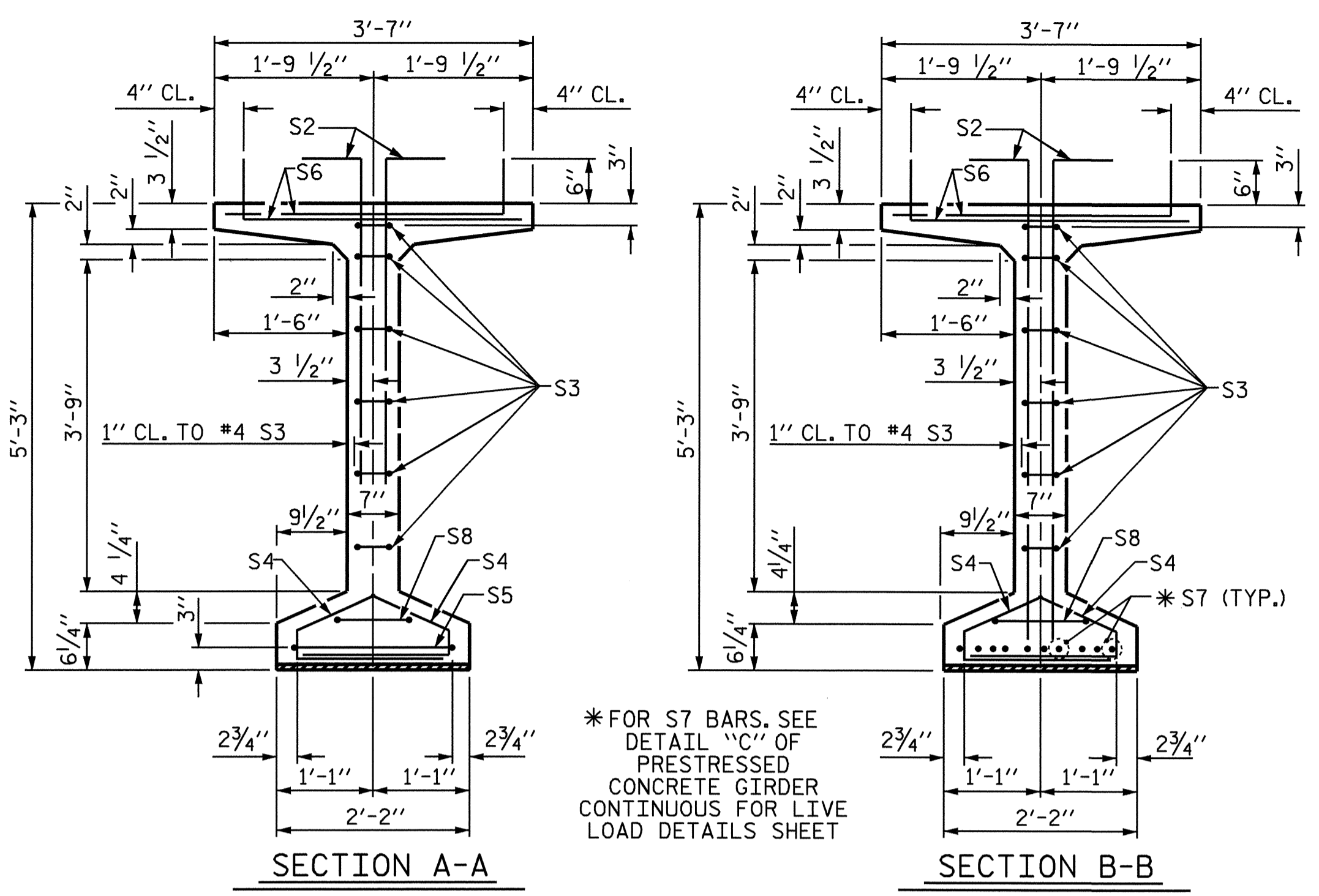
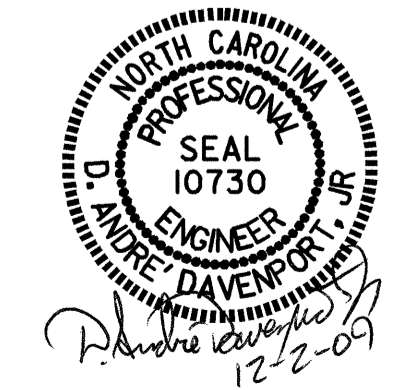
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 4

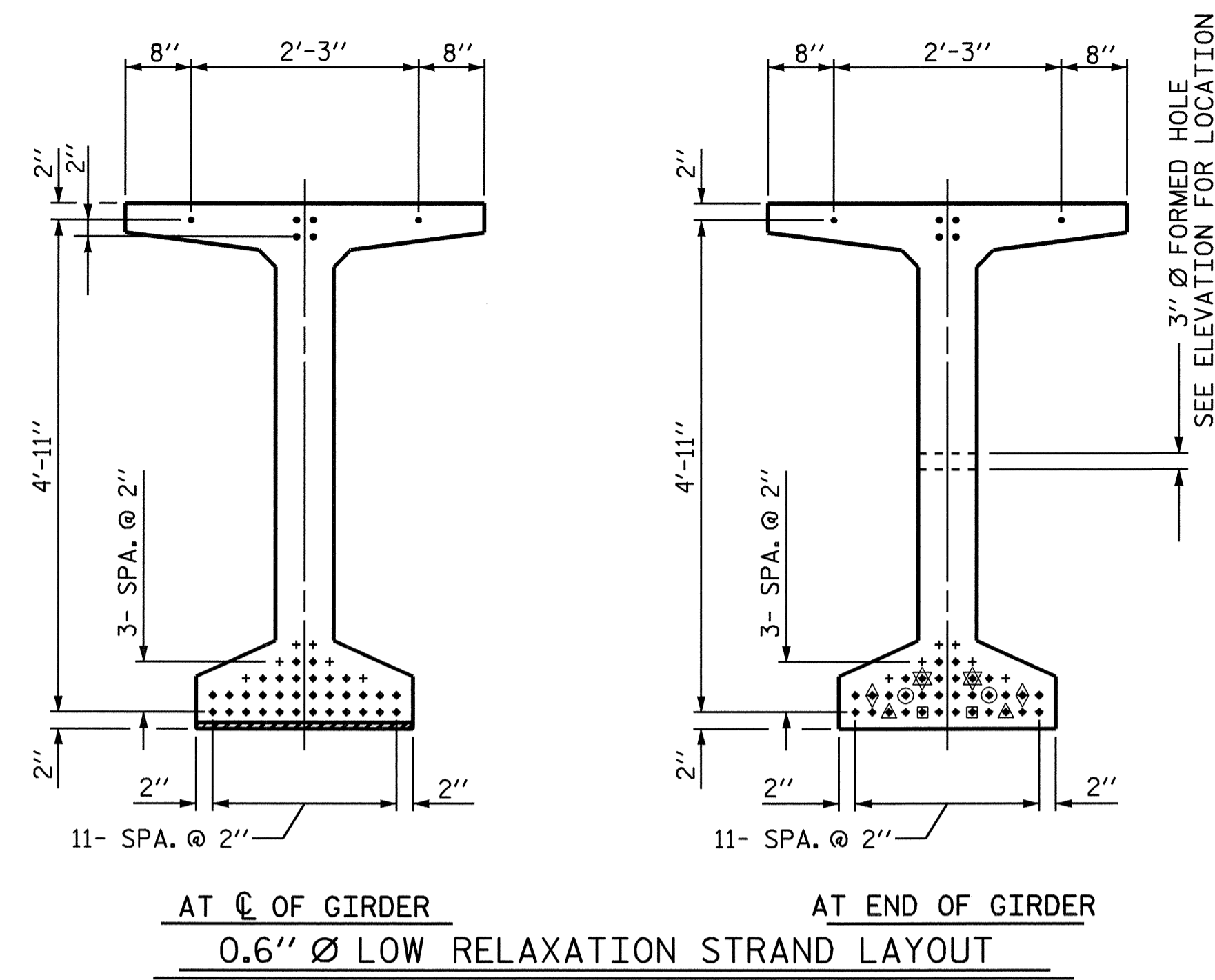
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø PARTIALLY
 DEBONDED STRANDS)
 SPAN C & D

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

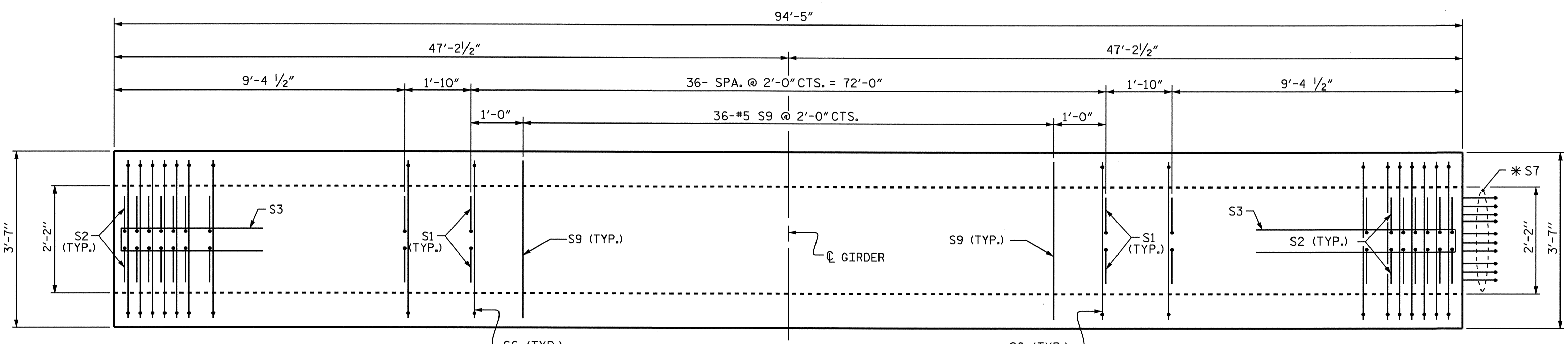
STD. NO. PCGD9



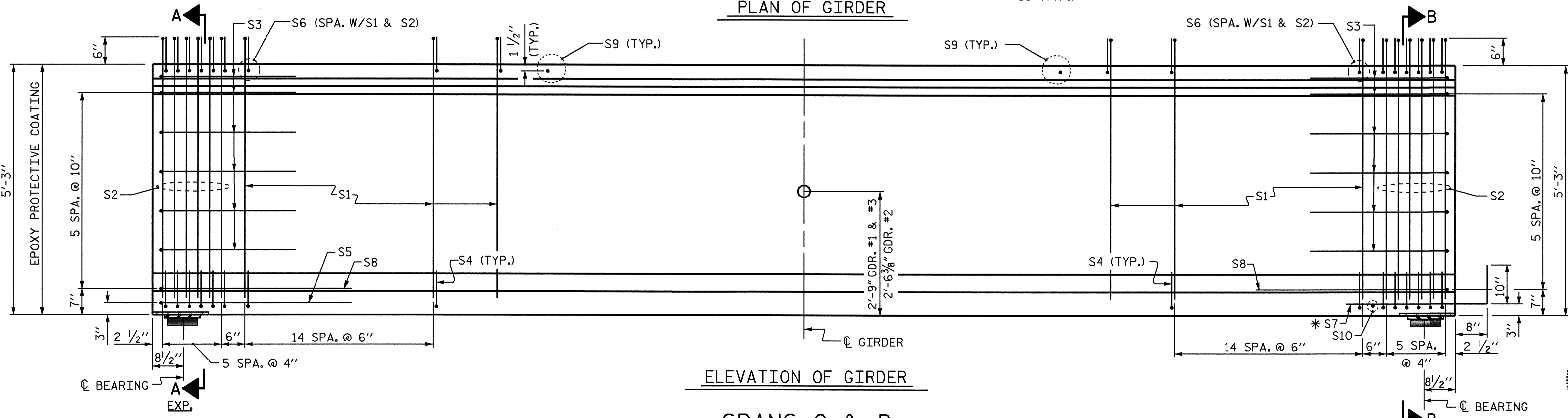
* FOR S7 BARS, SEE
 DETAIL "C" OF
 PRESTRESSED
 CONCRETE GIRDER
 CONTINUOUS FOR LIVE
 LOAD DETAILS SHEET



- DEBONDING LEGEND
- FULLY BONDED STRANDS
 - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 - ◻ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER



PLAN OF GIRDER



ELEVATION OF GIRDER
 SPANS C & D

ASSEMBLED BY: D. A. GLADDEN DATE: 7-15-08
 CHECKED BY: A. DAVENPORT DATE: 1-9-09
 DRAWN BY: RWW 9/19/02
 CHECKED BY: GM 9/19/02

0.6" Ø L. R. GRADE 270 STRANDS

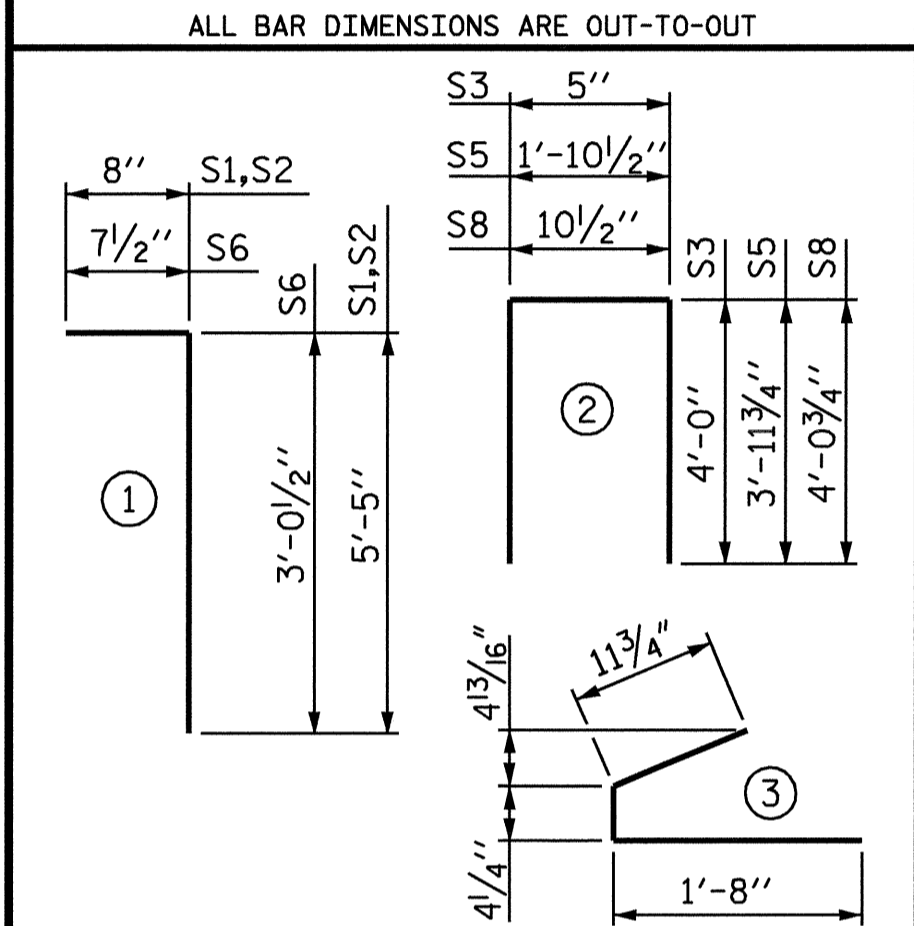
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	134	#4	1	6'-1"	545
S2	24	#5	1	6'-1"	152
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S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	158	#5	1	3'-8"	604
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	36	#5	STR	3'-3"	122
S10	1	#3	STR	1'-10"	1

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

BAR TYPES



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	8000 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
1726	18.7	38

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
3	94'- 2"	282'- 6"

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 4 OF 4

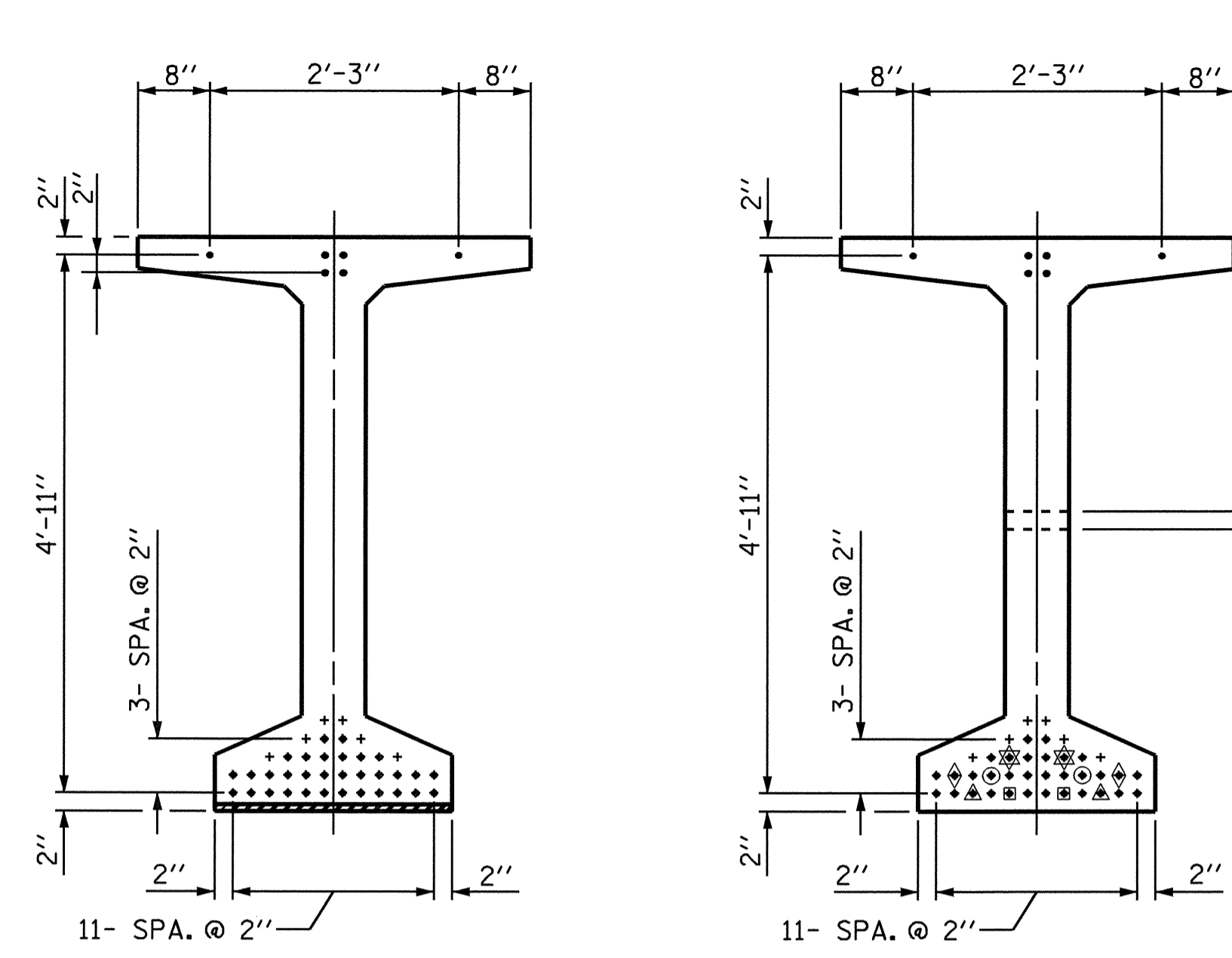
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 63" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø PARTIALLY
 DEBONDED STRANDS)
 SPAN E

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS 54
2			4			

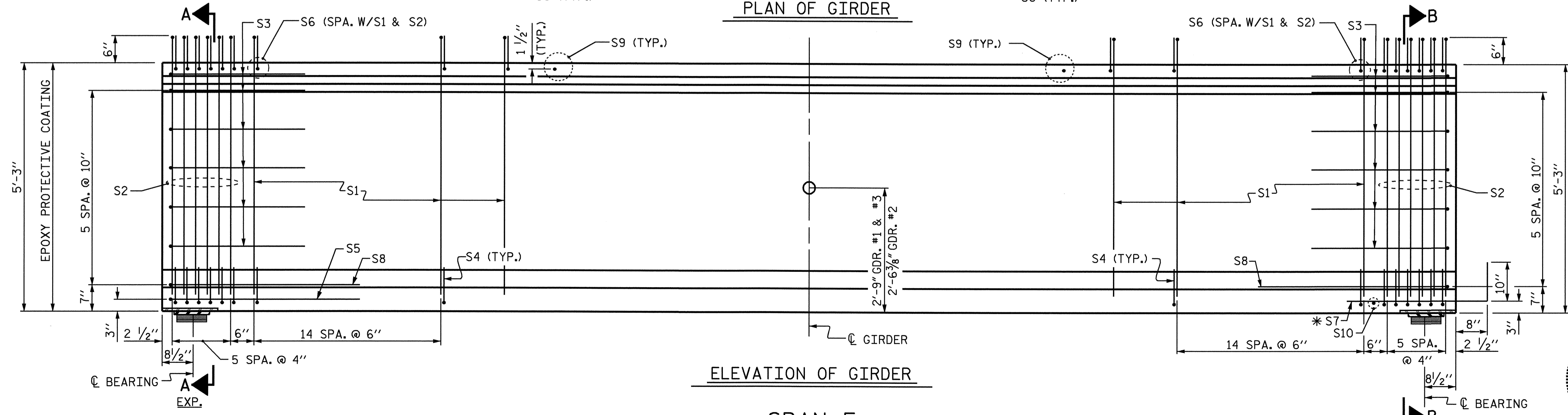
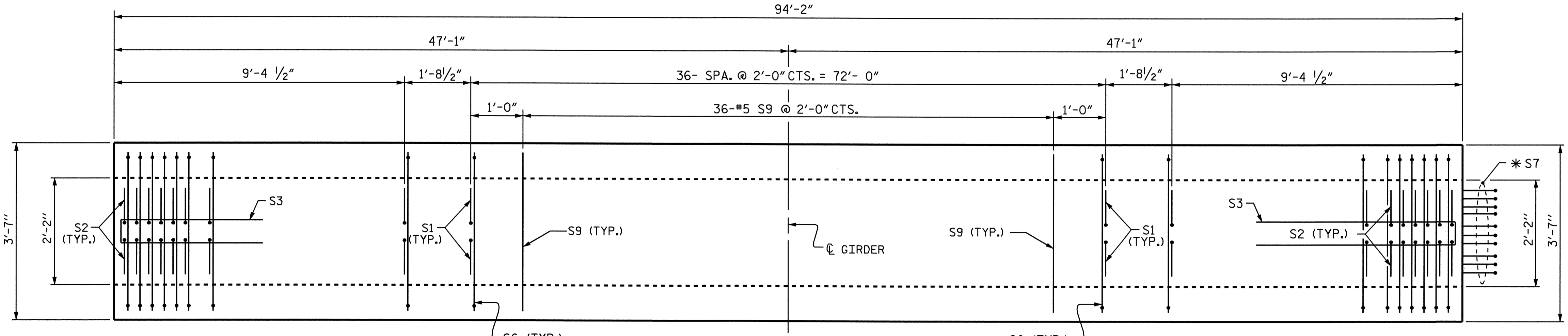
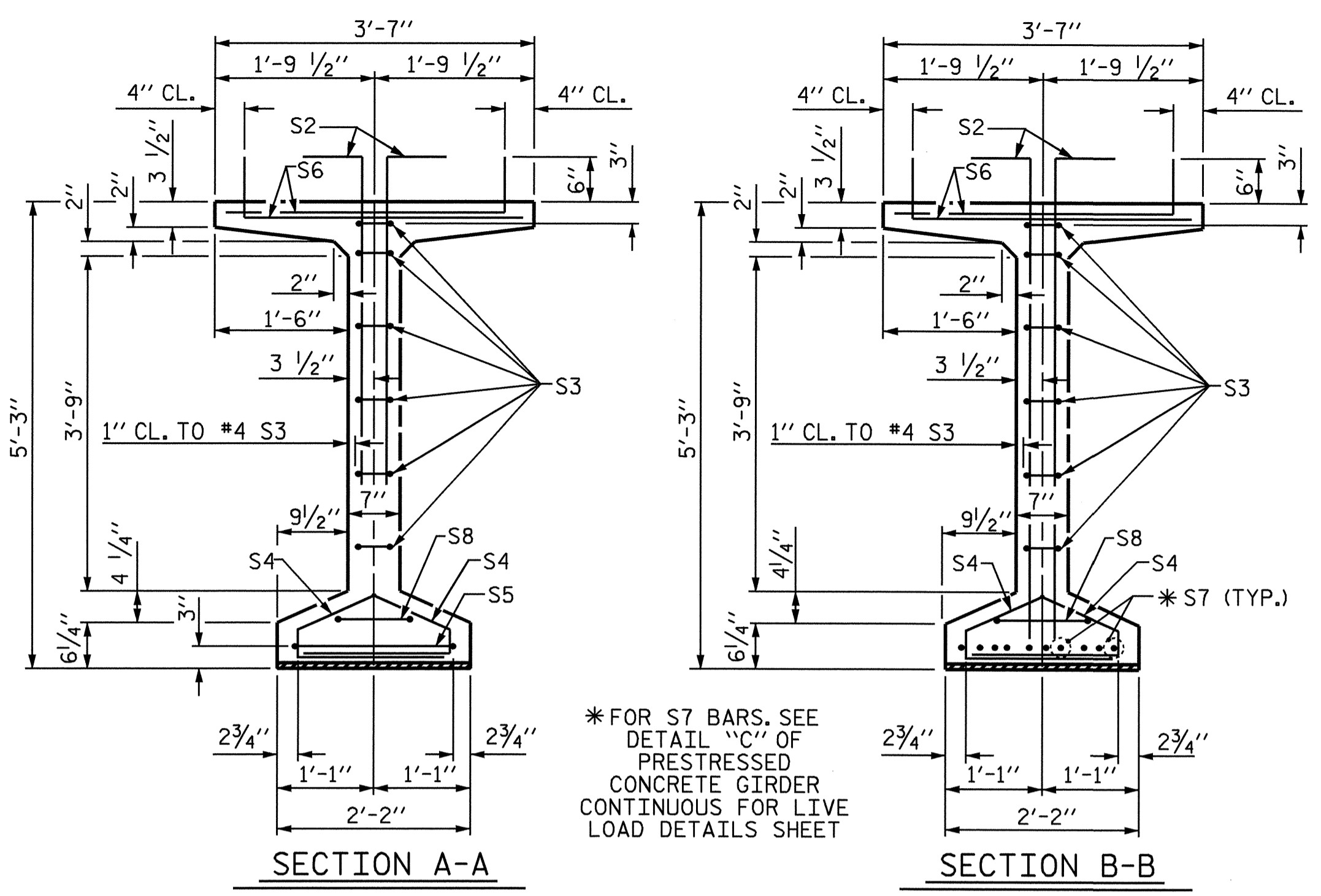
STD. NO. PCGD9

- DEBONDING LEGEND**
- FULLY BONDED STRANDS
 - STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 - ▲ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
 - ⊙ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
 - ◆ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
 - ⊗ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

SEE ELEVATION FOR LOCATION
 3" Ø FORMED HOLE



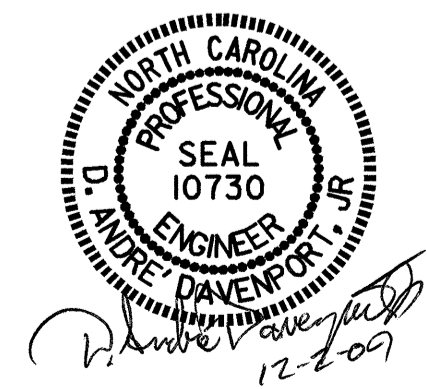
* FOR S7 BARS, SEE
 DETAIL "C" OF
 PRESTRESSED
 CONCRETE GIRDER
 CONTINUOUS FOR LIVE
 LOAD DETAILS SHEET



SPAN E

ASSEMBLED BY : D. A. GLADDEN DATE : 7-15-08
 CHECKED BY : A. DAVENPORT DATE : 1-9-09
 DRAWN BY : RWW 9/19/02
 CHECKED BY : GM 9/19/02

ADDED 9/19/02
 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.

TIE ROD ASSEMBLY SHALL BE AASHTO M270 GRADE 36 STRUCTURAL STEEL.

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.

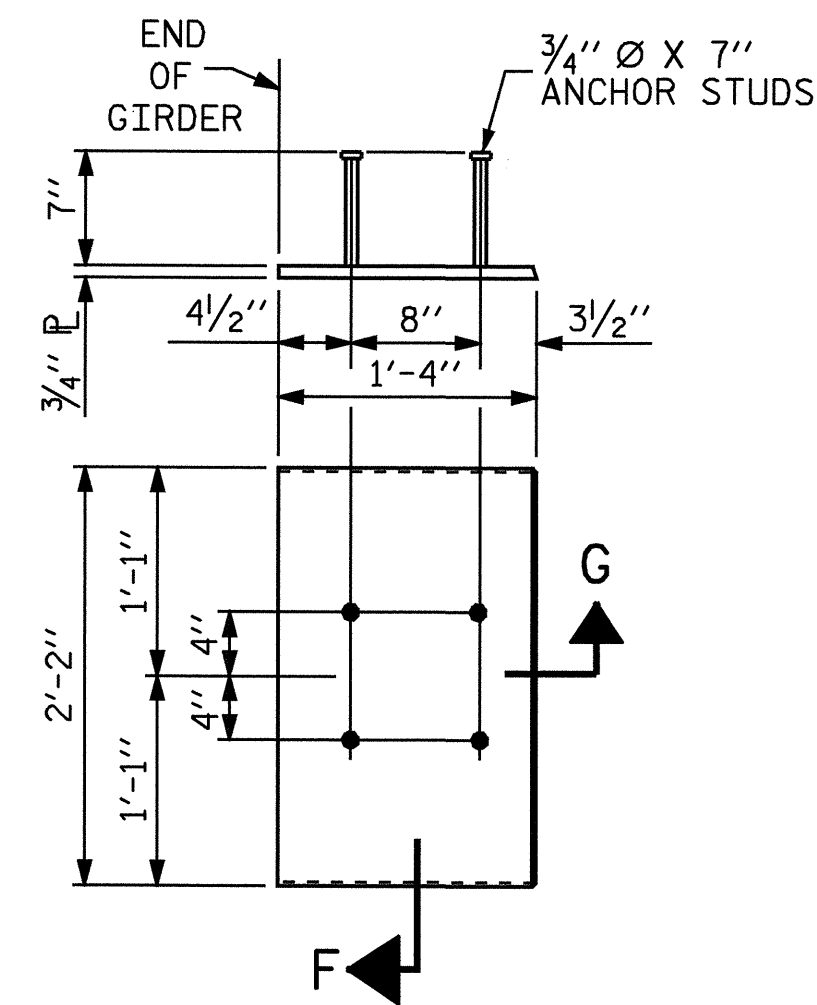
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4200 PSI IN SPAN "A" AND NOT LESS THAN 6400 PSI IN SPANS "B", "C", "D" AND "E".

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

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

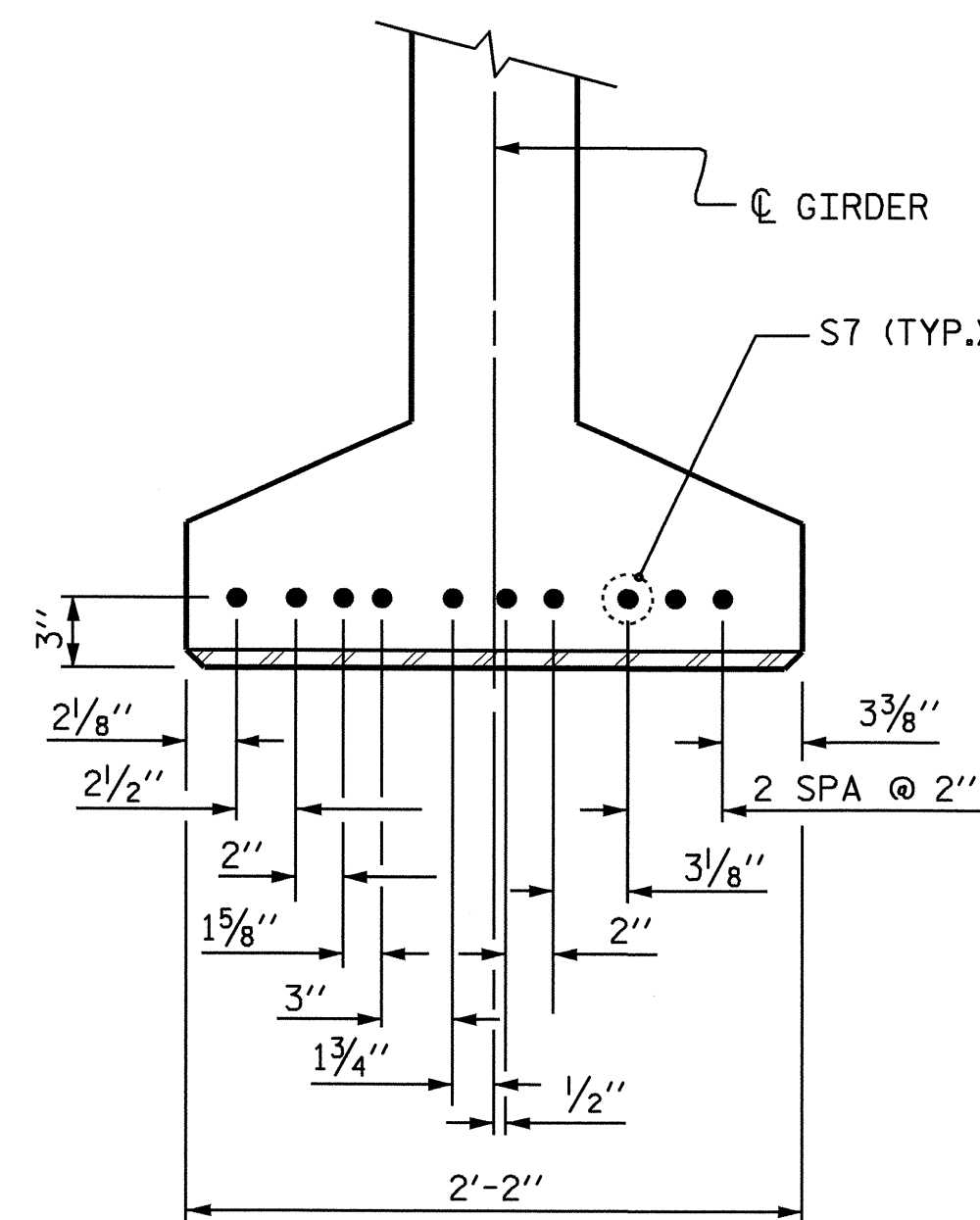
A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" MODIFIED BULB TEE ONLY.

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

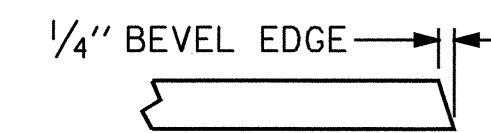


EMBEDDED PLATE "B-1"
DETAILS FOR AASHTO
63" MODIFIED BULB TEES

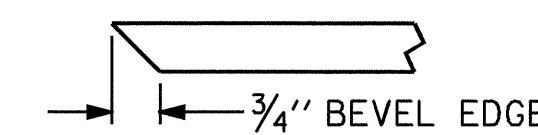
(2 REQ'D PER GIRDER)



DETAIL "C"



SECTION "G"



SECTION "F"

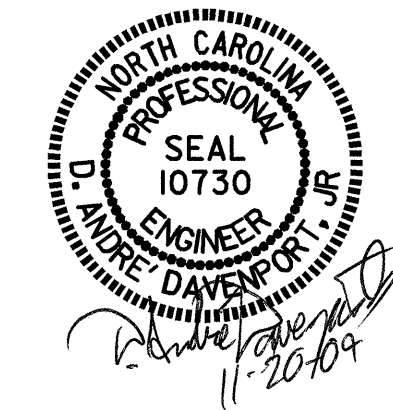
(SEE NOTES)

PROJECT NO. B-1037
ASHE COUNTY
STATION: 17+47.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			54



ASSEMBLED BY : D. A. GLADDEN DATE : 7-15-08
CHECKED BY : A. DAVENPORT DATE : 1-9-09
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

NOTES

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

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

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

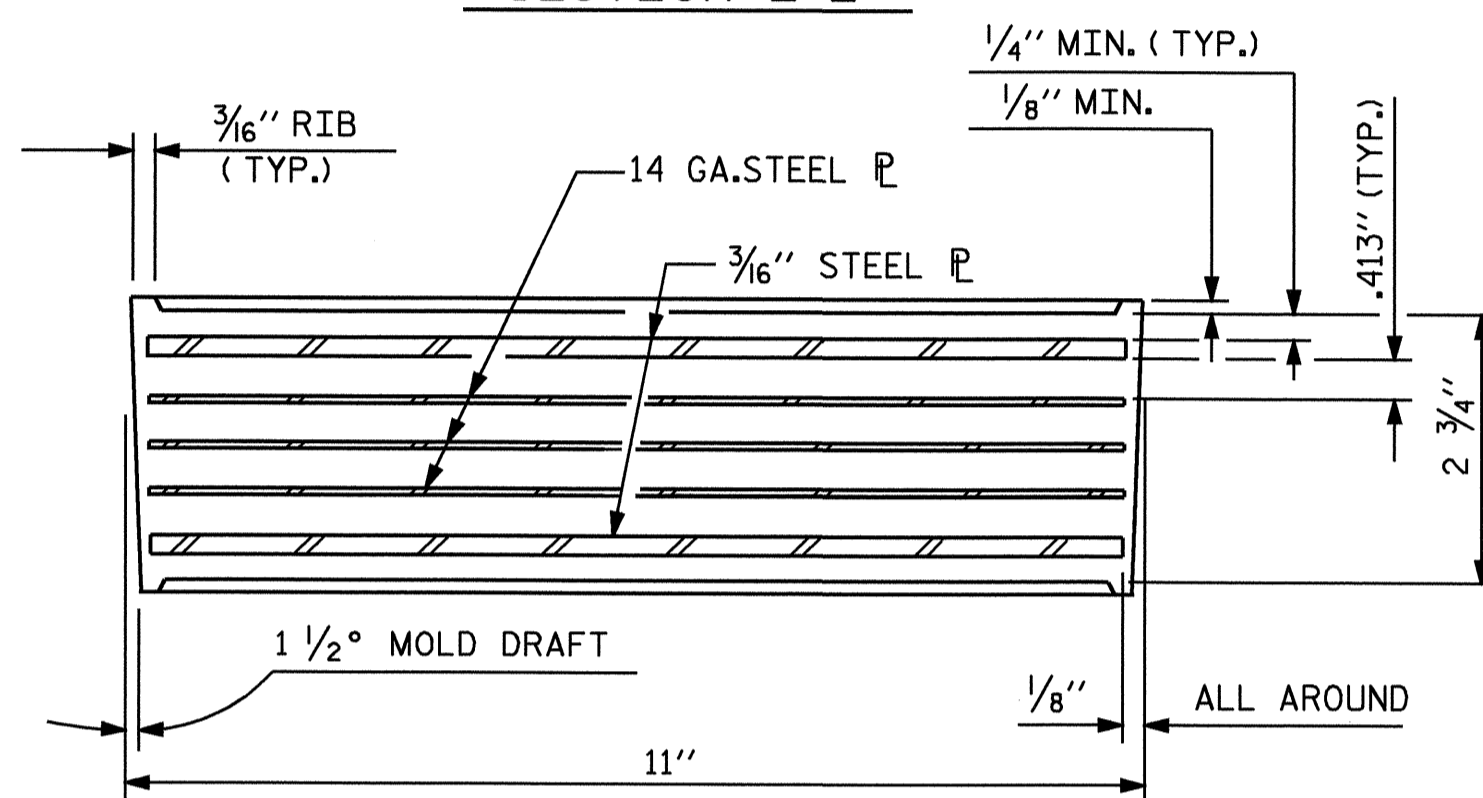
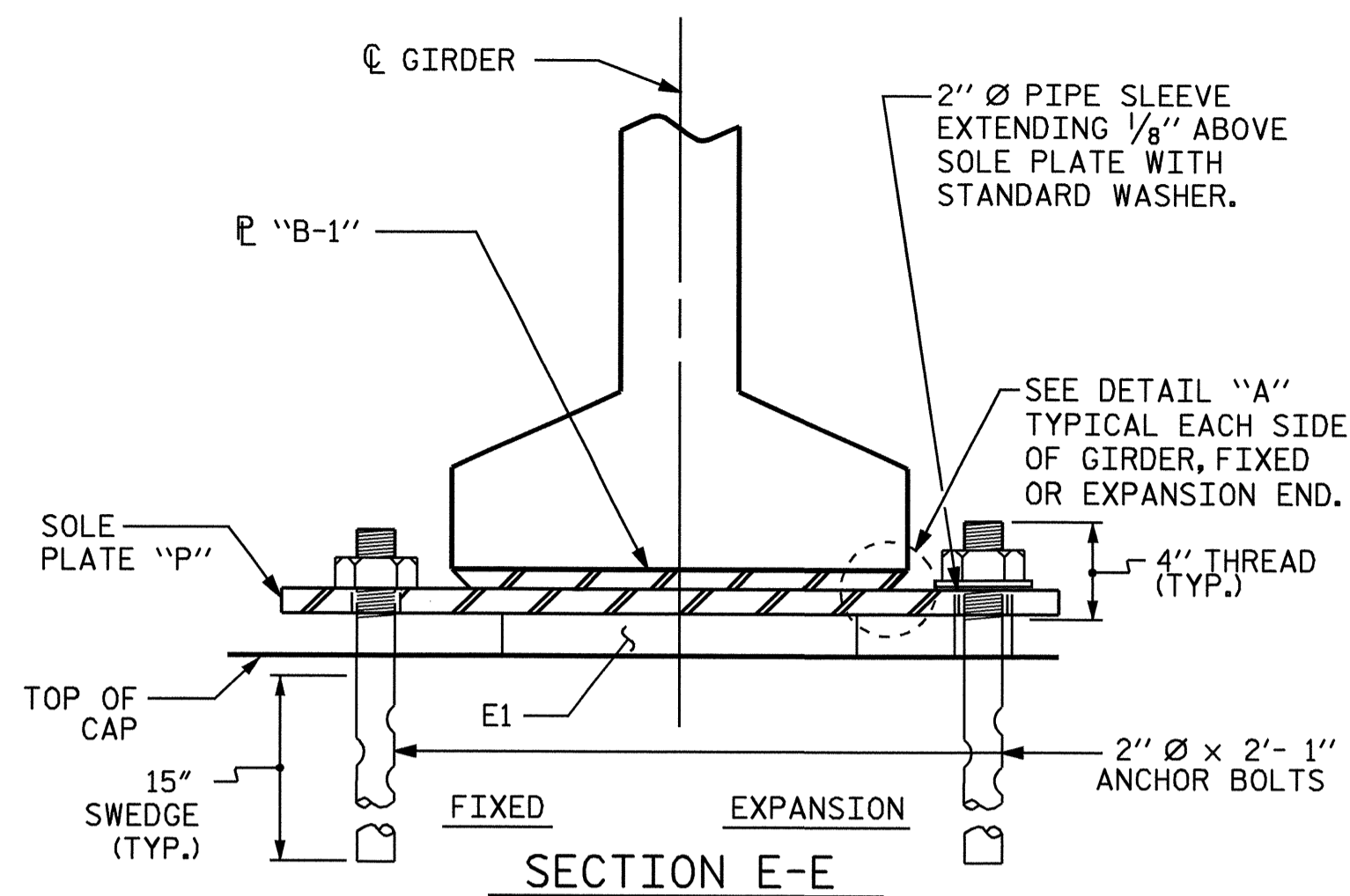
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

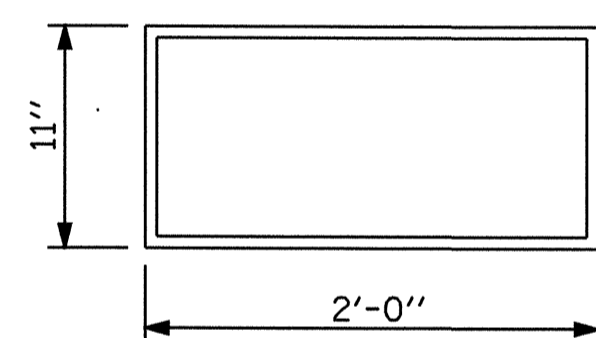
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



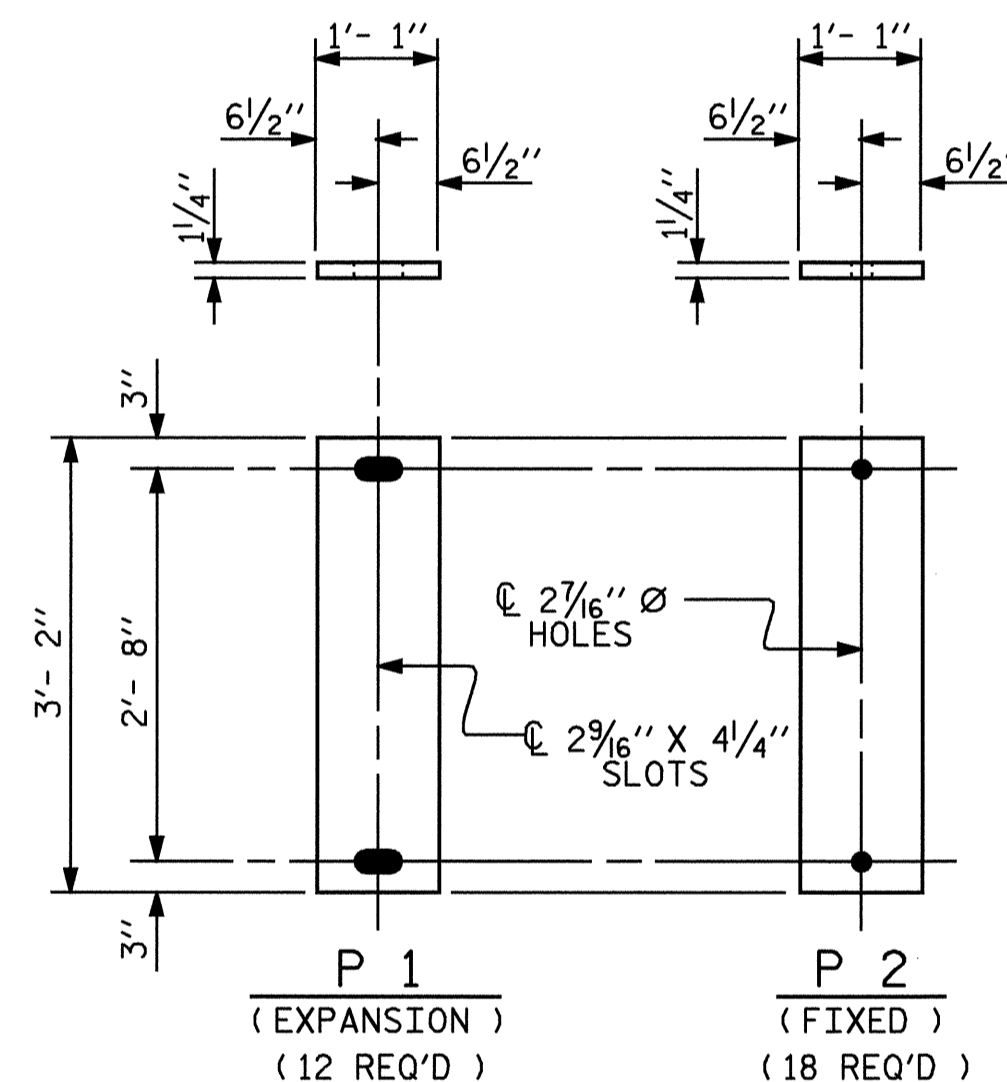
TYPICAL SECTION OF ELASTOMERIC BEARINGS



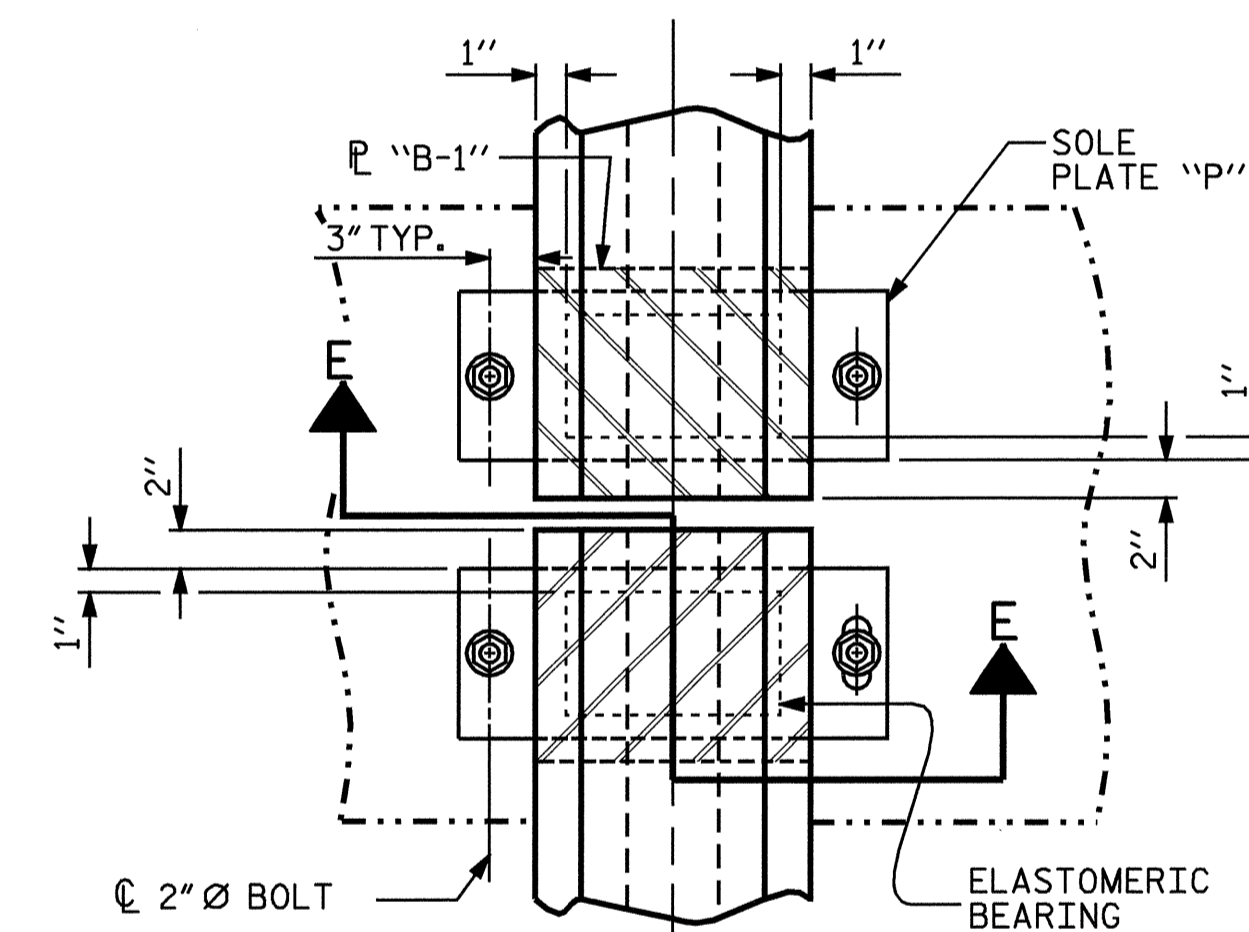
E1 (30 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

TYPE VII

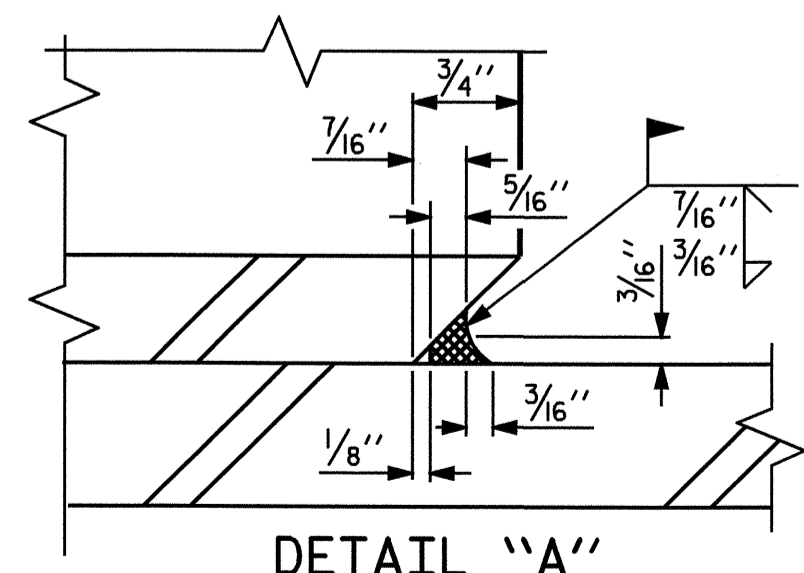
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS



SOLE PLATE DETAILS ("P")



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



DETAIL "A"

-- LOAD RATINGS --	
TYPE VII	MAX.D.L.+ L.L. 264 K

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-



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

REVISIONS						SHEET NO. S-24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			

ASSEMBLED BY : D. A. GLADDEN	DATE : 7-10-08
CHECKED BY : A. DAVENPORT	DATE : 2-9-09
DRAWN BY : EEM	2/97
CHECKED BY : VAP	2/97
REV. 8/16/99	RWW/LES
REV. 10/17/00	RWW/LES
REV. 5/1/06	TLA/GM

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6"Ø LOW RELAXATION	SPAN "A"																					
	GIRDERS 1 & 3											GIRDER # 2										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.037	0.070	0.096	0.112	0.118	0.112	0.096	0.070	0.037	0	0	0.037	0.070	0.096	0.112	0.118	0.112	0.096	0.070	0.037	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.014	0.027	0.037	0.044	0.046	0.044	0.037	0.027	0.014	0	0	0.016	0.030	0.042	0.049	0.051	0.049	0.042	0.030	0.016	0
FINAL CAMBER ↑	0	1/4	1/2	11/16	13/16	7/8	13/16	11/16	1/2	1/4	0	0	1/4	1/2	5/8	3/4	13/16	3/4	5/8	1/2	1/4	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).

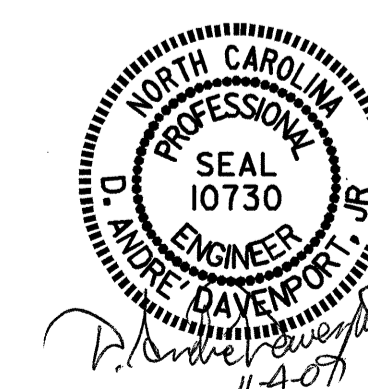
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
0.6"Ø LOW RELAXATION	SPAN "B" & "E"																					
	GIRDERS 1 & 3											GIRDER # 2										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.089	0.168	0.230	0.270	0.283	0.270	0.230	0.168	0.089	0	0	0.089	0.168	0.230	0.270	0.283	0.270	0.230	0.168	0.089	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.032	0.061	0.084	0.098	0.103	0.098	0.084	0.061	0.032	0	0	0.036	0.068	0.093	0.109	0.114	0.109	0.093	0.068	0.036	0
FINAL CAMBER ↑	0	11/16	15/16	13/4	21/16	23/16	21/16	13/4	15/16	11/16	0	0	5/8	13/16	15/8	15/16	2	15/16	15/8	13/16	5/8	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 GIRDERS																						
0.6"Ø LOW RELAXATION	SPAN "C" & "D"																					
	GIRDERS 1 & 3											GIRDER # 2										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0	0.089	0.169	0.231	0.271	0.284	0.271	0.231	0.169	0.089	0	0	0.089	0.169	0.231	0.271	0.284	0.271	0.231	0.169	0.089	0
* DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0	0.033	0.062	0.085	0.100	0.105	0.100	0.085	0.062	0.033	0	0	0.036	0.068	0.094	0.110	0.115	0.110	0.094	0.068	0.036	0
FINAL CAMBER ↑	0	11/16	11/4	13/4	21/16	21/8	21/16	13/4	11/4	11/16	0	0	5/8	13/16	15/8	15/16	2	15/16	15/8	13/16	5/8	0

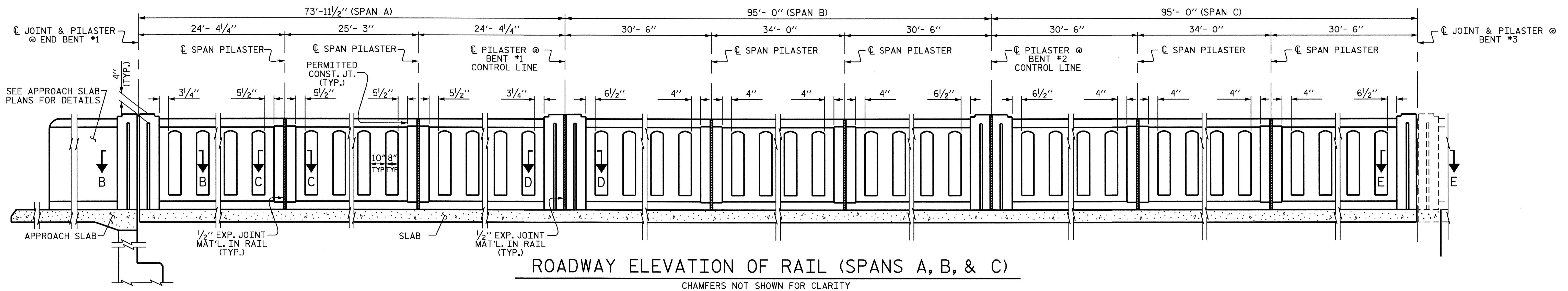
* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-1037
ASHE COUNTY
STATION: 17+47.50 -L-



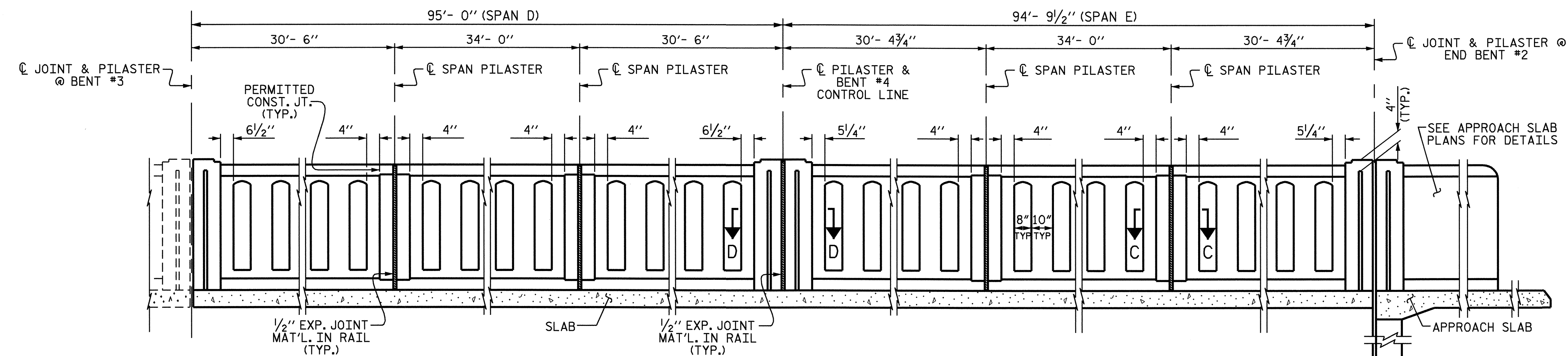
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH			
SUPERSTRUCTURE DEAD LOAD DEFLECTIONS			
REVISIONS			SHEET NO. S-25
NO.	BY:	DATE:	TOTAL SHEETS 54
1			
2			

DRAWN BY : D. A. GLADDEN DATE : 7-10-08
CHECKED BY : A. DAVENPORT DATE : 2-9-09



ROADWAY ELEVATION OF RAIL (SPANS A, B, & C)

CHAMFERS NOT SHOWN FOR CLARITY



ROADWAY ELEVATION OF RAIL (SPANS D, & E)

CHAMFERS NOT SHOWN FOR CLARITY

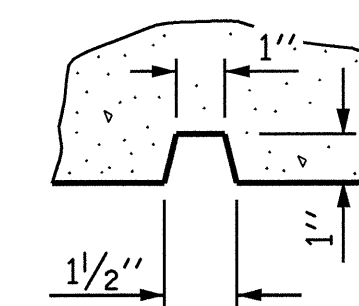
NOTES

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

WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWS BEFORE TO THE CASTING OF THE CLASSIC CONCRETE RAIL.

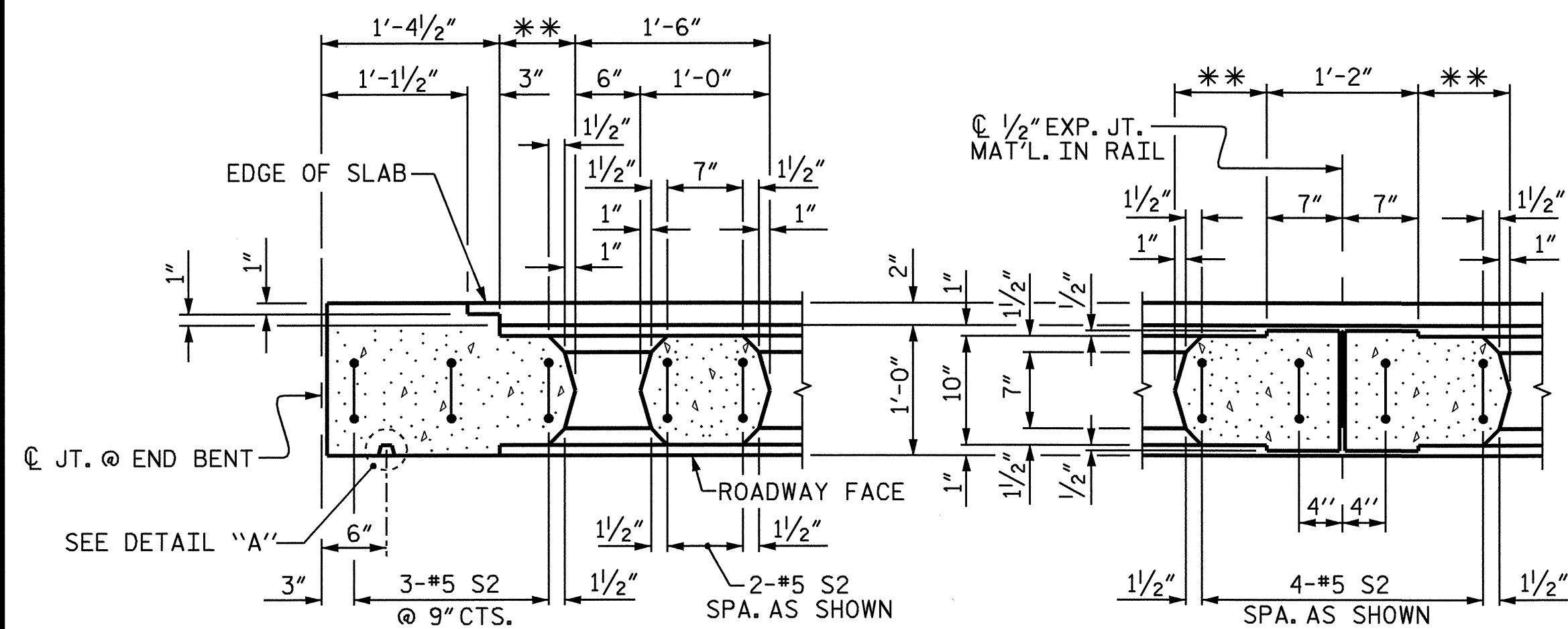
ALL REINFORCING STEEL IN THE CLASSIC CONCRETE BRIDGE RAIL SHALL BE EPOXY COATED.

FOR CLASSIC CONCRETE BRIDGE RAIL, SEE SPECIAL PROVISIONS.



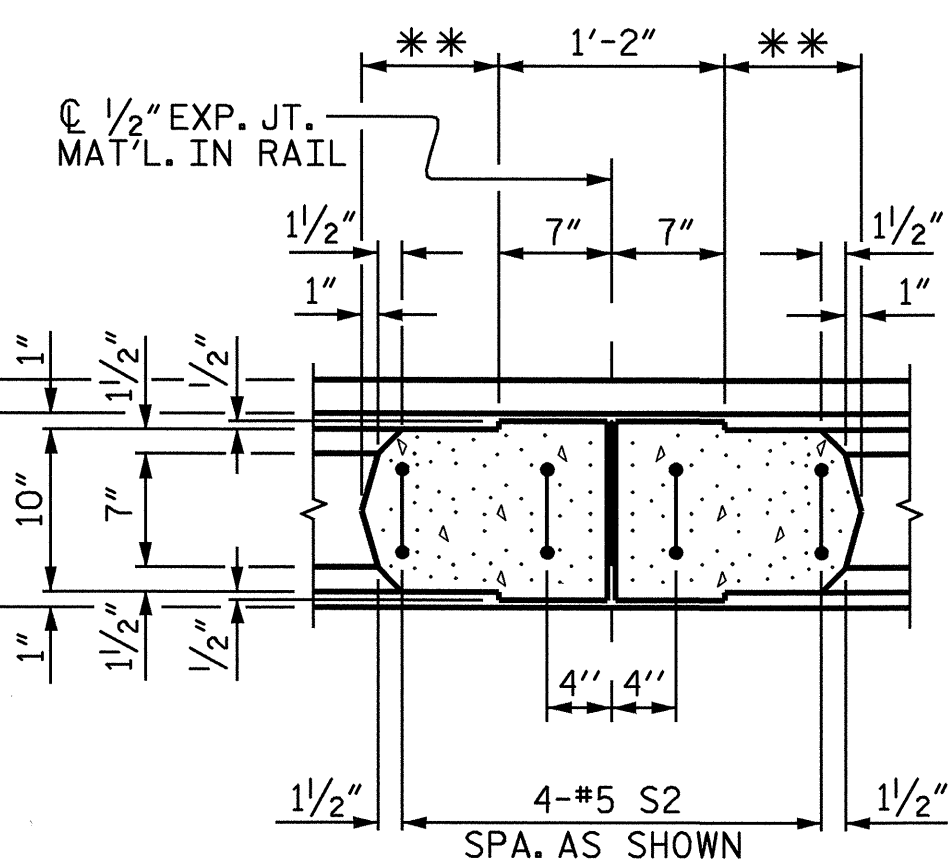
DETAIL "A"

** DIMENSION VARIES FROM SPAN TO SPAN (SEE ELEVATION ABOVE)



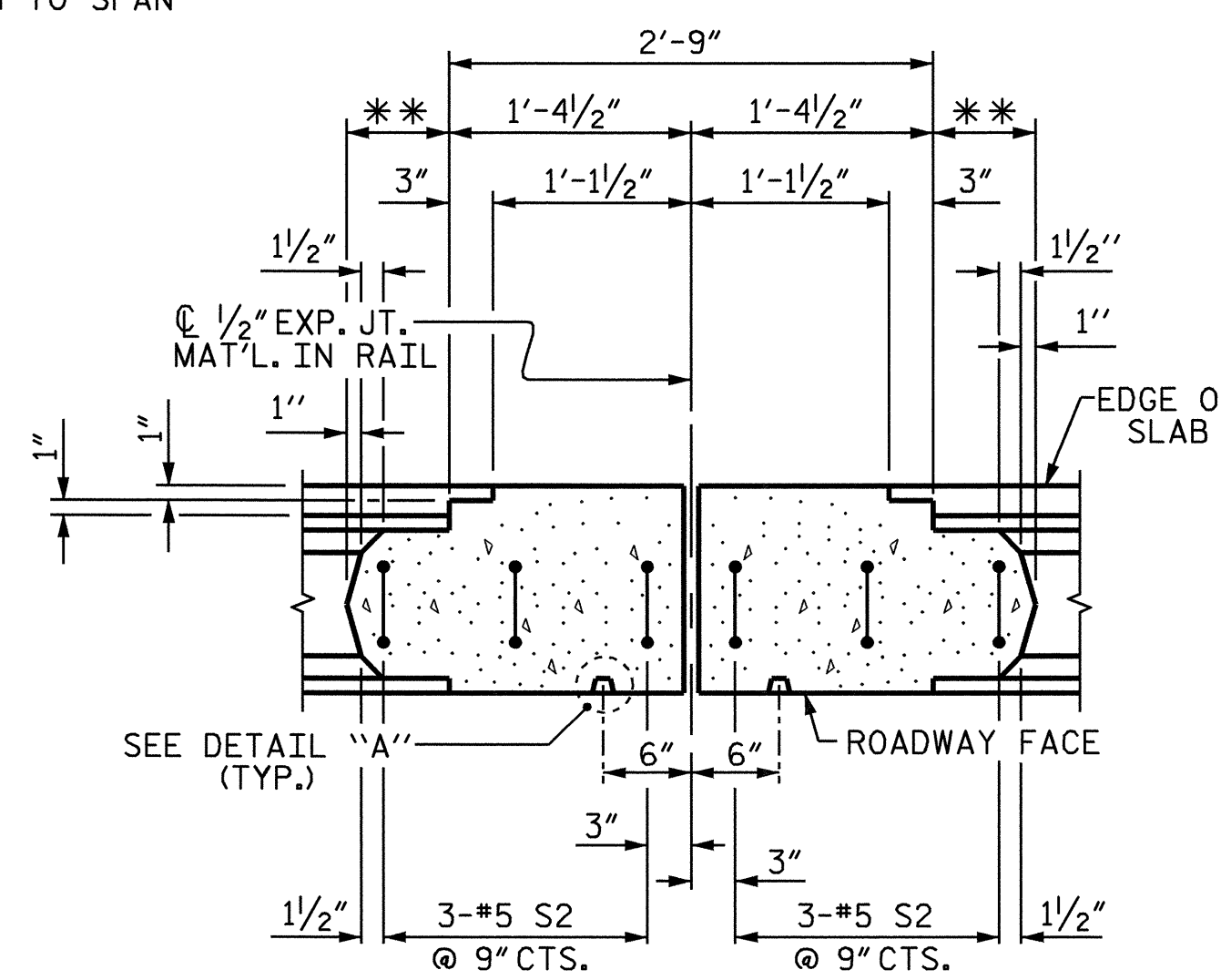
SECTION B-B

SHOWING END BENT PILASTER



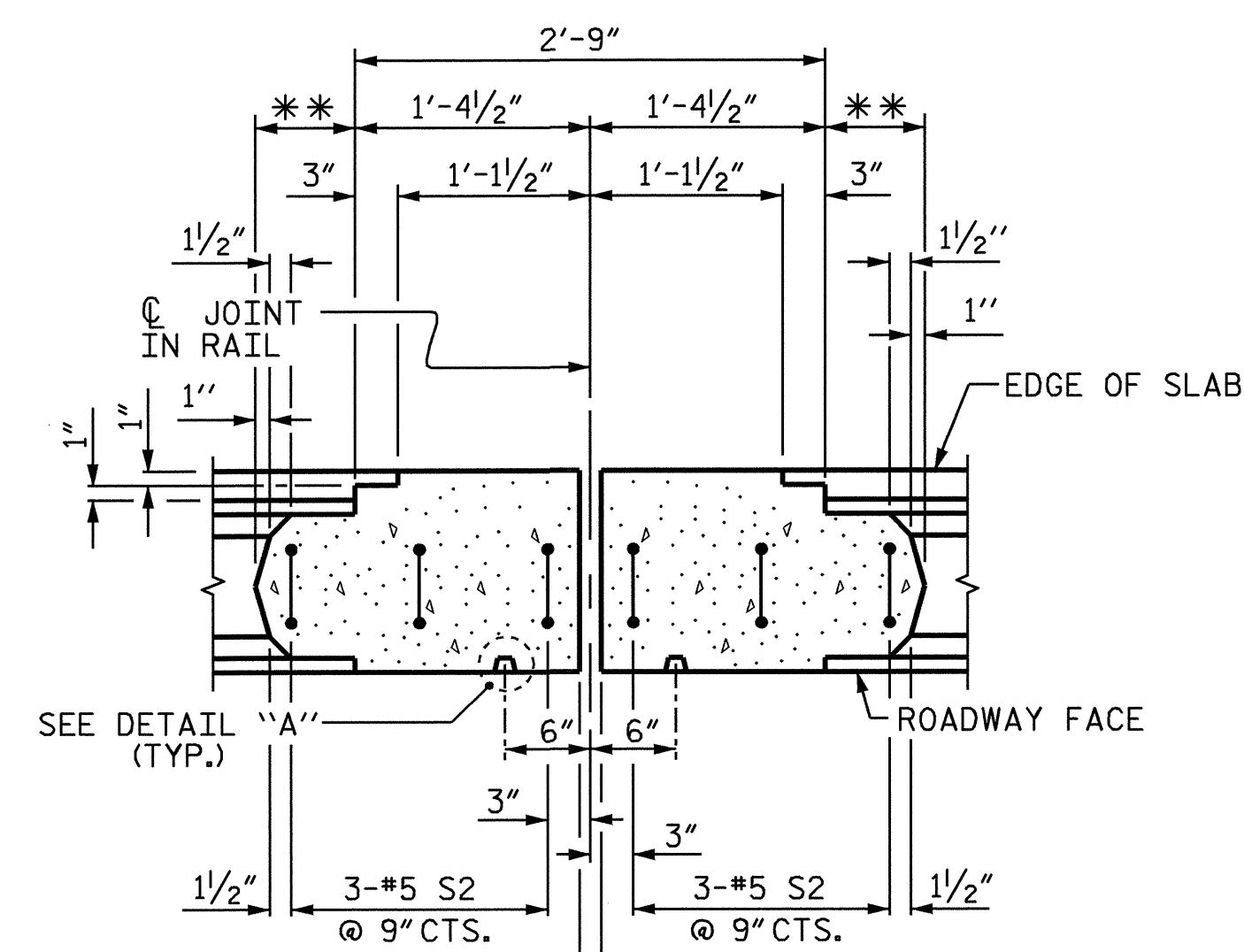
SECTION C-C

SHOWING SPAN PILASTER



SECTION D-D

SHOWING BENTS #1, #2, & #4 PILASTER



SECTION E-E

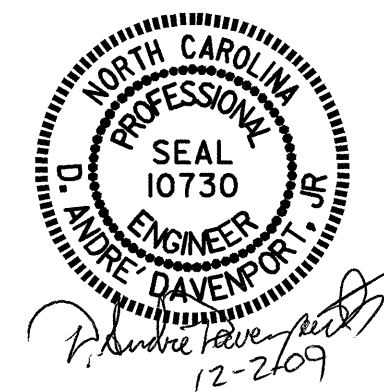
SHOWING BENT #3 PILASTER

PARTIAL PLAN

LEFT SIDE SHOWN, RIGHT SIDE SIMILAR

DRAWN BY: D. A. GLADDEN DATE: 8-12-08
 CHECKED BY: A. DAVENPORT DATE: 2-16-09

02-DEC-2009 14:49
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 adavenport



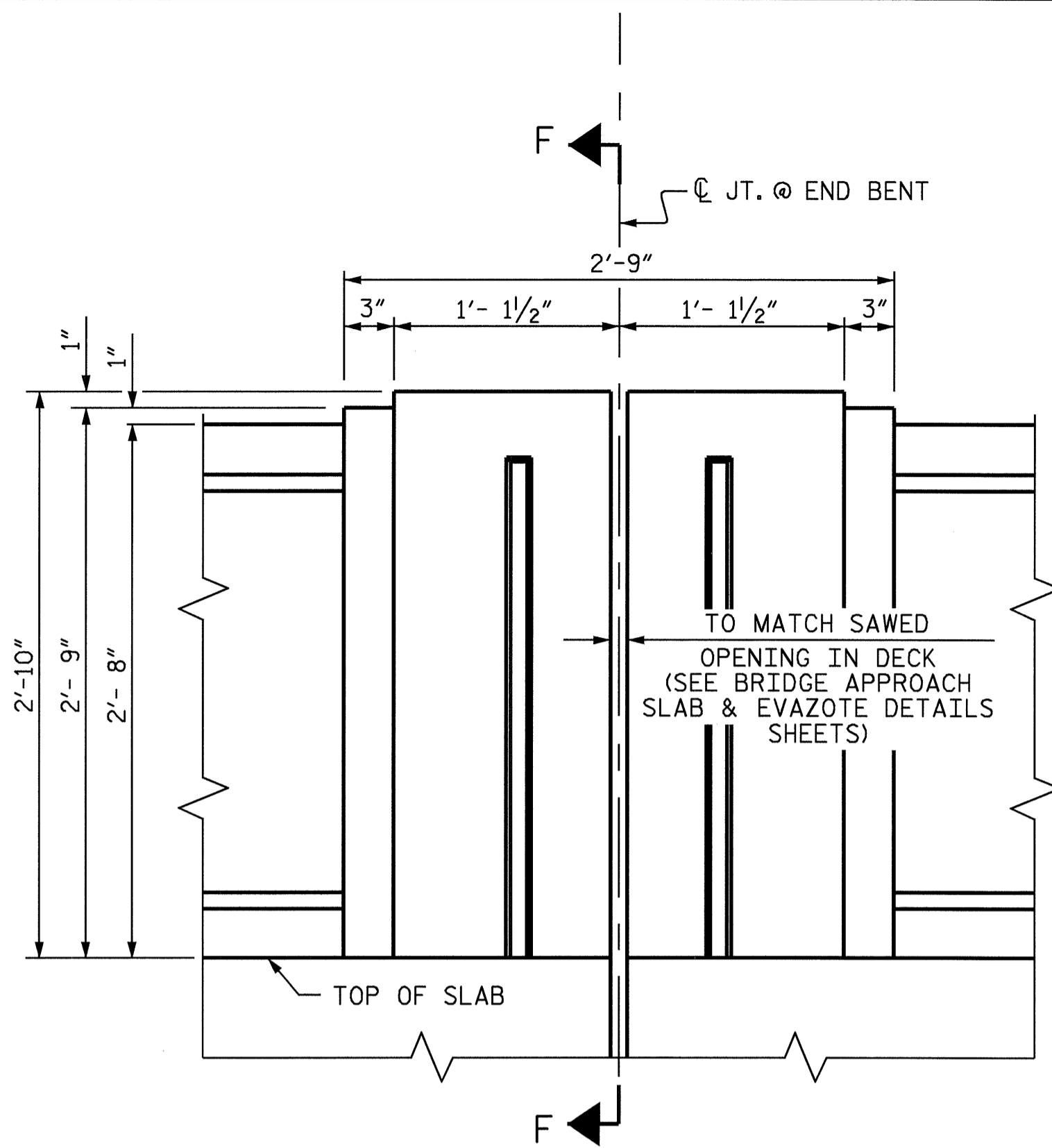
PROJECT NO. B-1037
 ASHE COUNTY
 STATION: 17+47.50 -L-
 SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

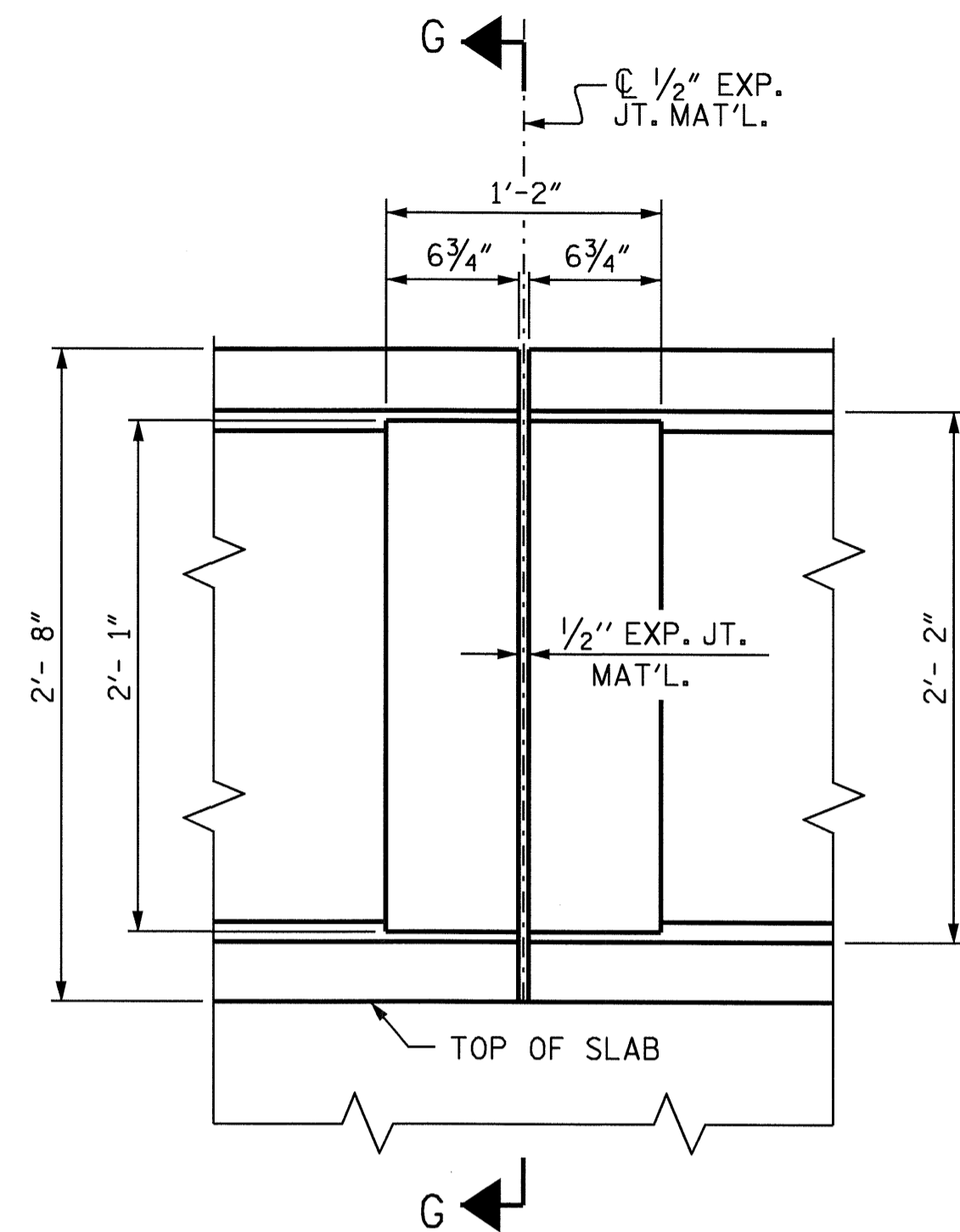
CLASSIC CONCRETE
 BRIDGE RAIL

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-26	
1			3			TOTAL SHEETS	54
2			4				

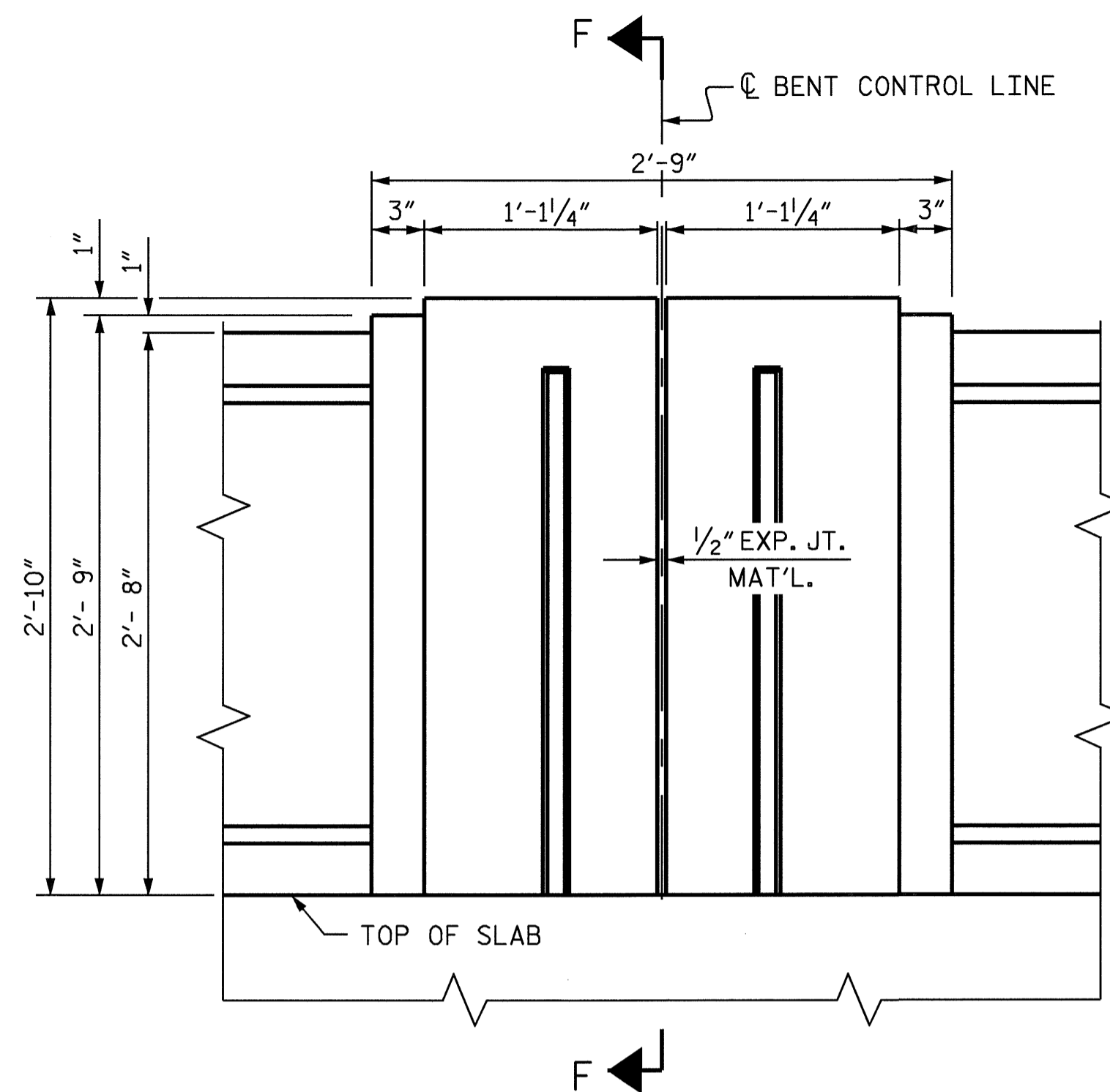
STD. No. CCR1



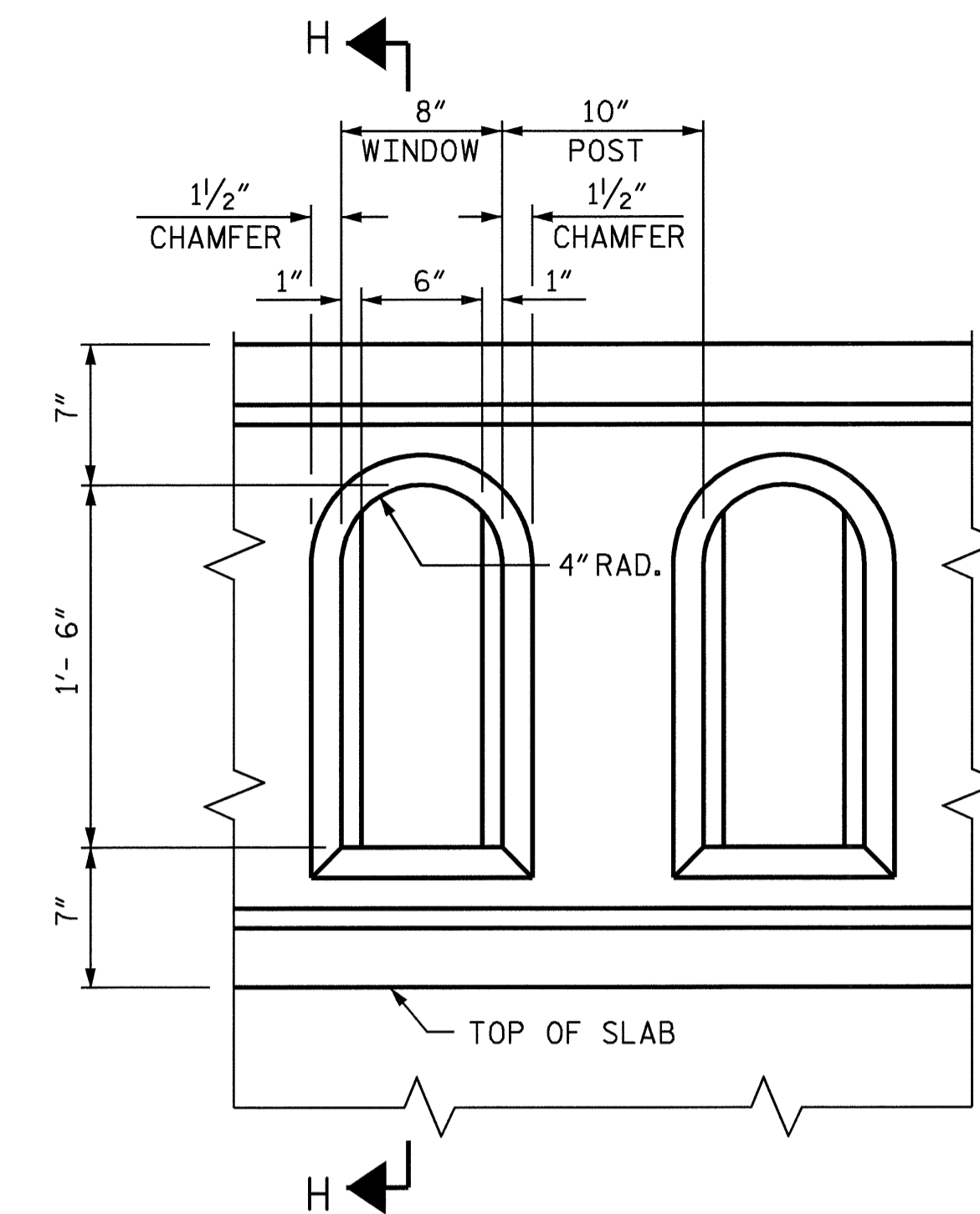
END BENT & BENT #3 PILASTER



SPAN PILASTER

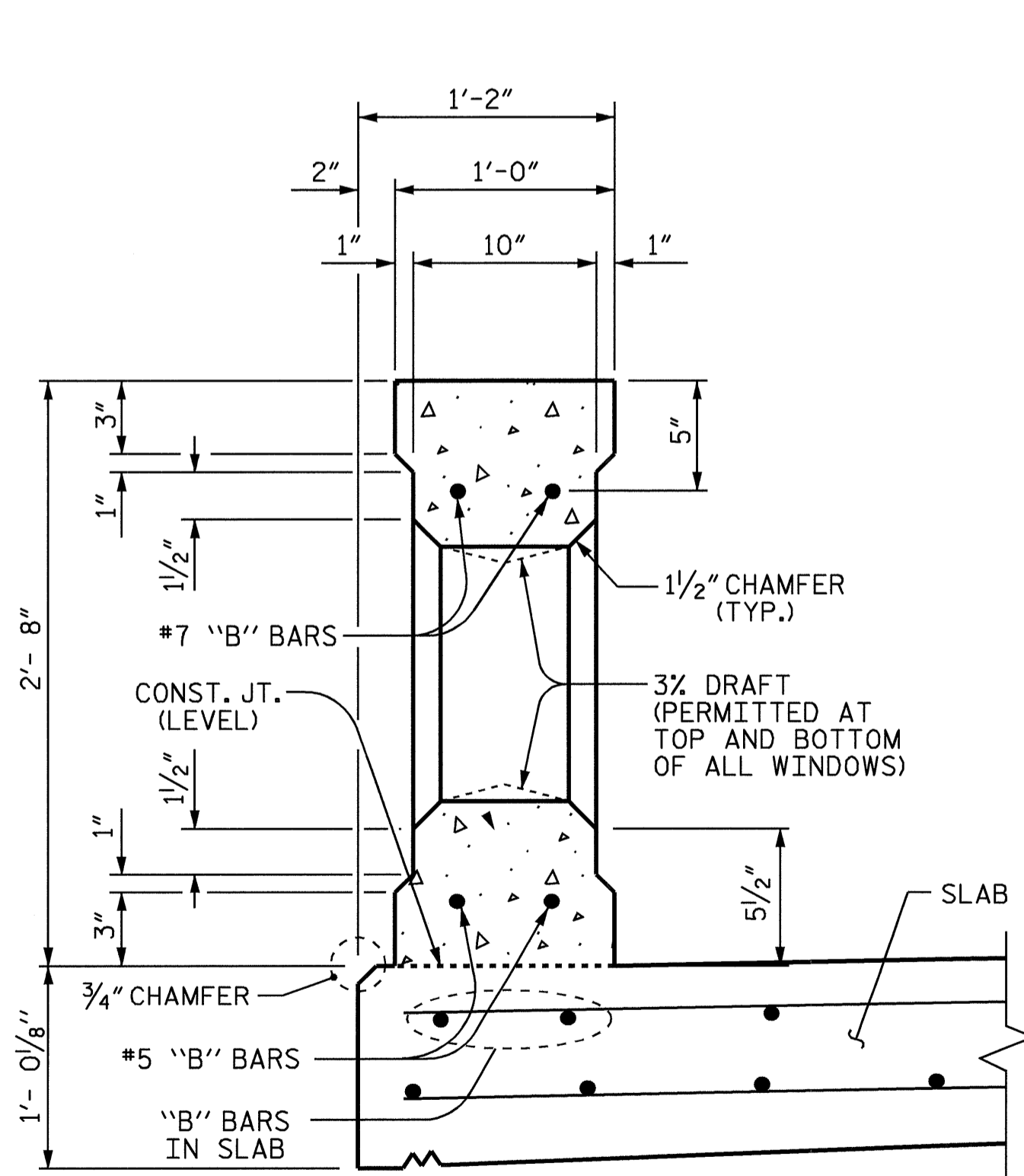


BENT #1, #2 & #4 PILASTER

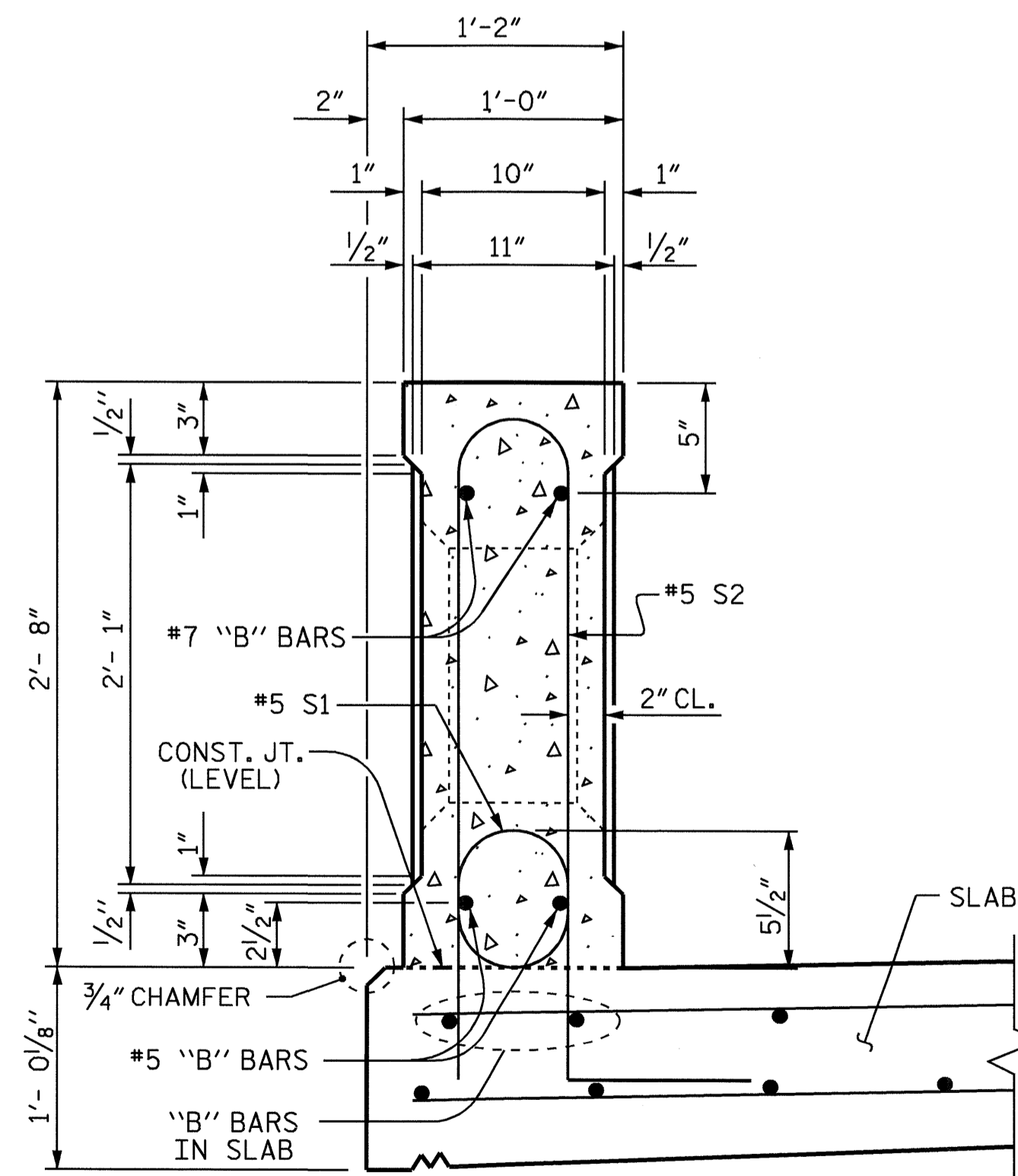


WINDOW DETAIL

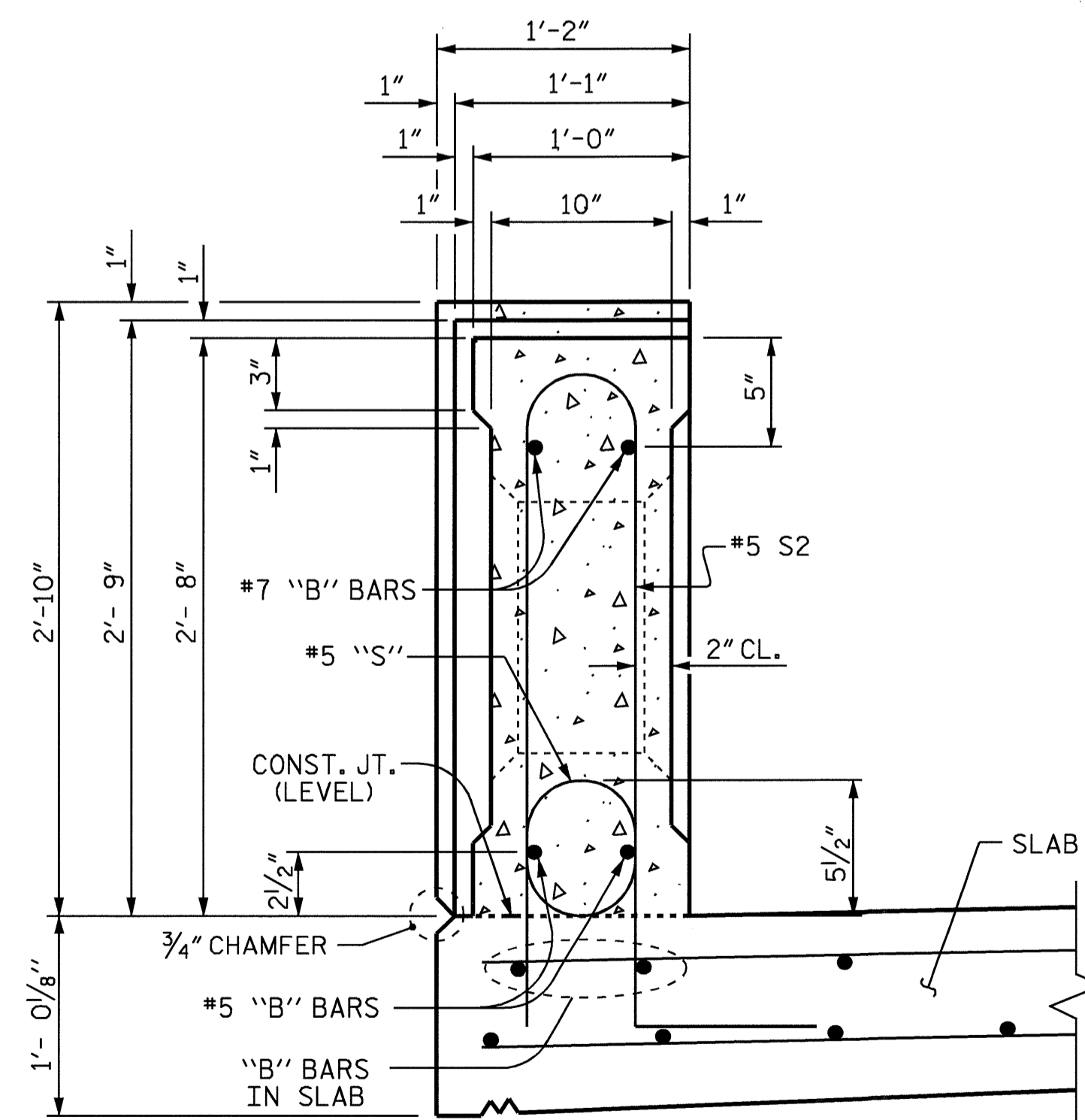
EXTERIOR PILASTER ELEVATIONS



SECTION H-H
(SHOWING WINDOW OF RAIL)



SECTION G-G
(SHOWING SPAN PILASTER)



SECTION F-F
(SHOWING BENT PILASTER)

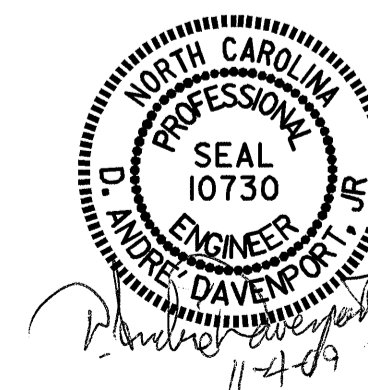
DRAWN BY: D. A. GLADDEN DATE: 8-12-08
 CHECKED BY: A. DAVENPORT DATE: 2-16-09

04-NOV-2009 09:56
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PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-
 SHEET 2 OF 5

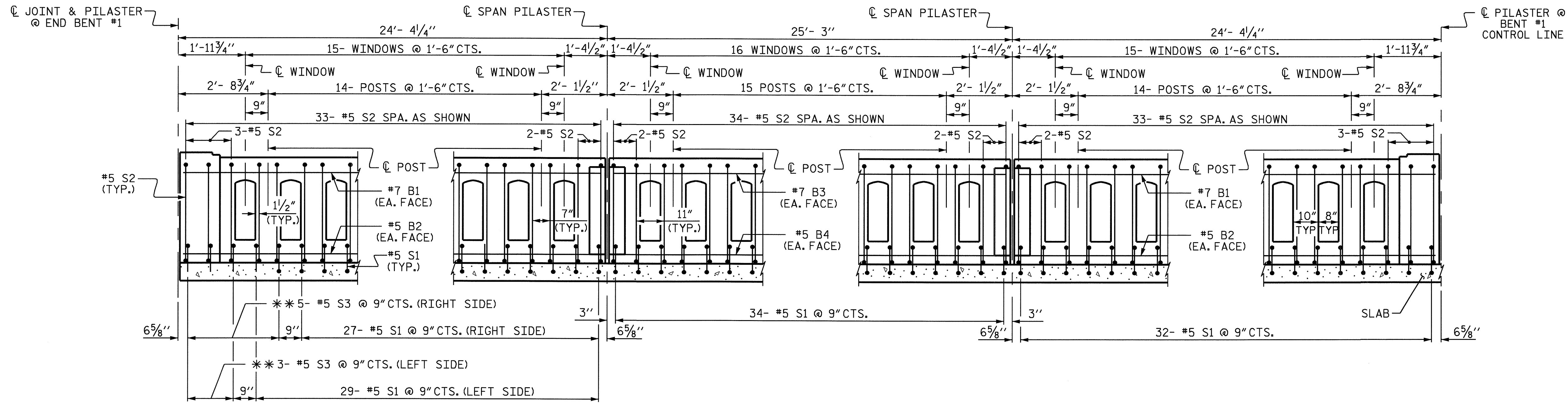
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CLASSIC CONCRETE
 BRIDGE RAIL



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			54

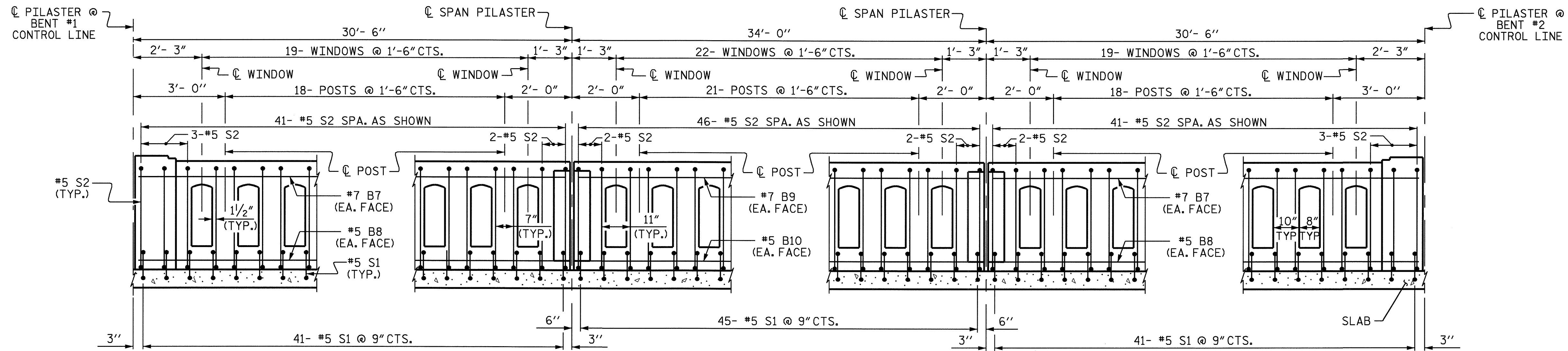
STD. No. CCR2



** THE #5 S3 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD FOR EACH LEG OF THE #5 S3 BAR IS 18.6 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

REINFORCING PLACEMENT- SPAN A

DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL



REINFORCING PLACEMENT- SPAN B

DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CLASSIC CONCRETE
 BRIDGE RAIL

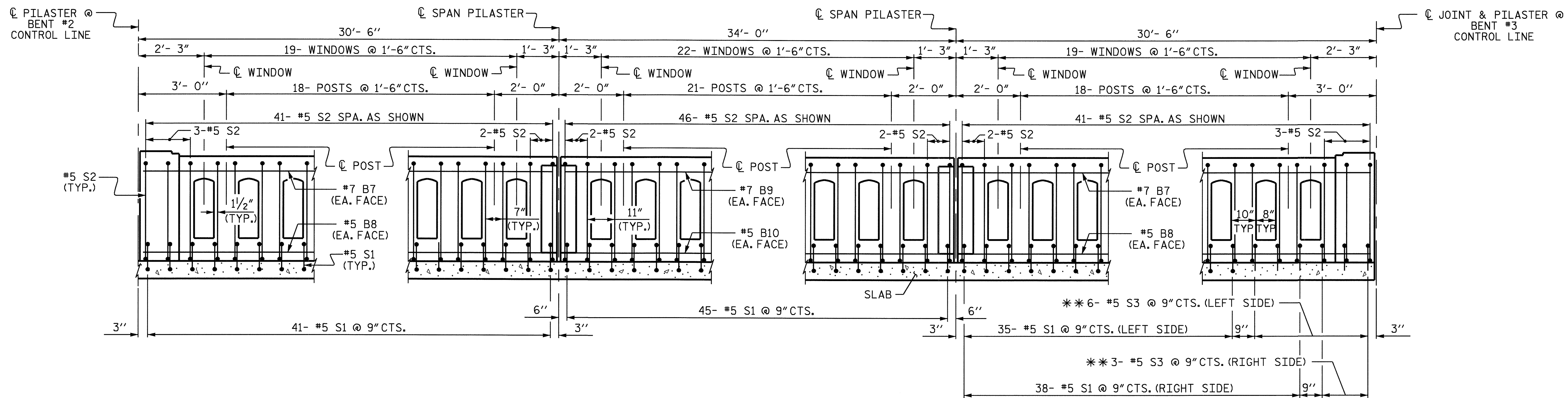


DRAWN BY: D. A. GLADDEN DATE: 8-12-08
 CHECKED BY: A. DAVENPORT DATE: 2-16-09

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			54

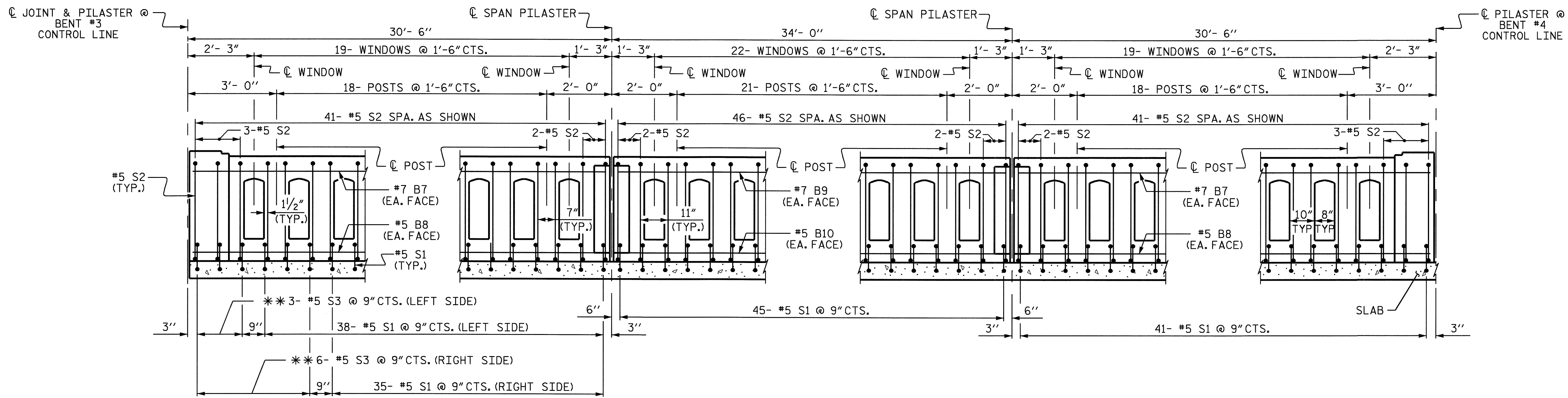
STD. No. CCR3



REINFORCING PLACEMENT- SPAN C

DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL

** THE #5 S3 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD FOR EACH LEG OF THE #5 S3 BAR IS 18.6 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.



REINFORCING PLACEMENT- SPAN D

DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL

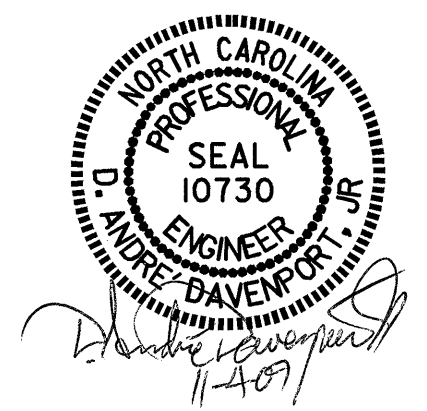
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**CLASSIC CONCRETE
 BRIDGE RAIL**

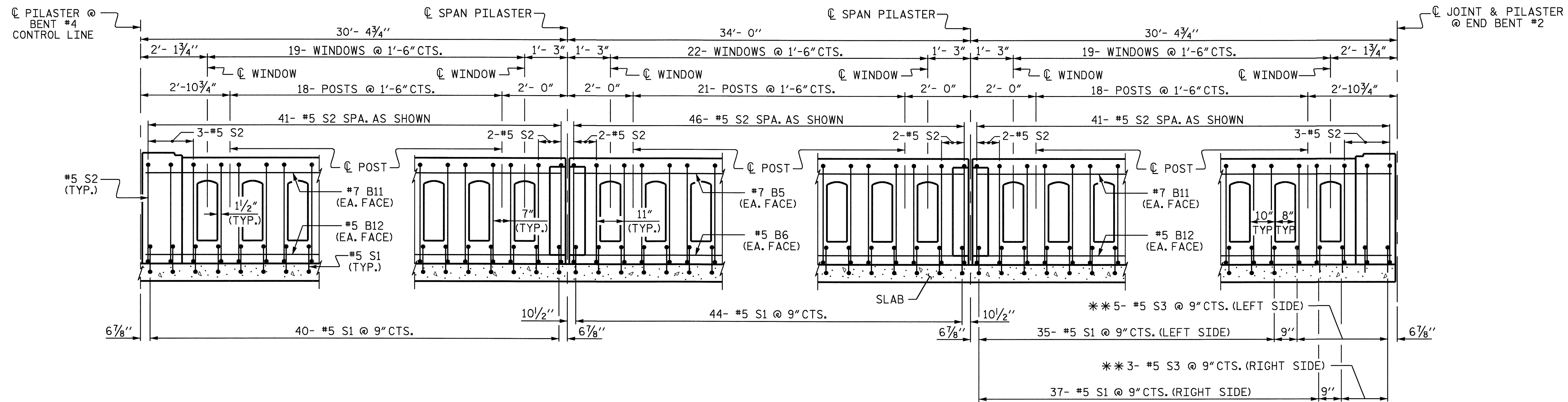
REVISIONS						SHEET NO. S-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			



DRAWN BY: D. A. GLADDEN DATE: 8-12-08
 CHECKED BY: A. DAVENPORT DATE: 2-16-09

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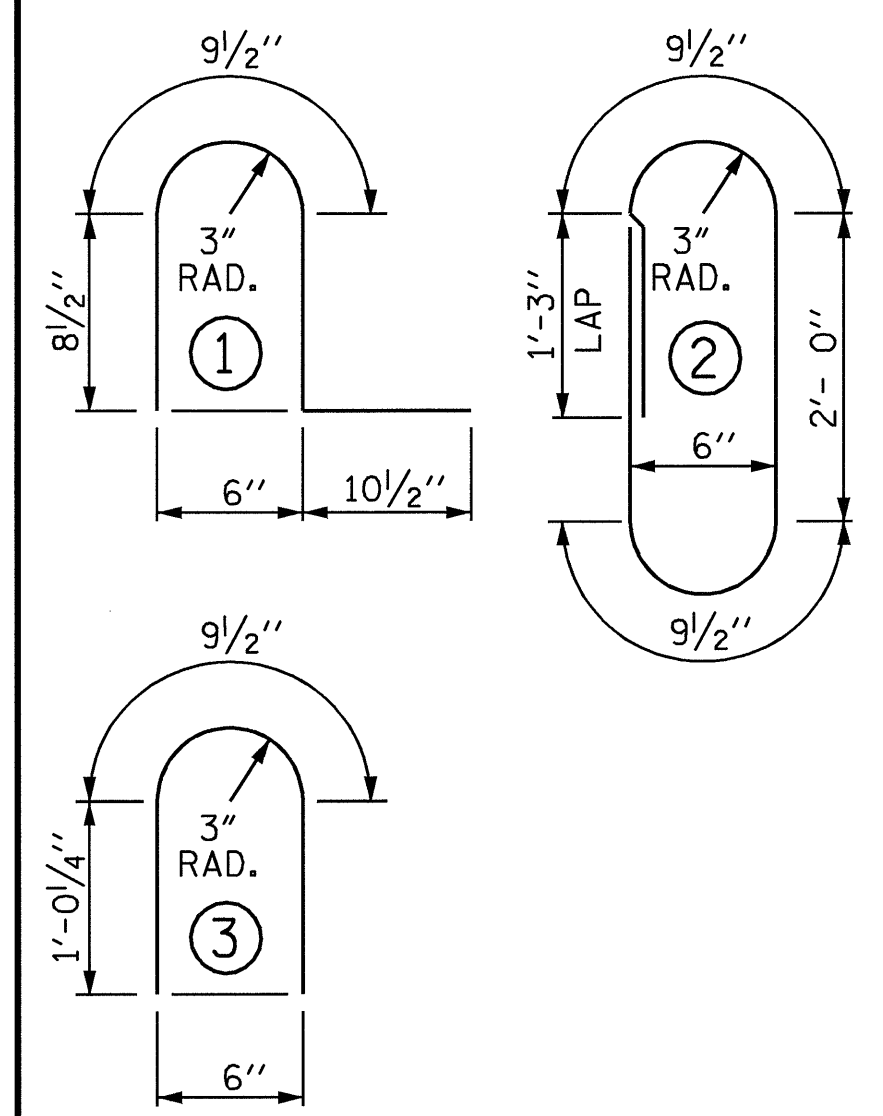
STD. No. CCR3



REINFORCING PLACEMENT- SPAN E
 DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL

** THE #5 S3 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT, LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD FOR EACH LEG OF THE #5 S3 BAR IS 18.6 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

BAR TYPES



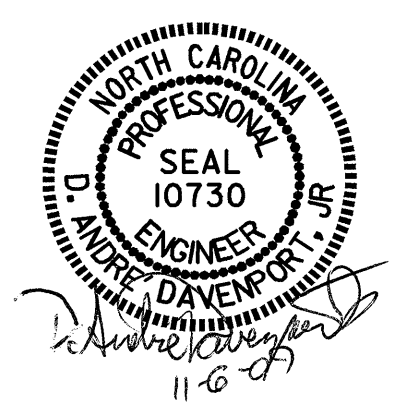
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CLASSIC BRIDGE RAILING ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	8	#7	STR	23'-10"	390
* B2	8	#5	STR	23'-10"	199
* B3	4	#7	STR	24'-10"	203
* B4	4	#5	STR	24'-10"	104
* B5	4	#7	STR	33'- 7"	275
* B6	4	#5	STR	33'- 7"	140
* B7	24	#7	STR	30'- 1"	1476
* B8	24	#5	STR	30'- 1"	753
* B9	12	#7	STR	33'- 7"	824
* B10	12	#5	STR	33'- 7"	420
* B11	8	#7	STR	30'- 0"	491
* B12	8	#5	STR	30'- 0"	250
* S1	1172	#5	1	3'- 1"	3769
* S2	1224	#5	2	6'-10"	8724
* S3	34	#5	3	2'- 10"	100
* EPOXY COATED REINFORCING STEEL					18118 LBS.
CLASS AA CONCRETE					63.3 CU. YDS.
CLASSIC CONCRETE BRIDGE RAIL					907.33 LIN. FT.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-
 SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

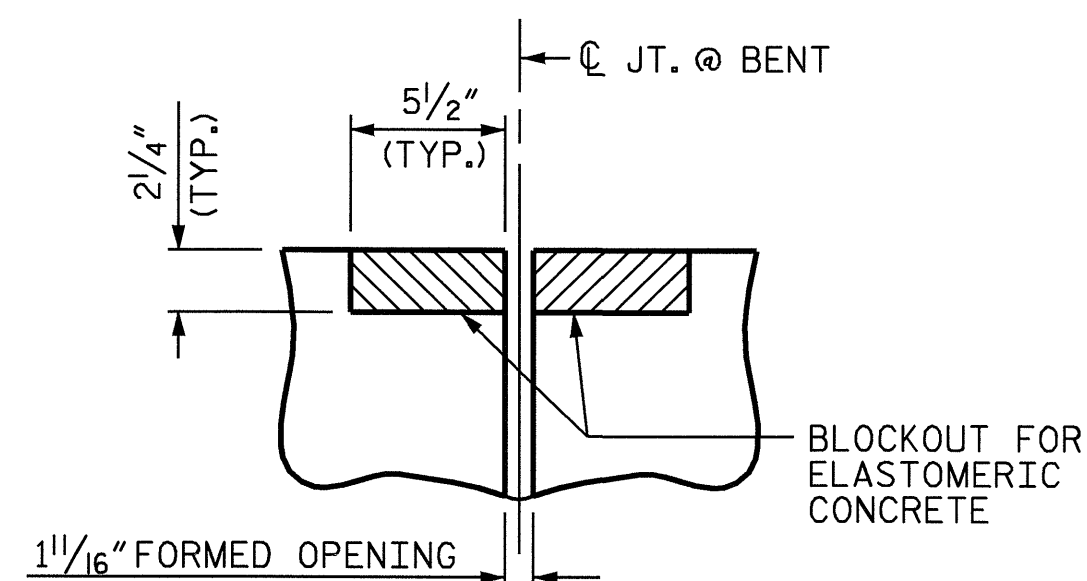
**CLASSIC CONCRETE
 BRIDGE RAIL**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS 54
2			4			

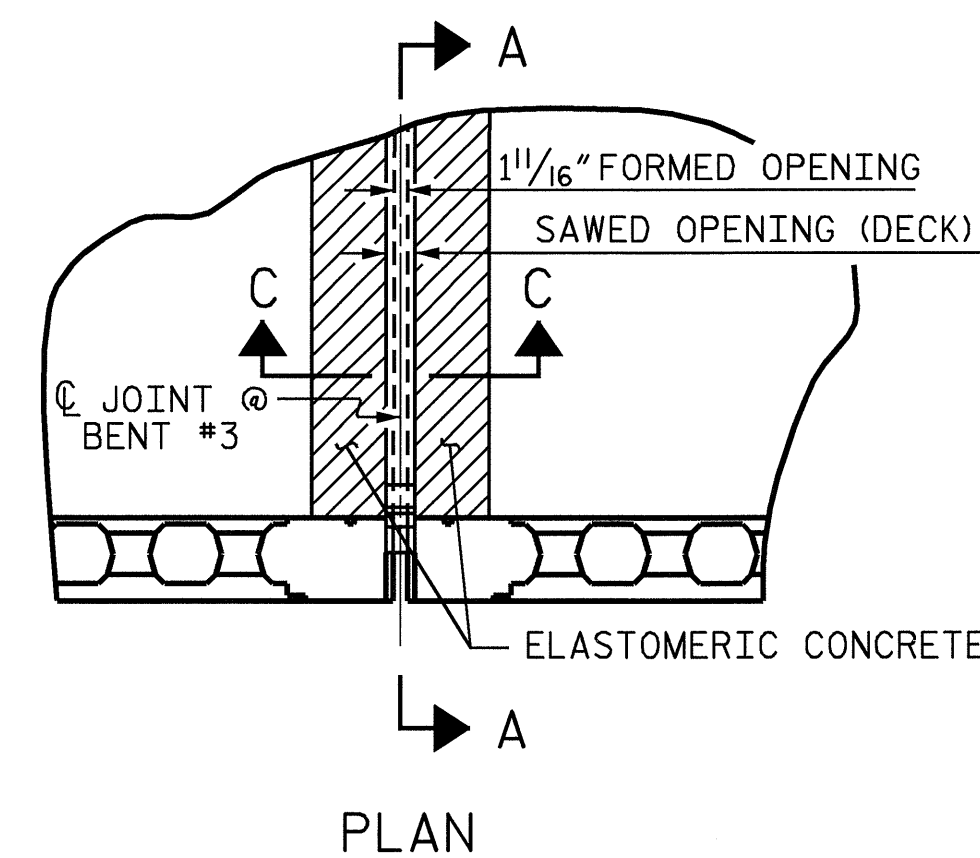
DRAWN BY: D. A. GLADDEN DATE: 8-12-08
 CHECKED BY: A. DAVENPORT DATE: 2-16-09

NOTES

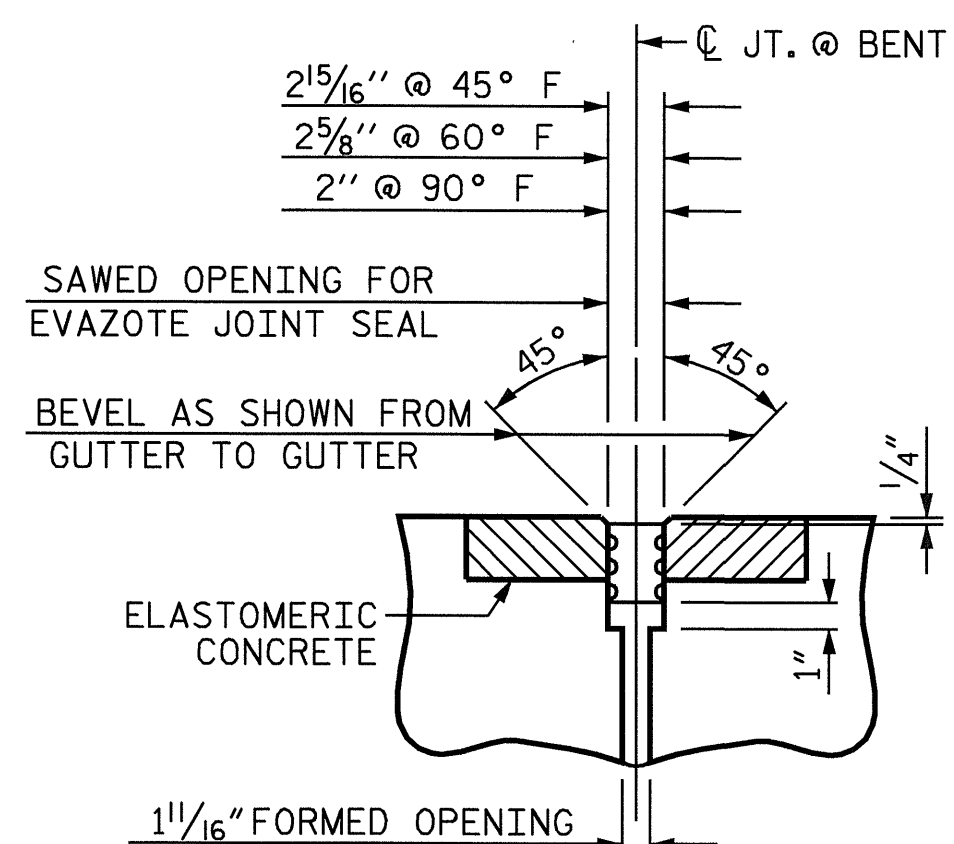
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
 THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 3 1/16".
 FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.
 THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE CLASSIC CONCRETE RAIL AND BENT PILASTER.



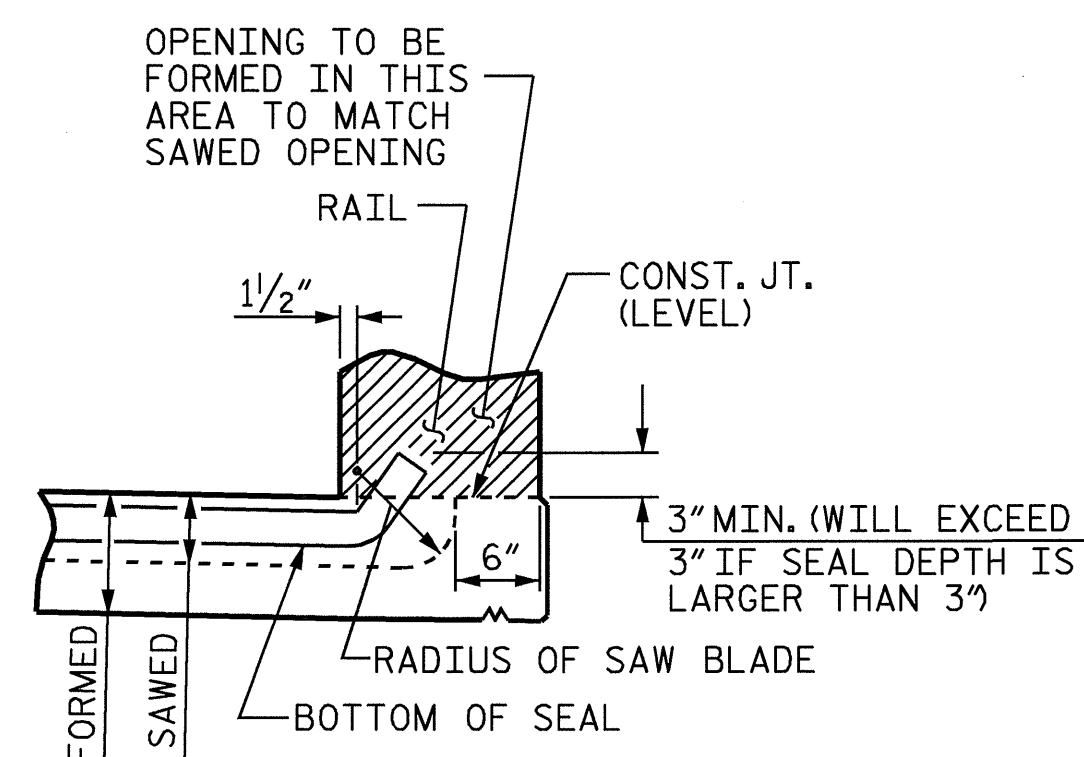
SECTION C-C
 EVAZOTE JOINT SEAL
 (PRE-SAWED ELASTOMERIC
 CONCRETE DIMENSIONS)



PLAN



SECTION C-C
 EVAZOTE JOINT SEAL
 (EXPANSION)



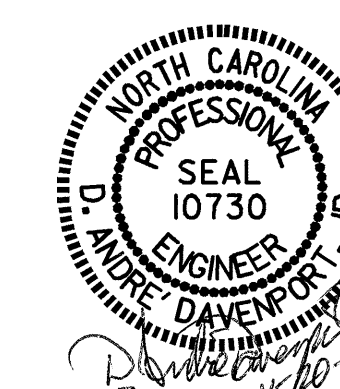
SECTION A-A

ELASTOMERIC CONCRETE	
BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
3	4.8
TOTAL	4.8

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

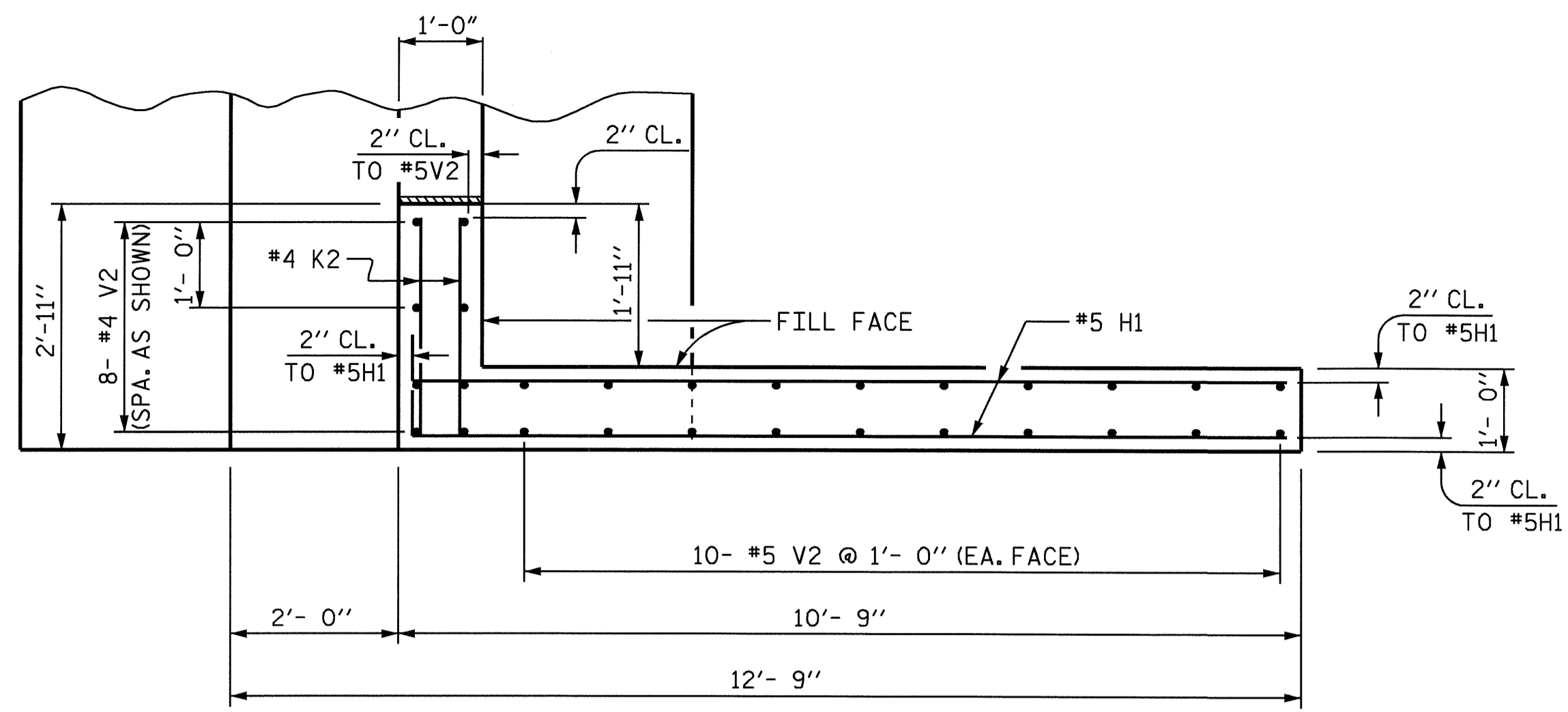
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

JOINT SEAL DETAILS @ BENT #3

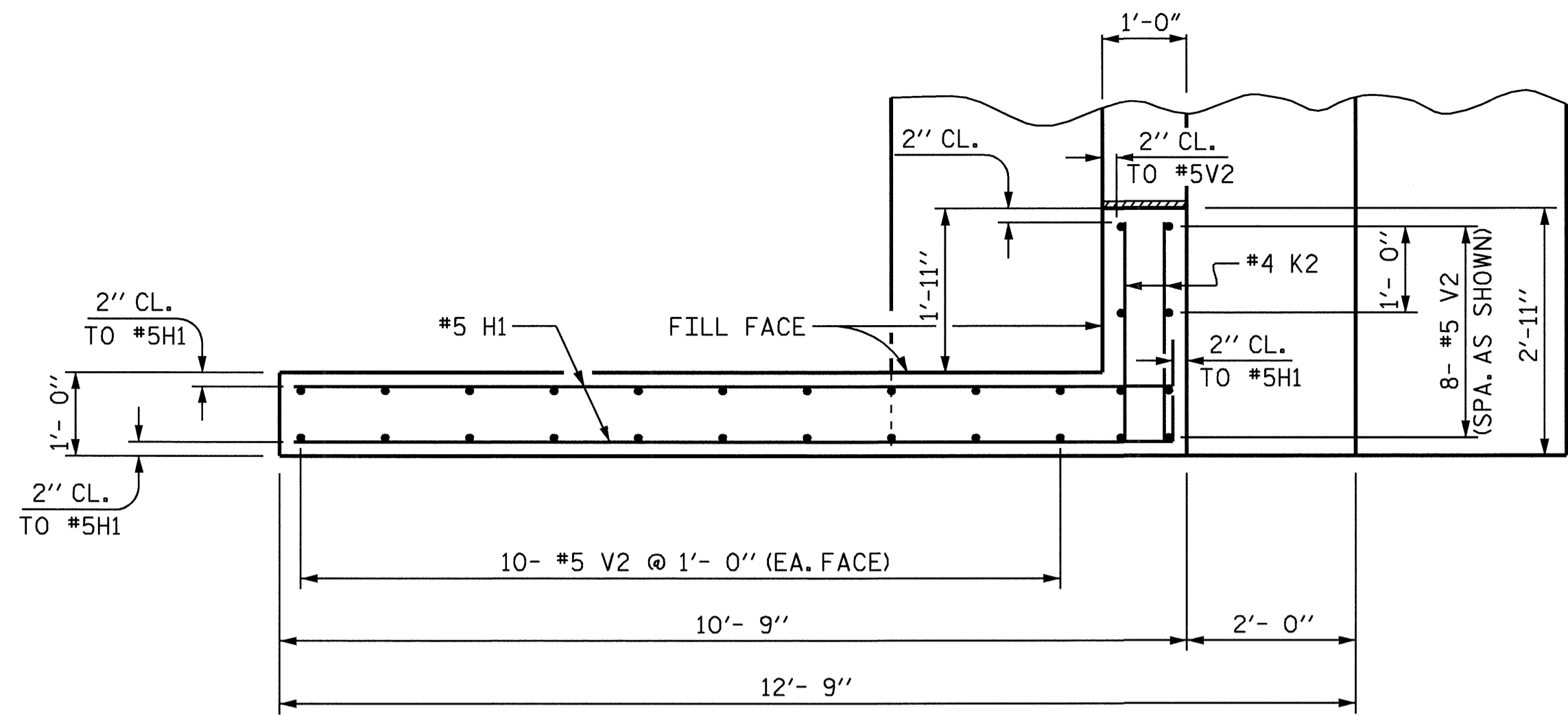


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
EVAZOTE JOINT SEAL DETAILS AT BENT #3					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					54

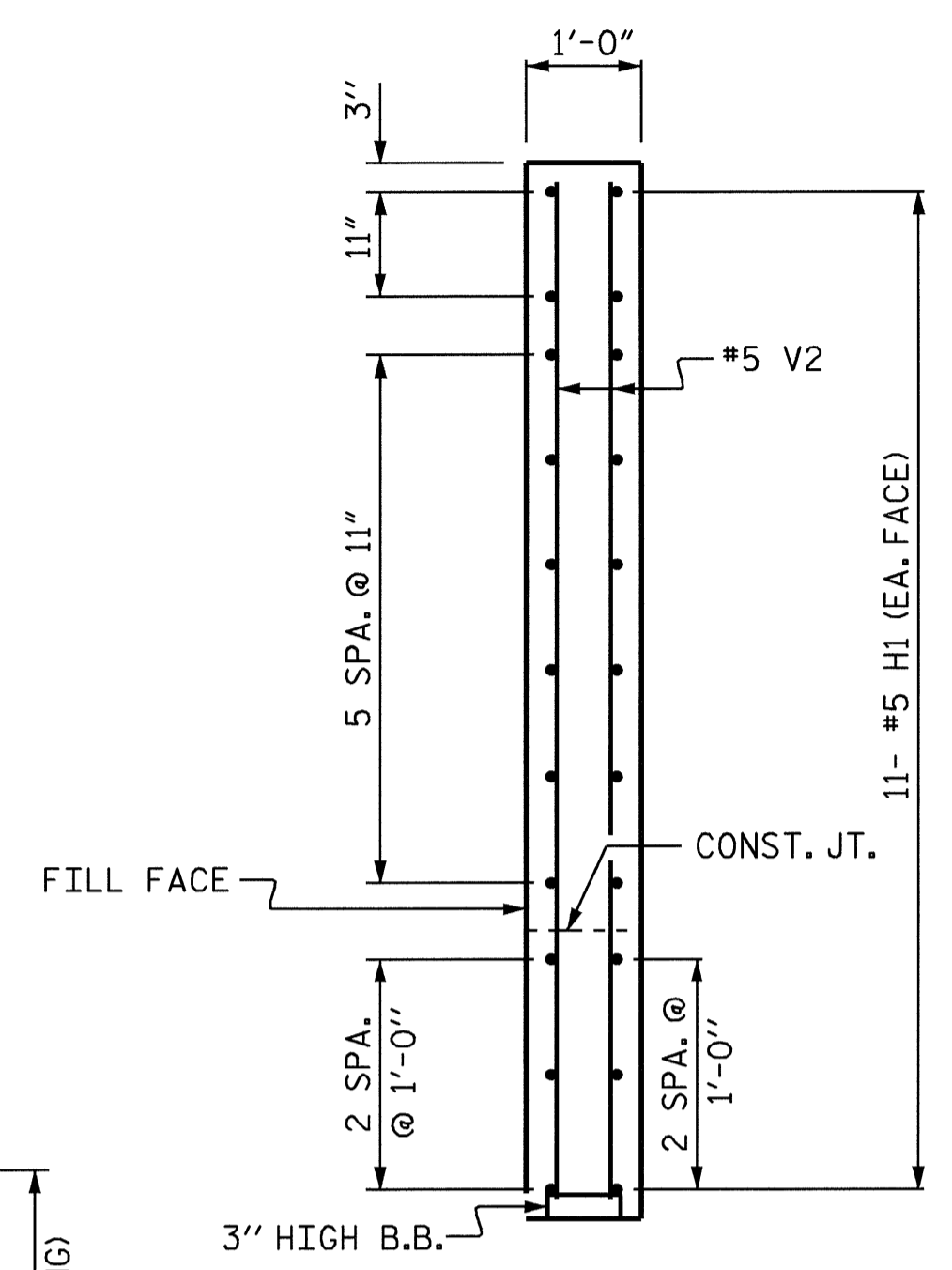
ASSEMBLED BY : D. A. GLADDEN	DATE : 9-4-08
CHECKED BY : A. DAVENPORT	DATE : 3-18-09
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM



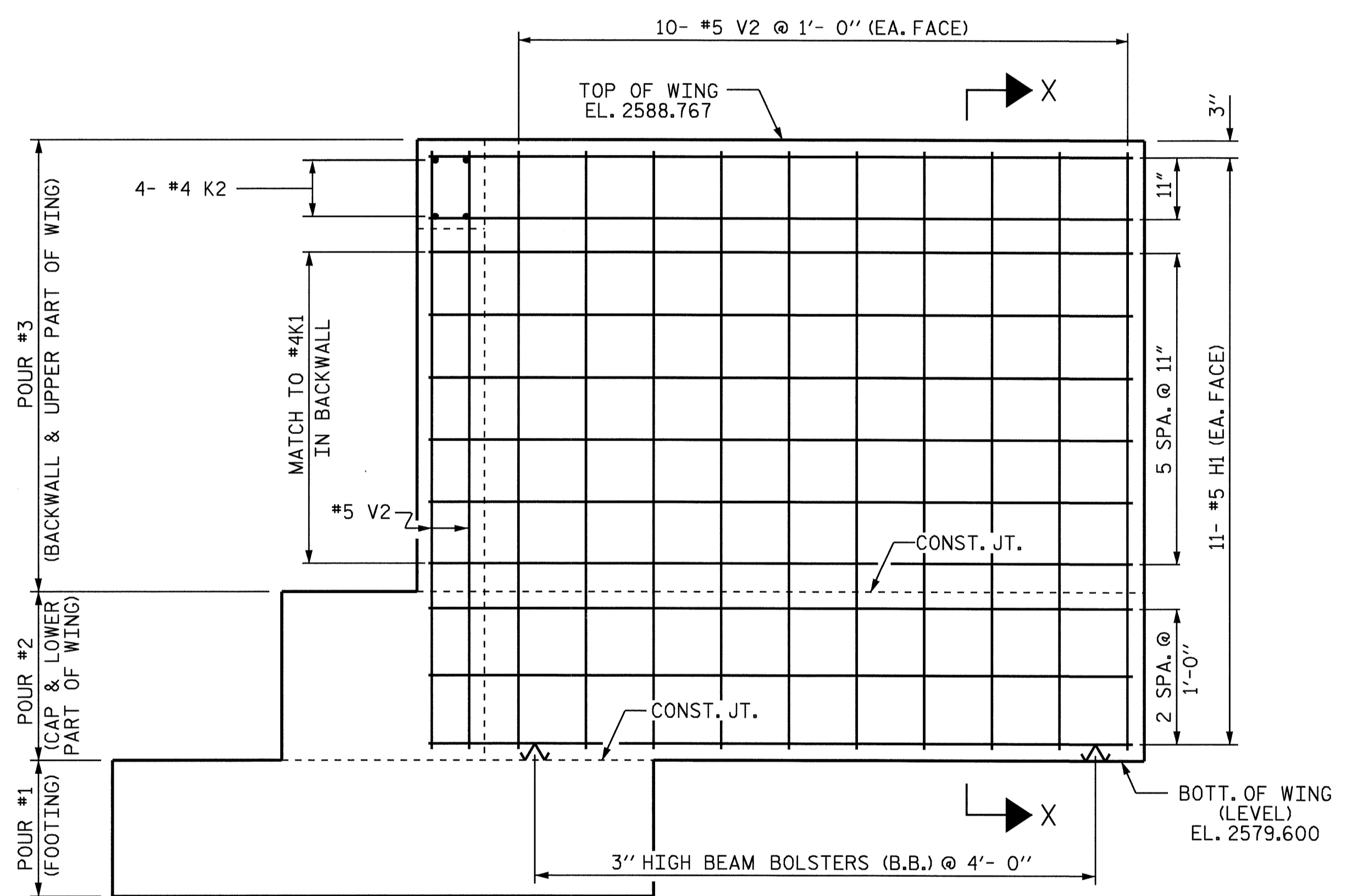
PLAN OF LEFT WING (W1)



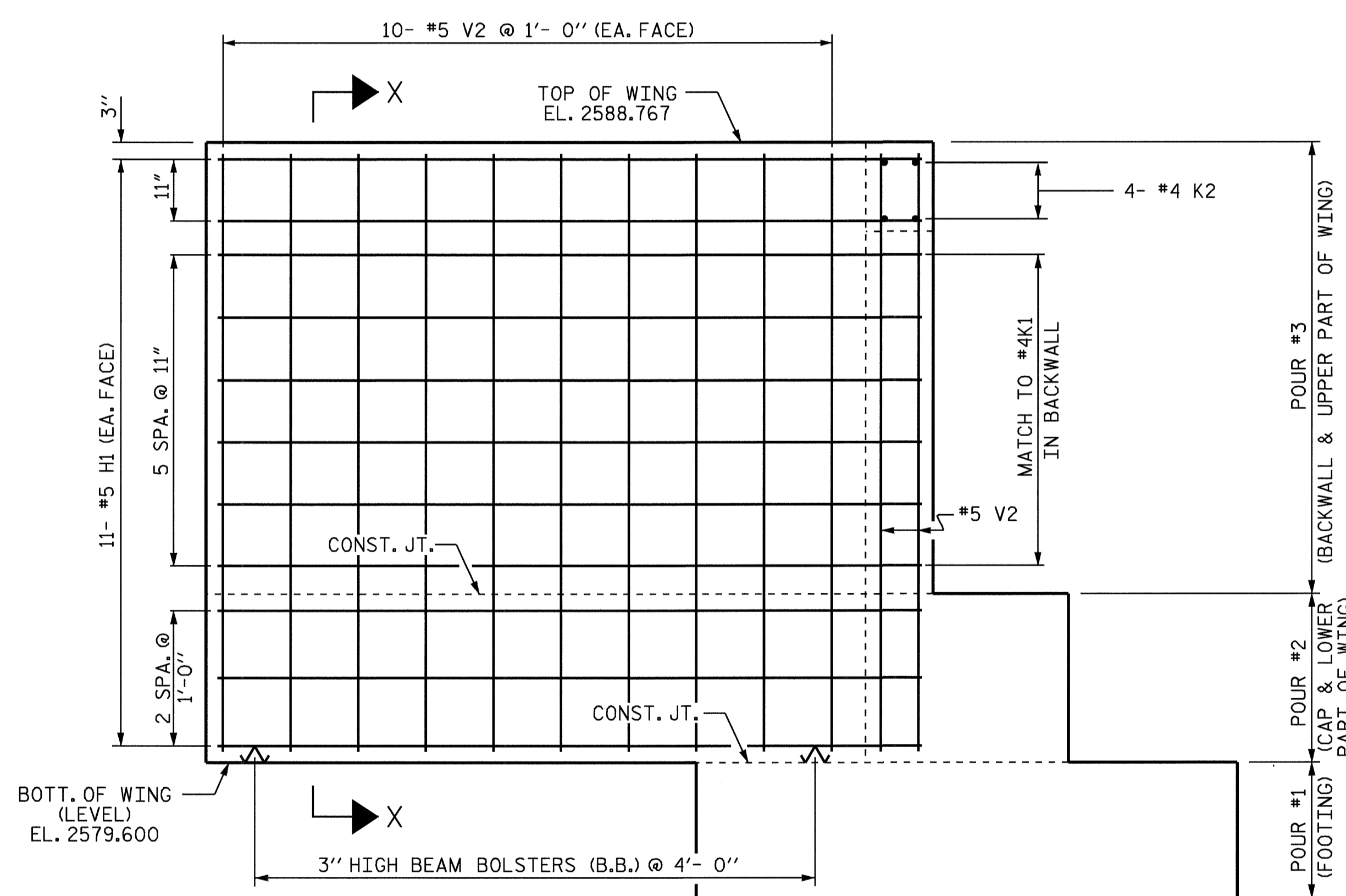
PLAN OF RIGHT WING (W2)



SECTION X-X



ELEVATION OF LEFT WING (W1)

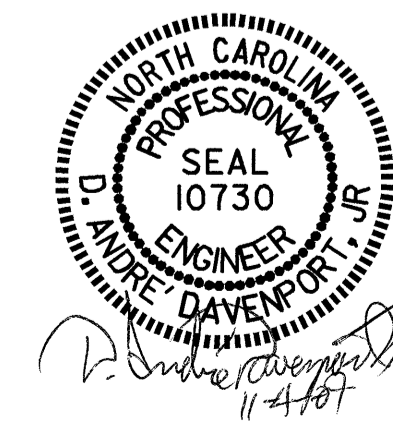


ELEVATION OF RIGHT WING (W2)

PROJECT NO. B-1037
 ASHE COUNTY
 STATION: 17+47.50 -L-

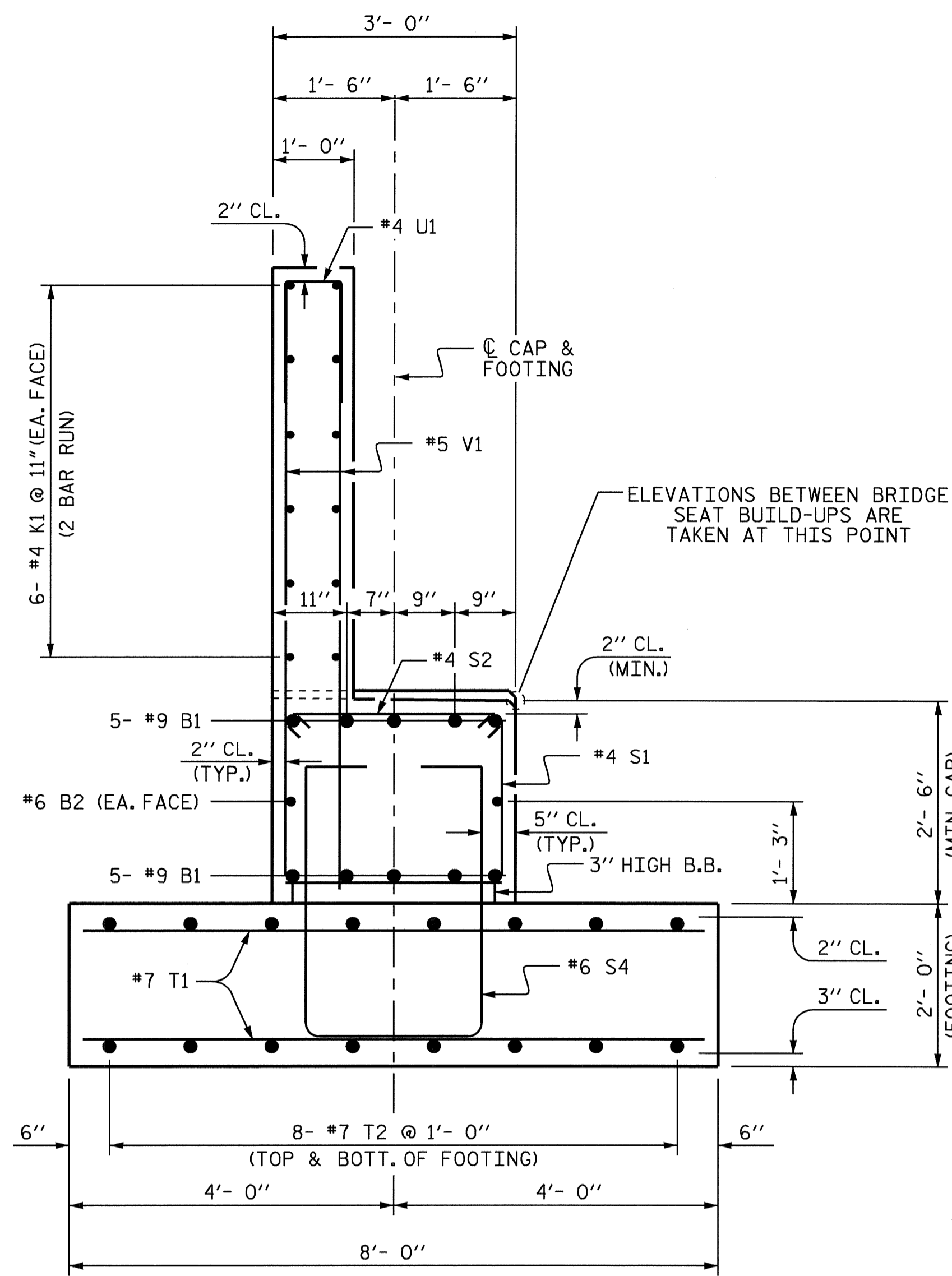
SHEET 2 OF 3

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

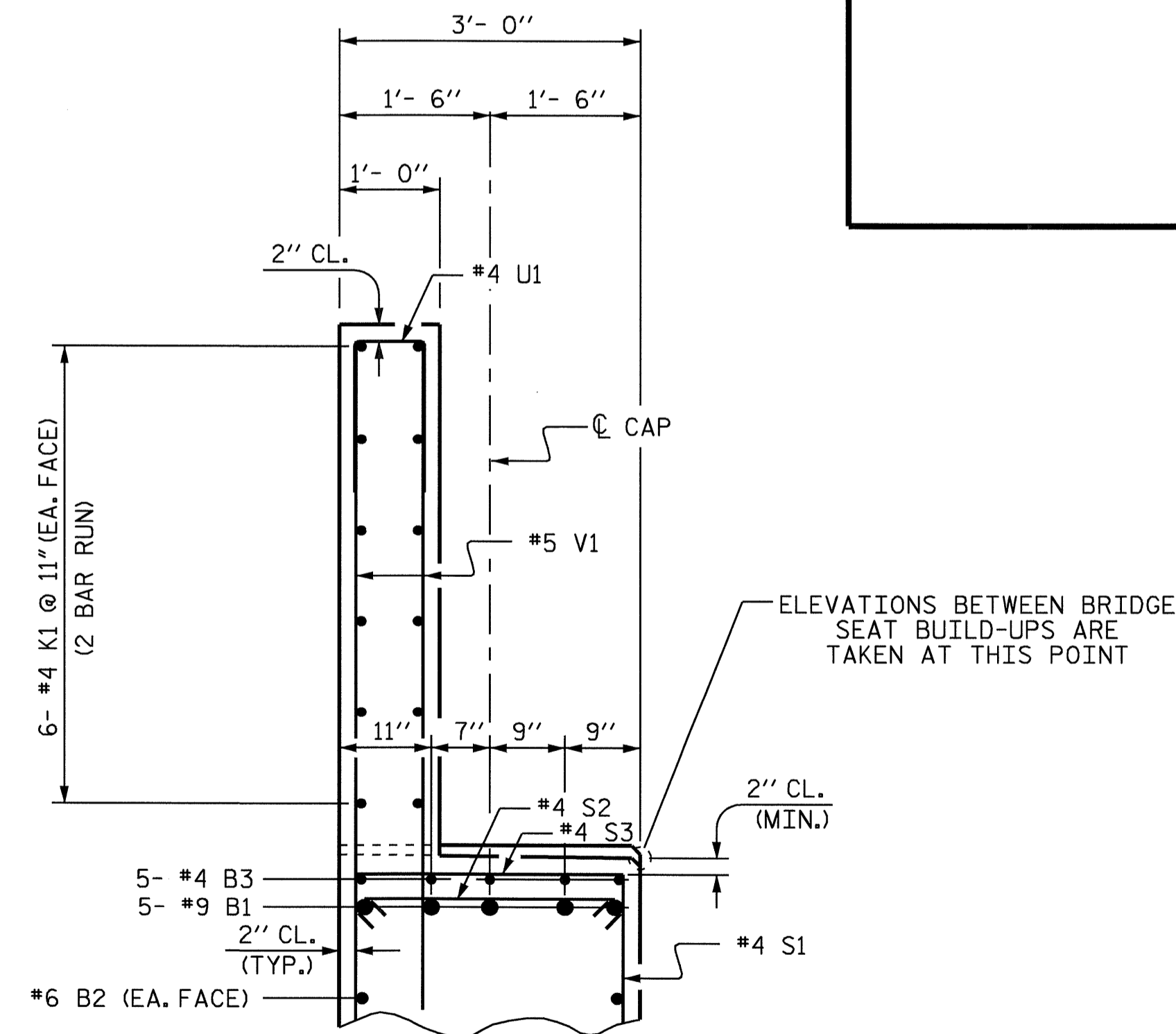


REVISIONS						SHEET NO. S-34
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			

DRAWN BY: D. A. GLADDEN DATE: 5-19-09
 CHECKED BY: J. F. OERTER DATE: 8-11-09

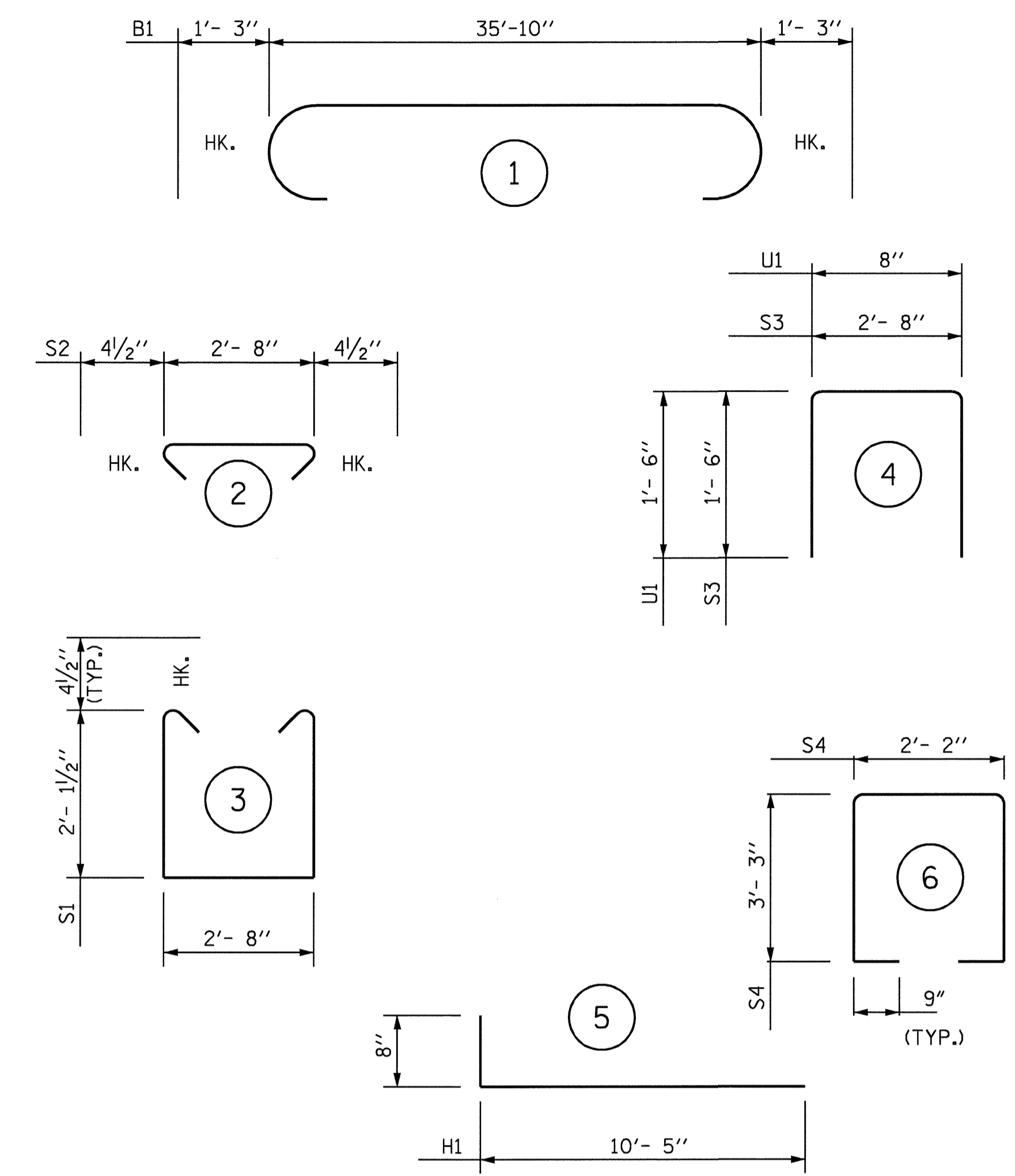


SECTION THROUGH CAP



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#9	1	38'- 4"	1303
B2	#6	STR	36'- 0"	108
B3	#4	STR	3'- 3"	11
H1	#5	5	11'- 1"	509
K1	#4	STR	19'-3"	309
K2	#4	STR	2'- 7"	14
S1	#4	3	7'- 8"	184
S2	#4	2	3'- 5"	82
S3	#4	4	5'- 8"	26
S4	#6	6	10'- 2"	550
T1	#7	STR	7'- 8"	1191
T2	#7	STR	36'- 0"	1177
U1	#4	4	3'- 8"	76
V1	#5	STR	7'- 6"	485
V2	#5	STR	8'- 10"	516

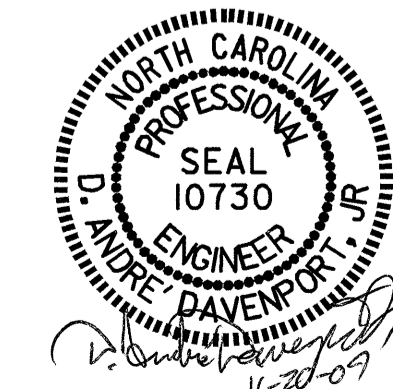
REINFORCING STEEL = 6541 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 (FOOTING)	= 21.5 C.Y.
POUR #2 (CAP & LOWER PART OF WING)	= 12.2 C.Y.
POUR #3 (BACKWALL & UPPER PART OF WING)	= 12.2 C.Y.
TOTAL	= 45.9 C.Y.
FOUNDATION EXCAVATION	= 175.0 C.Y.

DRAWN BY: D. A. GLADDEN DATE: 5-19-09
 CHECKED BY: J. F. OERTER DATE: 8-11-09

20-NOV-2009 08:27
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PROJECT NO. B-1037
 ASHE COUNTY
 STATION: 17+47.50 -L-
 SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 54

NOTES

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

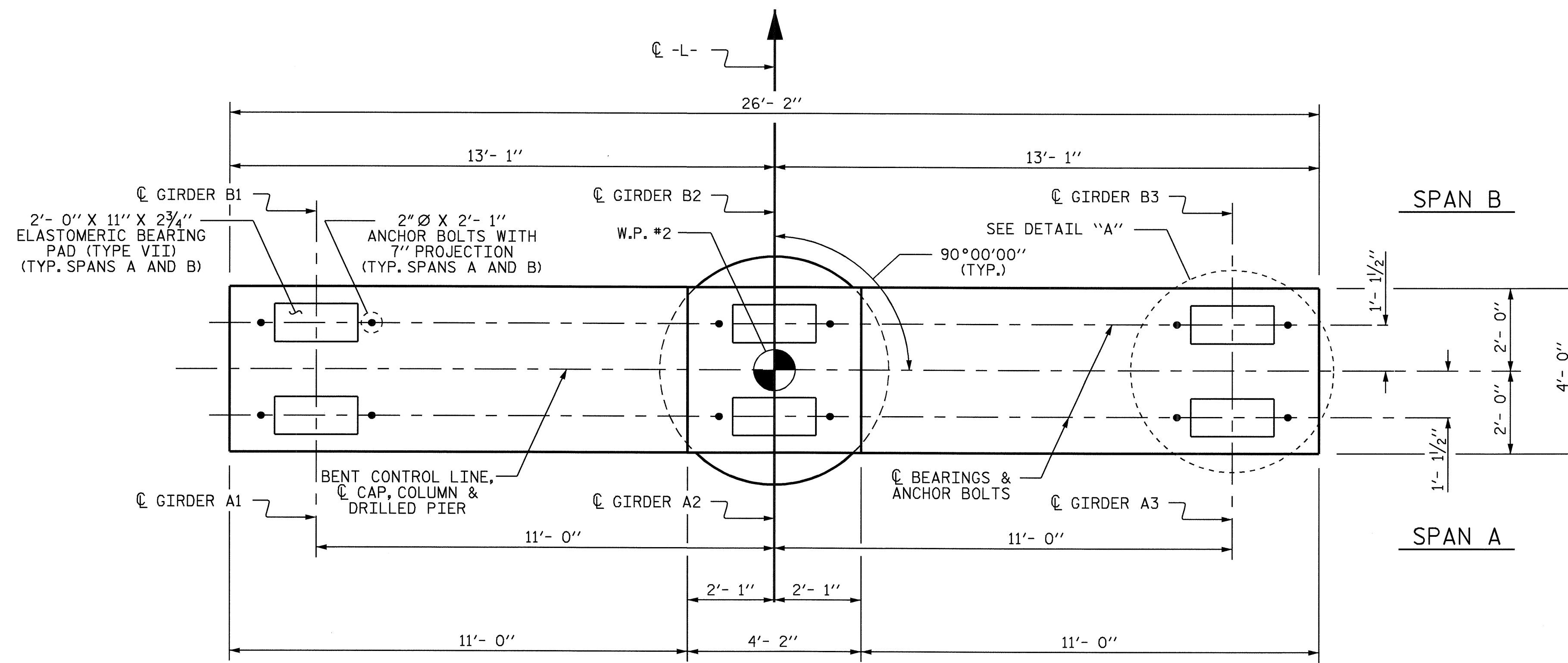
DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED. SEE SHEET SN.

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

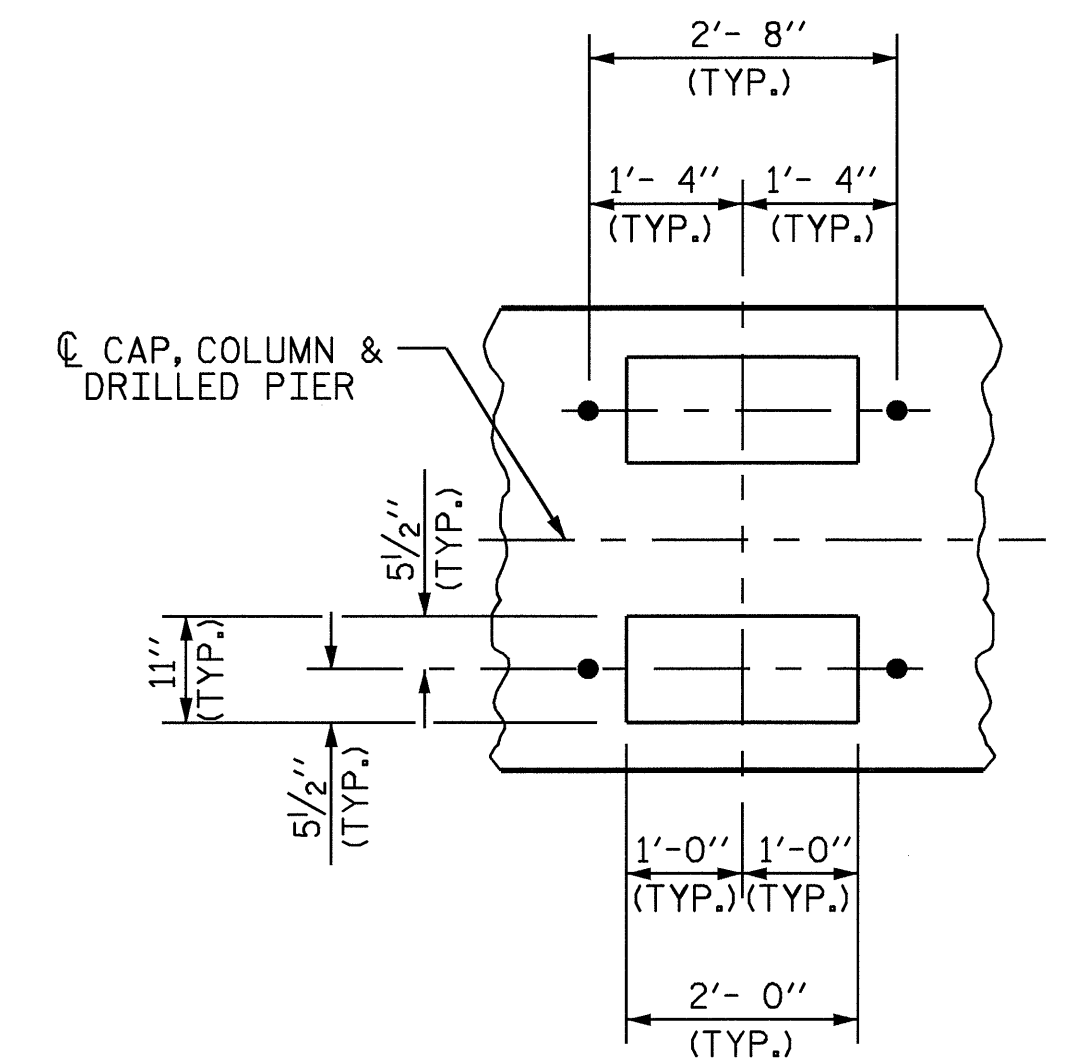
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

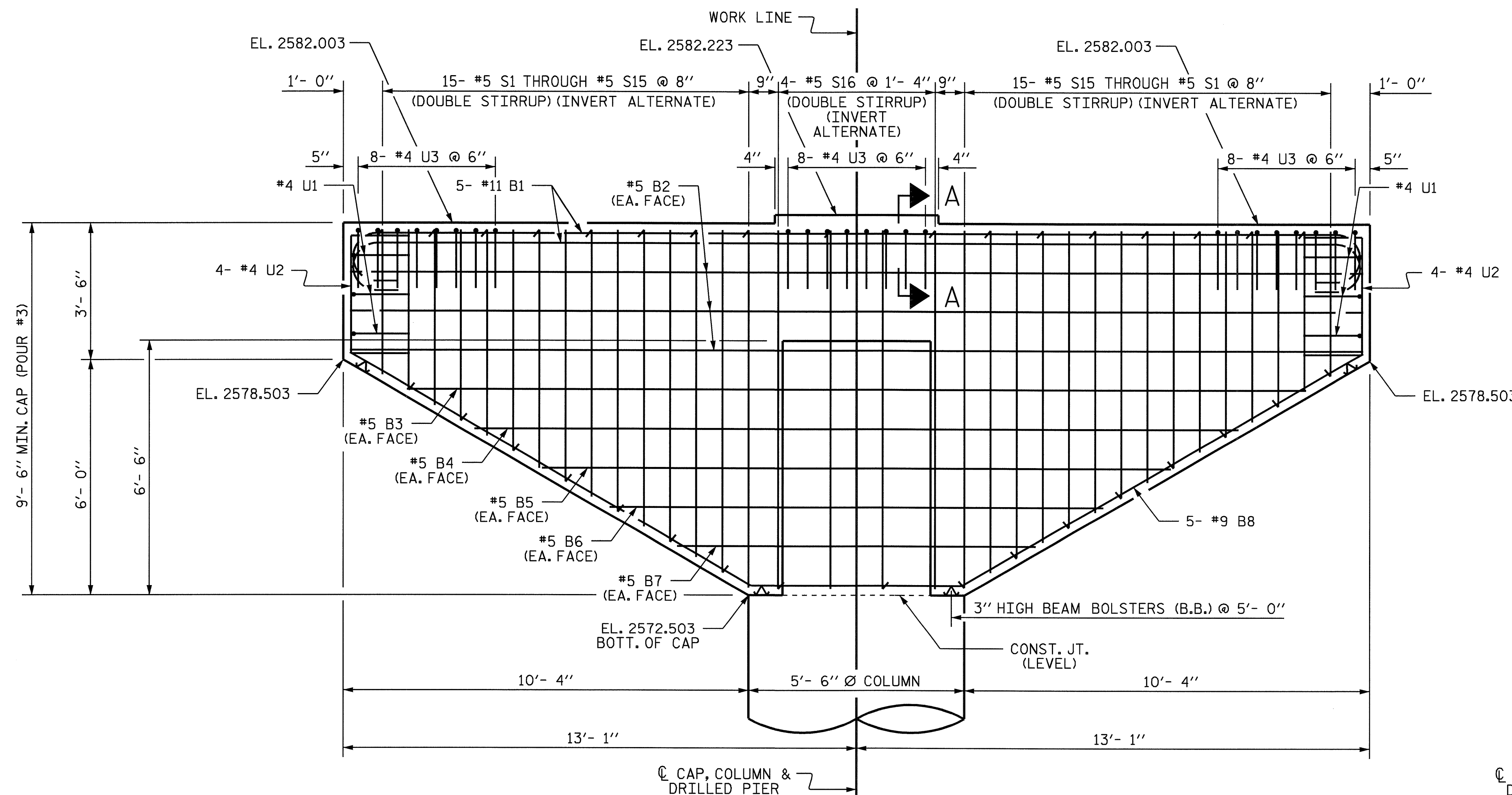
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.



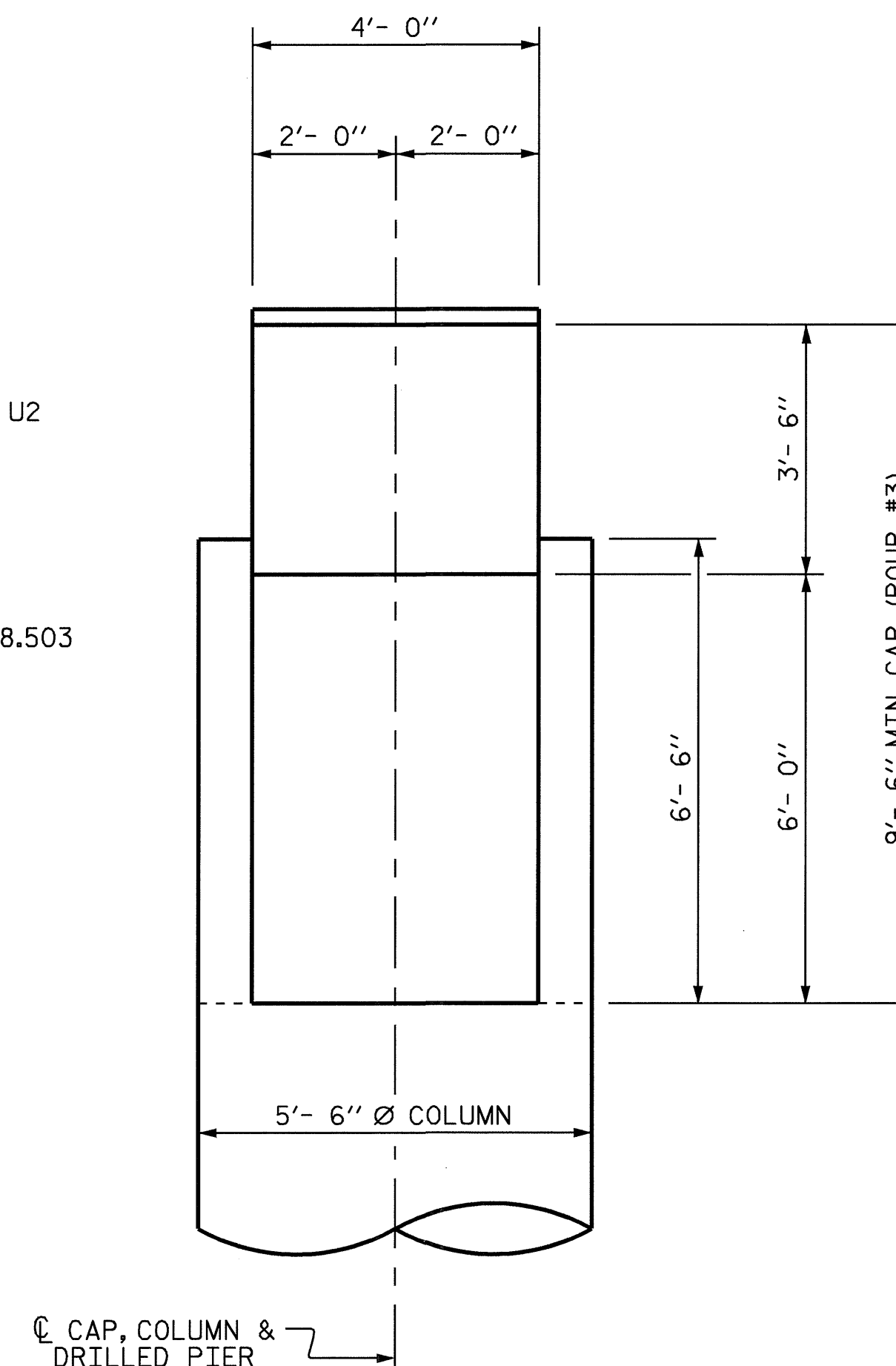
PLAN OF CAP



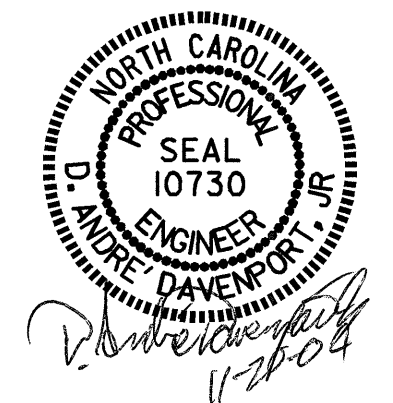
DETAIL "A"



ELEVATION OF CAP



END ELEVATION OF CAP



PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

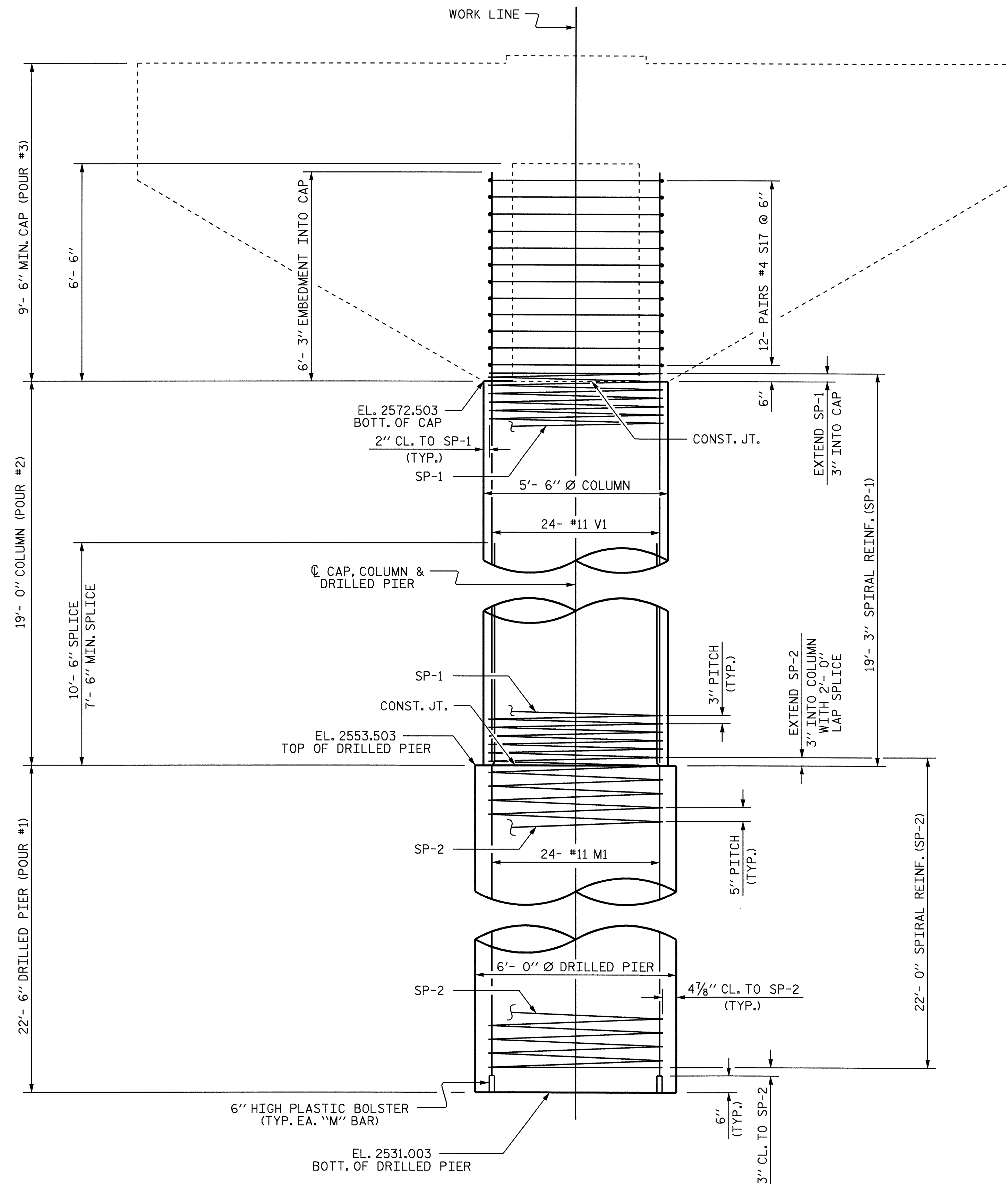
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

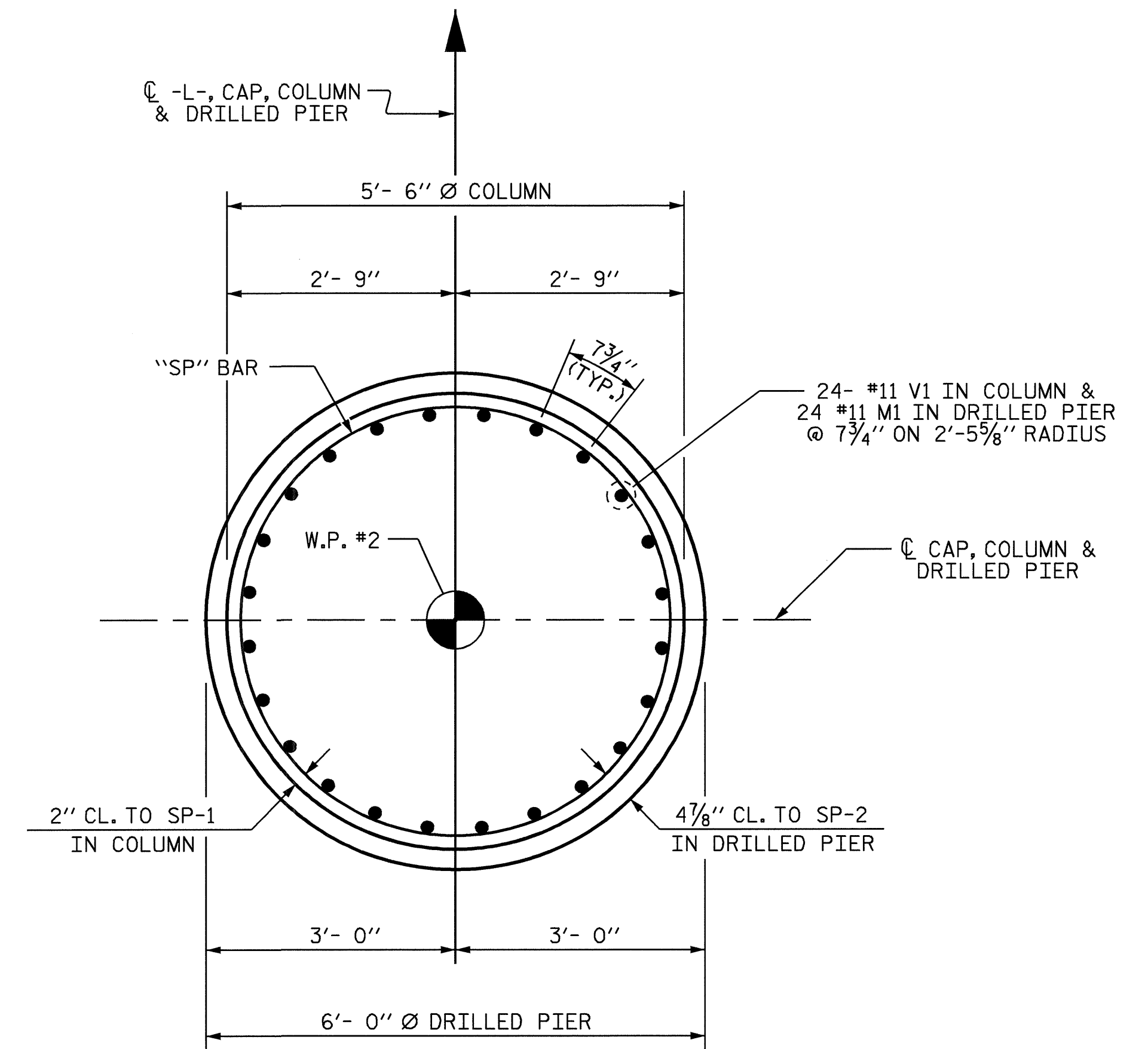
SUBSTRUCTURE
 BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			54

DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D.A. Davenport DATE: 5-4-09



ELEVATION OF COLUMN AND DRILLED PIER



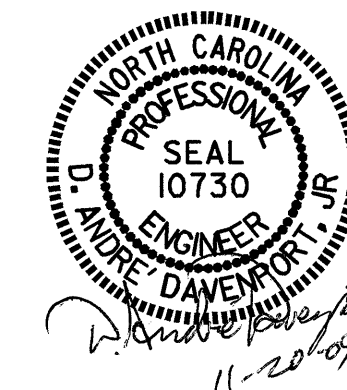
PLAN OF COLUMN AND DRILLED PIER

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

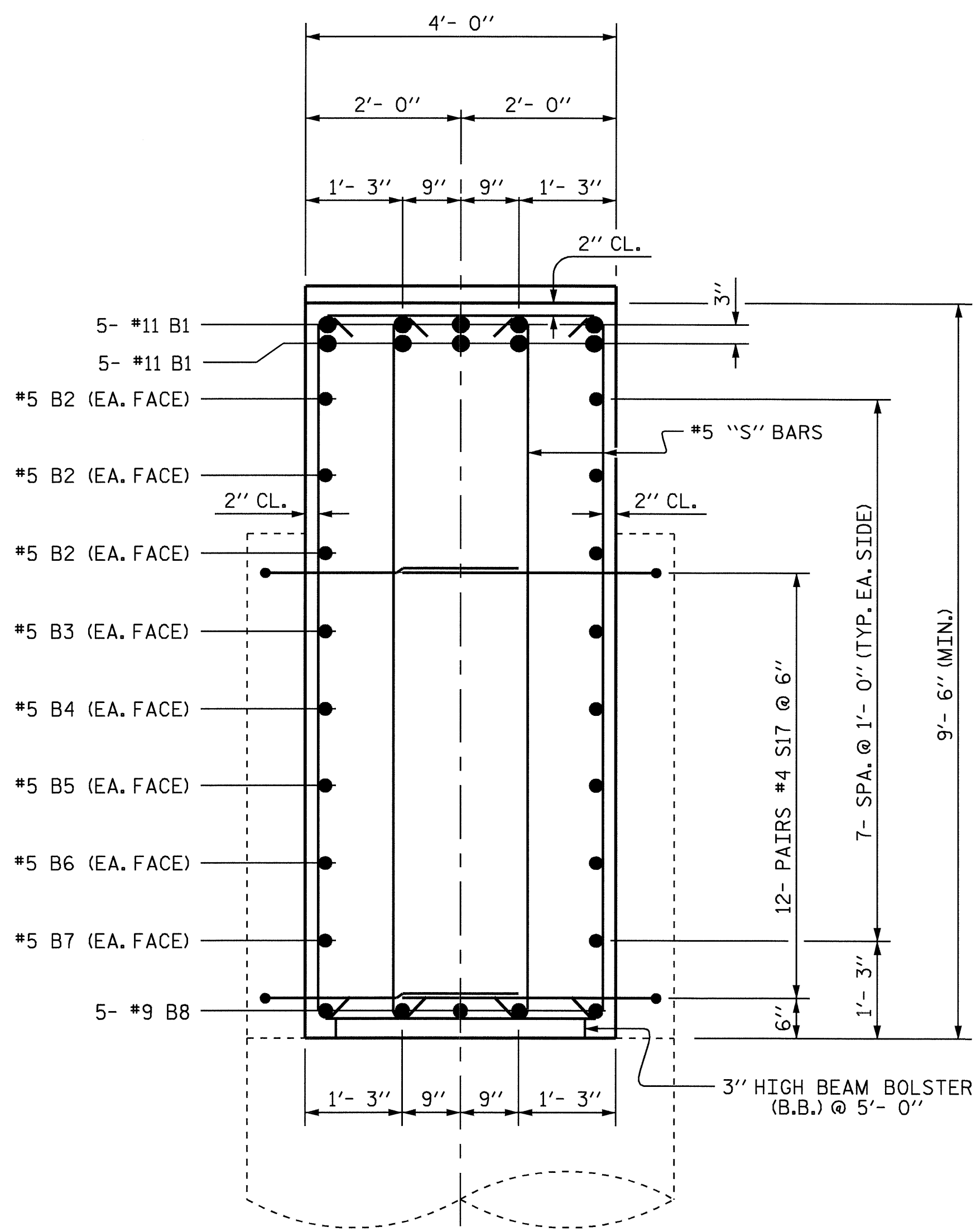
SUBSTRUCTURE
 BENT #1



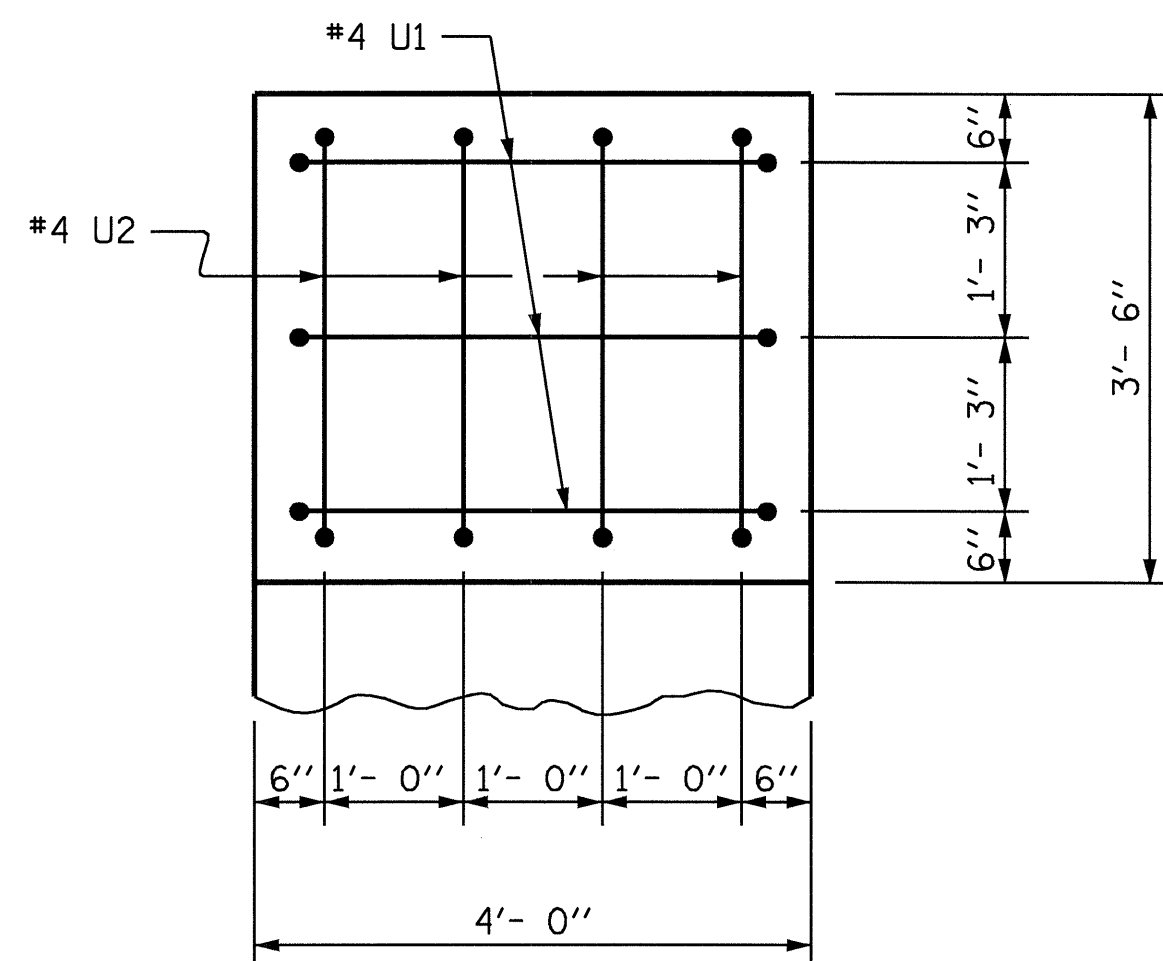
DRAWN BY : D. A. GLADDEN DATE : 3-26-09
 CHECKED BY : D. A. Davenport DATE : 5-4-09

20-NOV-2009 10:21
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 adavenport

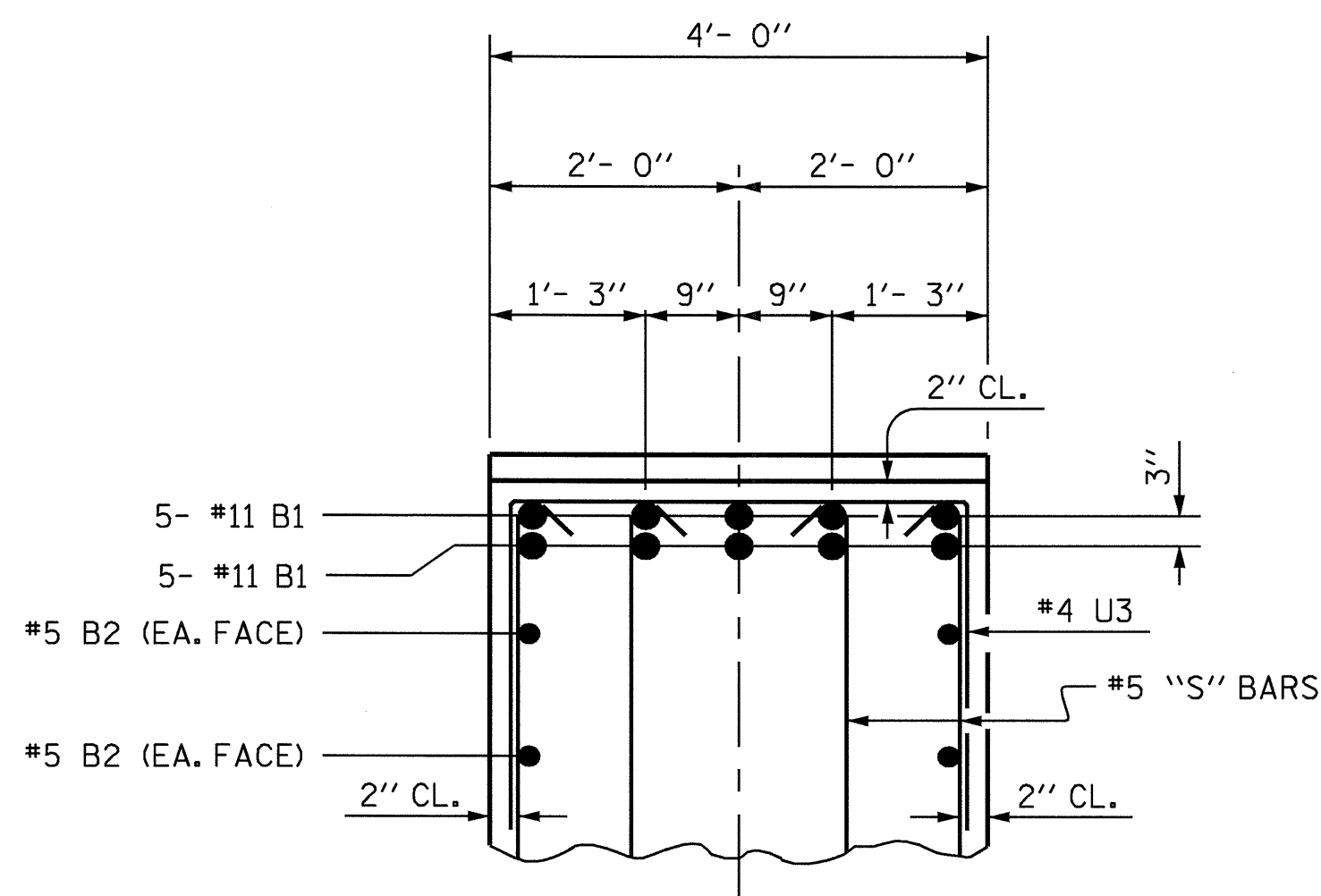
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			54



SECTION THROUGH CAP

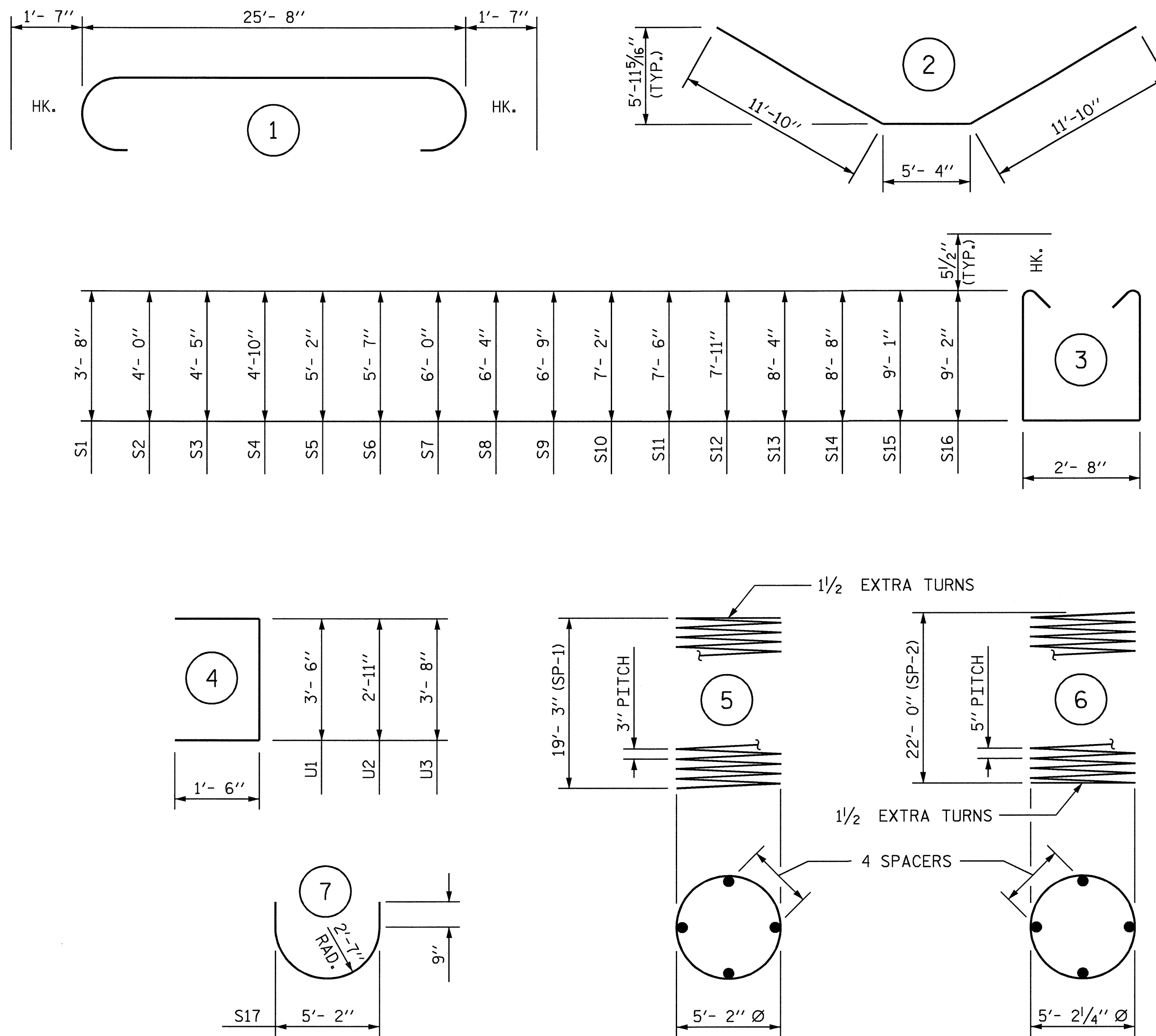


END OF CAP DETAIL



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#11	1	28'-10"	1532
B2	#5	STR	25'-10"	162
B3	#5	STR	22'-11"	48
B4	#5	STR	19'-5"	41
B5	#5	STR	16'-0"	33
B6	#5	STR	12'-7"	26
B7	#5	STR	9'-1"	19
B8	#9	2	29'-0"	493
S1	#5	3	10'-11"	46
S2	#5	3	11'-7"	48
S3	#5	3	12'-5"	52
S4	#5	3	13'-3"	55
S5	#5	3	13'-11"	58
S6	#5	3	14'-9"	62
S7	#5	3	15'-7"	65
S8	#5	3	16'-3"	68
S9	#5	3	17'-1"	71
S10	#5	3	17'-11"	75
S11	#5	3	18'-7"	78
S12	#5	3	19'-5"	81
S13	#5	3	20'-3"	84
S14	#5	3	20'-11"	87
S15	#5	3	21'-9"	91
S16	#5	3	21'-11"	183
S17	#4	7	9'-8"	155
M1	#11	STR	32'-6"	4144
U1	#4	4	6'-6"	26
U2	#4	4	5'-11"	32
U3	#4	4	6'-8"	107
V1	#11	STR	25'-3"	3220
REINFORCING STEEL				= 11242 LBS.
SP-1	1	*	5 1262'-10"	844
SP-2	1	**	6 878'-9"	917
SPIRAL COLUMN REINFORCING STEEL				= 1761 LBS.
CLASS A CONCRETE BREAKDOWN				
POUR #2 (COLUMN)				= 16.7 C.Y.
POUR #3 (CAP)				= 28.7 C.Y.
TOTAL				= 45.4 C.Y.

DRILLED PIER

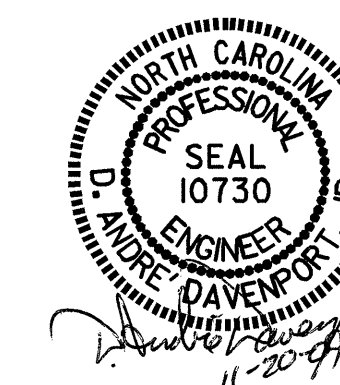
DRILLED PIER CONCRETE				
POUR #1 (DRILLED PIER)				= 23.6 C.Y.
6'-0" Ø DRILLED PIER IN SOIL				= 11.5 LIN. FT.
6'-0" Ø DRILLED PIER NOT IN SOIL				= 11.0 LIN. FT.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1



DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D.A. Davenport DATE: 5-4-09

20-NOV-2009 10:21
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 adavenport

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS 54
2			4			

NOTES

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

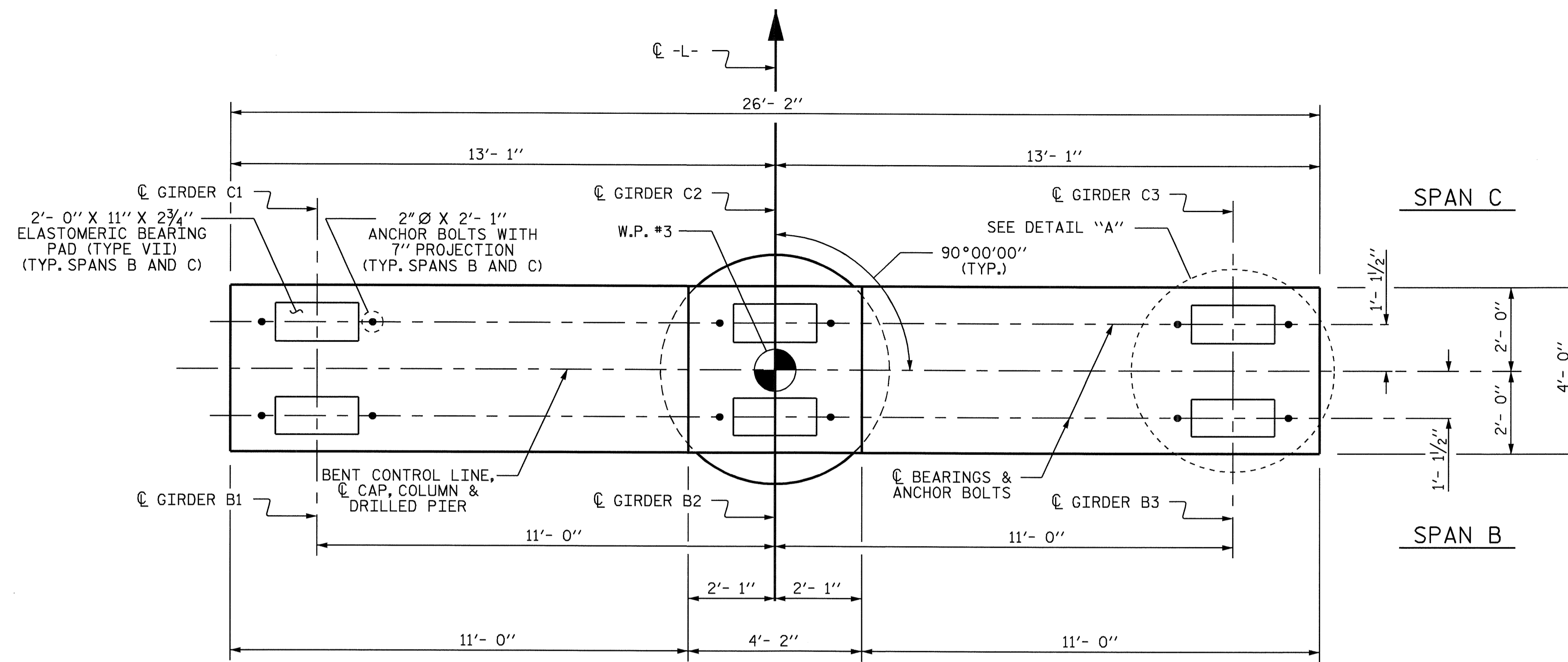
DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED. SEE SHEET SN.

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

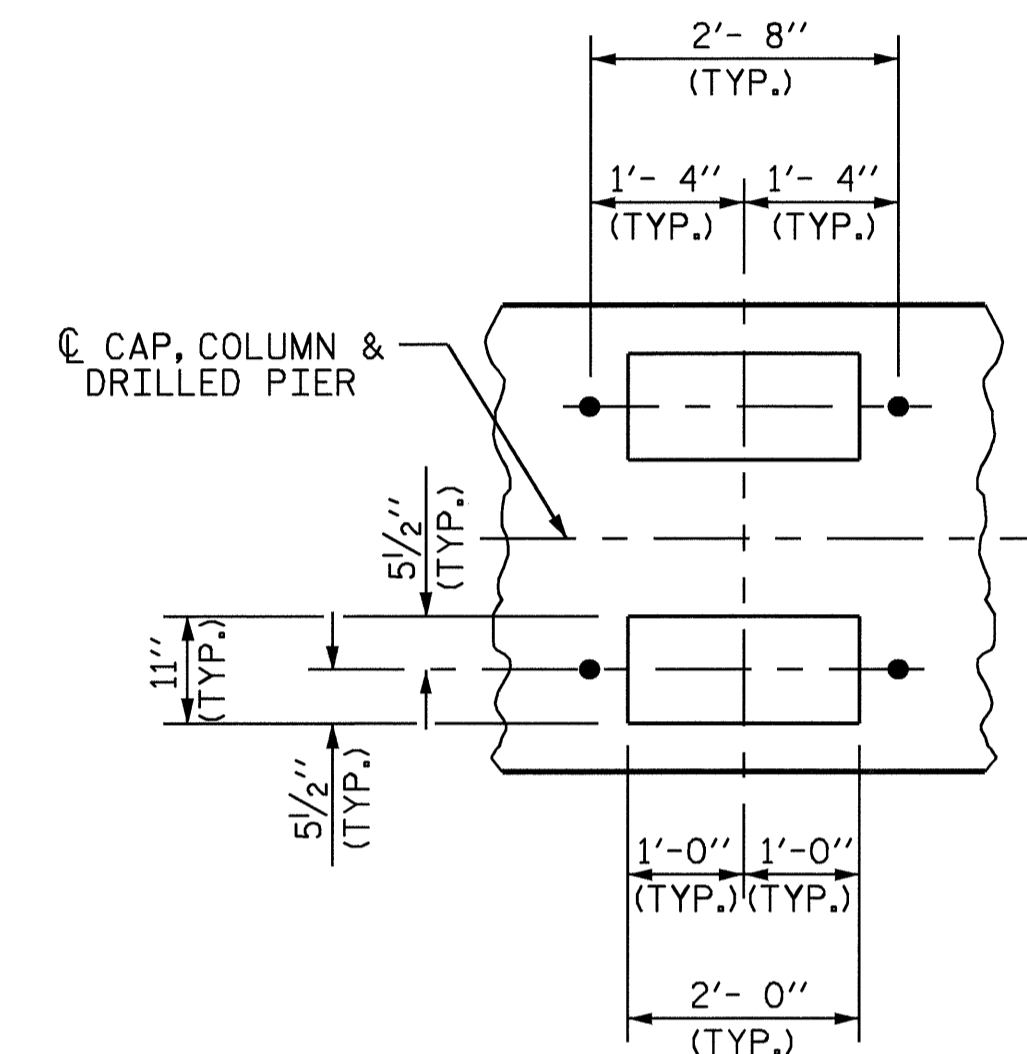
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

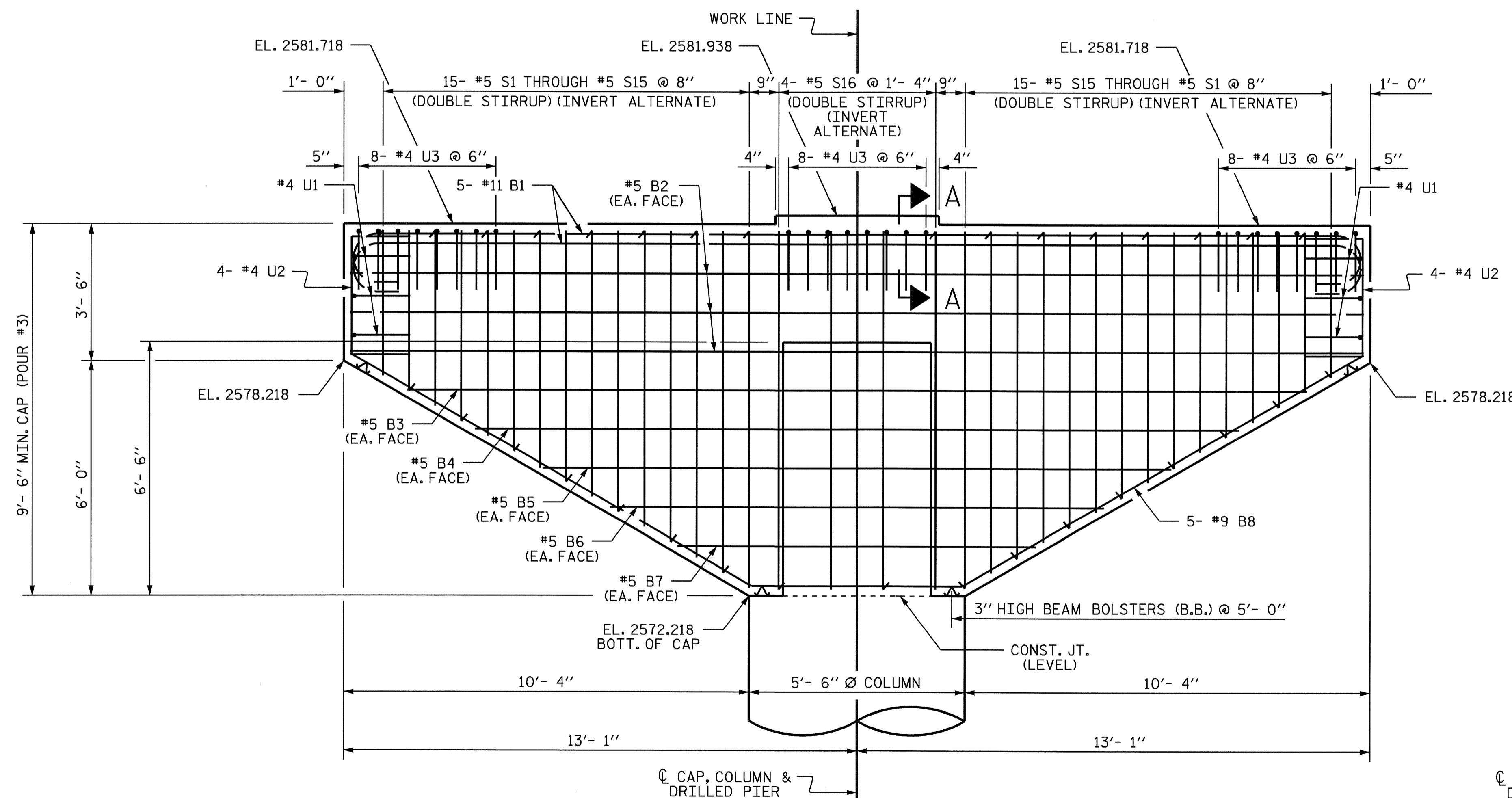
FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISIONS.



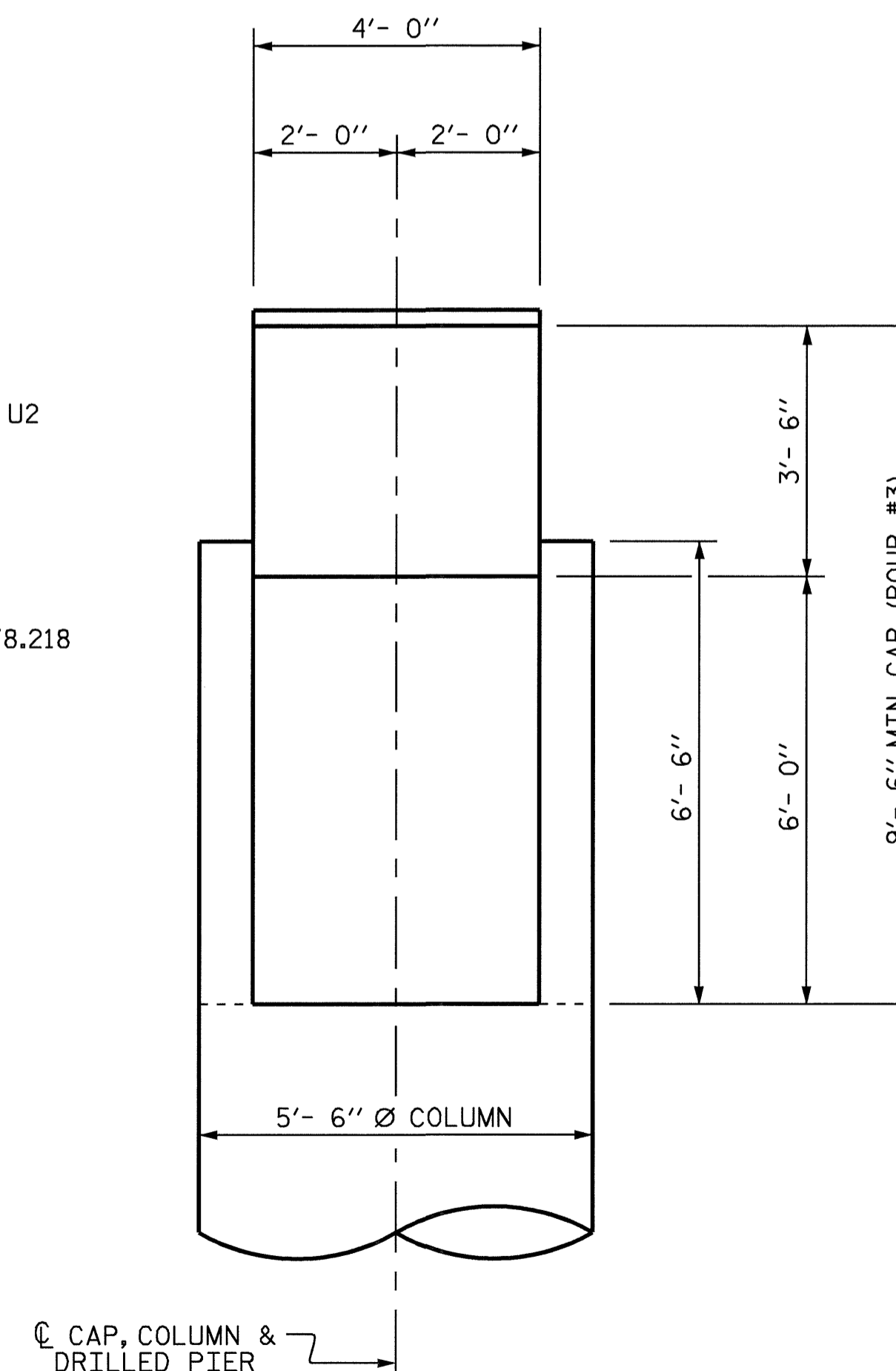
PLAN OF CAP



DETAIL "A"



ELEVATION OF CAP



END ELEVATION OF CAP



PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

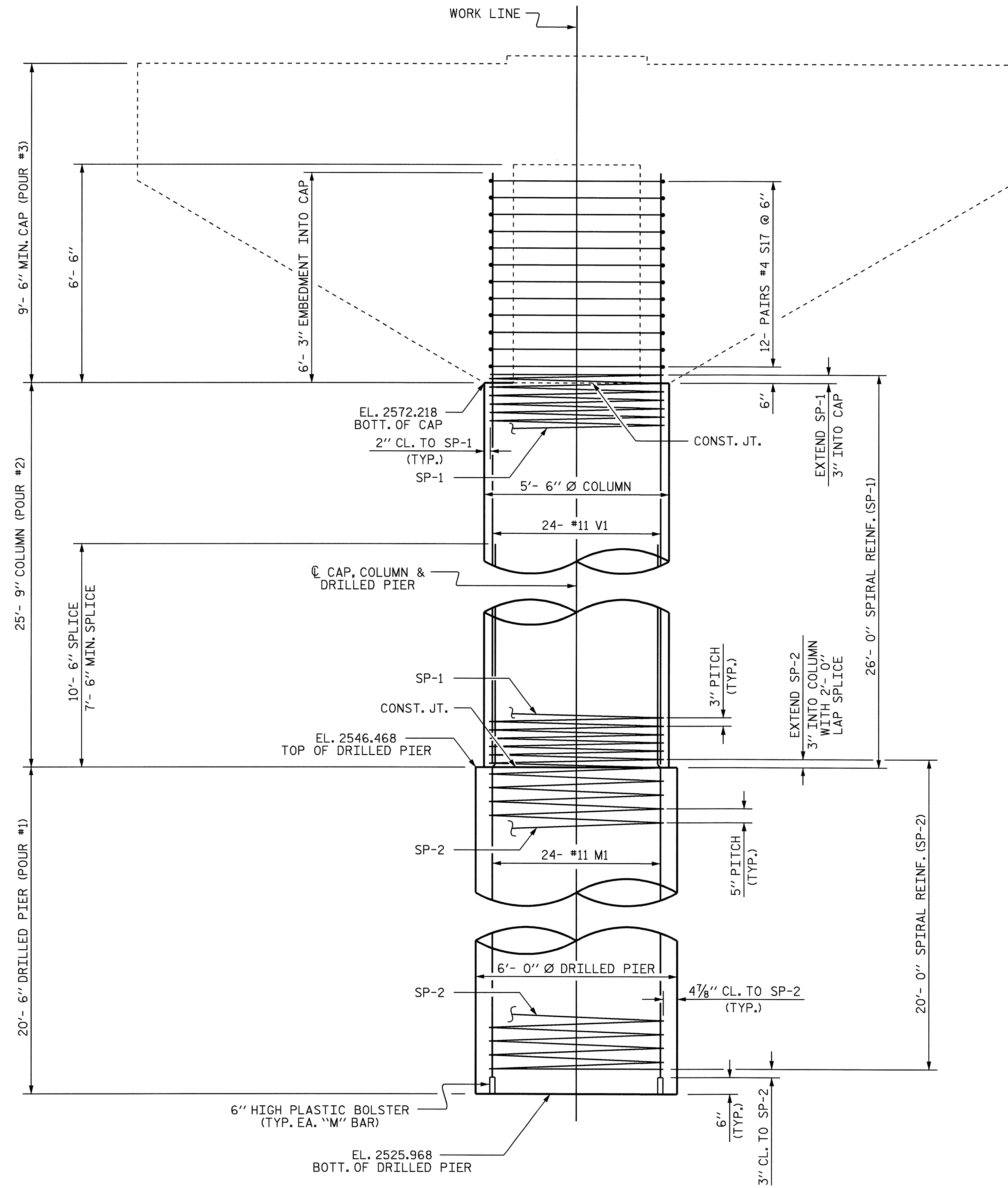
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

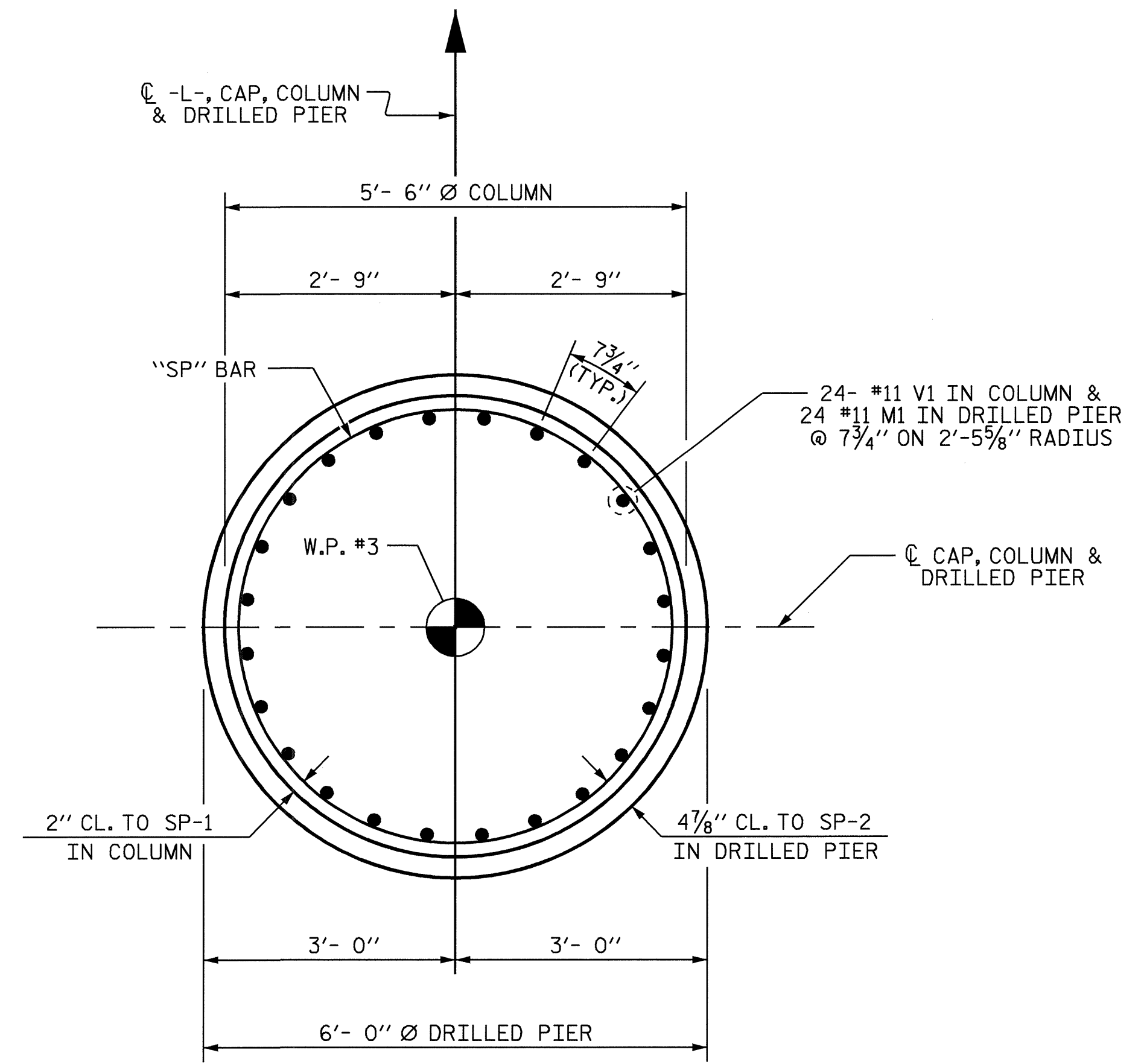
SUBSTRUCTURE
 BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			54

DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D.A. Davenport DATE: 5-4-09



ELEVATION OF COLUMN AND DRILLED PIER



PLAN OF COLUMN AND DRILLED PIER

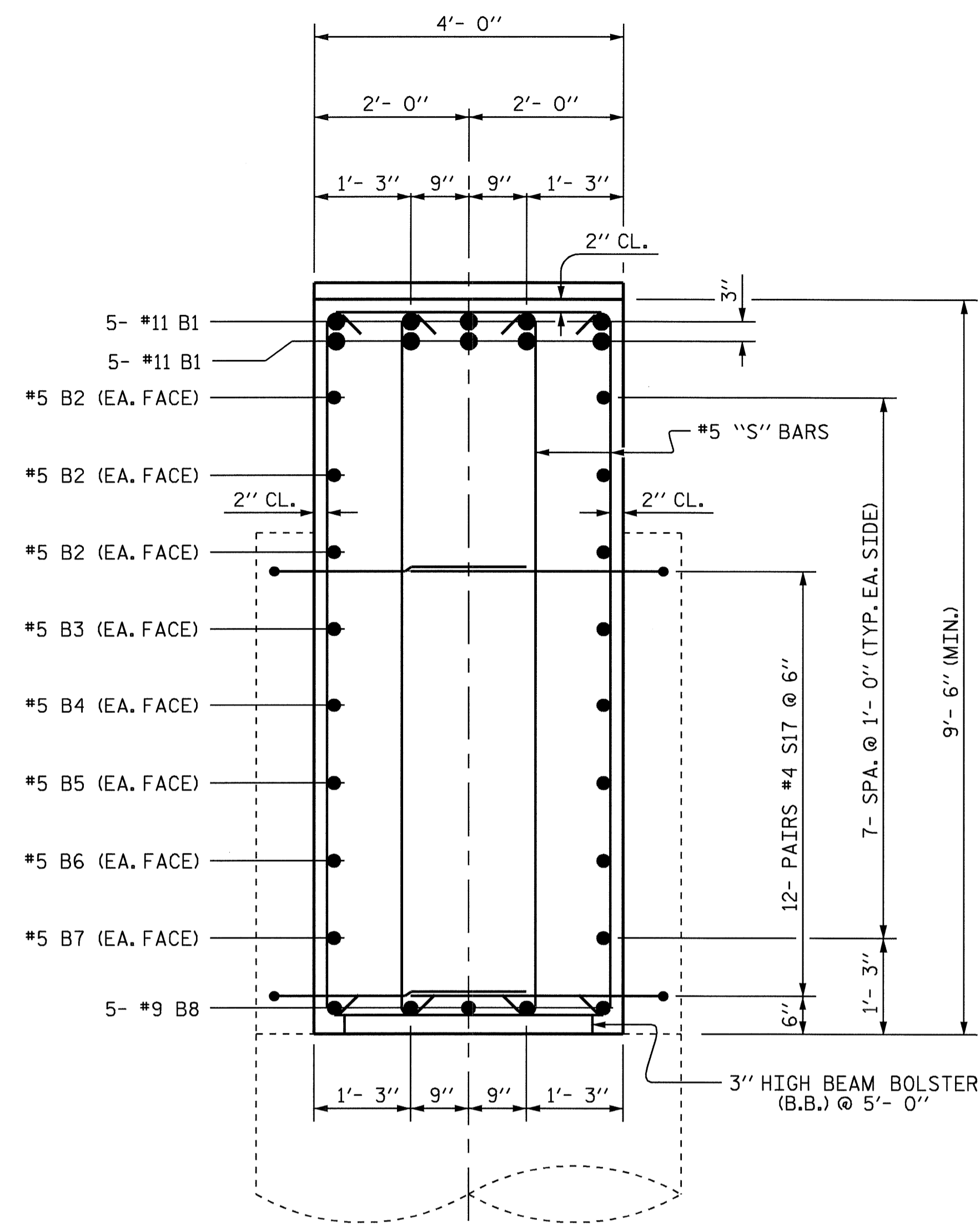
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 3

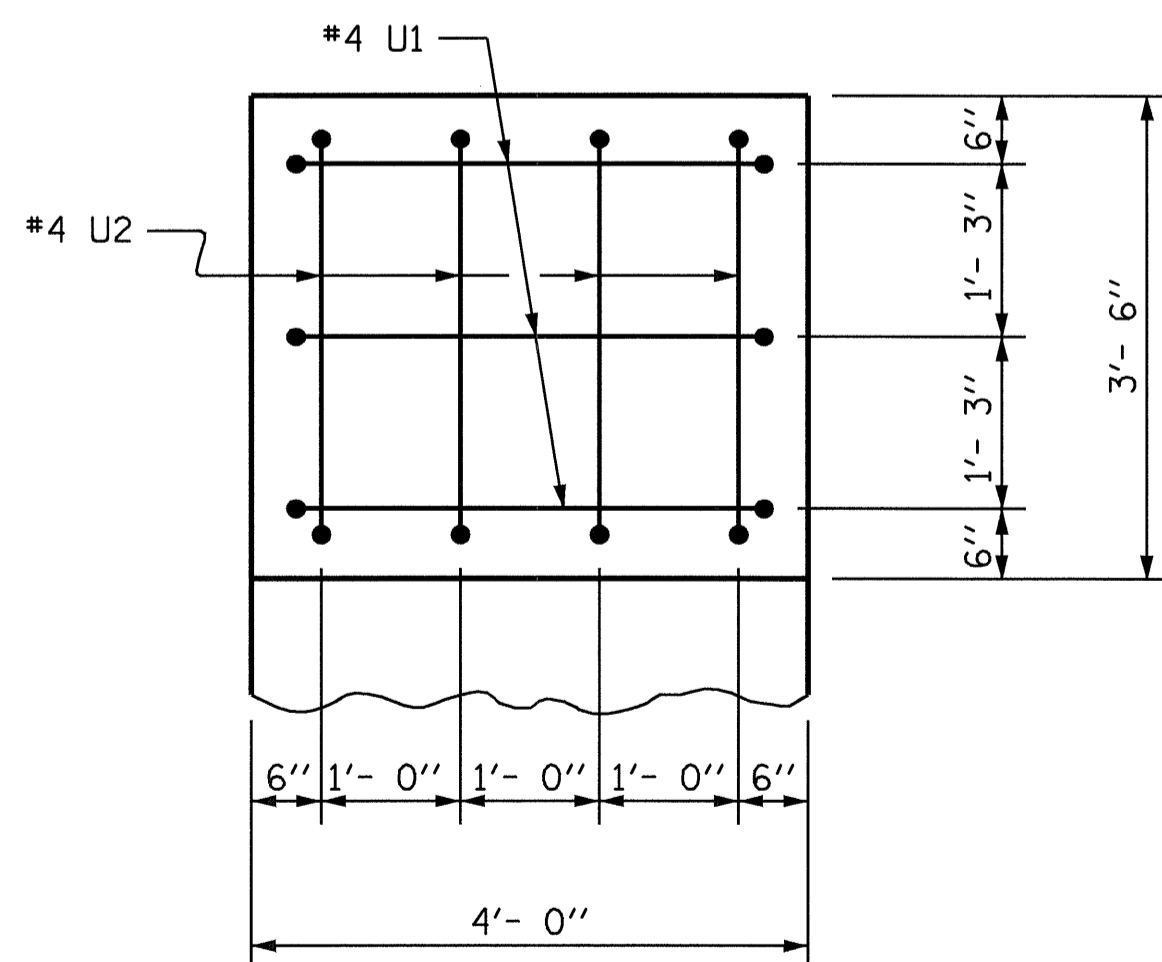
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					54



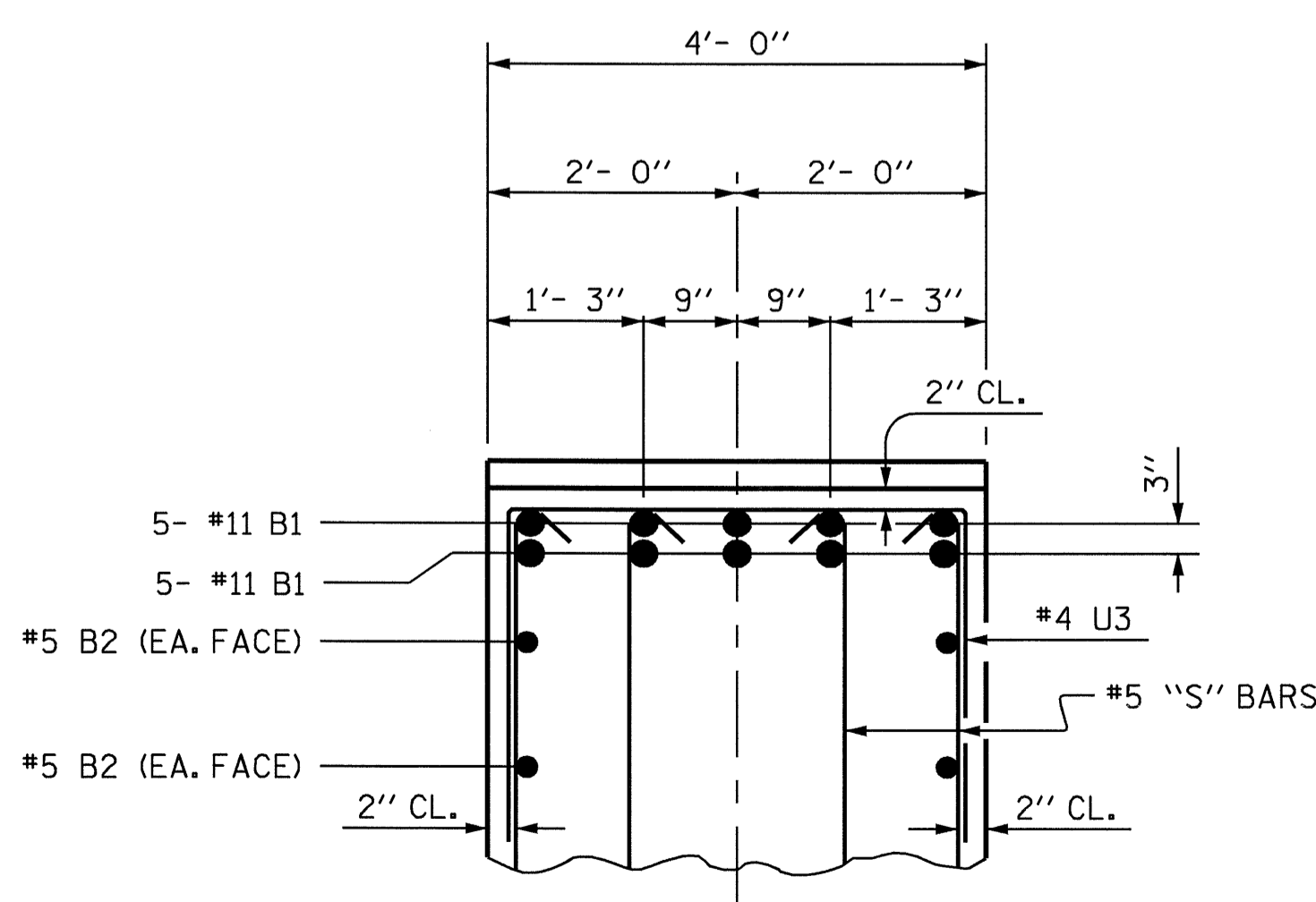
DRAWN BY : D. A. GLADDEN DATE : 3-26-09
 CHECKED BY : D.A. Davenport DATE : 5-4-09



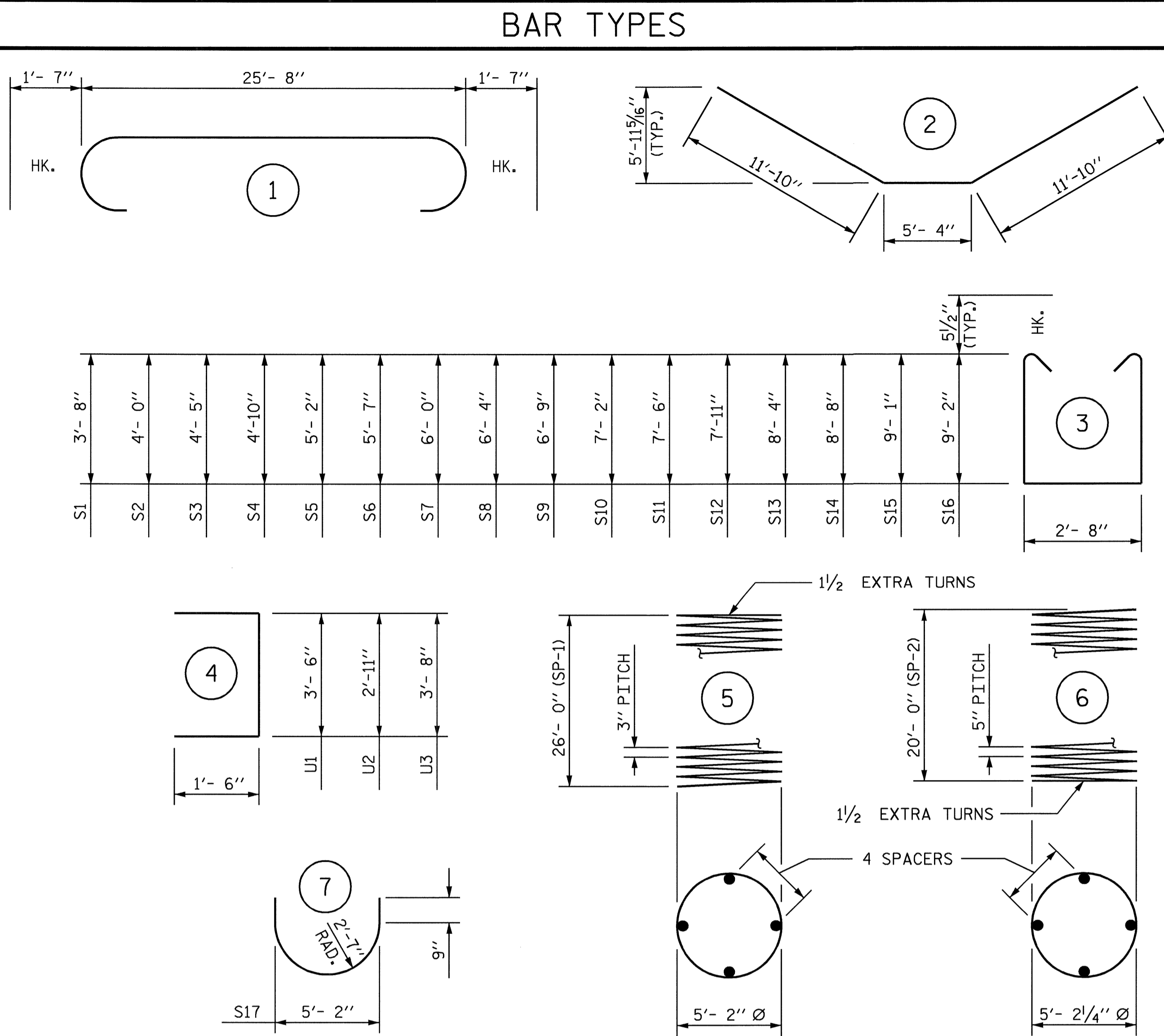
SECTION THROUGH CAP



END OF CAP DETAIL



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BAR TYPES

BILL OF MATERIAL

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	28'-10"	1532
B2	6	#5	STR	25'-10"	162
B3	2	#5	STR	22'-11"	48
B4	2	#5	STR	19'-5"	41
B5	2	#5	STR	16'-0"	33
B6	2	#5	STR	12'-7"	26
B7	2	#5	STR	9'-1"	19
B8	5	#9	2	29'-0"	493
S1	4	#5	3	10'-11"	46
S2	4	#5	3	11'-7"	48
S3	4	#5	3	12'-5"	52
S4	4	#5	3	13'-3"	55
S5	4	#5	3	13'-11"	58
S6	4	#5	3	14'-9"	62
S7	4	#5	3	15'-7"	65
S8	4	#5	3	16'-3"	68
S9	4	#5	3	17'-1"	71
S10	4	#5	3	17'-11"	75
S11	4	#5	3	18'-7"	78
S12	4	#5	3	19'-5"	81
S13	4	#5	3	20'-3"	84
S14	4	#5	3	20'-11"	87
S15	4	#5	3	21'-9"	91
S16	8	#5	3	21'-11"	183
S17	24	#4	7	9'-8"	155
M1	24	#11	STR	30'-6"	3889
U1	6	#4	4	6'-6"	26
U2	8	#4	4	5'-11"	32
U3	24	#4	4	6'-8"	107
V1	24	#11	STR	32'-0"	4080
REINFORCING STEEL					= 11847 LBS.
SP-1	1	*	5	1697'-2"	1134
SP-2	1	**	6	798'-1"	832
SPIRAL COLUMN REINFORCING STEEL					= 1966 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMN)					= 22.7 C.Y.
POUR #3 (CAP)					= 28.7 C.Y.
TOTAL					= 51.4 C.Y.

DRILLED PIER

DRILLED PIER CONCRETE POUR #1 (DRILLED PIER)	=	21.5 C.Y.
6'-0" Ø DRILLED PIER IN SOIL	=	7.5 LIN. FT.
6'-0" Ø DRILLED PIER NOT IN SOIL	=	13.0 LIN. FT.

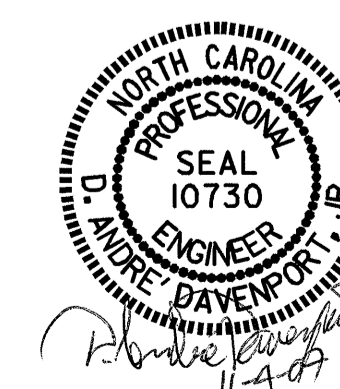
6'-0" Ø PERMANENT STEEL CASING	=	9.5 LIN. FT.
CSL TUBES	=	138 LIN. FT.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #2



REVISIONS						SHEET NO. S-41
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			

DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D.A. Davenport DATE: 5-4-09

NOTES

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

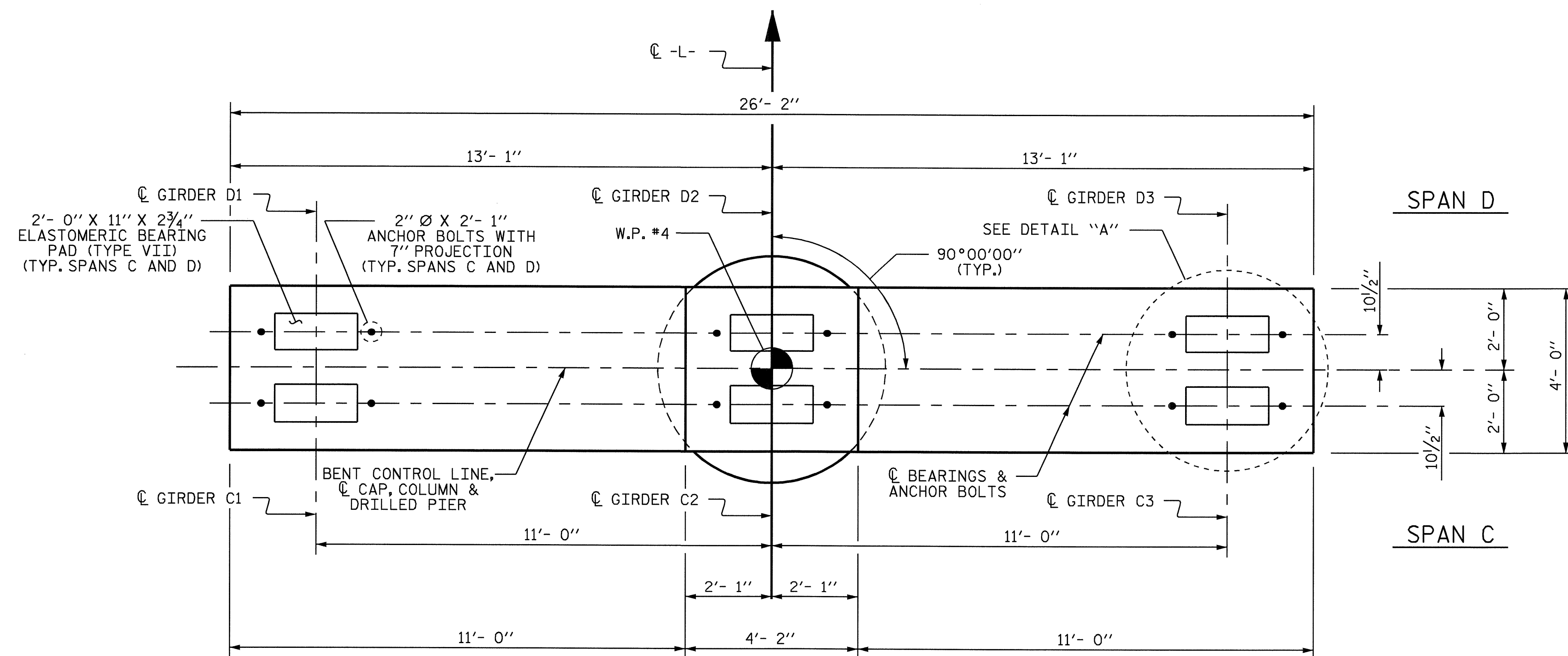
DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED. SEE SHEET SN.

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

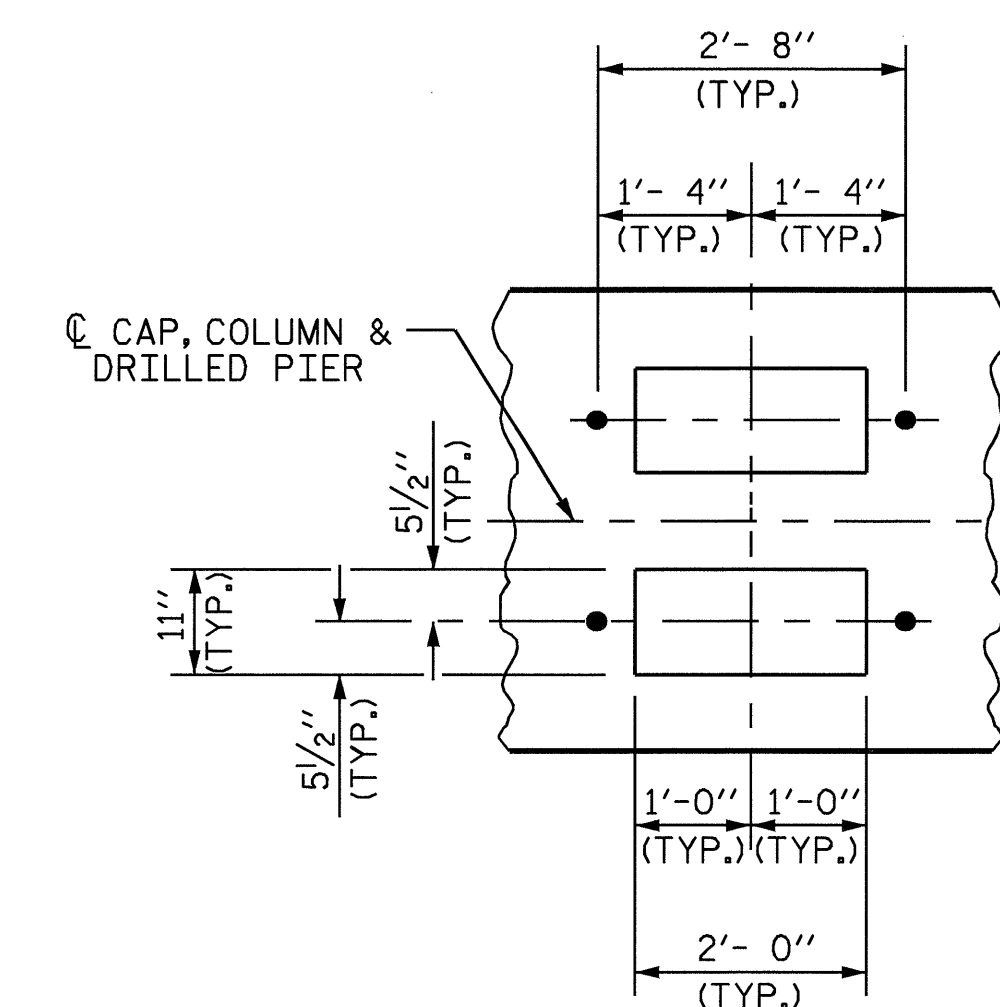
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

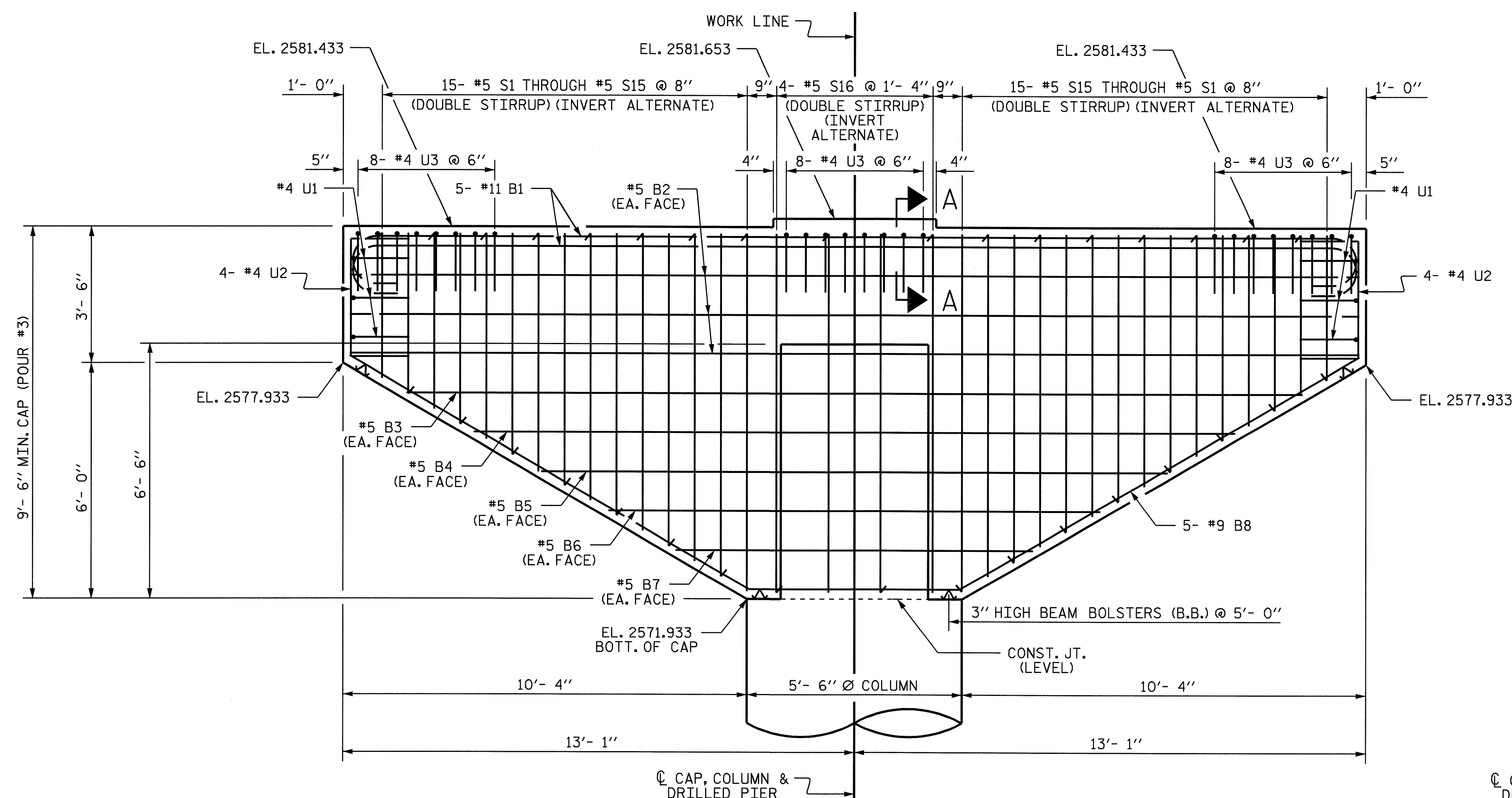
FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISIONS.



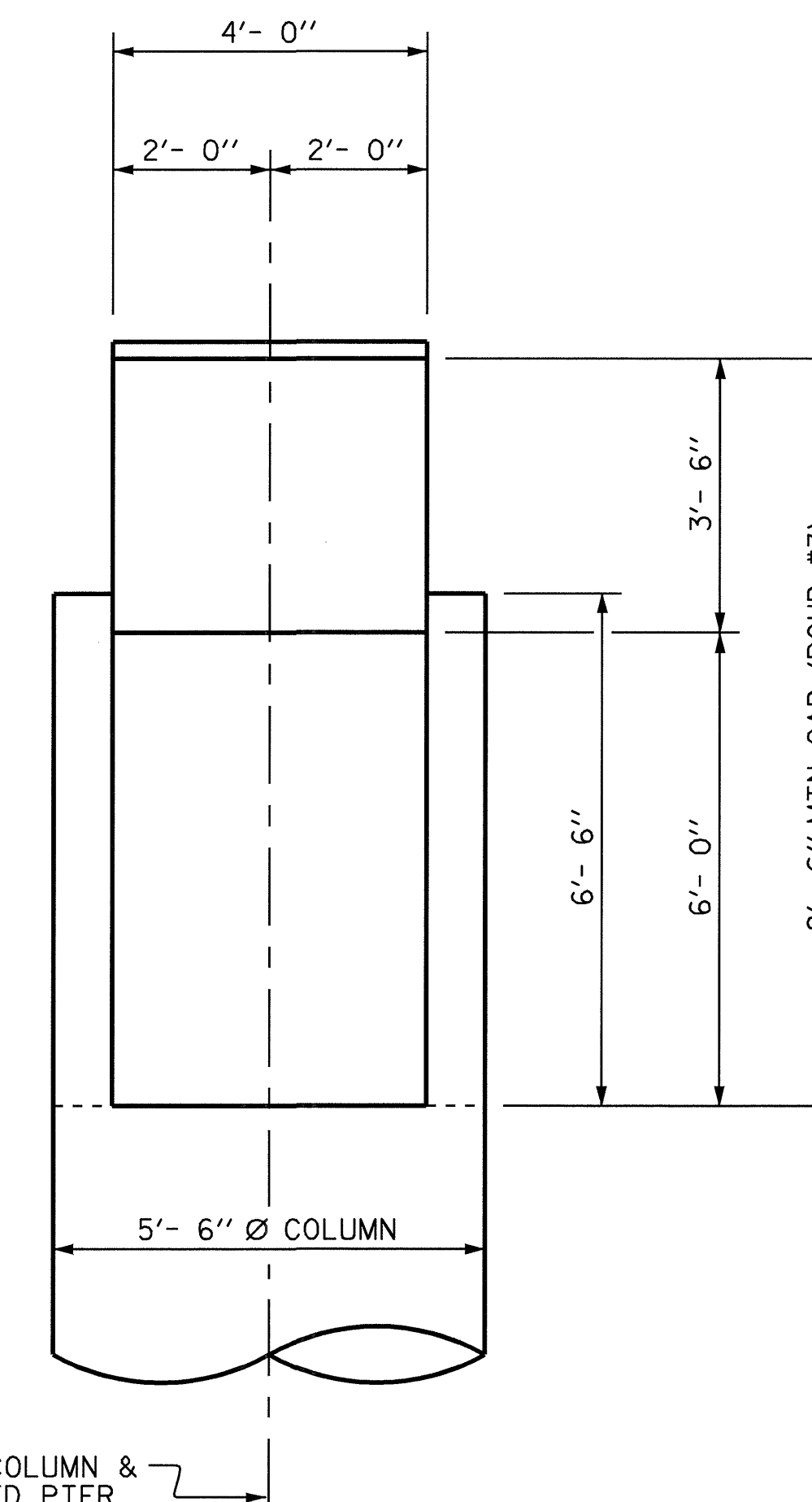
PLAN OF CAP



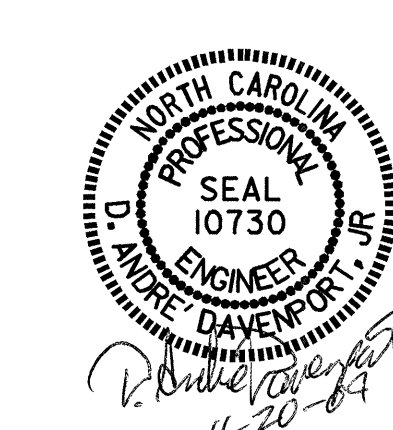
DETAIL "A"



ELEVATION OF CAP



END ELEVATION OF CAP



PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 1 OF 3

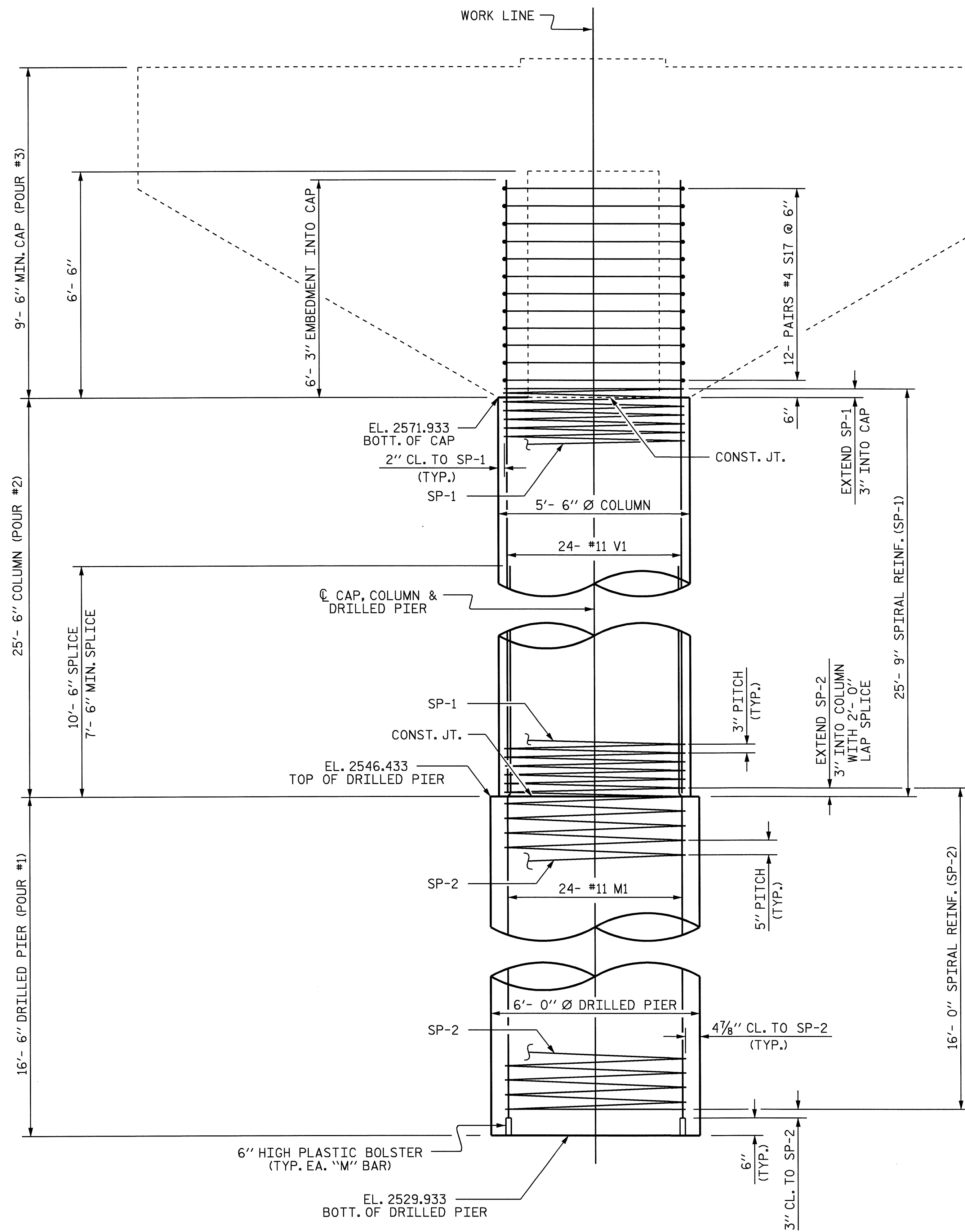
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #3

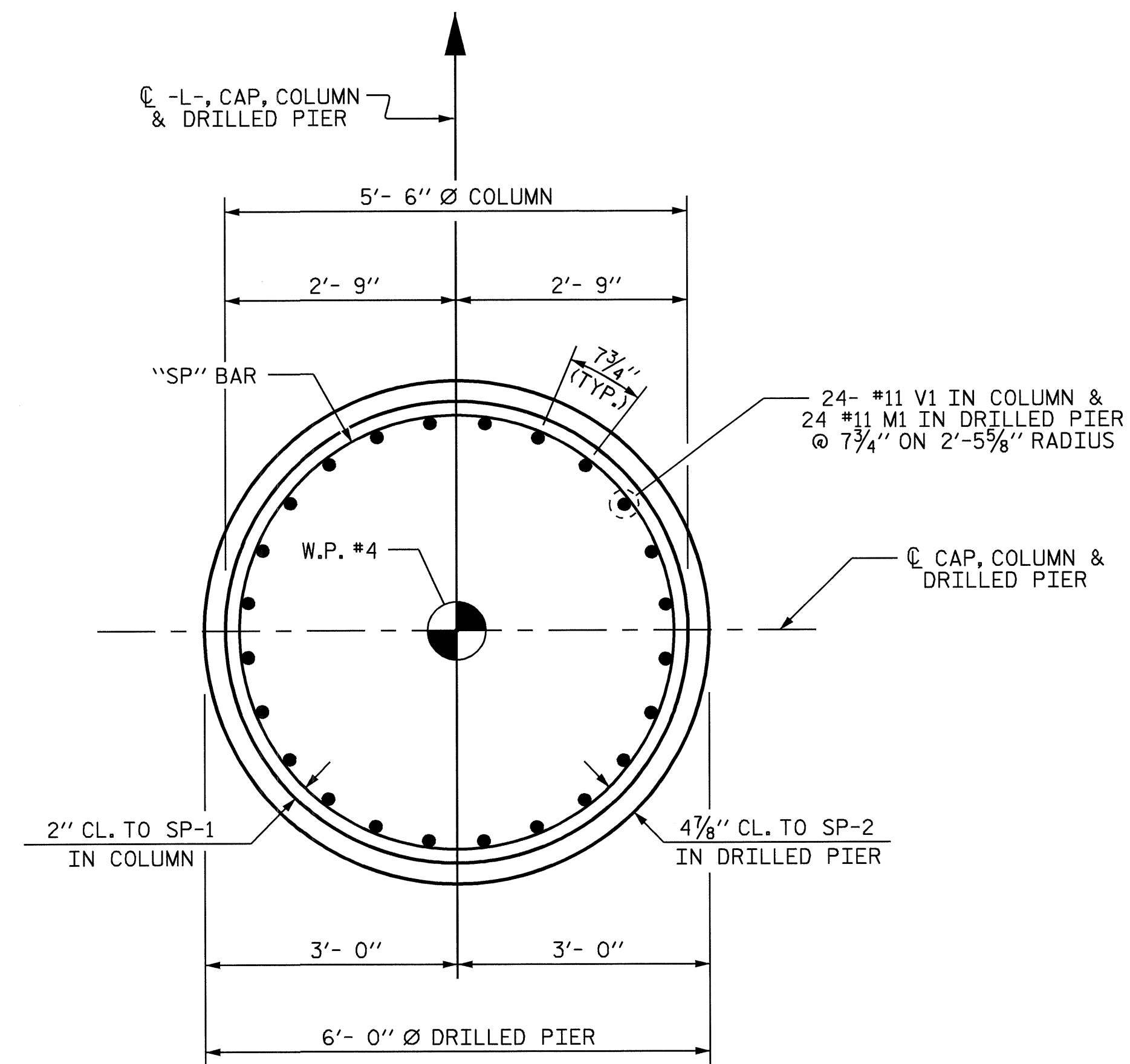
DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D. A. DAVENPORT DATE: 5-4-09

20-NOV-2009 08:43
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 ddavenport

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					54



ELEVATION OF COLUMN AND DRILLED PIER



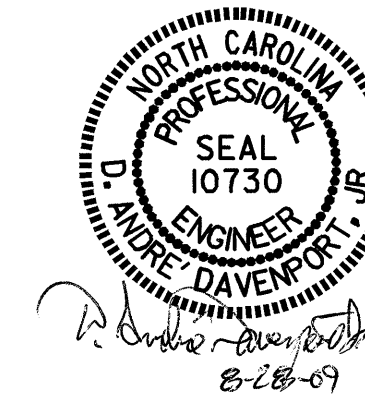
PLAN OF COLUMN AND DRILLED PIER

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

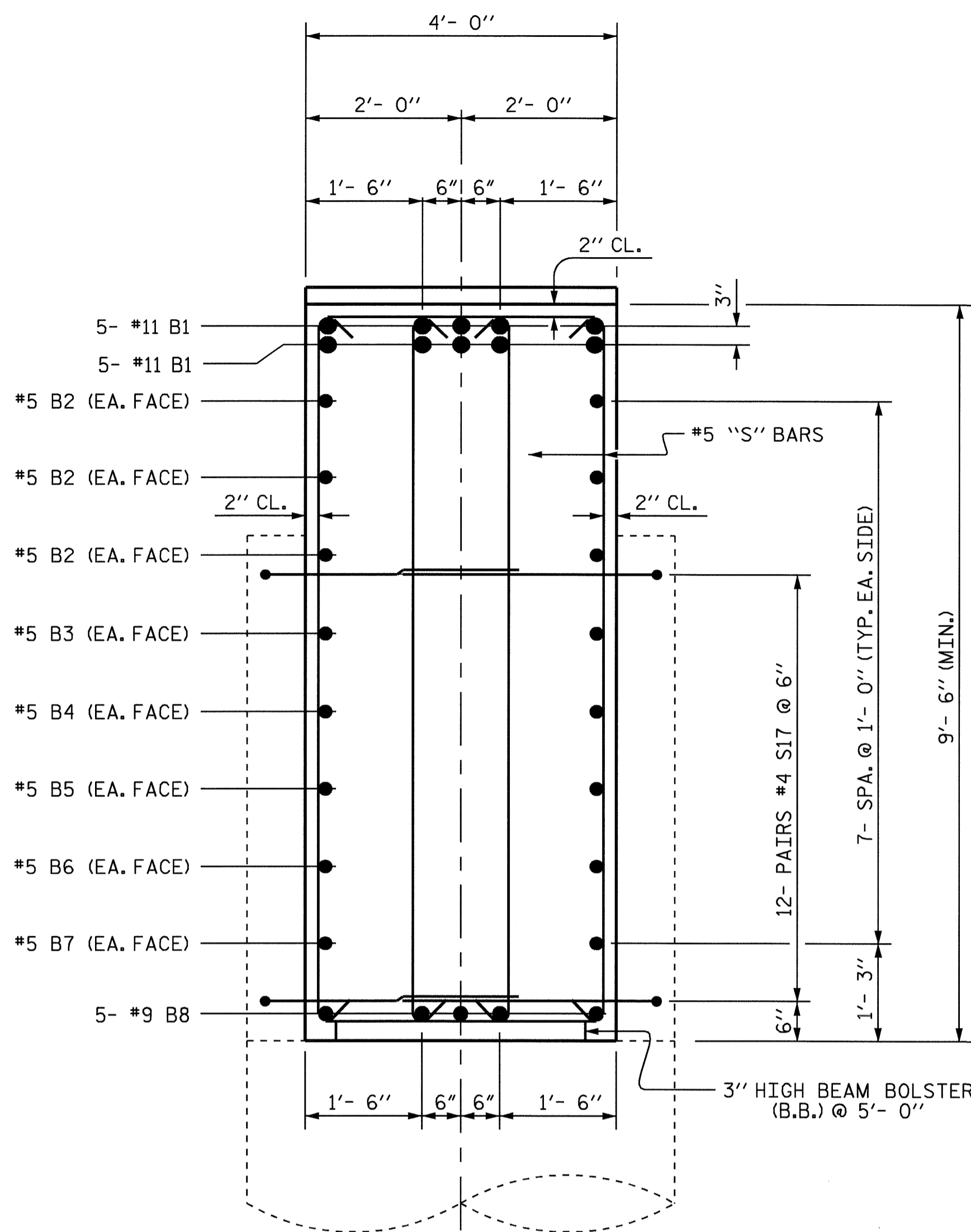
SUBSTRUCTURE
 BENT #3



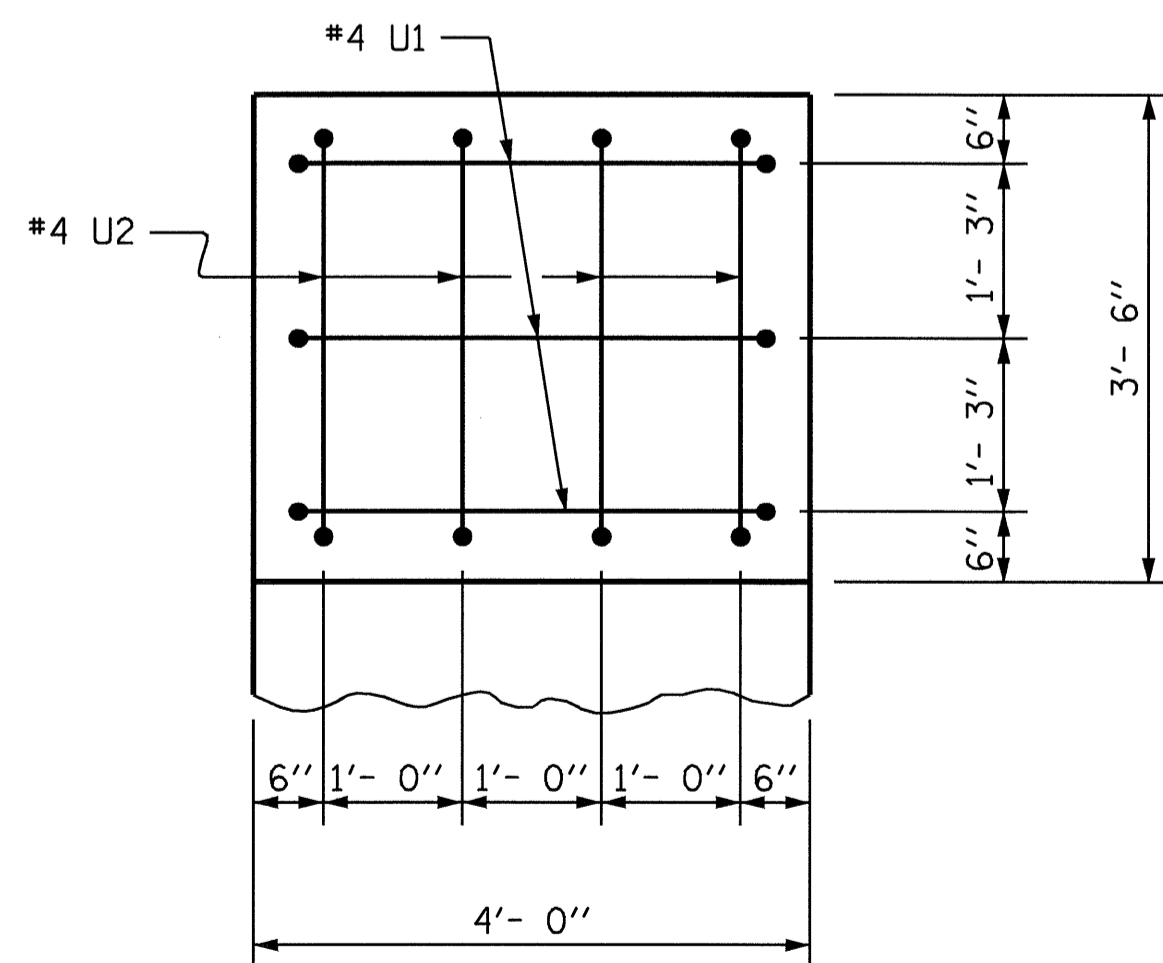
DRAWN BY : D. A. GLADDEN DATE : 3-26-09
 CHECKED BY : D.A. Davenport DATE : 5-4-09

28-AUG-2009 13:58
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 adavenport

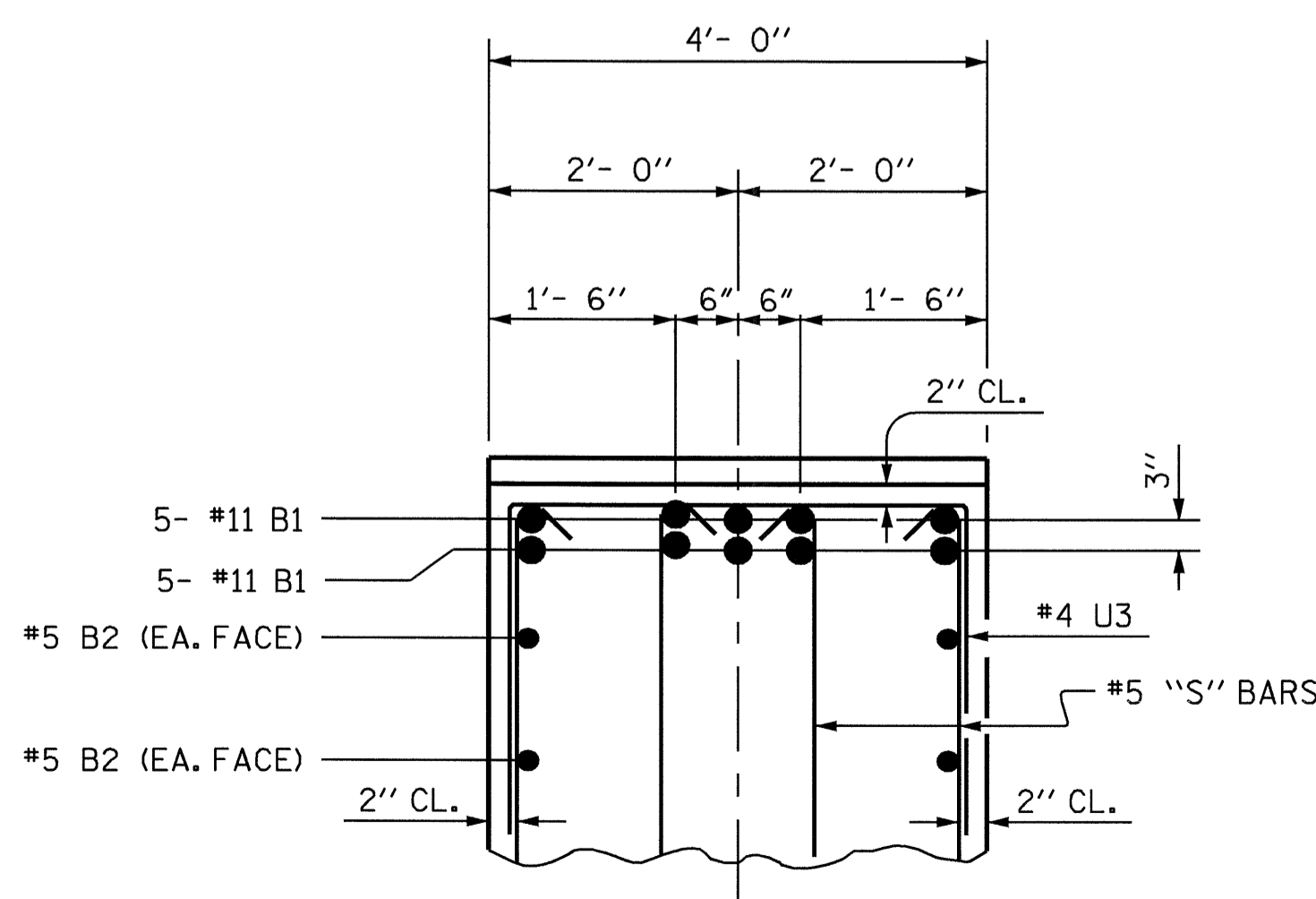
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			54



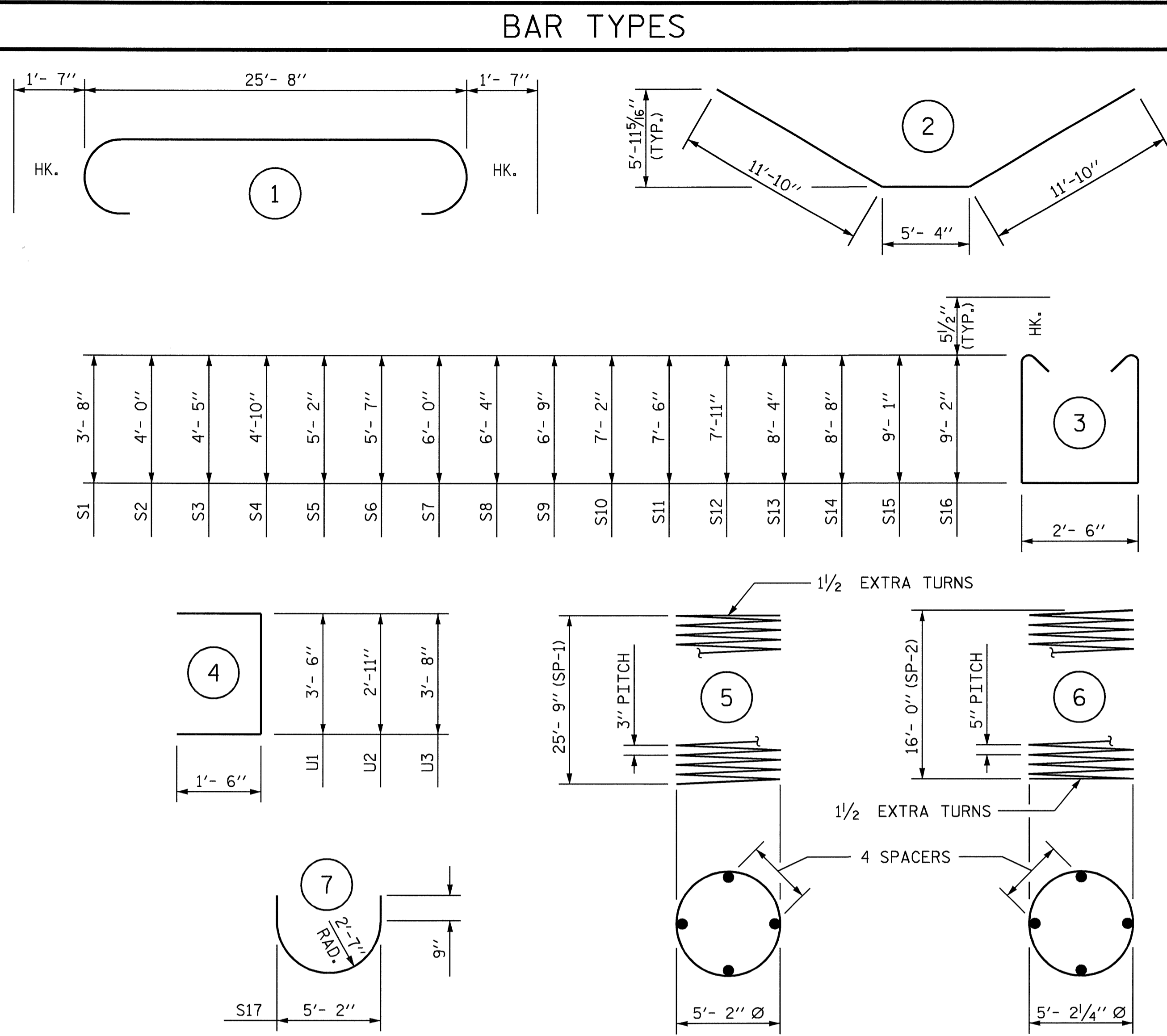
SECTION THROUGH CAP



END OF CAP DETAIL



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	28'-10"	1532
B2	6	#5	STR	25'-10"	162
B3	2	#5	STR	22'-11"	48
B4	2	#5	STR	19'-5"	41
B5	2	#5	STR	16'-0"	33
B6	2	#5	STR	12'-7"	26
B7	2	#5	STR	9'-1"	19
B8	5	#9	2	29'-0"	493
S1	4	#5	3	10'-9"	45
S2	4	#5	3	11'-5"	48
S3	4	#5	3	12'-3"	51
S4	4	#5	3	13'-1"	55
S5	4	#5	3	13'-9"	57
S6	4	#5	3	14'-7"	61
S7	4	#5	3	15'-5"	64
S8	4	#5	3	16'-1"	67
S9	4	#5	3	16'-11"	71
S10	4	#5	3	17'-9"	74
S11	4	#5	3	18'-5"	77
S12	4	#5	3	19'-3"	80
S13	4	#5	3	20'-1"	84
S14	4	#5	3	20'-9"	87
S15	4	#5	3	21'-7"	90
S16	8	#5	3	21'-9"	181
S17	24	#4	7	9'-8"	155
M1	24	#11	STR	26'-6"	3379
U1	6	#4	4	6'-6"	26
U2	8	#4	4	5'-11"	32
U3	24	#4	4	6'-8"	107
V1	24	#11	STR	31'-9"	4049
REINFORCING STEEL				=	11294 LBS.
SP-1	1	*	5	1681'-1"	1123
SP-2	1	**	6	644'-11"	673
SPIRAL COLUMN REINFORCING STEEL				=	1796 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMN)				=	22.4 C.Y.
POUR #3 (CAP)				=	28.7 C.Y.
TOTAL				=	51.1 C.Y.

DRILLED PIER

DRILLED PIER CONCRETE POUR #1 (DRILLED PIER)	=	17.3 C.Y.
6'-0" Ø DRILLED PIER IN SOIL	=	4.0 LIN. FT.
6'-0" Ø DRILLED PIER NOT IN SOIL	=	12.5 LIN. FT.

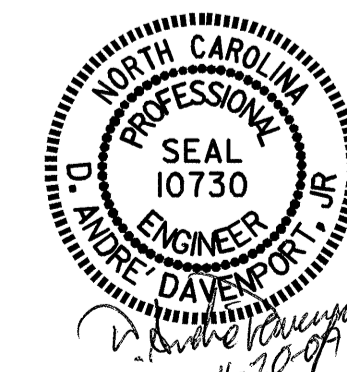
6'-0" Ø PERMANENT STEEL CASING	=	5.4 LIN. FT.
CSL TUBES	=	114 LIN. FT.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #3



DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D.A. Davenport DATE: 5-4-09

20-NOV-2009 08:44
 Z:\structures\dgladden\Microstation\B1037.sd.BT.dgn
 adavenport

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			54

NOTES

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

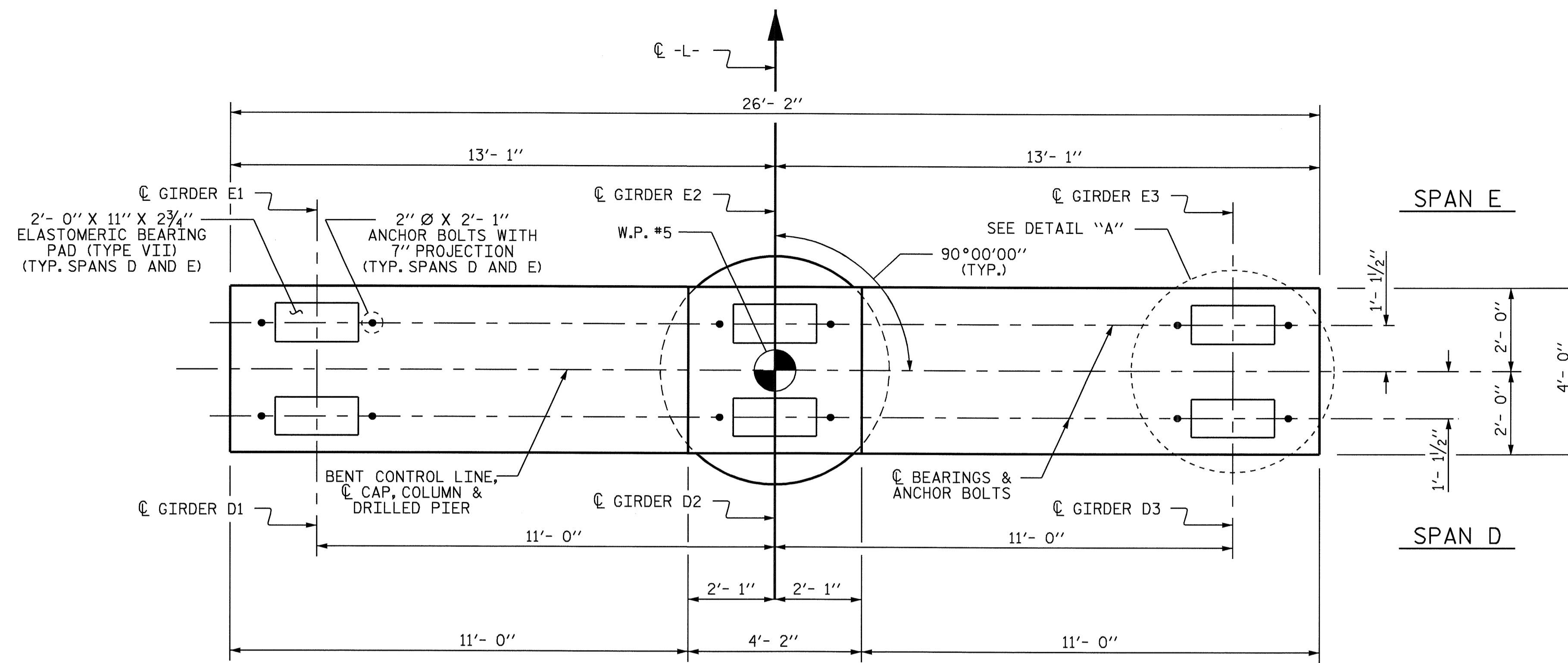
DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED. SEE SHEET SN.

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

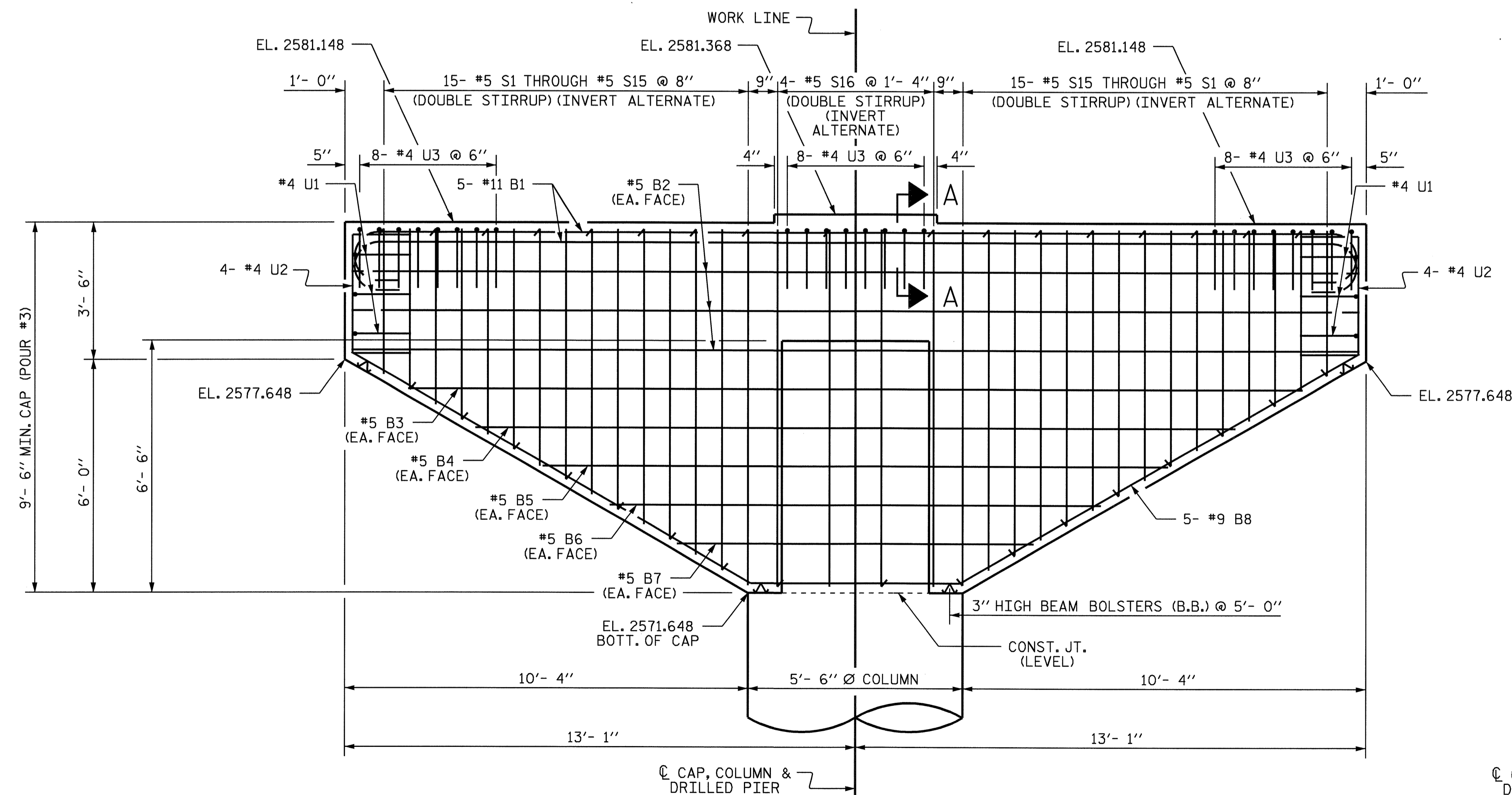
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

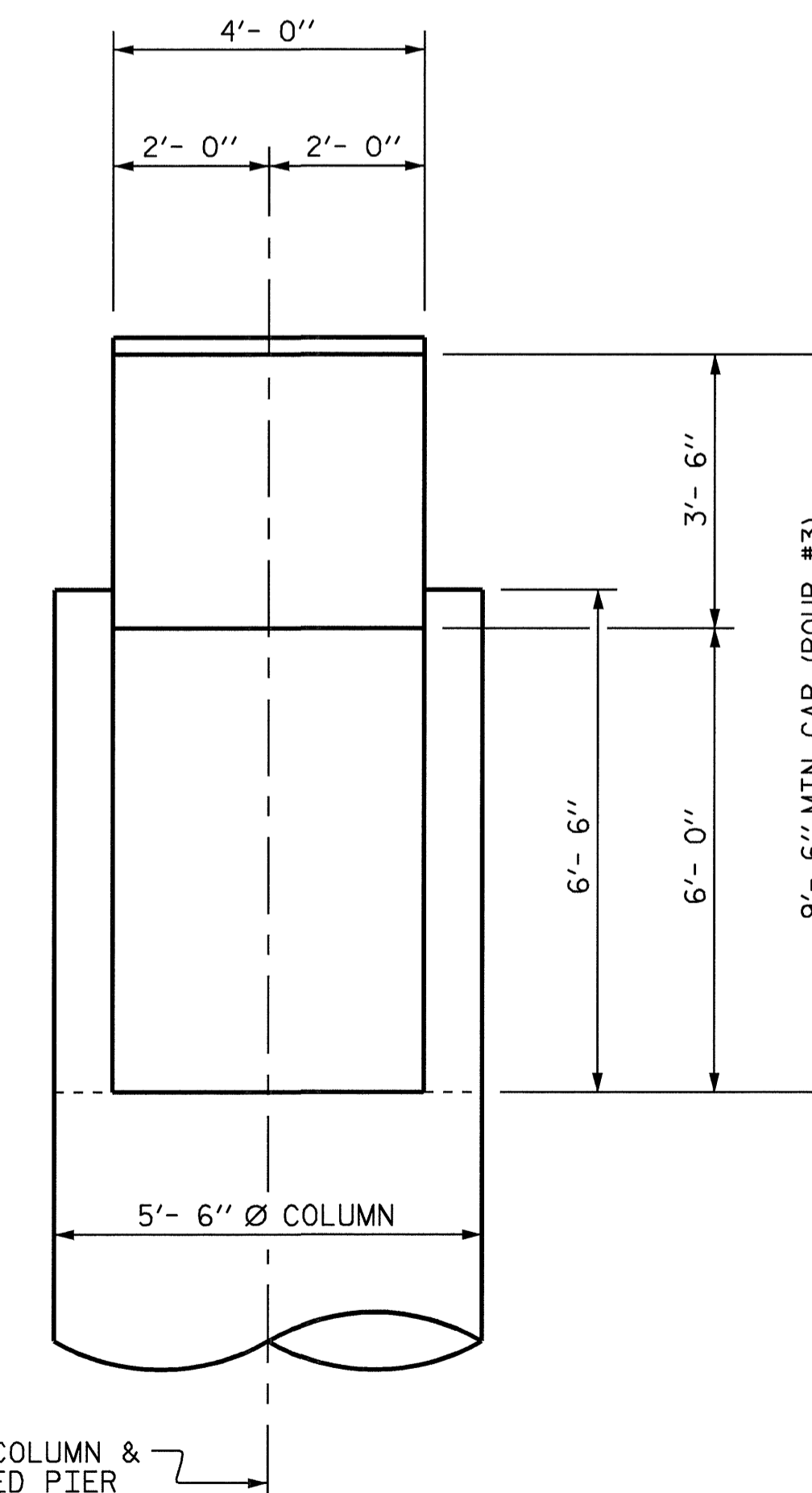
THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIER IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FOOT BELOW THE GROUND LINE.



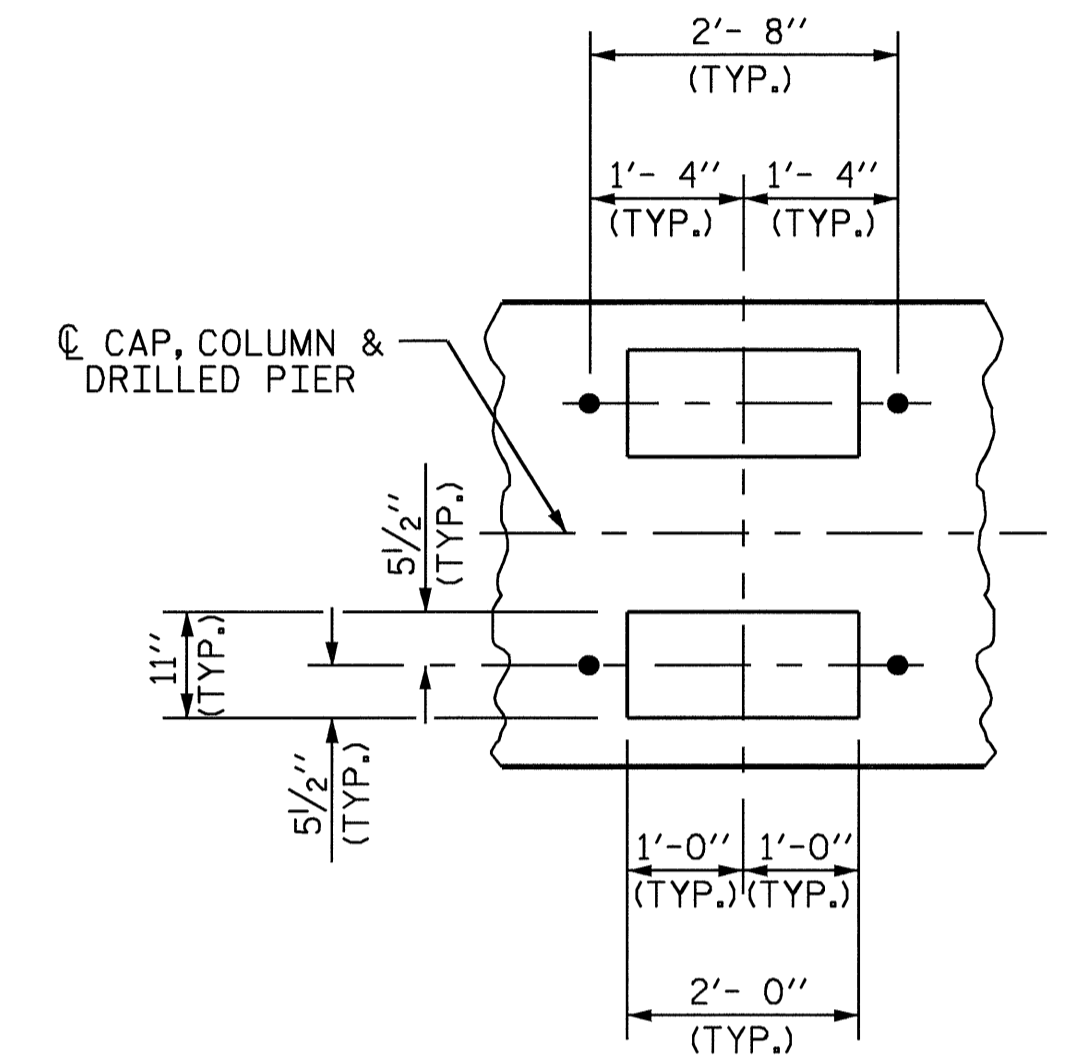
PLAN OF CAP



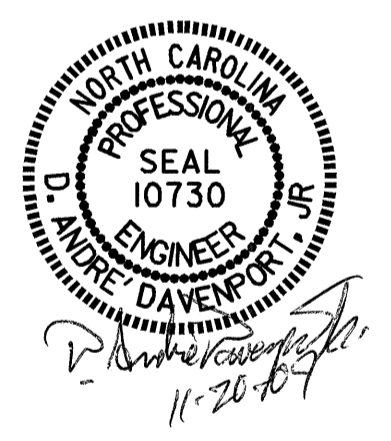
ELEVATION OF CAP



END ELEVATION OF CAP



DETAIL "A"



PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

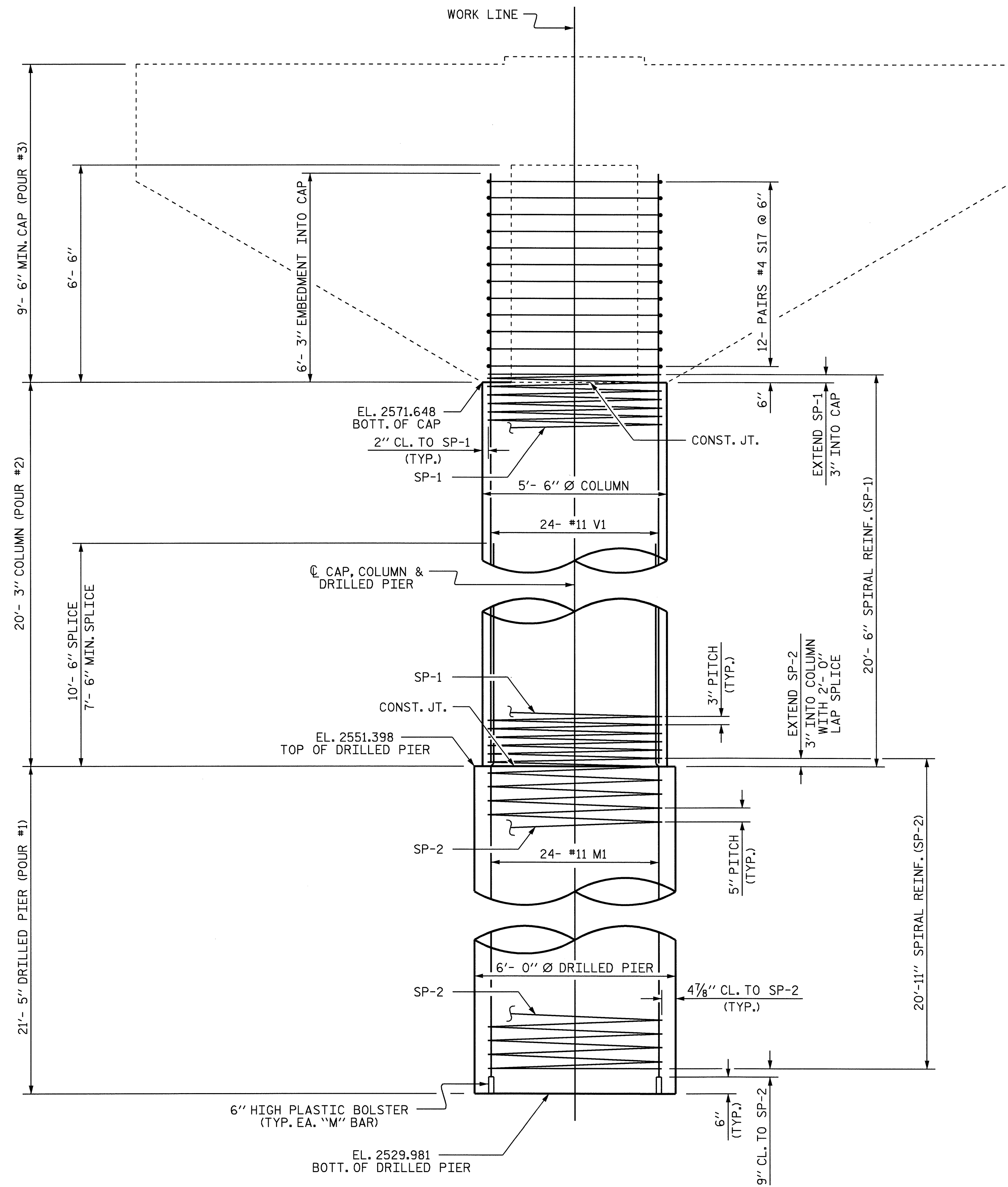
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

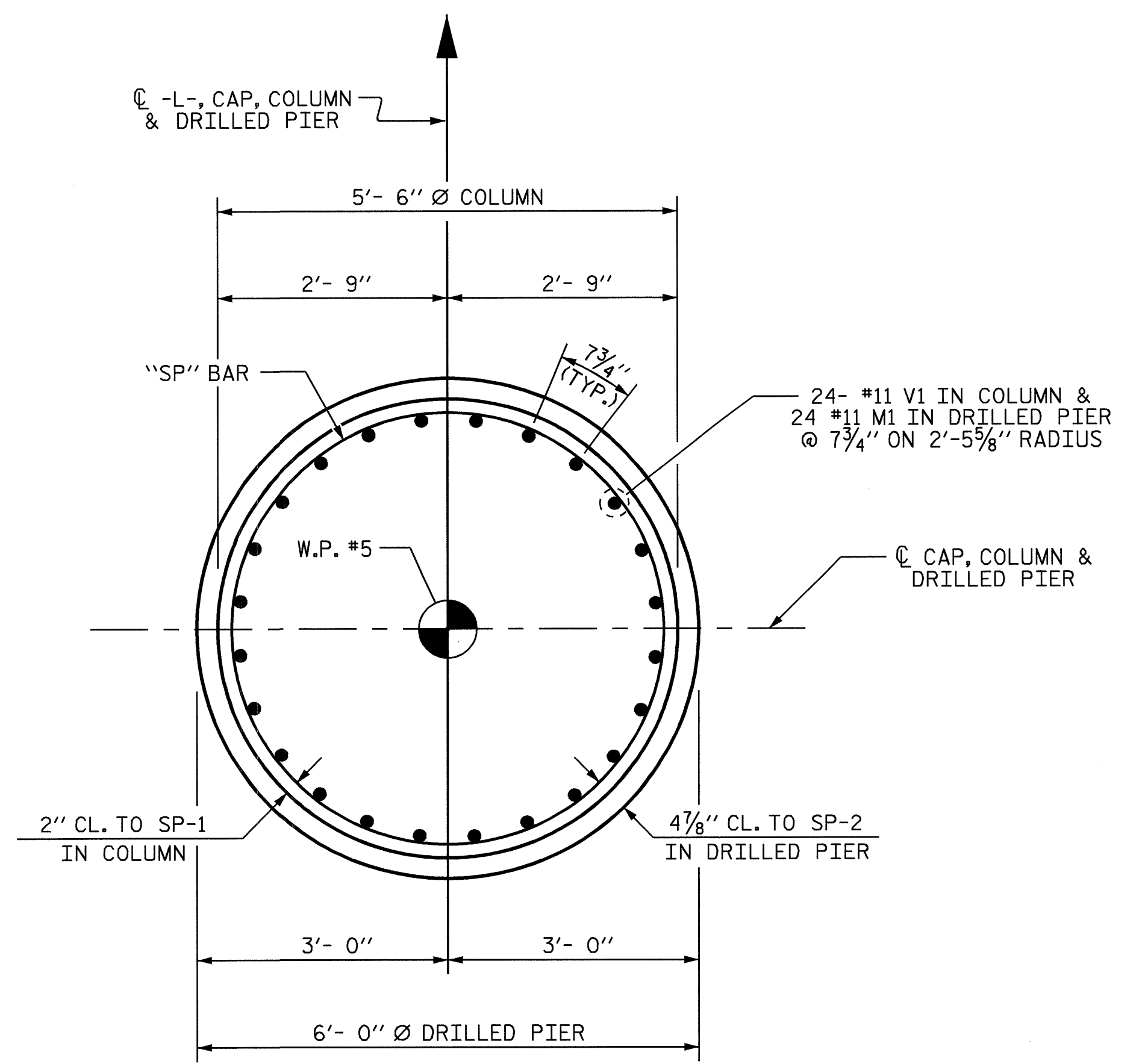
SUBSTRUCTURE
 BENT #4

REVISIONS						SHEET NO. S-45
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			

DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D.A. Davenport DATE: 5-4-09



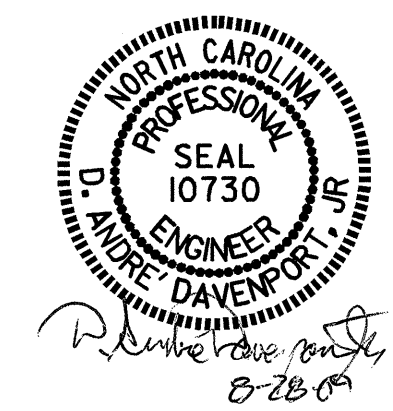
ELEVATION OF COLUMN AND DRILLED PIER



PLAN OF COLUMN AND DRILLED PIER

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 3

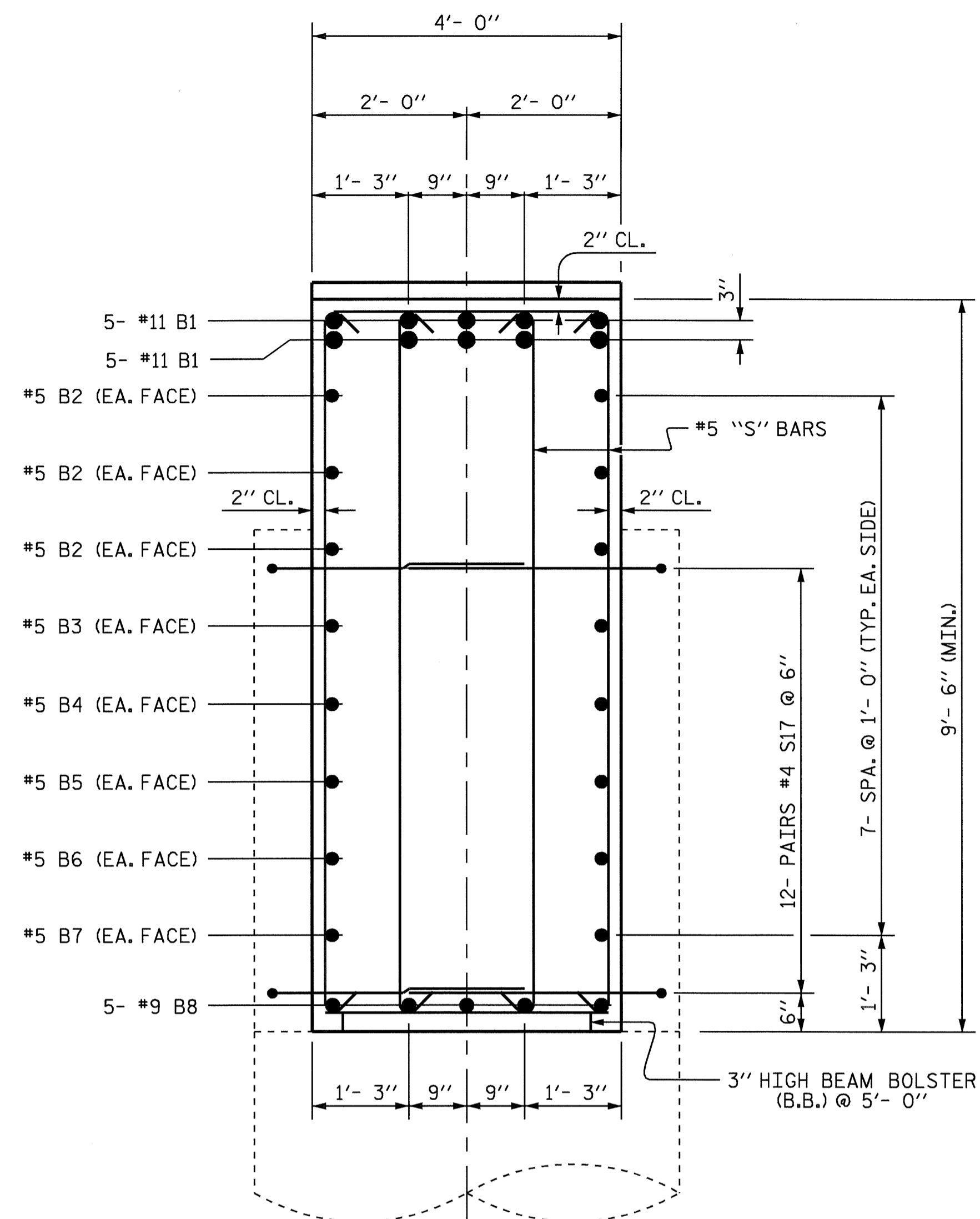


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

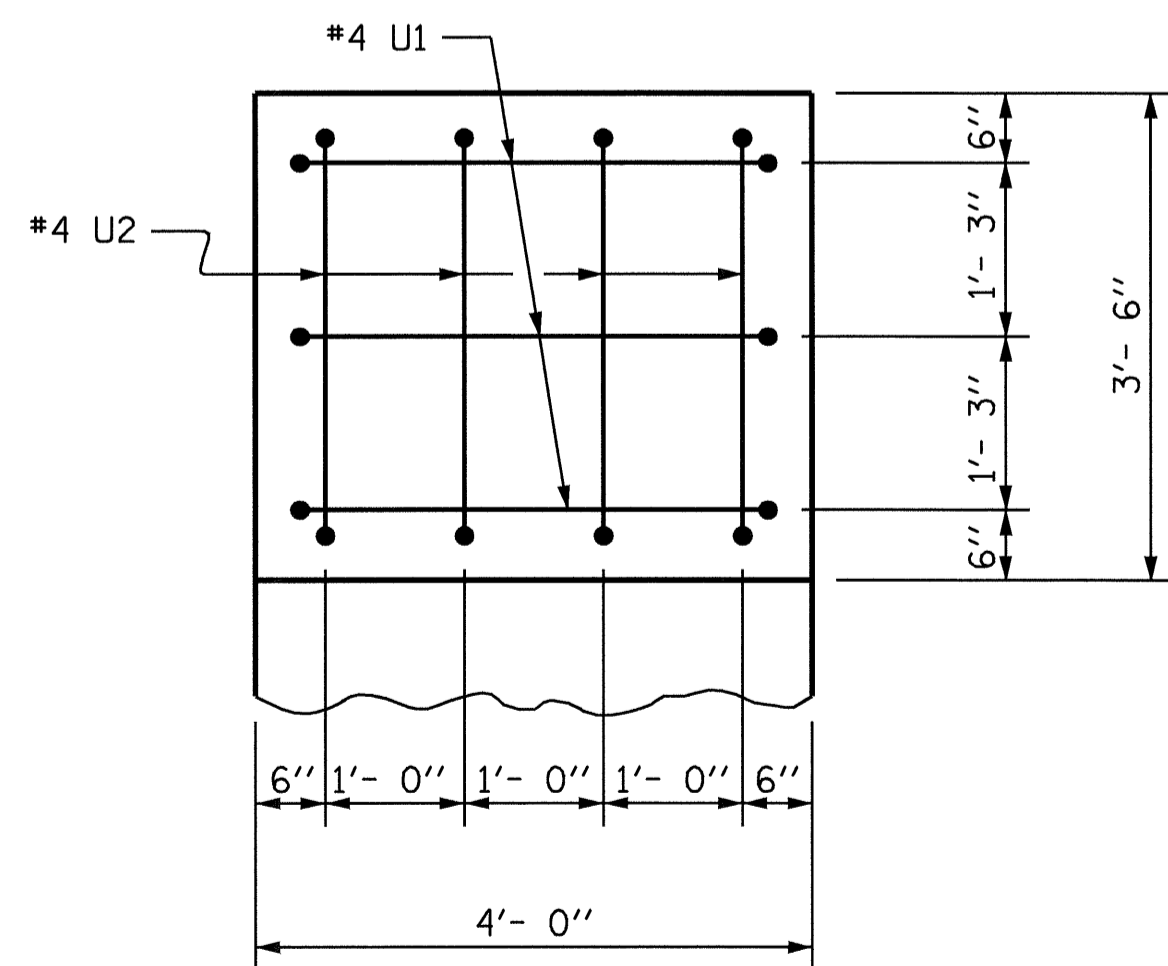
**SUBSTRUCTURE
 BENT #4**

DRAWN BY : D. A. GLADDEN DATE : 3-26-09
 CHECKED BY : D. A. Davenport DATE : 5-4-09

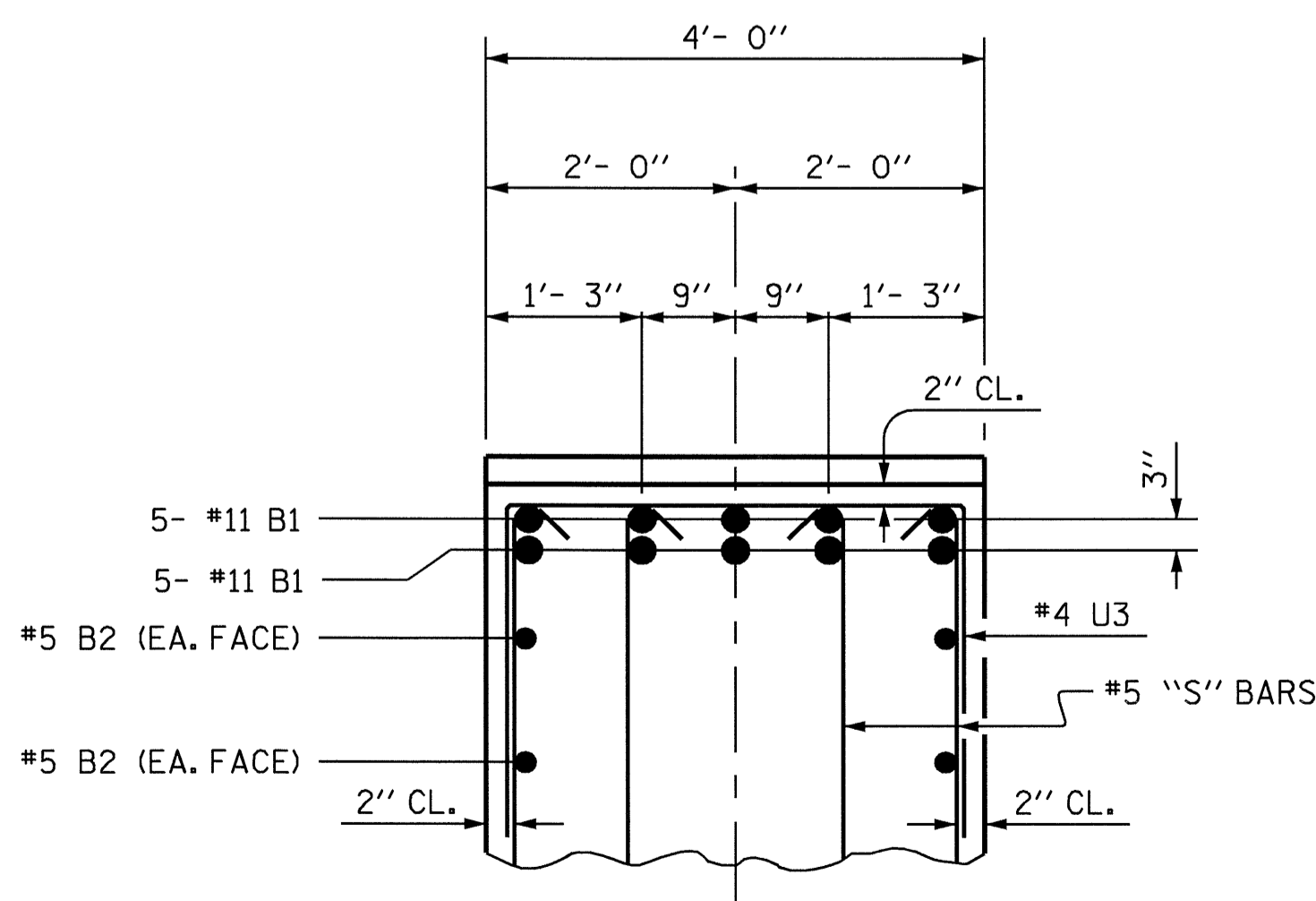
REVISIONS						SHEET NO. 5-46
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			



SECTION THROUGH CAP

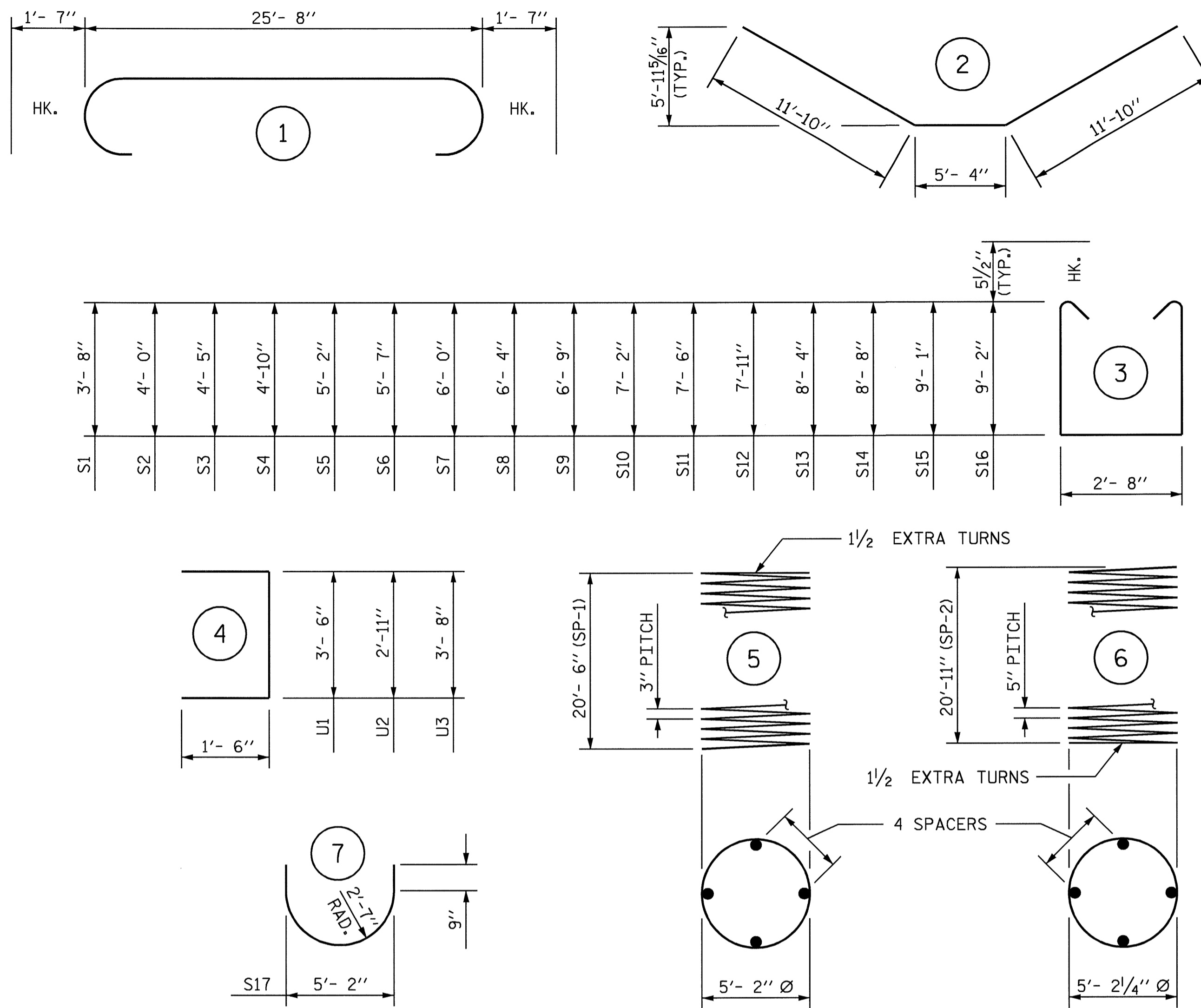


END OF CAP DETAIL



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11	1	28'-10"	1532
B2	6	#5	STR	25'-10"	162
B3	2	#5	STR	22'-11"	48
B4	2	#5	STR	19'-5"	41
B5	2	#5	STR	16'-0"	33
B6	2	#5	STR	12'-7"	26
B7	2	#5	STR	9'-1"	19
B8	5	#9	2	29'-0"	493
S1	4	#5	3	10'-11"	46
S2	4	#5	3	11'-7"	48
S3	4	#5	3	12'-5"	52
S4	4	#5	3	13'-3"	55
S5	4	#5	3	13'-11"	58
S6	4	#5	3	14'-9"	62
S7	4	#5	3	15'-7"	65
S8	4	#5	3	16'-3"	68
S9	4	#5	3	17'-1"	71
S10	4	#5	3	17'-11"	75
S11	4	#5	3	18'-7"	78
S12	4	#5	3	19'-5"	81
S13	4	#5	3	20'-3"	84
S14	4	#5	3	20'-11"	87
S15	4	#5	3	21'-9"	91
S16	8	#5	3	21'-11"	183
S17	24	#4	7	9'-8"	155
M1	24	#11	STR	31'-5"	4006
U1	6	#4	4	6'-6"	26
U2	8	#4	4	5'-11"	32
U3	24	#4	4	6'-8"	107
V1	24	#11	STR	26'-6"	3379
REINFORCING STEEL					= 11263 LBS.
SP-1	1	*	5	1343'-3"	897
SP-2	1	**	6	834'-5"	870
SPIRAL COLUMN REINFORCING STEEL					= 1767 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMN)					= 17.8 C.Y.
POUR #3 (CAP)					= 28.7 C.Y.
TOTAL					= 46.5 C.Y.

DRILLED PIER

DRILLED PIER CONCRETE	
POUR #1 (DRILLED PIER)	= 22.4 C.Y.
6'-0" Ø DRILLED PIER IN SOIL	= 6.9 LIN. FT.
6'-0" Ø DRILLED PIER NOT IN SOIL	= 14.5 LIN. FT.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 3

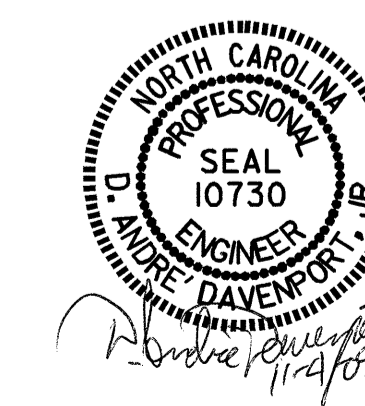
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

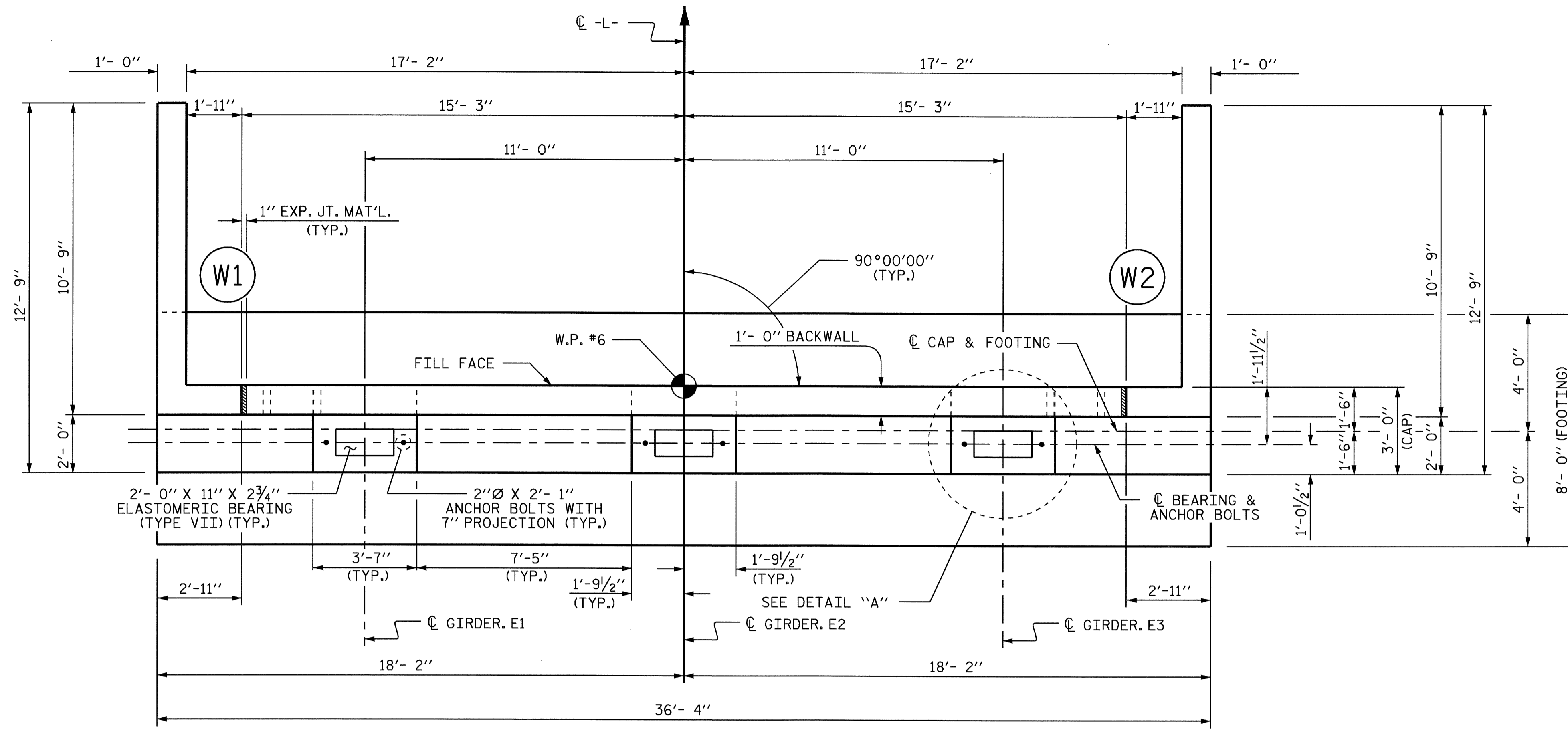
SUBSTRUCTURE
 BENT #4

REVISIONS						SHEET NO. S-47
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			

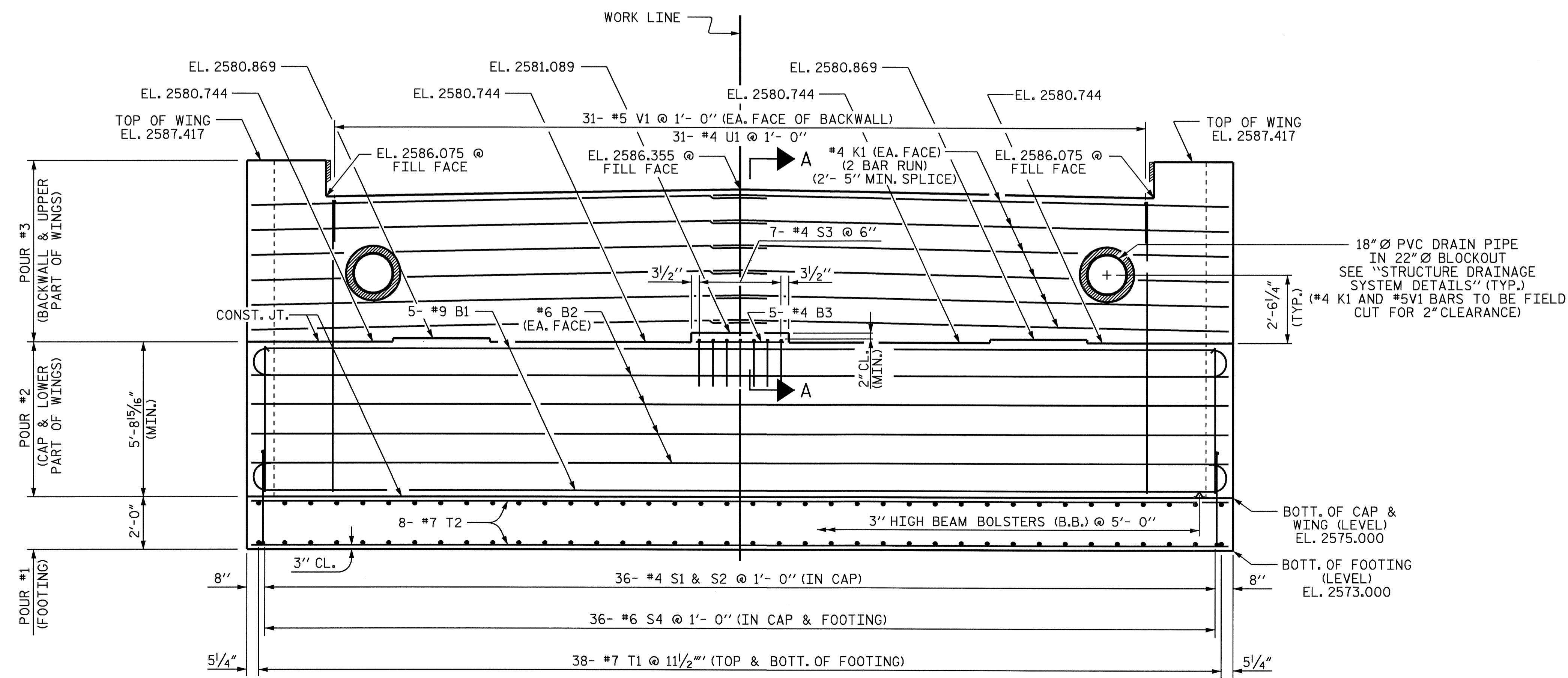
DRAWN BY: D. A. GLADDEN DATE: 3-26-09
 CHECKED BY: D.A. Davenport DATE: 5-4-09

04-NOV-2009 10:01
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PLAN



ELEVATION

NOTES

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

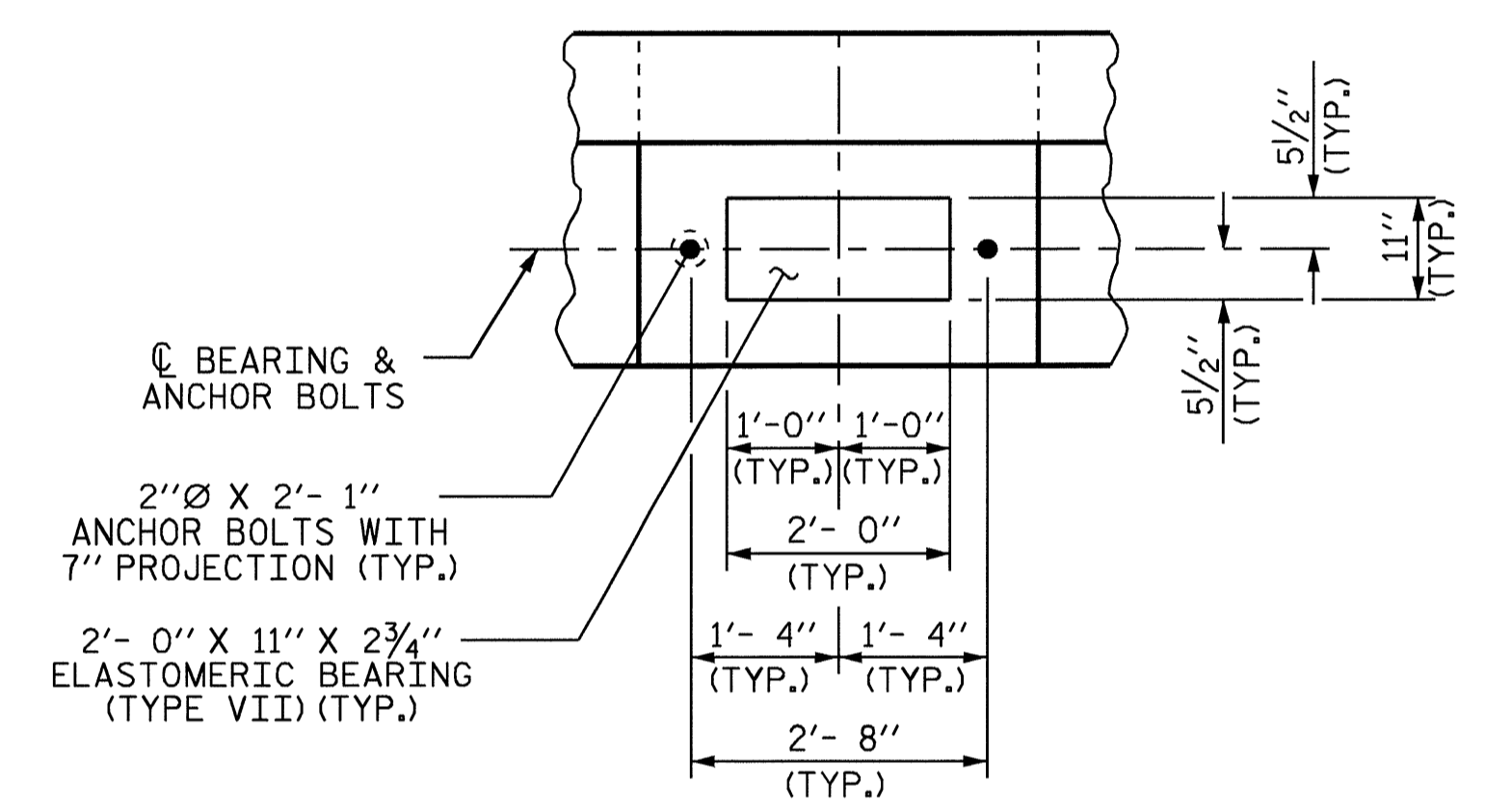
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

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

CENTER DRAINAGE PIPE IN BLOCK OUT AND FILL ANNULAR SPACE AROUND PIPE WITH JOINT FILLER IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 1028-1.



DETAIL "A"

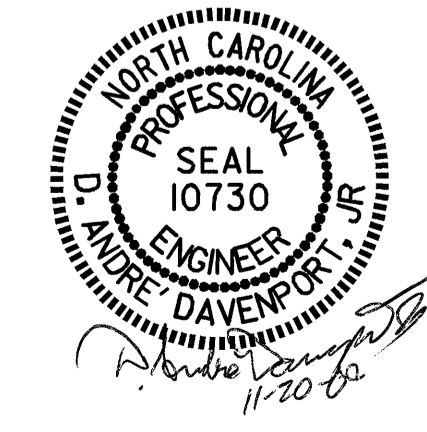
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 1 OF 3

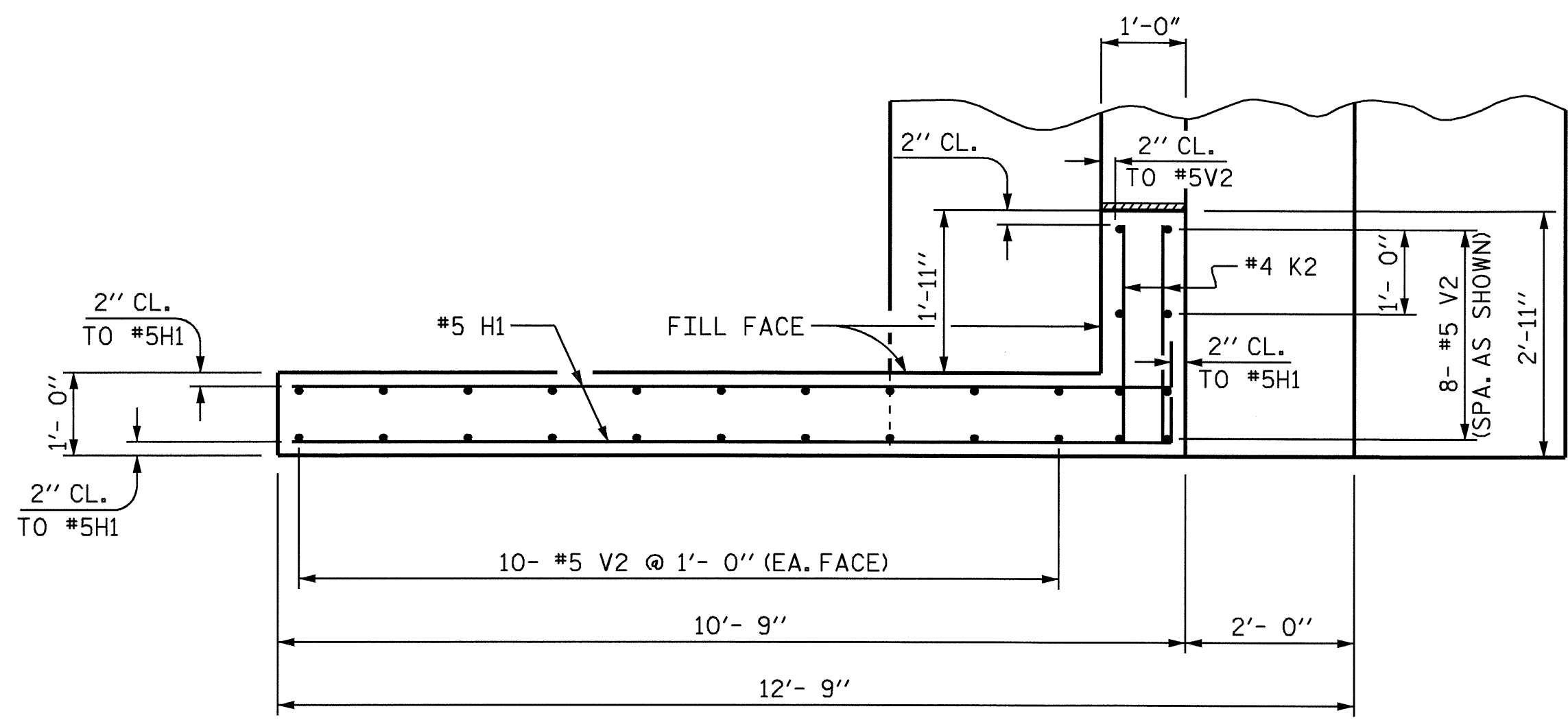
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #2**

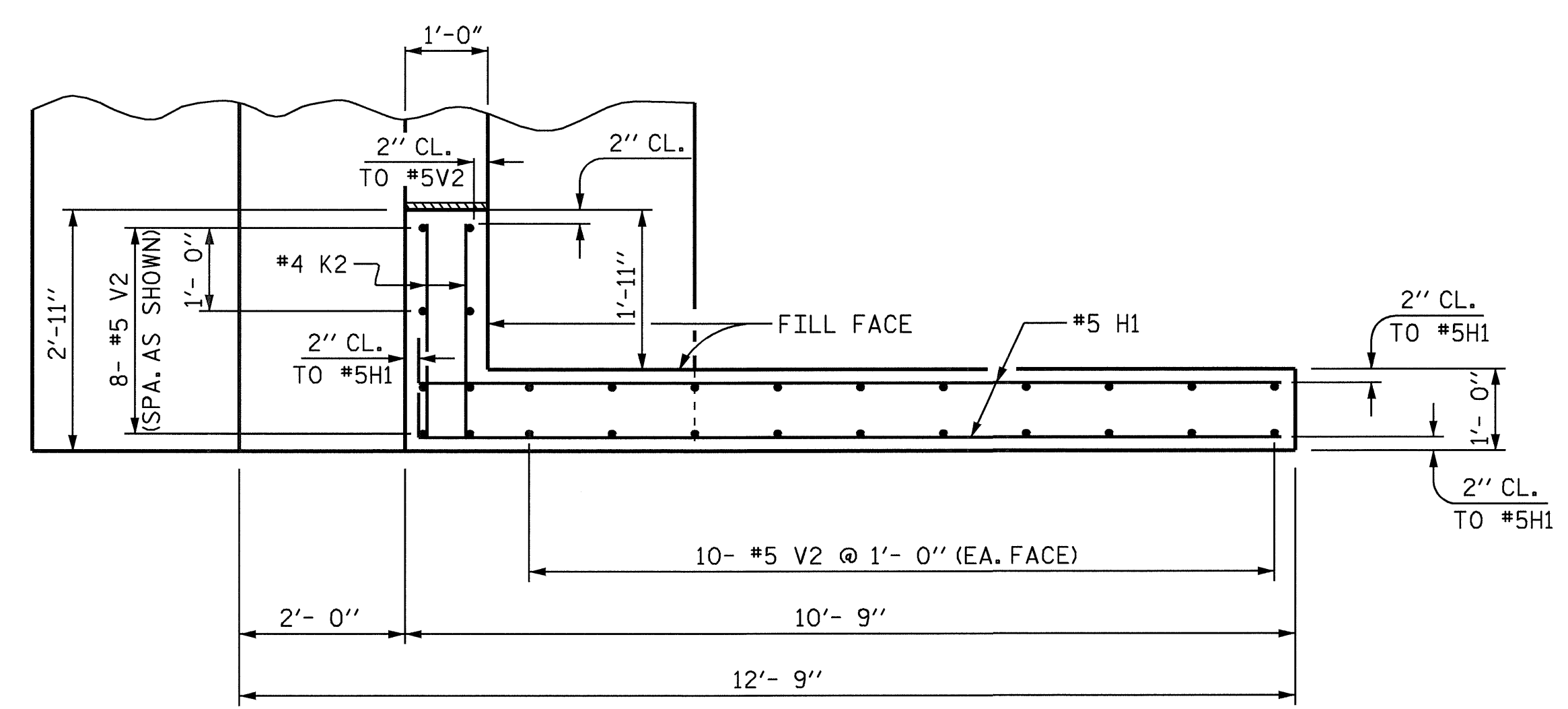
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			54



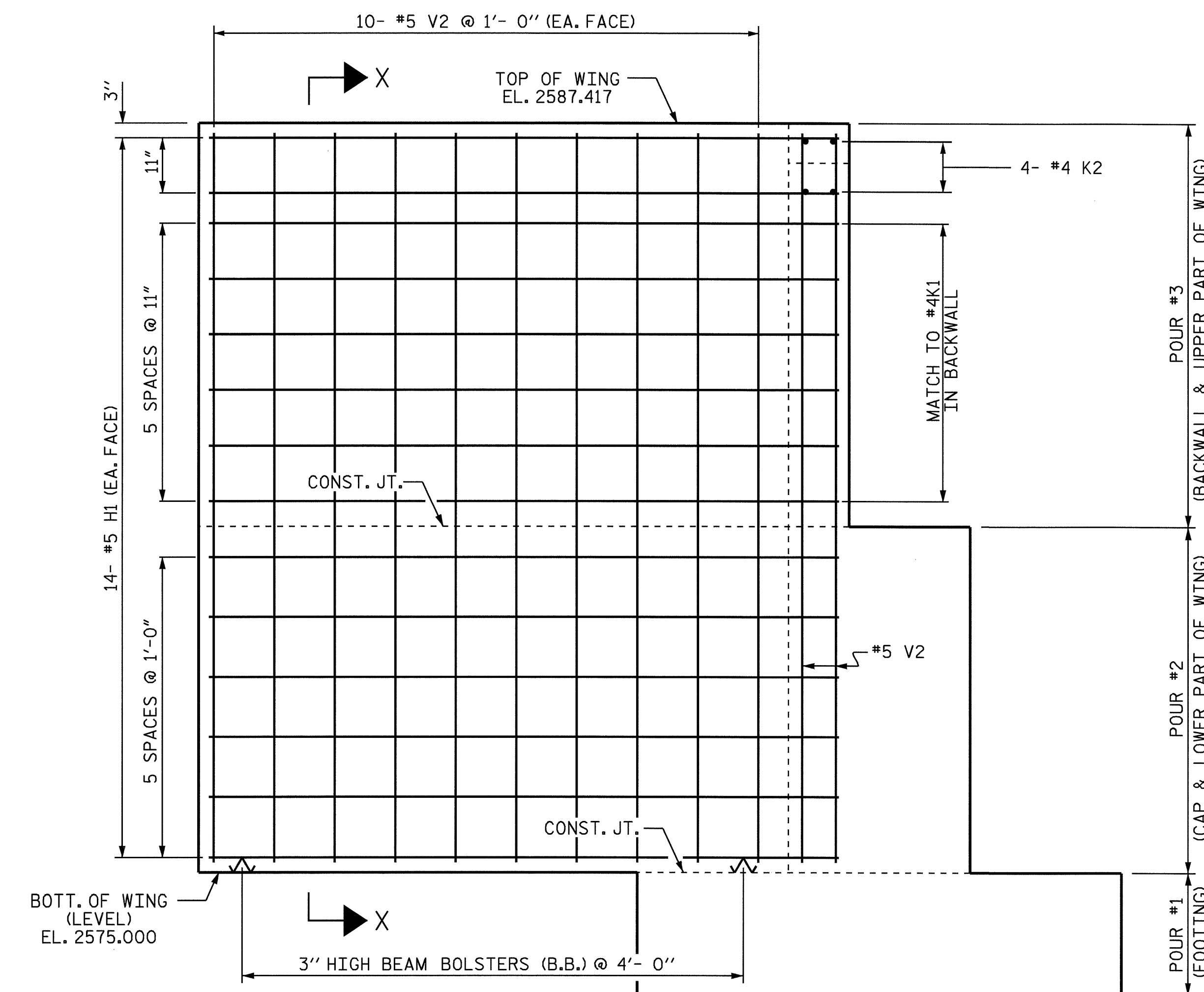
DRAWN BY: D. A. GLADDEN DATE: 5-19-09
 CHECKED BY: J. F. OERTER DATE: 8-11-09



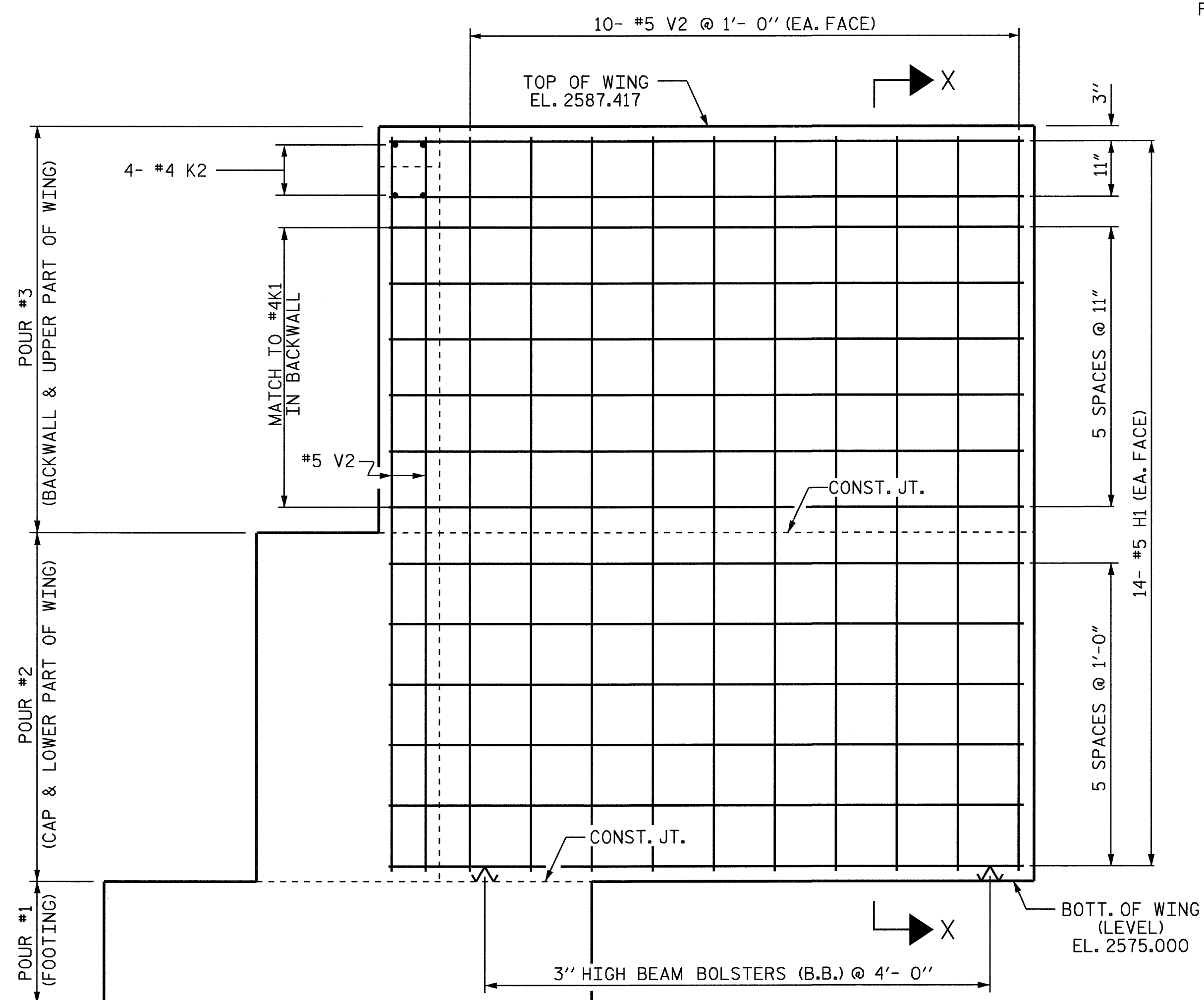
PLAN OF LEFT WING (W1)



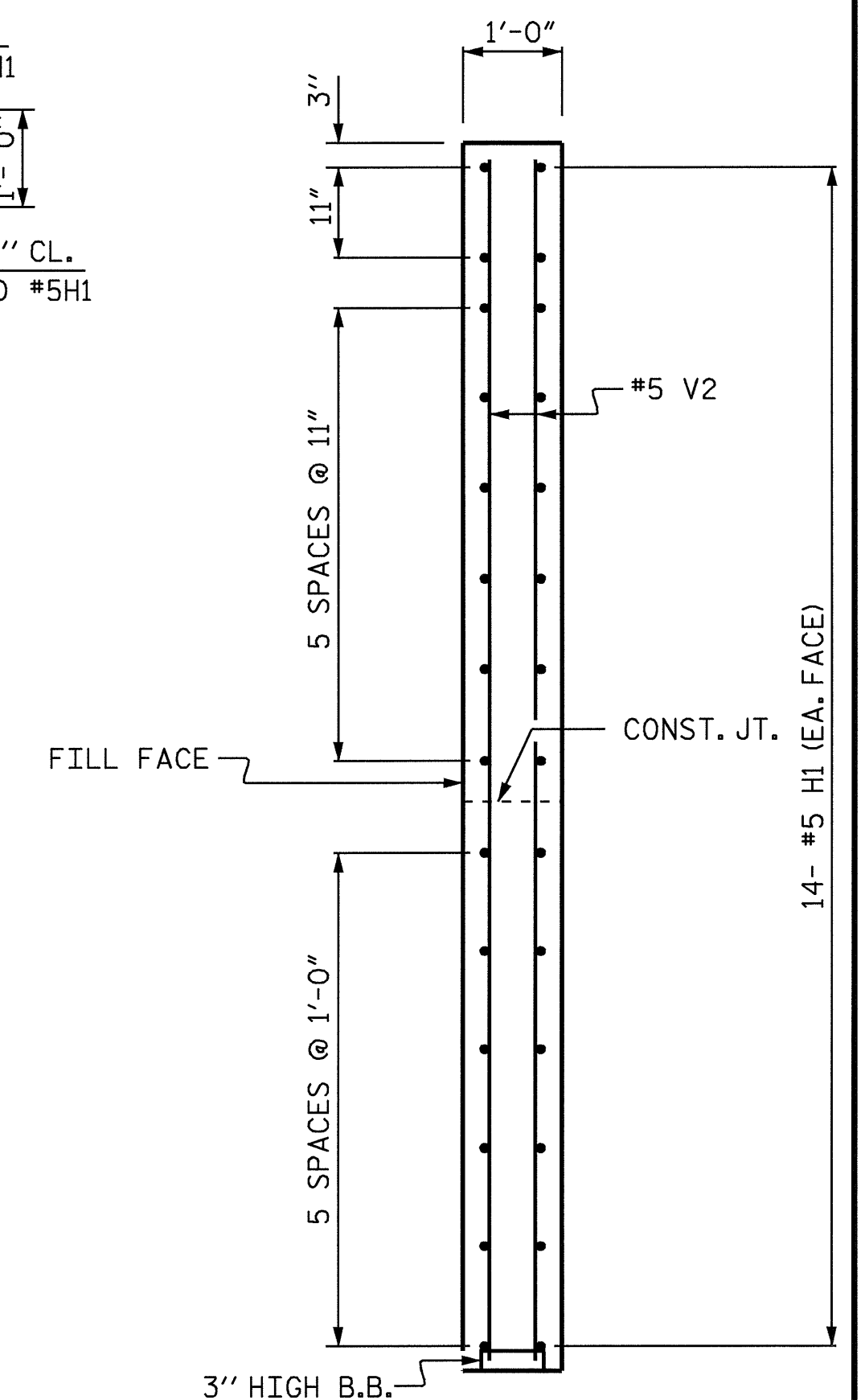
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



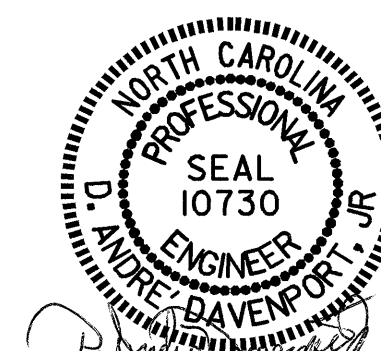
ELEVATION OF RIGHT WING (W2)



SECTION X-X

PROJECT NO. B-1037
 ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 3

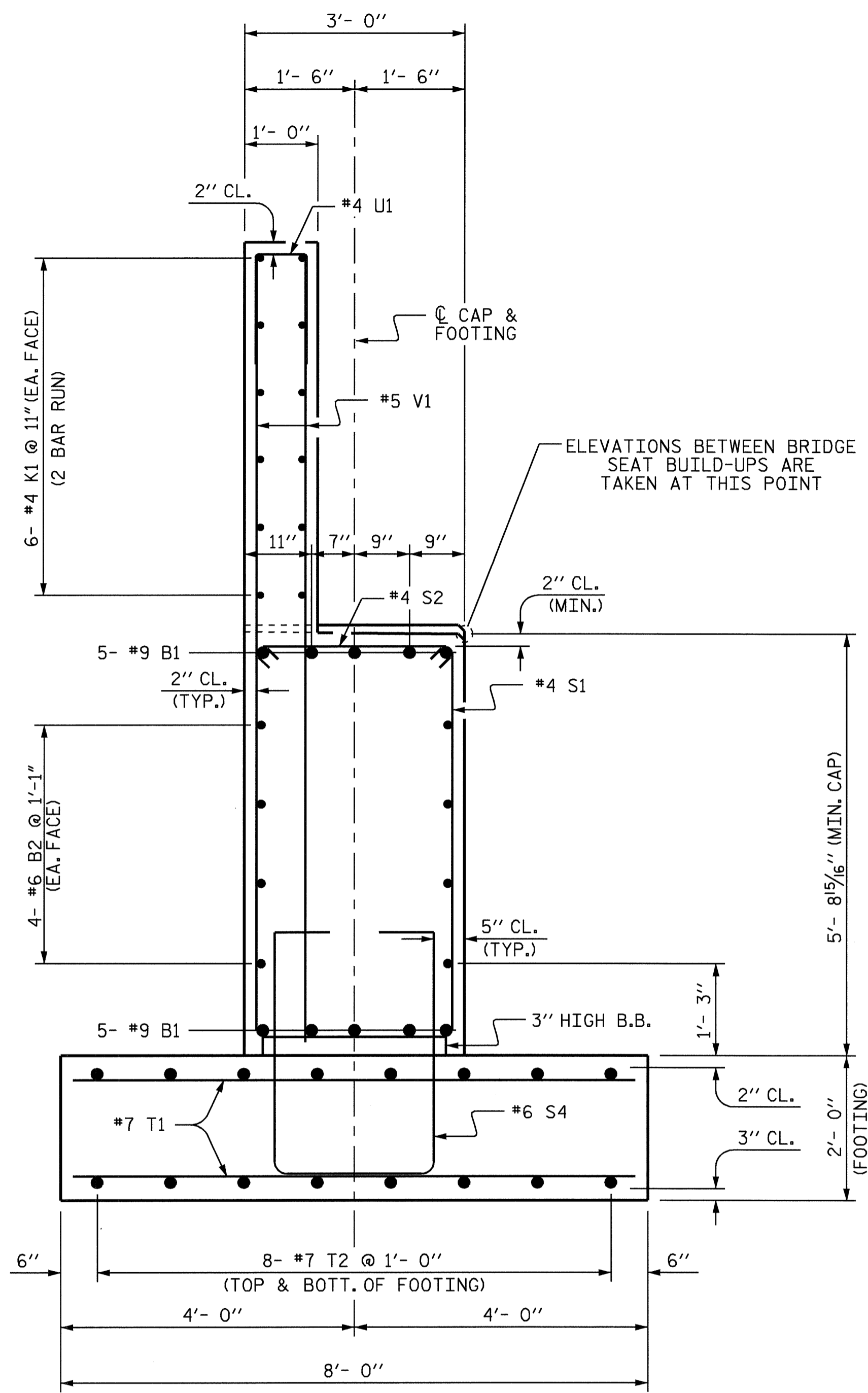


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2

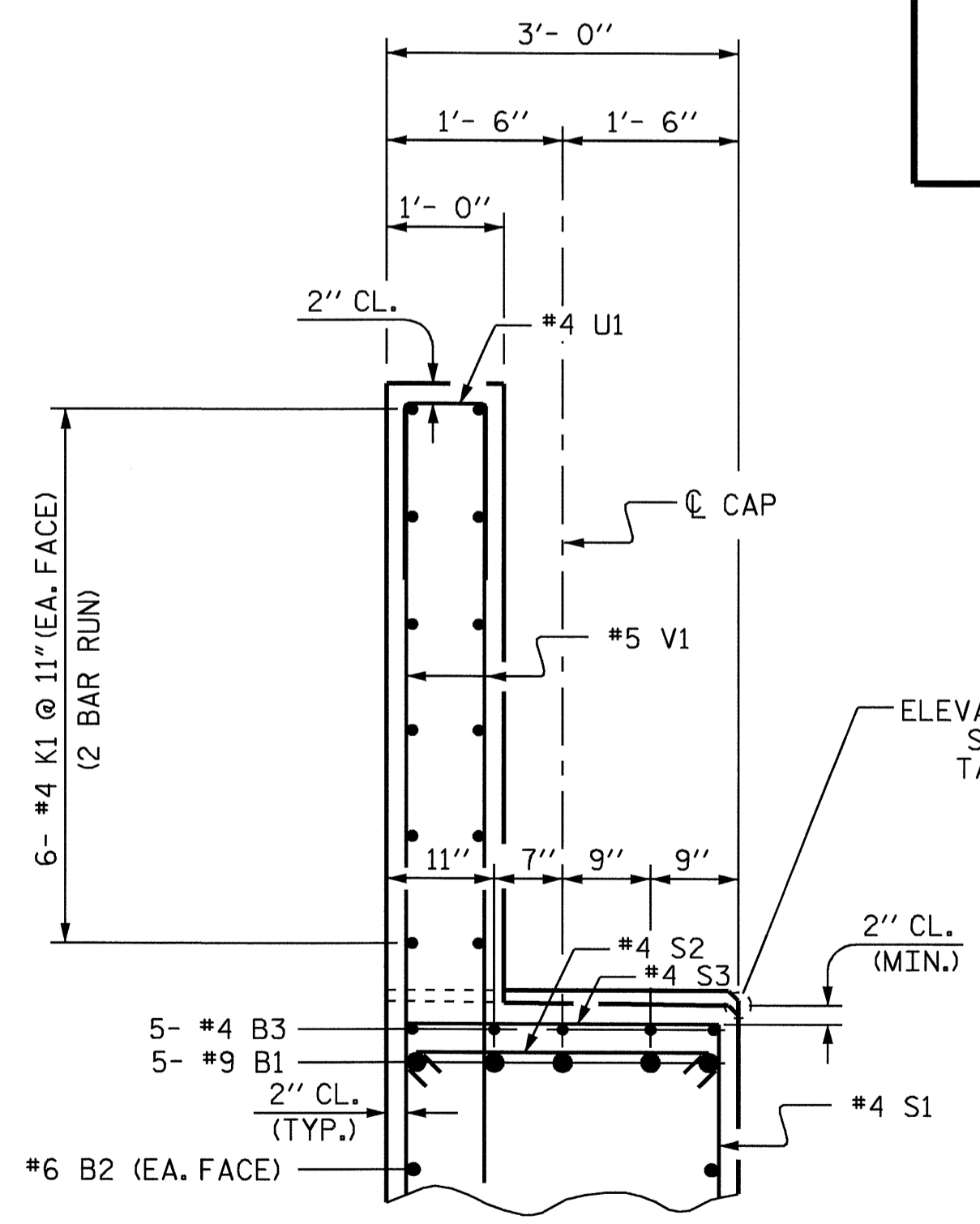
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49	
1			3			TOTAL SHEETS	54
2			4				

DRAWN BY: D. A. GLADDEN DATE: 5-19-09
 CHECKED BY: J. F. OERTER DATE: 8-11-09

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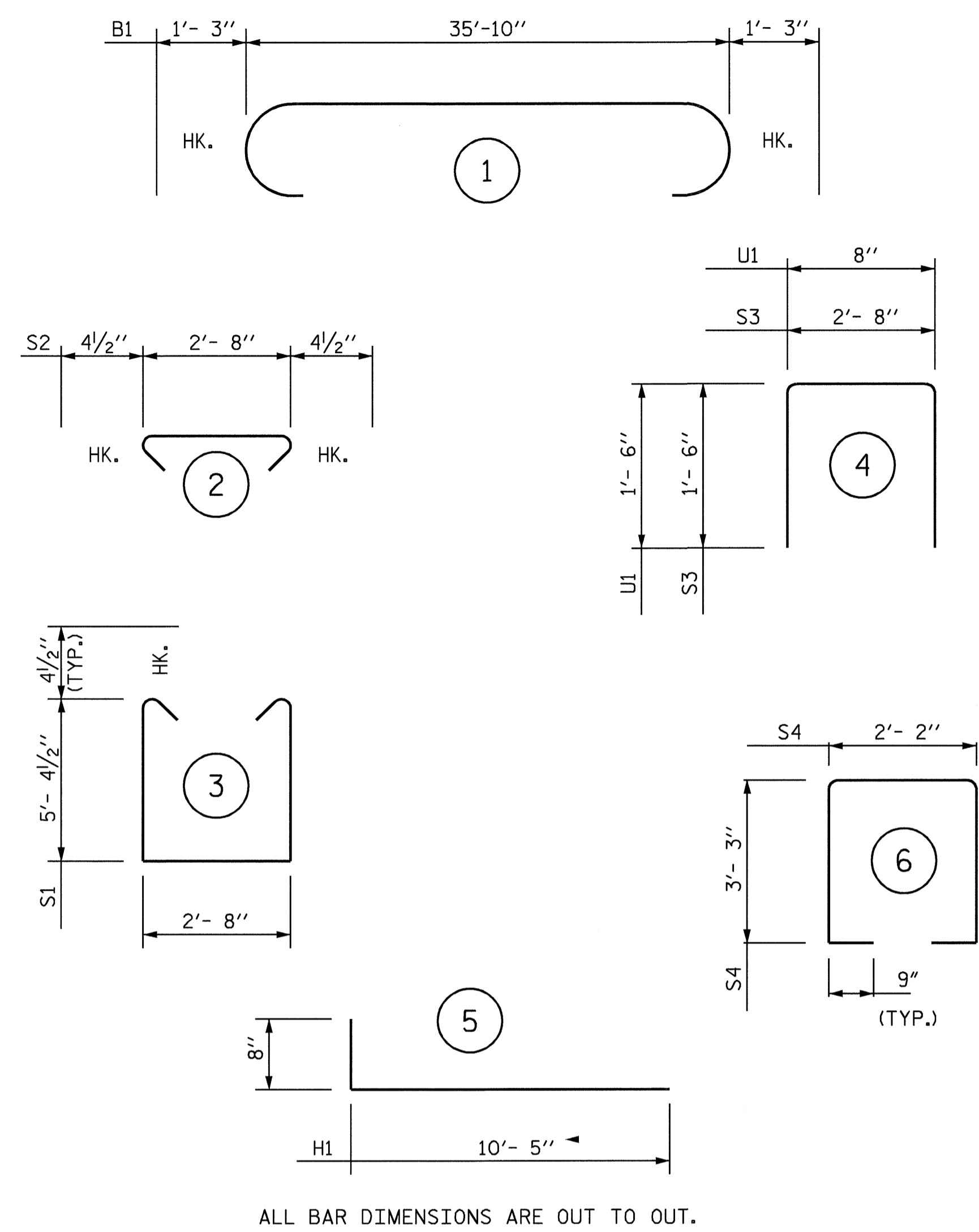


SECTION THROUGH CAP



SECTION A-A

BAR TYPES



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	38'- 4"	1303
B2	8	#6	STR	36'- 0"	433
B3	5	#4	STR	3'- 3"	11
H1	56	#5	5	11'- 1"	647
K1	24	#4	STR	19'-3"	309
K2	8	#4	STR	2'- 7"	14
S1	36	#4	3	14'- 2"	341
S2	36	#4	2	3'- 5"	82
S3	7	#4	4	5'- 8"	26
S4	36	#6	6	10'- 2"	550
T1	76	#7	STR	7'- 8"	1191
T2	16	#7	STR	36'- 0"	1177
U1	31	#4	4	3'- 8"	76
V1	62	#5	STR	10'- 9"	695
V2	56	#5	STR	12'- 1"	706

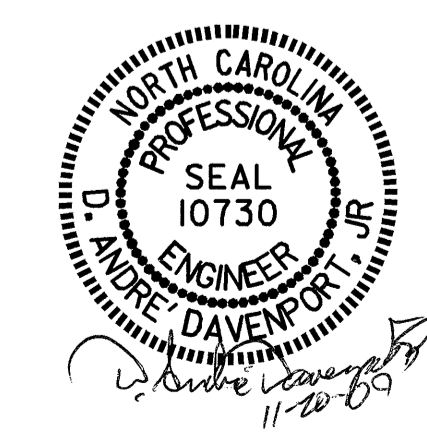
REINFORCING STEEL = 7561 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 (FOOTING)	=	21.5 C.Y.
POUR #2 (CAP & LOWER PART OF WING)	=	27.7 C.Y.
POUR #3 (BACKWALL & UPPER PART OF WING)	=	12.2 C.Y.
TOTAL	=	61.4 C.Y.
FOUNDATION EXCAVATION	=	155.0 C.Y.

DRAWN BY : D. A. GLADDEN DATE : 5-19-09
 CHECKED BY : J. F. OERTER DATE : 8-11-09

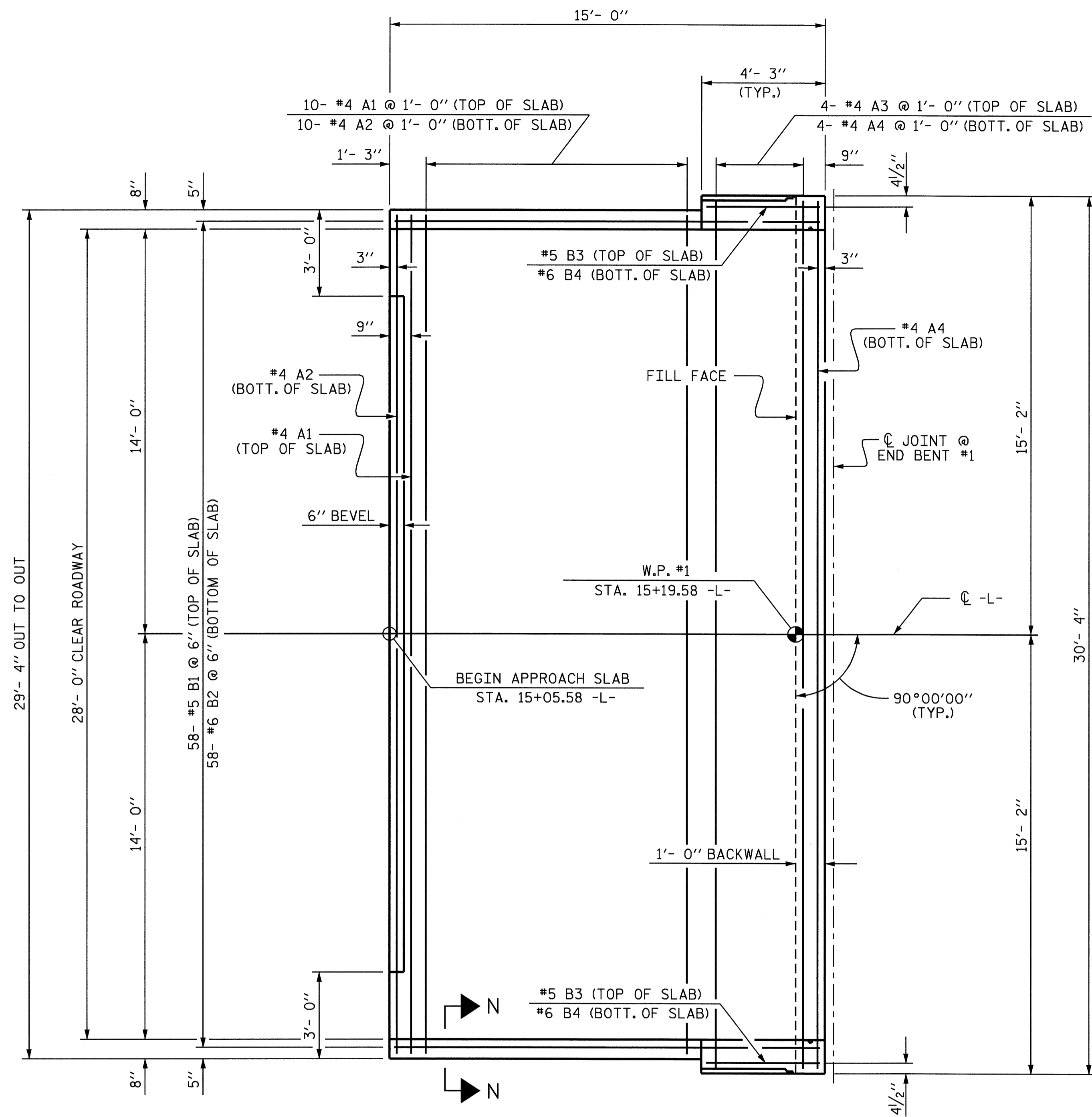
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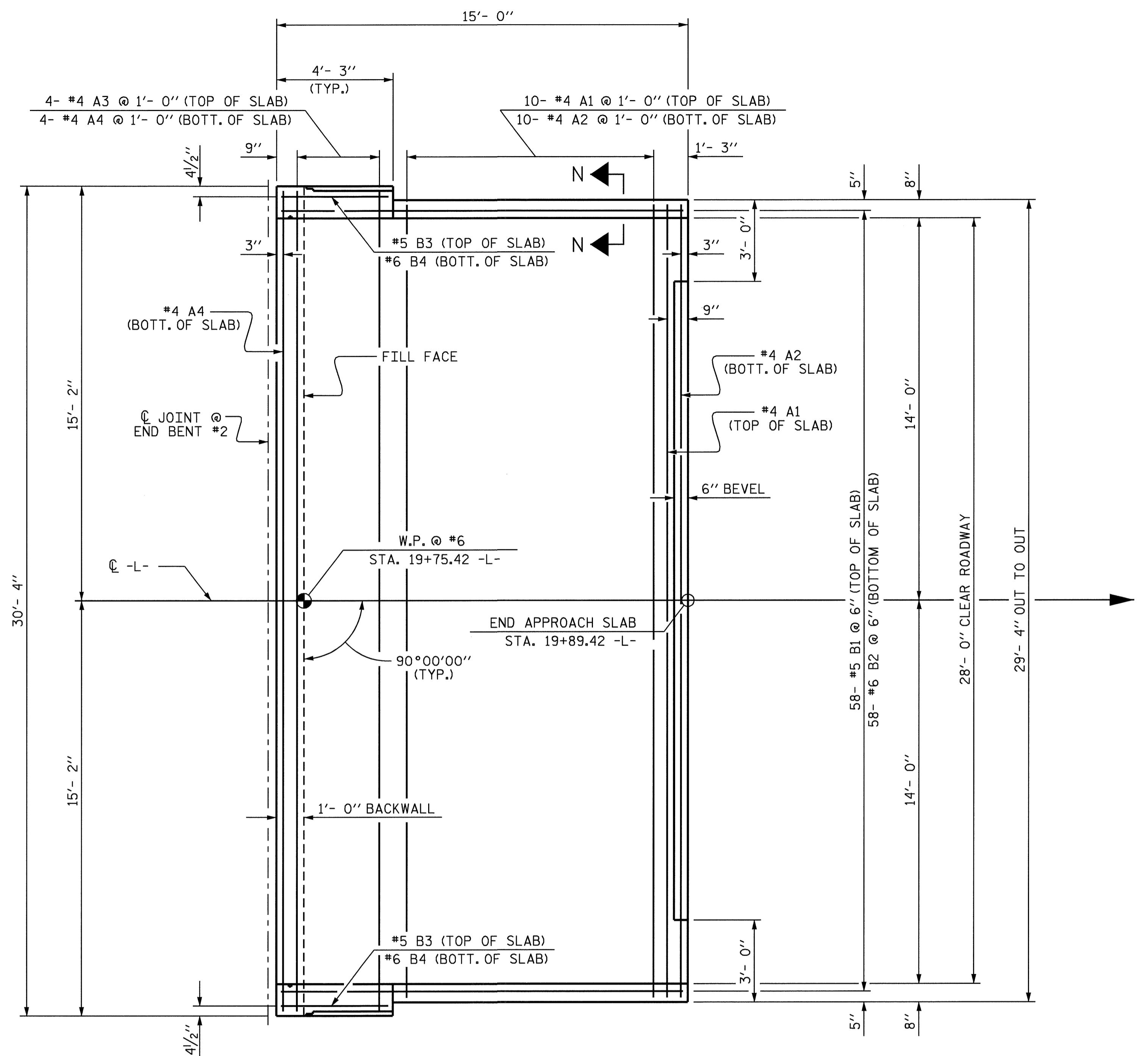
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-
 SHEET 3 OF 3

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS 54
2			4			



APPROACH SLAB @ END BENT #1



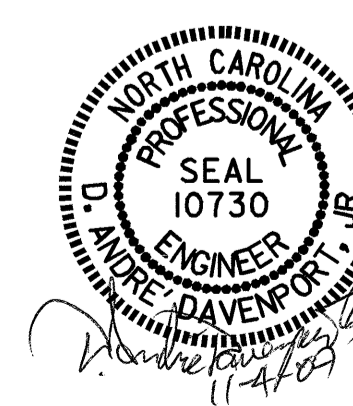
APPROACH SLAB @ END BENT #2

PROJECT NO. B-1037
ASHE COUNTY
STATION: 17+47.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

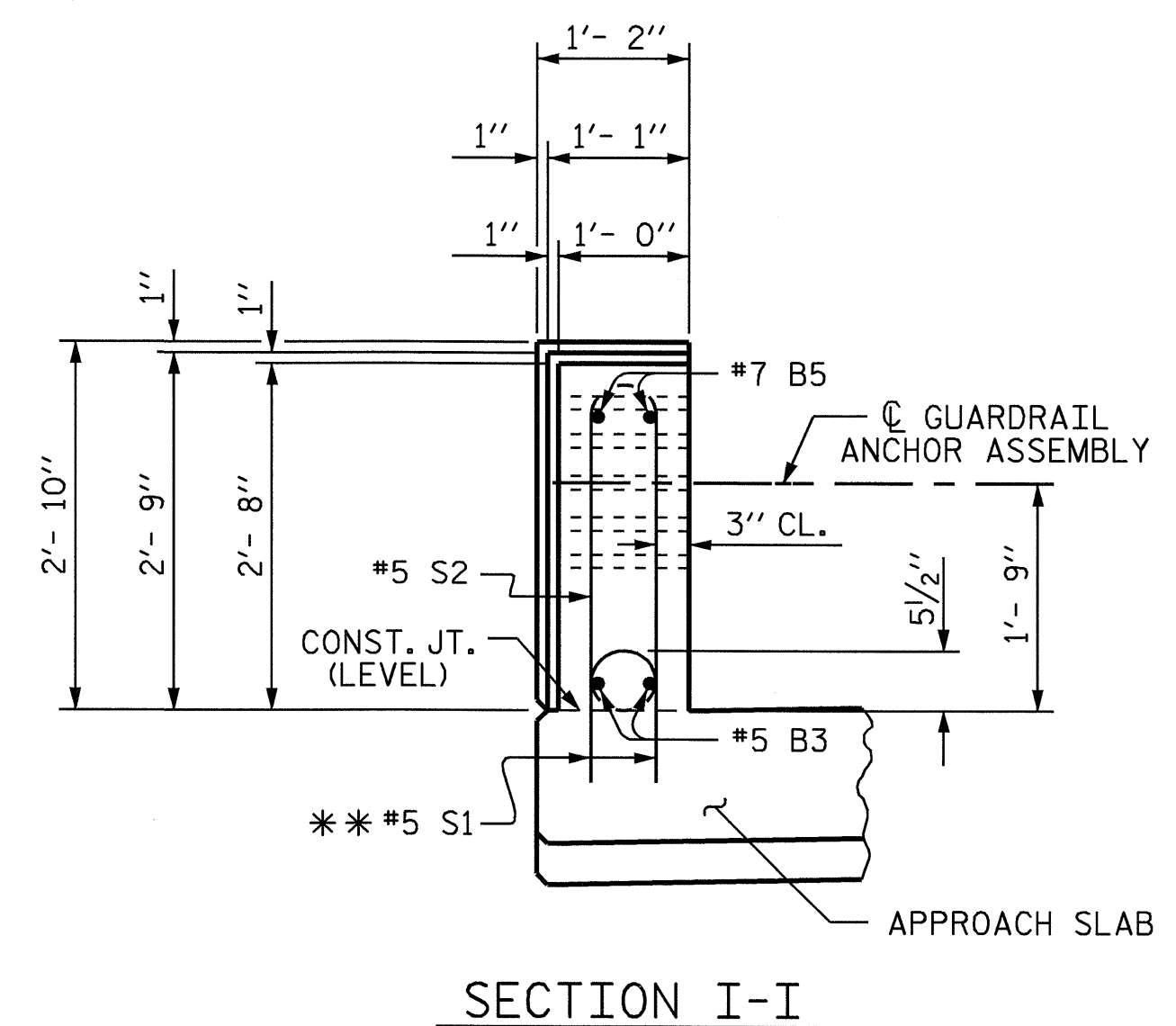
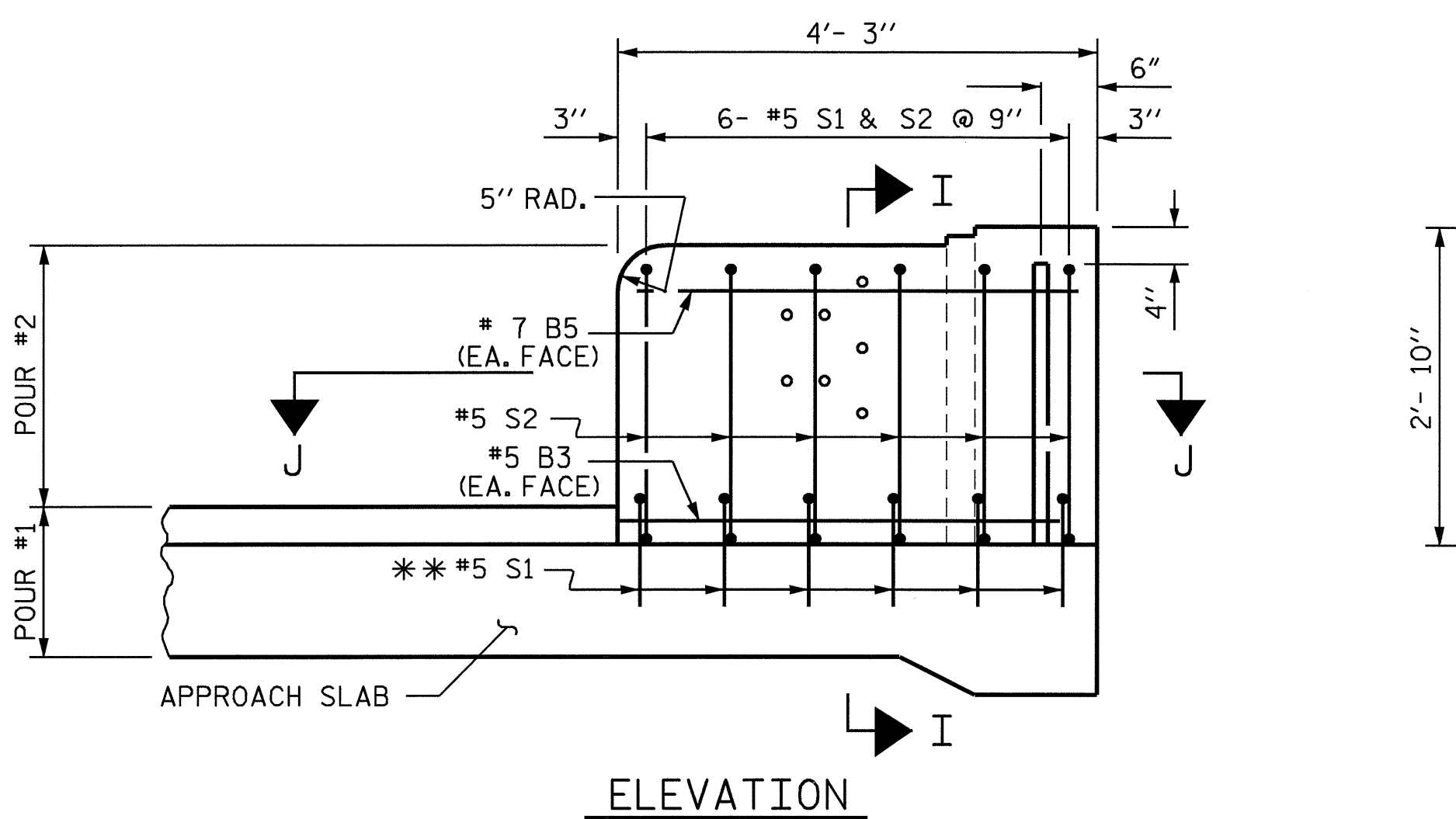
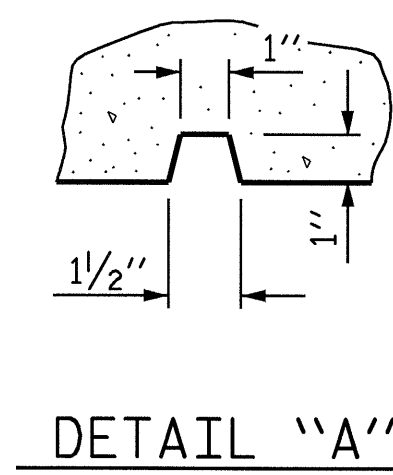
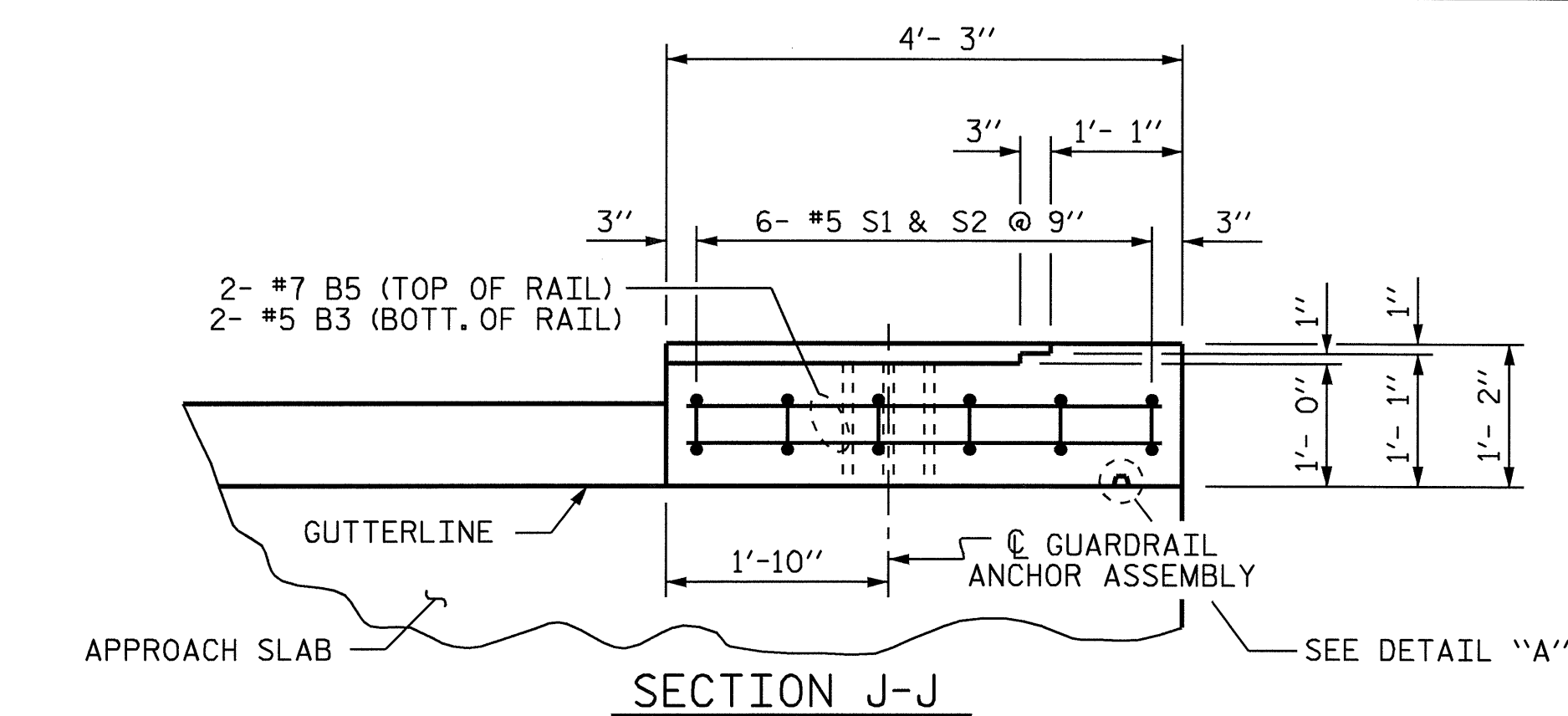
BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT
WITH CLASSIC RAIL



DRAWN BY : D. A. GLADDEN DATE : 9-4-08
CHECKED BY : A. DAVENPORT DATE : 2-18-09

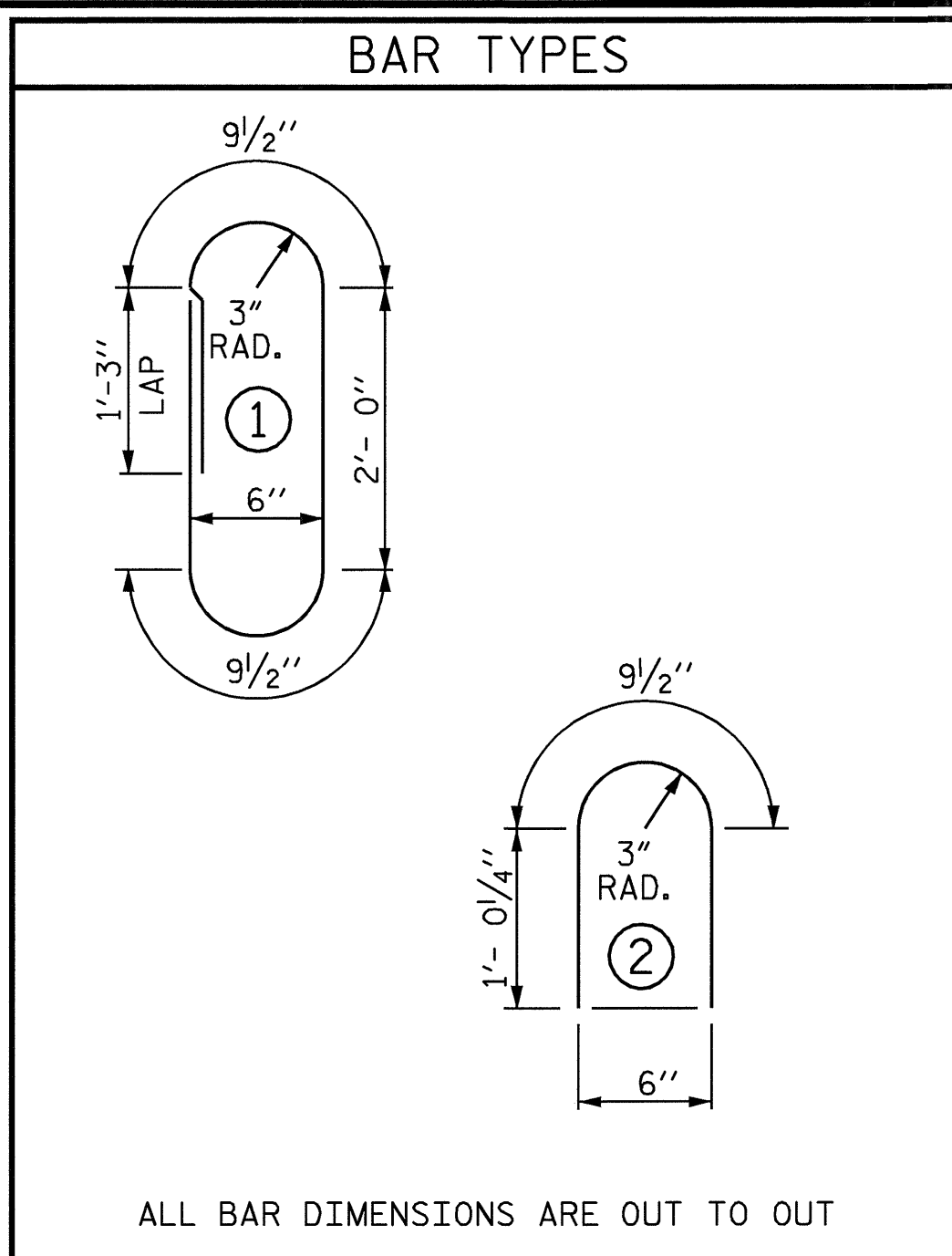
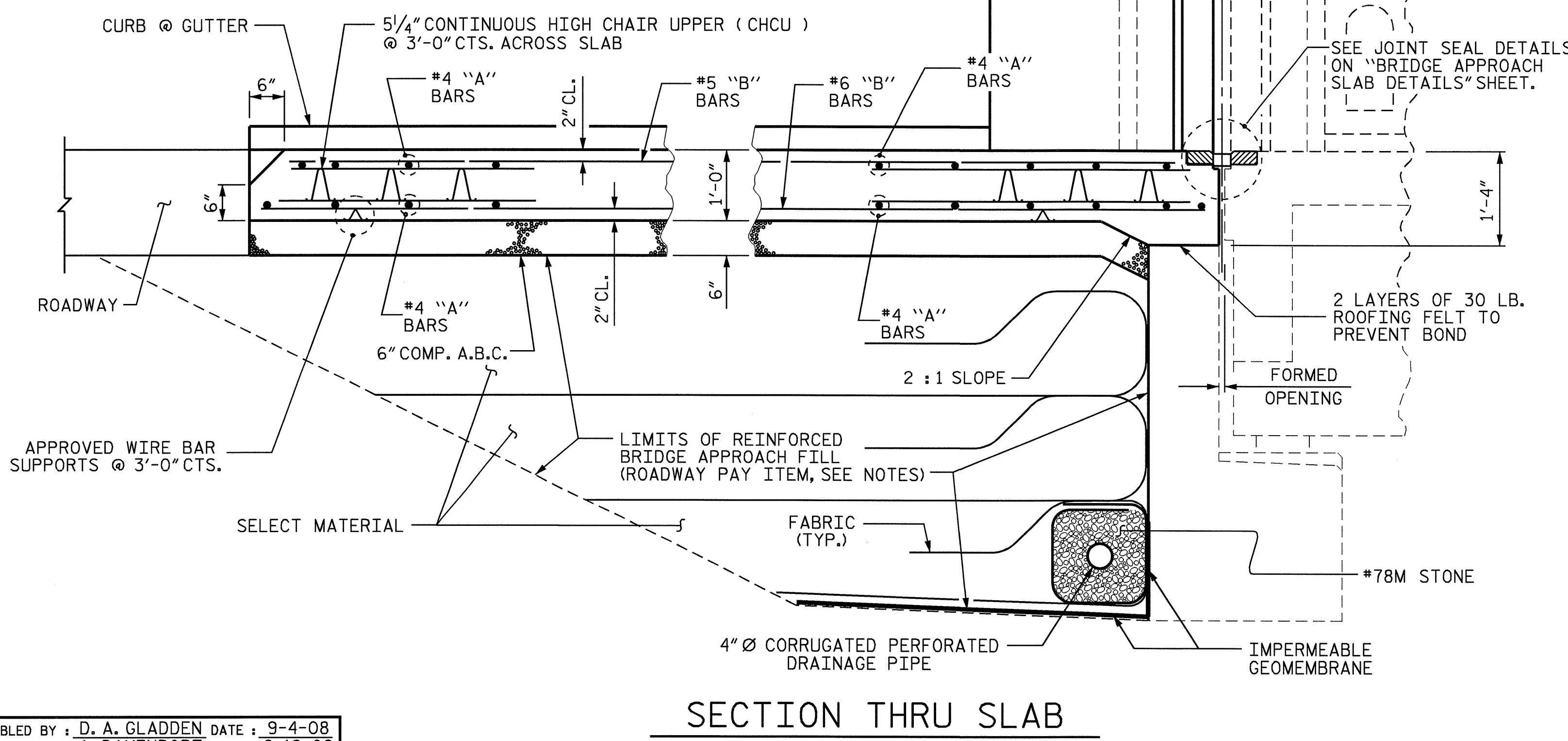
04-NOV-2009 10:02
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REVISIONS						SHEET NO. S-51
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			



CLASSIC RAIL DETAILS

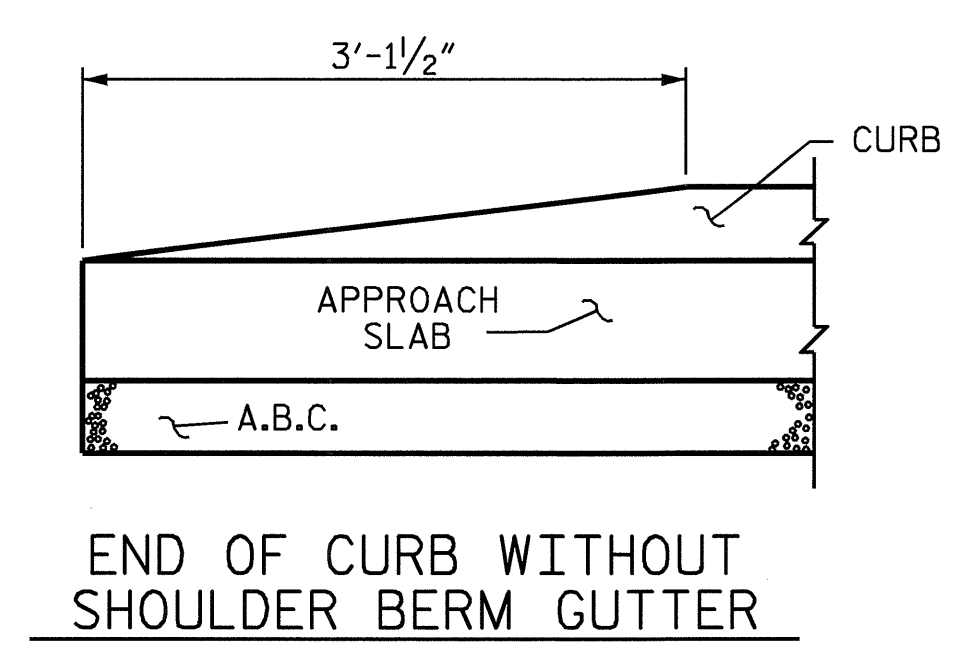
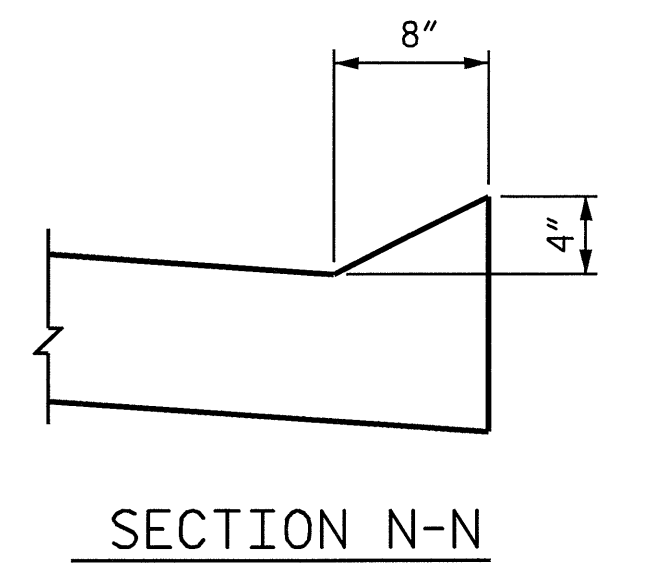
** THE #5 S1 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD FOR EACH LEG OF THE #5 S1 BAR IS 18.6 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.



BILL OF MATERIAL											
APPROACH SLAB AT EB #1					APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	11	#4	STR	29'-0"	213	*A1	11	#4	STR	29'-0"	213
A2	11	#4	STR	29'-0"	213	A2	11	#4	STR	29'-0"	213
*A3	4	#4	STR	30'-0"	80	*A3	4	#4	STR	30'-0"	80
A4	5	#4	STR	30'-0"	100	A4	5	#4	STR	30'-0"	100
*B1	58	#5	STR	13'-8"	827	*B1	58	#5	STR	13'-8"	827
B2	58	#6	STR	14'-8"	1278	B2	58	#6	STR	14'-8"	1278
*B3	6	#5	STR	3'-11"	25	*B3	6	#5	STR	3'-11"	25
B4	2	#6	STR	3'-11"	12	B4	2	#6	STR	3'-11"	12
*B5	4	#7	STR	3'-11"	32	*B5	4	#7	STR	3'-11"	32
*S1	12	#5	2	2'-10"	35	*S1	12	#5	2	2'-10"	35
*S2	12	#5	1	6'-6"	81	*S2	12	#5	1	6'-6"	81
REINFORCING STEEL					1603 LBS.	REINFORCING STEEL					1603 LBS.
* EPOXY COATED REINFORCING STEEL					1293 LBS.	* EPOXY COATED REINFORCING STEEL					1293 LBS.
CLASS AA CONCRETE BREAKDOWN						CLASS AA CONCRETE BREAKDOWN					
POUR #1 (SLAB & CURB)					17.0 C. Y.	POUR #1 (SLAB & CURB)					17.0 C. Y.
POUR #2 (CLASSIC RAIL)					0.9 C. Y.	POUR #2 (CLASSIC RAIL)					0.9 C. Y.
TOTAL					17.9 C. Y.	TOTAL					17.9 C. Y.

NOTES

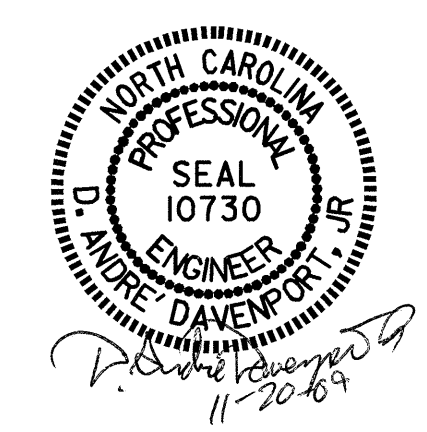
- APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.
- FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.
- AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
- THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE EACH EDGE OF THE APPROACH SLAB.
- THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.
- THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.
- THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE CLASSIC CONCRETE RAIL AND BENT PILASTER.
- 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.



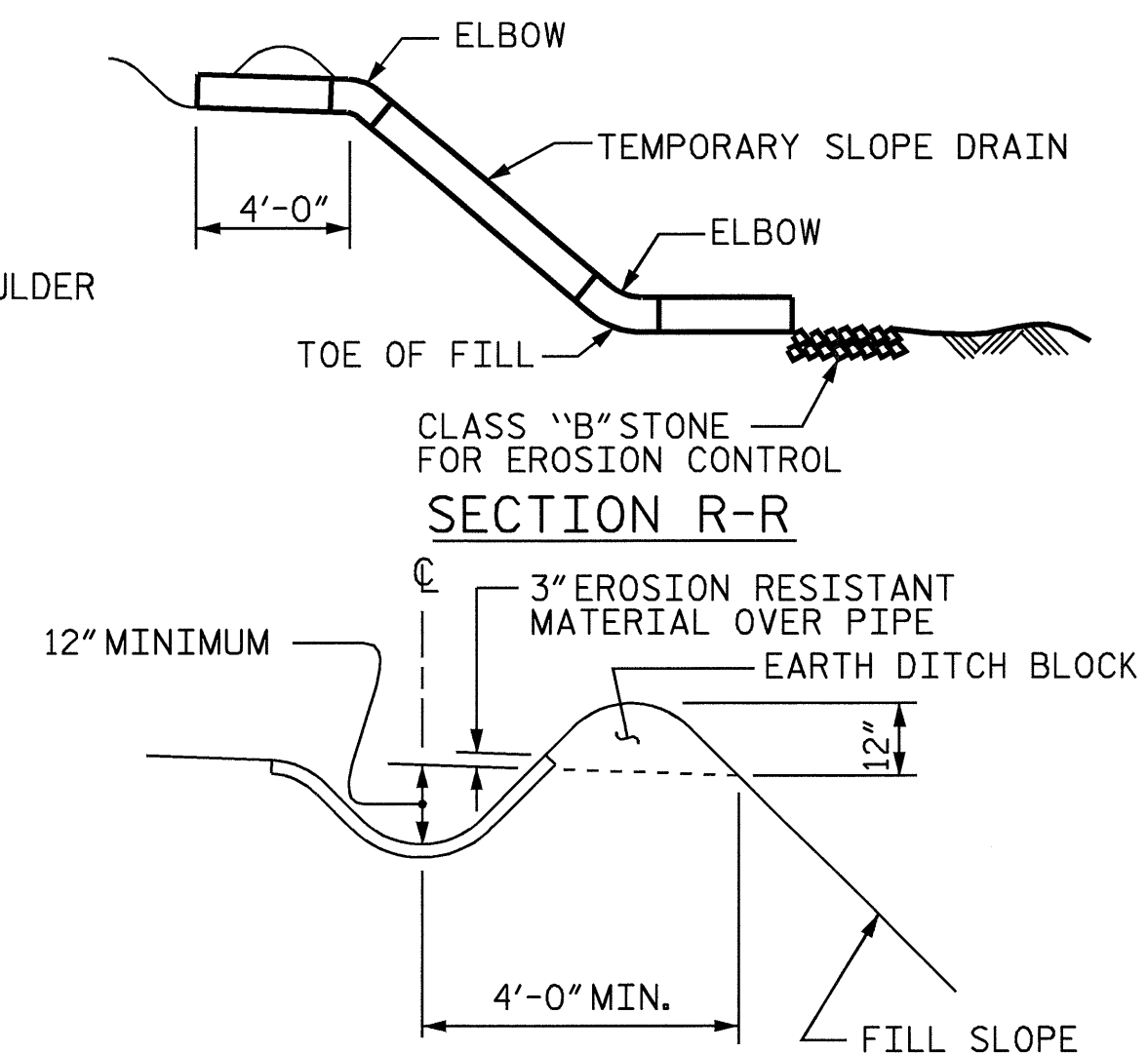
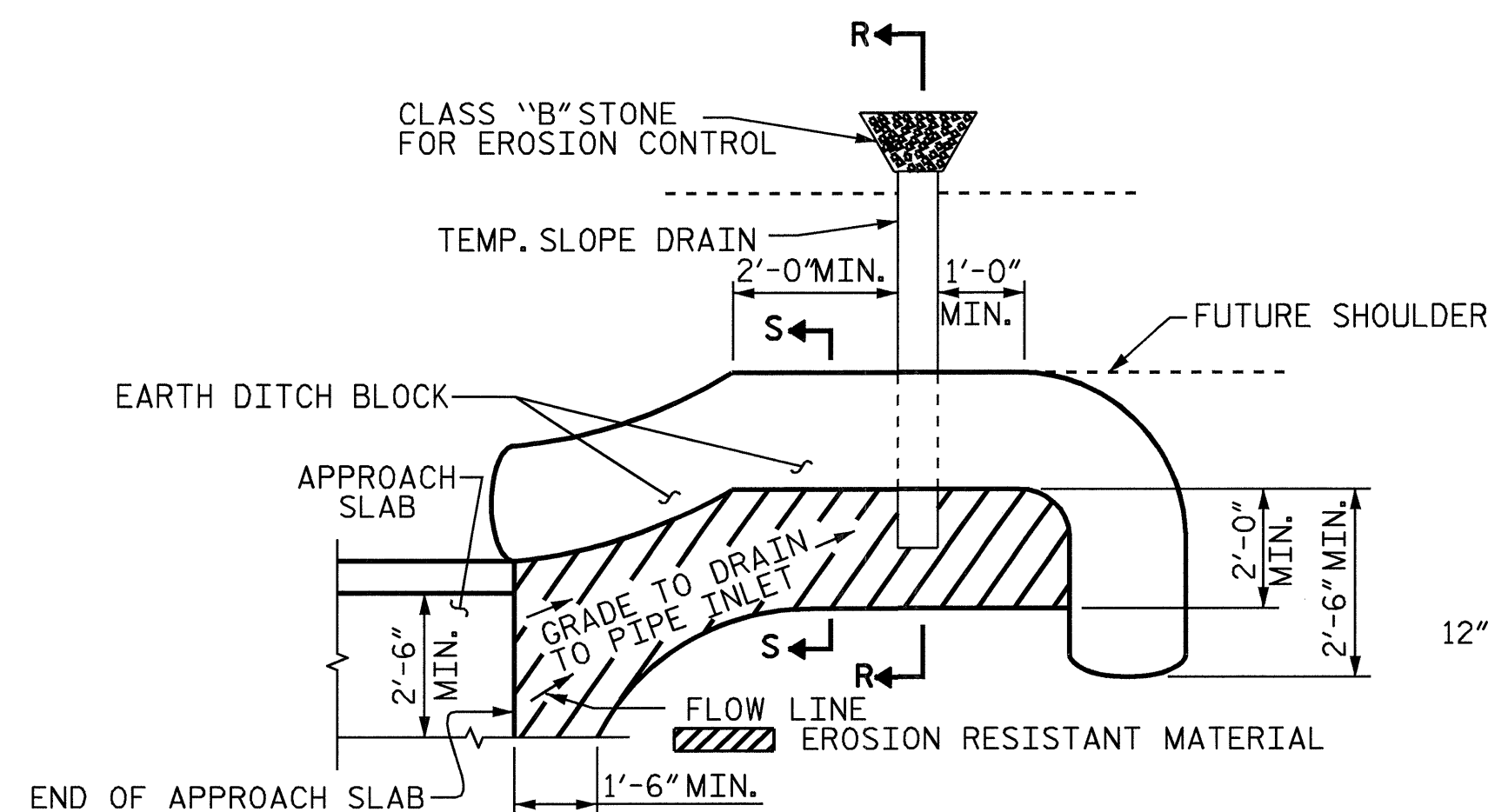
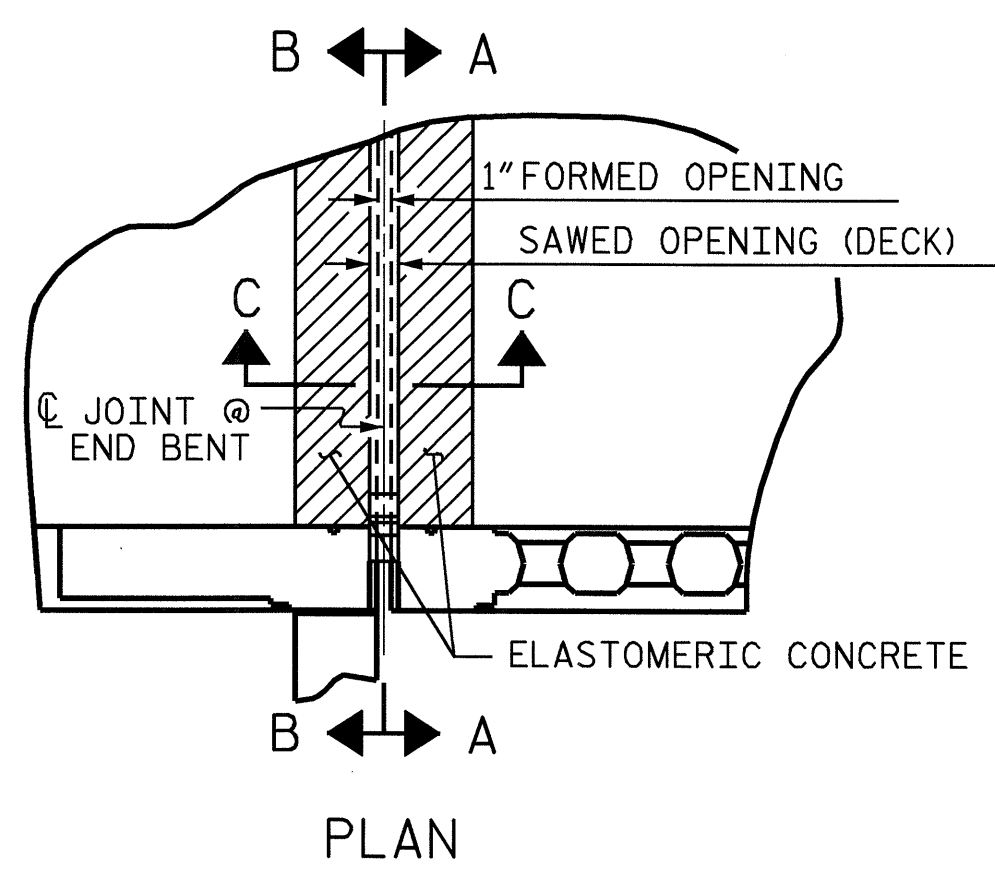
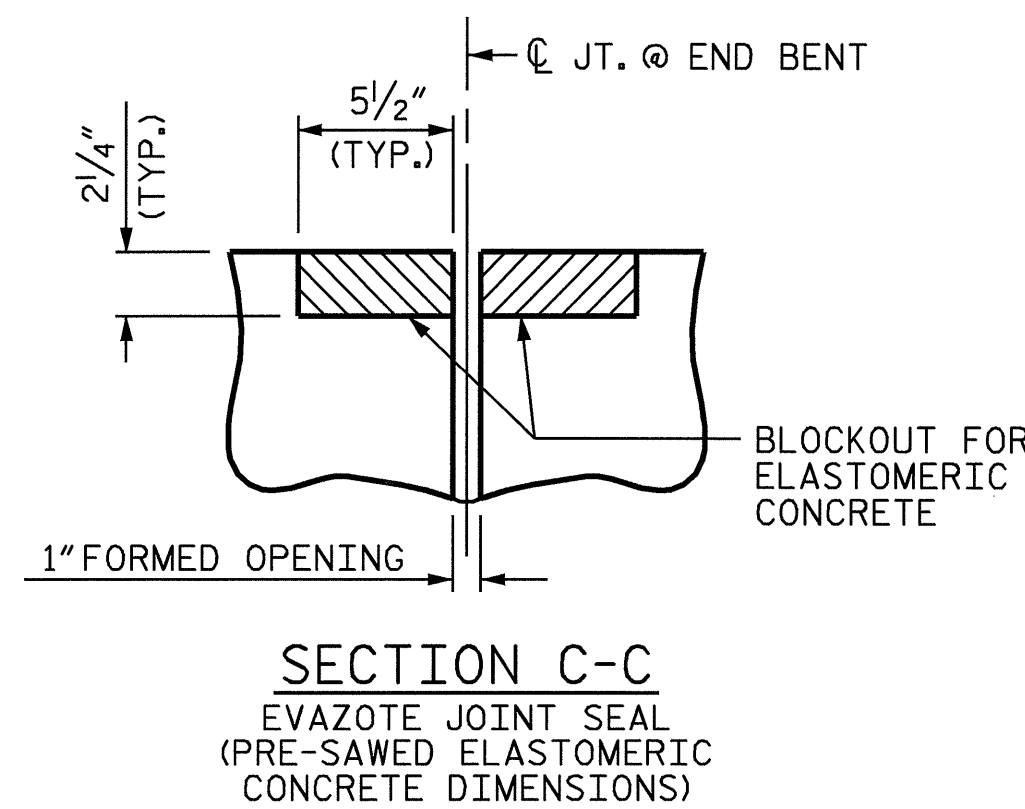
PROJECT NO. B-1037
 ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 2 OF 4

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			54



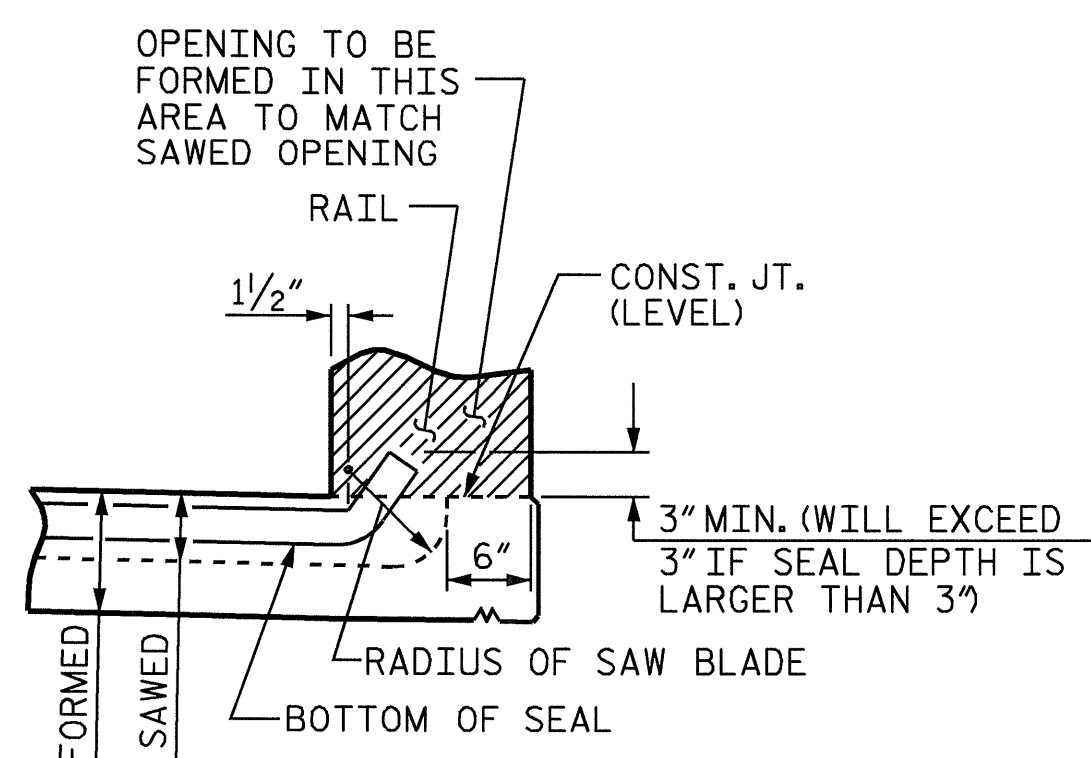
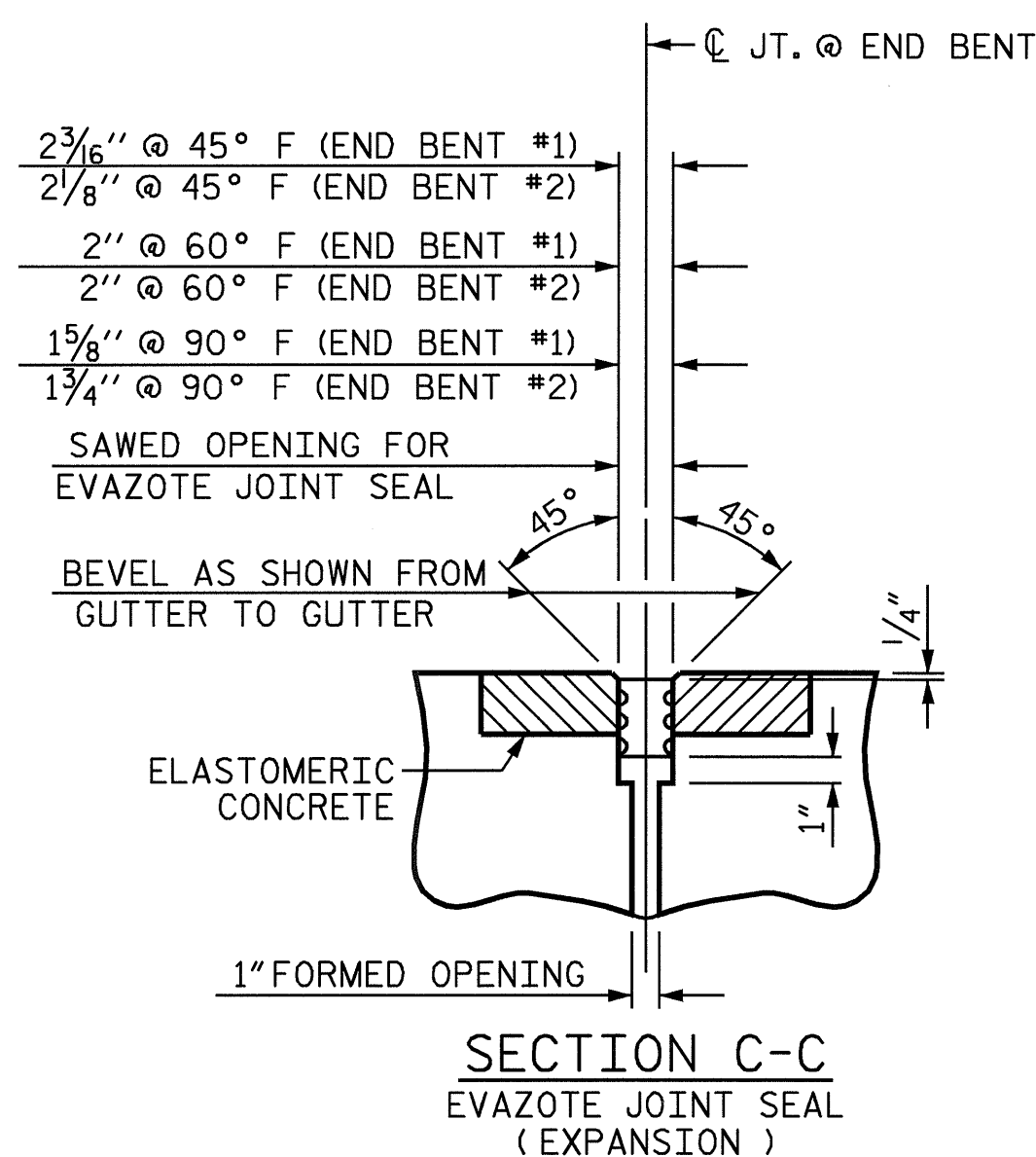
ASSEMBLED BY : D. A. GLADDEN DATE : 9-4-08
 CHECKED BY : A. DAVENPORT DATE : 2-18-09
 DRAWN BY : EEM 3/95 REV. 7/10/01 LES/RDR
 CHECKED BY : VAP 3/95 REV. 5/7/03R RHW/JTE
 REV. 5/1/06R KMM/GM



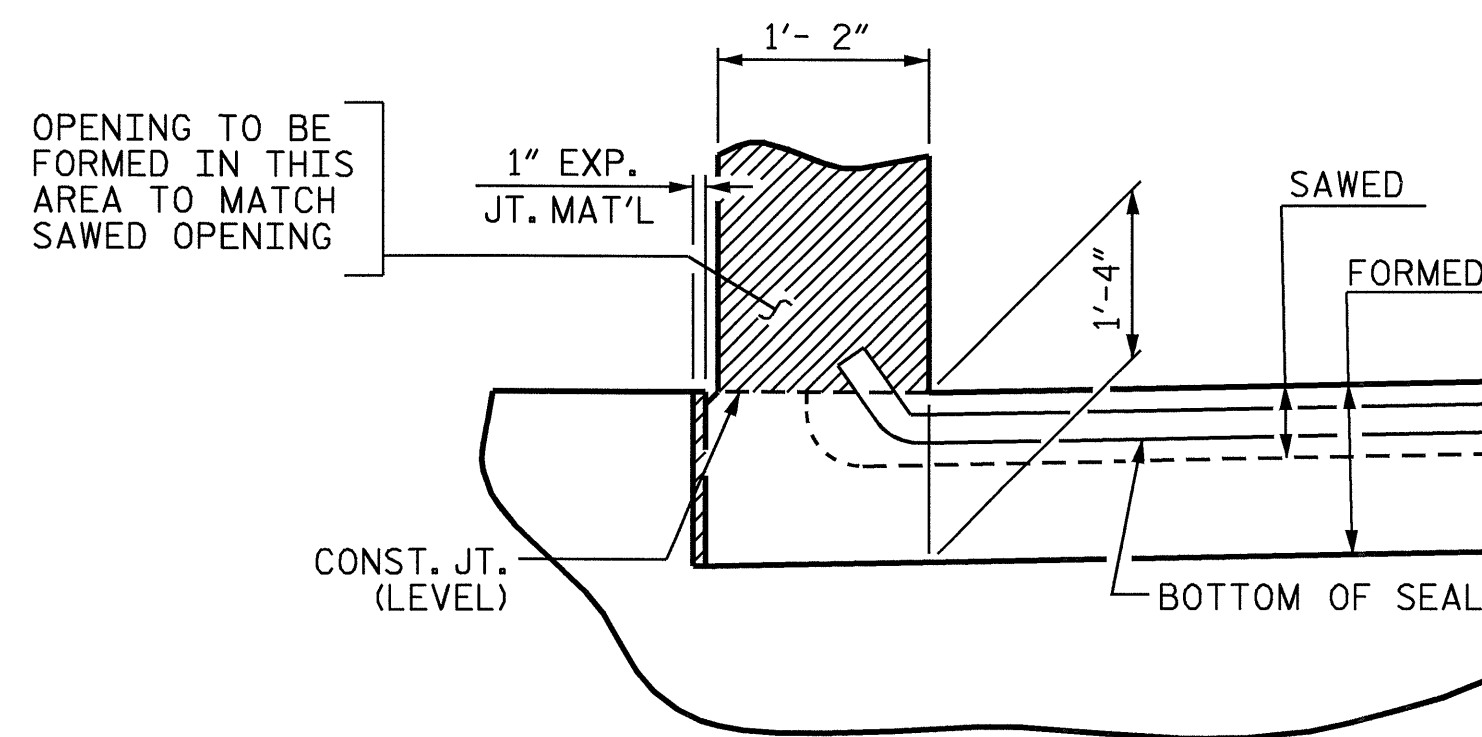
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



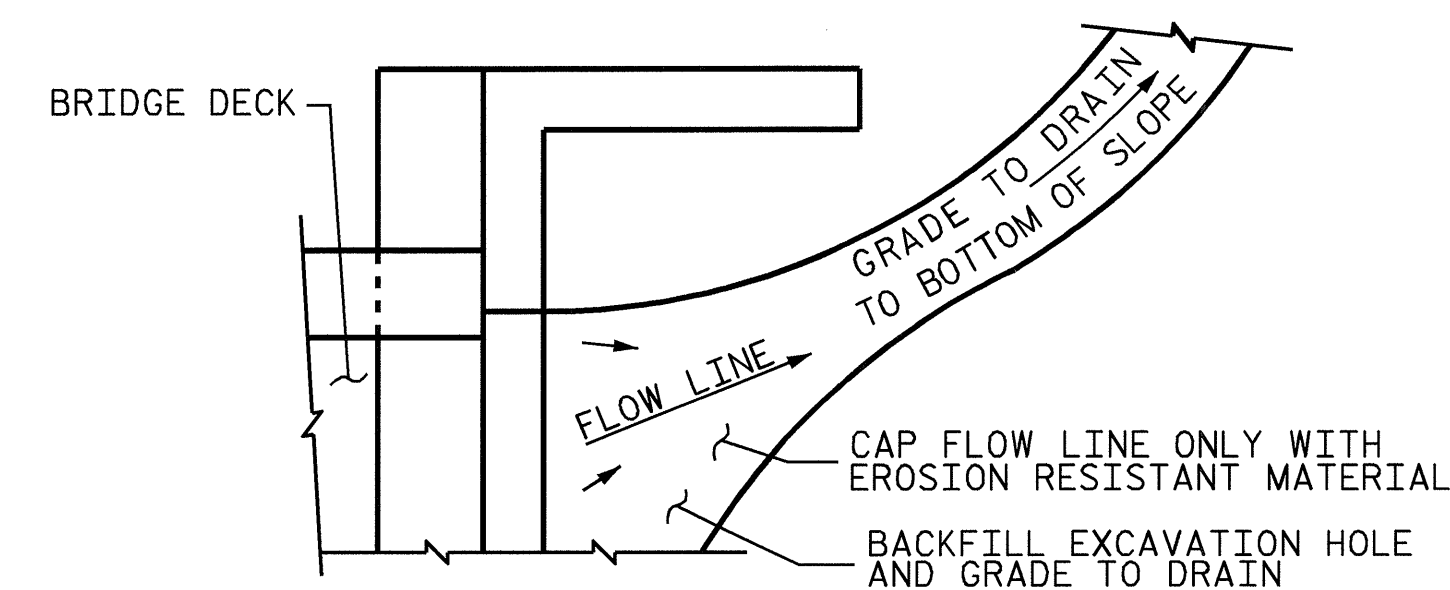
SECTION A-A



SECTION B-B

JOINT SEAL DETAILS @ END BENT

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE CLASSIC RAIL.



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

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	4.8
2	4.8
TOTAL	9.6

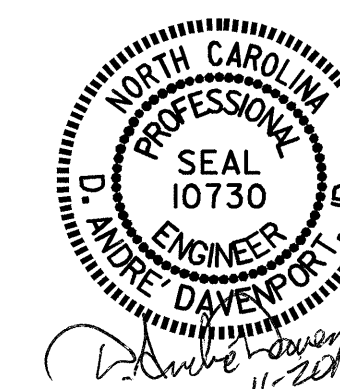
* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB DETAILS



REVISIONS						SHEET NO. S-53
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 54
2			4			

ASSEMBLED BY : D. A. GLADDEN DATE : 9-4-08
 CHECKED BY : A. DAVENPORT DATE : 2-18-09
 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

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.

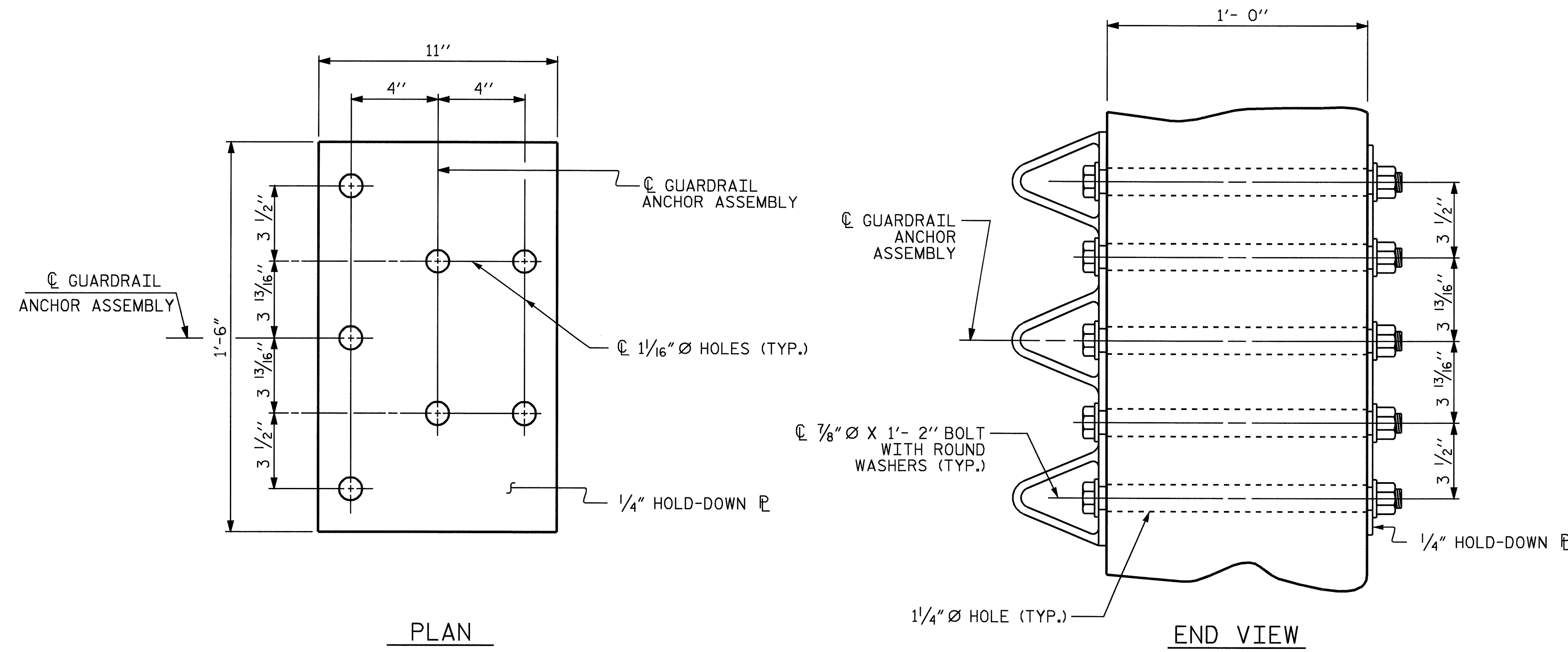
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

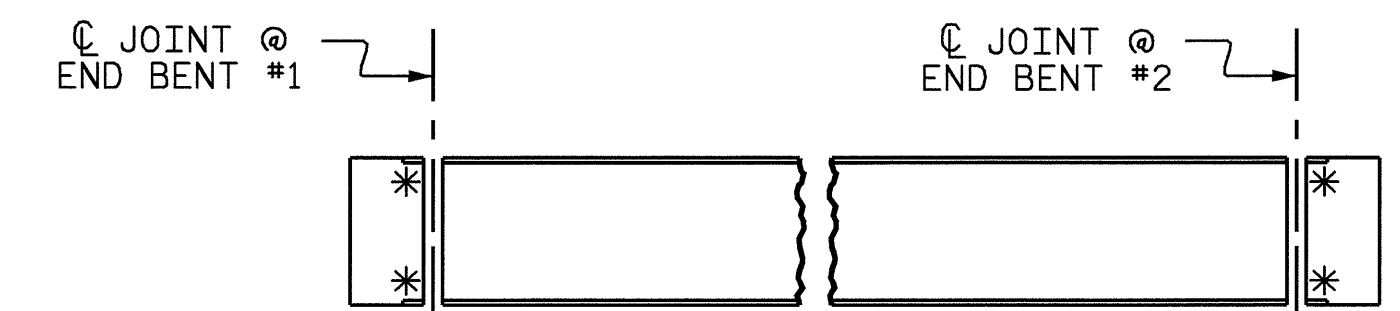
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

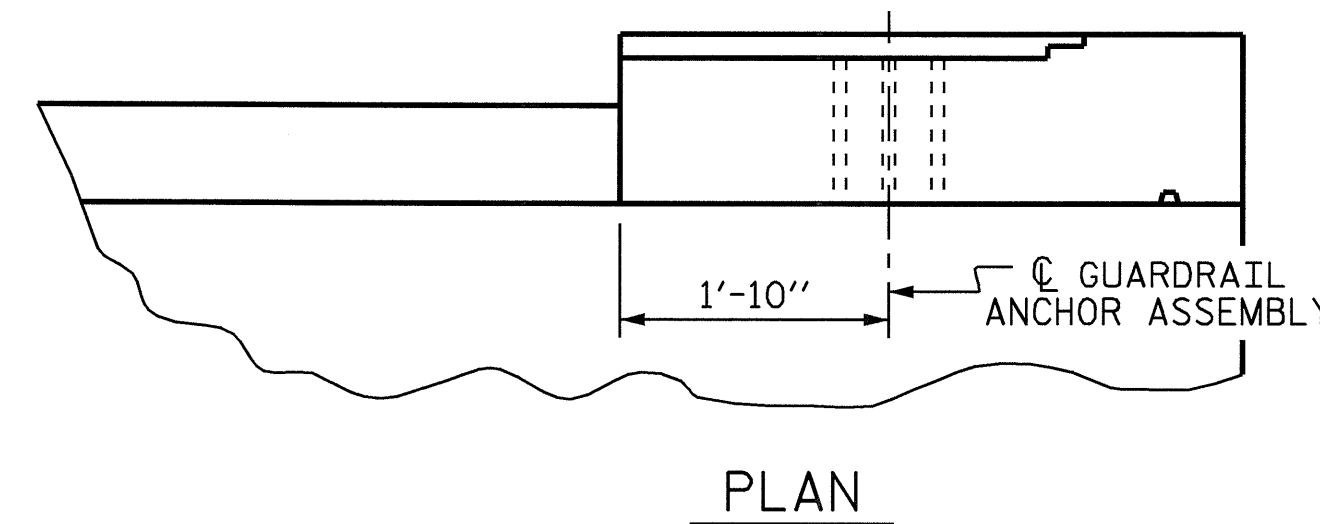
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



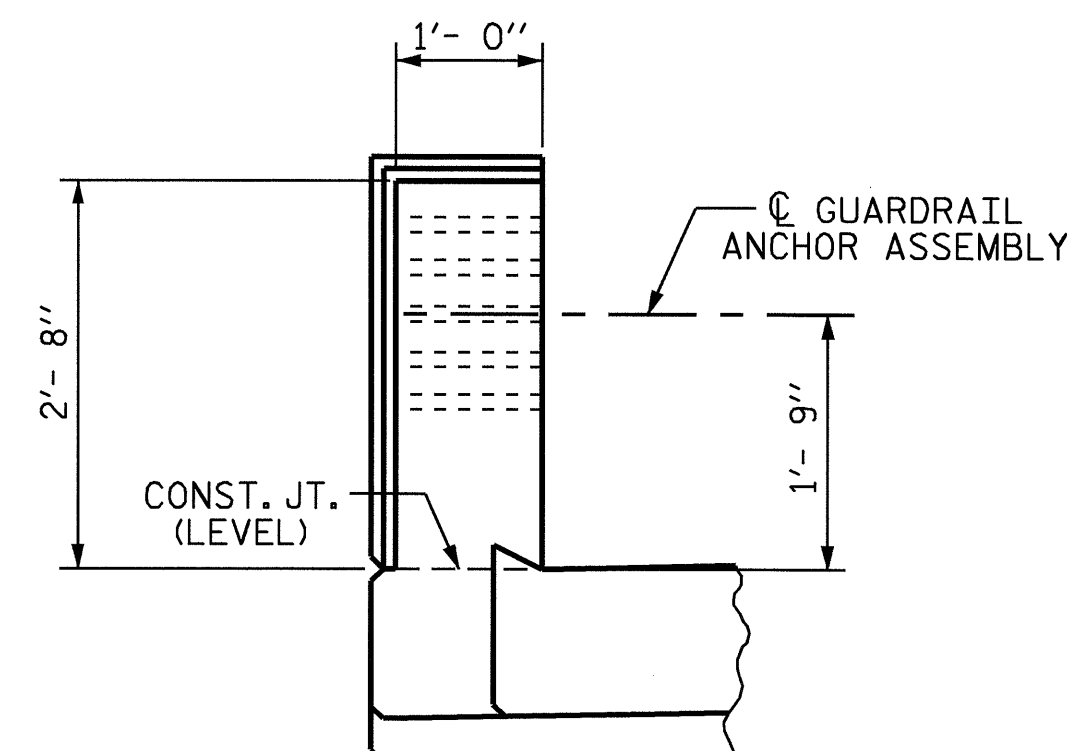
GUARDRAIL ANCHOR ASSEMBLY DETAILS



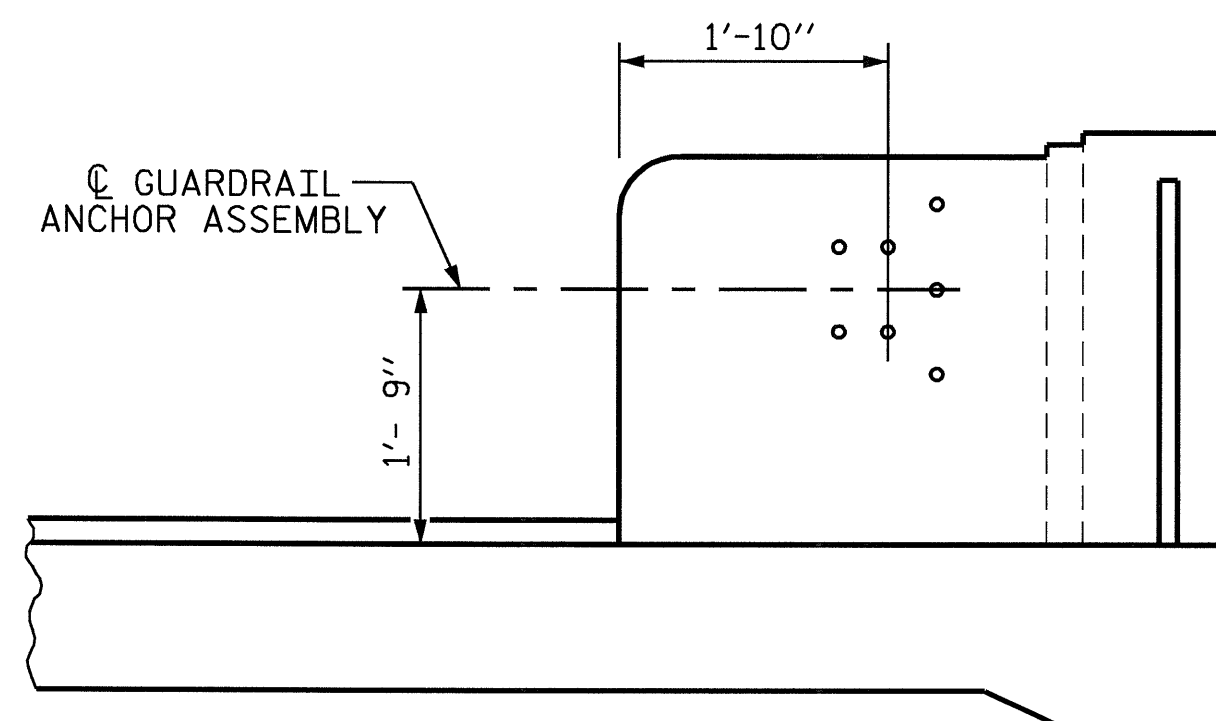
SKETCH SHOWING POINTS OF ATTACHMENT
* LOCATION OF GUARDRAIL ATTACHMENT



PLAN



END VIEW
(CLASSIC RAIL)



ELEVATION
(CLASSIC RAIL)

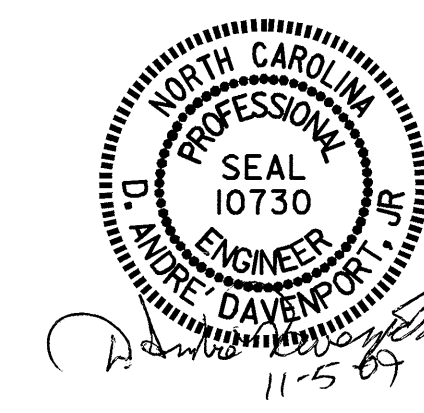
LOCATION OF GUARDRAIL ANCHOR

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 17+47.50 -L-

SHEET 4 OF 4

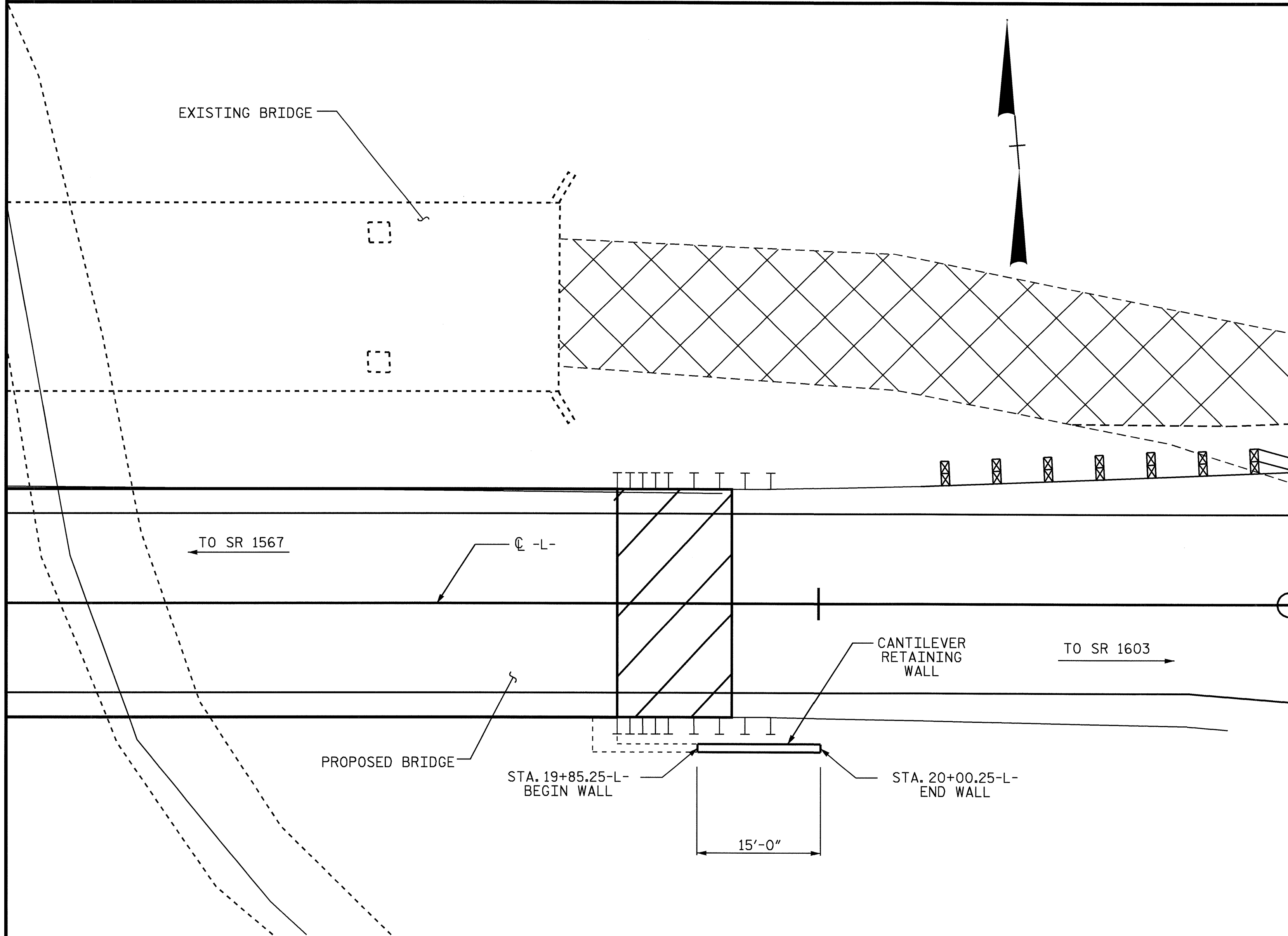
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GUARDRAIL ANCHORAGE
 DETAILS
 FOR CLASSIC RAIL



ASSEMBLED BY :	D. A. GLADDEN	DATE :	9-4-08
CHECKED BY :	A. DAVENPORT	DATE :	2-18-09
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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			54



LOCATION SKETCH

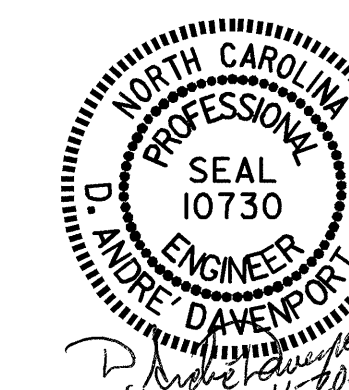
NOTES

- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-N.
- ALL REINFORCING STEEL SHALL BE GRADE 60.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.
- THE REQUIRED BEARING CAPACITY FOR THE SPREAD FOOTINGS FOR THE RETAINING WALL IS 3 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED BEARING CAPACITY JUST BEFORE PLACING CONCRETE.
- THE ALLOWABLE BEARING CAPACITY FOR SPREAD FOOTINGS FOR THE RETAINING WALL IS 1 TSF.
- THE WALL BACKFILL SHALL CONSIST OF THE SAME SELECT MATERIAL USED TO BACKFILL THE REINFORCED BRIDGE APPROACH SLAB, SEE ROADWAY PLANS. NO REINFORCING OF THE BACKFILL IS REQUIRED.

TOTAL BILL OF MATERIAL

CLASS A CONCRETE	14.5 CU. YDS.
REINFORCING STEEL	1080 LBS.
FOUNDATION EXCAVATION	60.0 CU. YDS.

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 19+92.75-L



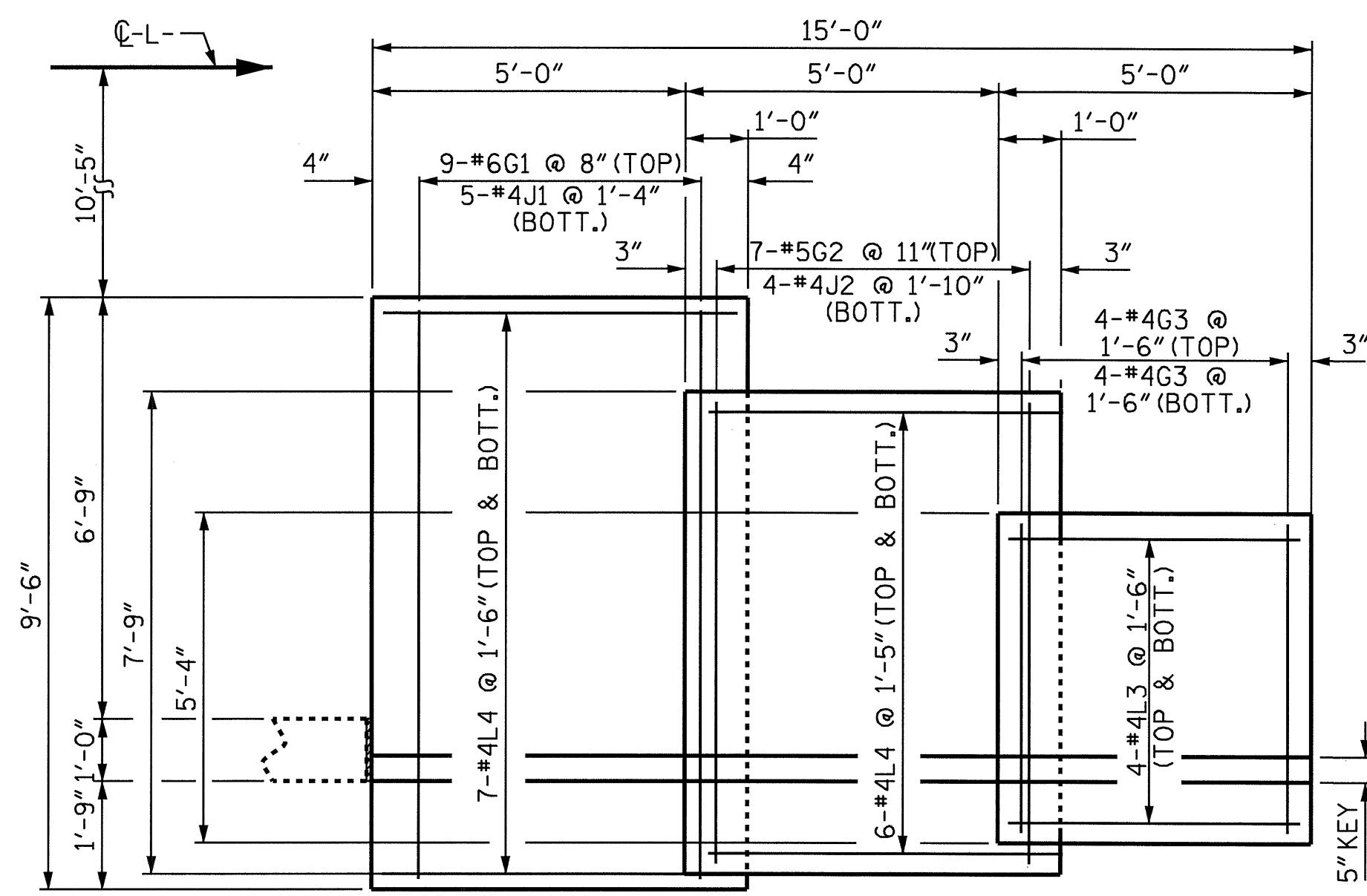
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

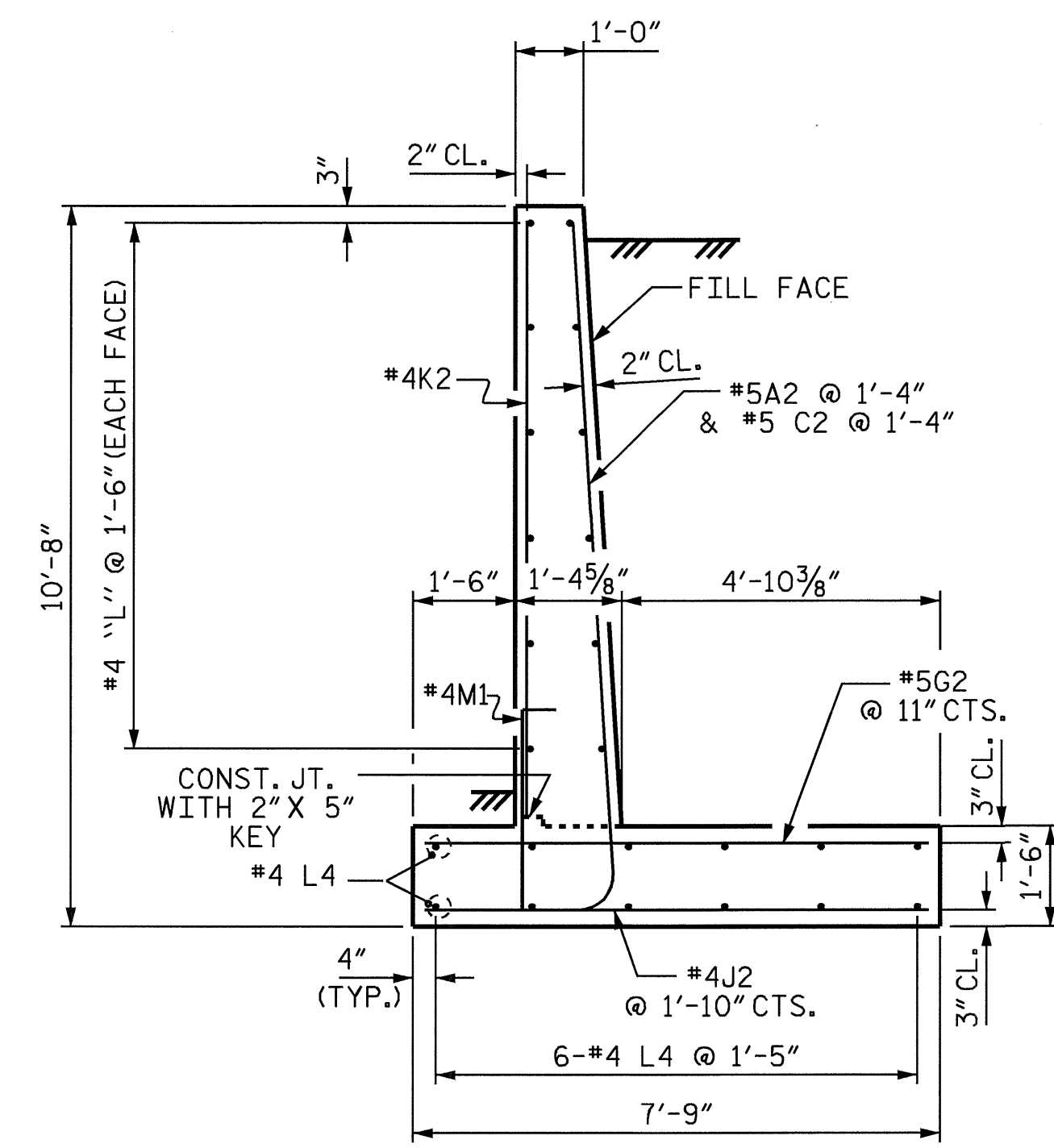
CANTILEVER
 RETAINING WALL

DRAWN BY : D.A. DAVENPORT DATE : 09/09
 CHECKED BY : G.W. DICKEY DATE : 09/09

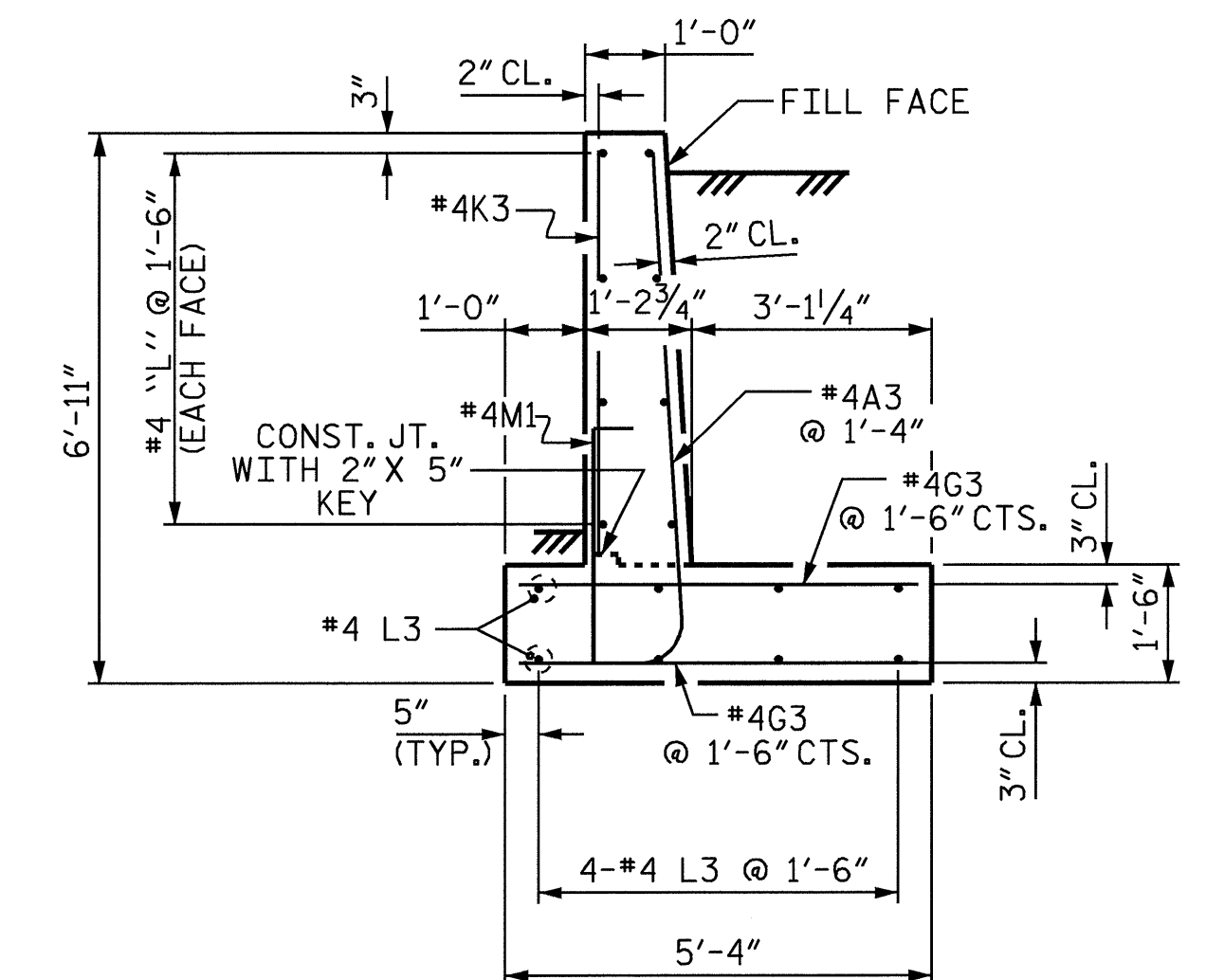
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	W-1
1			3			TOTAL SHEETS
2			4			3



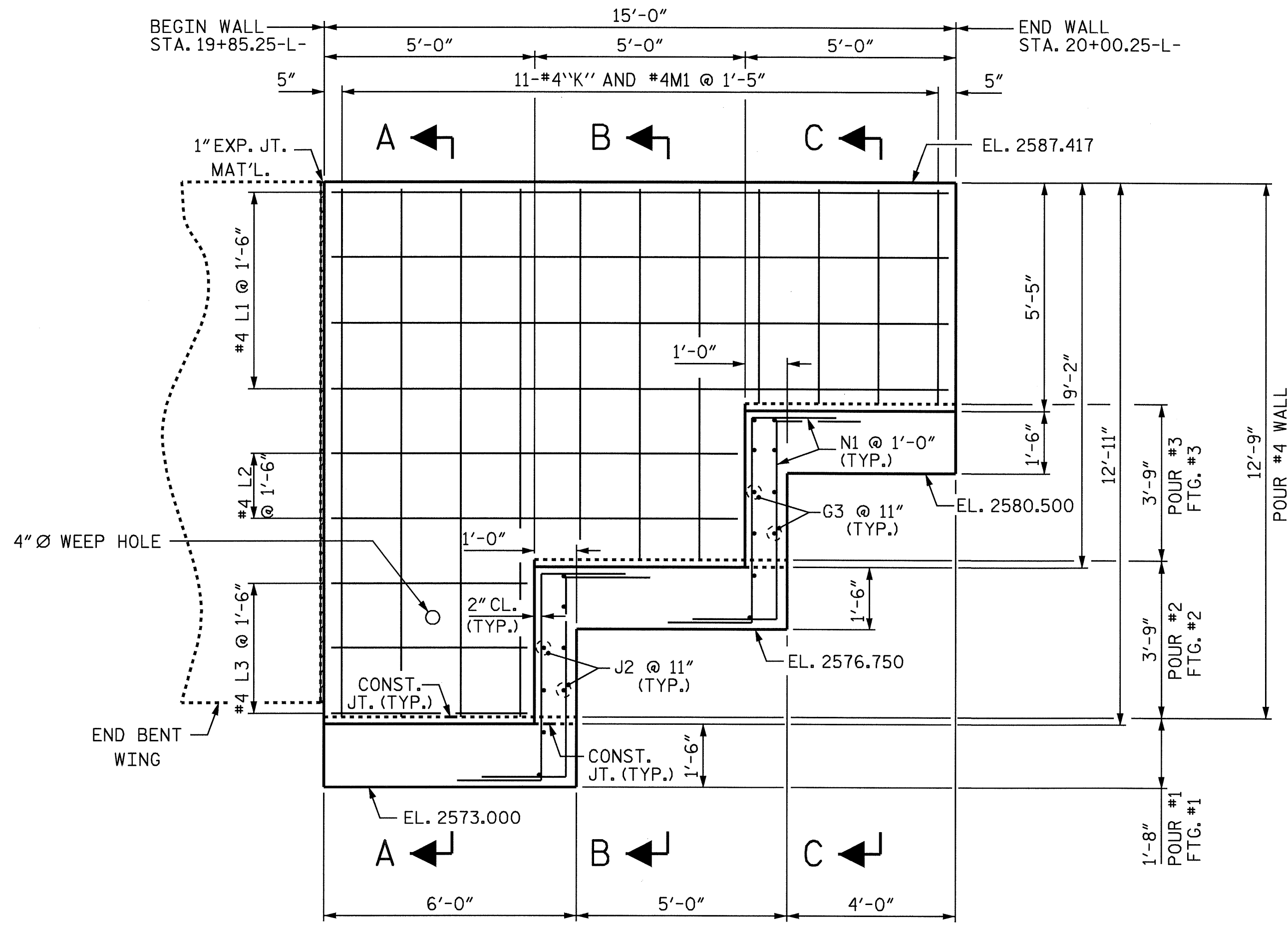
PLAN OF FOOTING



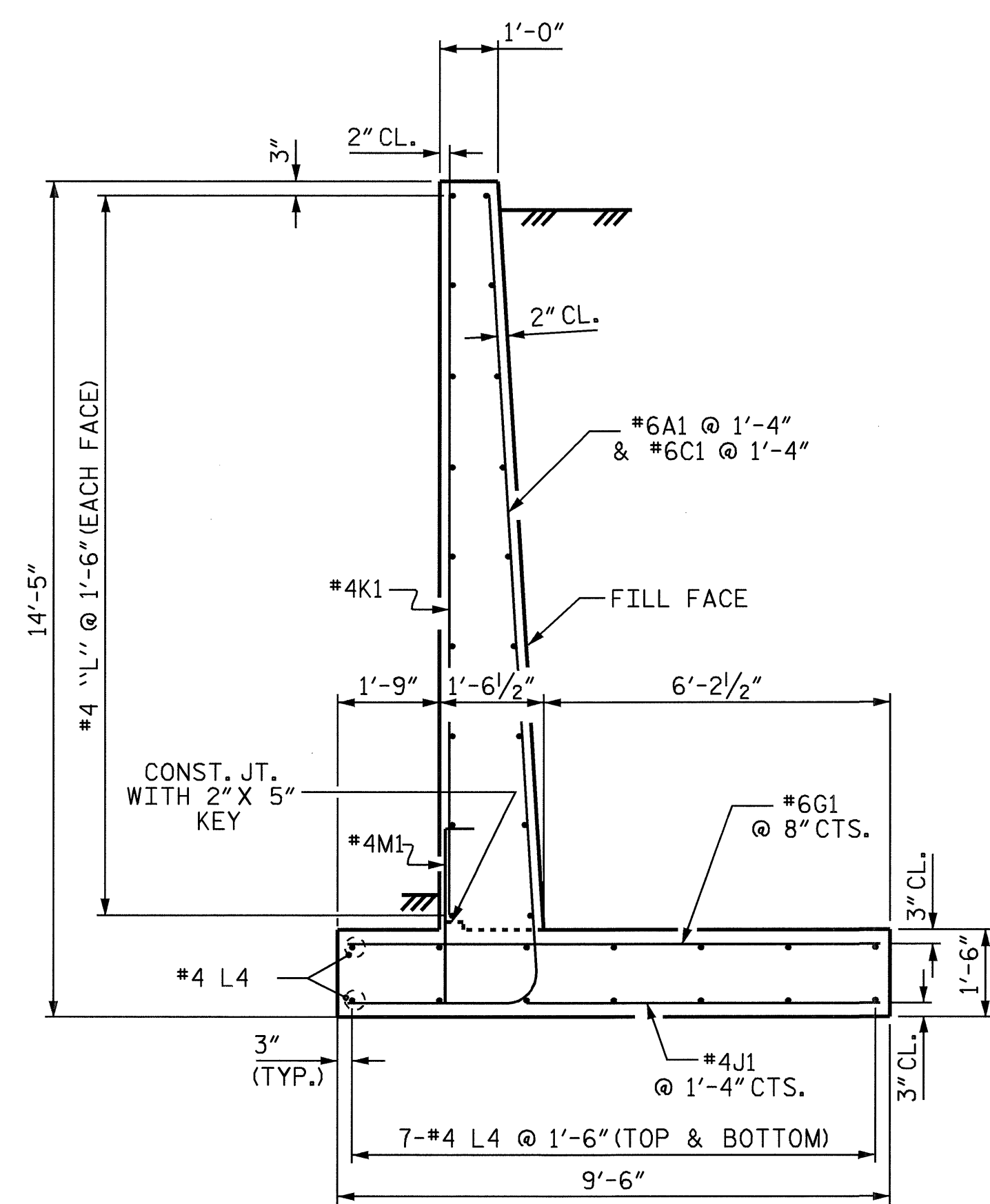
SECTION B-B



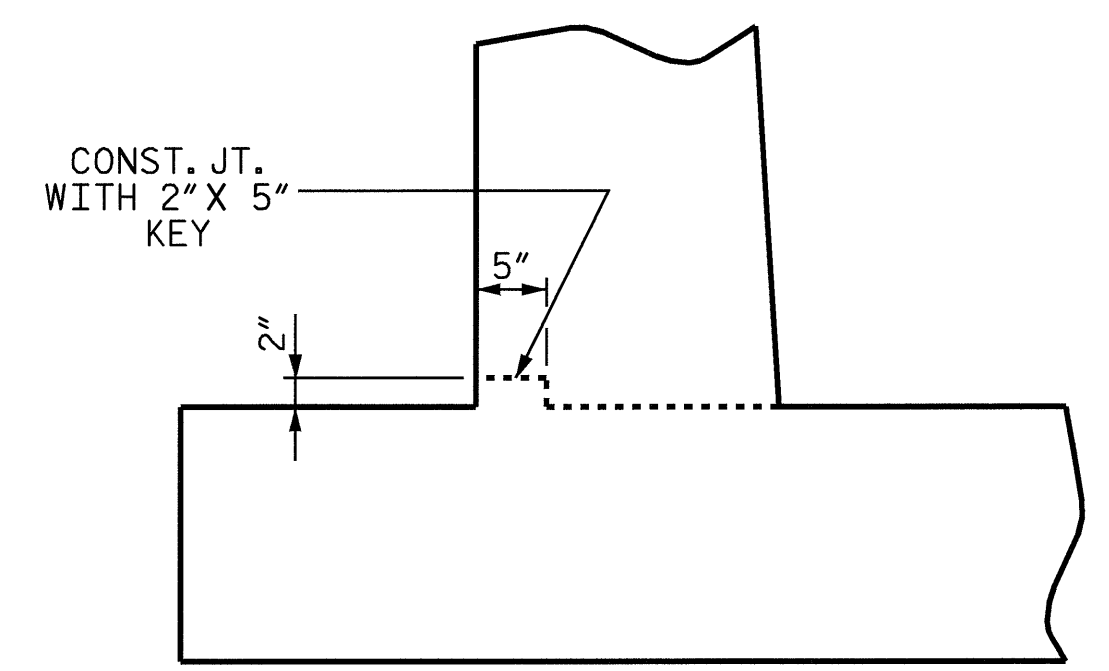
SECTION C-C



ELEVATION

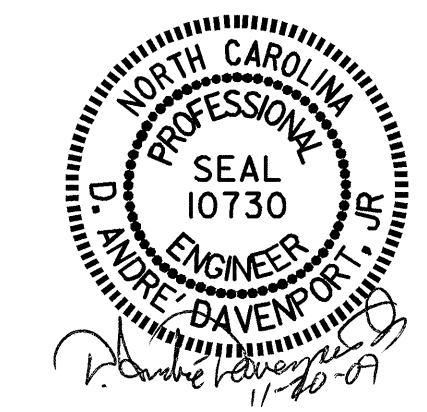


SECTION A-A



KEY DETAIL

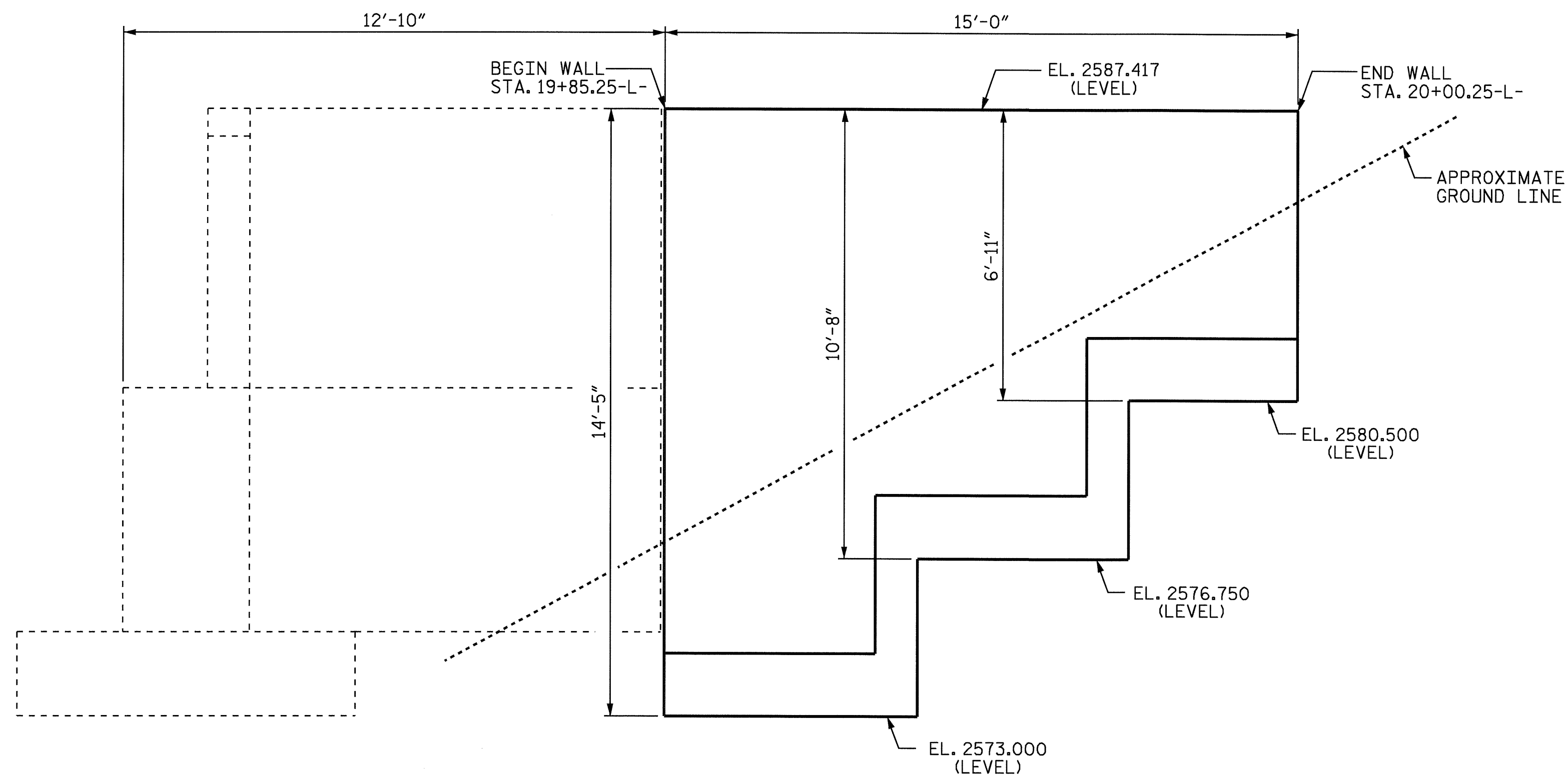
PROJECT NO. B-1037
ASHE COUNTY
 STATION: 19+92.75-L
 SHEET 2 OF 3



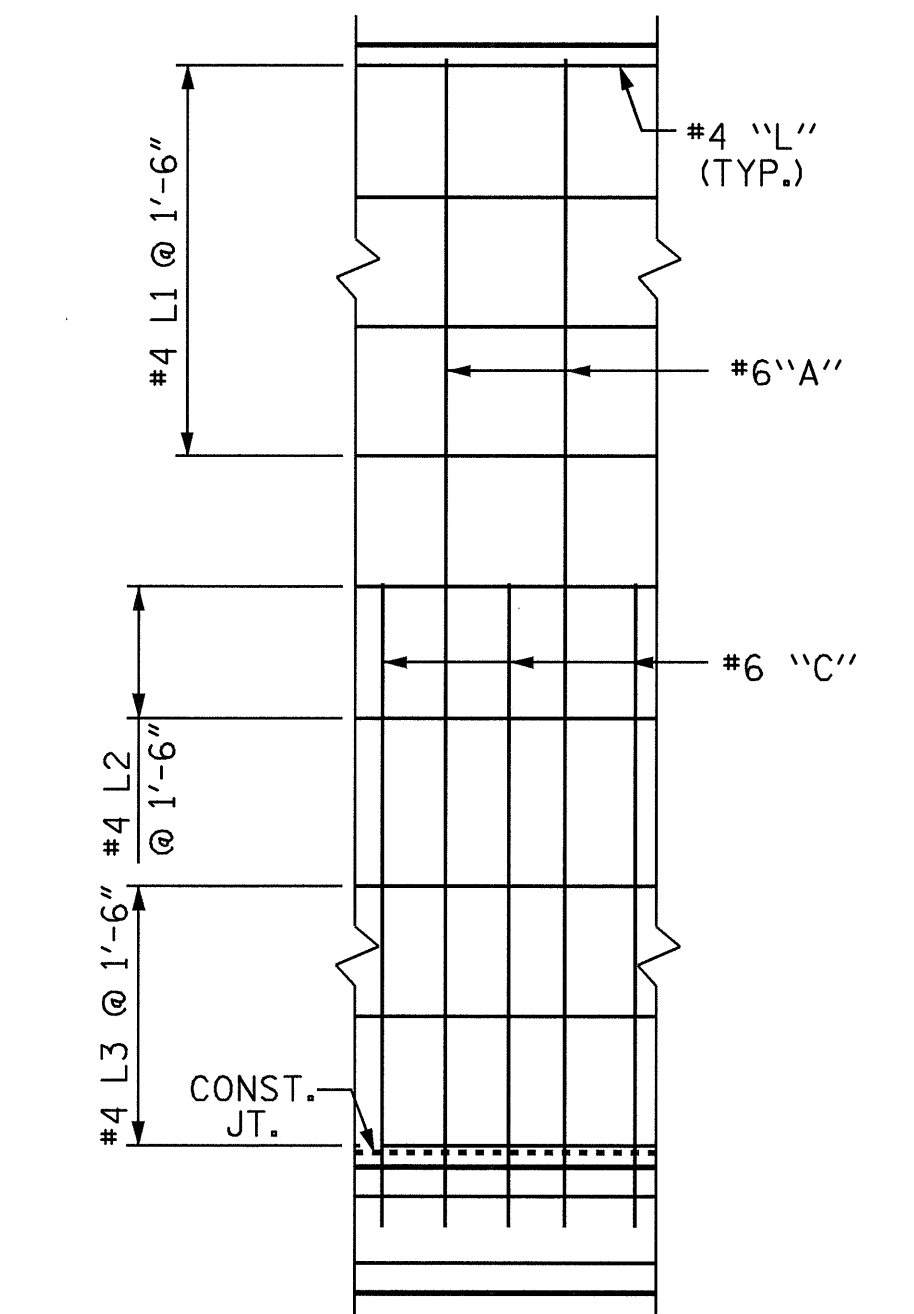
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CANTILEVER RETAINING WALL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. W-2
					TOTAL SHEETS 3

DRAWN BY: D.A. DAVENPORT DATE: 09/09
 CHECKED BY: G.W. DICKEY DATE: 09/09

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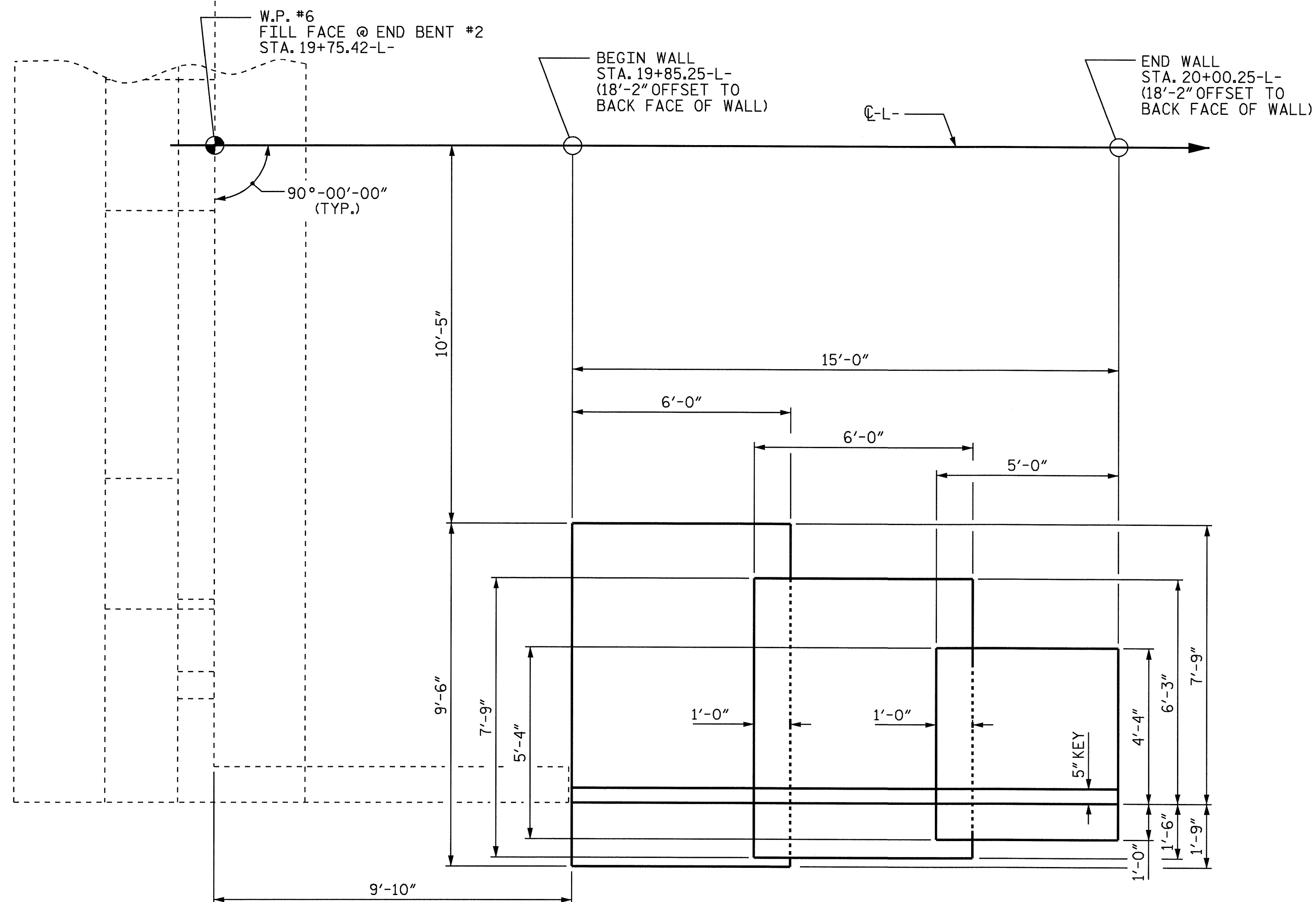
WALL ENVELOPE



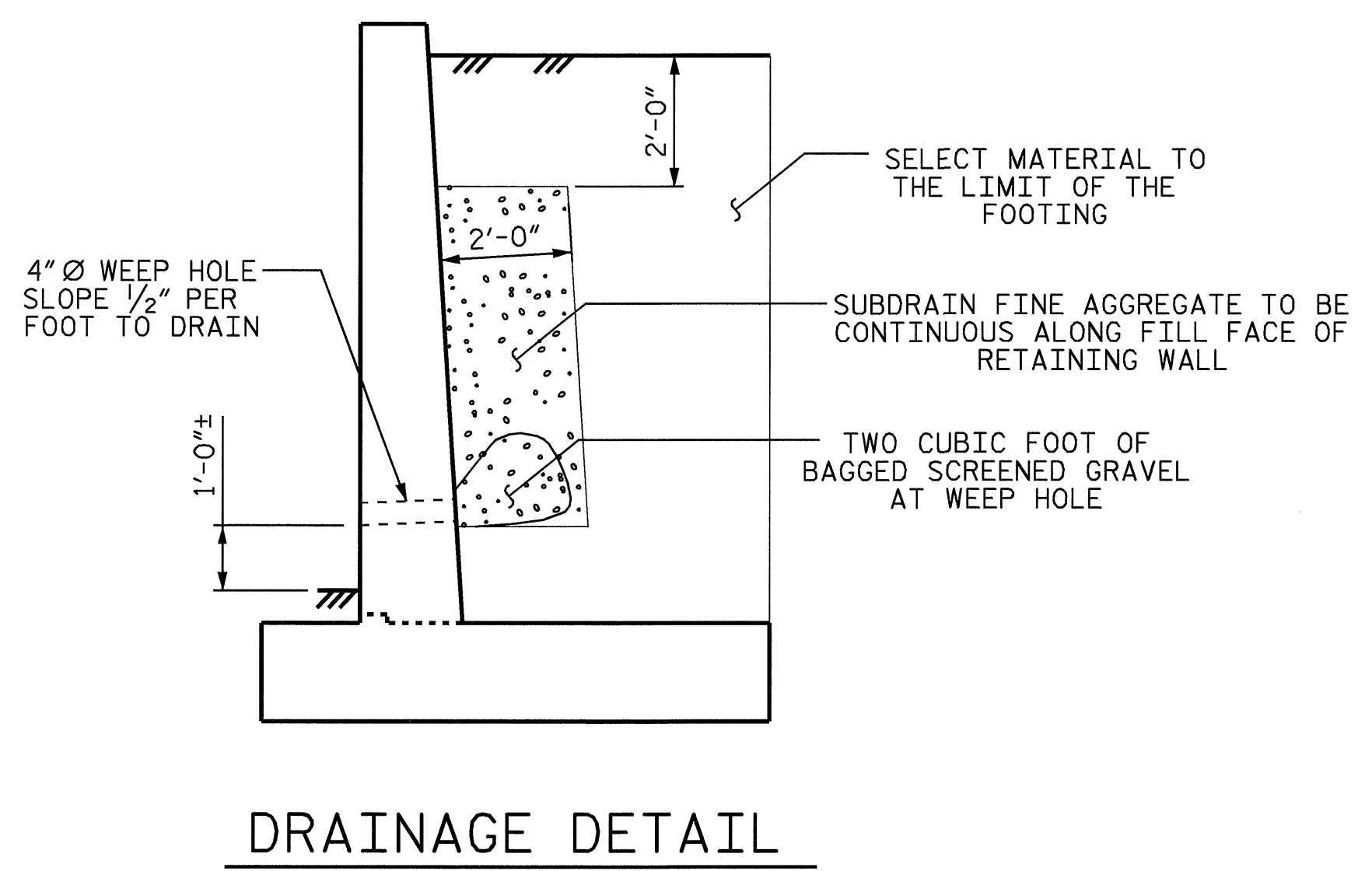
PARTIAL ELEVATION

(SHOWING "A" BAR AND "C" BAR RELATIONSHIP)

BAR TYPES		BILL OF MATERIAL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	4	#6	1	16'-7"	100	
A2	4	#5	1	12'-6"	52	
A3	4	#4	1	8'-1"	22	
C1	4	#6	1	9'-4"	56	
C2	4	#5	1	7'-9"	32	
G1	9	#6	STR	9'-2"	124	
G2	7	#5	STR	7'-5"	54	
G3	14	#4	STR	5'-0"	47	
J1	5	#4	STR	9'-2"	31	
J2	12	#4	STR	7'-5"	59	
K1	4	#4	STR	12'-7"	34	
K2	3	#4	STR	8'-10"	18	
K3	4	#4	STR	5'-1"	14	
L1	8	#4	STR	14'-8"	78	
L2	4	#4	STR	9'-8"	26	
L3	14	#4	STR	4'-8"	44	
L4	26	#4	STR	5'-8"	98	
M1	11	#4	STR	3'-6"	26	
N1	28	#4	2	8'-10"	165	
REINFORCING STEEL WALL				1080 LBS		
CLASS A CONCRETE						
POUR #1 FTG. 1				3.2	CY	
POUR #2 FTG. 2				3.2	CY	
POUR #3 FTG. 3				1.9	CY	
POUR #4 WALL				6.2	CY	
TOTAL				14.5	CY	



FOOTING LAYOUT



DRAINAGE DETAIL

PROJECT NO. B-1037
ASHE COUNTY
 STATION: 19+92.75-L
 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**CANTILEVER
 RETAINING WALL**



DRAWN BY : D.A. DAVENPORT DATE : 09/09
 CHECKED BY : G.W. DICKEY DATE : 09/09

20-NOV-2009 08:14
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REVISIONS			SHEET NO.	
NO.	BY:	DATE:	NO.	W-3
1			3	TOTAL SHEETS
2			4	3

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