

STATE OF NORTH CAROLINA
RAIL DIVISION



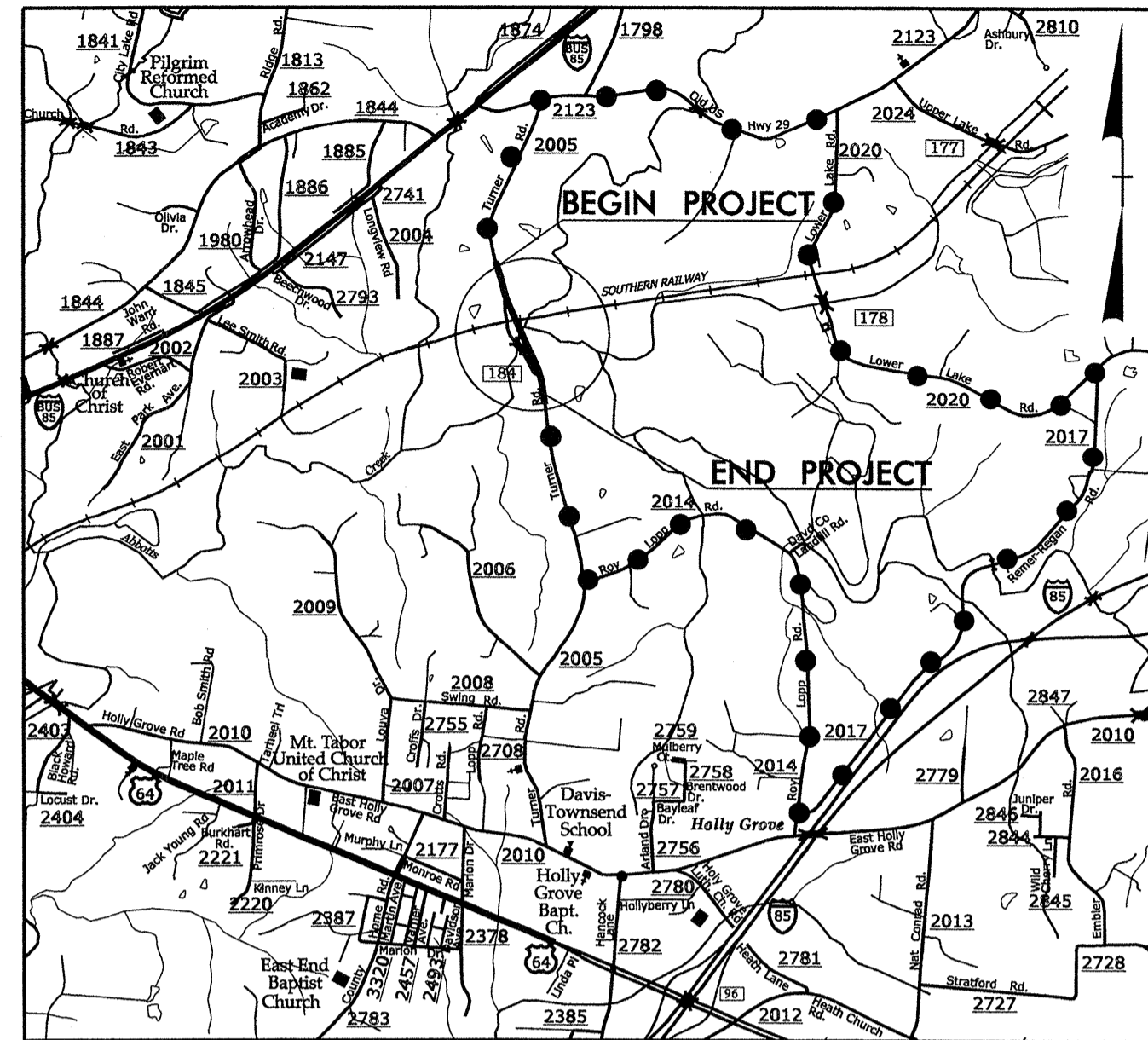
F.A. PROJECT: FRA-FR-HSR-0006-10-01-00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	C-4901C	TS-01	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49010.1.STR07TIB		PE, UTIL PE	
49010.1.STR08T3		PE, UTIL PE	
43219.2.STR02C4901		RW	
49010.3.STR03T4E		UTIL CONST	
49010.3.STR03T4E		CONST	

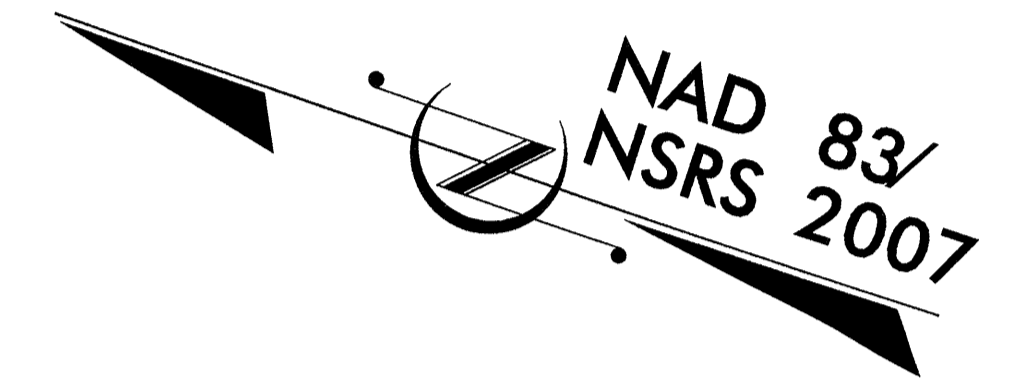
DAVIDSON COUNTY

LOCATION: TURNER ROAD (SR 2005) GRADE SEPARATION OVER
HAMBY CREEK AND NS/NCRR RAILROAD

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



VICINITY MAP
PROP. DETOUR
SEE TMP FOR PROP. TRUCK DETOUR



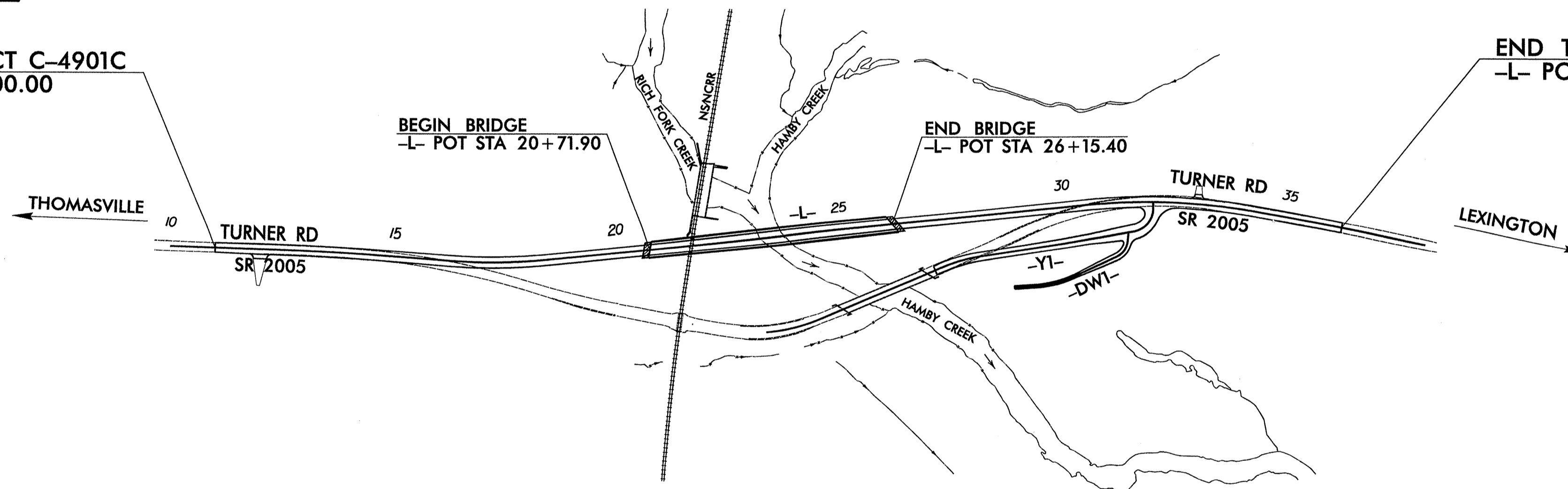
STRUCTURE

BEGIN TIP PROJECT C-4901C
-L- POT STA 11+00.00

BEGIN BRIDGE
-L- POT STA 20+71.90

END BRIDGE
-L- POT STA 26+15.40

END TIP PROJECT C-4901C
-L- POT STA 36+25.00



TIP PROJECT: C-4901C

CONTRACT: C203142

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DESIGN DATA	
ADT 2013	= 1700
ADT 2033	= 2500
DHV	= 9%
D	= 60%
T	= 15%*
V	= 60 MPH
* TTST = 2% DUAL 13%	
FUNC CLASS = LOCAL	
SUBREGIONAL TIER	

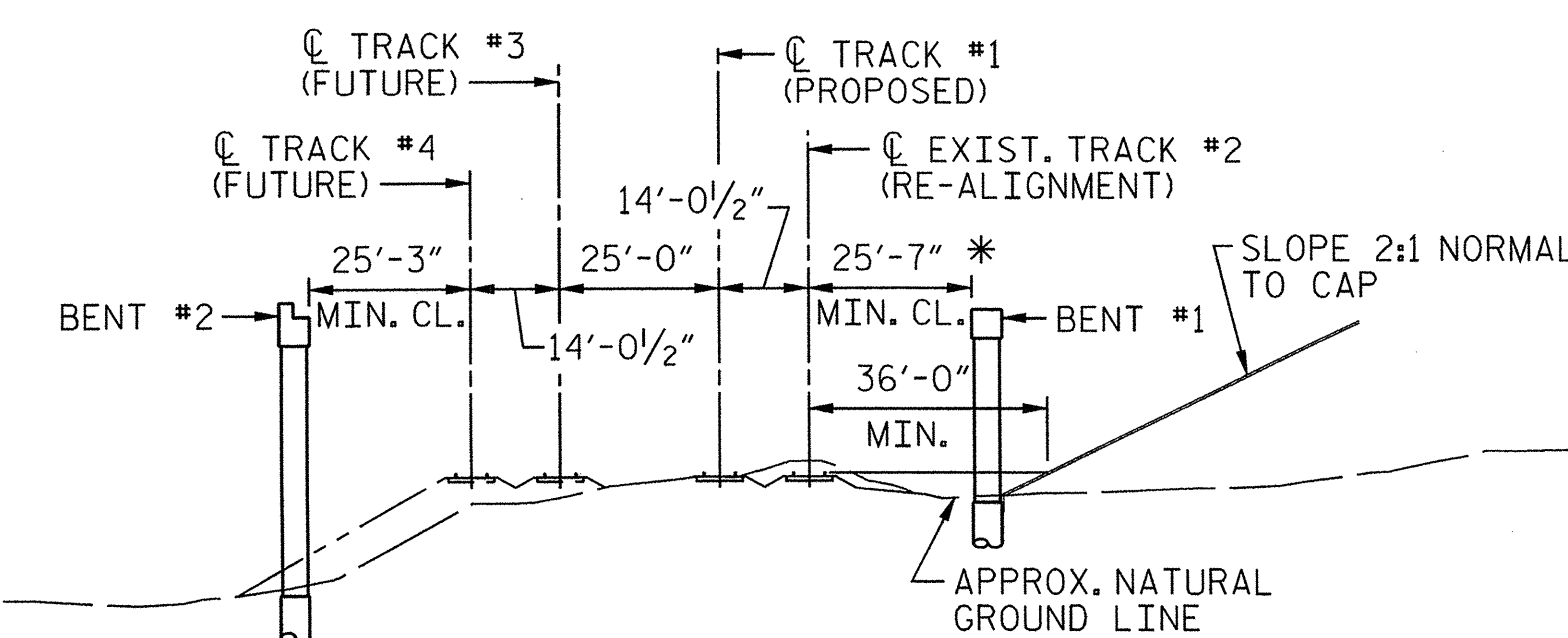
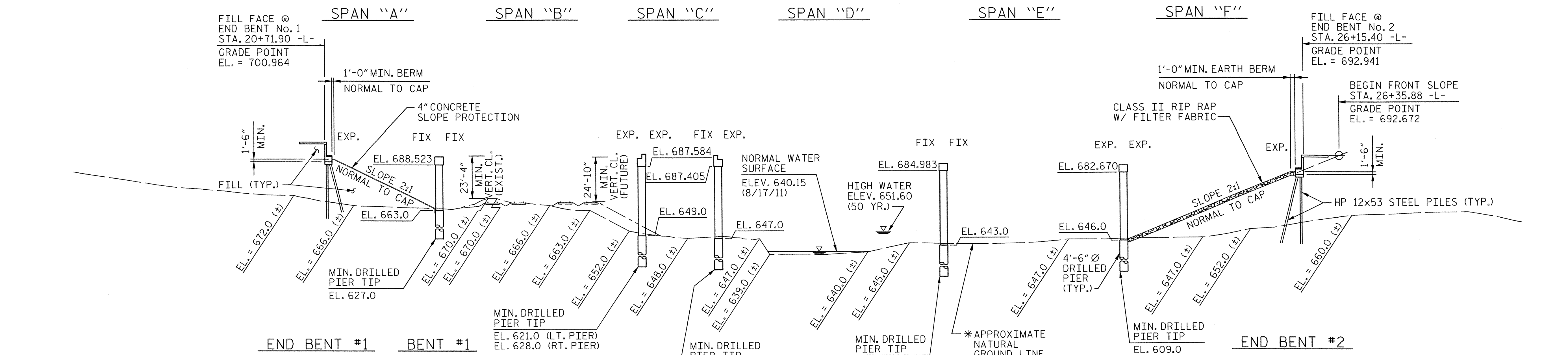
PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT C-4901C	= 0.375 MILES
LENGTH STRUCTURES TIP PROJECT C-4901C	= 0.103 MILES
TOTAL LENGTH TIP PROJECT C-4901C	= 0.478 MILES
NCDOT CONTACT: SANDRA STEPNEY, PE PROJECT ENGINEER	

Prepared in the Office of:	
AECOM NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)	
FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION	
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	APRIL 30, 2012
LETTING DATE:	MARCH 19, 2013
	LEN HILL, PE PROJECT ENGINEER
	CLAUDETTE M.K. ROQUE, PE PROJECT DESIGN ENGINEER

BRIDGE ENGINEER	
SIGNATURE:	

PLANNING AND DEVELOPMENT
CAPITAL YARD
156 MAIL SERVICE CENTER
RALEIGH, NC 27699-1166

710
700
690
680
670
660
650
640
630
620



HYDRAULIC DATA

DESIGN DISCHARGE	9,200 CFS
FREQUENCY OF DESIGN FLOOD	50 YR.
DESIGN HIGH WATER ELEVATION	651.60
DRAINAGE AREA	78.62 SQ. MI.
BASE DISCHARGE (Q 100)	10,200 CFS
BASE HIGH WATER ELEVATION	652.0

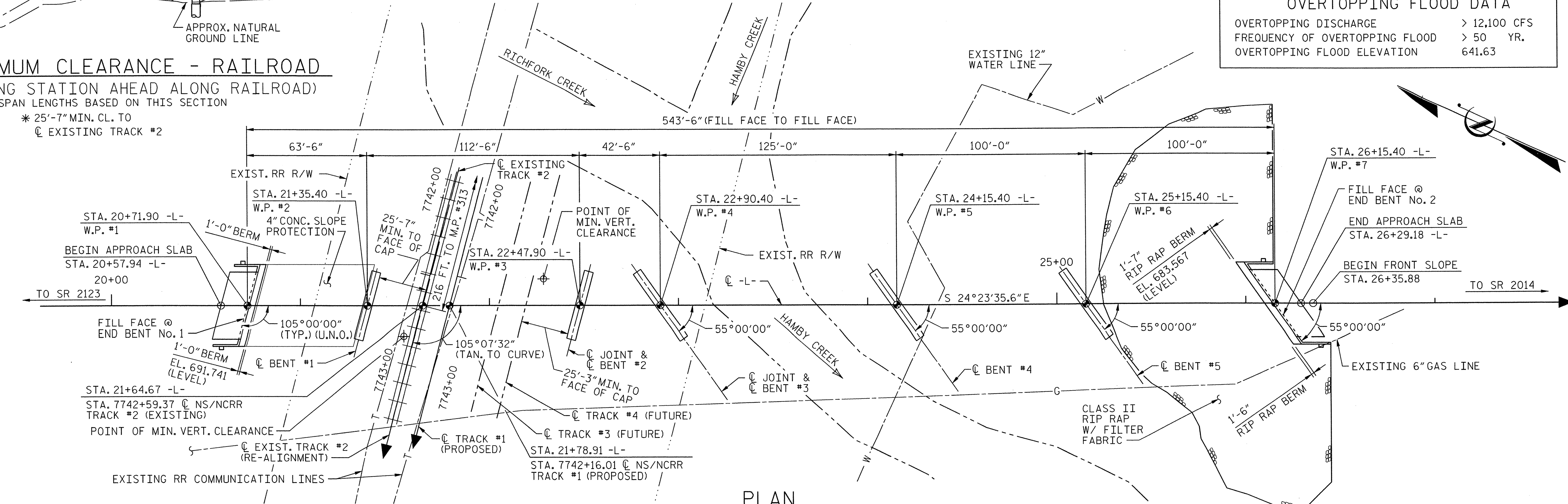
OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	> 12,100 CFS
FREQUENCY OF OVERTOPPING FLOOD	> 50 YR.
OVERTOPPING FLOOD ELEVATION	641.63

MINIMUM CLEARANCE - RAILROAD
(LOOKING STATION AHEAD ALONG RAILROAD)

SPAN LENGTHS BASED ON THIS SECTION

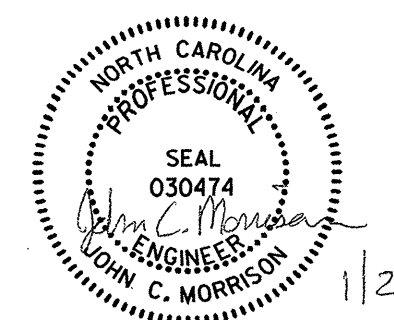
* 25'-7" MIN. CL. TO C EXISTING TRACK #2



BRIDGE NO. 563

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NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

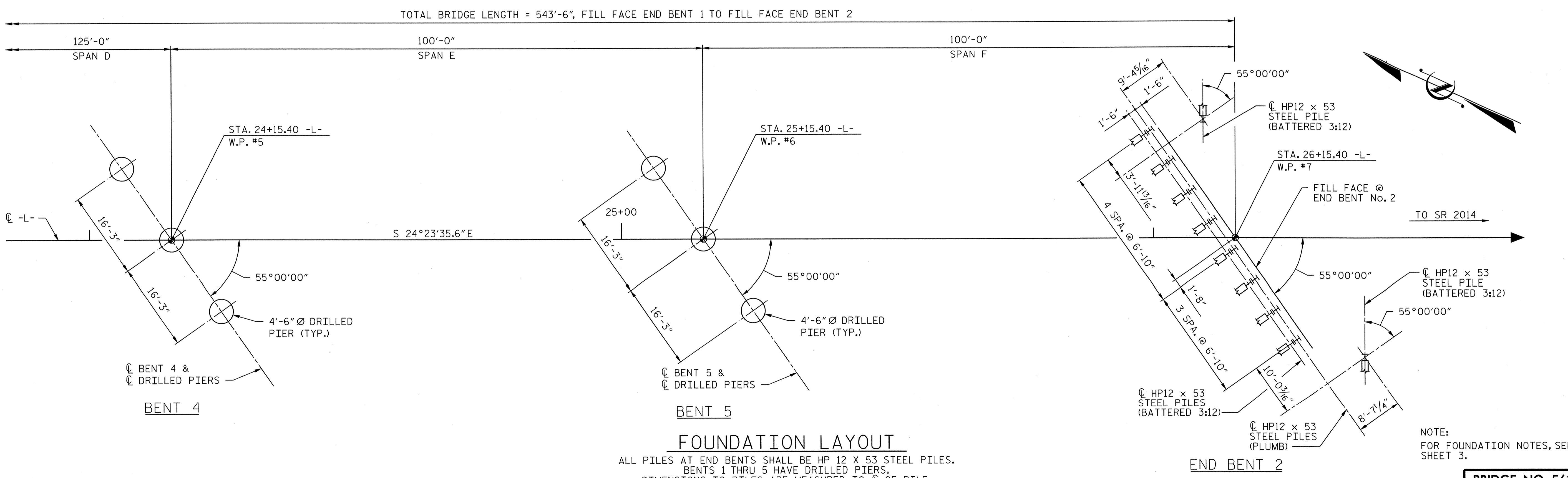
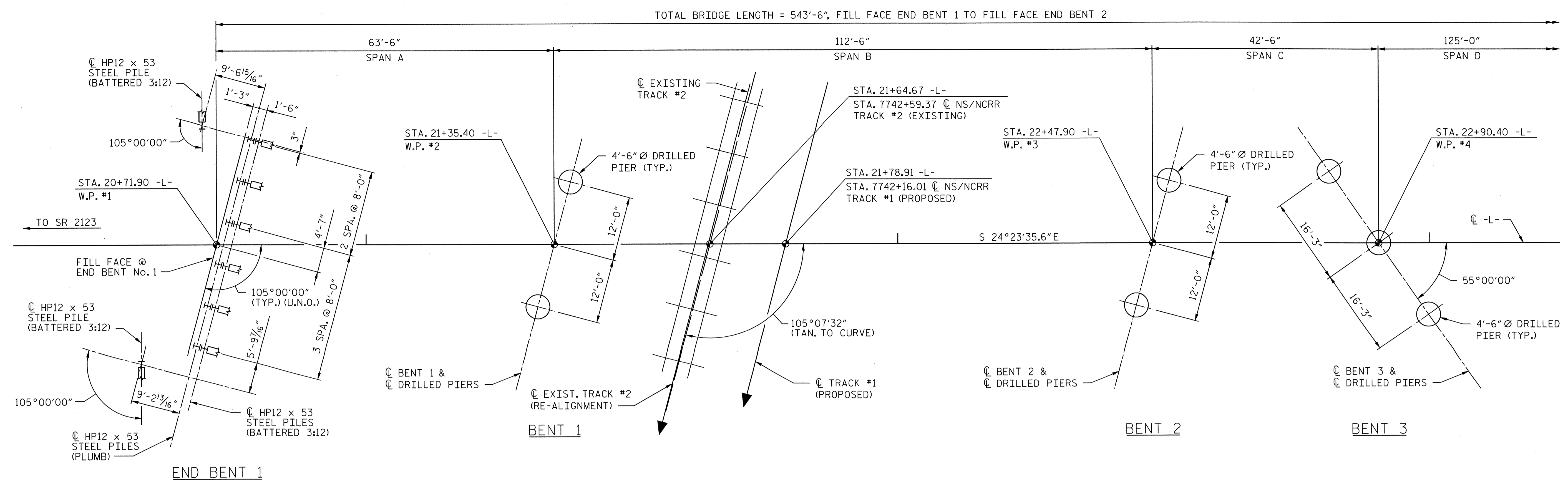
PREPARED BY: **AECOM**

AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-0342

PROJECT	C-4901C		
TITLE	GENERAL DRAWING PLAN AND ELEVATION		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
OWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1" = 30'
			SHEET 1 OF 72

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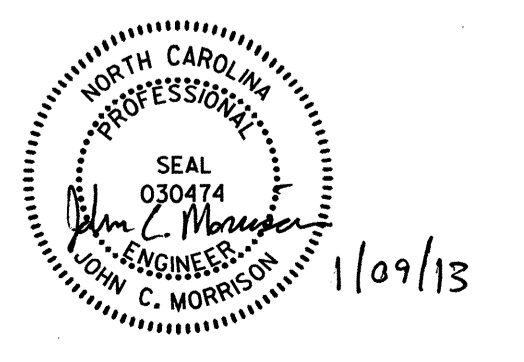
FOUNDATION LAYOUT

ALL PILES AT END BENTS SHALL BE HP 12 X 53 STEEL PILES.
 BENTS 1 THRU 5 HAVE DRILLED PIERS.
 DIMENSIONS TO PILES ARE MEASURED TO C OF PILE.

NOTE:
 FOR FOUNDATION NOTES, SEE SHEET 3.

BRIDGE NO. 563

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

AECOM

AECOM TECHNICAL SERVICES, INC.
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 AECOM License No. F-6242

PREPARED BY: *[Signature]* 1/09/13

PROJECT		C-4901C	
TITLE		GENERAL DRAWING FOUNDATION LAYOUT	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1"=10'
		DRAWING S-02	
		SHEET 2 OF 72	

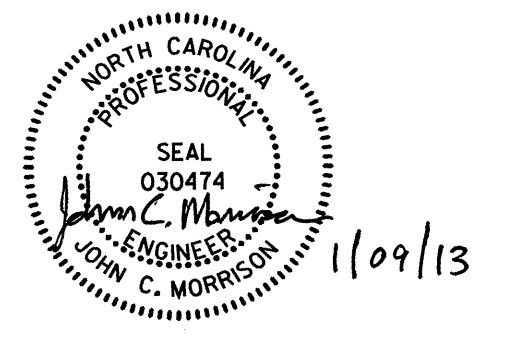
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lower.yd

FOUNDATION NOTES:

1. PILES AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 106 TONS PER PILE.
2. DRIVE PILES AT END BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 177 TONS PER PILE.
3. PILES AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE.
4. DRIVE PILES AT END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 192 TONS PER PILE.
5. TESTING PILES WITH PDA DURING DRIVING, RESTRIKING AND REDRIVING MAY BE REQUIRED. ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
6. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATION.
7. DRILLED PIERS AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 556 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 50 TSF.
8. INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 627.0 FT, SATISFY THE REQUIRED TIP RESISTANCE AND HAVE A PENETRATION OF AT LEAST 10 FEET INTO ROCK AS DEFINED BY SECTION 411-1 OF THE STANDARD SPECIFICATIONS.
9. PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 636 FEET WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
10. DRILLED PIERS AT BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 528 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 50 TSF.
11. INSTALL LEFT DRILLED PIER AT BENT 2 THAT EXTENDS TO AN ELEVATION NO HIGHER THAN 621.0 FT SATISFIES THE REQUIRED TIP RESISTANCE, AND HAS A PENETRATION OF AT LEAST 12 FEET INTO ROCK AS DEFINED BY SECTION 411-1 OF THE STANDARD SPECIFICATIONS.
12. INSTALL RIGHT DRILLED PIER AT BENT 2 THAT EXTENDS TO AN ELEVATION NO HIGHER THAN 628.0 FT, SATISFIES THE REQUIRED TIP RESISTANCE, AND HAS A PENETRATION OF AT LEAST 11 FEET INTO ROCK AS DEFINED BY SECTION 411-1 OF THE STANDARD SPECIFICATIONS.
13. PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 2. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 639 FEET WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
14. DRILLED PIERS AT BENT 3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 411 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 50 TSF.
15. INSTALL LEFT AND CENTER DRILLED PIERS AT BENT 3 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 620.0 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 13 FEET INTO ROCK AS DEFINED BY SECTION 411-1 OF THE STANDARD SPECIFICATIONS.
16. INSTALL RIGHT DRILLED PIER AT BENT 3 THAT EXTENDS TO AN ELEVATION NO HIGHER THAN 628.0 FT, SATISFIES THE REQUIRED TIP RESISTANCE, AND HAS A PENETRATION OF AT LEAST 11 FEET INTO ROCK AS DEFINED BY SECTION 411-1 OF THE STANDARD SPECIFICATIONS.
17. PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 3. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 639 FEET WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
18. DRILLED PIERS AT BENT 4 ARE DESIGNED FOR A FACTORED RESISTANCE OF 492 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 50 TSF.
19. INSTALL DRILLED PIERS AT BENT 4 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 615.0 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 11 FEET INTO ROCK AS DEFINED BY SECTION 411-1 OF THE STANDARD SPECIFICATIONS.
20. PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 4. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 626 FEET WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
21. DRILLED PIERS AT BENT 5 ARE DESIGNED FOR A FACTORED RESISTANCE OF 441 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 50 TSF.
22. INSTALL DRILLED PIERS AT BENT 5 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 609.0 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 12 FEET INTO ROCK AS DEFINED BY SECTION 411-1 OF THE STANDARD SPECIFICATIONS.
23. PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 5. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 620 FEET WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
24. SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTION, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
25. 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 SECTION 411 OF THE STANDARD SPECIFICATIONS.
26. FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
27. SCOUR CRITICAL ELEVATION FOR BENT 2 IS 648 FEET, NAVD. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
28. SCOUR CRITICAL ELEVATION FOR BENT 3 IS 645 FEET, NAVD. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
29. SCOUR CRITICAL ELEVATION FOR BENT 4 IS 640 FEET, NAVD. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
30. THE CONTRACTOR SHALL OBSERVE A ONE-MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT AT EACH END BENT TO THE BOTTOM OF CAP ELEVATION AND BEFORE BEGINNING ANY END BENT OR REINFORCED BRIDGE APPROACH FILL CONSTRUCTION.

BRIDGE NO. 563

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 884-8200 www.aecom.com
 AECOM License No. F24242

PROJECT		C-4901C	
TITLE		GENERAL DRAWING FOUNDATION NOTES	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	JCM	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	N.T.S.
		DRAWING	S-03
		SHEET 3 OF 72	

TOTAL BILL OF MATERIAL

	4'-6" Ø DRILLED PIERS IN SOIL	4'-6" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIER	SID INSPECTION	CSL TESTING	HP 12x53 STEEL PILES		PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	72" MODIFIED PRESTRESSED CONCRETE GIRDERS		45" PRESTRESSED CONCRETE GIRDERS		CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE
	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	NO.	LIN. FT.	NO.	SQ. FT.	SQ. FT.	CU. YD.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	LIN. FT.
SUPERSTRUCTURE	—	—	—	—	—	—	—	—	20153	17636	—	LUMP SUM	—	—	20	1976.83	4	167.67	1082	1070
END BENT 1	—	—	—	—	—	14	630	1	—	—	44.5	—	5881	—	—	—	—	—	—	—
BENT 1	50.0	22.0	54.0	—	—	—	—	—	—	—	53.9	—	24691	3723	—	—	—	—	—	—
BENT 2	25.0	24.0	20.0	—	—	—	—	—	—	—	69.9	—	23917	3850	—	—	—	—	—	—
BENT 3	31.0	42.0	24.0	—	—	—	—	—	—	—	92.0	—	25755	5946	—	—	—	—	—	—
BENT 4	48.0	36.0	51.0	—	—	—	—	—	—	—	90.4	—	40827	6380	—	—	—	—	—	—
BENT 5	72.0	39.0	78.0	—	—	—	—	—	—	—	83.0	—	37422	6683	—	—	—	—	—	—
END BENT 2	—	—	—	—	—	18	1080	1	—	—	56.6	—	7907	—	—	—	—	—	—	—
TOTAL	226.0	163.0	227.0	1	5	32	1710	2	20153	17636	490.3	LUMP SUM	166400	26582	20	1976.83	4	167.67	1082	1070

CONT. TOTAL BILL OF MATERIAL

	4" SLOPE PROTECTION	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	FOAM JOINT SEALS
	SQ. YD.	TONS	SQ. YD.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	—	—	—	LUMP SUM	LUMP SUM
END BENT 1	330	—	—	—	—
BENT 1	—	—	—	—	—
BENT 2	—	—	—	—	—
BENT 3	—	—	—	—	—
BENT 4	—	—	—	—	—
BENT 5	—	—	—	—	—
END BENT 2	—	1601	1778	—	—
TOTAL	330	1601	1778	LUMP SUM	LUMP SUM

DRAWING INDEX:

- TS-01 TITLE SHEET
- S-01 GENERAL DRAWING - PLAN AND ELEVATION
- S-02 GENERAL DRAWING - FOUNDATION LAYOUT
- S-03 GENERAL DRAWING - FOUNDATION NOTES
- S-04 GENERAL DRAWING - TOTAL BILL OF MATERIAL & DRAWING INDEX
- S-05 GENERAL DRAWING - LOCATION SKETCH
- S-06 GENERAL DRAWING - LRFR SUMMARY FOR PCG'S (NON-INTERSTATE TRAFFIC)
- S-07 SUPERSTRUCTURE - TYPICAL SECTION (1 OF 2)
- S-08 SUPERSTRUCTURE - TYPICAL SECTION (2 OF 2)
- S-09 SUPERSTRUCTURE - TYPICAL DETAILS (1 OF 2)
- S-10 SUPERSTRUCTURE - TYPICAL DETAILS (2 OF 2)
- S-11 SUPERSTRUCTURE - PLAN OF SPAN "A"
- S-12 SUPERSTRUCTURE - PLAN OF SPAN "B"
- S-13 SUPERSTRUCTURE - PLAN OF SPAN "C"
- S-14 SUPERSTRUCTURE - PLAN OF SPAN "D"
- S-15 SUPERSTRUCTURE - PLAN OF SPAN "E"
- S-16 SUPERSTRUCTURE - PLAN OF SPAN "F"
- S-17 SUPERSTRUCTURE - FRAMING PLAN (1 OF 2)
- S-18 SUPERSTRUCTURE - FRAMING PLAN (2 OF 2)
- S-19 72" MBT SPAN "A" (1 OF 2)
- S-20 72" MBT SPAN "A" (2 OF 2)
- S-21 72" MBT SPAN "B" (1 OF 2)
- S-22 72" MBT SPAN "B" (2 OF 2)
- S-23 TYPE III PCG SPAN "C" (1 OF 2)
- S-24 TYPE III PCG SPAN "C" (2 OF 2)
- S-25 72" MBT SPAN "D" (1 OF 2)
- S-26 72" MBT SPAN "D" (2 OF 2)
- S-27 72" MBT SPAN "E" (1 OF 2)
- S-28 72" MBT SPAN "E" (2 OF 2)
- S-29 72" MBT SPAN "F" (1 OF 2)
- S-30 72" MBT SPAN "F" (2 OF 2)
- S-31 72" MBT CONTINUOUS FOR LIVE LOAD DETAILS
- S-32 INTERMEDIATE STEEL DIAPHRAGMS FOR 72" MODIFIED BULB TEE PCG'S
- S-33 INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III PCG'S
- S-34 ELASTOMERIC BEARING DETAILS (1 OF 3)
- S-35 ELASTOMERIC BEARING DETAILS (2 OF 3)
- S-36 ELASTOMERIC BEARING DETAILS (3 OF 3)

- S-37 SUPERSTRUCTURE - GIRDER DEFLECTION AND CAMBER SCHEDULES (1 OF 2)
- S-38 SUPERSTRUCTURE - GIRDER DEFLECTION AND CAMBER SCHEDULES (2 OF 2)
- S-39 SUPERSTRUCTURE - CONCRETE BARRIER RAIL (1 OF 2)
- S-40 SUPERSTRUCTURE - CONCRETE BARRIER RAIL (2 OF 2)
- S-41 BRIDGE MOUNTED 72" CHAIN LINK FENCE
- S-42 GUARDRAIL ANCHORAGE FOR BARRIER RAIL
- S-43 FOAM JOINT DETAILS
- S-44 SUPERSTRUCTURE BILL OF MATERIAL (1 OF 3)
- S-45 SUPERSTRUCTURE BILL OF MATERIAL (2 OF 3)
- S-46 SUPERSTRUCTURE BILL OF MATERIAL (3 OF 3)
- S-47 SUBSTRUCTURE - END BENT 1 (1 OF 3)
- S-48 SUBSTRUCTURE - END BENT 1 (2 OF 3)
- S-49 SUBSTRUCTURE - END BENT 1 (3 OF 3)
- S-50 SUBSTRUCTURE - BENT 1 (1 OF 3)
- S-51 SUBSTRUCTURE - BENT 1 (2 OF 3)
- S-52 SUBSTRUCTURE - BENT 1 (3 OF 3)
- S-53 SUBSTRUCTURE - BENT 2 (1 OF 3)
- S-54 SUBSTRUCTURE - BENT 2 (2 OF 3)
- S-55 SUBSTRUCTURE - BENT 2 (3 OF 3)
- S-56 SUBSTRUCTURE - BENT 3 (1 OF 3)
- S-57 SUBSTRUCTURE - BENT 3 (2 OF 3)
- S-58 SUBSTRUCTURE - BENT 3 (3 OF 3)
- S-59 SUBSTRUCTURE - BENT 4 (1 OF 3)
- S-60 SUBSTRUCTURE - BENT 4 (2 OF 3)
- S-61 SUBSTRUCTURE - BENT 4 (3 OF 3)
- S-62 SUBSTRUCTURE - BENT 5 (1 OF 3)
- S-63 SUBSTRUCTURE - BENT 5 (2 OF 3)
- S-64 SUBSTRUCTURE - BENT 5 (3 OF 3)
- S-65 SUBSTRUCTURE - END BENT 2 (1 OF 3)
- S-66 SUBSTRUCTURE - END BENT 2 (2 OF 3)
- S-67 SUBSTRUCTURE - END BENT 2 (3 OF 3)
- S-68 SLOPE PROTECTION DETAILS
- S-69 RIP RAP DETAILS
- S-70 BRIDGE APPROACH SLAB (FOR FLEXIBLE PAVEMENT) (1 OF 2)
- S-71 BRIDGE APPROACH SLAB (FOR FLEXIBLE PAVEMENT) (2 OF 2)
- S-72 STANDARD NOTES

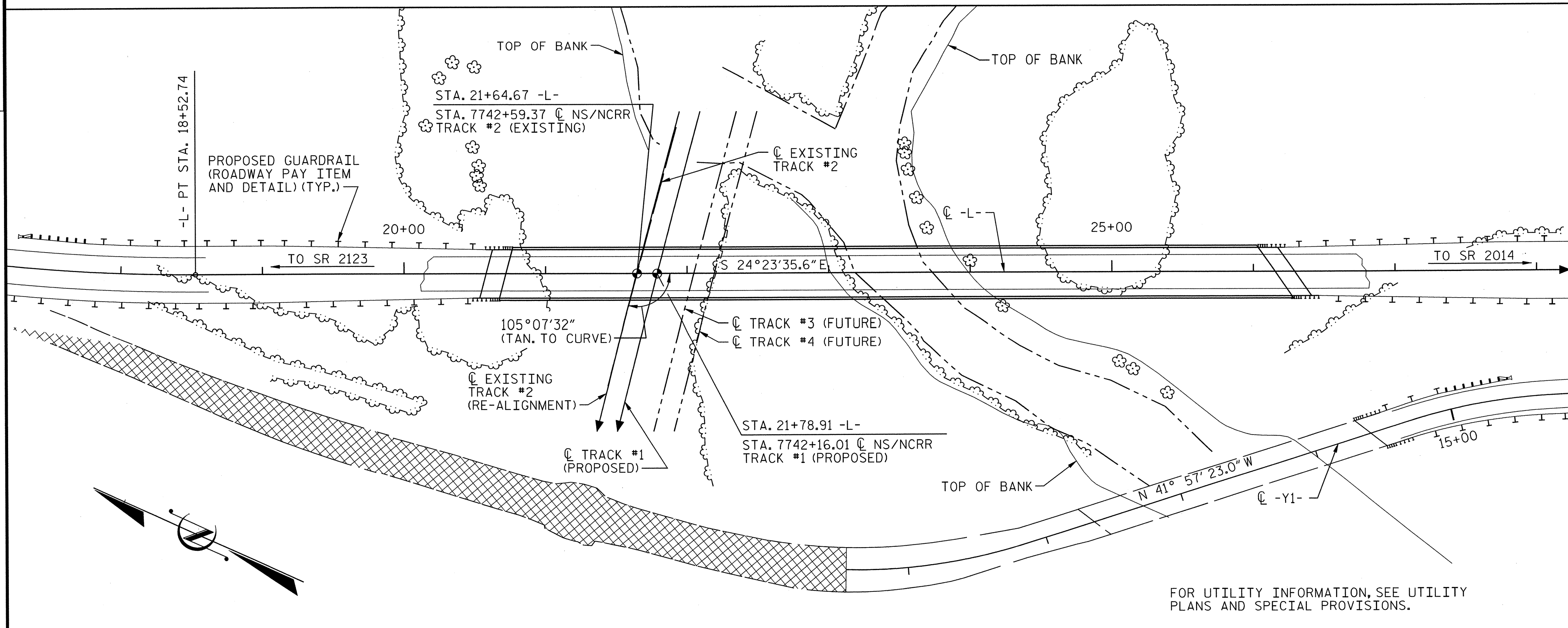
BRIDGE NO. 563

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NO.				BY				DATE				REVISION											
																PROJECT: C-4901C TITLE: GENERAL DRAWING TOTAL BILL OF MATERIAL & DRAWING INDEX LOCATION: BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014 MILE POST: MP 313.04 DGN BY: JCM RAILROAD NS / NCRR DWN BY: DDL VAL SEC V.5-8 CHK BY: JL DATE: NOVEMBER 2012 SCALE: N.T.S.							
																SHEET 4 OF 72							

0271DEL_P10c3

BENCH MARK: BM #9 -L- STA. 22+08
184' LT
ELEV. = 667.80'



LOCATION SKETCH

HORIZONTAL CURVE DATA

TRACK #1 (PROPOSED)

PIs = 7742+58.13	PI Sta = 7745+29.89
θs = 1° 58' 53.0" (LT)	Δ = 2° 42' 09.2" (LT)
Ls = 403.000'	D = 0° 59' 00"
LT = 268.684'	L = 274.836'
ST = 134.349'	T = 137.445'
	R = 5826.761'

EXISTING TRACK #2

PIs = 7743+18.12	PI Sta = 7746+06.30
θs = 1° 14' 23.9" (LT)	Δ = 4° 06' 31.1" (LT)
Ls = 248.000'	D = 1° 00' 00"
LT = 165.340'	L = 410.870'
ST = 82.670'	T = 205.520'
	R = 5729.650'

EXISTING TRACK #2 (RE-ALIGNMENT)

PIs = 7742+61.10	PI Sta = 7745+27.21
θs = 2° 00' 53.9" (LT)	Δ = 2° 38' 07.4" (LT)
Ls = 403.000'	D = 1° 00' 00"
LT = 268.684'	L = 263.539'
ST = 134.349'	T = 131.794'
	R = 5729.651'

GENERAL NOTES:

ASSUMED LIVE LOAD: HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

THE RAILROAD TRACK TOP OF RAIL ELEVATIONS SHOWN ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER.

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

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OF 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 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 FOR 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 MOST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

TOP OF RAIL ELEVATIONS

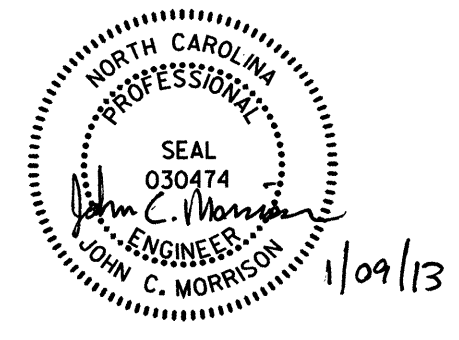
TRACK NO.	TRACK STATION	LEFT RAIL	RIGHT RAIL
* 2 (EXISTING)	7742+25.00	669.824	669.937
	7742+50.00	669.832	669.984
	7742+75.00	669.847	670.039
	7743+00.00	669.944	670.175
** 1 (PROPOSED)	7741+75.00	667.840	668.019
	7742+00.00	667.849	668.052
	7742+25.00	667.866	668.094
** 2 (EXISTING) (RE-ALIGNMENT)	7741+75.00	667.840	668.017
	7742+00.00	667.850	668.050
	7742+25.00	667.867	668.091
** 3 (FUTURE)	7742+50.00	667.892	668.141
	7741+75.00	667.840	668.019
	7742+00.00	667.849	668.052
** 4 (FUTURE)	7742+25.00	667.866	668.094
	7742+50.00	667.891	668.143
	7741+75.00	667.840	668.019
	7742+00.00	667.849	668.052

* STATIONS ARE LOCATED ALONG TRACK NO. 2 (EXISTING).
** STATIONS ARE LOCATED ALONG TRACK NO. 1 (PROPOSED).
*** STATIONS ARE LOCATED ALONG TRACK NO. 2 (RE-ALIGNMENT).

BRIDGE NO. 563

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NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-8200
AECOM License No. F-0242

PROJECT		C-4901C	
TITLE		GENERAL DRAWING LOCATION SKETCH	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1"=50'
		DRAWING	
		S-05	
		SHEET 5 OF 72	

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

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (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	1.15	--	1.75	0.936	1.26	A	I	30.0	0.960	1.18	C	ER	16.4	0.80	0.736	1.15	D	I	61.5		
	HL-93 (OPERATING)	N/A		1.61	--	1.35	0.936	1.64	A	I	30.0	1.067	1.61	D	I	11.7	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.51	54.36	1.75	0.936	1.60	A	I	30.0	1.082	1.67	C	I	8.7	0.80	0.857	1.51	C	ER	27.7	1	
	HS-20 (OPERATING)	36.000		2.08	74.88	1.35	0.936	2.08	A	I	30.0	1.082	2.19	C	I	8.7	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		3.20	43.20	1.40	0.936	4.34	A	I	30.0	1.082	4.61	C	I	8.7	0.80	0.857	3.20	C	ER	27.7	1
		SNGARBS2	20,000		2.47	49.40	1.40	0.936	3.31	A	I	30.0	1.082	3.41	C	I	8.7	0.80	0.857	2.47	C	ER	27.7	1
		SNAGRIS2	22,000		2.38	52.36	1.40	0.936	3.17	A	I	30.0	1.082	3.22	C	I	8.7	0.80	0.857	2.38	C	ER	27.7	1
		SNCOTTS3	27,250		1.60	43.60	1.40	0.936	2.16	A	I	30.0	1.082	2.29	C	I	8.7	0.80	0.857	1.60	C	ER	27.7	1
		SNAGGRS4	34,925		1.37	47.85	1.40	0.936	1.84	A	I	30.0	1.082	2.00	C	I	8.7	0.80	0.857	1.37	C	ER	27.7	1
		SNS5A	35,550		1.33	47.28	1.40	0.936	1.79	A	I	30.0	1.082	2.09	C	I	8.7	0.80	0.857	1.33	C	ER	27.7	1
		SNS6A	39,950		1.24	49.54	1.40	0.936	1.66	A	I	30.0	1.082	1.96	C	I	8.7	0.80	0.857	1.24	C	ER	27.7	1
	SNS7B	42,000		1.18	49.56	1.40	0.936	1.58	A	I	30.0	1.067	1.93	D	I	11.7	0.80	0.857	1.18	C	ER	27.7	1	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.52	50.16	1.40	0.936	2.03	A	I	30.0	1.082	2.30	C	I	8.7	0.80	0.857	1.52	C	ER	27.7	1
		TNT4A	33,075		1.53	50.60	1.40	0.936	2.04	A	I	30.0	1.082	2.18	C	I	8.7	0.80	0.857	1.53	C	ER	27.7	1
		TNT6A	41,600		1.26	52.42	1.40	0.936	1.68	A	I	30.0	1.067	2.01	D	I	11.7	0.80	0.857	1.26	C	ER	27.7	1
		TNT7A	42,000		1.28	53.76	1.40	0.936	1.69	A	I	30.0	1.082	1.97	C	I	8.7	0.80	0.857	1.28	C	ER	27.7	1
		TNT7B	42,000		1.33	55.86	1.40	0.936	1.77	A	I	30.0	1.082	1.89	C	I	8.7	0.80	0.857	1.33	C	ER	27.7	1
		TNAGRIT4	43,000		1.26	54.18	1.40	0.936	1.67	A	I	30.0	1.082	1.81	C	I	8.7	0.80	0.857	1.26	C	ER	27.7	1
TNAGT5A		45,000		1.18	53.10	1.40	0.936	1.57	A	I	30.0	1.067	1.80	D	I	11.7	0.80	0.857	1.18	C	ER	27.7	1	
TNAGT5B	45,000		③	1.16	52.20	1.40	0.936	1.55	A	I	30.0	1.082	1.71	C	I	8.7	0.80	0.857	1.16	C	ER	27.7	1	

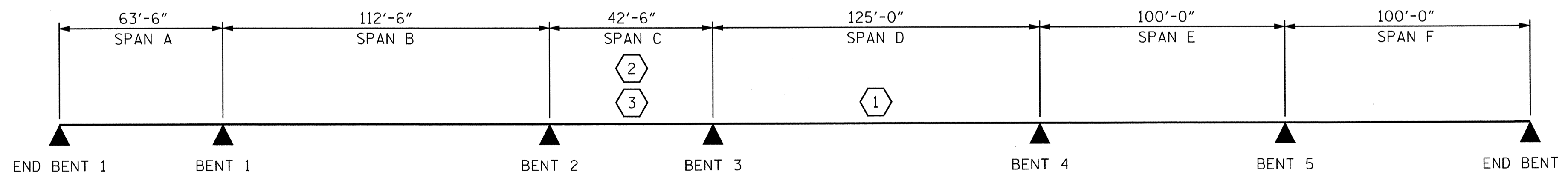
NOTES:

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

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

COMMENTS:

1. FOR SPAN C, THE CONTROLLING INTERIOR GIRDER FOR MINIMUM LRFR IS GIRDER 3.



CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

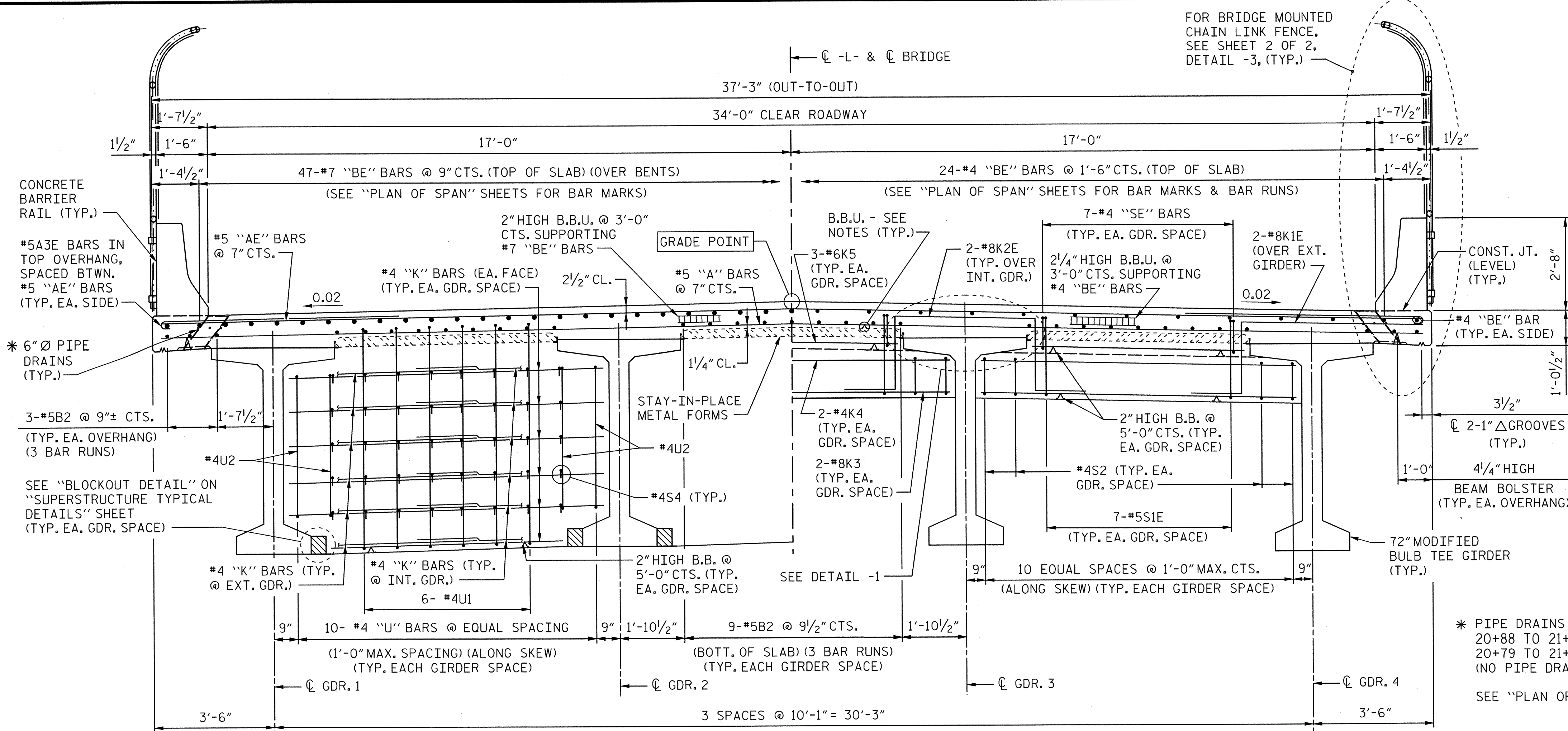
GIRDER LOCATION

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

LRFR SUMMARY

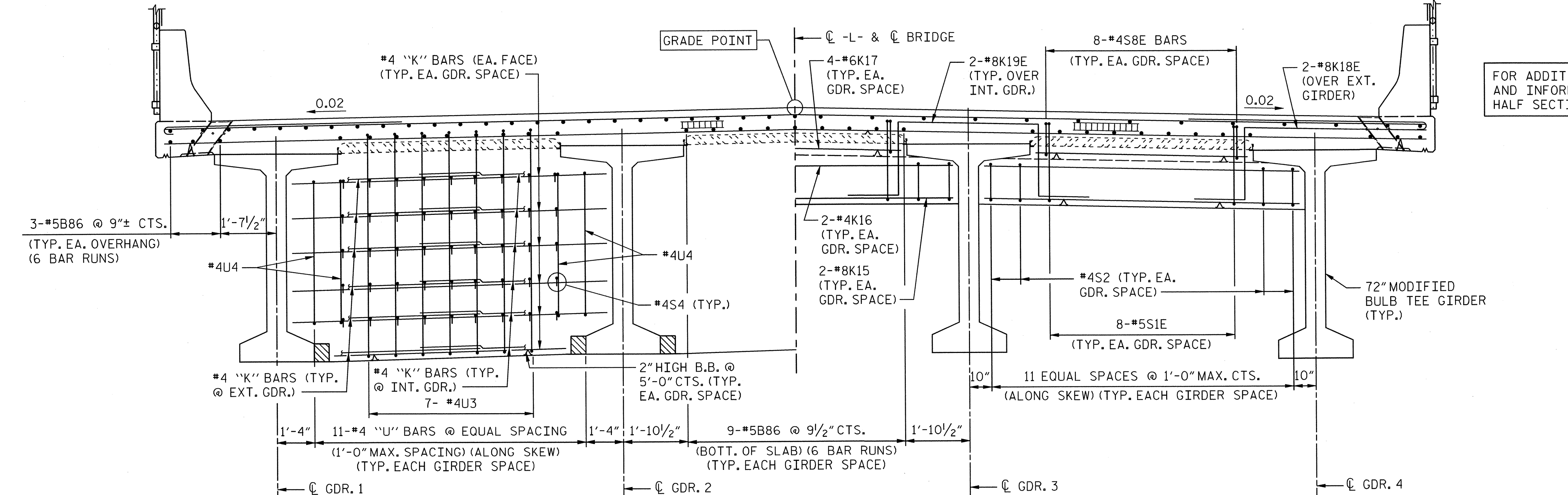
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				<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION</p> <p>PREPARED BY: AECOM TECHNICAL SERVICES, INC. 701 CORPORATE CENTER DRIVE, SUITE 475 RALEIGH, NC 27607 (919) 894-6300 www.aecom.com AECOM License No. F-6262</p>				<p>PROJECT: C-4901C TITLE: LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)</p>			
NO.		BY		DATE		REVISION		LOCATION: BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014		MILE POST: MP 313.04	
DGN BY: DPS		RAILROAD: NS / NCR		DRAWING: S-06		DWN BY: MTB		VAL SEC: V-5-8		SHEET 6 OF 72	
CHK BY: JL		DATE: NOVEMBER 2012		SCALE: N.T.S.							



HALF SECTION SHOWING BENT 1 DIAPHRAGM

HALF SECTION SHOWING END BENT 1 AND BENT 2 DIAPHRAGM



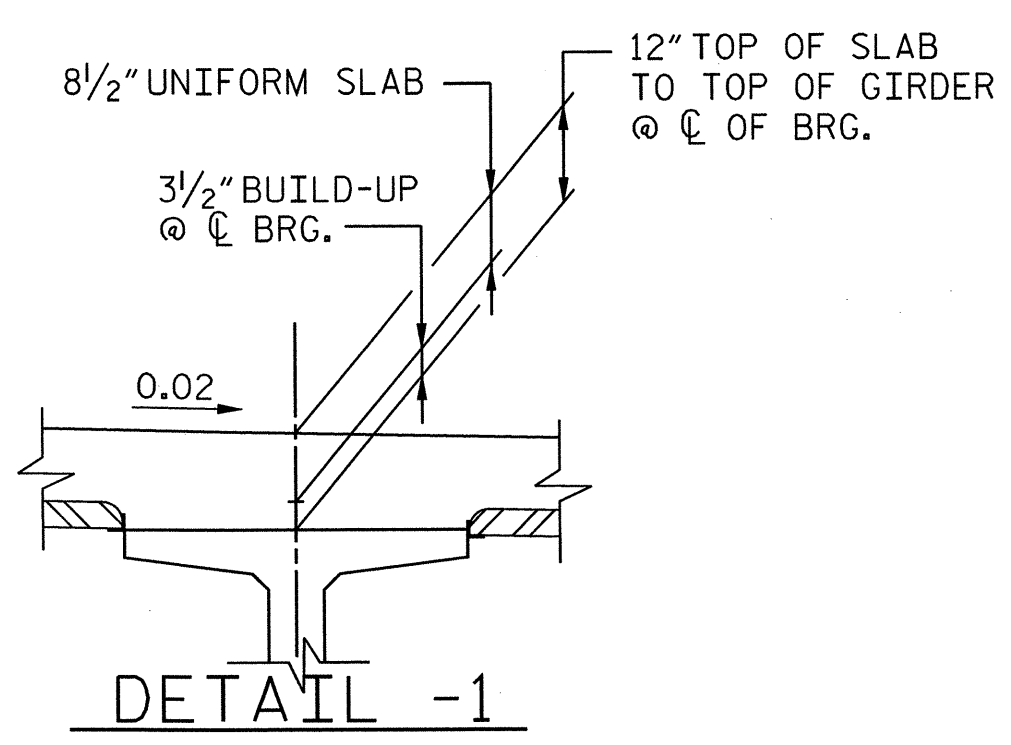
HALF SECTION SHOWING BENTS 4 & 5 DIAPHRAGMS

HALF SECTION SHOWING END BENT 2 AND BENT 3 DIAPHRAGM

NOTES:
 PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE STAY-IN-PLACE METAL FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) AT 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.
 REMOVABLE FORMS MAY BE USED IN LIEU OF STAY-IN-PLACE METAL FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

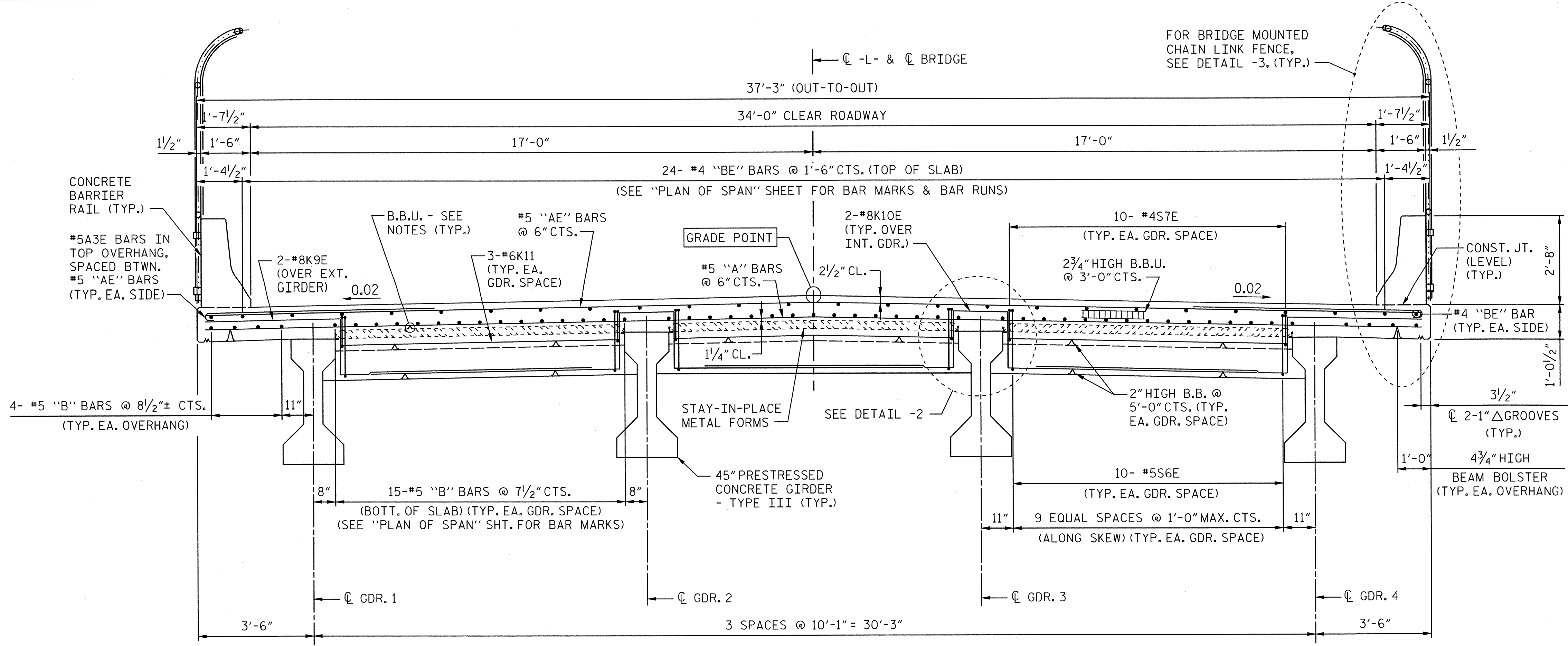
* PIPE DRAINS TO BE LOCATED BETWEEN STATIONS 20+88 TO 21+12 LT, 23+87 TO 25+91 LT, 20+79 TO 21+03 RT AND 24+19 TO 26+11 RT. (NO PIPE DRAINS TO BE LOCATED OVER RAILROAD R/W).
 SEE "PLAN OF SPAN" SHEETS FOR SPACINGS.

FOR ADDITIONAL CALLOUTS AND INFORMATION, SEE HALF SECTIONS ABOVE.

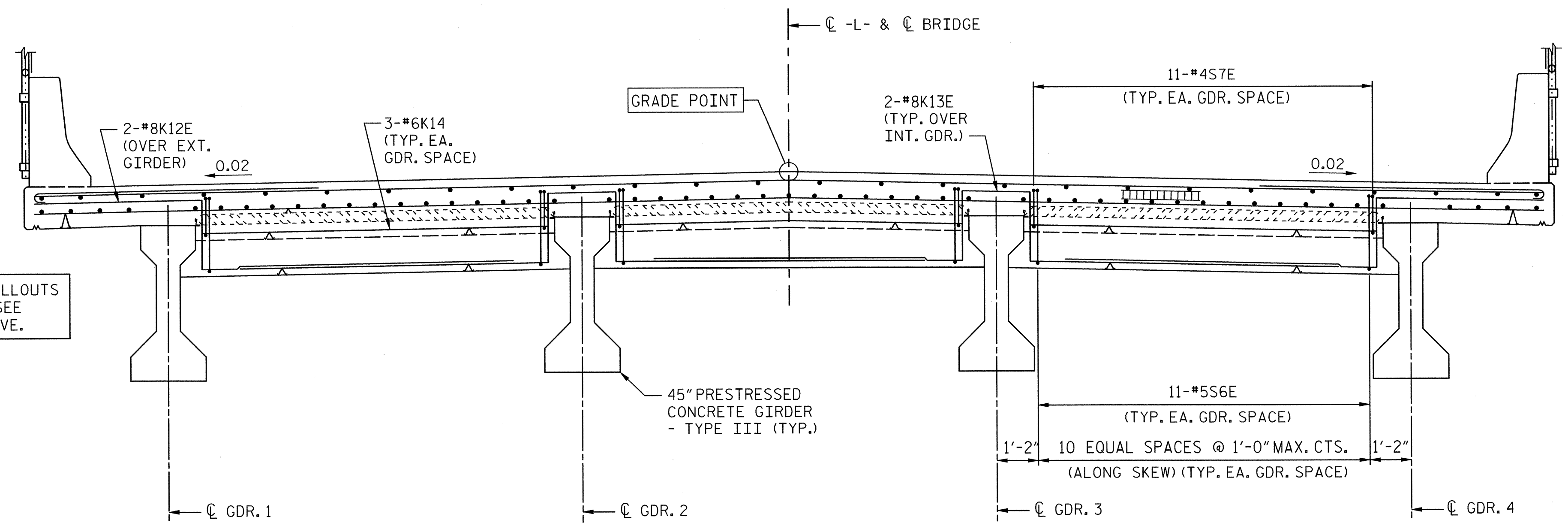


		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION PREPARED BY: AECOM TECHNICAL SERVICES, INC. 701 CORPORATE CENTER DRIVE, SUITE 475 RALEIGH, NC 27607 (919) 854-6200 AECOM License No. F05492	PROJECT C-4901C	
			TITLE SUPERSTRUCTURE TYPICAL SECTIONS (1 OF 2)	
LOCATION BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014		MILE POST MP 313.04		
DGN BY JCM	RAILROAD NS / NCR	DRAWING S-07		
DWN BY SGS	VAL SEC V.5-8	SHEET 7 OF 72		
CHK BY JL	DATE NOVEMBER 2012			SCALE 1/2" = 1'-0"

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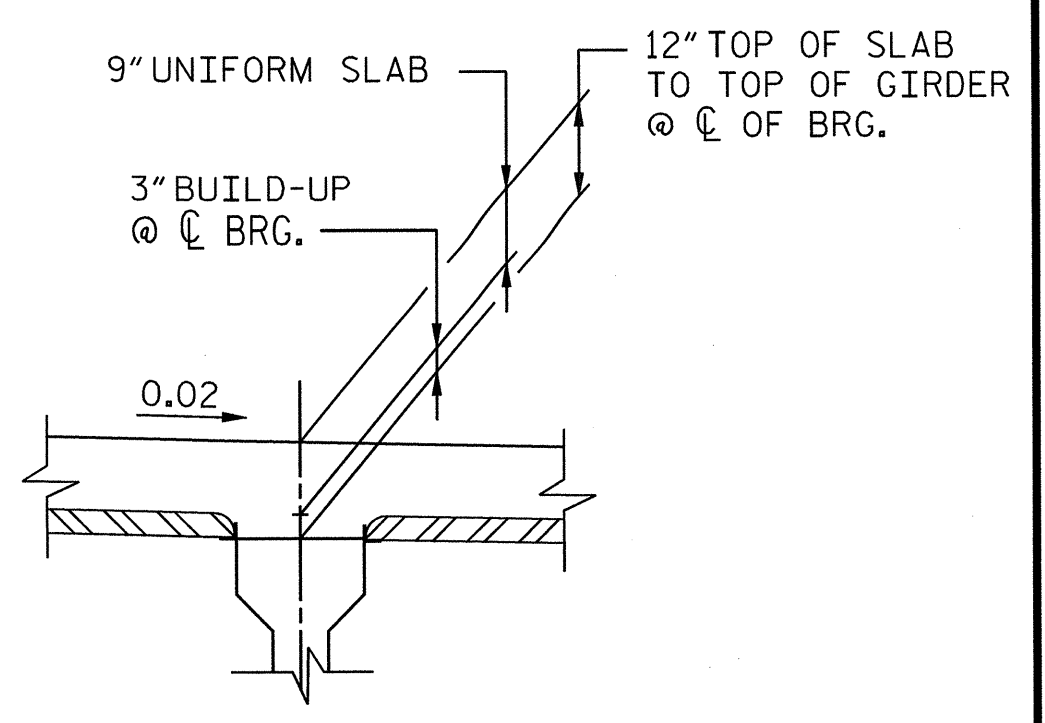
SECTION SHOWING BENT 2 DIAPHRAGM



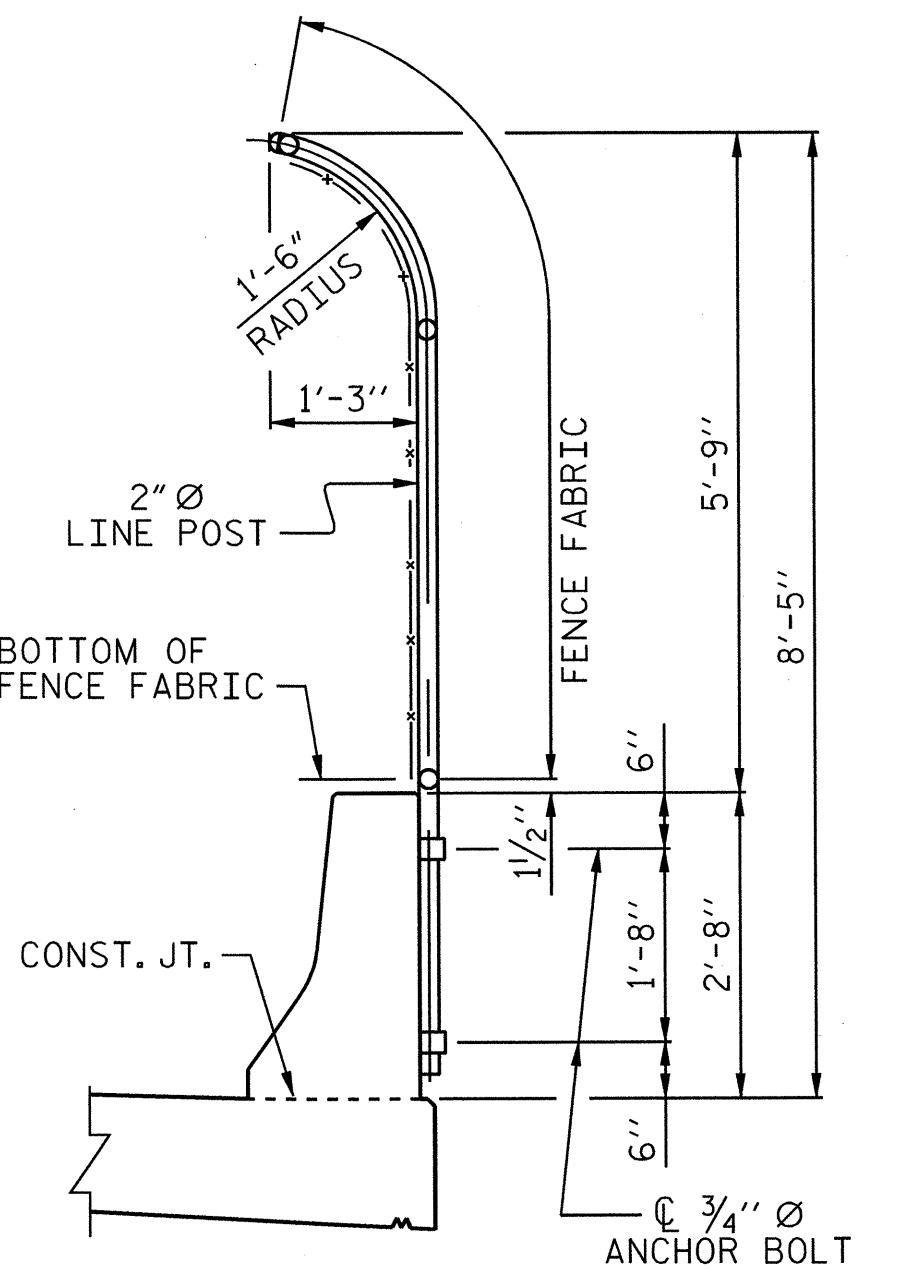
SECTION SHOWING BENT 3 DIAPHRAGM

FOR ADDITIONAL CALLOUTS AND INFORMATION, SEE HALF SECTIONS ABOVE.

NOTES:
SEE "TYPICAL SECTIONS (1 OF 2)" FOR NOTES.

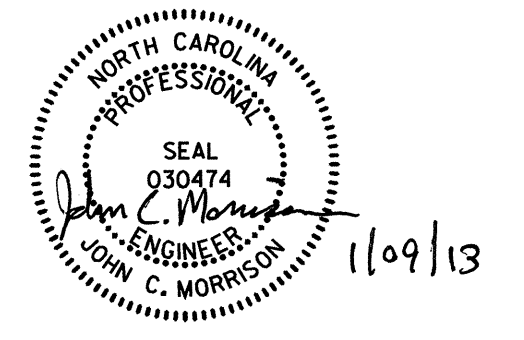


DETAIL -2



DETAIL -3

NO.	BY	DATE	REVISION

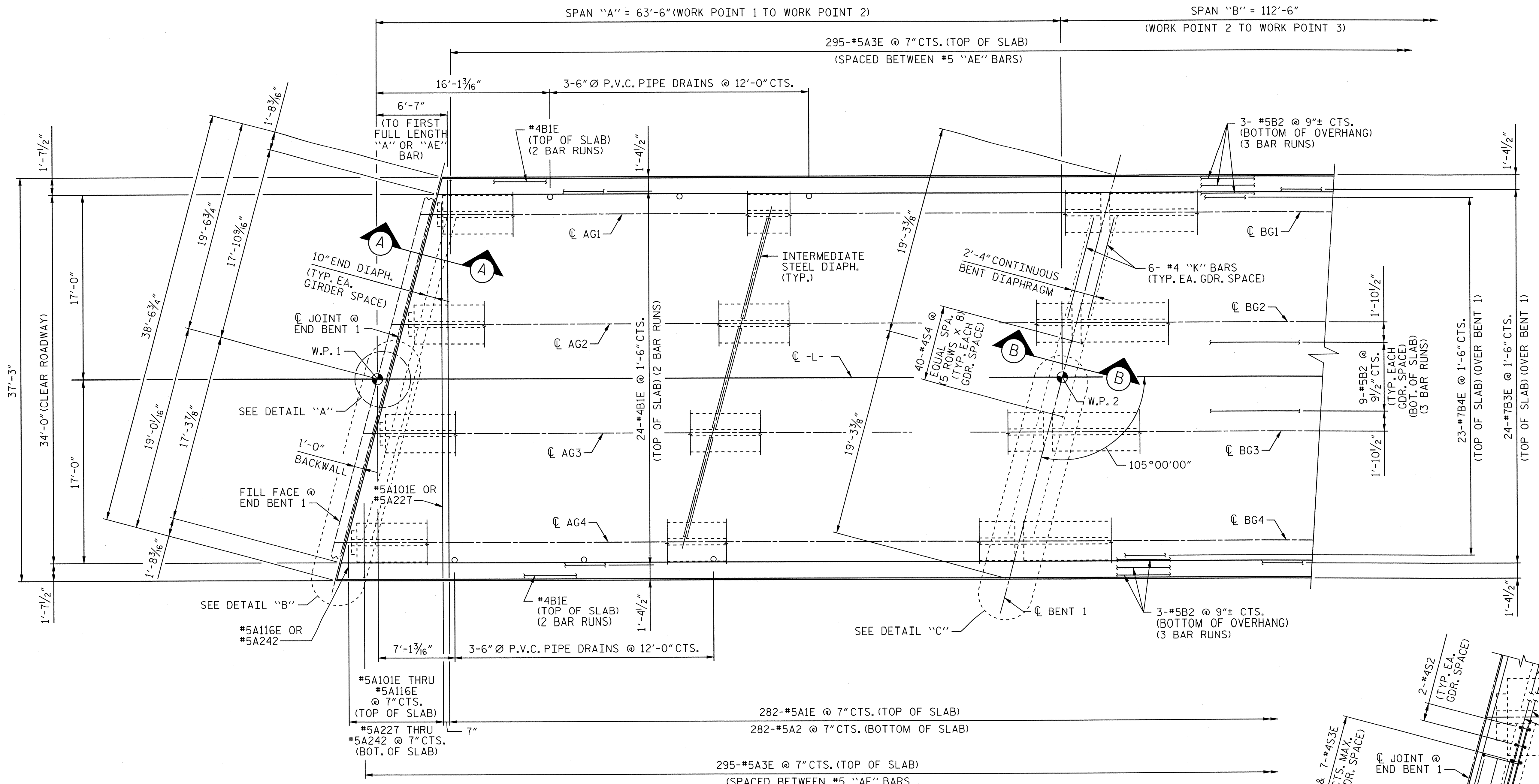


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

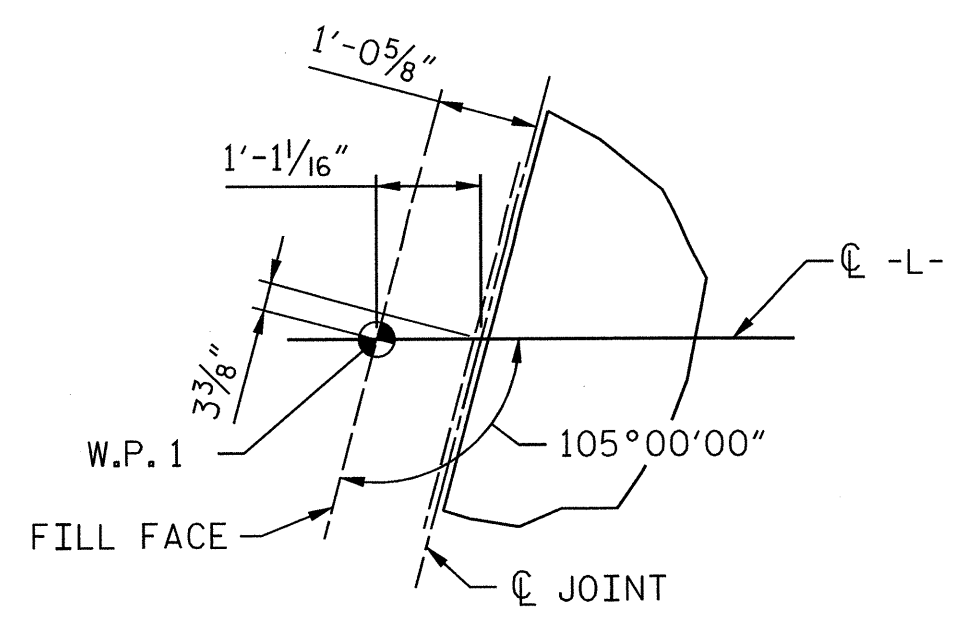
PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-4200
www.aecom.com
AECOM License No. F42942

PROJECT		C-4901C	
TITLE		SUPERSTRUCTURE TYPICAL SECTIONS (2 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	JCM	RAILROAD	NS / NCRR
DWN BY	SGS	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		1/2" = 1'-0"	
DRAWING		S-08	
SHEET		8 OF 72	

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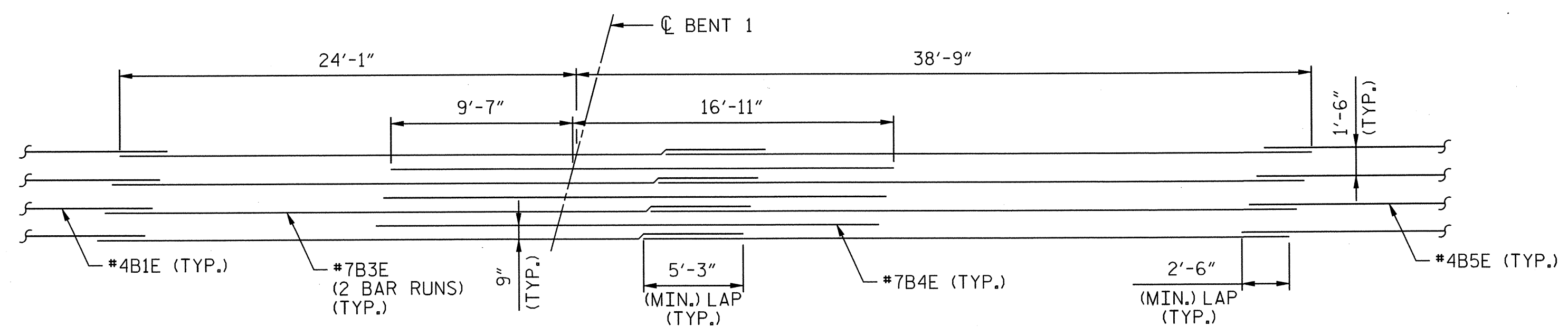


PLAN OF SPAN "A" AND PARTIAL PLAN OF SPAN "B"

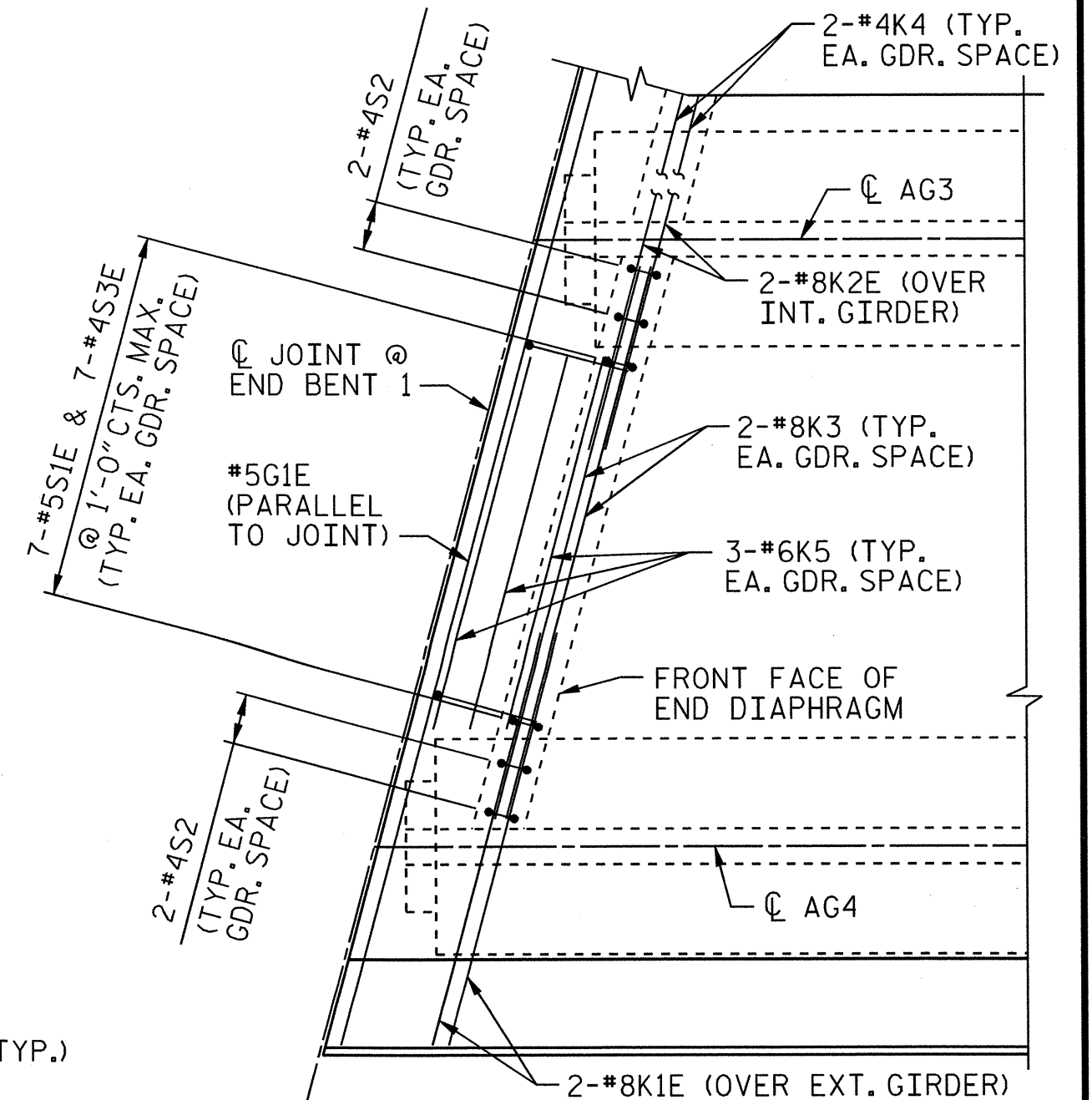


DETAIL "A"

NOTE: SKEWED DIMENSIONS AT END BENT 1 ARE BASED ON A JOINT OPENING OF 1/4" AT 60° F.



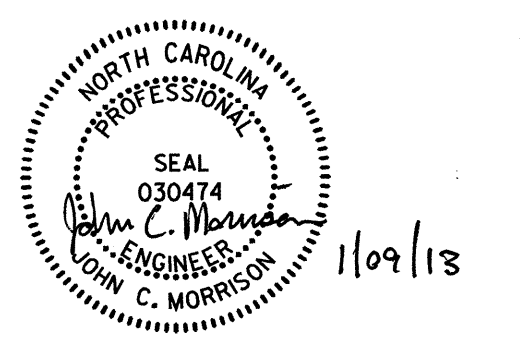
TOP OF SLAB REINFORCEMENT LAYOUT



DETAIL "B"

"A" & "B" BARS NOT SHOWN

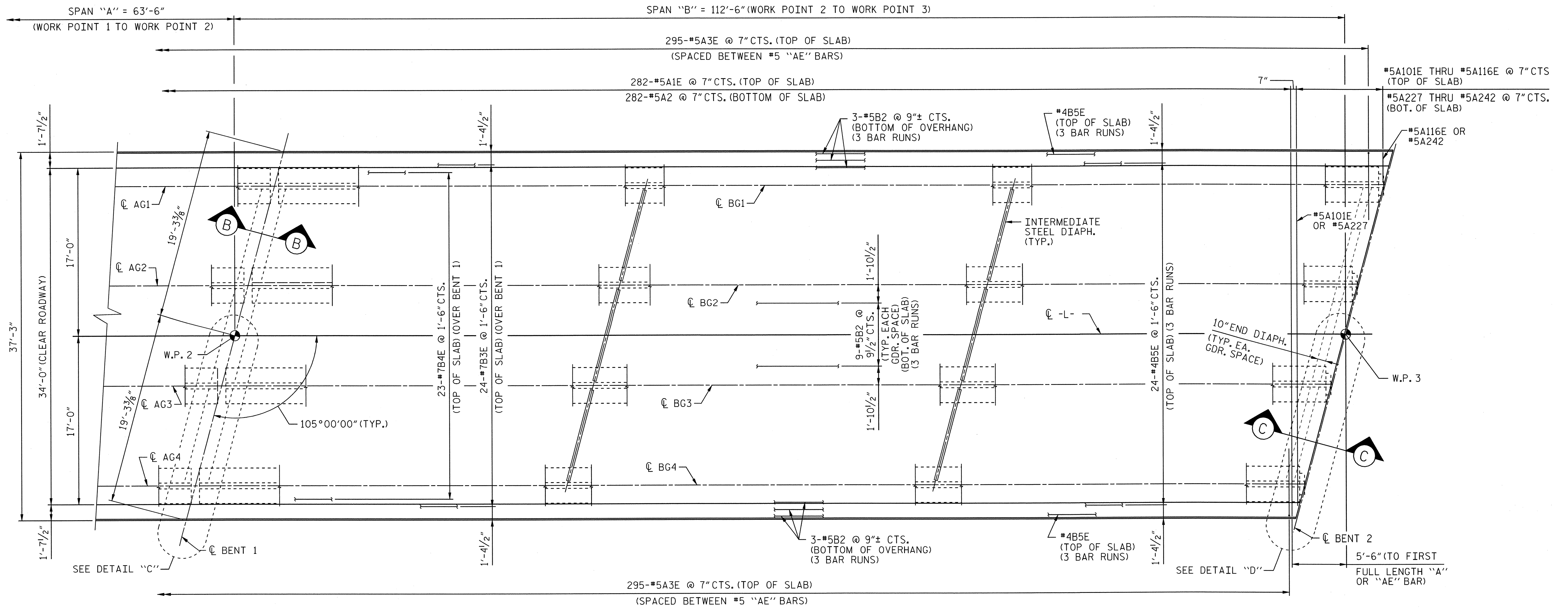
NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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PREPARED BY:
AECOM
 AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
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 (919) 854-6200 www.aecom.com
 AECOM License No. F-0342

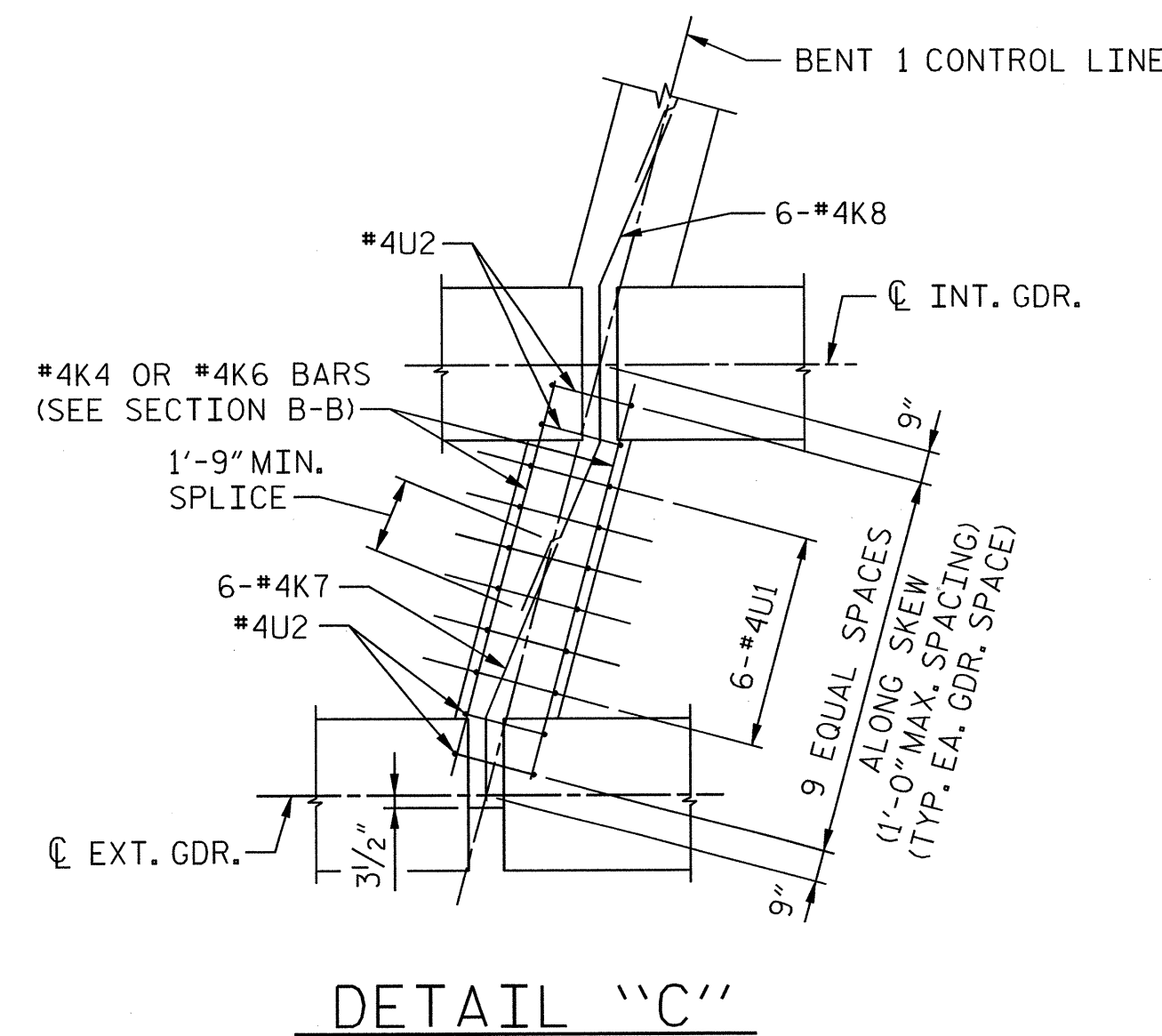
PROJECT	C-4901C		
TITLE	SUPERSTRUCTURE PLAN OF SPAN "A" AND PARTIAL PLAN OF SPAN "B" (1 OF 6)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	JCM	RAILROAD	NS / NCR
DWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	3/16" = 1'-0" U.O.N.	DRAWING	S-11
SHEET			11 OF 72



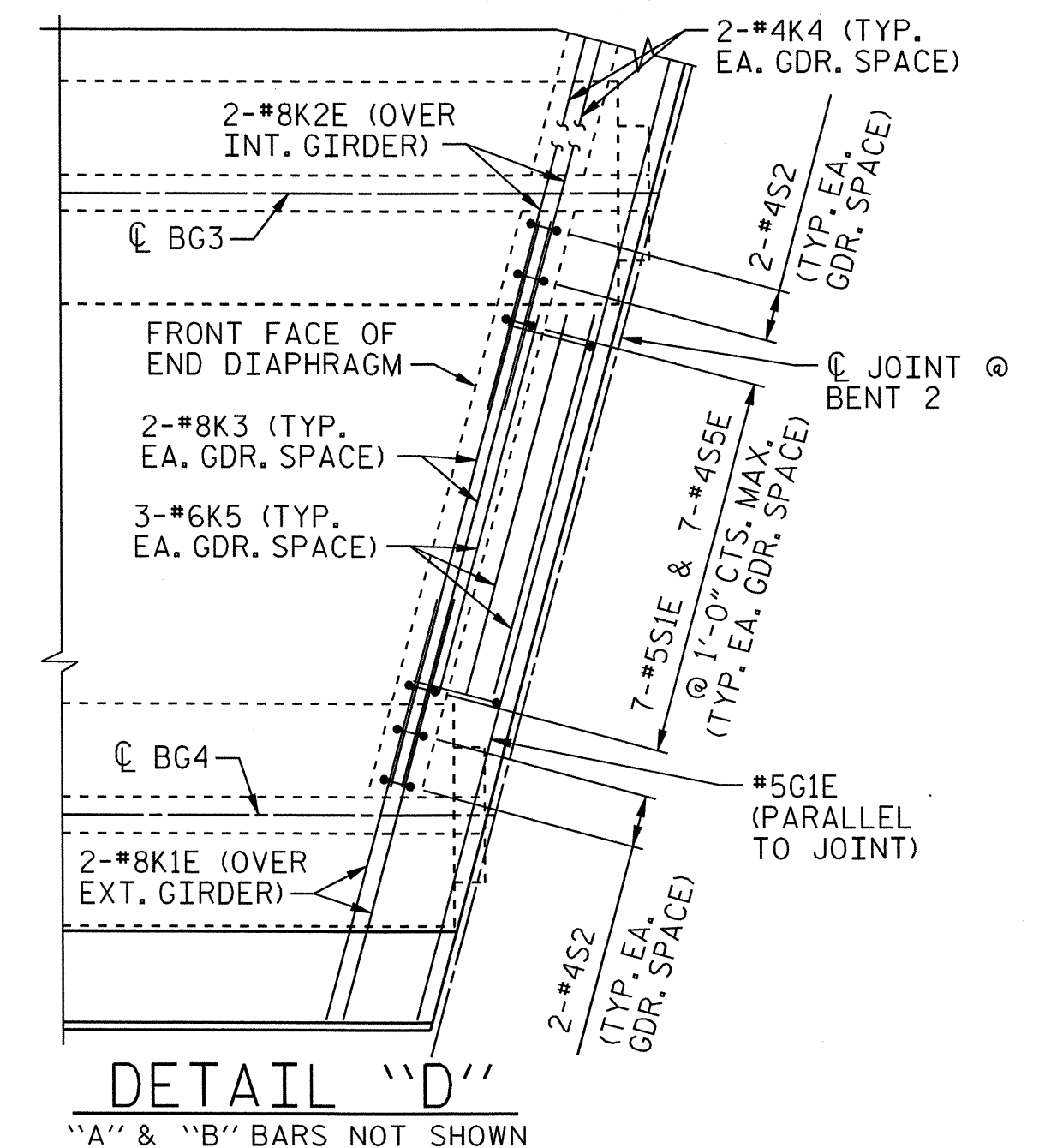
PARTIAL PLAN OF SPAN "A" AND PLAN OF SPAN "B"

PLAN OF SPAN NOTES

FOR POURING SEQUENCE, SEE "SUPERSTRUCTURE BILL OF MATERIAL".
 "A" AND "AE" BARS TO BE PLACED PERPENDICULAR TO -L-.
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
 FOR REINFORCING STEEL IN CONCRETE BARRIER RAIL, SEE "CONCRETE BARRIER RAIL".



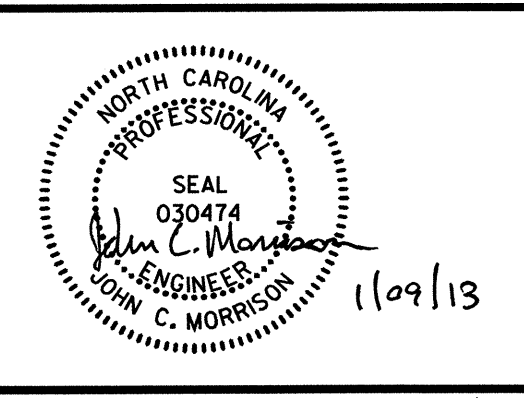
DETAIL "C"



DETAIL "D"
 "A" & "B" BARS NOT SHOWN

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NO.	BY	DATE	REVISION

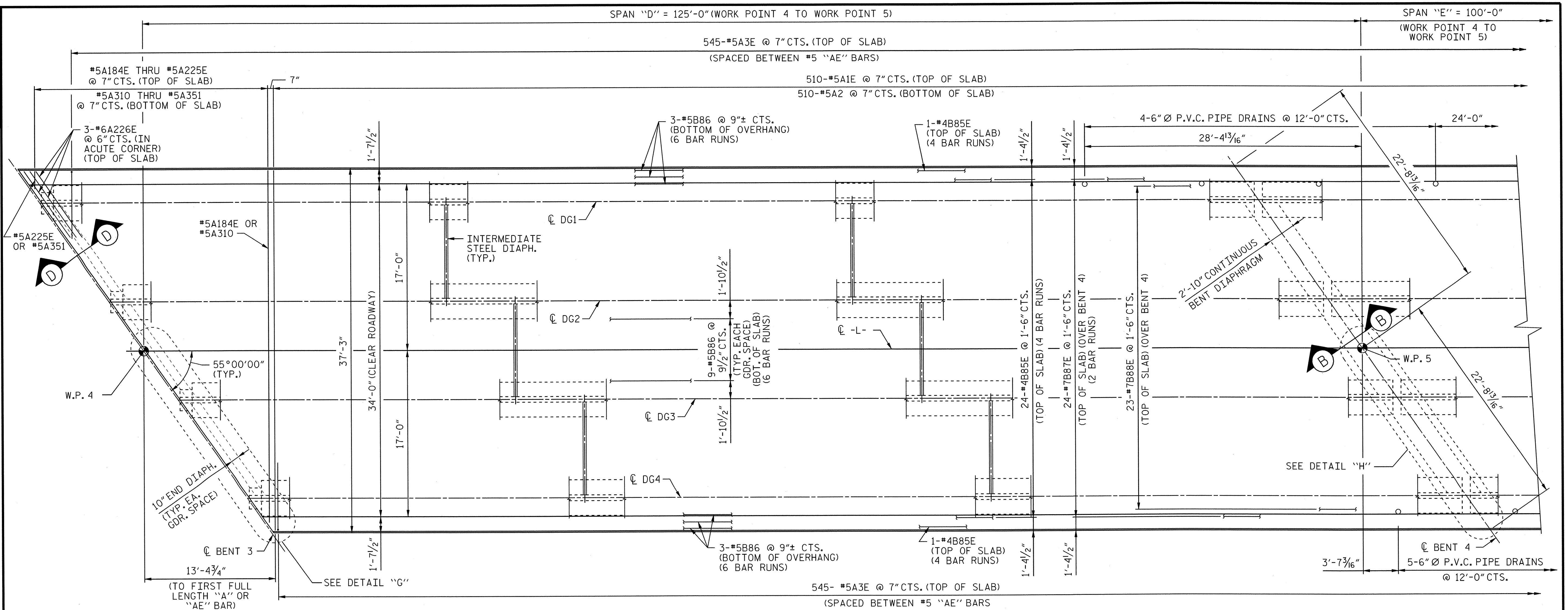


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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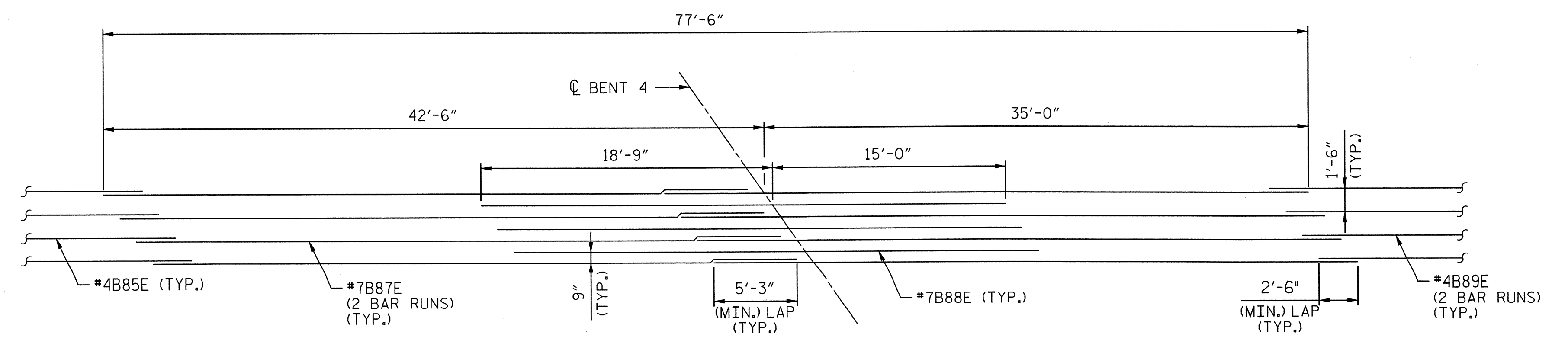
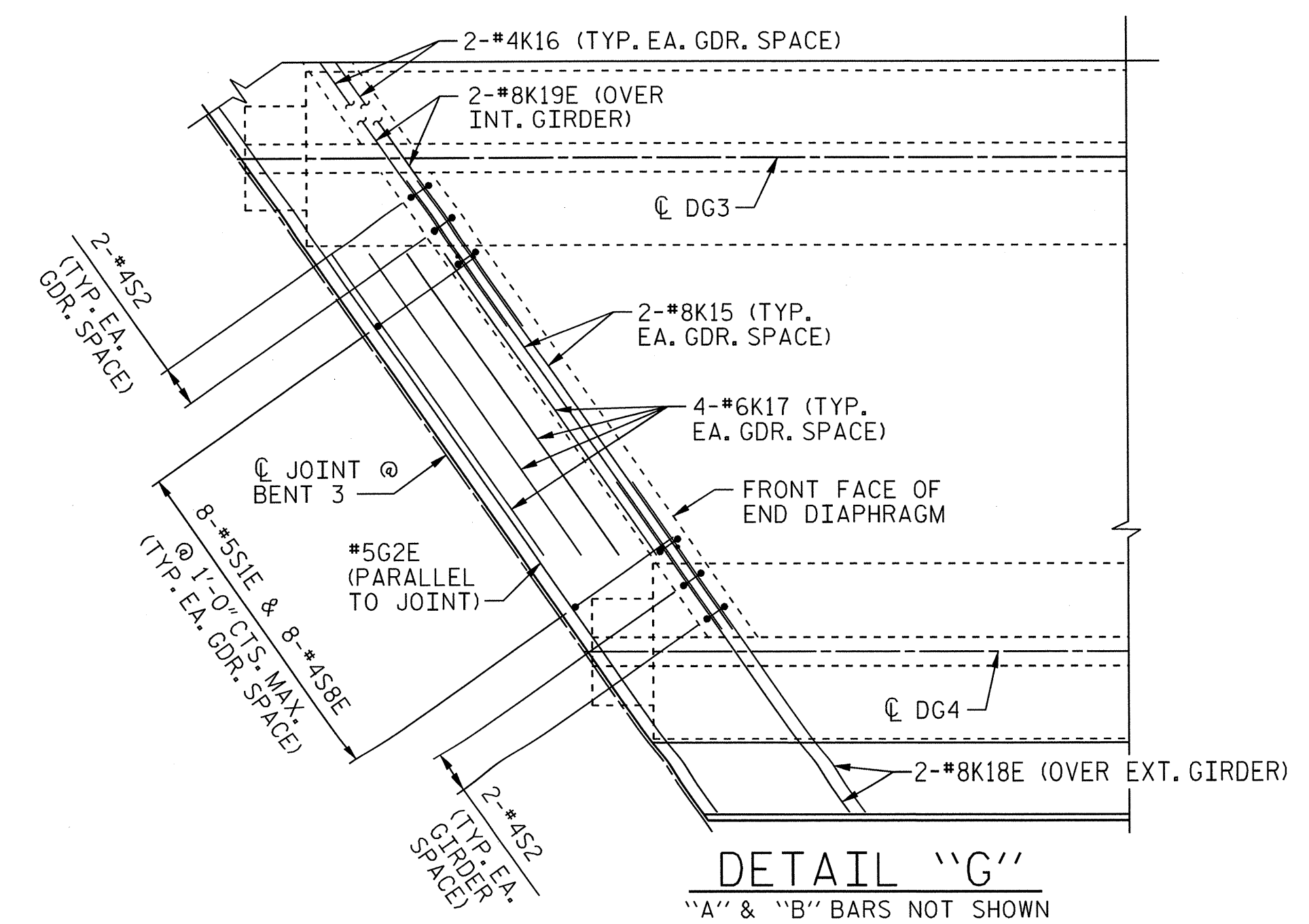
PROJECT	C-4901C		
TITLE	SUPERSTRUCTURE PLAN OF SPAN "B" AND PARTIAL PLAN OF SPAN "A" (2 OF 6)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	JCM RAILROAD	NS / NCCR	DRAWING S-12
DWN BY	MTB VAL SEC	V.5-8	
CHK BY	JL DATE NOVEMBER 2012	SCALE 3/16"=1'-0" U.O.N.	SHEET 12 OF 72

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PLAN OF SPAN "D" AND PARTIAL PLAN OF SPAN "E"



TOP OF SLAB REINFORCEMENT LAYOUT

NO.	BY	DATE	REVISION

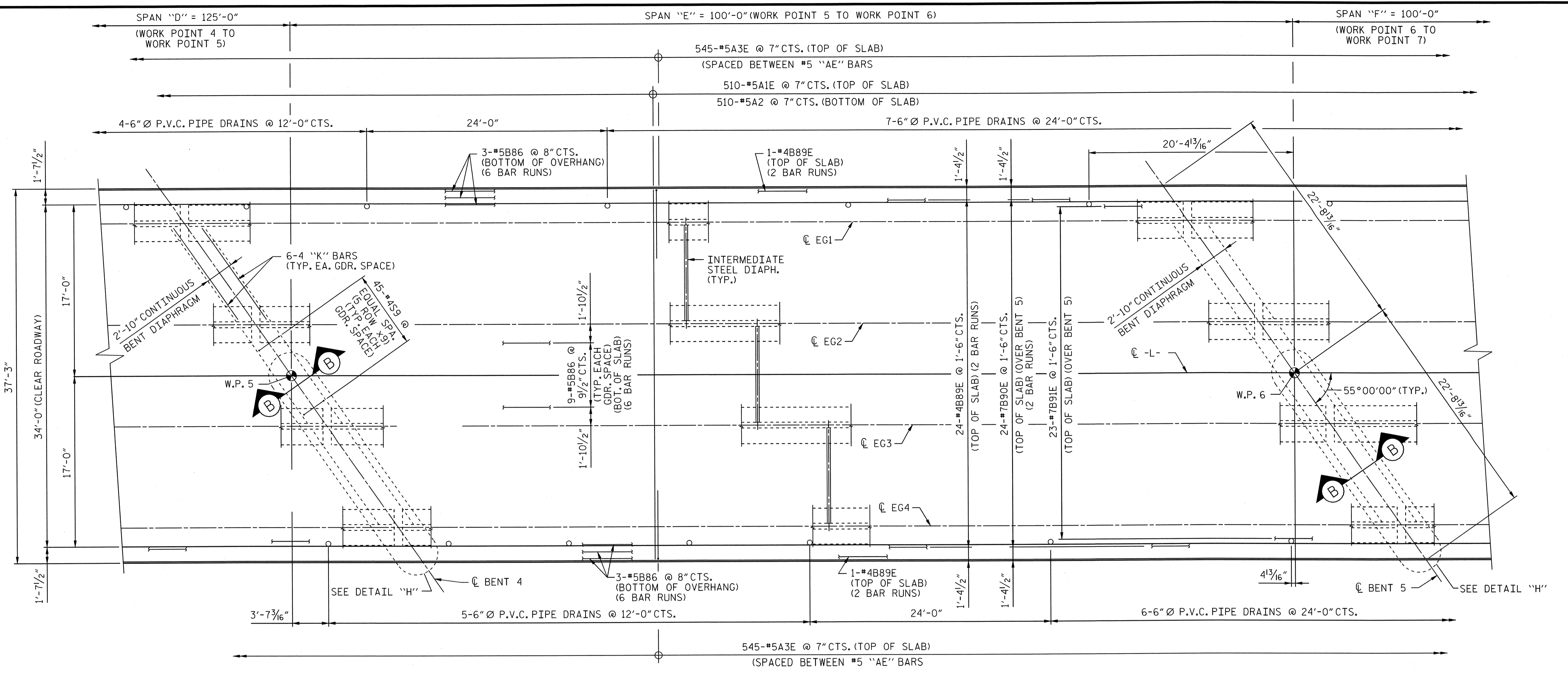


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RAIL DIVISION
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 701 CORPORATE CENTER DRIVE, SUITE 475
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 (919) 854-6200
 AECOM License No. P-0402

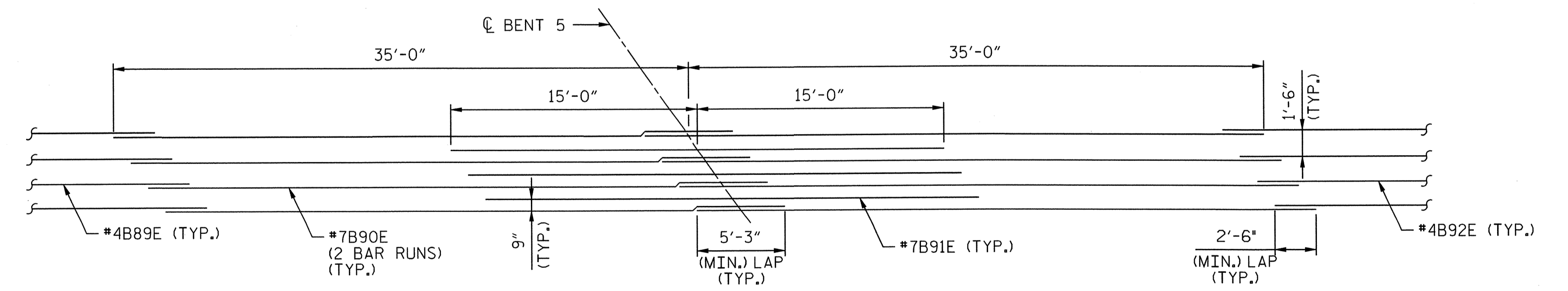
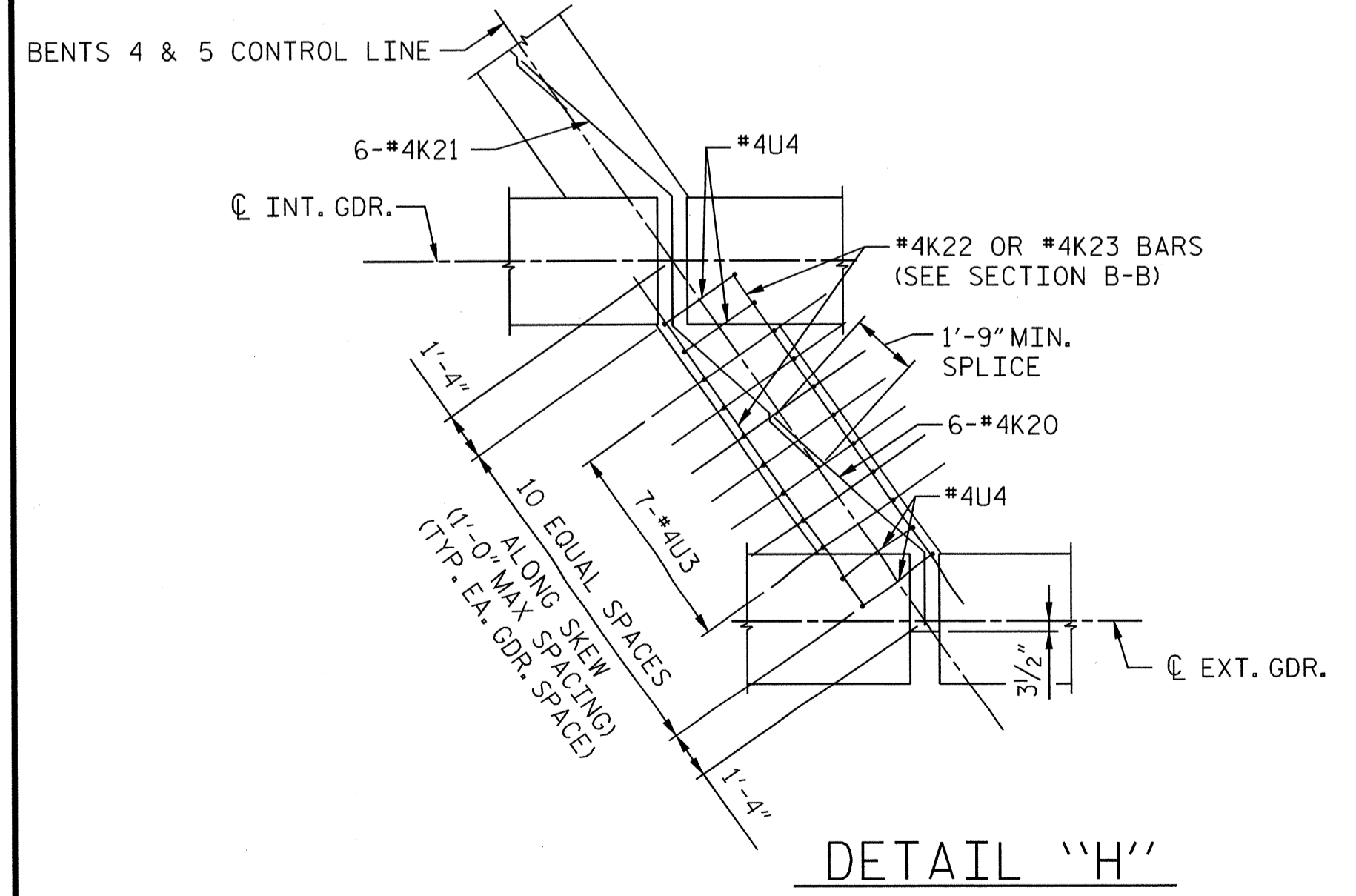
PROJECT		C-4901C	
TITLE		SUPERSTRUCTURE	
LOCATION		BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	
MILE POST		MP 313.04	
DGN BY	JCM	RAILROAD	NS / NCRR
DWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/16" = 1'-0" U.O.N.	
DRAWING		S-14	
SHEET		14 OF 72	

0271DEL_P10c3

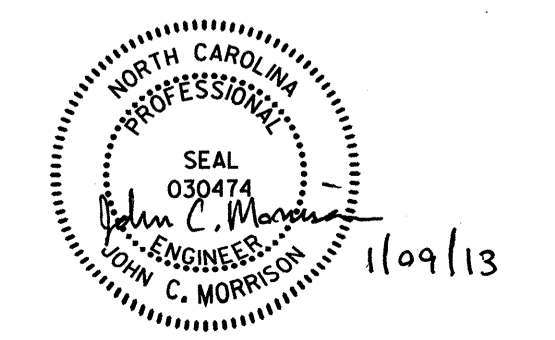
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PLAN OF SPAN "E" AND PARTIAL PLAN OF SPANS "D" & "F"



NO.	BY	DATE	REVISION

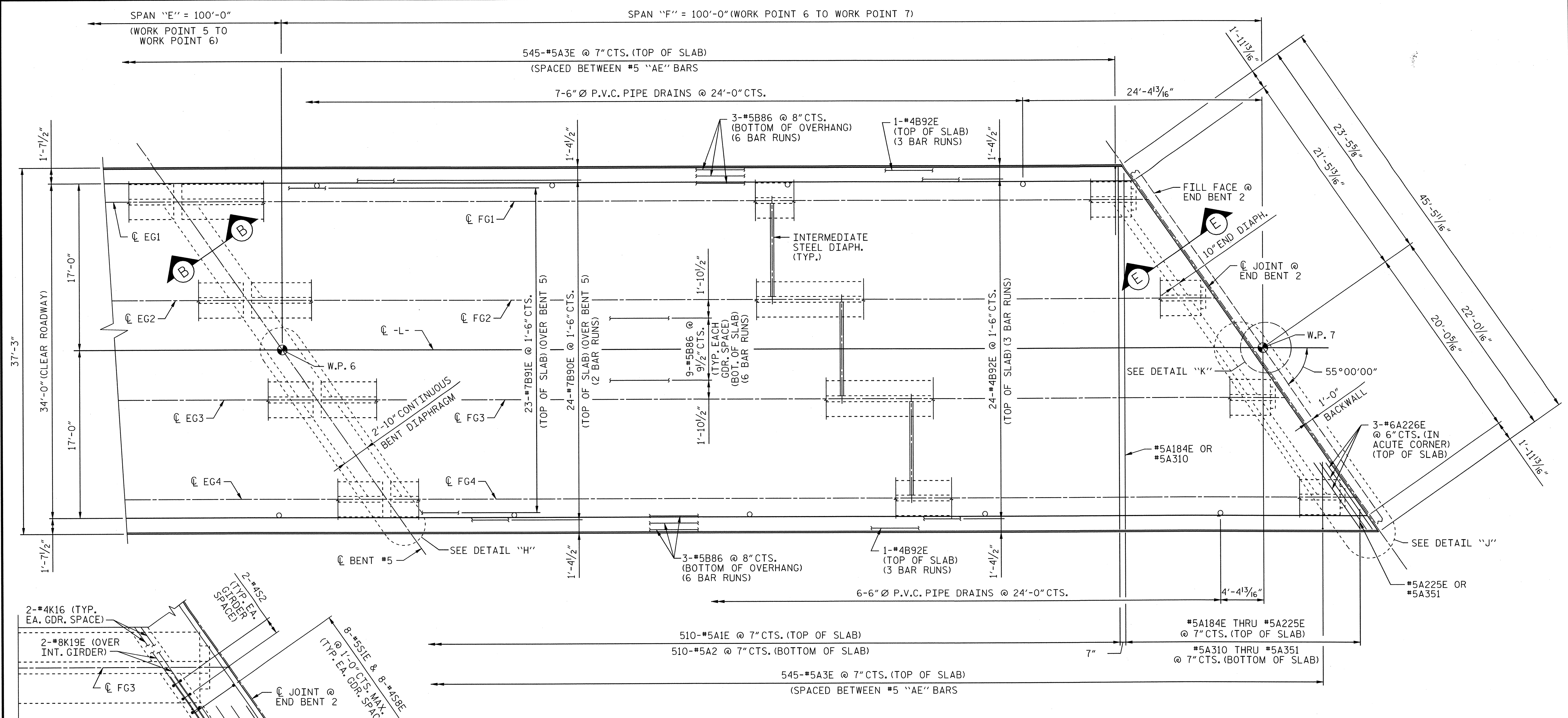


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

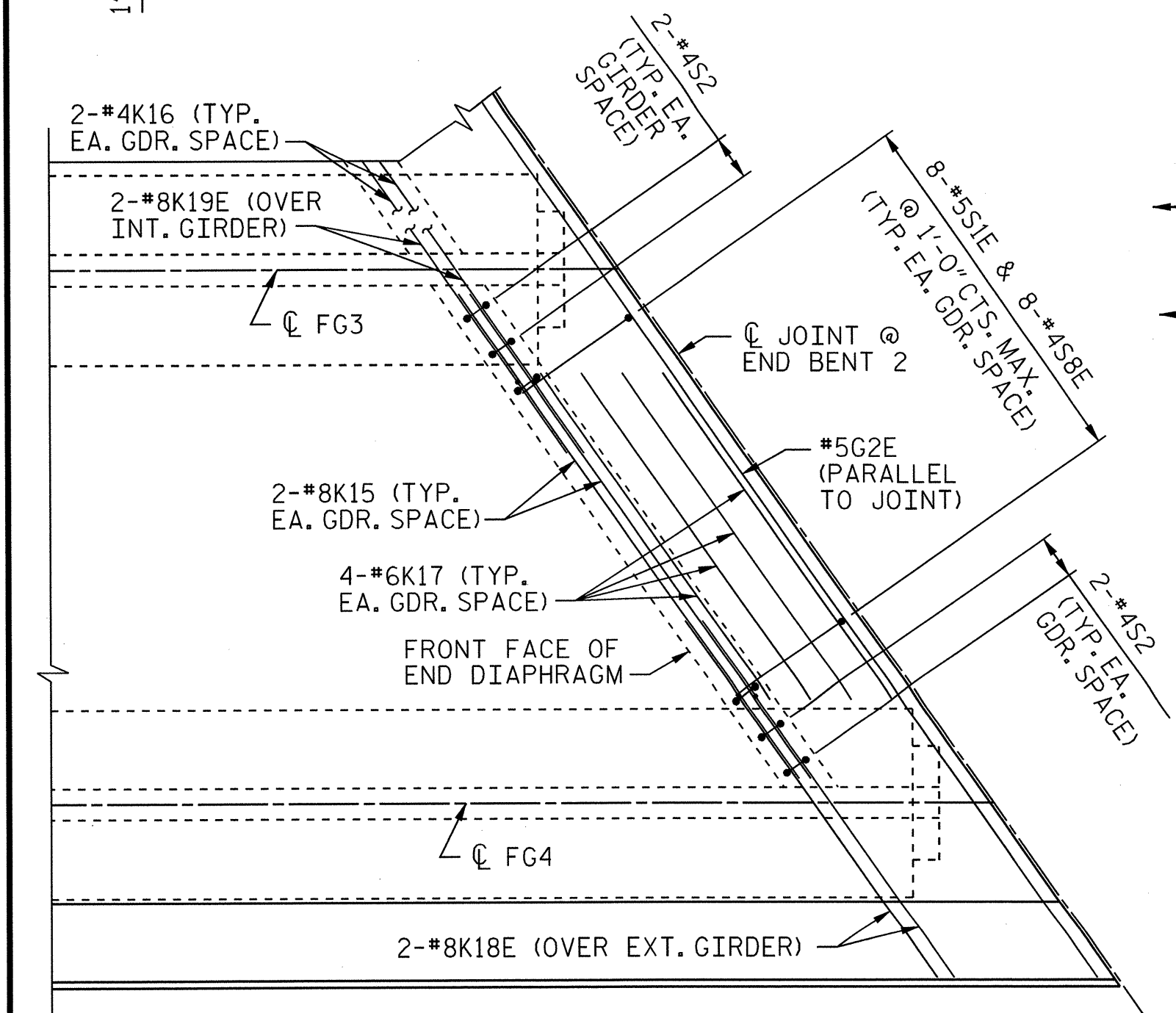
PREPARED BY: **AECOM**
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 RALEIGH, NC 27607
 (919) 854-6200 www.aecom.com
 AECOM License No. F-0342

PROJECT	C-4901C		
TITLE	SUPERSTRUCTURE PLAN OF SPAN "E" AND PARTIAL PLAN OF SPANS "D" & "F" (5 OF 6)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	JCM	RAILROAD	NS / NCR
DWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/16" = 1'-0" U.O.N.
			DRAWING S-15
			SHEET 15 OF 72

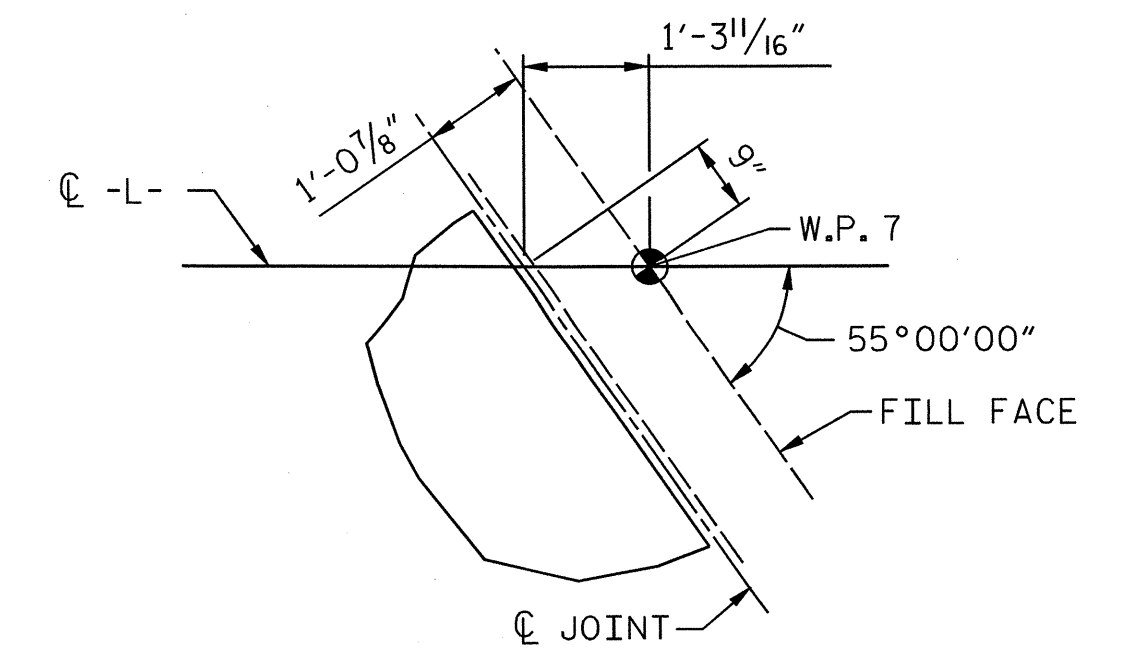
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PLAN OF SPAN "F" AND PARTIAL PLAN OF SPAN "E"



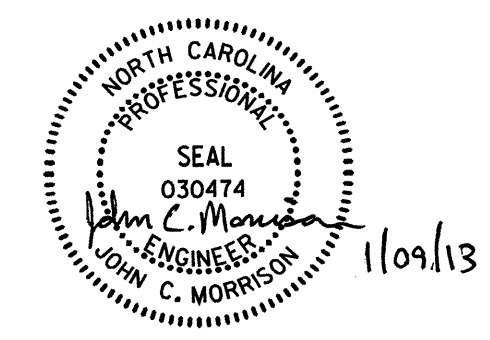
DETAIL "J"
"A" & "B" BARS NOT SHOWN



DETAIL "K"
NOTE: SKEWED DIMENSIONS AT END END BENT 2 ARE BASED ON A JOINT OPENING OF 1 3/4" AT 60° F.

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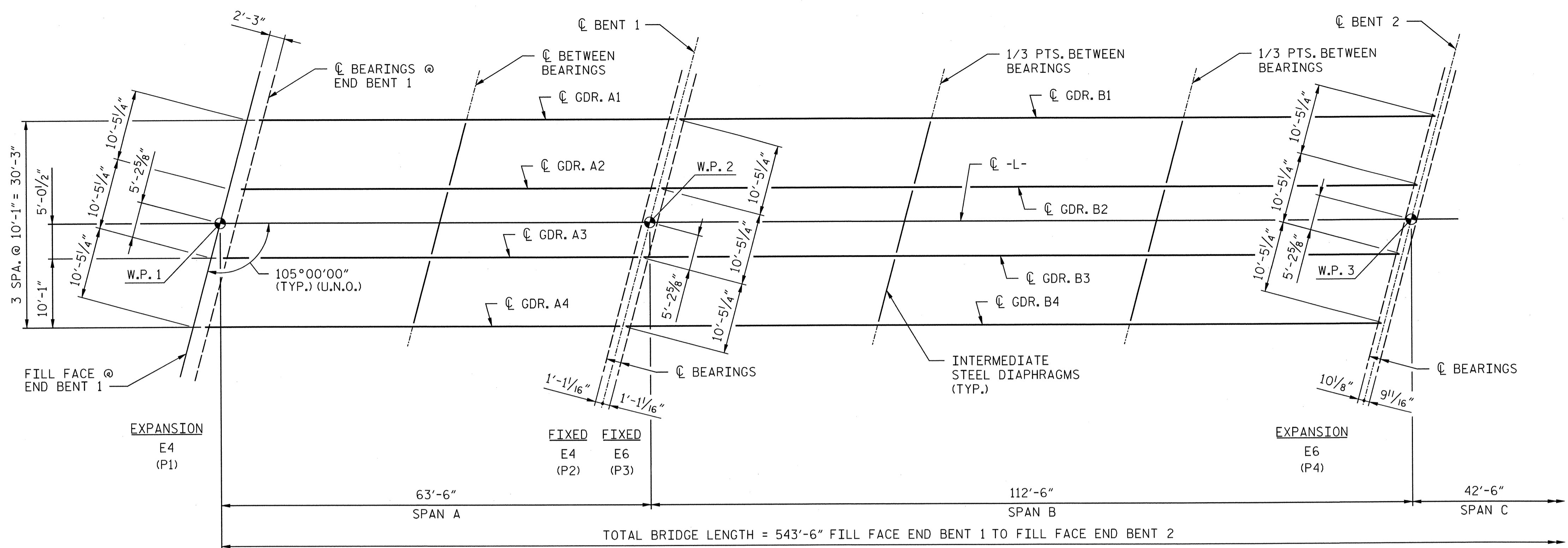
NO.	BY	DATE	REVISION



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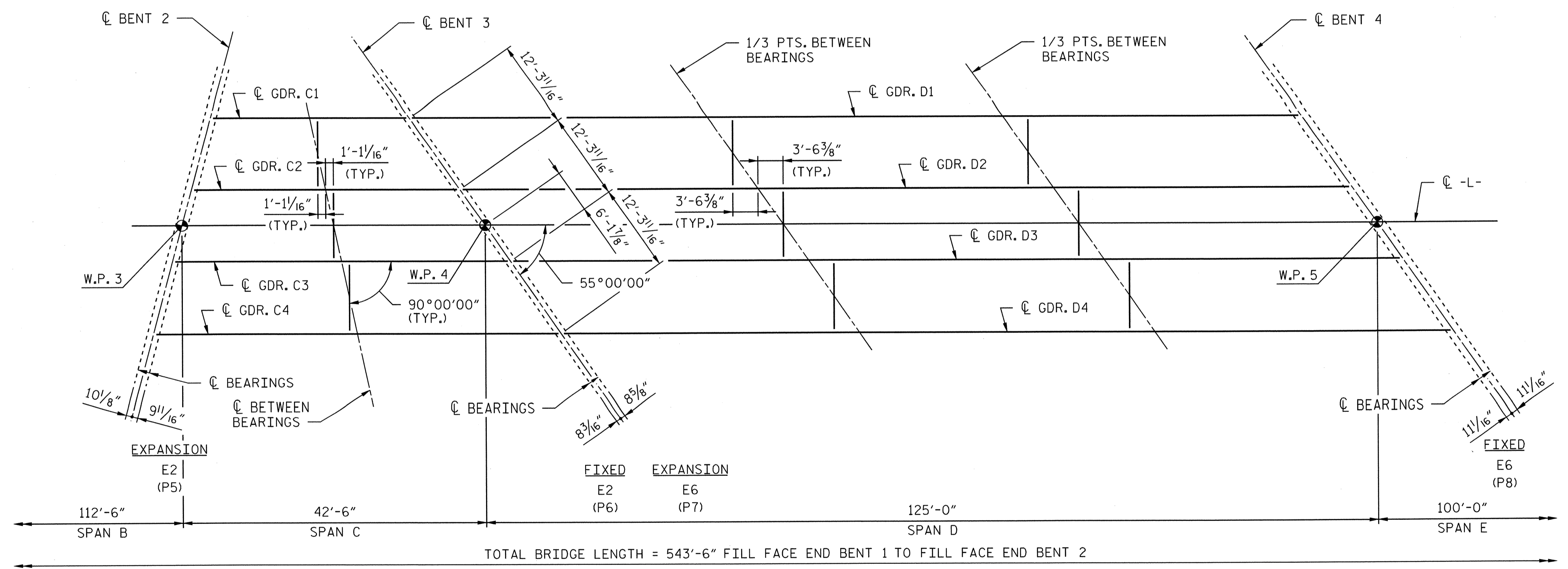
PROJECT	C-4901C		
TITLE	SUPERSTRUCTURE PLAN OF SPAN "F" AND PARTIAL PLAN OF SPAN "E" (6 OF 6)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	JCM	RAILROAD	NS / NCR
DWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/16" = 1'-0" U.O.N.
			SHEET 16 OF 72

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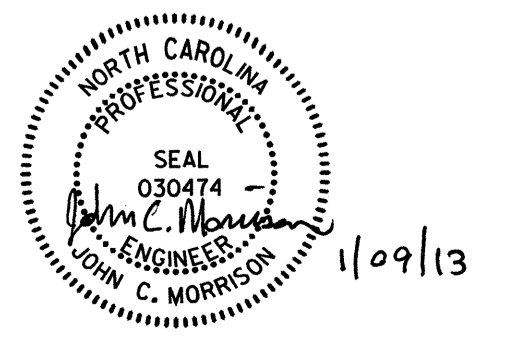
NOTES:
 1. FOR BEARING AND SOLE PLATE SIZES, SEE 'ELASTOMERIC BEARING DETAILS' SHEET.

FRAMING PLAN OF SPAN "A" AND FRAMING PLAN OF SPAN "B"



FRAMING PLAN OF SPAN "C" AND FRAMING PLAN OF SPAN "D"

NO.	BY	DATE	REVISION

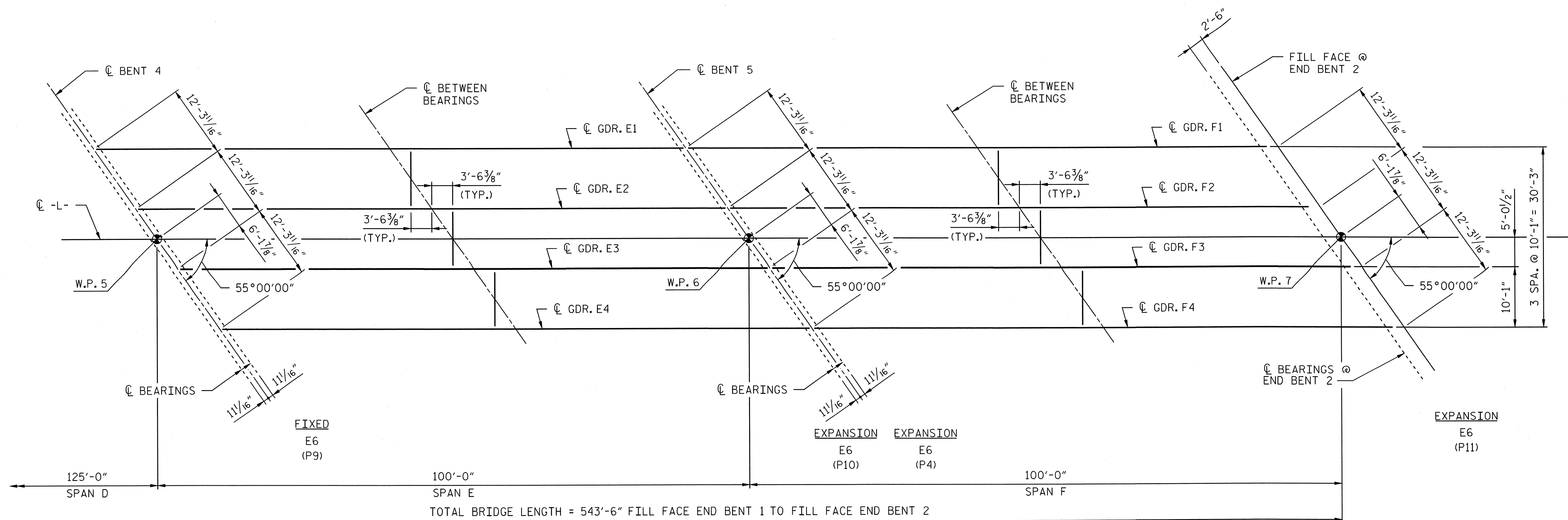


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RAIL DIVISION

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PROJECT		C-4901C	
TITLE		SUPERSTRUCTURE FRAMING PLAN (1 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1" = 10'
		DRAWING S-17	
		SHEET 17 OF 72	

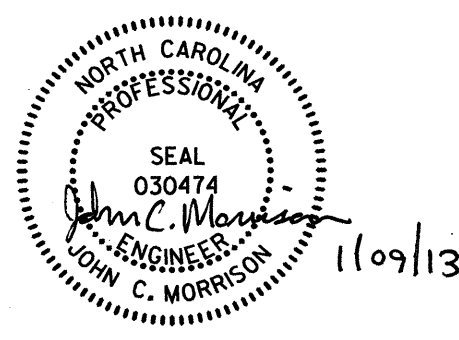
0271DEL_P10c3



FRAMING PLAN OF SPAN "E" AND FRAMING PLAN OF SPAN "F"

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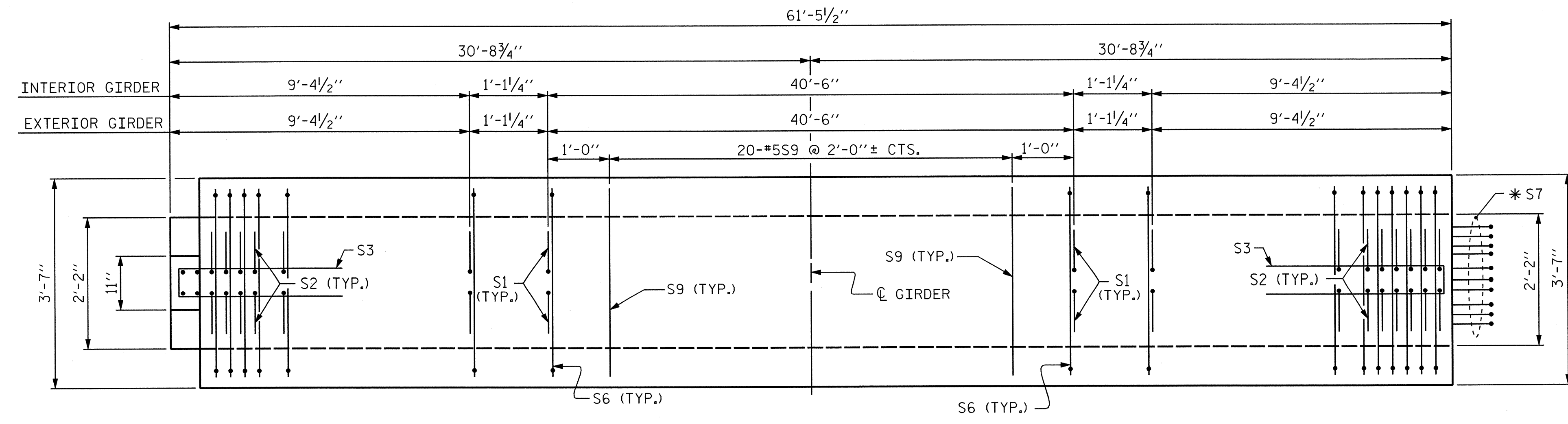
NO.	BY	DATE	REVISION



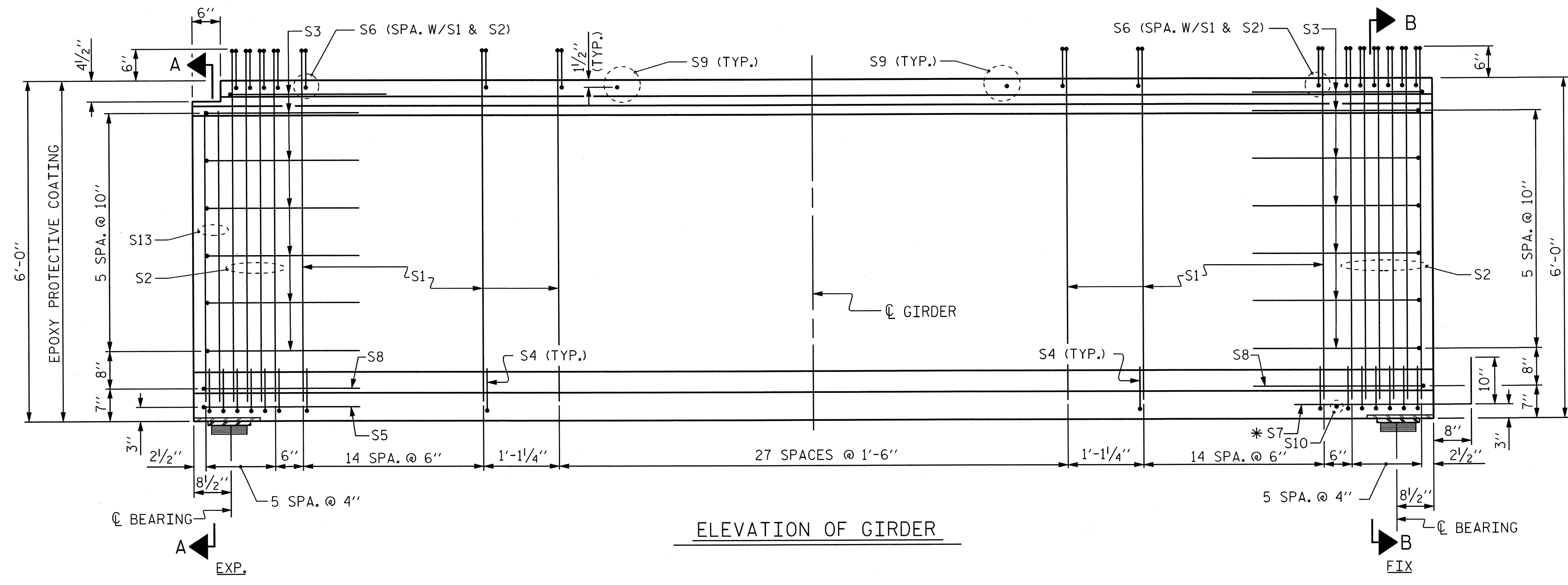
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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PROJECT		C-4901C	
TITLE		SUPERSTRUCTURE FRAMING PLAN (2 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1" = 10'
		DRAWING	
		S-18	
		SHEET 13 OF 72	

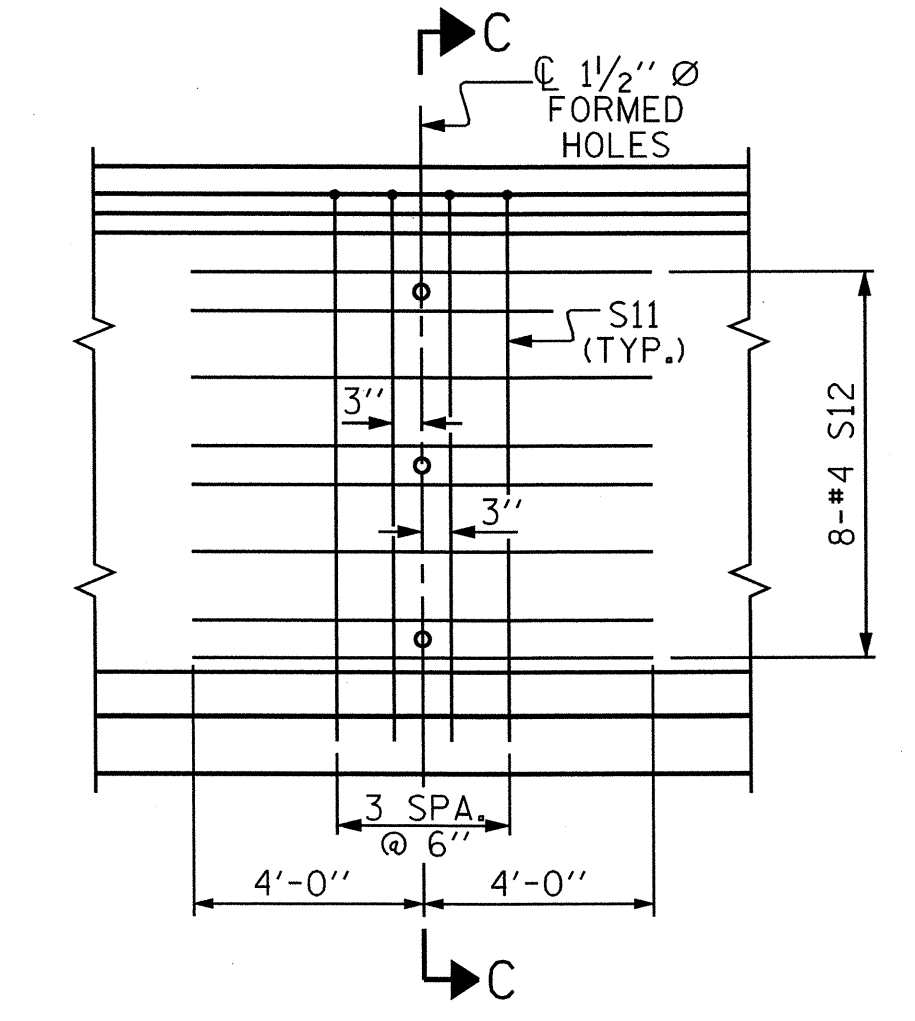
NOTES:
 FOR SECTIONS A-A, B-B, C-C AND BILL OF MATERIAL, SEE "SPAN "A" (2 OF 2)".
 FOR INTERMEDIATE STEEL DIAPHRAGM LOCATIONS, SEE "FRAMING PLAN".



PLAN OF GIRDER



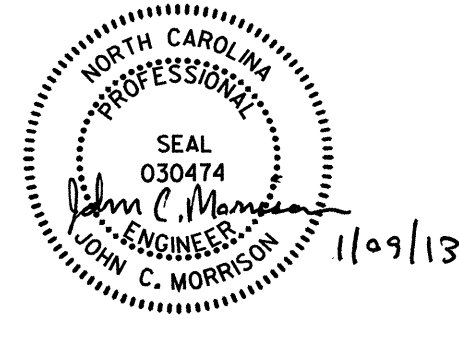
ELEVATION OF GIRDER



PARTIAL ELEVATION
 SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER NOS. A1 THRU A4

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NO.	BY	DATE	REVISION

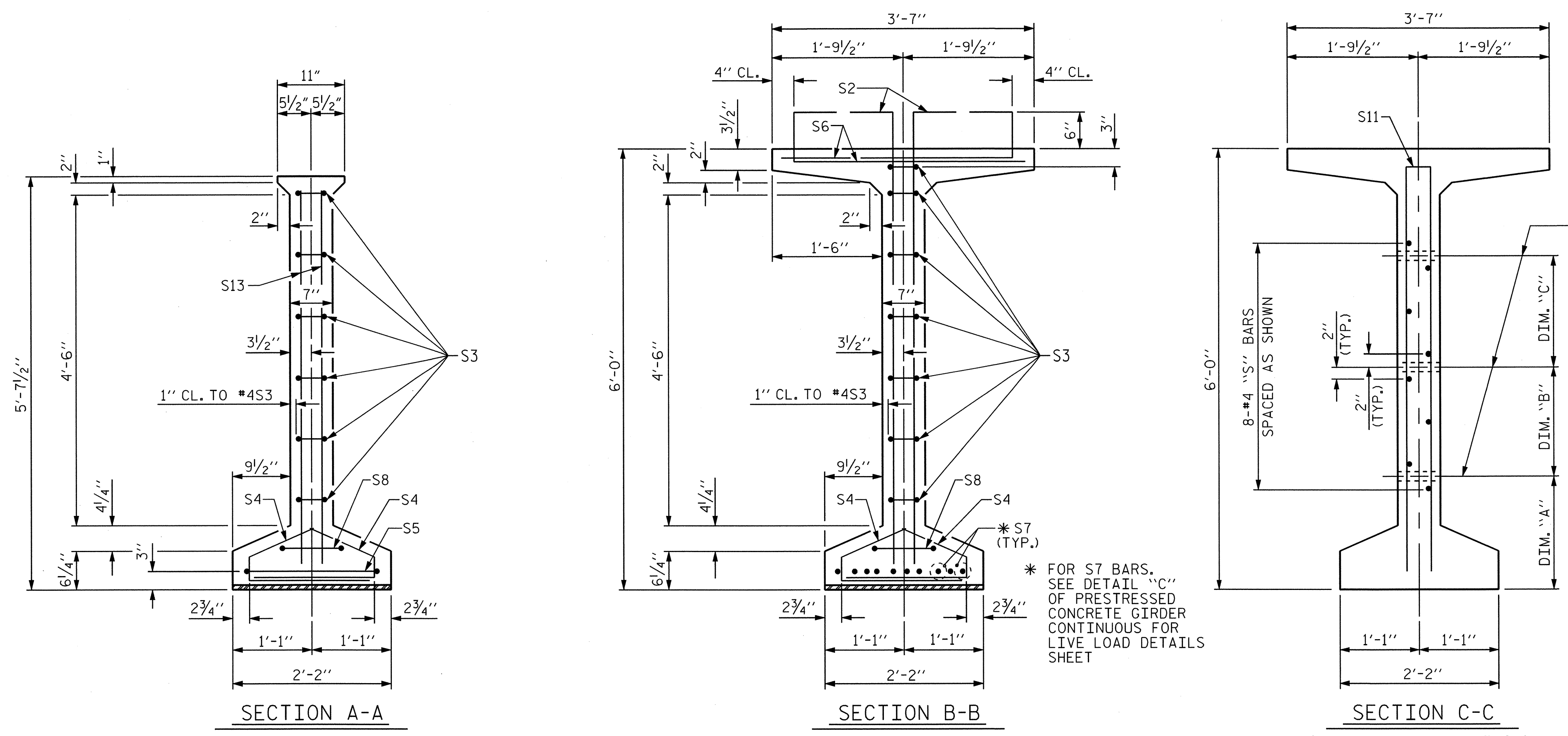


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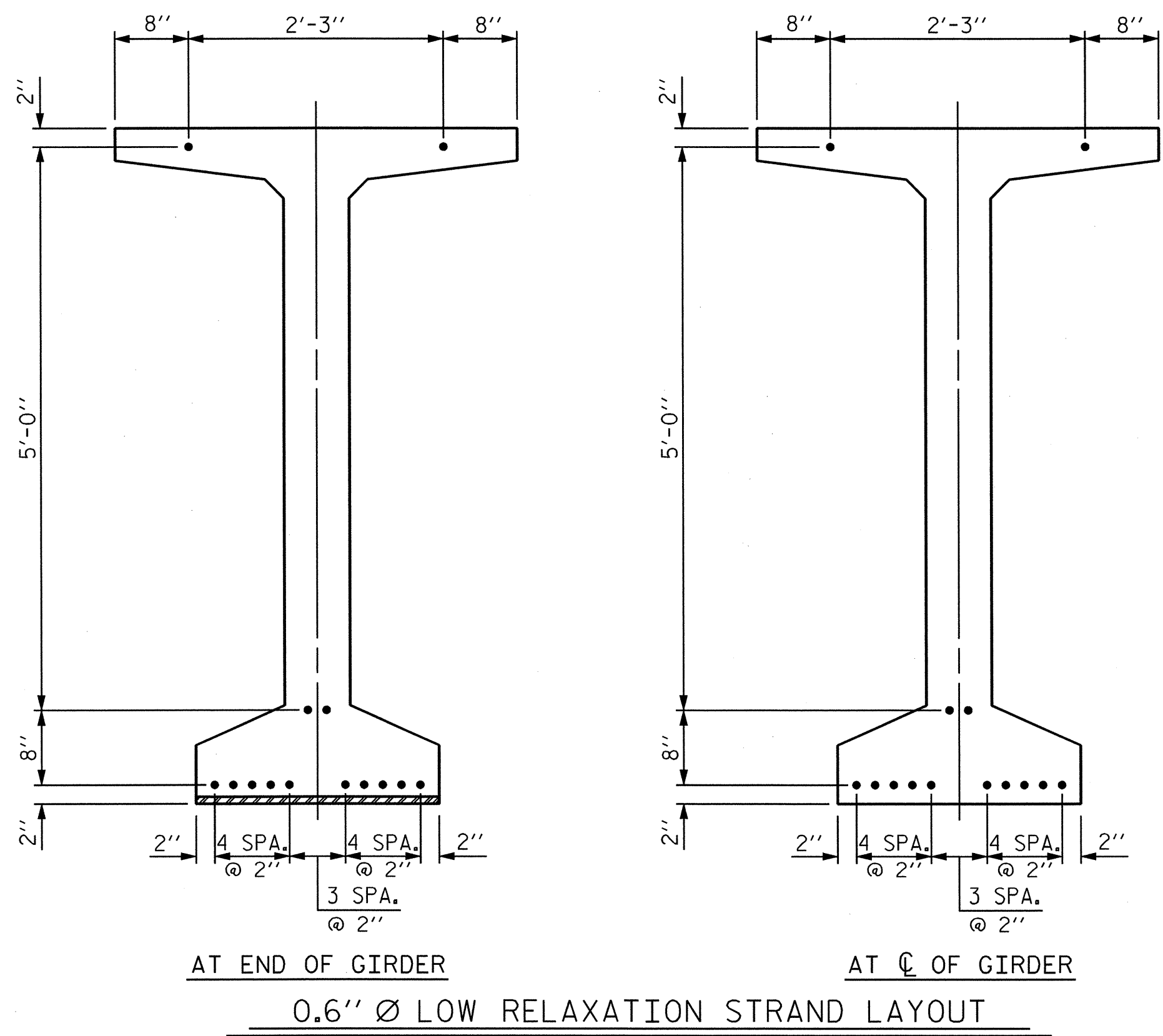
PROJECT		C-4901C	
TITLE		72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "A" (1 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-19	
SHEET 19 OF 72			

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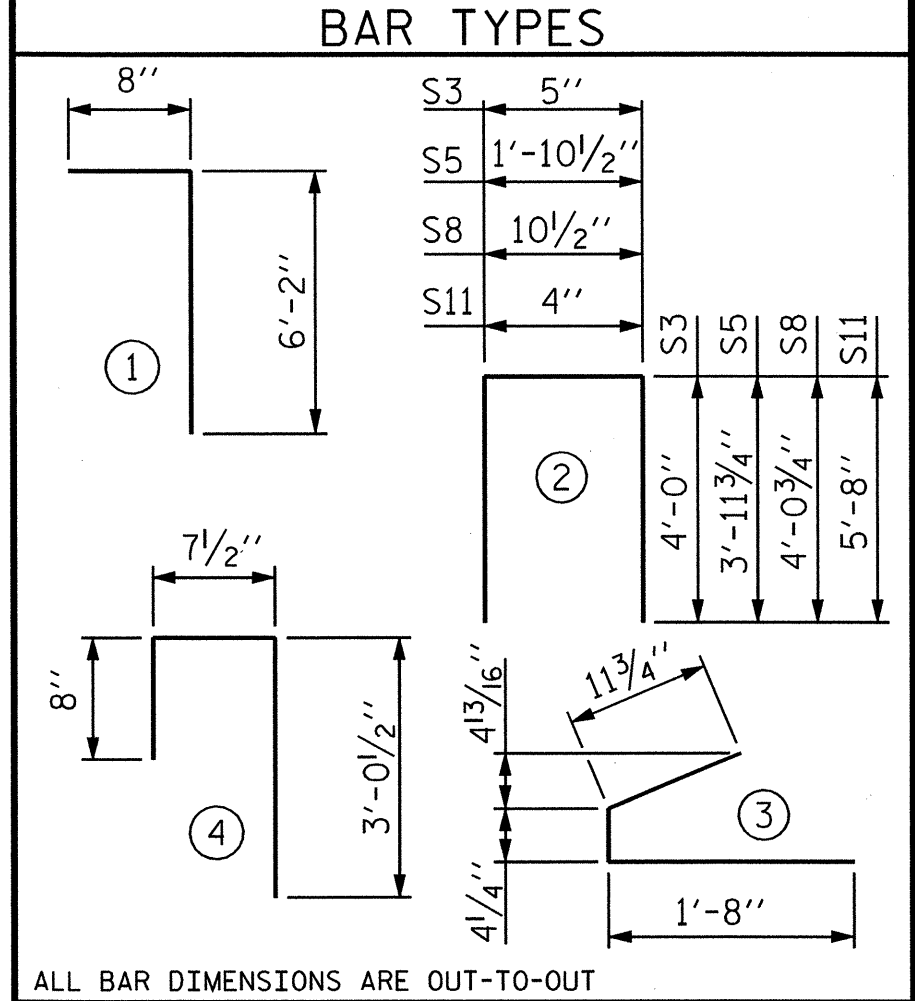


Ø 1/2" FORMED HOLE. SEE ELEVATION FOR LOCATION. FOR DIM. "A", "B" & "C" SEE "INTERMEDIATE STEEL DIAPHRAGMS" SHEET.

DEBONDING LEGEND
 ● FULLY BONDED STRANDS



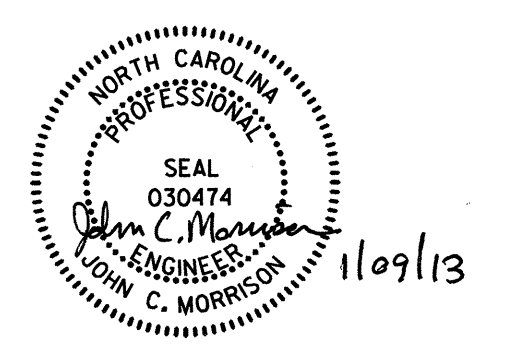
0.6" Ø L. R. GRADE 270 STRANDS						
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)				
0.217	58,600	43,950				
REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	116	#4	1	6'-10"	530
INTERIOR GDR.	S1	116	#4	1	6'-10"	530
	S2	20	#5	1	6'-10"	143
	S3	14	#4	2	8'-5"	79
	S4	84	#4	3	3'-0"	168
	S5	1	#5	2	9'-10"	10
EXTERIOR GDR.	S6	136	#5	4	4'-4"	615
INTERIOR GDR.	S6	136	#5	4	4'-4"	615
	*S7	10	#5	STR	3'-8"	38
	S8	2	#5	2	9'-0"	19
	S9	20	#5	STR	3'-3"	68
	S10	1	#3	STR	1'-10"	1
EXTERIOR GDR.	S11	4	#5	2	11'-8"	49
INTERIOR GDR.	S11	4	#5	2	11'-8"	49
	S12	8	#4	STR	8'-0"	43
	S13	4	#5	STR	5'-2"	22



	QUANTITIES FOR ONE GIRDER		
	REINFORCING STEEL (LB.)	6000 PSI CONCRETE (C.Y.)	0.6" Ø L.R. STRANDS (No.)
EXTERIOR GIRDER	1785	13.2	14
INTERIOR GIRDER	1785	13.2	14

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	61'-5 1/2"	245'-10"

NO.	BY	DATE	REVISION

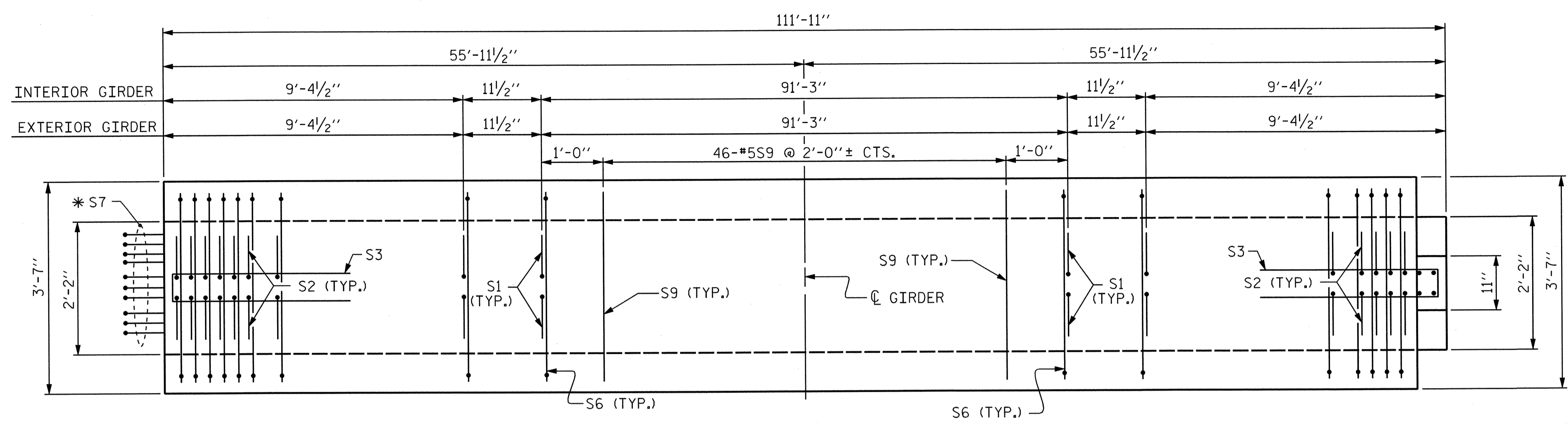


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

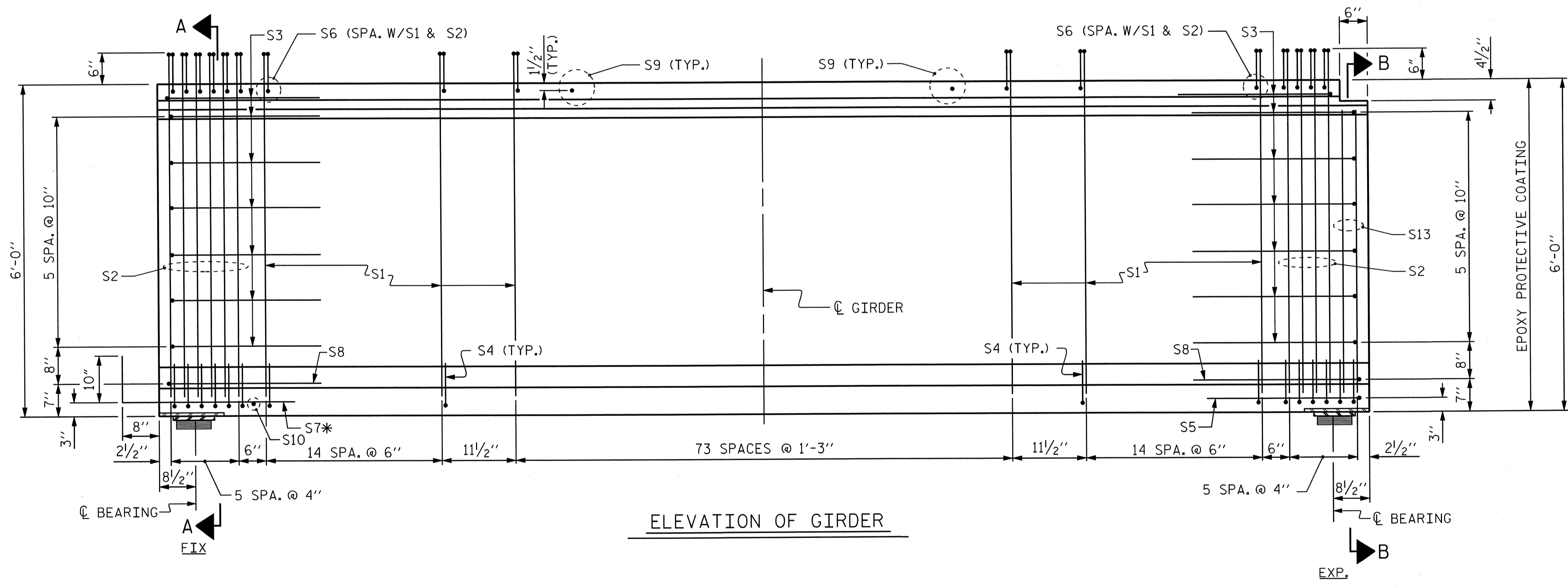
PREPARED BY: **AECOM**
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 (919) 854-8500 www.aecom.com
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PROJECT	C-4901C	
TITLE	72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "A" (2 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST MP 313.04
DGN BY	DPS	RAILROAD NS / NCRR
DWN BY	DDL	VAL SEC V.5-8
CHK BY	JL	DATE NOVEMBER 2012 SCALE 3/4"=1'-0"
DRAWING S-20		SHEET 20 OF 72

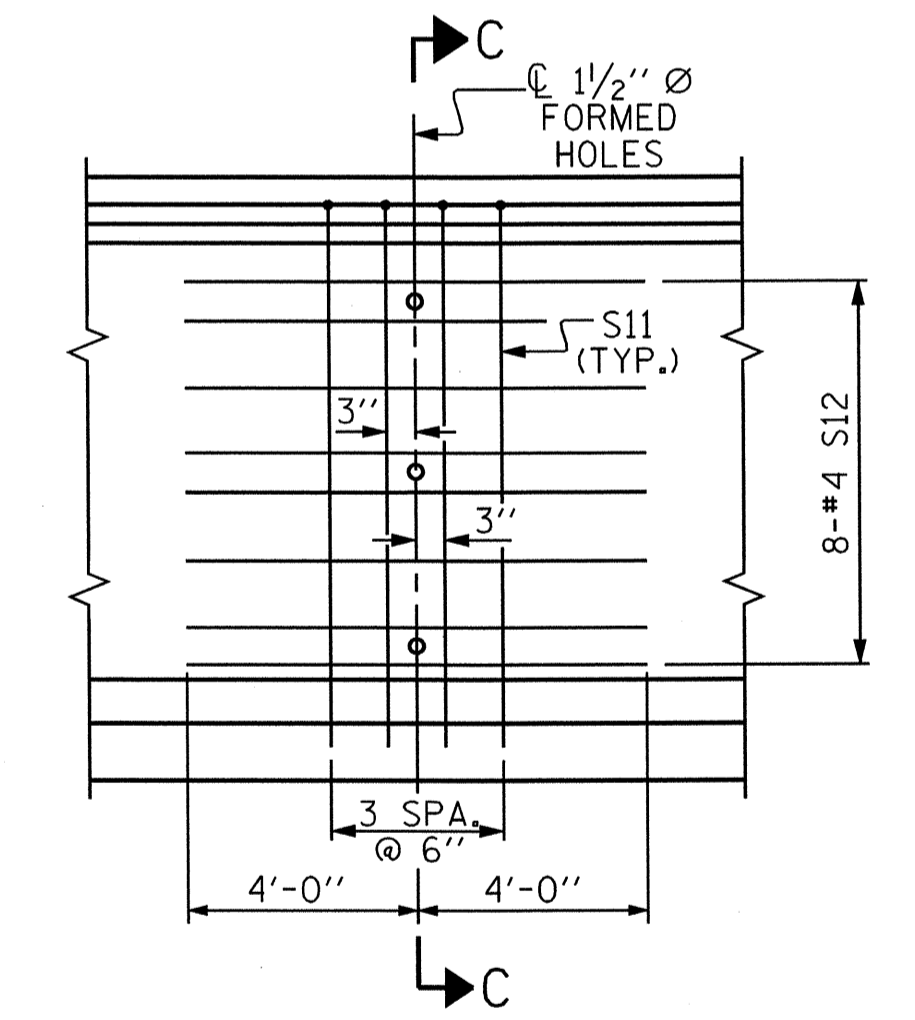
NOTES:
 FOR SECTIONS A-A, B-B, C-C AND BILL OF MATERIAL, SEE "SPAN "B" (2 OF 2)".
 FOR INTERMEDIATE STEEL DIAPHRAGM LOCATIONS, SEE "FRAMING PLAN".



PLAN OF GIRDER



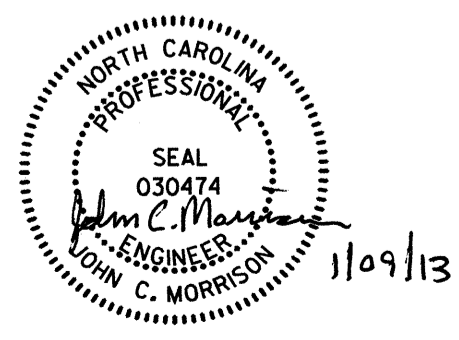
ELEVATION OF GIRDER



PARTIAL ELEVATION
 SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. B1 THRU B4

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NO.	BY	DATE	REVISION

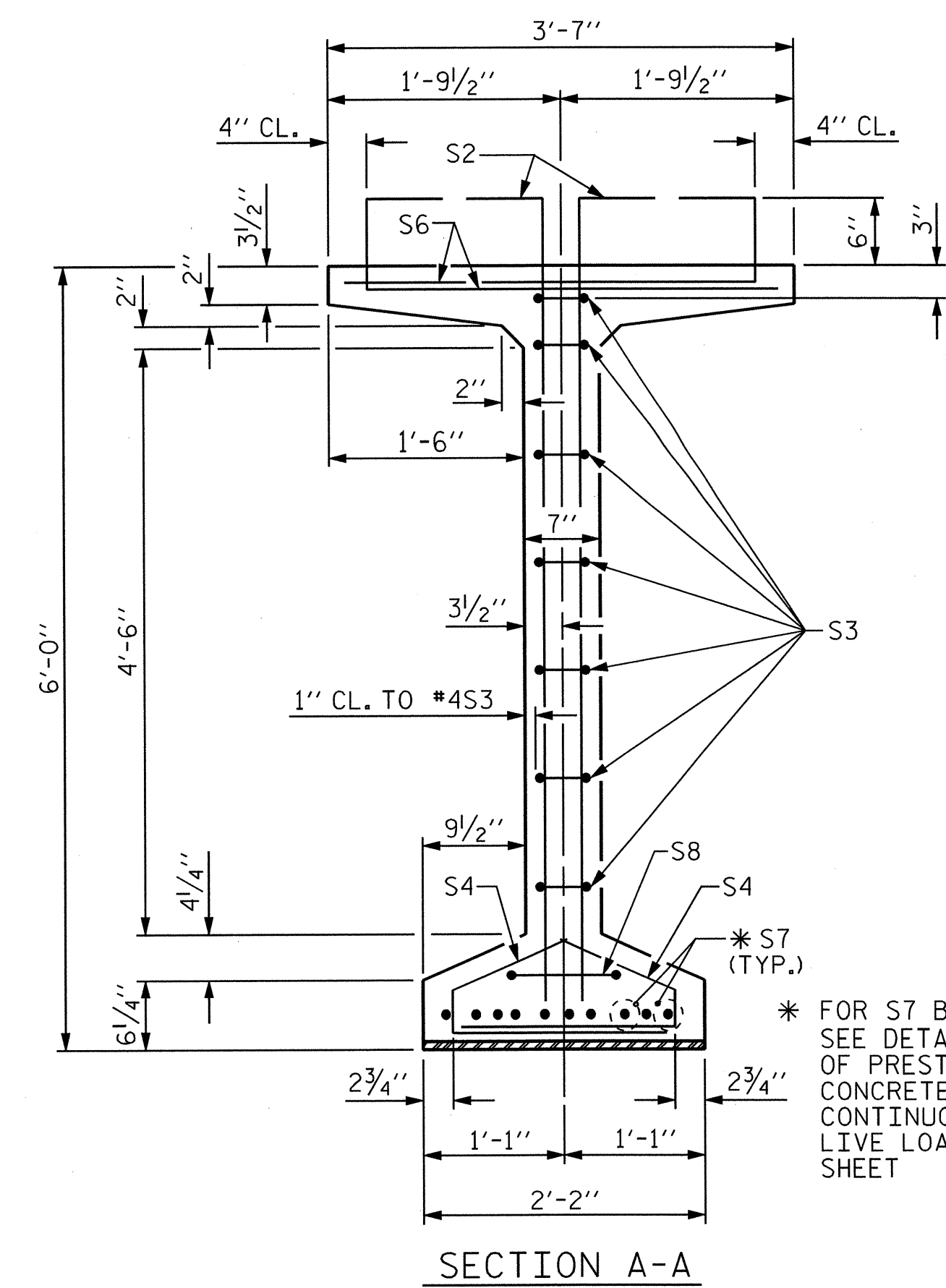


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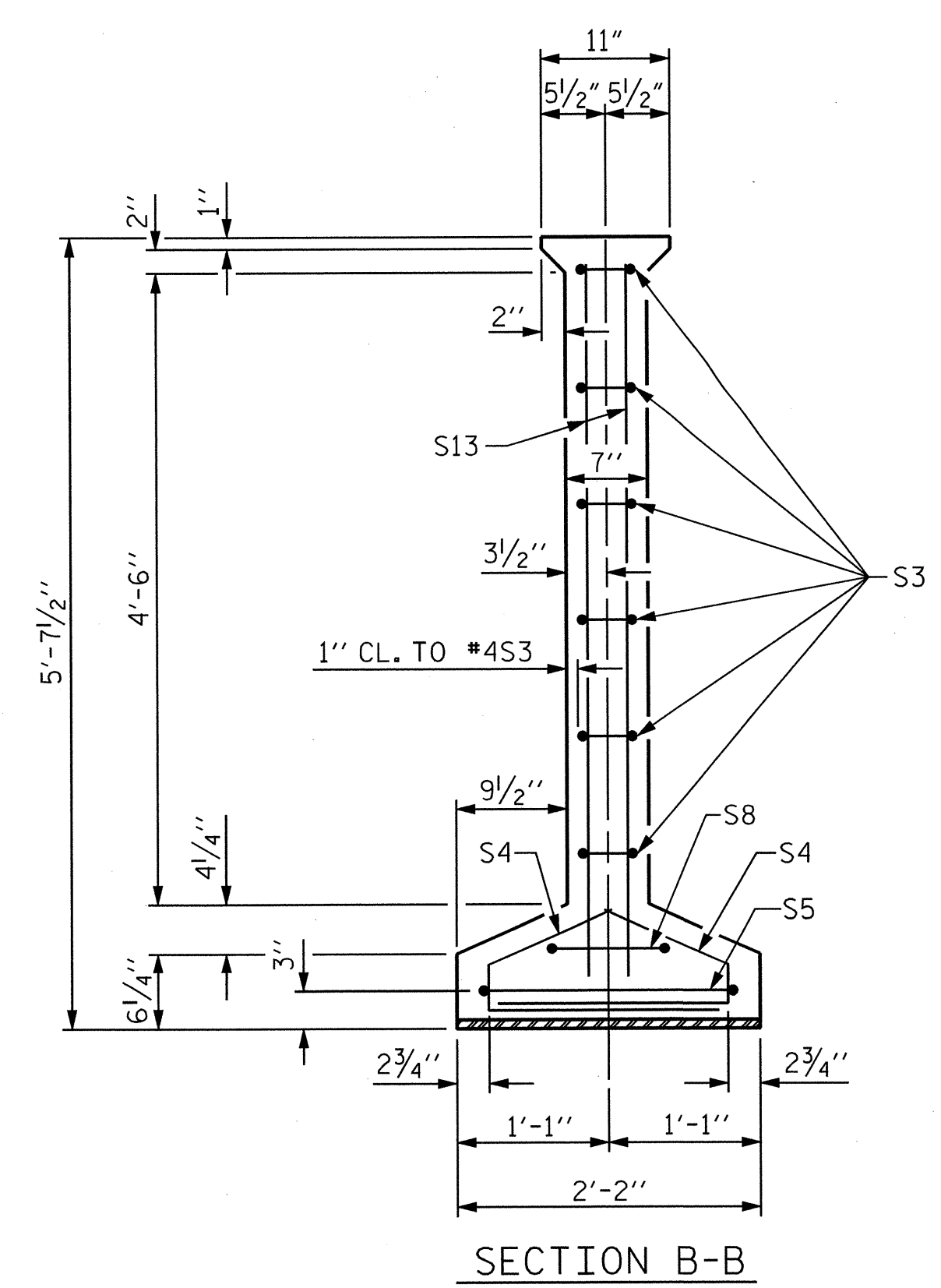
PROJECT		C-4901C	
TITLE		72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "B" (1 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-21	
SHEET		21 OF 72	

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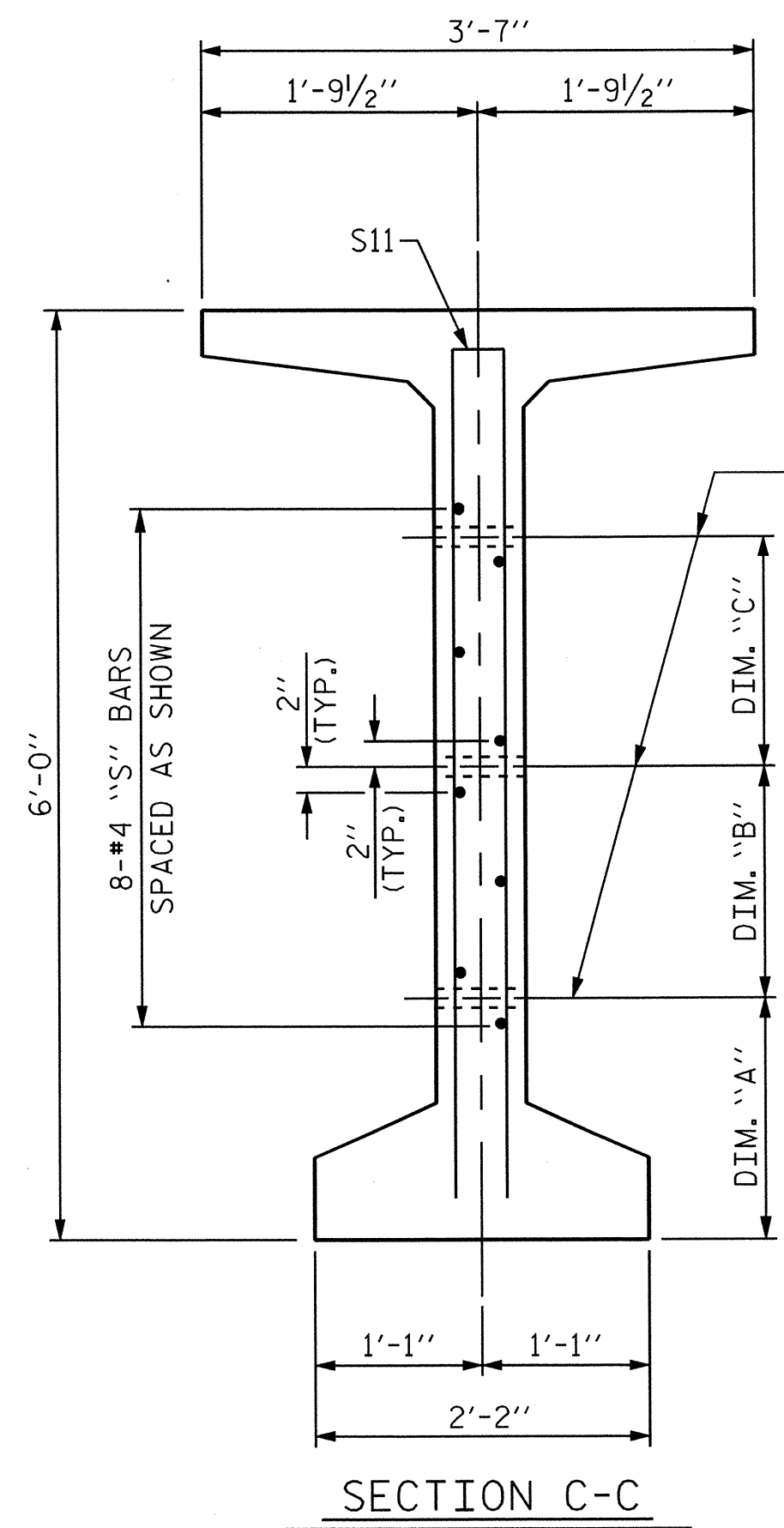
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SECTION A-A



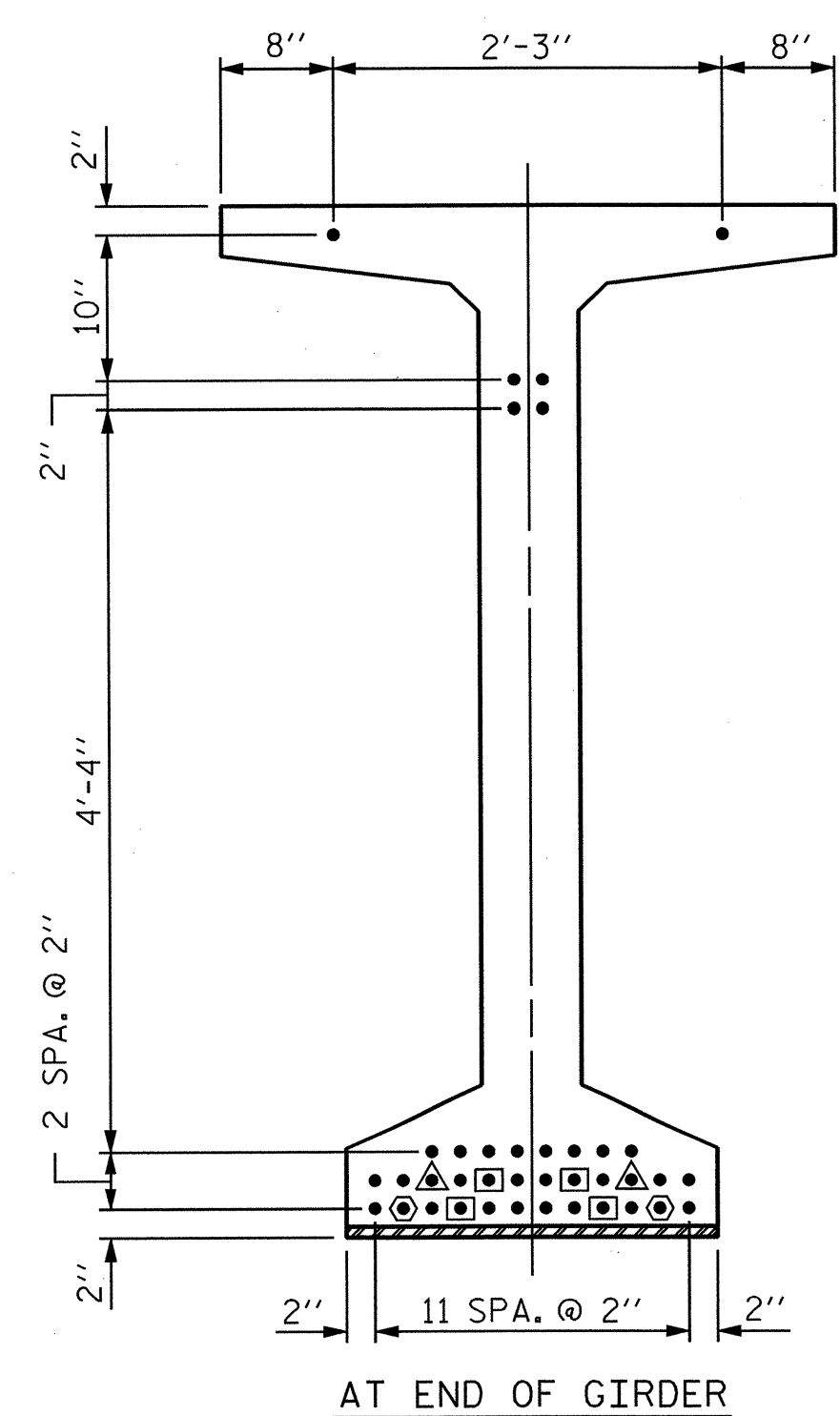
SECTION B-B



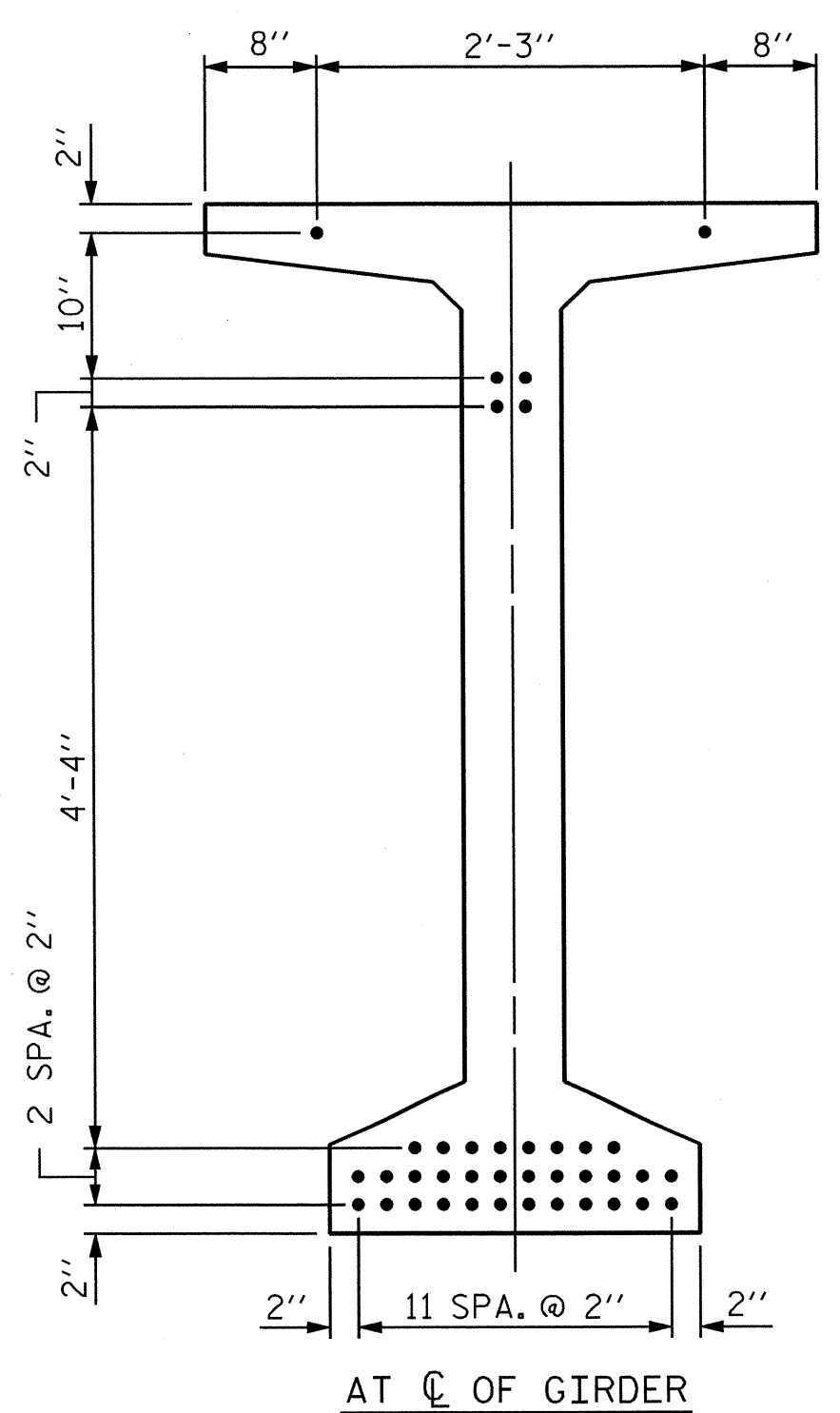
SECTION C-C
(S1, S6 AND S9 BARS NOT SHOWN)

⊙ 1/2" Ø FORMED HOLE. SEE ELEVATION FOR LOCATION. FOR DIM. "A", "B" & "C" SEE "INTERMEDIATE STEEL DIAPHRAGMS" 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 12'-0" FROM END OF GIRDER



AT END OF GIRDER



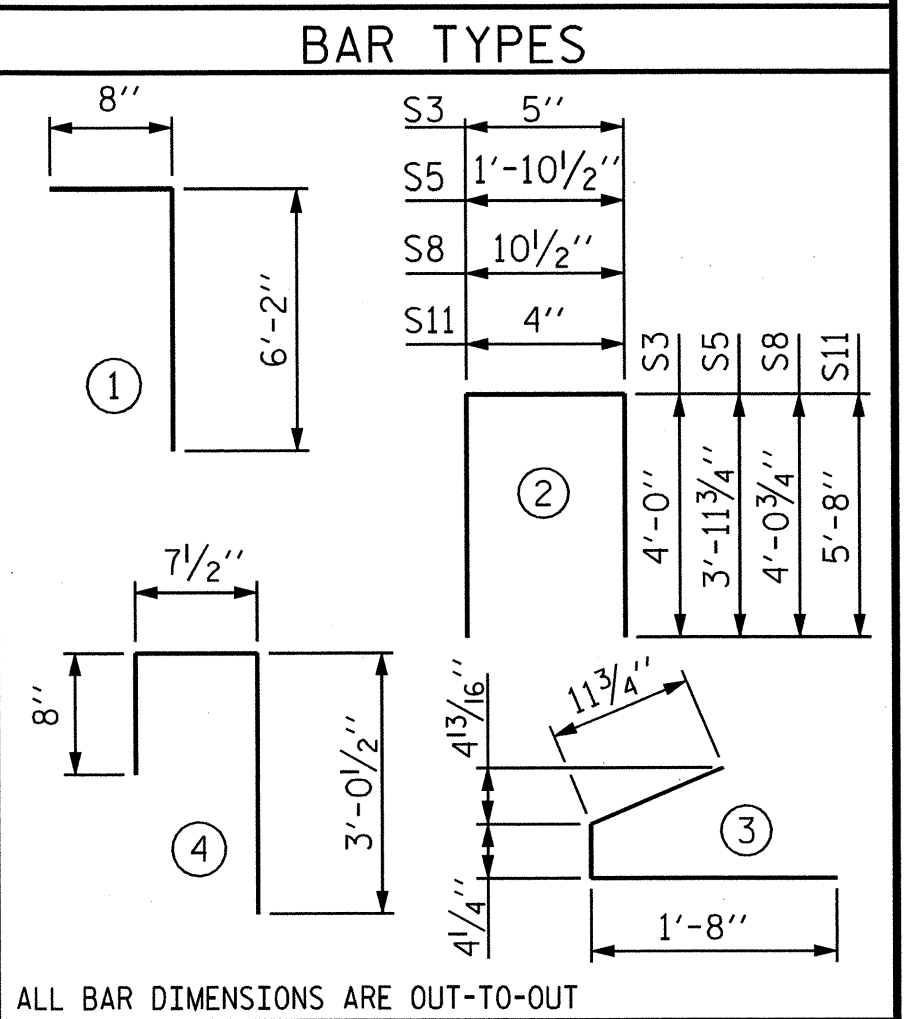
AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

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

REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	208	#4	1	6'-10"	950
INTERIOR GDR.	S1	208	#4	1	6'-10"	950
	S2	20	#5	1	6'-10"	143
	S3	14	#4	2	8'-5"	79
	S4	84	#4	3	3'-0"	168
	S5	1	#5	2	9'-10"	10
EXTERIOR GDR.	S6	228	#5	4	4'-4"	1030
INTERIOR GDR.	S6	228	#5	4	4'-4"	1030
	*S7	10	#5	STR	3'-8"	38
	S8	2	#5	2	9'-0"	19
	S9	46	#5	STR	3'-3"	156
	S10	1	#3	STR	1'-10"	1
EXTERIOR GDR.	S11	4	#5	2	11'-8"	49
INTERIOR GDR.	S11	4	#5	2	11'-8"	49
	S12	8	#4	STR	8'-0"	43
	S13	4	#5	STR	5'-2"	22

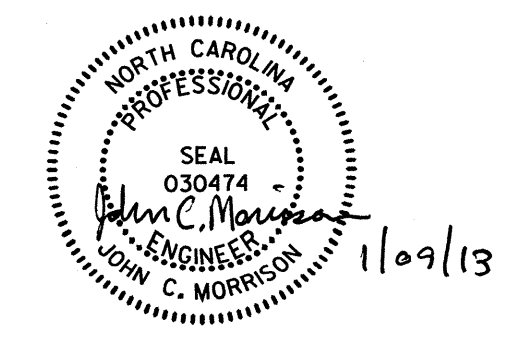
* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	7000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	2708	24.0	38
INTERIOR GIRDER	2708	24.0	38

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	111'-11"	447'-8"

NO.	BY	DATE	REVISION

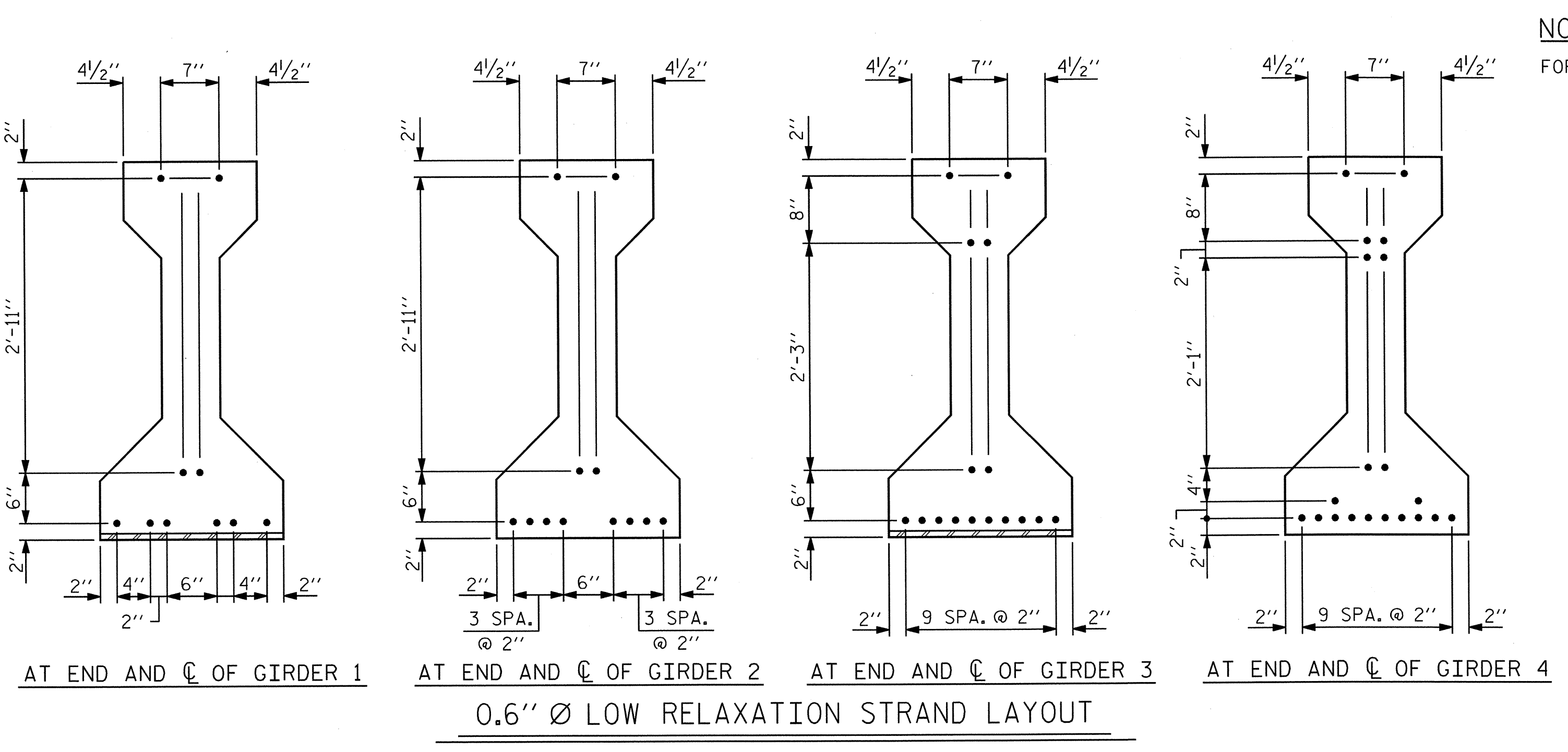
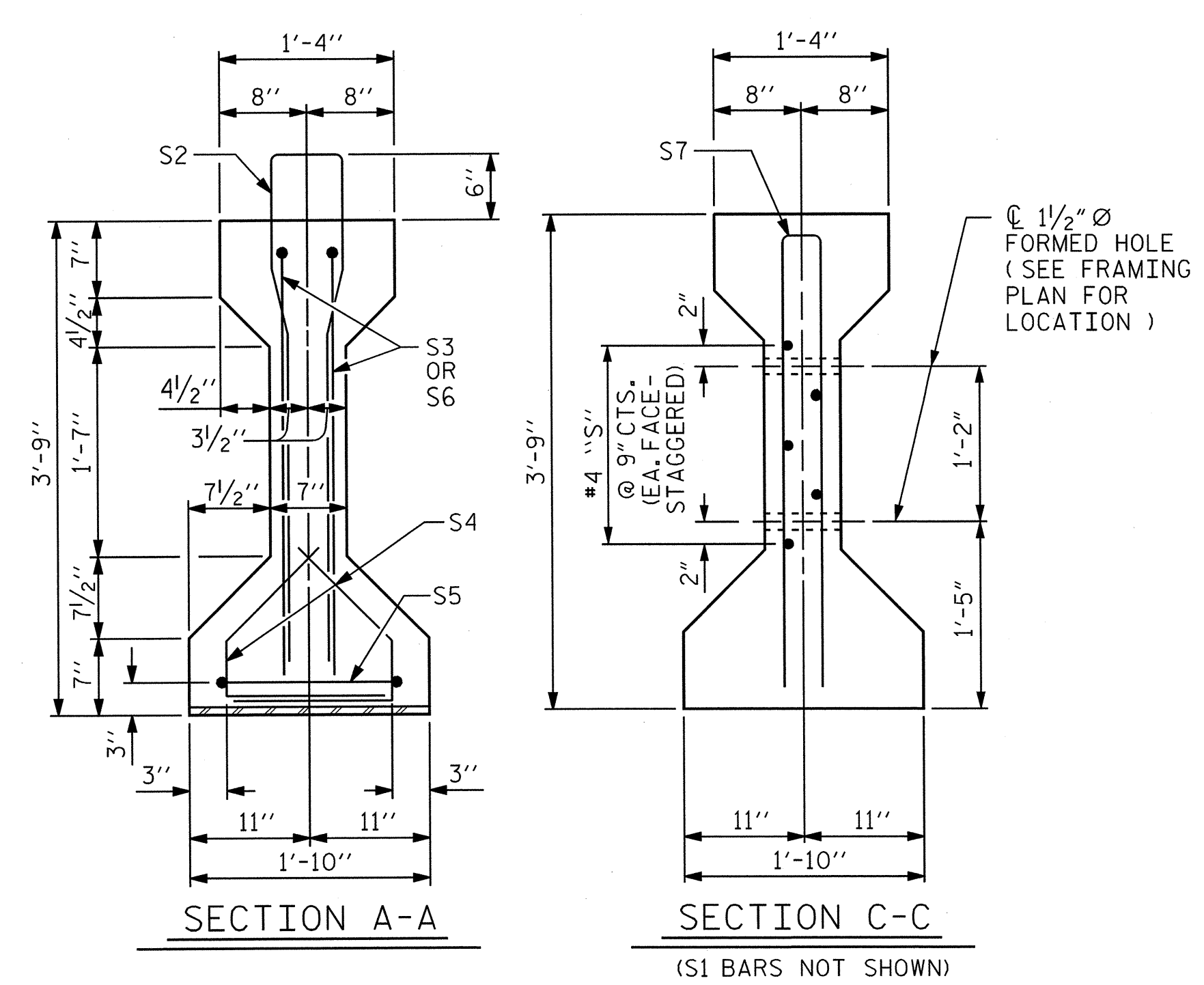


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 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-6200
 AECOM License No. P-0342

PROJECT	C-4901C		
TITLE	72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "B" (2 OF 2)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	WILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/4" = 1'-0"
		DRAWING	S-22
			SHEET 22 OF 72

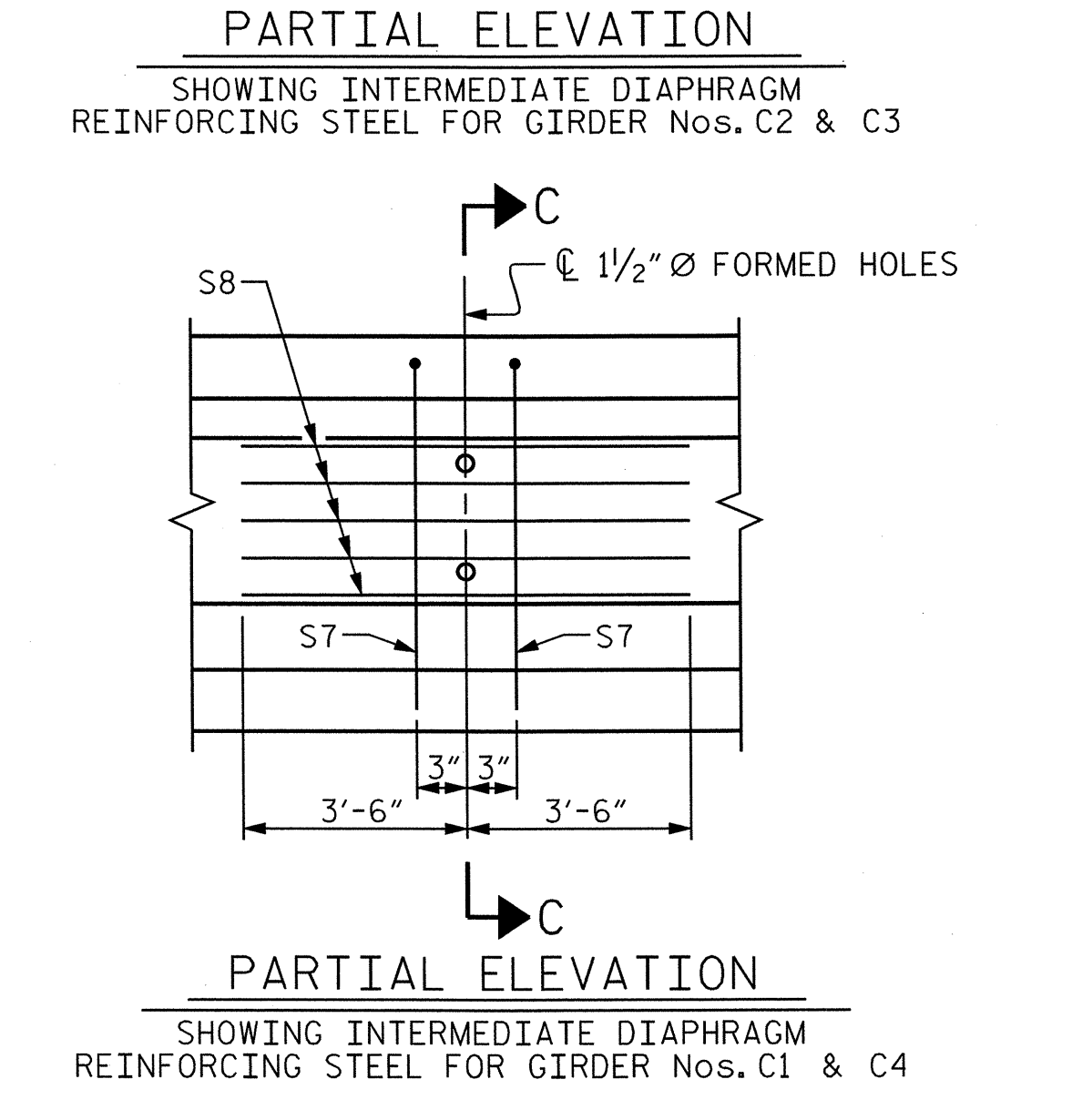
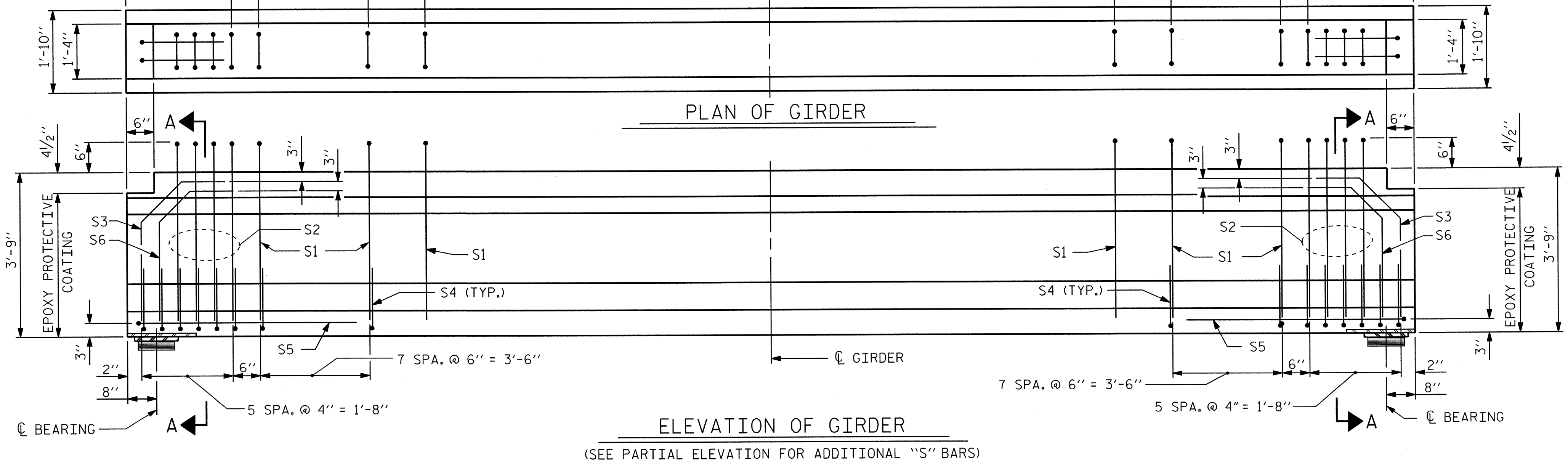
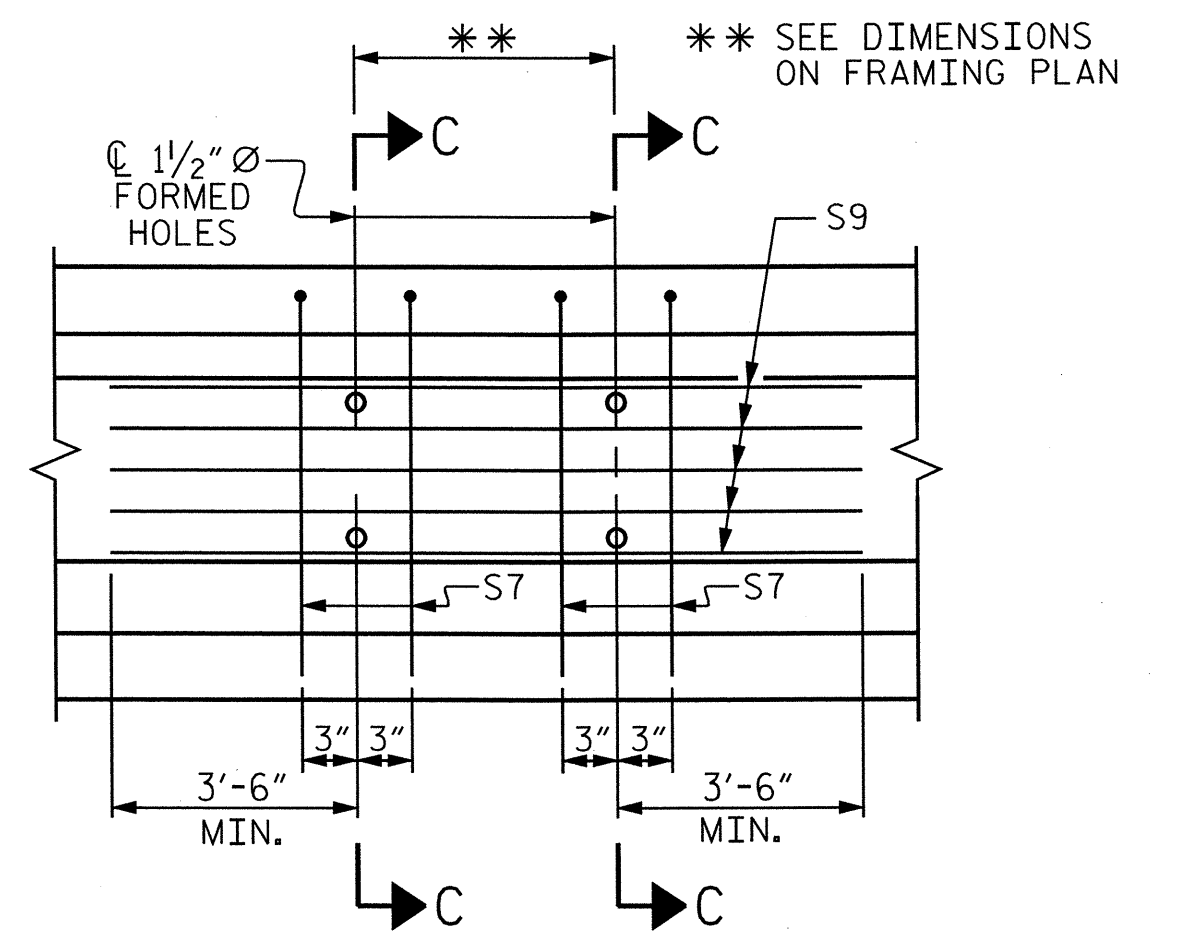
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NOTE:
FOR BILL OF MATERIAL, SEE "SPAN "C" (2 OF 2)".

GIRDER 4	56'-9 3/4"	
GIRDER 3	47'-0 1/2"	
GIRDER 2	37'-3 1/2"	
GIRDER 1	27'-6 1/4"	
GIRDER 4	28'-4 7/8"	28'-4 7/8"
GIRDER 3	23'-6 1/4"	23'-6 1/4"
GIRDER 2	18'-7 3/4"	18'-7 3/4"
GIRDER 1	13'-9 1/8"	13'-9 1/8"
GIRDER 4	1'-10" 6" 3'-6" 1'-3 3/8"	34 SPACES @ 1'-3" = 42'-6" 1'-3 3/8" 3'-6" 6" 1'-10"
GIRDER 3	1'-10" 6" 3'-6" 1'-2 1/4"	22 SPACES @ 1'-6" = 33'-0" 1'-2 1/4" 3'-6" 6" 1'-10"
GIRDER 2	1'-10" 6" 3'-6" 9 3/4"	16 SPACES @ 1'-6" = 24'-0" 9 3/4" 3'-6" 6" 1'-10"
GIRDER 1	1'-10" 6" 3'-6" 1'-2 1/8"	9 SPACES @ 1'-6" = 13'-6" 1'-2 1/8" 3'-6" 6" 1'-10"



NO.	BY	DATE	REVISION

SEAL
030474
John C. Morris
ENGINEER
11/09/13

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
AECOM
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-8200
www.aecom.com
AECOM License No. F-0362

PROJECT	C-4901C		
TITLE	TYPE III PRESTRESSED CONCRETE GIRDER SPAN "C" (1 OF 2)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	N.T.S.	DRAWING	S-23
SHEET			23 OF 72

0271DEL_P10c3

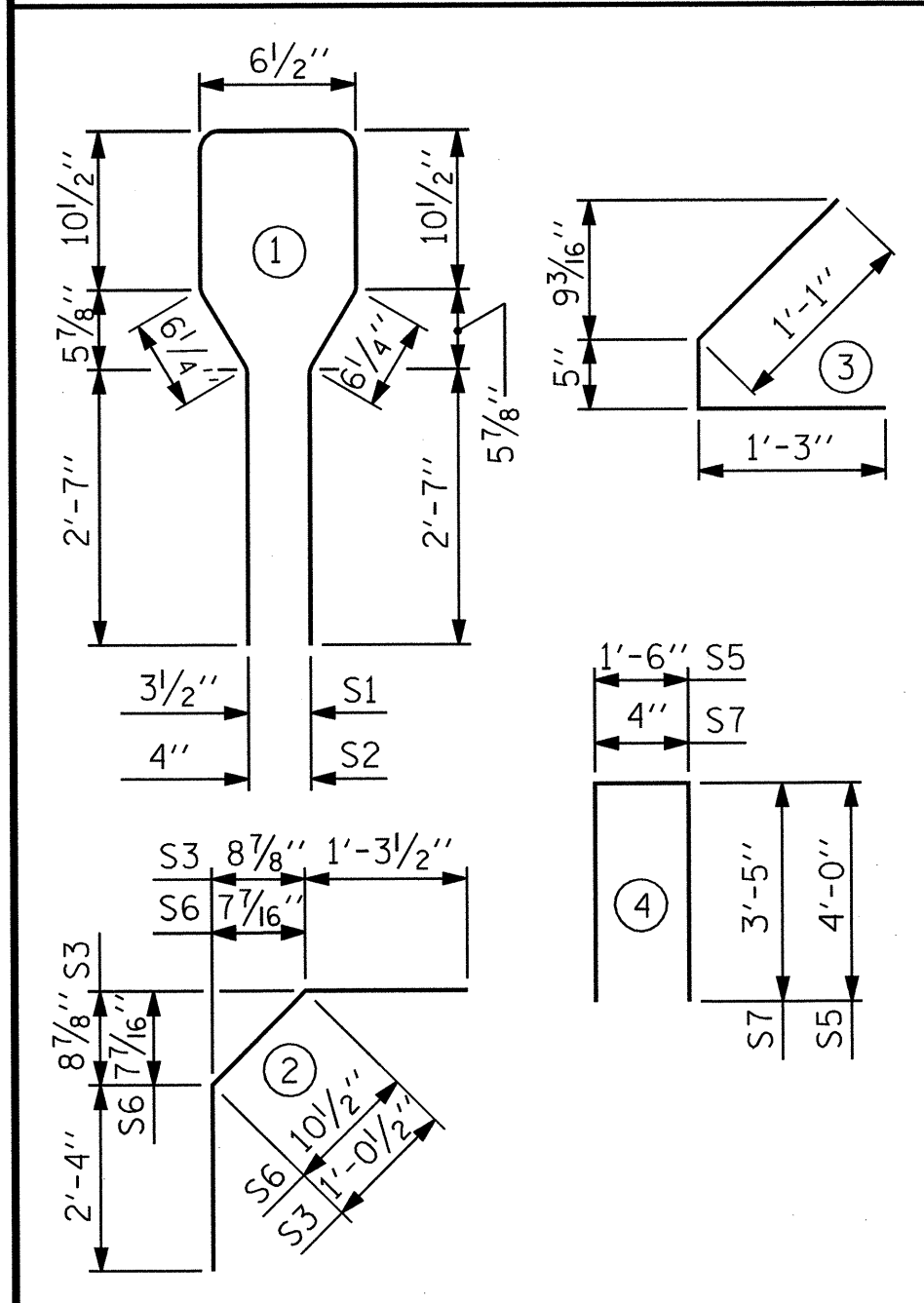
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0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	26	#4	1	8'-6"	148
S2	8	#6	1	8'-6"	102
S3	4	#6	2	4'-8"	28
S4	56	#4	3	2'-9"	103
S5	2	#4	4	9'-6"	13
S6	4	#6	2	4'-6"	27
S7	2	#5	4	7'-2"	15
S8	5	#4	STR	7'-0"	23

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR GIRDER 1

REINFORCING STEEL LB.	6000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
459	4.0	10

GIRDERS REQUIRED

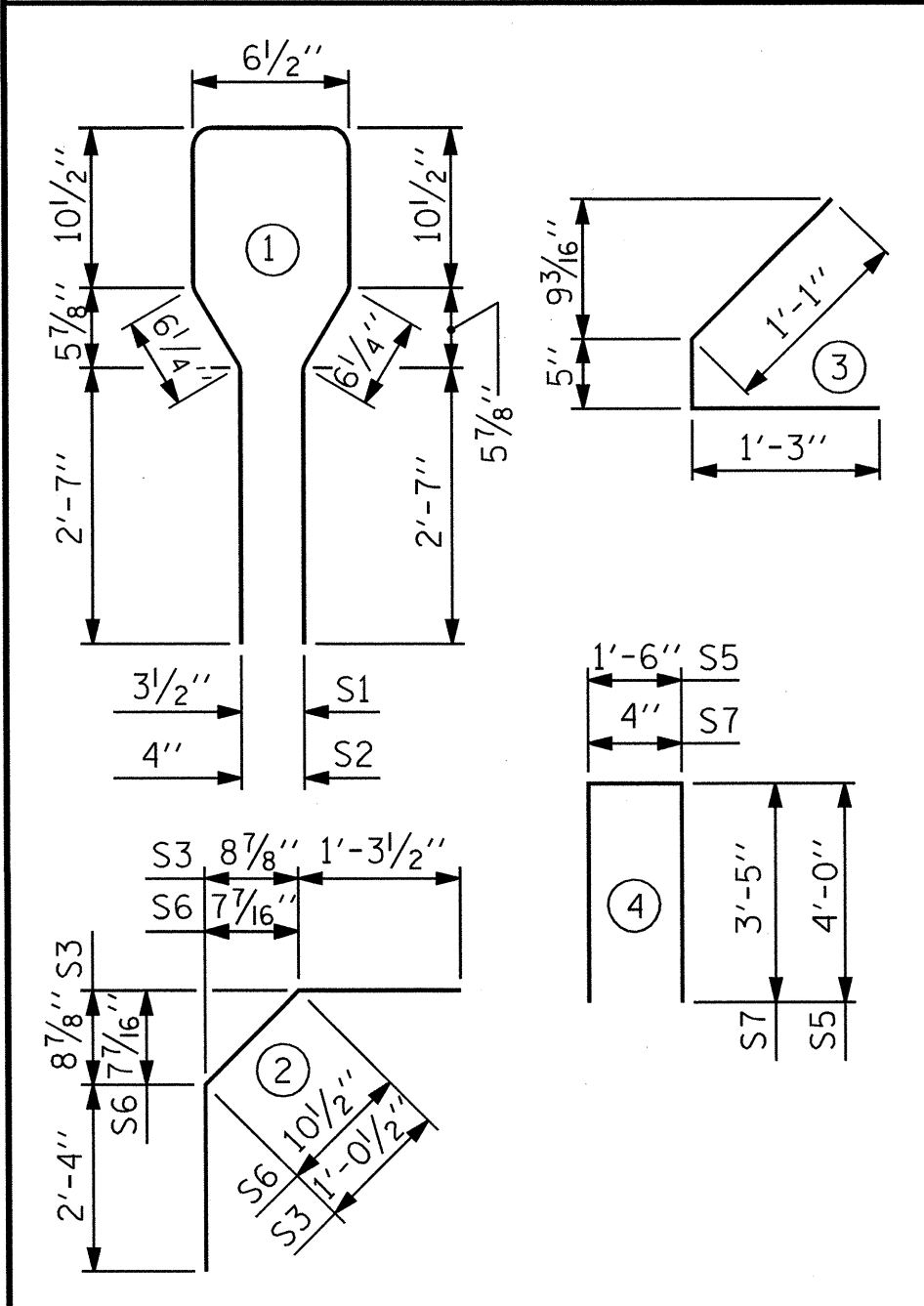
NUMBER	LENGTH	TOTAL LENGTH
1	27'-6 1/4"	27'-6 1/4"

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

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	33	#4	1	8'-6"	187
S2	8	#6	1	8'-6"	102
S3	4	#6	2	4'-8"	28
S4	56	#4	3	2'-9"	103
S5	2	#4	4	9'-6"	13
S6	4	#6	2	4'-6"	27
S7	4	#5	4	7'-2"	30
S9	5	#4	STR	9'-3"	31

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR GIRDER 2

REINFORCING STEEL LB.	6000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
521	5.4	12

GIRDERS REQUIRED

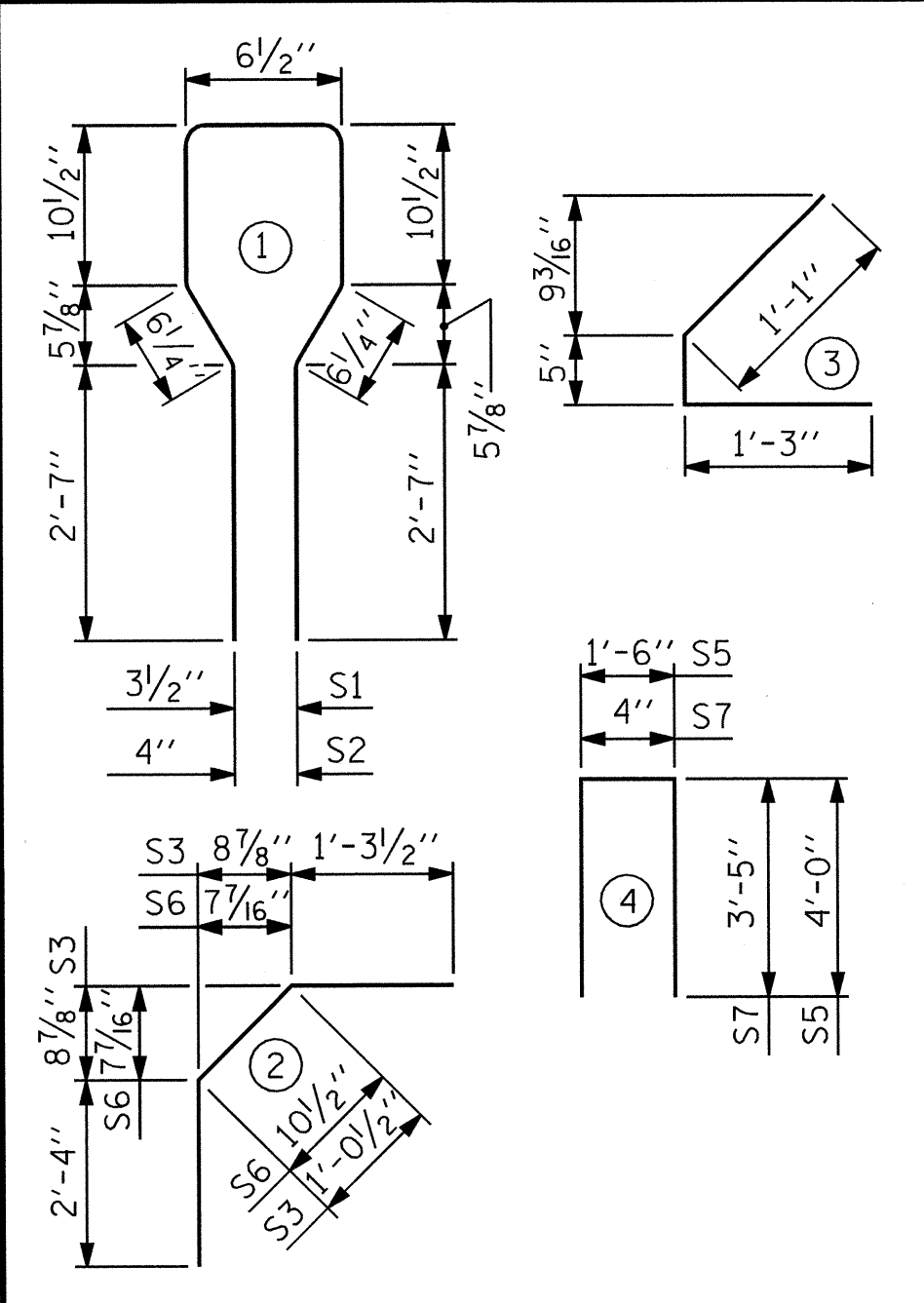
NUMBER	LENGTH	TOTAL LENGTH
1	37'-3 1/2"	37'-3 1/2"

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

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	39	#4	1	8'-6"	221
S2	8	#6	1	8'-6"	102
S3	4	#6	2	4'-8"	28
S4	56	#4	3	2'-9"	103
S5	2	#4	4	9'-6"	13
S6	4	#6	2	4'-6"	27
S7	4	#5	4	7'-2"	30
S9	5	#4	STR	9'-3"	31

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR GIRDER 3

REINFORCING STEEL LB.	6000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
555	6.8	16

GIRDERS REQUIRED

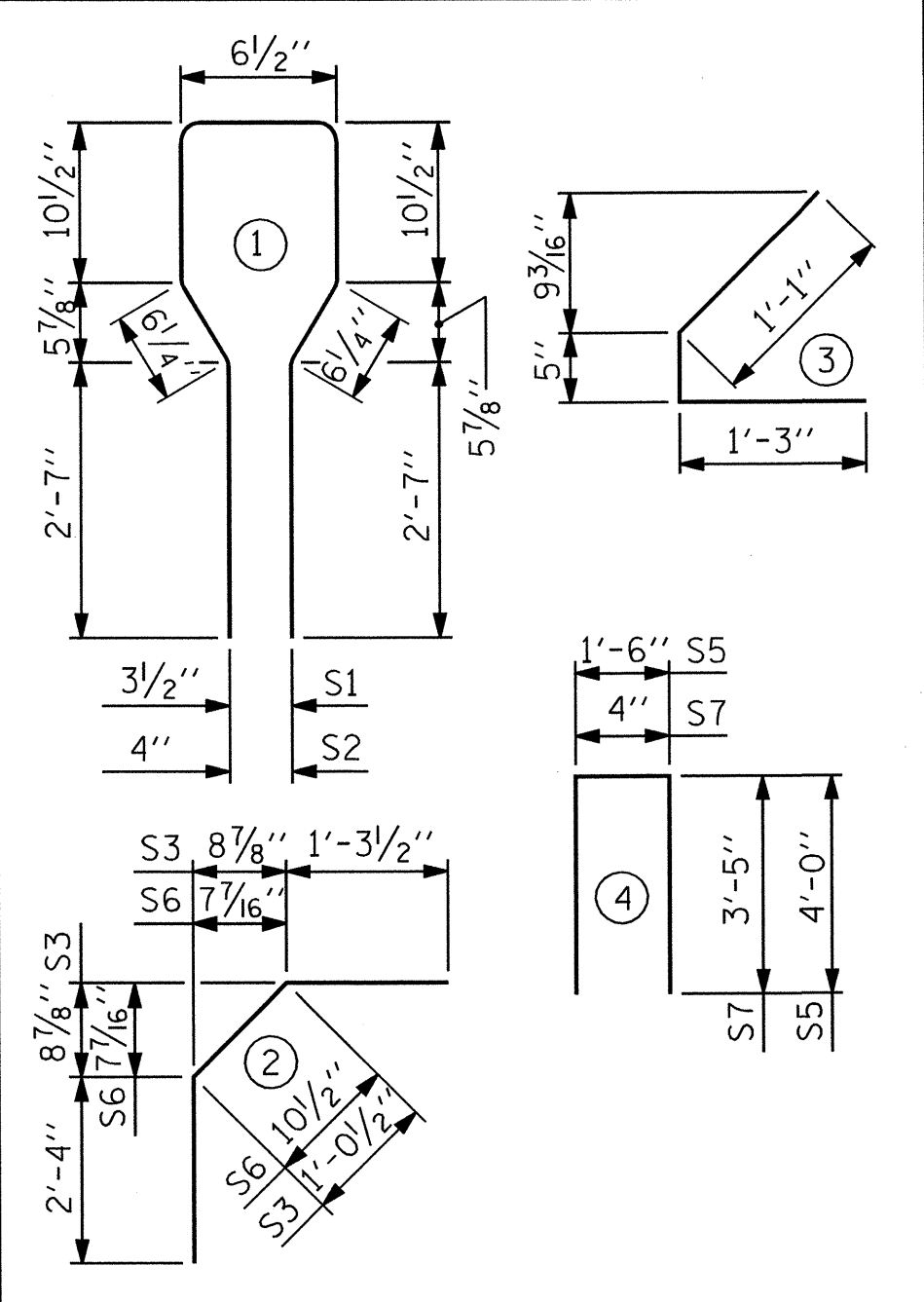
NUMBER	LENGTH	TOTAL LENGTH
1	47'-0 1/2"	47'-0 1/2"

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

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	51	#4	1	8'-6"	290
S2	8	#6	1	8'-6"	102
S3	4	#6	2	4'-8"	28
S4	56	#4	3	2'-9"	103
S5	2	#4	4	9'-6"	13
S6	4	#6	2	4'-6"	27
S7	2	#5	4	7'-2"	15
S8	5	#4	STR	7'-0"	23

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR GIRDER 4

REINFORCING STEEL LB.	6000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
601	8.2	20

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
1	56'-9 3/4"	55'-9 3/4"

NOTES

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

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

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

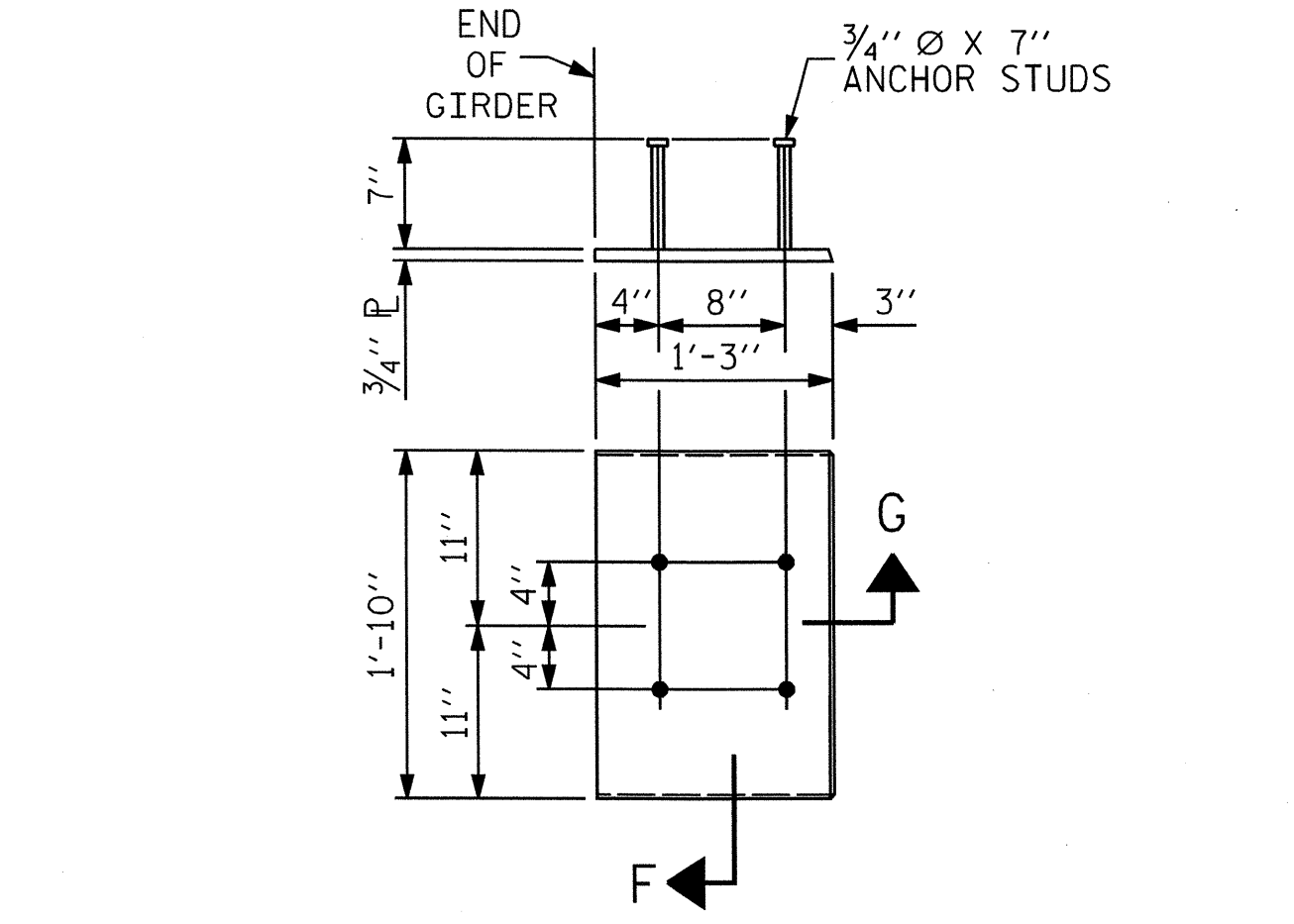
ALL PRESTRESSED STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4500 PSI.

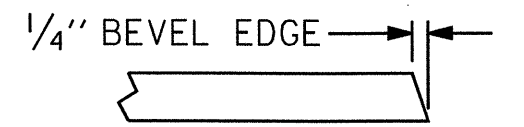
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER SHALL BE RAKED TO A DEPTH OF 1/4" EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

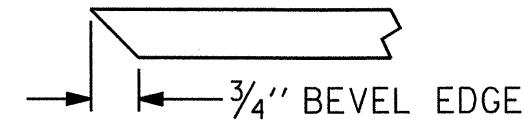
WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.



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



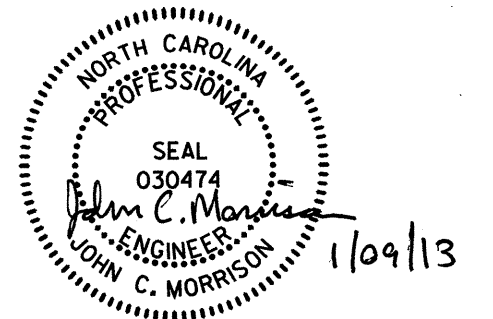
SECTION "G"



SECTION "F"

(SEE NOTES)

NO.	BY	DATE	REVISION

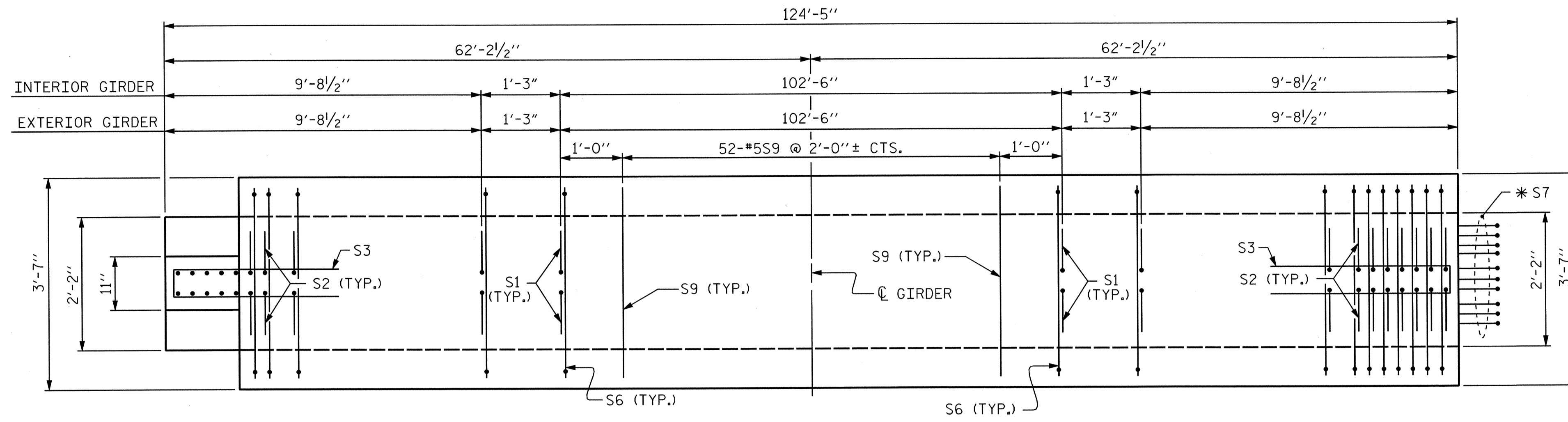


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

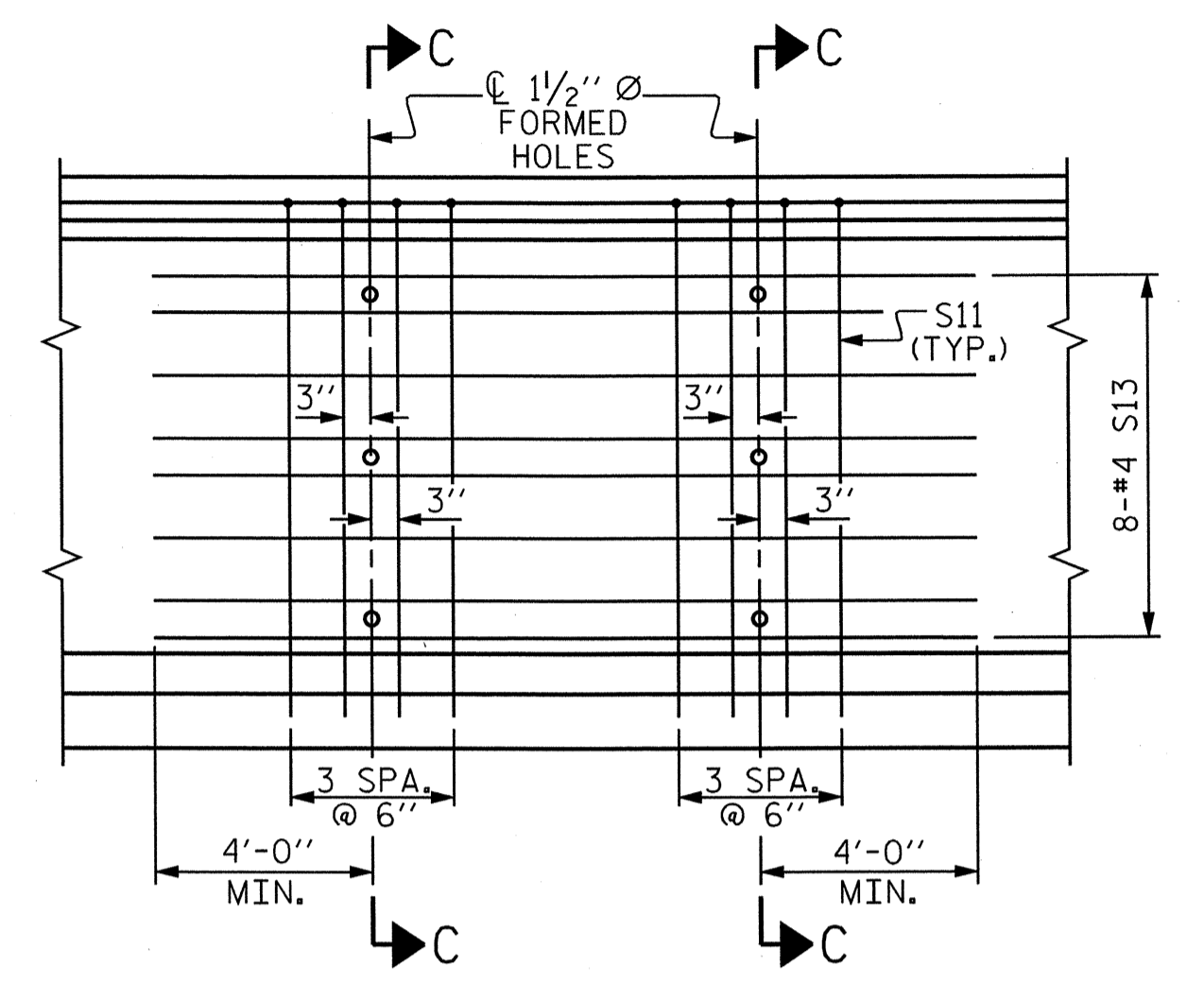
PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 415
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F0262

PROJECT		C-4901C	
TITLE		TYPE III PRESTRESSED CONCRETE GIRDER SPAN "C" (2 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-24	
SHEET 24 OF 72			

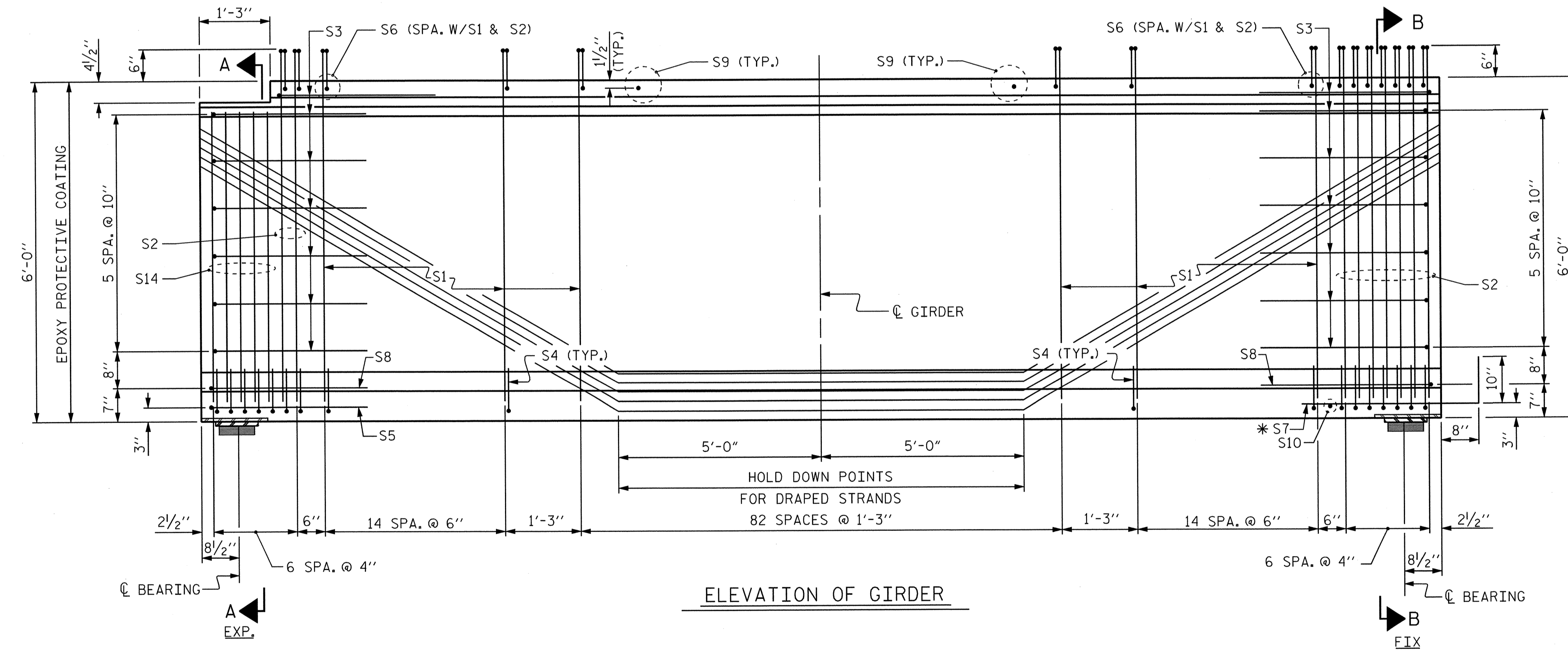
NOTES:
 FOR SECTIONS A-A, B-B, C-C AND BILL OF MATERIAL, SEE "SPAN "D"(2 OF 2)".
 FOR INTERMEDIATE STEEL DIAPHRAGM LOCATIONS, SEE "FRAMING PLAN".



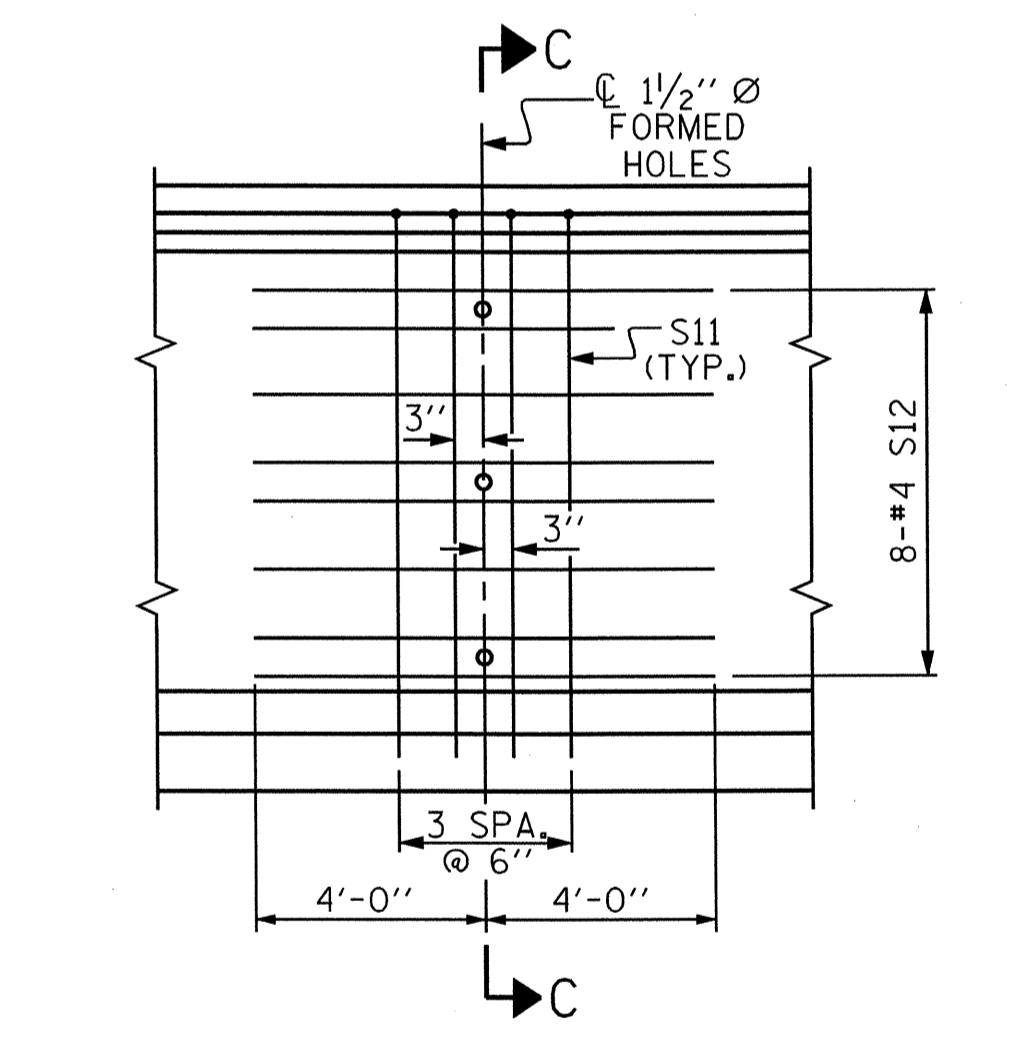
PLAN OF GIRDER



PARTIAL ELEVATION
 SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. D2 & D3



ELEVATION OF GIRDER

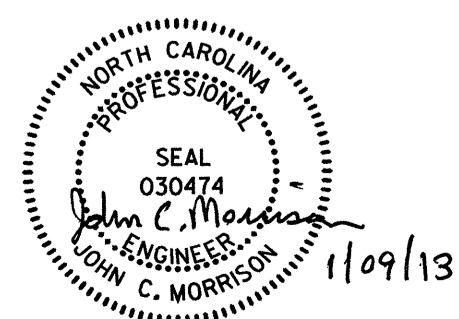


PARTIAL ELEVATION
 SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. D1 & D4

NOTE: THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 33 KIP (TYP.)

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NO.	BY	DATE	REVISION



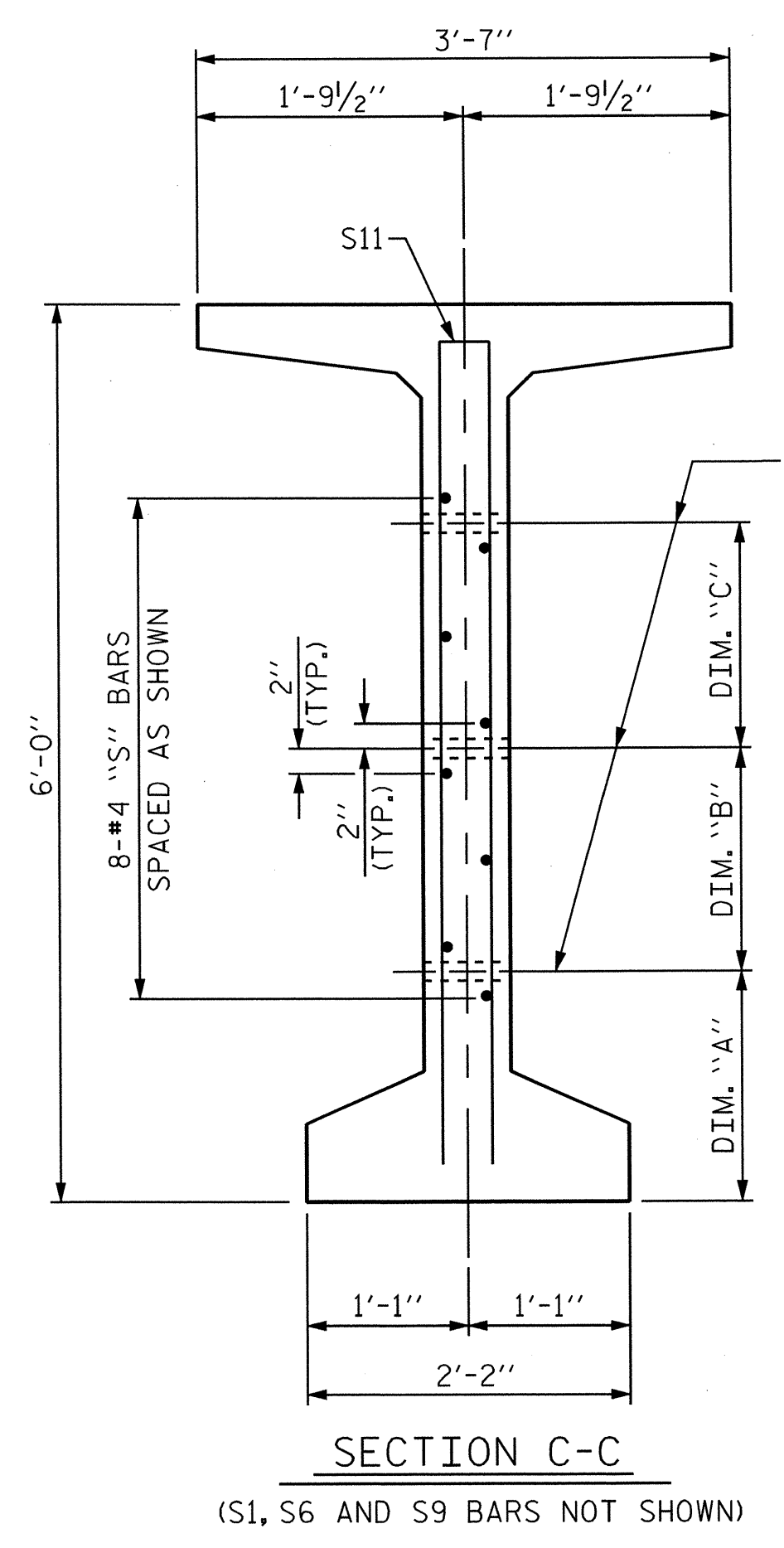
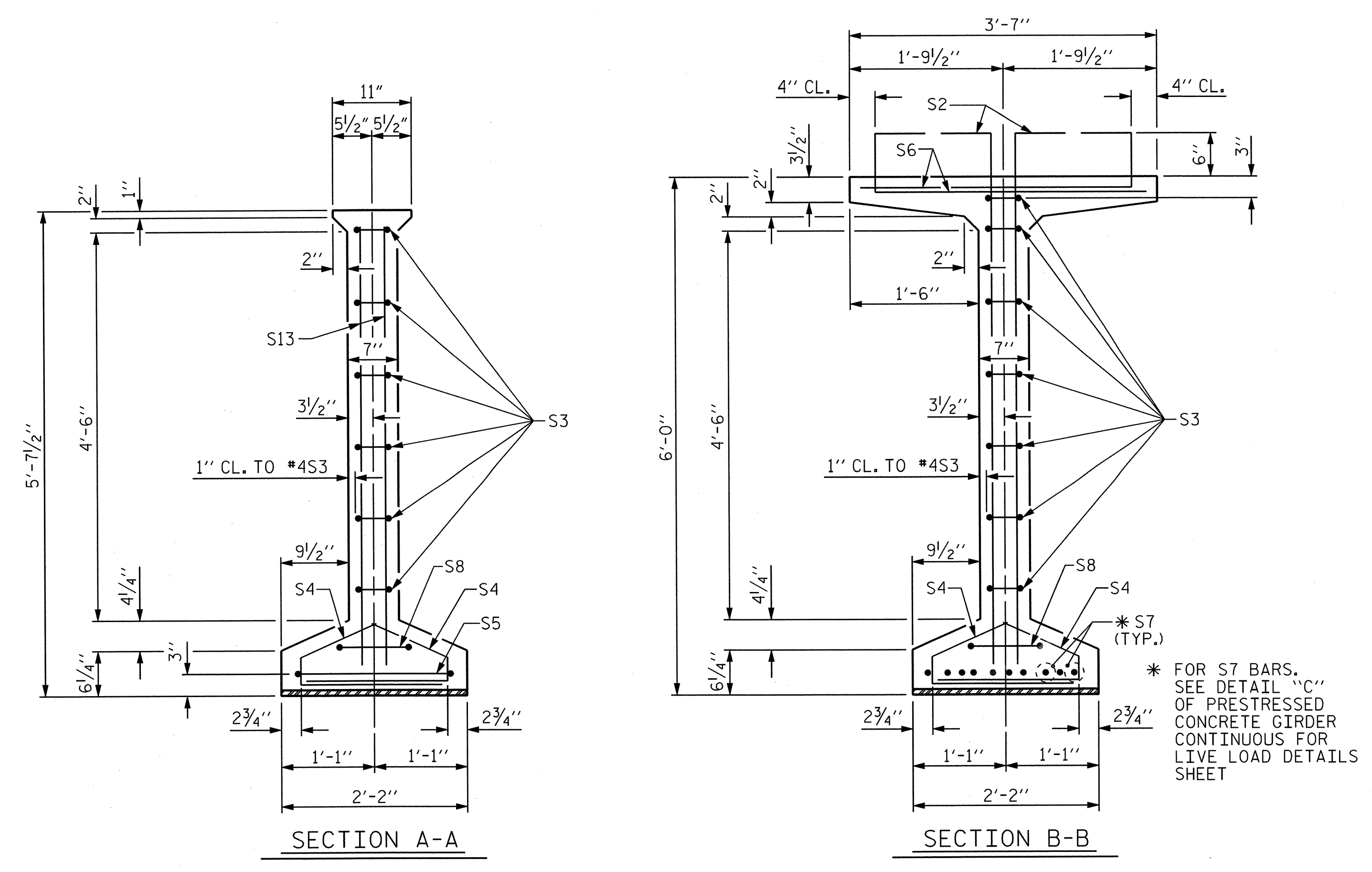
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**

AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-6200
 AECOM License No. F-4962

PROJECT		C-4901C	
TITLE		72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "D" (1 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	N.T.S.
		DRAWING	S-25
		SHEET 25 OF 72	

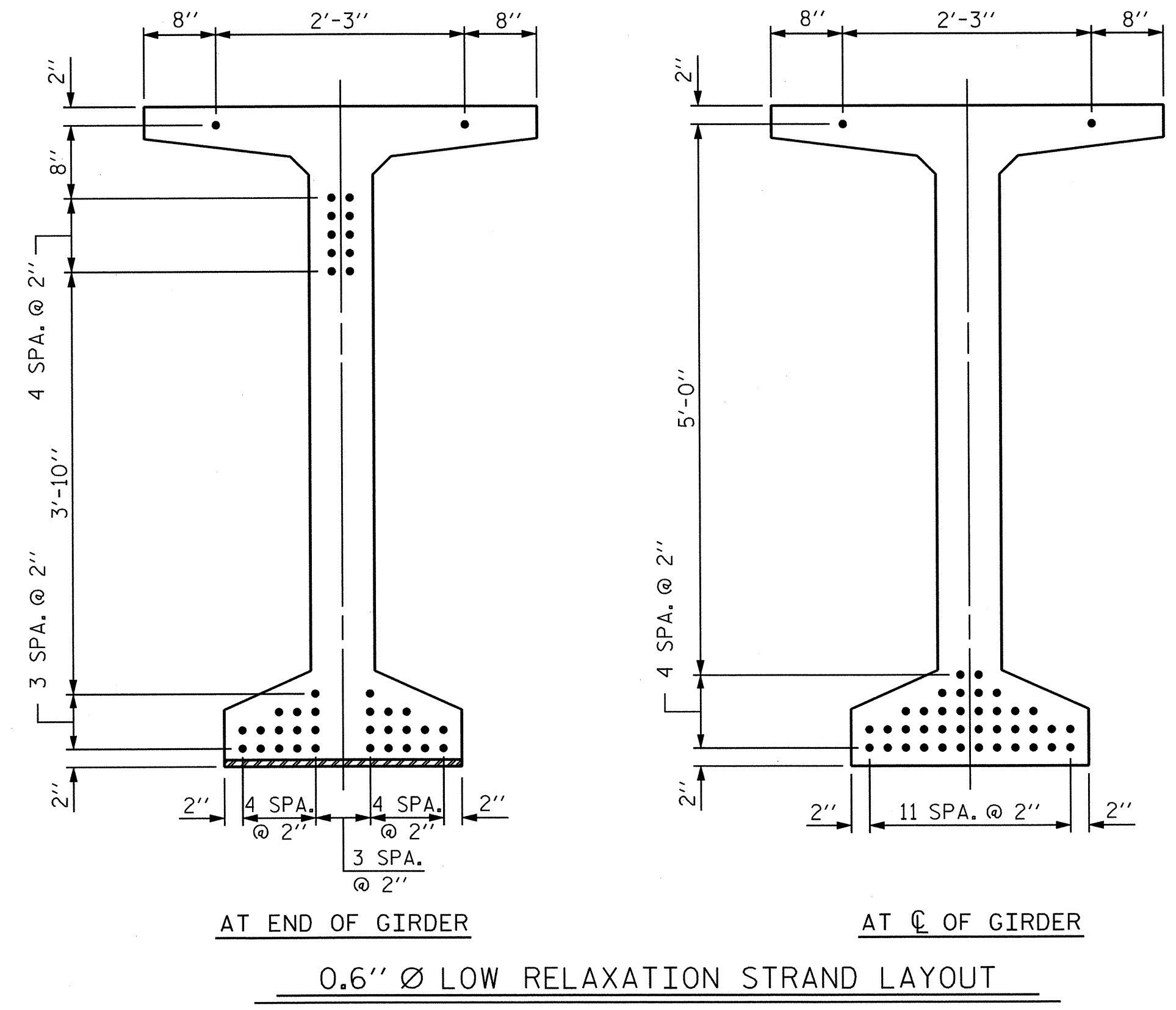
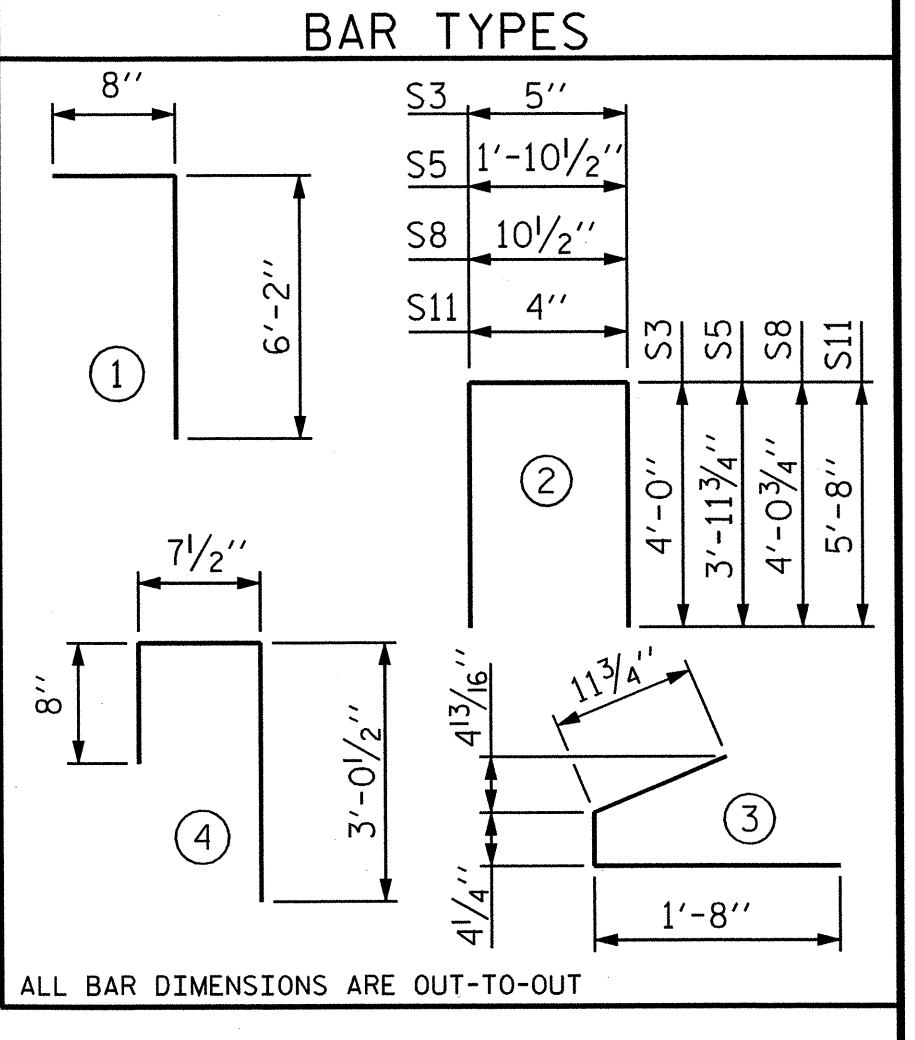
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1/2" Ø FORMED HOLE. SEE ELEVATION FOR LOCATION. FOR DIM. 'A', 'B' & 'C' SEE 'INTERMEDIATE STEEL DIAPHRAGMS' SHEET.

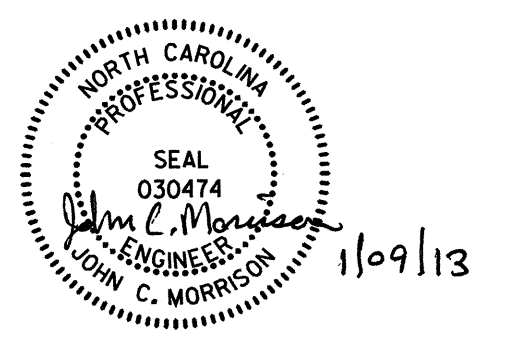
DEBONDING LEGEND
● FULLY BONDED STRANDS

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	
EXTERIOR GDR.	S1	226	#4	1	6'-10"	1032
INTERIOR GDR.	S1	226	#4	1	6'-10"	1032
	S2	18	#5	1	6'-10"	128
	S3	14	#4	2	8'-5"	79
	S4	84	#4	3	3'-0"	168
	S5	1	#5	2	9'-10"	10
EXTERIOR GDR.	S6	254	#5	4	4'-4"	1148
INTERIOR GDR.	S6	254	#5	4	4'-4"	1148
	*S7	10	#5	STR	3'-8"	38
	S8	2	#5	2	9'-0"	19
	S9	52	#5	STR	3'-3"	176
	S10	1	#3	STR	1'-10"	1
EXTERIOR GDR.	S11	4	#5	2	11'-8"	49
INTERIOR GDR.	S11	8	#5	2	11'-8"	97
EXTERIOR GDR.	S12	8	#4	STR	8'-0"	43
INTERIOR GDR.	S13	8	#4	STR	15'-2"	81
	S14	10	#5	STR	5'-2"	54



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	8000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	2902	26.7	40
INTERIOR GIRDER	2988	26.7	40
GIRDERS REQUIRED			
NUMBER	LENGTH	TOTAL LENGTH	
4	124'-5"	497'-8"	

NO.	BY	DATE	REVISION



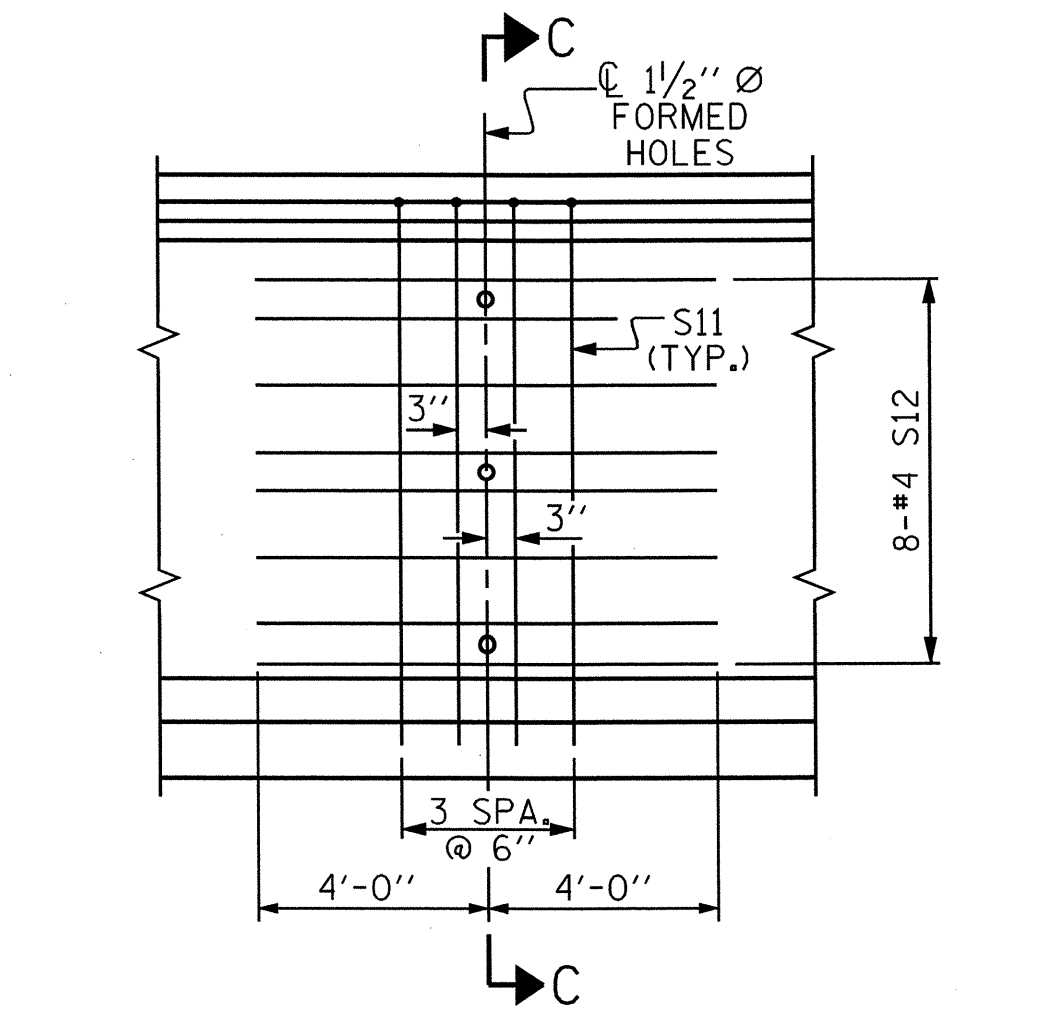
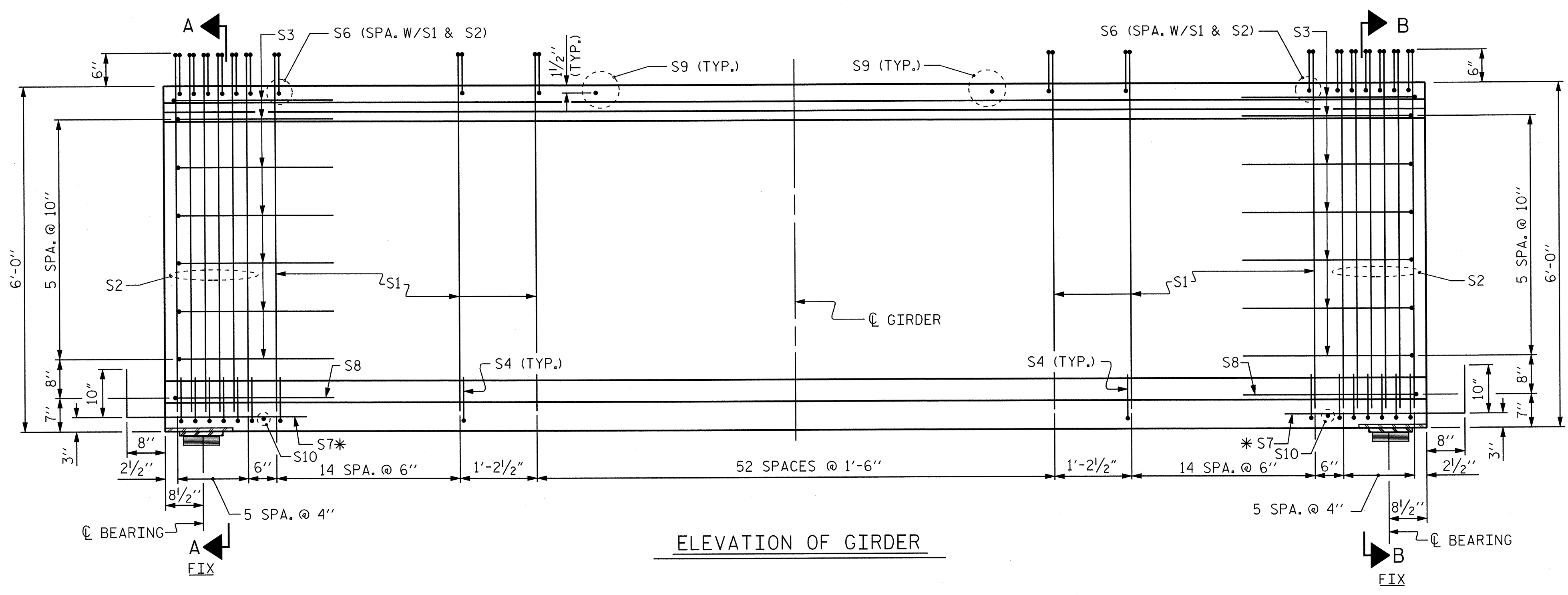
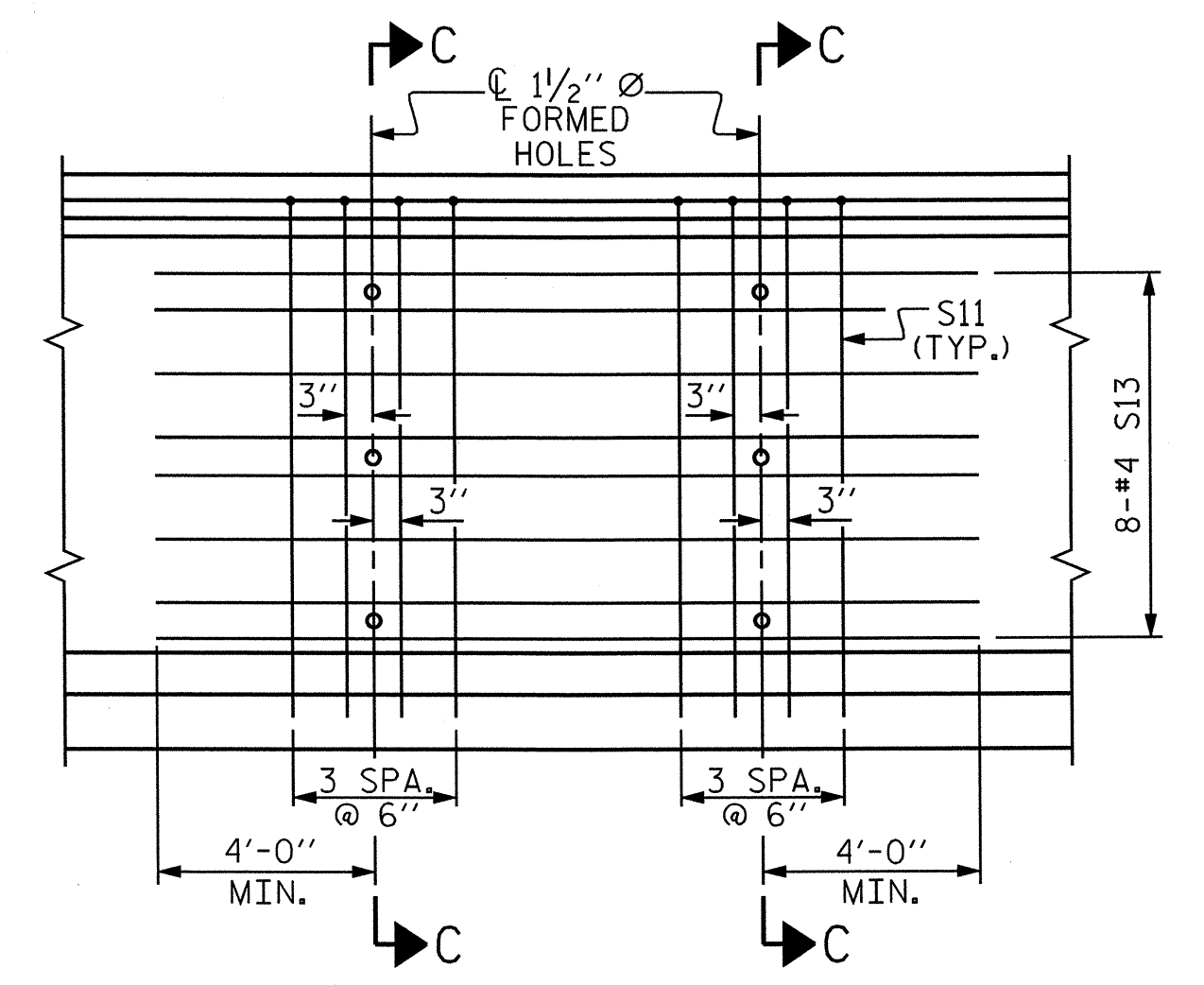
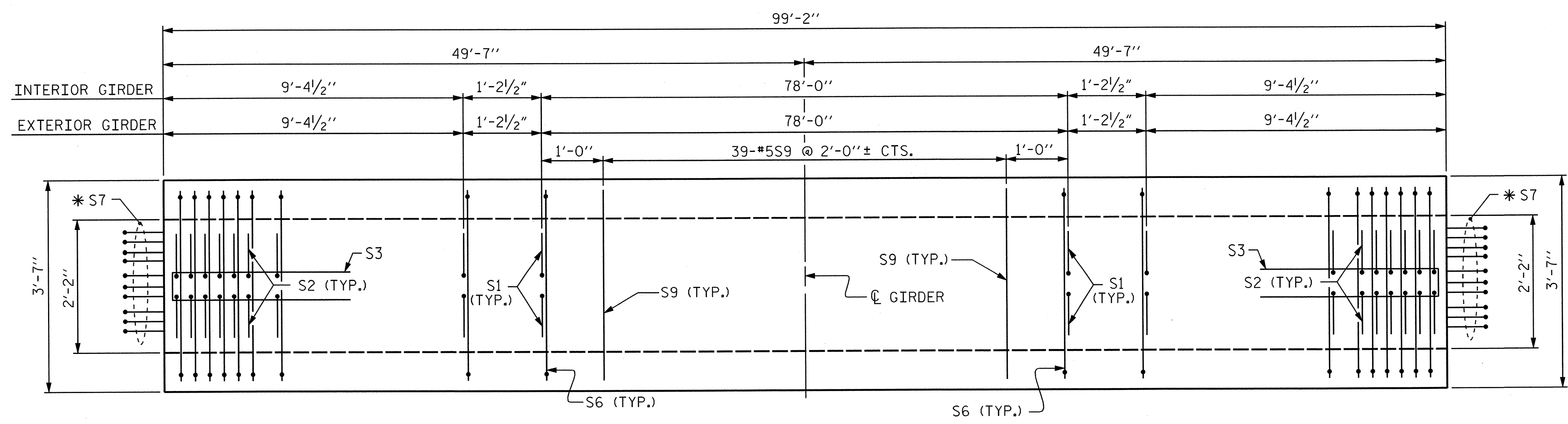
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-6342

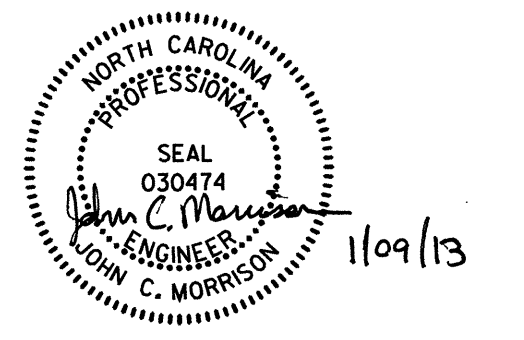
PROJECT	C-4901C		
TITLE	72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "D" (2 OF 2)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/4" = 1'-0"
			DRAWING S-26
			SHEET 26 OF 72

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NOTES:
 FOR SECTIONS A-A, B-B, C-C AND BILL OF MATERIAL, SEE "SPAN "E" (2 OF 2)".
 FOR INTERMEDIATE STEEL DIAPHRAGM LOCATIONS, SEE "FRAMING PLAN".



NO.	BY	DATE	REVISION

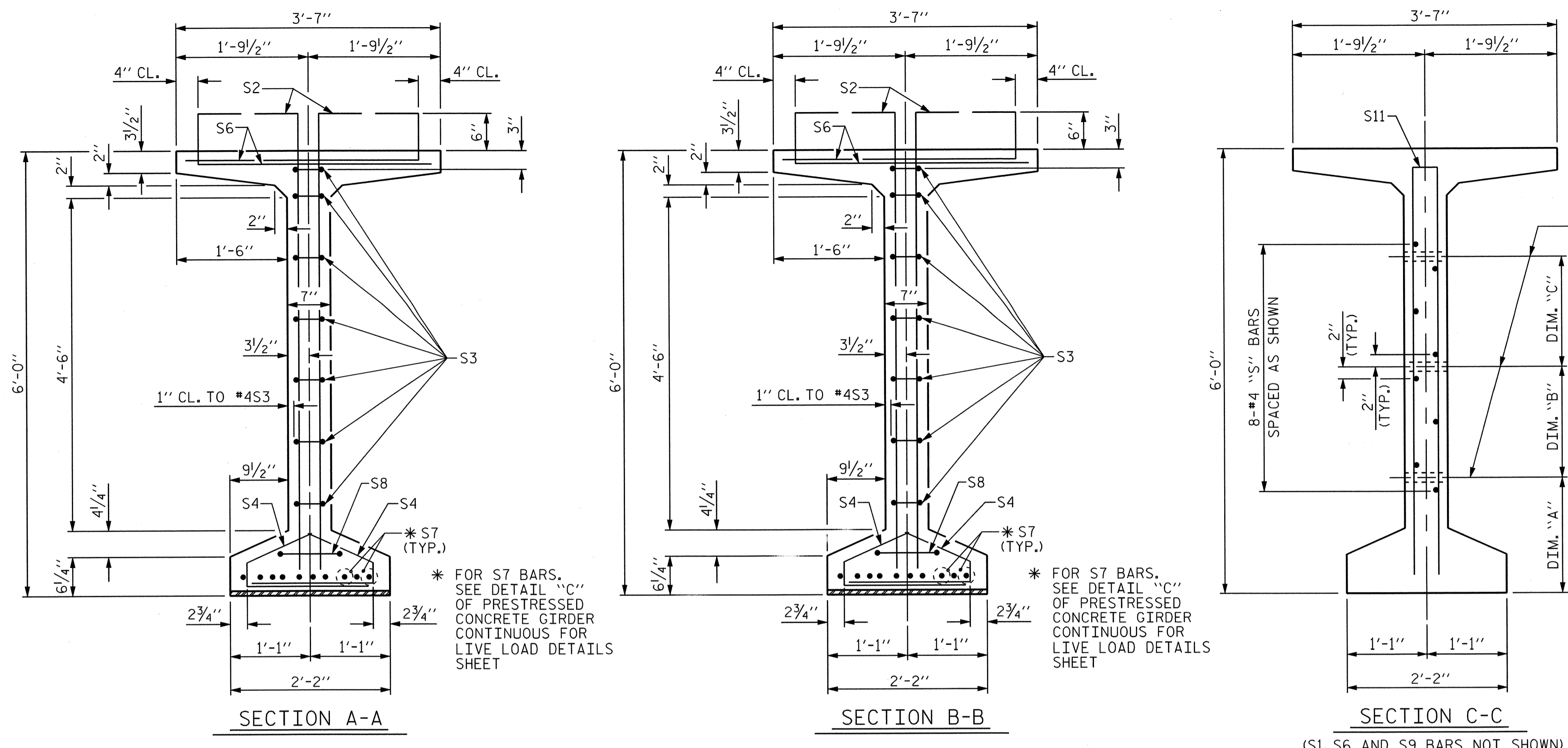


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 864-8200 www.aecom.com
 AECOM License No. F4342

PROJECT		C-4901C	
TITLE		72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "E" (1 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-27	
SHEET 27 OF 72			

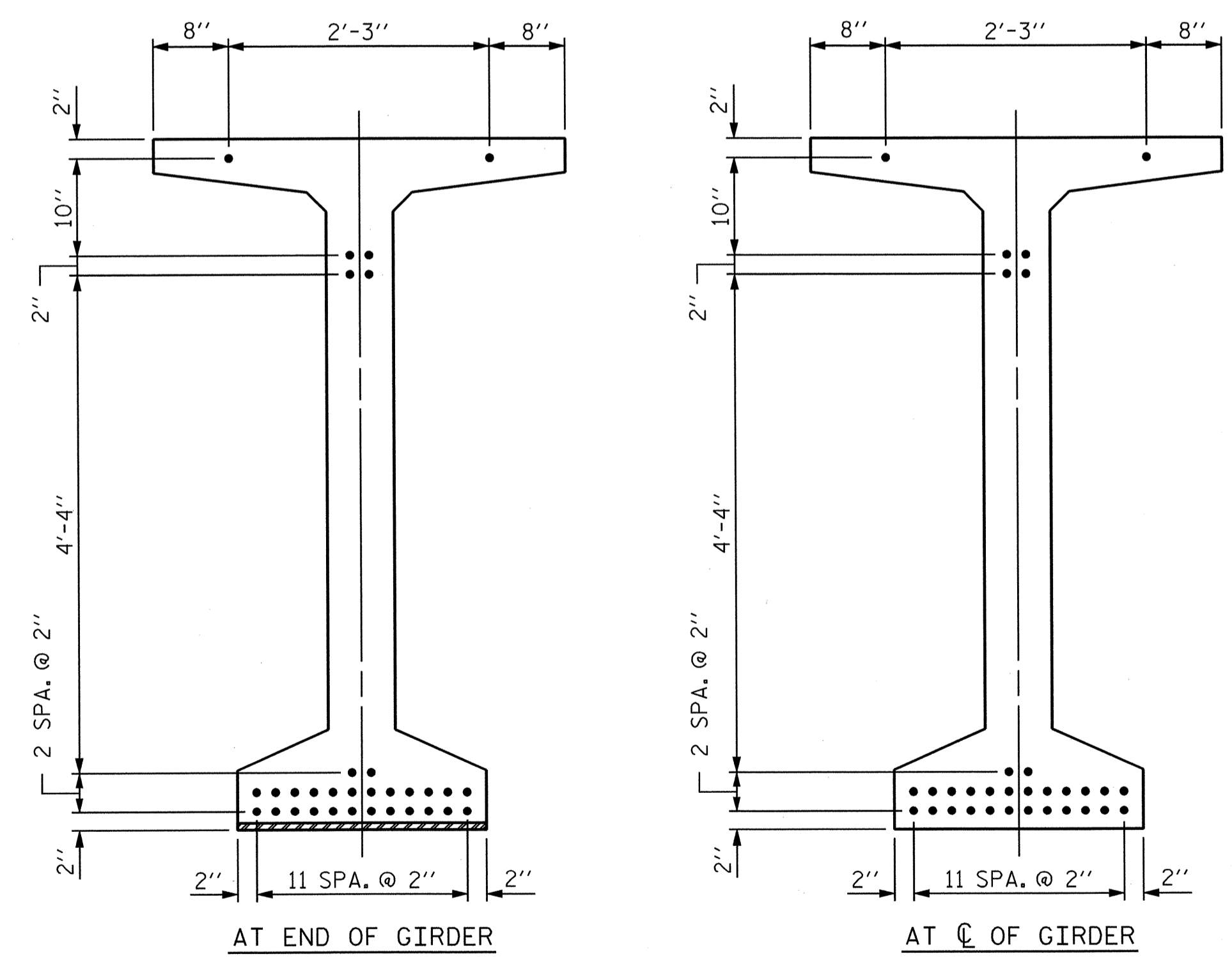
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1/2" Ø FORMED HOLE. SEE ELEVATION FOR LOCATION. FOR DIM. "A", "B" & "C" SEE "INTERMEDIATE STEEL DIAPHRAGMS" SHEET.

DEBONDING LEGEND
● FULLY BONDED STRANDS

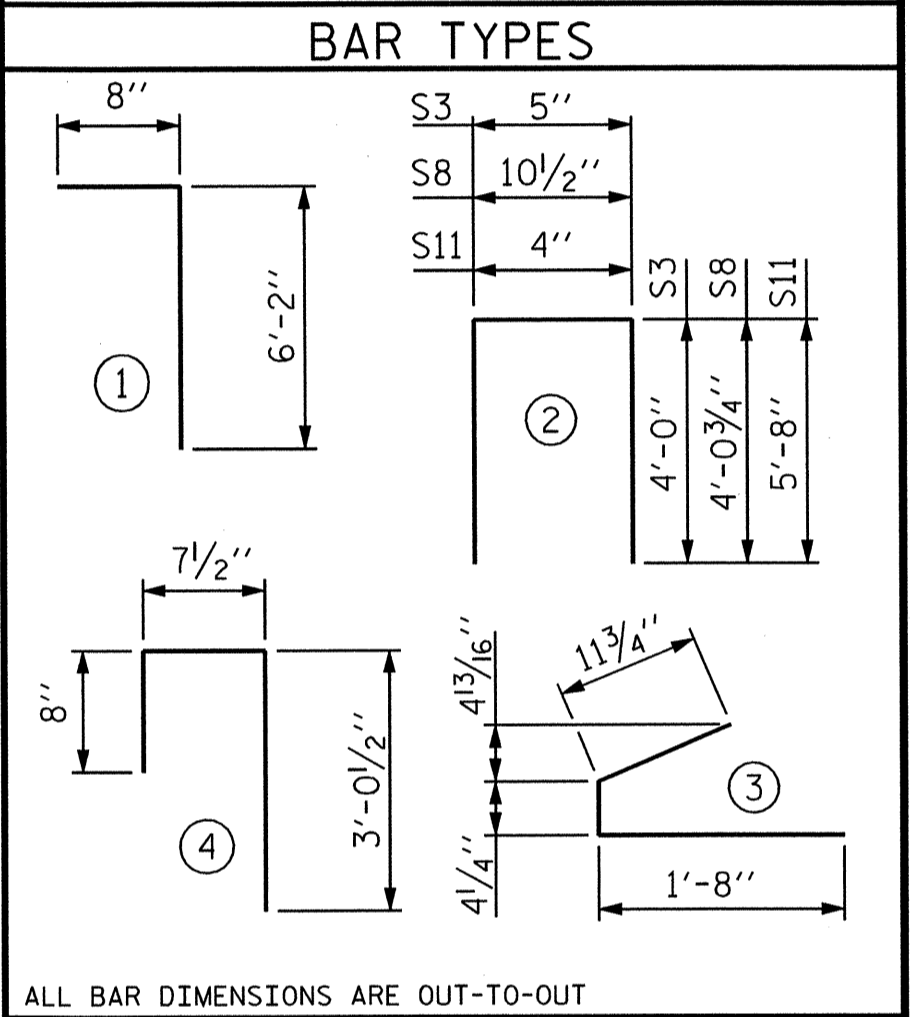


0.6" Ø LOW RELAXATION STRAND LAYOUT

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

REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	166	#4	1	6'-10"	758
INTERIOR GDR.	S1	166	#4	1	6'-10"	758
	S2	24	#5	1	6'-10"	171
	S3	14	#4	2	8'-5"	79
	S4	84	#4	3	3'-0"	168
EXTERIOR GDR.	S6	190	#5	4	4'-4"	859
INTERIOR GDR.	S6	190	#5	4	4'-4"	859
	*S7	20	#5	STR	3'-8"	76
	S8	2	#5	2	9'-0"	19
	S9	39	#5	STR	3'-3"	132
	S10	2	#3	STR	1'-10"	2
EXTERIOR GDR.	S11	4	#5	2	11'-8"	49
INTERIOR GDR.	S11	8	#5	2	11'-8"	97
EXTERIOR GDR.	S12	8	#4	STR	8'-0"	43
INTERIOR GDR.	S13	8	#4	STR	15'-2"	81

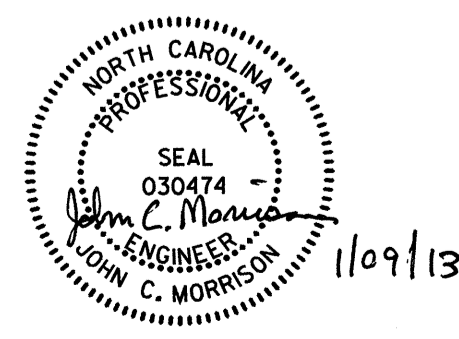
* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	7000 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	2356	21.2	32
INTERIOR GIRDER	2442	21.2	32

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	99'-2"	396'-8"

NO.	BY	DATE	REVISION

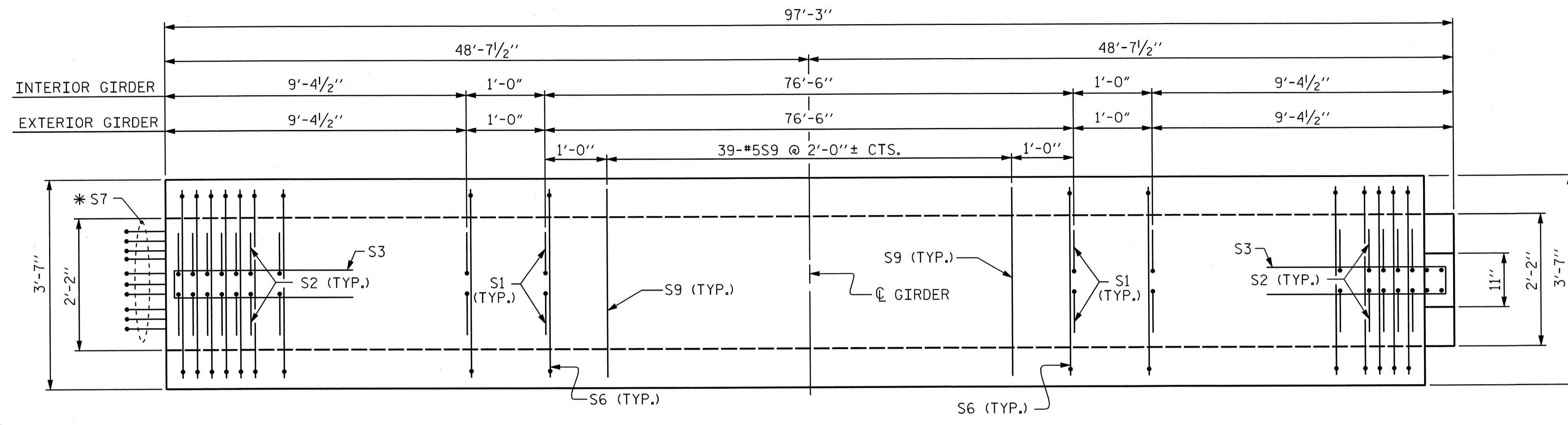


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

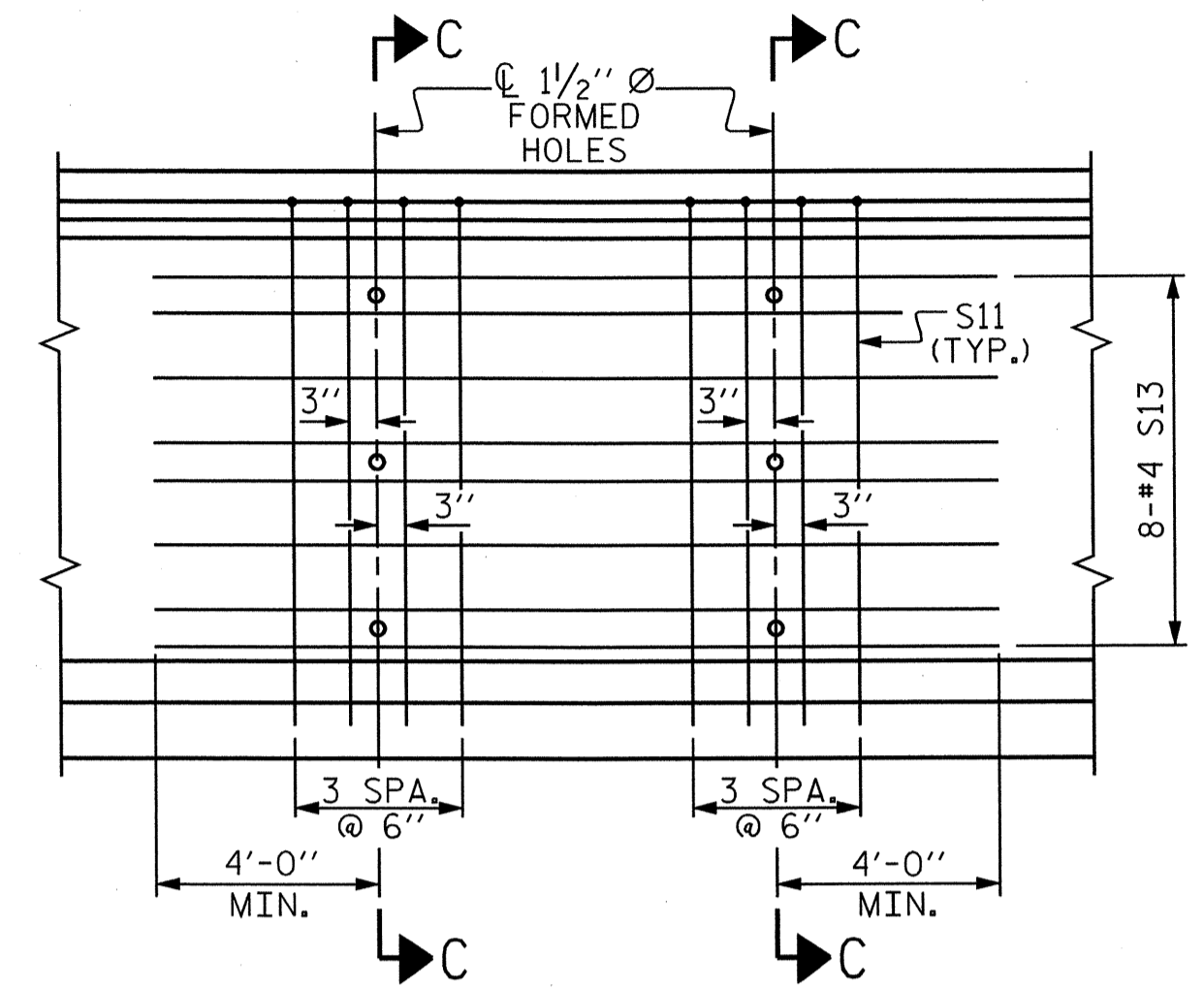
PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-8200 www.aecom.com
AECOM License No. F-0362

PROJECT	C-4901C		
TITLE	72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "E" (2 OF 2)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/4" = 1'-0"
		DRAWING	S-28
			SHEET 28 OF 72

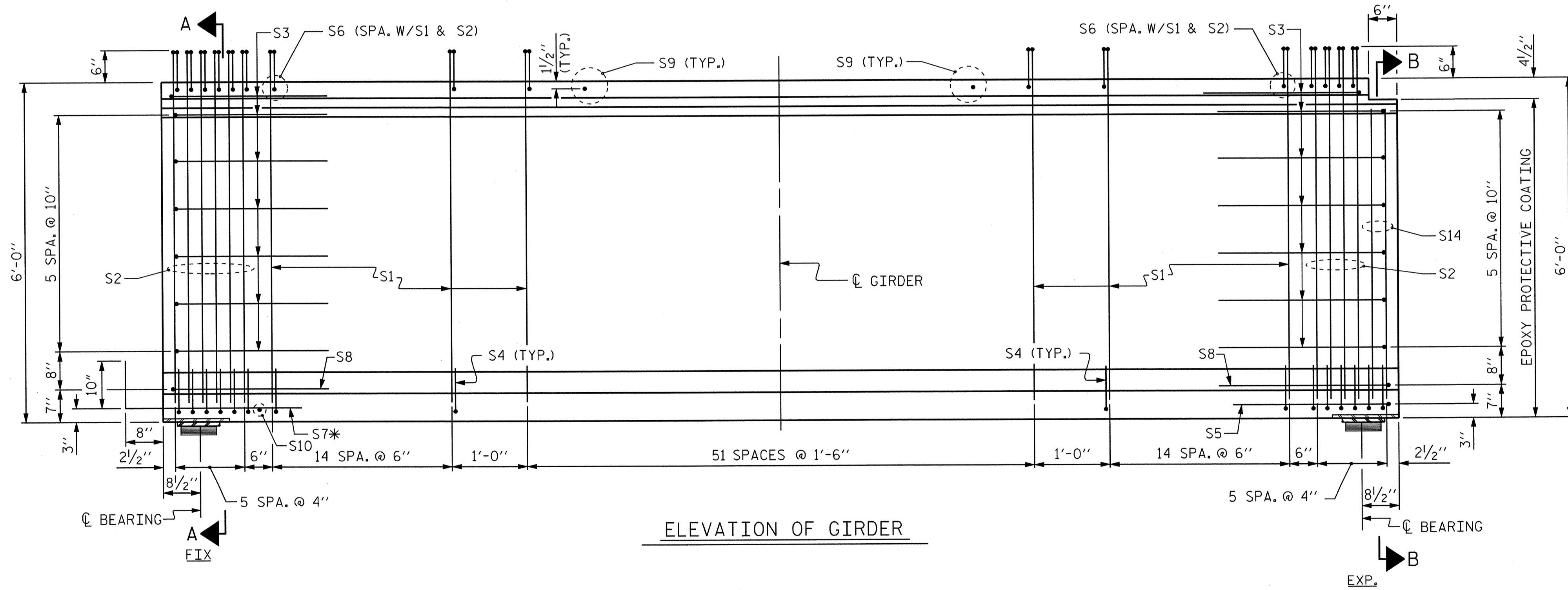
NOTES:
 FOR SECTIONS A-A, B-B, C-C AND BILL OF MATERIAL, SEE "SPAN "F"(2 OF 2)".
 FOR INTERMEDIATE STEEL DIAPHRAGM LOCATIONS, SEE "FRAMING PLAN".



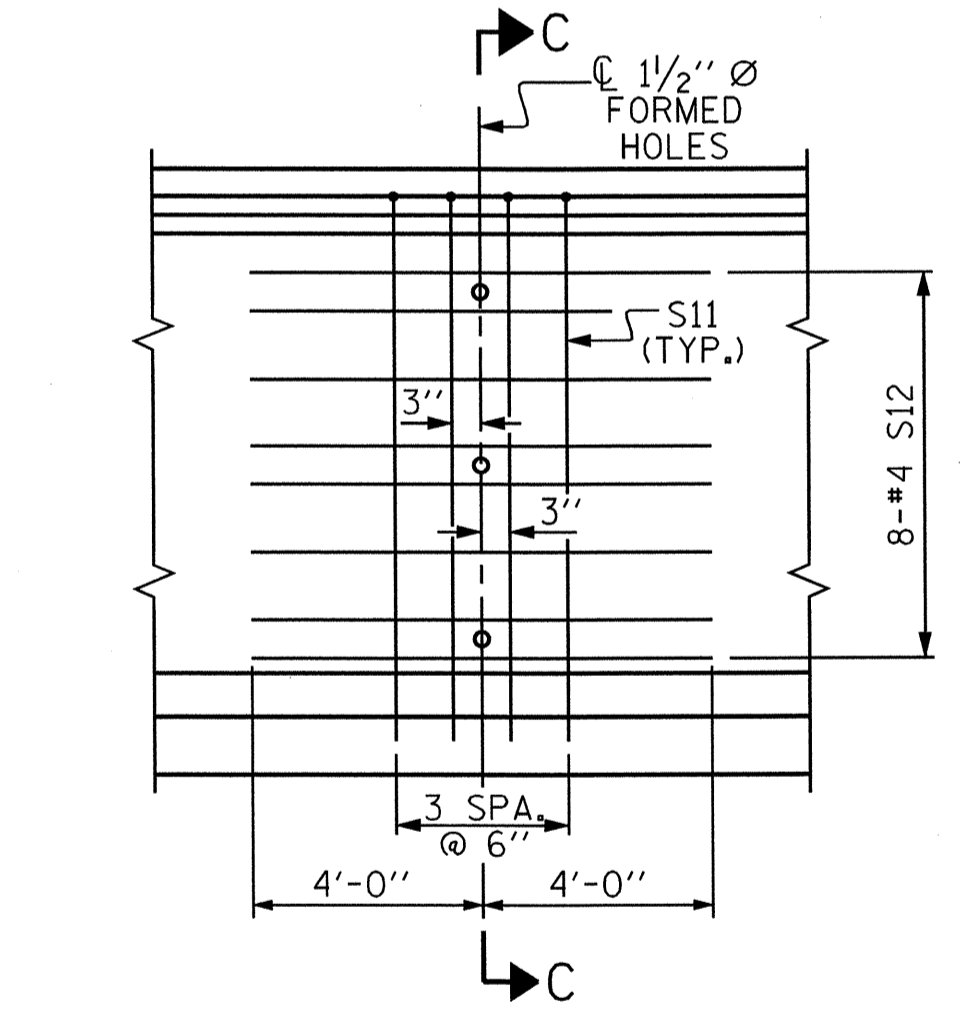
PLAN OF GIRDER



PARTIAL ELEVATION
 SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. F2 & F3



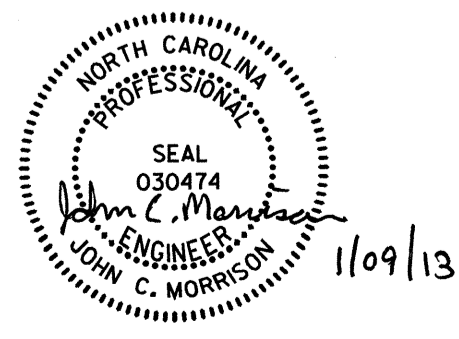
ELEVATION OF GIRDER



PARTIAL ELEVATION
 SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL FOR GIRDER Nos. F1 & F4

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NO.	BY	DATE	REVISION



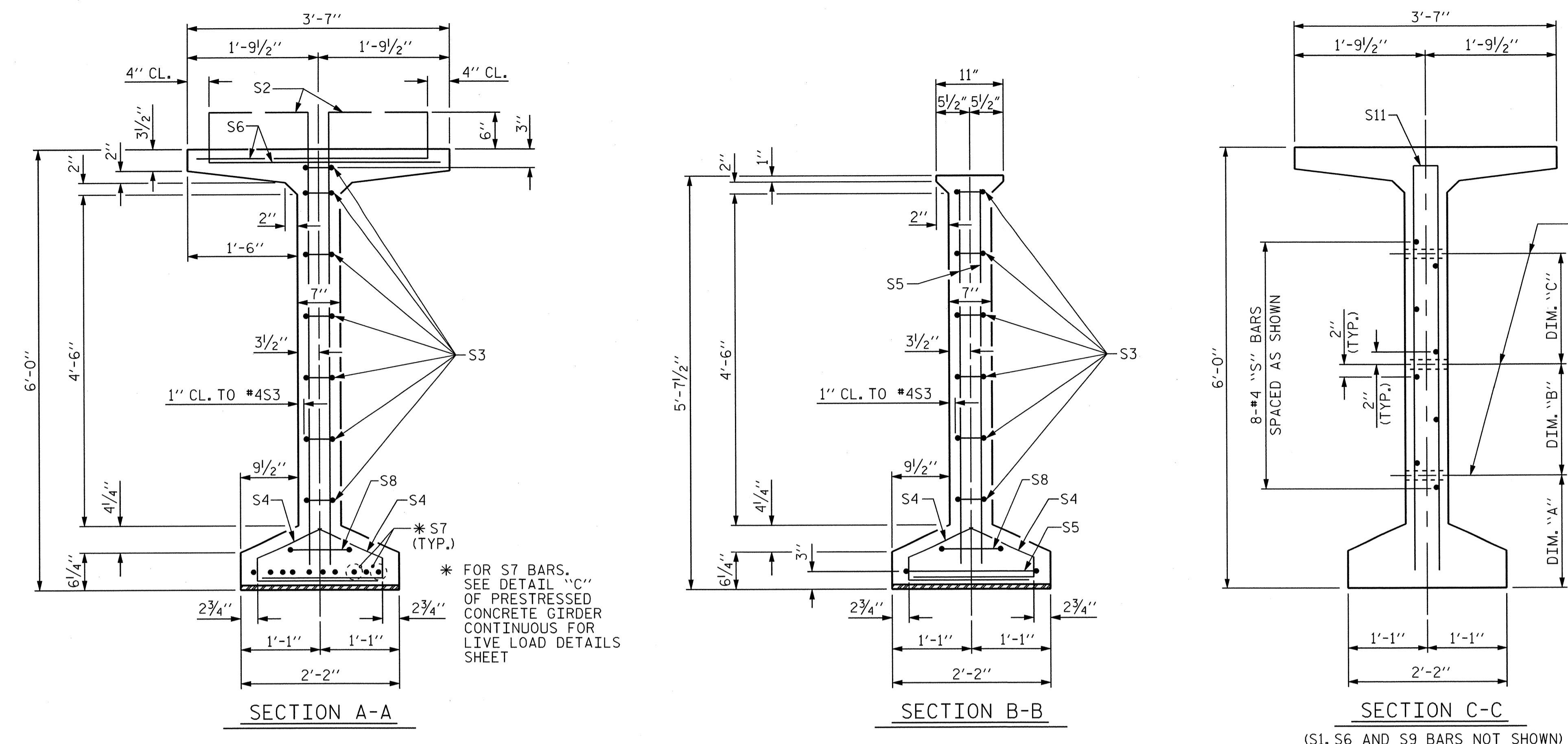
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
 AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-4000
 AECOM License No. F42642

PROJECT		C-4901C	
TITLE		72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "F" (1 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-29	
SHEET		29 OF 72	

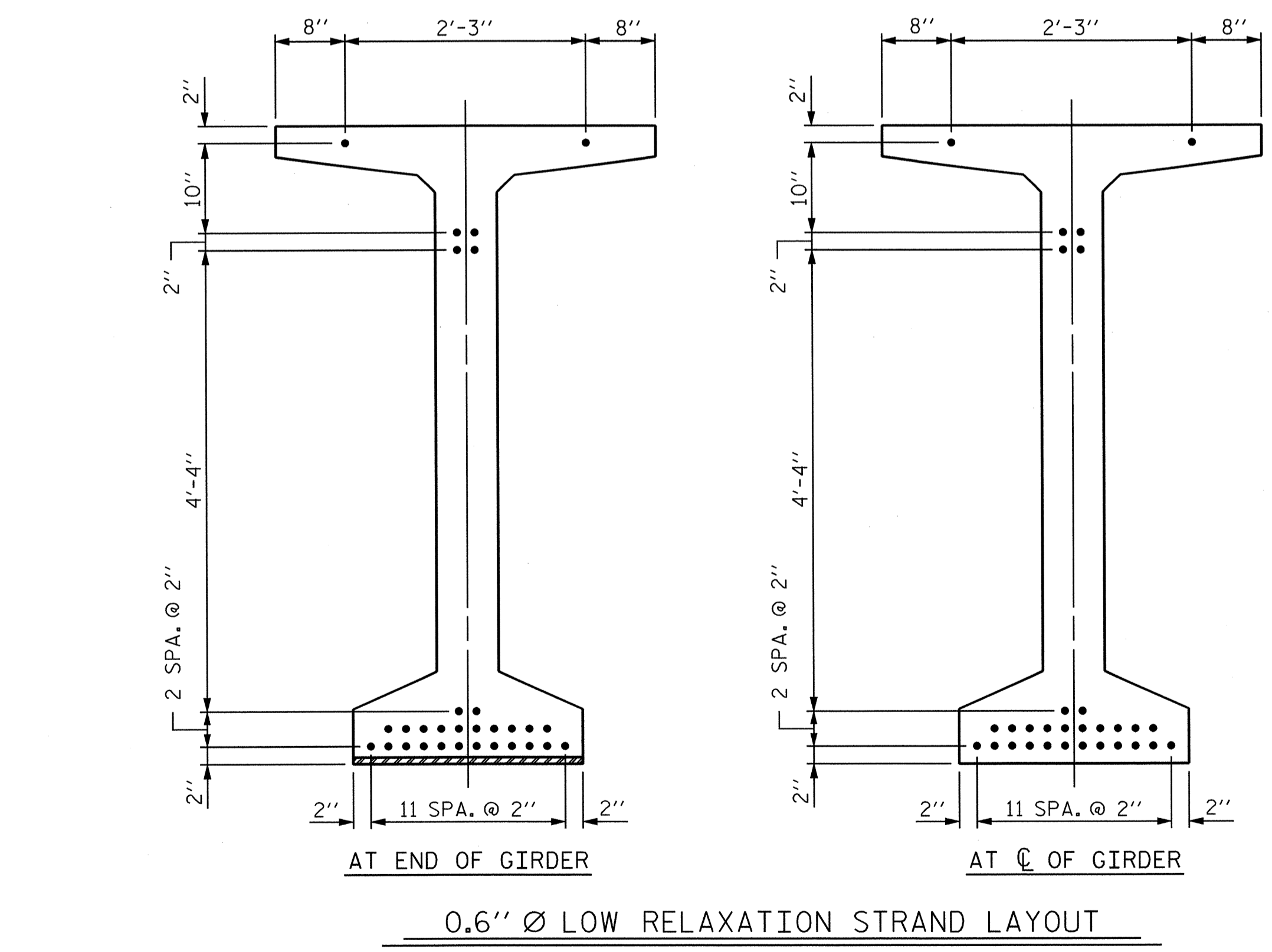
0271DEL_P10c3

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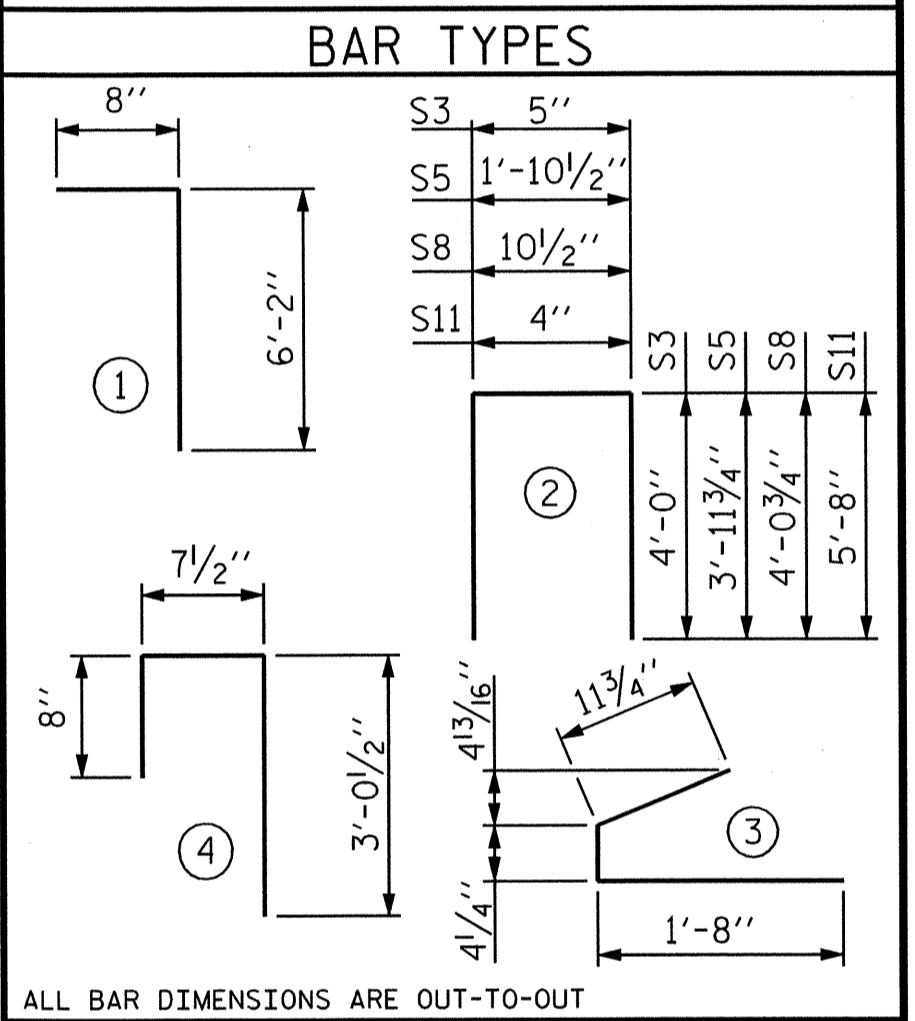
① 1/2" Ø FORMED HOLE. SEE ELEVATION FOR LOCATION. FOR DIM. "A", "B" & "C" SEE "INTERMEDIATE STEEL DIAPHRAGMS" SHEET.

DEBONDING LEGEND
● FULLY BONDED STRANDS



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

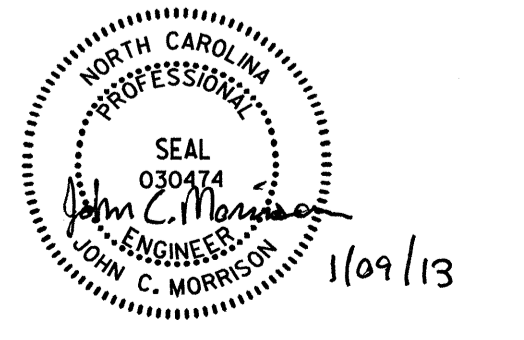
REINFORCING STEEL FOR ONE GDR						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	164	#4	1	6'-10"	749
INTERIOR GDR.	S1	164	#4	1	6'-10"	749
	S2	20	#5	1	6'-10"	171
	S3	14	#4	2	8'-5"	79
	S4	84	#4	3	3'-0"	168
	S5	1	#5	2	9'-10"	10
EXTERIOR GDR.	S6	188	#5	4	4'-4"	850
INTERIOR GDR.	S6	188	#5	4	4'-4"	850
	*S7	10	#5	STR	3'-8"	38
	S8	2	#5	2	9'-0"	19
	S9	39	#5	STR	3'-3"	132
	S10	1	#3	STR	1'-10"	1
EXTERIOR GDR.	S11	4	#5	2	11'-8"	49
INTERIOR GDR.	S11	8	#5	2	11'-8"	97
EXTERIOR GDR.	S12	8	#4	STR	8'-0"	43
INTERIOR GDR.	S13	8	#4	STR	15'-2"	81
	S14	4	#5	STR	5'-2"	22



QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	7000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	2331	20.8	30
INTERIOR GIRDER	2417	20.8	30

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	97'-8"	389'-0"

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200
AECOM License No. F-3262

PROJECT	C-4901C		
TITLE	72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD - SPAN "F" (2 OF 2)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/4" = 1'-0"
			SHEET 30 OF 72

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NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4500 PSI FOR SPAN A GIRDERS, 6000 PSI FOR SPAN B, SPAN E AND SPAN F GIRDERS; 6500 PSI FOR SPAN D GIRDERS.

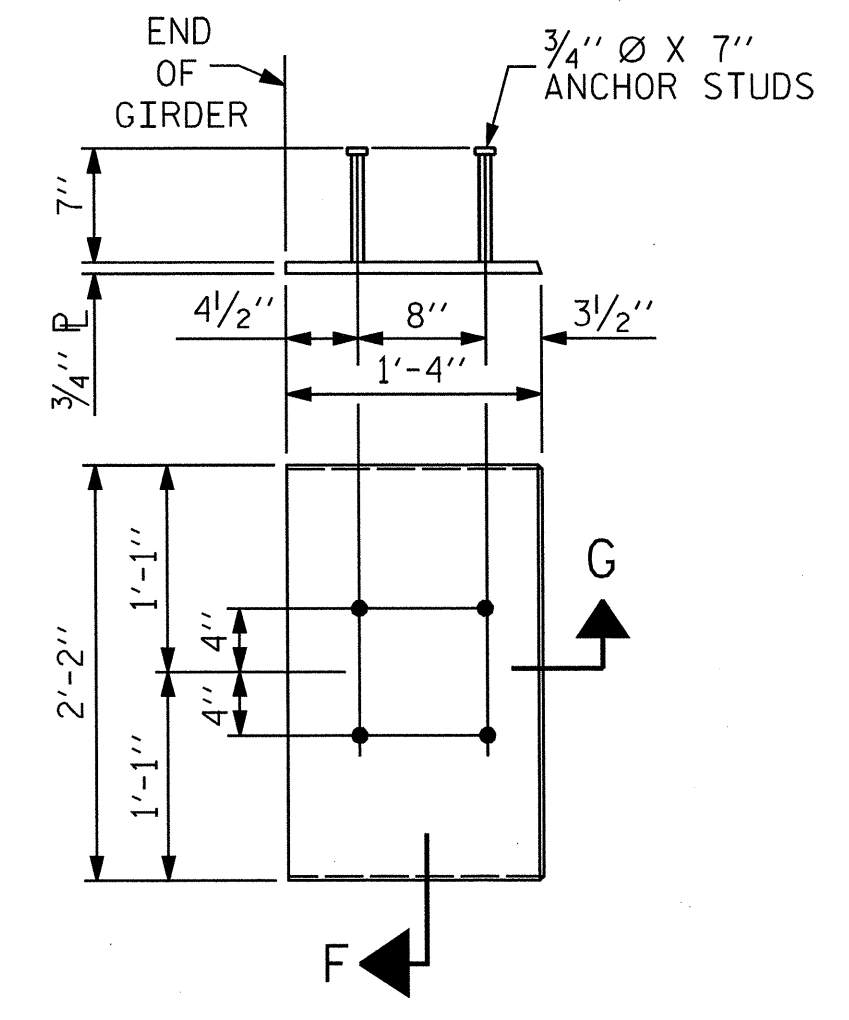
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

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

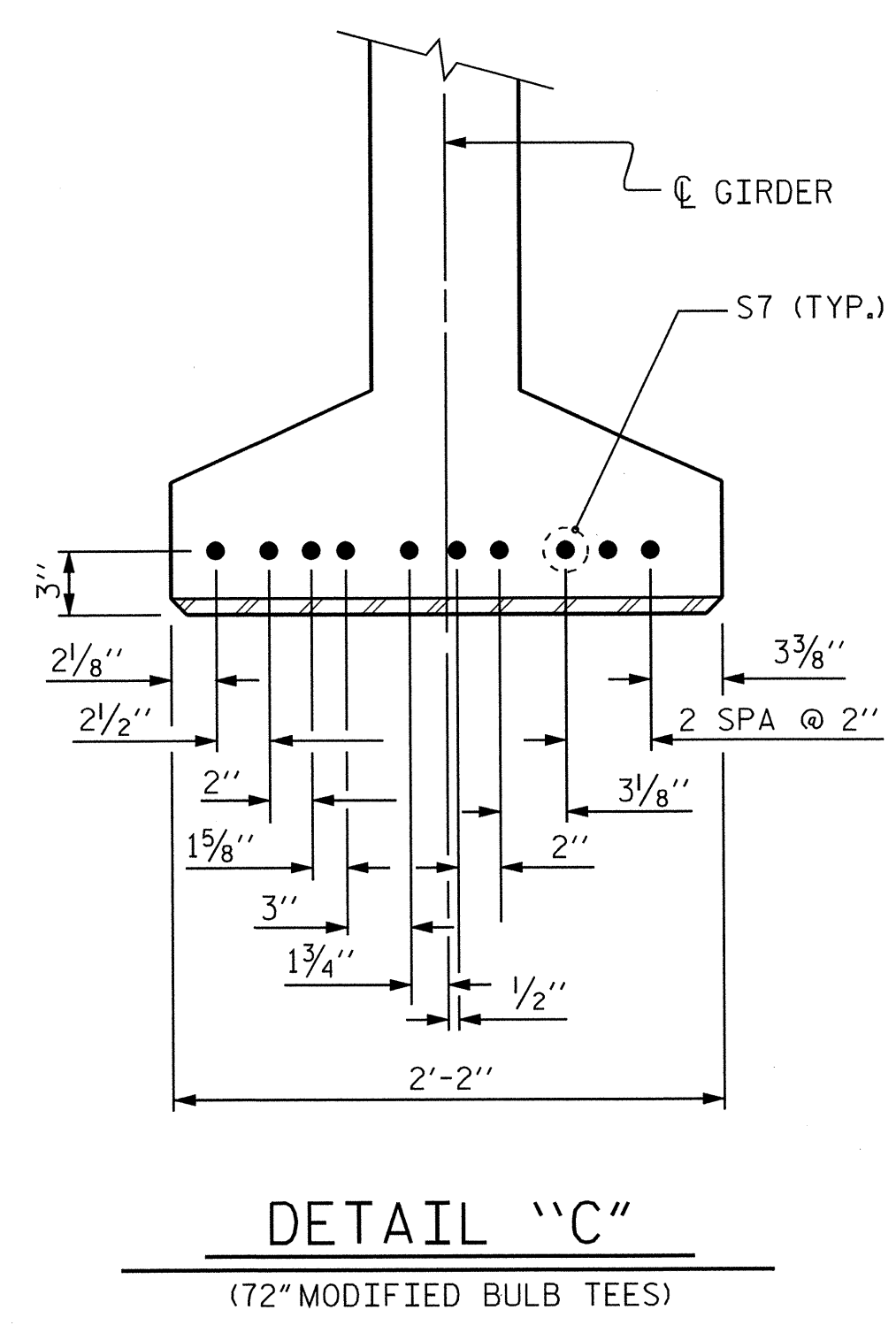
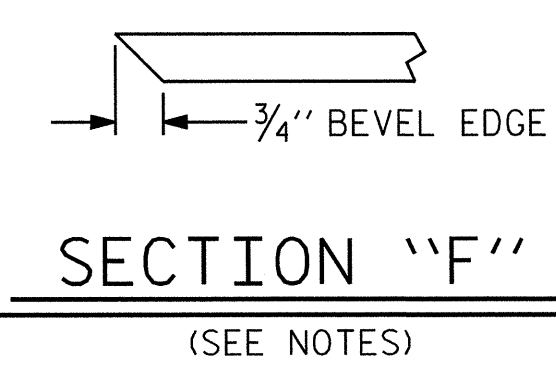
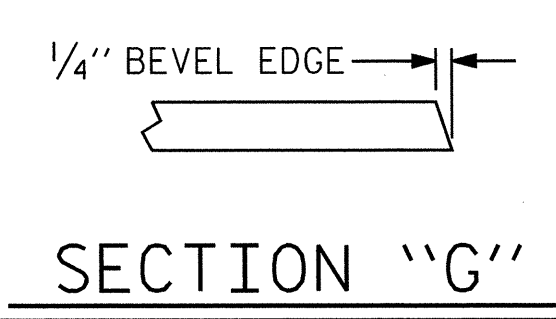
WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

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.

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" AND 72" MODIFIED BULB TEES ONLY.



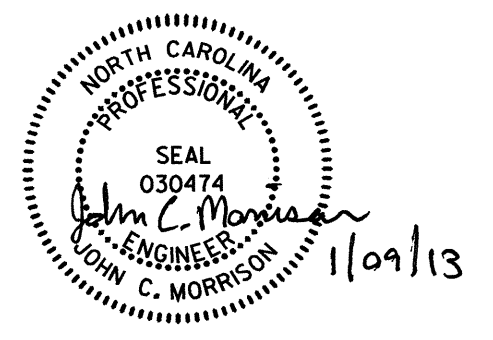
EMBEDDED PLATE "B-1" DETAILS FOR 72" MODIFIED BULB TEES
(2 REQ'D PER GIRDER)



DETAIL "C"
(72" MODIFIED BULB TEES)

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lower.yd

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-8200
AECOM License No. F0342

PROJECT		C-4901C	
TITLE		72" PRESTRESSED CONCRETE MODIFIED BULB TEE CONTINUOUS FOR LIVE LOAD DETAILS	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-31	
SHEET		31 OF 72	

STRUCTURAL STEEL NOTES

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

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

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

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

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

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

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

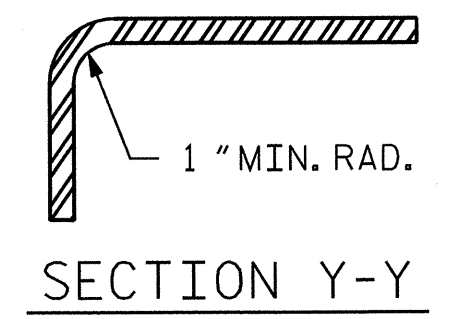
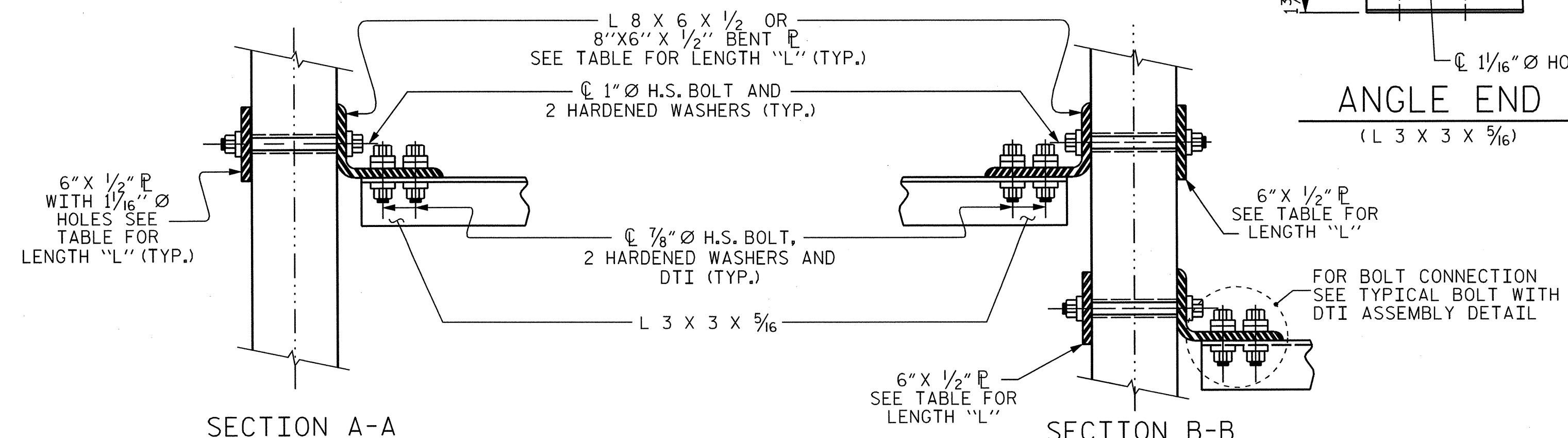
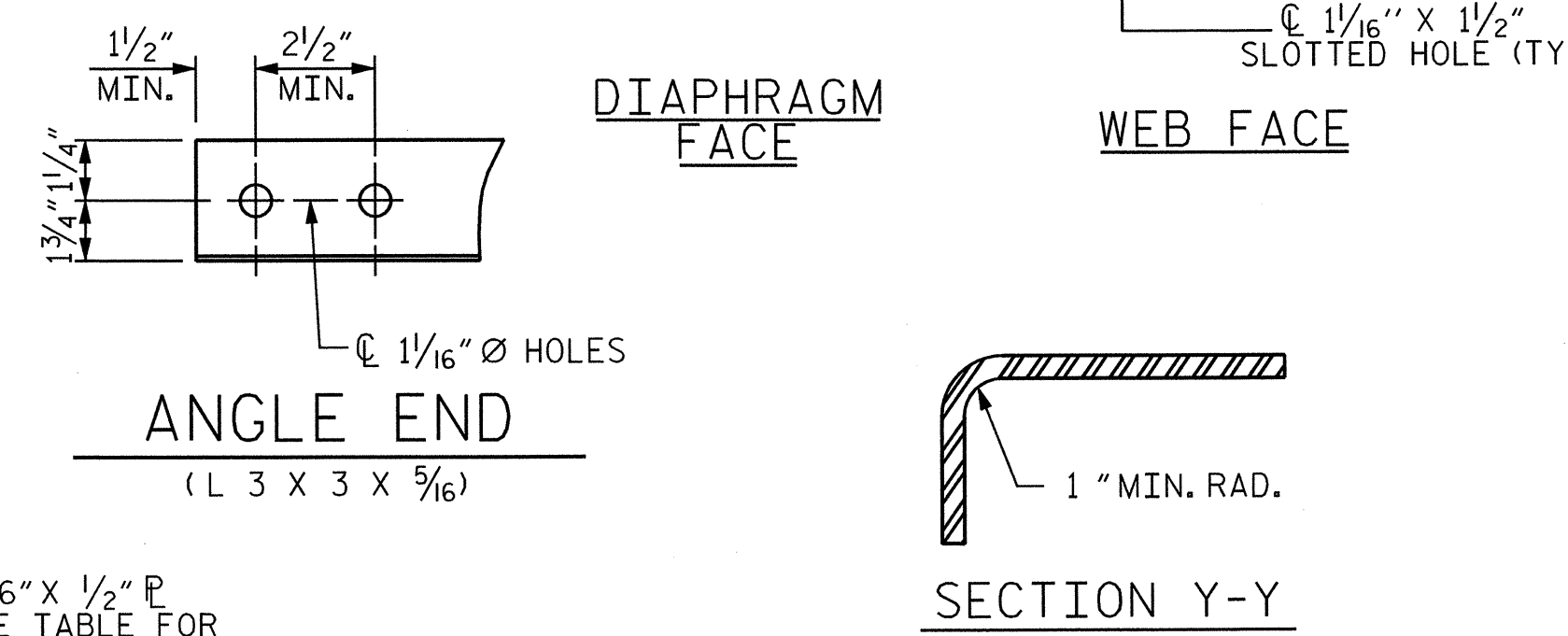
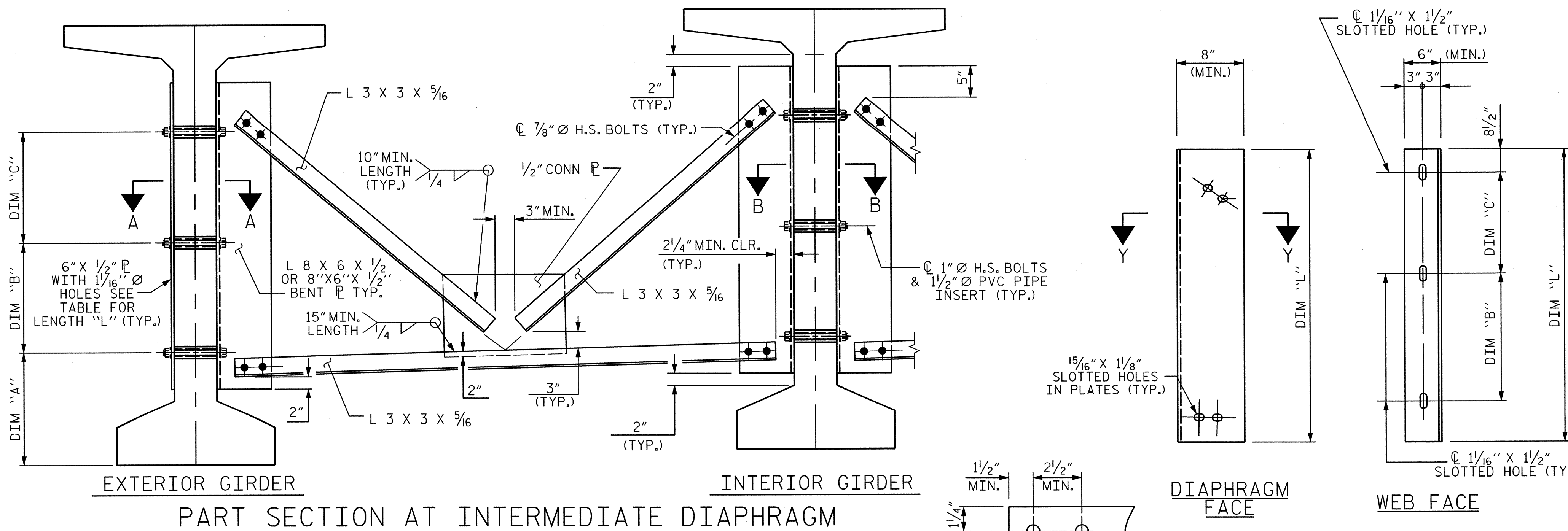
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

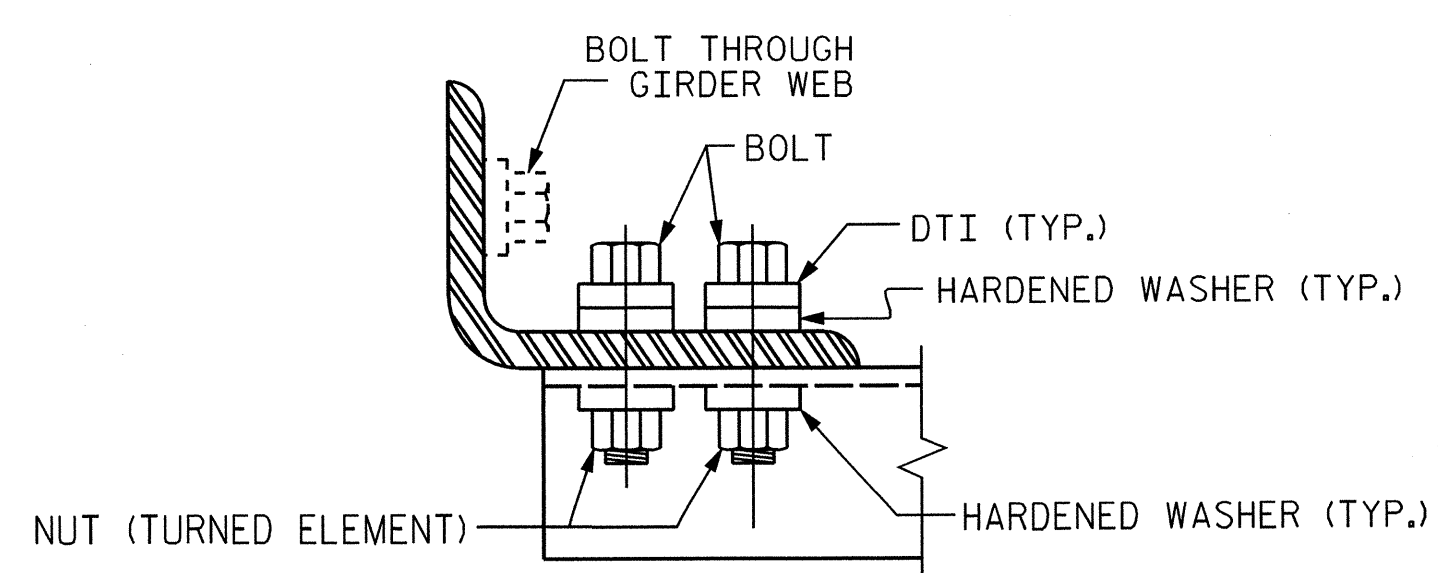
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

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

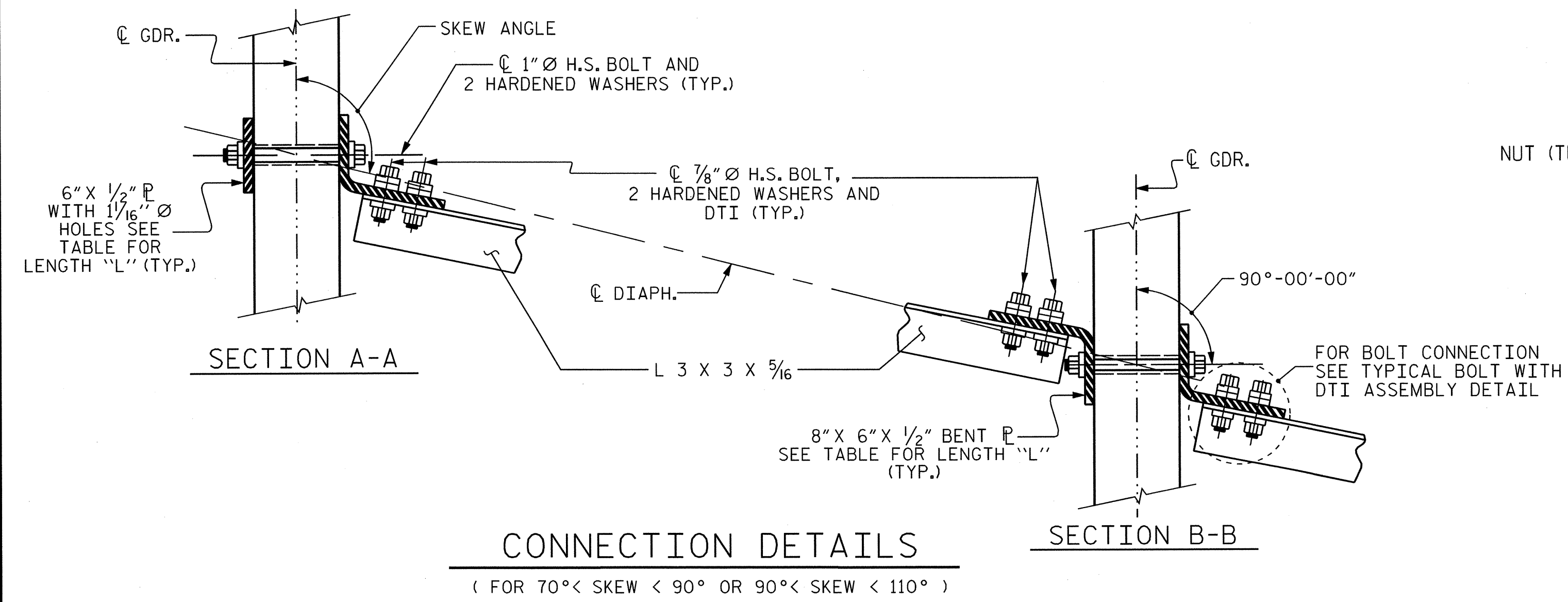


CONNECTOR PLATE DETAIL



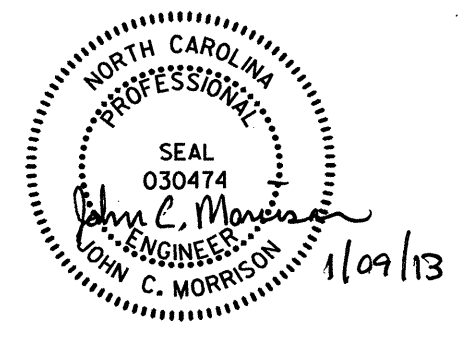
TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
72" BULB TEE SPAN A, B, E, F	1'-8"	1'-8"	1'-2"	4'-2"
72" BULB TEE SPAN D	2'-2"	1'-2"	1'-2"	3'-8"



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NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-8200 www.aecom.com
 AECOM License No. F42842

PROJECT		C-4901C	
TITLE		INTERMEDIATE STEEL DIAPHRAGMS FOR 72" MODIFIED BULB TEE PRESTRESSED CONCRETE GIRDERS	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-32	
SHEET 32 OF 72			

STRUCTURAL STEEL NOTES

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

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

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

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

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

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

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

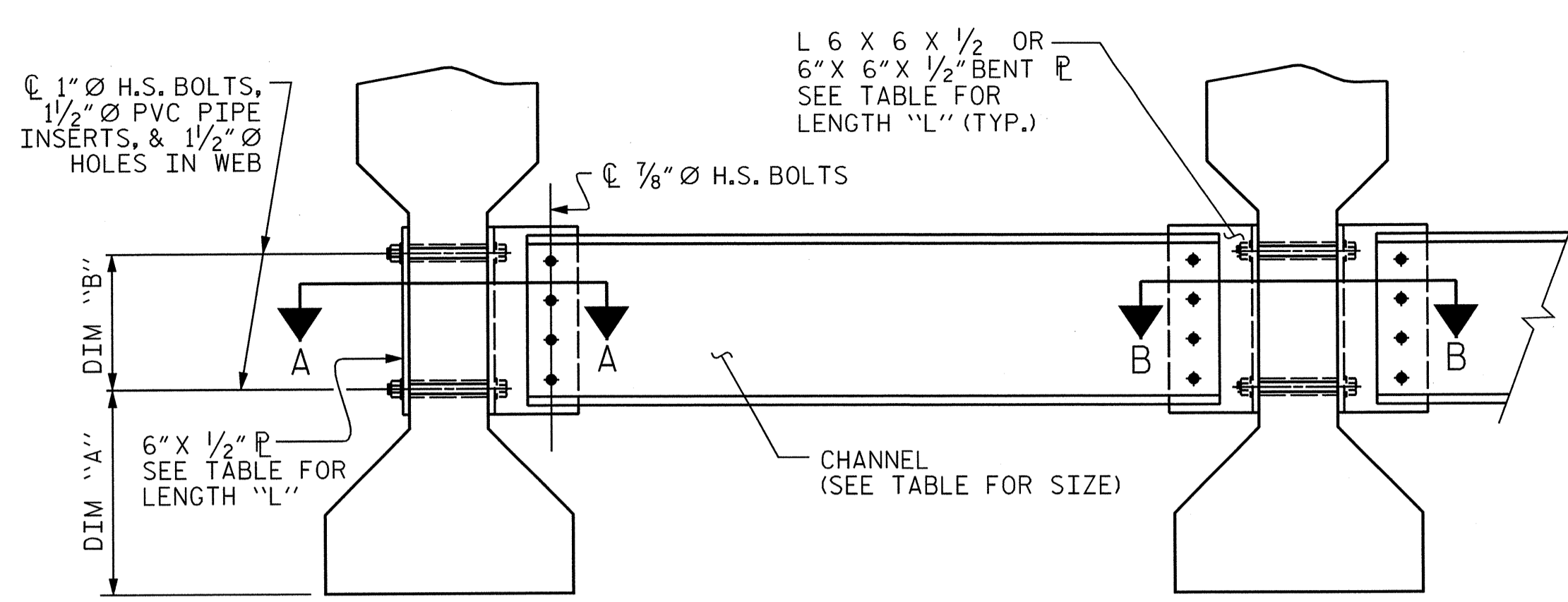
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

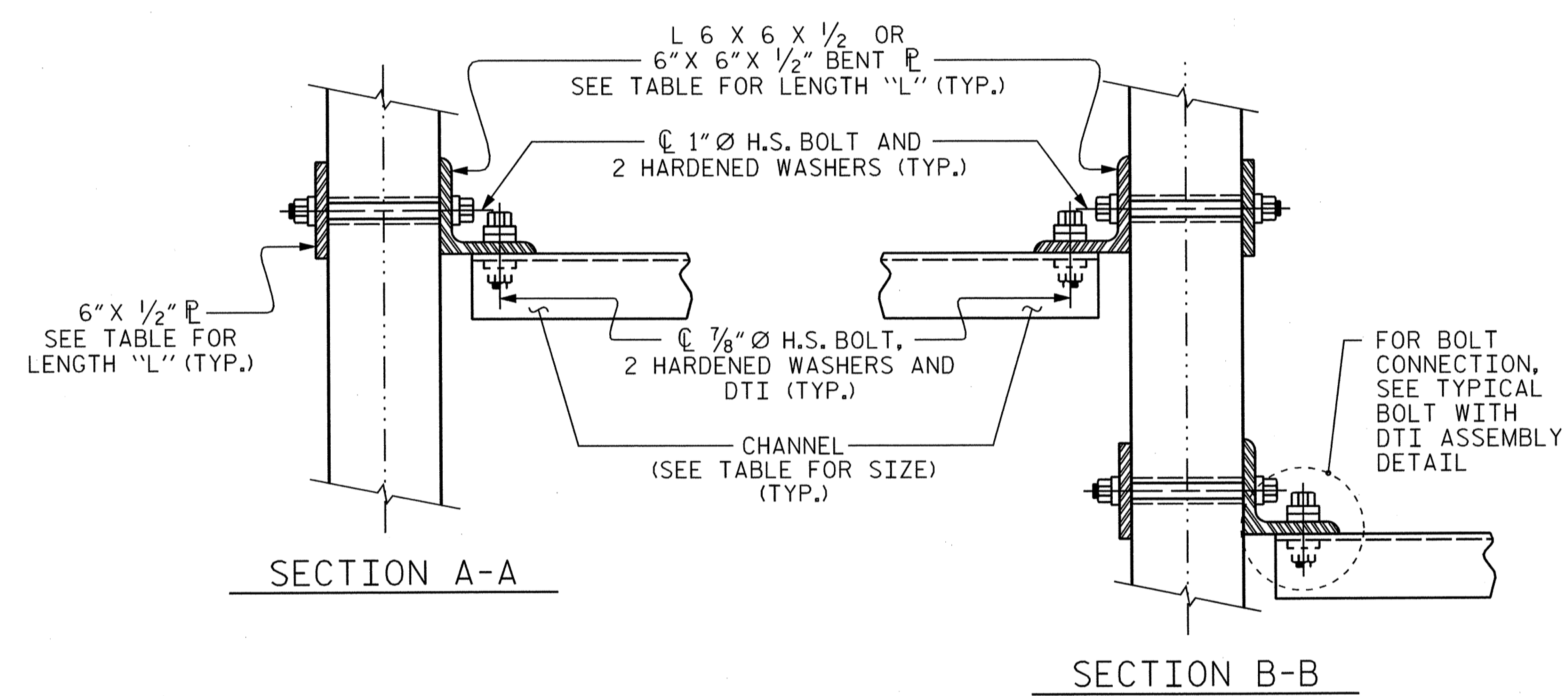
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

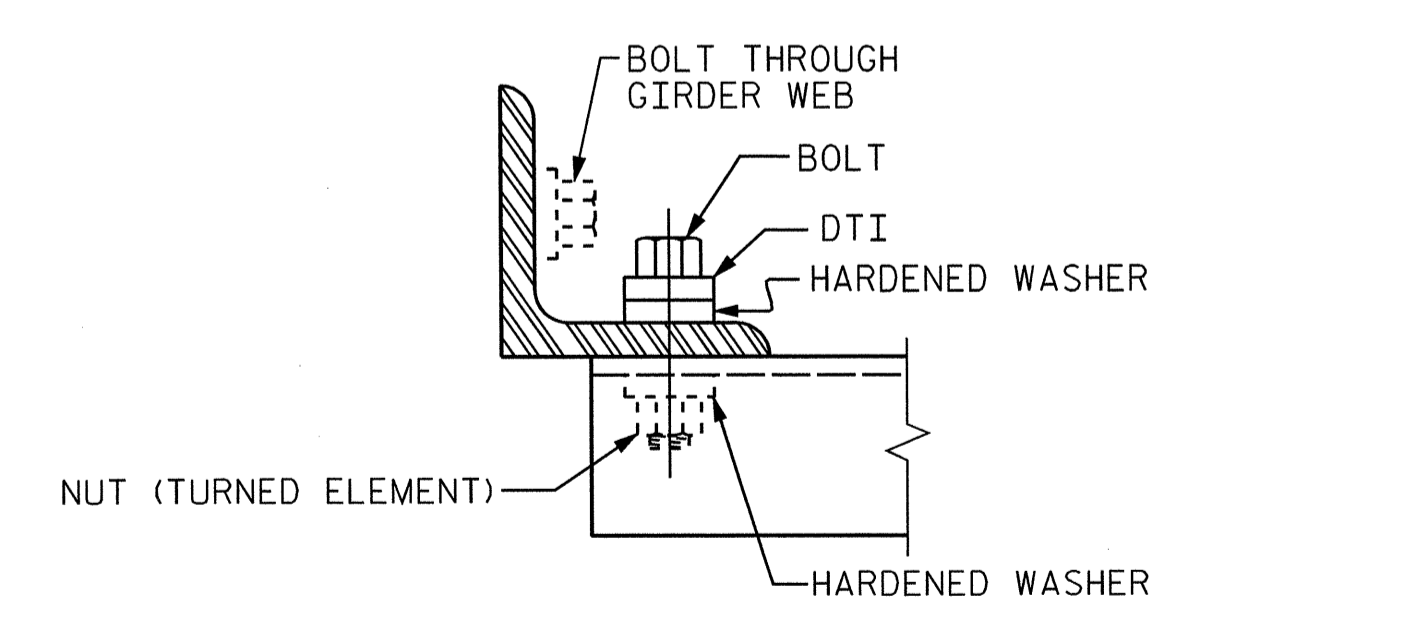
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



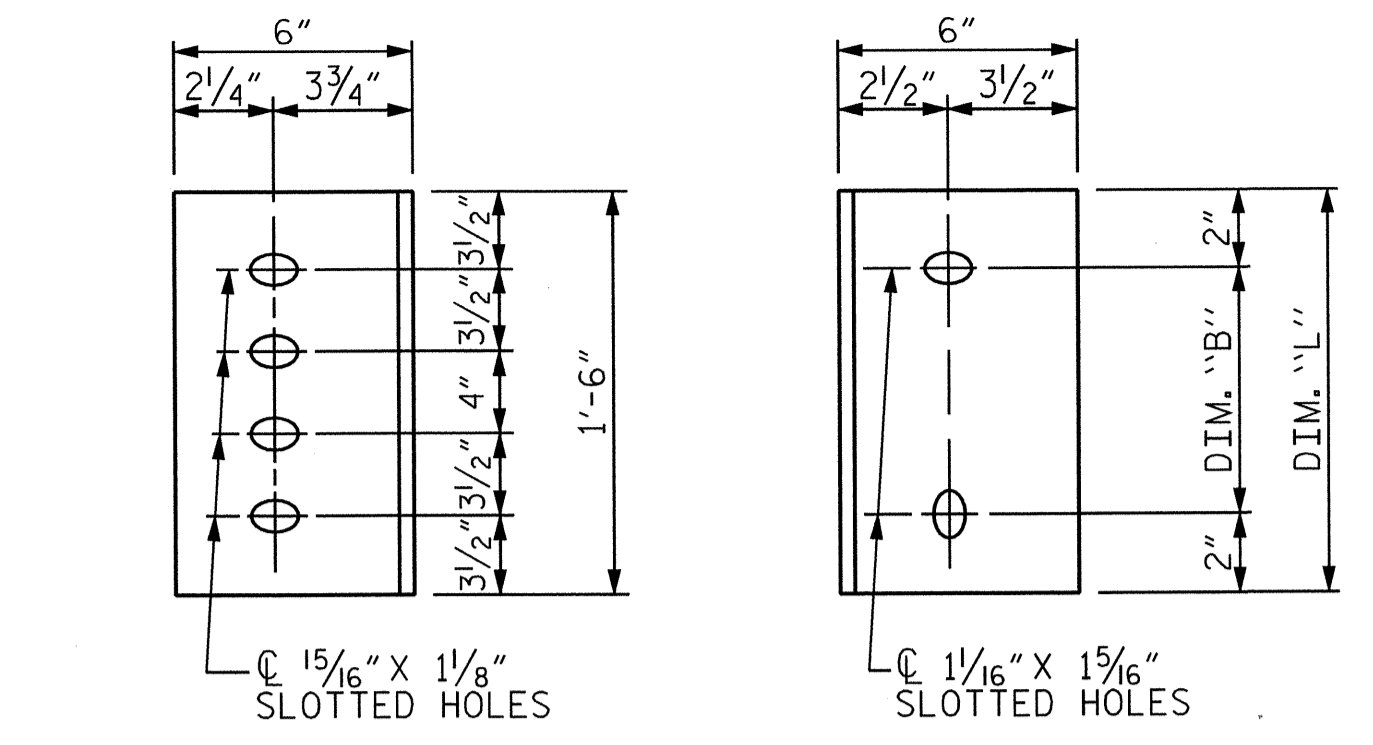
EXTERIOR GIRDER INTERIOR GIRDER
PART SECTION AT INTERMEDIATE DIAPHRAGM
(TYPE III GIRDER)



CONNECTION DETAILS
(FOR SKEW < 70° OR SKEW > 110°)



BOLT WITH DTI ASSEMBLY DETAIL



DIAPHRAGM FACE WEB FACE
(TYPE III GDR.)
CONNECTOR PLATE DETAILS

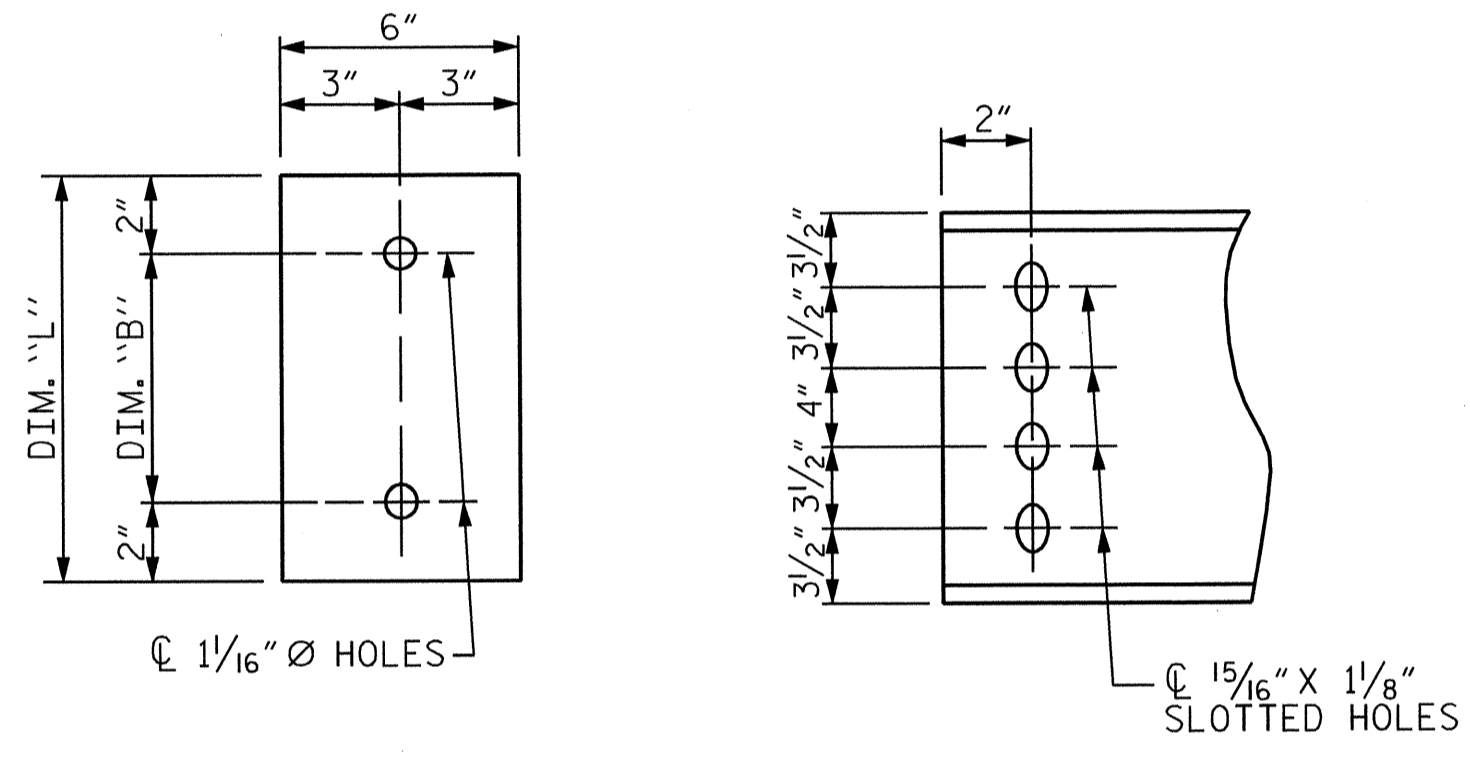
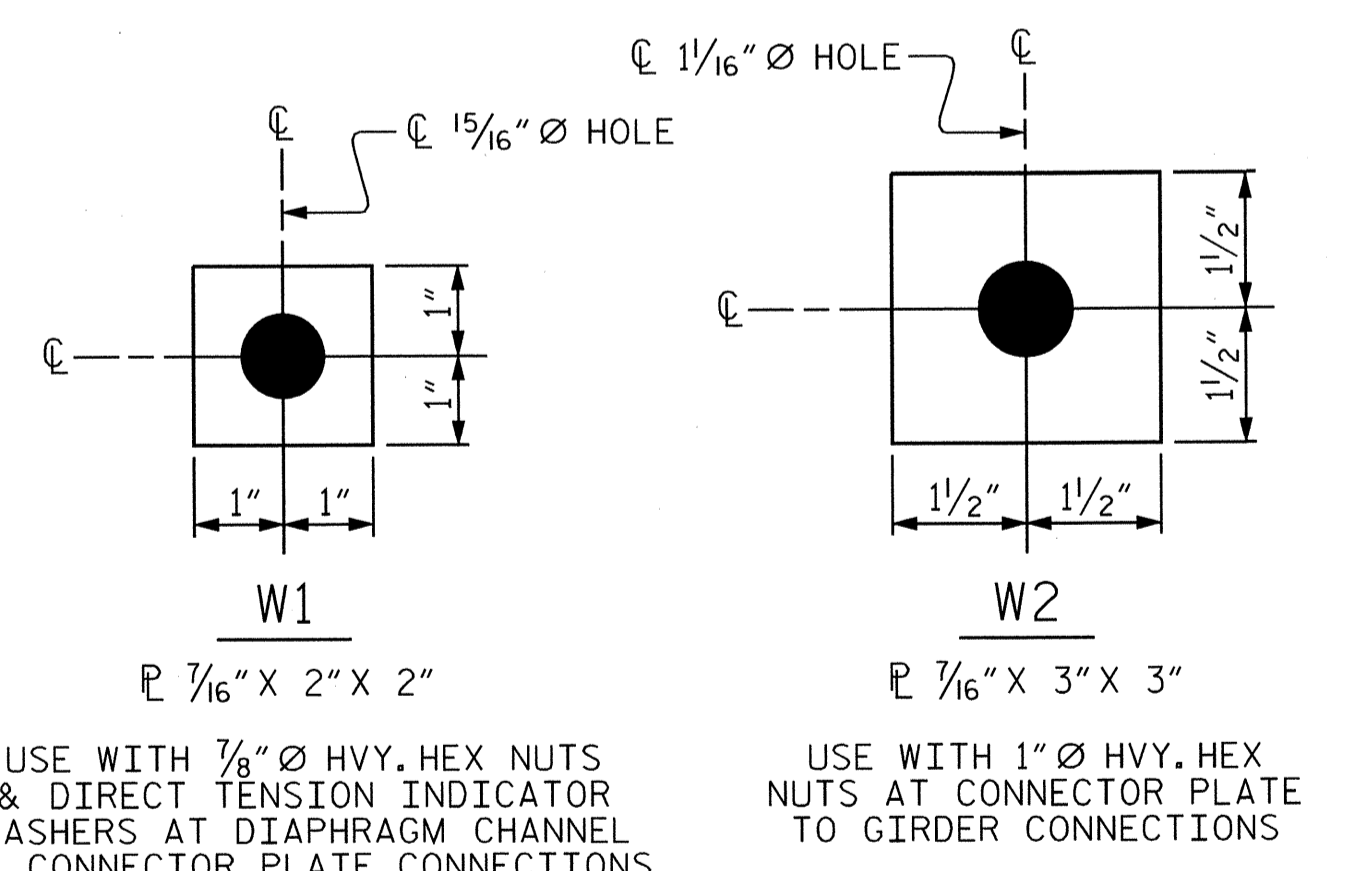


PLATE DETAILS CHANNEL END
(TYPE III GDR.)



WASHER DETAILS

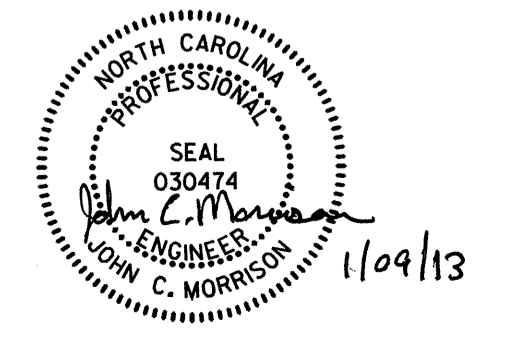
TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
III	MC 18 x 42.7	1'-5"	1'-2"	1'-6"

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NO.	BY	DATE	REVISION



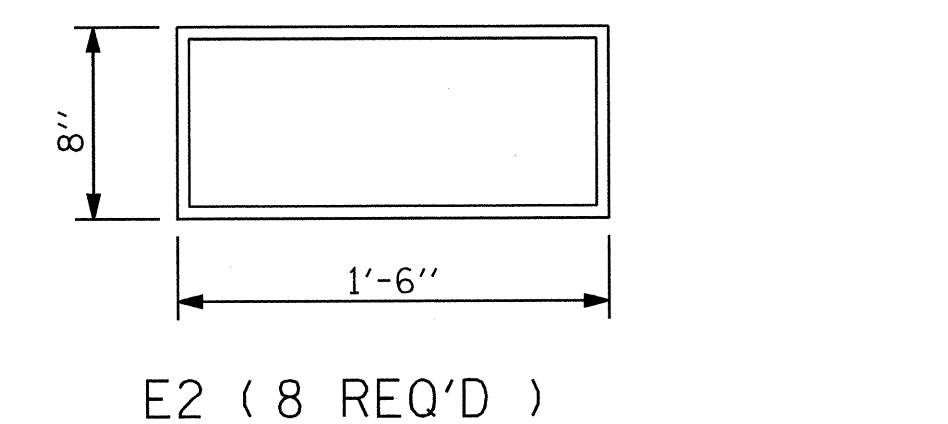
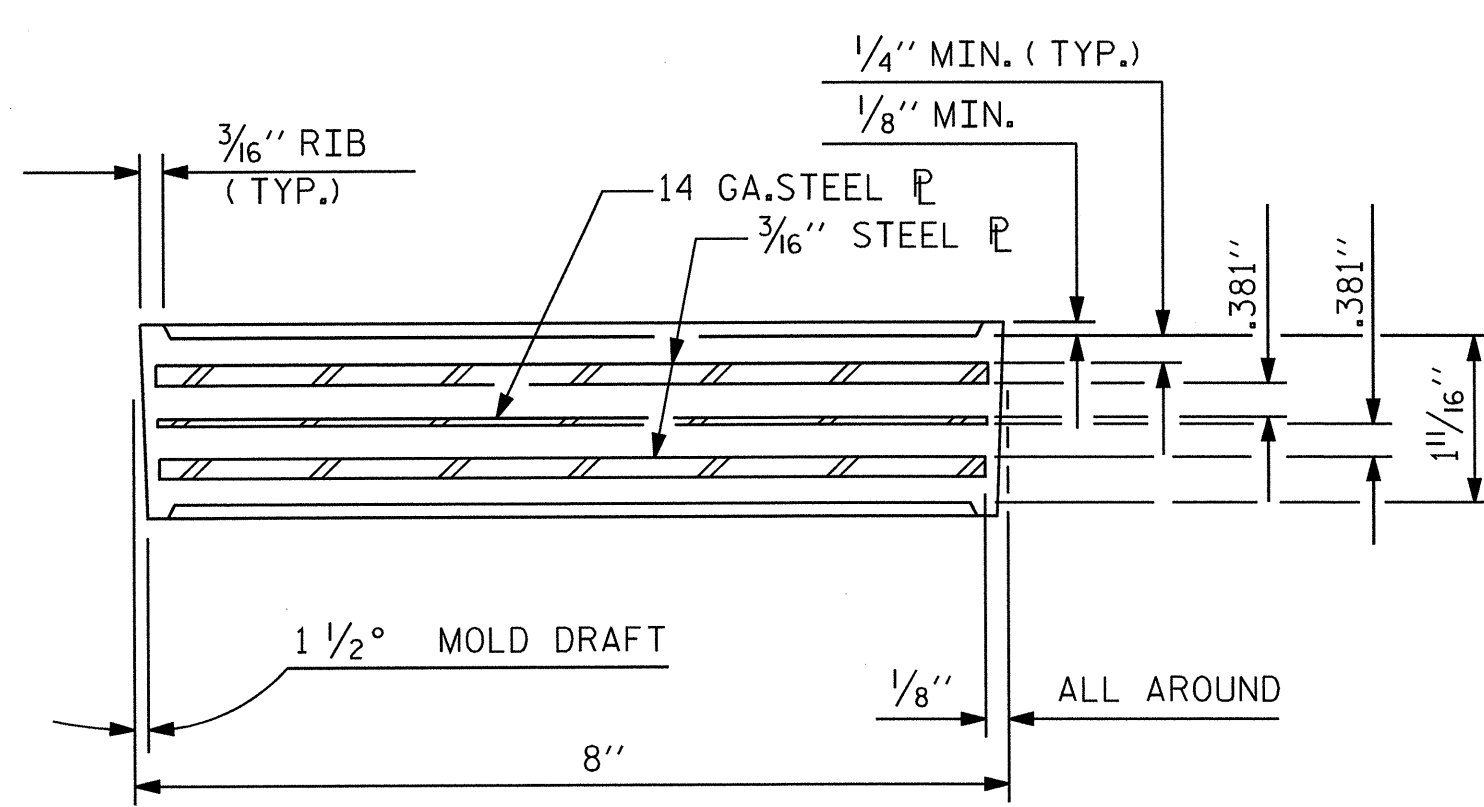
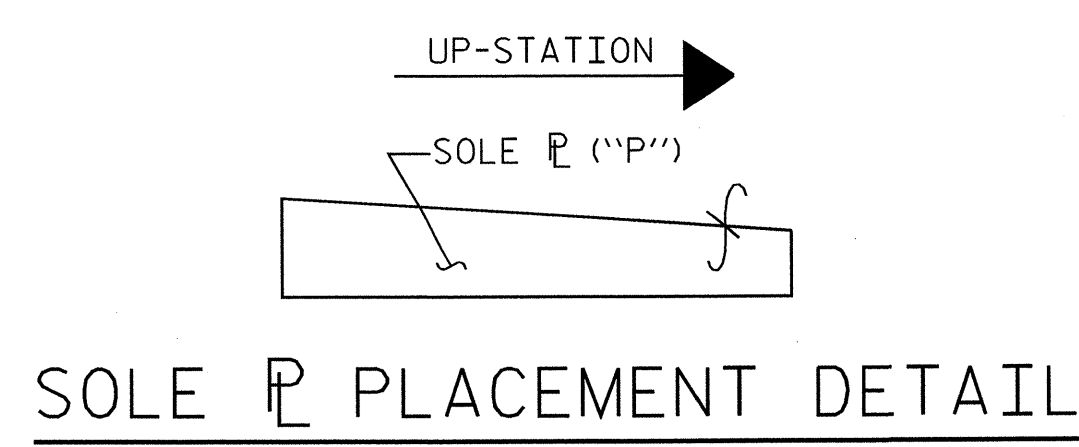
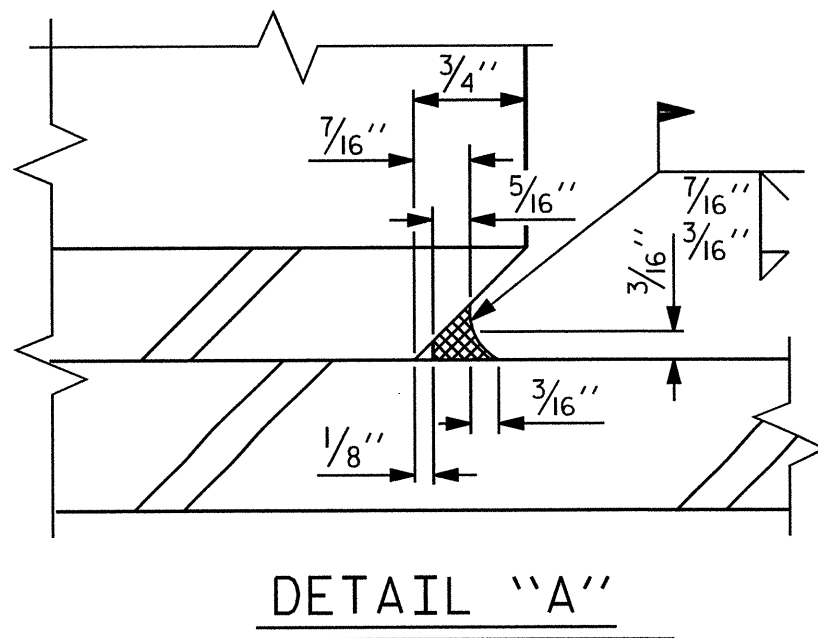
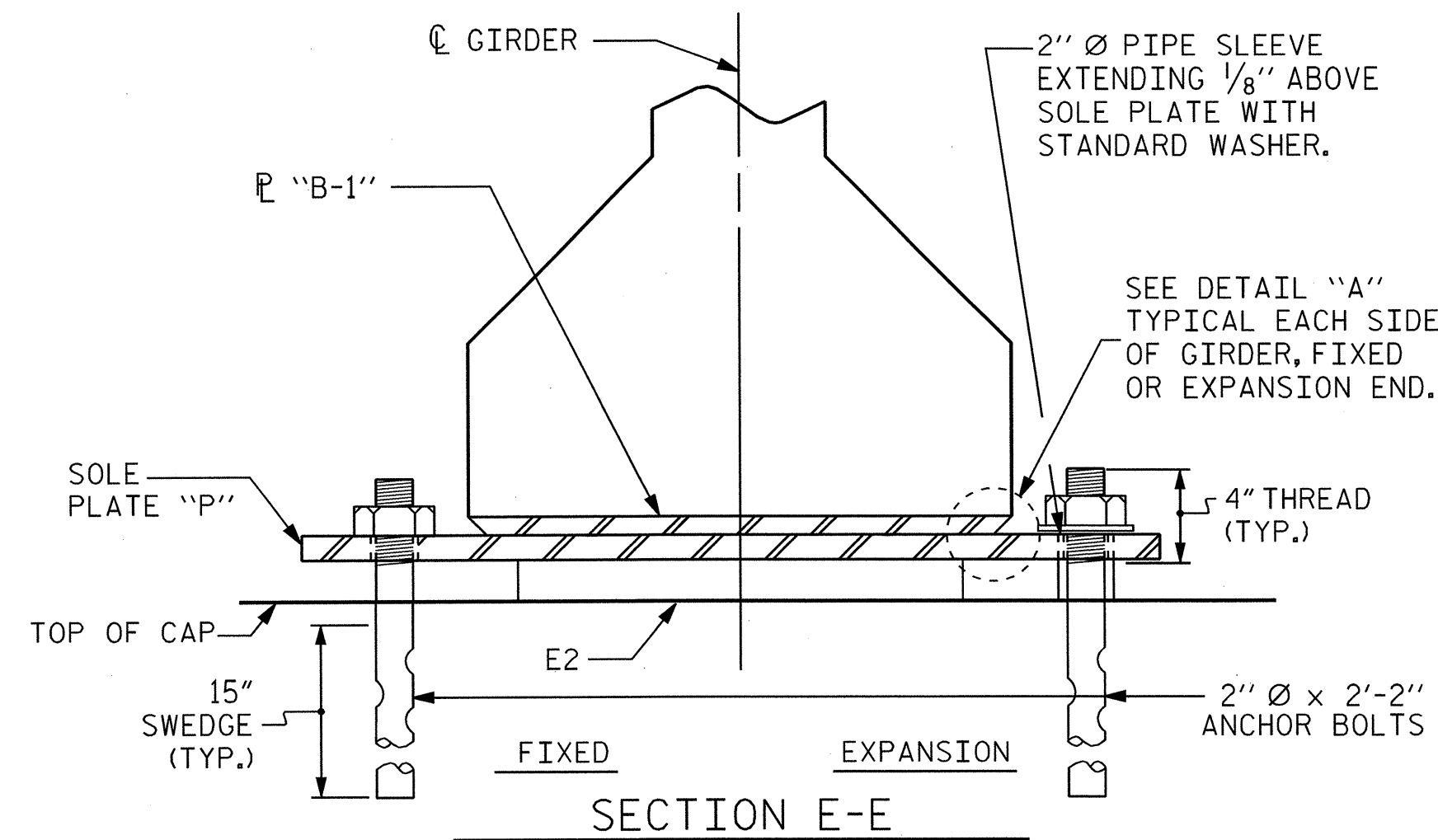
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**

AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 478
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www.aecom.com
AECOM License No. F-9342

PROJECT	C-4901C		
TITLE	INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III PRESTRESSED CONCRETE GIRDERS		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	N.T.S.		SHEET 33 OF 72

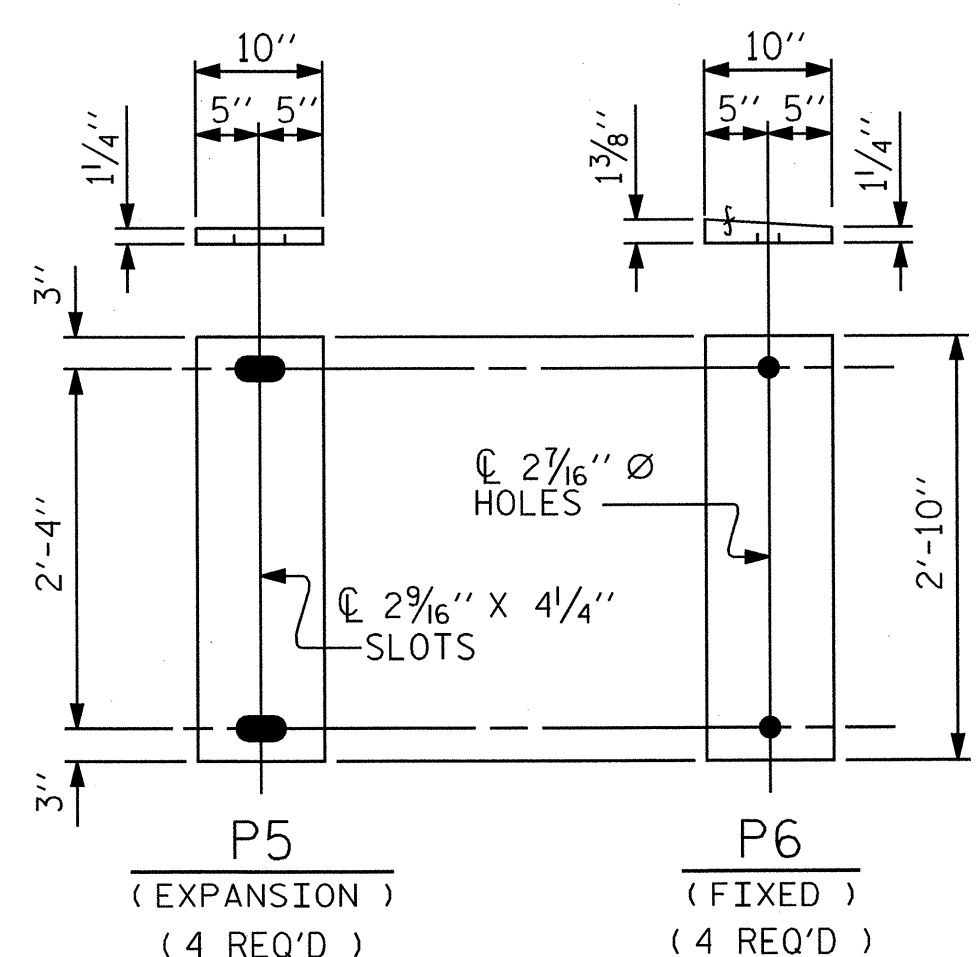
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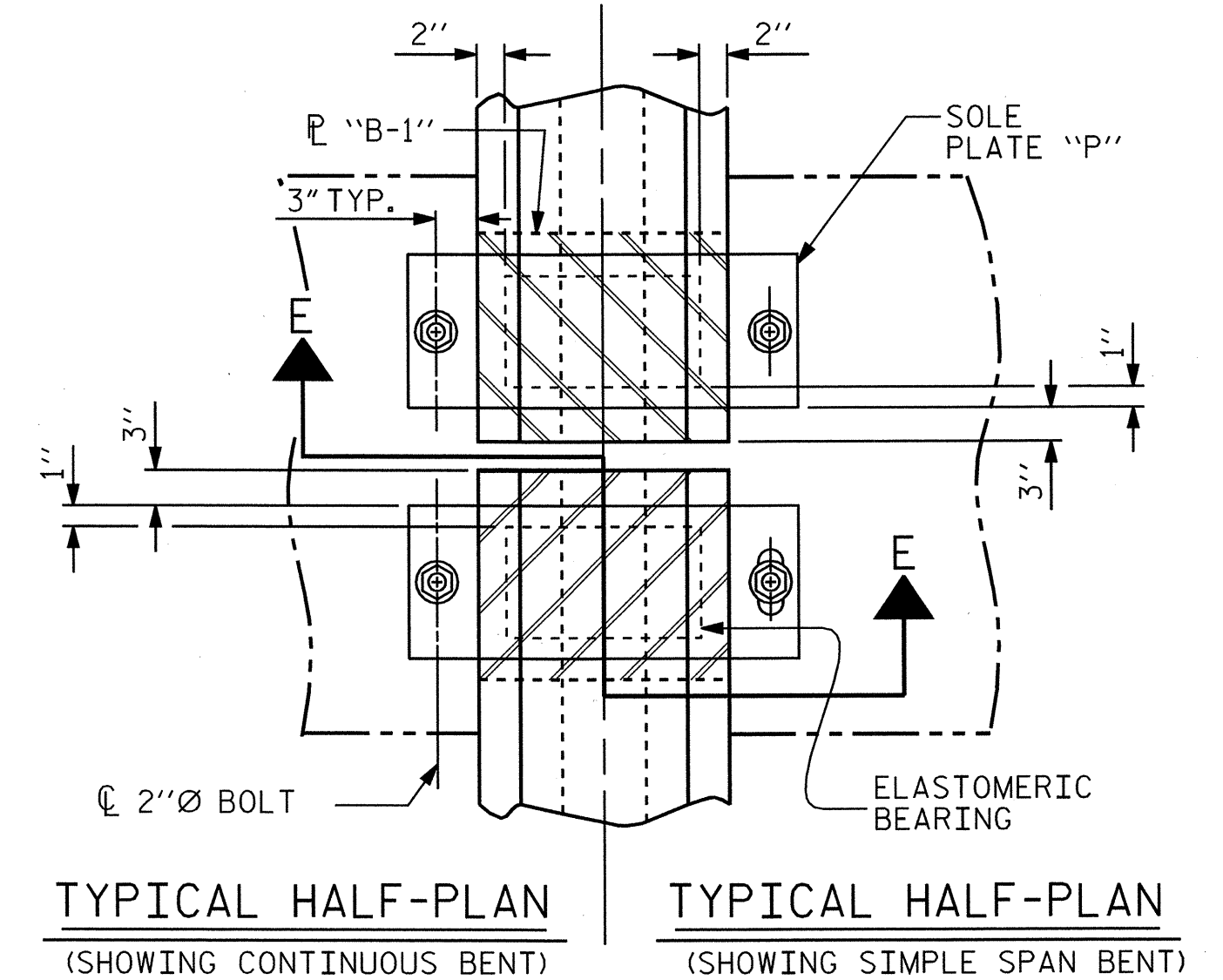
TYPICAL SECTION OF ELASTOMERIC BEARINGS

PLAN VIEW OF ELASTOMERIC BEARING

TYPE III



SOLE PLATE DETAILS ("P")



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

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

NOTES

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

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

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

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

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

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

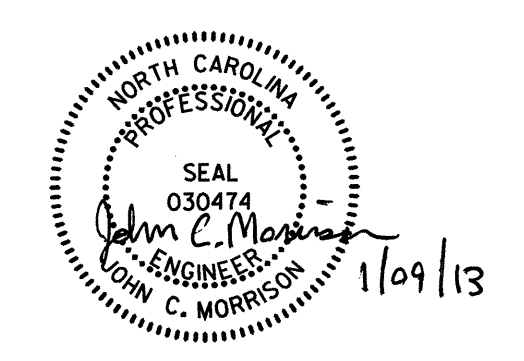
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

FOR BEARING LOCATIONS, SEE "FRAMING PLAN".

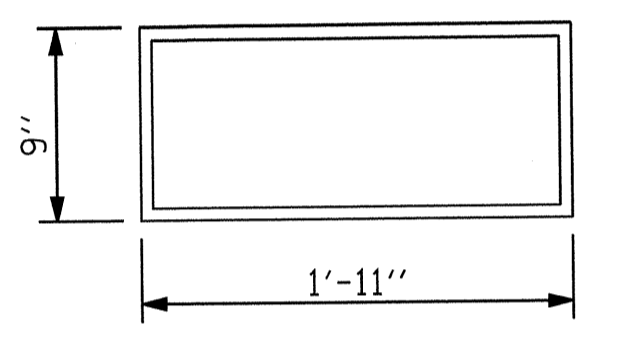
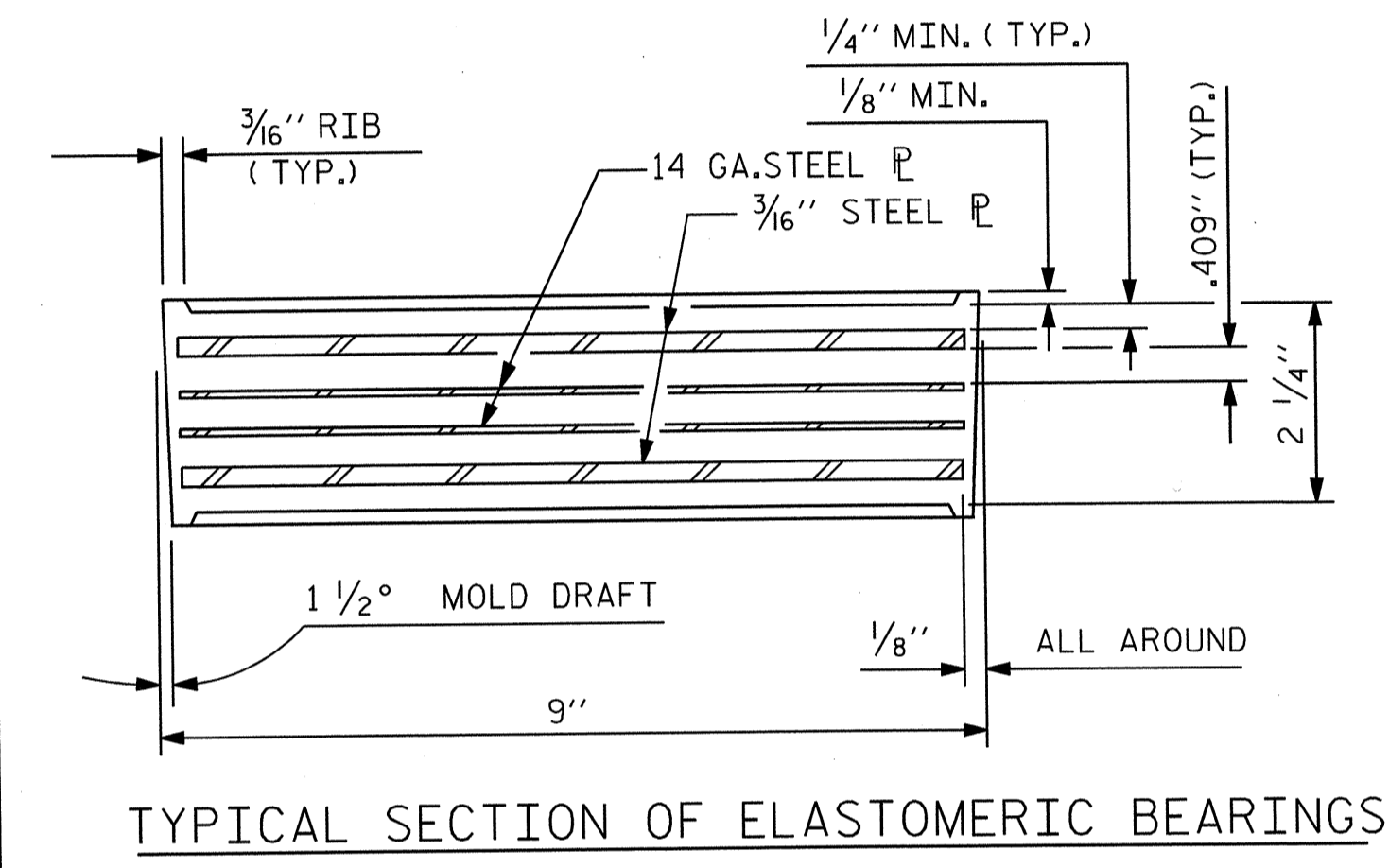
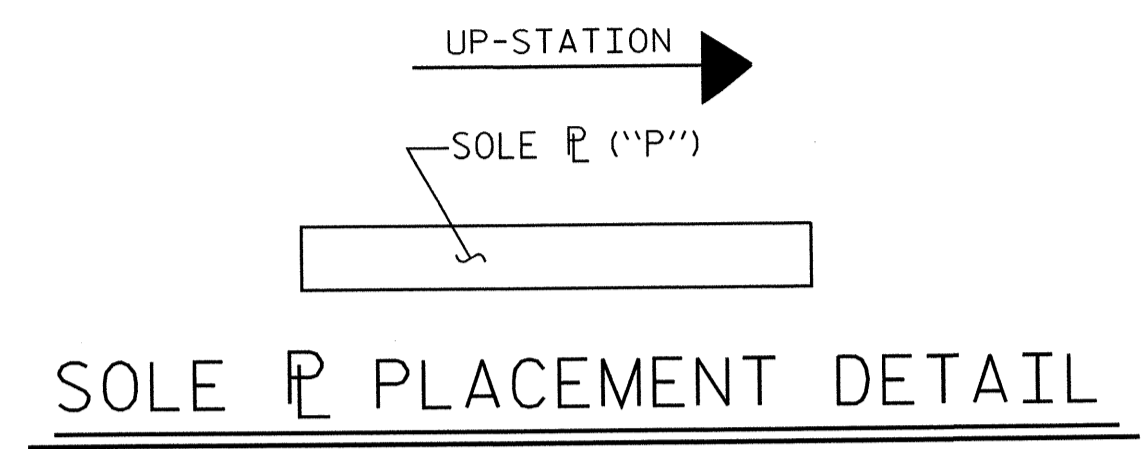
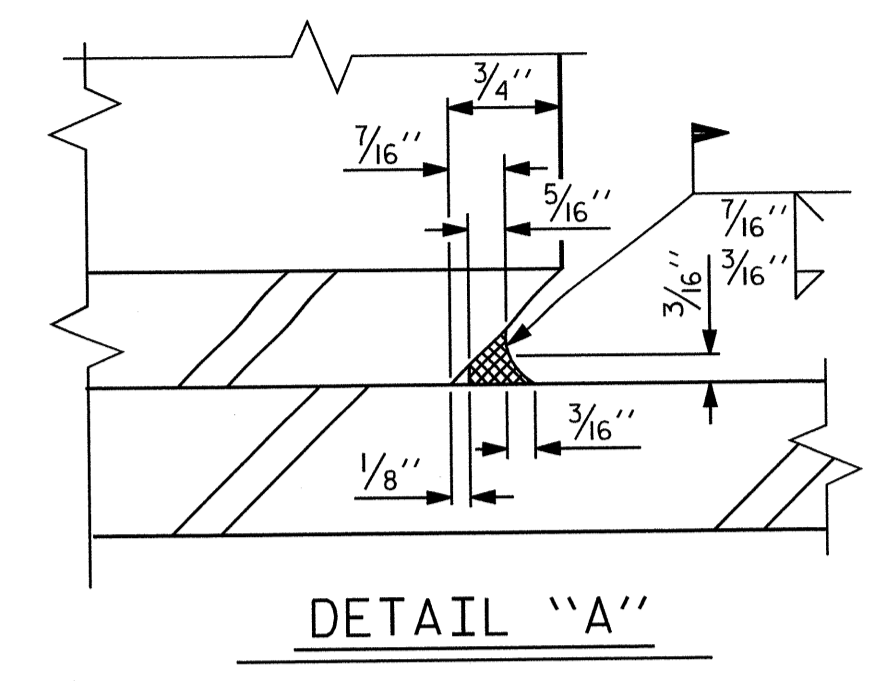
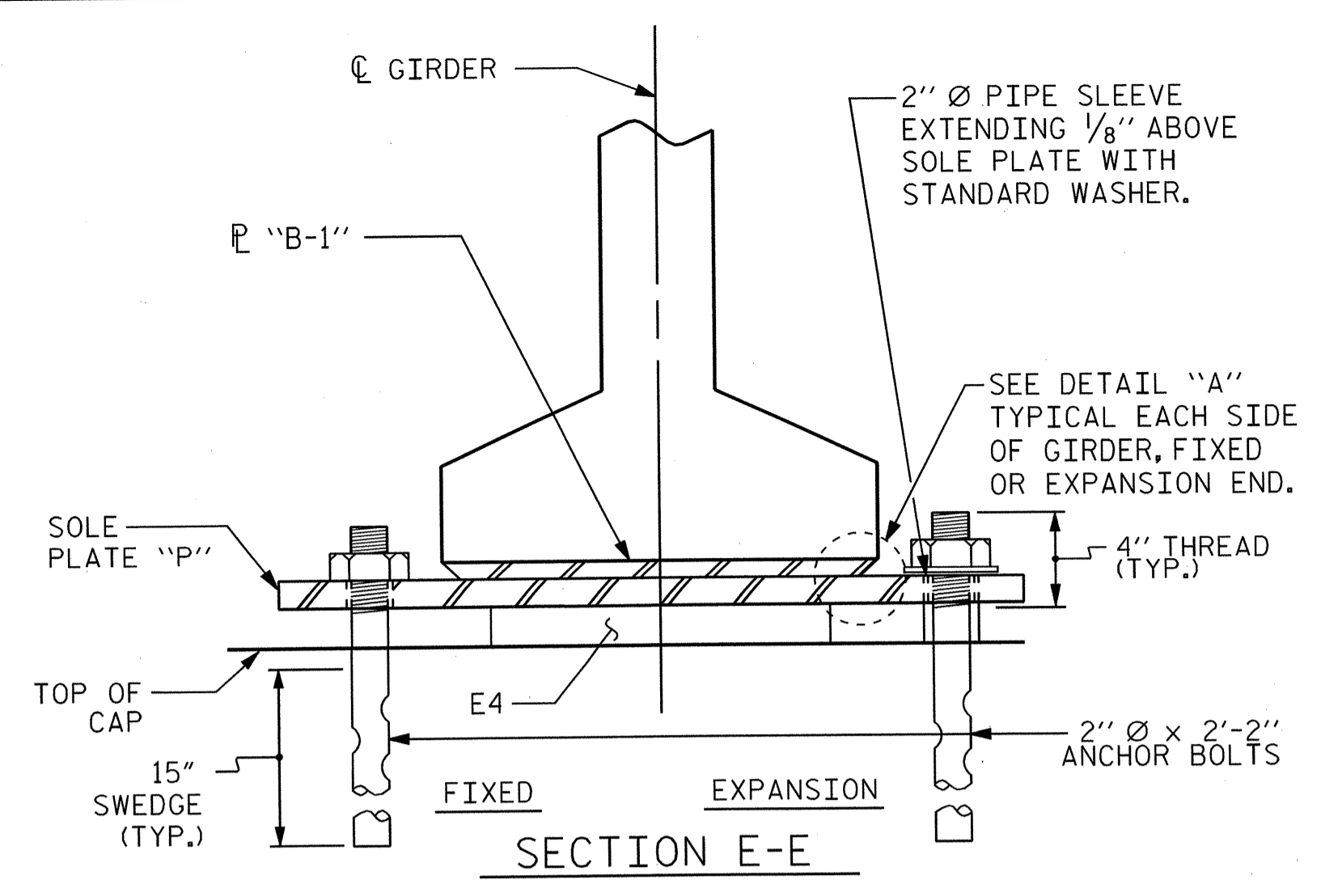
NO.	BY	DATE	REVISION



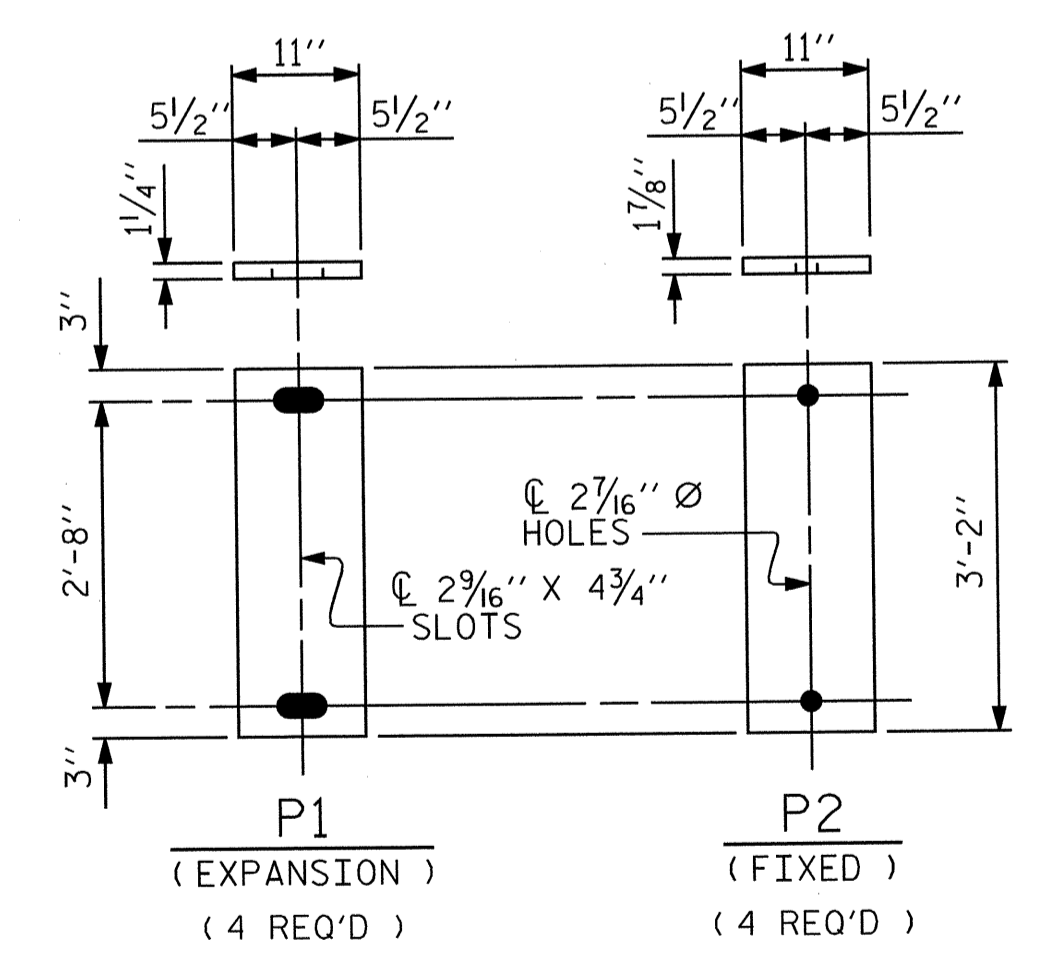
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-4200 www.aecom.com
 AECOM License No. F20242

PROJECT		C-4901C	
TITLE		ELASTOMERIC BEARING DETAILS PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE (1 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-34	
SHEET		34 OF 72	

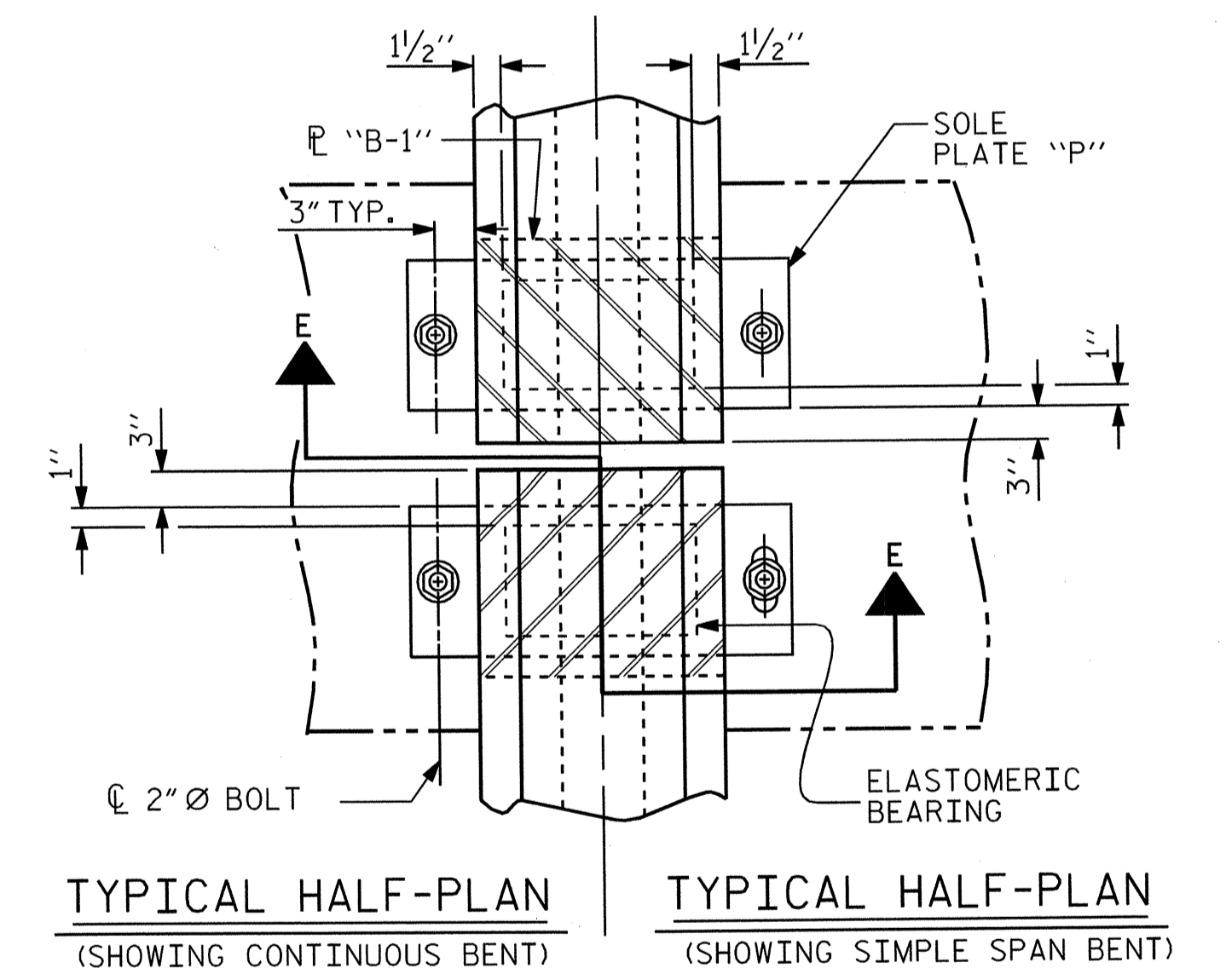
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E4 (8 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING



SOLE PLATE DETAILS ("P")



MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE V	365 k

NOTES

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

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.

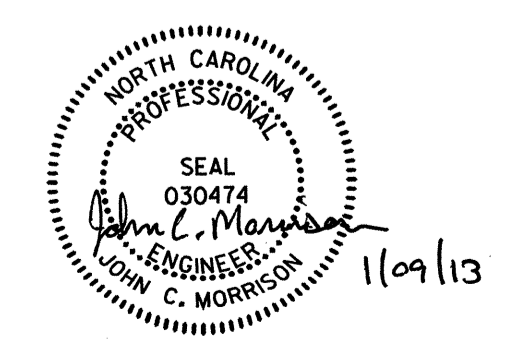
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

FOR BEARING LOCATIONS, SEE "FRAMING PLAN".

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NO.	BY	DATE	REVISION

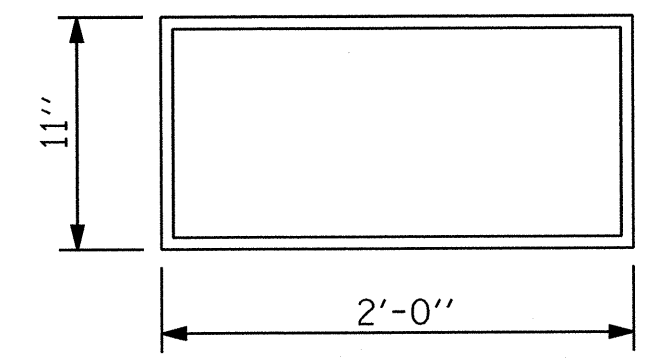
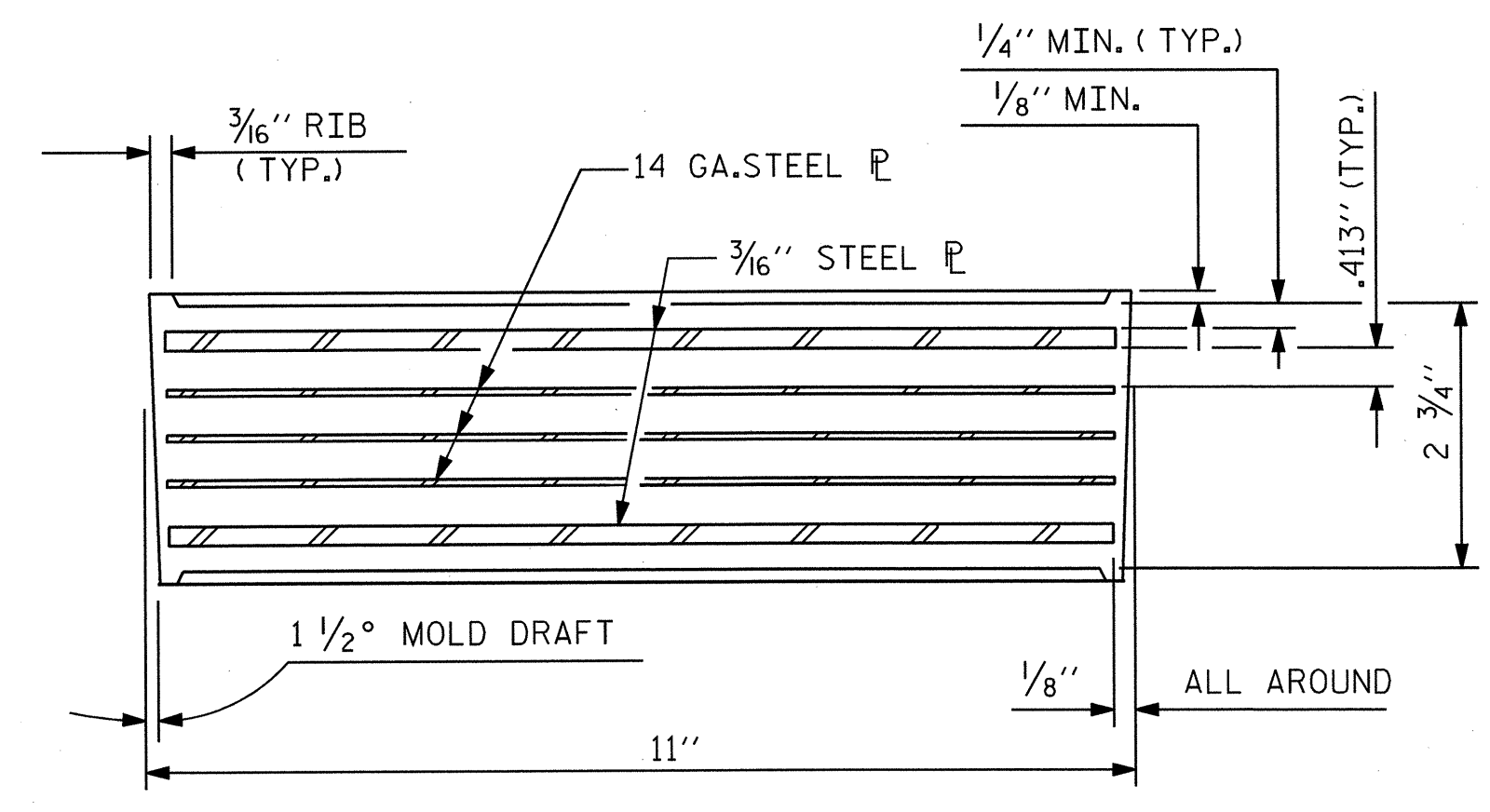
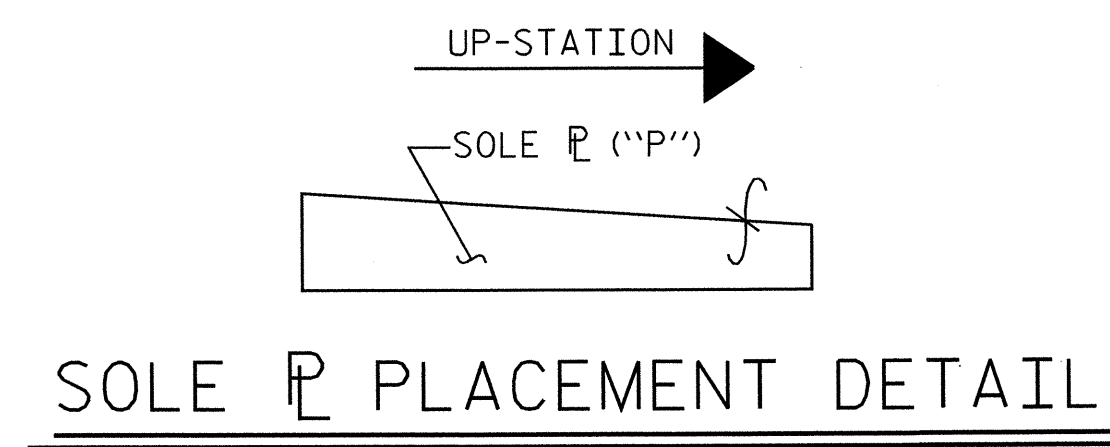
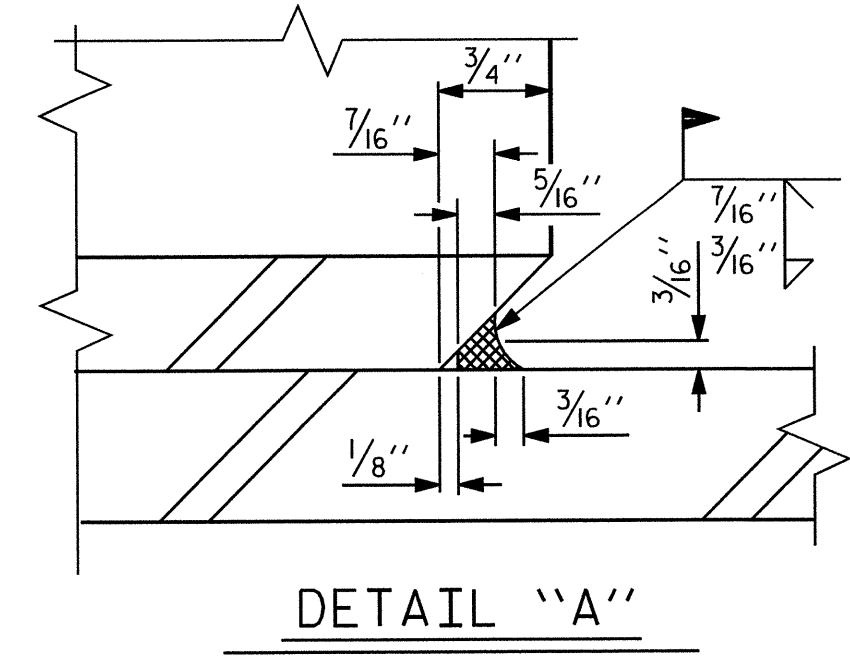
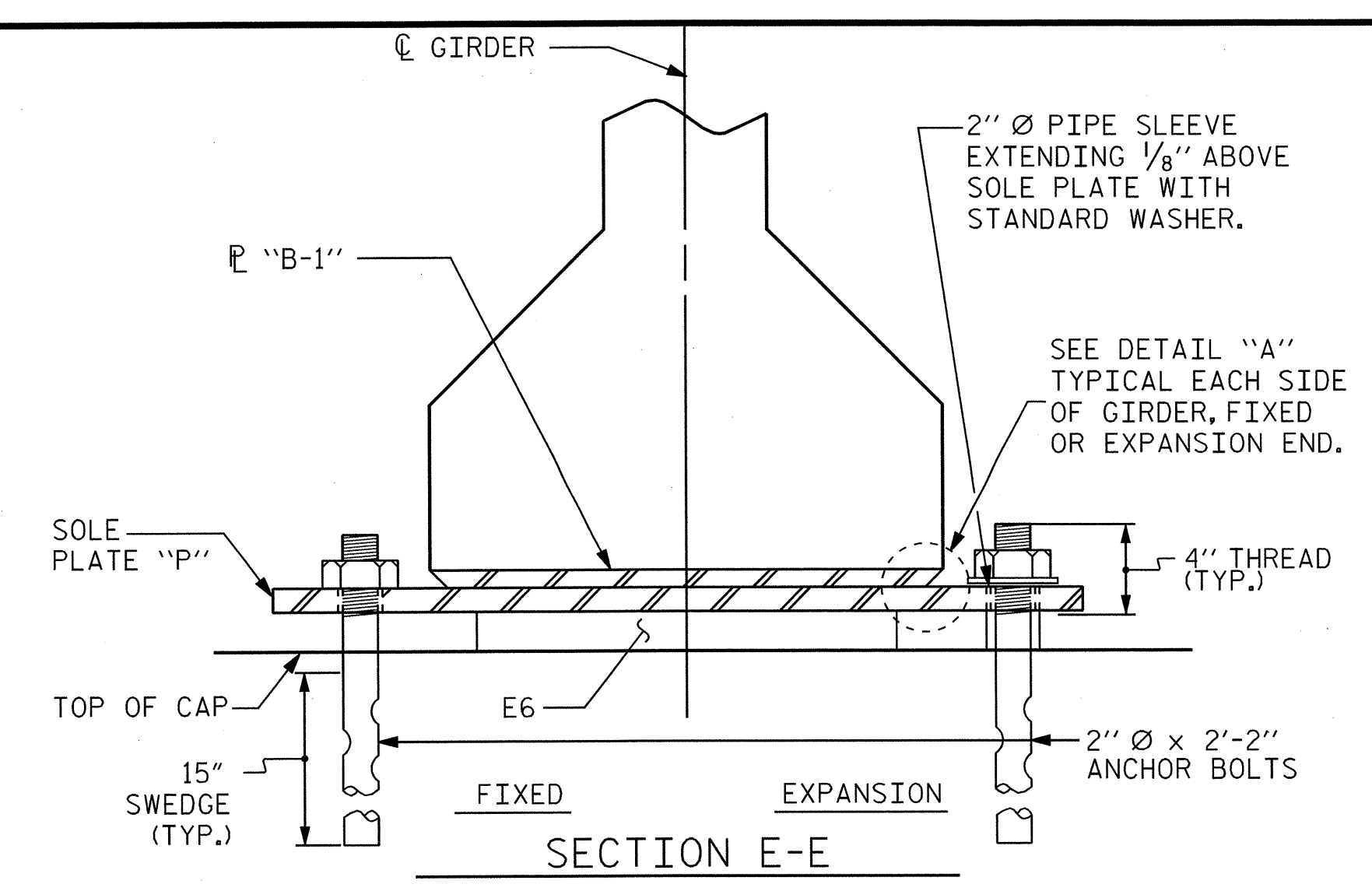


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
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AECOM TECHNICAL SERVICES, INC. 701 CORPORATE CENTER DRIVE, SUITE 475 RALEIGH, NC 27607 (919) 854-6200 www.aecom.com AECOM License No. F-5342

PROJECT	C-4901C		
TITLE	ELASTOMERIC BEARING DETAILS PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE (2 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS /NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	N.T.S.
		SHEET 35 OF 72	

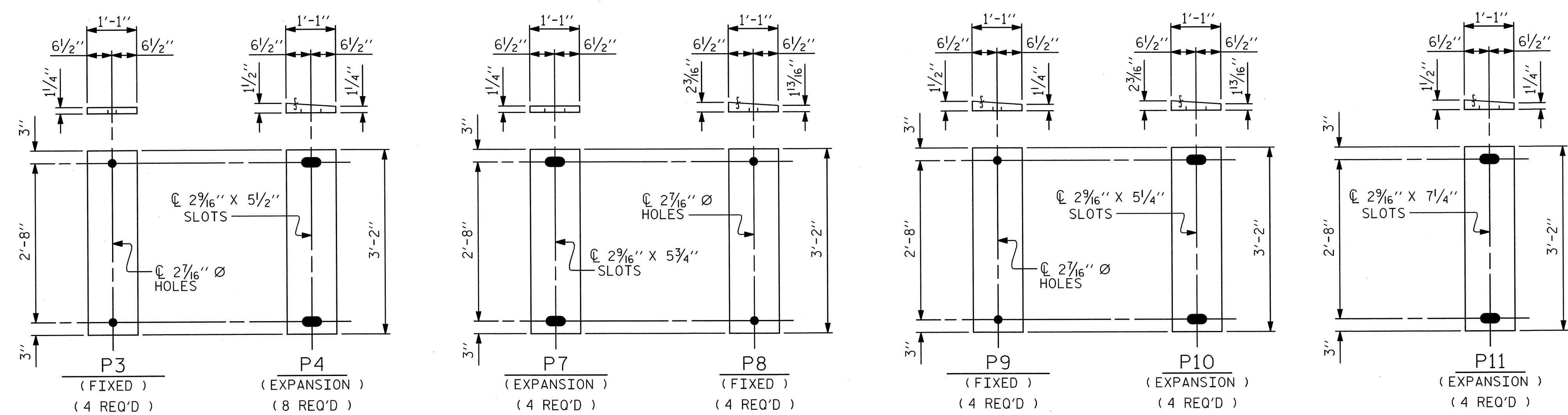
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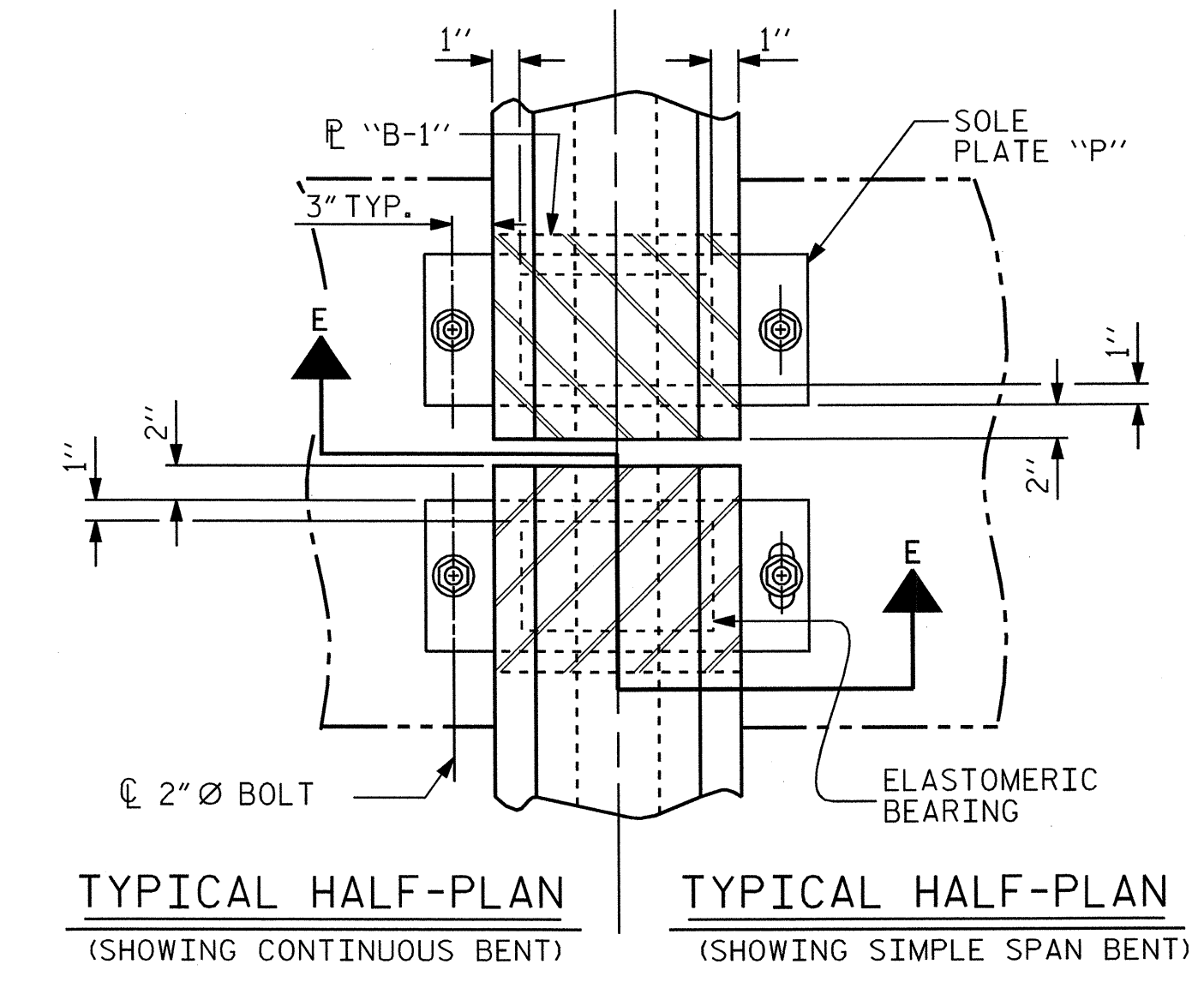


TYPICAL SECTION OF ELASTOMERIC BEARINGS
TYPE VII

E6 (32 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING



SOLE PLATE DETAILS ("P")



MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE VII	470 k

NOTES

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

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.

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

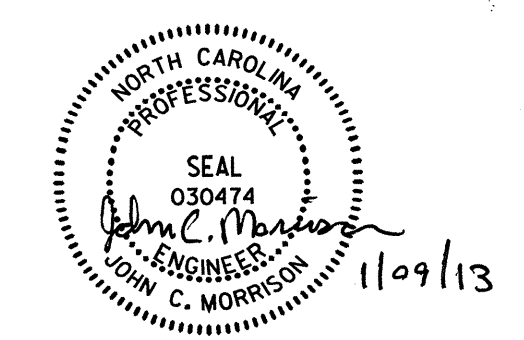
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THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULES OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR BEARING LOCATIONS, SEE "FRAMING PLAN".

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-6342

PROJECT	C-4901C		
TITLE	ELASTOMERIC BEARING DETAILS PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE (3 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	N.T.S.
			SHEET 36 OF 72

0271DEL_P10c3

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'A' GIRDERS 1 & 4. 0.6" DIA. LOW-RELAXATION. TENTH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.016 0.029 0.037 0.042 0.044 0.042 0.037 0.029 0.016 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.004 -0.007 -0.010 -0.012 -0.013 -0.012 -0.010 -0.007 -0.004 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 1/8" 1/4" 5/16" 3/8" 3/8" 3/8" 5/16" 1/4" 1/8" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'A' GIRDERS 2 & 3. 0.6" DIA. LOW-RELAXATION. TENTH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.016 0.029 0.037 0.042 0.044 0.042 0.037 0.029 0.016 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.004 -0.008 -0.011 -0.014 -0.014 -0.014 -0.011 -0.008 -0.004 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 1/8" 1/4" 5/16" 5/16" 3/8" 5/16" 5/16" 1/4" 1/8" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'B' GIRDERS 1 & 4. 0.6" DIA. LOW-RELAXATION. TWENTIETH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.057 0.107 0.150 0.186 0.215 0.239 0.257 0.270 0.278 0.280 0.278 0.270 0.257 0.239 0.215 0.186 0.149 0.107 0.057 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.021 -0.041 -0.062 -0.081 -0.097 -0.112 -0.123 -0.132 -0.137 -0.138 -0.137 -0.132 -0.123 -0.112 -0.097 -0.081 -0.062 -0.041 -0.021 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 7/16" 13/16" 1 1/16" 1 1/4" 1 1/16" 1 1/2" 1 5/8" 1 11/16" 1 11/16" 1 11/16" 1 11/16" 1 11/16" 1 5/8" 1 1/2" 1 7/16" 1 1/4" 1 1/16" 1 3/16" 7/16" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'B' GIRDERS 2 & 3. 0.6" DIA. LOW-RELAXATION. TWENTIETH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.057 0.107 0.150 0.186 0.215 0.239 0.257 0.270 0.278 0.280 0.278 0.270 0.257 0.239 0.215 0.186 0.149 0.107 0.057 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.023 -0.045 -0.068 -0.088 -0.106 -0.122 -0.135 -0.144 -0.150 -0.151 -0.150 -0.144 -0.135 -0.122 -0.106 -0.088 -0.068 -0.045 -0.023 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 7/16" 3/4" 1" 1 3/16" 1 5/16" 1 3/8" 1 1/16" 1 1/2" 1 1/16" 1 1/16" 1 1/16" 1 1/2" 1 7/16" 1 3/8" 1 5/16" 1 3/16" 1" 3/4" 7/16" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'C' GIRDER 1. 0.6" DIA. LOW-RELAXATION. TENTH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.004 0.008 0.011 0.012 0.013 0.012 0.011 0.008 0.004 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 0.000 -0.001 -0.002 -0.002 -0.002 -0.002 -0.002 -0.001 0.000 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 1/16" 1/16" 1/8" 1/8" 1/8" 1/8" 1/8" 1/8" 1/16" 1/16" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'C' GIRDER 2. 0.6" DIA. LOW-RELAXATION. TENTH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.011 0.020 0.026 0.030 0.031 0.030 0.026 0.020 0.011 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.002 -0.005 -0.006 -0.008 -0.008 -0.008 -0.006 -0.005 -0.002 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 1/8" 3/16" 1/4" 1/4" 1/4" 1/4" 1/4" 3/16" 1/8" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'C' GIRDER 3. 0.6" DIA. LOW-RELAXATION. TENTH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.017 0.030 0.038 0.043 0.045 0.043 0.038 0.030 0.017 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.006 -0.012 -0.017 -0.020 -0.021 -0.020 -0.017 -0.012 -0.006 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 1/8" 3/16" 1/4" 1/4" 5/16" 1/4" 1/4" 3/16" 1/8" 0"

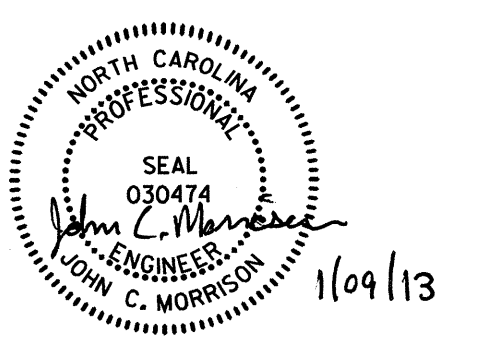
DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'C' GIRDER 4. 0.6" DIA. LOW-RELAXATION. TENTH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.022 0.038 0.049 0.055 0.057 0.055 0.049 0.038 0.022 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.012 -0.023 -0.032 -0.038 -0.040 -0.038 -0.032 -0.023 -0.012 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 1/8" 3/16" 3/16" 3/16" 3/16" 3/16" 3/16" 3/16" 3/16" 1/8" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'D' GIRDERS 1 & 4. 0.6" DIA. LOW-RELAXATION. TWENTIETH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.064 0.122 0.172 0.217 0.256 0.287 0.312 0.330 0.341 0.345 0.341 0.330 0.312 0.287 0.256 0.217 0.172 0.122 0.064 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.030 -0.060 -0.089 -0.117 -0.140 -0.161 -0.177 -0.190 -0.197 -0.199 -0.197 -0.190 -0.177 -0.161 -0.140 -0.117 -0.089 -0.060 -0.030 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 3/8" 3/4" 1" 1 3/16" 1 3/8" 1 1/2" 1 5/8" 1 11/16" 1 3/4" 1 3/4" 1 3/4" 1 11/16" 1 5/8" 1 1/2" 1 3/8" 1 3/16" 1" 3/4" 3/8" 0"

DEAD LOAD DEFLECTION TABLE FOR GIRDERS. SPAN 'D' GIRDERS 2 & 3. 0.6" DIA. LOW-RELAXATION. TWENTIETH POINTS. CAMBER (GIRDER ALONE IN PLACE) ↑ 0.000 0.064 0.122 0.172 0.217 0.256 0.287 0.312 0.330 0.341 0.345 0.341 0.330 0.312 0.287 0.256 0.217 0.172 0.122 0.064 0.000. * DEFLECTION DUE TO SUPERIMPOSED DL ↓ 0.000 -0.033 -0.065 -0.098 -0.127 -0.153 -0.176 -0.194 -0.207 -0.215 -0.218 -0.215 -0.207 -0.194 -0.176 -0.153 -0.127 -0.098 -0.065 -0.033 0.000. ** FINAL CAMBER (OR DEFLECTION) ↑ 0" 3/8" 1 1/16" 7/8" 1 1/16" 1 1/4" 1 5/16" 1 1/16" 1 1/2" 1 1/2" 1 1/16" 1 1/2" 1 1/2" 1 7/16" 1 5/16" 1 1/4" 1 1/16" 7/8" 1 1/16" 3/8" 0"

* INCLUDES FUTURE WEARING SURFACE
** POSITIVE NUMBER MEANS UPWARD MOVEMENT, NEGATIVE NUMBER MEANS DOWNWARD MOVEMENT.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

Table with columns: NO., BY, DATE, REVISION. Contains a grid for revision tracking.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION. AECOM logo and contact information: AECOM TECHNICAL SERVICES, INC. 701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607. (919) 854-4200. www.aecom.com. AECOM License No. F-25242.

PROJECT: C-4901C. TITLE: SUPERSTRUCTURE GIRDER DEFLECTION AND CAMBER SCHEDULES (1 OF 2). LOCATION: BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014. MILE POST: MP 313.04. DGN BY: DPS. RAILROAD: NS / NCRR. DRAWING: S-37. DWN BY: DDL. VAL SEC: V.5-8. CHK BY: JL. DATE: NOVEMBER 2012. SCALE: N.T.S. SHEET 37 OF 72.

I:\028\17 AM 02\6019802\400_Technical_Information_and_Disc_Files\450_NCDOT_Std_Tech_Design_Files\Structures\Cadd\C-4901C_SD_DSN_DL_Deflect_.ldgn

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loweryd

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
0.6" DIA. LOW-RELAXATION	SPAN "E"										
	GIRDERS 1 & 4										
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.070	0.122	0.156	0.176	0.182	0.176	0.156	0.122	0.070	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓	0.000	-0.025	-0.049	-0.068	-0.081	-0.085	-0.081	-0.068	-0.049	-0.025	0.000
** FINAL CAMBER (OR DEFLECTION) ↑	0"	3/16"	7/8"	1 1/16"	1 1/8"	1 3/16"	1 1/8"	1 1/16"	7/8"	3/16"	0"

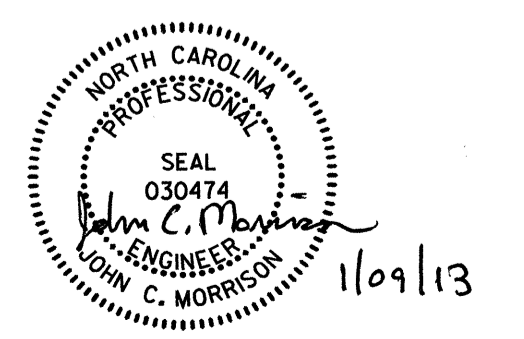
DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
0.6" DIA. LOW-RELAXATION	SPAN "F"										
	GIRDERS 1 & 4										
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.060	0.104	0.133	0.150	0.155	0.150	0.133	0.104	0.060	0.000
* DEFLECTION DUE TO SUPERIMPOSED DL ↓	0.000	-0.023	-0.046	-0.063	-0.074	-0.078	-0.074	-0.063	-0.046	-0.023	0.000
** FINAL CAMBER (OR DEFLECTION) ↑	0"	7/16"	1 1/16"	1 3/16"	1 5/16"	1 5/16"	1 5/16"	1 3/16"	1 1/16"	7/16"	0"

* INCLUDES FUTURE WEARING SURFACE
 ** POSITIVE NUMBER MEANS UPWARD MOVEMENT, NEGATIVE NUMBER MEANS DOWNWARD MOVEMENT.
 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" DIA. LOW-RELAXATION	SPAN "E"											
	GIRDERS 2 & 3											
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.070	0.122	0.156	0.176	0.182	0.176	0.156	0.122	0.070	0.000	
* DEFLECTION DUE TO SUPERIMPOSED DL ↓	0.000	-0.028	-0.054	-0.075	-0.088	-0.093	-0.088	-0.075	-0.054	-0.028	0.000	
** FINAL CAMBER (OR DEFLECTION) ↑	0"	1/2"	1 3/16"	1"	1 1/16"	1 1/16"	1 1/16"	1"	1 3/16"	1/2"	0"	

DEAD LOAD DEFLECTION TABLE FOR GIRDERS												
0.6" DIA. LOW-RELAXATION	SPAN "F"											
	GIRDERS 2 & 3											
TENTH POINTS	BRG.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	BRG.	
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.060	0.104	0.133	0.150	0.155	0.150	0.133	0.104	0.060	0.000	
* DEFLECTION DUE TO SUPERIMPOSED DL ↓	0.000	-0.025	-0.050	-0.069	-0.081	-0.086	-0.081	-0.069	-0.050	-0.025	0.000	
** FINAL CAMBER (OR DEFLECTION) ↑	0"	7/16"	5/8"	3/4"	1 3/16"	1 3/16"	1 3/16"	3/4"	5/8"	7/16"	0"	

NO.	BY	DATE	REVISION



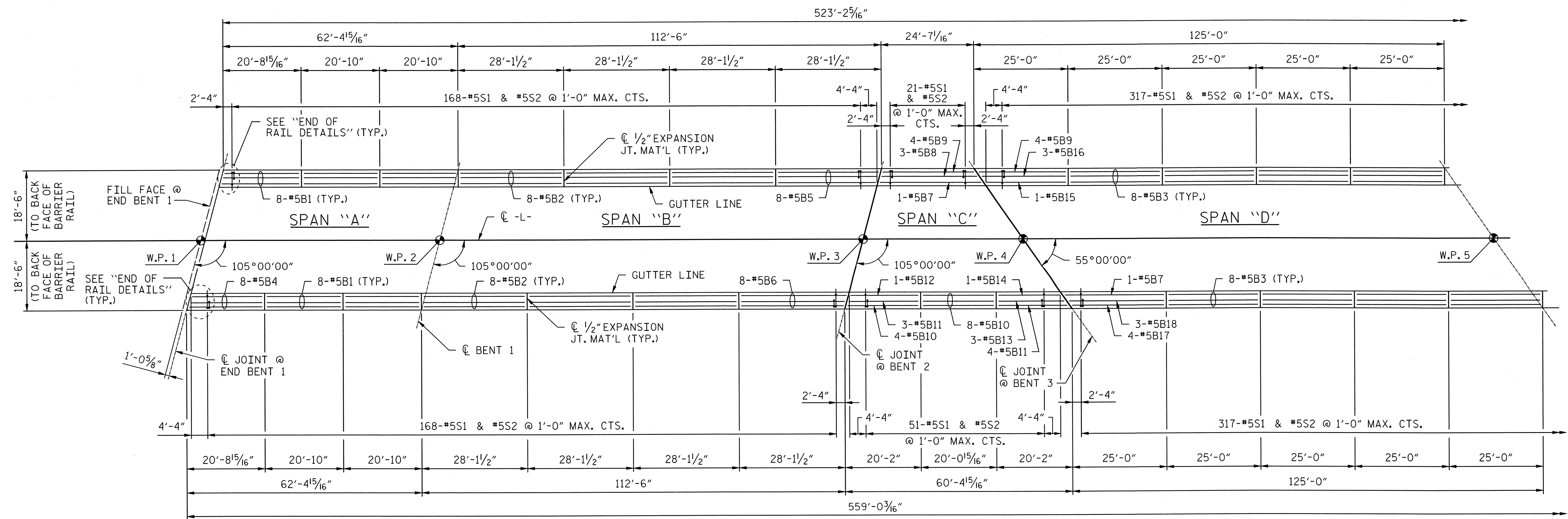
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

AECOM

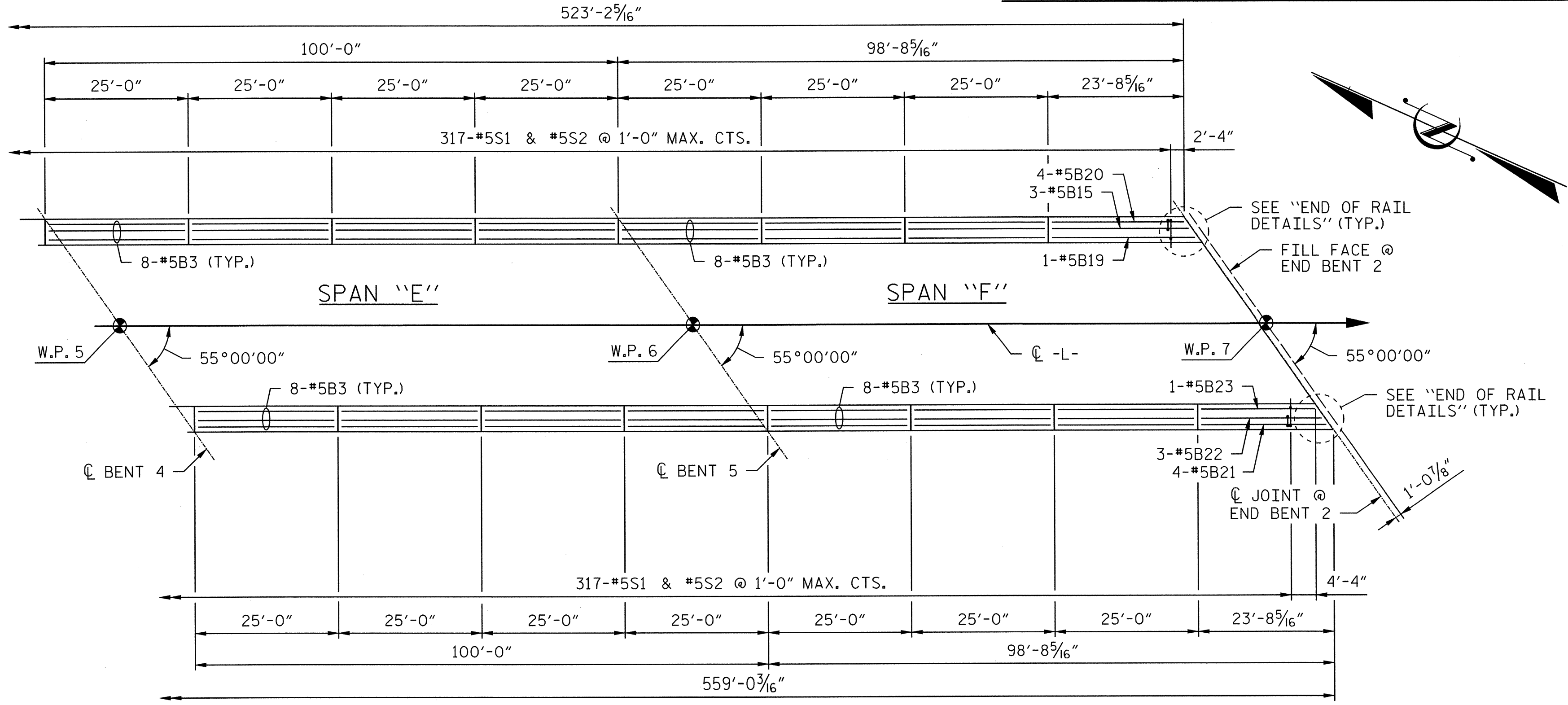
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-6200
 AECOM License No. F-0342

PROJECT	C-4901C		
TITLE	SUPERSTRUCTURE GIRDER DEFLECTION AND CAMBER SCHEDULES (2 OF 2)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	N.T.S.		
DRAWING	S-38		
SHEET	38 OF 72		

10:27:15 AM Q:\60198012\400_Technical_Information_and_Disc_Files\450_NCDOT_Tech_Design_Files\Structures\Cadd\C-4901C_SD_DSN_ConcreteBarrierRail.dgn
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 loweryd



PLAN OF BARRIER RAIL REINFORCING

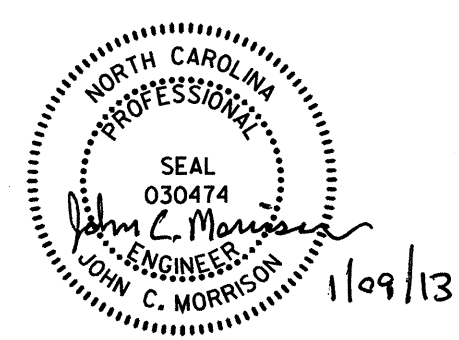


PLAN OF BARRIER RAIL REINFORCING

NOTES:

- THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SLAB HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
- WHEN FOAM JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.
- ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.
- THE #5S3 AND #5S4 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5S3 AND #5S4 BARS ARE 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
- GROOVED CONTRACTION JOINTS 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.
- FOR END OF RAIL DETAILS, SEE "CONCRETE BARRIER RAIL (2 OF 2)".

NO.	BY	DATE	REVISION

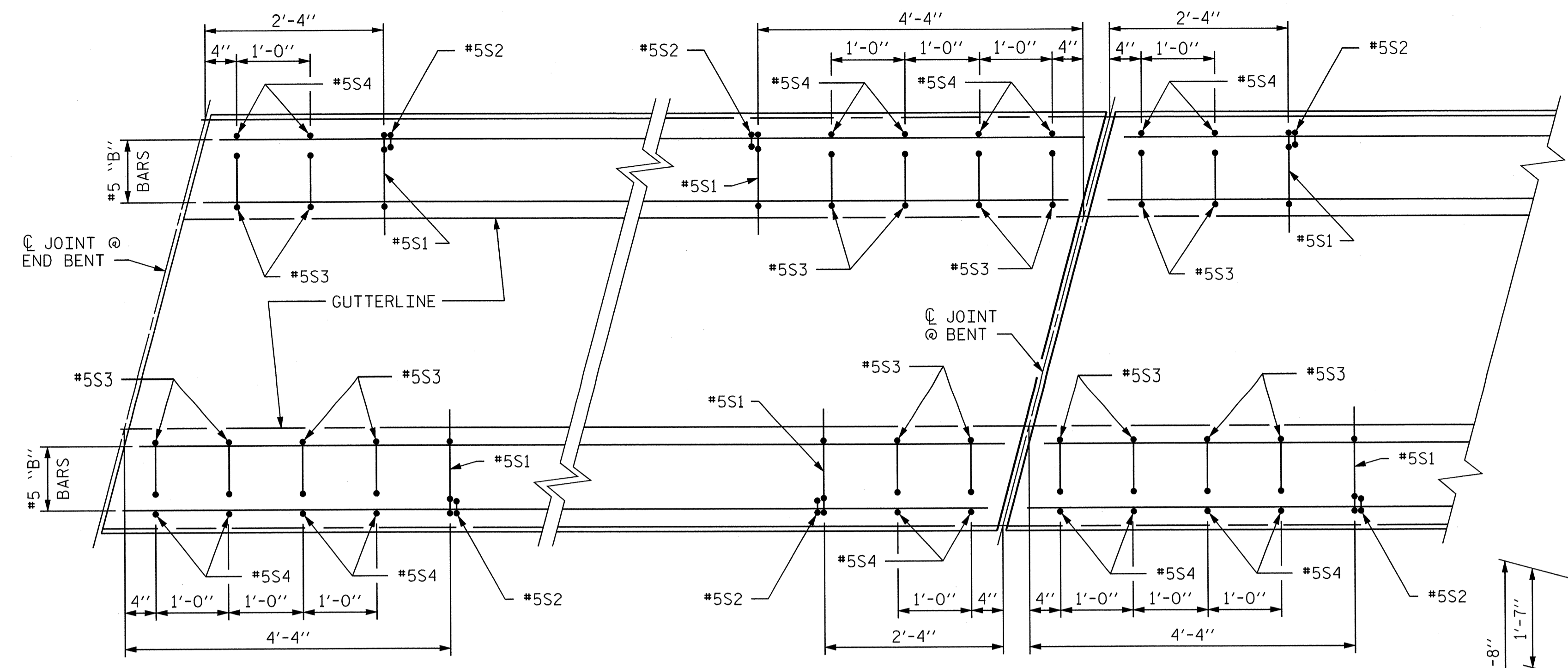


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RAIL DIVISION
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 (919) 854-6200 www.aecom.com
 AECOM License No. F-0542

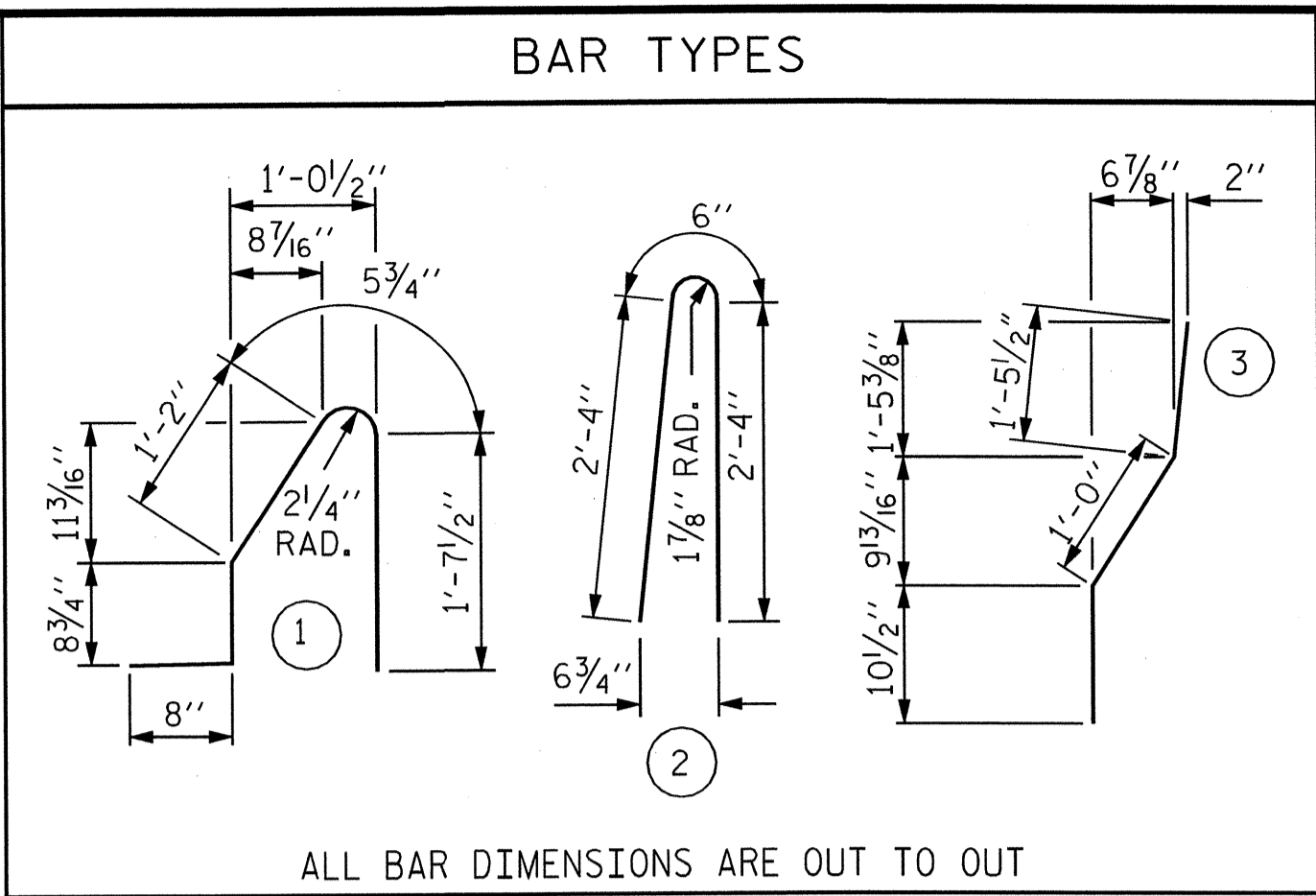
PROJECT	C-4901C		
TITLE	SUPERSTRUCTURE CONCRETE BARRIER RAIL (1 OF 2)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1" = 15'
			SHEET 31 OF 72

DWG 0271DEL_P10c3

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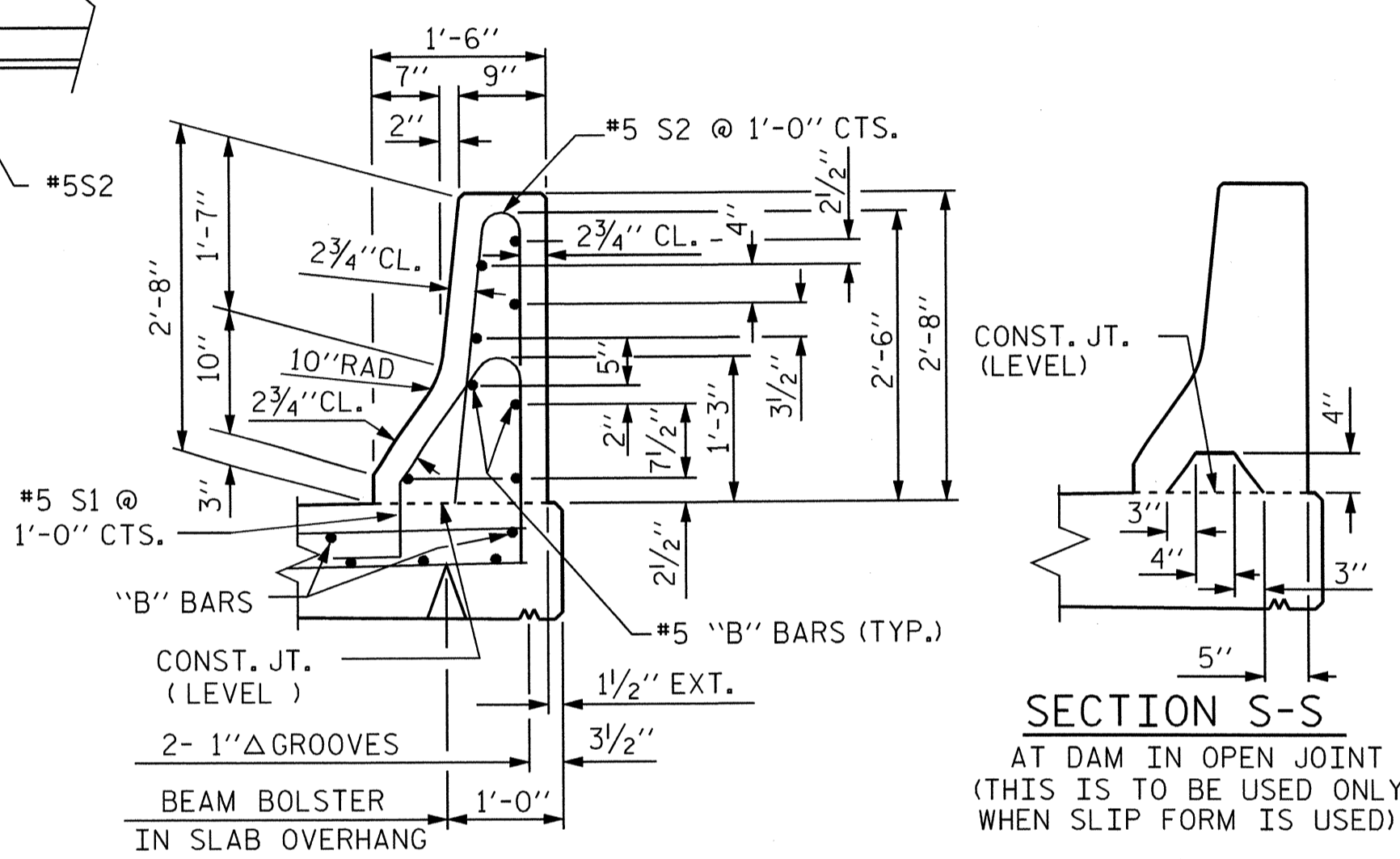
PLAN



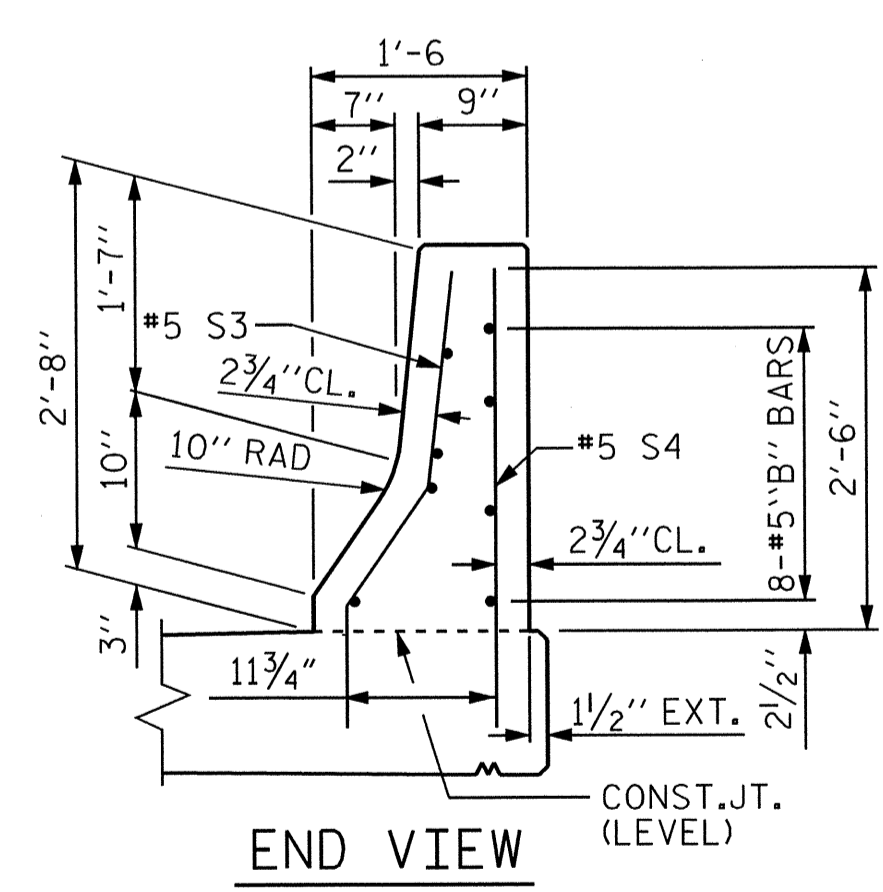
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S1	1,042	#5	1	4'-8"	5072
* S2	1,042	#5	2	5'-2"	5615
* S3	36	#5	3	3'-4"	125
* S4	36	#5	STR	3'-2"	119
* B1	40	#5	STR	20'-6"	855
* B2	48	#5	STR	27'-10"	1393
* B3	176	#5	STR	24'-8"	4528
* B4	8	#5	STR	20'-1 1/2"	168
* B5	8	#5	STR	27'-6"	229
* B6	8	#5	STR	27'-11"	233
* B7	2	#5	STR	25'-5"	53
* B8	3	#5	STR	24'-11"	78
* B9	8	#5	STR	24'-5"	204
* B10	12	#5	STR	19'-9"	247
* B11	7	#5	STR	19'-7"	143
* B12	1	#5	STR	19'-5"	20
* B13	3	#5	STR	19'-3"	60
* B14	1	#5	STR	18'-11"	20
* B15	4	#5	STR	23'-9"	99
* B16	3	#5	STR	24'-1"	75
* B17	4	#5	STR	24'-9"	103
* B18	3	#5	STR	25'-1"	78
* B19	1	#5	STR	24'-2"	25
* B20	4	#5	STR	23'-5"	98
* B21	4	#5	STR	23'-2"	97
* B22	3	#5	STR	22'-10"	71
* B23	1	#5	STR	22'-5"	23

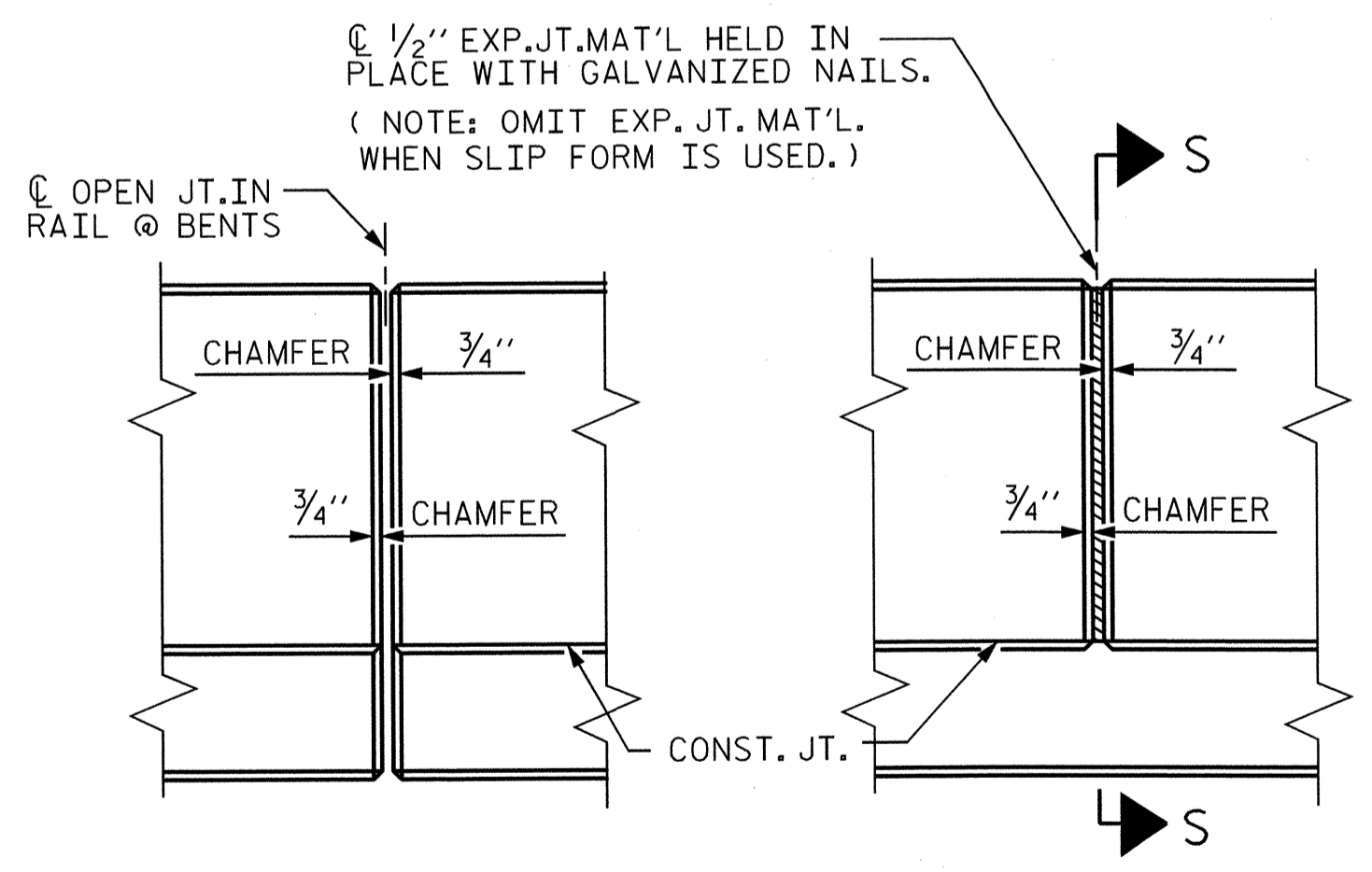
* EPOXY COATED REINFORCING STEEL 19834 LBS.
 CLASS AA CONCRETE 108 CU. YDS.
 CONCRETE BARRIER RAIL 1082 LIN. FT.



SECTION THRU RAIL



END VIEW



ELEVATION AT EXPANSION JOINTS
 BARRIER RAIL DETAILS

END OF RAIL DETAILS
 FOR ADHESIVE ANCHORING AT SAWED JOINTS

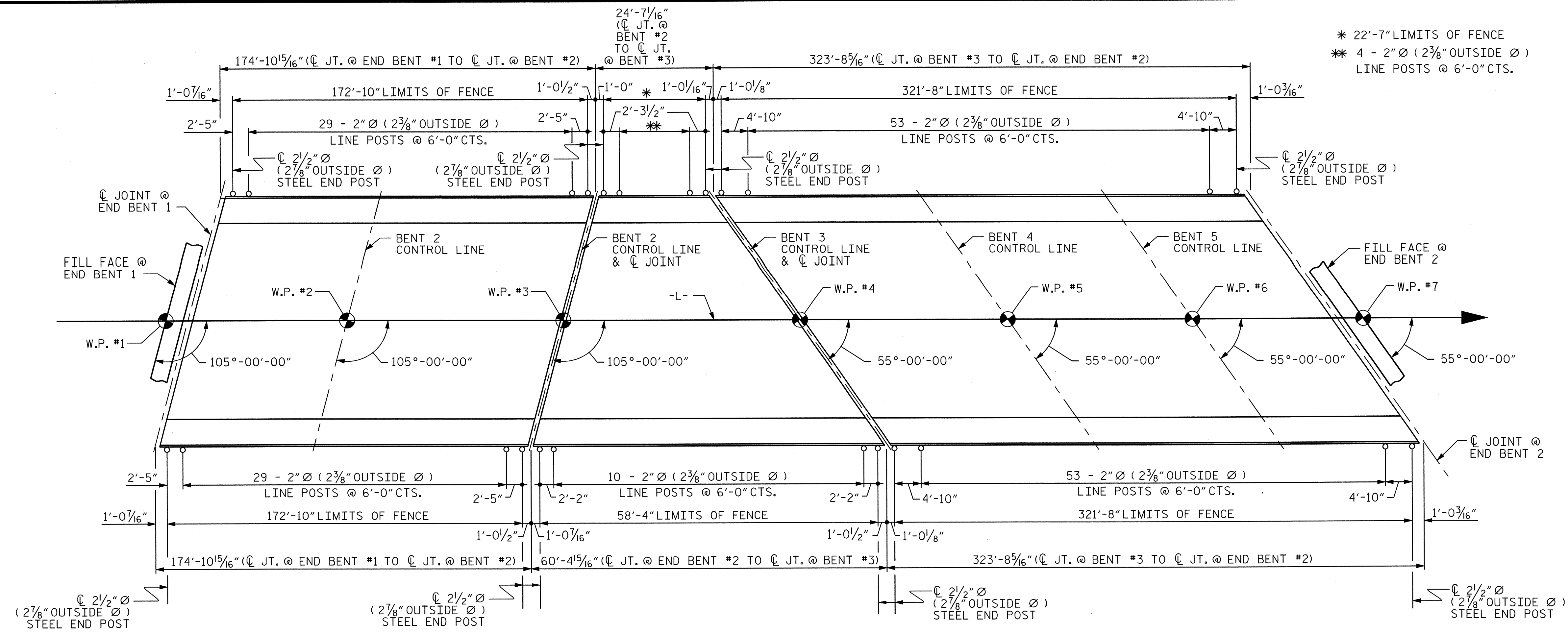
NO.	BY	DATE	REVISION

NORTH CAROLINA PROFESSIONAL SEAL
 SEAL 030474
 JOHN C. MORRISON
 11/09/13

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-6200
 AECOM License No. F-2932

PROJECT		C-4901C	
TITLE		SUPERSTRUCTURE CONCRETE BARRIER RAIL (2 OF 2)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-40	
SHEET		40 OF 72	

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- * 22'-7" LIMITS OF FENCE
- ** 4 - 2" Ø (2 3/8" OUTSIDE Ø) LINE POSTS @ 6'-0" CTS.

NOTES:

FOR 72" CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

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 3/4" 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.)

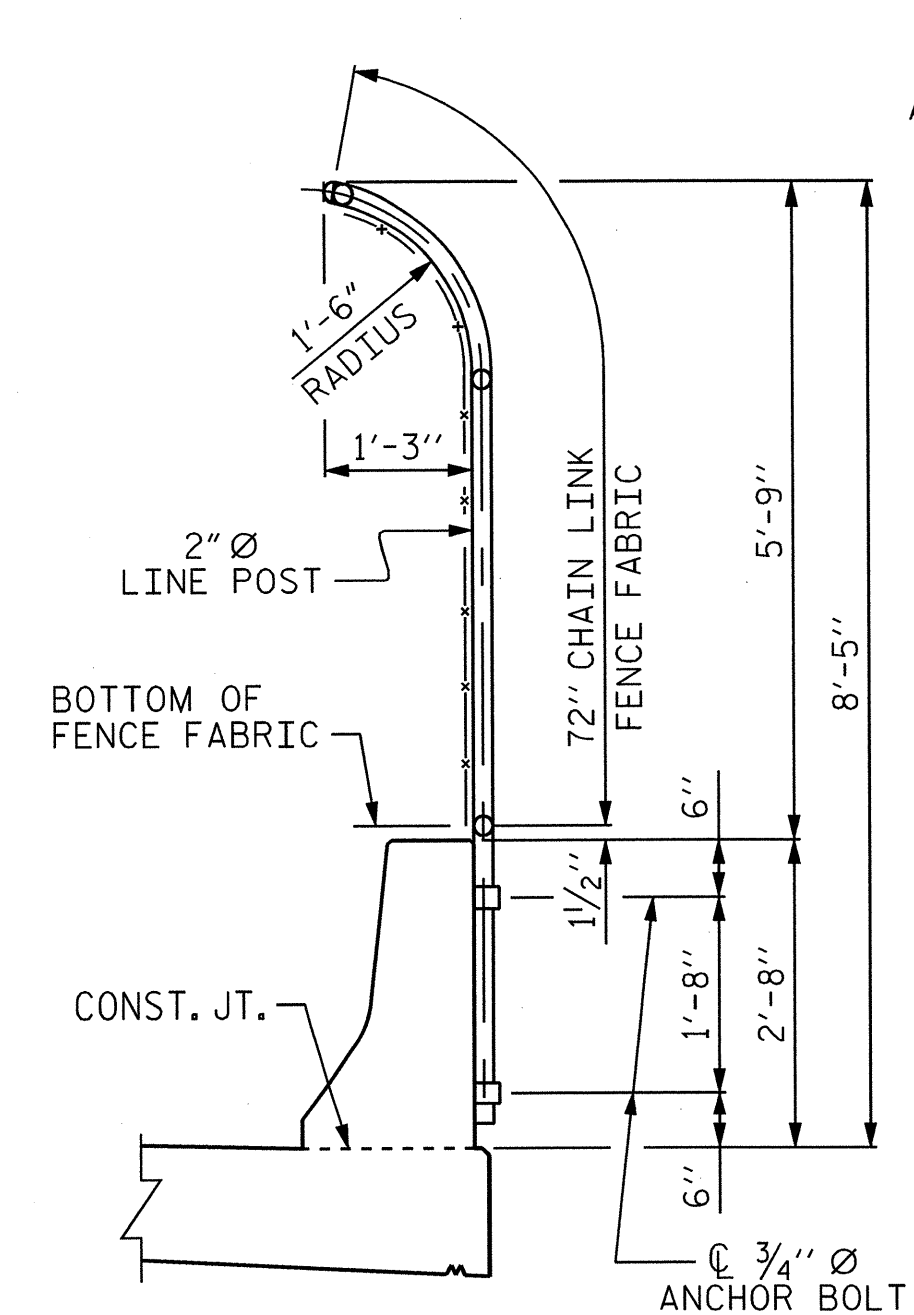
FOR SETTING ANCHOR BOLTS, THE CONTRACTOR SHALL USE AN ADHESIVE BONDING SYSTEM. LEVEL ONE FIELD TESTING OF BONDING SYSTEM IS REQUIRED AND THE YIELD LOAD OF THE 3/4" Ø BOLTS IS 12.0 KIPS.

ALL FENCE MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 1050 OF THE STANDARD SPECIFICATIONS, GALVANIZE ALL STEEL PARTS AND HARDWARE IN ACCORDANCE WITH ARTICLE 1076 OF THE STANDARD SPECIFICATIONS.

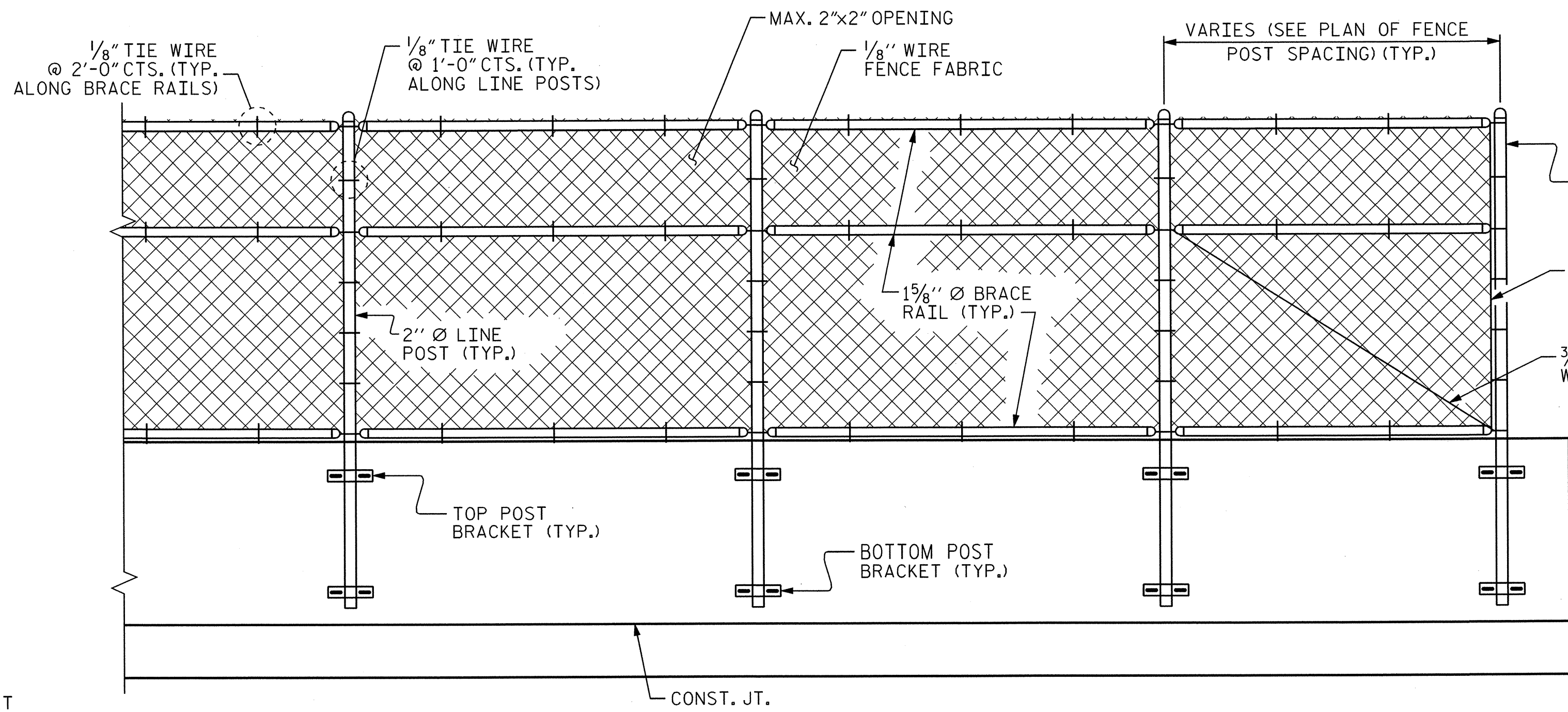
FENCE POST LOCATIONS SHALL BE SHIFTED, AS NECESSARY, TO MAINTAIN 12" MINIMUM DISTANCE FROM ANCHOR BOLT TO JOINTS IN BARRIER RAIL.

DIMENSIONS TAKEN ALONG OUTSIDE FACE OF BARRIER RAIL.

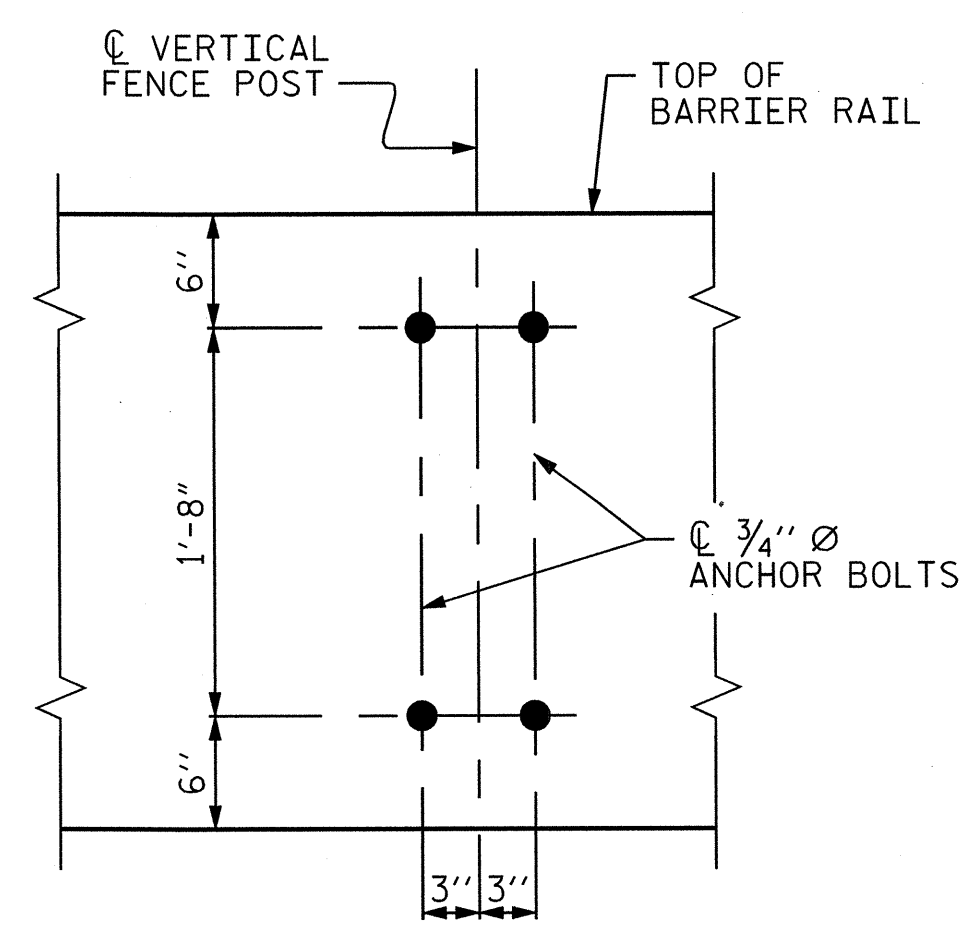
PLAN OF FENCE POST SPACING
TOTAL PAY LENGTH = 1070.00 FEET



SECTION THRU FENCE

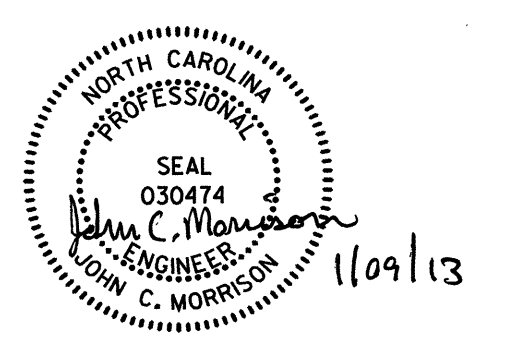


PARTIAL ELEVATION



BOLT SETTING DETAIL

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

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701 CORPORATE CENTER DRIVE, SUITE 475
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(919) 854-6200 www.aecom.com
AECOM License No. P-0342

PROJECT		C-4901C	
TITLE		SUPERSTRUCTURE BRIDGE MOUNTED 72" CHAIN LINK FENCE	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1" = 15'
		SHEET 41 OF 72	

NOTES

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

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

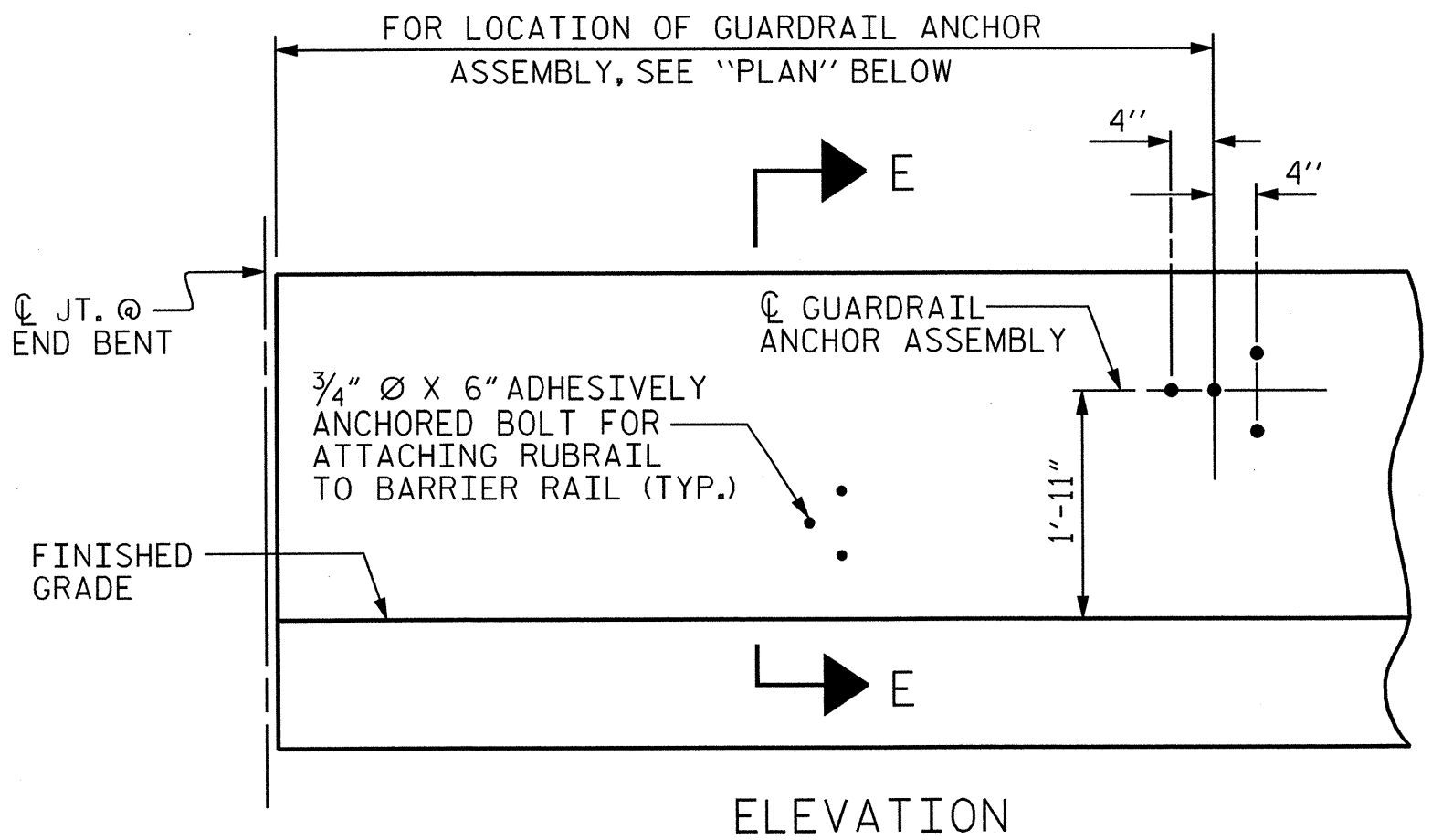
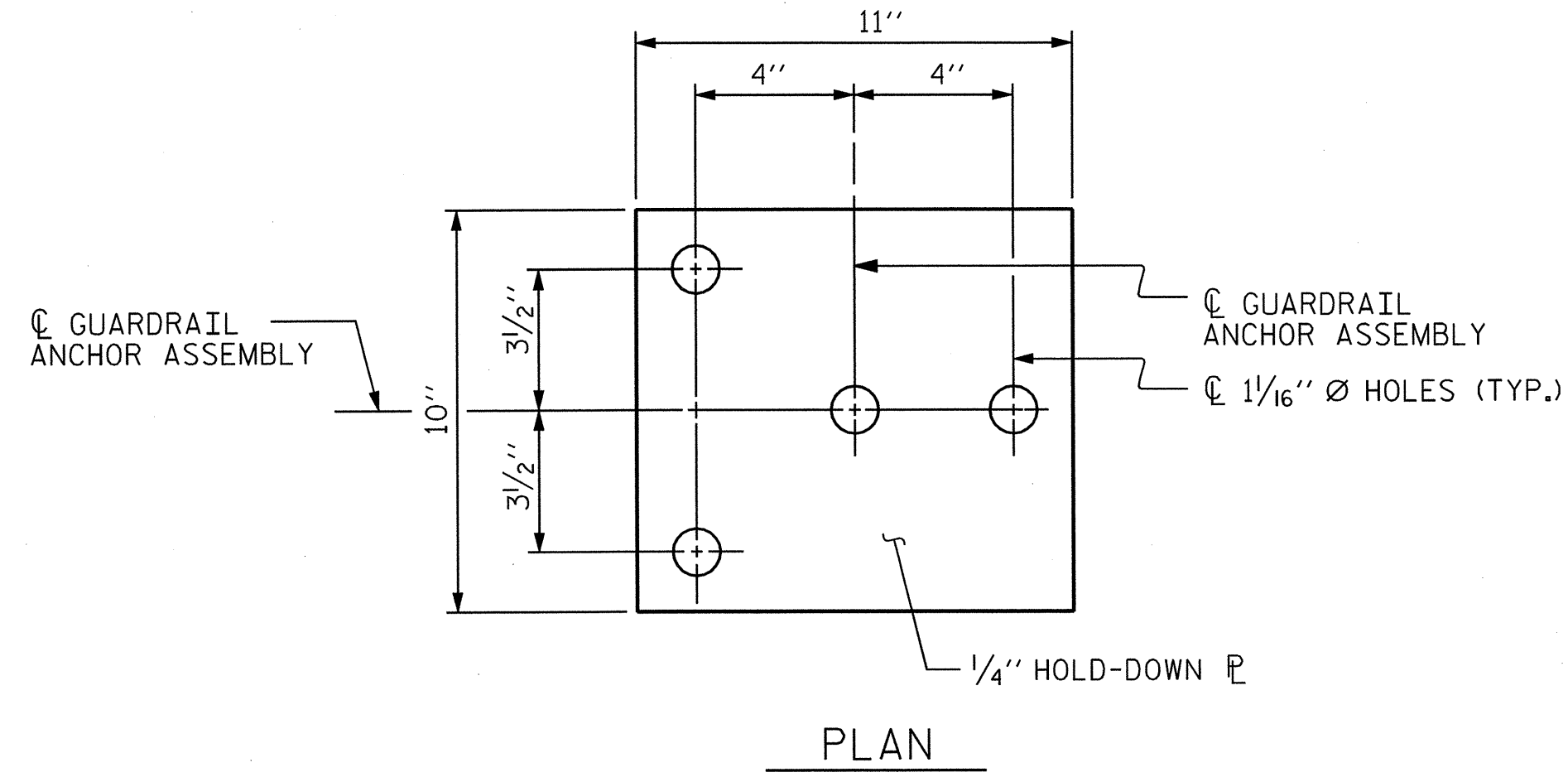
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

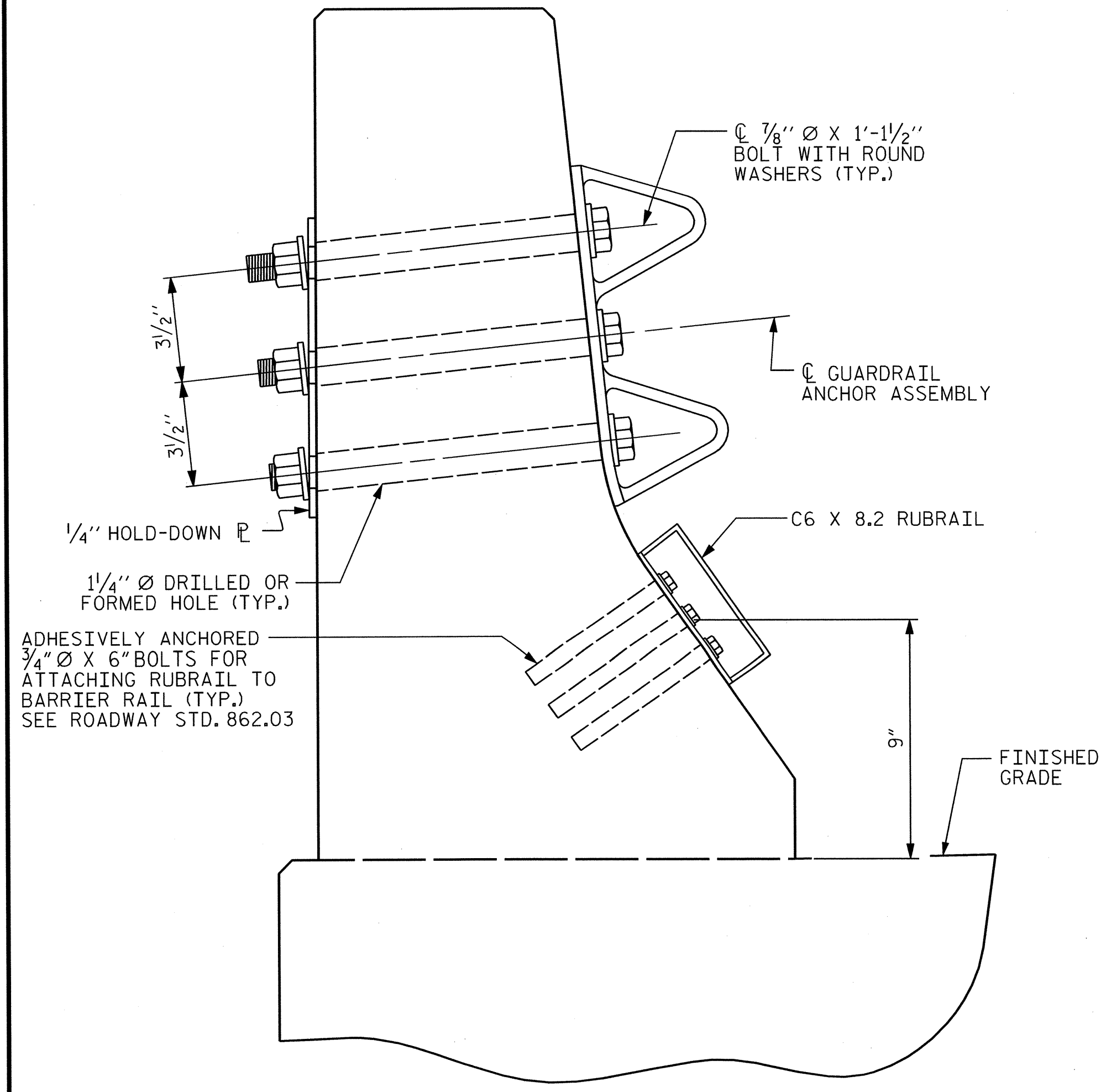
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

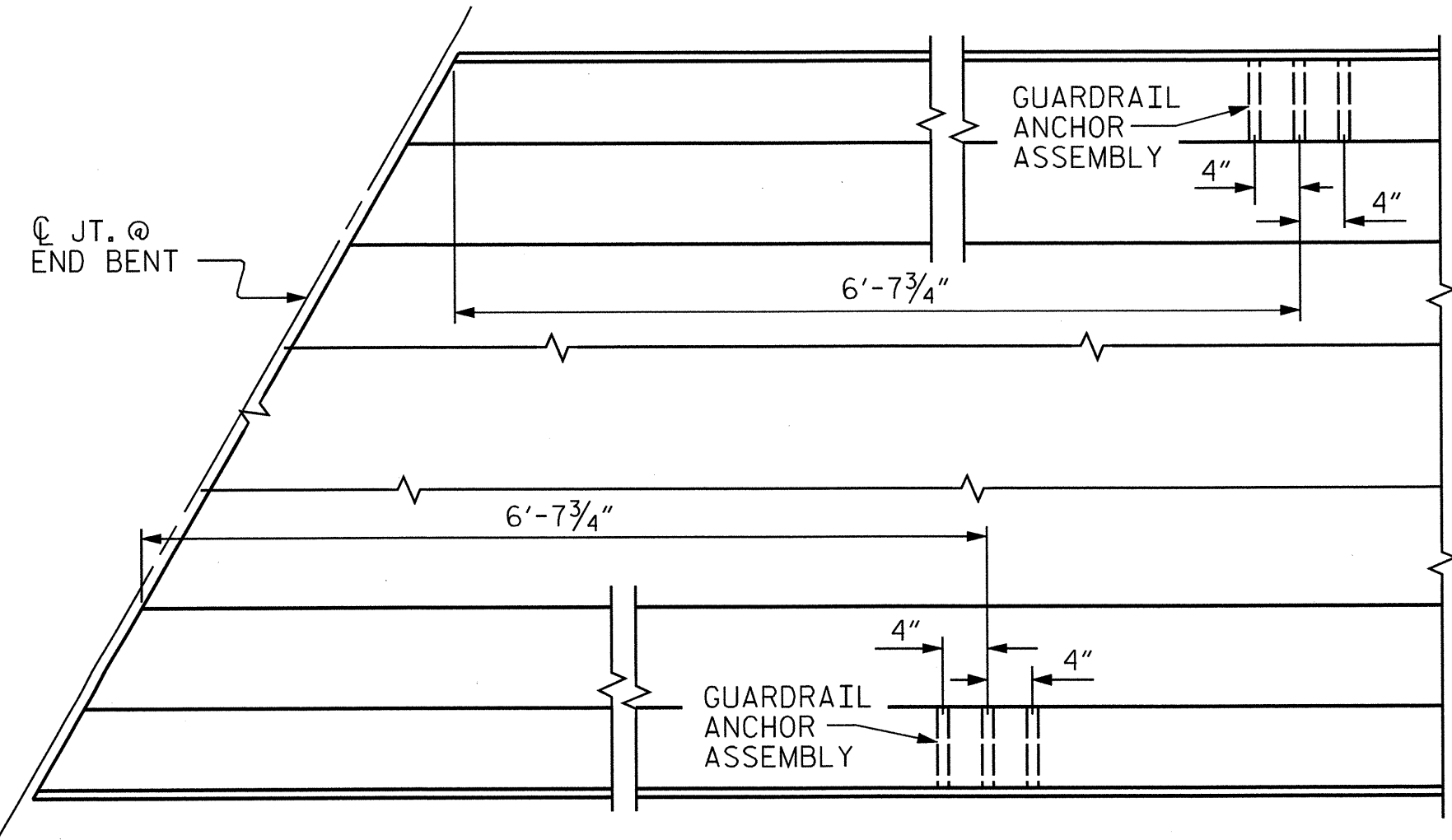
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



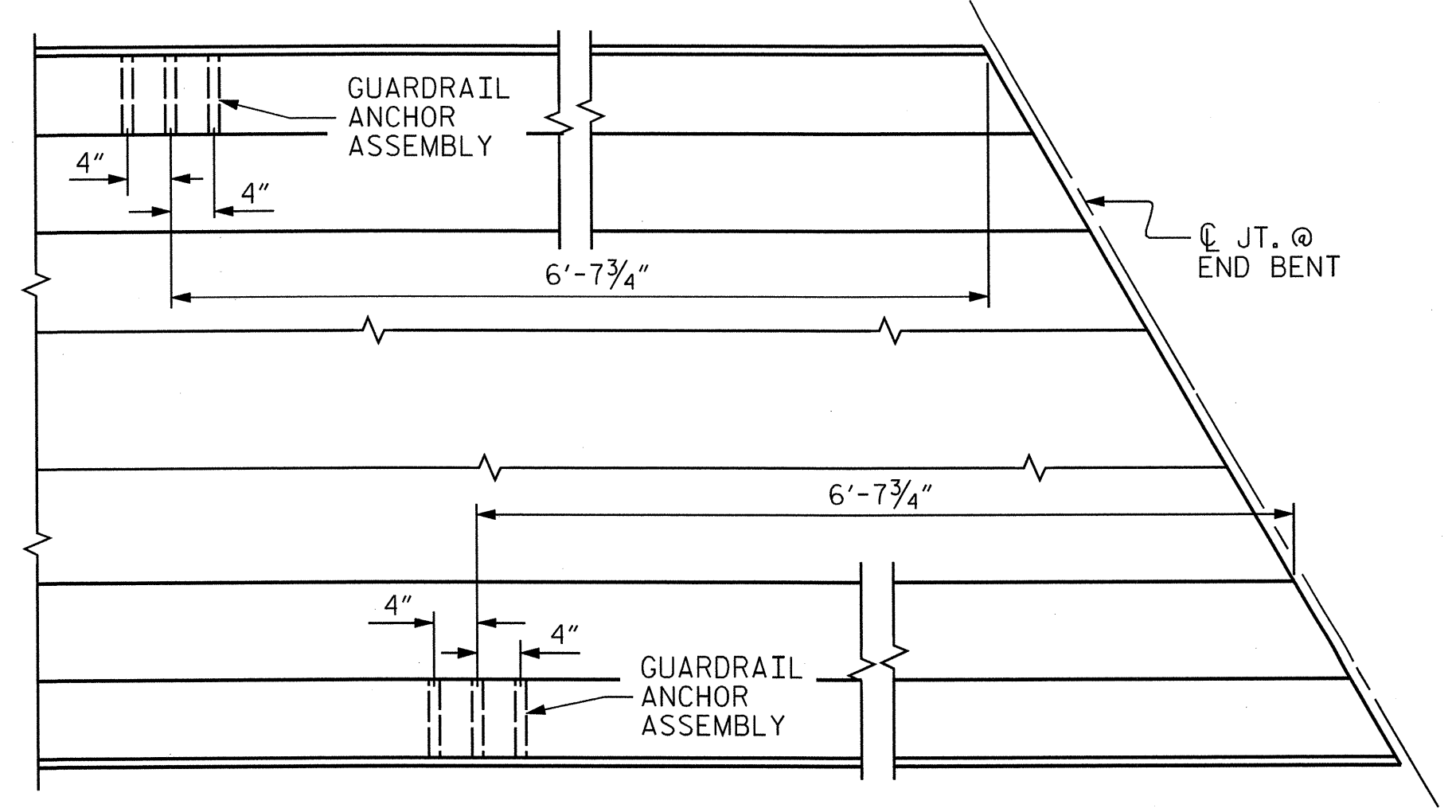
FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS

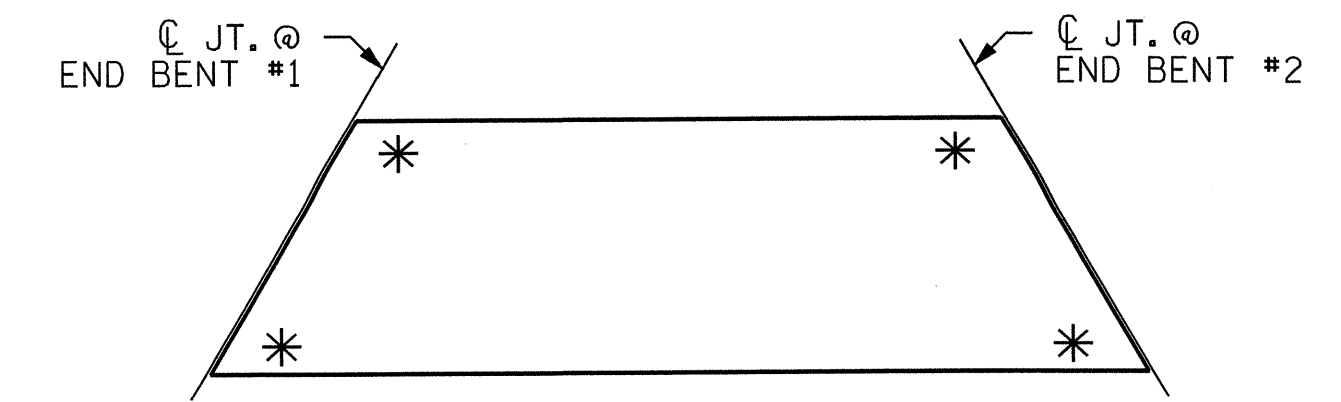


PLAN @ END BENT #1



PLAN @ END BENT #2

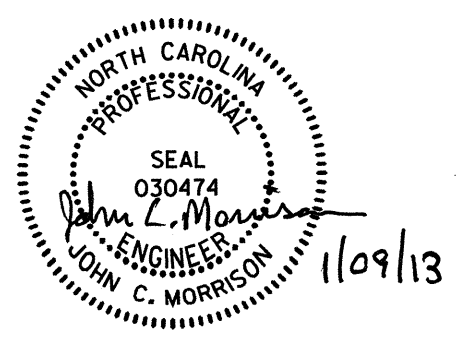
LOCATION OF ANCHORS FOR GUARDRAIL



SKETCH SHOWING POINTS OF ATTACHMENTS
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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NO.	BY	DATE	REVISION

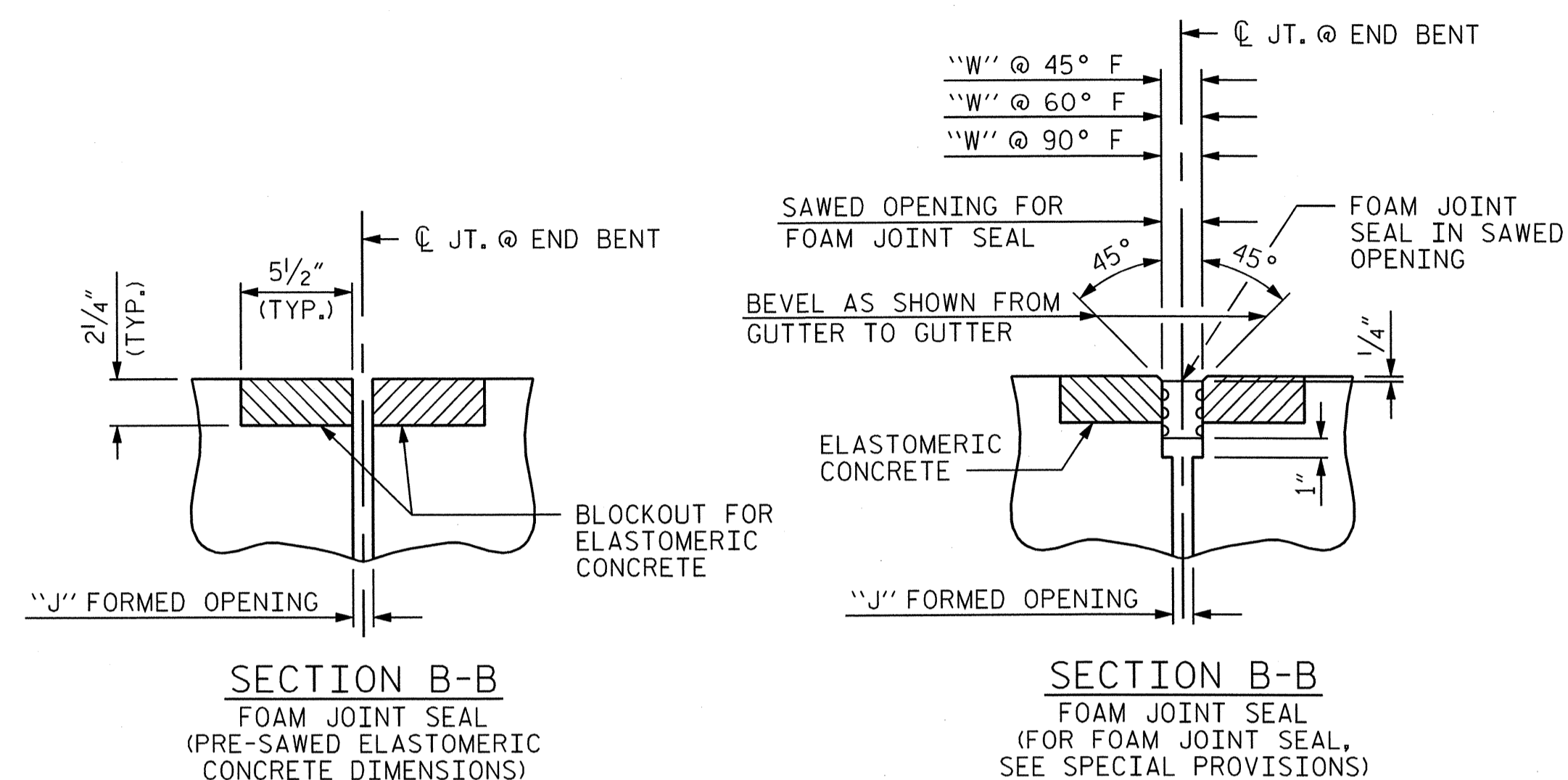
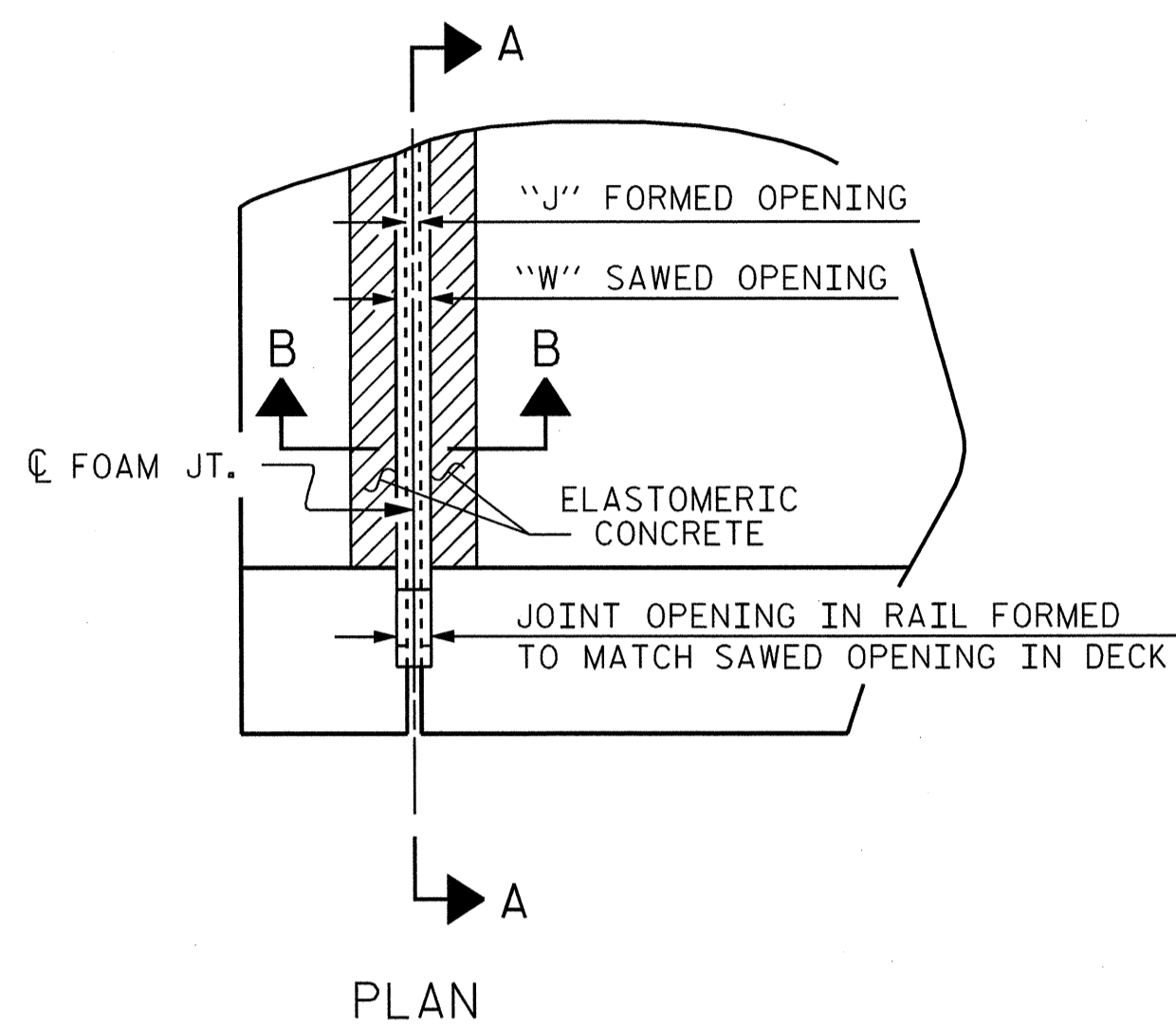


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

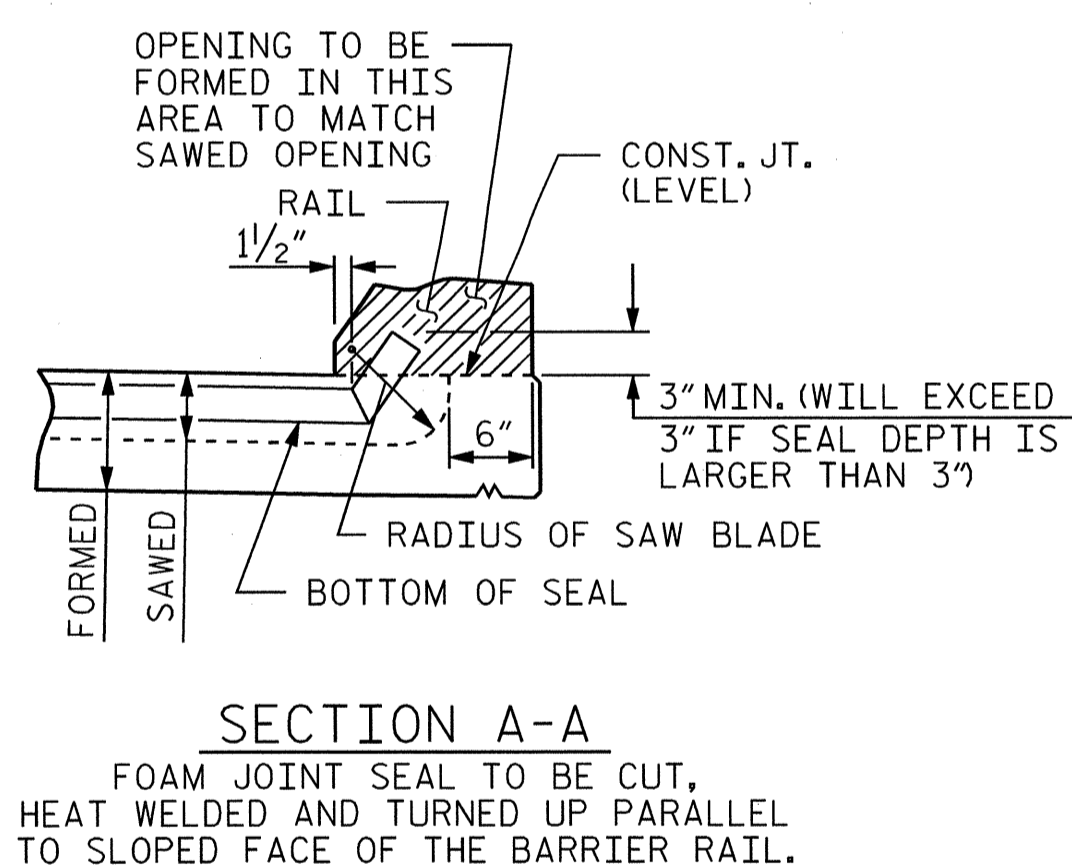
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AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RAILSIGH, NC 27607
(919) 854-4200 www.aecom.com
AECOM License No. FC-0342

PROJECT		C-4901C	
TITLE		GUARDRAIL ANCHORAGE FOR BARRIER RAIL	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	MTB	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-42	
SHEET		42 OF 72	

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TYPICAL FOAM JOINT SEAL DETAIL



MOVEMENT AND SETTING AT FOAM JOINT							
BENT NO.	SKEW ANGLE	NOMINAL UNCOMPRESSED SEAL WIDTH	TOTAL MOVEMENT (ALONG CL RDWY)	"J" FORMED OPENING	"W" PERPENDICULAR JOINT OPENING AT 45° F	"W" PERPENDICULAR JOINT OPENING AT 60° F	"W" PERPENDICULAR JOINT OPENING AT 90° F
END BENT 1	105°00'00"	2 1/2"	1/2"	1 1/4"	1 5/8"	1 5/16"	2 1/8"
BENT 2	105°00'00"	2 1/2"	1 1/16"	1 1/4"	1 5/8"	1 5/16"	2 1/8"
BENT 3	55°00'00"	3 1/2"	1 5/16"	1 3/4"	2 1/8"	2 11/16"	3"
END BENT 2	55°00'00"	3 1/2"	1 3/16"	1 3/4"	2 1/8"	2 11/16"	3"

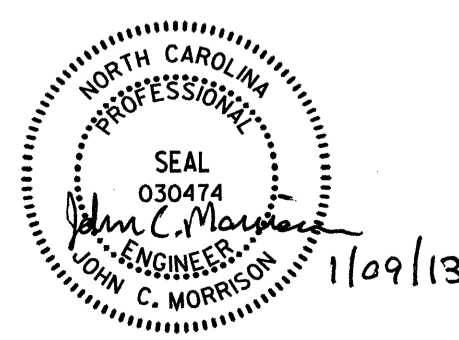
TOTAL MOVEMENT IS CALCULATED ALONG THE CENTERLINE OF ROADWAY.
JOINT OPENINGS ARE MEASURED PERPENDICULAR TO THE JOINT.

BILL OF MATERIAL	
BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
END BENT 1	6.41
BENT 2	6.41
BENT 3	7.55
END BENT 2	7.55
TOTAL	27.92

*BASED ON THE MINIMUM BLOCKOUT SHOWN.

NOTE:
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

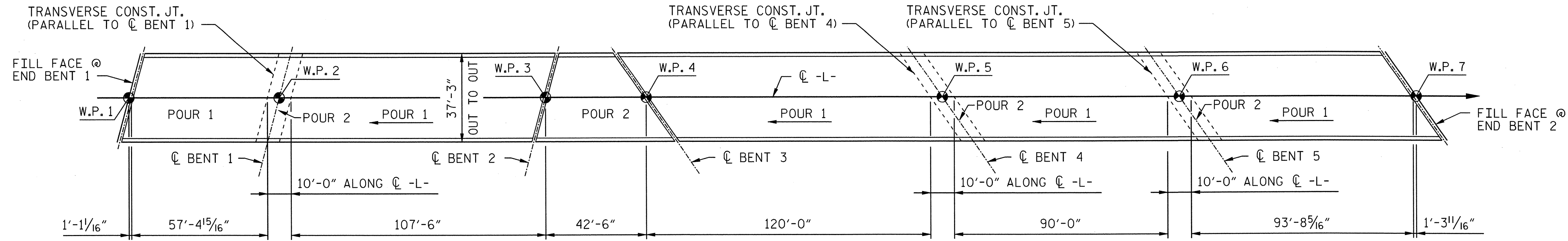
NO.	BY	DATE	REVISION



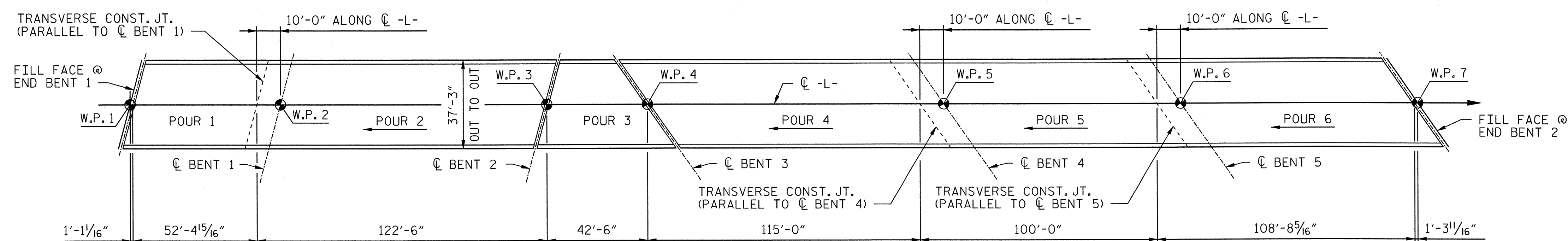
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-6200 www.aecom.com
 AECOM License No. F-0342

PROJECT	C-4901C		
TITLE	FOAM JOINT DETAILS		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	N.T.S.	DRAWING	S-43
SHEET			43 OF 72

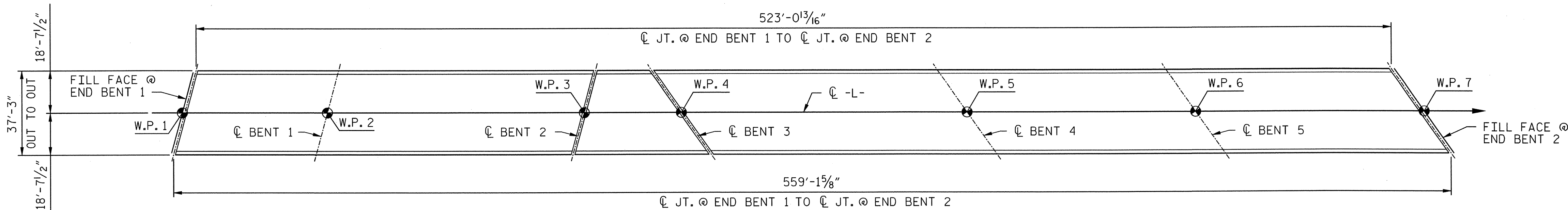
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 jld



OPTIONAL POURING SEQUENCE



POURING SEQUENCE



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB
(SQ. FEET = 20,153)

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
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 (919) 854-6200
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 AECOM License No. P-4342

PROJECT		C-4901C	
TITLE		SUPERSTRUCTURE BILL OF MATERIAL (2 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	N.T.S.
		DRAWING S-45	
		SHEET 45 OF 72	

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

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

— SUPERSTRUCTURE BILL OF MATERIAL —

SPANS	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
"A", "B", "C", "D", "E" & "F"		48,065	87,557
POUR 1	66.0		
POUR 2	165.3		
POUR 3	53.0		
POUR 4	142.6		
POUR 5	138.3		
POUR 6	152.7		
**TOTALS	718.1	49,142	86,142

**QUANTITIES FOR END POSTS & PARAPETS ARE INCLUDED ON "RAIL POST SPACING AND END RAIL DETAILS" SHEET.

QUANTITIES FOR APPROACH SLABS ARE INCLUDED ON "BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT" SHEET.

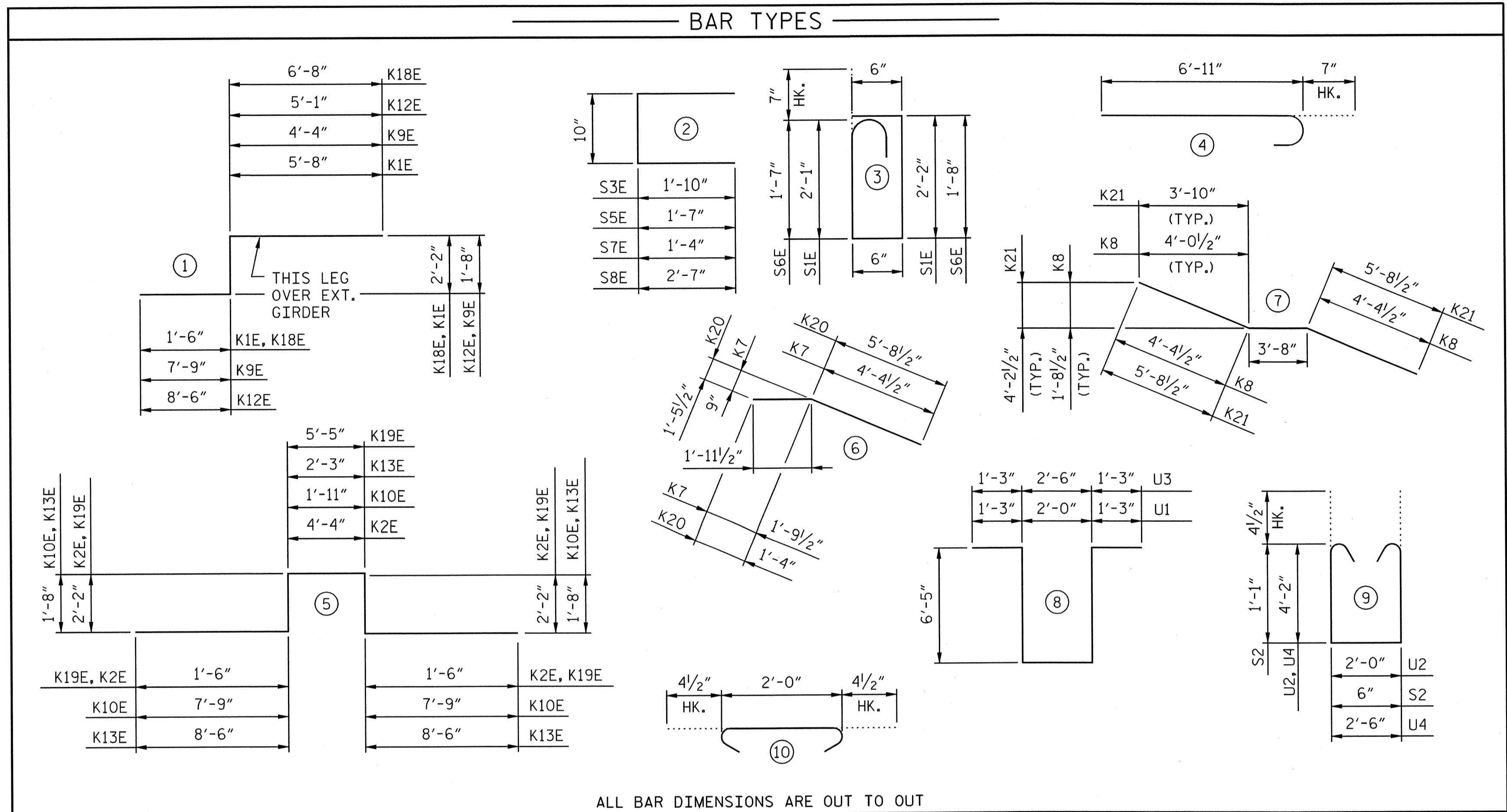
GROOVING BRIDGE FLOORS

APPROACH SLABS	906 SQ.FT.
BRIDGE DECK	16730 SQ.FT.
TOTAL	17636 SQ.FT.

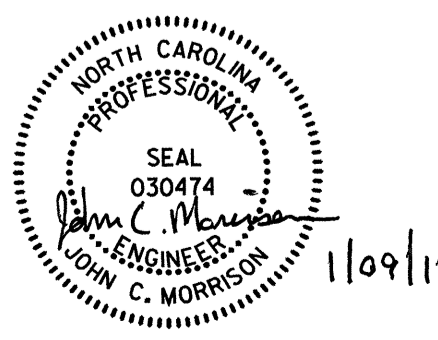
NOTES:

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

BAR TYPES



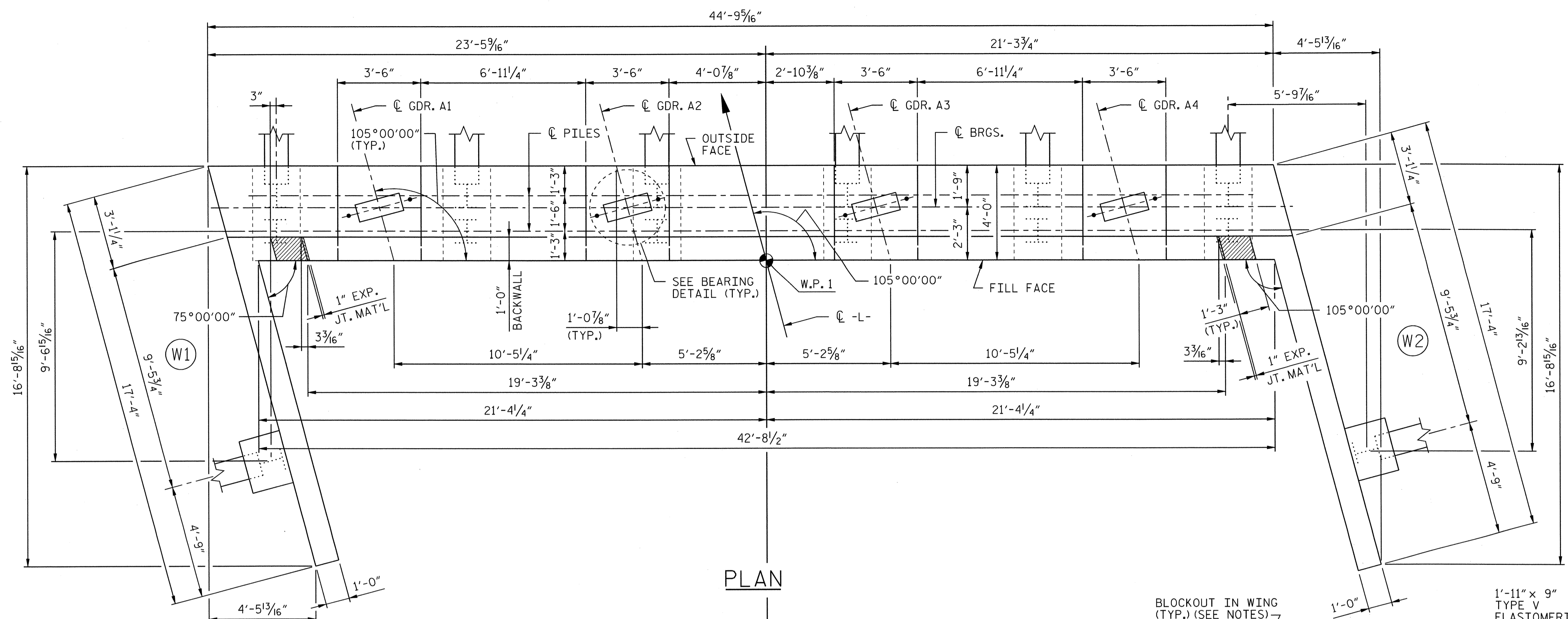
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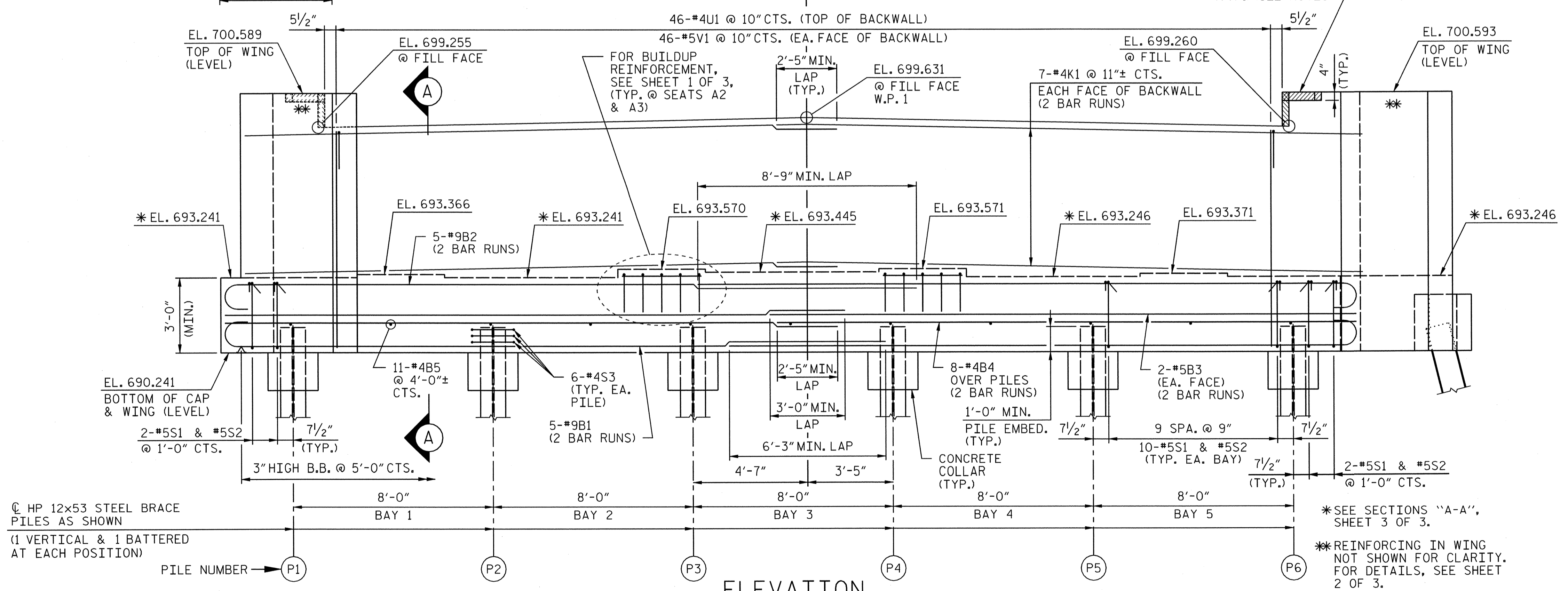
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC. 701 CORPORATE CENTER DRIVE, SUITE 475 PALESIDE, NC 27677 (919) 854-8200 www.aecom.com AECOM License No. F-0362

PROJECT	C-4901C		
TITLE	SUPERSTRUCTURE BILL OF MATERIAL (3 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	N.T.S.
DRAWING	S-46		SHEET 46 OF 72

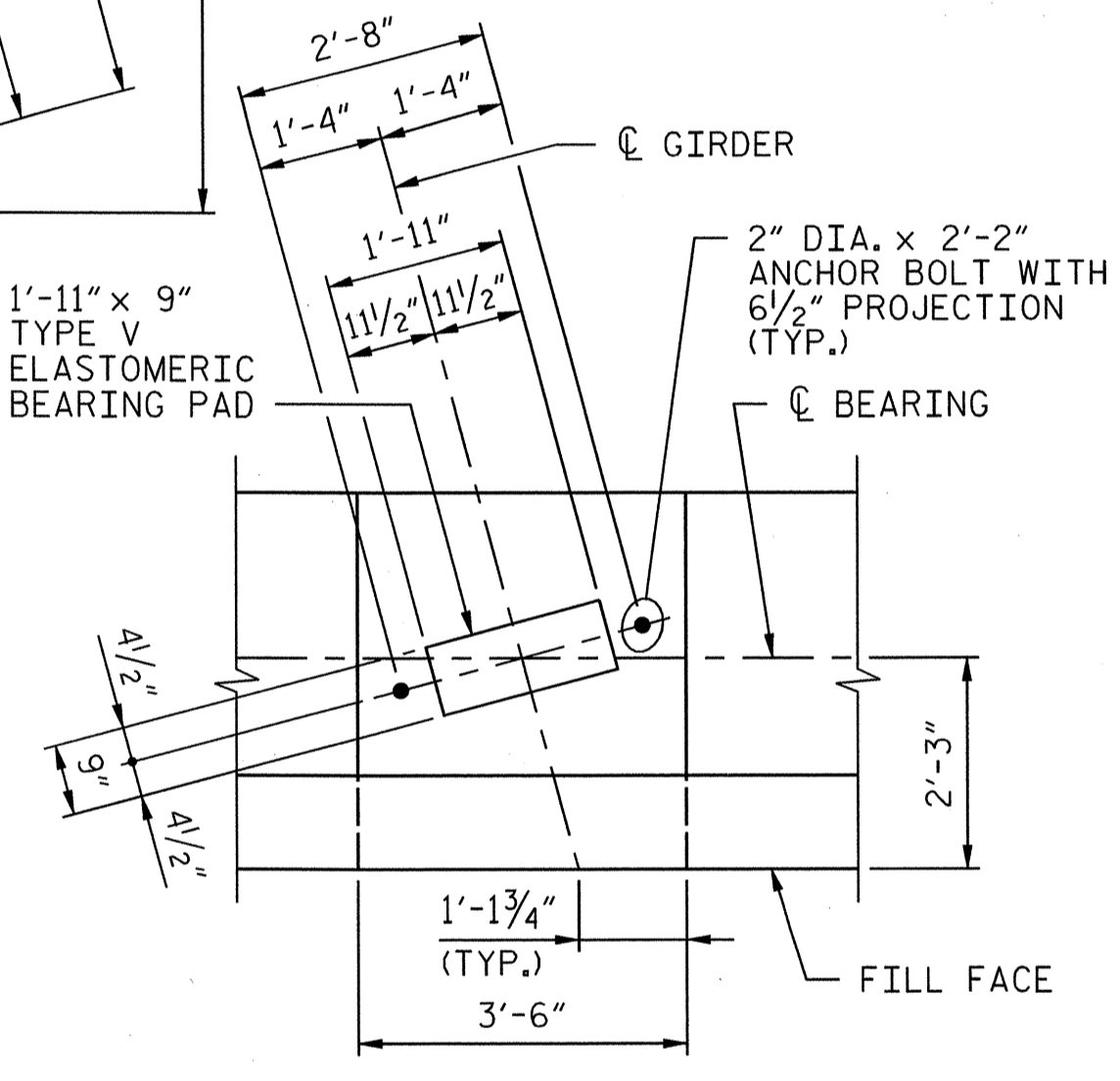
NO.	BY	DATE	REVISION



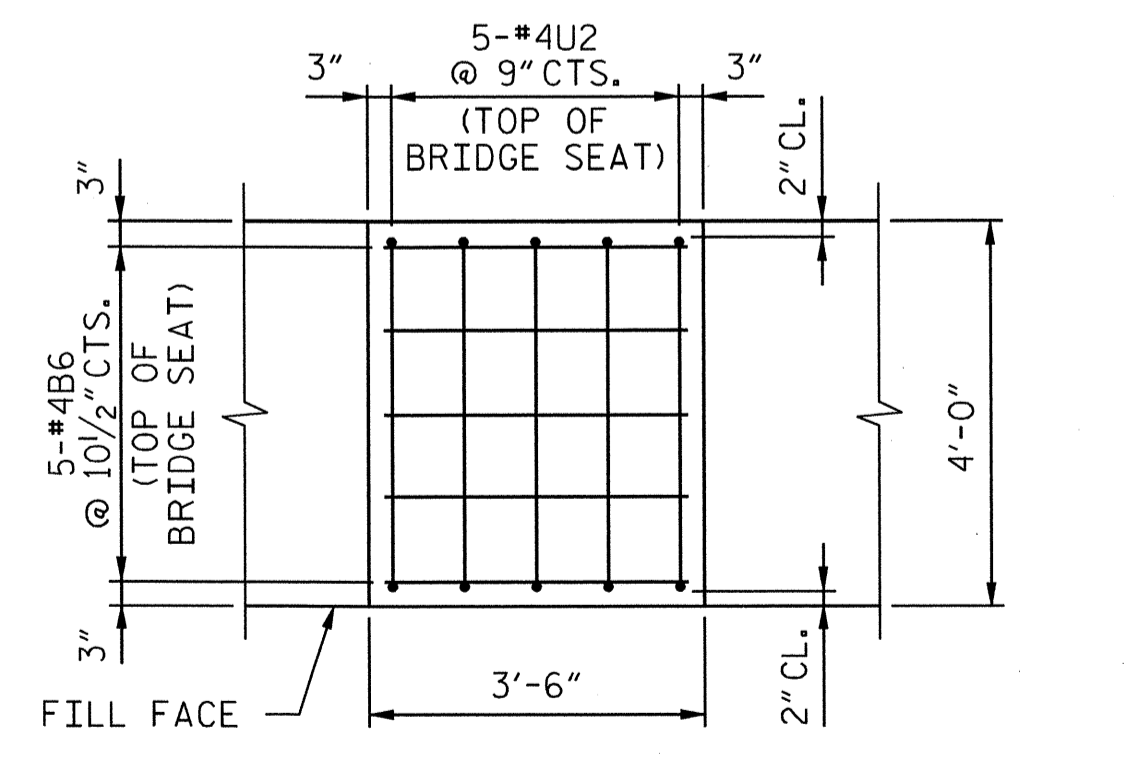
PLAN



ELEVATION

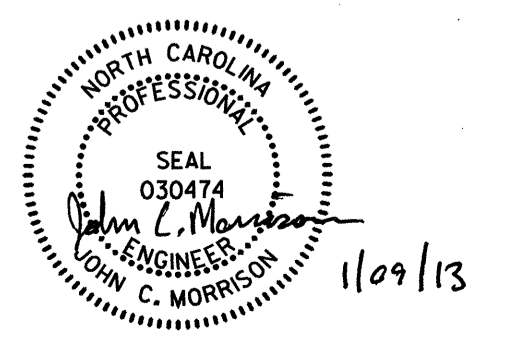


BEARING DETAIL



BUILDUP REINFORCEMENT

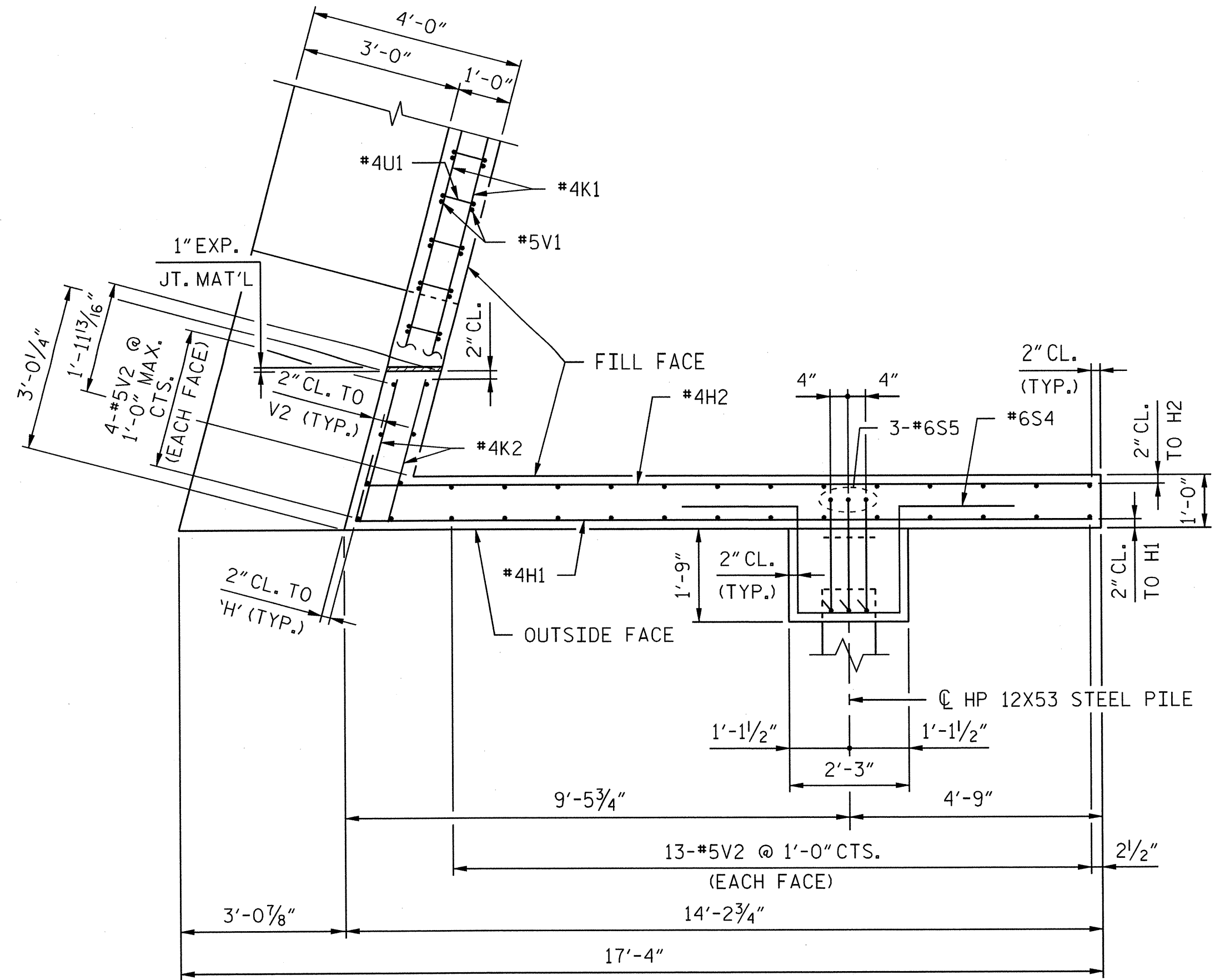
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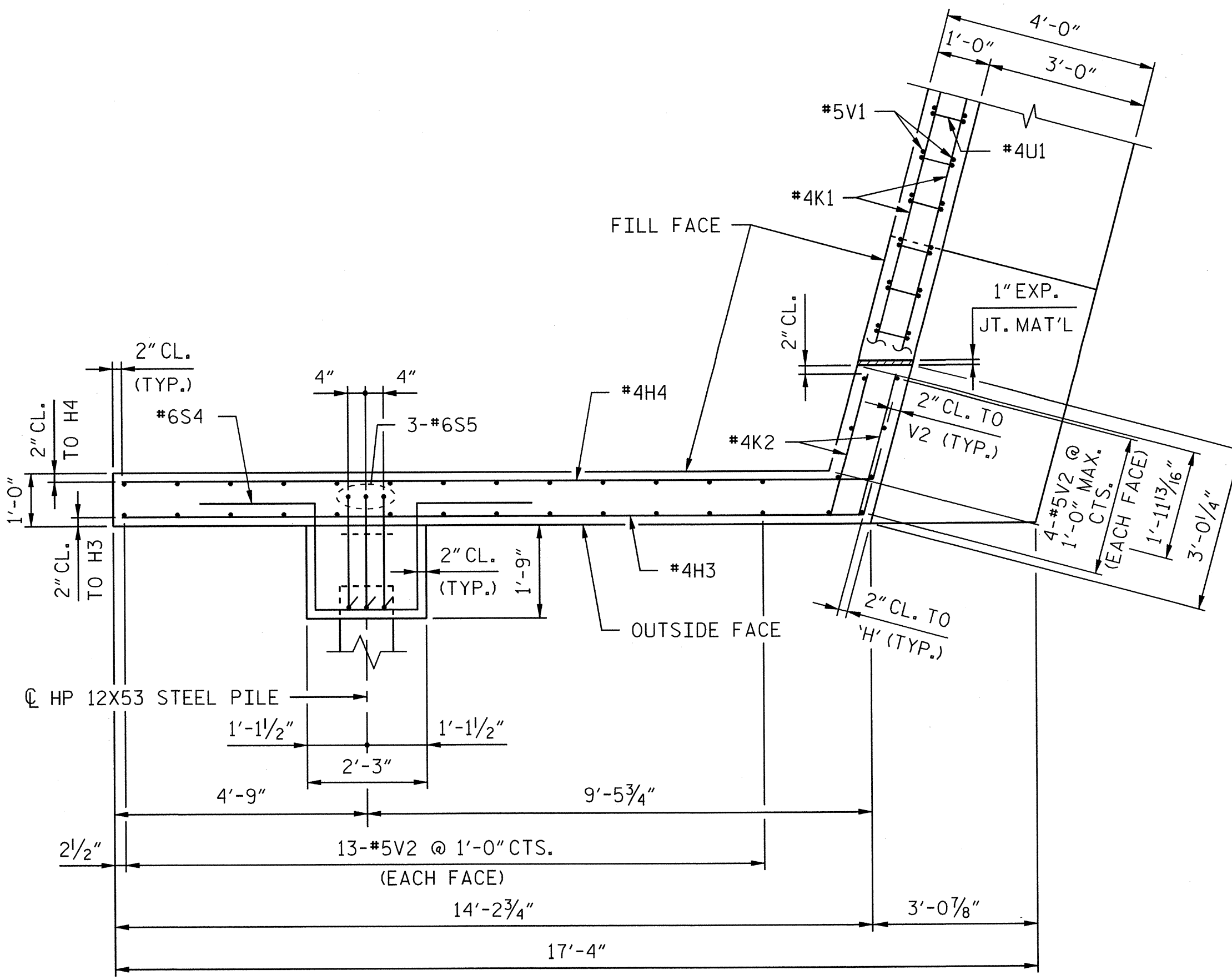
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
 AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 475
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 AECOM License No. F-6342

PROJECT		C-4901C	
TITLE		SUBSTRUCTURE END BENT 1 (1 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
DRAWING		S-47	
SHEET		47 OF 72	

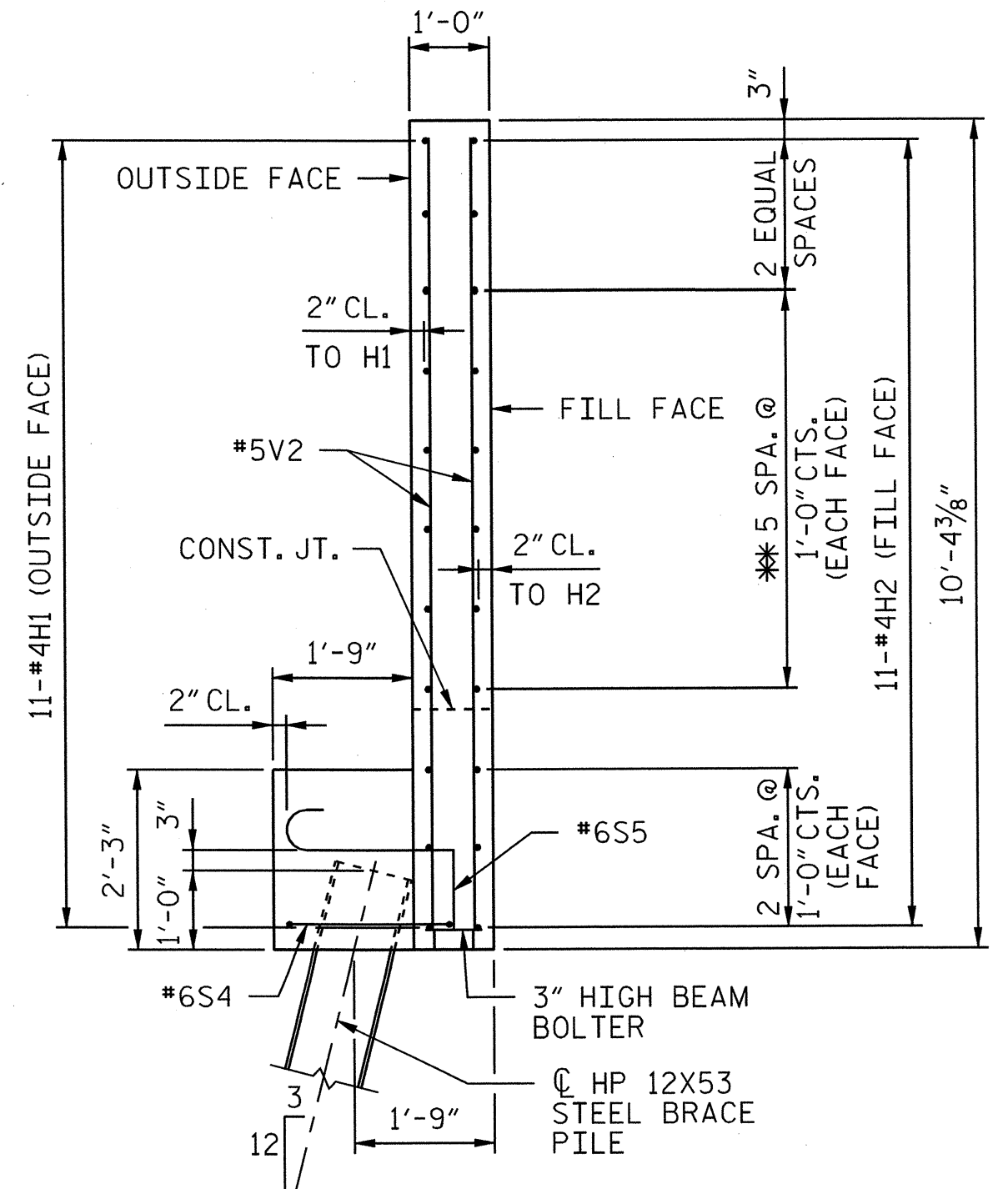
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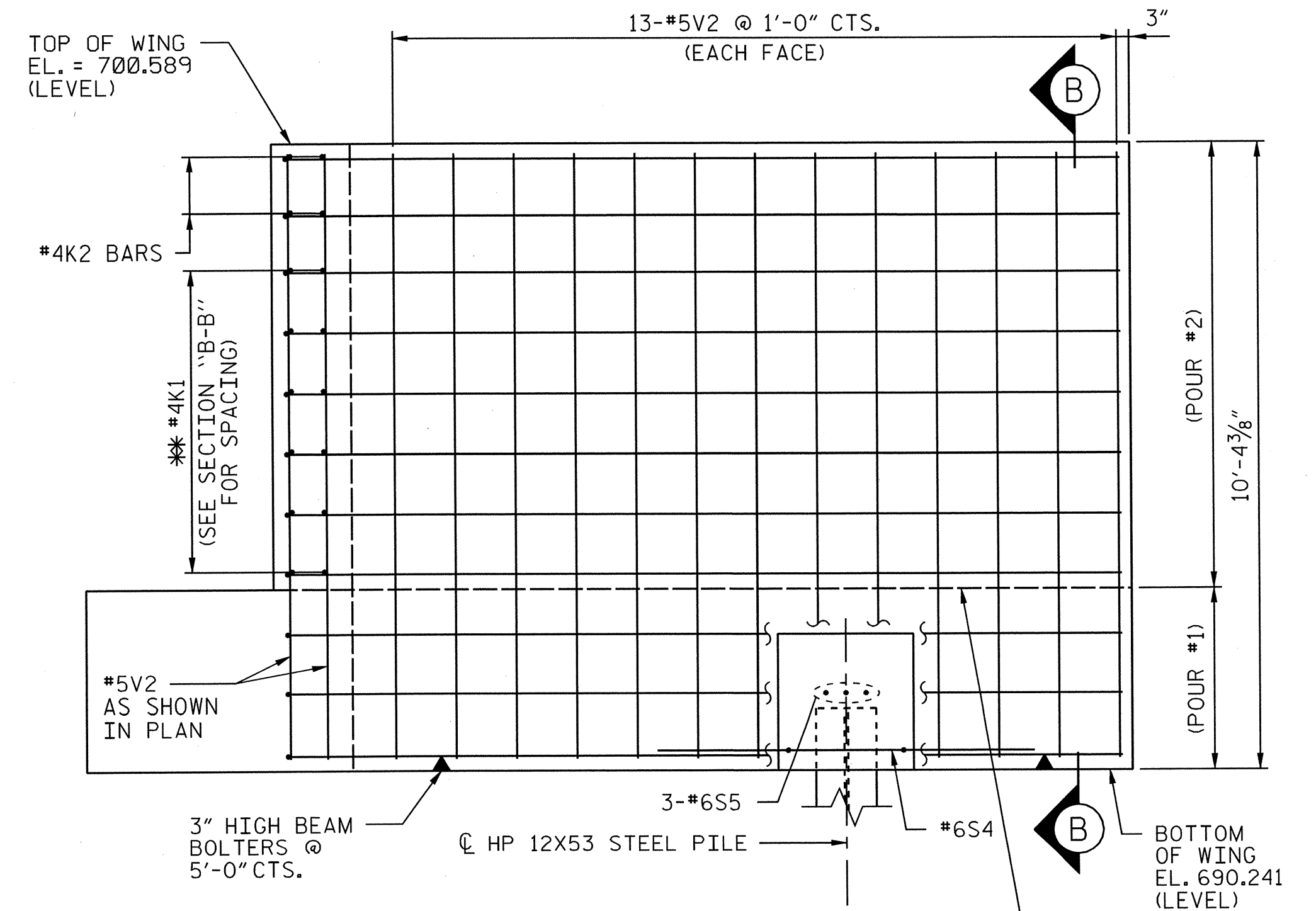
PLAN W1



PLAN W2

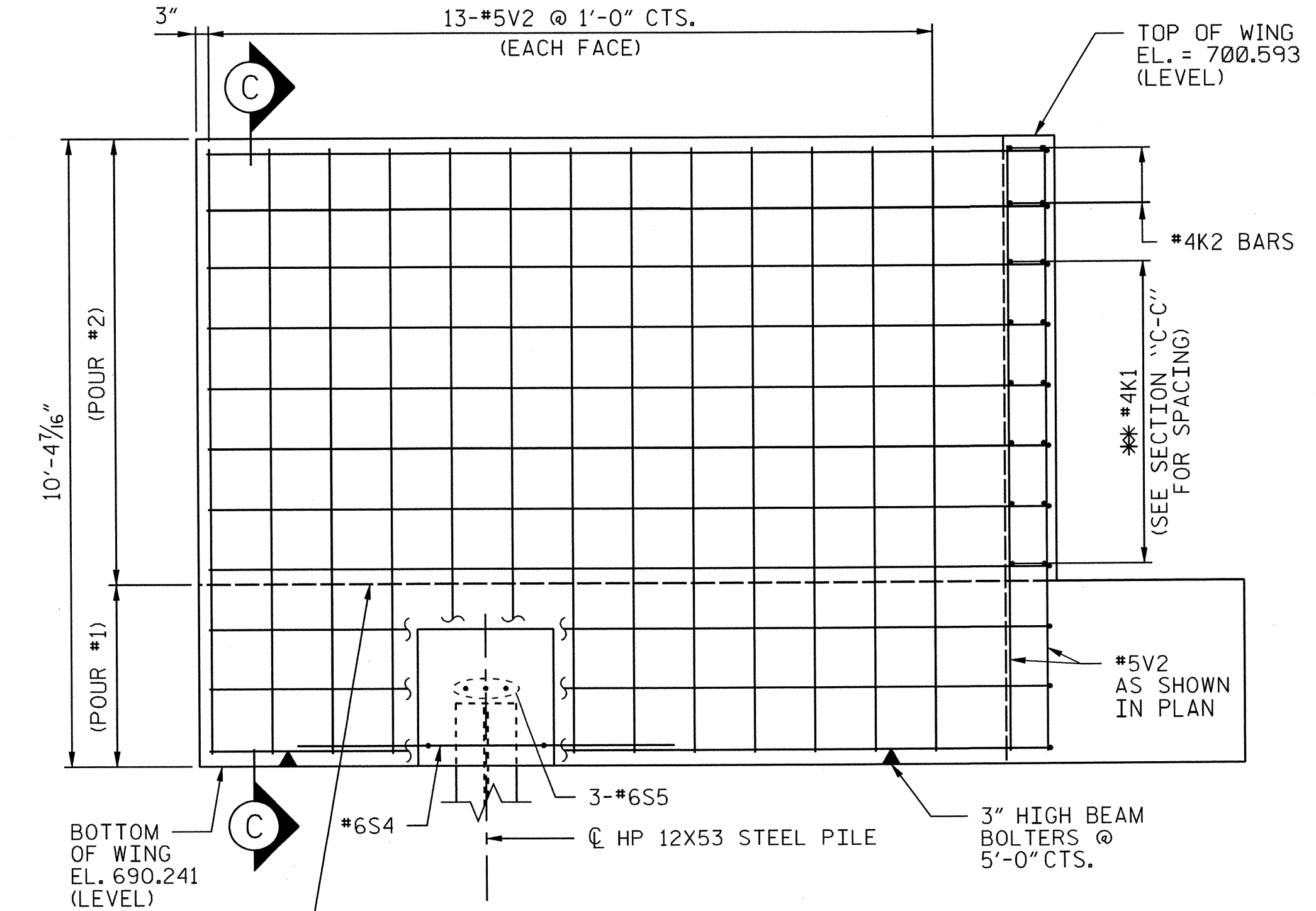


SECTION B-B



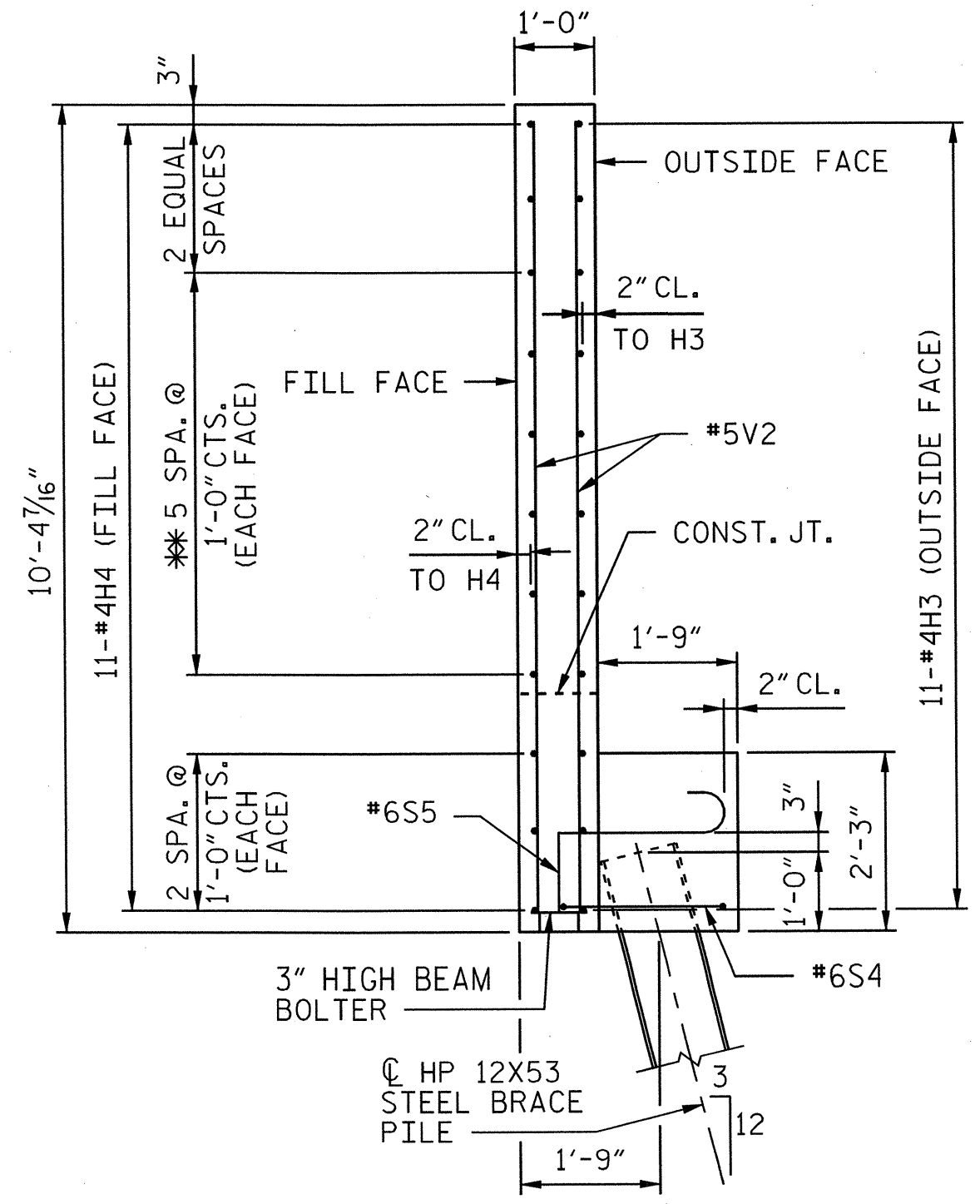
ELEVATION W1

** PLACE #4 'H' BARS TO MATCH #4K1 BARS IN BACKWALL



ELEVATION W2

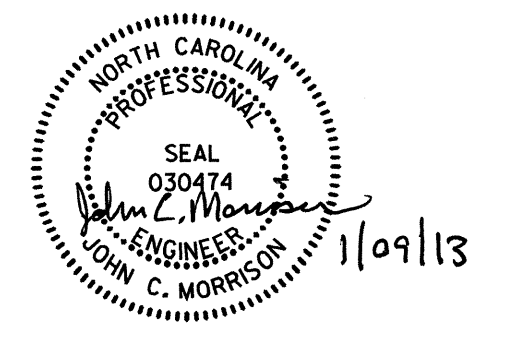
** PLACE #4 'H' BARS TO MATCH #4K1 BARS IN BACKWALL



SECTION C-C

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NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

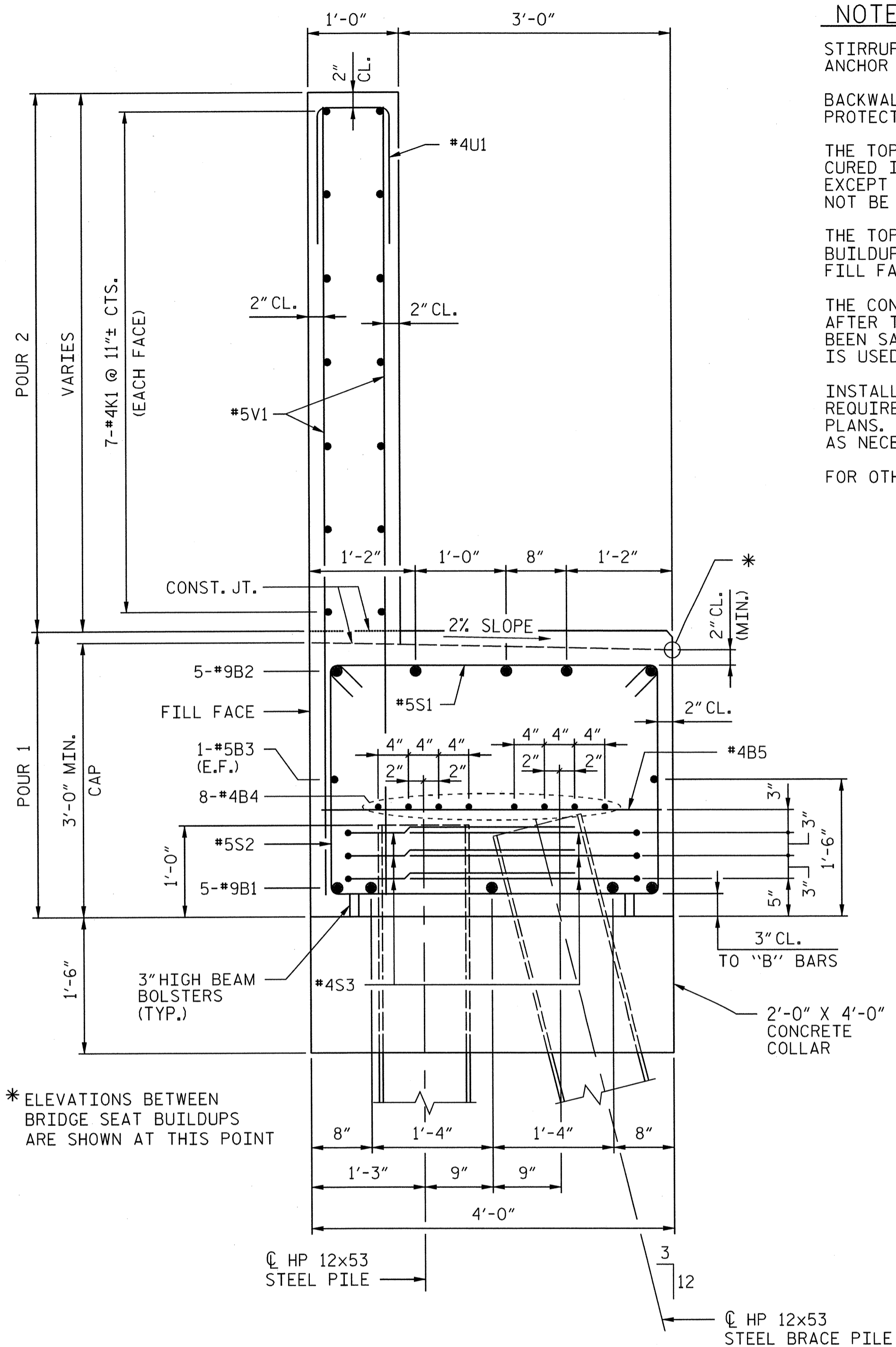
PREPARED BY: **AECOM**

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RALEIGH, NC 27607
(919) 854-6505
www.aecom.com
AECOM License No. F03942

PROJECT	C-4901C		
TITLE	SUBSTRUCTURE END BENT 1 (2 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1/2" = 1'-0"
			SHEET 48 OF 72

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* ELEVATIONS BETWEEN BRIDGE SEAT BUILDUPS ARE SHOWN AT THIS POINT

SECTION "A-A"

NOTES:

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

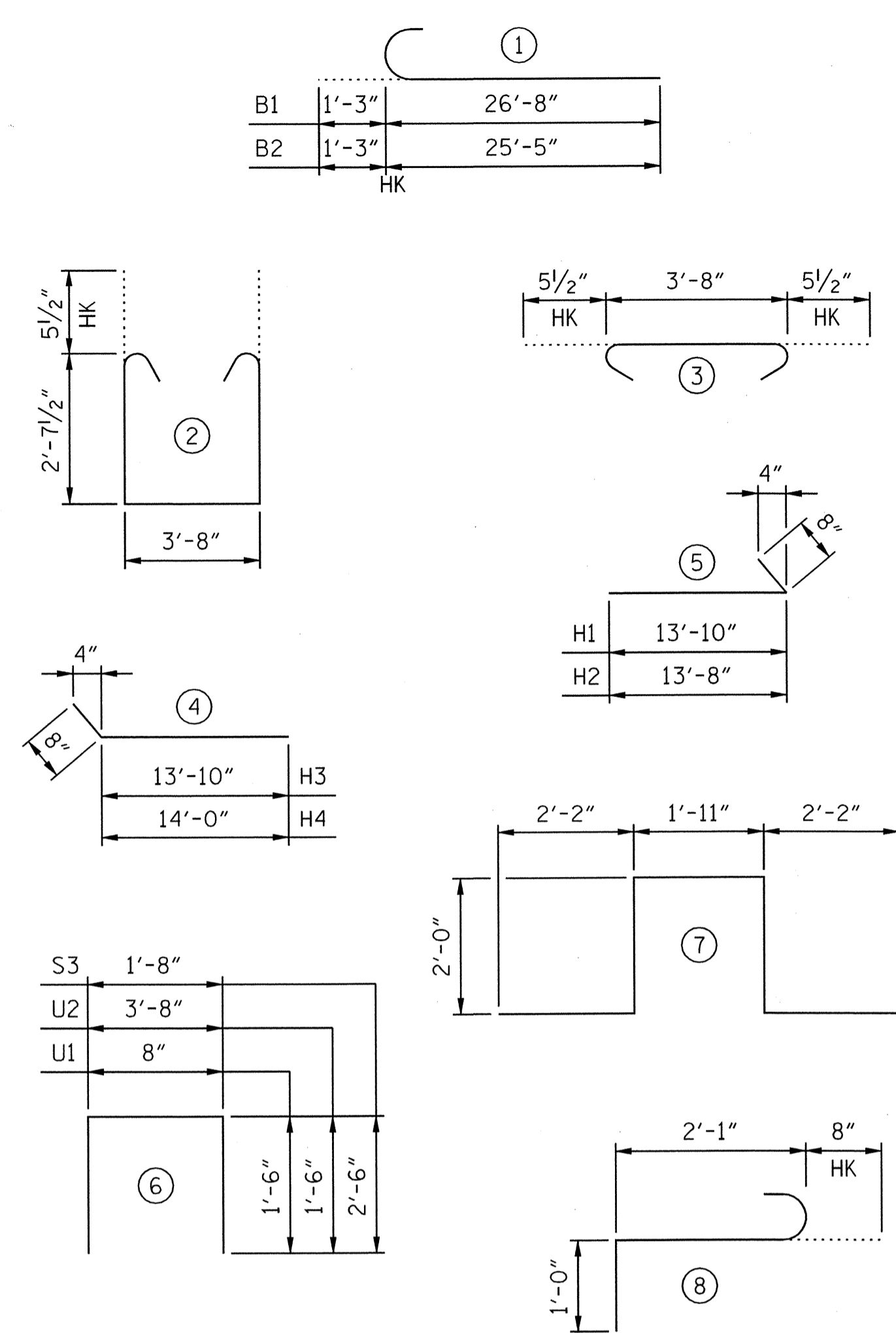
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE FRONT FACE AT THE RATE OF 2%.

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

INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR OTHER NOTES, SEE "FOUNDATION NOTES" SHEET.

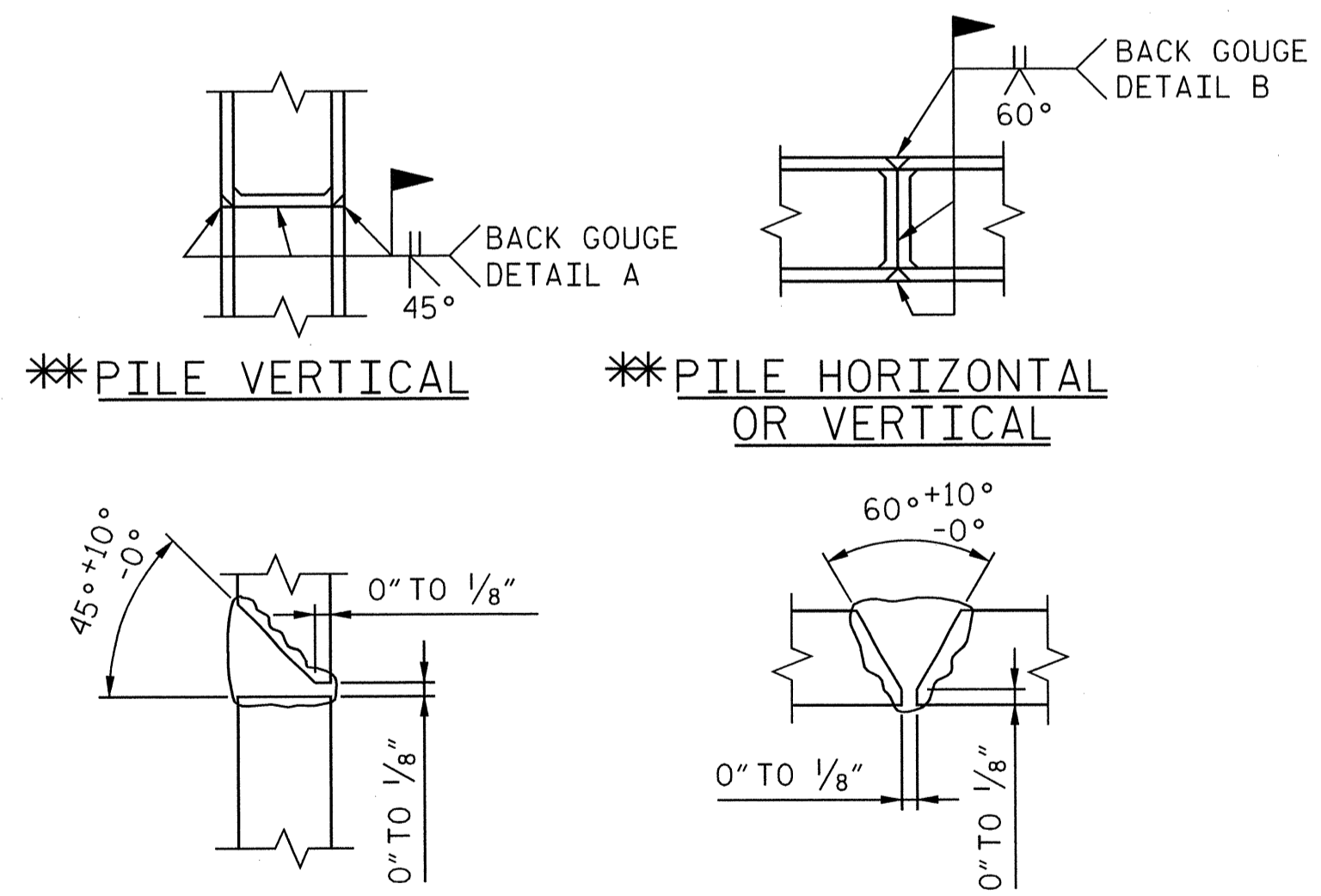
BAR TYPES



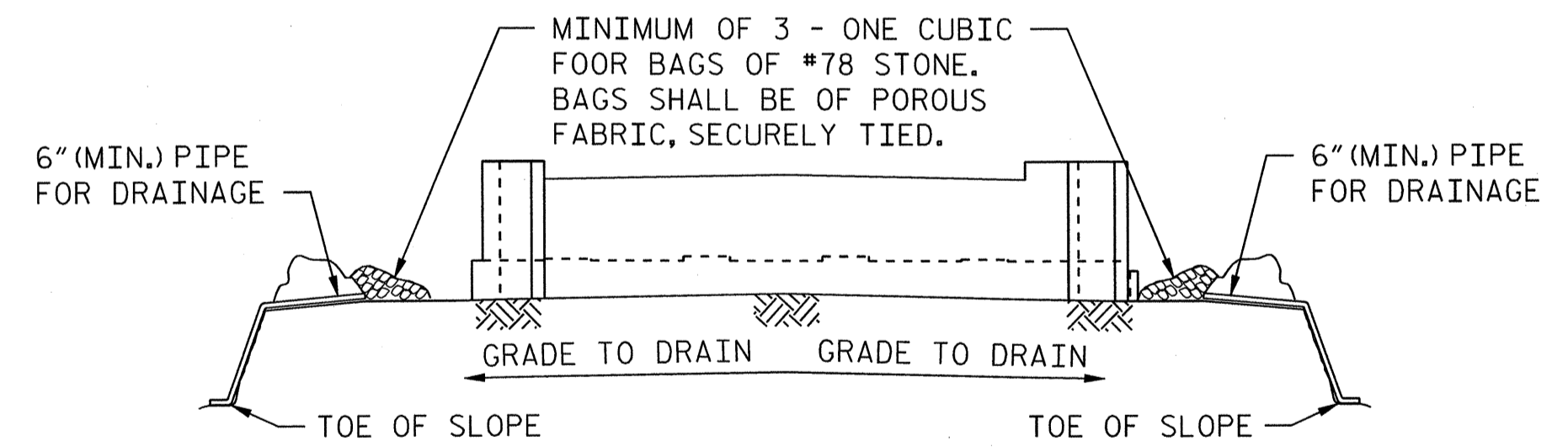
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	(1)	27'-11"	949
B2	10	#9	(1)	26'-8"	907
B3	4	#5	STR	23'-9"	99
B4	16	#4	STR	23'-6"	251
B5	11	#4	STR	3'-8"	27
B6	10	#4	STR	3'-2"	21
H1	11	#4	(5)	14'-6"	107
H2	11	#4	(5)	14'-4"	105
H3	11	#4	(4)	14'-6"	107
H4	11	#4	(4)	14'-8"	108
K1	28	#4	STR	23'-5"	438
K2	8	#4	STR	2'-8"	14
S1	54	#5	(3)	4'-7"	258
S2	54	#5	(2)	9'-10"	554
S3	36	#4	(6)	6'-8"	160
S4	2	#6	(7)	10'-3"	31
S5	6	#6	(8)	3'-9"	34
U1	46	#4	(6)	3'-8"	113
U2	10	#4	(6)	6'-8"	45
V1	92	#5	STR	8'-8"	832
V2	68	#5	STR	10'-0"	709
TOTAL REINFORCING STEEL					LBS. 5869
END BENT TOTAL QUANTITIES					
CLASS A CONCRETE					
POUR 1 (CAP & LOWER WING)				C.Y.	26.8
POUR 2 (BACKWALL & UPPER WING)				C.Y.	17.6
TOTAL				C.Y.	44.5
HP 12x53 STEEL PILES				NO.	14
				LIN. FT.	630



DETAIL A
DETAIL B
**PILE VERTICAL
**PILE HORIZONTAL OR VERTICAL
**POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS

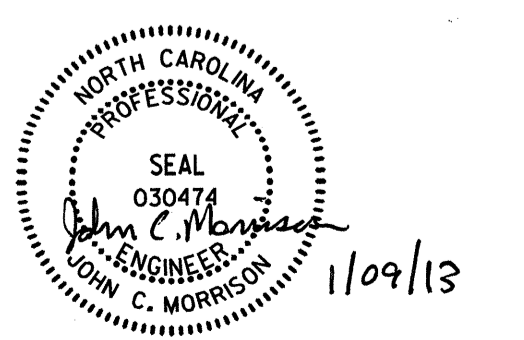


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

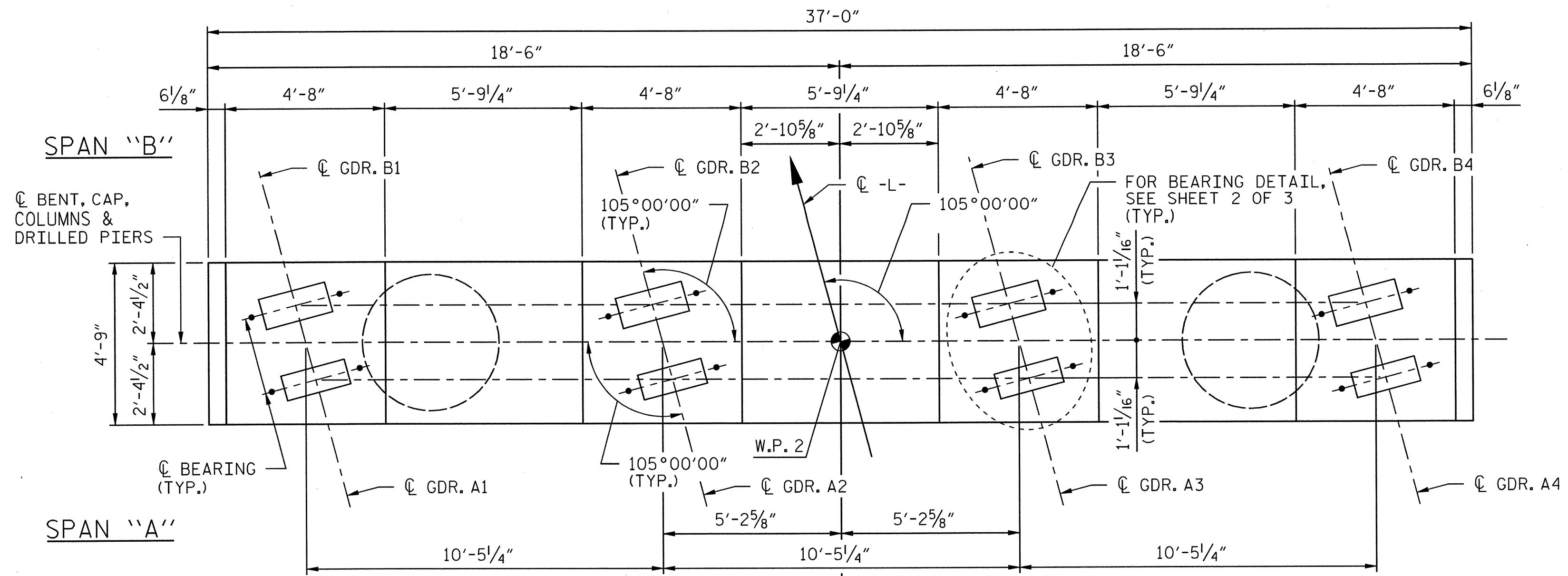
NO.	BY	DATE	REVISION



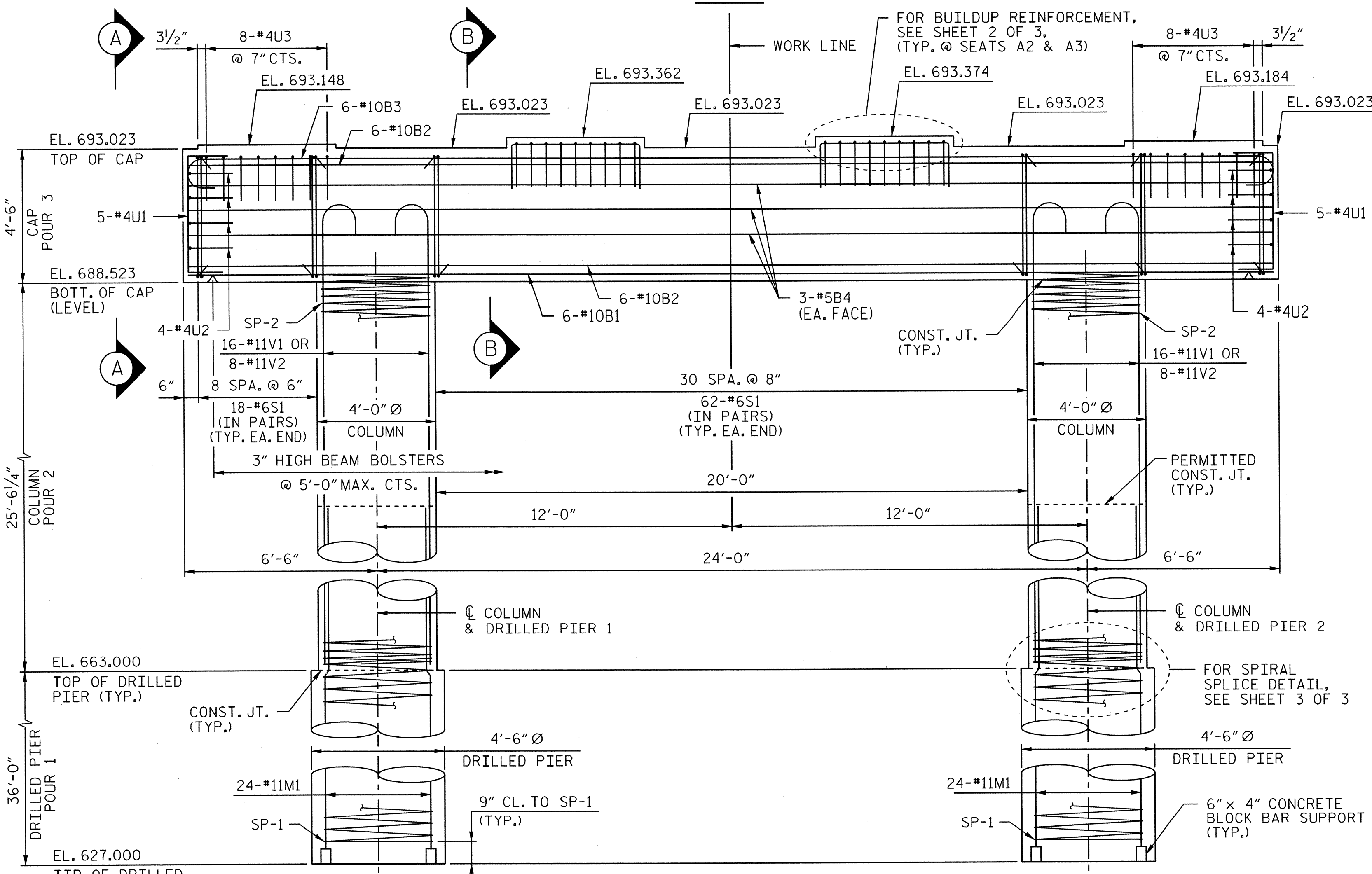
PROJECT	C-4901C		
TITLE	SUBSTRUCTURE END BENT 1 (3 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	1"=1'-0"
			DRAWING S-49
			SHEET 49 OF 72

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PLAN



ELEVATION

NOTES:

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

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

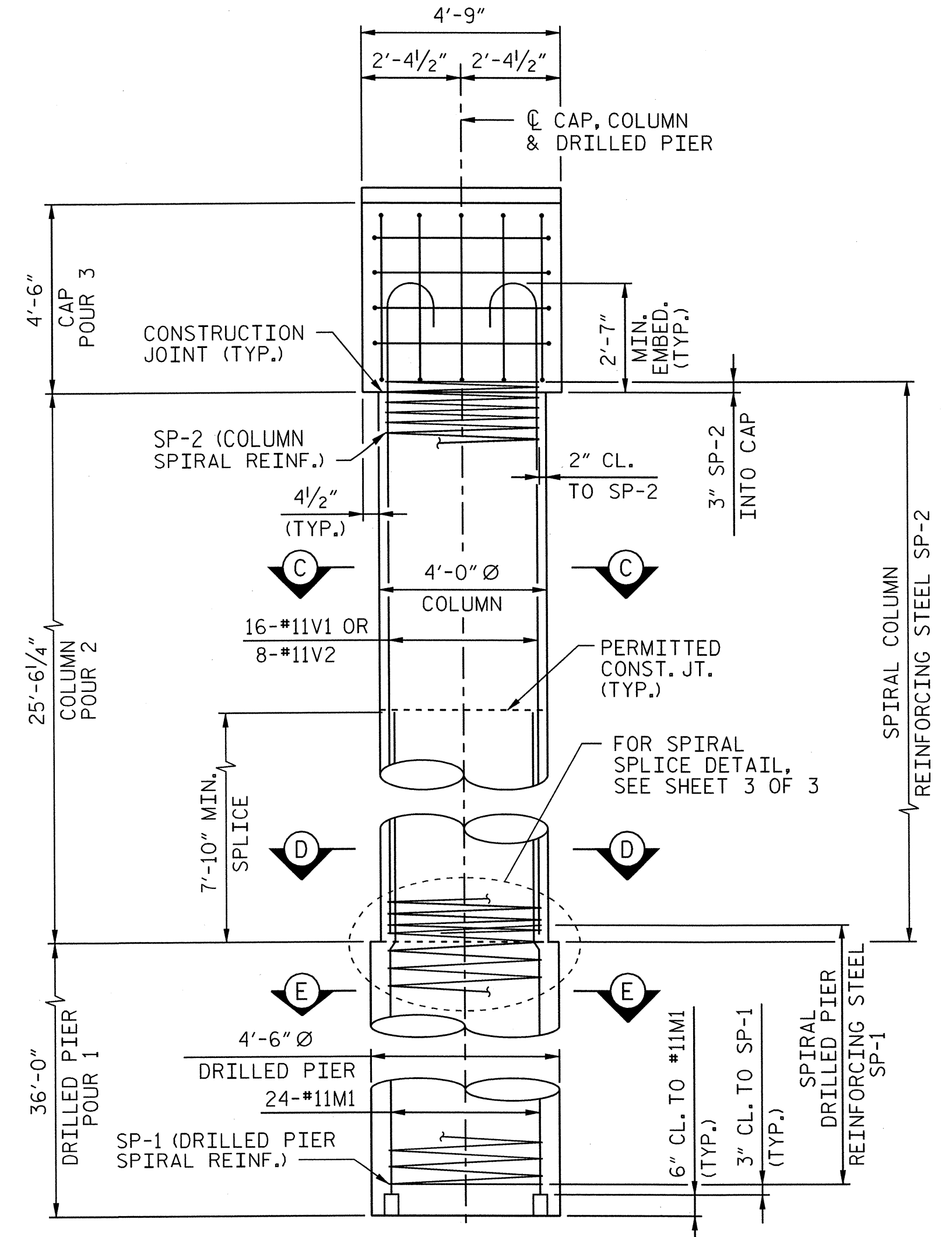
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCEMENT STEEL".

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.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIERS WILL NOT BE PERMITTED.

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

INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP.



END VIEW

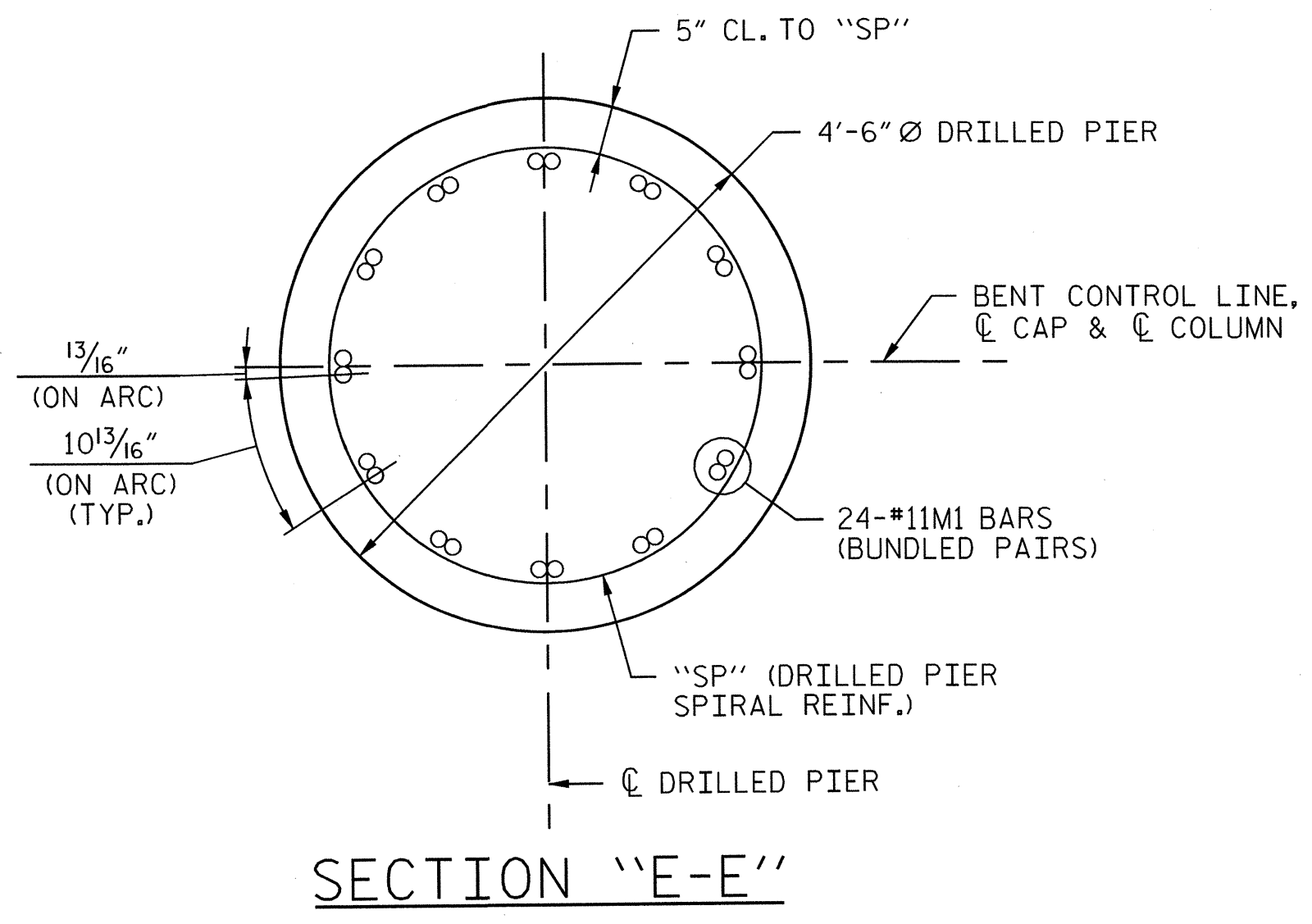
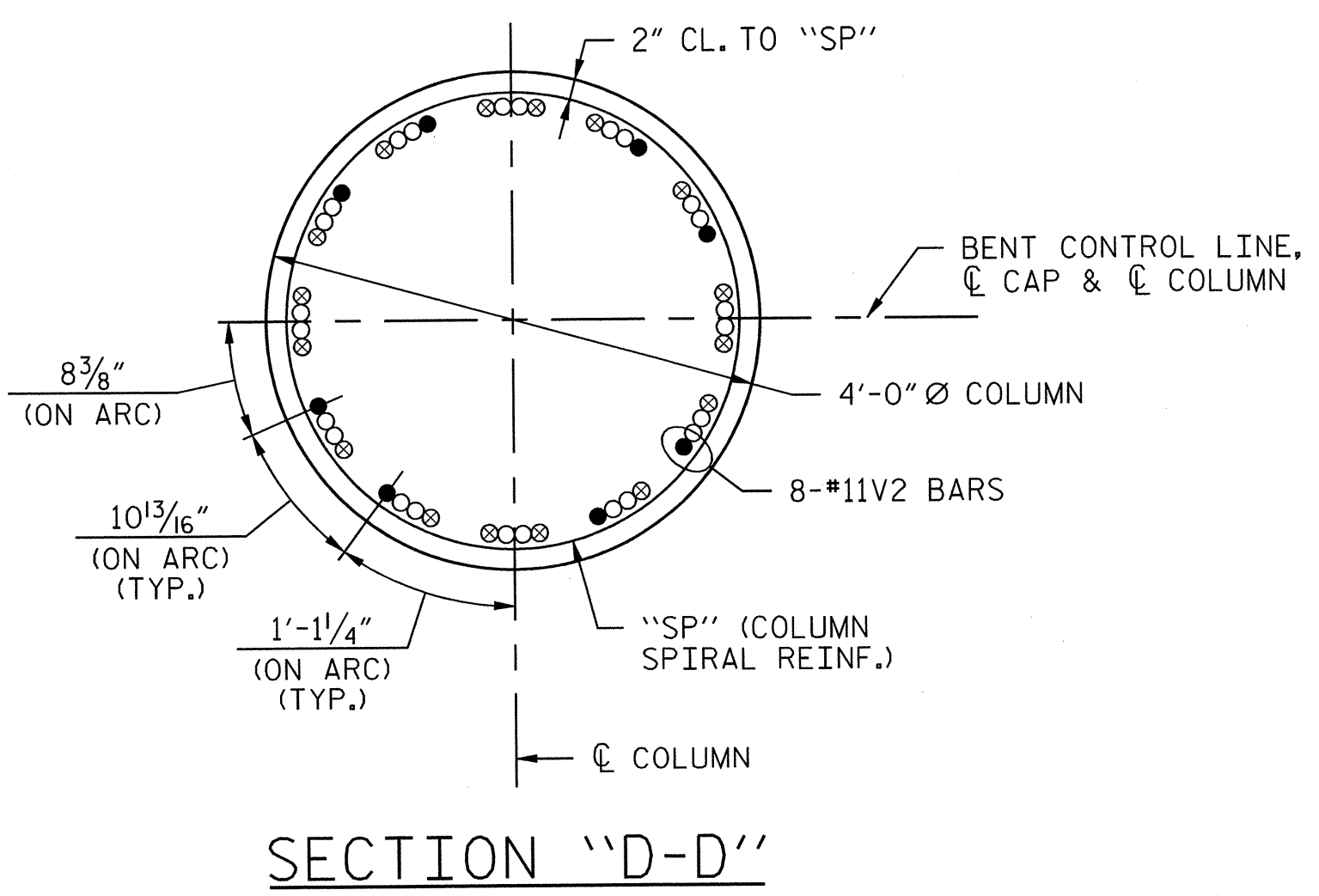
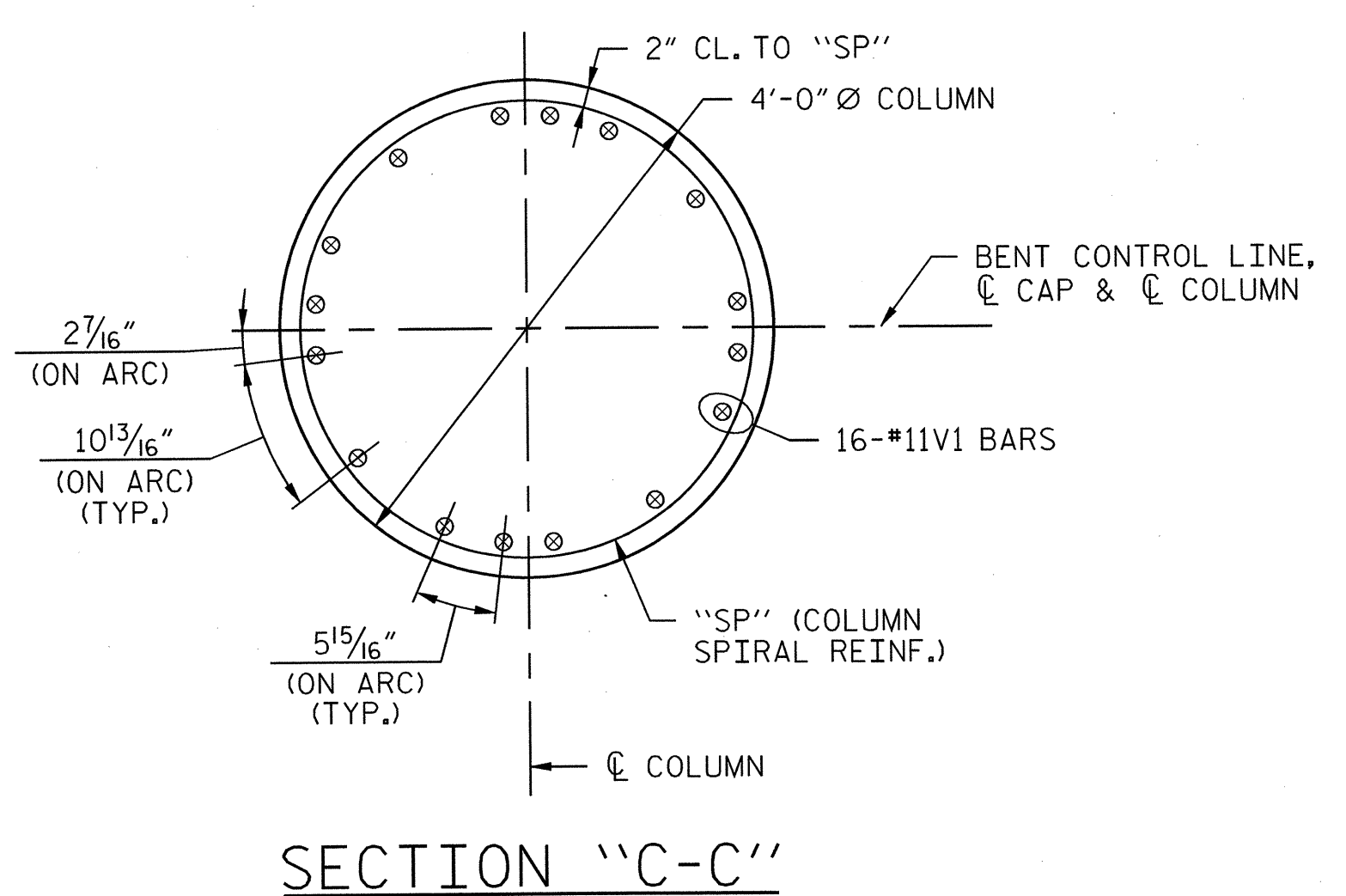
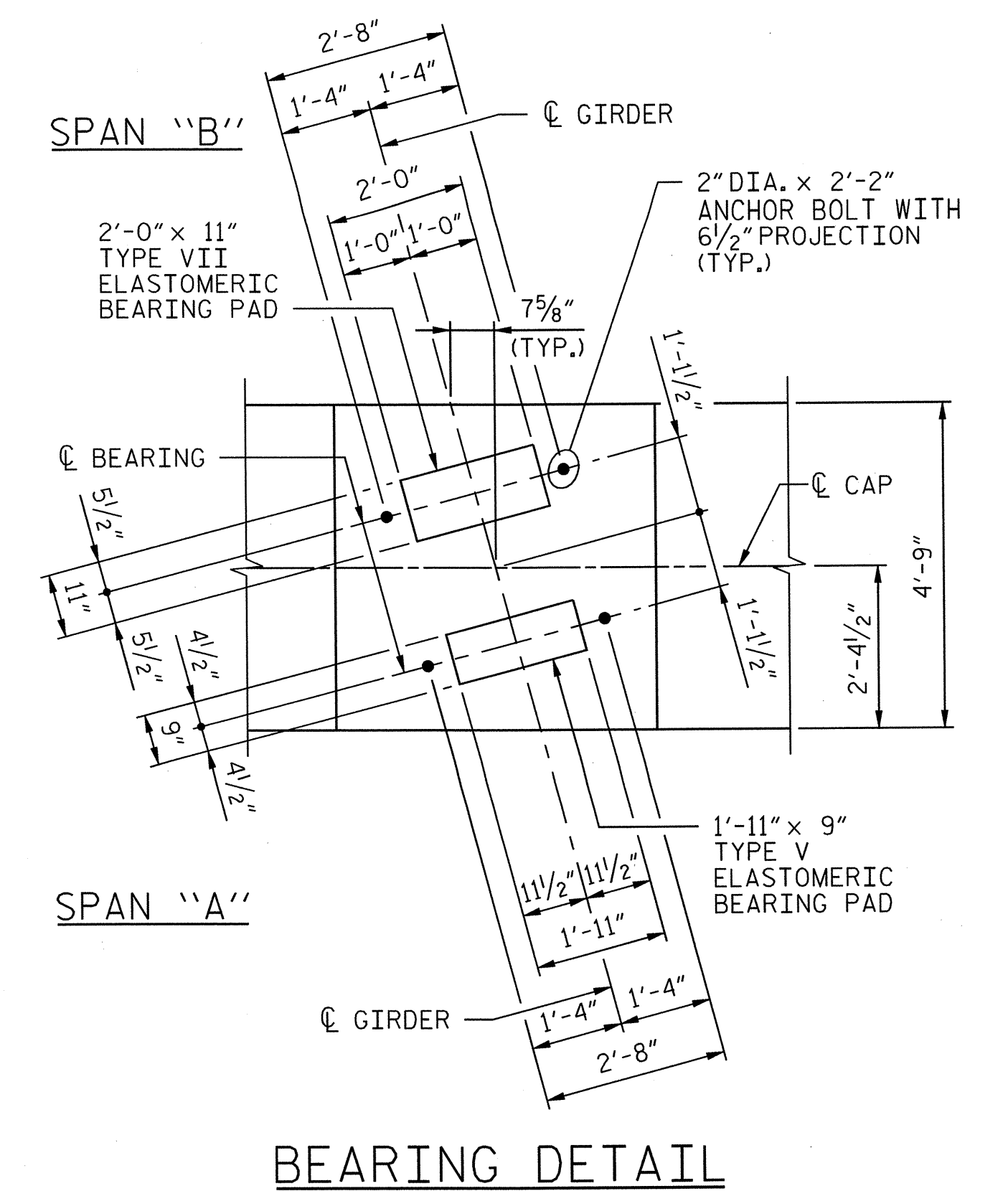
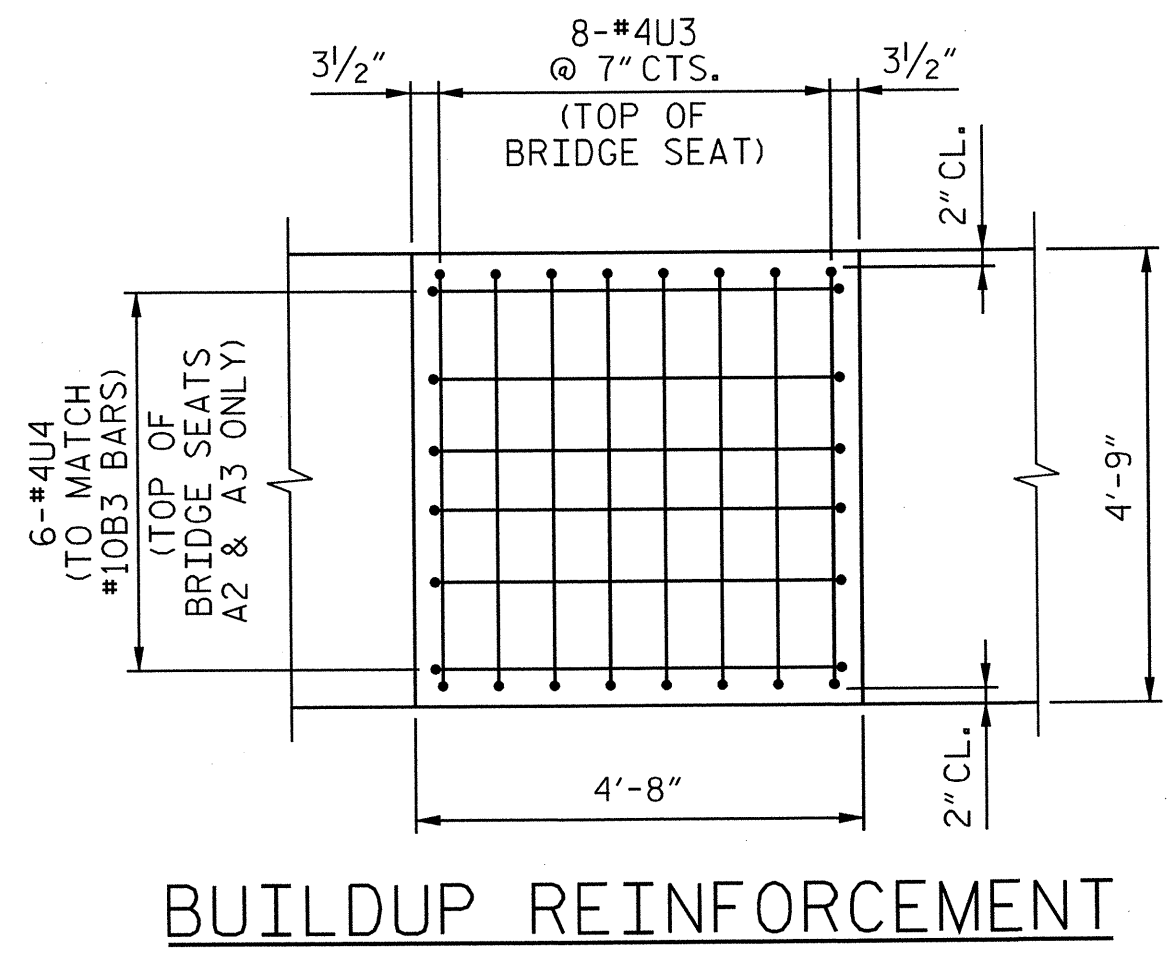
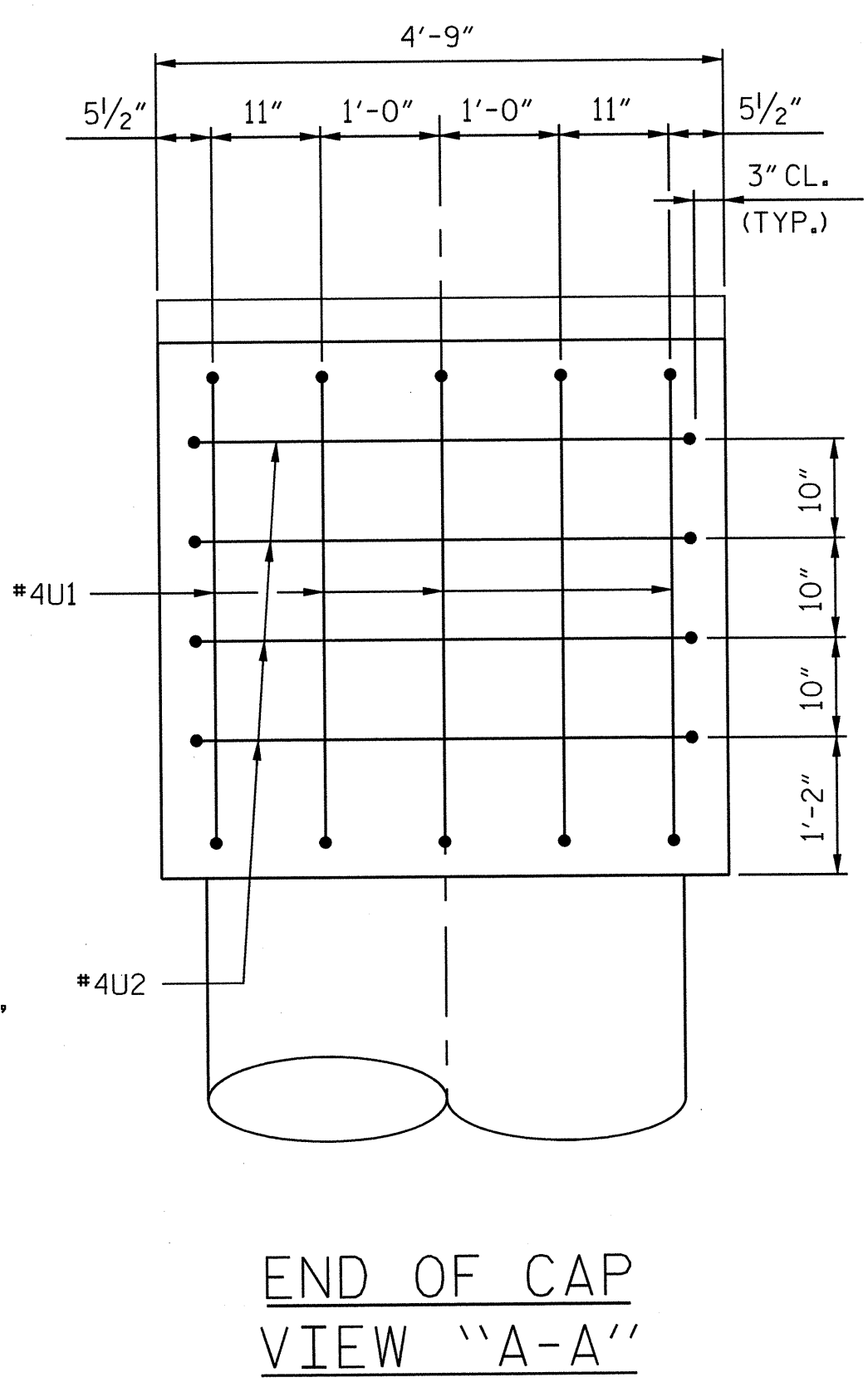
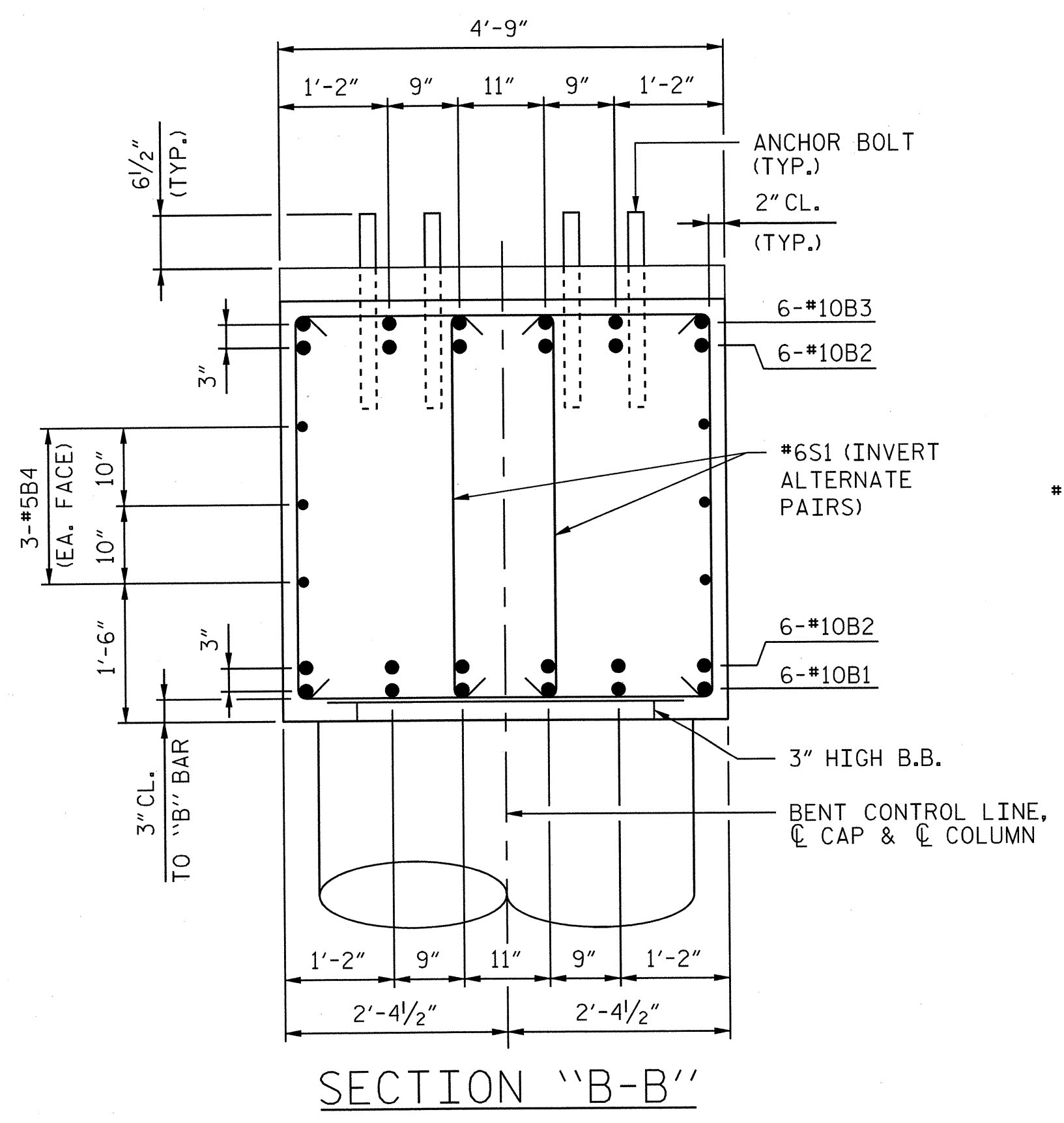
NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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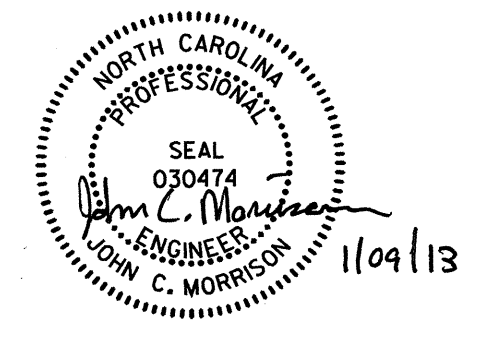
PROJECT	C-4901C		
TITLE	SUBSTRUCTURE BENT 1 (1 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/8" = 1'-0"
			SHEET 50 OF 72

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- ⊗ #11V1 (COLUMN)
- #11V2 (COLUMN)
- #11M1 (DRILLED PIER)

NO.	BY	DATE	REVISION



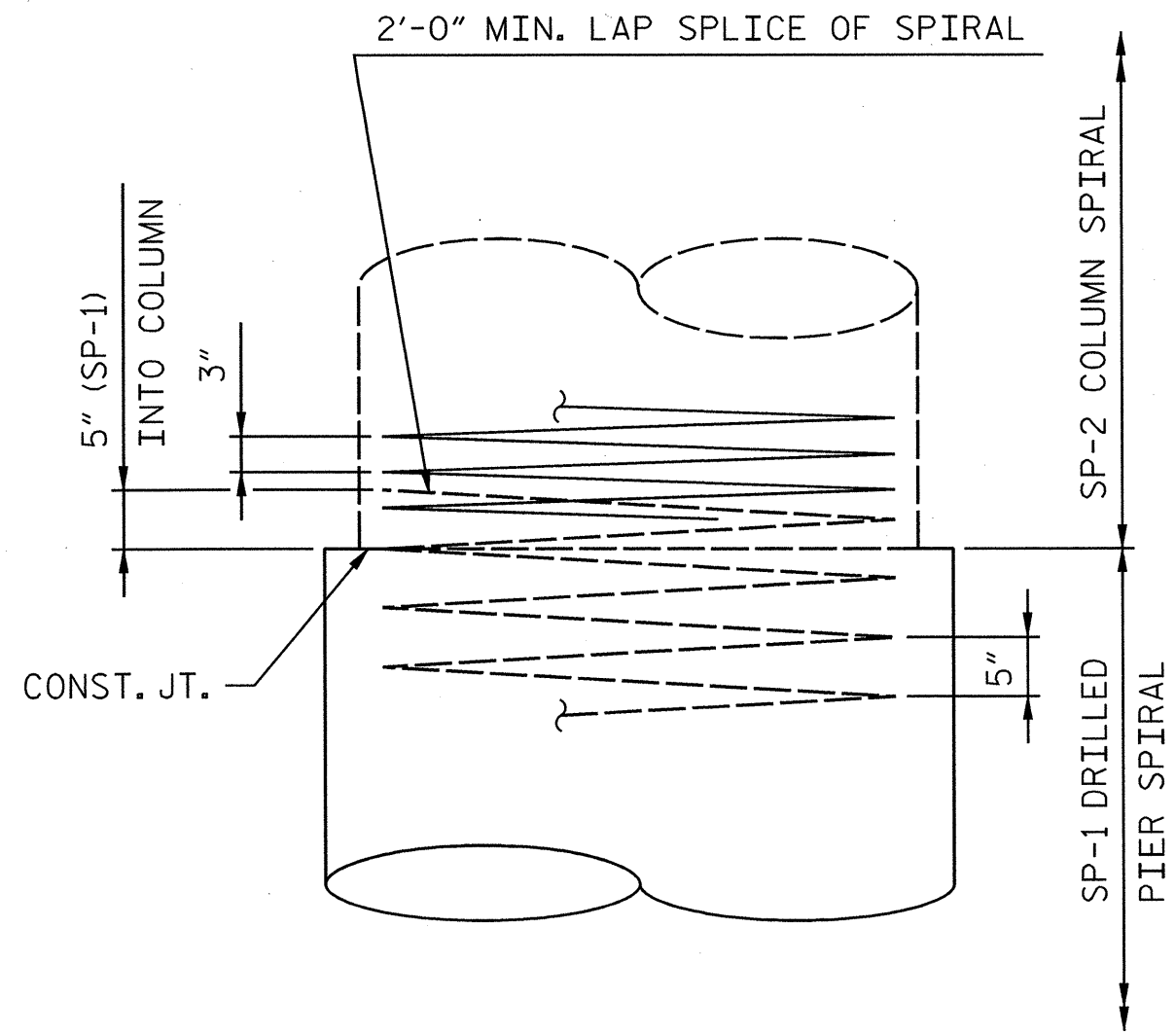
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**

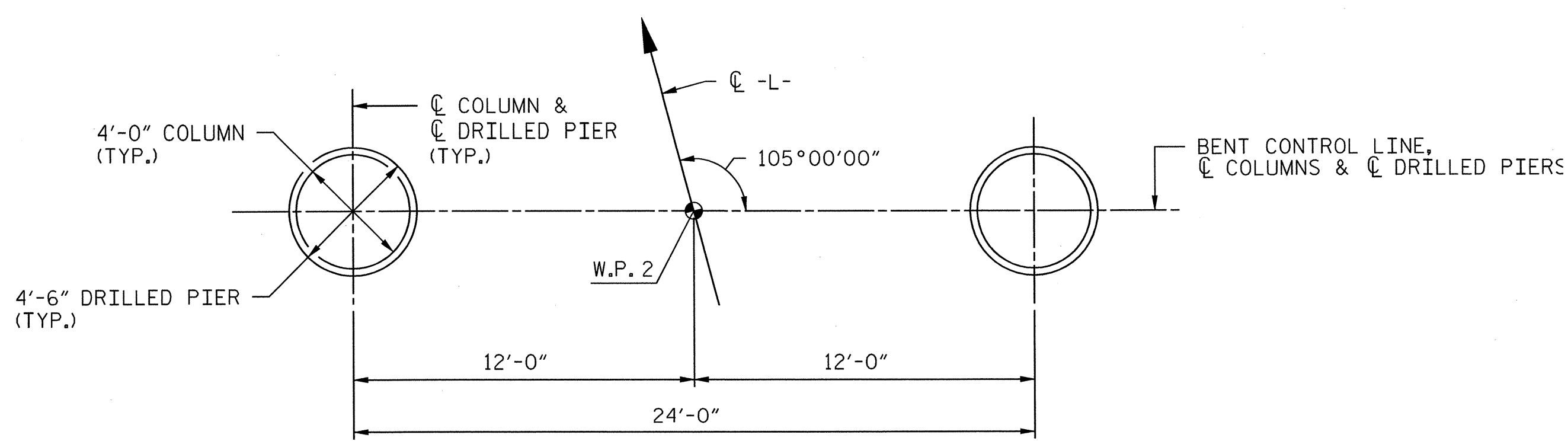
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 701 CORPORATE CENTER DRIVE, SUITE 476
 RALEIGH, NC 27607
 (919) 854-6200 www.aecom.com
 AECOM License No. F-0342

PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 1 (2 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
DRAWING		S-51	
SHEET		51 OF 72	

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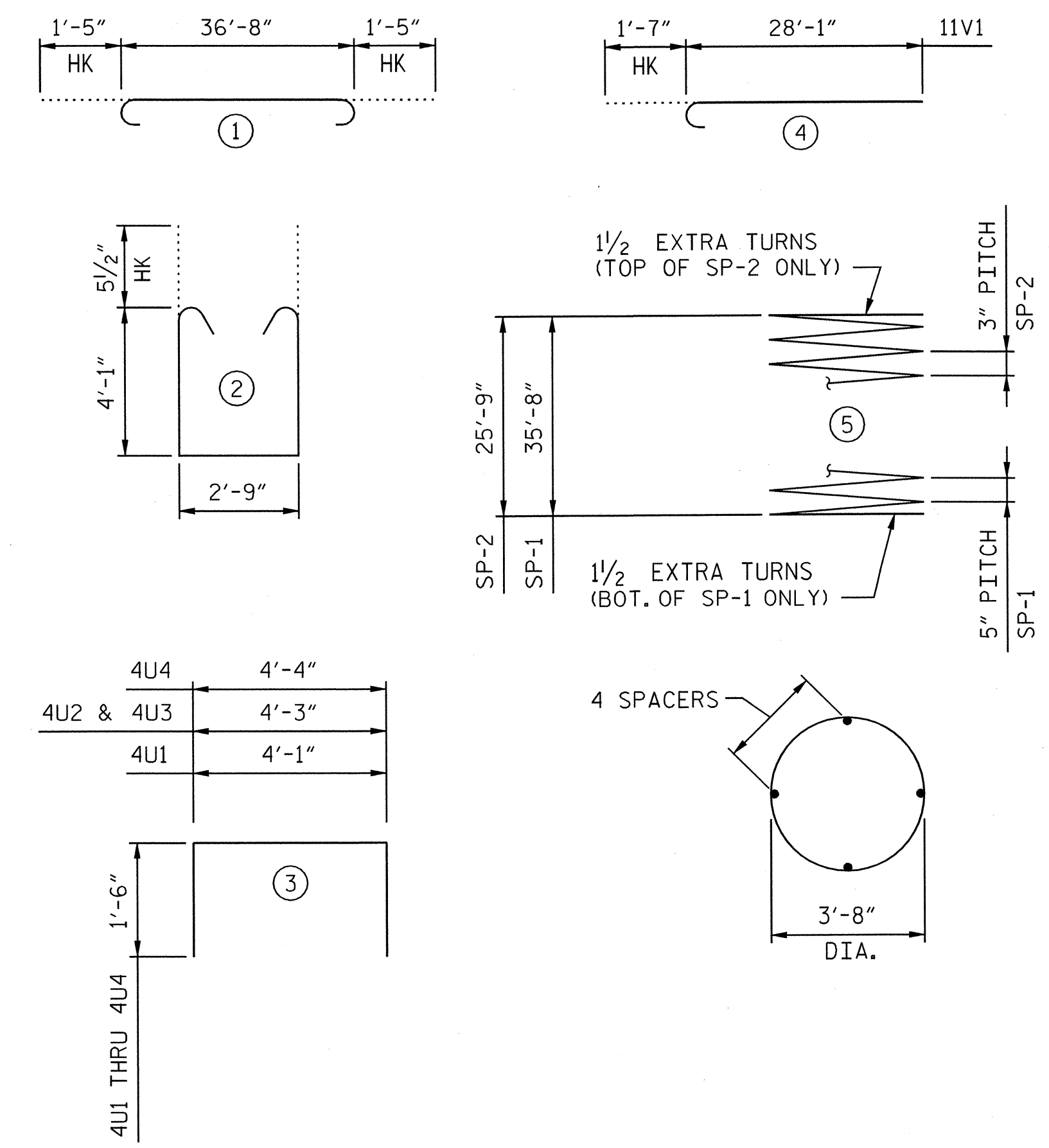


SPIRAL SPLICE DETAIL



PLAN OF DRILLED PIERS

BAR TYPES

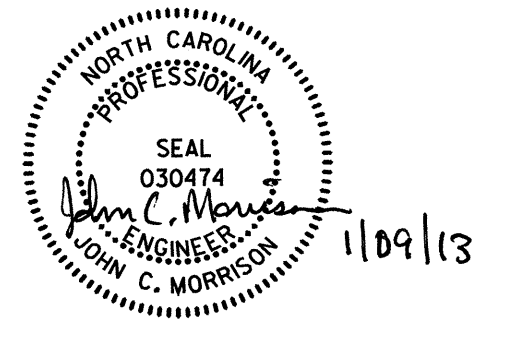


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	STR	36'-8"	947
B2	12	#10	STR	36'-8"	1893
B3	6	#10	(1)	39'-6"	1020
B4	6	#5	STR	36'-8"	229
M1	48	#11	STR	46'-4"	11816
S1	98	#6	(2)	11'-10"	1742
U1	10	#4	(3)	7'-0"	47
U2	8	#4	(3)	7'-3"	39
U3	32	#4	(3)	7'-3"	155
U4	12	#4	(3)	7'-4"	59
V1	32	#11	(4)	29'-8"	5044
V2	16	#11	STR	20'-0"	1700
REINFORCING STEEL				LBS.	24691
SP-1	2	**	(5)	1084'-1"	2261
SP-2	2	***	(5)	1207'-5"	1613
SPIRAL REINFORCING STEEL				LBS.	3874
** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.					
*** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.					
BENT 1 TOTAL QUANTITIES					
CLASS A CONCRETE					
POUR 2 (COLUMNS)				C.Y.	23.8
POUR 3 (CAP)				C.Y.	30.1
TOTAL CLASS A CONCRETE				C.Y.	53.9
DRILLED PIERS, CONCRETE					
POUR 1				C.Y.	42.4
4'-6" Ø DRILLED PIERS IN SOIL				LIN. FT.	50.0
4'-6" Ø DRILLED PIERS NOT IN SOIL				LIN. FT.	22.0
CSL TUBES				LIN. FT.	300.0
PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIERS				LIN. FT.	54.0

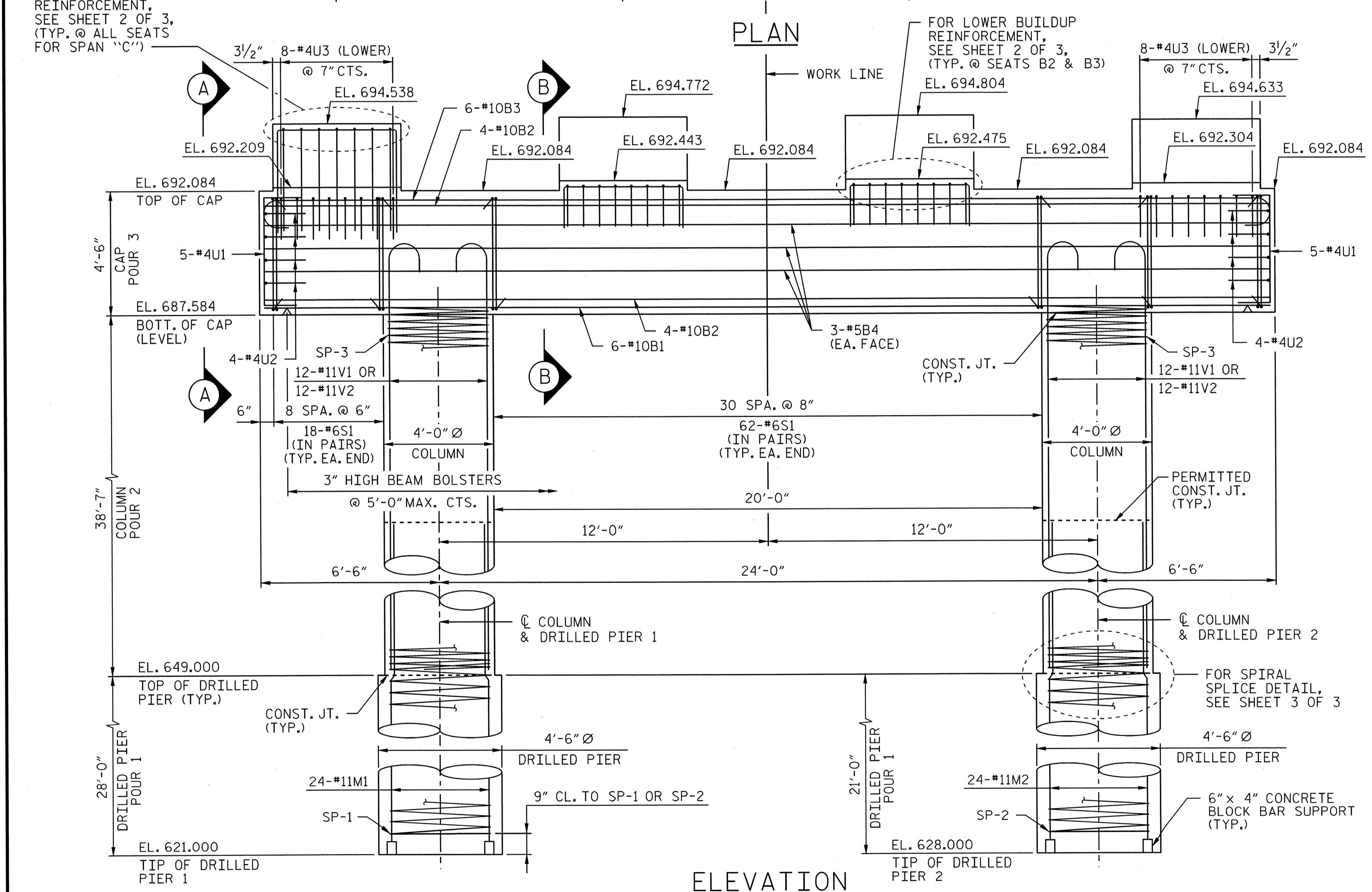
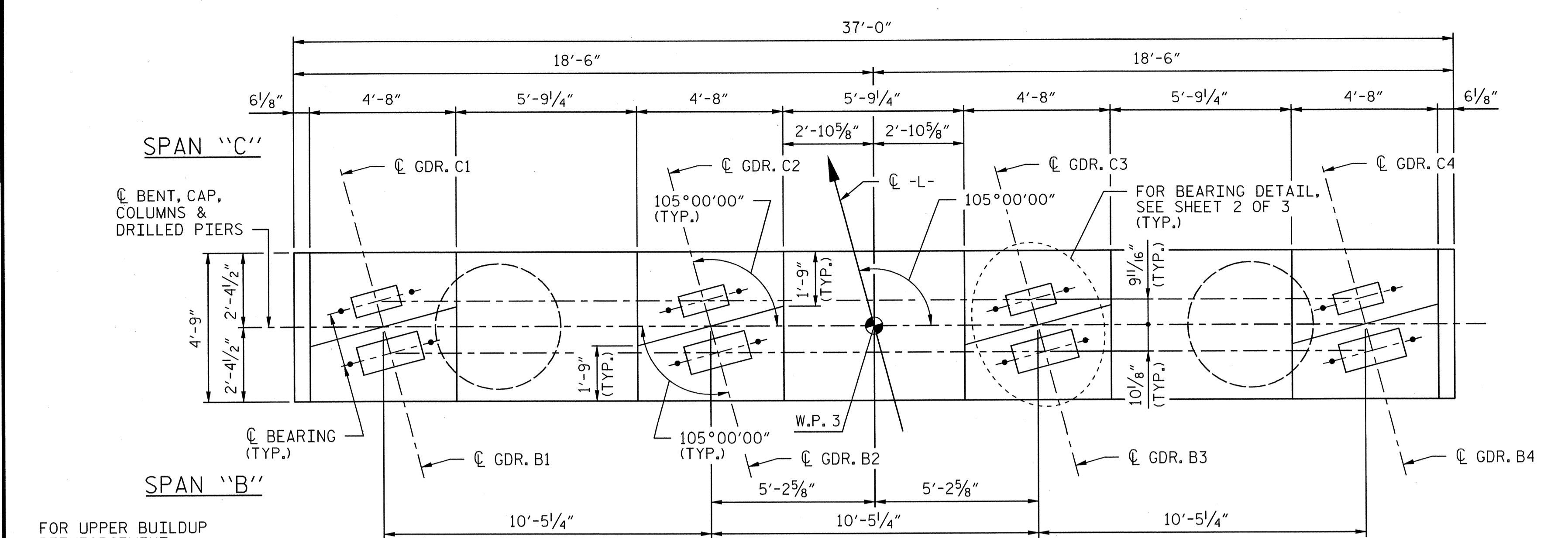
NO.	BY	DATE	REVISION



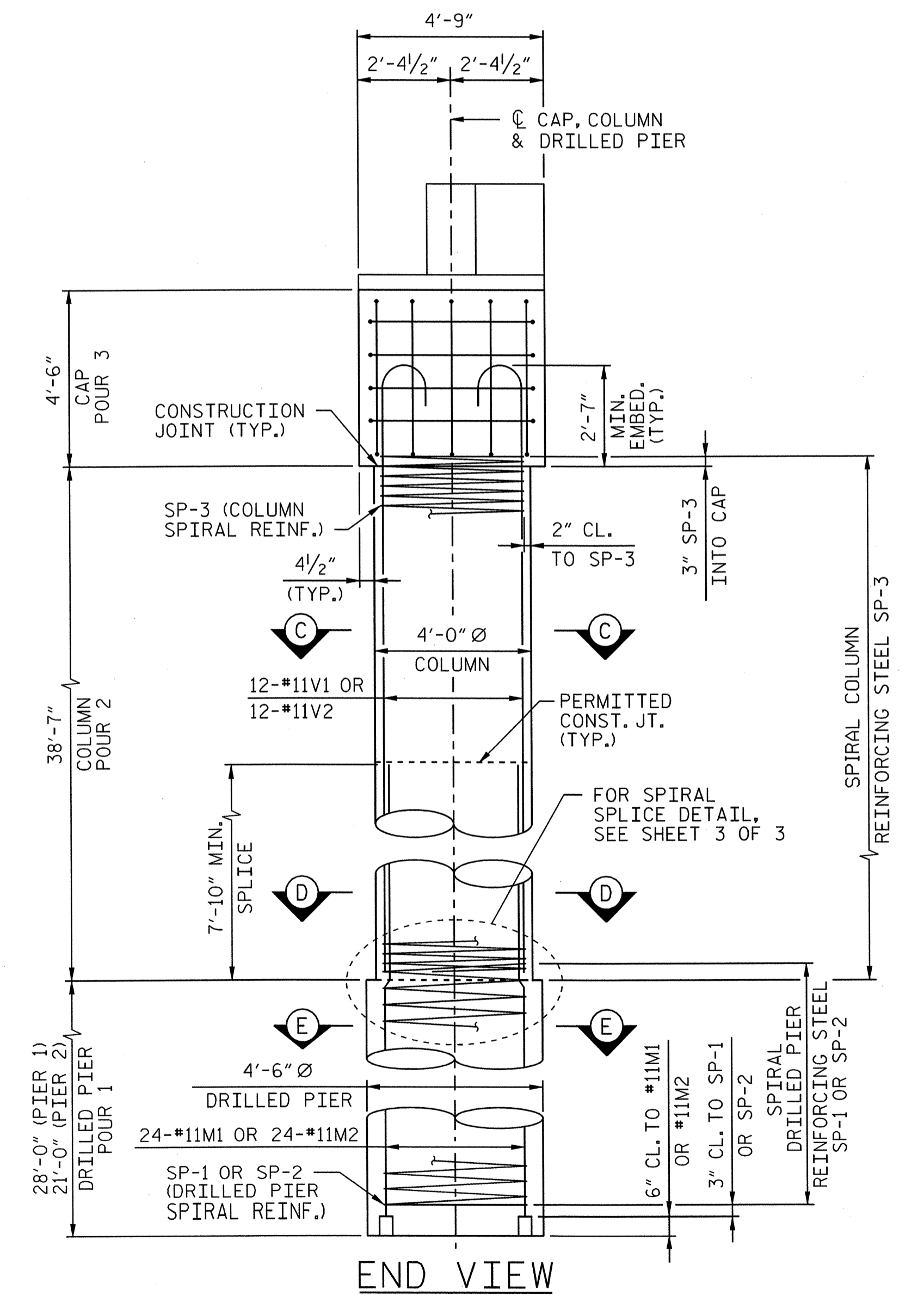
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
AECOM TECHNICAL SERVICES, INC.
 701 CORPORATE CENTER DRIVE, SUITE 4175
 RALEIGH, NC 27607
 (919) 884-6500 www.aecom.com
 AECOM License No. F-0342

PROJECT	C-4901C		
TITLE	SUBSTRUCTURE BENT 1 (3 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	3/8" = 1'-0"		
DRAWING		S-52	
SHEET 52 OF 72			

0271DEL_P10c3

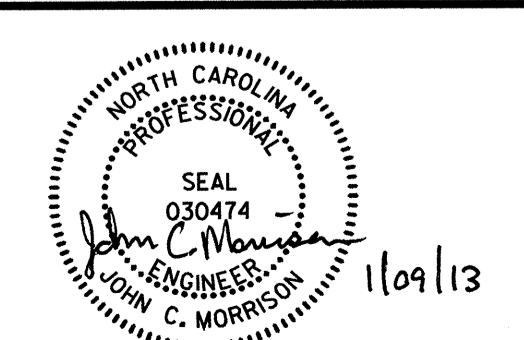


NOTES:
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCEMENT STEEL".
 THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
 SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIERS WILL NOT BE PERMITTED.
 THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.
 INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP.



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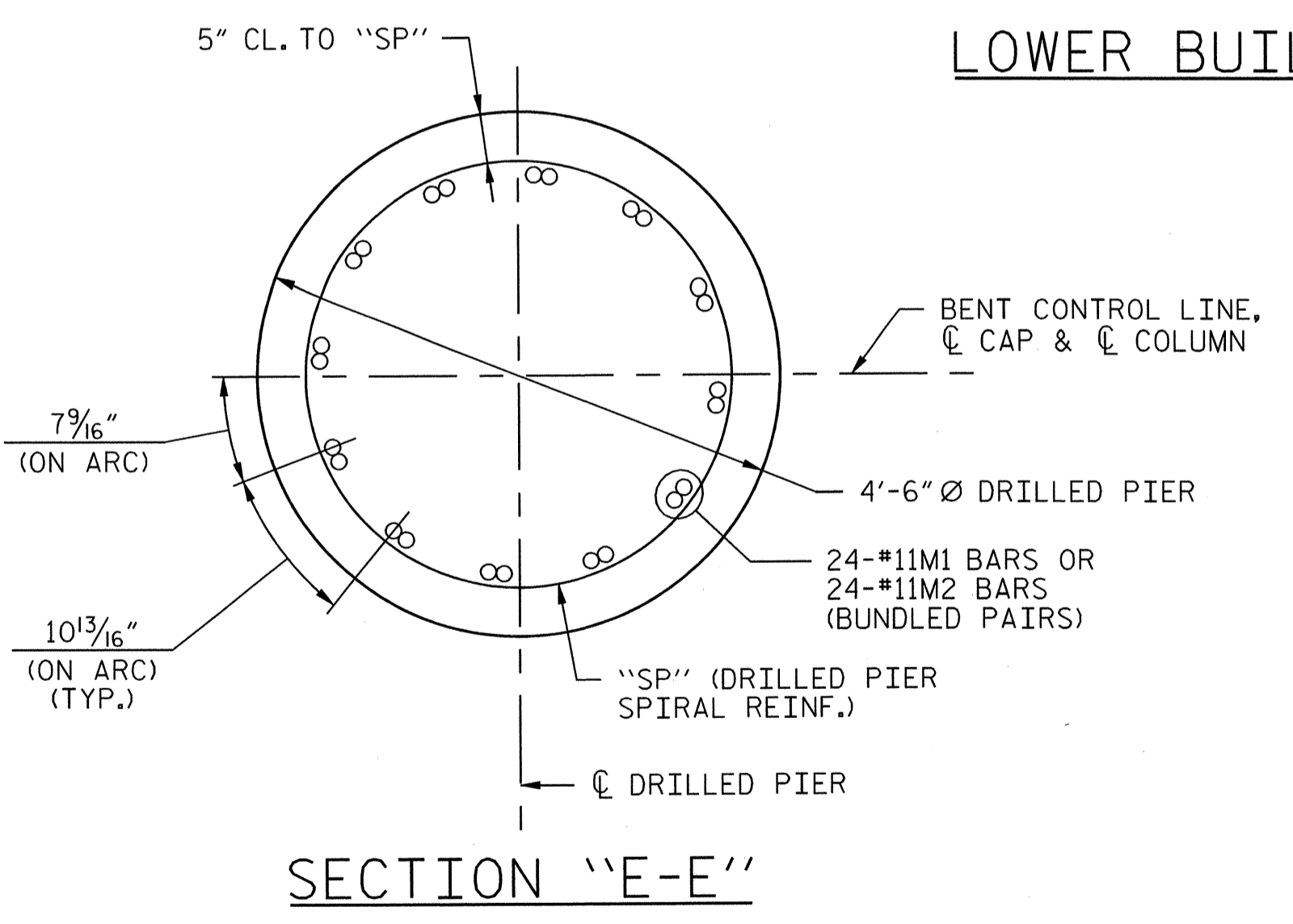
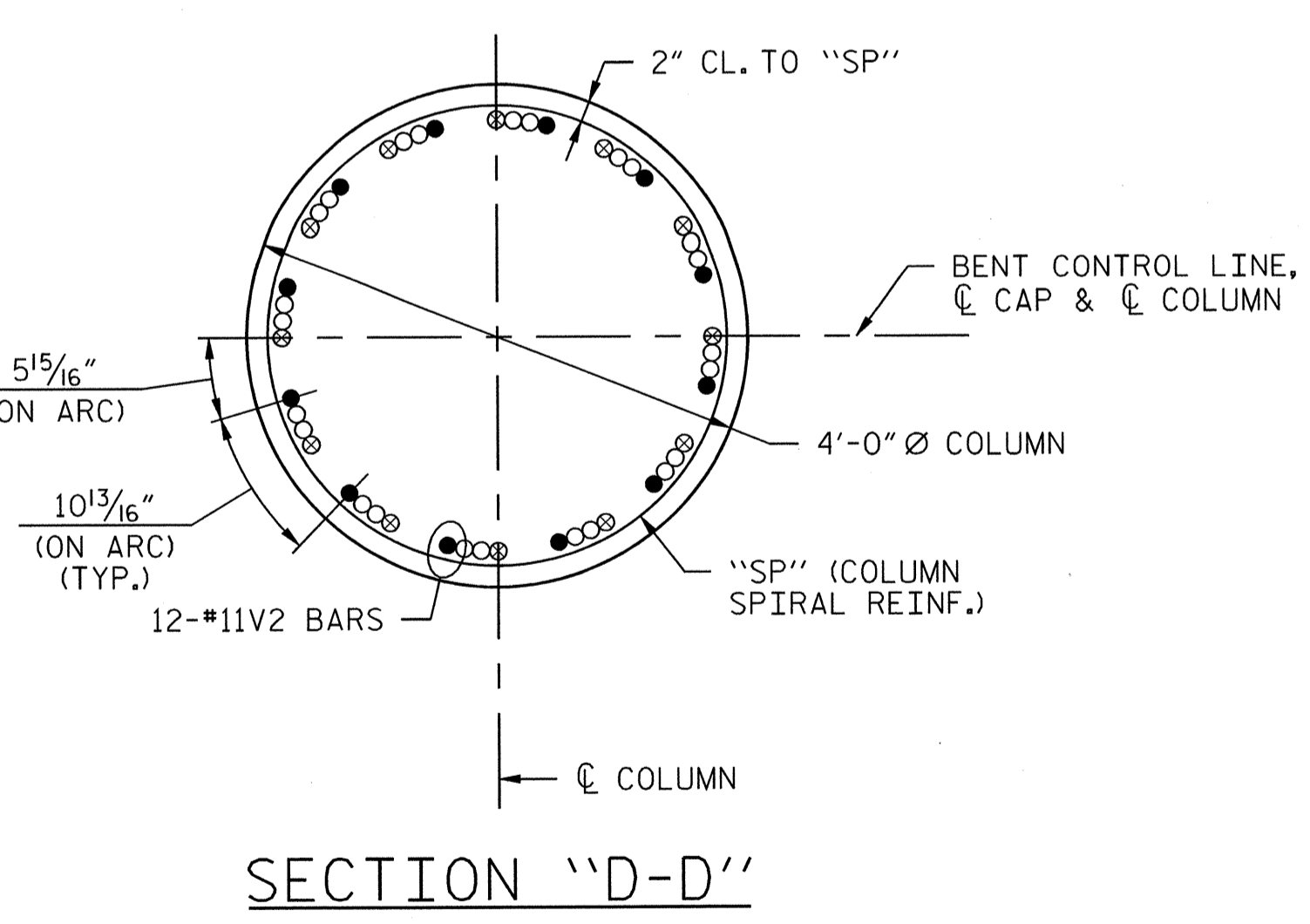
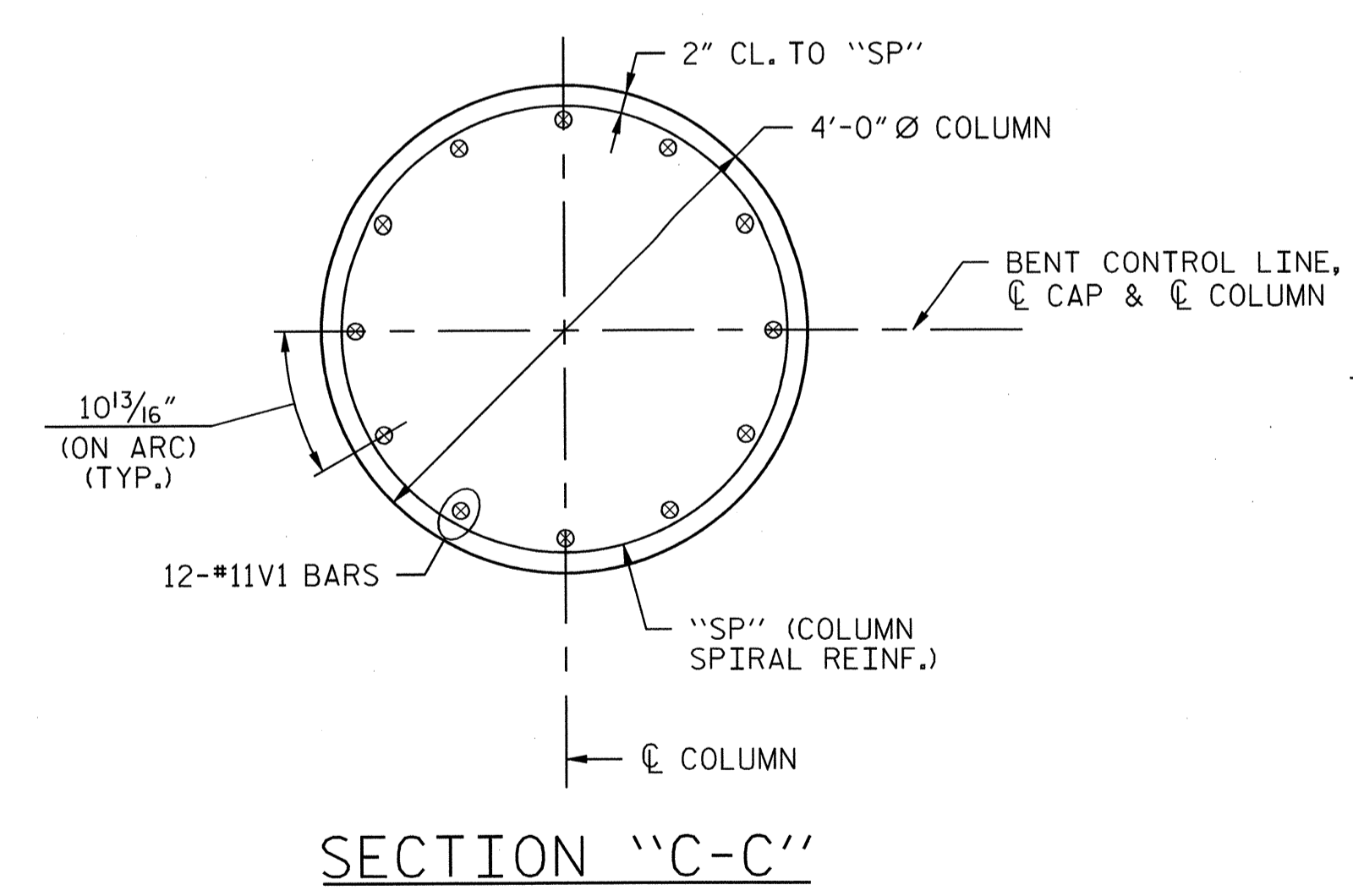
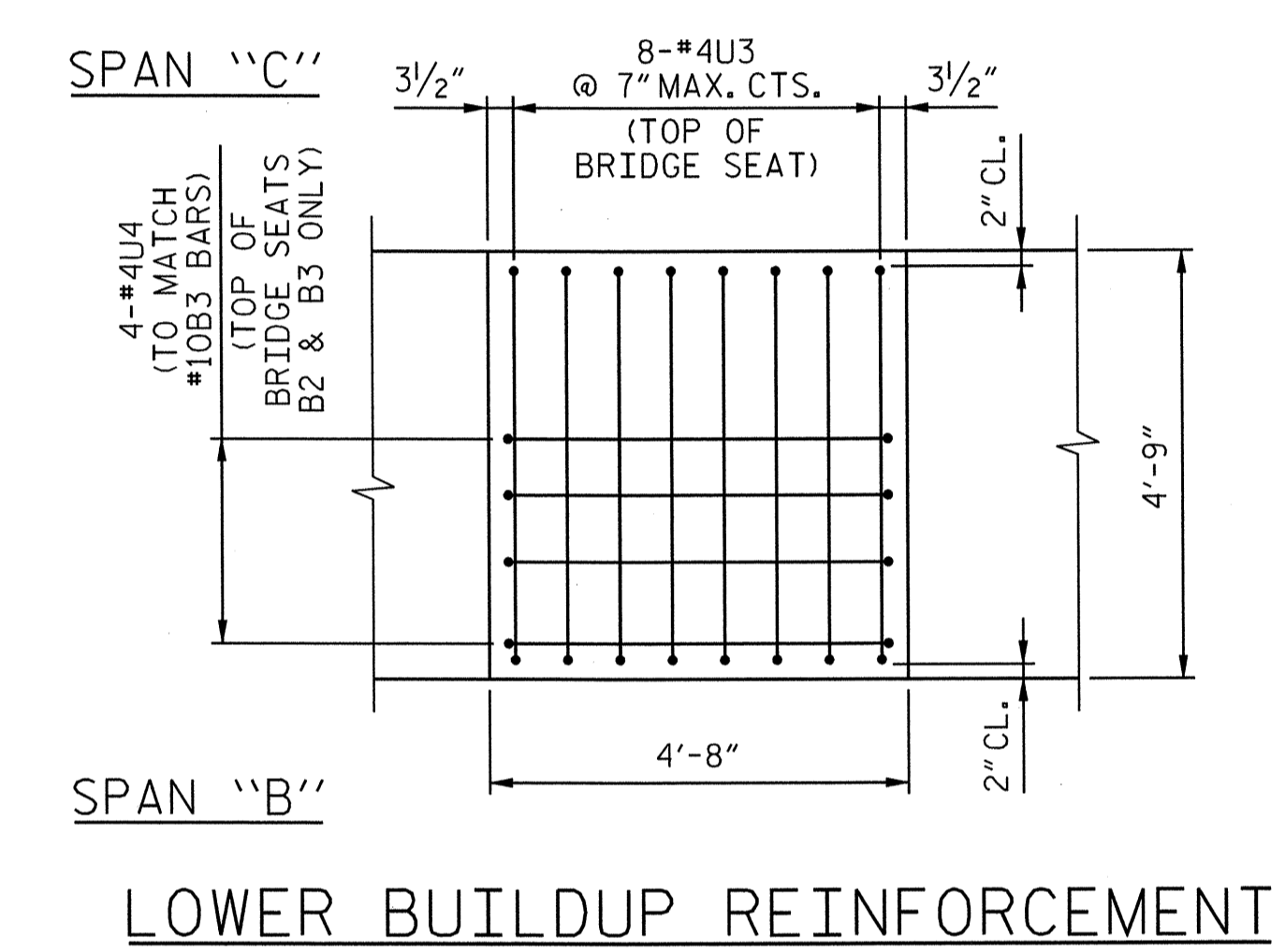
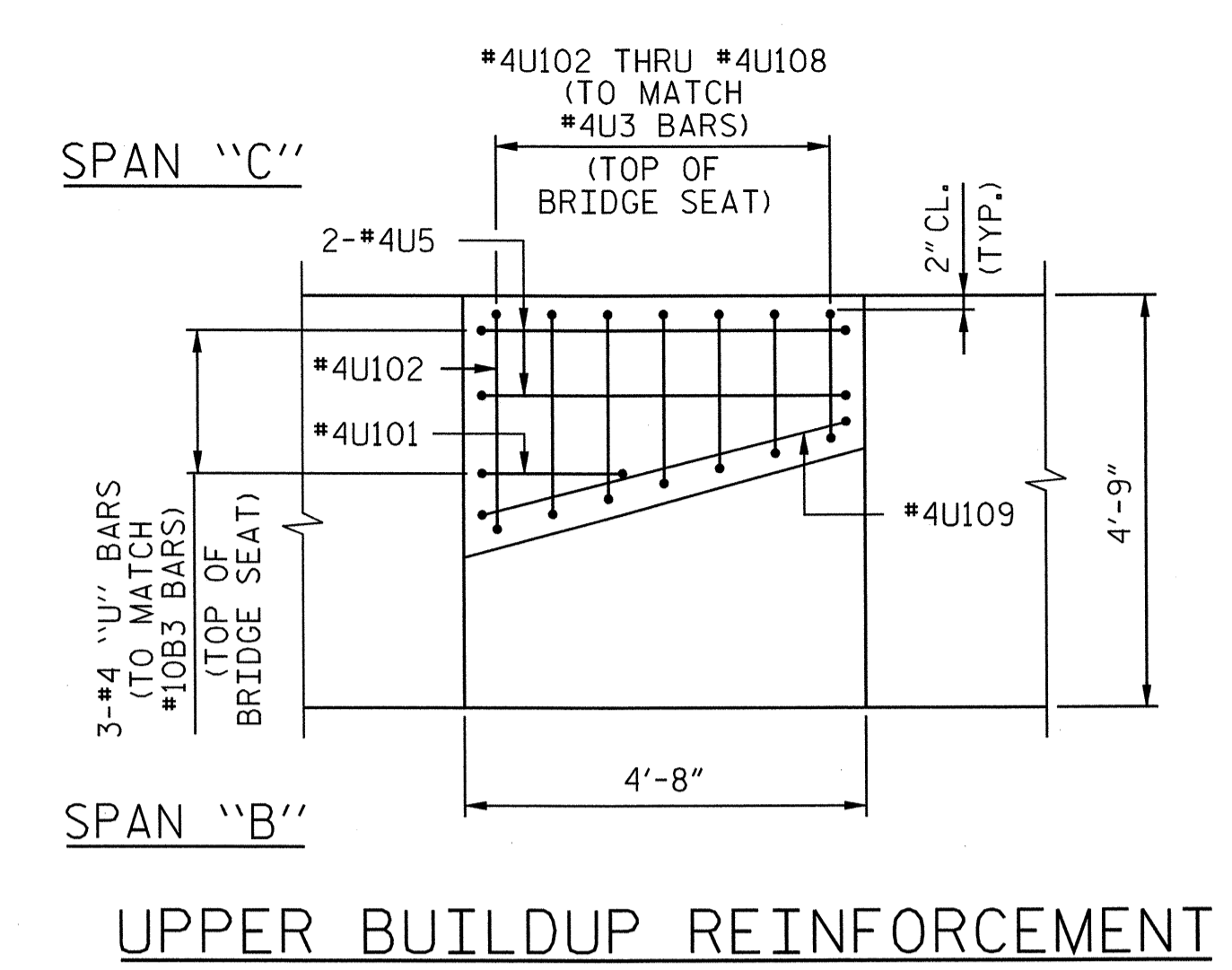
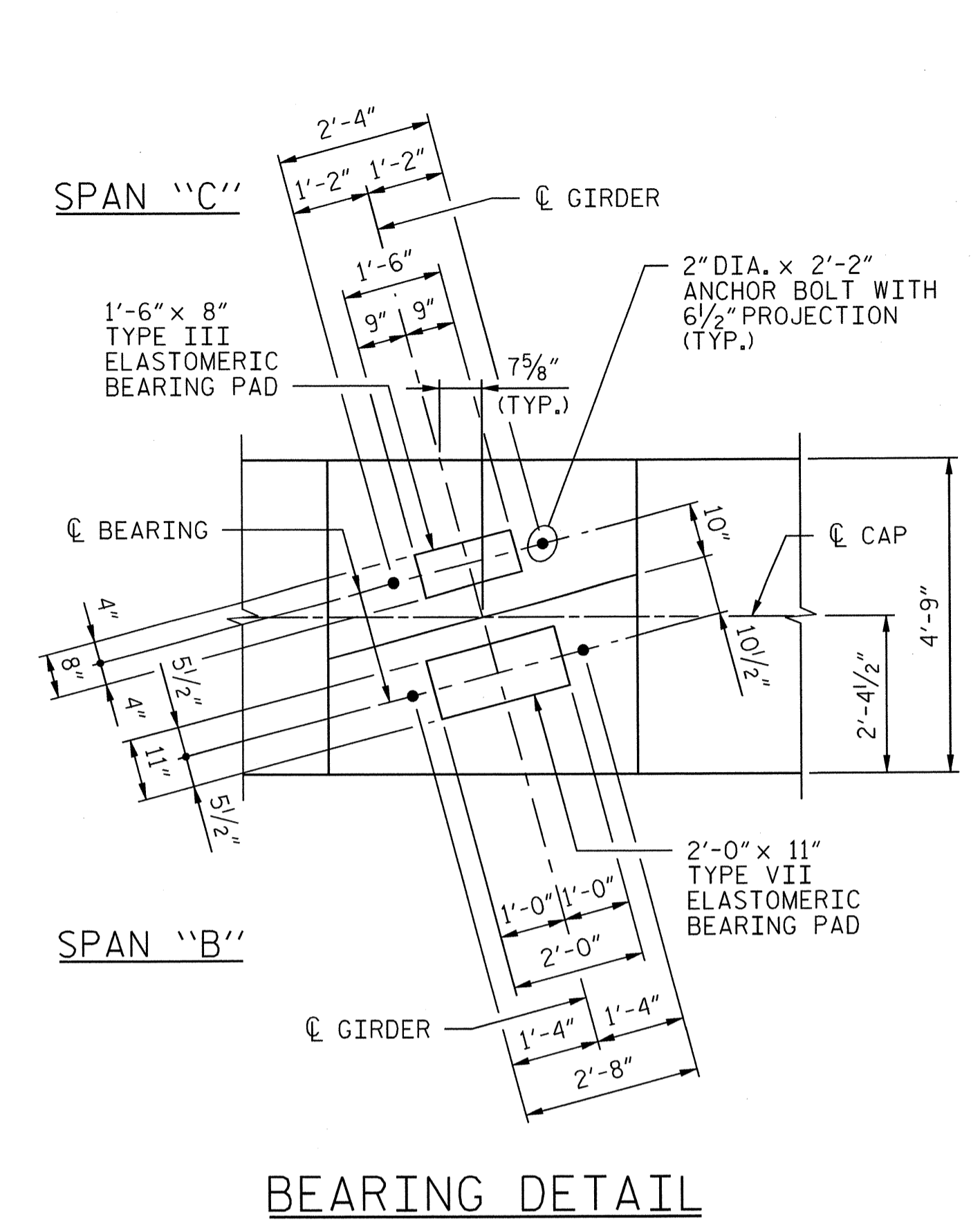
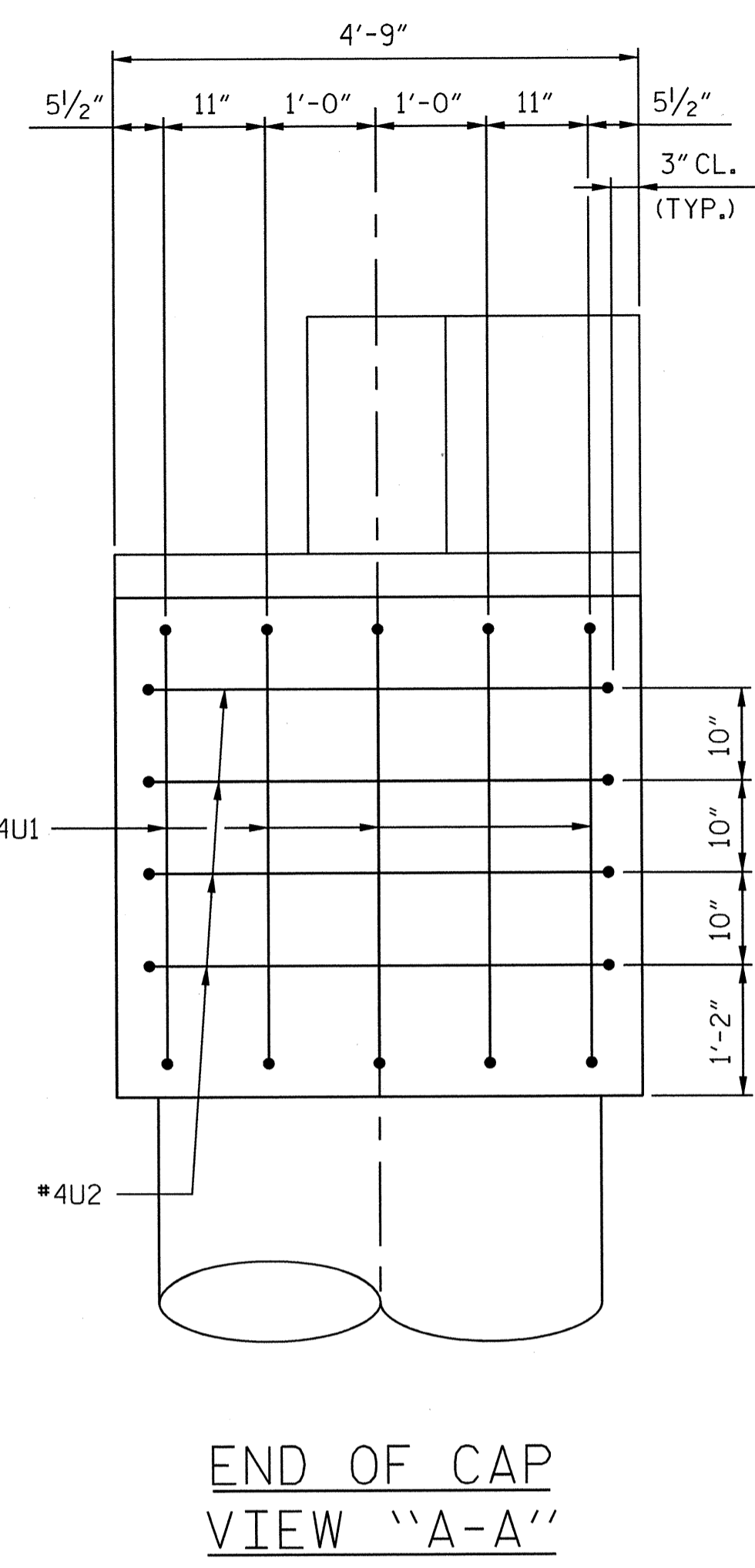
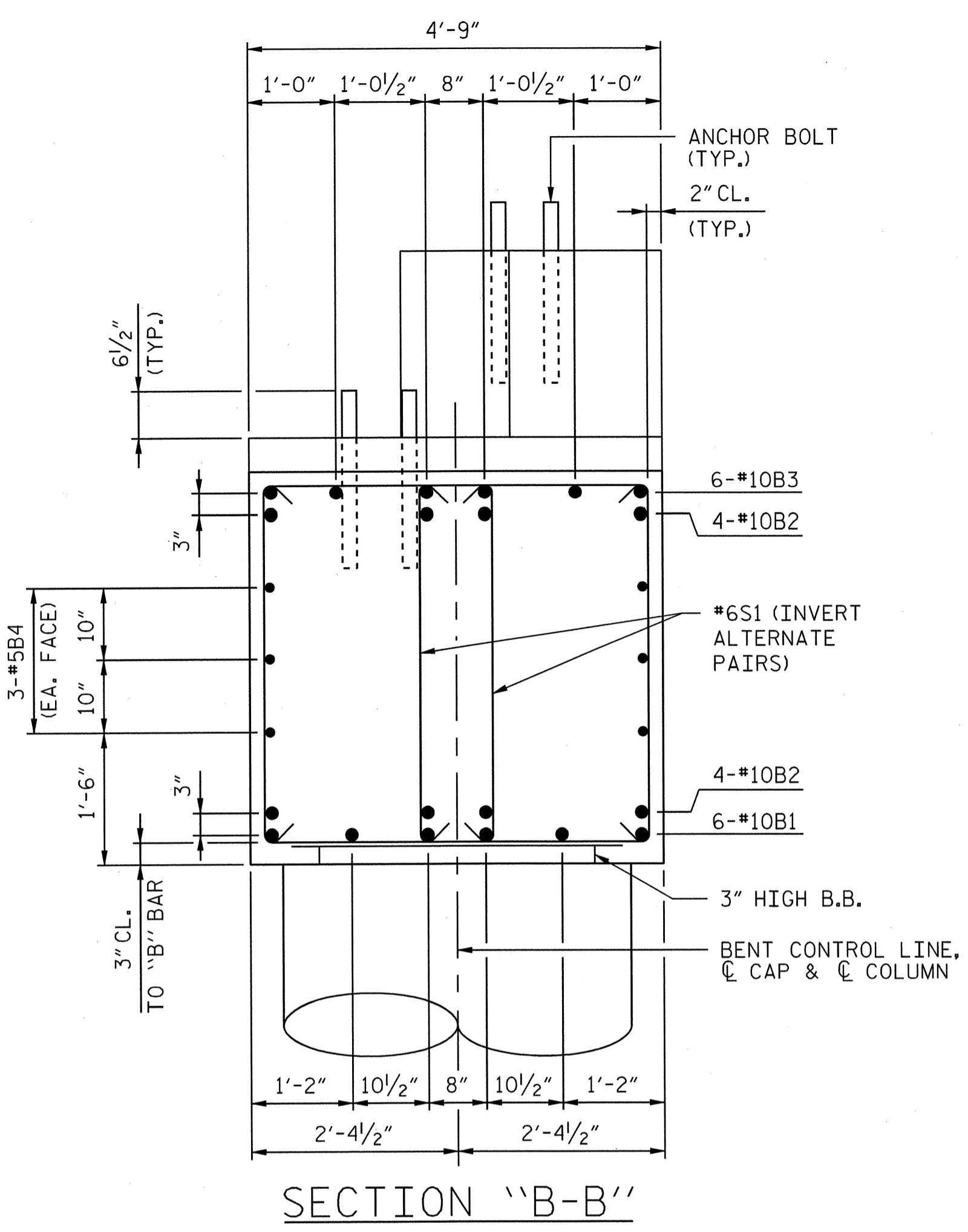
NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
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 701 CORPORATE CENTER DRIVE, SUITE 475
 RALEIGH, NC 27607
 (919) 854-6200
 AECOM License No. F-0342

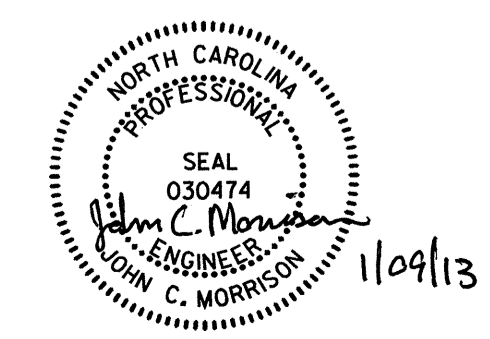
PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 2 (1 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-B
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
DRAWING		S-53	
SHEET		53 OF 72	

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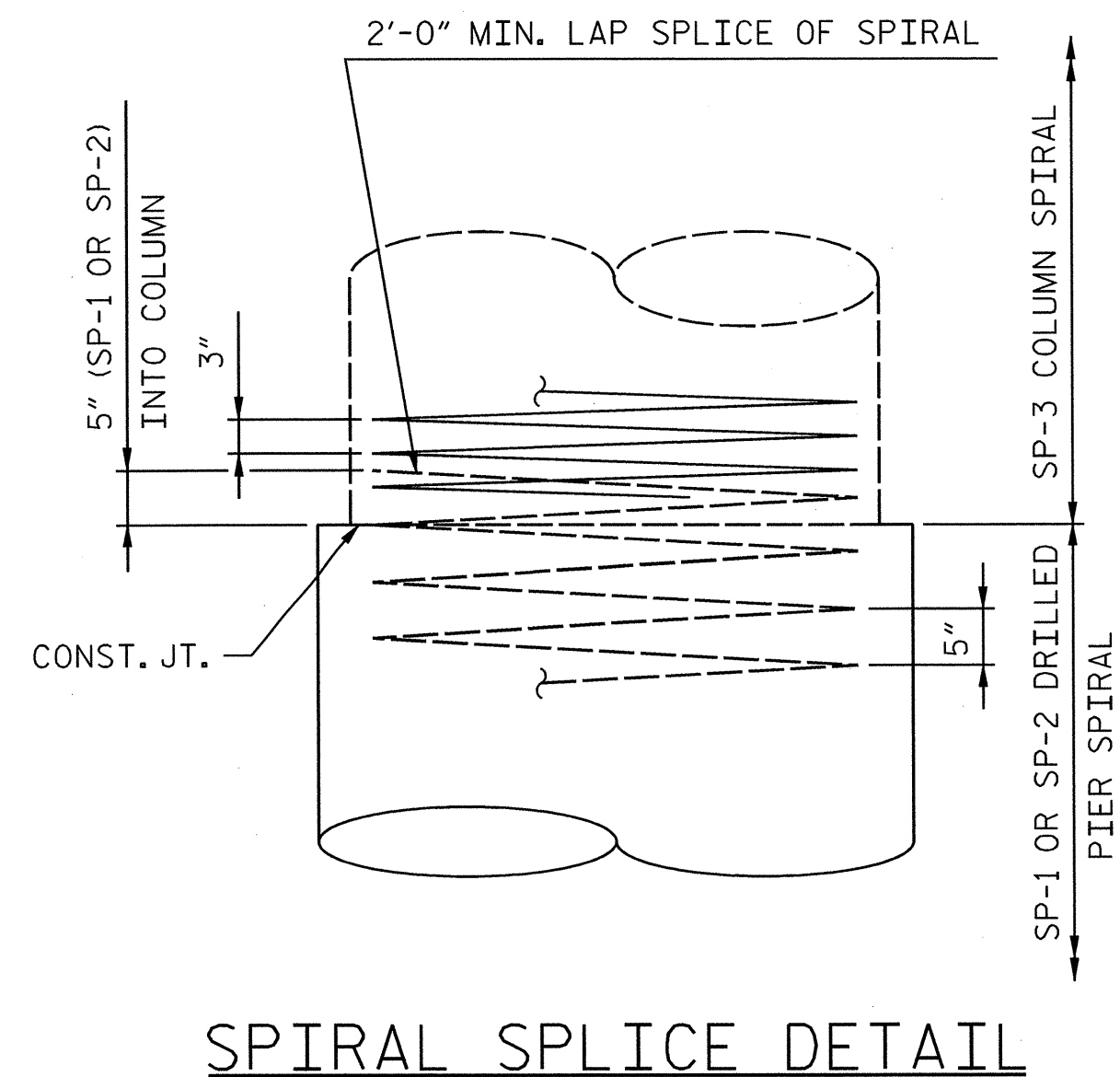
- ⊗ #11V1 (COLUMN)
- #11V2 (COLUMN)
- #11M1 (DRILLED PIER)

NO.	BY	DATE	REVISION

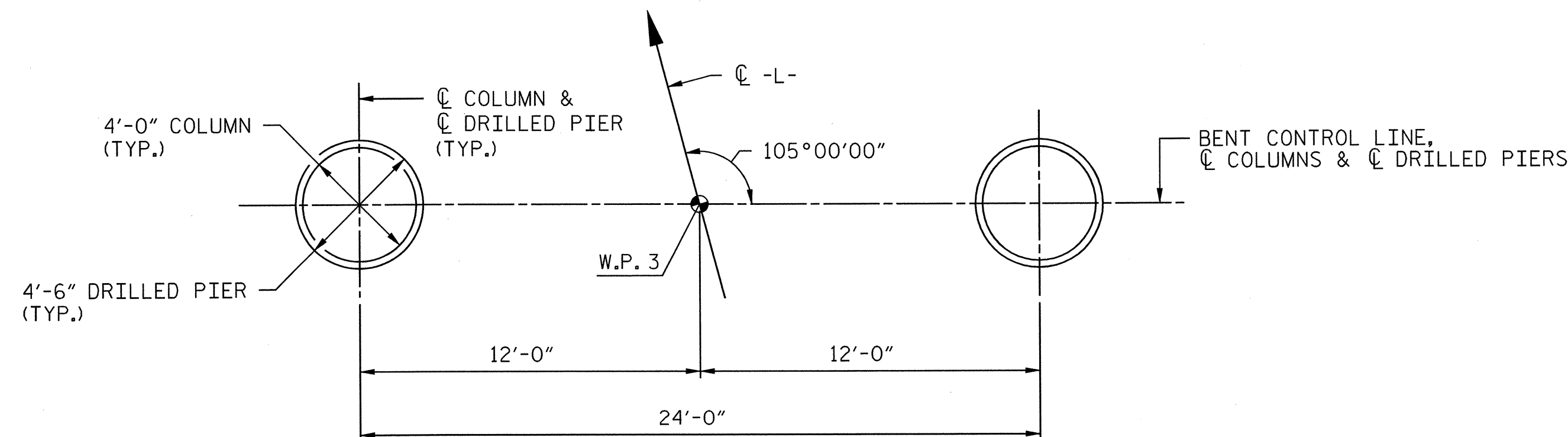


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 (919) 854-4200 www.aecom.com
 AECOM License No. F-0342

PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 2 (2 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS /NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
DRAWING		S-54	
SHEET		EA OF 72	



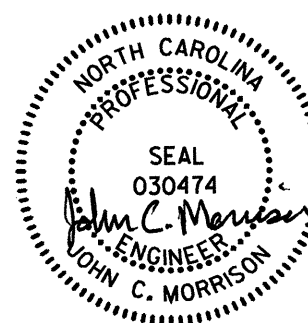
SPIRAL SPLICE DETAIL



PLAN OF DRILLED PIERS

BAR TYPES					BILL OF MATERIAL																																																																			
					BENT 2																																																																			
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT																																																													
						B1	6	#10	STR	36'-8"	947																																																													
						B2	8	#10	STR	36'-8"	1262																																																													
						B3	6	#10	(1)	39'-6"	1020																																																													
						B4	6	#5	STR	36'-8"	229																																																													
						M1	24	#11	STR	38'-4"	4888																																																													
						M2	24	#11	STR	31'-4"	3995																																																													
						S1	98	#6	(2)	11'-9"	1730																																																													
						U1	10	#4	(3)	7'-0"	47																																																													
						U2	8	#4	(3)	7'-3"	39																																																													
						U3	32	#4	(3)	7'-3"	155																																																													
						U4	8	#4	(3)	7'-4"	39																																																													
						U5	8	#4	(3)	11'-8"	62																																																													
						U101	4	#4	(3)	8'-11"	24																																																													
						U102	4	#4	(3)	9'-9"	26																																																													
						U103	4	#4	(3)	9'-7"	26																																																													
						U104	4	#4	(3)	9'-5"	26																																																													
						U105	4	#4	(3)	9'-3"	24																																																													
						U106	4	#4	(3)	9'-1"	24																																																													
						U107	4	#4	(3)	8'-11"	24																																																													
						U108	4	#4	(3)	8'-9"	24																																																													
						U109	4	#4	(3)	11'-8"	31																																																													
						V1	24	#11	(4)	42'-9"	5451																																																													
						V2	24	#11	STR	30'-0"	3825																																																													
					<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">REINFORCING STEEL</th> <th>LBS.</th> <th>23917</th> </tr> </thead> <tbody> <tr> <td>SP-1</td> <td>1</td> <td>**</td> <td>(5)</td> <td>840'-6"</td> <td>877</td> <td></td> </tr> <tr> <td>SP-2</td> <td>1</td> <td>**</td> <td>(5)</td> <td>645'-7"</td> <td>673</td> <td></td> </tr> <tr> <td>SP-3</td> <td>2</td> <td>***</td> <td>(5)</td> <td>1799'-9"</td> <td>2405</td> <td></td> </tr> </tbody> </table>					REINFORCING STEEL					LBS.	23917	SP-1	1	**	(5)	840'-6"	877		SP-2	1	**	(5)	645'-7"	673		SP-3	2	***	(5)	1799'-9"	2405																																				
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ALL BAR DIMENSIONS ARE OUT TO OUT.



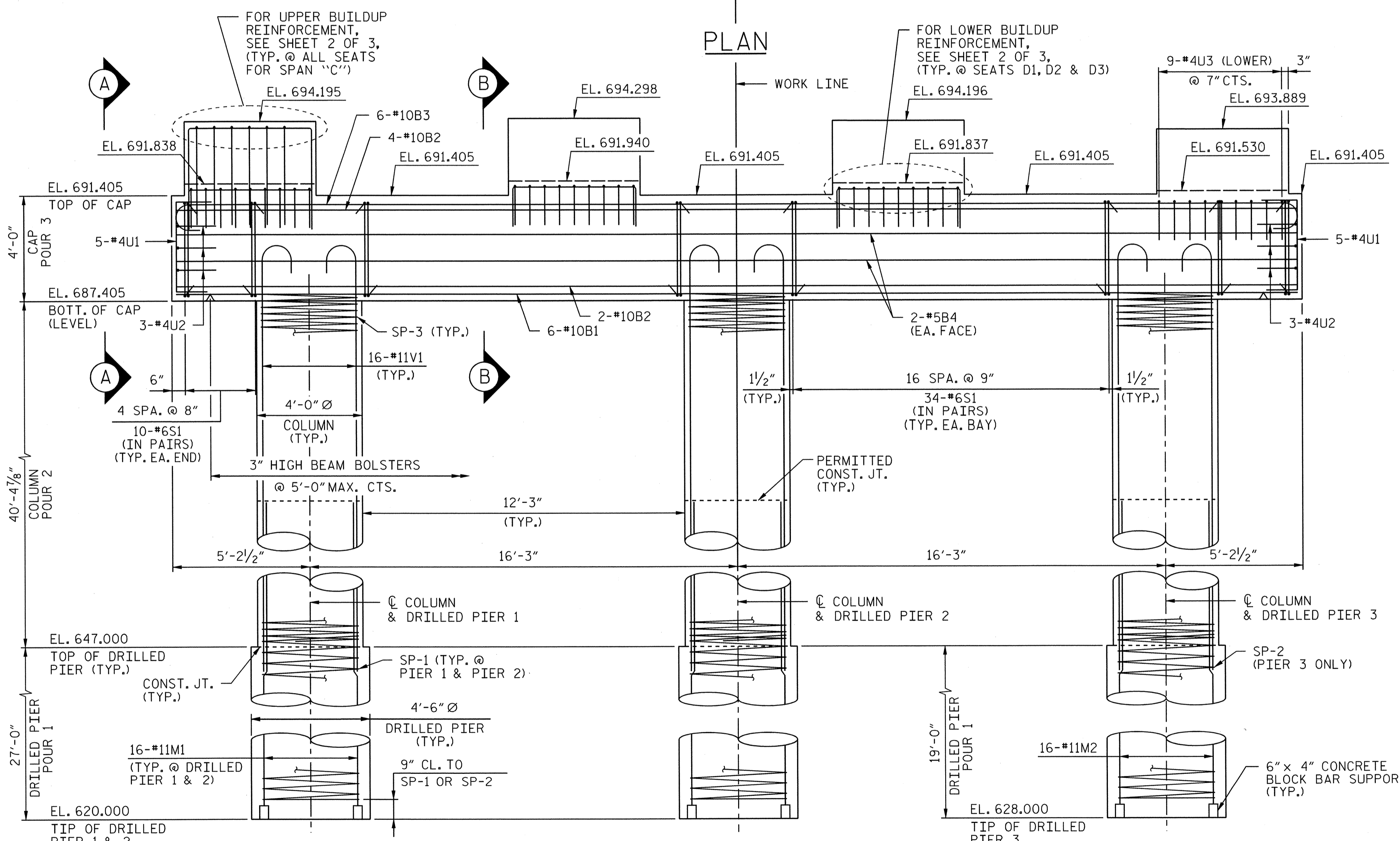
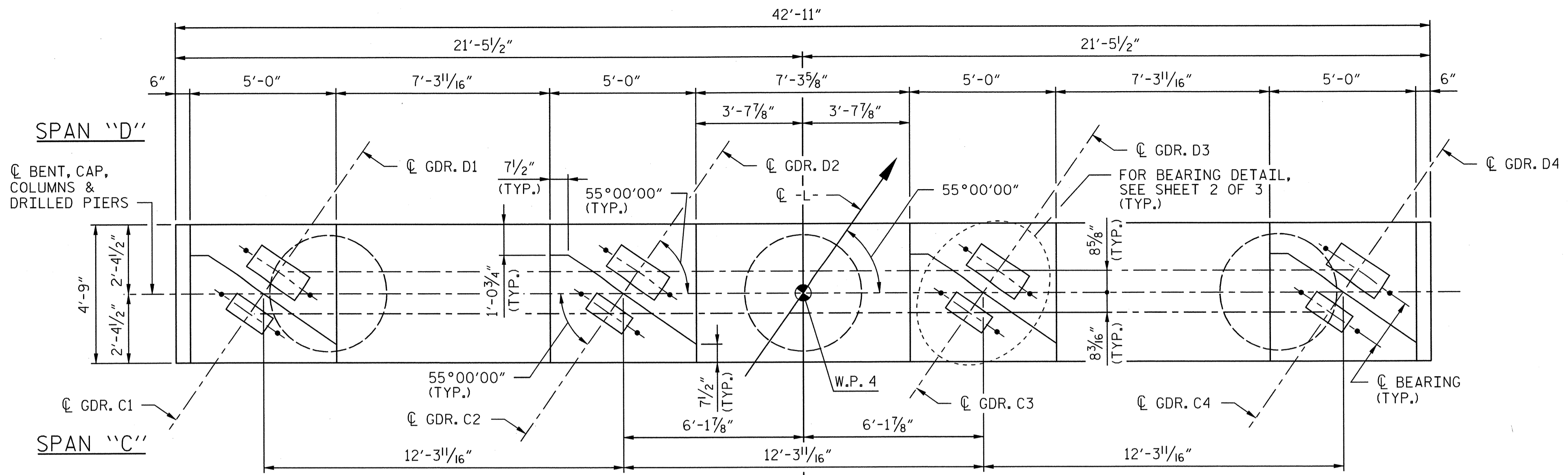
11/09/13

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

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(919) 854-4200 www.aecom.com
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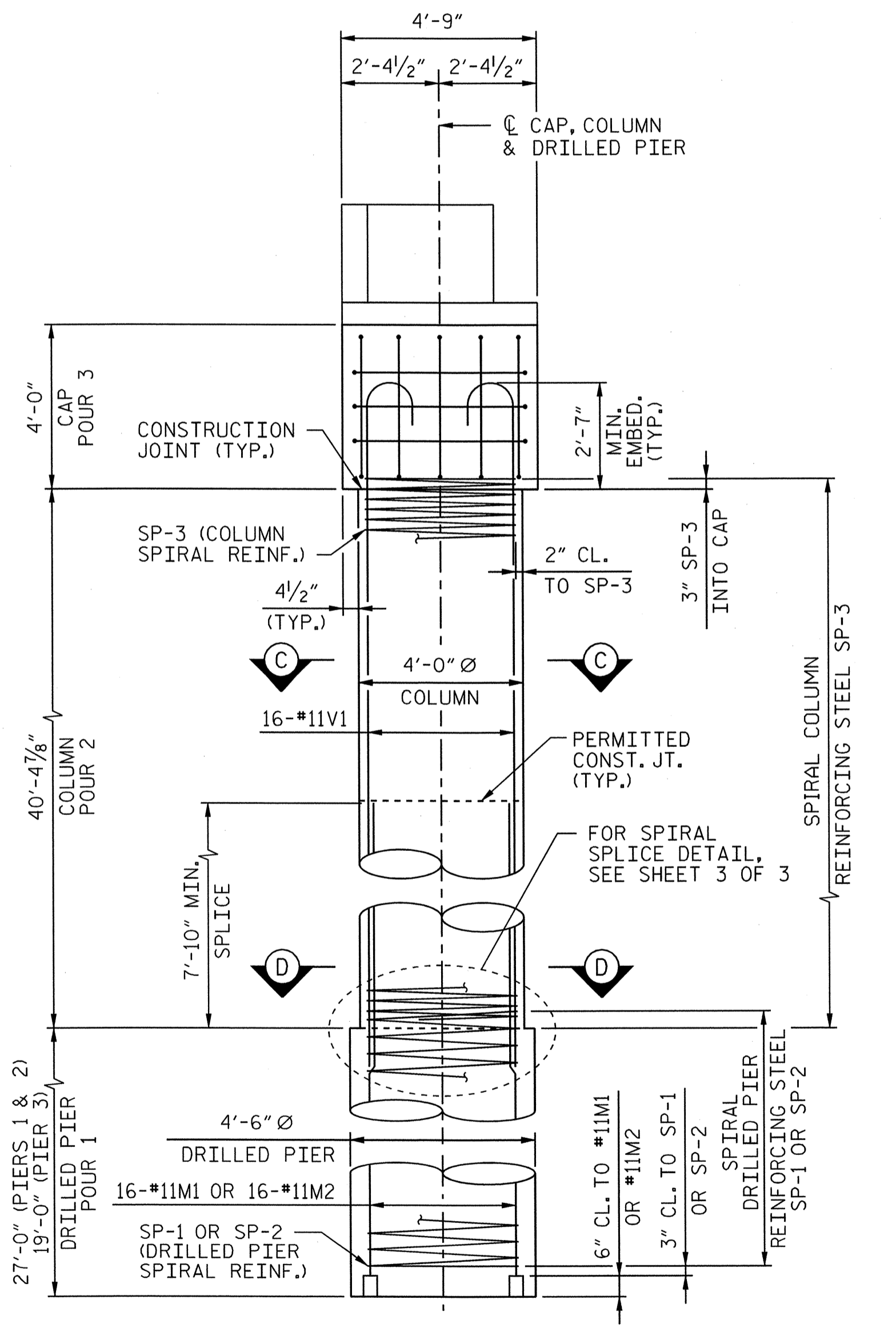
PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 2 (3 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 1014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
		SHEET 55 OF 72	

NO.	BY	DATE	REVISION



NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
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- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIERS WILL NOT BE PERMITTED.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.
- INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP..



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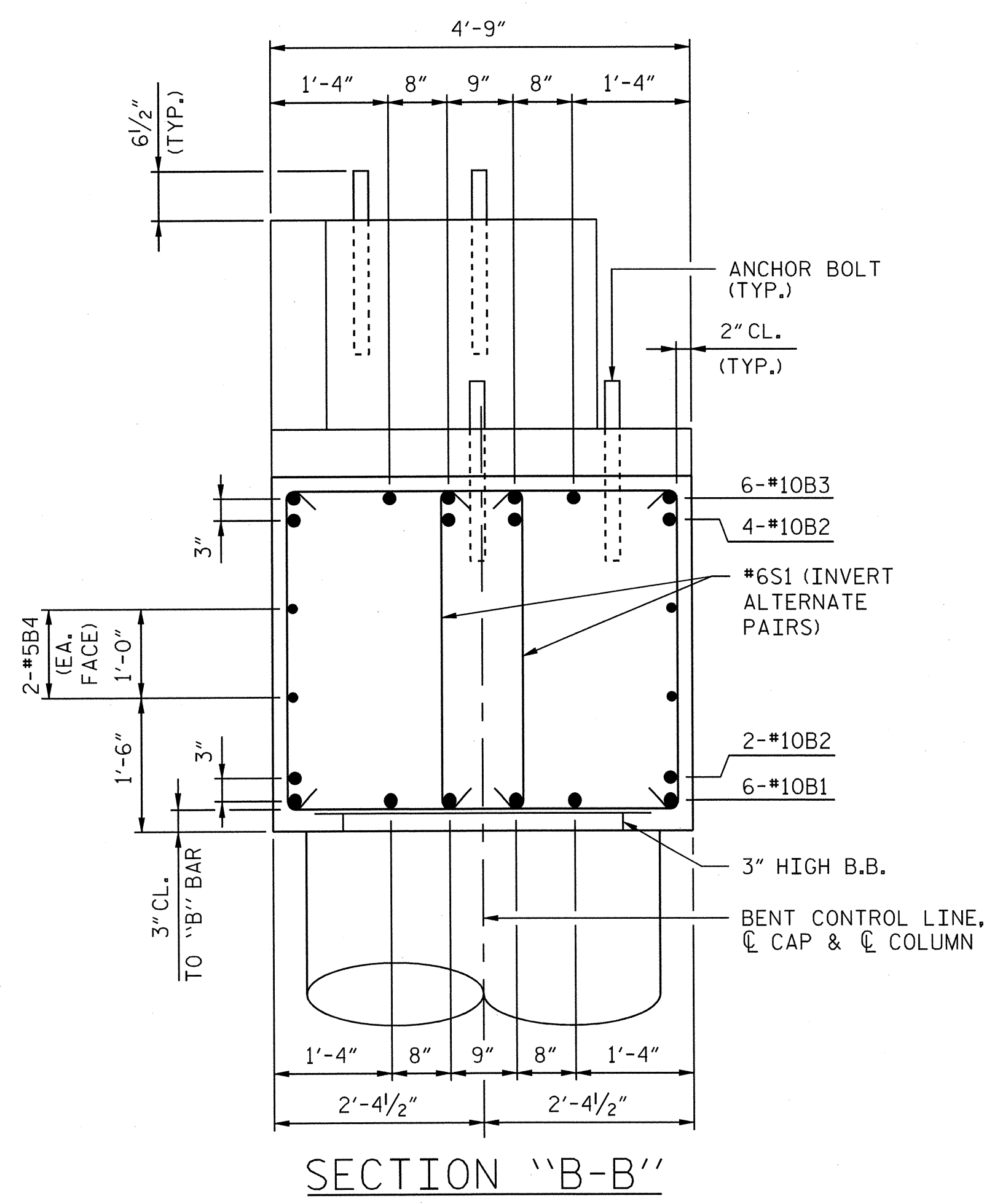
NO.	BY	DATE	REVISION

SEAL 030474
 JOHN C. MORRISON
 11/09/13

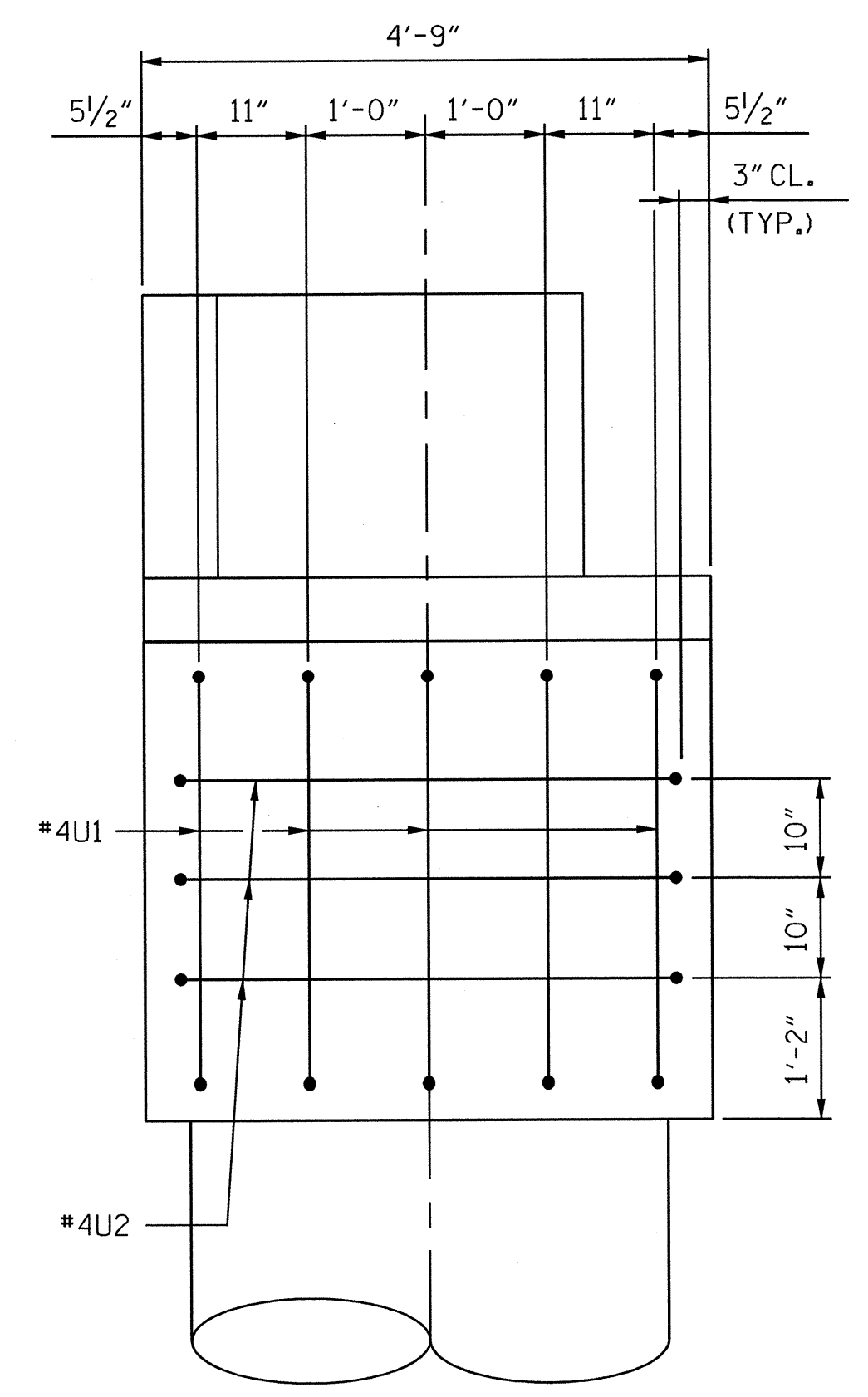
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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 RALEIGH, NC 27607
 (919) 854-6200 www.aecom.com
 AECOM License No. F26262

PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 3 (1 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
DRAWING		S-56	
SHEET		OF 72	

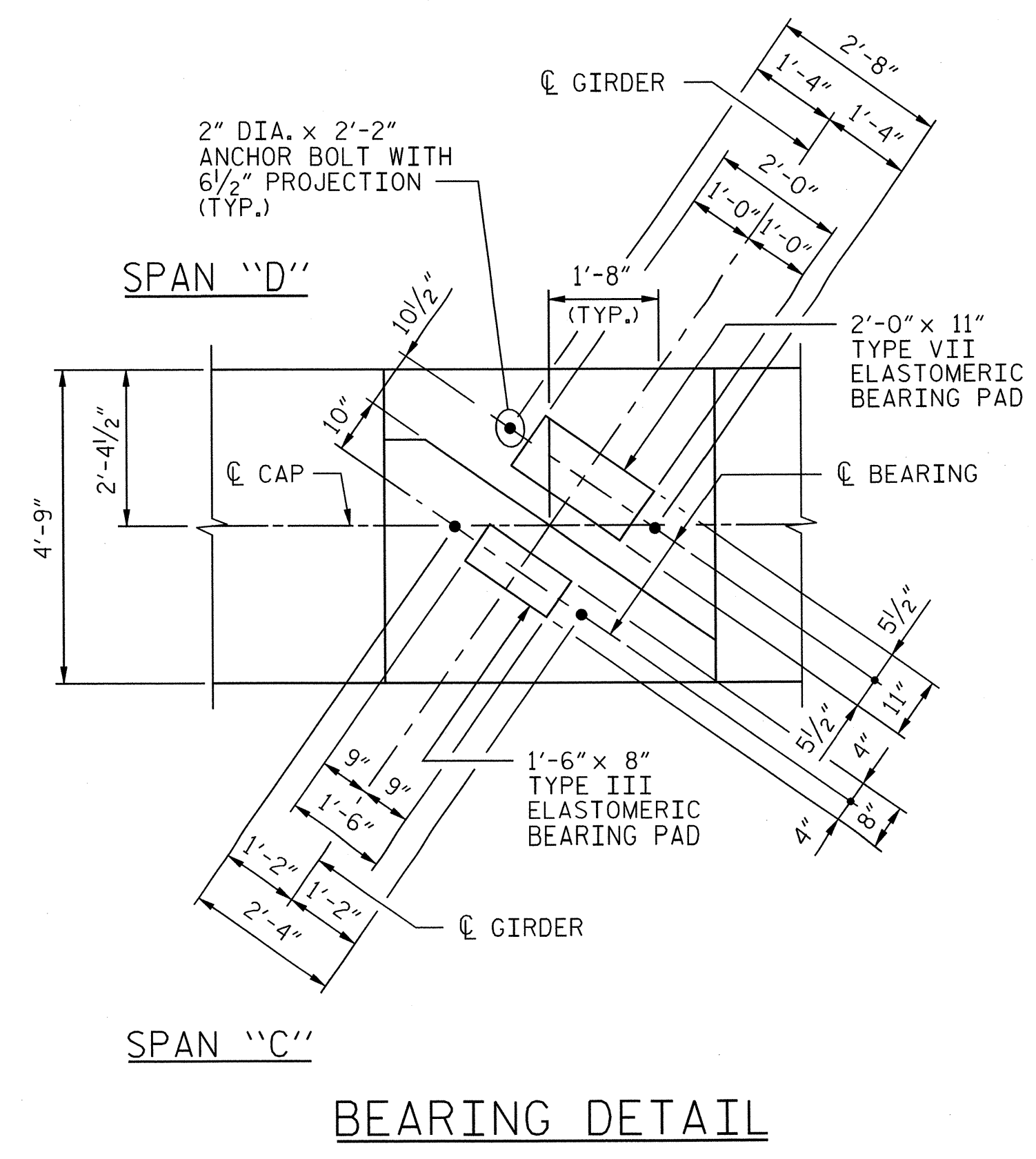
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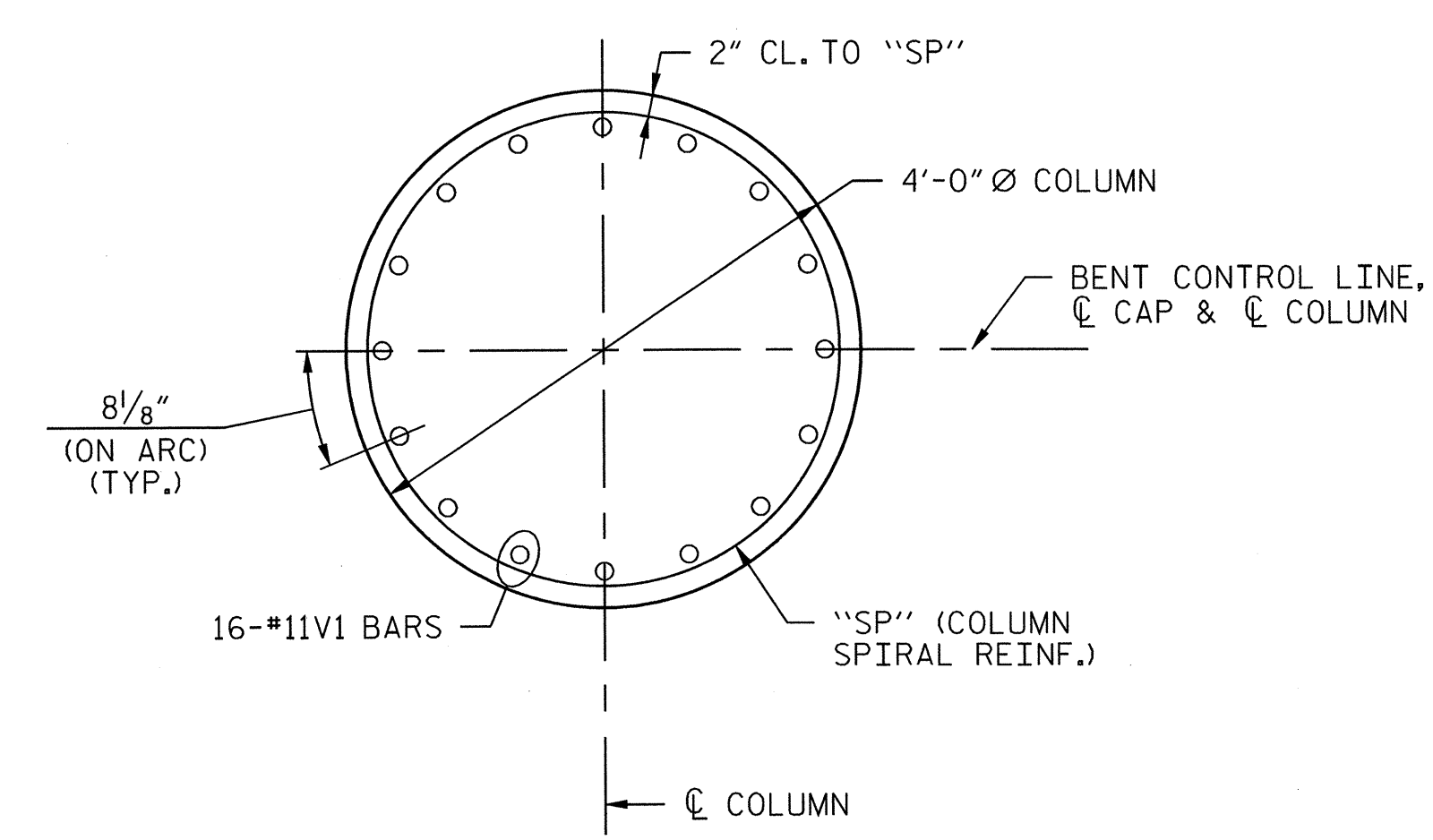
SECTION "B-B"



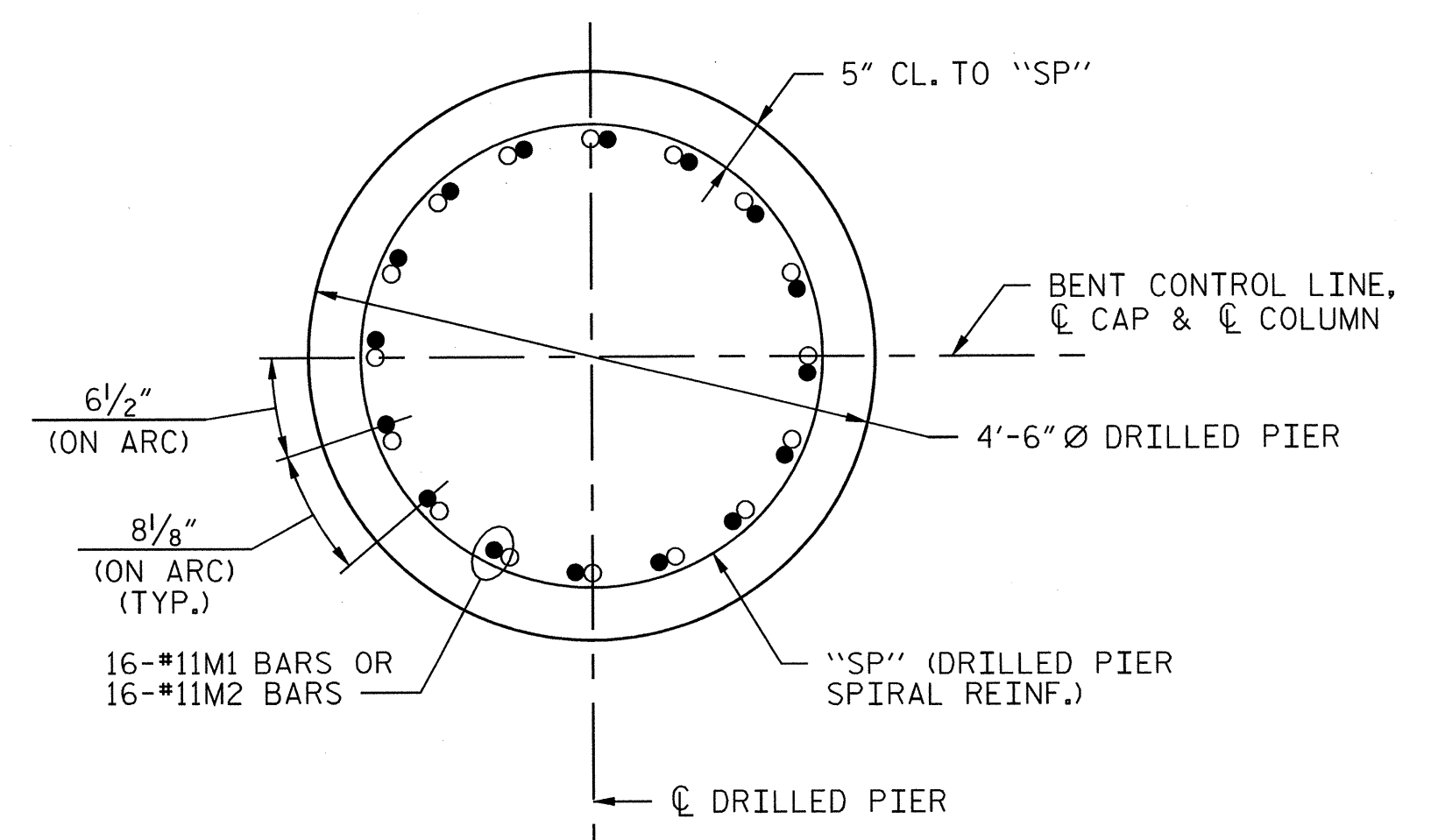
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VIEW "A-A"



BEARING DETAIL

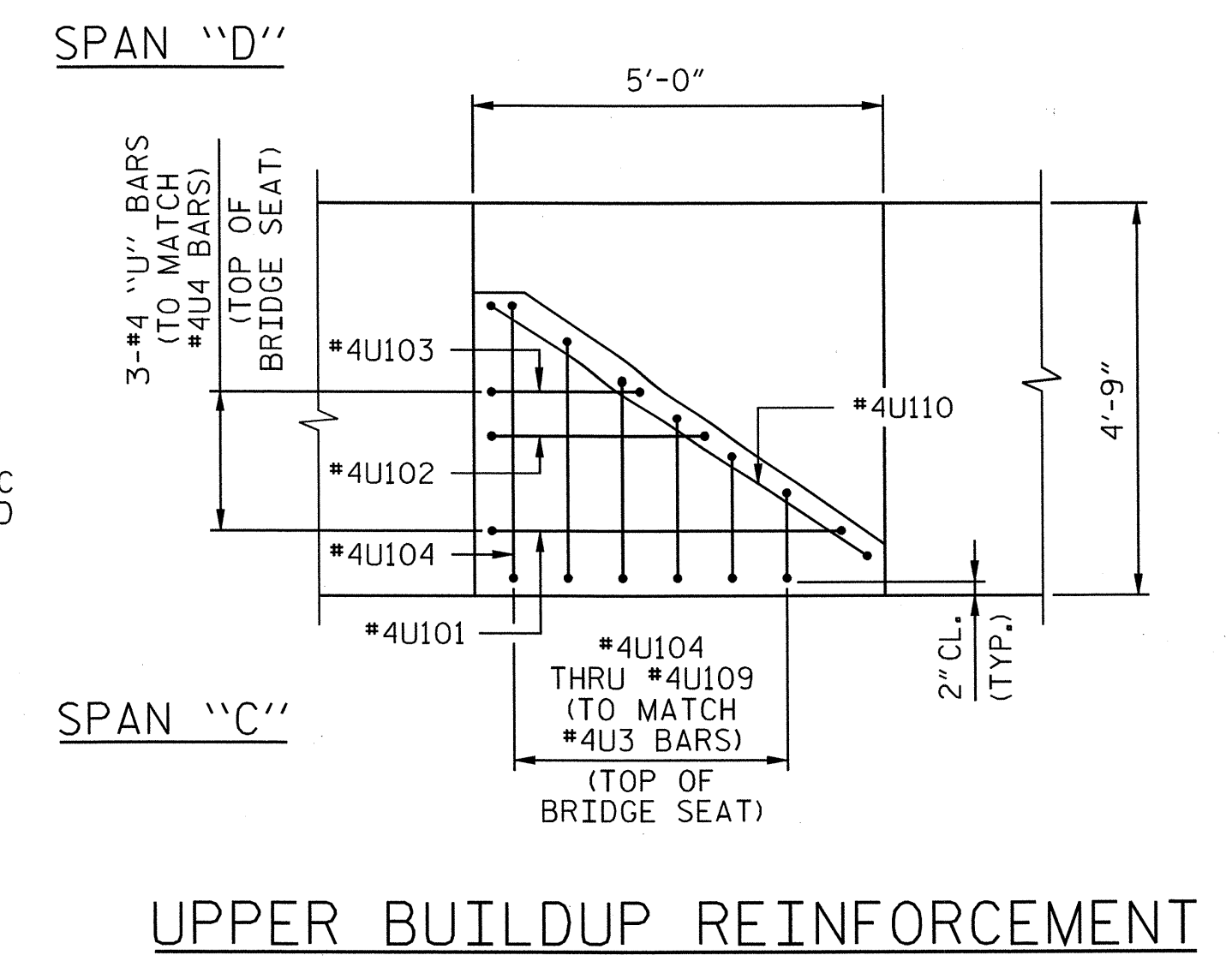


SECTION "C-C"

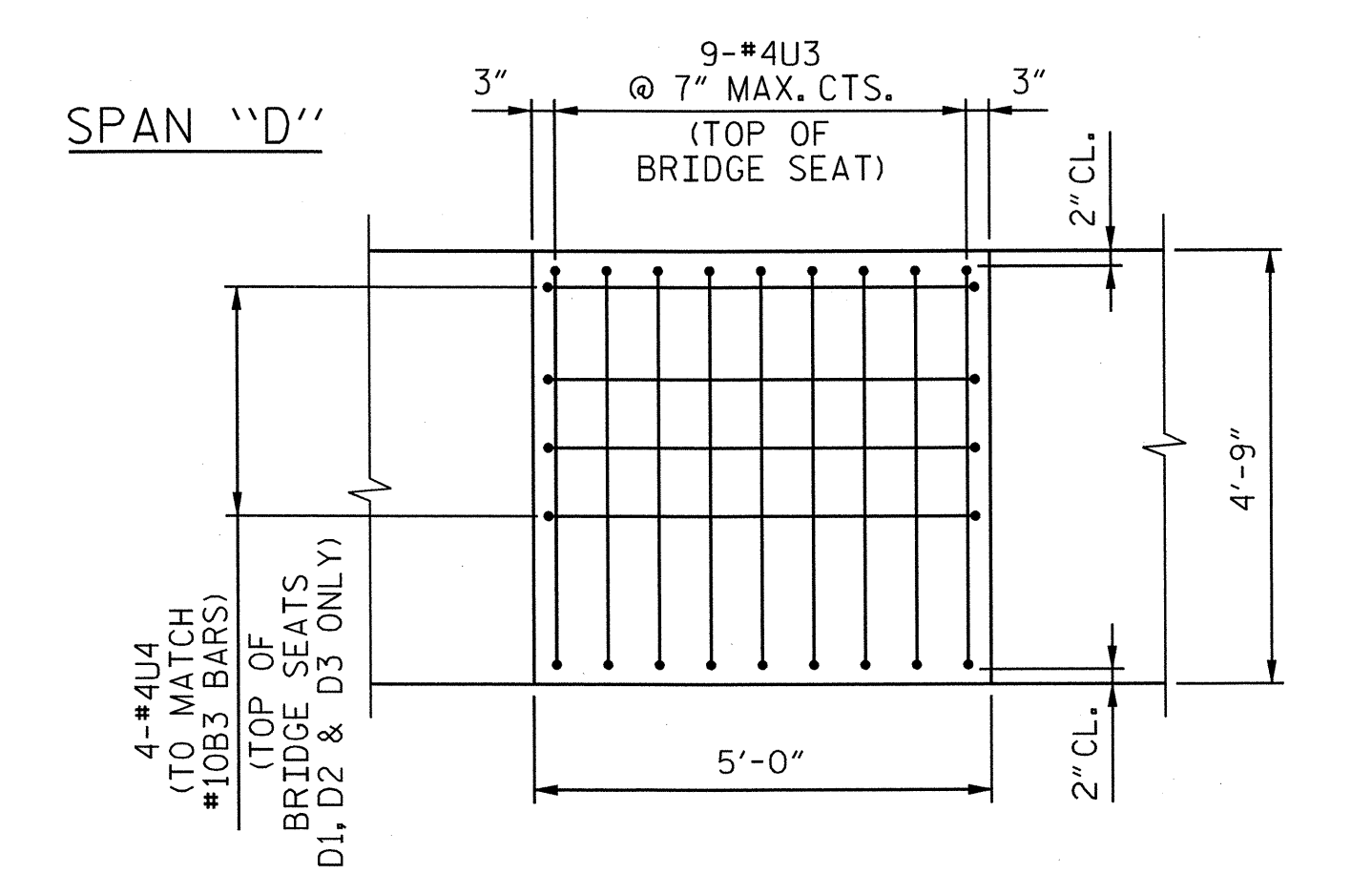


SECTION "D-D"

- #11V1 (COLUMN)
- #11M1 OR #11M2 (DRILLED PIER)

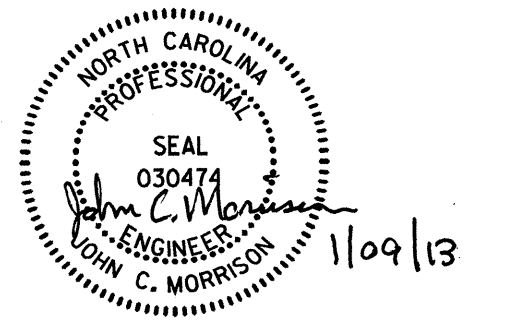


UPPER BUILDUP REINFORCEMENT



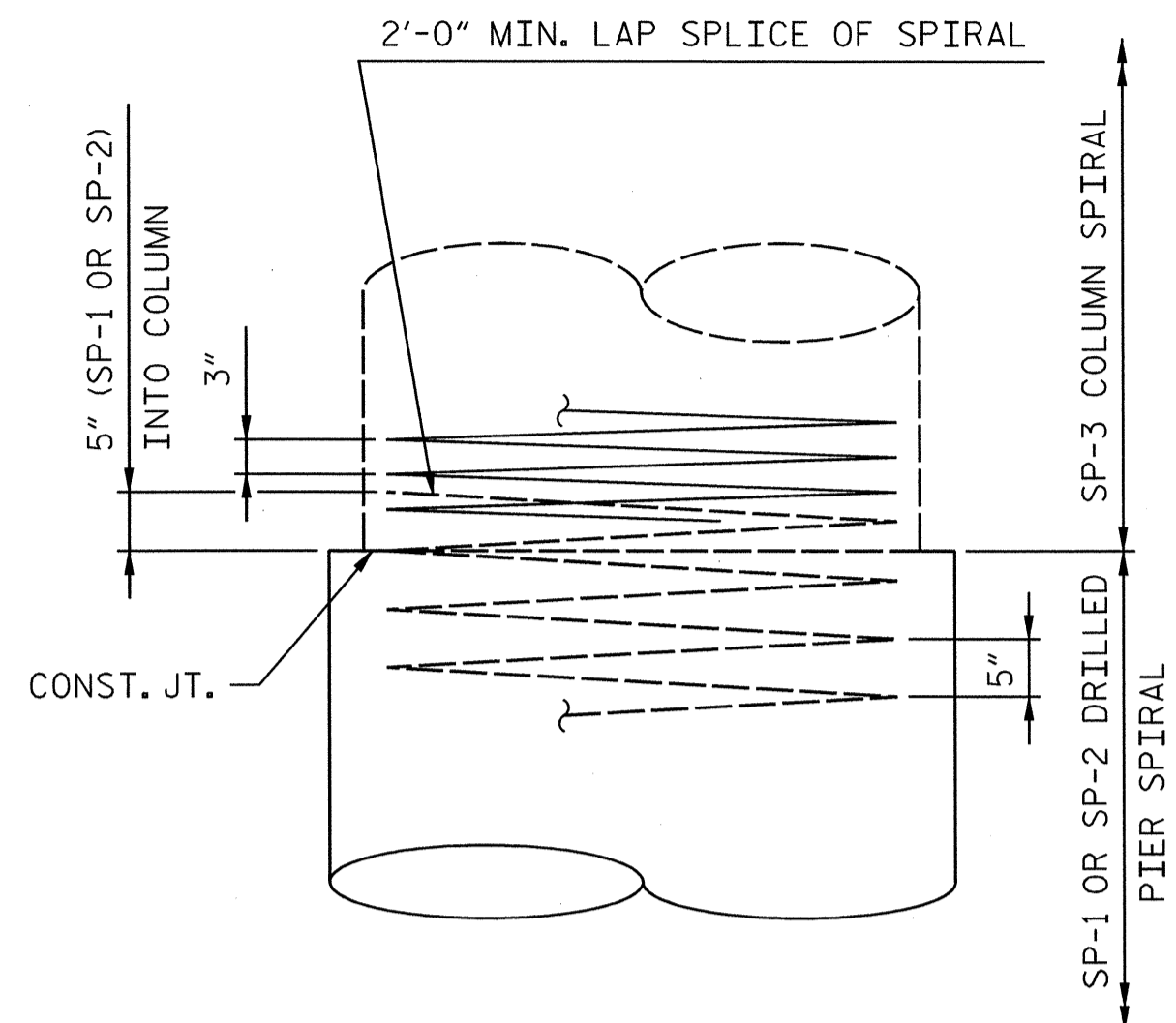
LOWER BUILDUP REINFORCEMENT

NO.	BY	DATE	REVISION

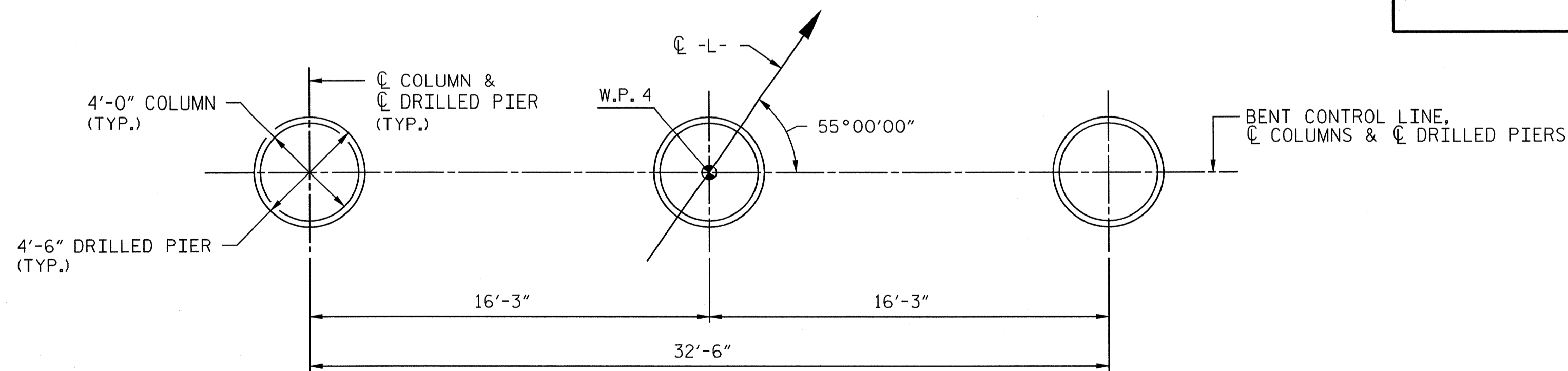


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PROJECT	C-4901C		
TITLE	SUBSTRUCTURE BENT 3 (2 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V-5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	3/8" = 1'-0"		
DRAWING			S-57
SHEET			57 OF 72



SPIRAL SPLICE DETAIL



PLAN OF DRILLED PIERS

BAR TYPES

4U4	4'-8"
4U3	4'-5"
4U2	4'-3"
4U110	5'-5"
4U109	1'-0"
4U108	1'-6"
4U107	2'-0"
4U106	2'-6"
4U105	2'-9"
4U104	3'-3"
4U103	1'-9"
4U102	2'-7"
4U101	4'-3"
4U1	3'-6"

4U101 THRU 4U110
4U1, 4U2, 4U3 & 4U4

BILL OF MATERIAL

BENT 3

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	STR	42'-7"	1099
B2	6	#10	STR	42'-7"	1099
B3	6	#10	①	45'-5"	1173
B4	4	#5	STR	42'-7"	178
M1	32	#11	STR	37'-4"	6347
M2	16	#11	STR	29'-4"	2494
S1	88	#6	②	10'-9"	1421
U1	10	#4	③	6'-6"	43
U2	6	#4	③	7'-3"	29
U3	36	#4	③	7'-3"	174
U4	12	#4	③	7'-8"	61
U101	4	#4	③	11'-7"	31
U102	4	#4	③	9'-11"	26
U103	4	#4	③	9'-1"	24
U104	4	#4	③	10'-7"	28
U105	4	#4	③	10'-1"	27
U106	4	#4	③	9'-10"	26
U107	4	#4	③	9'-4"	25
U108	4	#4	③	8'-10"	24
U109	4	#4	③	8'-4"	22
U110	4	#4	③	12'-9"	34
V1	48	#11	④	44'-7"	11370

REINFORCING STEEL					LBS.	25755
SP-1	2	**	⑤	816'-1"	1702	
SP-2	1	**	⑤	584'-8"	610	
SP-3	3	***	⑤	1890'-11"	3789	

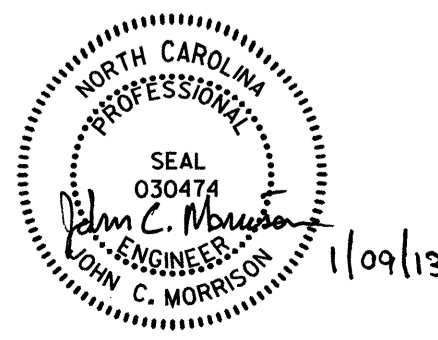
SPIRAL REINFORCING STEEL					LBS.	4838
** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.						
*** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W40 OR D-40 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.						

BENT 3 TOTAL QUANTITIES

CLASS A CONCRETE		
POUR 2 (COLUMNS)	C.Y.	56.4
POUR 3 (CAP)	C.Y.	35.6
TOTAL CLASS A CONCRETE C.Y. 92.0		
DRILLED PIERS, CONCRETE		
POUR 1	C.Y.	43.0
4'-6" Ø DRILLED PIERS IN SOIL	LIN. FT.	31.0
4'-6" Ø DRILLED PIERS NOT IN SOIL	LIN. FT.	42.0
CSL TUBES	LIN. FT.	310.0
PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIERS	LIN. FT.	24.0

ALL BAR DIMENSIONS ARE OUT TO OUT.

NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

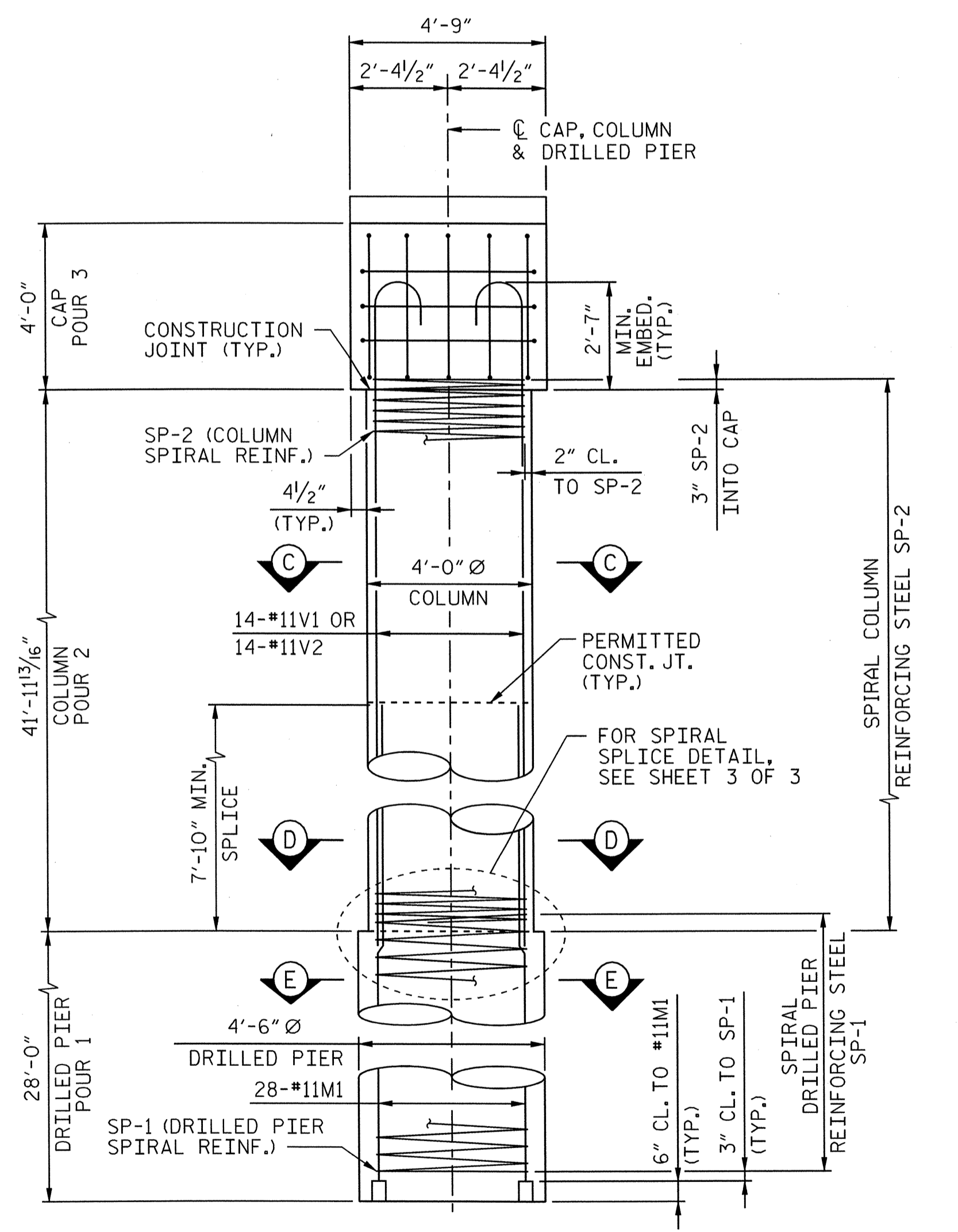
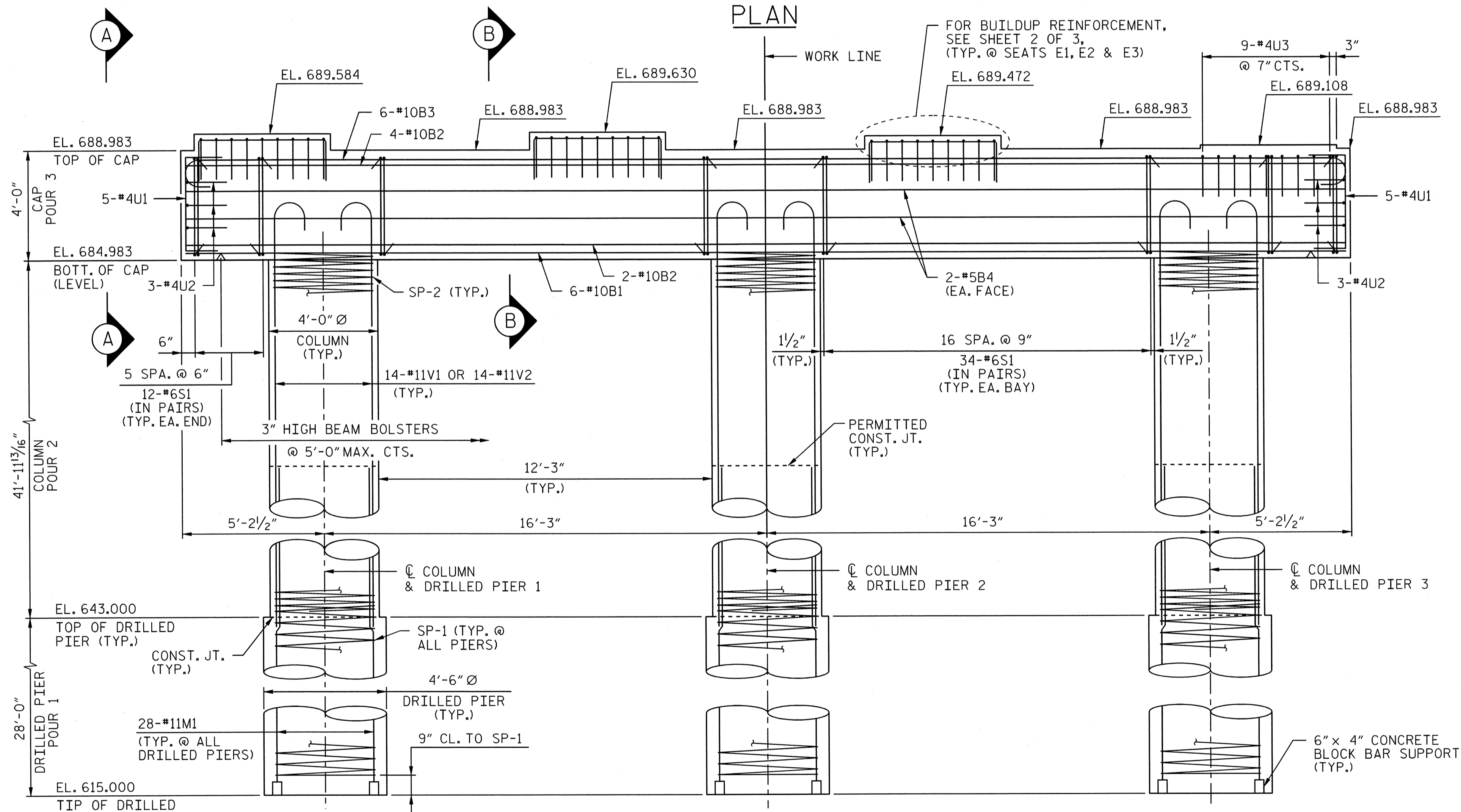
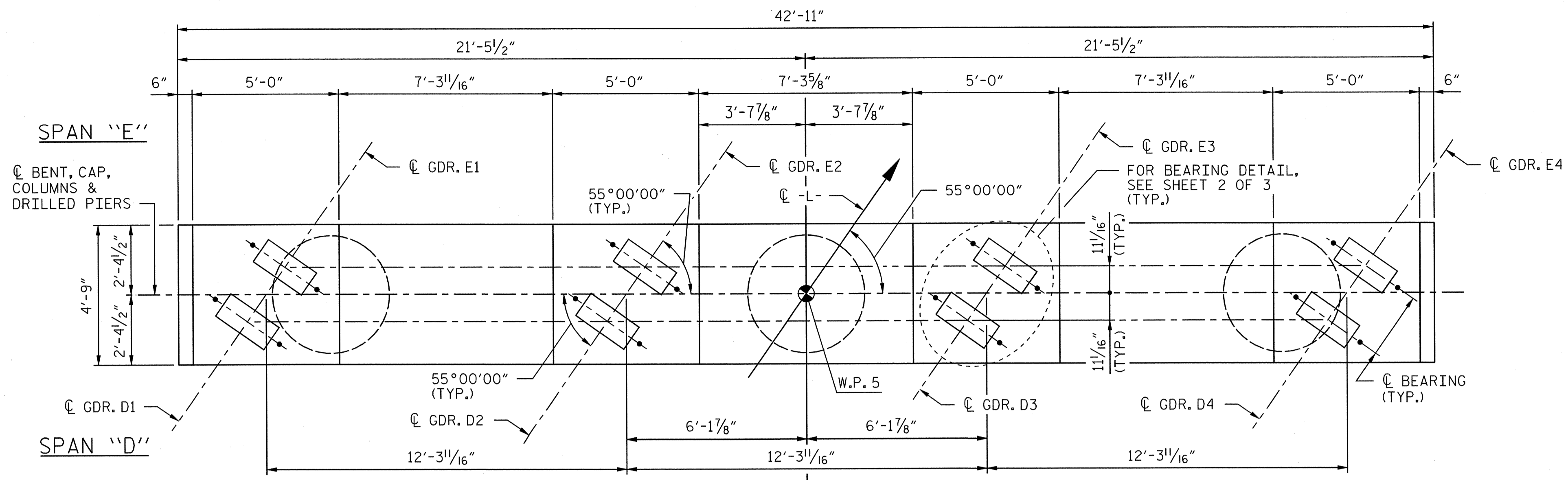
RAIL DIVISION

PREPARED BY: **AECOM**

AECOM TECHNICAL SERVICES, INC.
701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-6342

PROJECT	C-4901C		
TITLE	SUBSTRUCTURE BENT 3 (3 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	3/8" = 1'-0"
		DRAWING	S-58
		SHEET 58 OF 72	

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NOTES:

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCEMENT 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.
- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIERS WILL NOT BE PERMITTED.
- THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.
- INVERT ALTERNATE STIRRUP PAIRS IN BENT CAP.

NO.	BY	DATE	REVISION

11/09/13

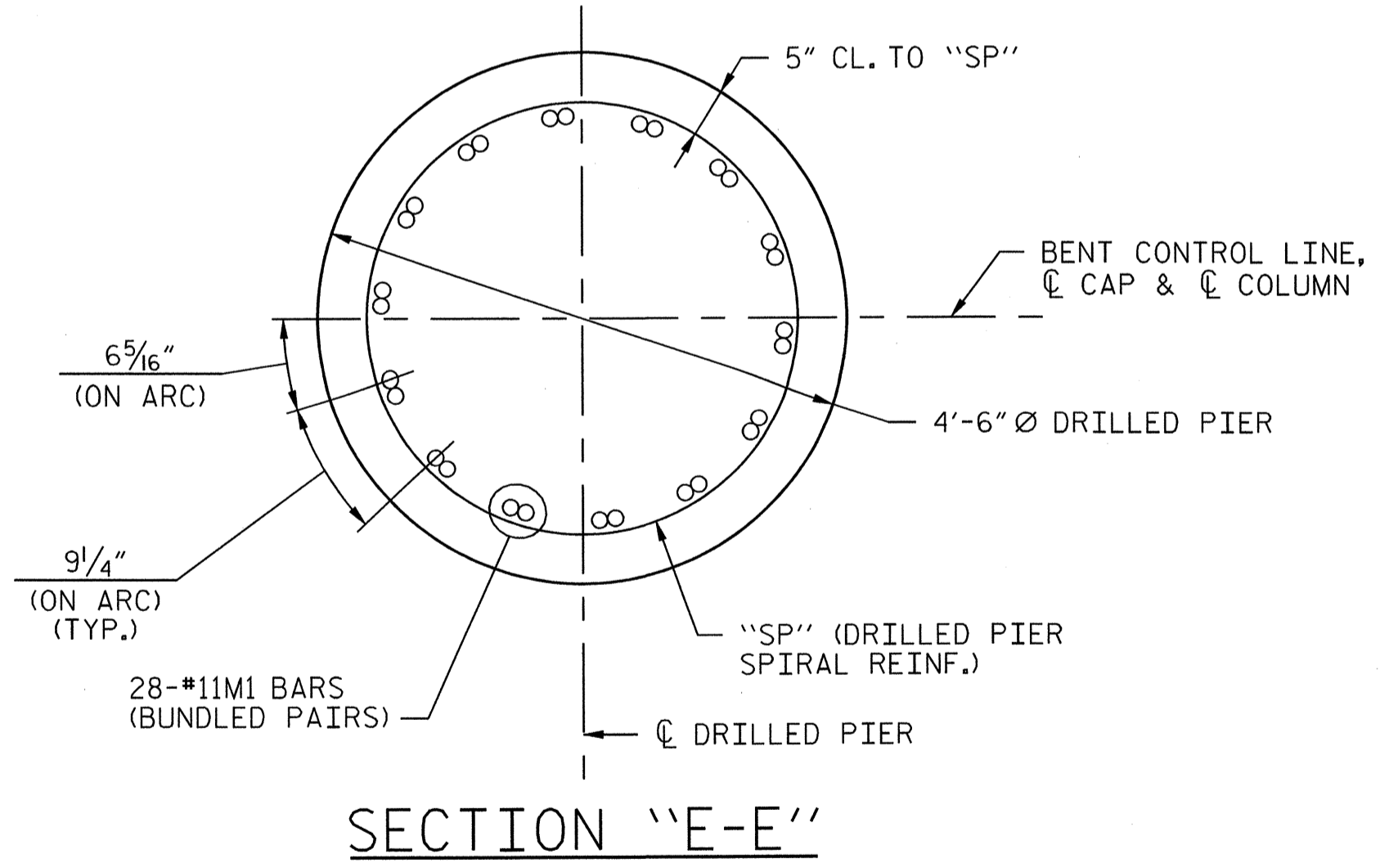
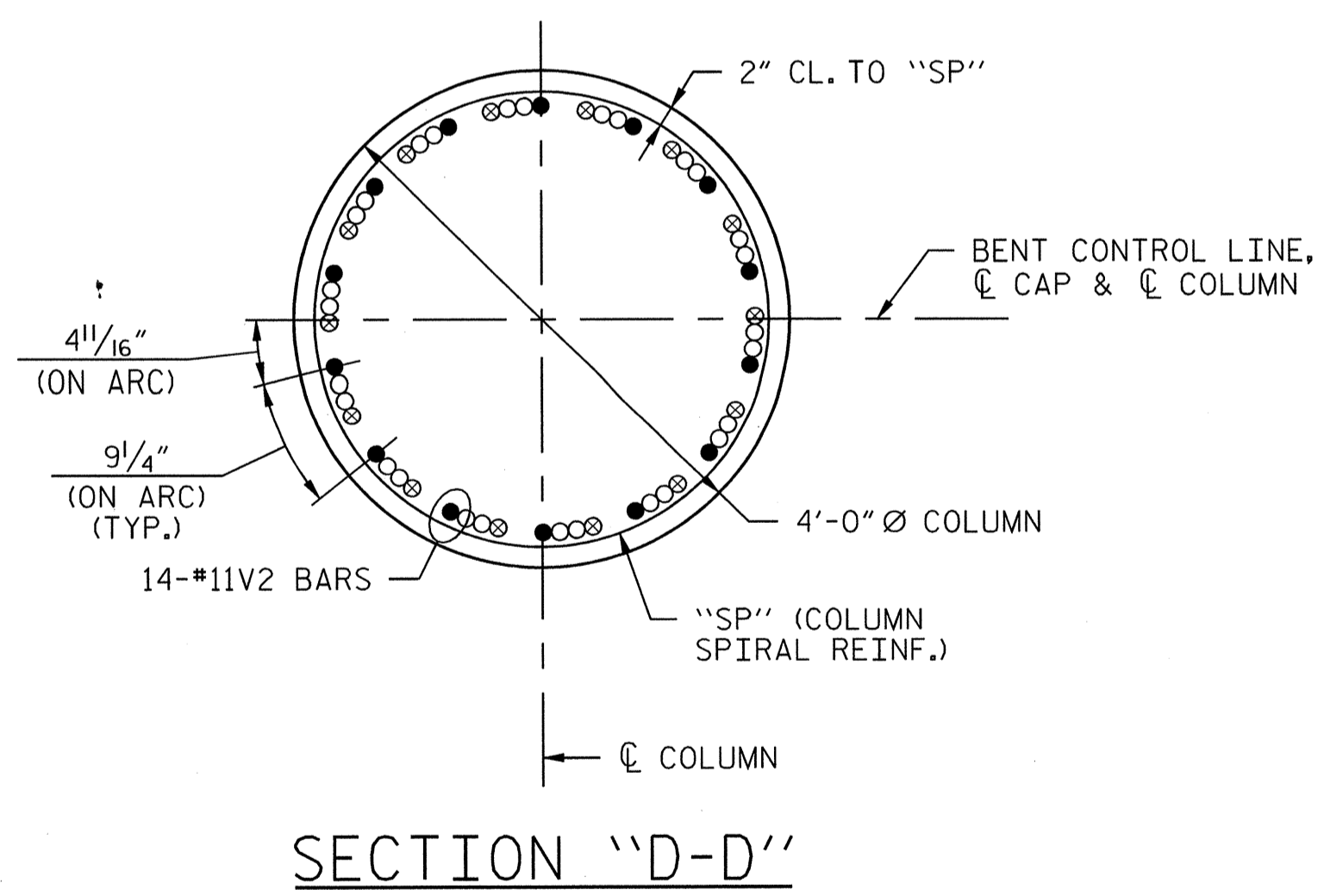
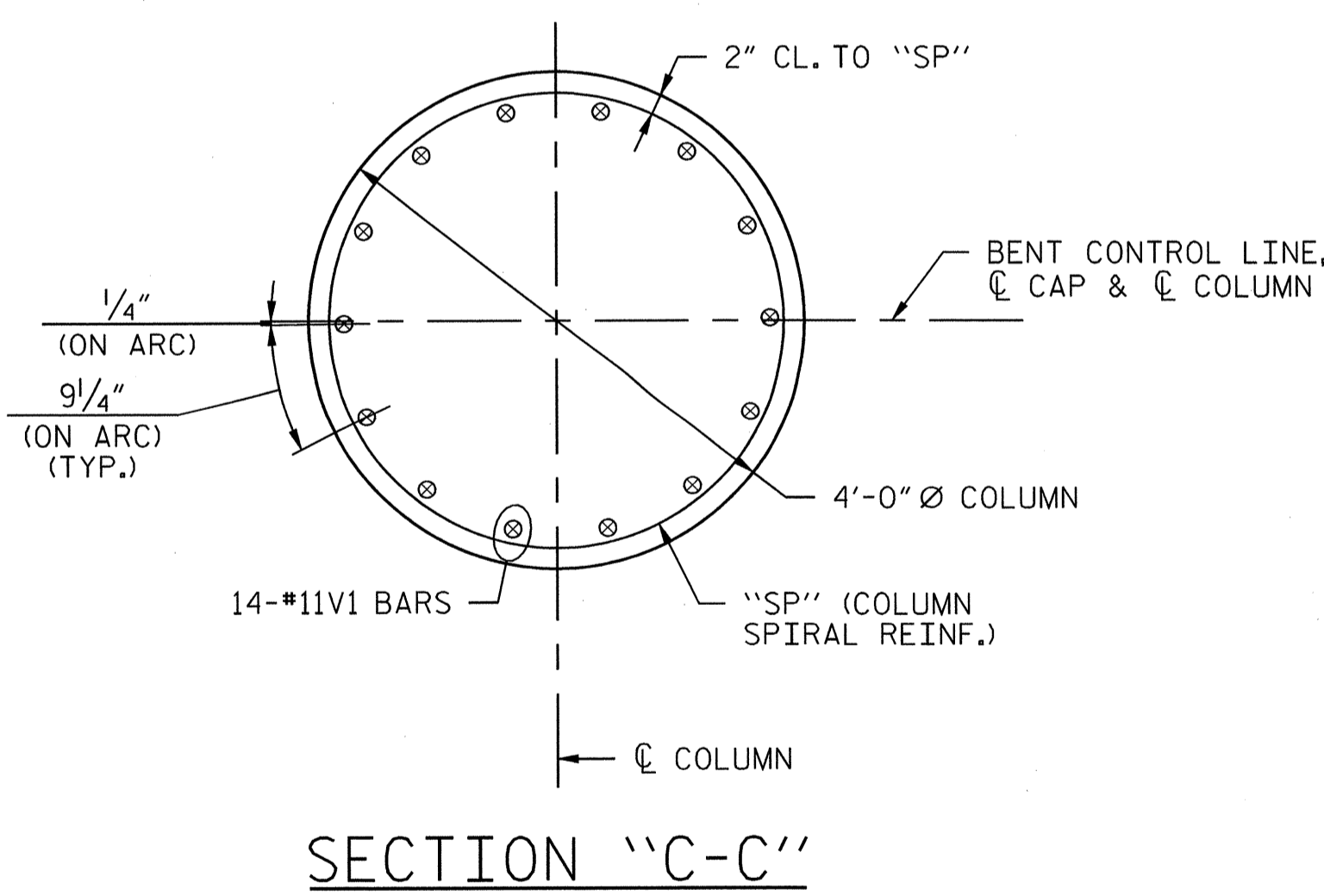
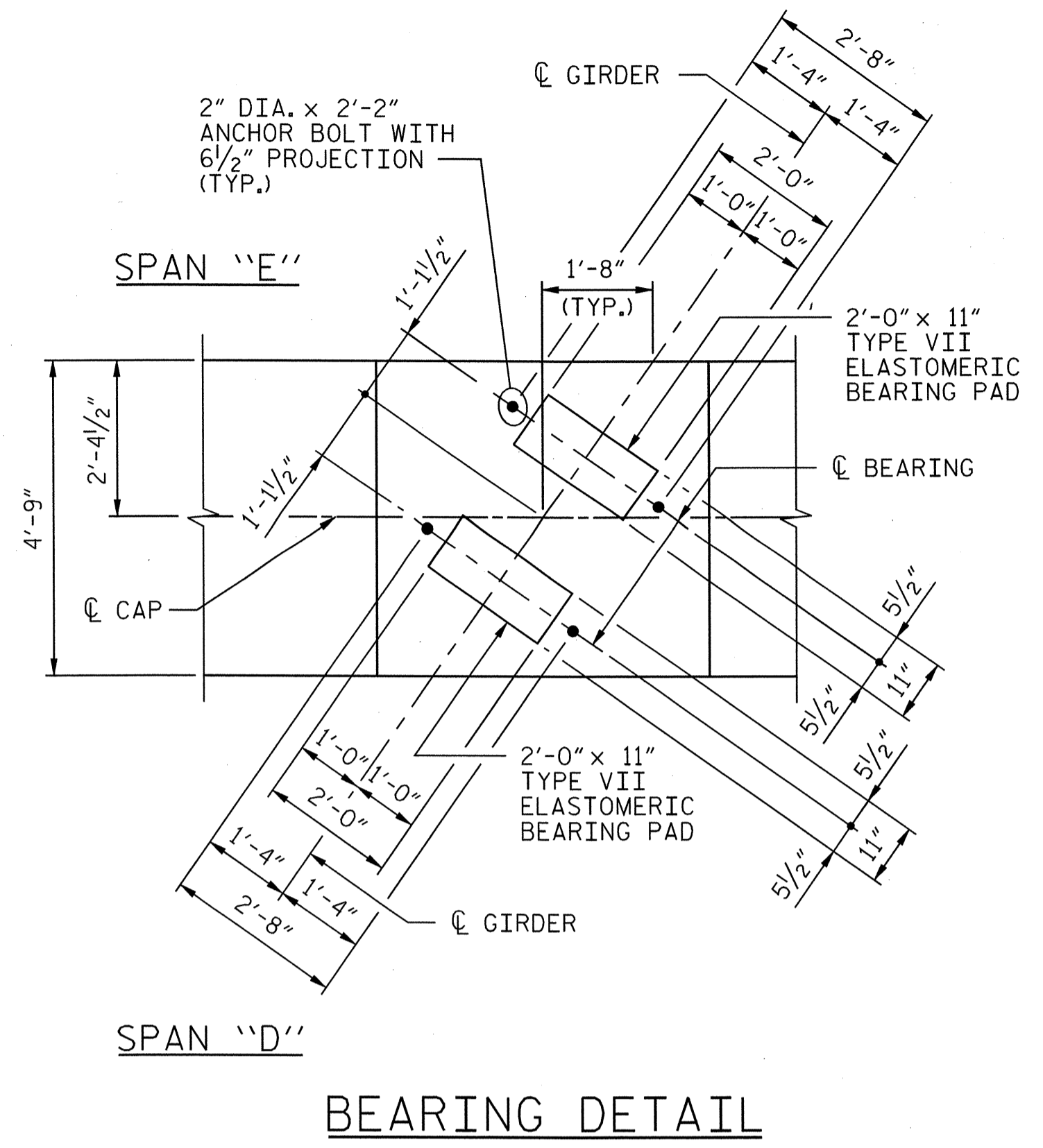
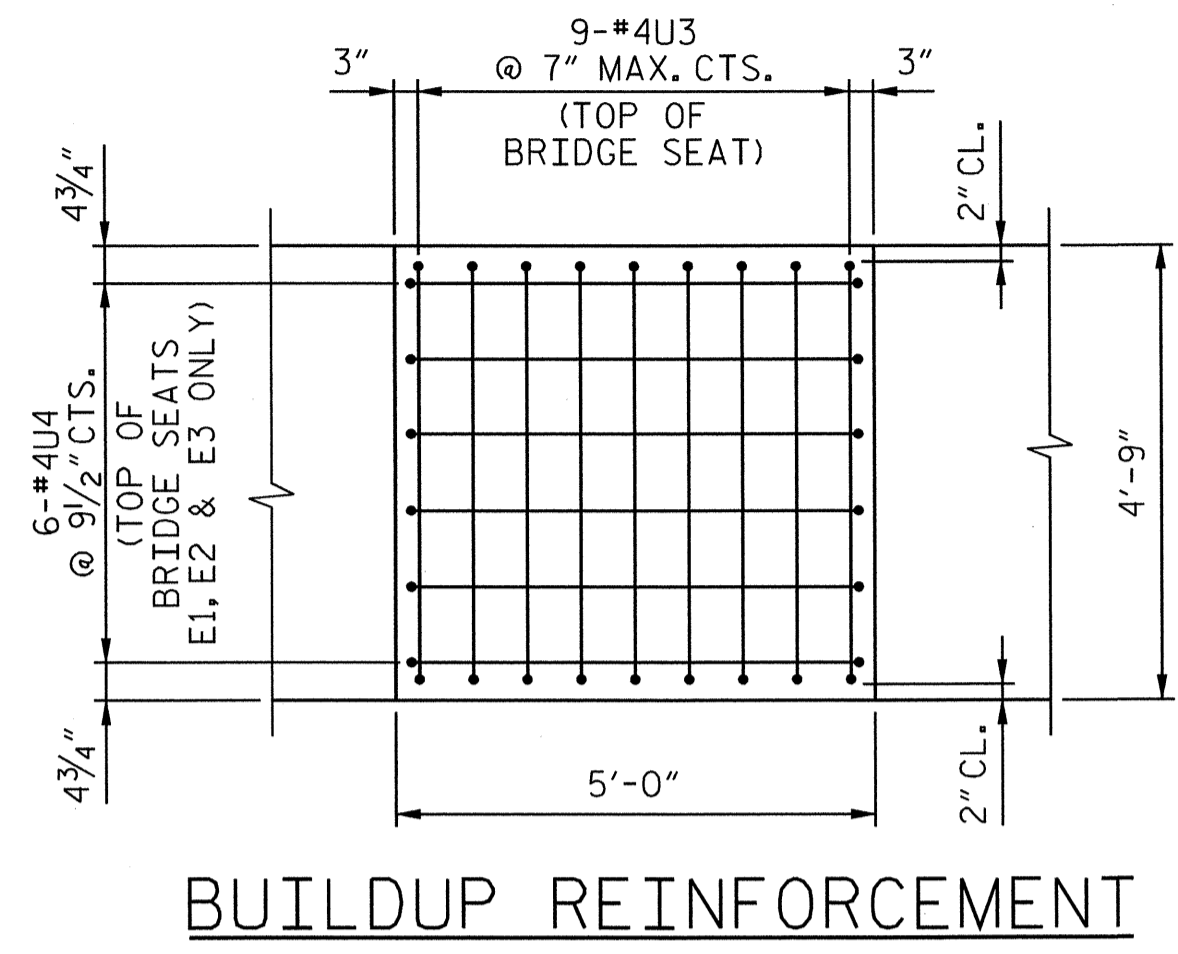
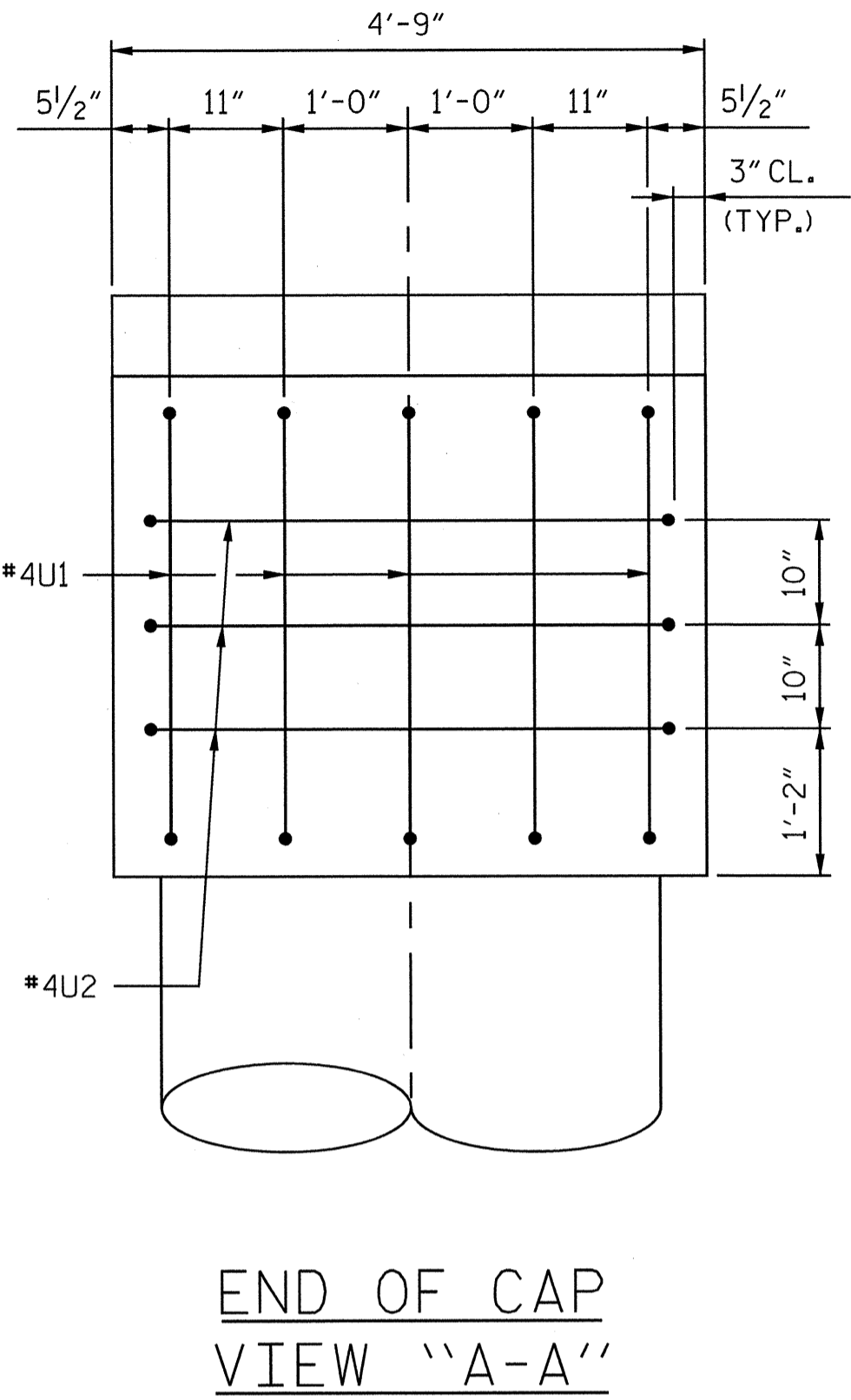
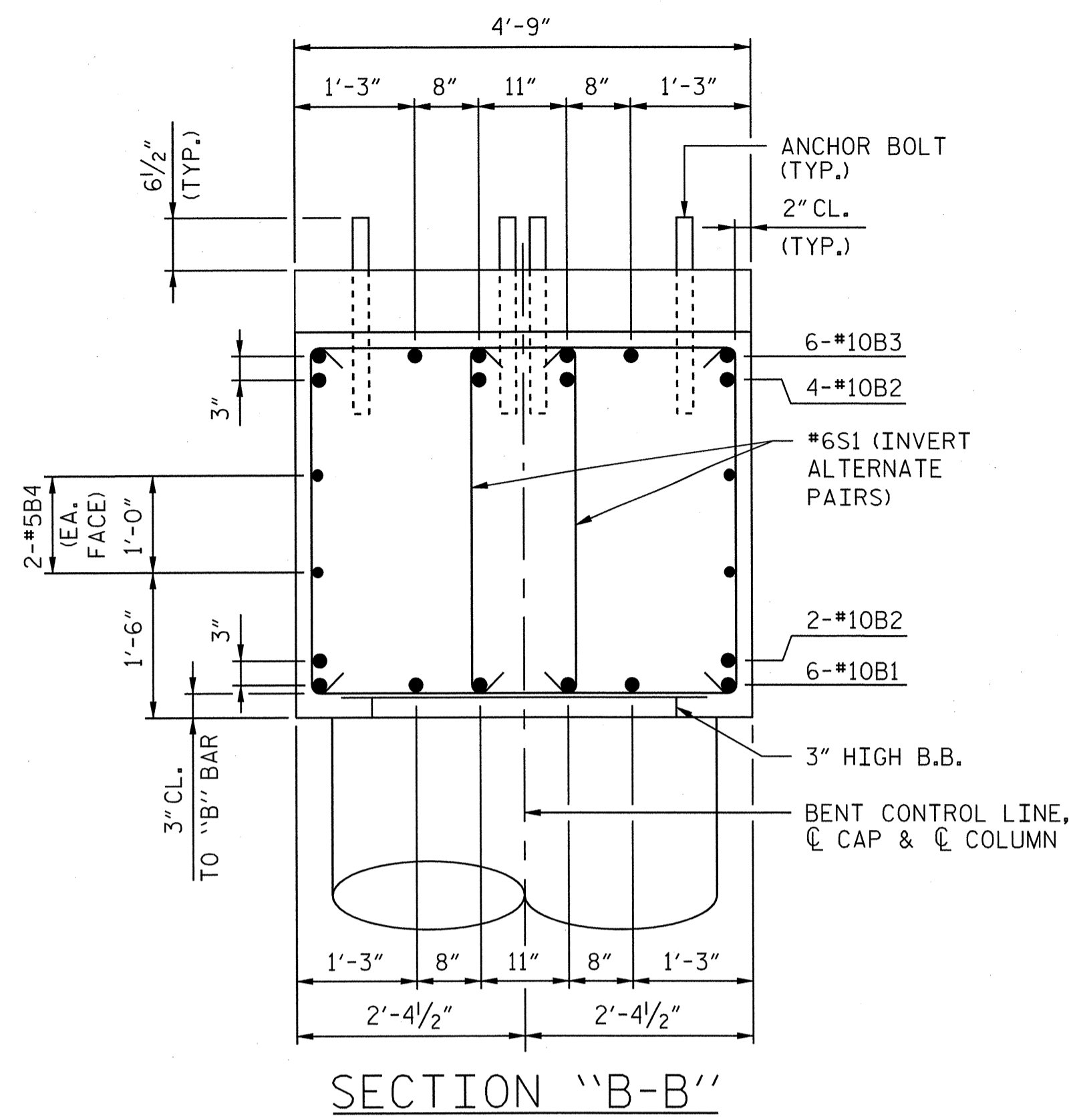
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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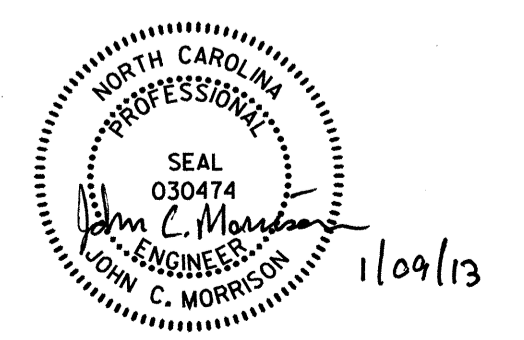
PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 4 (1 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS RAILROAD	NS / NCRR	DRAWING S-59
OWN BY	DDL VAL SEC	V.5-8	SHEET 59 OF 72
CHK BY	JL DATE NOVEMBER 2012	SCALE 3/8" = 1'-0"	

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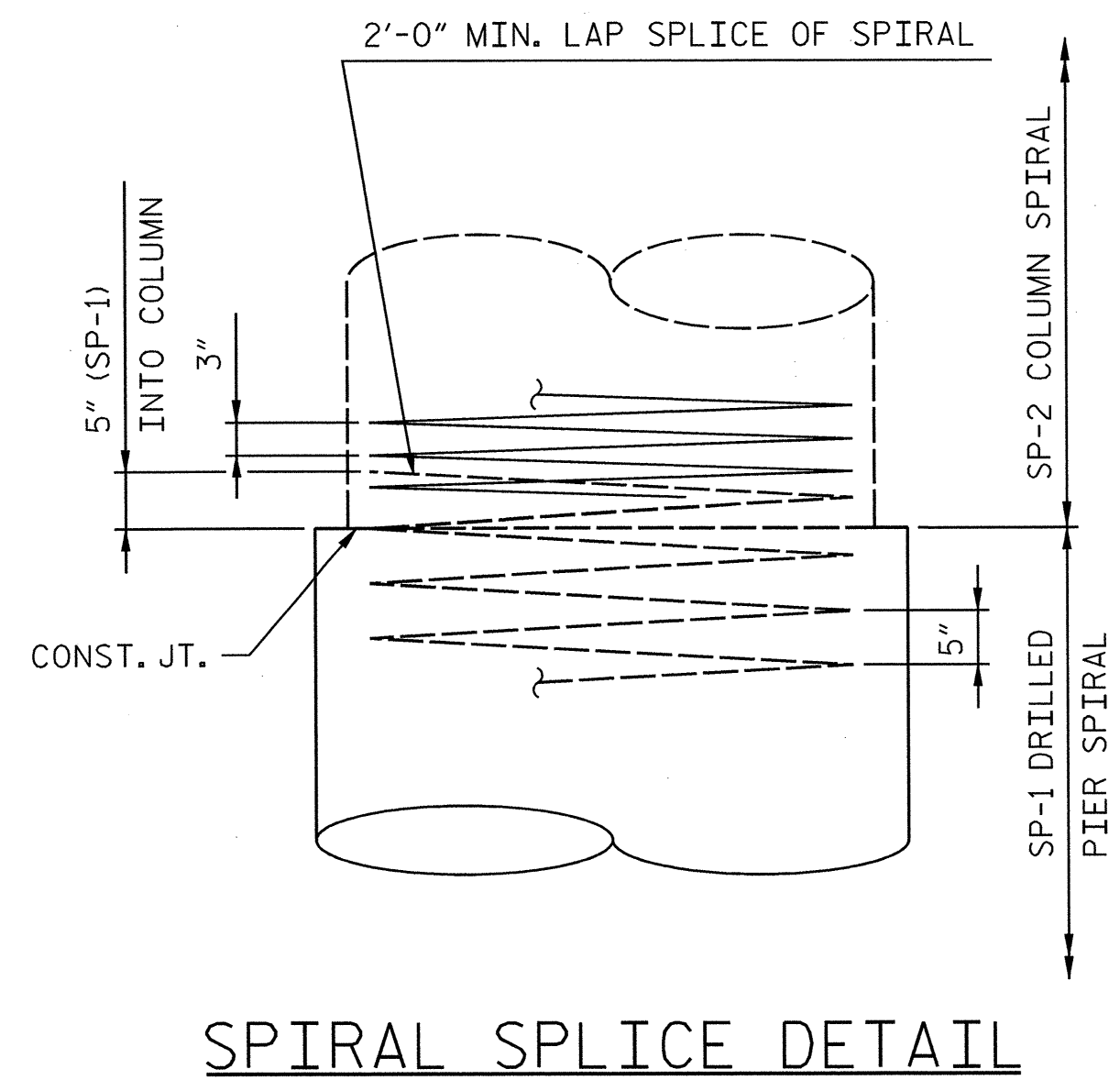
- ⊗ #11V1 (COLUMN)
- #11V2 (COLUMN)
- #11M1 (DRILLED PIER)

NO.	BY	DATE	REVISION



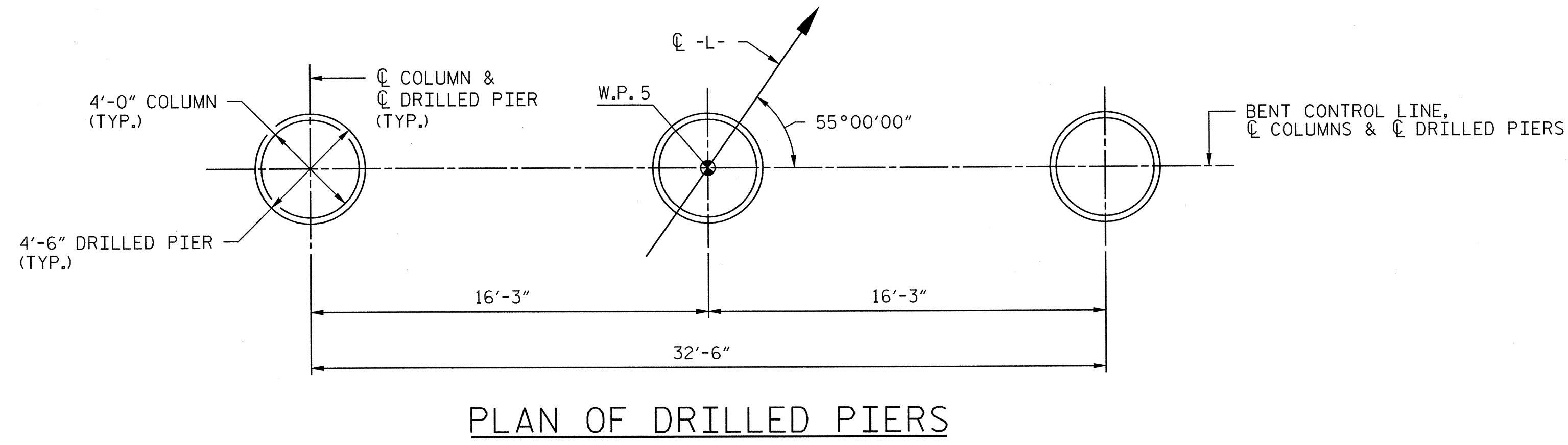
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 4 (2 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
DRAWING		S-60	
SHEET		60 OF 72	



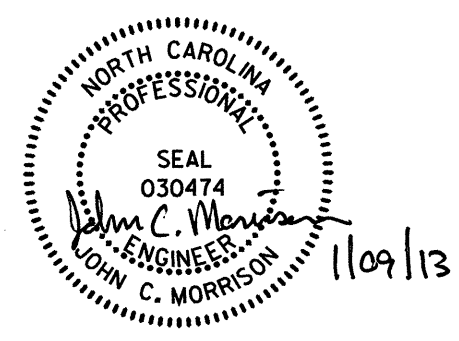
SPIRAL SPLICE DETAIL

BAR TYPES					BILL OF MATERIAL	
					BENT 4	
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	6	#10	STR	42'-7"	1099	
B2	6	#10	STR	42'-7"	1099	
B3	6	#10	(1)	45'-5"	1173	
B4	4	#5	STR	42'-7"	178	
M1	84	#11	STR	38'-4"	17108	
S1	92	#6	(2)	10'-10"	1497	
U1	10	#4	(3)	6'-6"	43	
U2	6	#4	(3)	7'-3"	29	
U3	36	#4	(3)	7'-3"	174	
U4	18	#4	(3)	7'-8"	92	
V1	42	#11	(4)	46'-2"	10302	
V2	42	#11	STR	36'-0"	8033	
REINFORCING STEEL					LBS.	40827
SP-1	3	**	(5)	840'-6"	2630	
SP-2	3	***	(5)	1959'-3"	3926	
SPIRAL REINFORCING STEEL					LBS.	6856
** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR. *** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.						
BENT 4 TOTAL QUANTITIES						
CLASS A CONCRETE						
POUR 2 (COLUMNS)					C.Y.	58.6
POUR 3 (CAP)					C.Y.	31.8
TOTAL CLASS A CONCRETE					C.Y.	90.4
DRILLED PIERS, CONCRETE						
POUR 1					C.Y.	49.5
4'-6" Ø DRILLED PIERS IN SOIL					LIN. FT.	48.0
4'-6" Ø DRILLED PIERS NOT IN SOIL					LIN. FT.	36.0
CSL TUBES					LIN. FT.	354.0
PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIERS					LIN. FT.	51.0



PLAN OF DRILLED PIERS

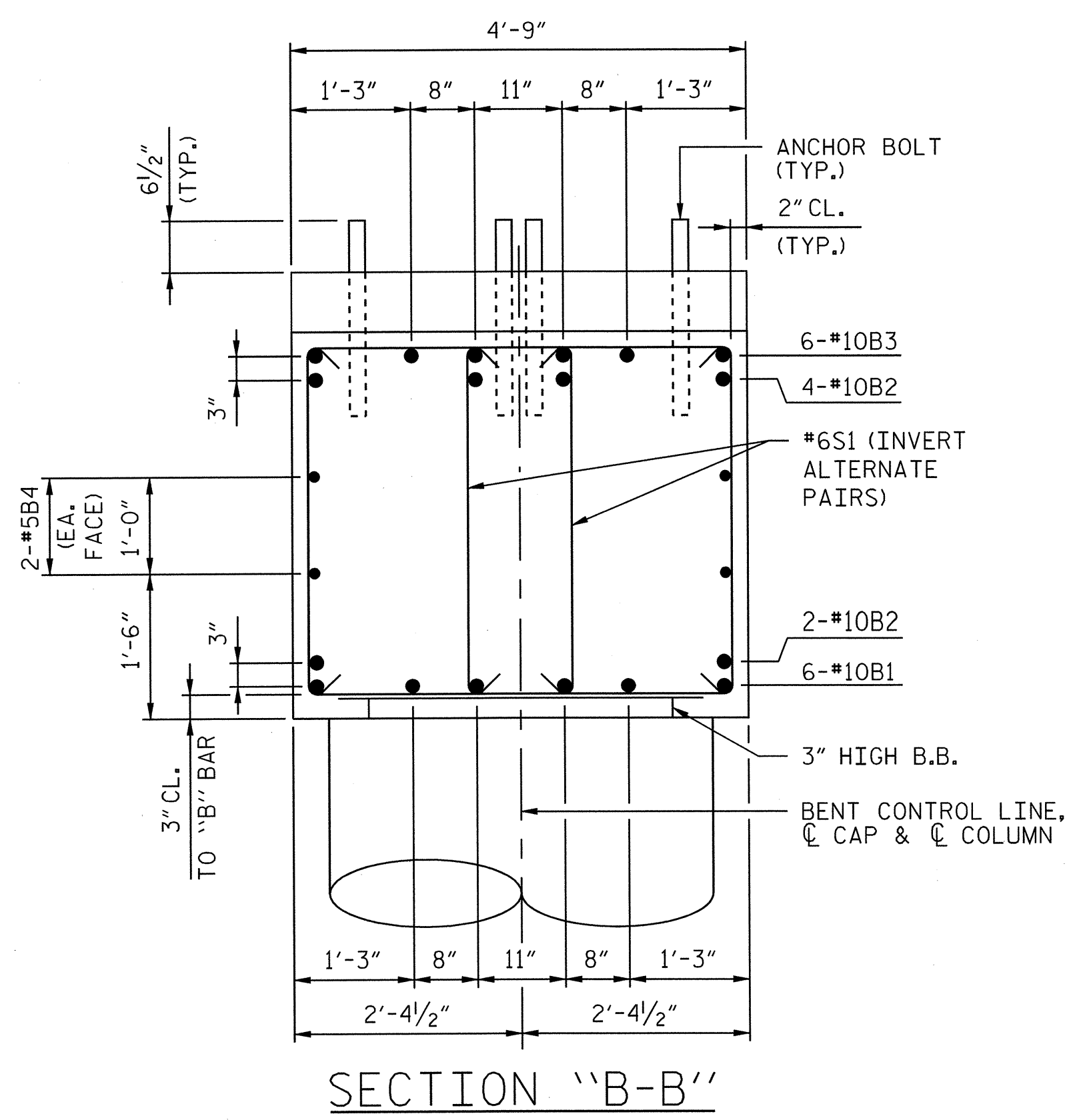
NO.	BY	DATE	REVISION



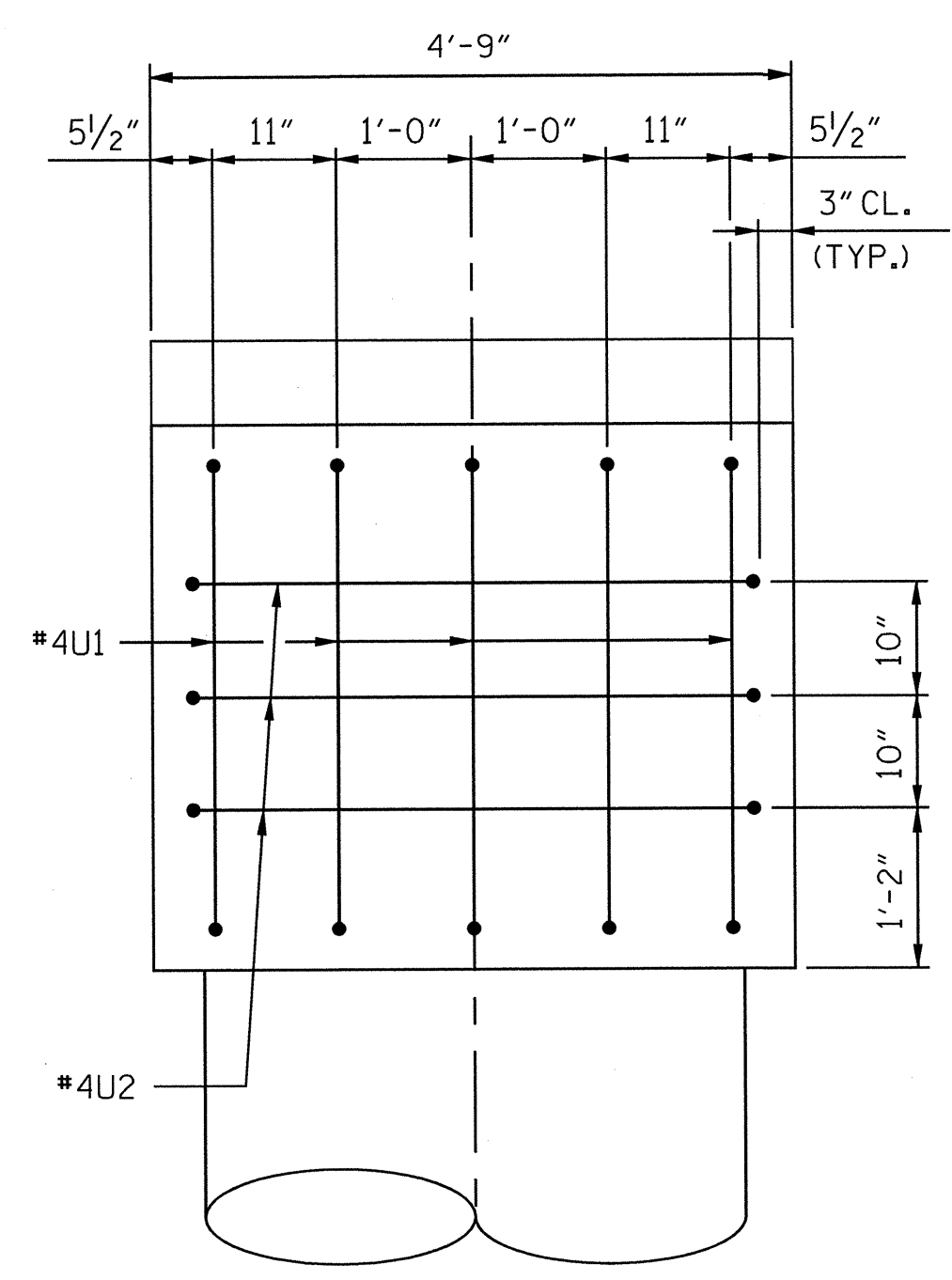
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 4 (3 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		38"=1'-0"	
DRAWING		S-61	
SHEET		61 OF 72	

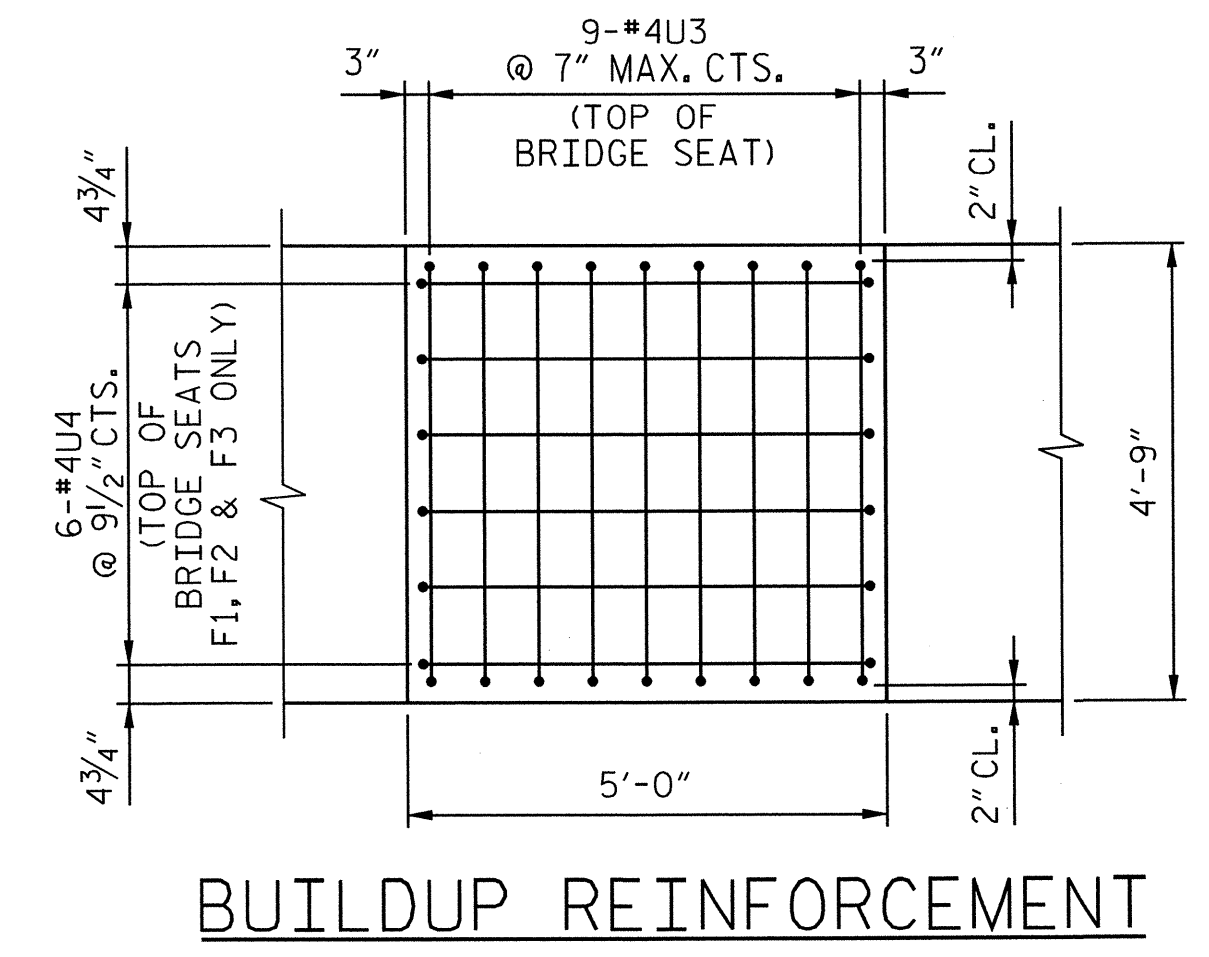
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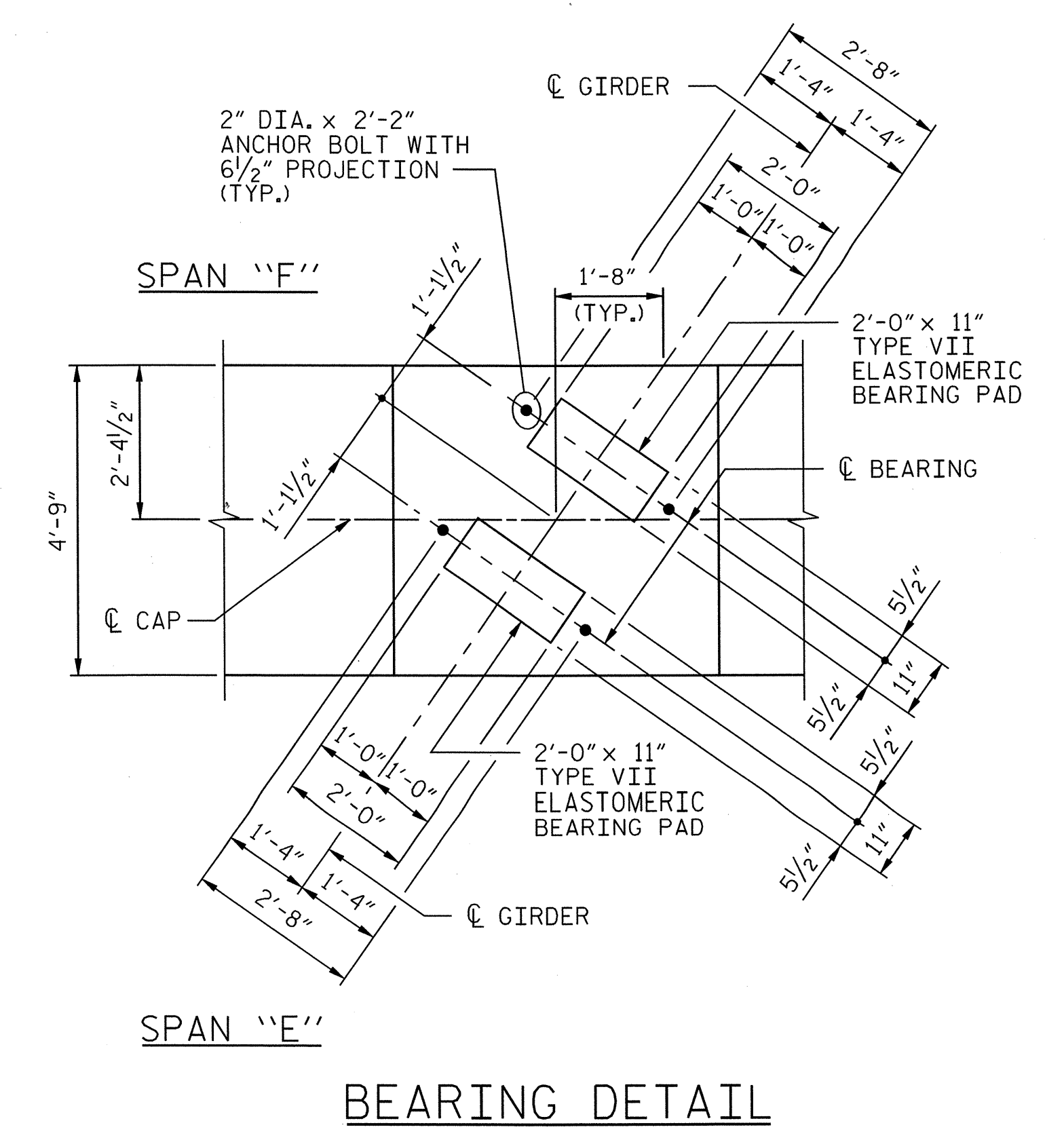
SECTION "B-B"



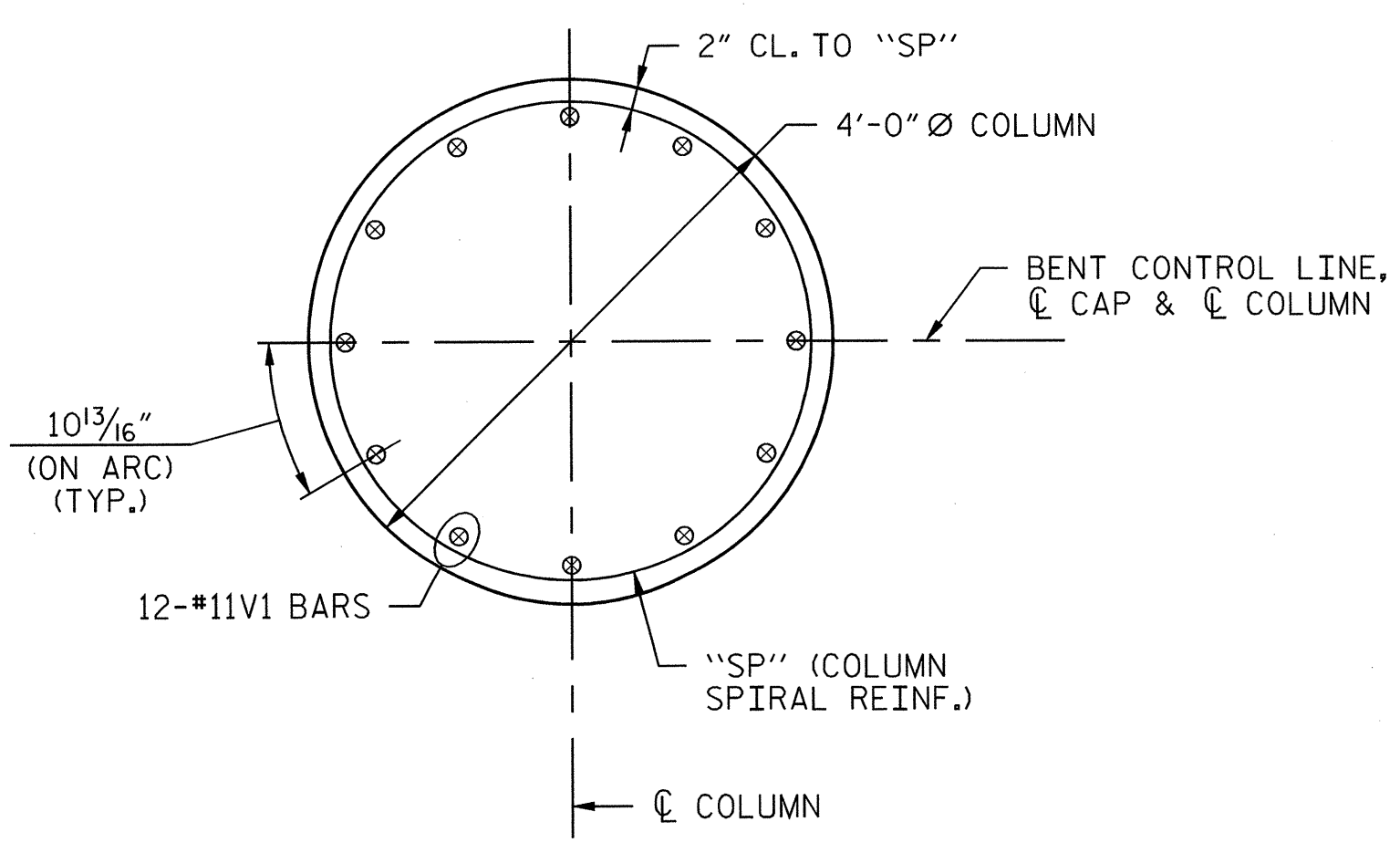
END OF CAP
VIEW "A-A"



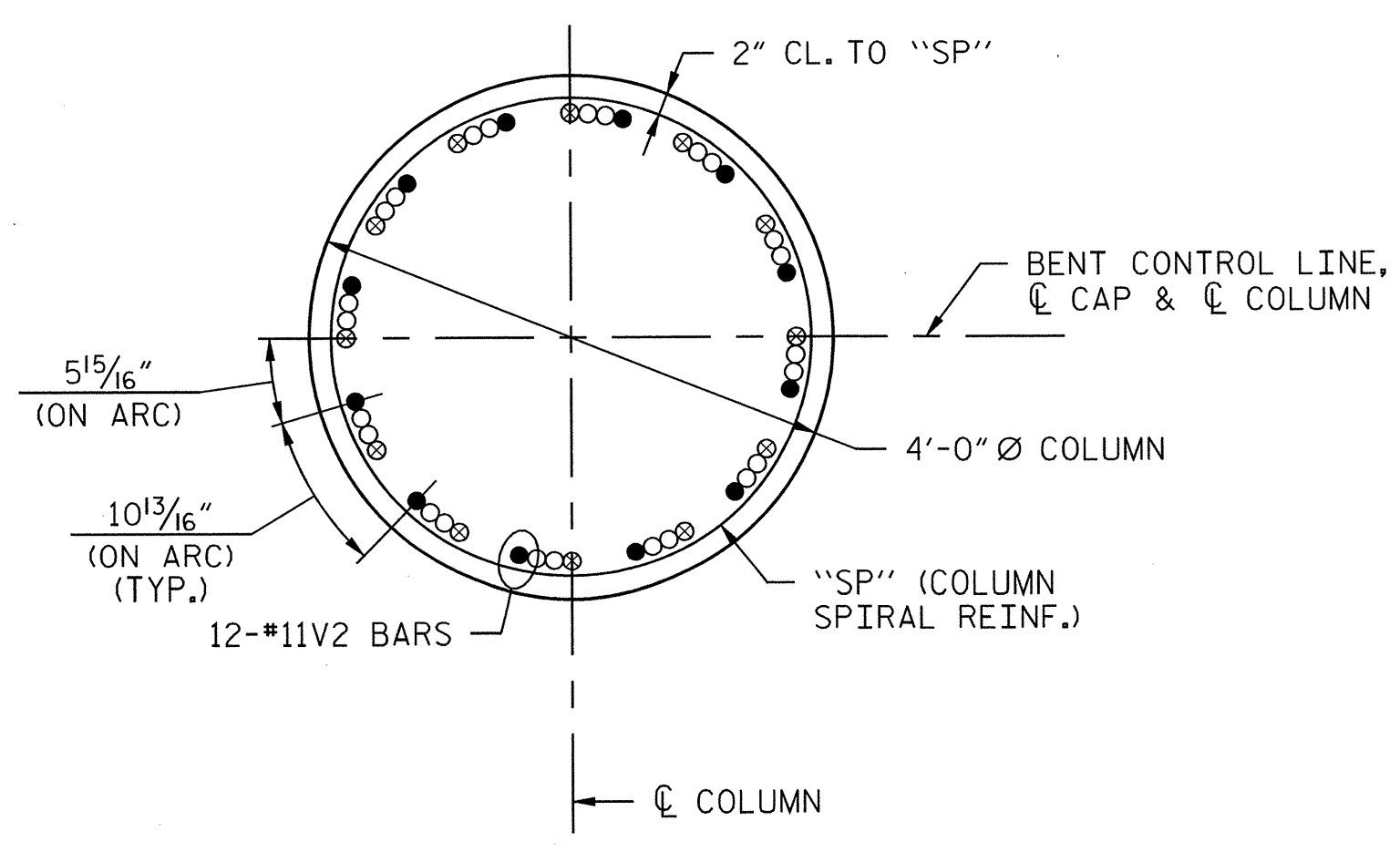
BUILDUP REINFORCEMENT



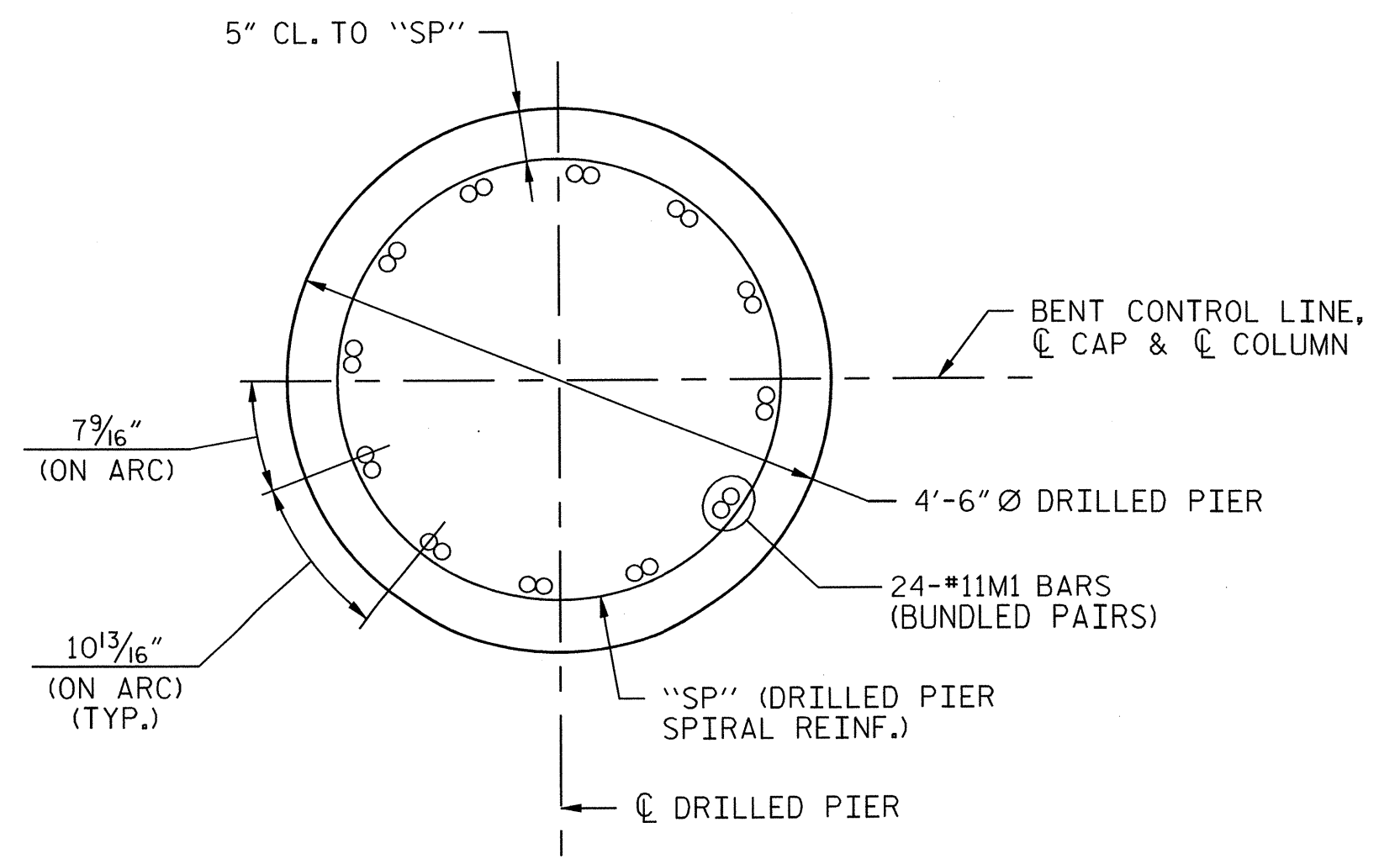
BEARING DETAIL



SECTION "C-C"



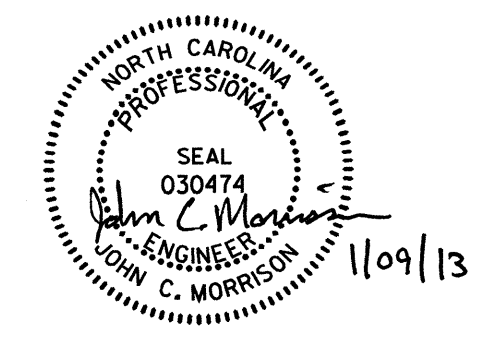
SECTION "D-D"



SECTION "E-E"

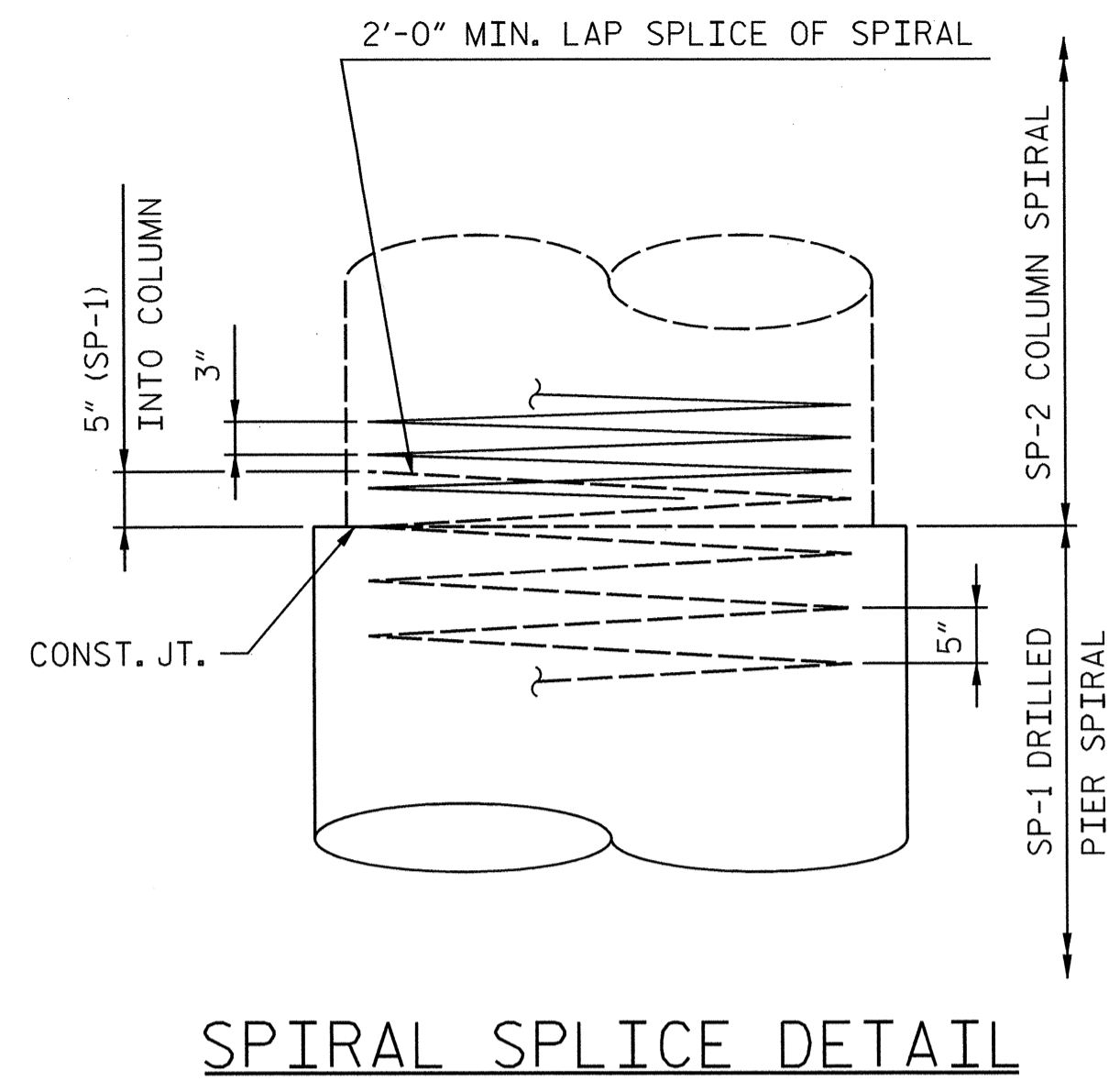
- ⊗ #11V1 (COLUMN)
- #11V2 (COLUMN)
- #11M1 (DRILLED PIER)

NO.	BY	DATE	REVISION

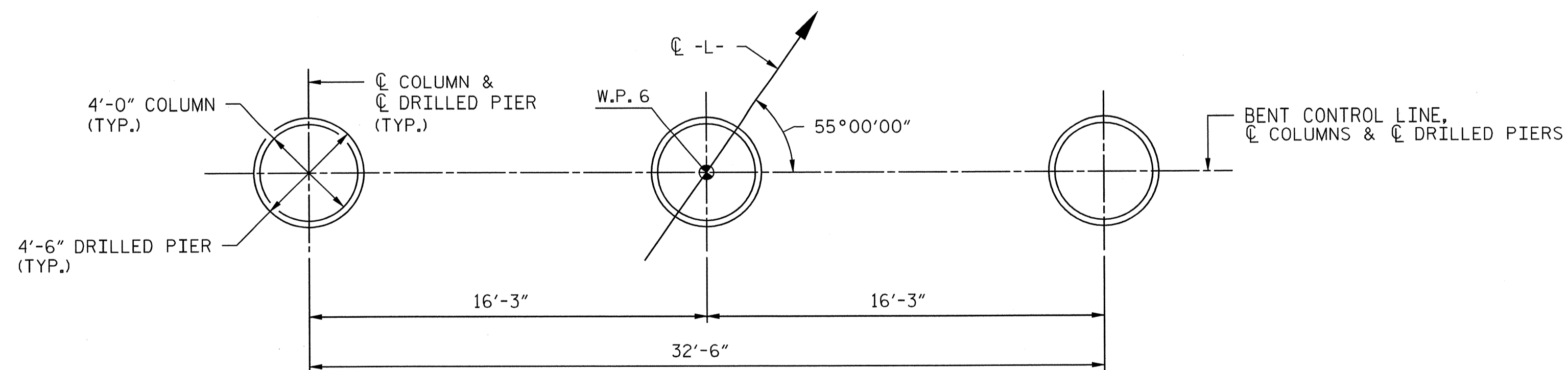


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 AECOM License No. P-0342

PROJECT		C-4901C	
TITLE		SUBSTRUCTURE BENT 5 (2 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		3/8" = 1'-0"	
DRAWING		S-63	
SHEET		C3 OF 72	

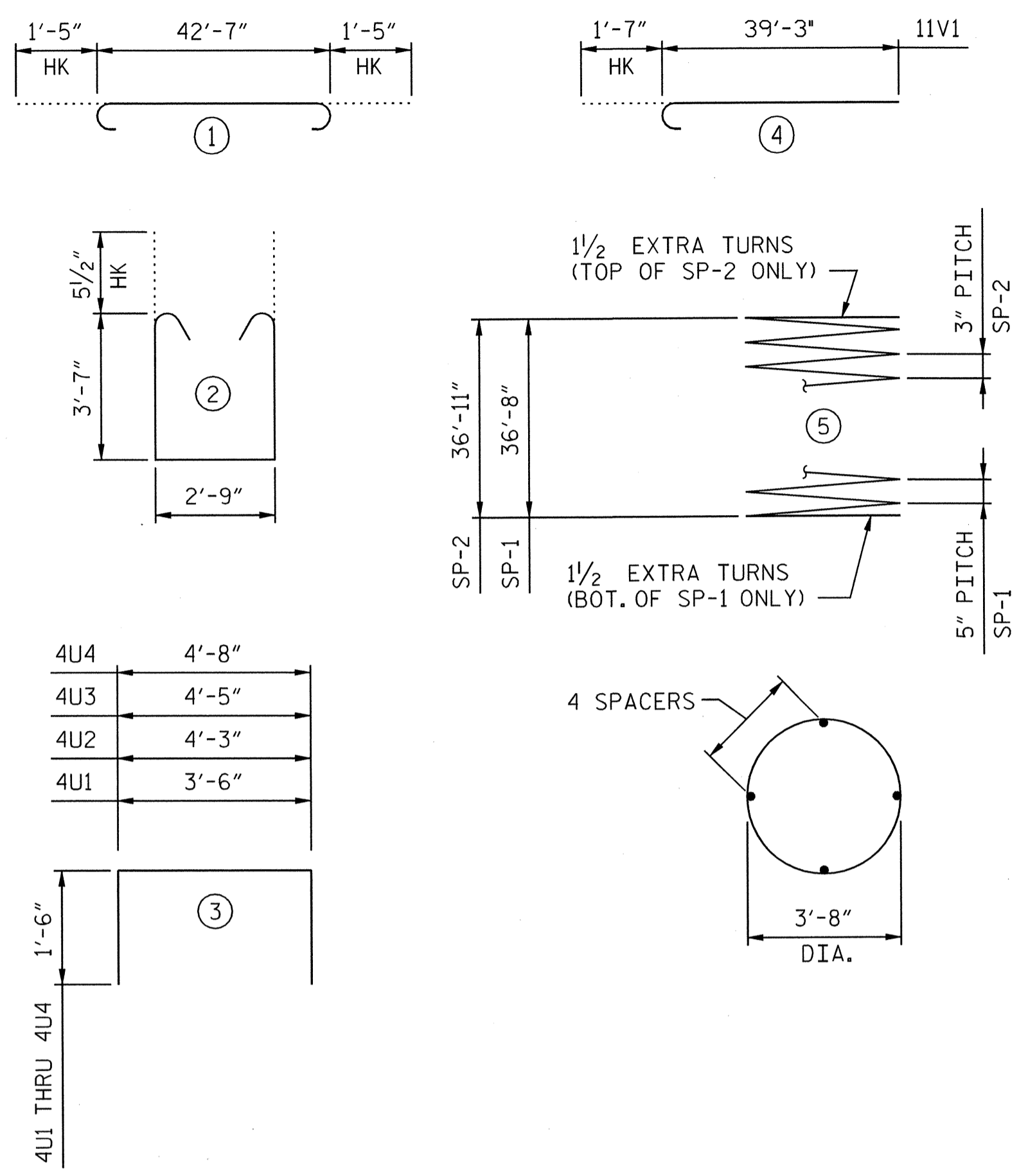


SPIRAL SPLICE DETAIL



PLAN OF DRILLED PIERS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

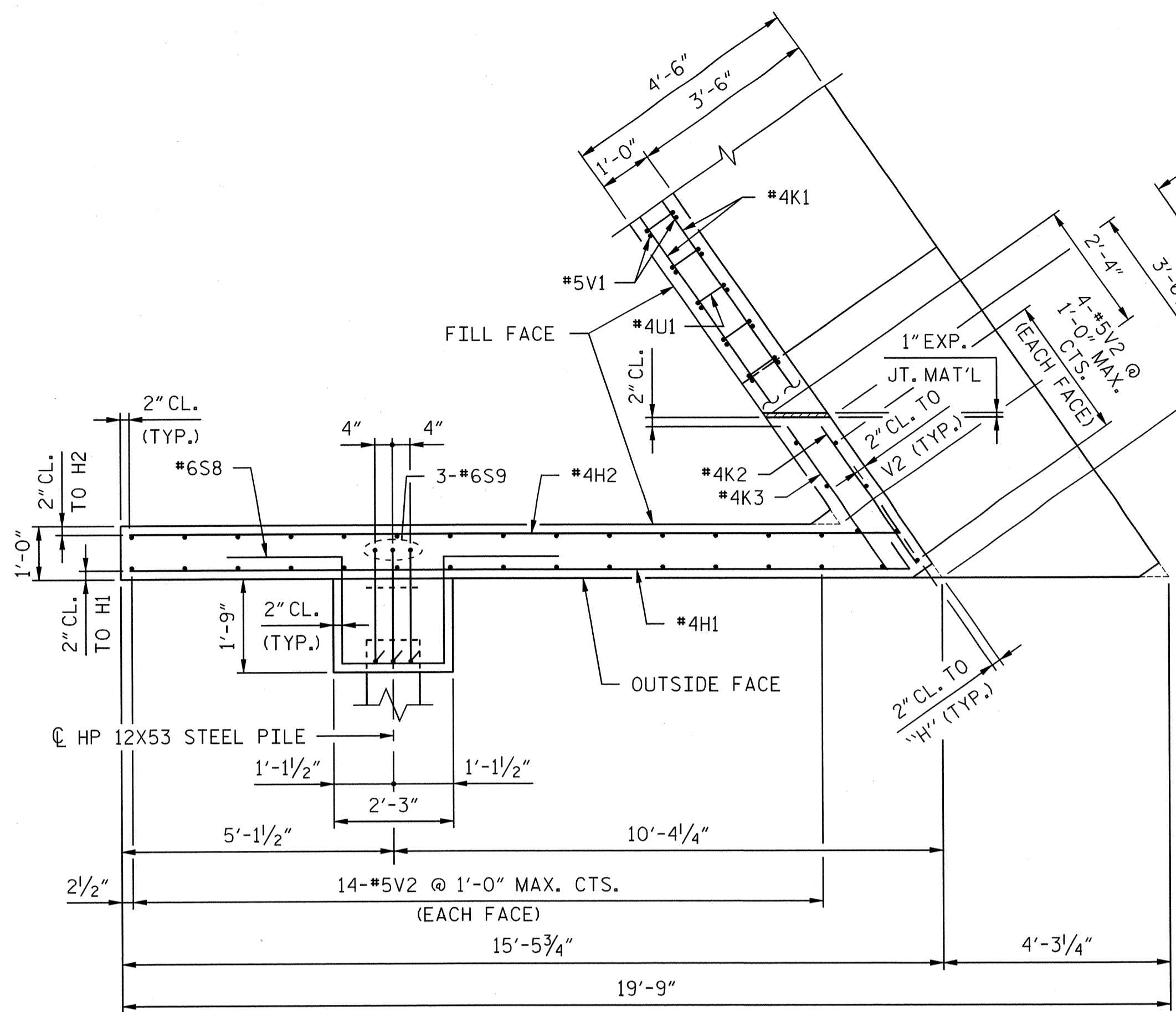
BENT 5					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	STR	42'-7"	1099
B2	6	#10	STR	42'-7"	1099
B3	6	#10	(1)	45'-5"	1173
B4	4	#5	STR	42'-7"	178
M1	72	#11	STR	47'-4"	18107
S1	92	#6	(2)	10'-10"	1497
U1	10	#4	(3)	6'-6"	43
U2	6	#4	(3)	7'-3"	29
U3	36	#4	(3)	7'-3"	174
U4	18	#4	(3)	7'-8"	92
V1	36	#11	(4)	40'-10"	7810
V2	36	#11	STR	32'-0"	6121
REINFORCING STEEL				LBS.	37422
SP-1	3	**	(5)	1108'-6"	3468
SP-2	3	***	(5)	1720'-1"	3447
SPIRAL REINFORCING STEEL				LBS.	6915
** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.					
*** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.					
BENT 5 TOTAL QUANTITIES					
CLASS A CONCRETE					
POUR 2 (COLUMNS)				C.Y.	51.2
POUR 3 (CAP)				C.Y.	31.8
TOTAL CLASS A CONCRETE				C.Y.	83.0
DRILLED PIERS, CONCRETE					
POUR 1				C.Y.	65.4
4'-6" Ø DRILLED PIERS IN SOIL				LIN. FT.	72.0
4'-6" Ø DRILLED PIERS NOT IN SOIL				LIN. FT.	39.0
CSL TUBES				LIN. FT.	462.0
PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIERS				LIN. FT.	78.0

NO.	BY	DATE	REVISION

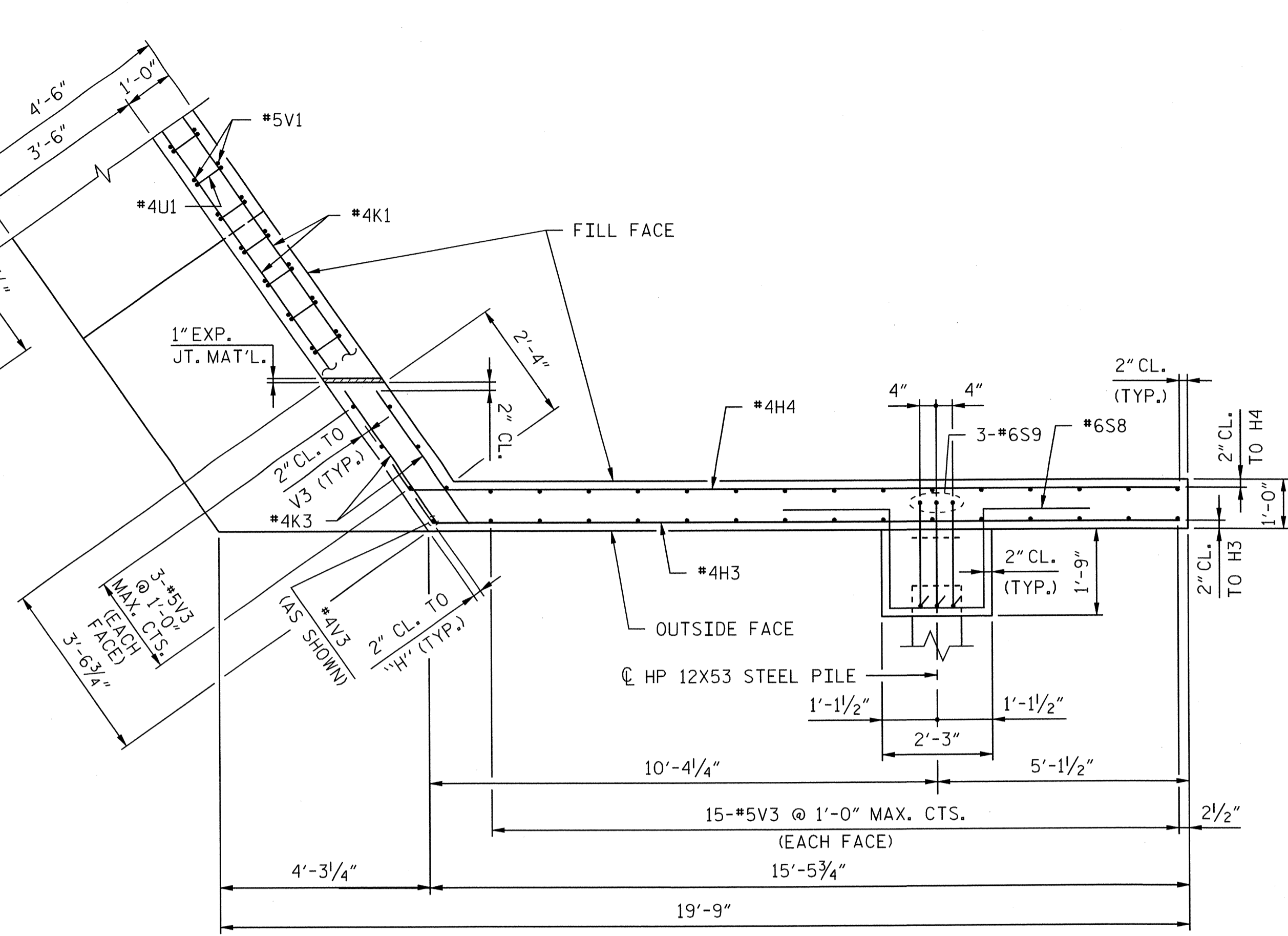


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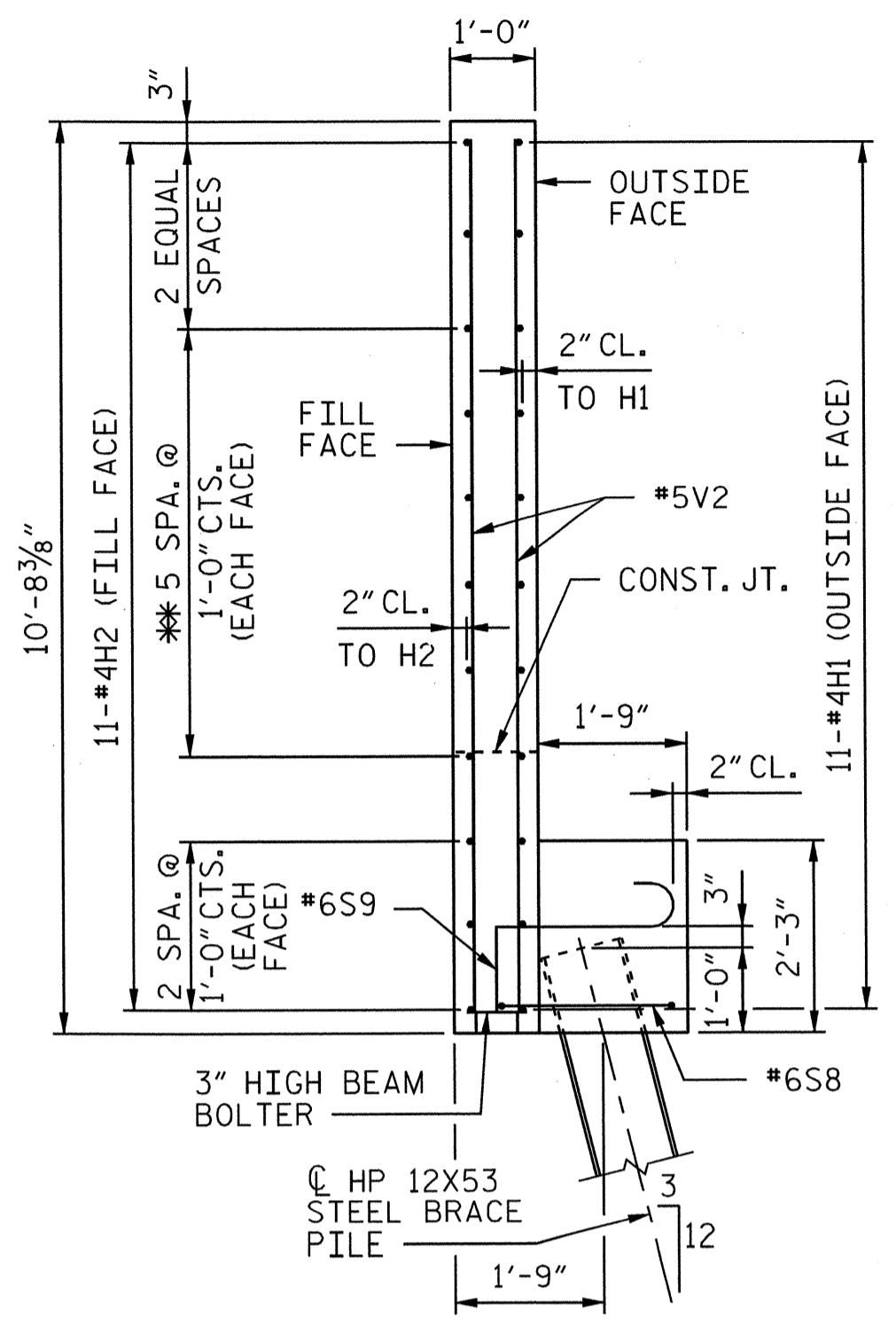
PROJECT	C-4901C		
TITLE	SUBSTRUCTURE BENT 5 (3 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	3/8" = 1'-0"		
DRAWING		S-64	
SHEET		A OF 72	



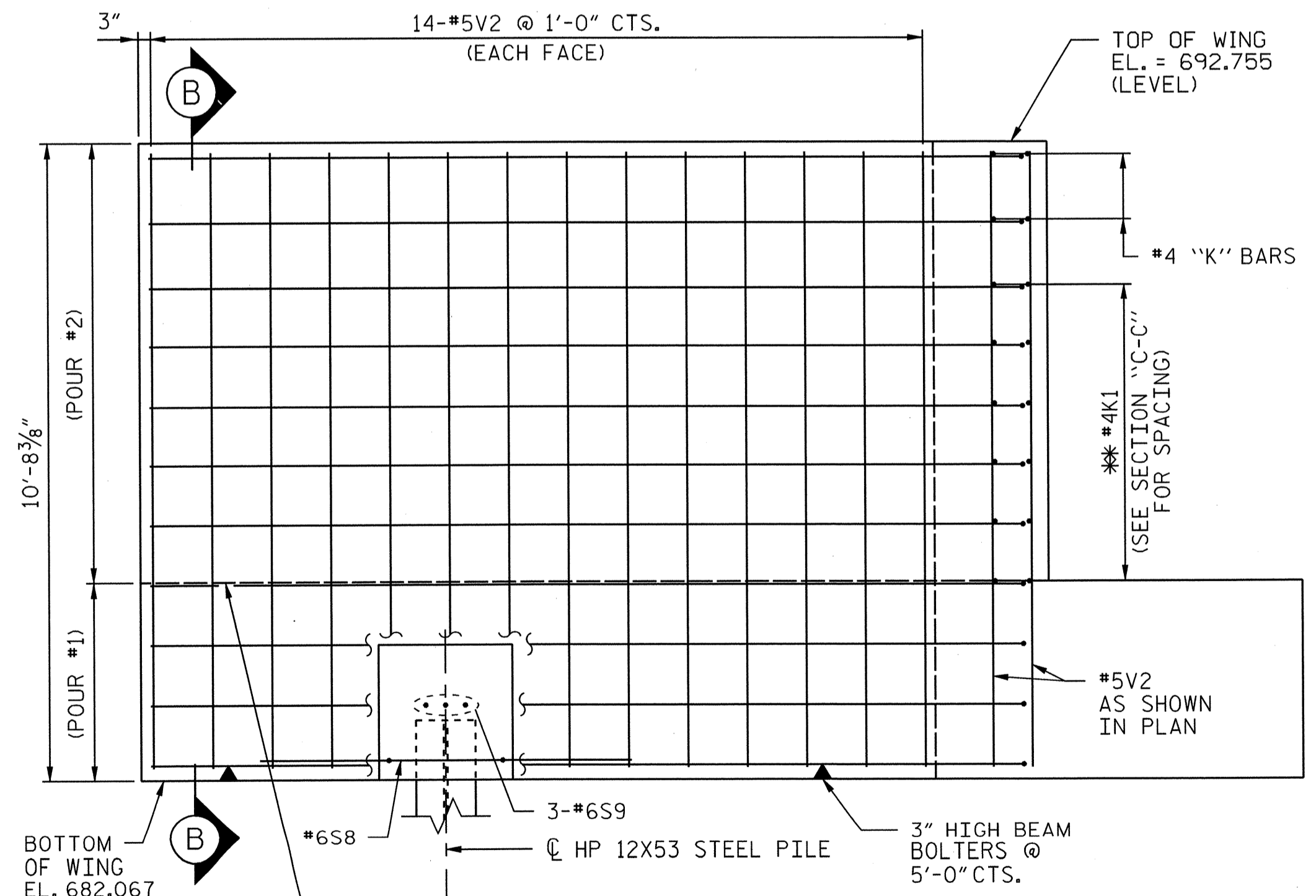
PLAN W1



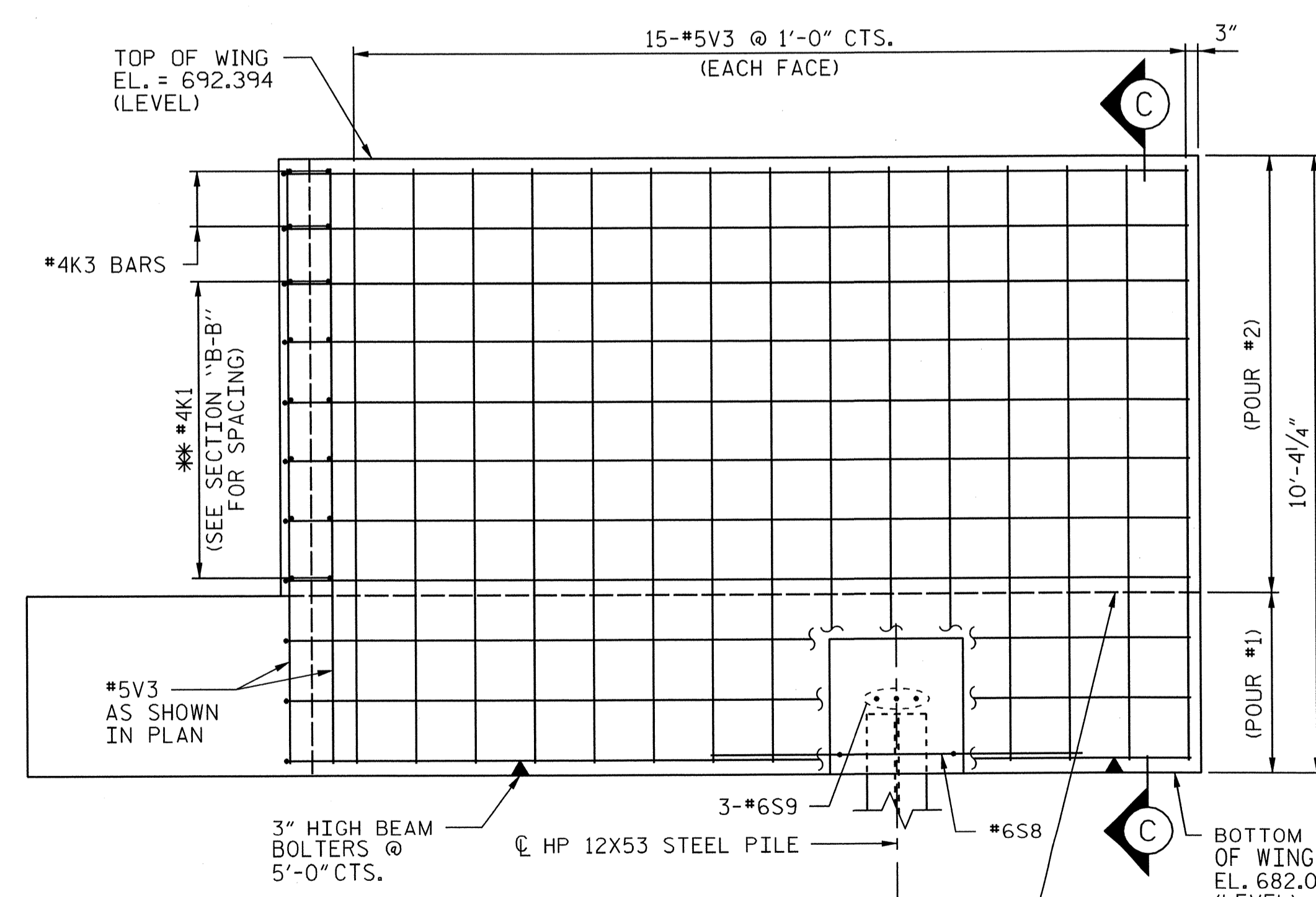
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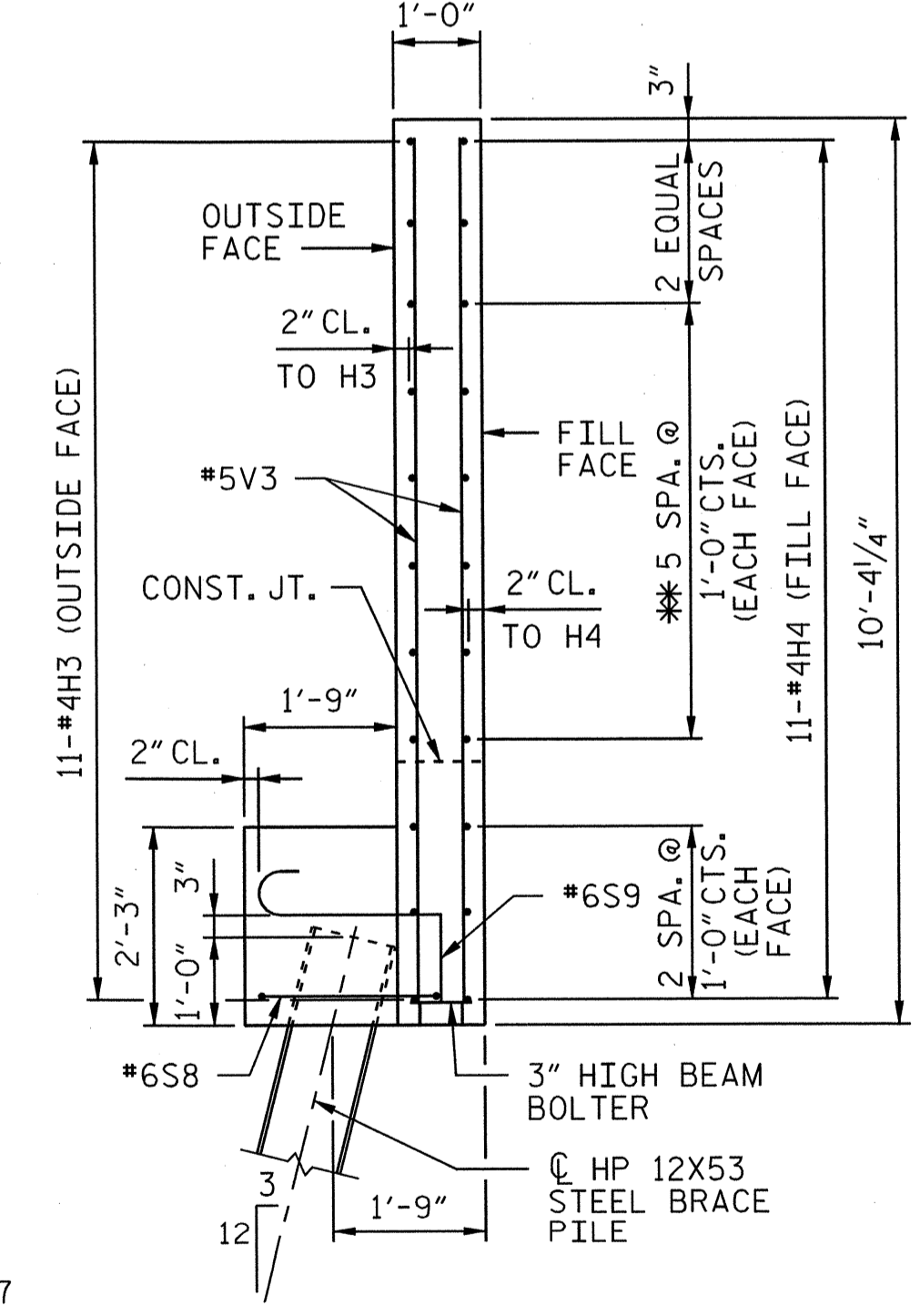
SECTION B-B



ELEVATION W1



ELEVATION W2



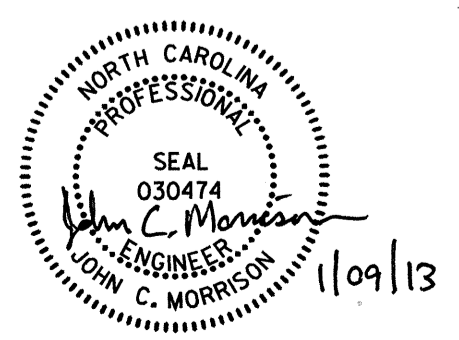
SECTION C-C

CONSTRUCTION JOINT (CONTINUOUS)
 ** PLACE #4 'H' BARS TO MATCH #4K1 BARS IN BACKWALL

CONSTRUCTION JOINT (CONTINUOUS)
 ** PLACE #4 'H' BARS TO MATCH #4K1 BARS IN BACKWALL

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NO.	BY	DATE	REVISION

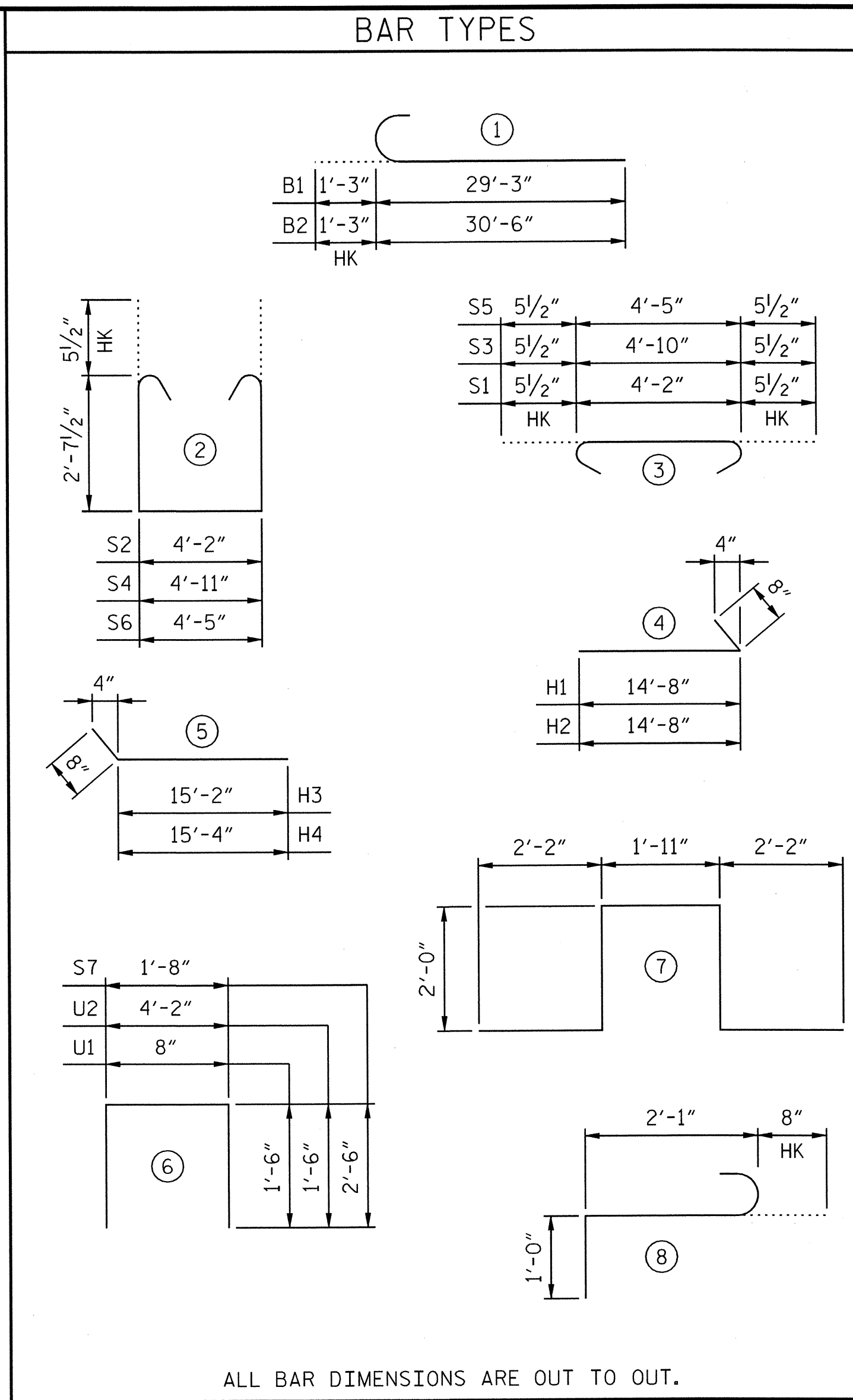
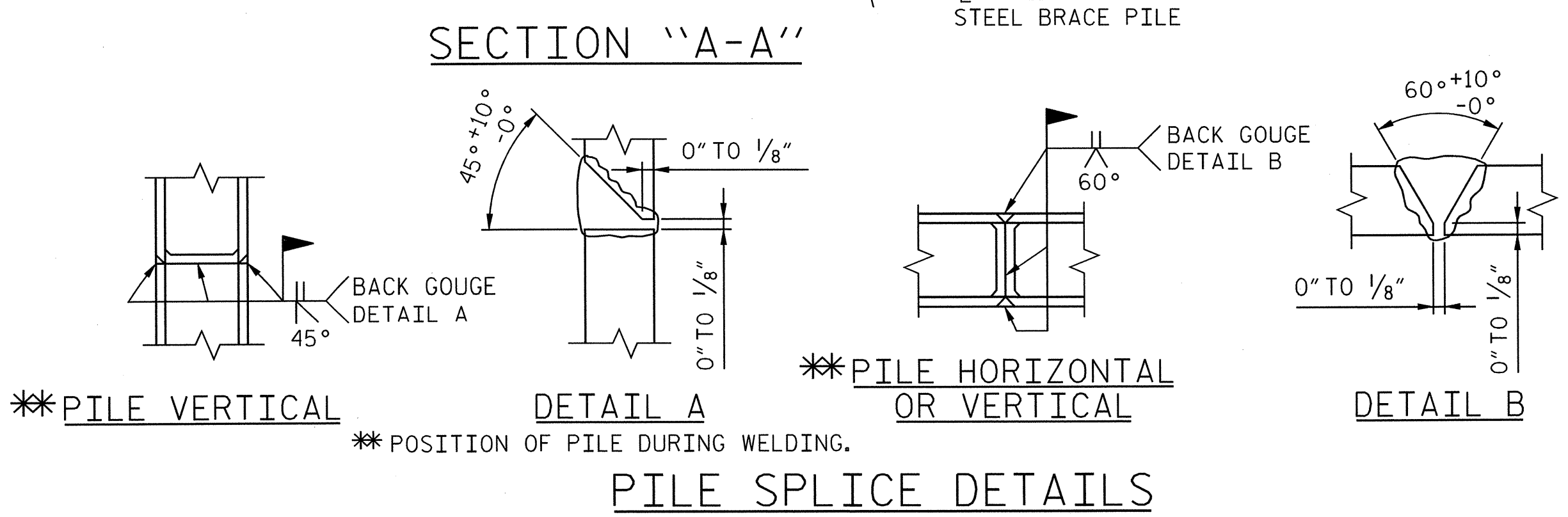
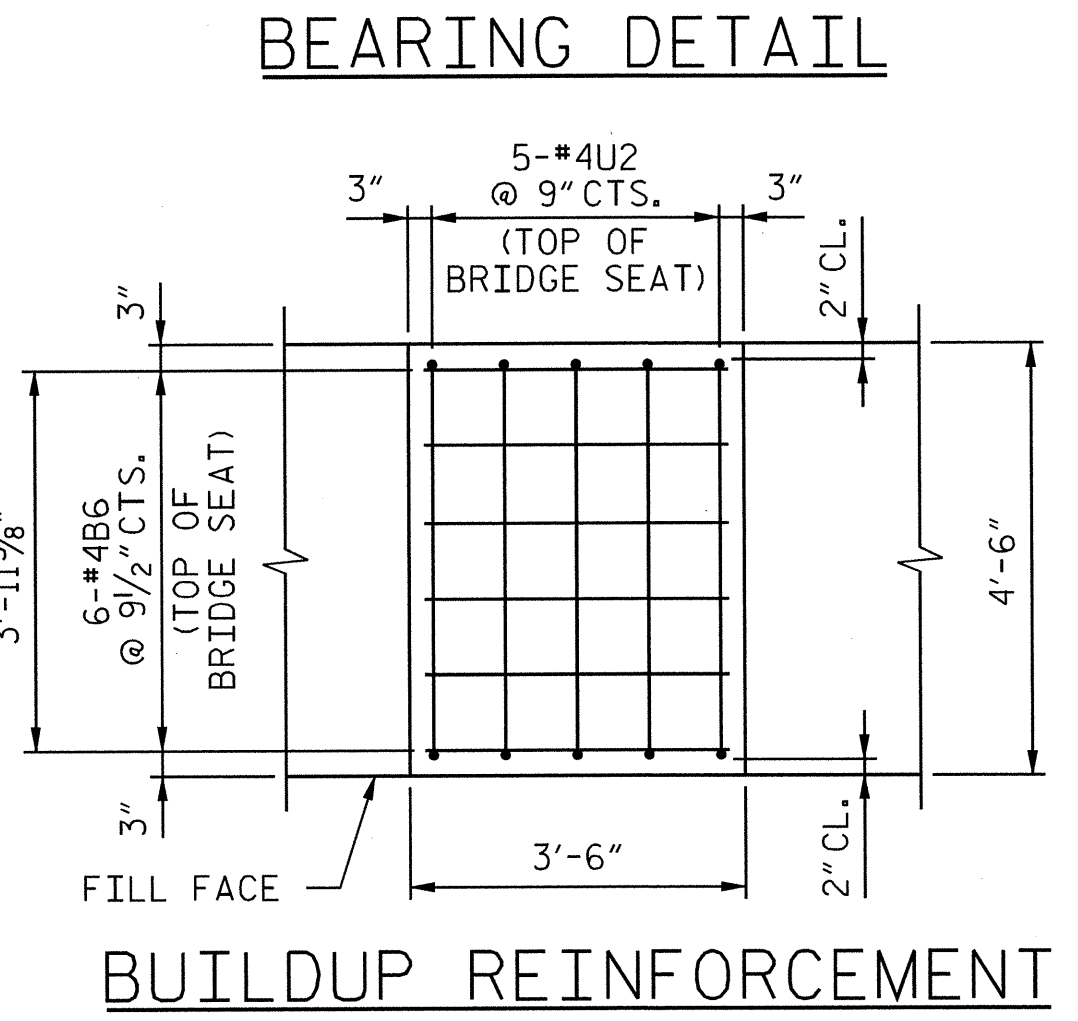
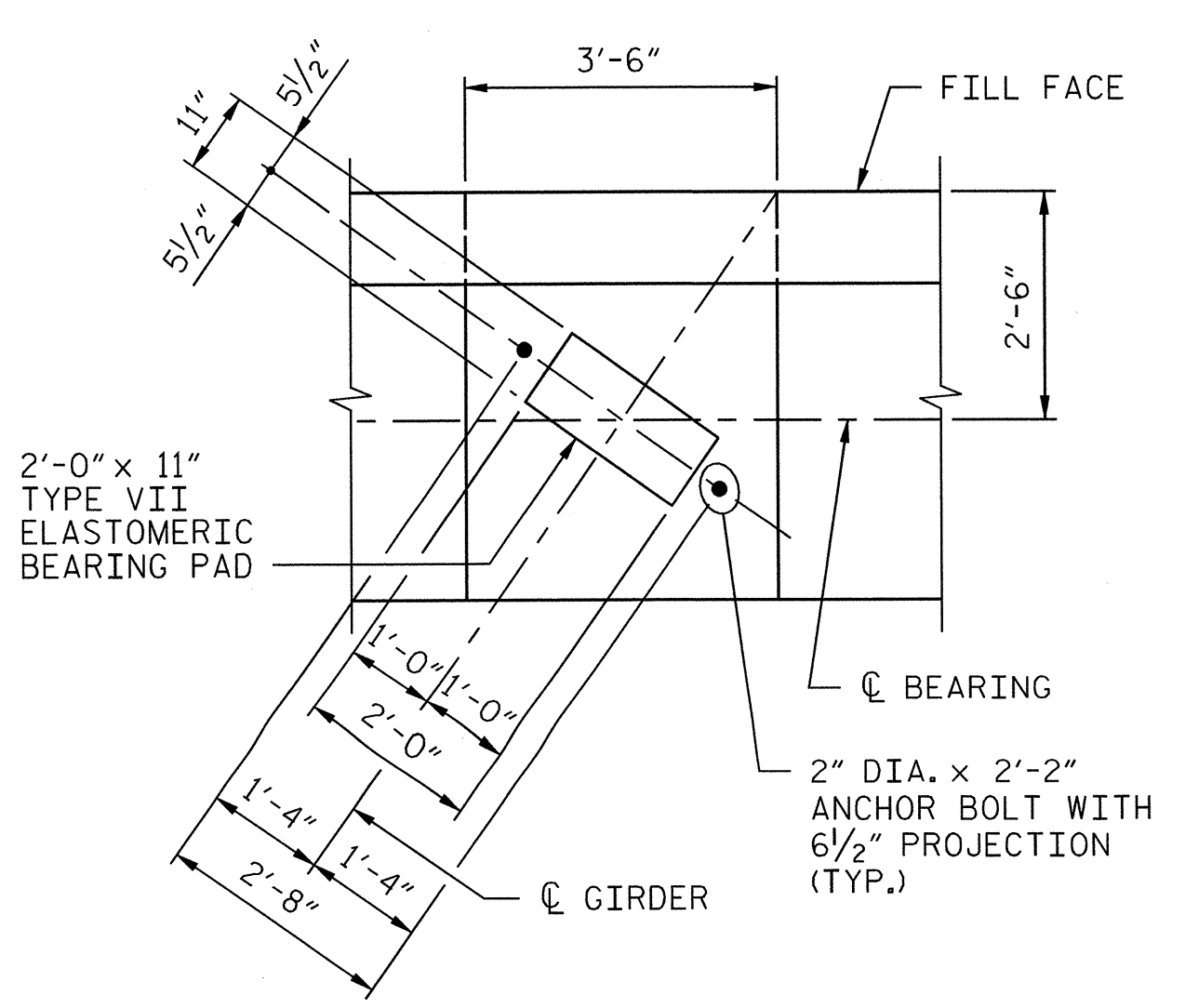
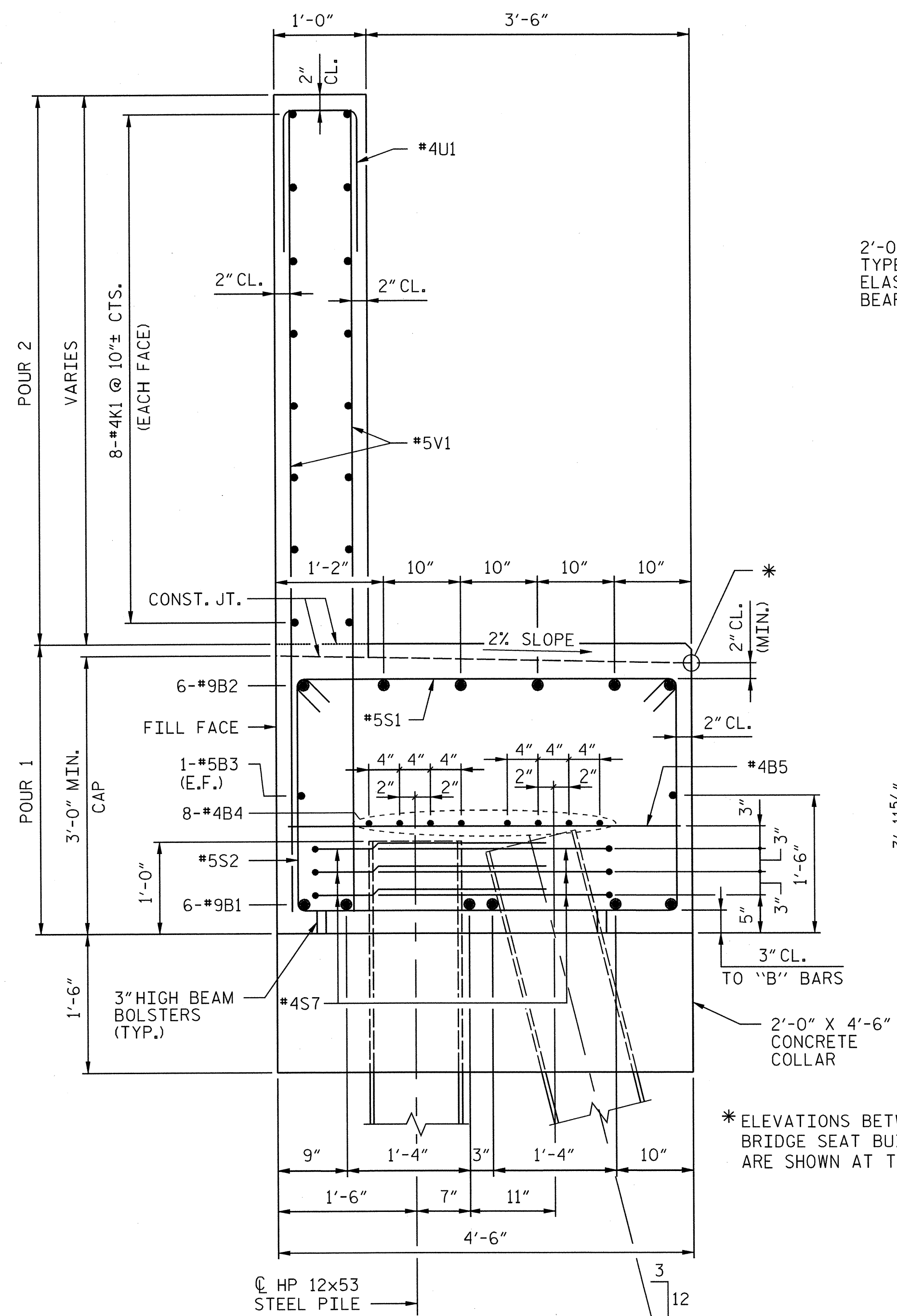


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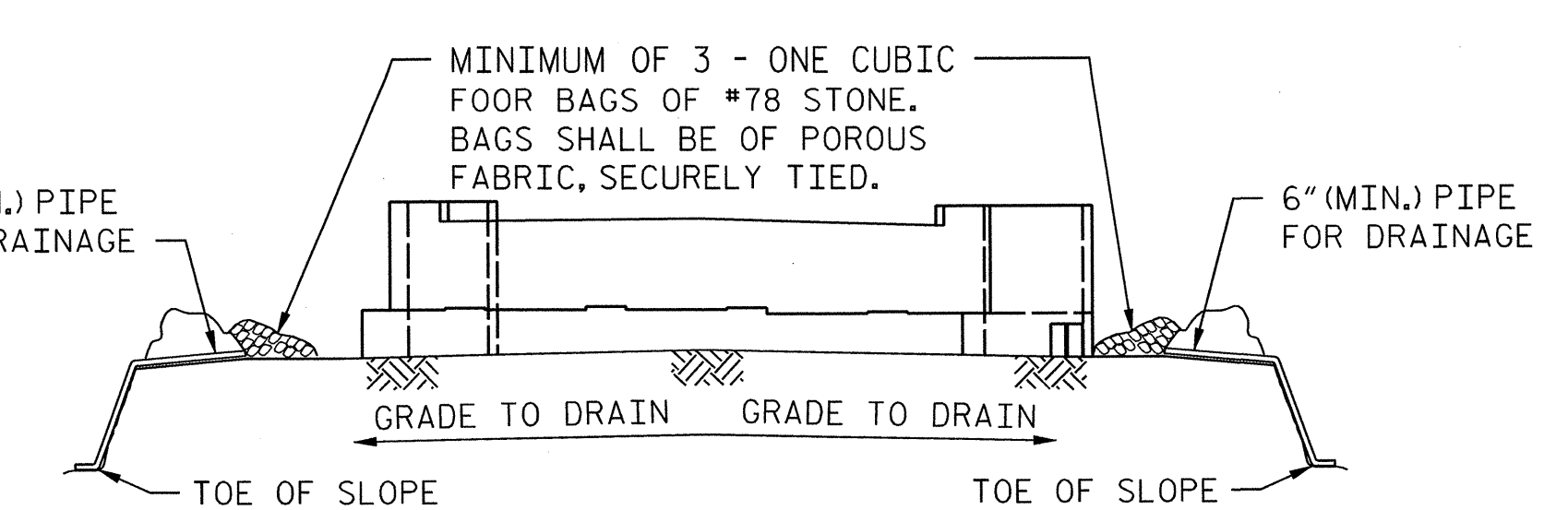
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TITLE		SUBSTRUCTURE END BENT 2 (2 OF 3)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		1/2" = 1'-0"	
DRAWING		S-66	
SHEET		66 OF 72	

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BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9	(1)	30'-6"	1244
B2	12	#9	(1)	31'-9"	1295
B3	4	#5	STR	27'-7"	115
B4	16	#4	STR	27'-4"	292
B5	13	#4	STR	4'-2"	36
B6	18	#4	STR	3'-2"	38
H1	11	#4	(4)	15'-4"	113
H2	11	#4	(4)	15'-4"	113
H3	11	#4	(5)	15'-10"	116
H4	11	#4	(5)	16'-0"	118
K1	32	#4	STR	27'-7"	590
K2	2	#4	STR	3'-0"	4
K3	6	#4	STR	3'-2"	13
S1	72	#5	(3)	5'-1"	382
S2	72	#5	(2)	14'-4"	1076
S3	2	#5	(3)	5'-9"	12
S4	2	#5	(2)	11'-1"	23
S5	2	#5	(3)	5'-4"	11
S6	2	#5	(2)	10'-7"	22
S7	48	#4	(6)	6'-8"	214
S8	2	#6	(7)	10'-3"	31
S9	6	#6	(8)	3'-9"	34
U1	55	#4	(6)	3'-8"	135
U2	15	#4	(6)	7'-2"	72
V1	110	#5	STR	8'-10"	1013
V2	36	#5	STR	10'-4"	388
V3	37	#5	STR	10'-0"	386
TOTAL REINFORCING STEEL					LBS. 7886
END BENT TOTAL QUANTITIES					
CLASS A CONCRETE					
POUR 1 (CAP & LOWER WING)				C.Y.	36.4
POUR 2 (BACKWALL & UPPER WING)				C.Y.	20.1
TOTAL				C.Y.	56.6
HP 12x53 STEEL PILES				NO.	18
				LIN. FT.	1080



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

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

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

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

NOTES:

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

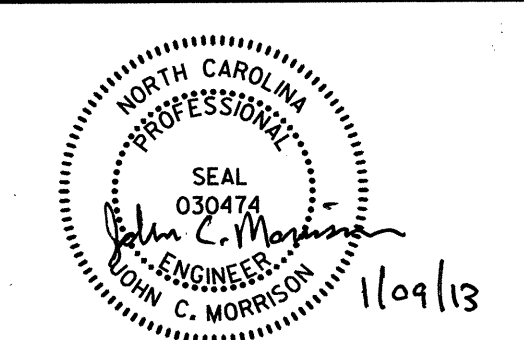
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE FRONT FACE AT THE RATE OF 2%.

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

INSTALL THE 4\"/>

FOR OTHER NOTES, SEE "FOUNDATION NOTES" SHEET.

NO.	BY	DATE	REVISION

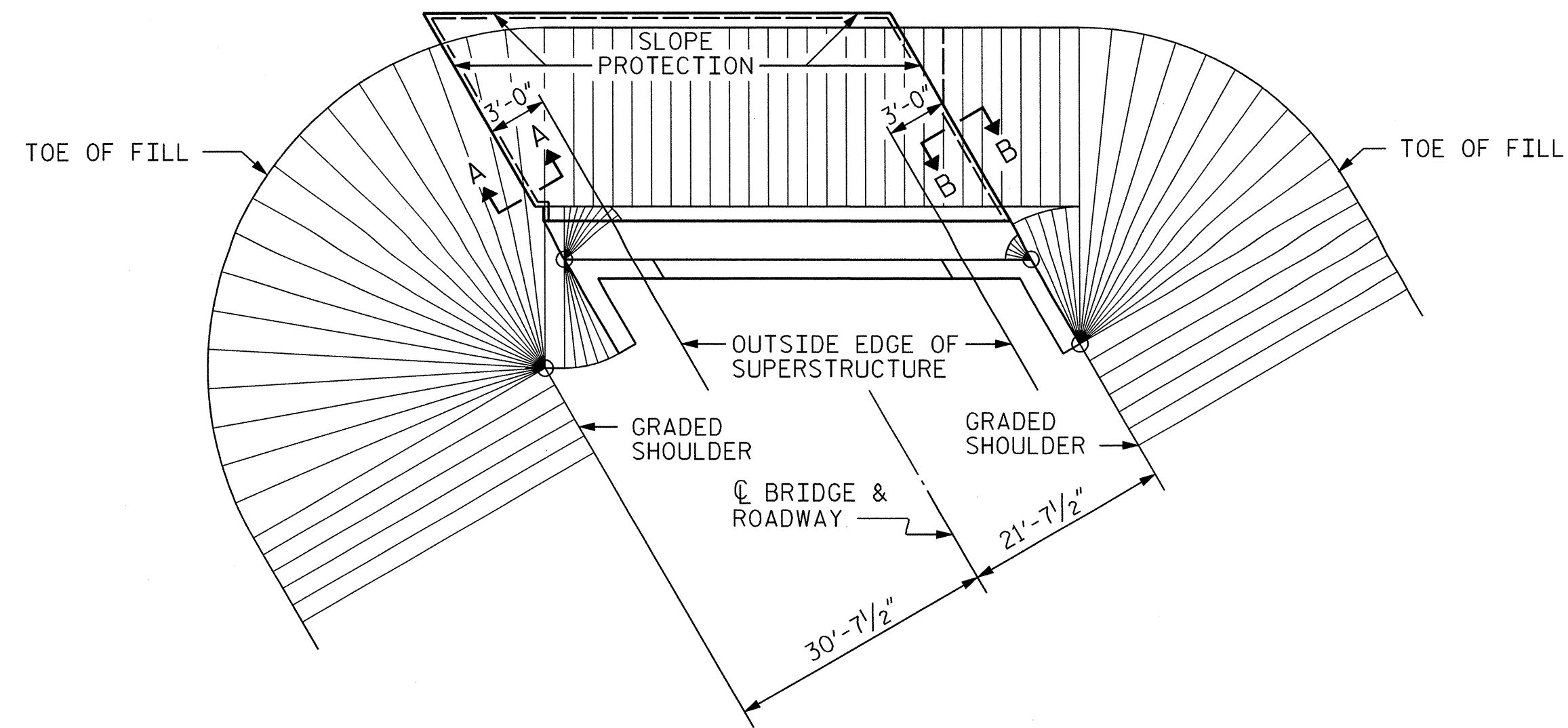


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

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 (919) 854-8200 www.aecom.com
 AECOM License No. F-0462

PROJECT	C-4901C		
TITLE	SUBSTRUCTURE END BENT 2 (3 OF 3)		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	1" = 1'-0"		DRAWING
			S-67
			SHEET 67 OF 72

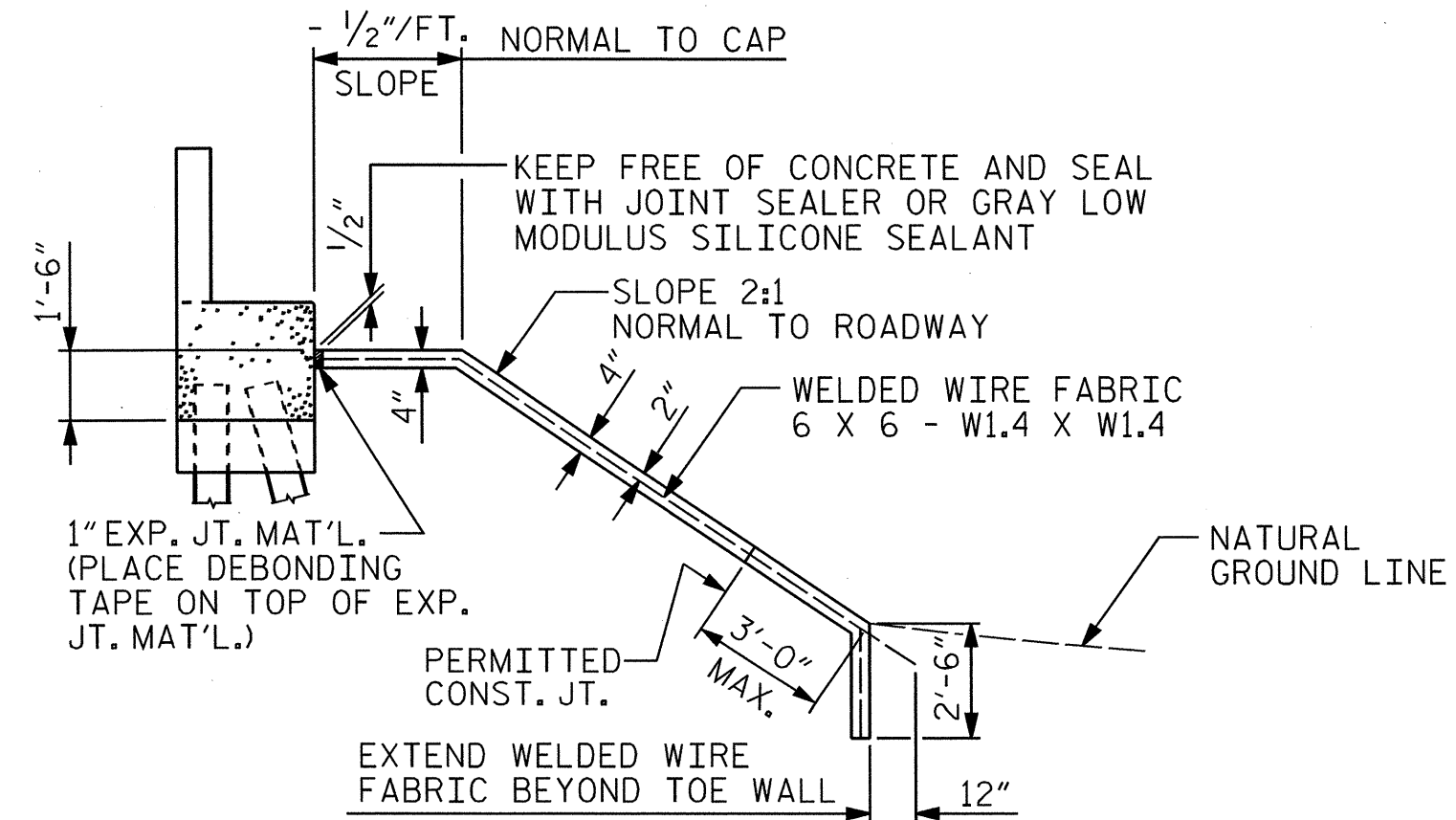
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PLAN - END BENT 1
(2:1 SLOPE)

BRIDGE @ STA. 21+64.67	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	330	578

* QUANTITY SHOWN IS BASED ON 5' POURS.

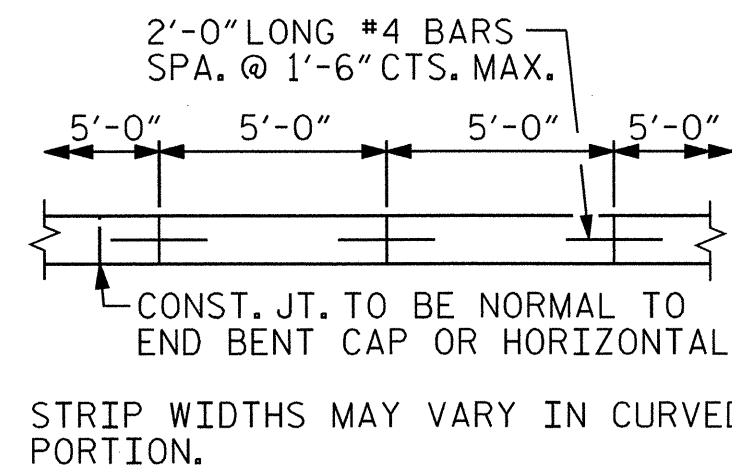


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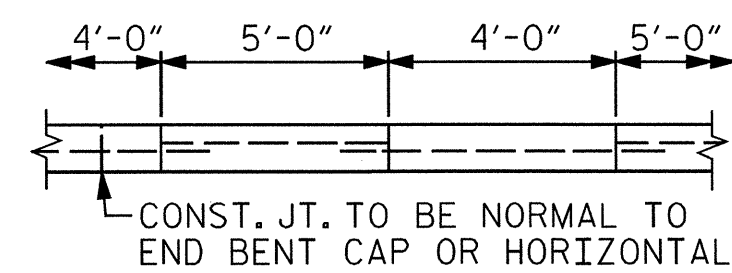
GENERAL NOTES

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

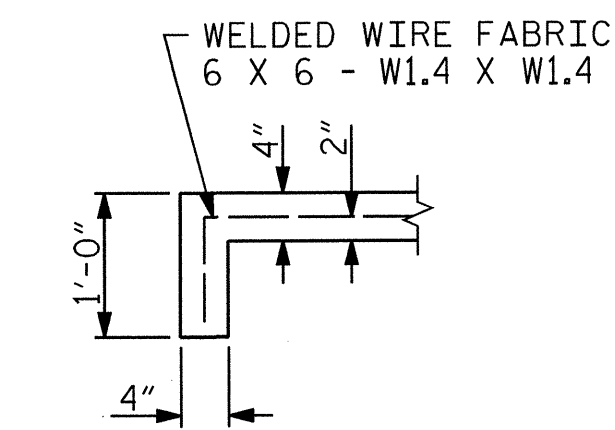
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL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



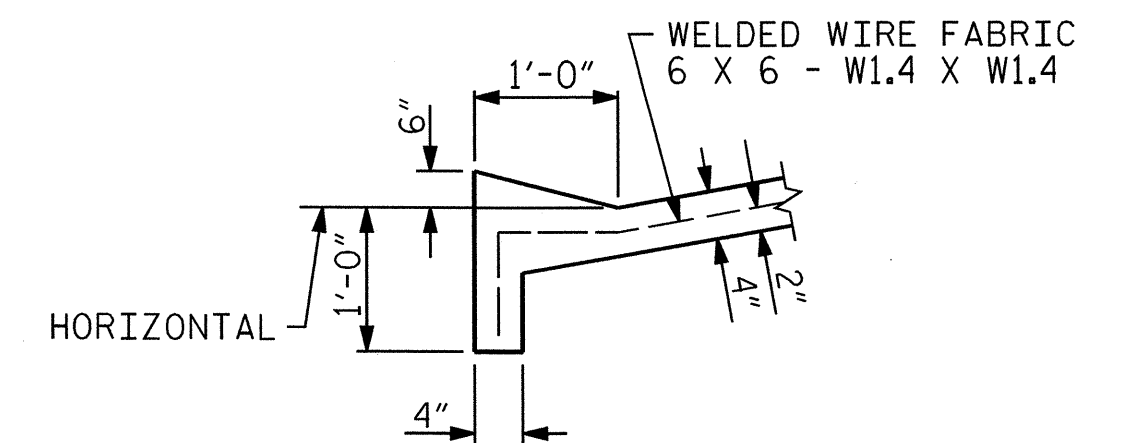
POURING DETAIL



OPTIONAL POURING DETAIL

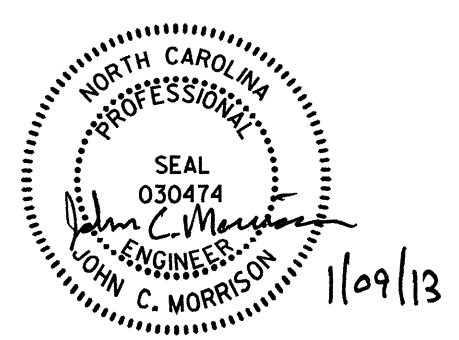


SECTION A-A



SECTION B-B

NO.	BY	DATE	REVISION



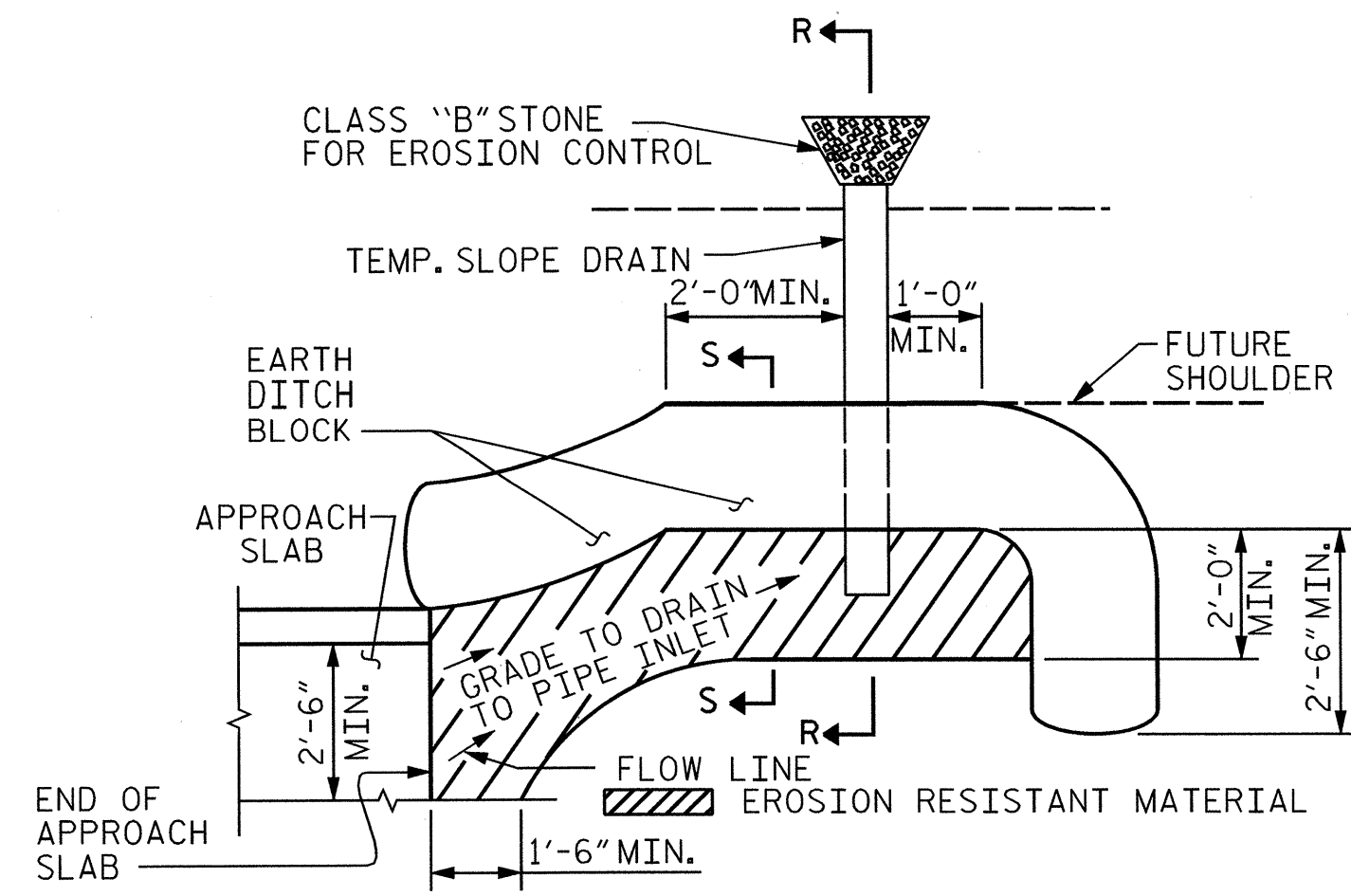
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

PREPARED BY: **AECOM**
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701 CORPORATE CENTER DRIVE, SUITE 475
RALEIGH, NC 27607
(919) 854-6200 www.aecom.com
AECOM License No. F-5342

PROJECT		C-4901C	
TITLE			
SLOPE PROTECTION DETAILS			
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE	N.T.S.	DRAWING	
		S-68	
			SHEET 68 OF 72

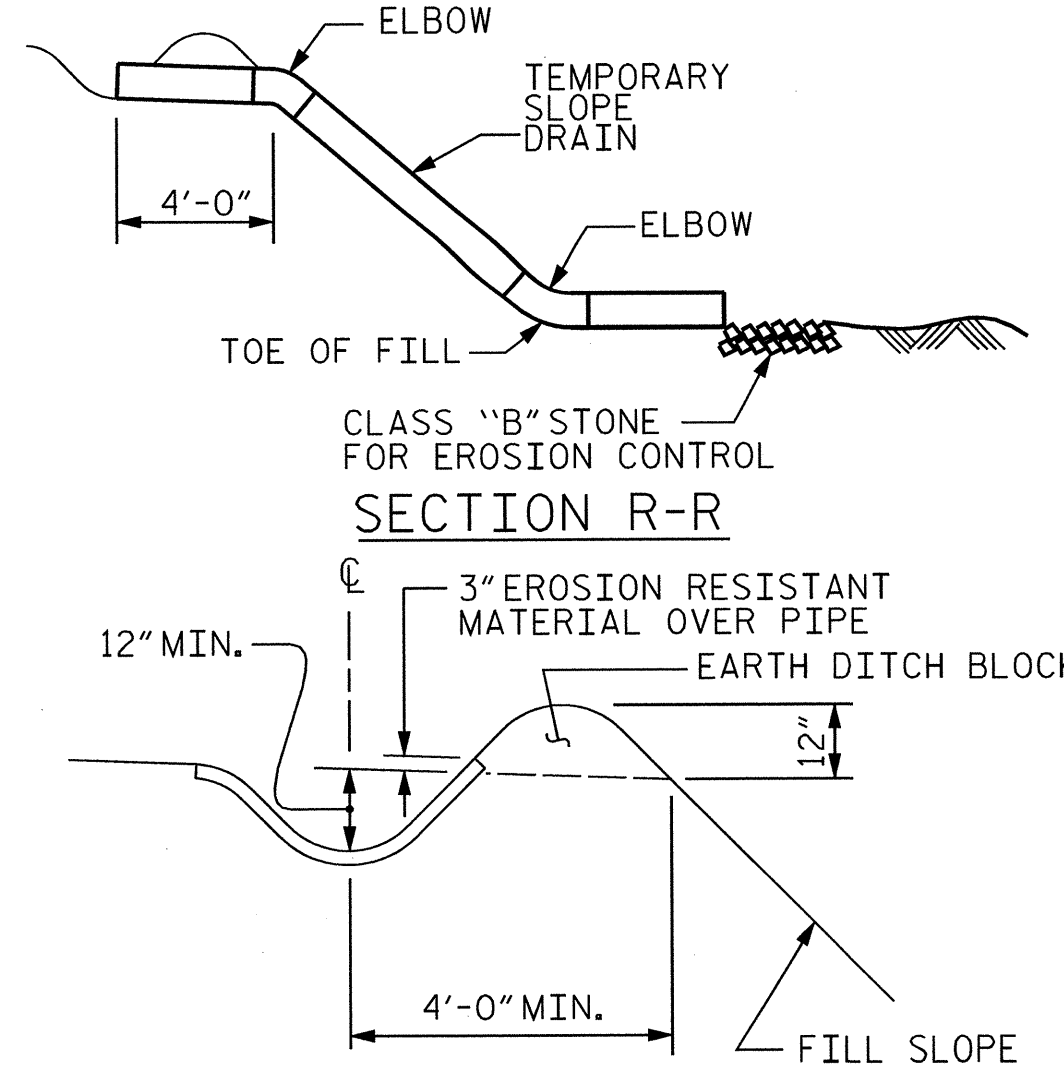
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NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE 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.

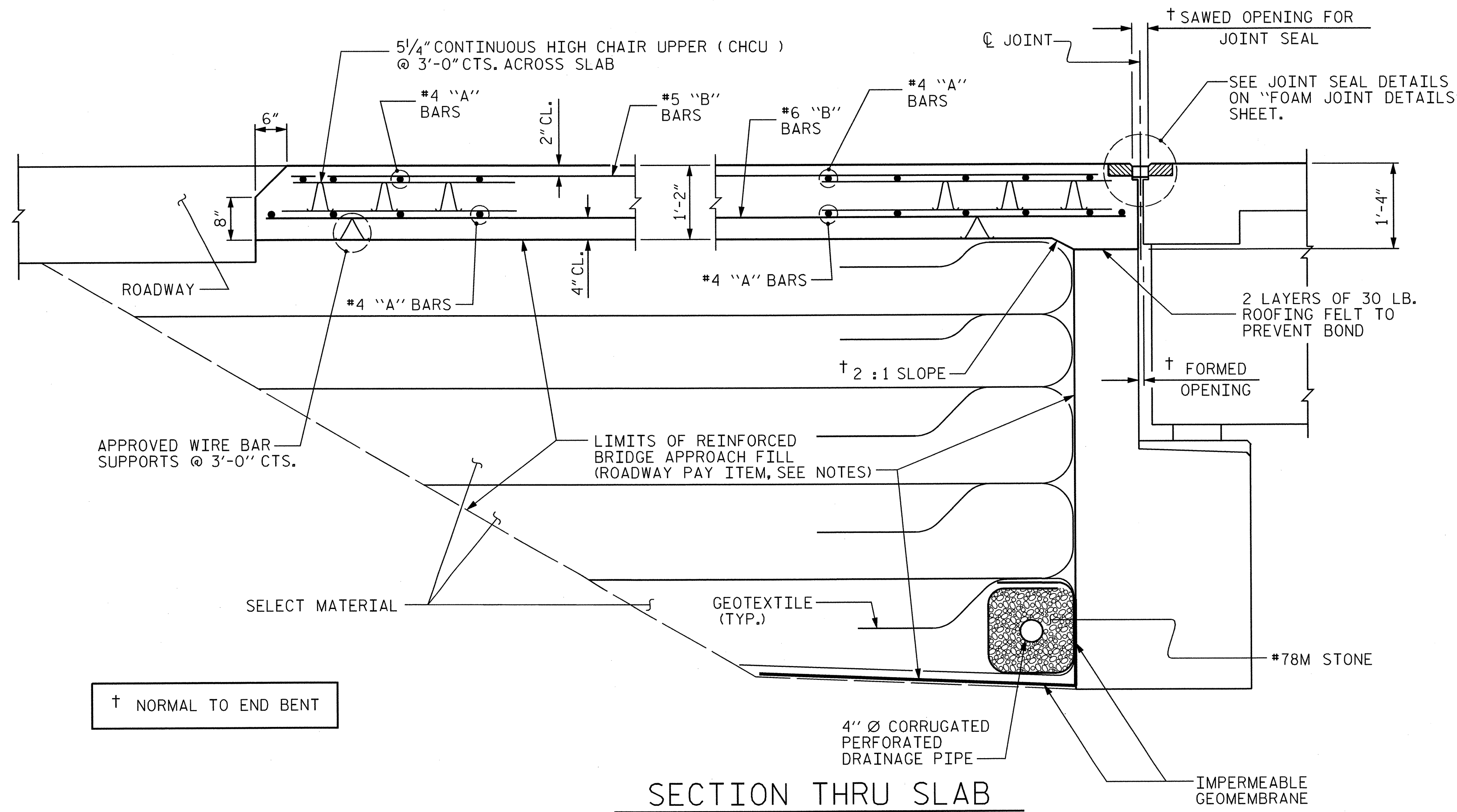
PLAN VIEW



SECTION R-R

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION THRU SLAB

NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 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 JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL OR PARAPET AND END POST.

WITH FOAM JOINT SEAL

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

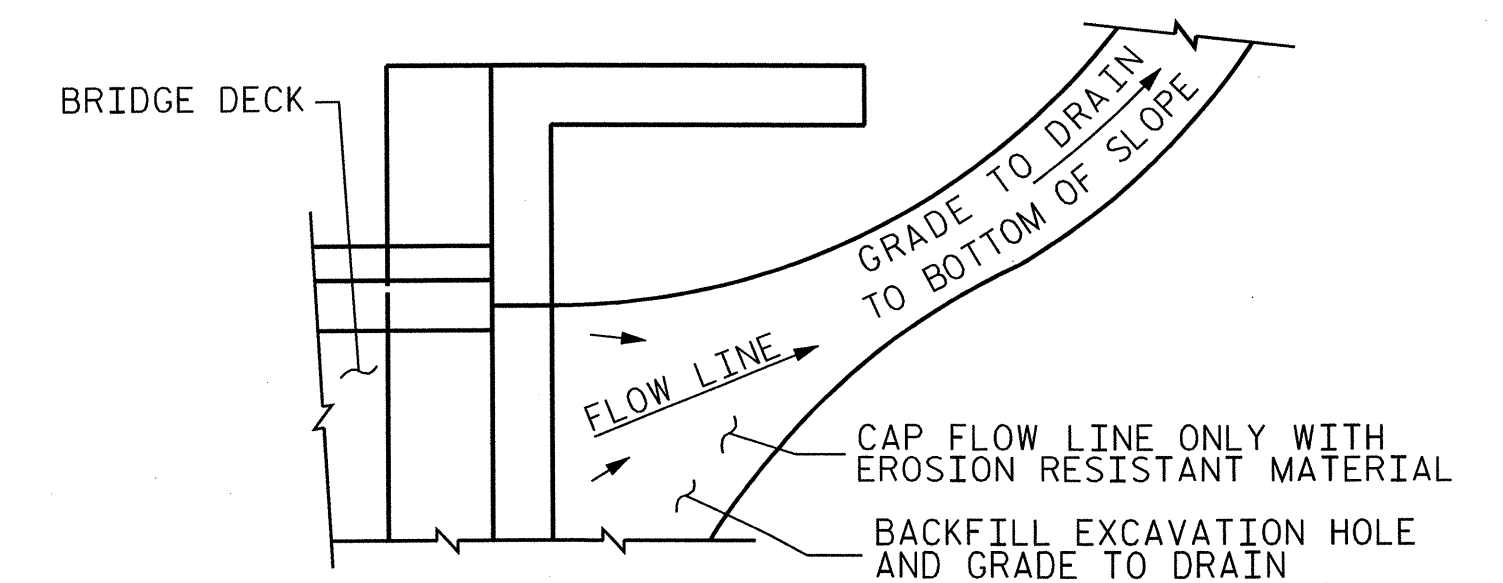
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2" AT END BENT 1 AND 3 1/2" AT END BENT 2.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	19'-2"	384
A2	32	#4	STR	19'-0"	406
*B1	71	#5	STR	14'-8"	1086
B2	71	#6	STR	14'-8"	1564
REINFORCING STEEL				LBS.	1970
*EPOXY COATED REINFORCING STEEL				LBS.	1470
CLASS AA CONCRETE				C. Y.	23
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	22'-5"	449
A2	32	#4	STR	22'-3"	476
*B1	71	#5	STR	14'-8"	1086
B2	71	#6	STR	14'-8"	1564
REINFORCING STEEL				LBS.	2040
*EPOXY COATED REINFORCING STEEL				LBS.	1535
CLASS AA CONCRETE				C. Y.	23

SPLICE LENGTHS

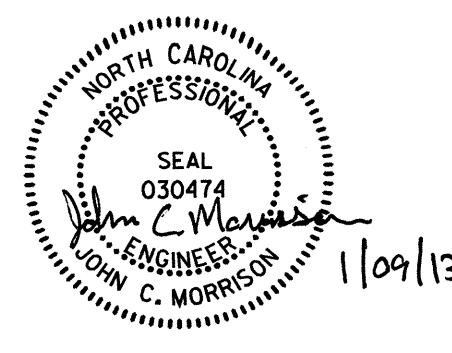
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



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

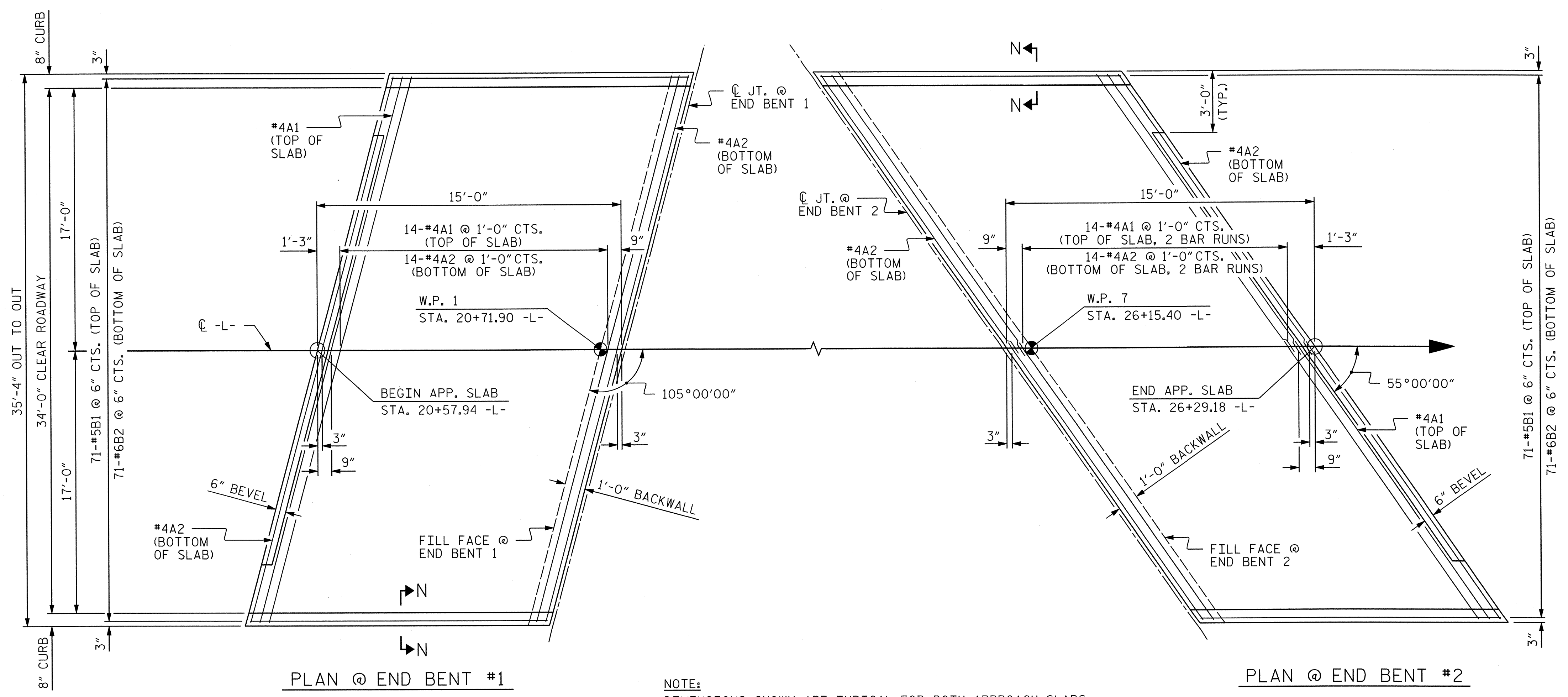
NO.	BY	DATE	REVISION



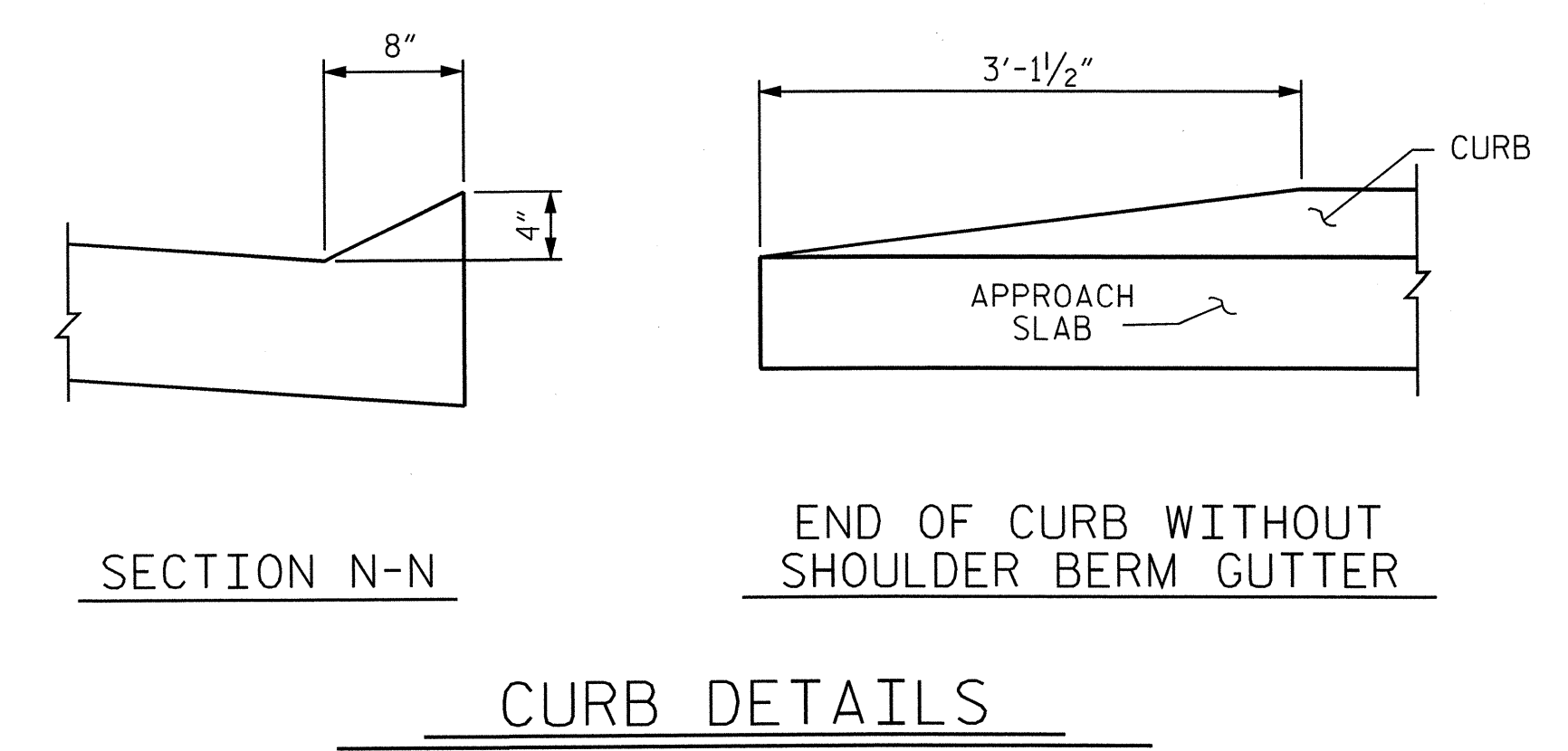
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY: **AECOM**
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 RALEIGH, NC 27607
 (919) 854-6200
 AECOM License No. F0242

PROJECT		C-4901C	
TITLE		BRIDGE APPROACH SLAB (1 OF 2) (FOR FLEXIBLE PAVEMENT)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-70	
SHEET		70 OF 72	

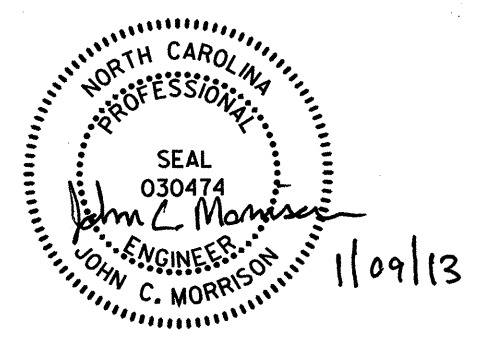
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NOTE:
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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 AECOM License No. F-4042

PROJECT		C-4901C	
TITLE		BRIDGE APPROACH SLAB (2 OF 2) (FOR FLEXIBLE PAVEMENT)	
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
SCALE		N.T.S.	
DRAWING		S-71	
SHEET		71 OF 72	

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 2012 "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.

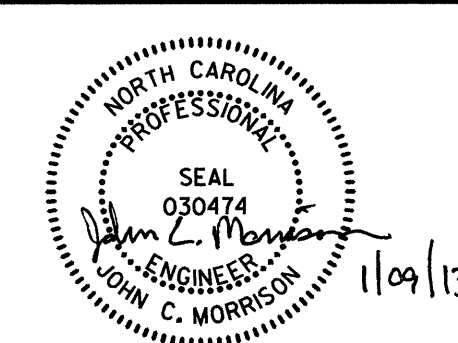
SPECIAL NOTES:

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.

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NO.	BY	DATE	REVISION



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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PROJECT	C-4901C		
TITLE	STANDARD NOTES		
LOCATION	BRIDGE ON SR 2005 BETWEEN SR 2123 AND SR 2014	MILE POST	MP 313.04
DGN BY	DPS	RAILROAD	NS / NCRR
DWN BY	DDL	VAL SEC	V.5-8
CHK BY	JL	DATE	NOVEMBER 2012
		SCALE	N.T.S.
		DRAWING	S-72
		SHEET	72 OF 72

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 2012 "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. FINS 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