

STATE OF NORTH CAROLINA
RAIL DIVISIONS

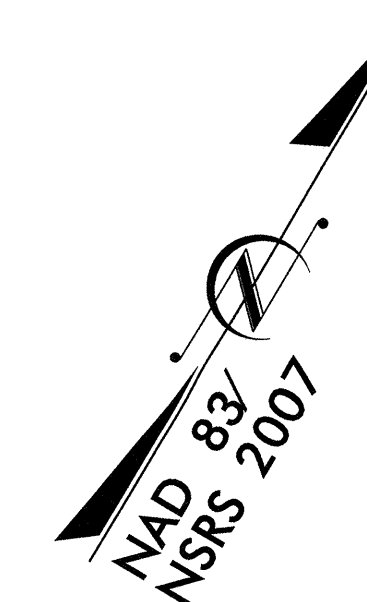
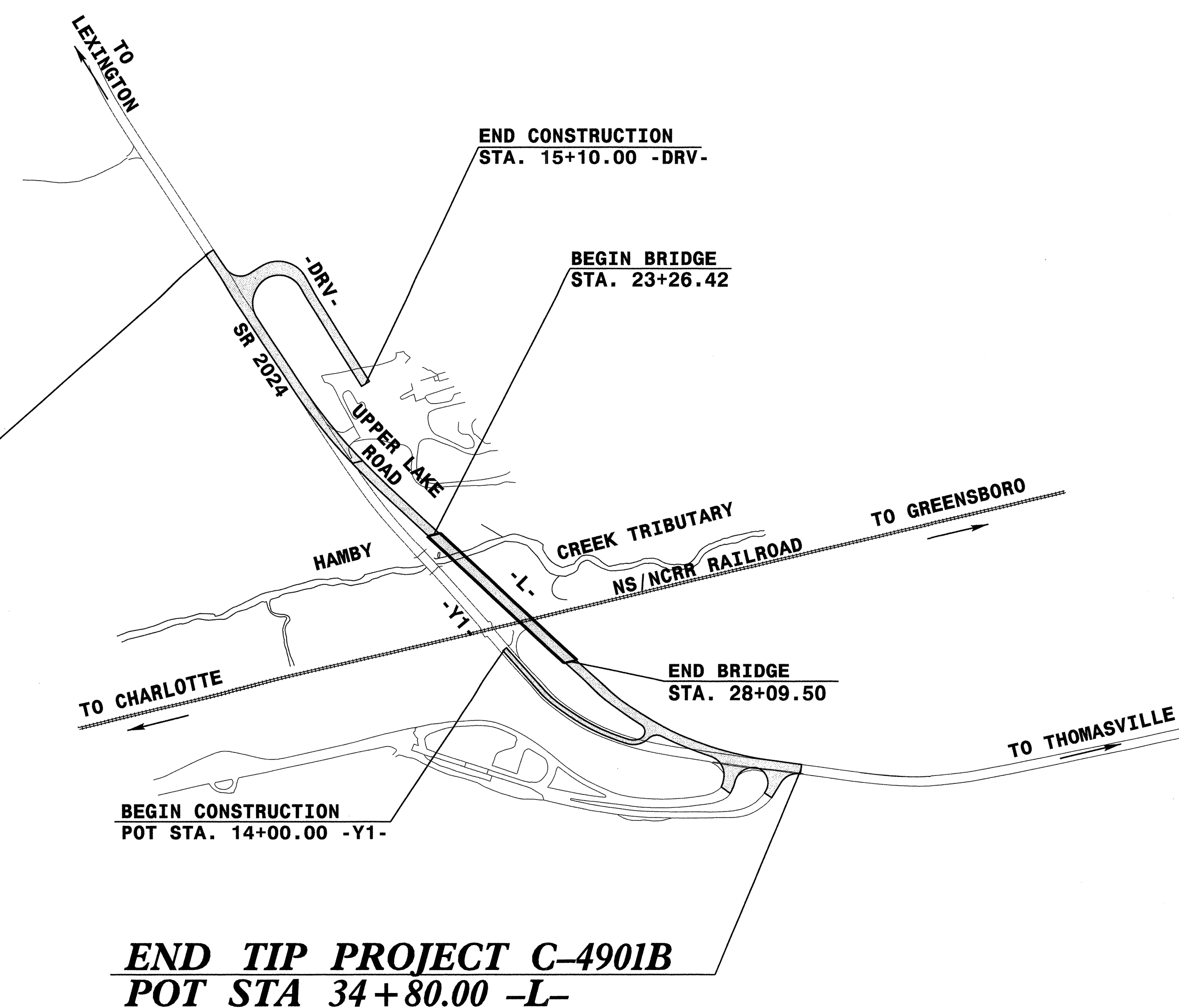
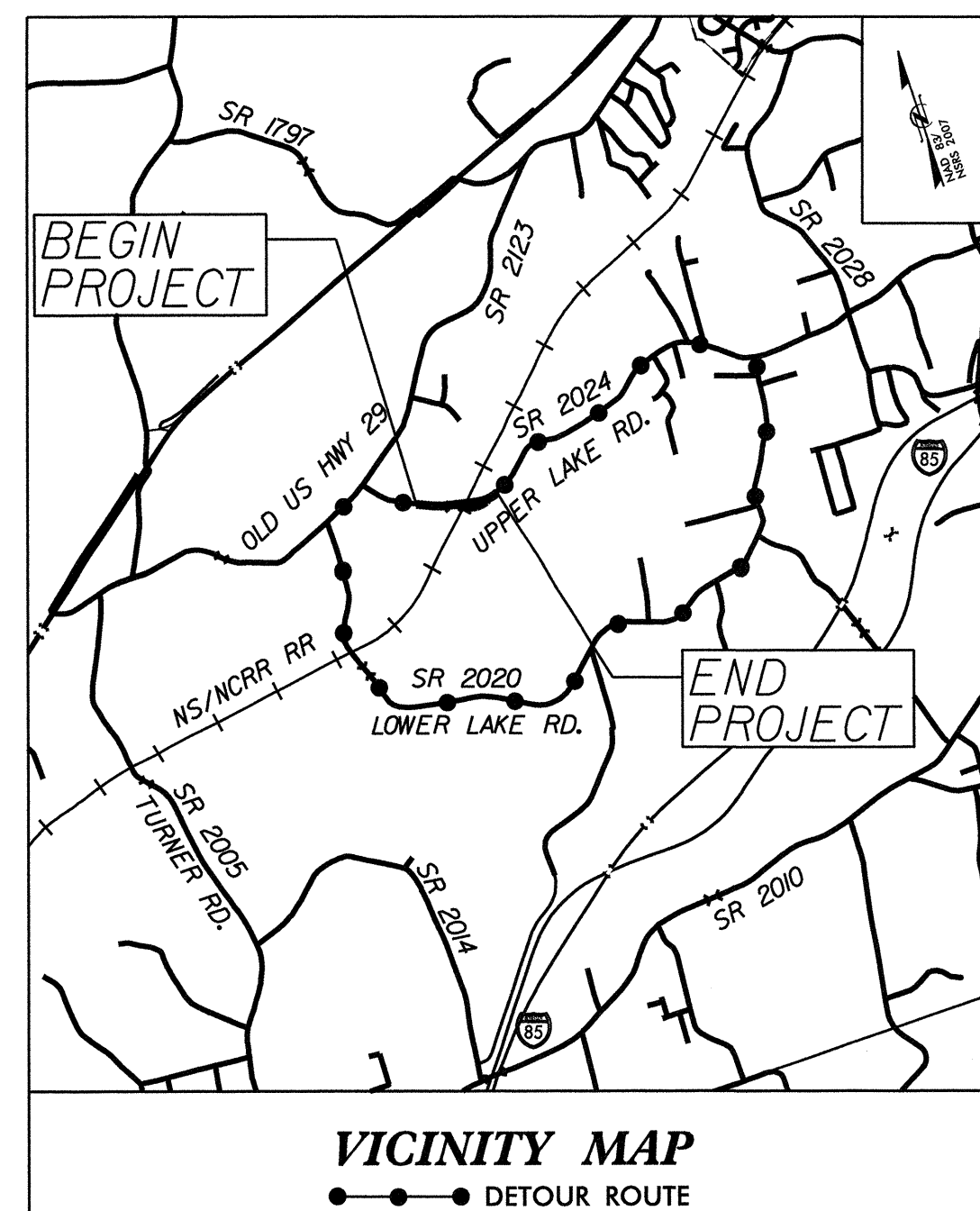


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	C-4901B		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49010.1.STRO5T1B	FRA-FR-HSR-0006-10-01-00	PE, UTIL PE	
49010.1.STRO6T3		PE, UTIL PE	
43219.2.STRO2C4901		R/W	
49010.3.STRO2T4D		UTIL CONST., CONST.	

DAVIDSON COUNTY

LOCATION: UPPER LAKE RD. (SR 2024) GRADE SEPARATION OVER HAMBY CREEK TRIBUTARY AND NS/NCRP RAILROAD

TYPE OF WORK: PAVING, GRADING, DRAINAGE AND STRUCTURE



TIP PROJECT: C-4901B

CONTRACT: C203141

STRUCTURES

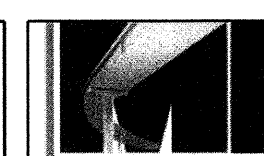
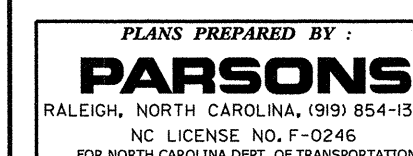
PROJECT LENGTH

LENGTH ROADWAY
TIP PROJECT C-4901B = 0.305 MILES

LENGTH STRUCTURE
TIP PROJECT C-4901B = 0.091 MILES

TOTAL LENGTH
TIP PROJECT C-4901B = 0.396 MILES

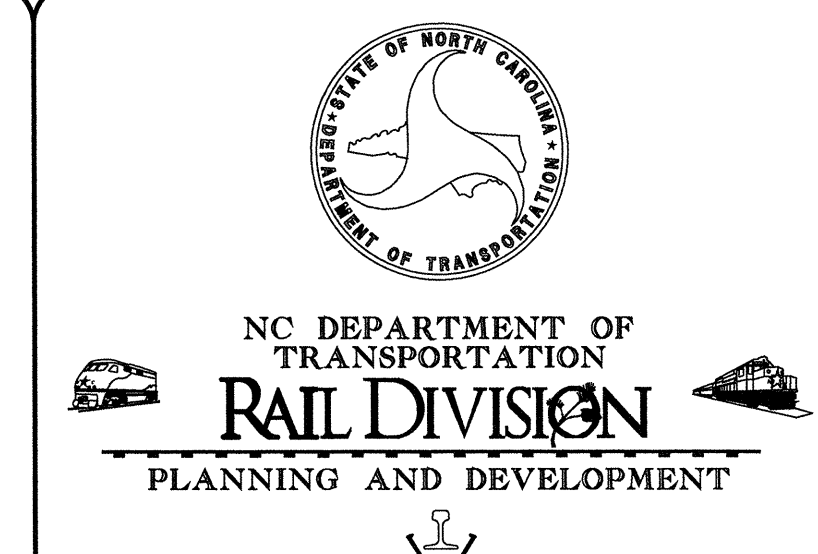
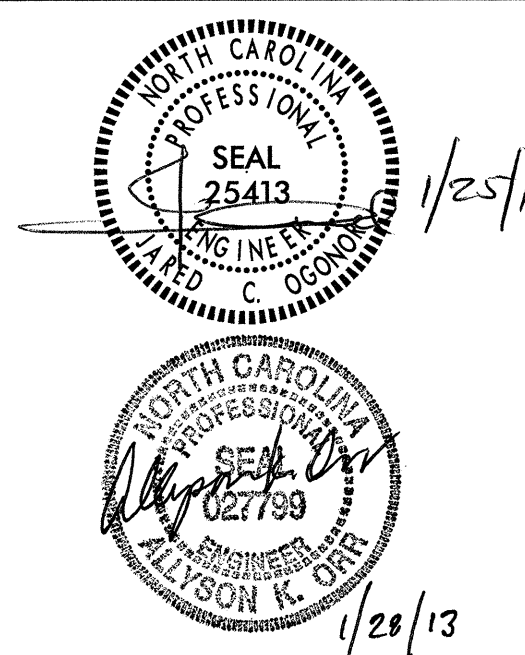
Prepared in the office of:



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

2012 STANDARD SPECIFICATIONS

LETTING DATE:
MARCH 19, 2013



0259DEL_P10c2

STANDARD NOTES

DESIGN DATA:

Table with specifications for LIVE LOAD, IMPACT ALLOWANCE, STRESS IN EXTREME FIBER OF STRUCTURAL STEEL, REINFORCING STEEL IN TENSION, CONCRETE IN COMPRESSION, CONCRETE IN SHEAR, STRUCTURAL TIMBER, COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER, and EQUIVALENT FLUID PRESSURE OF EARTH.

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. FINISHES 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.

INDEX OF DRAWINGS

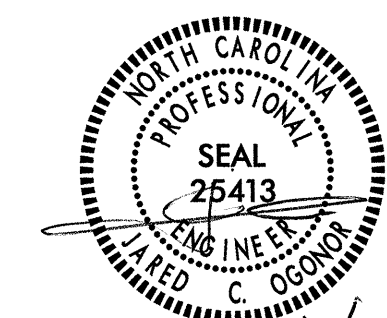
Table listing drawing titles and sheet numbers, including INDEX OF DRAWINGS AND STANDARD NOTES, GENERAL DRAWING FOR BRIDGE ON SR 2024 OVER HAMBY CREEK TRIBUTARY AND NCRR/NSRR BETWEEN SR 2123 AND SR 2751, and STANDARD - LFRF SUMMARY FOR PRESTRESSED CONCRETE GIRDERS.

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

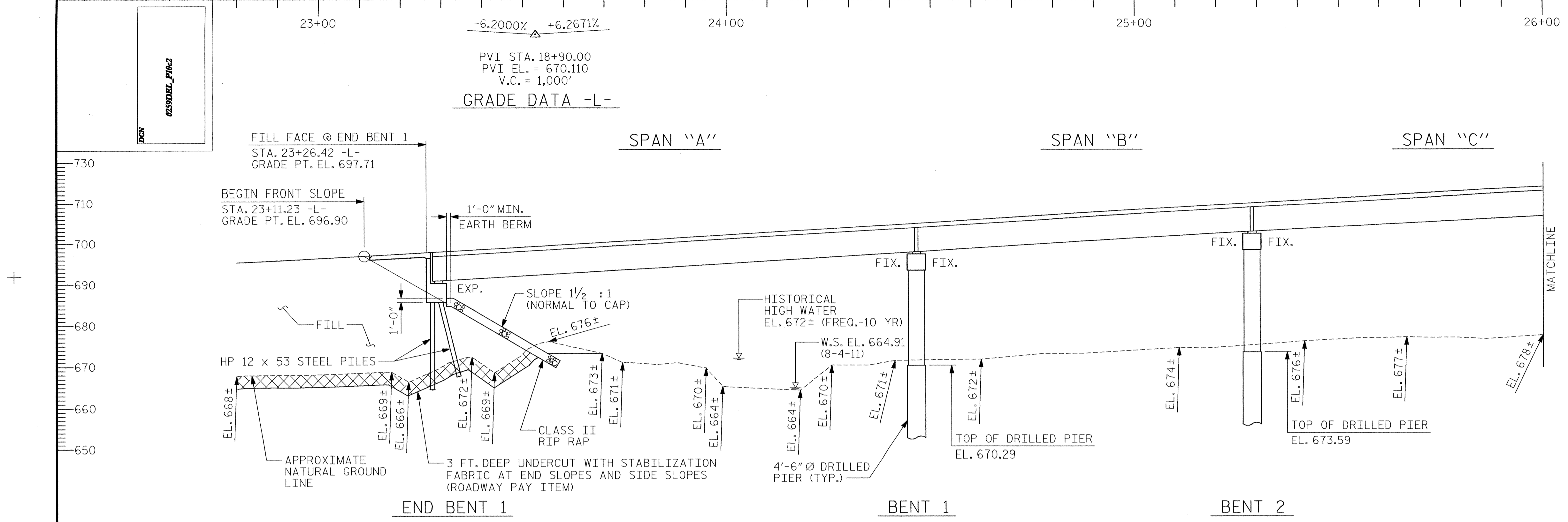
INDEX OF DRAWINGS AND STANDARD NOTES



PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

Table with columns for NO., BY, DATE, NO., BY, DATE, SHEET NO., and TOTAL SHEETS.

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CHECKED BY: JCO DATE: 10-12



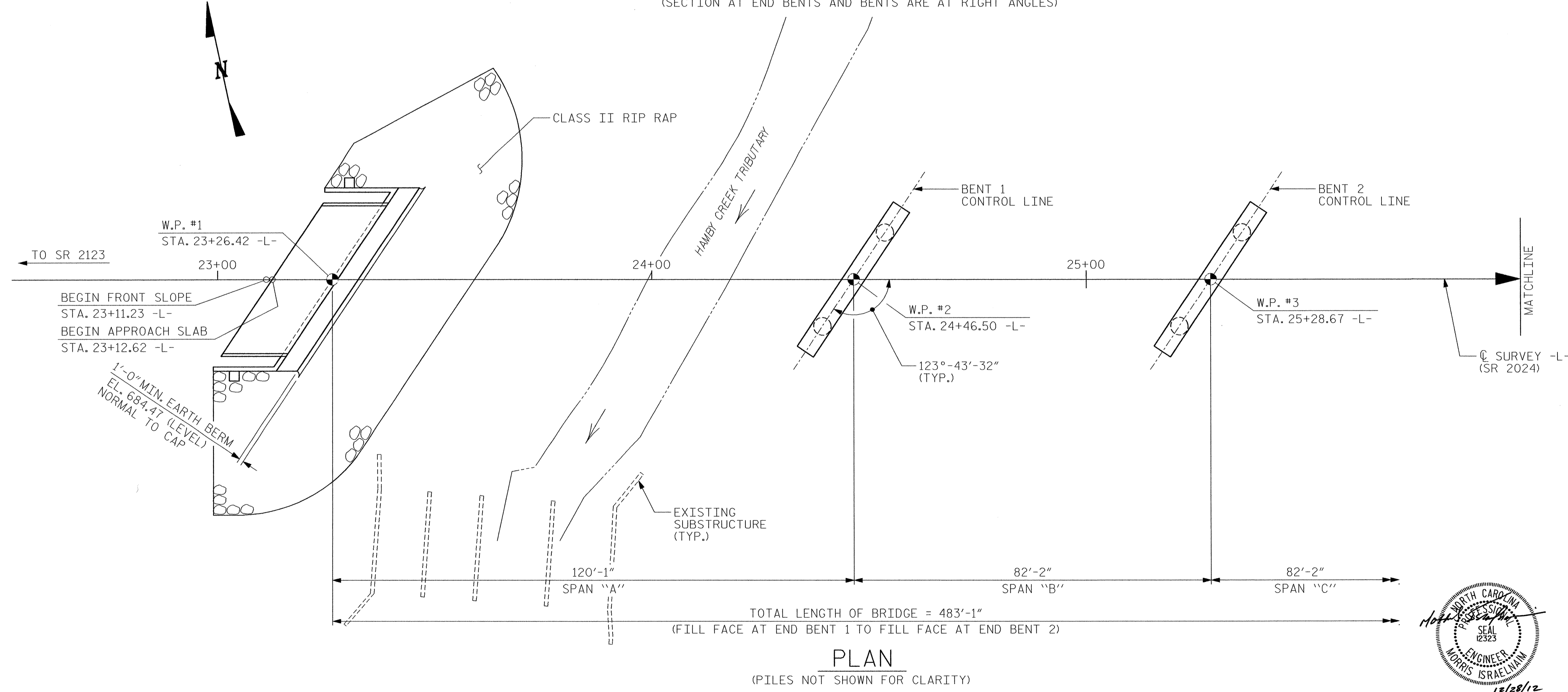
HYDROGRAPHIC DATA

DESIGN DISCHARGE = 1507 CFS
 FREQUENCY OF DESIGN FLOOD = 50 YRS.
 DESIGN HIGH WATER ELEVATION = 673.4
 DRAINAGE AREA = 4.2 SQ. MI.
 BASIC DISCHARGE (Q100) = 1838 CFS
 BASIC HIGH WATER ELEVATION = 673.8

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 2780+ CFS
 FREQUENCY OF OVERTOPPING FLOOD = 500+ YRS.
 OVERTOPPING FLOOD ELEVATION = 689.7

SECTION ALONG C SURVEY -L-
 (SECTION AT END BENTS AND BENTS ARE AT RIGHT ANGLES)



PROJECT NO. C-490I B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
7642+59.64 -TRK2-PR-
 REPLACES BRIDGE NO. 177
 MILE POST NO. 311.10

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 2024 OVER
 HAMBY CREEK TRIBUTARY
 AND NCR/NSRR
 BETWEEN SR 2123 AND SR 2751



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

REVISIONS						SHEET NO. S-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 51
2			4			

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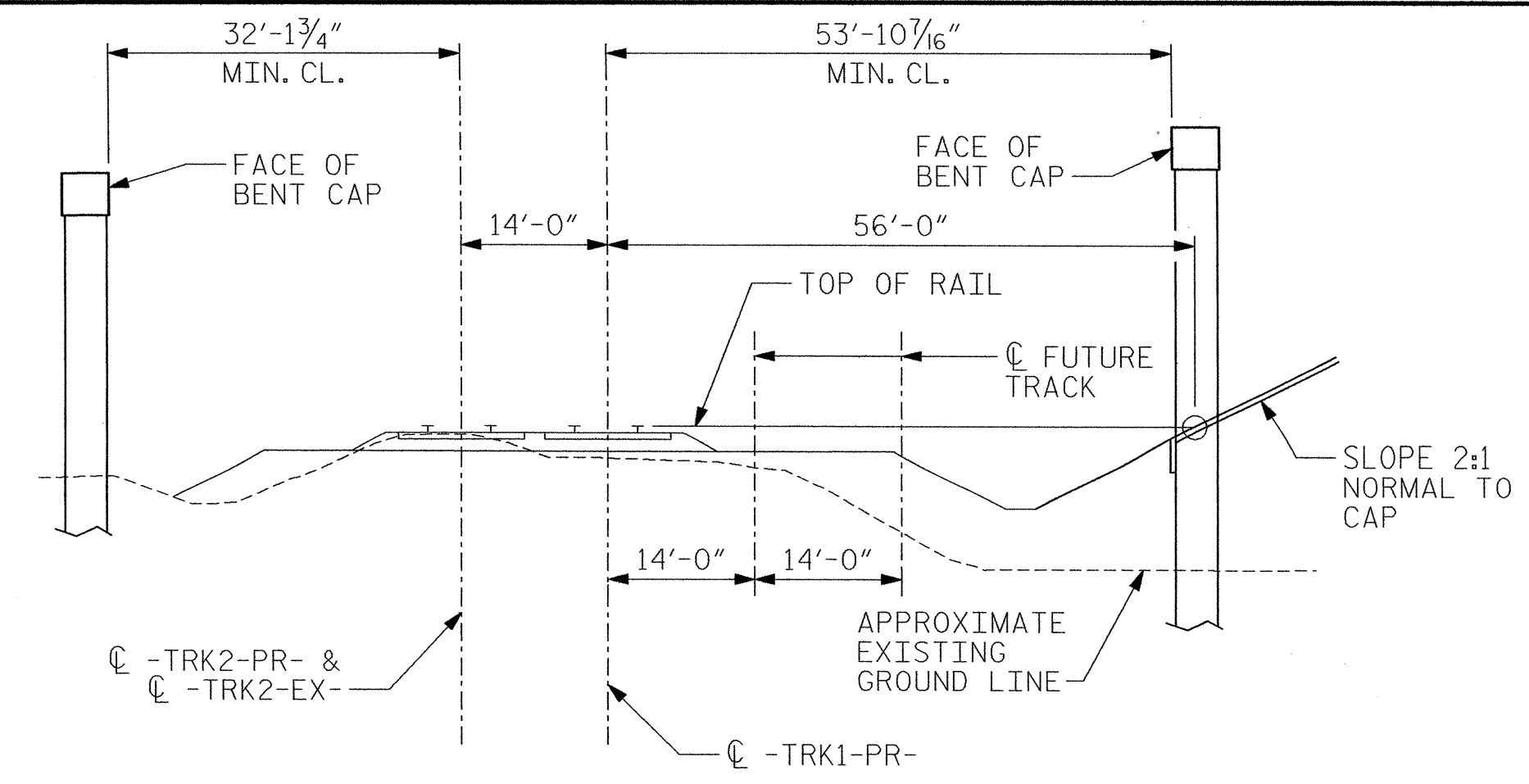
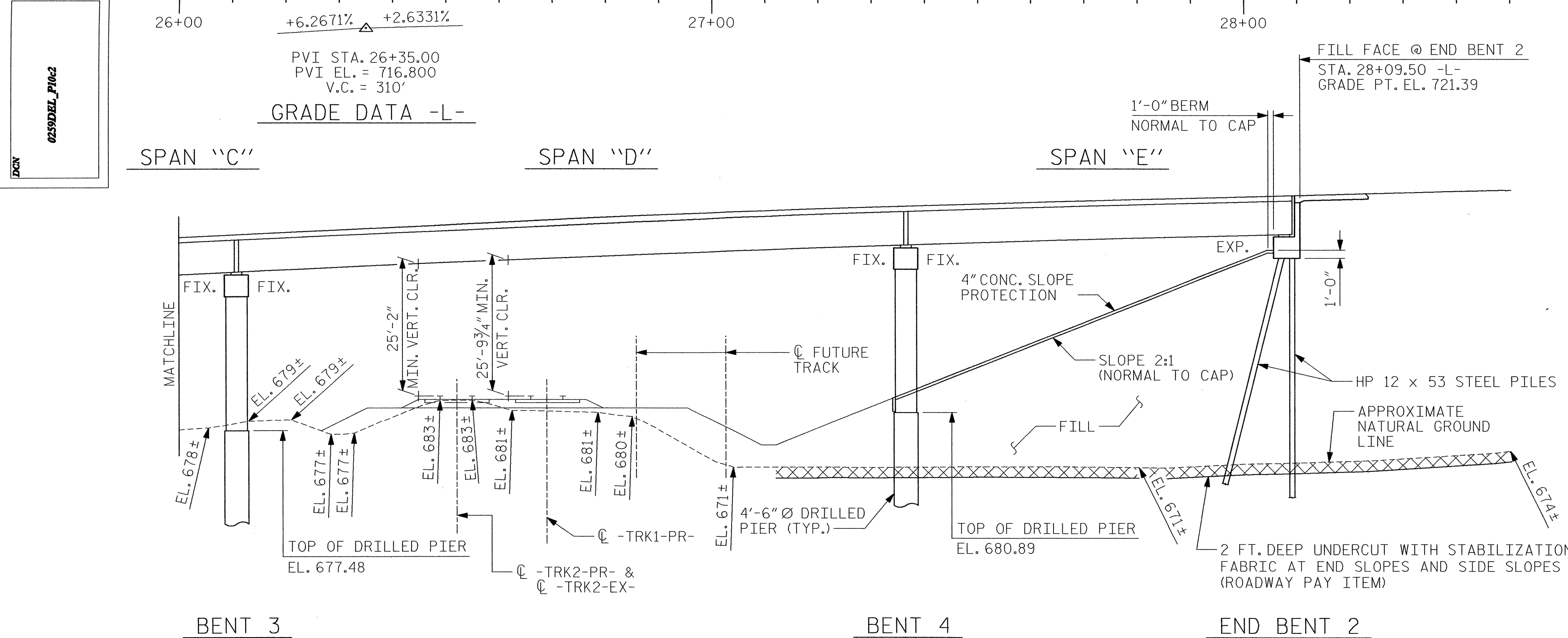
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TOP OF RAIL ELEVATIONS

STATION	ELEVATION	STATION	ELEVATION
7641+00 -TRK2-PR-	684.16	7641+50 -TRK1-PR-	683.93
7642+00 -TRK2-PR-	683.55	7642+00 -TRK1-PR-	683.58
7643+00 -TRK2-PR-	682.92	7642+50 -TRK1-PR-	683.23
7644+00 -TRK2-PR-	682.27	7643+00 -TRK1-PR-	683.92
		7643+50 -TRK1-PR-	682.63

STATION	ELEVATION	STATION	ELEVATION
7641+02.47 -TRK2-EX-	684.16		
7642+02.47 -TRK2-EX-	683.55		
7643+02.47 -TRK2-EX-	682.92		
7644+02.47 -TRK2-EX-	682.27		

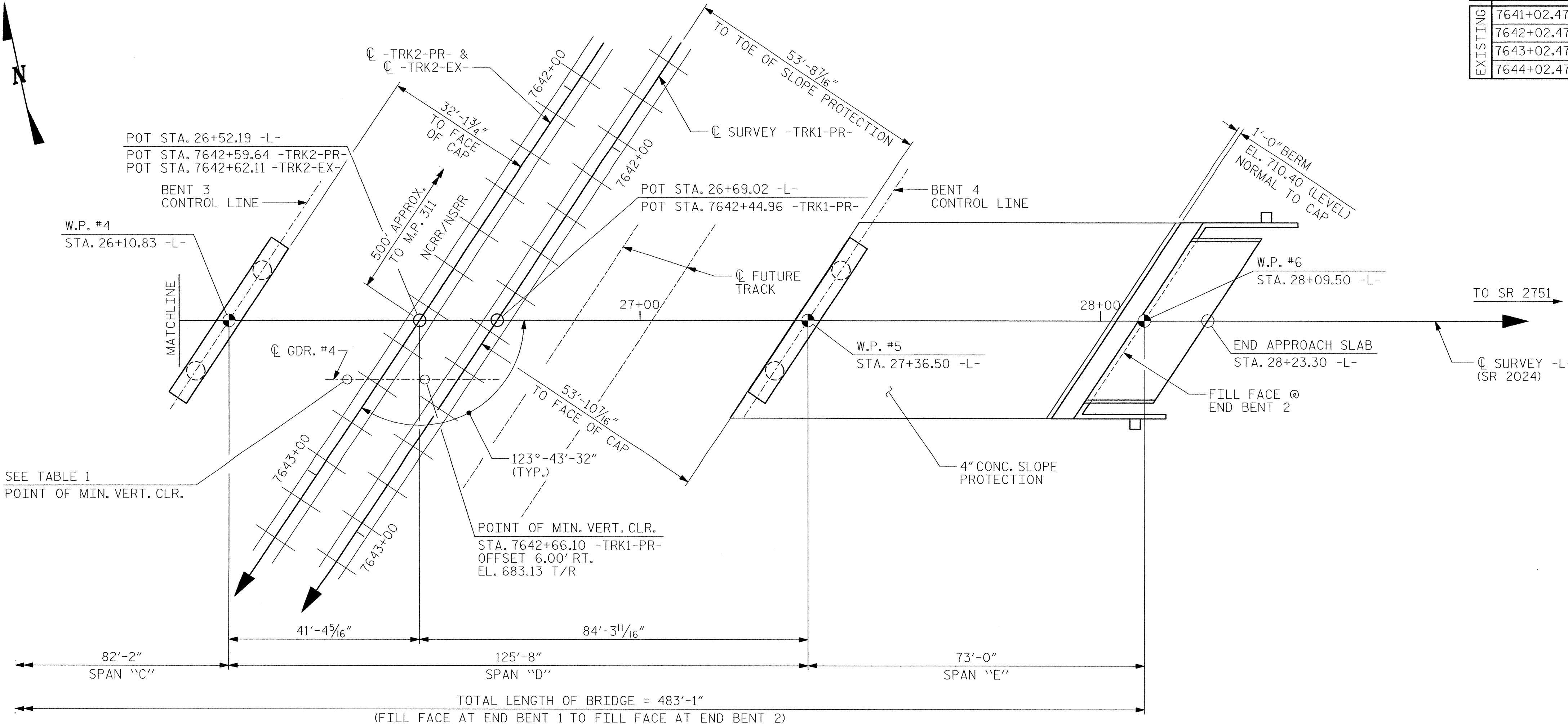
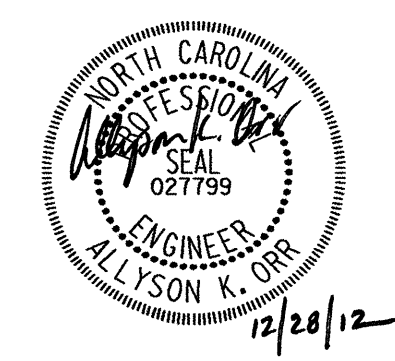


TABLE 1

ALIGNMENT	STATION	OFFSET	T/R ELEV.
-TRK2-PR-	7642+80.77	6.00' RT.	683.05
-TRK2-EX-	7642+83.25	6.00' RT.	683.05

PROJECT NO. C-490IB
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-
7642+59.64 -TRK2-PR-
 REPLACES BRIDGE NO. 177
 MILE POST NO. 311.10

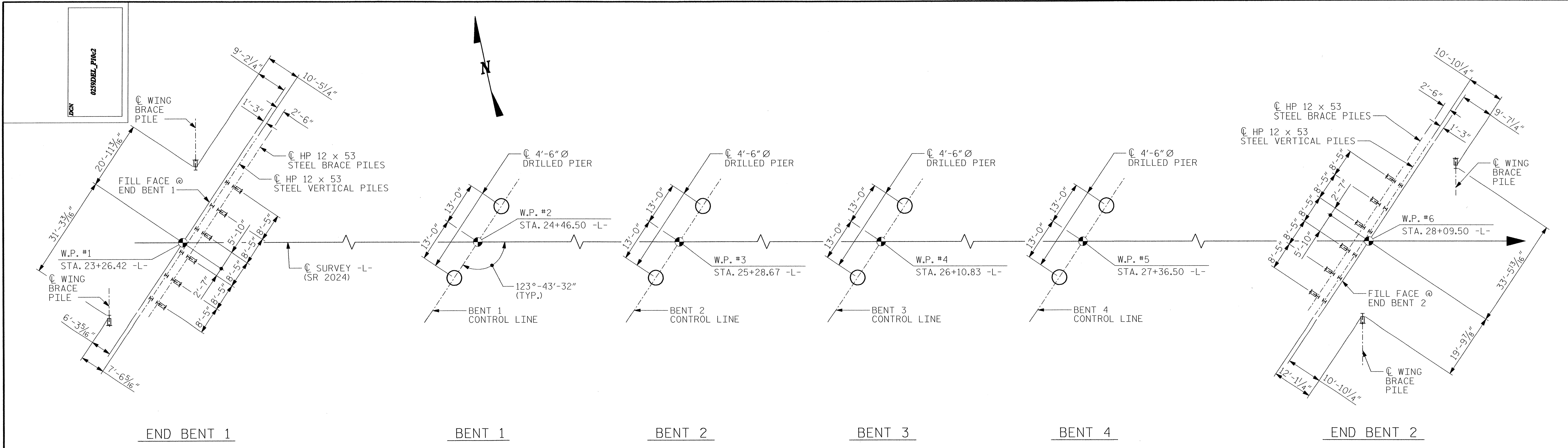
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 2024 OVER
 HAMBY CREEK TRIBUTARY
 AND NCRR/NSRR
 BETWEEN SR 2123 AND SR 2751



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER: P-0671

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

SHEET NO. **S-3**
 TOTAL SHEETS **51**



FOUNDATION LAYOUT

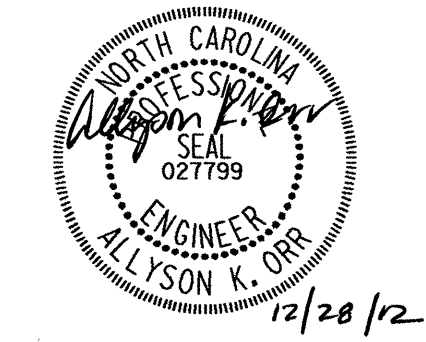
DIMENSIONS LOCATING END BENT PILES AND BENT DRILLED PIERS ARE SHOWN TO CENTERLINE PILES AND DRILLED PIERS.
BRACE PILES ARE TO BE BATTERED AT 3:12.

FOUNDATION NOTES

- FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.
- DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.
- IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 55 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT 1 AND END BENT 2. THE ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.
- OBSERVE A TWO MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO THE BOTTOM OF CAP ELEVATION BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT 1 AND 2.
- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- DRILLED PIERS AT BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 810 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 35 TSF.
- DRILLED PIERS AT BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 660 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 19 TSF (LT) AND 22 TSF (RT).
- DRILLED PIERS AT BENT 3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 820 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 21 TSF.
- DRILLED PIERS AT BENT 4 ARE DESIGNED FOR A FACTORED RESISTANCE OF 815 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 34 TSF.
- INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 644 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 11 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
- PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1. IF REQUIRED, DO NOT EXTEND PERMANENT CASINGS BELOW ELEVATION 658 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT CASINGS.
- SPT MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SPT. FOR SPT TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- INSTALL DRILLED PIERS AT BENT 2 (LT) THAT EXTEND TO AN ELEVATION NO HIGHER THAN 647 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 11 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
- INSTALL DRILLED PIERS AT BENT 2 (RT) THAT EXTEND TO AN ELEVATION NO HIGHER THAN 642 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 11 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
- INSTALL DRILLED PIERS AT BENT 3 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 654 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 10 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
- INSTALL DRILLED PIERS AT BENT 4 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 648.5 FT, SATISFY THE REQUIRED TIP RESISTANCE, AND HAVE A PENETRATION OF AT LEAST 10 FT INTO ROCK AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.
- THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS 666 FEET. THE SCOUR CRITICAL ELEVATION IS USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. FOR SID INSPECTIONS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
7642+59.64 -TRK2-PR-

SHEET 3 OF 5
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 2024 OVER
 HAMBY CREEK TRIBUTARY
 AND NCRR/NSRR
 BETWEEN SR 2123 AND SR 2751



MI ENGINEERING
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 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

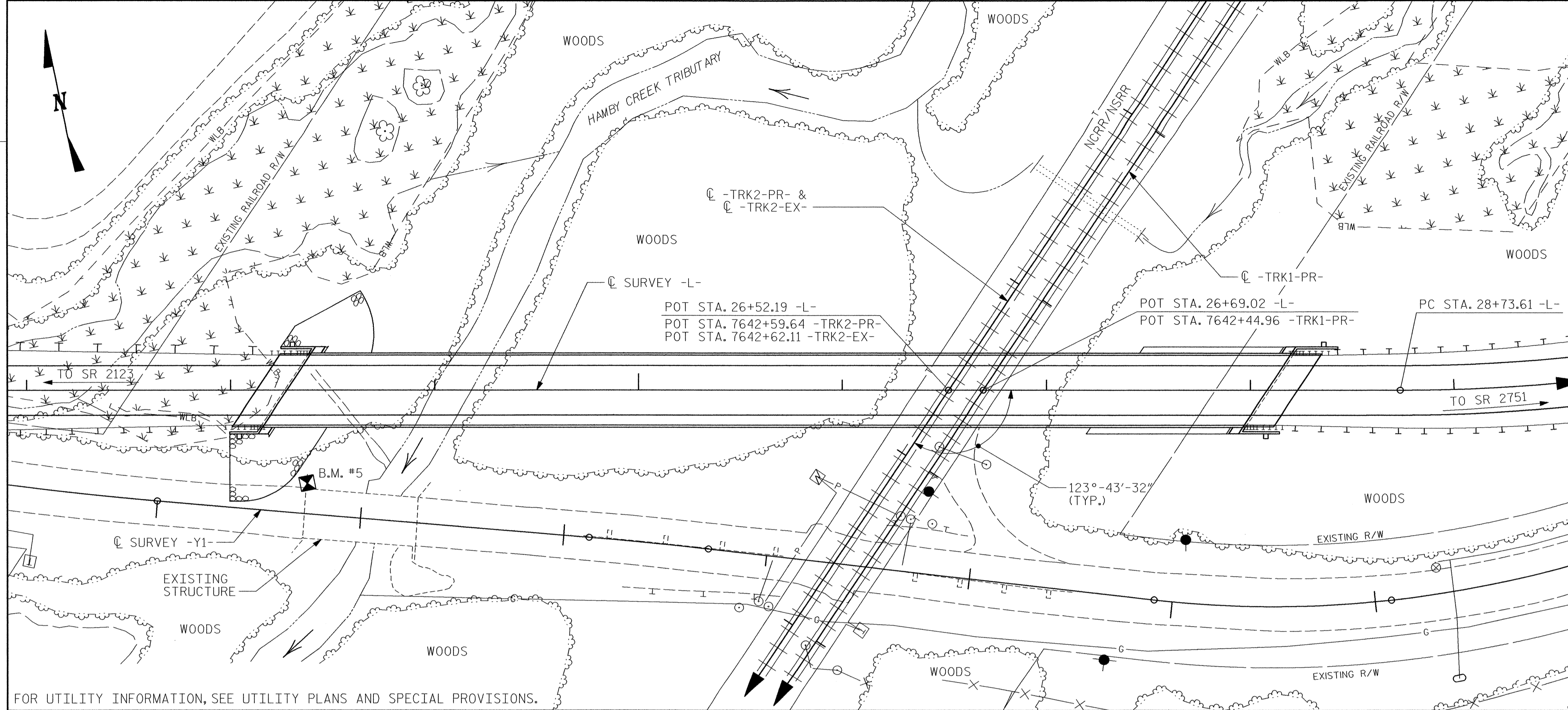
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SHEET NO.
S-4
 TOTAL SHEETS
51

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12

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B.M. #5: RR SPIKE IN TOP OF POST SUPPORTING WOODEN HEADWALL OF BRIDGE AT 45.25' RIGHT OF STA. 23+37.51 -L-, EL. 674.35.



LOCATION SKETCH

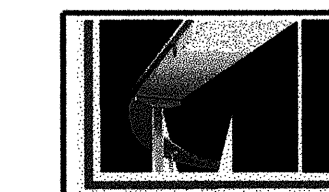
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

PROJECT NO. C-490I B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
7642+59.64 -TRK2-PR-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 2024 OVER
 HAMBY CREEK TRIBUTARY
 AND NCRR/NSRR
 BETWEEN SR 2123 AND SR 2751



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

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

SHEET NO.
S-5
 TOTAL SHEETS
51

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : B.E. ATKINSON DATE : 10/12

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NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

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

THE EXISTING STRUCTURE CONSISTING OF 4 SPANS (2 CONTINUOUS SPANS @ 13'-4" & 12'-0" AND 2 CONTINUOUS SPANS @ 16'-6" & 13'-10") WITH ASPHALT WEARING SURFACE ON STEEL PLANK DECK ON I-BEAMS (CONTINUOUS) WITH A CLEAR ROADWAY WIDTH OF 24 FT. SUPPORTED BY END BENTS AND INTERIOR BENTS ON TIMBER CAP AND PILES, LOCATED DOWNSTREAM FROM THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FALLING IN THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE" AT STATION 26+52.19 -L-.

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

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

FOR FOUNDATION NOTES, SEE "FOUNDATION LAYOUT" SHEET.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
7642+59.64 -TRK2-PR-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 2024 OVER
 HAMBY CREEK TRIBUTARY
 AND NCRR/NSRR
 BETWEEN SR 2123 AND SR 2751



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			51

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 25+52.19 -L-	4'-6" Ø DRILLED PIER IN SOIL	4'-6" Ø DRILLED PIER NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIER	SID INSPECTION	SPT TESTING	CSL TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM
SUPERSTRUCTURE								17,421	15,682		LUMP SUM
END BENT 1										80.0	
BENT 1		25.0	28.0	24.6						57.7	
BENT 2		31.5	27.0							59.0	
BENT 3		24.0	23.0							58.9	
BENT 4		40.0	25.0							59.8	
END BENT 2										74.3	
TOTAL	LUMP SUM	120.5	103.0	24.6	1	1	1	17,421	15,682	389.7	LUMP SUM

TOTAL BILL OF MATERIAL

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	72" PRESTRESSED CONCRETE MODIFIED BULB TEE GIRDERS		HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	72" CHAIN LINK FENCE	4" CONCRETE SLOPE PROTECTION	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	FOAM JOINT SEALS
	LBS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	SQ. YDS.	TON	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			20	1900.83			960.75	248.00				LUMP SUM	LUMP SUM
END BENT 1	7,746				14	518				530	590		
BENT 1	15,601	2,875											
BENT 2	15,173	3,151											
BENT 3	15,421	2,856											
BENT 4	20,739	3,473											
END BENT 2	8,147				14	728			343				
TOTAL	82,827	12,355	20	1900.83	28	1,246	960.75	248.00	343	530	590	LUMP SUM	LUMP SUM

12/27/2012 4:06:03 PM User: bionning Filename: P:\NC Projects\M1001 - C4901B Upper Lake Road\C-4901B\Structures\C4901B_SD_GDE.dgn

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12

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LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{dc}	γ_{ow}
	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				
						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)	
																								MOMENT
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.01	--	1.75	0.867	1.20	1	EL	46.1	1.00	1.17	4	I	11.8	0.80	0.867	1.01	1	EL	46.1		
	HL-93 (OPERATING)	N/A		1.49	--	1.35	0.867	1.56	1	EL	46.1	1.00	1.54	4	I	11.8	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.45	52	1.75	0.867	1.73	1	EL	46.1	1.00	1.78	4	I	11.8	0.80	0.867	1.45	1	EL	46.1		
	HS-20 (OPERATING)	36.000		2.24	81	1.35	0.867	2.24	1	EL	46.1	1.00	2.33	4	I	11.8	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		3.49	47	1.40	0.867	5.21	1	EL	46.1	1.00	5.77	4	I	11.8	0.80	0.867	3.49	1	EL	46.1		
		SNGARBS2	20.000		2.49	50	1.40	0.867	3.71	1	EL	46.1	1.00	4.01	4	I	11.8	0.80	0.867	2.49	1	EL	46.1	
		SNAGRIS2	22.000		2.32	51	1.40	0.867	3.45	1	EL	46.1	1.00	3.69	4	I	11.8	0.80	0.867	2.32	1	EL	46.1	
		SNCOTTS3	27.250		1.72	47	1.40	0.867	2.56	1	EL	46.1	1.00	2.77	4	I	11.8	0.80	0.867	1.72	1	EL	46.1	
		SNAGGRS4	34.925		1.41	49	1.40	0.867	2.09	1	EL	46.1	1.00	2.14	4	I	11.8	0.80	0.867	1.41	1	EL	46.1	
		SNS5A	35.550		1.38	49	1.40	0.867	2.05	1	EL	46.1	1.00	2.06	4	I	11.8	0.80	0.867	1.38	1	EL	46.1	
		SNS6A	39.950		1.26	50	1.40	0.867	1.87	1	EL	46.1	1.00	1.85	4	I	11.8	0.80	0.867	1.26	1	EL	46.1	
	SNS7B	42.000		1.19	50	1.40	0.867	1.78	1	EL	46.1	1.00	1.78	4	I	11.8	0.80	0.867	1.19	1	EL	46.1		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.54	51	1.40	0.867	2.29	1	EL	46.1	1.00	2.30	4	I	11.8	0.80	0.867	1.54	1	EL	46.1	
		TNT4A	33.075		1.53	51	1.40	0.867	2.28	1	EL	46.1	1.00	2.26	4	I	11.8	0.80	0.867	1.53	1	EL	46.1	
		TNT6A	41.600		1.23	51	1.40	0.867	1.84	1	EL	46.1	1.00	1.93	4	I	11.8	0.80	0.867	1.23	1	EL	46.1	
		TNT7A	42.000		1.24	52	1.40	0.867	1.85	1	EL	46.1	1.00	1.89	4	I	11.8	0.80	0.867	1.24	1	EL	46.1	
		TNT7B	42.000		1.25	53	1.40	0.867	1.87	1	EL	46.1	1.00	1.77	4	I	11.8	0.80	0.867	1.25	1	EL	46.1	
		TNAGRIT4	43.000		1.21	52	1.40	0.867	1.80	1	EL	46.1	1.00	1.76	4	I	11.8	0.80	0.867	1.21	1	EL	46.1	
		TNAGRIT5A	45.000		1.15	52	1.40	0.867	1.71	1	EL	46.1	1.00	1.71	4	I	11.8	0.80	0.867	1.15	1	EL	46.1	
TNAGRIT5B		45.000	3	1.14	51	1.40	0.867	1.69	1	EL	46.1	1.00	1.76	4	I	11.8	0.80	0.867	1.14	1	EL	46.1		

NOTES:

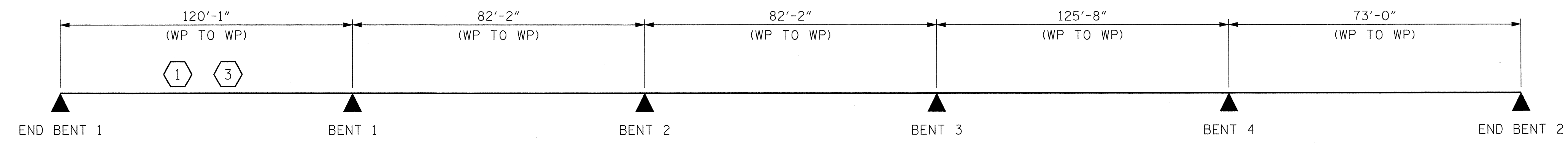
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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

COMMENTS:

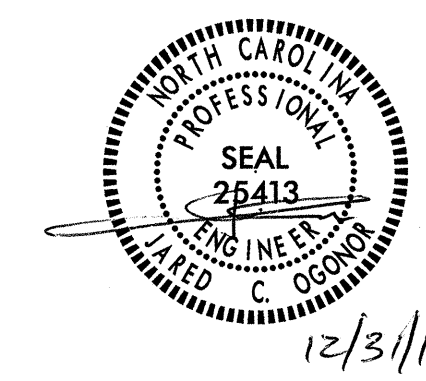
1. DISTANCES MEASURED IN THE TABLE ARE MEASURED FROM THE CL BEARING IN END SPAN

#	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	



PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 1



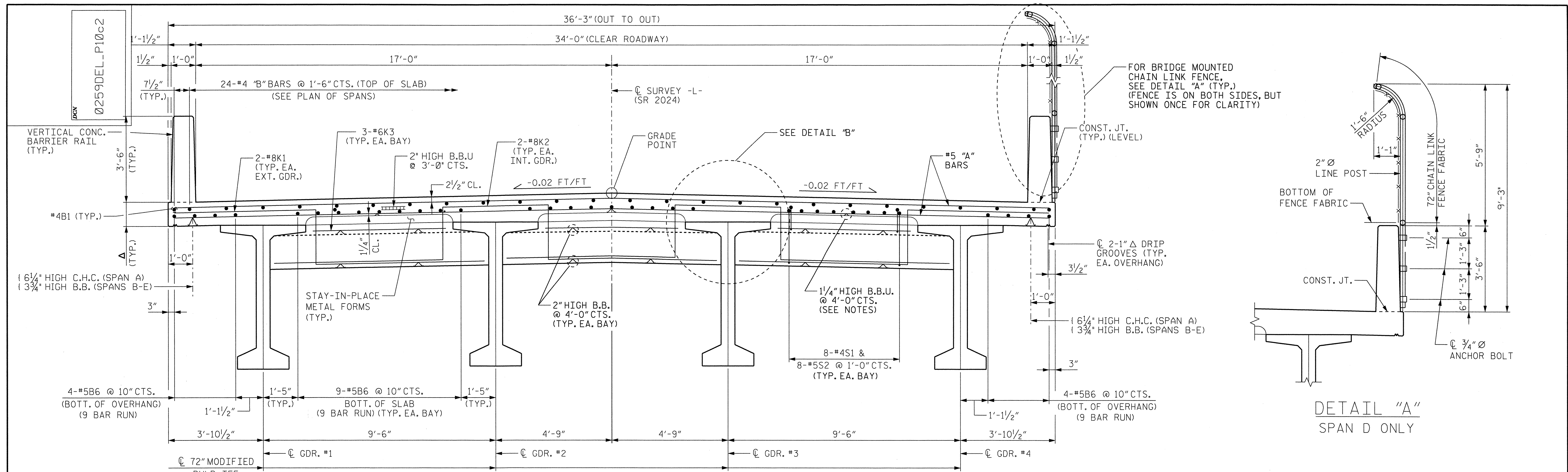
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

ASSEMBLED BY: CAL/SDM DATE: 10-12
 CHECKED BY: JCO DATE: 10-12
 DRAWN BY: MAA 1/08 MAA/GM
 CHECKED BY: GM/DI 2/08 REV. 10/1/11 MAA/GM

LRFR SUMMARY

PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

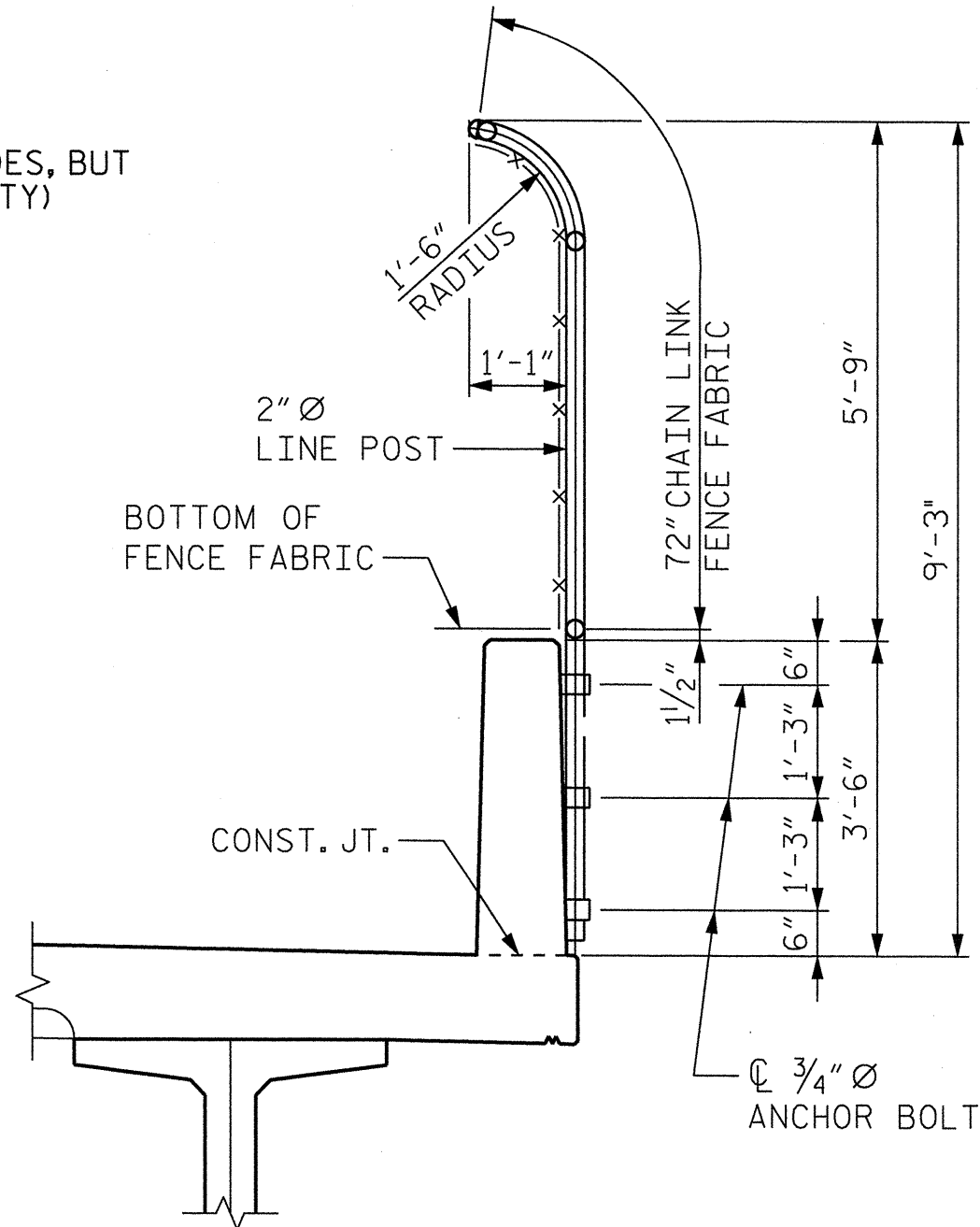
REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 51
2			4			



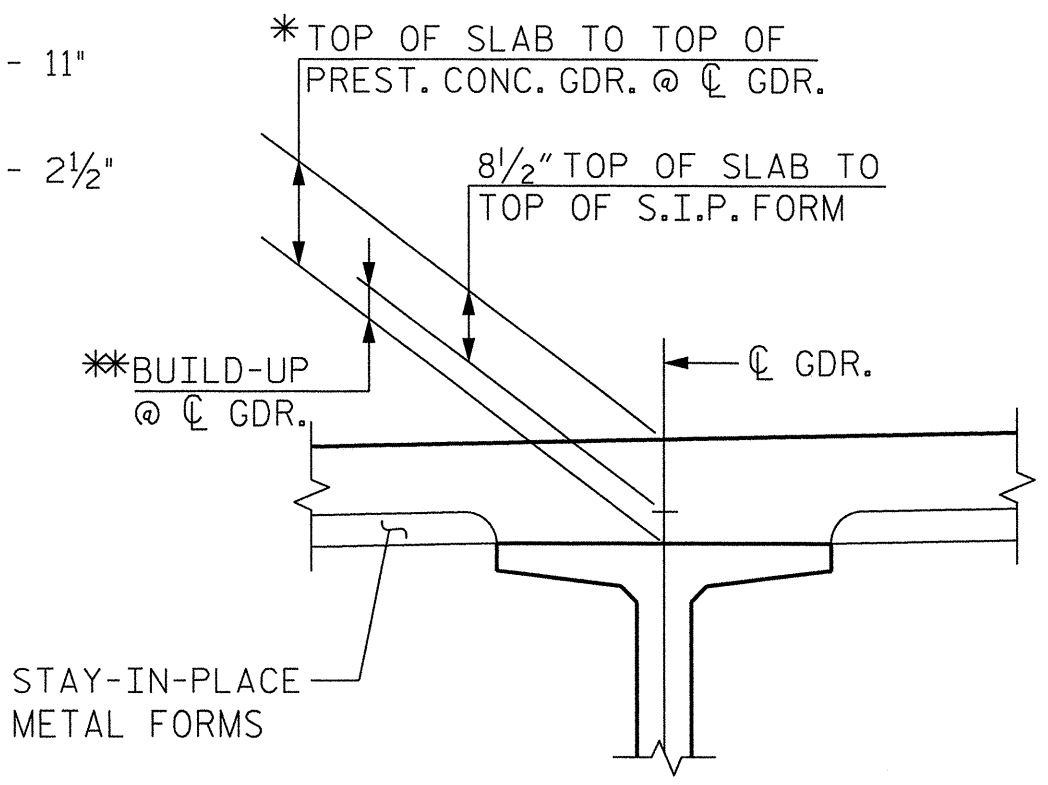
TYPICAL SECTION
SHOWING END BENT DIAPHRAGMS

Δ SPAN A - 1'-1 1/2"
SPANS B THRU E - 11"

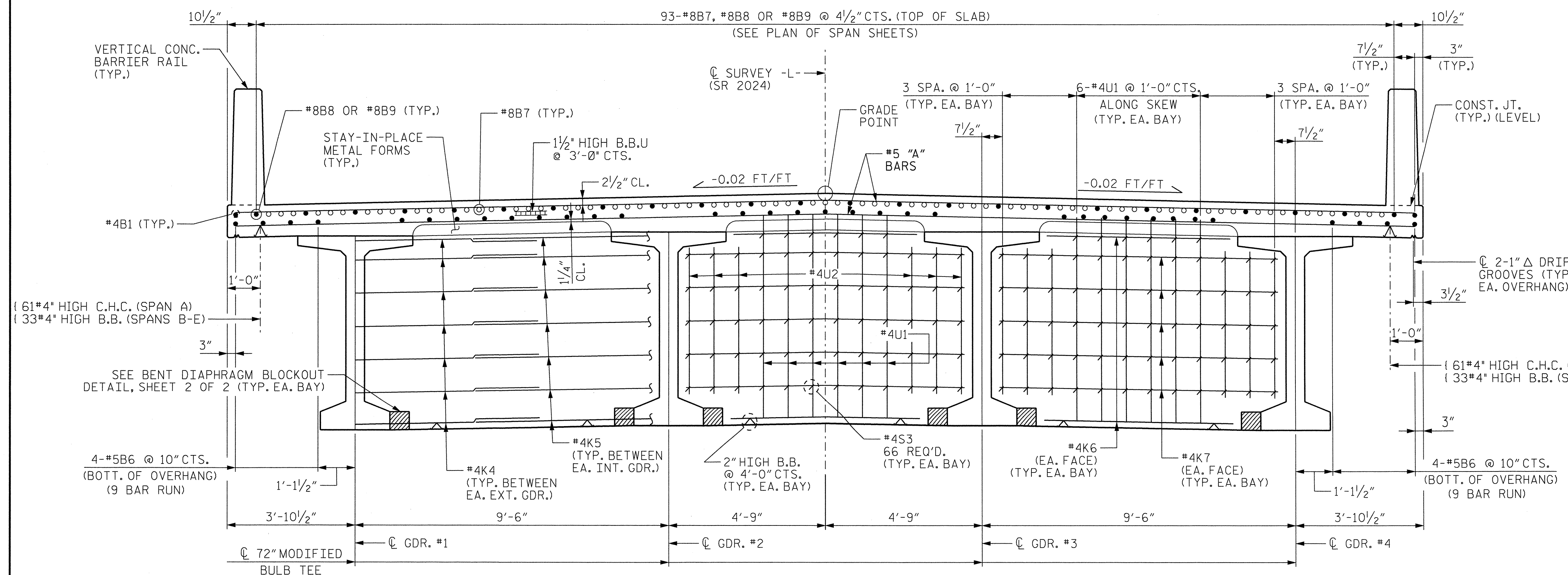
* SPAN A - 1'-1 1/2"
SPANS B THRU E - 11"
** SPAN A - 5"
SPANS B THRU E - 2 1/2"



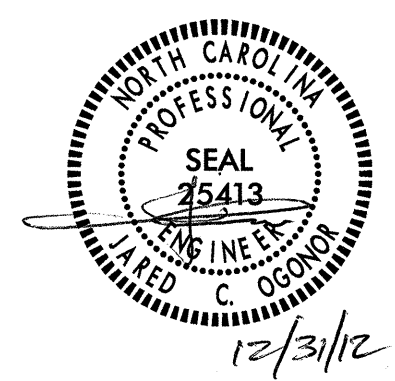
DETAIL "A"
SPAN D ONLY



DETAIL "B"



TYPICAL SECTION
SHOWING BENT DIAPHRAGMS



PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION

PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

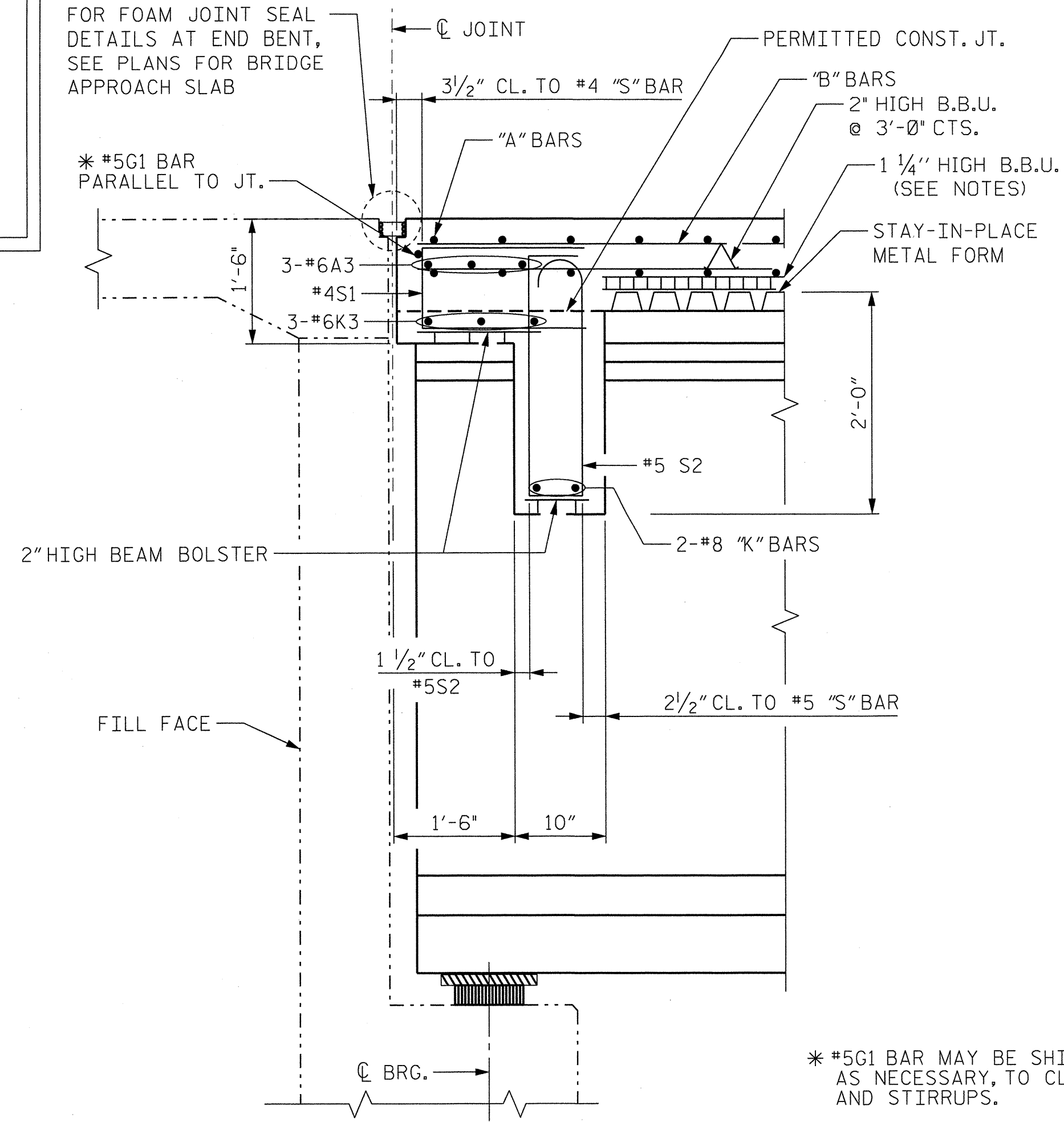
REVISIONS		SHEET NO. S-8
NO.	DATE	
1		TOTAL SHEETS 51
2		

DRAWN BY: CAL DATE: 10-12
CHECKED BY: JCO DATE: 10-12

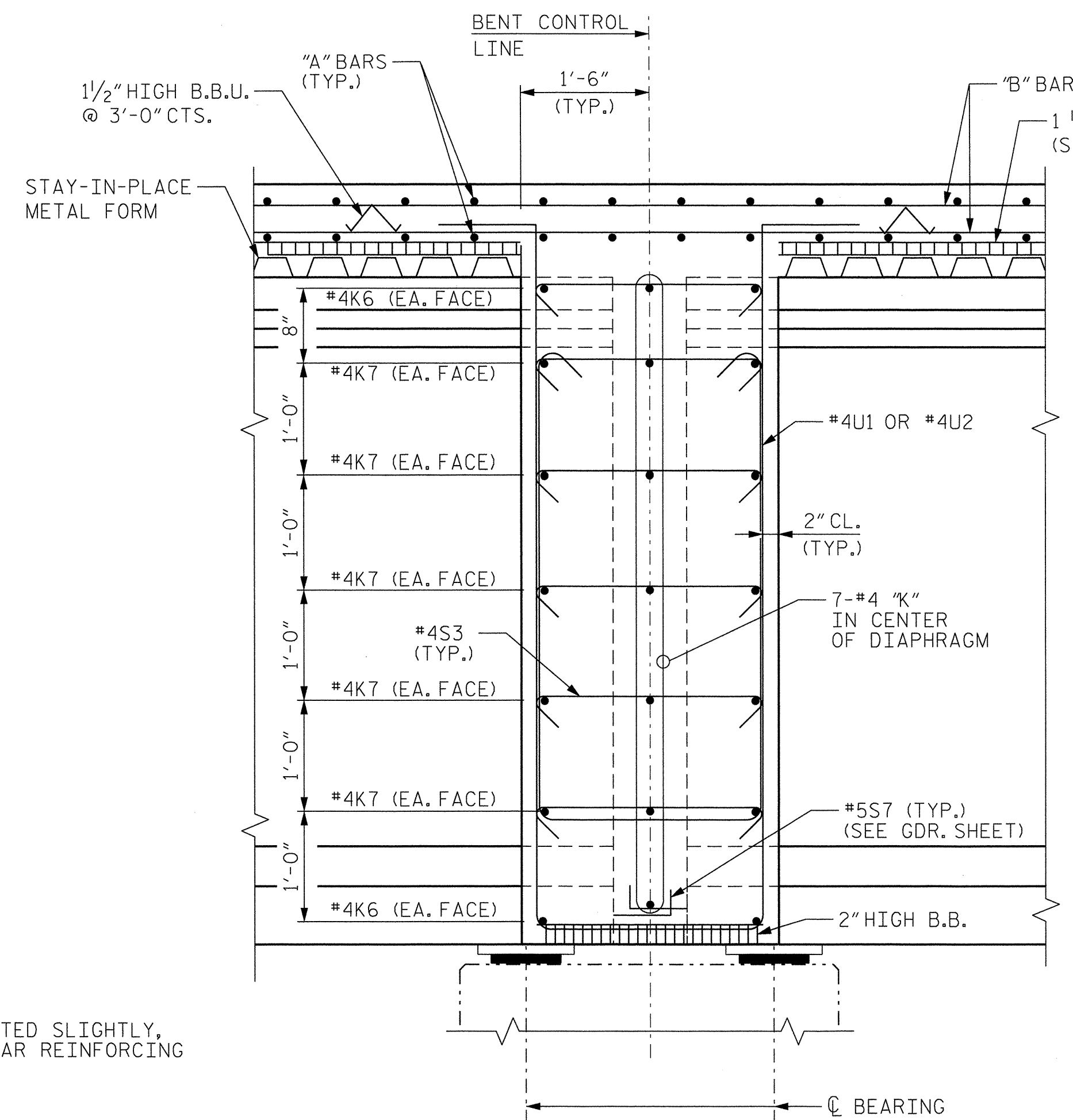
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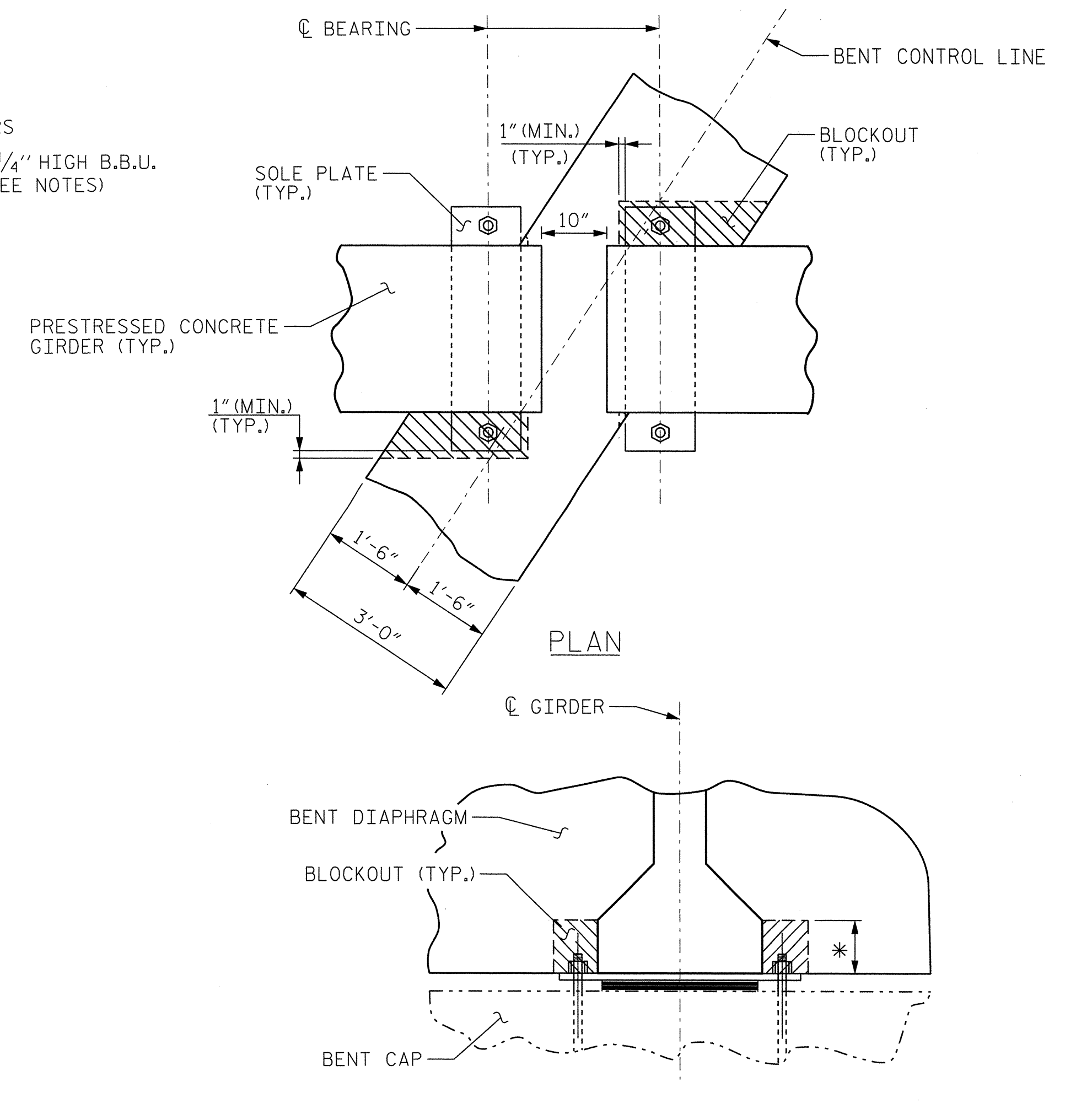
FOR FOAM JOINT SEAL DETAILS AT END BENT, SEE PLANS FOR BRIDGE APPROACH SLAB



SECTION THRU END BENT DIAPHRAGM



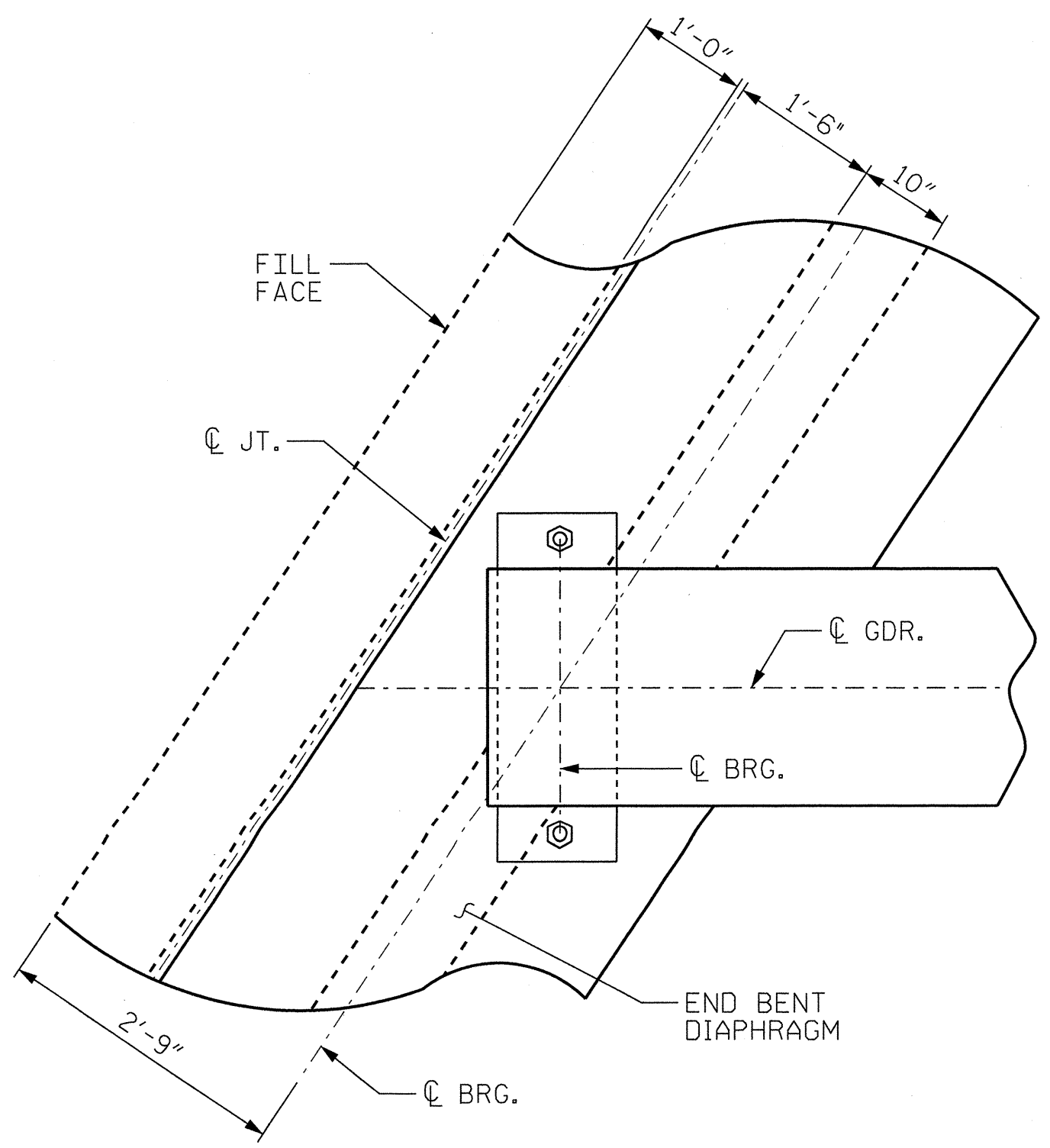
SECTION THRU CONTINUOUS BENT DIAPHRAGM



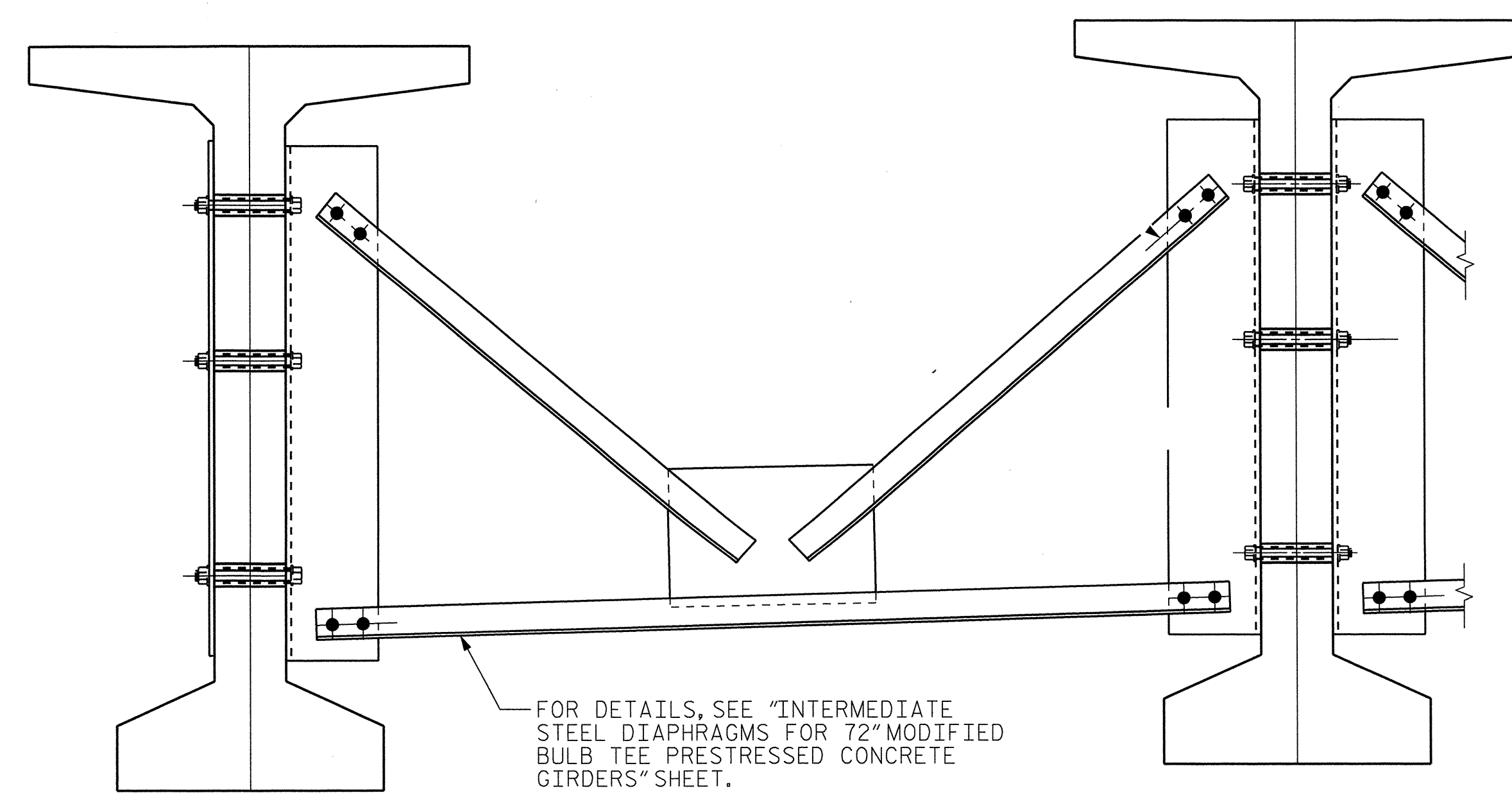
BENT DIAPHRAGM BLOCK-OUT DETAIL

NOTES

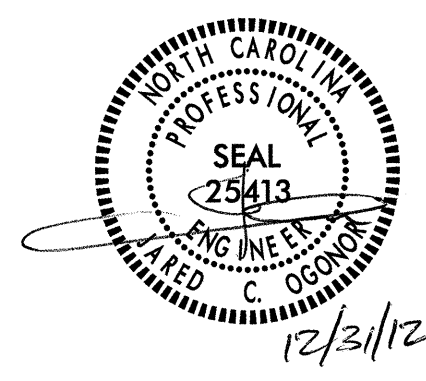
- PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.
- PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.
- BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.



END BENT DIAPHRAGM



TYPICAL PARTIAL SECTION SHOWING INTERMEDIATE STEEL DIAPHRAGM (TYP. EA. BAY)



PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

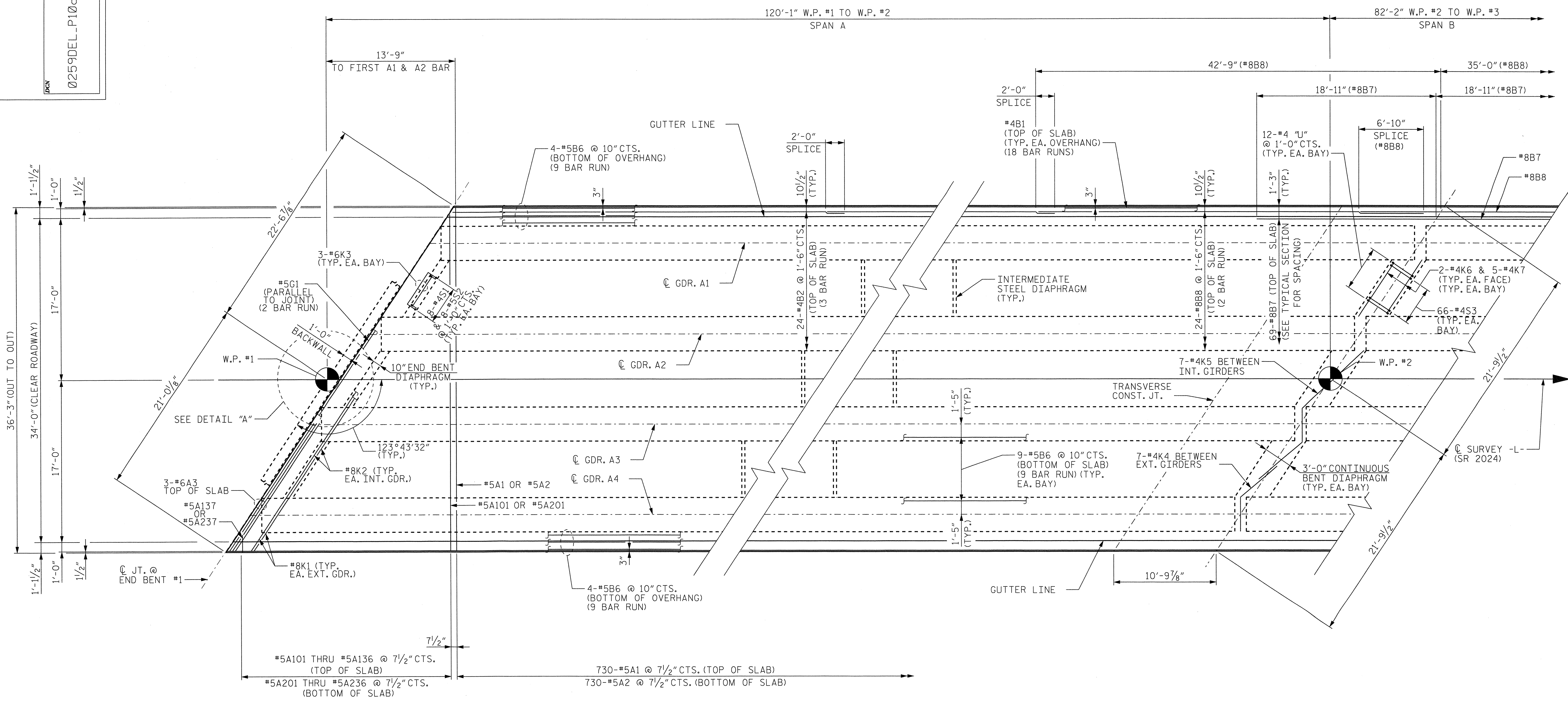
PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

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

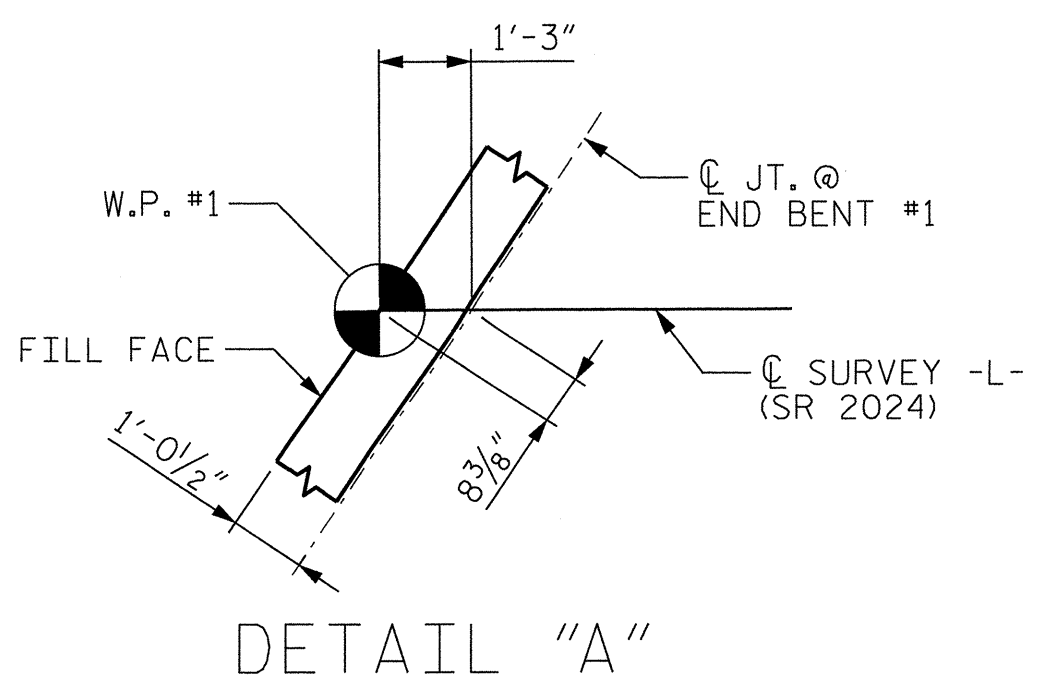
TOTAL SHEETS: 51

DRAWN BY: CAL DATE: 10-12
 CHECKED BY: JCO DATE: 10-12

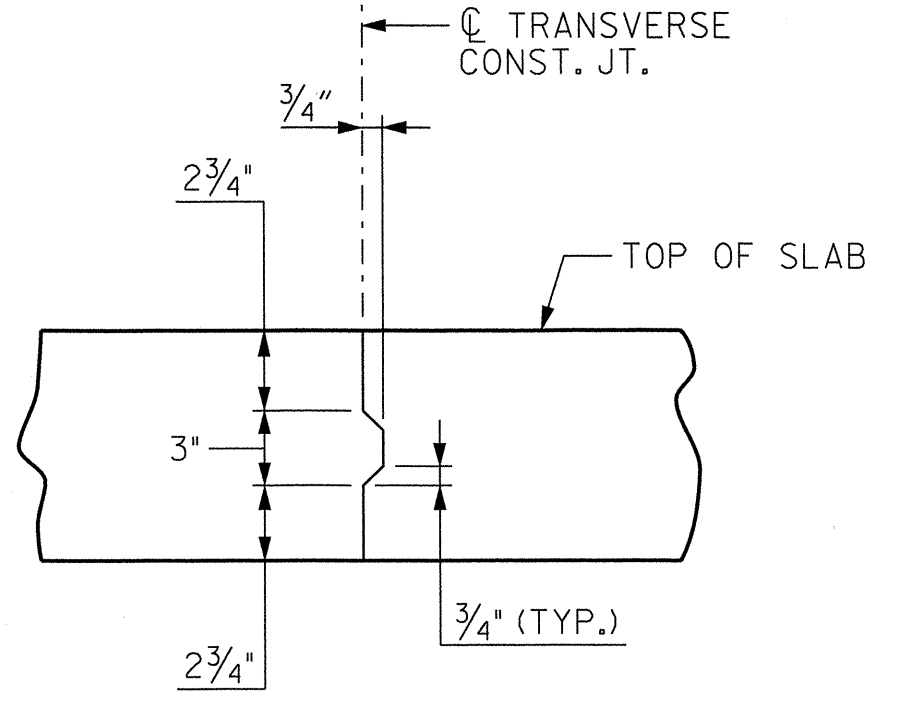
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PLAN OF SPAN A



DETAIL "A"



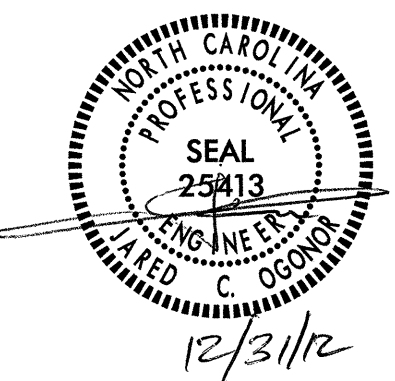
TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE
FOR LOCATIONS OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEETS.

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

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 5



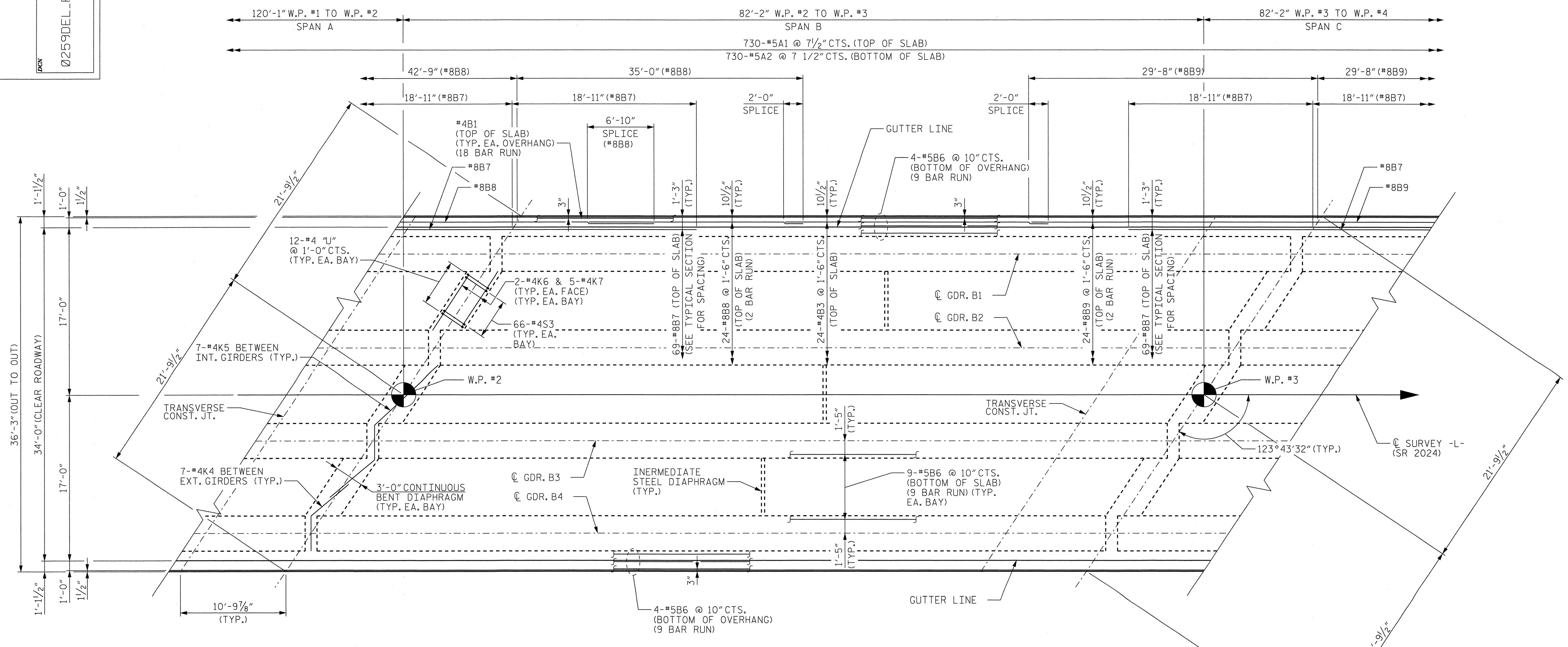
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN A

DRAWN BY: CAL DATE: 10-12
CHECKED BY: JCO DATE: 10-12

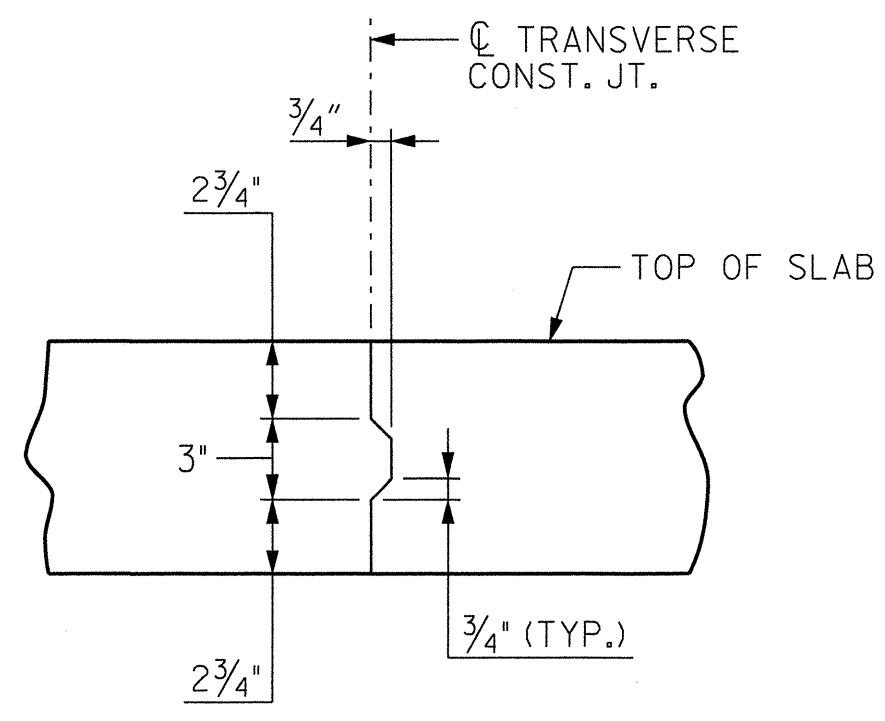
PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 51
2			4			

0259DEL_P10c2



PLAN OF SPAN B



TRANSVERSE CONSTRUCTION JOINT DETAIL

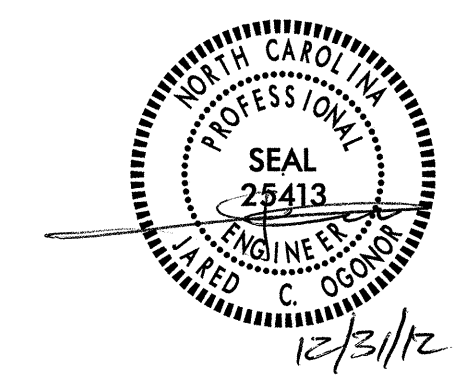
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

NOTE

FOR LOCATIONS OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEETS.

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 2 OF 5



PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

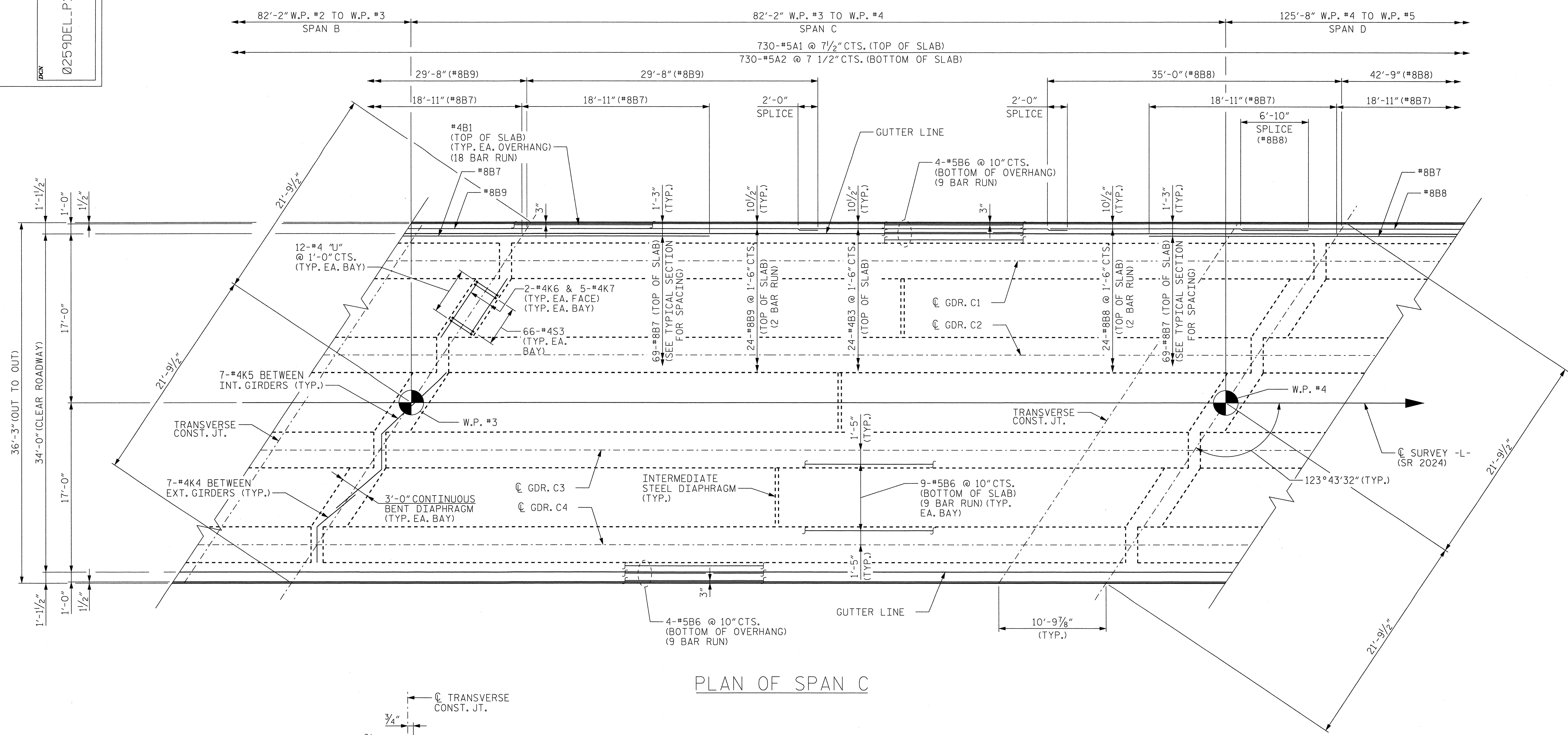
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN B

REVISIONS			REVISIONS			SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			51

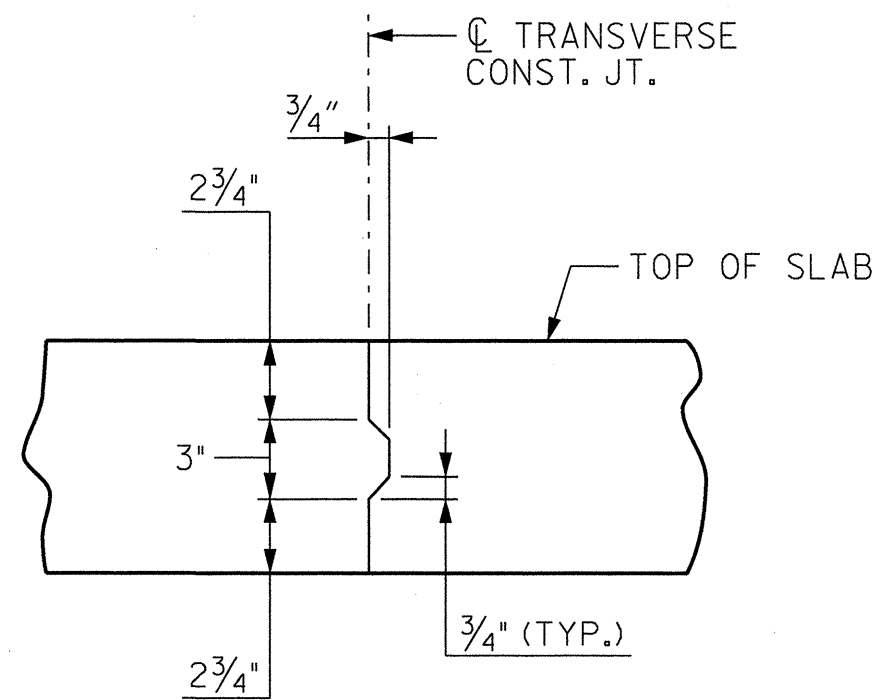
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CHECKED BY: JCO DATE: 10-12

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0259DEL_P10c2



PLAN OF SPAN C

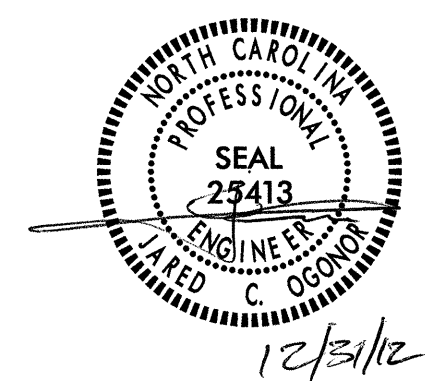


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

NOTE FOR LOCATIONS OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEETS.

PROJECT NO. C-490I B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
 SHEET 3 OF 5



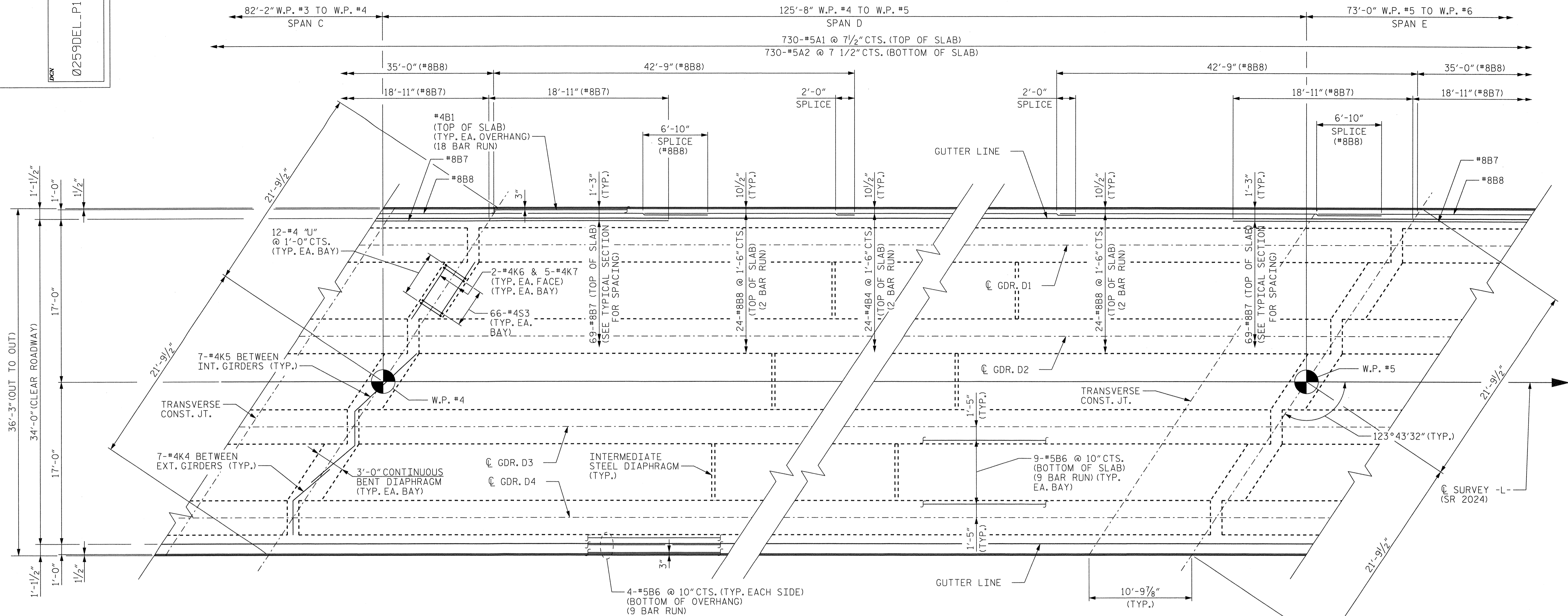
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN C

DRAWN BY: CAL DATE: 10-12
 CHECKED BY: JCO DATE: 10-12

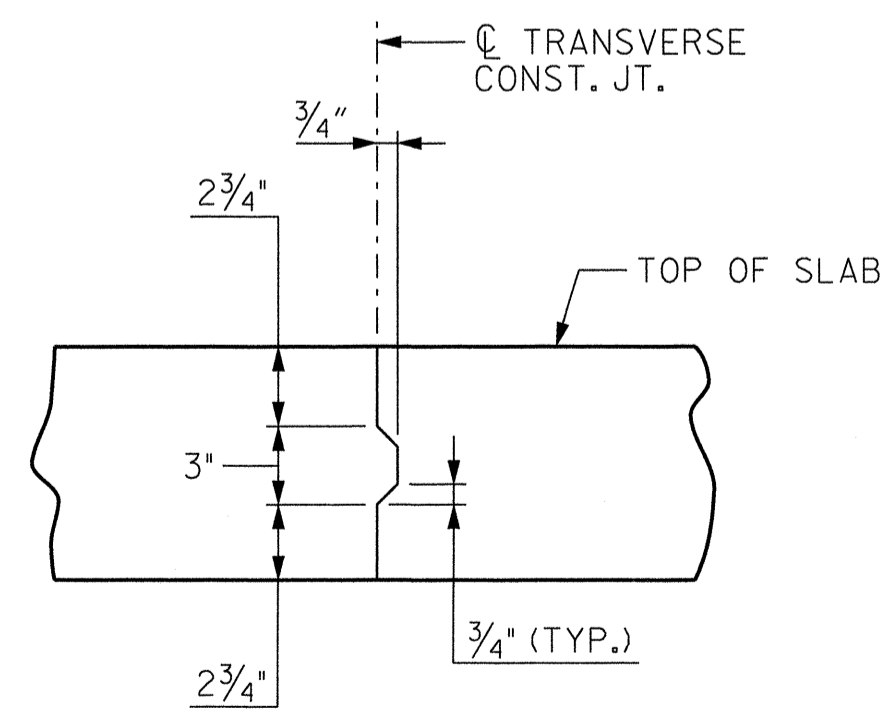
PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			51

Ø259DEL_P10c2



PLAN OF SPAN D



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

NOTE

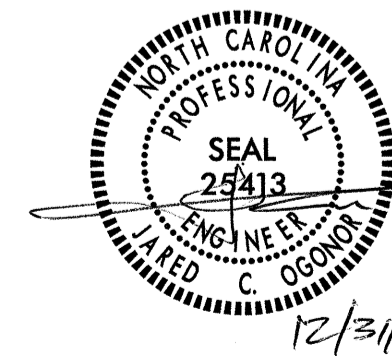
FOR LOCATIONS OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEETS.

PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN D



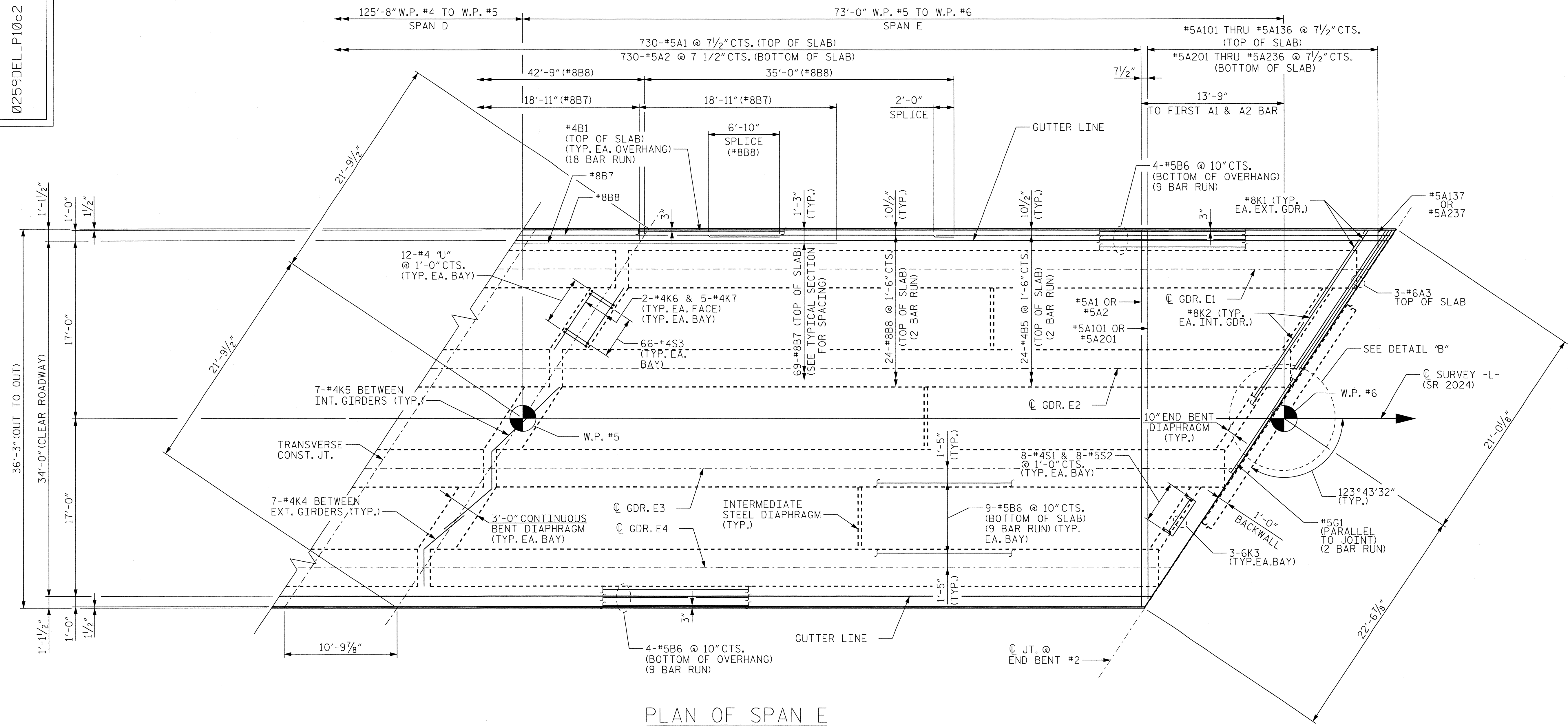
PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-13
1			3			TOTAL SHEETS
2			4			51

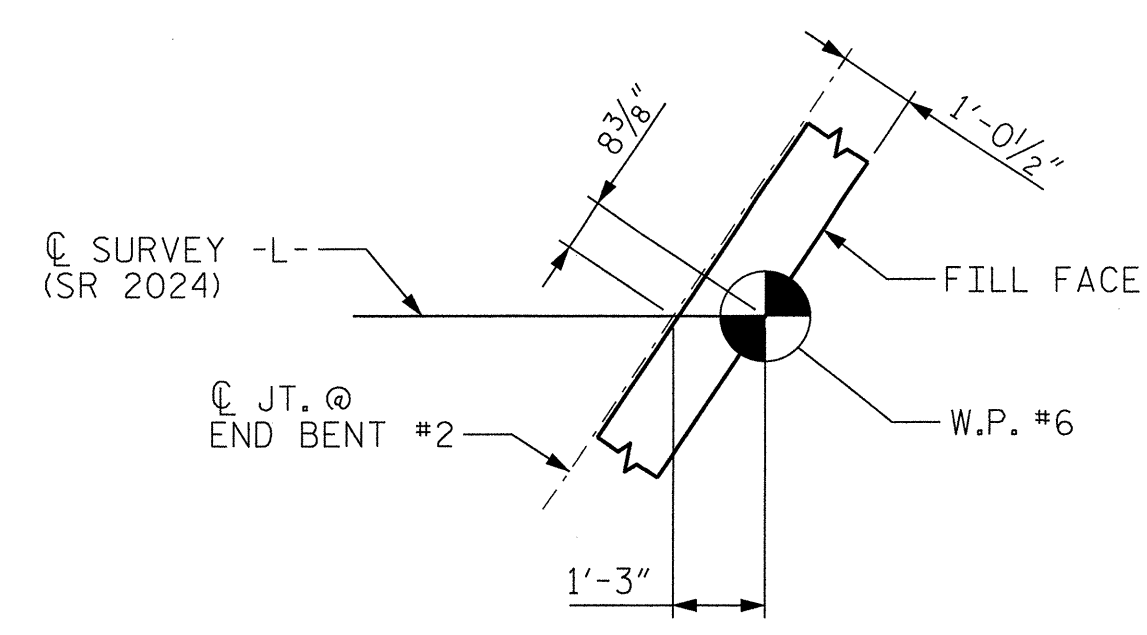
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31-DEC-2012 09:53
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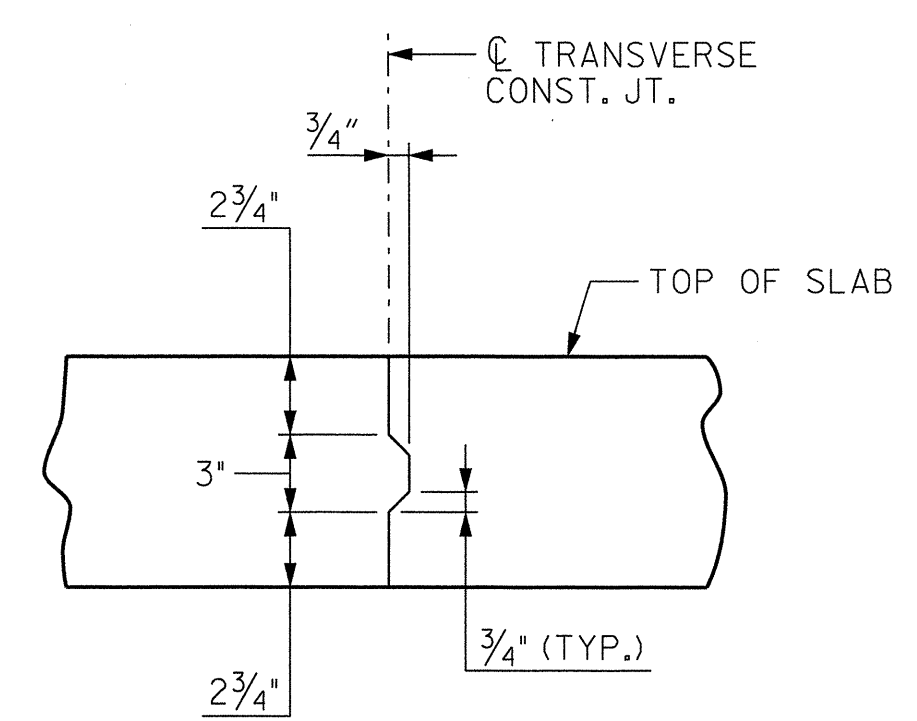
DCN 0259DEL_P10c2



PLAN OF SPAN E



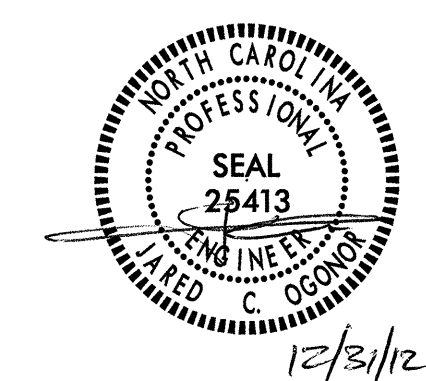
DETAIL "B"



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

NOTE FOR LOCATIONS OF INTERMEDIATE STEEL DIAPHRAGMS, SEE "FRAMING PLAN" SHEETS.



PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-
SHEET 5 OF 5

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

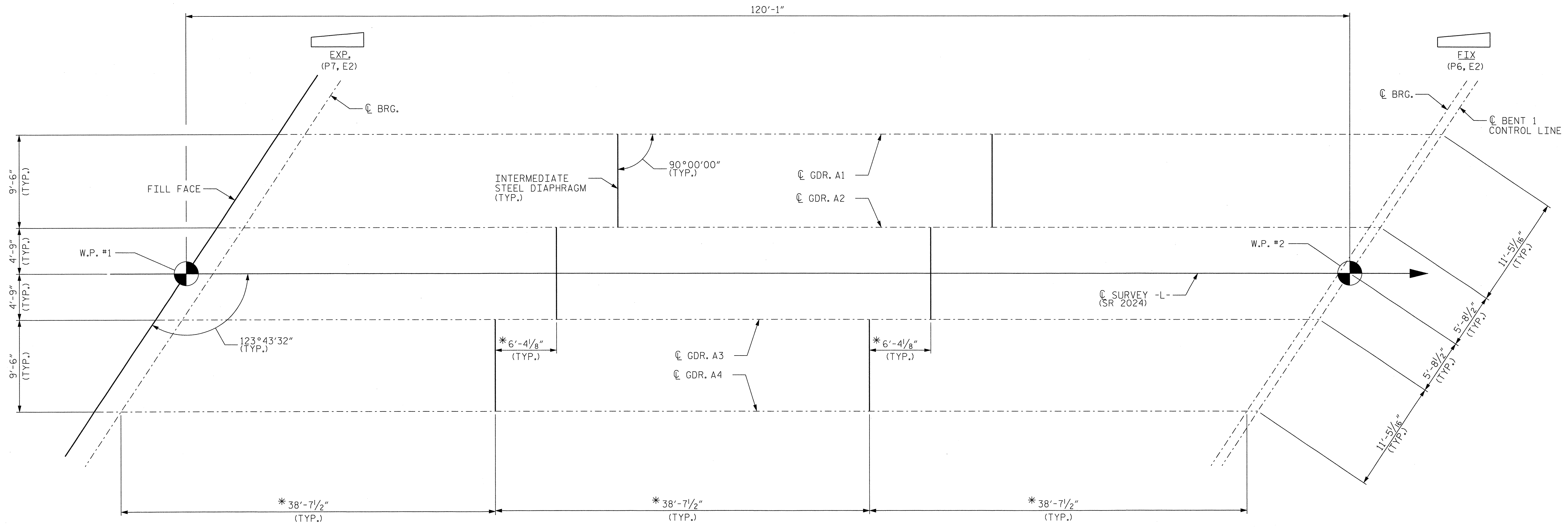
PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS				SHEET NO. S-14
NO.	BY:	DATE:	DATE:	
1		3		TOTAL SHEETS
2		4		51

DRAWN BY: CAL DATE: 10-12
CHECKED BY: JCO DATE: 10-12

31-DEC-2012 09:53
*****DCN*****
*****USERNAME*****

DCN 0259DEL_P10c2



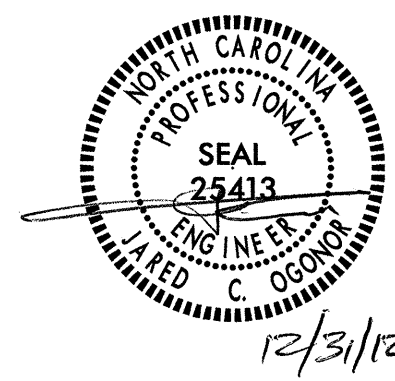
GIRDER LAYOUT

SPAN A

* SLOPED DIMENSION

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 4



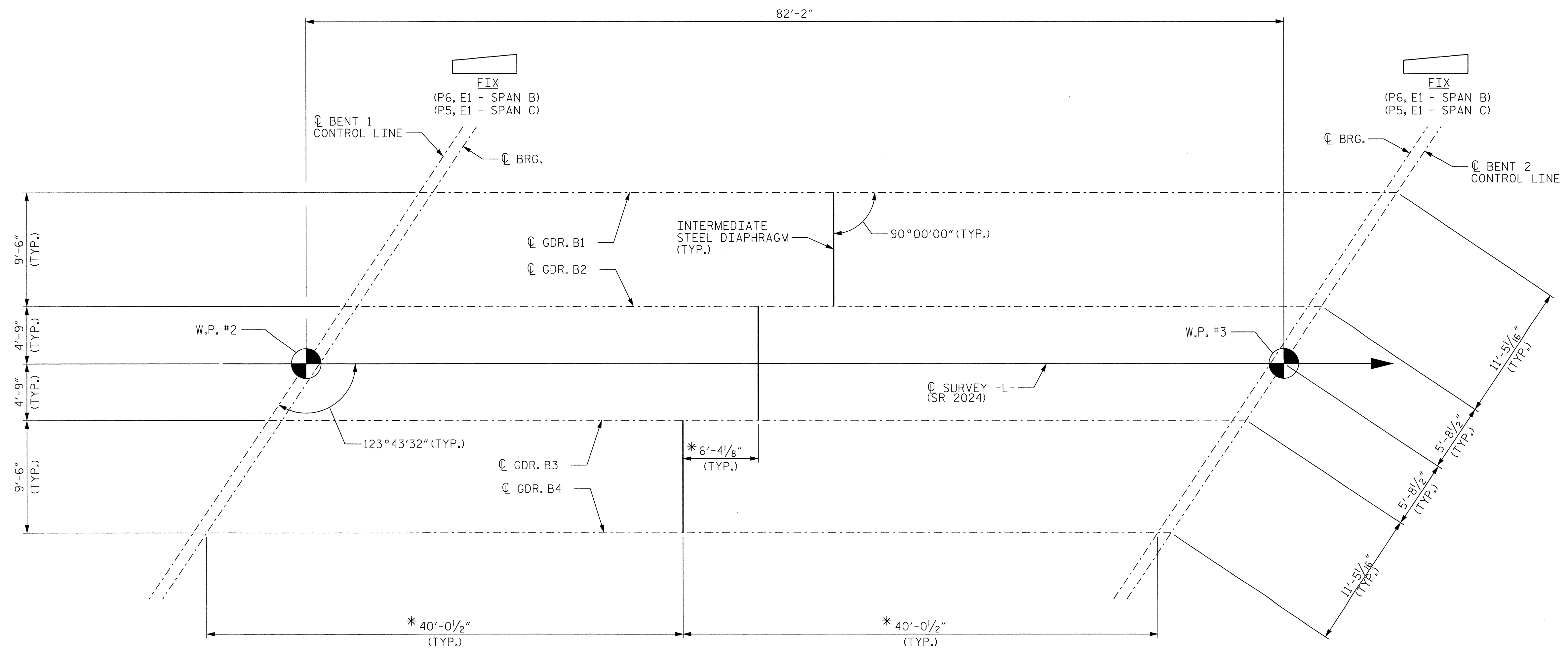
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 SPAN A

DRAWN BY: CAL DATE: 10-12
 CHECKED BY: JCO DATE: 10-12

PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

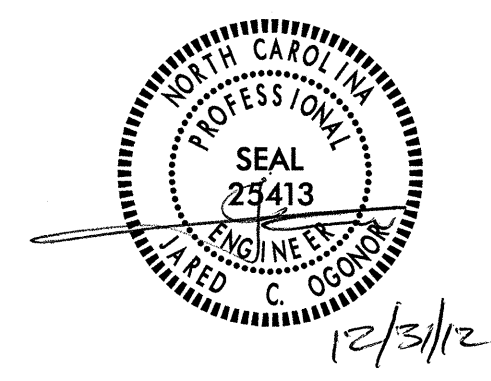
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			51

0259DEL_P10c2



GIRDER LAYOUT
SPAN B SHOWN, SPAN C SIMILAR
* SLOPED DIMENSION

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-
SHEET 2 OF 4



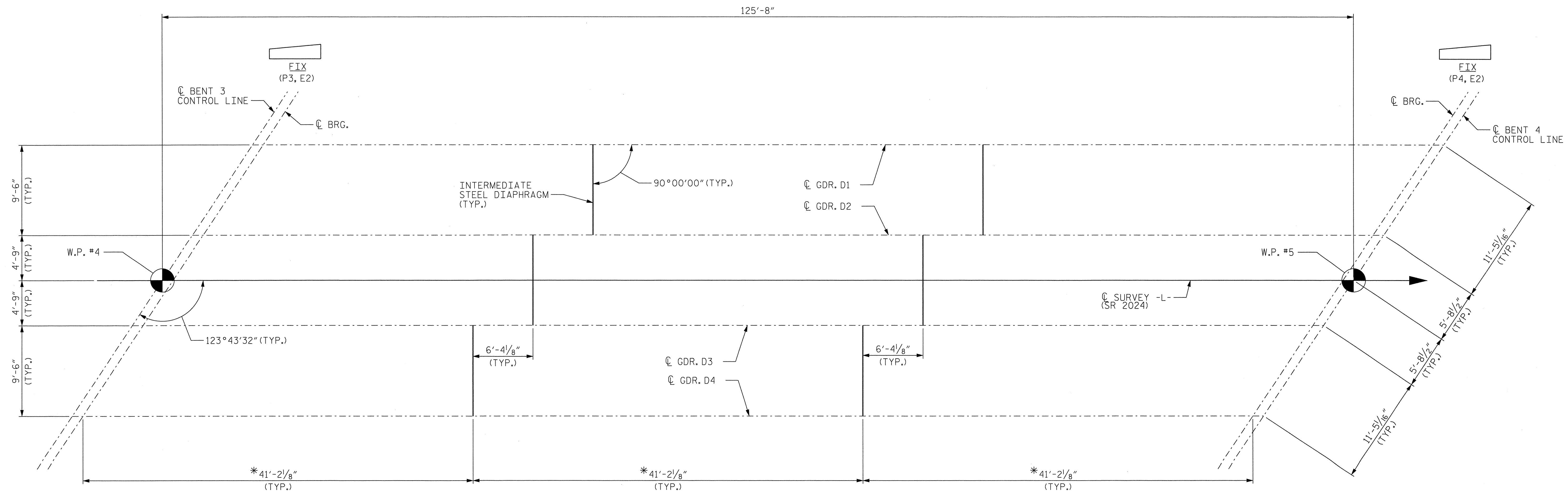
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
FRAMING PLAN
SPANS B & C

DRAWN BY: CAL DATE: 10-12
CHECKED BY: JCO DATE: 10-12

PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

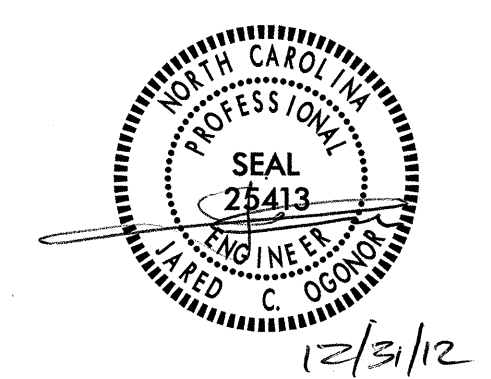
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			51

DCN 0259DEL_P10c2



GIRDER LAYOUT
SPAN D
* SLOPED DIMENSION

PROJECT NO. C-490I B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
 SHEET 3 OF 4



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN
 SPAN D

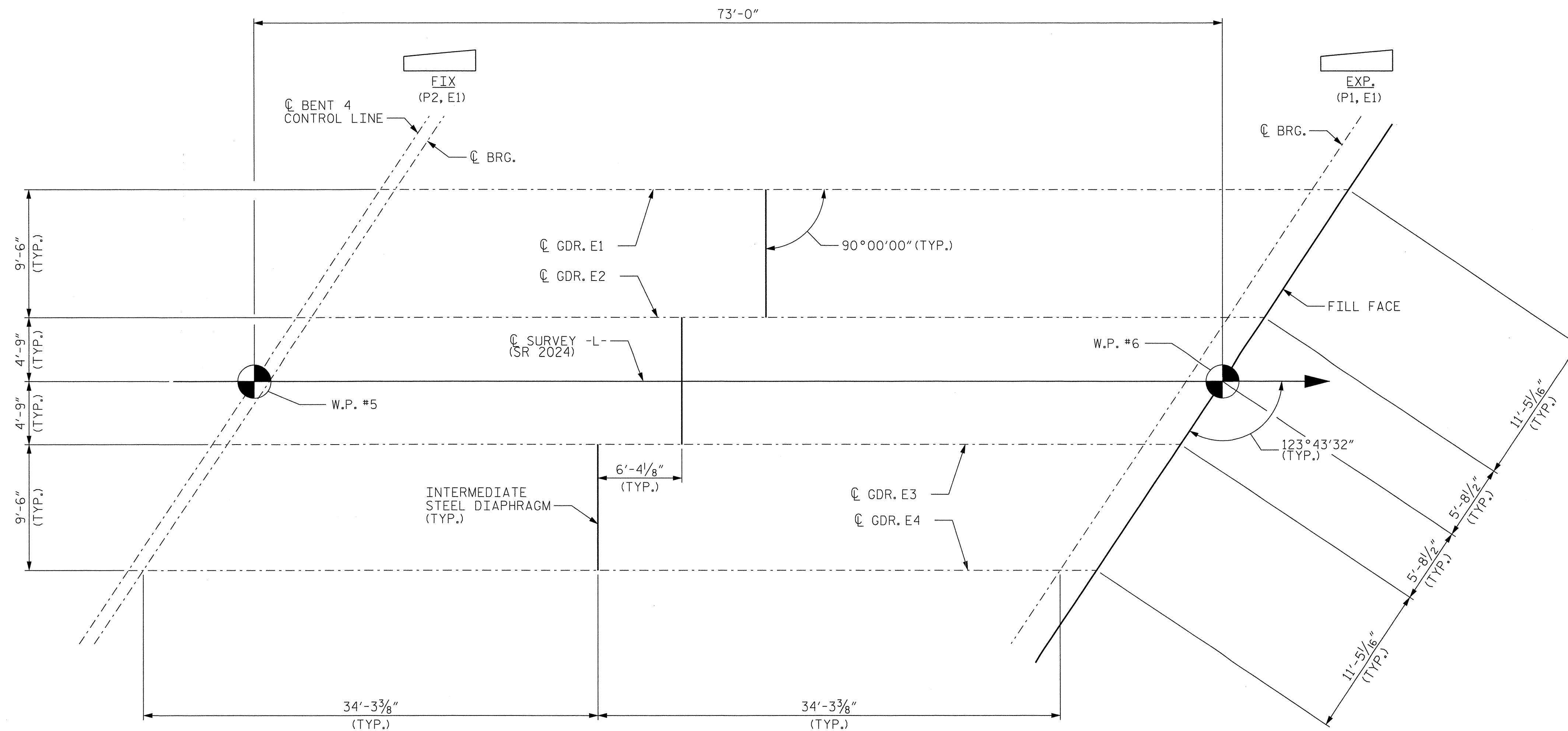
DRAWN BY: CAL DATE: 10-12
 CHECKED BY: JCO DATE: 10-12

PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

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

TOTAL SHEETS: 51

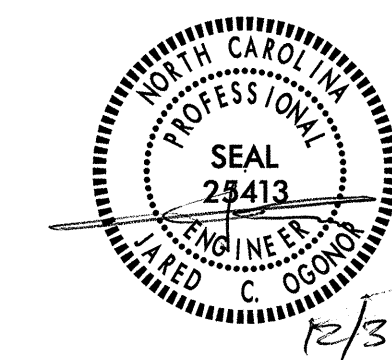
DCN
0259DEL_P10c2



GIRDER LAYOUT
SPAN E

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

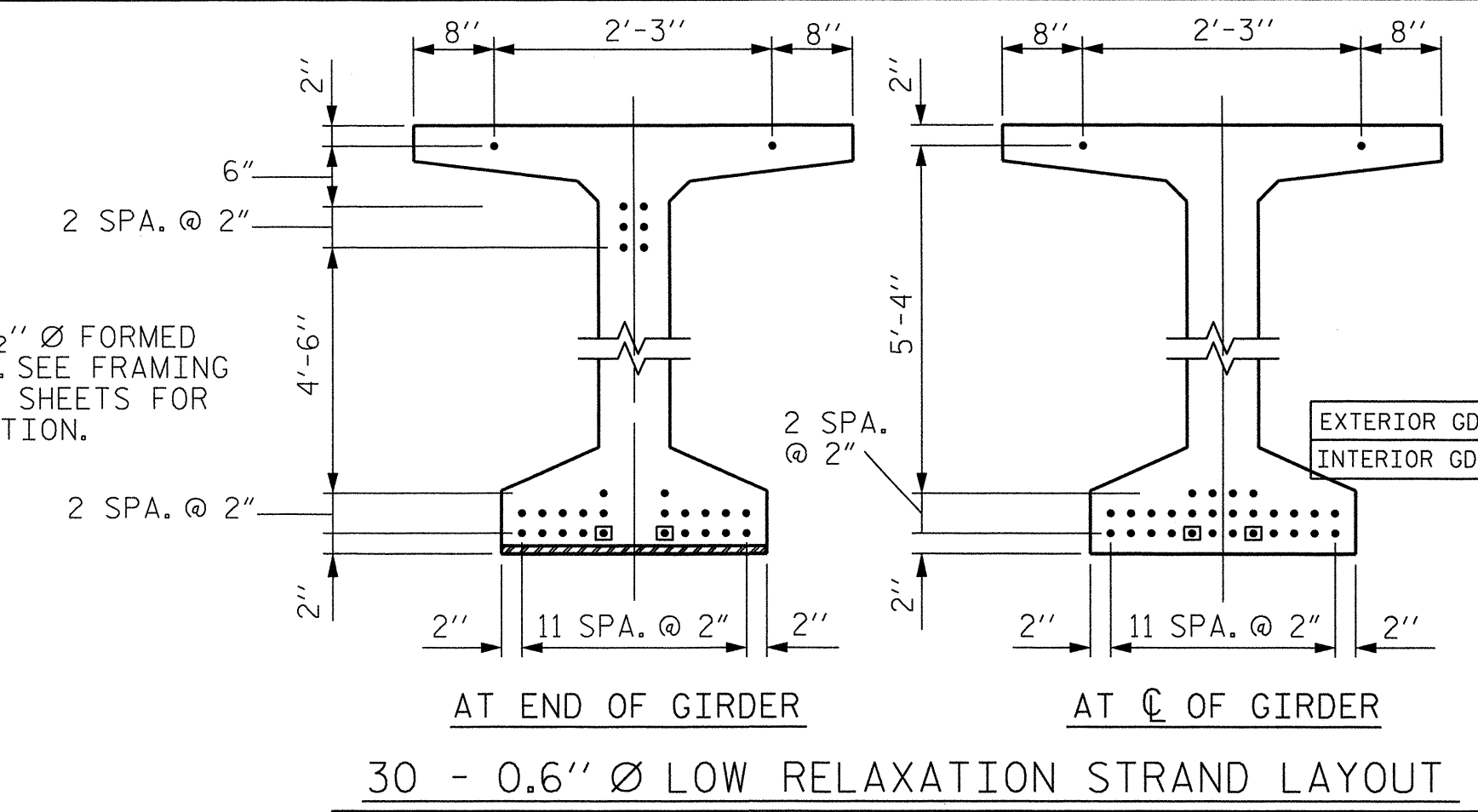
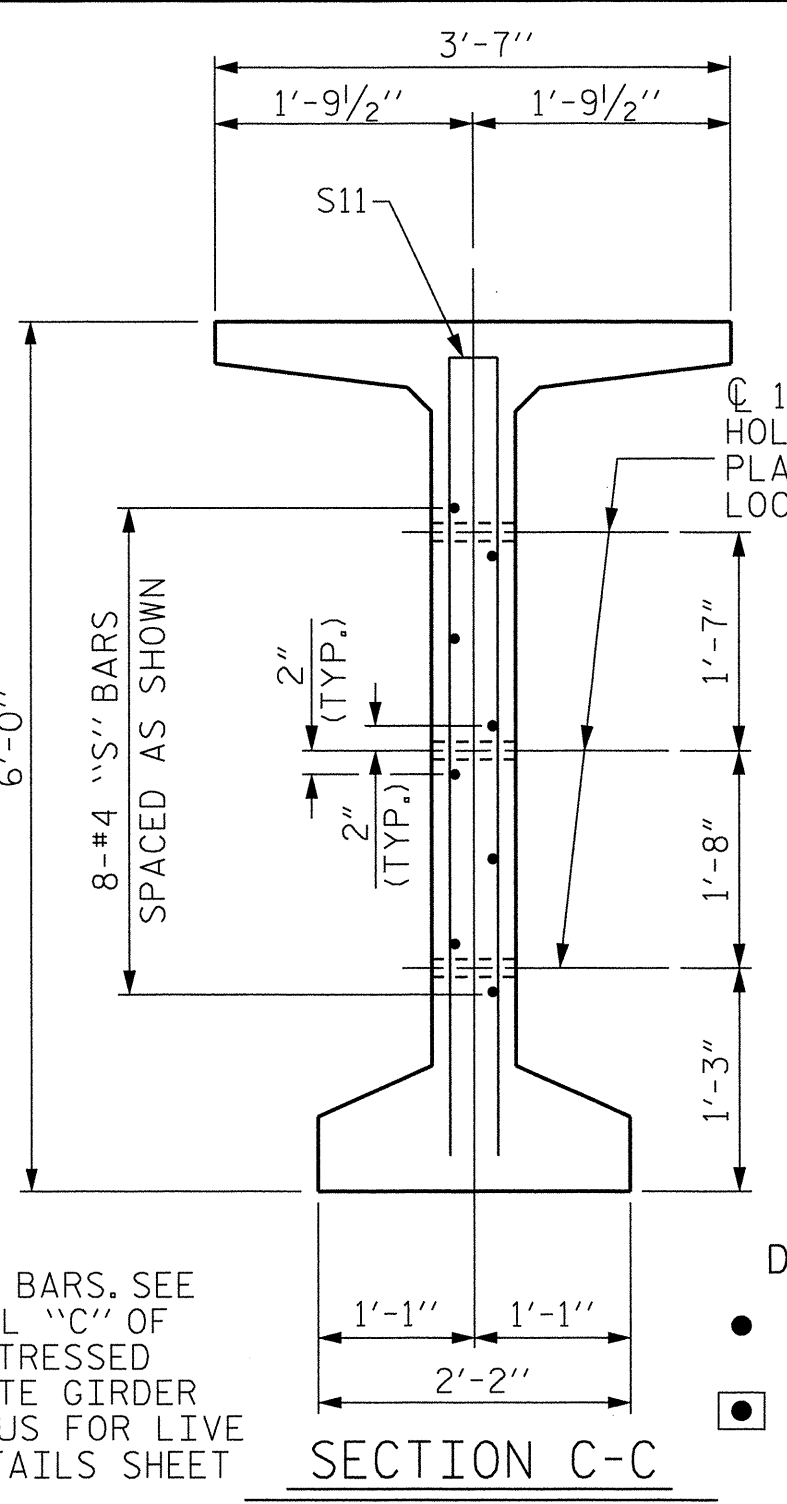
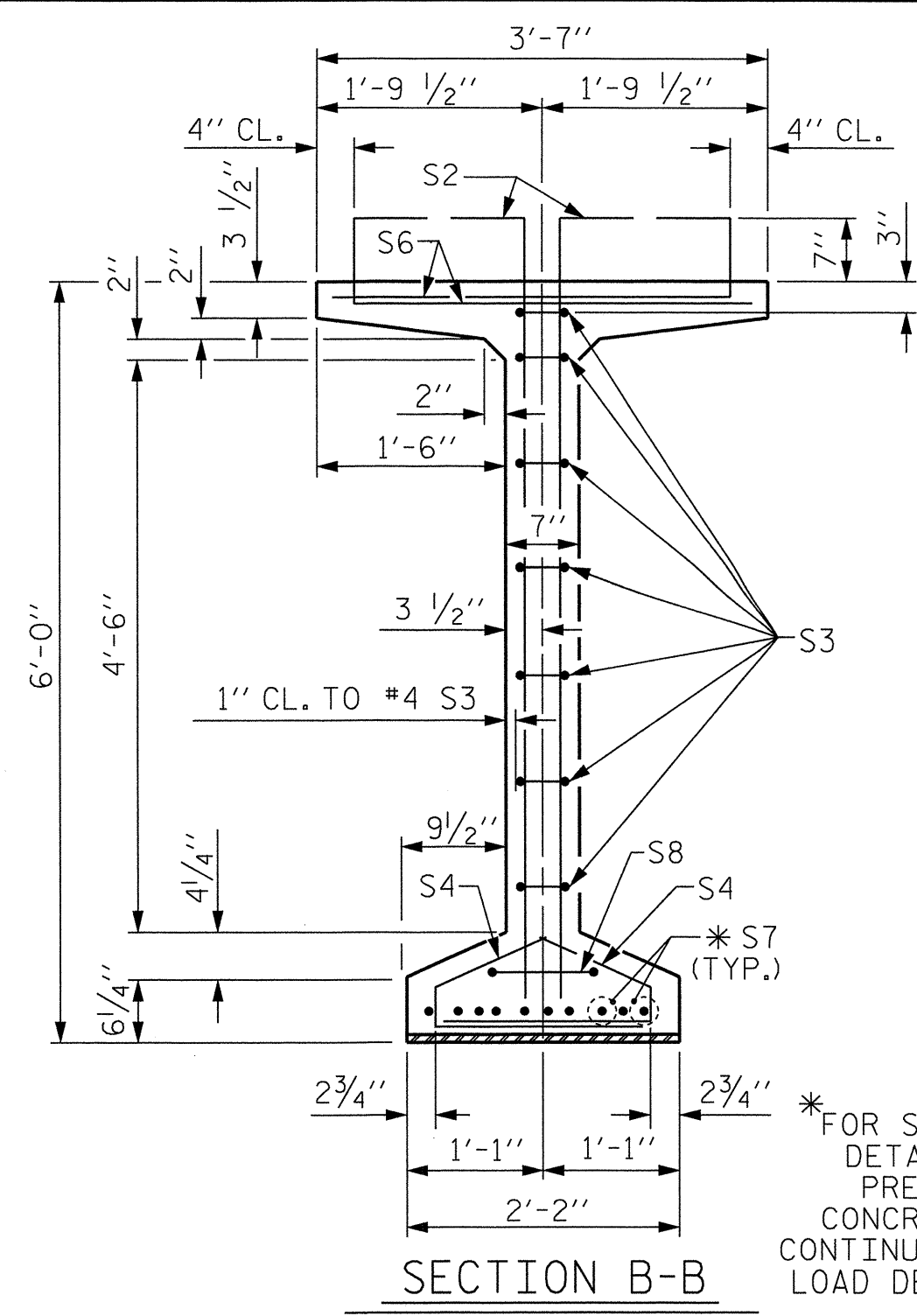
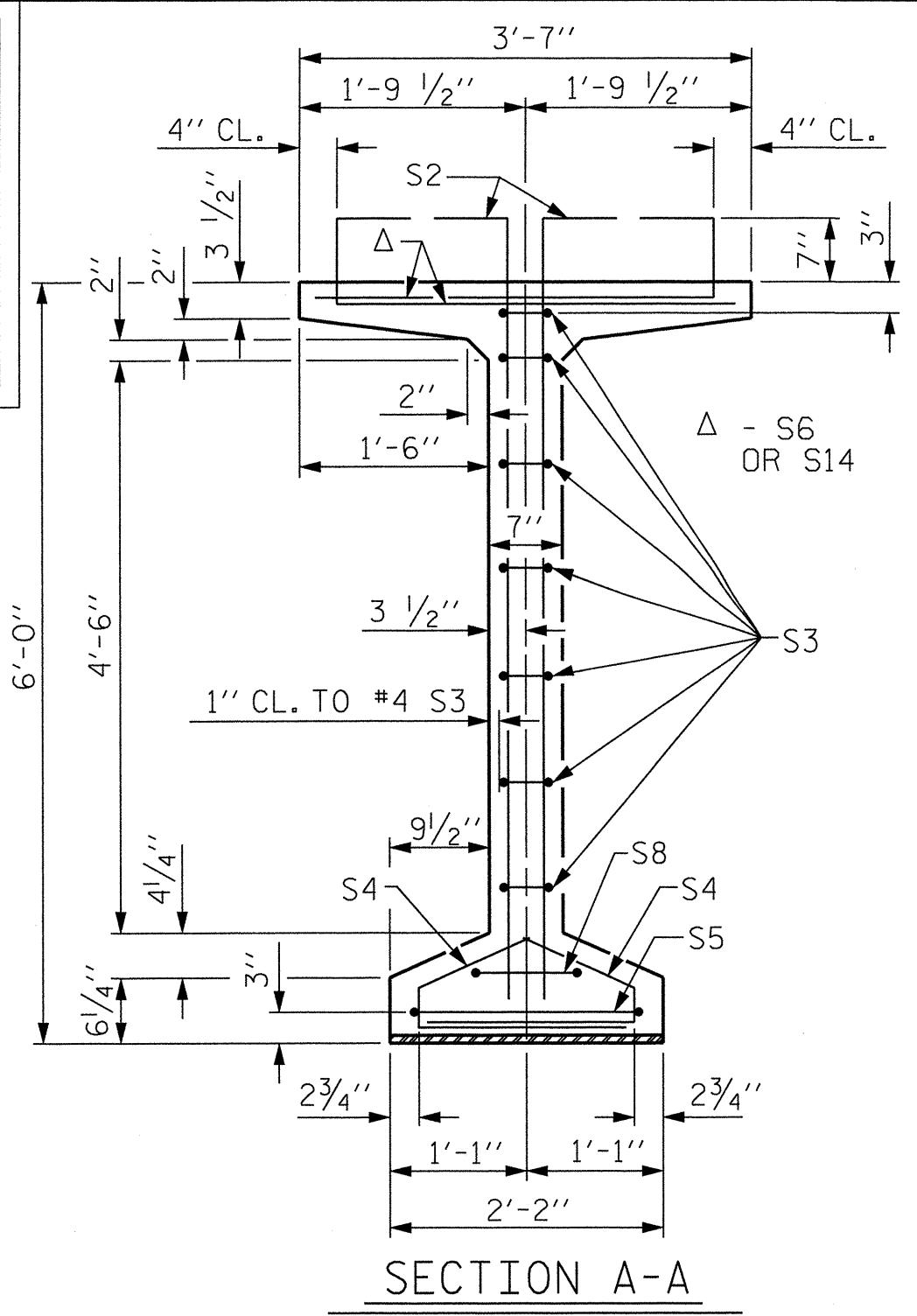
SUPERSTRUCTURE
FRAMING PLAN
SPAN E

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			51

DRAWN BY : CAL DATE : 10-12
CHECKED BY : JCO DATE : 10-12

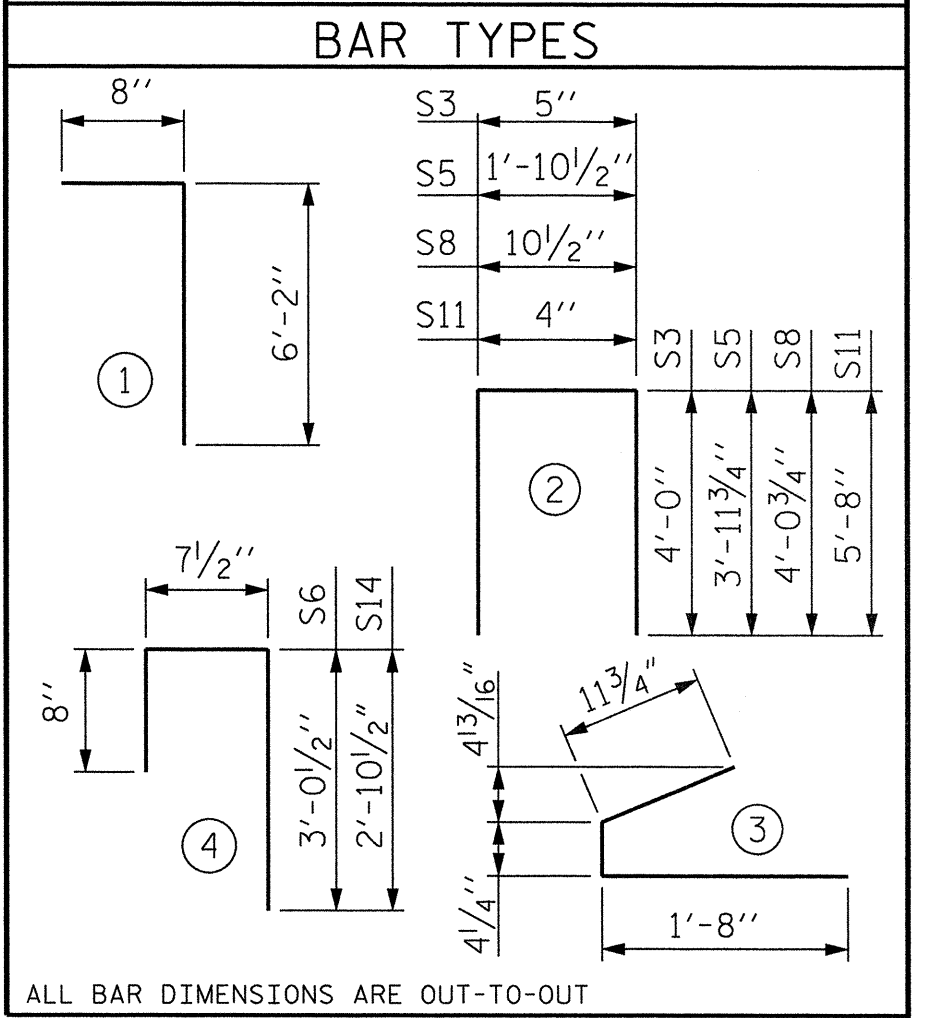
0259DEL_P10c2



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	228	#4	1	6'-10"	1049	
INTERIOR GDR. S1	228	#4	1	6'-10"	1049	
S2	24	#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	
S6	250	#5	4	4'-4"	1130	
*S7	10	#5	STR	3'-8"	38	
S8	2	#5	2	9'-0"	19	
S9	48	#5	STR	3'-3"	163	
S10	1	#3	STR	1'-10"	1	
EXTERIOR GDR. S11	8	#5	2	11'-8"	97	
INTERIOR GDR. S11	16	#5	2	11'-8"	195	
EXTERIOR GDR. S12	16	#4	STR	8'-0"	86	
INTERIOR GDR. S13	16	#4	STR	14'-7"	157	
S14	2	#5	4	4'-2"	9	

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



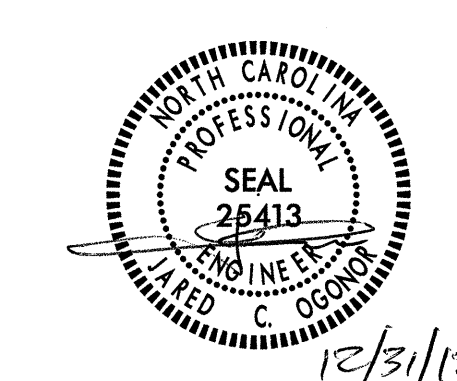
QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	3032	25.1	30
INTERIOR GIRDER	3200	25.1	30

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	117'-4"	469'-4"

PROJECT NO. C-4901 B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 4

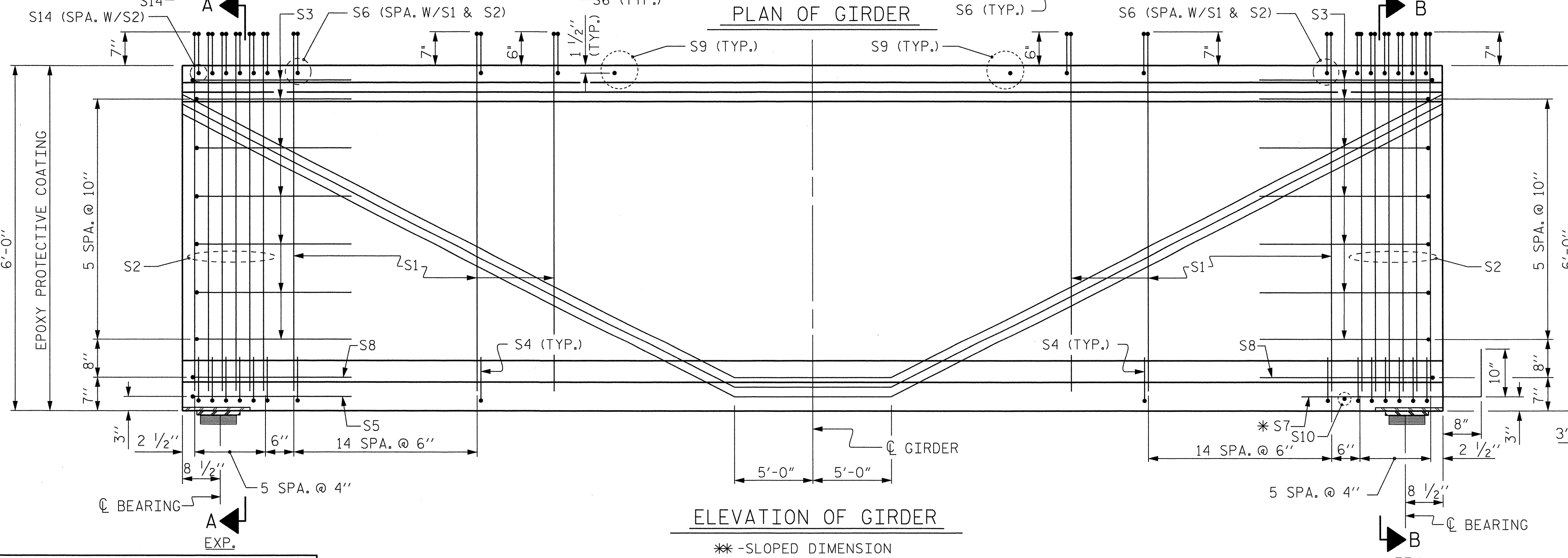
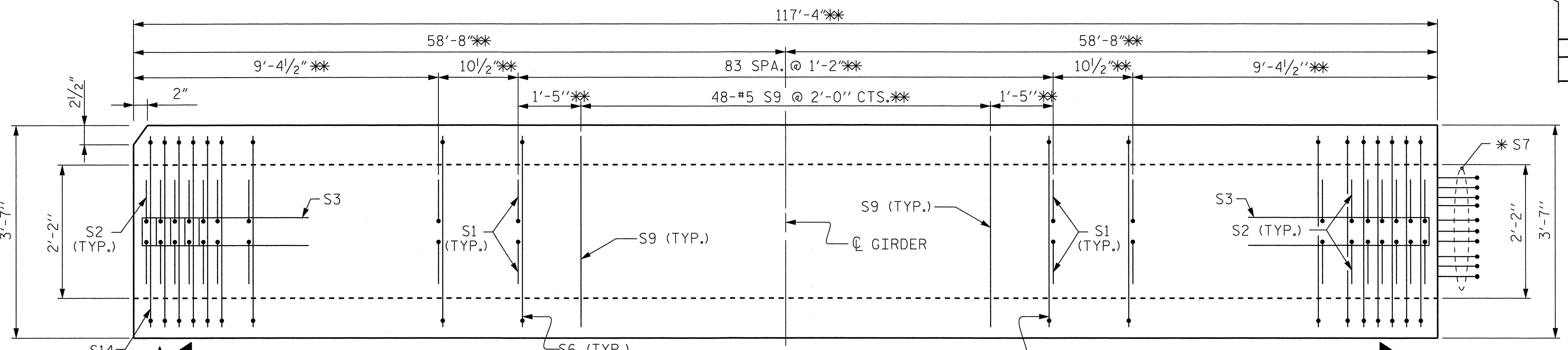
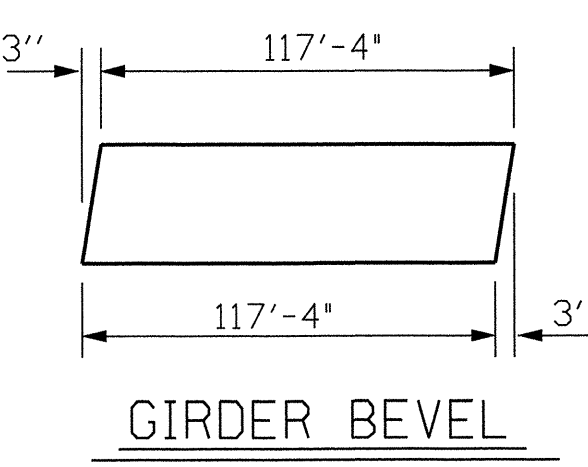
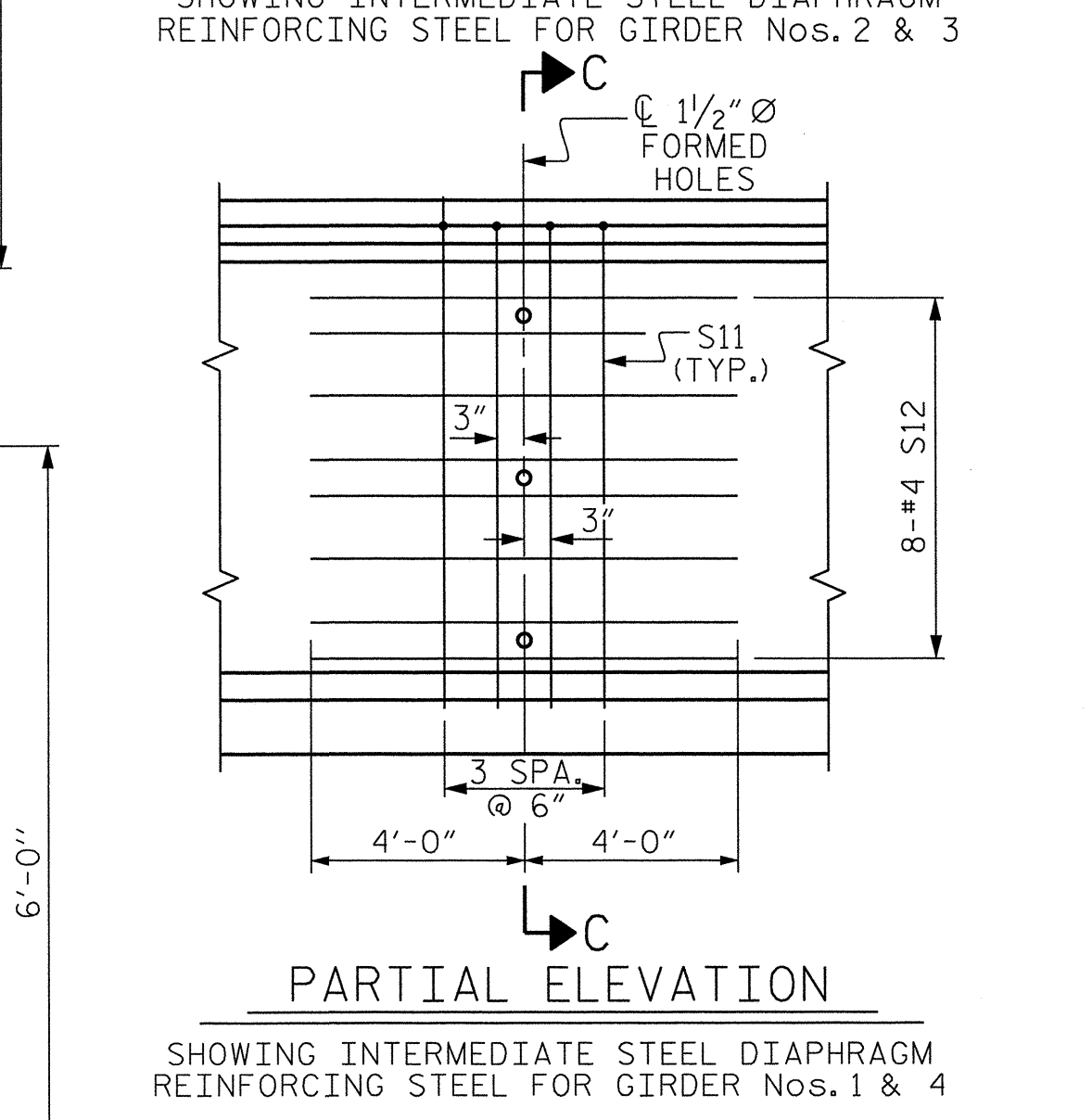
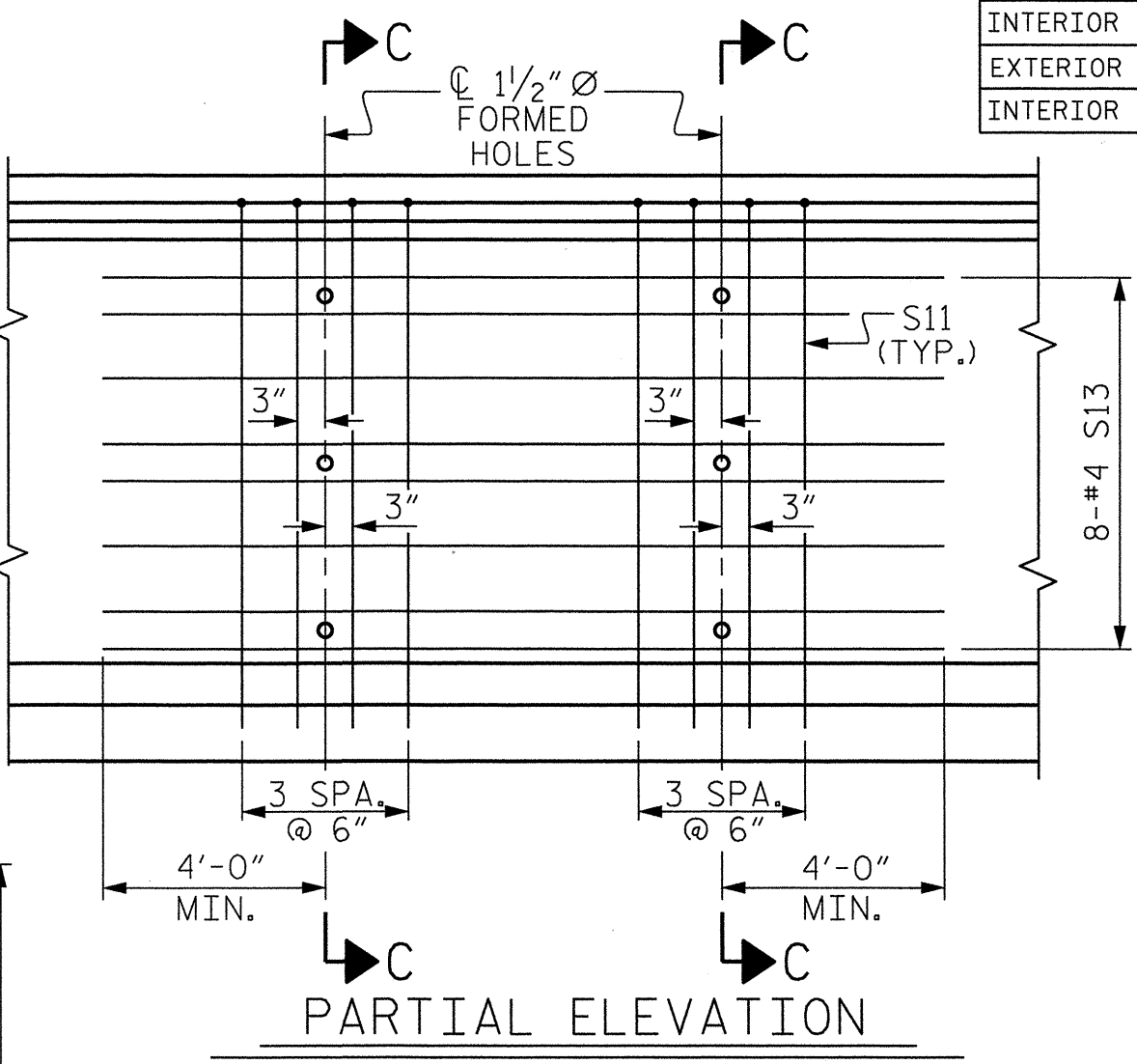
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN "A"



PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			51

DEBONDING LEGEND
 ● FULLY BONDED STRANDS
 ◐ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
 * FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS SHEET
 (S1, S6 AND S9 BARS NOT SHOWN)



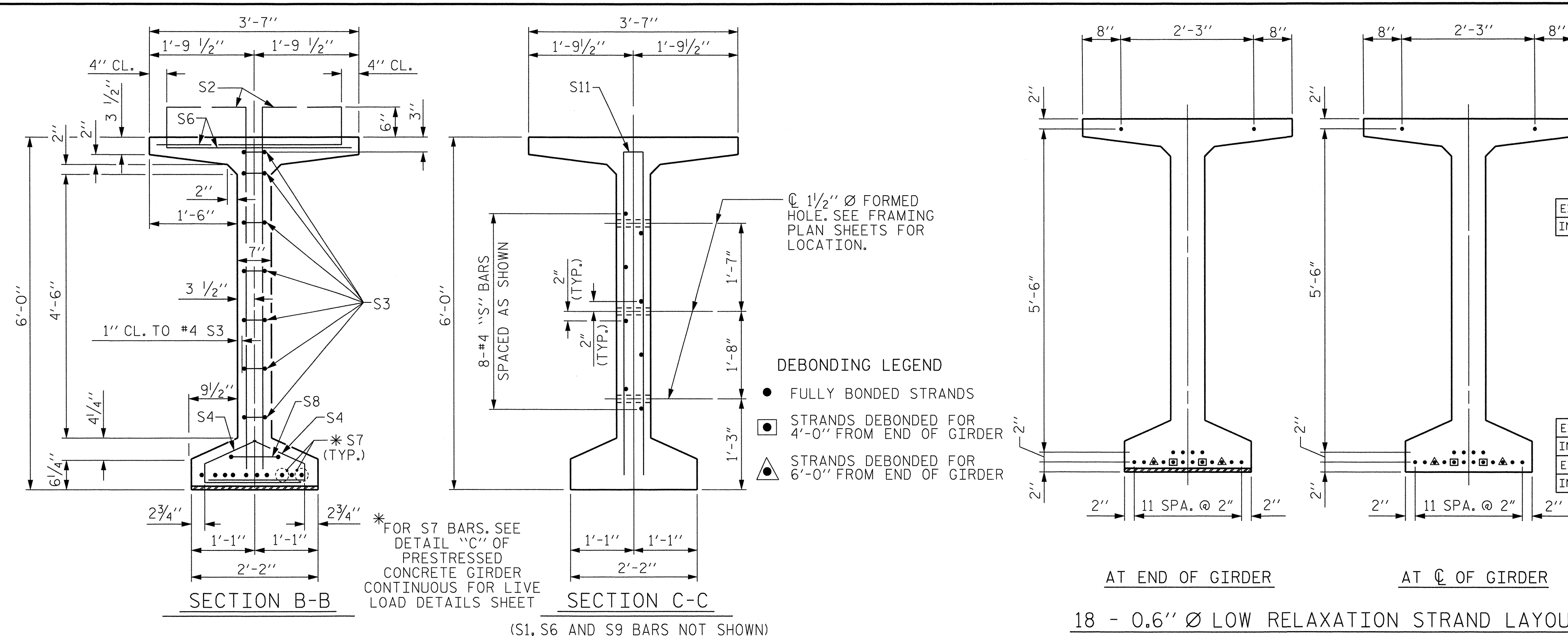
ASSEMBLED BY : ADS DATE : 10/12
 CHECKED BY : SDM DATE : 10/12
 DRAWN BY : EEM 2/6/97 REV. 10/17/00 RWW/LES
 CHECKED BY : VAP 2/6/97 REV. 5/1/06R TLA/GM
 REV. 10/1/11 MAA/GM

NOTE: THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 24 KIPS.

+

+

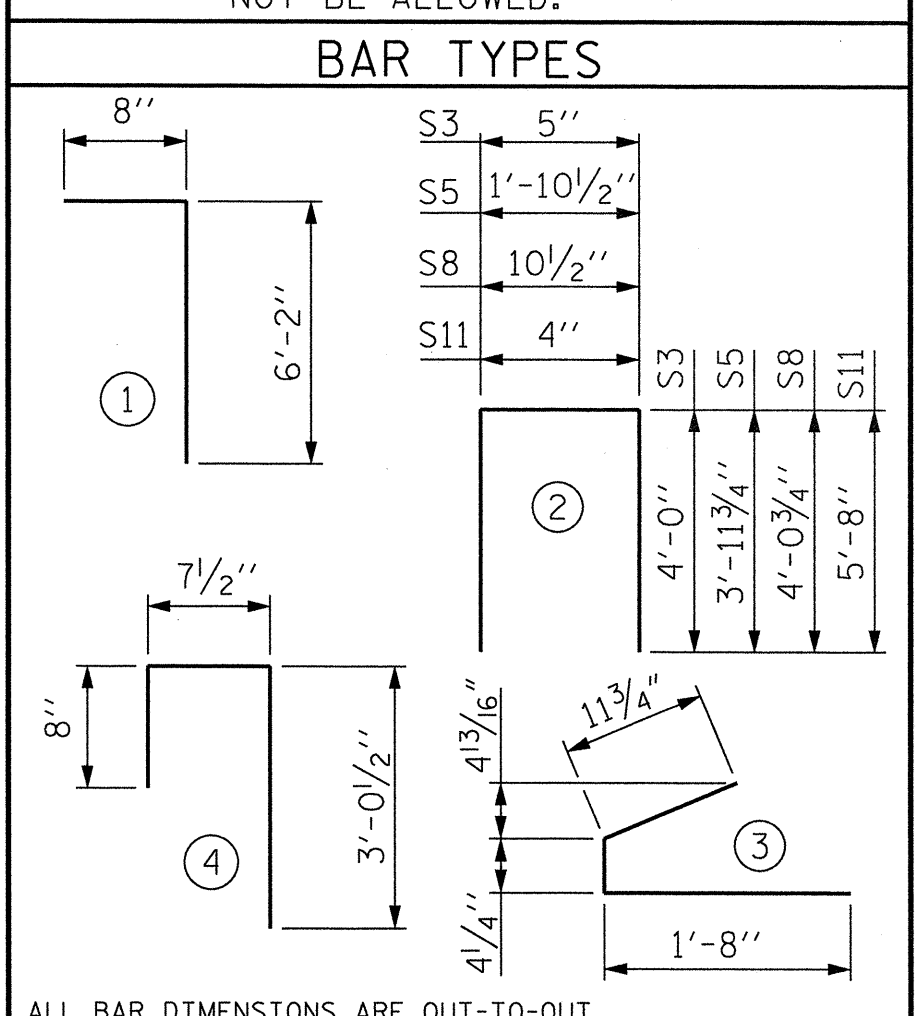
PCN 0259DEL_P10c2



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

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
EXTERIOR GDR.	S1	142	#4	1	6'-10"	654
INTERIOR GDR.	S1	142	#4	1	6'-10"	654
	S2	24	#5	1	6'-10"	171
	S3	14	#4	2	8'-5"	79
	S4	84	#4	3	3'-0"	168
	S6	166	#5	4	4'-4"	751
	*S7	20	#5	STR	3'-8"	77
	S8	2	#5	2	9'-0"	19
	S9	30	#5	STR	3'-3"	102
	S10	2	#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	14'-7"	79

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

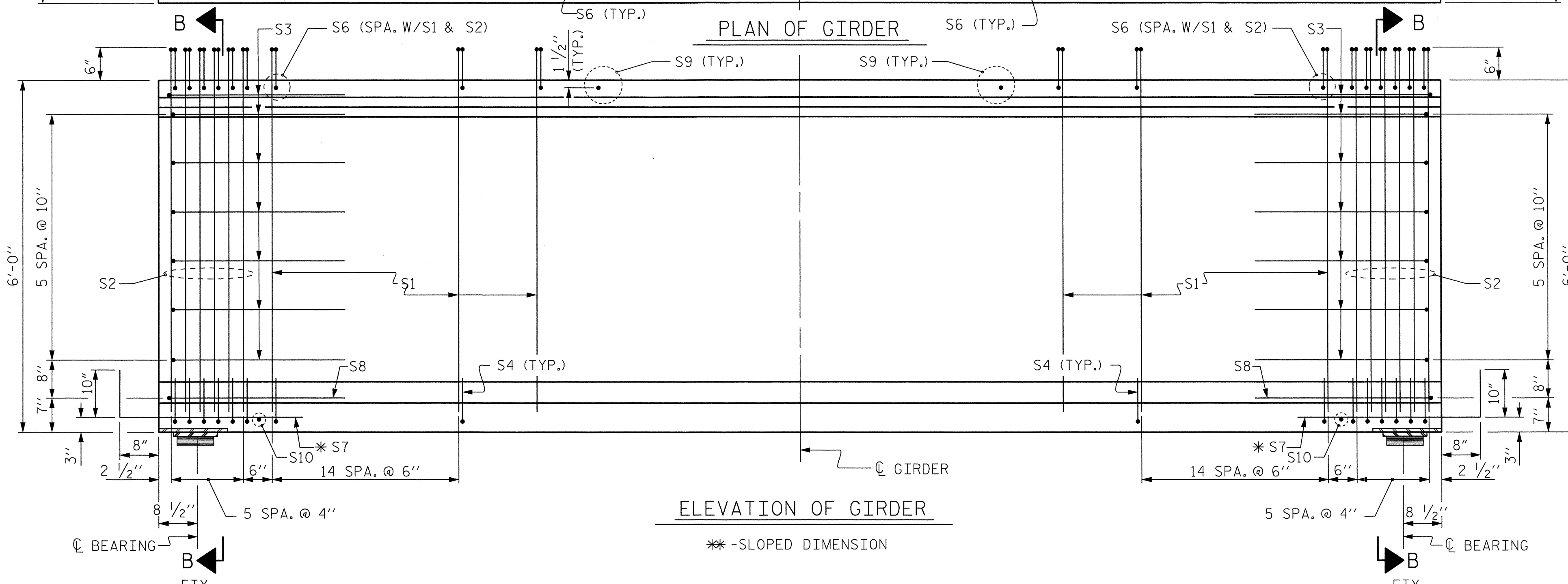
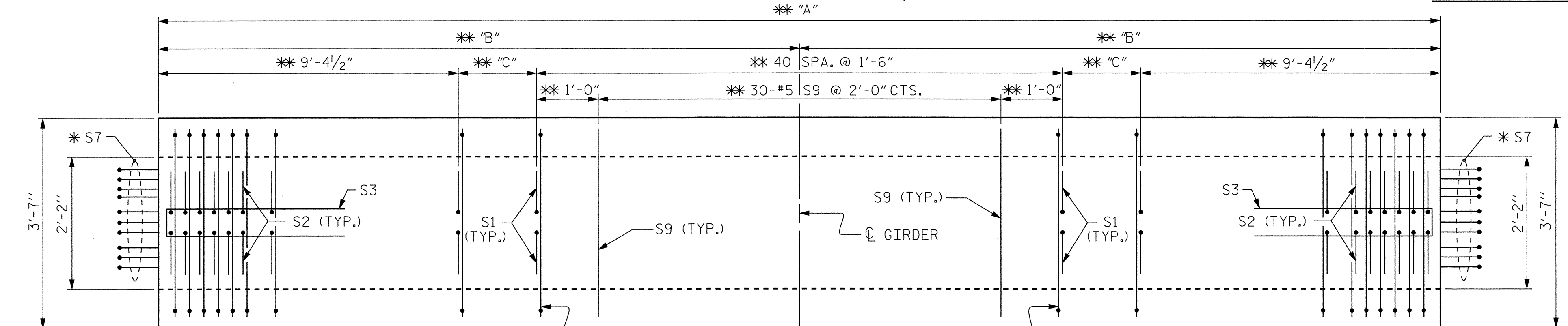


	SPAN B	SPAN C
"A"	81'-6"	81'-5 3/8"
"B"	40'-9"	40'-8 1/16"
"C"	1'-4 1/2"	1'-4 3/16"

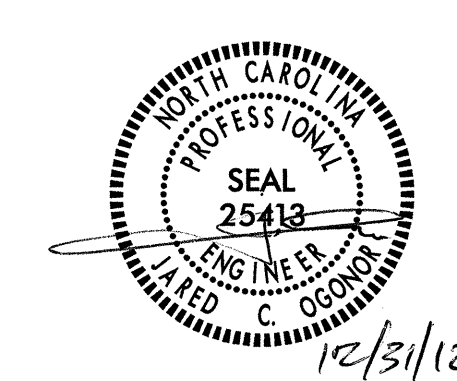
ALL DIMENSIONS LISTED ABOVE ARE SLOPED.

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	2113	17.5	18
INTERIOR GIRDER	2198	17.5	18

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
SPAN B	4	81'-6"
SPAN C	4	81'-5 3/8"



FOR DETAILS SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL, SEE SHEET 1 OF 4



PROJECT NO. C-4901 B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-
 SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN "B" & "C"

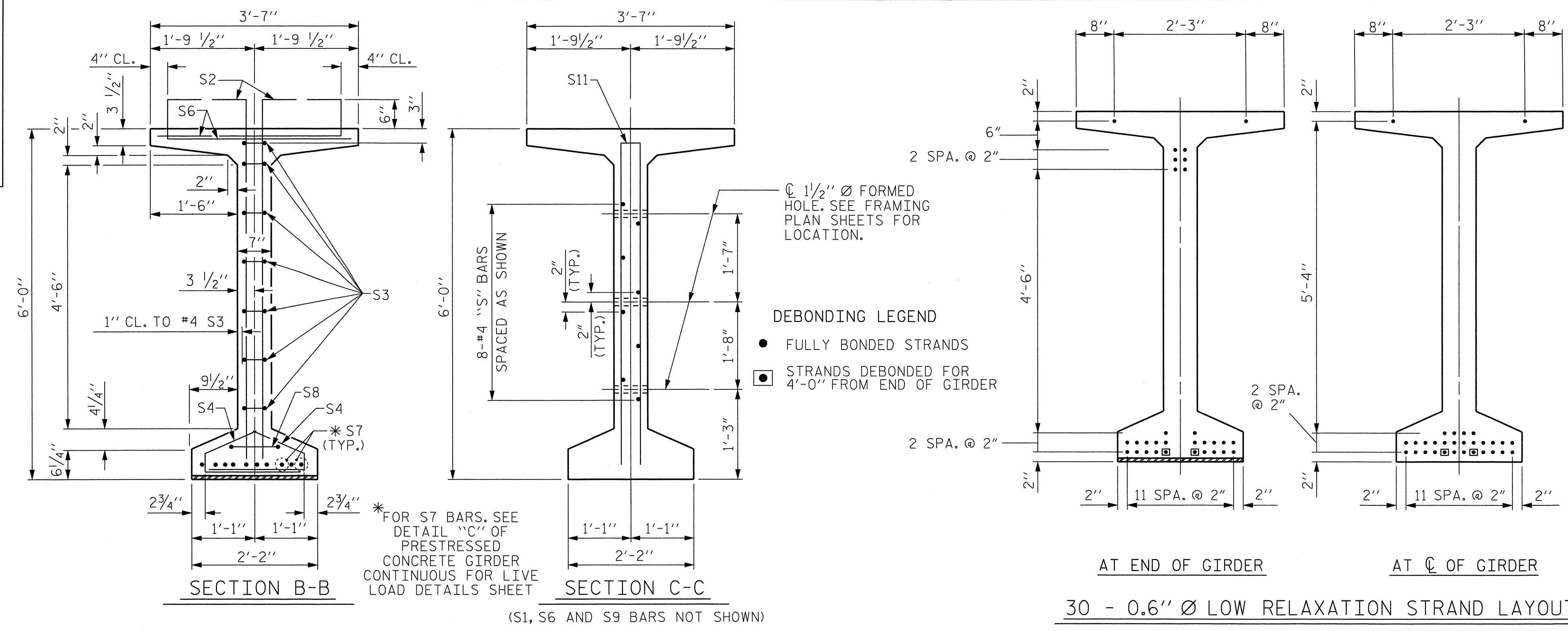
ASSEMBLED BY : ADS	DATE : 10/12
CHECKED BY : SDM	DATE : 10/12
DRAWN BY : EEM 2/6/97	REV. 10/17/00
CHECKED BY : VAP 2/6/97	REV. 5/1/06R
	REV. 10/1/11

PLANS PREPARED BY :
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			51

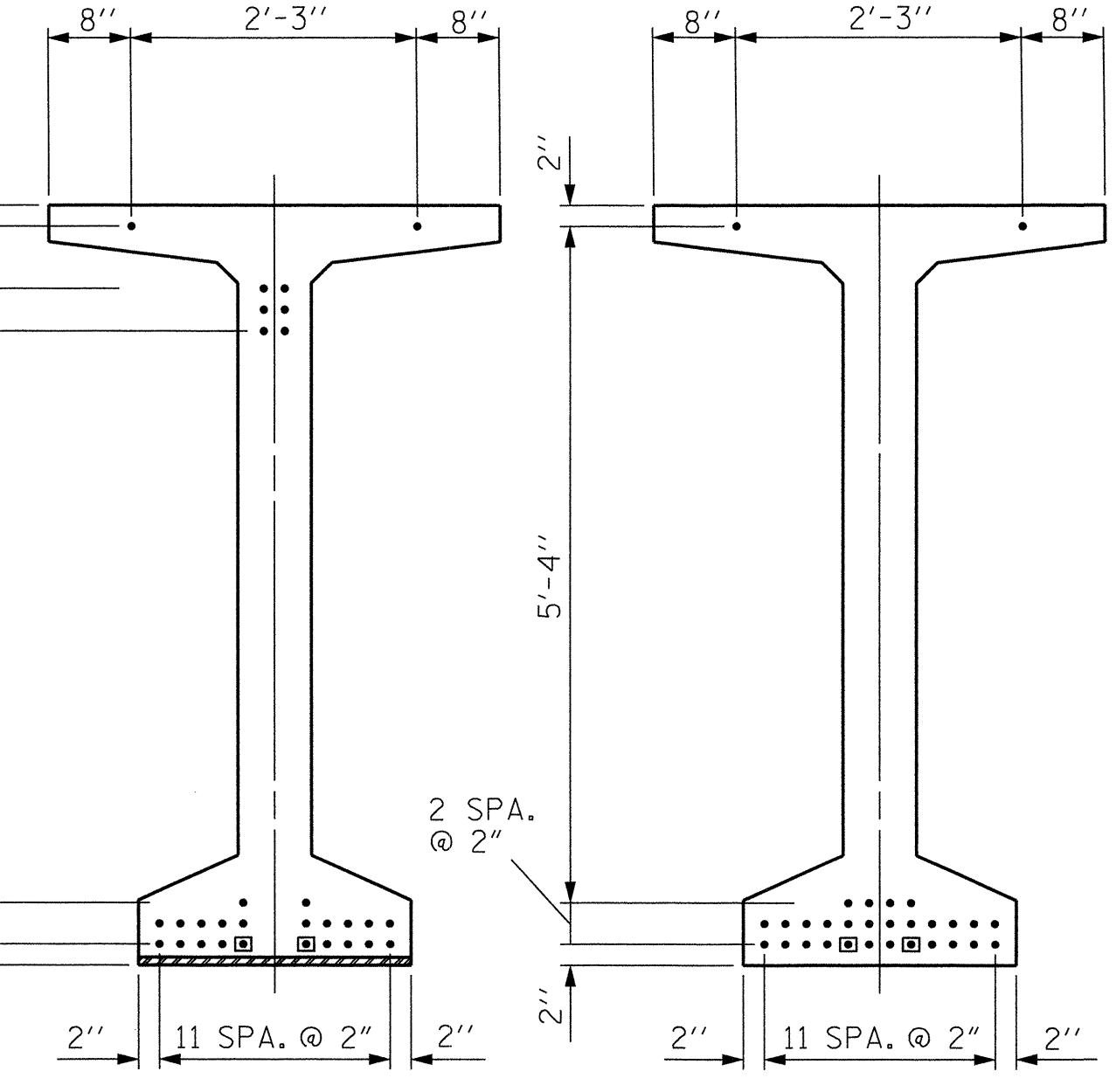
STD. NO. PCG8

0259DEL_P10c2

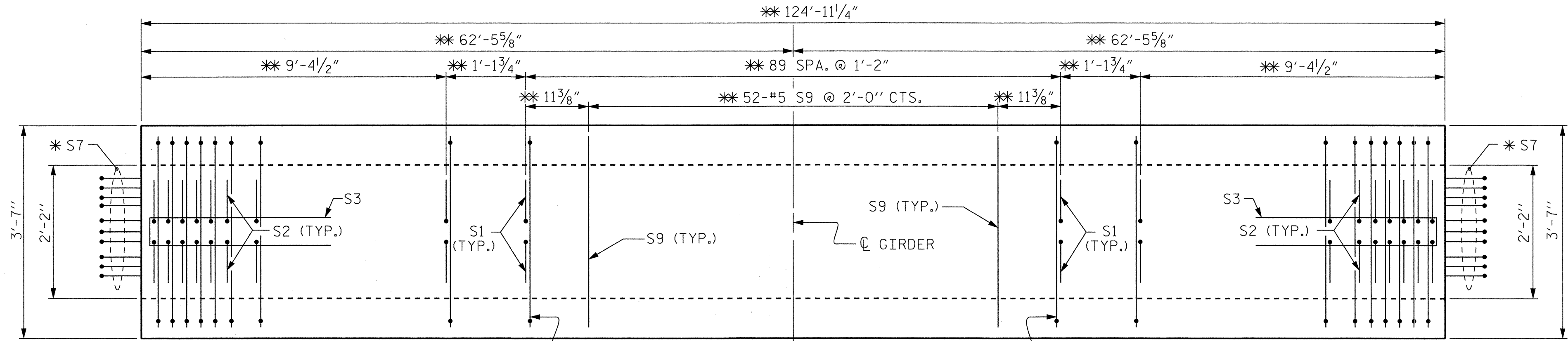


1/2" Ø FORMED HOLE. SEE FRAMING PLAN SHEETS FOR LOCATION.

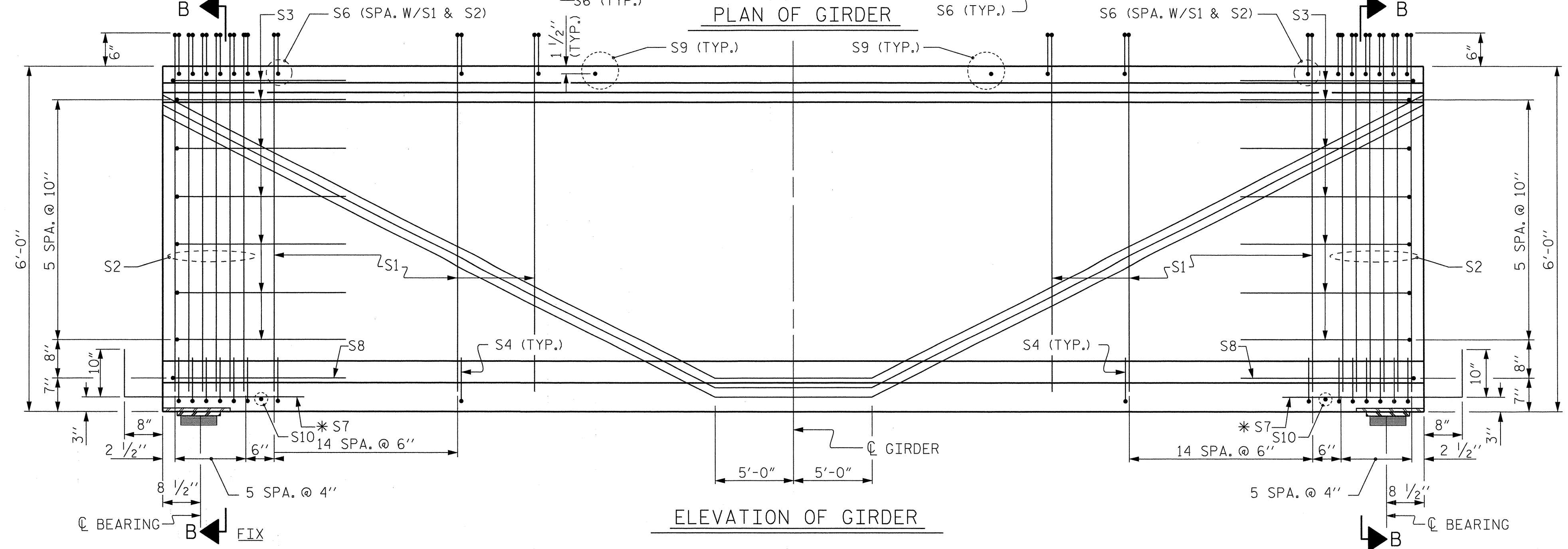
DEBONDING LEGEND
 ● FULLY BONDED STRANDS
 ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER



AT END OF GIRDER AT C OF GIRDER
 30 - 0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

* SLOPED DIMENSION

NOTE: THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 24 KIPS.

FOR DETAILS SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL, SEE SHEET 1 OF 4

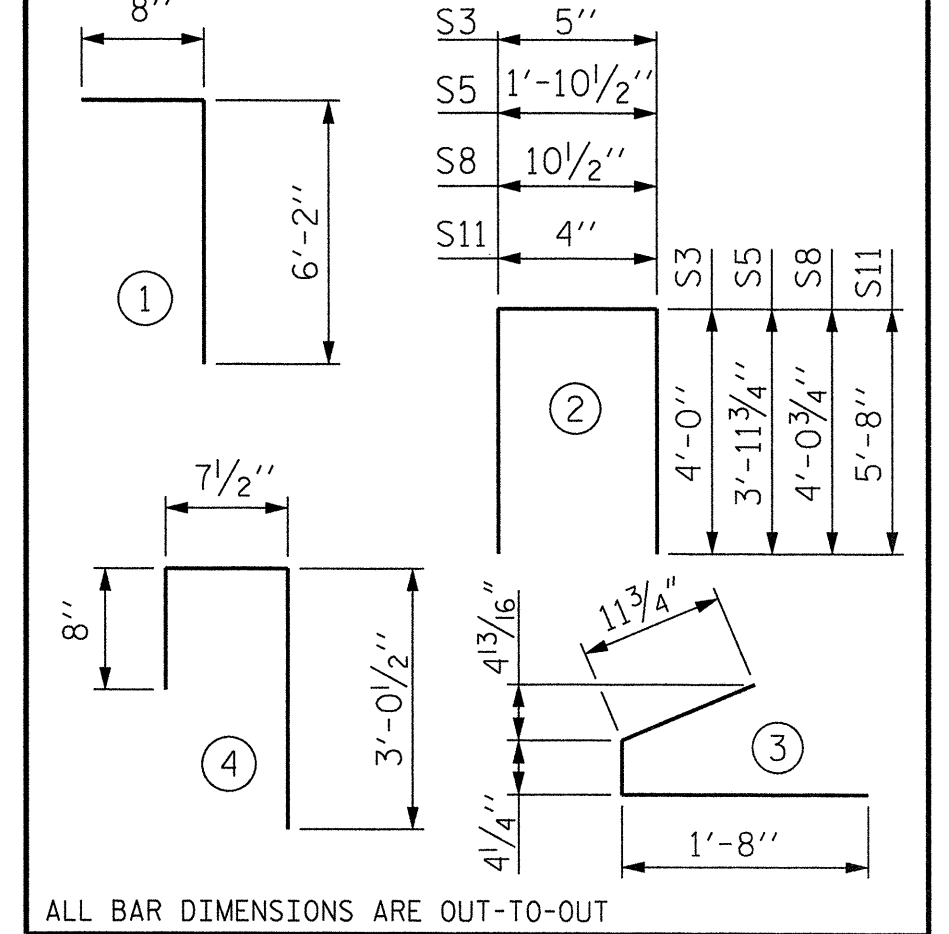
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GDR

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
EXTERIOR GDR. S1	240	#4	1	6'-10"	1105
INTERIOR GDR. S1	240	#4	1	6'-10"	1105
S2	24	#5	1	6'-10"	171
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S6	264	#5	4	4'-4"	1194
* S7	20	#5	STR	3'-8"	77
S8	2	#5	2	9'-0"	19
S9	52	#5	STR	3'-3"	176
S10	2	#3	STR	1'-10"	1
EXTERIOR GDR. S11	8	#5	2	11'-8"	97
INTERIOR GDR. S11	16	#5	2	11'-8"	195
EXTERIOR GDR. S12	16	#4	STR	8'-0"	86
INTERIOR GDR. S13	16	#4	STR	14'-7"	157

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT-TO-OUT

QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	3174	26.8	30
INTERIOR GIRDER	3343	26.8	30

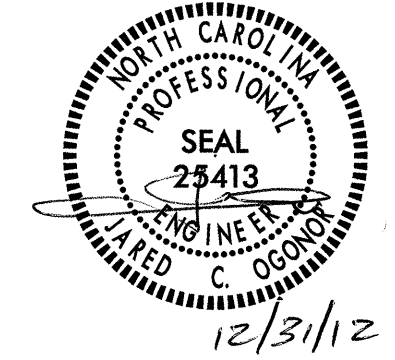
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	124'-11 1/4"	499'-9"

PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 3 OF 4

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



PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

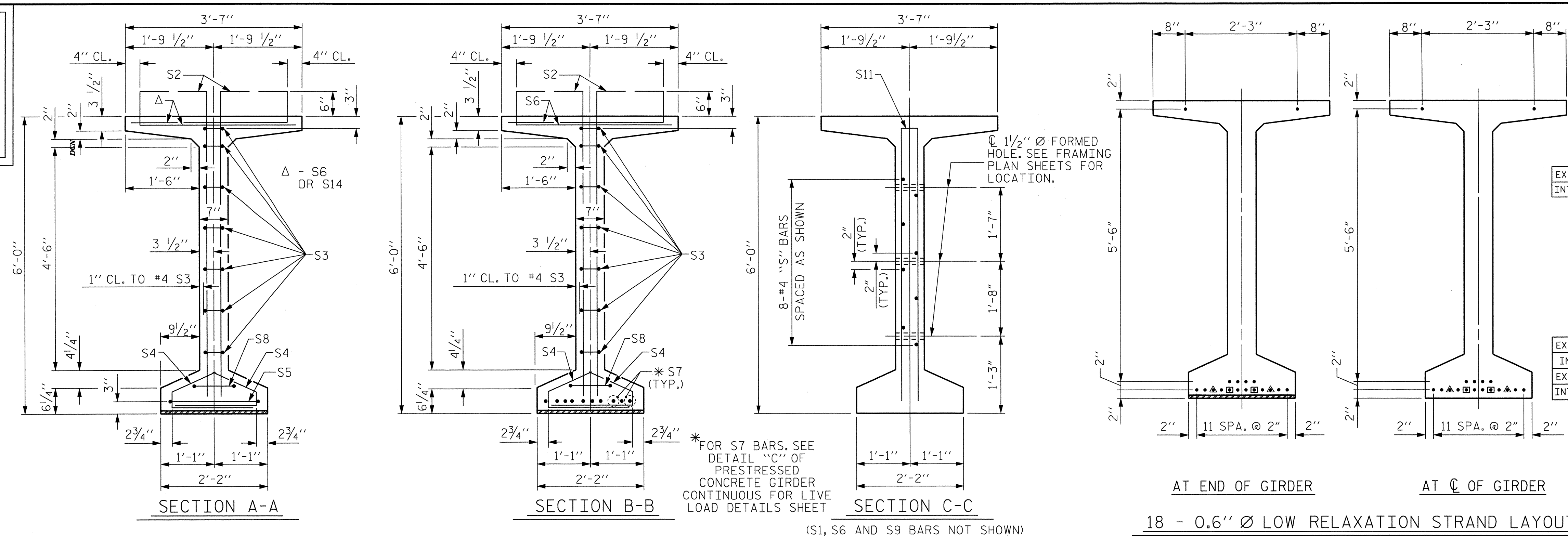
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			51

ASSEMBLED BY: ADS DATE: 10/12
 CHECKED BY: SDM DATE: 10/12
 DRAWN BY: EEM 2/6/97 REV. 10/17/00 RWW/LES
 CHECKED BY: VAP 2/6/97 REV. 5/1/06R TLA/GM
 REV. 10/1/11 MAA/GM

31-DEC-2012 09:53
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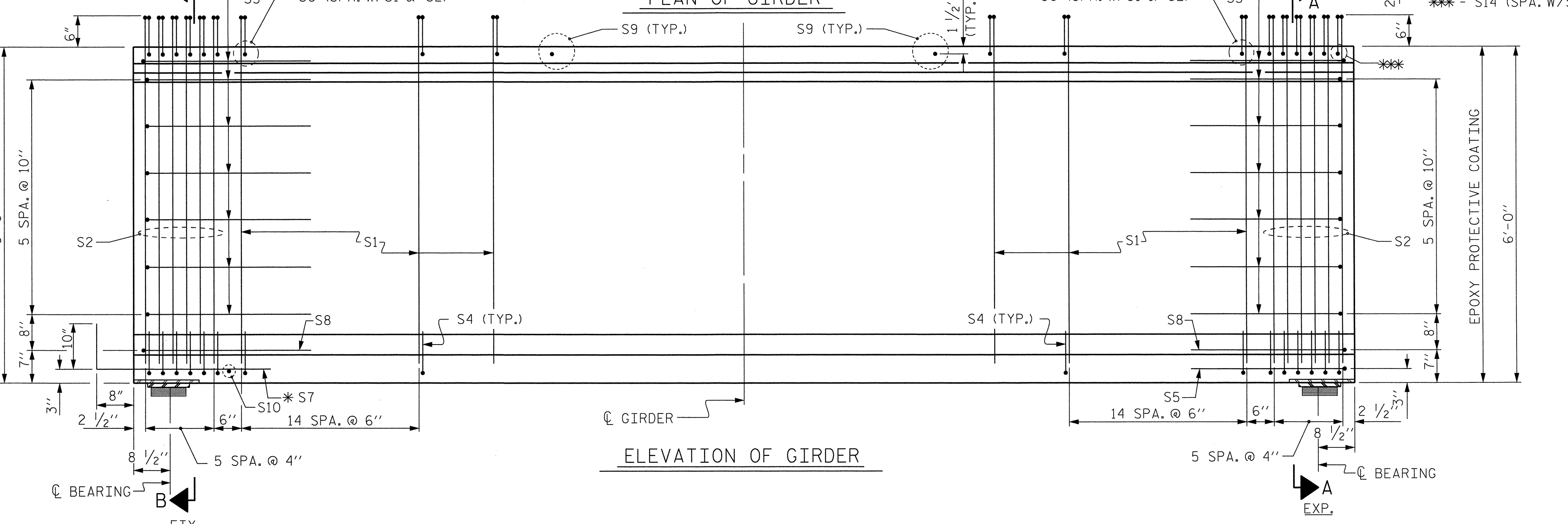
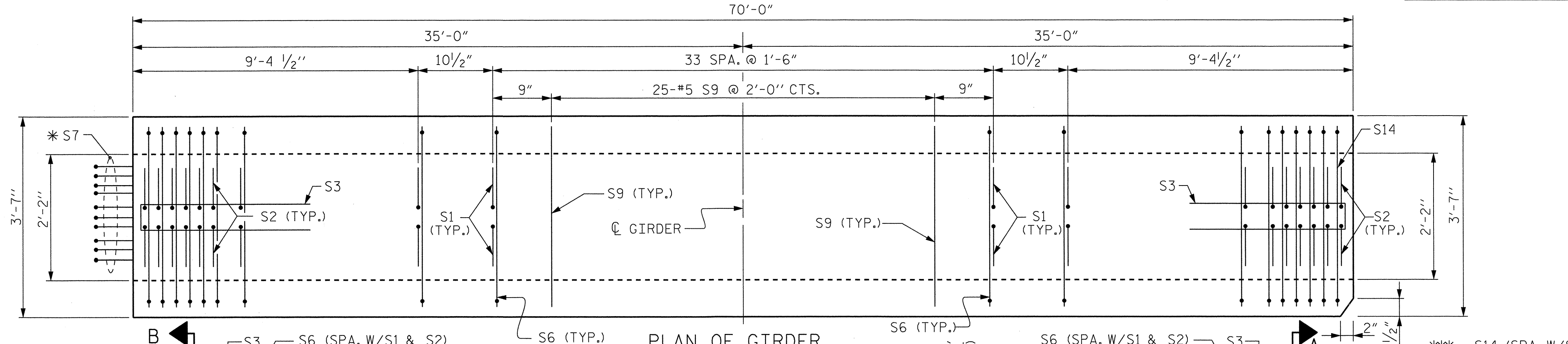
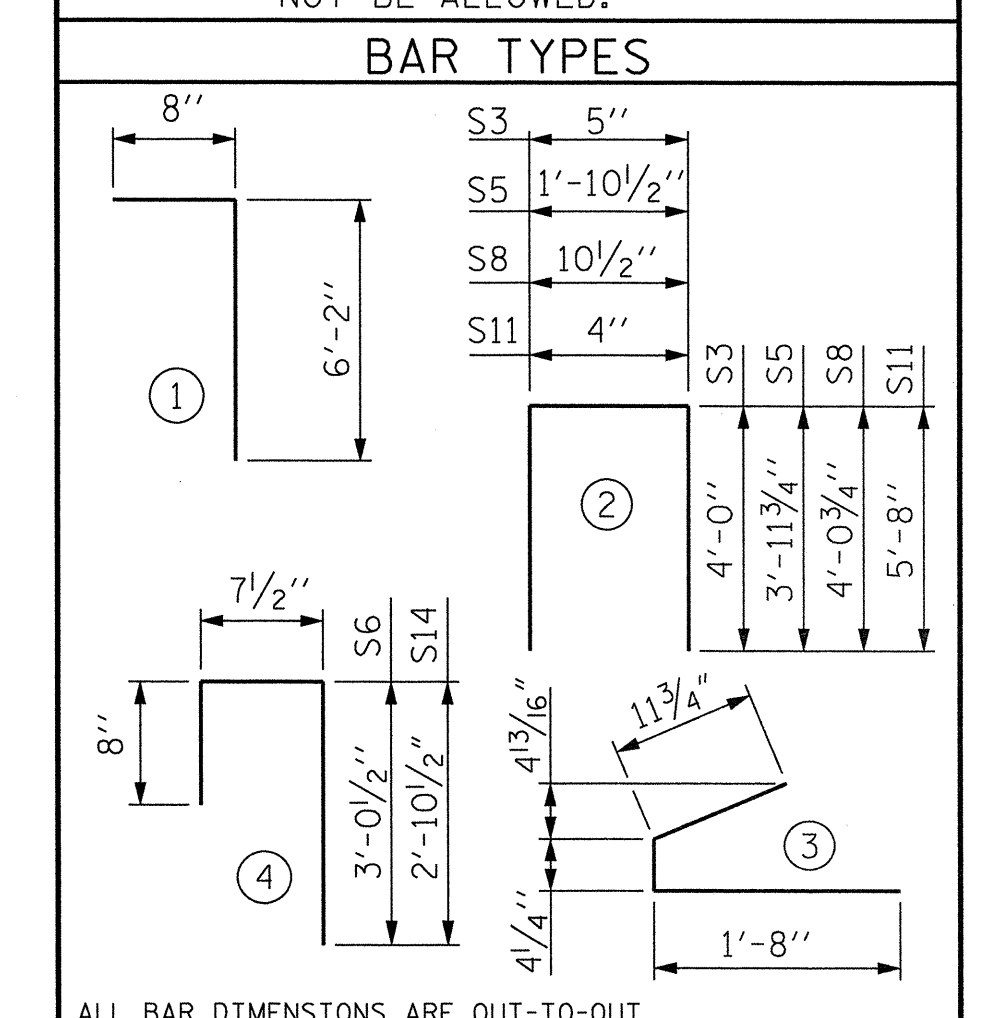
STD. NO. PCG8

0259DEL-P10c2



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	128	#4	1	6'-10"	589
INTERIOR GDR.	S1	128	#4	1	6'-10"	589
	S2	24	#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
	S6	150	#5	4	4'-4"	688
	*S7	10	#5	STR	3'-8"	38
	S8	2	#5	2	9'-10"	19
	S9	25	#5	STR	3'-3"	85
	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	14'-7"	79
	S14	2	#5	4	4'-2"	9

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



FOR DETAILS SHOWING INTERMEDIATE STEEL DIAPHRAGM REINFORCING STEEL, SEE SHEET 1 OF 4

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

QUANTITIES FOR ONE GIRDER			
	REINFORCING STEEL	8,000 PSI CONCRETE	0.6" Ø L.R. STRANDS
	LB.	C.Y.	No.
EXTERIOR GIRDER	1949	15.0	18
INTERIOR GIRDER	2033	15.0	18

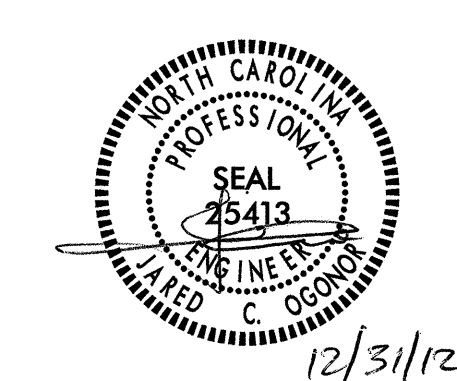
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	70'-0"	280'-0"

PROJECT NO. C-4901 B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 SPAN "E"



PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

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1			3			TOTAL SHEETS
2			4			51

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 REV. 10/1/11 MAA/GM

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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.

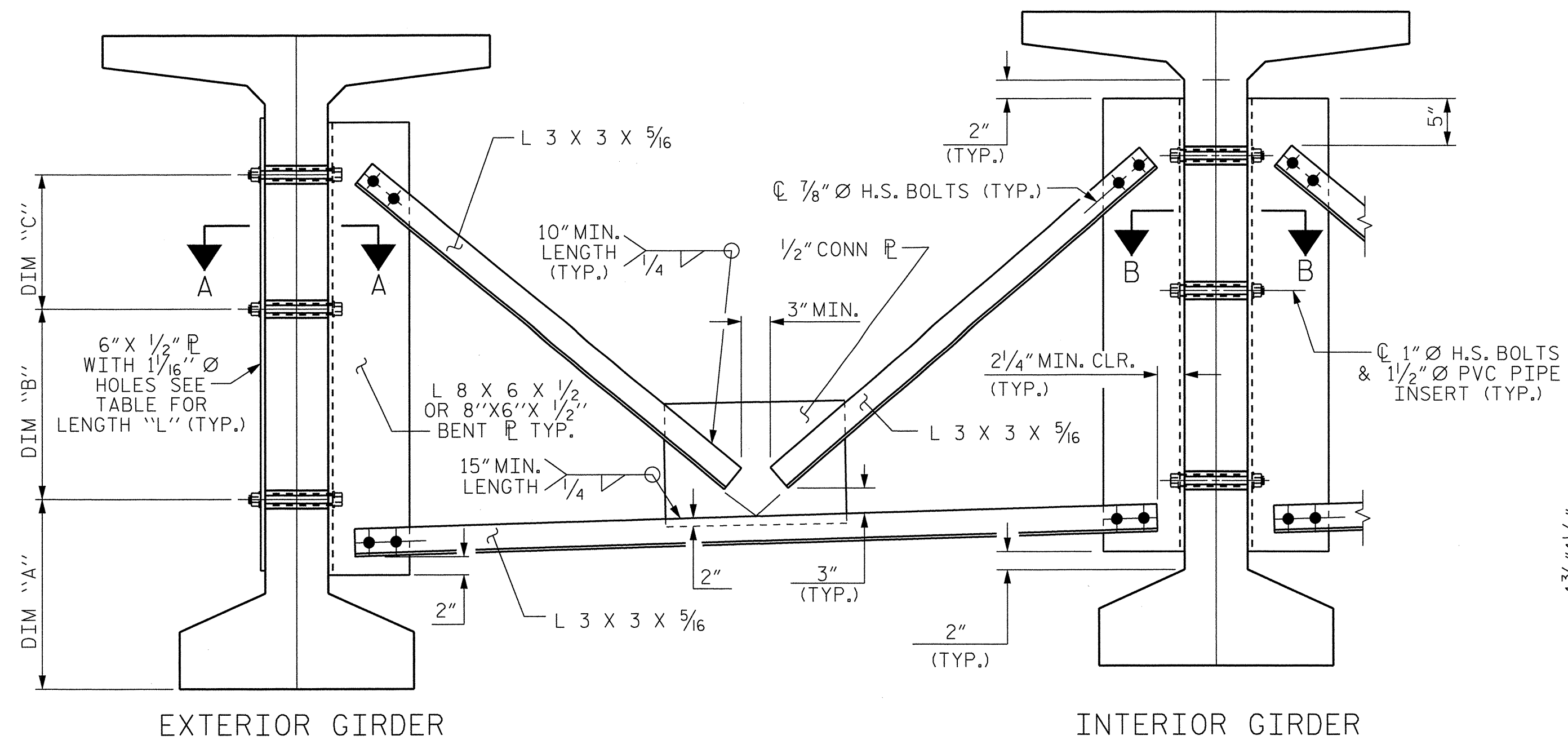
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

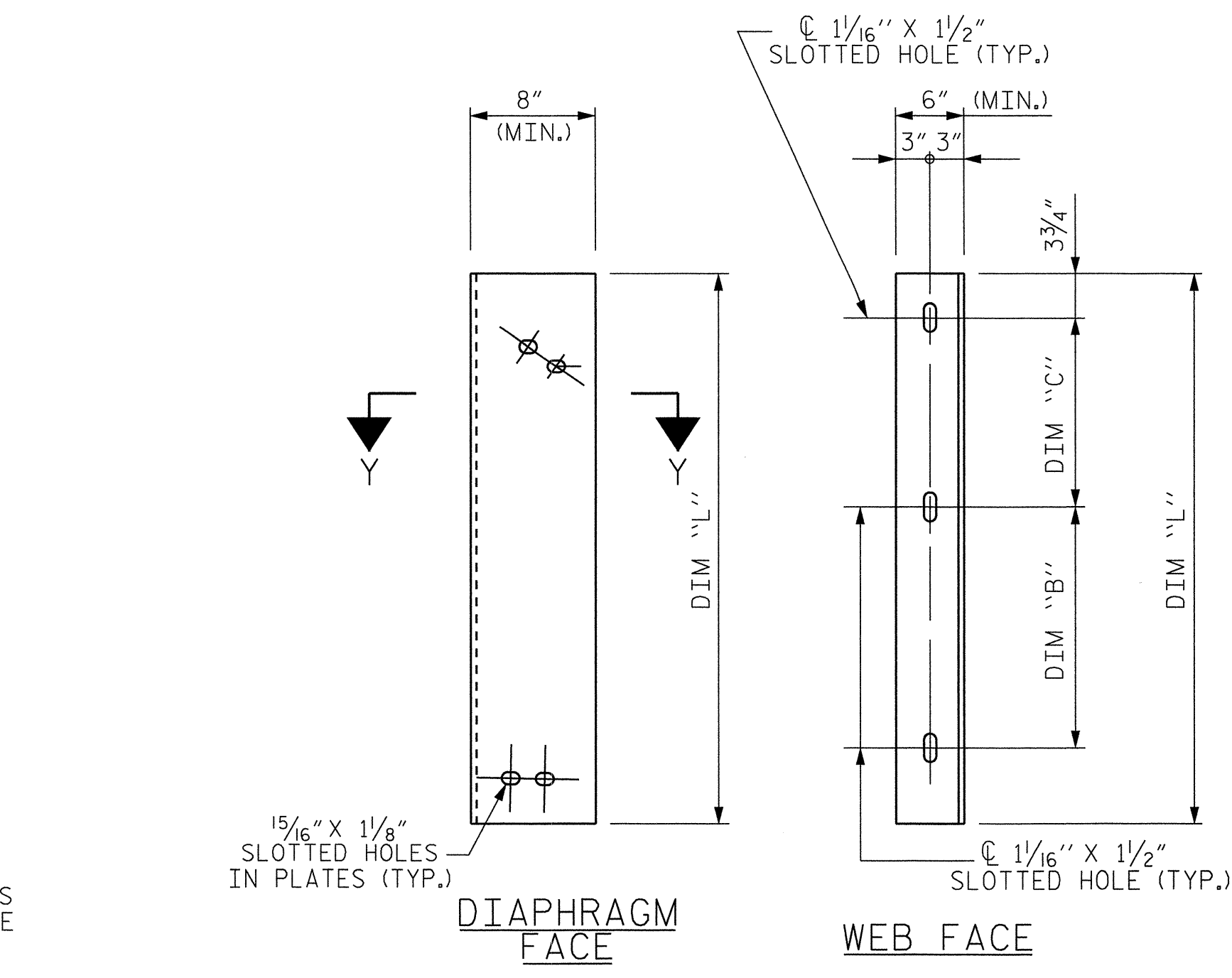
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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.

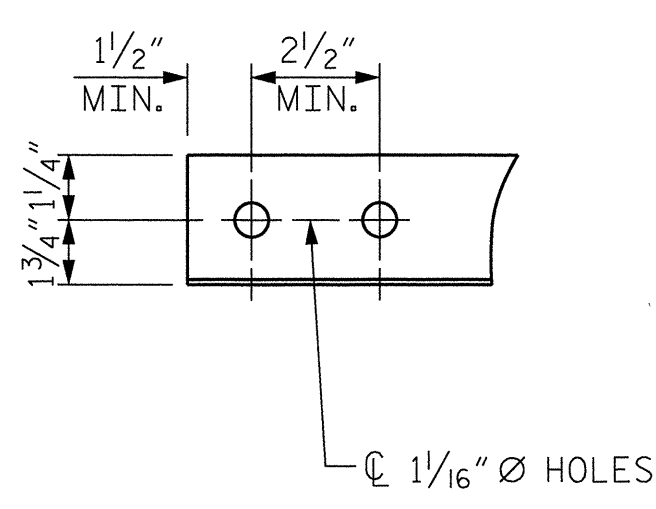
THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



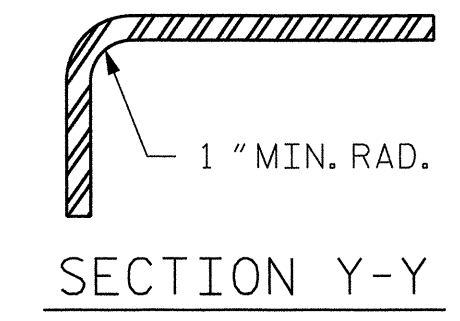
PART SECTION AT INTERMEDIATE DIAPHRAGM
(72" BULB TEE GIRDER SHOWN)



CONNECTOR PLATE DETAIL



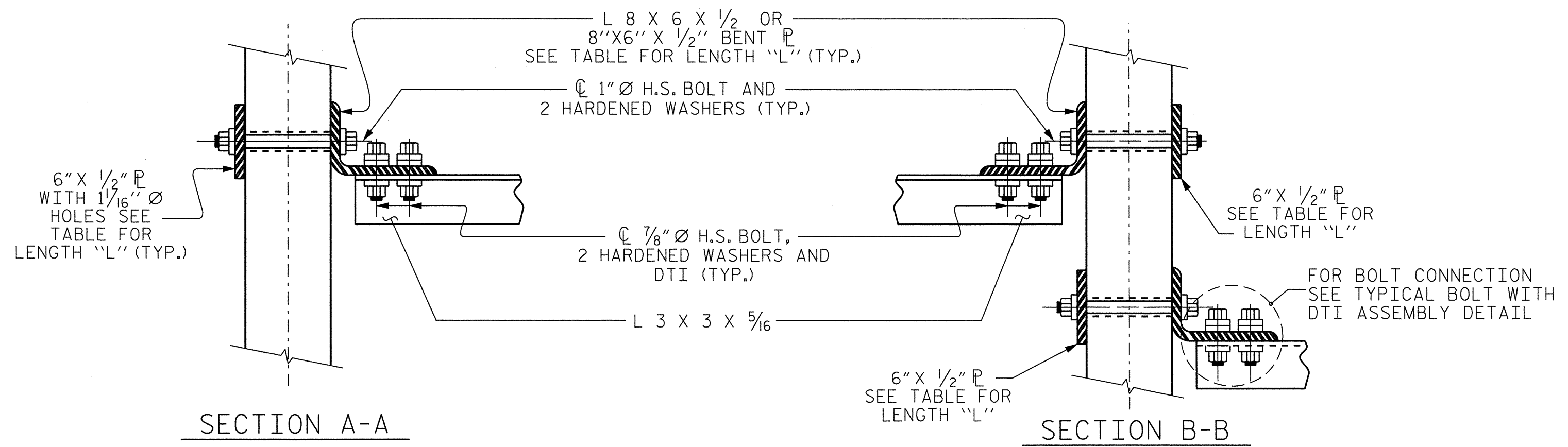
ANGLE END
(L 3 X 3 X 5/16)



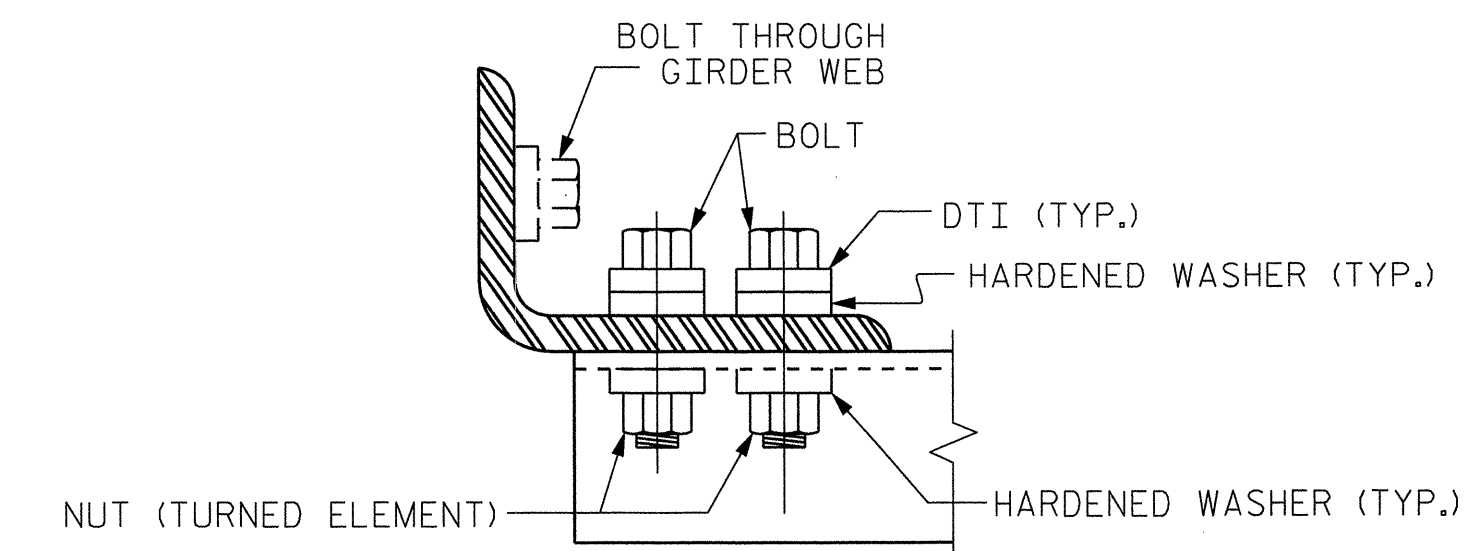
SECTION Y-Y

TABLE

GIRDER TYPE	DIM "A"	DIM "B"	DIM "C"	DIM "L"
72" BULB TEE	1'-3"	1'-8"	1'-7"	4'-2"

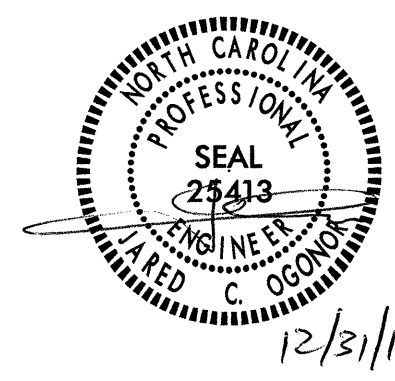


CONNECTION DETAILS
(SKEW > 110°)



BOLT WITH DTI ASSEMBLY DETAIL

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-
SHEET 1 OF 1



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
STANDARD
INTERMEDIATE
STEEL DIAPHRAGMS
FOR 72" MODIFIED
BULB TEE PRESTRESSED
CONCRETE GIRDERS

ASSEMBLED BY : CAL
CHECKED BY : JCO
DATE : 10-12
DATE : 10-12
DRAWN BY : RWW II/09
CHECKED BY : GM II/09
ADDED II/23/09R
REV. 10/1/11
MAA/GM

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
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FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

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2			4		

TOTAL SHEETS: 51

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" * 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.

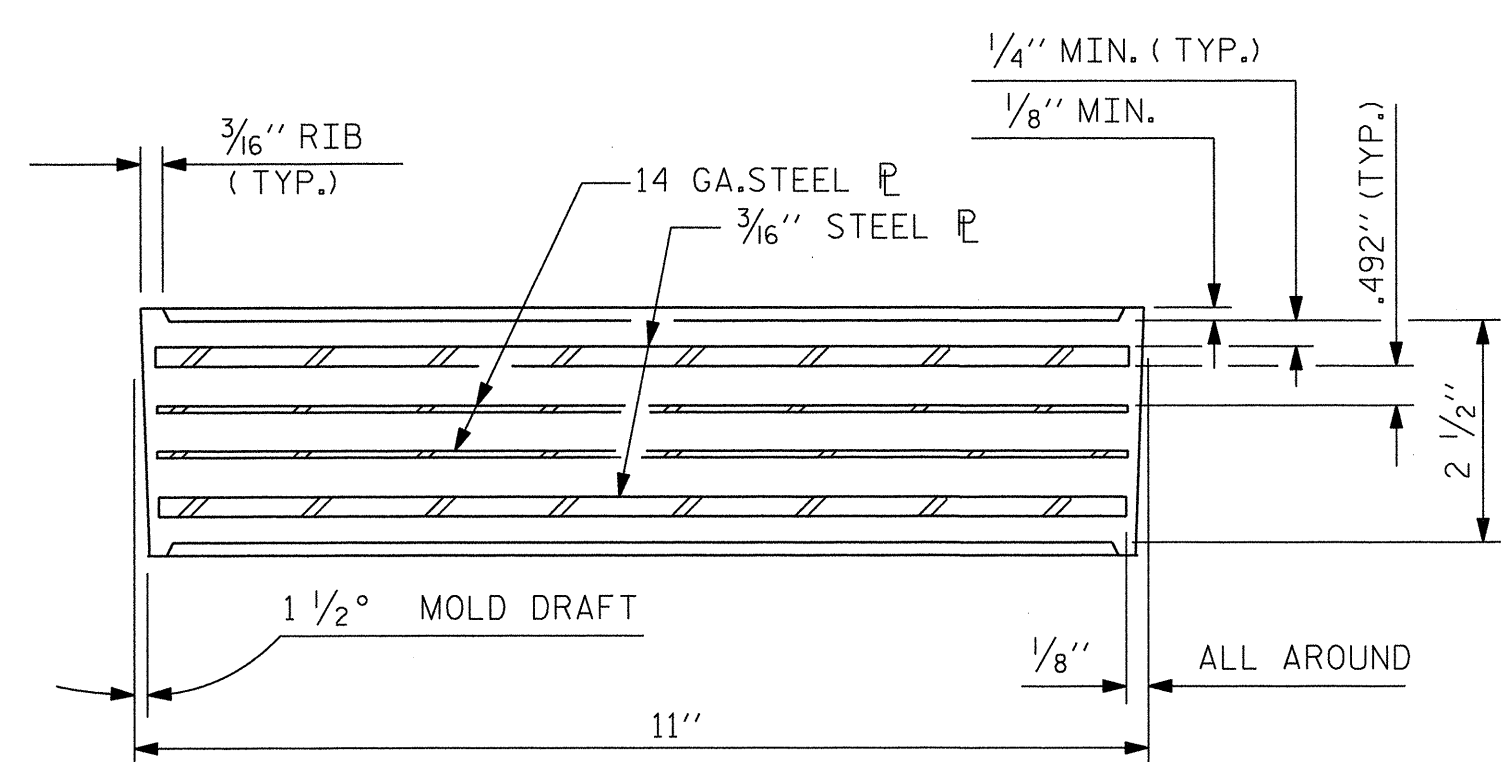
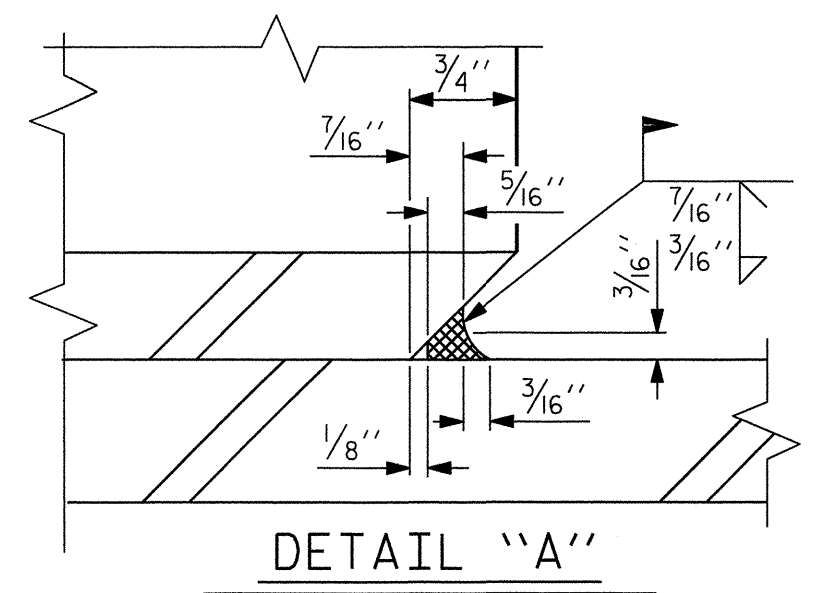
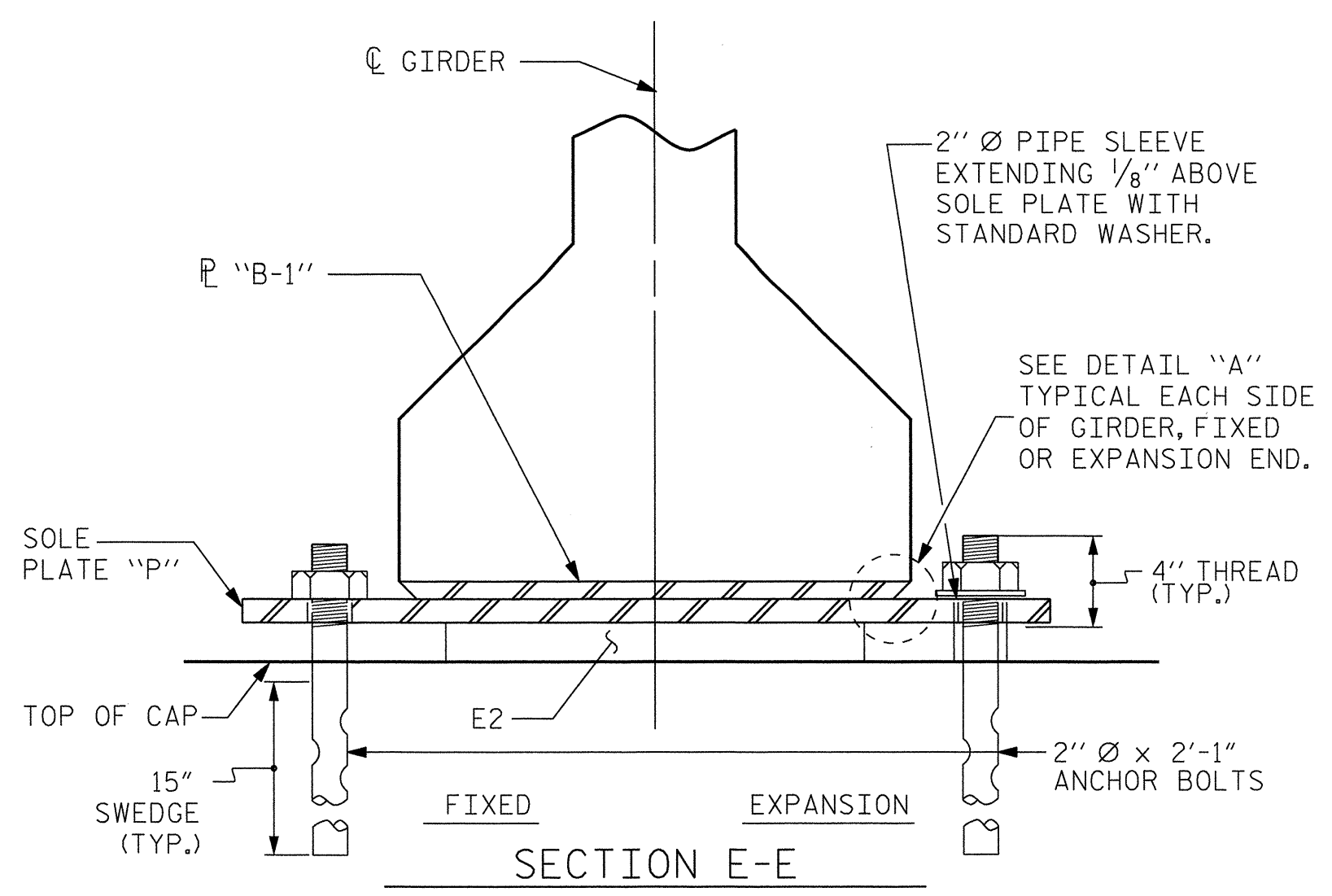
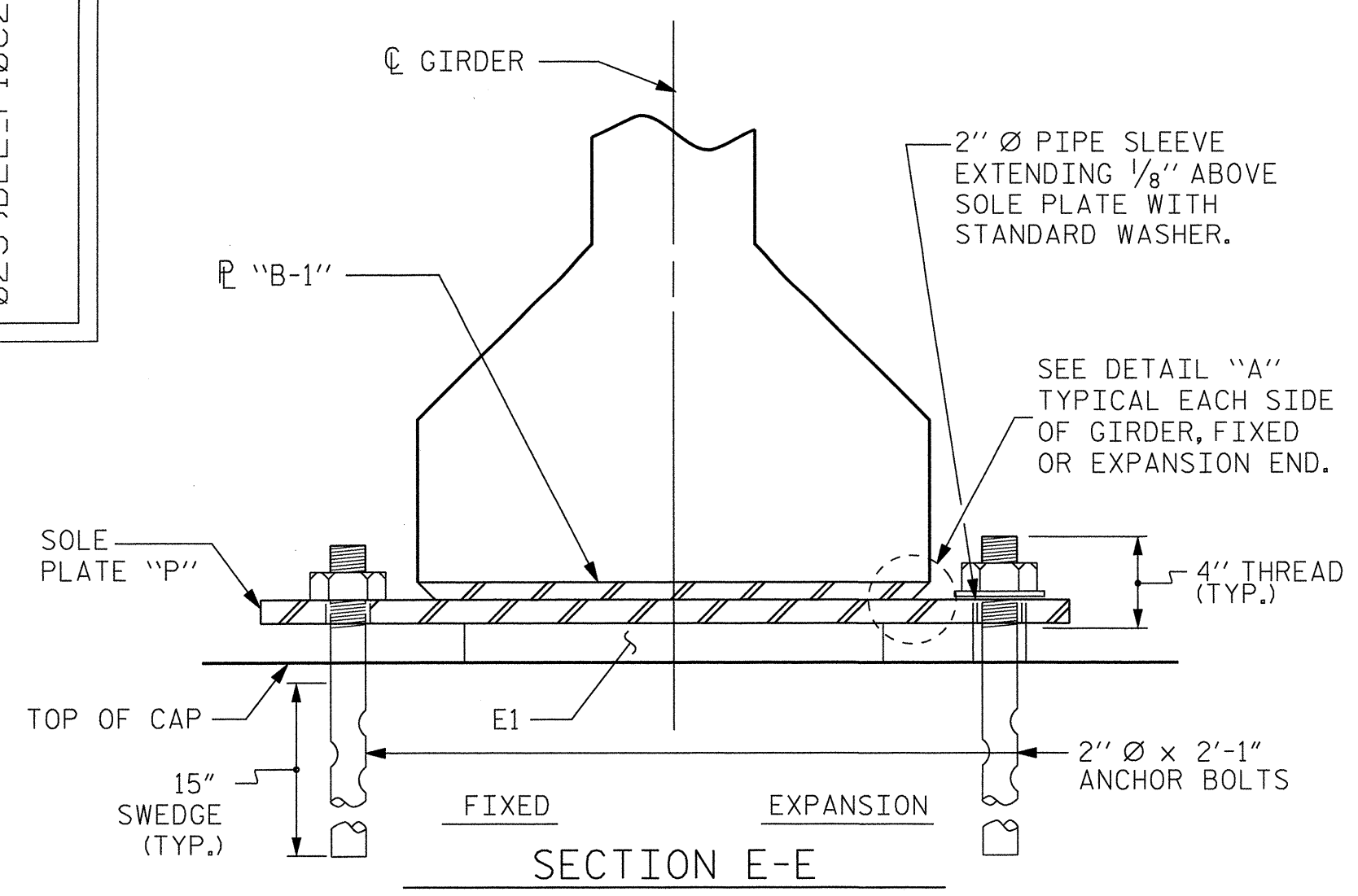
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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.

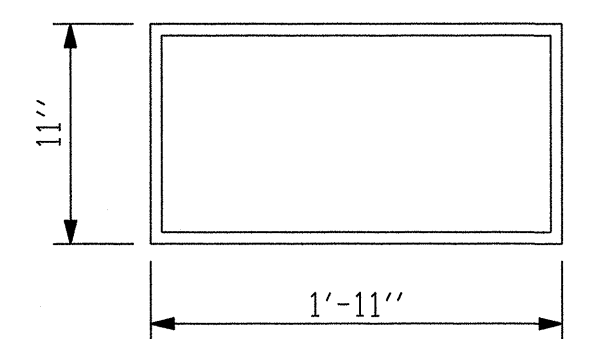
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

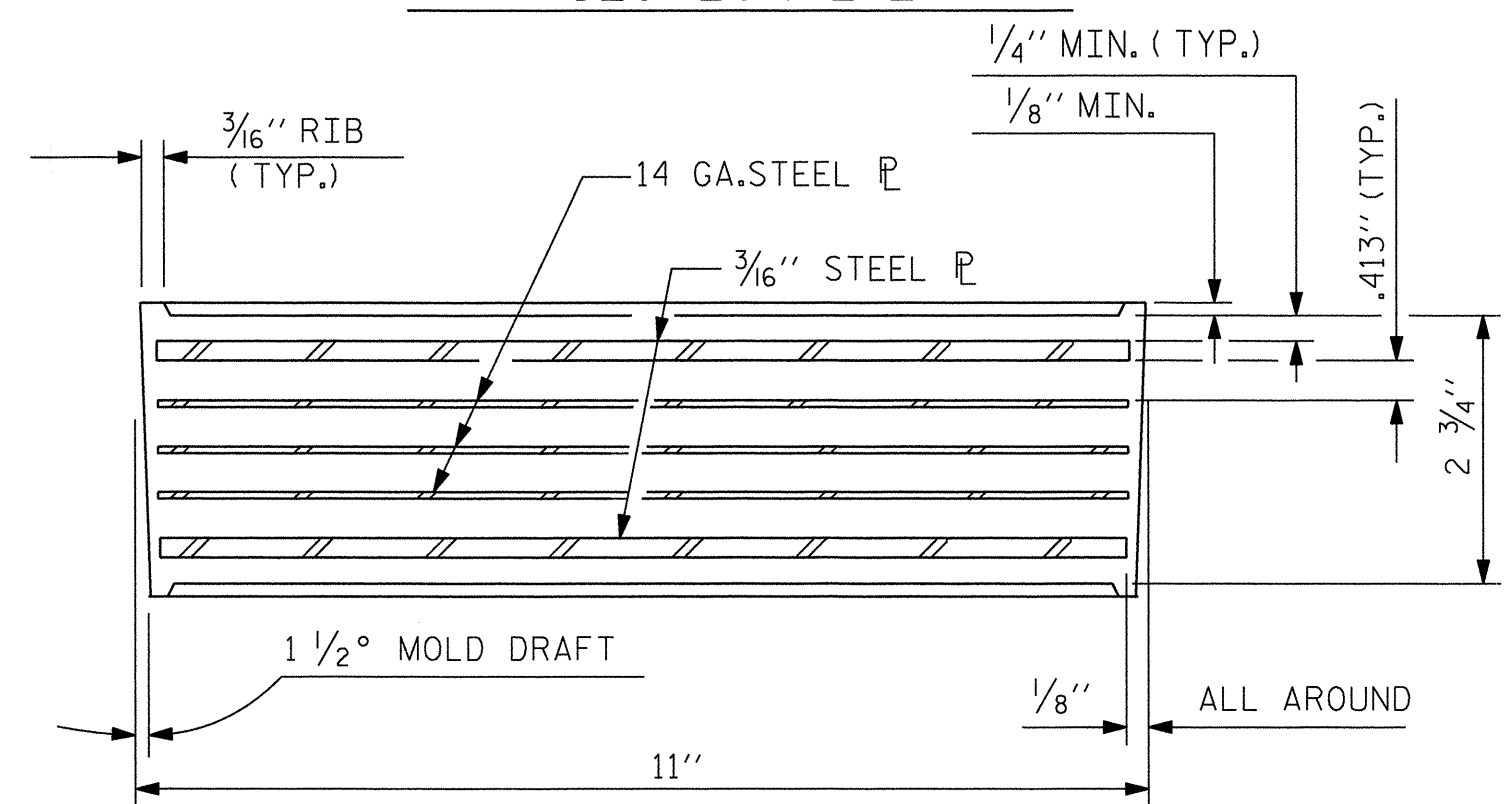
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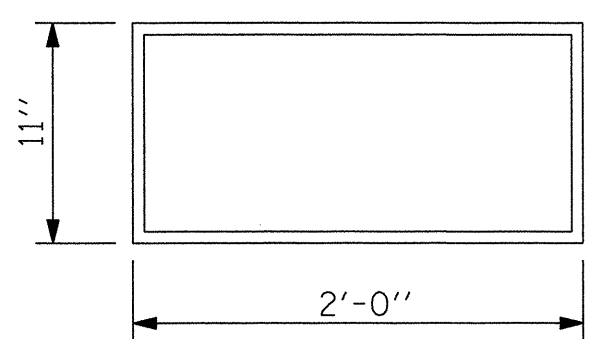
TYPICAL SECTION OF ELASTOMERIC BEARINGS



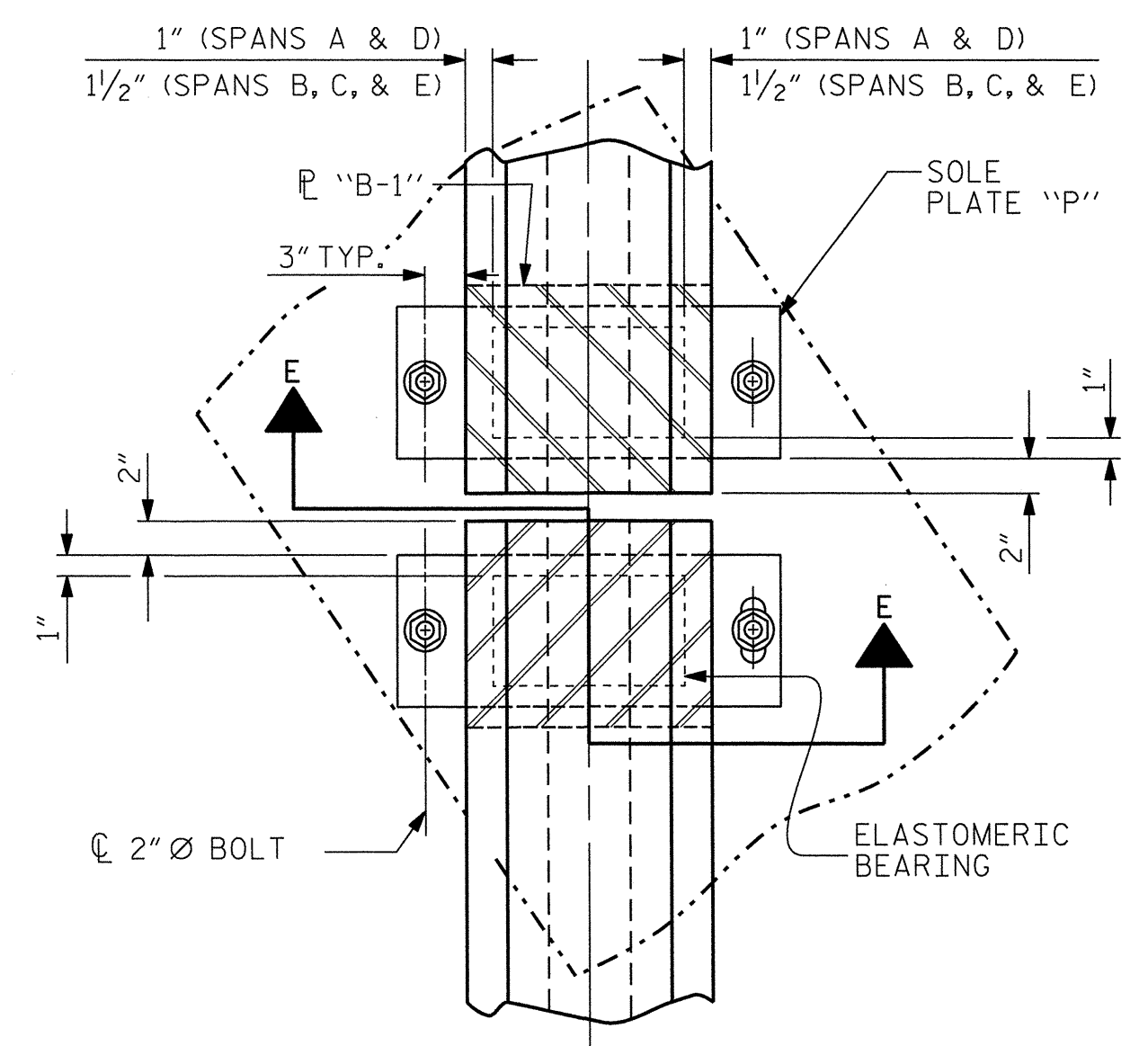
E1 (24 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE VI



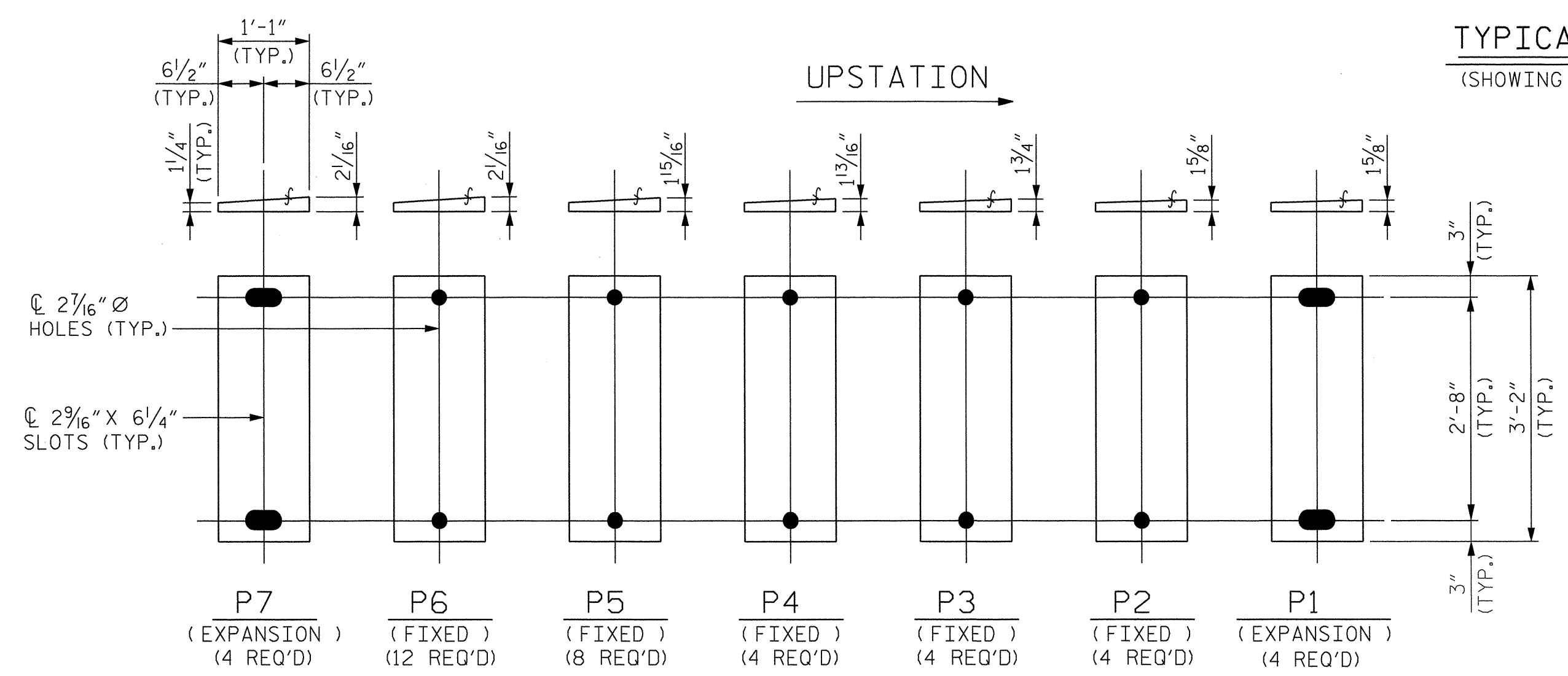
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E2 (16 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE VII



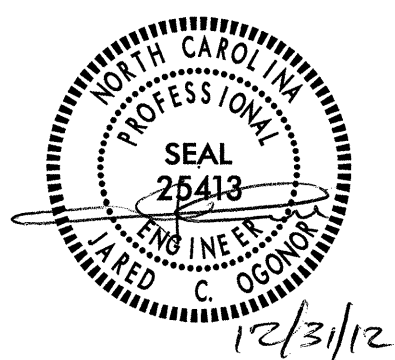
TYPICAL HALF-PLAN (SHOWING CONTINUOUS BENT)
TYPICAL HALF-PLAN (SHOWING SIMPLE SPAN BENT)



SOLE PLATE DETAILS ("P")

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 1



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

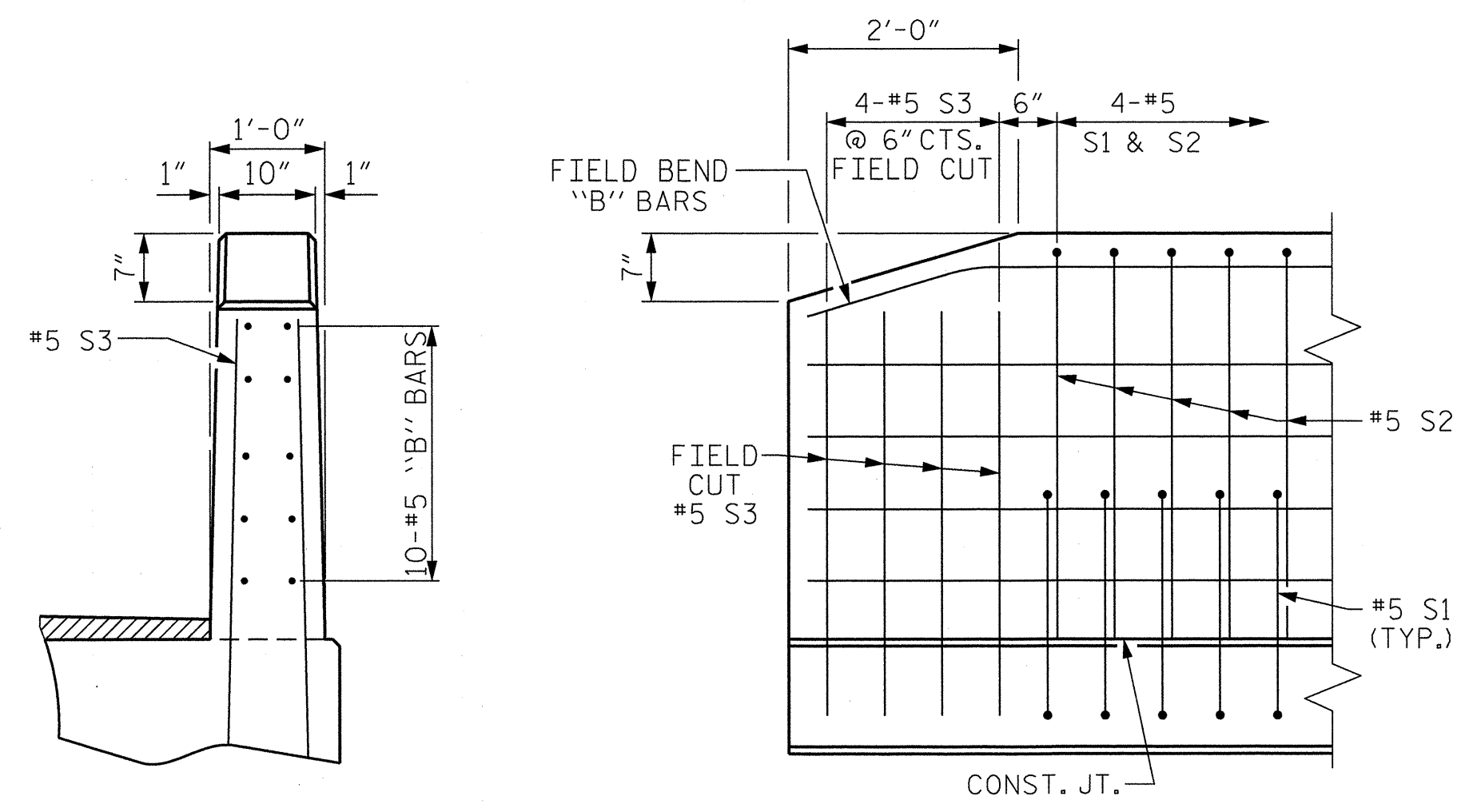
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CHECKED BY : JCO	DATE : 10-12
DRAWN BY : EEM 2/97	REV. 10/17/00 RWW/LES
CHECKED BY : VAP 2/97	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

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NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

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

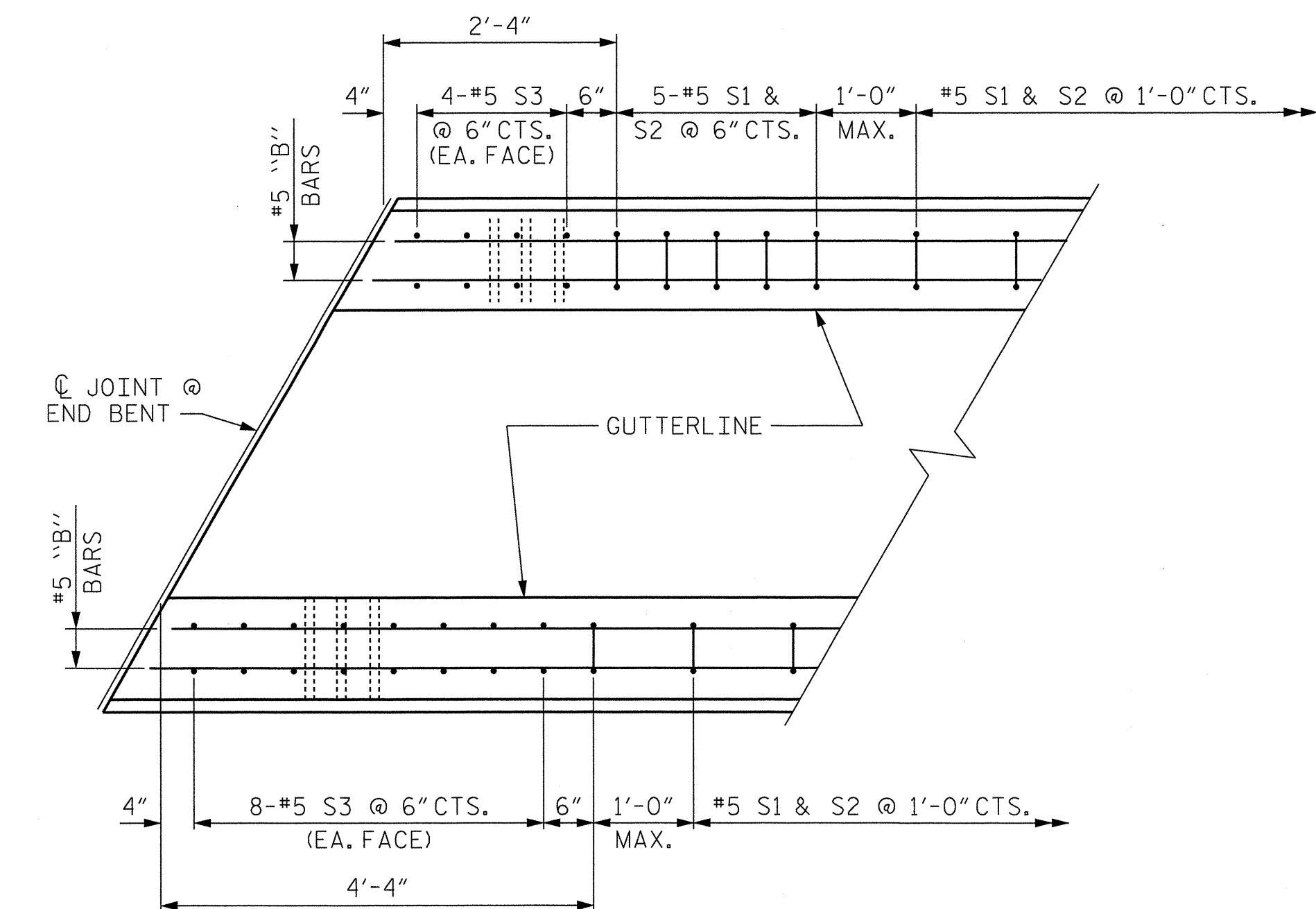
TOTAL SHEETS: 51

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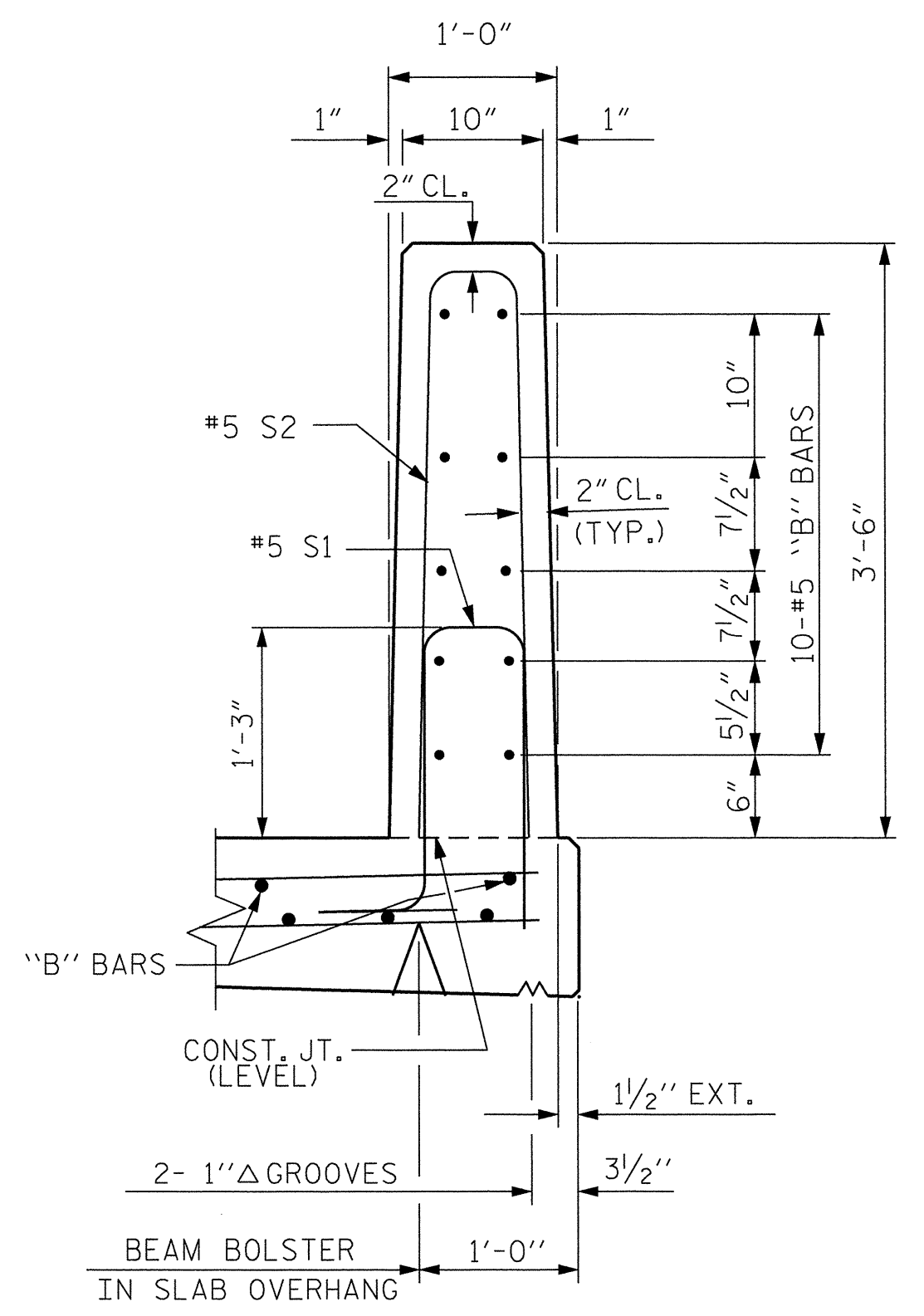
END VIEW

SIDE VIEW



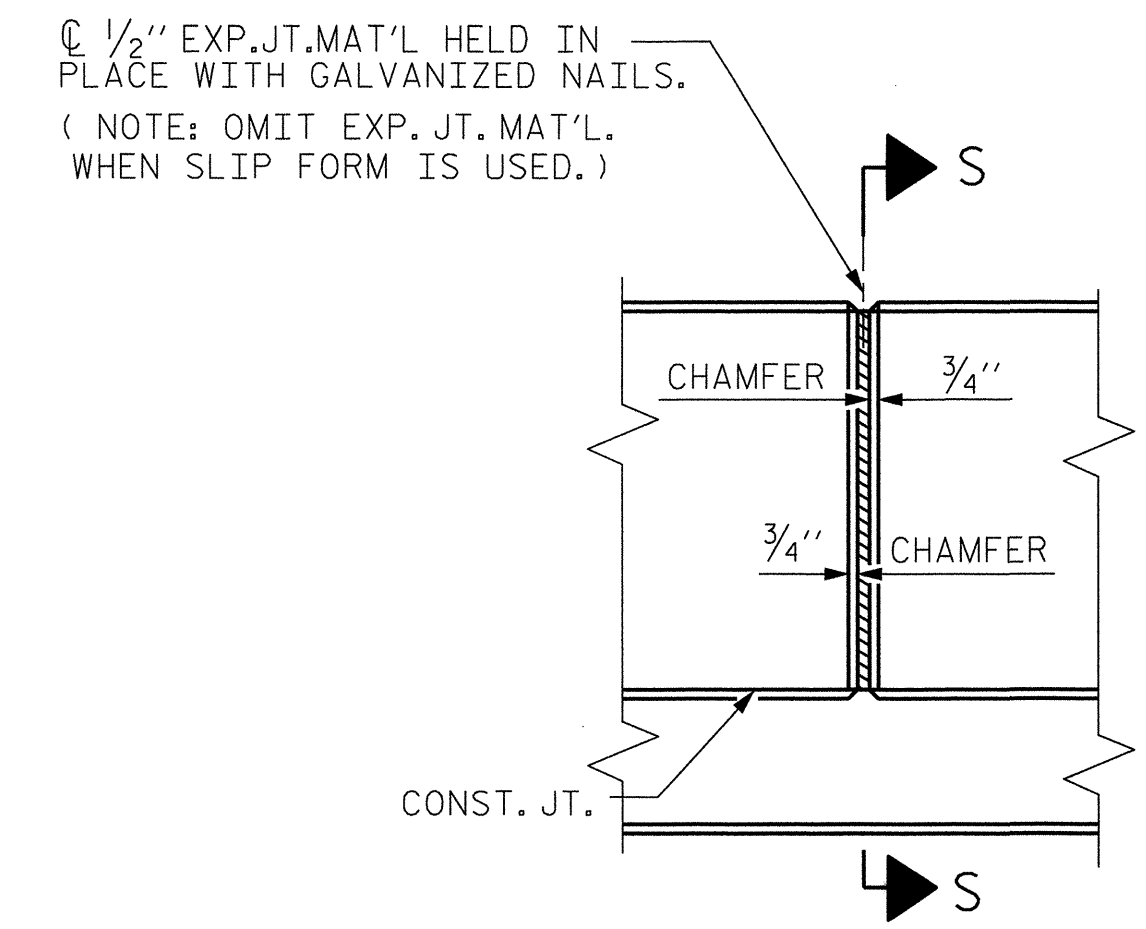
PLAN

END OF RAIL DETAILS
(SLOPED END - FIELD MODIFICATION)

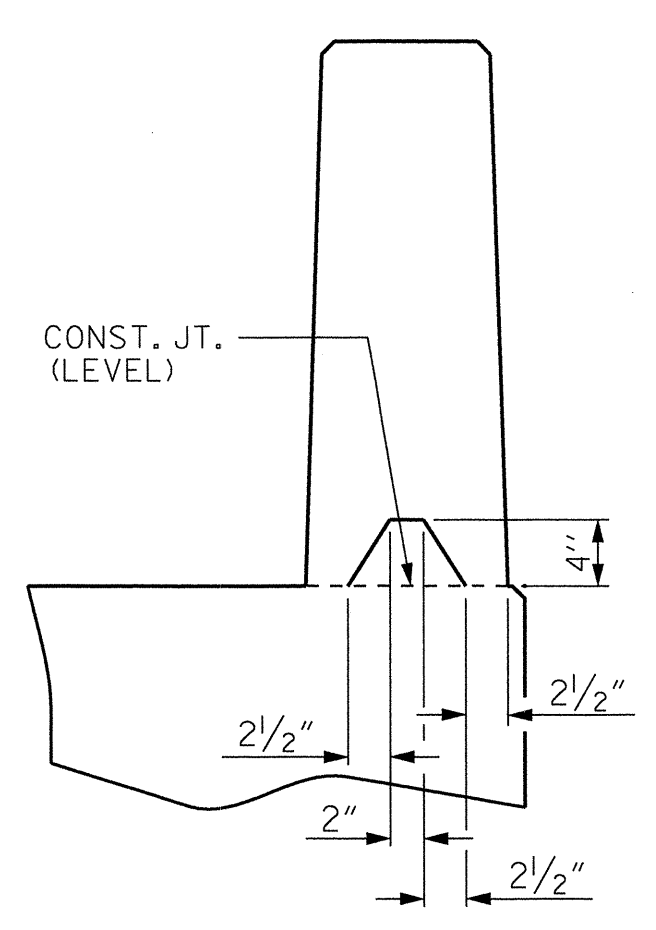


SECTION THRU RAIL

BARRIER RAIL DETAILS



ELEVATION AT EXPANSION JOINTS



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

NOTES

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

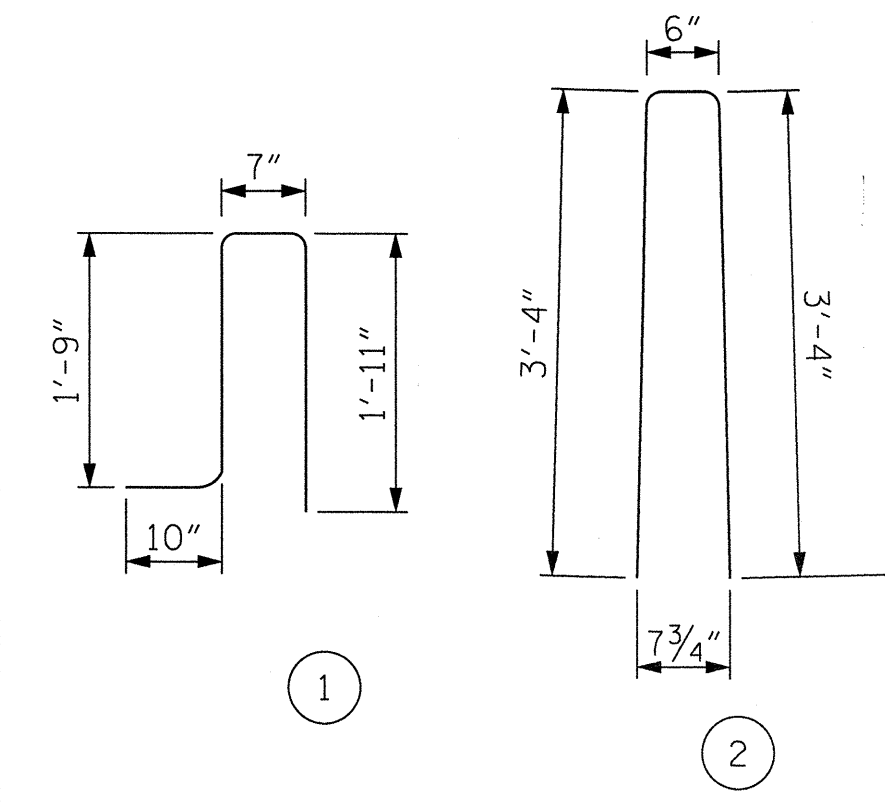
WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF VERTICAL CONCRETE BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 BARS IS 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 BARRIER 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.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

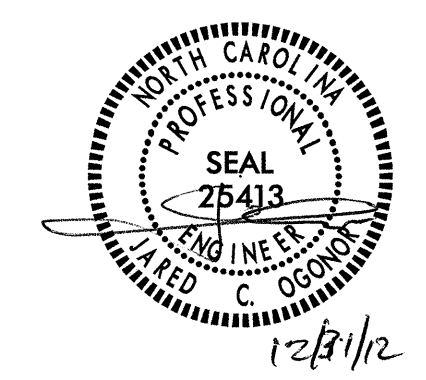
BILL OF MATERIAL

FOR VERTICAL CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	360	#5	STR	24'-7"	9,232
* B2	40	#5	STR	8'-7"	358
* B3	40	#5	STR	6'-10"	285
* S1	946	#5	1	5'-1"	5016
* S2	946	#5	2	7'-2"	7071
* S3	48	#5	STR	3'-2"	132
* EPOXY COATED REINFORCING STEEL					22,094 LBS.
CLASS AA CONCRETE					114.2 CU. YDS.
VERTICAL CONCRETE BARRIER RAIL					961.17 LIN. FT.

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 2



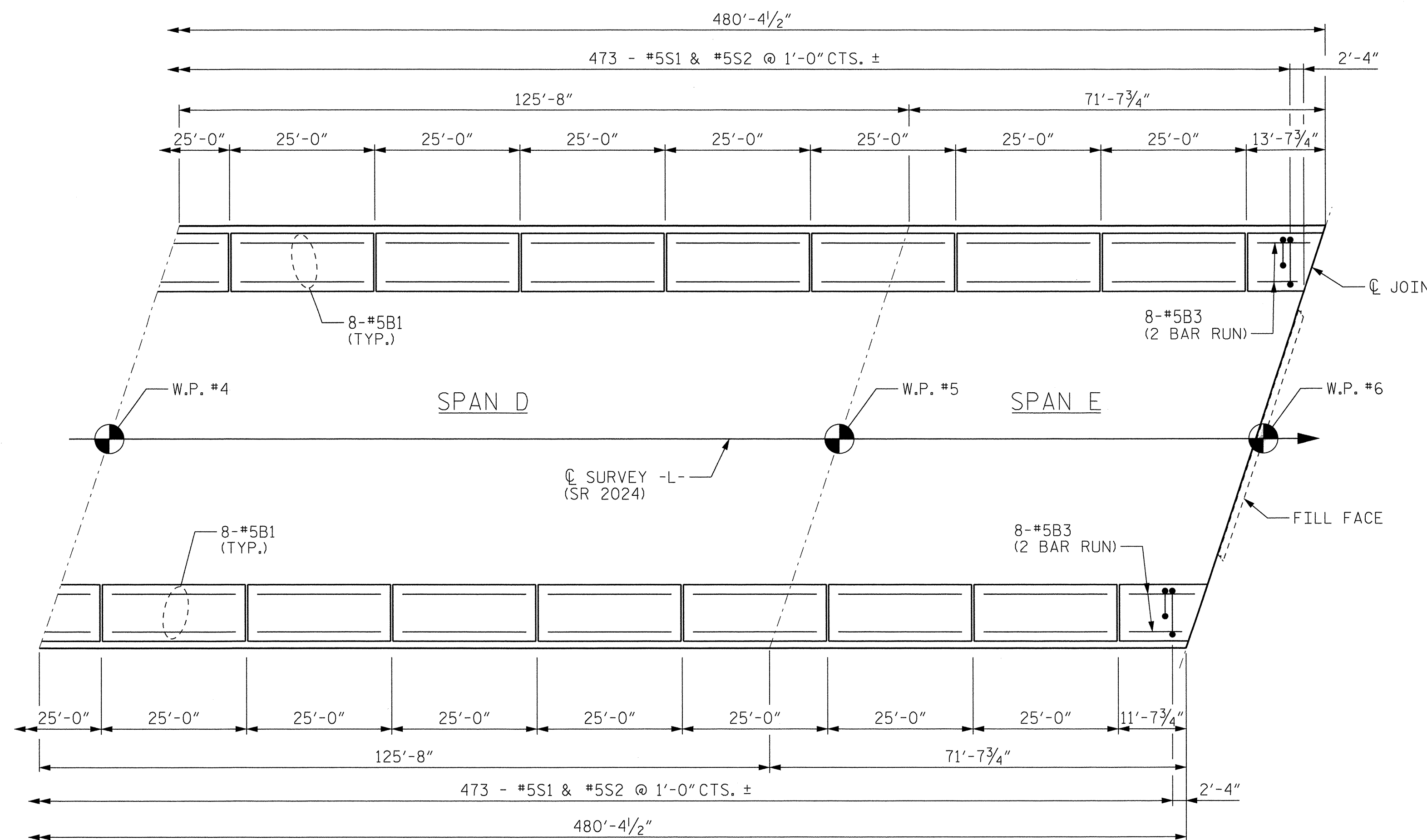
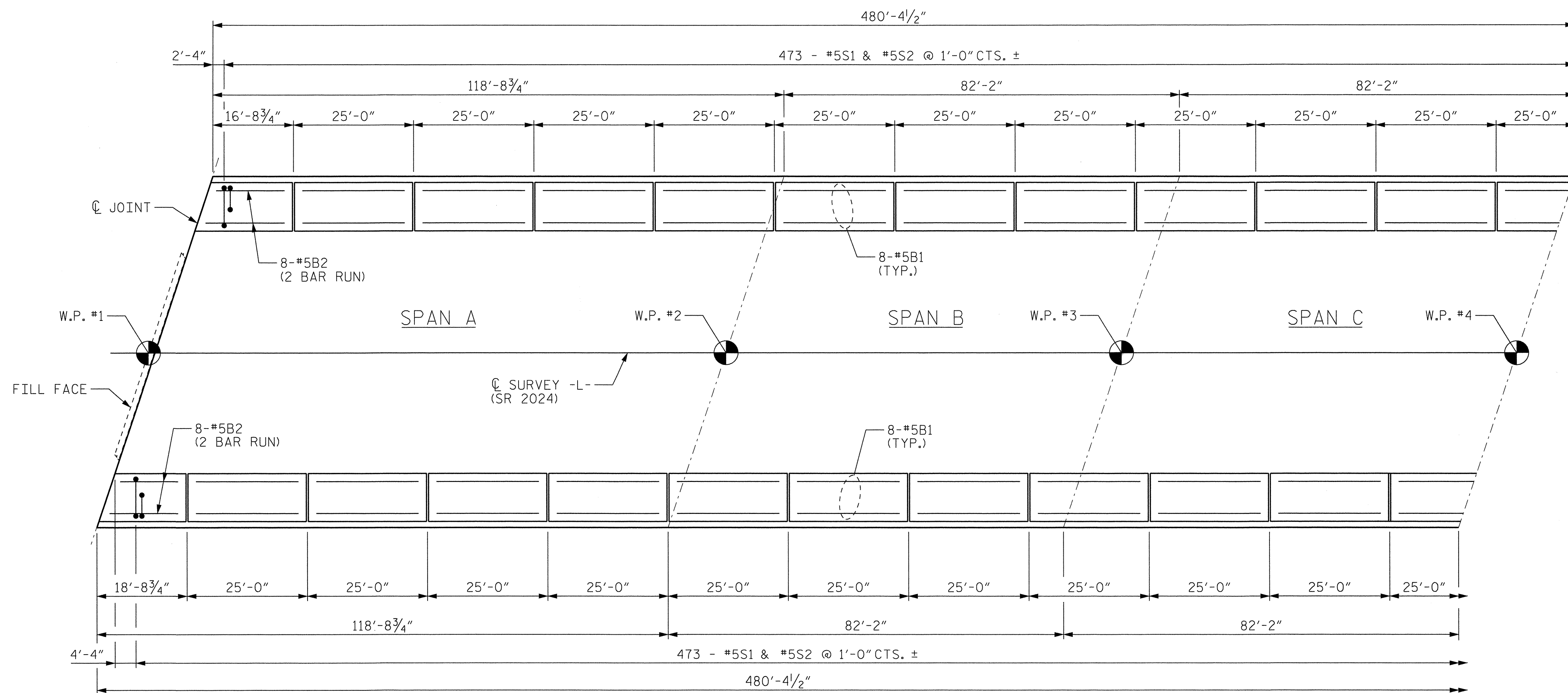
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FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
VERTICAL CONCRETE
BARRIER RAIL

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DRAWN BY: ARB 5/87 REV. 10/1/11 MAA/GM
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REV. 10/12 MAA/GM

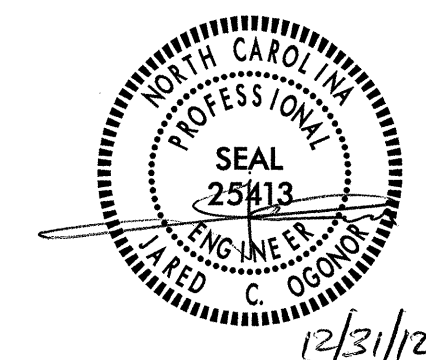
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PLAN
(SEE 'END OF RAIL DETAILS'
FOR ADDITIONAL REINFORCEMENT)

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 2 OF 2



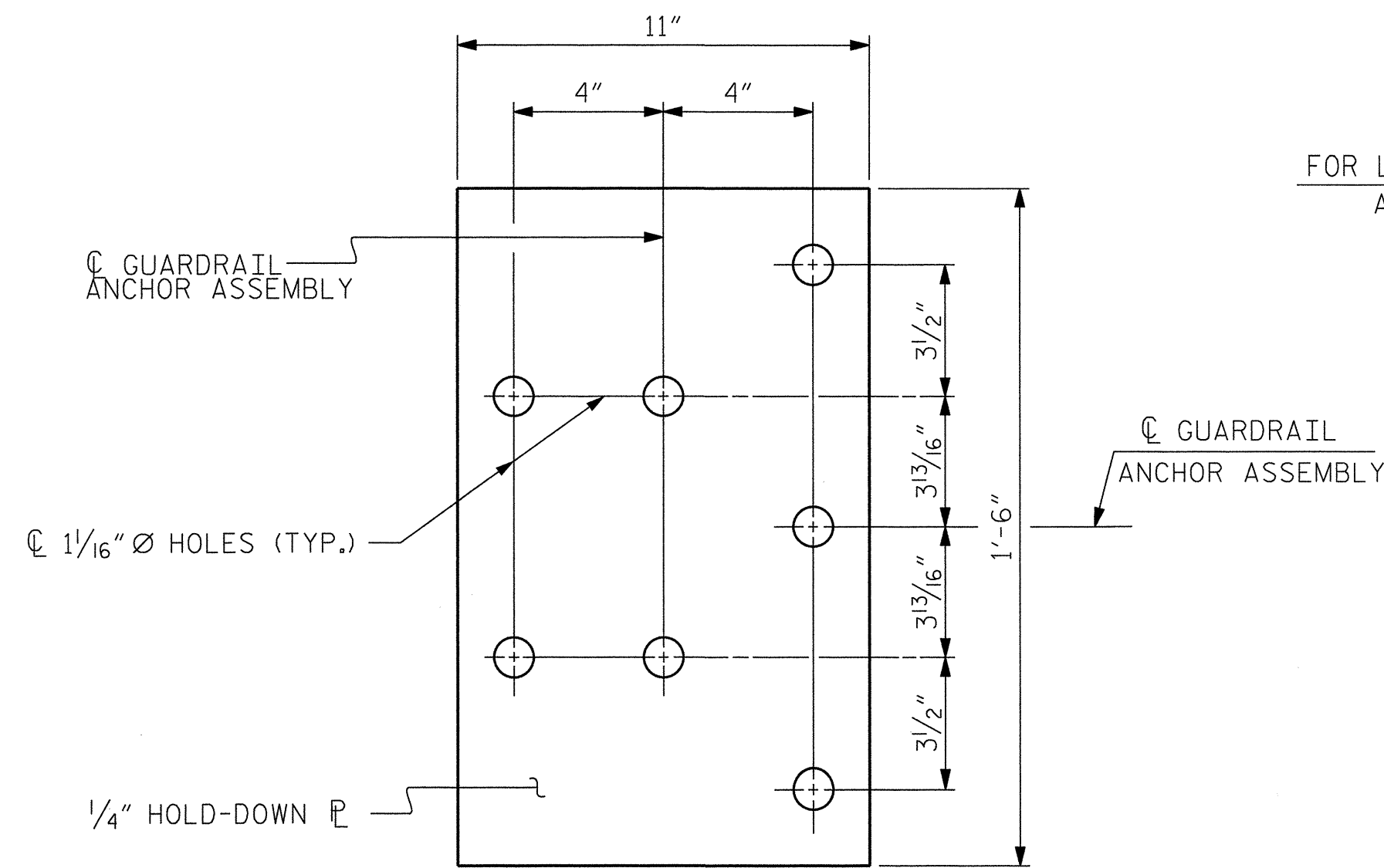
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
VERTICAL CONCRETE
BARRIER RAIL

DRAWN BY : CAL DATE : 10-12
CHECKED BY : JCO DATE : 10-12

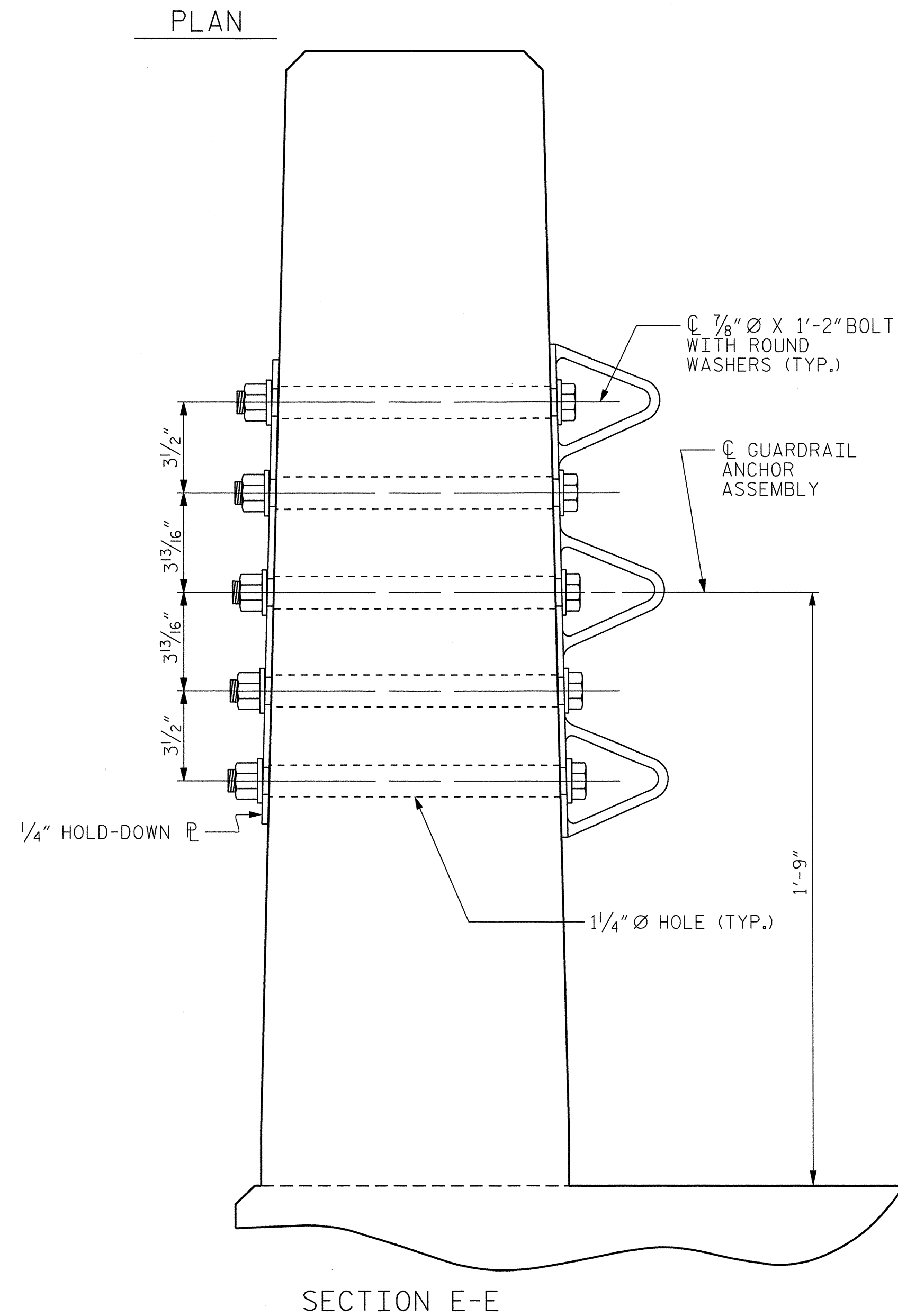
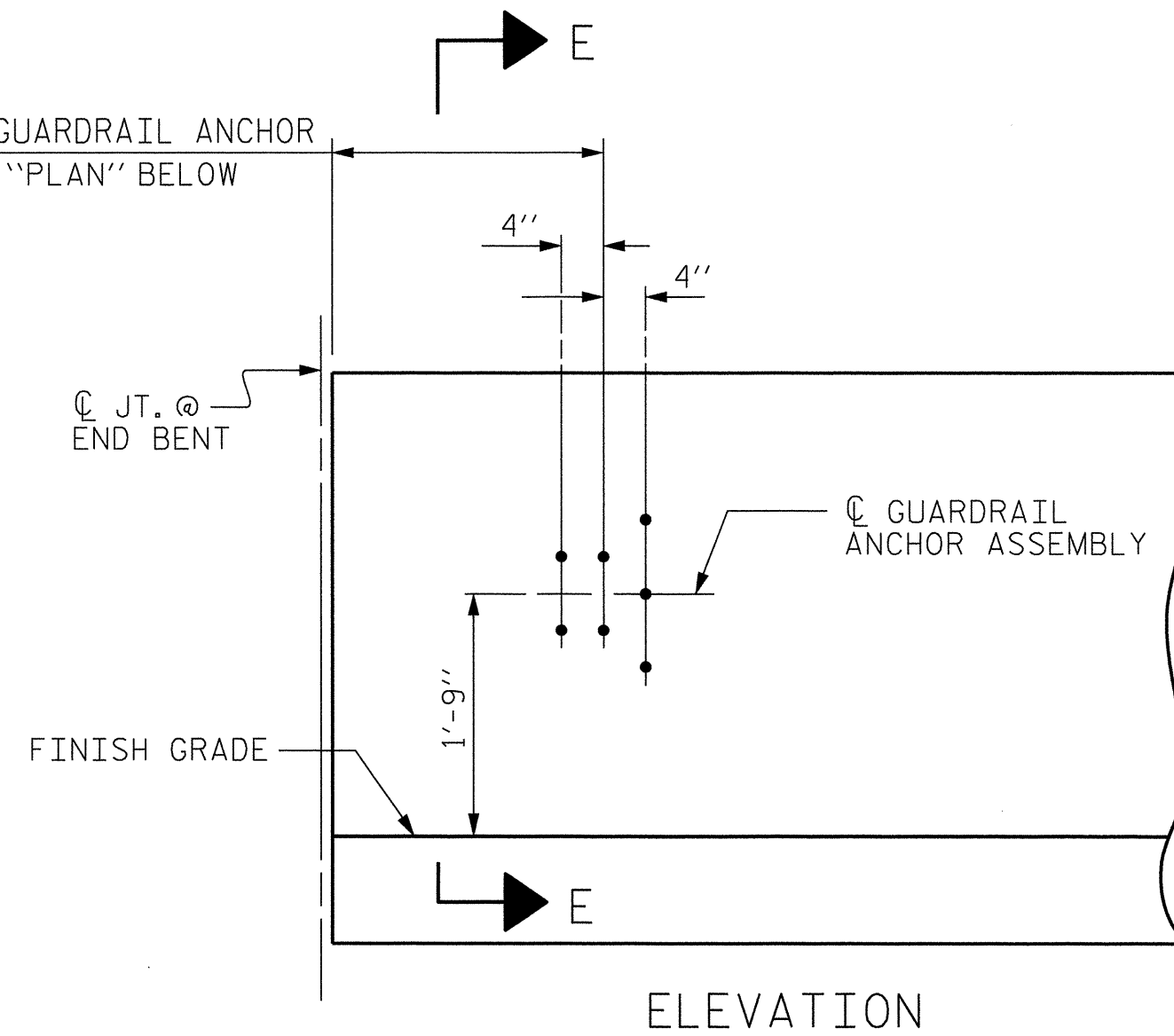
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NC LICENSE NO. F-0246
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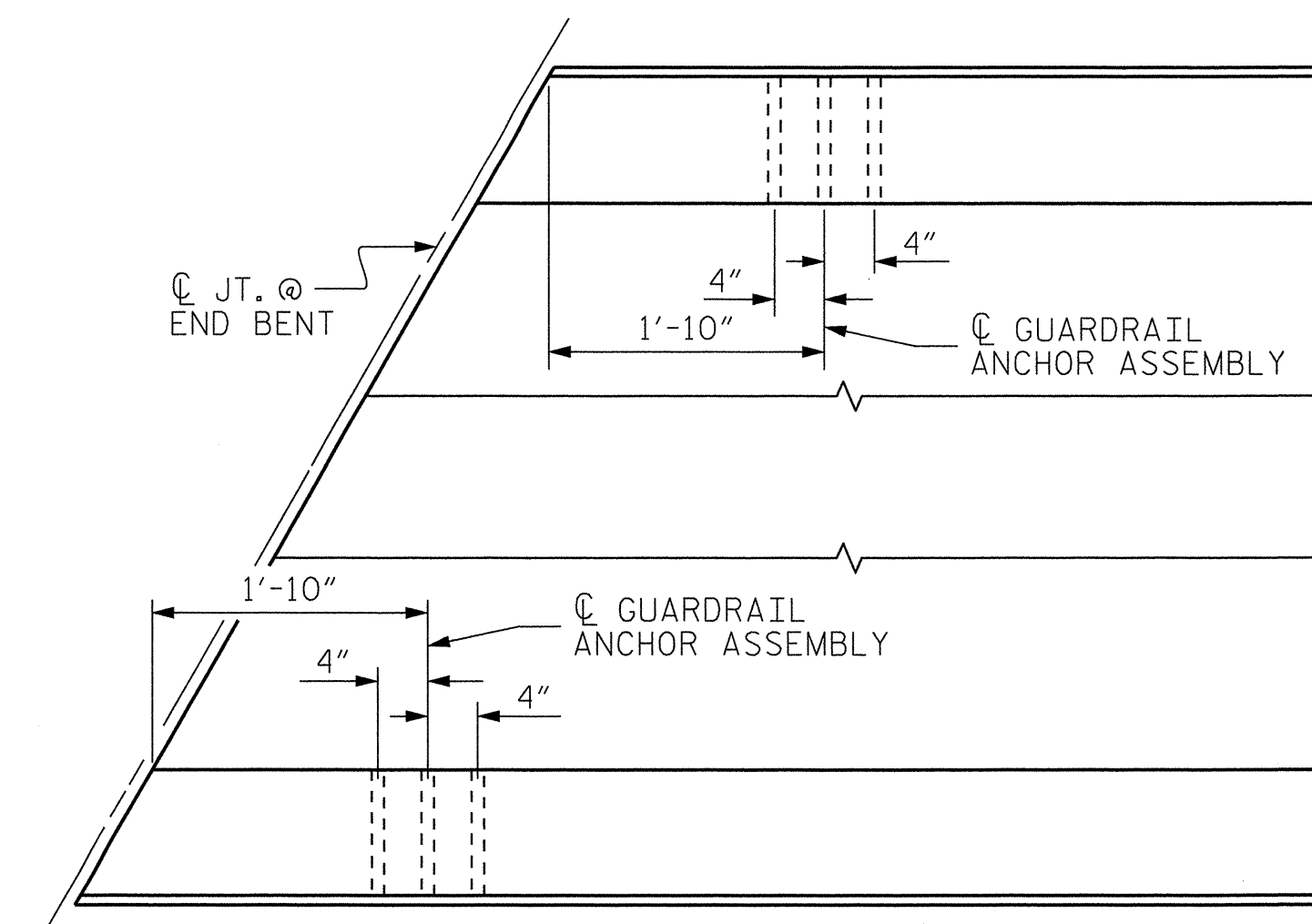
DCN 0259DEL_P10c2



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

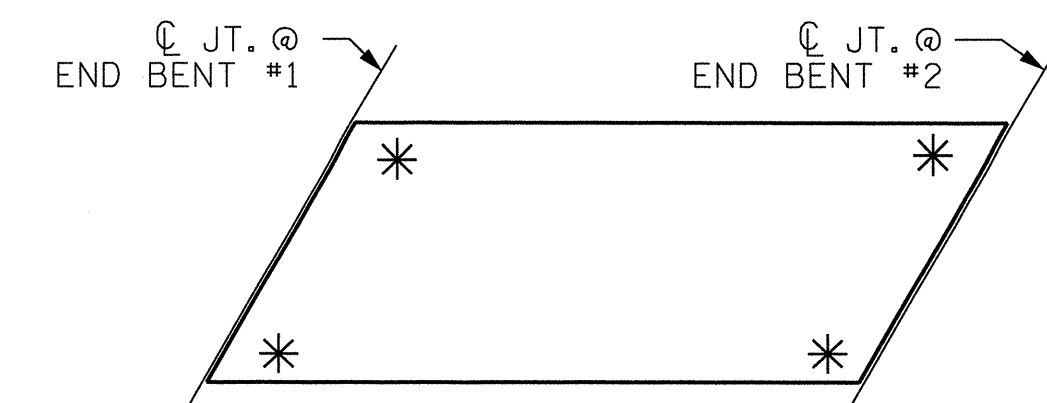


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



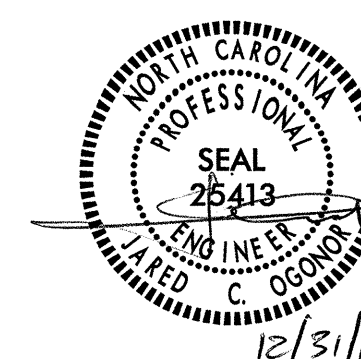
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- 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 VERTICAL CONCRETE BARRIER RAIL.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.
- THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 1



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL

ASSEMBLED BY : CAL	DATE : 10-12
CHECKED BY : JCO	DATE : 10-12
DRAWN BY : MAA 5/10	DATE : REV. 10/12/11
CHECKED BY : GM 5/10	DATE : REV. 12/31/11

PLANS PREPARED BY :
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

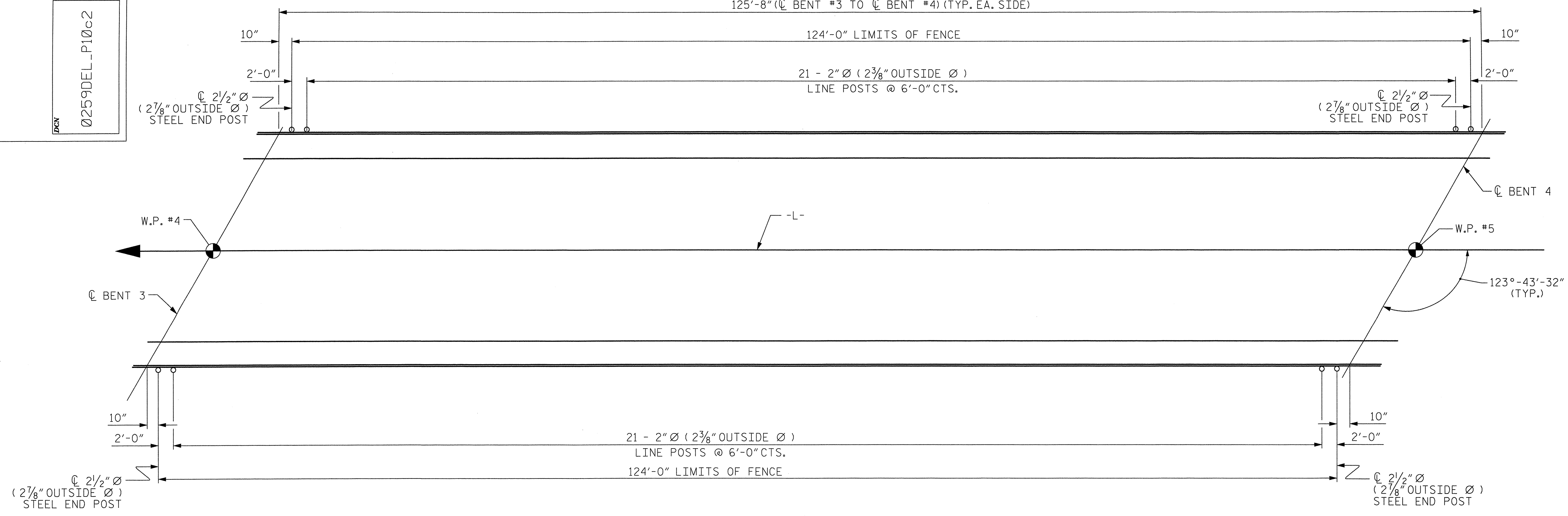
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			51

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125'-8" (C BENT #3 TO C BENT #4) (TYP. EA. SIDE)

124'-0" LIMITS OF FENCE

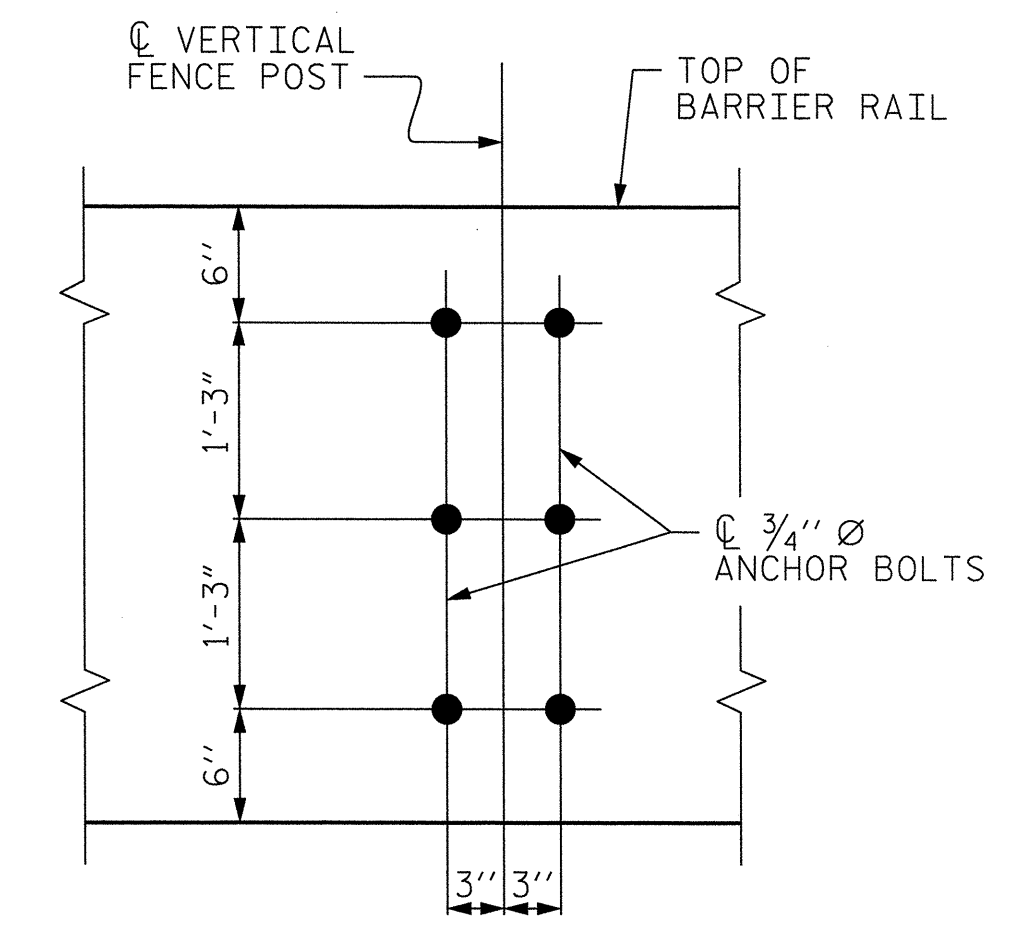
21 - 2" Ø (2 3/8" OUTSIDE Ø)
LINE POSTS @ 6'-0" CTS.



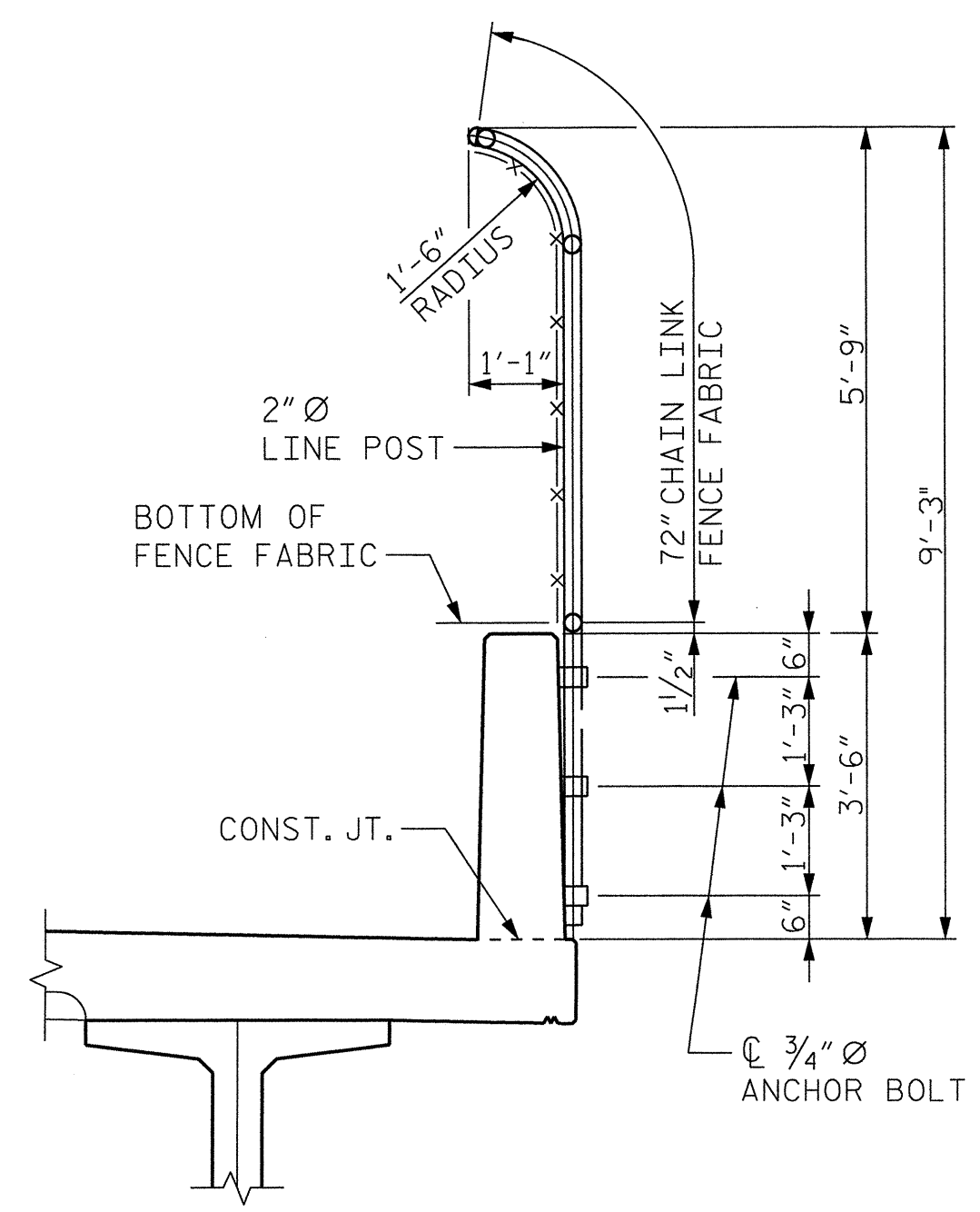
PLAN OF FENCE POST SPACING

PAY LENGTH = 248.00 FEET

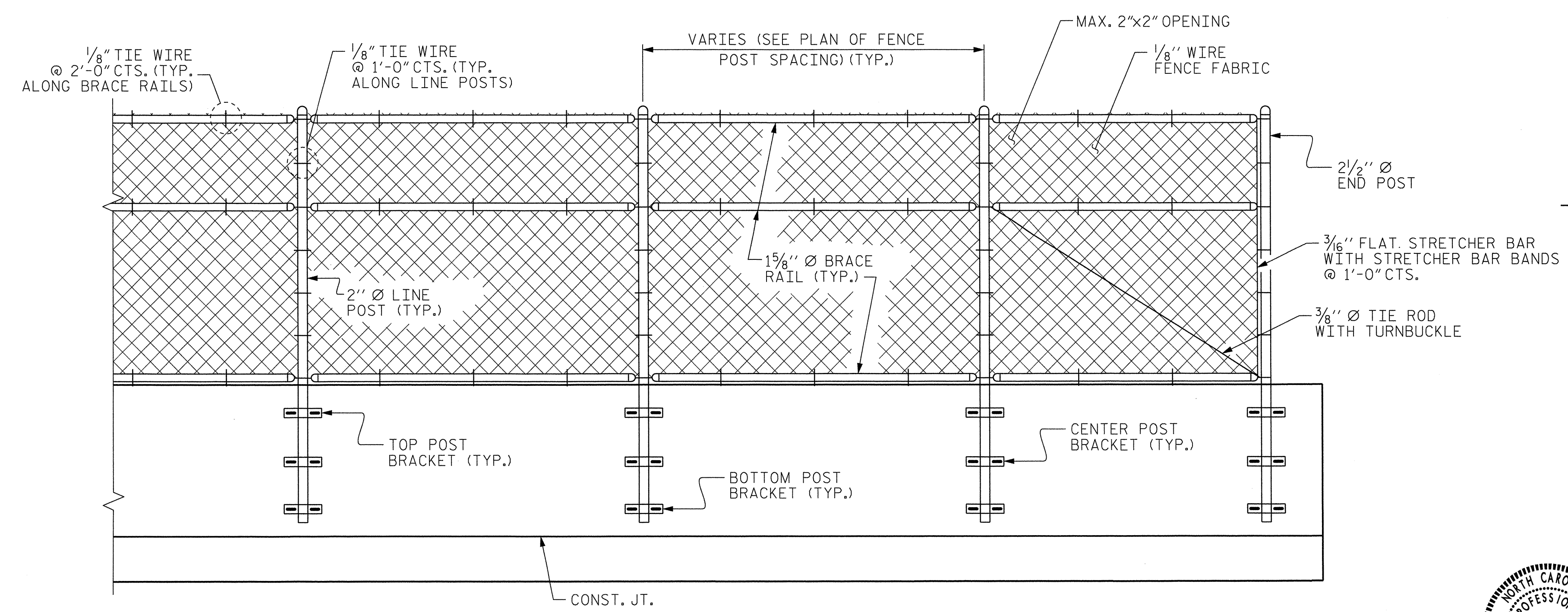
NOTES:
 FOR 72" CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.
 BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS, AND WASHERS MAY BE USED AS 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.



BOLT SETTING DETAIL



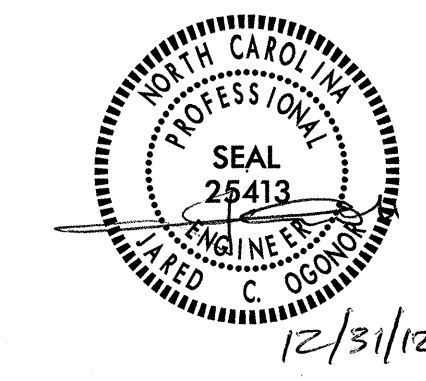
SECTION THRU FENCE



PARTIAL ELEVATION

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 1
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BRIDGE MOUNTED
 72" CHAIN LINK FENCE



PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS			SHEET NO.		
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TOTAL SHEETS: 51

DRAWN BY: ADS DATE: 10-12
 CHECKED BY: JCO DATE: 10-12

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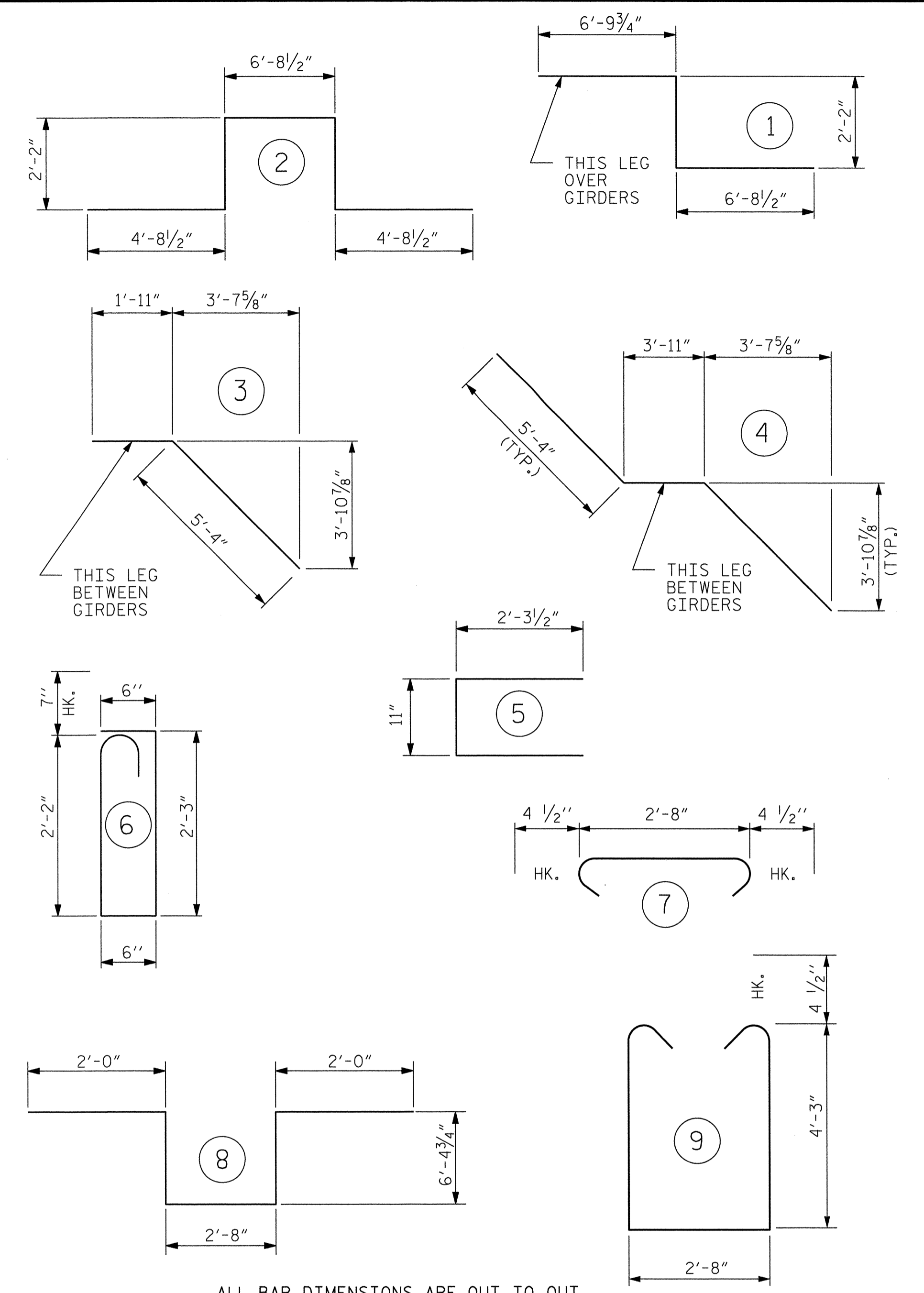
REINFORCING BAR SCHEDULE

SPANS A, B, C, D AND E

BAR	NO.	SIZE	TYPE	LENGTH (FT)	WEIGHT (LBS.)	BAR	NO.	SIZE	TYPE	LENGTH (FT)	WEIGHT (LBS.)
*A1	730	#5	STR	35'-11"	27347	A211	2	#5	STR	25'-10"	54
A2	730	#5	STR	35'-11"	27347	A212	2	#5	STR	24'-11"	52
*A3	6	#6	STR	43'-2"	389	A213	2	#5	STR	24'-0"	50
						A214	2	#5	STR	23'-1"	48
*A101	2	#5	STR	35'-3"	74	A215	2	#5	STR	22'-1"	46
*A102	2	#5	STR	34'-3"	71	A216	2	#5	STR	21'-2"	44
*A103	2	#5	STR	33'-4"	70	A217	2	#5	STR	20'-3"	42
*A104	2	#5	STR	32'-5"	68	A218	2	#5	STR	19'-4"	40
*A105	2	#5	STR	31'-6"	66	A219	2	#5	STR	18'-4"	38
*A106	2	#5	STR	30'-7"	64	A220	2	#5	STR	17'-5"	36
*A107	2	#5	STR	29'-7"	62	A221	2	#5	STR	16'-6"	34
*A108	2	#5	STR	28'-8"	60	A222	2	#5	STR	15'-7"	33
*A109	2	#5	STR	27'-9"	58	A223	2	#5	STR	14'-8"	31
*A110	2	#5	STR	26'-10"	56	A224	2	#5	STR	13'-8"	29
*A111	2	#5	STR	25'-10"	54	A225	2	#5	STR	12'-9"	27
*A112	2	#5	STR	24'-11"	52	A226	2	#5	STR	11'-10"	25
*A113	2	#5	STR	24'-0"	50	A227	2	#5	STR	10'-11"	23
*A114	2	#5	STR	23'-1"	48	A228	2	#5	STR	9'-11"	21
*A115	2	#5	STR	22'-1"	46	A229	2	#5	STR	9'-0"	19
*A116	2	#5	STR	21'-2"	44	A230	2	#5	STR	8'-1"	17
*A117	2	#5	STR	20'-3"	42	A231	2	#5	STR	7'-2"	15
*A118	2	#5	STR	19'-4"	40	A232	2	#5	STR	6'-2"	13
*A119	2	#5	STR	18'-4"	38	A233	2	#5	STR	5'-3"	11
*A120	2	#5	STR	17'-5"	36	A234	2	#5	STR	4'-4"	9
*A121	2	#5	STR	16'-6"	34	A235	2	#5	STR	3'-5"	7
*A122	2	#5	STR	15'-7"	33	A236	2	#5	STR	2'-6"	5
*A123	2	#5	STR	14'-8"	31						
*A124	2	#5	STR	13'-8"	29	*B1	36	#4	STR	28'-7"	687
*A125	2	#5	STR	12'-9"	27	*B2	72	#4	STR	27'-3"	1311
*A126	2	#5	STR	11'-10"	25	*B3	48	#4	STR	21'-6"	689
*A127	2	#5	STR	10'-11"	23	*B4	48	#4	STR	23'-1"	740
*A128	2	#5	STR	9'-11"	21	*B5	48	#4	STR	20'-2"	647
*A129	2	#5	STR	9'-0"	19	B6	324	#5	STR	55'-2"	18643
*A130	2	#5	STR	8'-1"	17	*B7	276	#8	STR	37'-10"	27880
*A131	2	#5	STR	7'-2"	15	*B8	144	#8	STR	42'-4"	16276
*A132	2	#5	STR	6'-2"	13	*B9	24	#8	STR	59'-4"	3802
*A133	2	#5	STR	5'-3"	11						
*A134	2	#5	STR	4'-4"	9	*K1	8	#8	1	15'-9"	336
*A135	2	#5	STR	3'-5"	7	*K2	8	#8	2	20'-6"	438
*A136	2	#5	STR	2'-6"	5	*K3	18	#6	STR	6'-9"	182
						K4	56	#4	3	7'-3"	271
A201	2	#5	STR	35'-3"	74	K5	56	#4	4	14'-7"	546
A202	2	#5	STR	34'-3"	71	K6	48	#4	STR	6'-9"	216
A203	2	#5	STR	33'-4"	70	K7	120	#4	STR	10'-4"	828
A204	2	#5	STR	32'-5"	68						
A205	2	#5	STR	31'-6"	66	*S1	48	#4	5	5'-6"	176
A206	2	#5	STR	30'-7"	64	*S2	48	#5	6	6'-0"	300
A207	2	#5	STR	29'-7"	62	S3	792	#4	7	3'-5"	1808
A208	2	#5	STR	28'-8"	60						
A209	2	#5	STR	27'-9"	58	U1	72	#4	8	19'-6"	938
A210	2	#5	STR	26'-10"	56	U2	72	#4	9	11'-11"	573

REINFORCING STEEL 52,584 LBS.
 * EPOXY COATED REINFORCING STEEL 82,617 LBS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

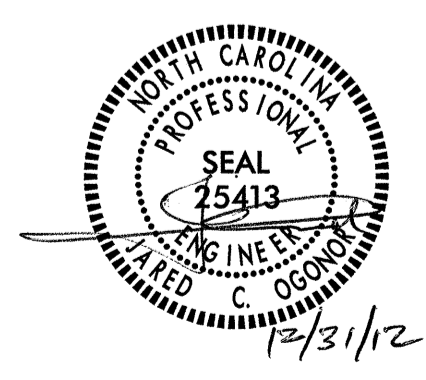
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

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"			

PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BILL OF MATERIAL



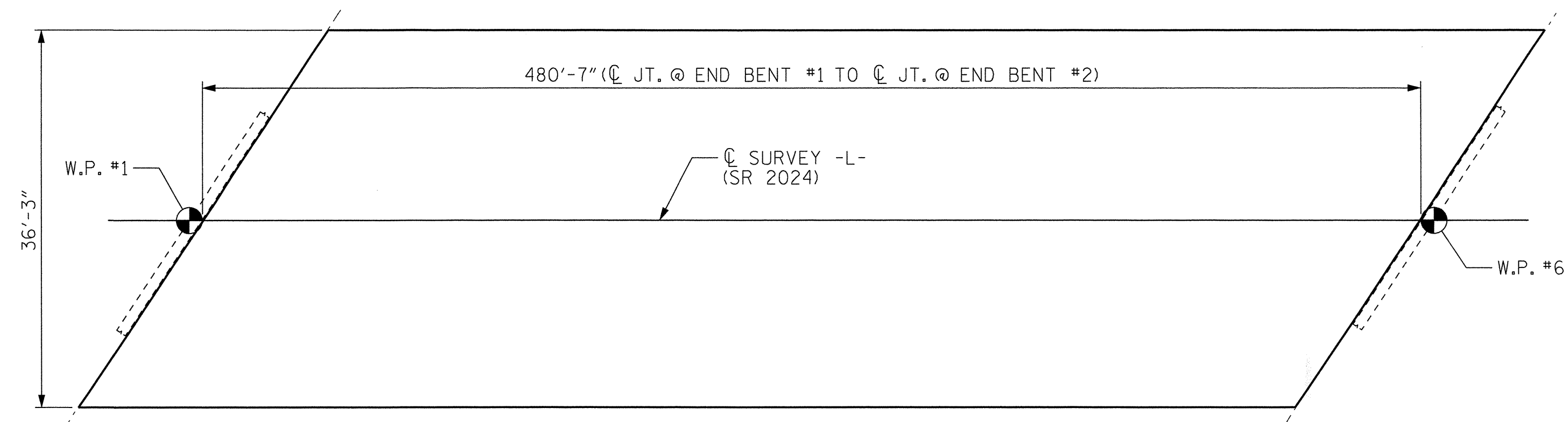
PLANS PREPARED BY:
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 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

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TOTAL SHEETS: 51

DRAWN BY: CAL DATE: 10-12
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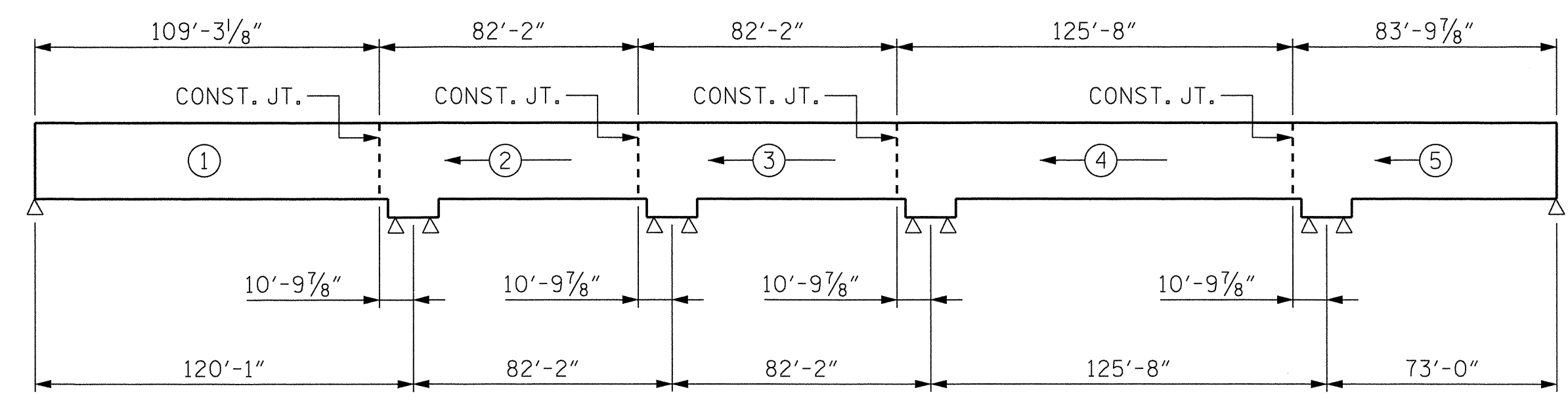
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LAYOUT FOR COMPUTING AREA
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 17,421)

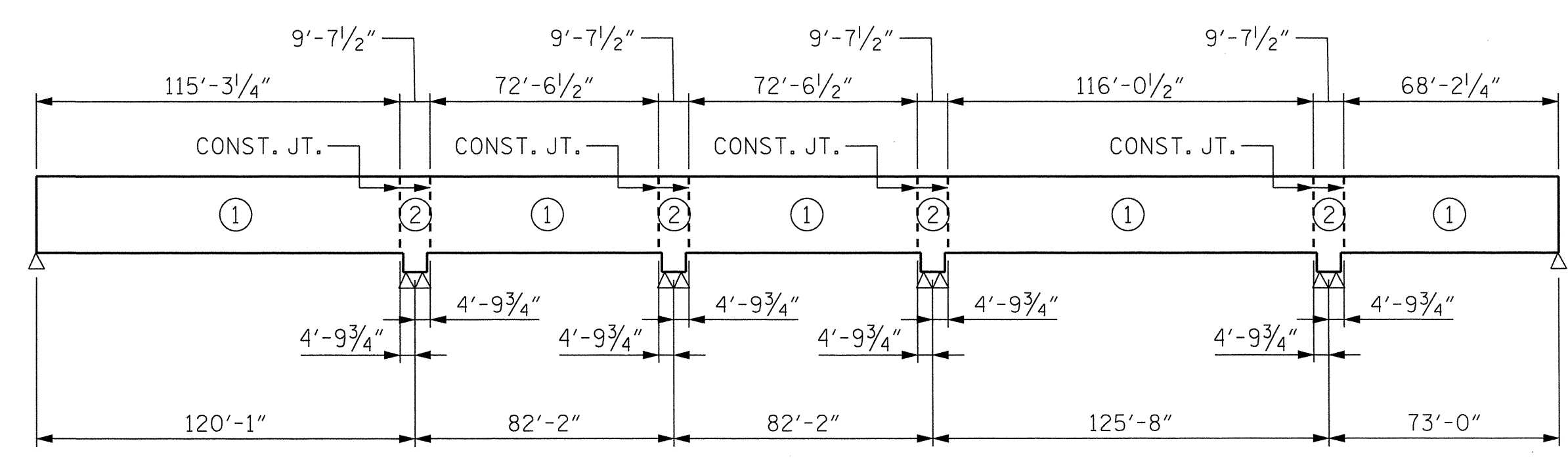
—SUPERSTRUCTURE BILL OF MATERIAL—			
	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR #1	131.9		
POUR #2	117.0		
POUR #3	117.0		
POUR #4	166.9		
POUR #5	119.5		
TOTALS**	652.3	52,560	81,706

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED



POURING SEQUENCE

← # — = INDICATES POUR NUMBER
AND DIRECTION OF POUR



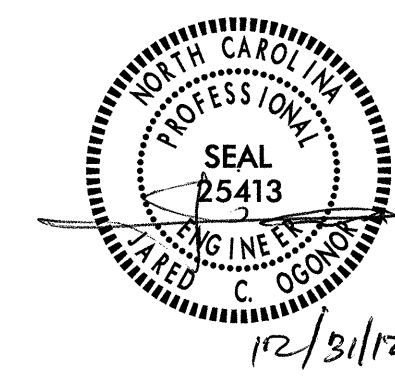
OPTIONAL POURING SEQUENCE

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

GROOVING BRIDGE FLOORS	
APPROACH SLABS	834 SQ.FT.
BRIDGE DECK	14,848 SQ.FT.
TOTAL	15,682 SQ.FT.

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BILL OF MATERIAL

DRAWN BY : CAL DATE : 10-12
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PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
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NOTES

STIRRUPS AND #4 U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

#5 V1 BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM THE BOTTOM OF CAP.

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.

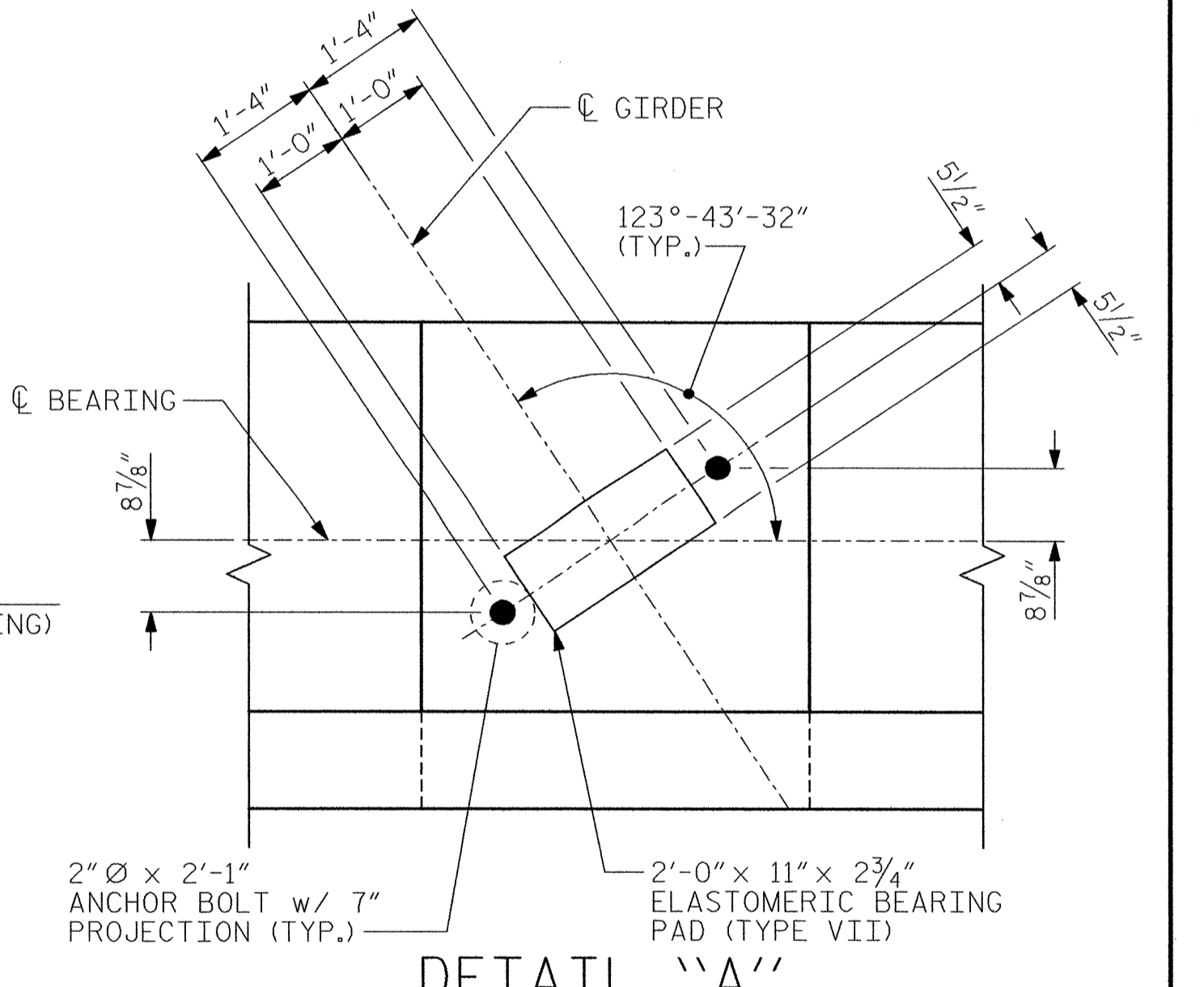
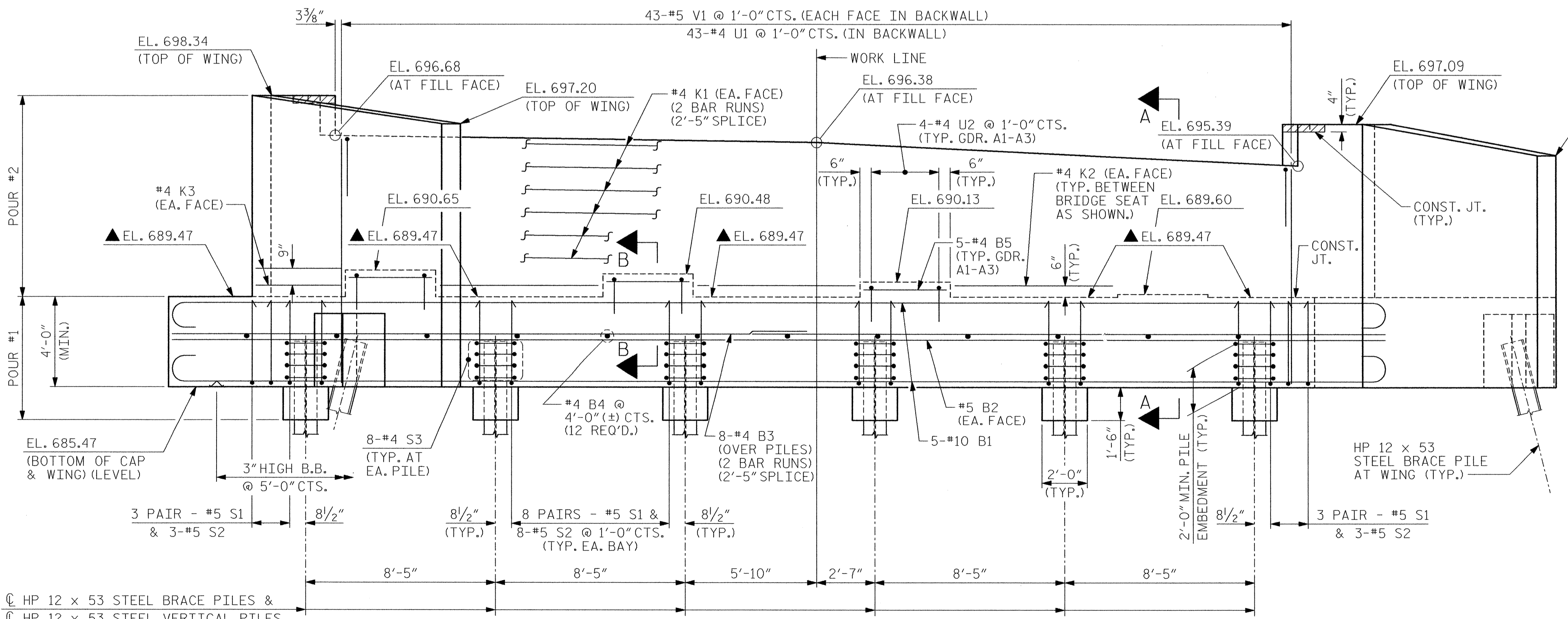
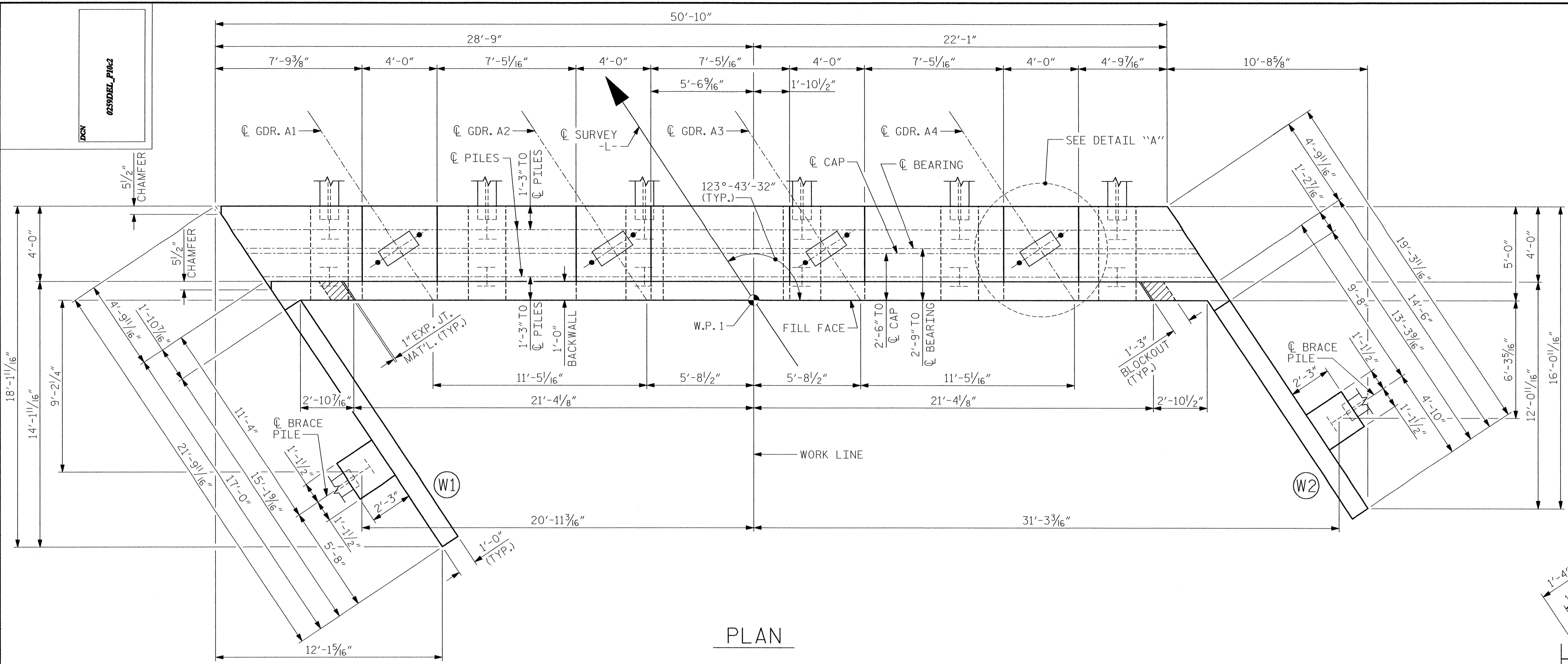
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

▲ FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A ON SHEET 4 OF 4.

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

FOR SECTION A-A, SECTION B-B, PILE SPLICE DETAILS AND TEMPORARY DRAINAGE DETAILS, SEE SHEET 4 OF 4.

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



PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT I

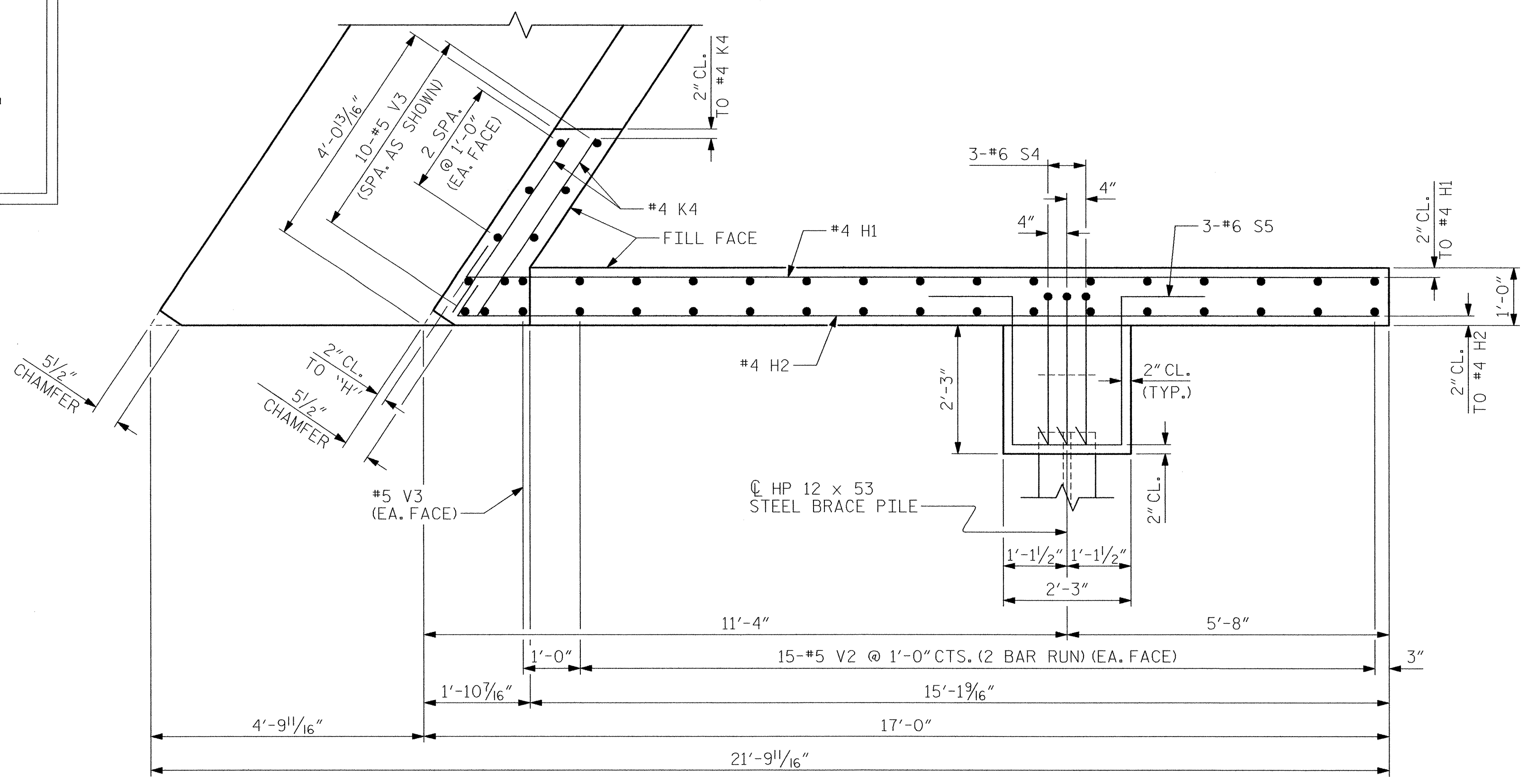


MI ENGINEERING 1011 SCHAU DRIVE, SUITE 100 RALEIGH, NC 27606 (919) 851-6606 FIRM PE NUMBER: P-0671		REVISIONS		SHEET NO.	
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1			3		
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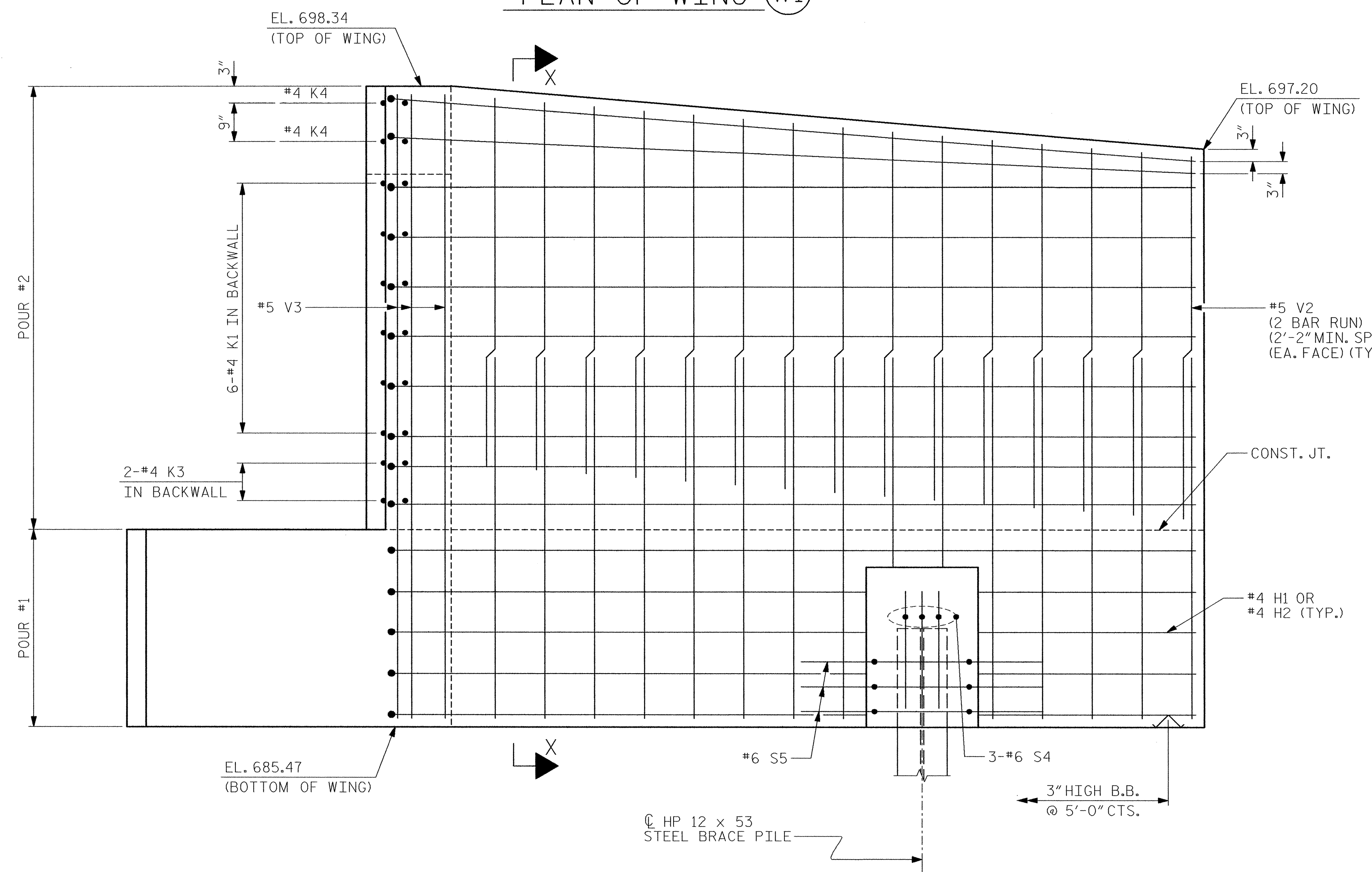
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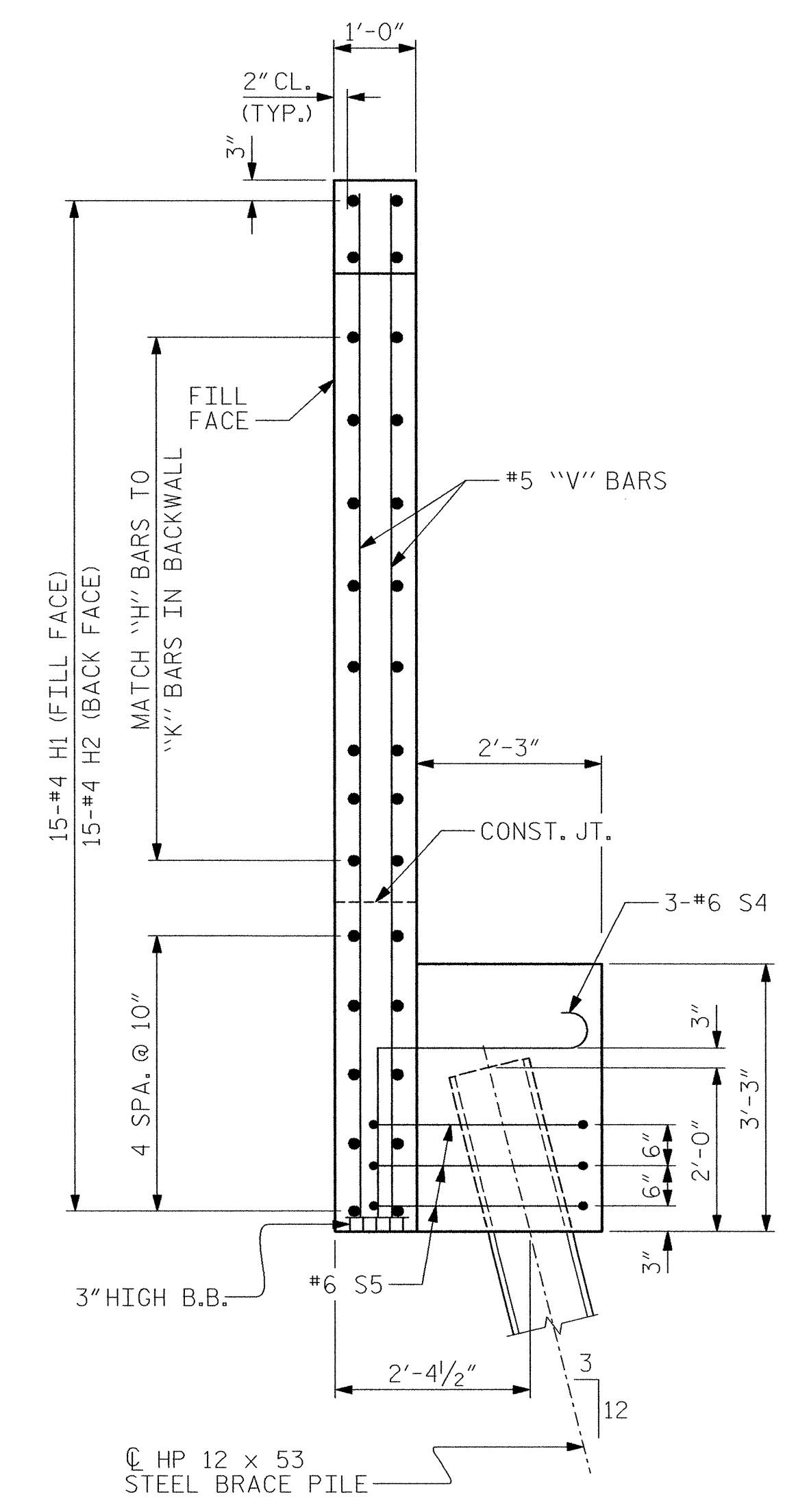
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PLAN OF WING (W1)



ELEVATION OF WING (W1)



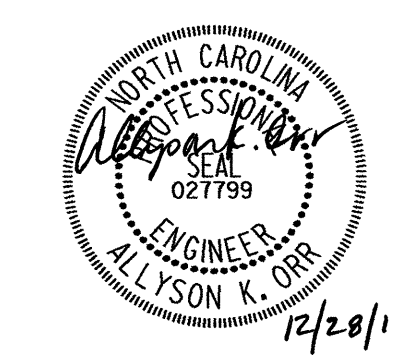
SECTION X-X

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT I



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6806
 FIRM PE NUMBER : P-0671

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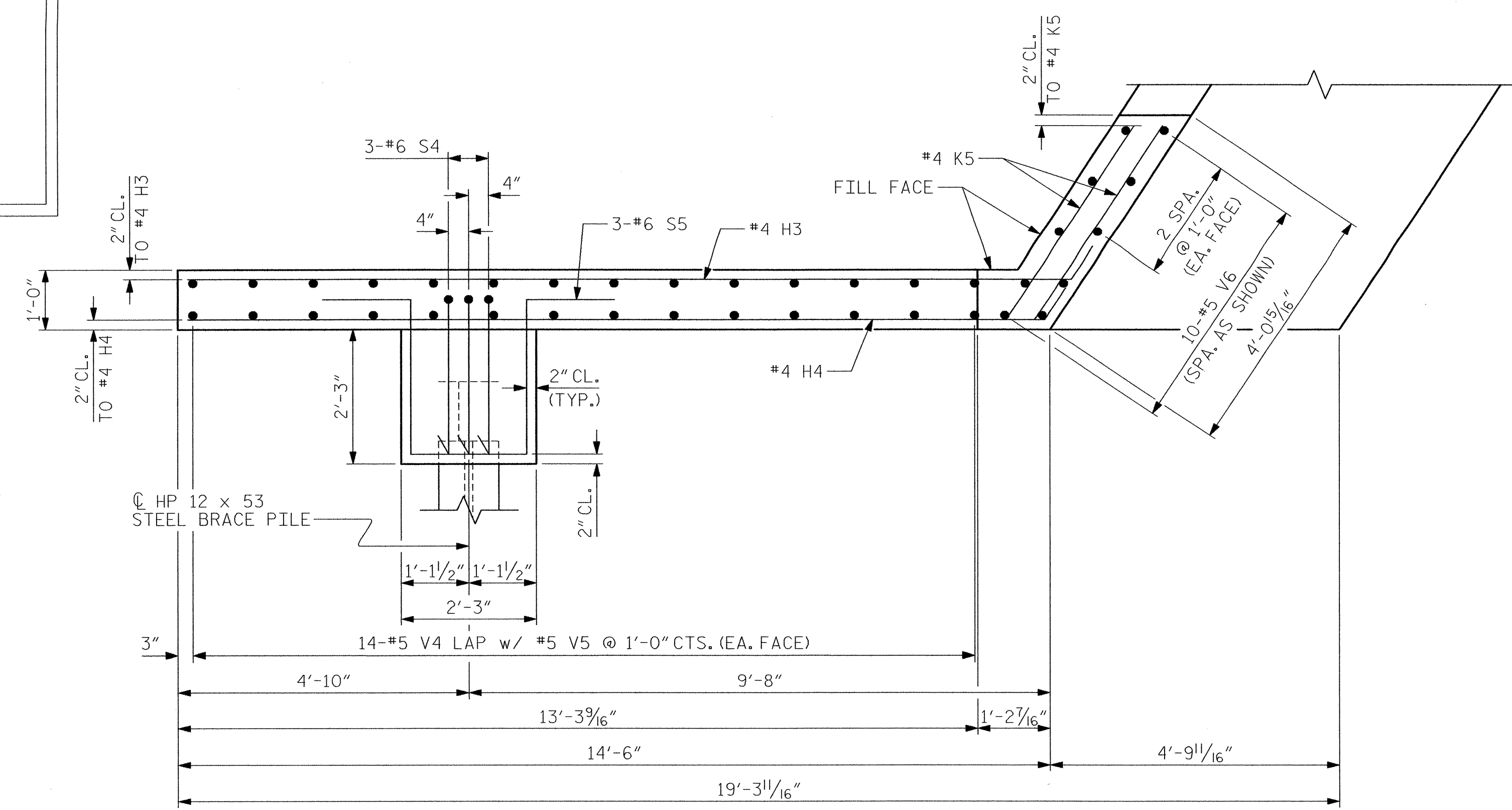
SHEET NO.
S-33
TOTAL SHEETS
51

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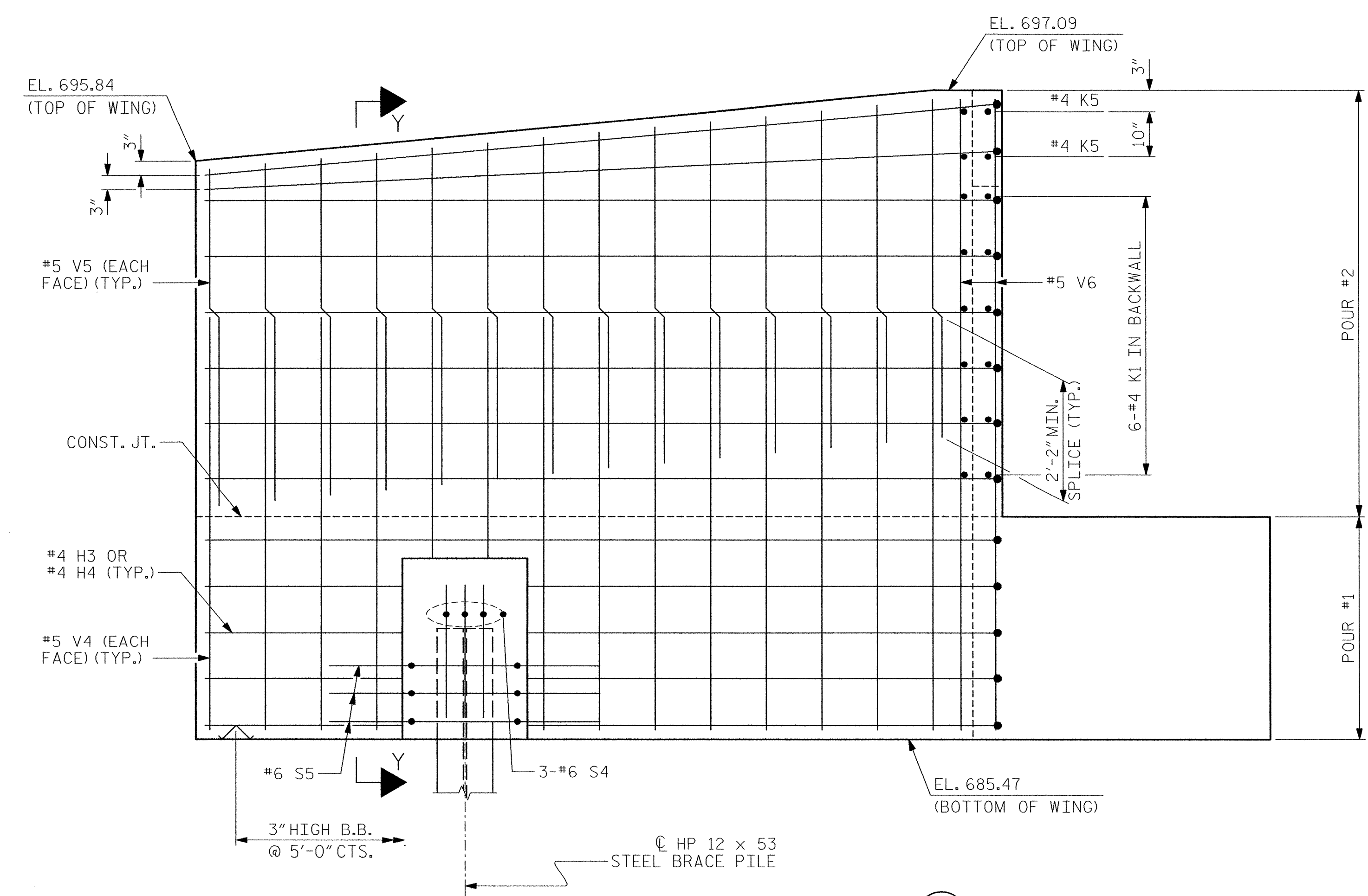
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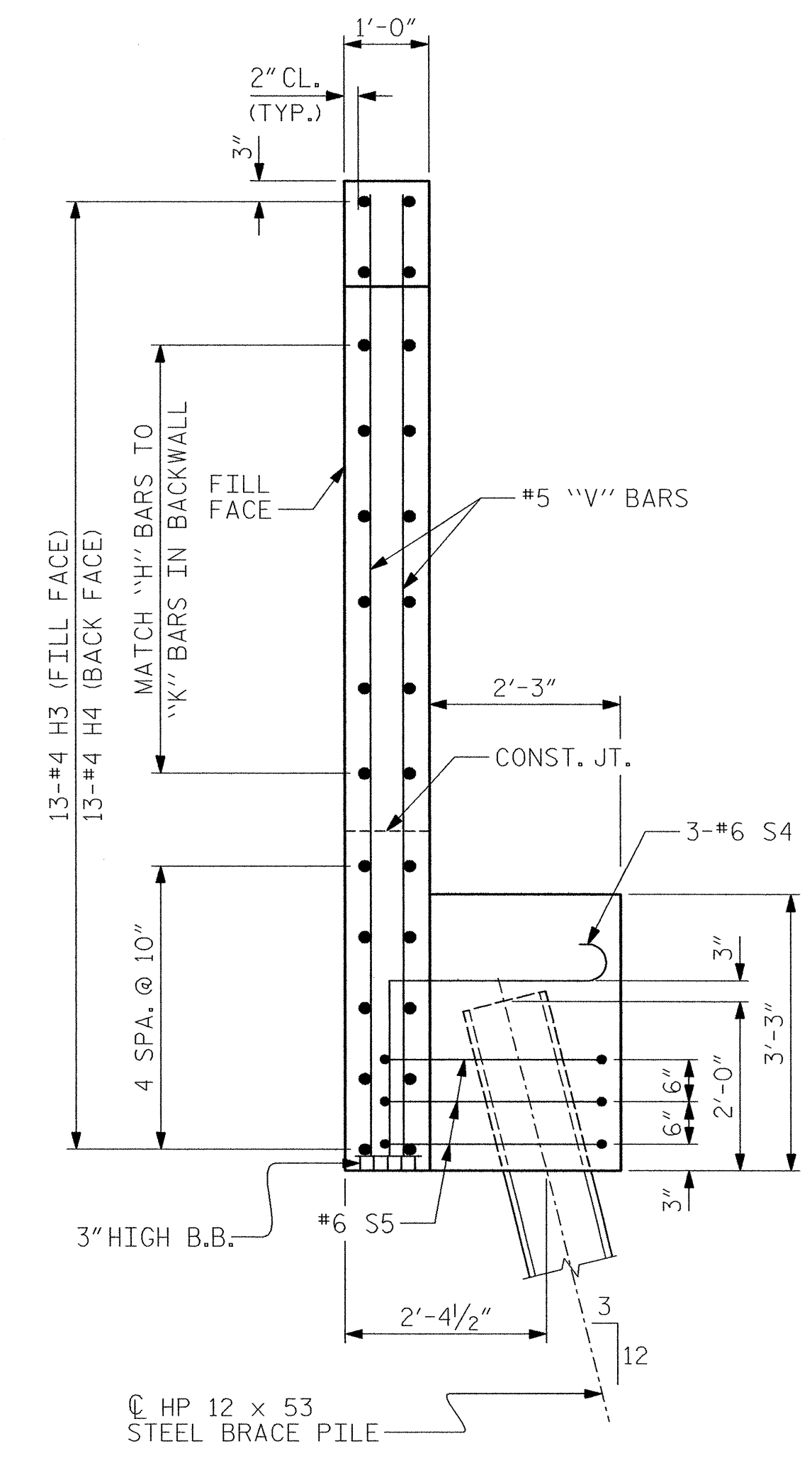
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PLAN OF WING (W2)



ELEVATION OF WING (W2)

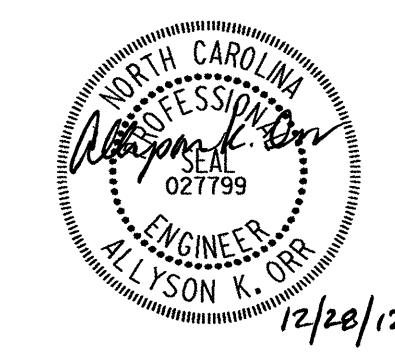


SECTION Y-Y

PROJECT NO. C-4901 B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 3 OF 4

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



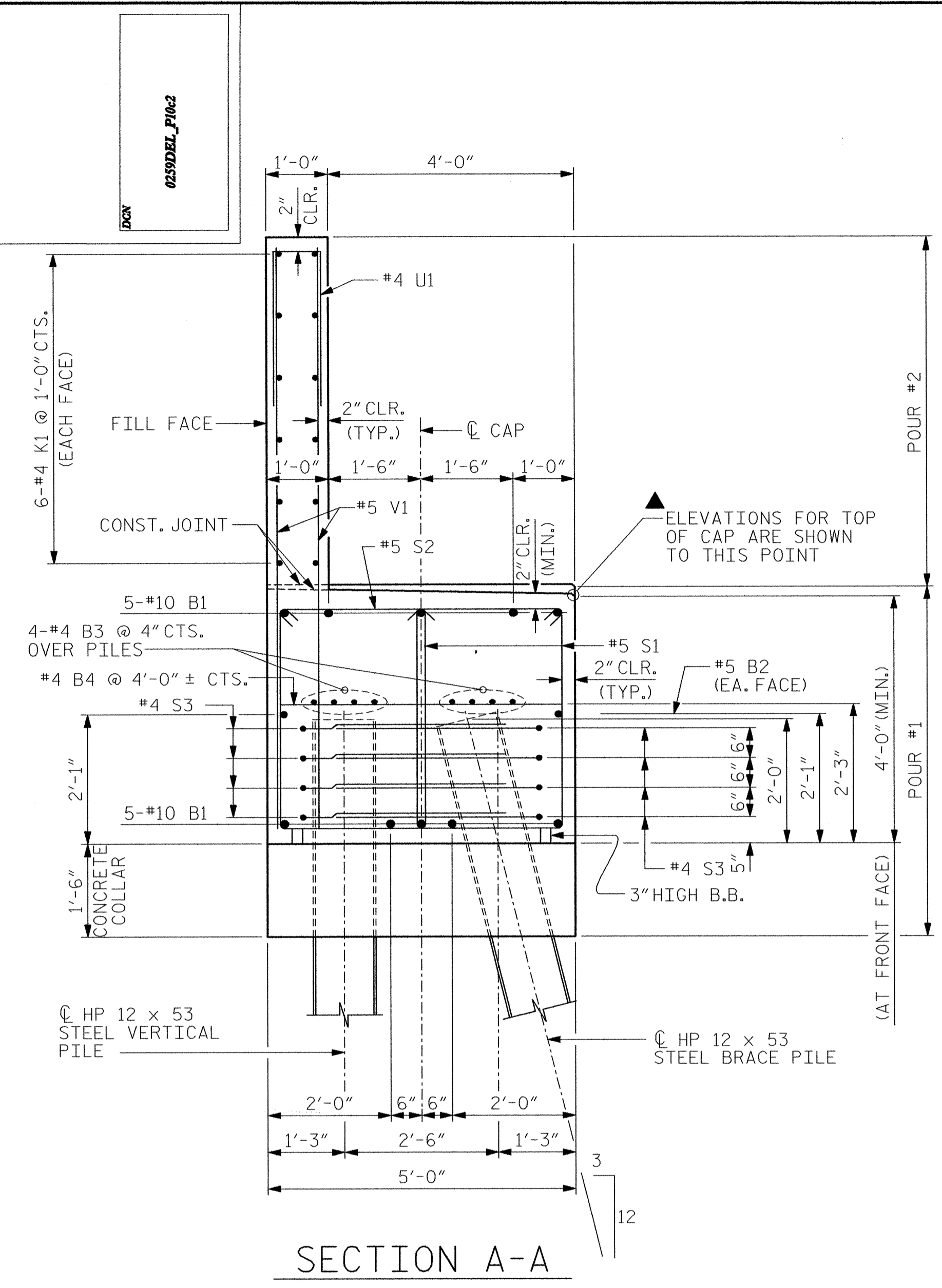
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

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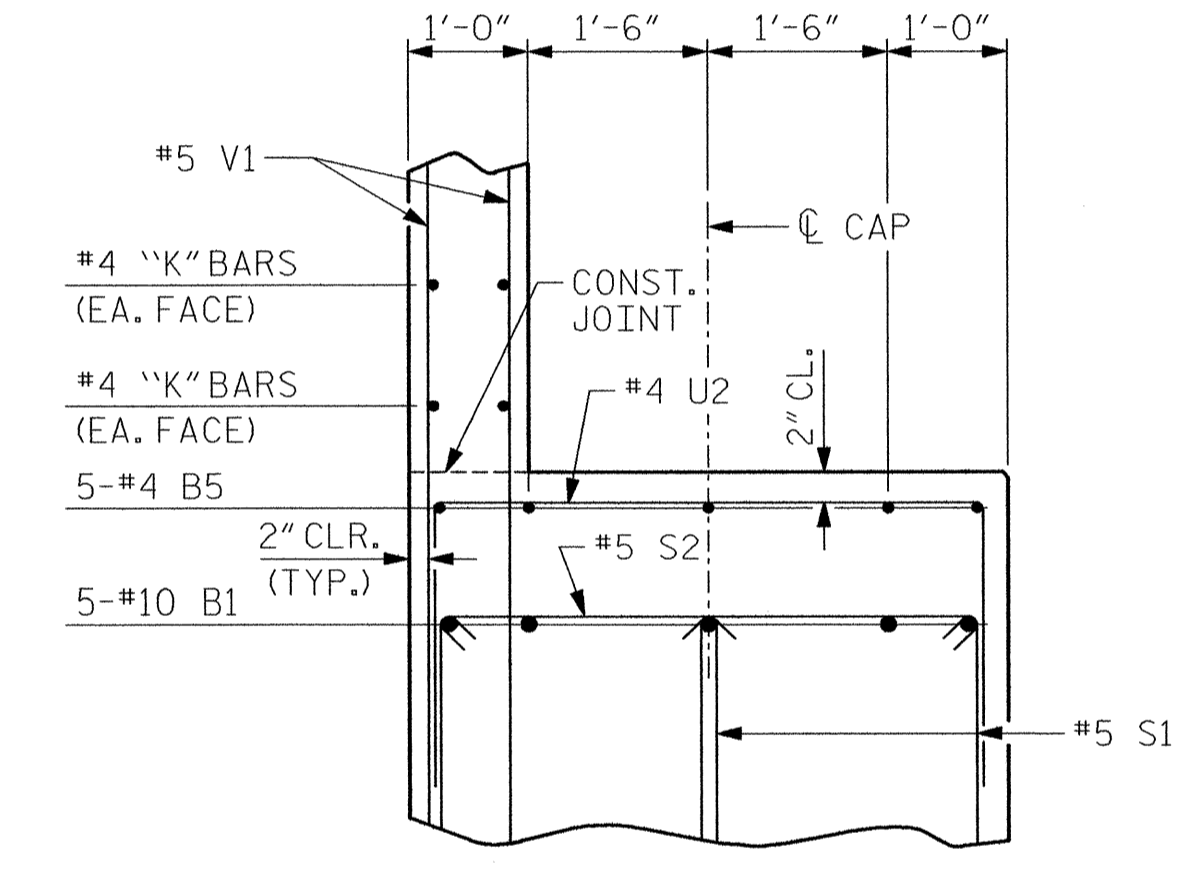
SHEET NO.
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TOTAL SHEETS
51

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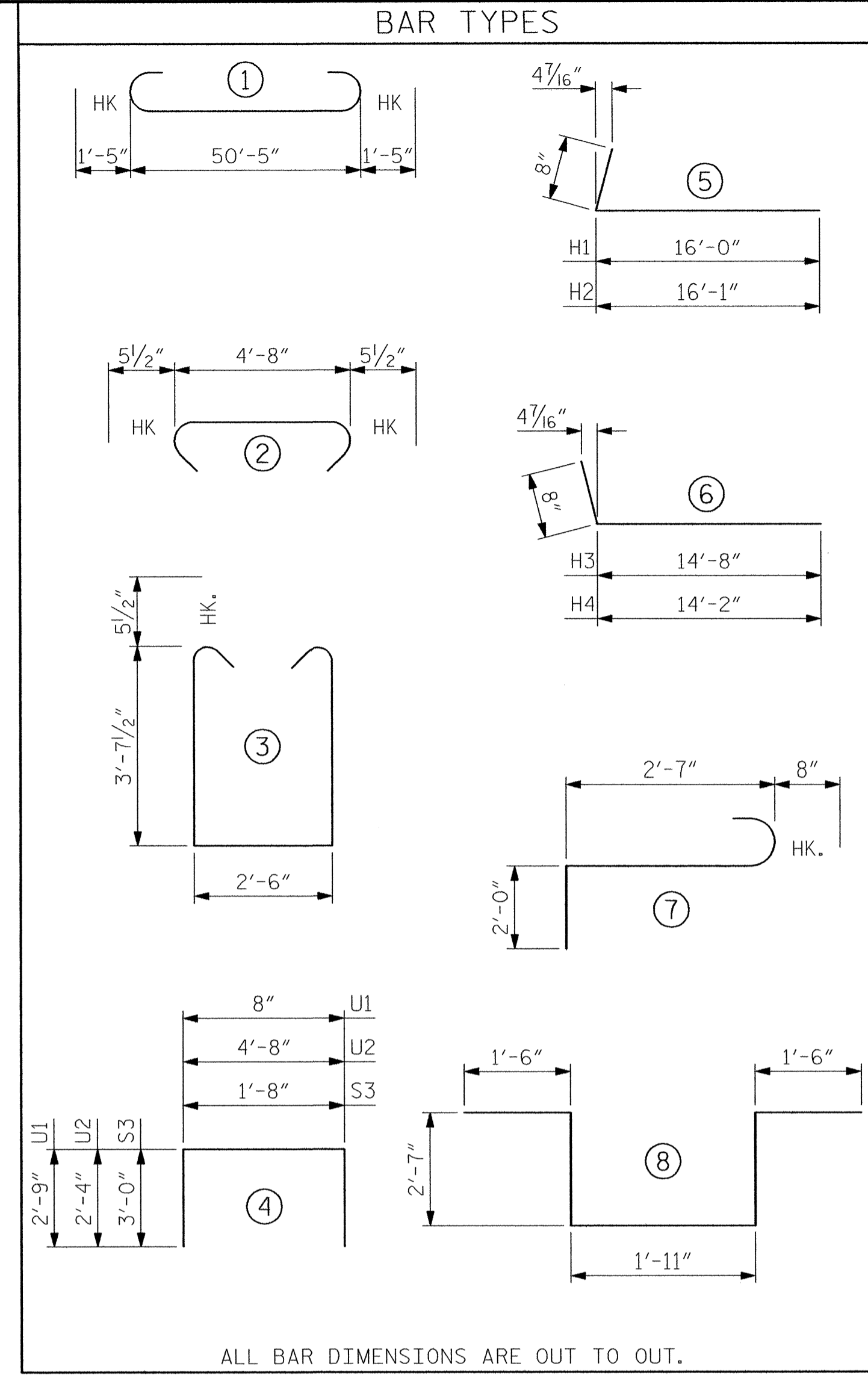
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SECTION A-A

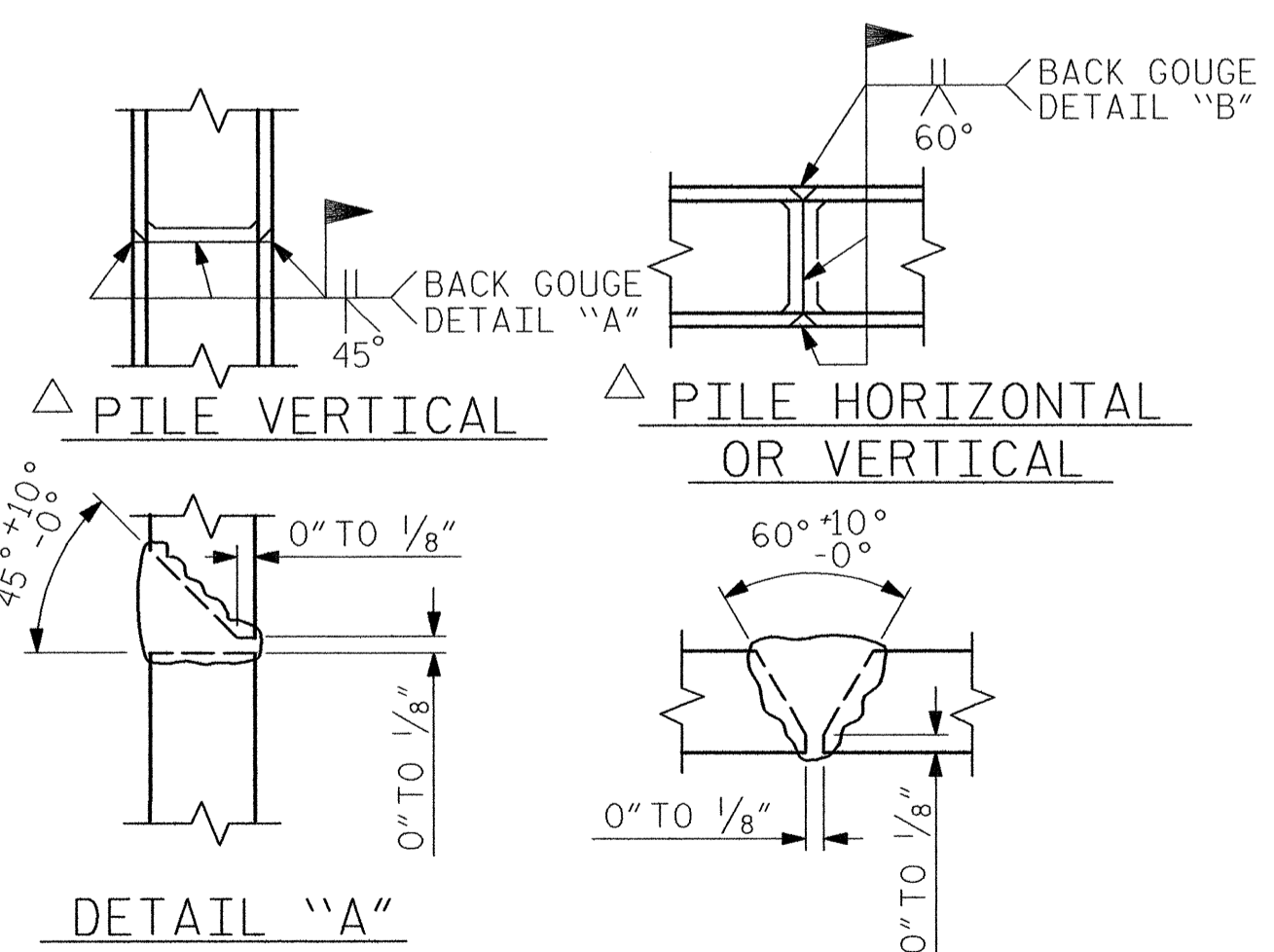


SECTION B-B

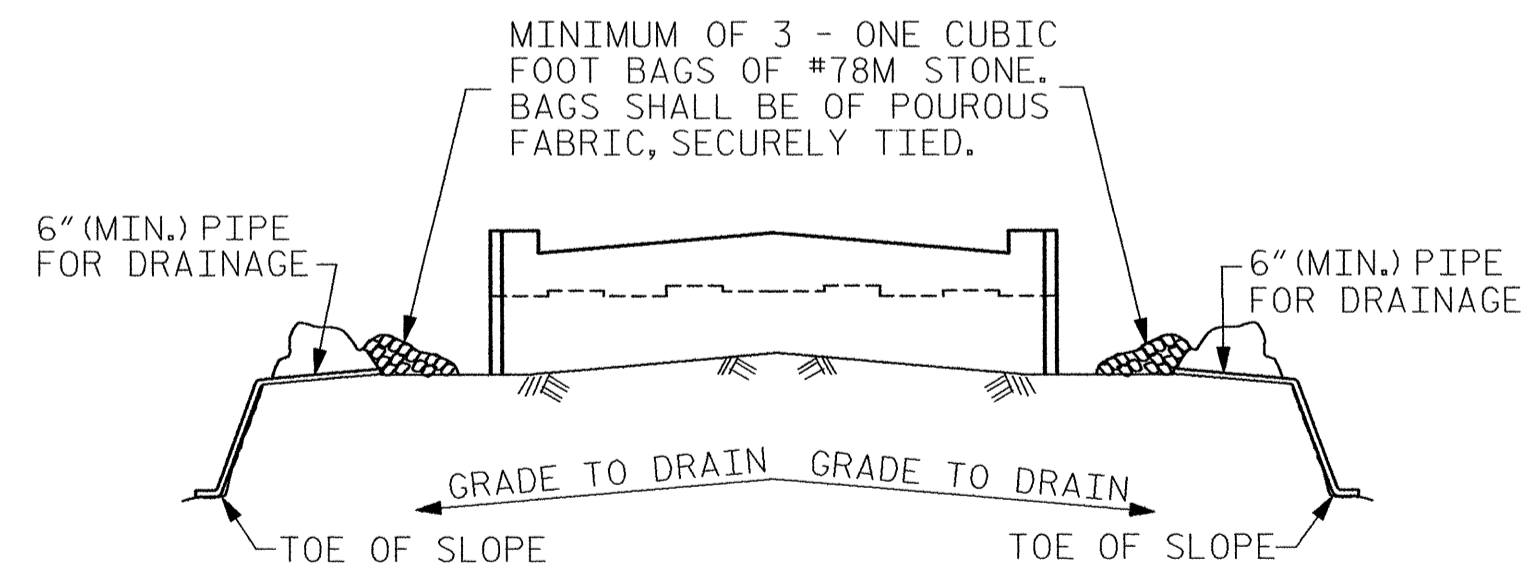


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#10	1	53'-3"	2291
B2	2	#5	STR	50'-5"	105
B3	16	#4	STR	26'-6"	283
B4	12	#4	STR	4'-8"	37
B5	15	#4	STR	3'-8"	37
H1	15	#4	5	16'-8"	167
H2	15	#4	5	16'-9"	168
H3	13	#4	6	15'-4"	133
H4	13	#4	6	14'-10"	129
K1	24	#4	STR	26'-6"	425
K2	6	#4	STR	7'-1"	28
K3	4	#4	STR	4'-1"	11
K4	4	#4	STR	3'-7"	10
K5	4	#4	STR	3'-8"	10
S1	92	#5	3	10'-8"	1024
S2	46	#5	2	5'-7"	268
S3	48	#4	4	7'-8"	246
S4	6	#6	7	5'-3"	47
S5	6	#6	8	10'-1"	91
U1	43	#4	4	6'-2"	177
U2	12	#4	4	9'-4"	75
V1	86	#5	STR	9'-7"	860
V2	60	#5	STR	7'-4"	459
V3	12	#5	STR	12'-6"	156
V4	28	#5	STR	7'-5"	217
V5	28	#5	STR	6'-0"	175
V6	10	#5	STR	11'-3"	117
REINFORCING STEEL				7,746 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP, COLLARS & LOWER WING)				49.6 C.Y.	
POUR #2 (BACKWALL & UPPER WING)				30.4 C.Y.	
TOTAL CLASS A CONCRETE				80.0 C.Y.	
HP 12 x 53 STEEL PILES				NO. 14 518 LIN. FT.	



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 BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

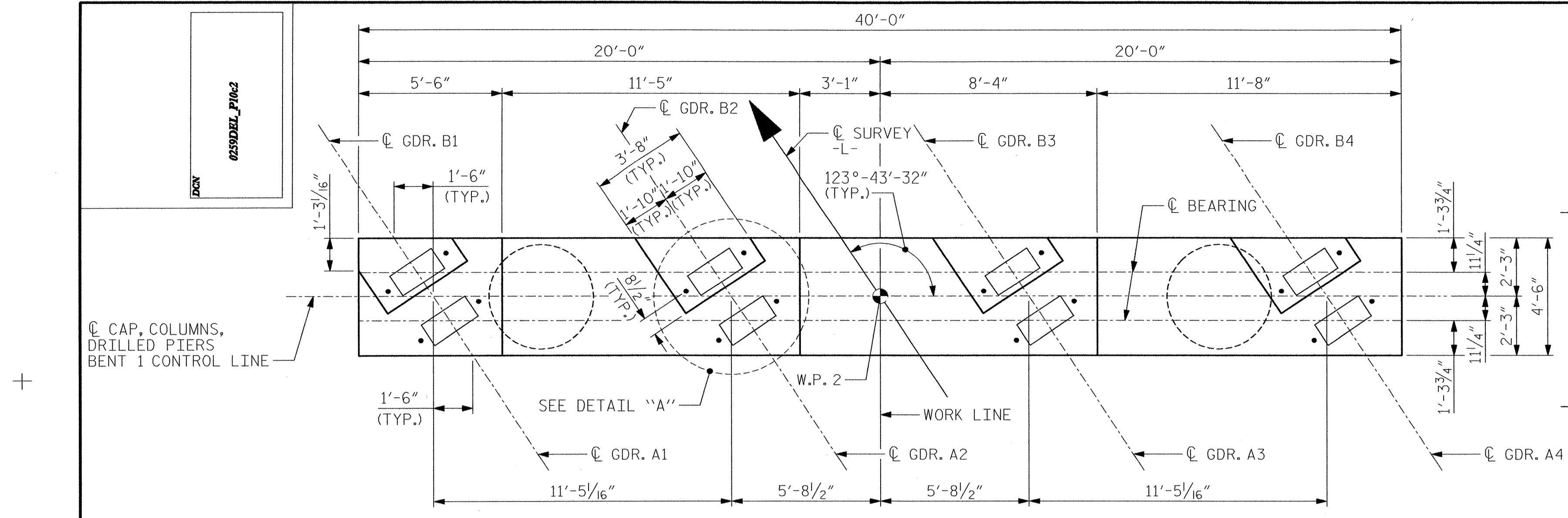
END BENT 1



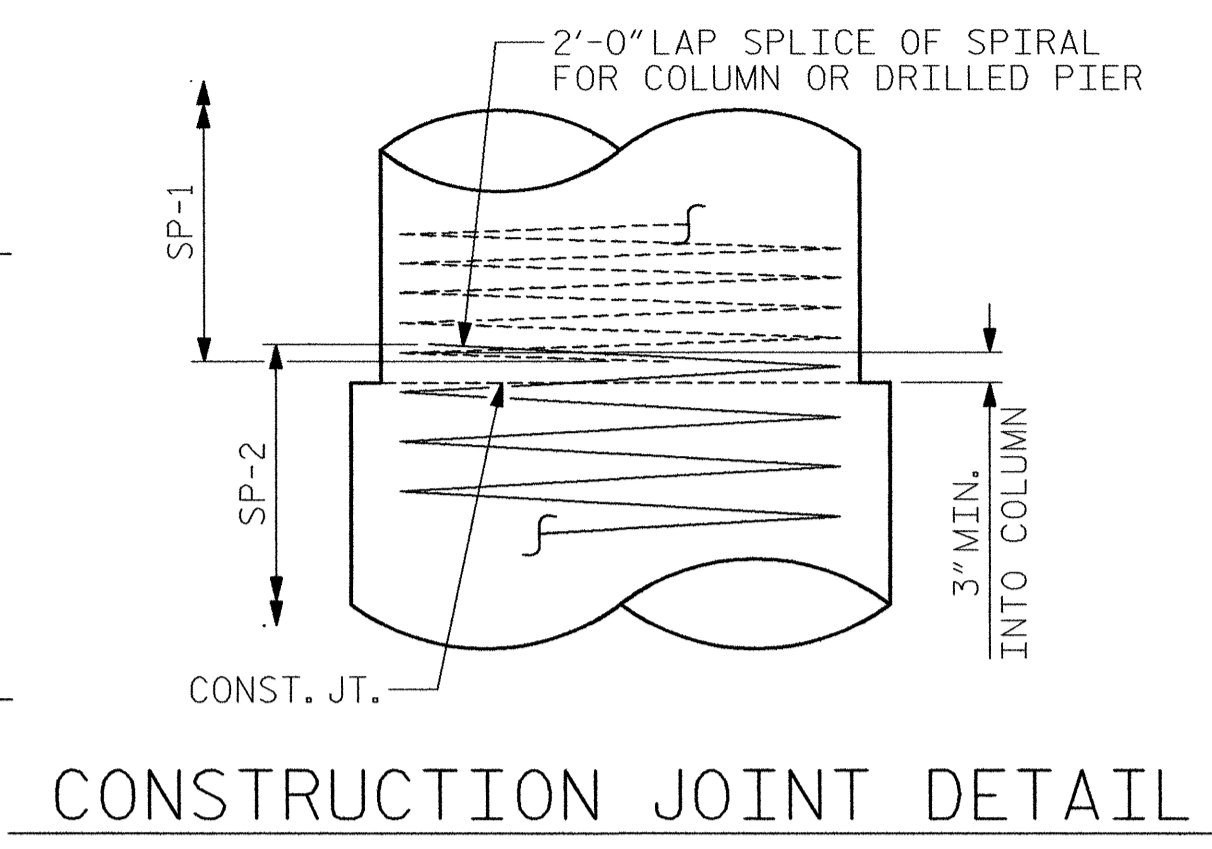
MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27806
 (919) 851-6606
 FIRM PE NUMBER : P-0671

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35	
1			3			TOTAL SHEETS	
2			4			51	

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12



PLAN



CONSTRUCTION JOINT DETAIL

NOTES

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

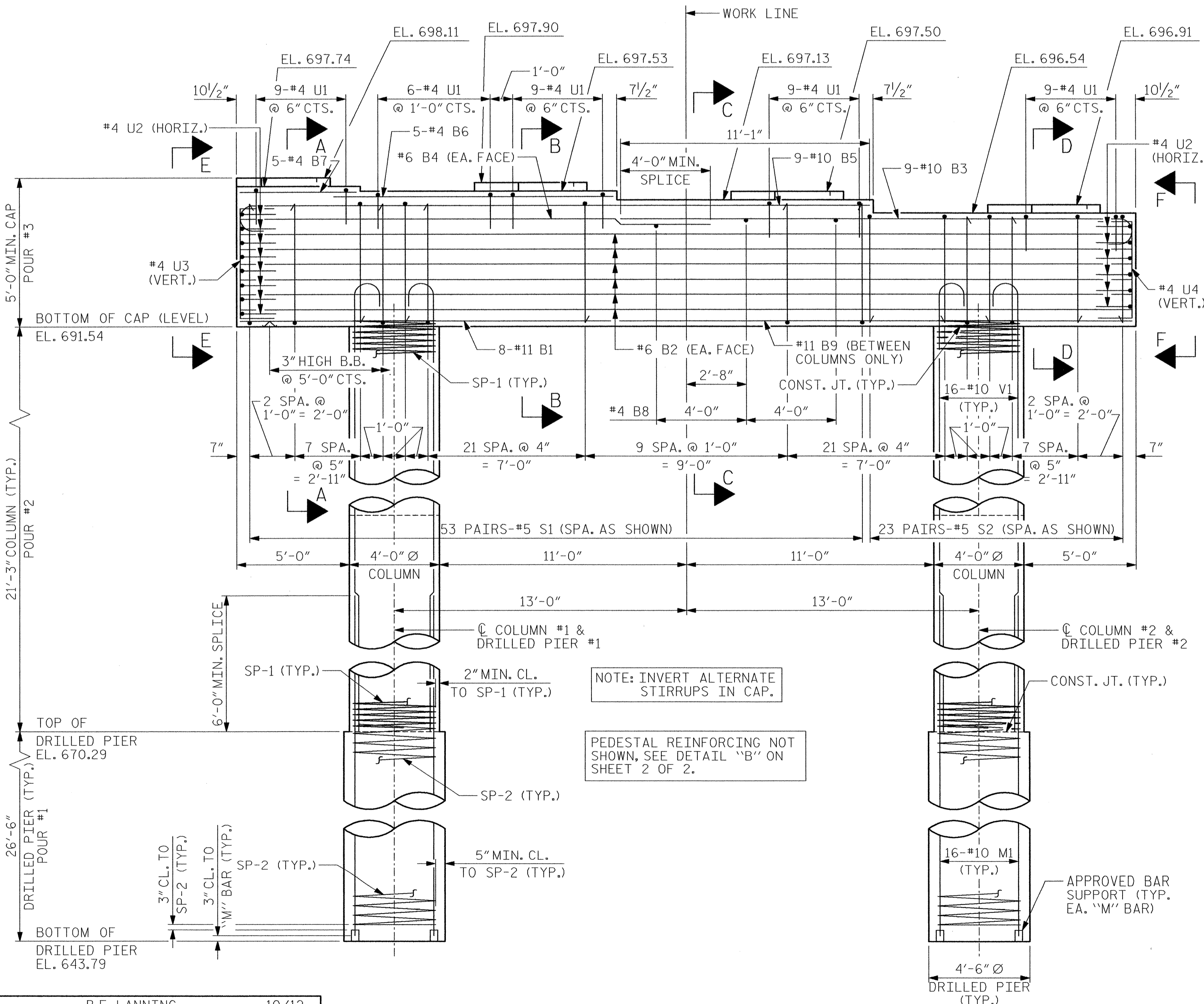
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

FOR DRILLED PIERS & PERMANENT STEEL CASING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

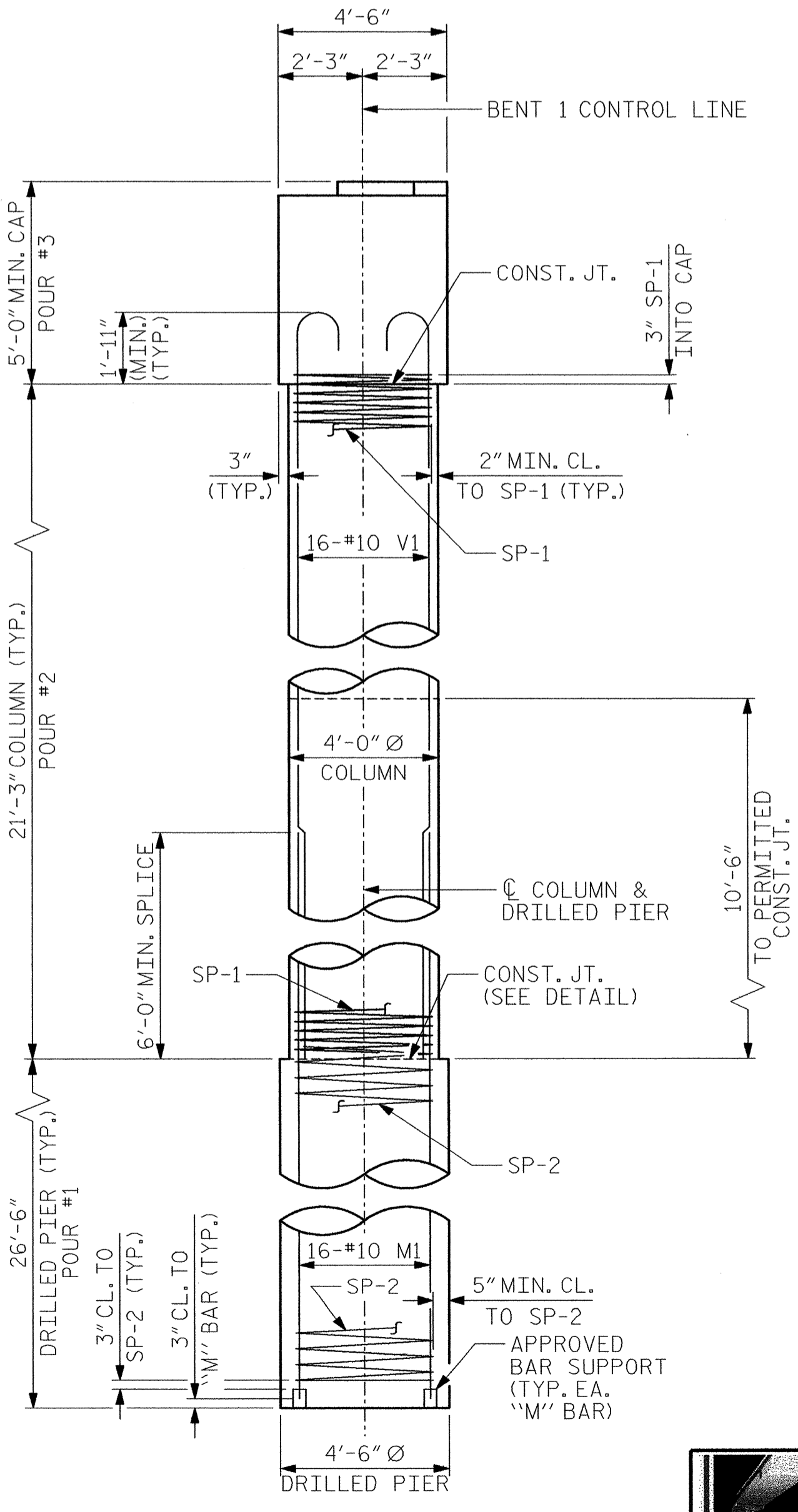
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

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 1 FOOT BELOW THE GROUND LINE.

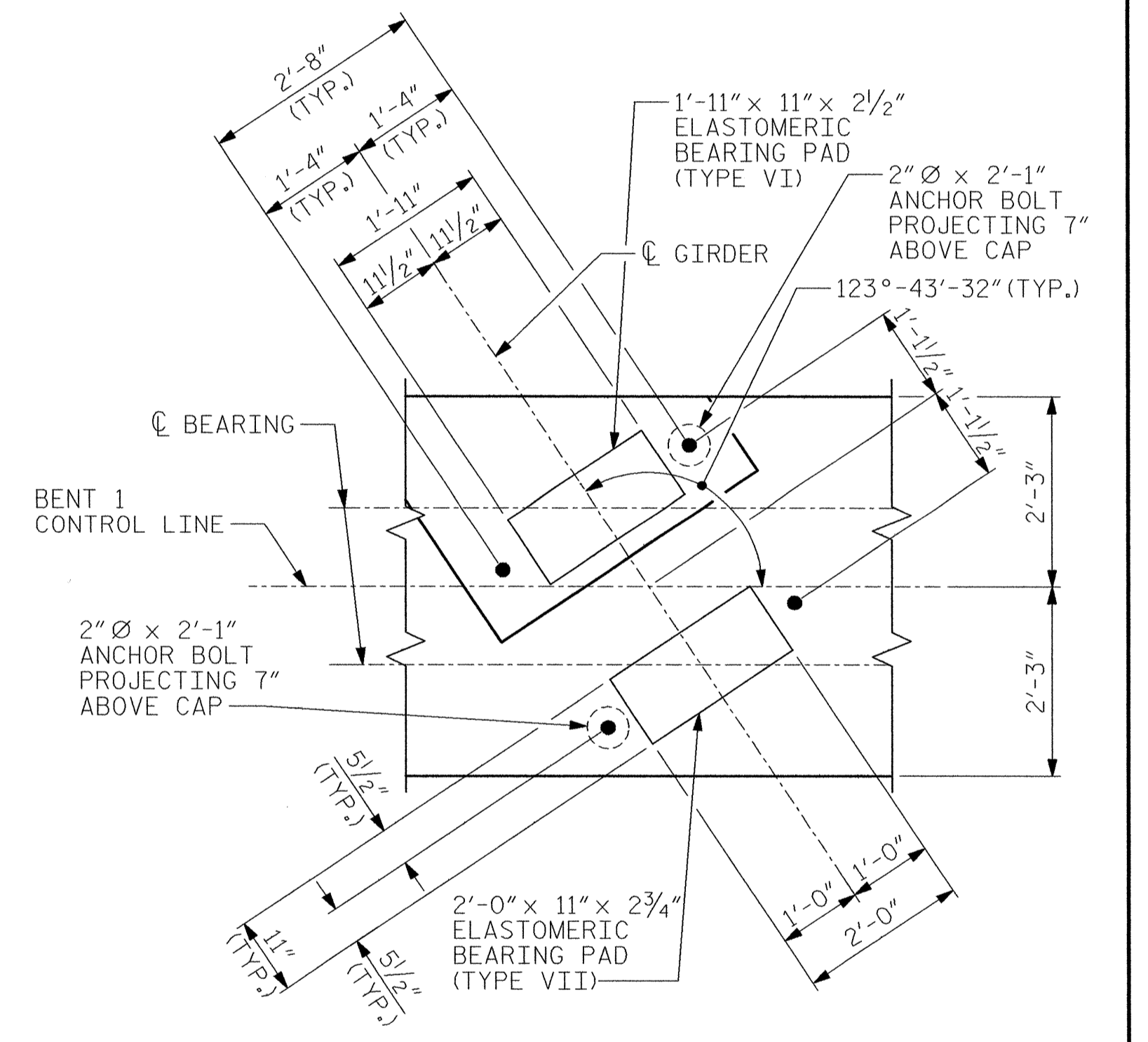
FOR SECTIONS A-A THRU D-D AND VIEWS E-E THRU F-F, SEE SHEET 2 OF 2.



ELEVATION

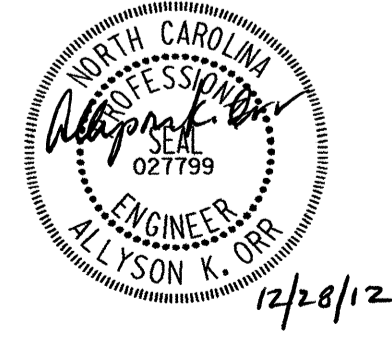


END ELEVATION



DETAIL "A"

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
 SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12

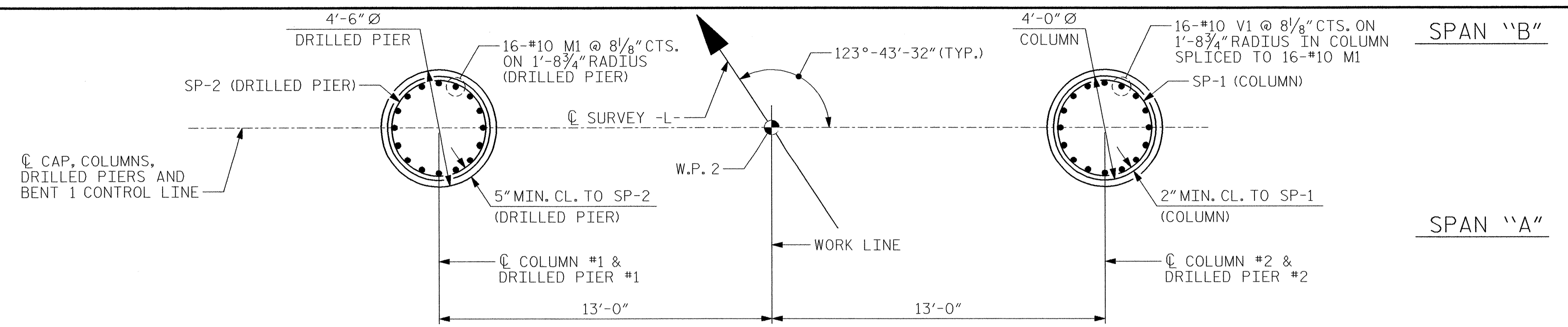
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

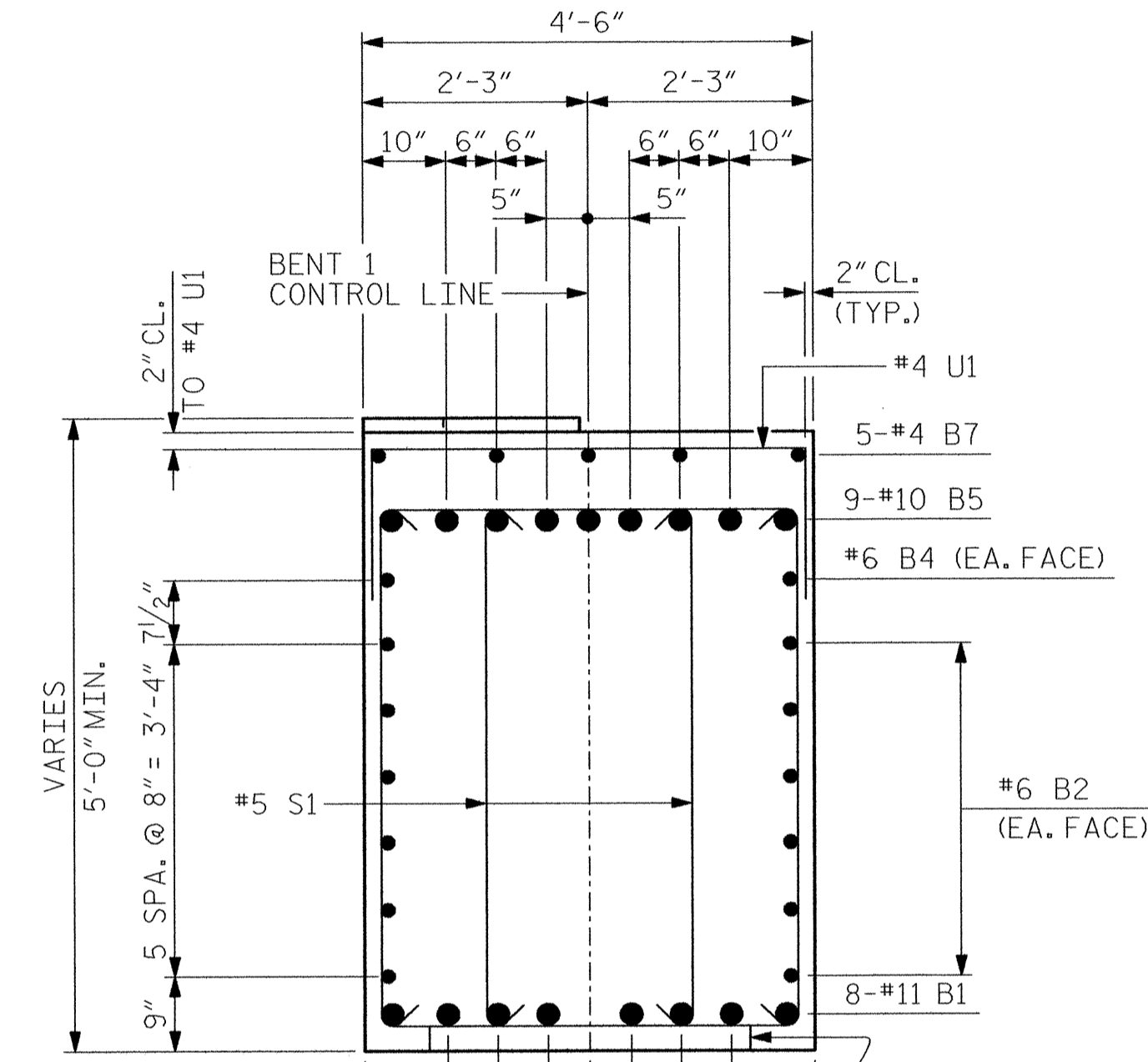
TOTAL SHEETS: 51

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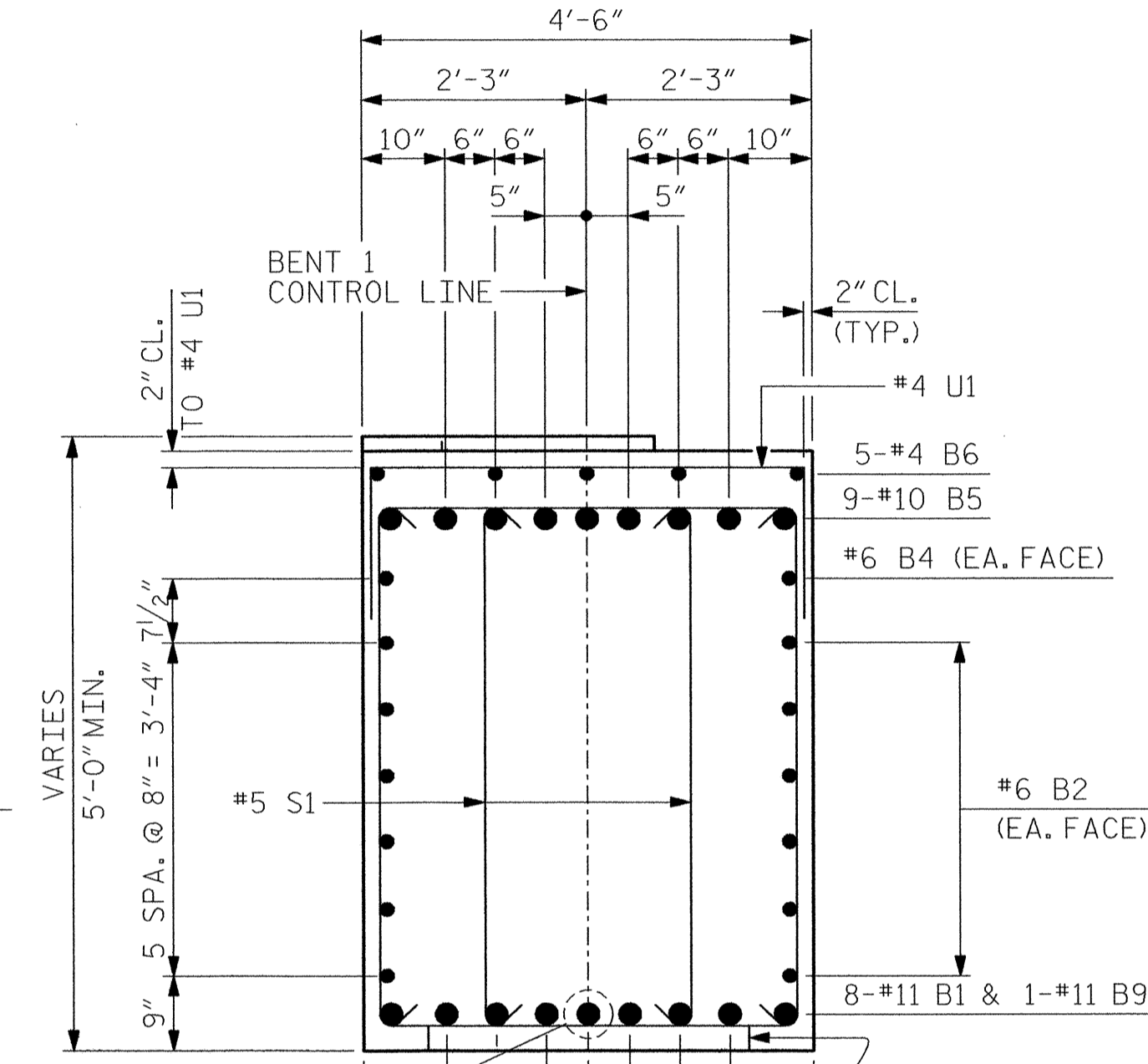
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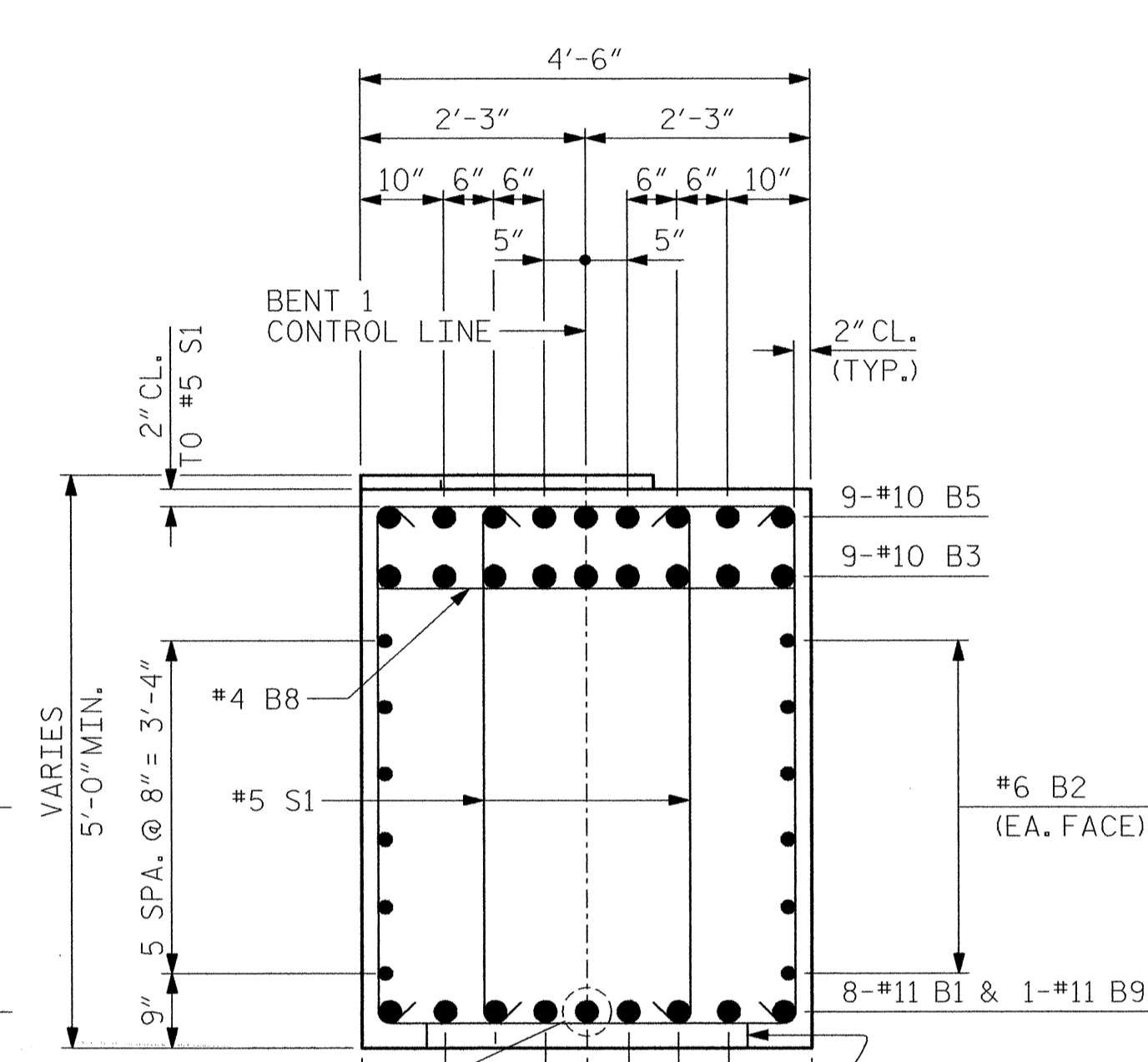
PLAN OF COLUMNS AND DRILLED PIERS
 (DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER)



SECTION A-A

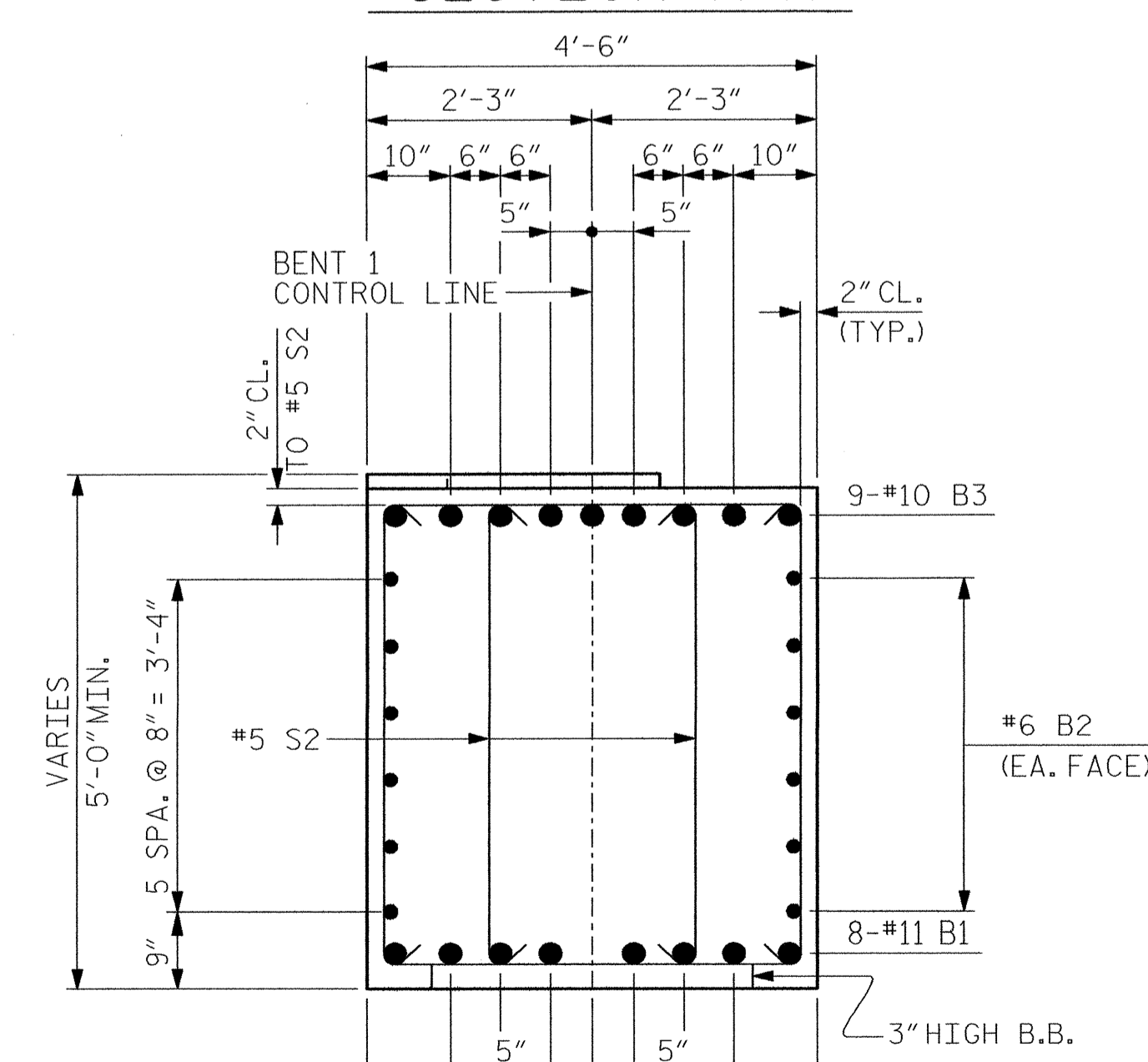


SECTION B-B

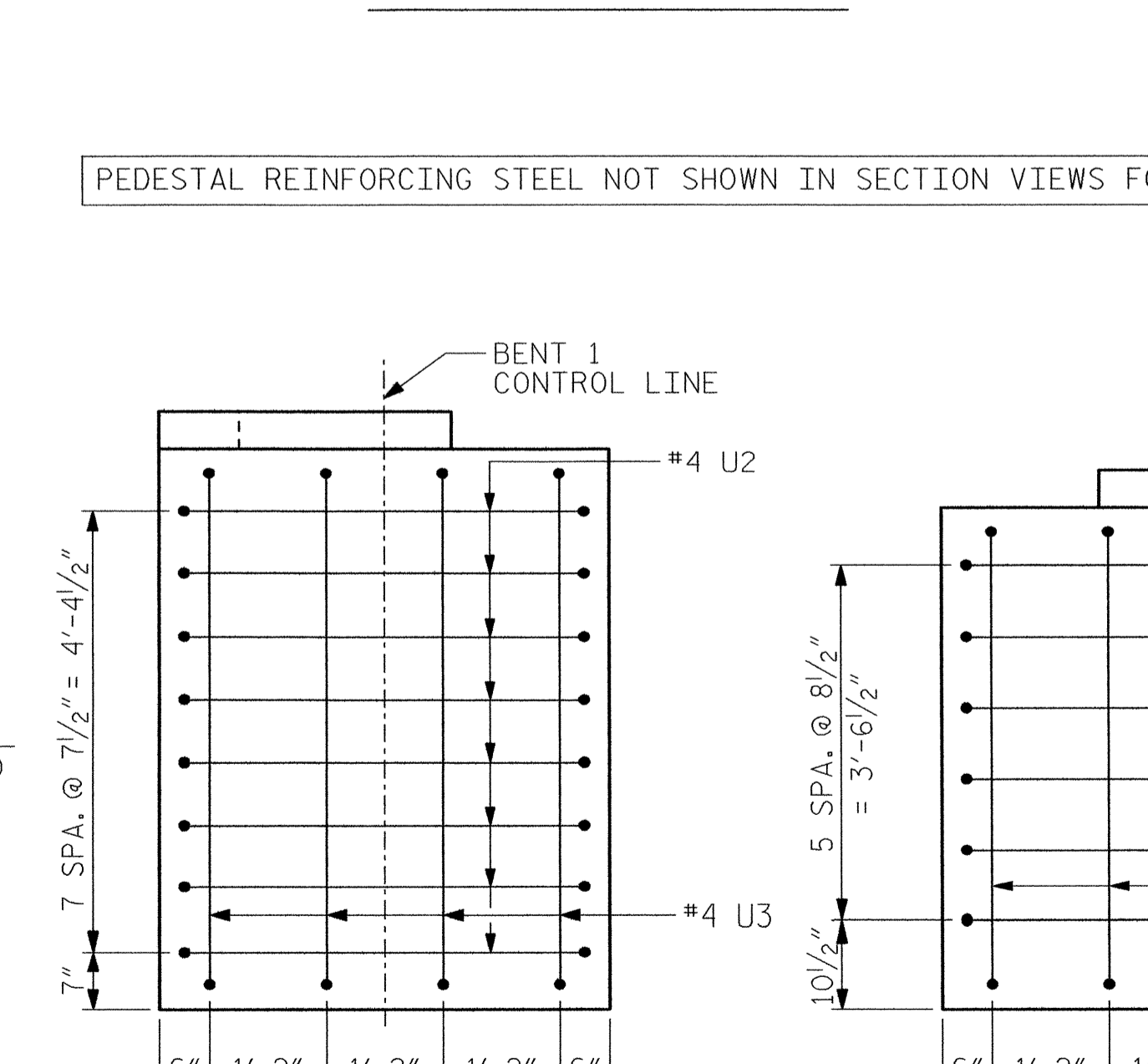


SECTION C-C

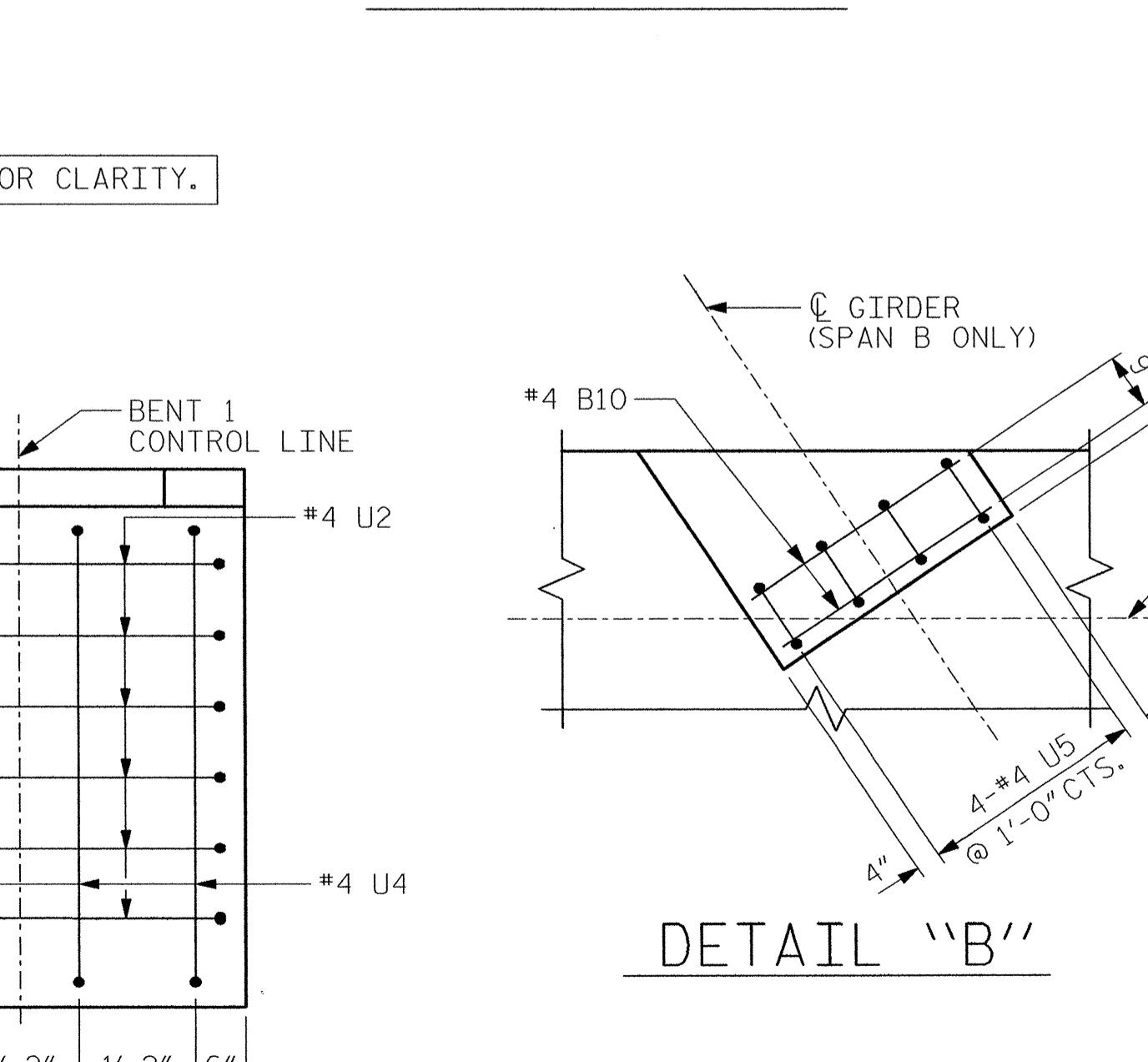
PEDESTAL REINFORCING STEEL NOT SHOWN IN SECTION VIEWS FOR CLARITY.



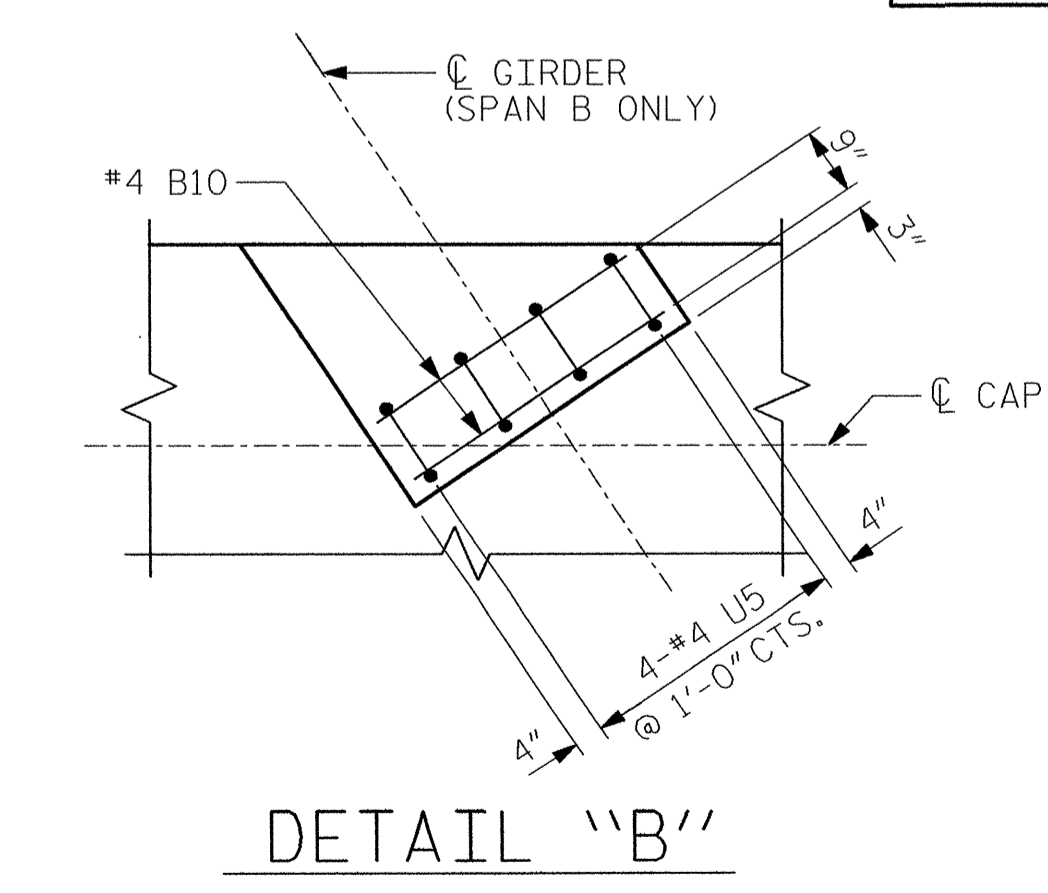
SECTION D-D



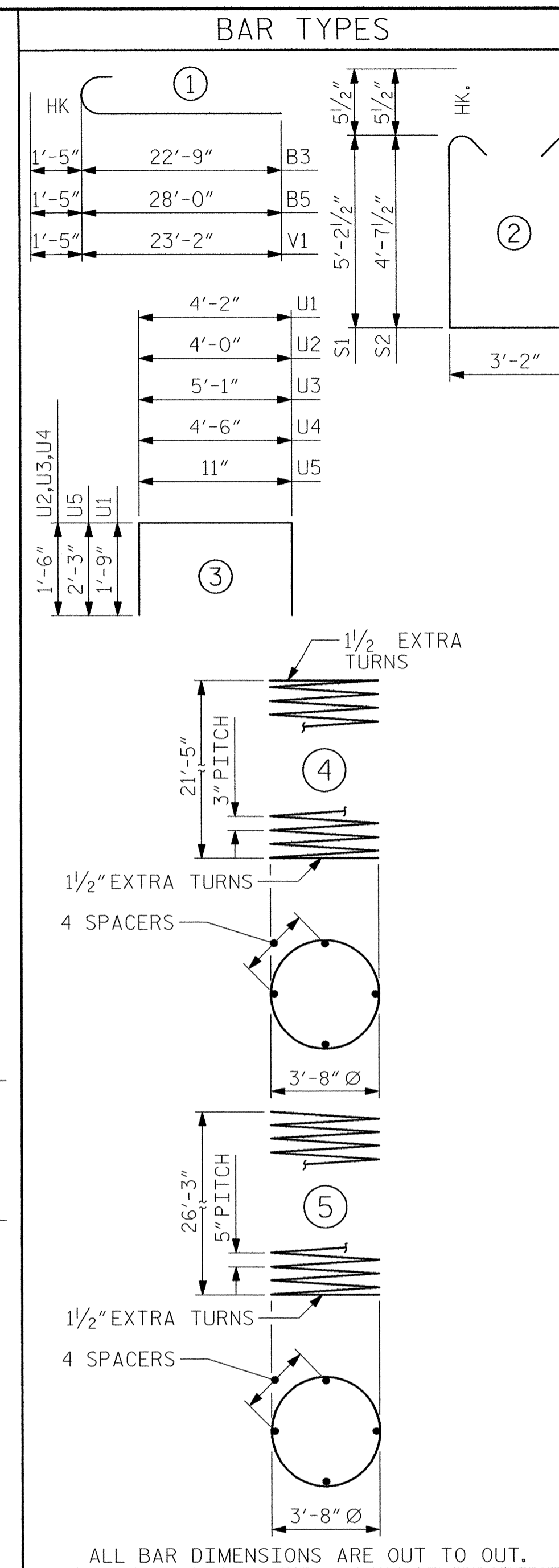
VIEW E-E



VIEW F-F



DETAIL "B"



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

BILL OF MATERIAL					
BENT 1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#11	STR	39'-8"	1686
B2	12	#6	STR	39'-8"	715
B3	9	#10	1	24'-2"	936
B4	2	#6	STR	20'-11"	63
B5	9	#10	1	29'-5"	1139
B6	5	#4	STR	12'-5"	41
B7	5	#4	STR	5'-2"	17
B8	3	#4	STR	4'-2"	8
B9	1	#11	STR	22'-0"	117
B10	8	#4	STR	3'-3"	17
M1	32	#10	STR	35'-3"	4854
S1	106	#5	2	14'-6"	1603
S2	46	#5	2	13'-4"	640
U1	42	#4	3	7'-8"	215
U2	14	#4	3	7'-0"	65
U3	4	#4	3	8'-1"	22
U4	4	#4	3	7'-6"	20
U5	16	#4	3	5'-5"	58
V1	32	#10	1	24'-7"	3385
SP-1	2	**	4	1008'-11"	1348
SP-2	2	***	5	731'-10"	1527

REINFORCING STEEL	15,601 LBS.
SPIRAL COLUMN REINFORCING STEEL	2,875 LBS.
CLASS A CONCRETE BREAKDOWN	
POUR #2 (COLUMN)	19.8 C.Y.
POUR #3 (CAP)	37.9 C.Y.
TOTAL	57.7 C.Y.
4'-6" Ø DRILLED PIER	
DRILLED PIER CONCRETE POUR 1 (DRILLED PIER)	31.3 C.Y.
4'-6" Ø DRILLED PIER IN SOIL	25.0 LIN. FT.
4'-6" Ø DRILLED PIER NOT IN SOIL	28.0 LIN. FT.
PERMANENT STEEL CASING FOR 4'-6" Ø DRILLED PIER	24.6 LIN. FT.
CSL TUBES	280.0 LIN. FT.

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
 SHEET 2 OF 2



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

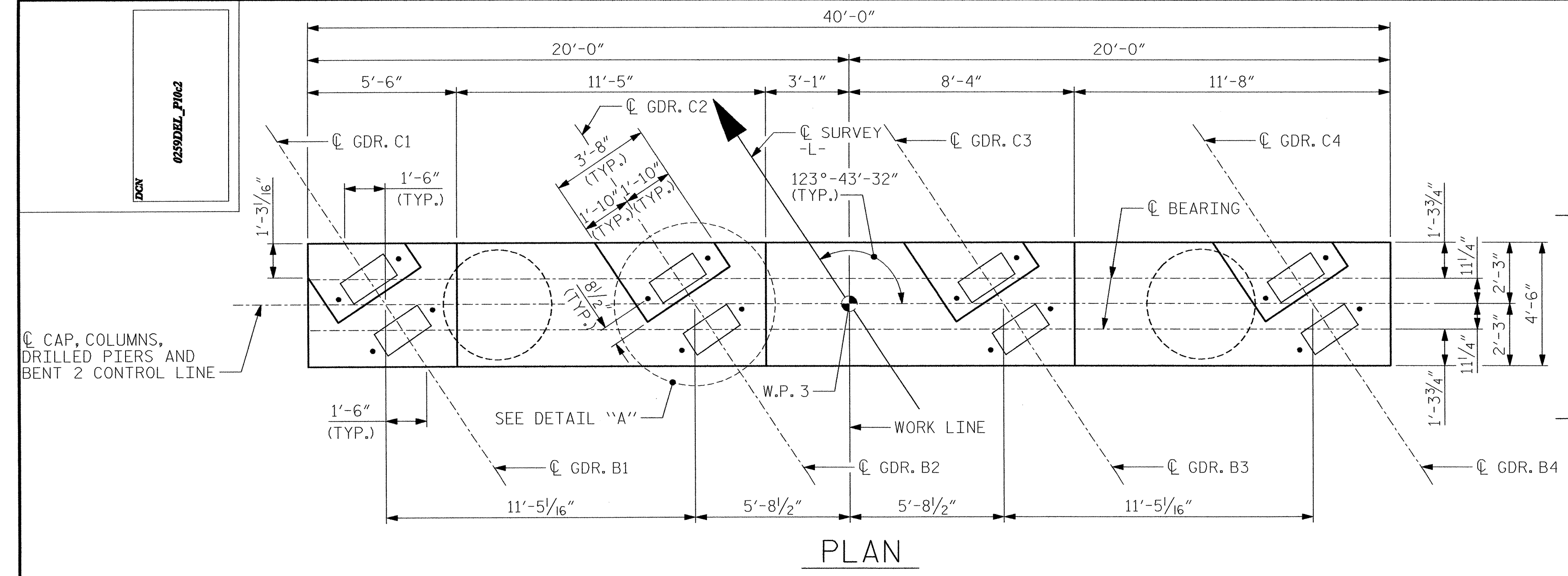
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			51

DRAWN BY: B.E. LANNING DATE: 10/12
 CHECKED BY: A.K. ORR DATE: 10/12

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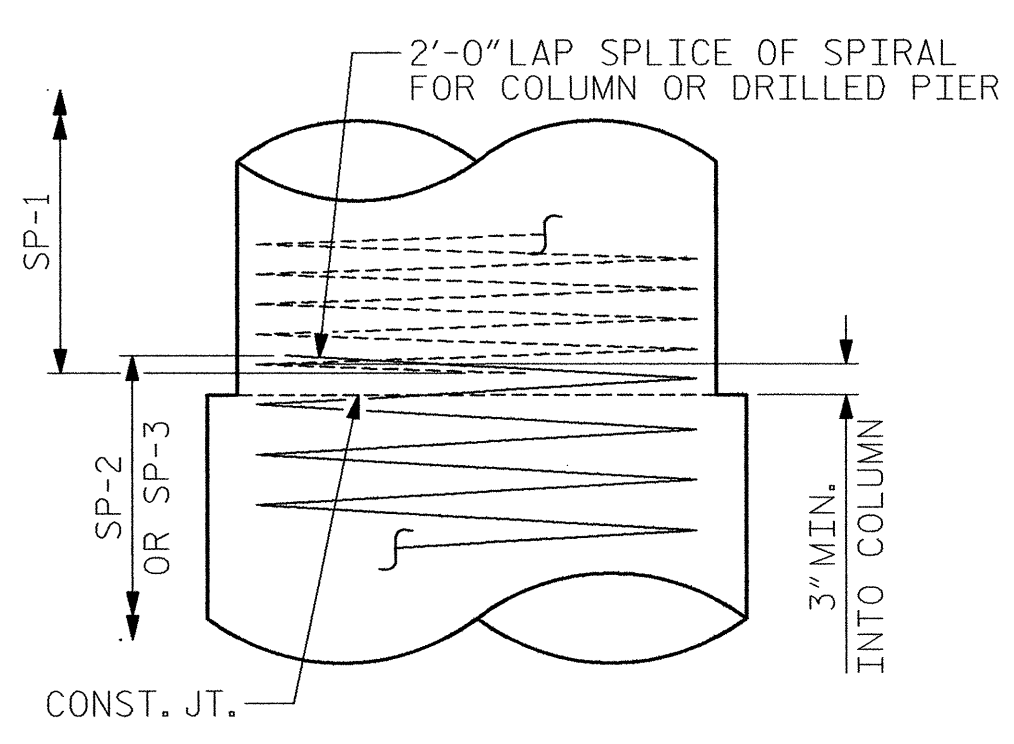
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PLAN

CONSTRUCTION JOINT DETAIL



NOTES

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

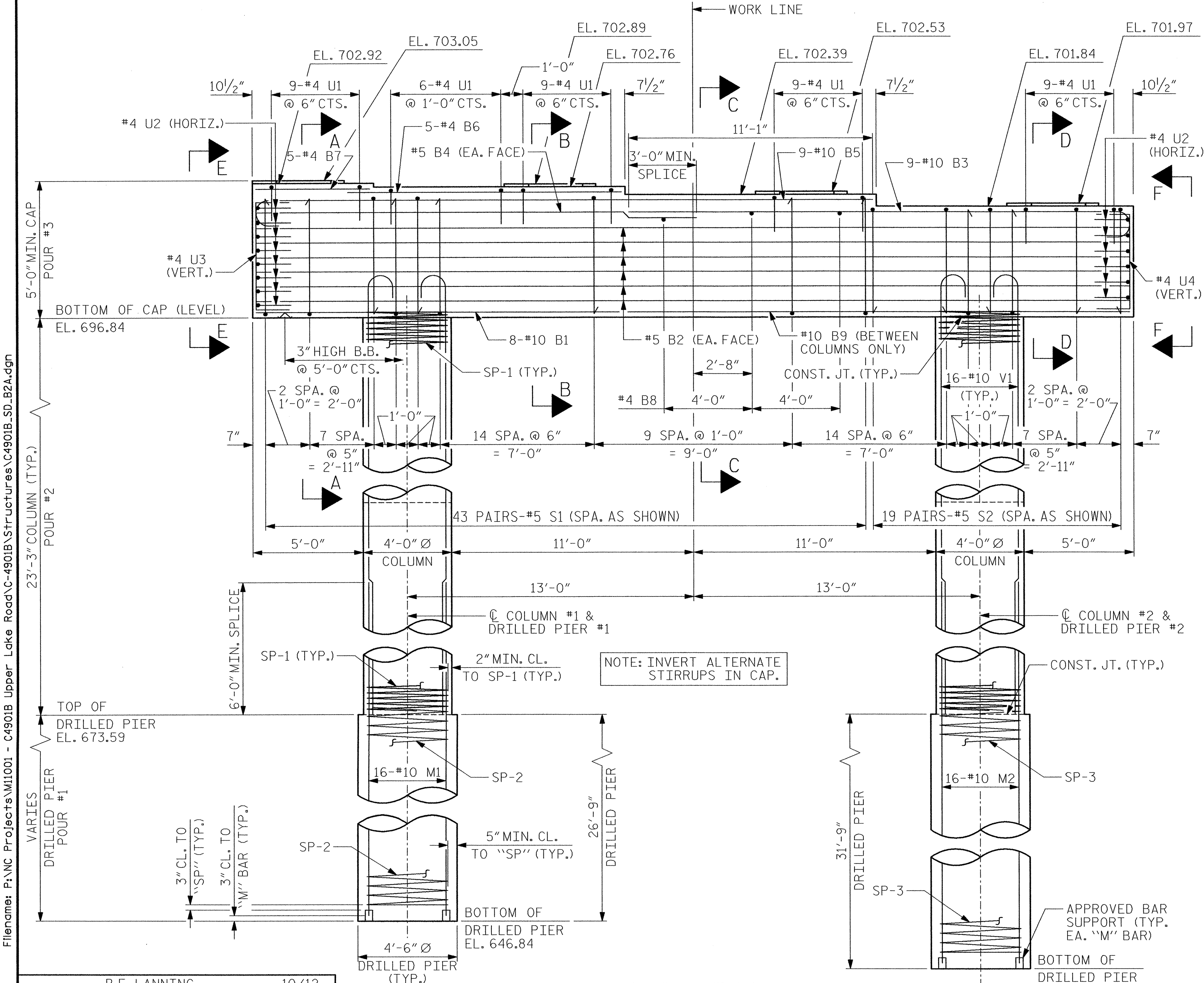
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

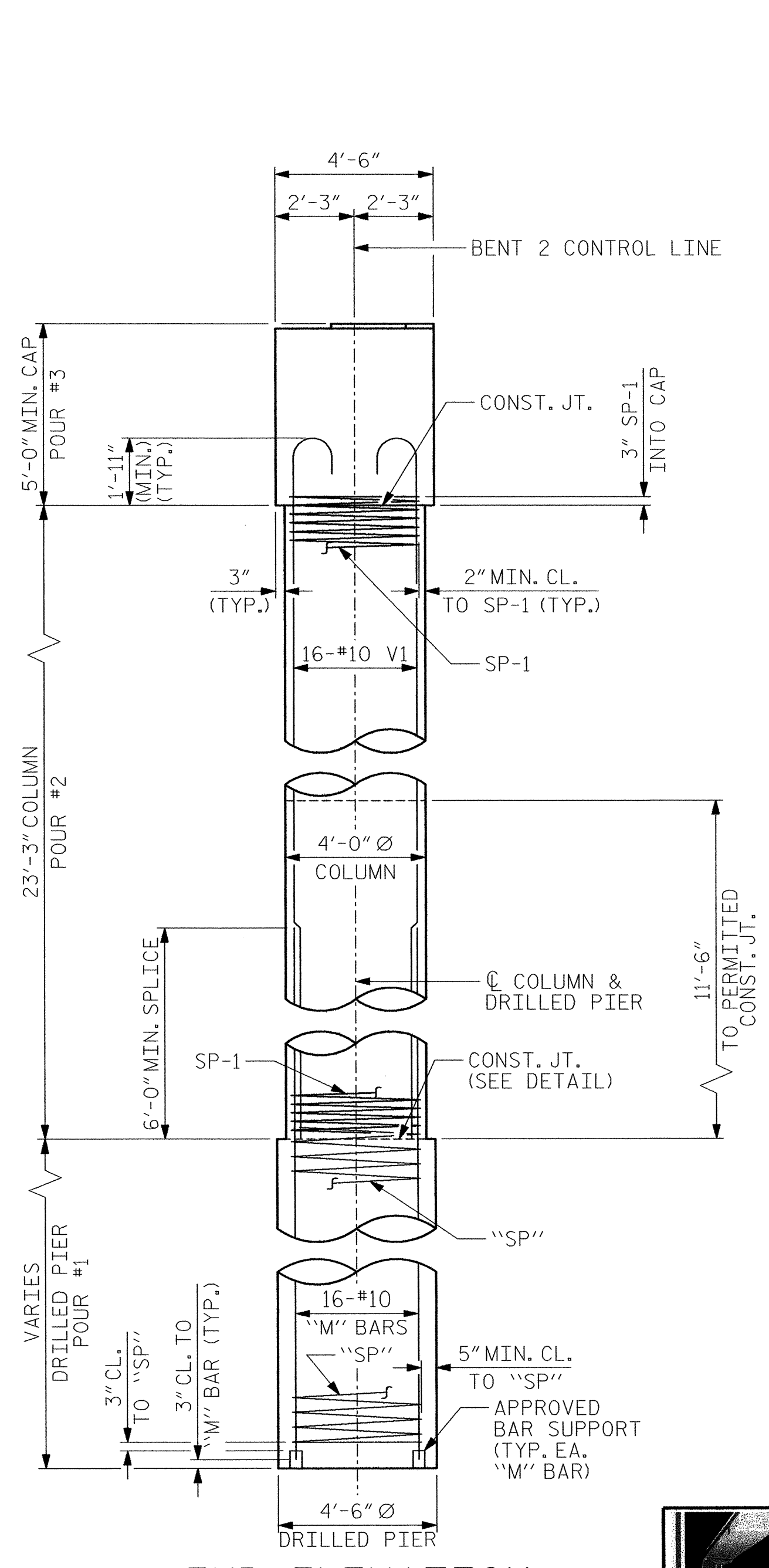
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

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 1 FOOT BELOW THE GROUND LINE.

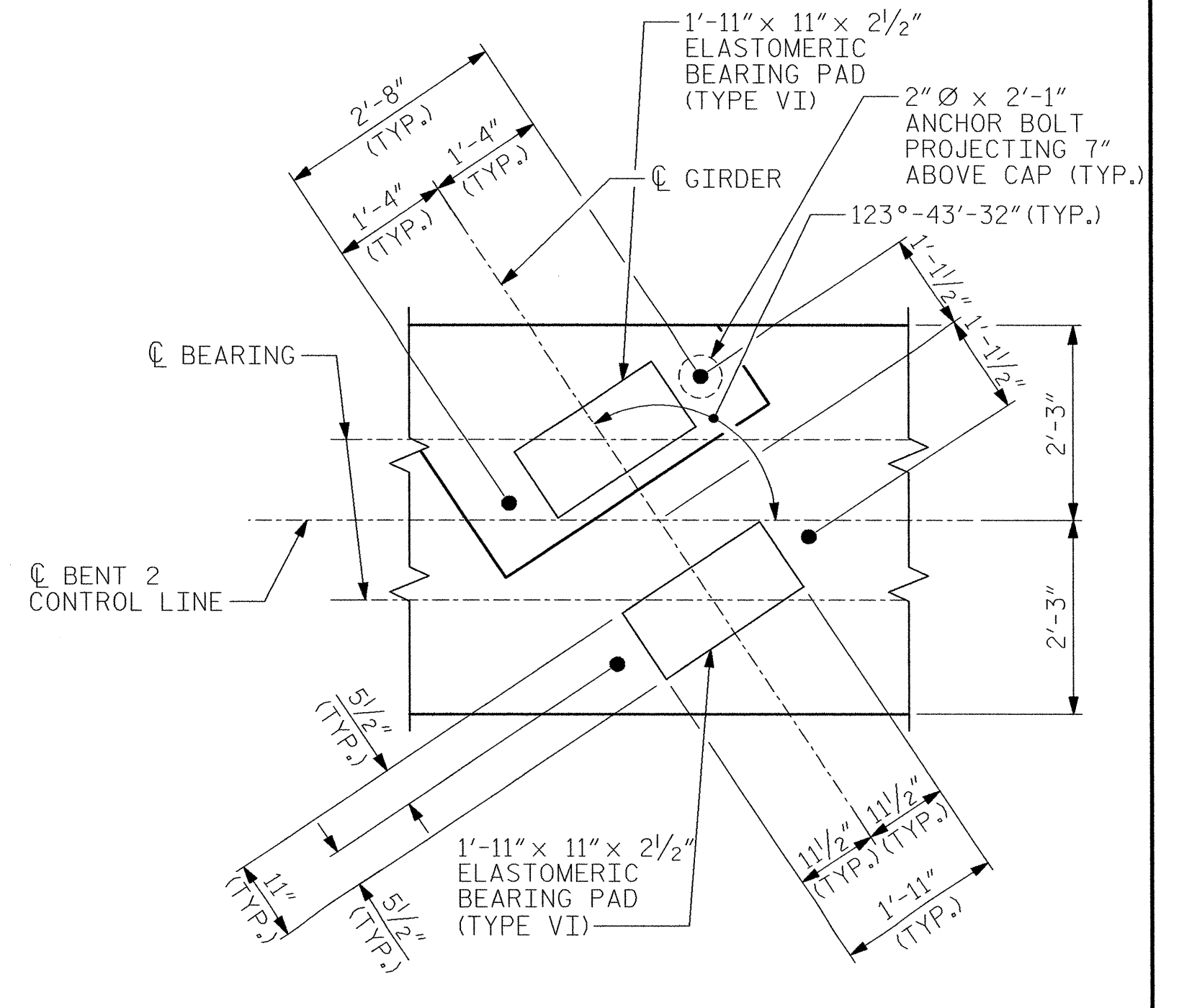
FOR SECTIONS A-A THRU D-D AND VIEWS E-E THRU F-F, SEE SHEET 2 OF 2.



ELEVATION



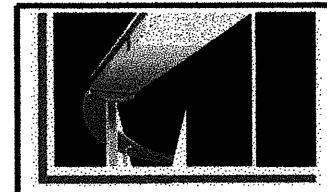
END ELEVATION



DETAIL "A"

PROJECT NO. C-4901 B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 2



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

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

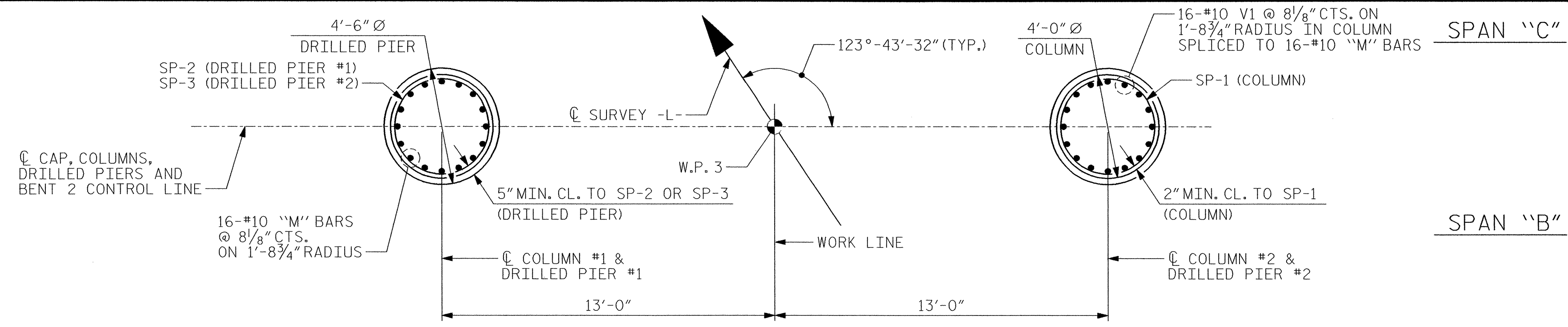
SHEET NO. S-38
TOTAL SHEETS 51

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12

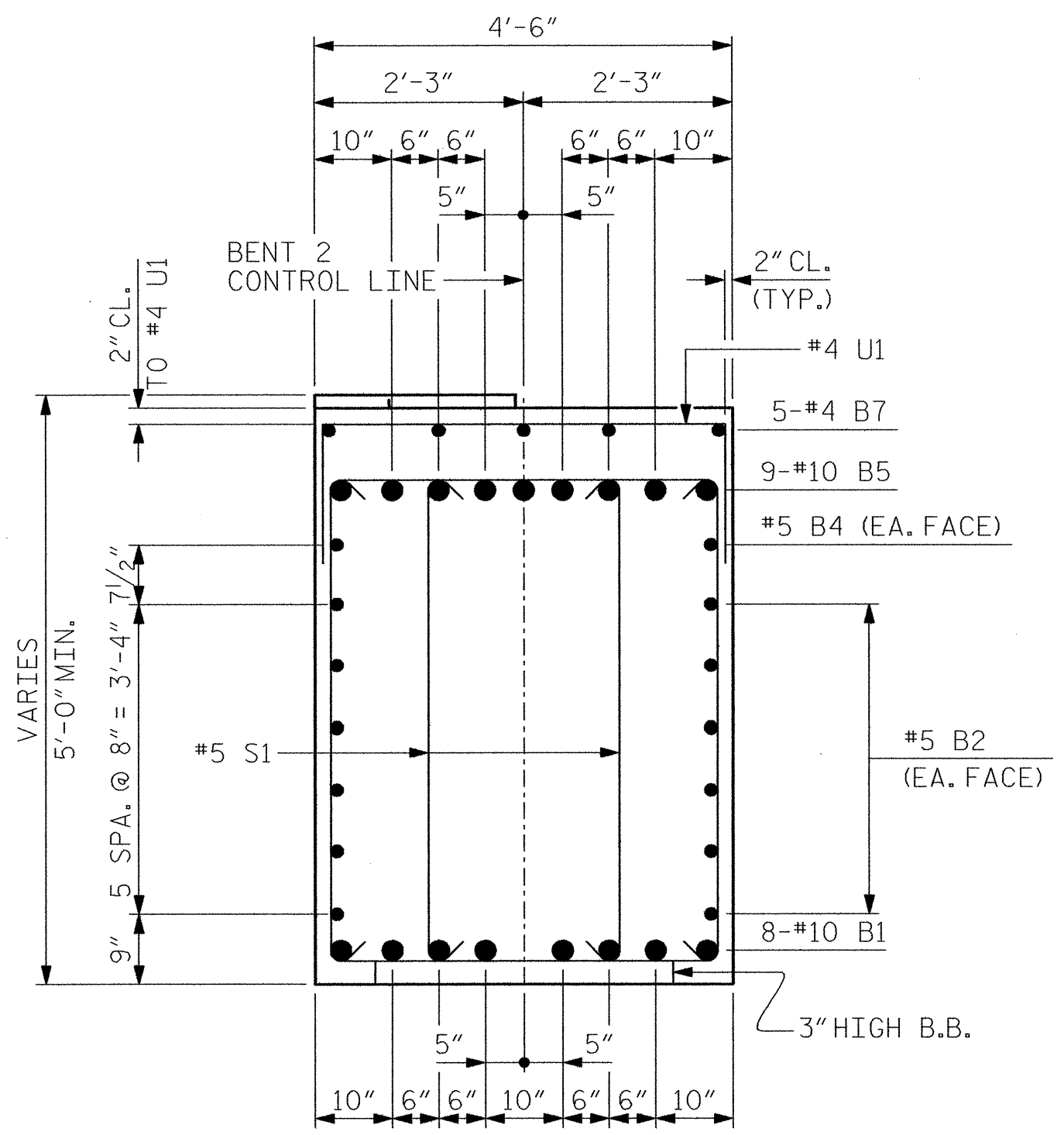
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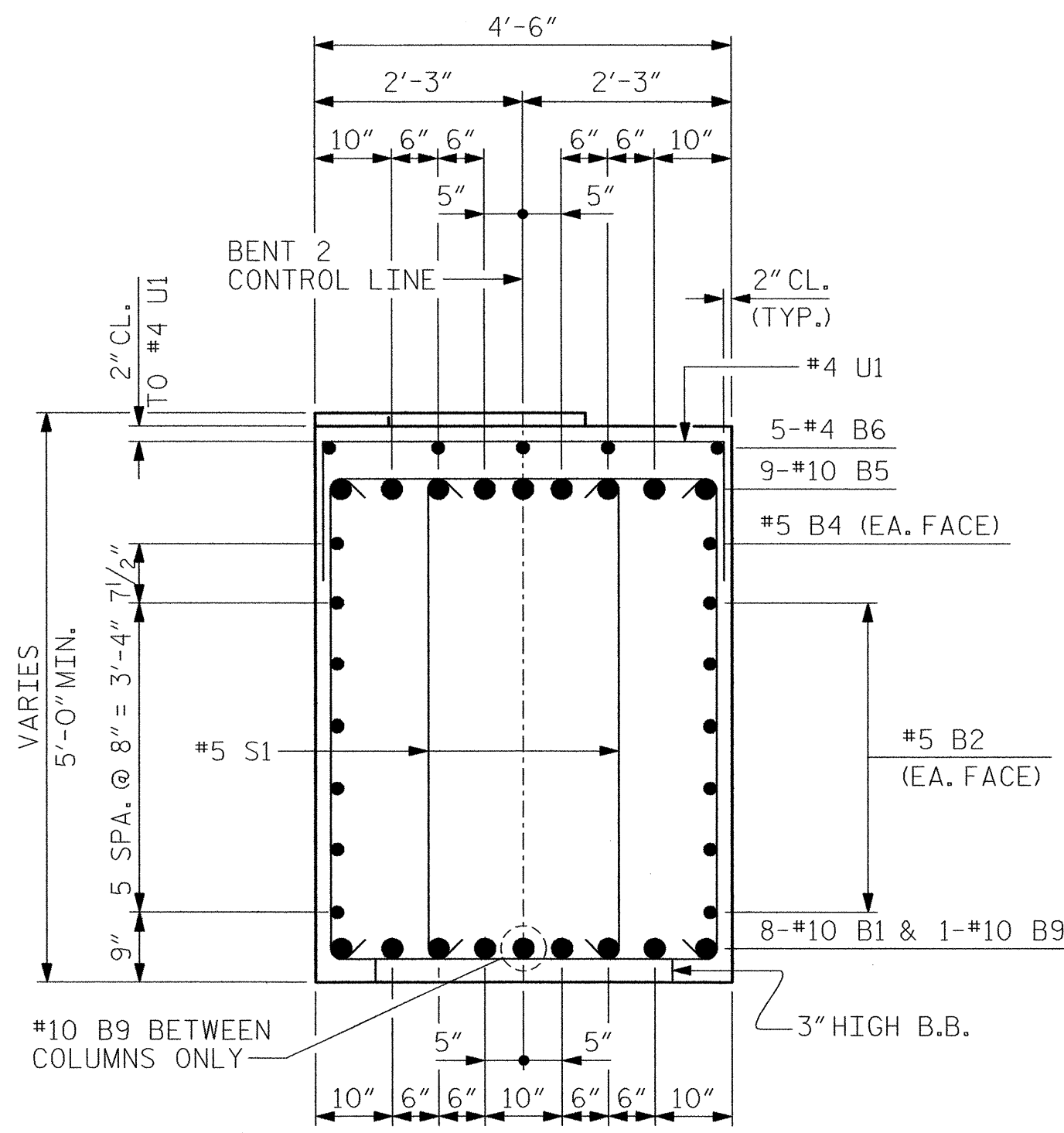
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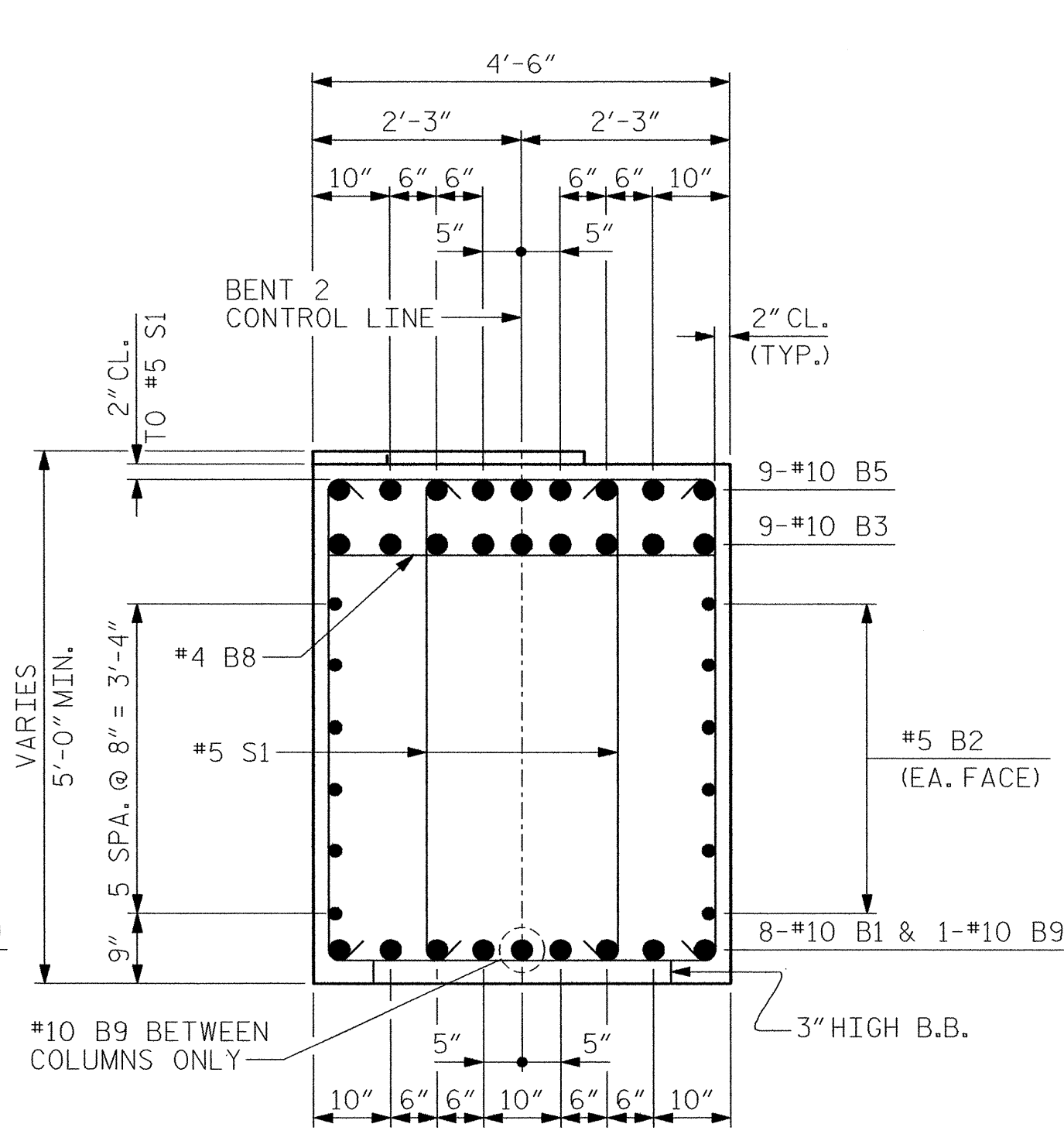
PLAN OF COLUMNS AND DRILLED PIERS
 (DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER)



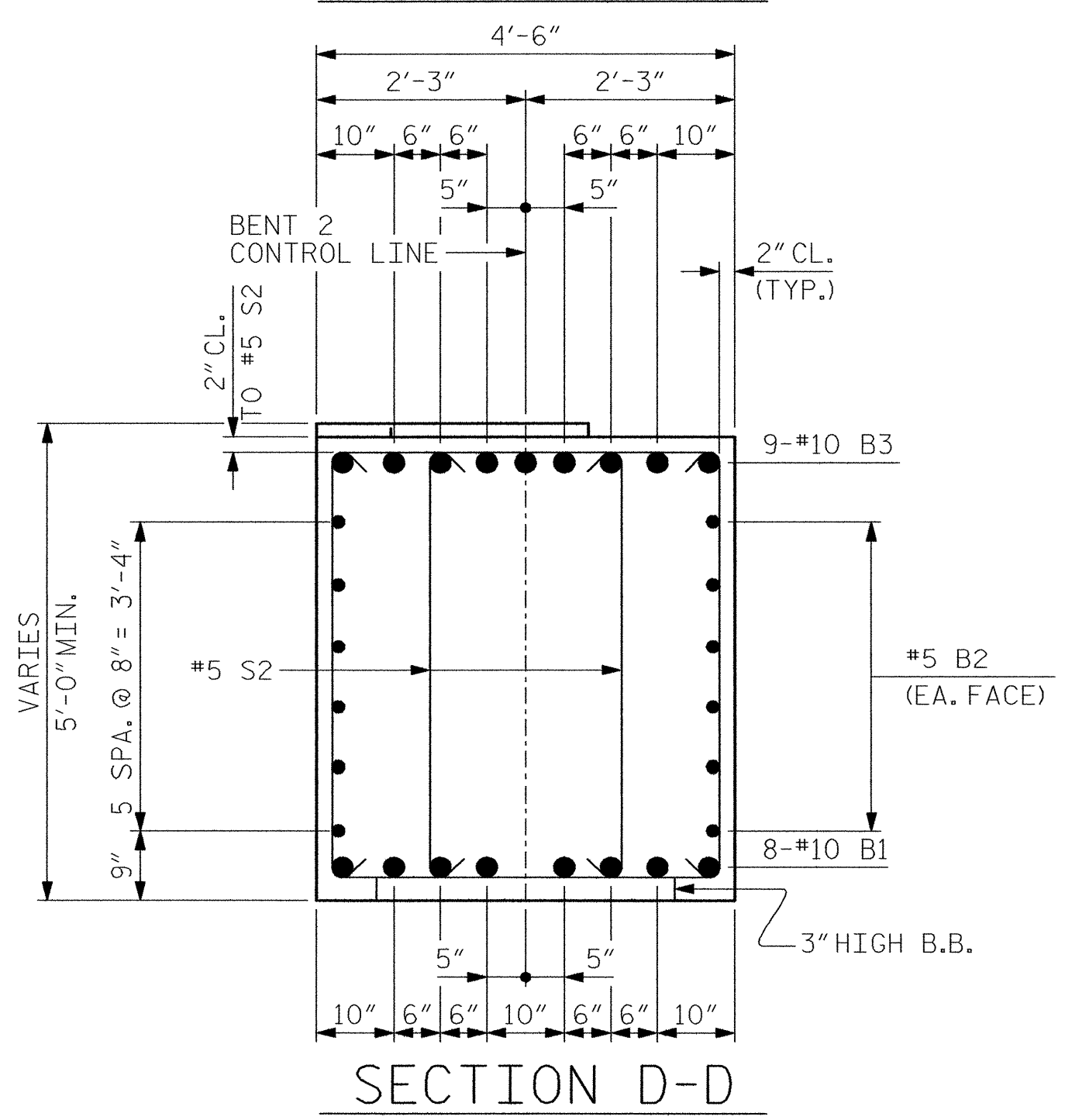
SECTION A-A



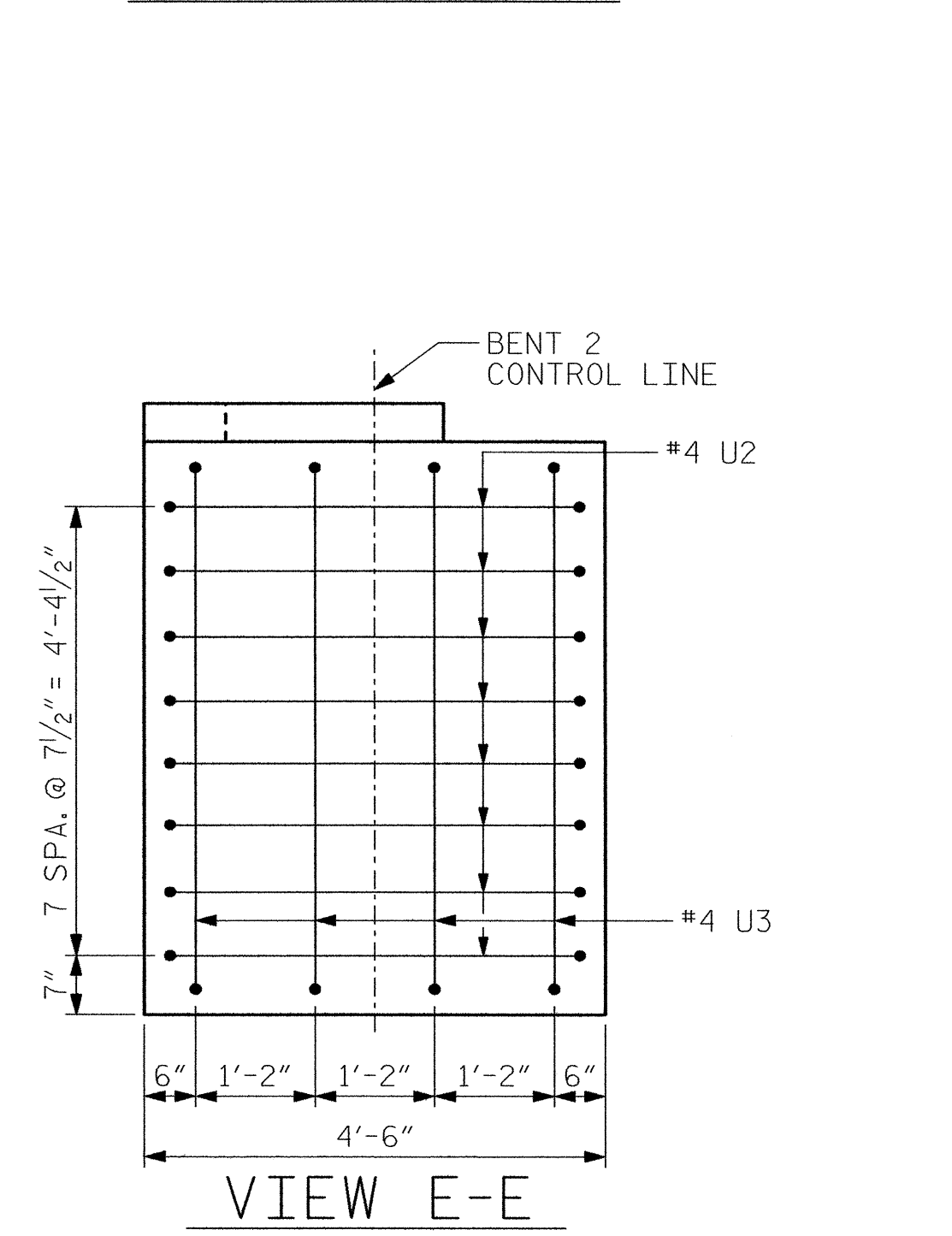
SECTION B-B



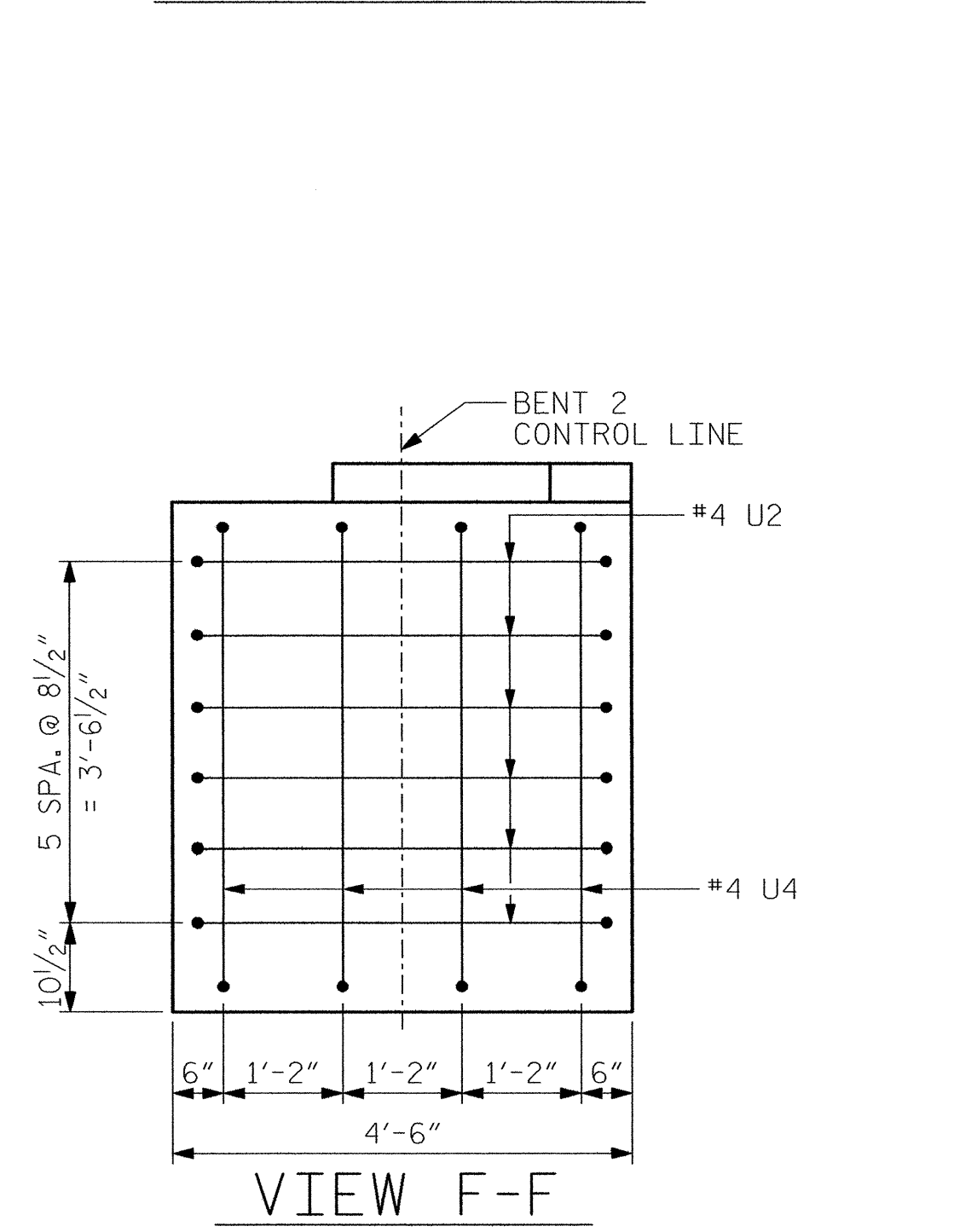
SECTION C-C



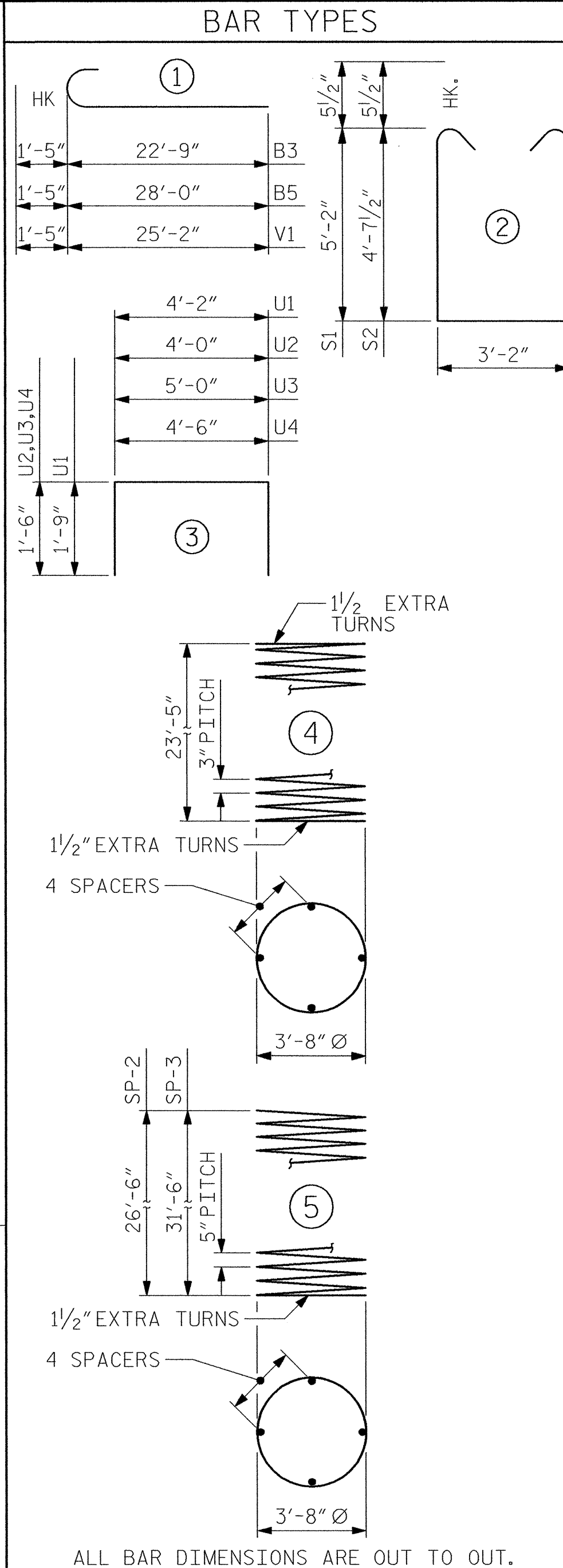
SECTION D-D



VIEW E-E



VIEW F-F



ALL BAR DIMENSIONS ARE OUT TO OUT.
 ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
 *** THE SP-2 AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL					
BENT 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	STR	39'-8"	1365
B2	12	#5	STR	39'-8"	496
B3	9	#10	1	24'-2"	936
B4	2	#5	STR	19'-11"	42
B5	9	#10	1	29'-5"	1139
B6	5	#4	STR	12'-5"	41
B7	5	#4	STR	5'-2"	17
B8	3	#4	STR	4'-2"	8
B9	1	#10	STR	22'-0"	95
M1	16	#10	STR	35'-6"	2444
M2	16	#10	STR	40'-6"	2788
S1	86	#5	2	14'-5"	1293
S2	38	#5	2	13'-4"	528
U1	42	#4	3	7'-8"	215
U2	14	#4	3	7'-0"	65
U3	4	#4	3	8'-0"	21
U4	4	#4	3	7'-6"	20
V1	32	#10	1	26'-7"	3660
SP-1	2	**	4	1099'-11"	1469
SP-2	1	***	5	738'-8"	770
SP-3	1	***	5	874'-10"	912
REINFORCING STEEL				15,173 LBS.	
SPIRAL COLUMN REINFORCING STEEL				3,151 LBS.	
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMN)				21.7 C.Y.	
POUR #3 (CAP)				37.3 C.Y.	
TOTAL				59.0 C.Y.	
4'-6" Ø DRILLED PIER					
DRILLED PIER CONCRETE POUR 1 (DRILLED PIER)				34.5 C.Y.	
4'-6" Ø DRILLED PIER IN SOIL				31.5 LIN. FT.	
4'-6" Ø DRILLED PIER NOT IN SOIL				27.0 LIN. FT.	
CSL TUBES				307.5 LIN. FT.	

PROJECT NO. C-4901 B
 _____ COUNTY
 STATION: 26+52.19 -L-
 SHEET 2 OF 2

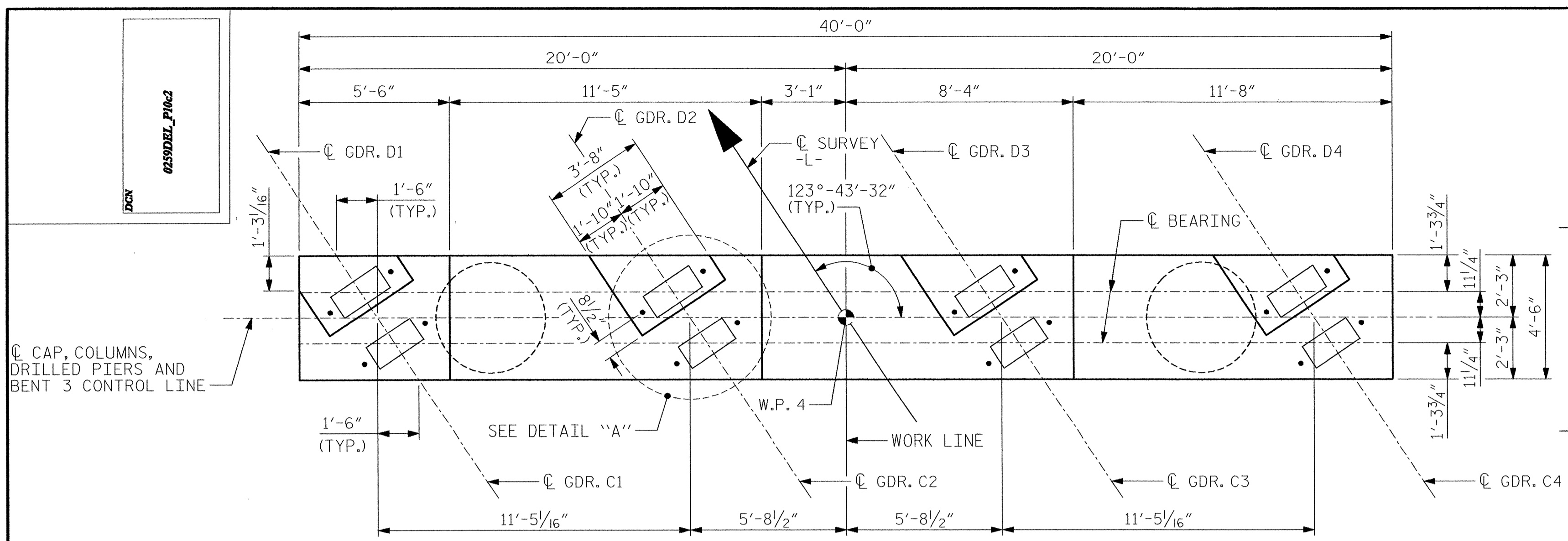


MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

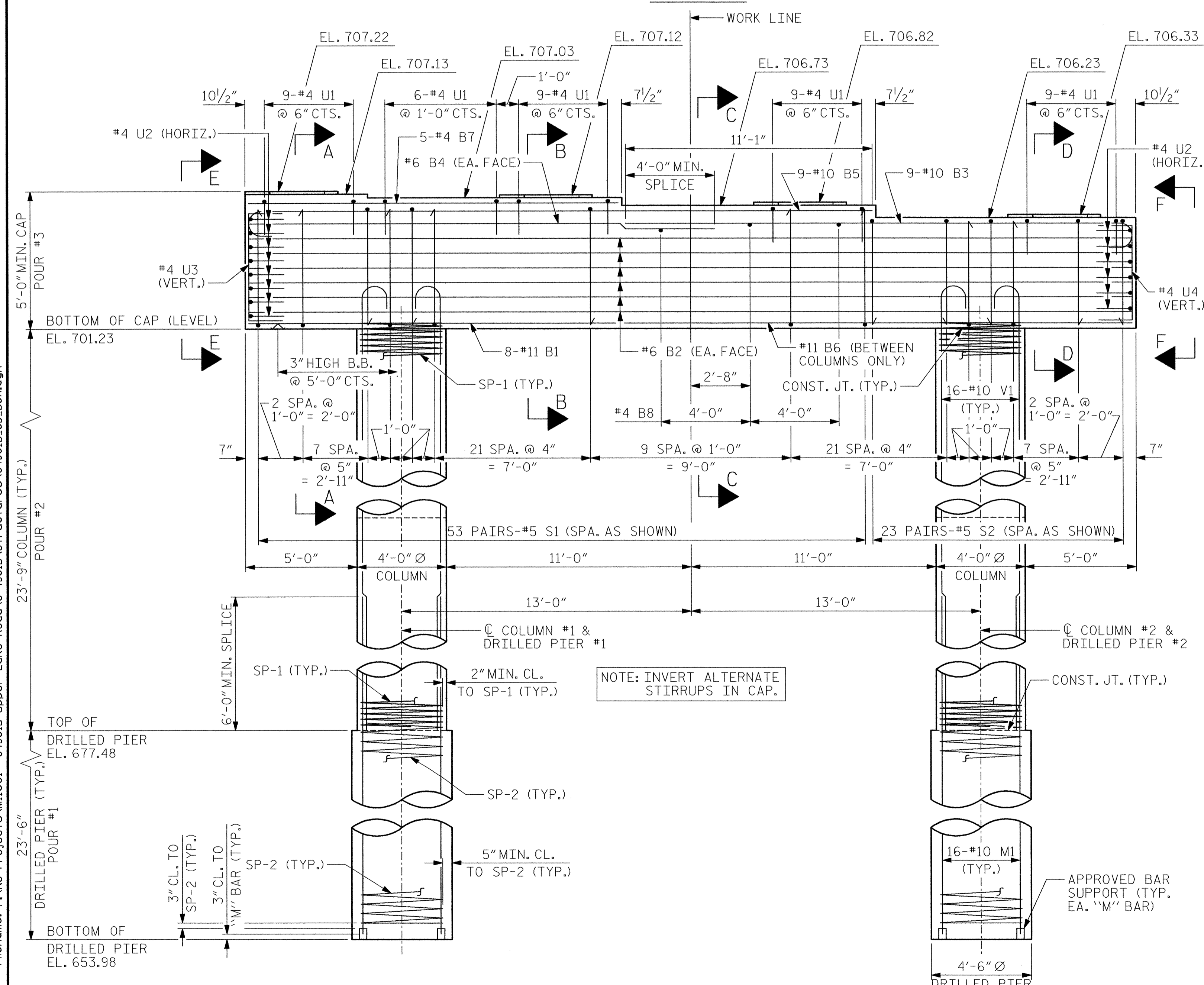
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			51

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12

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PLAN

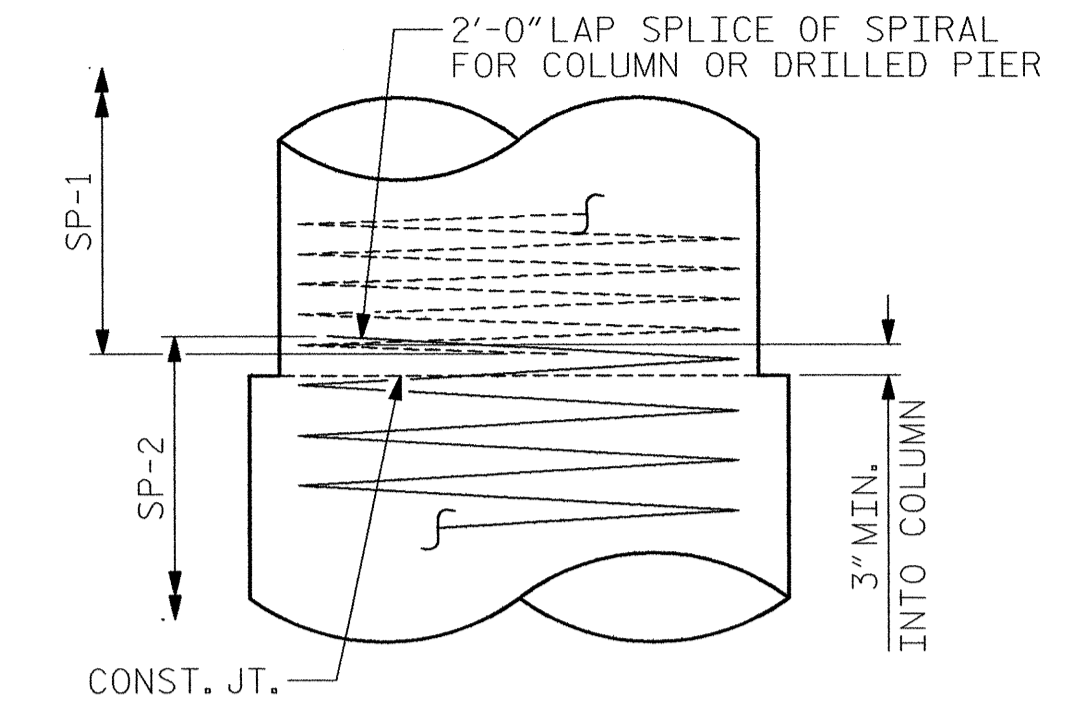


ELEVATION

SPAN "D"

SPAN "C"

CONSTRUCTION JOINT DETAIL



NOTES

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

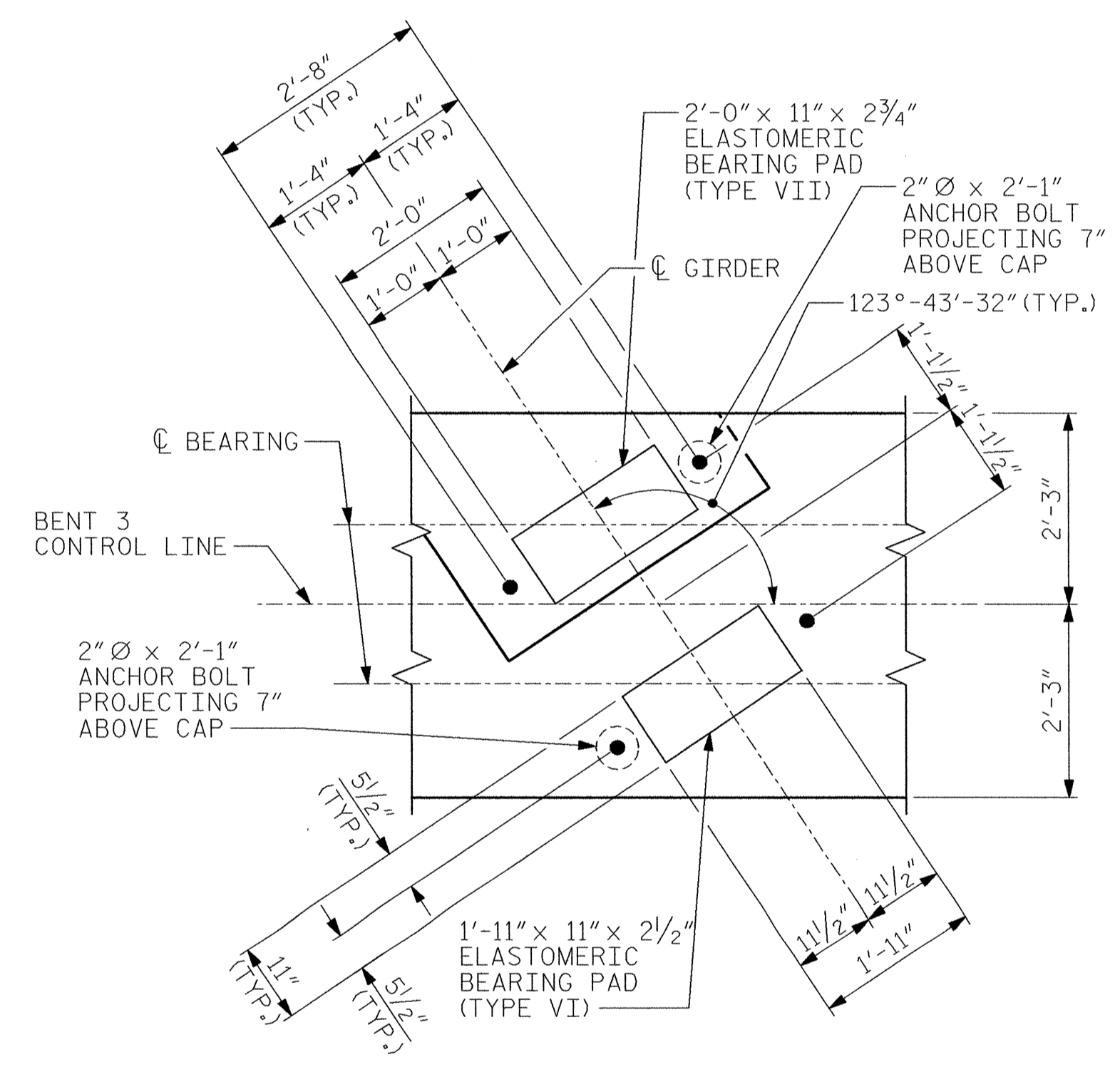
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

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.

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 1 FOOT BELOW THE GROUND LINE.

FOR SECTIONS A-A THRU D-D AND VIEWS E-E THRU F-F, SEE SHEET 2 OF 2.

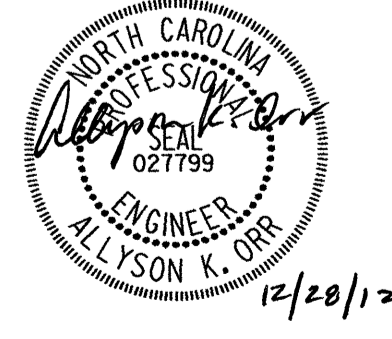


DETAIL "A"

PROJECT NO. C-4901 B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 3



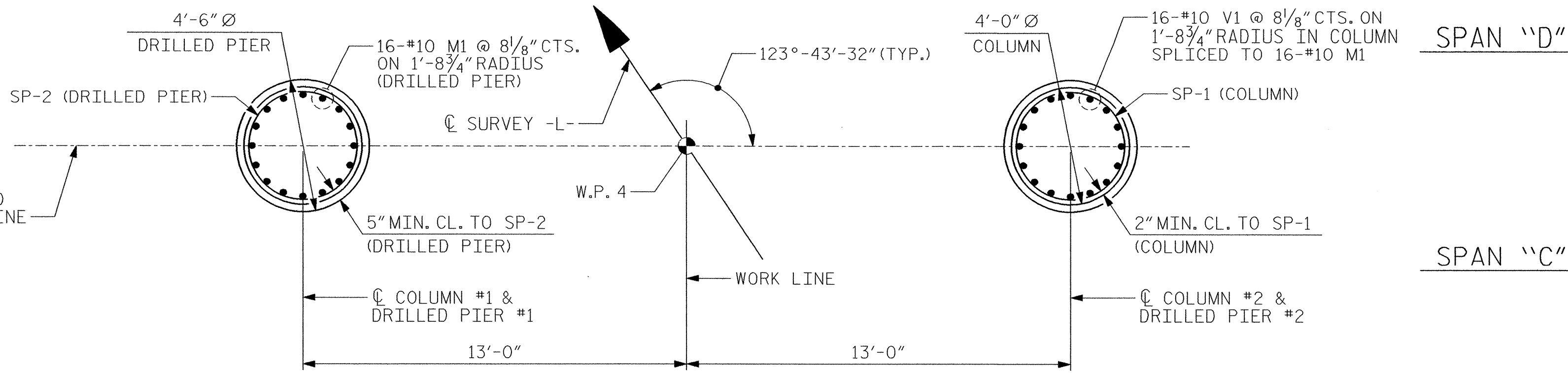
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			51

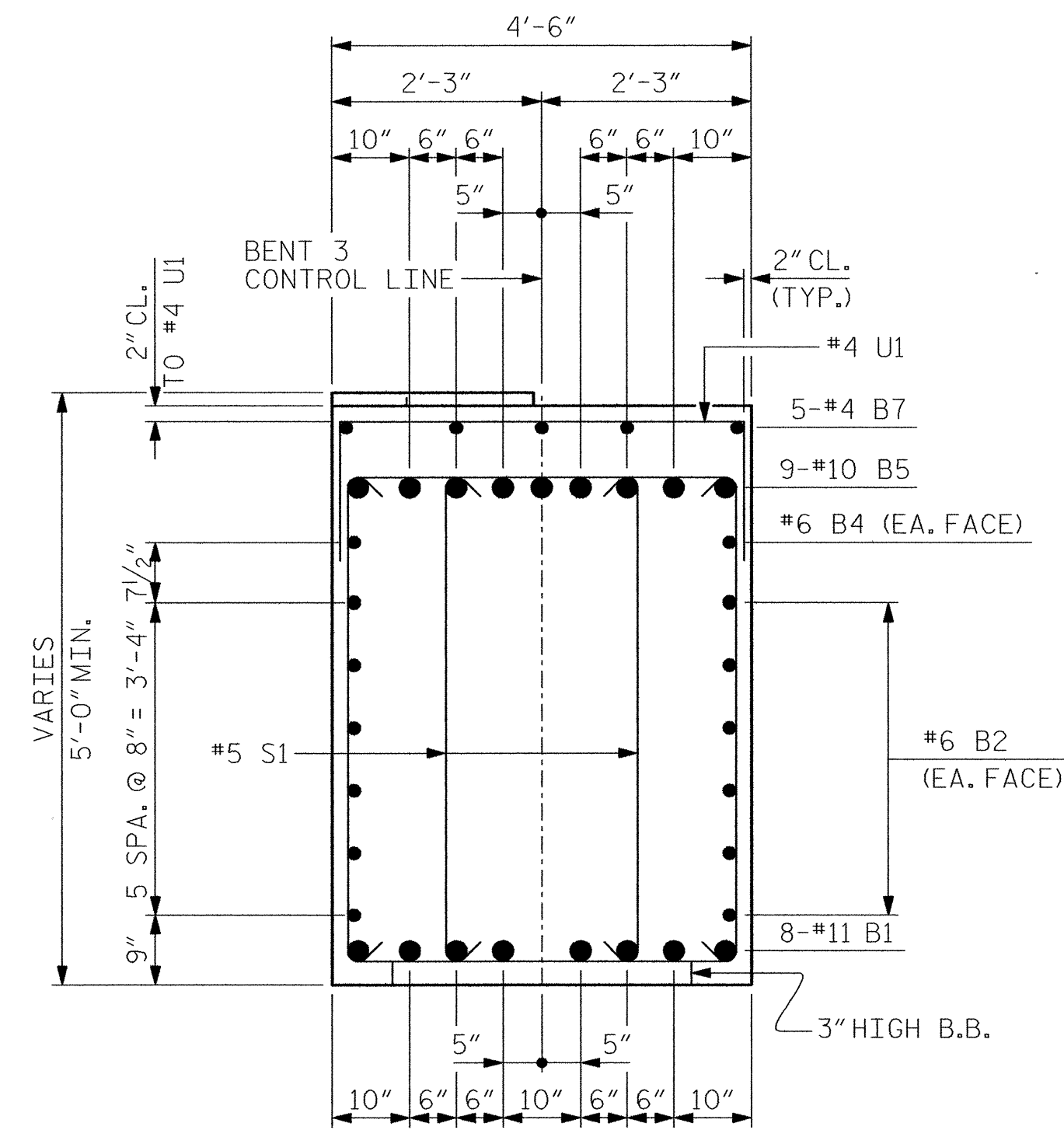
DRAWN BY: B.E. LANNING DATE: 10/12
CHECKED BY: A.K. ORR DATE: 10/12

END ELEVATION

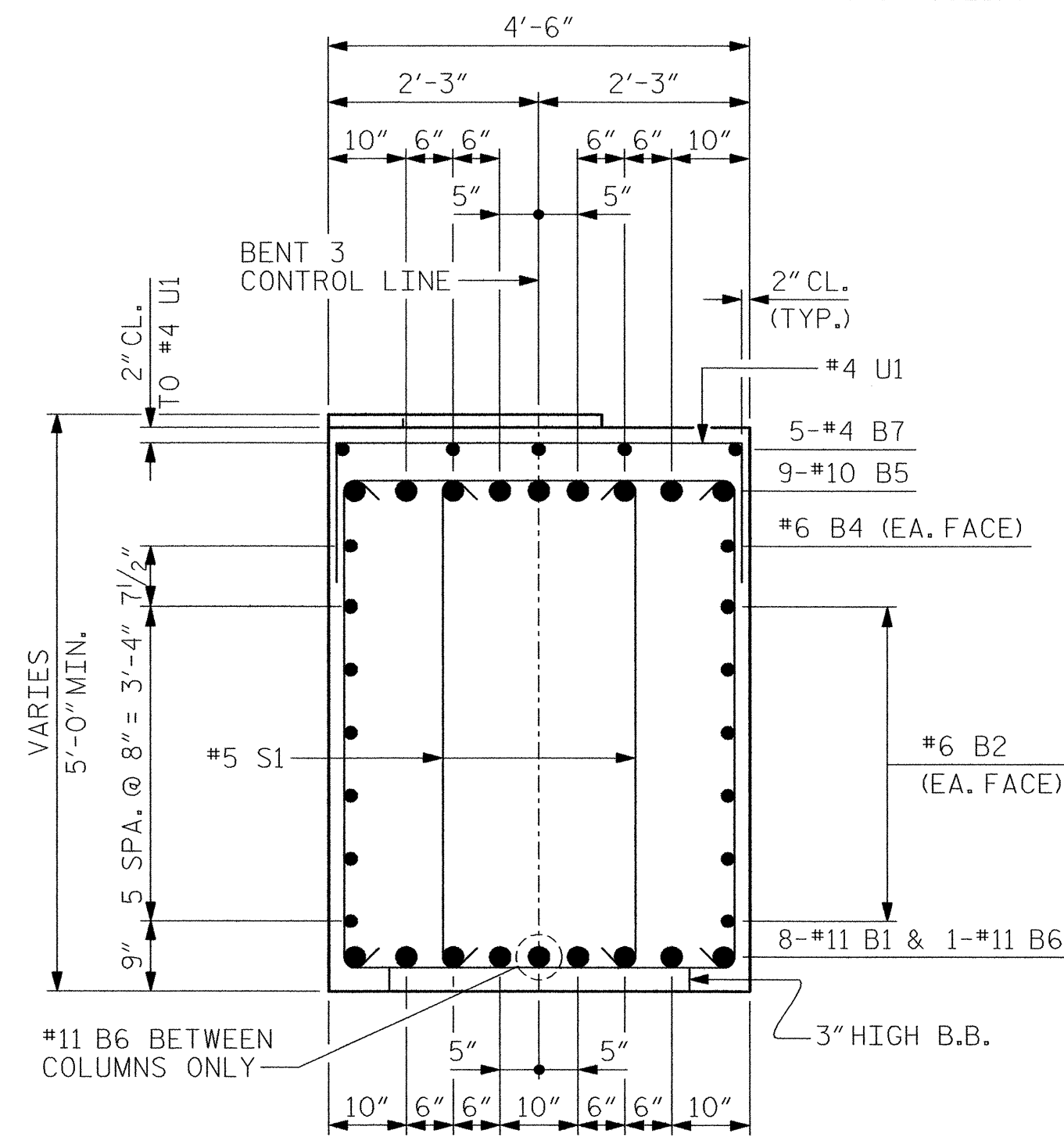
© CAP, COLUMNS, DRILLED PIERS AND BENT 3 CONTROL LINE



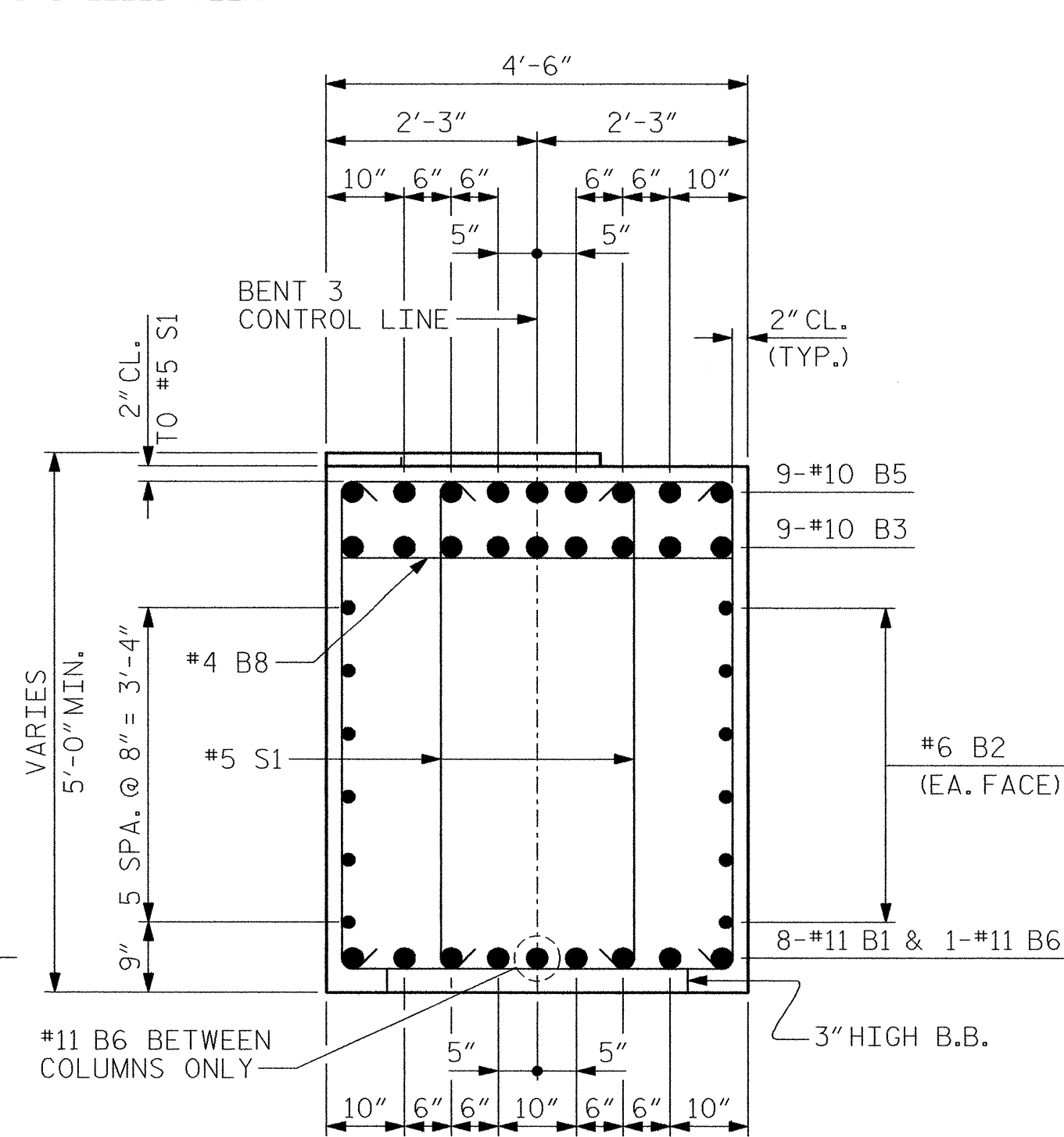
PLAN OF COLUMNS AND DRILLED PIERS
(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER)



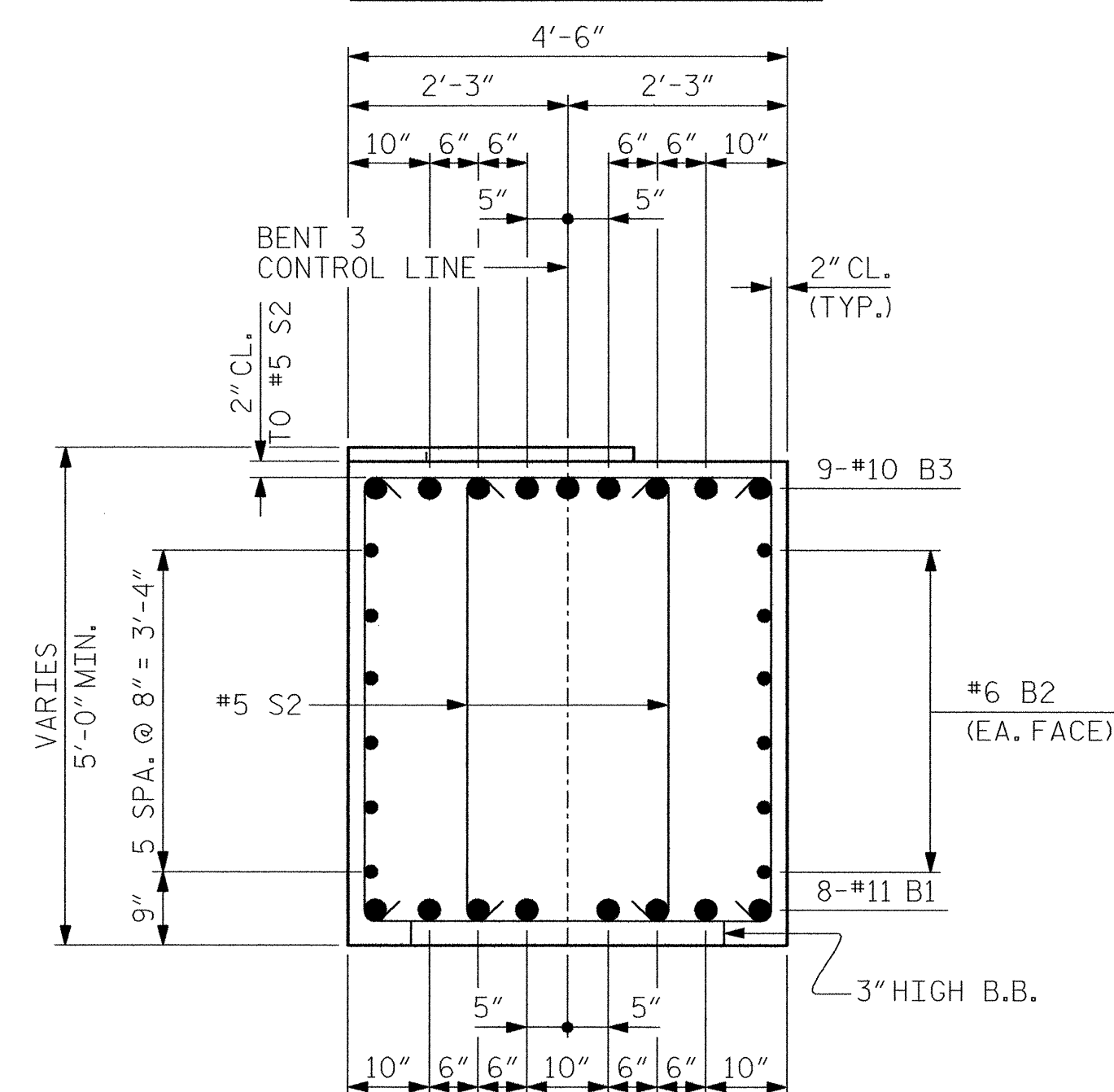
SECTION A-A



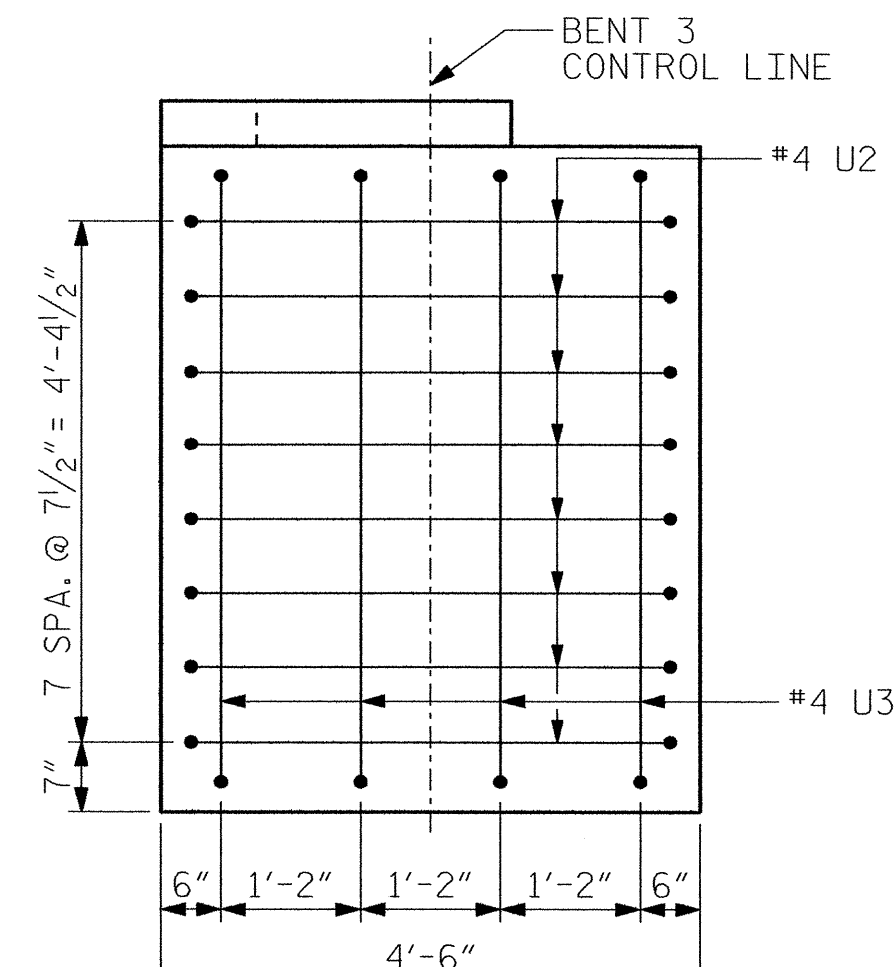
SECTION B-B



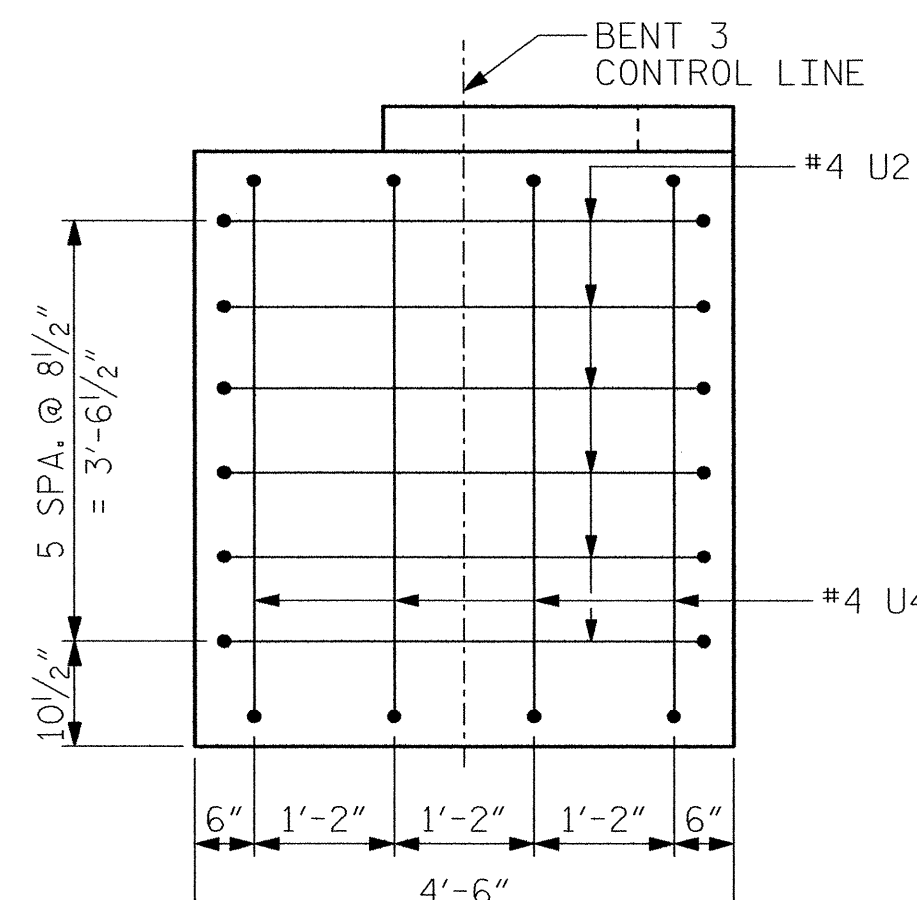
SECTION C-C



SECTION D-D



VIEW E-E



VIEW F-F

BAR TYPES		BILL OF MATERIAL			
		BENT 3			
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#11	STR	39'-8"	1686
B2	12	#6	STR	39'-8"	715
B3	9	#10	1	24'-2"	936
B4	2	#6	STR	20'-11"	63
B5	9	#10	1	29'-5"	1139
B6	1	#11	STR	22'-0"	117
B7	5	#4	STR	16'-7"	55
B8	3	#4	STR	4'-2"	8
M1	32	#10	STR	32'-3"	4441
S1	106	#5	2	14'-4"	1585
S2	46	#5	2	13'-4"	640
U1	42	#4	3	7'-2"	201
U2	14	#4	3	7'-0"	65
U3	4	#4	3	8'-0"	21
U4	4	#4	3	7'-6"	20
V1	32	#10	2	27'-1"	3729
SP-1	2	**	4	1122'-8"	1500
SP-2	2	***	5	650'-2"	1356
REINFORCING STEEL		15,421 LBS.			
SPIRAL COLUMN REINFORCING STEEL		2,856 LBS.			
CLASS A CONCRETE BREAKDOWN					
POUR #2 (COLUMN)		22.1 C.Y.			
POUR #3 (CAP)		36.8 C.Y.			
TOTAL		58.9 C.Y.			
4'-6" Ø DRILLED PIER					
DRILLED PIER CONCRETE POUR 1 (DRILLED PIER)		27.7 C.Y.			
4'-6" Ø DRILLED PIER IN SOIL		24.0 LIN. FT.			
4'-6" Ø DRILLED PIER NOT IN SOIL		23.0 LIN. FT.			
CSL TUBES		250.0 LIN. FT.			

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

PROJECT NO. C-4901 B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENT 3

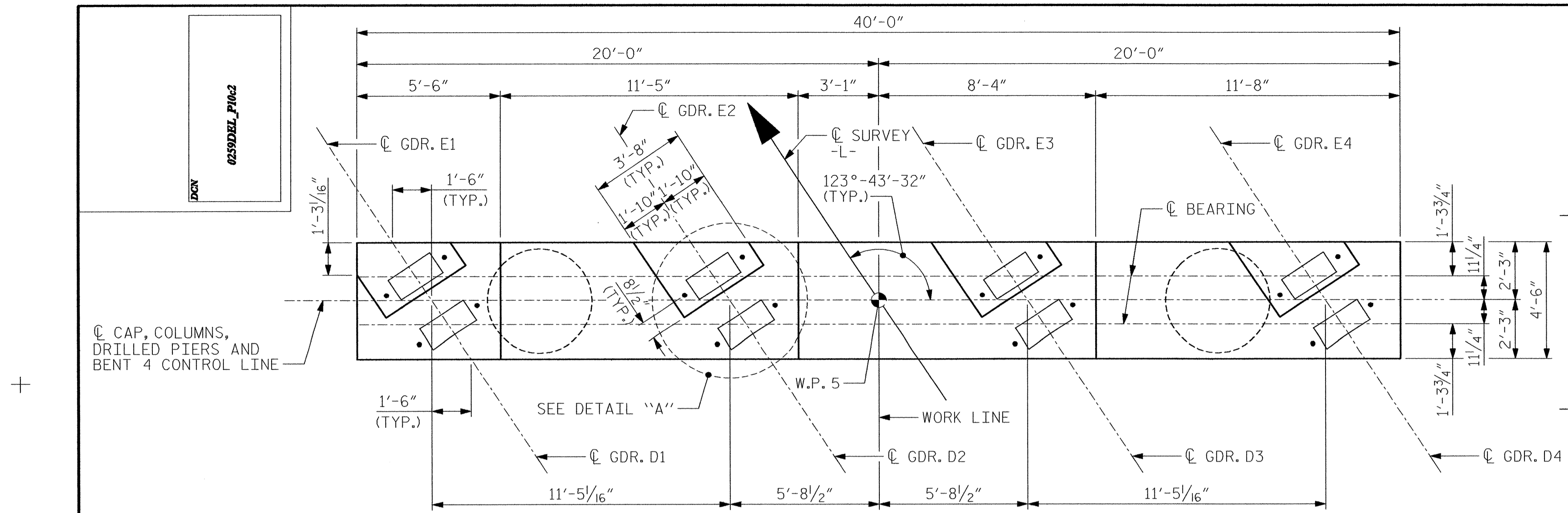


REVISIONS		SHEET NO.	
NO.	BY:	DATE:	NO.
1			3
2			4
			S-41
			TOTAL SHEETS 51

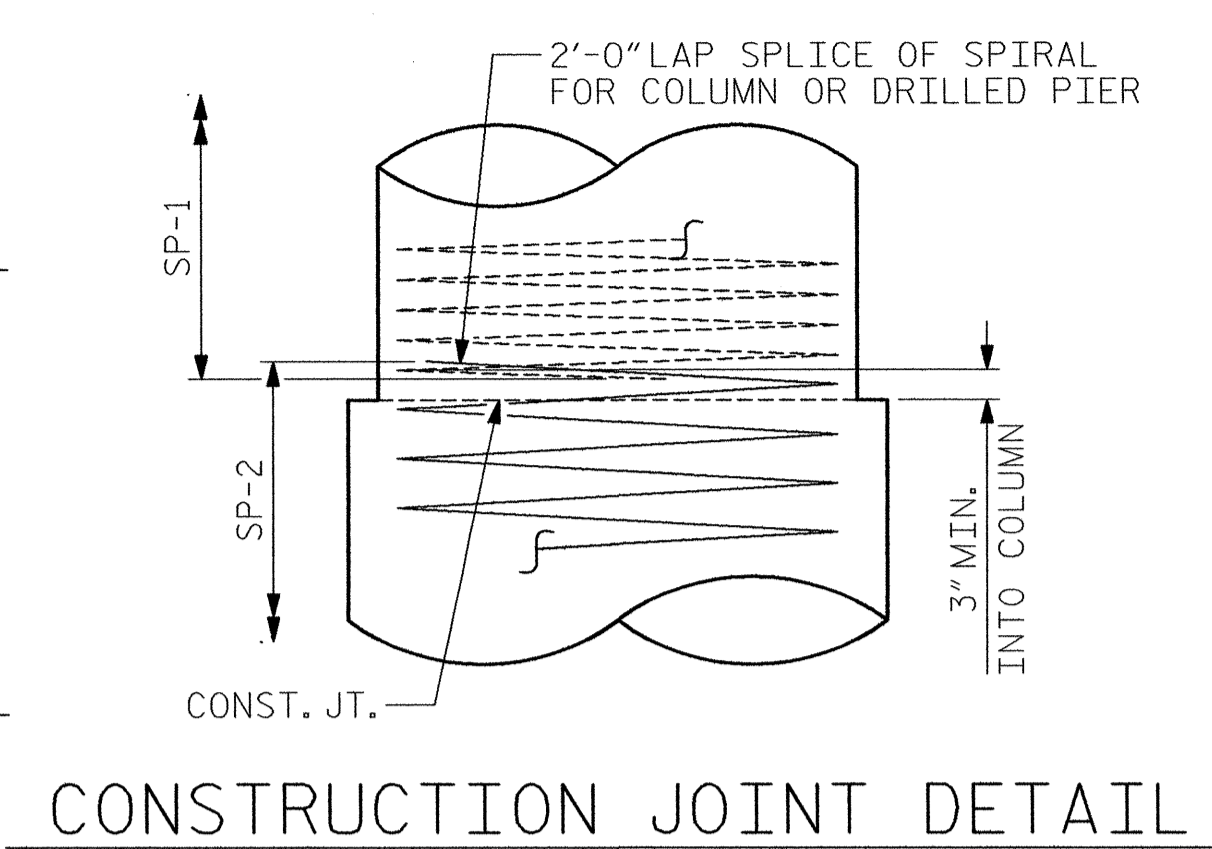
MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

12/27/2012 3:26:23 PM User: blanning File: P:\NC Projects\M1001 - C4901B Upper Lake Road\C-4901B\Structure\C4901B_SD_B3B.dgn

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12



PLAN



CONSTRUCTION JOINT DETAIL

NOTES

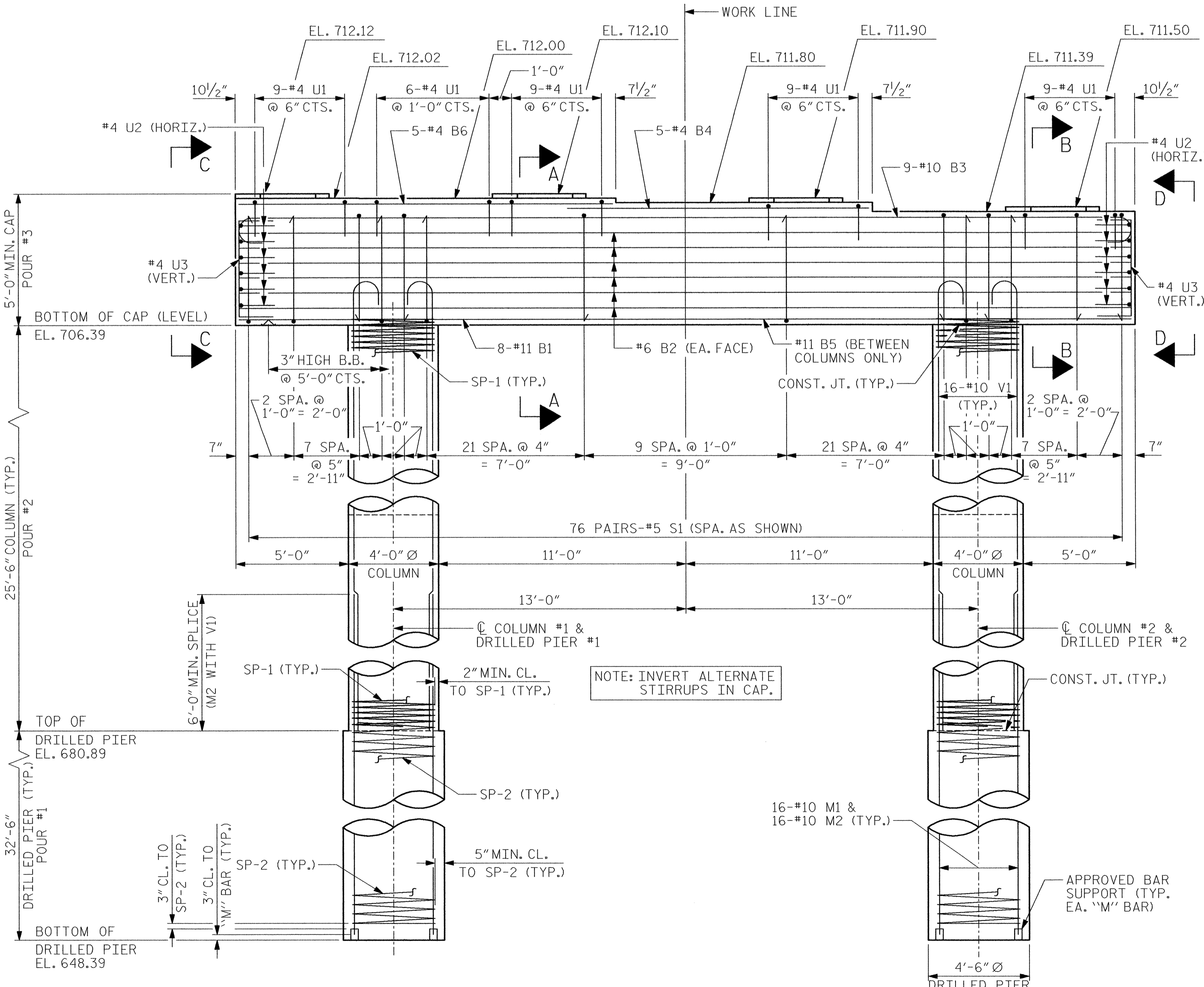
STIRRUPS AND "U" BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

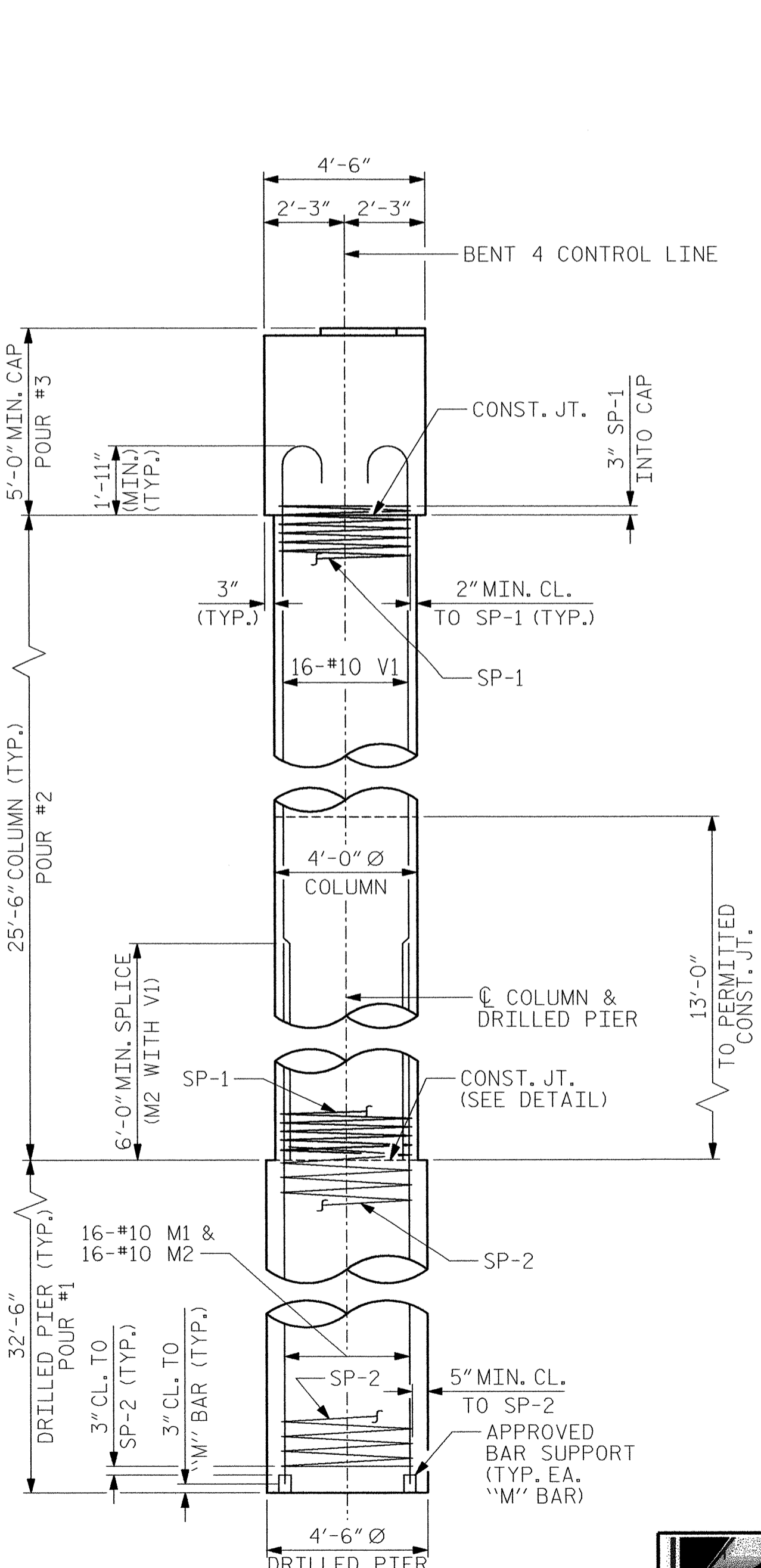
FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE M2 BARS FOR THE DRILLED PIERS ARE DETAILED WITH 3 FEET OF EXTRA LENGTH. THE M1 BARS SHALL BE TERMINATED BELOW THE TOP OF THE DRILLED PIER.

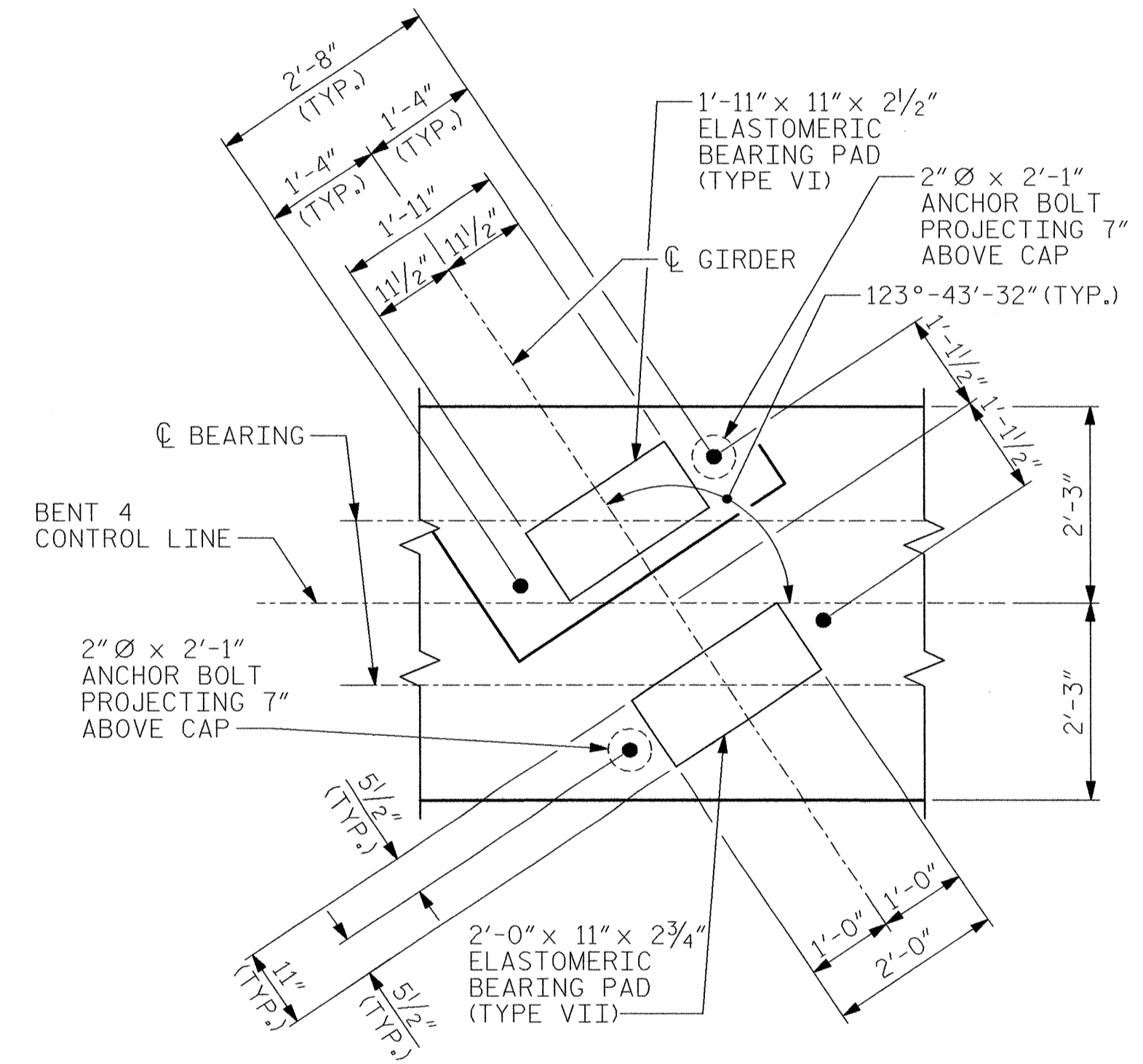
FOR SECTIONS A-A THRU B-B AND VIEWS C-C THRU D-D, SEE SHEET 2 OF 2.



ELEVATION



END ELEVATION



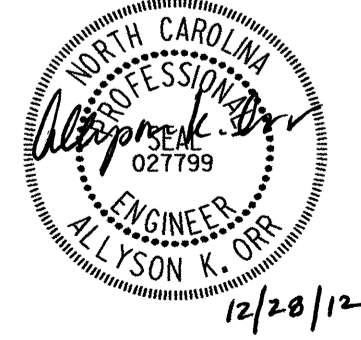
DETAIL "A"

PROJECT NO. C-4901 B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
BENT 4



MI ENGINEERING 1011 SCHAUB DRIVE, SUITE 100 RALEIGH, NC 27806 (919) 851-6806 FIRM PE NUMBER: P-0671		REVISIONS NO. BY: DATE: NO. BY: DATE:				SHEET NO. S-42
1			3			TOTAL SHEETS 51
2			4			

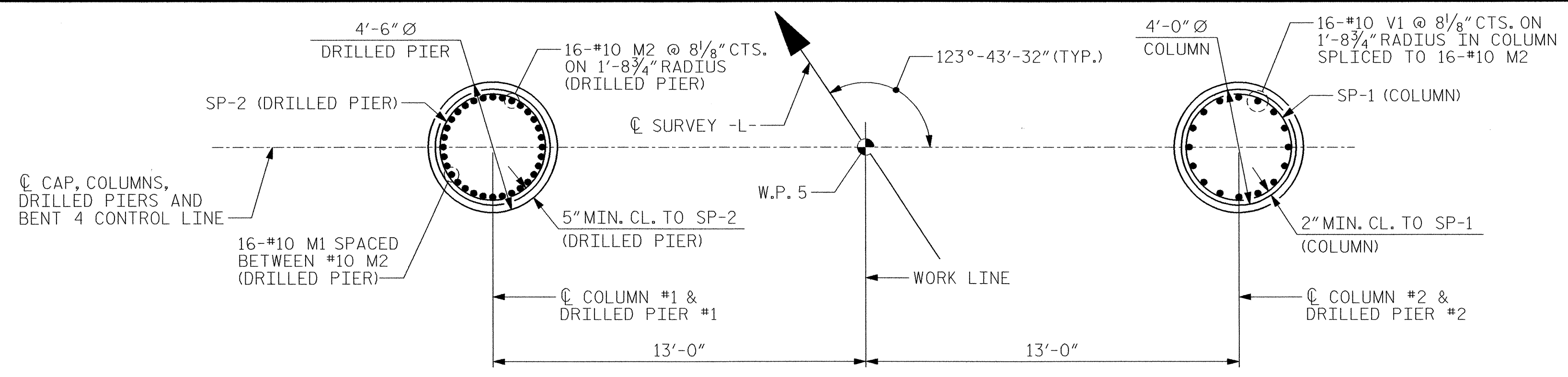
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DRAWN BY: B.E. LANNING DATE: 10/12
 CHECKED BY: A.K. ORR DATE: 10/12

User: blanning
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12/27/2012 3:27:50 PM User: blanning File: P:\NC Projects\M11001 - C4901B Upper Lake Road\C-4901B\Structure\C4901B_SD_B4B.dgn

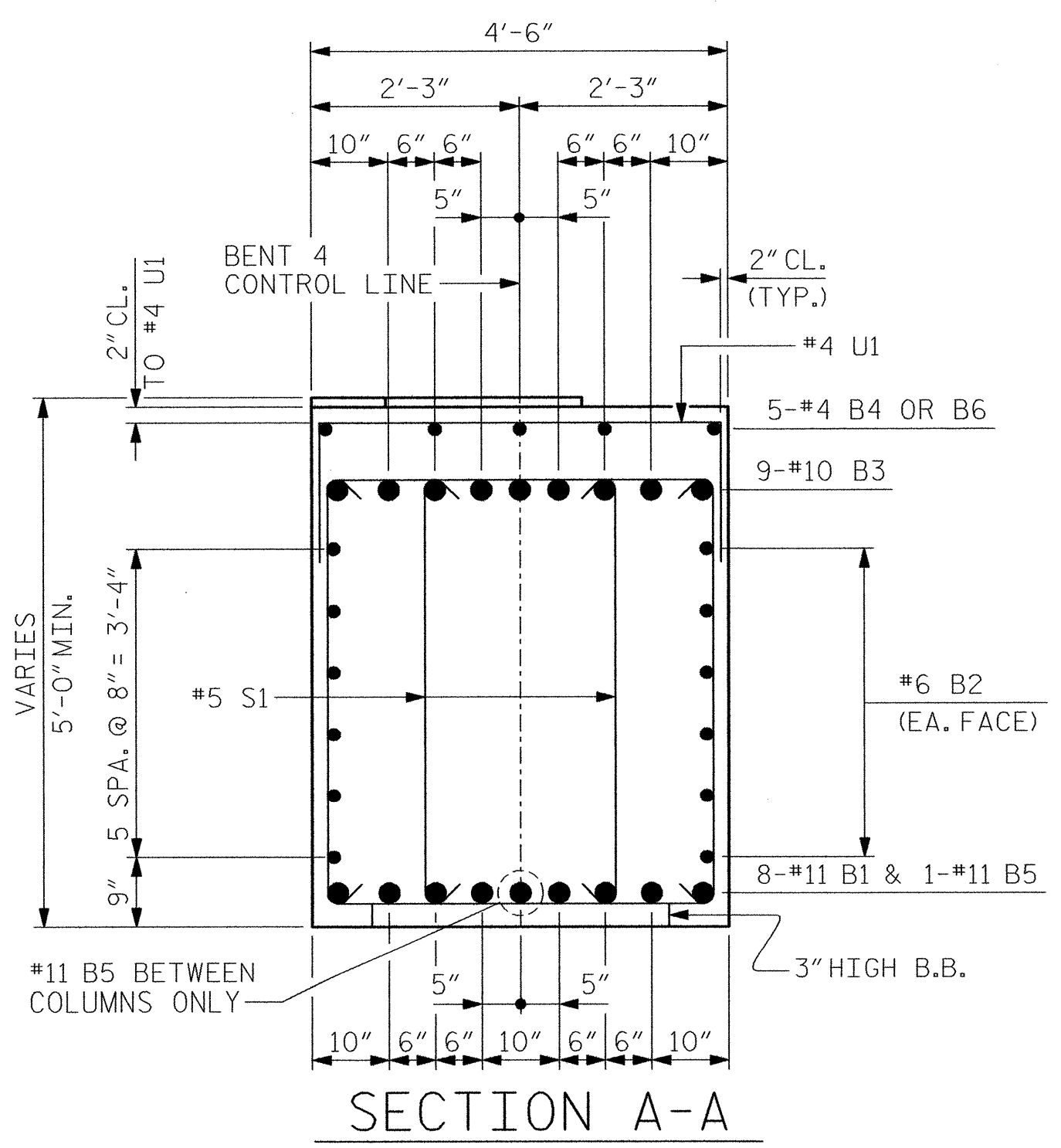
02502EL_P10x3



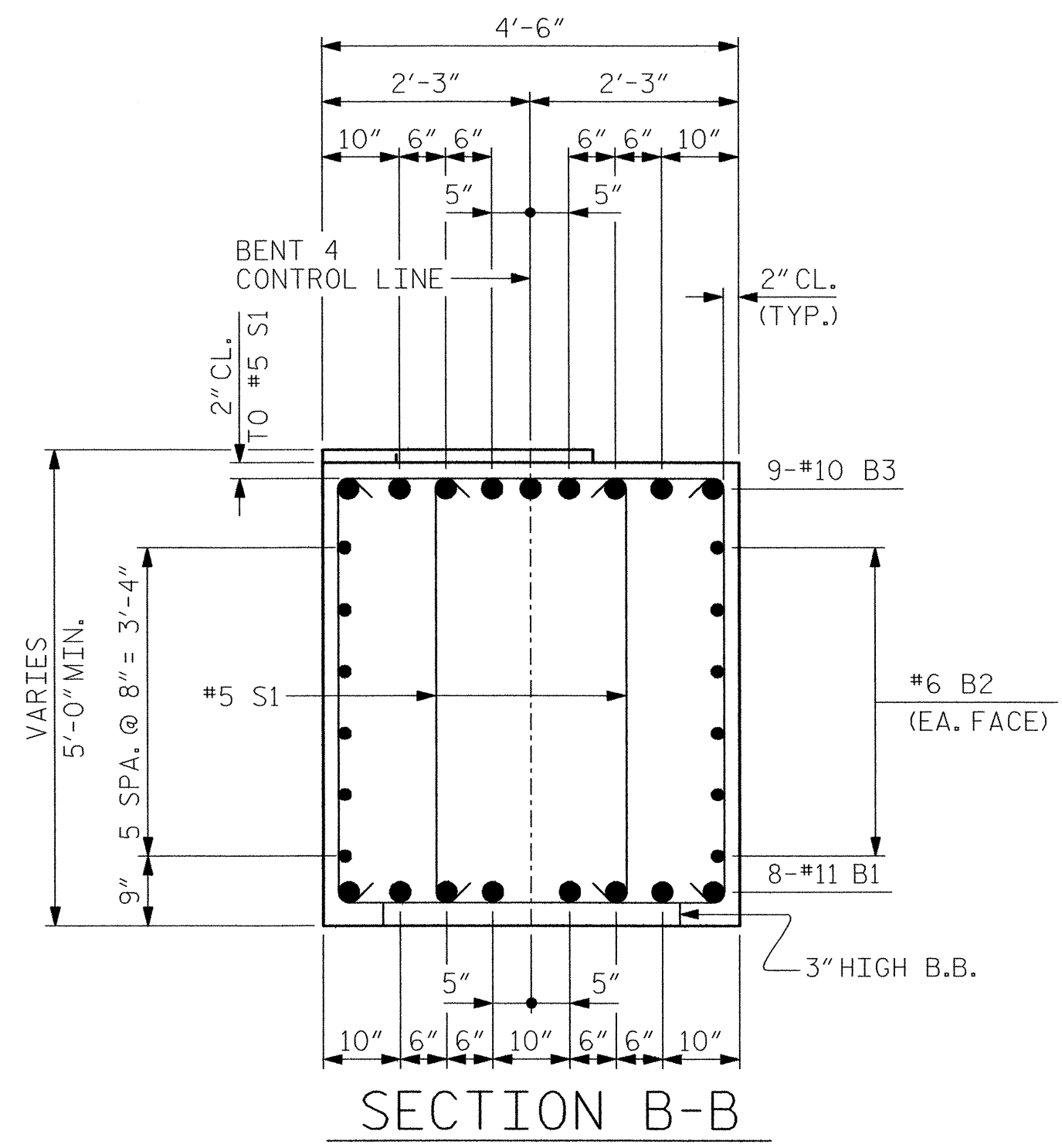
PLAN OF COLUMNS AND DRILLED PIERS
 (DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN AND DRILLED PIER)

SPAN "E"

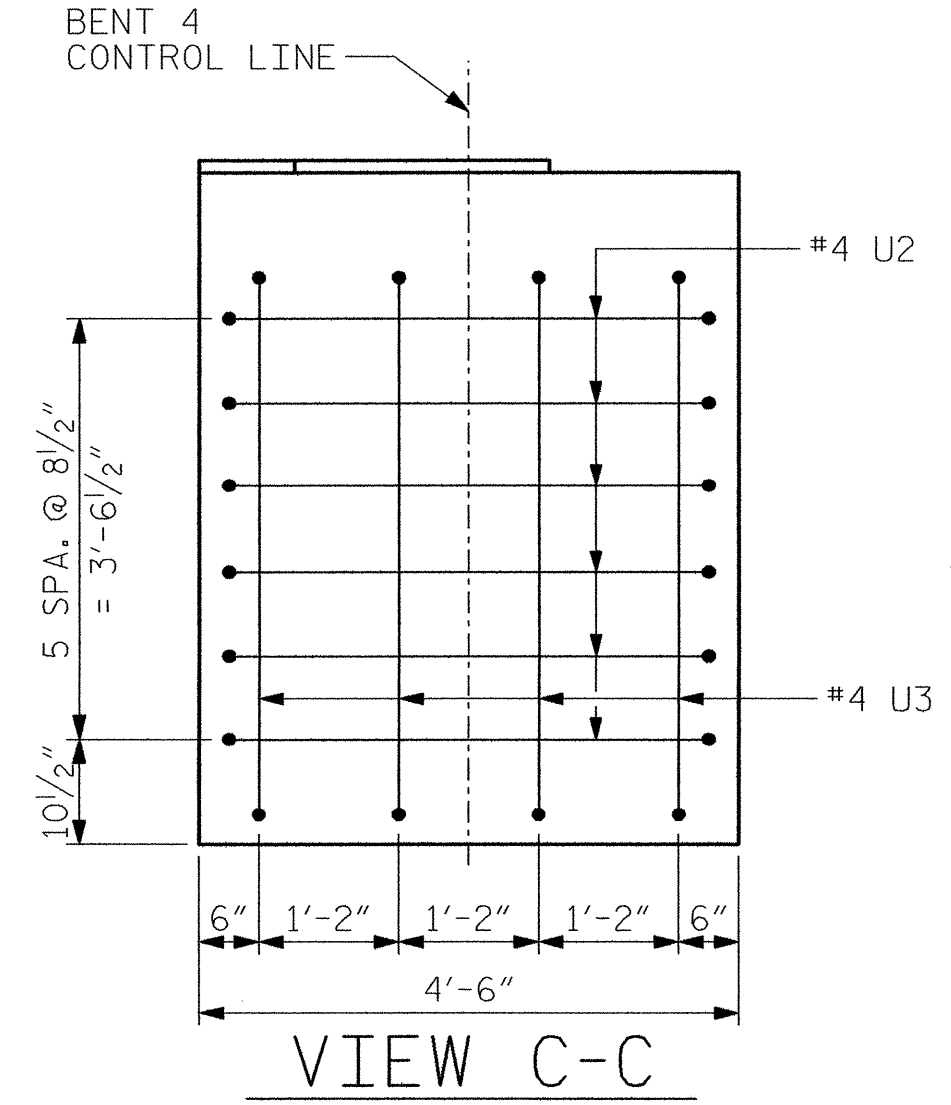
SPAN "D"



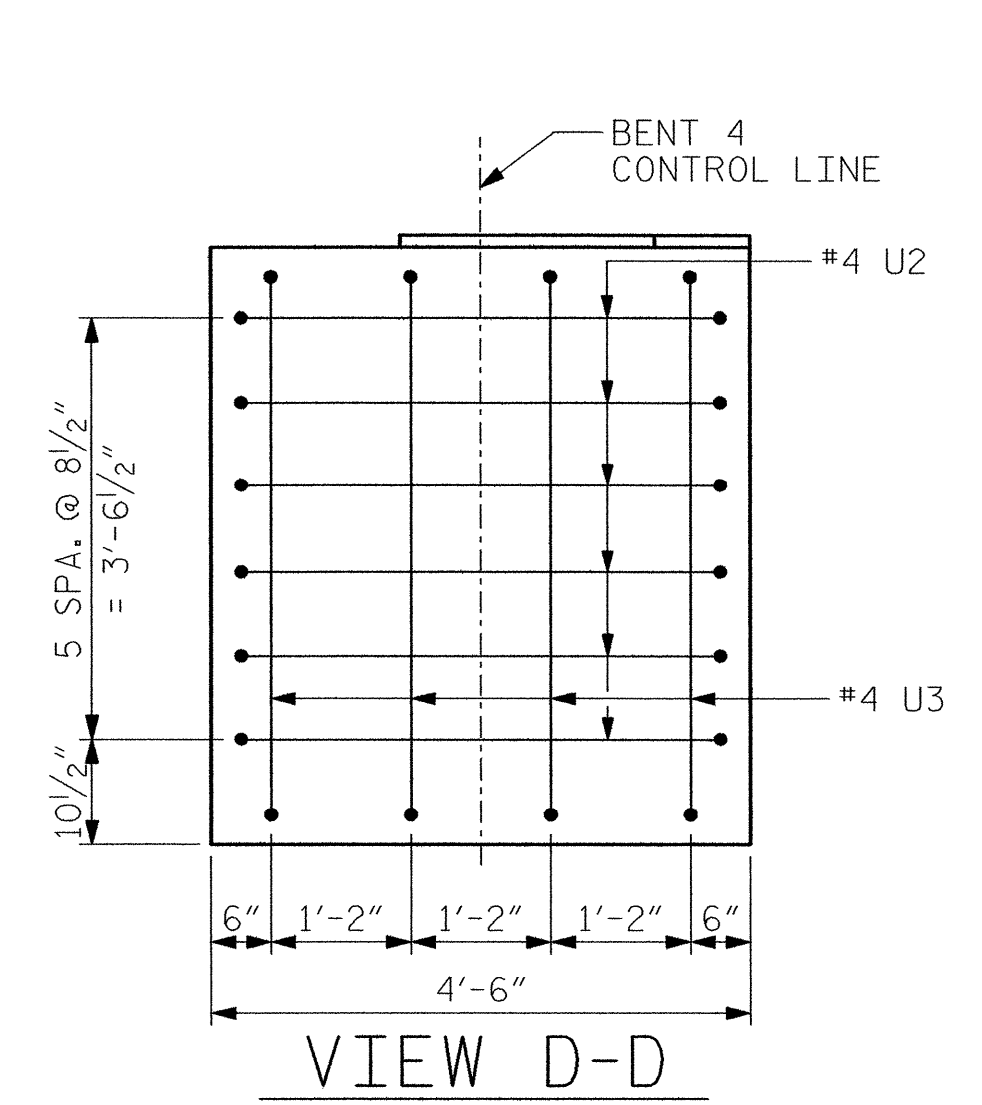
SECTION A-A



SECTION B-B



VIEW C-C



VIEW D-D

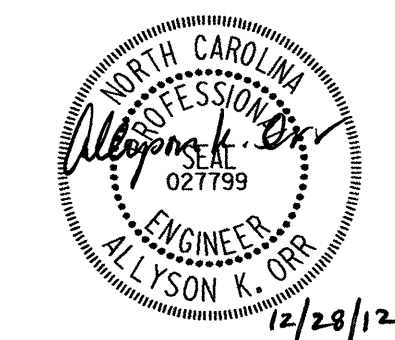
BAR TYPES		BILL OF MATERIAL				
		BENT 4				
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#11	STR	39'-8"	1686	
B2	12	#6	STR	39'-8"	715	
B3	9	#10	1	42'-6"	1646	
B4	5	#4	STR	12'-5"	41	
B5	1	#11	STR	22'-0"	117	
B6	5	#4	STR	16'-7"	55	
M1	32	#10	STR	32'-1"	4418	
M2	32	#10	STR	41'-3"	5680	
S1	152	#5	4	13'-4"	2114	
U1	42	#4	3	7'-2"	201	
U2	12	#4	3	7'-0"	56	
U3	8	#4	3	7'-6"	40	
V1	32	#10	2	28'-10"	3970	
SP-1	2	**	5	1202'-4"	1606	
SP-2	2	***	6	895'-3"	1867	
REINFORCING STEEL					20,739 LBS.	
SPIRAL COLUMN REINFORCING STEEL					3,473 LBS.	
CLASS A CONCRETE BREAKDOWN						
POUR #2 (COLUMN)					23.8 C.Y.	
POUR #3 (CAP)					36.0 C.Y.	
TOTAL					59.8 C.Y.	
4'-6" Ø DRILLED PIER						
DRILLED PIER CONCRETE POUR 1 (DRILLED PIER)					38.3 C.Y.	
4'-6" Ø DRILLED PIER IN SOIL					40.0 LIN. FT.	
4'-6" Ø DRILLED PIER NOT IN SOIL					25.0 LIN. FT.	
CSL TUBES					340.0 LIN. FT.	

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

PROJECT NO. C-4901 B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 4

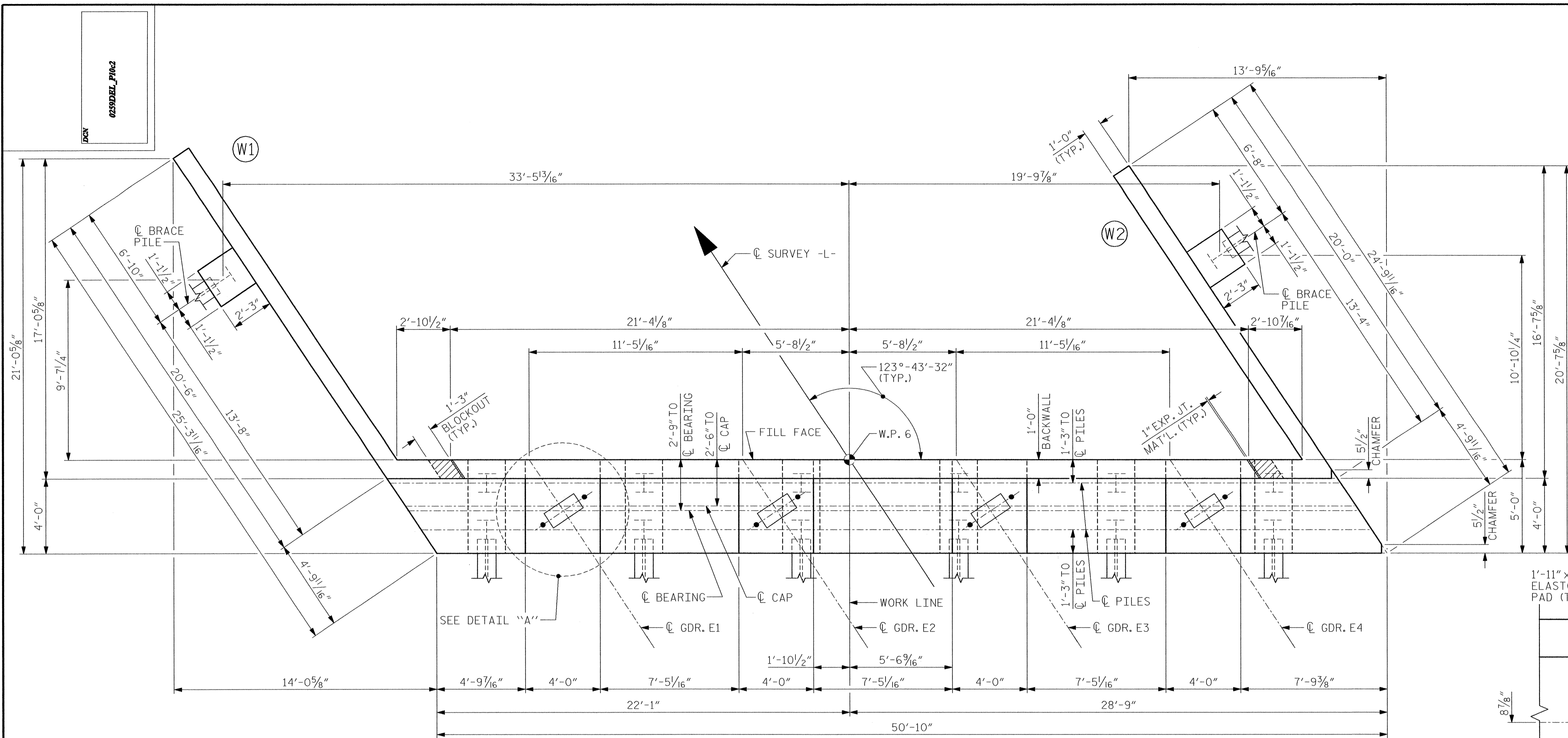


DRAWN BY: B.E. LANNING DATE: 10/12
 CHECKED BY: A.K. ORR DATE: 10/12

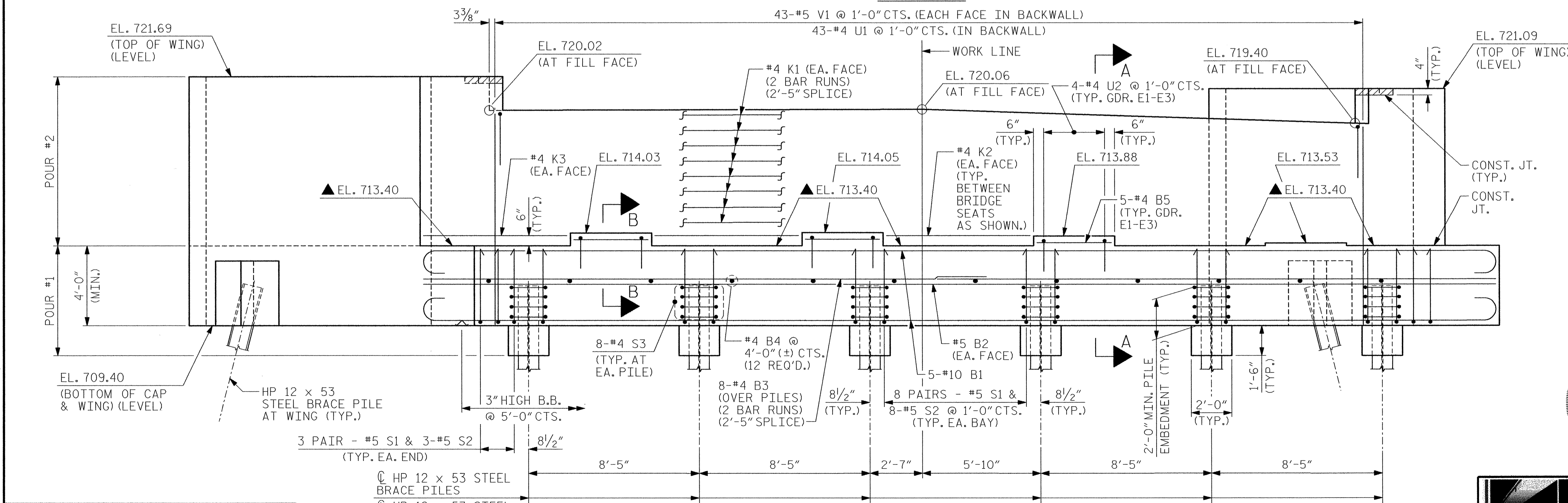
REVISIONS		SHEET NO.	
NO.	BY:	DATE:	NO.
1			3
2			4

S-43
 TOTAL SHEETS: 51

12/28/2012 10:28:10 AM User: blanning File name: P:\NC Projects\M1001 - C4901B Upper Lake Road\4901B\Structures\C4901B_SD_E2A.dgn



PLAN



ELEVATION

NOTES

STIRRUPS AND #4 U2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
#5 V1 BARS IN BACKWALL SHALL BE PLACED 2" CLEAR FROM THE BOTTOM OF CAP.
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.

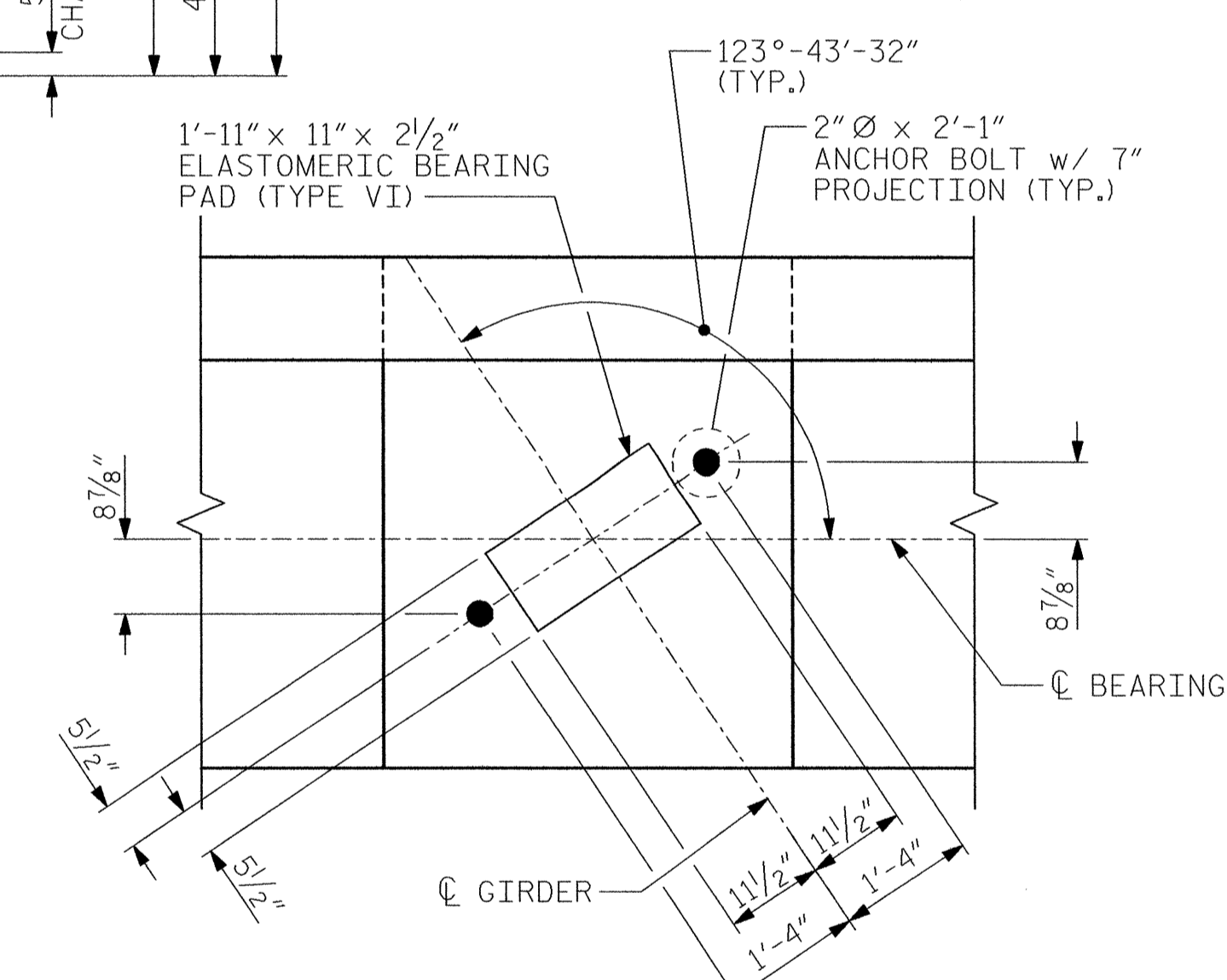
THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A ON SHEET 4 OF 4.

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

FOR SECTION A-A, SECTION B-B, PILE SPLICE DETAILS AND TEMPORARY DRAINAGE DETAILS, SEE SHEET 4 OF 4.

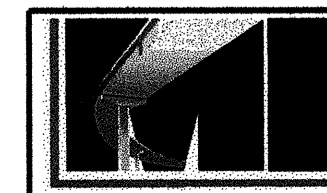
INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE ROADWAY PLANS. REINFORCING STEEL IN THE WING MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



DETAIL "A"

PROJECT NO. C-4901 B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 4



MI ENGINEERING
1011 SCHAU DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

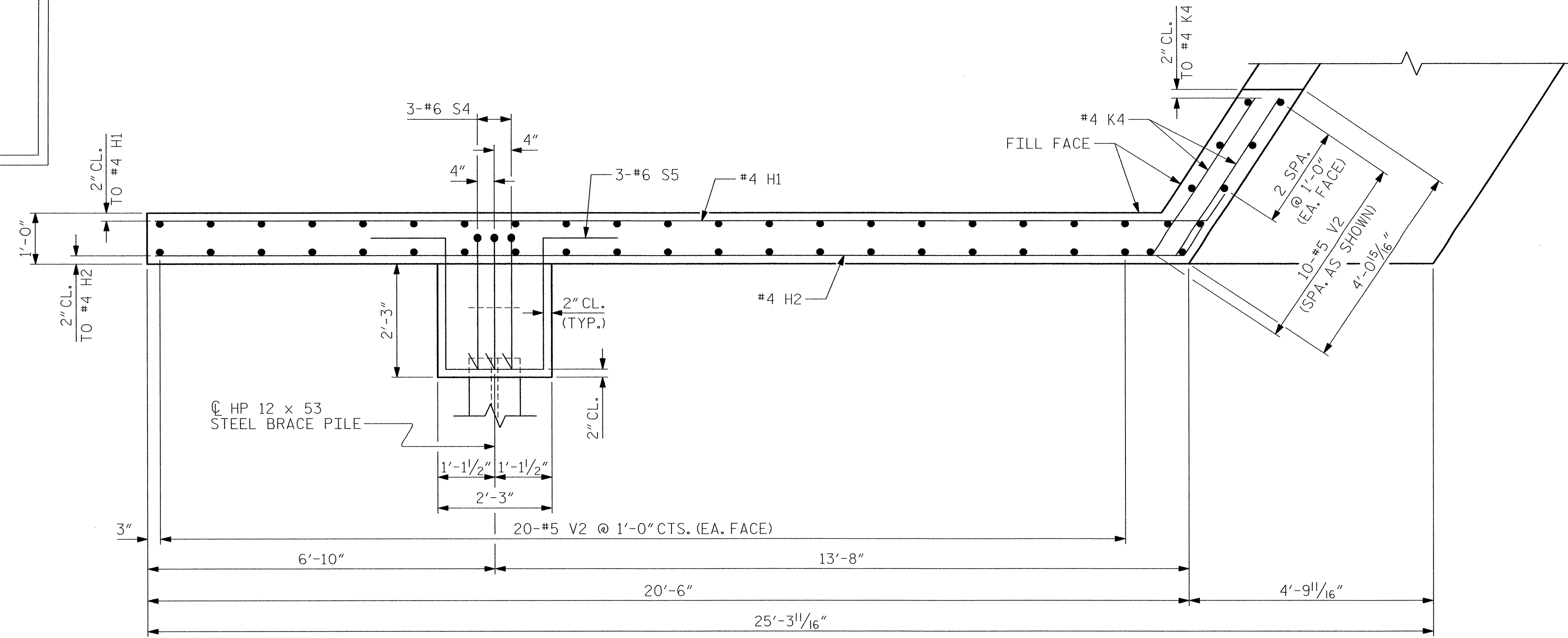
NO.		BY:		DATE:		NO.		BY:		DATE:		SHEET NO.	
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2						4						51	

DRAWN BY : B.E. LANNING DATE : 10/12
CHECKED BY : A.K. ORR DATE : 10/12

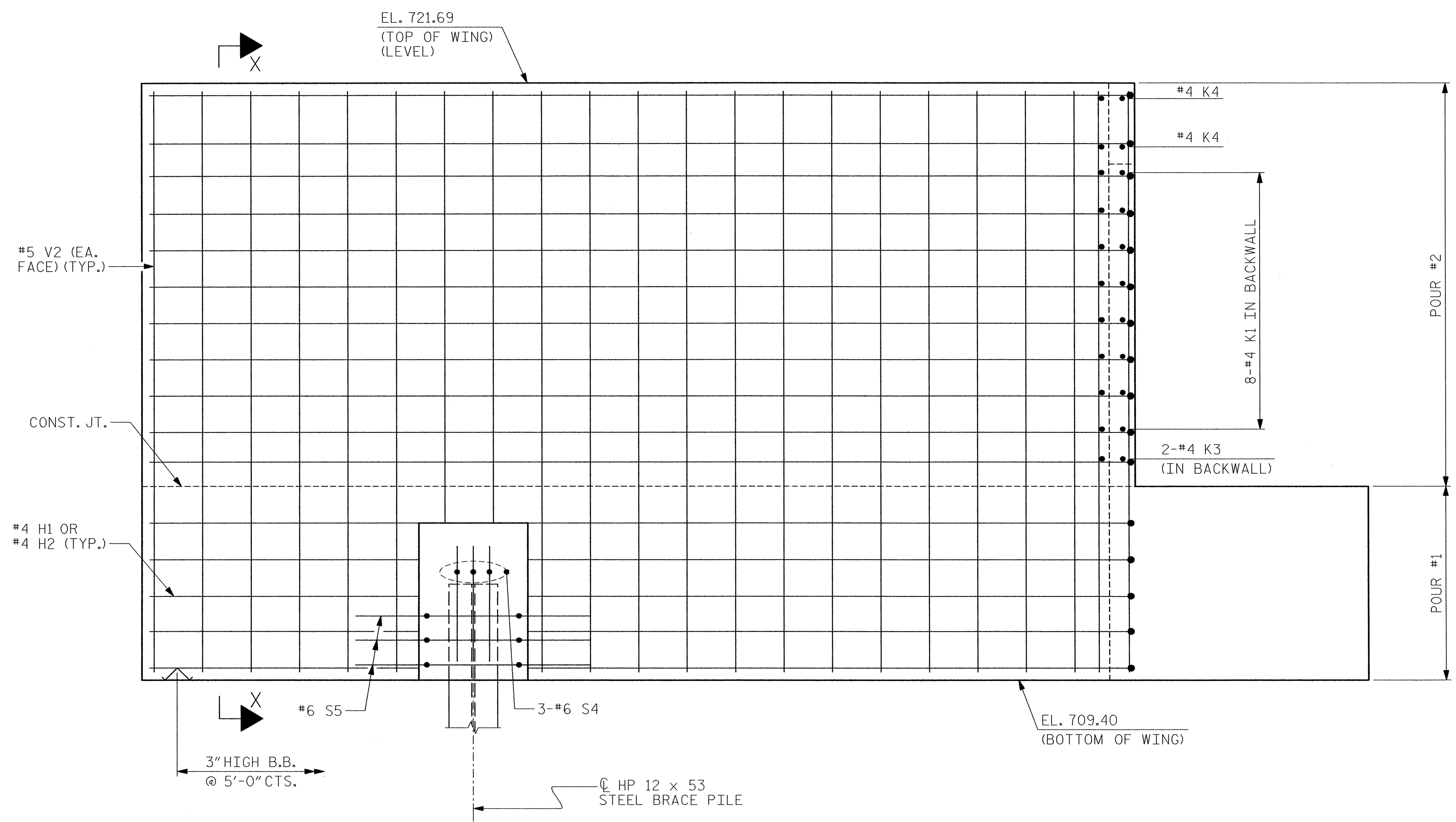
HP 12 x 53 STEEL BRACE PILES
HP 12 x 53 STEEL VERTICAL PILES

SHEET NO. S-44
TOTAL SHEETS 51

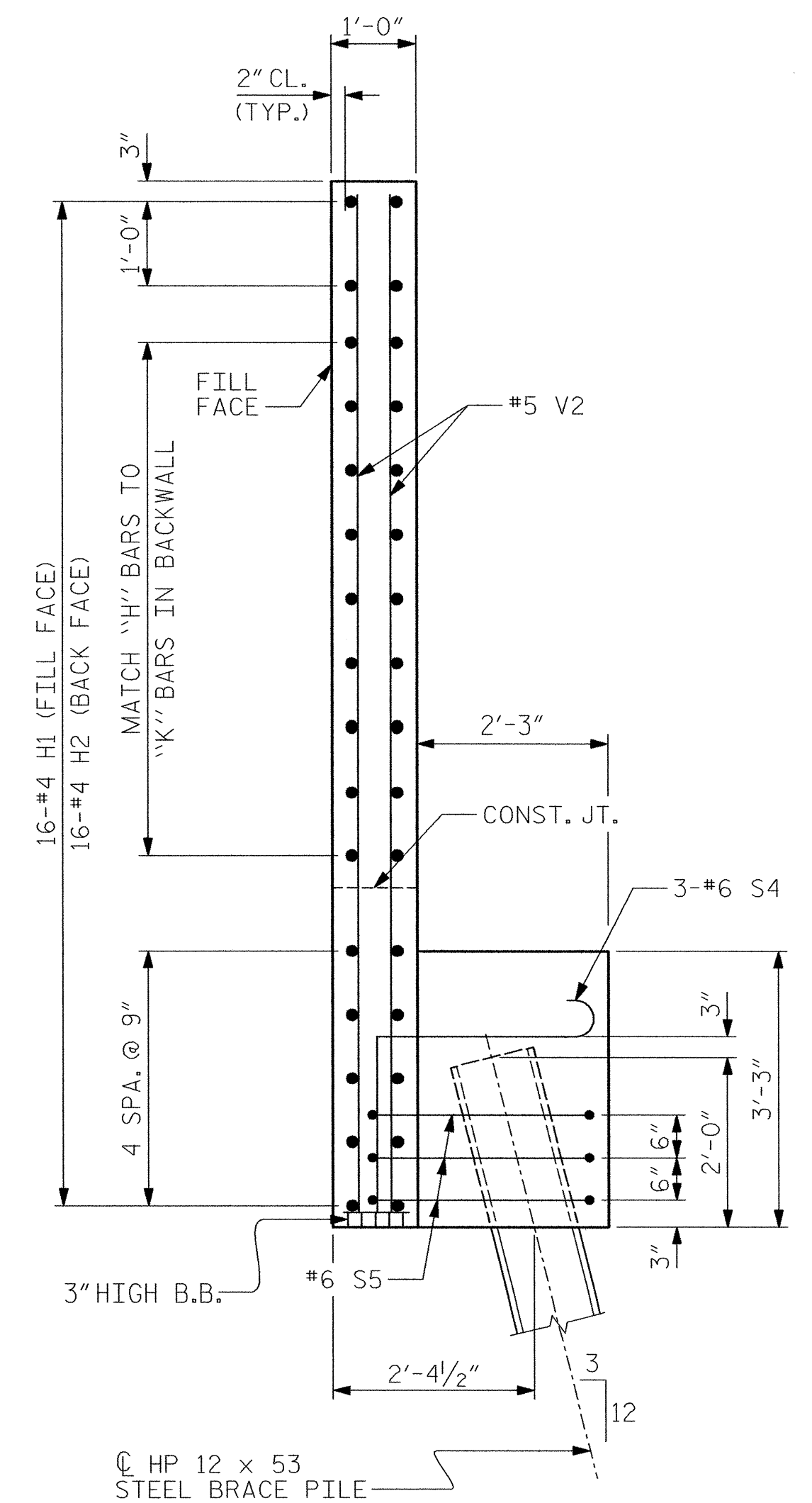
02592DEL_P10x2



PLAN OF WING (W1)



ELEVATION OF WING (W1)



SECTION X-X

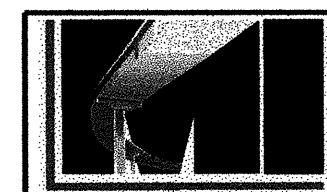
PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 2 OF 4

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



12/20/12



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

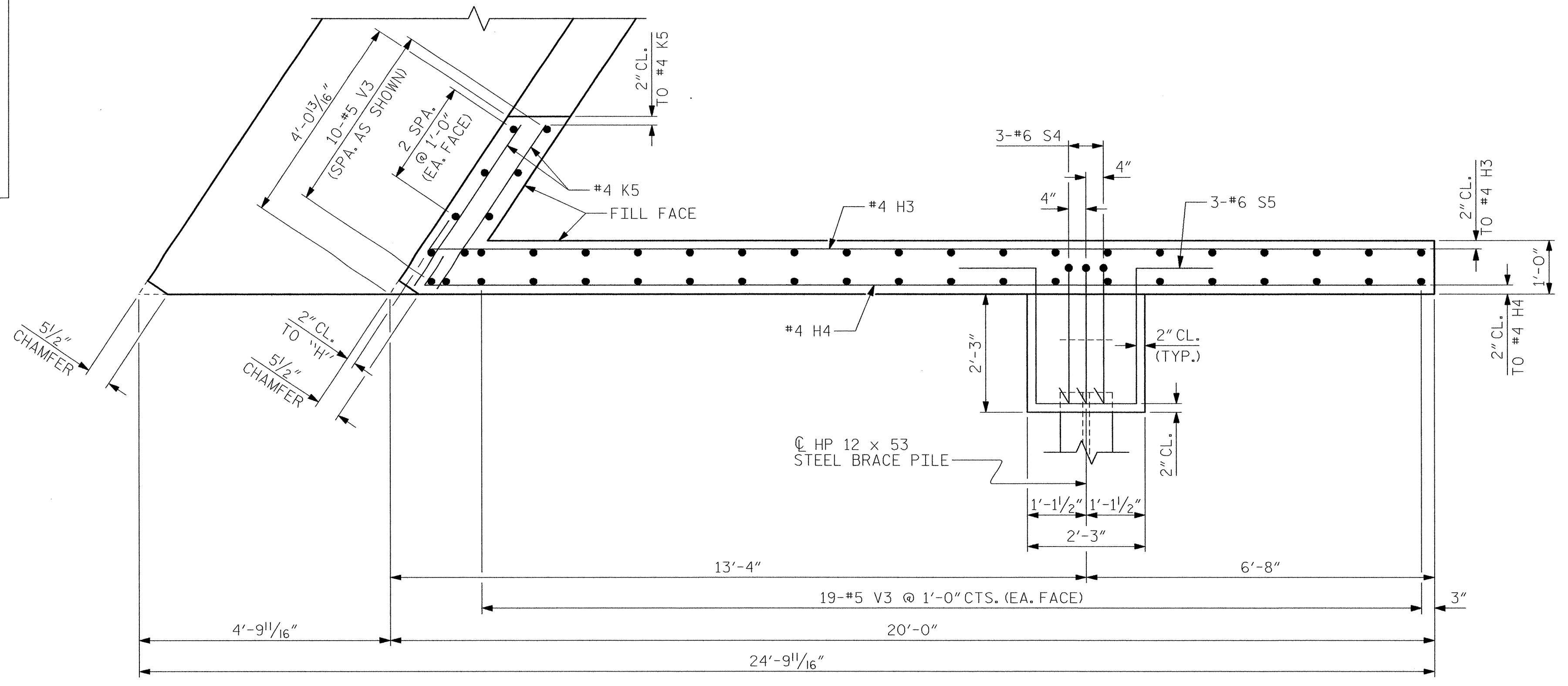
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
 S-45
 TOTAL SHEETS
 51

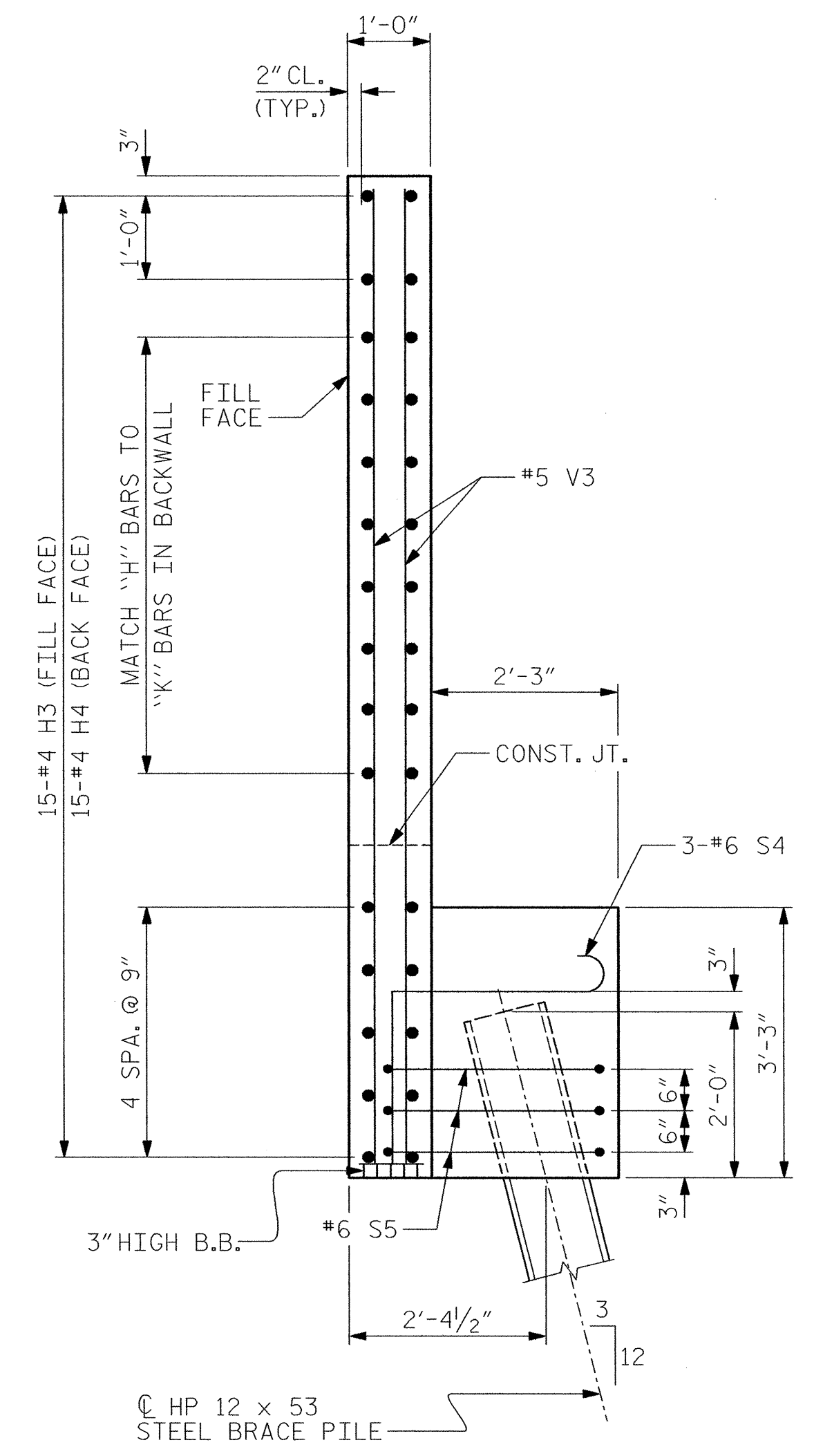
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DRAWN BY: B.E. LANNING DATE: 10/12
 CHECKED BY: A.K. ORR DATE: 10/12

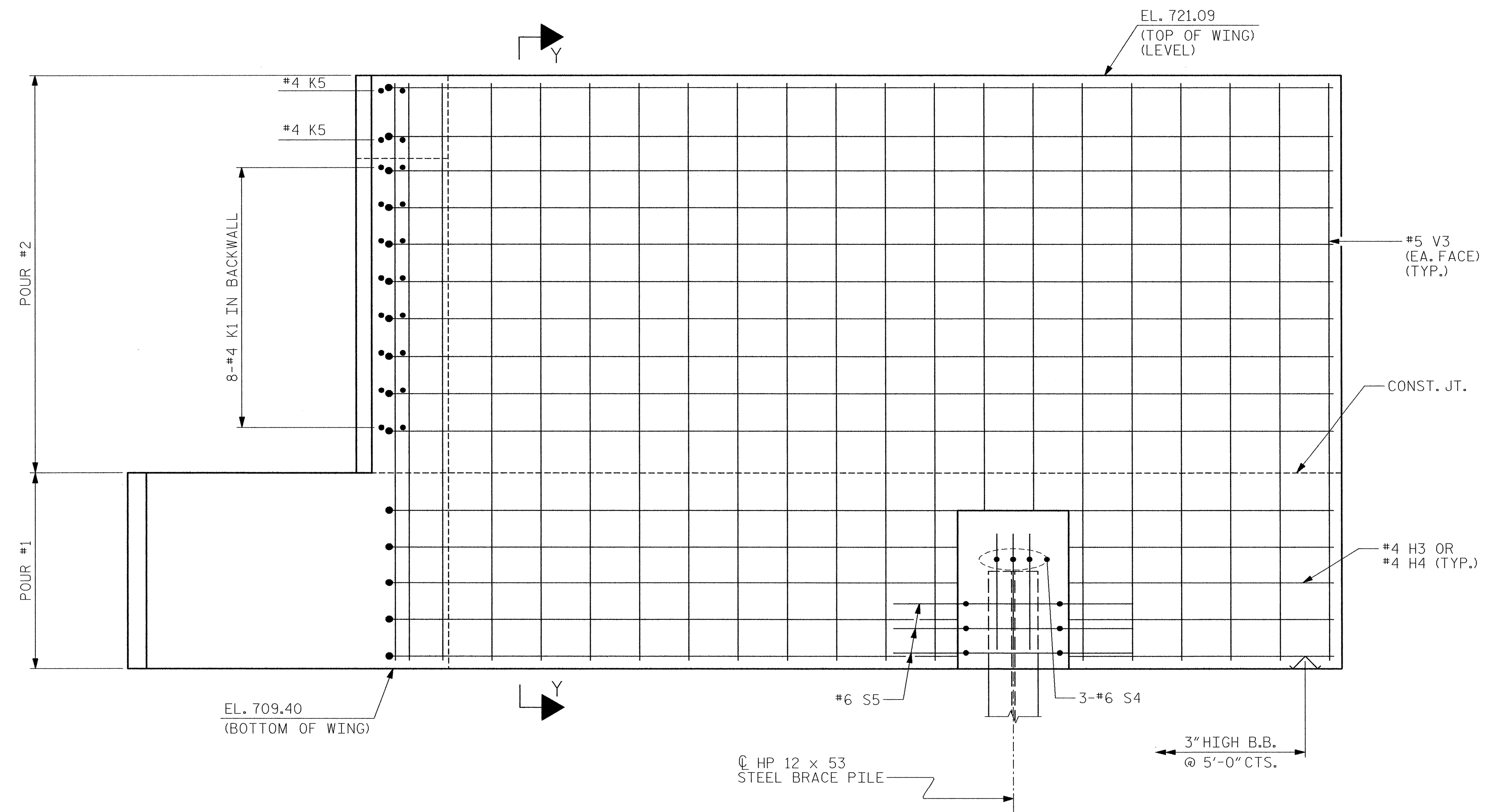
025902EL_P10c2



PLAN OF WING (W2)



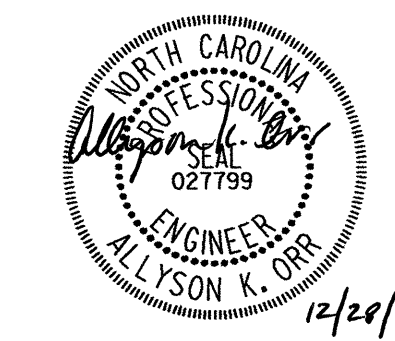
SECTION Y-Y



ELEVATION OF WING (W2)

PROJECT NO. C-490I B
DAVIDSON COUNTY
 STATION: 26+52.19 -L-
 SHEET 3 OF 4

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

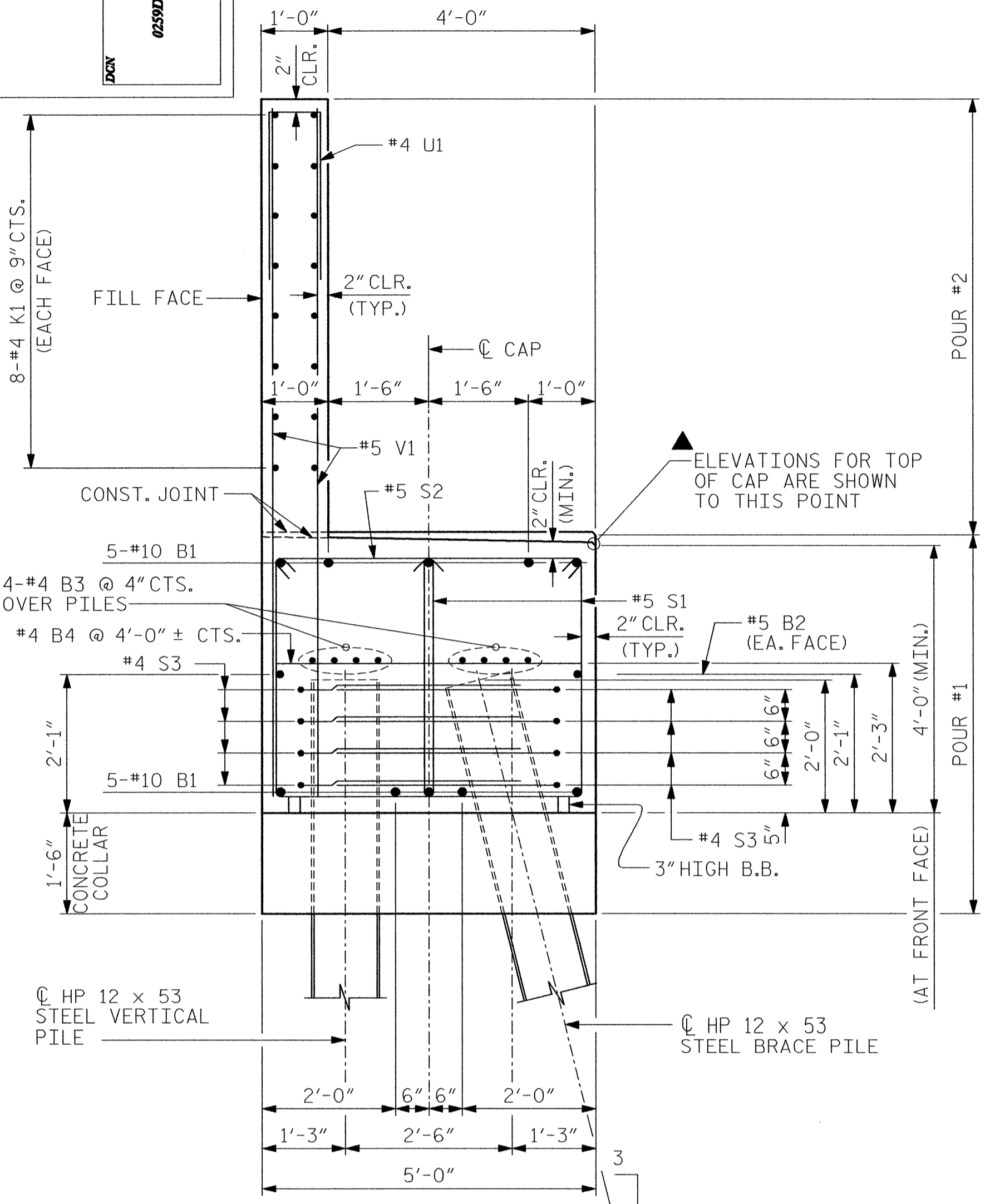


MI ENGINEERING 1011 SCHAUB DRIVE, SUITE 100 RALEIGH, NC 27806 (919) 851-6606 FIRM PE NUMBER : P-0671		REVISIONS NO. BY: DATE: NO. BY: DATE:				SHEET NO. S-46
1			3			TOTAL SHEETS 51
2			4			

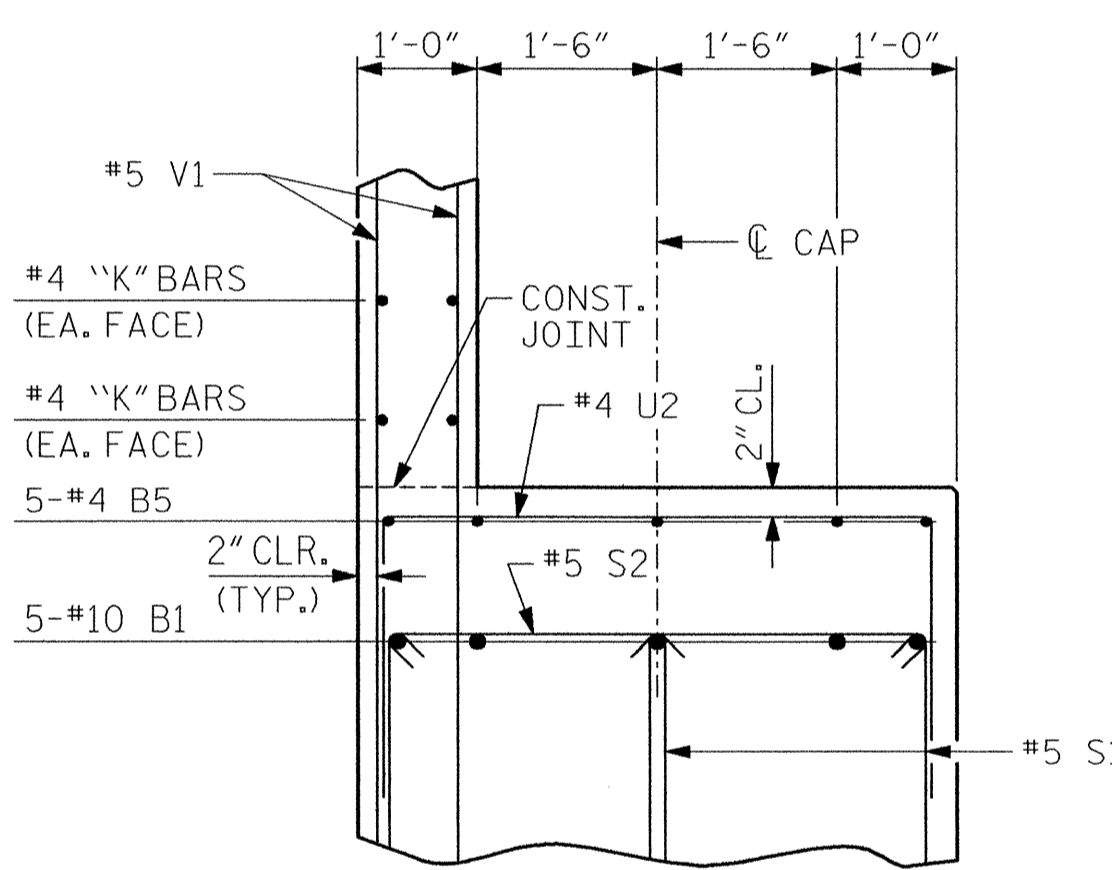
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DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12

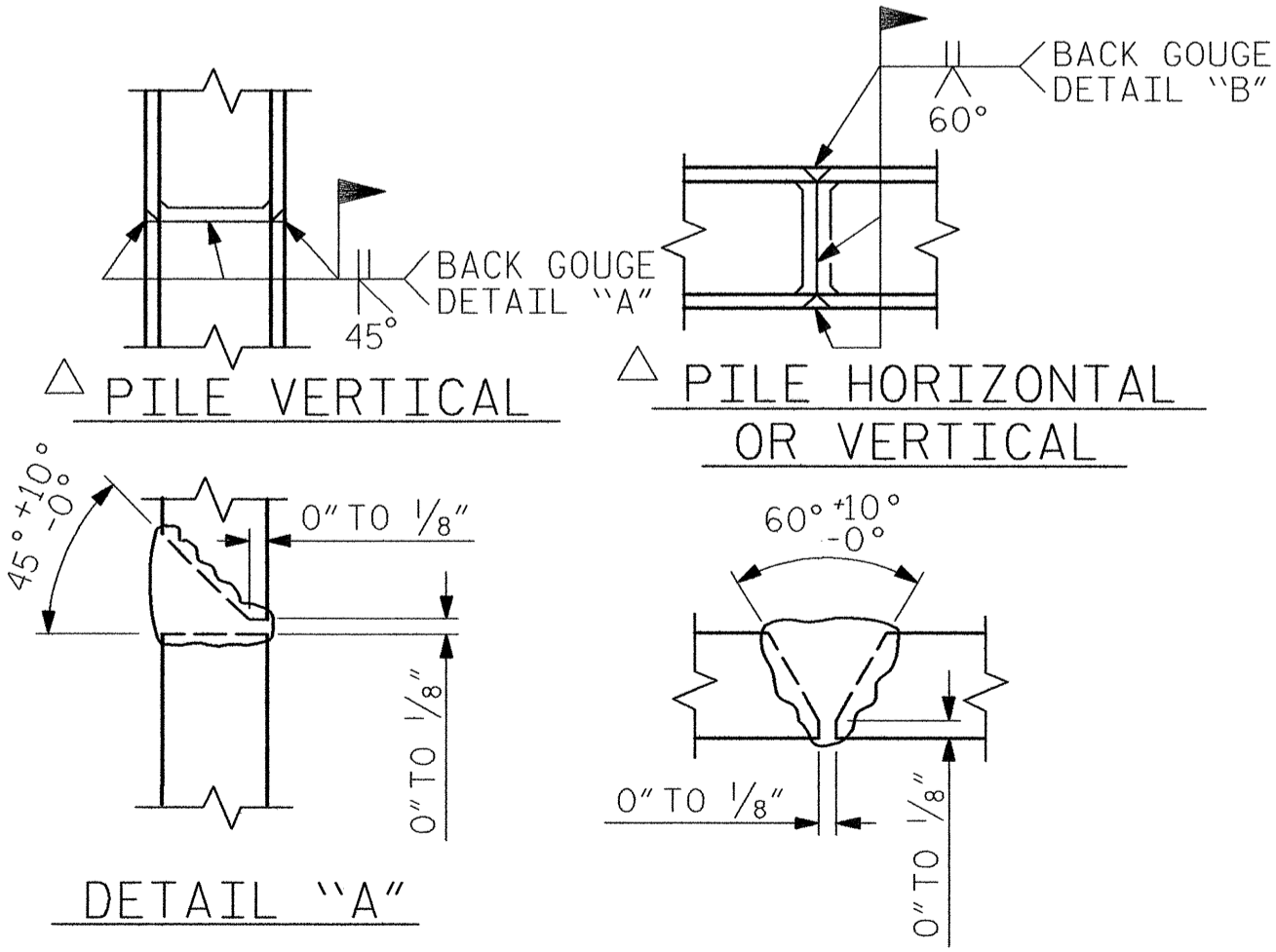
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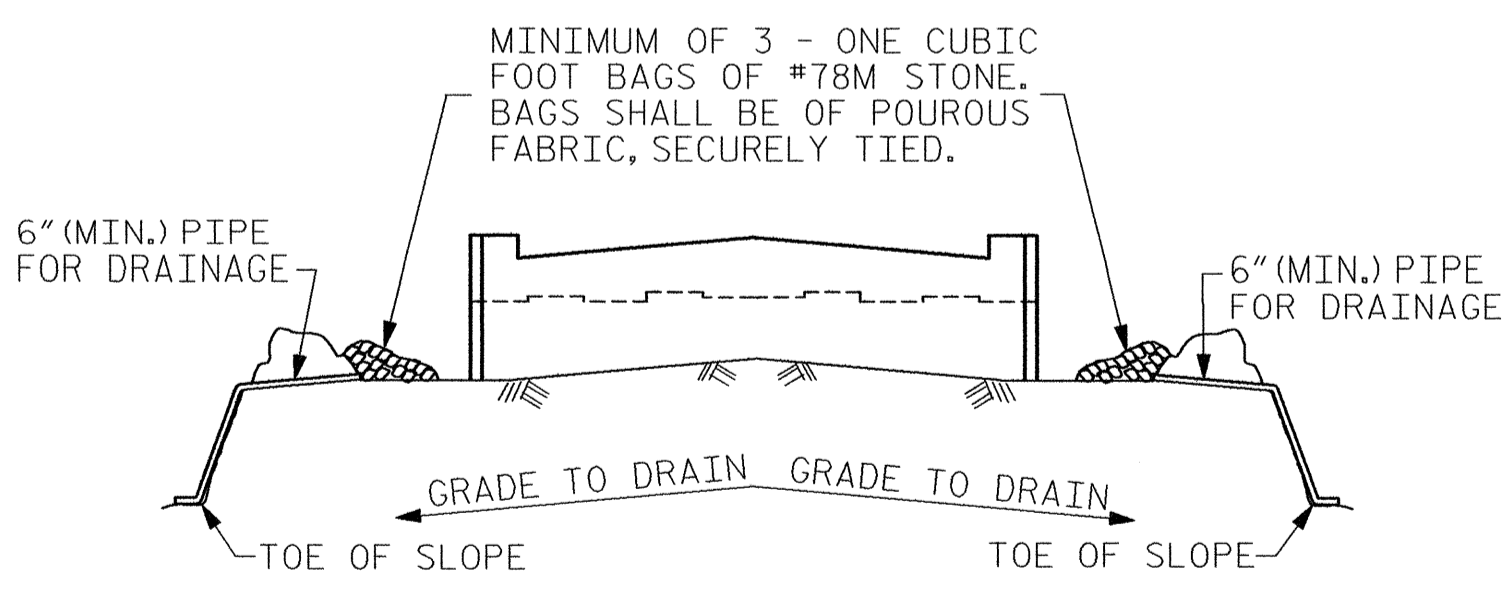
SECTION A-A



SECTION B-B



PILE SPLICE DETAILS

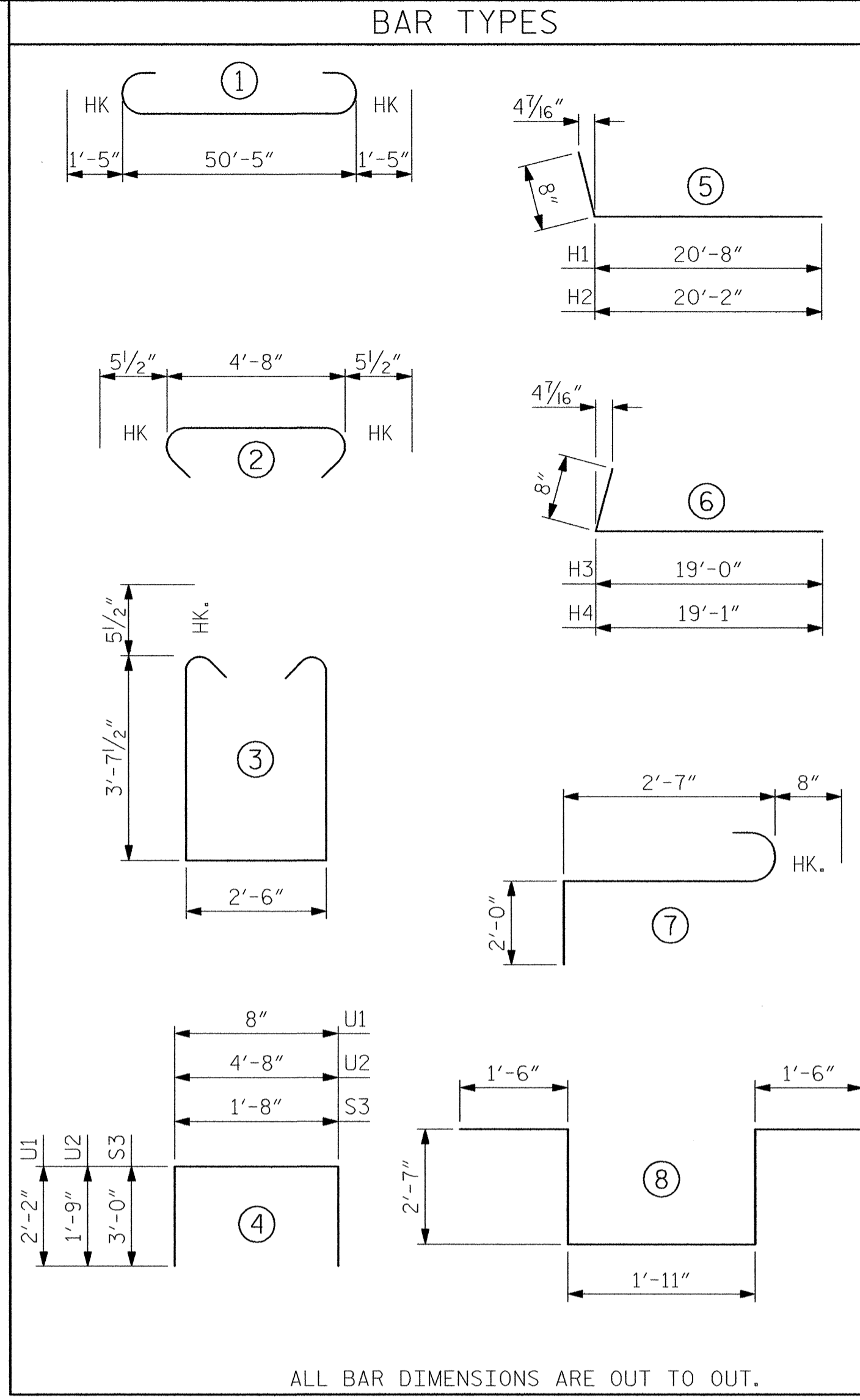


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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 BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



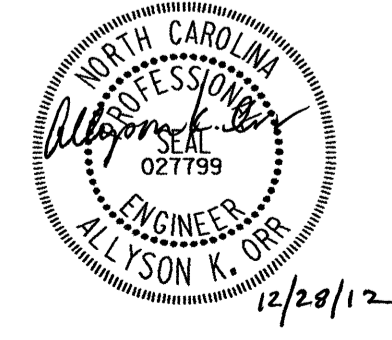
ALL BAR DIMENSIONS ARE OUT TO OUT.

BAR		NO.		SIZE		TYPE		LENGTH		WEIGHT	
END BENT 2											
B1	10	#10	1	53'-3"				2291			
B2	2	#5	STR	50'-5"				105			
B3	16	#4	STR	26'-6"				283			
B4	12	#4	STR	4'-8"				37			
B5	15	#4	STR	3'-8"				37			
H1	16	#4	5	21'-4"				228			
H2	16	#4	5	20'-10"				223			
H3	15	#4	6	19'-8"				197			
H4	15	#4	6	19'-9"				198			
K1	32	#4	STR	26'-6"				566			
K2	4	#4	STR	7'-1"				19			
K3	2	#4	STR	7'-2"				10			
K4	4	#4	STR	3'-8"				10			
K5	4	#4	STR	3'-7"				10			
S1	92	#5	3	10'-8"				1024			
S2	46	#5	2	5'-7"				268			
S3	48	#4	4	7'-8"				246			
S4	6	#6	7	5'-3"				47			
S5	6	#6	8	10'-1"				91			
U1	43	#4	4	5'-0"				144			
U2	12	#4	4	8'-2"				65			
V1	86	#5	STR	9'-7"				860			
V2	50	#5	STR	11'-11"				621			
V3	48	#5	STR	11'-4"				567			
REINFORCING STEEL										8,147 LBS.	
CLASS A CONCRETE BREAKDOWN											
POUR #1 (CAP, COLLARS & LOWER WING)										50.1 C.Y.	
POUR #2 (BACKWALL & UPPER WING)										24.2 C.Y.	
TOTAL CLASS A CONCRETE										74.3 C.Y.	
HP 12 x 53 STEEL PILES										NO. 14 728 LIN. FT.	

PROJECT NO. C-4901 B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 4 OF 4

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



MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6806
 FIRM PE NUMBER : P-0671

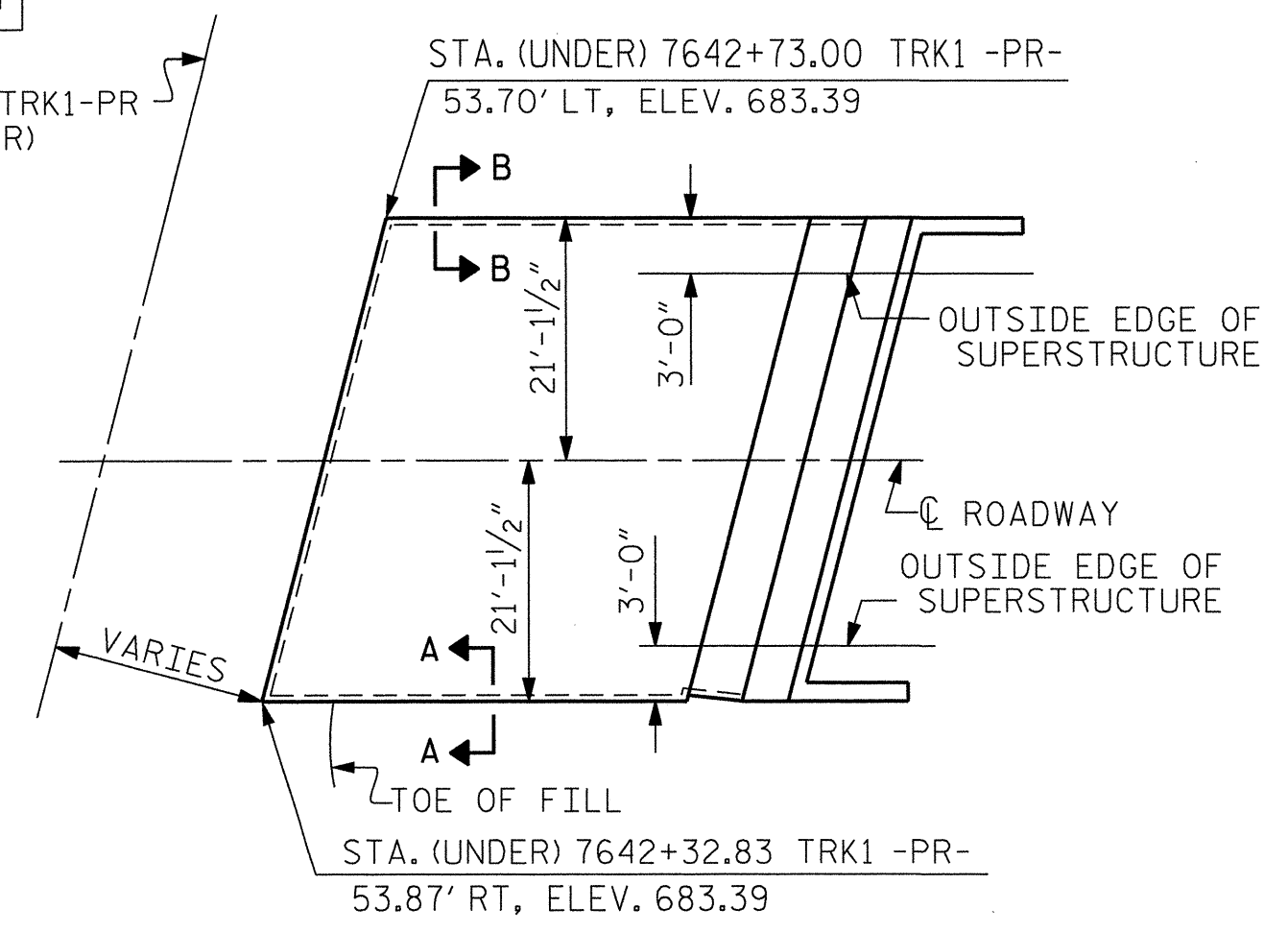
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			51

DRAWN BY : B.E. LANNING DATE : 10/12
 CHECKED BY : A.K. ORR DATE : 10/12

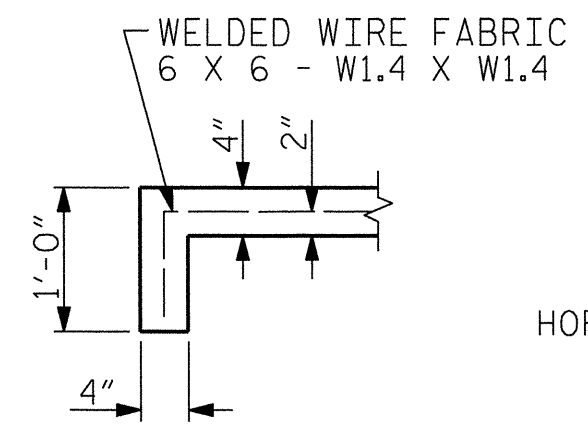
12/27/2012 3:32:11 PM User: blanning Filename: P:\NC Projects\M11001 - C4901B Upper Lake Road\C-4901B\Structures\C4901B_SD_E2D.dgn

0259DEL_P10c2

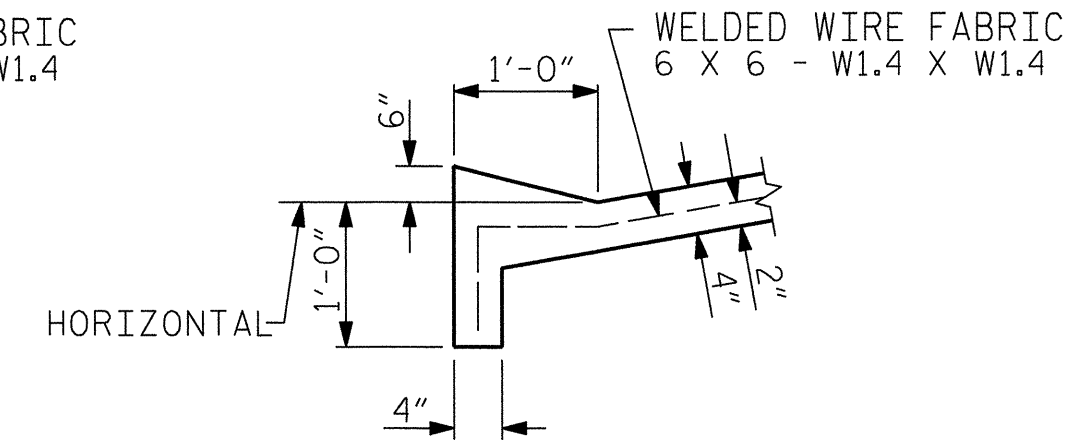
© SURVEY-TRK1-PR (UNDER)



PLAN



SECTION A-A



SECTION B-B

GENERAL NOTES

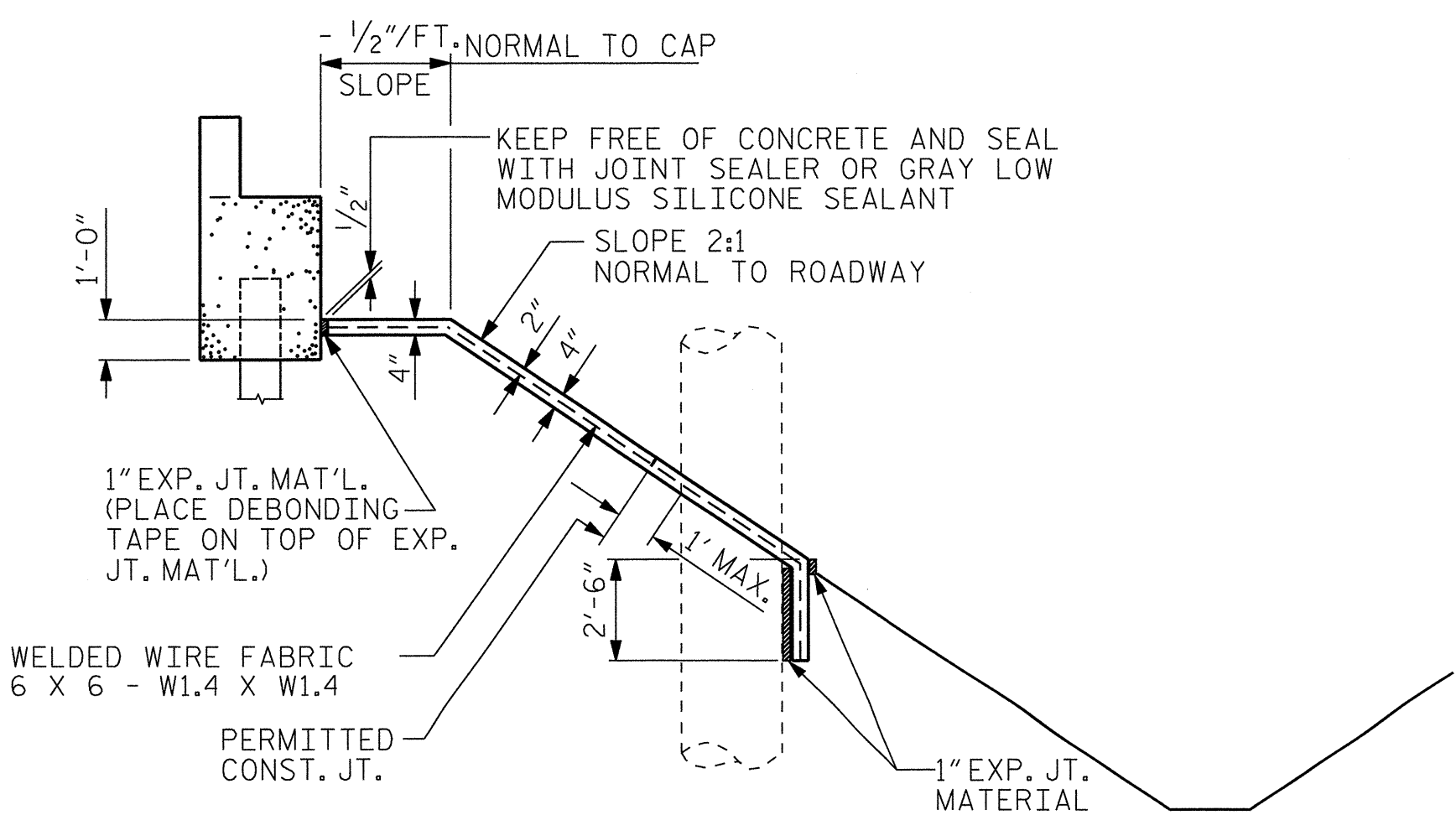
SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. THE CONTRACTOR, AT HIS OPTION, MAY USE ALTERNATE "B" ONLY FOR HIGHWAY OVER HIGHWAY GRADE SEPARATIONS WITH 2:1 END BENT SLOPE IN RURAL, UNPOPULATED AREAS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION 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.

ALTERNATE "A"

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

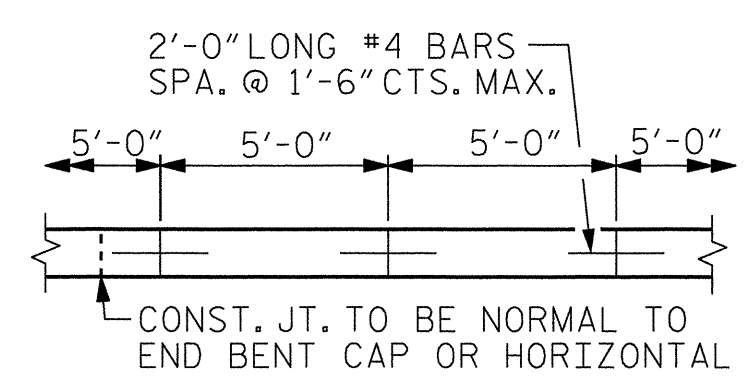
BRIDGE @ STA. 26+52.19 -L-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 2	343	73

* QUANTITY SHOWN IS BASED ON 5' POURS.



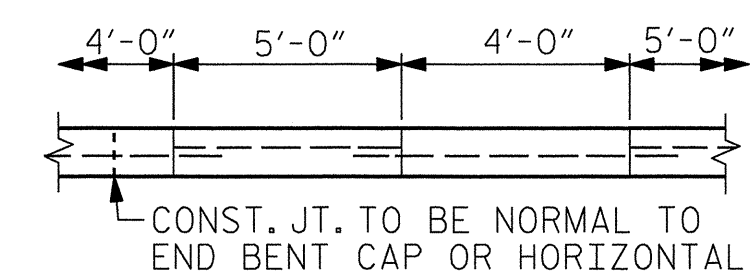
SECTION ALONG ROADWAY WITH INTERIOR PIER

DETAILS FOR ALTERNATE "A"



STRIP WIDTHS MAY VARY IN CURVED PORTION.

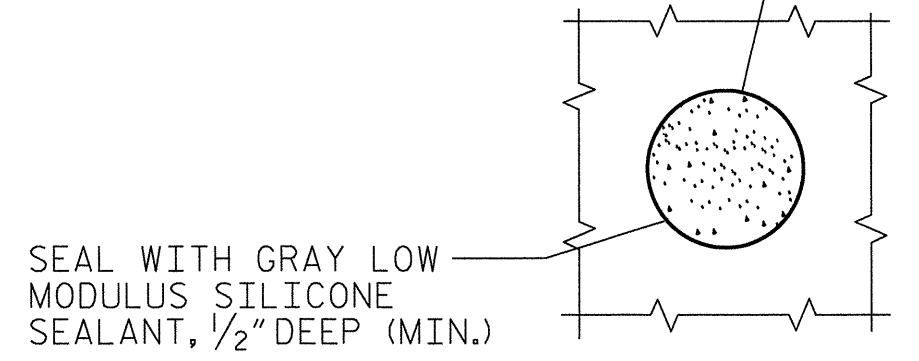
POURING DETAIL



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

OPTIONAL POURING DETAIL

1" EXP. JT. MAT'L. (PLACE DEBONDING TAPE ON TOP OF EXP. JT. MAT'L.)



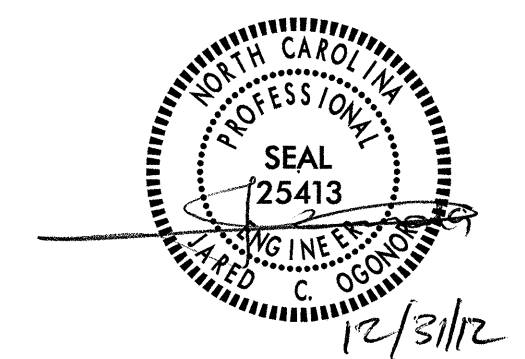
SEAL WITH GRAY LOW MODULUS SILICONE SEALANT, 1/2" DEEP (MIN.)

PLAN WHERE CONCRETE SLOPE PROTECTION MUST BE PLACED AROUND A BENT COLUMN

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 1

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

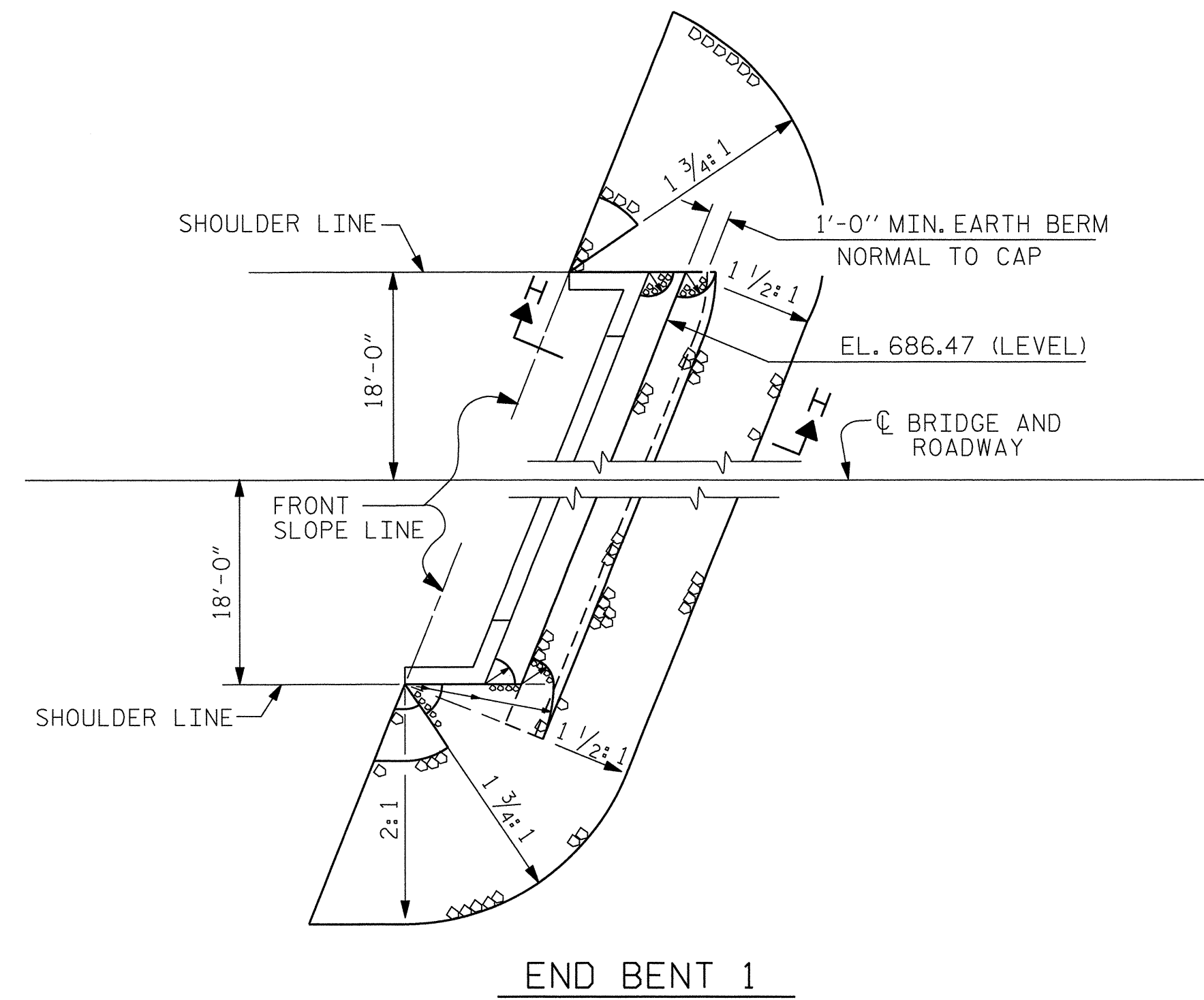


ASSEMBLED BY : CAL	DATE : 10-12
CHECKED BY : JCO	DATE : 10-12
DRAWN BY : ELR 5/92	REV. 5/1/06 TLA/GM
CHECKED BY : GRP 6/92	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

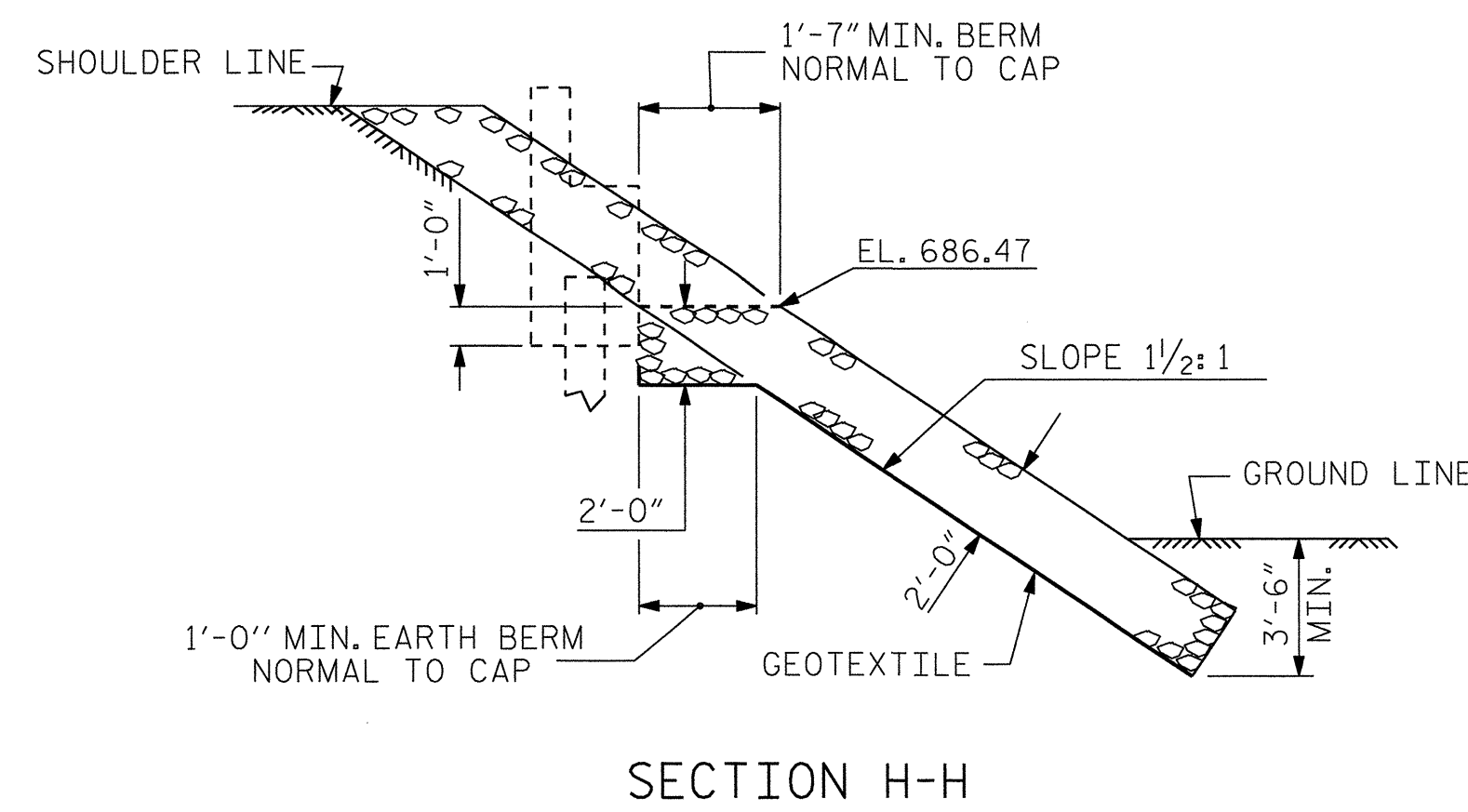
REVISIONS						SHEET NO. S-48
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

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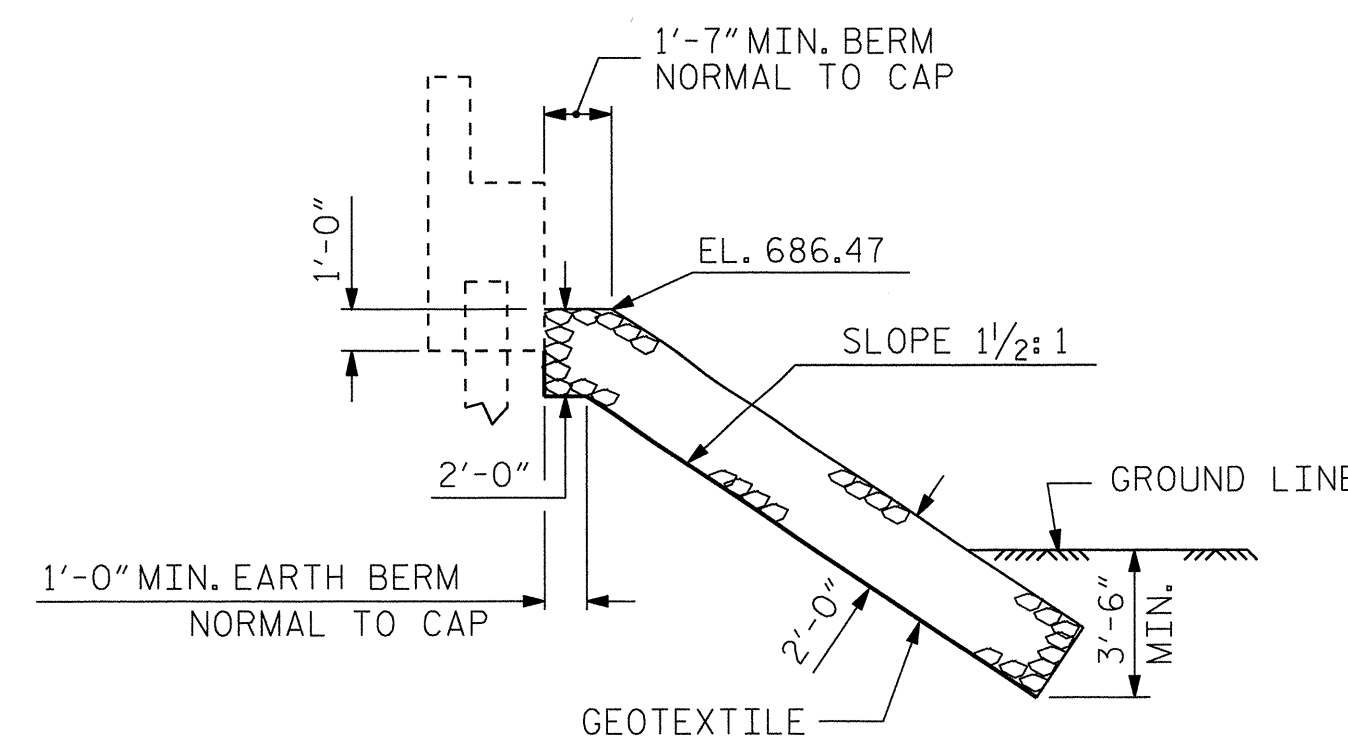


SHOULDER RIP RAP IS HIGHER THAN BERM RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 26+52.19 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	530	590



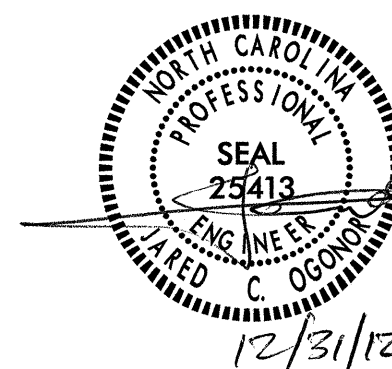
SECTION H-H



SECTION
BERM RIP RAPPED

PROJECT NO. C-490I B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 1 OF 1



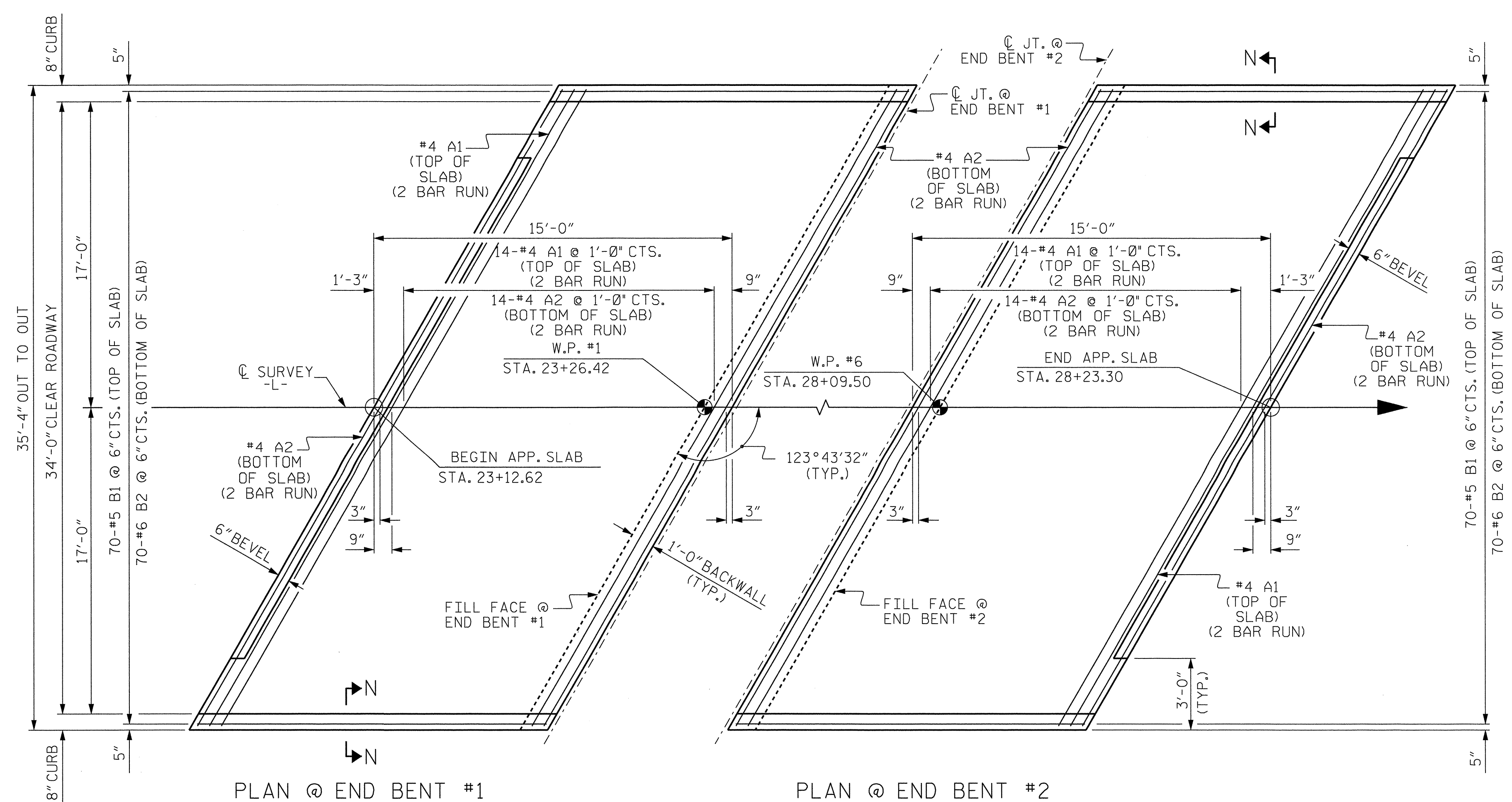
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
RIP RAP DETAILS

ASSEMBLED BY : CAL DATE : 10-12
CHECKED BY : JCO DATE : 10-12
DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84 REV. 10/1/11 MAA/GM
REV. 12/21/11 MAA/GM

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS						SHEET NO. S-49
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			51

0259DEL_P10c2



PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	22'-1"	443
A2	32	#4	STR	22'-1"	472
*B1	70	#5	STR	14'-1"	1028
B2	70	#6	STR	14'-7"	1533
REINFORCING STEEL				LBS.	2005
*EPOXY COATED REINFORCING STEEL				LBS.	1471
CLASS AA CONCRETE				C. Y.	23.1
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	22'-1"	443
A2	32	#4	STR	22'-1"	472
*B1	70	#5	STR	14'-1"	1028
B2	70	#6	STR	14'-7"	1533
REINFORCING STEEL				LBS.	2005
*EPOXY COATED REINFORCING STEEL				LBS.	1471
CLASS AA CONCRETE				C. Y.	23.1

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.

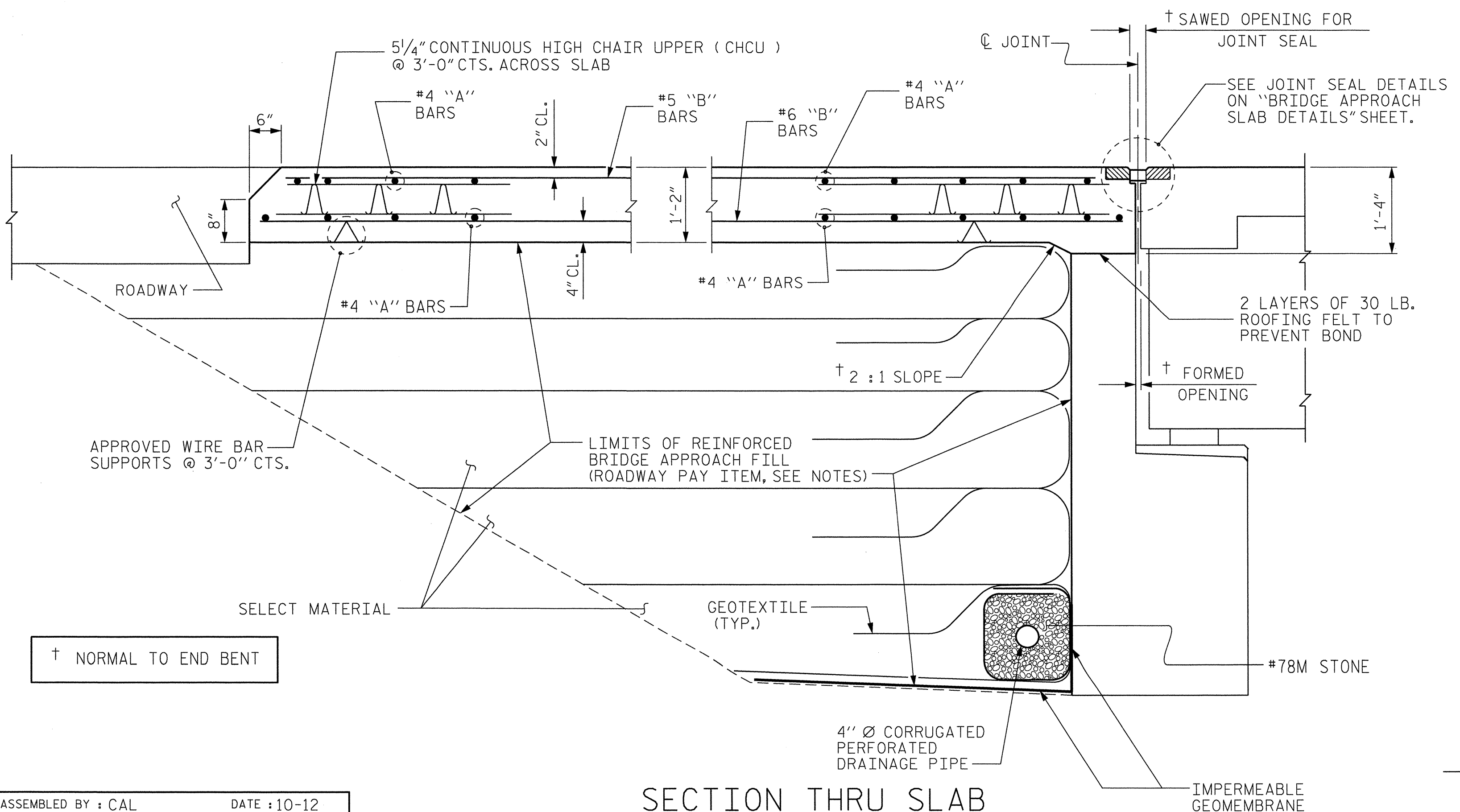
THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL OR PARAPET AND END POST.

WITH FOAM JOINT SEAL

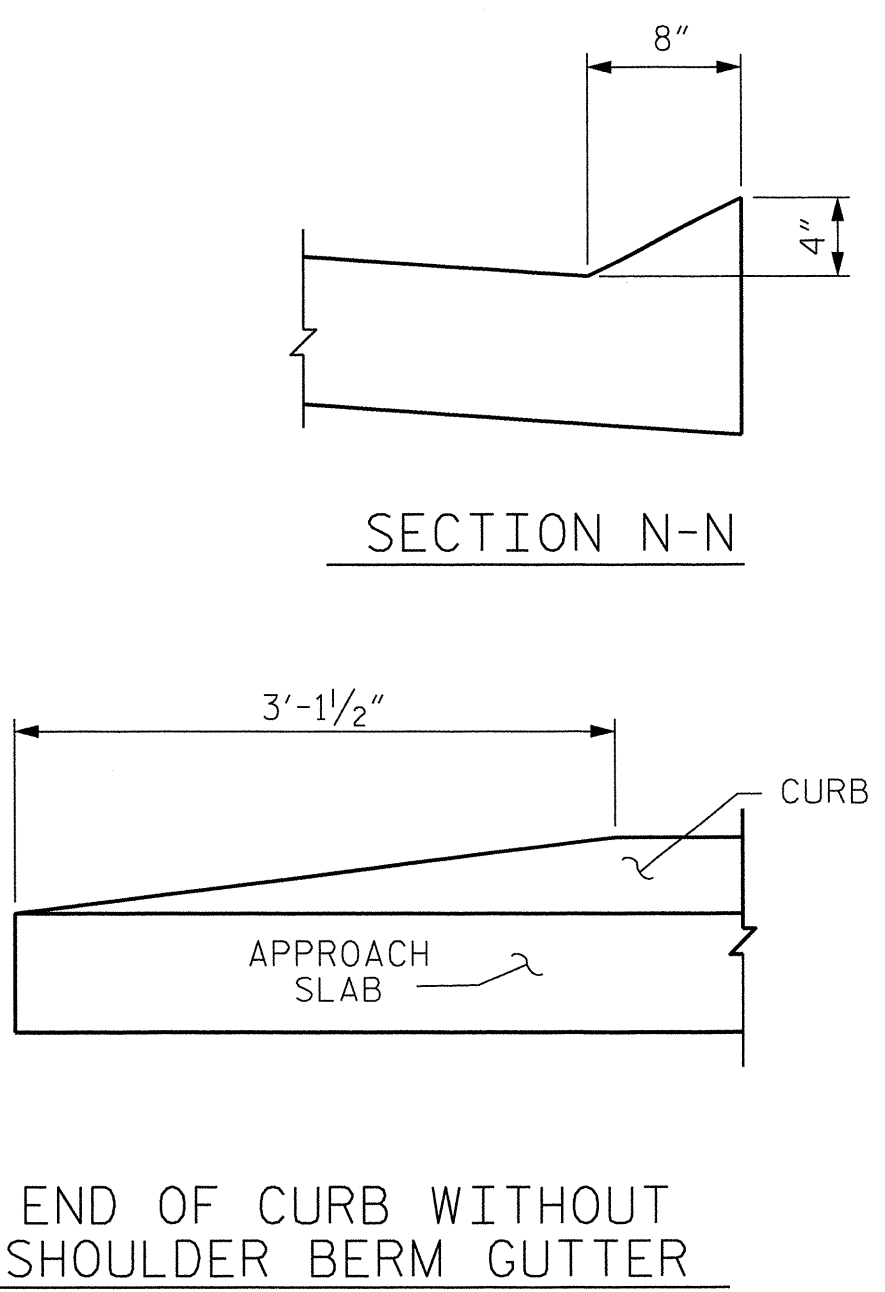
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.



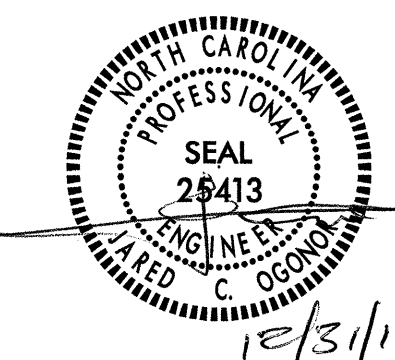
SECTION THRU SLAB



CURB DETAILS

PROJECT NO. C-490I B
 DAVIDSON COUNTY
 STATION: 26+52.19 -L-

SHEET 1 OF 2



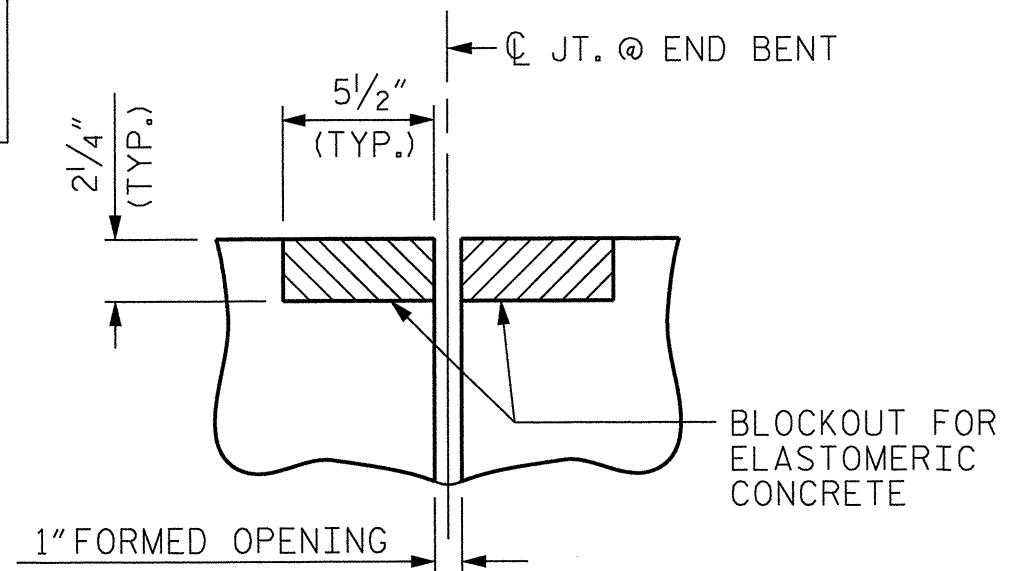
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

ASSEMBLED BY : CAL	DATE : 10-12
CHECKED BY : JCO	DATE : 10-12
DRAWN BY : EEM 3/95	REV. 5/1/06RR KMM/GM
CHECKED BY : VAP 3/95	REV. 10/1/11 MAA/GM
	REV. 12/21/11 MAA/GM

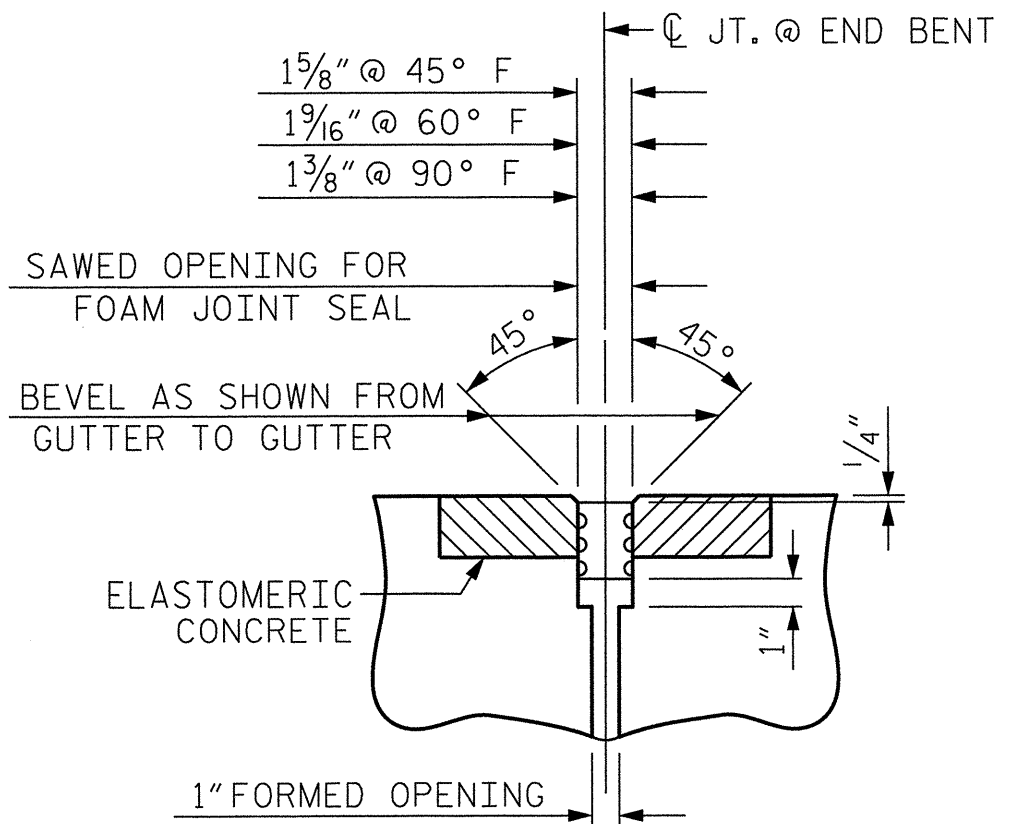
PLANS PREPARED BY :
PARSONS
 RALEIGH, NORTH CAROLINA, (919) 854-1345
 NC LICENSE NO. F-0246
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS				SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			51

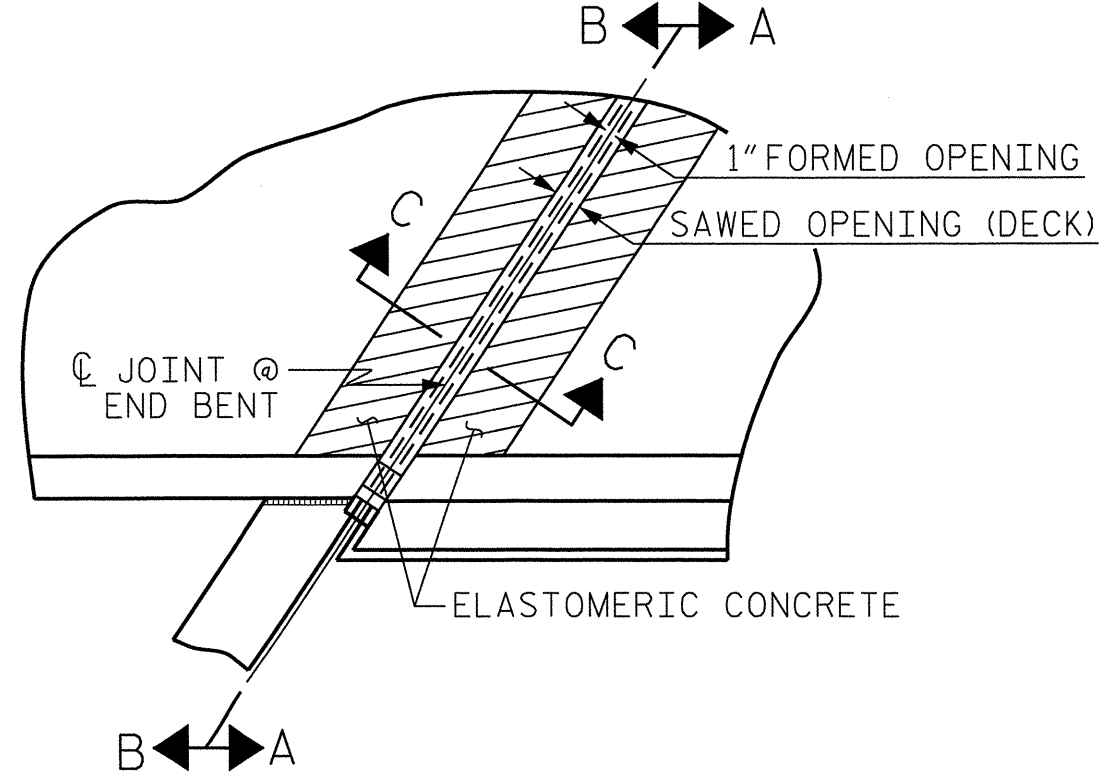
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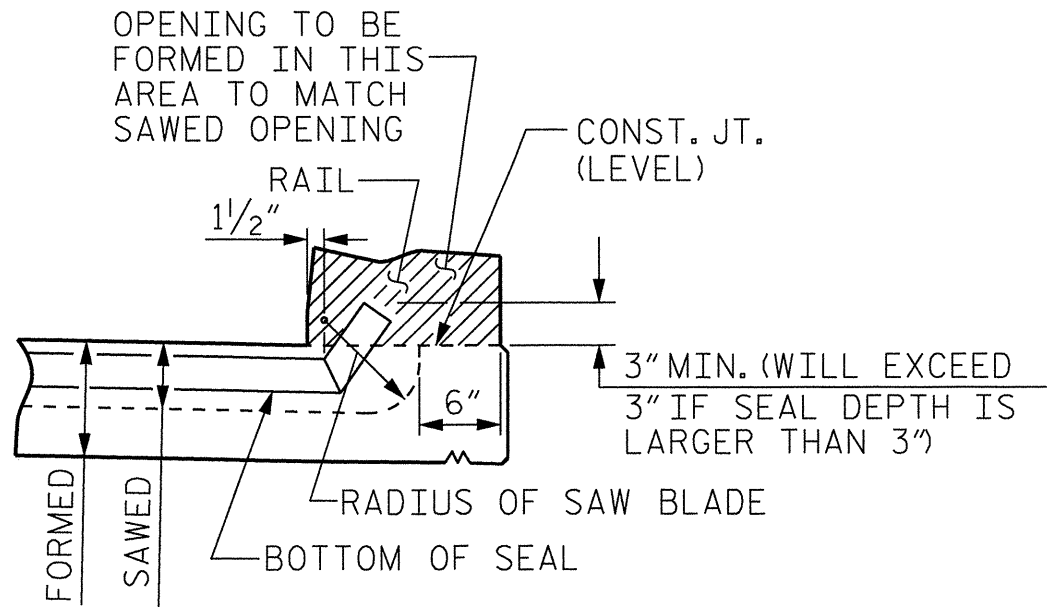
SECTION C-C
FOAM JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



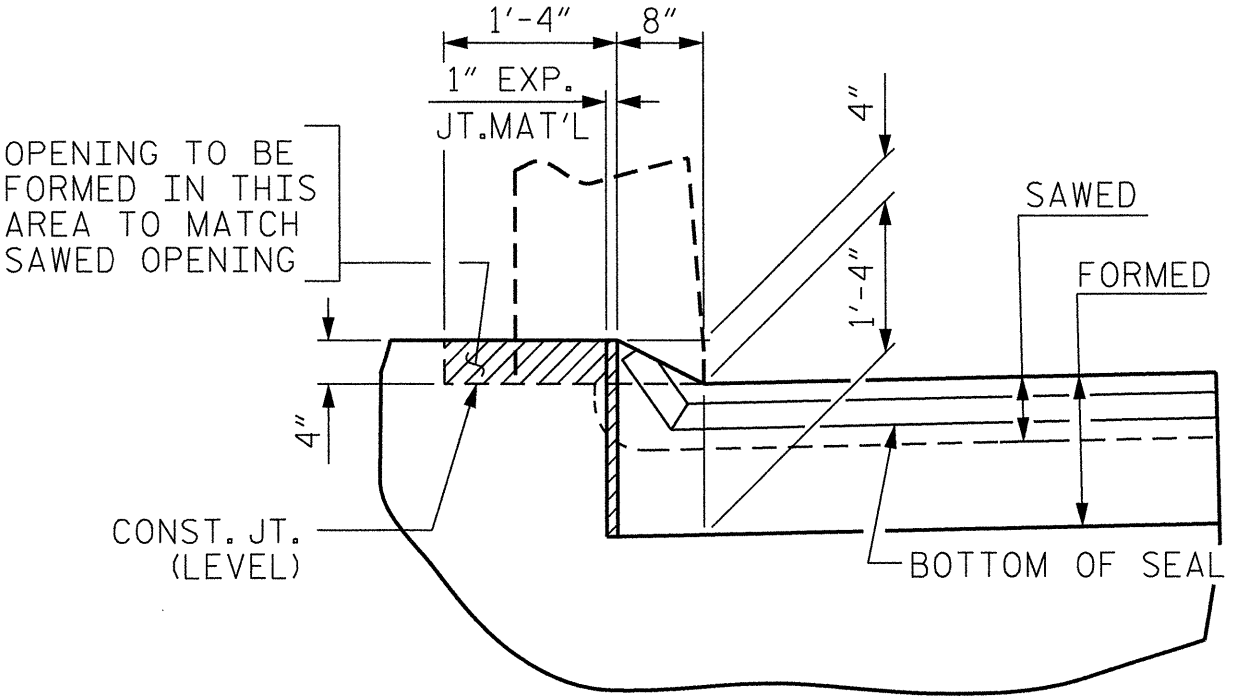
SECTION C-C
FOAM JOINT SEAL
(EXPANSION)



PLAN



SECTION A-A



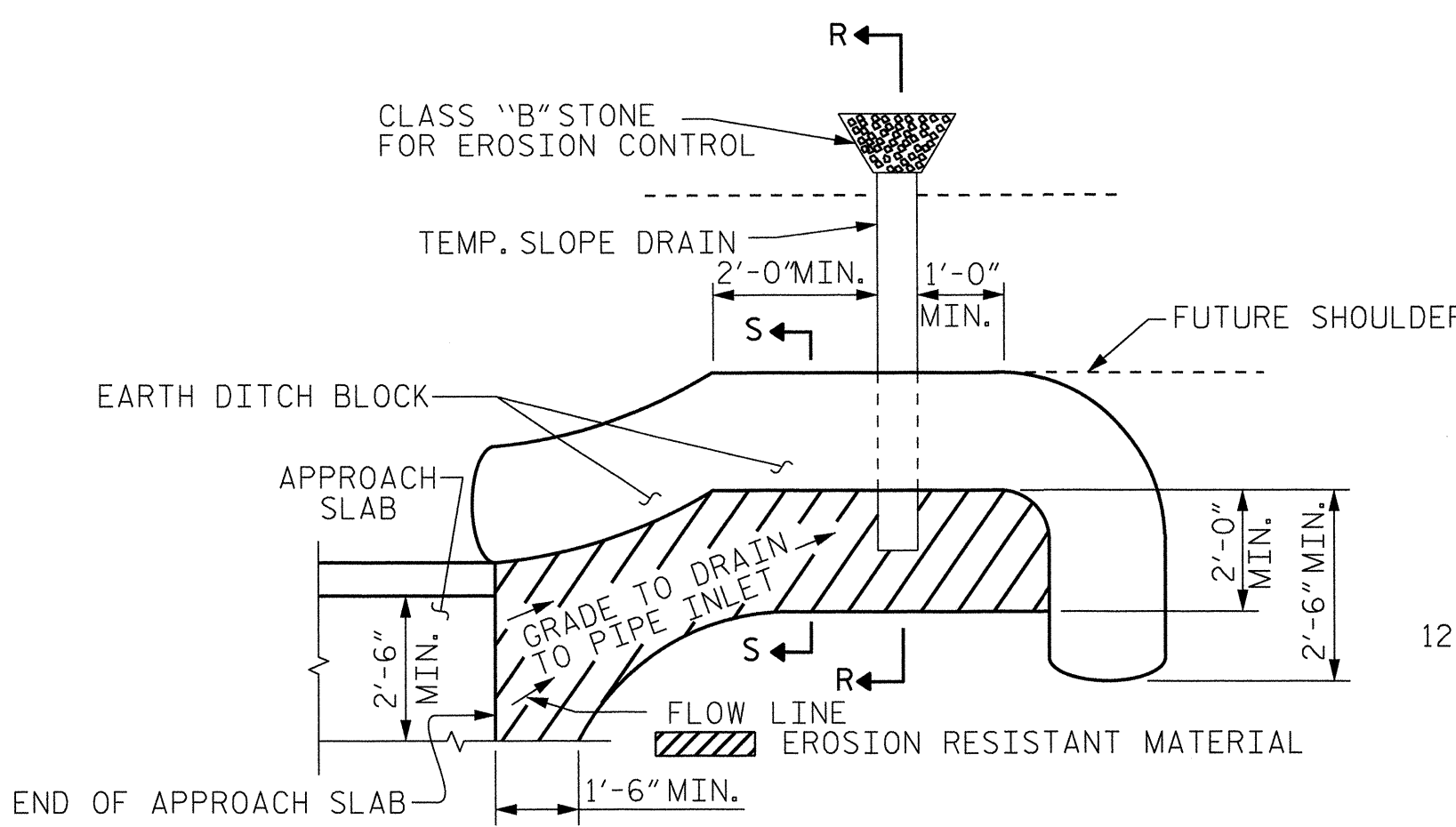
SECTION B-B

JOINT SEAL DETAILS @ END BENT

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.
THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

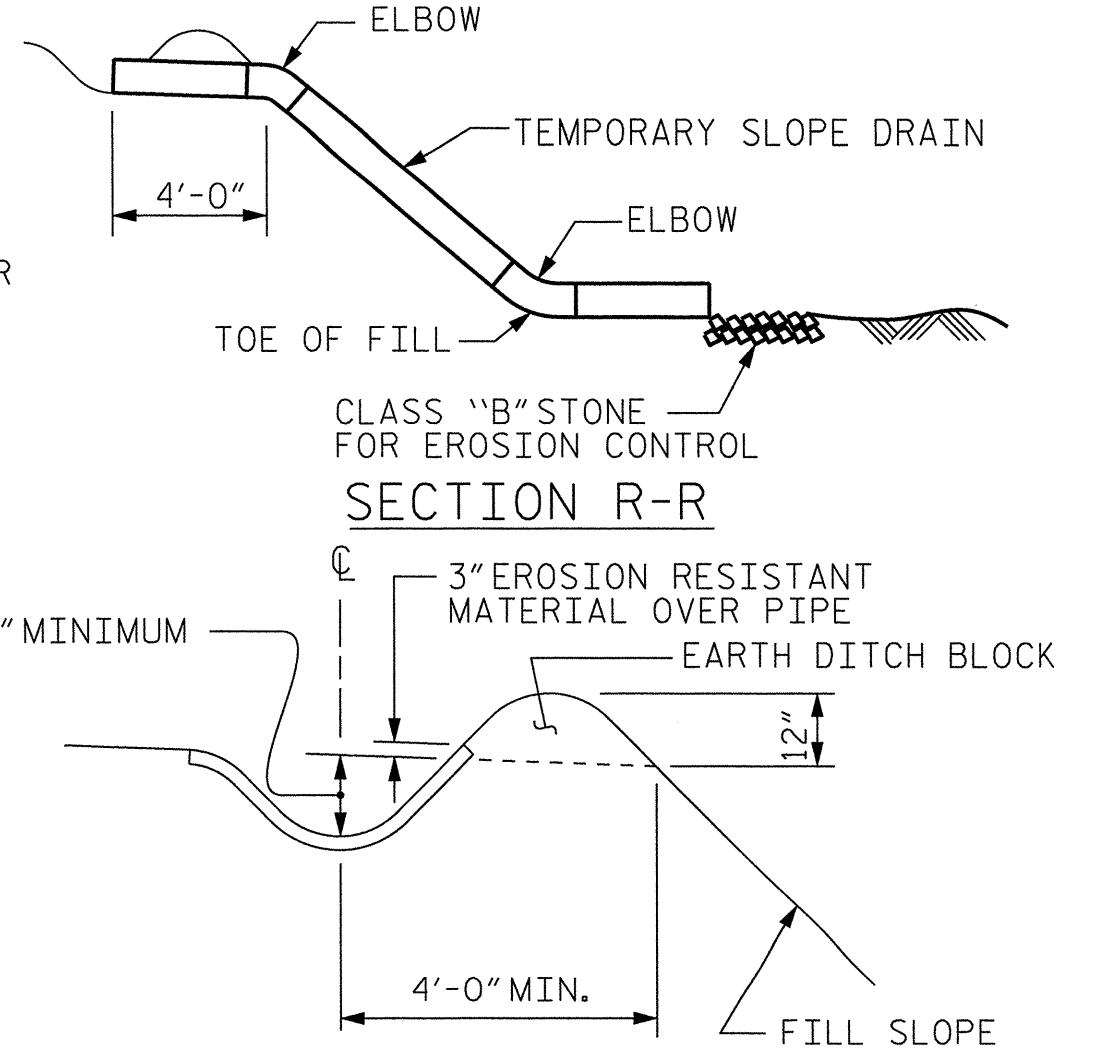
ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	7.5
2	7.5
TOTAL	15.0

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN VIEW

NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.



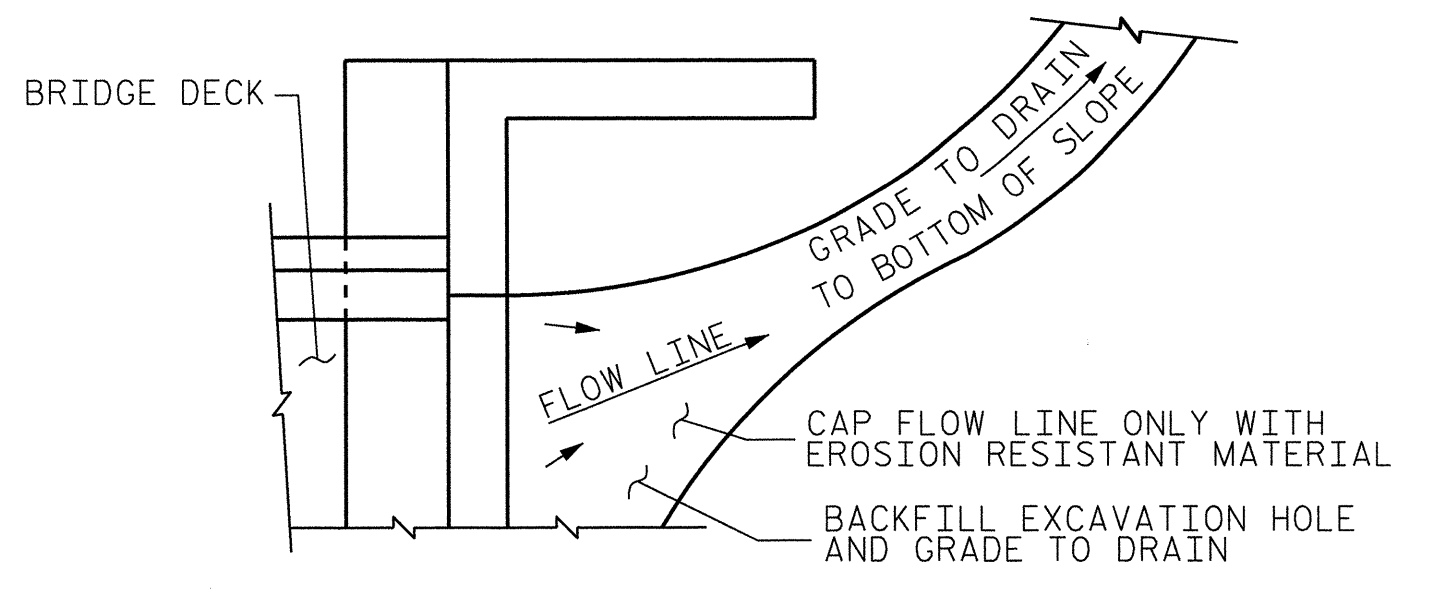
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

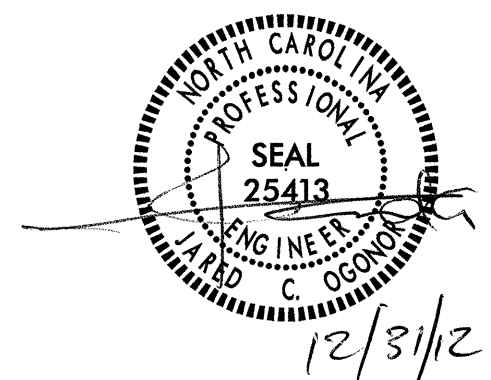


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. C-4901 B
DAVIDSON COUNTY
STATION: 26+52.19 -L-

SHEET 2 OF 2



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

ASSEMBLED BY : CAL
CHECKED BY : JCO
DATE : 10-12
DATE : 10-12
DRAWN BY : FCJ 11/88
CHECKED BY : ARB 11/88
REV. 10/1/11 MAA/GM
REV. 7/12 MAA/GM
REV. 10/12 MAA/GM

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA, (919) 854-1345
NC LICENSE NO. F-0246
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

REVISIONS			SHEET NO. S-51
NO.	BY:	DATE:	
1			TOTAL SHEETS 51
2			

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.

ENGLISH

JANUARY, 1990