

09/08/99

TIP PROJECT: B-4817

CONTRACT: C203022

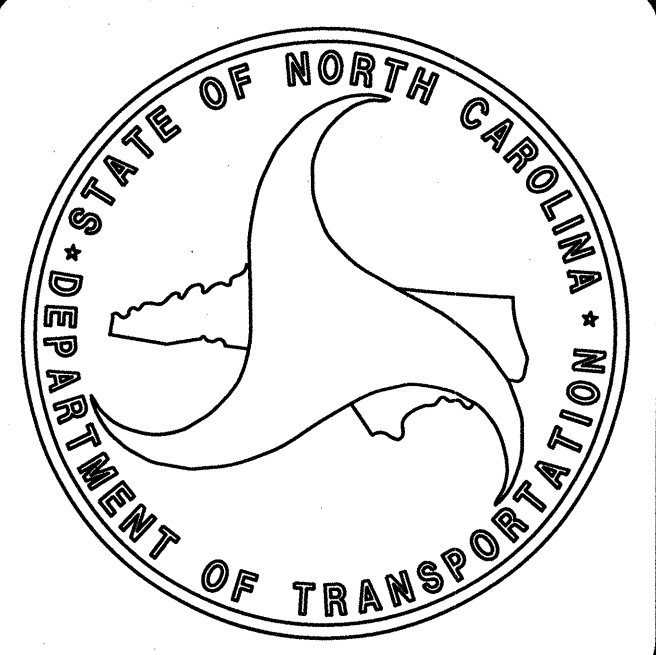
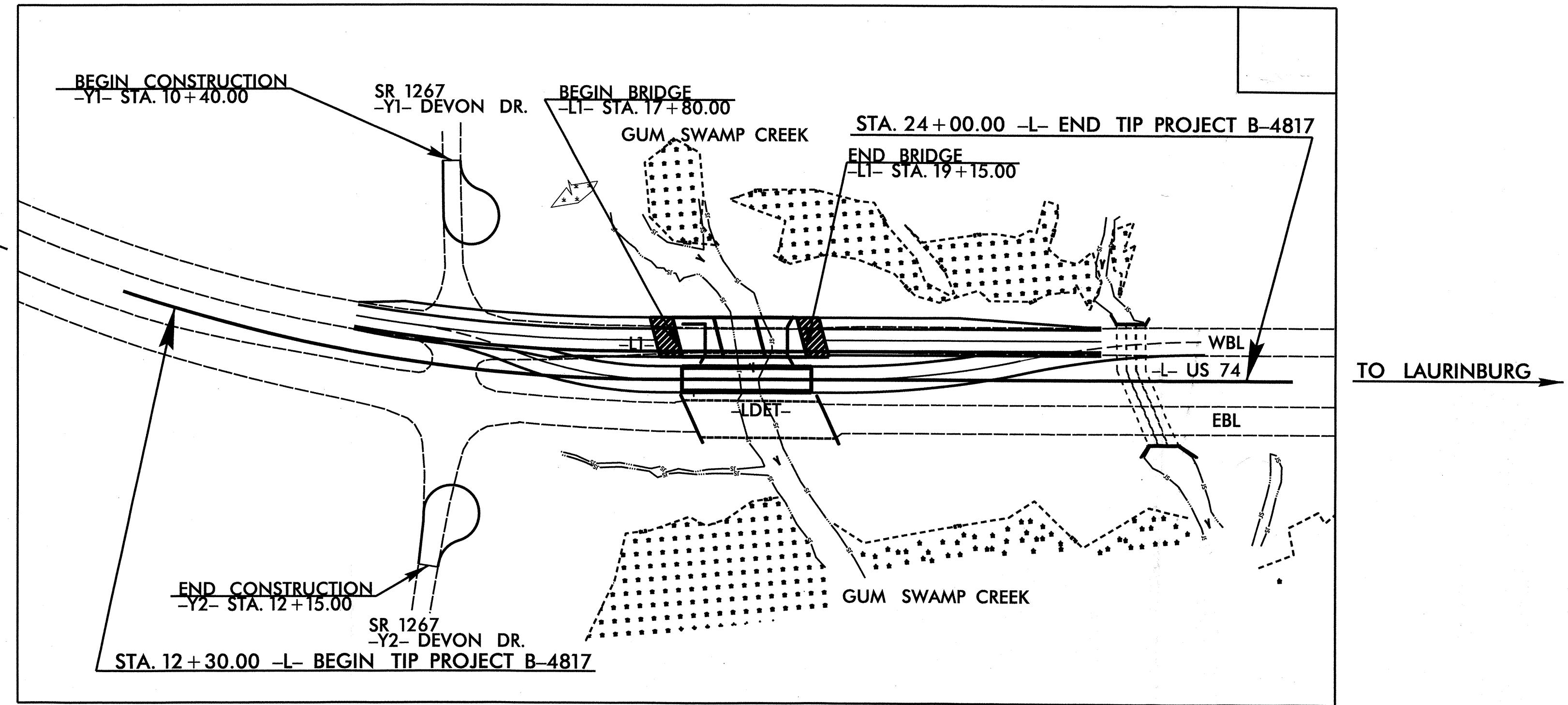
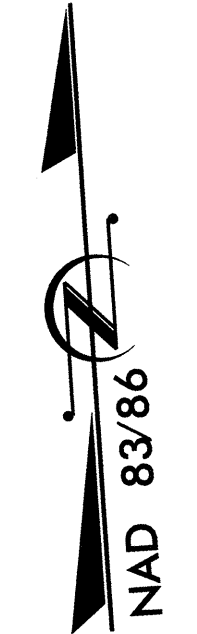
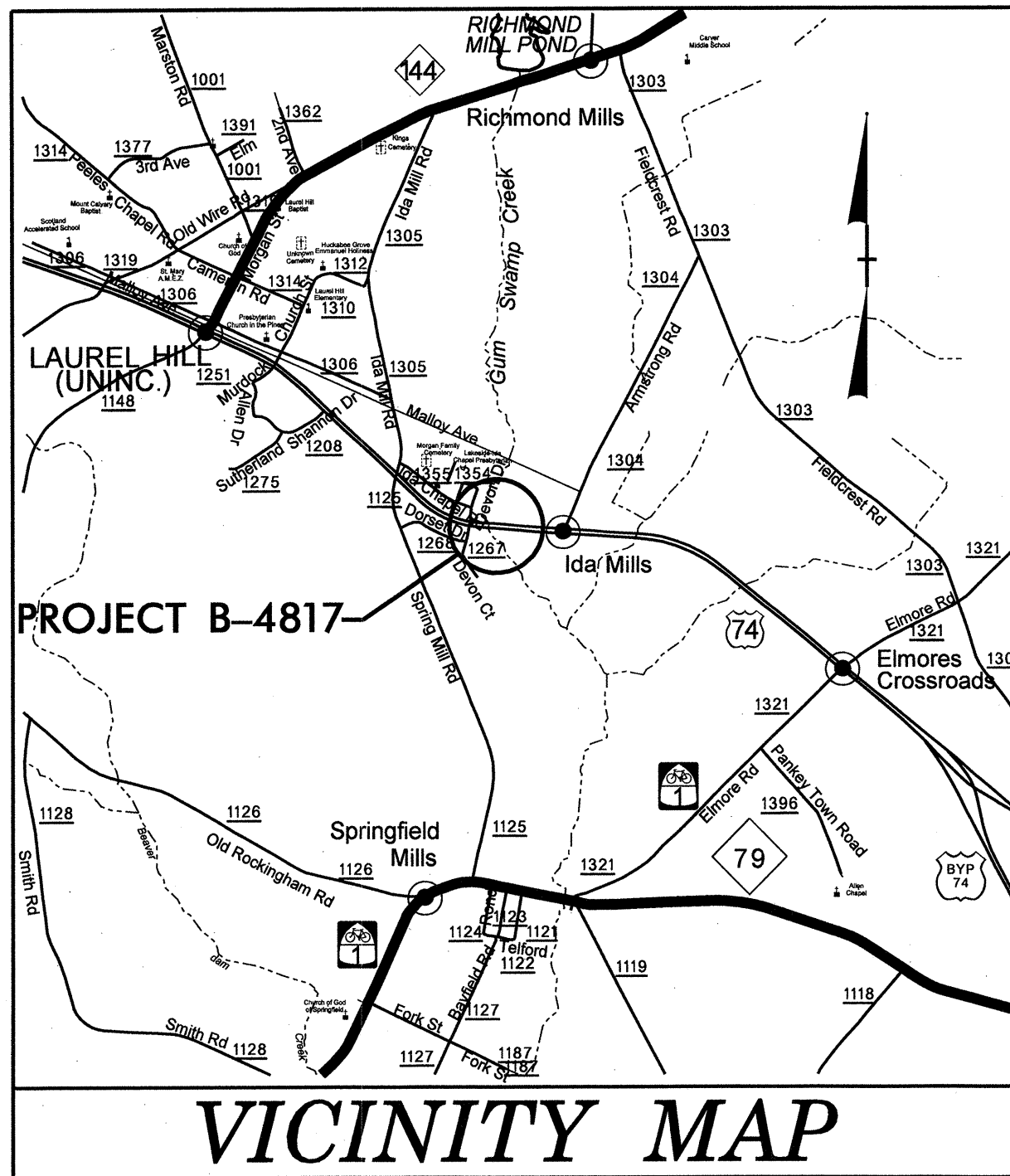
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SCOTLAND COUNTY

LOCATION: BRIDGE NO. 23 ON US 74 (FUTURE I-74) WBL OVER GUM SWAMP CREEK

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4817		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38587.1.1	BRNHS-74(71)	PE	
38587.2.1	BRNHS-74(71)	RW & UTILITIES	
38587.2.1	BRNHS-74(71)	CONSTR.	



DESIGN DATA

ADT 2012 =	27000
ADT 2035 =	45400
DHV =	10 %
D =	60 %
T =	20 % *
V =	60 MPH
V _{DET} =	40 MPH

*TTST=17% DUAL=3%
FUNC CLASS=PRINCIPAL ARTERIAL
"STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4817 =	0.196 MILES
LENGTH STRUCTURE TIP PROJECT B-4817 =	0.026 MILES
TOTAL LENGTH OF TIP PROJECT B-4817 =	0.222 MILES

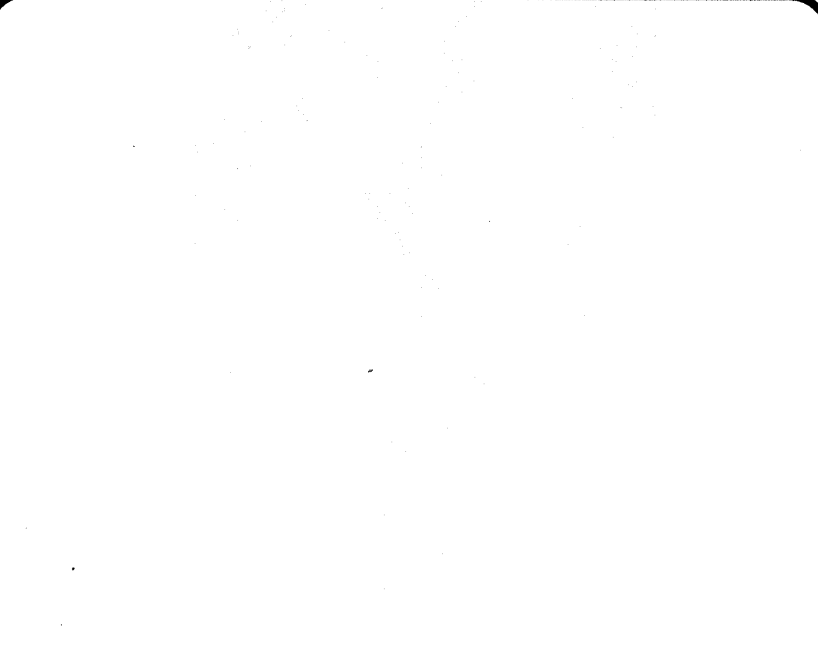
2012 STANDARD SPECIFICATIONS

LETTING DATE:
DECEMBER 18, 2012

WSP - SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100 • Cary, NC 27513 • 919.678.0035
www.wspells.com
LICENSE NO. F-0891

J. J. Barcomb, P.E.
Project Engineer

N. A. Pierce, P.E.
Project Design Engineer



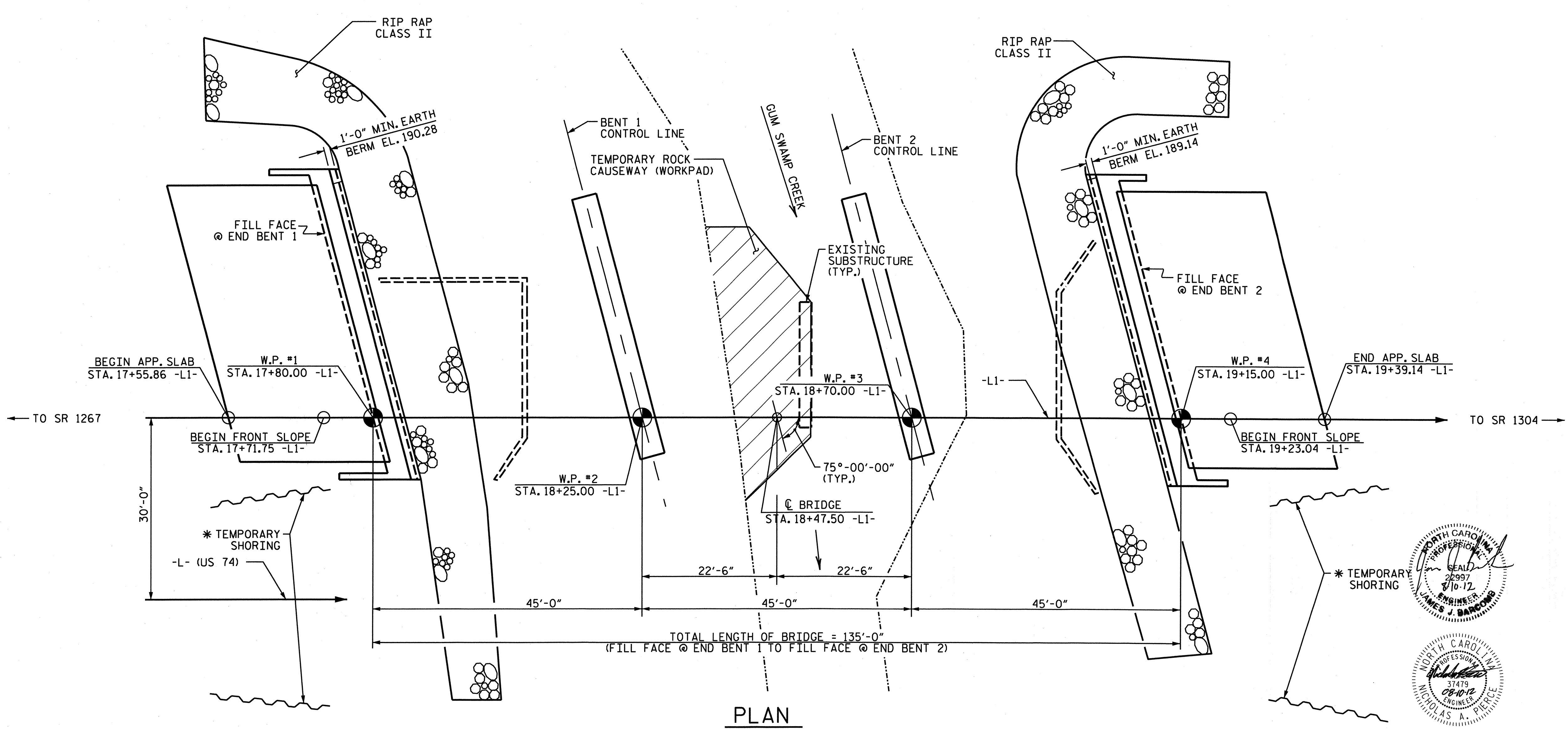
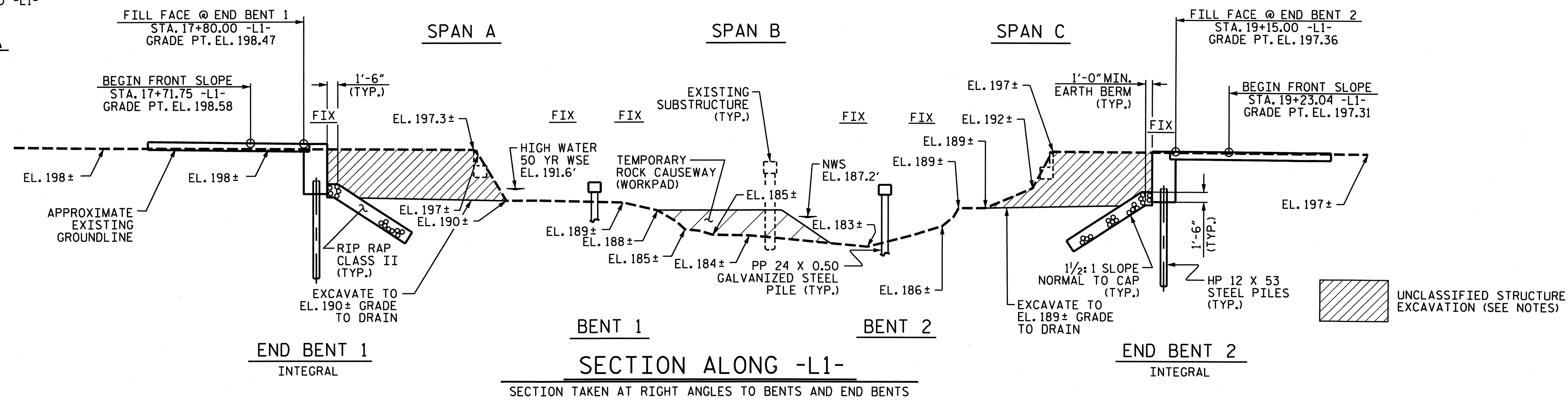
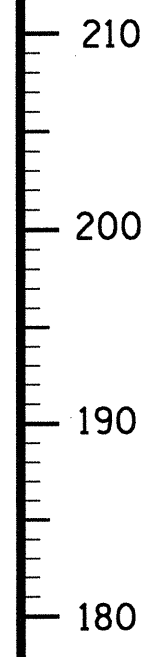
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

\$\$\$SYTIME\$\$\$
\$\$\$DON\$\$\$
\$\$\$SERNAME\$\$\$

-3.8087% Δ -0.5760%

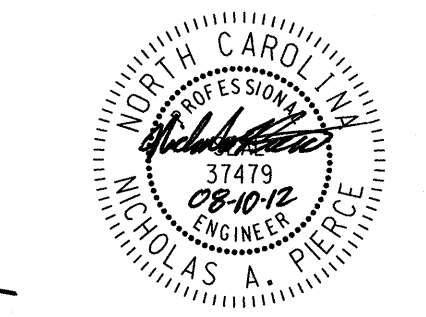
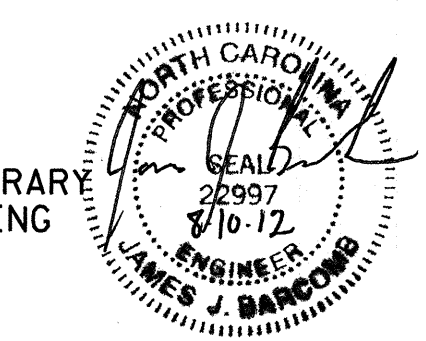
PI STA. 16+55.00 -L1-
EL. 198.86'
VC = 440'

GRADE DATA



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-
SHEET 1 OF 3 REPLACES BRIDGE #23



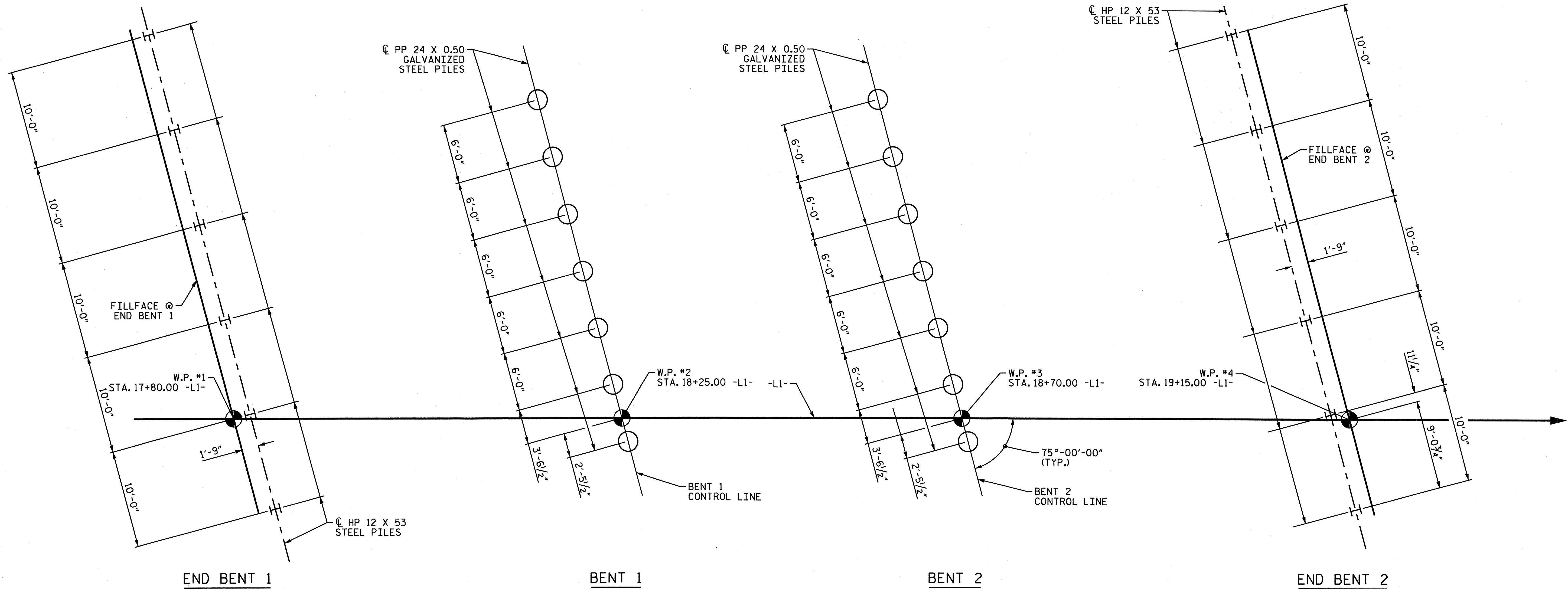
WSP - SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER GUM SWAMP CREEK ON US 74 WBL BETWEEN SR 1267 AND SR 1304

DRAWN BY: H.S./M.J.O. DATE: 4/12
CHECKED BY: N. PIERCE DATE: 5/12

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

*****SYTIME*****
*****DGN*****
*****USERNAME*****



FOUNDATION LAYOUT

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.

PILES AT BENT 1 AND BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 155 TONS PER PILE.
 DRIVE PILES AT BENT 1 AND BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 260 TONS PER PILE.

INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 159 FT.
 INSTALL PILES AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 148 FT.

THE SCOUR CRITICAL ELEVATION AT BENT 1 IS ELEVATION 171 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

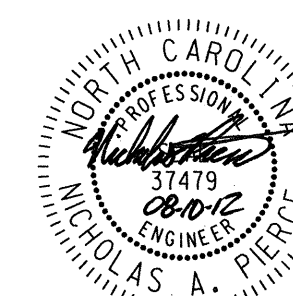
THE SCOUR CRITICAL ELEVATION AT BENT 2 IS ELEVATION 168 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PIPE PILE PLATES ARE REQUIRED FOR STEEL PIPE PILES AT BENT 1 AND BENT 2. USE PIPE PILE PLATES WITH A DIAMETER EQUAL TO THE PILE PIPE DIAMETER. FOR STEEL PIPE PILE PLATES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 2 OF 3



WSP - SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE OVER GUM SWAMP CREEK ON US 74 WBL BETWEEN SR 1267 AND SR 1304					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					34

DRAWN BY : M.J. OSTRISHKO DATE : 4/12
 CHECKED BY : N. PIERCE DATE : 5/12

*****SYSTEM*****

TOTAL BILL OF MATERIAL

	CONSTRUCTION MAINTENANCE, AND REMOVAL OF TEMPORARY STRUCTURE	CONSTRUCTION MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	PP 24 X 0.50 GALVANIZED STEEL PILES	PIPE PILE PLATES	PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS		
	LUMP SUM	LUMP SUM	LUMP SUM	EACH	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	No. LIN. FT.	No. LIN. FT.	No. LIN. FT.	EACH	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM		
SUPERSTRUCTURE						6,031	7,067				15	645.38				266.54					
END BENT 1					LUMP SUM			25.5		4,012		6	450		6		209	232			
BENT 1								28.6		4,002			7	224	7						
BENT 2								28.7		4,002			7	294	7						
END BENT 2					LUMP SUM			25.8		4,012		6	450		6		212	236			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	1	LUMP SUM	6,031	7,067	108.6	LUMP SUM	16,028	15	645.38		900	518	14	26	266.54	421	468	LUMP SUM

▲ FOR BENT 2, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE BENT 2 SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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

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

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 45'-0" REINFORCED CONCRETE DECK GIRDERS; 25'-10" CLEAR ROADWAY WIDTH WITH BITUMINOUS WEARING SURFACE ON ABUTMENTS; REINFORCED CONCRETE FULL HEIGHT, PILE FOOTING, INTERIOR BENT; REINFORCED CONCRETE ROUND POST & WEB, PILE FOOTING AND LOCATED AT PROPOSED STRUCTURE SHALL BE REMOVED.

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

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 18+57± FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 60 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE 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.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 18+47.50 -L-.

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

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

STEEL SHEET PILING REQUIRED FOR SHORING SHALL BE HOT ROLLED.

FOR PILE DRIVING CRITERIA, SEE SPECIAL PROVISION.

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.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

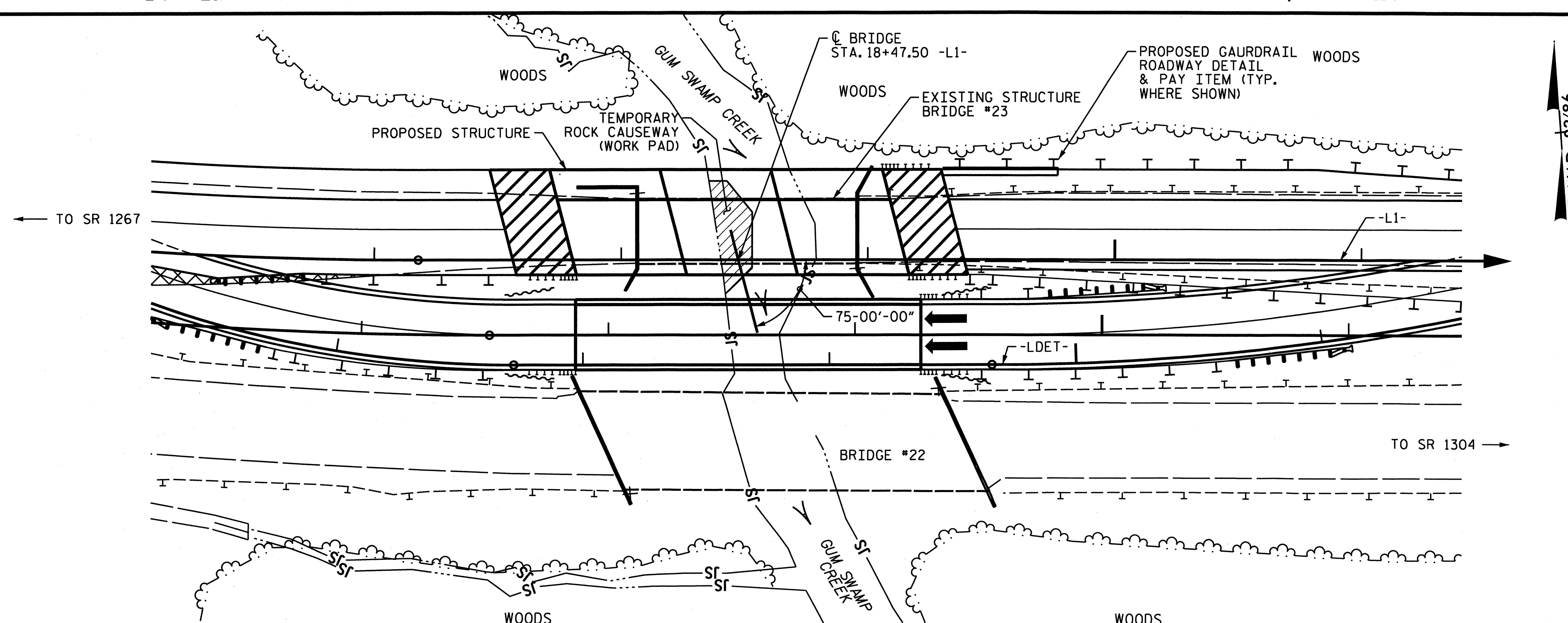
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 2.

BM #2: "X" MARK IN THE NE WW ON EAST BOUND BRIDGE ON US 74 20.0' RIGHT OF STA. 19+34.00 -L-, EL. 197.19'



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

DRAWN BY: M.J. OSTRISHKO DATE: 5/12
 CHECKED BY: N. PIERCE DATE: 5/12

*****SYSTEM*****
 *****DGN*****

HYDRAULIC DATA

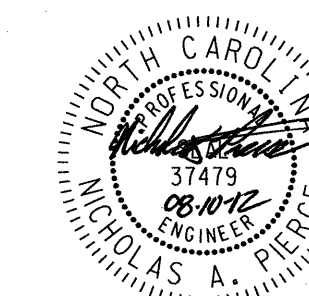
DESIGN DISCHARGE	= 1900 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YEARS
DESIGN HIGH WATER ELEVATION	= 191.6
DRAINAGE AREA	= 55.4 SQ. MI.
BASIC DISCHARGE (Q100)	= 2422 CFS
BASIC HIGH WATER ELEVATION	= 192.3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= N/A CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YEARS
OVERTOPPING FLOOD ELEVATION	= 195.0

PROJECT NO. B-4817
 SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 3 OF 3



WSP - SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER GUM SWAMP CREEK ON US 74 WBL BETWEEN SR 1267 AND SR 1304

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

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

LOAD FACTORS:

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.38	--	1.75	0.846	1.50	B	I	21.4	0.994	1.38	C	I	25.4	0.80	0.846	1.58	B	I	21.4		
	HL-93 (OPERATING)	N/A	--	2.09	--	1.35	0.846	1.94	B	I	21.4	0.994	2.15	C	I	34.1	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.84	66	1.75	0.846	1.84	B	I	21.4	0.994	1.91	C	I	34.1	0.80	0.846	1.95	B	I	21.4		
	HS-20 (OPERATING)	36.000	--	2.39	86	1.35	0.846	2.39	B	I	21.4	0.994	2.51	C	I	34.1	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	3.84	52	1.40	0.846	4.55	B	I	21.4	0.994	5.18	C	I	34.1	0.80	0.846	3.84	B	I	21.4	
		SNGARBS2	20.000	--	3.08	62	1.40	0.846	3.65	B	I	21.4	0.994	3.86	C	I	34.1	0.80	0.846	3.08	B	I	21.4	
		SNAGRIS2	22.000	--	3.02	66	1.40	0.846	3.57	B	I	21.4	0.994	3.66	C	I	34.1	0.80	0.846	3.02	B	I	21.4	
		SNCOTTS3	27.250	--	1.91	52	1.40	0.846	2.27	B	I	21.4	0.994	2.56	C	I	34.1	0.80	0.846	1.91	B	I	21.4	
		SNAGGRS4	34.925	--	1.68	59	1.40	0.846	2.00	B	I	21.4	0.994	2.26	C	I	34.1	0.80	0.846	1.68	B	I	21.4	
		SNS5A	35.550	--	1.64	58	1.40	0.846	1.94	B	I	21.4	0.994	2.37	C	I	34.1	0.80	0.846	1.64	B	I	21.4	
		SNS6A	39.950	--	1.54	62	1.40	0.846	1.83	B	I	21.4	0.994	2.21	C	I	34.1	0.80	0.846	1.54	B	I	21.4	
	SNS7B	42.000	③	1.47	62	1.40	0.846	1.74	B	I	21.4	0.994	2.25	C	I	34.1	0.80	0.846	1.47	B	I	21.4		
	TRUCK TRACTOR SEMI-TRAILER (TST)	TNAGRIT3	33.000	--	1.89	62	1.40	0.846	2.24	B	I	21.4	0.994	2.57	C	I	34.1	0.80	0.846	1.89	B	I	21.4	
		TNT4A	33.075	--	1.91	63	1.40	0.846	2.27	B	I	21.4	0.994	2.43	C	I	34.1	0.80	0.846	1.91	B	I	21.4	
		TNT6A	41.600	--	1.60	67	1.40	0.846	1.90	B	I	21.4	0.994	2.43	C	I	34.1	0.80	0.846	1.60	B	I	21.4	
		TNT7A	42.000	--	1.63	69	1.40	0.846	1.93	B	I	21.4	0.994	2.20	C	I	34.1	0.80	0.846	1.63	B	I	21.4	
		TNT7B	42.000	--	1.70	71	1.40	0.846	2.01	B	I	21.4	0.994	2.15	C	I	34.1	0.80	0.846	1.70	B	I	21.4	
		TNAGRIT4	43.000	--	1.62	70	1.40	0.846	1.92	B	I	21.4	0.994	2.02	C	I	34.1	0.80	0.846	1.62	B	I	21.4	
TNAGT5A		45.000	--	1.51	68	1.40	0.846	1.78	B	I	21.4	0.994	2.12	C	I	34.1	0.80	0.846	1.51	B	I	21.4		
TNAGT5B	45.000	--	1.47	66	1.40	0.846	1.74	B	I	21.4	0.994	1.93	C	I	34.1	0.80	0.846	1.47	B	I	21.4			

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.

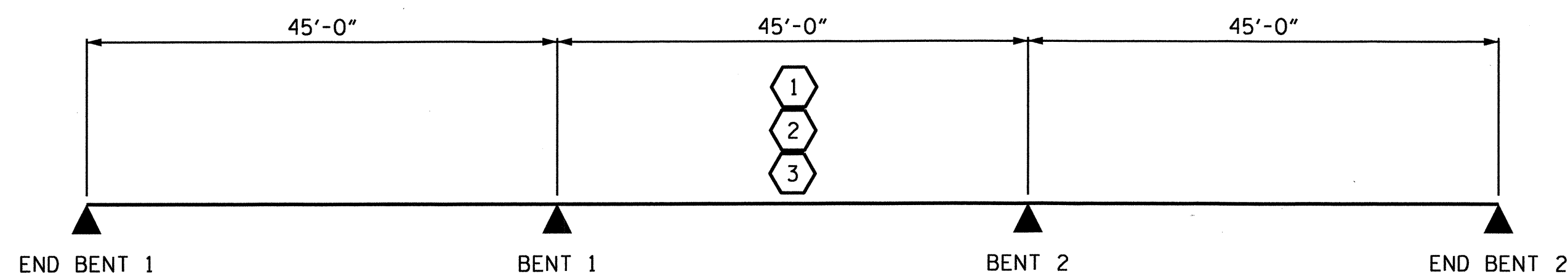
COMMENTS:

- 1.
- 2.
- 3.
- 4.

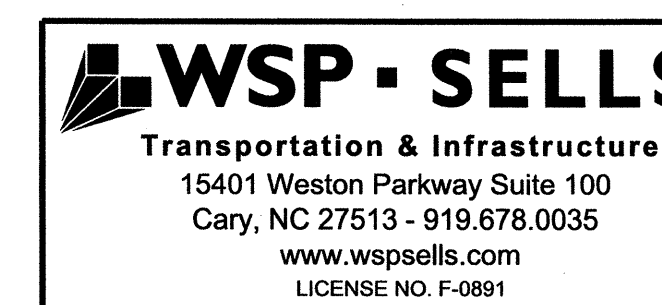
CONTROLLING LOAD RATING
① DESIGN LOAD RATING (HL-93)
② DESIGN LOAD RATING (HS-20)
③ LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE
GIRDER LOCATION
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER

**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50-L1-



LRFR SUMMARY

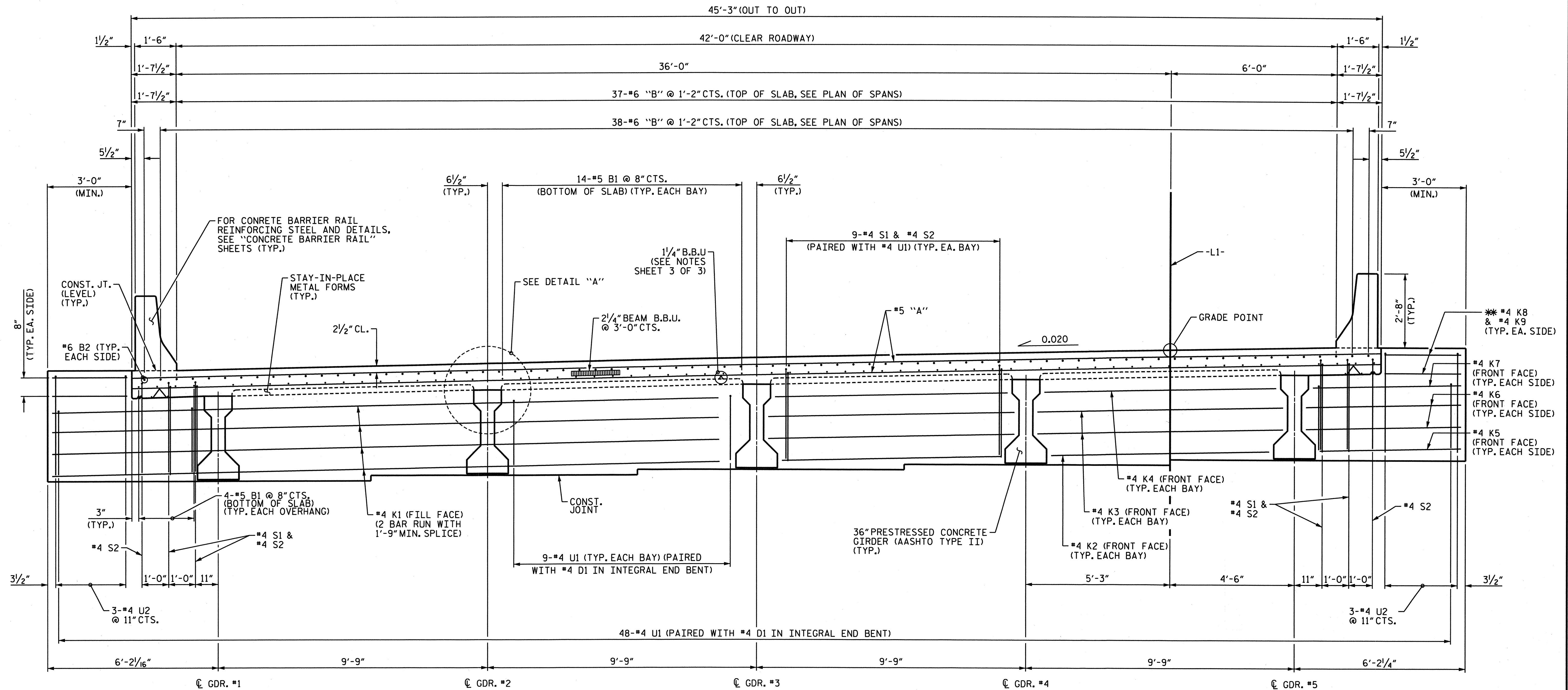


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

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

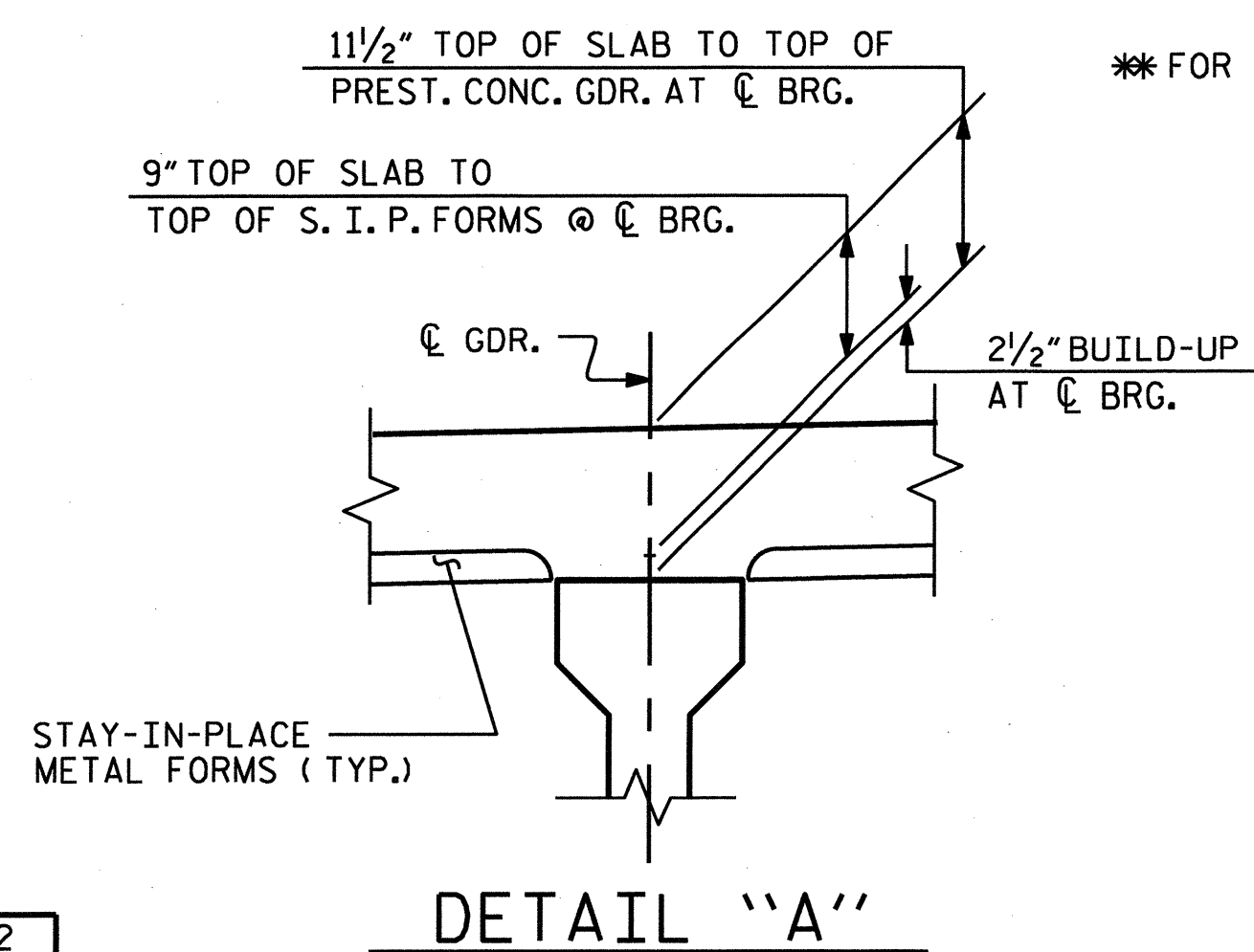
ASSEMBLED BY : N. PIERCE DATE : 01-12
 CHECKED BY : M.J. OSTRISHKO DATE : 05-12
 DRAWN BY : MAA 1/08 REV. 11/12/08RRR MAA/GM
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM

*****SYSTEMTIME*****
 *****DGN*****
 *****USERNAME*****



TYPICAL SECTION AT INTEGRAL END BENT

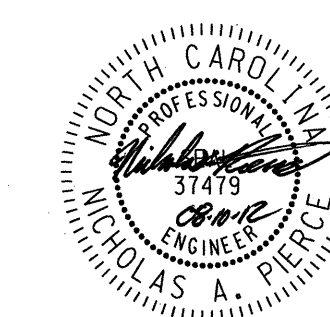
END BENT 1 SHOWN, END BENT 2 SIMILAR.
 FOR SECTION THRU END BENT, SEE "SECTION A-A" SHEET 3 OF 3.
 ** FOR WING WALLS OF INTEGRAL END BENT, SEE "PLAN OF SPAN WING WALL DETAILS" SHEET 4 OF 4.



PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION

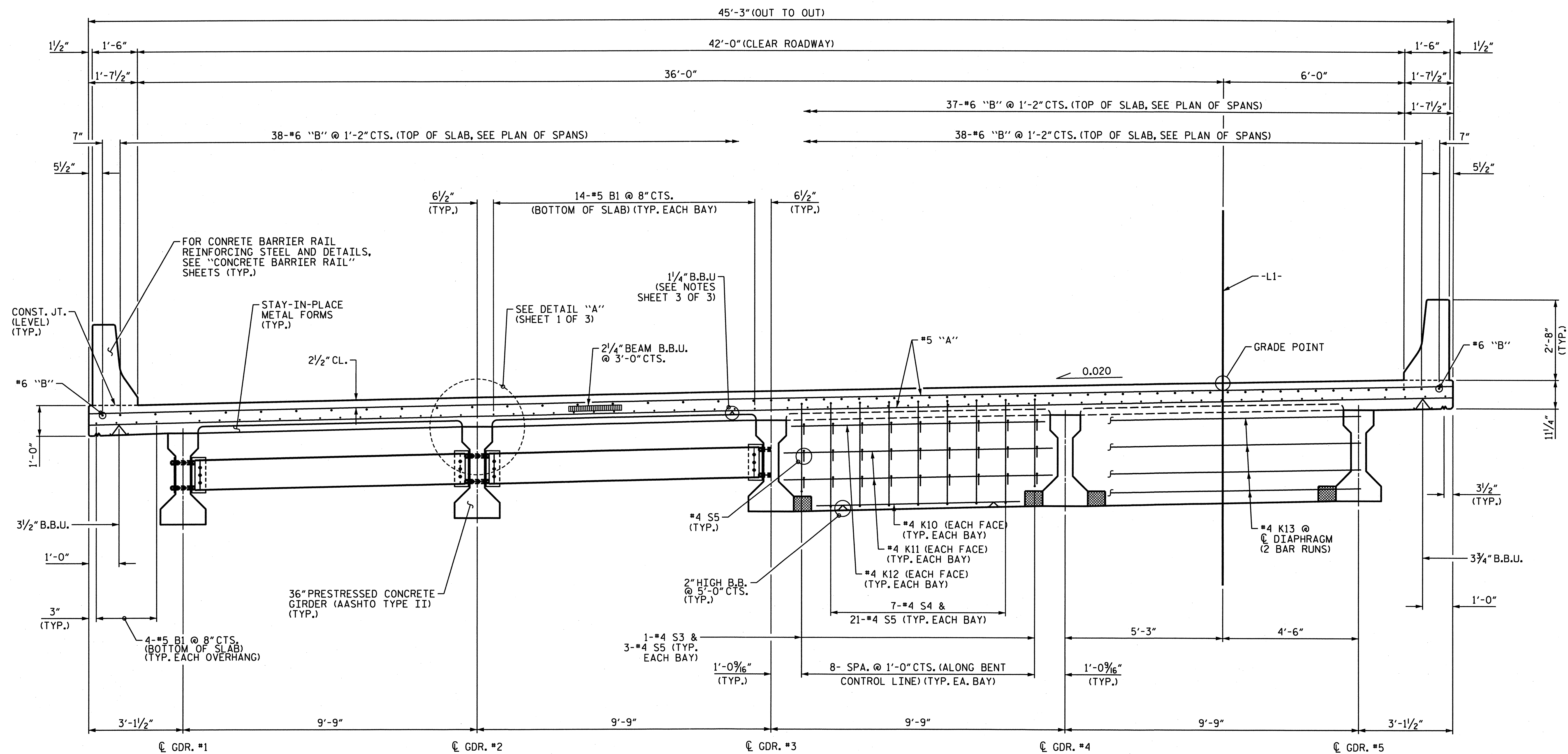


WSP - SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

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

DRAWN BY: M.J. OSTRISHKO DATE: 02-12
 CHECKED BY: N. PIERCE DATE: 04-12

*****SYTIME*****
 *****DGN*****



PARTIAL TYPICAL SECTION
 (SHOWING INTERMEDIATE DIAPHRAGM,
 FOR DETAILS SEE SHEET S-16)

PARTIAL TYPICAL SECTION
 (SHOWING CONTINUOUS FOR LIVE LOAD DIAPHRAGM)

TYPICAL SECTION

FOR INTERMEDIATE STEEL DIAPHRAGM DETAILS,
 SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE II PRESTRESSED CONCRETE GIRDERS" SHEET.
 FOR SECTION THRU CONTINUOUS FOR LIVE LOAD DIAPHRAGM, SEE "SECTION B-B" SHEET 3 OF 3.

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 2 OF 3

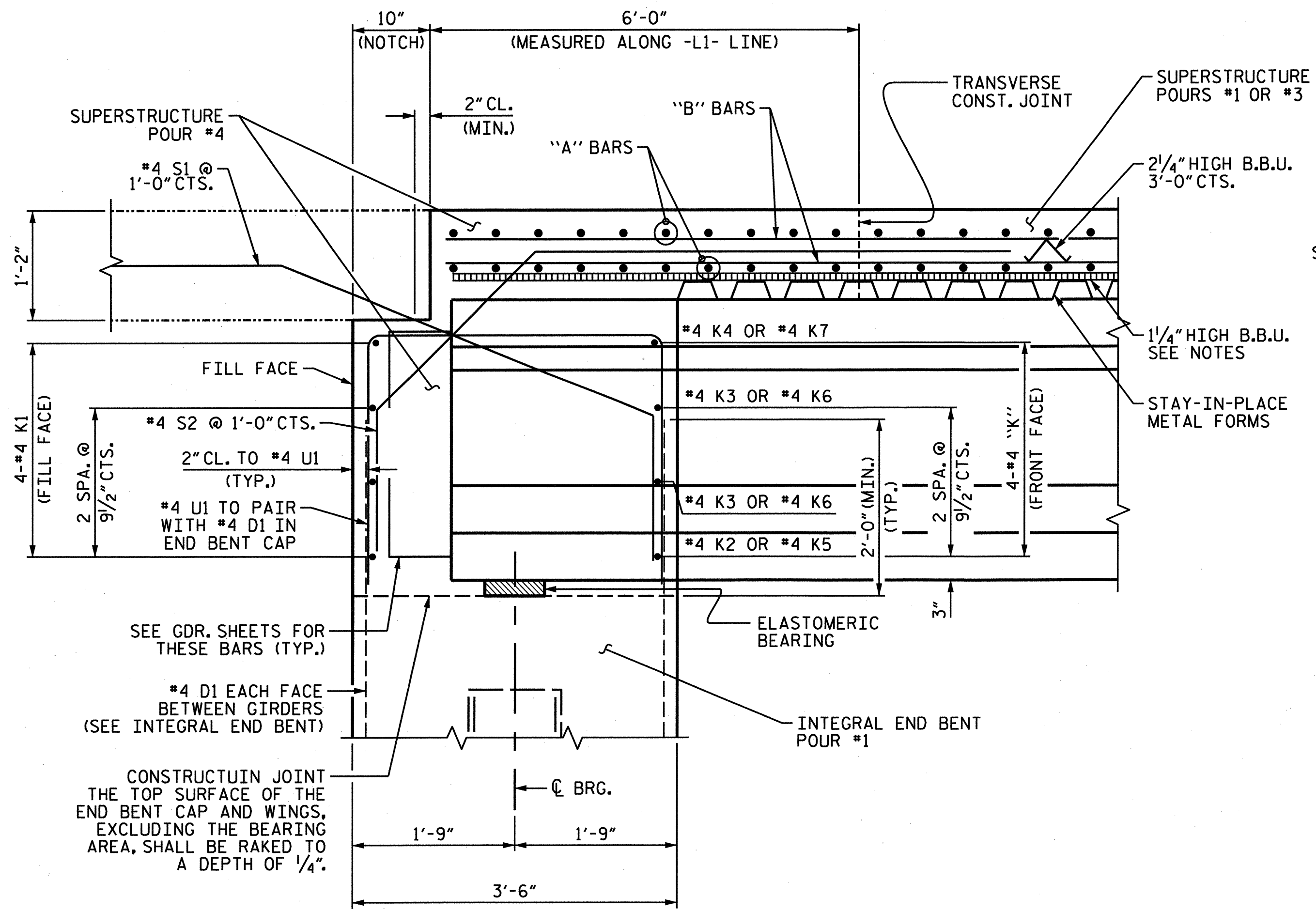


WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

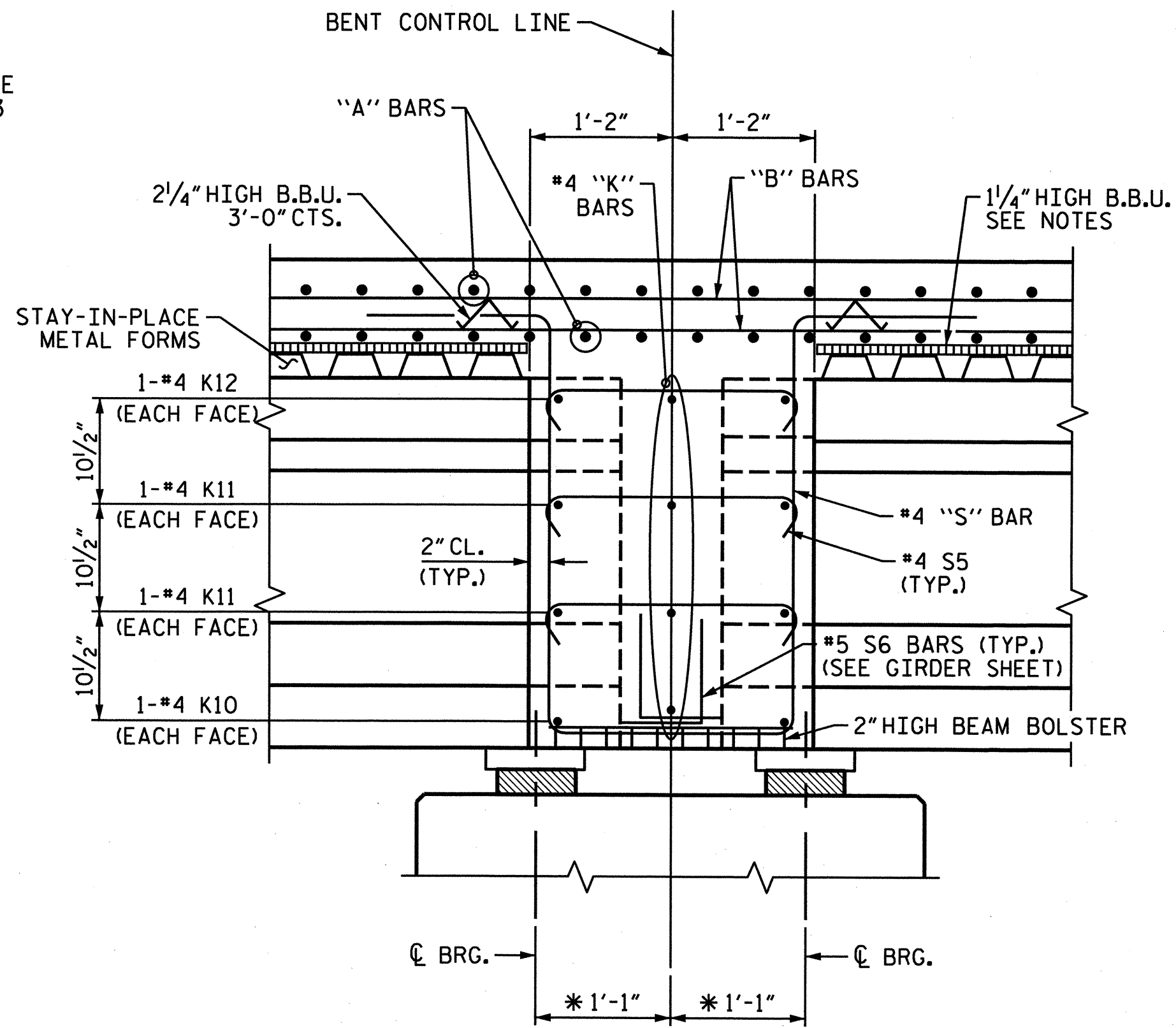
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SUPERSTRUCTURE TYPICAL SECTION	
REVISIONS							SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			34	
2			4				

DRAWN BY : M.J. OSTRISHKO DATE : 02-12
 CHECKED BY : N. PIERCE DATE : 04-12

*****SYTIME*****
 *****DGN*****

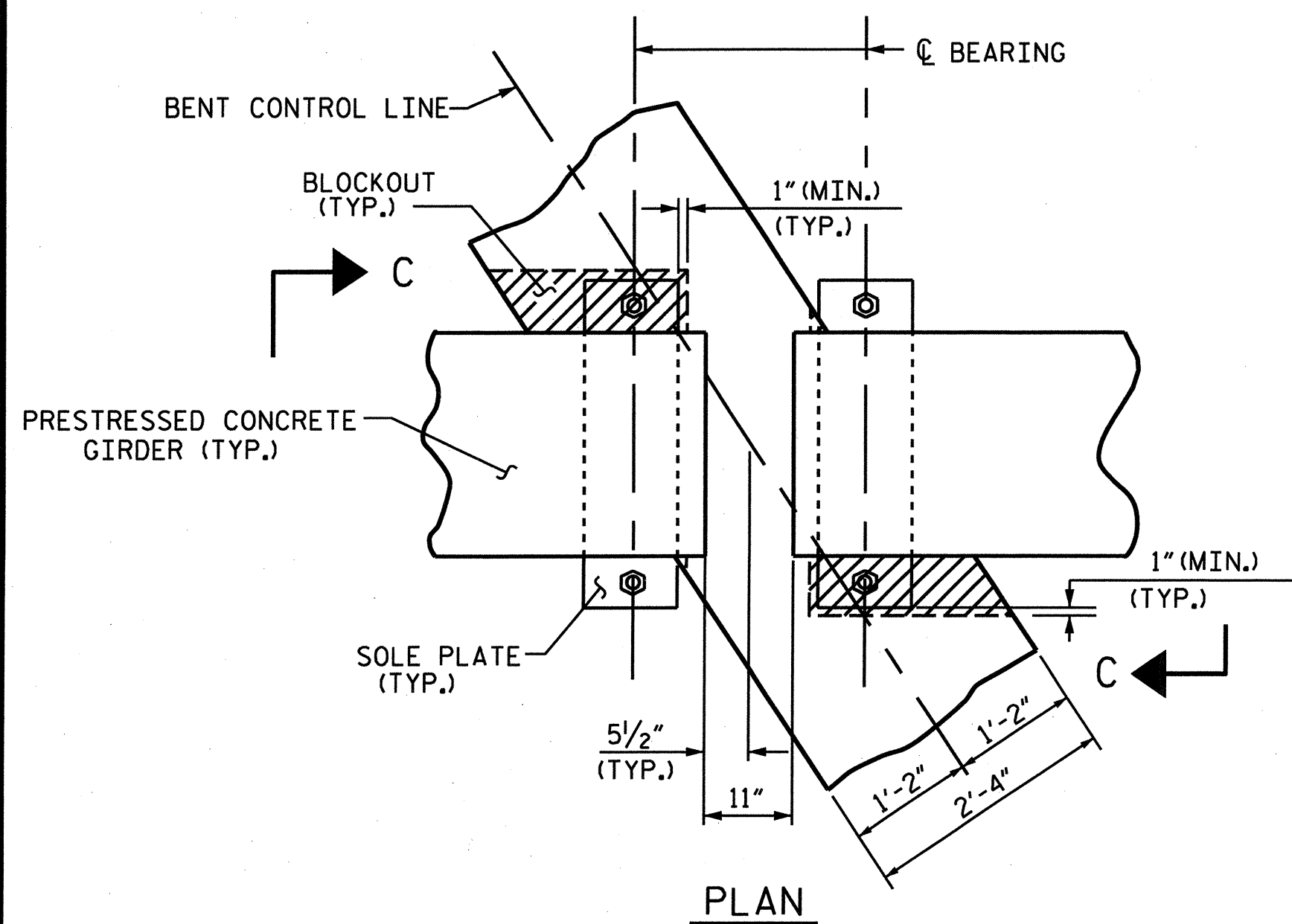


SECTION A-A
(AT INTEGRAL END BENT)
(*#4 K2 THRU #4 K4 TYP. EACH BAY /
#4 K5 THRU #4 K7 TYP. BOTH ENDS)

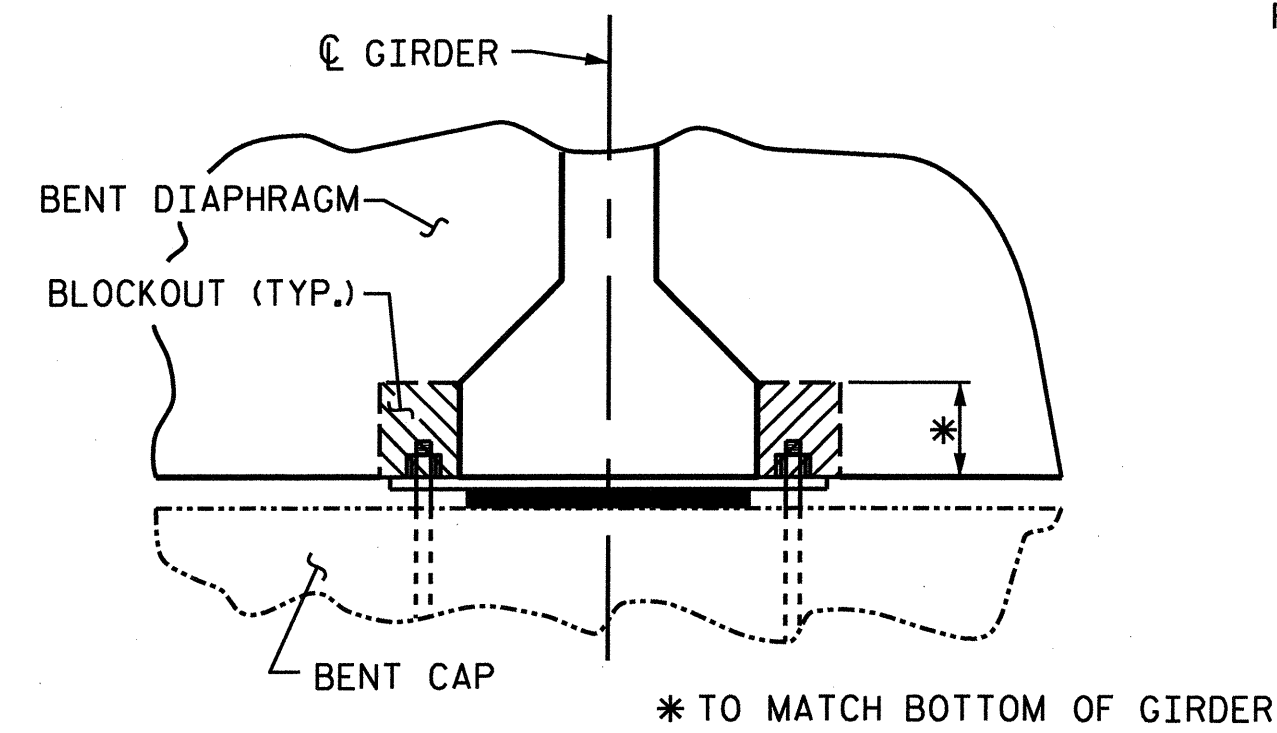


SECTION B-B
(* MEASURED ALONG \bar{C} GIRDER)

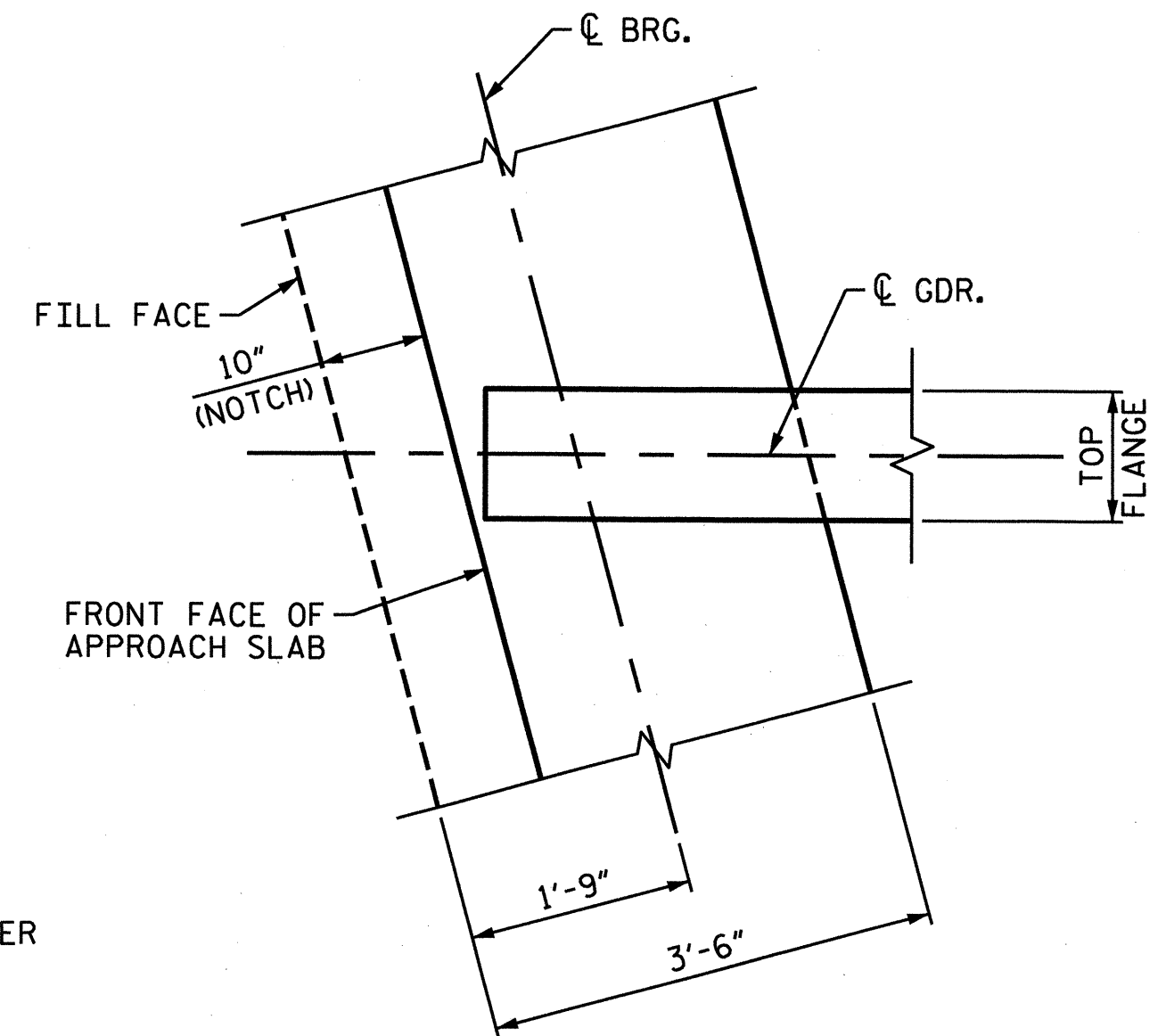
NOTES
PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE 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.
FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGM FOR TYPE II PRESTRESSED CONCRETE GIRDER" SHEET.



PLAN



SECTION C-C
* TO MATCH BOTTOM OF GIRDER



PLAN OF DIAPHRAGM
(AT INTEGRAL END BENT)

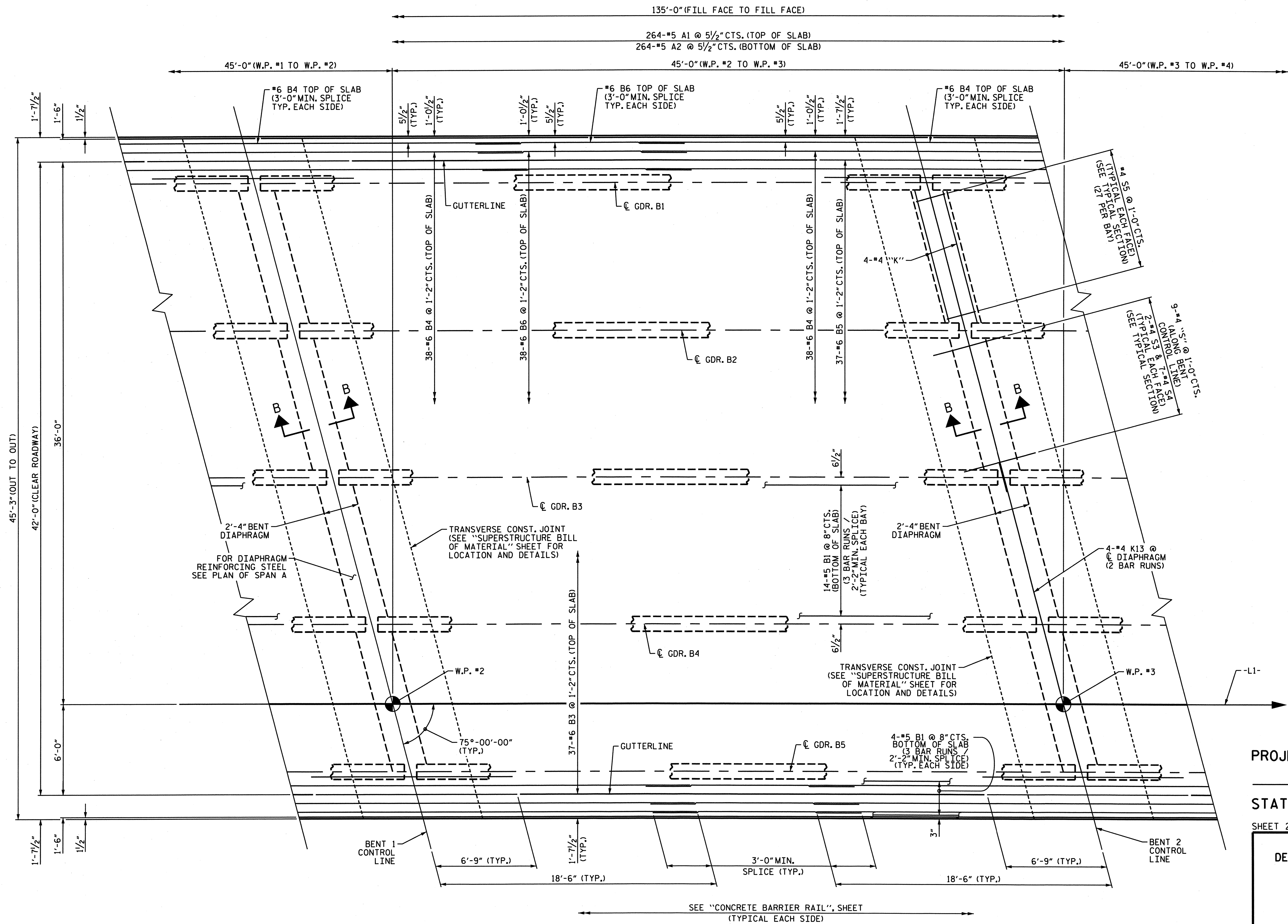
DRAWN BY : M.J. OSTRISHKO DATE : 02-12
CHECKED BY : N. PIERCE DATE : 04-12

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

WSP - SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-
SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION DETAILS					
REVISIONS					SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					34



PLAN OF SPAN B

FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 3 OF 3.
 FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE II PRESTRESSED CONCRETE GIRDERS" SHEET.



WSP - SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

PROJECT NO. B-4817
 SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

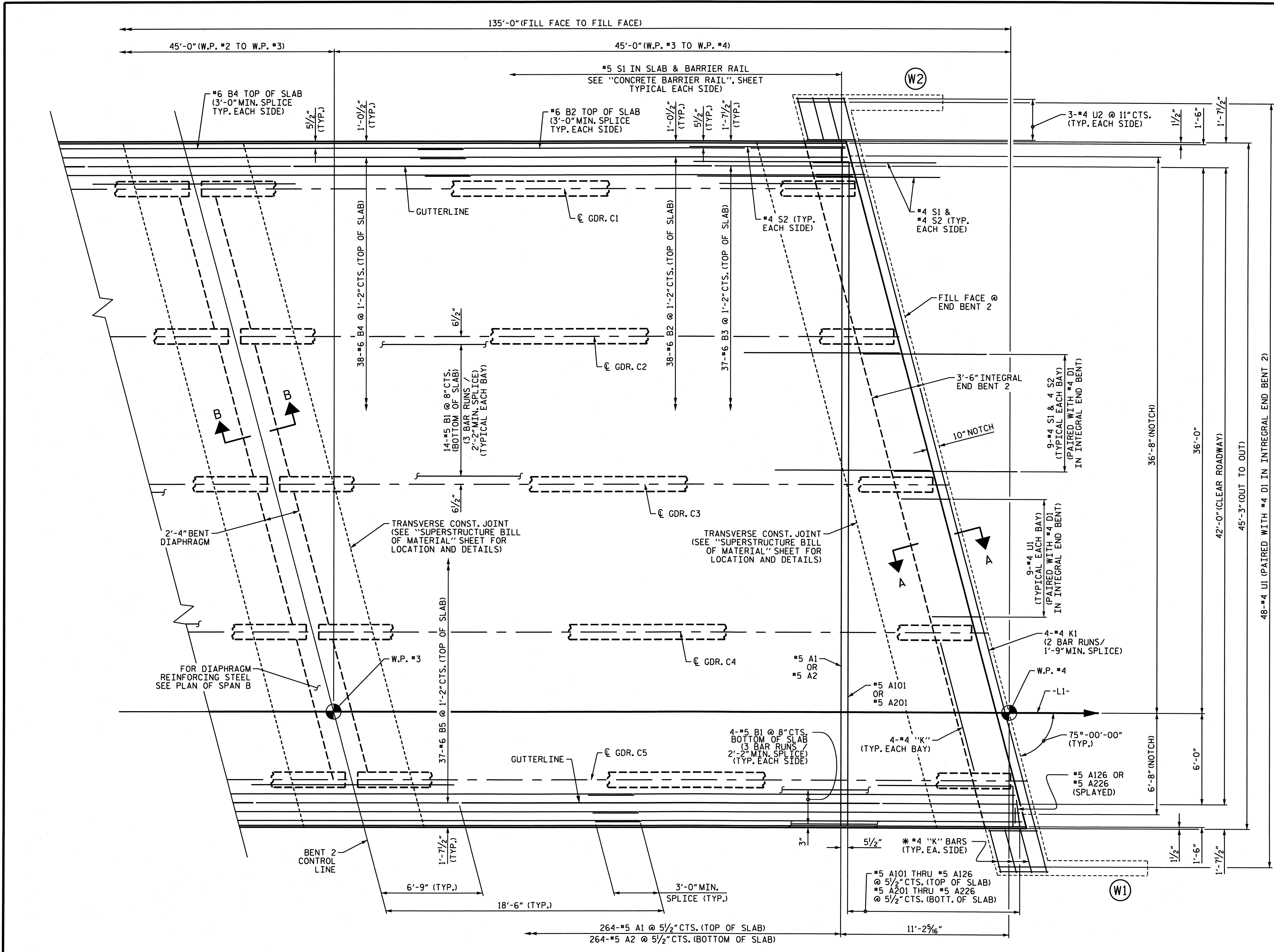
SHEET 2 OF 4

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

DRAWN BY: M.J. OSTRISHKO DATE: 02-12
 CHECKED BY: N. PIERCE DATE: 04-12

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

*****SYTIME*****
 *****DGN*****



PLAN OF SPAN C

FOR SECTION VIEWS, SEE "TYPICAL SECTION" SHEET 3 OF 3.
 *FOR WING WALLS OF INTEGRAL END BENT, SEE "PLAN OF SPAN WING WALL DETAILS" SHEET 4 OF 4.
 FOR DETAILS OF INTERMEDIATE DIAPHRAGMS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE II PRESTRESSED CONCRETE GIRDER" SHEET.



WSP - SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

PROJECT NO. B-4817
 SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

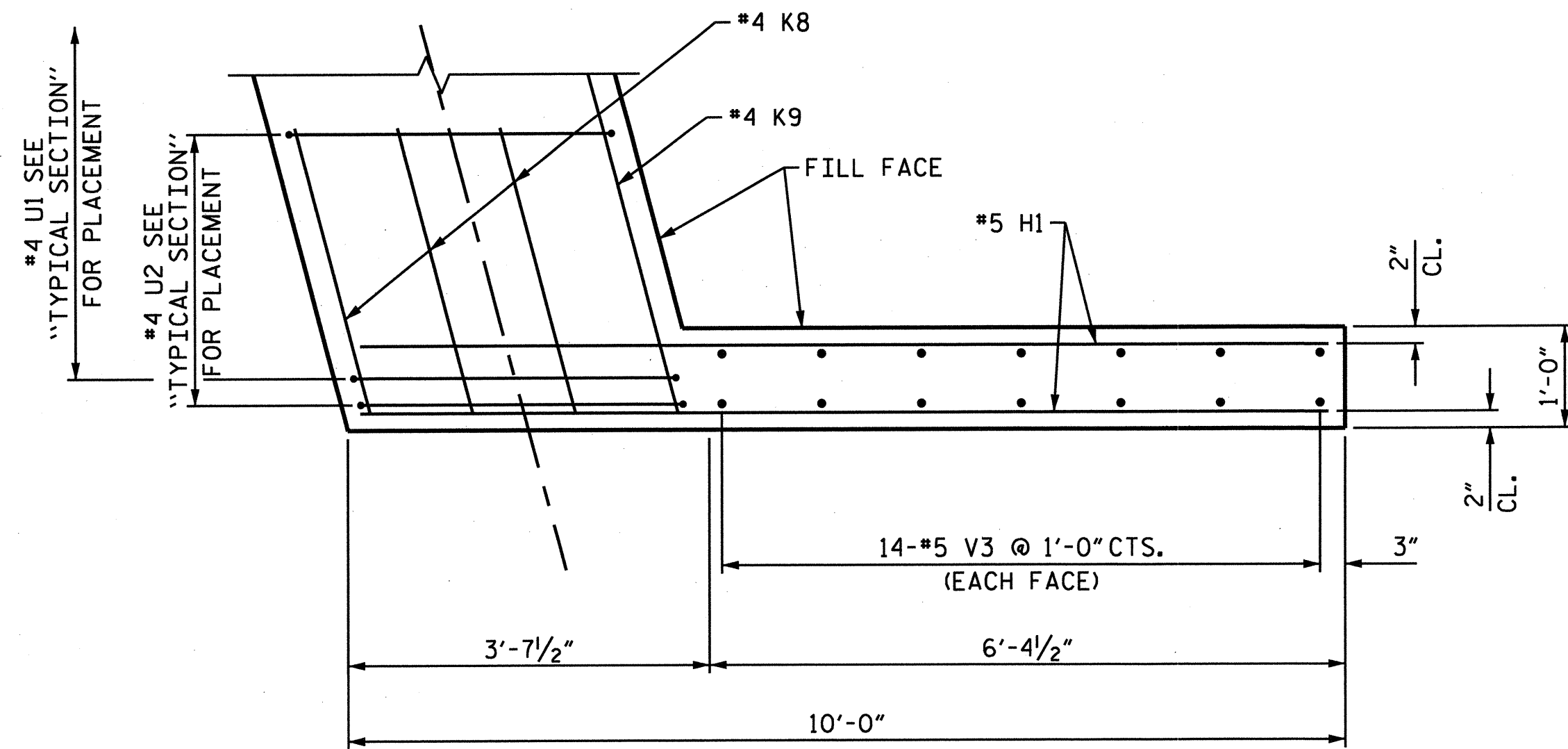
SHEET 3 OF 4

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

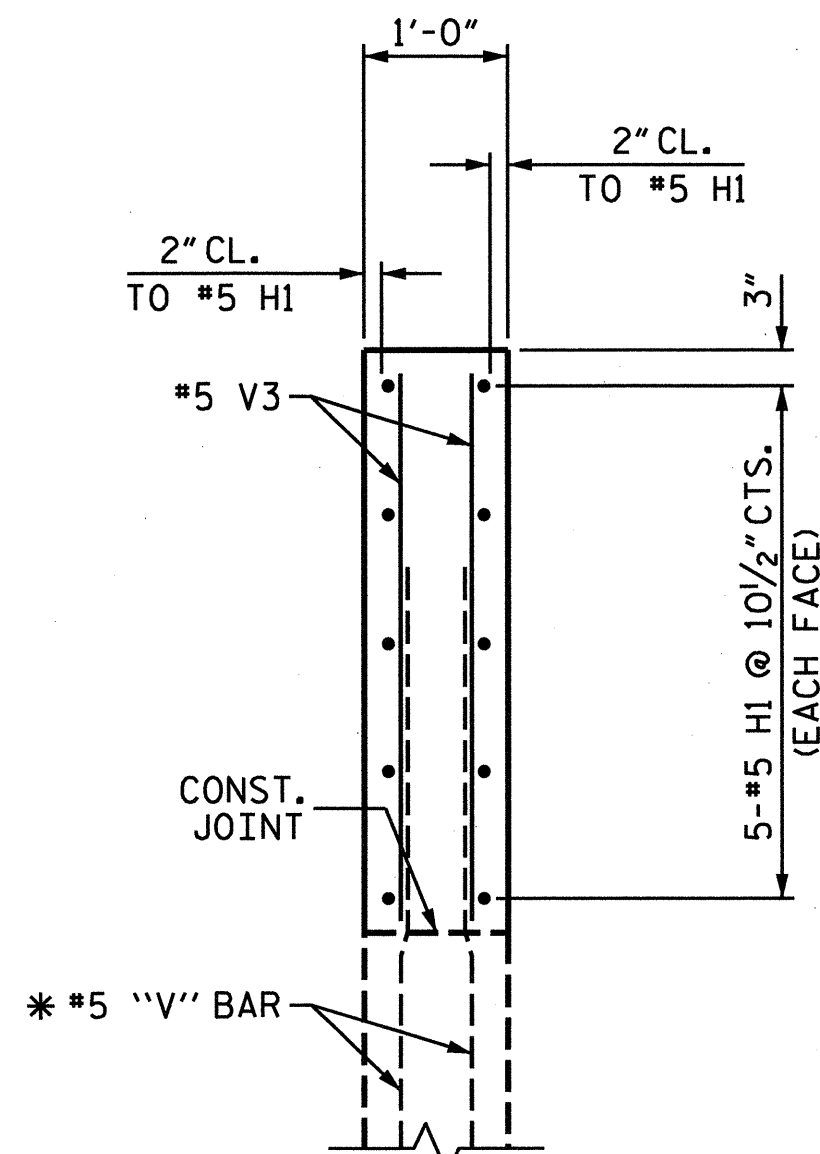
DRAWN BY: M.J. OSTRISHKO DATE: 02-12
 CHECKED BY: N. PIERCE DATE: 04-12

*****SYTIME*****
 *****DCN*****
 *****USERNAME*****

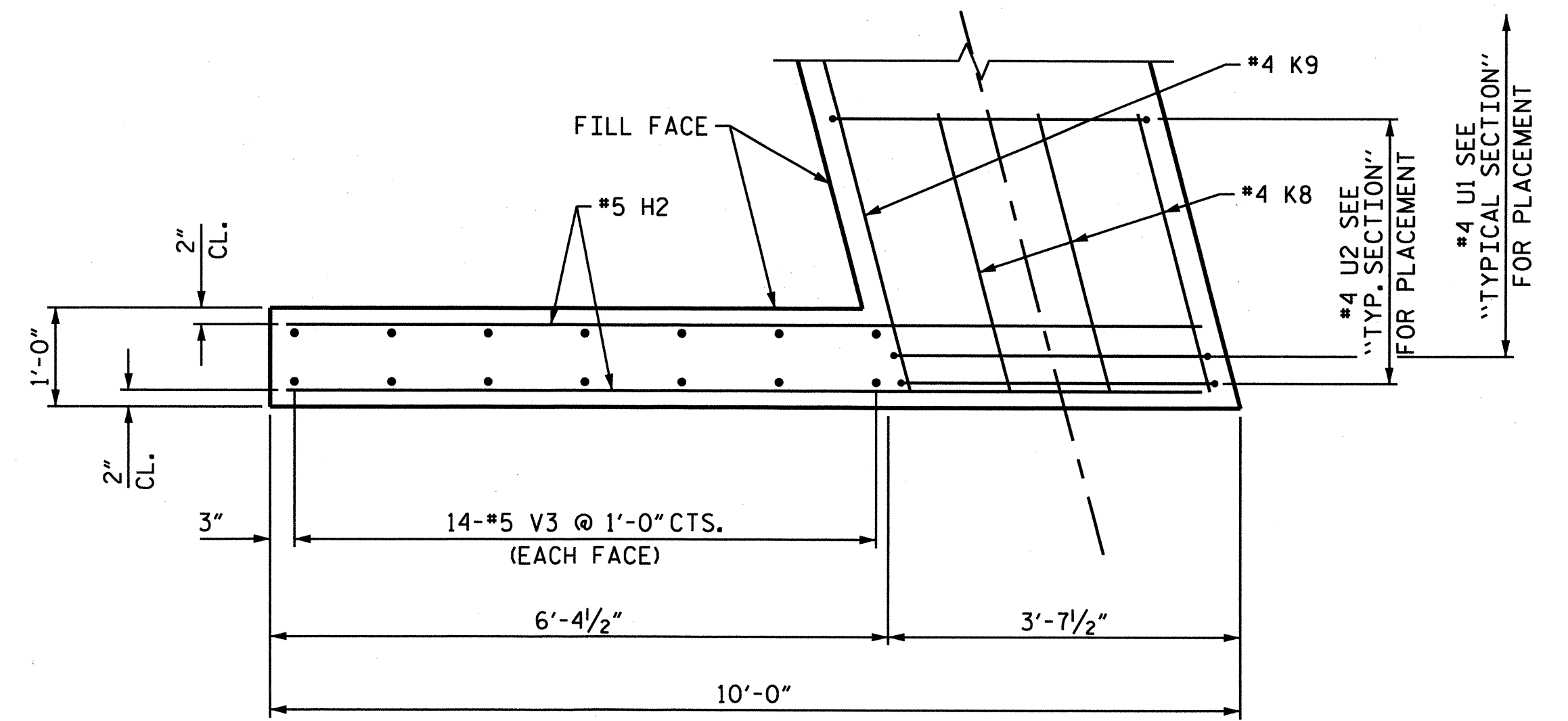
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	
2			4			34	



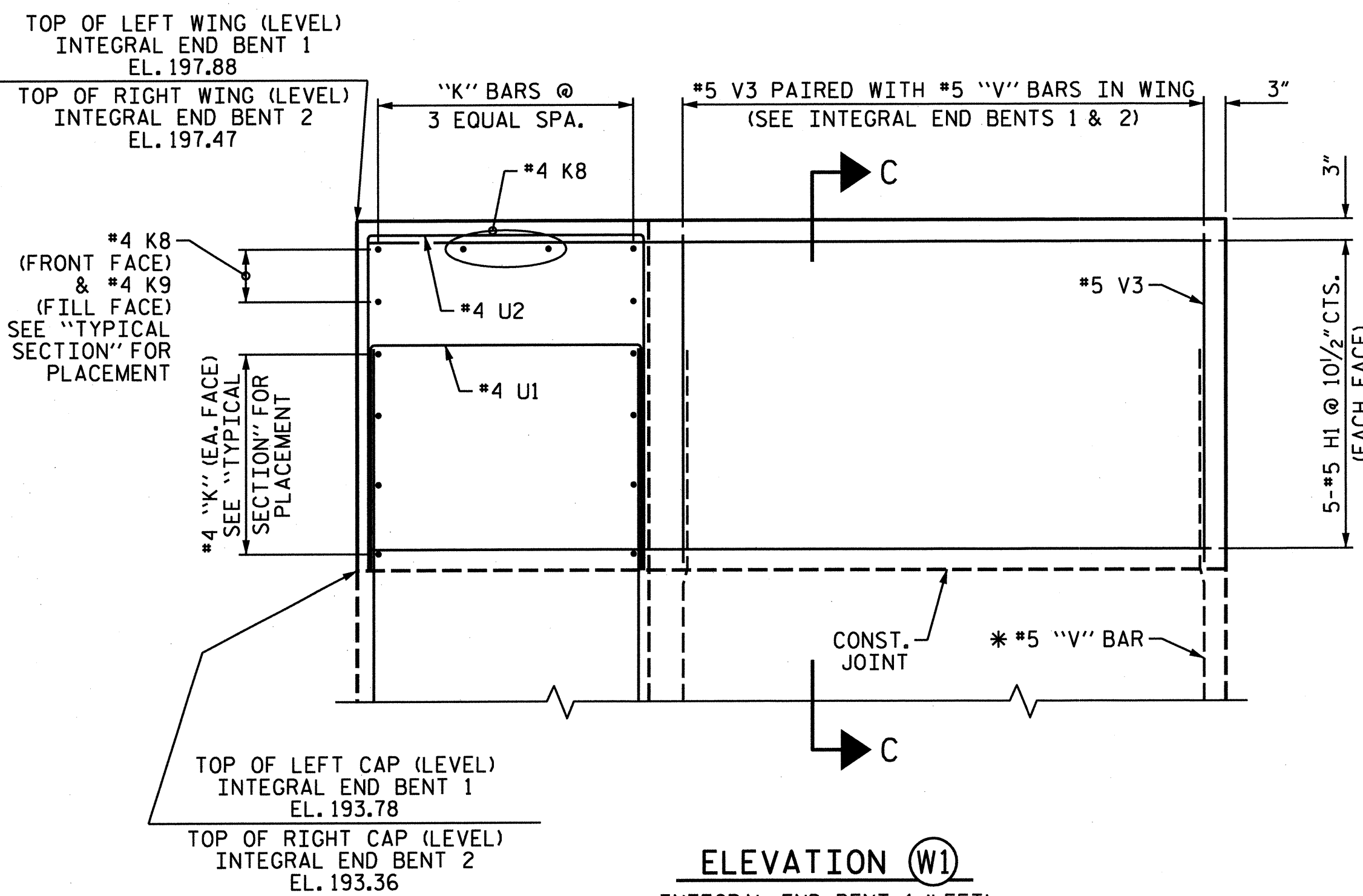
PLAN (W1)
 INTEGRAL END BENT 1 (LEFT)
 INTEGRAL END BENT 2 (RIGHT)



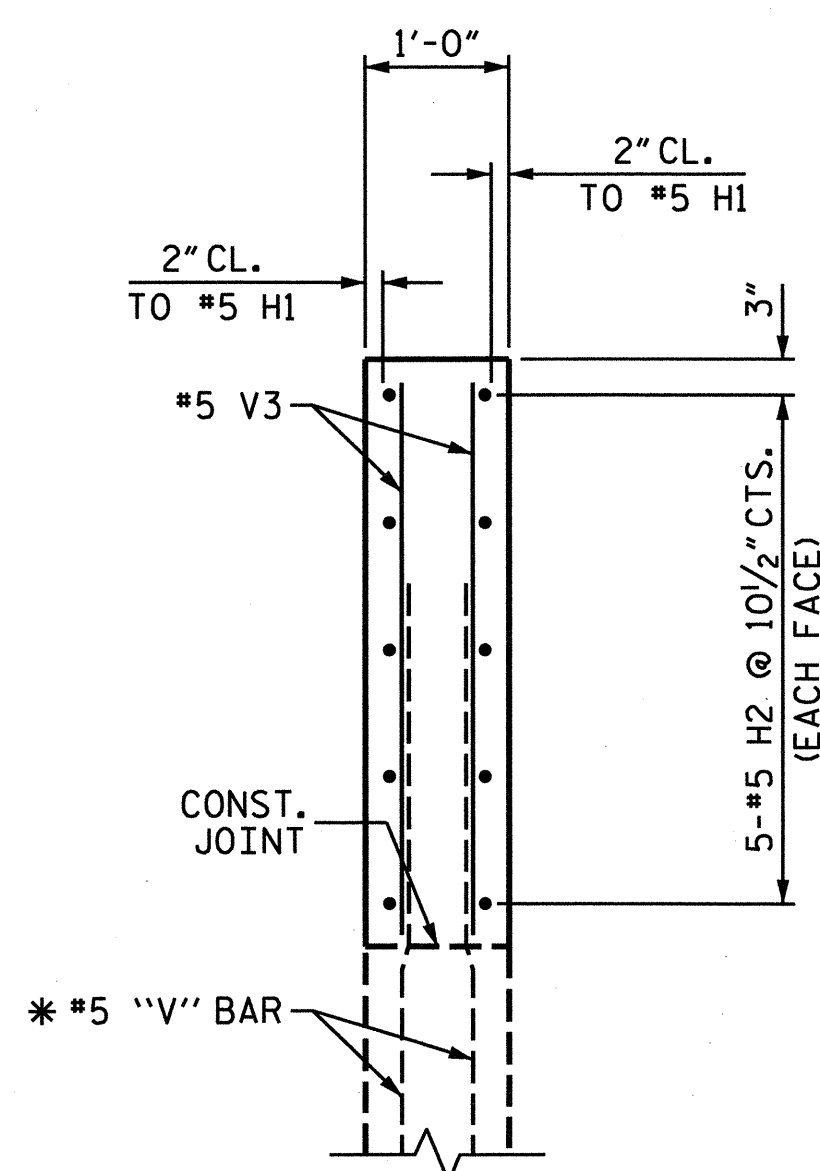
SECTION C-C
 INTEGRAL END BENT 1 (LEFT)
 INTEGRAL END BENT 2 (RIGHT)



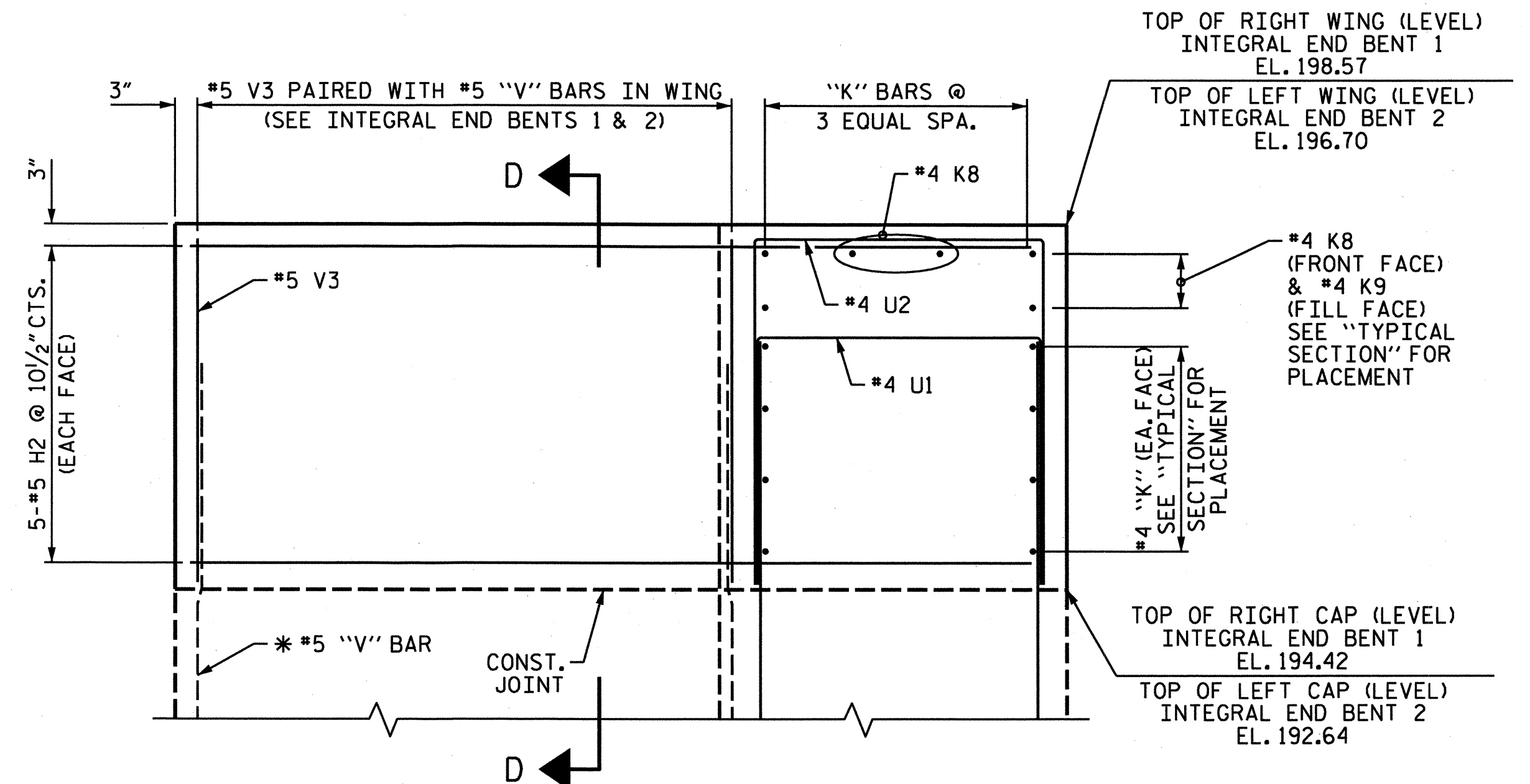
PLAN (W2)
 INTEGRAL END BENT 1 (RIGHT)
 INTEGRAL END BENT 2 (LEFT)



ELEVATION (W1)
 INTEGRAL END BENT 1 (LEFT)
 INTEGRAL END BENT 2 (RIGHT)



SECTION D-D
 INTEGRAL END BENT 1 (RIGHT)
 INTEGRAL END BENT 2 (LEFT)

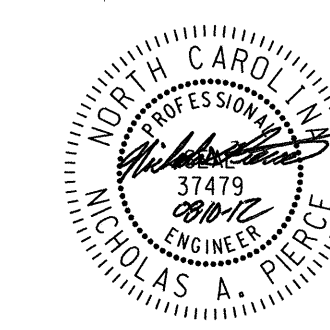


ELEVATION (W2)
 INTEGRAL END BENT 1 (RIGHT)
 INTEGRAL END BENT 2 (LEFT)

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 4 OF 4

UPPER WINGS AT INTEGRAL END BENTS
 * FOR LOWER WING REINFORCING STEEL AND DETAILS, SEE "INTEGRAL END BENT" SHEETS.



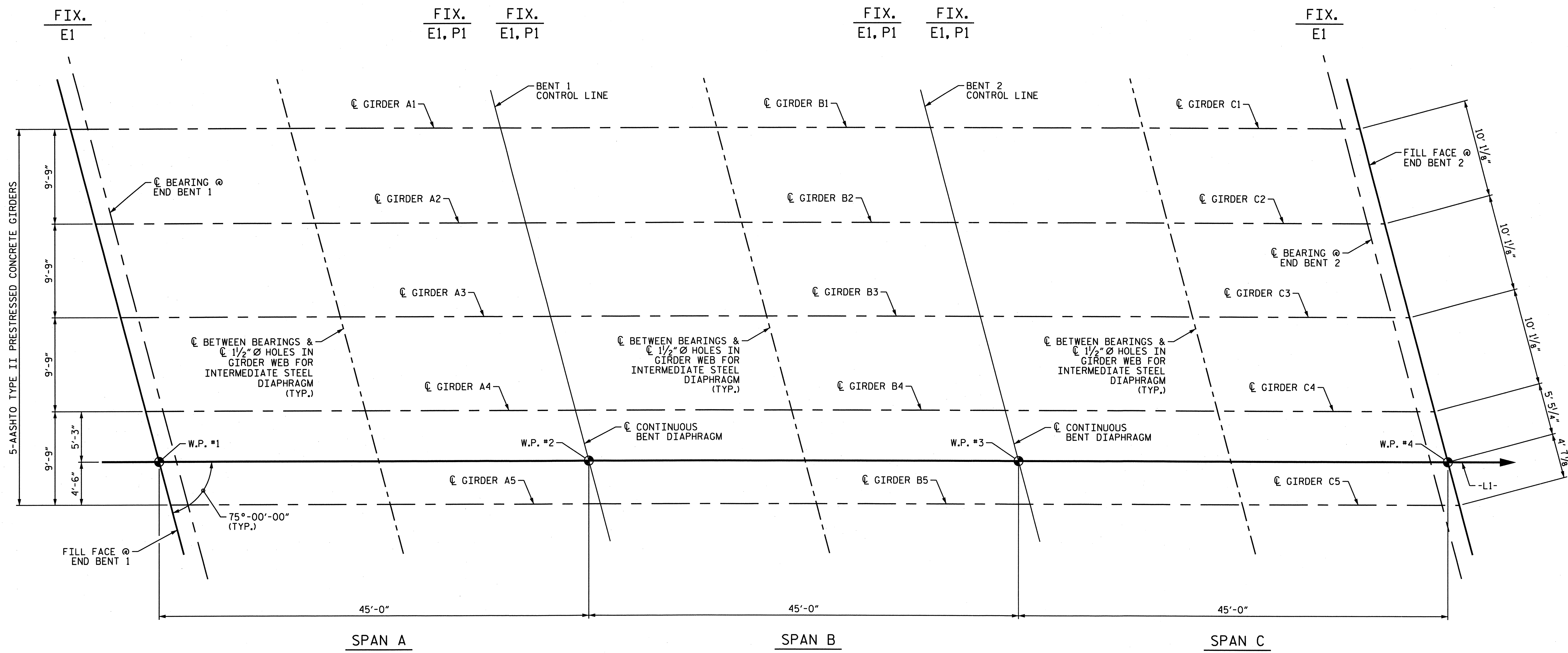
WSP-SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 PLAN OF SPAN
 WING WALL
 DETAILS**

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

DRAWN BY: M.J. OSTRISHKO DATE: 02-12
 CHECKED BY: N. PIERCE DATE: 04-12

*****SYTIME*****
 *****SERIAL*****



GIRDER LAYOUT

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-



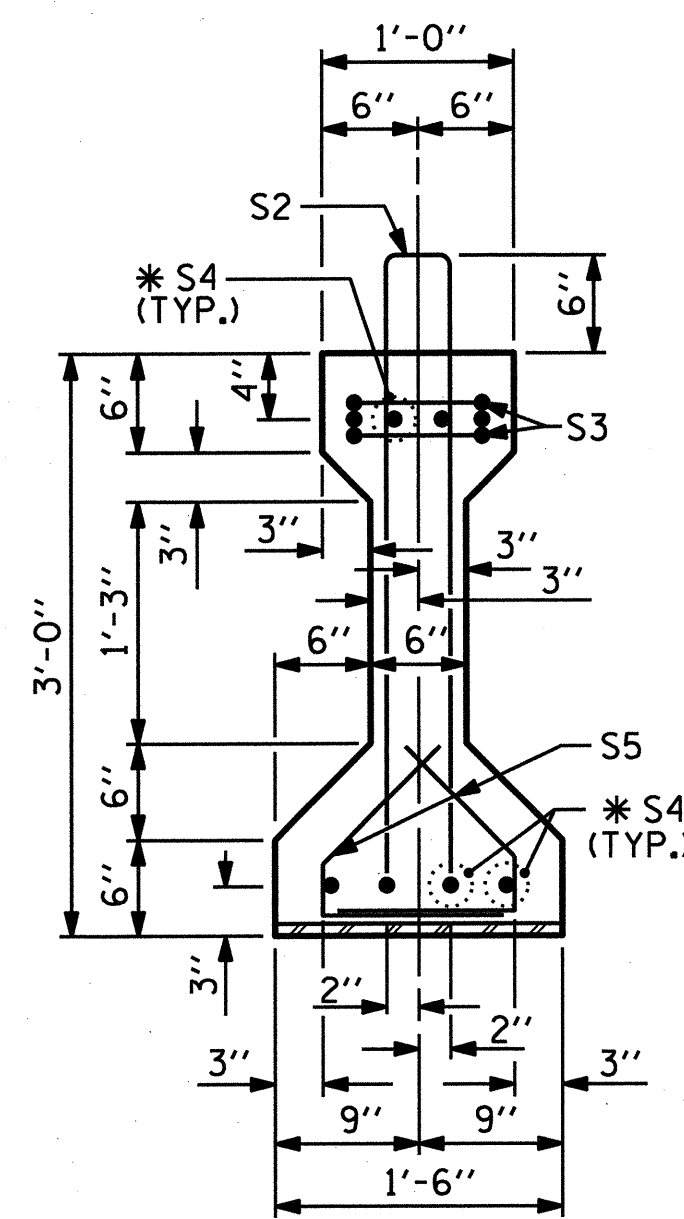
WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 GIRDER LAYOUT

DRAWN BY : M.J. OSTRISHKO DATE : 01-12
 CHECKED BY : N. PIERCE DATE : 04-12

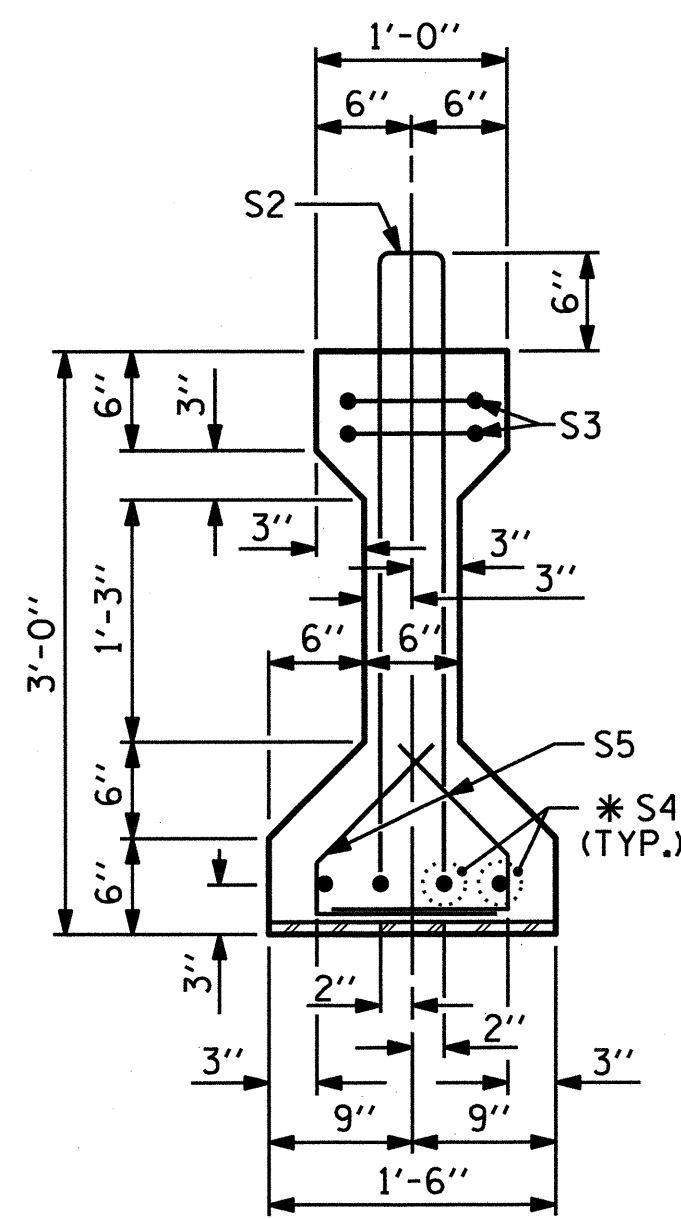
REVISIONS					SHEET NO. S-12
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 34
2			4		

*****SYTIME*****
 *****DCN*****



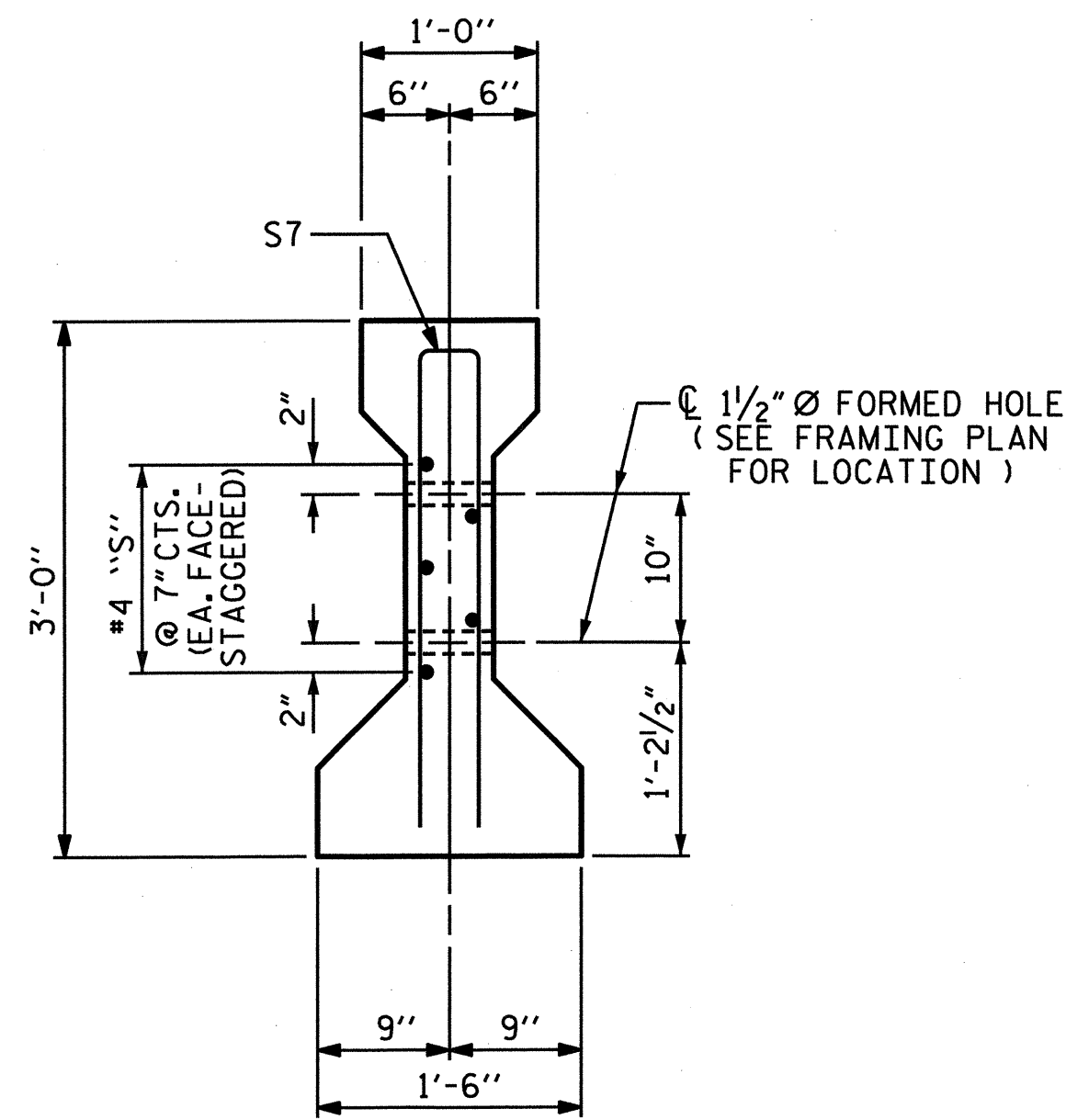
SECTION A-A

* FOR S4 BARS, SEE
DETAIL "A" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



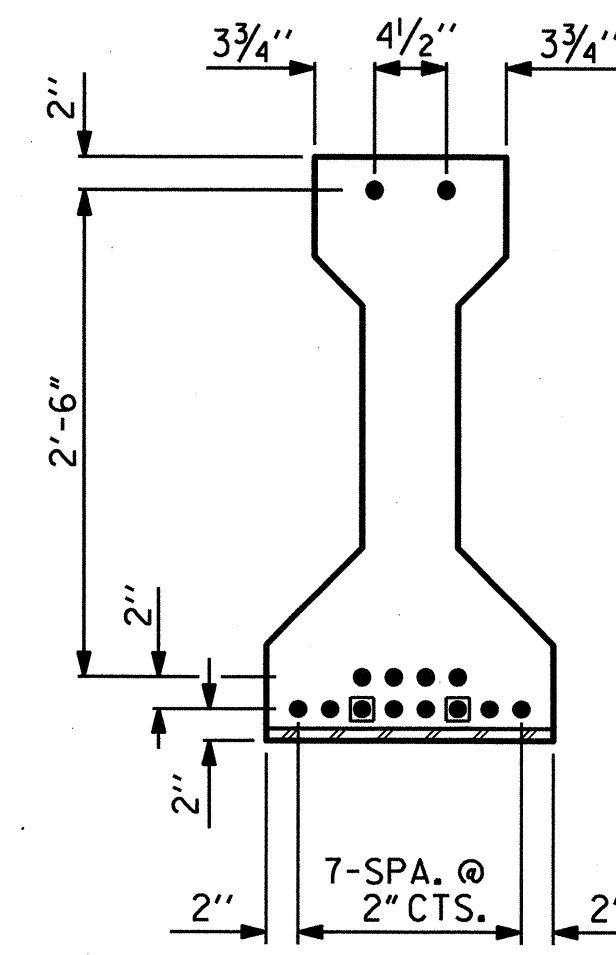
SECTION B-B

* FOR S4 BARS, SEE
DETAIL "B" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET

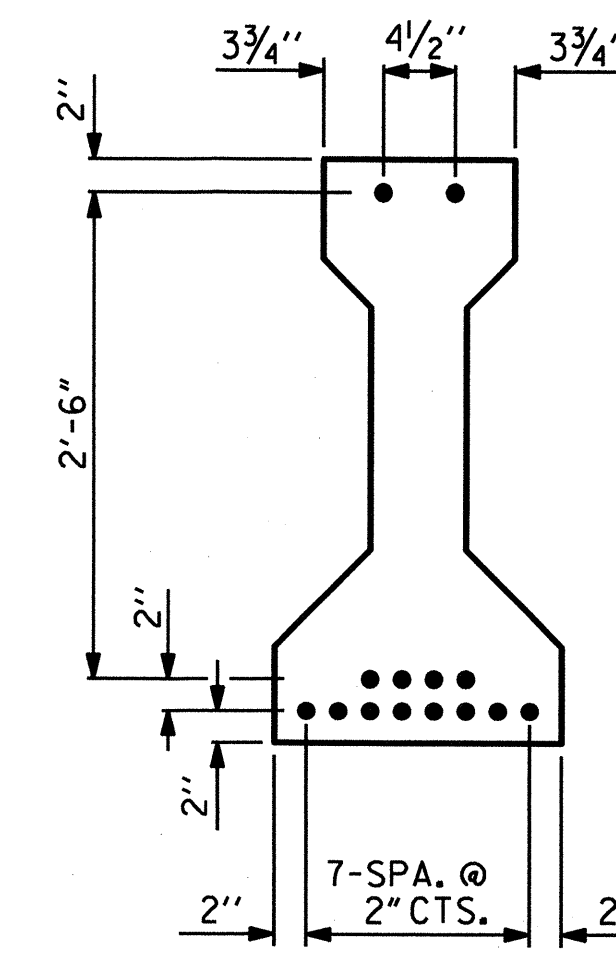


SECTION C-C

(S1 BARS NOT SHOWN)



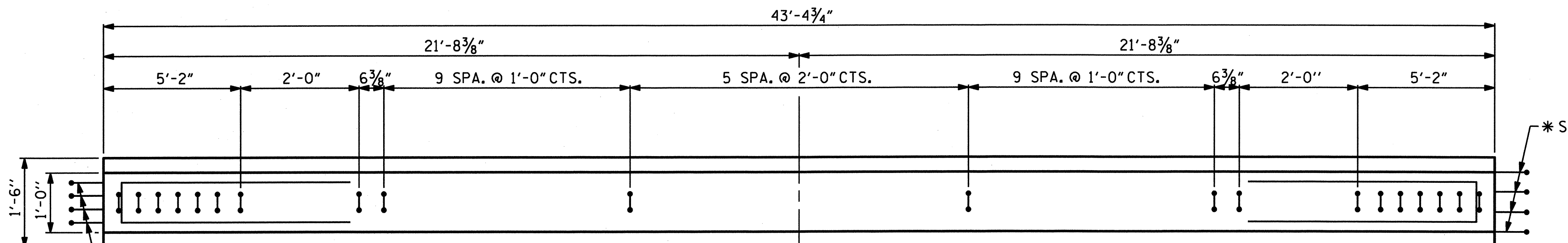
AT END OF GIRDER



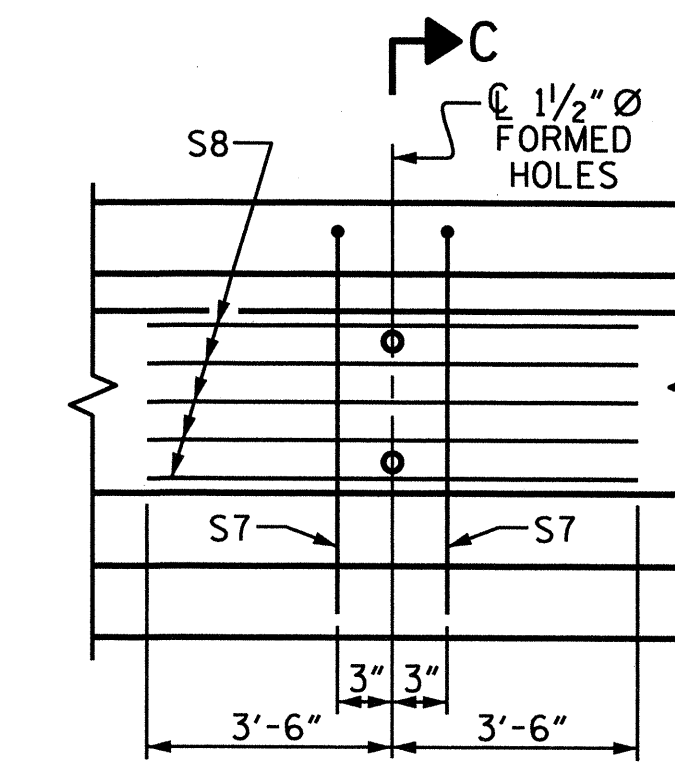
AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER

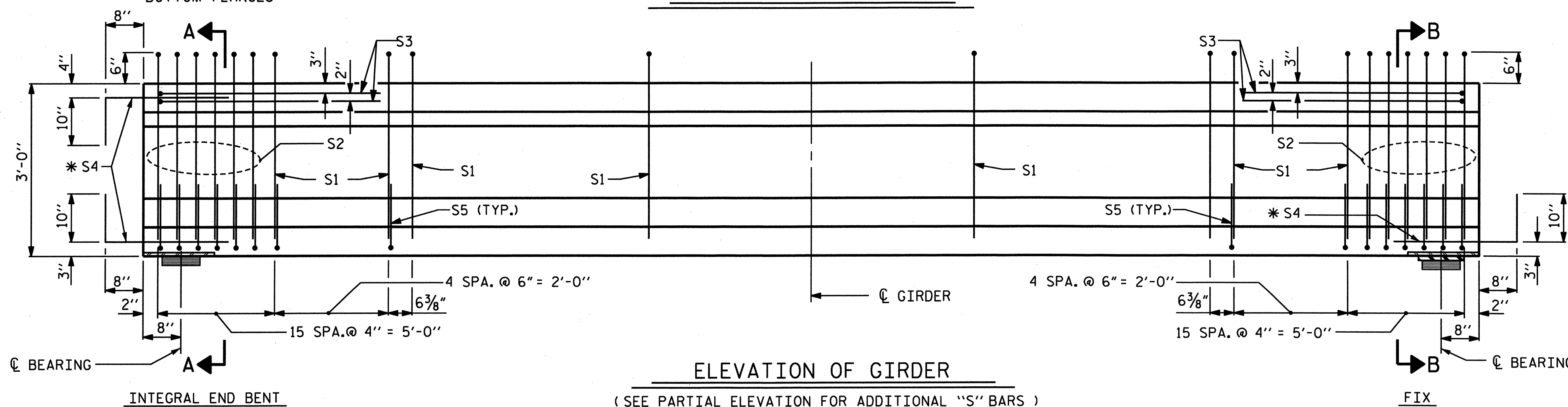


PLAN OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR ALL GIRDERS



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

0.6" Ø L. R. GRADE 270 STRANDS

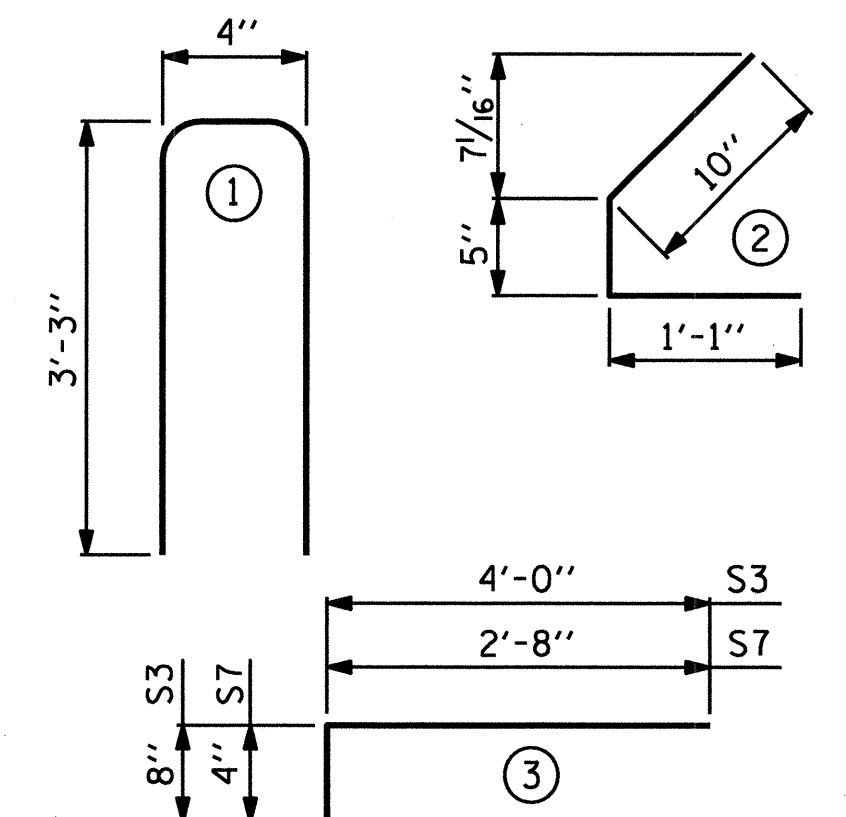
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	34	#4	1	6'-10"	155
S2	30	#5	1	6'-10"	214
S3	4	#4	3	8'-8"	23
* S4	12	#5	STR	3'-8"	46
S5	84	#4	2	2'-4"	131
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

* NOTE: S4 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	6500 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
GIRDER QUANTITY	604	4.1	14

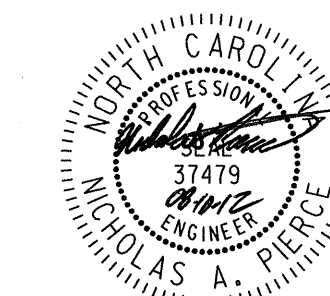
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
10	43'-4 3/4"	433.96

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50-L1

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 AASHTO TYPE II
 PRESTRESSED CONCRETE GIRDER
 CONTINUOUS FOR LIVE LOAD
 SPAN "A" & "C"

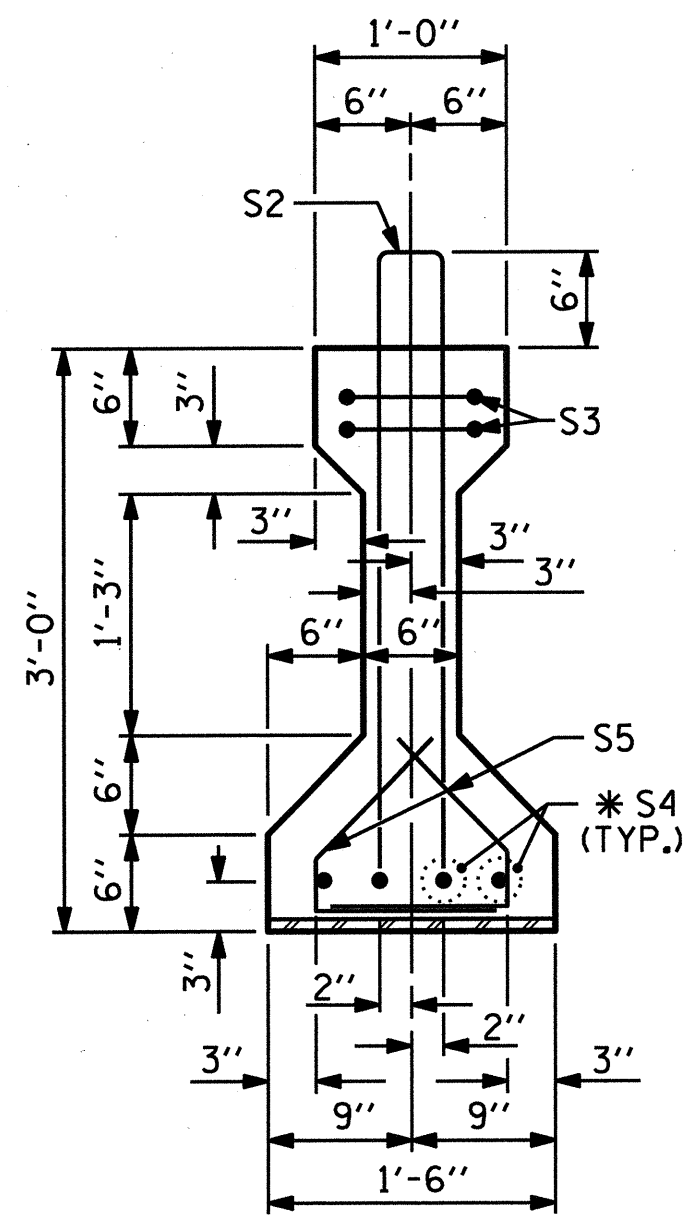


WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

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

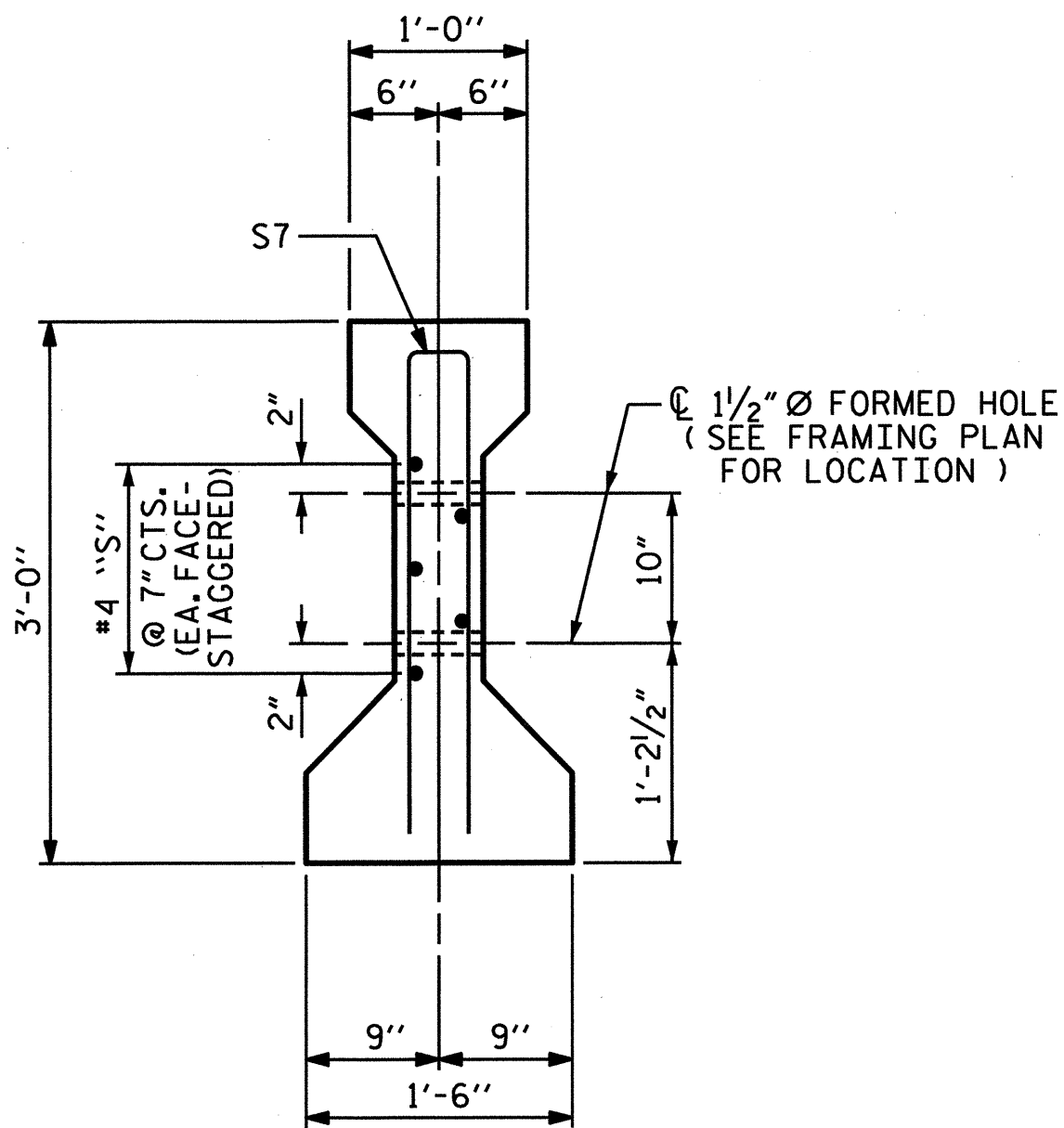
TOTAL SHEETS: 34

ASSEMBLED BY : N. PIERCE DATE : 01-12
 CHECKED BY : M.J. OSTRISHKO DATE : 05-12
 DRAWN BY : ELR 8/91 REV. 10/17/00R RWW/LES
 CHECKED BY : GRP 8/91 REV. 5/1/06R TLA/GM
 REV. 10/1/11 MAA/GM



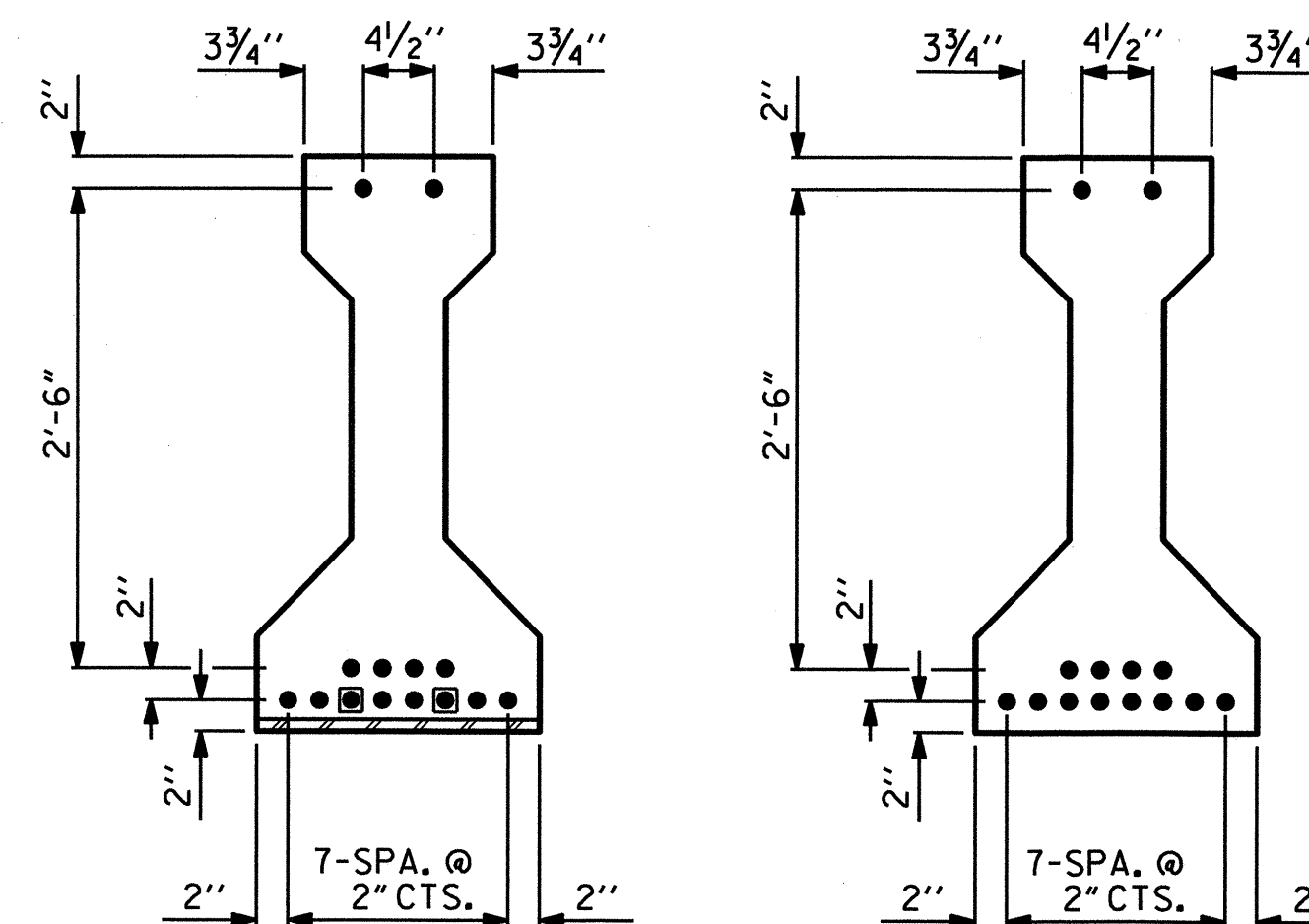
SECTION B-B

* FOR S4 BARS, SEE
DETAIL "B" OF
PRESTRESSED
CONCRETE GIRDER
CONTINUOUS FOR LIVE
LOAD DETAILS SHEET



SECTION C-C

(S1 BARS NOT SHOWN)

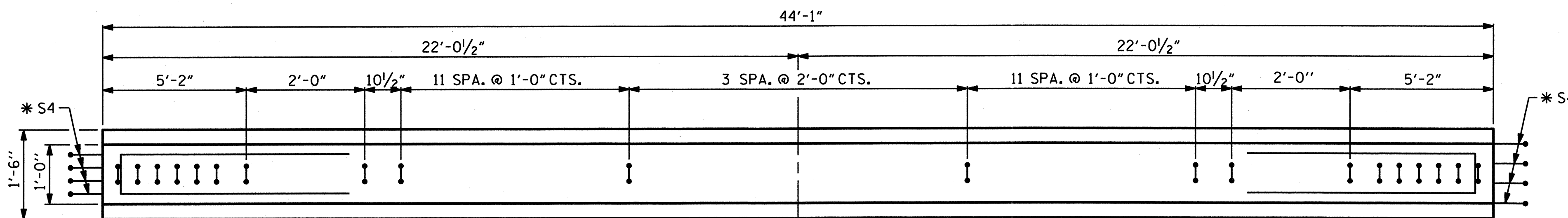


AT END OF GIRDER

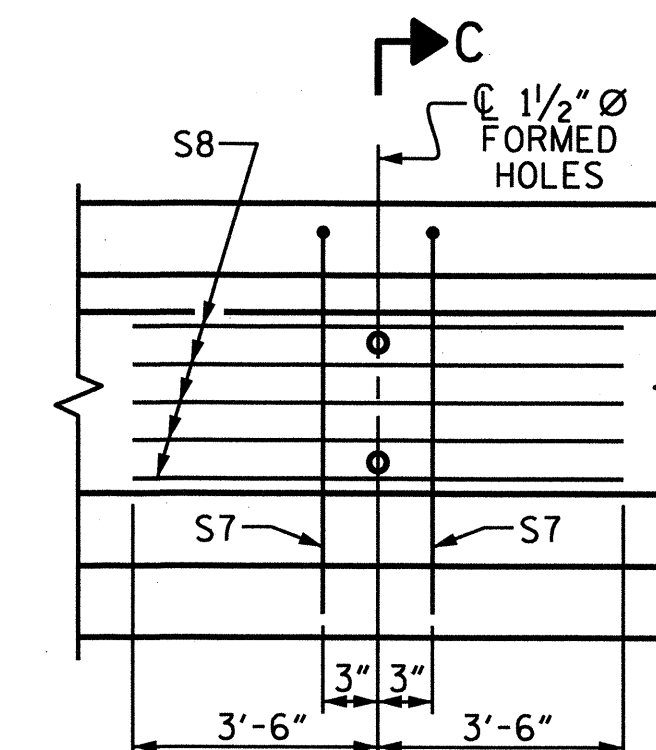
AT C OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

● FULLY BONDED STRANDS
◐ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER

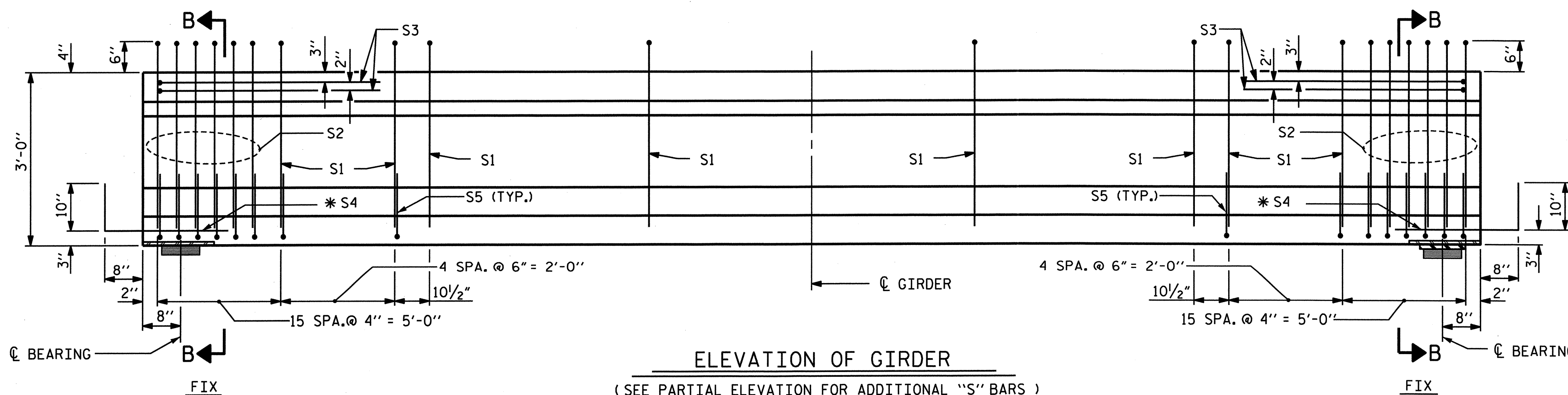


PLAN OF GIRDER



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM
REINFORCING STEEL FOR ALL EXTERIOR GIRDERS



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR ADDITIONAL "S" BARS)

0.6" Ø L. R. GRADE 270 STRANDS

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

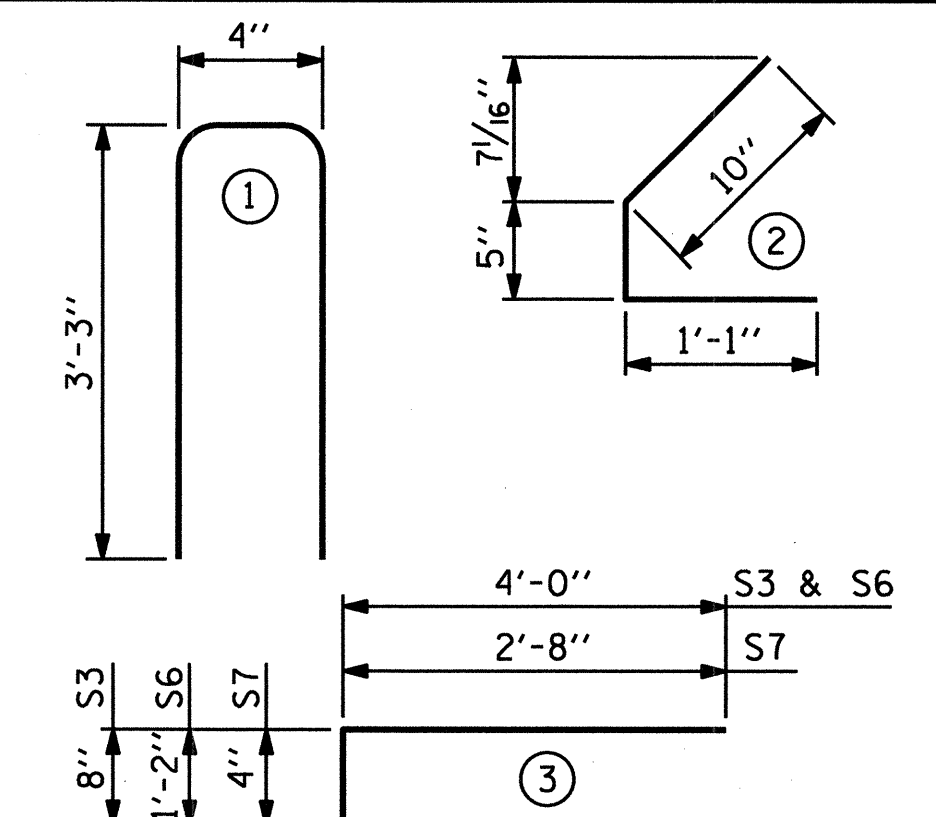
REINFORCING STEEL
FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	36	#4	1	6'-10"	164
S2	30	#5	1	6'-10"	214
S3	4	#4	3	8'-8"	23
*S4	8	#5	STR	3'-8"	31
S5	84	#4	2	2'-4"	131
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

* NOTE: S4 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	6500 PSI CONCRETE	0.6" Ø L. R. STRANDS
	LB.	C.Y.	No.
GIRDER QUANTITY	598	4.2	14

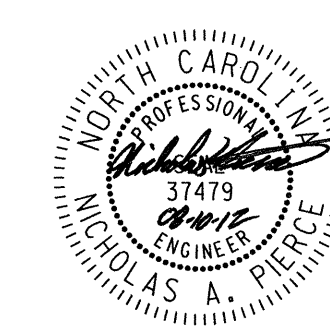
GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
5	44'-1"	220.42

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50-L1

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN "B"



WSP · SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

REVISIONS					SHEET NO. S-14
NO.	BY:	DATE:	NO.	DATE:	
1			3		TOTAL SHEETS 34
2			4		

STD. NO. PCG4

ASSEMBLED BY : N. PIERCE DATE : 01-12
CHECKED BY : M.J. OSTRISHKO DATE : 05-12
DRAWN BY : ELR 8/91 REV. 10/17/00R RWW/LES
CHECKED BY : GRP 8/91 REV. 5/1/06R TLA/GM
REV. 10/1/11 MAA/GM

*****SYSTEM*****
*****SECTION*****

NOTES

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

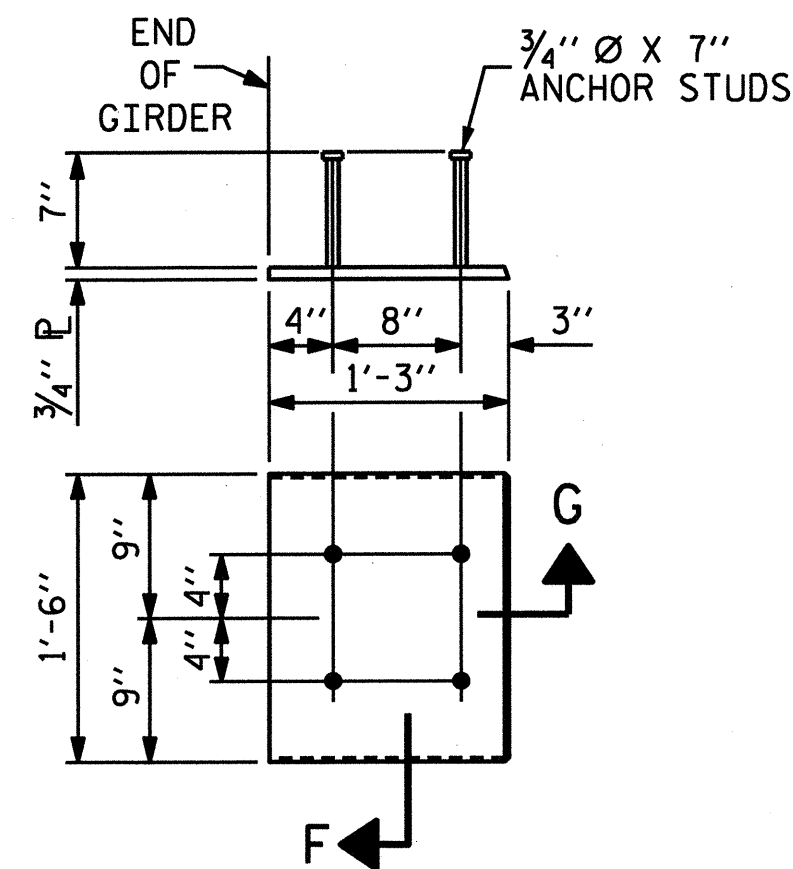
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5000 PSI.

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

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

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

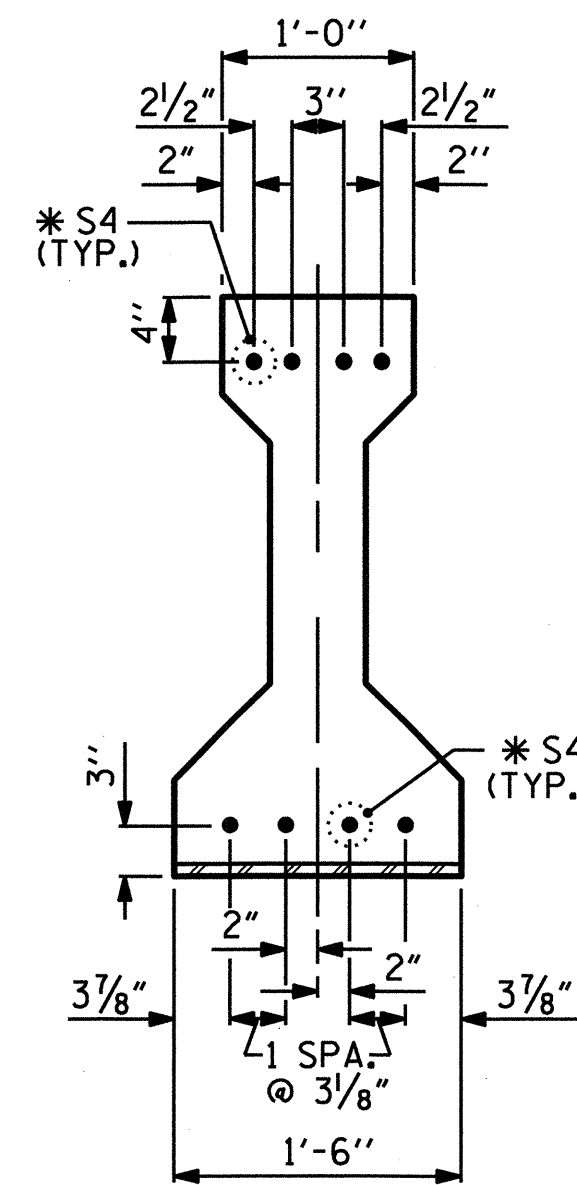
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.



SECTION "G"

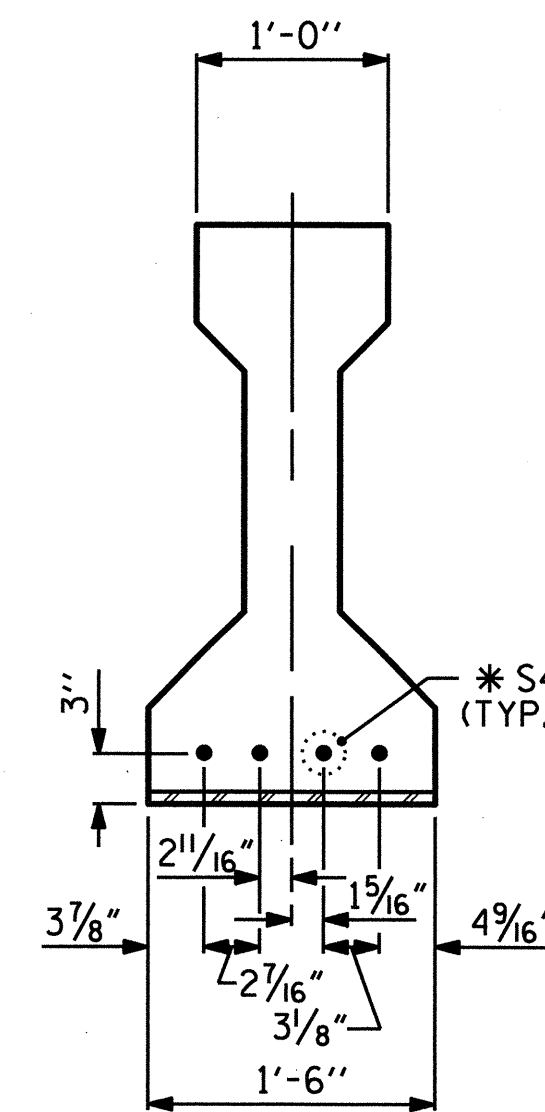
SECTION "F"

(SEE NOTES)



DETAIL "A"

AT END BENT



DETAIL "B"

AT INTERIOR BENT

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

(2 REQ'D PER GIRDER)

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN "A" & "C"

0.6" Ø LOW RELAXATION	GIRDER A1, A5, C1, & C5											GIRDER A2, A3, A4, C2, C3, & C4											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.040	0.064	0.084	0.095	0.099	0.095	0.084	0.064	0.040	0	0	0.040	0.064	0.084	0.095	0.099	0.095	0.084	0.064	0.040	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.008	0.017	0.024	0.028	0.008	0.029	0.024	0.017	0.015	0	0	0.010	0.020	0.028	0.033	0.035	0.033	0.028	0.020	0.010	0
FINAL CAMBER	↑	0	3/8"	9/16"	11/16"	13/16"	13/16"	13/16"	11/16"	9/16"	3/8"	0	0	3/8"	1/2"	11/16"	3/4"	3/4"	3/4"	11/16"	1/2"	3/8"	0

SPAN "B"

0.6" Ø LOW RELAXATION	GIRDER B1 & B5											GIRDER B2, B3, & B4											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0	0.041	0.065	0.086	0.098	0.102	0.098	0.086	0.065	0.041	0	0	0.041	0.065	0.086	0.098	0.102	0.098	0.086	0.065	0.041	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	0.009	0.019	0.026	0.031	0.032	0.031	0.026	0.019	0.009	0	0	0.011	0.022	0.030	0.036	0.038	0.036	0.030	0.022	0.011	0
FINAL CAMBER	↑	0	3/8"	9/16"	11/16"	13/16"	13/16"	13/16"	11/16"	9/16"	3/8"	0	0	3/8"	1/2"	11/16"	3/4"	3/4"	3/4"	11/16"	1/2"	3/8"	0

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

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50-L1-

SHEET 3 OF 4



WSP · SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wsp-sells.com
LICENSE NO. F-0891

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

ASSEMBLED BY : N. PIERCE	DATE : 01-12
CHECKED BY : M.J. OSTRISHKO	DATE : 05-12
DRAWN BY : ELR 11/91	REV. 7/10/01RR LES/RDR
CHECKED BY : GRP 11/91	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-15
1			3		TOTAL SHEETS
2			4		34

*****SYSTEM*****
*****DGN*****

STRUCTURAL STEEL NOTES

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

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

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

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

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

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

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

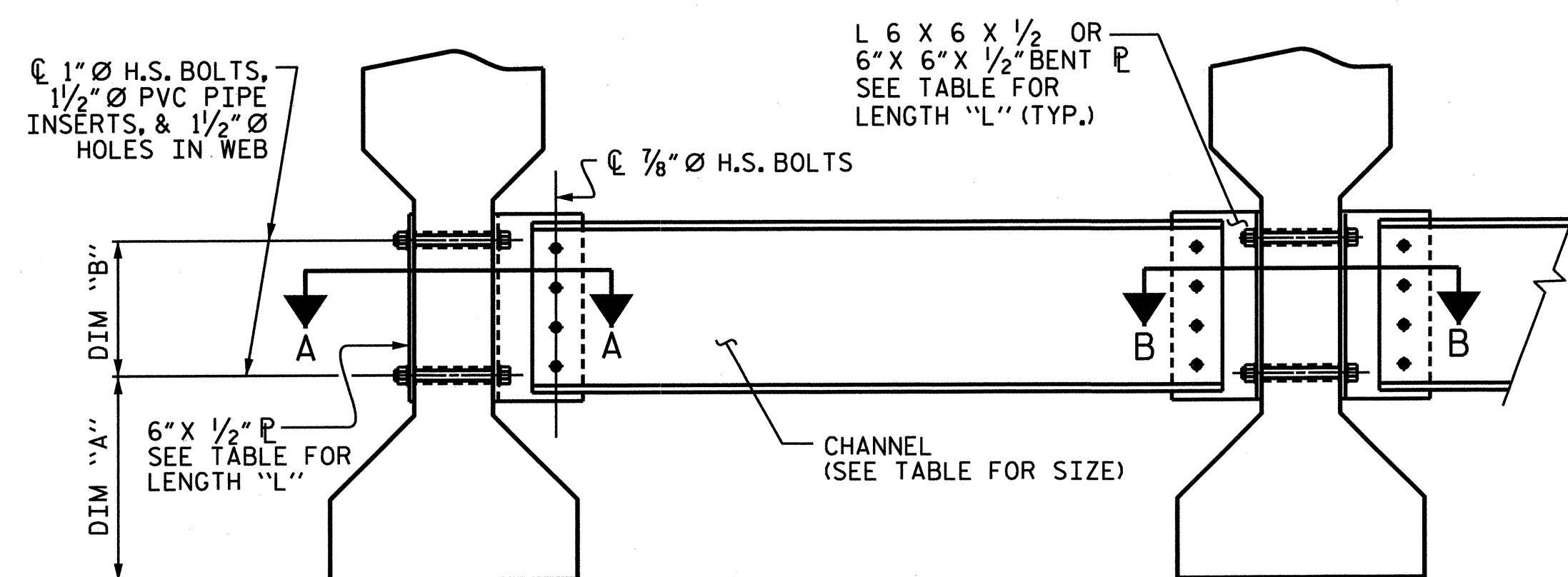
FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

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

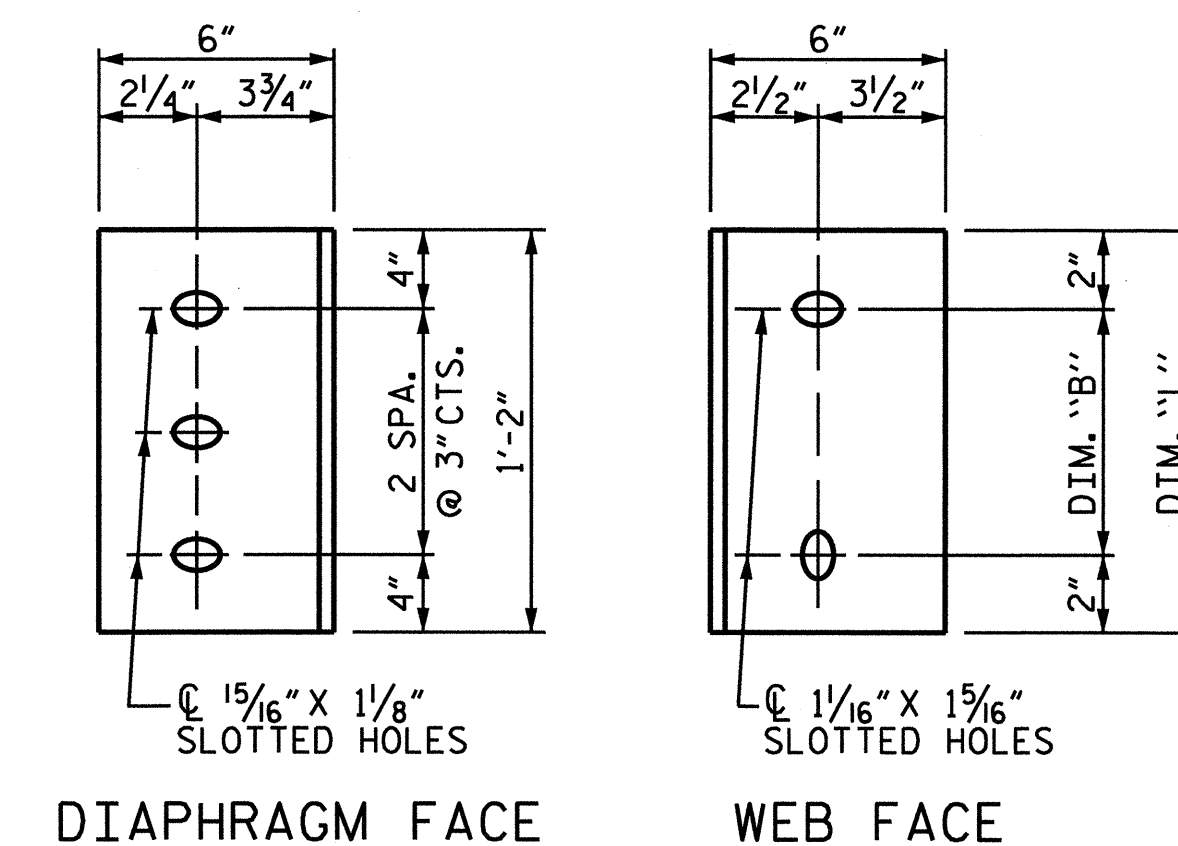
SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

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

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



EXTERIOR GIRDER **INTERIOR GIRDER**
PART SECTION AT INTERMEDIATE DIAPHRAGM
 (TYPE III OR TYPE IV GIRDER SHOWN)



DIAPHRAGM FACE **WEB FACE**
CONNECTOR PLATE DETAILS

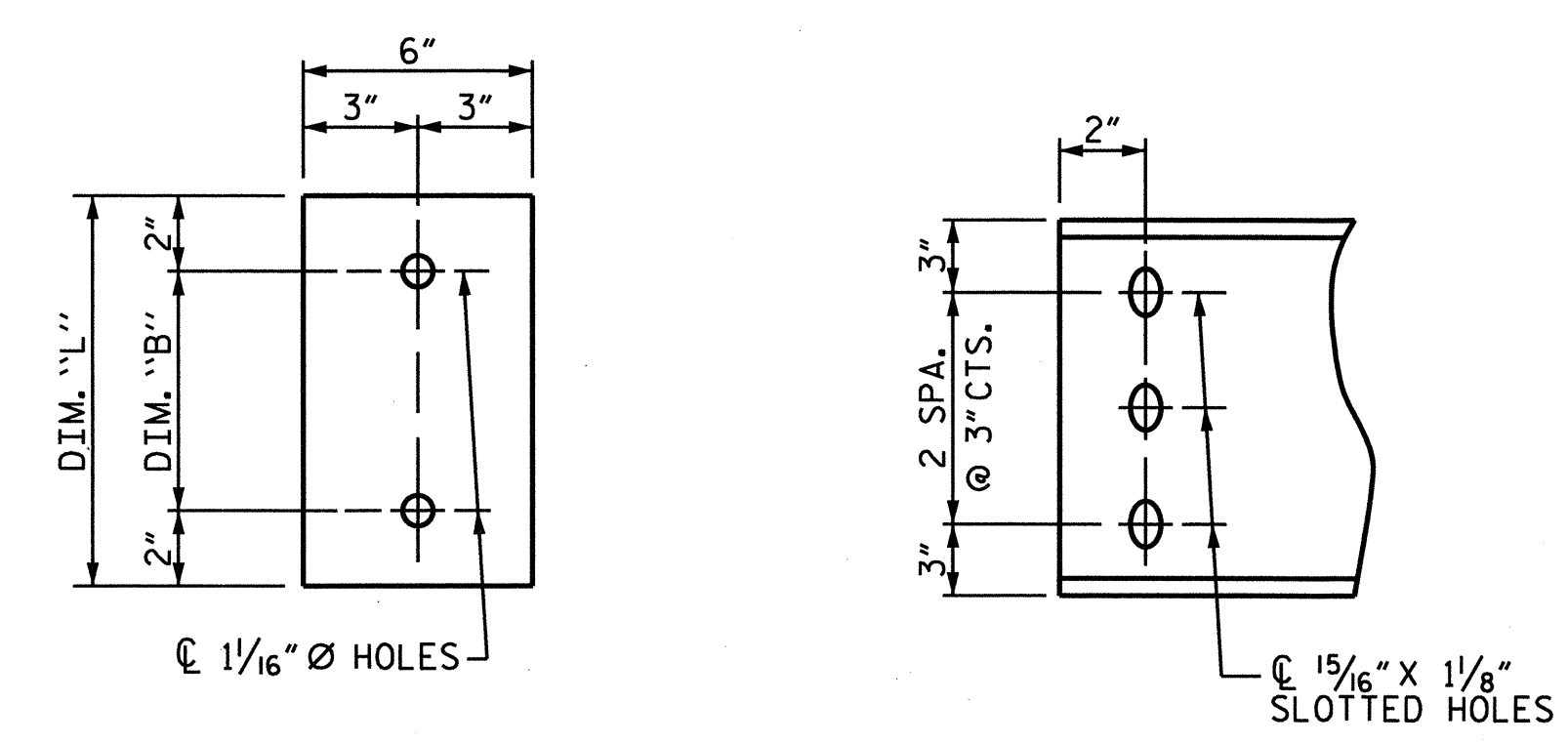
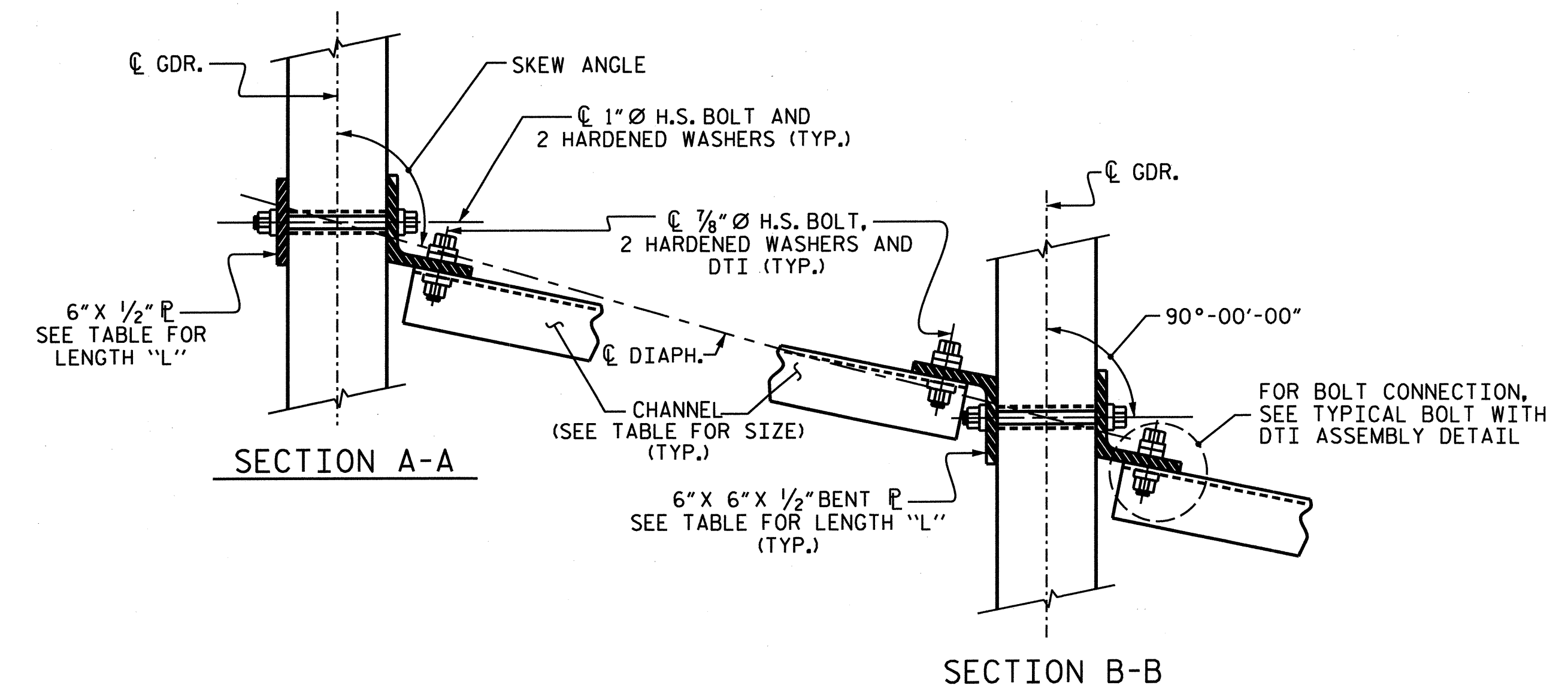
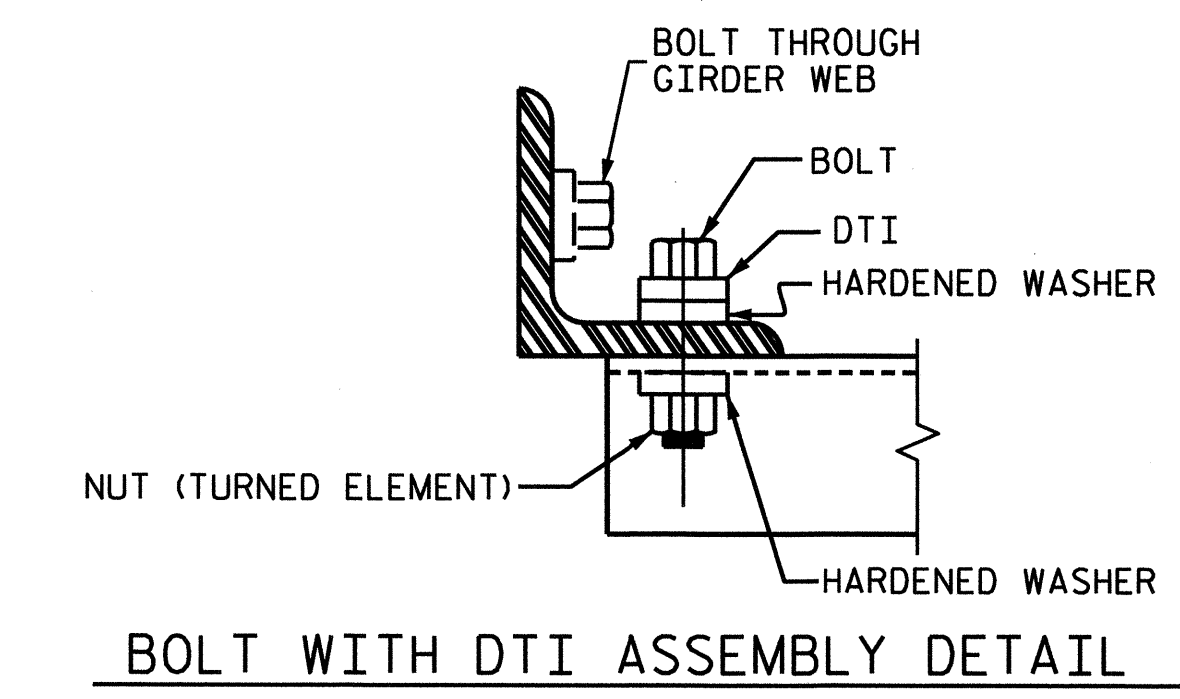


PLATE DETAILS **CHANNEL END**
 (TYPE II GDR.)



CONNECTION DETAILS
 (FOR 70° ≤ SKEW < 90° OR 90° < SKEW ≤ 110°)



BOLT WITH DTI ASSEMBLY DETAIL

TABLE

GIRDER TYPE	CHANNEL SIZE	DIM "A"	DIM "B"	DIM "L"
II	MC 12 x 31	1'-2 1/2"	10"	1'-2"

PROJECT NO. B-4817
 SCOTLAND COUNTY
 STATION: 18+47.50-L1-

SHEET 4 OF 4



WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-16
2			4			34

ASSEMBLED BY : N. PIERCE	DATE : 11-11
CHECKED BY : M.J. OSTRISHKO	DATE : 05-12
DRAWN BY : TLA 6/05	ADDED 10/21/05
CHECKED BY : VC 6/05	REV. 5/1/06RRR KMM/GM
	REV. 10/1/11 MAA/GM

NOTES

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

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

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

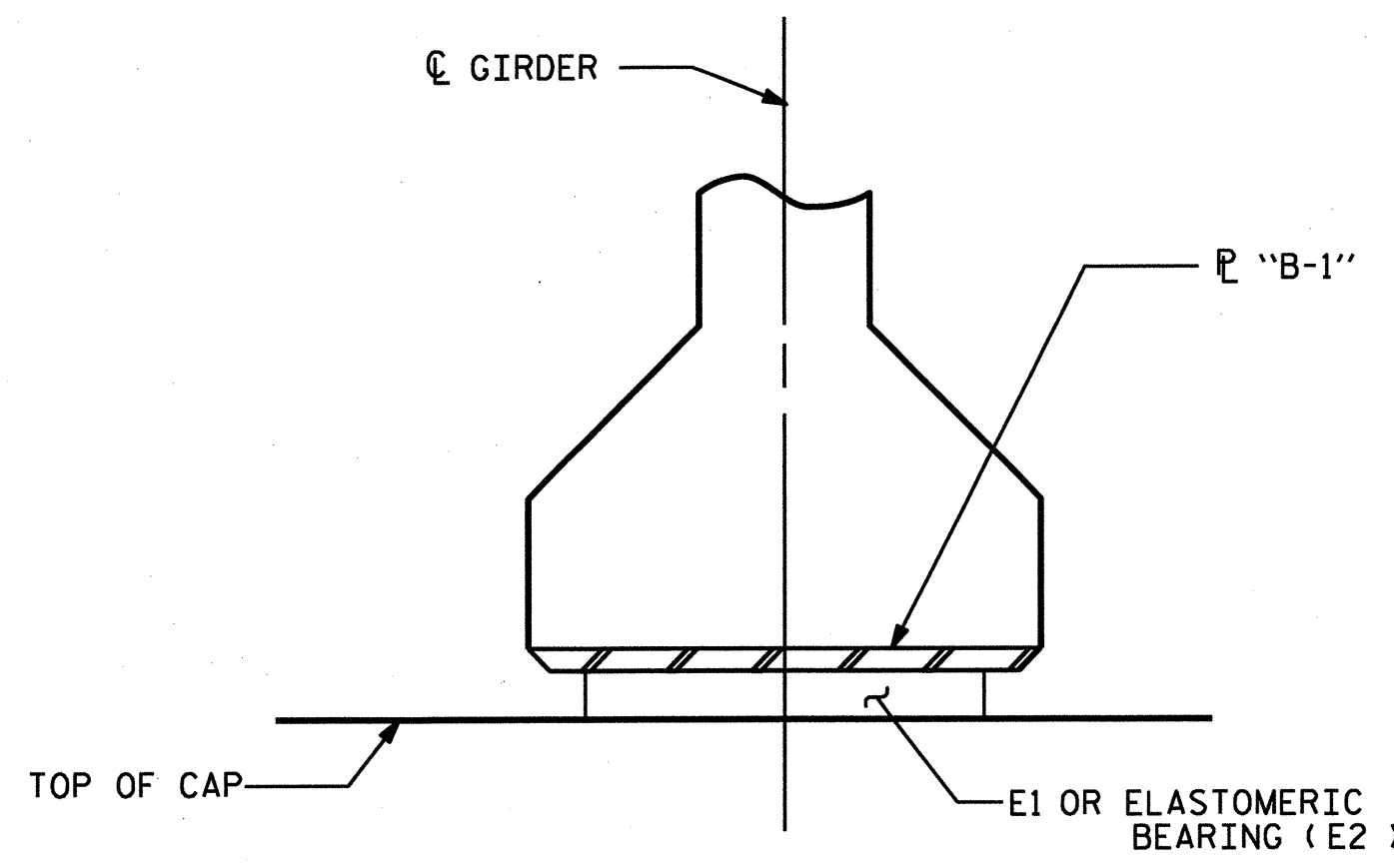
WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

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

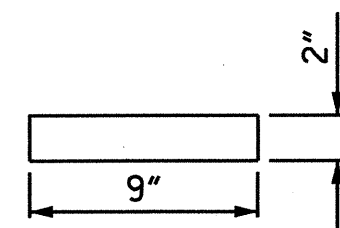
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

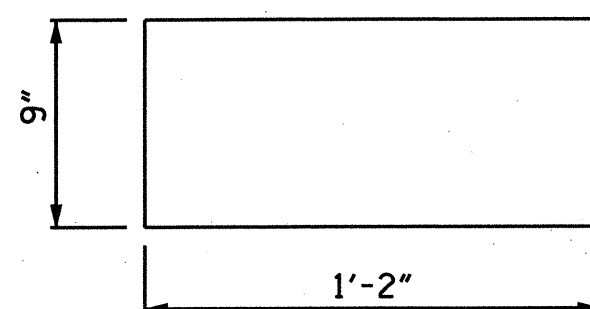
* THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE END BENT ELEVATIONS ARE BASED ON USING "E1" BEARINGS. IF THE CONTRACTOR CHOOSES TO USE THE OPTIONAL "E2" BEARINGS, THE BRIDGE SEATS AT THE END BENT WILL NEED TO BE ADJUSTED AS DIRECTED BY THE ENGINEER.



SECTION D-D



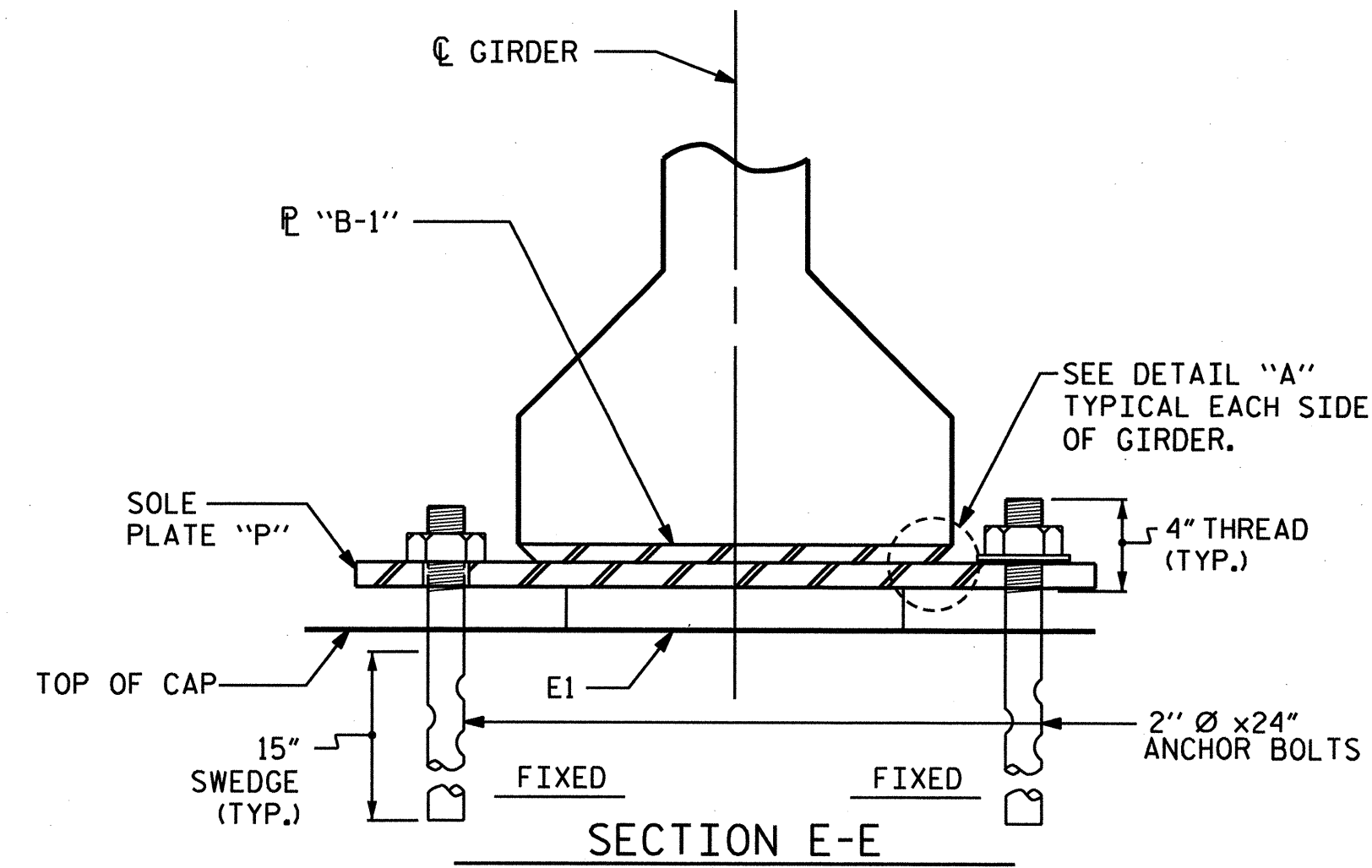
TYPICAL SECTION OF ELASTOMERIC BEARINGS



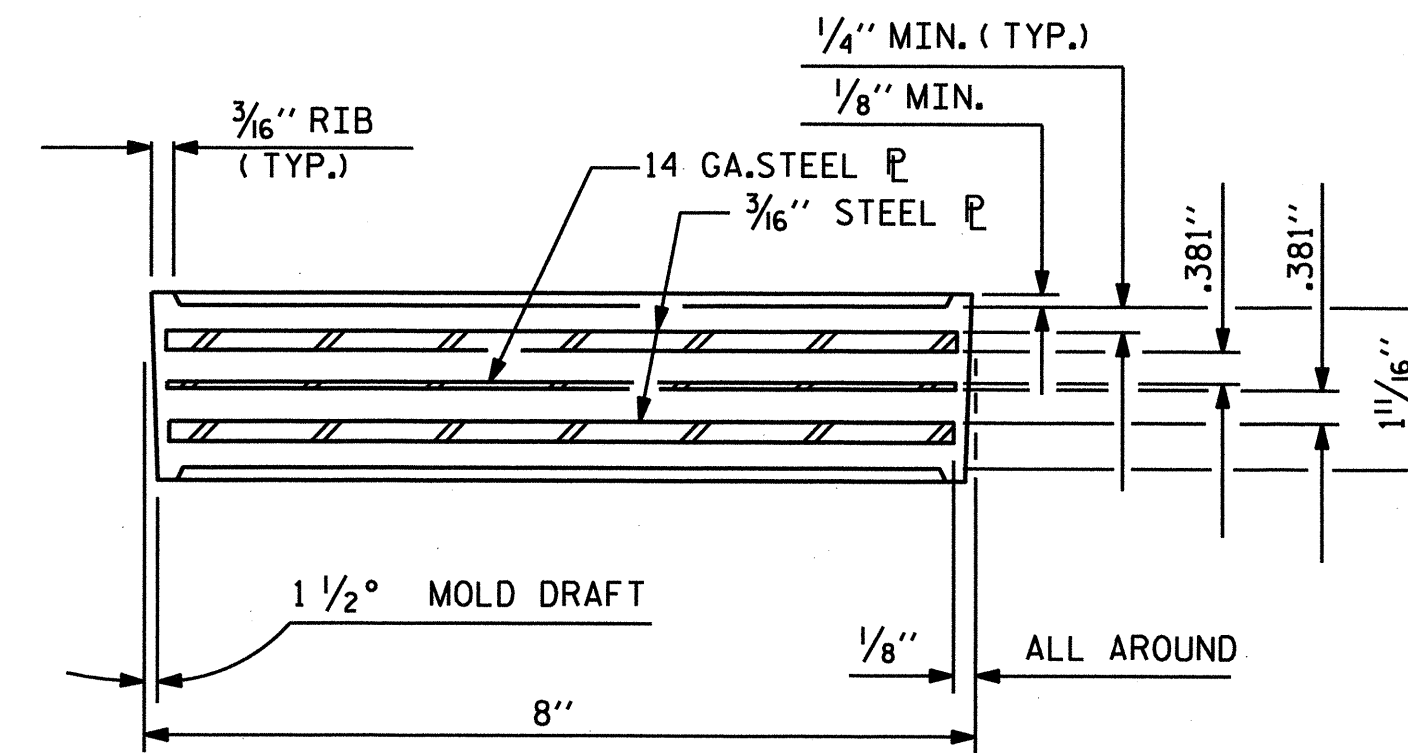
E2 (10 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

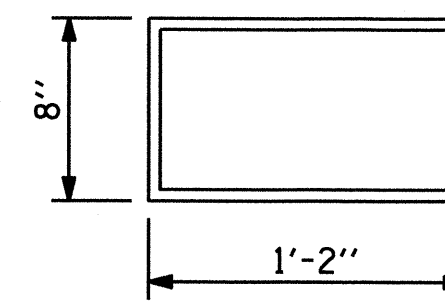
OPTIONAL ELASTOMERIC BEARING



SECTION E-E



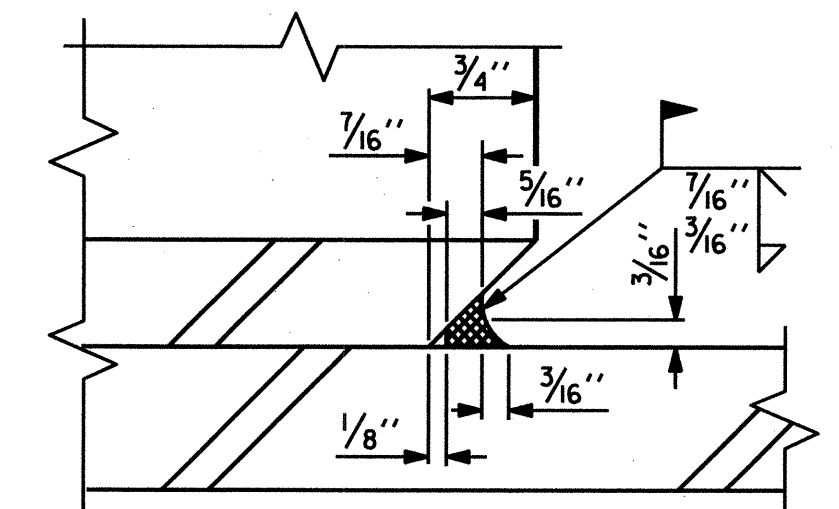
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E1 (30 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

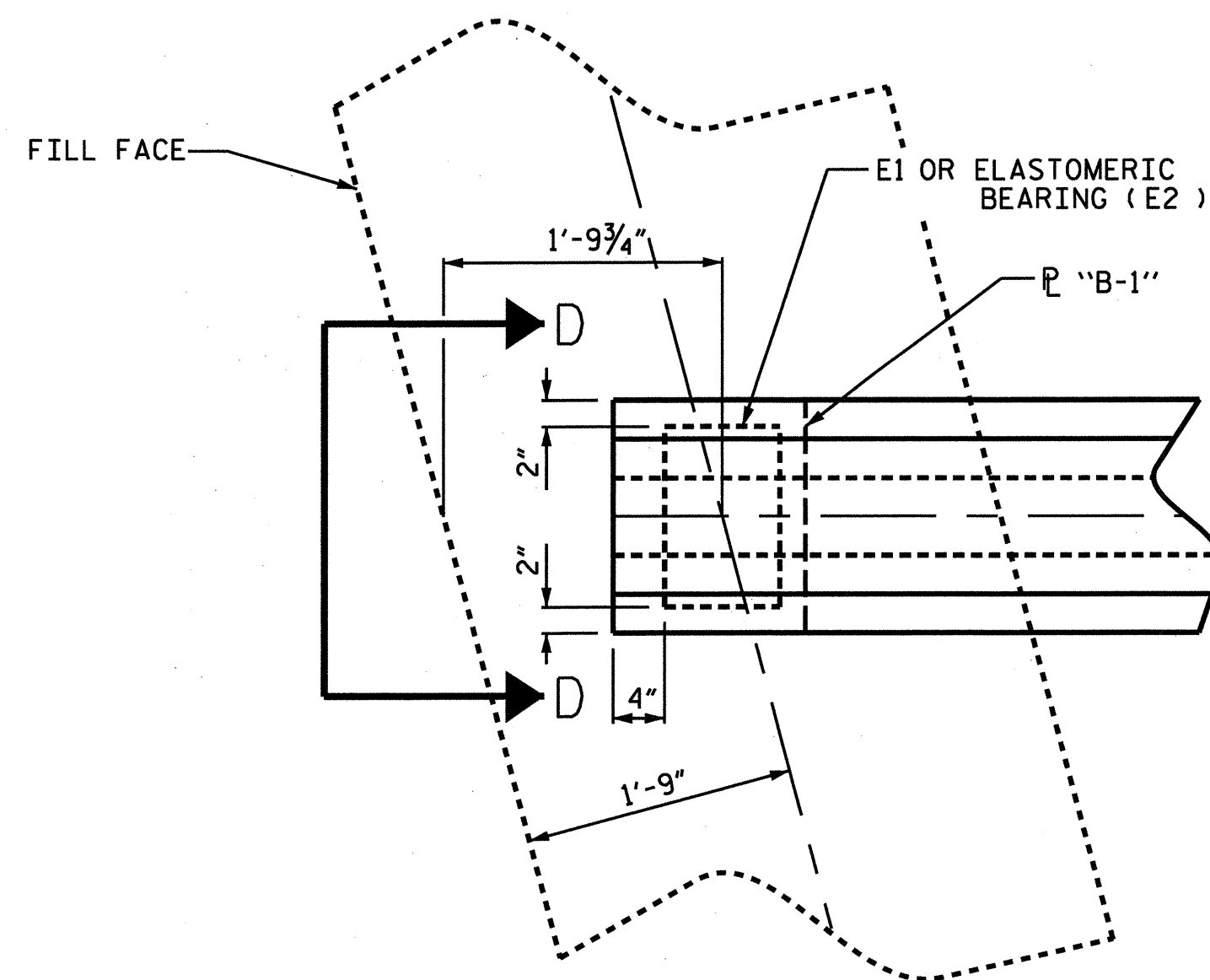
TYPE II



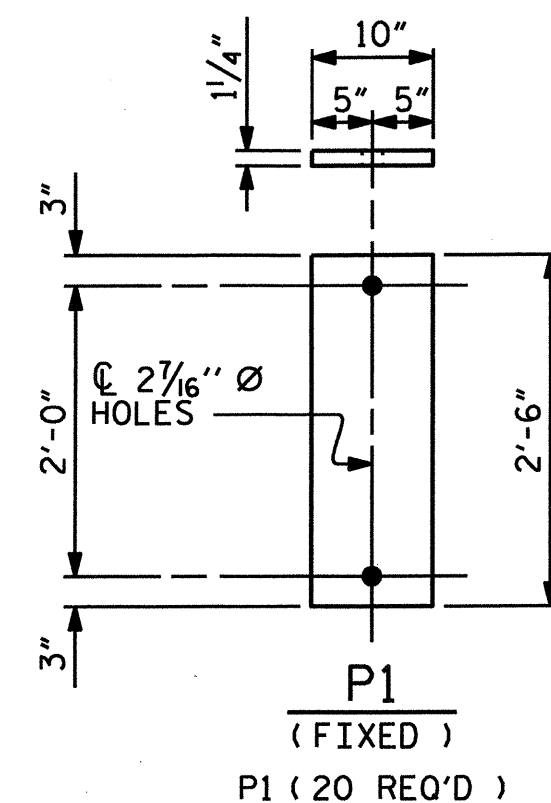
DETAIL "A"

— LOAD RATINGS —

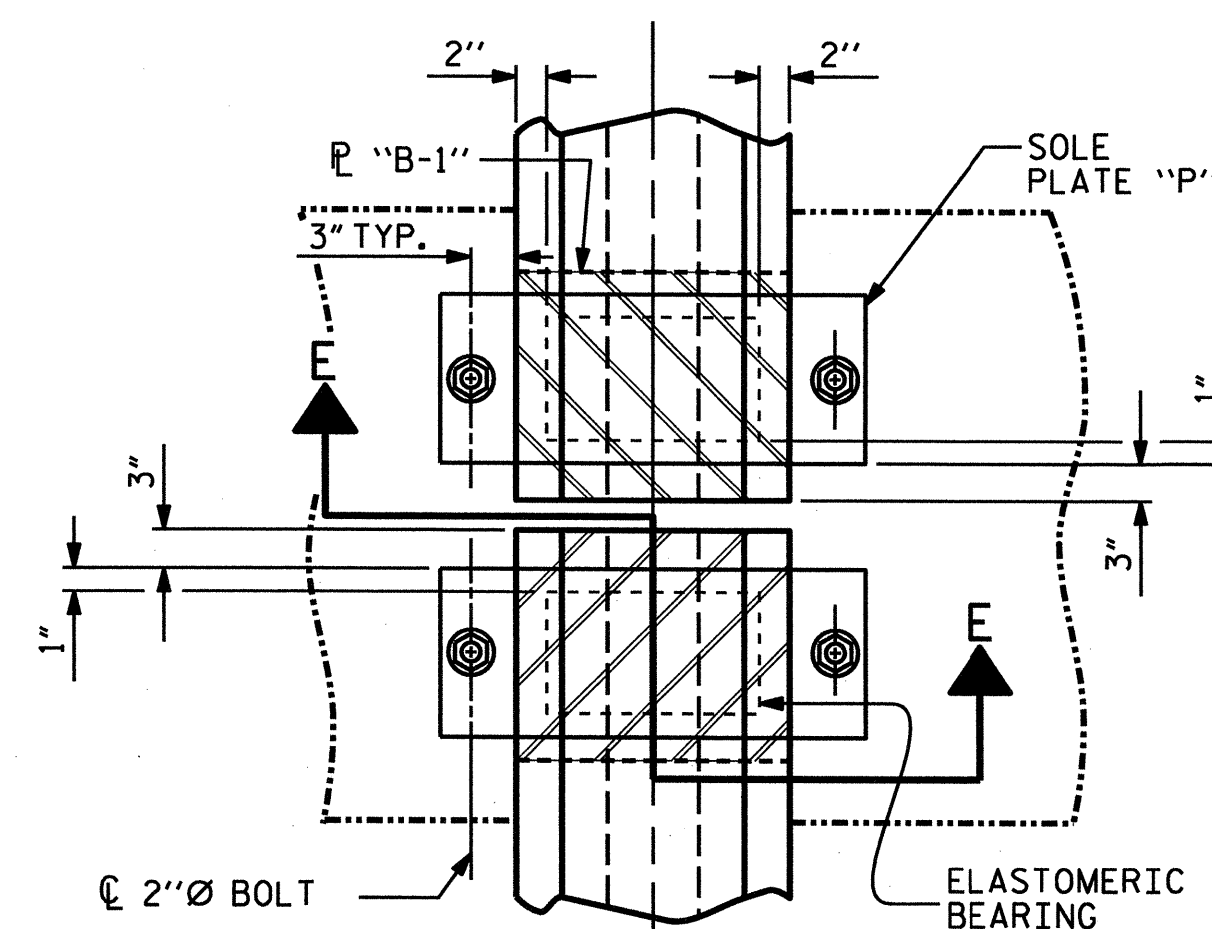
	MAX. D.L. + L.L.
36" PCG - TYPE II	82 K



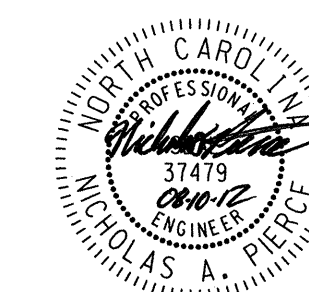
PLAN VIEW AT END BENTS



SOLE PLATE DETAILS ("P")



TYPICAL HALF-PLAN
(SHOWING CONTINUOUS BENT)



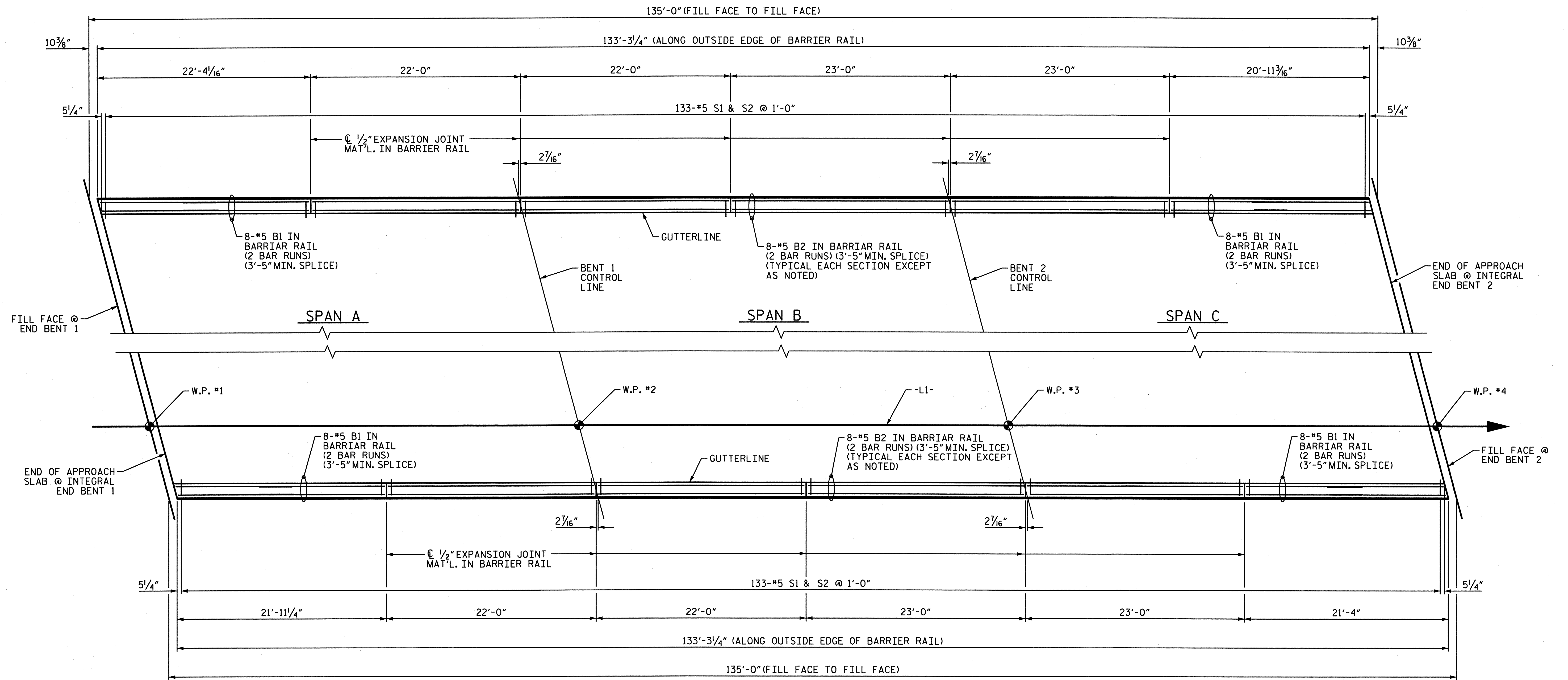
WSP • SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50-L1-

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

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

ASSEMBLED BY : N. PIERCE	DATE : 01-12
CHECKED BY : M. J. OSTRISHKO	DATE : 05-12
DRAWN BY : WJH 8/89	REV. 7/10/01 RWW/LES
CHECKED BY : CRK 8/89	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM



PLAN OF CONCRETE BARRIER RAIL

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 1 OF 2



WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 · 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

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

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

DRAWN BY : M.J. OSTRISHKO DATE : 03-12
 CHECKED BY : N. PIERCE DATE : 04-12

*****SYSTEM*****
 *****DGN*****
 *****USERNAME*****

NOTES

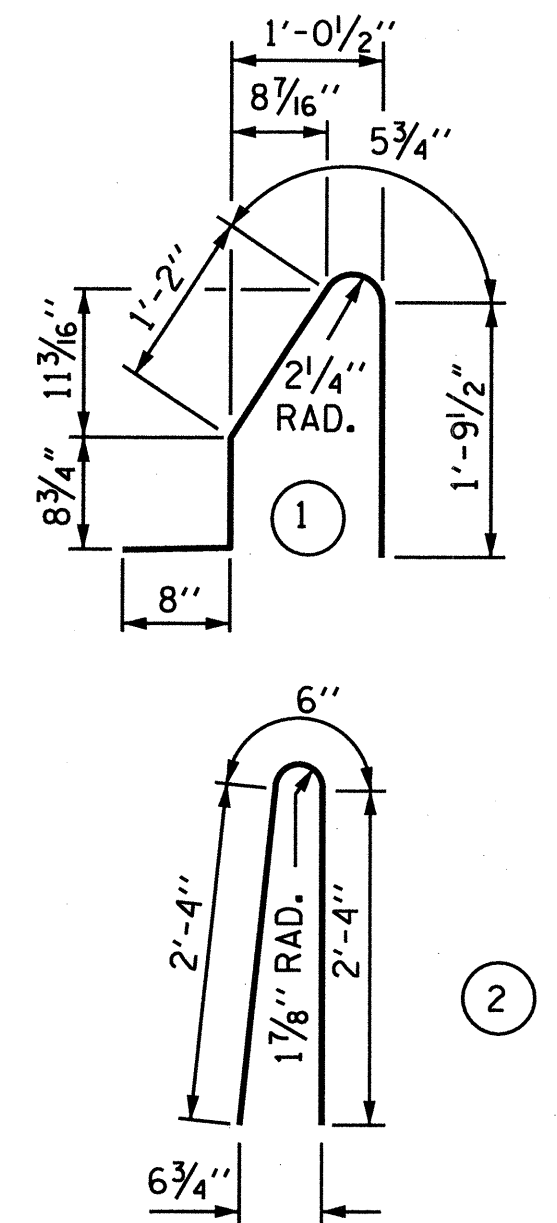
THE BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

VERTICAL 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.

THE #5 "S" BARS MAY BE SHIFTED AS NECESSARY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN BARRIER RAIL.

BAR TYPES



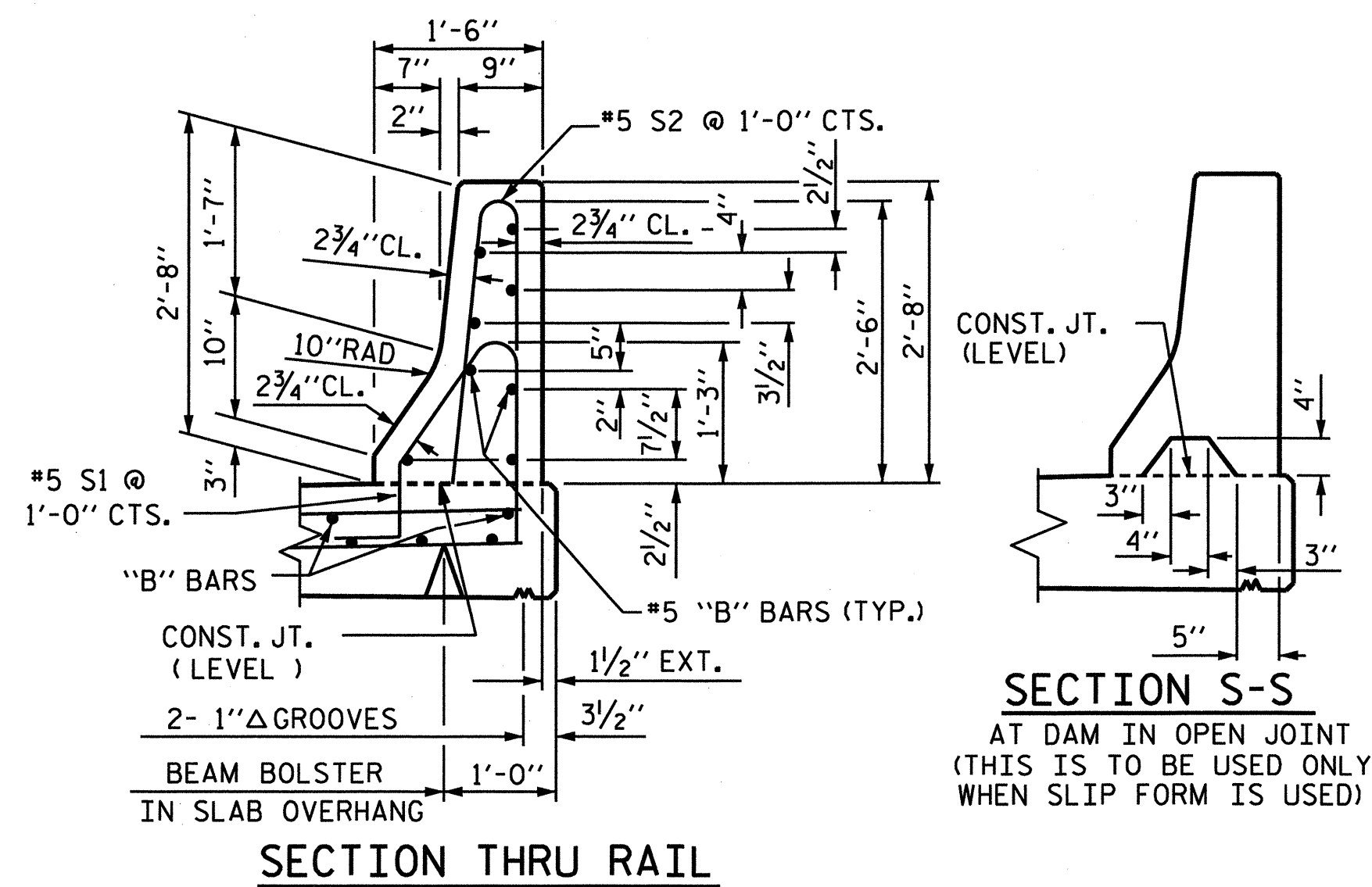
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

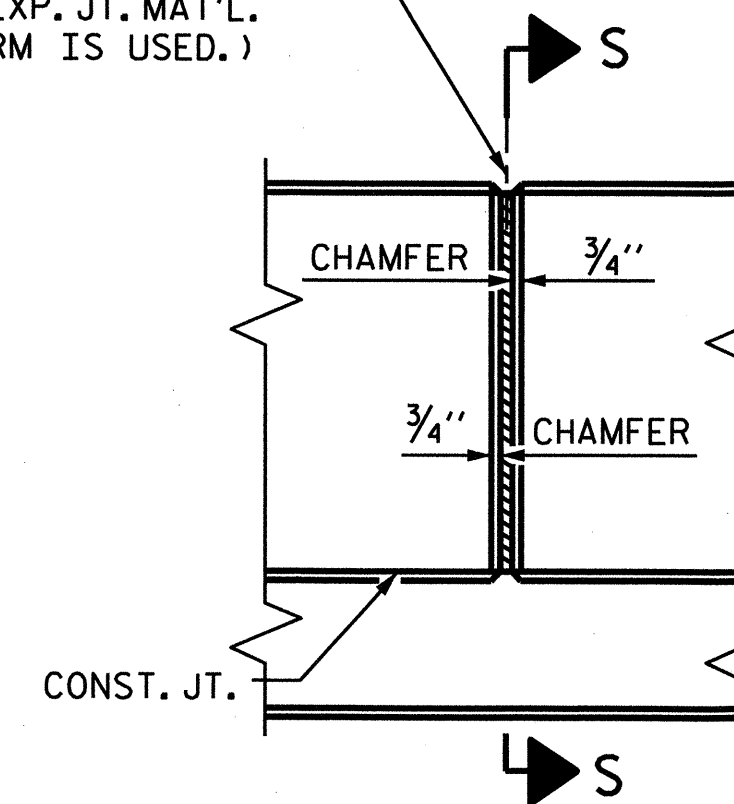
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S1	266	#5	1	4'-10"	1341
* S2	266	#5	2	5'-2"	1433
* B1	64	#5	STR	12'-8"	846
* B2	128	#5	STR	13'-1"	1747

* EPOXY COATED REINFORCING STEEL 5,367 LBS.
 CLASS AA CONCRETE 26.7 CU. YDS.
 CONCRETE BARRIER RAIL 266.54 LIN. FT.

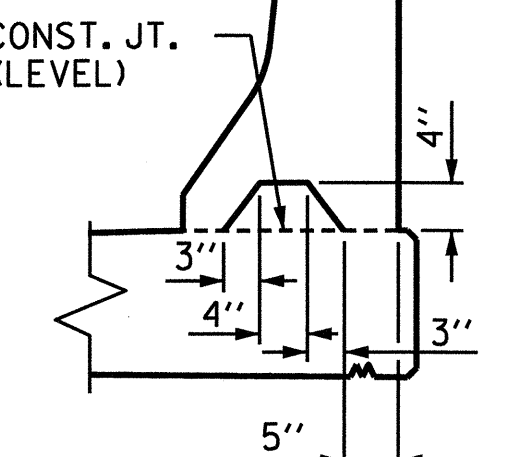


SECTION THRU RAIL

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
 (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)



ELEVATION AT EXPANSION JOINTS

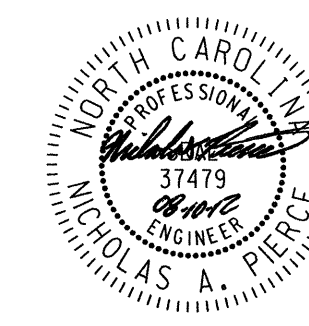


SECTION S-S AT DAM IN OPEN JOINT
 (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

BARRIER RAIL DETAILS

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 2 OF 2



WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			34

ASSEMBLED BY : M.J. OSTRISHKO	DATE : 03-12
CHECKED BY : N. PIERCE	DATE : 04-12
DRAWN BY : ARB 5/87	REV. 5/7/03R RWW/JTE
CHECKED BY : SJD 9/87	REV. 5/1/06R TLA/GM
	REV. 10/1/11 MAA/GM

*****SYTIME*****
 *****DGN*****

STD. NO. CBR1

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M11.

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.)

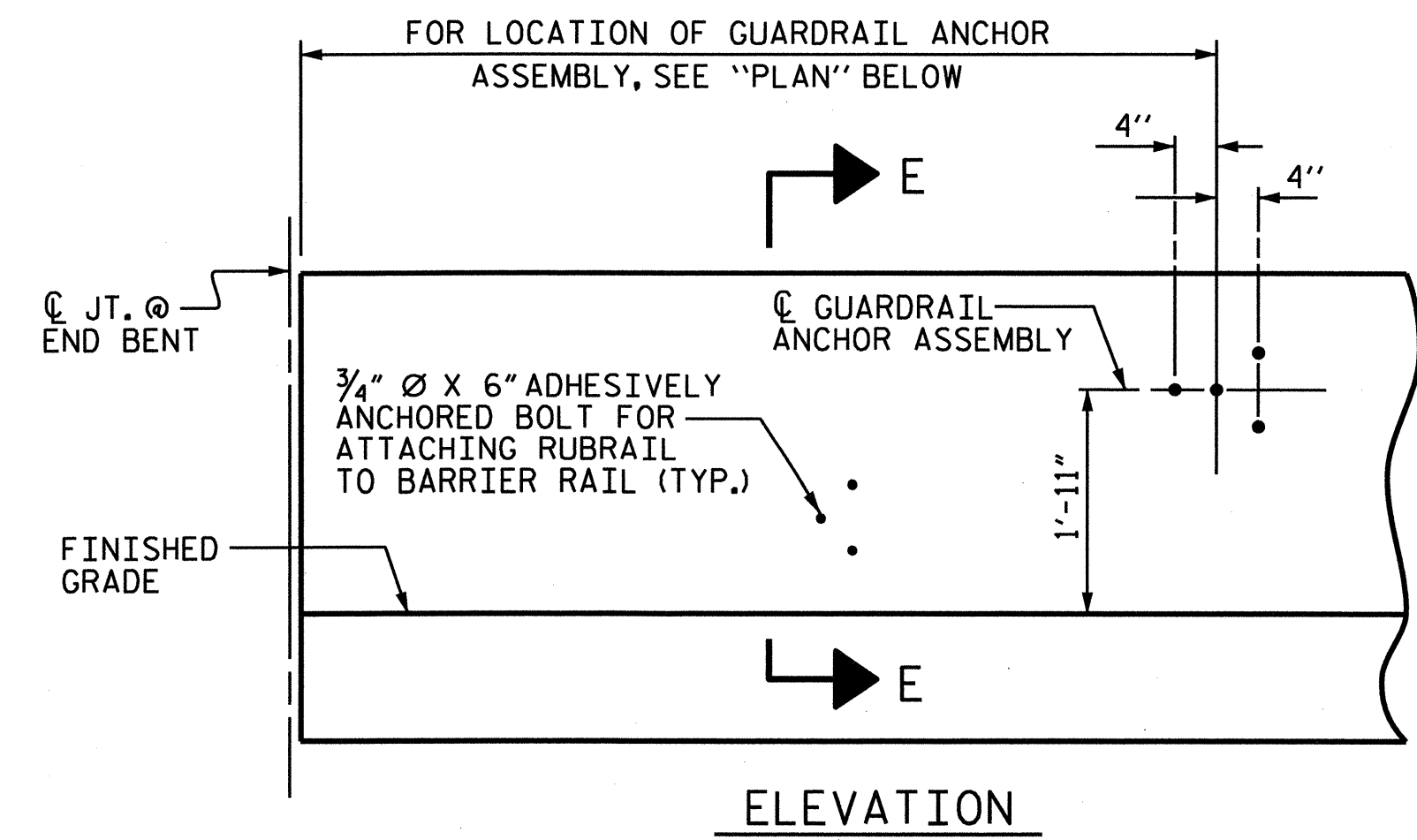
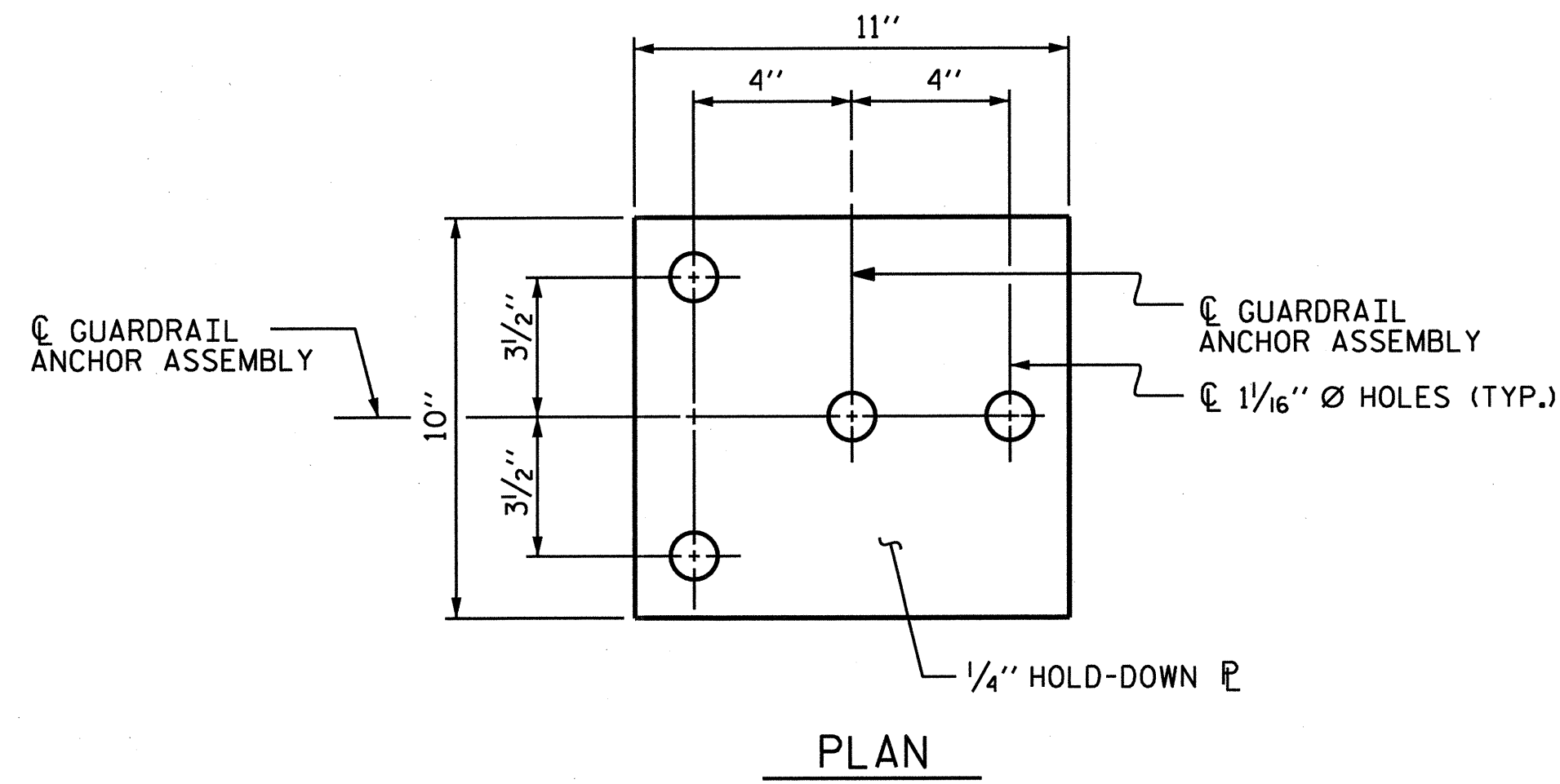
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

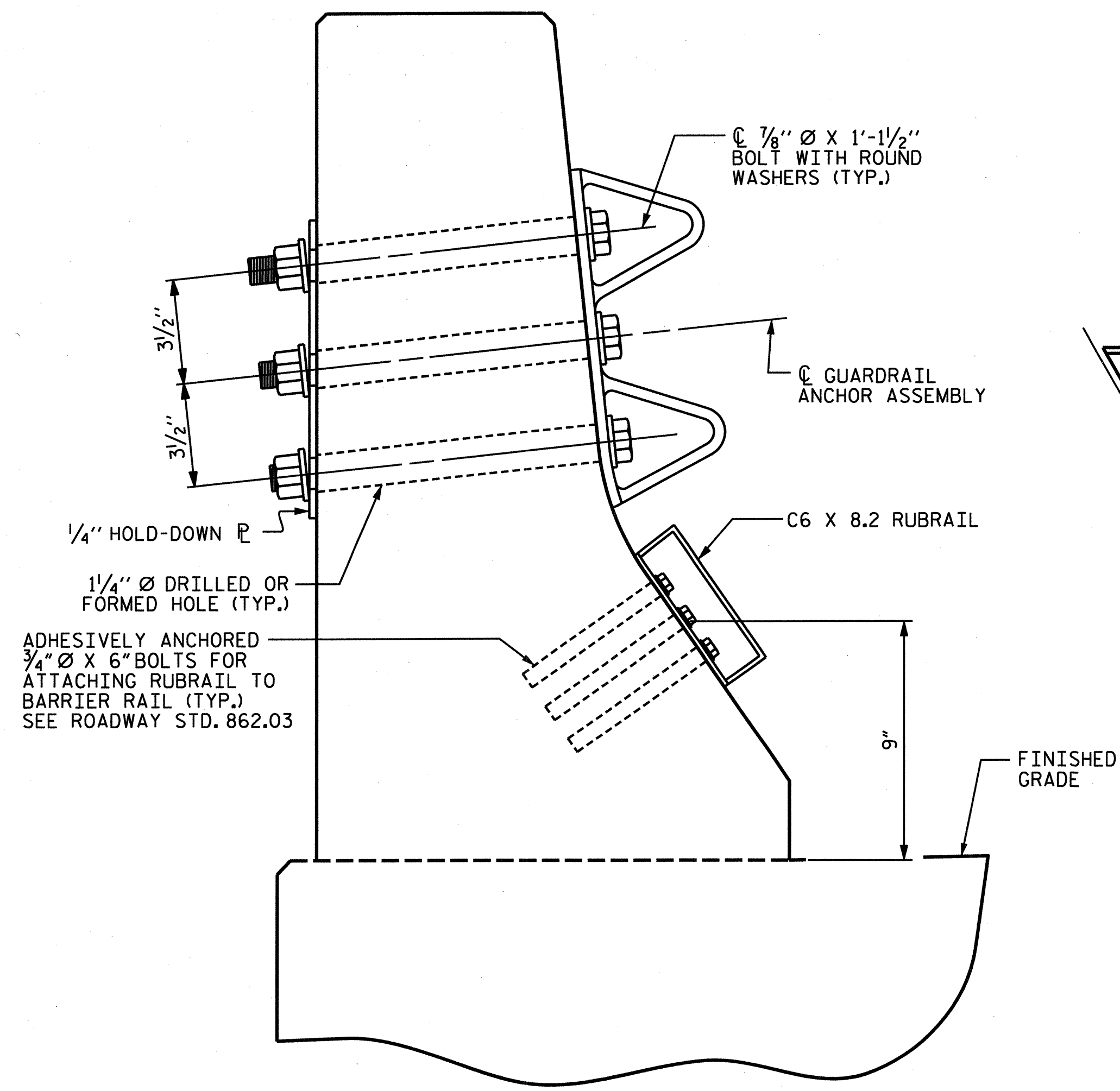
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

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

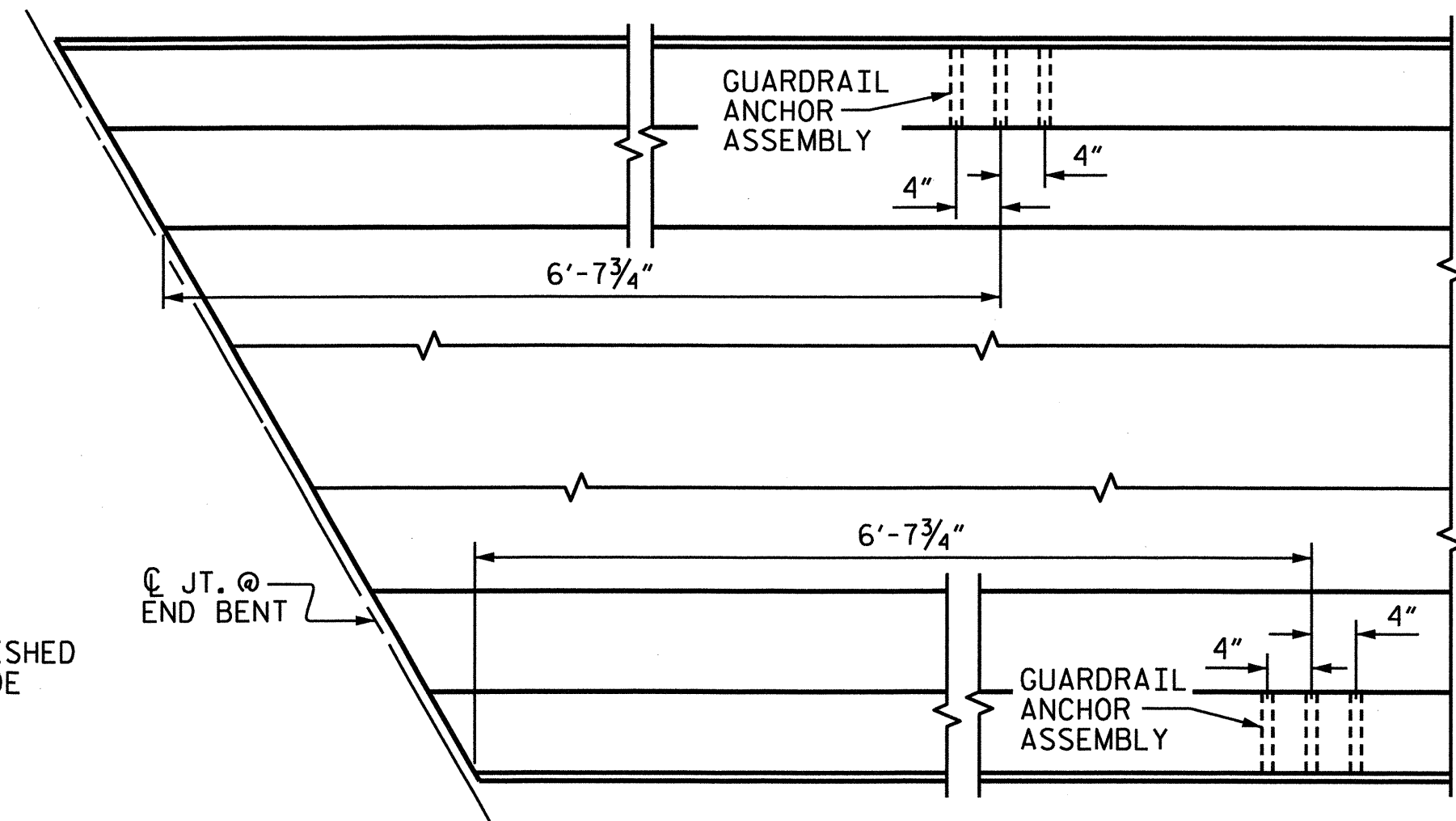


FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



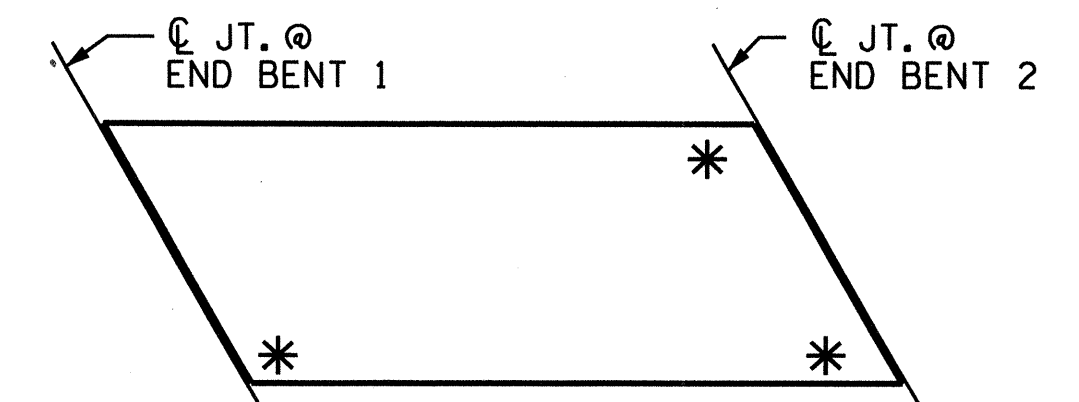
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

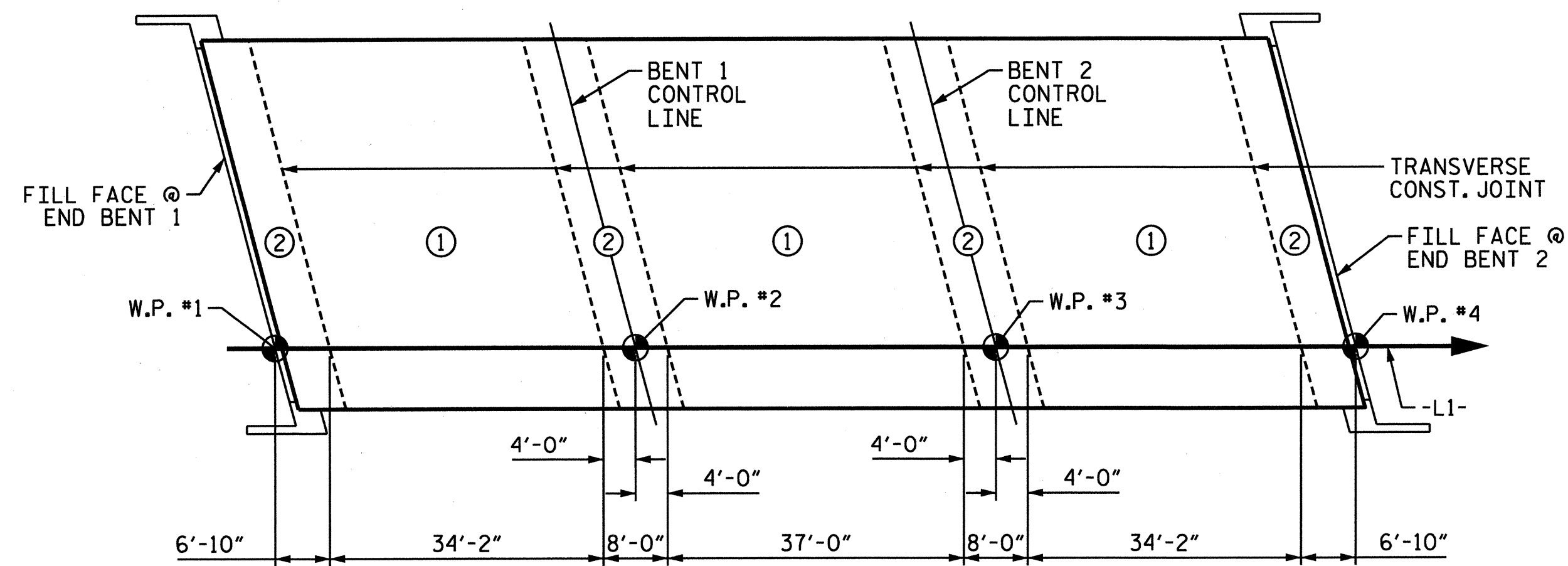


WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

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

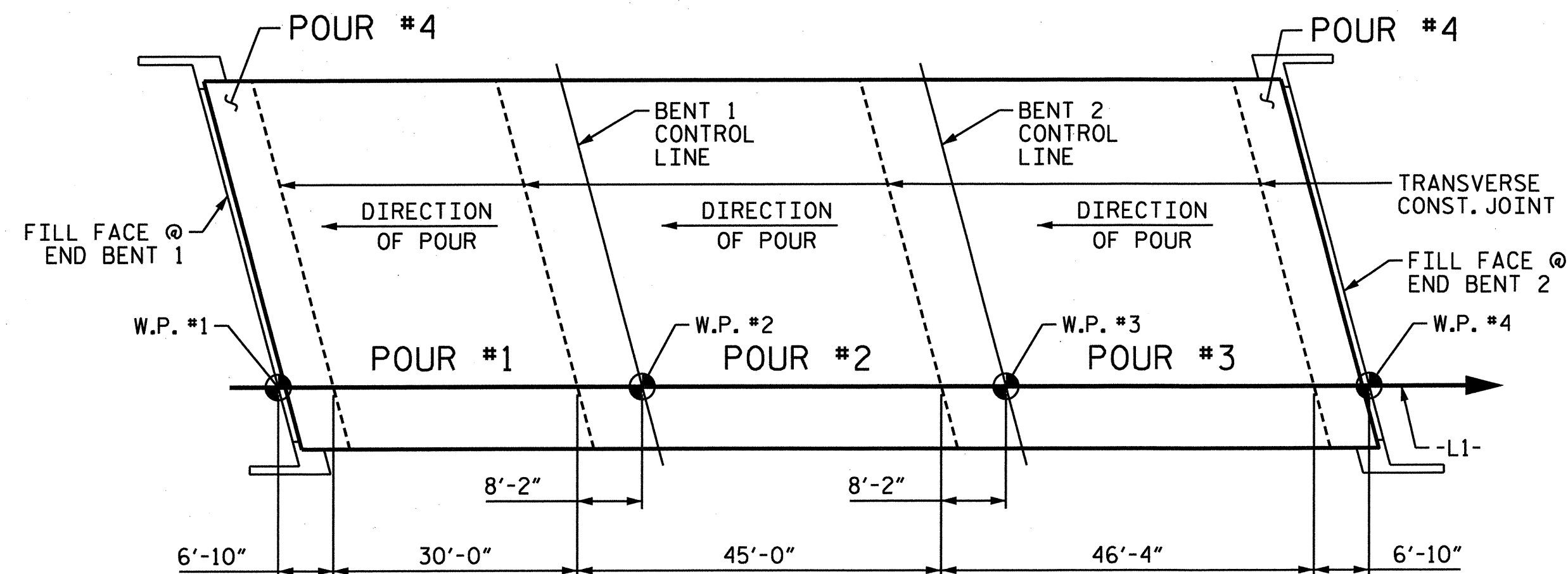
ASSEMBLED BY : M.J. OSTRISHKO	DATE : 03-12
CHECKED BY : N. PIERCE	DATE : 04-12
DRAWN BY : TLA 5/06	ADDED 5/1/06RR KMM/GM
CHECKED BY : GM 5/06	REV. 10/11/11 MAA/GM

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

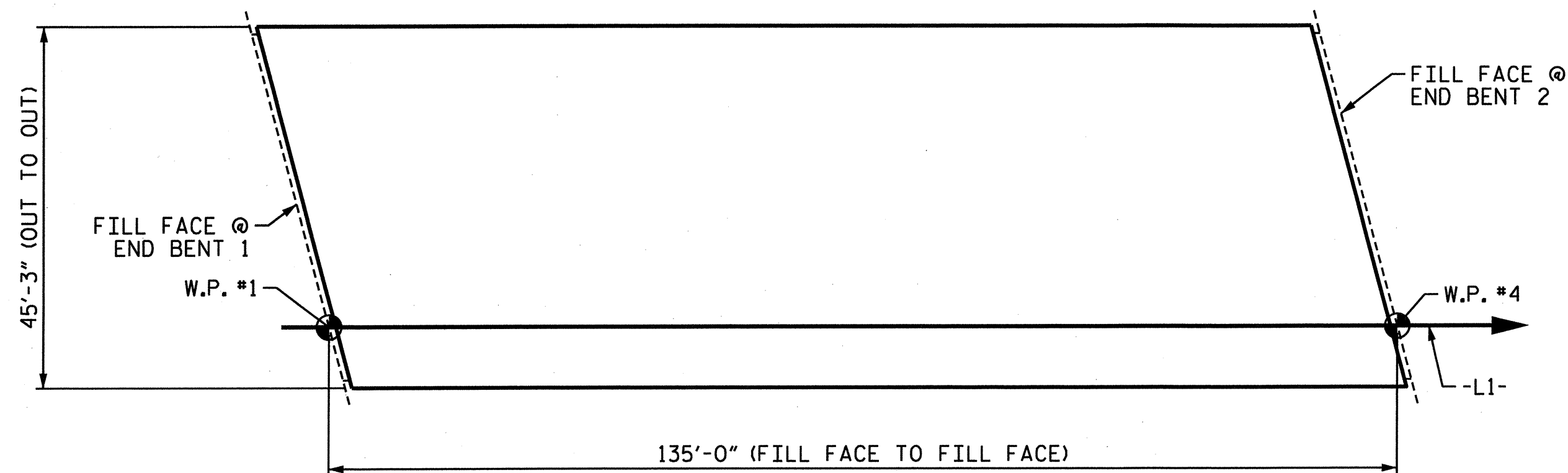


OPTIONAL POURING SEQUENCE

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



POURING SEQUENCE



LAYOUT FOR COMPUTING AREA
REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 6,109)

ASSEMBLED BY : M.J. OSTRISHKO	DATE : 03-12
CHECKED BY : N. PIERCE	DATE : 04-12
DRAWN BY : JMB 5/87	REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

BILL OF MATERIAL

SPANS A, B & C

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	264	#5	STR	44'-11"	12368	H1	10	#5	STR	9'-8"	101
A2	264	#5	STR	44'-11"	12368	H2	10	#5	STR	9'-5"	98
* A101	2	#5	STR	43'-8"	91	B1	192	#5	STR	45'-10"	9178
* A102	2	#5	STR	41'-11"	87	* B2	80	#6	STR	28'-6"	3425
* A103	2	#5	STR	40'-3"	84	* B3	74	#6	STR	9'-0"	1000
* A104	2	#5	STR	38'-6"	80	* B4	80	#6	STR	37'-0"	4446
* A105	2	#5	STR	36'-10"	77	* B5	74	#6	STR	13'-6"	1500
* A106	2	#5	STR	35'-1"	73	* B6	40	#6	STR	14'-0"	841
* A107	2	#5	STR	33'-5"	70	K1	16	#4	STR	27'-5"	293
* A108	2	#5	STR	31'-8"	66	K2	8	#4	STR	8'-2"	44
* A109	2	#5	STR	30'-0"	63	K3	16	#4	STR	9'-3"	99
* A110	2	#5	STR	28'-3"	59	K4	8	#4	STR	8'-8"	46
* A111	2	#5	STR	26'-6"	55	K5	4	#4	STR	5'-3"	14
* A112	2	#5	STR	24'-10"	52	K6	8	#4	STR	5'-9"	31
* A113	2	#5	STR	23'-1"	48	K7	4	#4	STR	5'-6"	15
* A114	2	#5	STR	21'-5"	45	K8	16	#4	STR	2'-10"	30
* A115	2	#5	STR	19'-8"	41	K9	8	#4	STR	3'-9"	20
* A116	2	#5	STR	18'-0"	38	K10	16	#4	STR	8'-2"	87
* A117	2	#5	STR	16'-3"	34	K11	32	#4	STR	9'-3"	198
* A118	2	#5	STR	14'-7"	30	K12	16	#4	STR	8'-8"	93
* A119	2	#5	STR	12'-10"	27	K13	16	#4	STR	21'-7"	231
* A120	2	#5	STR	11'-2"	23	* S1	40	#4	1	10'-0"	267
* A121	2	#5	STR	9'-5"	20	* S2	42	#4	1	11'-11"	334
* A122	2	#5	STR	7'-9"	16	S3	16	#4	2	10'-9"	115
* A123	2	#5	STR	6'-0"	13	* S4	56	#4	2	11'-9"	440
* A124	2	#5	STR	4'-4"	9	S5	216	#4	3	2'-9"	397
* A125	2	#5	STR	2'-7"	5						
* A126	2	#5	STR	1'-9"	4						
A201	2	#5	STR	43'-8"	91	U1	96	#4	4	8'-1"	518
A202	2	#5	STR	41'-11"	87	U2	12	#4	4	10'-7"	85
A203	2	#5	STR	40'-3"	84						
A204	2	#5	STR	38'-6"	80	V3	28	#5	STR	3'-10"	112
A205	2	#5	STR	36'-10"	77						
A206	2	#5	STR	35'-1"	73						
A207	2	#5	STR	33'-5"	70						
A208	2	#5	STR	31'-8"	66						
A209	2	#5	STR	30'-0"	63						
A210	2	#5	STR	28'-3"	59						
A211	2	#5	STR	26'-6"	55						
A212	2	#5	STR	24'-10"	52						
A213	2	#5	STR	23'-1"	48						
A214	2	#5	STR	21'-5"	45						
A215	2	#5	STR	19'-8"	41						
A216	2	#5	STR	18'-0"	38						
A217	2	#5	STR	16'-3"	34						
A218	2	#5	STR	14'-7"	30						
A219	2	#5	STR	12'-10"	27						
A220	2	#5	STR	11'-2"	23						
A221	2	#5	STR	9'-5"	20						
A222	2	#5	STR	7'-9"	16						
A223	2	#5	STR	6'-0"	13						
A224	2	#5	STR	4'-4"	9						
A225	2	#5	STR	2'-7"	5						
A226	2	#5	STR	1'-9"	4						

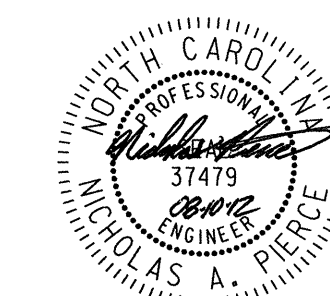
REINFORCING STEEL LBS. 25,823
* EPOXY COATED REINFORCING STEEL LBS. 25,391

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"			

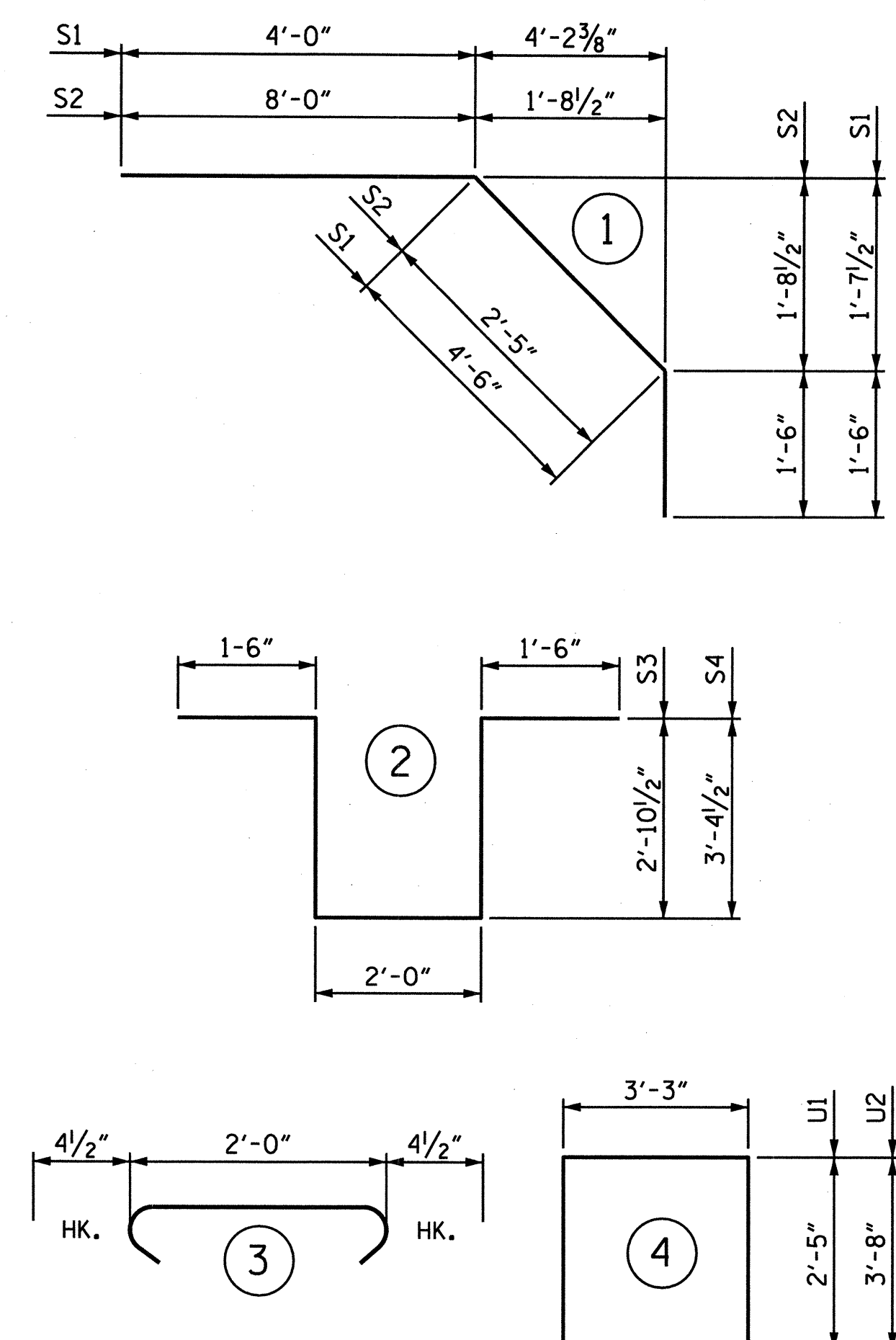
GROOVING BRIDGE FLOORS

APPROACH SLABS	1,883 SO.FT.
BRIDGE DECK	5,184 SO.FT.
TOTAL	7,067 SO.FT.



WSP - SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

SPANS A, B & C	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	44.3		
POUR #2	76.3		
POUR #3	78.3		
POUR #4	61.1		
TOTALS**	260.0	25,823	25,391

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-

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

REVISIONS				SHEET NO.
NO.	BY:	DATE:		S-21
1			3	TOTAL SHEETS
2			4	34

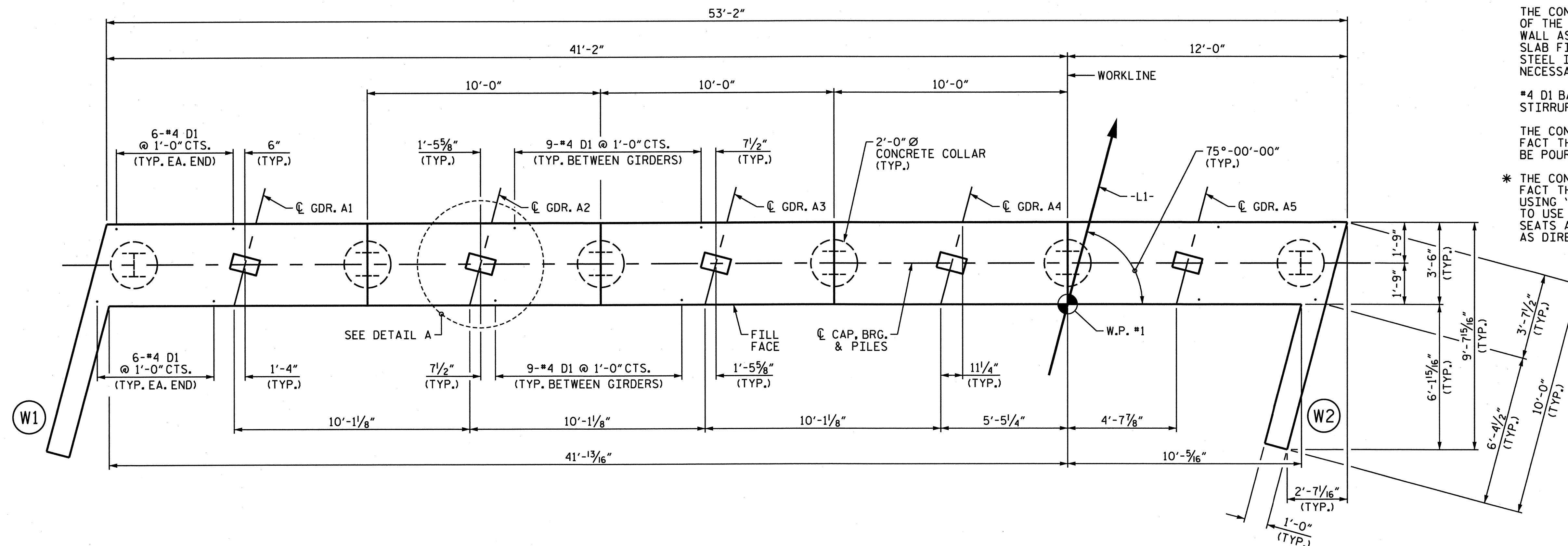
NOTES

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

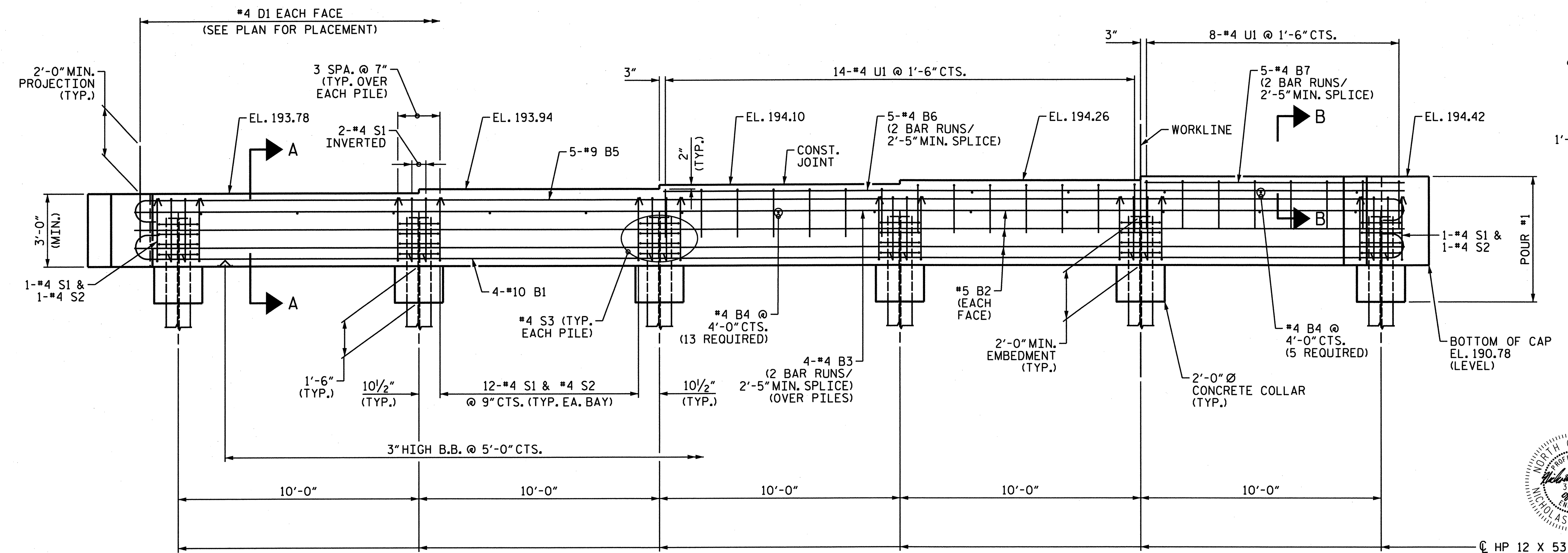
*4 D1 BARS MAY BE SHIFTED SLIGHTLY TO AVOID STIRRUPS IN CAP.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF THE WINGS ARE TO BE POURED WITH THE SUPERSTRUCTURE.

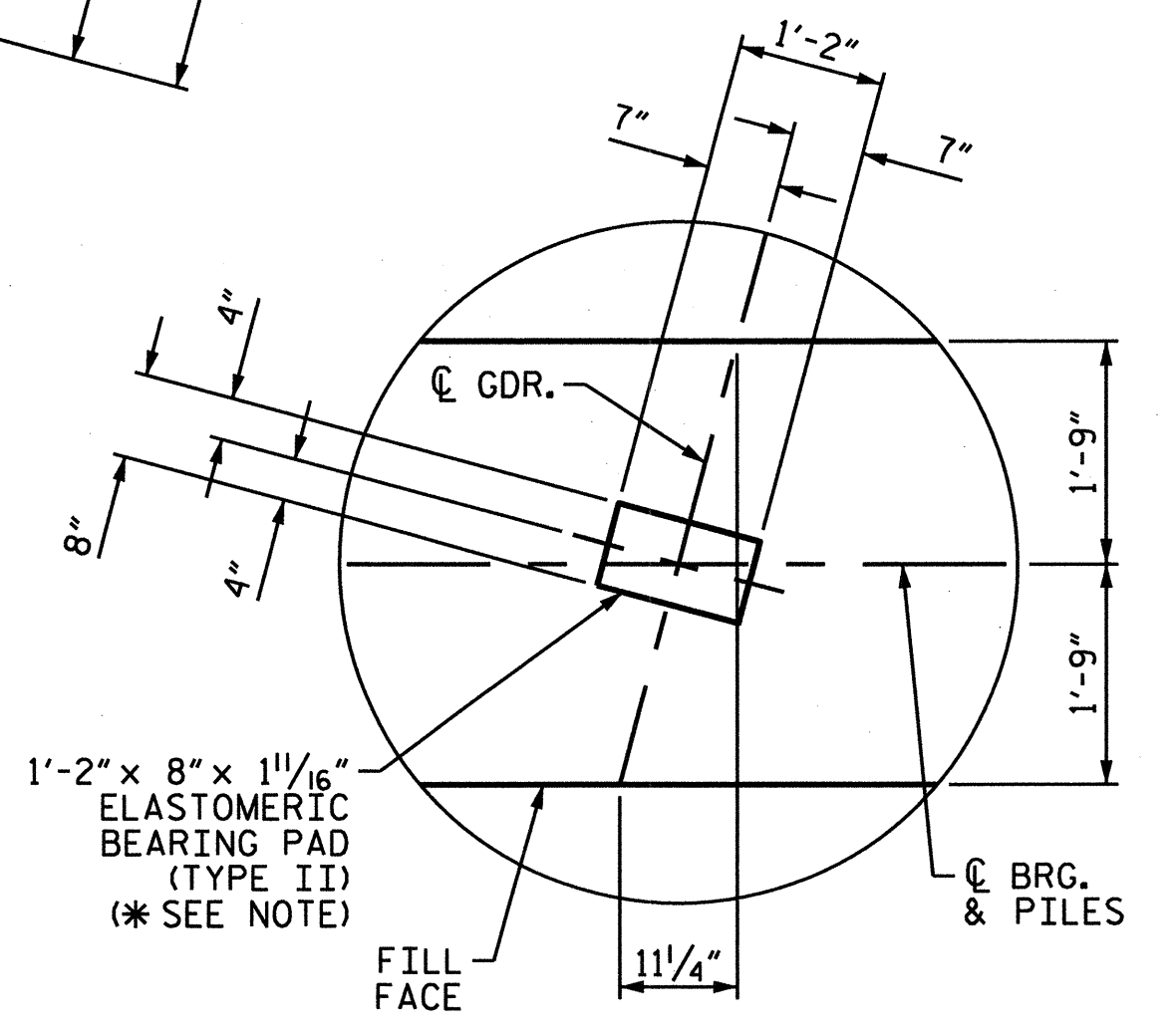
* THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE END BENT ELEVATIONS ARE BASED ON USING "E1" BEARINGS. IF THE CONTRACTOR CHOOSES TO USE THE OPTIONAL "E2" BEARINGS, THE BRIDGE SEATS AT THE END BENT WILL NEED TO BE ADJUSTED AS DIRECTED BY THE ENGINEER.



PLAN



ELEVATION



DETAIL A
(TYP. EACH BEARING)

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

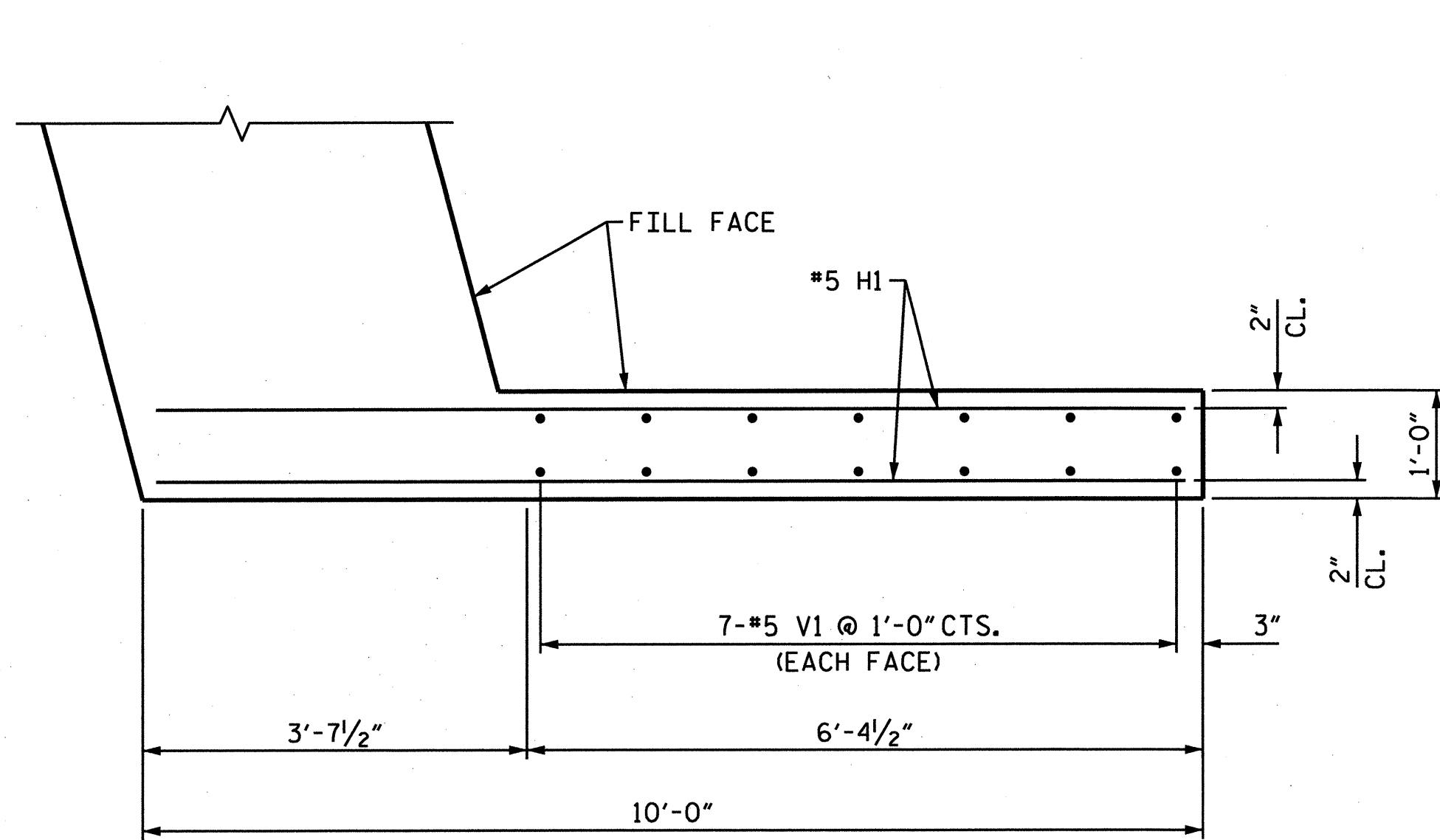
**SUBSTRUCTURE
 INTEGRAL
 END BENT 1**



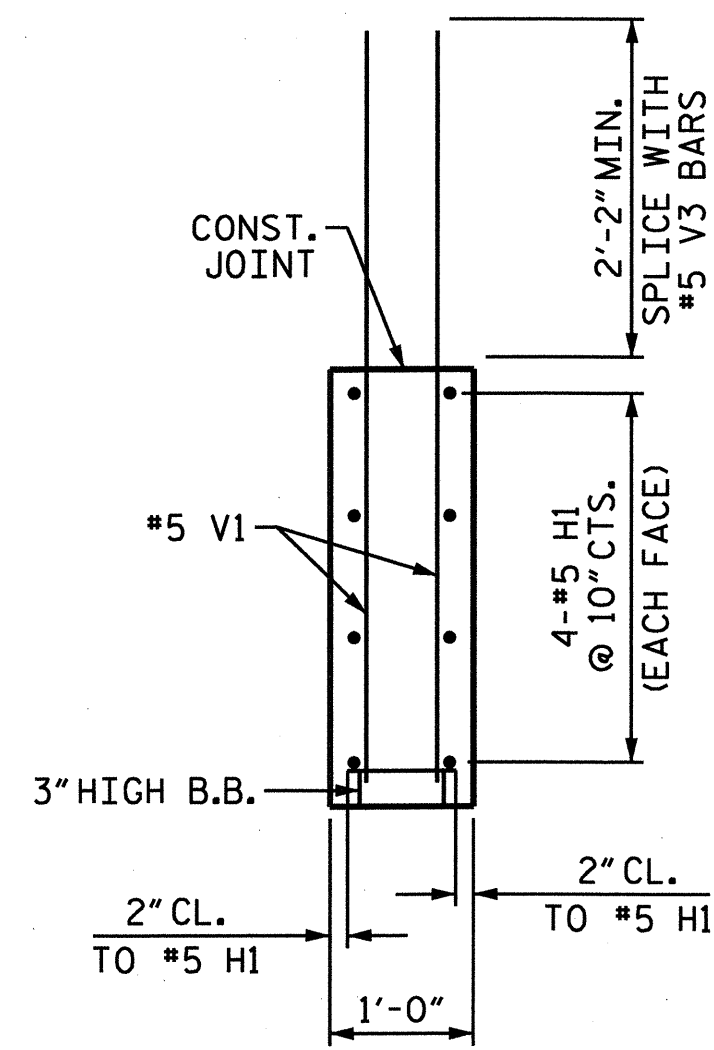
WSP - SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wsp-sells.com
 LICENSE NO. F-0891

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

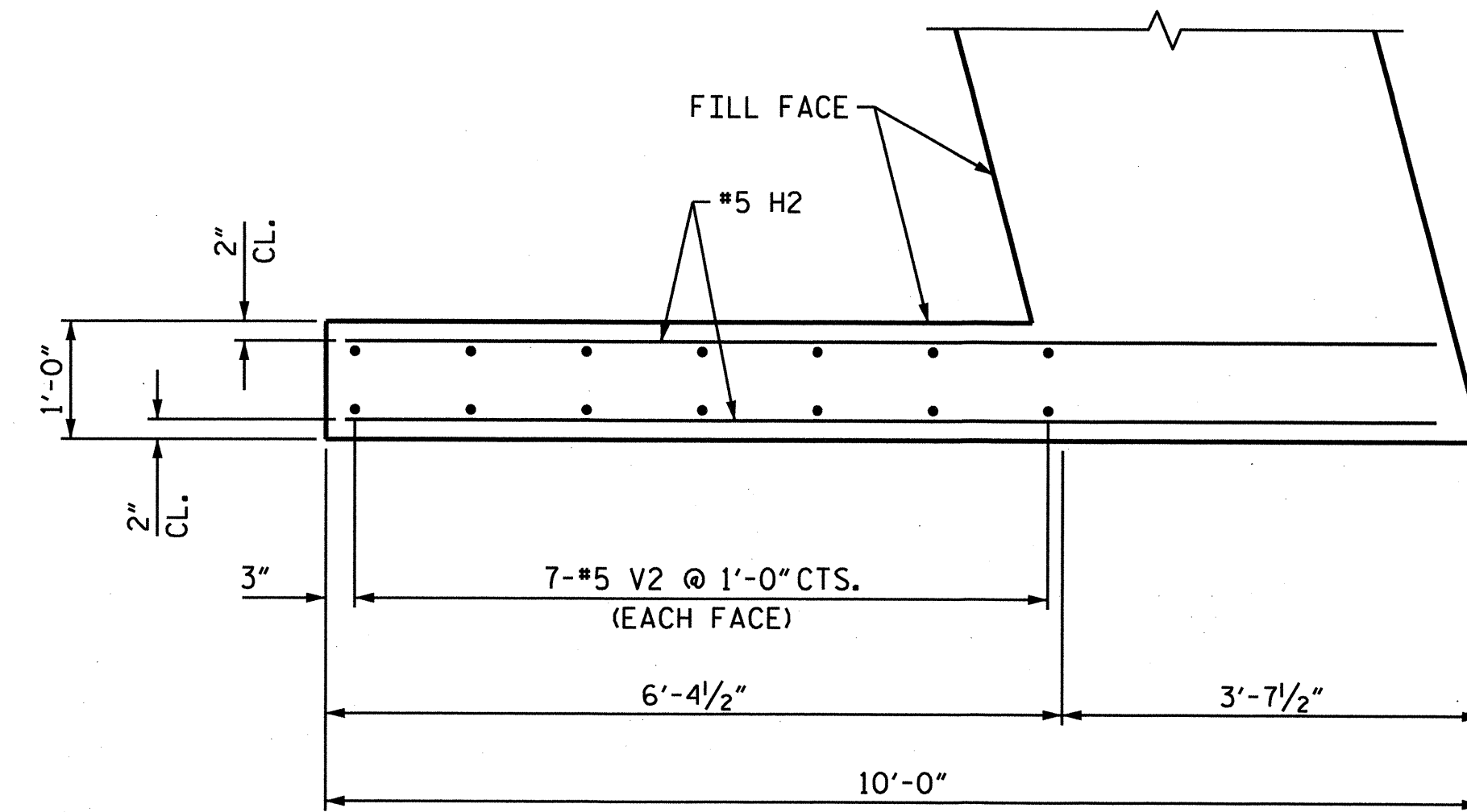
DRAWN BY : M.J. OSTRISHKO DATE : 04-12
 CHECKED BY : N. PIERCE DATE : 04-12



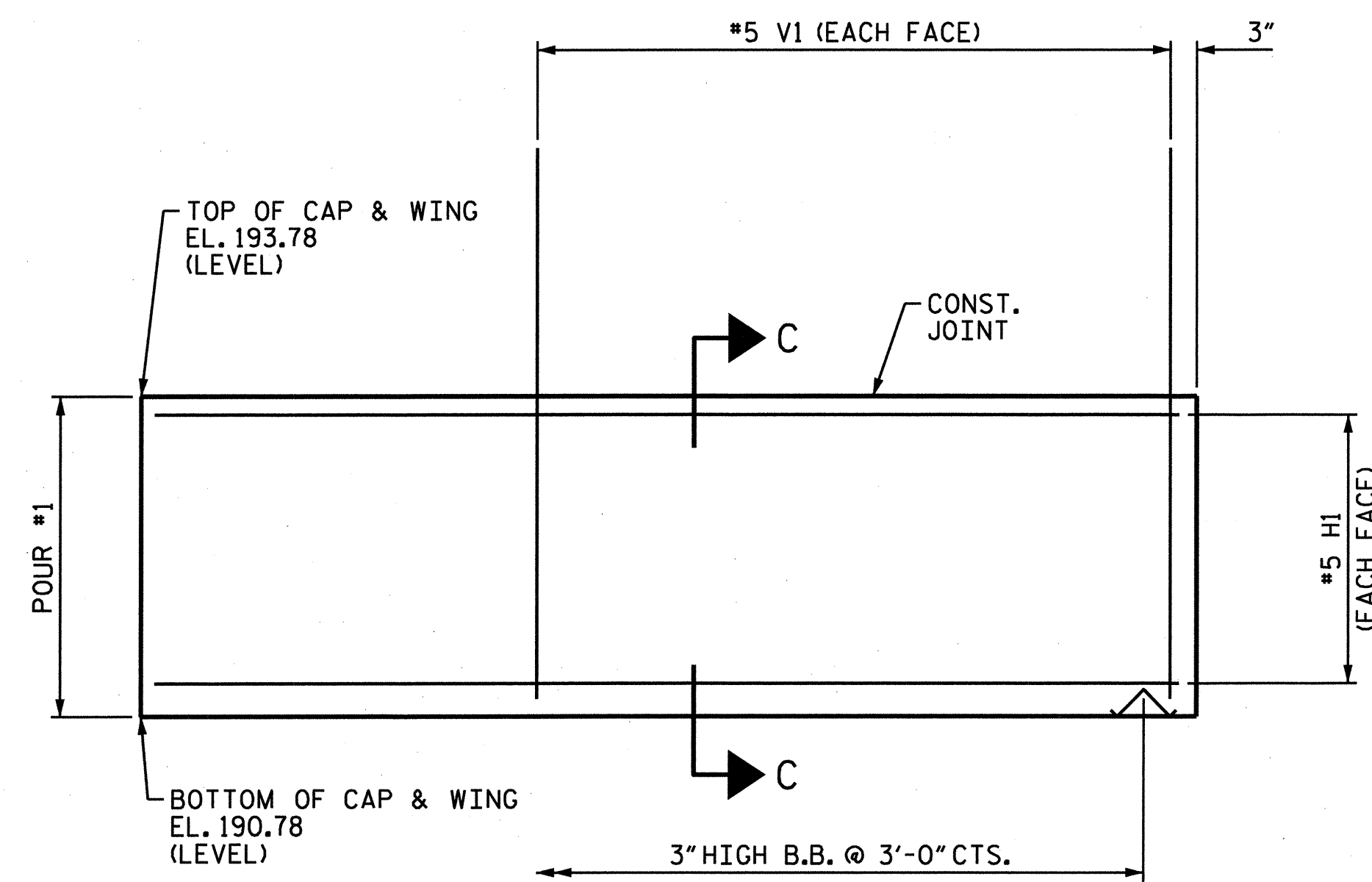
PLAN (W1)



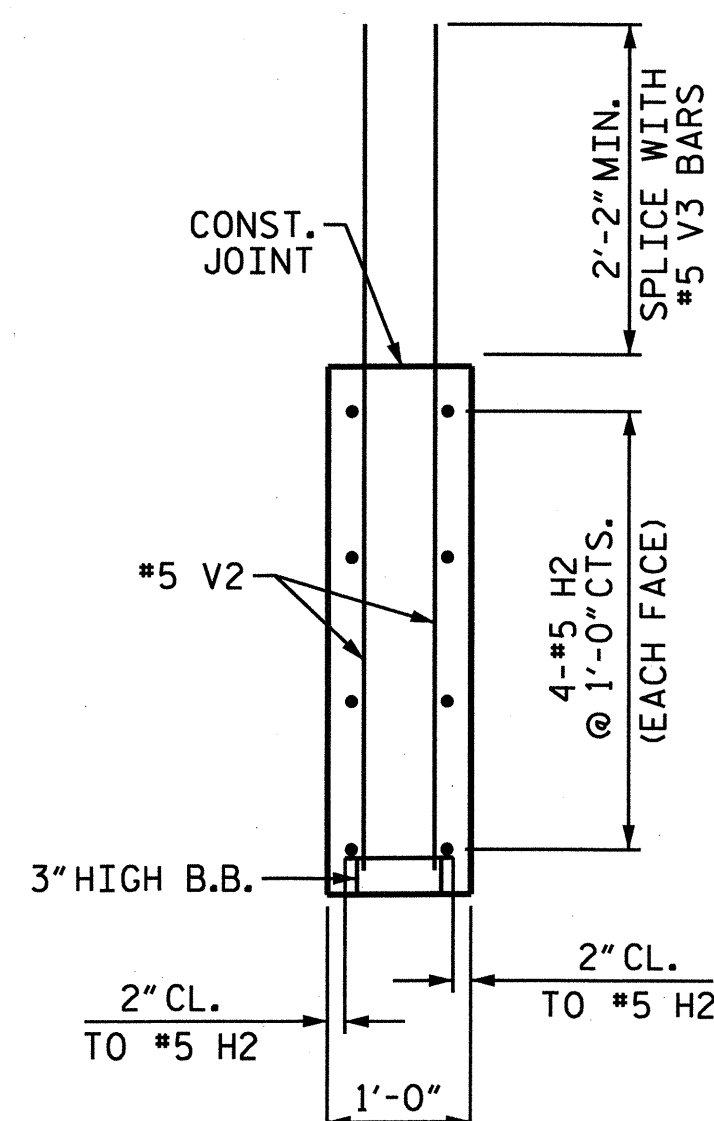
SECTION C-C



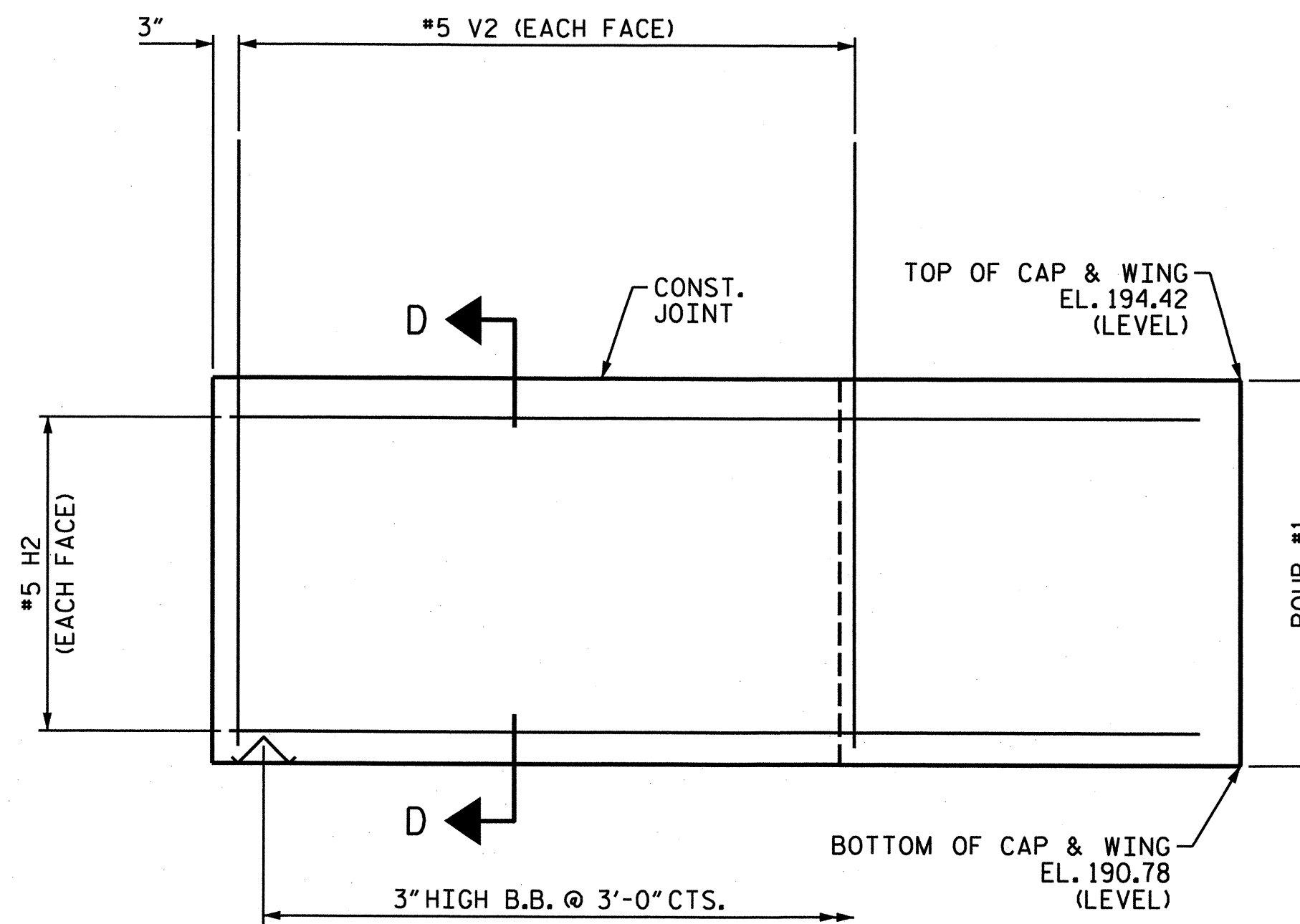
PLAN (W2)



ELEVATION (W1)



SECTION D-D



ELEVATION (W2)

LOWER WINGS AT INTEGRAL END BENT 1

FOR UPPER WING REINFORCING STEEL AND DETAILS, SEE "PLAN OF SPAN WING WALL DETAILS" SHEET 4 OF 4.

PROJECT NO. B-4817
 SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

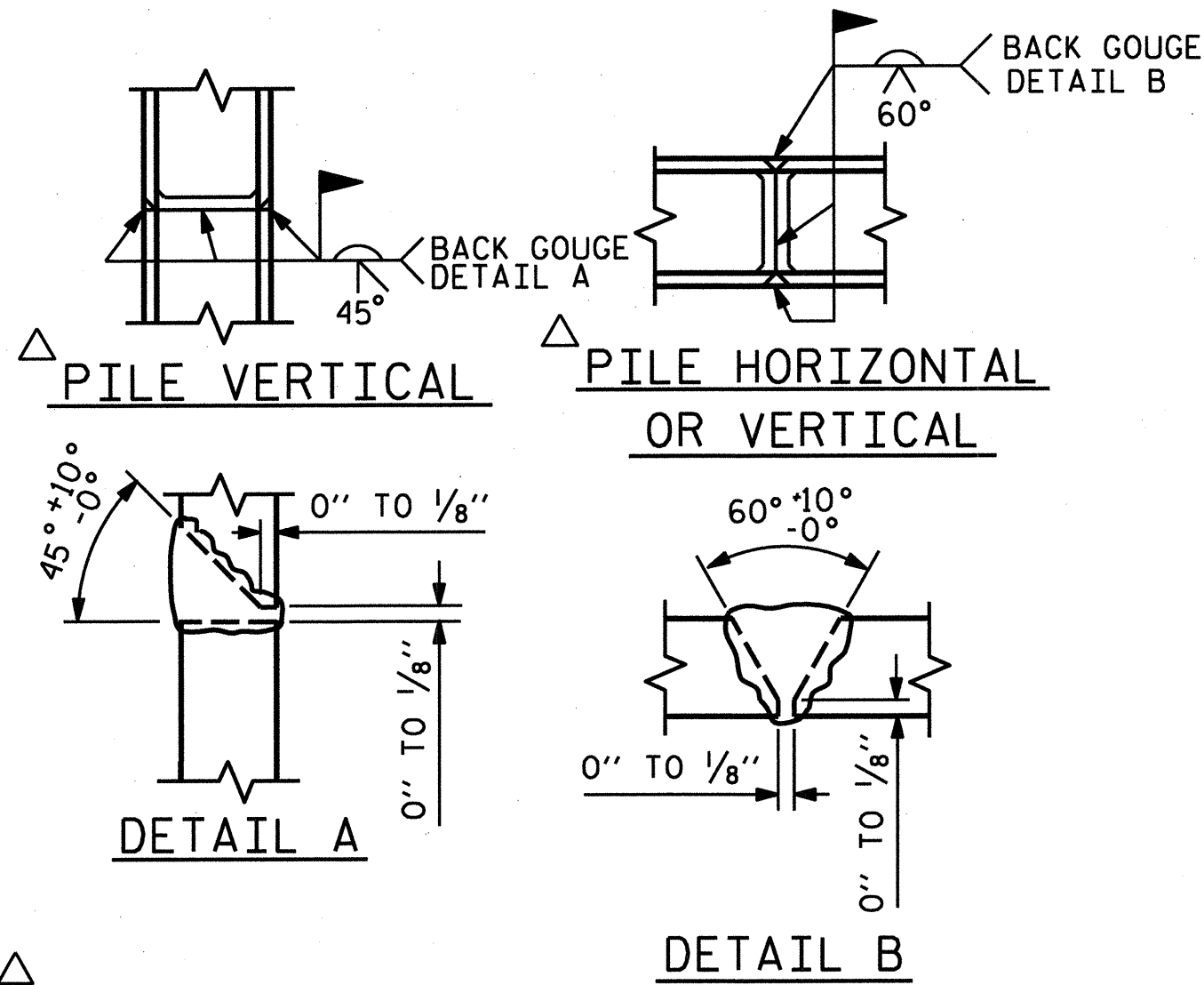
SUBSTRUCTURE
 INTEGRAL
 END BENT 1



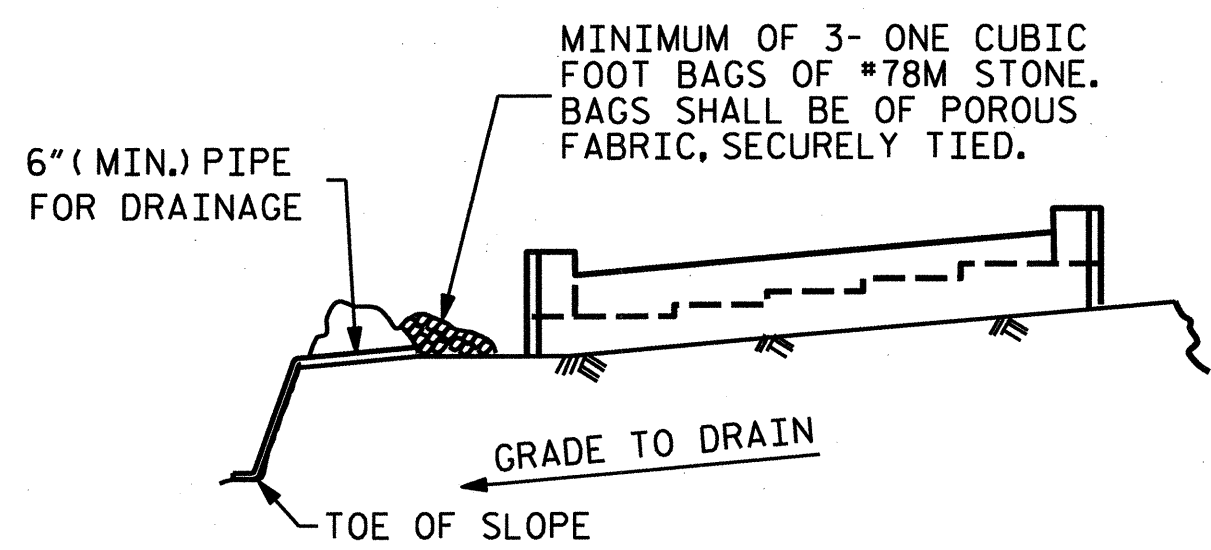
WSP-SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wsp-sells.com
 LICENSE NO. F-0891

DRAWN BY: M.J. OSTRISHKO DATE: 04-12
 CHECKED BY: N. PIERCE DATE: 04-12

REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			



POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS

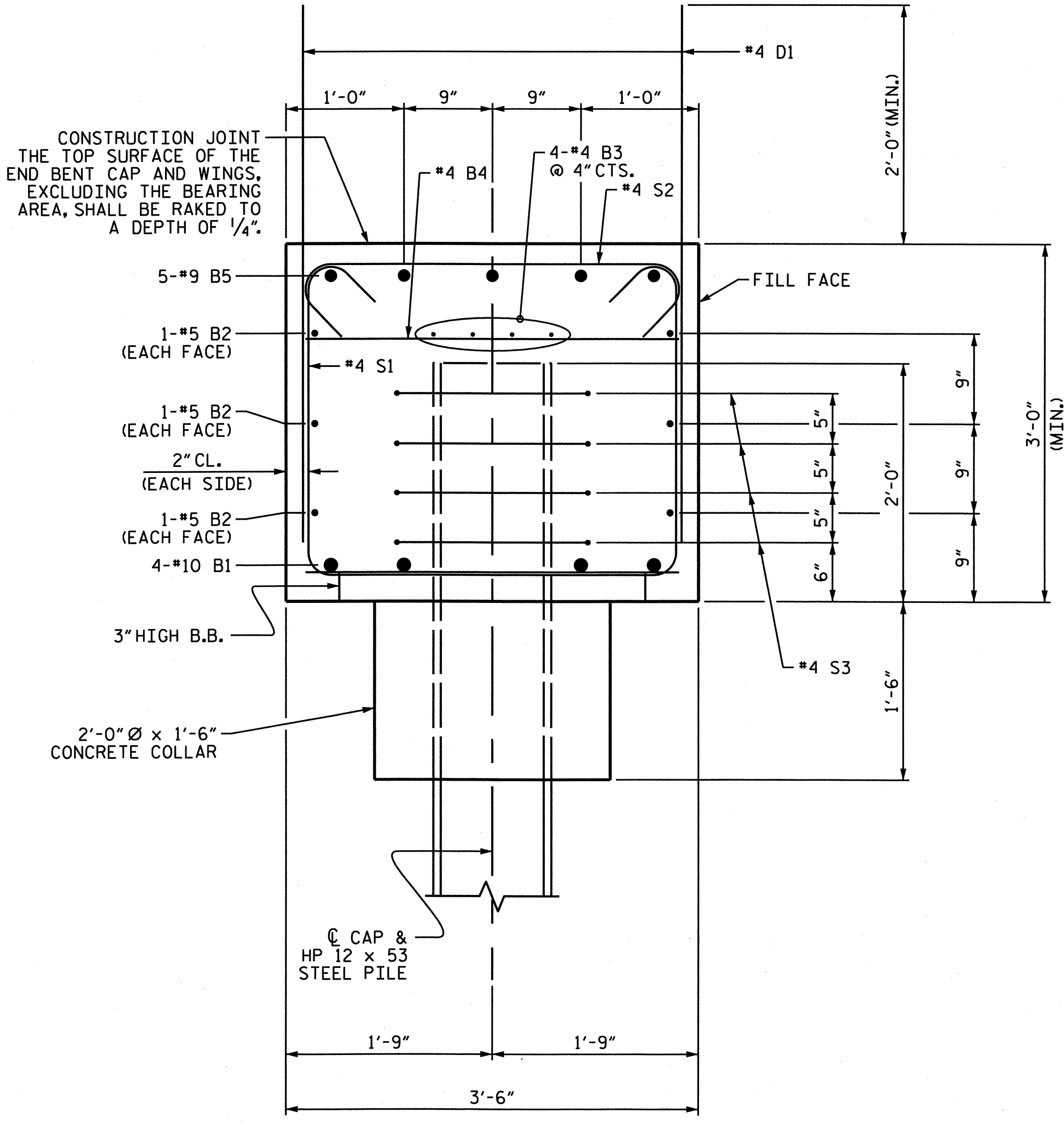


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

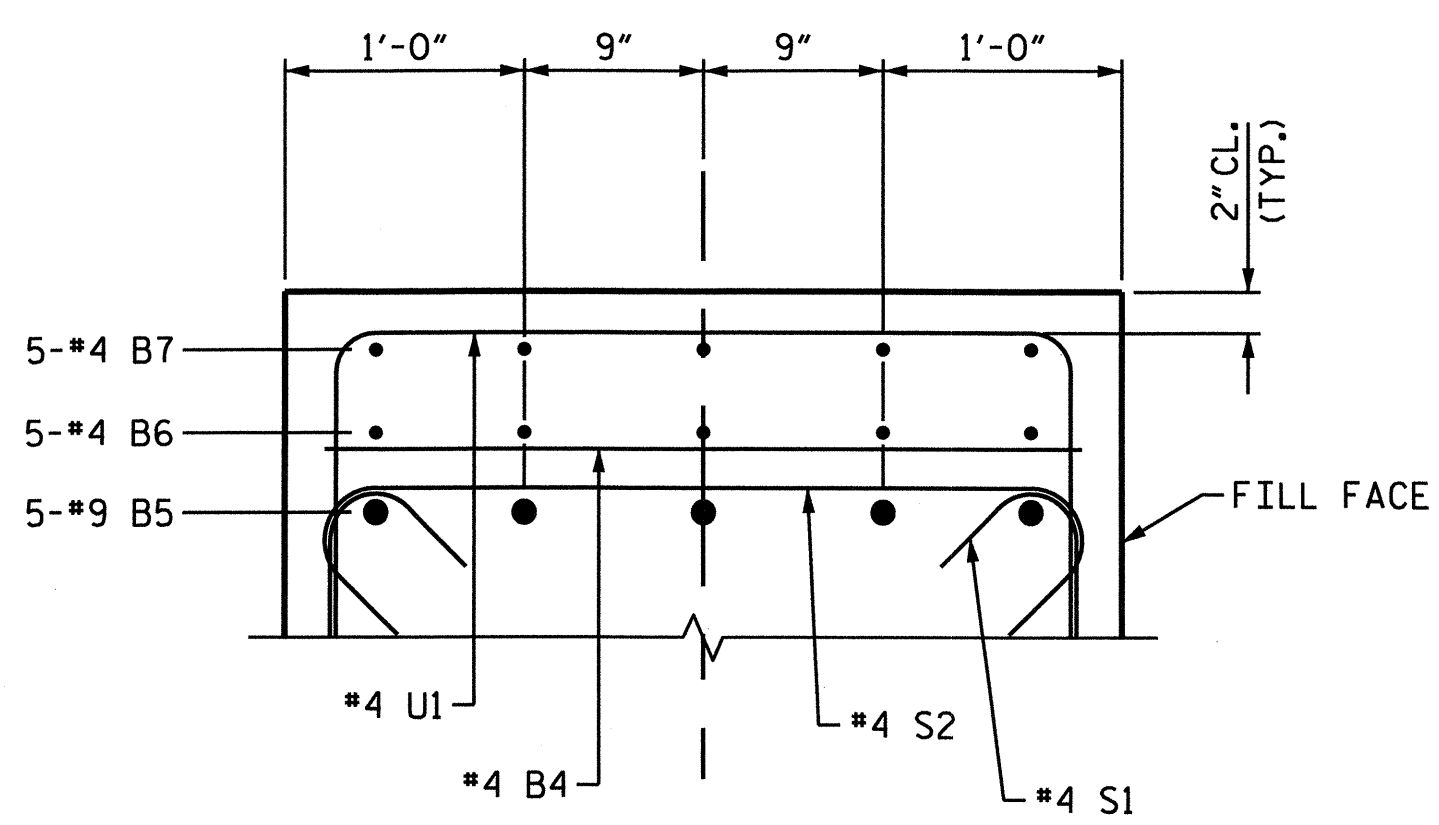
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



SECTION A-A



SECTION B-B

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
INTEGRAL END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	55'-8"	958
B2	6	#5	STR	52'-10"	331
B3	8	#4	STR	27'-8"	148
B4	18	#4	STR	3'-2"	38
B5	5	#9	1	55'-4"	941
B6	10	#4	STR	17'-4"	116
B7	10	#4	STR	7'-4"	49
D1	96	#4	STR	4'-6"	289
H1	8	#5	STR	9'-8"	81
H2	8	#5	STR	9'-5"	79
S1	74	#4	2	9'-2"	453
S2	62	#4	3	3'-11"	162
S3	24	#4	4	6'-6"	104
U1	22	#4	4	7'-2"	105
V1	14	#5	STR	5'-1"	74
V2	14	#5	STR	5'-9"	84
REINFORCING STEEL				LBS.	4,012

CLASS "A" CONCRETE

POUR #1
CAP, CONCRETE COLLARS, &
LOWER PART OF WINGS

	CU. YDS.	
TOTAL =	25.5	

HP 12 X 53 STEEL PILE

NO. = 6	LIN. FT.	
PILE REDRIVES	EACH	6

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-

SHEET 3 OF 3

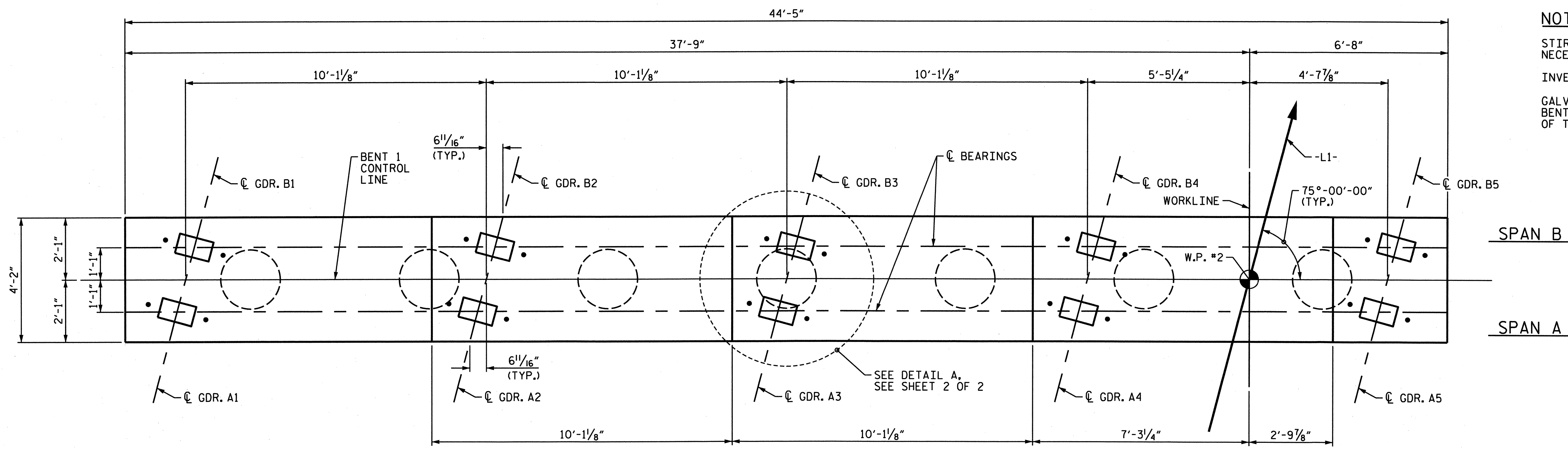
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
INTEGRAL END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			34

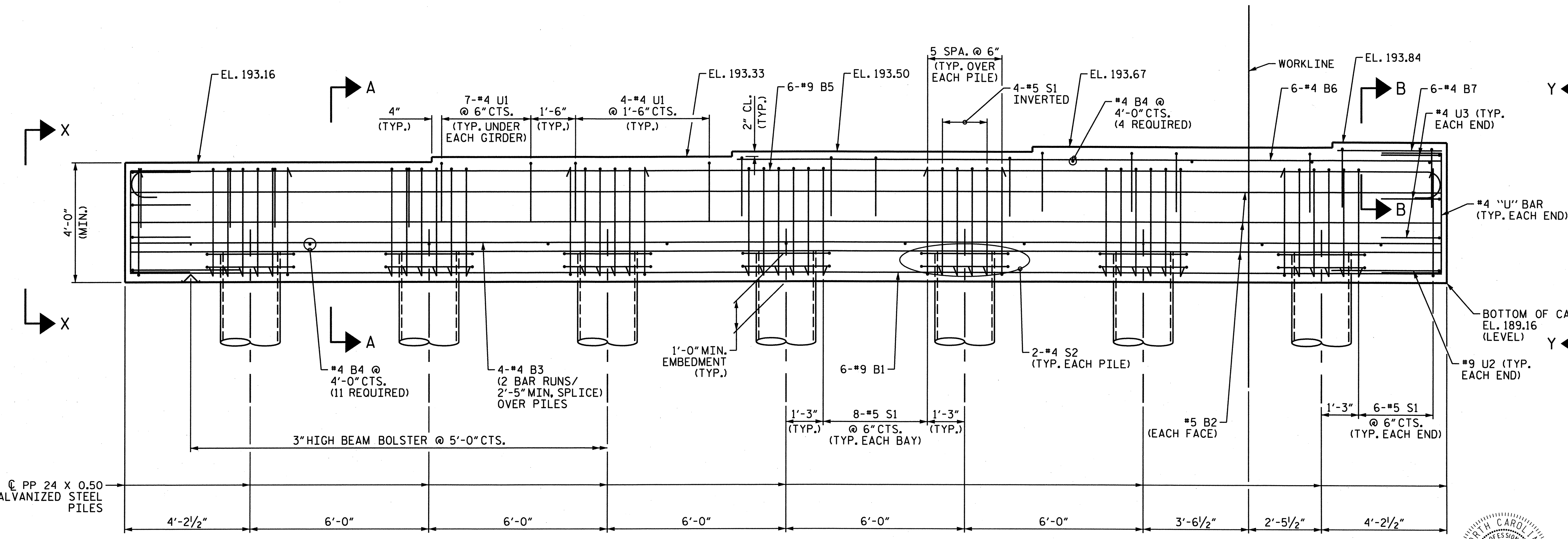
WSP · SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

DRAWN BY : M.J. OSTRISHKO DATE : 04-12
CHECKED BY : N. PIERCE DATE : 04-12



PLAN

NOTES
 STIRRUPS AND "U" BARS MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 INVERT ALTERNATE STIRRUPS.
 GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



ELEVATION

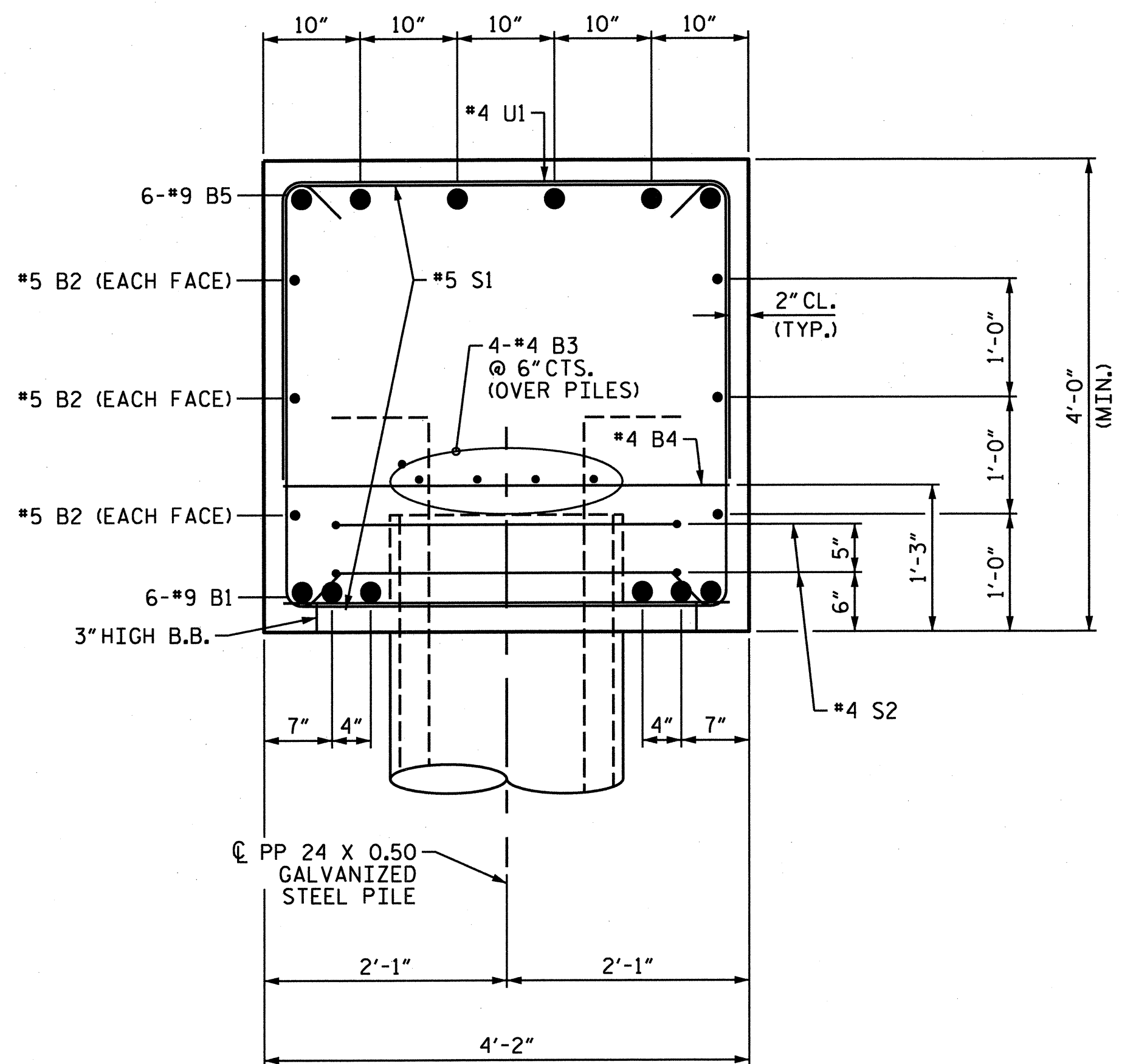
PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO. S-25
SUBSTRUCTURE BENT 1					
REVISIONS					TOTAL SHEETS 34
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		

WSP - SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

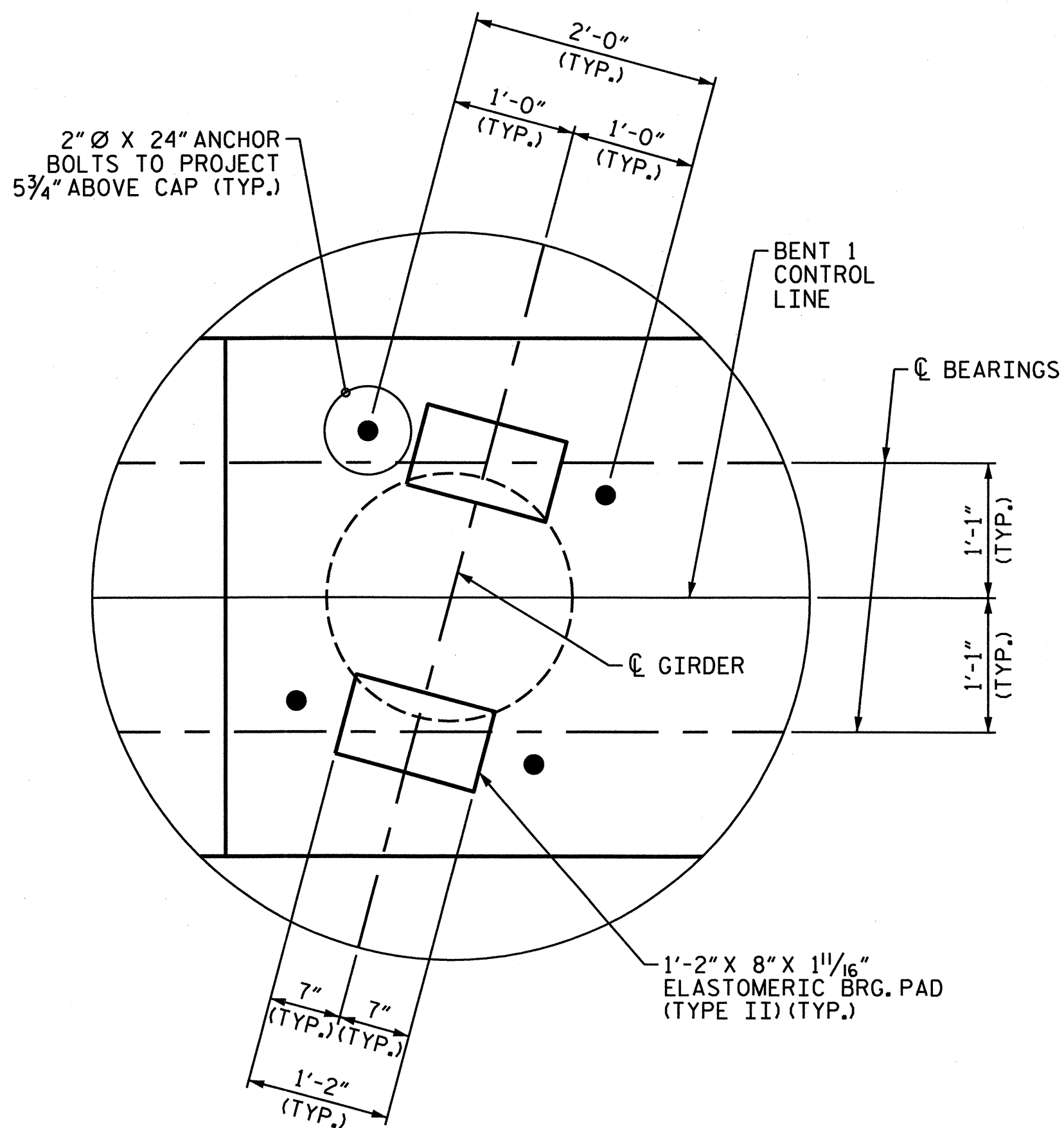
DRAWN BY : M.J. OSTRISHKO DATE : 04-12
 CHECKED BY : N. PIERCE DATE : 04-12

*****SYSTEM*****
 *****DCN*****
 *****USERNAME*****



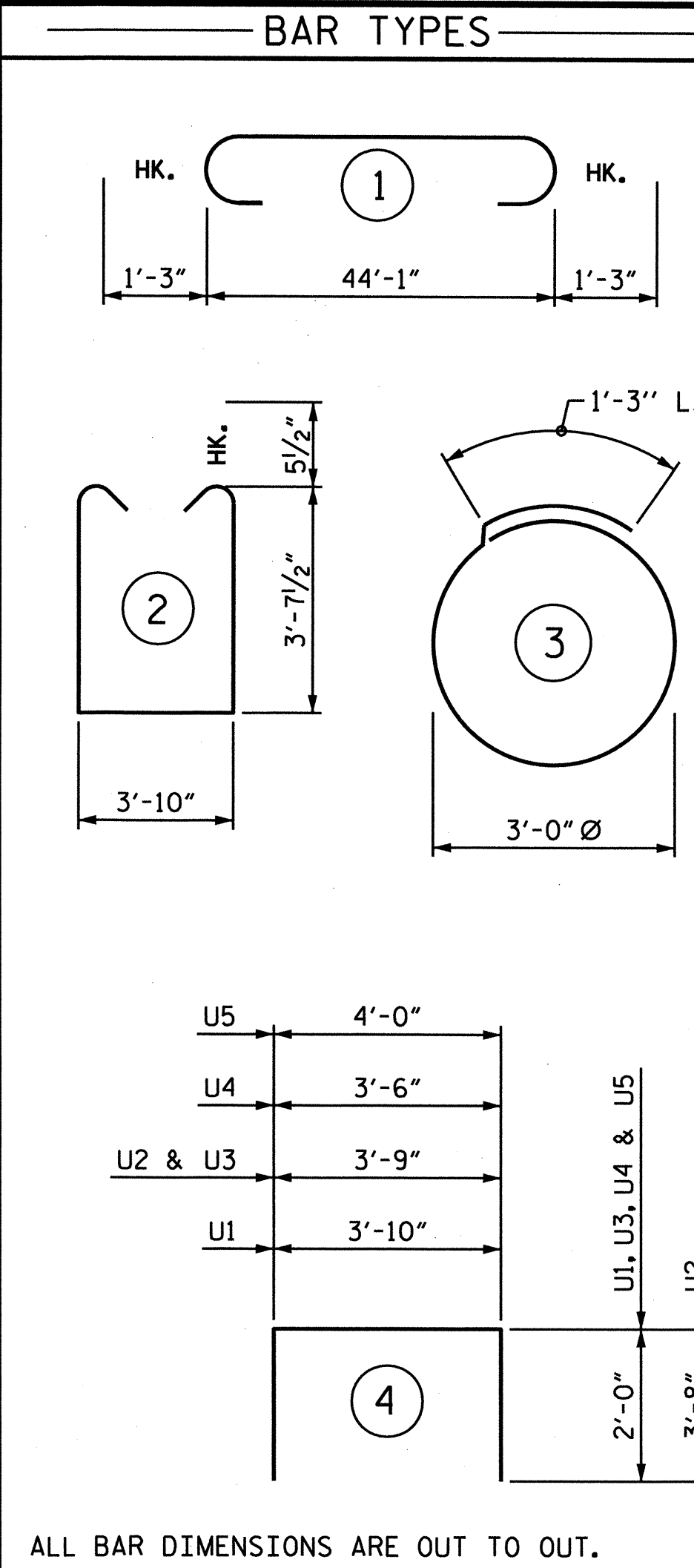
SECTION A-A

FOR ADDITIONAL REINFORCING STEEL IN PP 24 X 0.50 GALVANIZED STEEL PIPE PILES, SEE "24" STEEL PIPE PILE" SHEET.



DETAIL A

(TYPICAL EACH GIRDER)



BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	STR	44'-1"	899
B2	6	#5	STR	44'-1"	276
B3	8	#4	STR	23'-3"	124
B4	15	#4	STR	3'-10"	38
B5	6	#9	1	46'-7"	950
B6	6	#4	STR	23'-8"	95
B7	6	#4	STR	3'-6"	14
S1	88	#5	2	12'-0"	1,101
S2	14	#4	3	10'-9"	101
U1	51	#4	4	7'-10"	267
U2	2	#9	4	11'-1"	75
U3	6	#4	4	7'-9"	31
U4	3	#4	4	7'-6"	15
U5	3	#4	4	8'-0"	16

REINFORCING STEEL LBS. 4,002

CLASS "A" CONCRETE

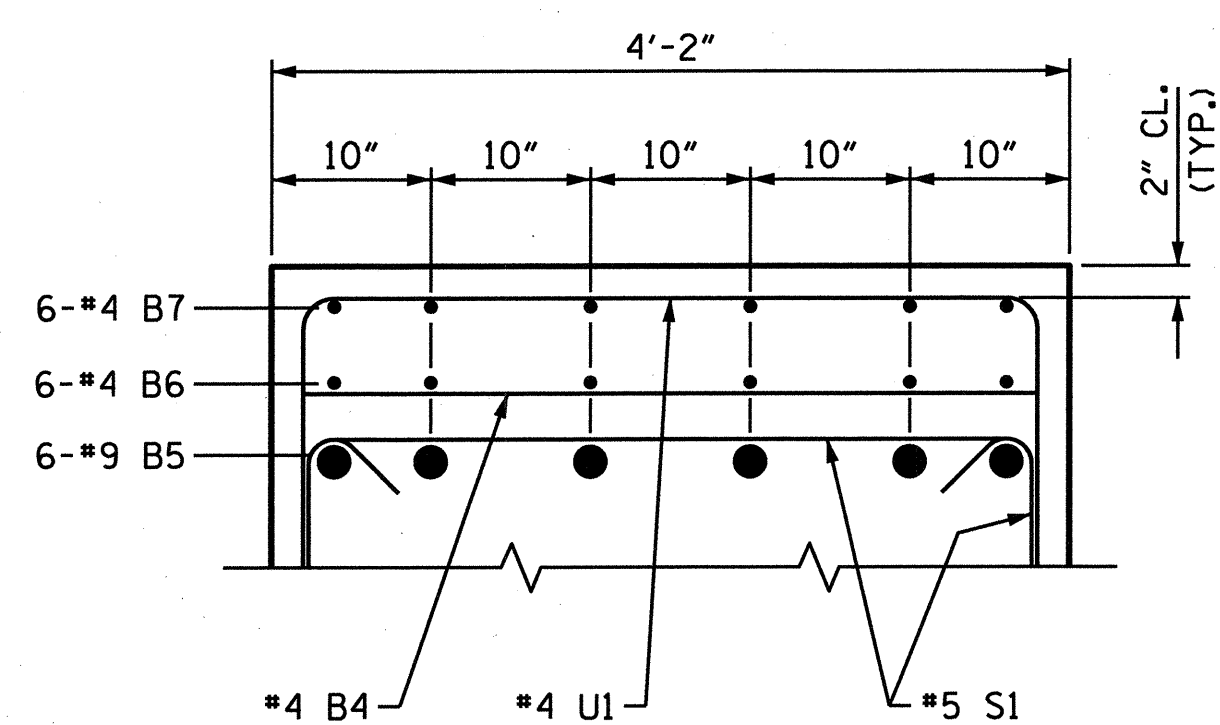
BENT CAP	CU. YDS.	28.6
TOTAL =	CU. YDS.	28.6

PP 24 X 0.50 GALVANIZED STEEL PILE
NO. = 7 LIN. FT. 224

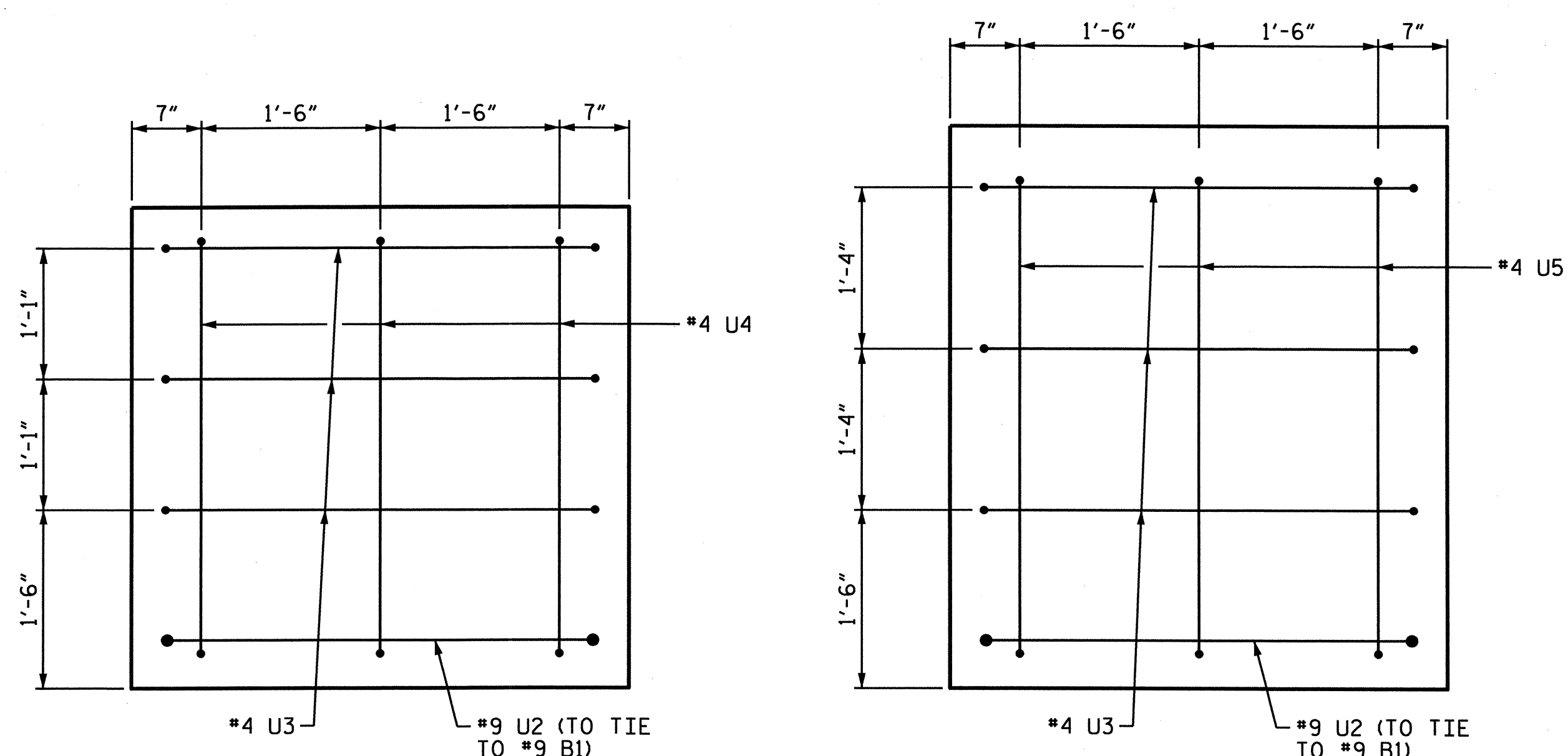
PILE REDRIVES EACH 7

THE CONCRETE DISPLACED BY THE PLUGGED PP 24 X 0.50 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE QUANTITY OF CLASS "A" CONCRETE FOR THE BENT CAP.

ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION B-B



SECTION X-X

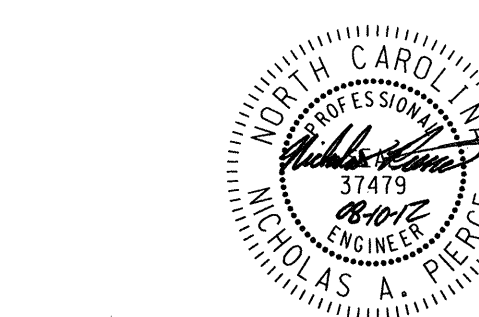
SECTION Y-Y

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

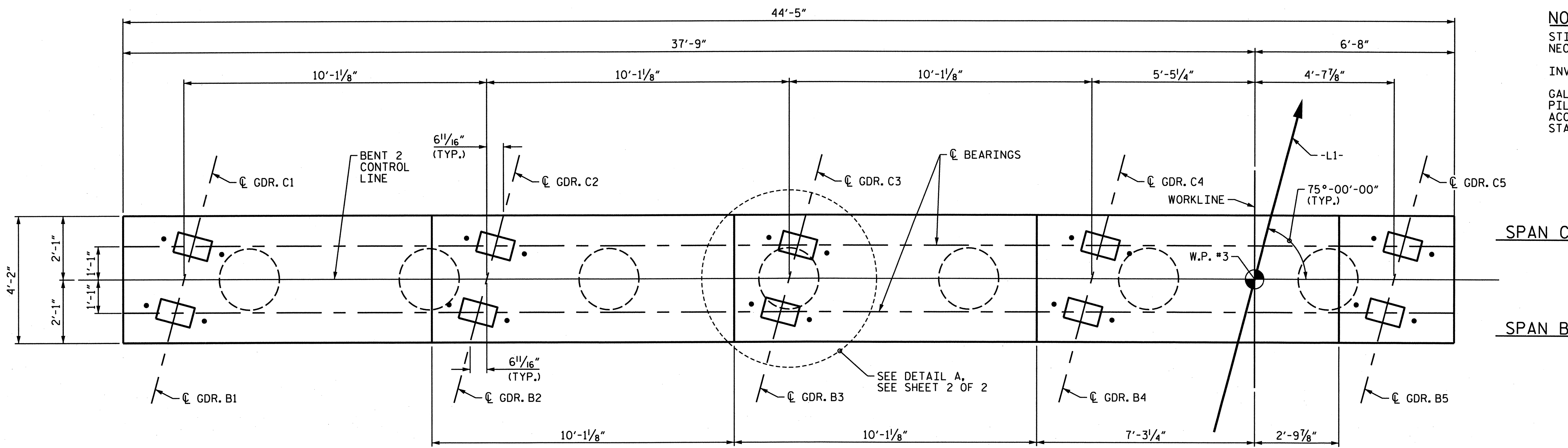


WSP - SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wsp-sells.com
LICENSE NO. F-0891

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

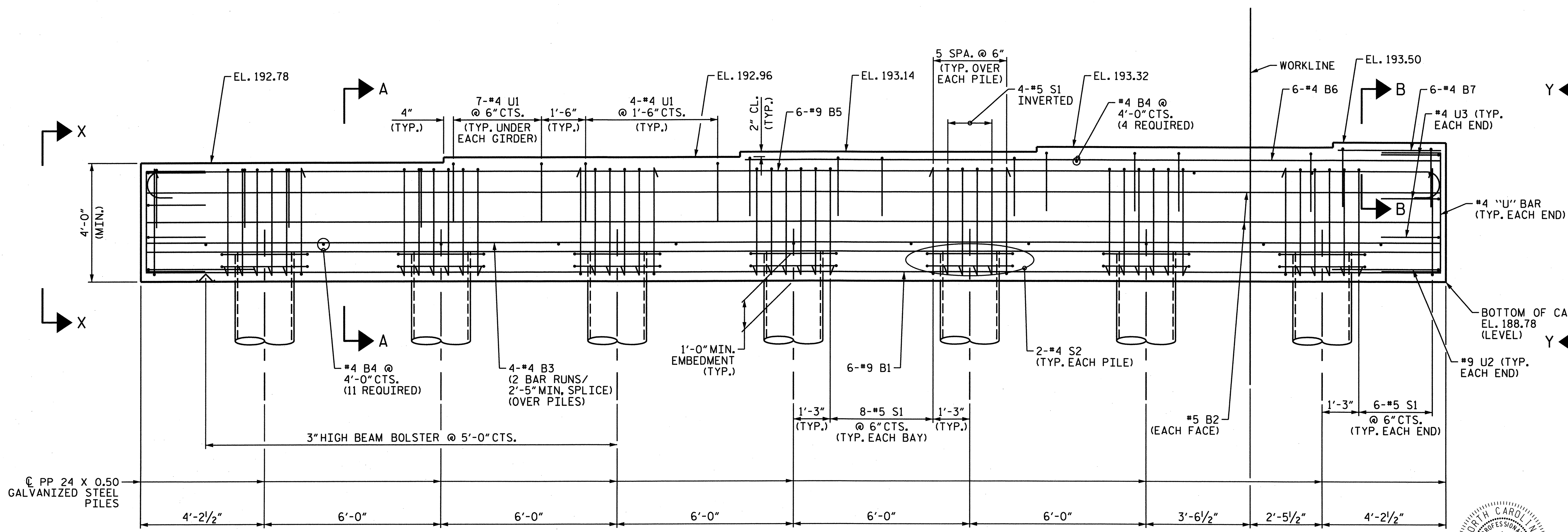
DRAWN BY: M.J. OSTRISHKO DATE: 04-12
CHECKED BY: N. PIERCE DATE: 04-12

*****SYTIME*****
*****DGN*****
*****IFRNAME*****



PLAN

NOTES
 STIRRUPS AND "U" BARS MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 INVERT ALTERNATE STIRRUPS.
 GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 26 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



ELEVATION

PROJECT NO. B-4817
 SCOTLAND COUNTY
 STATION: 18+47.50 -L1-
 SHEET 1 OF 2

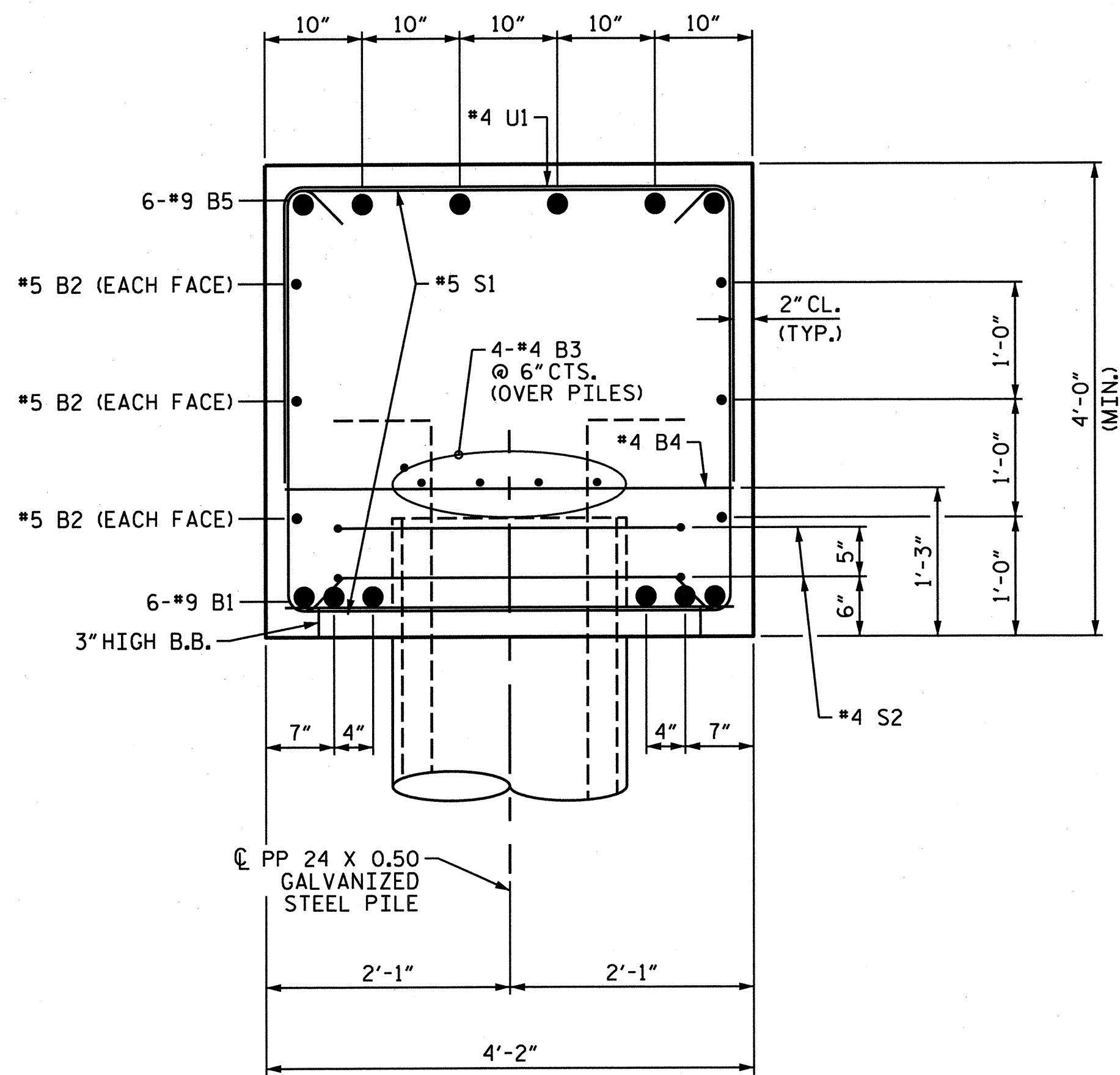


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
SHEET NO. S-27					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 34

WSP-SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

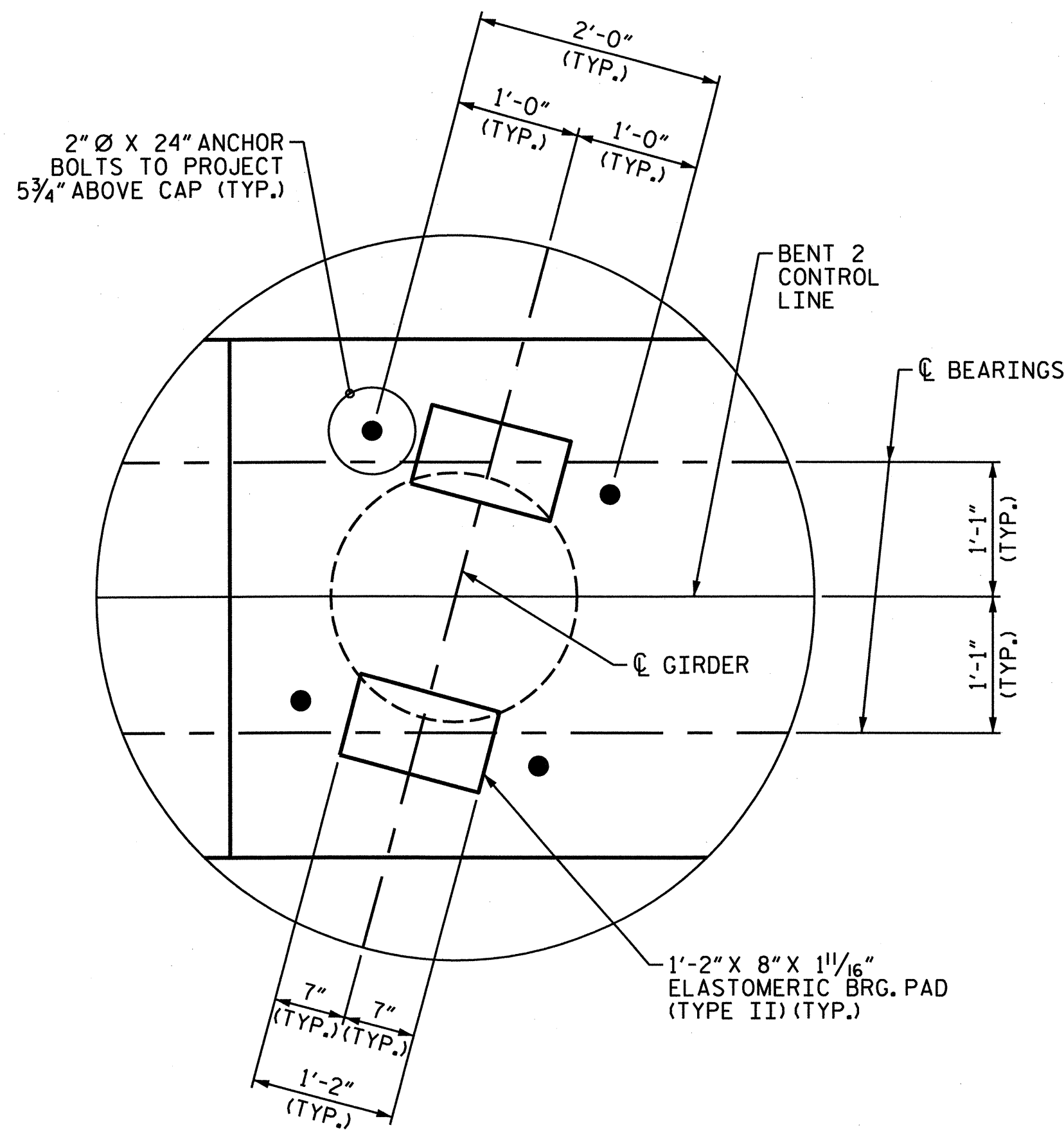
DRAWN BY : M.J. OSTRISHKO DATE : 04-12
 CHECKED BY : N. PIERCE DATE : 04-12

*****SYSTEM*****
 *****SYSDGN*****



SECTION A-A

FOR ADDITIONAL REINFORCING STEEL IN PP 24 X 0.50 GALVANIZED STEEL PIPE PILES, SEE "24" STEEL PIPE PILE" SHEET.



DETAIL A

(TYPICAL EACH GIRDER)

BAR TYPES

BILL OF MATERIAL

BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	STR	44'-1"	899
B2	6	#5	STR	44'-1"	276
B3	8	#4	STR	23'-3"	124
B4	15	#4	STR	3'-10"	38
B5	6	#9	1	46'-7"	950
B6	6	#4	STR	23'-8"	95
B7	6	#4	STR	3'-6"	14
S1	88	#5	2	12'-0"	1,101
S2	14	#4	3	10'-9"	101
U1	51	#4	4	7'-10"	267
U2	2	#9	4	11'-1"	75
U3	6	#4	4	7'-9"	31
U4	3	#4	4	7'-6"	15
U5	3	#4	4	8'-0"	16
REINFORCING STEEL					LBS. 4,002

CLASS "A" CONCRETE

BENT CAP	CU. YDS.	28.7
TOTAL =	CU. YDS.	28.7

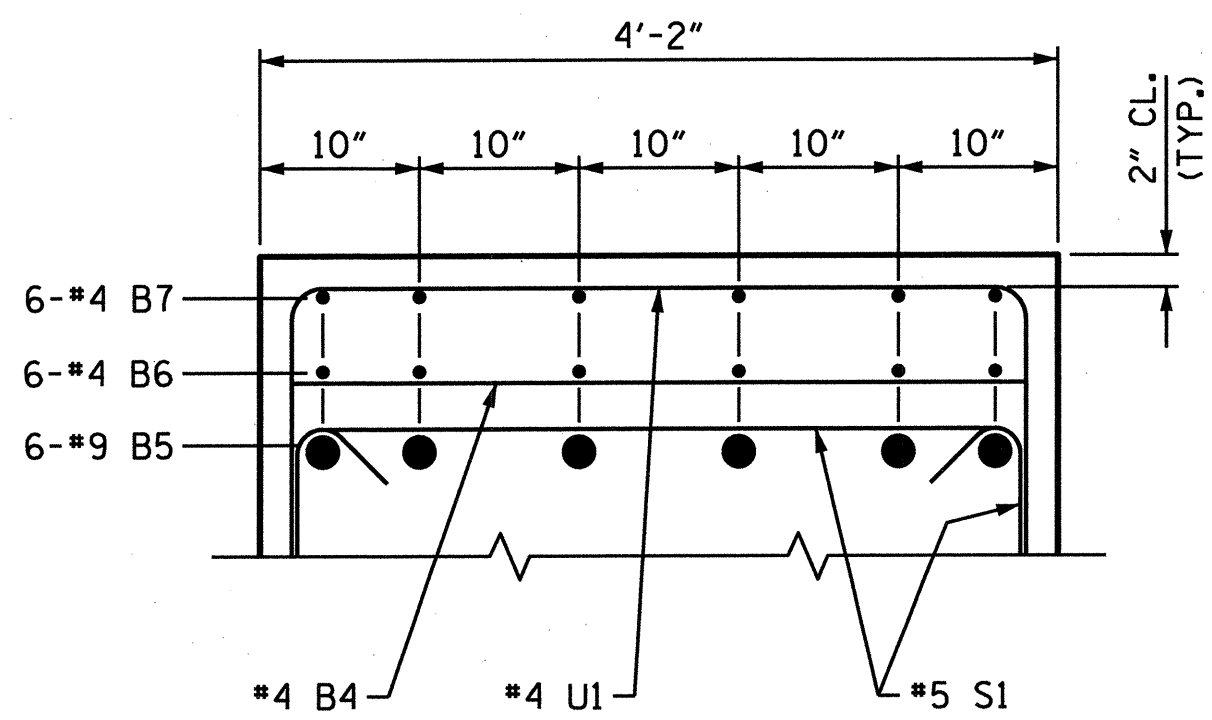
PP 24 X 0.50 GALVANIZED STEEL PILE

NO. = 7	LIN. FT.	294
---------	----------	-----

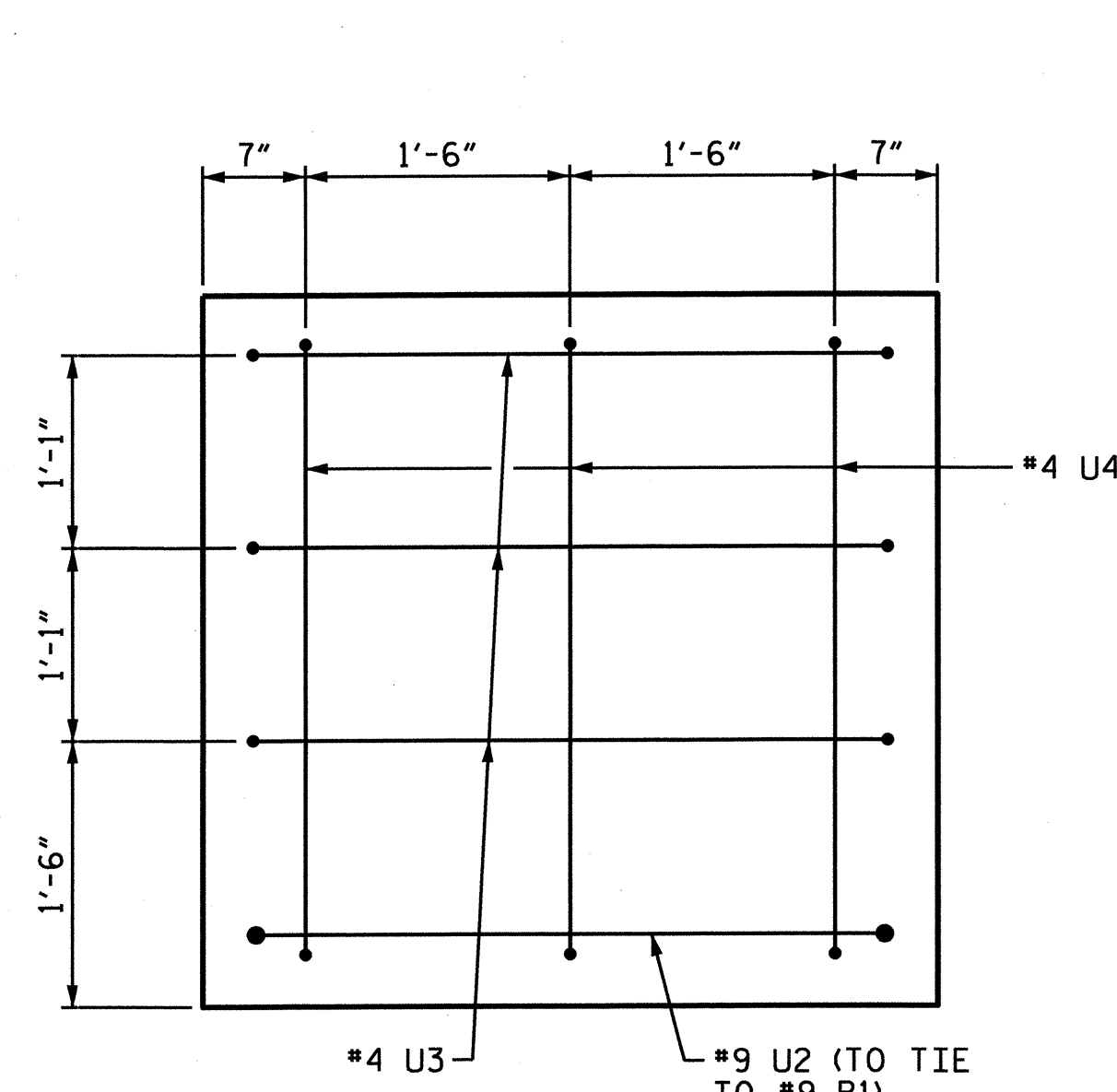
PILE REDRIVES EACH 7

THE CONCRETE DISPLACED BY THE PLUGGED PP 24 X 0.50 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE QUANTITY OF CLASS "A" CONCRETE FOR THE BENT CAP.

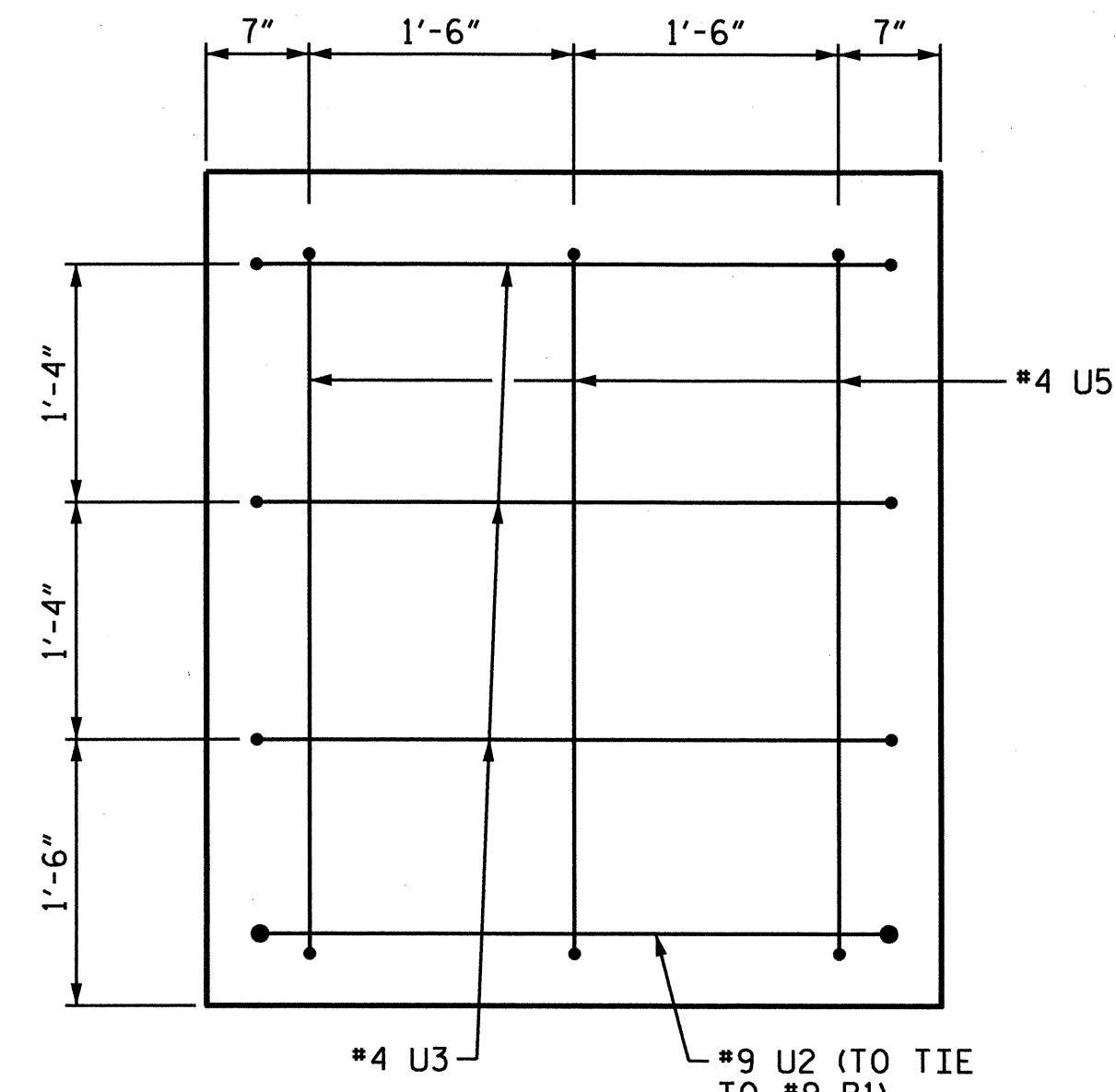
ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION B-B



SECTION X-X



SECTION Y-Y

DRAWN BY : M.J. OSTRISHKO DATE : 04-12
 CHECKED BY : N. PIERCE DATE : 04-12

*****SYTIME*****
 *****DCN*****
 *****USERNAME*****

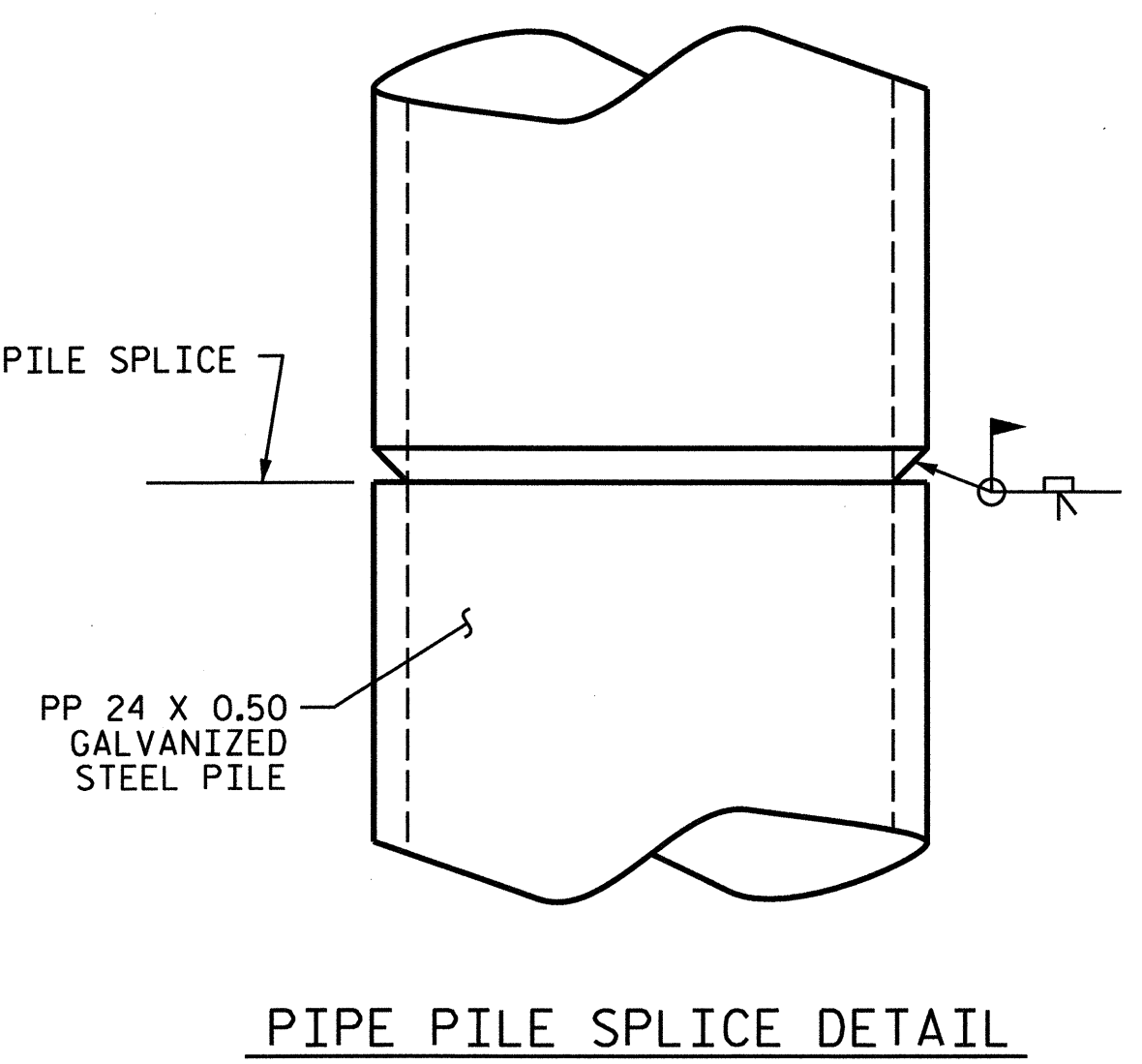
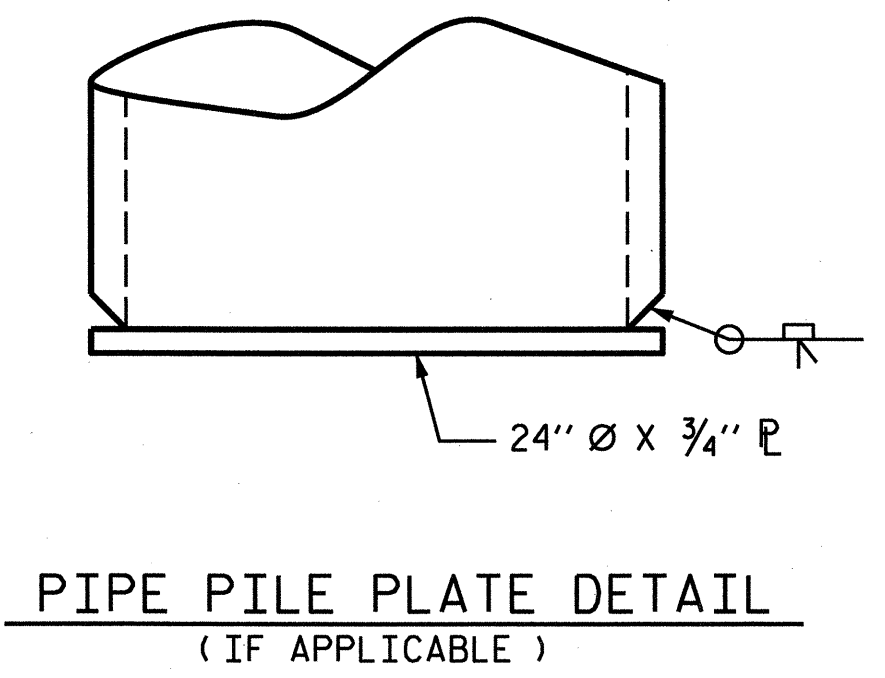
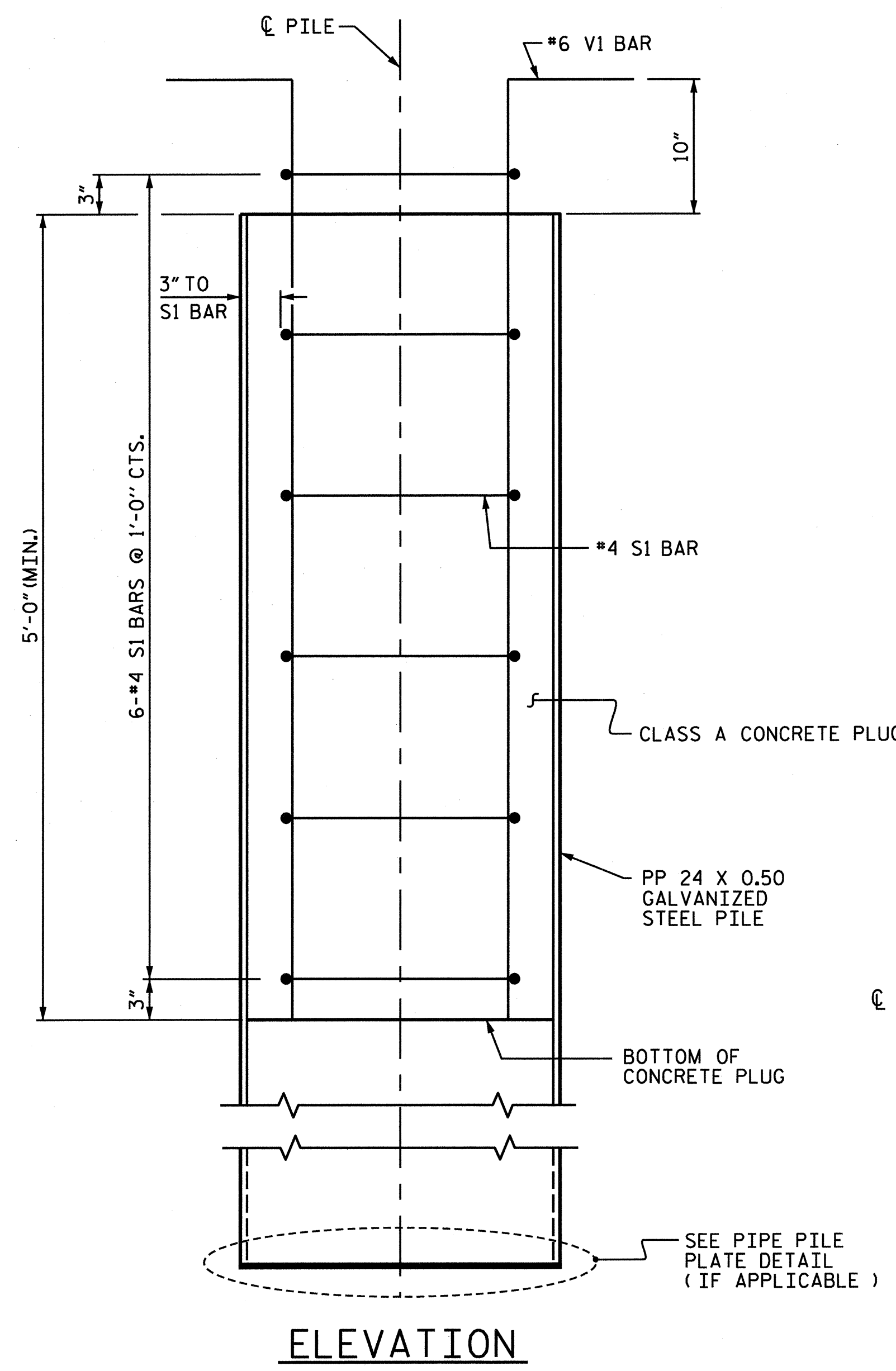
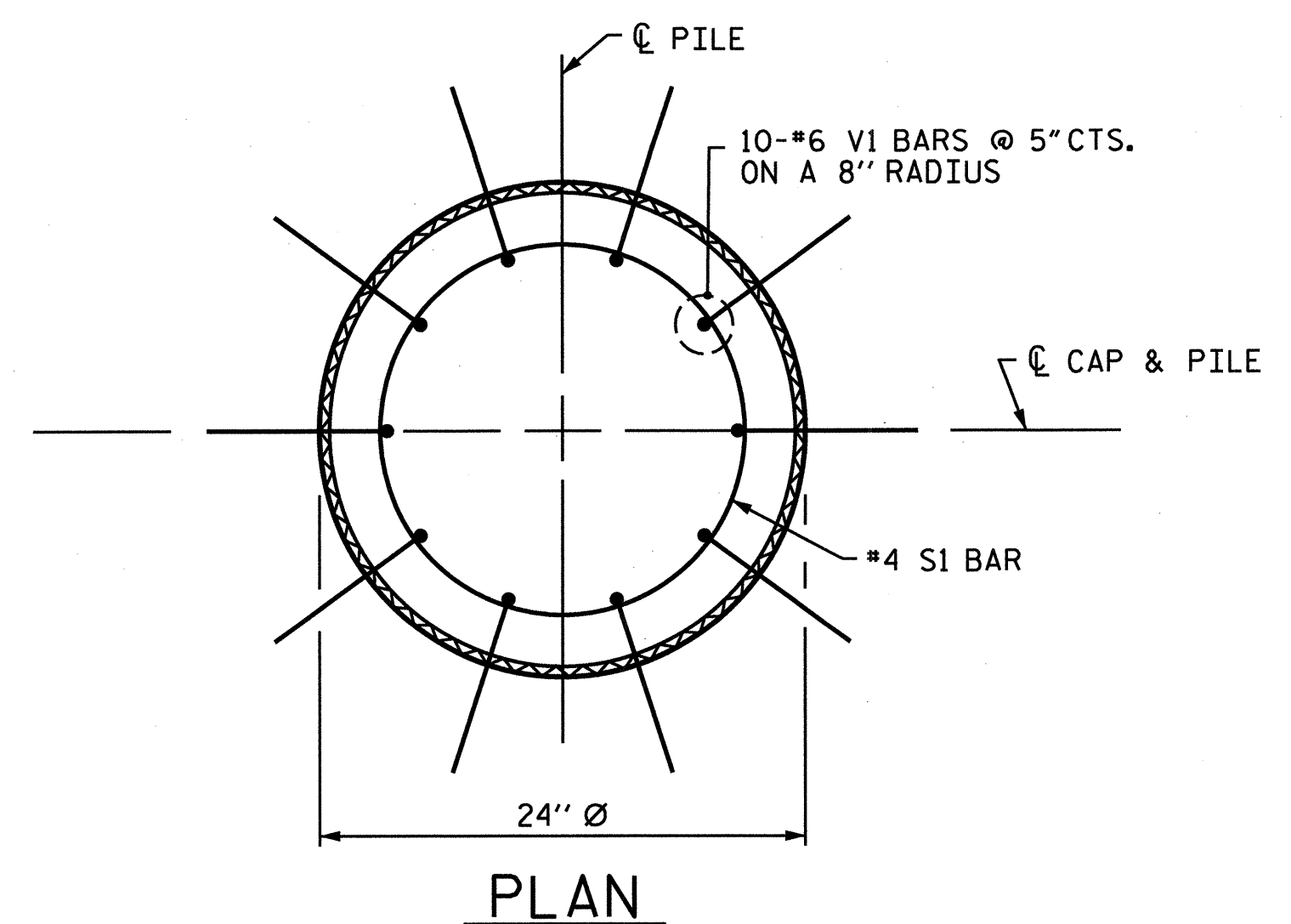
WSP-SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891



PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 2

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



PP 24 X 0.50 GALVANIZED STEEL PILE
(OPEN OR CLOSED END)

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

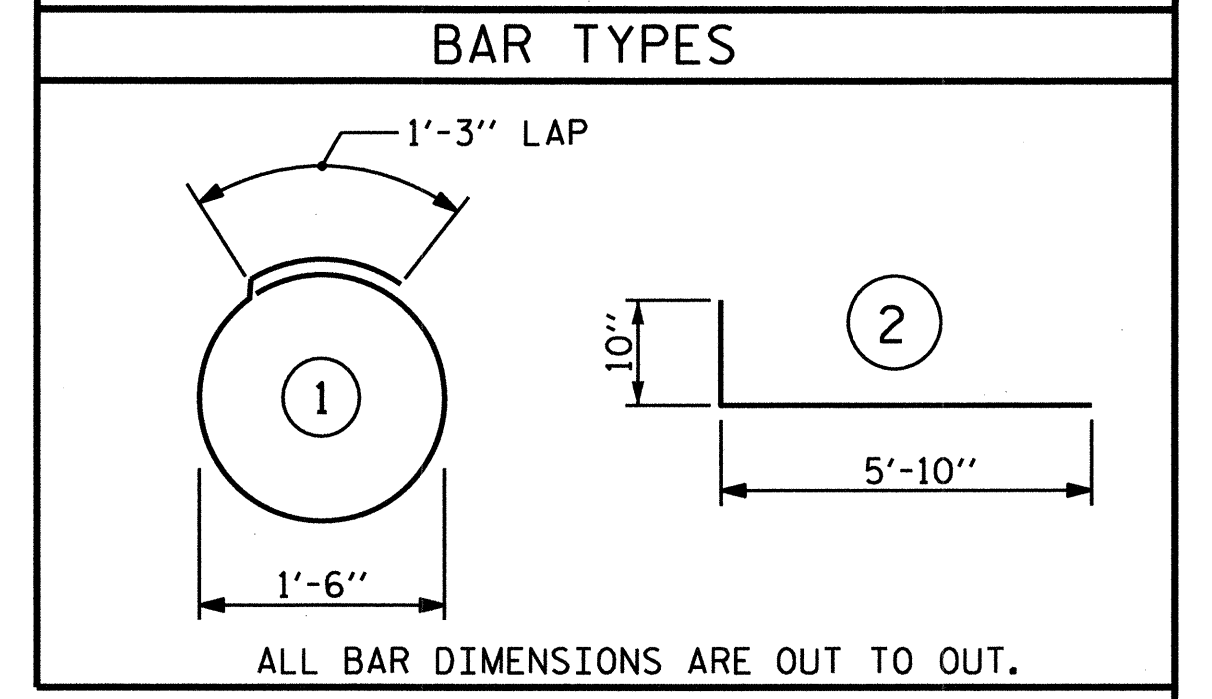
FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 24 X 0.50 GALVANIZED STEEL PILES.

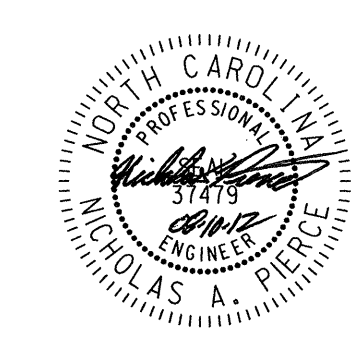
BILL OF MATERIAL FOR ONE
PP 24 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	6'-0"	24
V1	10	#6	2	6'-8"	100
REINFORCING STEEL =				124	lbs

CLASS A CONCRETE
5'-0" MINIMUM PLUG 0.5 CY



PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-



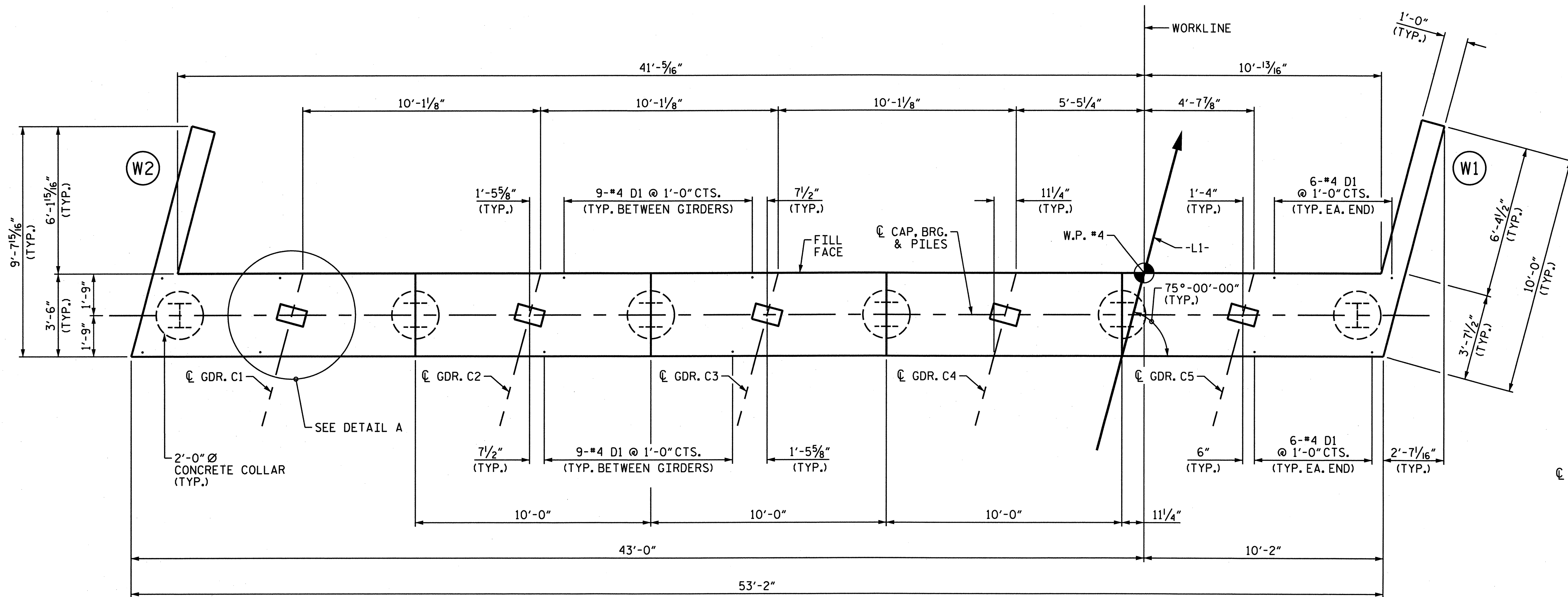
WSP - SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
24" STEEL PIPE PILE

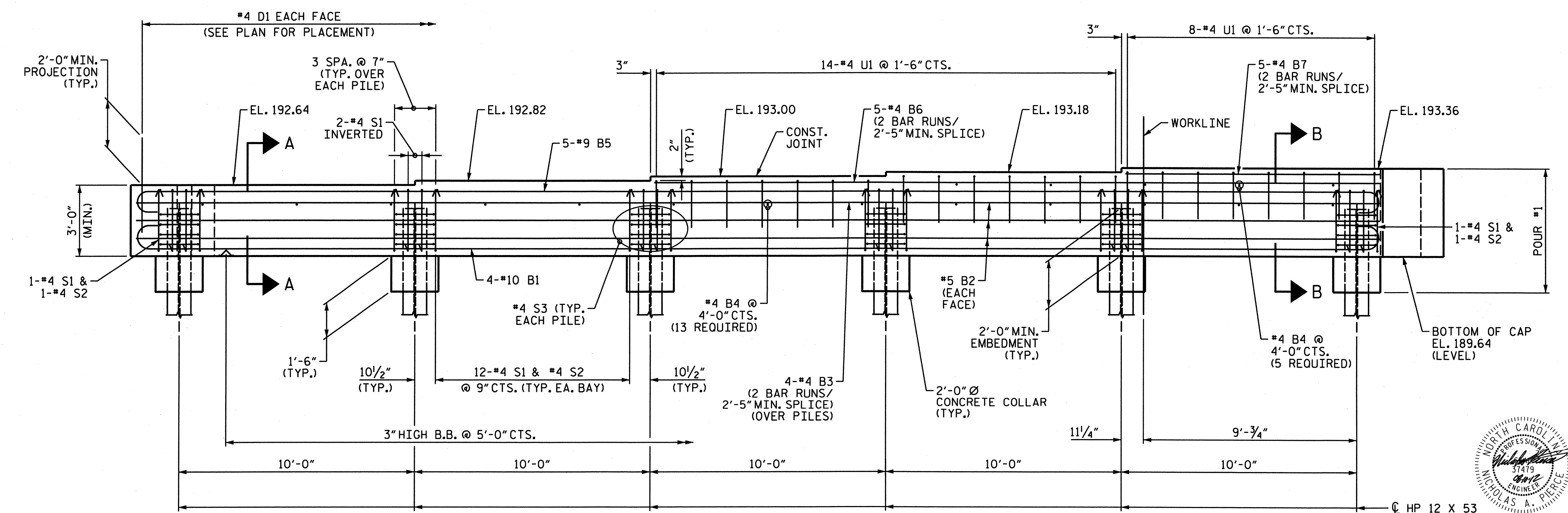
ASSEMBLED BY : M.J. OSTRISHKO	DATE : 04-12
CHECKED BY : N. PIERCE	DATE : 04-12
DRAWN BY : TLA 8/05	ADDED 10/1/05
CHECKED BY : GM 9/05	REV. 5/1/06R MAA/KMM
	REV. 10/1/11 MAA/GM

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

*****SYTIME*****
*****DGN*****
*****USERNAME*****



PLAN



ELEVATION

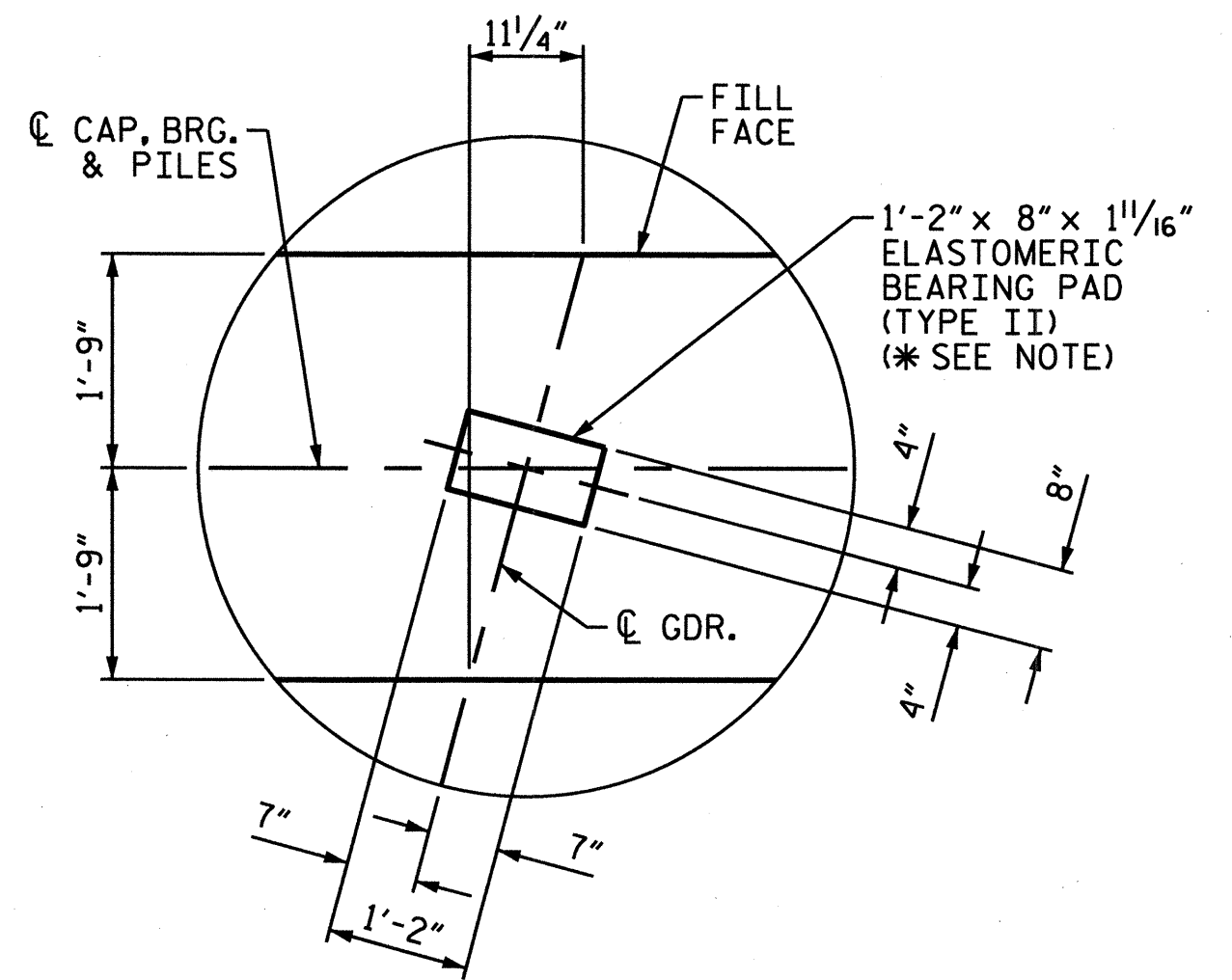
NOTES

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

#4 D1 BARS MAY BE SHIFTED SLIGHTLY TO AVOID STIRRUPS IN CAP.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF THE WINGS ARE TO BE POURED WITH THE SUPERSTRUCTURE.

* THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE END BENT ELEVATIONS ARE BASED ON USING "E1" BEARINGS. IF THE CONTRACTOR CHOOSES TO USE THE OPTIONAL "E2" BEARINGS, THE BRIDGE SEATS AT THE END BENT WILL NEED TO BE ADJUSTED AS DIRECTED BY THE ENGINEER.



DETAIL A
(TYP. EACH BEARING)

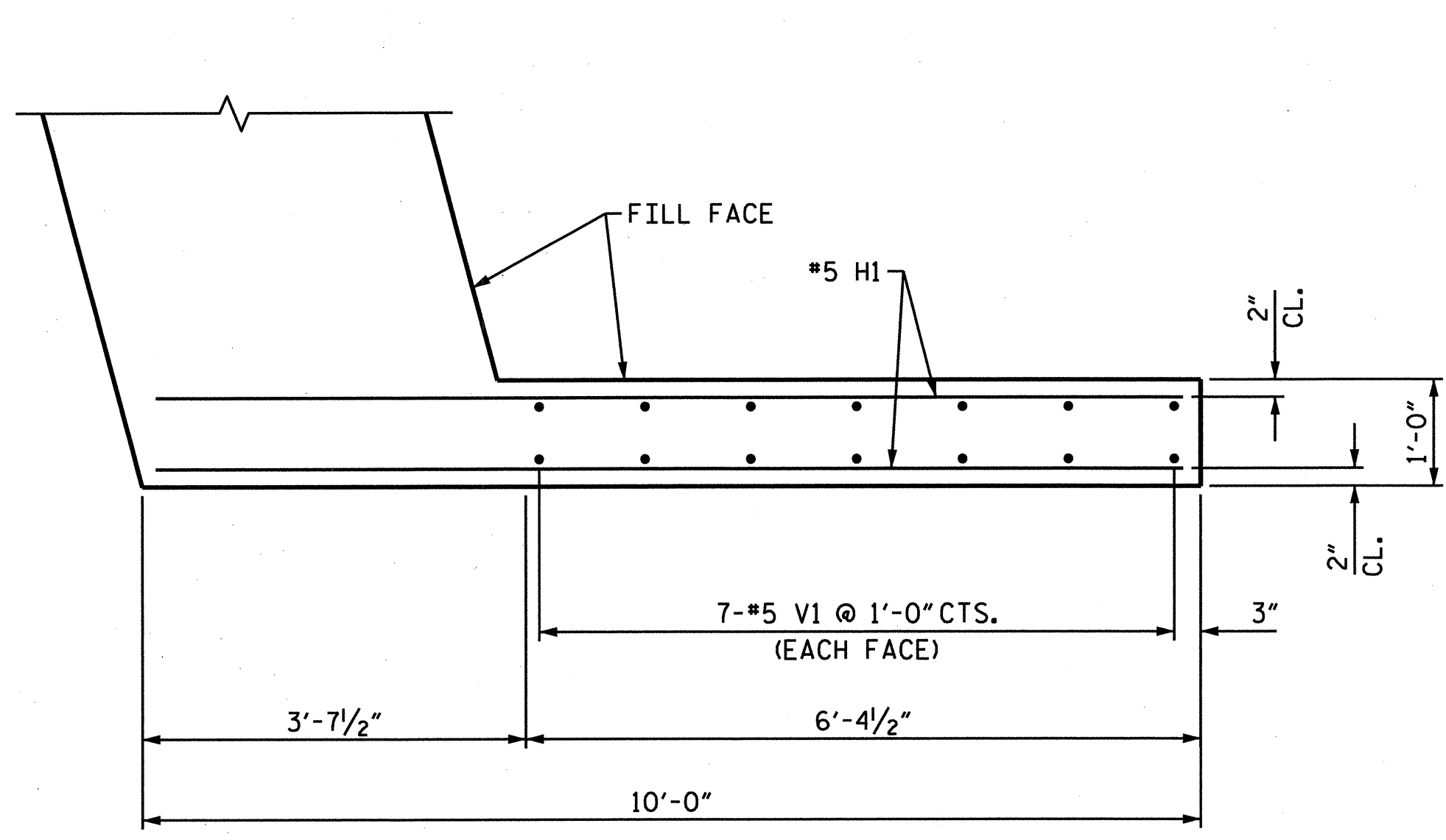
PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 2					
SHEET NO. S-30					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 34

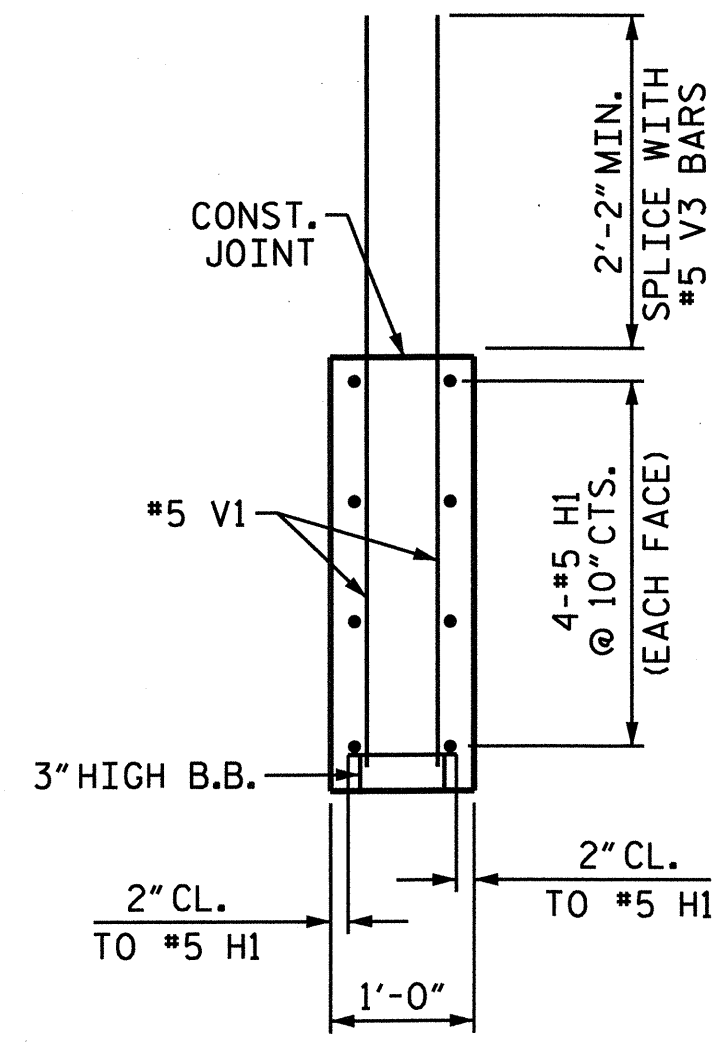
WSP-SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

DRAWN BY: M.J. OSTRISHKO DATE: 04-12
 CHECKED BY: N. PIERCE DATE: 04-12

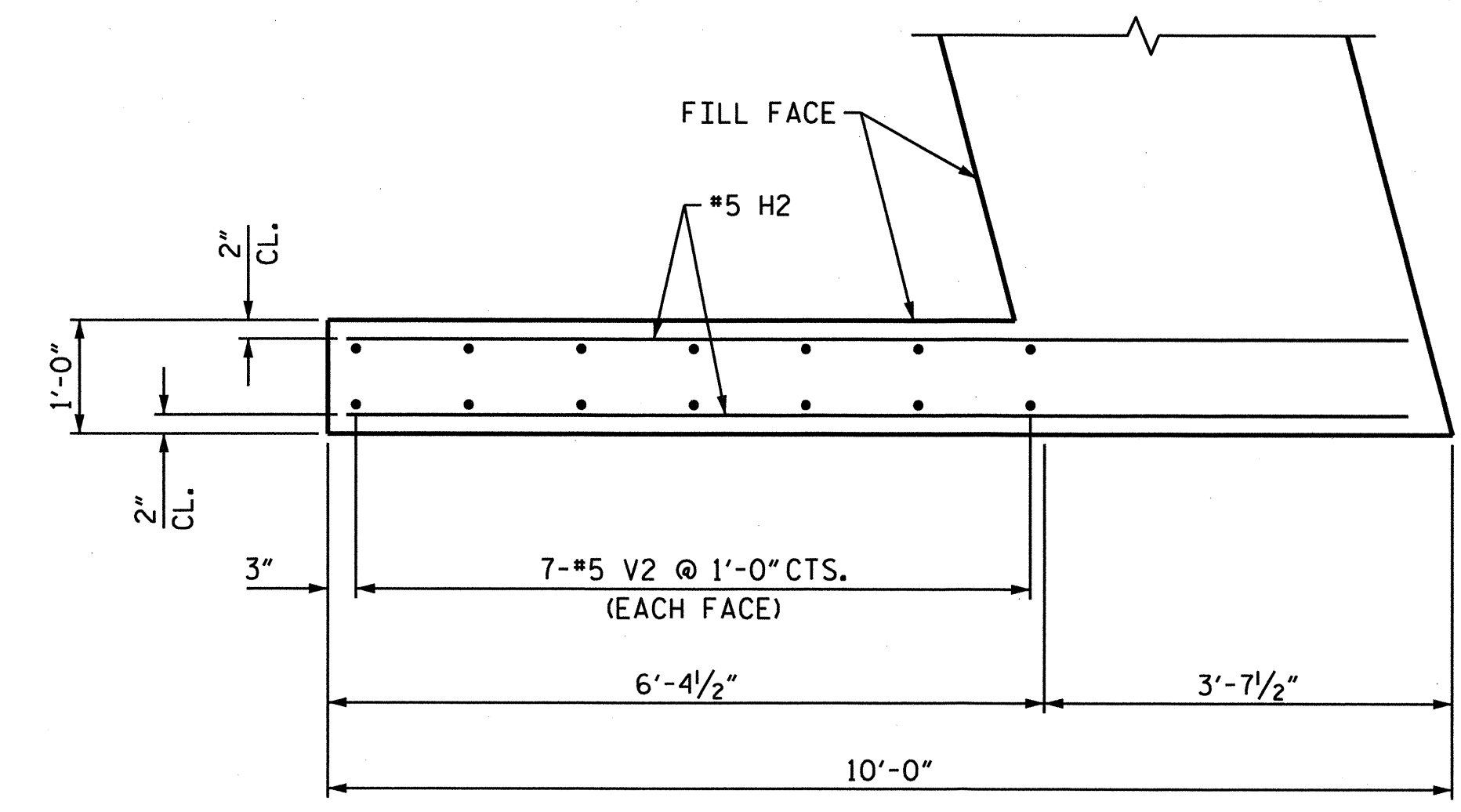
*****SYTIME*****
 *****DGN*****
 *****USERNAME*****



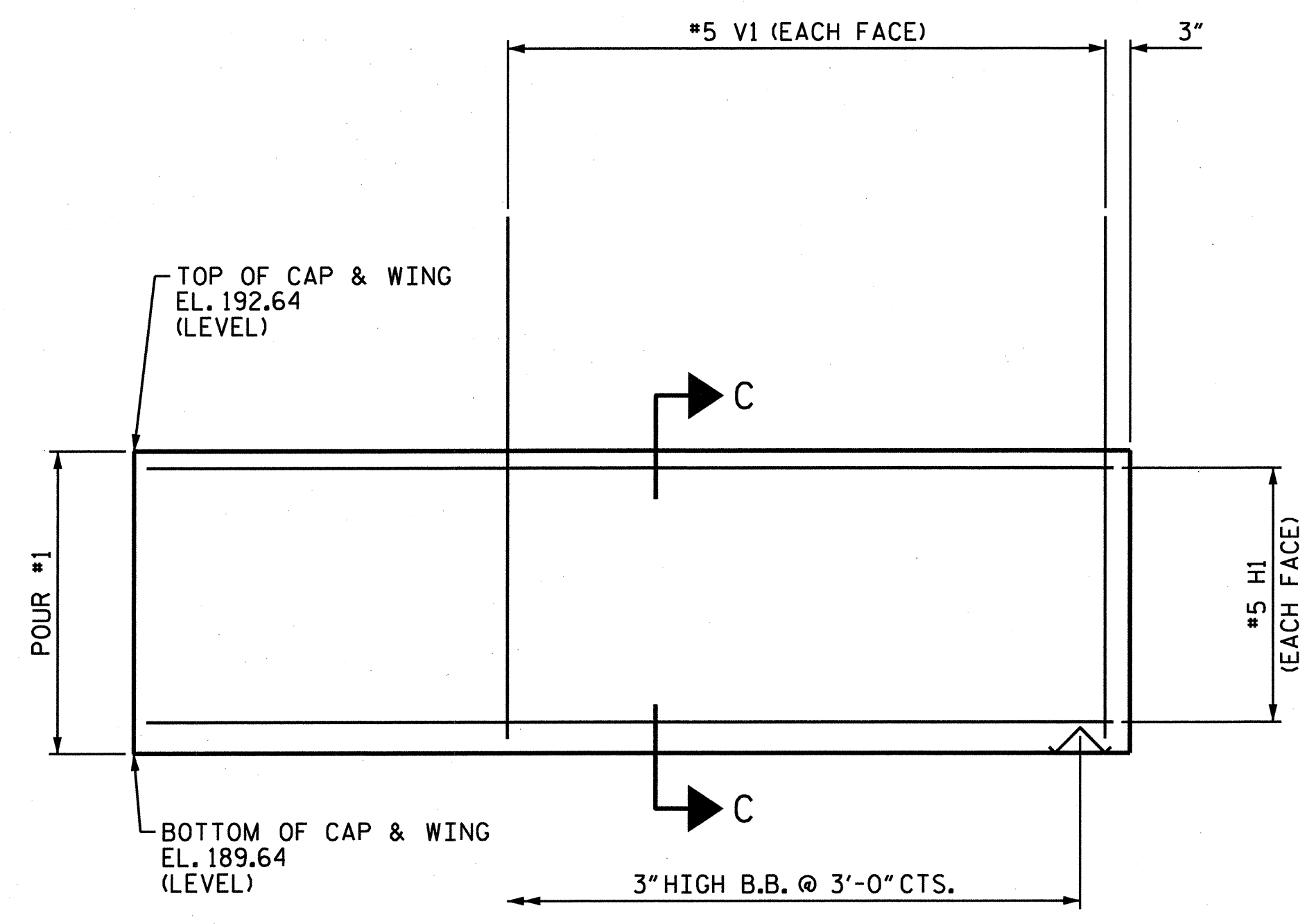
PLAN (W1)



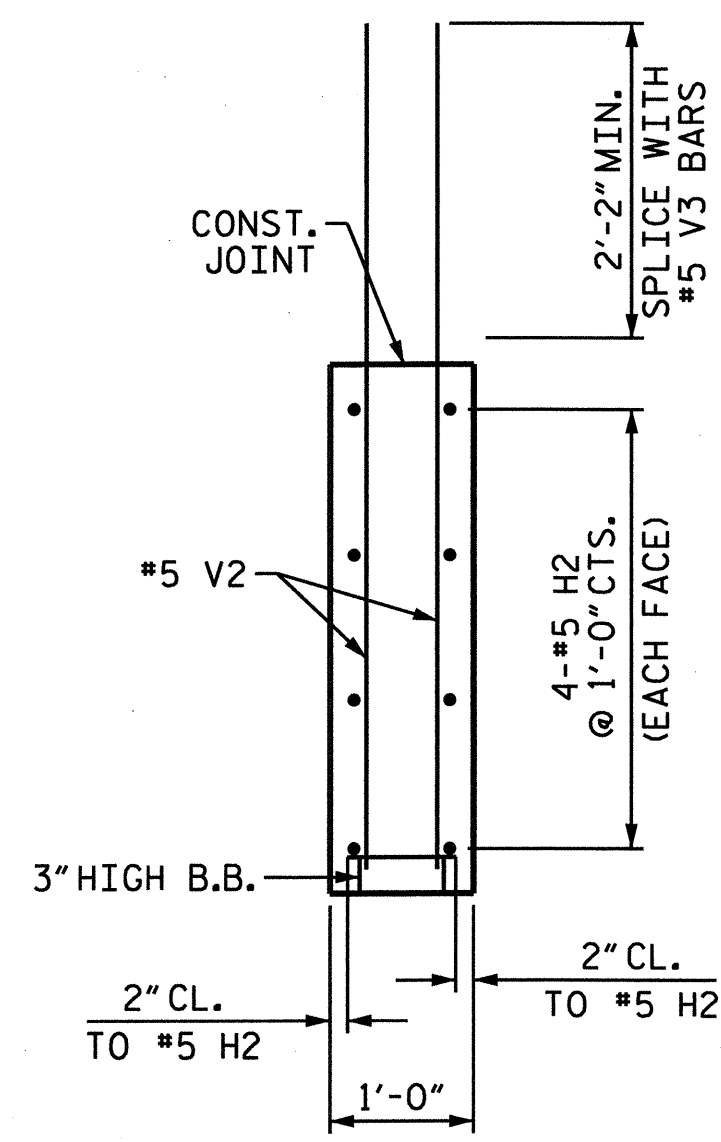
SECTION C-C



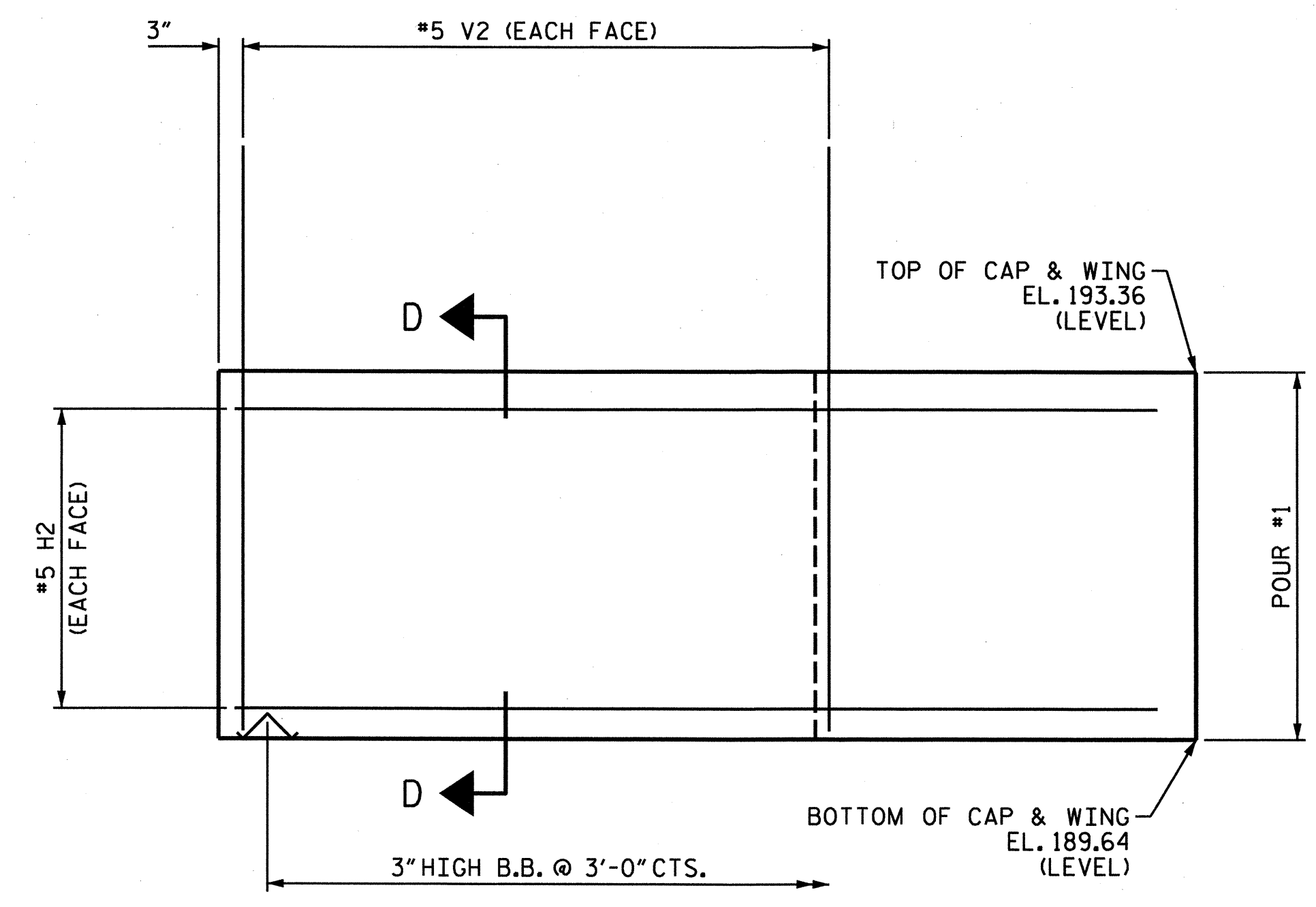
PLAN (W2)



ELEVATION (W1)



SECTION D-D



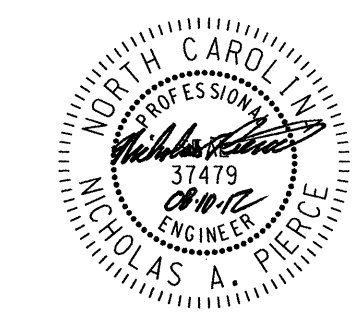
ELEVATION (W2)

LOWER WINGS AT INTEGRAL END BENT 1
 FOR UPPER WING REINFORCING STEEL AND DETAILS, SEE "PLAN OF SPAN DETAILS" SHEET.

PROJECT NO. B-4817
 SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 2 OF 3

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

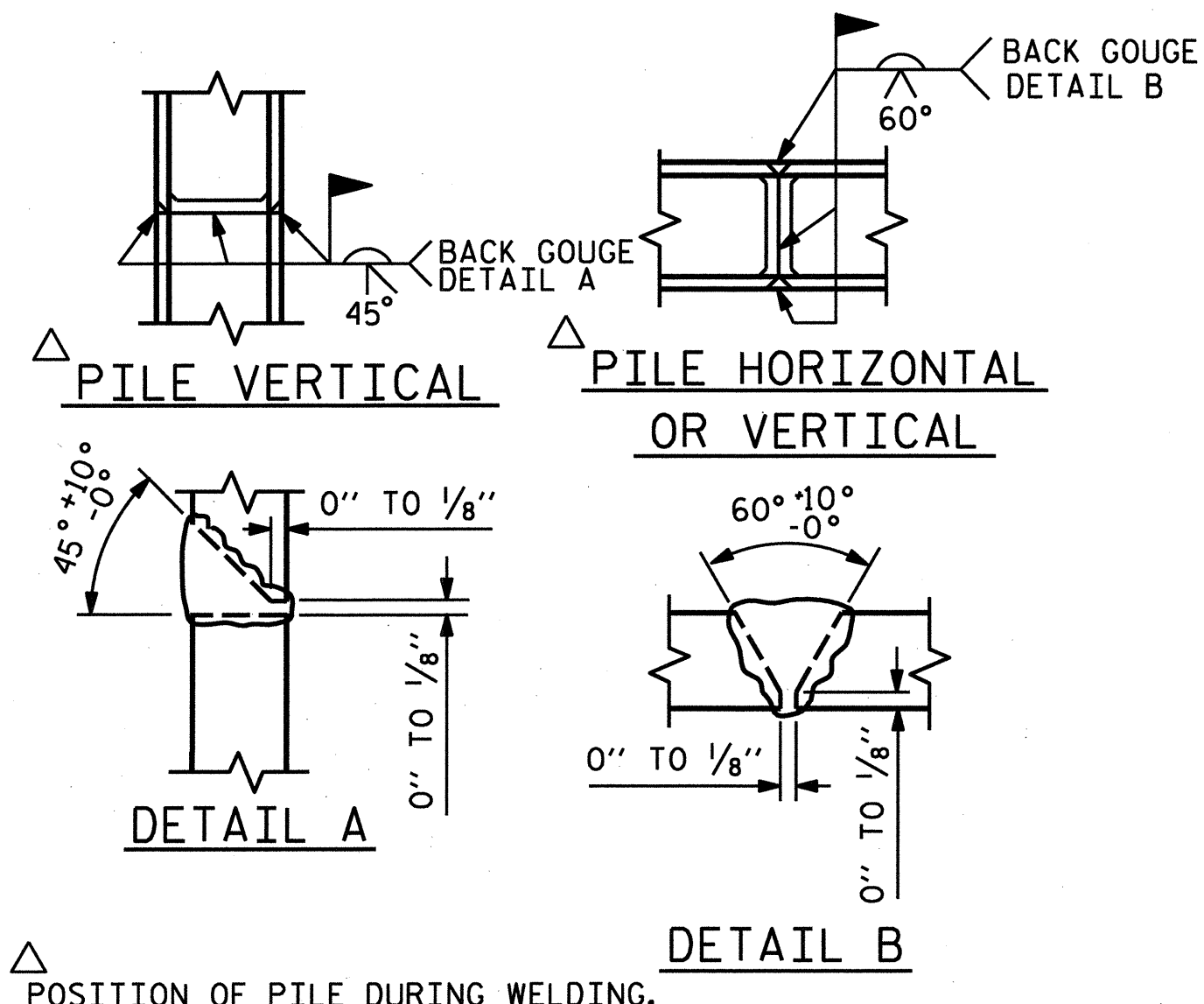


WSP-SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

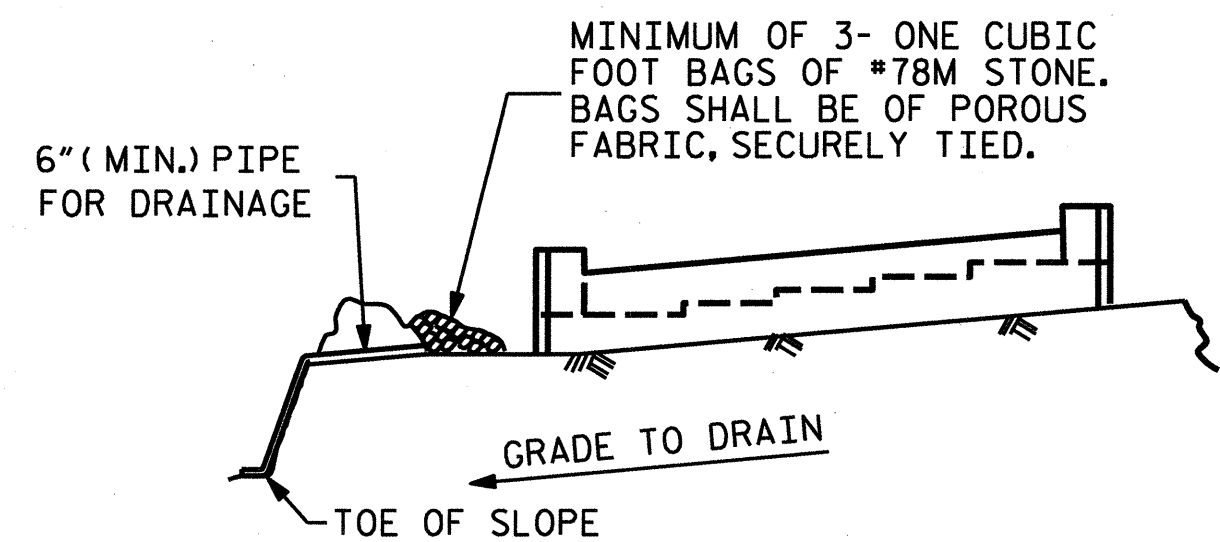
DRAWN BY: M.J. OSTRISHKO DATE: 04-12
 CHECKED BY: N. PIERCE DATE: 04-12

REVISIONS						SHEET NO. S-31
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 34
2			4			

*****SYTIME*****
 *****SDGN*****
 *****SERVING*****



PILE SPLICE DETAILS

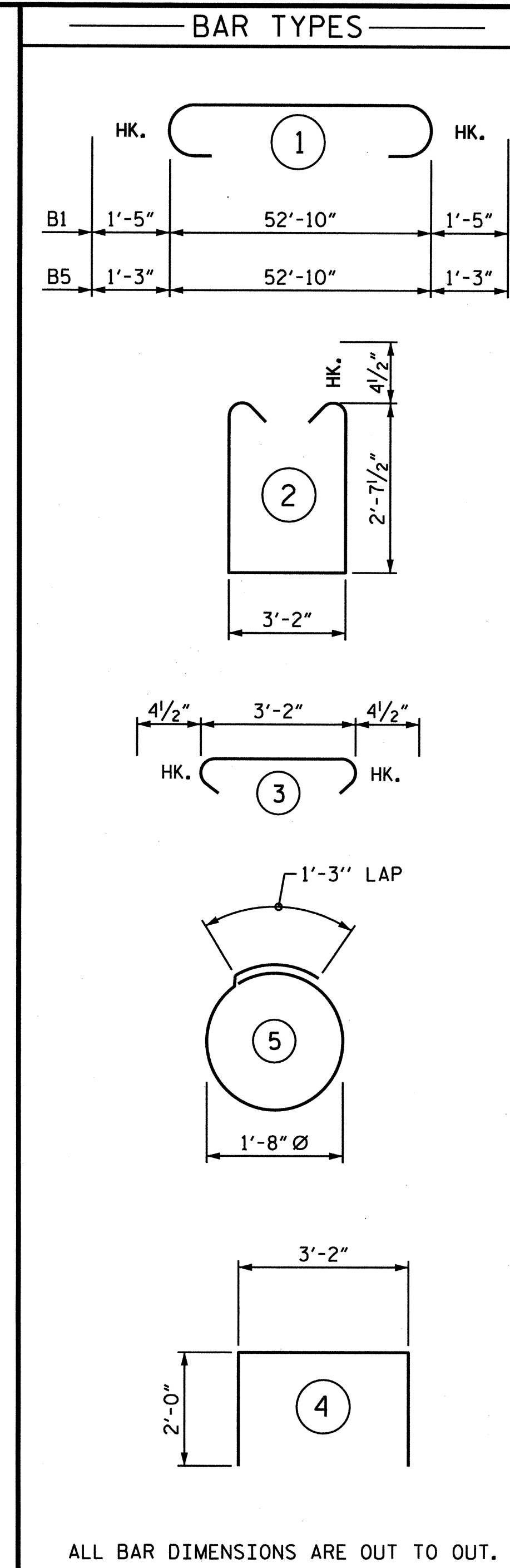
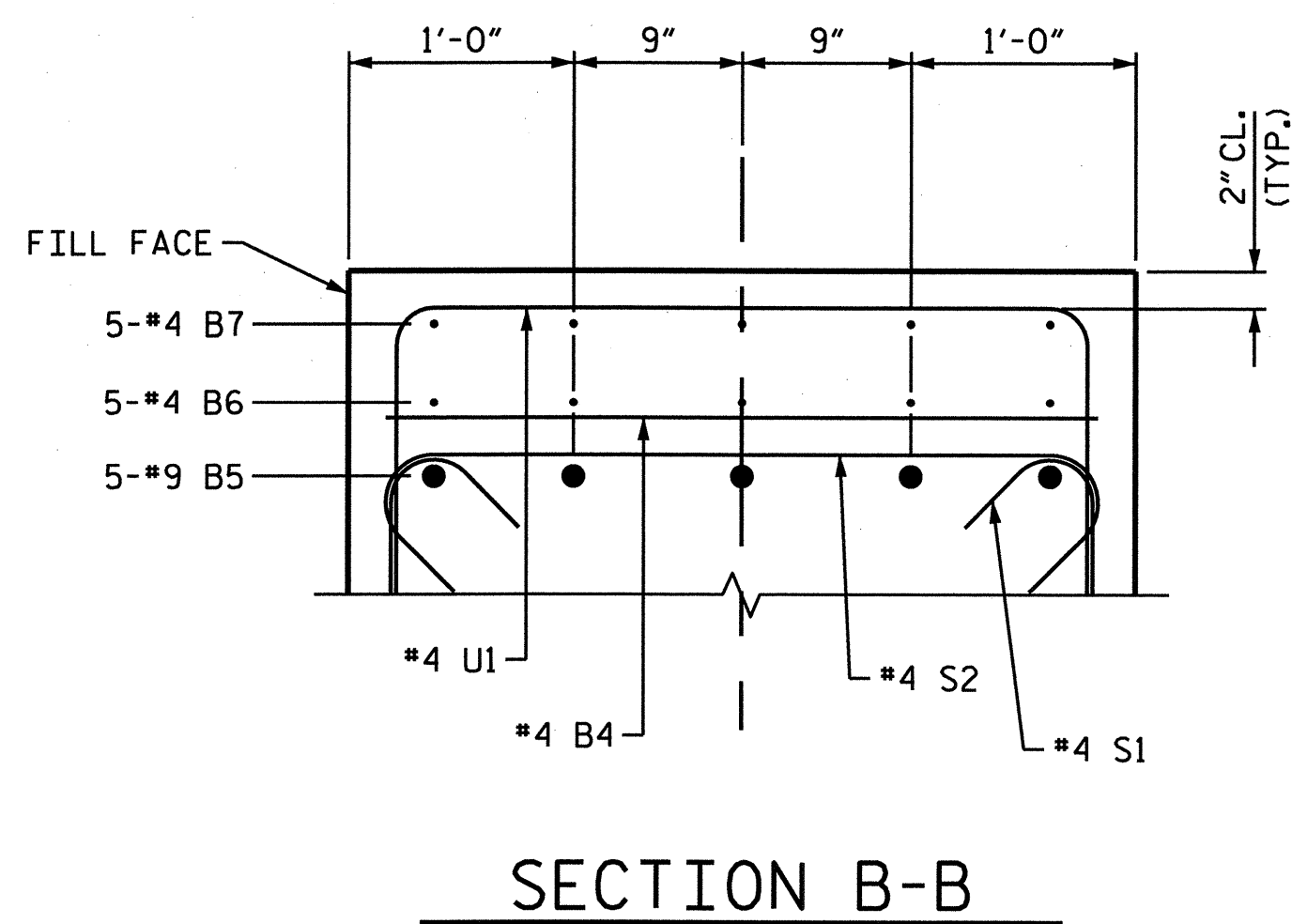
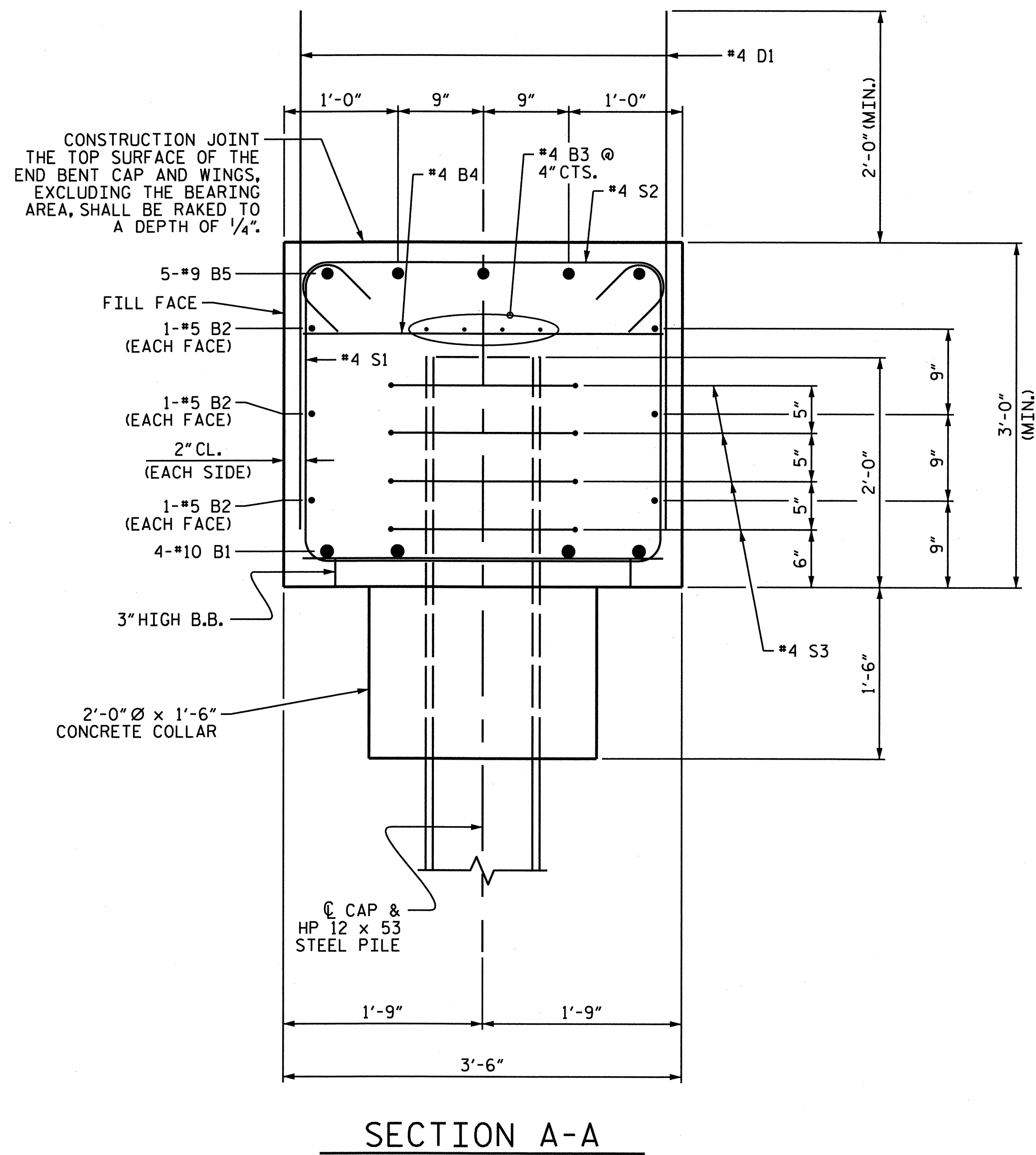


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



BILL OF MATERIAL					
INTEGRAL END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	55'-8"	958
B2	6	#5	STR	52'-10"	331
B3	8	#4	STR	27'-8"	148
B4	18	#4	STR	3'-2"	38
B5	5	#9	1	55'-4"	941
B6	10	#4	STR	17'-4"	116
B7	10	#4	STR	7'-4"	49
D1	96	#4	STR	4'-6"	289
H1	8	#5	STR	9'-8"	81
H2	8	#5	STR	9'-5"	79
S1	74	#4	2	9'-2"	453
S2	62	#4	3	3'-11"	162
S3	24	#4	4	6'-6"	104
U1	22	#4	4	7'-2"	105
V1	14	#5	STR	5'-1"	74
V2	14	#5	STR	5'-9"	84
REINFORCING STEEL				LBS.	4,012

CLASS "A" CONCRETE		
POUR #1		
CAP, CONCRETE COLLARS, & LOWER PART OF WINGS	CU. YDS.	25.8
TOTAL =	CU. YDS.	25.8

HP 12 X 53 STEEL PILE		
NO. = 6	LIN. FT.	450
PILE REDRIVES	EACH	6

PROJECT NO. B-4817
SCOTLAND COUNTY
 STATION: 18+47.50 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT 2



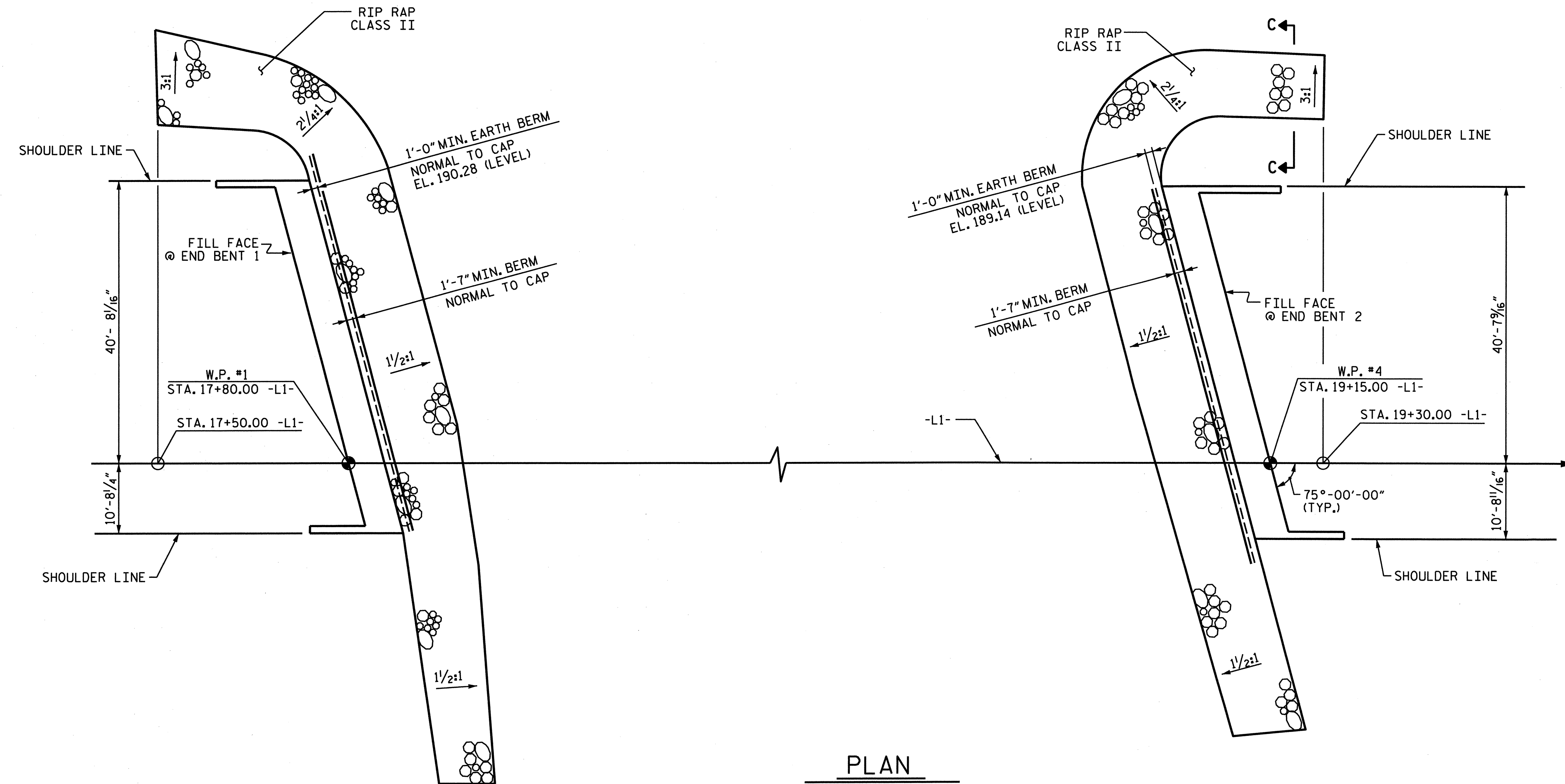
WSP · SELLS
 Transportation & Infrastructure
 15401 Weston Parkway Suite 100
 Cary, NC 27513 - 919.678.0035
 www.wspells.com
 LICENSE NO. F-0891

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

DRAWN BY : M.J. OSTRISHKO DATE : 04-12
 CHECKED BY : N. PIERCE DATE : 04-12

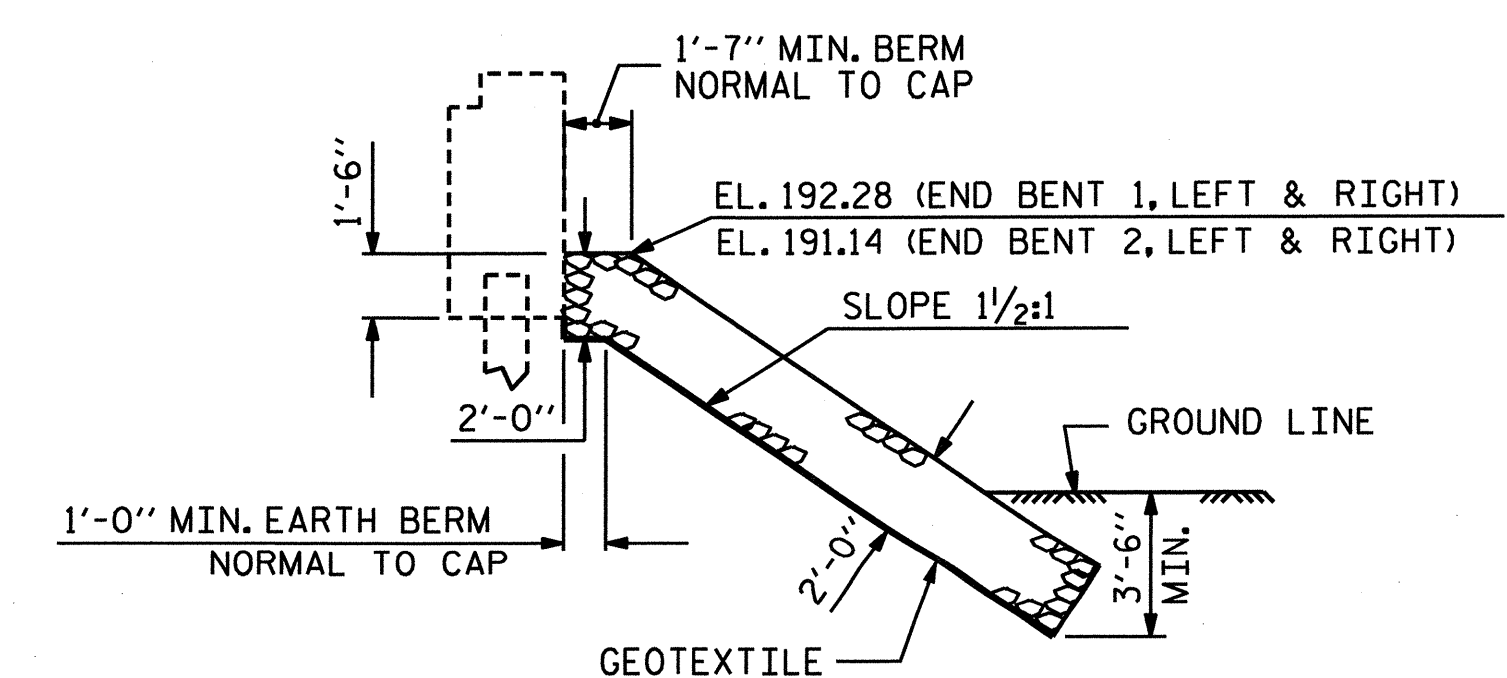
*****SYTIME*****
 *****DGN*****
 *****USER*****

NOTE:
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWINGS.

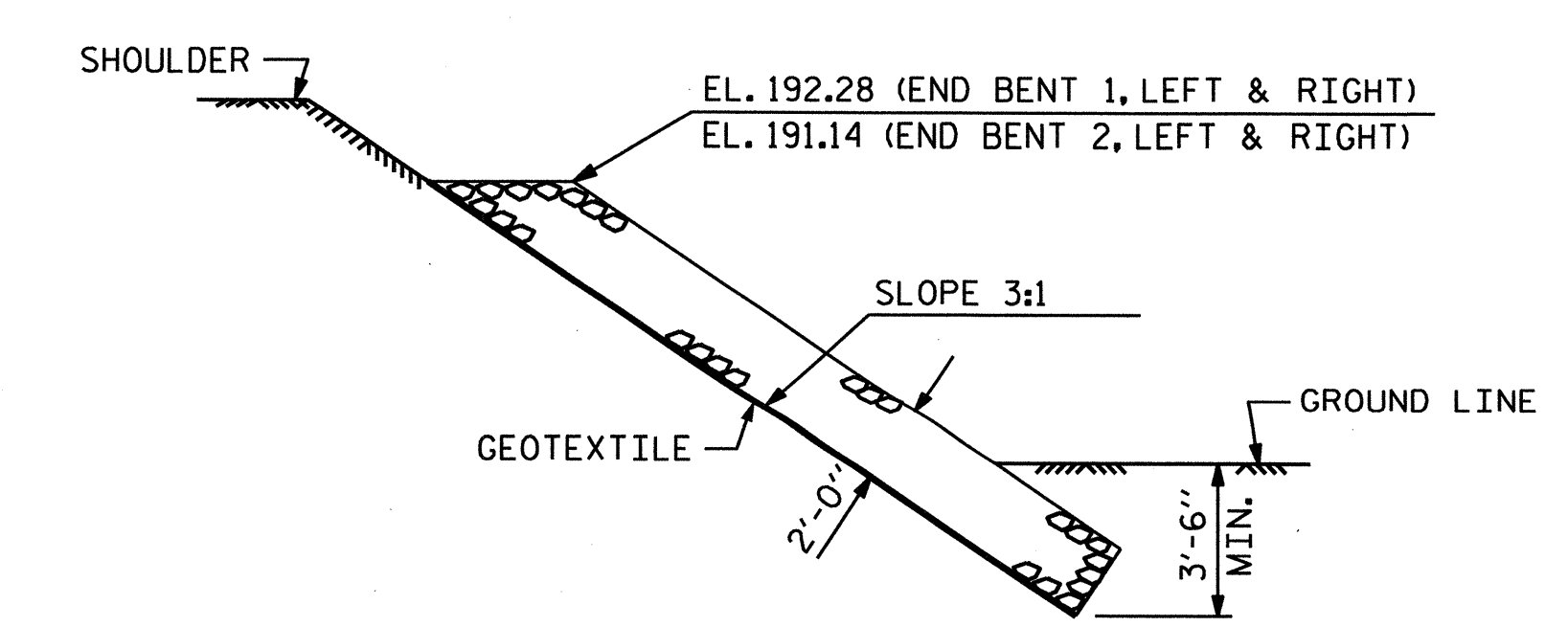


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 18+47.50 -L1-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	209	232
END BENT 2	212	236

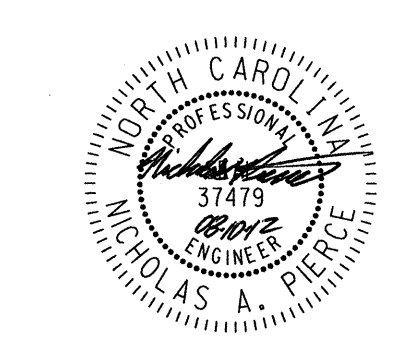


**SECTION C-C
BERM RIP RAPPED**



SECTION C-C

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-

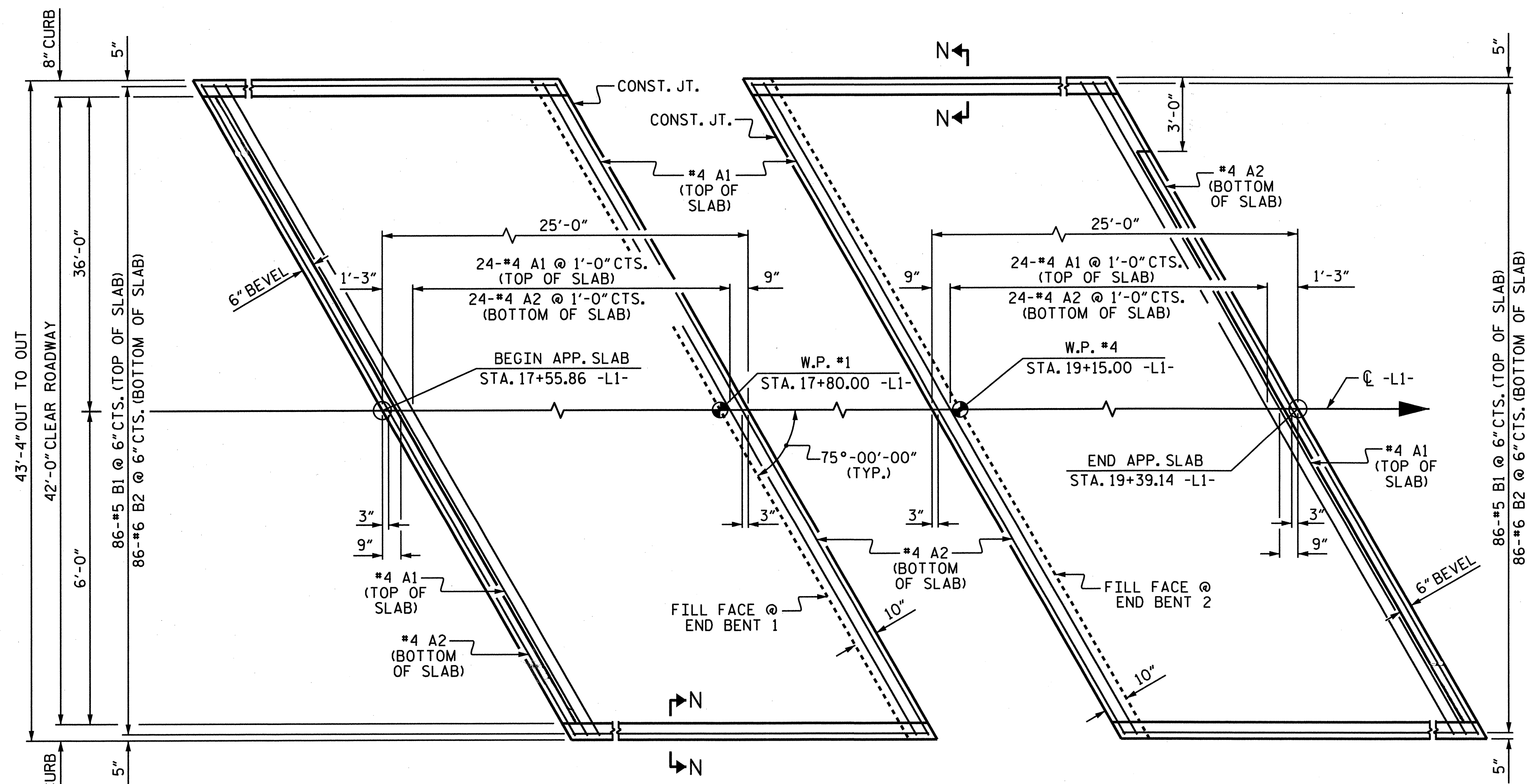


WSP · SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 34

ASSEMBLED BY : M.A. HOBBS	DATE : 04/12
CHECKED BY : N. PIERCE	DATE : 04/12
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

*****SYSTEM*****
*****DGN*****
*****USERNAME*****



PLAN @ END BENT 1 PLAN @ END BENT 2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

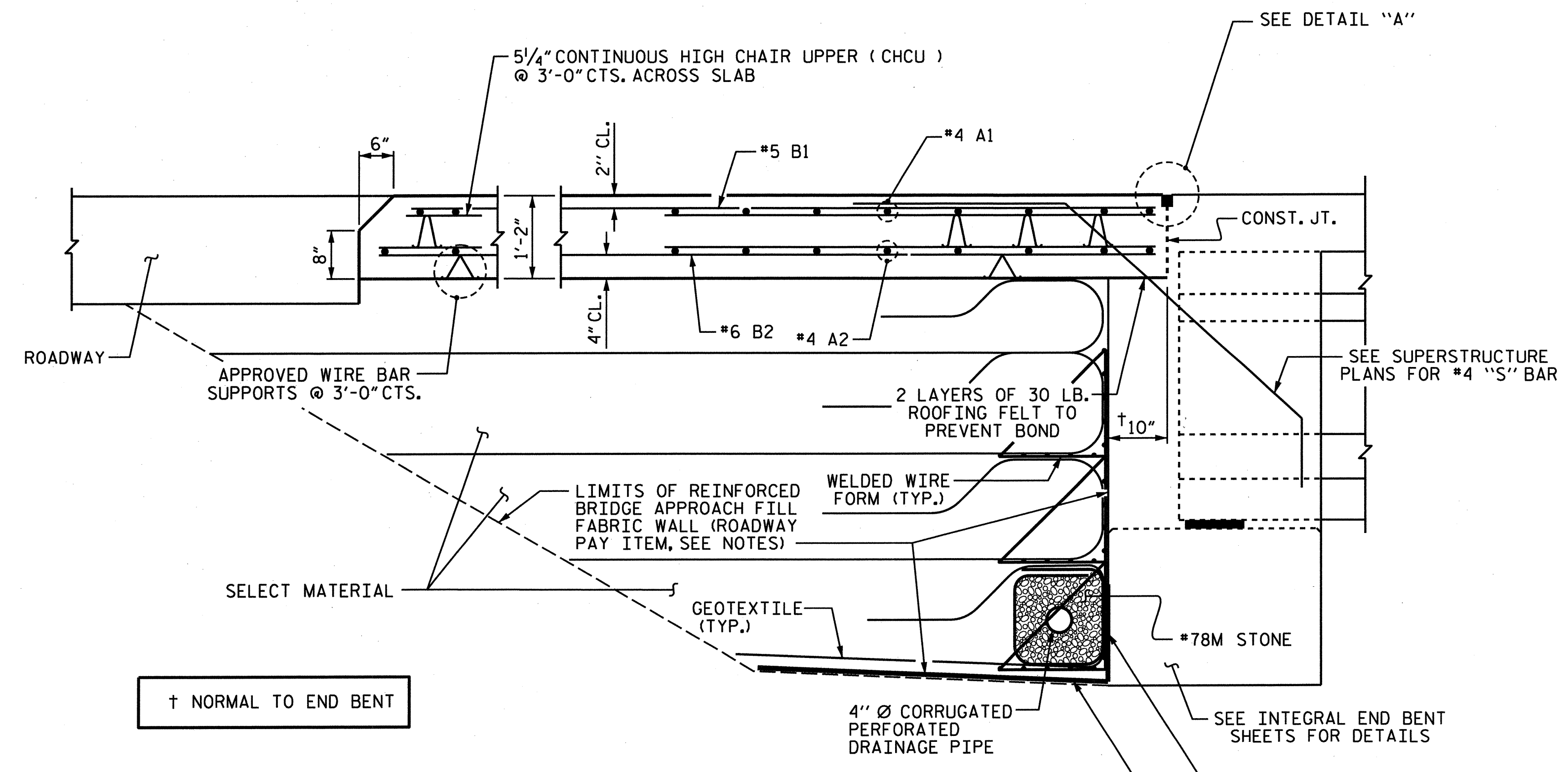
APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FOR REINFORCED BRIDGE APPROACH FILL FABRIC WALL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, WELDED WIRE FORM, AND SELECT MATERIAL, SEE ROADWAY PLANS.

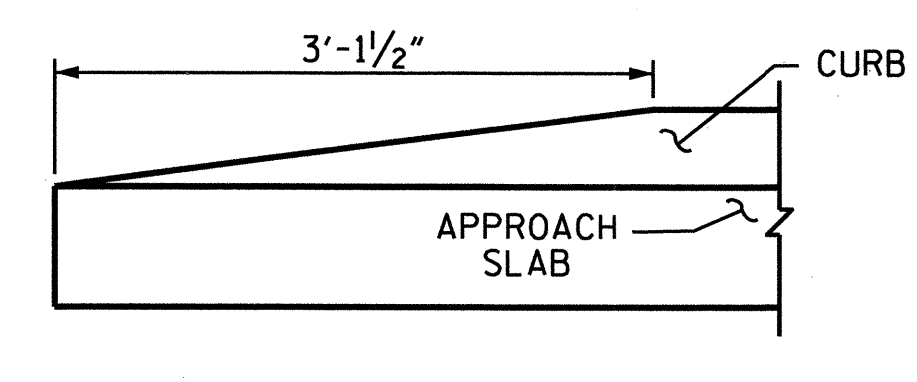
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWS NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

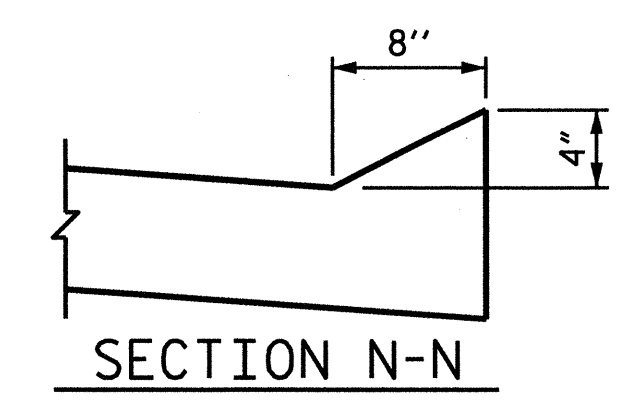
BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	44'-6"	773
A2	26	#4	STR	44'-6"	773
* B1	86	#5	STR	24'-2"	2,168
B2	86	#6	STR	24'-8"	3,186
REINFORCING STEEL				LBS.	3,959
* EPOXY COATED REINFORCING STEEL				LBS.	2,941
CLASS AA CONCRETE				C. Y.	46.8



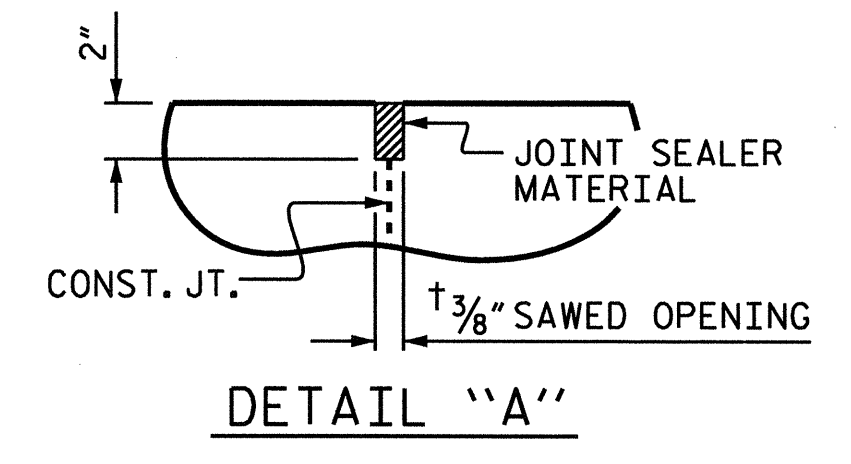
SECTION THRU SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER



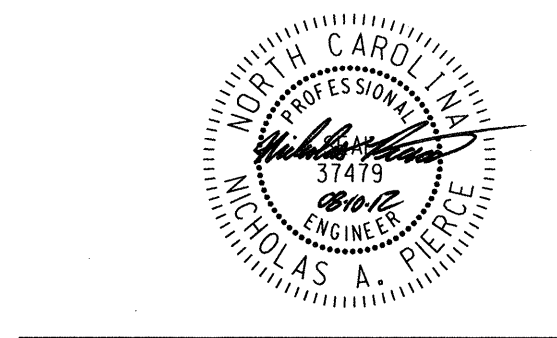
SECTION N-N



DETAIL "A"

PROJECT NO. B-4817
SCOTLAND COUNTY
STATION: 18+47.50 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR INTEGRAL ABUTMENT



WSP - SELLS
Transportation & Infrastructure
15401 Weston Parkway Suite 100
Cary, NC 27513 - 919.678.0035
www.wspells.com
LICENSE NO. F-0891

ASSEMBLED BY: M.J. OSTRISHKO DATE: 03-12
CHECKED BY: N. PIERCE DATE: 04-12
DRAWN BY: TLA 10/05
CHECKED BY: GM 5/06

ADDED 5/1/06RR KMM/GM
REV. 10/1/11 MAA/GM

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

TOTAL SHEETS: 34

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 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