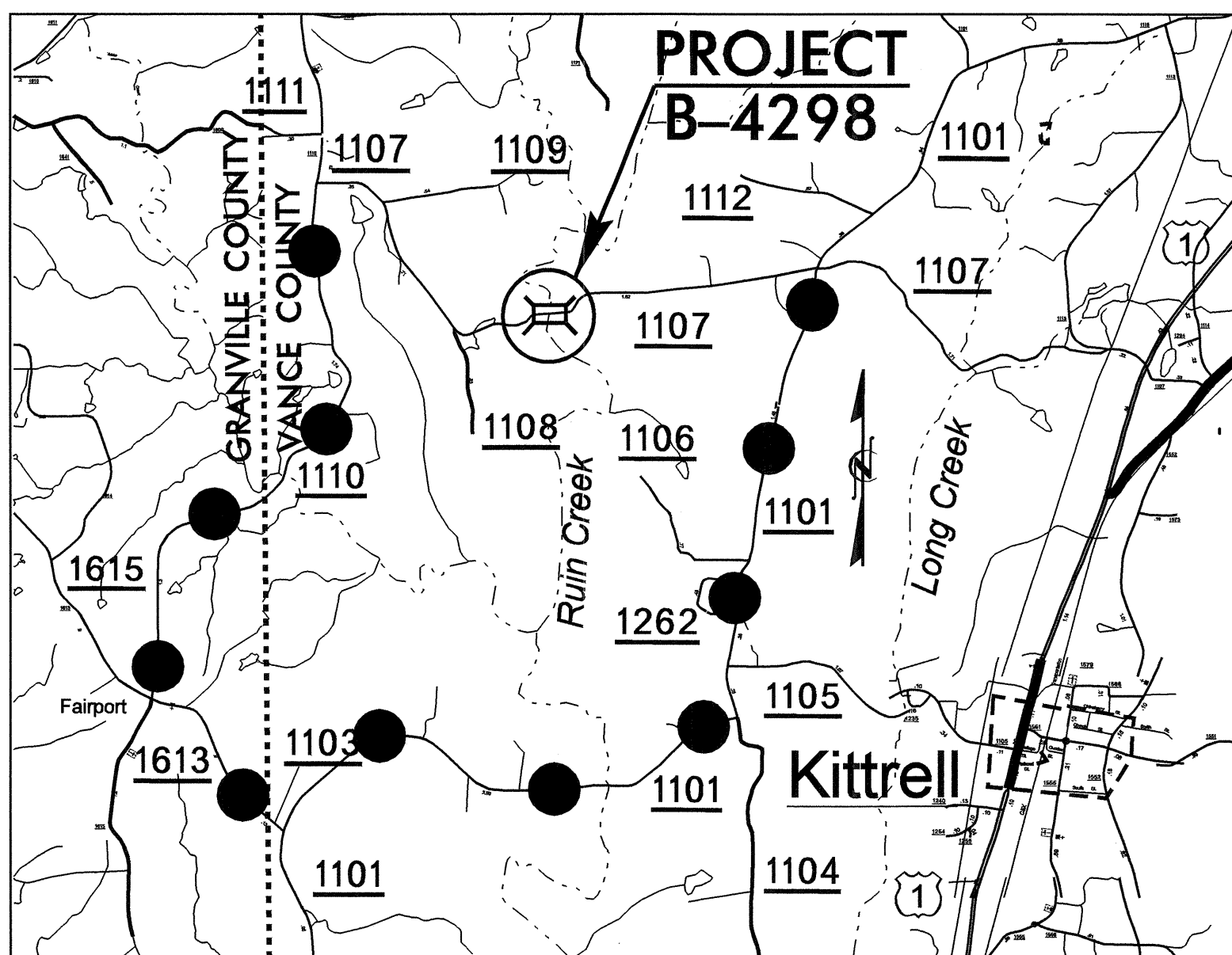


CONTRACT: C201599 TIP PROJECT: B-4298



VICINITY MAP

● — ● DENOTES OFF-SITE DETOUR ROUTE

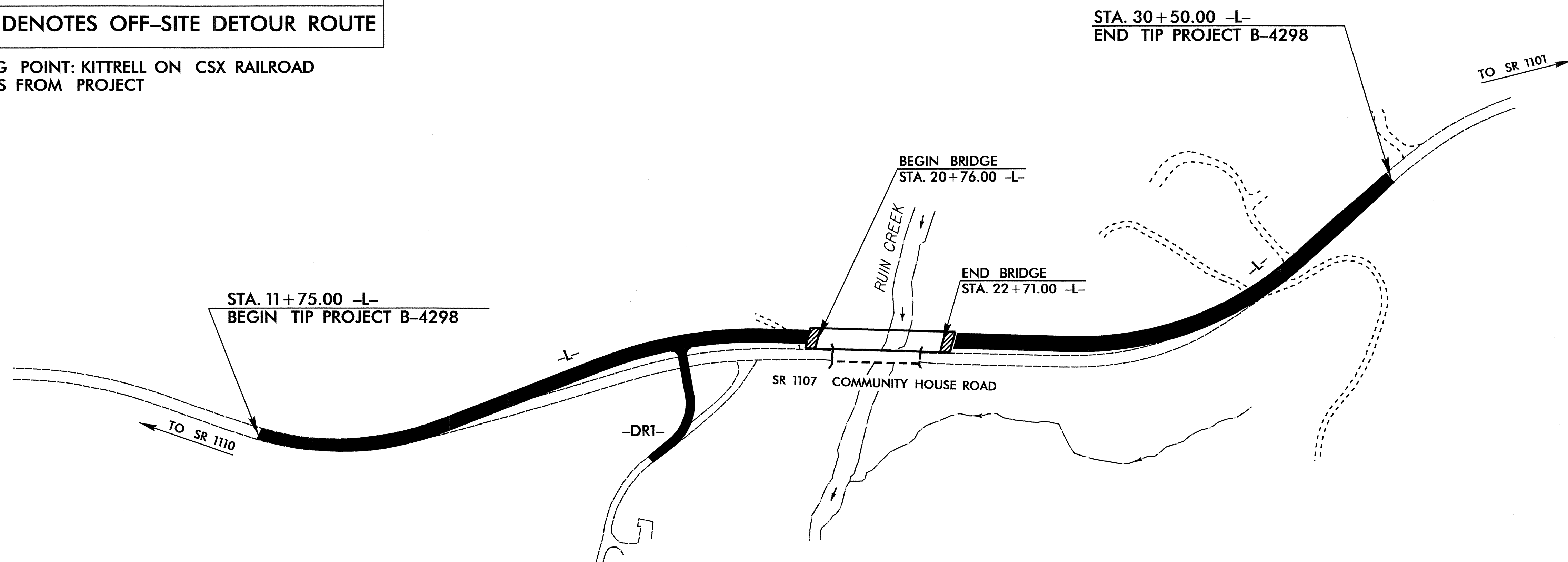
NEAREST SHIPPING POINT: KITTRELL ON CSX RAILROAD
APPROX. 5.5 MILES FROM PROJECT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
VANCE COUNTY

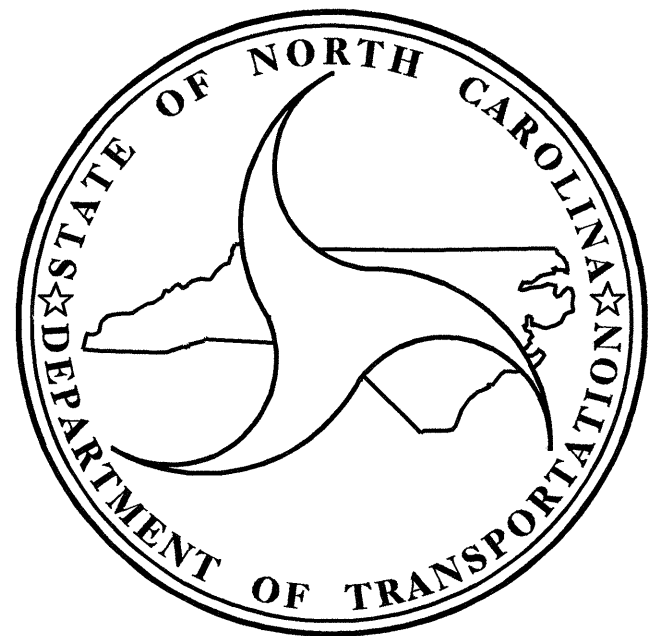
**LOCATION: BRIDGE NO. 3 OVER RUIN CREEK AND APPROACHES
ON SR 1107 (COMMUNITY HOUSE ROAD)**

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4298		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33635.1.1	BRZ-1107(8)	PE	
33635.2.1	BRZ-1107(8)	RW	
33635.3.1	BRZ-1107(13)	CONST.	



STRUCTURE



DESIGN DATA

ADT 2007	=	750
ADT 2025	=	1200
DHV	=	13 %
D	=	55 %
T	=	3 % *
V	=	40 MPH
* TTST	1%	DUAL 2%
FUNC CLASS	=	LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4298	=	0.318 MI.
LENGTH STRUCTURE TIP PROJECT B-4298	=	0.037 MI.
TOTAL LENGTH TIP PROJECT B-4298	=	0.355 MI.

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE : AUGUST 21, 2007	N.N. BULLOCK, P.E. PROJECT ENGINEER
	A.K. PASCHAL, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

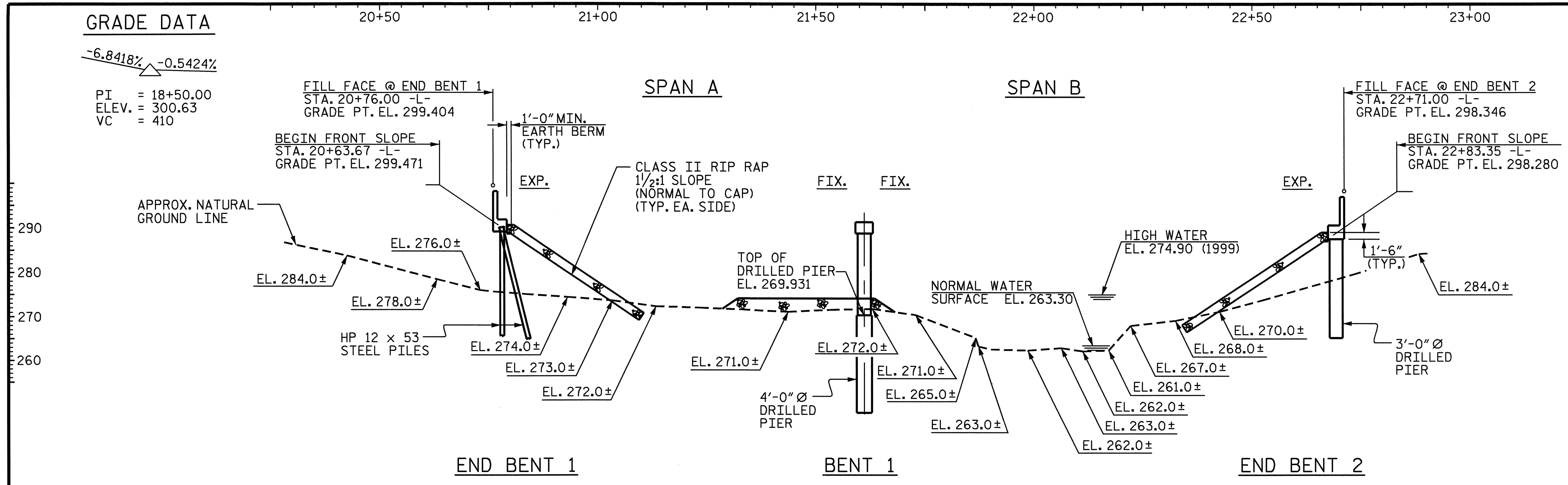
STATE DESIGN ENGINEER _____ P.E.
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

05-JUN-2007 10:27
\$\$\$\$\$\$\$\$\$DCGN\$\$\$\$\$\$\$\$\$
jdhawik

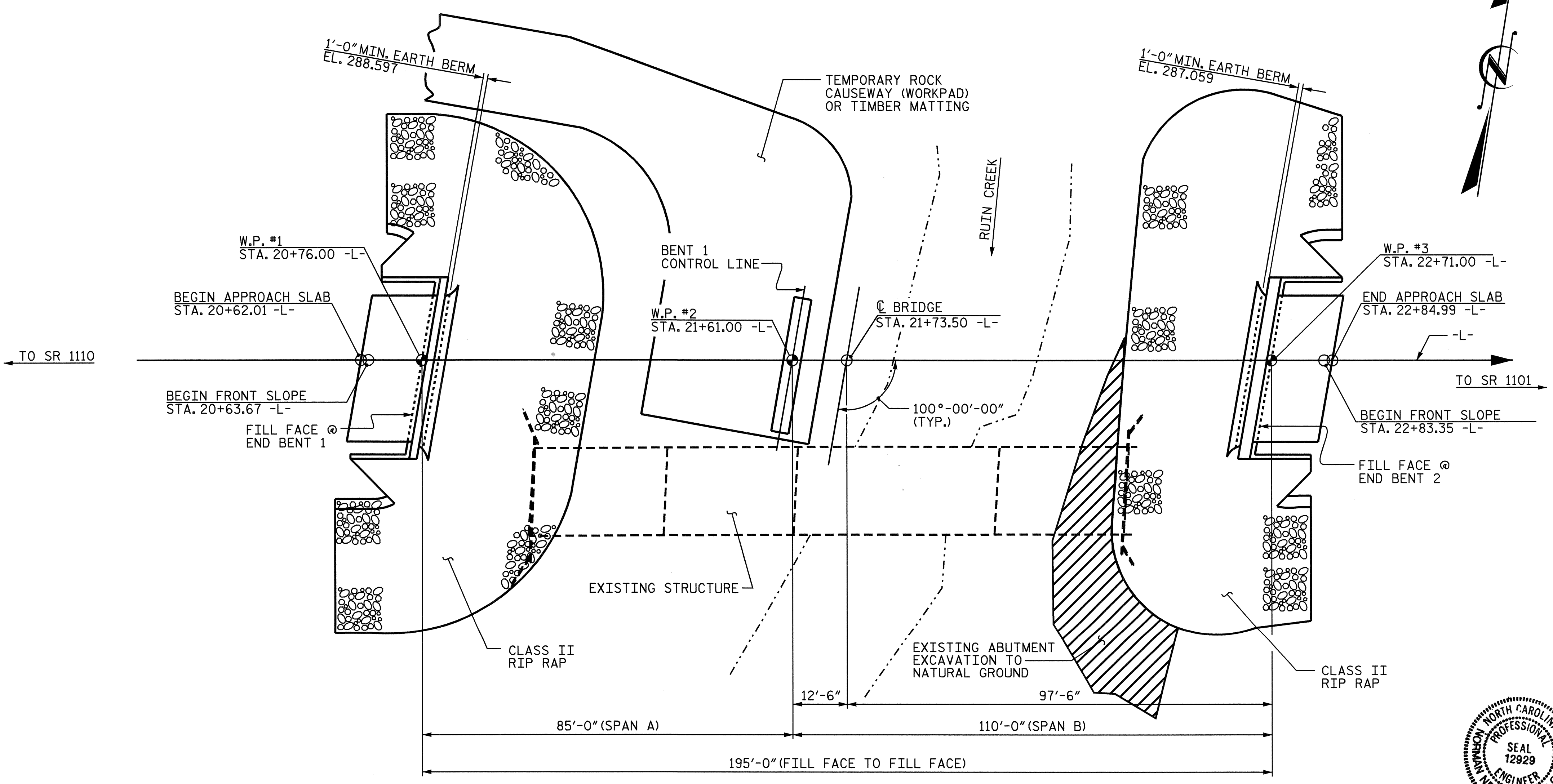
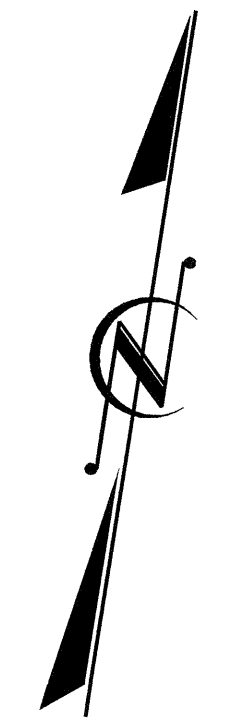
GRADE DATA

-6.8418% -0.5424%
 PI = 18+50.00
 ELEV. = 300.63
 VC = 410



SECTION ALONG -L-
 (SECTIONS AT END BENTS AND BENTS ARE TAKEN AT RIGHT ANGLES.)

UNCLASSIFIED STRUCTURE EXCAVATION



PLAN

(PILES & DRILLED PIERS NOT SHOWN IN PLAN VIEW FOR CLARITY.)

NOTES:

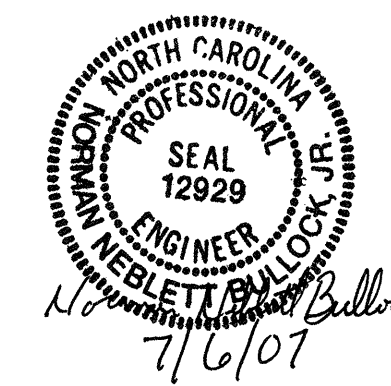
- ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS 25.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
- THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD 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 LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.
- THE EXISTING STRUCTURE CONSISTING OF FOUR (1 @ 30'-9", 1 @ 30'-0", 1 @ 46'-3", 1 @ 30'-3") TIMBER FLOOR DECK SPANS WITH A CLEAR ROADWAY WIDTH OF 19'-3" ON STEEL I BEAMS ON REINFORCED CONCRETE ABUTMENTS AND WITH REINFORCED CONCRETE CAPS ON TIMBER PILE BENTS AND LOCATED APPROXIMATELY 30'-0" DOWNSTREAM FROM PROPOSED BRIDGE 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 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.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR REMOVAL OF EXISTING STRUCTURE AT STATION 21+73.50 -L-.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED AS SHOWN ON PLANS AND AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.
- 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 21+73.50 -L-.

PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

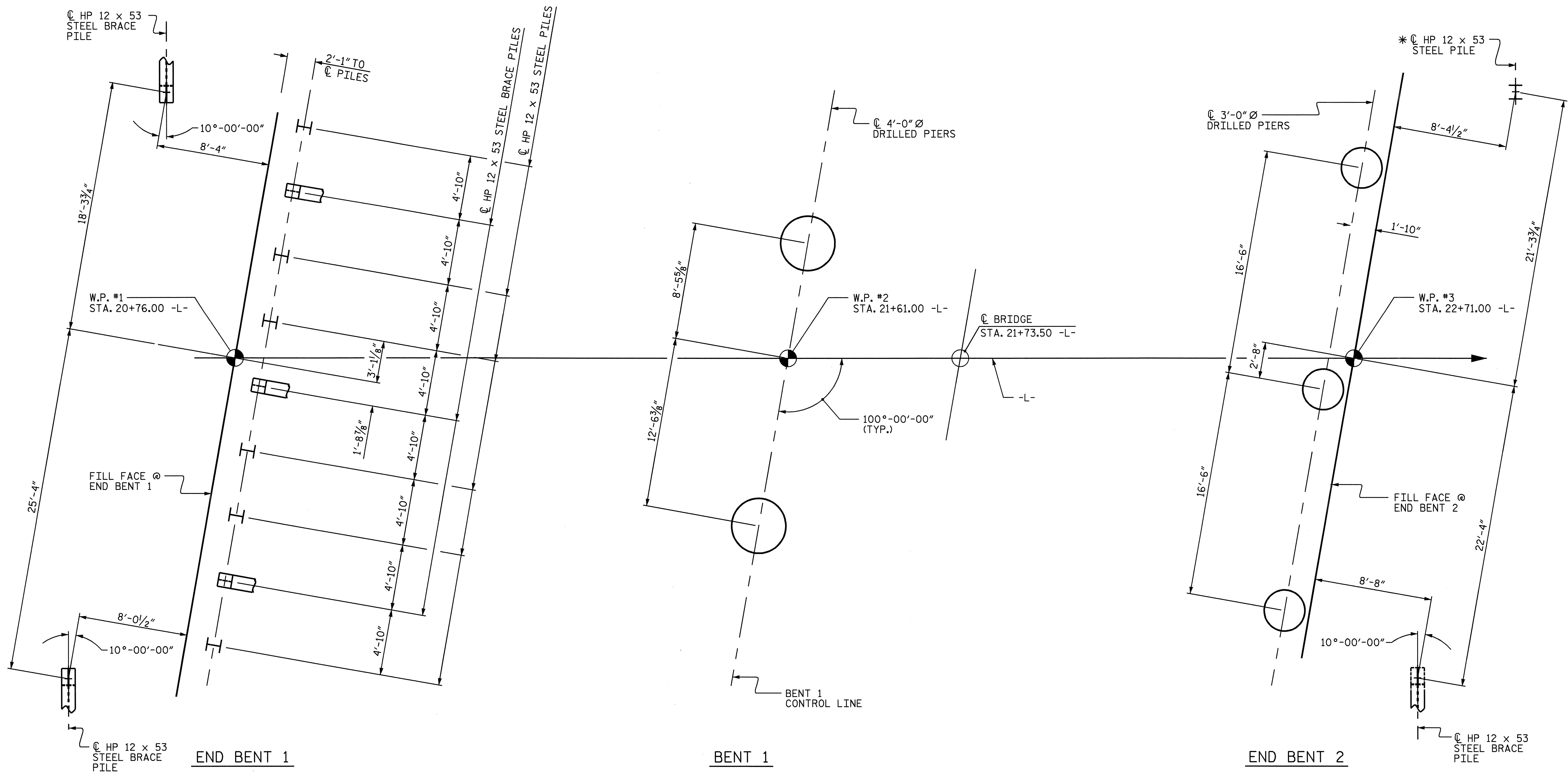
GENERAL DRAWING
 BRIDGE ON SR 1107 OVER
 RUIN CREEK BETWEEN
 SR 1110 AND SR 1101



7/6/07
 Billie J. ...
 7/5/07

DRAWN BY : A.M.KEETER DATE : 12/28/05
 CHECKED BY : J.D.HAWK DATE : 3/22/06

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



FOUNDATION LAYOUT

(DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO CENTERLINE OF DRILLED PIERS)
 (DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILES)
 ALL STEEL PILES ARE HP 12 x 53.
 ALL END BENT BRACE PILES AND WING BRACE PILES, EXCEPT AS SHOWN OTHERWISE ARE BATTERED 3:12.

FOUNDATION NOTES:

DRILLED PIERS AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 60 TSF.

DRILLED PIERS AT BENT 1 ARE DESIGNED FOR AN APPLIED LOAD OF 365 TONS EACH AT THE TOP OF THE COLUMN.

DRILLED PIERS AT END BENT 2 ARE DESIGNED FOR AN APPLIED LOAD OF 225 TONS EACH AT THE TOP OF THE PIER.

PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT BENT 1 AND END BENT 2.

DRILLED PIER AT BENT 1, PIER 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 243 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIER AT BENT 1, PIER 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 245 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIERS AT END BENT 2, PIER 1 AND 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 275 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIER AT END BENT 2, PIER 3 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 265 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT 1 AND END BENT 2.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS. SEE DRILLED PIERS SPECIAL PROVISIONS.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 252 FT.. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

DRIVE PILES AT END BENT 1 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 1 IS 60 TONS PER PILE.

* PILE EXCAVATION SHALL BE USED TO INSTALL THE PILE FOR WING WALL W1 AT END BENT 2 TO ELEVATION 277.5 FT.. SEE SPECIAL PROVISION FOR PILE EXCAVATION. THIS PILE SHALL BE INSTALLED VERTICALLY WITH NO BATTER.

PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
BRIDGE ON SR 1107 OVER RUIN CREEK BETWEEN SR 1110 AND SR 1101					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-2
TOTAL SHEETS					27

DRAWN BY : A.M. KEETER DATE : 11/20/06
 CHECKED BY : J.D. HAWK DATE : 12/5/06

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	3'-0" Ø DRILLED PIERS IN SOIL	3'-0" Ø DRILLED PIERS NOT IN SOIL	4'-0" Ø DRILLED PIERS IN SOIL	4'-0" Ø DRILLED PIERS NOT IN SOIL	SID INSPECTIONS	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL		
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	LIN.FT.
SUPERSTRUCTURE											LUMP SUM	6796	6984		LUMP SUM			8	764.00			385.77
END BENT 1														34.7		4852			11	330		
BENT 1							36.0	16.0						35.3		10788	2212					
END BENT 2			7.0	3.0	29.8	18.0								40.4		12120	904		2	30		
TOTAL	LUMP SUM	LUMP SUM	7.0	3.0	29.8	18.0	36.0	16.0	1	1	LUMP SUM	6796	6984	110.4	LUMP SUM	27,760	3116	8	764.00	13	360	385.77

TBOM (CONT'D)

RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEAL
TONS	SQ. YDS.	LUMP SUM	LUMP SUM
		LUMP SUM	LUMP SUM
551	612		
471	523		
1022	1135	LUMP SUM	LUMP SUM

NOTES CONT.:

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

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

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

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

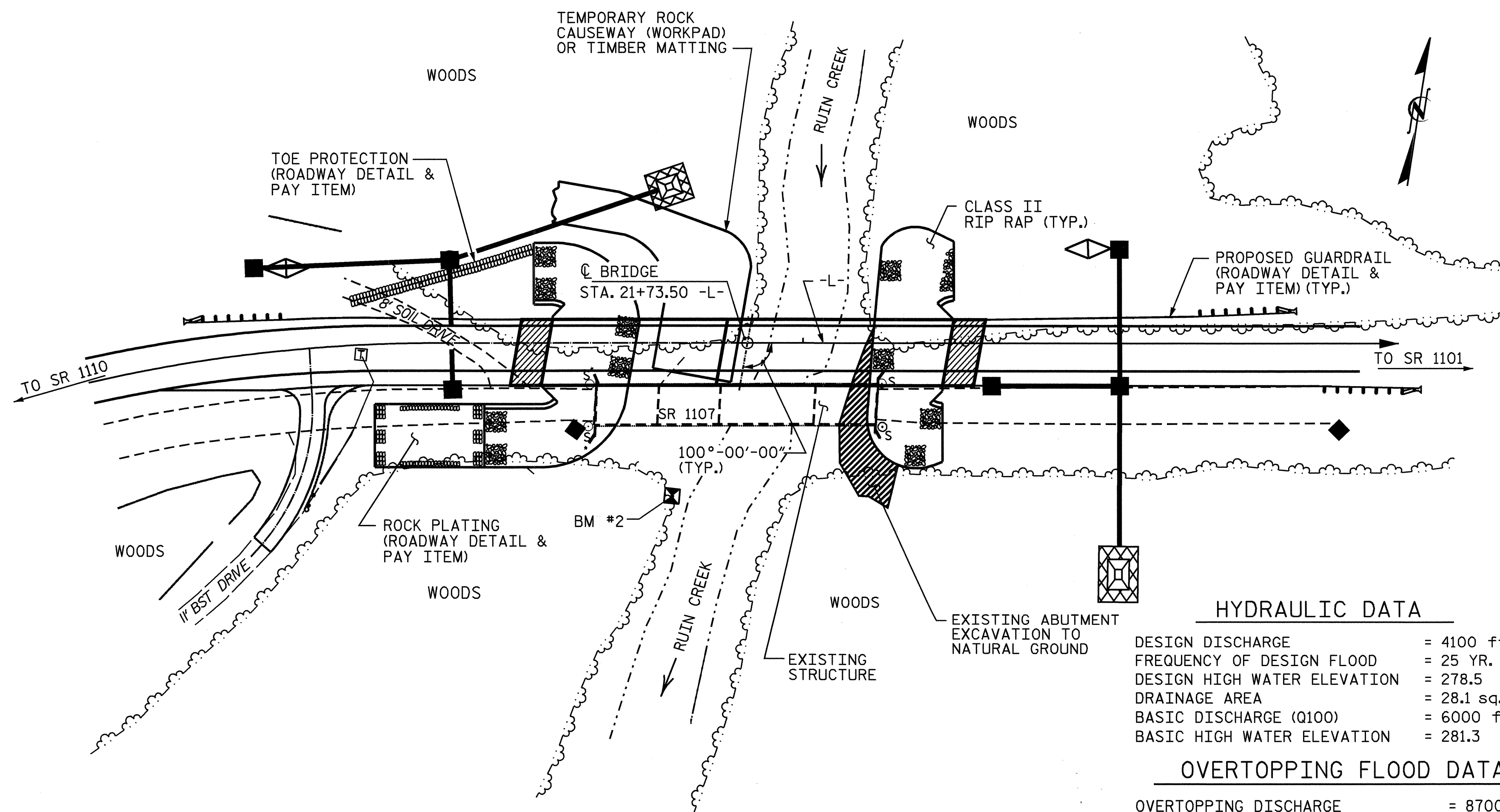
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

BM #2 - R/R SPIKE SET IN 24" POPLAR 71.64' RT. STA. 21+36.20 -L- ELEV. 272.89



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 4100 ft ³ /s
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 278.5
DRAINAGE AREA	= 28.1 sq. mi.
BASIC DISCHARGE (Q100)	= 6000 ft ³ /s
BASIC HIGH WATER ELEVATION	= 281.3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 8700+ft ³ /s
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YR.
OVERTOPPING FLOOD ELEVATION	= 298.28

NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 3 OF 3

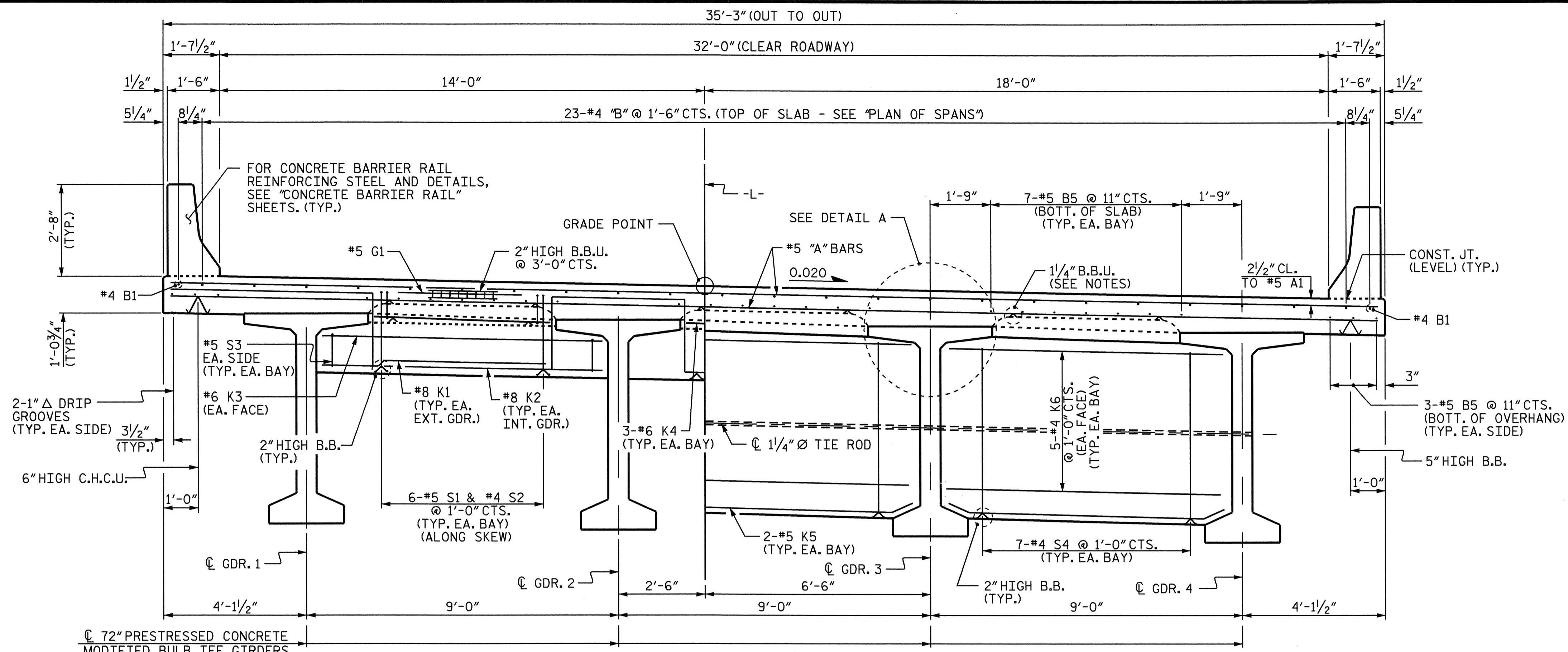
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON SR 1107 OVER
 RUIN CREEK BETWEEN
 SR 1110 AND SR 1101

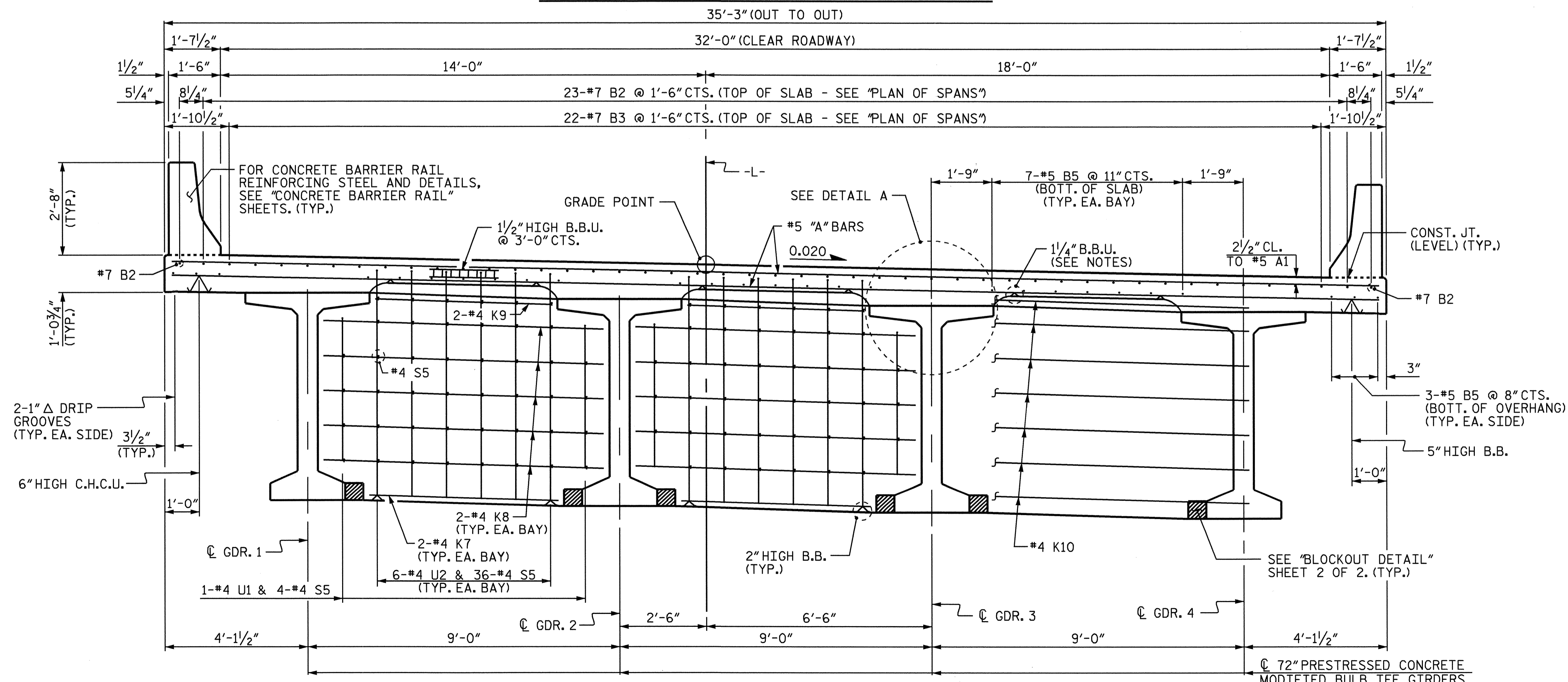


DRAWN BY: A.M.KEETER DATE: 12/28/05
 CHECKED BY: J.D.HAWK DATE: 3/22/06

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



AT END BENT DIAPHRAGM
TYPICAL SECTION
AT INTERMEDIATE DIAPHRAGM



TYPICAL SECTION AT BENT DIAPHRAGM

NOTES:

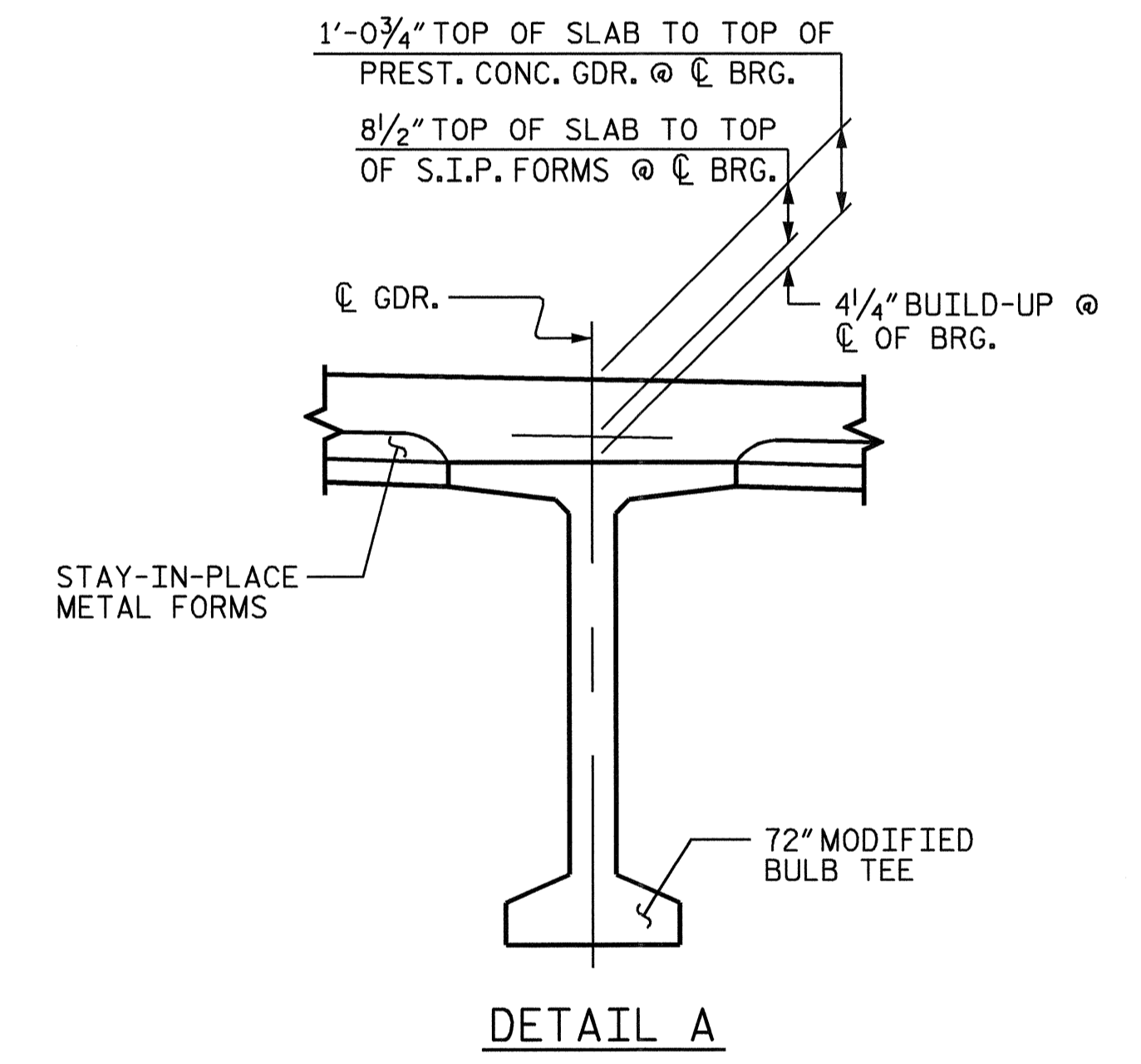
PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORMS.

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.

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

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



DETAIL A

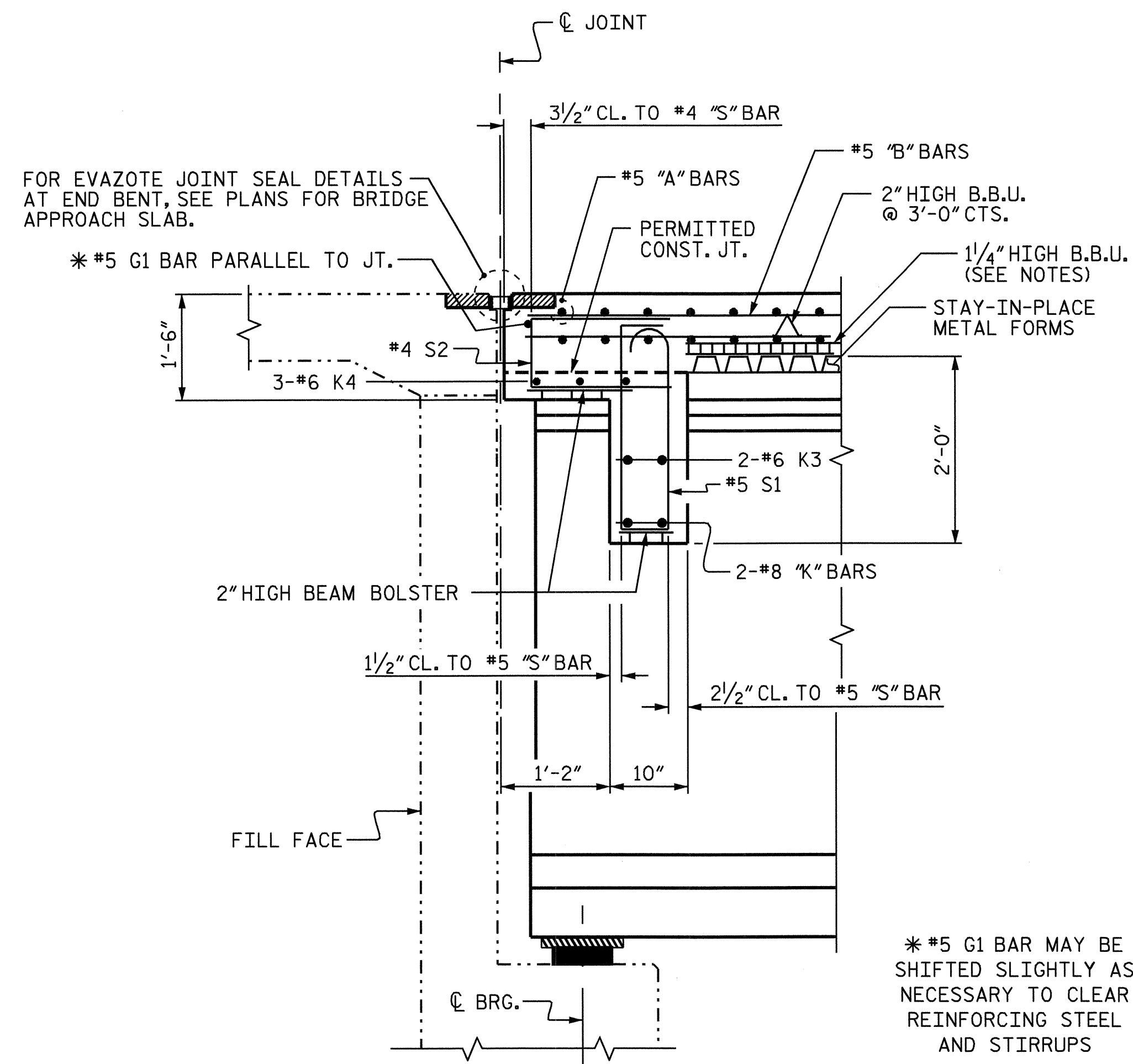
PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-

SHEET 1 OF 2

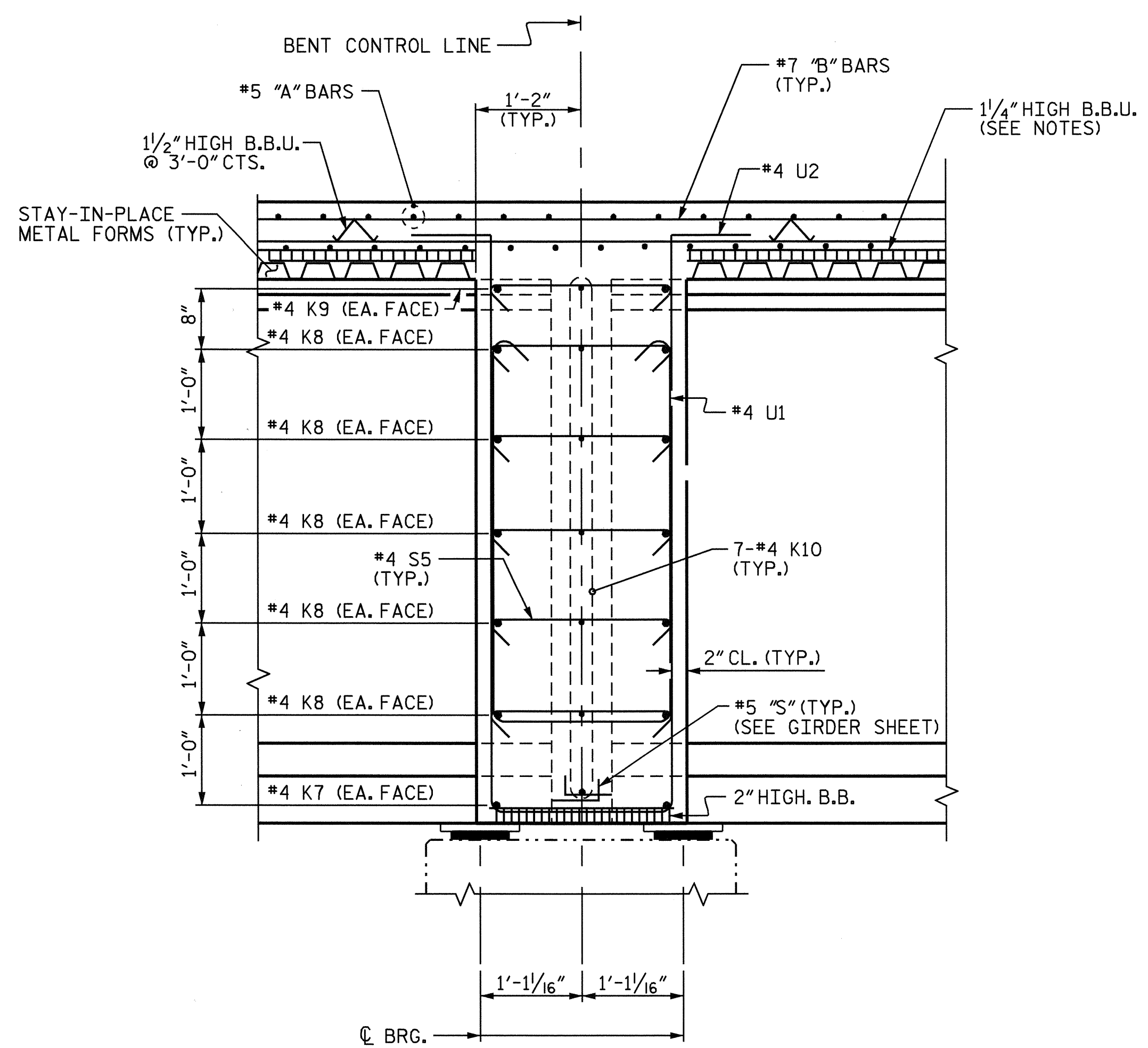
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-4
					TOTAL SHEETS 27



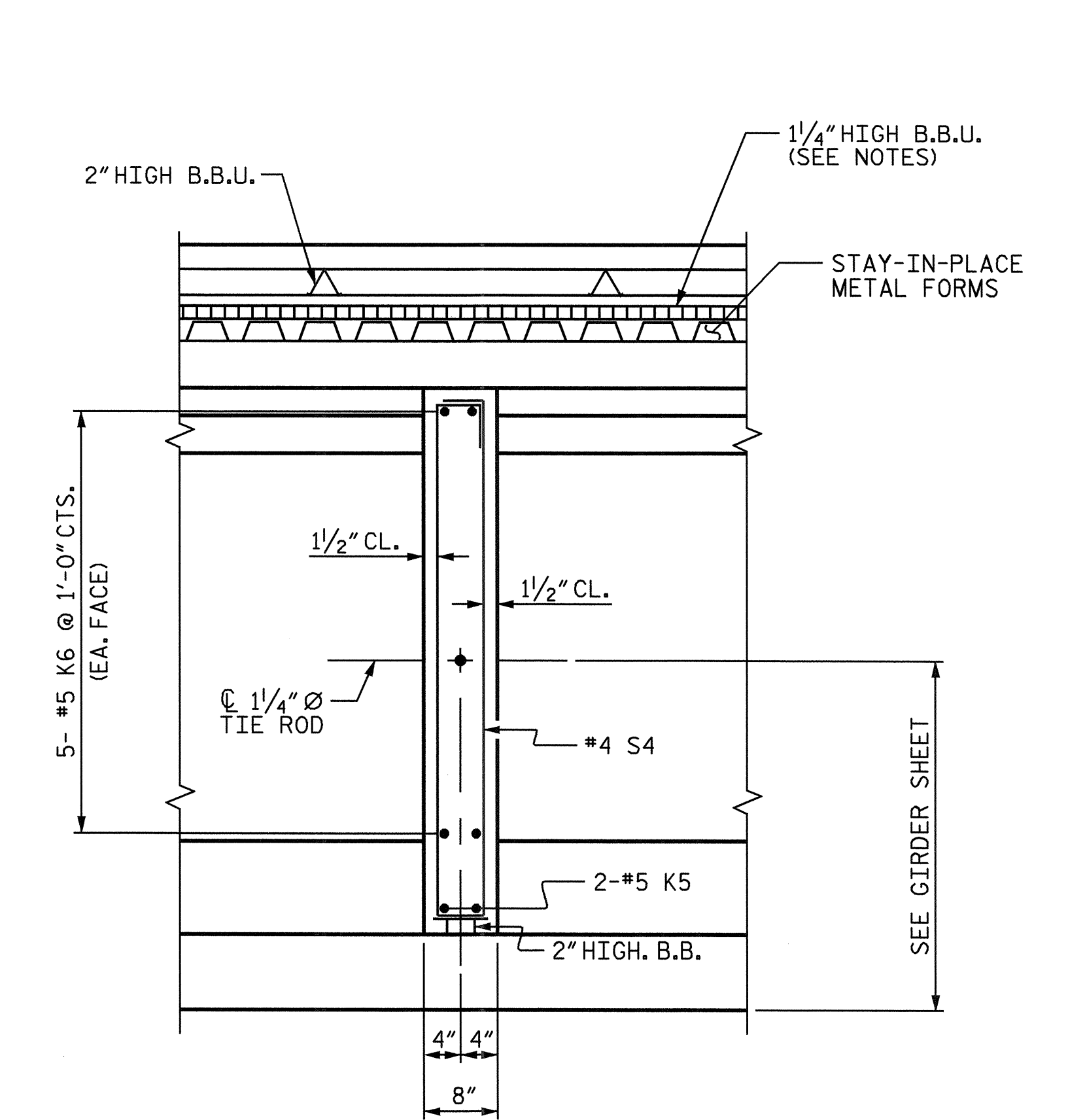
DRAWN BY: A.M.KEETER DATE: 11/14/05
CHECKED BY: J.D.HAWK DATE: 1/15/06



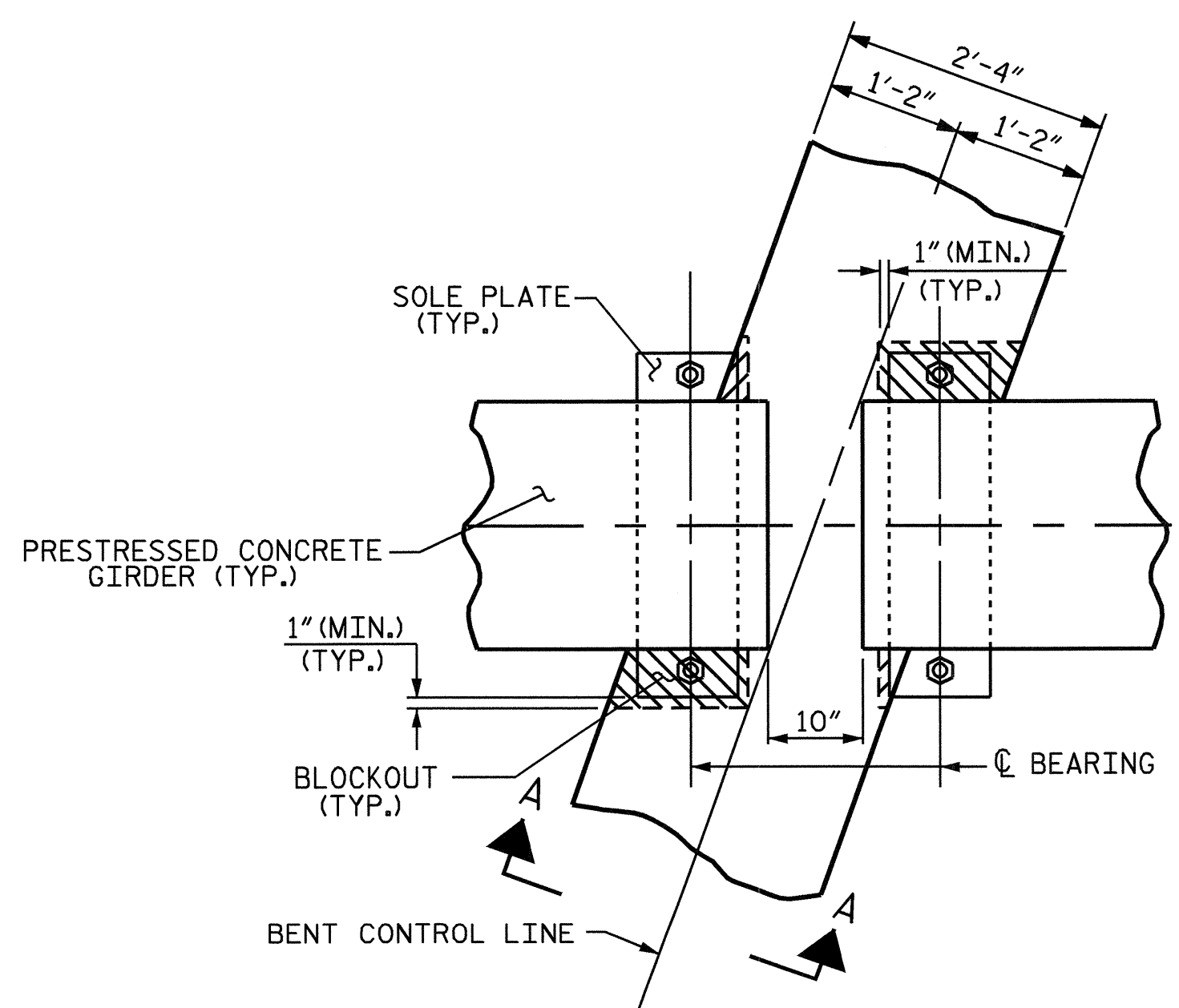
SECTION THRU END BENT DIAPHRAGM



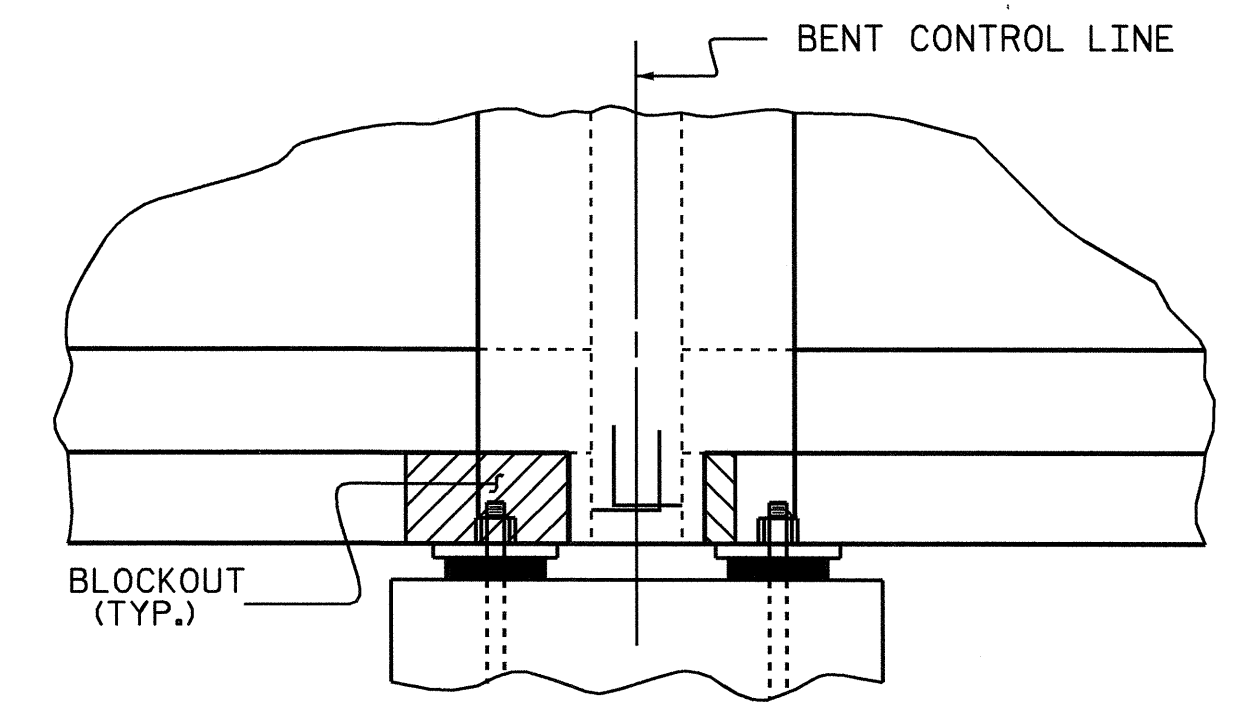
SECTION THRU BENT DIAPHRAGM



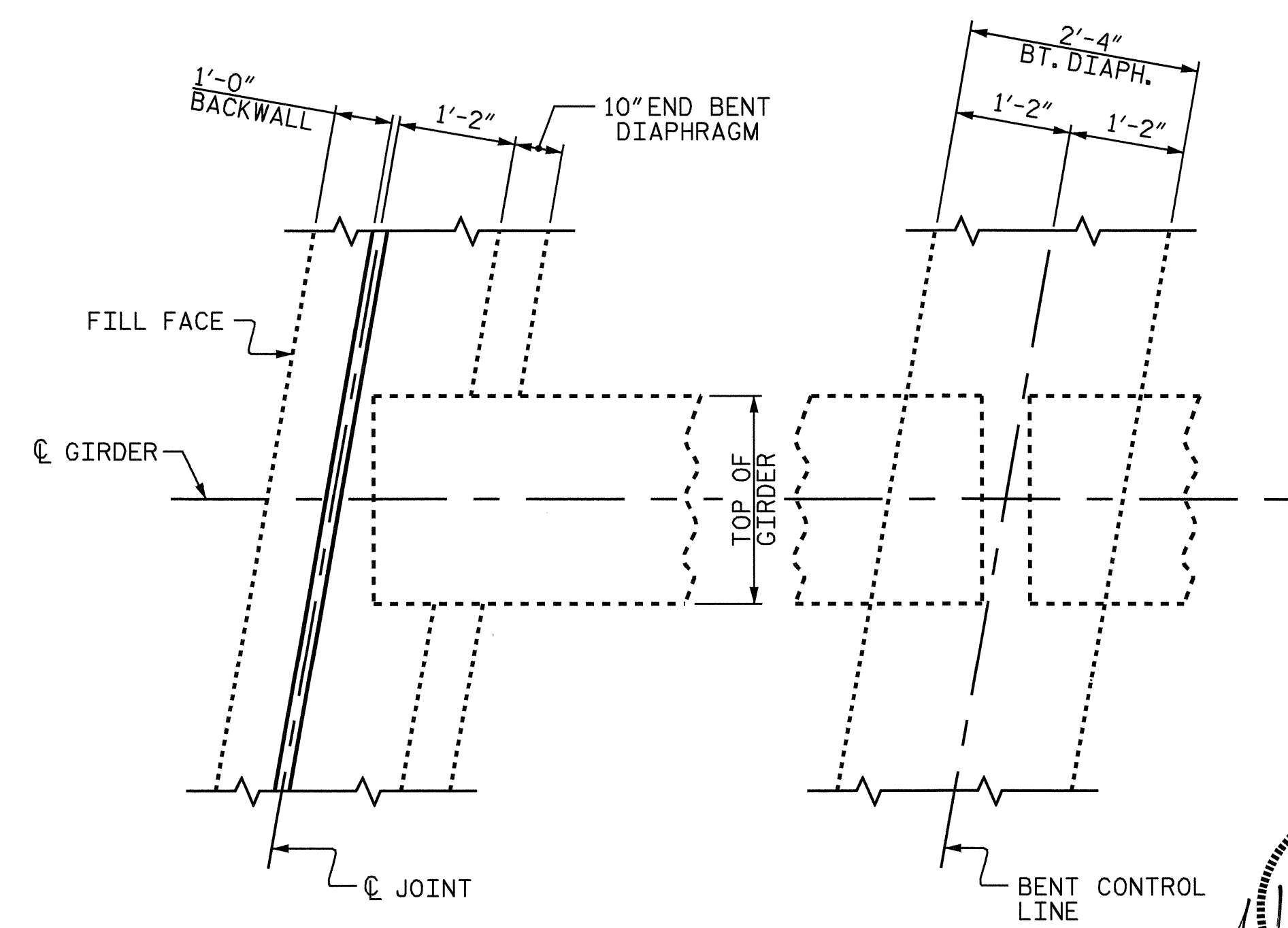
SECTION THRU INTERMEDIATE DIAPHRAGM



PLAN
BENT DIAPHRAGM BLOCK-OUT DETAIL



SECTION A-A

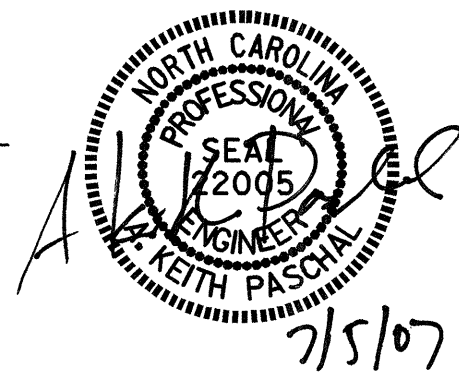


END BENT DIAPHRAGM
END BENT 1 SHOWN, END BENT 2 SIMILAR
PLAN
BENT DIAPHRAGM

PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-

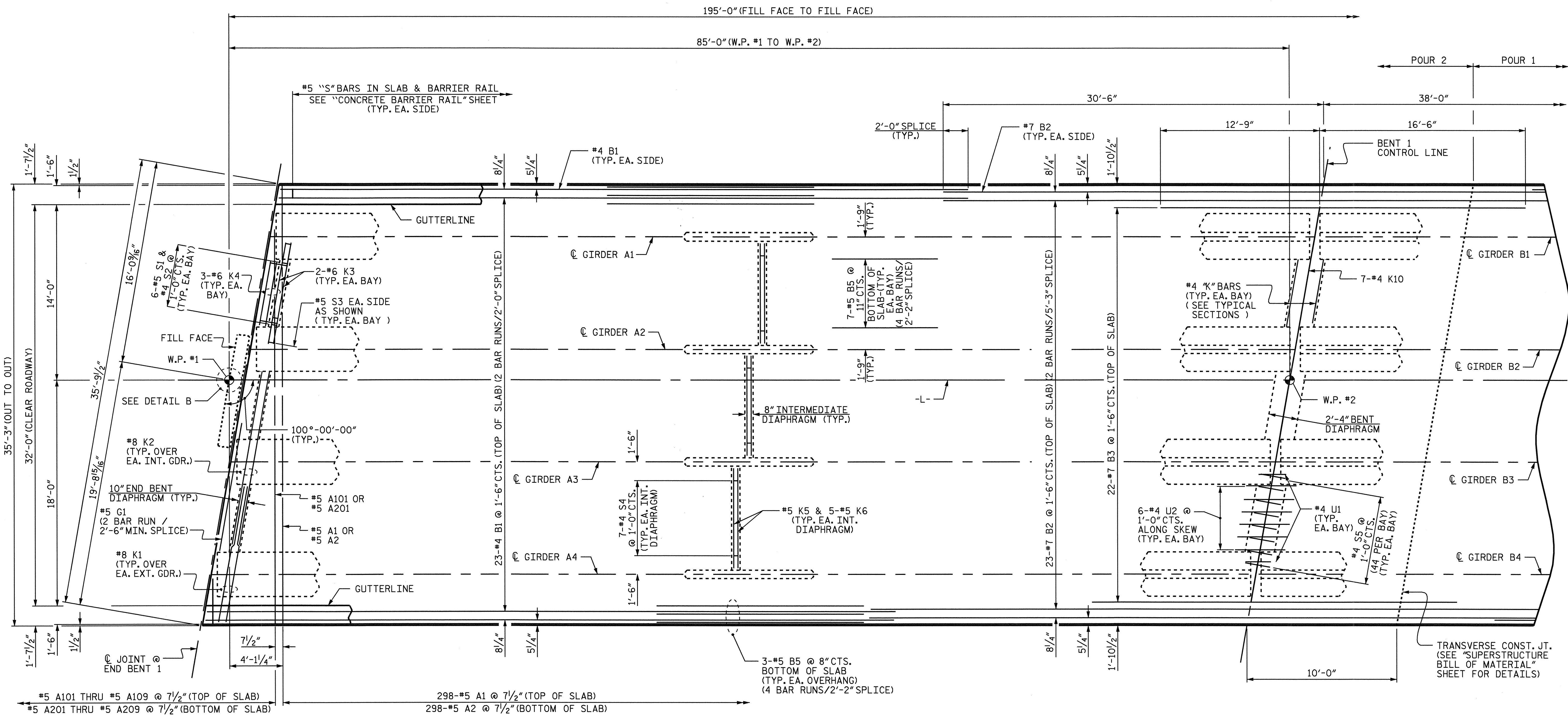
SHEET 2 OF 2

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

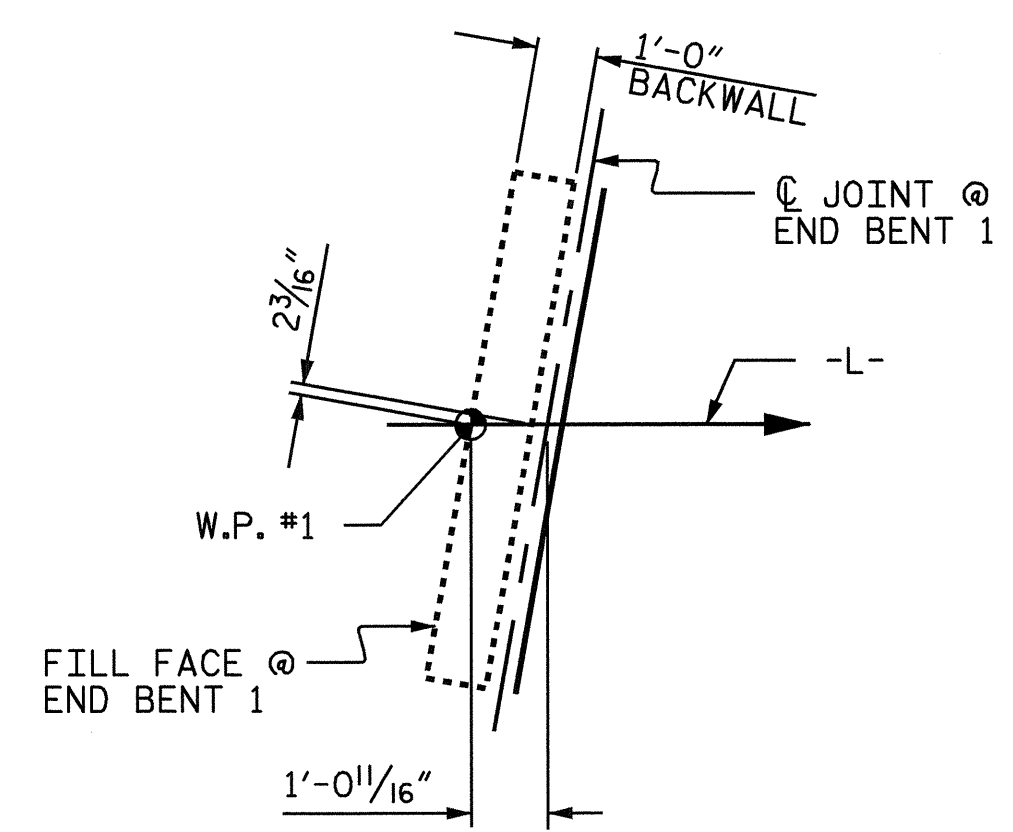


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			27

DRAWN BY: A.M.KEETER DATE: 11/14/05
CHECKED BY: J.D.HAWK DATE: 1/15/06



PLAN OF SPAN A



DETAIL B

DRAWN BY : A.M.KEETER DATE : 11/17/05
 CHECKED BY : J. D. HAWK DATE : 1/20/06

05-JUL-2007 09:52
 R:\Structures\Final Plans\B-4298.sd.S*.dgn
 jdhawk

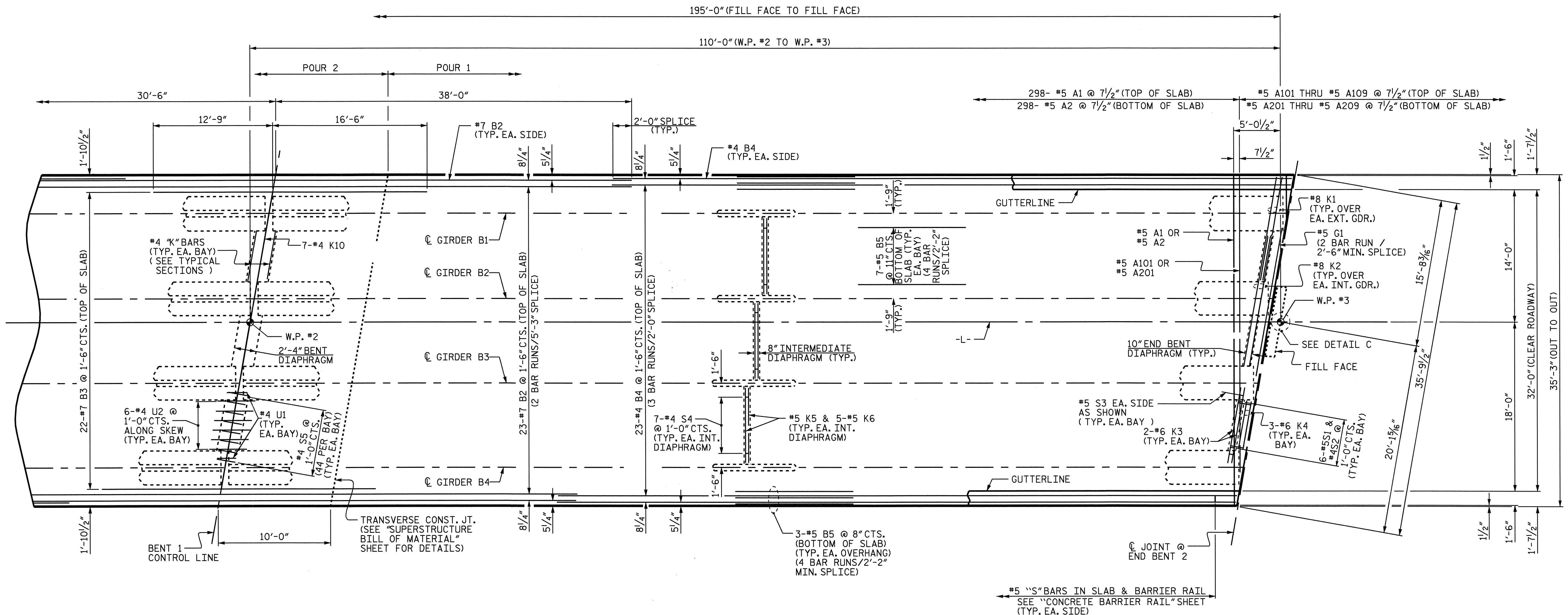
PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

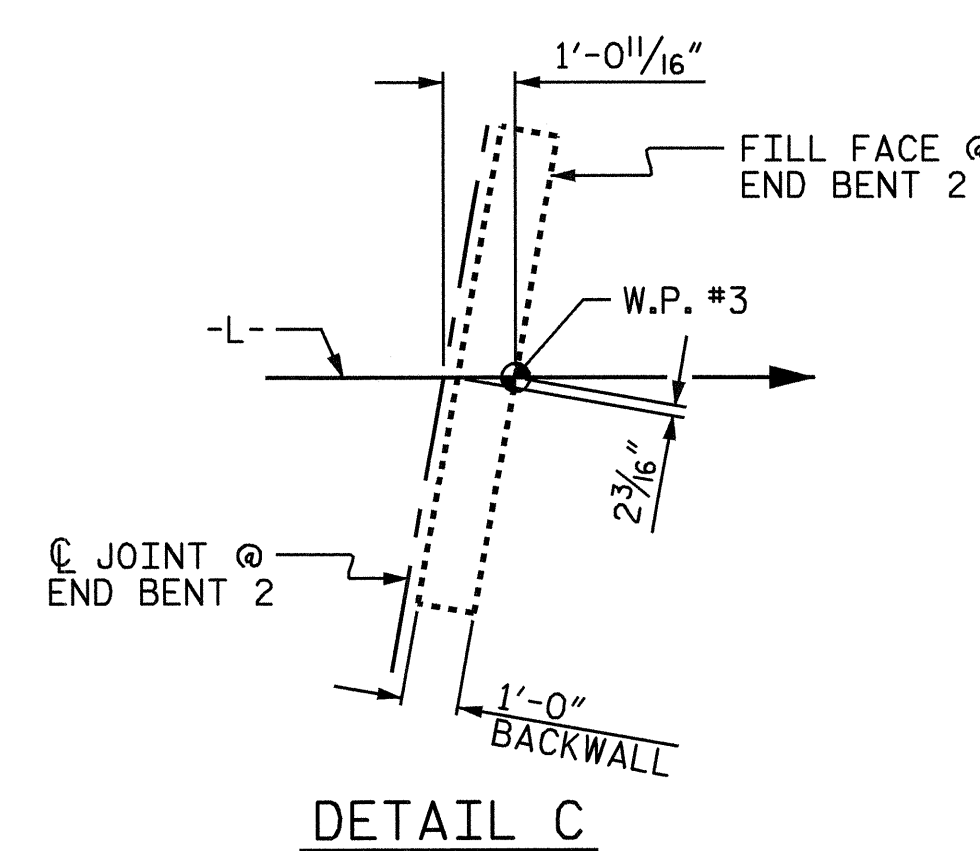
SUPERSTRUCTURE
 PLAN OF SPAN A



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



PLAN OF SPAN B



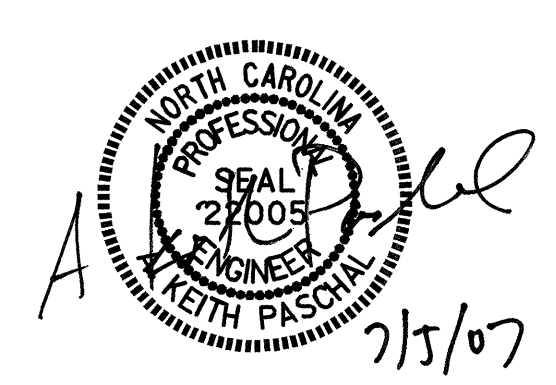
PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

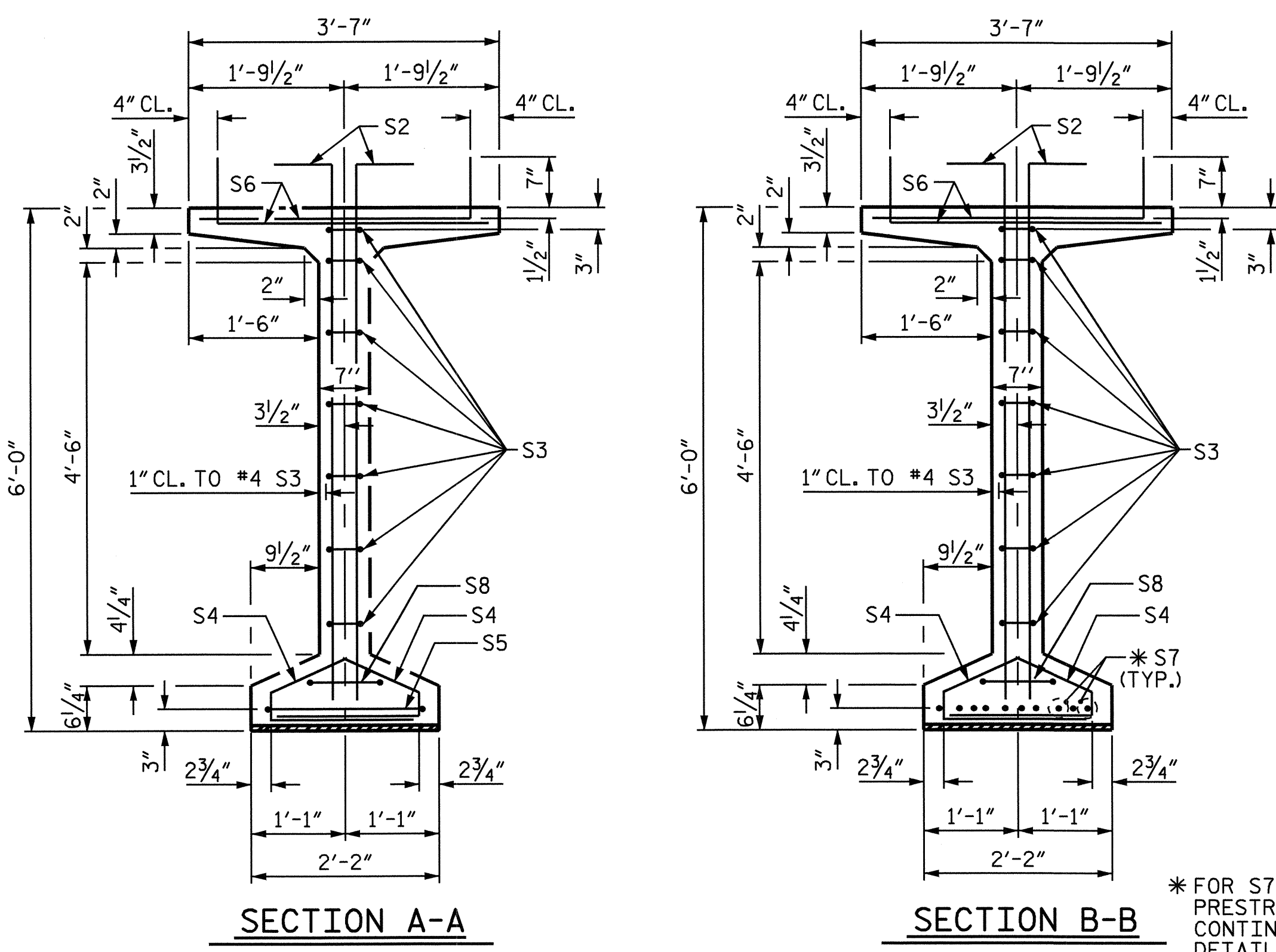
SUPERSTRUCTURE
 PLAN OF SPAN B

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL SHEETS	
2			4			27	



DRAWN BY : A.M.KEETER DATE : 11/17/05
 CHECKED BY : J.D.HAWK DATE : 1/20/06

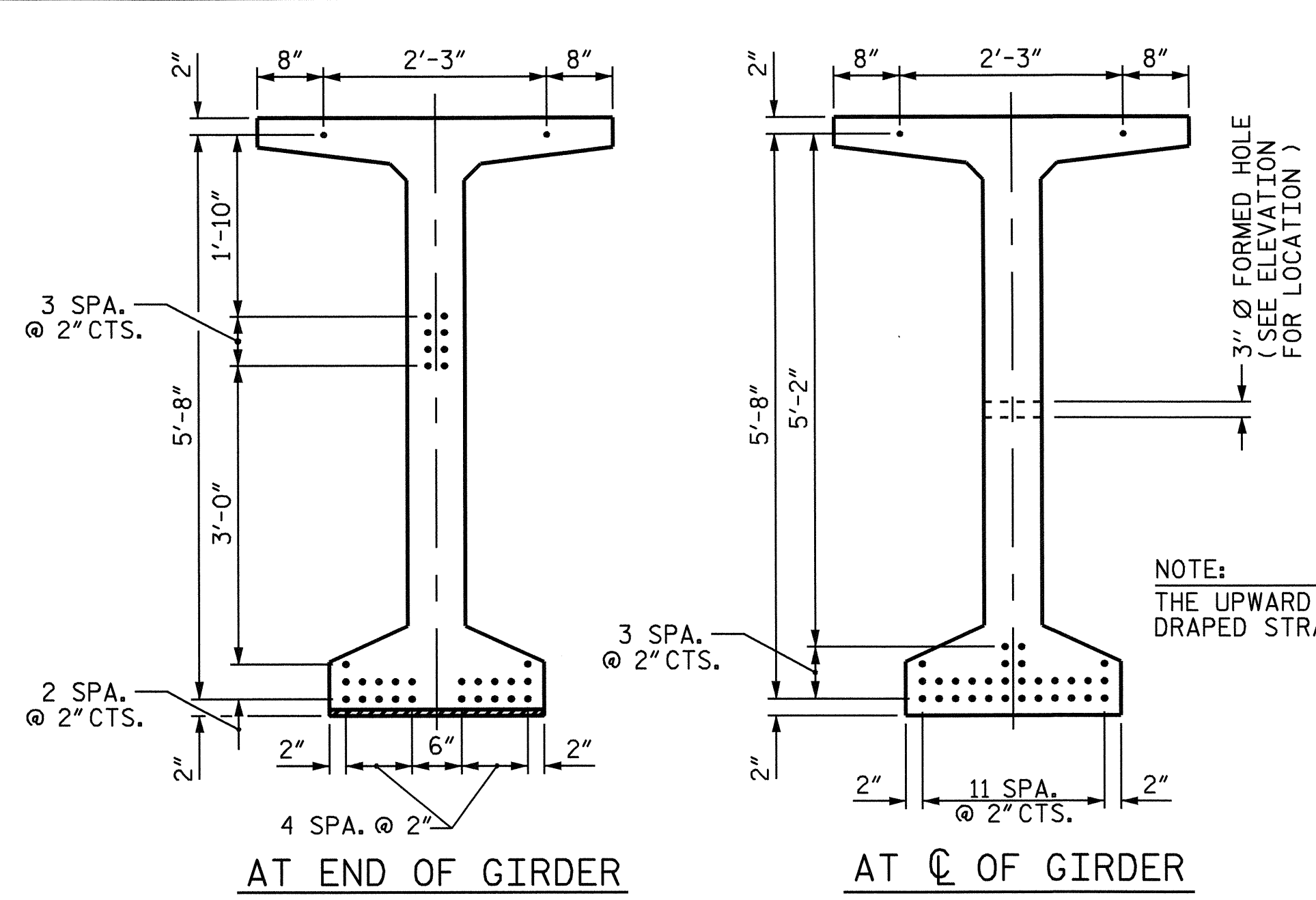
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 jdhawk



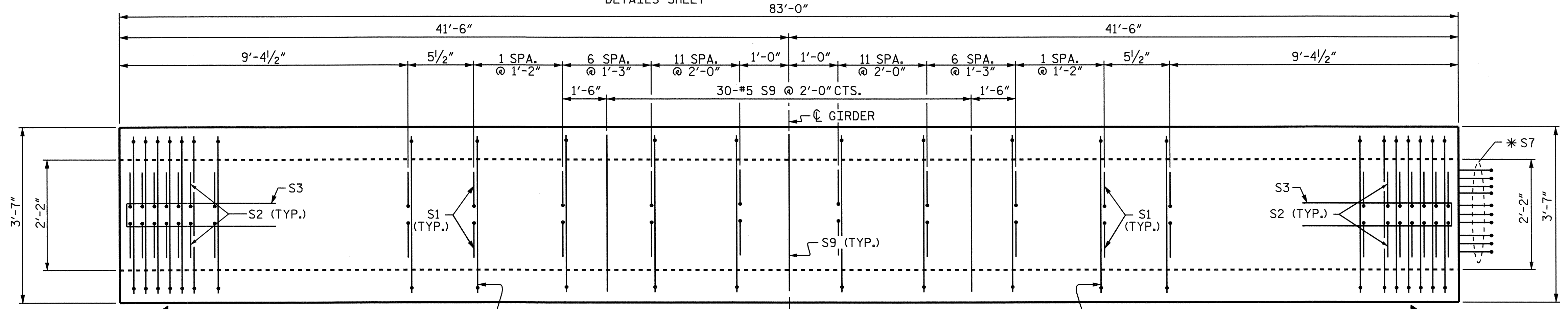
SECTION A-A

SECTION B-B

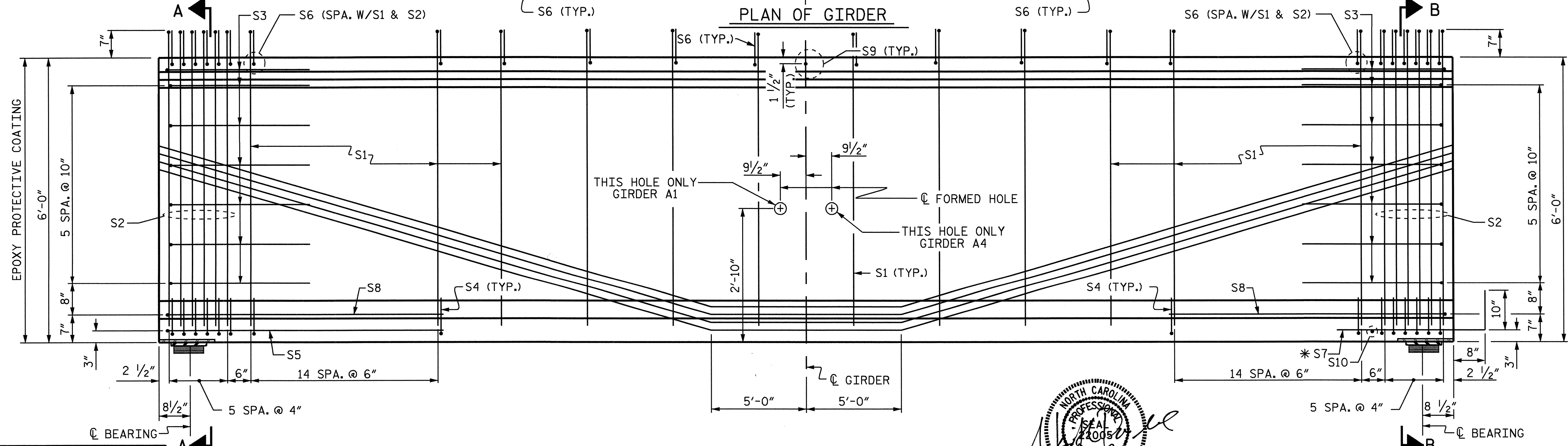
* FOR S7 BARS, SEE DETAIL "C" OF PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOADS DETAILS SHEET



1/2" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER

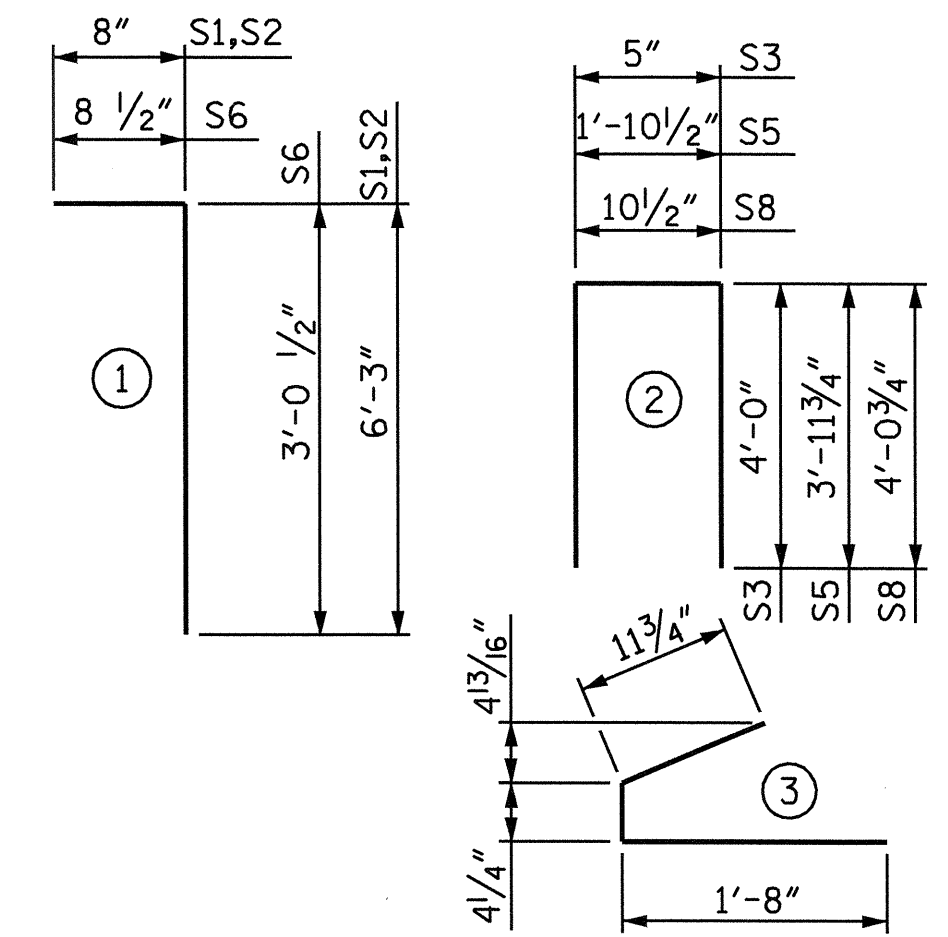
1/2" Ø L.R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
S1	136	#4	1	6'-11"	628	
S2	24	#5	1	6'-11"	173	
S3	14	#4	2	8'-5"	79	
S4	84	#4	3	3'-0"	168	
S5	1	#5	2	9'-10"	10	
S6	160	#5	1	3'-9"	626	
*S7	10	#5	STR	3'-8"	38	
S8	2	#5	2	9'-0"	19	
S9	30	#5	STR	3'-3"	105	
S10	1	#3	STR	1'-10"	1	

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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	8000 PSI CONCRETE	1/2" Ø L.R. STRAND	
LB.	C.Y.	No.	
1847	17.8	32	

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	83.000	332.000

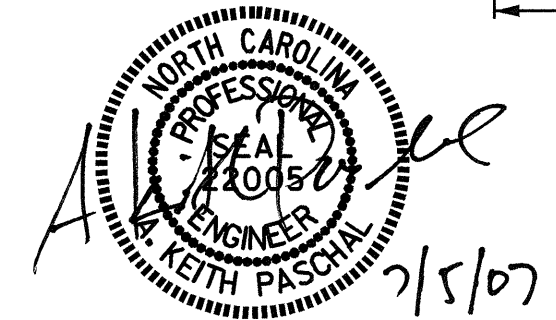
PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

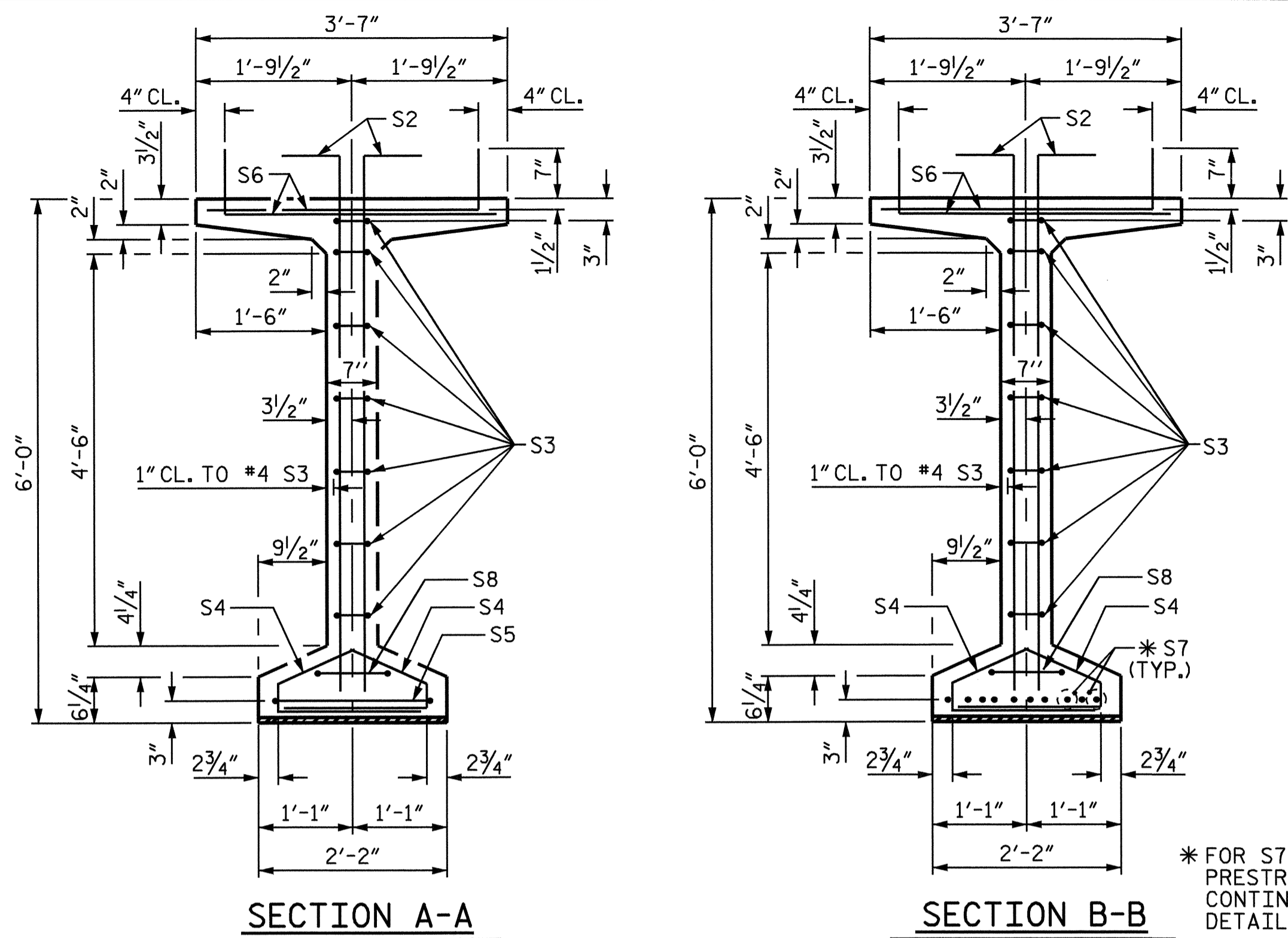
SHEET 1 OF 5

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

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS 27	
2			4				

ASSEMBLED BY : A.M.KEETER DATE : 11/28/05
 CHECKED BY : J.D. HAWK DATE : 1/16/06
 DRAWN BY : EEM 2/6/97 REV. 8/16/99 RWW/LES
 CHECKED BY : VAP 2/6/97 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

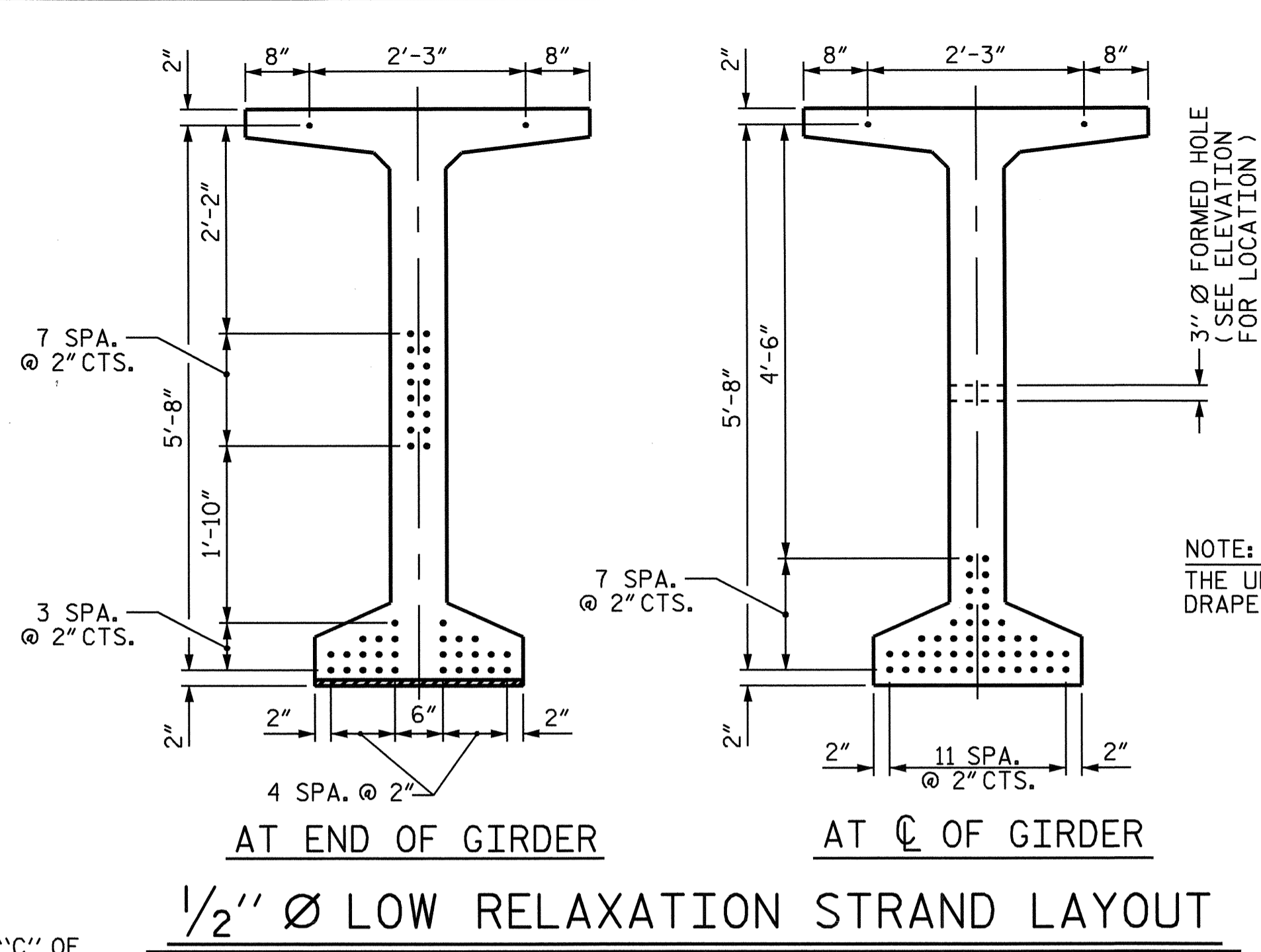




SECTION A-A

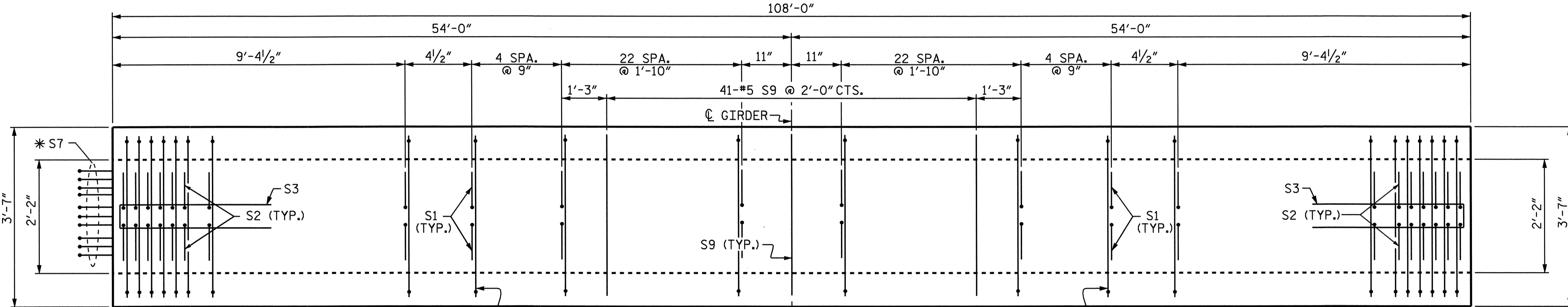
SECTION B-B

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

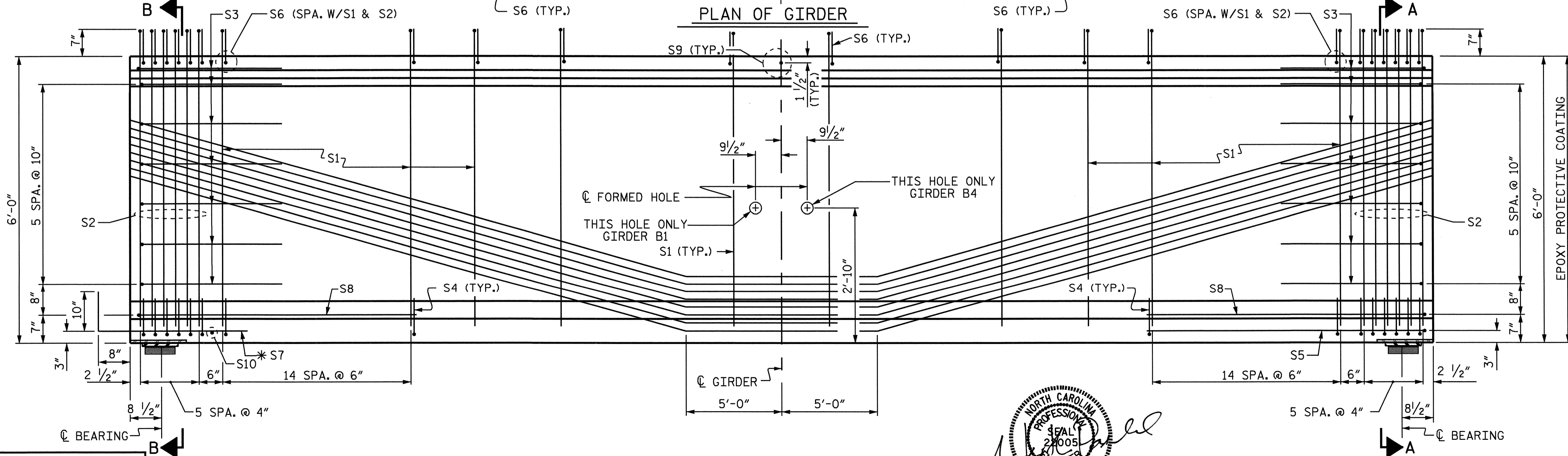


1/2" Ø LOW RELAXATION STRAND LAYOUT

NOTE: THE UPWARD FORCE OF DRAPED STRANDS IS 21,801 kips.



PLAN OF GIRDER



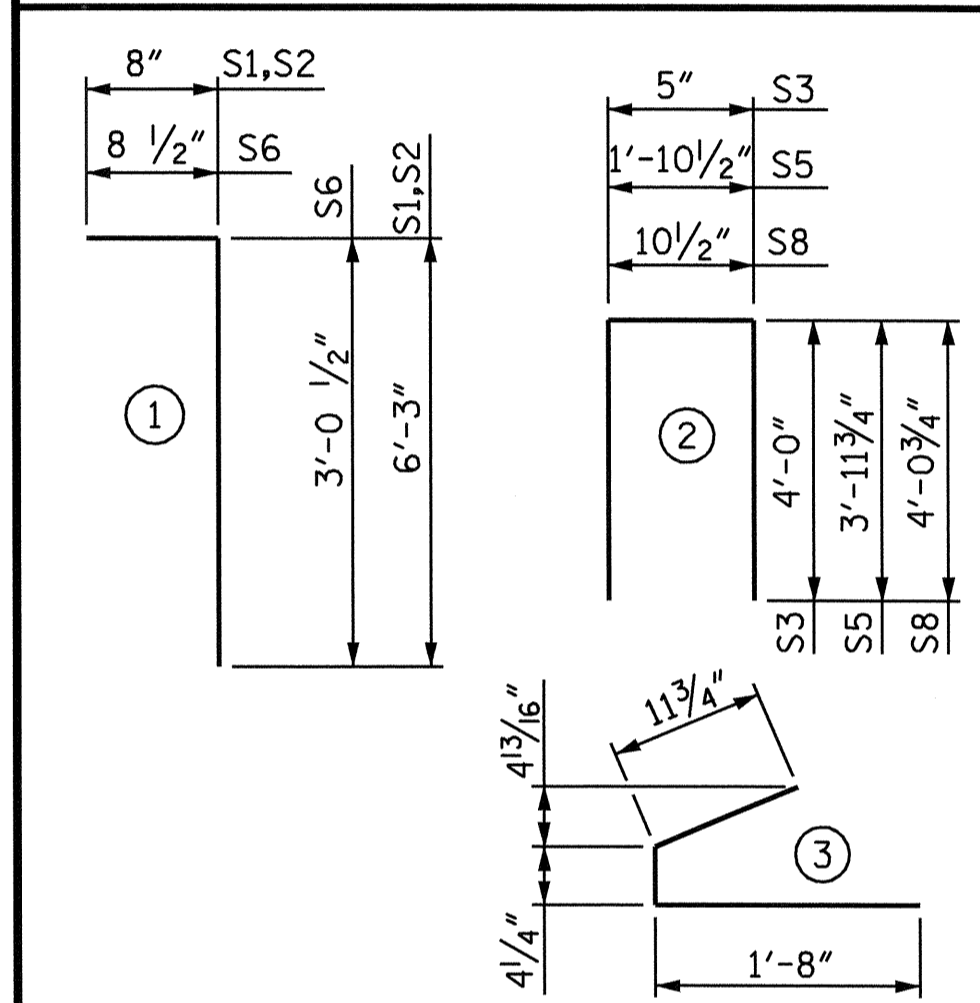
ELEVATION OF GIRDER

1/2" Ø L.R. GRADE 270 STRANDS		
AREA (SQ. INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	168	#4	1	6'-11"	776
S2	24	#5	1	6'-11"	173
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	192	#5	1	3'-9"	751
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	41	#5	STR	3'-3"	139
S10	1	#3	STR	1'-10"	1

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

BAR TYPES	
ALL BAR DIMENSIONS ARE OUT-TO-OUT	



QUANTITIES FOR ONE GIRDER		
REINFORCING STEEL	8000 PSI CONCRETE	1/2" Ø L.R. STRAND
LB.	C.Y.	No.
2154	23.1	46

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	108.000	432.000

PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 2 OF 5
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SPAN B
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD

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

SHEET NO.	
S-9	TOTAL SHEETS
27	

ASSEMBLED BY : A.M.KEETER DATE : 11/28/05
 CHECKED BY : J.D. HAWK DATE : 1/16/06
 DRAWN BY : EEM 2/6/97 REV. 8/16/99 RWW/LES
 CHECKED BY : VAP 2/6/97 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM



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

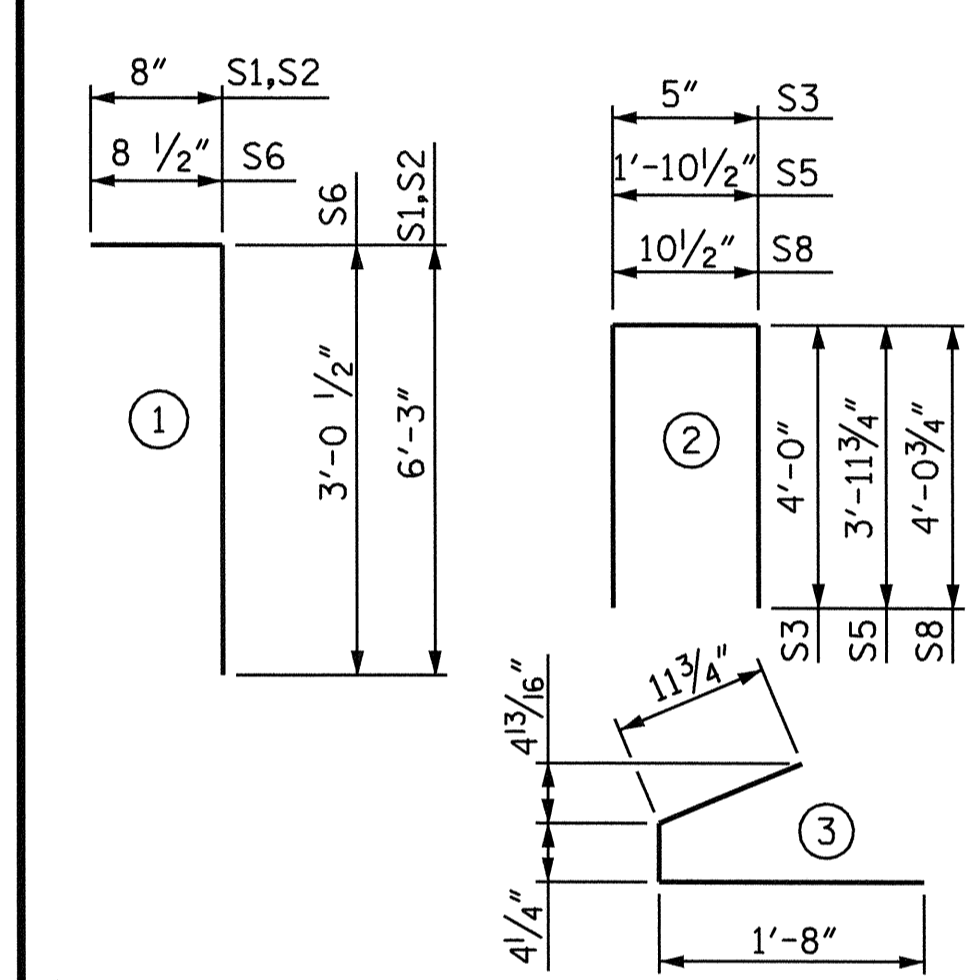
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	136	#4	1	6'-11"	628
S2	24	#5	1	6'-11"	173
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	160	#5	1	3'-9"	626
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	30	#5	STR	3'-3"	105
S10	1	#3	STR	1'-10"	1

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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

REINFORCING STEEL	8000 PSI CONCRETE	0.6" Ø L.R. STRAND
LB.	C.Y.	No.
1847	17.8	20

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
4	83.000	332.000

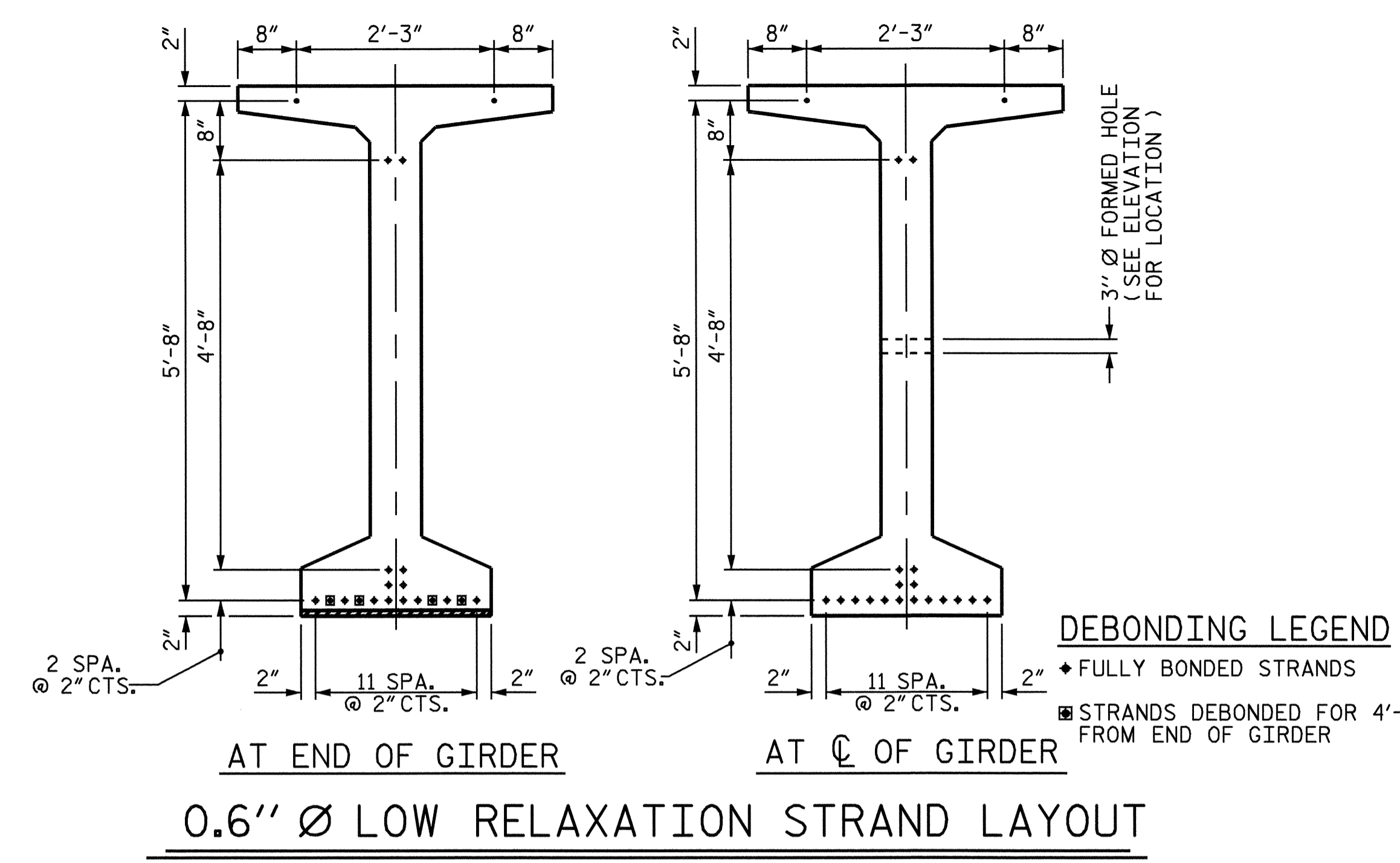
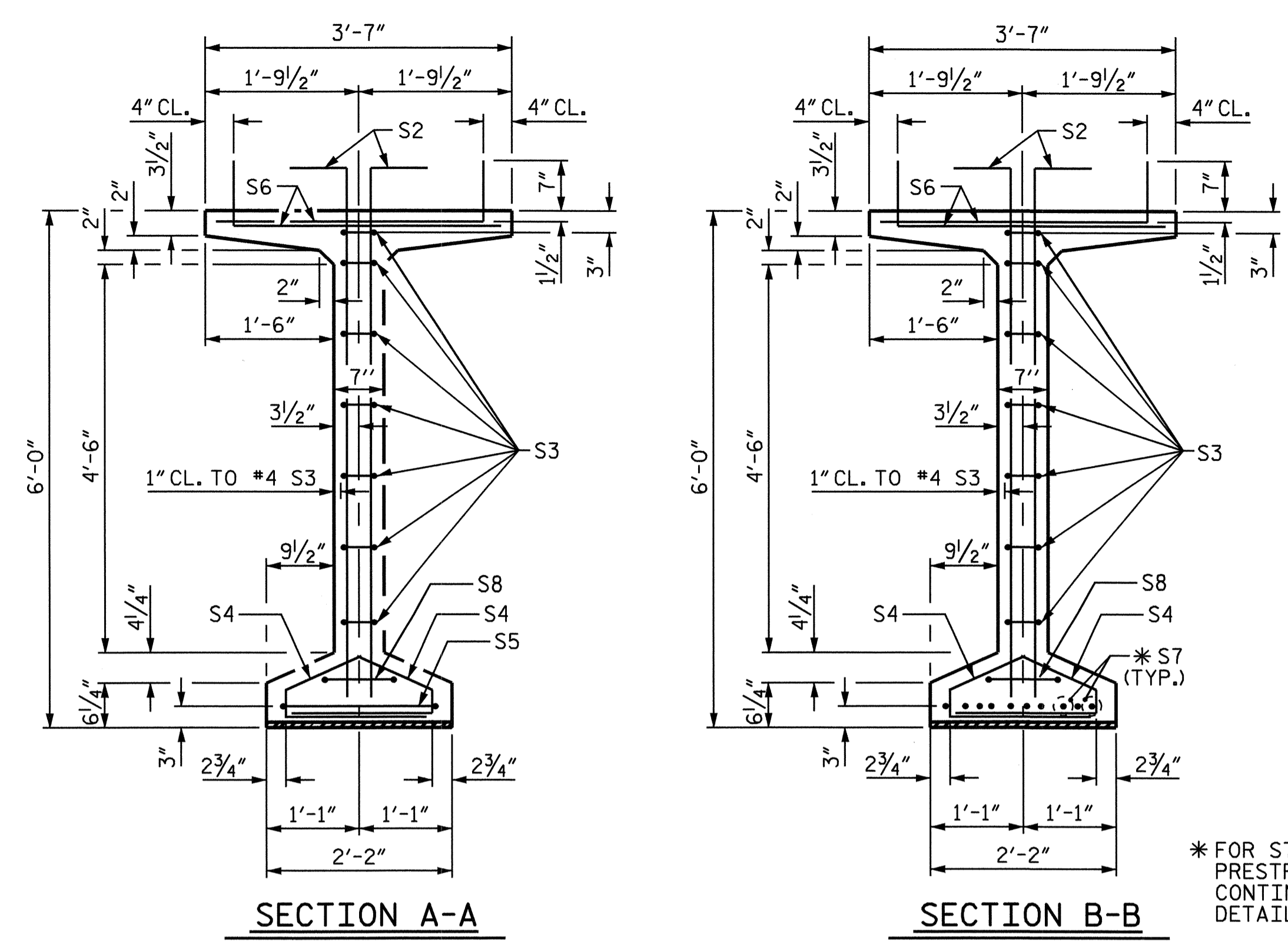
PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 3 OF 5

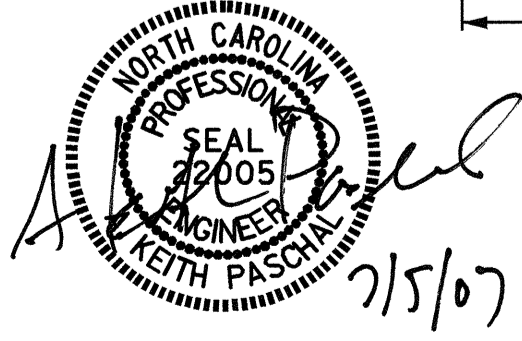
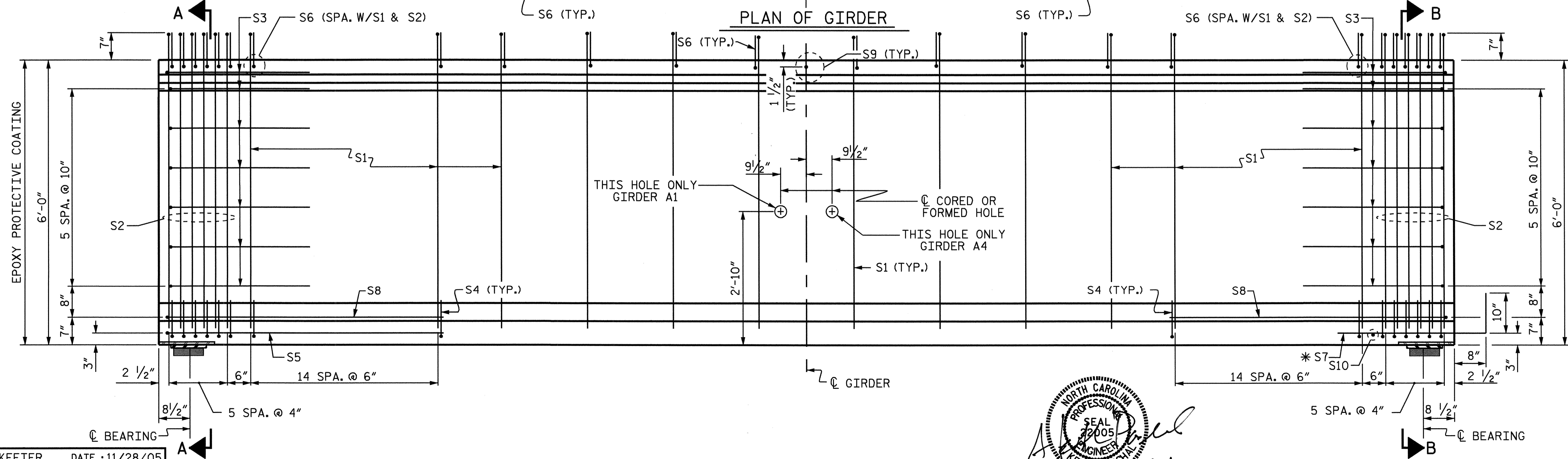
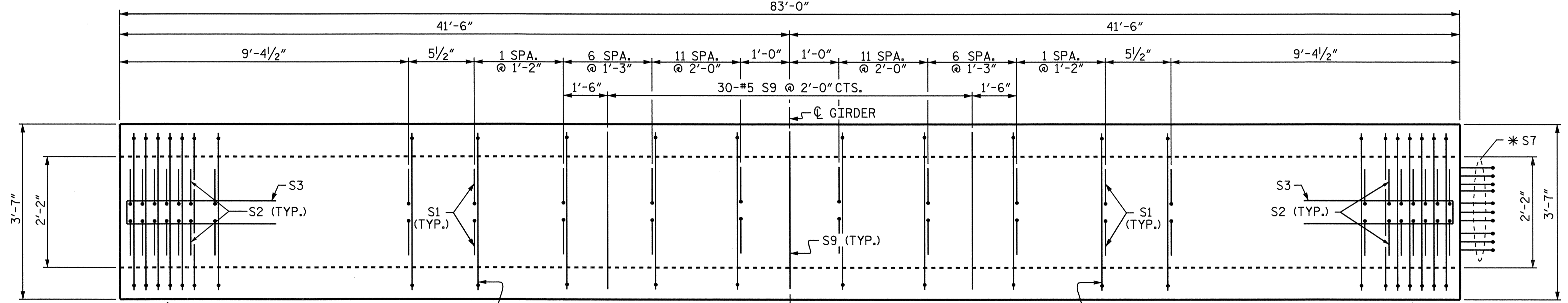
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SPAN A
 OPTIONAL
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø PARTIALLY
 DEBONDED STRANDS)

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

STD. NO. PCGD10



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



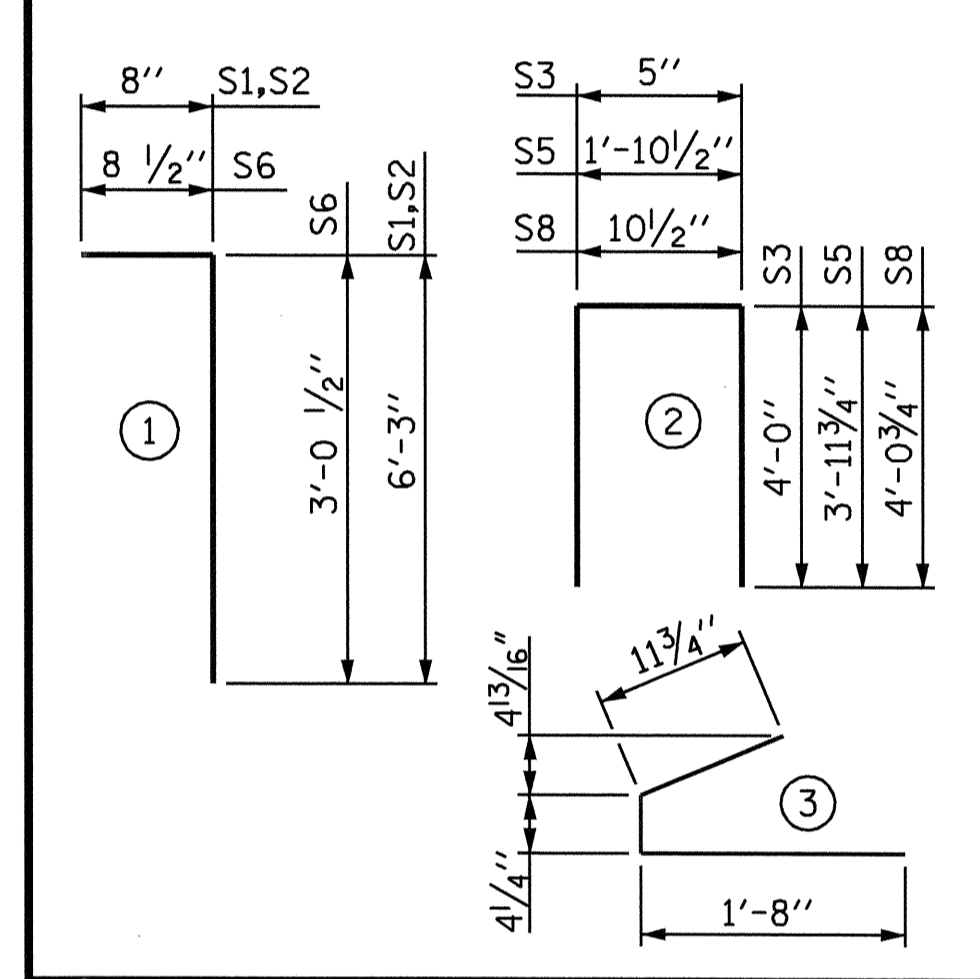
ASSEMBLED BY : A.M.KEETER	DATE : 11/28/05
CHECKED BY : J.D. HAWK	DATE : 1/16/06
DRAWN BY : EEM 2/6/97	REV. 8/16/99 RWW/LES
CHECKED BY : VAP 2/6/97	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

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	176	#4	1	6'-11"	813
S2	24	#5	1	6'-11"	173
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S5	1	#5	2	9'-10"	10
S6	200	#5	1	3'-9"	782
*S7	10	#5	STR	3'-8"	38
S8	2	#5	2	9'-0"	19
S9	41	#5	STR	3'-3"	139
S10	1	#3	STR	1'-10"	1

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

BAR TYPES
ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER			
REINFORCING STEEL	8000 PSI CONCRETE	0.6" Ø L.R. STRAND	
LB.	C.Y.	No.	
2222	23.1	38	

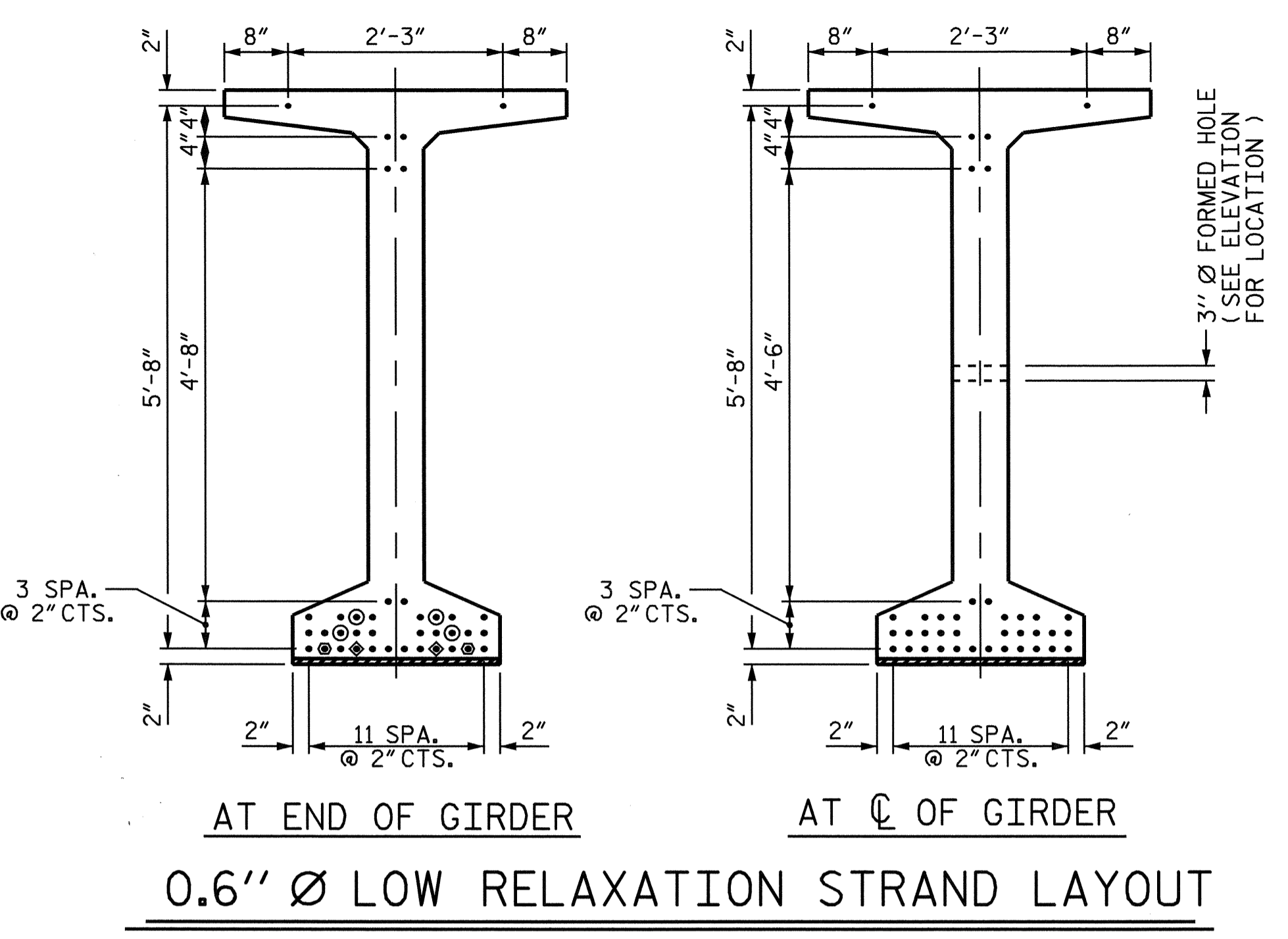
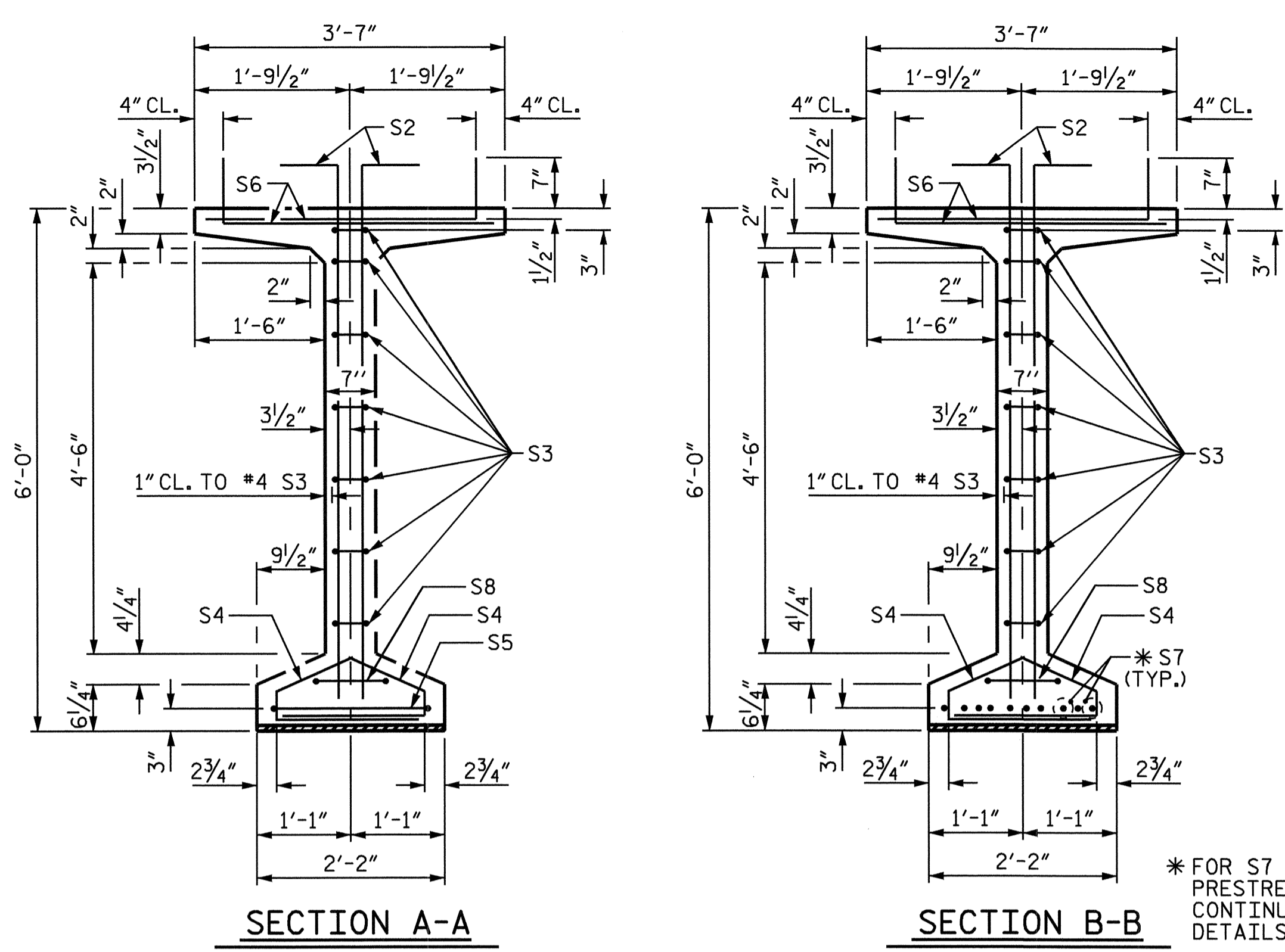
GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	108.000	432.000

PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 4 OF 5
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SPAN B
 OPTIONAL
 72" PRESTRESSED CONCRETE
 MODIFIED BULB TEE
 CONTINUOUS FOR LIVE LOAD
 (WITH 0.6" Ø PARTIALLY
 DEBONDED STRANDS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			27

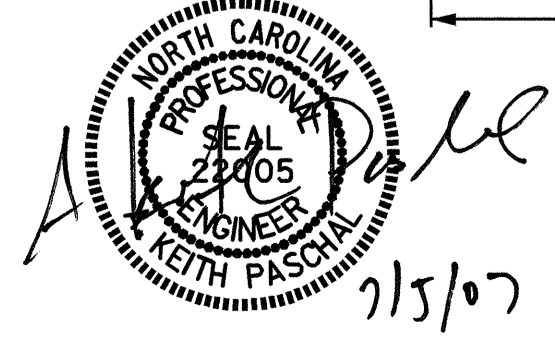
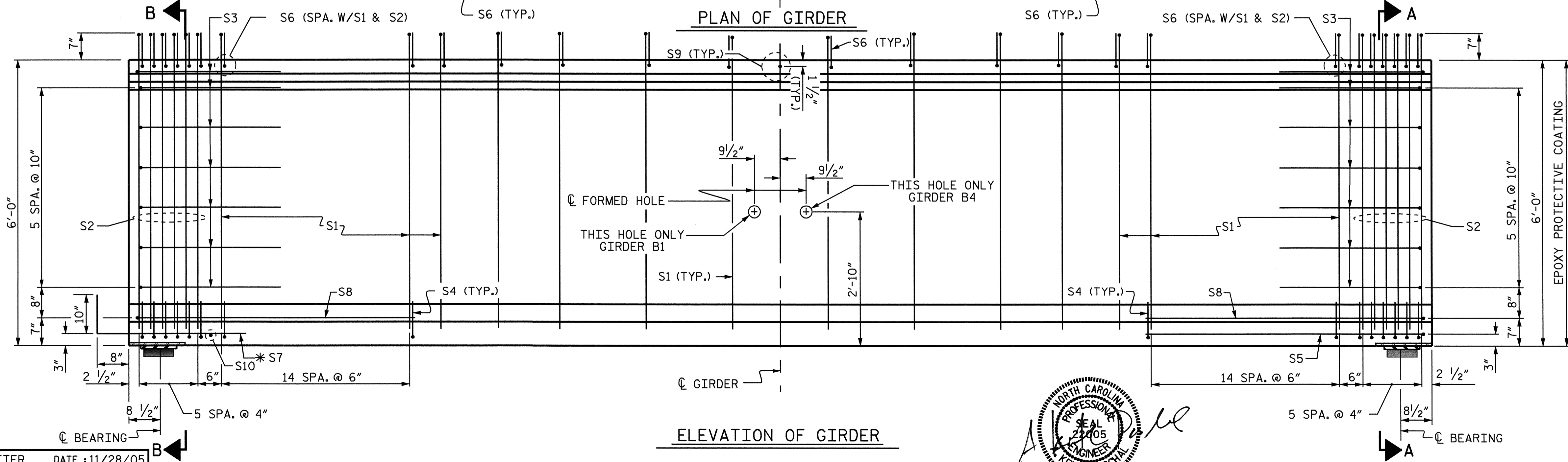
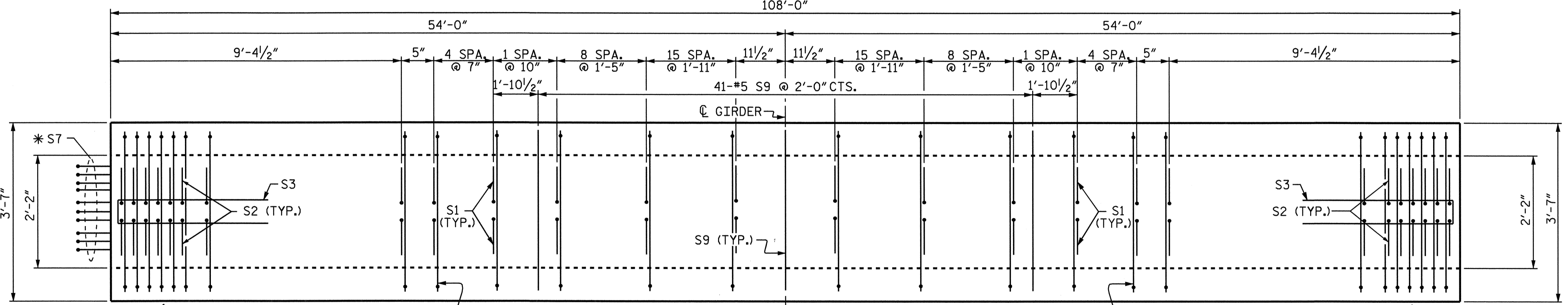
STD. NO. PCGD10



DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

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



ASSEMBLED BY : A.M.KEETER DATE : 11/28/05
 CHECKED BY : J.D. HAWK DATE : 1/16/06
 DRAWN BY : EEM 2/6/97 RWW/LES
 CHECKED BY : VAP 2/6/97 REV. 10/17/00 RWW/LES
 REV. 8/16/99 RWW/LES
 REV. 5/1/06 TLG/GM

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
1/2" Ø LOW RELAXATION	SPAN A											SPAN B											
	GIRDERS 1 THRU 4											GIRDERS 1 THRU 4											
	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)	0.000	0.052	0.098	0.135	0.158	0.166	0.158	0.135	0.098	0.052	0.000	0.000	0.108	0.203	0.279	0.326	0.343	0.326	0.279	0.203	0.108	0.000	
* DEFLECTION DUE TO SUPERIMPOSED D.L.	0.000	0.014	0.026	0.036	0.042	0.044	0.042	0.036	0.026	0.014	0.000	0.000	0.040	0.076	0.104	0.122	0.128	0.122	0.104	0.076	0.040	0.000	
FINAL CAMBER	0.000	7/16"	7/8"	1 3/16"	1 3/8"	1 7/16"	1 3/8"	1 3/16"	7/8"	7/16"	0.000	0.000	1 3/16"	1 1/2"	2 1/8"	2 7/16"	2 5/16"	2 7/16"	2 1/8"	1 1/2"	1 3/16"	0.000	

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																							
0.6" Ø LOW RELAXATION	SPAN A											SPAN B											
	GIRDERS 1 THRU 4											GIRDERS 1 THRU 4											
	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)	0.000	0.032	0.061	0.084	0.098	0.103	0.098	0.084	0.061	0.032	0.000	0.000	0.109	0.205	0.281	0.329	0.346	0.329	0.281	0.205	0.109	0.000	
* DEFLECTION DUE TO SUPERIMPOSED D.L.	0.000	0.014	0.026	0.036	0.042	0.044	0.042	0.036	0.026	0.014	0.000	0.000	0.039	0.075	0.102	0.120	0.126	0.120	0.102	0.075	0.039	0.000	
FINAL CAMBER	0.000	3/16"	7/16"	9/16"	1 1/16"	1 1/16"	1 1/16"	9/16"	7/16"	3/16"	0.000	0.000	1 3/16"	1 9/16"	2 1/8"	2 1/2"	2 5/8"	2 1/2"	2 1/8"	1 9/16"	1 3/16"	0.000	

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

NOTES

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

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

ALL REINFORCING STEEL SHALL BE GRADE 60.

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5200 PSI, EXCEPT FOR SPAN B WITH DEBONDED STRANDS SHALL NOT BE DONE UNTIL CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6200 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".

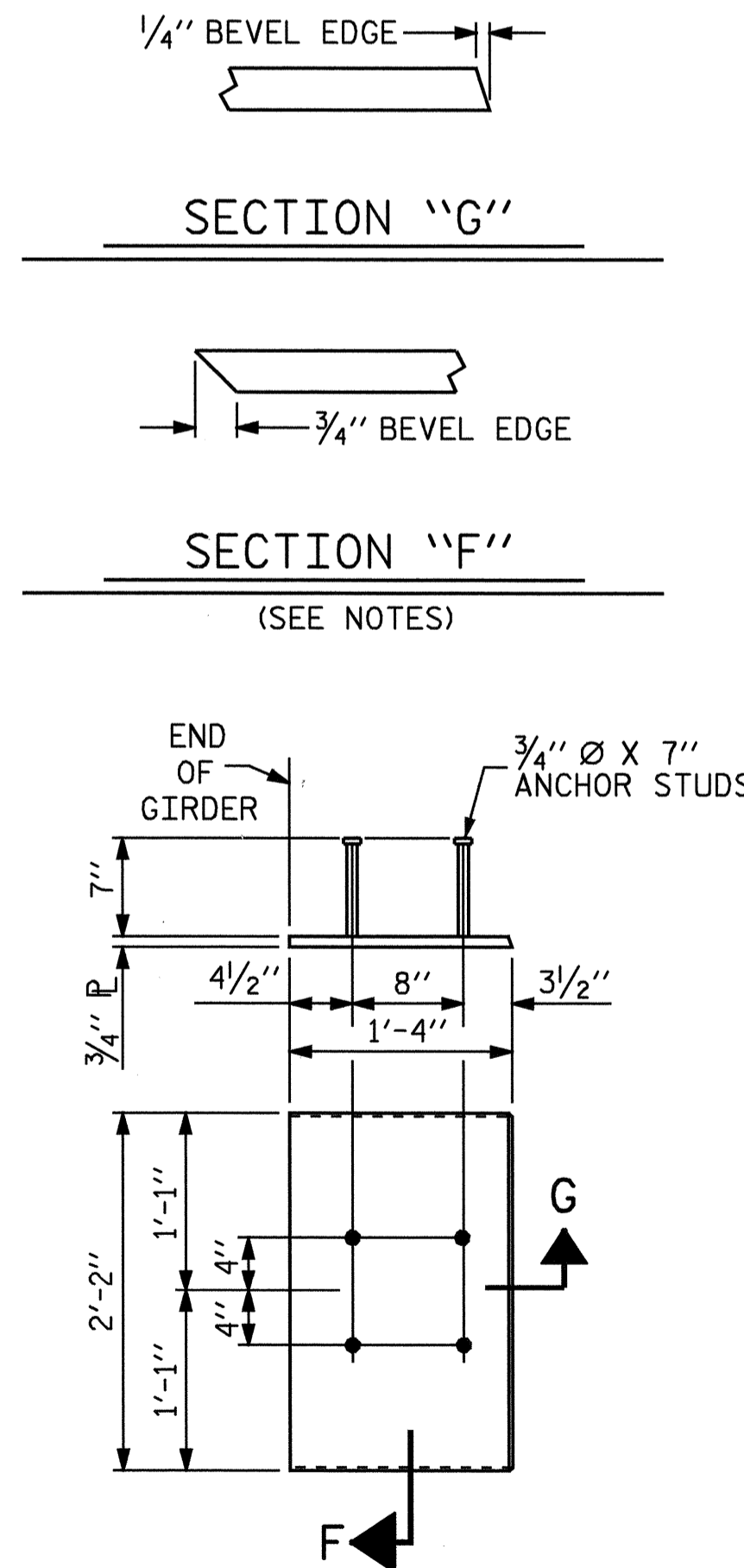
WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

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

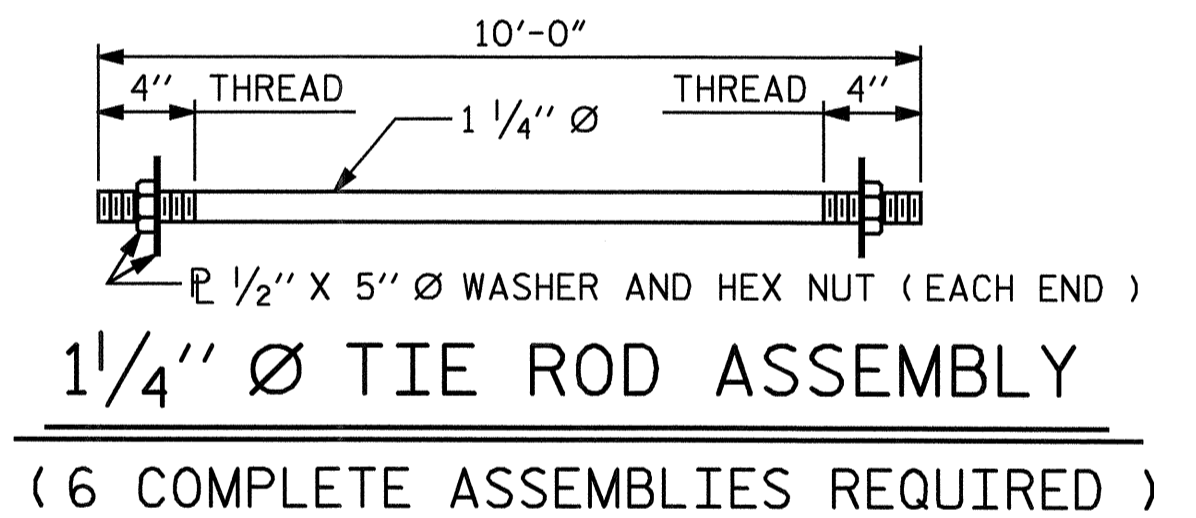
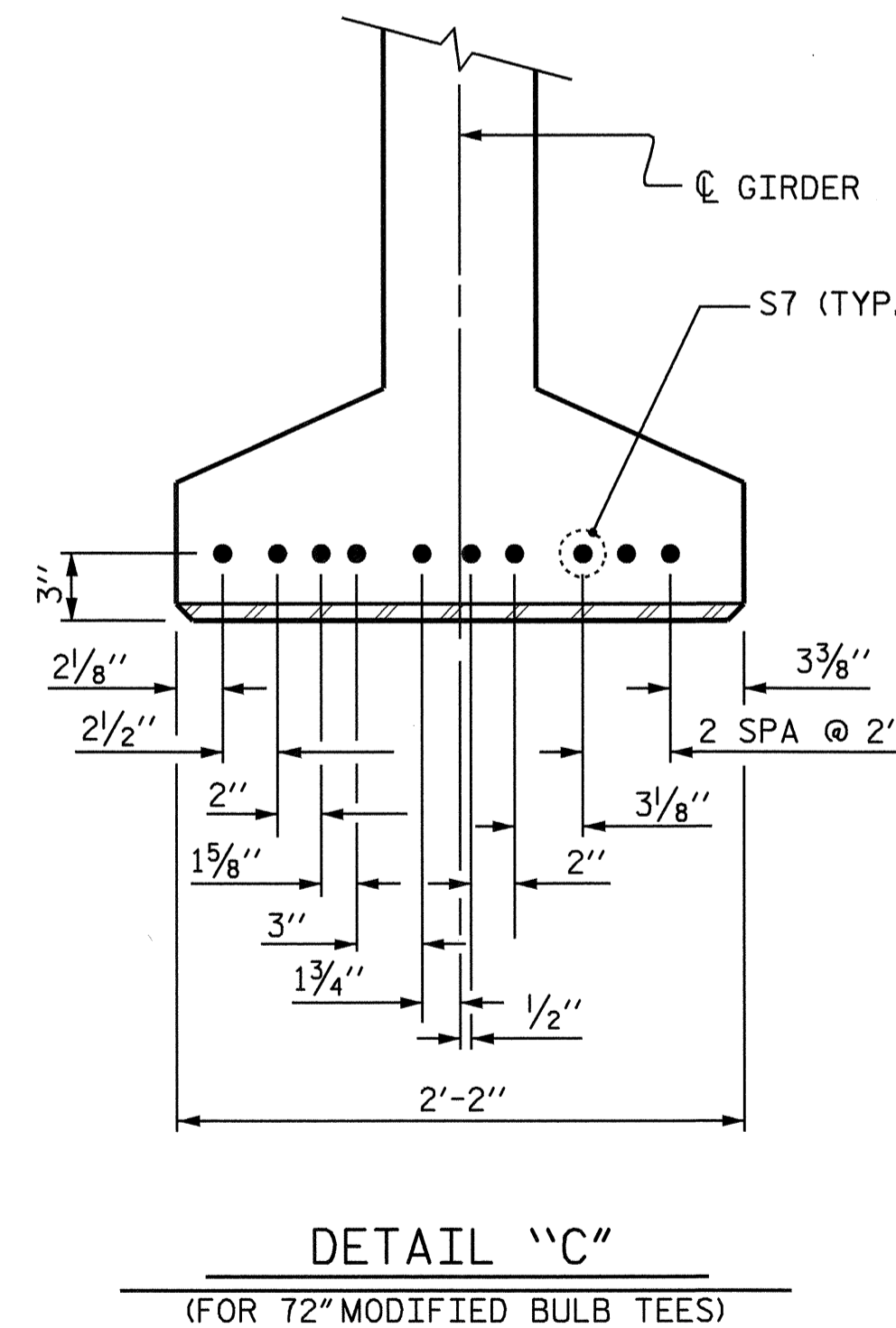
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR CRACK REPAIR OF PRESTRESSED CONCRETE GIRDER, SEE SPECIAL PROVISIONS.



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



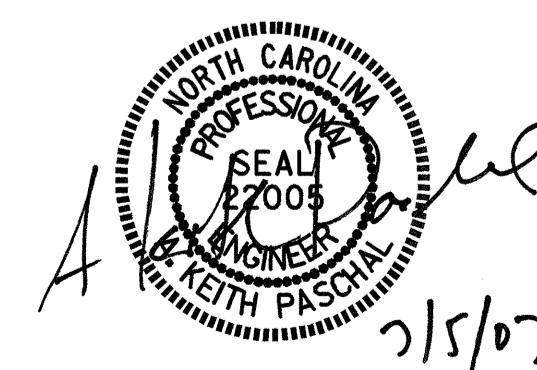
PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

PRESTRESSED CONCRETE
GIRDER CONTINUOUS
& DEAD LOAD DEFLECTIONS



ASSEMBLED BY : A.M.KEETER	DATE : 11/29/05
CHECKED BY : J.D. HAWK	DATE : 1/16/06
DRAWN BY : ELR 11/91	REV. 10/17/00 RWW/LES
CHECKED BY : GRP 11/91	REV. 7/10/01RR LES/RDR
	REV. 6/1/06 TLA/GM

05-JUL-2007 09:50
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jdhawk

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			27

STD.No.PCG11

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 NOT BE BURRED WITH A SHARP POINTED TOOL.

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

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

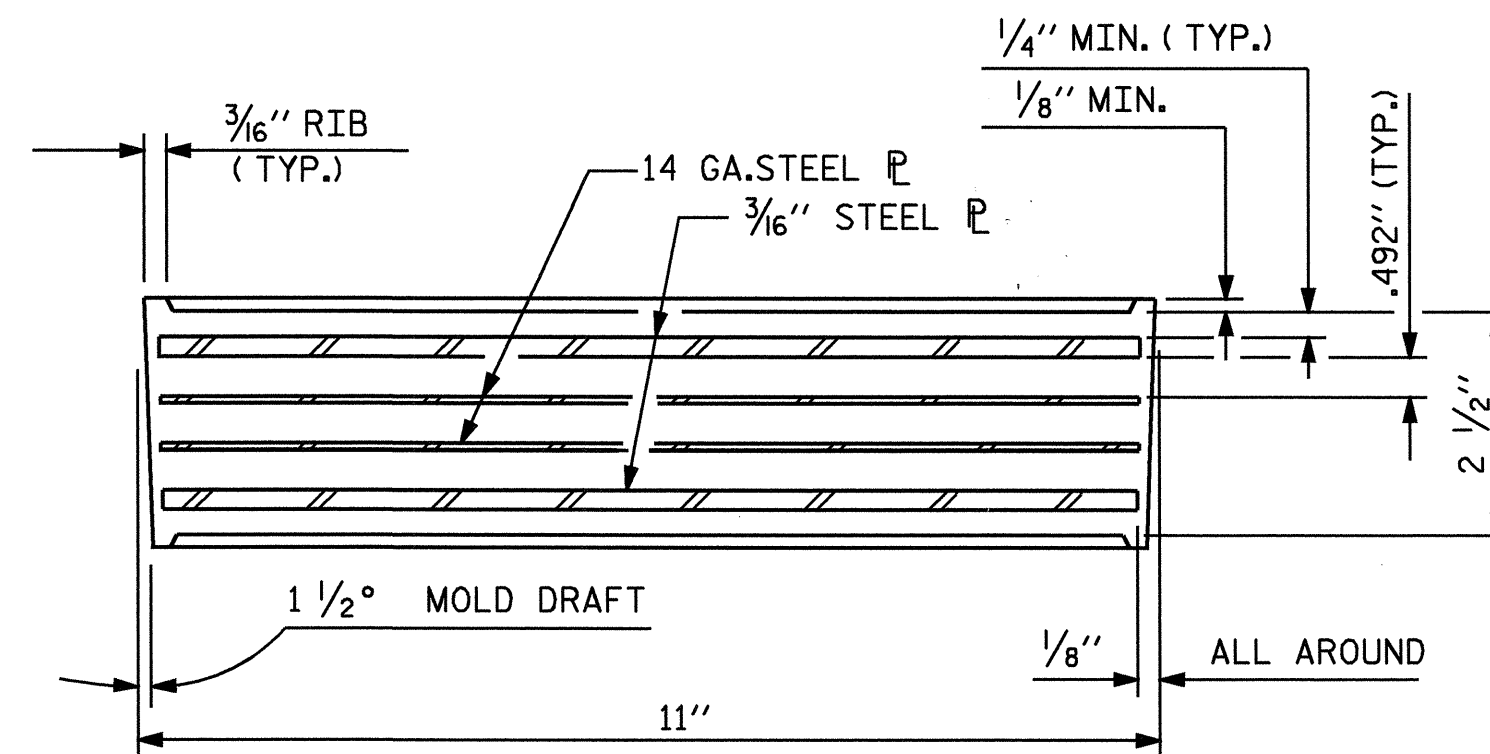
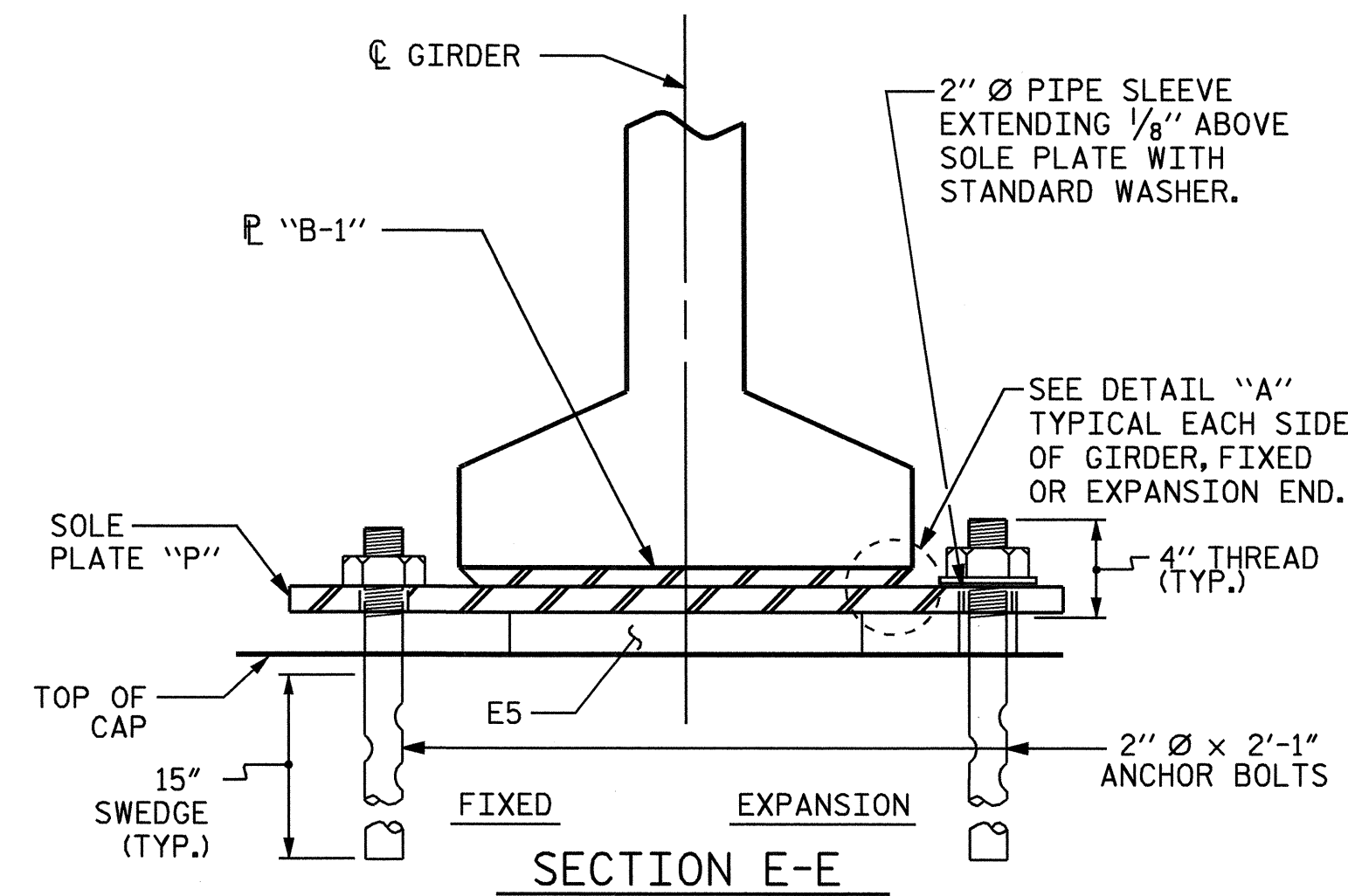
PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

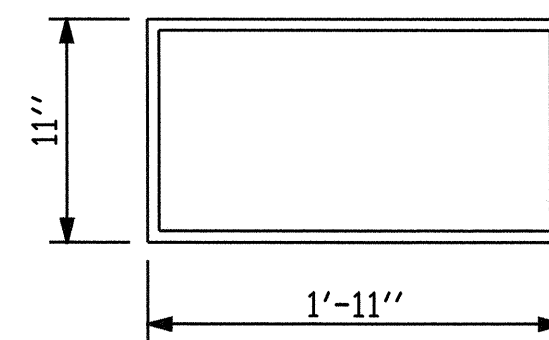
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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

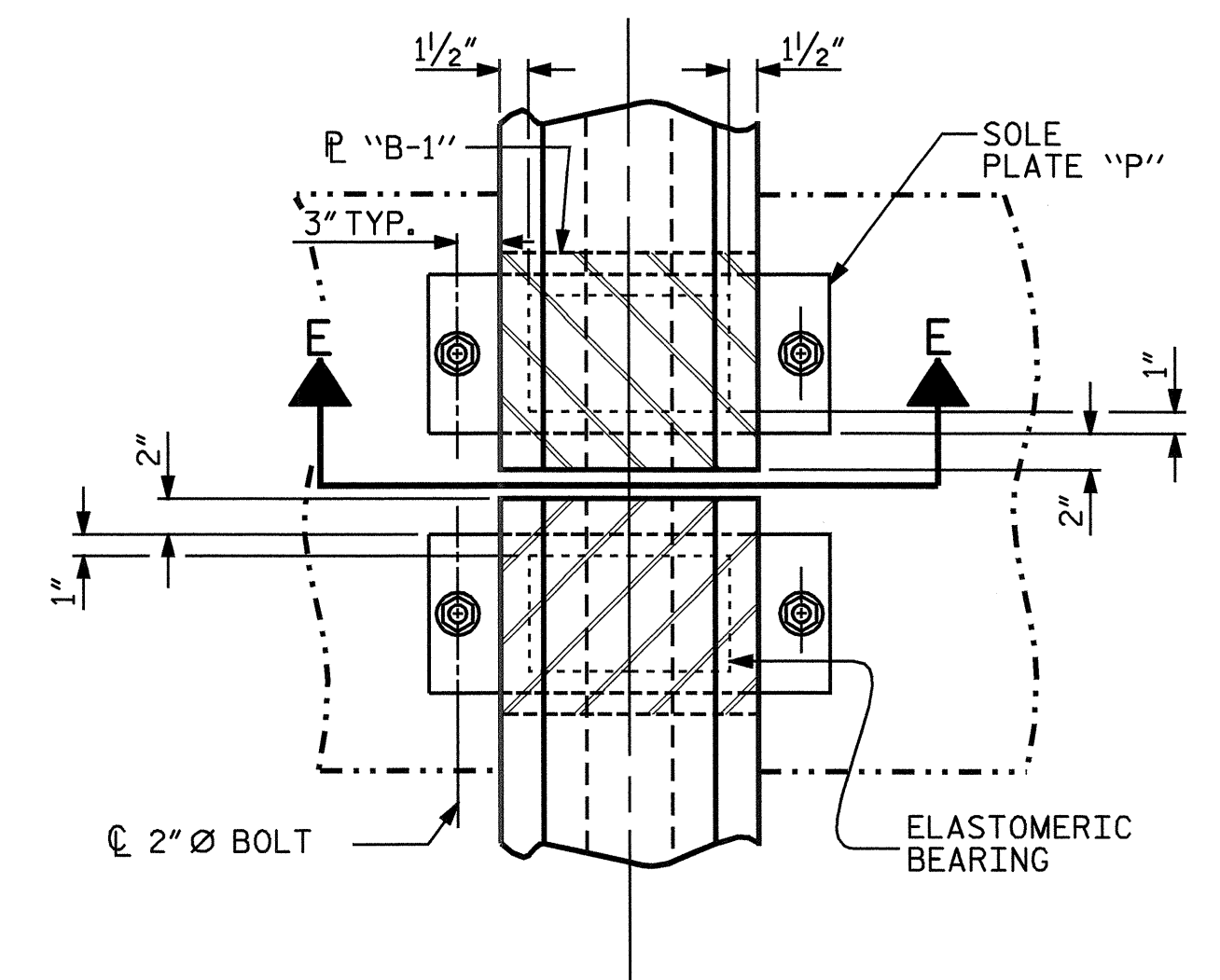
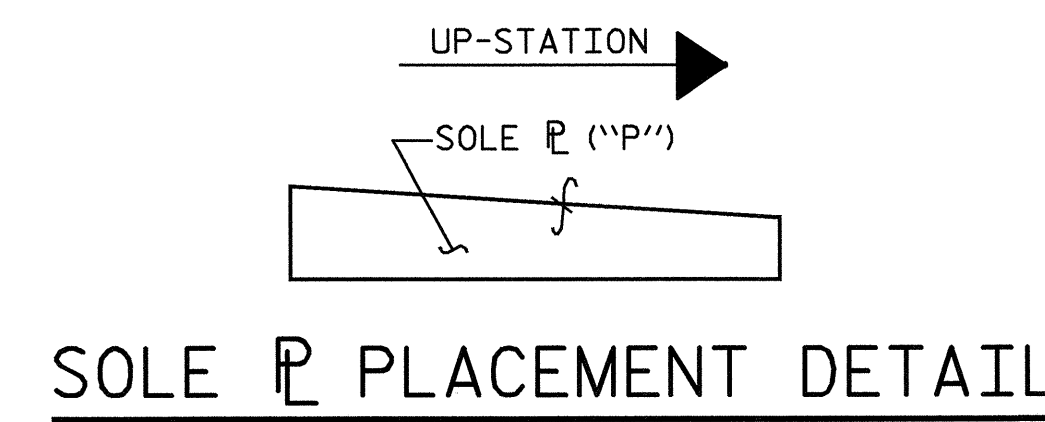
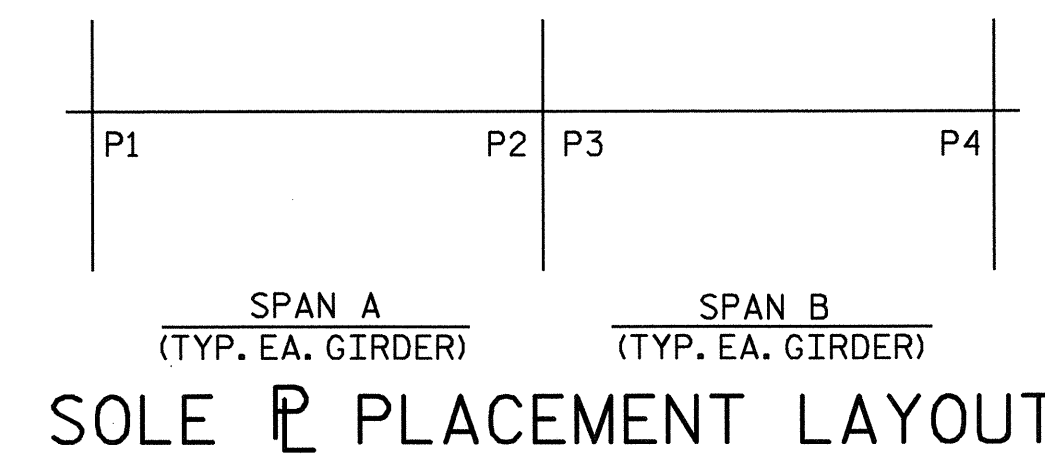
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



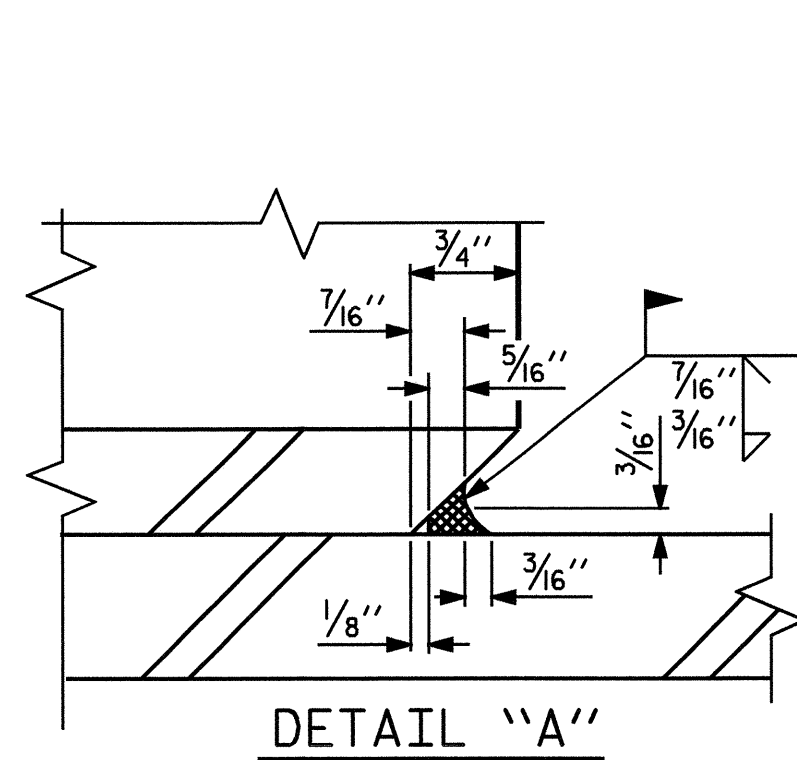
TYPICAL SECTION OF ELASTOMERIC BEARINGS



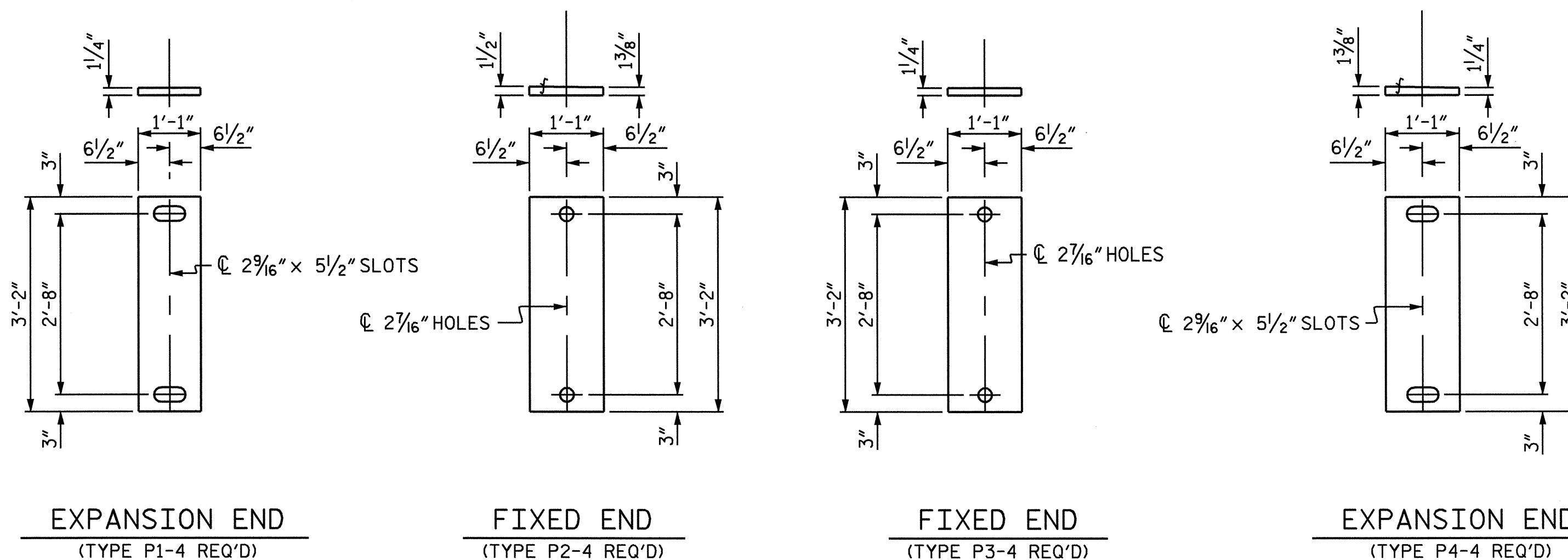
E5 (16 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING
TYPE VI



TYPICAL HALF-PLAN
(SHOWING CONTINUOUS BENT)



DETAIL "A"



SOLE PLATE DETAILS ("P")

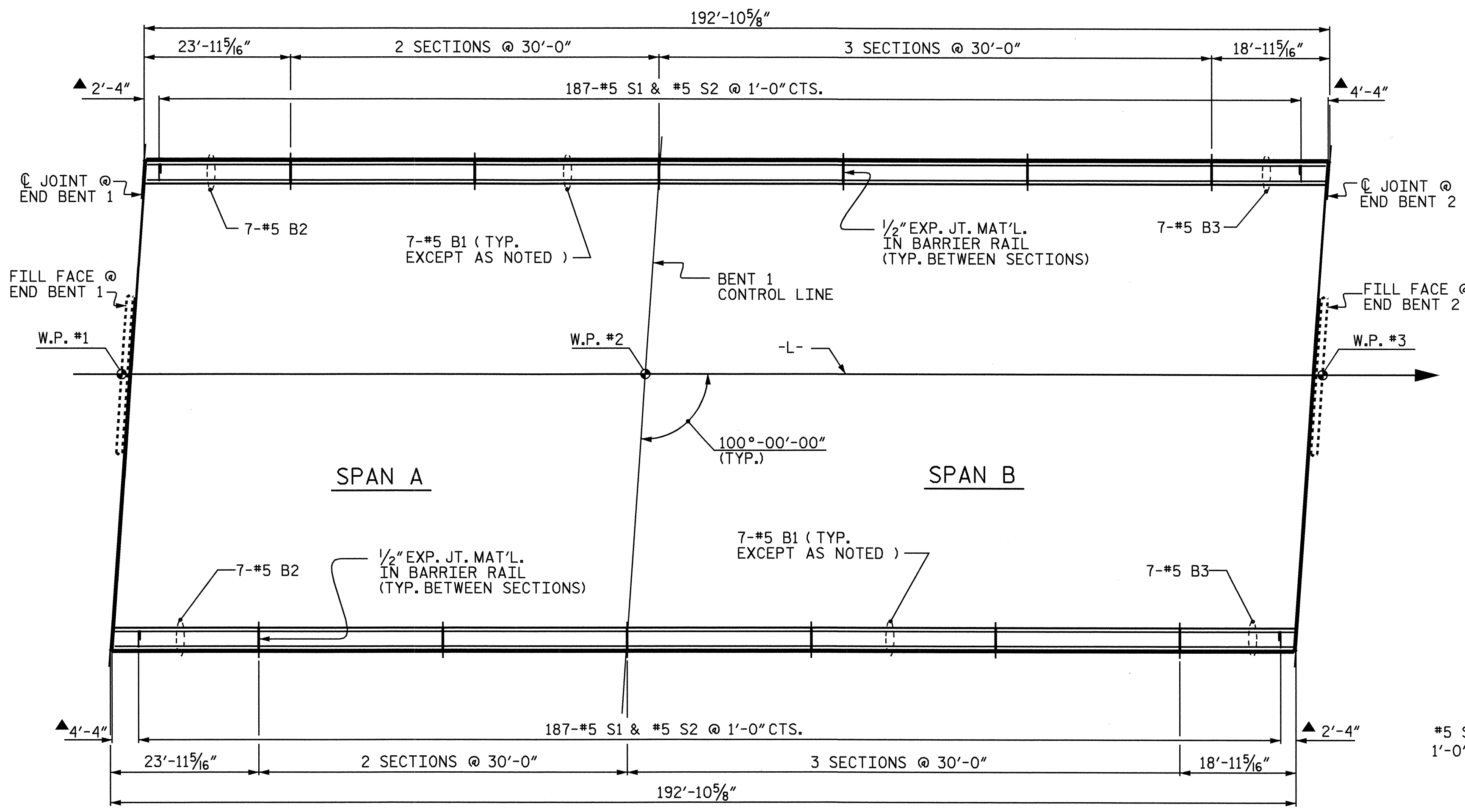
— LOAD RATINGS —	
TYPE VI	MAX.D.L.+ L.L. 211 K

PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-



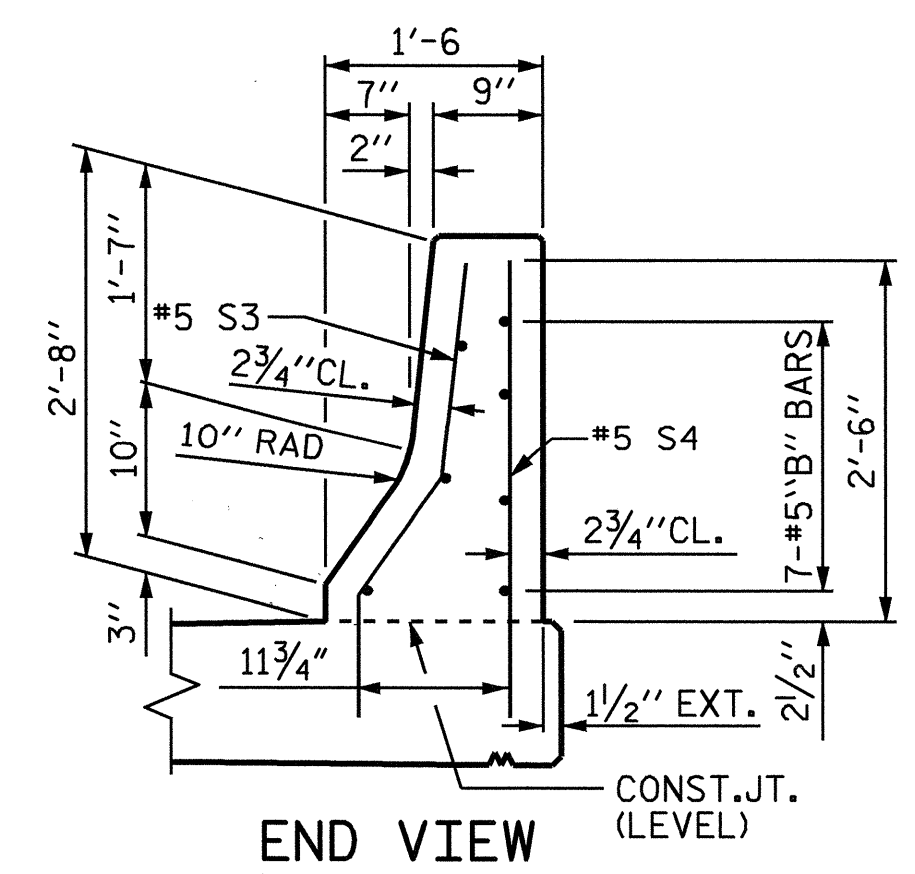
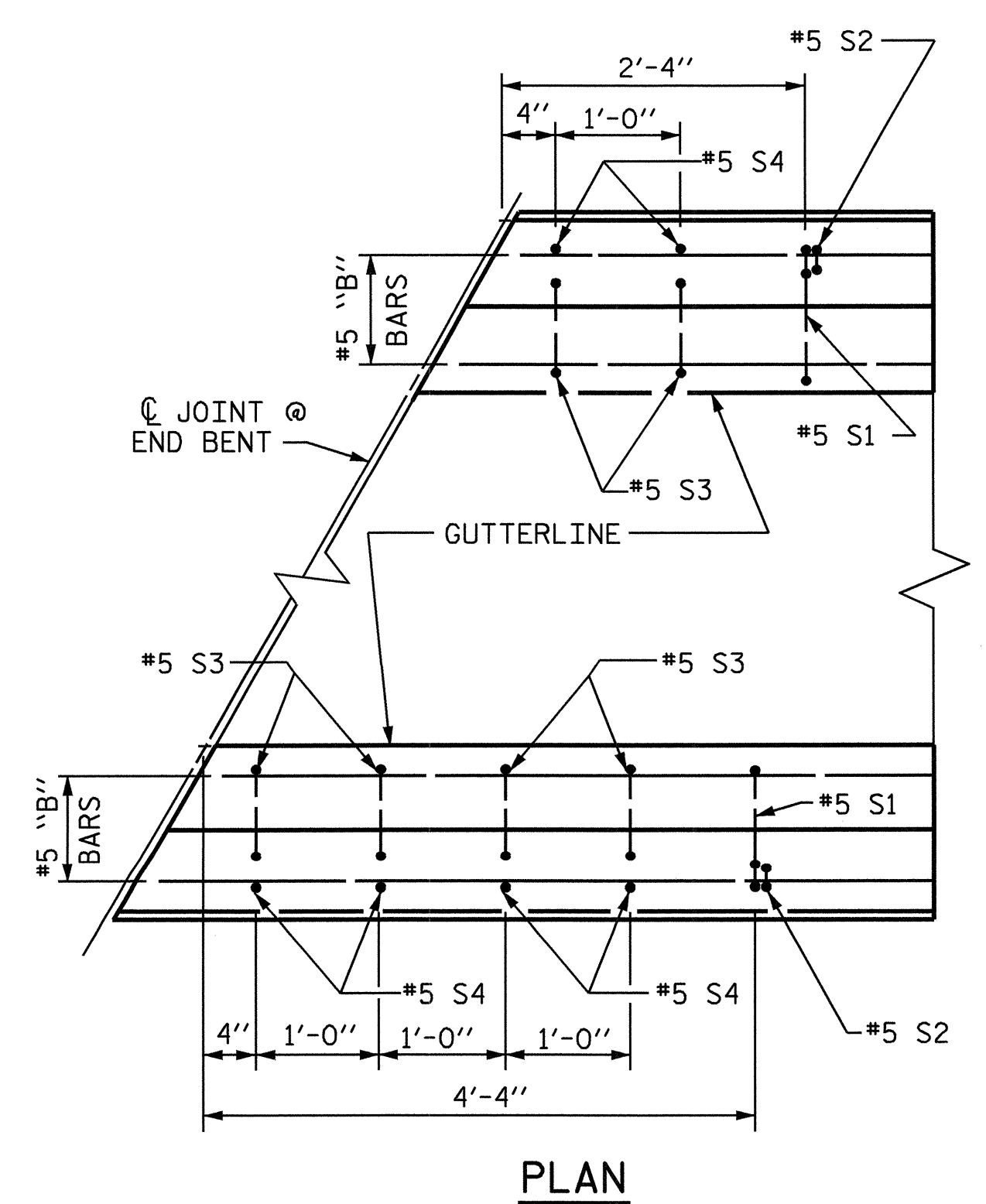
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD ELASTOMERIC BEARING DETAILS					
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-13
					TOTAL SHEETS 27

ASSEMBLED BY : A.M.KEETER DATE : 1/3/06
CHECKED BY : J.D. HAWK DATE : 12/5/06
DRAWN BY : EEM 2/97 REV. 8/16/99 RWW/LES
CHECKED BY : VAP 2/97 REV. 10/17/00 RWW/LES
REV. 5/1/06 TLG/GM



PLAN OF BARRIER RAIL

▲ FOR REINFORCING STEEL AT ENDS OF RAIL, SEE "END OF RAIL DETAILS".



END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS

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.

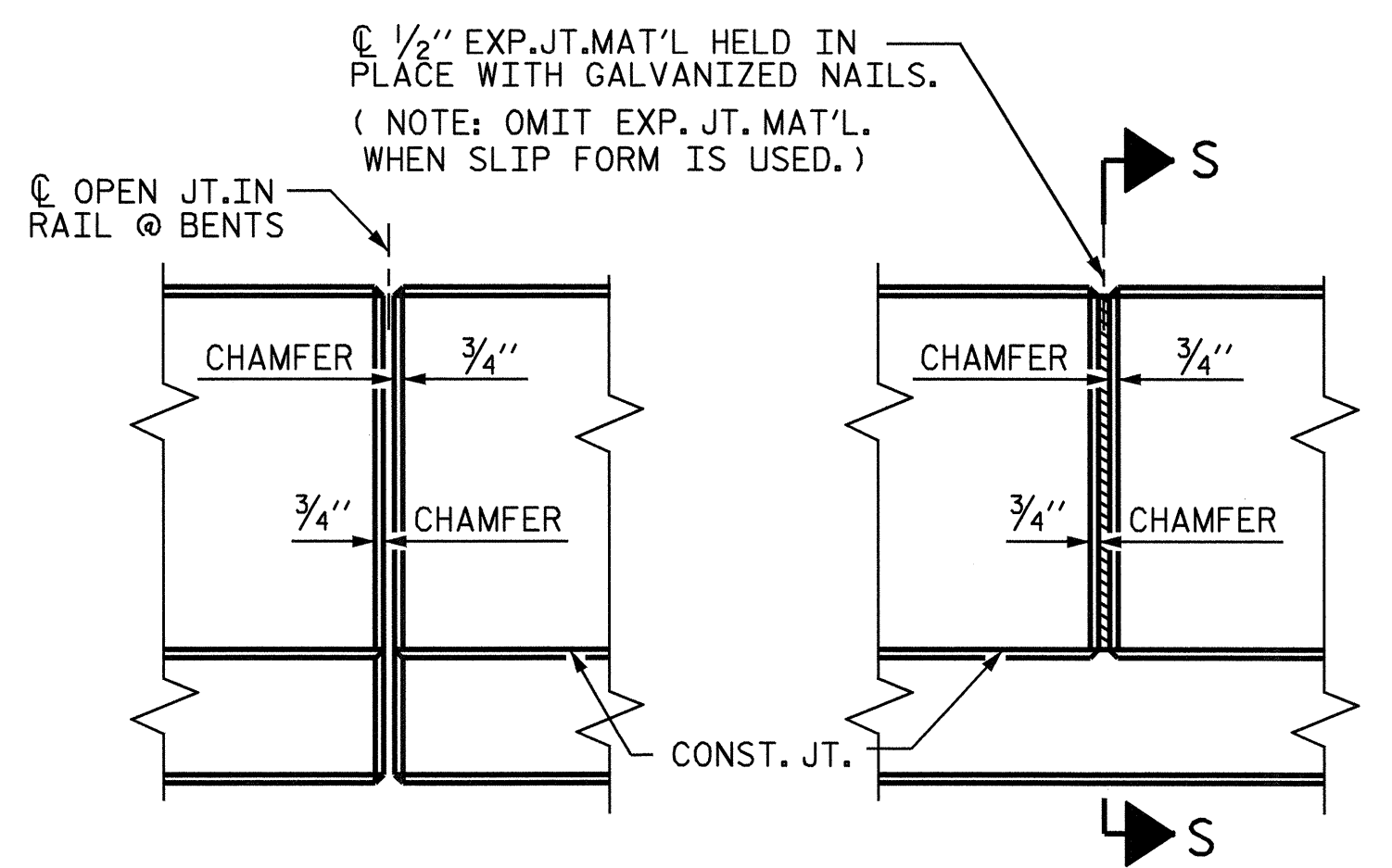
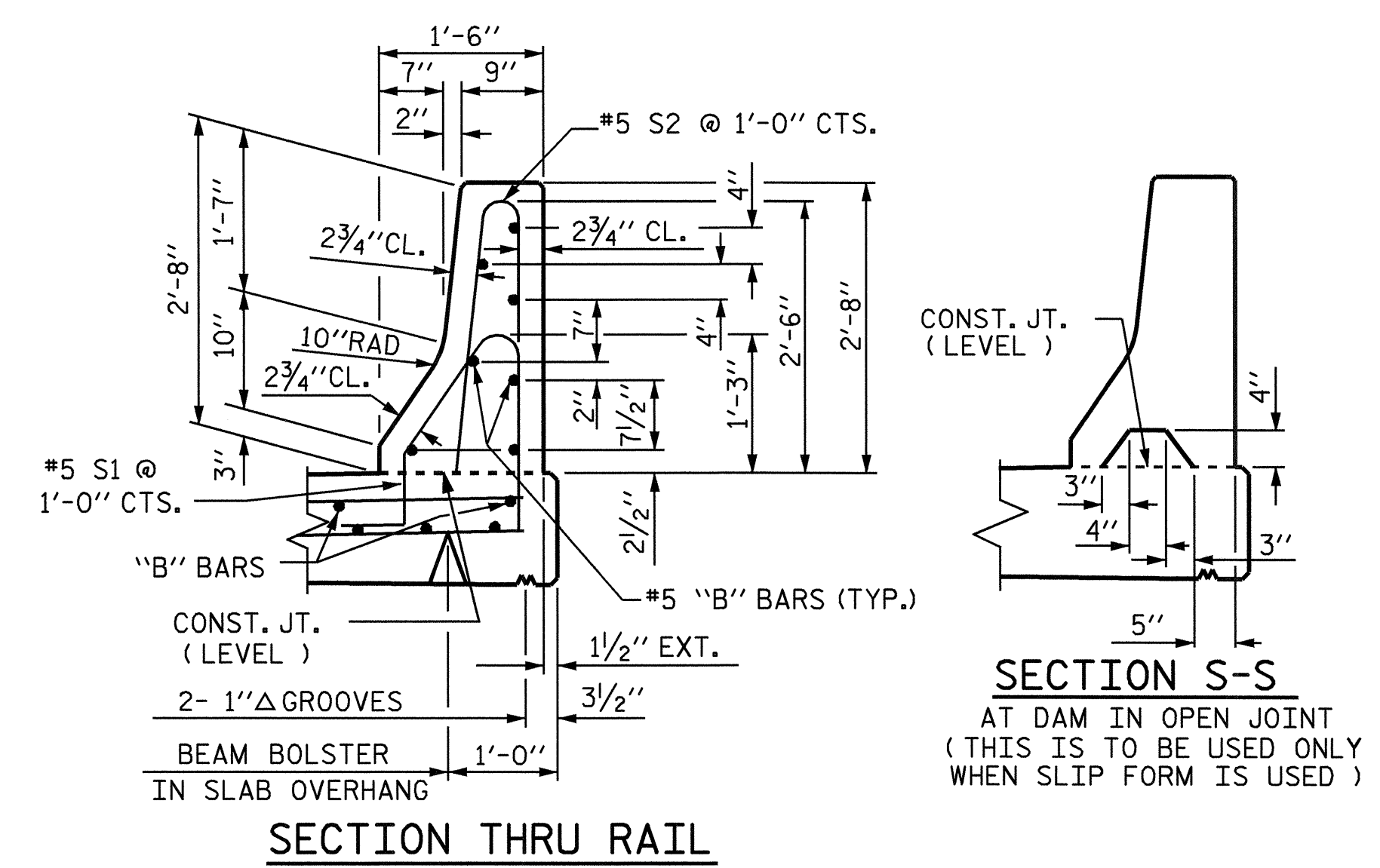
WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

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.

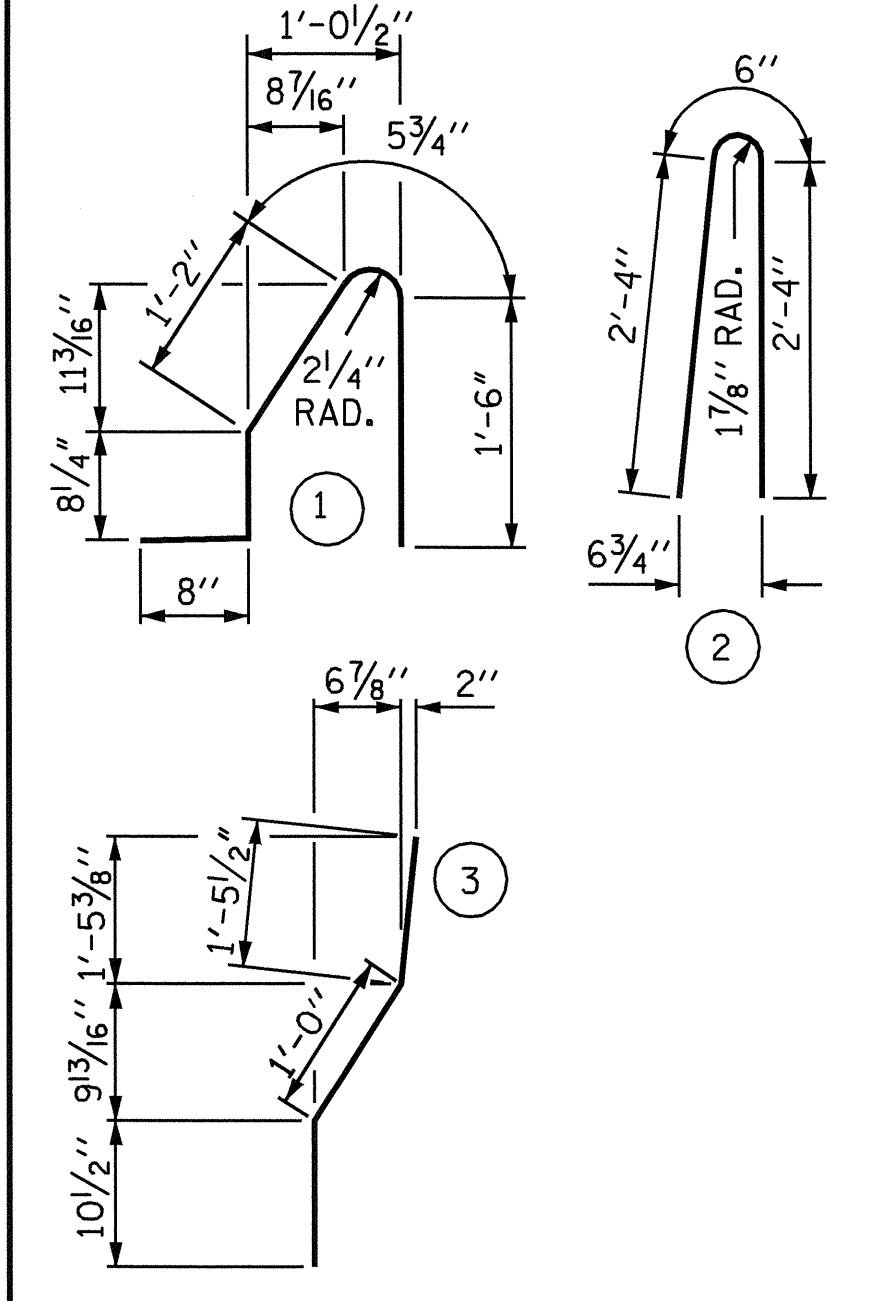
#5 S1 & S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN BARRIER RAIL.



BARRIER RAIL DETAILS



BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	70	#5	STR	29'-7"	2160
* B2	14	#5	STR	23'-5"	342
* B3	14	#5	STR	18'-5"	269
* S1	374	#5	1	4'-6"	1755
* S2	374	#5	2	5'-2"	2015
* S3	12	#5	3	3'-4"	42
* S4	12	#5	STR	3'-2"	40

* EPOXY COATED REINFORCING STEEL 6623 LBS.
 CLASS AA CONCRETE 38.6 CU. YDS.
 CONCRETE BARRIER RAIL 385.77 LIN. FT.

PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 1 OF 2

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			27

ASSEMBLED BY: A.M.KEETER DATE: 11/22/05
 CHECKED BY: J.D. HAWK DATE: 1/18/06
 DRAWN BY: ARB 5/87
 CHECKED BY: SJD 9/87

REV. 10/17/00 RWW/LES
 REV. 5/1/03R RWW/JTE
 REV. 5/1/06 TLA/GM

NOTES

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

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

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

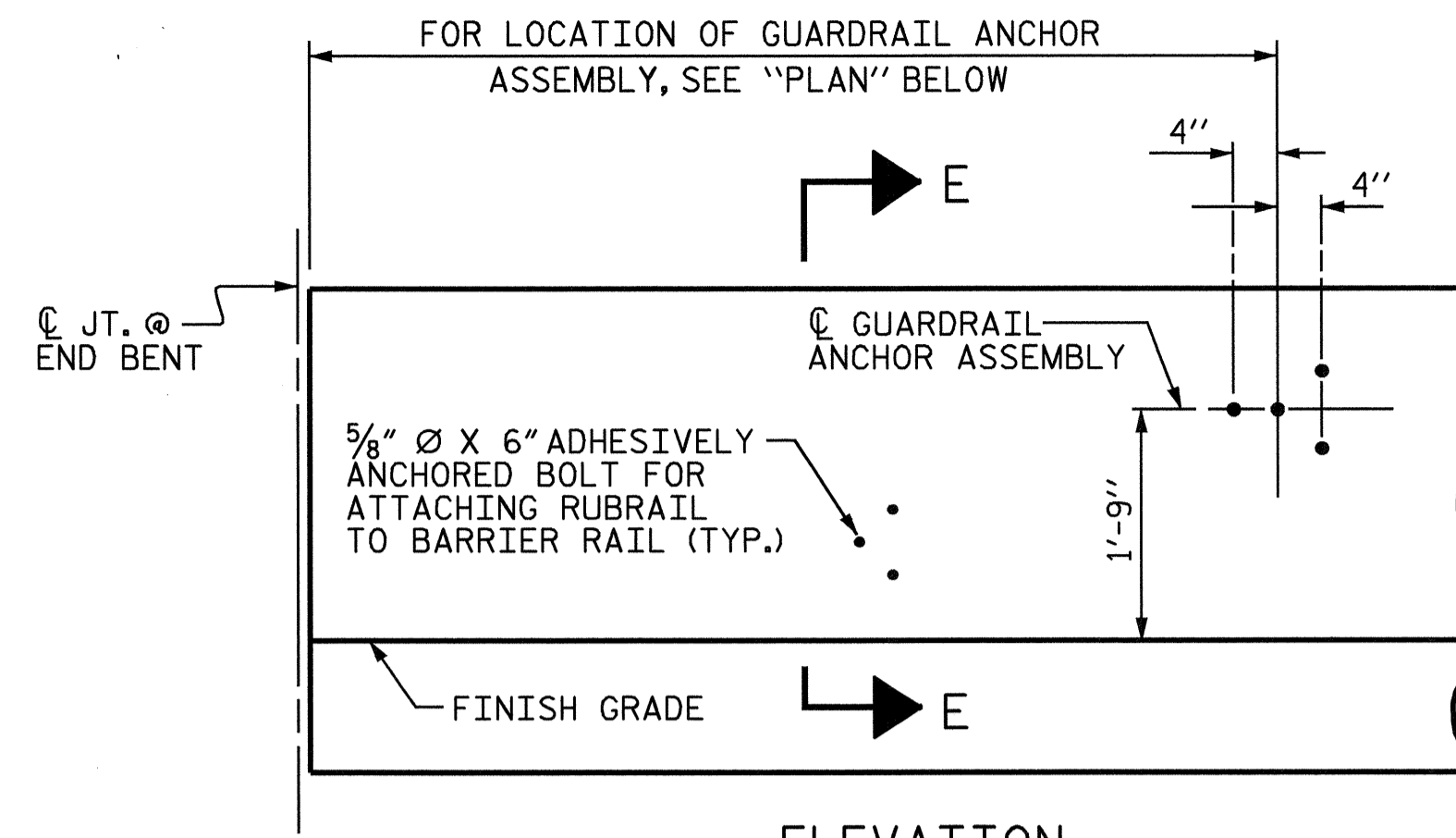
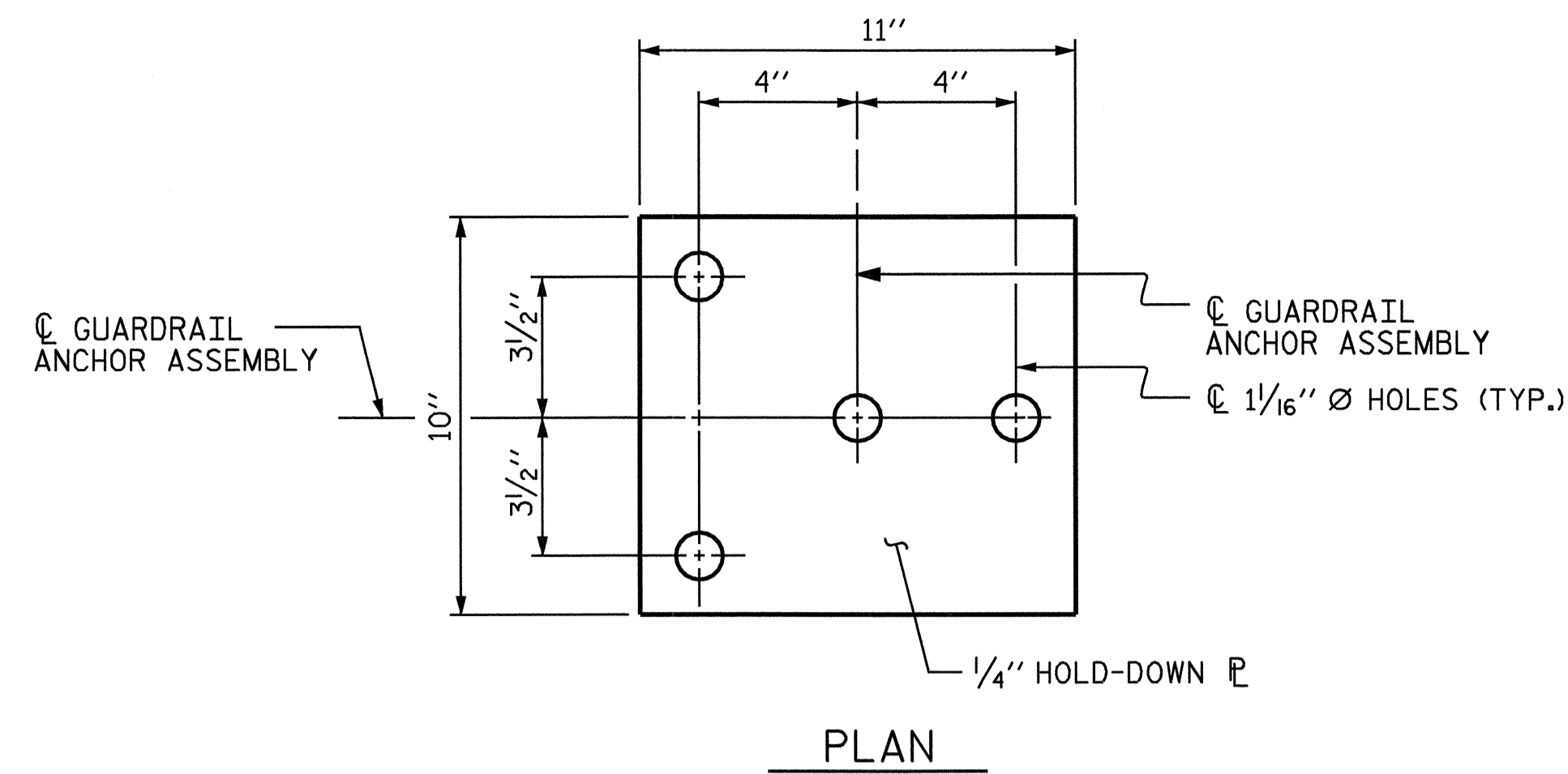
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

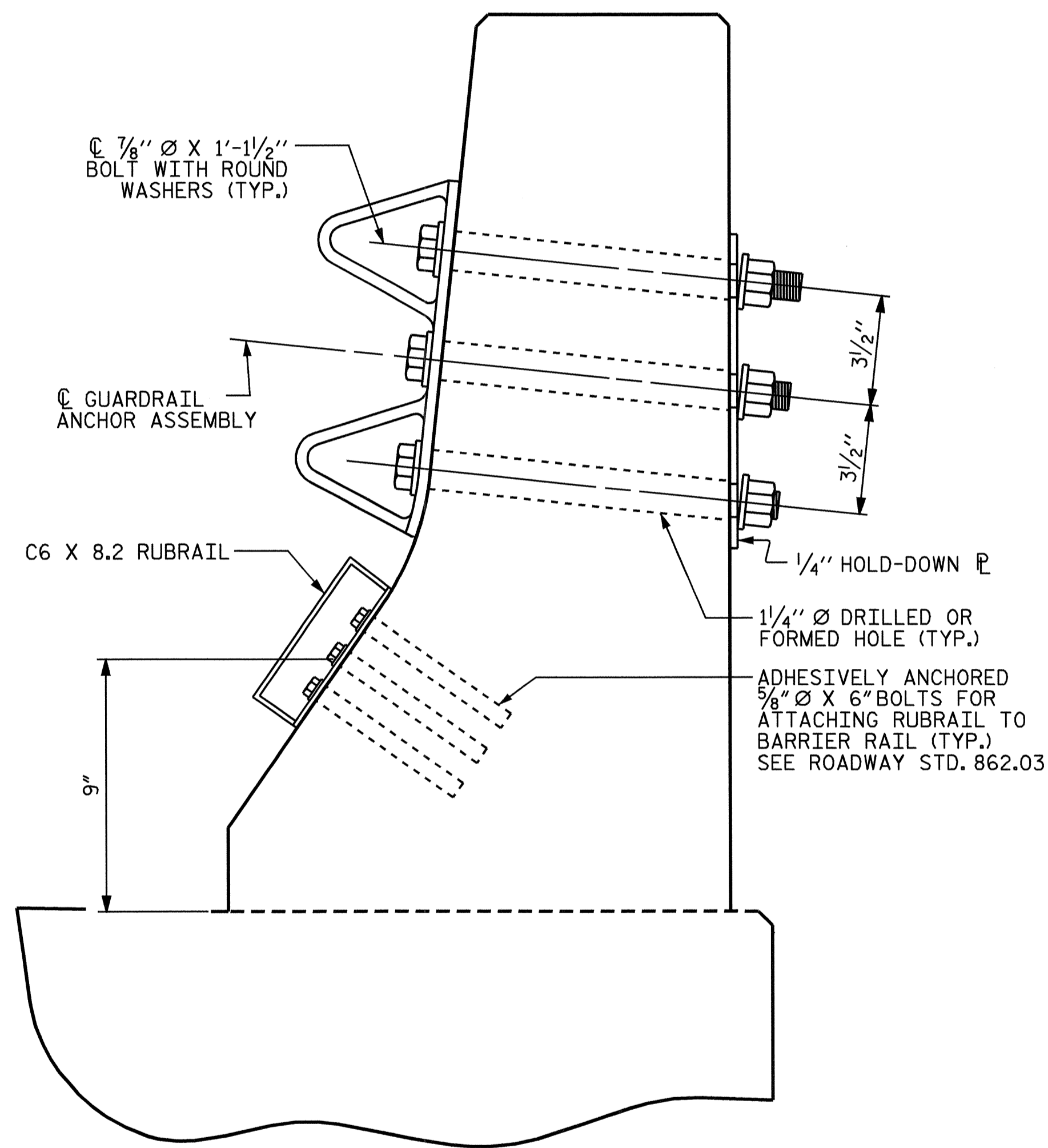
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 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 5/8" Ø X 6" BOLTS WITH WASHERS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

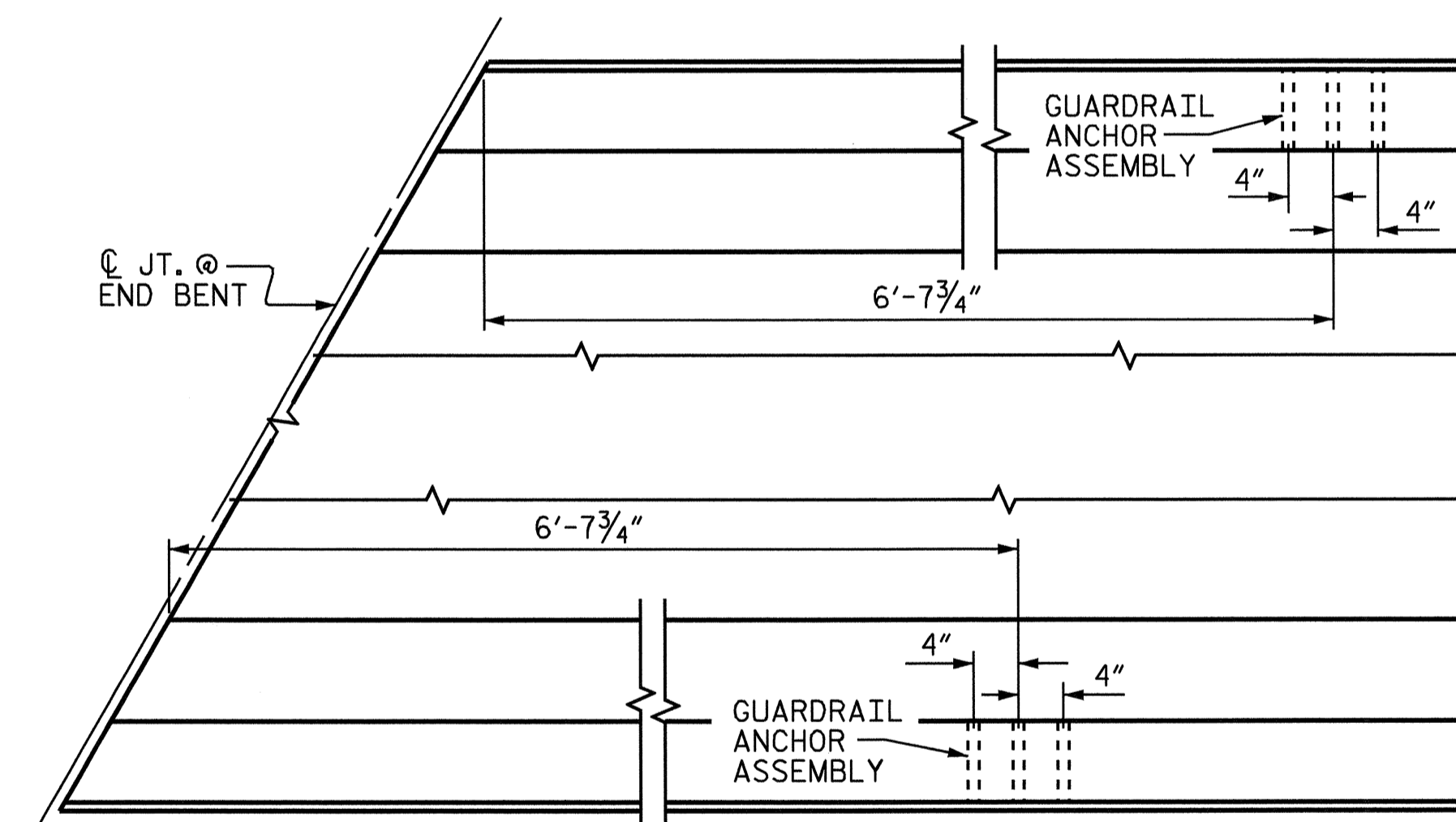


(FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03)



SECTION E-E

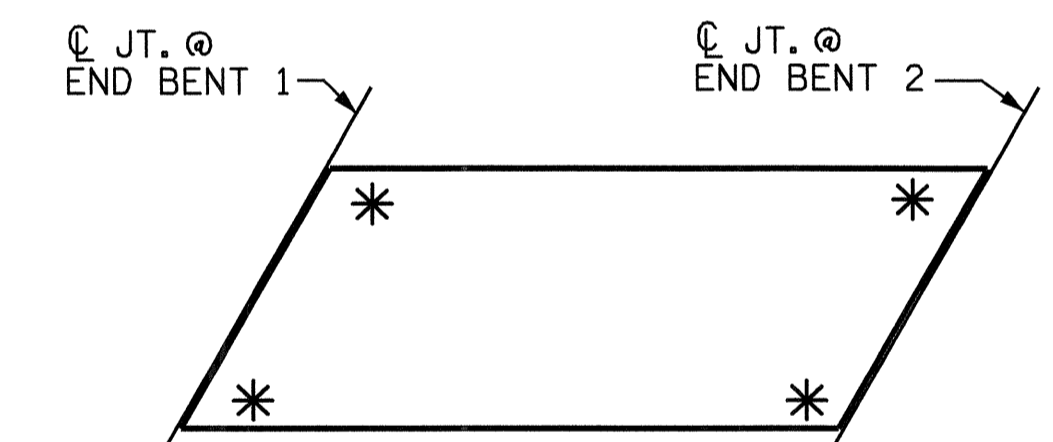
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

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-4298

VANCE COUNTY

STATION: 21+73.50 -L-

SHEET 2 OF 2

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

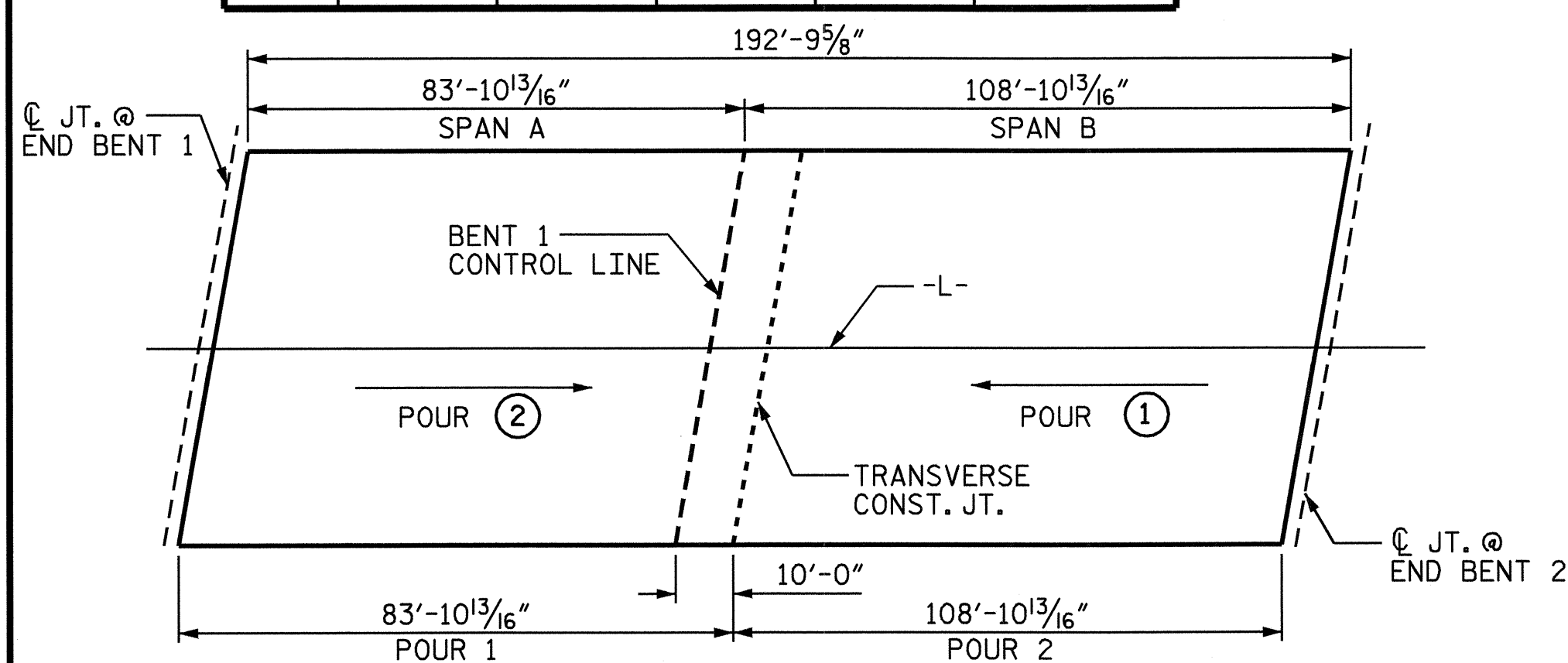


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	27
2			4				

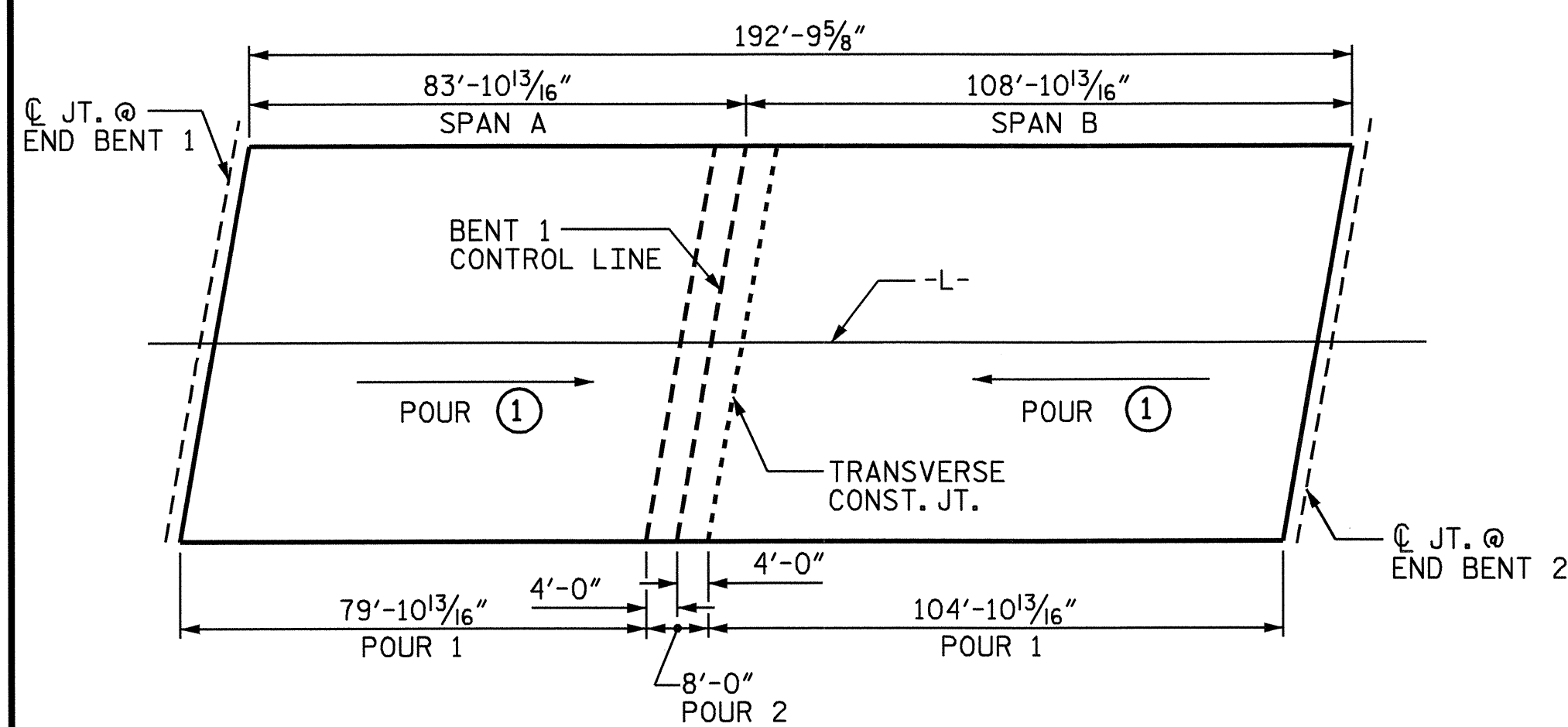
ASSEMBLED BY : A. M. KEETER	DATE : 11/22/05
CHECKED BY : J. D. HAWK	DATE : 1/18/06
DRAWN BY : TLA 5/06	ADDED 5/1/06
CHECKED BY : GM 5/06	

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

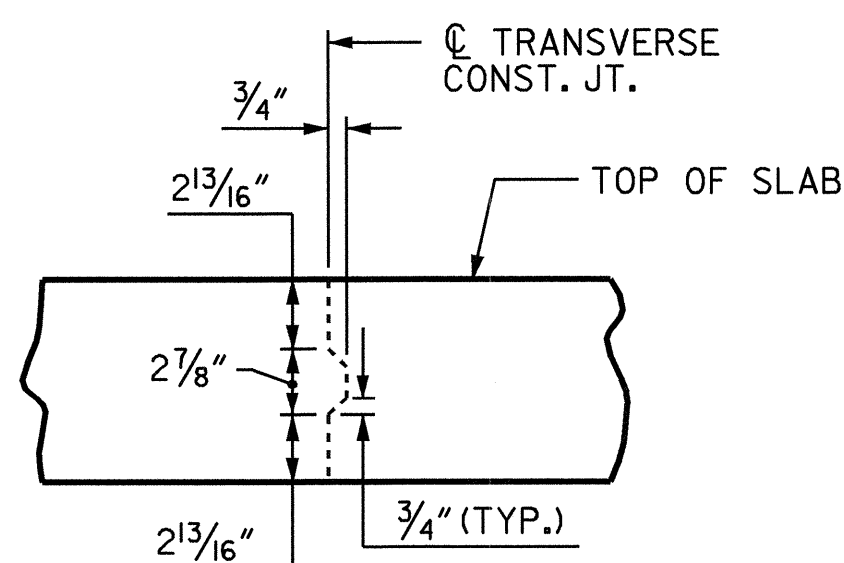
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			



POURING SEQUENCE



OPTIONAL POURING SEQUENCE



TRANSVERSE CONSTRUCTION JOINT DETAIL

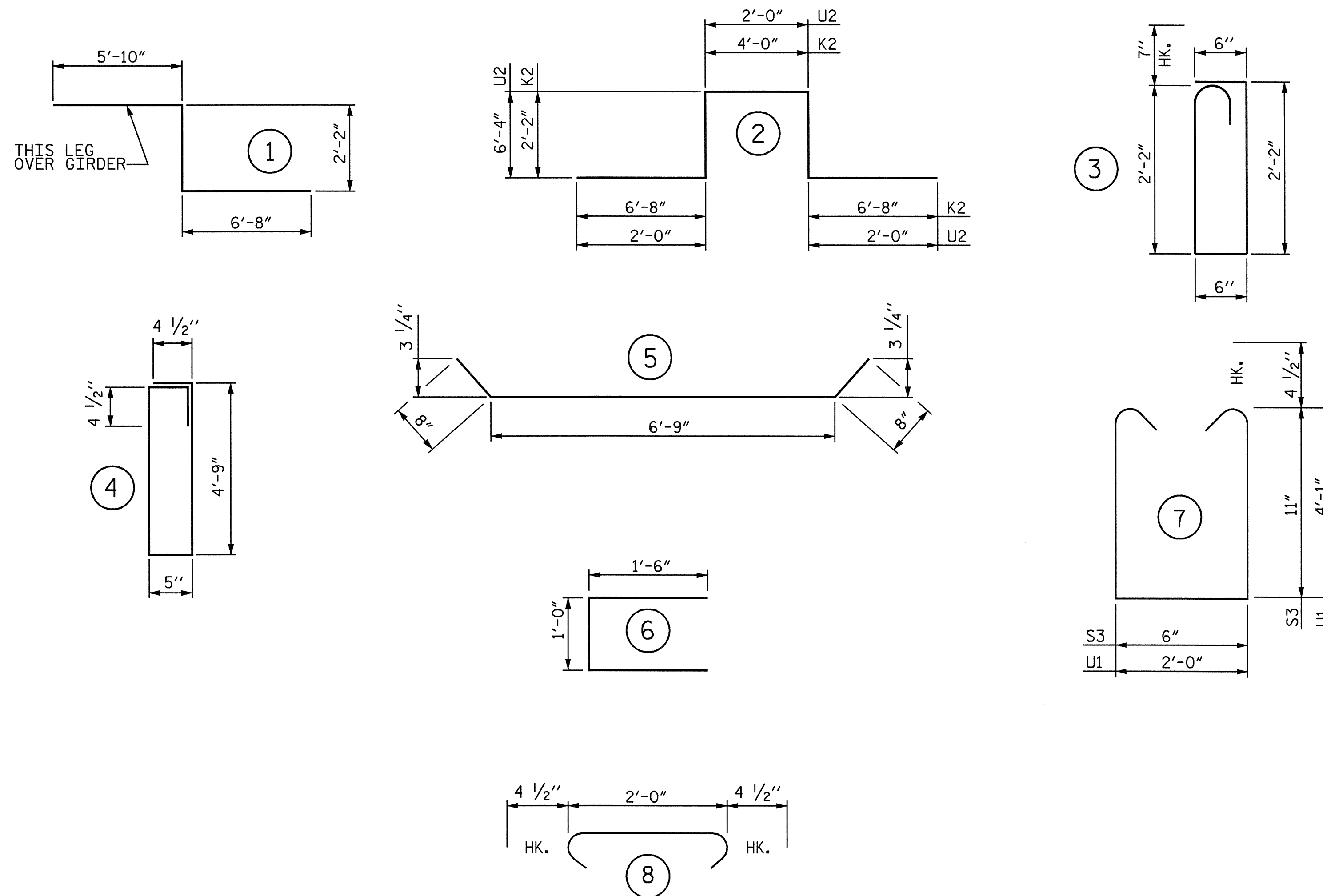
NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	298	#5	STR	34'-11"	10853
A2	298	#5	STR	34'-11"	10853
*A101	2	#5	STR	32'-0"	67
*A102	2	#5	STR	28'-5"	60
*A103	2	#5	STR	24'-11"	52
*A104	2	#5	STR	21'-4"	45
*A105	2	#5	STR	17'-9"	37
*A106	2	#5	STR	14'-3"	30
*A107	2	#5	STR	10'-8"	22
*A108	2	#5	STR	7'-2"	15
*A109	2	#5	STR	3'-7"	7
A201	2	#5	STR	32'-0"	67
A202	2	#5	STR	28'-5"	60
A203	2	#5	STR	24'-11"	52
A204	2	#5	STR	21'-4"	45
A205	2	#5	STR	17'-9"	37
A206	2	#5	STR	14'-3"	30
A207	2	#5	STR	10'-8"	22
A208	2	#5	STR	7'-2"	15
A209	2	#5	STR	3'-7"	7
*B1	50	#4	STR	28'-9"	960
*B2	50	#7	STR	36'-11"	3773
*B3	22	#7	STR	29'-3"	1315
*B4	75	#4	STR	25'-7"	1282
B5	108	#5	STR	49'-9"	5604
*G1	4	#5	STR	18'-10"	79
*K1	8	#8	1	14'-8"	313
*K2	8	#8	2	21'-8"	463
K3	12	#6	STR	8'-1"	146
K4	18	#6	STR	5'-1"	137
K5	12	#5	5	8'-1"	101
K6	60	#4	STR	8'-1"	324
K7	6	#4	STR	5'-6"	22
K8	30	#4	STR	8'-1"	162
K9	6	#4	STR	5'-1"	20
K10	7	#4	STR	27'-9"	130
*S1	48	#5	3	5'-11"	296
*S2	48	#4	6	4'-0"	128
S3	12	#4	7	2'-4"	19
S4	42	#4	4	10'-8"	299
S5	132	#4	8	2'-9"	242
U1	6	#4	7	10'-11"	44
*U2	18	#4	2	18'-8"	224

REINFORCING STEEL	18438 LBS.
*EPOXY COATED REINFORCING STEEL	20021 LBS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

CLASS AA CONCRETE BREAKDOWN

	(CU. YDS.)
POUR 1	134.3
POUR 2	127.7
TOTAL	262.0

GROOVING BRIDGE FLOORS

APPROACH SLABS	805 SQ.FT.
BRIDGE DECK	6179 SQ.FT.
TOTAL	6984 SQ.FT.

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
TOTALS **	262.0	18438	20021

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-

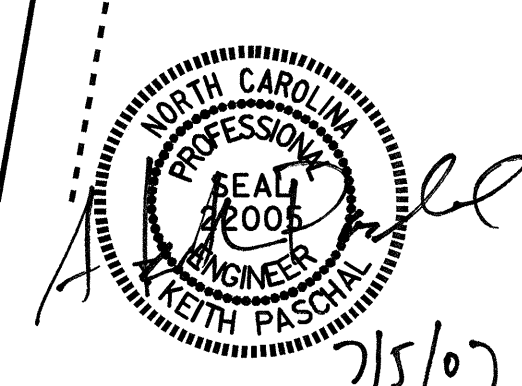
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

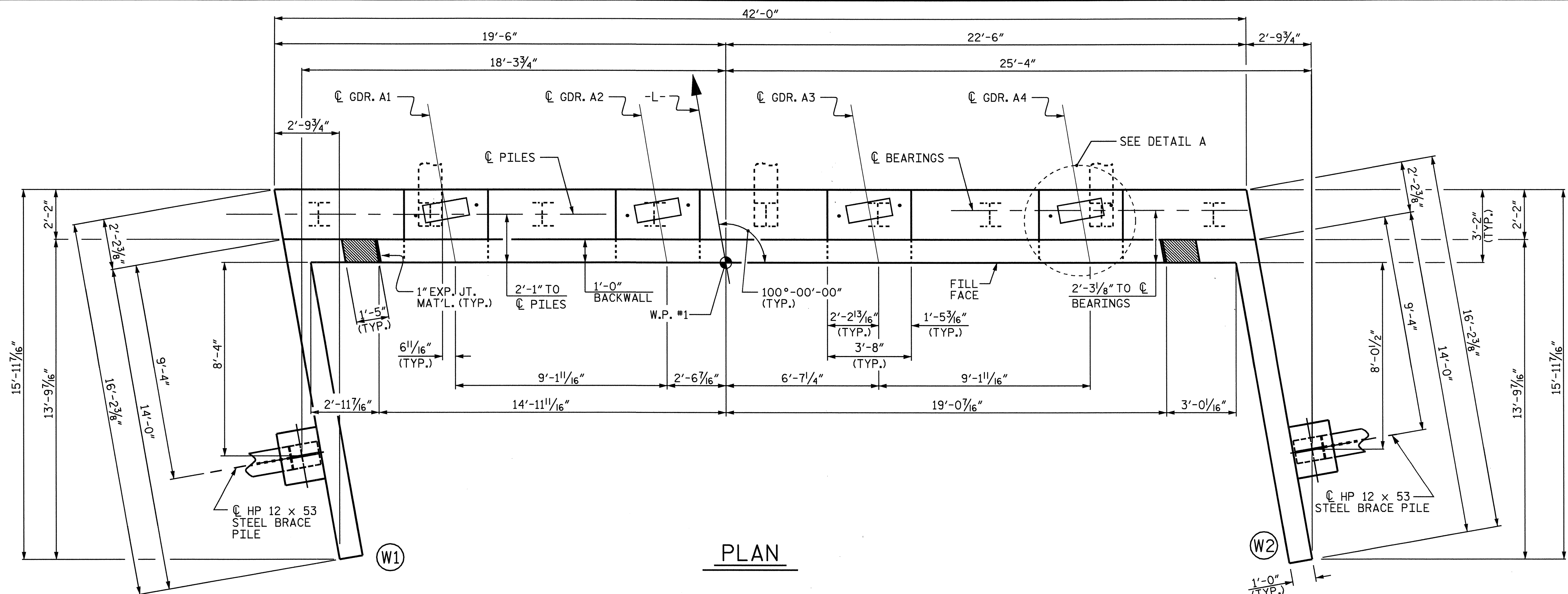
SUPERSTRUCTURE BILL OF MATERIAL

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

ASSEMBLED BY : A.M.KEETER	DATE : 12/8/05
CHECKED BY : J.D. HAWK	DATE : 1/20/06
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES

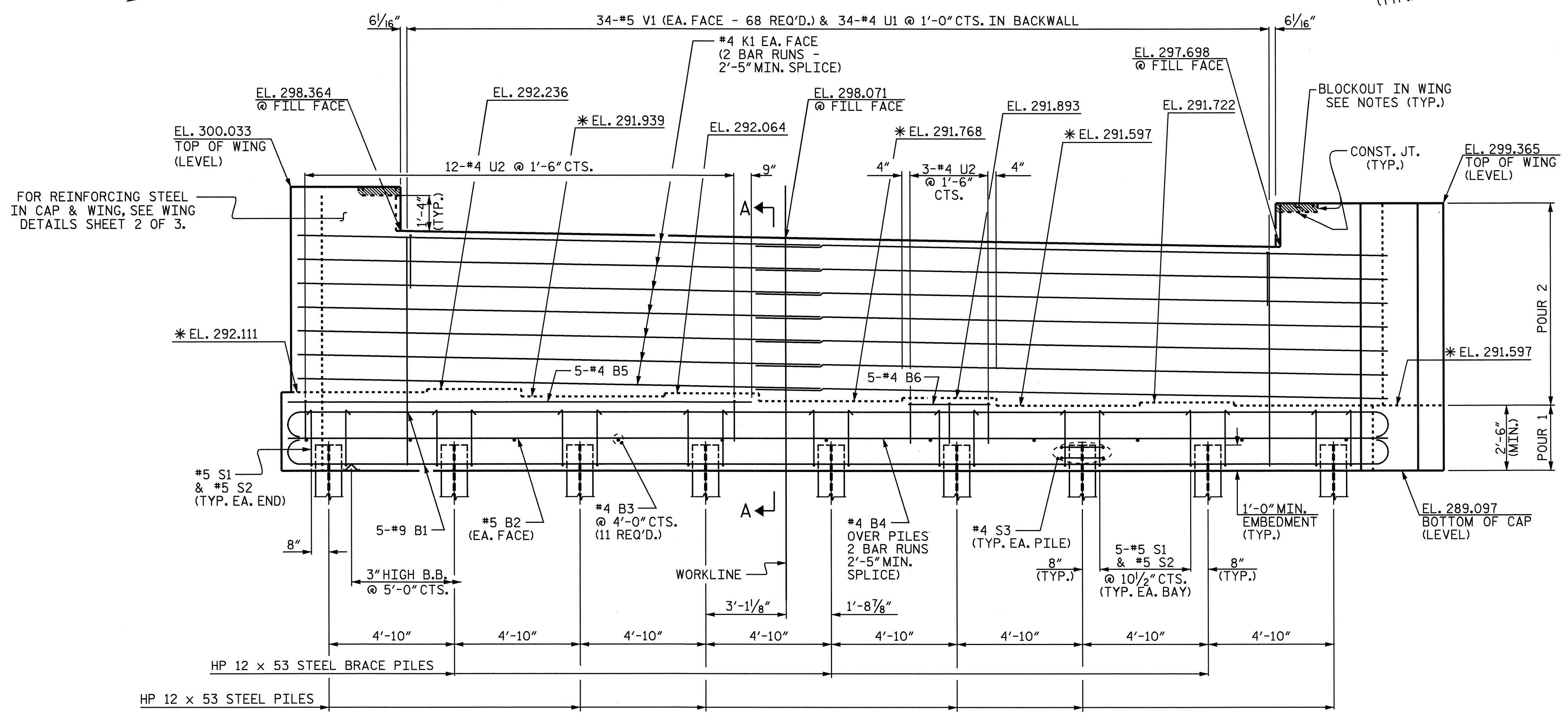
LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB (SQ. FT. = 6796)



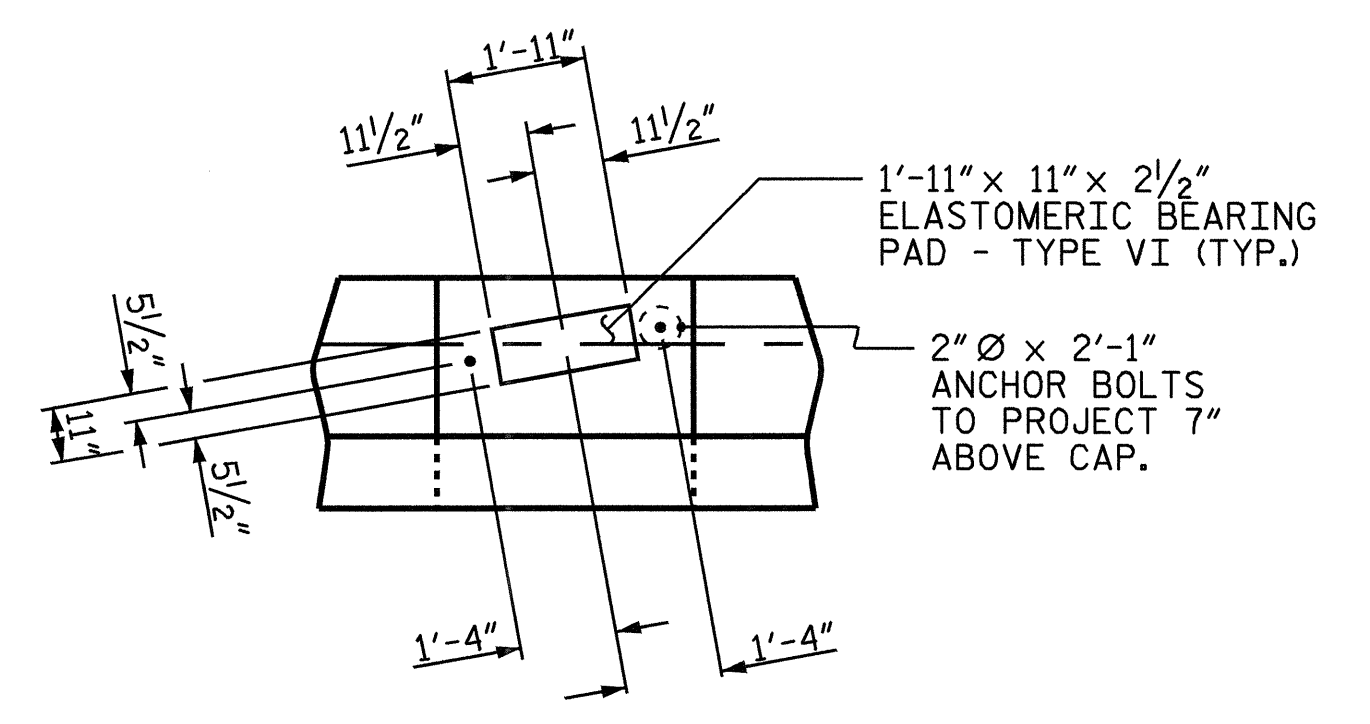


PLAN

NOTES:
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
 THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILL, SEE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE DECK AND THE APPROACH SLAB HAS BEEN SAWED AND THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



ELEVATION



DETAIL A

PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

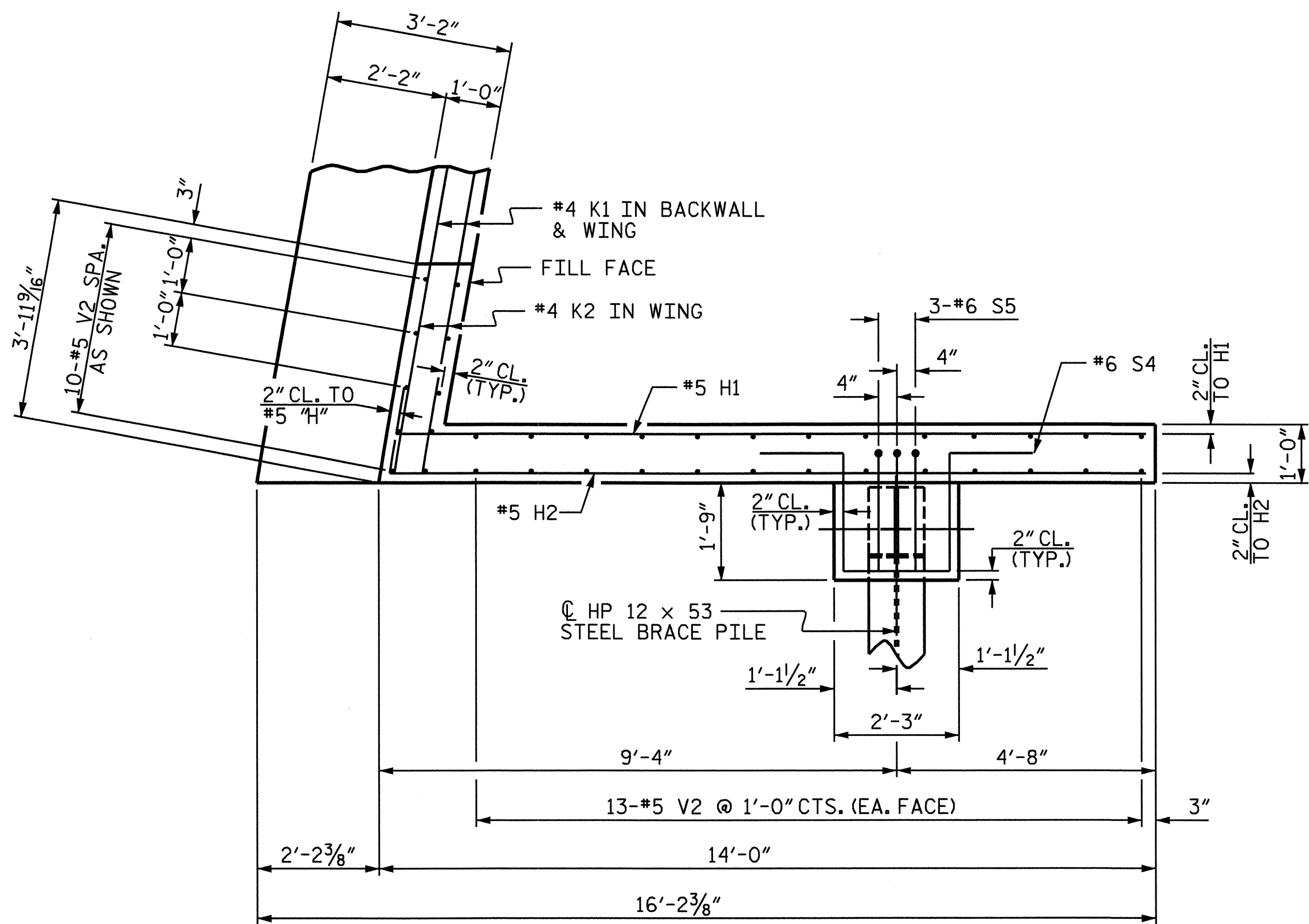
SUBSTRUCTURE
 END BENT 1



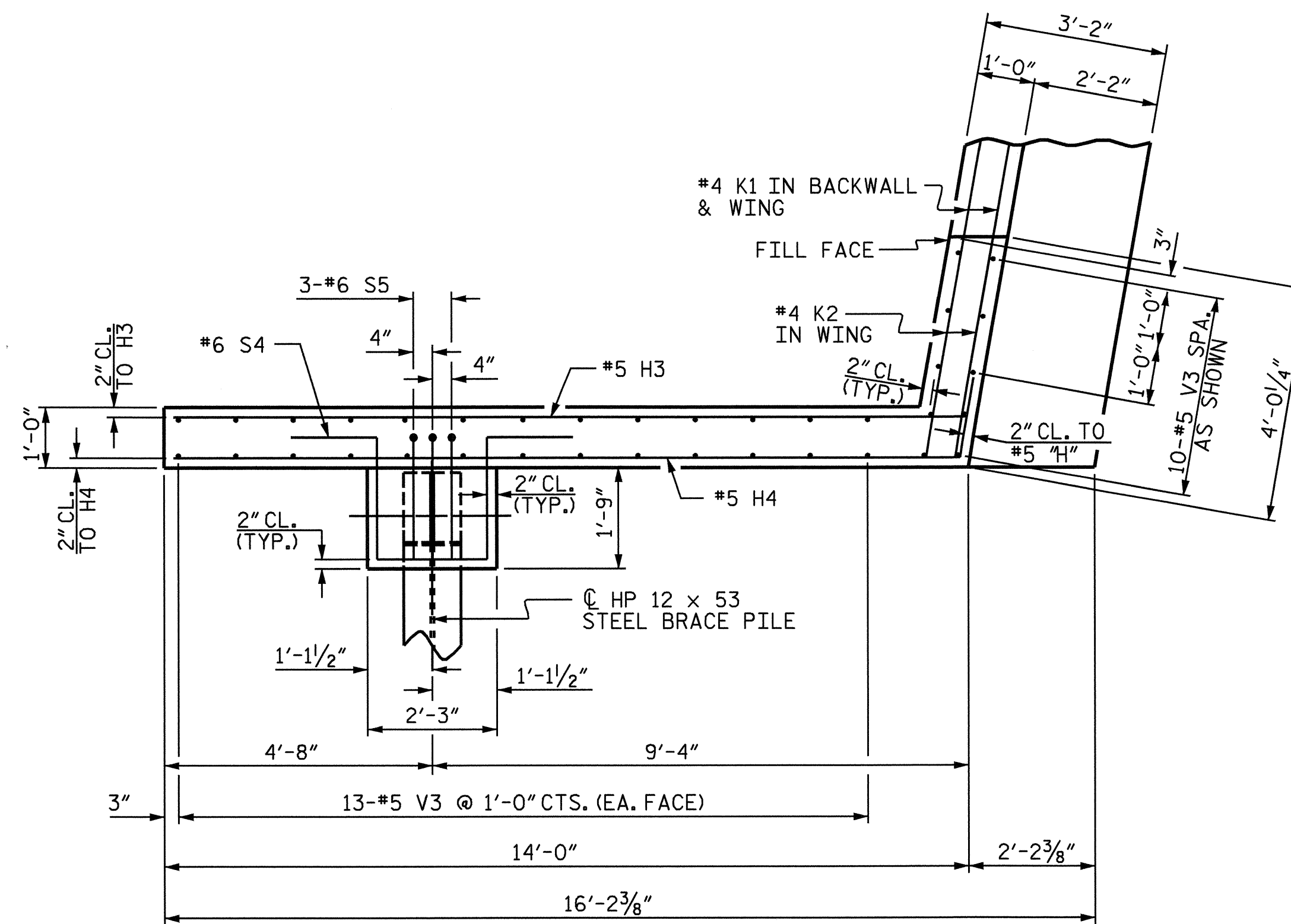
DRAWN BY: A.M. KEETER/JGK DATE: 11/16/06
 CHECKED BY: J.D. HAWK DATE: 1/08/07

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE "SECTION A-A" SHEET 3 OF 3.

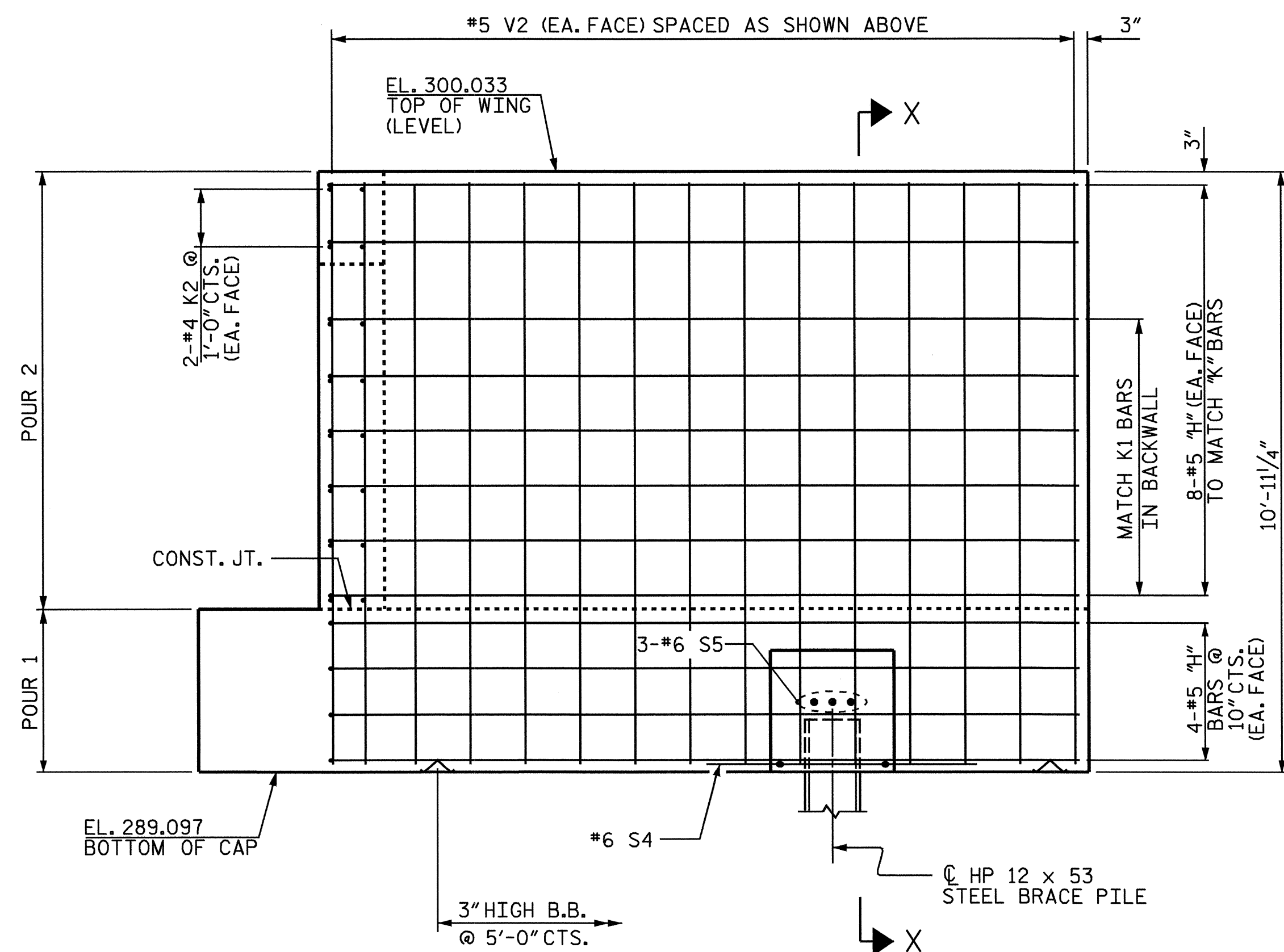
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			27



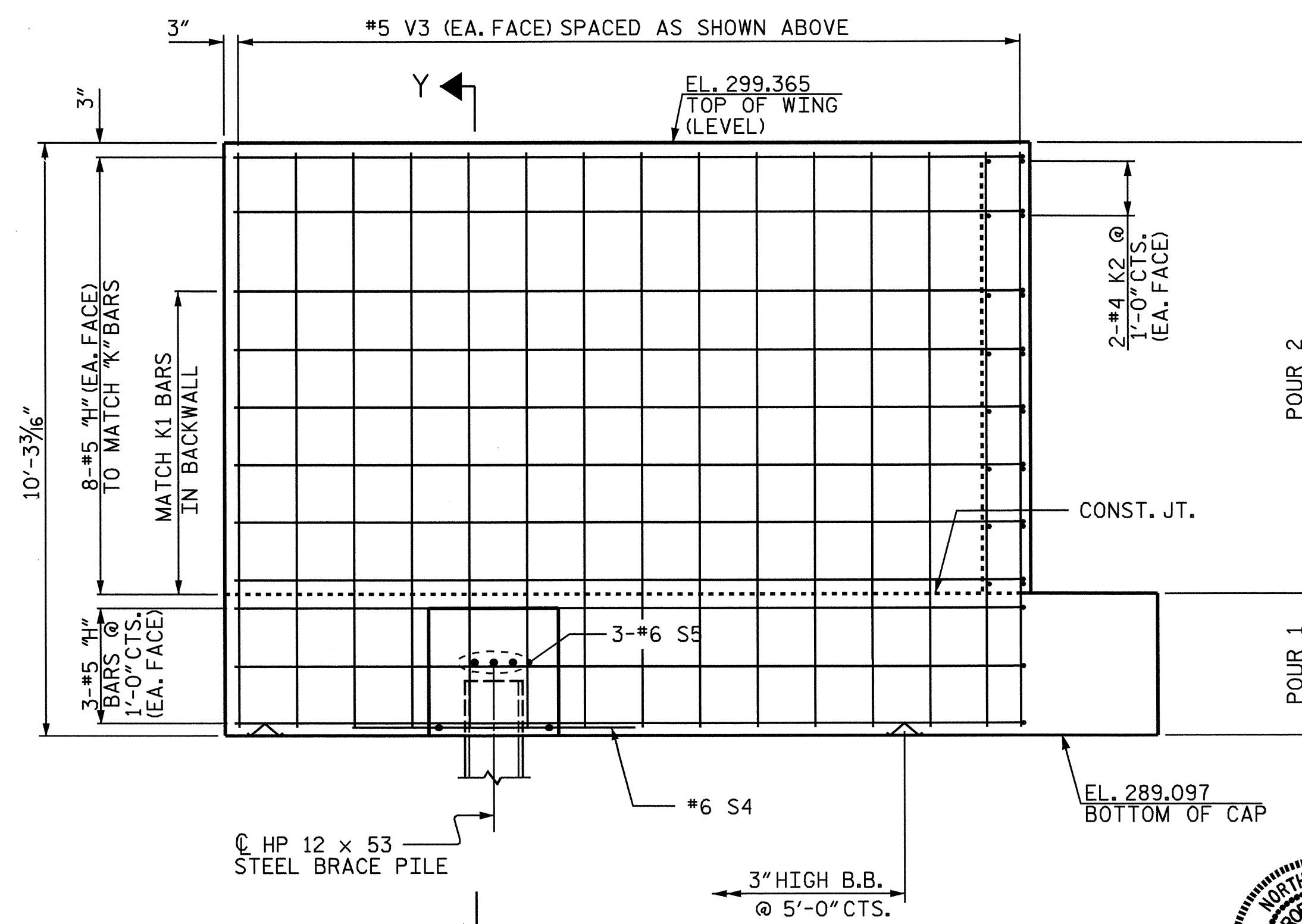
PLAN OF WING - W1



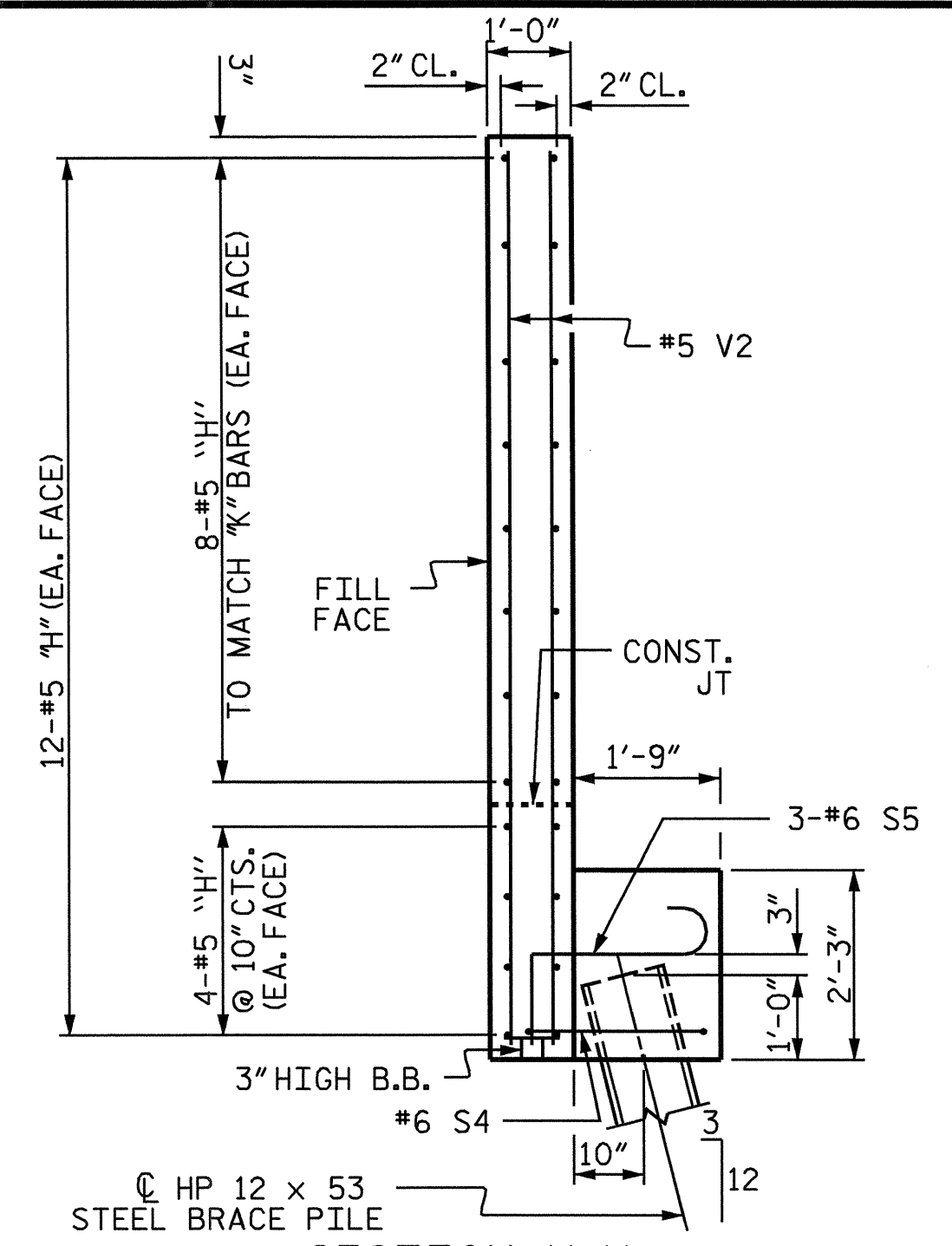
PLAN OF WING - W2



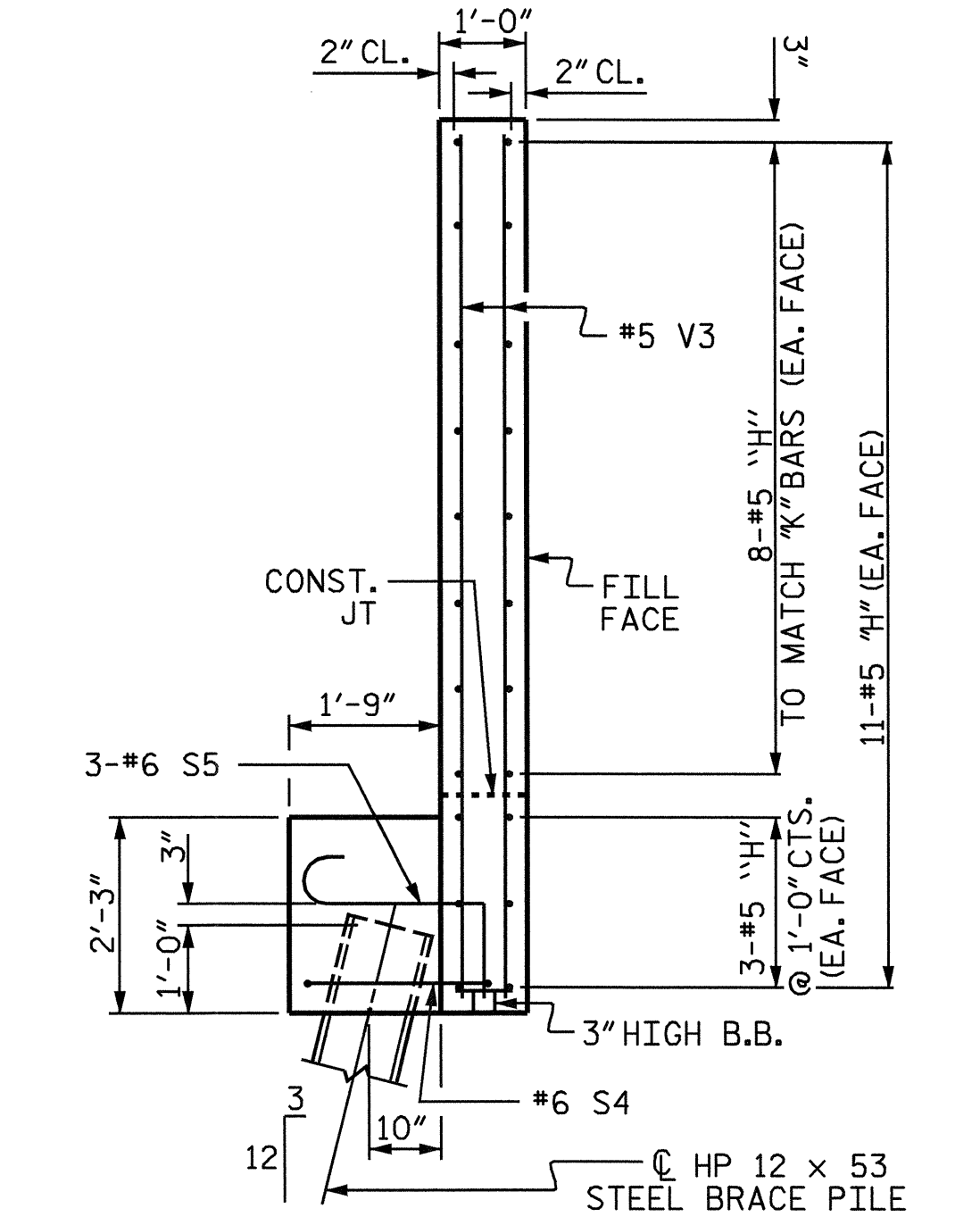
ELEVATION OF WING - W1



ELEVATION OF WING - W2



SECTION X-X



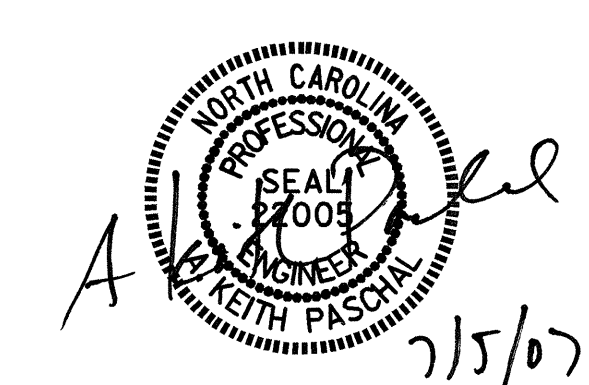
SECTION Y-Y

PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

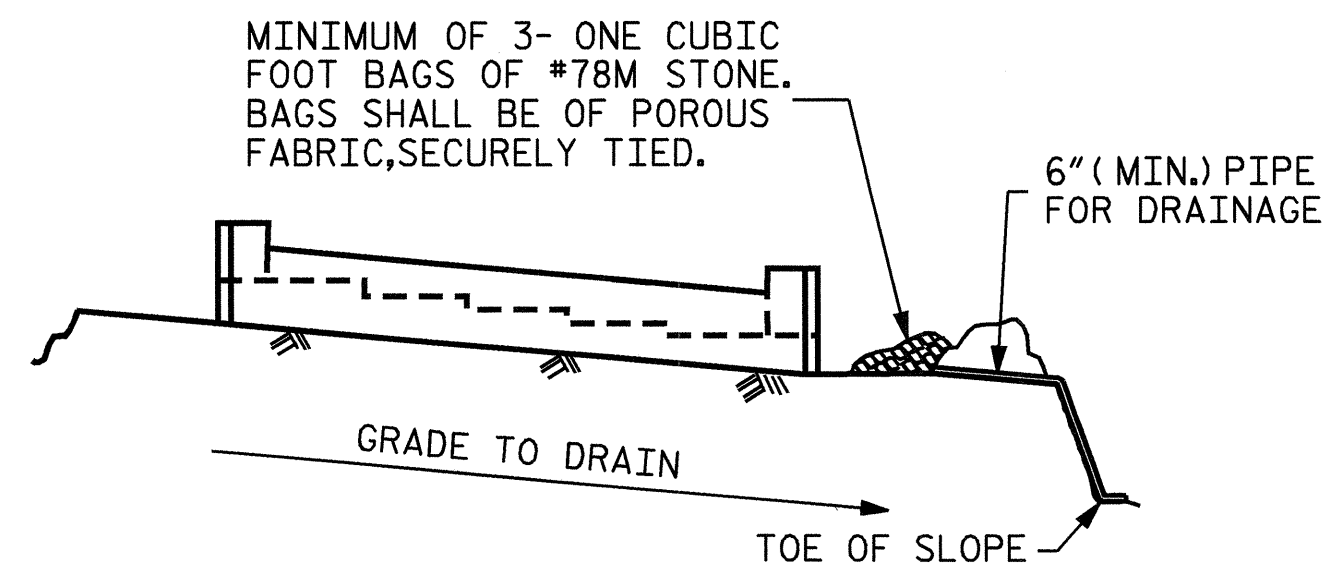
SUBSTRUCTURE
END BENT 1



DRAWN BY: A.M. KEETER/JGK DATE: 11/16/06
CHECKED BY: J.D. HAWK DATE: 1/08/07

05-JUN-2007 10:24
R:\Structures\Final Plans\B-4298.ed.EBT*1.dgn
jdhawk

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
1			3			TOTAL SHEETS 27	
2			4				

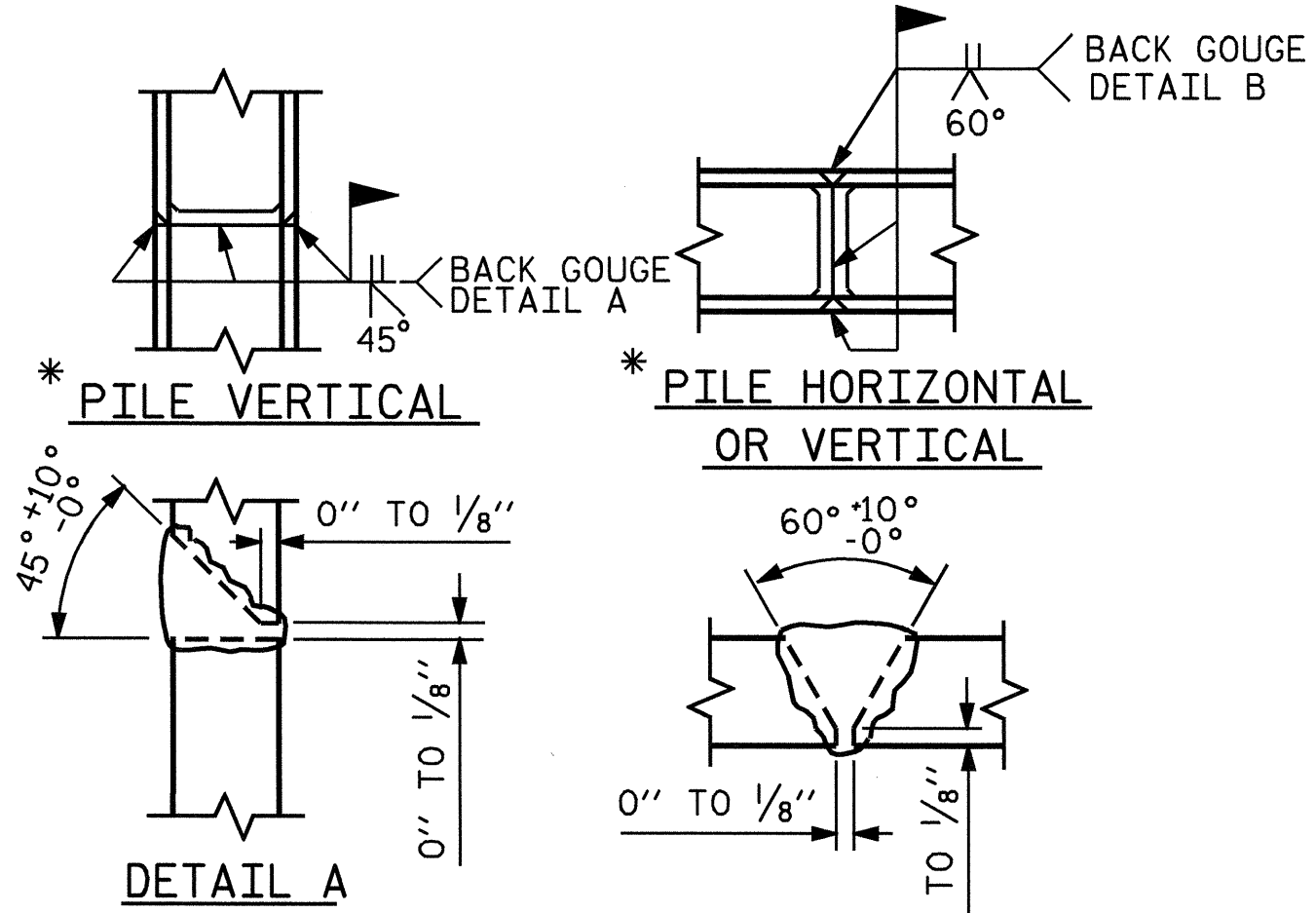


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

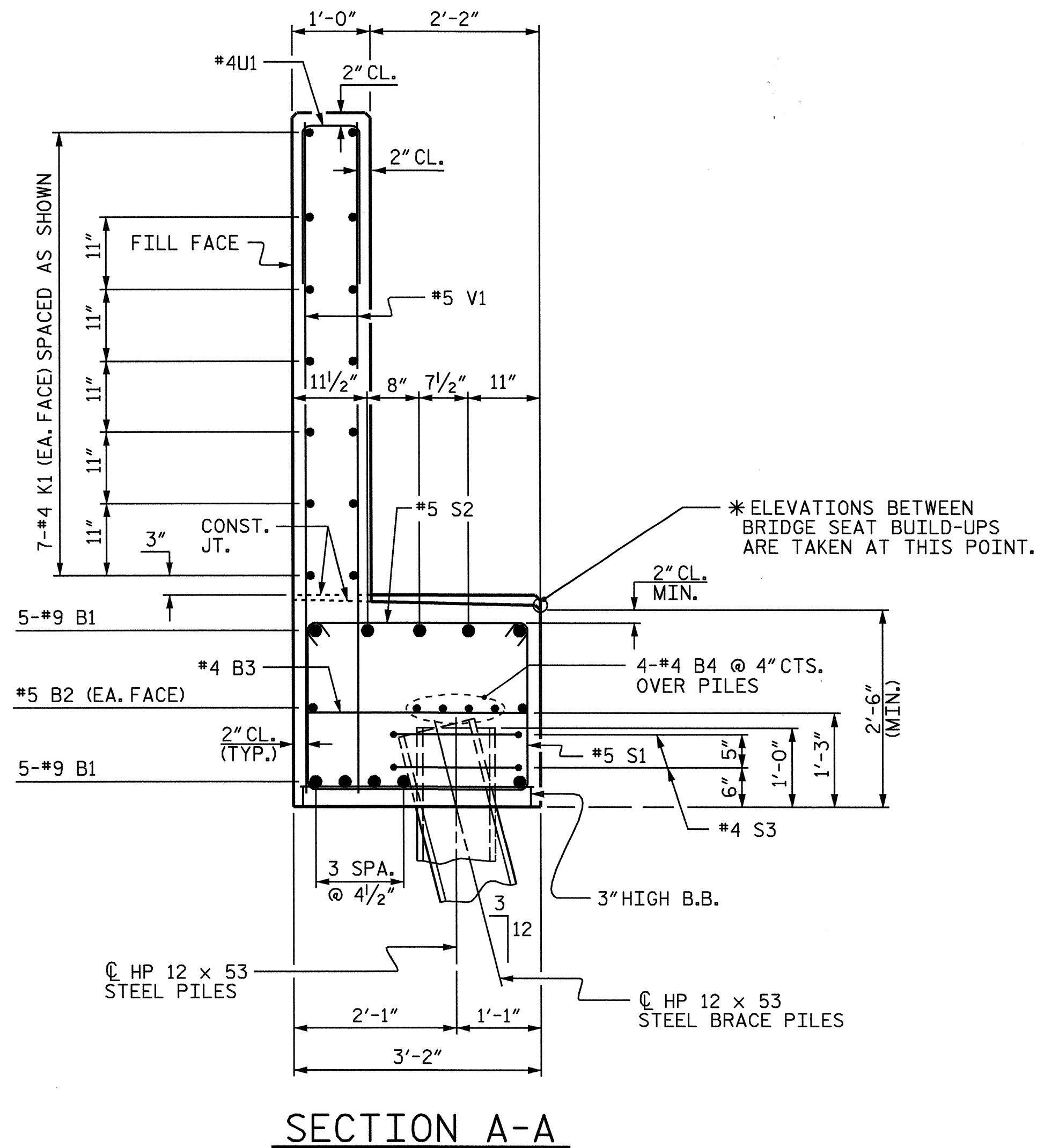
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

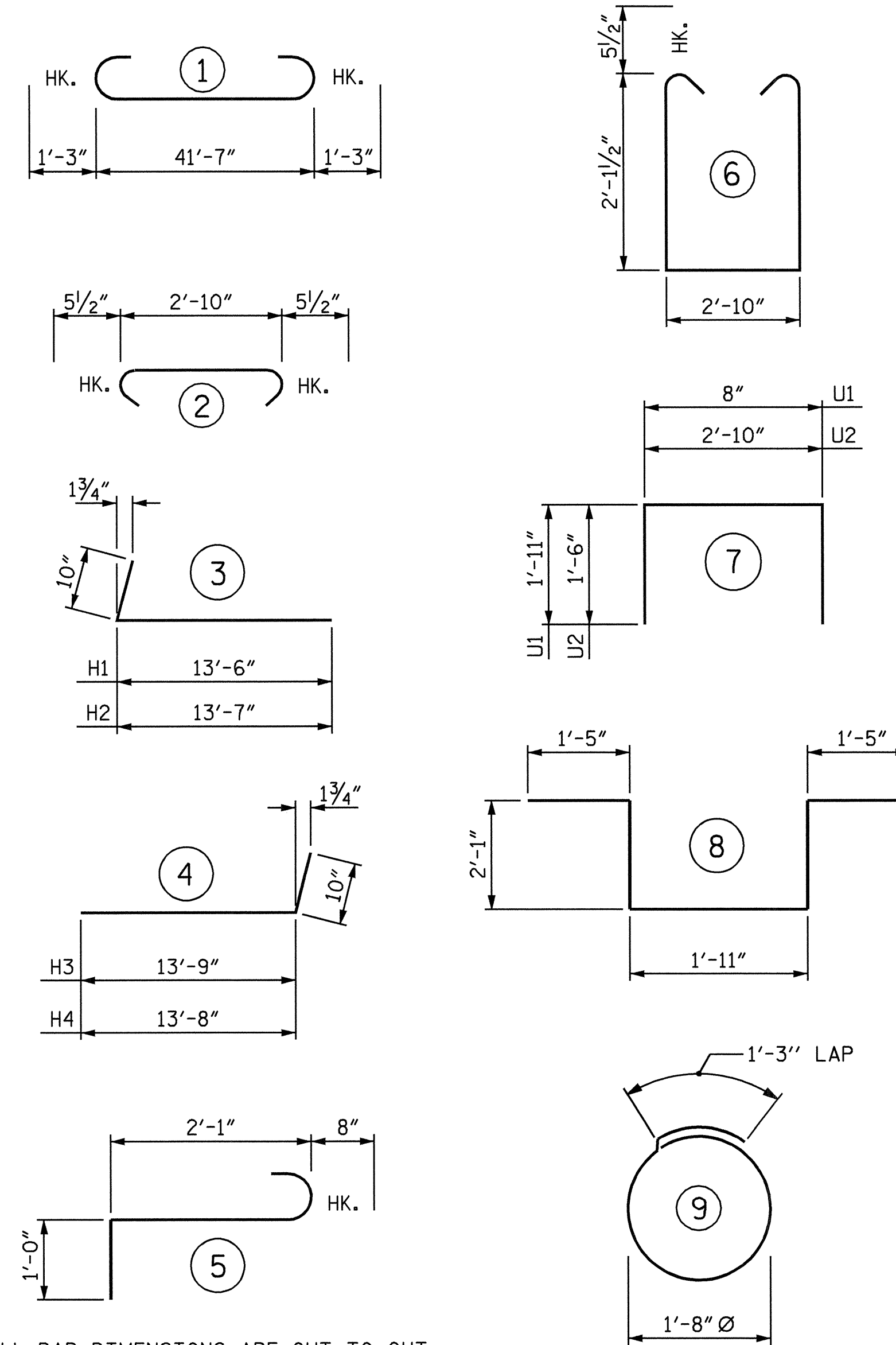


* POSITION OF PILE DURING WELDING. PILE SPLICE DETAILS



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

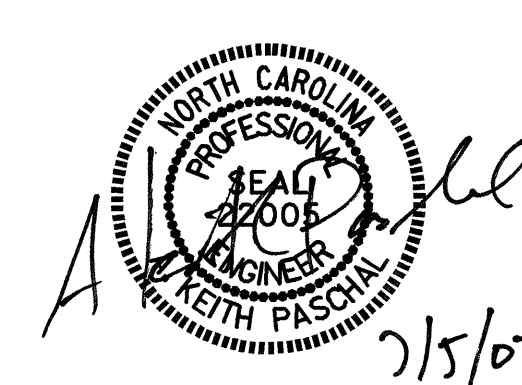
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9		44'-1"	1499
B2	2	#5	STR	41'-8"	87
B3	11	#4	STR	2'-10"	21
B4	8	#4	STR	22'-1"	118
B5	5	#4	STR	17'-10"	60
B6	5	#4	STR	3'-3"	11
H1	12	#5		14'-4"	179
H2	12	#5		14'-5"	180
H3	11	#5		14'-7"	167
H4	11	#4		14'-6"	166
K1	14	#4	STR	22'-2"	207
K2	8	#4	STR	3'-8"	20
S1	42	#5		8'-0"	350
S2	42	#5		3'-9"	164
S3	18	#4		6'-6"	78
S4	2	#6		8'-11"	27
S5	6	#6		3'-9"	34
U1	34	#4		4'-6"	102
U2	15	#4		5'-10"	58
V1	68	#5	STR	8'-3"	585
V2	36	#5	STR	10'-7"	397
V3	36	#5	STR	9'-11"	372
REINFORCING STEEL					4852 LBS.
CLASS A CONCRETE (CU. YDS.)					
POUR 1					
CAP & LOWER PART OF WING					19.1
POUR 2					
BACKWALL & UPPER PART OF WING					15.6
TOTAL					34.7
HP 12 x 53 STEEL PILES					
No. 11					330 LIN. FT.

PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

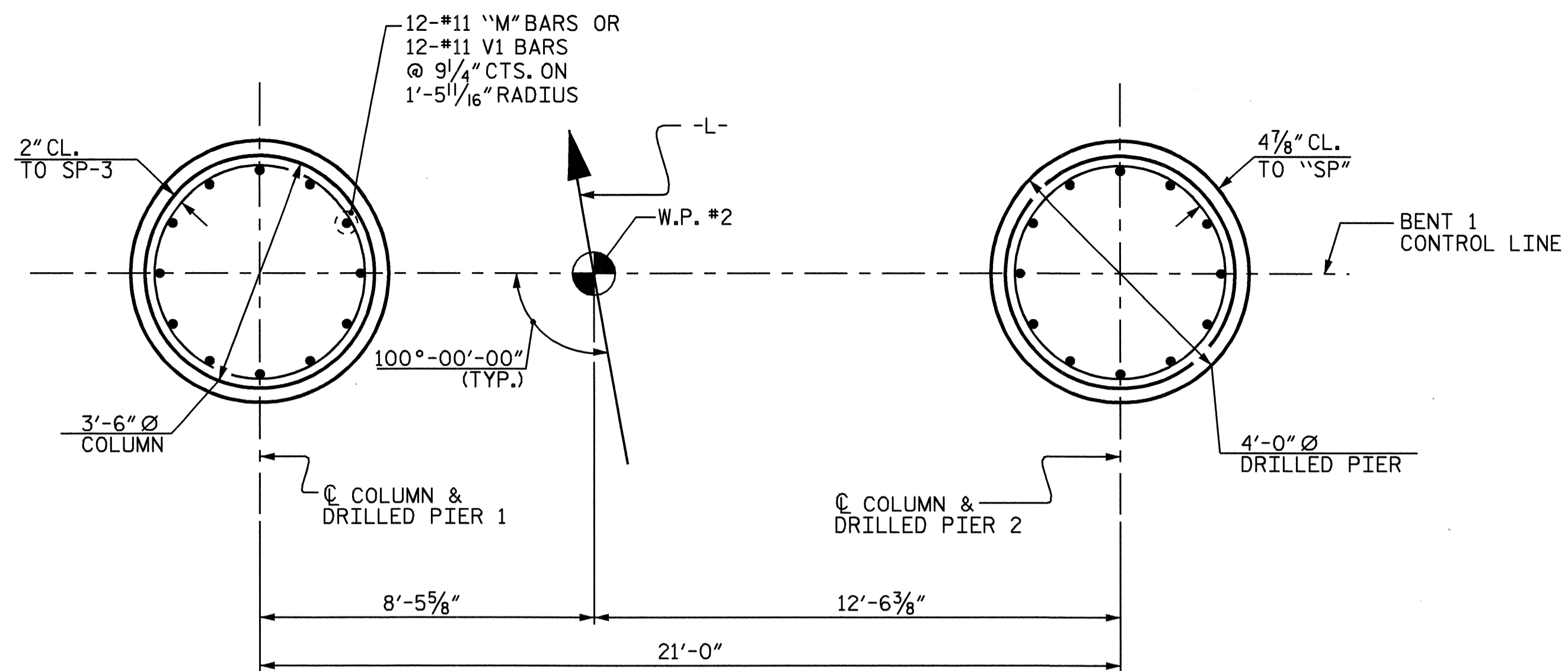
SHEET 3 OF 3

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

SHEET NO. S-19
 TOTAL SHEETS 27

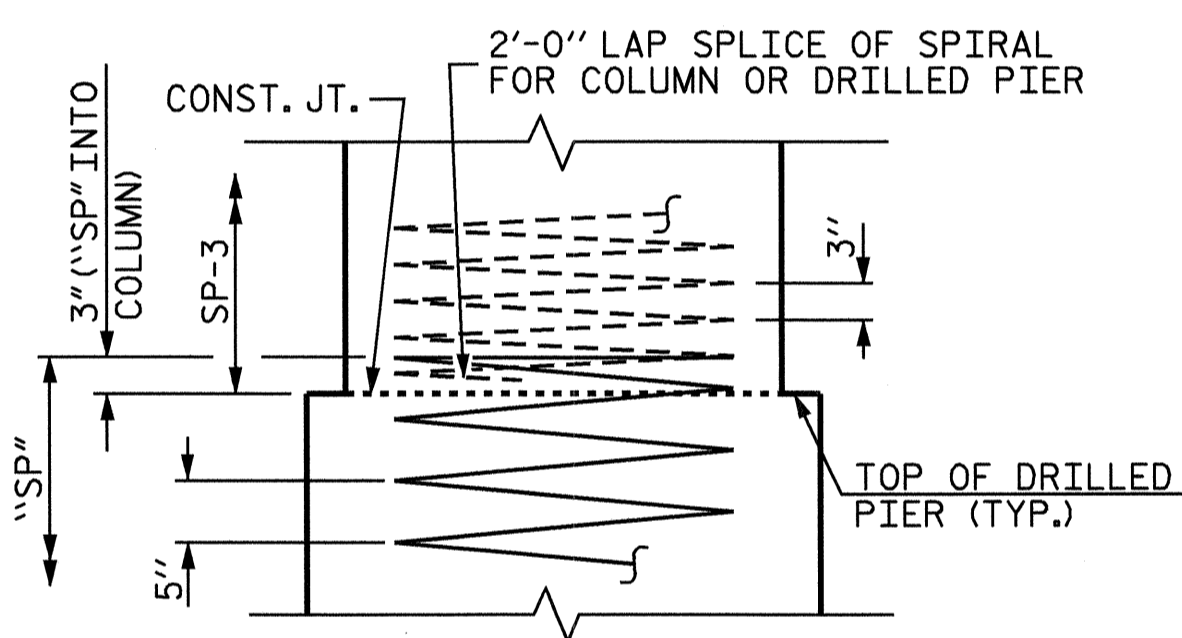


DRAWN BY: A.M. KEETER/JGK DATE: 11/16/06
 CHECKED BY: J.D. HAWK DATE: 1/8/07

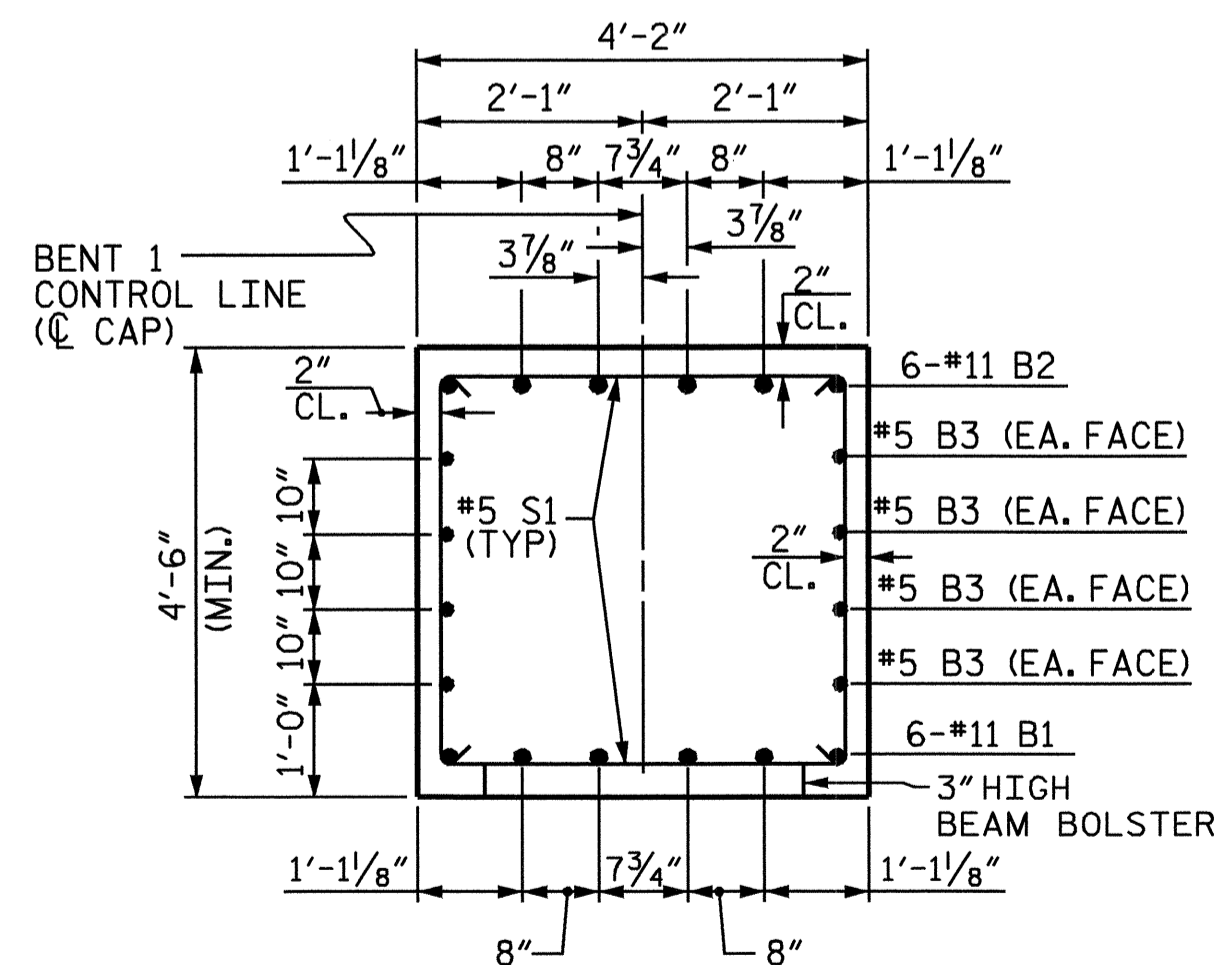


PLAN OF COLUMNS AND DRILLED PIERS

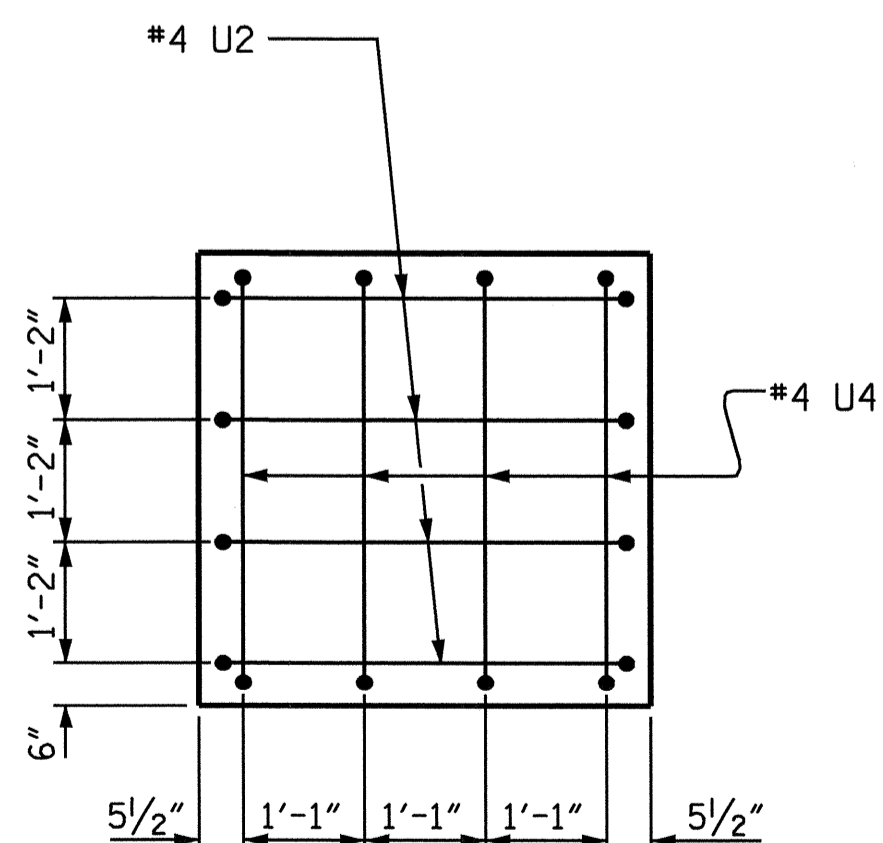
(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL COLUMNS AND DRILLED PIERS)



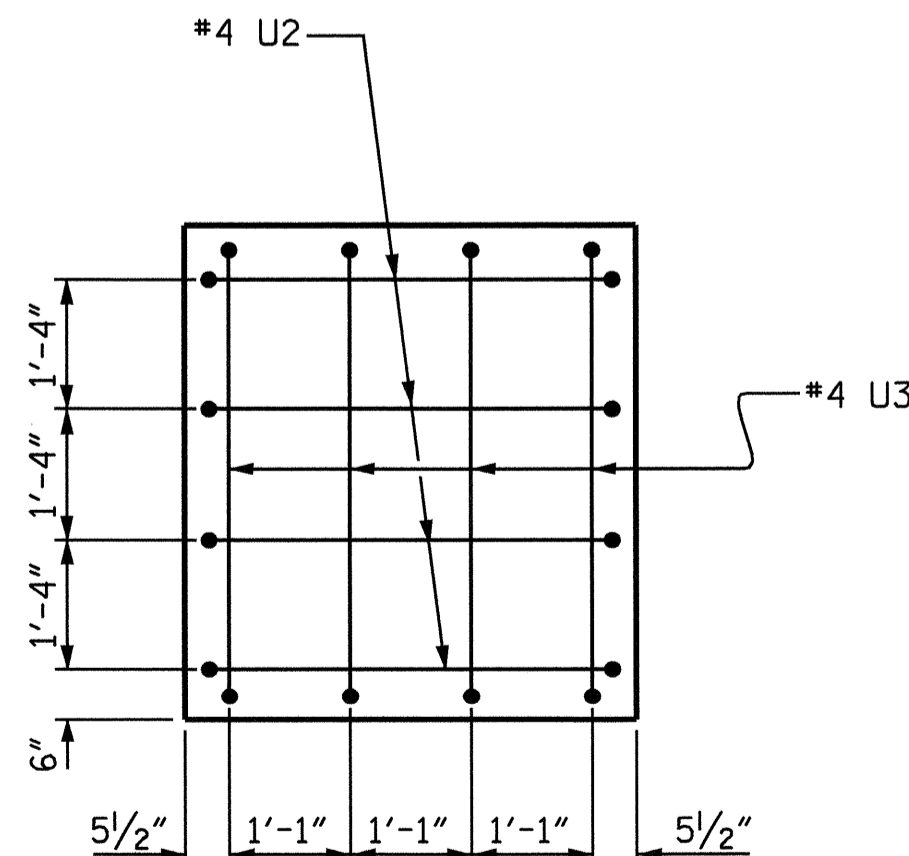
CONSTRUCTION JOINT DETAIL



SECTION A-A



VIEW X-X



VIEW Y-Y

BAR TYPES

BILL OF MATERIAL

BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#11	STR	31'-8"	1009
B2	6	#11	1	34'-9"	1108
B3	8	#5	STR	31'-8"	264
B4	6	#4	STR	13'-4"	53
M1	12	#11	STR	37'-1"	2237
M2	12	#11	STR	35'-1"	2364
S1	68	#5	3	13'-0"	922
U1	35	#4	4	6'-4"	148
U2	8	#4	4	6'-2"	33
U3	4	#4	4	7'-0"	19
U4	4	#4	4	6'-6"	17
V1	24	#11	2	20'-6"	2614

REINFORCING STEEL = 10788 LBS

SP	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-1	1	*	5	643'-4"	671
SP-2	1	*	5	596'-6"	622
SP-3	2	**	6	687'-6"	919

SPIRAL COLUMN REINFORCING STEEL = 2212 LBS

CLASS A CONCRETE BREAKDOWN

POUR	DESCRIPTION	QUANTITY
POUR 2	(COLUMN)	12.0 C.Y.
POUR 3	(CAP)	23.3 C.Y.
TOTAL		35.3 C.Y.

DRILLED PIER CONCRETE

POUR	DESCRIPTION	QUANTITY
POUR 1	(DRILLED PIERS)	24.2 C.Y.

4'-0" Ø DRILLED PIERS IN SOIL LINEAR FEET 36.0

4'-0" Ø DRILLED PIERS NOT IN SOIL LINEAR FEET 16.0

CROSSHOLE SONIC LOGGING = 1 EACH

▲ CSL TUBES LINEAR FEET 228.0

ALL BAR DIMENSIONS ARE OUT TO OUT.

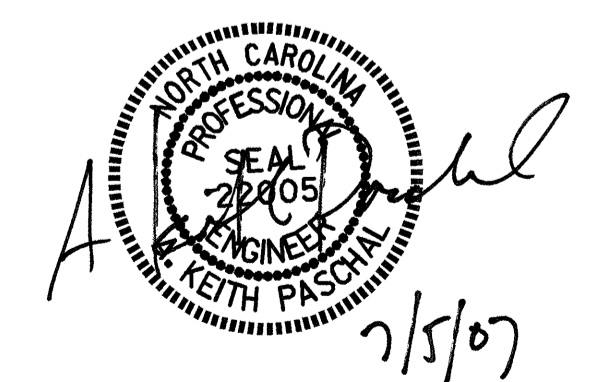
* THE SP-1 & SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

** THE SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

▲ NO SEPERATE PAYMENT WILL BE MADE FOR CSL TUBES, CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 2 OF 2

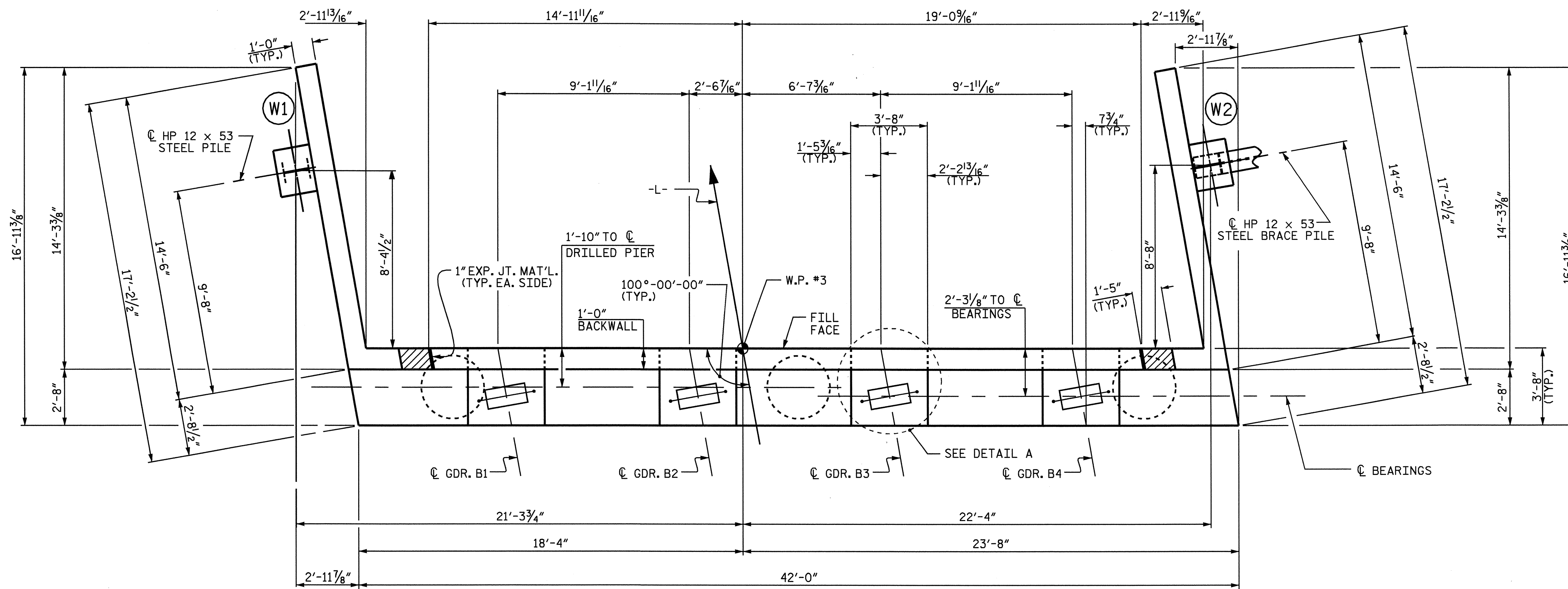


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS 27
2			4			

DRAWN BY: J.D. HAWK DATE: 10/9/06
 CHECKED BY: A.M. KEETER DATE: 1/8/07



NOTES:

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

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

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

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

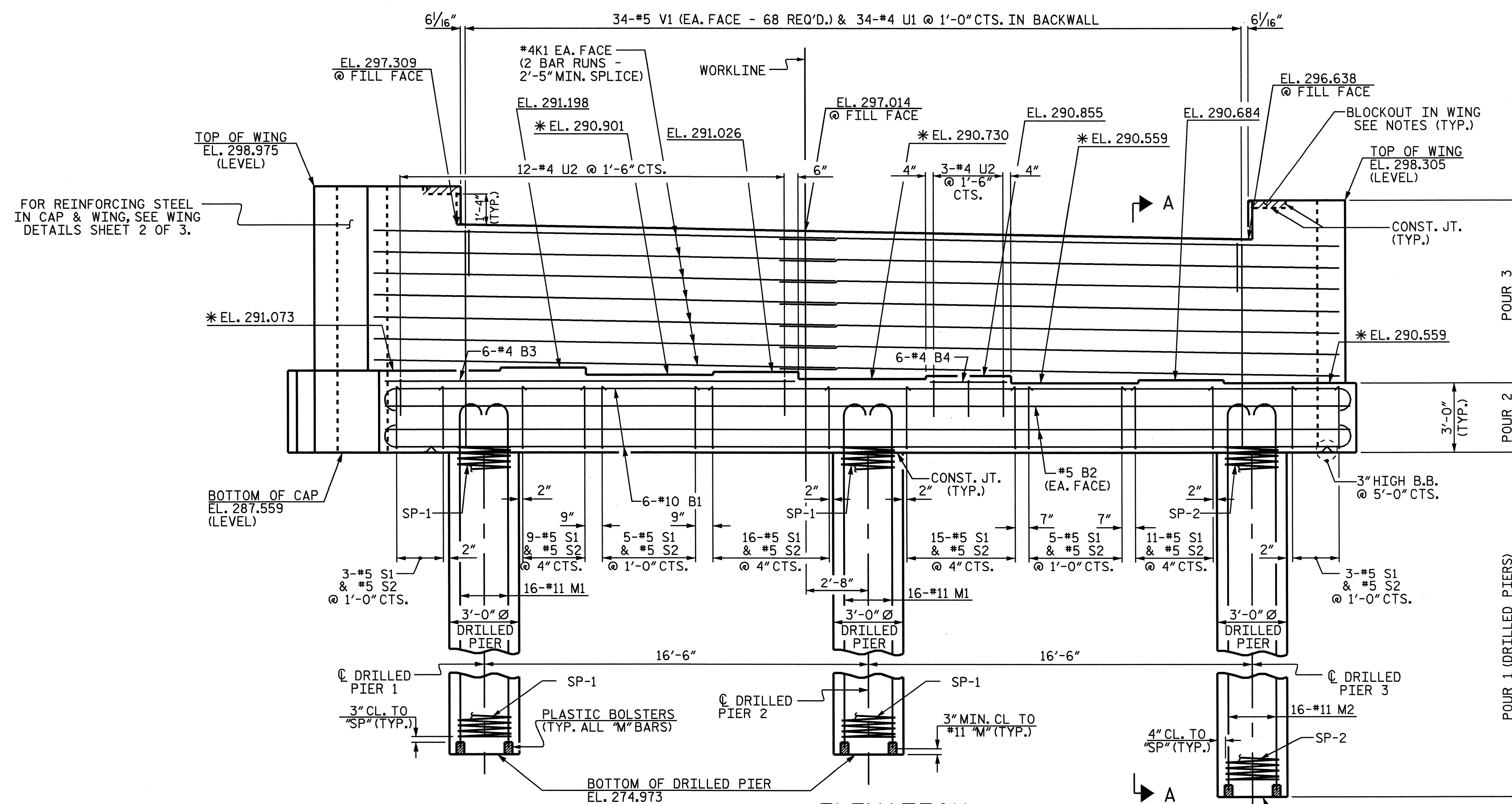
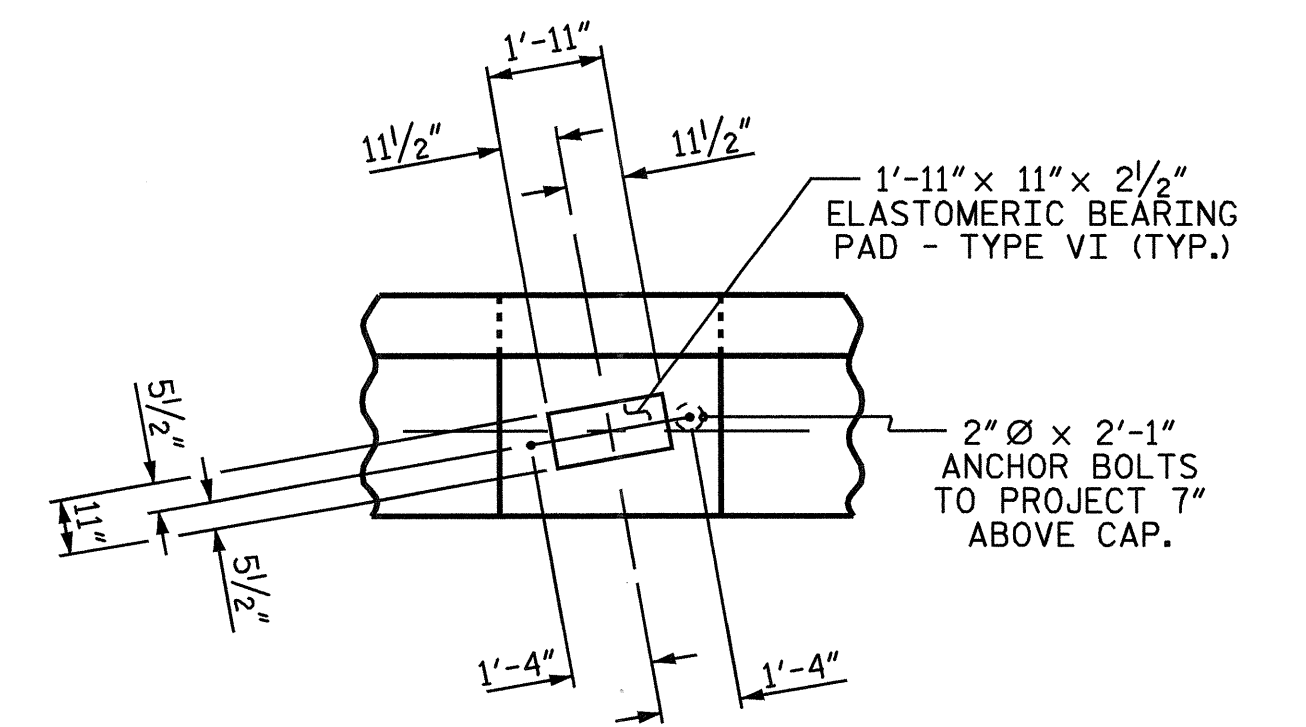
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

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

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

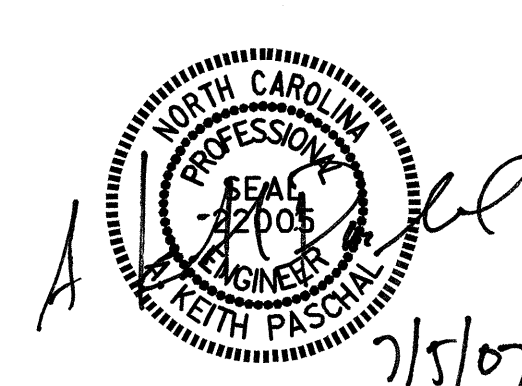


PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

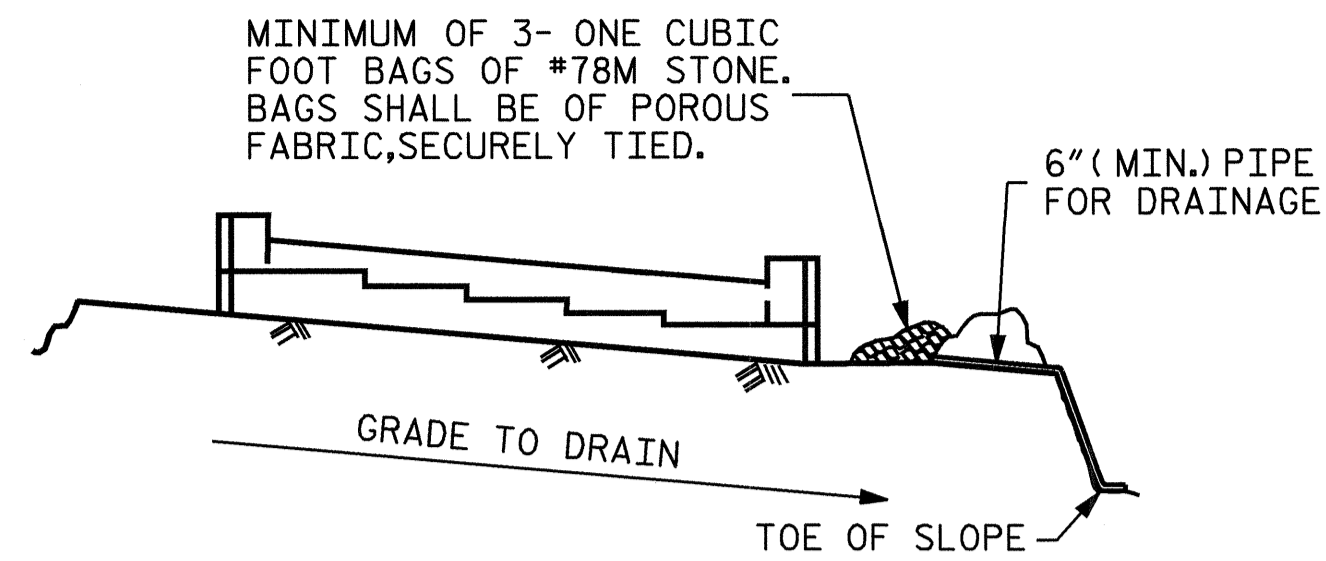
SUBSTRUCTURE
 END BENT 2



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22	
1			3			TOTAL SHEETS 27	
2			4				

DRAWN BY : A.M. KEETER/JGK DATE : 11/14/06
 CHECKED BY : J.D. HAWK DATE : 1/08/07

* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE "SECTION A-A" SHEET 3 OF 3.

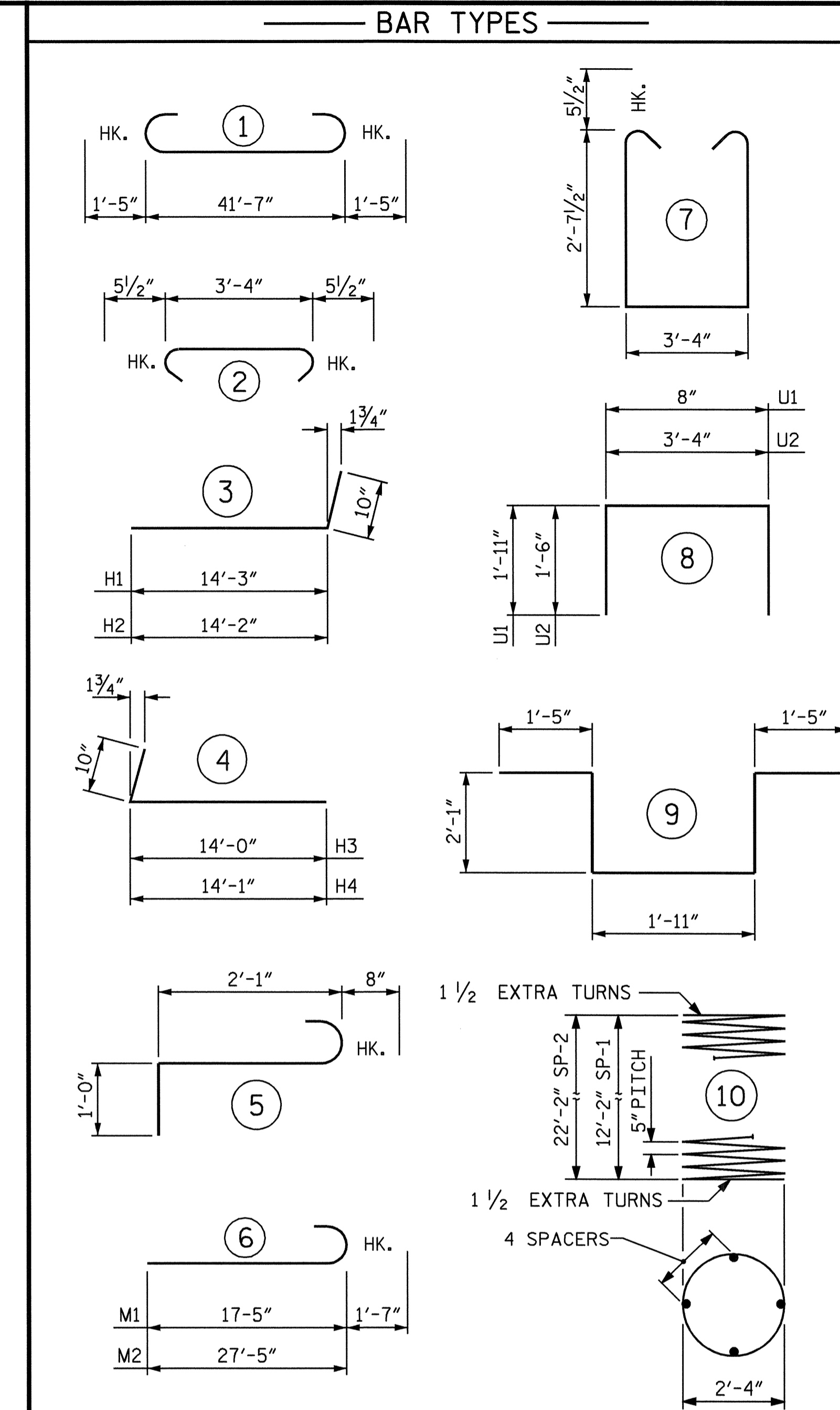
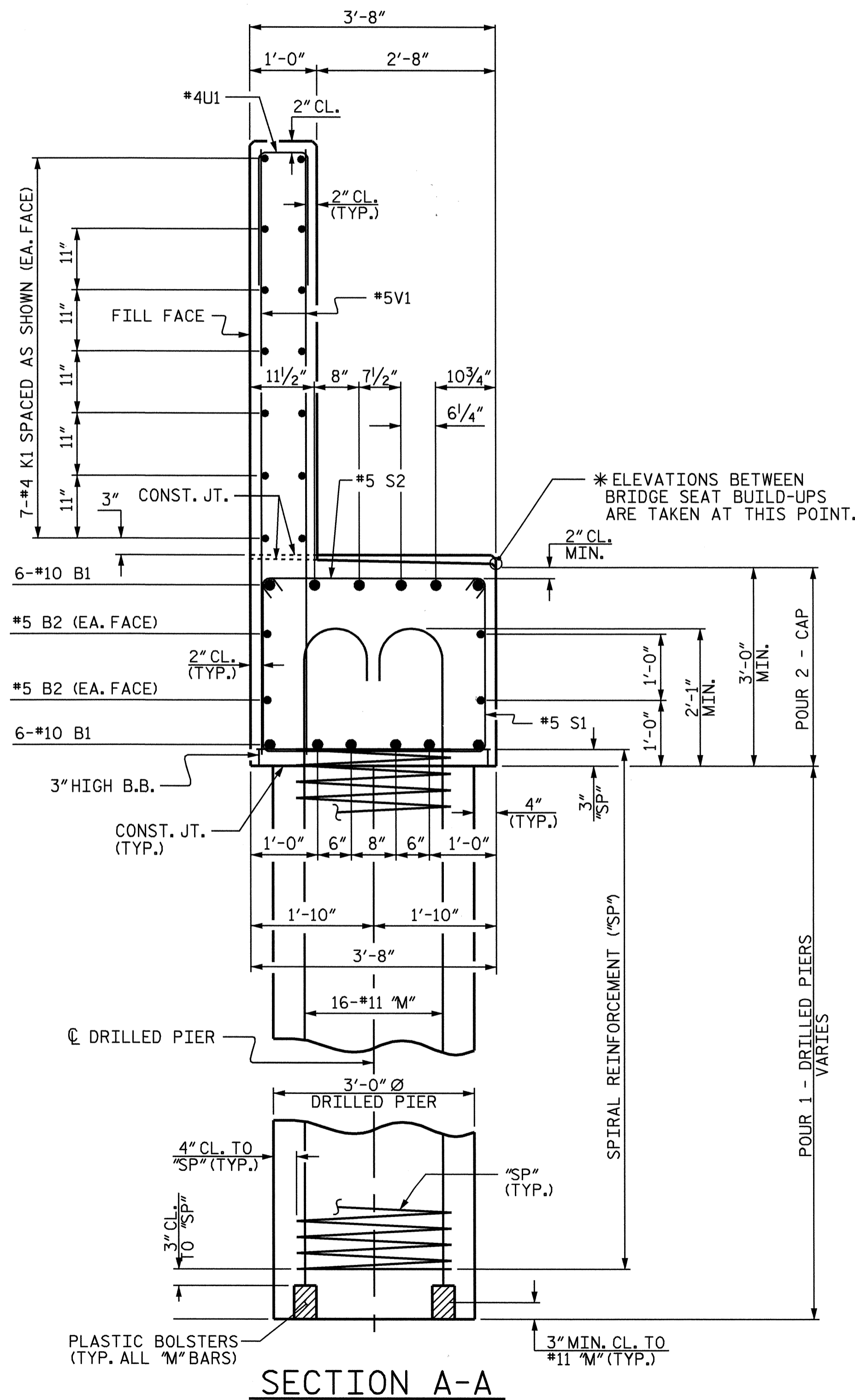
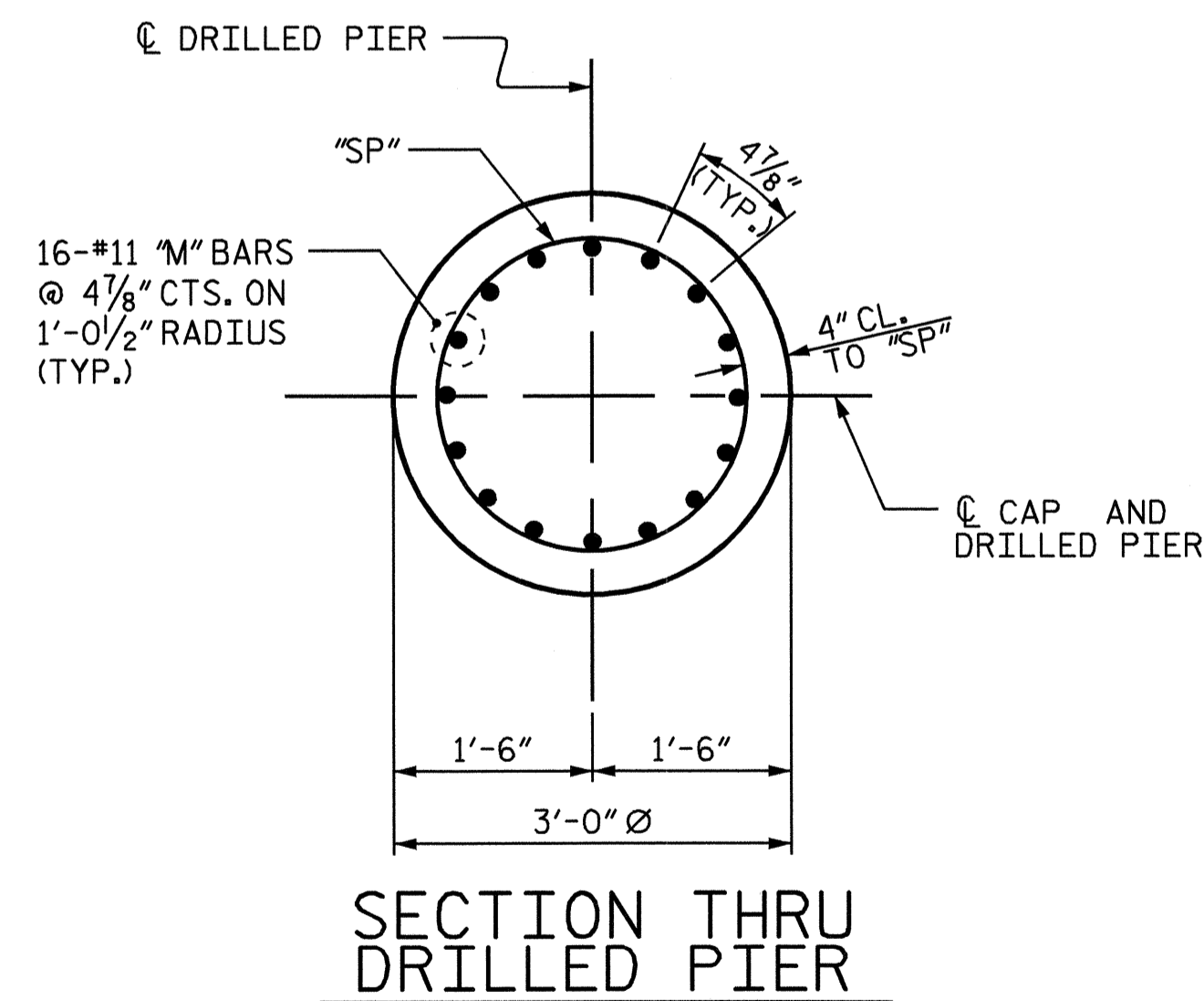


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

TEMPORARY DRAINAGE AT END BENT

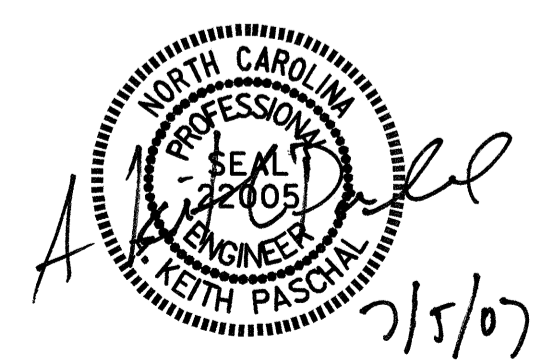


ALL BAR DIMENSIONS ARE OUT TO OUT.
 ** THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
 ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES, CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

BILL OF MATERIAL					
END BENT 2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	12	#10	1	44'-5"	2294
B2	4	#5	STR	41'-8"	174
B3	6	#4	STR	17'-7"	70
B4	6	#4	STR	3'-4"	13
H1	13	#5	3	15'-1"	206
H2	13	#5	3	15'-0"	203
H3	12	#5	4	14'-10"	186
H4	12	#5	4	14'-11"	187
K1	28	#4	STR	22'-1"	413
K2	8	#5	STR	3'-8"	20
M1	32	#11	6	19'-0"	3230
M2	16	#11	6	29'-0"	2465
S1	67	#5	7	9'-6"	664
S2	67	#5	2	4'-3"	297
S3	2	#6	9	8'-11"	27
S4	6	#6	5	3'-9"	34
U1	34	#4	8	4'-6"	102
U2	15	#4	8	6'-4"	63
V1	68	#5	STR	8'-9"	620
V2	38	#5	STR	11'-1"	439
V3	38	#5	STR	10'-5"	413
REINFORCING STEEL			12120 LBS.		
SP-1	2	**	10	231'-7"	483
SP-2	1	**	10	203'-10"	421
SPIRAL COLUMN REINFORCING STEEL			904 LBS.		
CLASS A CONCRETE (CU. YDS.)					
POUR 2	CAP & LOWER PART OF WING		22.5		
POUR 3	BACKWALL & UPPER PART OF WING		17.9		
TOTAL			40.4		
3'-0" Ø DRILLED PIERS					
DRILLED PIER CONCRETE (CU. YDS.)					
POUR 1 (DRILLED PIERS)			12.5		
3'-0" Ø DRILLED PIER IN SOIL :			29.8 LIN. FT.		
3'-0" Ø DRILLED PIER NOT IN SOIL :			18.0 LIN. FT.		
HP 12 x 53 STEEL PILES					
No. 2			30.0 LIN. FT.		
PILE EXCAVATION IN SOIL			7.0 LIN. FT.		
PILE EXCAVATION NOT IN SOIL			3.0 LIN. FT.		
▲ CSL TUBES			LIN. FT.		221.0

PROJECT NO. B-4298
VANCE COUNTY
 STATION: 21+73.50 -L-

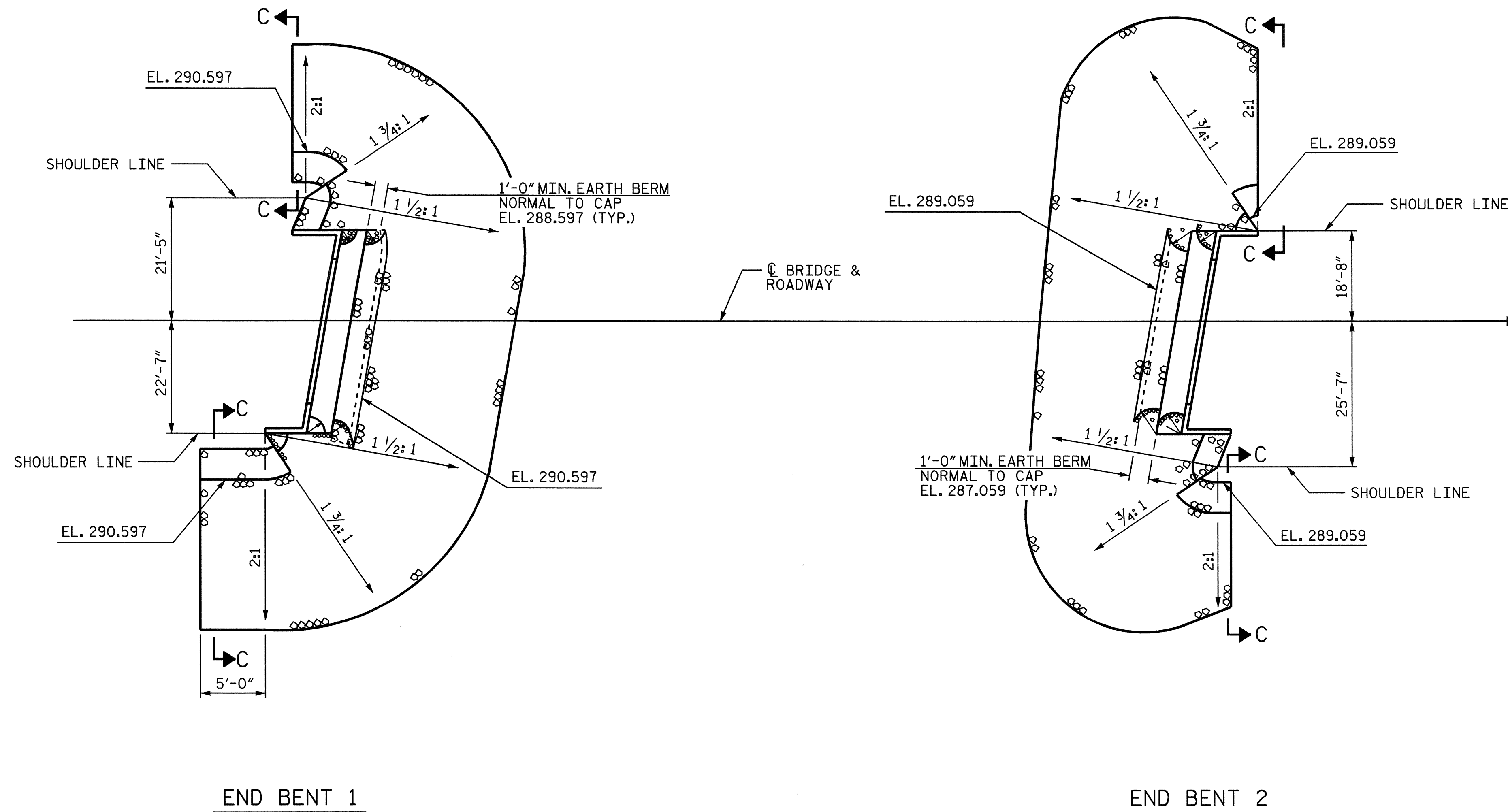
SHEET 3 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			27

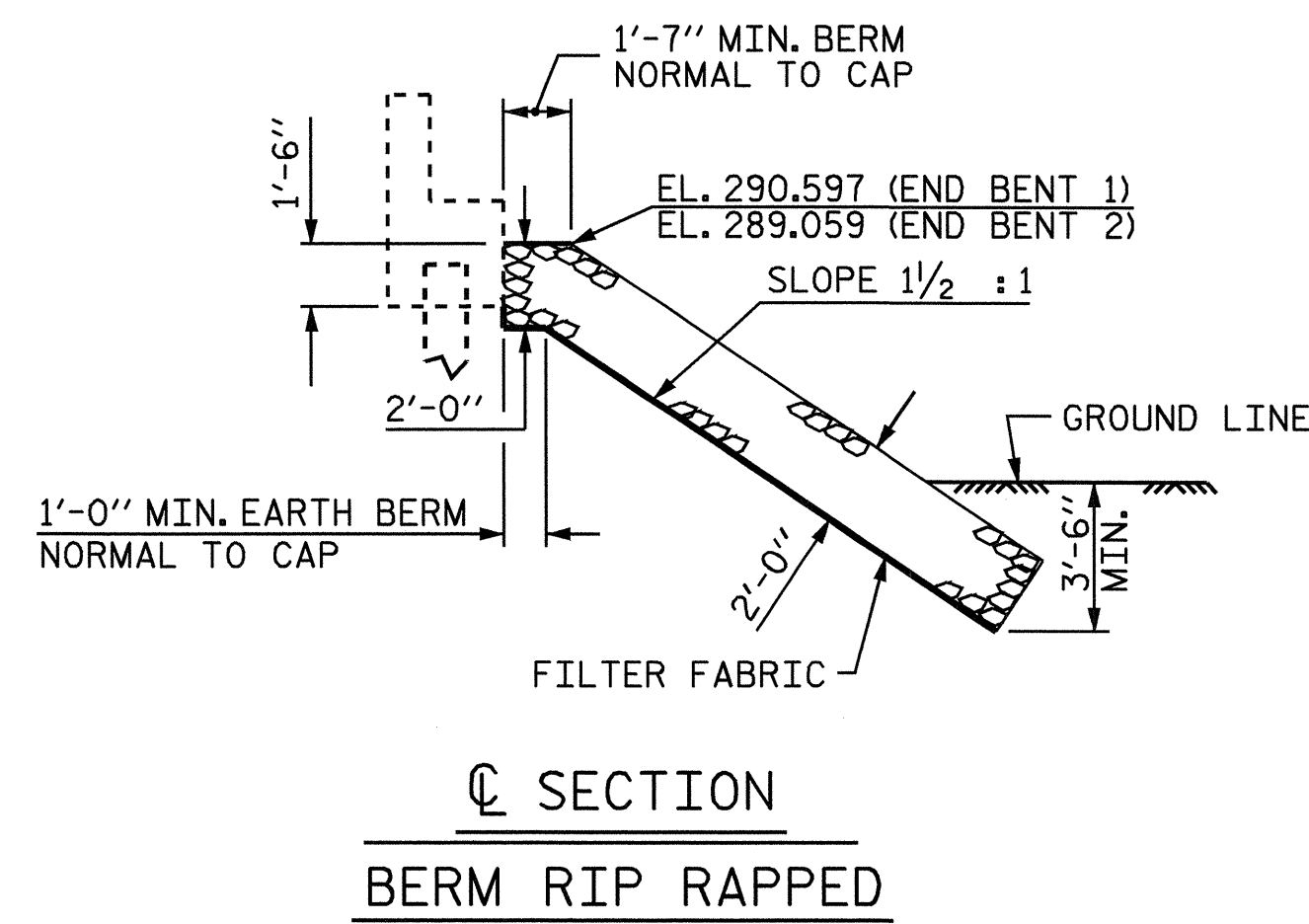
DRAWN BY : A.M. KEETER/JGK DATE : 11/14/06
 CHECKED BY : J.D. HAWK DATE : 1/8/07

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

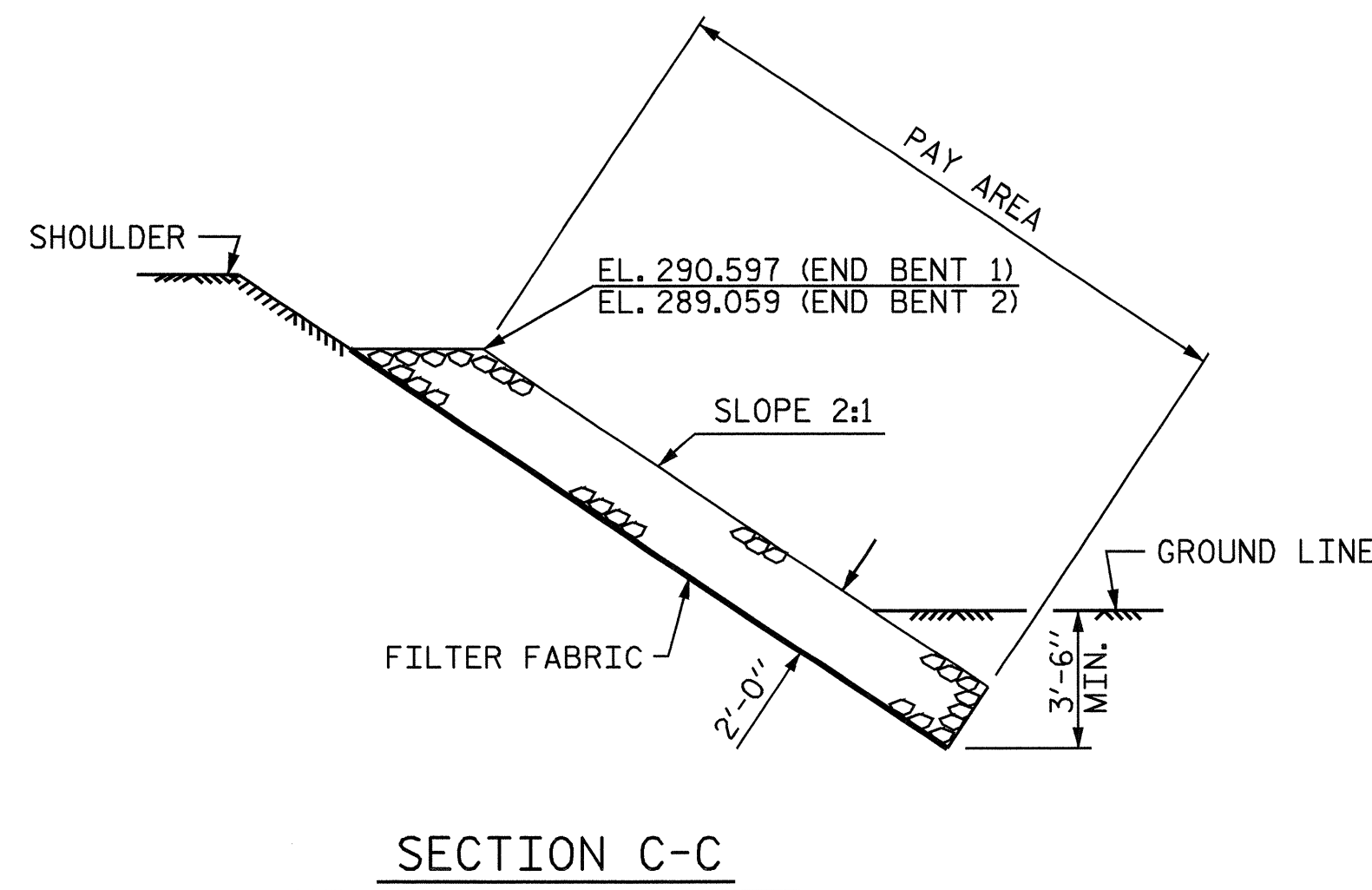


PLAN OF RIP RAP

ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+73.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	551	612
END BENT 2	471	523

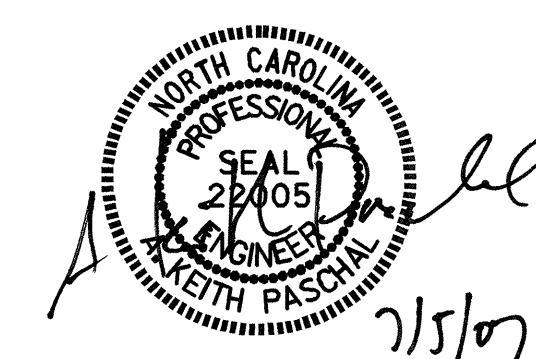


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-



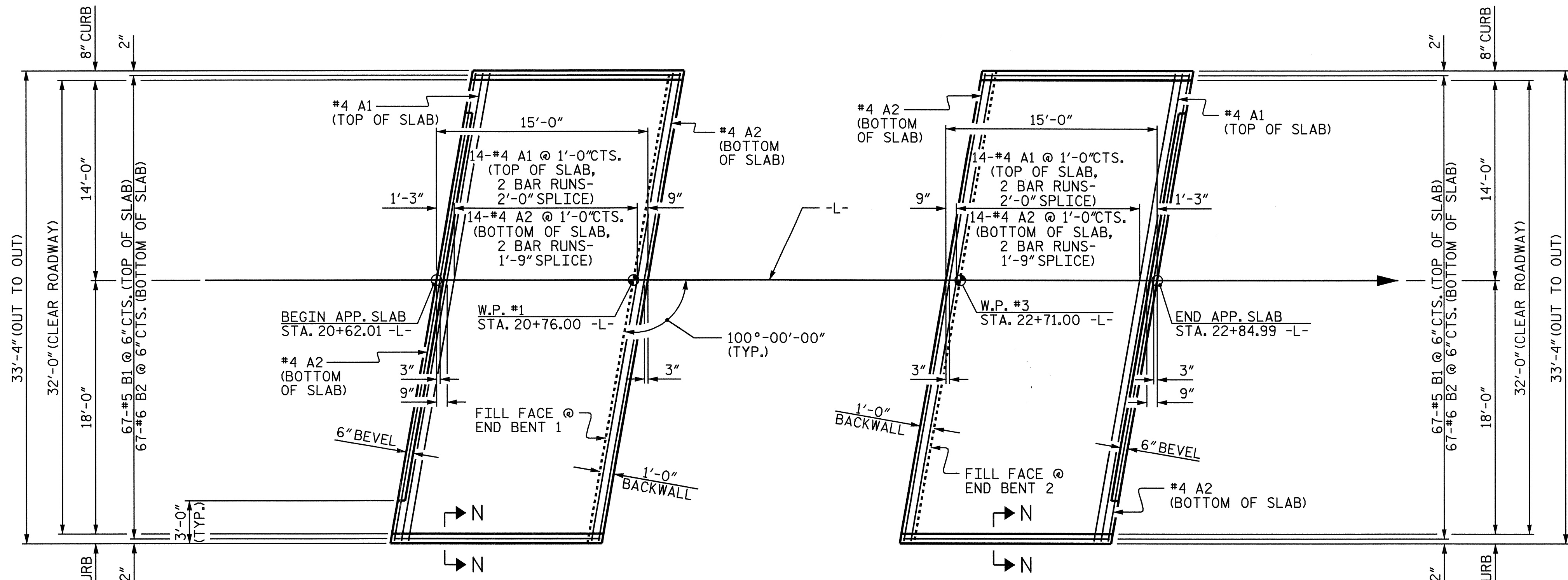
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-25
					TOTAL SHEETS 27

ASSEMBLED BY : A.M. KEETER DATE : 1/20/06
CHECKED BY : J.D. HAWK DATE : 12/4/06
DRAWN BY : REK 1/84 REV. 7/17/98 REK/RWW
CHECKED BY : RDU 1/84 REV. 8/16/99 RWW/LES
REV. 10/17/00 RWW/LES

05-JUN-2007 10:23
R:\Structures\Final Plans\B-4298_sd.RR.dgn
jdhawk

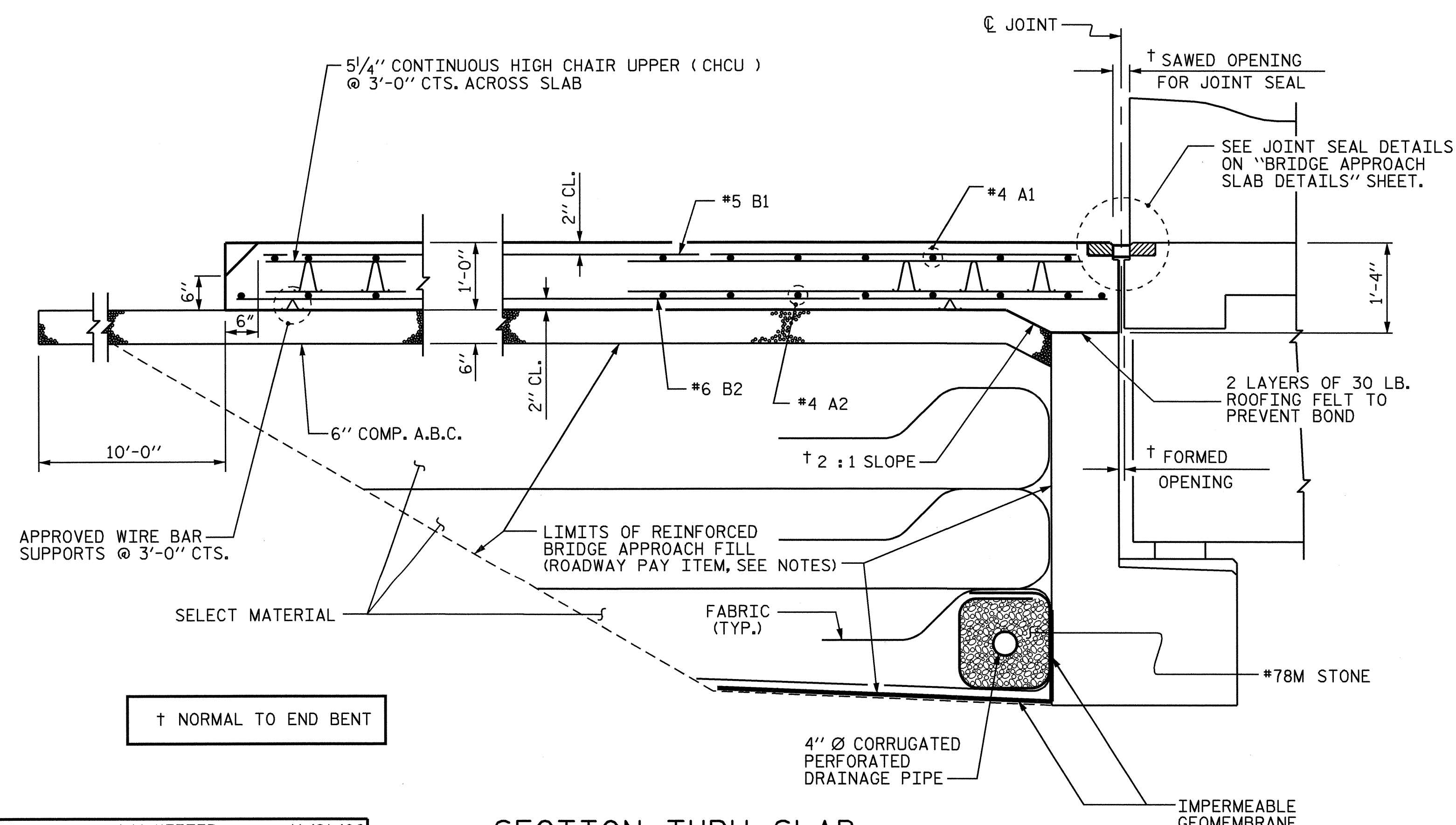
SKEW > 90°

STD. NO. RR3



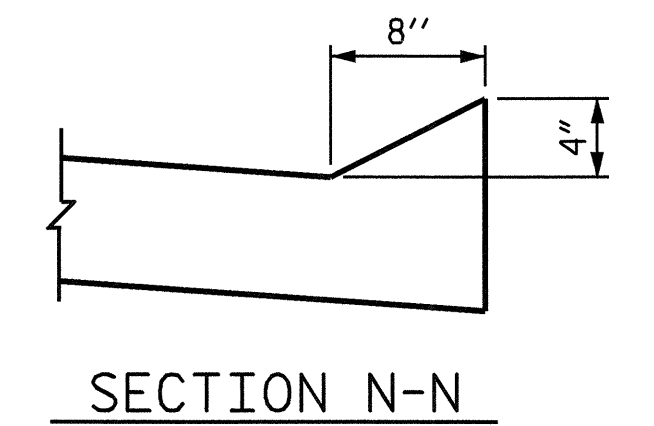
PLAN @ END BENT 1

PLAN @ END BENT 2

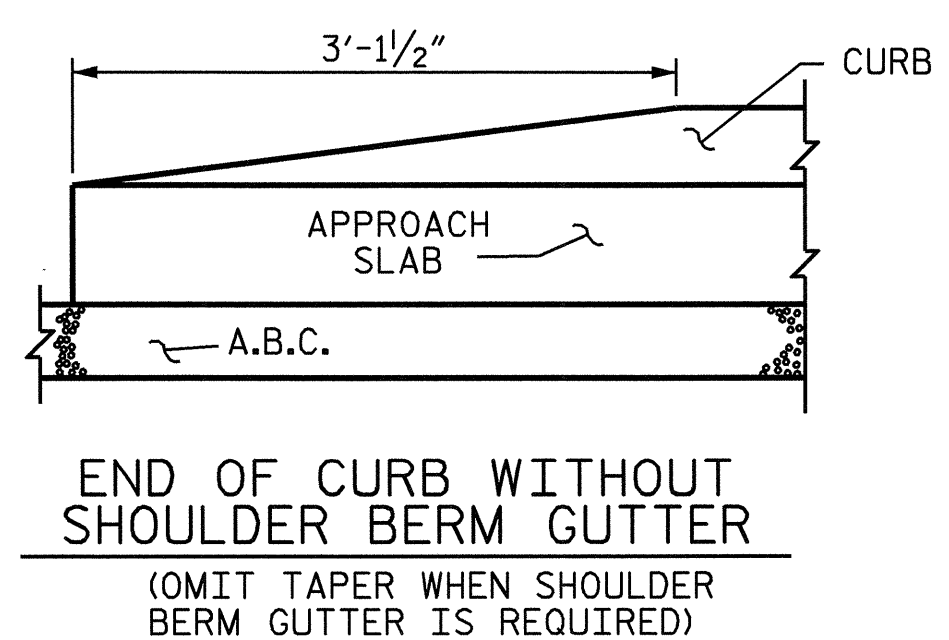


SECTION THRU SLAB

SHOWING SECTION WITHOUT CONCRETE WEARING SURFACE



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER
(OMIT TAPER WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

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

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

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

THE 6" COMP. A.B.C. SHALL EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB. ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

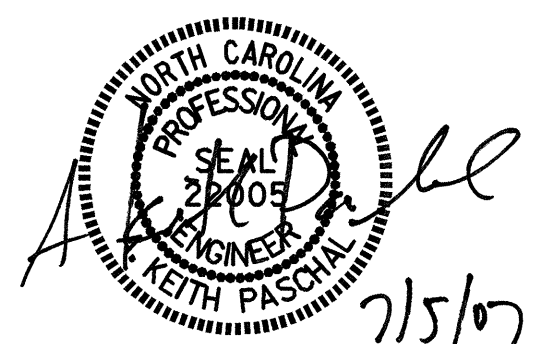
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

THE COST OF ELASTOMERIC CONCRETE WILL BE INCLUDED IN THE PAY ITEM FOR "EVAZOTE JOINT SEALS."

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

BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	17'-9"	356
A2	32	#4	STR	17'-8"	378
*B1	67	#5	STR	14'-0"	978
B2	67	#6	STR	14'-8"	1476
REINFORCING STEEL				LBS.	1854
*EPOXY COATED REINFORCING STEEL				LBS.	1334
CLASS AA CONCRETE:					
SLAB AND CURB				C. Y.	19.1

ASSEMBLED BY : A.M. KEETER DATE : 11/21/06
 CHECKED BY : J.D. HAWK DATE : 12/4/06
 DRAWN BY : LES 8/01 REV. 5/7/03R RWW/JTE
 CHECKED BY : RDR 8/01 REV. 5/1/06 TLA/GM

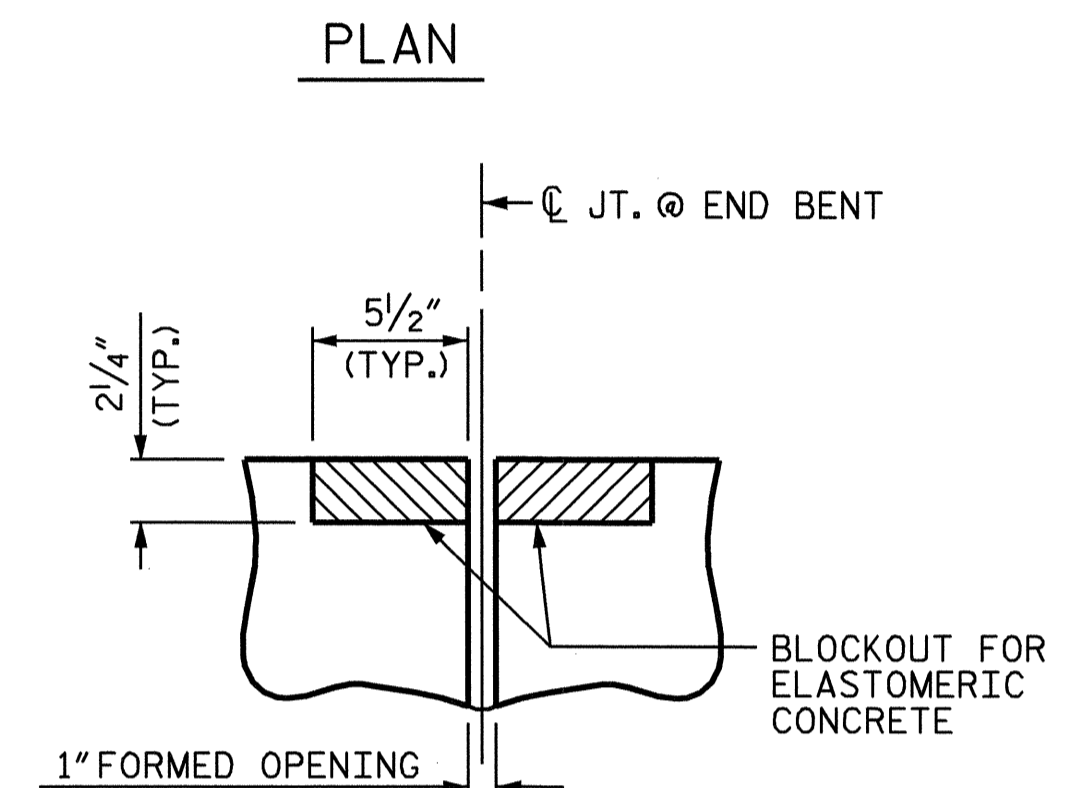
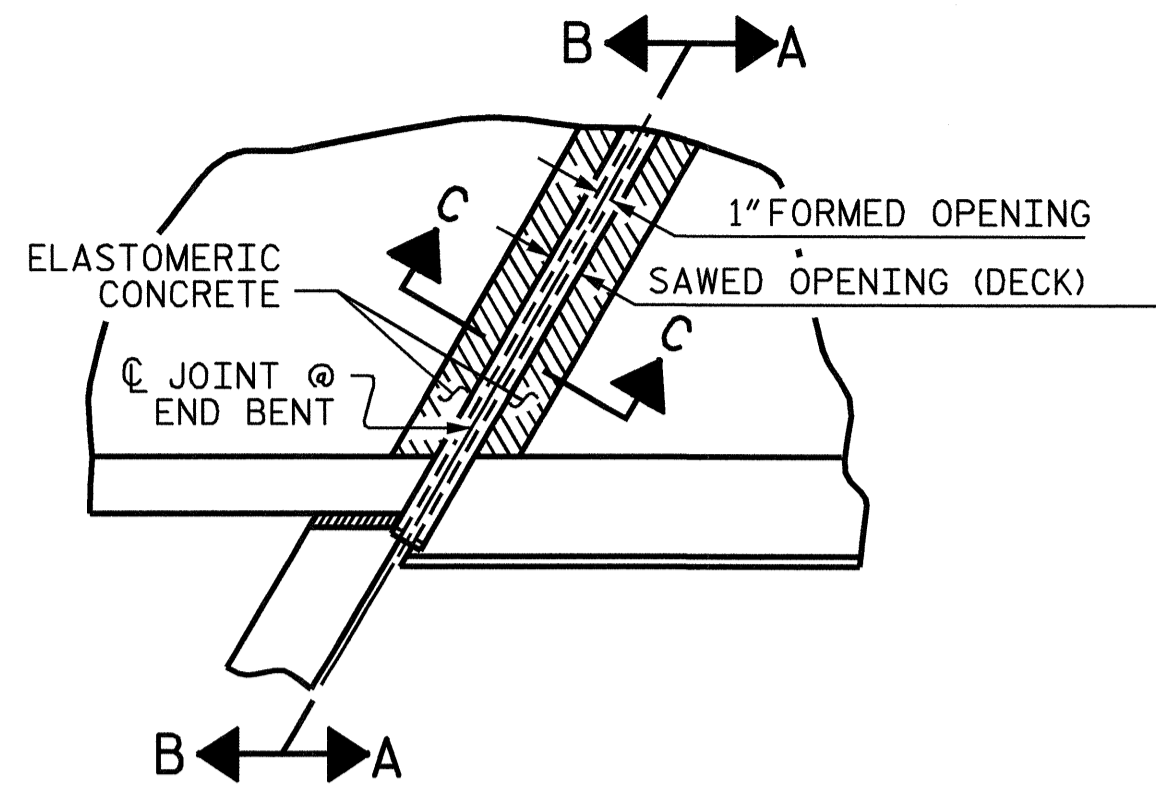


PROJECT NO. B-4298
 VANCE COUNTY
 STATION: 21+73.50 -L-

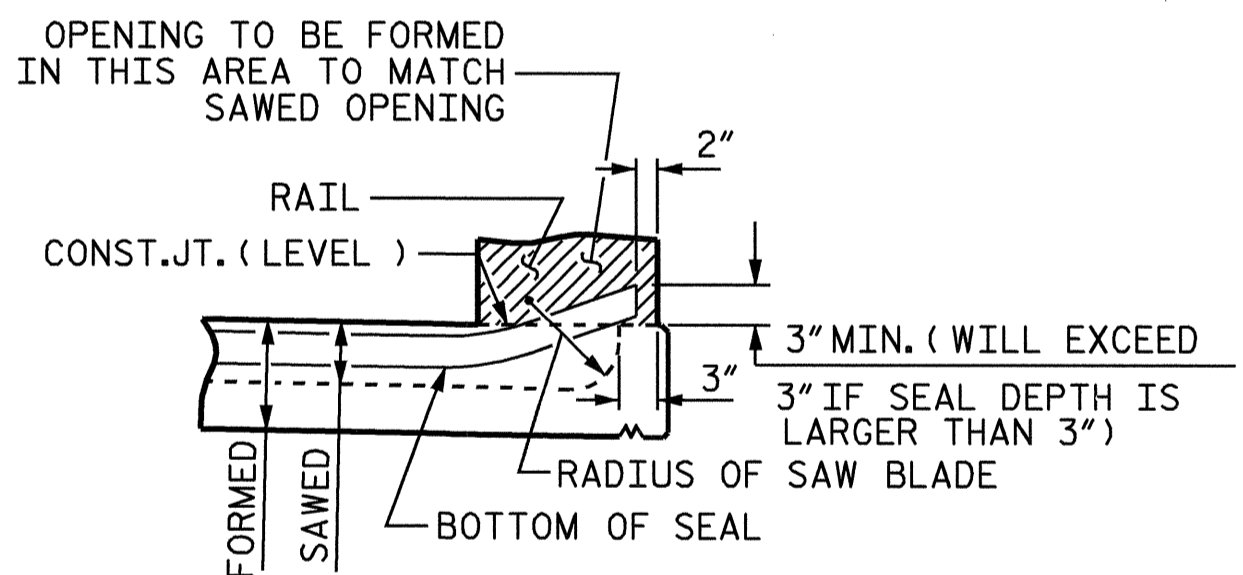
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

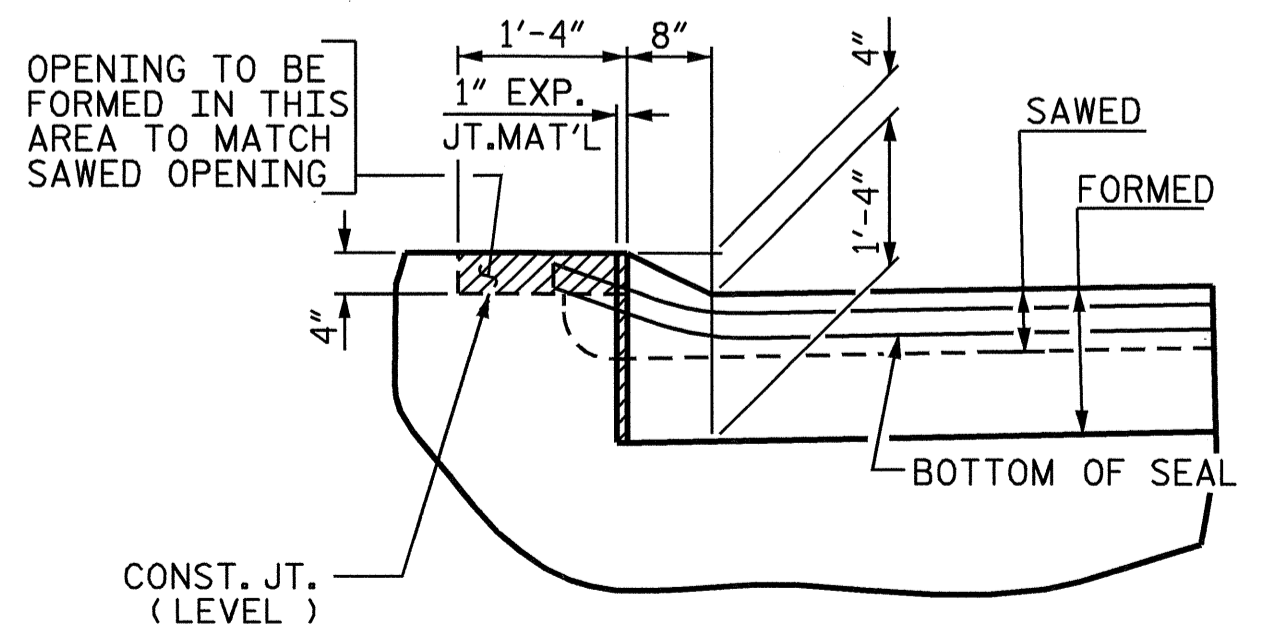
SHEET NO. S-26
TOTAL SHEETS 27



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

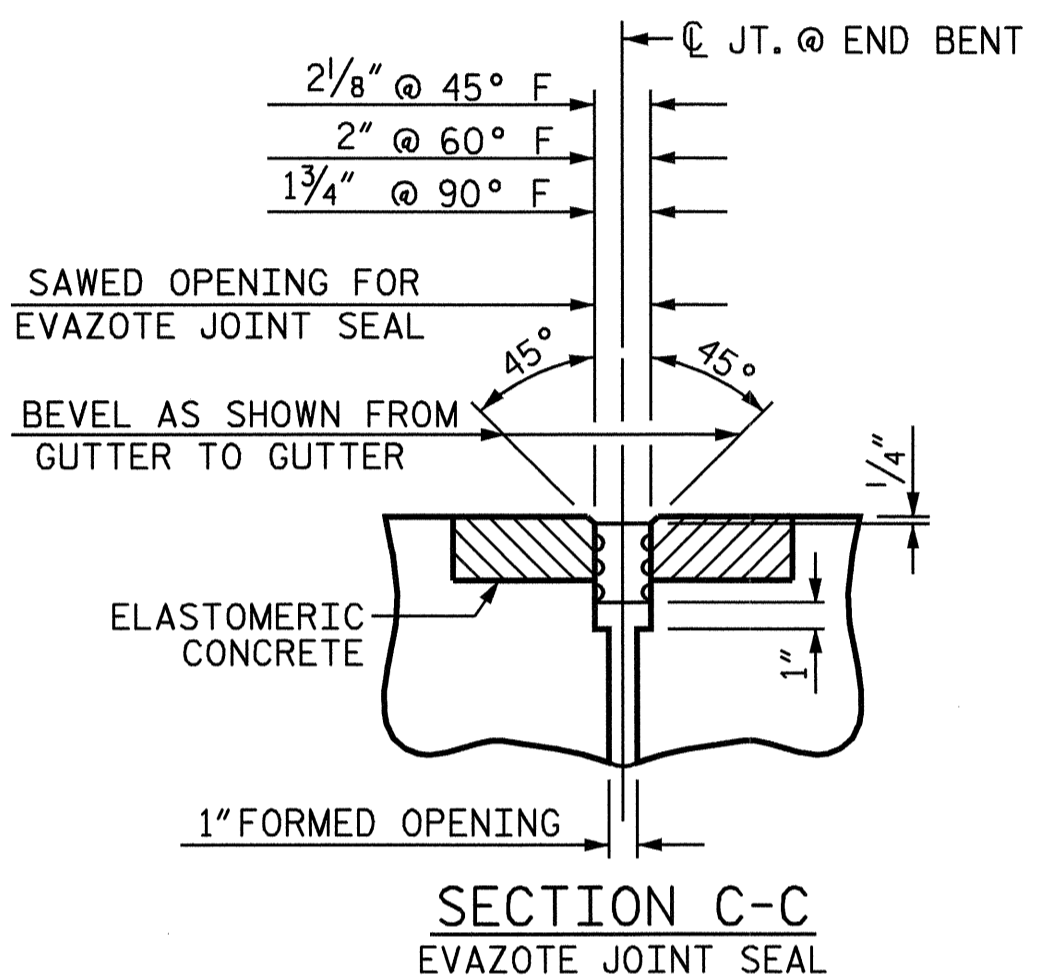


SECTION A-A

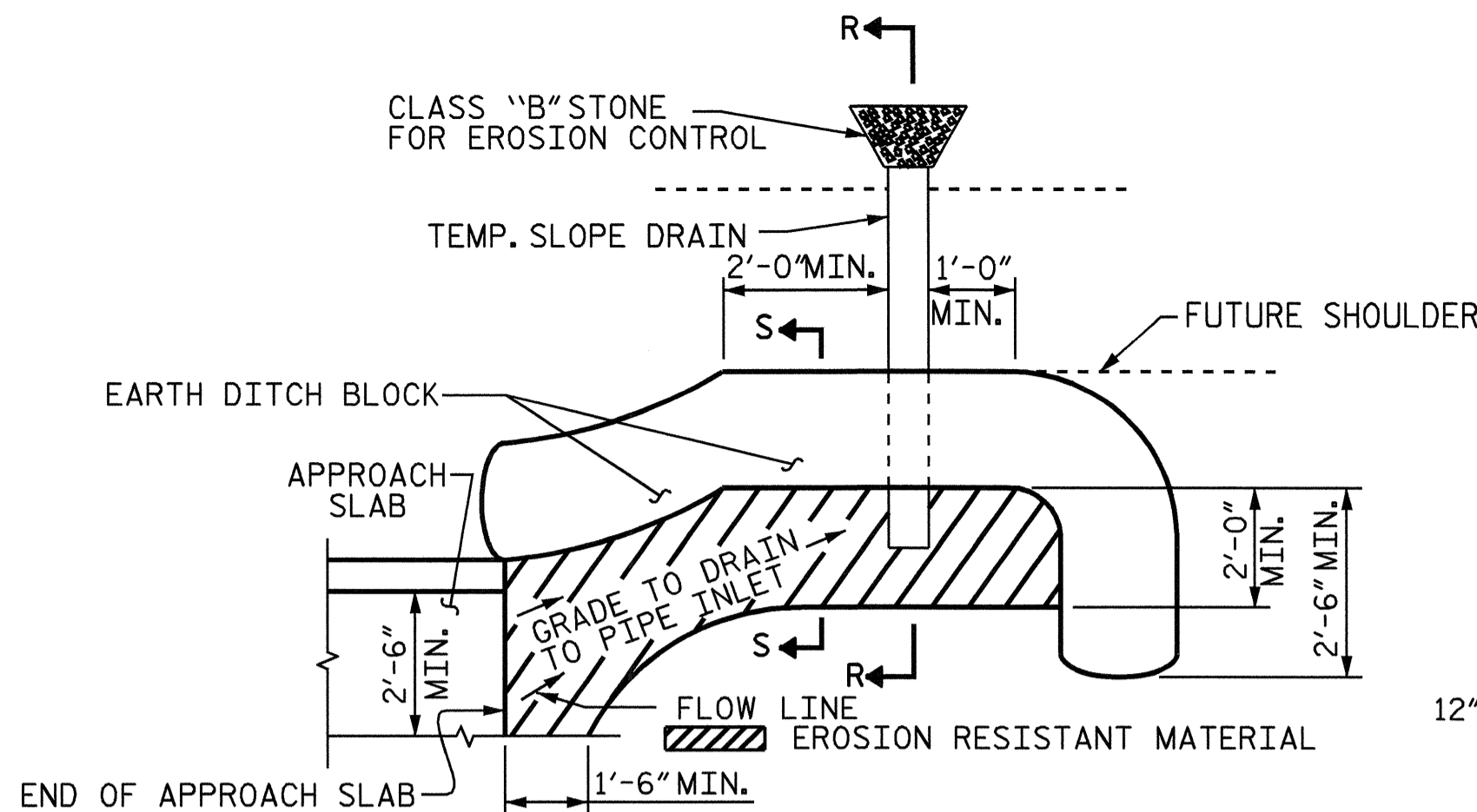


SECTION B-B

JOINT SEAL DETAILS @ END BENT

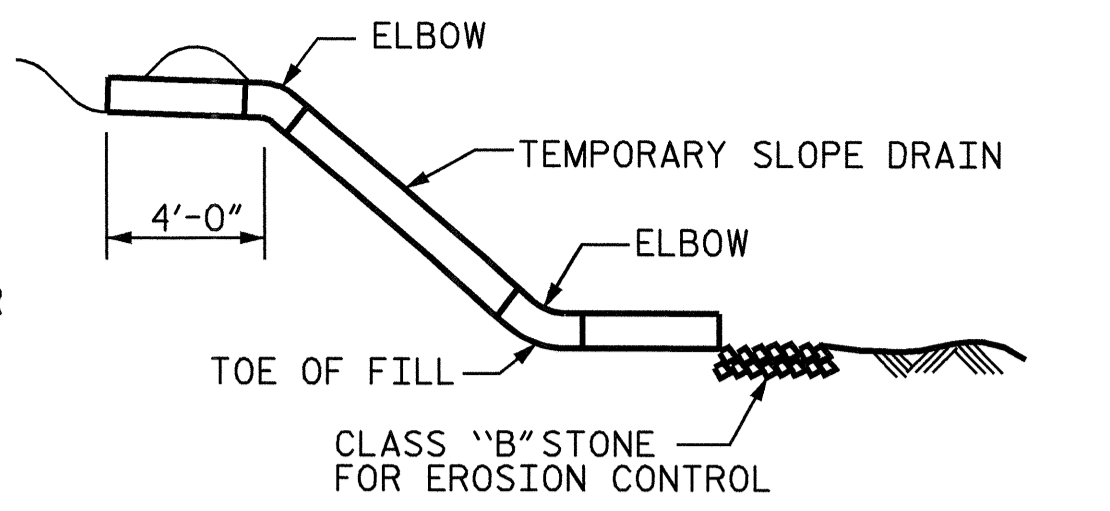


SECTION C-C
EVAZOTE JOINT SEAL

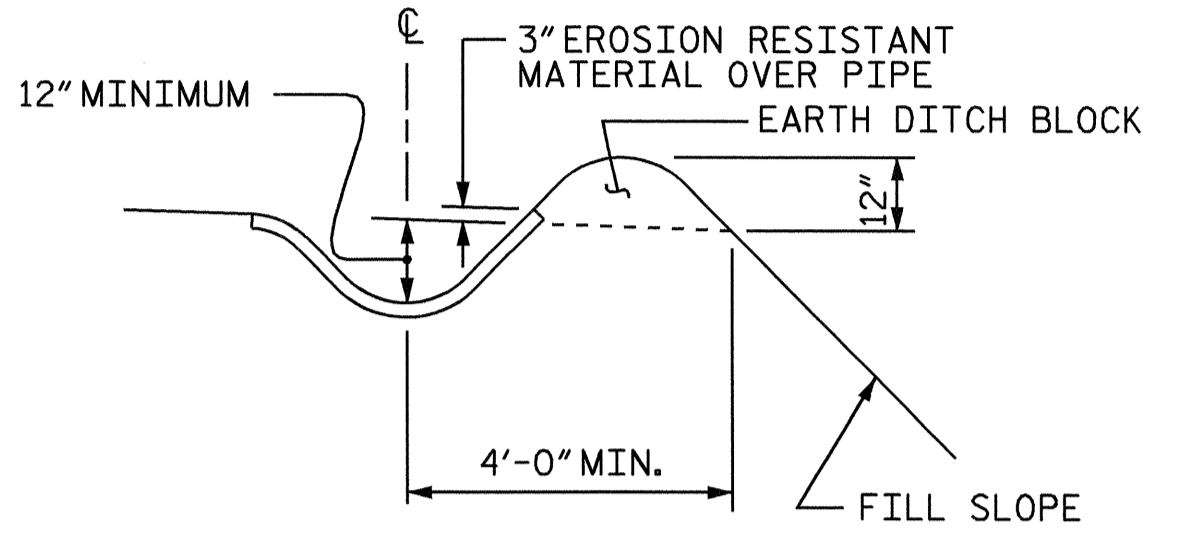


PLAN VIEW

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



SECTION R-R



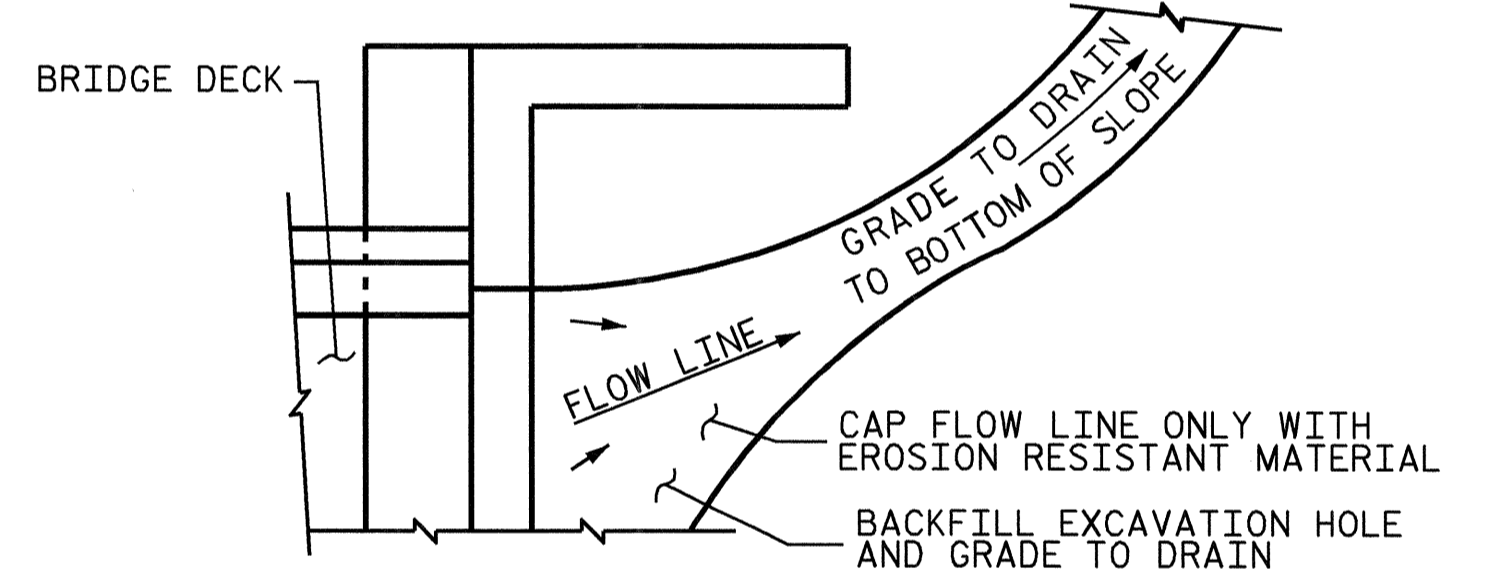
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.8
2	5.8
TOTAL	11.6

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



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

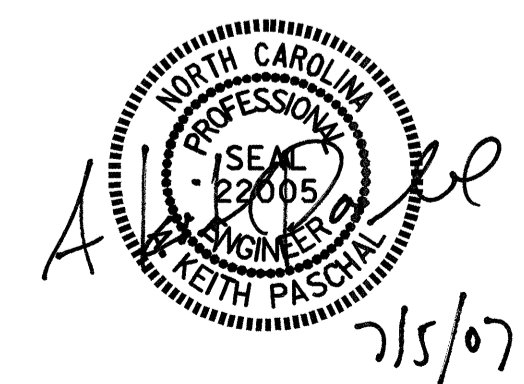
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4298
VANCE COUNTY
STATION: 21+73.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH
SLAB DETAILS



REVISIONS						1988
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-27
2			4			TOTAL SHEETS 27

STD. NO. BAS10

ASSEMBLED BY : A.M. KEETER	DATE : 11/21/06
CHECKED BY : J.D. HAWK	DATE : 12/4/06
DRAWN BY : FCJ	11/88
CHECKED BY : ARB	11/88
REV. 8/16/99	MAB/LES
REV. 10/17/00	RWW/LES
REV. 5/7/03	RWW/JTE

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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN