

09/08/99

TIP PROJECT: B-4559

CONTRACT: C202469

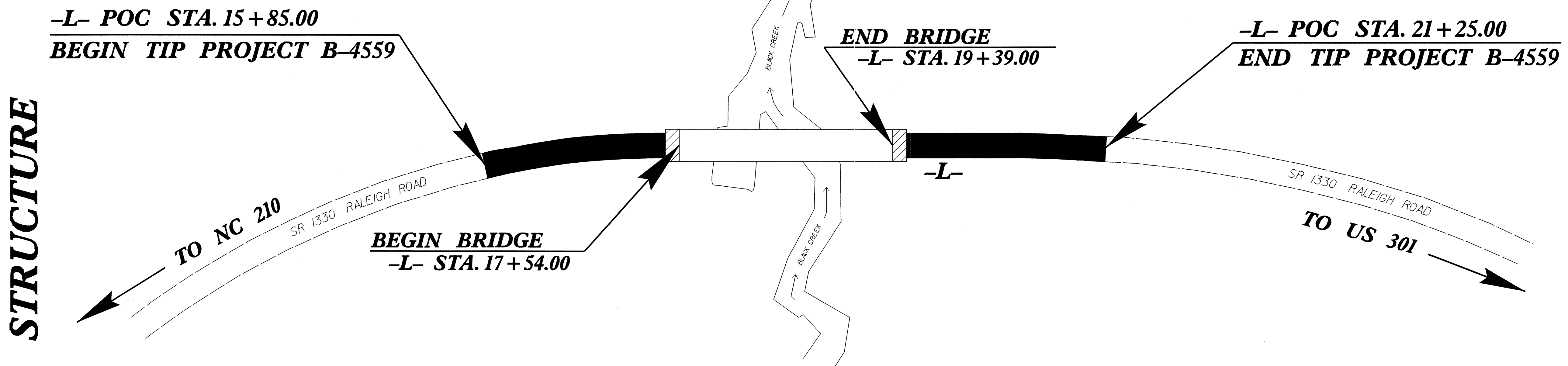
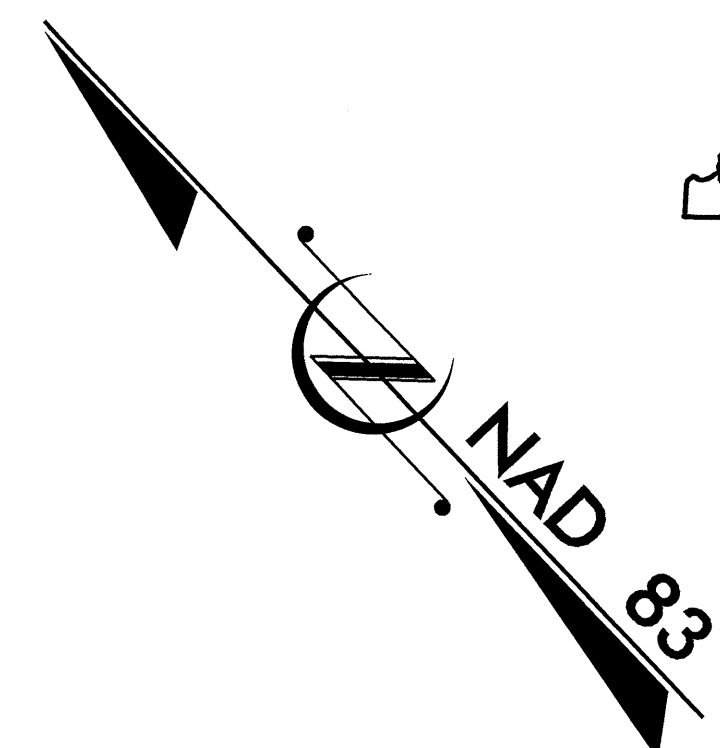
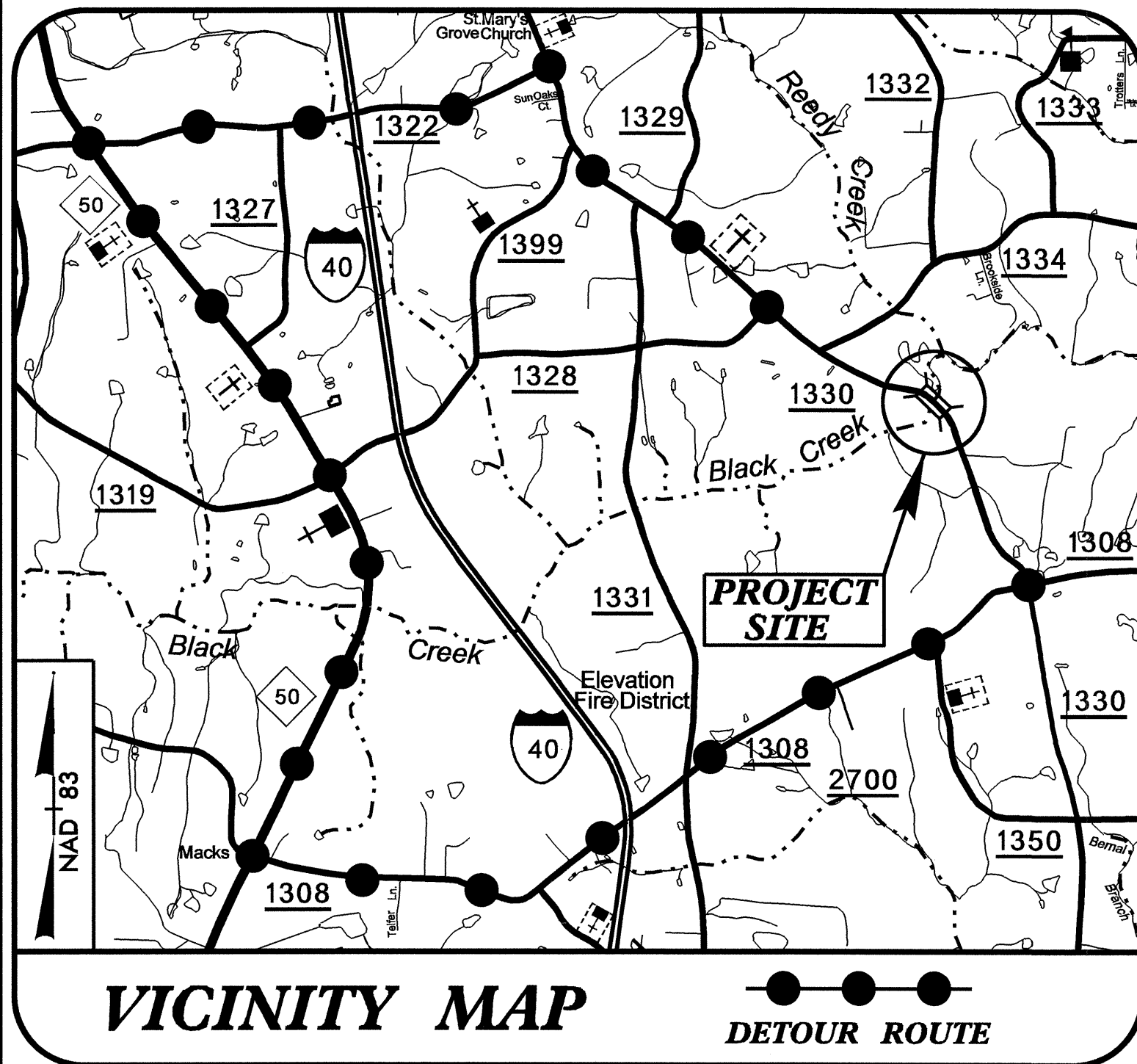
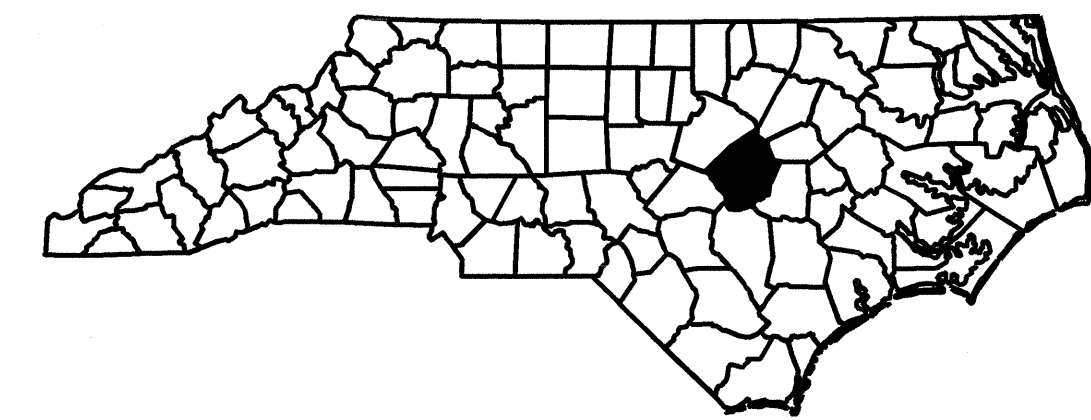
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

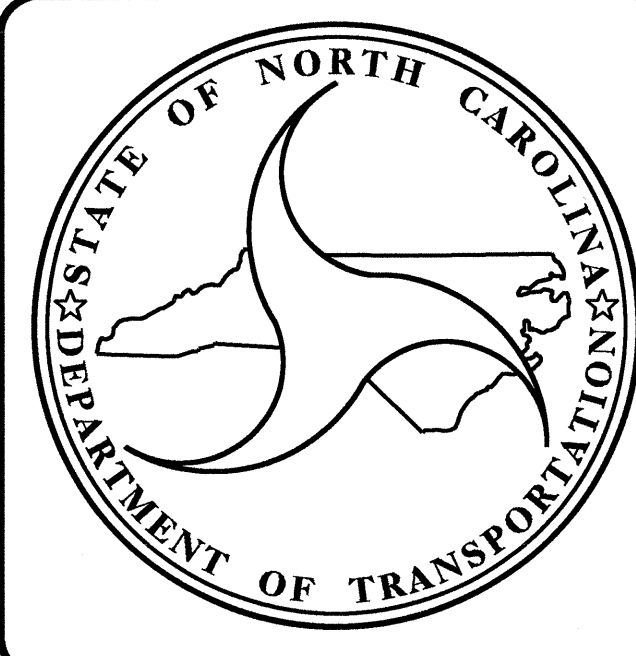
**LOCATION: BRIDGE NO. 84 OVER BLACK CREEK
ON SR 1330 (RALEIGH ROAD)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4559		
STATE PROJ. NO.	P. A. PROJ. NO.	DESCRIPTION	
33770.1.1	BRZ-1330(7)	P.E.	
33770.2.1	BRZ-1330(7)	ROW & UTIL	
33770.3.1	BRZ-1330(7)	CONST.	



STRUCTURE



DESIGN DATA

ADT 2008	=	1400
ADT 2030	=	2600
DHV	=	11 %
D	=	60 %
T	=	4 % *
V	=	55 MPH
* TTST 1%	=	DUAL 3%
FUNC CLASS	=	LOCAL
SUB-REGIONAL TIER	=	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4559	=	0.067 MI
LENGTH STRUCTURE TIP PROJECT B-4559	=	0.035 MI
TOTAL LENGTH TIP PROJECT B-4559	=	0.102 MI

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

2006 STANDARD SPECIFICATIONS

LETTING DATE:
April 20, 2010

OMAR R. AZIZI, PE
PROJECT ENGINEER

TIMOTHY L. COGGINS, PE
PROJECT DESIGN ENGINEER

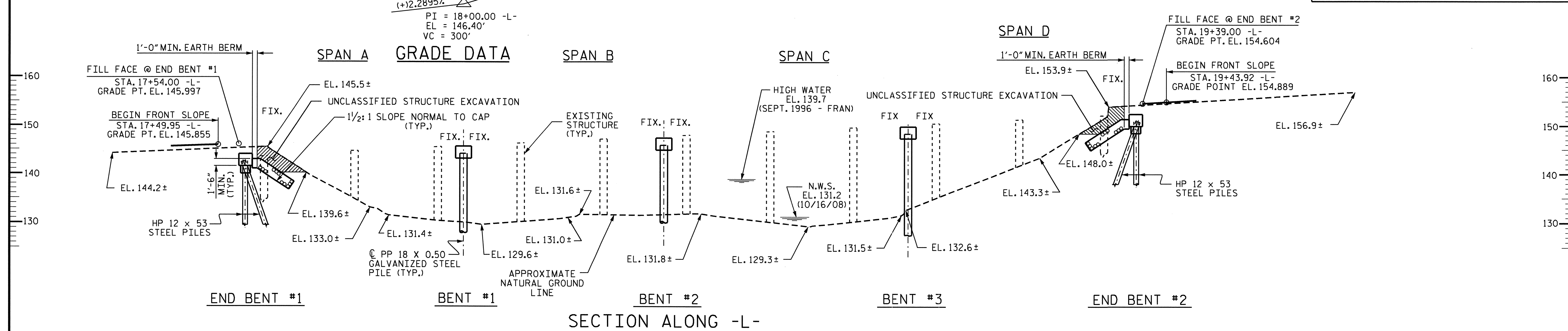
STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DRIVE
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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\$\$\$\$\$DGN\$\$\$\$\$
taverette

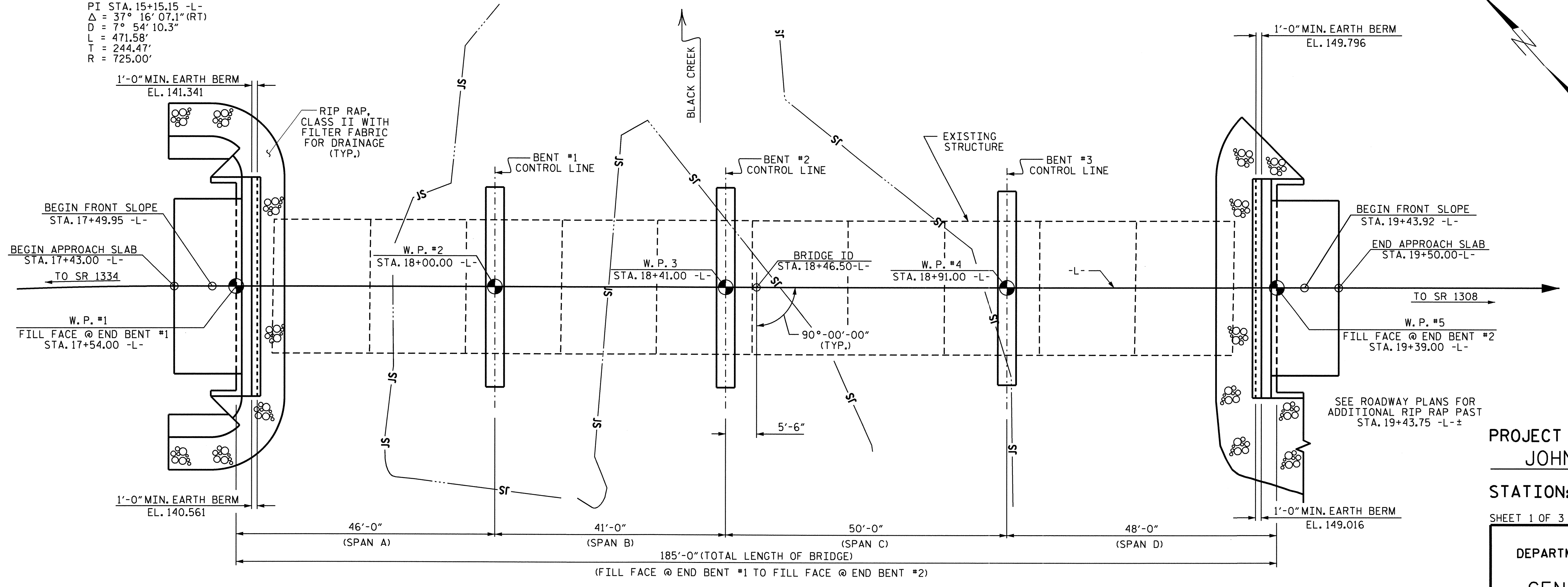
17+25 17+50 17+75 18+00 18+25 18+50 18+75 19+00 19+25 19+50

F. A. PROJECT: BRZ-1330(7)



HORIZONTAL CURVE DATA

PI STA. 15+15.15 -L-
 Δ = 37° 16' 07.1" (RT)
 D = 7° 54' 10.3"
 L = 471.58'
 T = 244.47'
 R = 725.00'



PROJECT NO. B-4559
 JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 84

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 BLACK CREEK ON
 SR 1330 BETWEEN
 SR 1334 AND SR 1308

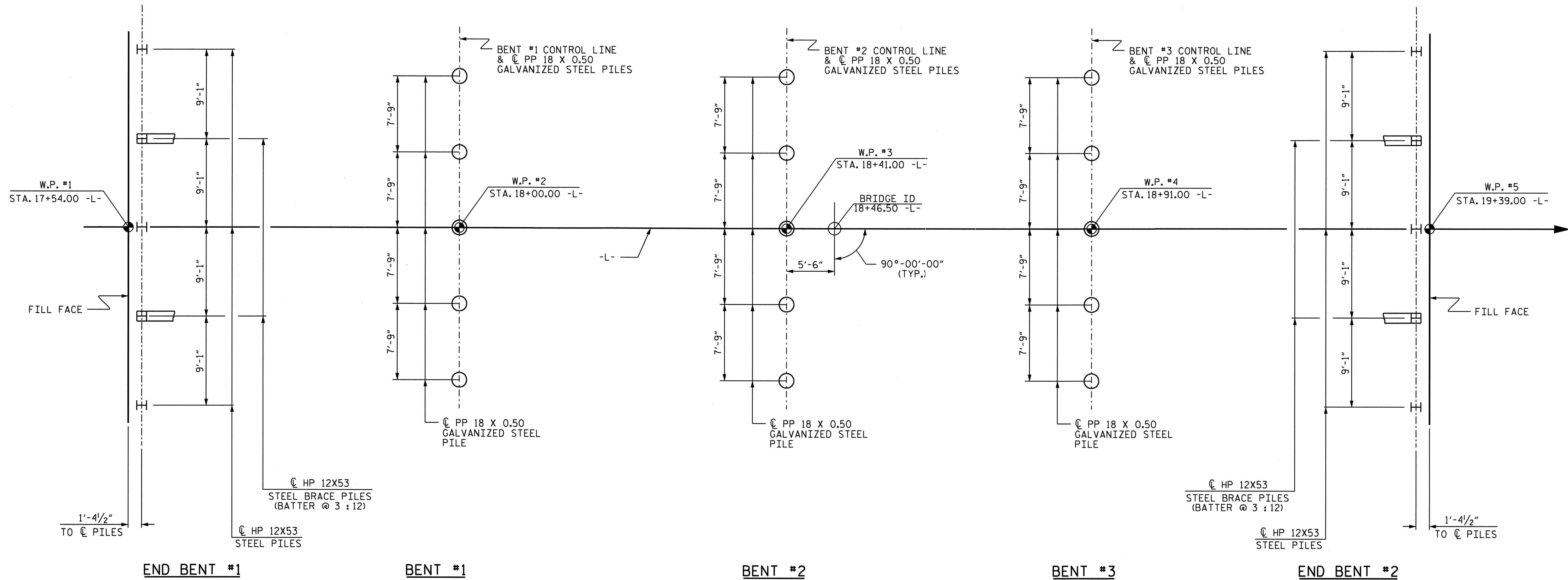
REVISIONS

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

Professional Engineer seals for Omar R. Azzi (Seal 12274) and Timothy L. Crockett (Seal 14045) with dates 2/25/2010 and 2/25/10.

DRAWN BY: B.N. BARODAWALA DATE: 11-5-09
 CHECKED BY: PEGGY PARISI DATE: 12-18-09

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 taverette



FOUNDATION LAYOUT

NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

PILES AT BENT NO.1, BENT NO.2 AND BENT NO.3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 155 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 260 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 106 FT.

INSTALL PILES AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN 110 FT.

INSTALL PILES AT BENT NO.3 TO A TIP ELEVATION NO HIGHER THAN 109 FT.

SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 123 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SCOUR CRITICAL ELEVATION FOR BENT NO.2 IS ELEVATION 124 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

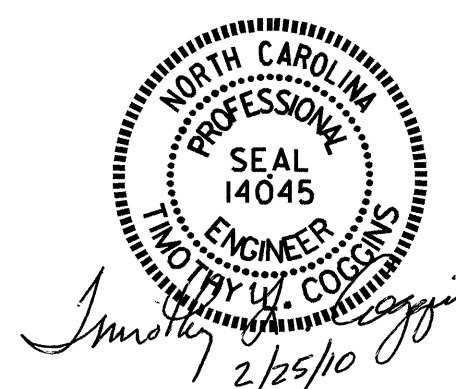
SCOUR CRITICAL ELEVATION FOR BENT NO.3 IS ELEVATION 127 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30-55 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO.1 AND END BENT NO.2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 55-95 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO.1, BENT NO.2 AND BENT NO.3. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

CUT THE EXISTING TIMBER PILES AT EXISTING BENT NO.7, BENT NO.8 AND END BENT NO.2 JUST BELOW THE GROUND ELEVATION AND LEAVE THE PILES IN PLACE IN ORDER TO AID THE END BENT NO.2 SLOPE STABILITY.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PILE DRIVING ANALYZER, SEE PILE PROVISION.



PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

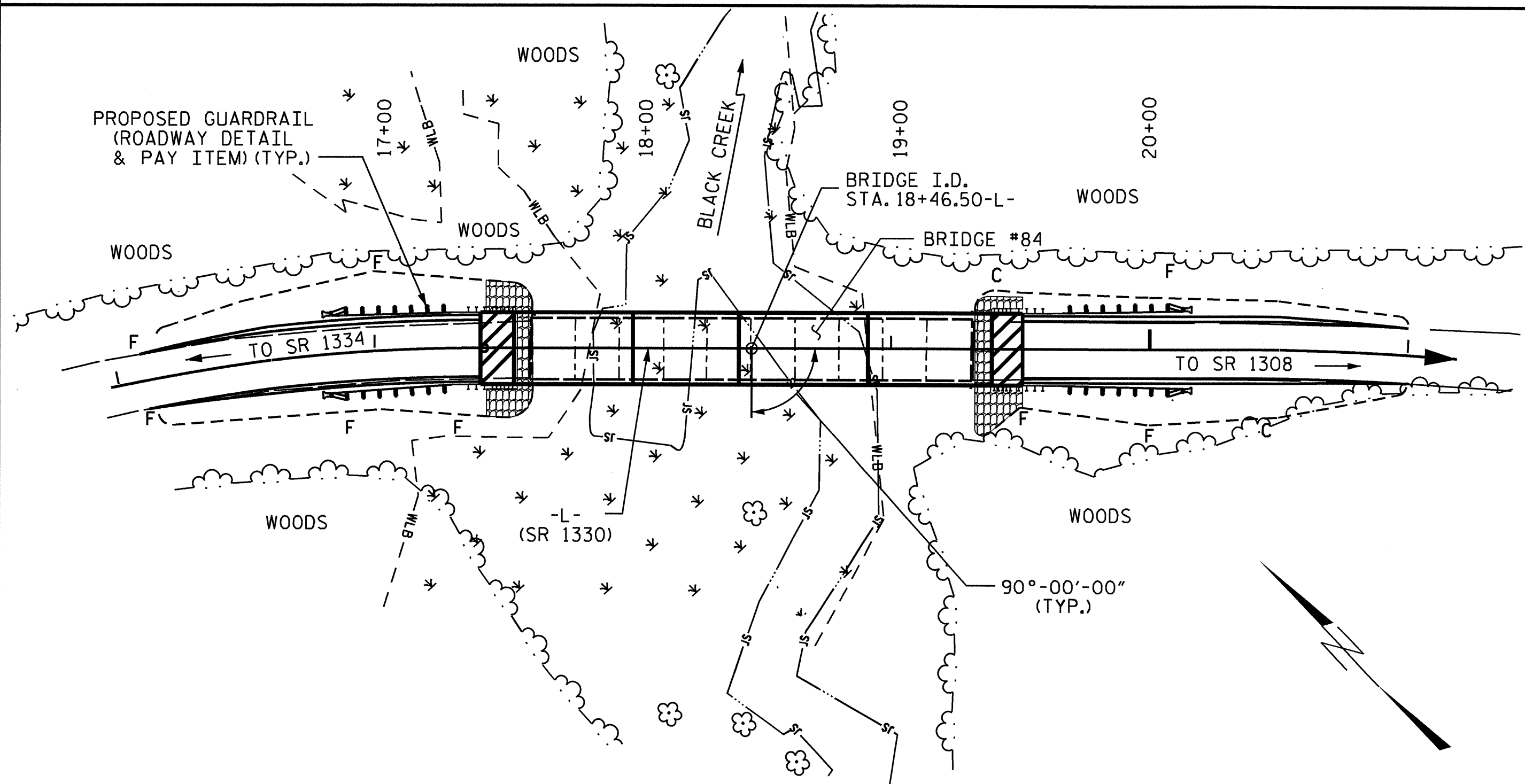
FOR BRIDGE OVER
 BLACK CREEK ON
 SR 1330 BETWEEN
 SR 1334 AND SR 1308

DRAWN BY : B.N.BARODAWALA DATE : 11-5-09
 CHECKED BY : PEGGY PARISI DATE : 12-18-09

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 toverette

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

BM #2 - RR SPIKE IN ROOT OF 12" RED MAPLE @ STA. 17+29.30 -L-, 62.09' RT,
ELEV.= 133.81'; NAVD 88



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE = 7,600 CFS
 FREQUENCY OF DESIGN FLOOD = 25 YR.
 DESIGN HIGH WATER ELEVATION = 141.1'
 DRAINAGE AREA = 73.3 Sq. MILES
 BASIC DISCHARGE (Q100) = 11,000 CFS
 BASIC HIGH WATER ELEVATION = 142.3'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 6,200 CFS
 FREQUENCY OF OVERTOPPING FLOOD = 10+ YR.
 OVERTOPPING FLOOD ELEVATION = 139.7'

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.

THE EXISTING STRUCTURE CONSISTING OF 10 SPANS, (1 @ 17'-9", 8 @ 17'-0", 1 @ 17'-9") WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND A CONCRETE DECK ON TIMBER JOISTS SUPPORTED BY A TIMBER CAP AND TIMBER PILES AT THE END BENTS AND BENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 26 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 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.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR INTERIOR BENTS NO. 1 AND NO. 2, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR DETAILS.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		PP 18 X 0.50 GALVANIZED STEEL PILES		PILE REDRIVES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		
								LUMP SUM	EACH	EACH	LUMP SUM						CU. YDS.	LUMP SUM	LBS.
SUPERSTRUCTURE													365.75				LUMP SUM	44	2006.13
END BENT NO. 1					13.2		1995	5	150			3		185	206				
BENT NO. 1					10.5		2059			5	225	3							
BENT NO. 2					10.5		2059			5	215	3							
BENT NO. 3					10.5		2059			5	200	3							
END BENT NO. 2					13.4		2003	5	150			3		135	150				
TOTAL	LUMP SUM	1	1	LUMP SUM	58.1	LUMP SUM	10175	10	300	15	640	15	365.75	320	356	LUMP SUM	44	2006.13	

PROJECT NO. B-4559

JOHNSTON COUNTY

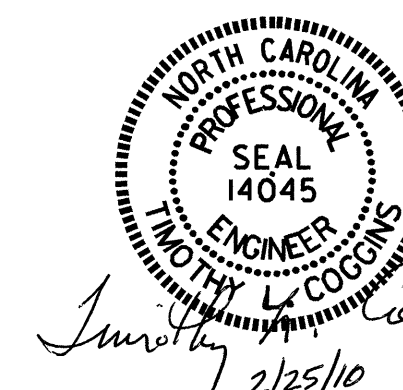
STATION: 18+46.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
BLACK CREEK ON
SR 1330 BETWEEN
SR 1334 AND SR 1308



REVISIONS

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

SHEET NO.

S-3

TOTAL SHEETS

22

DRAWN BY : B.N.BARODAWALA DATE : 11-4-09
 CHECKED BY : PEGGY PARISI DATE : 12-18-09

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2008	34
FUTURE	2030	62

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.

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	1.01	--	1.75	0.274	1.15	C	ER	24.438	0.525	1.01	D	ER	2.291	0.80	0.256	1.35	D	I	22.906		
		HL-93 (OPERATING)	N/A		1.30	--	1.35	0.274	1.49	C	ER	24.438	0.525	1.30	D	ER	2.291	N/A	--	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	②	1.16	41.760	1.75	0.274	1.38	C	ER	24.438	0.525	1.16	D	ER	2.291	0.80	0.256	1.34	D	I	22.906		
		HS-20 (OPERATING)	36.000		1.54	55.440	1.35	0.274	1.84	C	ER	24.438	0.525	1.54	D	ER	2.291	N/A	--	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.65	35.775	1.40	0.274	3.62	C	ER	24.438	0.528	3.31	A	ER	2.191	0.80	0.256	2.65	D	I	22.906		
		SNGARBS2	20.000		2.13	42.600	1.40	0.274	2.86	C	ER	24.438	0.525	2.43	D	ER	2.291	0.80	0.256	2.13	D	I	22.906		
		SNAGRIS2	22.000		2.09	45.980	1.40	0.274	2.78	C	ER	19.550	0.525	2.28	D	ER	2.291	0.80	0.256	2.09	D	I	22.906		
		SNCOTTS3	27.250		1.33	36.243	1.40	0.274	1.80	C	ER	24.438	0.525	1.66	D	ER	2.291	0.80	0.256	1.33	D	I	22.906		
		SNAGGRS4	34.925		1.16	40.513	1.40	0.274	1.57	C	ER	24.438	0.525	1.43	D	ER	2.291	0.80	0.256	1.16	D	I	22.906		
		SNS5A	35.550		1.14	40.527	1.40	0.274	1.53	C	ER	24.438	0.525	1.47	D	ER	2.291	0.80	0.256	1.14	D	I	22.906		
		SNS6A	39.950		1.06	42.347	1.40	0.274	1.43	C	ER	24.438	0.525	1.37	D	ER	2.291	0.80	0.256	1.06	D	I	22.906		
		SNS7B	42.000	③	1.01	42.420	1.40	0.274	1.36	C	ER	24.438	0.525	1.37	D	ER	2.291	0.80	0.256	1.01	D	I	22.906		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.30	42.900	1.40	0.274	1.75	C	ER	24.438	0.525	1.61	D	ER	2.291	0.80	0.256	1.30	D	I	22.906		
		TNT4A	33.075		1.31	43.328	1.40	0.274	1.77	C	ER	24.438	0.525	1.54	D	ER	2.291	0.80	0.256	1.31	D	I	22.906		
		TNT6A	41.600		1.10	45.760	1.40	0.274	1.47	C	ER	24.438	0.525	1.50	D	ER	2.291	0.80	0.256	1.10	D	I	22.906		
		TNT7A	42.000		1.13	47.460	1.40	0.274	1.50	C	ER	24.438	0.525	1.39	D	ER	2.291	0.80	0.256	1.13	D	I	22.906		
		TNT7B	42.000		1.18	49.560	1.40	0.274	1.56	C	ER	24.438	0.525	1.32	D	ER	2.291	0.80	0.256	1.18	D	I	22.906		
		TNAGRIT4	43.000		1.11	47.730	1.40	0.274	1.48	C	ER	24.438	0.525	1.27	D	ER	2.291	0.80	0.256	1.11	D	I	22.906		
TNAGT5A	45.000		1.04	46.800	1.40	0.274	1.38	C	ER	24.438	0.525	1.29	D	ER	2.291	0.80	0.256	1.04	D	I	22.906				
TNAGT5B	45.000	③	1.01	45.450	1.40	0.274	1.35	C	ER	24.438	0.525	1.20	D	ER	2.291	0.80	0.256	1.01	D	I	22.906				

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

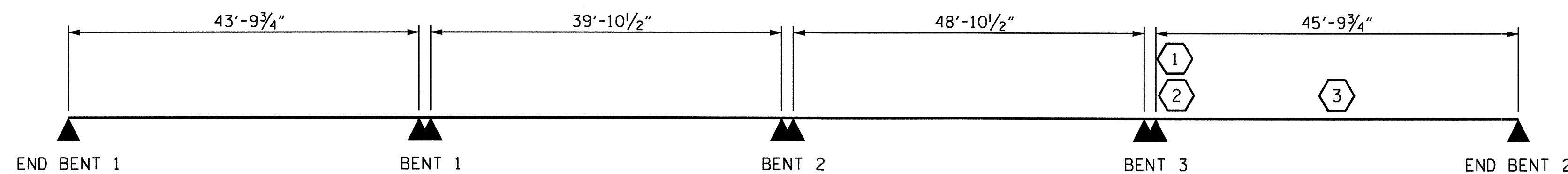
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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

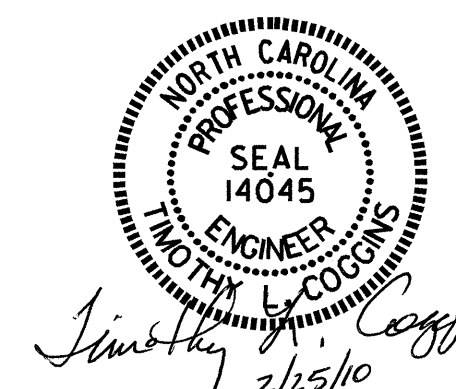


LRFR SUMMARY

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

ASSEMBLED BY : J.B. WILSON DATE : 1/05/10
 CHECKED BY : M.GUDLAUGSSON DATE : 1/06/10
 DRAWN BY : MAA 1/08
 CHECKED BY : GM/DI 2/08

REV. 11/2/08RR MAA/GM

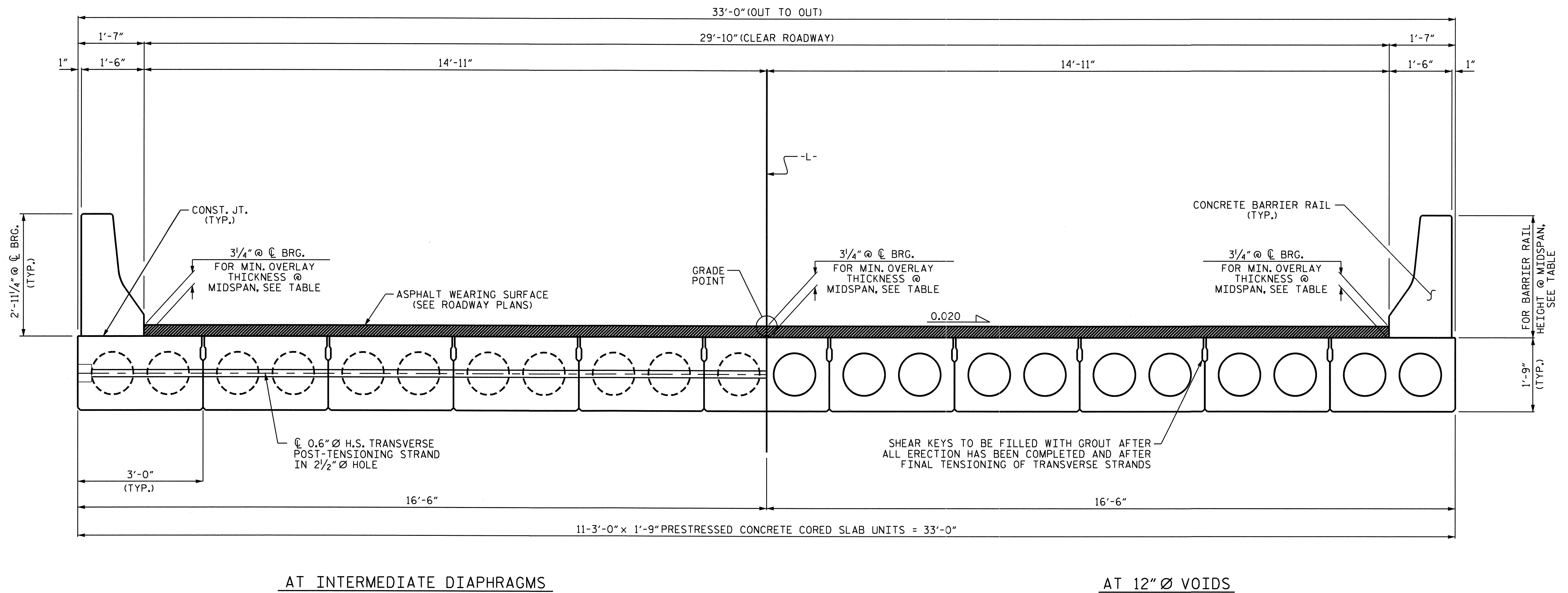


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

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

STD. NO. LRFR1



AT INTERMEDIATE DIAPHRAGMS

AT 12" Ø VOIDS

TYPICAL SECTION

SPAN	ASPHALT WEARING SURFACE THICKNESS @ MIDSPAN	BARRIER RAIL HEIGHT @ MIDSPAN
A	2 1/8"	* 2'-10 1/8"
B	2 5/8"	* 2'-10 5/8"
C	1 3/4"	* 2'-9 3/4"
D	2 1/8"	* 2'-10 1/8"

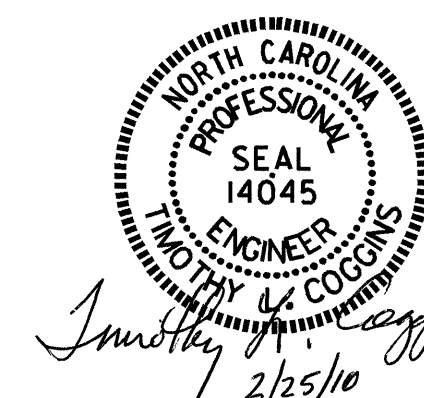
* THE MINIMUM HEIGHT OF THE BARRIER RAIL FOR EACH SPAN IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 1 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

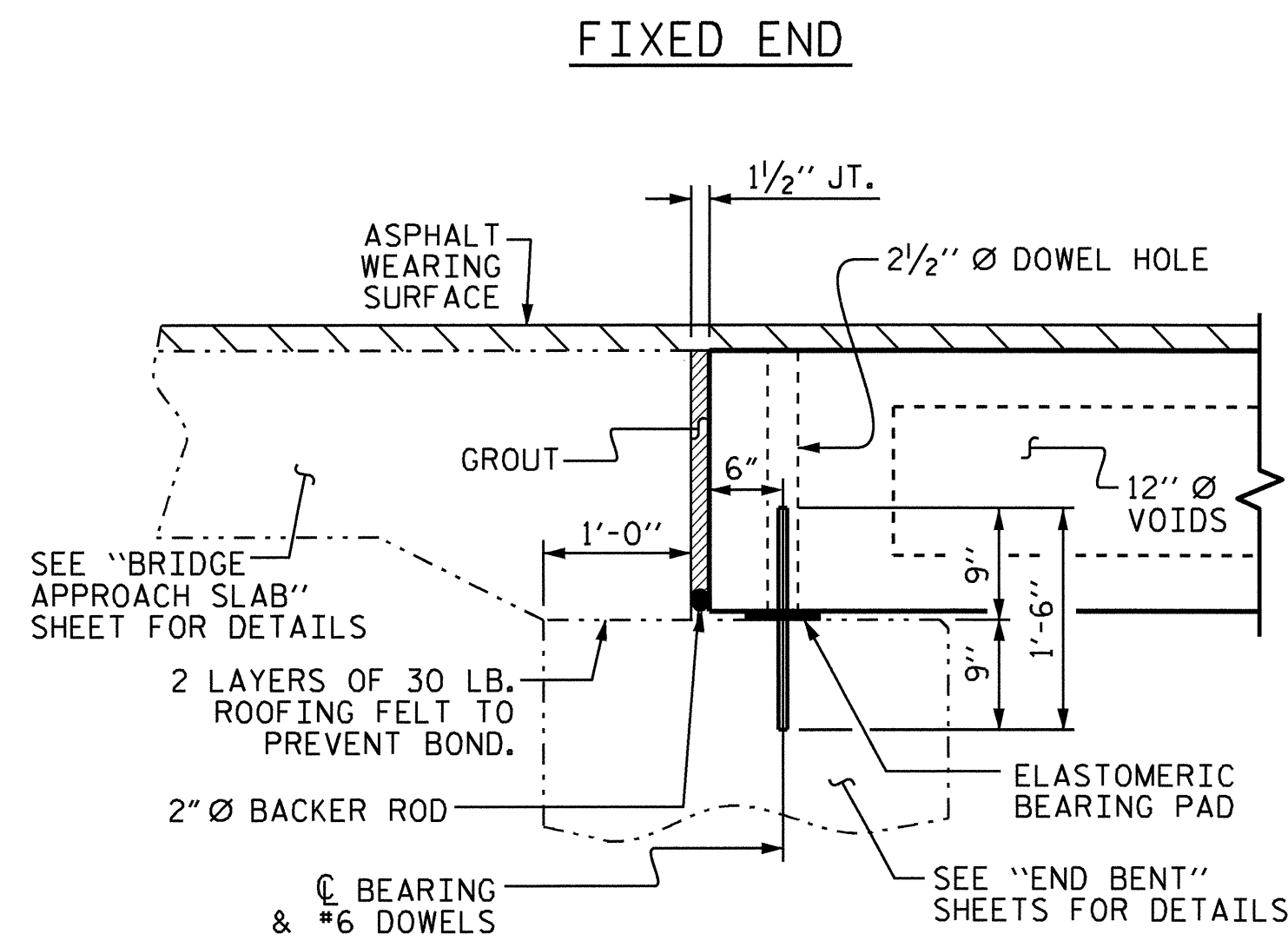
3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT



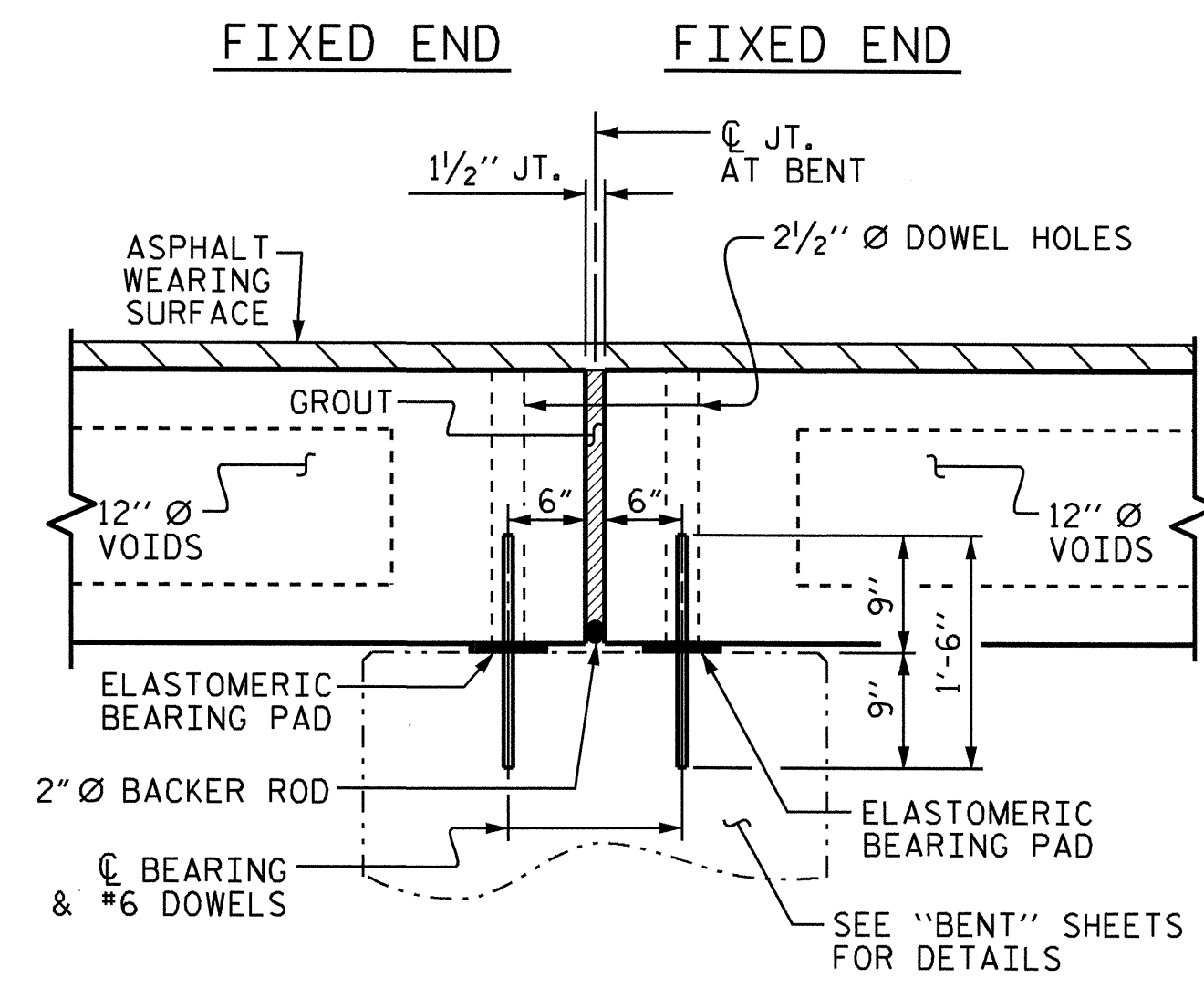
DRAWN BY: J.B. WILSON DATE: 9/27/09
 CHECKED BY: M. GUDLAUGSSON DATE: 10/7/09

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 tcover11e

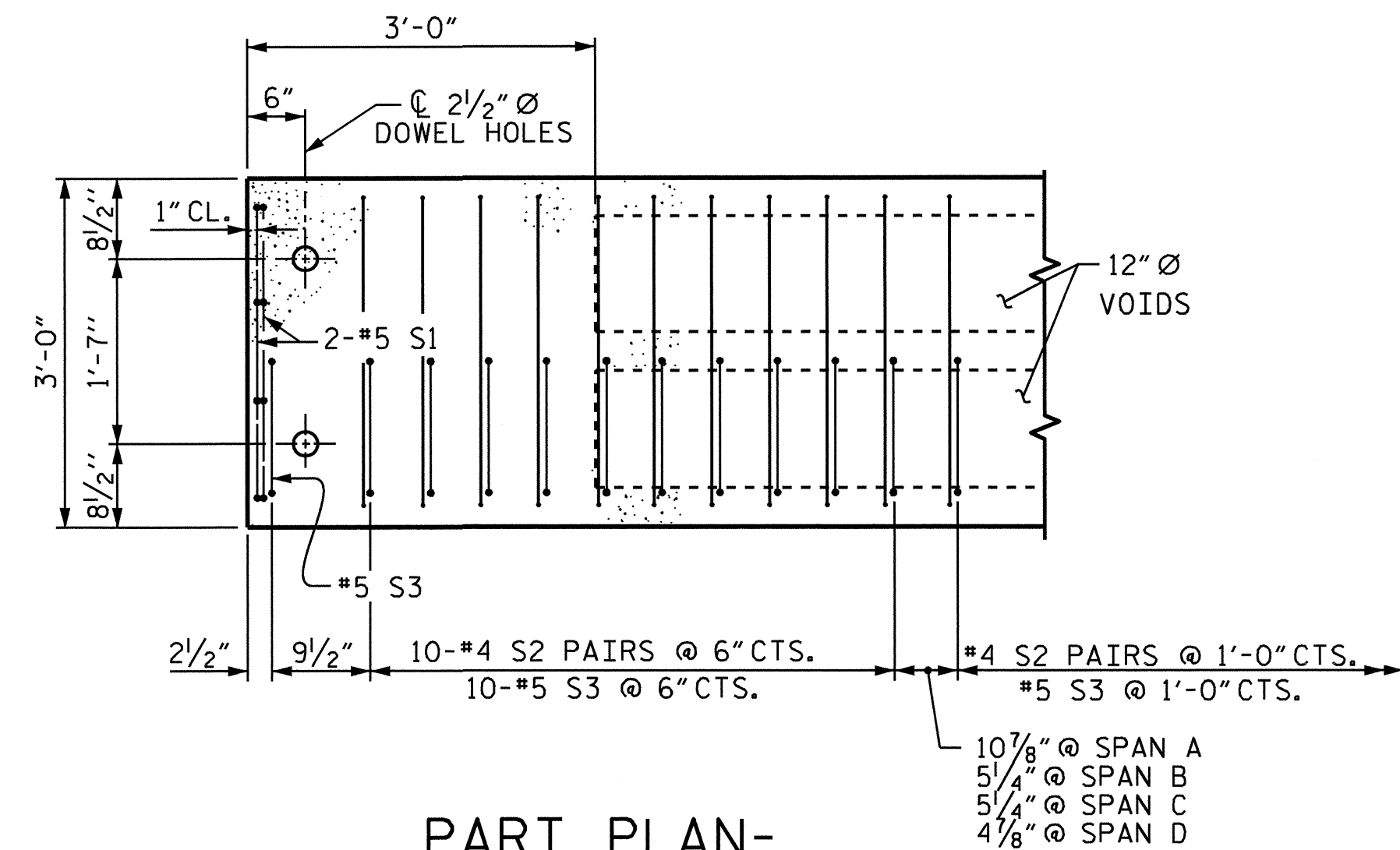
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			22	



SECTION AT END BENT

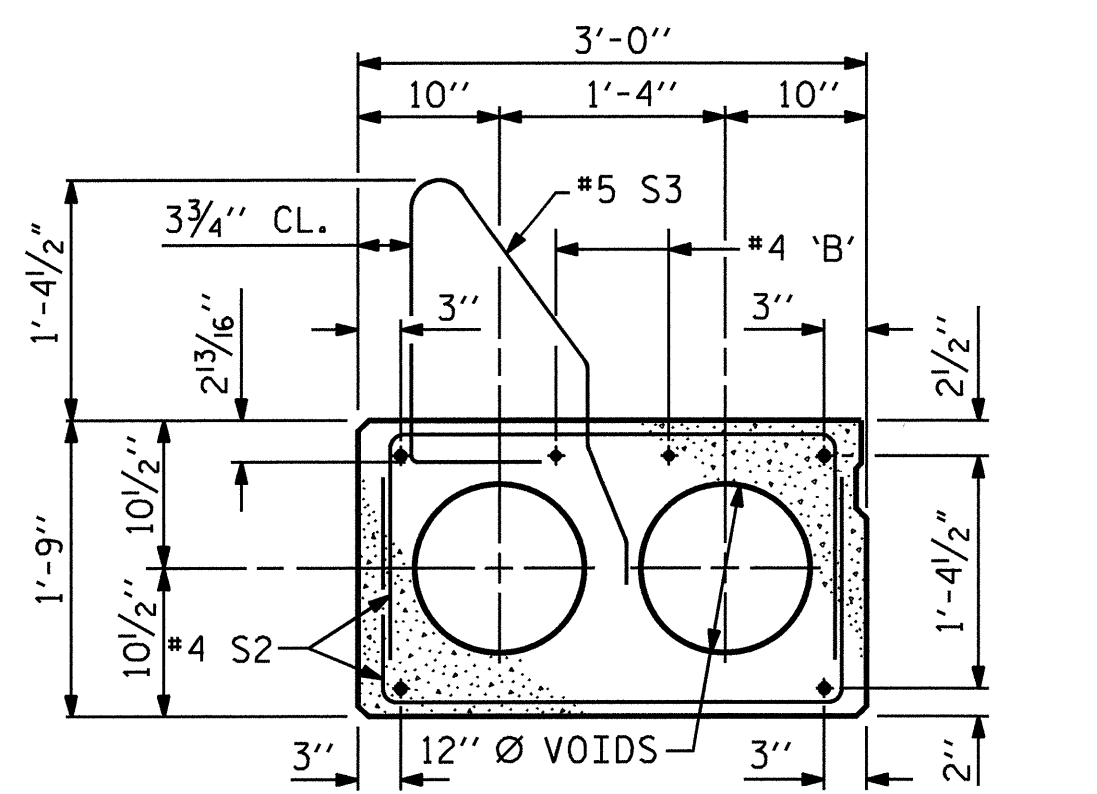


SECTION AT BENTS



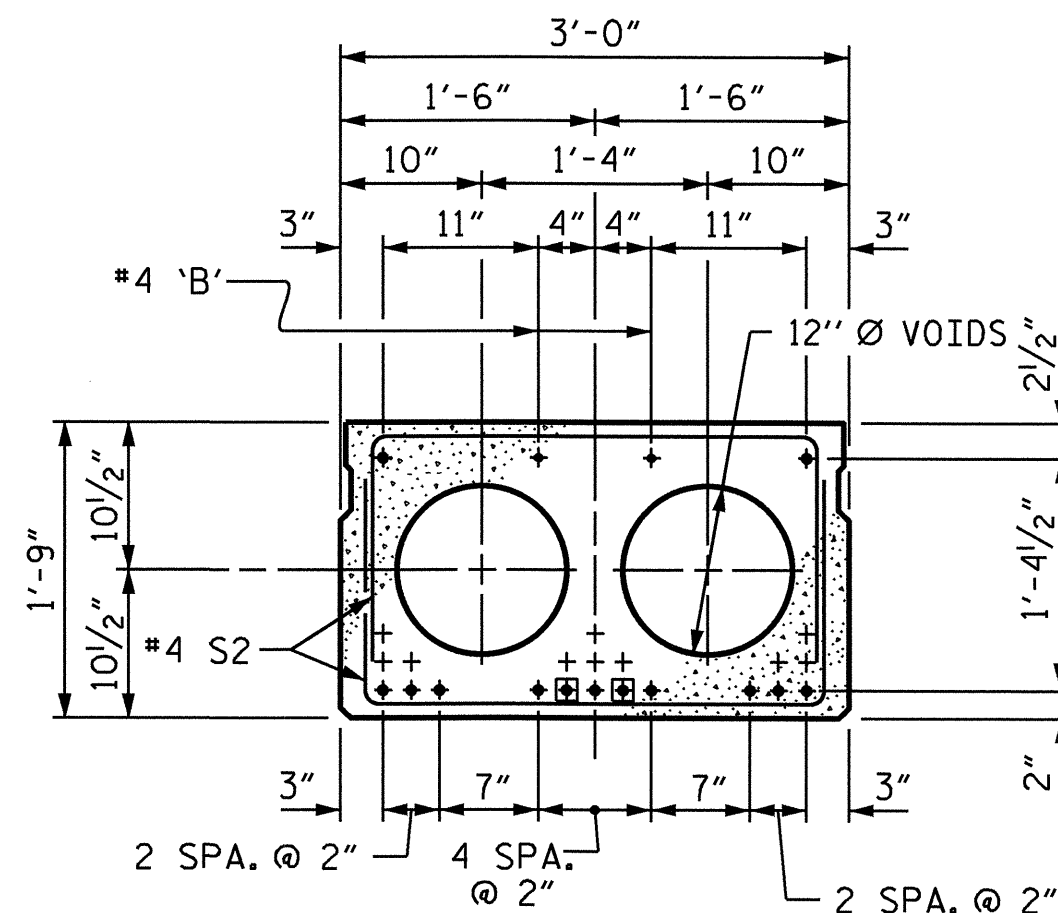
PART PLAN- EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



EXTERIOR SLAB SECTION

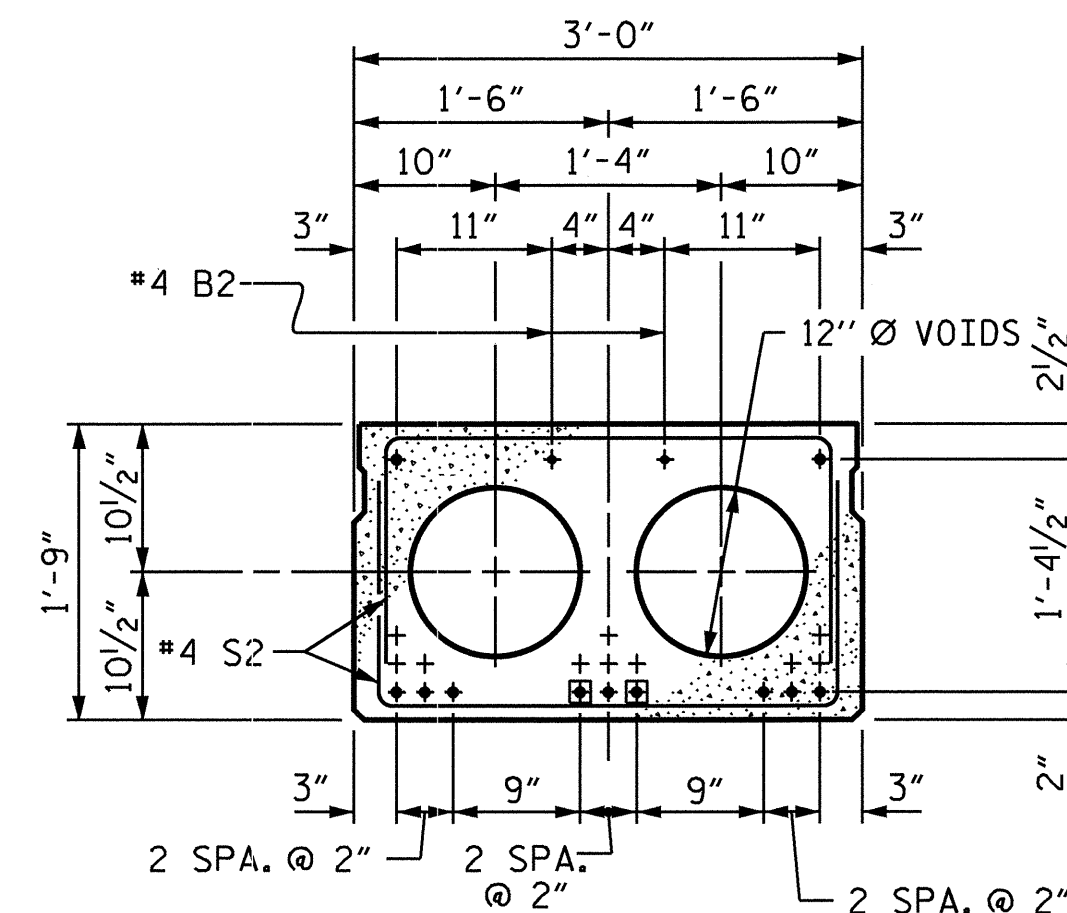
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT (13 STRANDS)

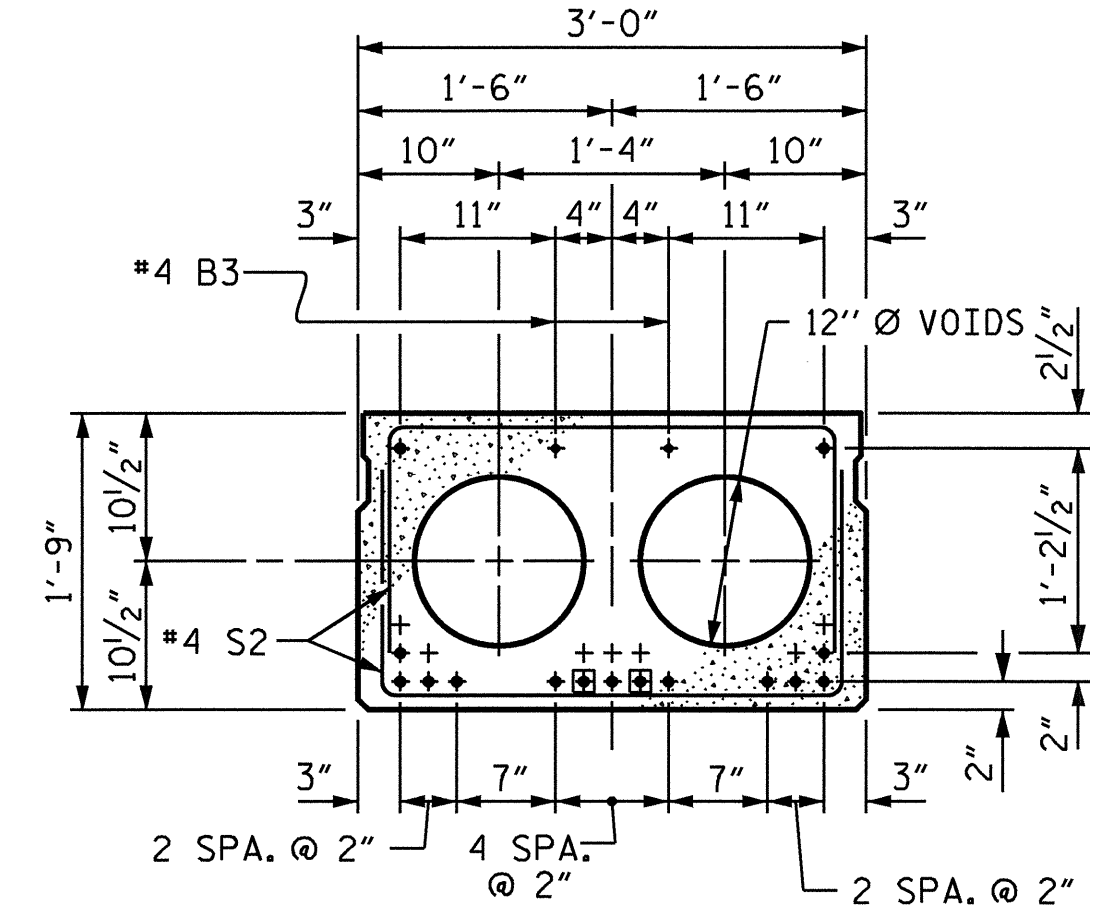
SPANS A & D



INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT (11 STRANDS)

SPAN B



INTERIOR SLAB SECTION

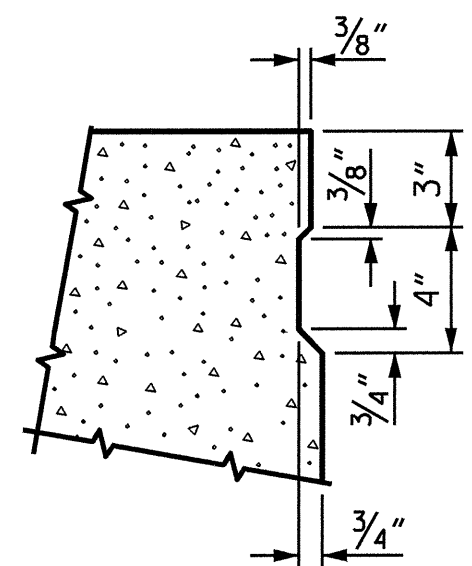
0.6" Ø LOW RELAXATION STRAND LAYOUT (15 STRANDS)

SPAN C

THE BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF THE CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

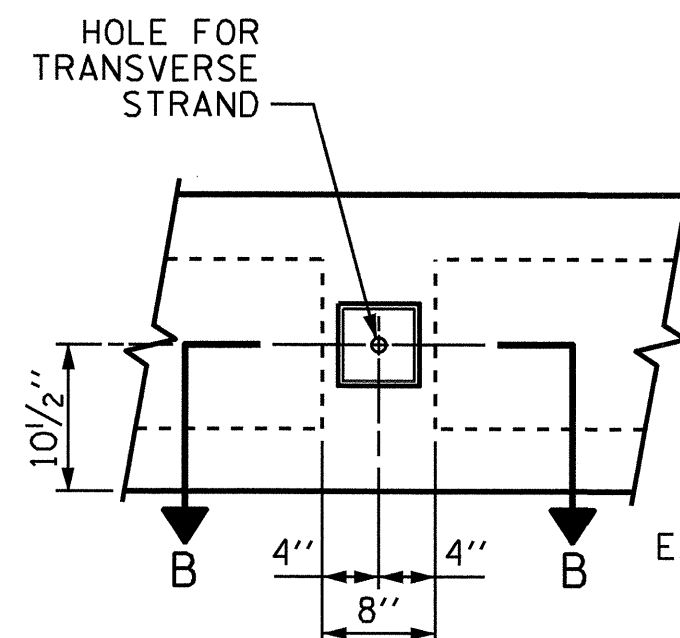
THE BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF THE CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

THE BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF THE CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

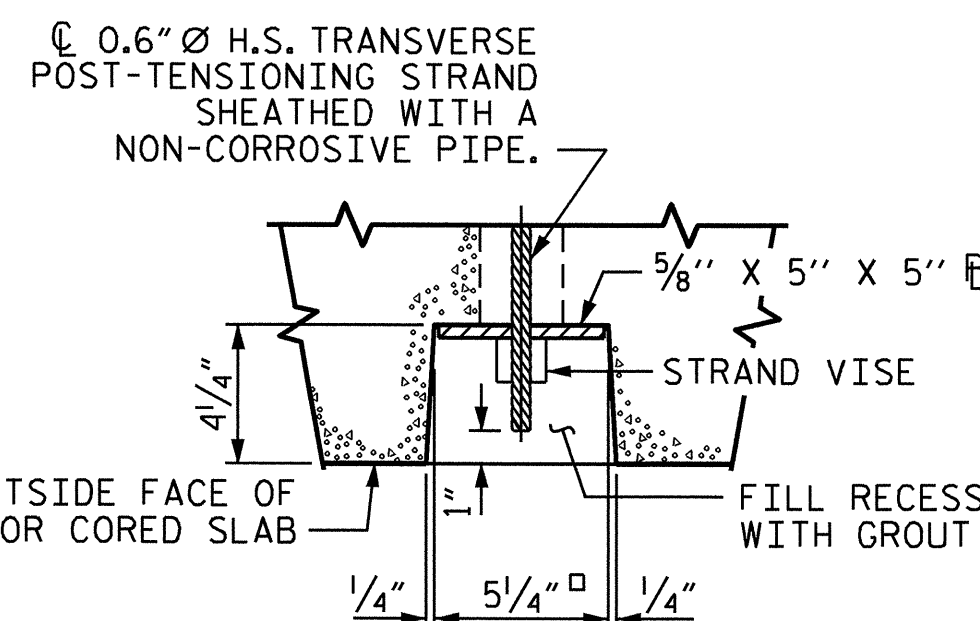


SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

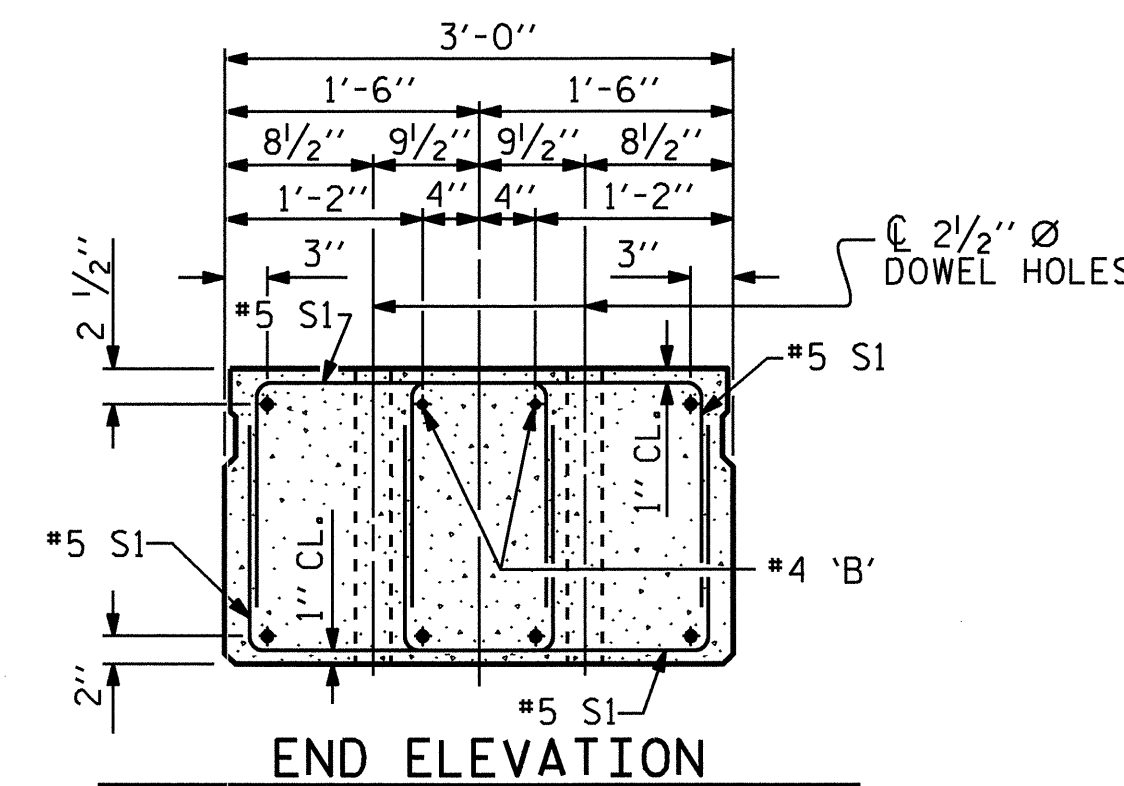


ELEVATION VIEW



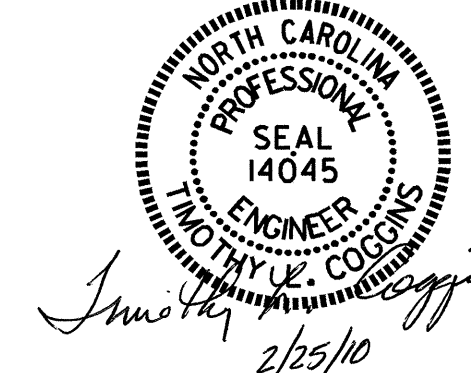
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



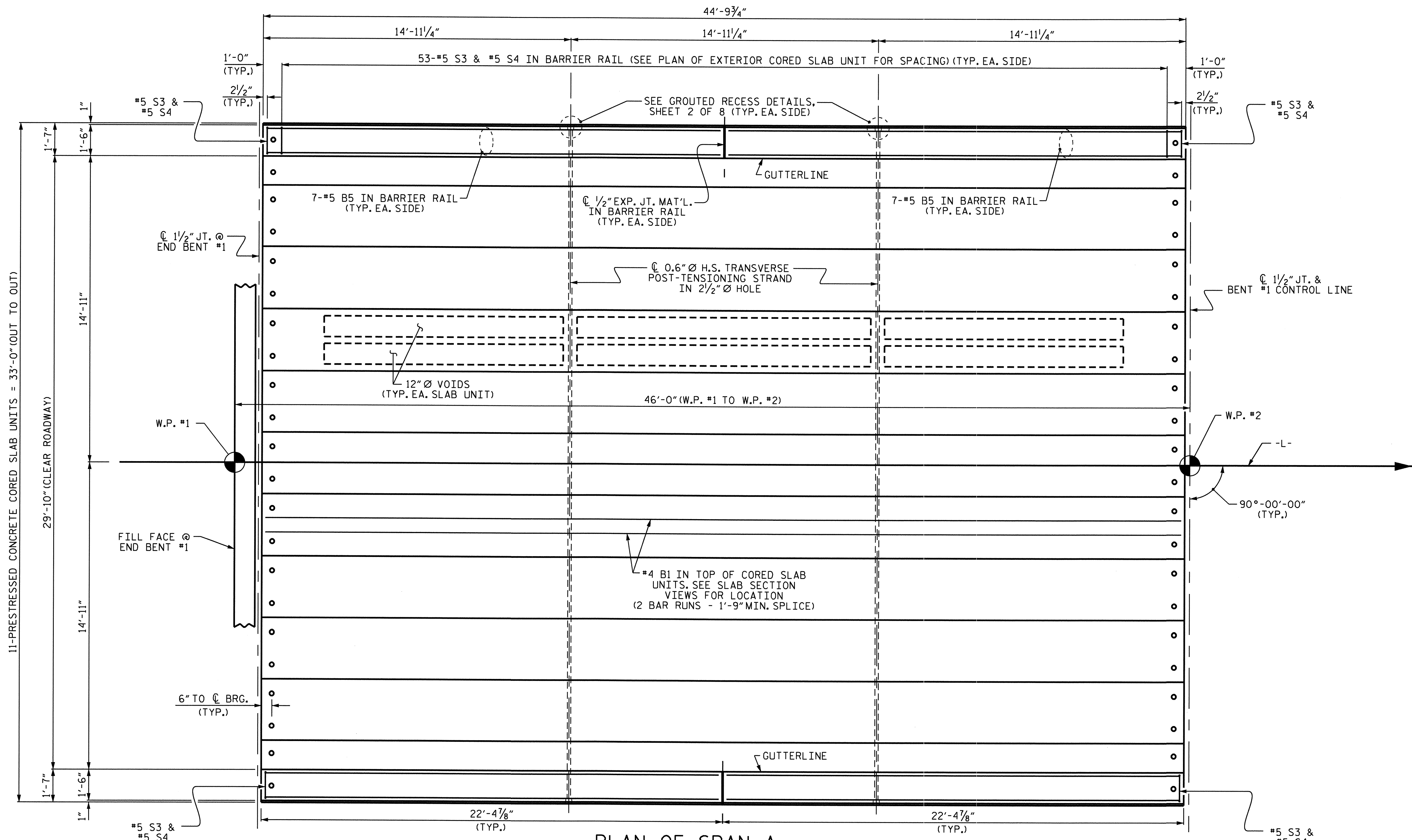
PROJECT NO. B-4559
JOHNSTON COUNTY
STATION: 18+46.50 -L-

SHEET 2 OF 8

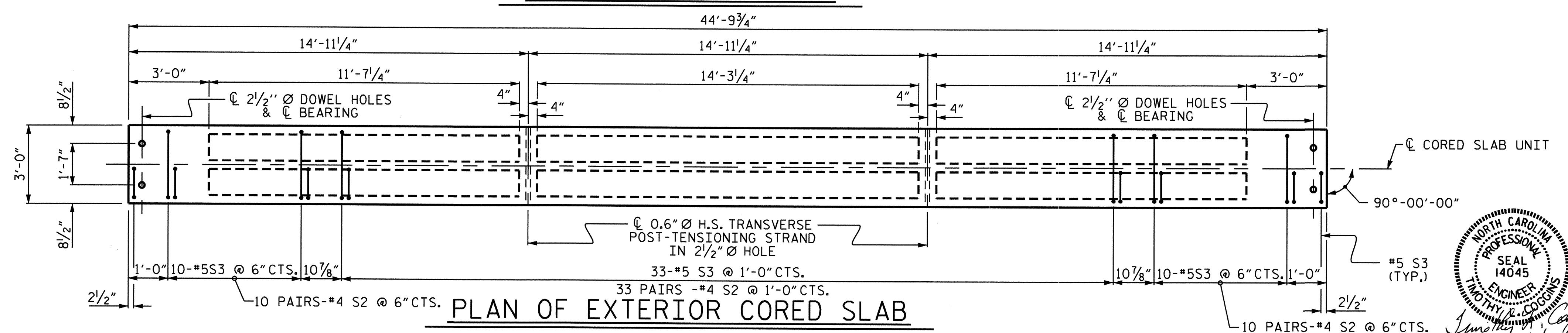
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-6				
TOTAL SHEETS 22				

ASSEMBLED BY: J.B. WILSON	DATE: 9/27/09
CHECKED BY: M. GUDLAUGSSON	DATE: 10/7/09
DRAWN BY: WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY: FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06R TLA/GM



PLAN OF SPAN A



PLAN OF EXTERIOR CORED SLAB

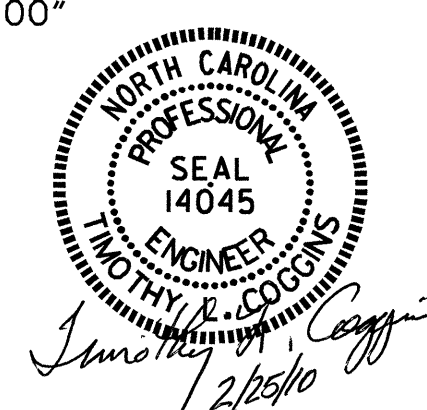
(INTERIOR UNIT SIMILAR EXCEPT OMIT S3 BARS)
 FOR REINFORCING STEEL AT END OF CORED SLABS, SEE "PART PLAN EXTERIOR SECTION", SHEET 2 OF 8.

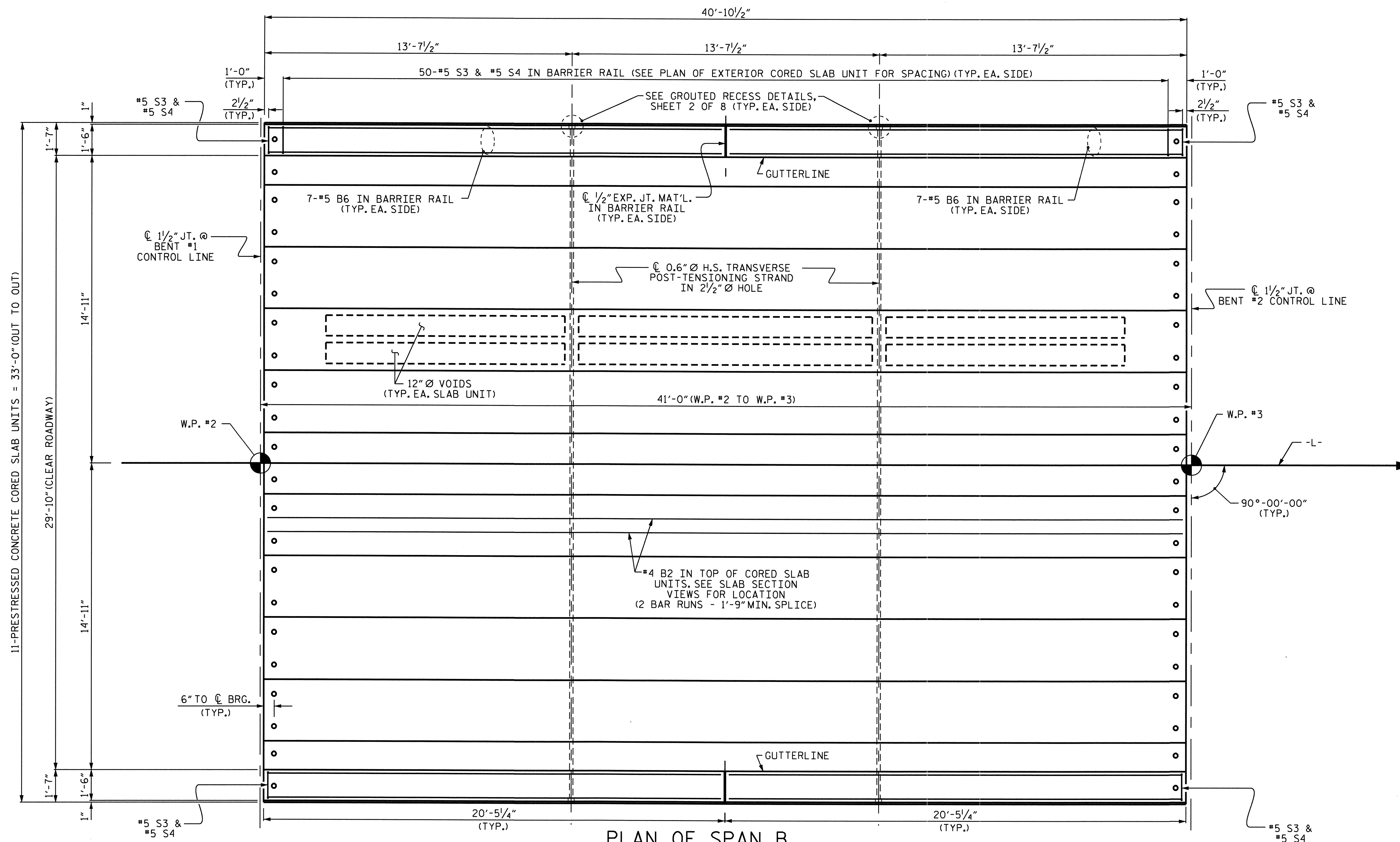
DRAWN BY : J.B. WILSON DATE : 9/15/08
 CHECKED BY : M. GUDLAUGSSON DATE : 10/7/09

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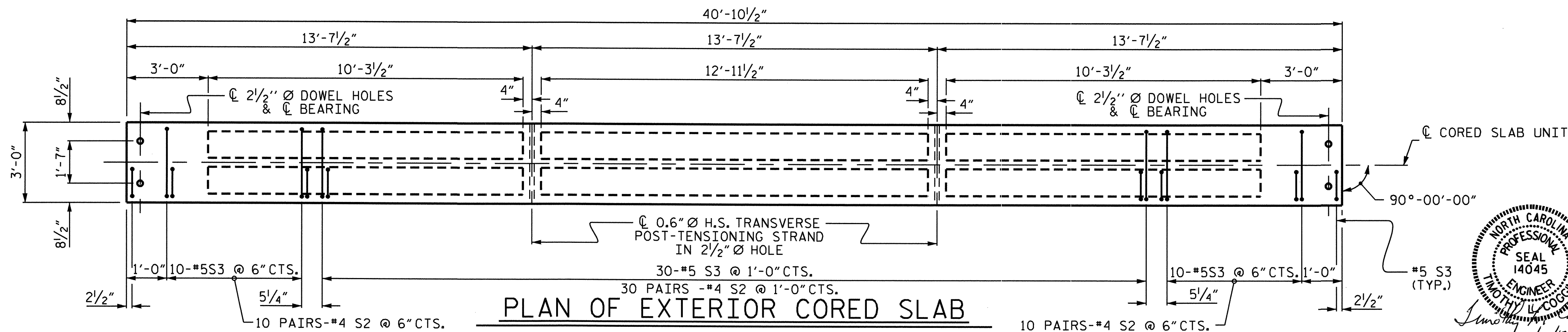
PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-
 SHEET 3 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN A					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					22





PLAN OF SPAN B



PLAN OF EXTERIOR CORED SLAB

(INTERIOR UNIT SIMILAR EXCEPT OMIT S3 BARS)
 FOR REINFORCING STEEL AT END OF CORED SLABS, SEE "PART PLAN EXTERIOR SECTION", SHEET 2 OF 8.

DRAWN BY : J.B. WILSON DATE : 9/15/08
 CHECKED BY : M. GUDLAUGSSON DATE : 10/7/09

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PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

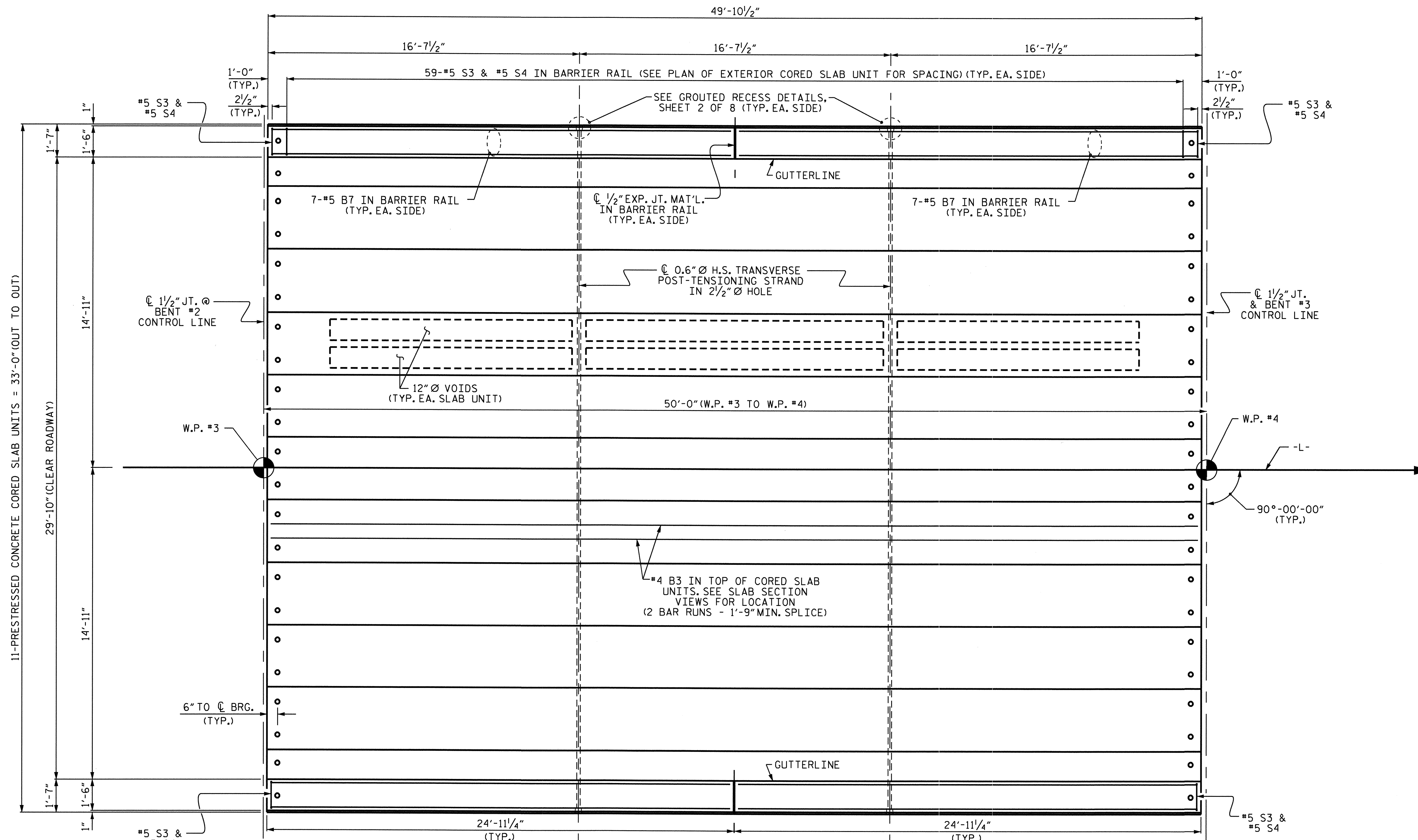
SHEET 4 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

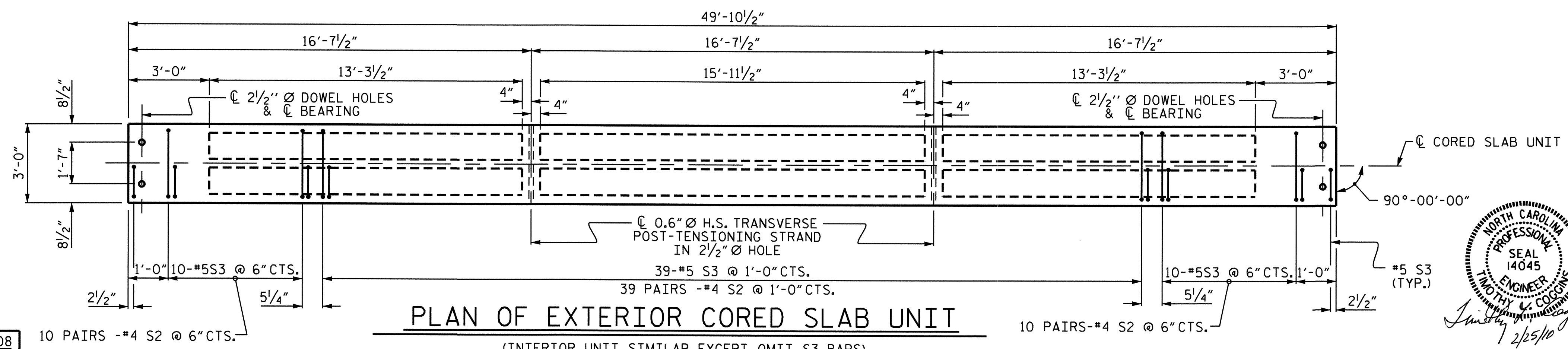
SUPERSTRUCTURE
 PLAN OF SPAN B



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			22



PLAN OF SPAN C



PLAN OF EXTERIOR CORED SLAB UNIT

(INTERIOR UNIT SIMILAR EXCEPT OMIT S3 BARS)
 FOR REINFORCING STEEL AT END OF CORED SLABS, SEE "PART PLAN EXTERIOR SECTION", SHEET 2 OF 8.

DRAWN BY : J.B. WILSON DATE : 9/15/08
 CHECKED BY : M. GUDLAUGSSON DATE : 10/7/09

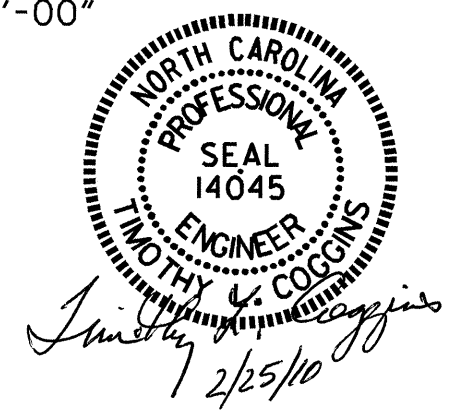
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 tverett16

PROJECT NO. B-4559
 JOHNSTON COUNTY
 STATION: 18+46.50 -L-

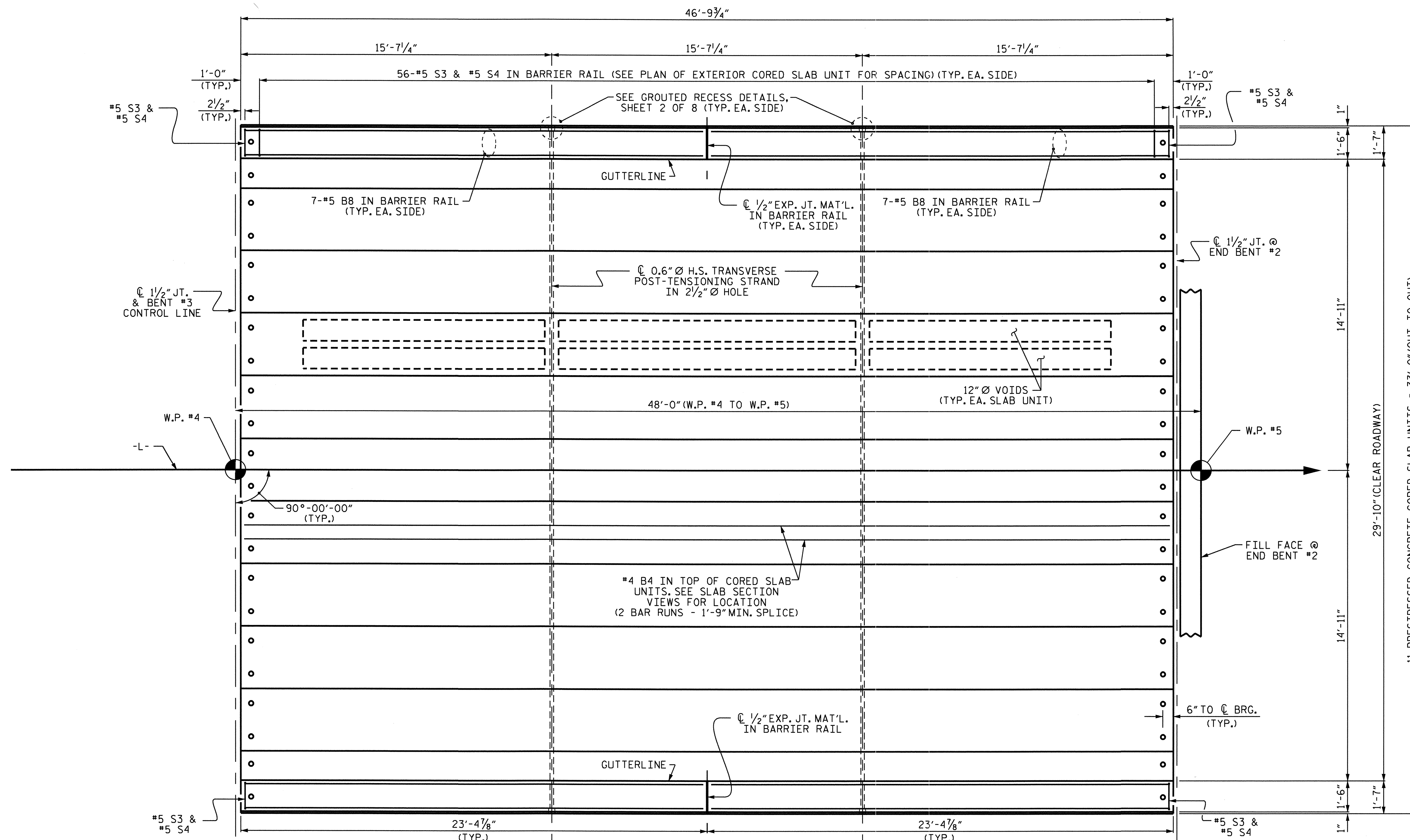
SHEET 5 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

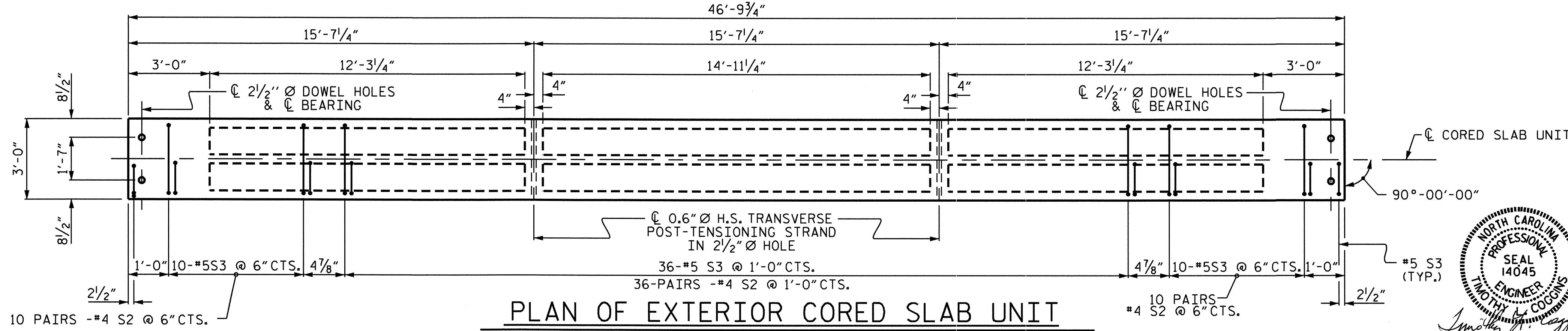
SUPERSTRUCTURE
 PLAN OF SPAN C



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			22



PLAN OF SPAN D

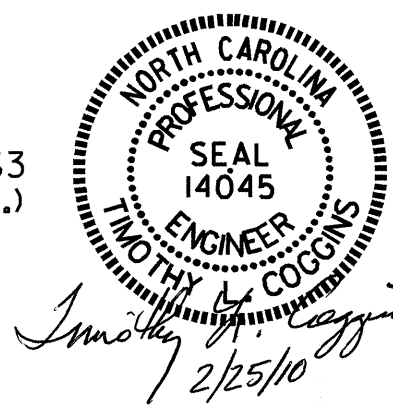


PLAN OF EXTERIOR CORED SLAB UNIT

(EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT S3 BARS)
 FOR REINFORCING STEEL AT END OF CORED SLABS, SEE "PART PLAN EXTERIOR SECTION", SHEET 2 OF 8.

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-
 SHEET 6 OF 8

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN D					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10 TOTAL SHEETS 22



DRAWN BY : J.B. WILSON DATE : 9/15/08
 CHECKED BY : M. GUDLAUGSSON DATE : 10/7/09

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 M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

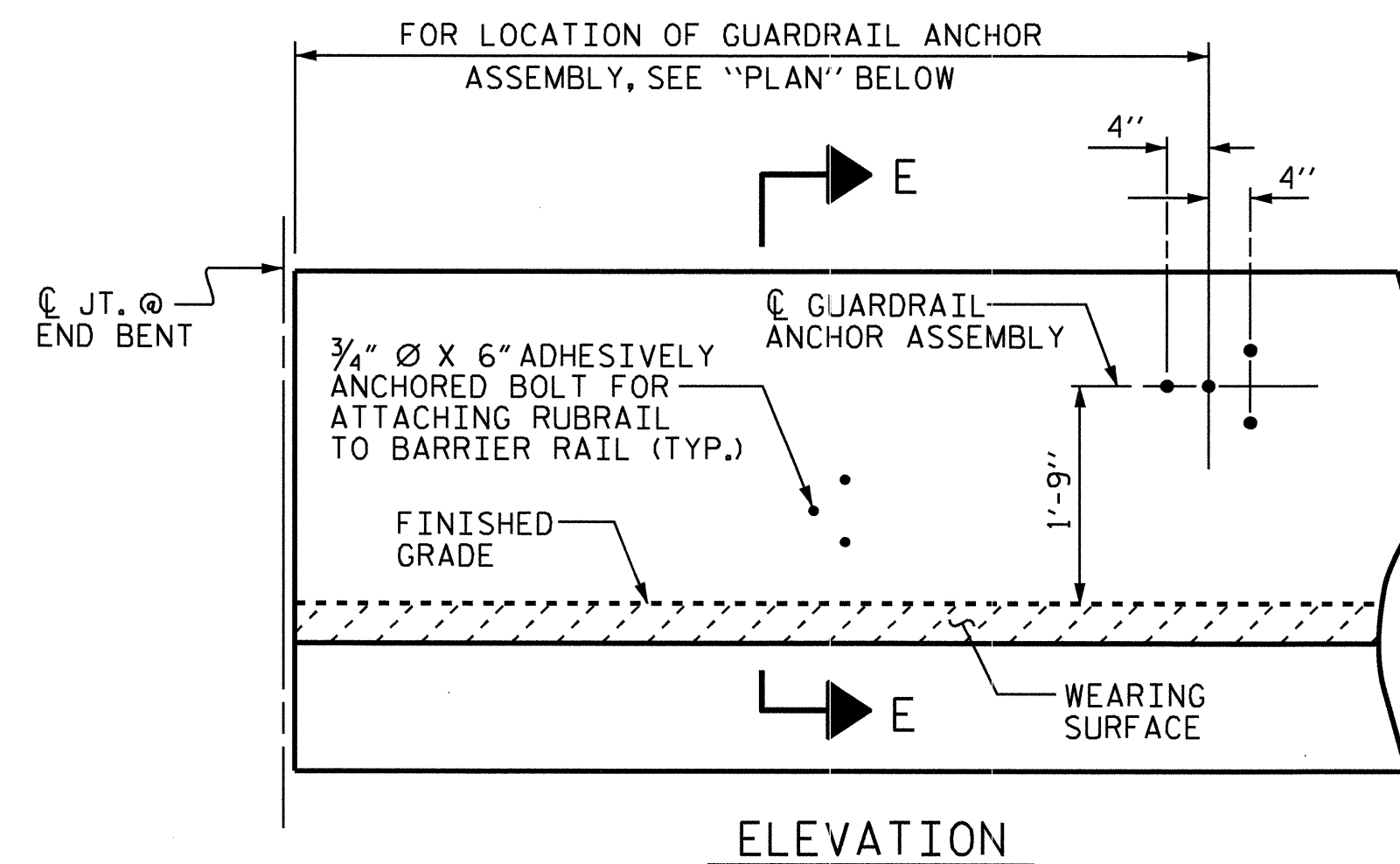
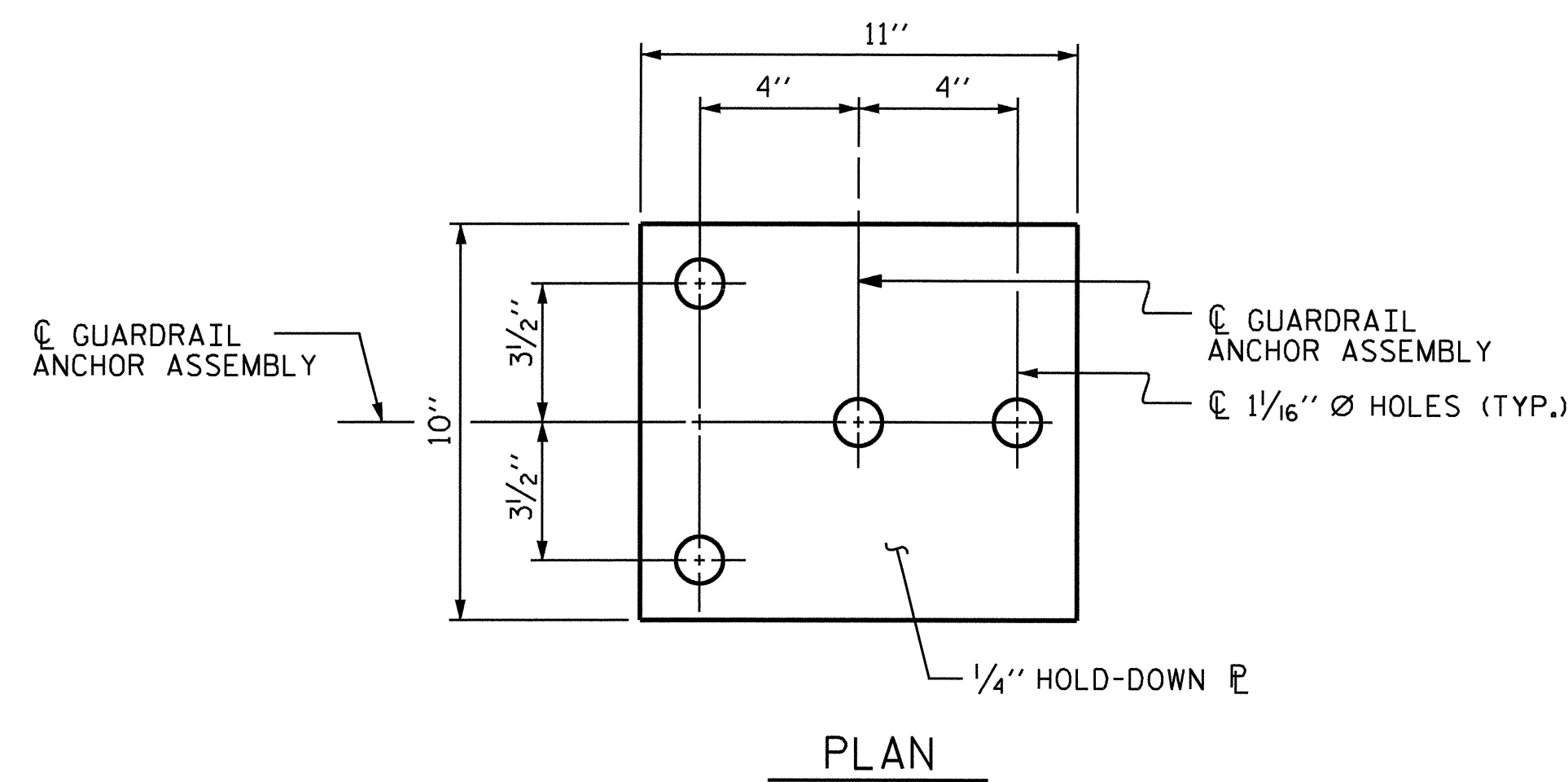
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

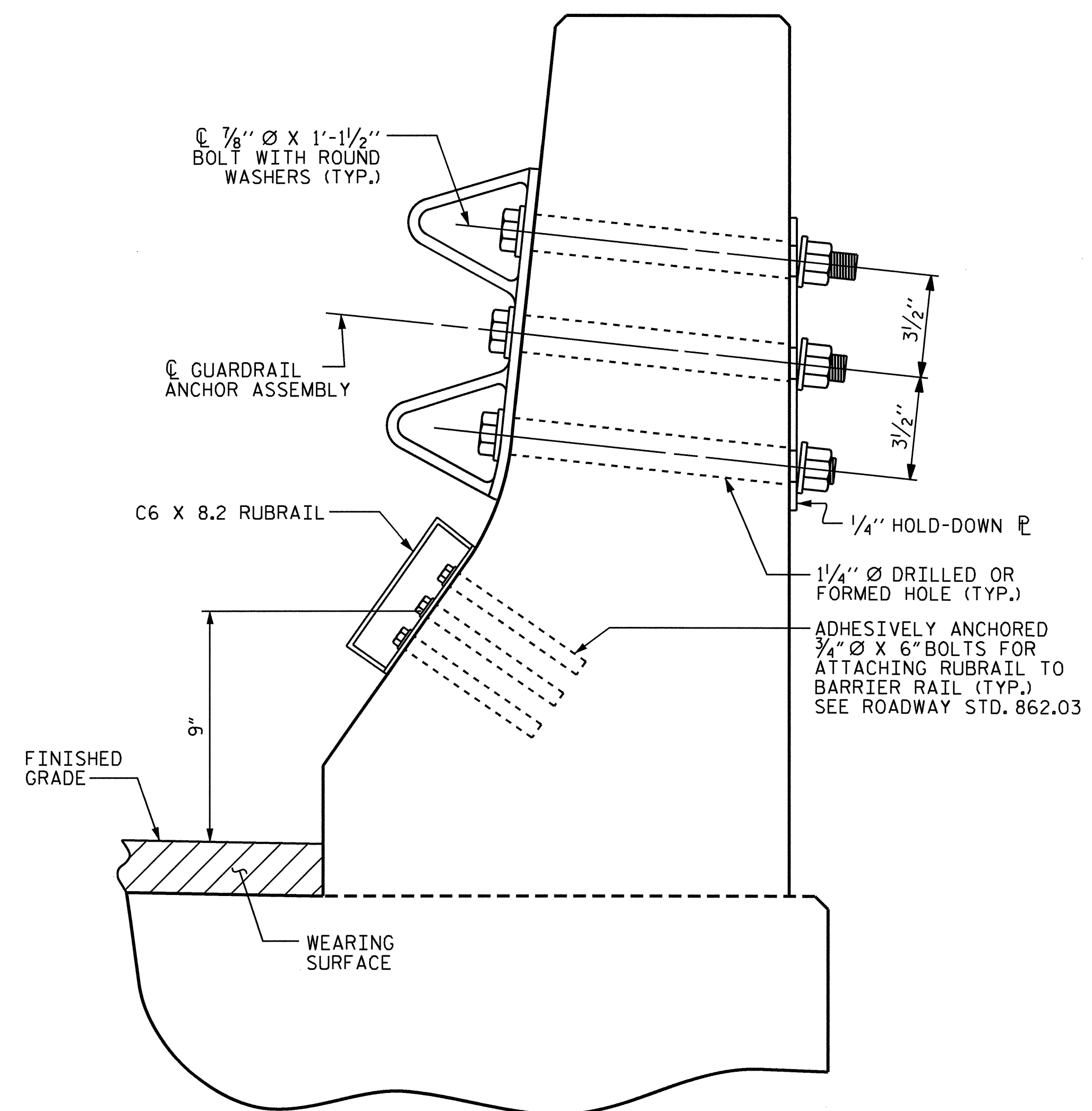
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

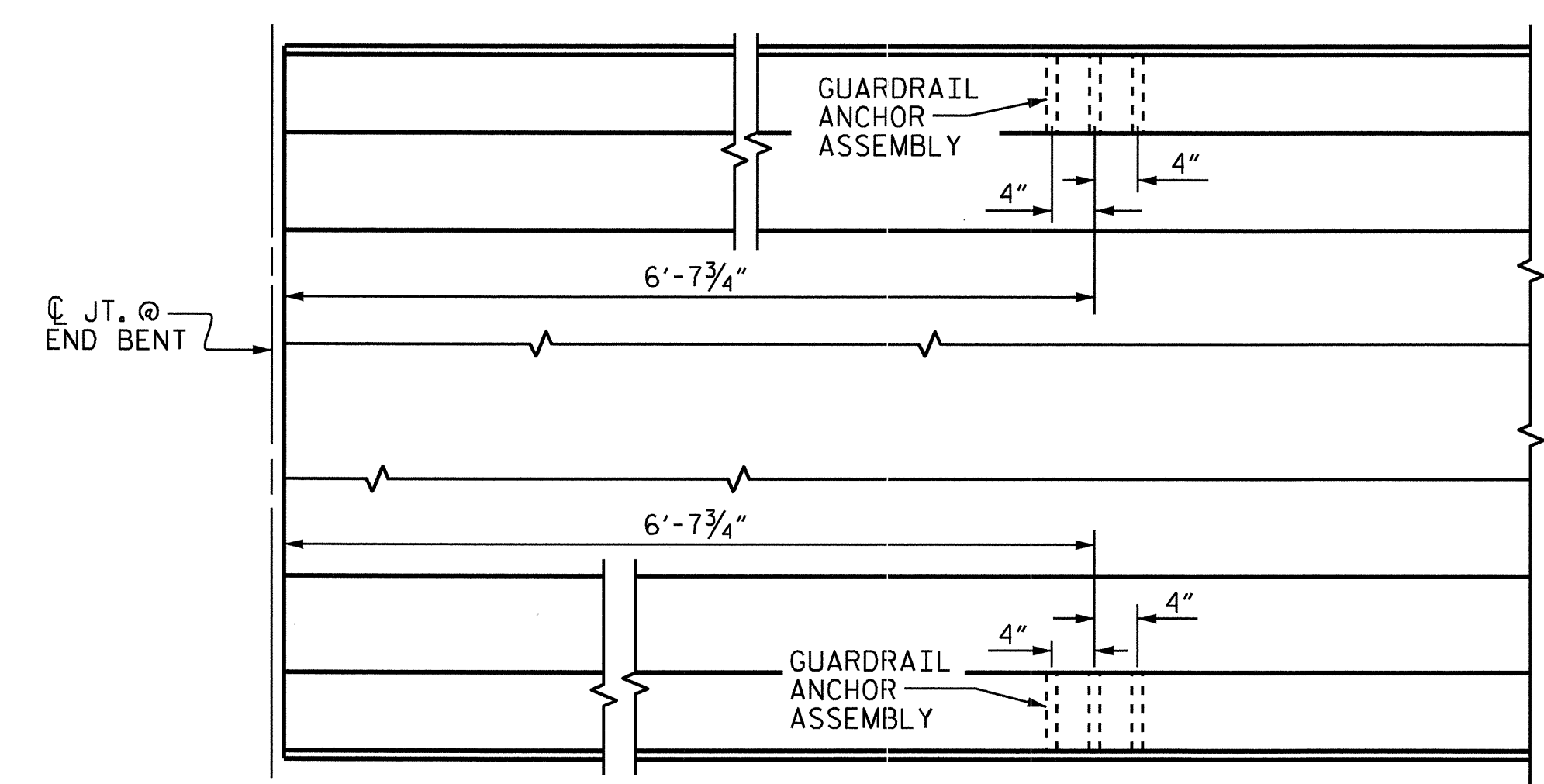
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

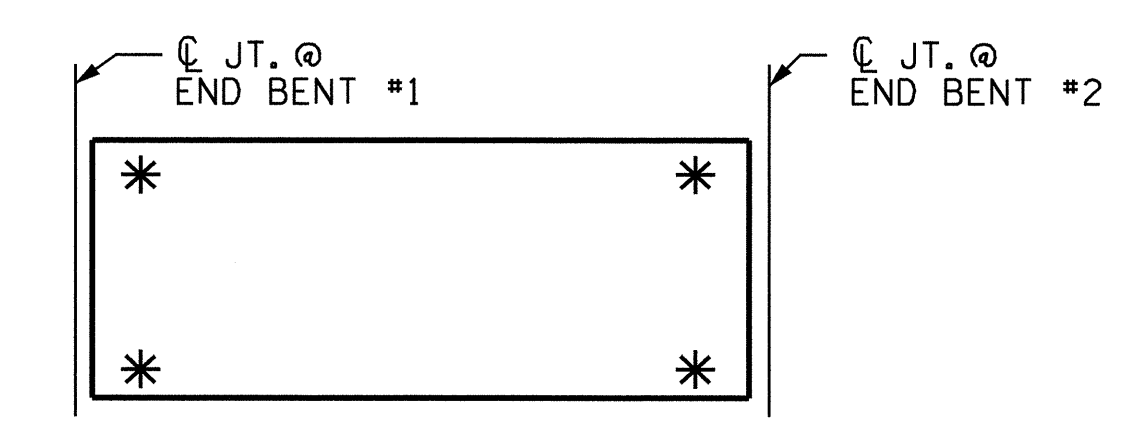


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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

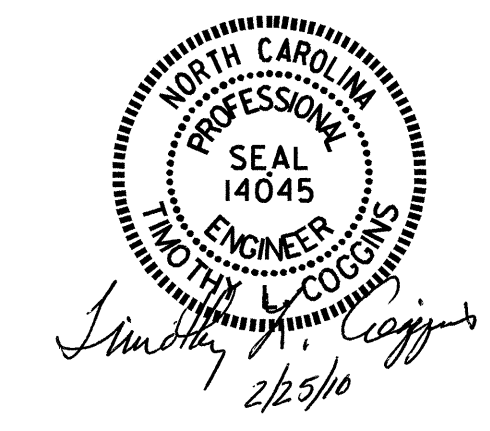


* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 7 OF 8

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



ASSEMBLED BY : J.B. WILSON DATE : 1/07/10
 CHECKED BY : M.GUDLAUGSSON DATE : 1/07/10
 DRAWN BY : TLA 5/06
 CHECKED BY : GM 5/06

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			22

STD. NO. GRA2

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 CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

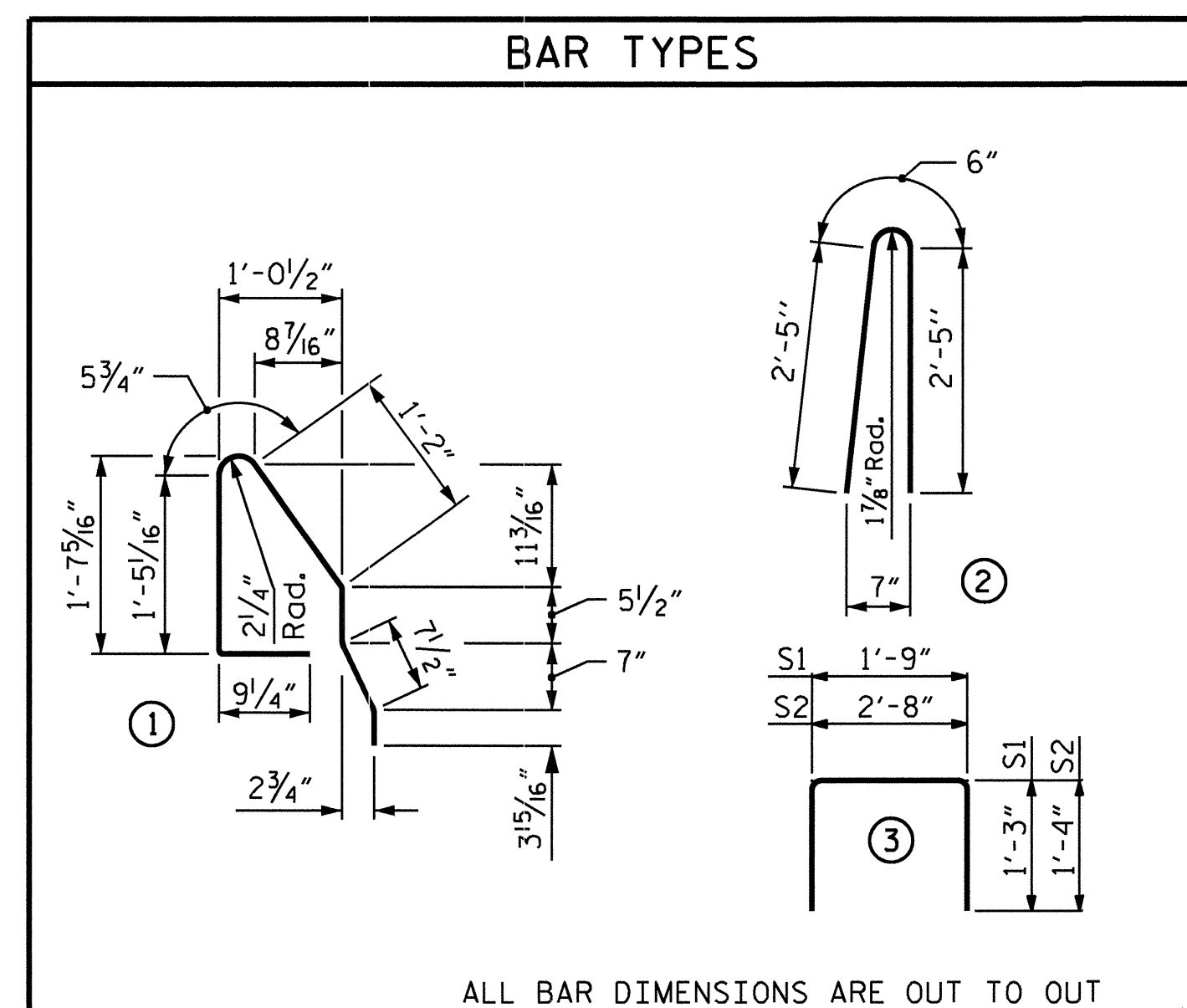
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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. A VERTICAL 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.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNIT SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE STRANDS SHALL BE 0.6" Ø AND TENSIONED TO 43,950 POUNDS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

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



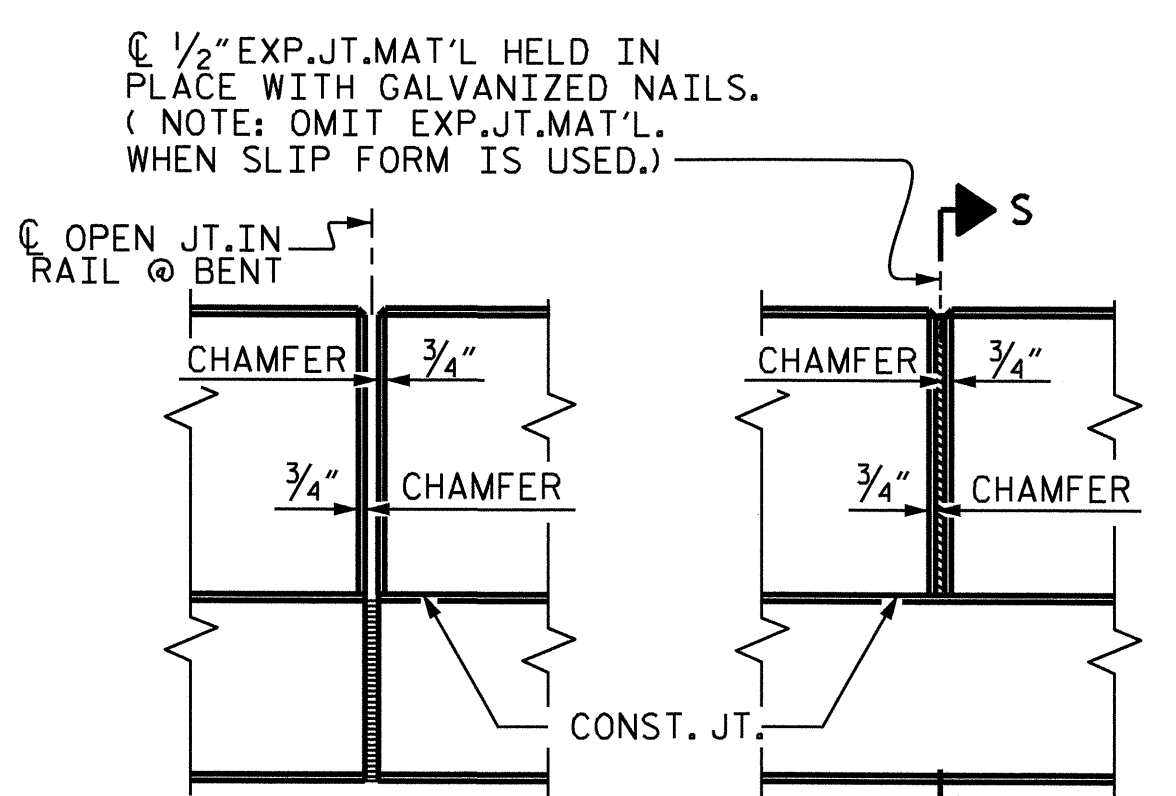
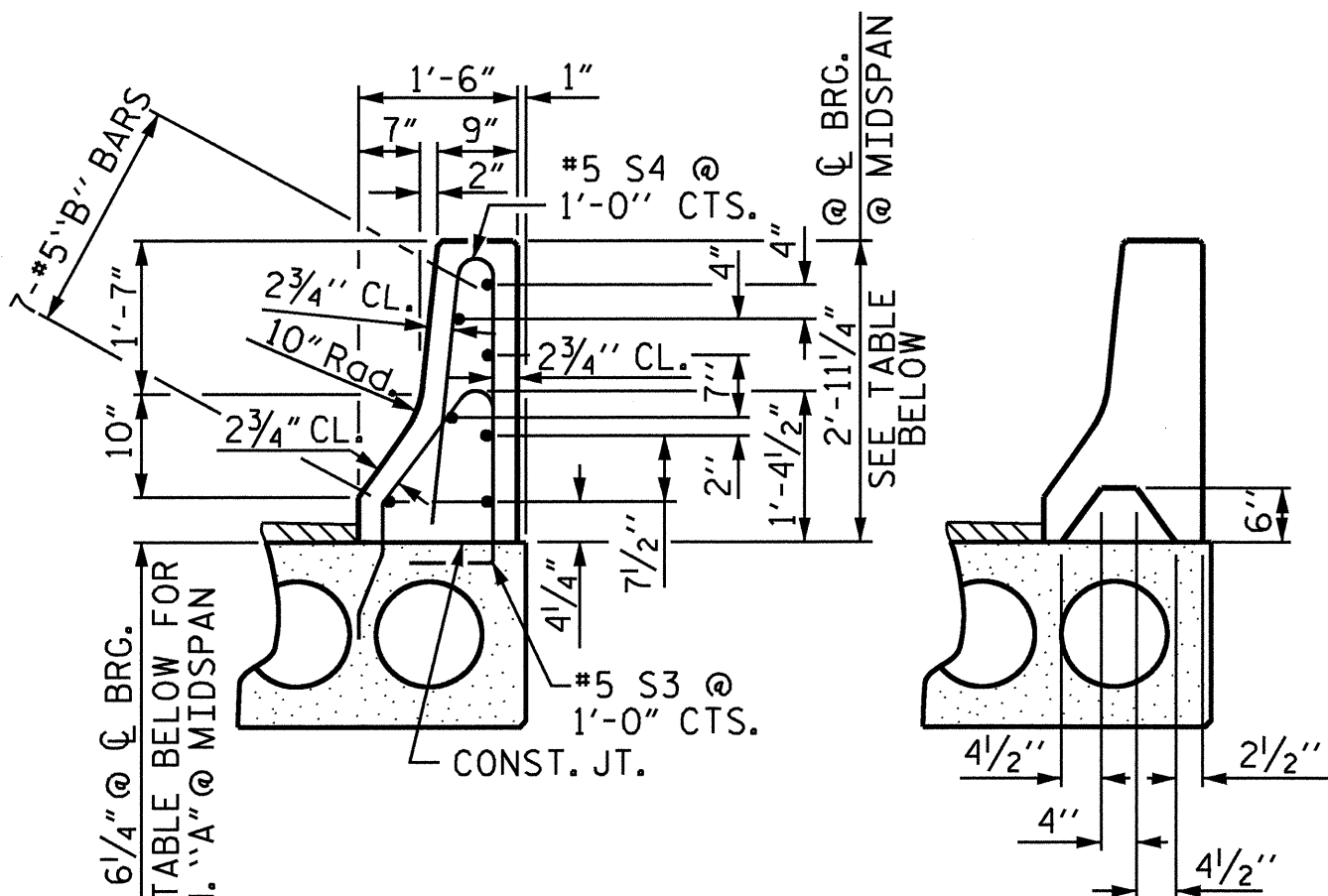
BILL OF MATERIAL FOR CONCRETE BARRIER RAIL									
BAR	BARS PER SPAN			TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT	
	SPAN A	SPAN B	SPAN C	SPAN D					
* B5	28				28	#5	STR	22'-0"	642
* B6		28			28	#5	STR	20'-1"	587
* B7			28		28	#5	STR	24'-7"	718
* B8				28	28	#5	STR	23'-0"	672
* S4	110	104	122	116	452	#5	2	5'-4"	2514
* EPOXY COATED REINFORCING STEEL								5133 LBS.	
CLASS AA CONCRETE								41.1 CU.YDS.	
TOTAL LIN.FT.OF CONCRETE BARRIER RAIL									365.75

CORED UNITS SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.-SPAN A	2	44'-9 3/4"	89'-7 1/2"
INTERIOR C.S.-SPAN A	9	44'-9 3/4"	403'-3 3/4"
EXTERIOR C.S.-SPAN B	2	40'-10 1/2"	81'-9"
INTERIOR C.S.-SPAN B	9	40'-10 1/2"	367'-10 1/2"
EXTERIOR C.S.-SPAN C	2	49'-10 1/2"	99'-9"
INTERIOR C.S.-SPAN C	9	49'-10 1/2"	448'-10 1/2"
EXTERIOR C.S.-SPAN D	2	46'-9 3/4"	93'-7 1/2"
INTERIOR C.S.-SPAN D	9	46'-9 3/4"	421'-3 3/4"
TOTAL	44		2006'-1 1/2"

DEAD LOAD DEFLECTION AND CAMBER				
3'-0" x 1'-9" 0.6" Ø L.R. STRAND	SPAN A	SPAN B	SPAN C	SPAN D
CAMBER (SLAB ALONE IN PLACE)	1 3/8"	7/8"	1 1/8"	1 3/8"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/4"	3/16"	3/8"	1/4"
FINAL CAMBER	1 1/8"	1 1/16"	1 1/2"	1 1/8"

** INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE CORED SLAB SECTION																							
SPAN A								SPAN B															
				EXTERIOR UNIT				INTERIOR UNIT								EXTERIOR UNIT				INTERIOR UNIT			
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	23'-2"	62	23'-2"	62	B2	4	#4	STR	21'-2"	57	21'-2"	57	S1	8	#5	3	4'-3"	35	4'-3"	35
S1	8	#5	3	4'-3"	35	4'-3"	35	S2	100	#4	3	5'-4"	356	5'-4"	356	* S3	52	#5	1	5'-3"	285		
S2	106	#4	3	5'-4"	378	5'-4"	378																
* S3	55	#5	1	5'-3"	301																		
REINFORCING STEEL				475 LBS.				475 LBS.				REINFORCING STEEL				448 LBS.				448 LBS.			
* EPOXY COATED REINFORCING STEEL				301 LBS.								* EPOXY COATED REINFORCING STEEL				285 LBS.							
5000 P.S.I. CONCRETE				6.4 CU. YDS.				6.4 CU. YDS.				5000 P.S.I. CONCRETE				5.9 CU. YDS.				5.9 CU. YDS.			
0.6" Ø L.R. STRANDS				No. 13				13				0.6" Ø L.R. STRANDS				No. 11				11			
SPAN C								SPAN D															
				EXTERIOR UNIT				INTERIOR UNIT								EXTERIOR UNIT				INTERIOR UNIT			
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	25'-8"	69	25'-8"	69	B4	4	#4	STR	24'-2"	65	24'-2"	65	S1	8	#5	3	4'-3"	35	4'-3"	35
S1	8	#5	3	4'-3"	35	4'-3"	35	S2	112	#4	3	5'-4"	399	5'-4"	399	* S3	58	#5	1	5'-3"	318		
S2	118	#4	3	5'-4"	420	5'-4"	420																
* S3	61	#5	1	5'-3"	334																		
REINFORCING STEEL				524 LBS.				524 LBS.				REINFORCING STEEL				499 LBS.				499 LBS.			
* EPOXY COATED REINFORCING STEEL				334 LBS.								* EPOXY COATED REINFORCING STEEL				318 LBS.							
5000 P.S.I. CONCRETE				7.1 CU. YDS.				7.1 CU. YDS.				5000 P.S.I. CONCRETE				6.7 CU. YDS.				6.7 CU. YDS.			
0.6" Ø L.R. STRANDS				No. 15				15				0.6" Ø L.R. STRANDS				No. 13				13			

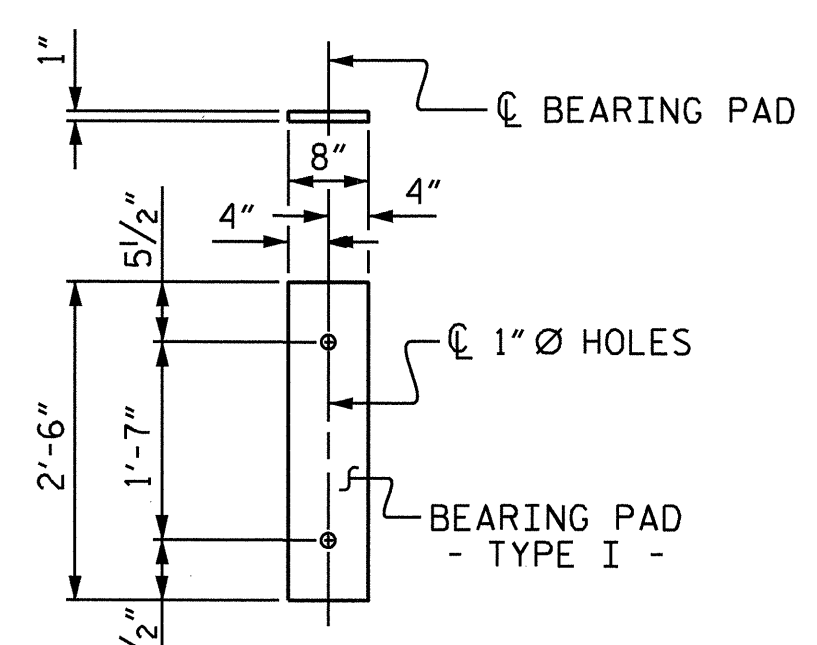


ELEVATION AT EXPANSION JOINTS BARRIER RAIL DETAILS

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

SPAN	DIM "A" @ MIDSPAN	MIN. RAIL HEIGHT @ MIDSPAN
A	5 1/8"	* 2'-10 1/8"
B	5 5/8"	* 2'-10 5/8"
C	4 3/4"	* 2'-9 3/4"
D	5 1/8"	* 2'-10 1/8"

* THE MINIMUM HEIGHT OF THE BARRIER RAIL FOR EACH SPAN IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.



FIXED END ELASTOMERIC BEARING DETAILS (TYPE I - 88 REQ'D.)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

ASSEMBLED BY : J.B. WILSON DATE : 9/22/09
 CHECKED BY : M. GUDLAUGSSON DATE : 10/7/09
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06R TLA/GM

PROJECT NO. B-4559
 JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 8 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT

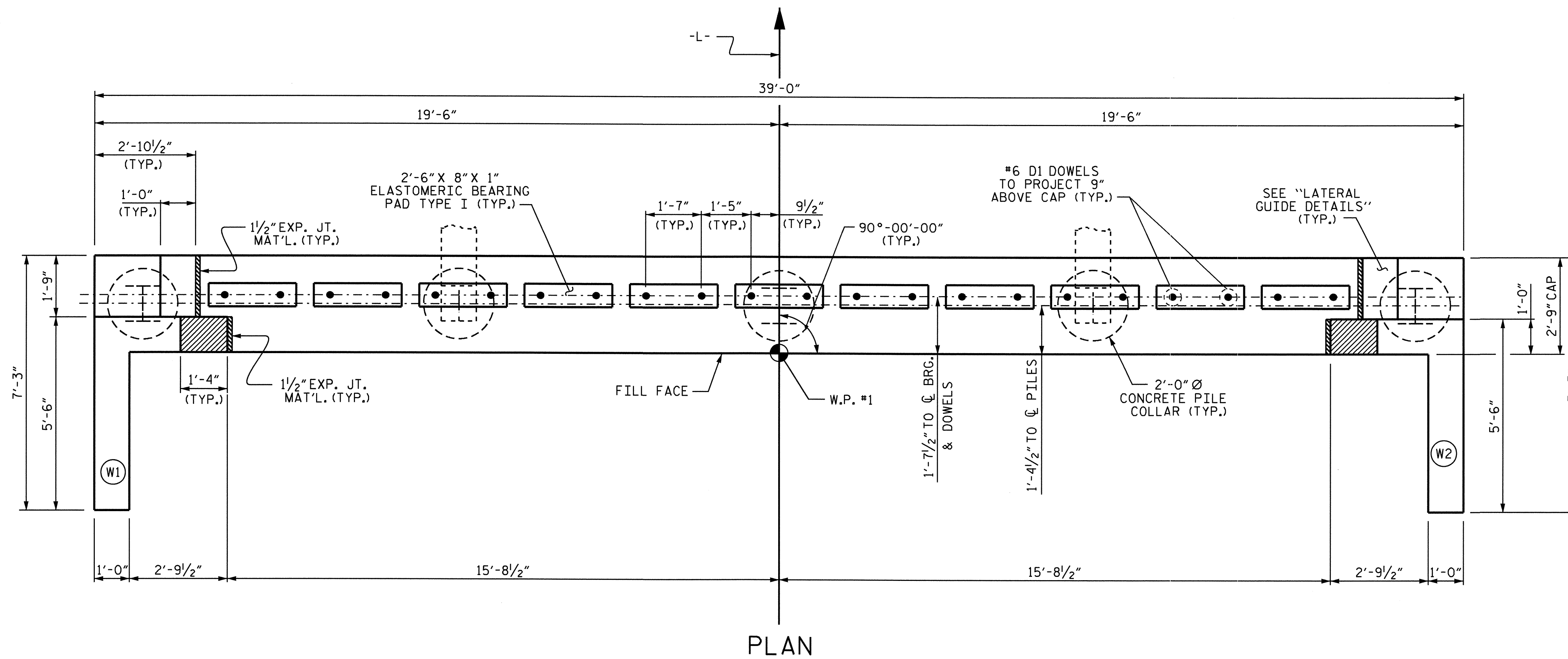
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS 22
2			4			

NOTES

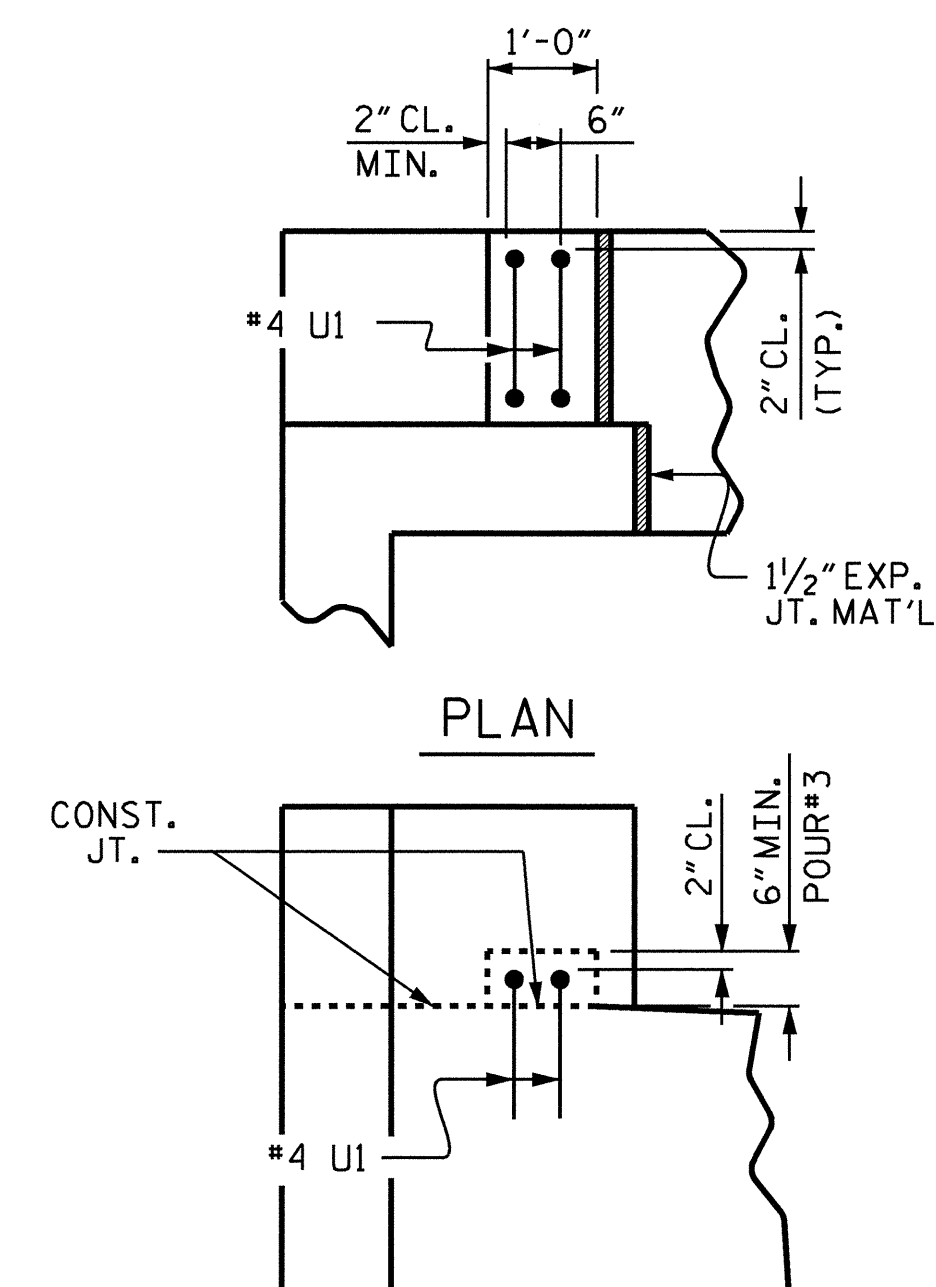
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.



PLAN

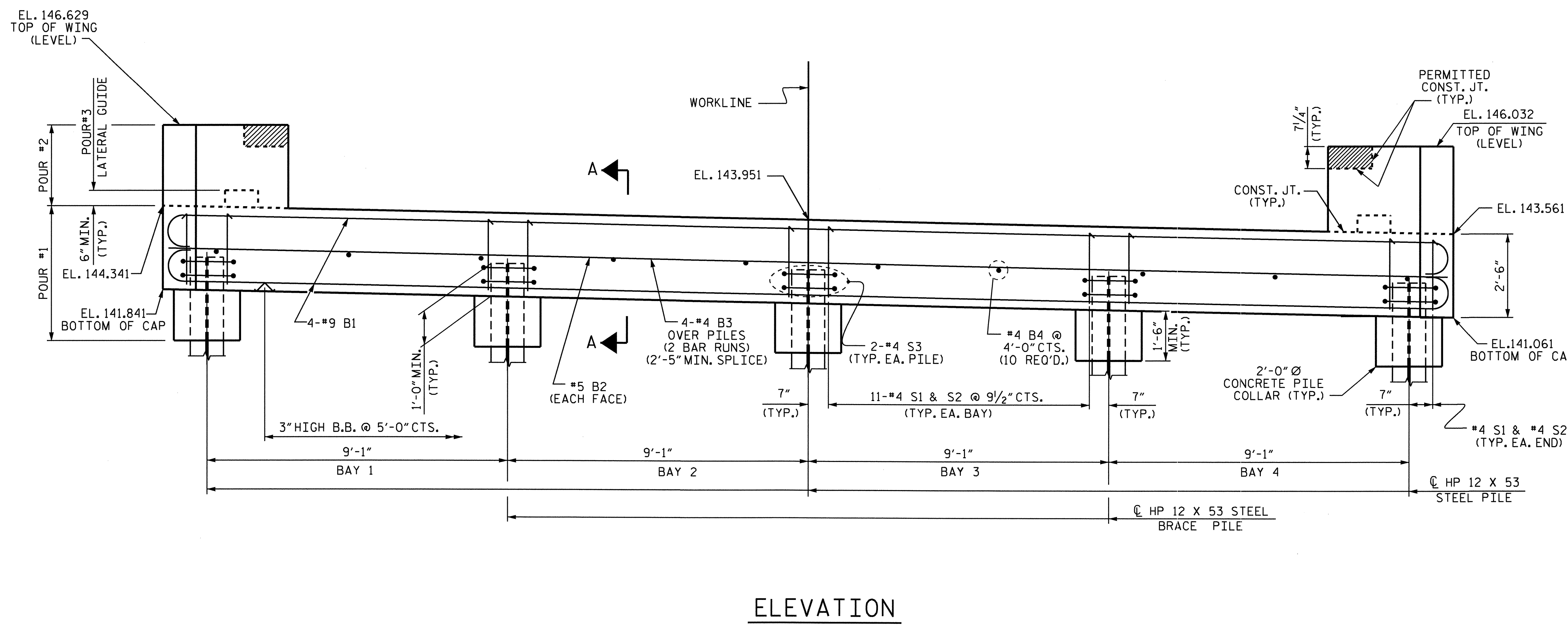


ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)

TOP OF PILE ELEV. CHART	
PILE	ELEVATION
#1	142.824
#2	142.643
#3	142.461
#4	142.279
#5	142.098



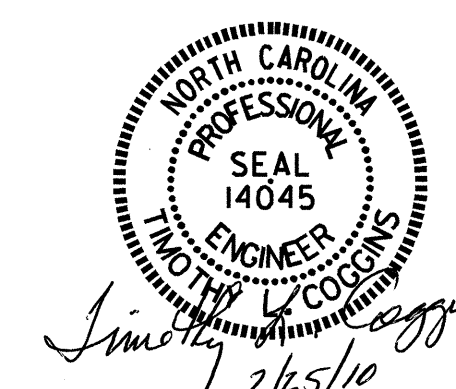
ELEVATION

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #1**

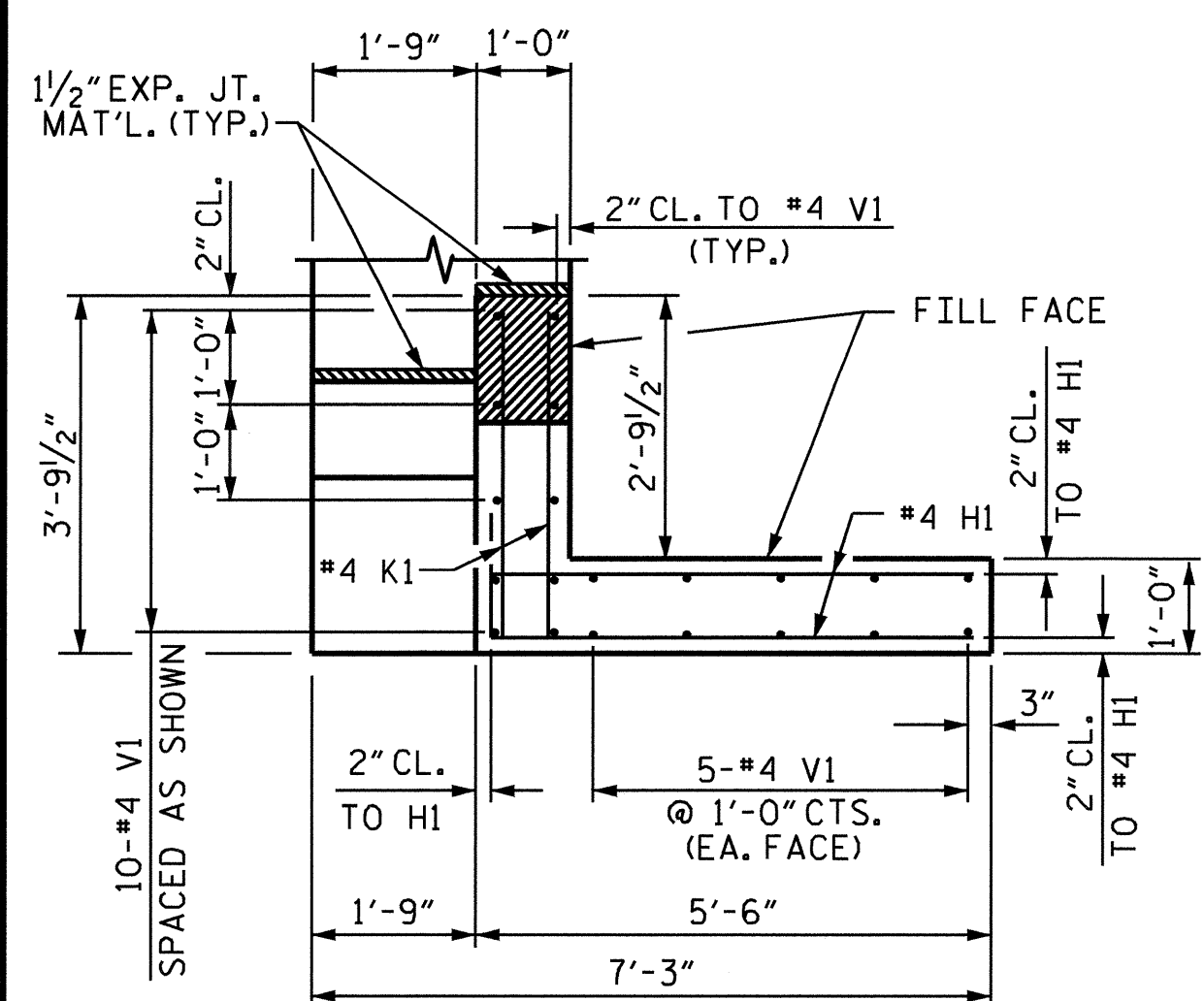


DRAWN BY: B.N.BARODAWALA DATE: 11-1-09
 CHECKED BY: EMILY MURRAY DATE: 12-21-09

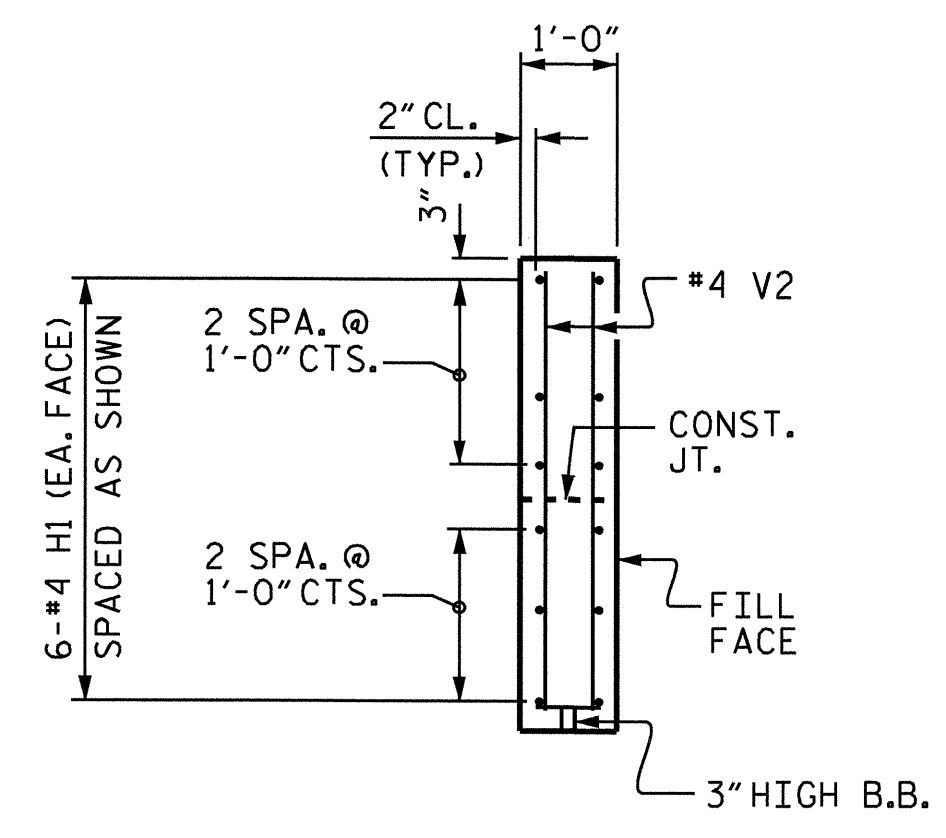
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REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

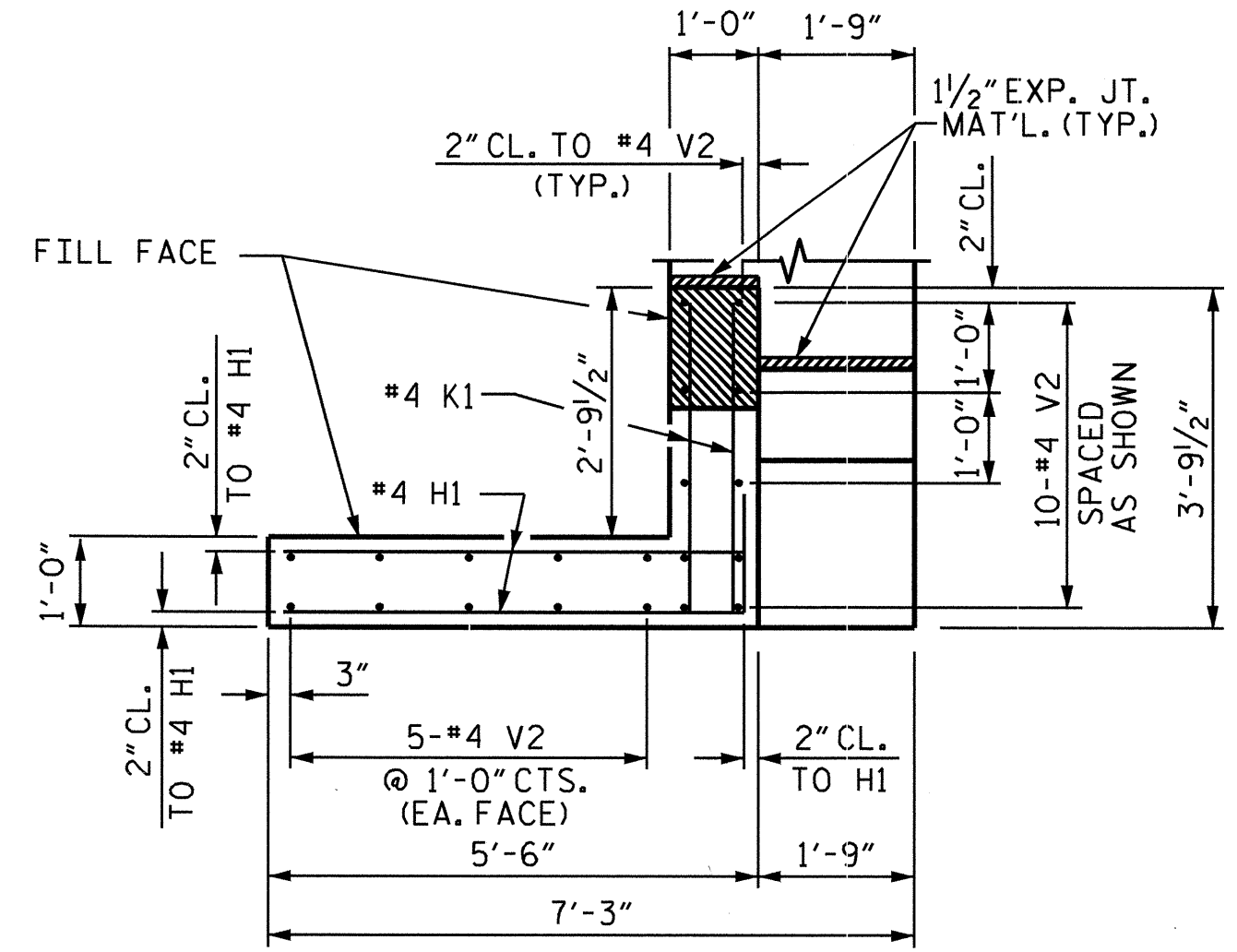
S-13
TOTAL SHEETS: 22



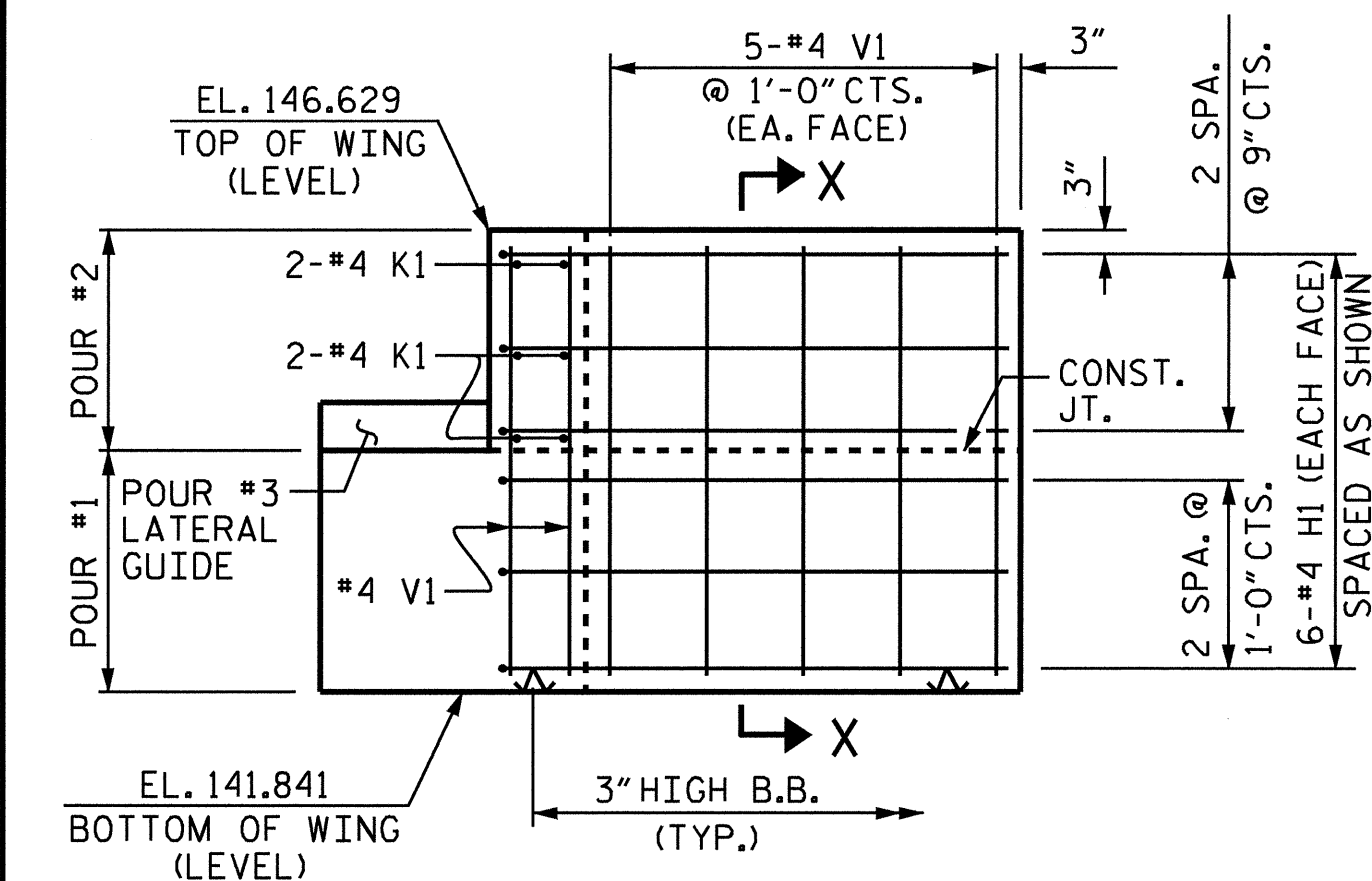
PLAN OF WING W1



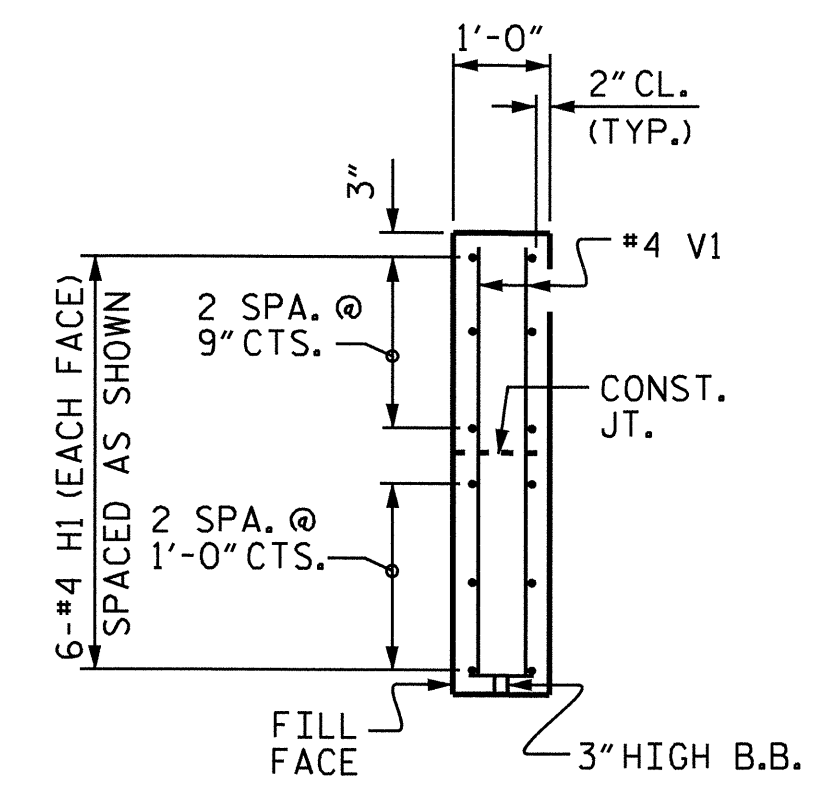
SECTION Y-Y



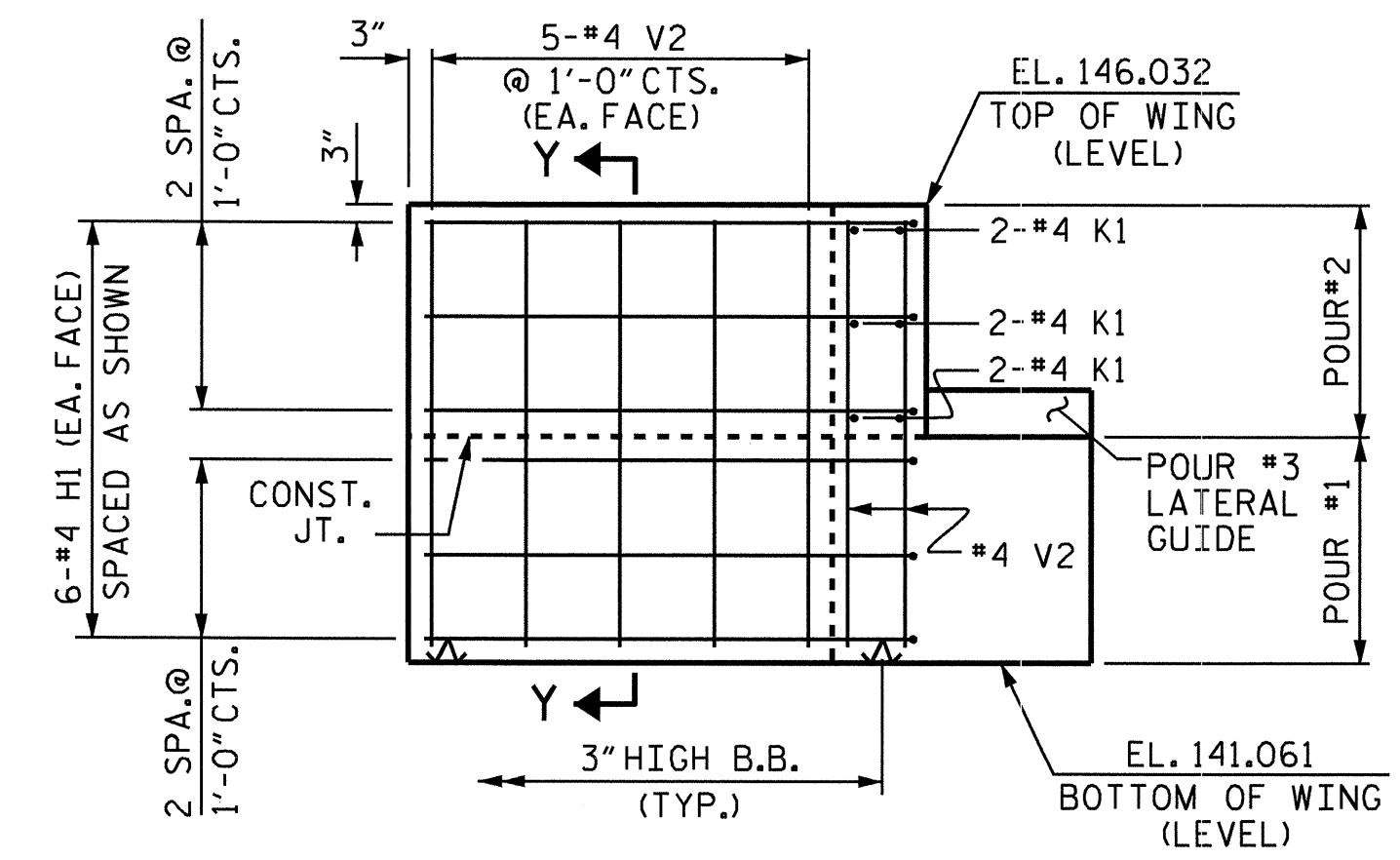
PLAN OF WING W2



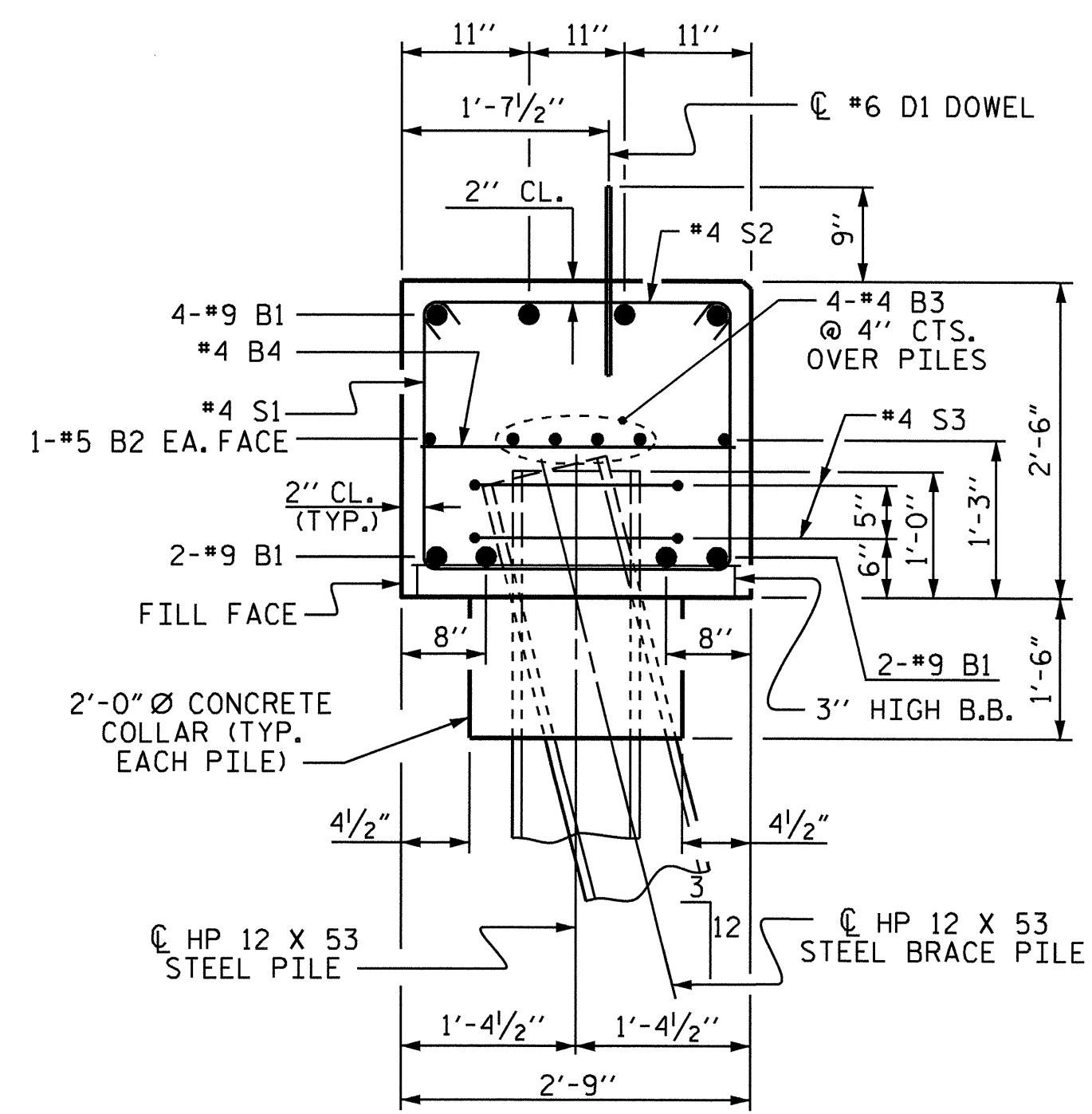
ELEVATION OF WING W1



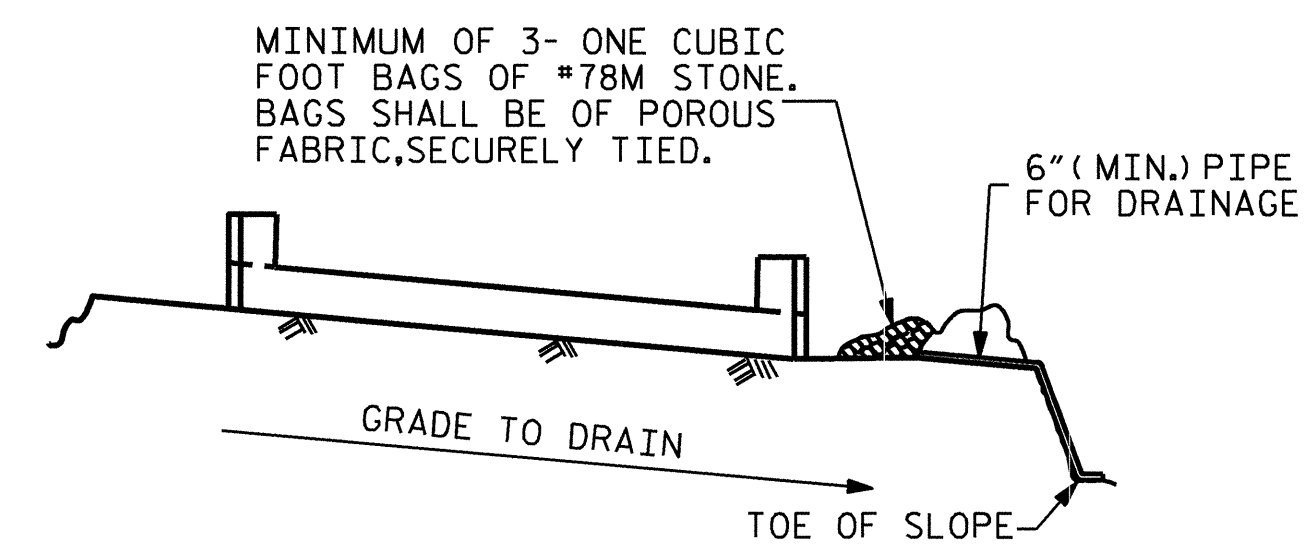
SECTION X-X



ELEVATION OF WING W2



SECTION A-A

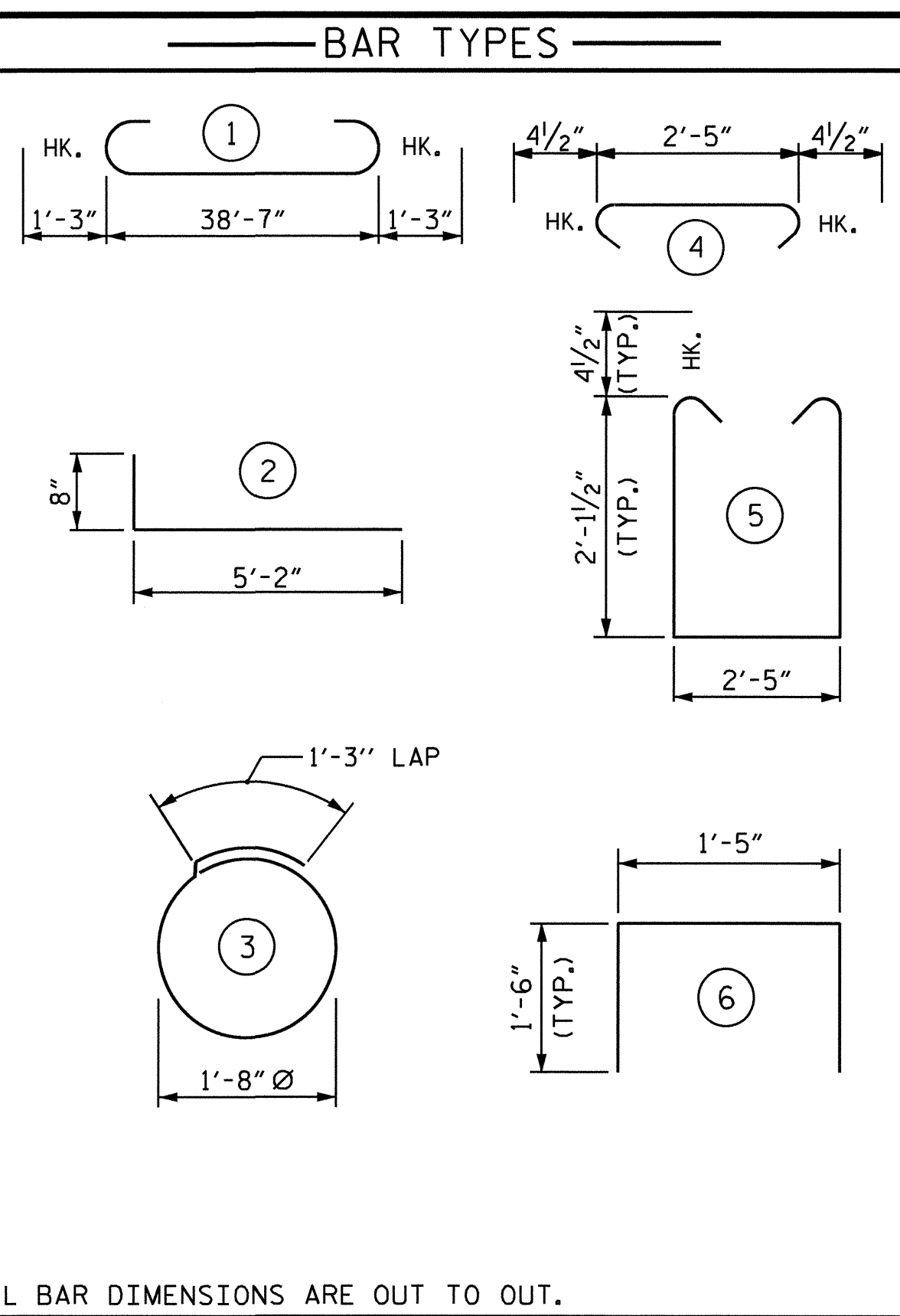


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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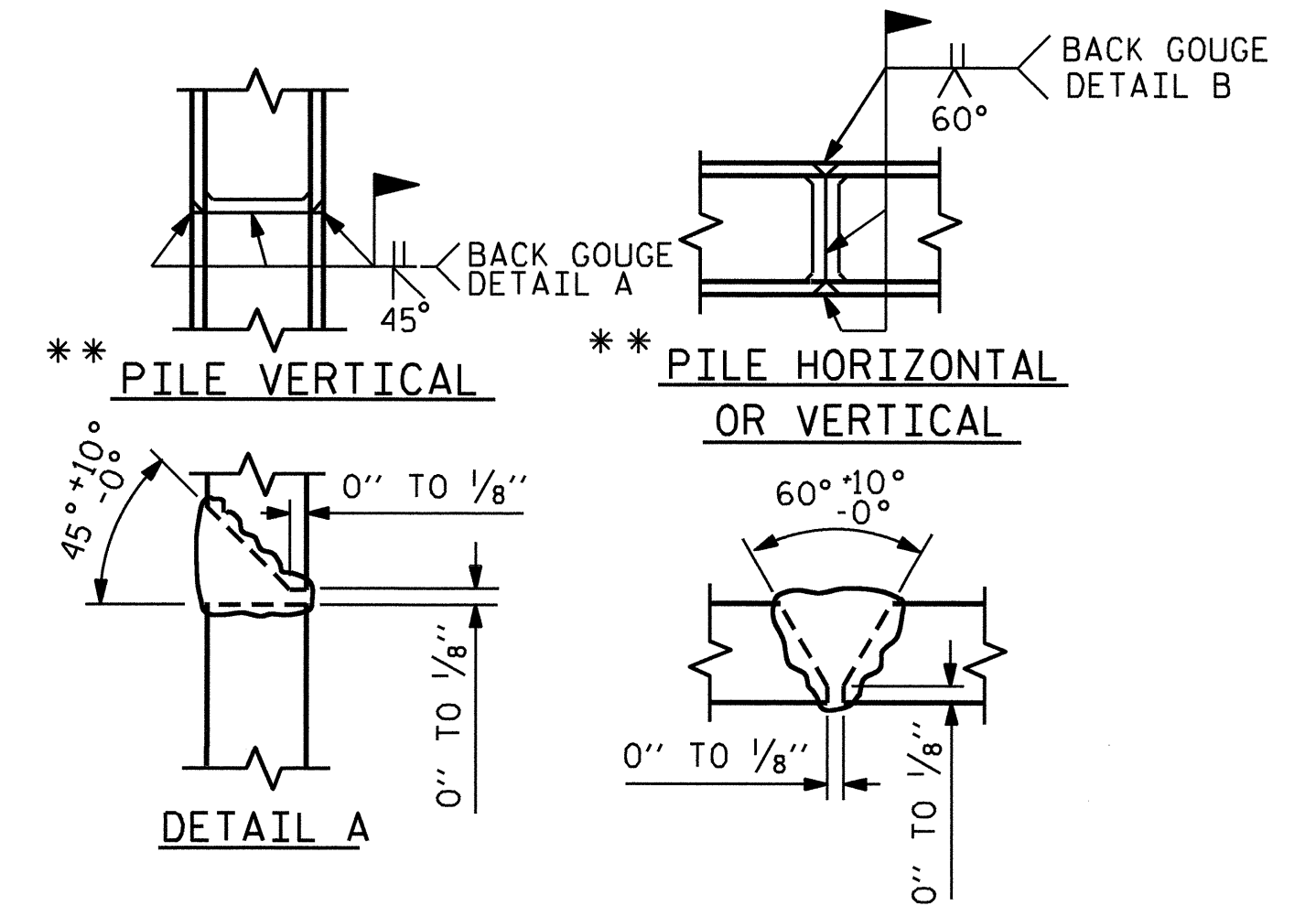
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-1"	1117
B2	2	#5	STR	38'-8"	81
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	5'-10"	94
K1	12	#4	STR	3'-5"	27
S1	46	#4	5	7'-5"	228
S2	46	#4	4	3'-2"	97
S3	10	#4	3	6'-6"	43
U1	4	#4	6	4'-5"	12
V1	20	#4	STR	4'-5"	59
V2	20	#4	STR	4'-7"	61
REINFORCING STEEL				LBS	1995
CLASS A CONCRETE BREAKDOWN					
POUR #1: CAP, PILE COLLAR & LOWER PART OF WINGS - CU. YD. 11.6					
POUR #2: UPPER PART OF WINGS - CU. YD. 1.5					
POUR #3: LATERAL GUIDES - CU. YD. 0.1					
TOTAL - CU. YD. 13.2					
HP 12 x 53 STEEL PILES				LIN. FT.	150
NO. 5 PILE REDRIVES				EACH	3



** POSITION OF PILE DURING WELDING.

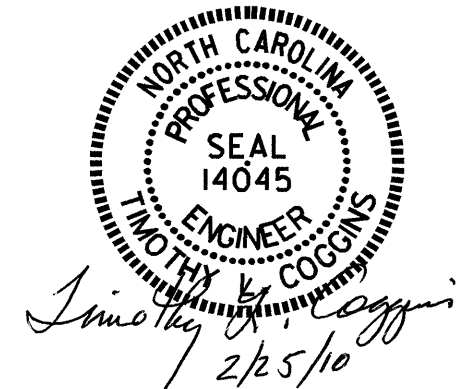
PILE SPLICE DETAILS

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1



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

DRAWN BY: B.N. BARODAWALA DATE: 11-1-09
 CHECKED BY: EMILY MURRAY DATE: 12-21-09

NOTES:

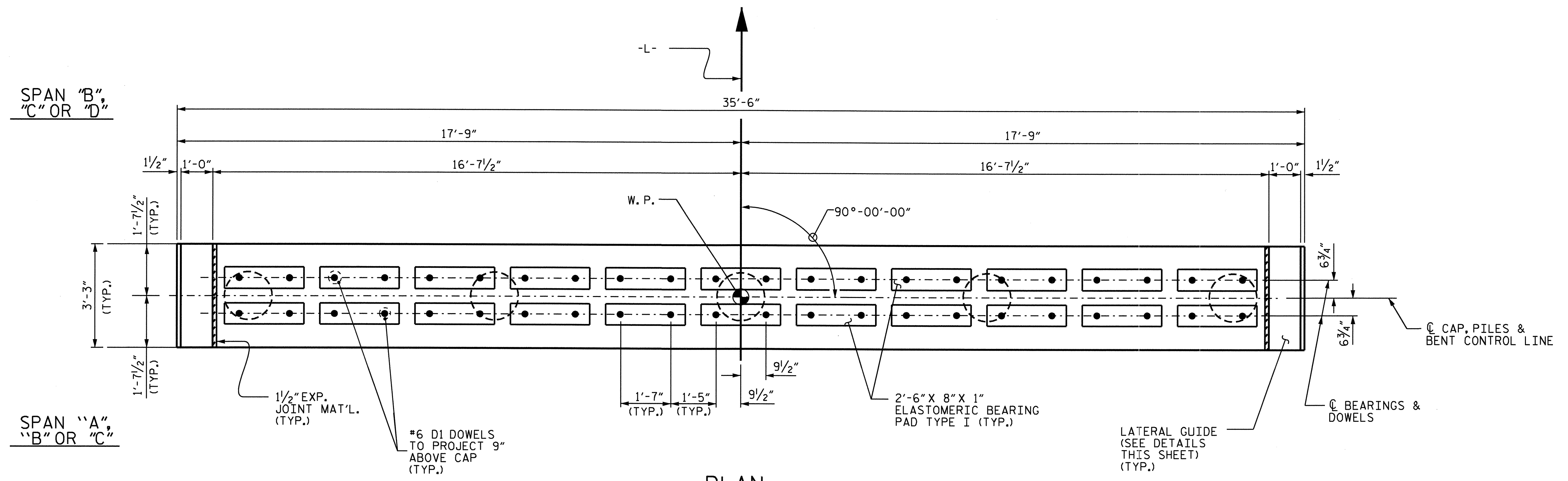
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE LATERAL GUIDE AT EACH END OF CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

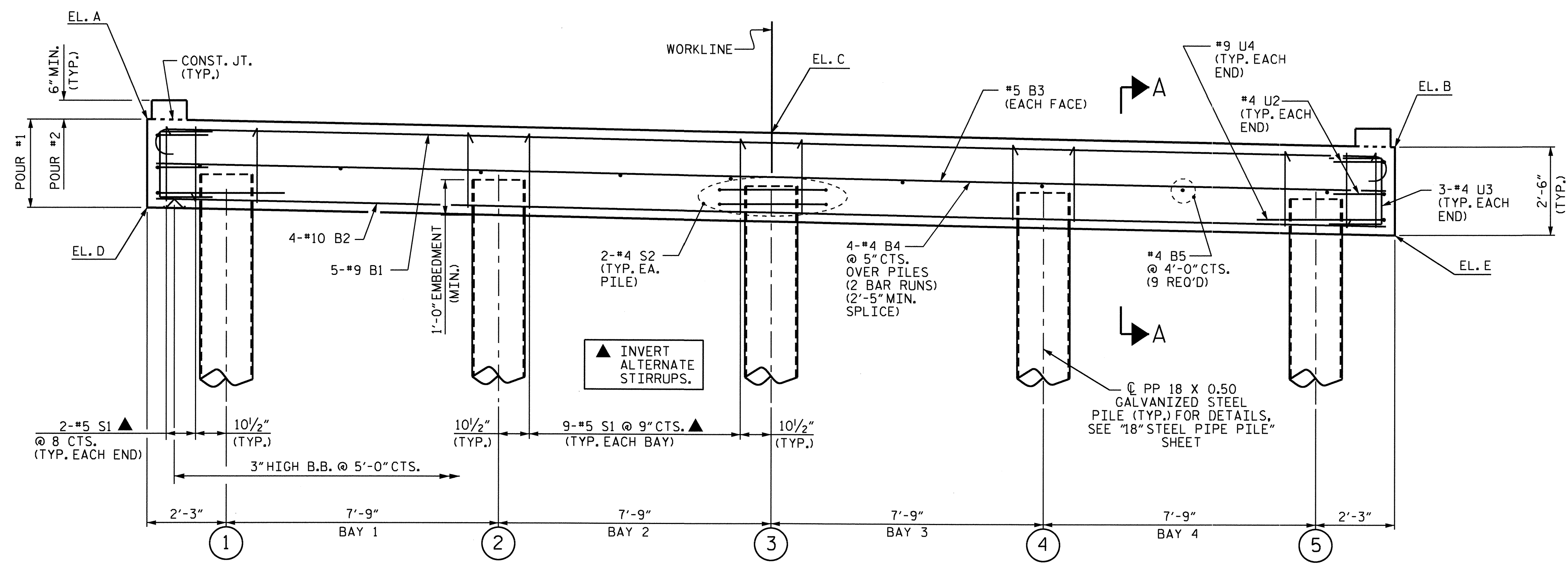
FOR REINFORCING STEEL IN PIPE PILES, SEE "18" STEEL PIPE PILE" SHEET.

CONCRETE DISPLACED BY THE FILLED 18" STEEL PIPE PILES HAS BEEN DEDUCTED FROM THE QUANTITY OF CLASS "A" CONCRETE FOR THE BENT CAP.

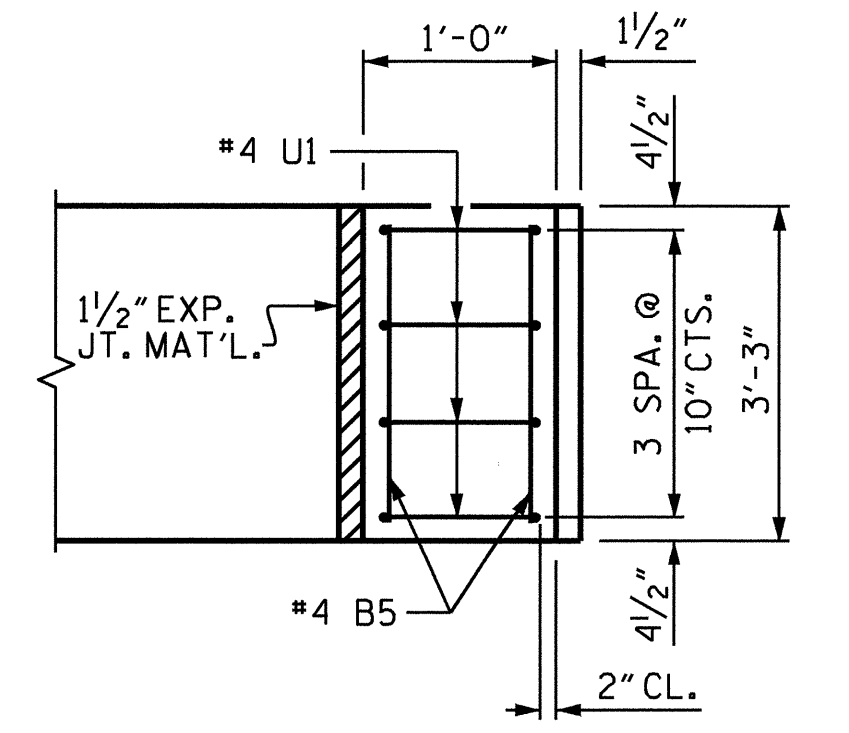
AT BENT #1, BENT #2 AND BENT #3, GALVANIZE THE TOP 30 FEET OF EACH PP 18 X 0.50 GALVANIZED STEEL PILE IN ACORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



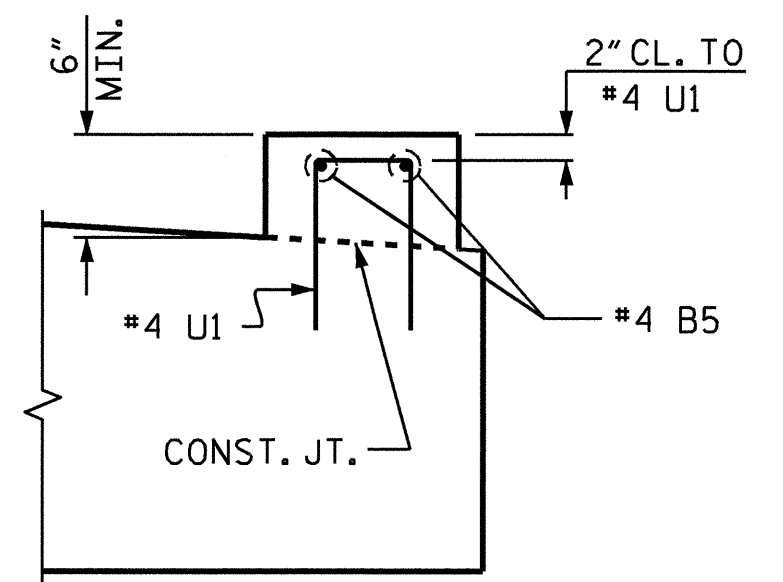
PLAN



ELEVATION



PLAN



ELEVATION

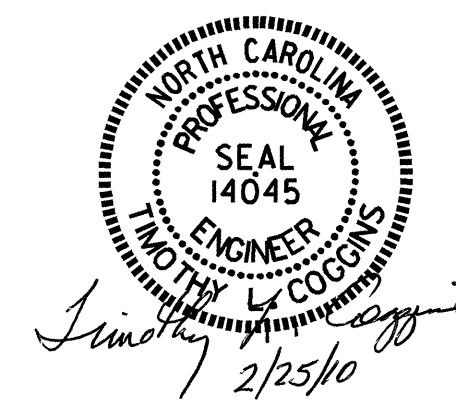
LATERAL GUIDE DETAILS
(TYP. EA. END)

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 1 OF 2

CAP ELEVATIONS			
	BENT #1	BENT #2	BENT #3
EL. A	145.937	147.709	150.142
EL. B	145.227	146.999	149.432
EL. C	145.582	147.354	149.787
EL. D	143.437	145.209	147.642
EL. E	142.727	144.499	146.932

TOP OF PILE ELEVATIONS					
BENT #1		BENT #2		BENT #3	
PILE	ELEVATION	PILE	ELEVATION	PILE	ELEVATION
1	144.407	1	146.179	1	148.612
2	144.252	2	146.024	2	148.457
3	144.097	3	145.869	3	148.302
4	143.942	4	145.714	4	148.147
5	143.787	5	145.559	5	147.992



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

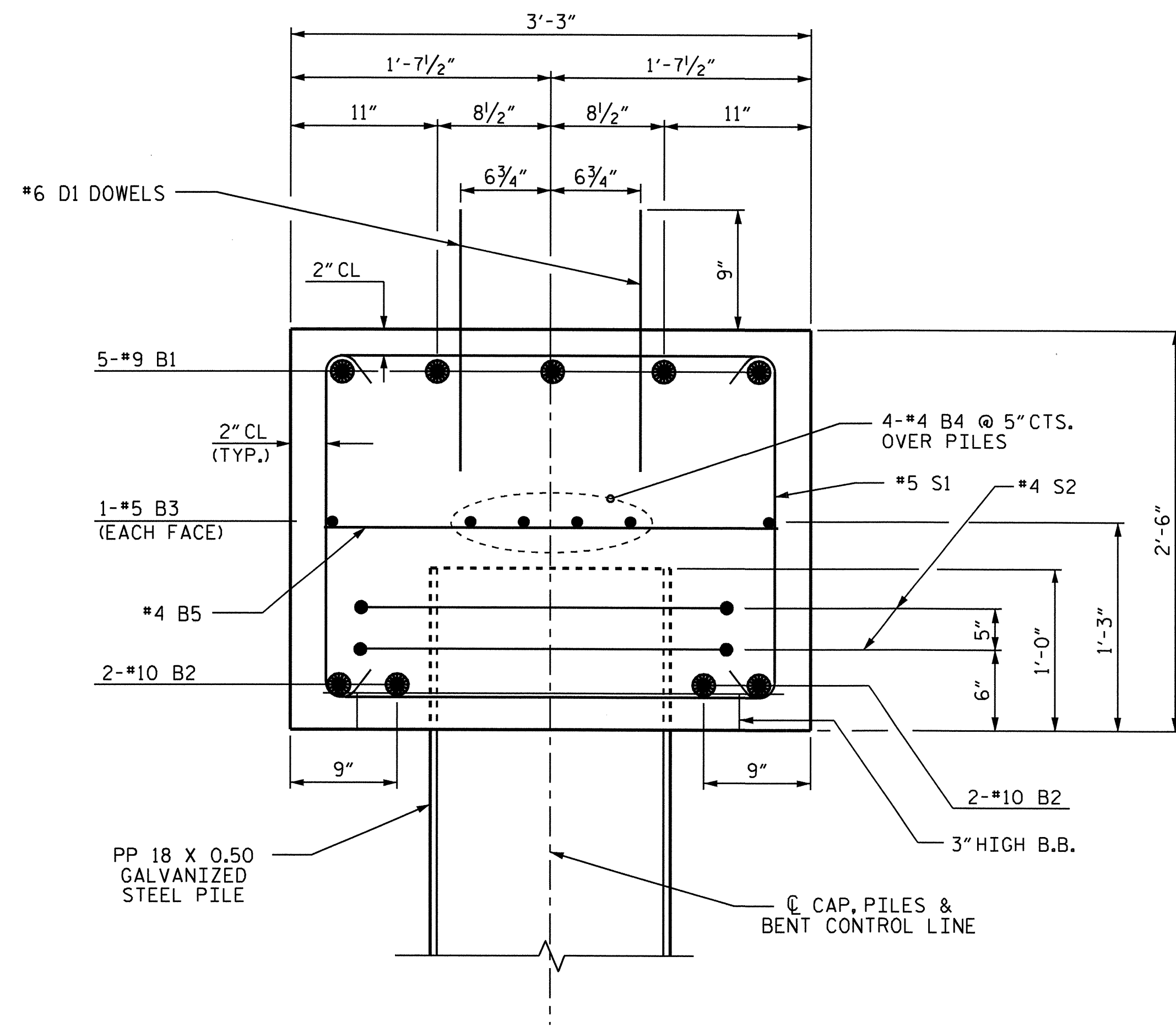
BENTS #1, #2 & #3

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

SHEET NO. S-15
 TOTAL SHEETS 22

DRAWN BY : PEGGY PARISI DATE : 10-27-09
 CHECKED BY : B.N. BARODAWALA DATE : 12-1-09

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SECTION A-A

BILL OF MATERIAL					
FOR ONE BENT (3 REQUIRED)					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#9		37'-7"	639
B2	4	#10	STR	35'-2"	605
B3	2	#5	STR	35'-2"	73
B4	8	#4	STR	18'-10"	101
B5	13	#4	STR	2'-11"	25
D1	44	#6	STR	1'-6"	99
S1	40	#5		8'-1"	337
S2	10	#4		8'-7"	57
U1	8	#4	4	3'-6"	19
U2	4	#4	4	5'-9"	15
U3	6	#4	4	4'-11"	20
U4	2	#9	4	10'-1"	69
TOTAL REINFORCING STEEL				2059 lbs.	
CLASS "A" CONCRETE					
POUR #1 CAP				10.4 C.Y.	
POUR #2 LATERAL GUIDES				0.1 C.Y.	
TOTAL CLASS "A" CONCRETE				10.5 C.Y.	
PP 18 X 0.50 GALVANIZED STEEL PILES					
BENT #1		NO. 5	225 LIN. FT.		
BENT #2		NO. 5	215 LIN. FT.		
BENT #3		NO. 5	200 LIN. FT.		
PILE REDRIVES					
BENT #1		3 EACH			
BENT #2		3 EACH			
BENT #3		3 EACH			

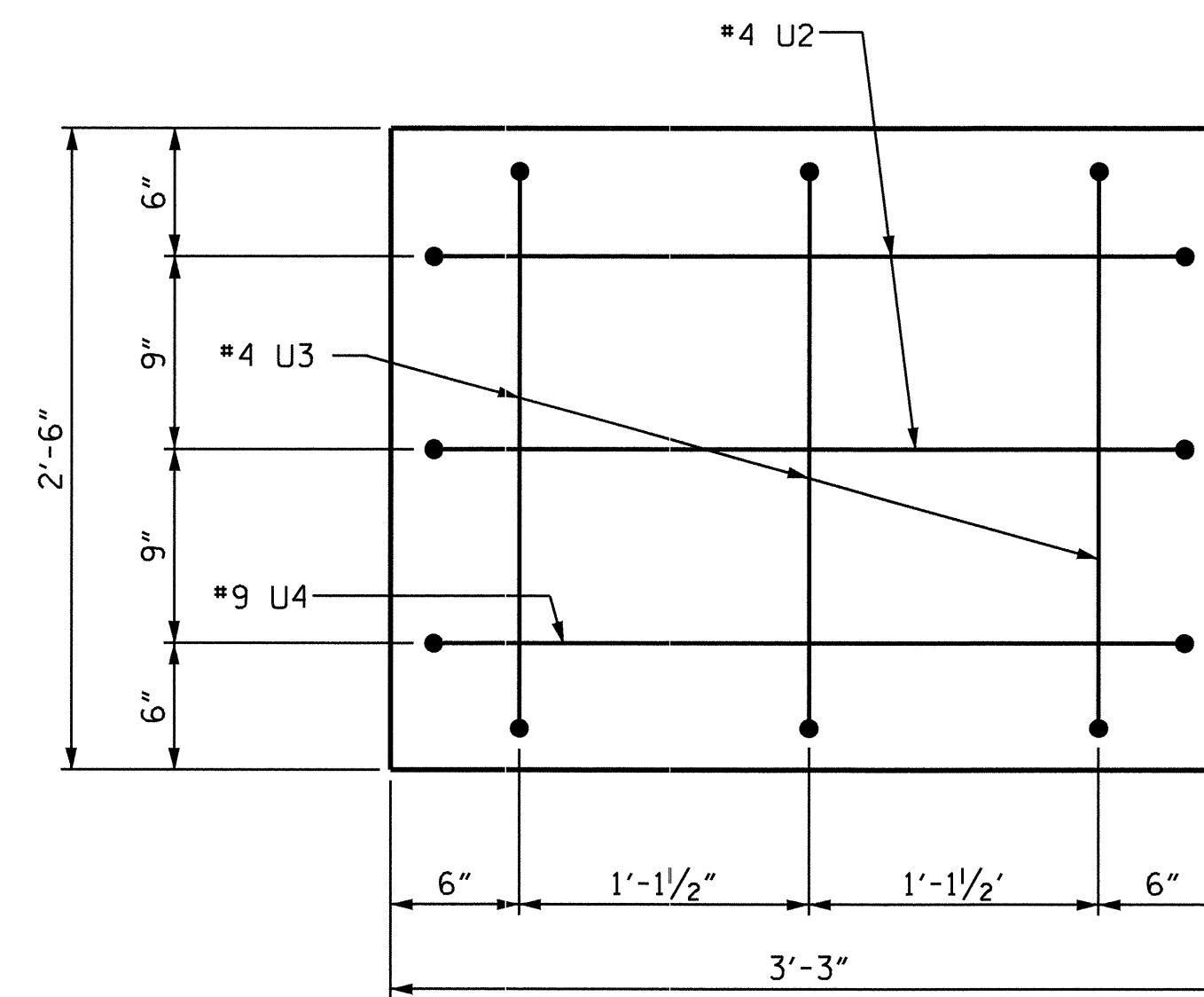
1

2

3

4

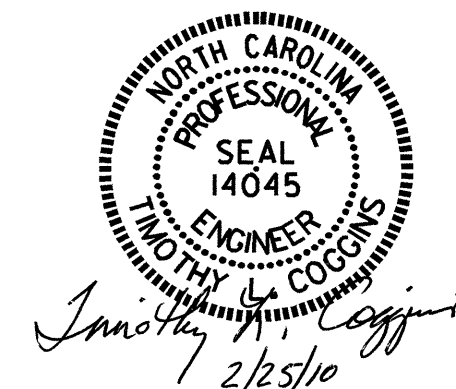
ALL BAR DIMENSIONS ARE OUT TO OUT.



END VIEW
(TYP. EA. END)

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT #1, #2 & #3



DRAWN BY : PEGGY PARISI DATE : 10-23-09
 CHECKED BY : B.N. BARODAWALA DATE : 12-1-09

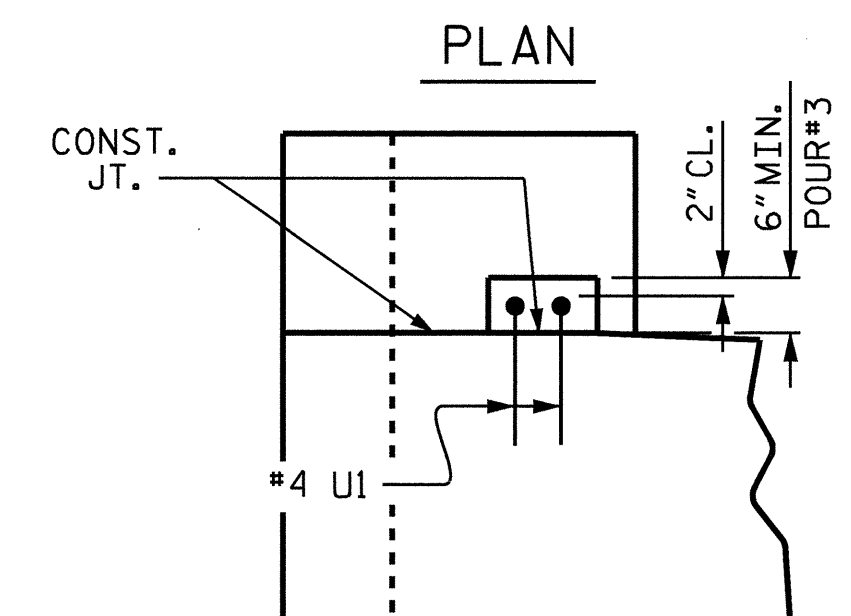
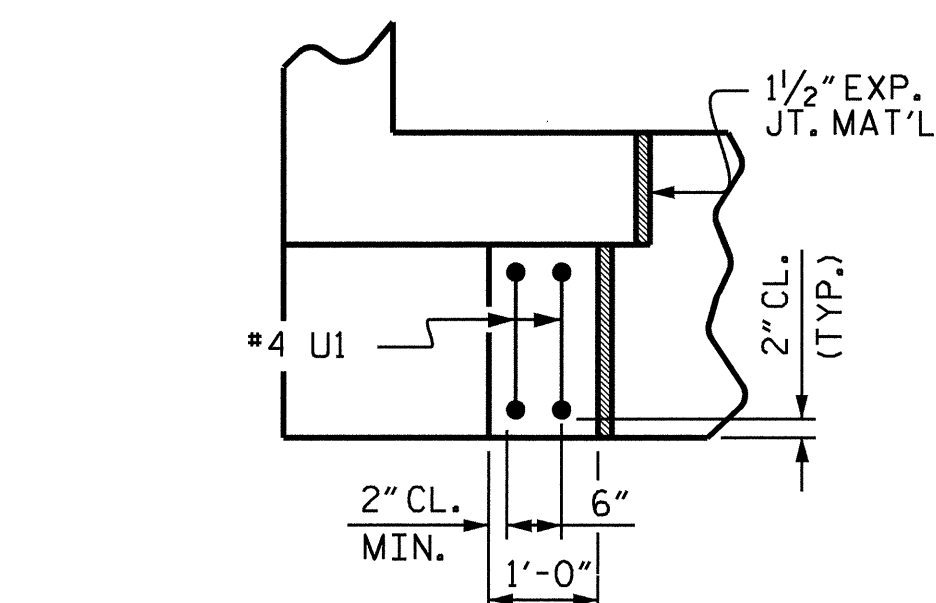
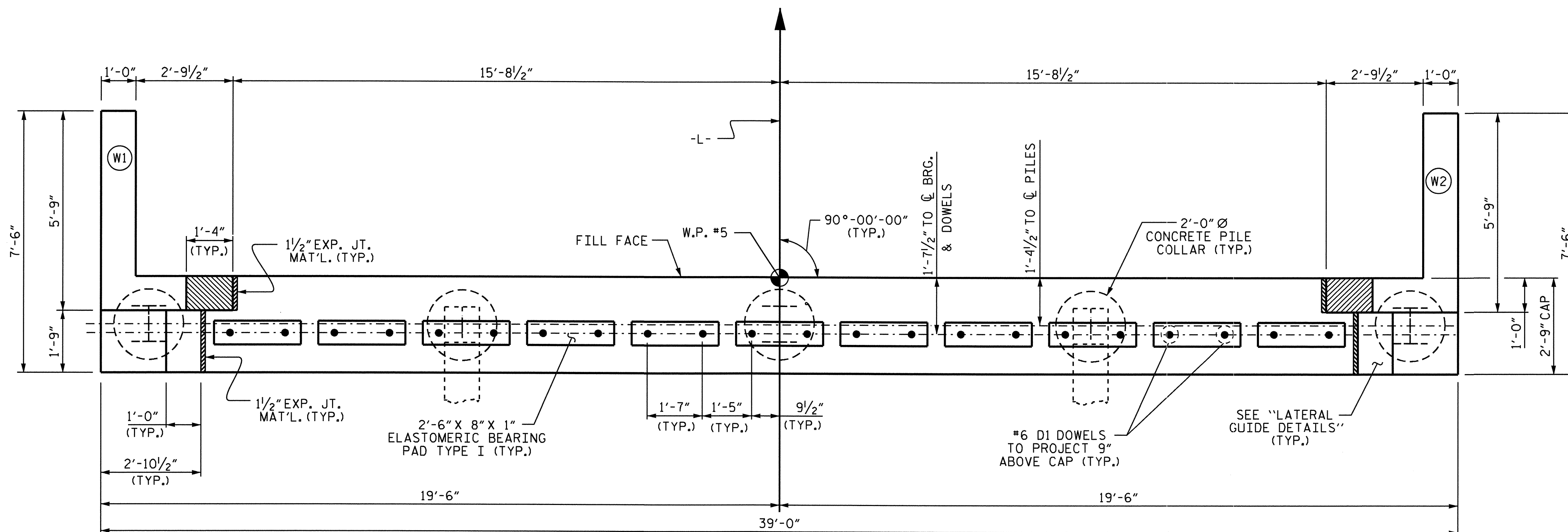
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1			3			TOTAL SHEETS
2			4			22

NOTES

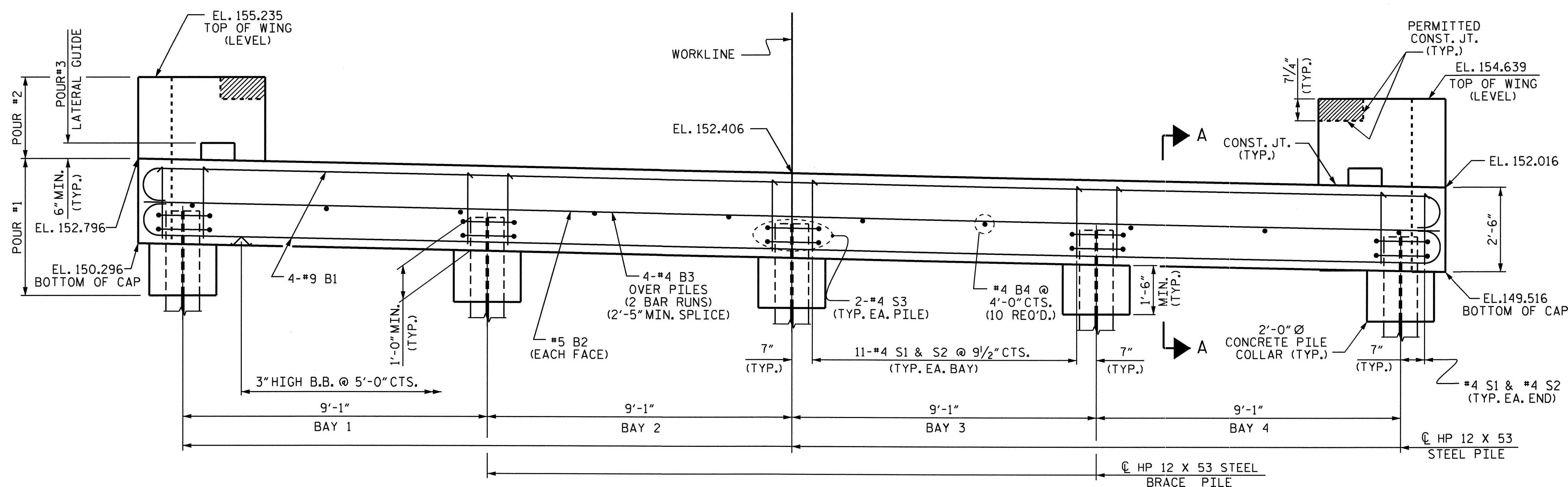
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LATERAL GUIDE DETAILS
(EACH END SIMILAR)



TOP OF PILE ELEV. CHART

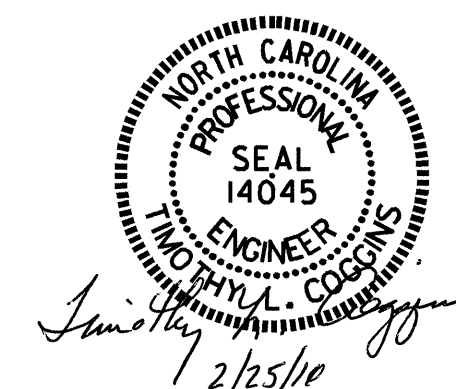
PILE	ELEVATION
#1	151.279
#2	151.098
#3	150.916
#4	150.734
#5	150.553

PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 1 OF 2

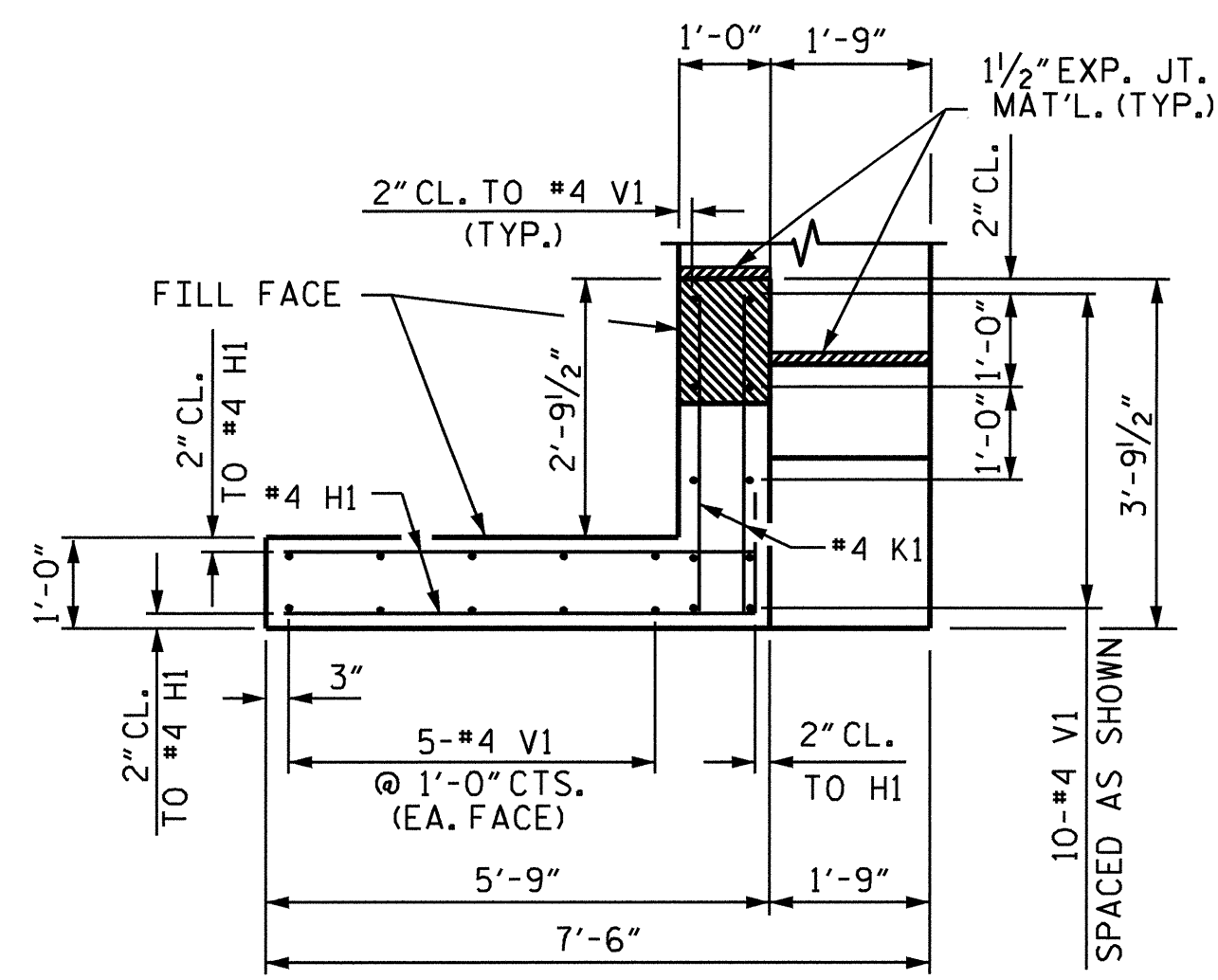
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #2**

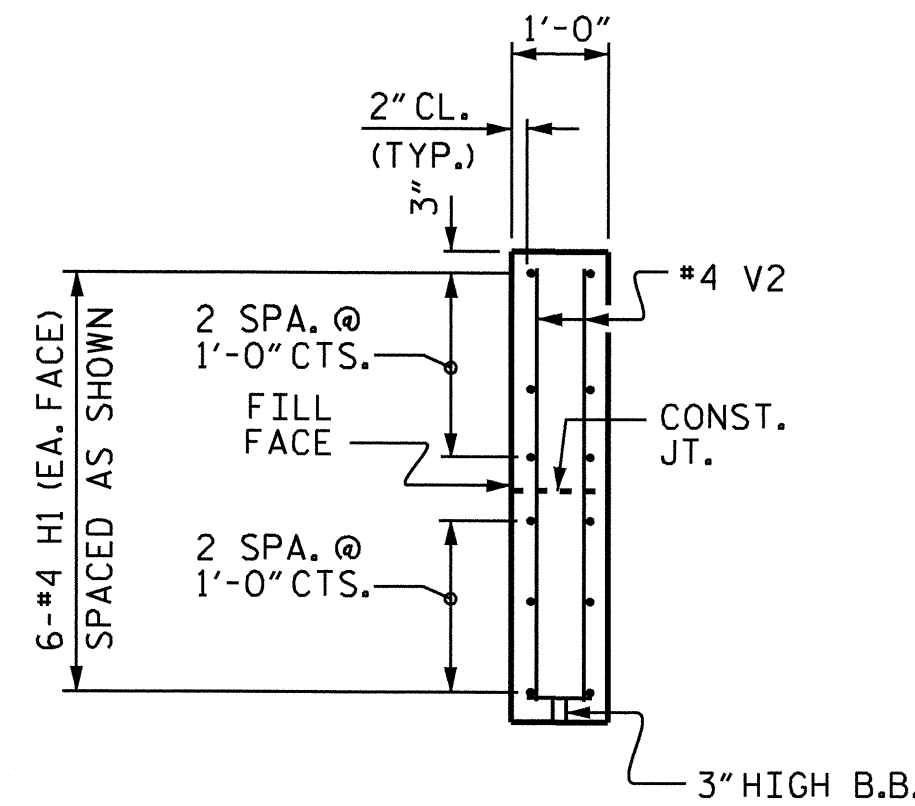


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			22

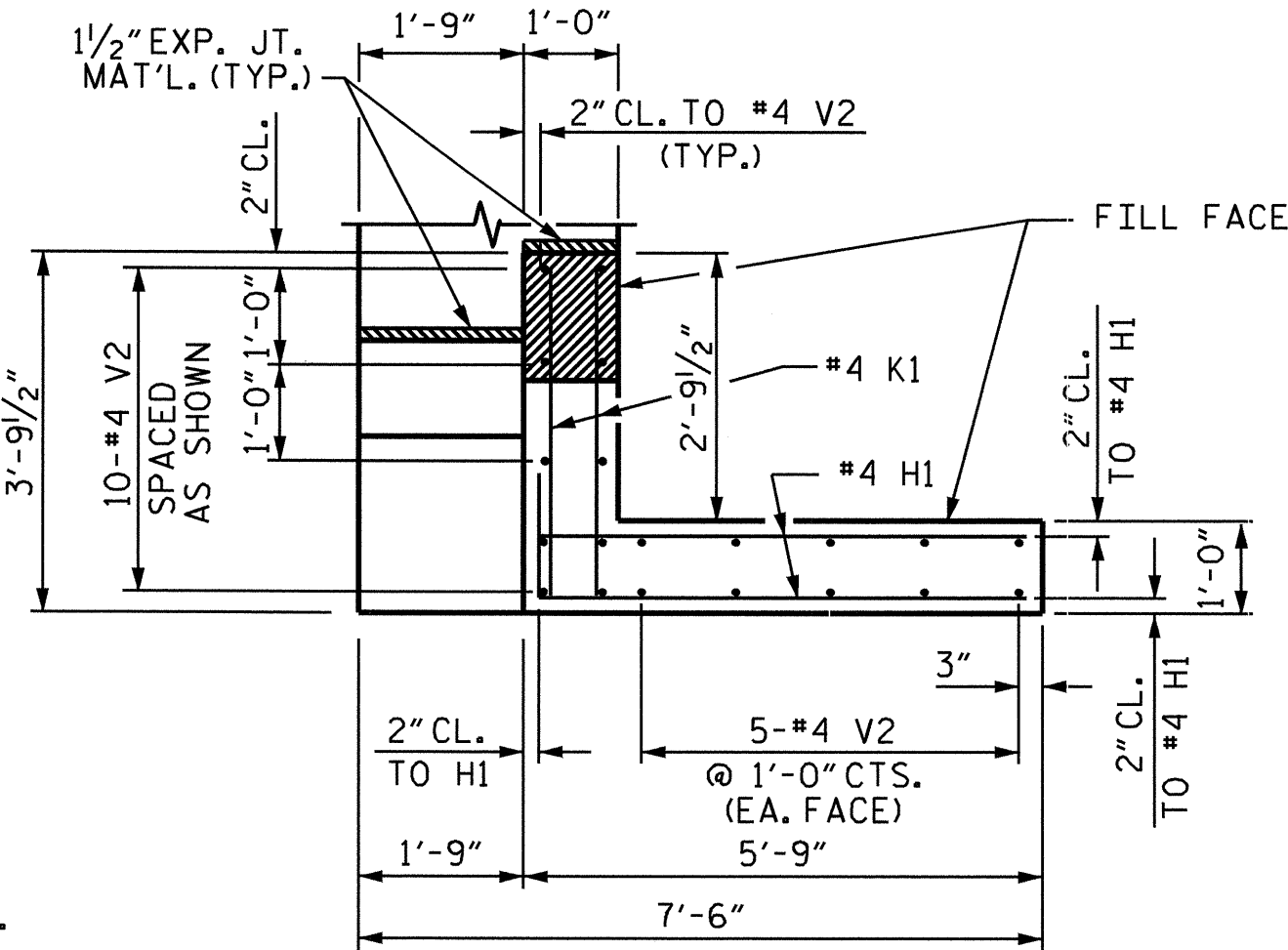
DRAWN BY : B.N.BARODAWALA DATE : 11-1-09
 CHECKED BY : EMILY MURRAY DATE : 12-21-09



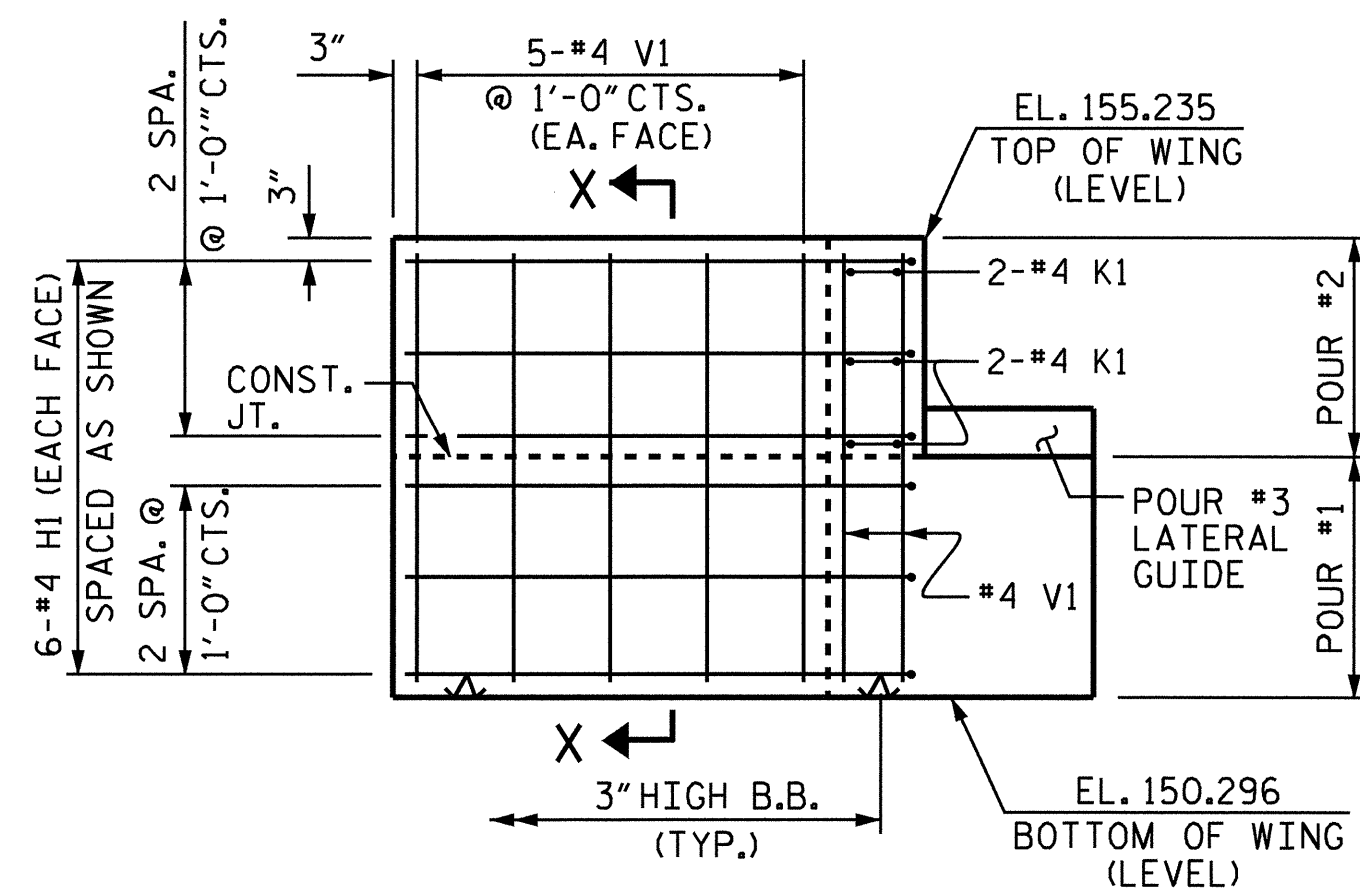
PLAN OF WING W1



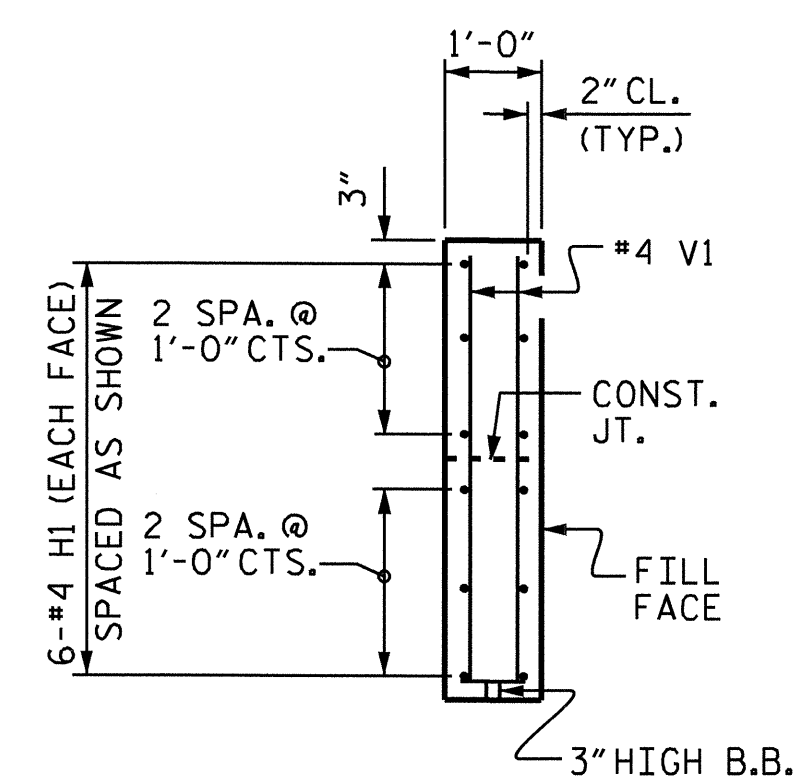
SECTION Y-Y



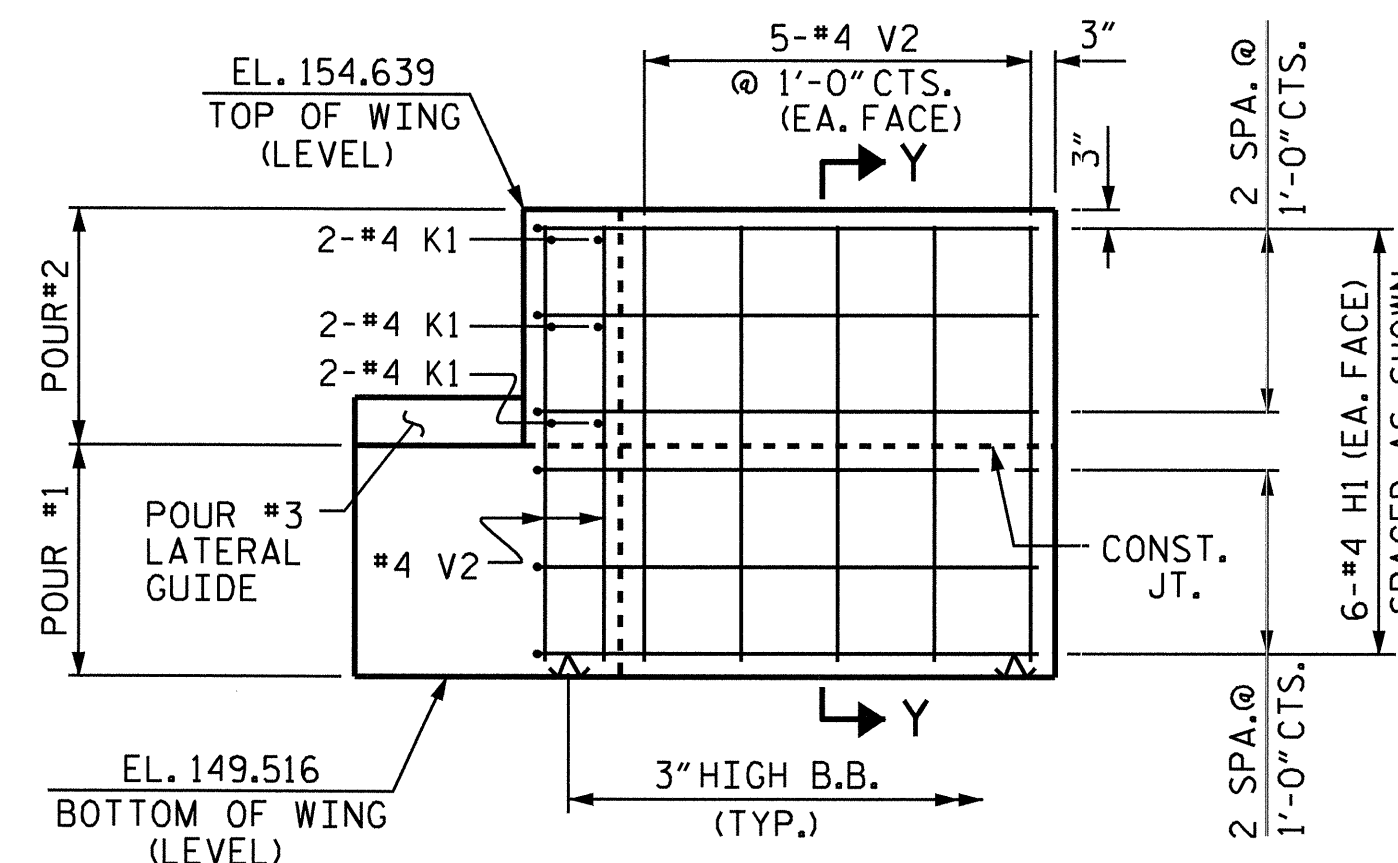
PLAN OF WING W2



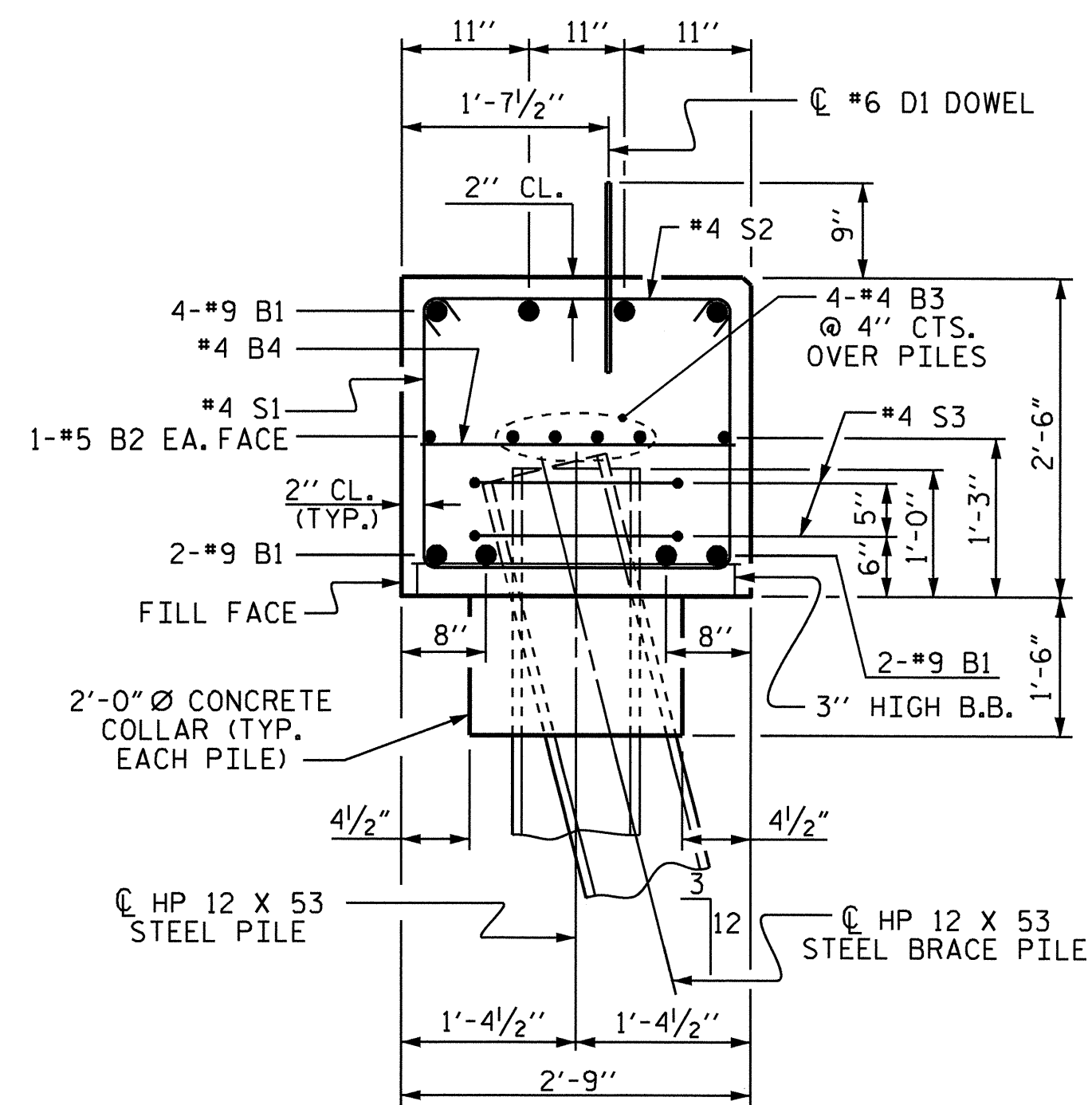
ELEVATION OF WING W1



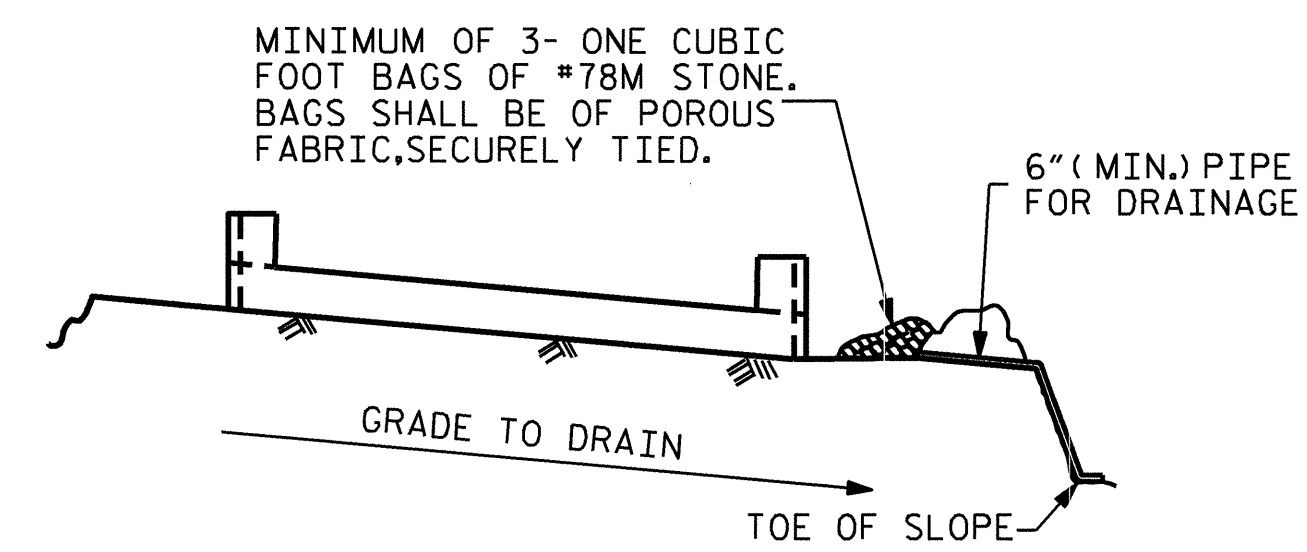
SECTION X-X



ELEVATION OF WING W2



SECTION A-A



TEMPORARY DRAINAGE AT END BENT

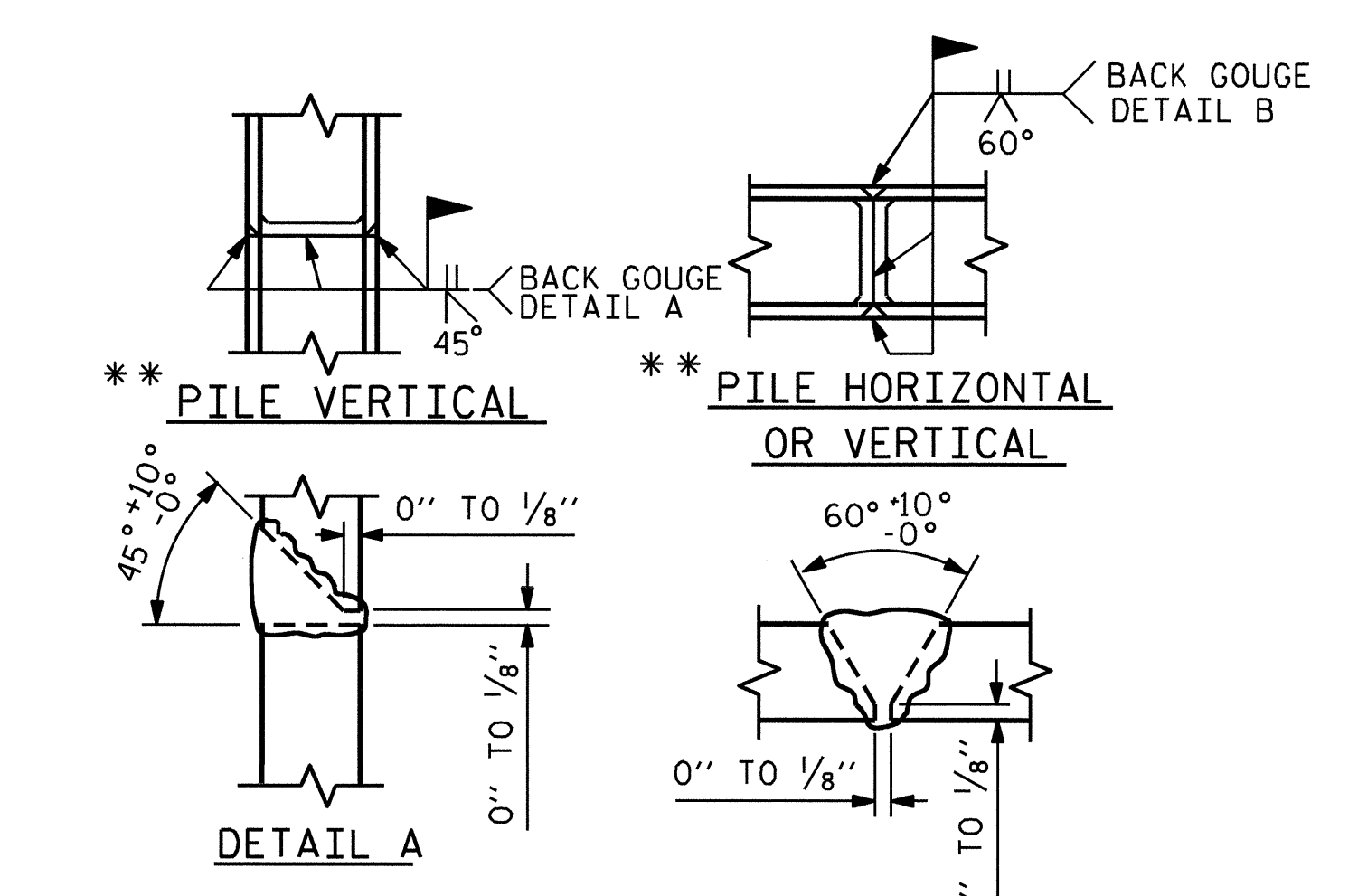
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BAR TYPES		BILL OF MATERIAL				
		END BENT #2				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	#8		41'-1"	1117		
B2	#5	STR	38'-8"	81		
B3	#4	STR	20'-7"	110		
B4	#4	STR	2'-5"	16		
D1	#6	STR	1'-6"	50		
H1	#4	2	6'-1"	98		
K1	#4	STR	3'-5"	27		
S1	#4	5	7'-5"	228		
S2	#4	4	3'-2"	97		
S3	#4	3	6'-6"	43		
U1	#4	6	4'-5"	12		
V1	#4	STR	4'-7"	61		
V2	#4	STR	4'-9"	63		
REINFORCING STEEL			LBS	2003		
CLASS A CONCRETE BREAKDOWN						
POUR #1: CAP, PILE COLLAR & LOWER PART OF WINGS - CU. YD. 11.7						
POUR #2: UPPER PART OF WINGS - CU. YD. 1.6						
POUR #3: LATERAL GUIDES - CU. YD. 0.1						
TOTAL - CU. YD. 13.4						
HP 12 x 53 STEEL PILES						
NO. 5				LIN. FT.	150	
PILE REDRIVES				EACH	3	

ALL BAR DIMENSIONS ARE OUT TO OUT.



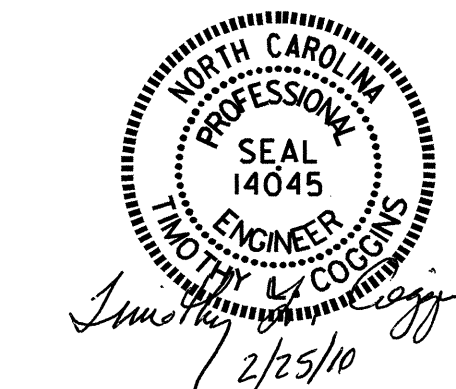
*** POSITION OF PILE DURING WELDING. ***

PILE SPLICE DETAILS

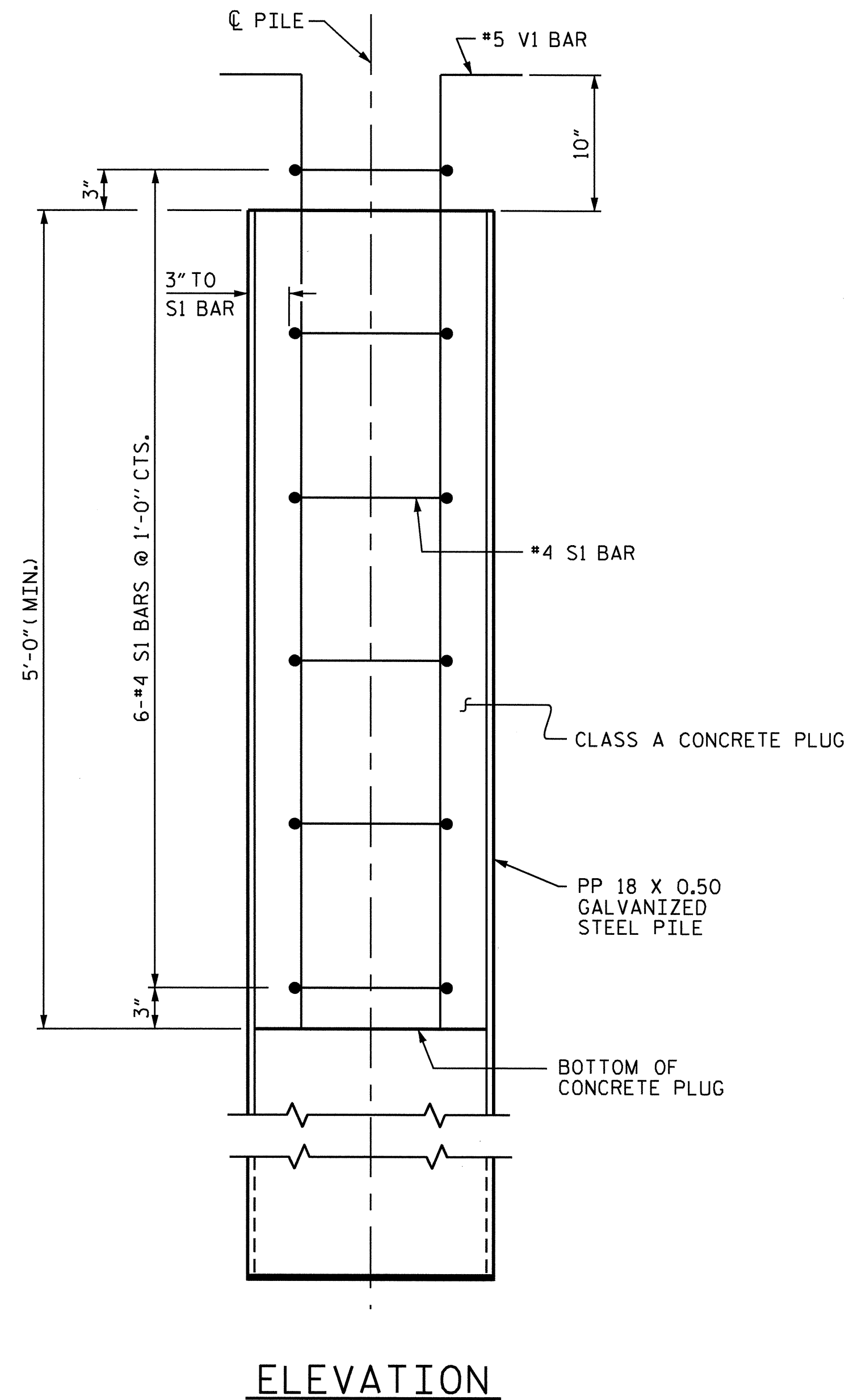
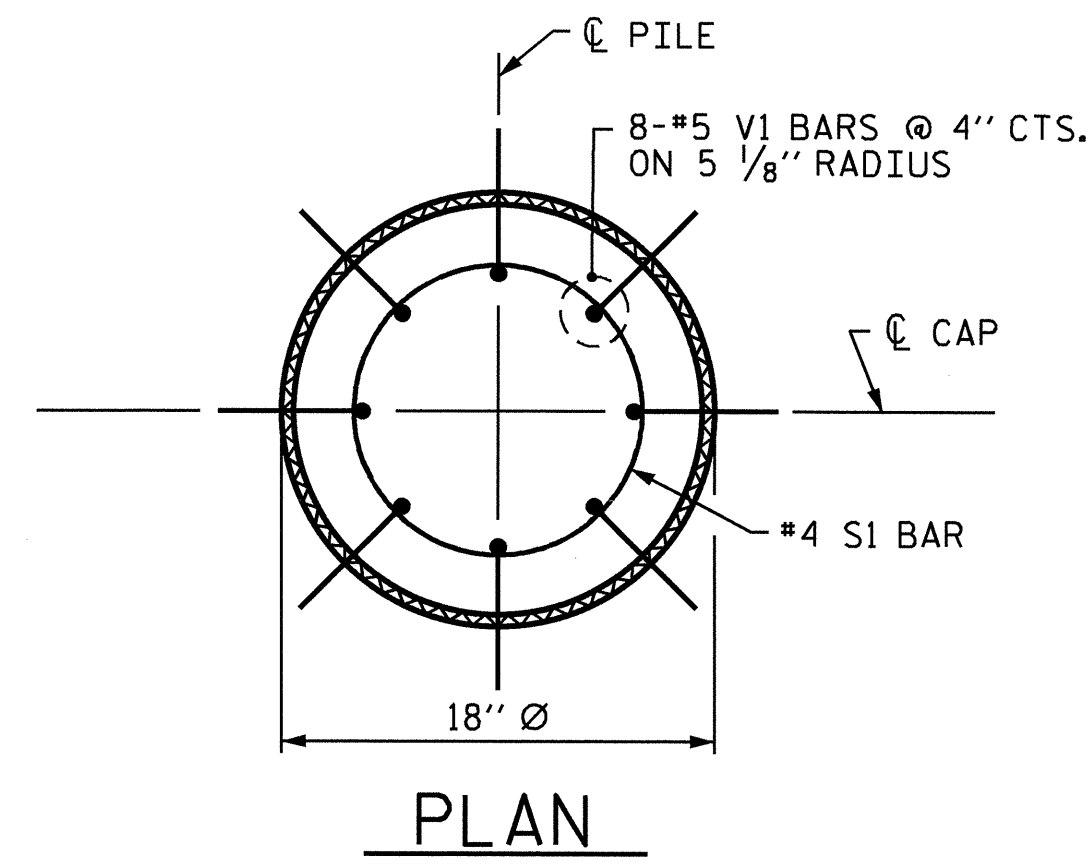
PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 2 OF 2

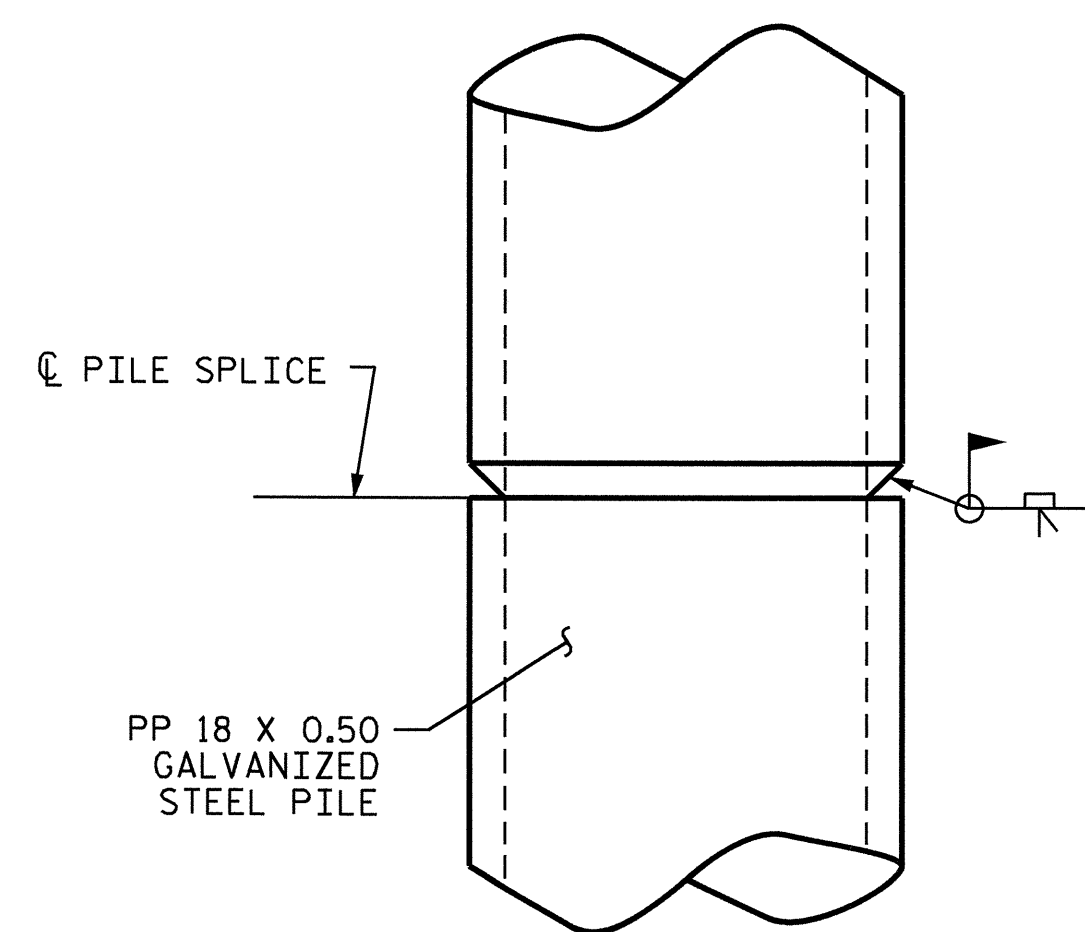
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



DRAWN BY: B.N. BARODAWALA DATE: 11-1-09
 CHECKED BY: EMILY MURRAY DATE: 12-21-09



PP 18 X 0.50 GALVANIZED STEEL PILE
(OPEN END)



PIPE PILE SPLICE DETAIL

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.

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 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.

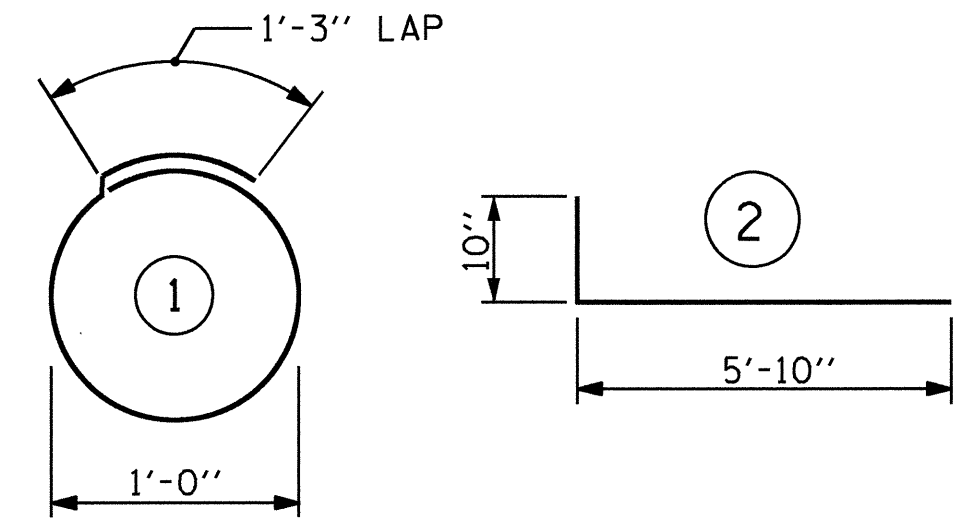
THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 18 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE
PP 18 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SI	6	#4	1	4'-5"	18
V1	8	#5	2	6'-8"	56
REINFORCING STEEL =				74	lbs

CLASS A CONCRETE	
5'-0" MINIMUM PLUG	0.3 CY

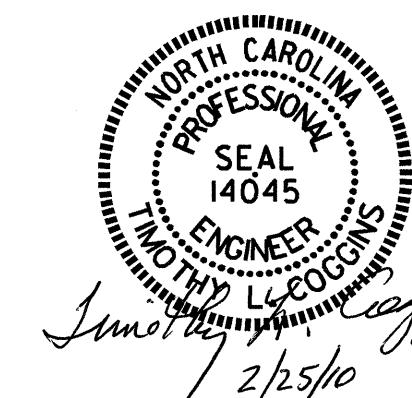
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4559
JOHNSTON COUNTY
STATION: 18+46.50 -L-

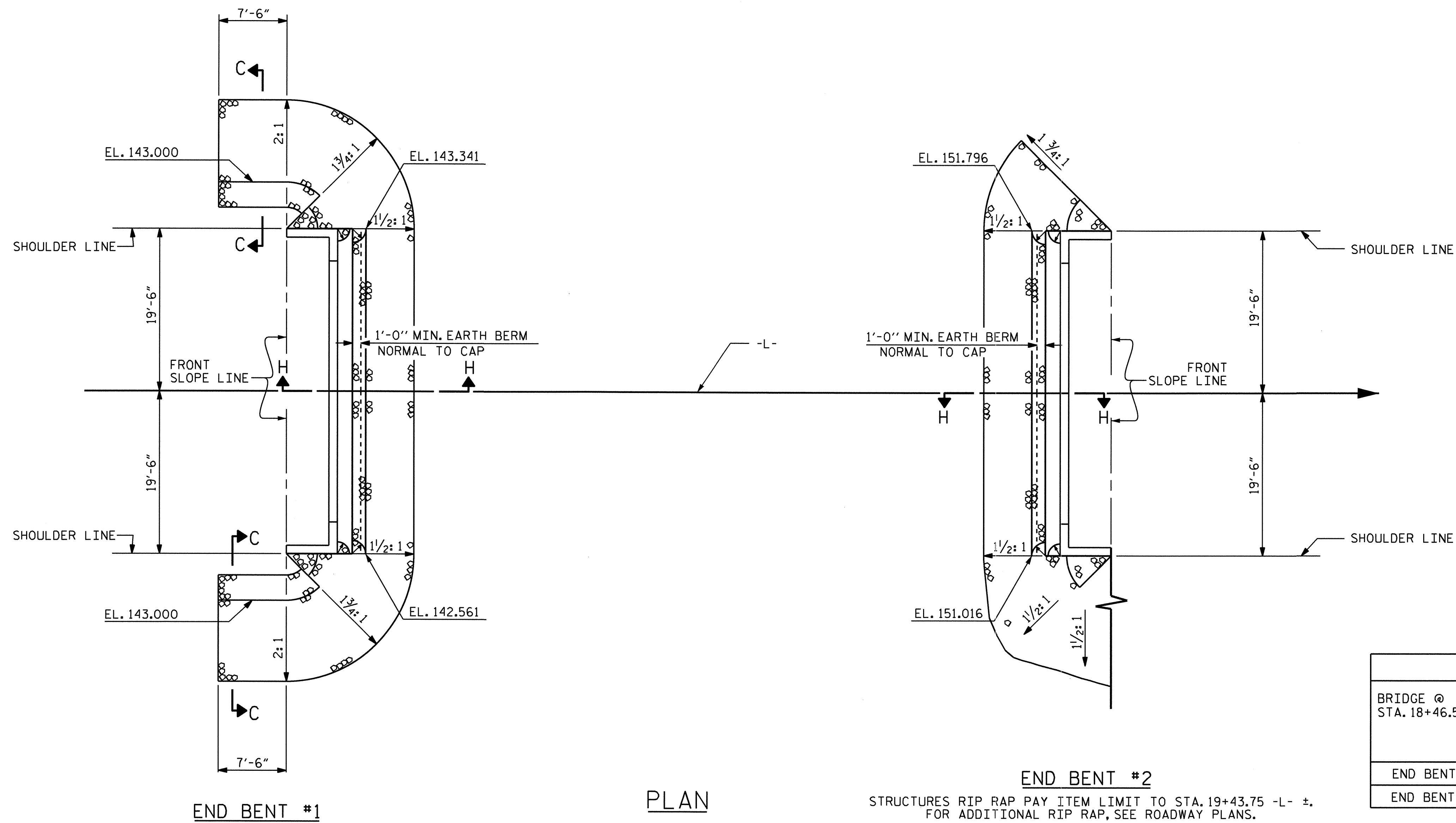
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
18" STEEL PIPE PILE



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : PEGGY PARISI	DATE : 10-28-09		
CHECKED BY : B.N. BARODAWAL	DATE : 12-1-09		
DRAWN BY : RWW	1/01	REV. 5/7/03	RWW/JTE
CHECKED BY : LES	1/01	REV. 10/1/05	LBG/TLA
		REV. 5/1/06R	MAA/KMM

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



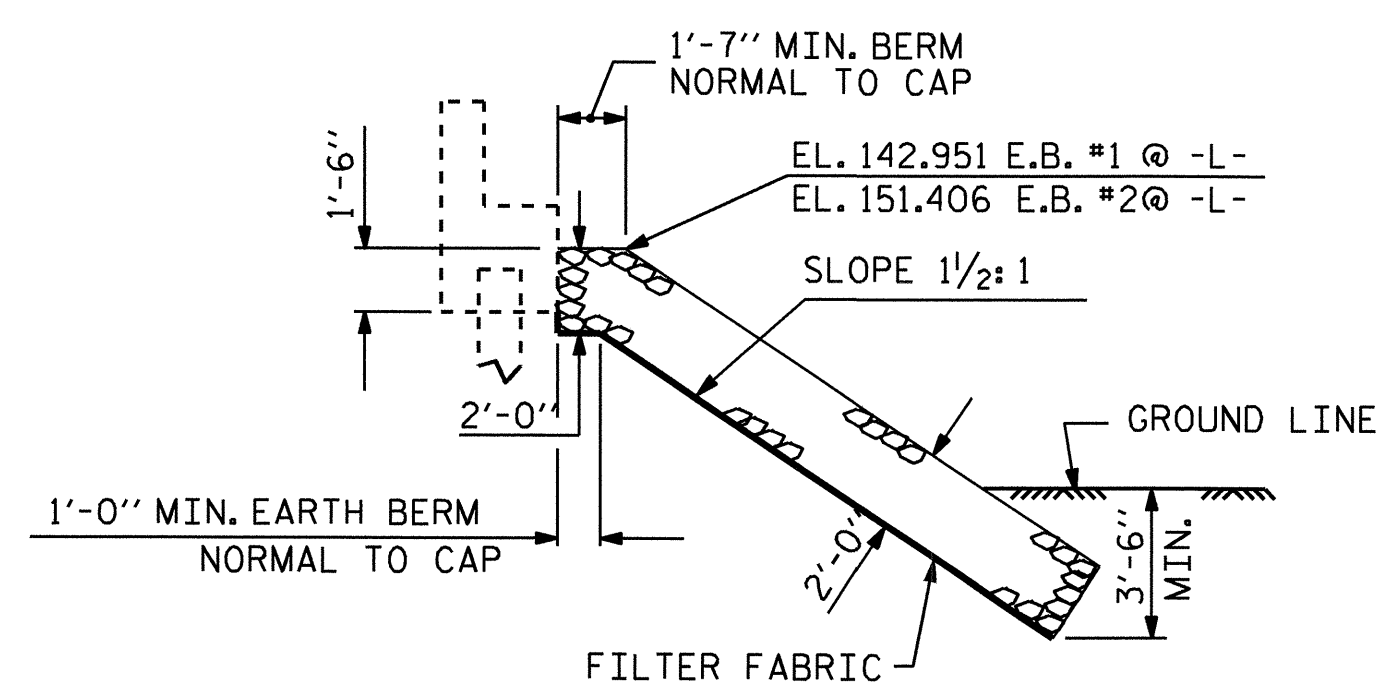
END BENT #1

PLAN

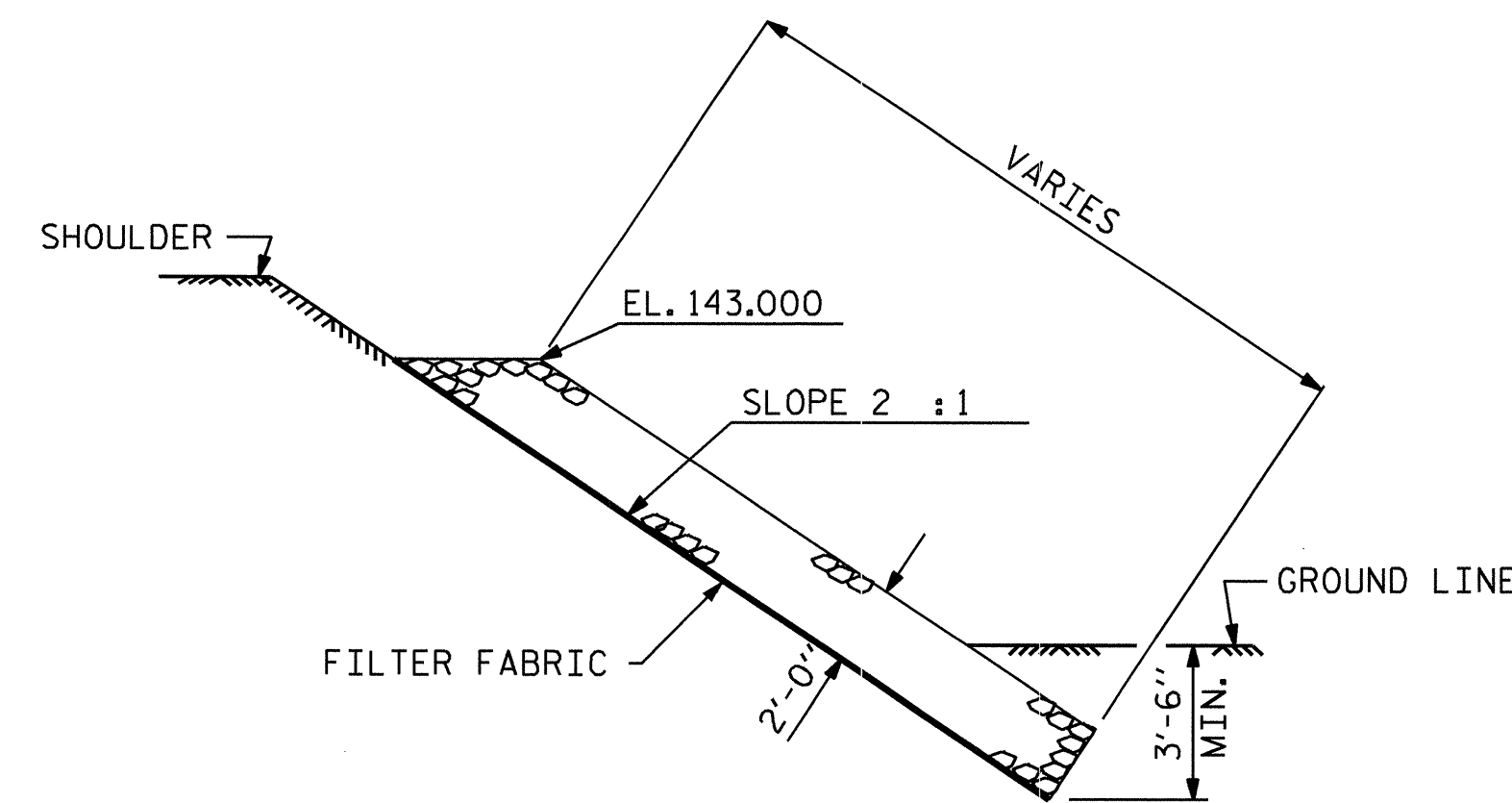
END BENT #2

STRUCTURES RIP RAP PAY ITEM LIMIT TO STA. 19+43.75 -L- ±.
FOR ADDITIONAL RIP RAP, SEE ROADWAY PLANS.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 18+46.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	185	206
END BENT 2	135	150



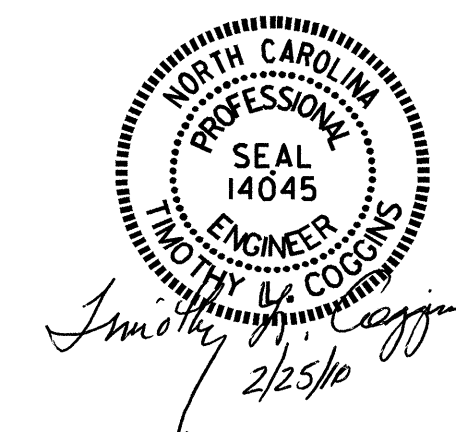
SECTION H-H



SECTION C-C

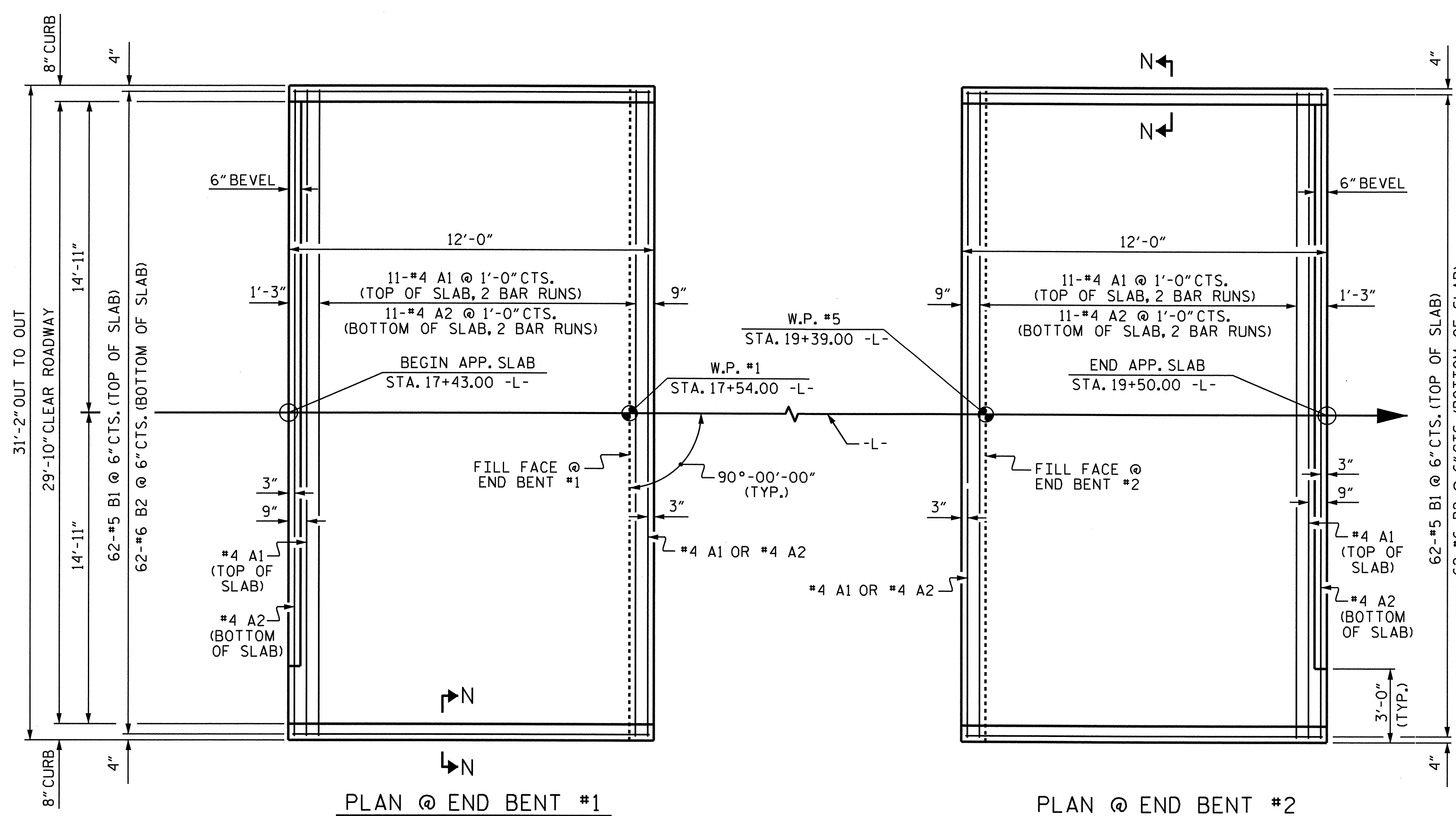
PROJECT NO. B-4559
JOHNSTON COUNTY
STATION: 18+46.50 -L-

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

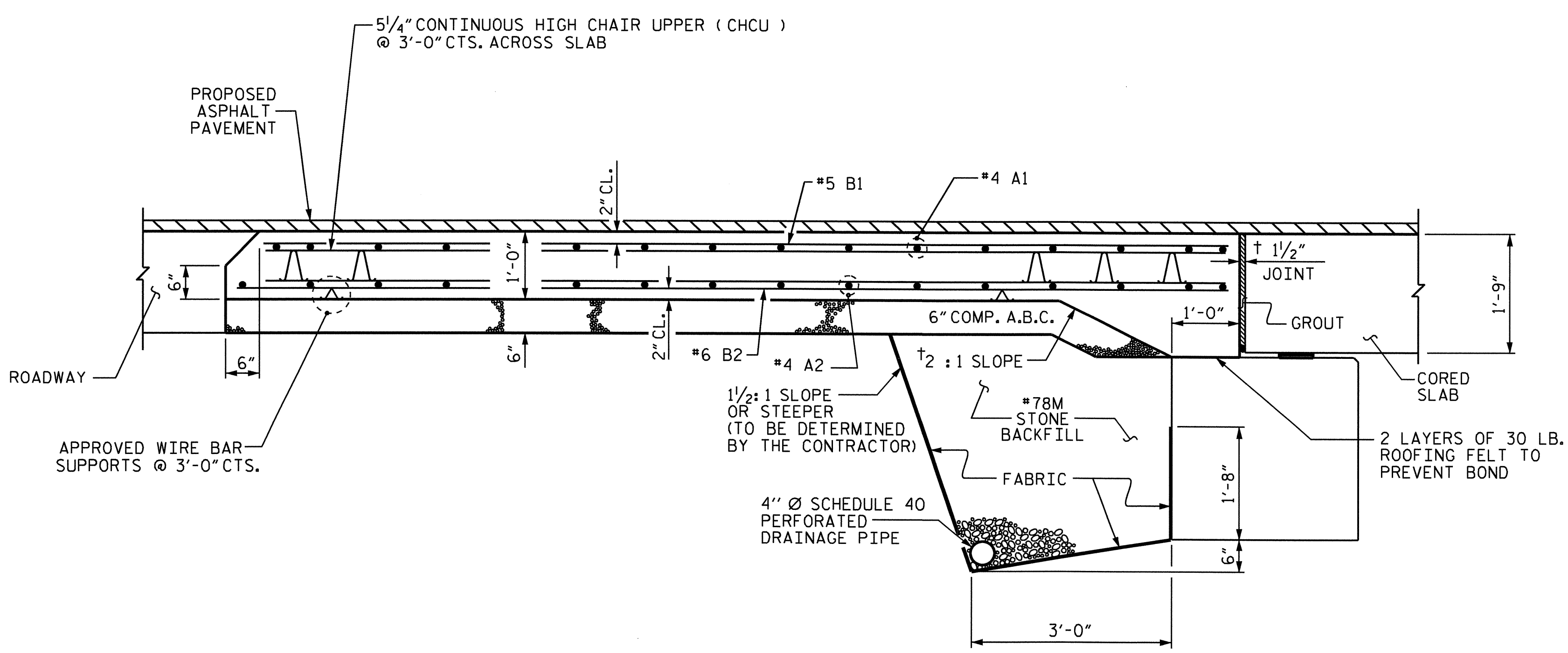


ASSEMBLED BY : J.B. WILSON	DATE : 9/23/09
CHECKED BY : B.N. BARODAWALA	DATE : 12/22/09
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

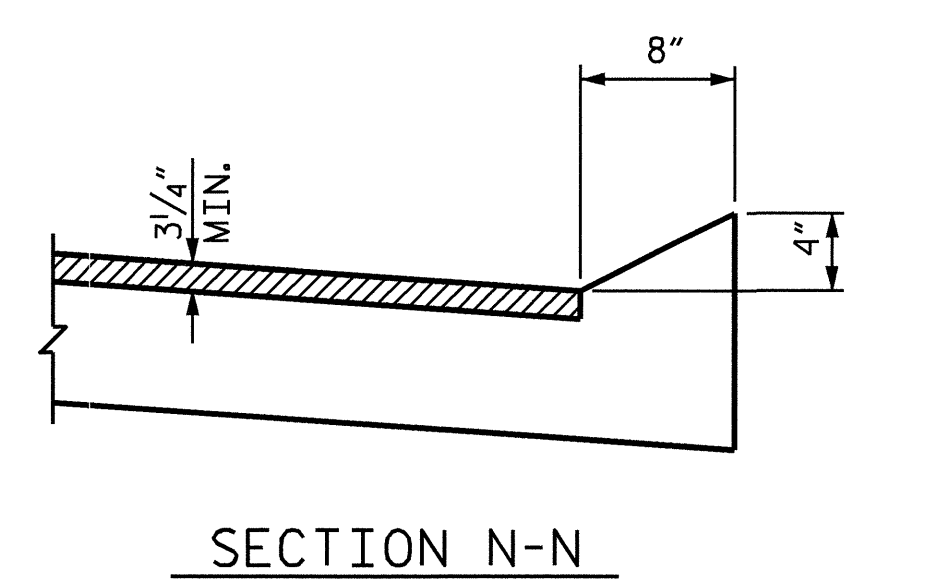
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			22



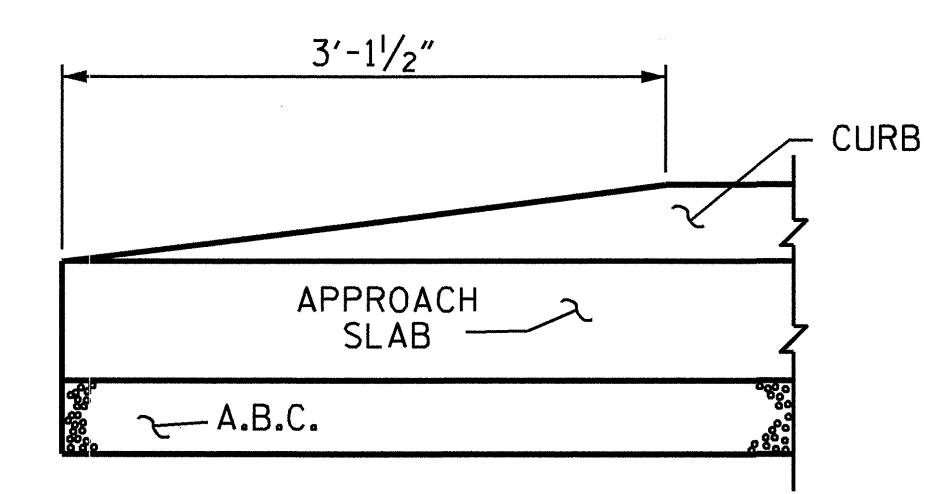
PLAN @ END BENT #1
 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

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

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

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D.)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	16'-5"	285
A2	26	#4	STR	16'-4"	284
* B1	62	#5	STR	11'-2"	722
B2	62	#6	STR	11'-8"	1086
REINFORCING STEEL				LBS.	1370
* EPOXY COATED REINFORCING STEEL				LBS.	1007
CLASS AA CONCRETE				C. Y.	15.6

SPlice CHART	
* #4 A1	2'-0"
* #4 A2	1'-9"

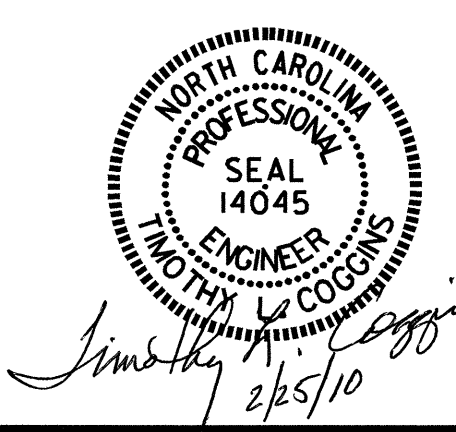
ASSEMBLED BY : J.B. WILSON DATE : 8/11/09
 CHECKED BY : M.D. PISO DATE : 9/21/09
 DRAWN BY : FCJ 6/87 REV. 7/10/01 LES/RDR
 CHECKED BY : EGA 6/87 REV. 5/1/03R RWW/JTE
 REV. 5/1/06R KMM/GM

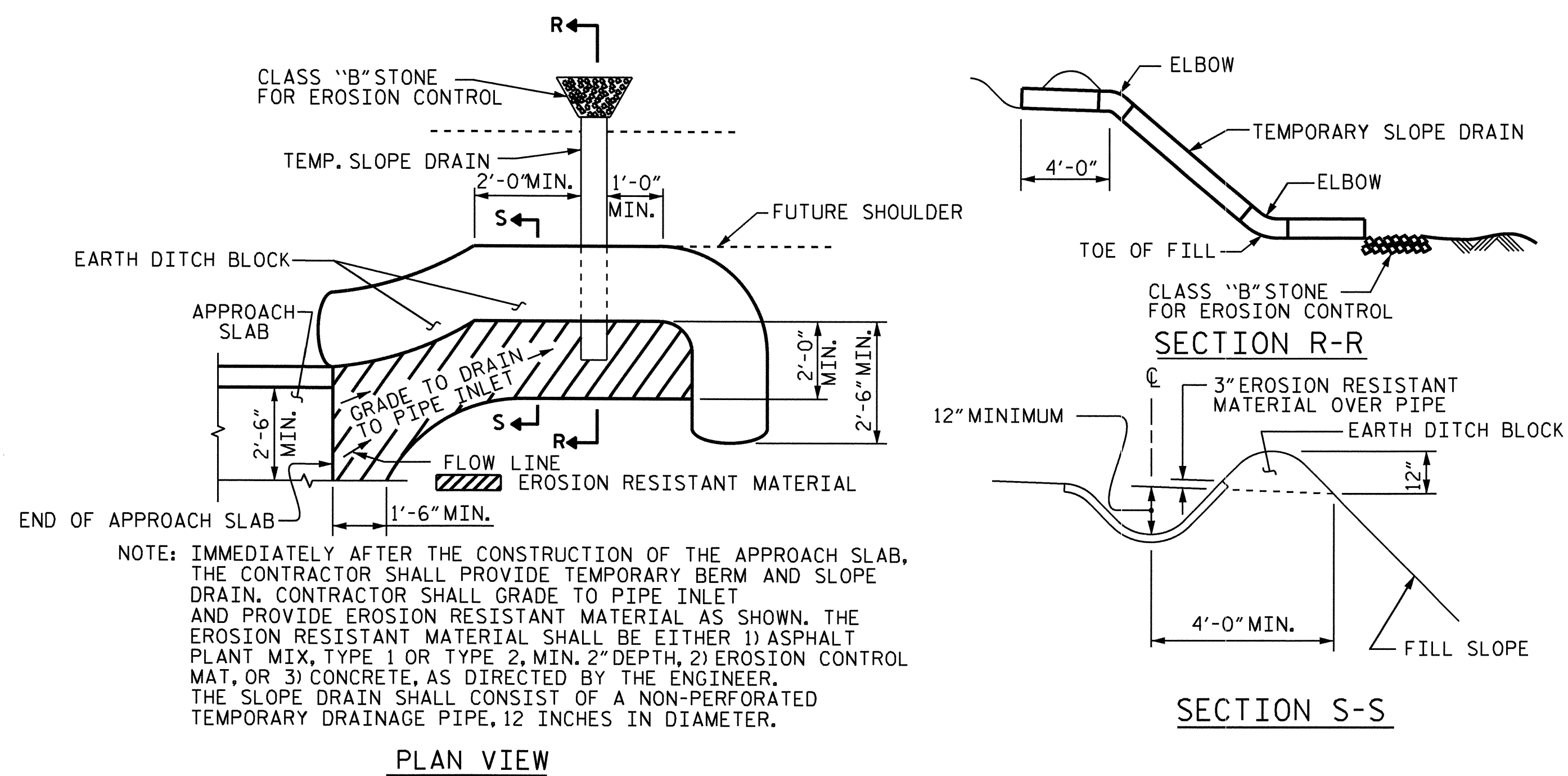
PROJECT NO. B-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB REGIONAL TIER)

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

SHEET NO. S-21
 TOTAL SHEETS 22

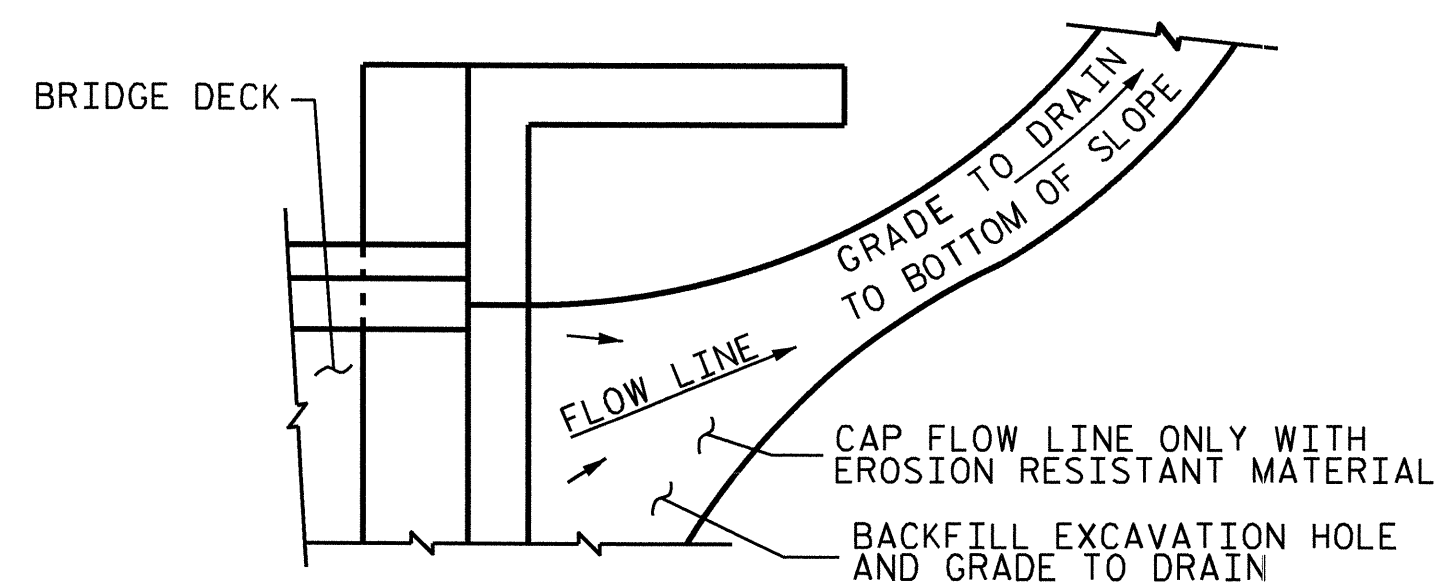




NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



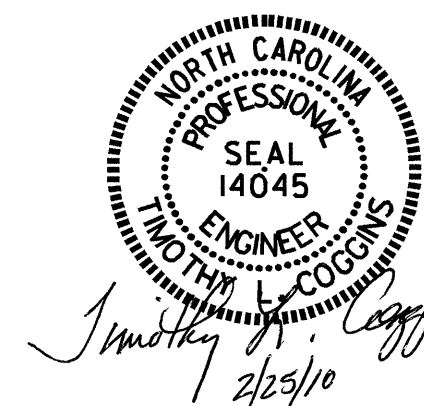
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4559
JOHNSTON COUNTY
 STATION: 18+46.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD					
BRIDGE APPROACH					
SLAB DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-22
TOTAL SHEETS					22



ASSEMBLED BY : J.B. WILSON	DATE : 8/11/09
CHECKED BY : M.D. PISO	DATE : 9/20/09
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS. VERTICAL CURVE ORDINATE AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINISHES AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN