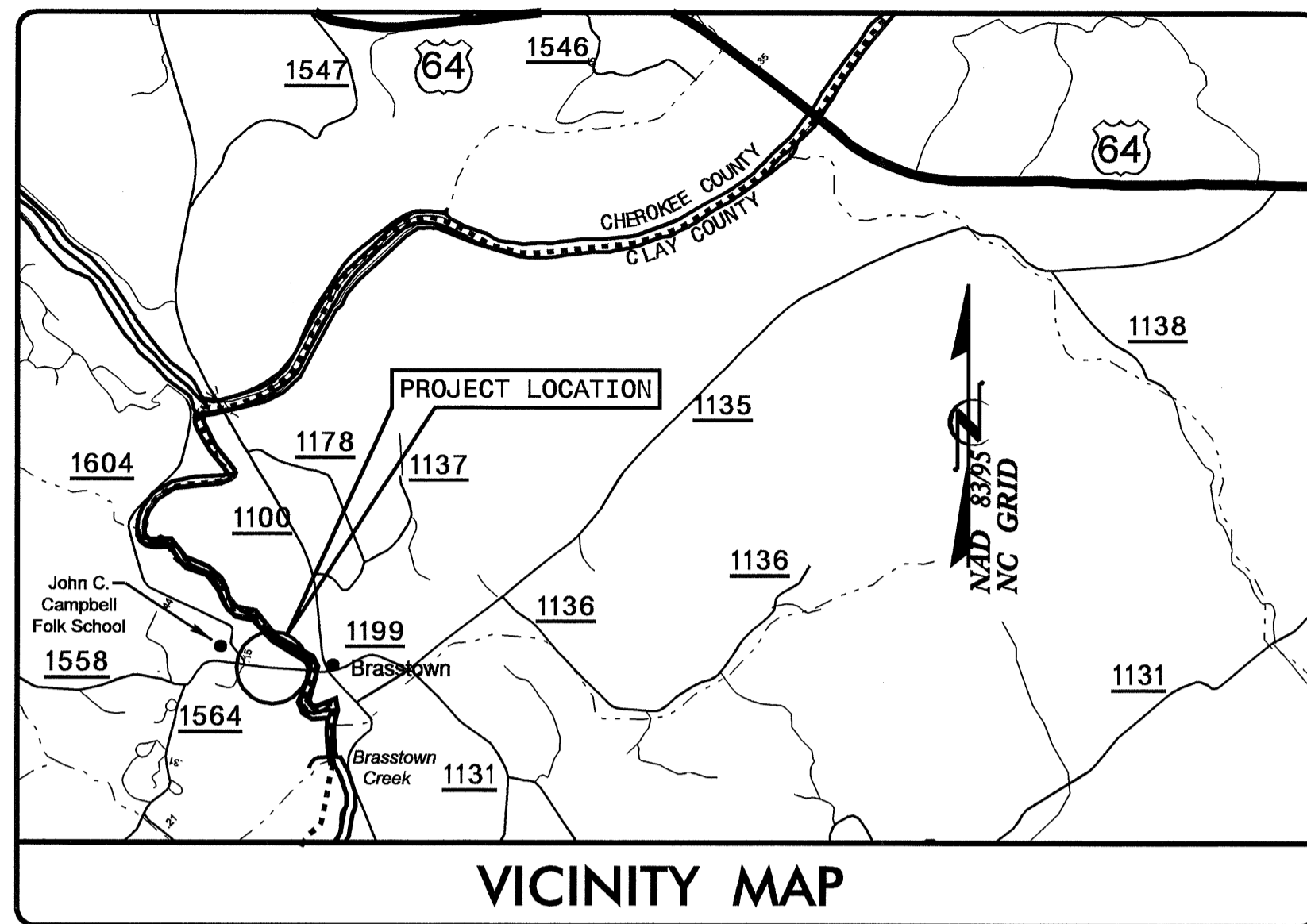


**CONTRACT: C202159 TIP PROJECT: B-4072**

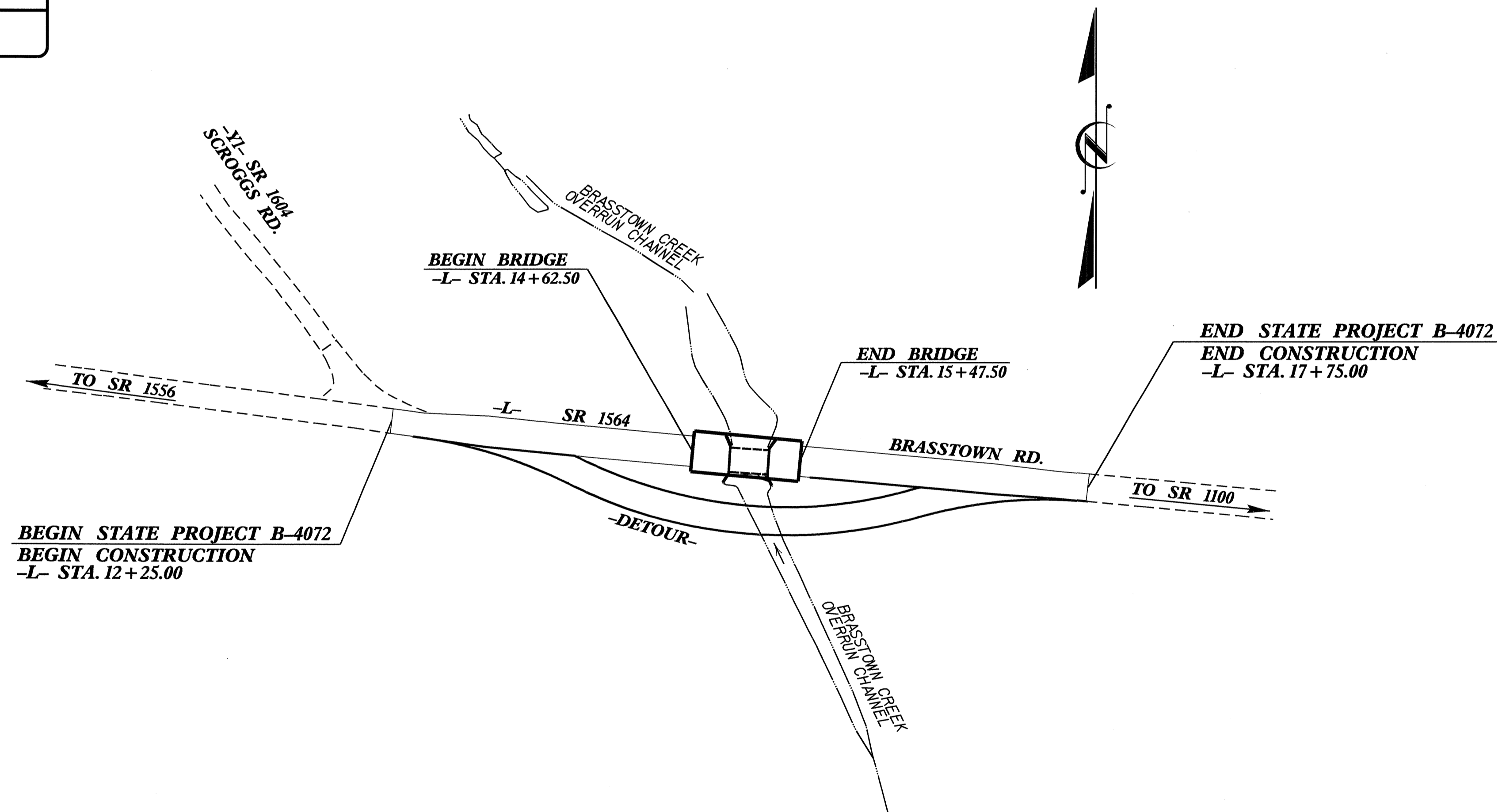
**STRUCTURE**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**CHEROKEE COUNTY**

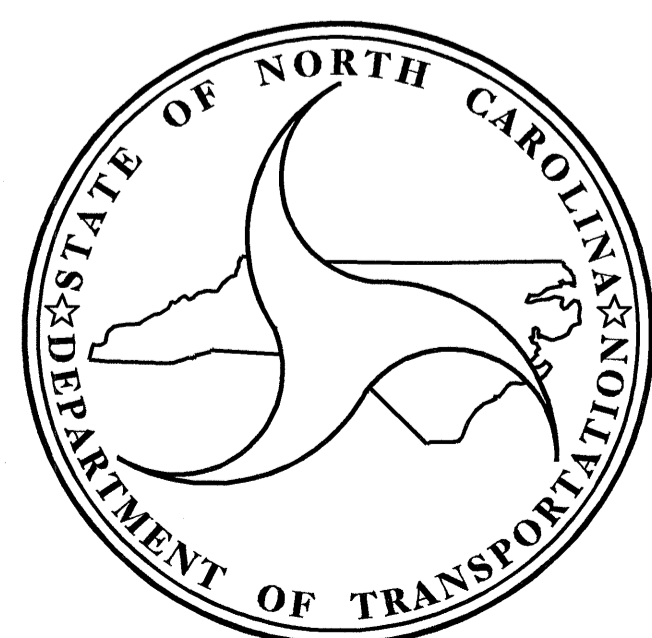
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4072		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33435.1.1	BRZ-1564(3)	P.E.	
33435.2.1	BRZ-1564(3)	UTIL. & R/W	
33435.3.1	BRZ-1564(3)	CONST.	



**LOCATION: BRIDGE NO. 98 OVER BRASSTOWN CREEK OVERRUN ON SR 1564 (BRASSTOWN RD.)**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE**



"THIS PROJECT NOT WITHIN ANY MUNICIPAL BOUNDARIES."



**DESIGN DATA**

ADT 2009 =	2590
ADT 2029 =	3980
DHV =	10 %
D =	60 %
T =	5 % *
V =	45 MPH
* TTST 1% DUAL 4%	
CLASS. =	RURAL LOCAL

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4072	=	0.088 MI
LENGTH STRUCTURE TIP PROJECT B-4072	=	0.016 MI
TOTAL LENGTH TIP PROJECT B-4072	=	0.104 MI

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
2006 STANDARD SPECIFICATIONS

<p>LETTING DATE :</p> <p>DECEMBER 15, 2009</p>	<p>J. C. FRYE, P.E. PROJECT ENGINEER</p>
	<p>T. H. FANG, P.E. PROJECT DESIGN ENGINEER</p>

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

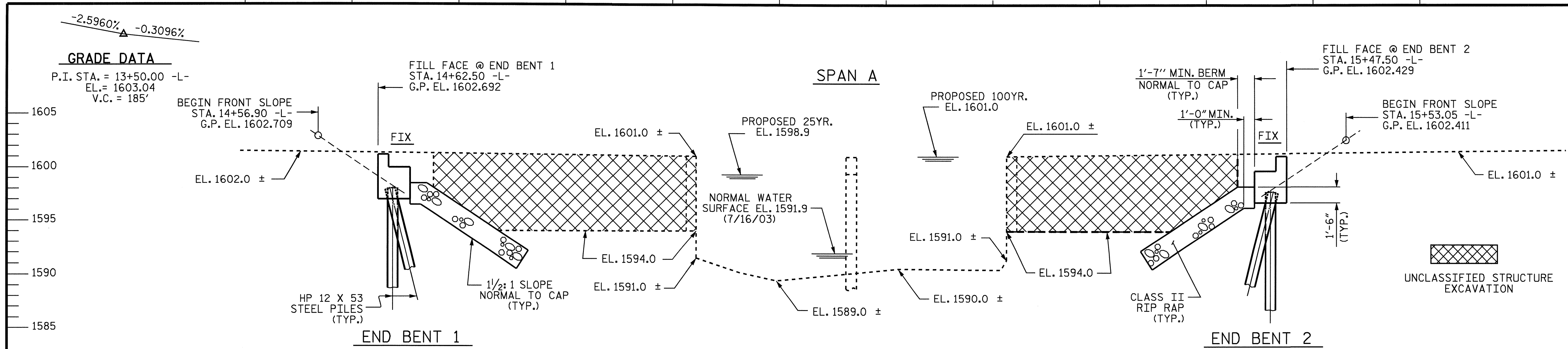
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

P.E.

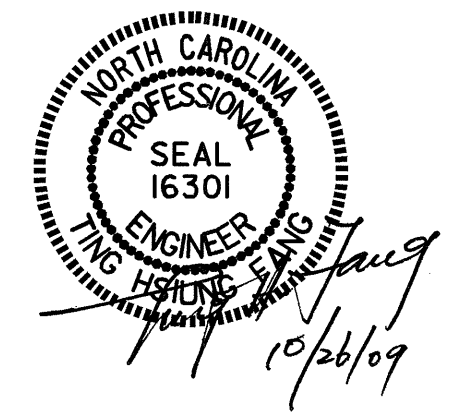
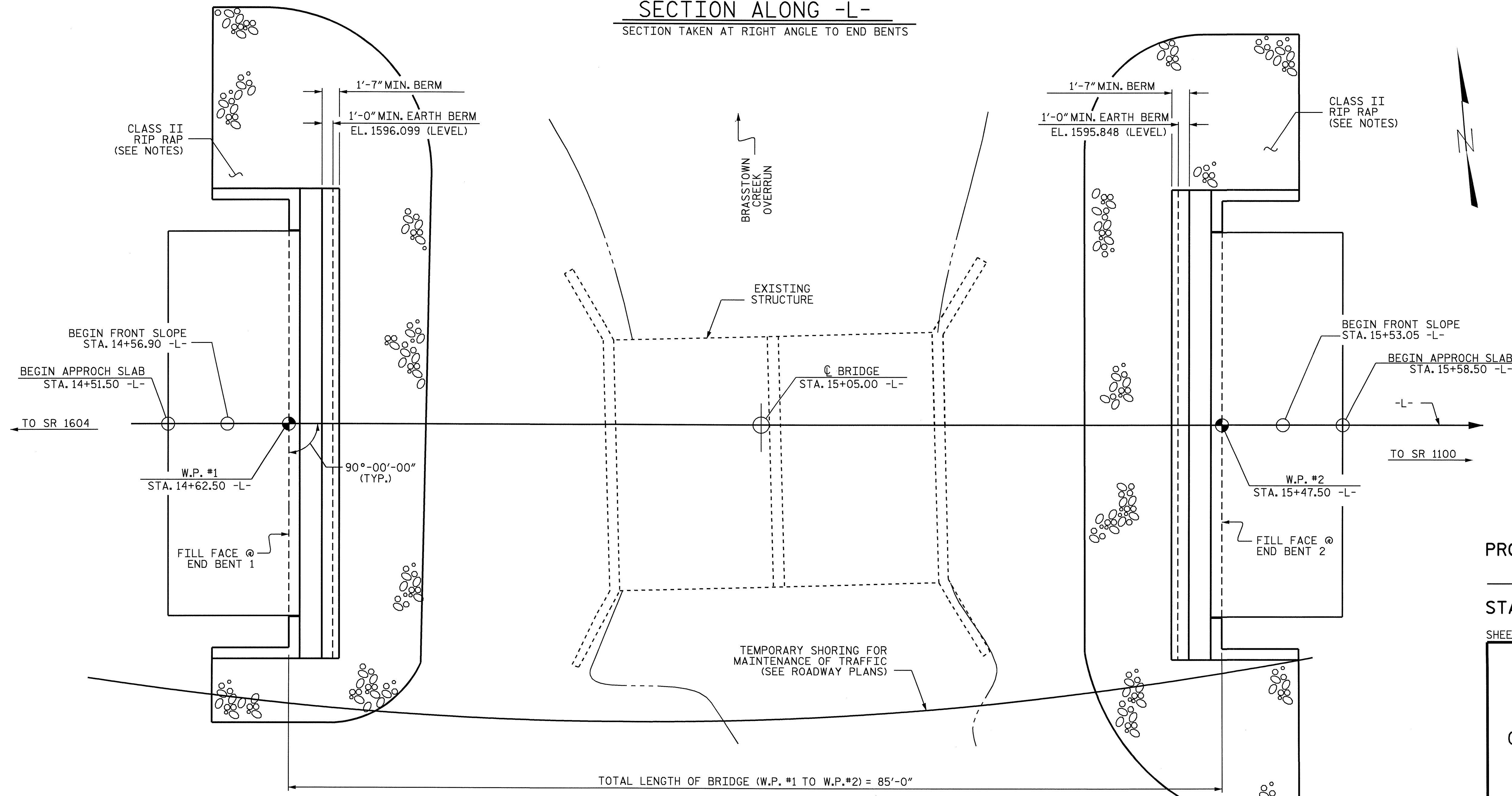
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
DIVISION ADMINISTRATOR



**SECTION ALONG -L-**  
 SECTION TAKEN AT RIGHT ANGLE TO END BENTS



PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-  
 SHEET 1 OF 3 REPLACES BRIDGE NO. 98

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 BRIDGE OVER BRASSTOWN  
 CREEK OVERRUN ON SR 1564  
 BETWEEN SR 1604  
 AND SR 1100

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

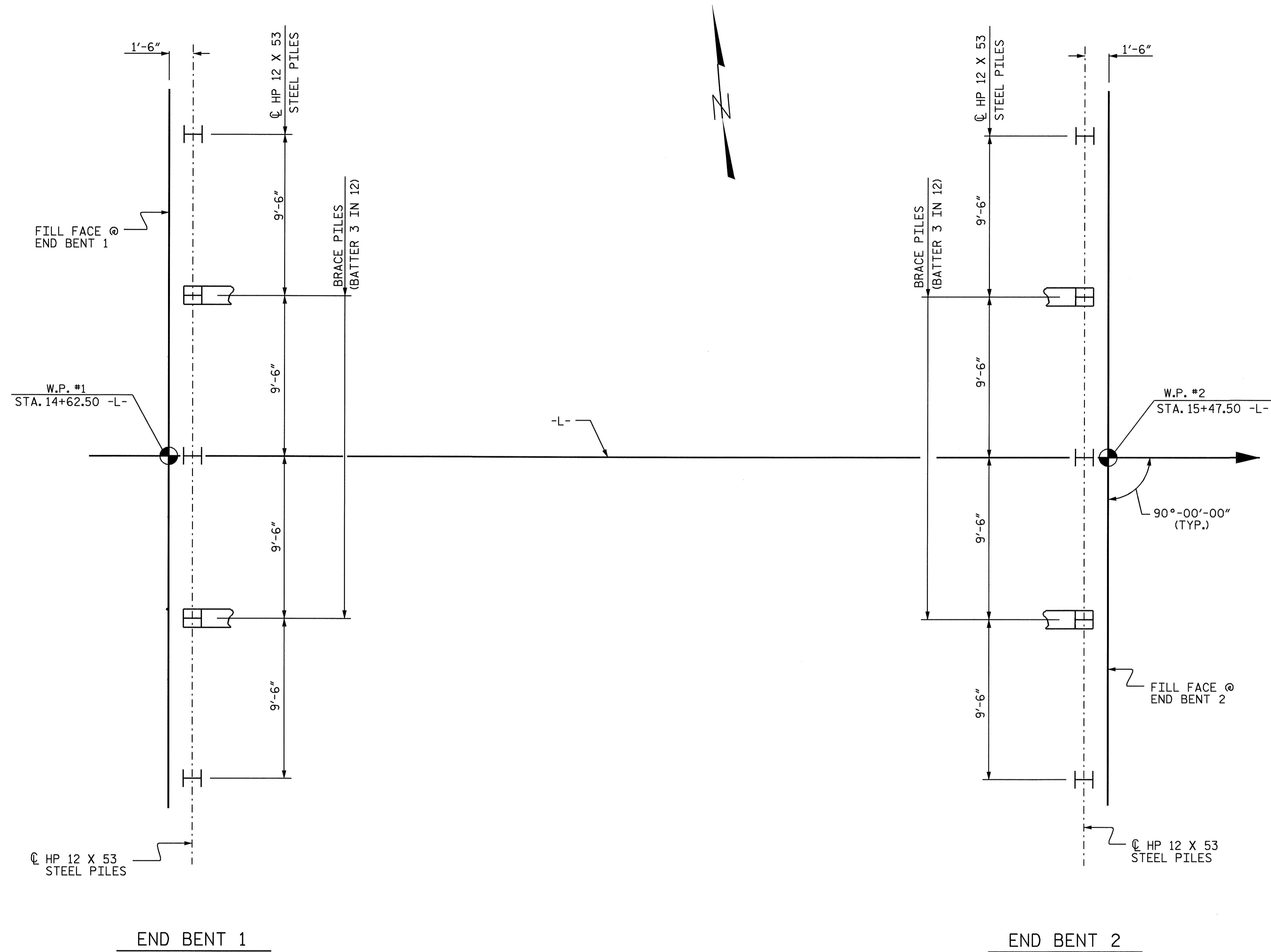
DRAWN BY : J.L. WALTON DATE : 2-08  
 CHECKED BY : T.H. FANG DATE : 2-09

26-OCT-2009 12:08  
 K:\t\p\projects-b\4072\structures\final plans\4072.sd.gd.dgn  
 tfang

**NOTES**

FOR PILES, SEE PILES SPECIAL PROVISION.

PILES AT END BENTS 1 & 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE.



**FOUNDATION LAYOUT**

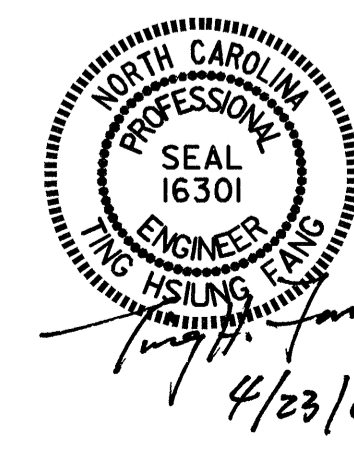
DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES.

PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 BRIDGE OVER BRASSTOWN  
 CREEK OVERRUN ON SR 1564  
 BETWEEN SR 1604  
 AND SR 1100



DRAWN BY : J. E. JONES DATE : 2/16/09  
 CHECKED BY : T. H. FANG DATE : 2/18/09

23-APR-2009 15:16  
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 sdambrowski

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

**TOTAL BILL OF MATERIAL**

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		ONE BAR METAL RAIL	1'-0" X 1'-7 3/4" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS		
						NO.	LIN. FT.						LIN. FT.	LIN. FT.	TONS
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.			150.5	165.5				LUMP SUM	12	993.00
END BENT 1			19.3		3058	5	190			85	95				
END BENT 2			19.3		3058	5	115			90	100				
<b>TOTAL</b>	LUMP SUM	LUMP SUM	38.6	LUMP SUM	6116	10	305	150.5	165.5	175	195	LUMP SUM	12	993.00	

**NOTES**

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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 REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 15'-6", 19'-3" CLEAR ROADWAY WIDTH ON TIMBER FLOOR ON CONTINUOUS I-BEAMS, ABUTMENTS: YOUNT MASONRY AND A TIMBER POST AND SILL INTERIOR BENT, AND LOCATED AT THE CENTERLINE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE CONTRACTOR 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.

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 15+05.00 -L-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 20 FT LEFT AND 25 FT RIGHT AT END BENT 1; 15 FT LEFT AND 45 FT RT AT END BENT 2 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR RIP RAP CLASS II (2'-0" THICK), SEE SPECIAL PROVISIONS.

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

ANODIZE THE ONE-BAR METAL RAIL. SEE THE 1 BAR METAL RAIL SHEET FOR ANODIZING NOTES.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

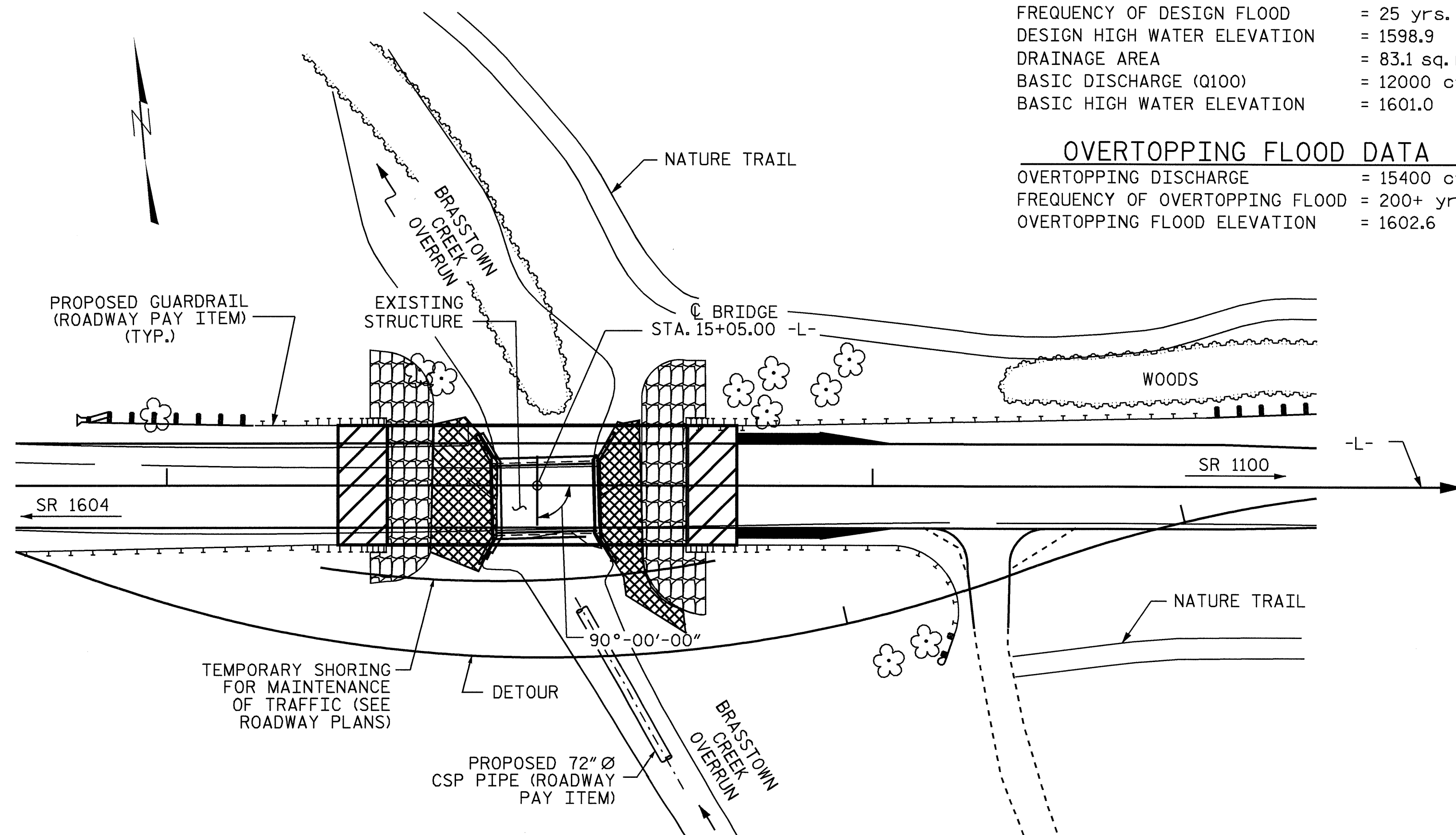
BM# 1 : 8" SPIKE IN BASE 14" WALNUT TREE, -BY1- STA. 05+60.00, 55.00' LEFT, EL. 1601.94'.

**HYDRAULIC DATA**

DESIGN DISCHARGE = 8200 cfs  
 FREQUENCY OF DESIGN FLOOD = 25 yrs.  
 DESIGN HIGH WATER ELEVATION = 1598.9  
 DRAINAGE AREA = 83.1 sq. mi.  
 BASIC DISCHARGE (Q100) = 12000 cfs  
 BASIC HIGH WATER ELEVATION = 1601.0

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE = 15400 cfs  
 FREQUENCY OF OVERTOPPING FLOOD = 200+ yrs.  
 OVERTOPPING FLOOD ELEVATION = 1602.6



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**LOCATION SKETCH**

DRAWN BY : J. L. WALTON DATE : 11/05  
 CHECKED BY : I. H. FANG DATE : 12/06

28-OCT-2009 12:25  
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 ifang



PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 BRIDGE OVER BRASSTOWN  
 CREEK OVERRUN ON SR 1564  
 BETWEEN SR 1604  
 AND SR 1100

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

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2009	78
FUTURE	2029	119

NOTES:

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

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

COMMENTS:

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

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 (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTRIBUTION FACTORS (DF)	RATING FACTOR		SPAN	GIRDER LOCATION	DISTRIBUTION FACTORS (DF)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.00	--	1.75	0.271	1.35	A	ER	40.63	0.499	1.01	A	ER	4.06	0.80	0.271	1.00	A	ER	40.63		
	HL-93 (OPERATING)	N/A		1.30	--	1.35	0.271	1.75	A	ER	40.63	0.499	1.30	A	ER	4.06	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.27	45.72	1.75	0.271	1.75	A	ER	40.63	0.499	1.27	A	ER	4.06	0.80	0.271	1.34	A	ER	40.63		
	HS-20 (OPERATING)	36.000		1.70	61.20	1.35	0.271	2.33	A	ER	40.63	0.499	1.70	A	ER	4.06	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.08	41.58	1.40	0.271	4.03	A	ER	40.63	0.499	3.08	A	ER	4.06	0.80	0.271	3.09	A	ER	40.63	
		SNGARBS2	20.000		2.17	43.40	1.40	0.271	2.97	A	ER	40.63	0.499	2.17	A	ER	4.06	0.80	0.271	2.28	A	ER	40.63	
		SNAGRIS2	22.000		2.01	44.22	1.40	0.271	2.80	A	ER	40.63	0.499	2.01	A	ER	4.06	0.80	0.271	2.14	A	ER	40.63	
		SNCOTTS3	27.250		1.54	41.97	1.40	0.271	2.00	A	ER	40.63	0.499	1.54	A	ER	4.06	0.80	0.271	1.54	A	ER	40.63	
		SNAGGRS4	34.925		1.26	44.01	1.40	0.271	1.66	A	ER	40.63	0.499	1.26	A	ER	4.06	0.80	0.271	1.28	A	ER	40.63	
		SNS5A	35.550		1.25	44.44	1.40	0.271	1.63	A	ER	40.63	0.499	1.27	A	ER	4.06	0.80	0.271	1.25	A	ER	40.63	
		SNS6A	39.950		1.14	45.54	1.40	0.271	1.49	A	ER	40.63	0.499	1.16	A	ER	4.06	0.80	0.271	1.14	A	ER	40.63	
	SNS7B	42.000		1.09	45.78	1.40	0.271	1.42	A	ER	40.63	0.499	1.13	A	ER	4.06	0.80	0.271	1.09	A	ER	40.63		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.38	45.54	1.40	0.271	1.81	A	ER	40.63	0.499	1.38	A	ER	4.06	0.80	0.271	1.39	A	ER	40.63	
		TNT4A	33.075		1.35	44.65	1.40	0.271	1.82	A	ER	40.63	0.499	1.35	A	ER	4.06	0.80	0.271	1.39	A	ER	40.63	
		TNT6A	41.600		1.14	47.42	1.40	0.271	1.48	A	ER	40.63	0.499	1.19	A	ER	4.06	0.80	0.271	1.14	A	ER	40.63	
		TNT7A	42.000		1.14	47.88	1.40	0.271	1.49	A	ER	40.63	0.499	1.17	A	ER	4.06	0.80	0.271	1.14	A	ER	40.63	
		TNT7B	42.000		1.11	46.62	1.40	0.271	1.53	A	ER	40.63	0.499	1.11	A	ER	4.06	0.80	0.271	1.18	A	ER	40.63	
		TNAGRIT4	43.000		1.07	46.01	1.40	0.271	1.46	A	ER	40.63	0.499	1.07	A	ER	4.06	0.80	0.271	1.11	A	ER	40.63	
TNAGT5A		45.000		1.06	47.70	1.40	0.271	1.38	A	ER	40.63	0.499	1.06	A	ER	4.06	0.80	0.271	1.06	A	ER	40.63		
TNAGT5B	45.000	3	1.02	45.90	1.40	0.271	1.37	A	ER	40.63	0.499	1.02	A	ER	4.06	0.80	0.271	1.05	A	ER	40.63			

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

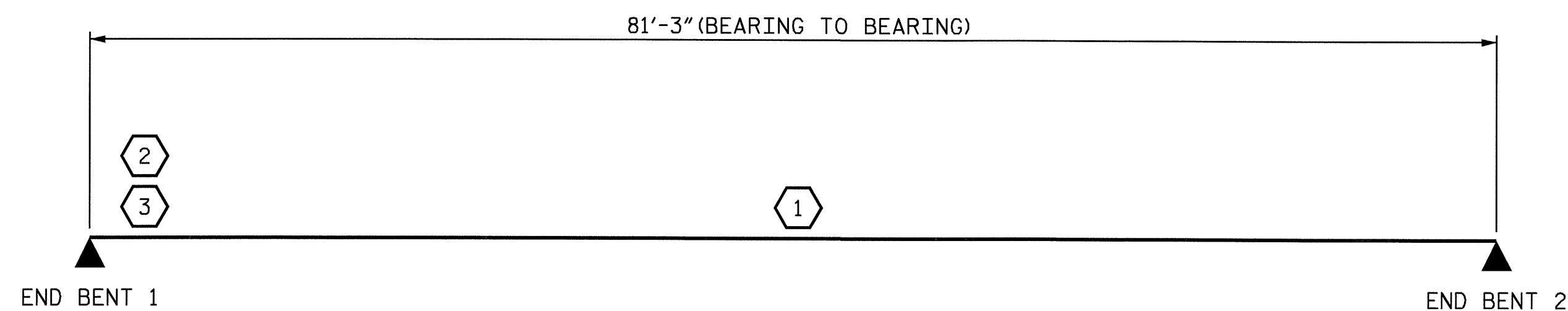
3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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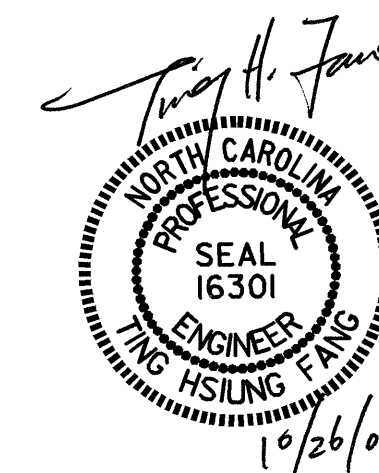
GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-



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:
1			3		
2			4		
					TOTAL SHEETS 19

ASSEMBLED BY : S. DOMBROWSKI	DATE : 10/23/09
CHECKED BY : T.H. FANG	DATE : 10/23/09
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM 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.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4100 PSI.

ALL REINFORCING STEEL IN CONCRETE PARAPET SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

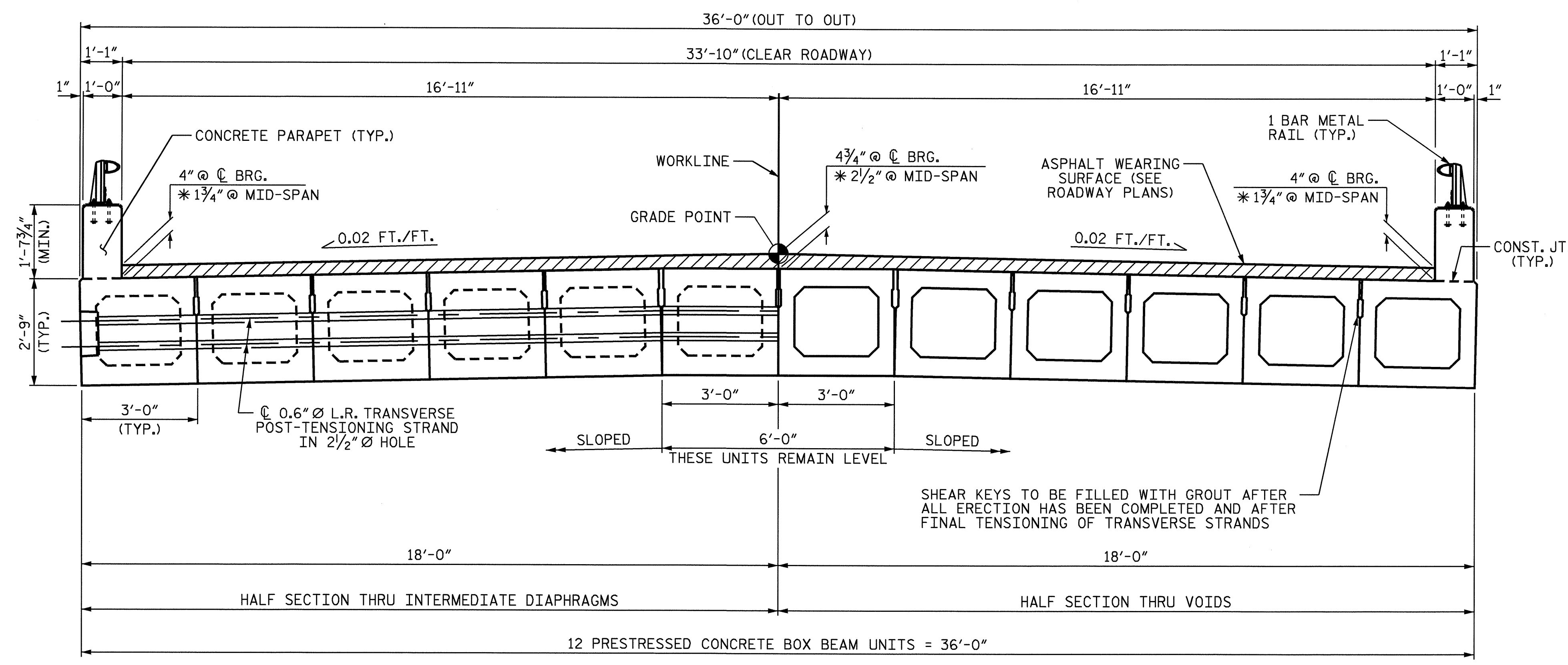
THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

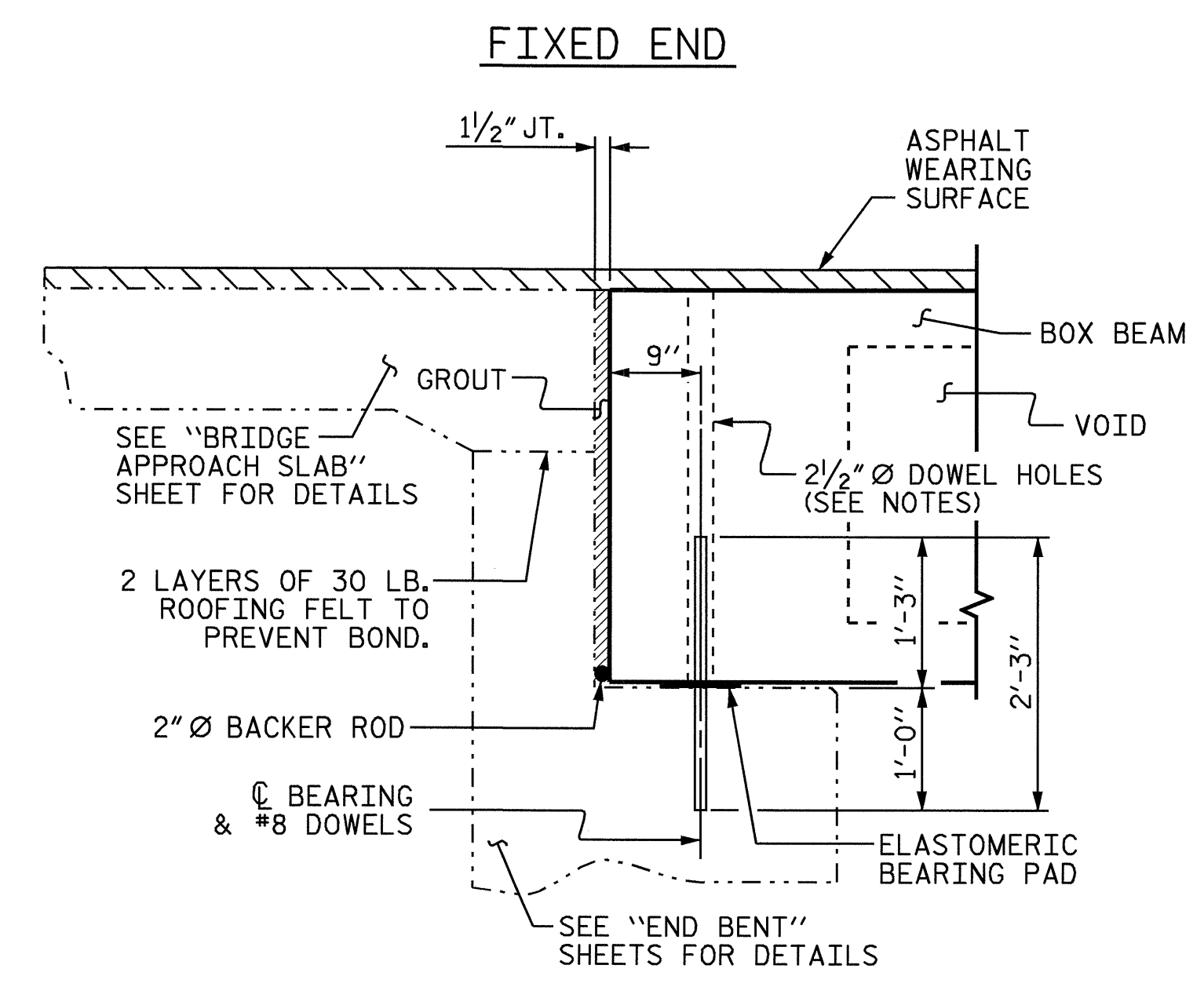
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

THE MINIMUM HEIGHT OF THE PARAPET IS SHOWN. THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.



TYPICAL SECTION

\* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

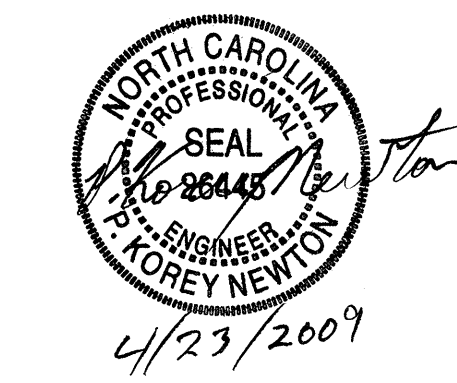


SECTION AT END BENT

PROJECT NO. B-4072  
 CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

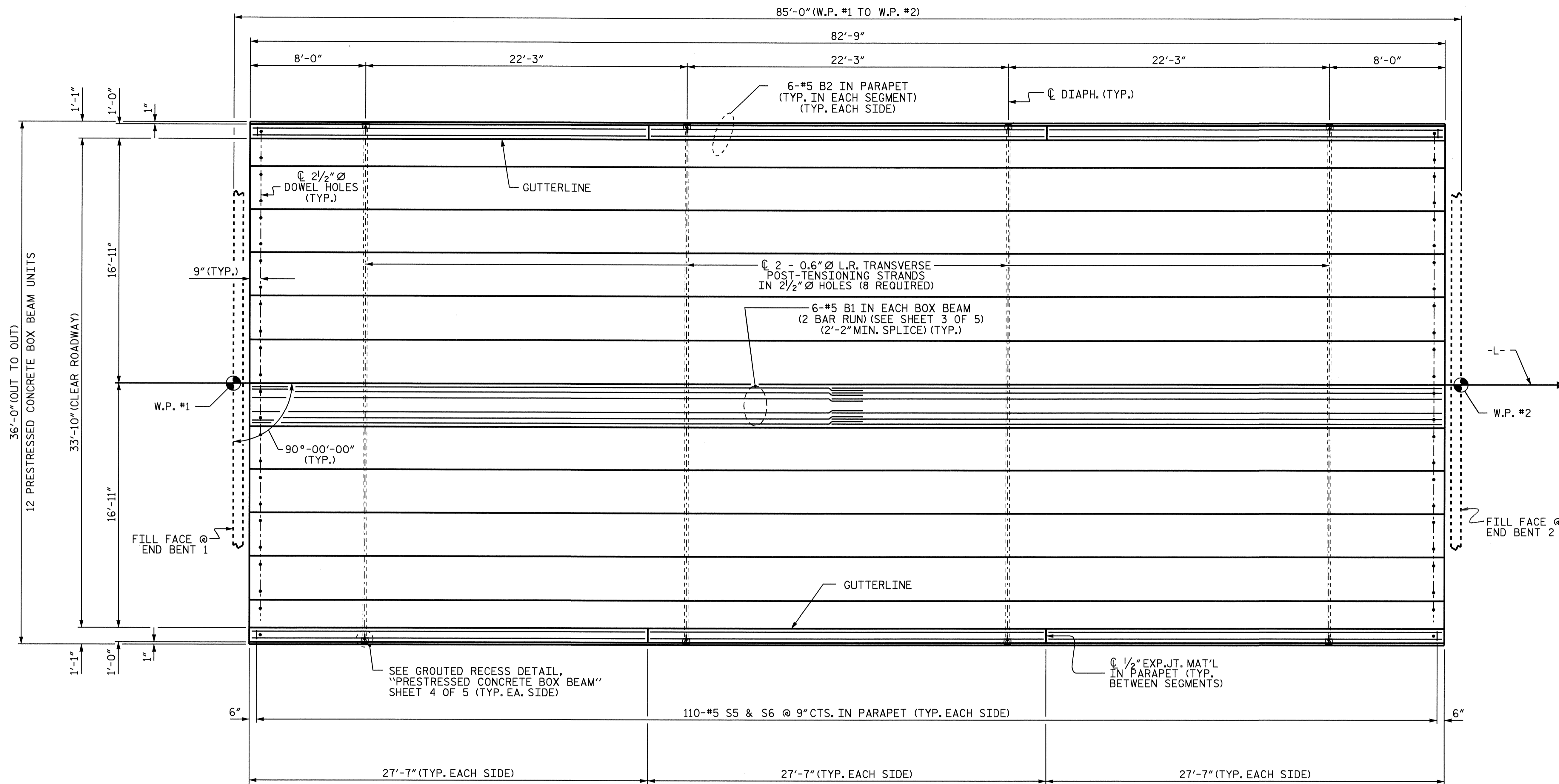
SHEET 1 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 3'-0" X 2'-9"  
 PRESTRESSED CONCRETE  
 BOX BEAM UNIT

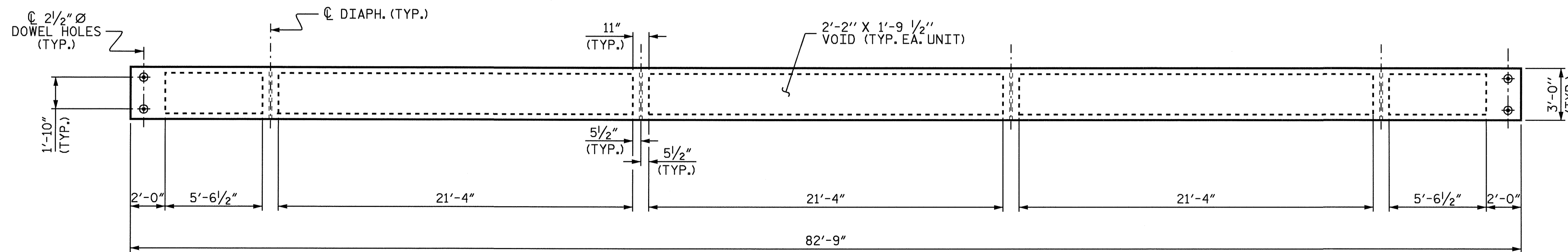


ASSEMBLED BY : P. K. NEWTON DATE : 10/23/08  
 CHECKED BY : S. F. DOMBROWSKI DATE : 11/12/08  
 DRAWN BY : TLA 5/05  
 CHECKED BY : GM 6/05  
 ADDED 7/11/05R  
 REV. 5/1/06R KMM/GM

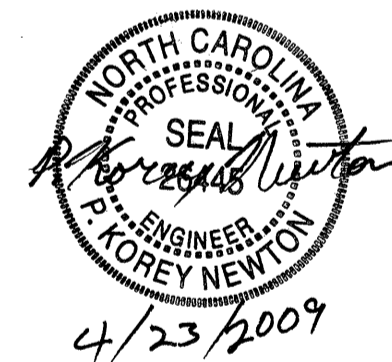
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			19



PLAN OF SPAN A



PLAN OF BOX BEAM UNIT - SPAN A  
SHOWING LOCATION OF VOIDS AND DIAPHRAGMS



PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

SHEET 2 OF 5

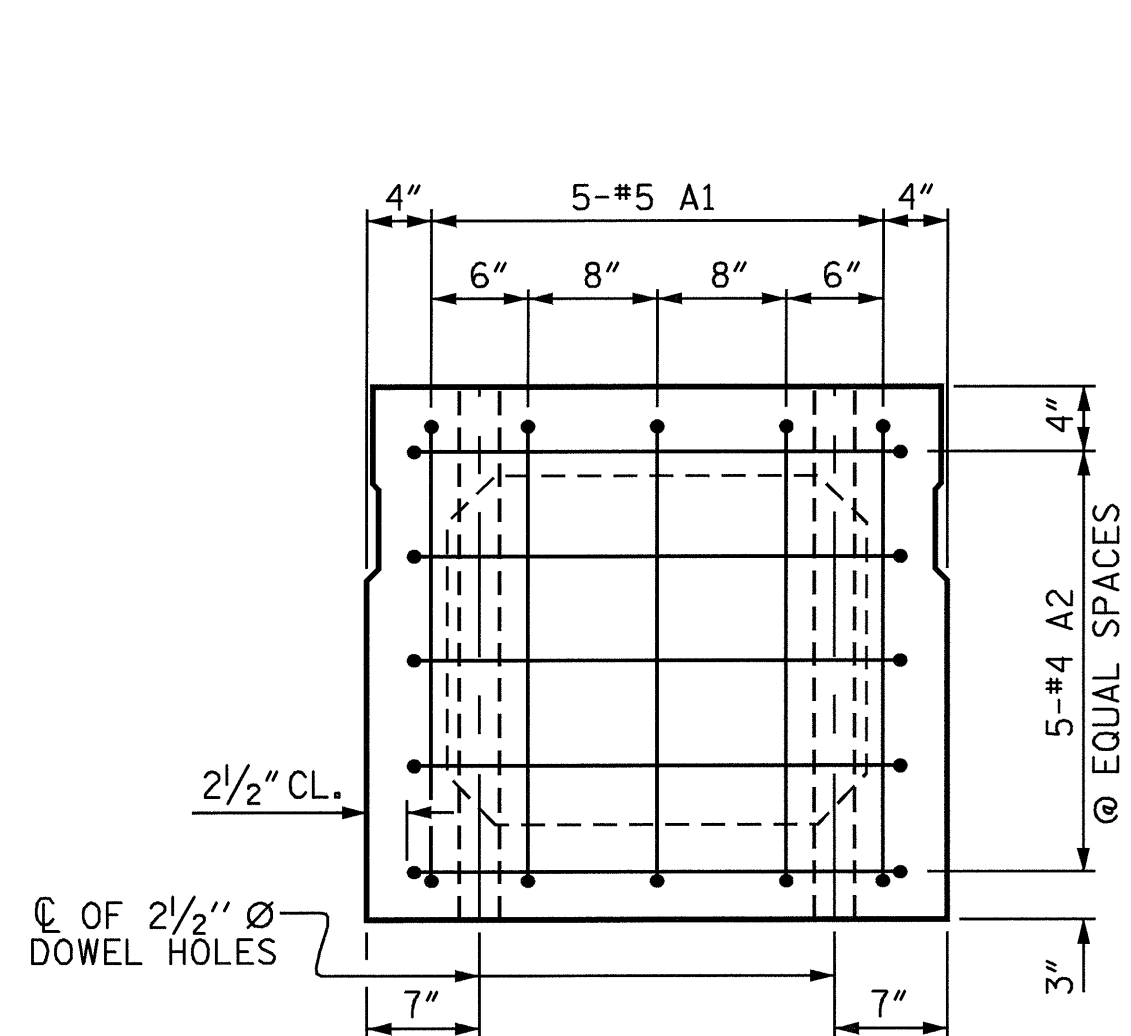
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
SUPERSTRUCTURE PLAN OF SPAN						S-6
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	19
1			3			
2			4			

DRAWN BY: P. K. NEWTON DATE: 10/31/08  
 CHECKED BY: S. F. DOMBROWSKI DATE: 11/12/08

23-APR-2009 15:16  
 Z:\B4072\Structures\Final Plans\b4072.sd.s\*.dgn  
 sdombrowski

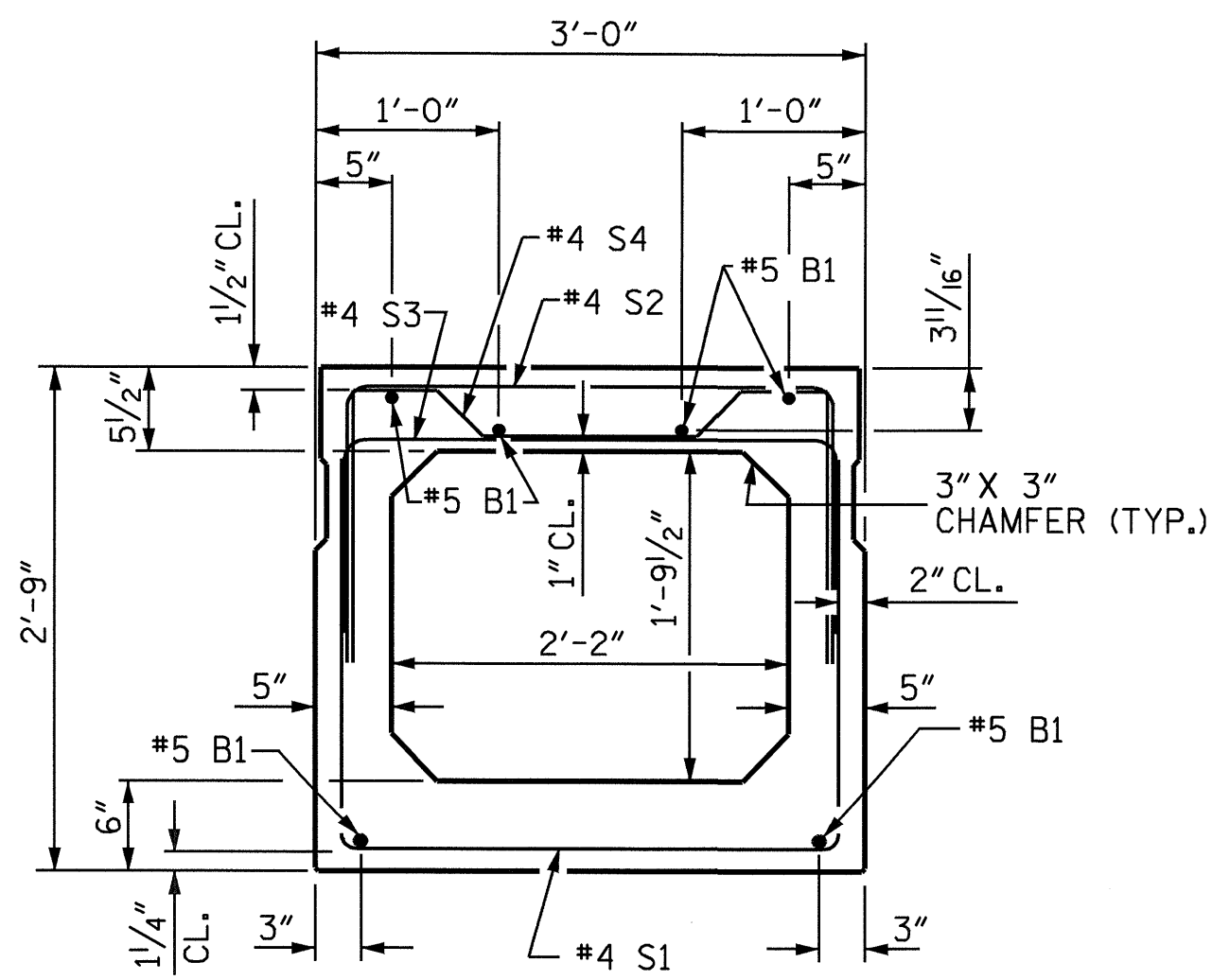
56  
 EALS

NC006



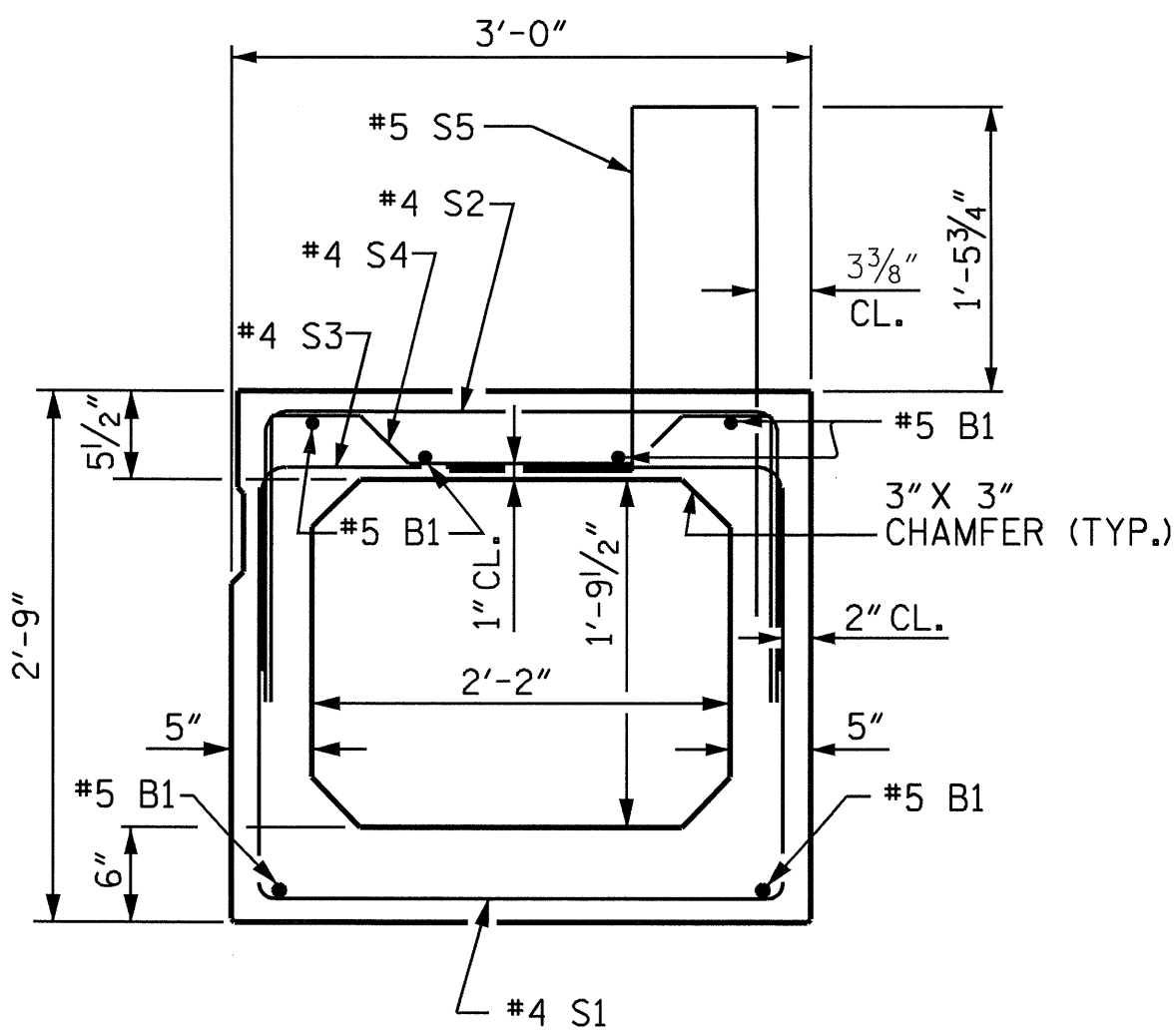
**END ELEVATION**

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



**INTERIOR BOX BEAM SECTION**

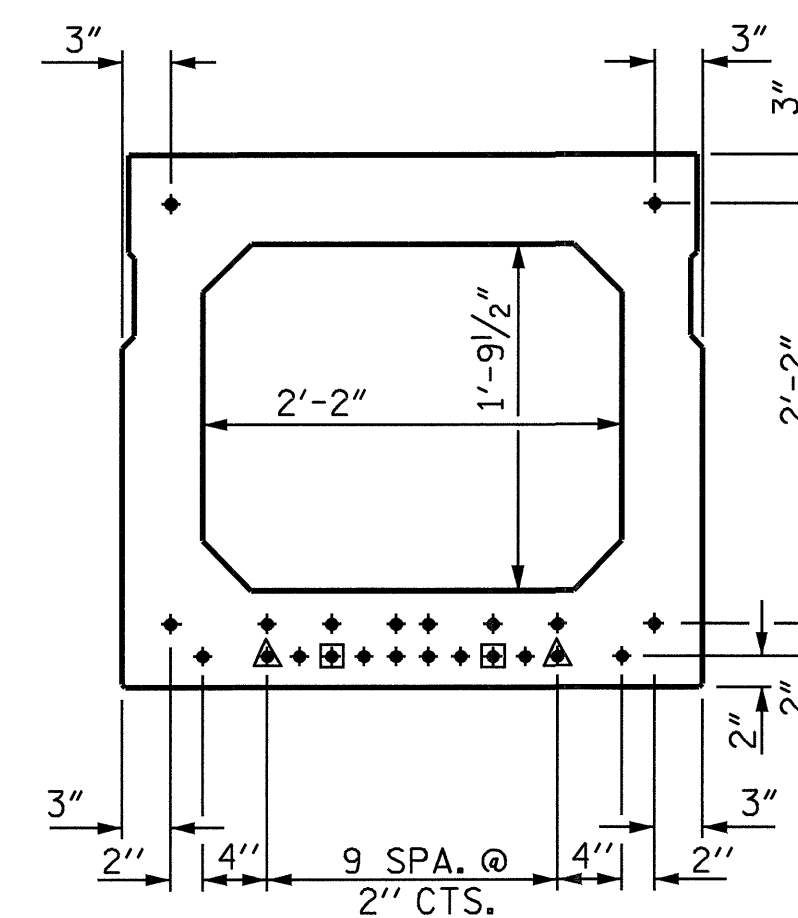
(STRAND LAYOUT NOT SHOWN)



**EXTERIOR BOX BEAM SECTION**

(STRAND LAYOUT NOT SHOWN)

**0.6" Ø LOW RELAXATION STRAND LAYOUT**



**TYPICAL STRAND LOCATION**

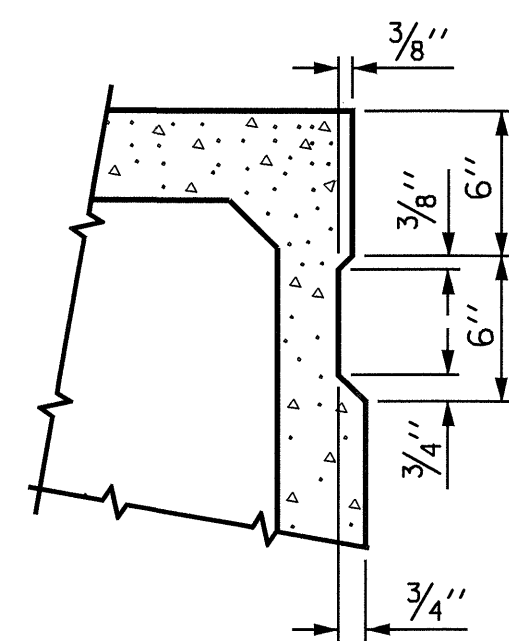
(22 STRANDS REQUIRED)  
(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

**DEBONDING LEGEND**

- FULLY BONDED STRANDS
- ⦿ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
- △ STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

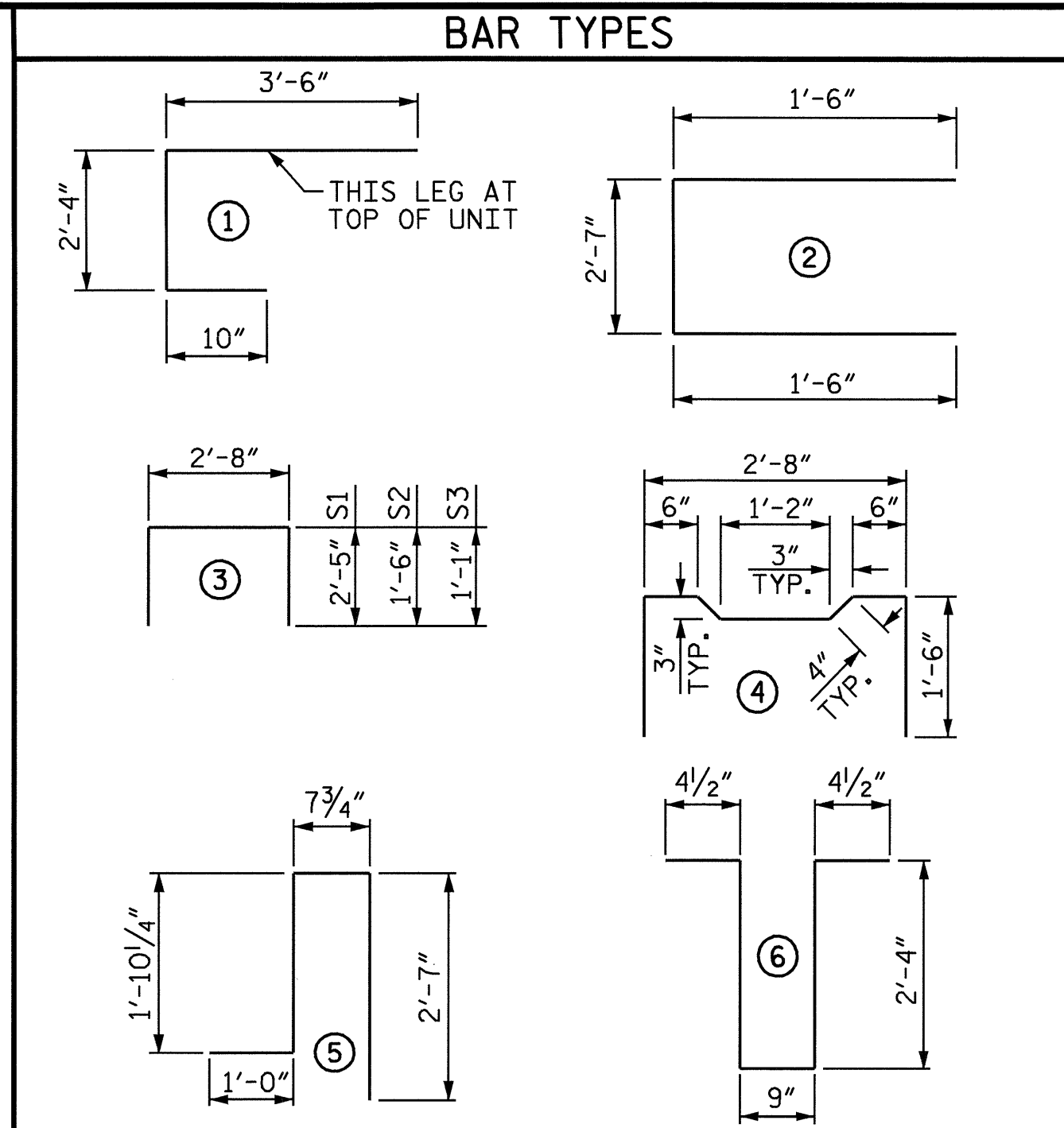
GRADE 270 STRANDS	
0.6" Ø L.R.	
AREA ( SQUARE INCHES )	0.217
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950



**SHEAR KEY DETAIL**

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

DEAD LOAD DEFLECTION AND CAMBER	
0.6" Ø L.R. STRAND	
SPAN A	
CAMBER ( BEAM ALONE IN PLACE )	↑ 2 13/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	↓ 5/8"
FINAL CAMBER	↑ 2 3/16"

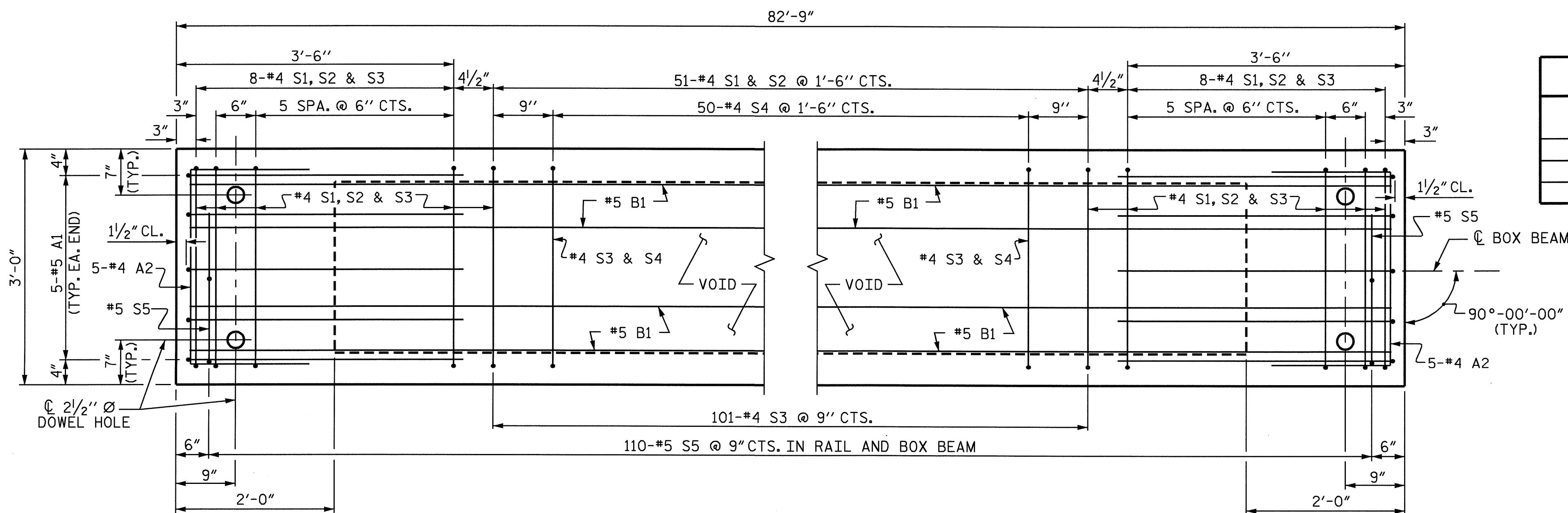


ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL FOR ONE BOX BEAM SECTION**

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	34	#4	2	5'-7"	127	5'-7"	127
B1	12	#5	STR	42'-4"	530	42'-4"	530
K1	12	#4	6	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	67	#4	3	7'-6"	336	7'-6"	336
S2	67	#4	3	5'-8"	254	5'-8"	254
S3	117	#4	3	4'-10"	378	4'-10"	378
S4	50	#4	4	5'-10"	195	5'-10"	195
* S5	110	#5	5	6'-1"	698	--	--
REINFORCING STEEL				1953 LBS.		1953 LBS.	
* EPOXY COATED REINF. STEEL				698 LBS.			
6000 P.S.I. CONCRETE				14.6 CU. YDS.		14.6 CU. YDS.	
0.6" Ø L.R. STRANDS				No.	22	No.	22

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A	12	82'-9"	993'-0"
TOTAL	12		993'-0"



**PLAN OF BOX BEAM**

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPAN. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.

PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-  
 SHEET 3 OF 5

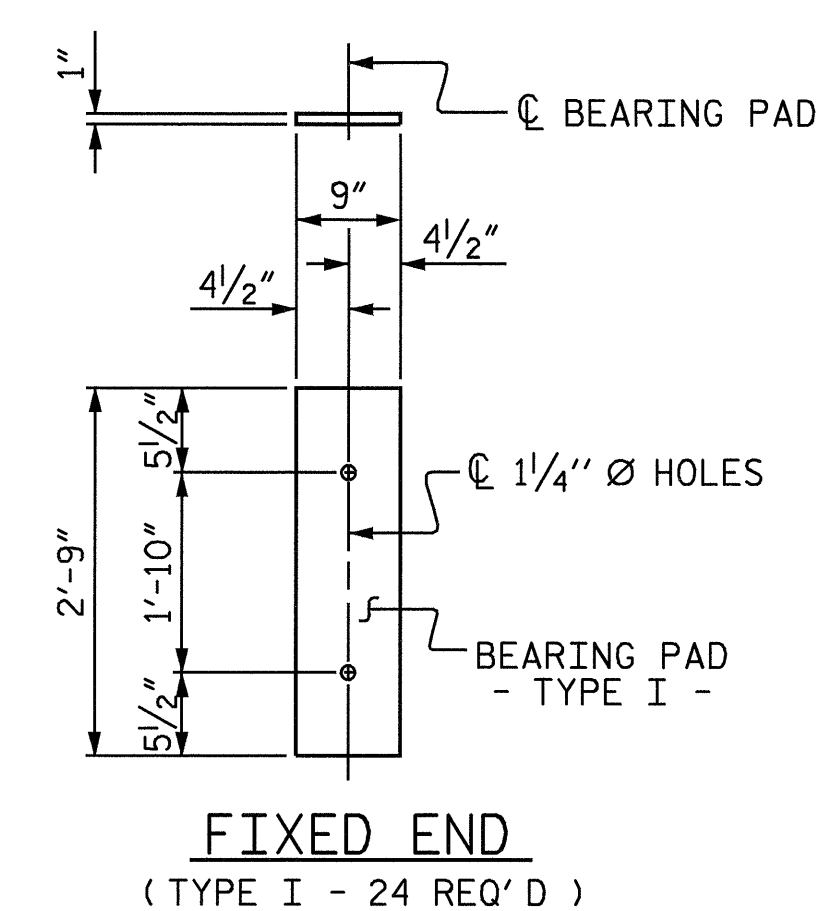
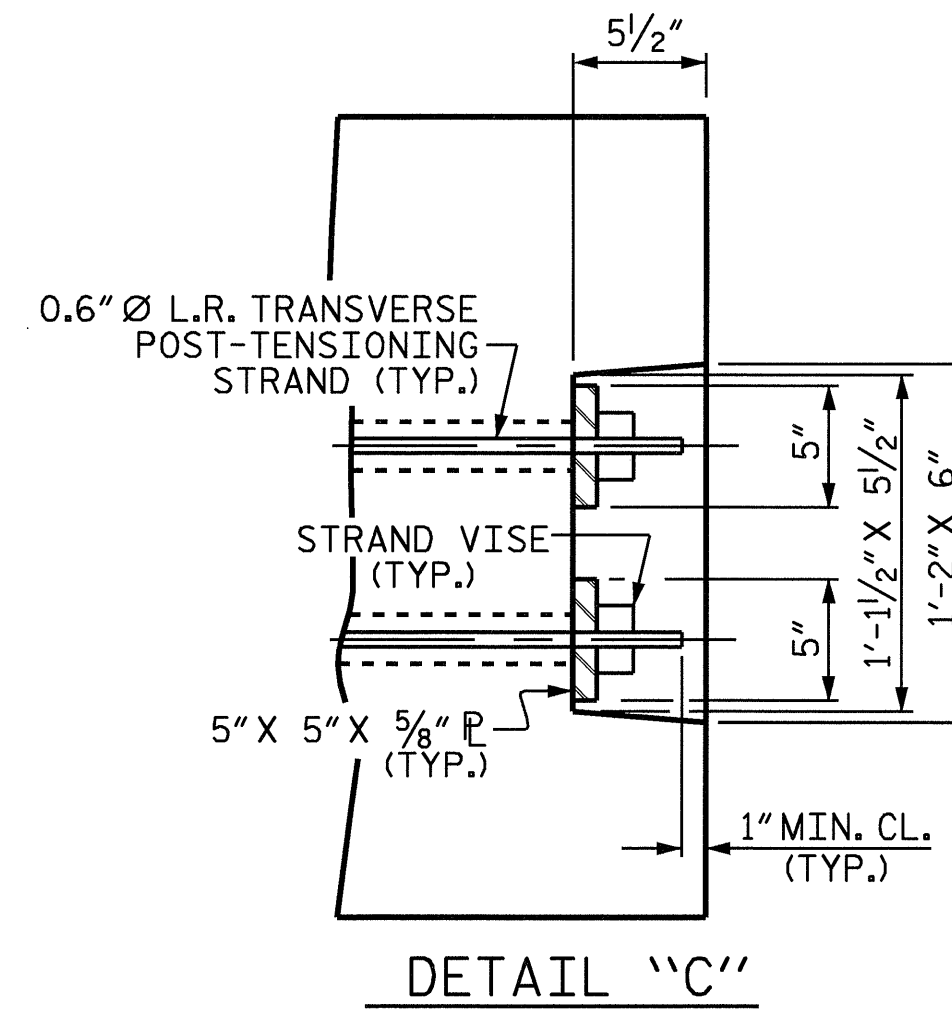
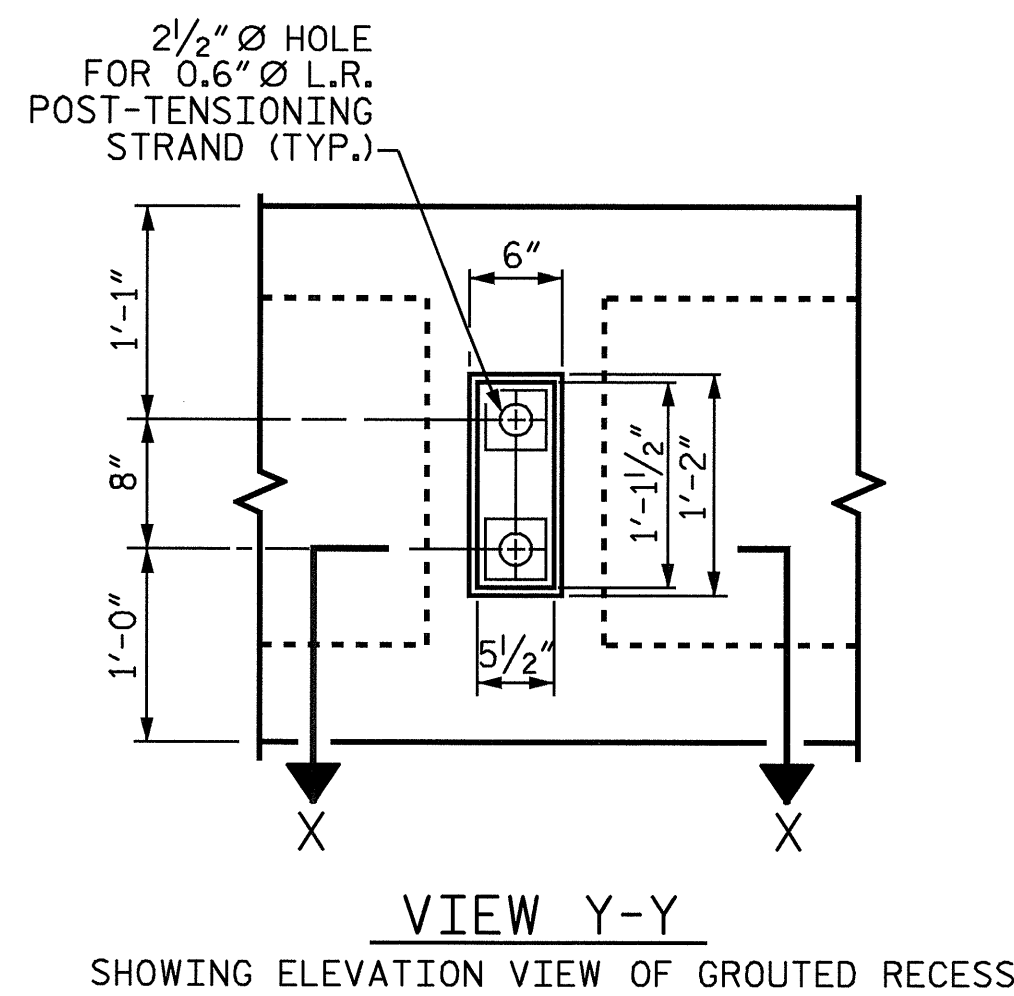
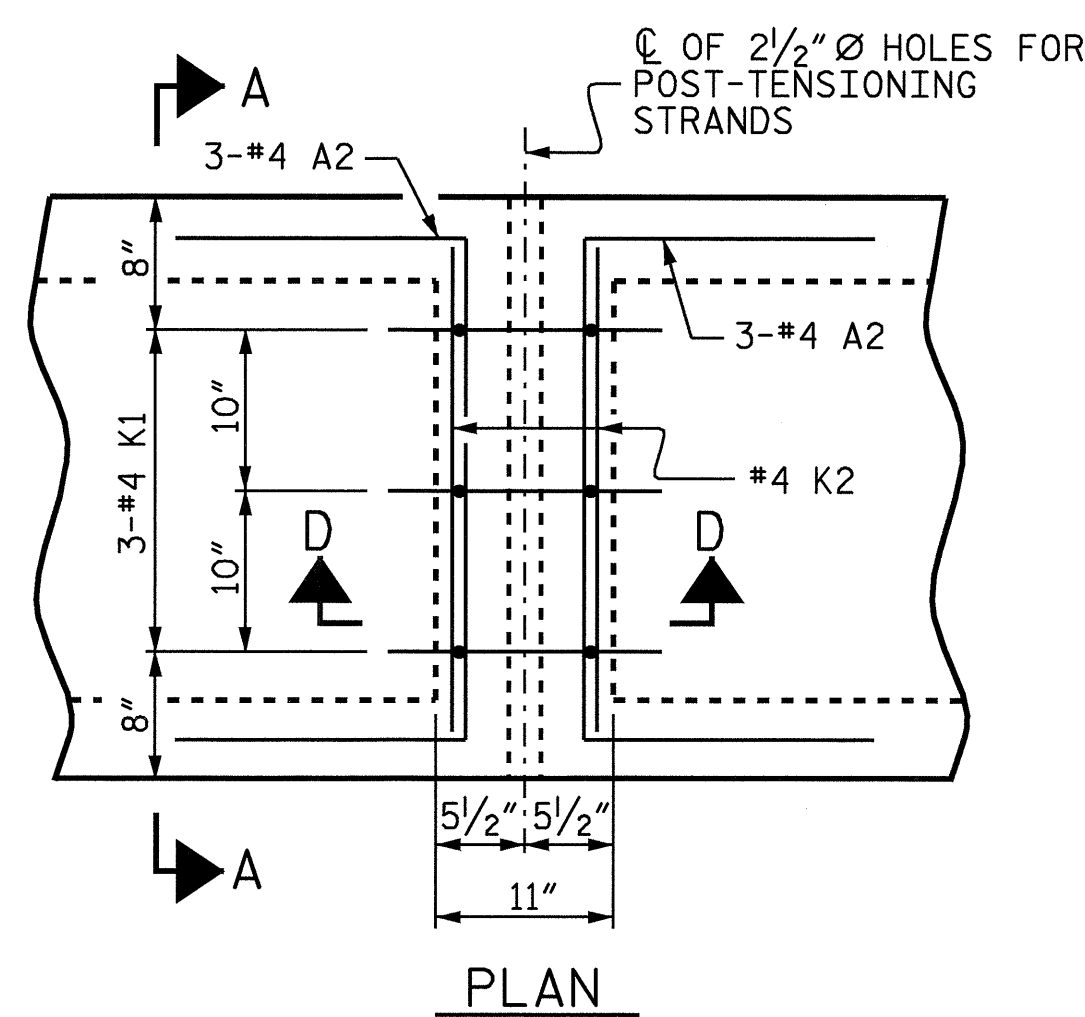


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT SPAN A					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

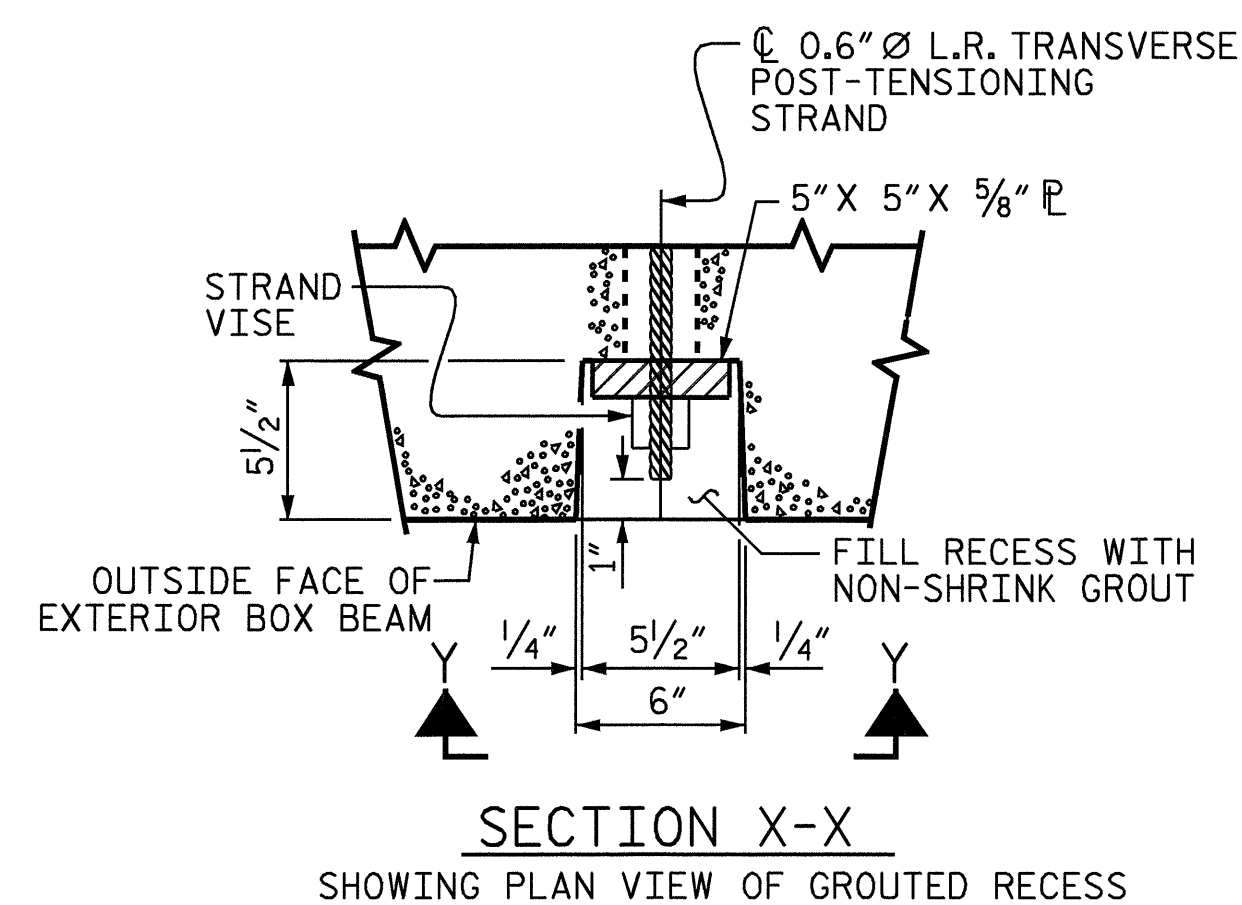
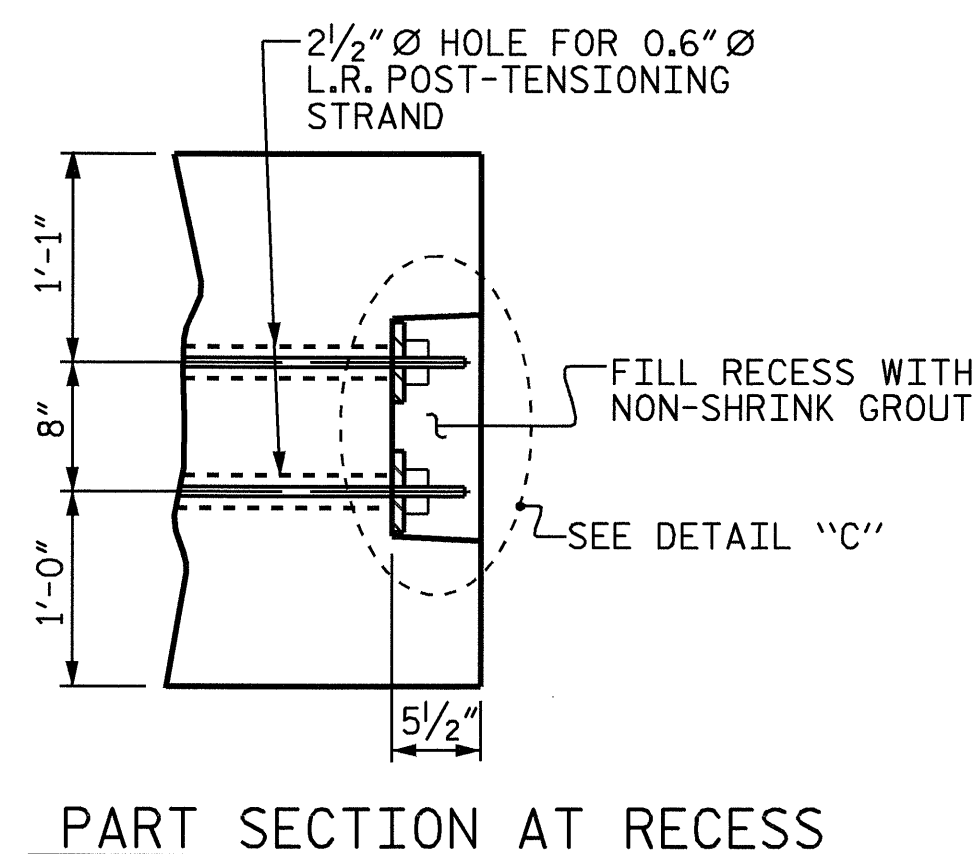
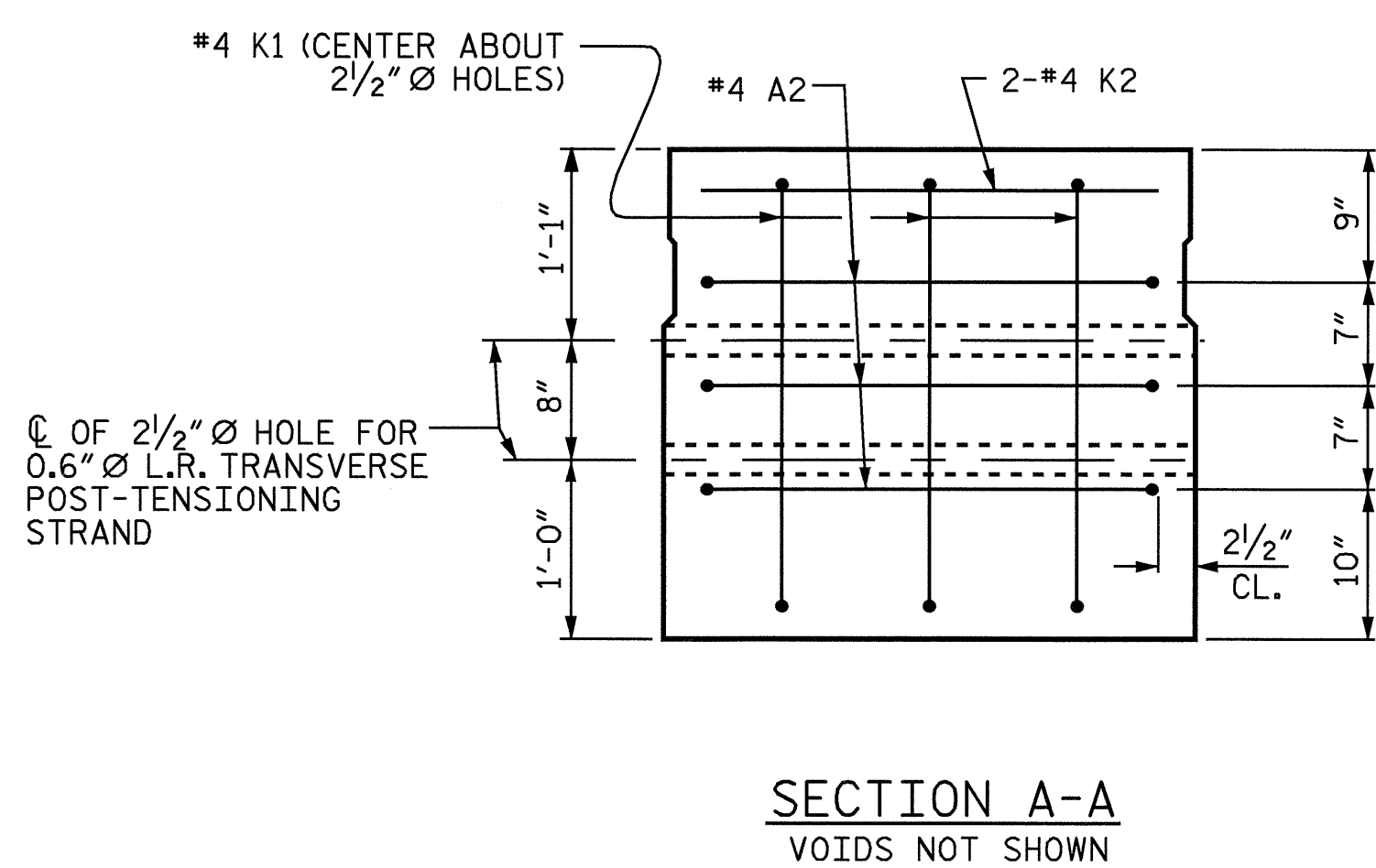
TOTAL SHEETS 19

ASSEMBLED BY : P. K. NEWTON	DATE : 9/26/08
CHECKED BY : S. F. DOMBROWSKI	DATE : 11/12/08
DRAWN BY : TLA	5/05
CHECKED BY : GM	6/05
ADDED	7/11/05
REV.	5/1/06
TLA/GM	

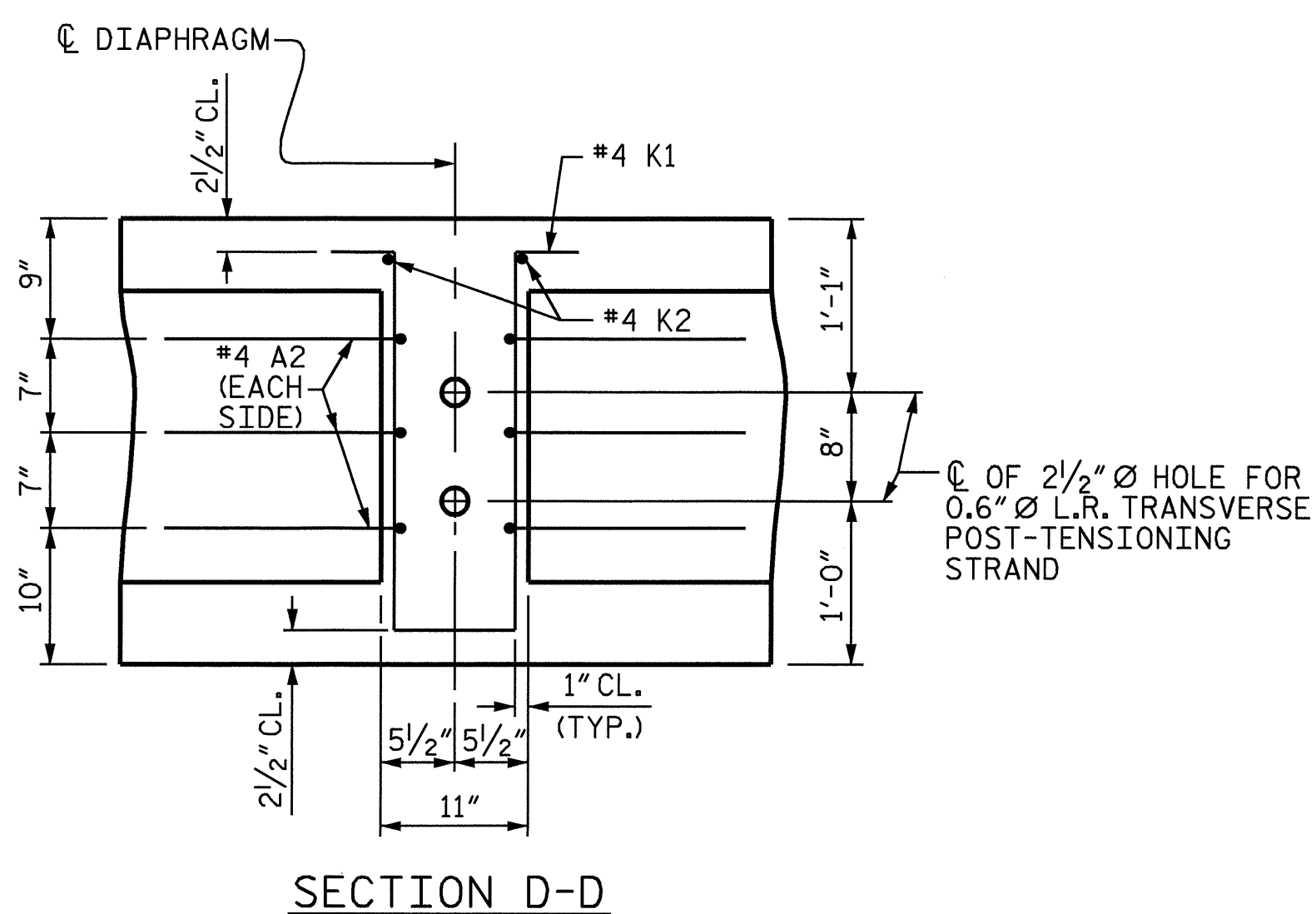




**ELASTOMERIC BEARING DETAILS**  
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS

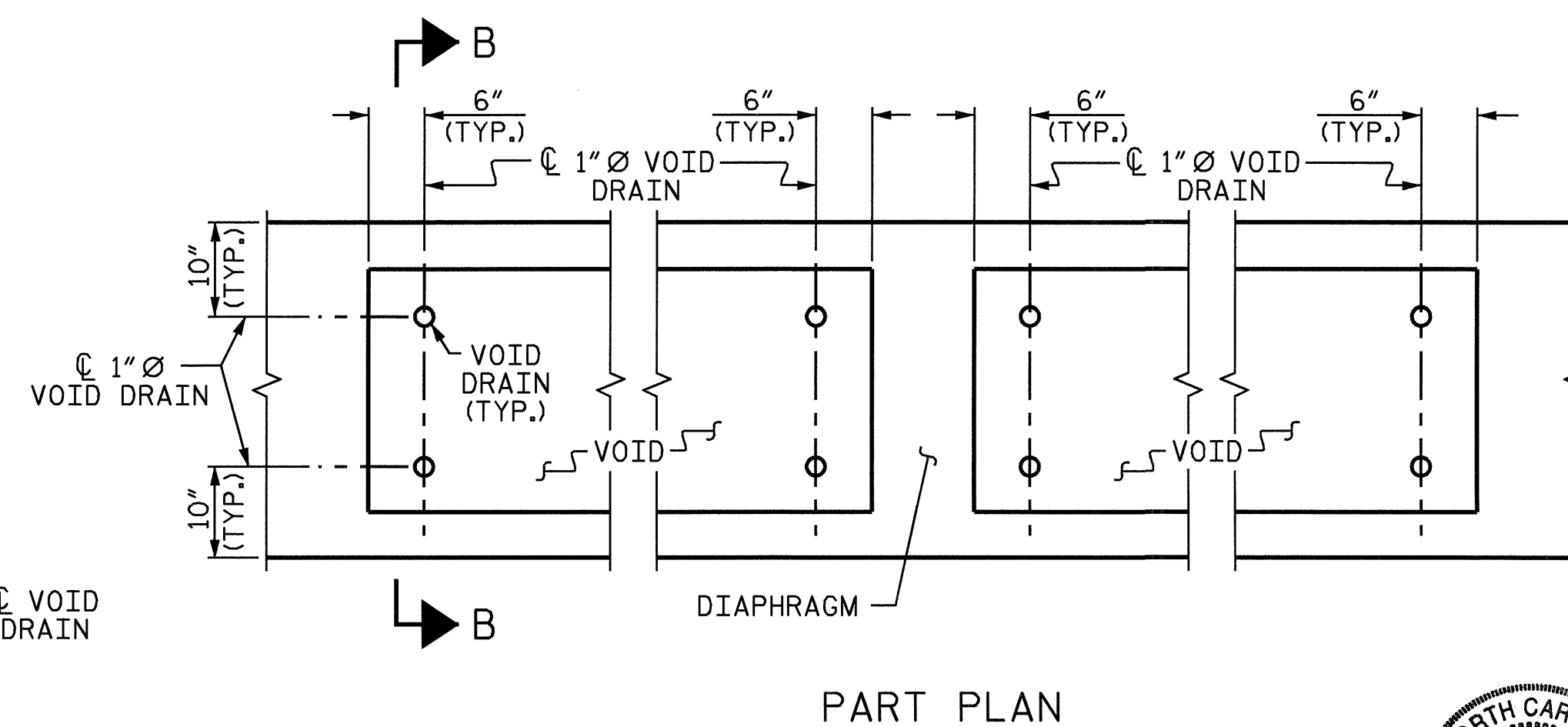
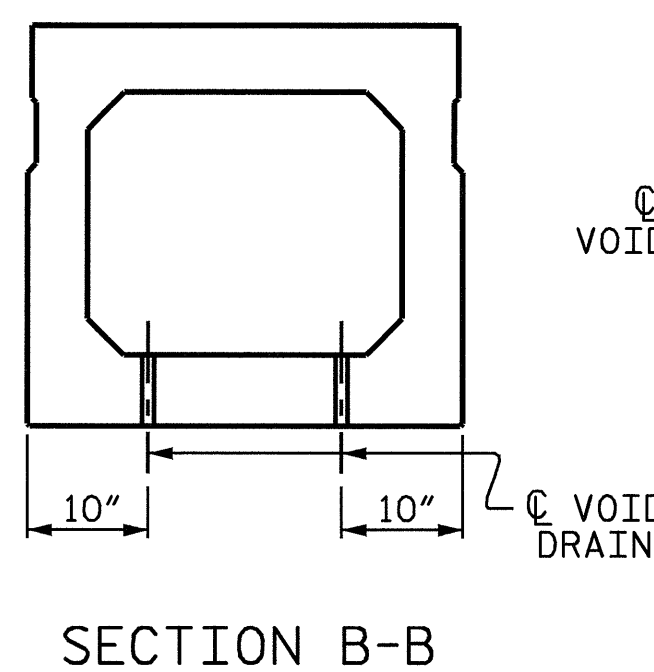


**GRADED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM**



**DOUBLE DIAPHRAGM DETAILS**

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.



**VOID DRAIN DETAILS**

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



PROJECT NO. B-4072  
CHEROKEE COUNTY  
STATION: 15+05.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
3'-0" X 2'-9"  
PRESTRESSED CONCRETE  
BOX BEAM UNIT

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			19	

(SHT 1) STD. NO. PCBB5

ASSEMBLED BY : P. K. NEWTON	DATE : 9/26/08
CHECKED BY : S. F. DOMBROWSKI	DATE : 11/12/08
DRAWN BY : TLA	5/05
CHECKED BY : GM	6/05
ADDED	7/11/05
REV.	5/1/06
TLA/GM	

**BILL OF MATERIAL**

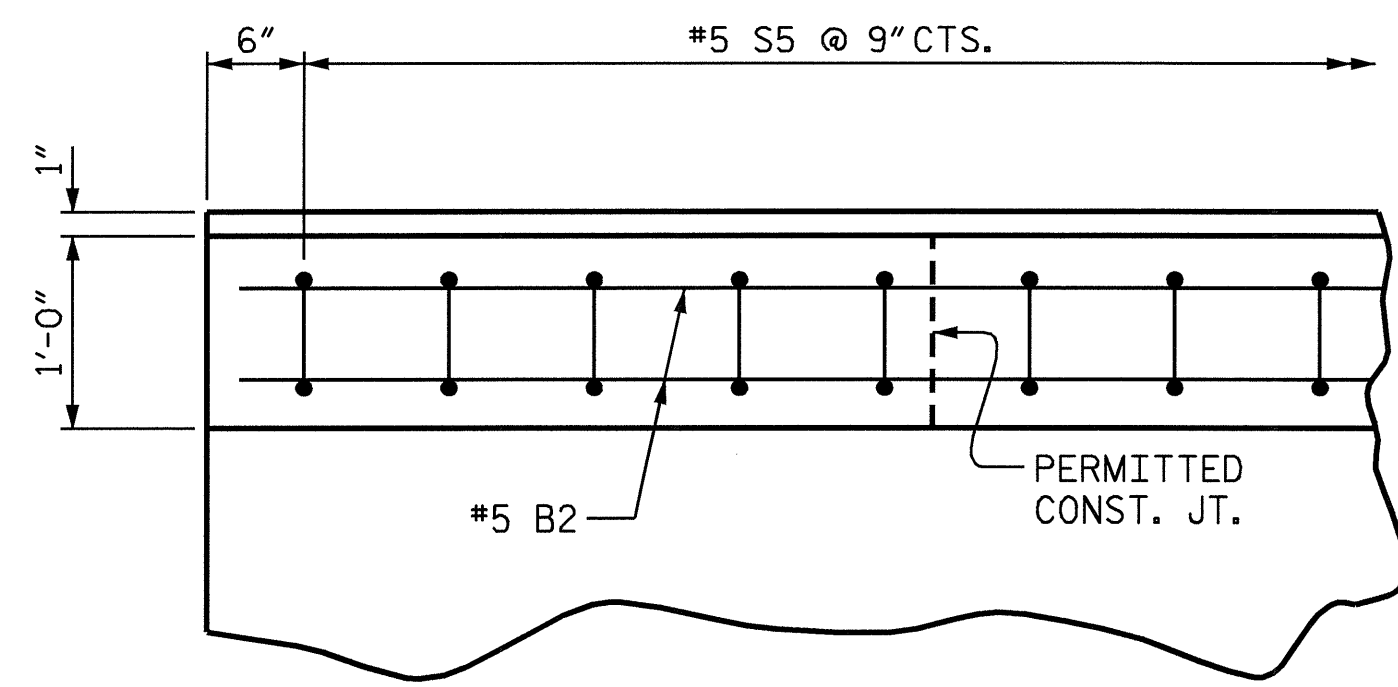
FOR 2 PARAPETS AND 4 END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B2	36	#5	STR	27'-3"	1023
* E1	8	#7	STR	2'-4"	38
* E2	8	#7	STR	2'-6"	41
* E3	8	#7	STR	2'-8"	44
* E4	8	#7	STR	2'-9"	45
* E5	8	#7	STR	2'-10"	46
* F1	16	#6	STR	3'-5"	82

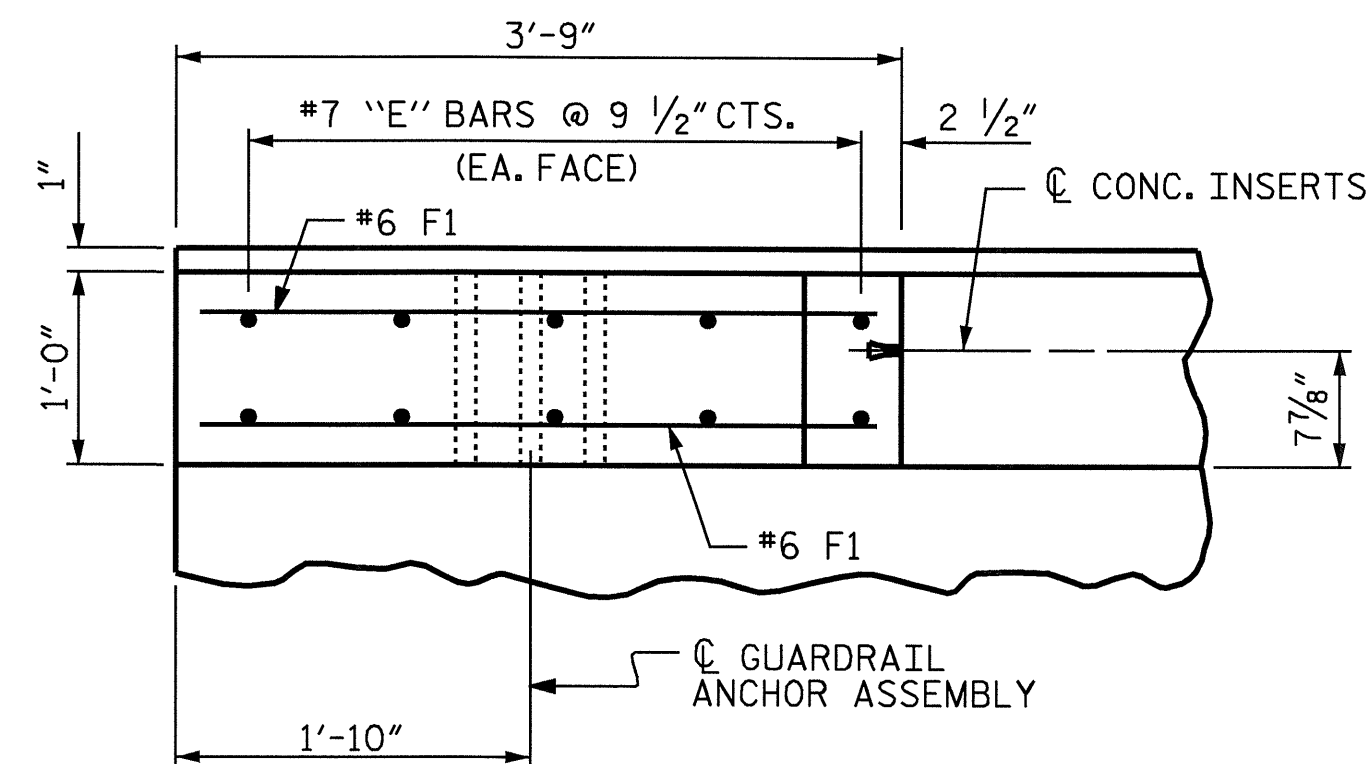
\* EPOXY COATED REINFORCING STEEL 1319 LBS.

CLASS AA CONCRETE  
 2 CONCRETE PARAPETS 9.8 CU. YDS.  
 4 END POSTS 1.6 CU. YDS.  
 TOTAL 11.4 CU. YDS.

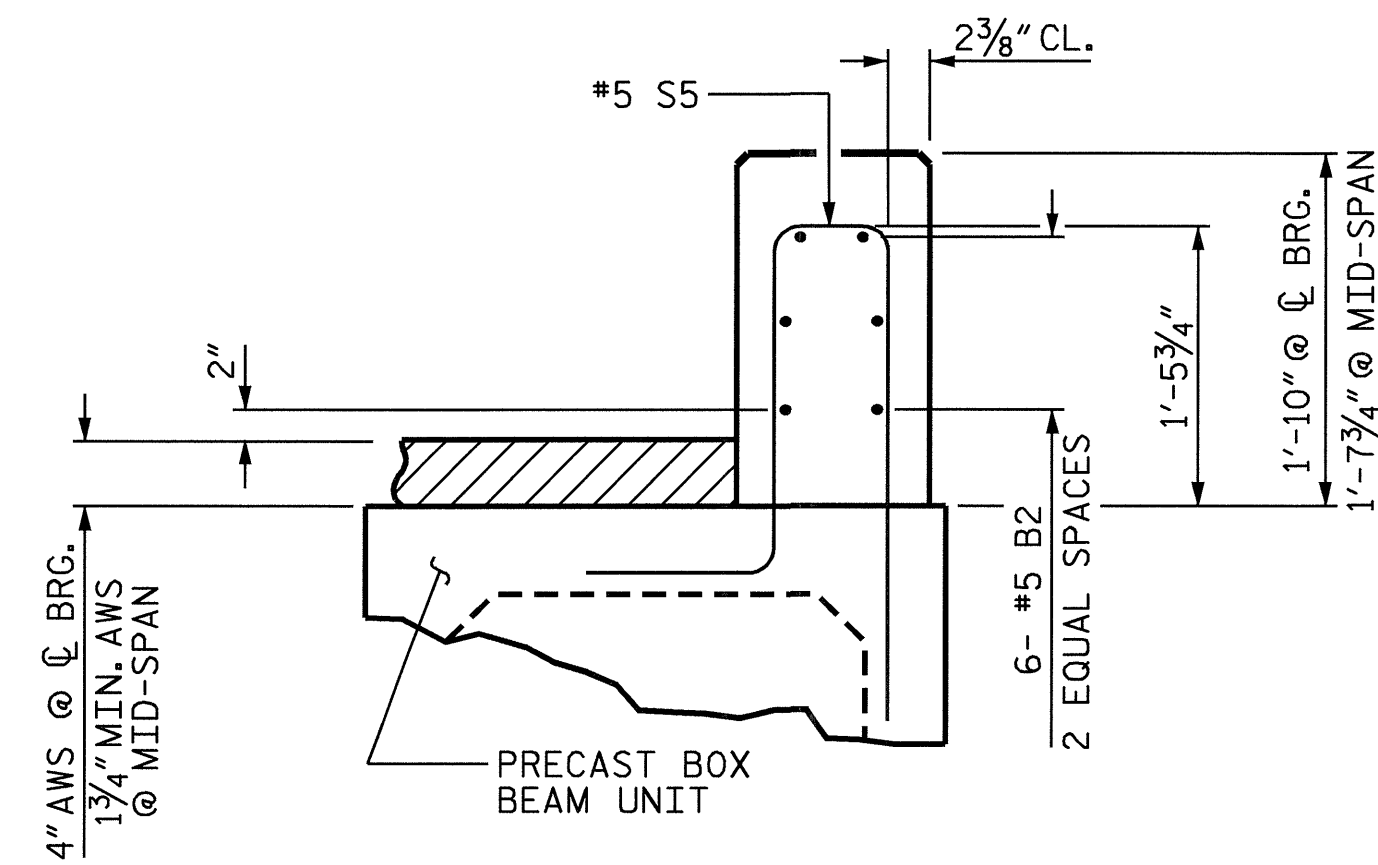
CONCRETE PARAPET 165.5 LIN. FT.



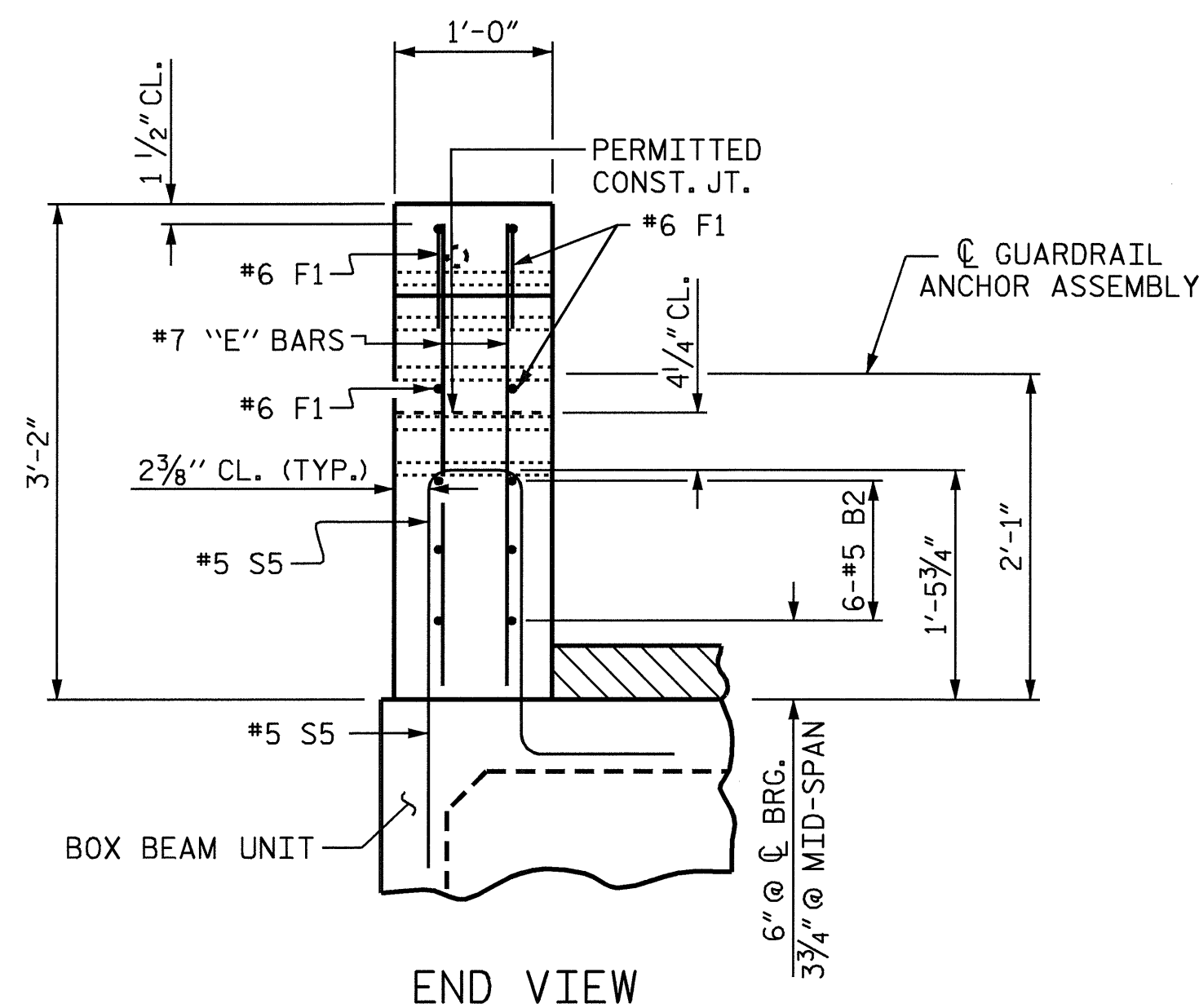
PLAN OF PARAPET



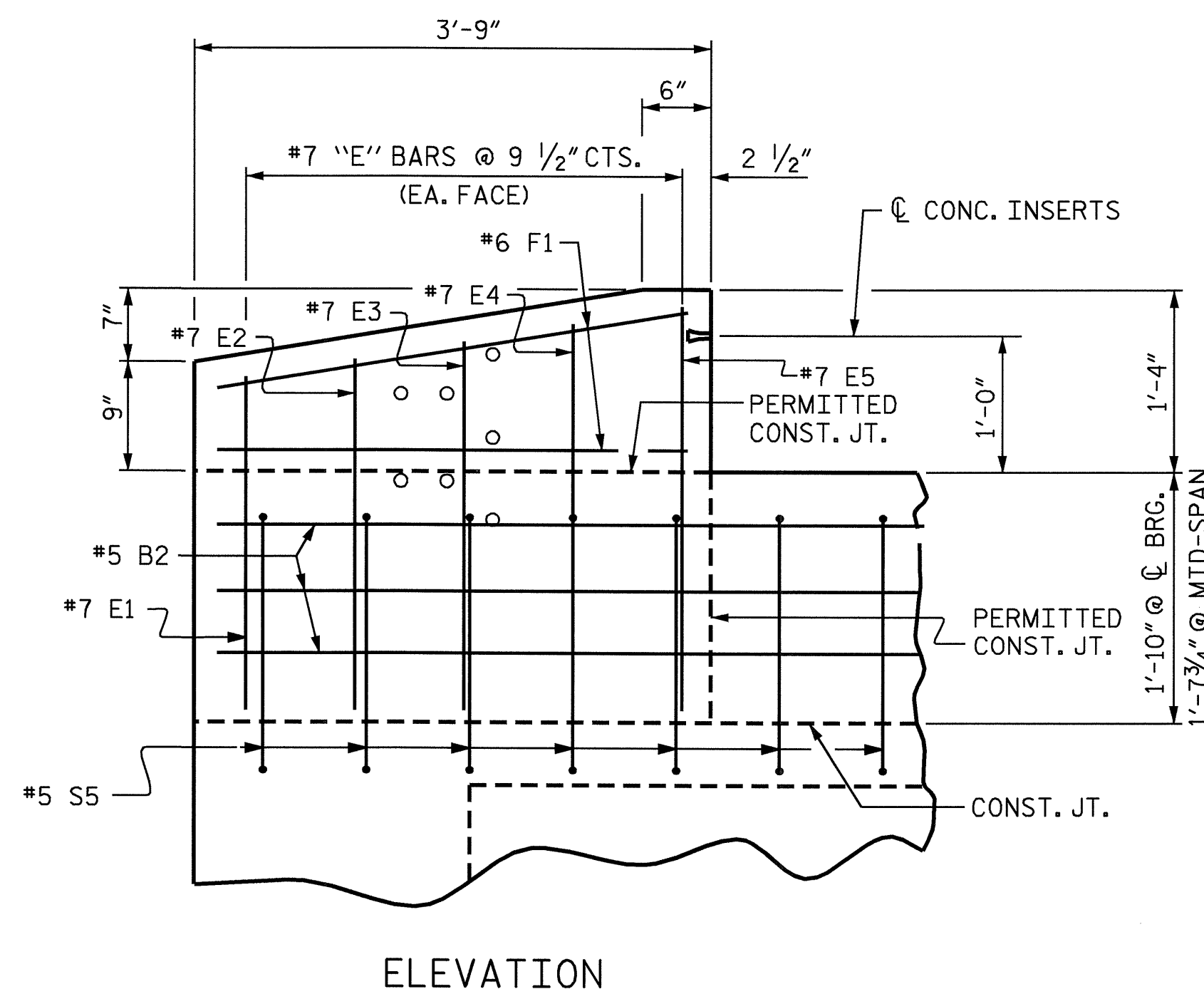
PLAN OF END POST



SECTION THRU PARAPET

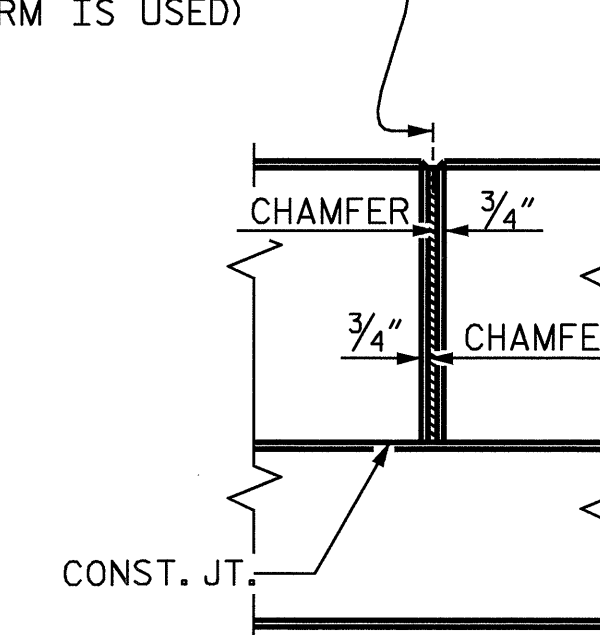


END VIEW

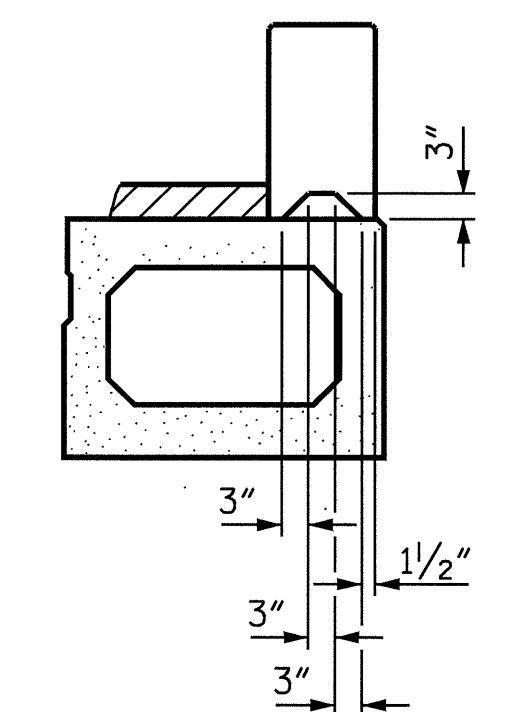


ELEVATION

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



ELEVATION AT EXPANSION JOINTS



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

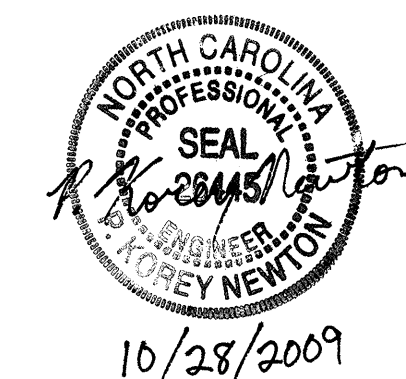
**PARAPET AND END POST FOR ONE BAR RAIL**

PROJECT NO. B-4072

CHEROKEE COUNTY

STATION: 15+05.00 -L-

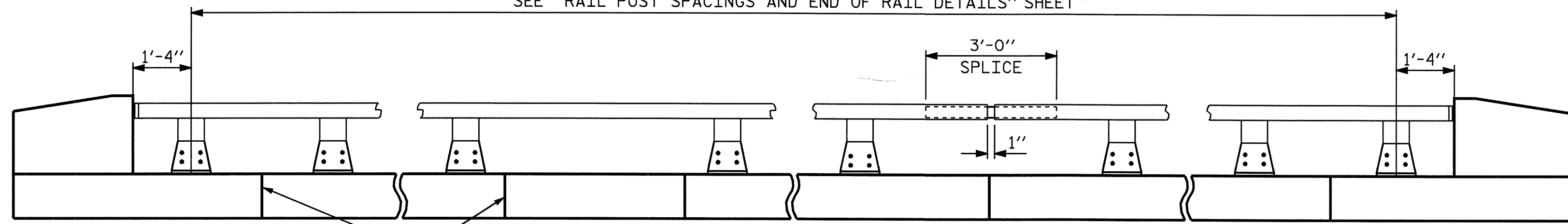
SHEET 5 OF 5



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-9
					TOTAL SHEETS 19

ASSEMBLED BY : P. K. NEWTON DATE : 9/26/08  
 CHECKED BY : S. F. DOMBROWSKI DATE : 11/12/08  
 DRAWN BY : TLA 5/05  
 CHECKED BY : GM 6/05  
 ADDED 7/11/05R  
 REV. 5/1/06 TLA/GM

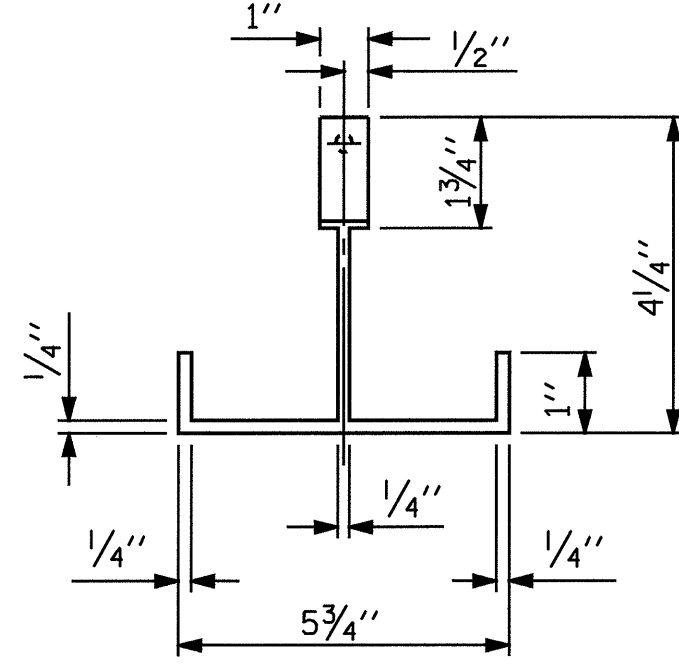
SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET



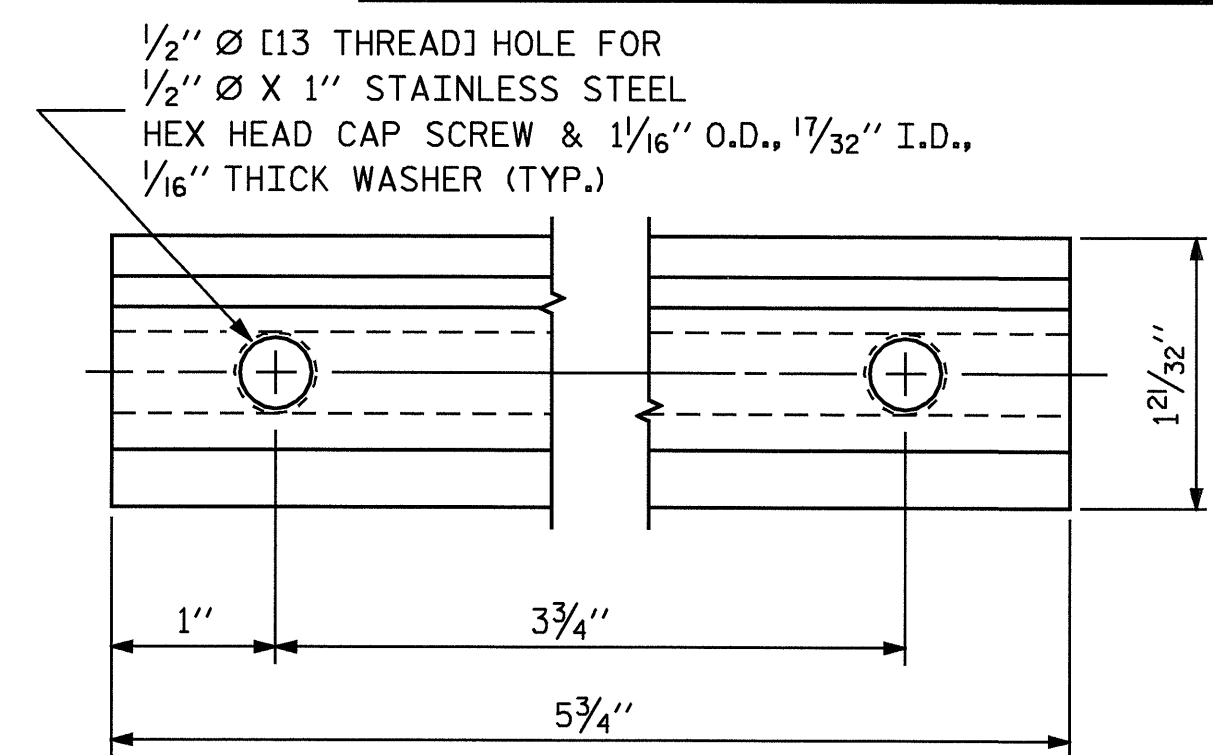
ELEVATION

NOTE:  
FOR ATTACHMENT OF METAL RAIL TO END  
POST, SEE STANDARD NO. BMR2 ON SHEET S-11.

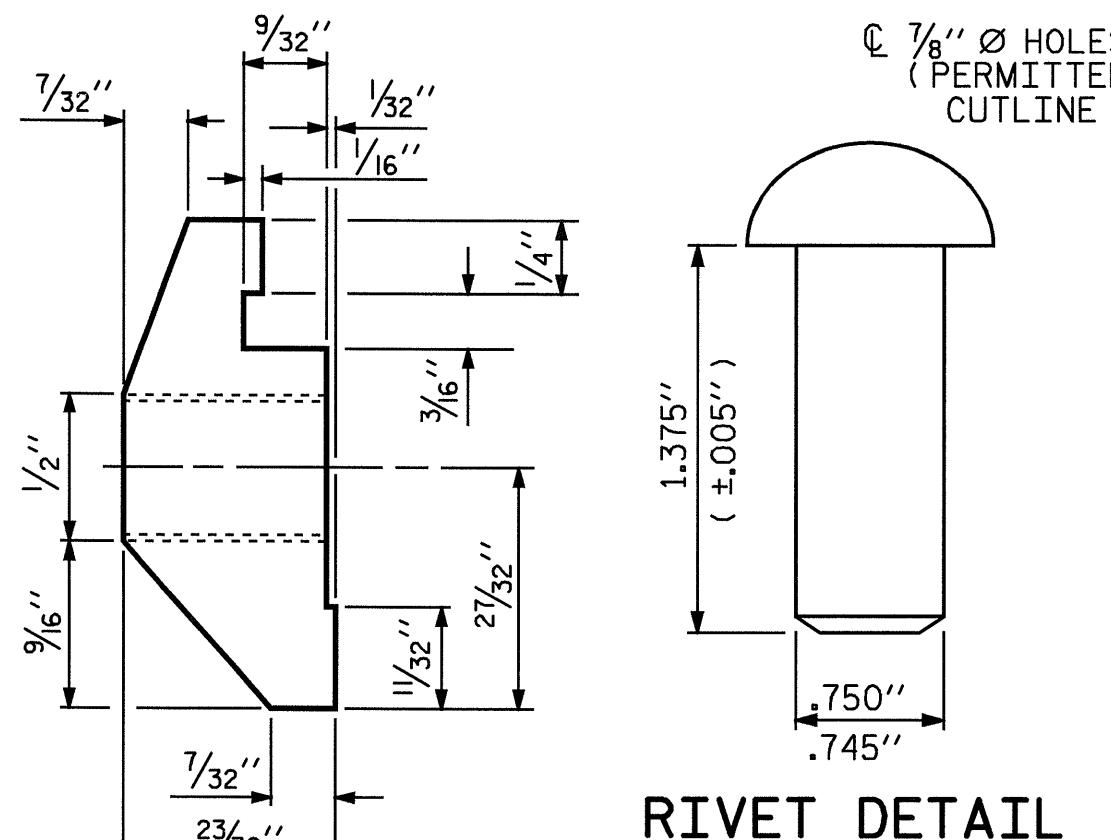
TOOLED CONTRACTION JT.  
(SEE NOTE)



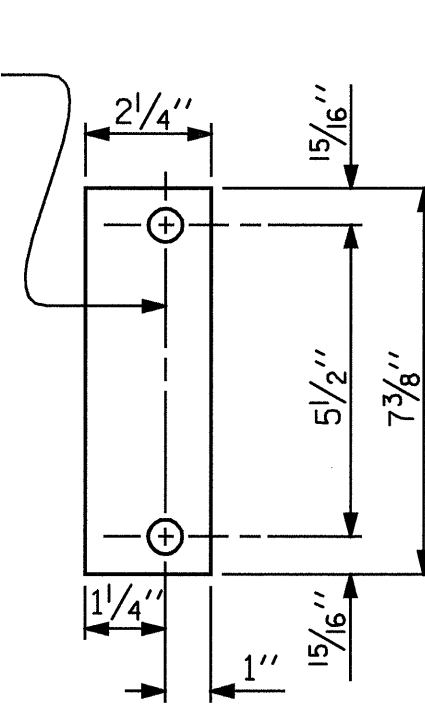
PLAN



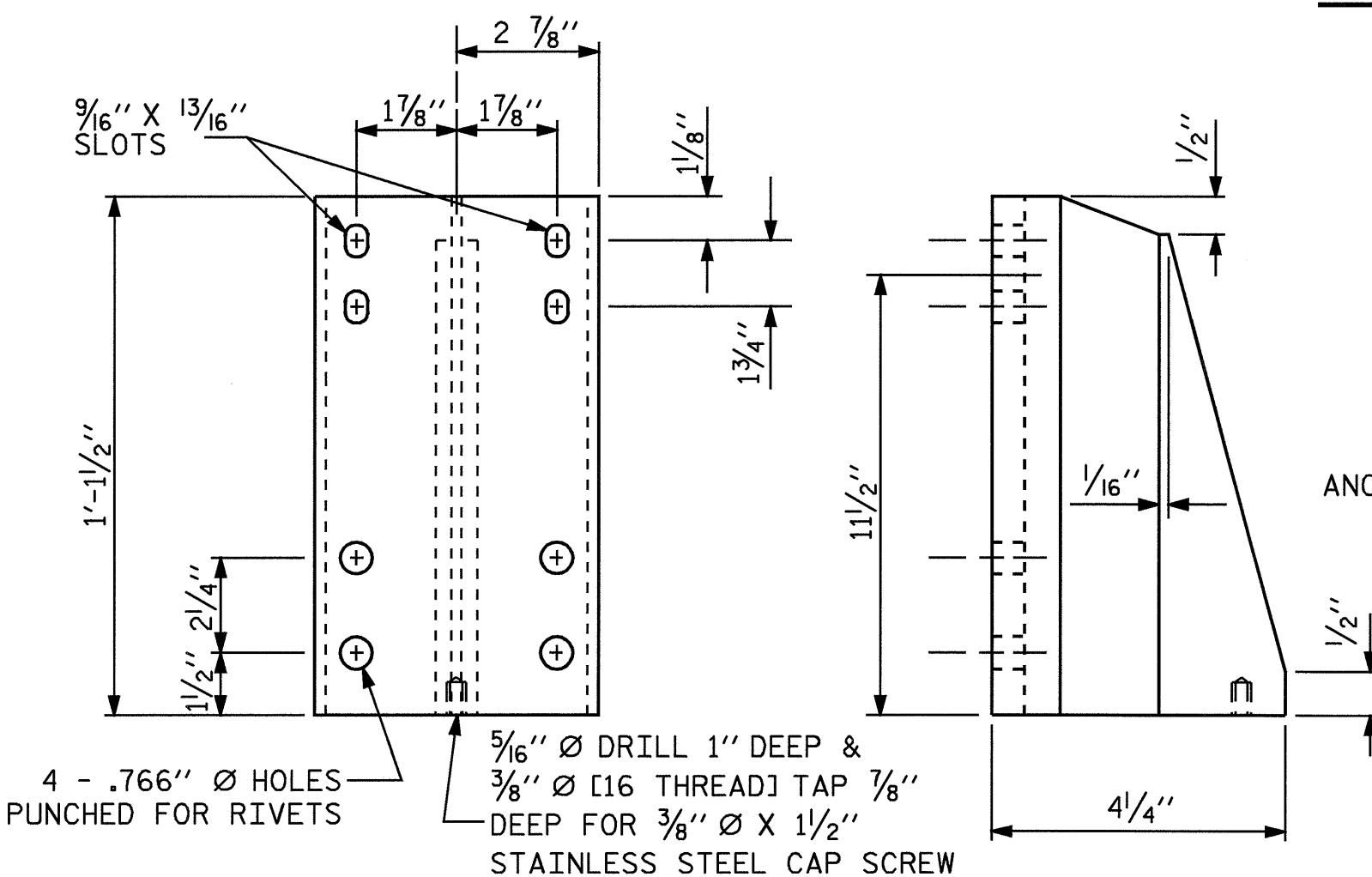
CLAMP BAR DETAIL  
(2 REQUIRED PER POST)



RIVET DETAIL



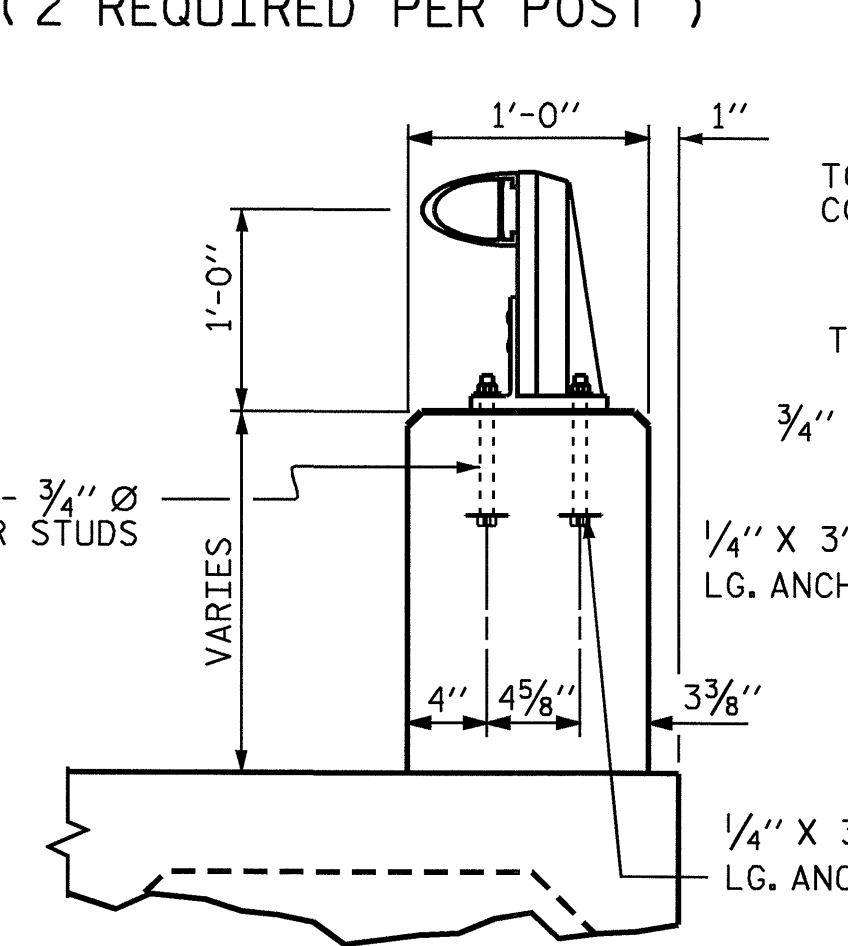
REAR PLATE



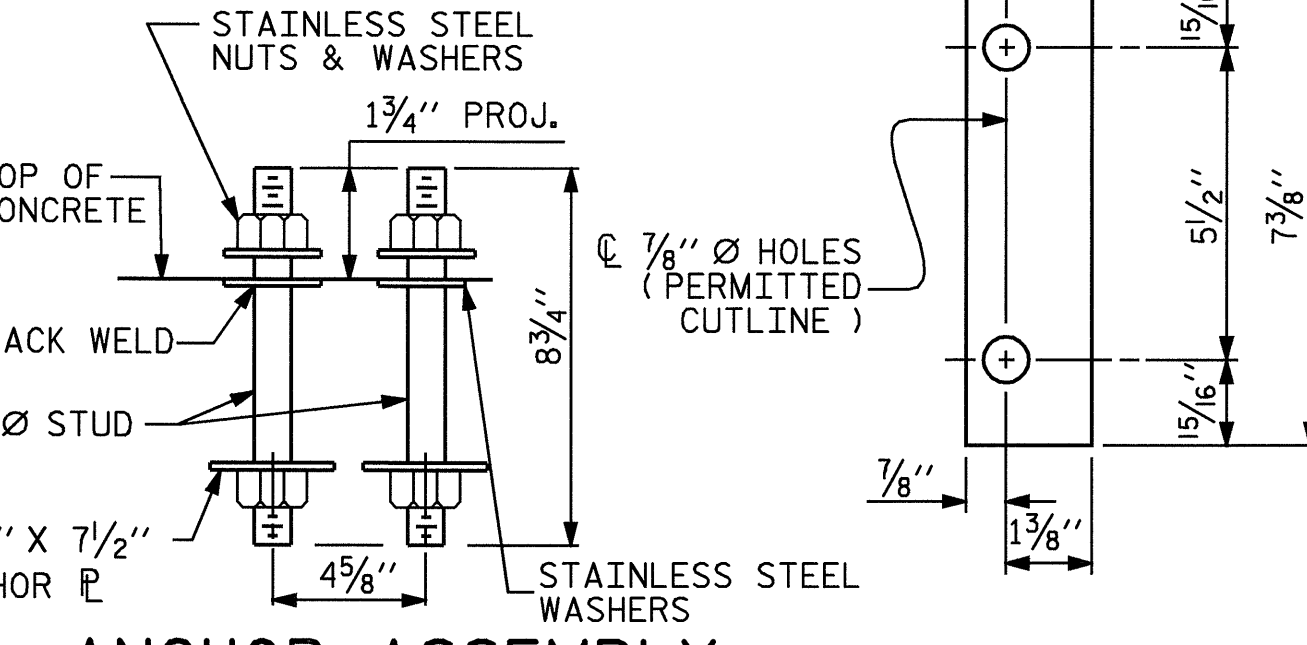
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST



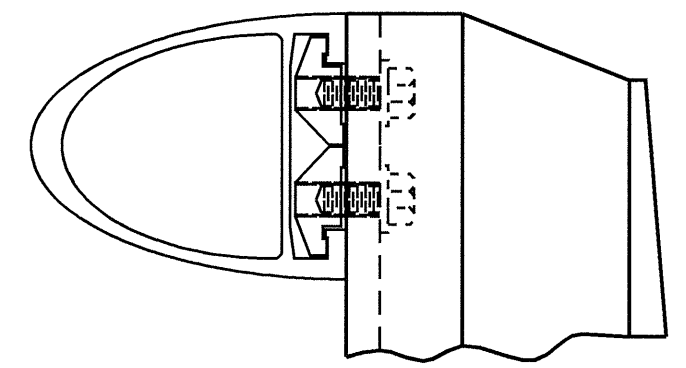
SECTION THRU  
PARAPET AND RAIL



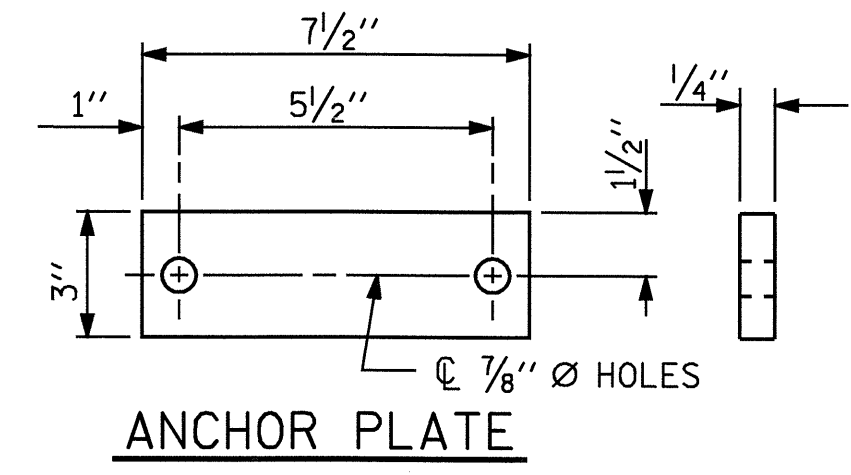
ANCHOR ASSEMBLY

SHIM DETAILS

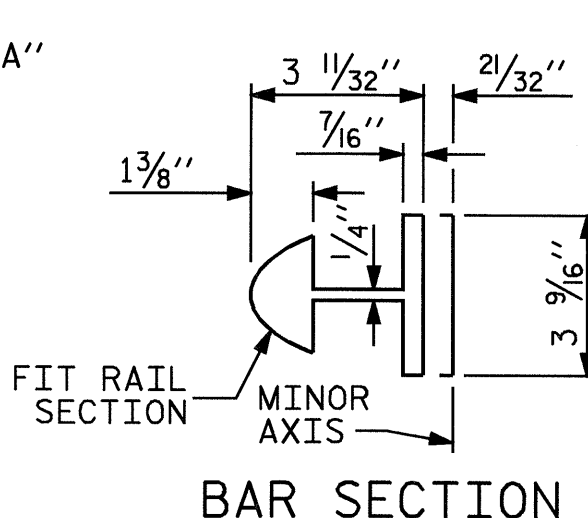
NOTE: SHIMS MAY BE CUT ALONG PERMITTED  
OUTLINE OR SLOTTED TO EDGE OF PLATE  
TO FACILITATE PLACEMENT.



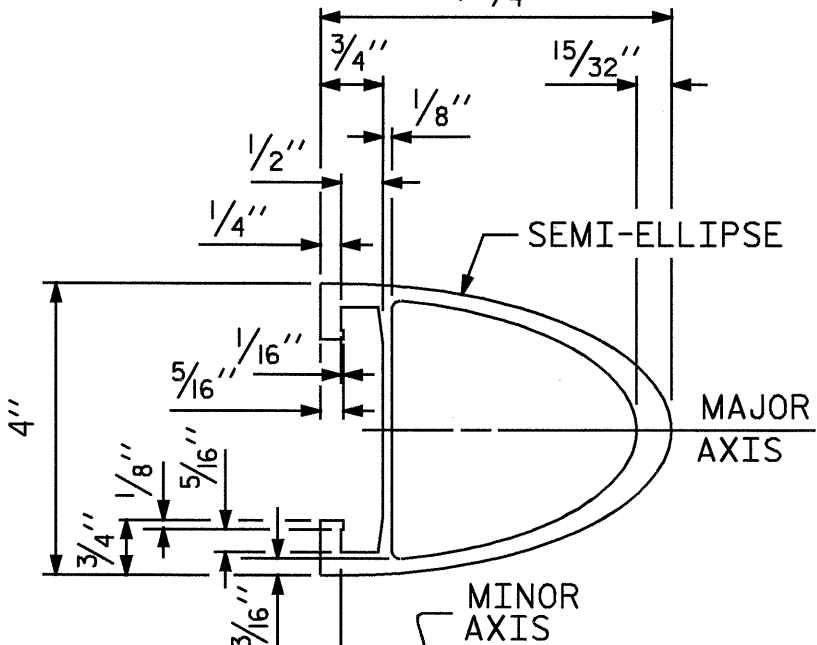
CLAMP & RAIL ASSEMBLY



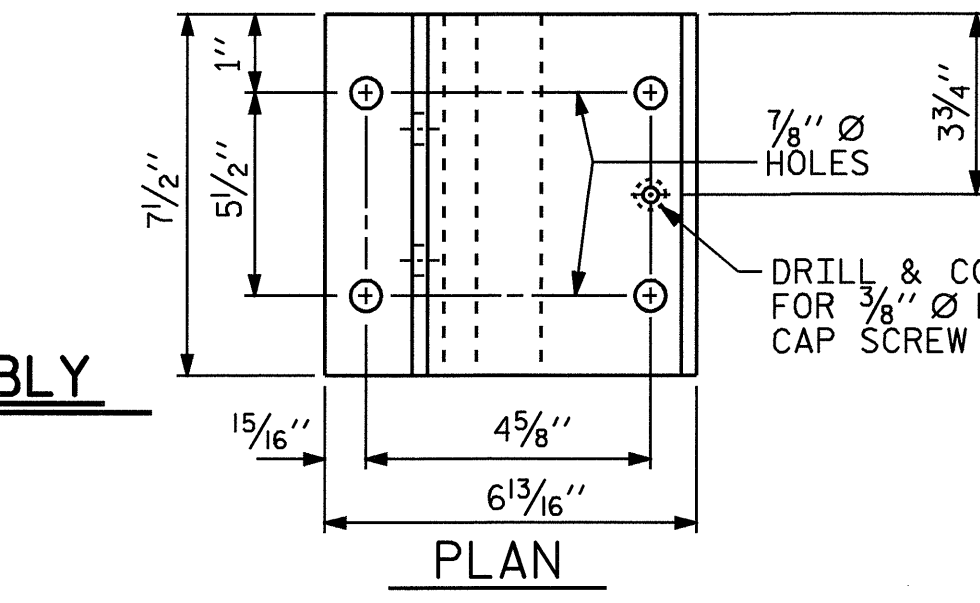
ANCHOR PLATE



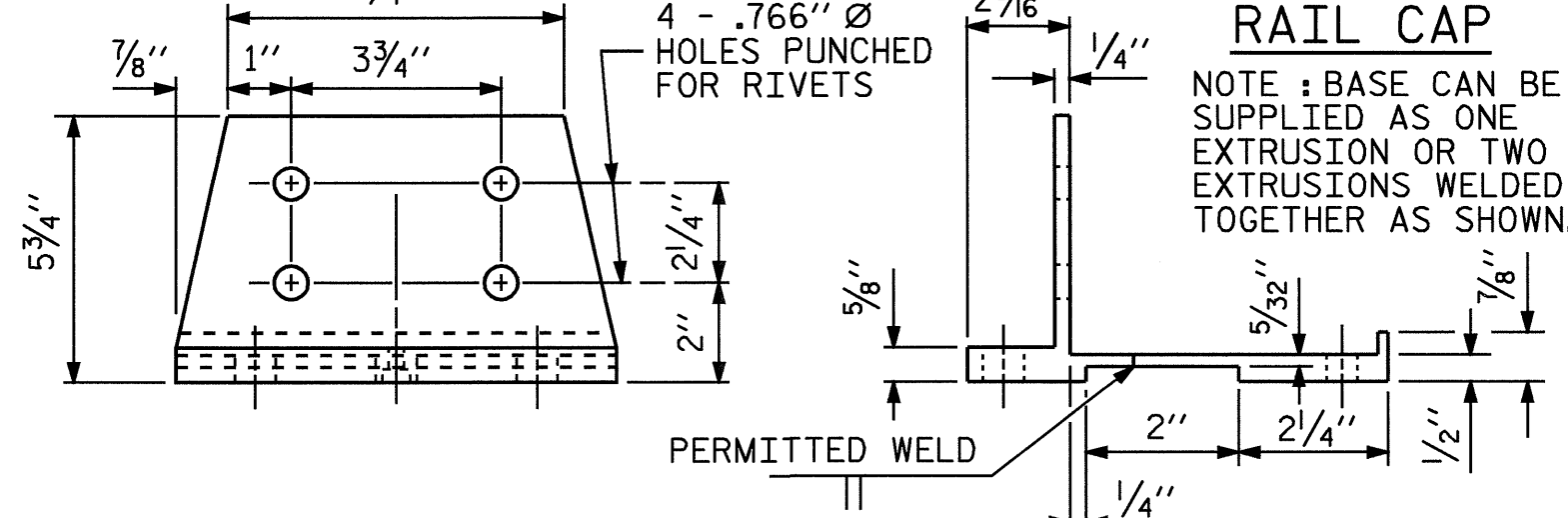
BAR SECTION



RAIL SECTION



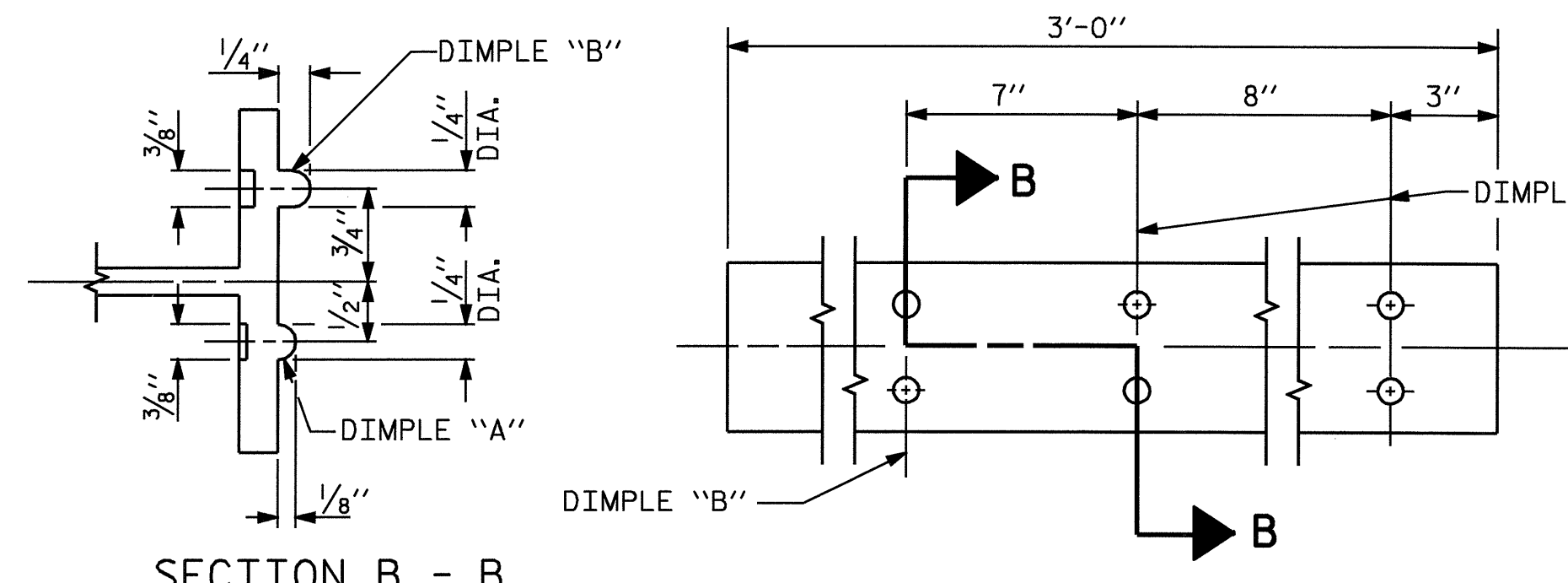
PLAN



FRONT ELEVATION

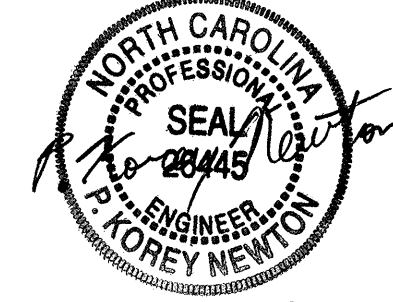
SIDE ELEVATION

POST BASE DETAILS



EXPANSION BAR DETAILS

PAY LENGTH = 150.5 LIN. FT.



PROJECT NO. B-4072  
CHEROKEE COUNTY  
STATION: 15+05.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 1 BAR METAL RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY : P. K. NEWTON	DATE : 11/5/08
CHECKED BY : S. F. DOMBROWSKI	DATE : 11/12/08
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03R RWN/JTE
	REV. 5/1/06R KMM/GM

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1/2".
- B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

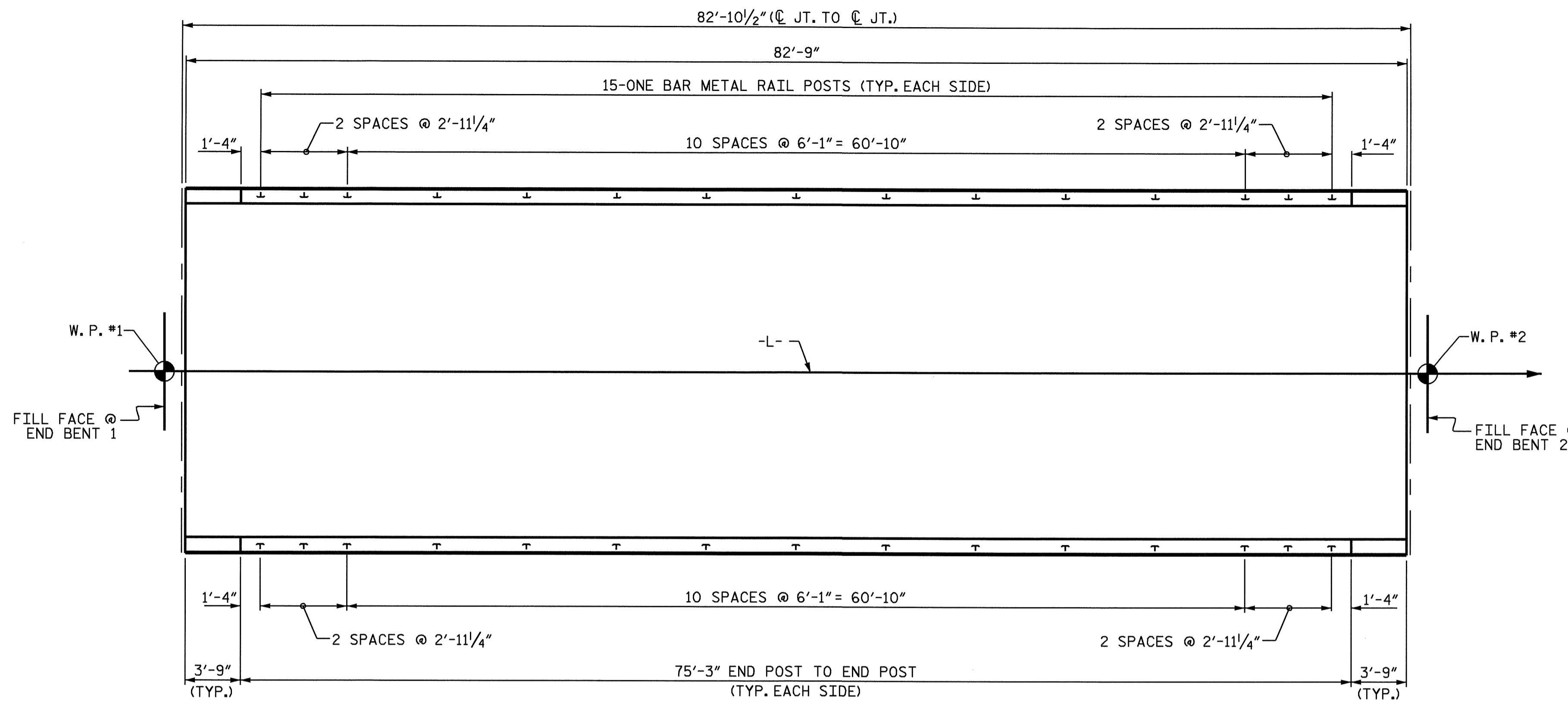
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60° F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

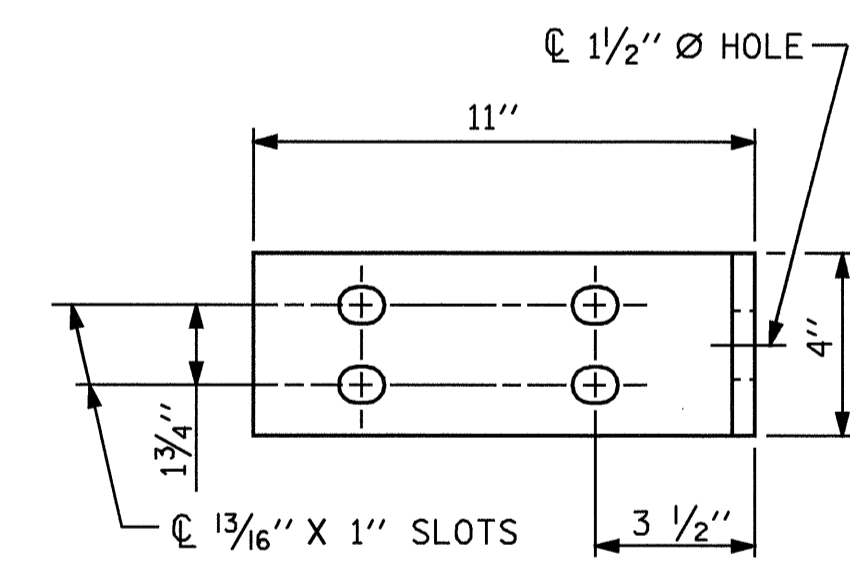
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

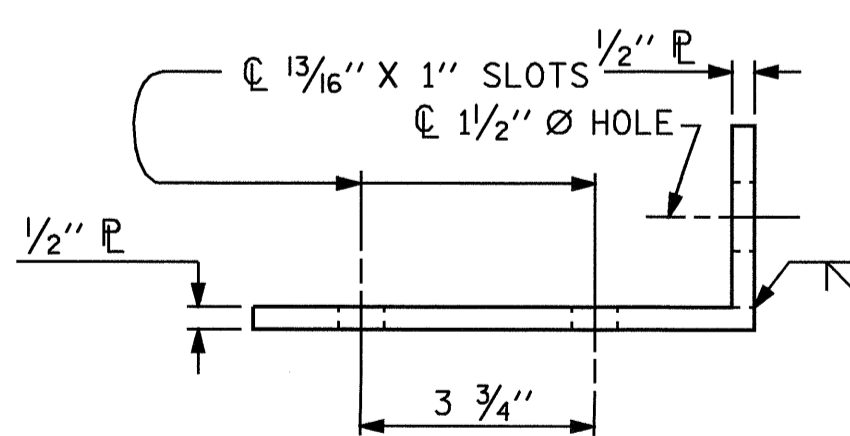
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



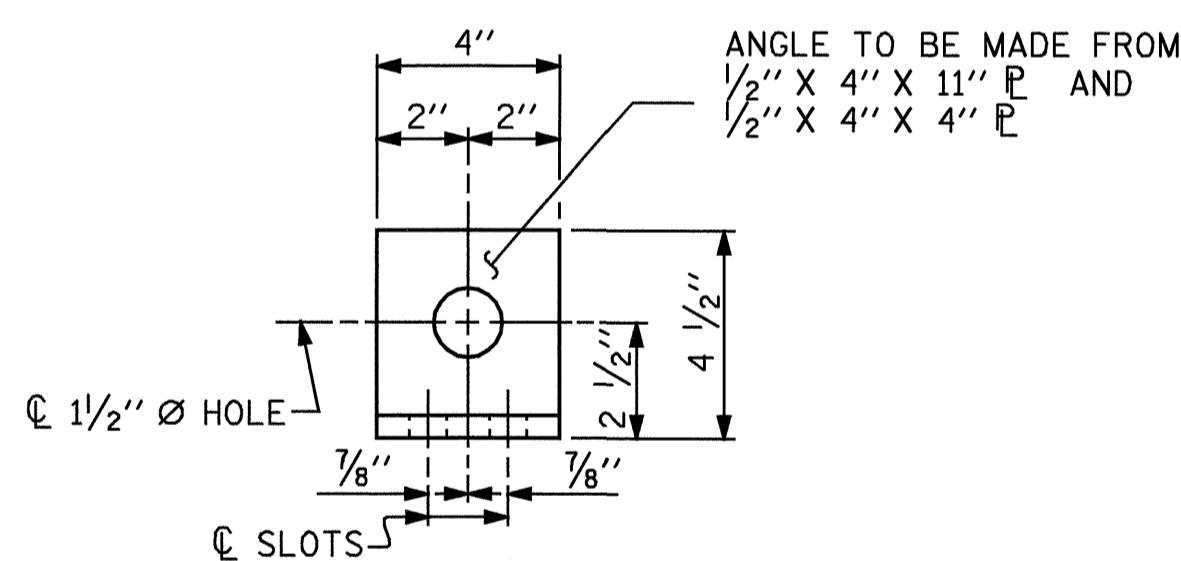
PLAN OF RAIL POST SPACINGS



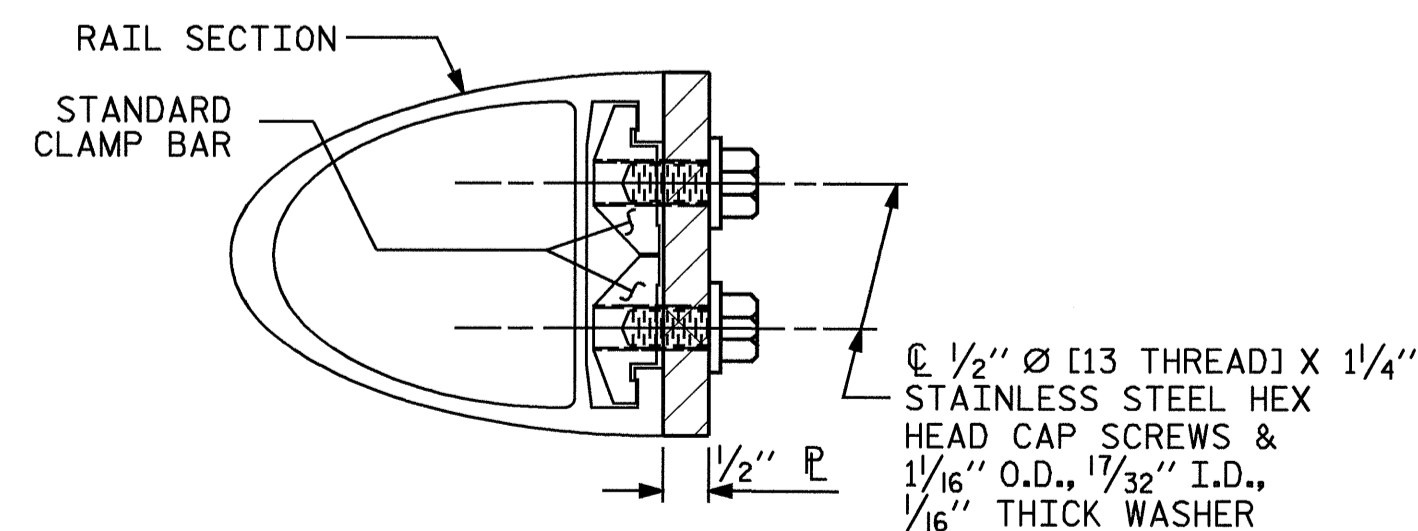
ELEVATION



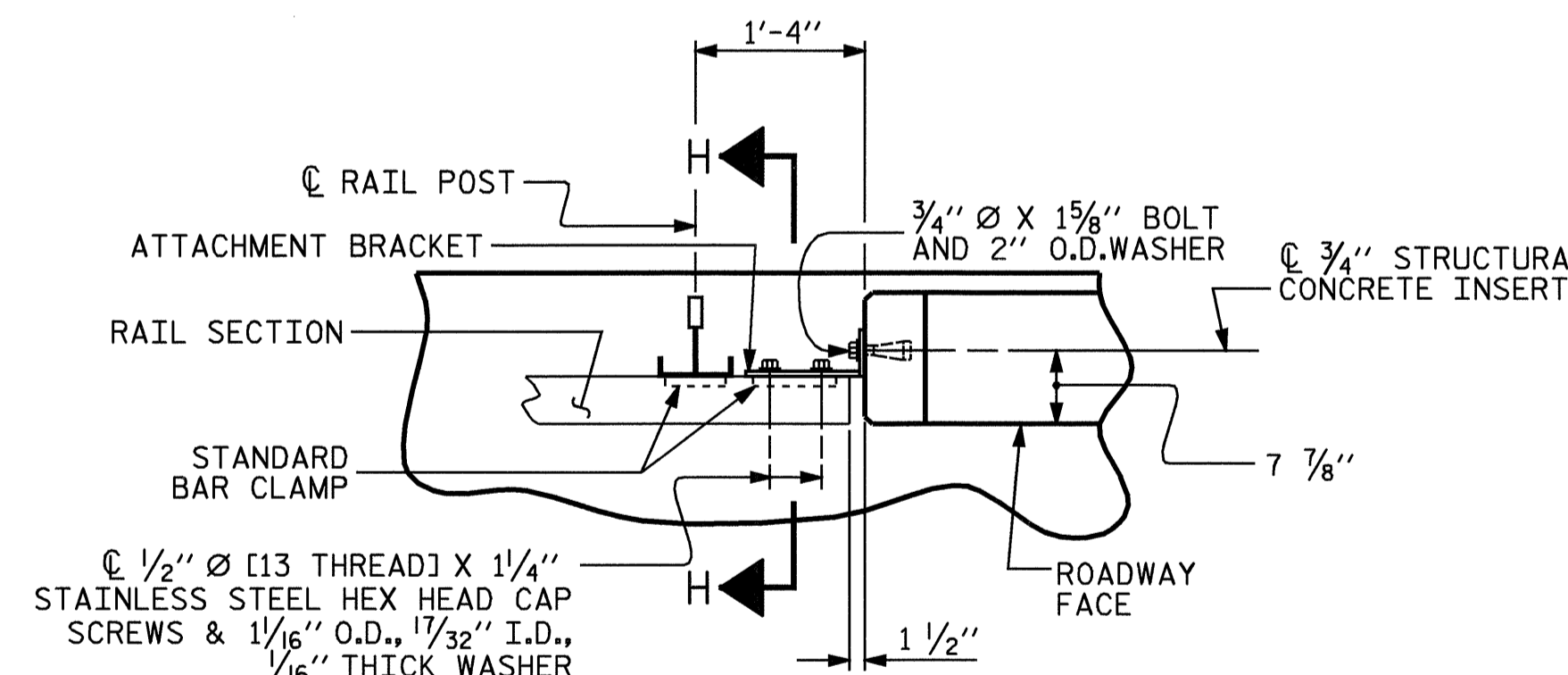
TOP VIEW



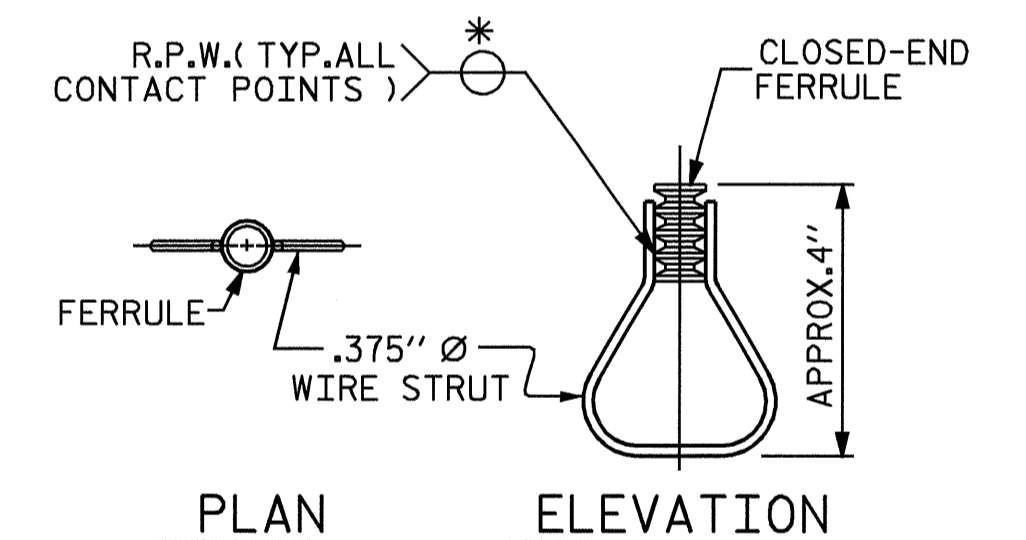
END VIEW



SECTION H-H



PLAN - RAIL AND END POST



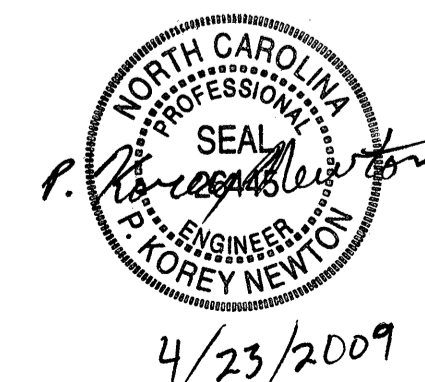
STRUCTURAL CONCRETE INSERT

\* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 RAIL POST SPACINGS  
 AND  
 END OF RAIL DETAILS  
 FOR ONE OR TWO BAR METAL RAILS

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



4/23/2009

ASSEMBLED BY : P. K. NEWTON DATE : 11/5/08  
 CHECKED BY : S. F. DOMBROWSKI DATE : 11/12/08  
 DRAWN BY : FCJ 1/88 REV. 10/17/00 LES/RDR  
 CHECKED BY : CRK 3/89 REV. 5/7/03 RWW/JTE  
 REV. 5/1/06 TLA/GM

NOTES

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

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

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

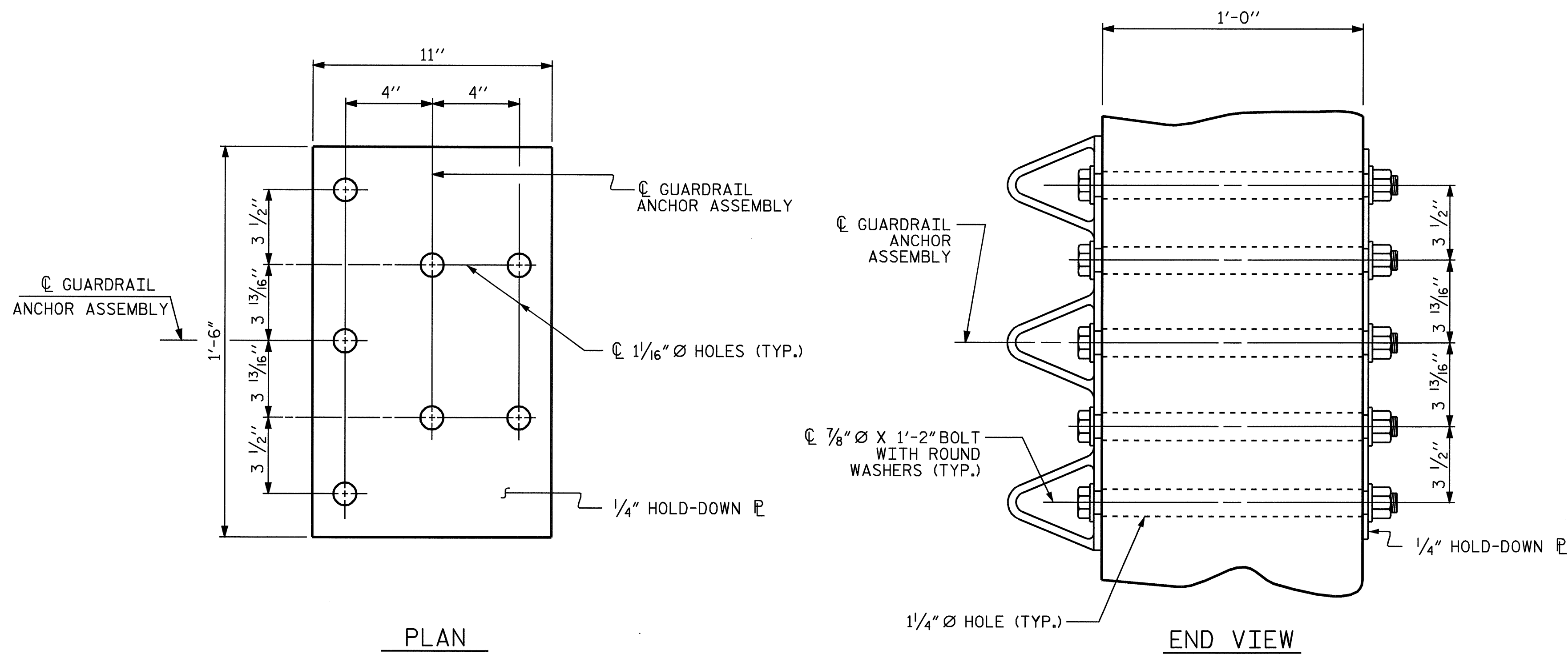
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

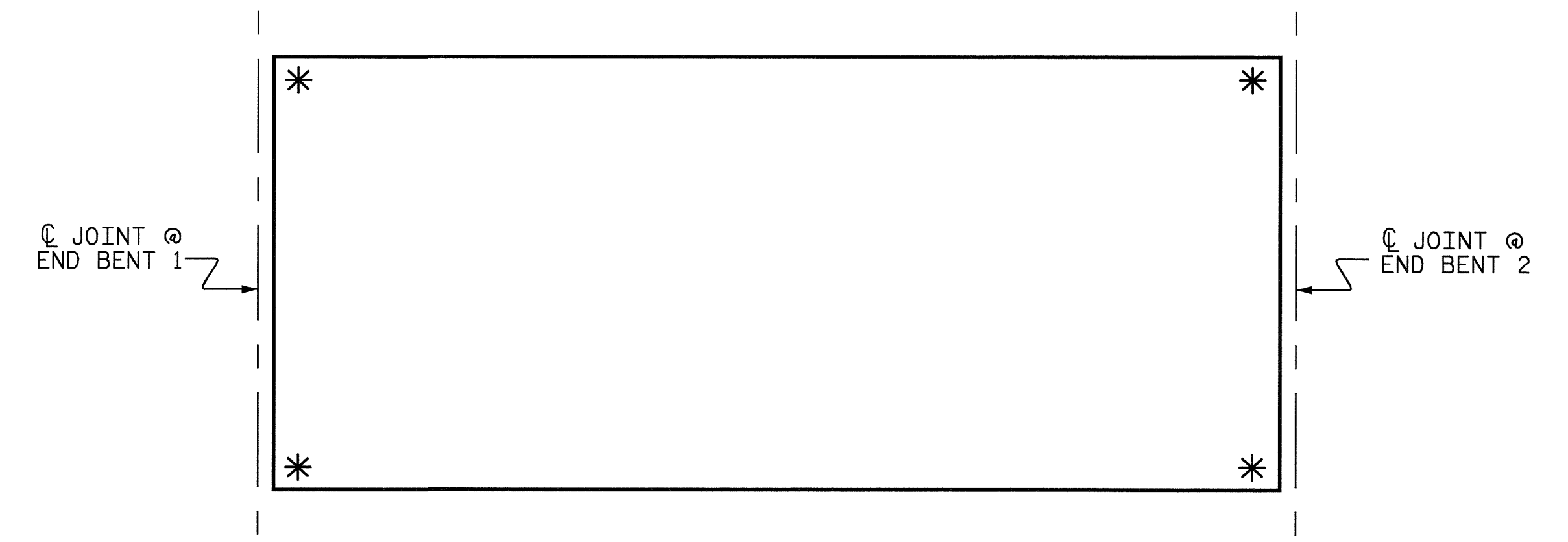
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE HOLD DOWN PLATE, BOLTS NUTS AND WASHERS SHALL BE PAINTED TO MATCH THE ANODIZED RAIL. SEE ANODIZED RAIL NOTES FOR COLOR OF PAINT. AFTER GUARDRAIL ERECTION AND ATTACHMENT TO ANCHORAGE, PAINT WITH A MINIMUM OF TWO COATS ALL EXPOSED SURFACES OF THE HOLD DOWN PLATE, BOLTS, NUTS AND WASHERS. SUPPLYING PAINT AND PAINTING GUARDRAIL ANCHORAGE IS CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE ANCHORAGE.

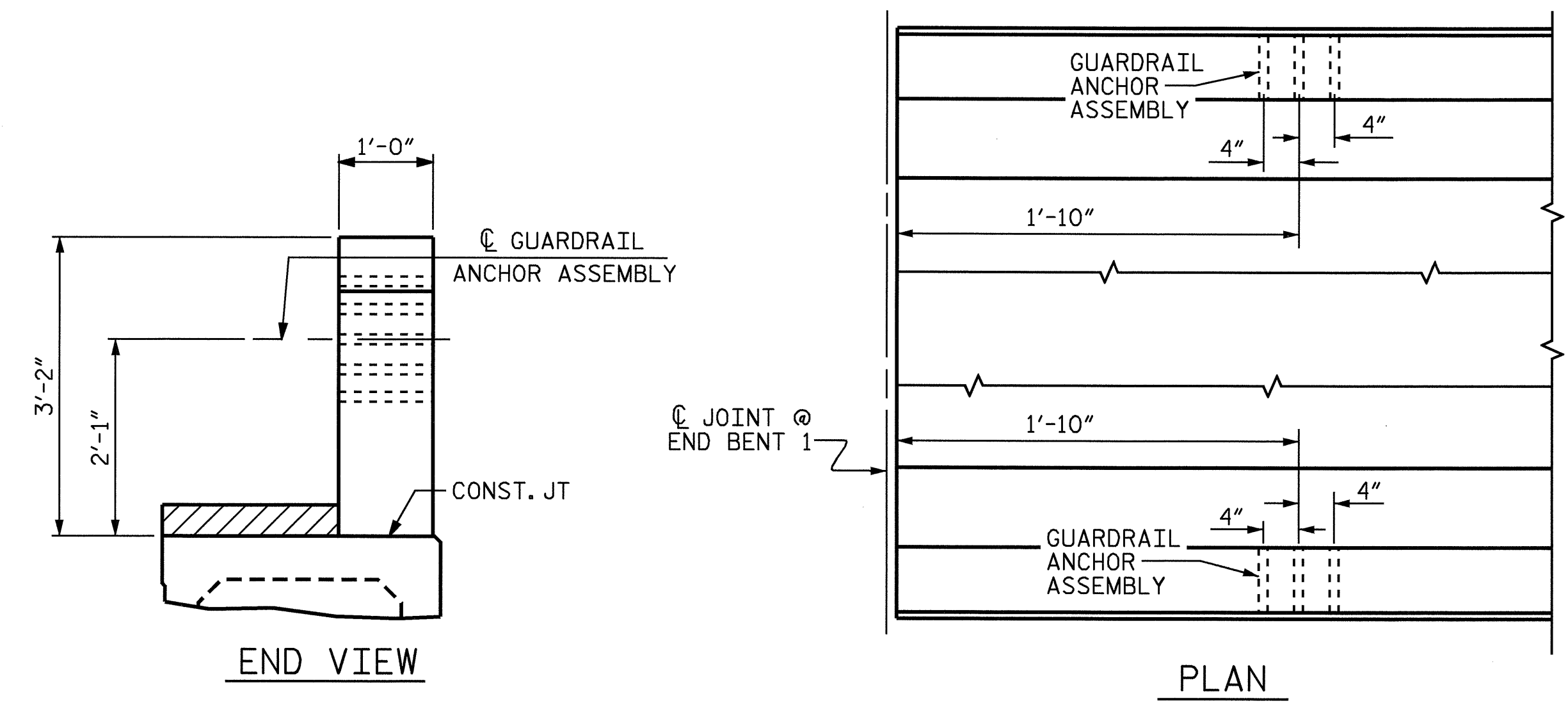


PLAN END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT  
\* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST  
END BENT 1 SHOWN, END BENT 2 SIMILAR.

PROJECT NO. B-4072  
CHEROKEE COUNTY  
STATION: 15+05.00 -L-



STATE OF NORTH CAROLINA						SHEET NO. S-12
DEPARTMENT OF TRANSPORTATION RALEIGH						
STANDARD						TOTAL SHEETS 19
GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS						
REVISIONS						NO. BY DATE
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

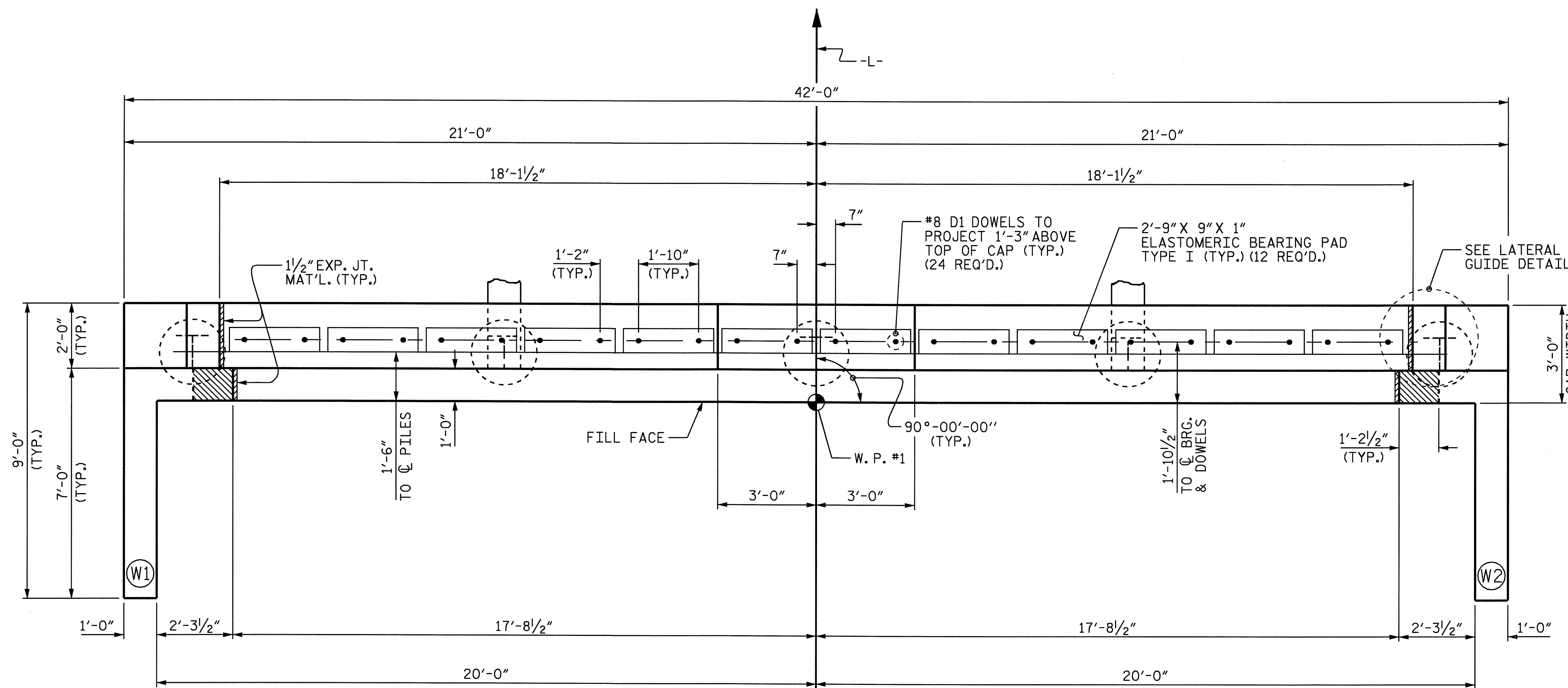
ASSEMBLED BY : P. K. NEWTON	DATE : 11/1/08
CHECKED BY : S. F. DOMBROWSKI	DATE : 11/12/08
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/1/03 RWW/JTE
	REV. 5/1/06 TLA/GM

**NOTES**

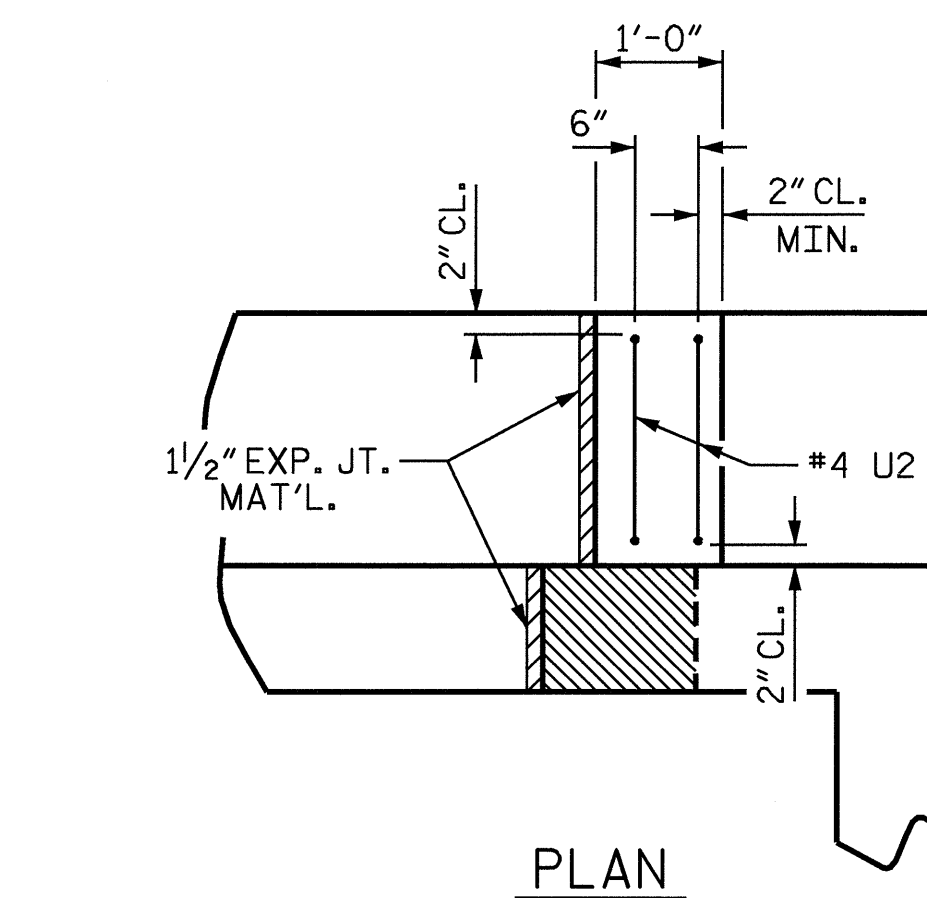
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

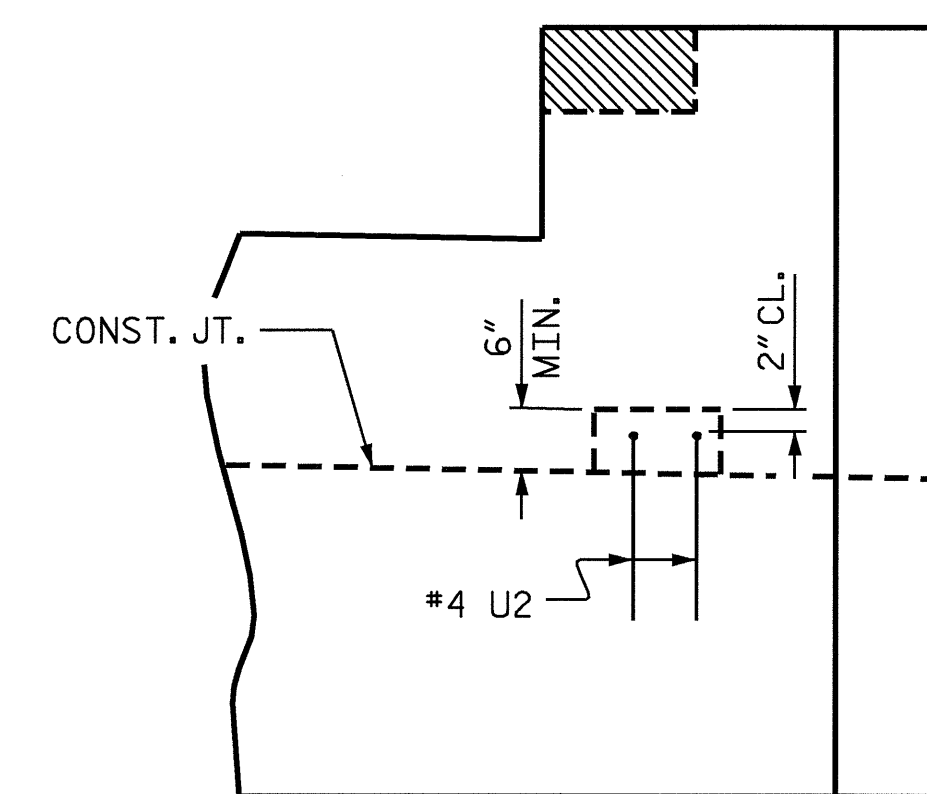
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.



**PLAN**



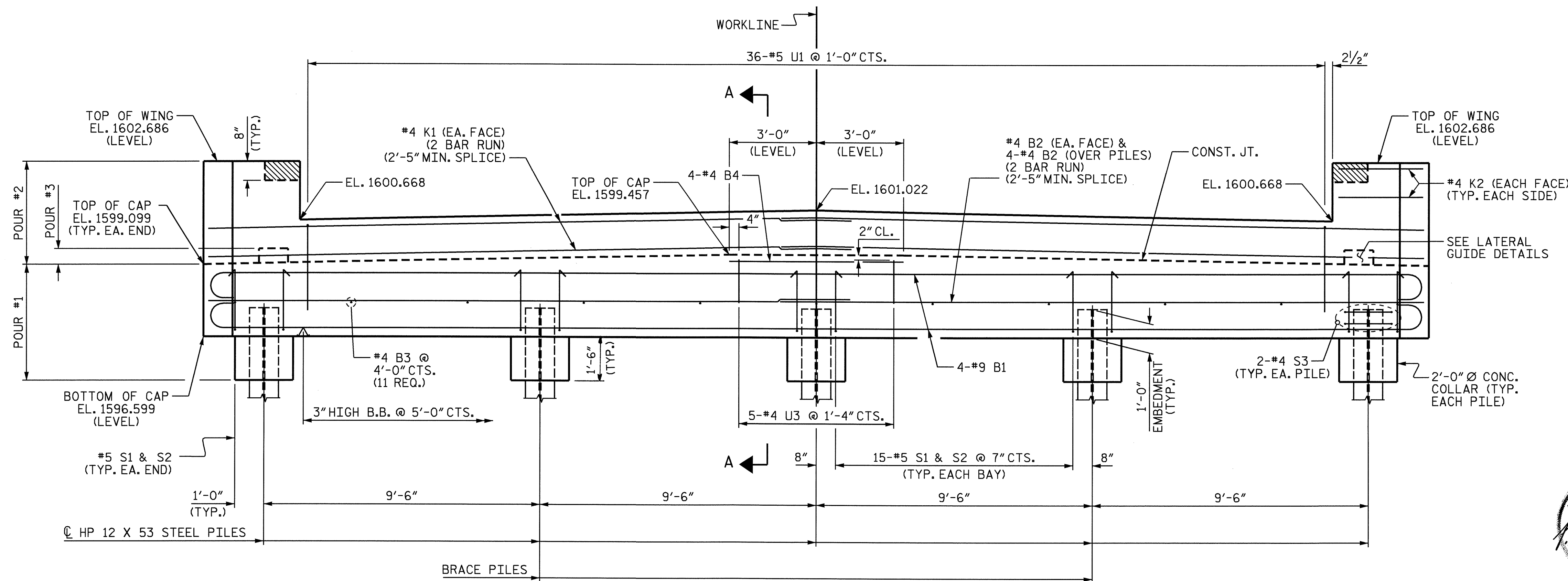
**PLAN**



**ELEVATION**

**LATERAL GUIDE DETAILS**

(EACH END SIMILAR)



**ELEVATION**

PROJECT NO. B-4072

CHEROKEE COUNTY

STATION: 15+05.00 -L-

SHEET 1 OF 2

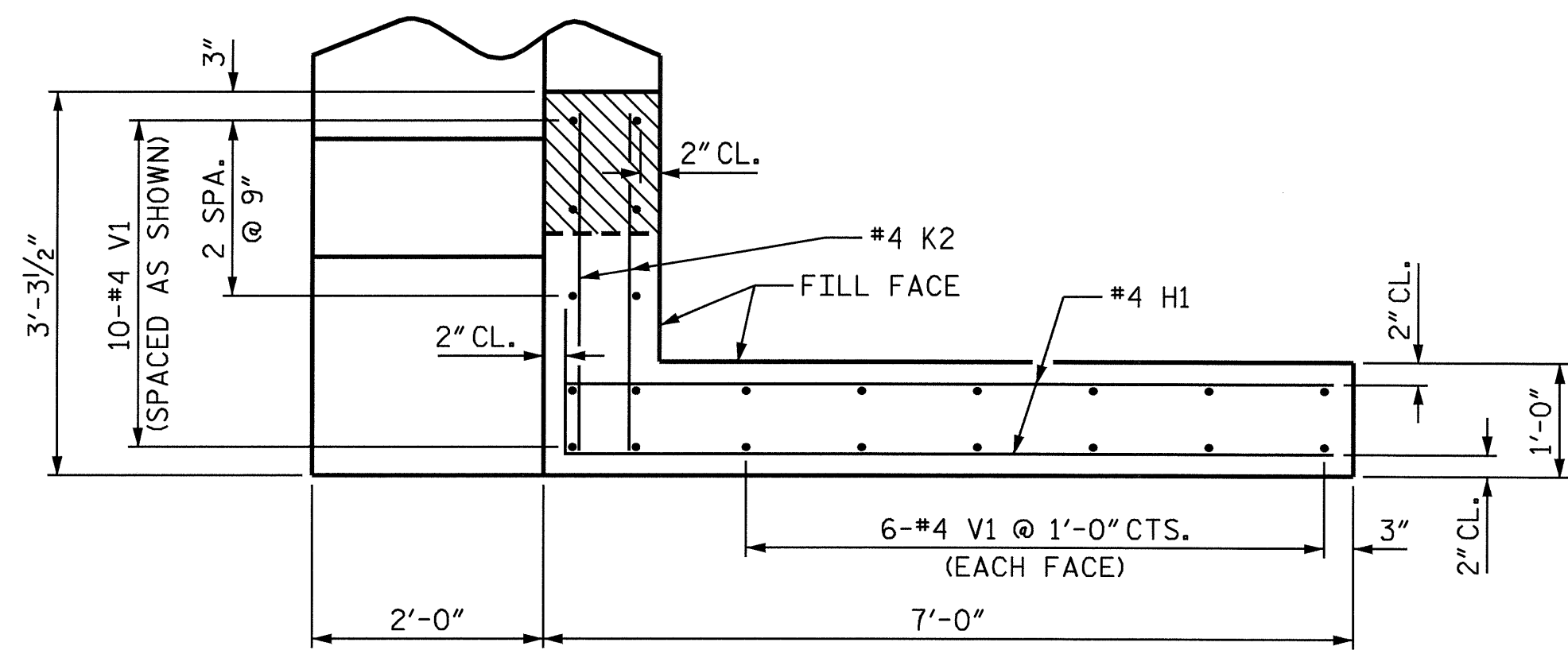


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-13
					TOTAL SHEETS 19

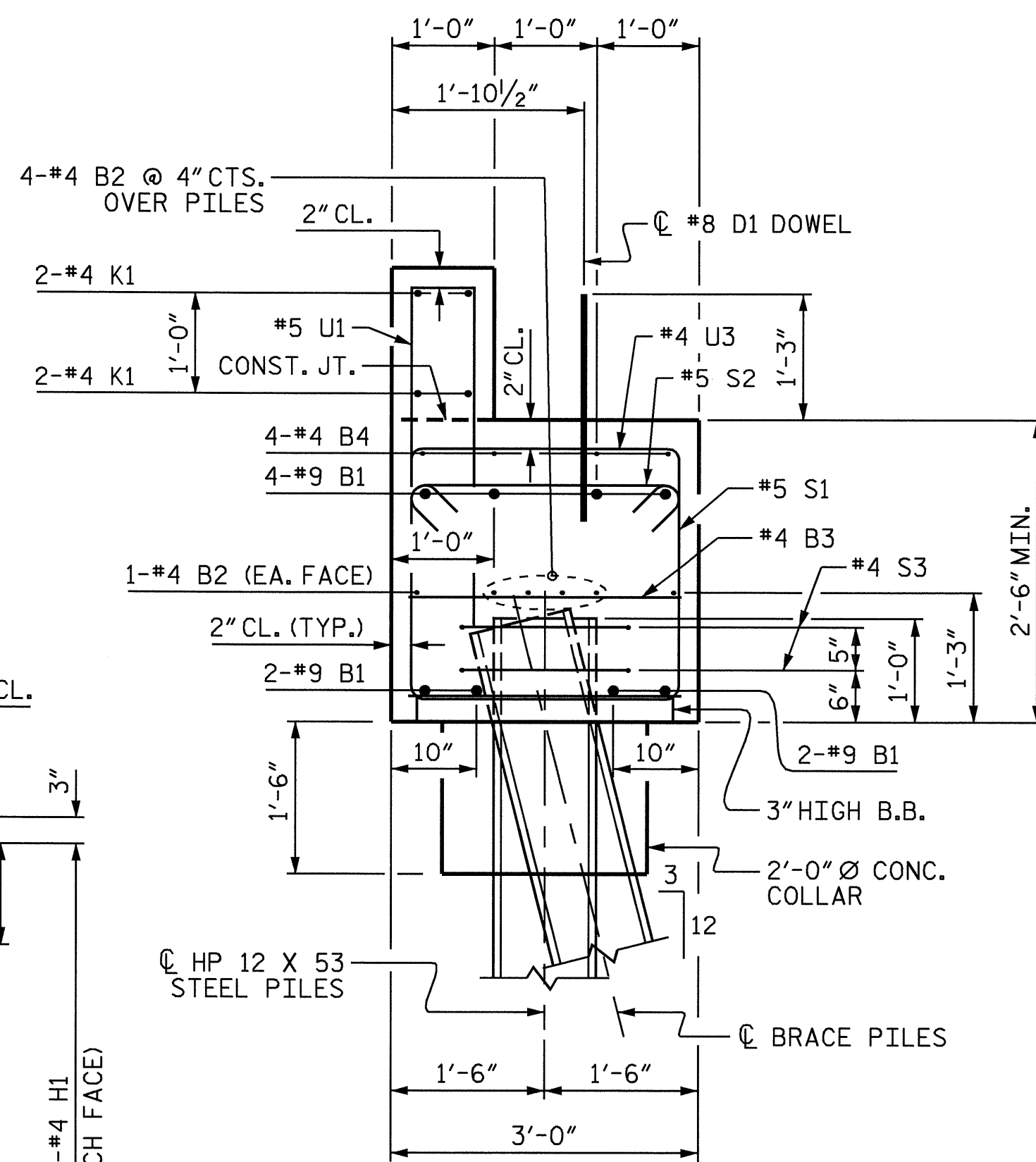
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CHECKED BY : S. F. DOMBROWSKI DATE : 2/10/09

26-OCT-2009 12:30  
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kpnewton

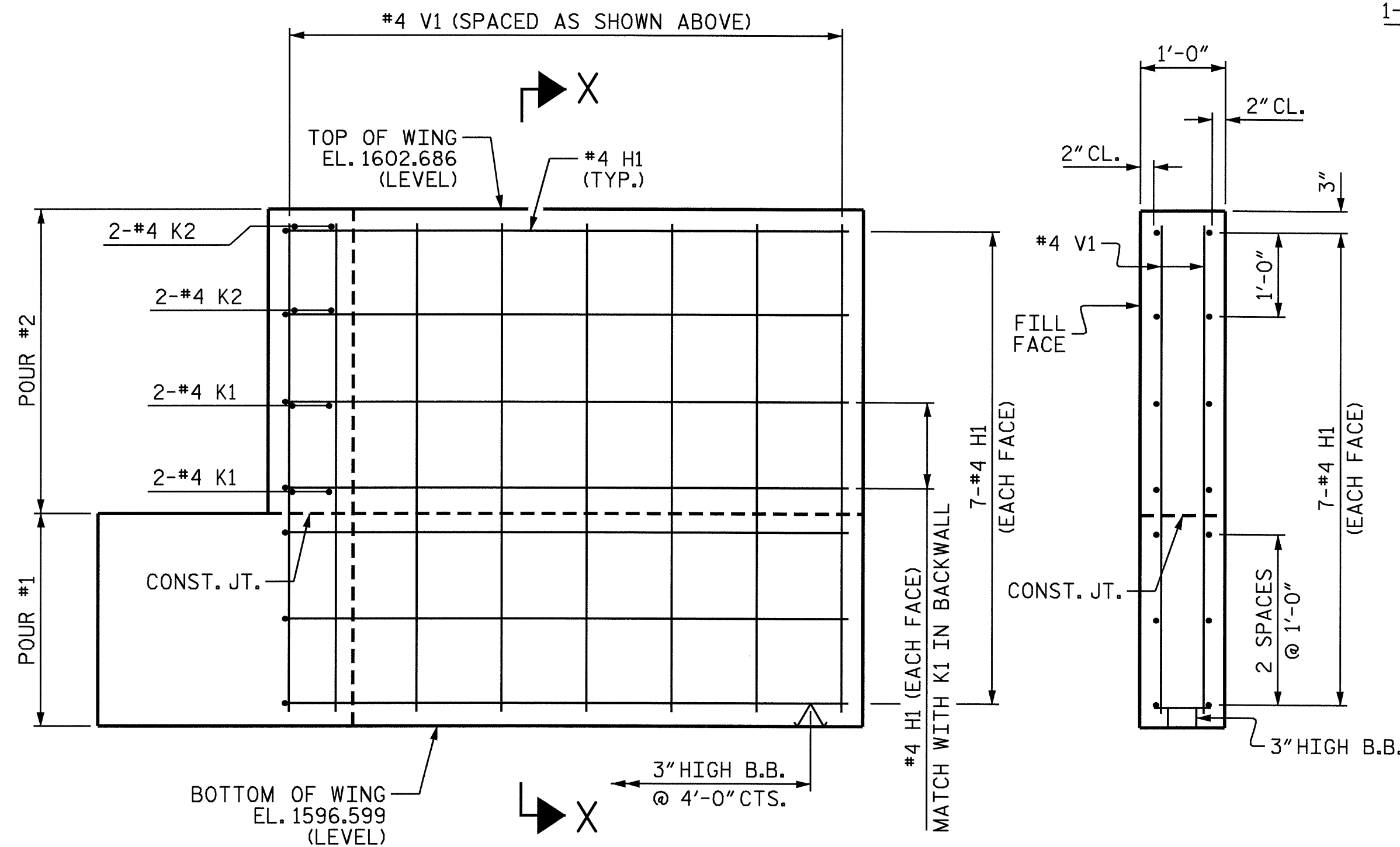
NCBDS



PLAN OF WING



SECTION A-A

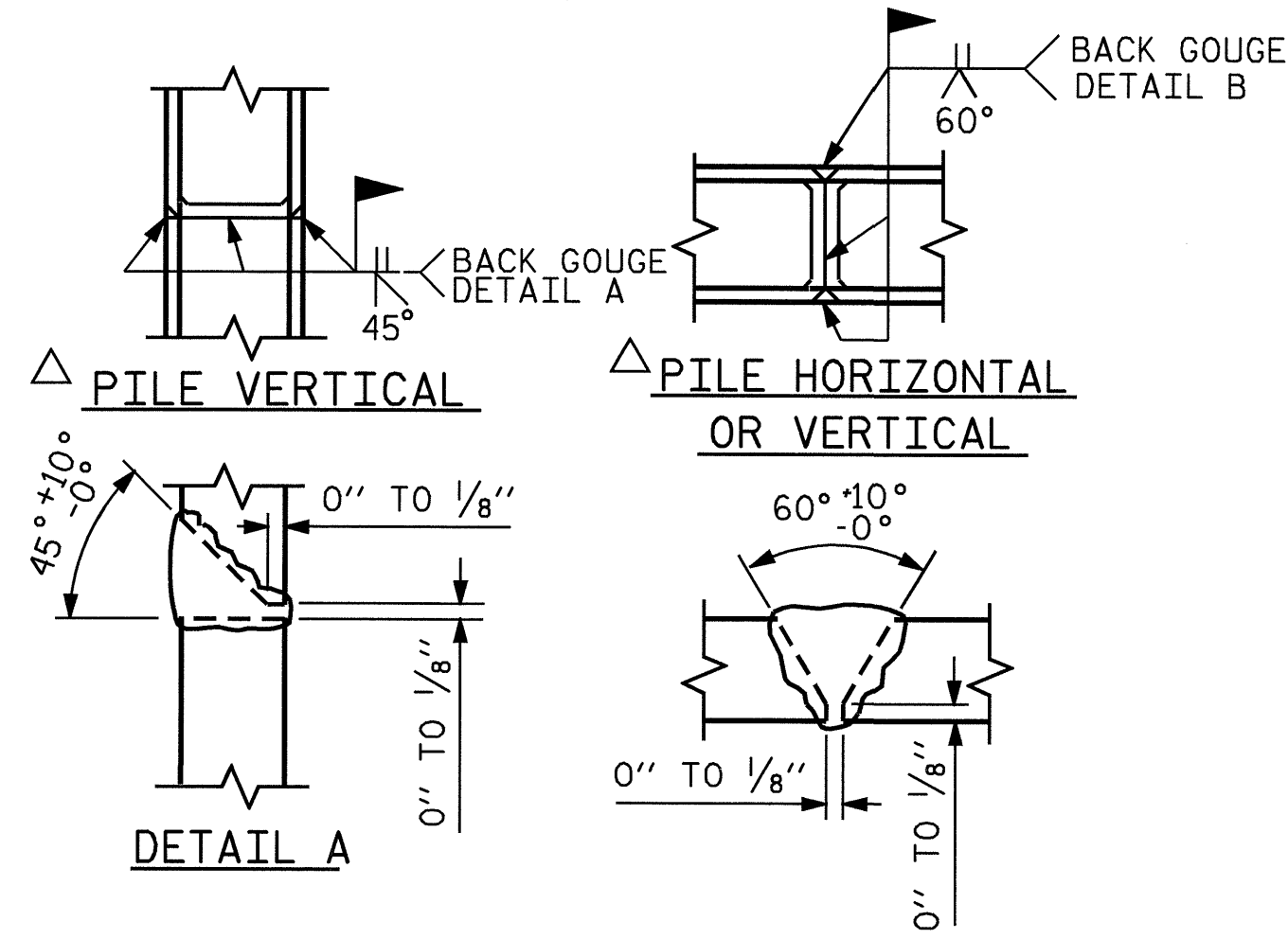


ELEVATION OF WING

SECTION X-X

WING DETAILS

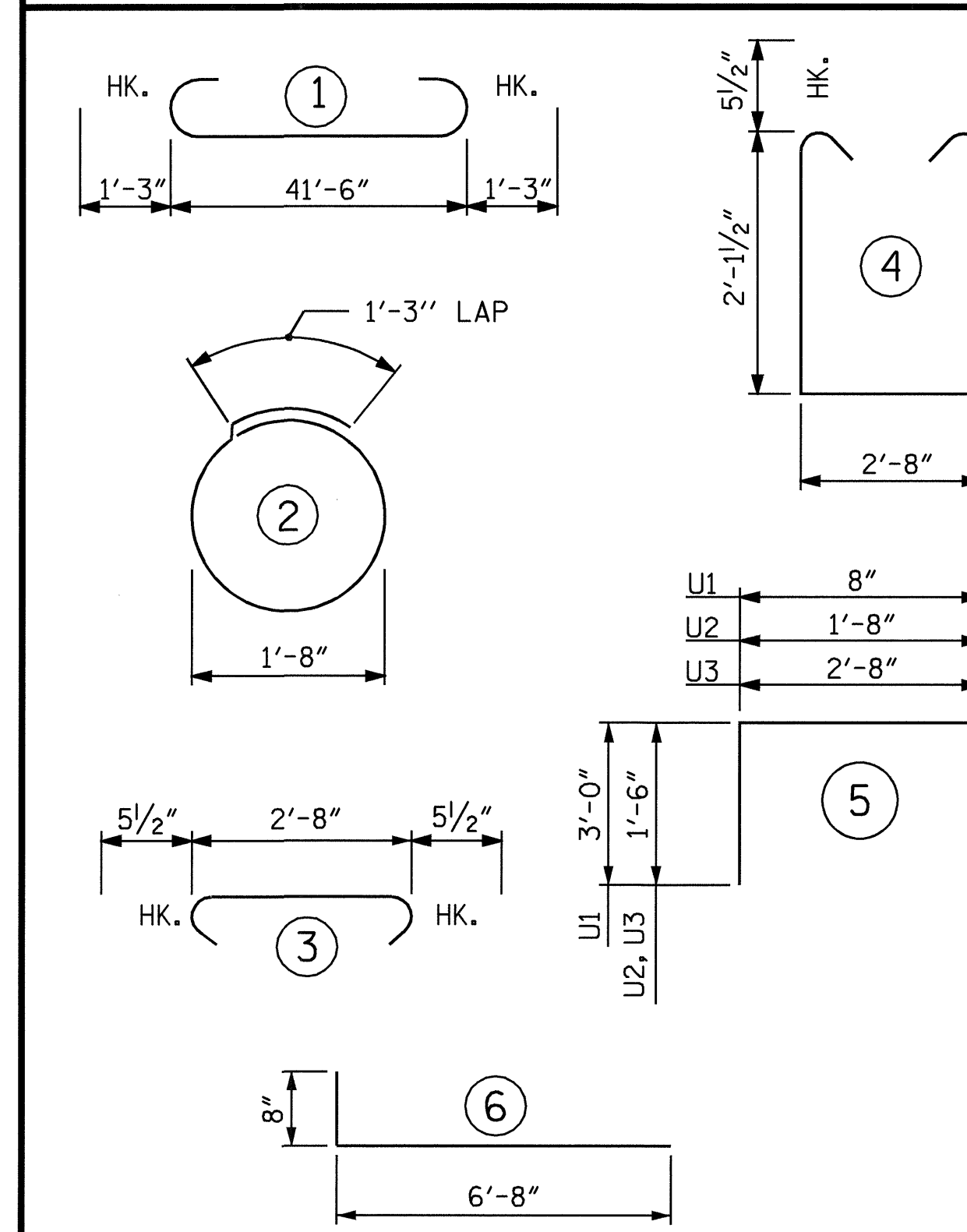
WING W1 SHOWN, W2 SIMILAR



POSITION OF PILE DURING WELDING. DETAIL B

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

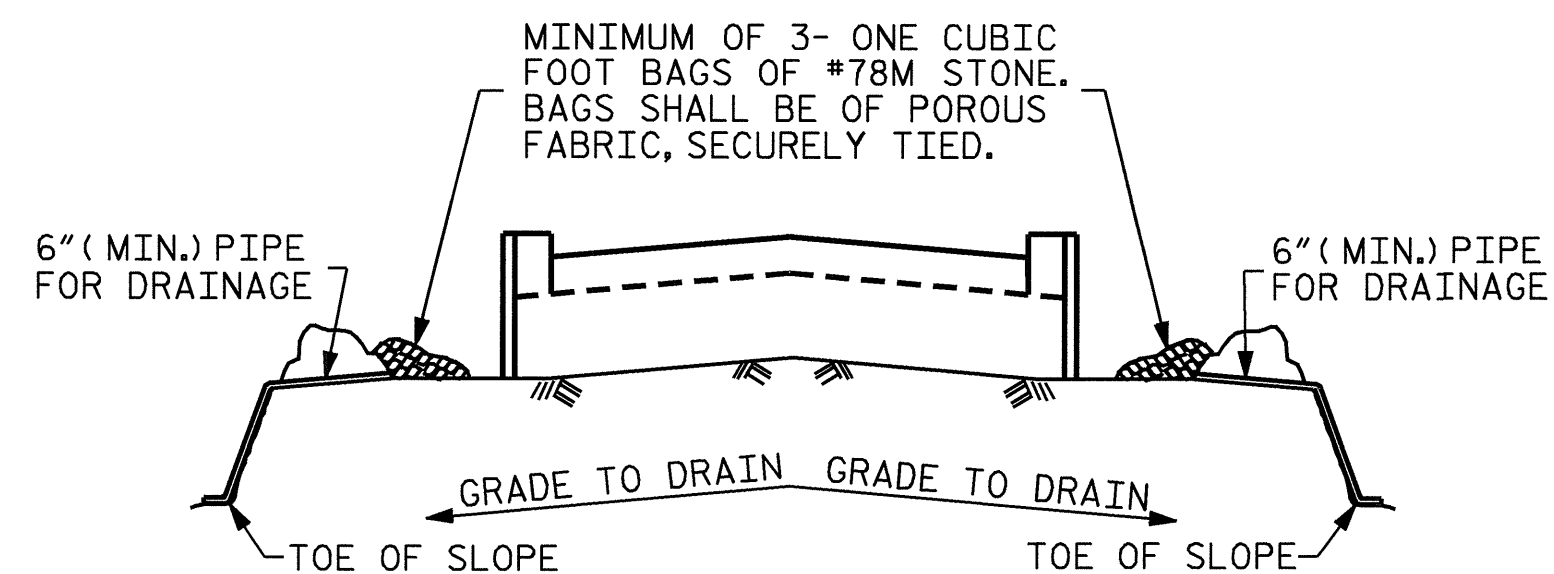
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		44'-0"	1197
B2	12	#4	STR	22'-2"	178
B3	11	#4	STR	2'-9"	20
B4	4	#4	STR	6'-0"	16
D1	24	#8	STR	2'-3"	144
H1	28	#4	6	7'-4"	137
K1	8	#4	STR	22'-2"	118
K2	8	#4	STR	2'-11"	16
S1	62	#5	4	7'-10"	507
S2	62	#5	3	3'-7"	232
S3	10	#4	2	6'-6"	43
U1	36	#5	5	6'-8"	250
U2	4	#4	5	4'-8"	12
U3	5	#4	5	5'-8"	19
V1	44	#4	STR	5'-9"	169

REINFORCING STEEL LBS. 3058

CLASS A CONC. BREAKDOWN

POUR 1 CONCRETE COLLARS, CAP & LOWER WINGS	C.Y.	14.7
POUR 2 UPPER WINGS & BACKWALL	C.Y.	4.5
POUR 3 LATERAL GUIDES	C.Y.	0.1
TOTAL	C.Y.	19.3

HP 12 X 53 STEEL PILES  
No. 5 LIN. FT. = 190



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

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

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

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-4072

CHEROKEE COUNTY

STATION: 15+05.00 -L-

SHEET 2 OF 2

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-14
TOTAL SHEETS
19



DRAWN BY: P. K. NEWTON DATE: 2/6/09  
CHECKED BY: S. F. DOMBROWSKI DATE: 2/10/09

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kpnewton

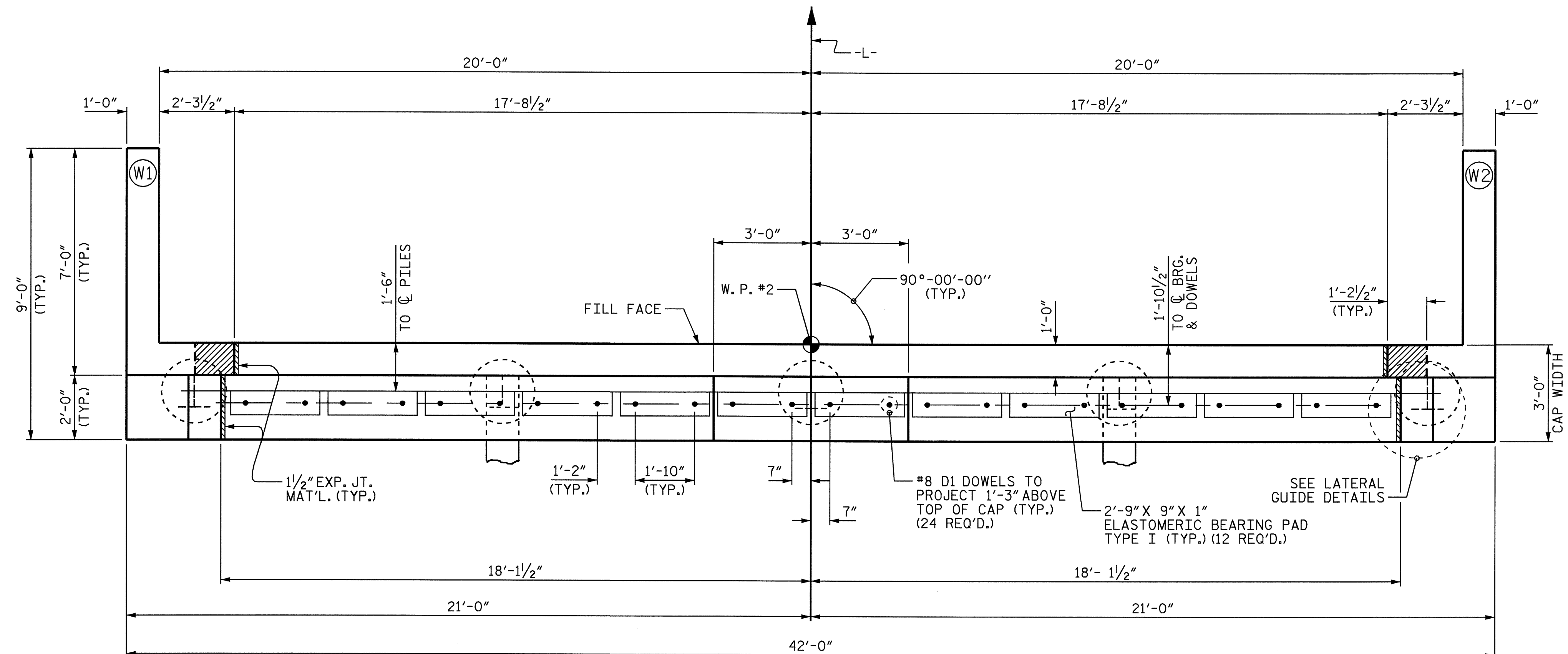
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**NOTES**

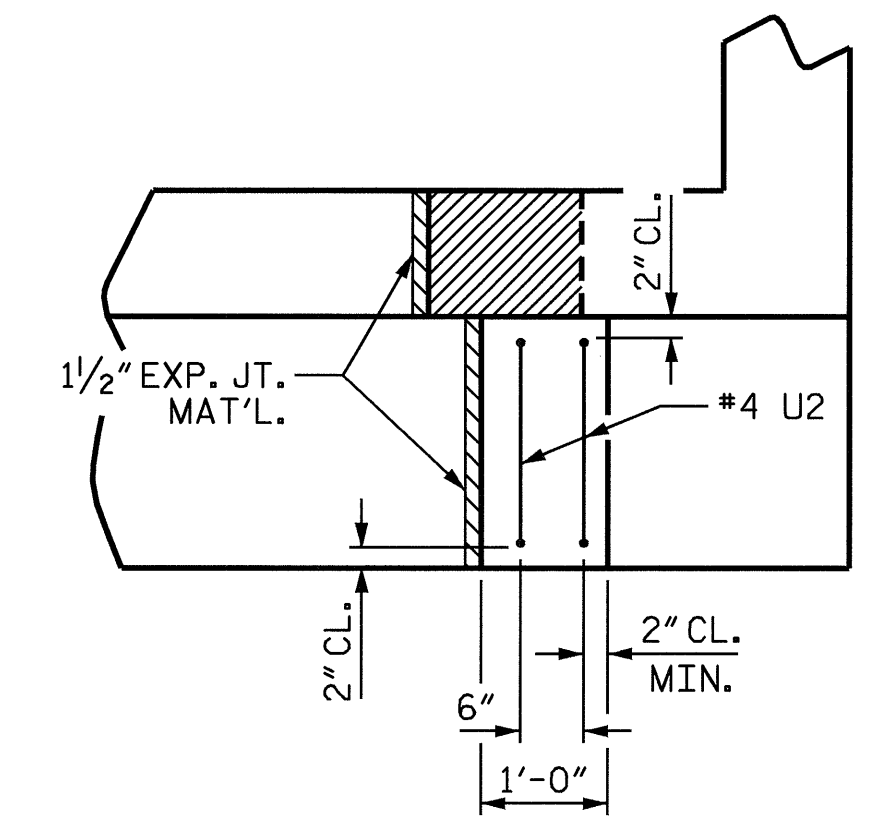
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

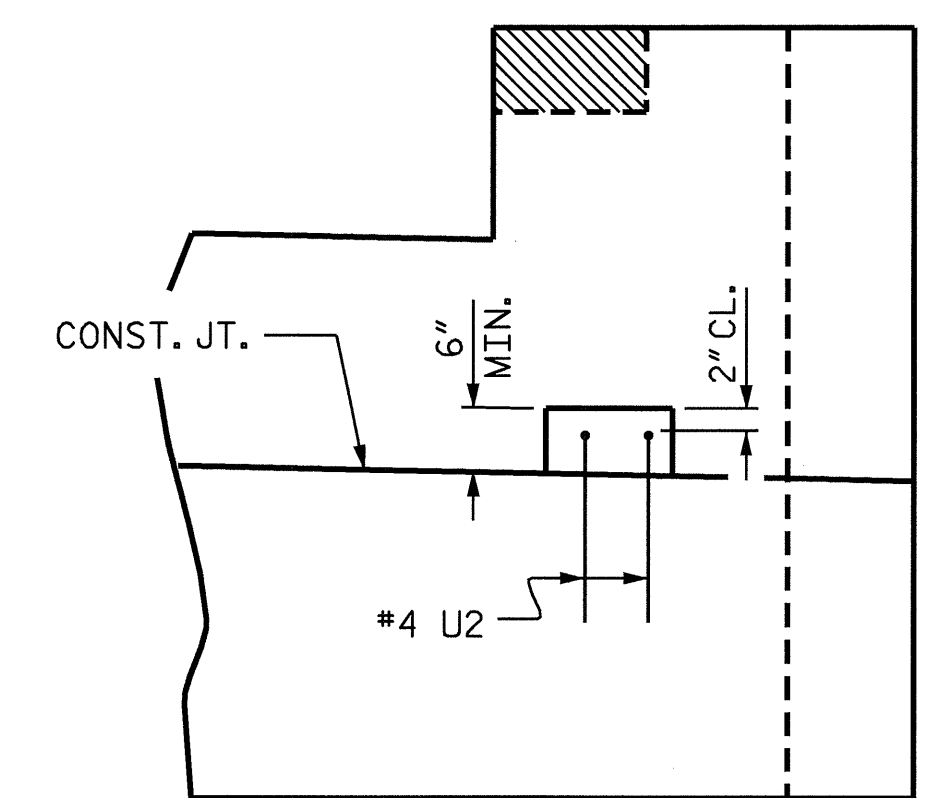
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.



**PLAN**



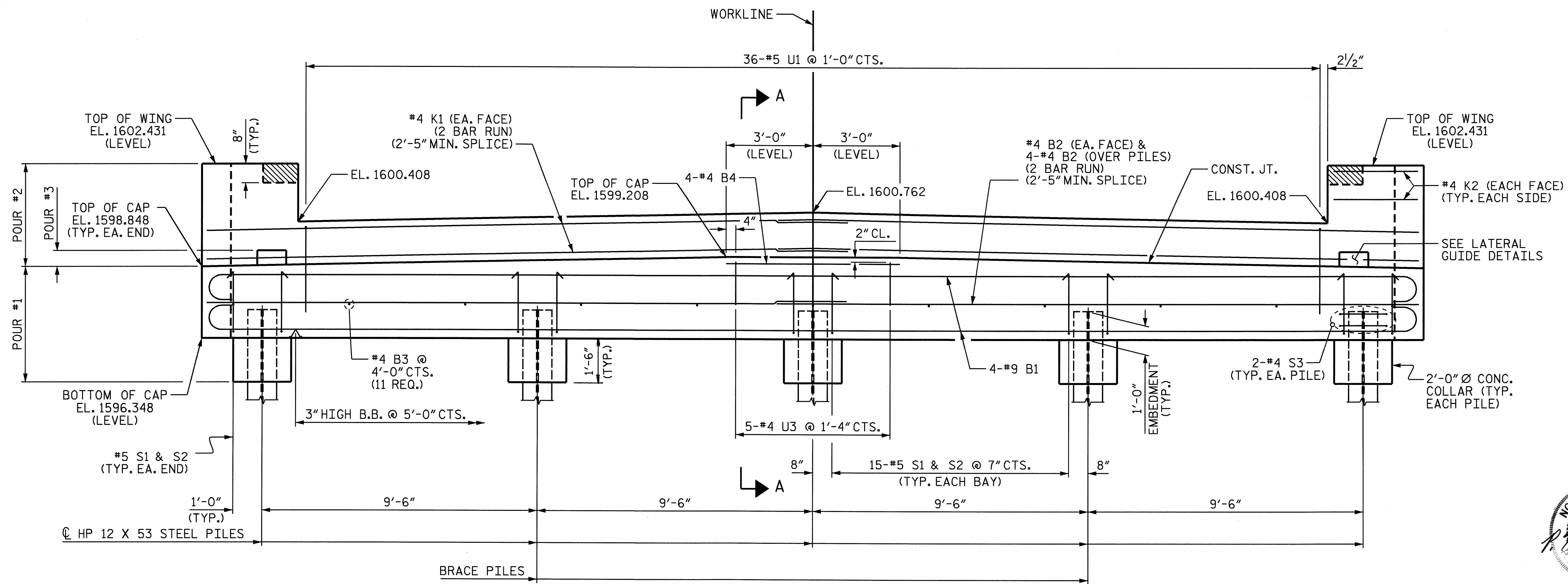
**PLAN**



**ELEVATION**

**LATERAL GUIDE DETAILS**

(EACH END SIMILAR)



**ELEVATION**

PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-  
 SHEET 1 OF 2

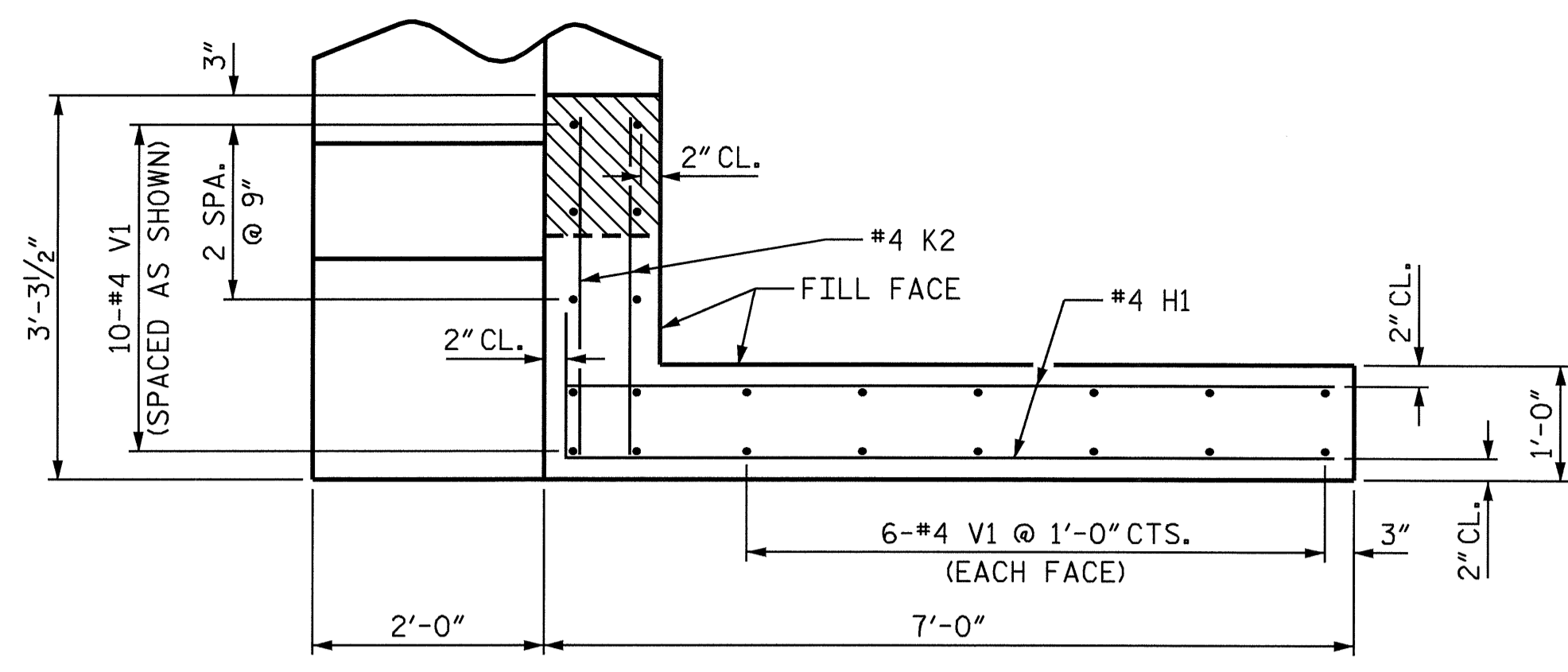


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2

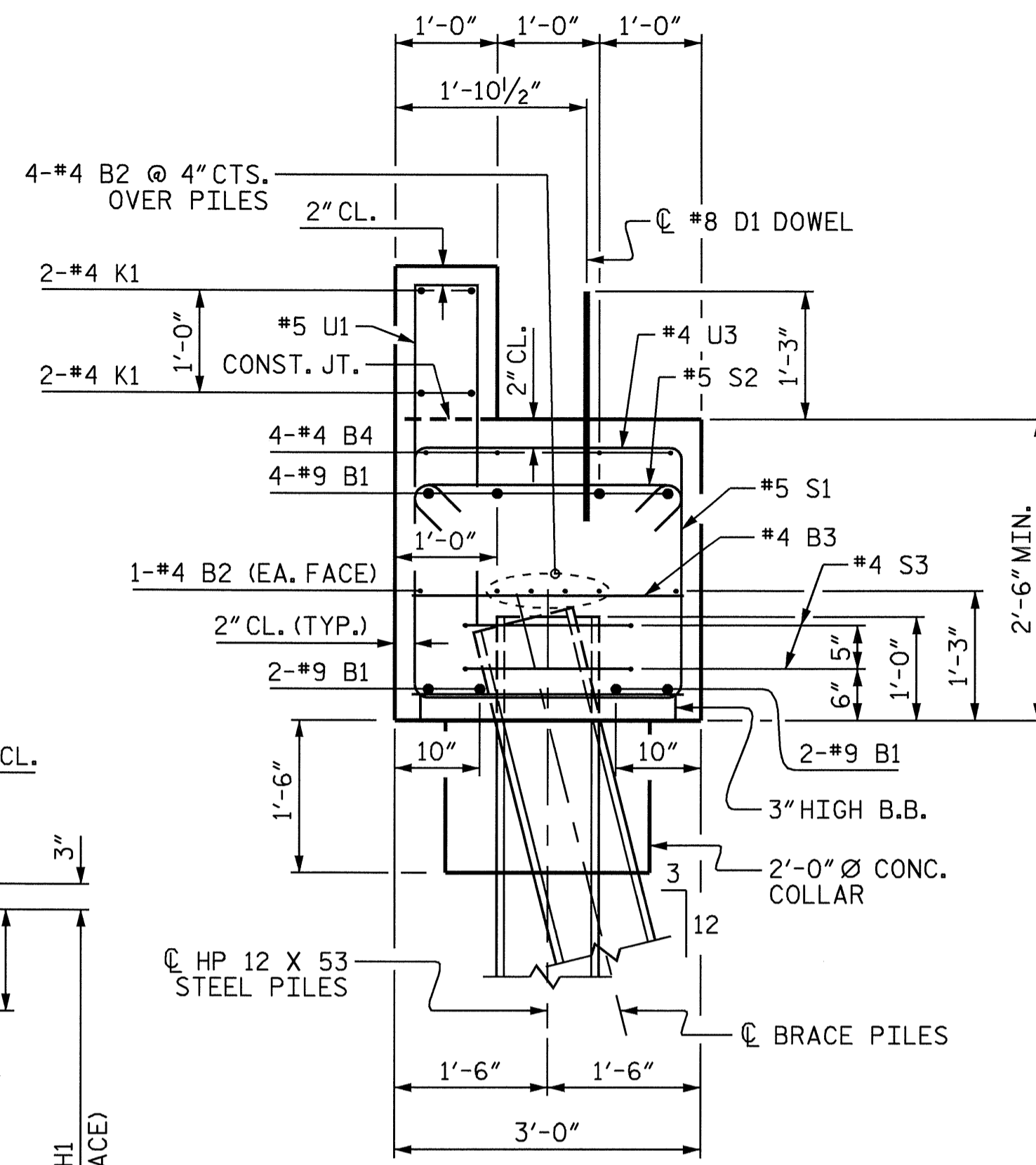
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS 19	
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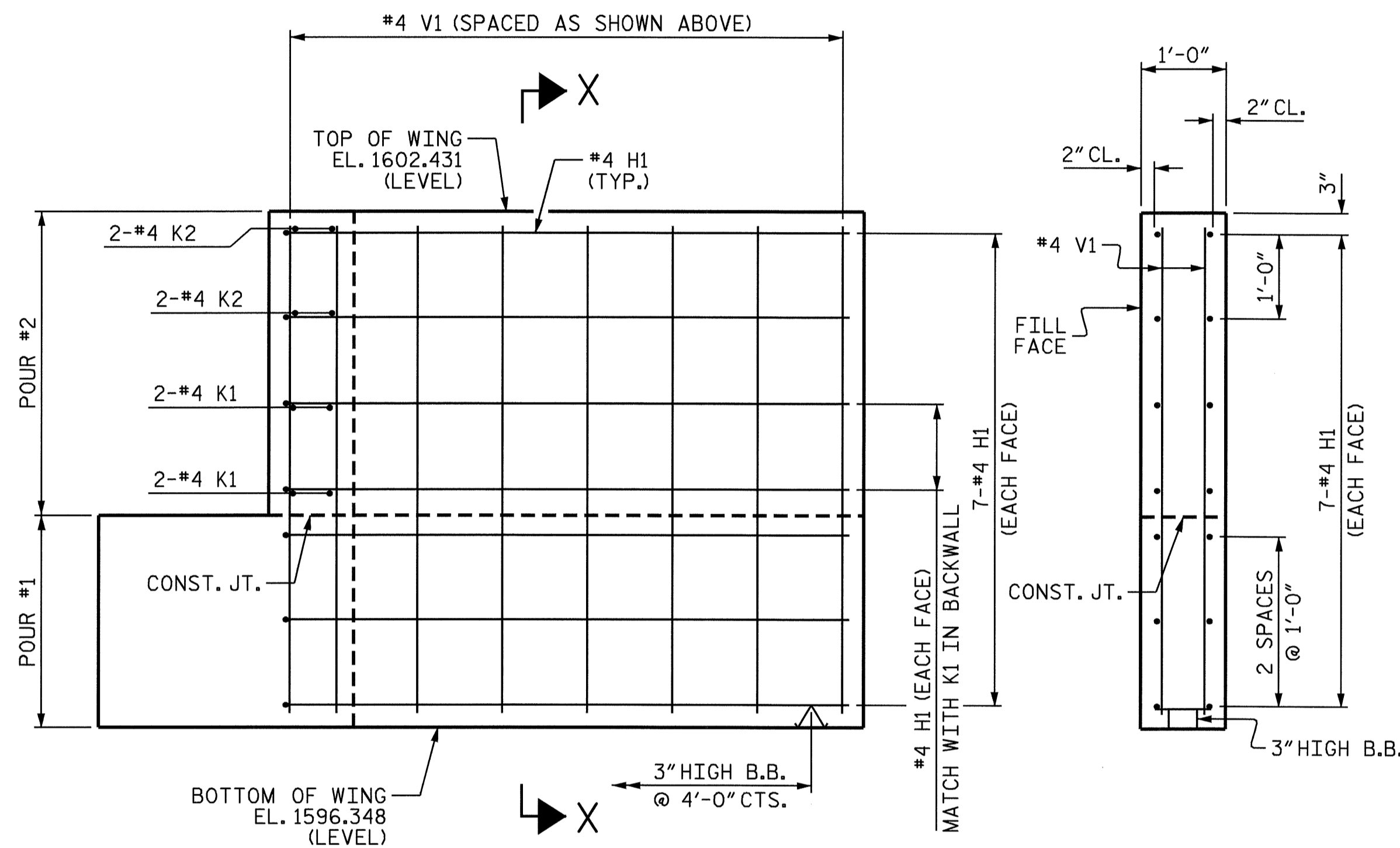




PLAN OF WING



SECTION A-A

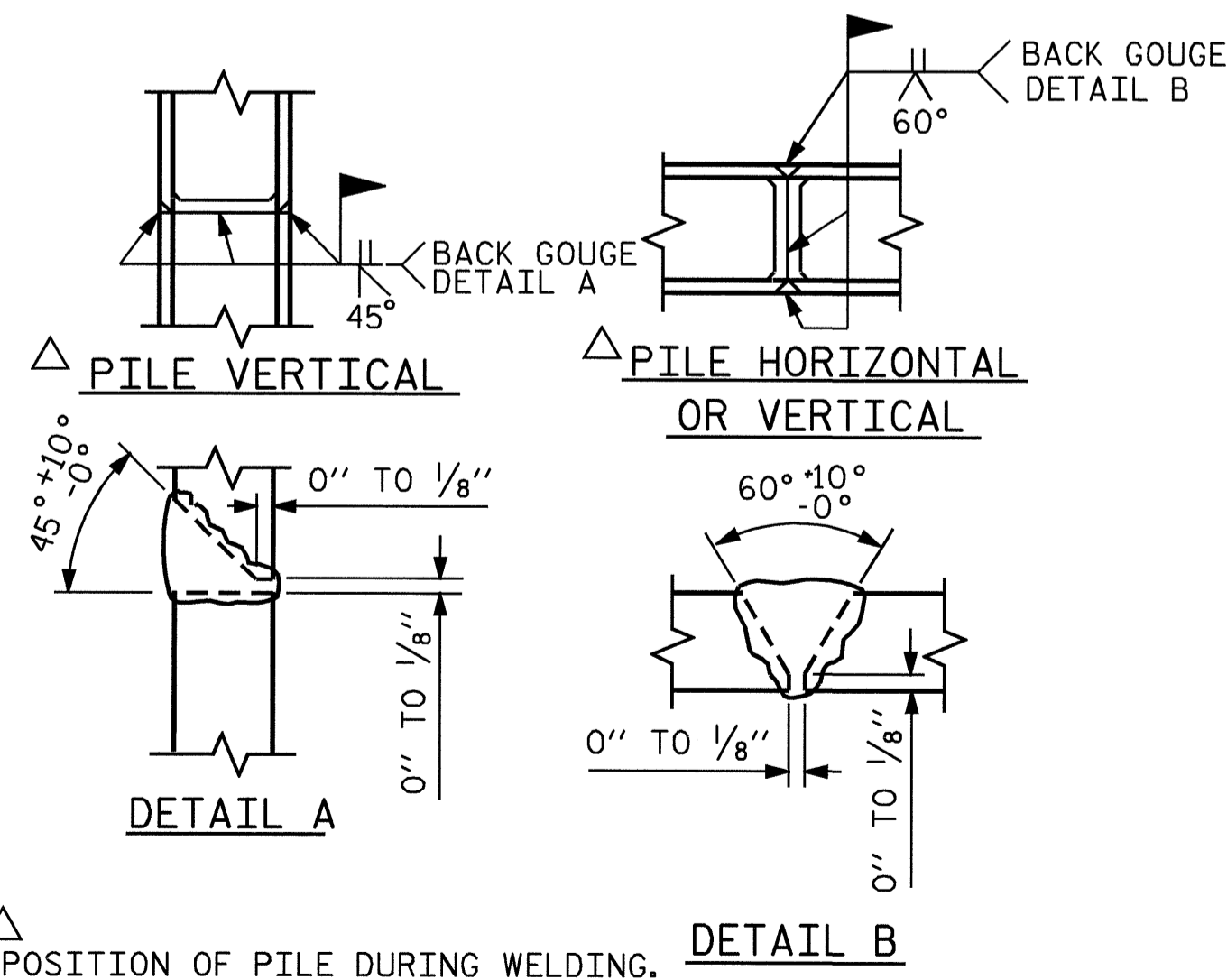


ELEVATION OF WING

SECTION X-X

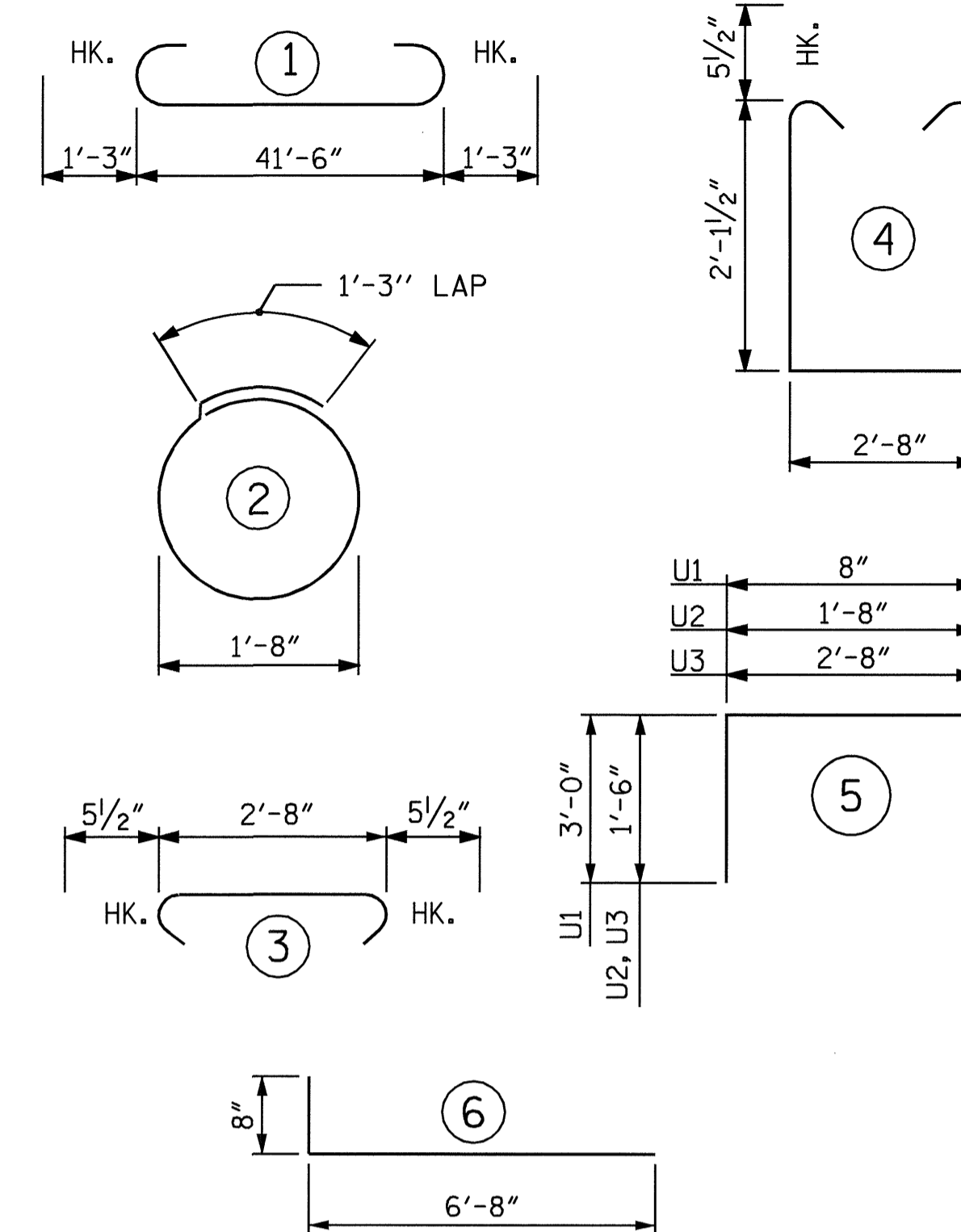
WING DETAILS

WING W2 SHOWN, W1 SIMILAR



PILE SPLICE DETAILS

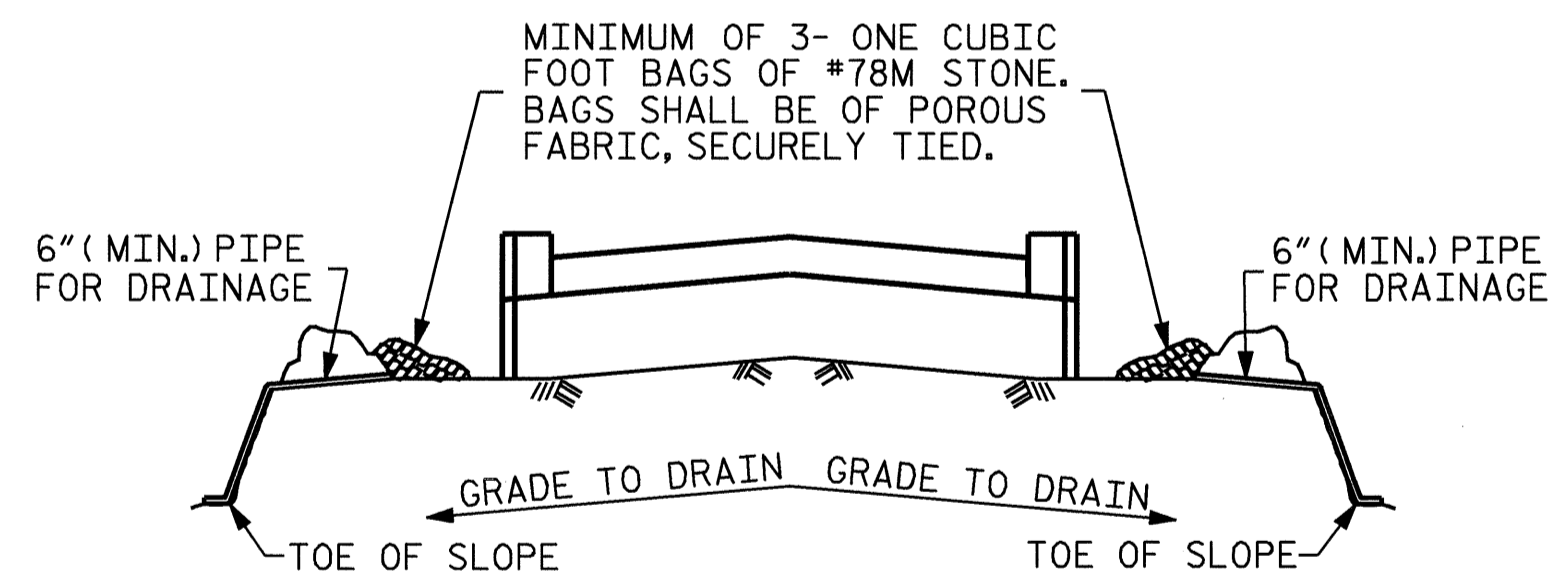
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		44'-0"	1197
B2	12	#4	STR	22'-2"	178
B3	11	#4	STR	2'-9"	20
B4	4	#4	STR	6'-0"	16
D1	24	#8	STR	2'-3"	144
H1	28	#4	6	7'-4"	137
K1	8	#4	STR	22'-2"	118
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S1	62	#5	4	7'-10"	507
S2	62	#5	3	3'-7"	232
S3	10	#4	2	6'-6"	43
U1	36	#5	5	6'-8"	250
U2	4	#4	5	4'-8"	12
U3	5	#4	5	5'-8"	19
V1	44	#4	STR	5'-9"	169
REINFORCING STEEL					LBS. 3058
CLASS A CONC. BREAKDOWN					
POUR 1 CONCRETE COLLARS, CAP & LOWER WINGS					C.Y. 14.7
POUR 2 UPPER WINGS & BACKWALL					C.Y. 4.5
POUR 3 LATERAL GUIDES					C.Y. 0.1
TOTAL					C.Y. 19.3
HP 12 X 53 STEEL PILES					Lin. FT. = 115



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

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

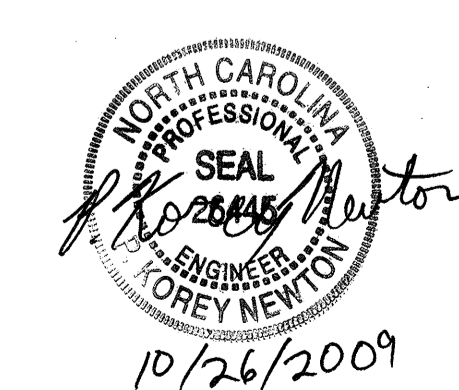
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-4072  
 CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

SHEET 2 OF 2

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



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

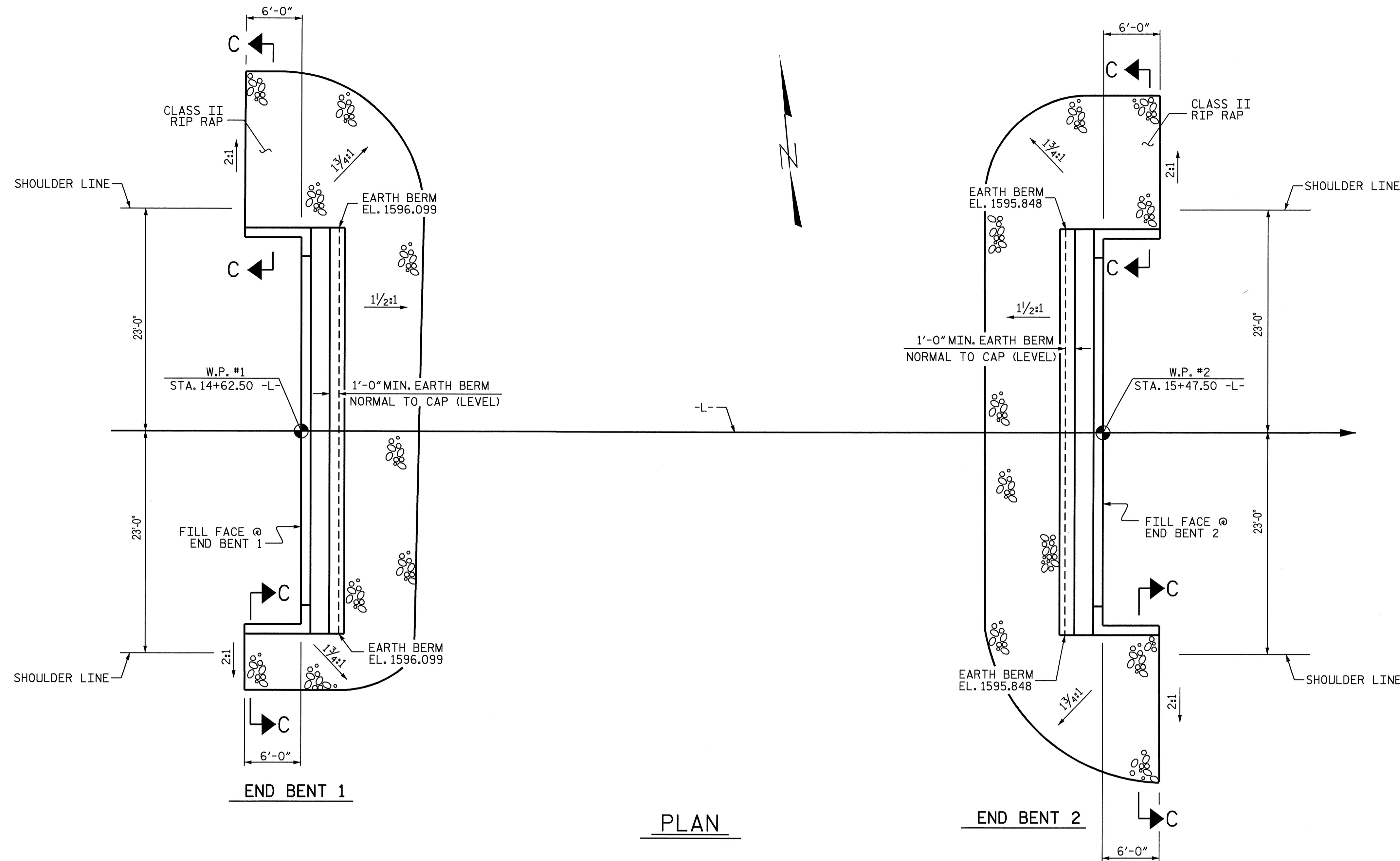
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26-OCT-2009 12:30  
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 kpnewton

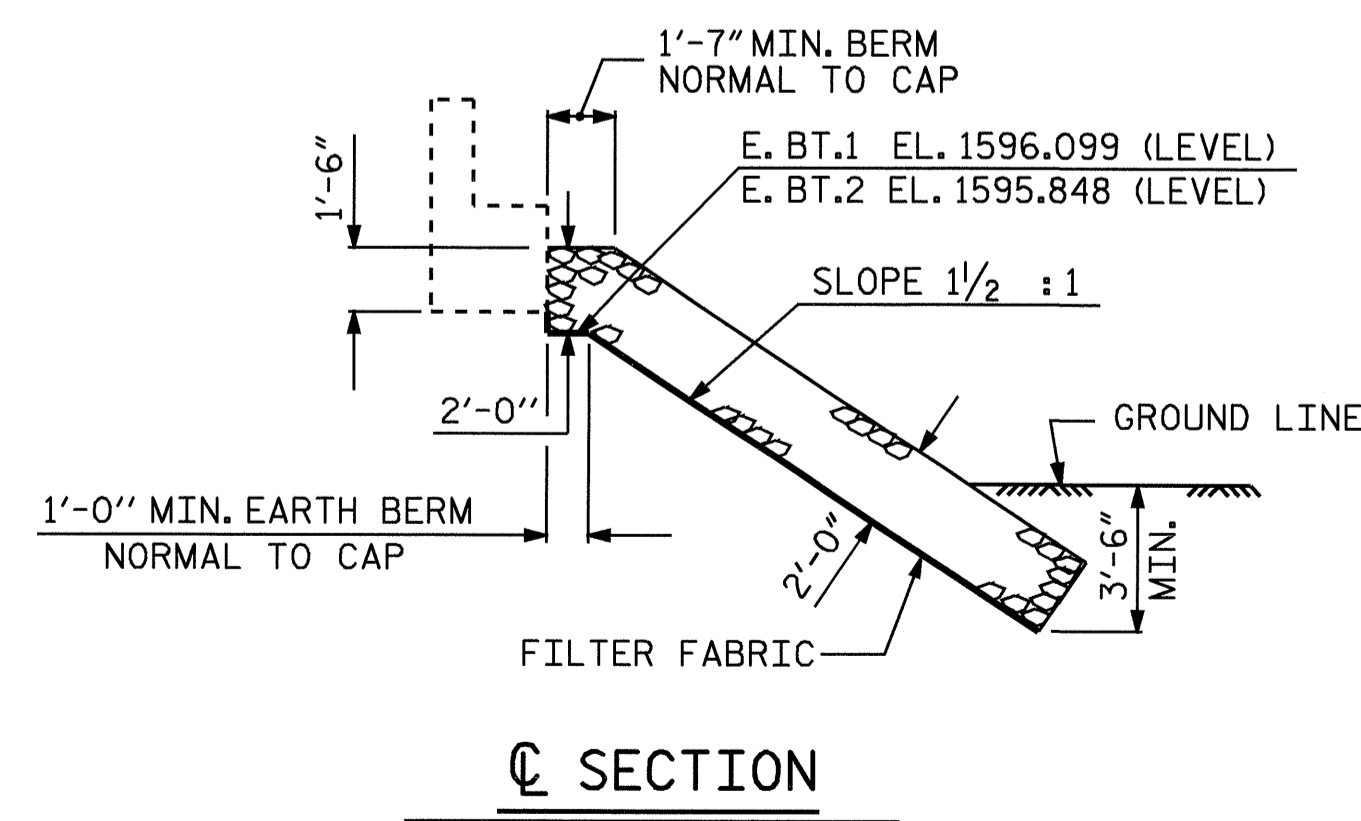
NCBDS

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+05.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	85	95
END BENT 2	90	100
TOTAL	175	195

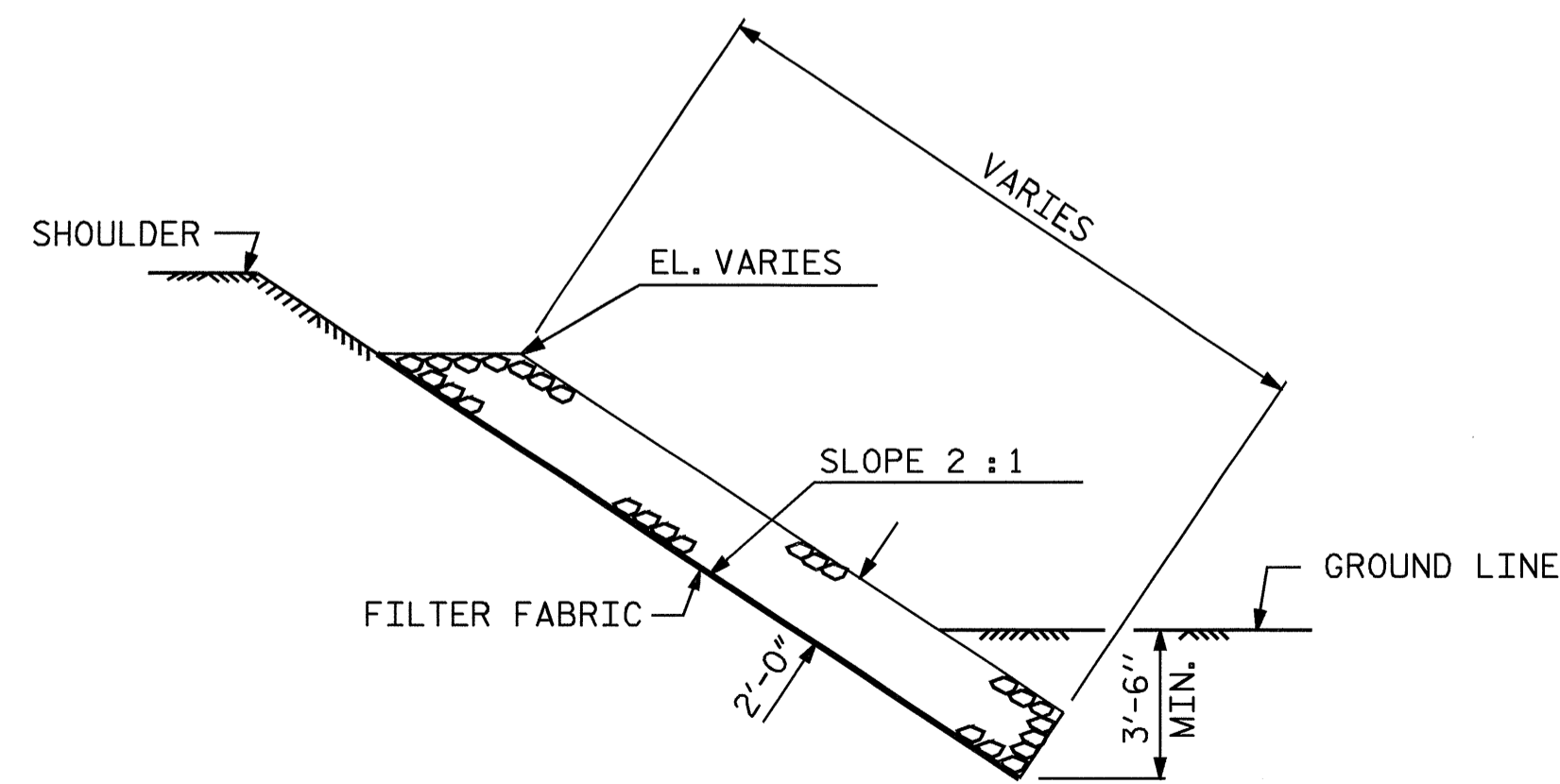
FOR RIP RAP CLASS II, SEE SPECIAL PROVISIONS.



PLAN



SECTION C-C

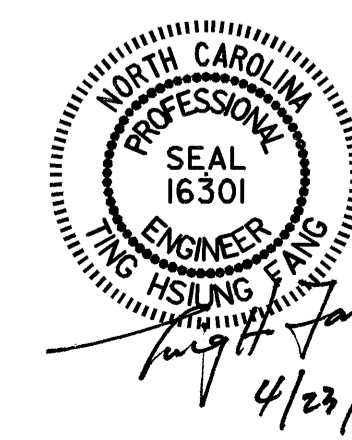


SECTION C-C

BERM RIP RAPPED

PROJECT NO. B-4072  
 CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

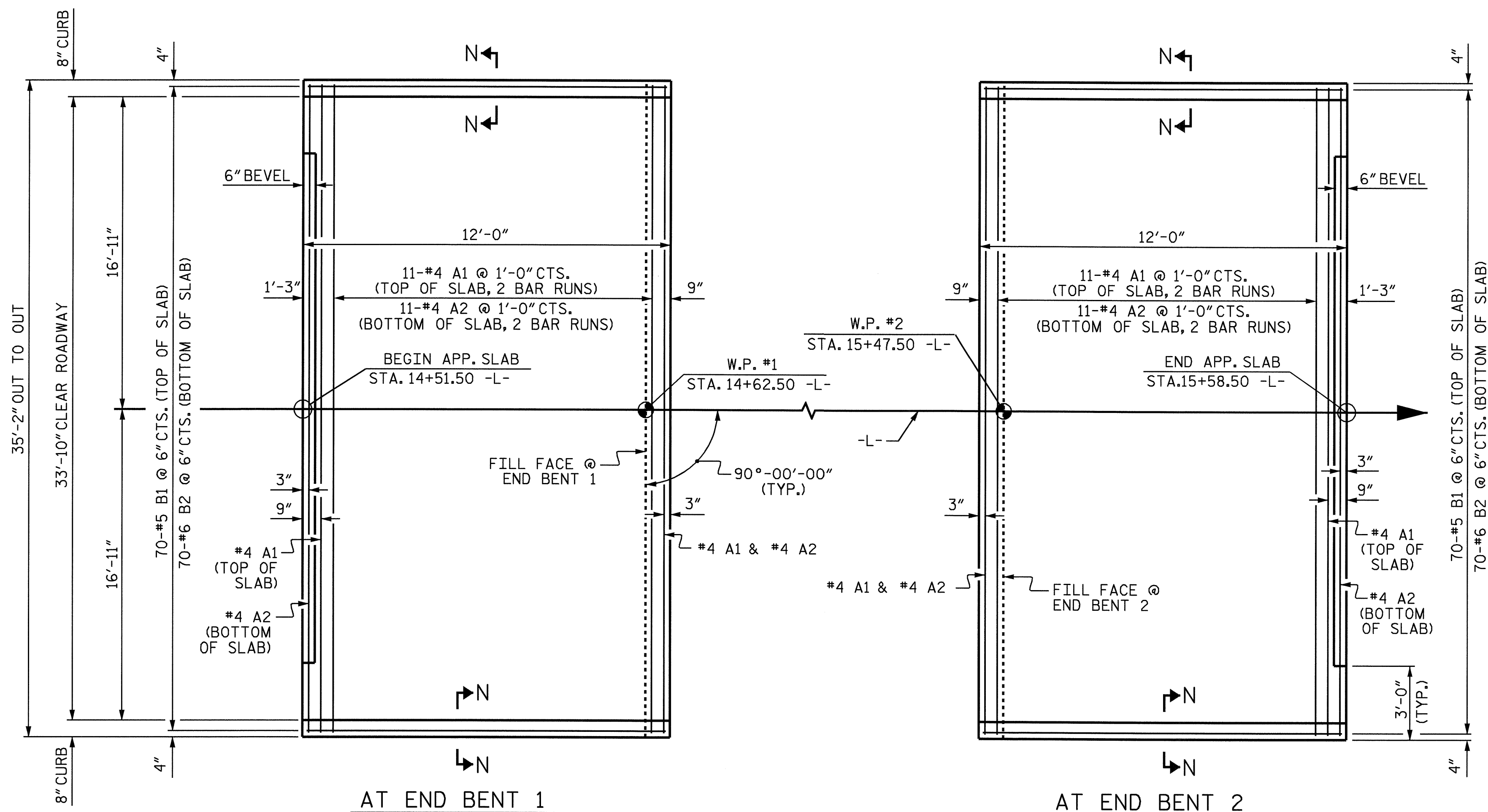
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		



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 scdombrowski

DRAWN BY: J. E. JONES DATE: 02/09  
 CHECKED BY: T. H. FANG DATE: 03/09

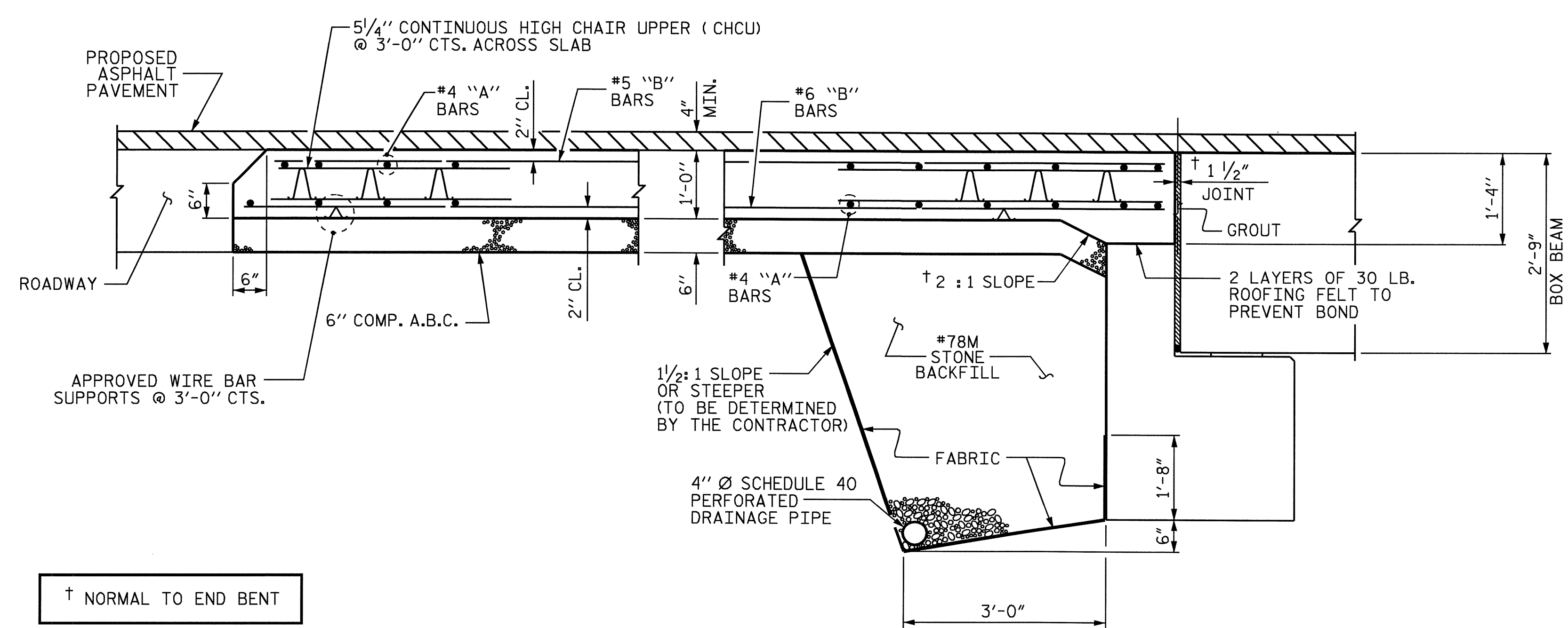
SHEET NO.  
 S-17  
 TOTAL SHEETS  
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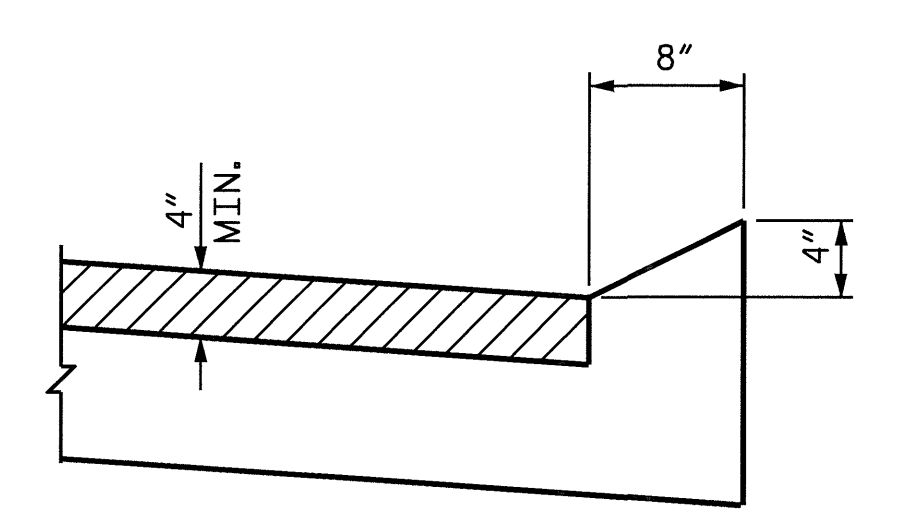
AT END BENT 1 AT END BENT 2

**PLAN**

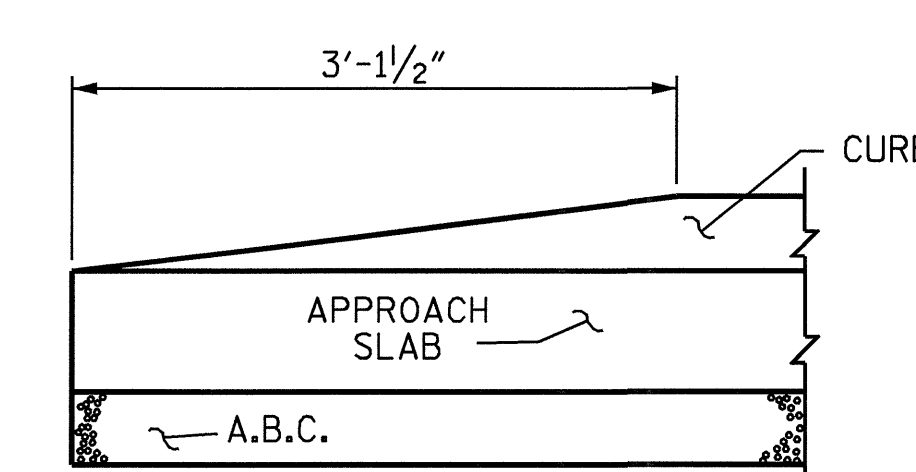
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



**SECTION THRU SLAB**



**SECTION N-N**



**CURB DETAILS**

**NOTES**

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

APPROACH SLABS SHALL NOT BE CONSTRUCTED UNTIL AFTER BOX BEAM UNITS ARE IN PLACE.

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 BOX BEAM 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.

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

**BILL OF MATERIAL**

FOR ONE APPROACH SLAB (2 REQUIRED)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	18'-6"	321
A2	26	#4	STR	18'-4"	318
* B1	70	#5	STR	11'-2"	815
B2	70	#6	STR	11'-8"	1227
REINFORCING STEEL				LBS.	1545
* EPOXY COATED REINFORCING STEEL				LBS.	1136
CLASS AA CONCRETE				C. Y.	16.4

**SPLICE CHART**

BAR	SIZE	SPLICE
A1	#4	2'-0"
A2	#4	1'-9"



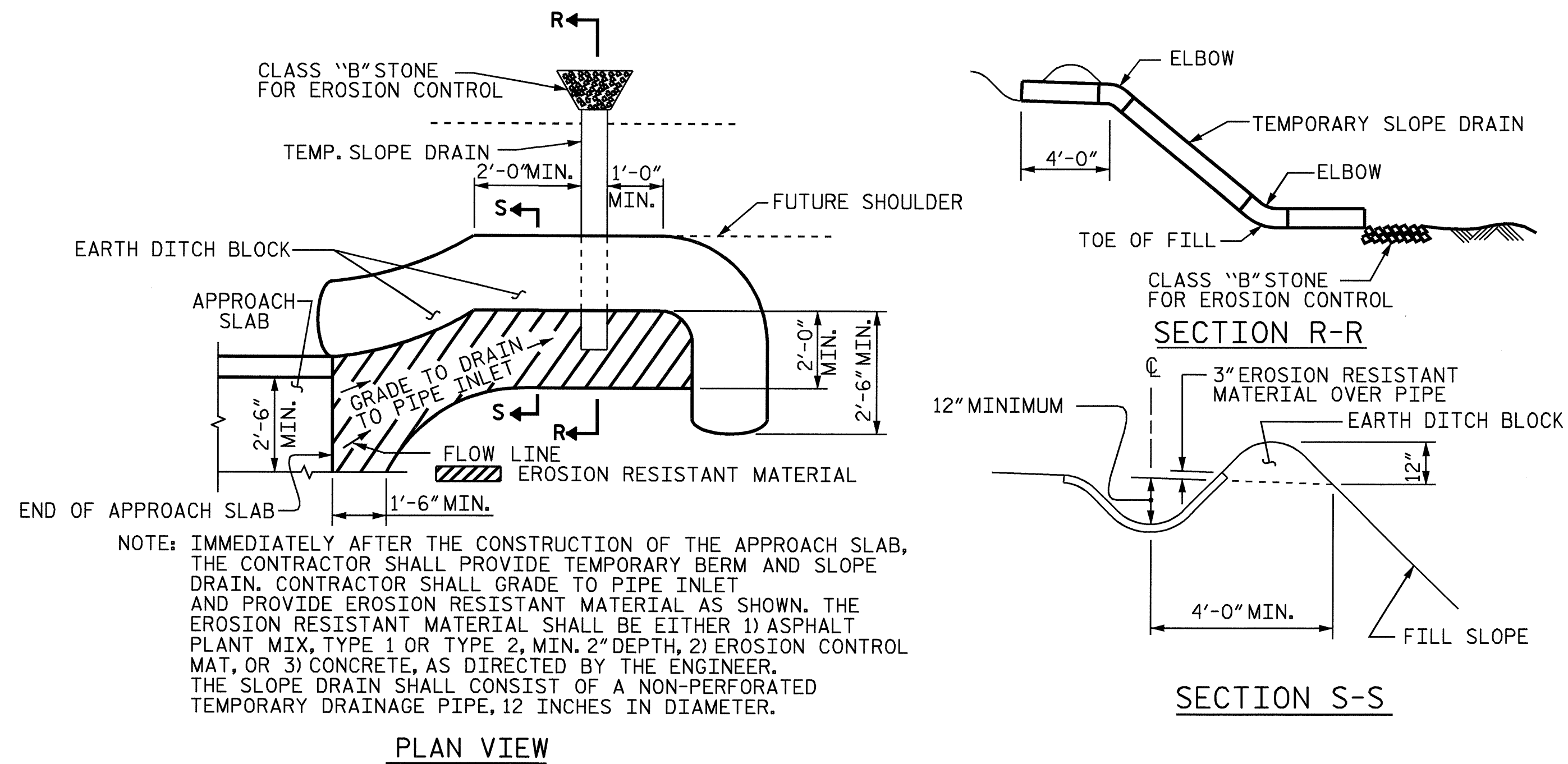
PROJECT NO. B-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-  
 SHEET 1 OF 2

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

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

TOTAL SHEETS: 19

ASSEMBLED BY: P. K. NEWTON DATE: 11/5/08  
 CHECKED BY: S. F. DOMBROWSKI DATE: 11/12/08  
 DRAWN BY: KMM 3-08  
 CHECKED BY: GM 3-08

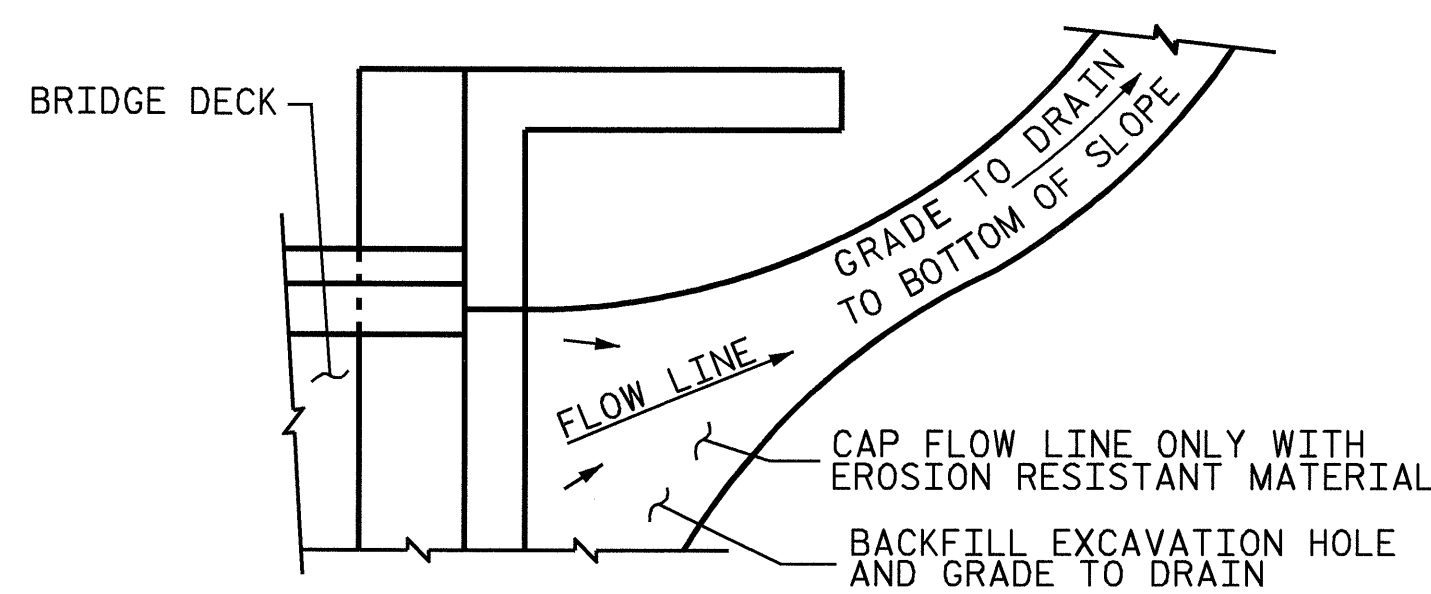


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



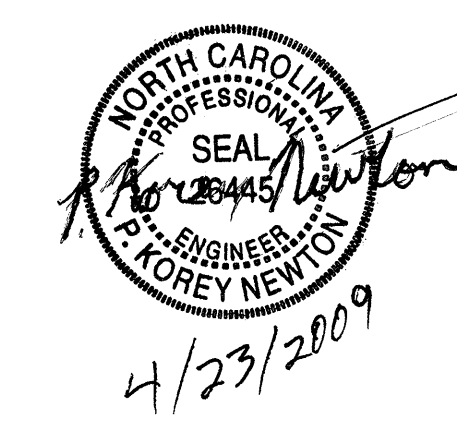
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4072  
CHEROKEE COUNTY  
 STATION: 15+05.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA						SHEET NO. S-19
DEPARTMENT OF TRANSPORTATION RALEIGH						
STANDARD						
BRIDGE APPROACH SLAB DETAILS						
REVISIONS						TOTAL SHEETS 19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY : P. K. NEWTON	DATE : 11/5/08
CHECKED BY : S. F. DOMBROWSKI	DATE : 11/12/08
DRAWN BY : FCJ	11/88
CHECKED BY : ARB	11/88
REV. 10/17/00	RWW/LES
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	-----	375 LBS. PER SQ. IN.
OF TIMBER	-----	
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. 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