

09/08/09

TIP PROJECT: B-3924

CONTRACT: C202650

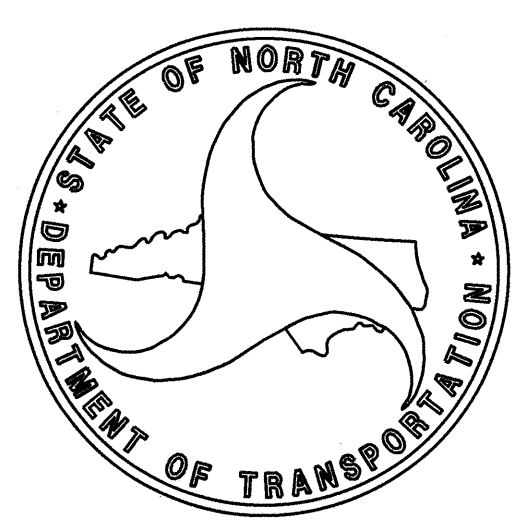
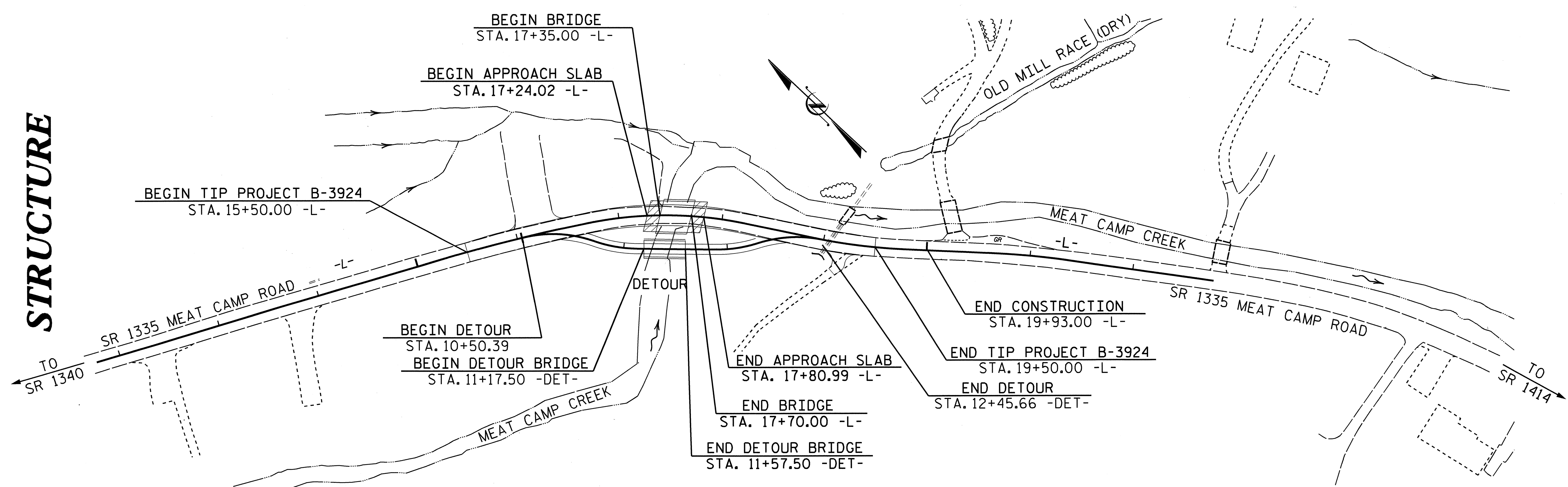
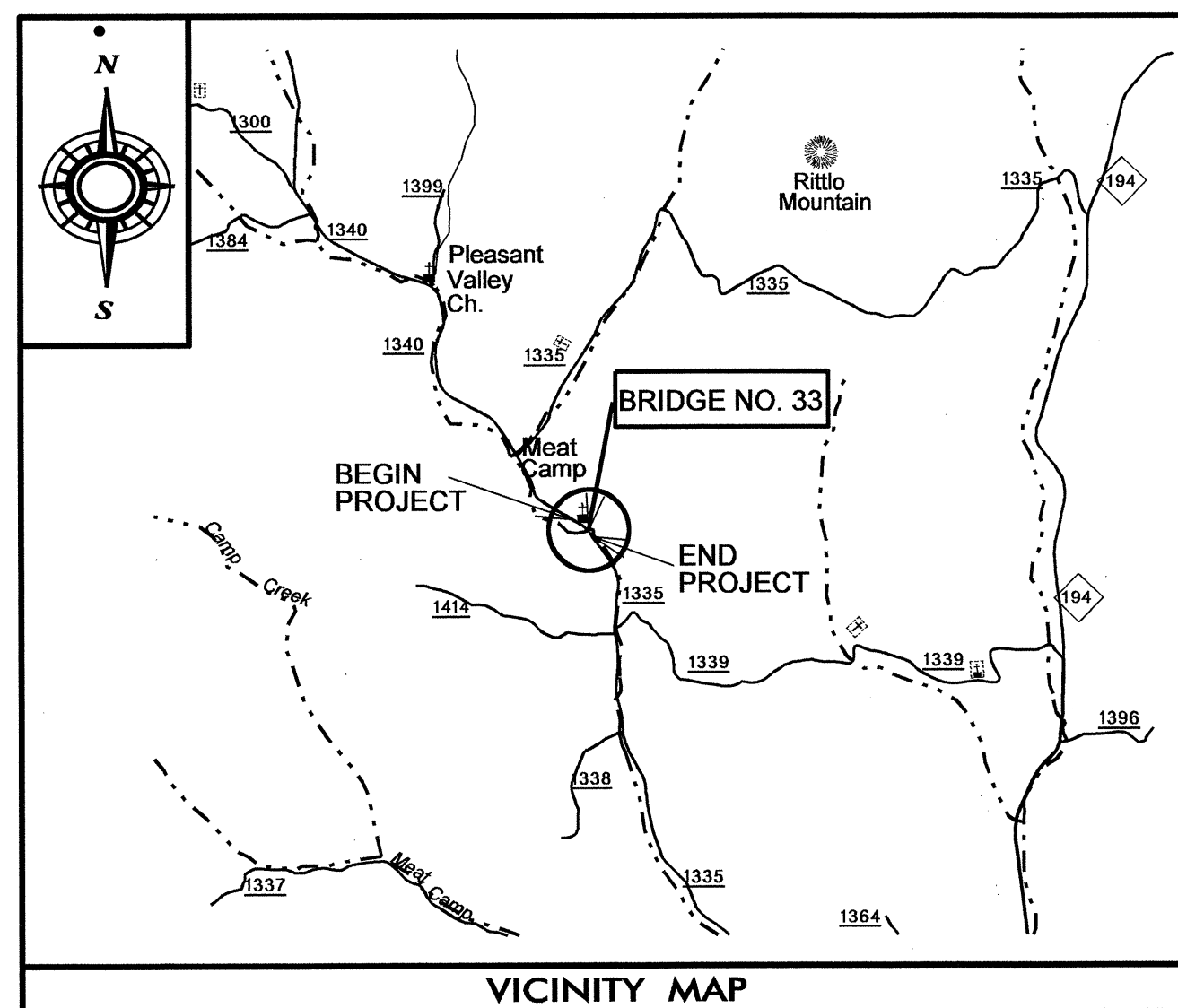
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**WATAUGA COUNTY**

LOCATION: BRIDGE NO. 33 OVER MEAT CAMP CREEK  
ON SR 1335 (MEAT CAMP ROAD)

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3924		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
36271.1.1	BRZ-1335(2)	PE	
36271.2.1	BRZ-1335(2)	RW, UTIL.	
36271.3.1	BRZ-1335(2)	CONST.	



**DESIGN DATA**

ADT 2012	=	1880
ADT 2032	=	2680
DHV	=	12 %
D	=	60 %
T	=	3 % *
V	=	40 MPH
* TTST 1 % DUAL 2%		
FUNC. CLASS	=	RURAL LOCAL SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-3924	=	0.069 mi.
LENGTH OF STRUCTURE TIP PROJECT B-3924	=	0.007 mi.
TOTAL LENGTH OF TIP PROJECT B-3924	=	0.076 mi.

PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr. Raleigh, NC 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE:  
FEBRUARY 21, 2012

J. M. BAILEY, PE  
PROJECT ENGINEER

D. A. DAVENPORT, JR., PE  
PROJECT DESIGN ENGINEER

STRUCTURE MANAGEMENT UNIT  
1000 Birch Ridge Dr. Raleigh, NC 27610

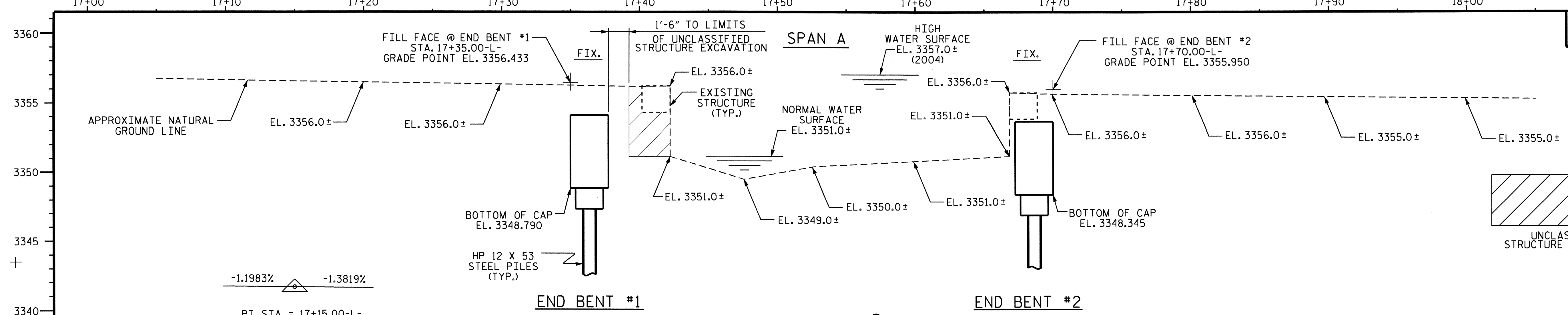
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER: \_\_\_\_\_ P.E.

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

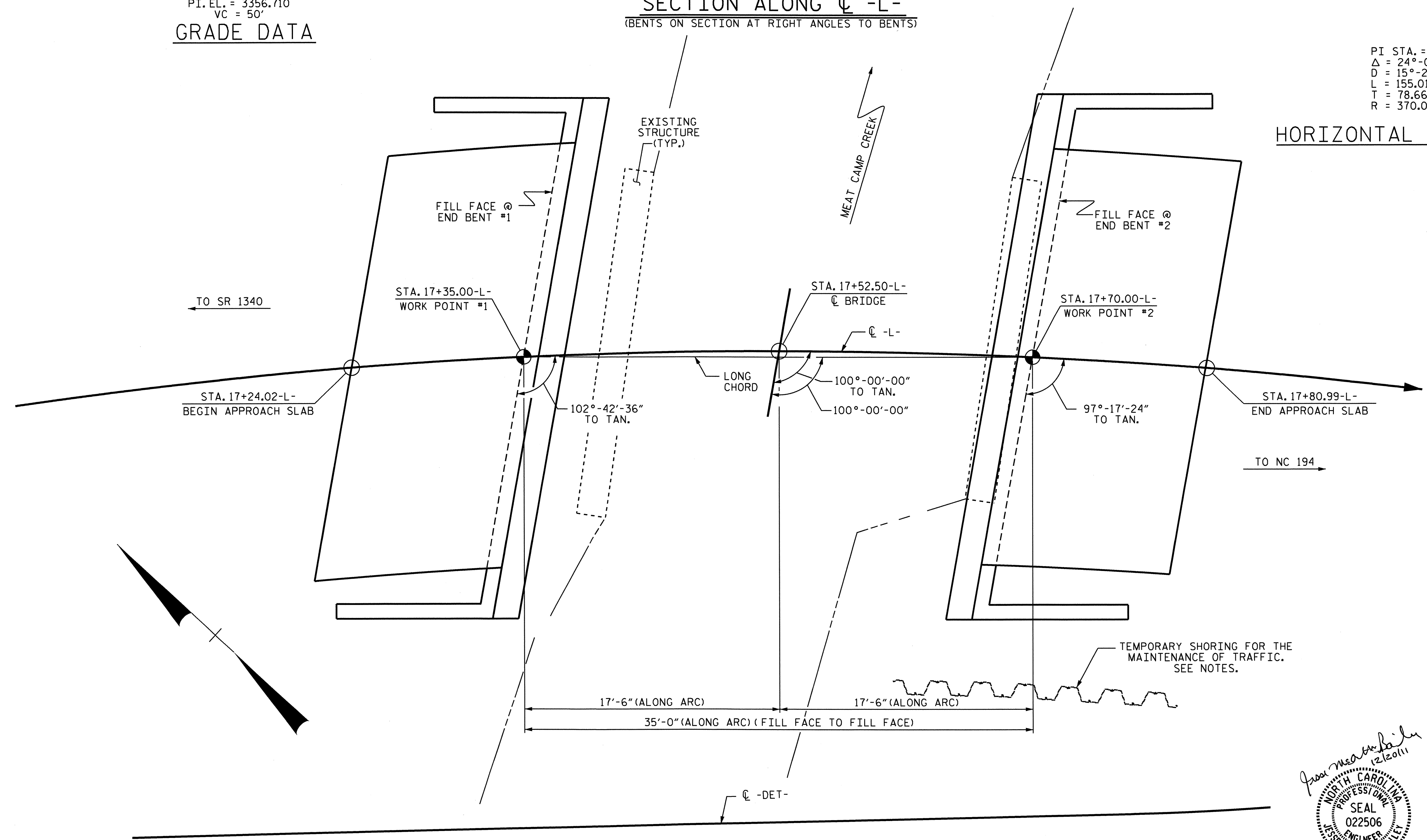
APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
DIVISION ADMINISTRATOR

14-DEC-2011 14:06  
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cdavenport



**GRADE DATA**  
 -1.1983%      -1.3819%  
 P.I. STA. = 17+15.00-L-  
 P.I. EL. = 3356.710  
 VC = 50'

**HORIZONTAL CURVE DATA**  
 PI STA. = 17+46.06  
 Δ = 24°-00'-14.3" RT.  
 D = 15°-29'-07.2"  
 L = 155.01'  
 T = 78.66'  
 R = 370.00'

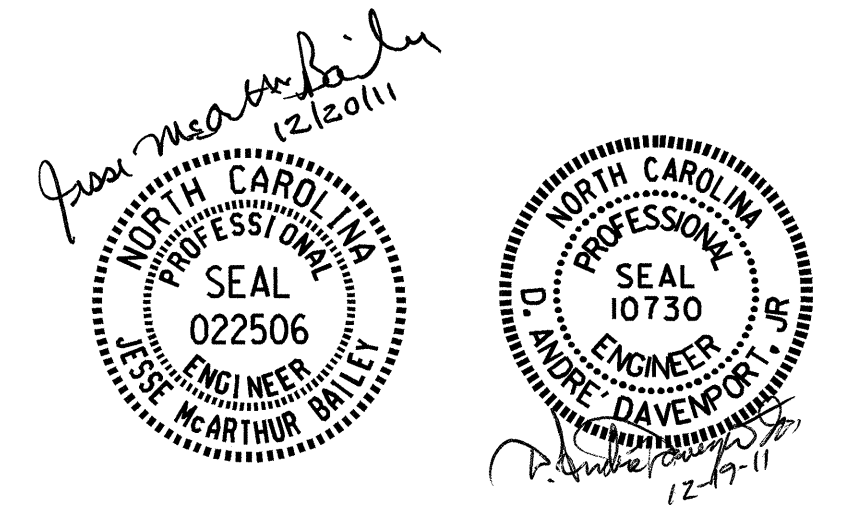


I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50-L-  
 SHEET 1 OF 5      REPLACES BRIDGE #33

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING FOR BRIDGE OVER MEAT CAMP CREEK ON SR 1335 BETWEEN SR 1340 AND NC 194**



DRAWN BY : D. A. DAVENPORT      DATE : 12-10  
 CHECKED BY : D. A. GLADDEN      DATE : 01-11

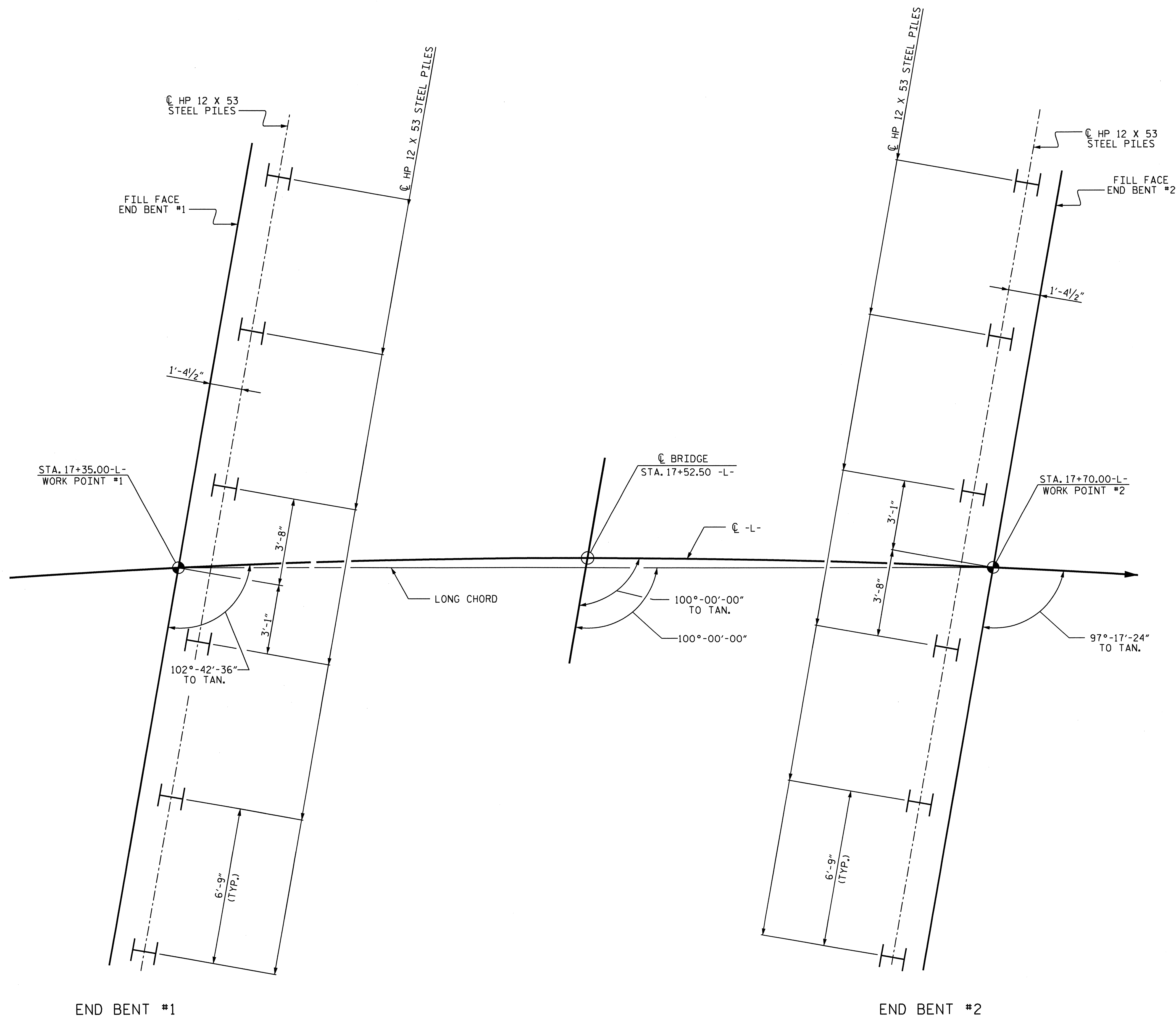
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1	
1			3			TOTAL SHEETS 24	
2			4				

NOTES

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 60 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

STEEL H-PILE POINTS ARE REQUIRED FOR PILES AT END BENT NO.1 AND END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.



FOUNDATION LAYOUT

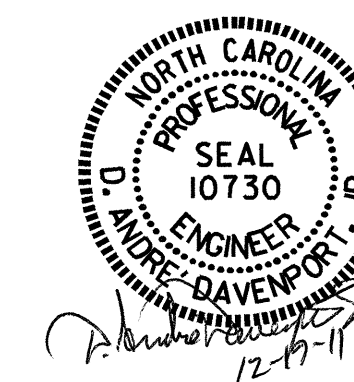
ALL DIMENSIONS LOCATING PILES ARE TO PILE CENTERLINE.

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

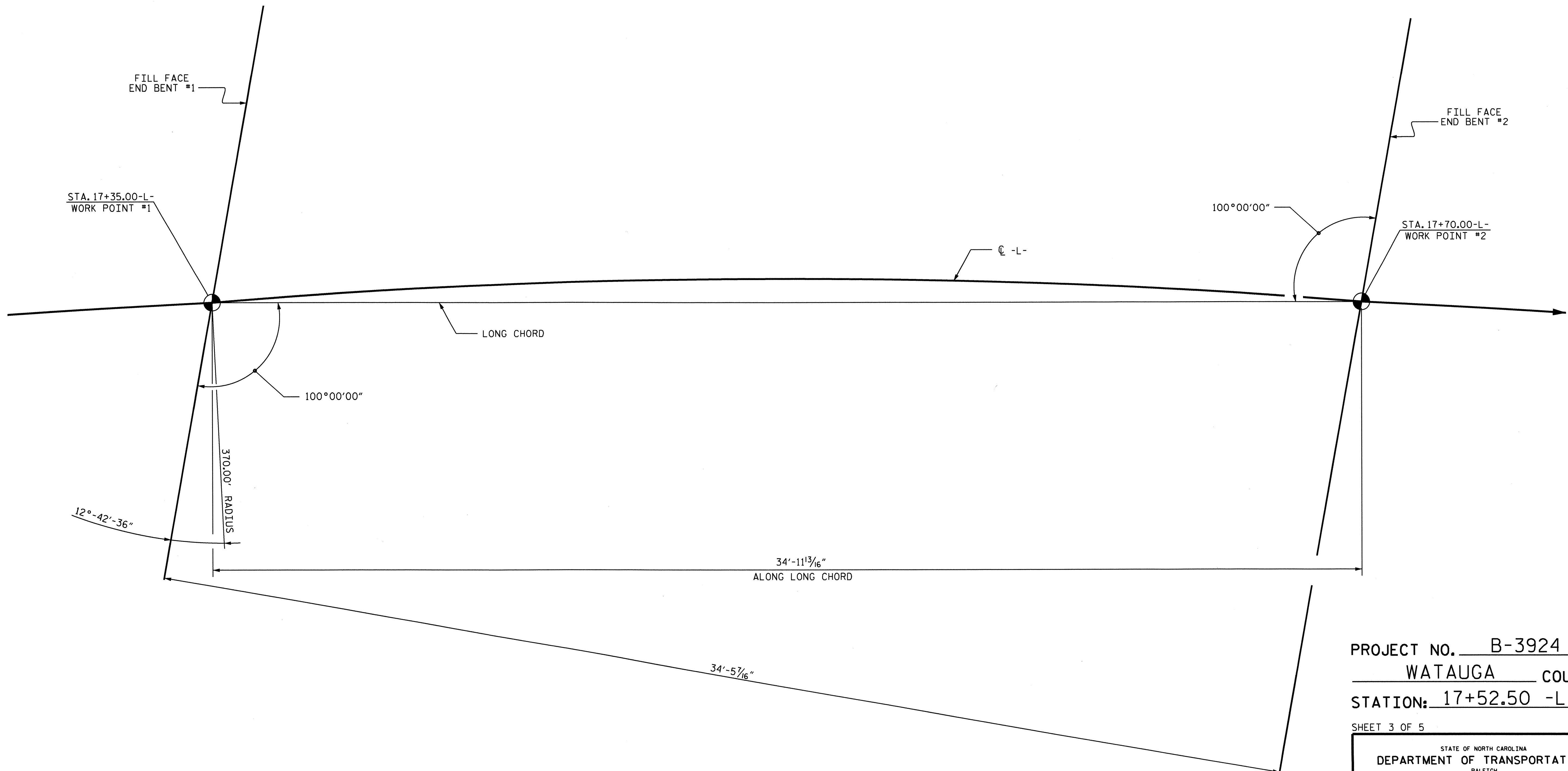
GENERAL DRAWING  
 FOR BRIDGE OVER  
 MEAT CAMP CREEK  
 ON SR 1335 BETWEEN  
 SR 1340 AND NC 194



DRAWN BY : D. A. DAVENPORT DATE : 12-10  
 CHECKED BY : D. A. GLADDEN DATE : 01-11

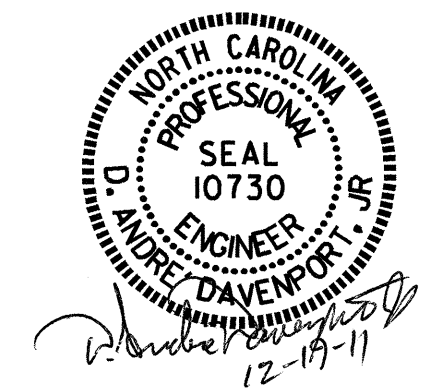
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 ddavenport

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



PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50 -L-

SHEET 3 OF 5  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE OVER  
 MEAT CAMP CREEK  
 ON SR 1335 BETWEEN  
 SR 1340 AND NC 194



**LONG CHORD LAYOUT**  
 END BENTS ARE PARALLEL

DRAWN BY : D. A. DAVENPORT DATE : 12-10  
 CHECKED BY : D. A. GLADDEN DATE : 01-11

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

14-DEC-2011 14:10  
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 odavenport



NOTES

HYDRAULIC DATA

DESIGN DISCHARGE = 1400 C.F.S.  
 FREQUENCY OF DESIGN FLOOD = 25 YRS.  
 DESIGN HIGH WATER ELEVATION = 3358.300  
 DRAINAGE AREA = 5.29 Sq. Mi.  
 BASE DISCHARGE (Q100) = 2130 C.F.S.  
 BASE HIGH WATER ELEVATION = 3358.800

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 550 C.F.S.  
 FREQUENCY OF OVERTOPPING FLOOD = >2 YRS  
 OVERTOPPING FLOOD ELEVATION = 3355.500

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 1 SIMPLE SPAN, AT 25'-7" TIMBER DECK ON I-BEAMS; WITH A 4 1/2" ASPHALT WEARING SURFACE, CLEAR ROADWAY WIDTH OF 19.1 FT. ON TIMBER CAP AND PILES WITH CONCRETE SILLS 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.

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 PILES AT END BENT #1 SHALL BE CUT AT THE TOP OF THE EXISTING SILL WHICH WILL REMAIN IN PLACE. THE SILL AT END BENT #2 SHALL BE REMOVED.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

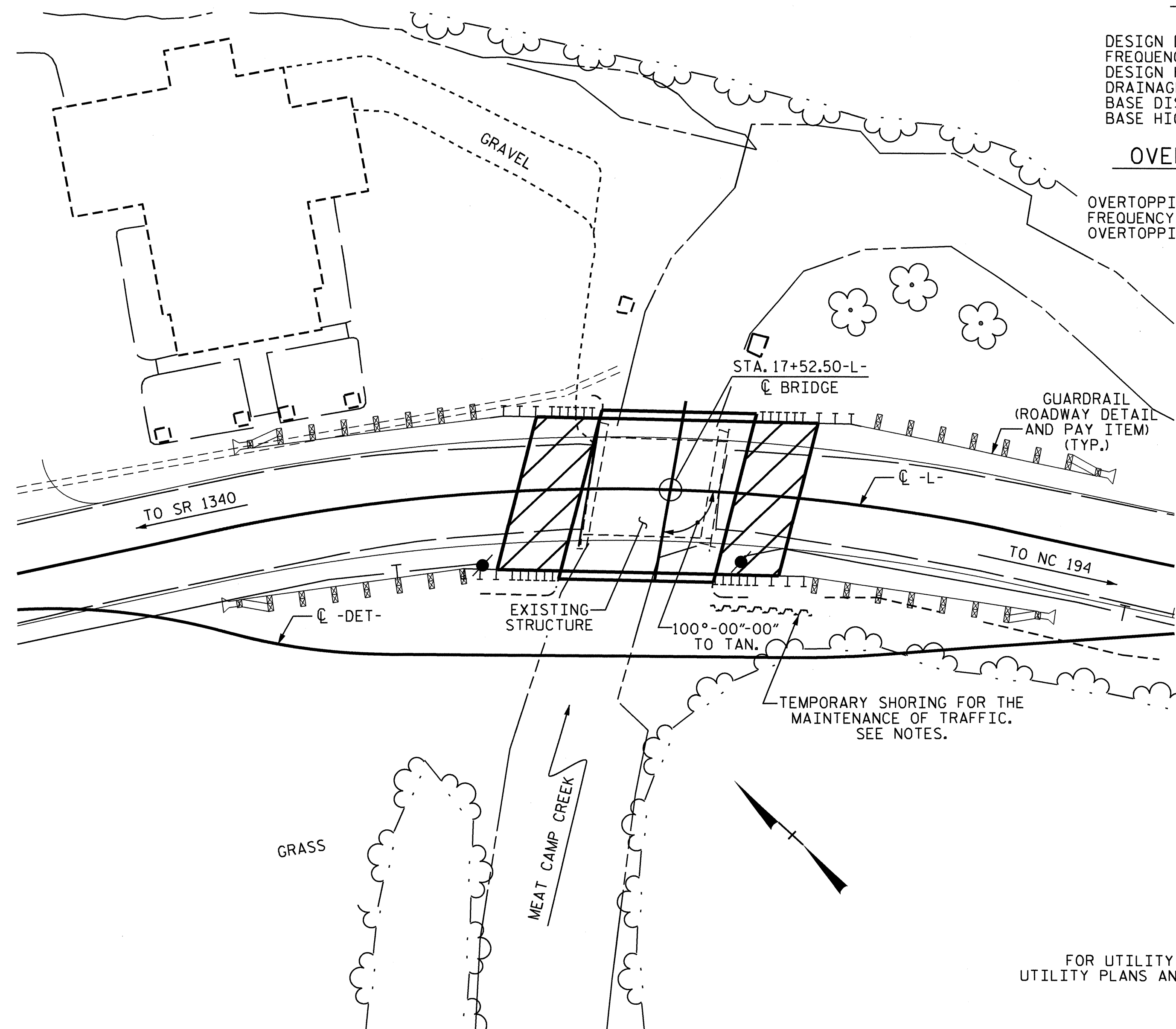
FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

FOR GROUT FOR STRUCTURES, 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.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY 2011.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 17+52.50-L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.



FOR UTILITY INFORMATION SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	ONE BAR METAL RAIL	1'-0" X 1'-9 1/2" CONCRETE PARAPET	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	LIN. FT.	LUMP SUM	LUMP SUM	LIN. FT.	
SUPERSTRUCTURE				884.6	1320		LUMP SUM				49,564	65.42	LUMP SUM	LUMP SUM	327.08	
END BENT NO. 1			LUMP SUM			28.4		2998	6	210	6					
END BENT NO. 2						28.4		2999	6	150	6					
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	884.6	1320	56.8	LUMP SUM	5997	12	360	12	49,564	65.42	LUMP SUM	LUMP SUM	327.08

PROJECT NO. B-3924  
WATAUGA  
 STATION: 17+52.50-L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE OVER  
 MEAT CAMP CREEK  
 ON SR 1335 BETWEEN  
 SR 1340 AND NC 194



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

DRAWN BY : D. A. DAVENPORT DATE : 12/10  
 CHECKED BY : D. A. GLADDEN DATE : 01-11

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.16	--	1.75	0.281	1.43	A	EL	15.834	0.627	1.16	A	EL	15.83	0.80	0.281	1.20	A	EL	15.834		
	HL-93 (OPERATING)	N/A	--	1.50	--	1.35	0.281	1.86	A	EL	15.834	0.627	1.5	A	EL	15.83	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.33	47.991	1.75	0.281	1.92	A	EL	12.667	0.627	1.33	A	EL	15.83	0.80	0.281	1.63	A	EL	12.667		
	HS-20 (OPERATING)	36.000	--	1.73	62.211	1.35	0.281	2.49	A	EL	12.667	0.627	1.73	A	EL	15.83	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	--	2.72	36.773	1.4	0.281	4.07	A	EL	15.834	0.627	3.35	A	EL	15.83	0.80	0.281	2.72	A	EL	15.834	
		SNGARBS2	20.000	--	2.36	47.133	1.4	0.281	3.49	A	EL	12.667	0.627	2.56	A	EL	15.83	0.80	0.281	2.36	A	EL	12.667	
		SNAGRIS2	22.000	--	2.37	52.107	1.4	0.281	3.49	A	EL	12.667	0.627	2.45	A	EL	15.83	0.80	0.281	2.37	A	EL	12.667	
		SNCOTTS3	27.250	--	1.36	37.196	1.4	0.281	2.04	A	EL	15.834	0.627	1.69	A	EL	15.83	0.80	0.281	1.36	A	EL	15.834	
		SNAGRS4	34.925	--	1.28	44.82	1.4	0.281	1.92	A	EL	15.834	0.627	1.53	A	EL	15.83	0.80	0.281	1.28	A	EL	15.834	
		SNS5A	35.550	--	1.24	44.244	1.4	0.281	1.86	A	EL	15.834	0.627	1.62	A	EL	15.83	0.80	0.281	1.24	A	EL	15.834	
		SNS6A	39.950	--	1.19	47.588	1.4	0.281	1.78	A	EL	15.834	0.627	1.52	A	EL	15.83	0.80	0.281	1.19	A	EL	15.834	
		SNS7B	42.000	3	1.15	48.09	1.4	0.281	1.71	A	EL	15.834	0.627	1.56	A	EL	15.83	0.80	0.281	1.15	A	EL	15.834	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000	--	1.50	49.515	1.4	0.281	2.24	A	EL	15.834	0.627	1.79	A	EL	15.83	0.80	0.281	1.50	A	EL	15.834	
		TNT4A	33.075	--	1.47	48.555	1.4	0.281	2.19	A	EL	15.834	0.627	1.68	A	EL	15.83	0.80	0.281	1.47	A	EL	15.834	
		TNT6A	41.600	--	1.30	54.284	1.4	0.281	1.95	A	EL	15.834	0.627	1.64	A	EL	15.83	0.80	0.281	1.30	A	EL	15.834	
		TNT7A	42.000	--	1.35	56.681	1.4	0.281	2.02	A	EL	15.834	0.627	1.53	A	EL	15.83	0.80	0.281	1.35	A	EL	15.834	
		TNT7B	42.000	--	1.30	54.738	1.4	0.281	1.95	A	EL	15.834	0.627	1.49	A	EL	15.83	0.80	0.281	1.30	A	EL	15.834	
		TNAGRIT4	43.000	--	1.33	57.256	1.4	0.281	1.99	A	EL	15.834	0.627	1.44	A	EL	15.83	0.80	0.281	1.33	A	EL	15.834	
		TNAGT5A	45.000	--	1.27	56.983	1.4	0.281	1.89	A	EL	15.834	0.627	1.54	A	EL	15.83	0.80	0.281	1.27	A	EL	15.834	
TNAGT5B	45.000	--	1.21	54.386	1.4	0.281	1.82	A	EL	15.834	0.627	1.35	A	EL	15.83	0.80	0.281	1.21	A	EL	15.834			

LOAD FACTORS:

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

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.

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

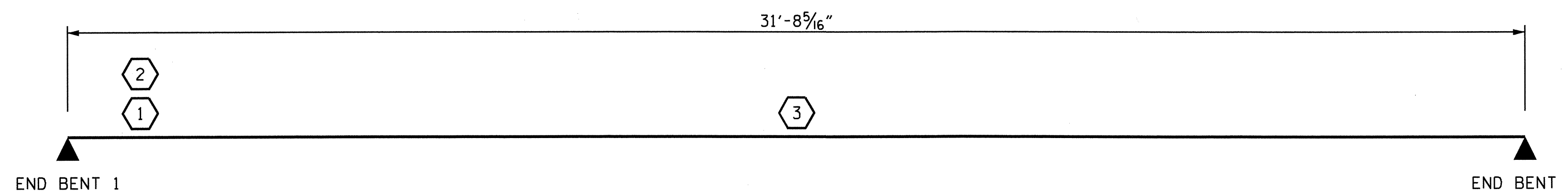
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

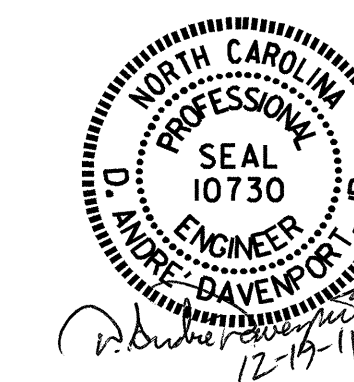
I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. B-3924  
WATAUGA COUNTY  
STATION: 17+52.50-L-

SHEET 5 OF 5



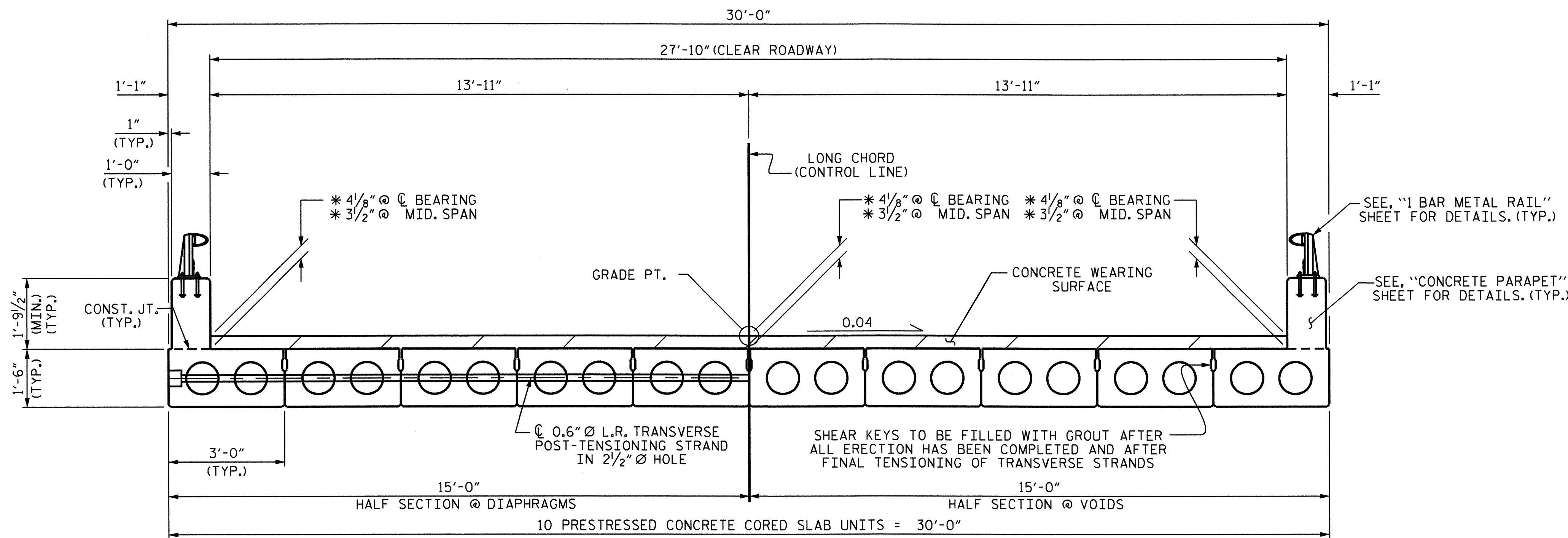
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

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

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS 24	
2			4				

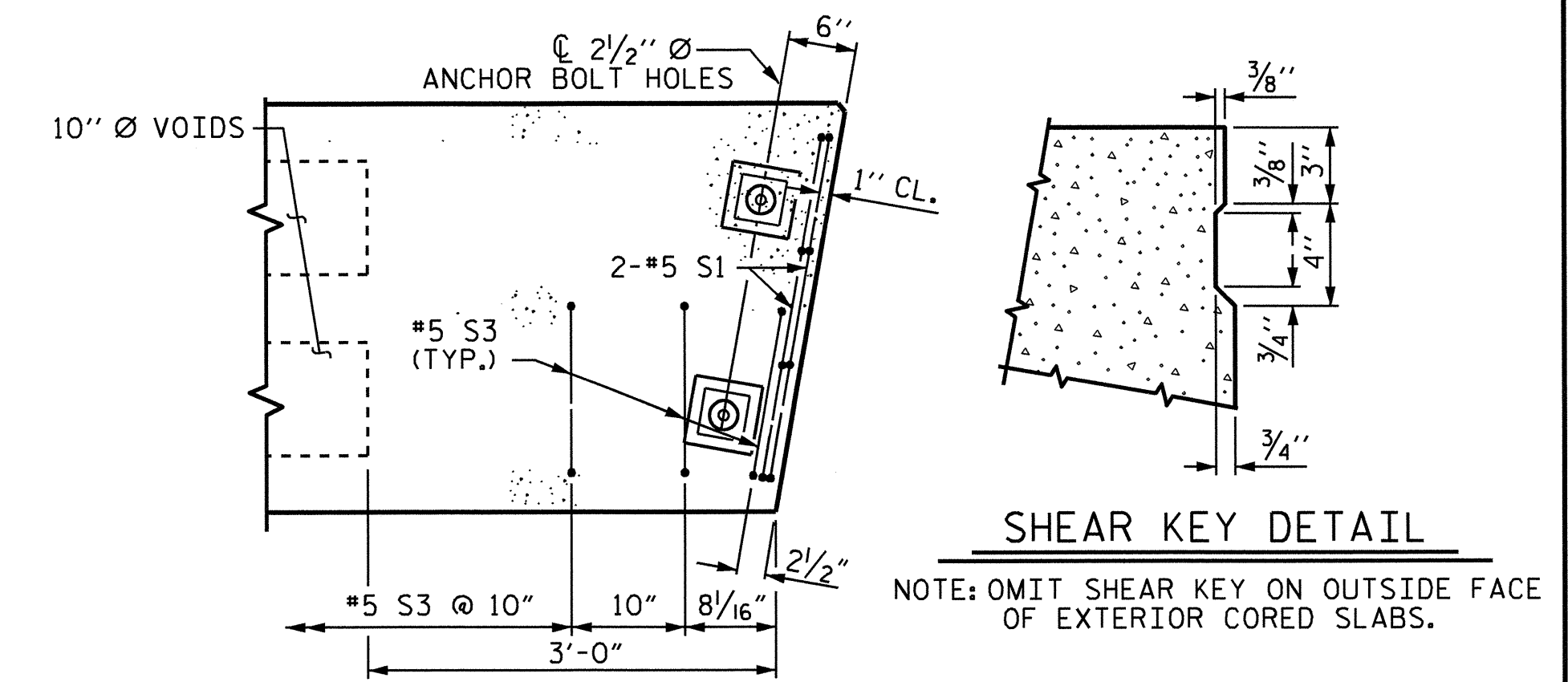
ASSEMBLED BY: D.A. DAVENPORT DATE: 03/19/10  
CHECKED BY: D.A. GLADDEN DATE: 01-11  
DRAWN BY: MAA 1/08 REV. 11/12/08R MAA/GM  
CHECKED BY: GM/DI 2/08 REV. 10/1/11 MAA/GM





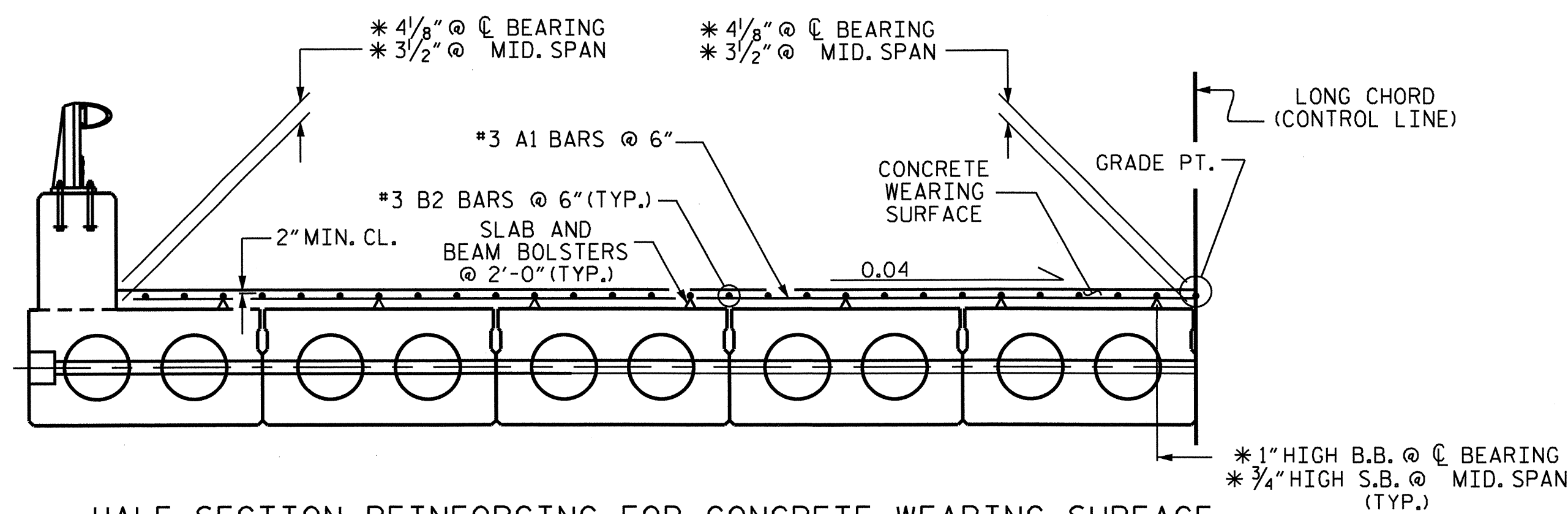
**TYPICAL SECTION**

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



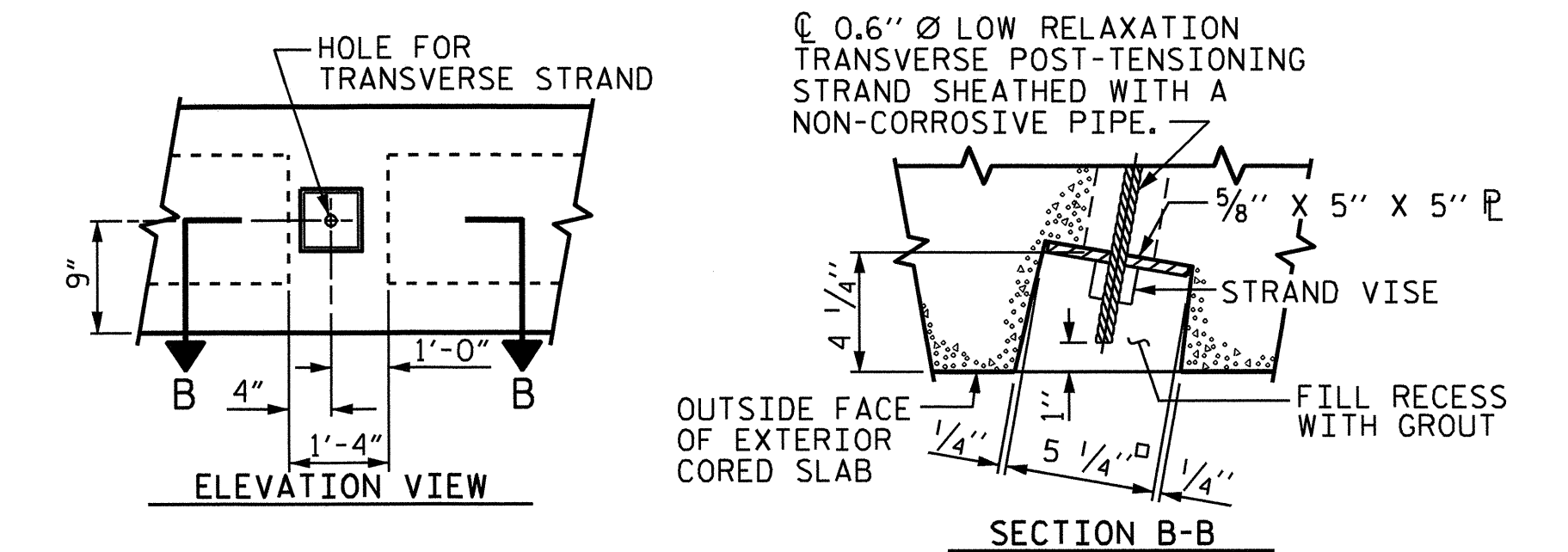
**PART PLAN-EXTERIOR SECTION**

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT #5 S3.

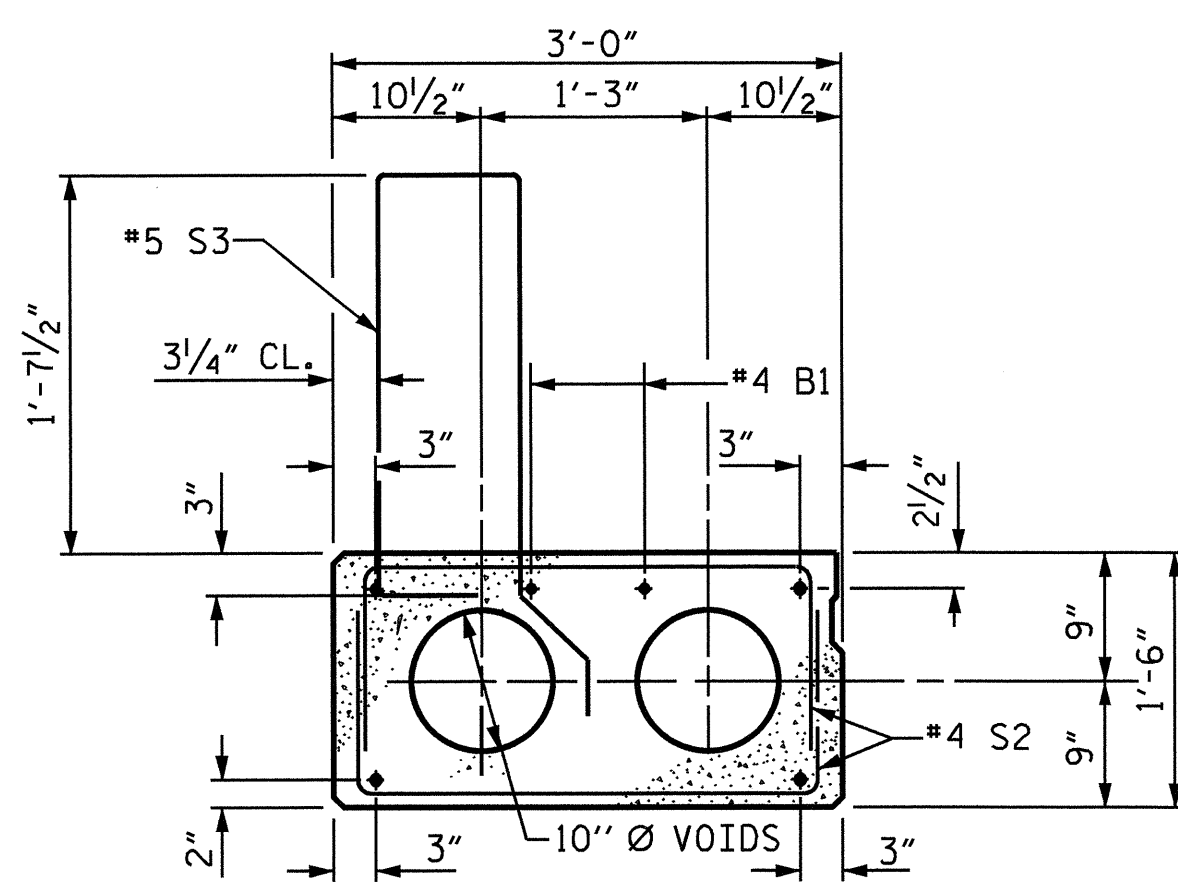


**HALF SECTION REINFORCING FOR CONCRETE WEARING SURFACE**

(SEE "REINFORCING FOR CONCRETE WEARING SURFACE" SHEET)  
\* BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

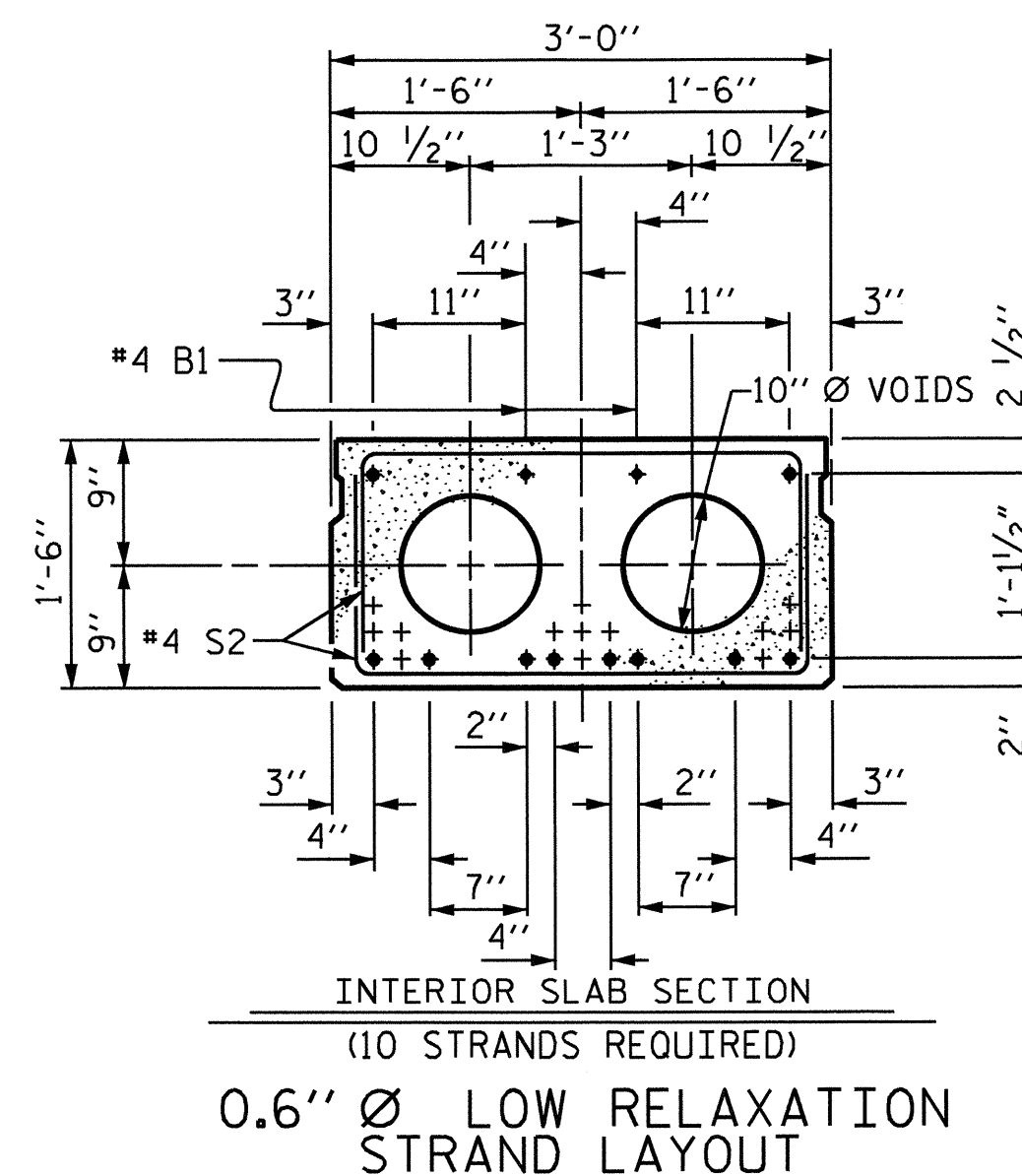


**GRouted RECESS AT END OF POST-TENSIONED STRAND CORED SLABS**



**EXTERIOR SLAB SECTION**

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION)



**INTERIOR SLAB SECTION**

(10 STRANDS REQUIRED)

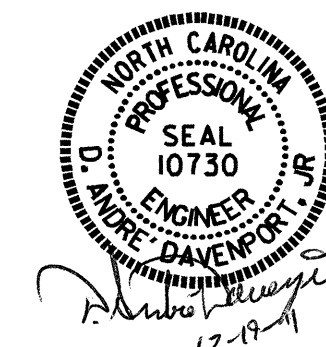
0.6" Ø LOW RELAXATION STRAND LAYOUT

PROJECT NO. B-3924  
WATAUGA COUNTY  
STATION: 17+52.50-L-

SHEET 1 OF 6

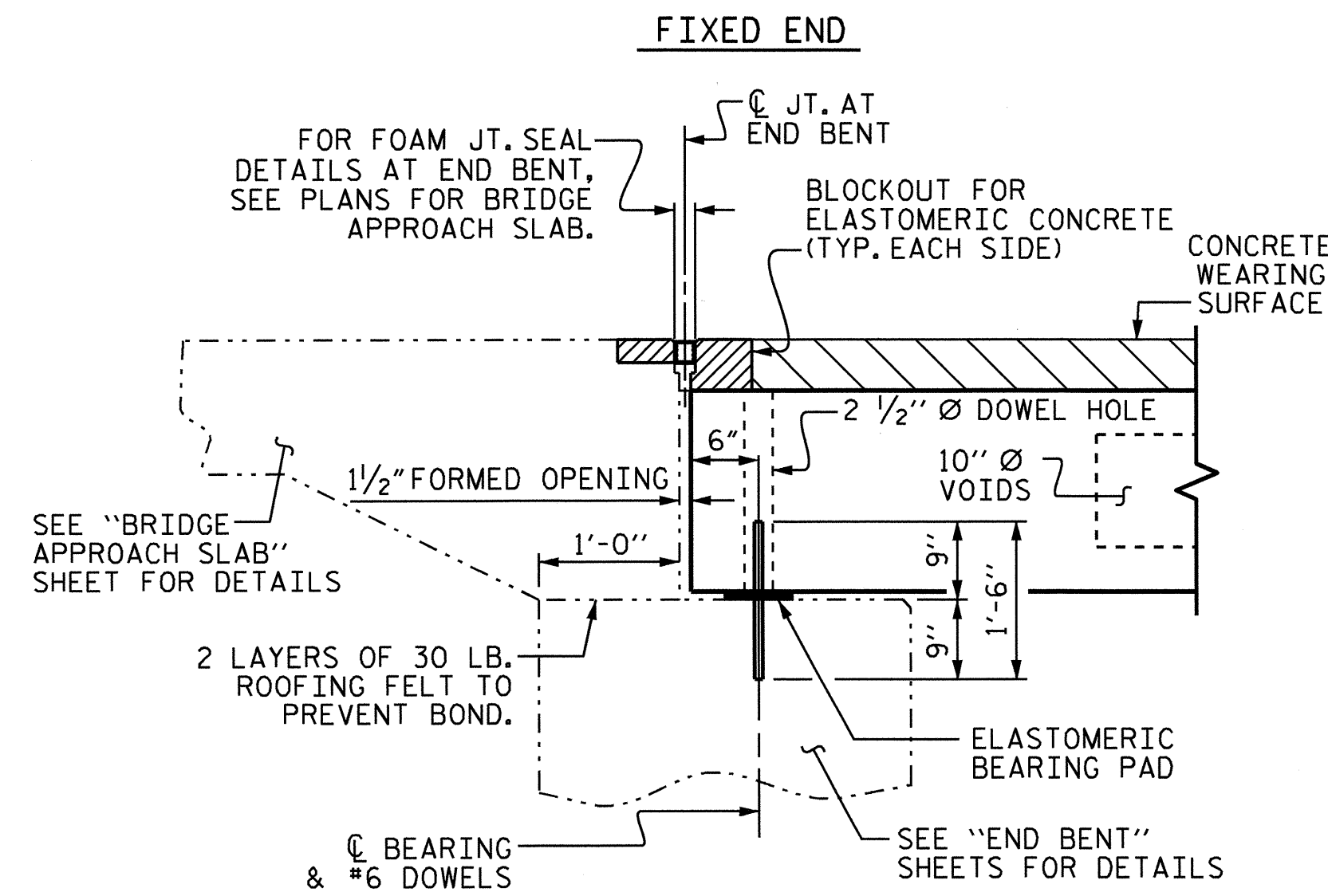
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

3'-0" X 1'-6"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT

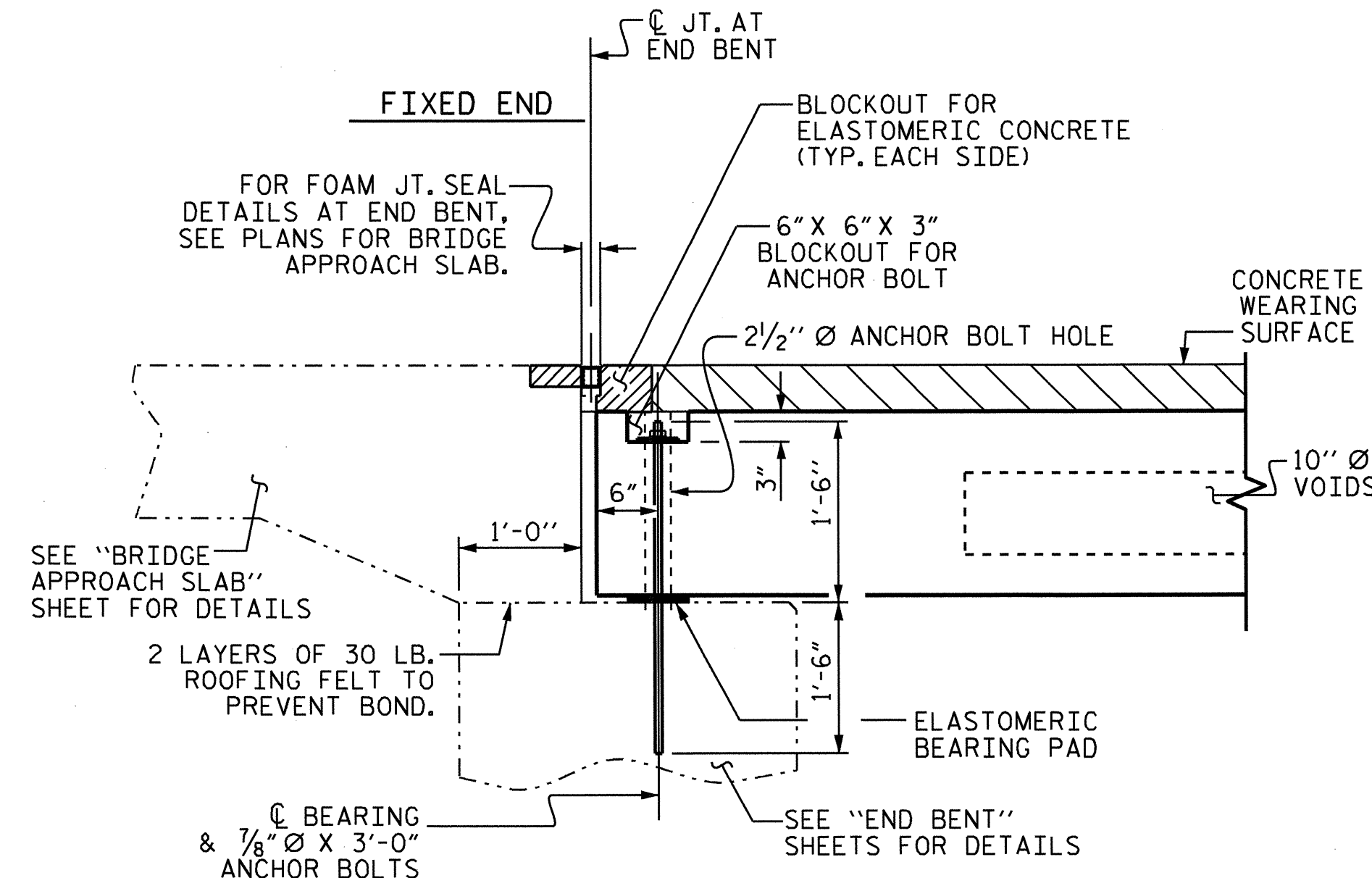


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-6
2			4			24

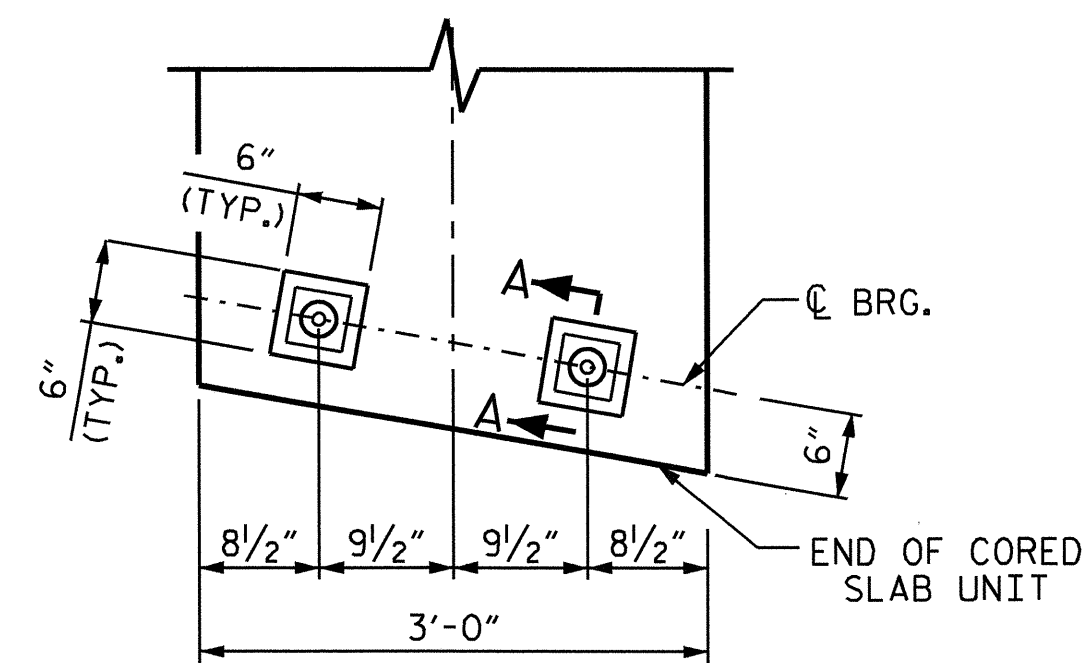
ASSEMBLED BY : H. T. BARBOUR DATE : 4-14-10  
CHECKED BY : D. A. GLADDEN DATE : 5-25-10



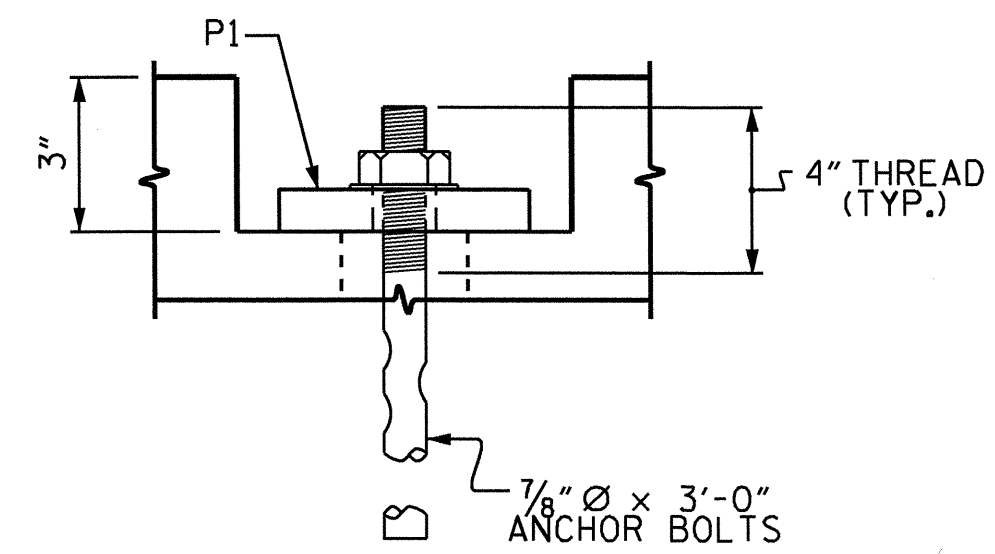
**SECTION AT END BENT**  
(TYP. FOR CORED SLABS 2, 3, 5, 6, 8 & 9)



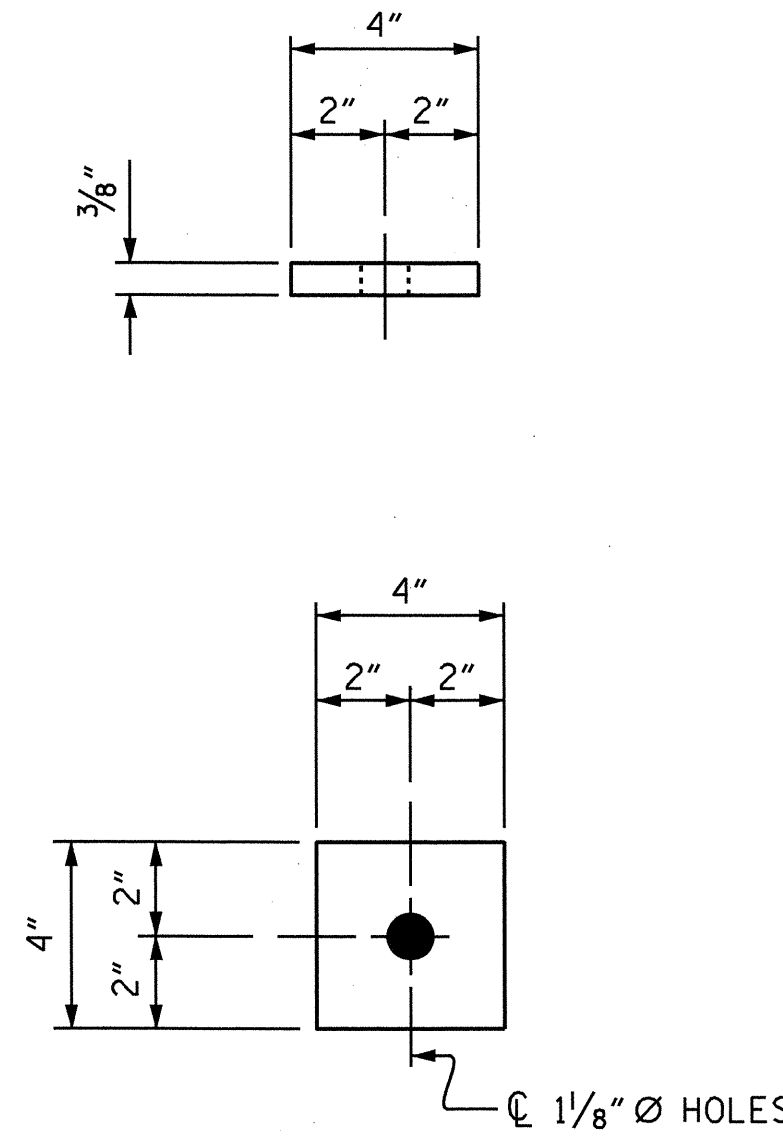
**SECTION AT END BENT**  
(TYP. FOR CORED SLABS 1, 4, 7 & 10)



**TYPICAL PLAN**  
FIXED END (TYP.)  
(SIMILAR FOR CORED SLAB  
EA. END 1, 4, 7 & 10)

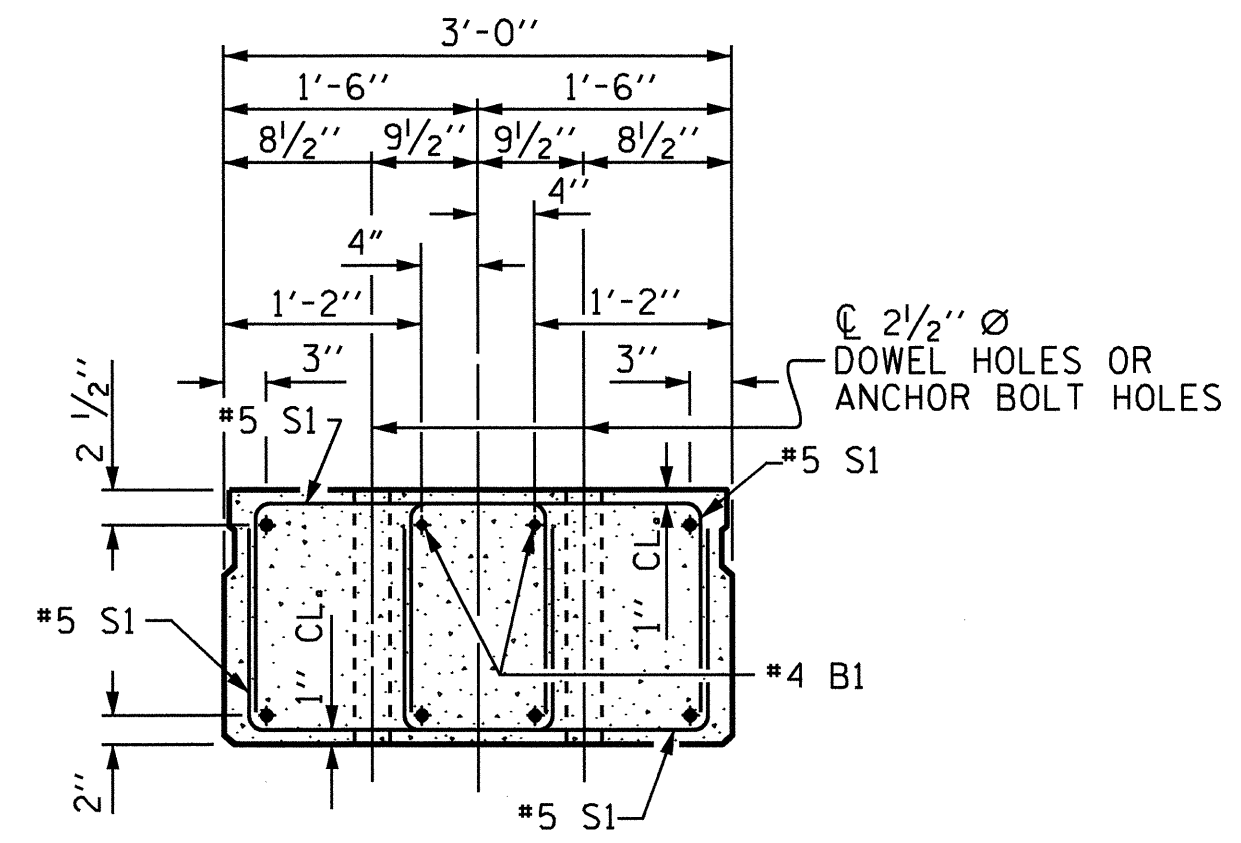


**SECTION A-A**  
(FIXED)



**PLATE DETAILS**  
(FIXED)  
P1 (16 REQ'D.)

**BLOCKOUT DETAIL FOR ANCHOR BOLTS**  
(TYP. FOR CORED SLABS 1, 4, 7 & 10)



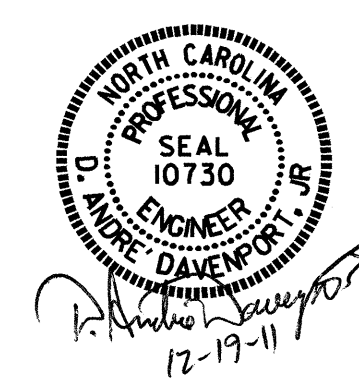
**END ELEVATION**  
SHOWING PLACEMENT OF DOUBLE STIRRUPS  
AND LOCATION OF DOWEL HOLES OR  
ANCHOR BOLT HOLES (STRAND LAYOUT NOT SHOWN)  
INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB  
SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

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SHEET 2 OF 6

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 2'-0"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL SHEETS	
2			4			24	

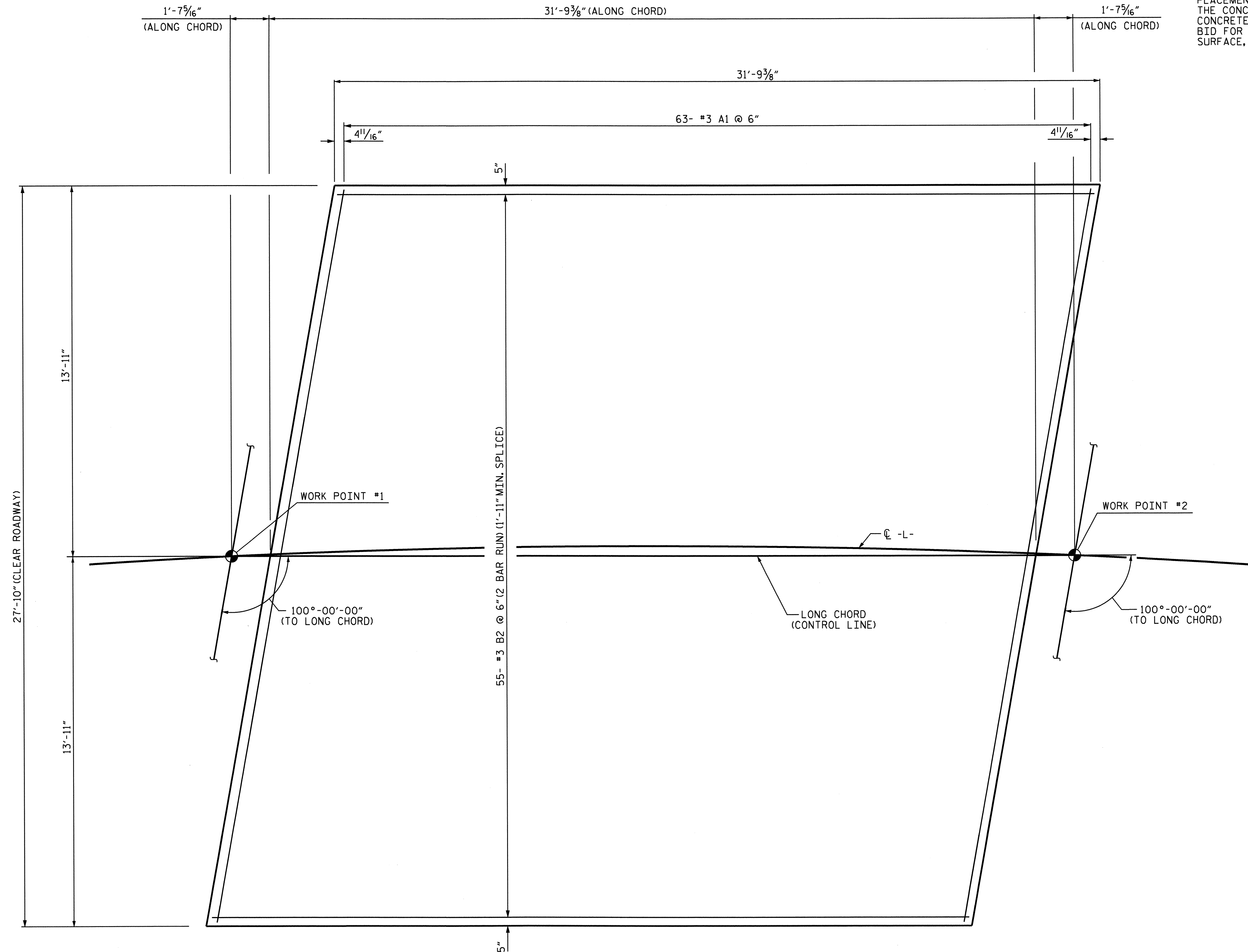


ASSEMBLED BY : D.A. DAVENPORT DATE : 12/14/11  
CHECKED BY : S. SOCKWELL DATE : 12/19/11  
DRAWN BY : MAA 6/10  
CHECKED BY : MKT 7/10



**NOTES**

PLACEMENT OF THE CONCRETE OVERLAY SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. THE COST OF THE #3 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.



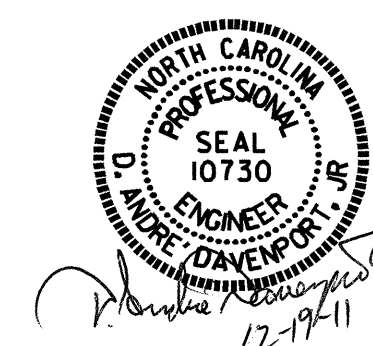
**PLAN OF REINFORCING STEEL FOR CONCRETE WEARING SURFACE**

PROJECT NO. B-3924  
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 STATION: 17+52.50-L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

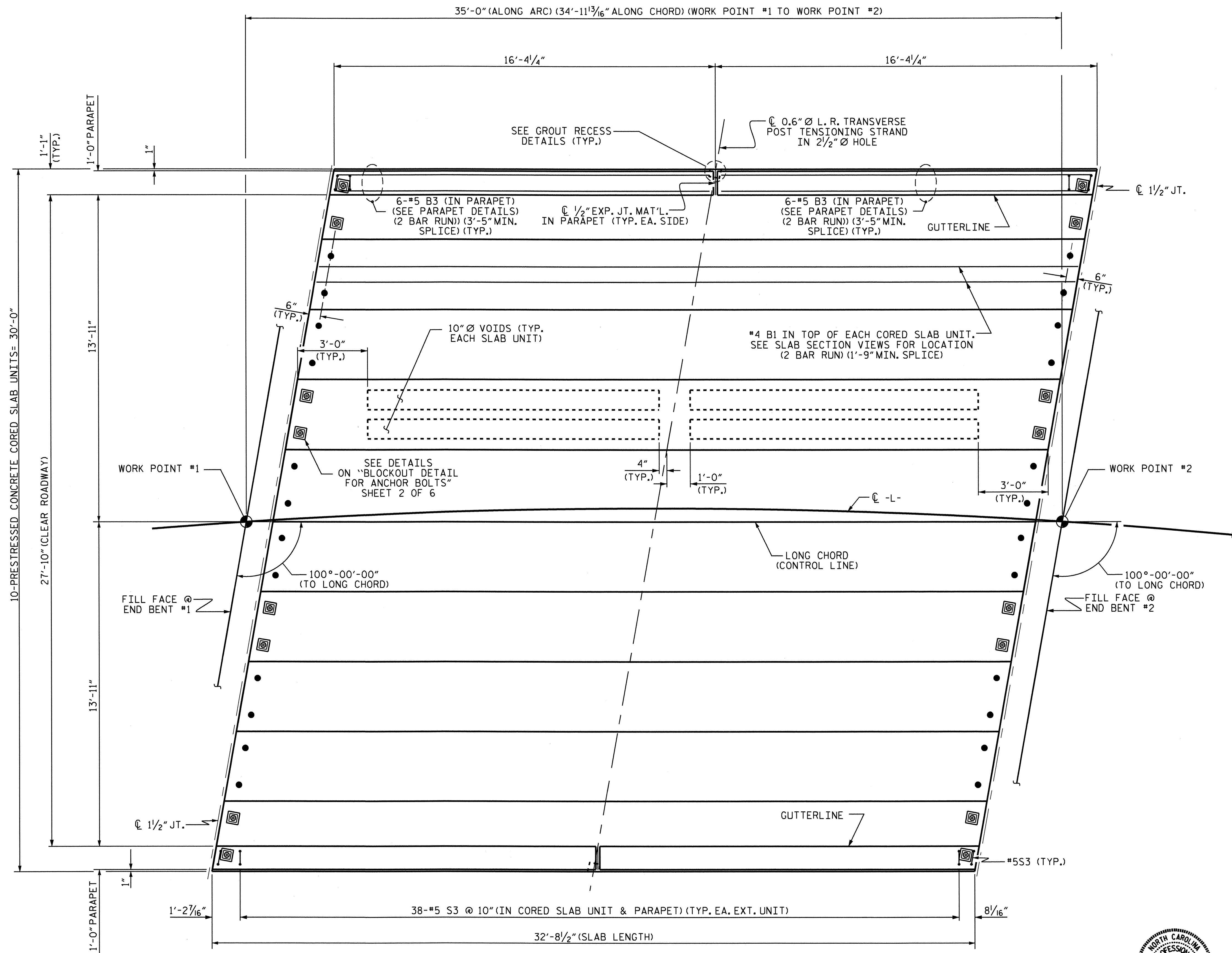
**REINFORCING STEEL  
 FOR CONCRETE  
 WEARING SURFACE**



DRAWN BY : H. T. BARBOUR DATE : 4-14-10  
 CHECKED BY : D. A. GLADDEN DATE : 5-25-10

14-DEC-2011 14:12  
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			24	



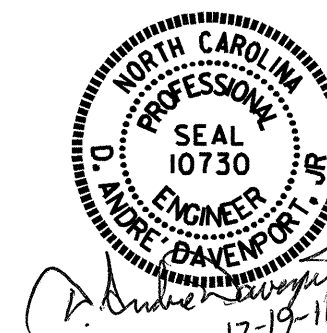
PLAN OF SPAN A

PROJECT NO. B-3924  
 WATAUGA COUNTY  
 STATION: 17+52.50-L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

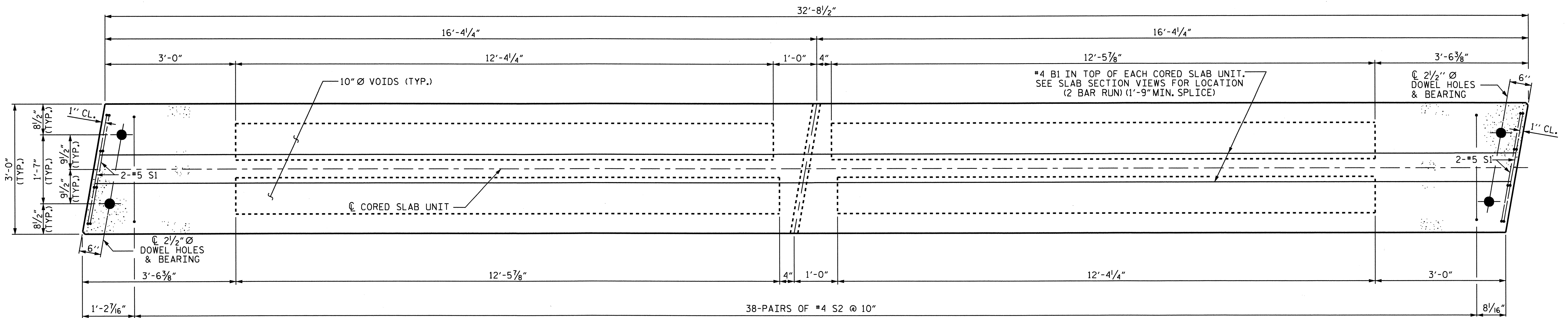
3'-0" X 1'-6"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 PLAN OF SPAN A



DRAWN BY: H. T. BARBOUR DATE: 4-14-10  
 CHECKED BY: D. A. GLADDEN DATE: 5-25-10

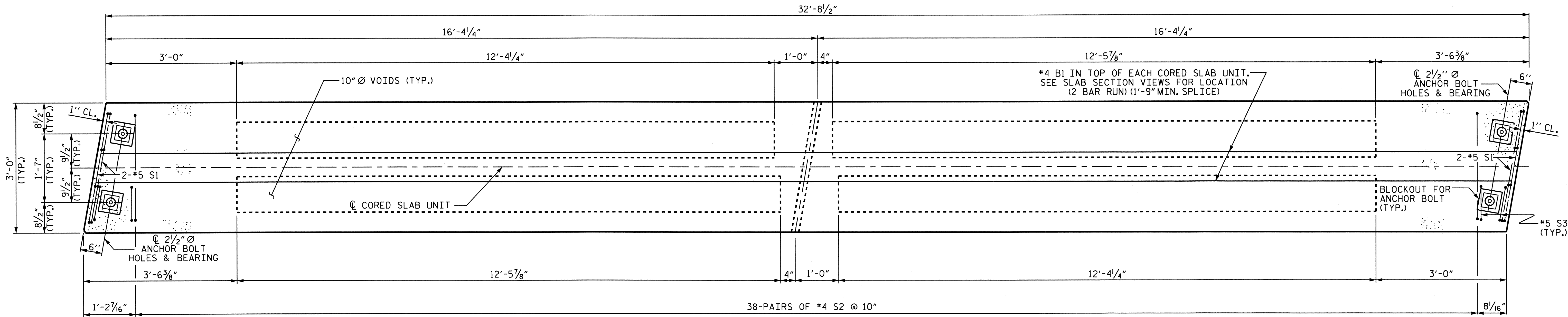
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 adavenport

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			24	



**PLAN OF INTERIOR CORED SLAB UNIT**

(TYP. FOR CORED SLABS 2, 3, 5, 6, 8 & 9)



**PLAN OF EXTERIOR CORED SLAB UNIT**

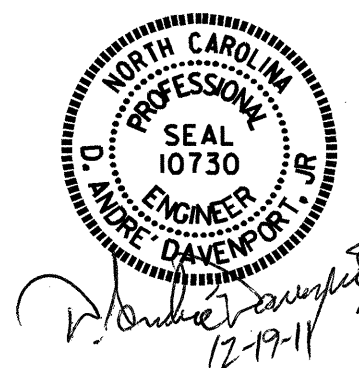
(TYP. FOR EXTERIOR CORED SLABS, INTERIOR UNITS 4 & 7  
CORED SLABS SIMILAR WITHOUT #5 S3 BARS)

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50-L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**3'-0" X 1'-6"**  
**PRESTRESSED CONCRETE**  
**CORED SLAB UNIT**  
**DETAILS**



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL	24
2			4				

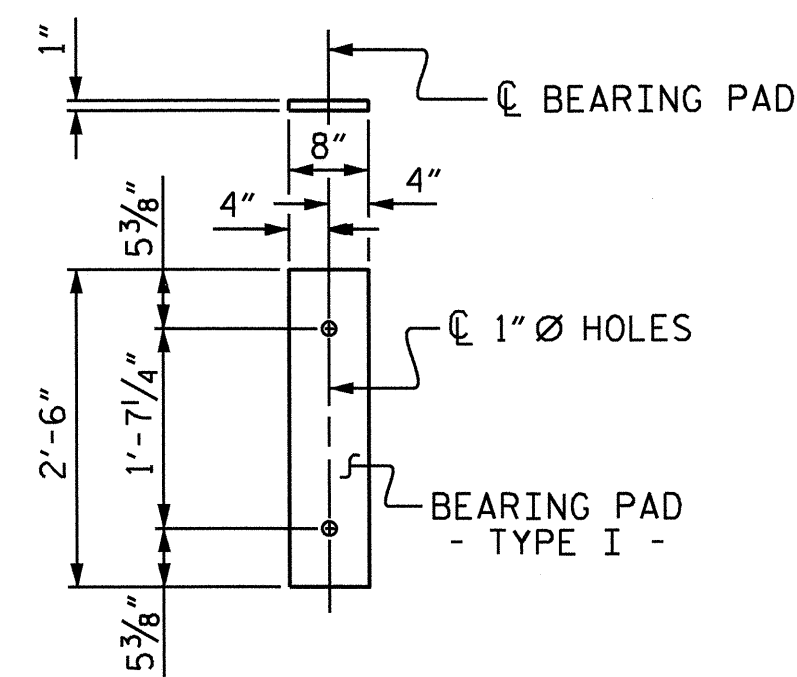
DRAWN BY: H. T. BARBOUR DATE: 4-14-10  
 CHECKED BY: D. A. GLADDEN DATE: 5-25-10

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-6" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	1/16"
FINAL CAMBER	5/8"

GROOVING BRIDGE FLOORS	
BRIDGE	781 SQ. FT.
APPROACH SLABS	539 SQ. FT.
TOTAL	1320 SQ. FT.

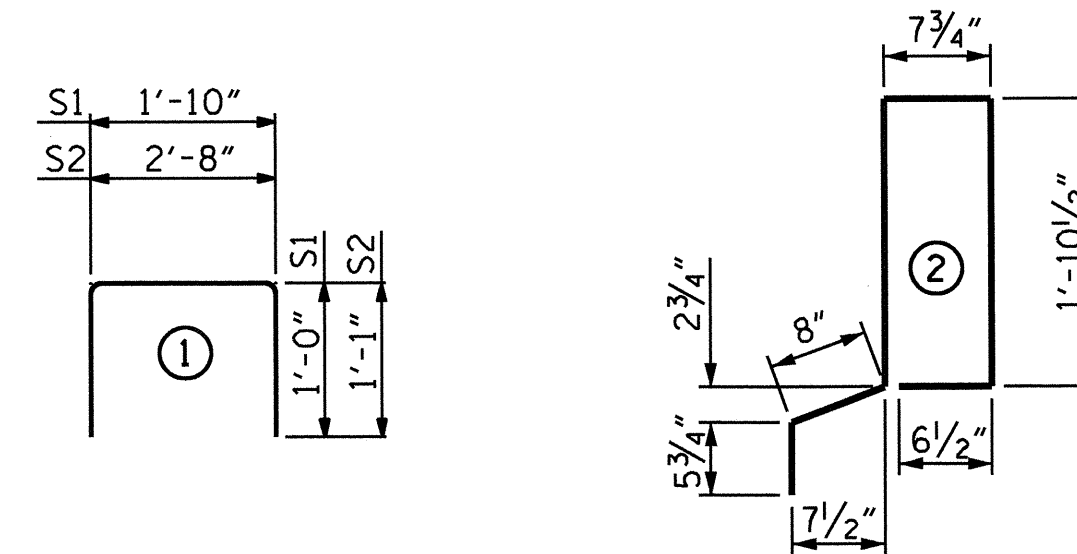
CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	32'-8 1/2"	65'-5"
INTERIOR C.S.	8	32'-8 1/2"	261'-8"
TOTAL	10		327'-1"

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



**ELASTOMERIC BEARING DETAILS**  
ELASTOMER IN BEARINGS FOR 18" CSU SHALL BE 50 DUROMETER HARDNESS.

### BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

### BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	17'-1"	46	17'-1"	46
S1	8	#5	1	3'-10"	32	3'-10"	32
S2	76	#4	1	4'-10"	245	4'-10"	245
*S3	40	#5	2	6'-1"	254		
REINFORCING STEEL					323 LBS.		323 LBS.
* EPOXY COATED REINFORCING STEEL					254 LBS.		
5000 P.S.I. CONCRETE					4.4 CU. YDS.		4.4 CU. YDS.
0.6" Ø L.R. STRANDS					No. 10		No. 10

### REINFORCING BAR SCHEDULE FOR CONCRETE WEARING SURFACE

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*A1	63	#3	STR	27'-11"	661
*B2	110	#3	STR	16'-9"	693
* EPOXY COATED REINFORCING STEEL					1354 LBS.

### CONCRETE WEARING SURFACE

TOTAL	884.6 SQ. FT.
-------	---------------

### 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 AND ANCHOR BOLT HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX 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.

WHEN A CONCRETE WEARING SURFACE IS DETAILED ON THE CORED SLAB BRIDGE TYPICAL SECTION, THE TOP SURFACE OF THE CORED SLAB UNITS SHALL HAVE A 3/8" RAKED FINISH.

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.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

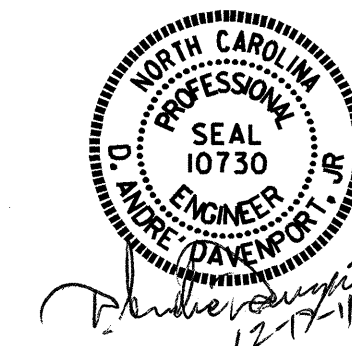
THE STEEL PLATES (P1) SHALL CONFORM TO AASHTO M270 GRADE 36 OR APPROVED EQUAL AND SHALL BE GALVANIZED. THE COST OF THE STEEL PLATES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

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SHEET 6 OF 6

STATE OF NORTH CAROLINA  
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RALEIGH

3'-0" X 1'-6"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT



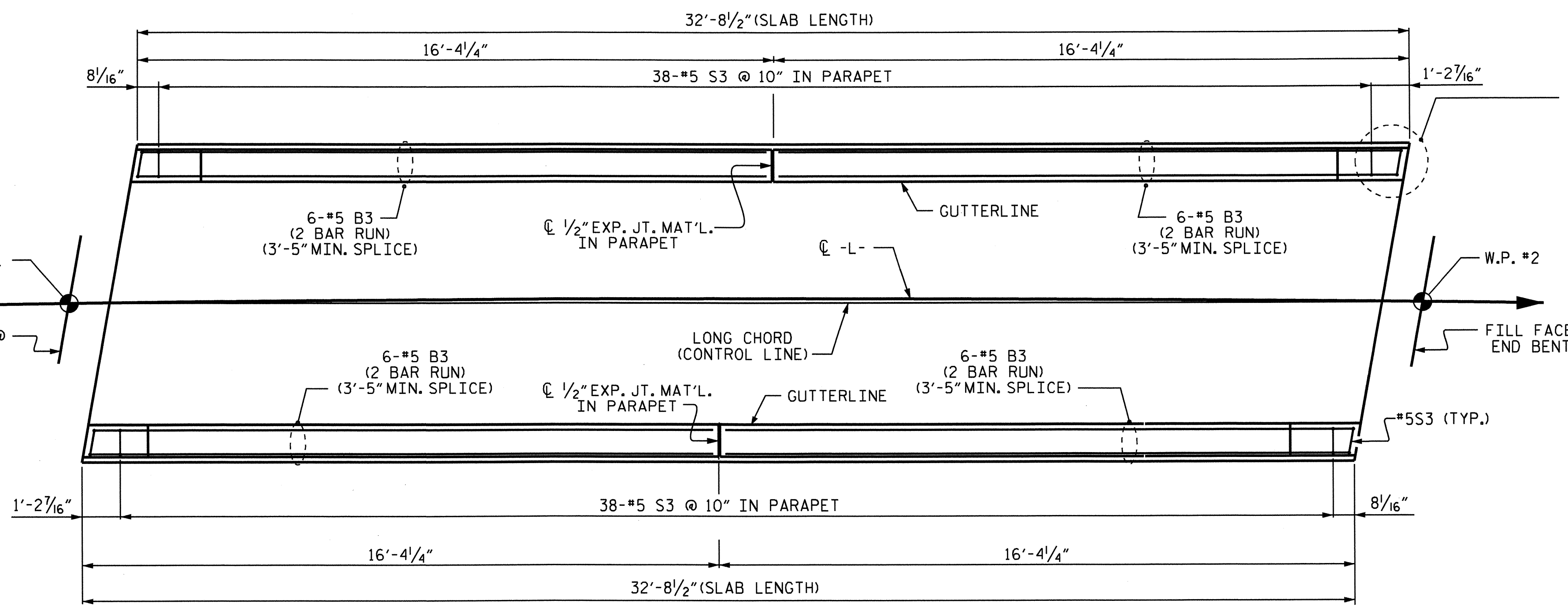
DRAWN BY: H. T. BARBOUR DATE: 4-14-10  
CHECKED BY: D. A. GLADDEN DATE: 5-25-10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			24

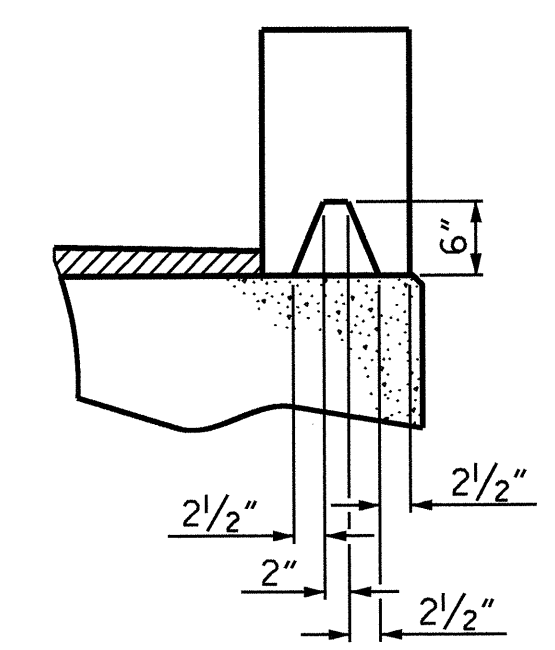


**BILL OF MATERIAL FOR PARAPETS AND END POSTS**

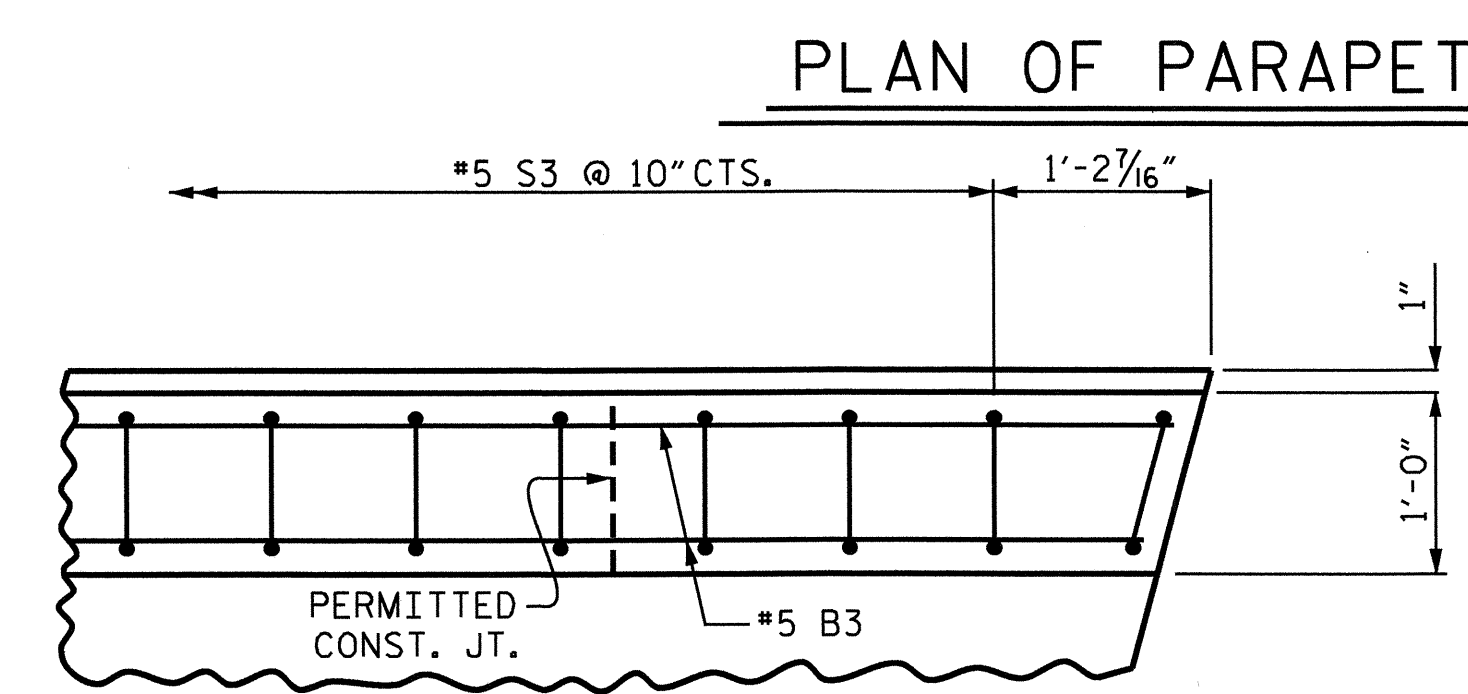
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B3	48	#5	STR	9'-10"	492
*E1	8	#7	STR	2'-4"	38
*E2	8	#7	STR	2'-6"	41
*E3	8	#7	STR	2'-8"	44
*E4	8	#7	STR	2'-10"	46
*E5	8	#7	STR	2'-11"	48
*F1	8	#6	STR	3'-5"	41
*F2	8	#6	STR	3'-7"	43
*EPOXY COATED REINFORCING STEEL					793 LBS.
CLASS AA CONCRETE					5.1
CONCRETE PARAPET					65.42 LIN. FT.



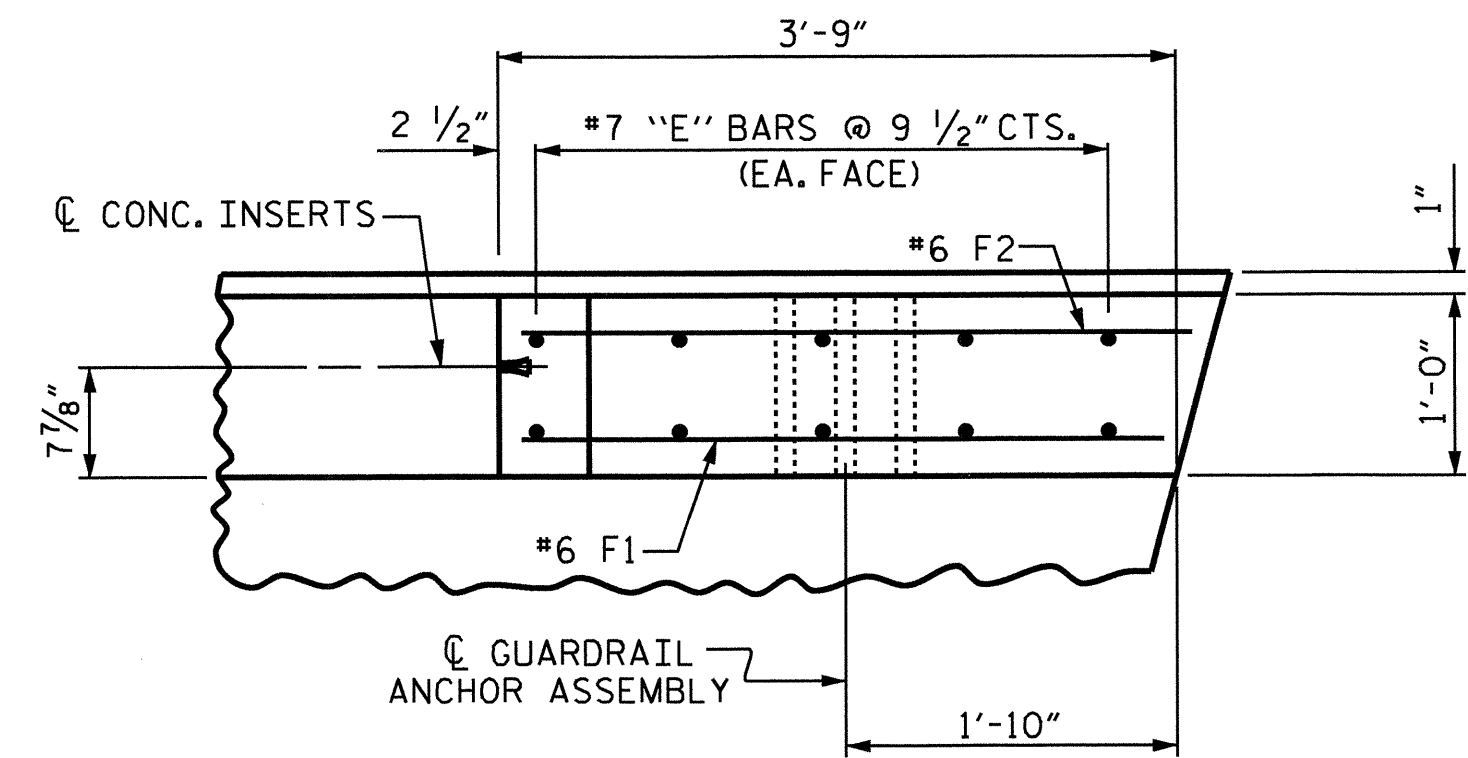
SEE "PARAPET AND END POST FOR ONE BAR METAL RAIL" FOR DETAILS. (TYP. EA. END)



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



**PLAN OF PARAPET**

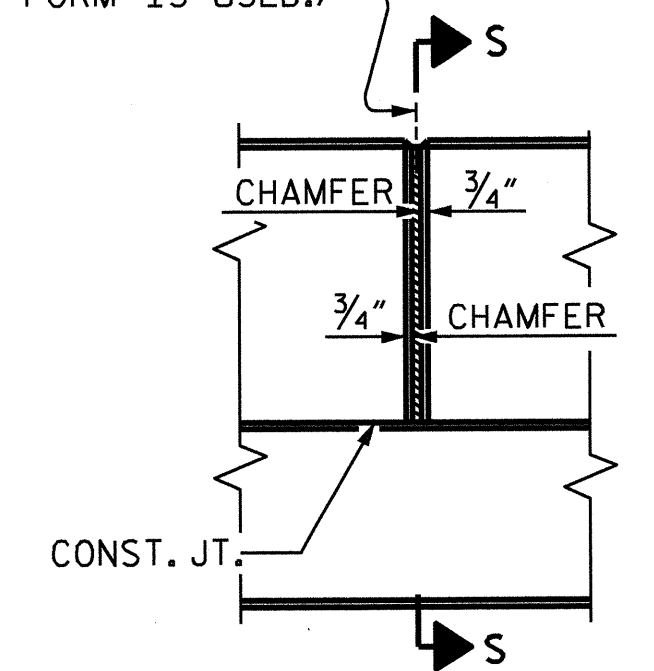


**PLAN OF END POST**

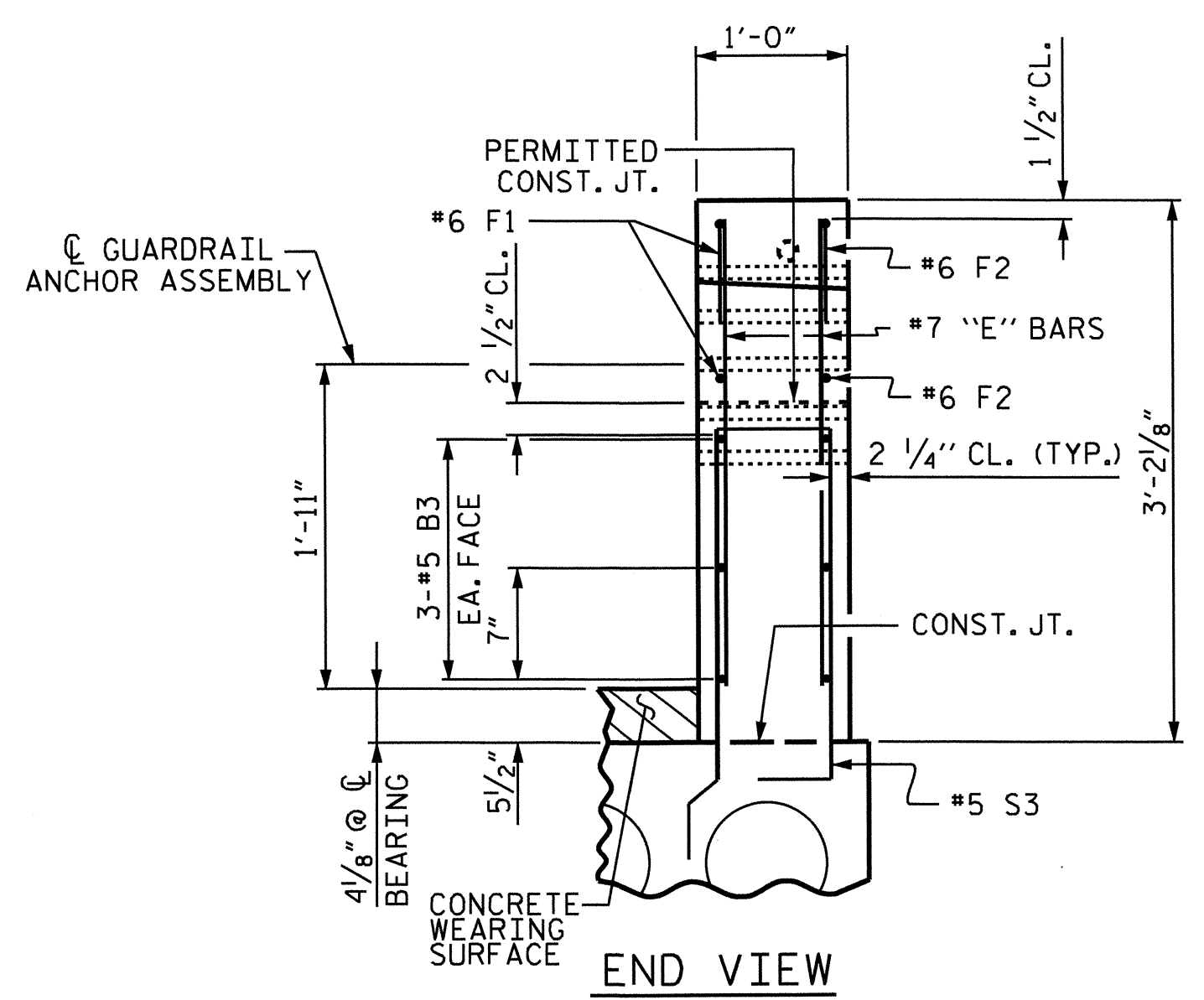
**NOTES:**

- ALL REINFORCING STEEL IN THE PARAPETS AND END POSTS SHALL BE EPOXY COATED.
- FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET 3 OF 4.
- THE #5 S3 BARS ARE INCLUDED IN BILL OF MATERIAL FOR CORED SLAB UNITS.
- ALL REINFORCING STEEL IN PARAPET AND END POST SHALL BE EPOXY COATED.
- 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 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.

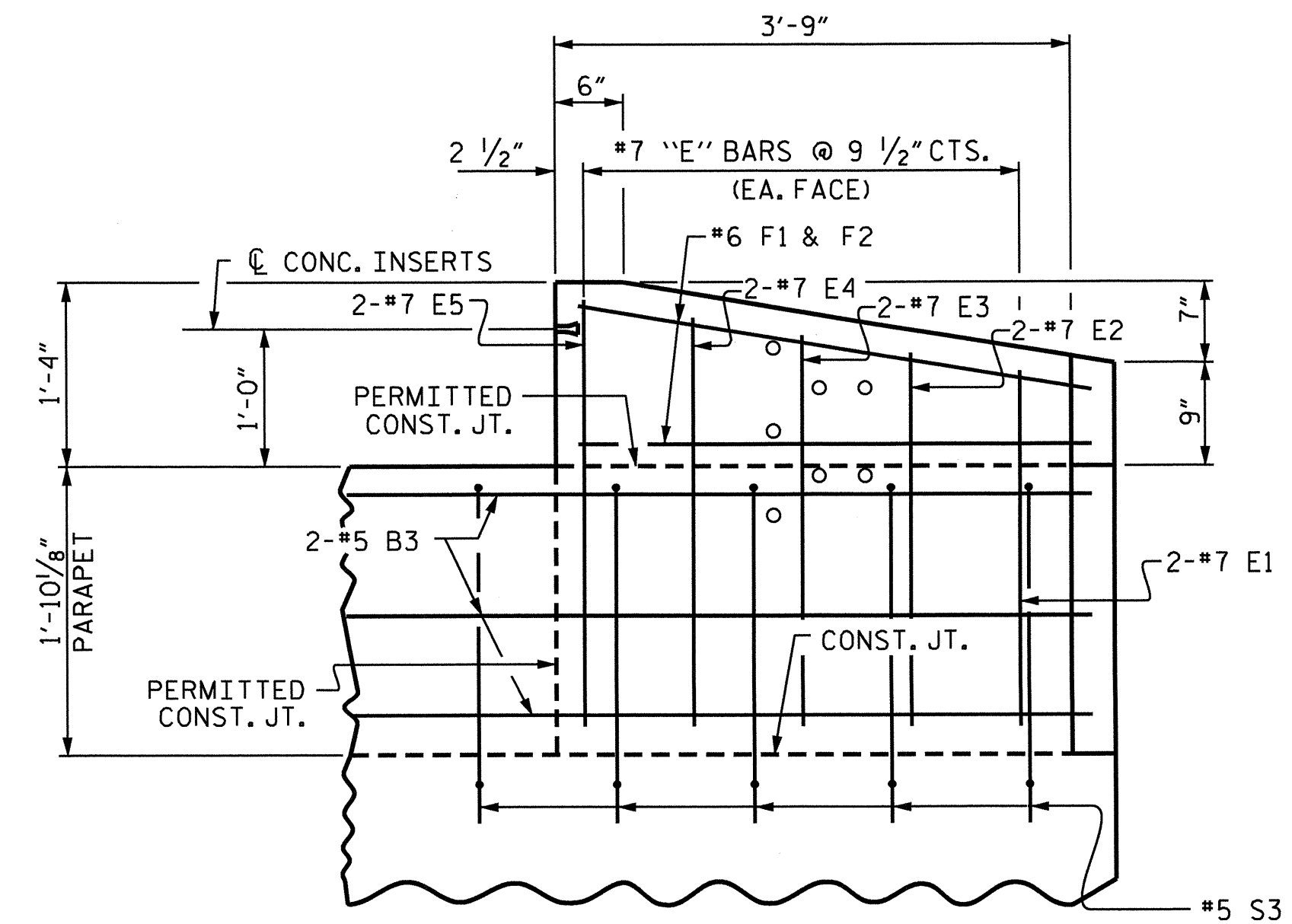
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED.)



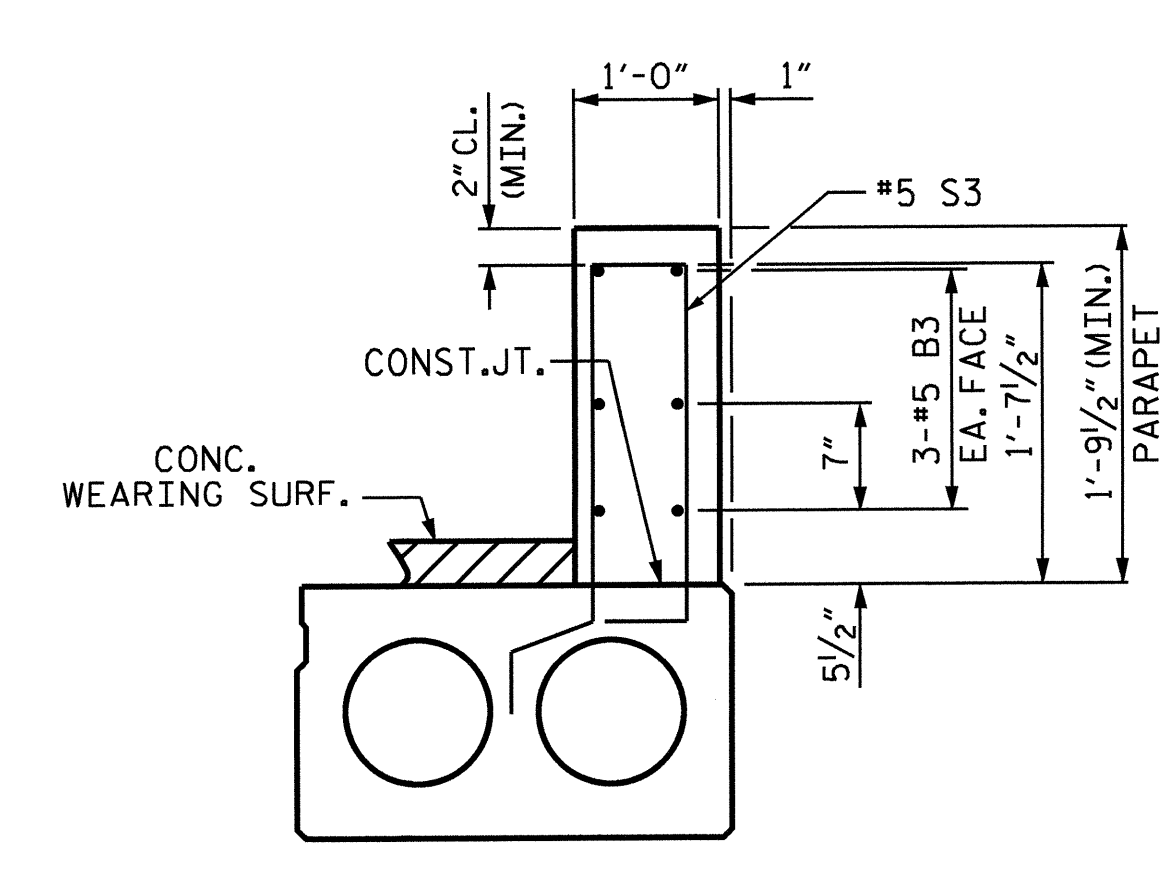
**ELEVATION AT EXPANSION JOINT**



**END VIEW**



**ELEVATION**



**SECTION THRU PARAPET**

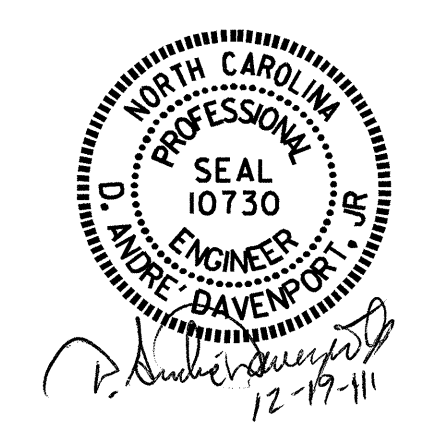
**PARAPET AND END POST FOR ONE BAR METAL RAIL**

PROJECT NO. B-3924  
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SHEET 1 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**CONCRETE PARAPET AND PARAPET END POST DETAILS**



DRAWN BY: H. T. BARBOUR DATE: 4-19-10  
 CHECKED BY: D. A. GLADDEN DATE: 5-25-10

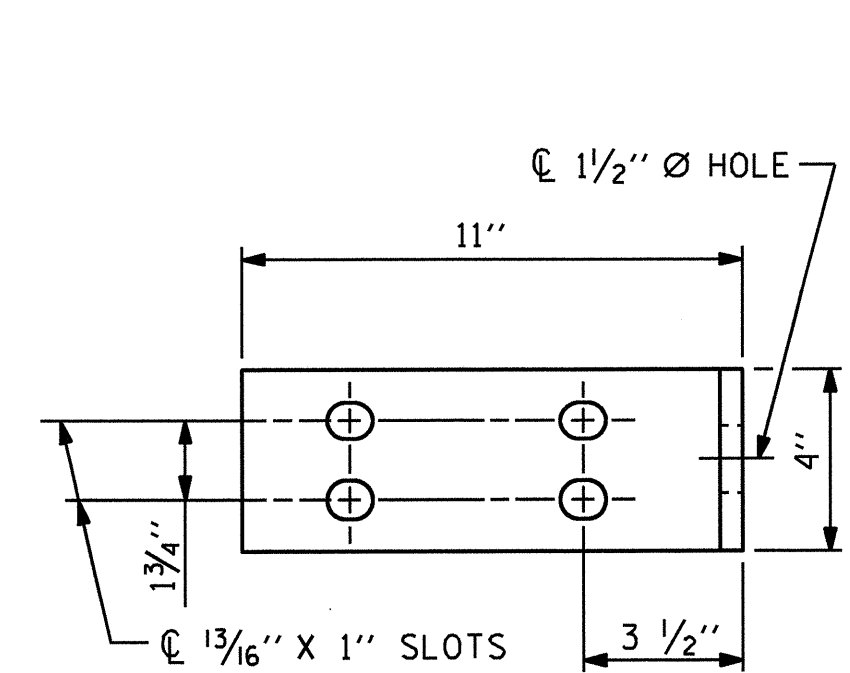
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

TOTAL SHEETS: 24

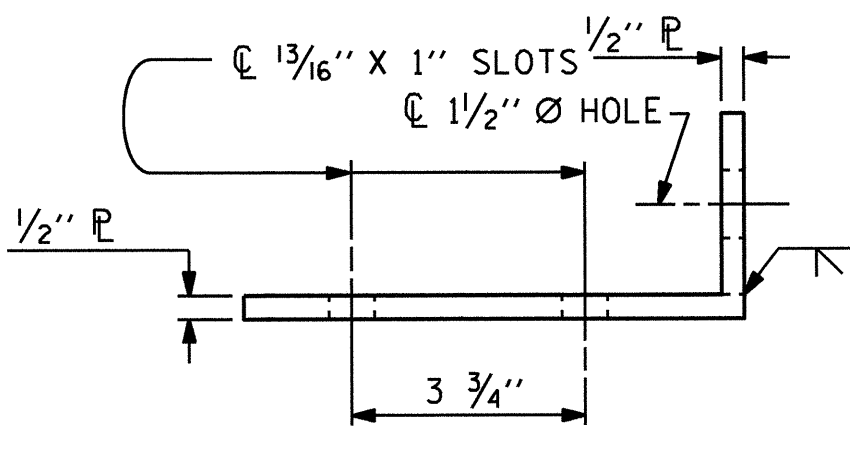
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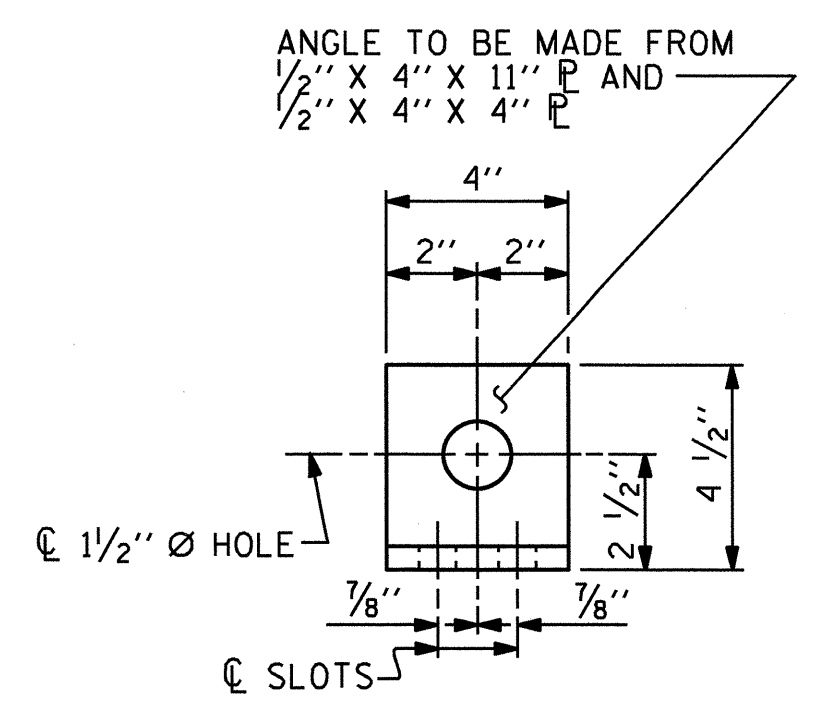




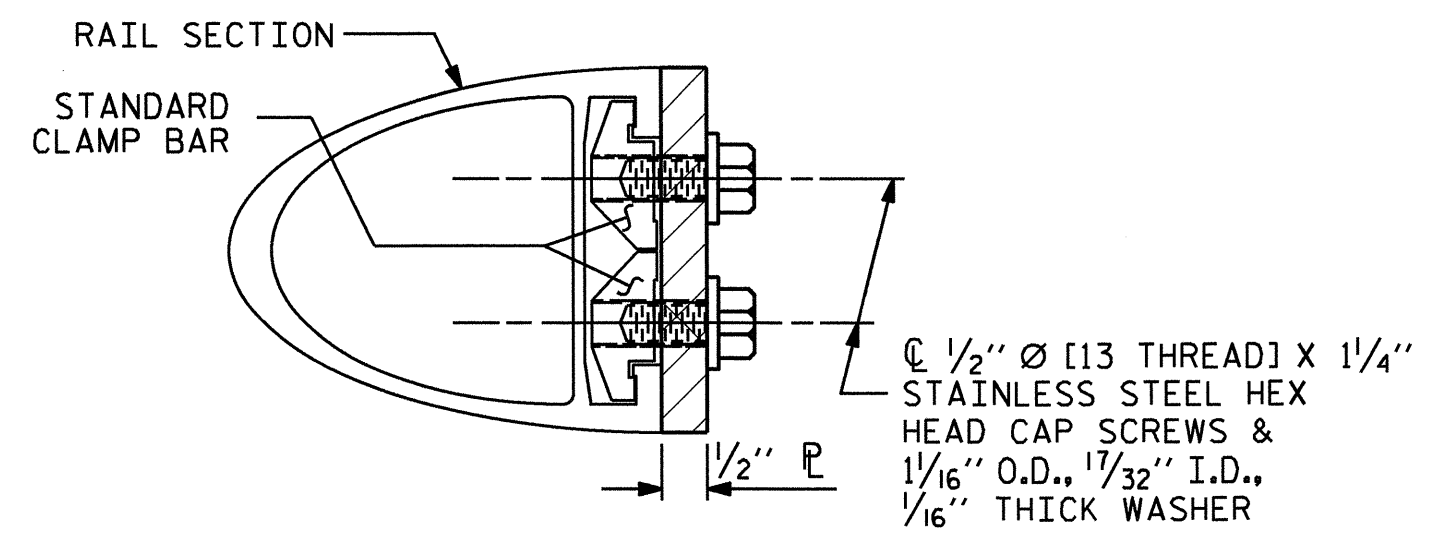
ELEVATION



TOP VIEW



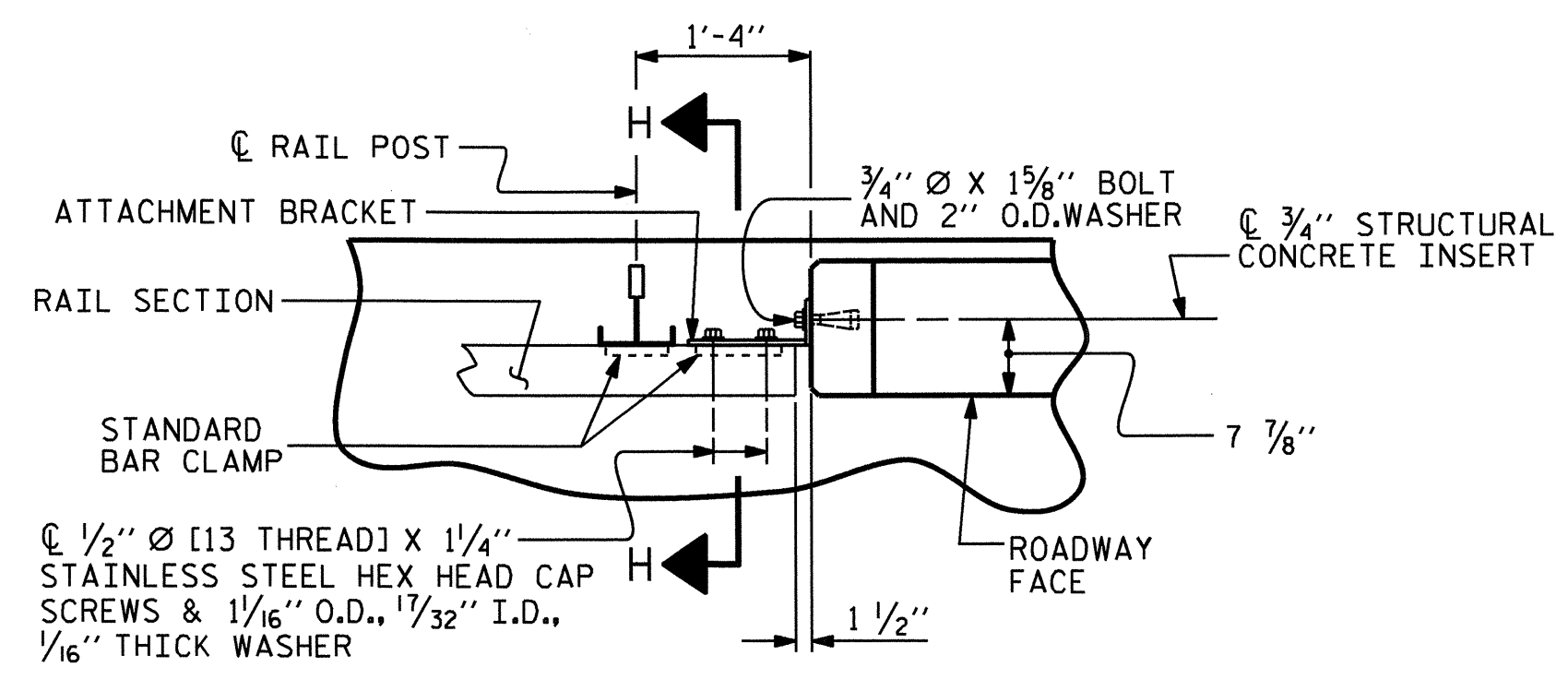
END VIEW (FIX)



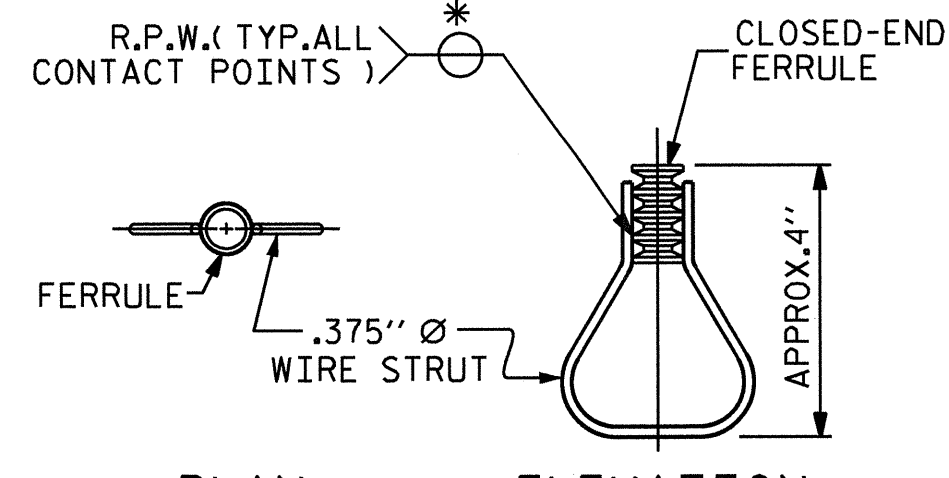
SECTION H-H (FIX)

FIXED

DETAILS FOR ATTACHING METAL RAIL TO END POST

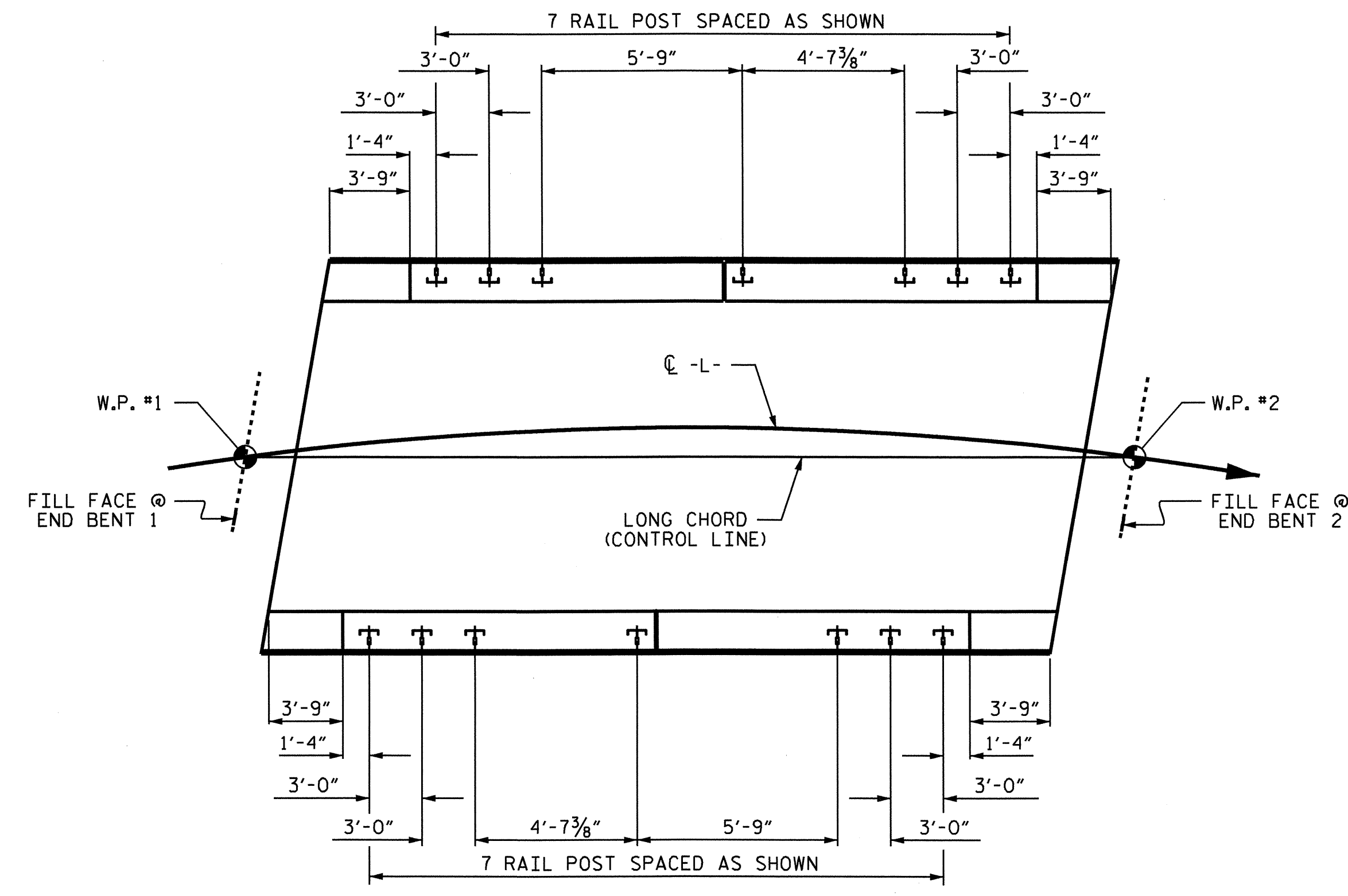


PLAN - RAIL AND END POST



PLAN ELEVATION  
STRUCTURAL CONCRETE INSERT

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



PLAN OF RAIL POST SPACING

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 ).

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 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.

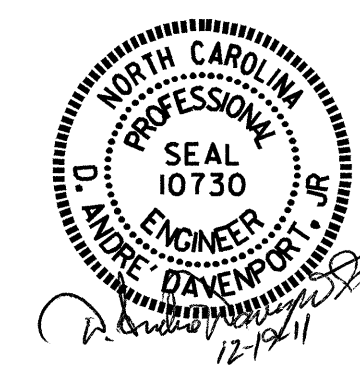
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT 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.

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SHEET 3 OF 4

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RALEIGH

RAIL POST SPACINGS  
AND  
END OF RAIL DETAILS  
FOR ONE BAR METAL RAILS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS 24
2			4			

ASSEMBLED BY : H. T. BARBUR	DATE : 4-19-10
CHECKED BY : D. A. GLADDEN	DATE : 5-25-10
DRAWN BY : FCJ 1/88	REV. 5/7/03 RWW/JTE
CHECKED BY : CRK 3/89	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/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.

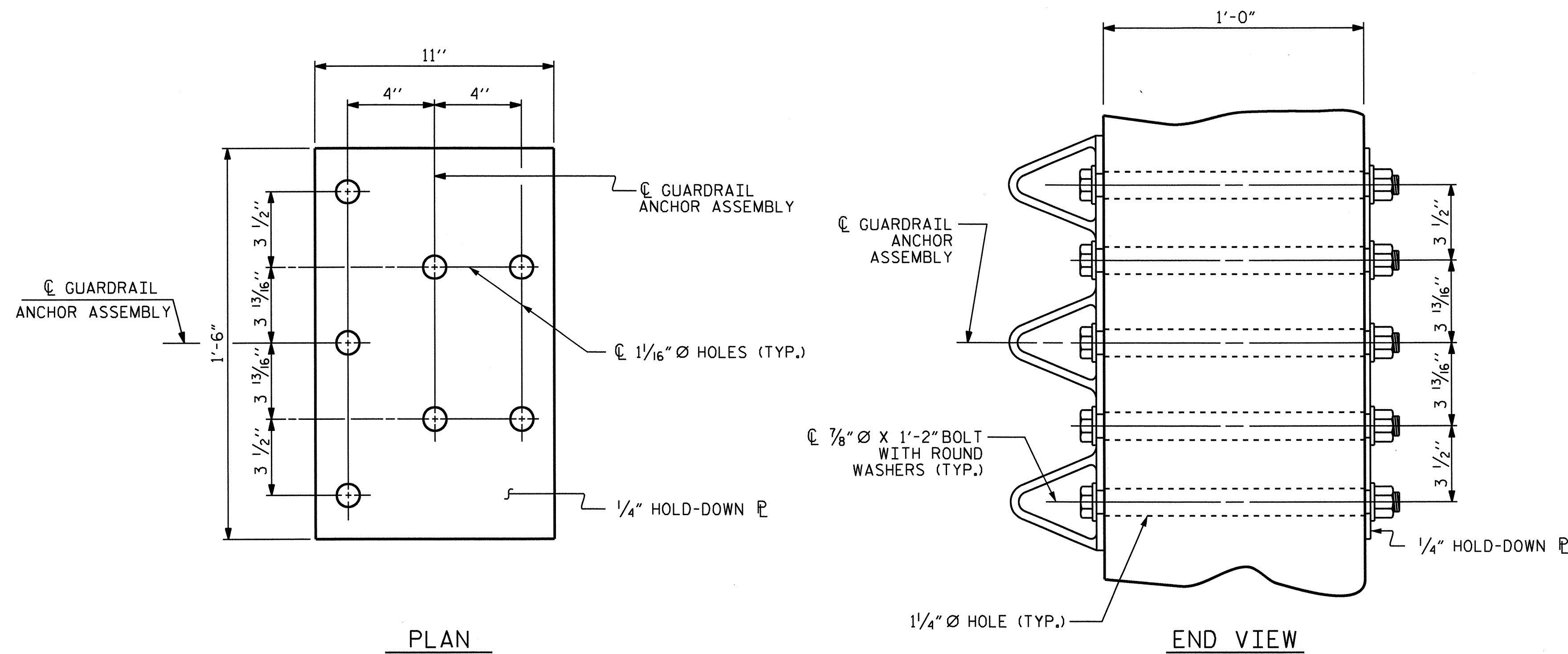
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

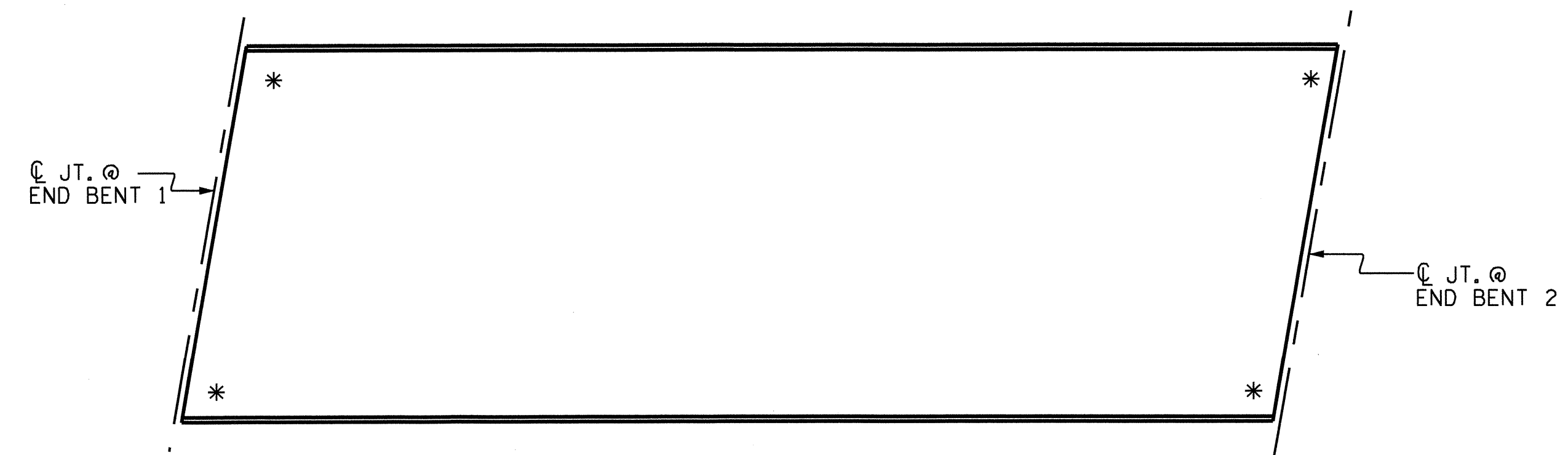
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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.

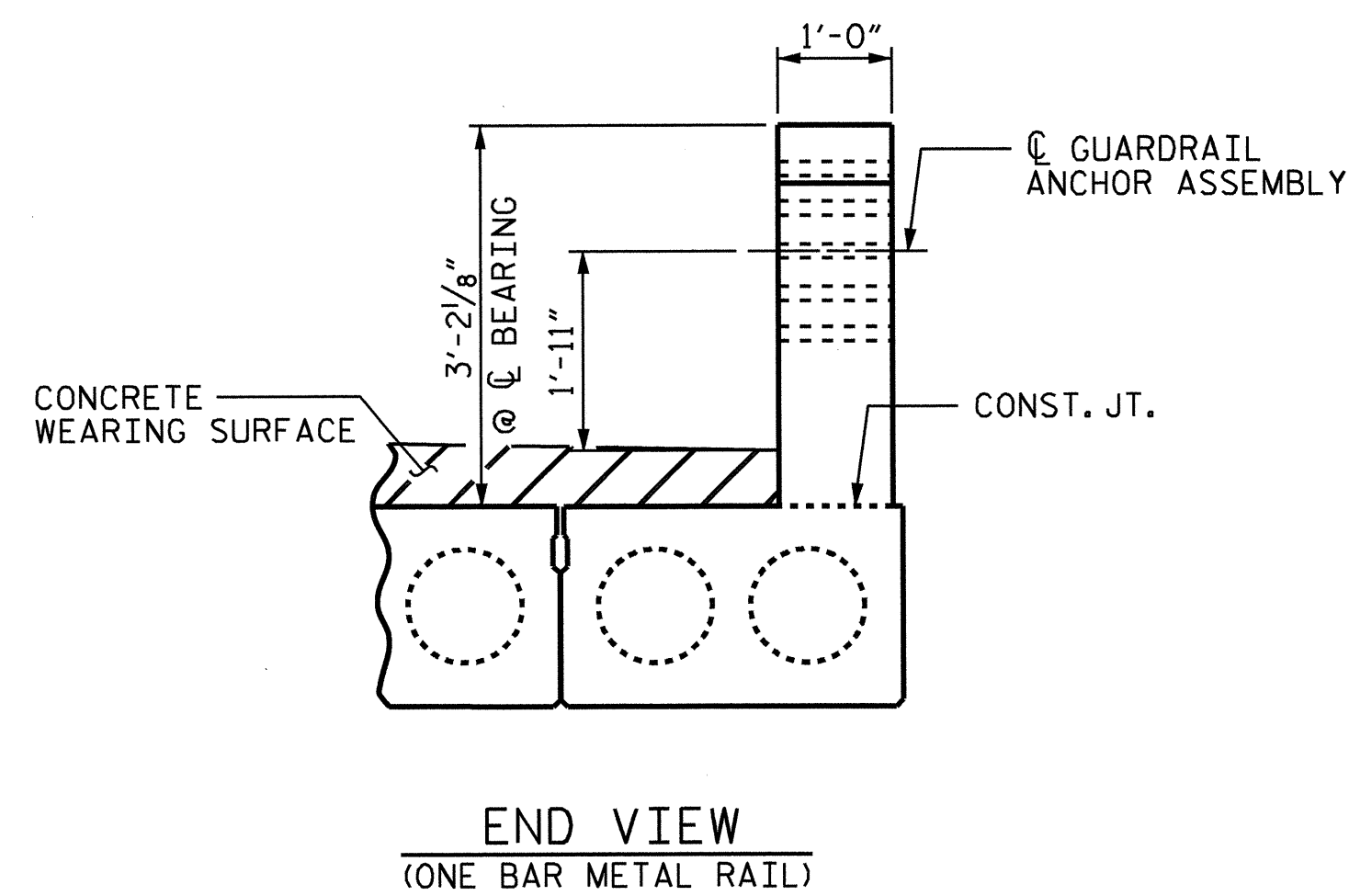


GUARDRAIL ANCHOR ASSEMBLY DETAILS

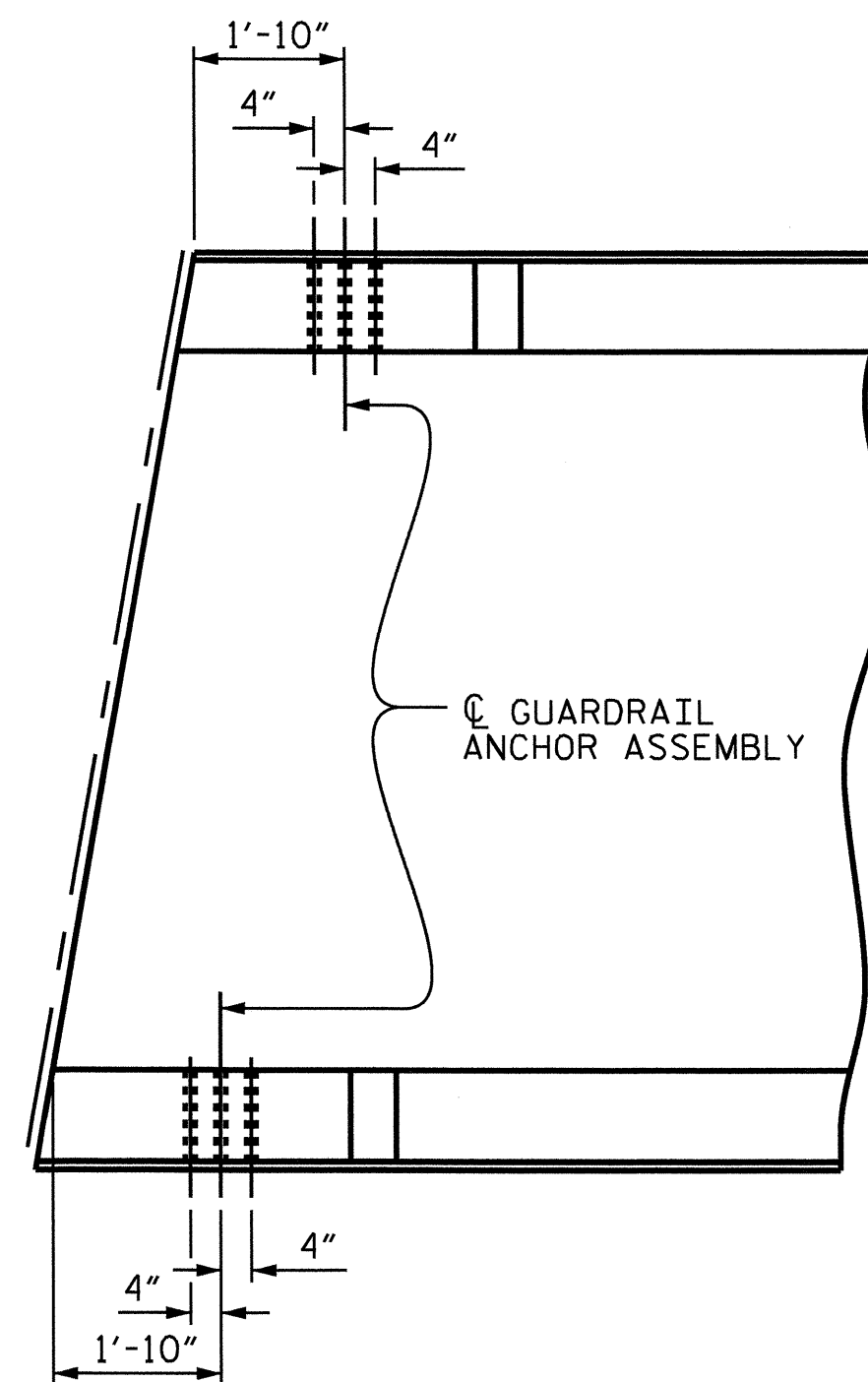


SKETCH SHOWING POINTS OF ATTACHMENT

\* LOCATION OF GUARDRAIL ATTACHMENT



END VIEW  
(ONE BAR METAL RAIL)



PLAN  
END BENT 1 SHOWN, END BENT 2 SIMILAR

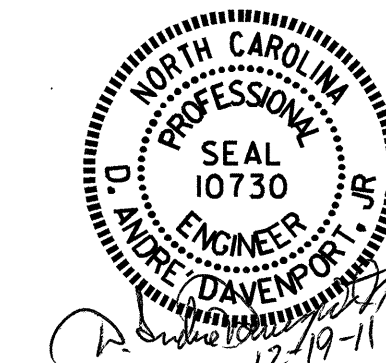
LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50-L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

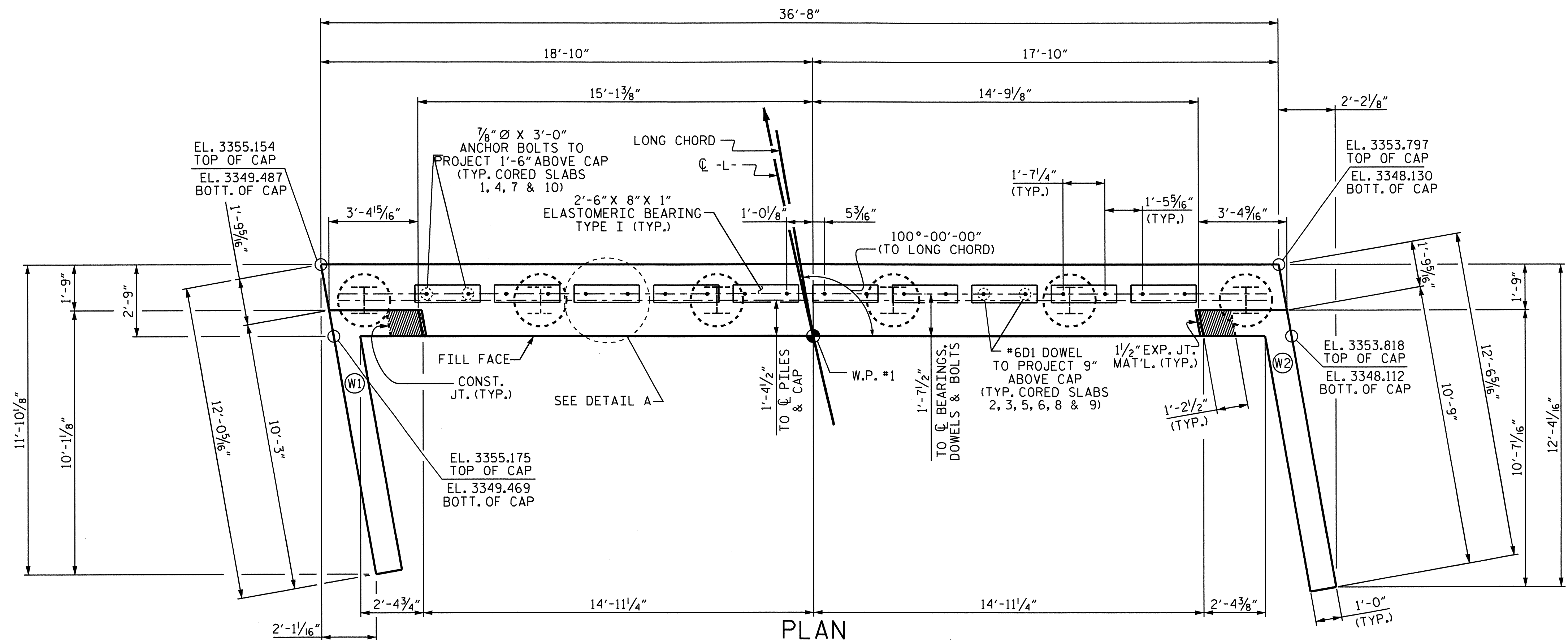
GUARDRAIL ANCHORAGE  
 DETAILS  
 FOR METAL RAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-15	
1			3			TOTAL SHEETS 24	
2			4				

ASSEMBLED BY : H. T. BARBOUR	DATE : 4-19-10
CHECKED BY : D. A. GLADDEN	DATE : 5-26-10
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : CM 5/10	REV. 10/1/11
	REV. 12/5/11
MAA/GM	MAA/GM



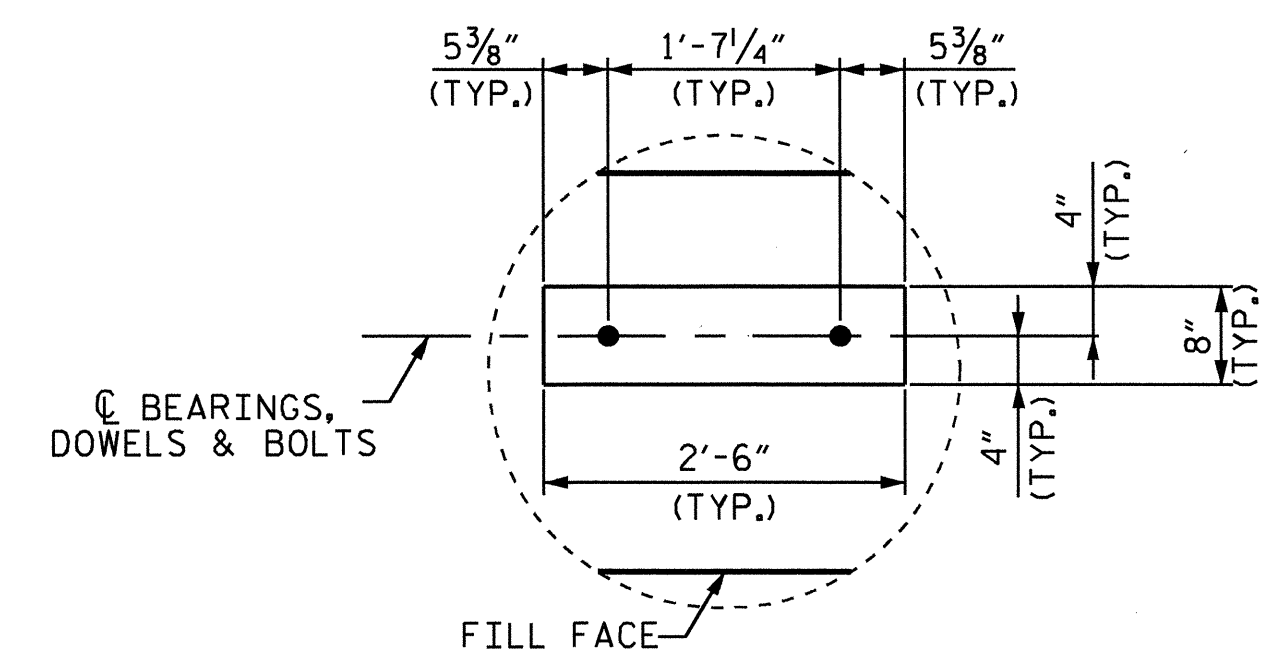


**NOTES**

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

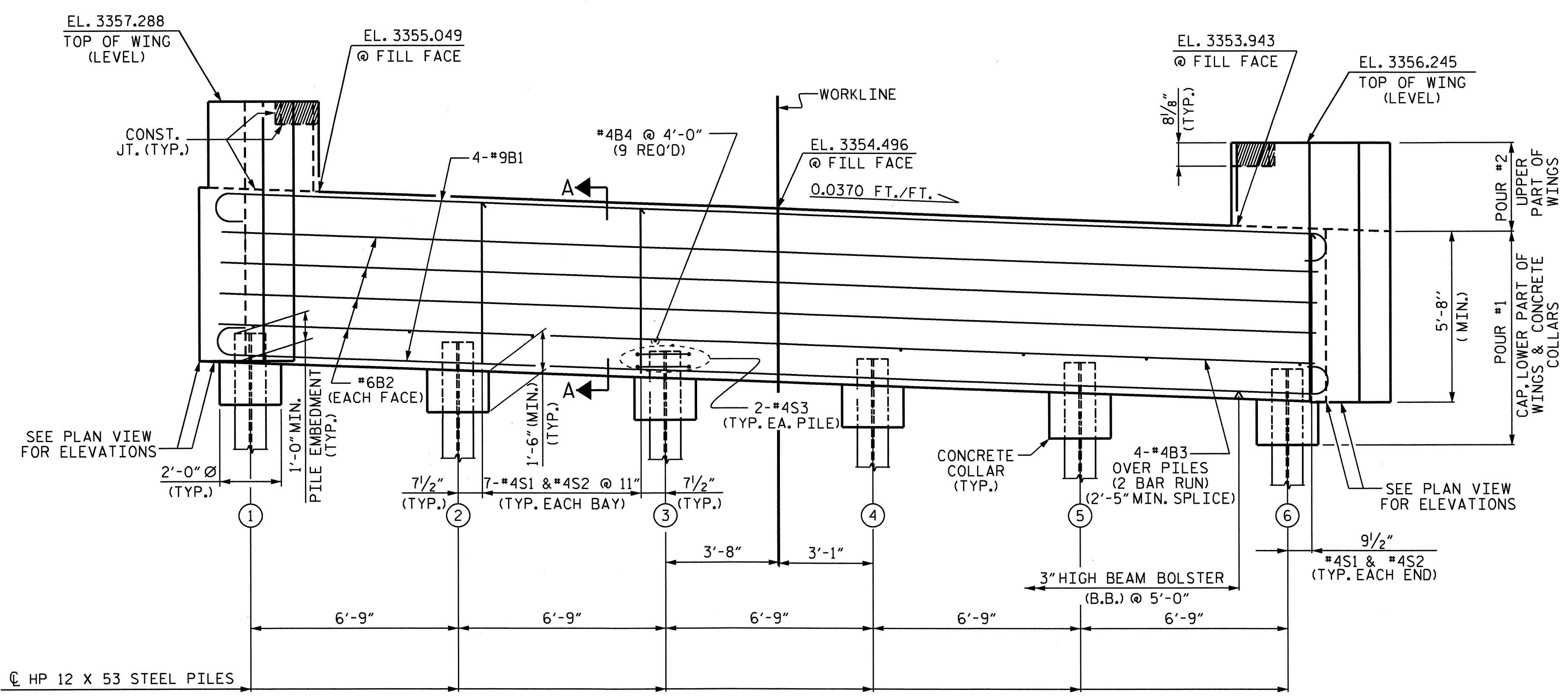
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPETS ARE CAST IF SLIP FORMING IS USED.

FOR MASS CONCRETE, SEE SPECIAL PROVISIONS.



**PLAN**

**DETAIL A**



TOP OF PILE ELEVATION	
PILE	ELEVATION
1	3350.444
2	3350.194
3	3349.944
4	3349.694
5	3349.444
6	3349.195

**ELEVATION**

PROJECT NO. B-3924

WATAUGA COUNTY

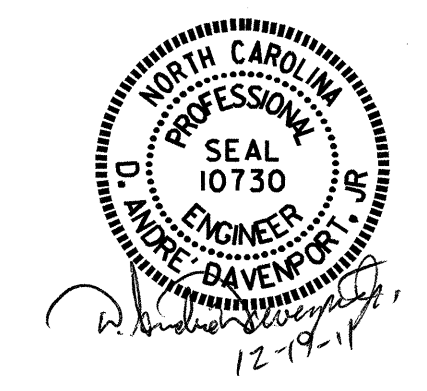
STATION: 17+52.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

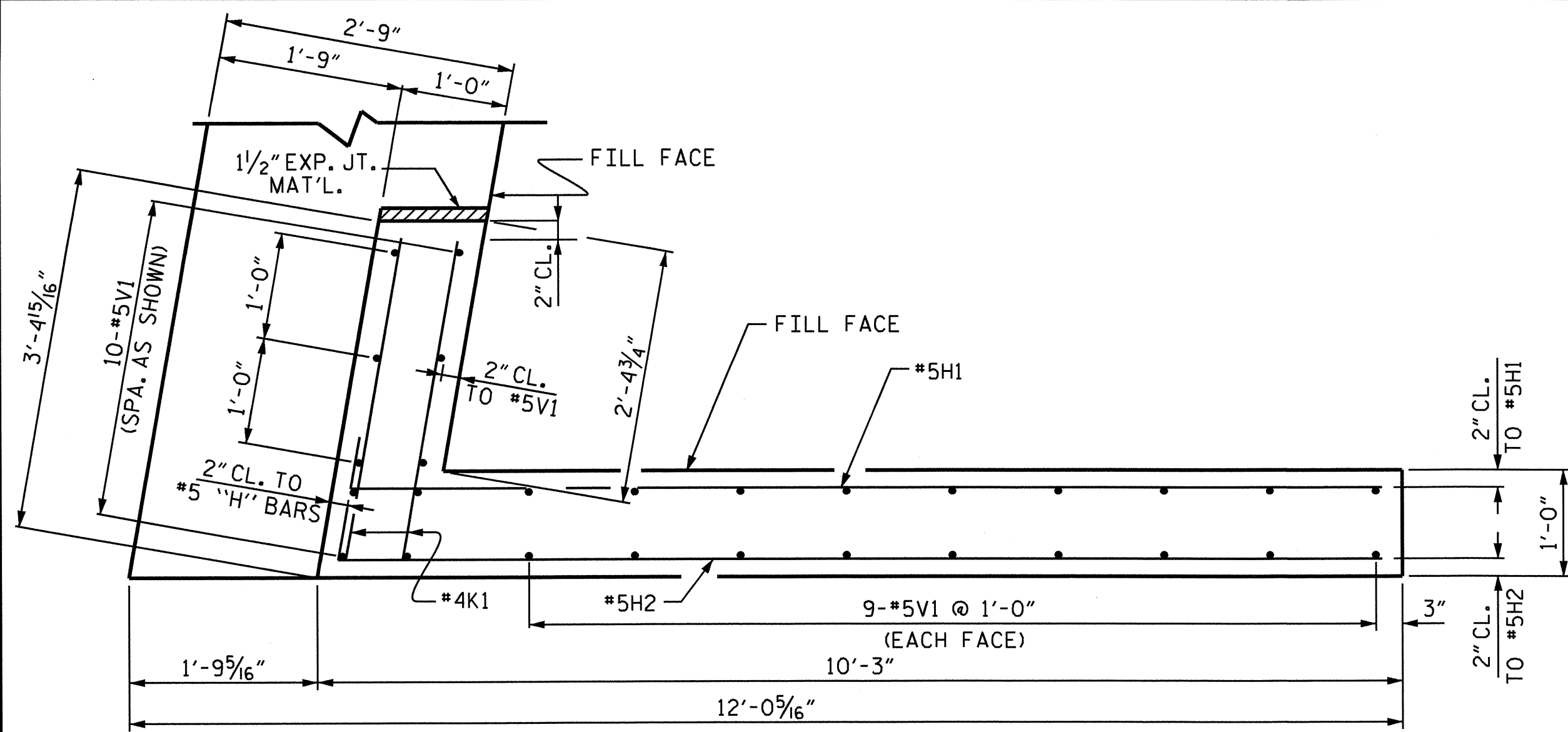
**SUBSTRUCTURE  
END BENT #1**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS	
2			4			24	

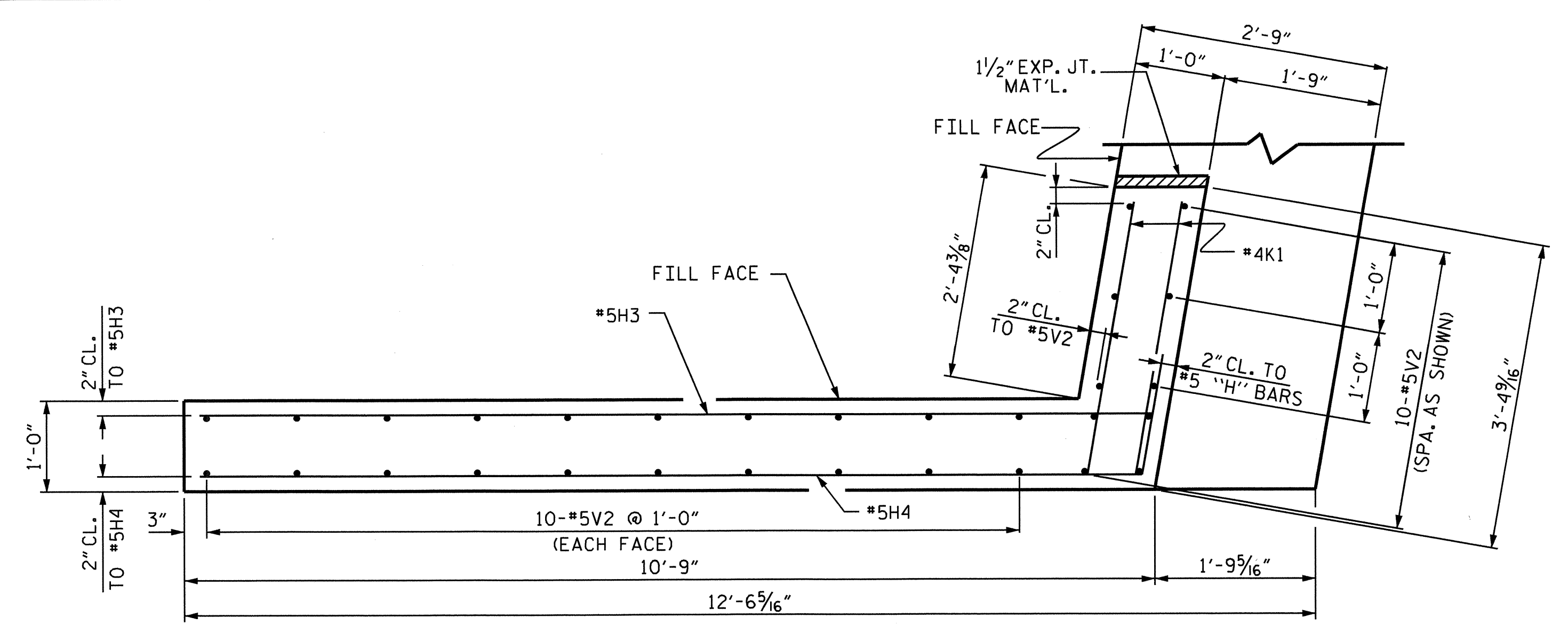


DRAWN BY: D.A. DAVENPORT DATE: 12/10

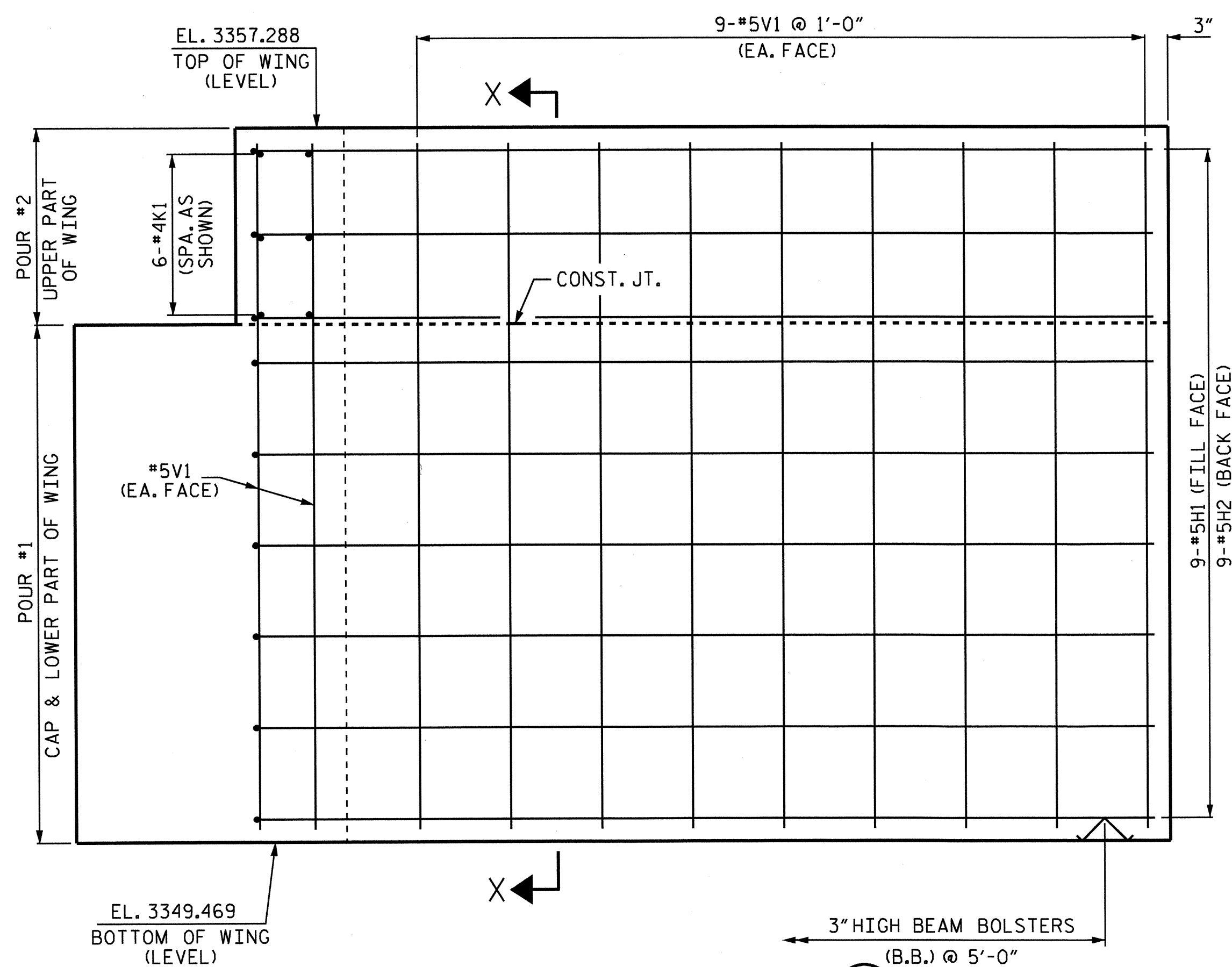
CHECKED BY: E.C. LOCKLEAR DATE: 04/11



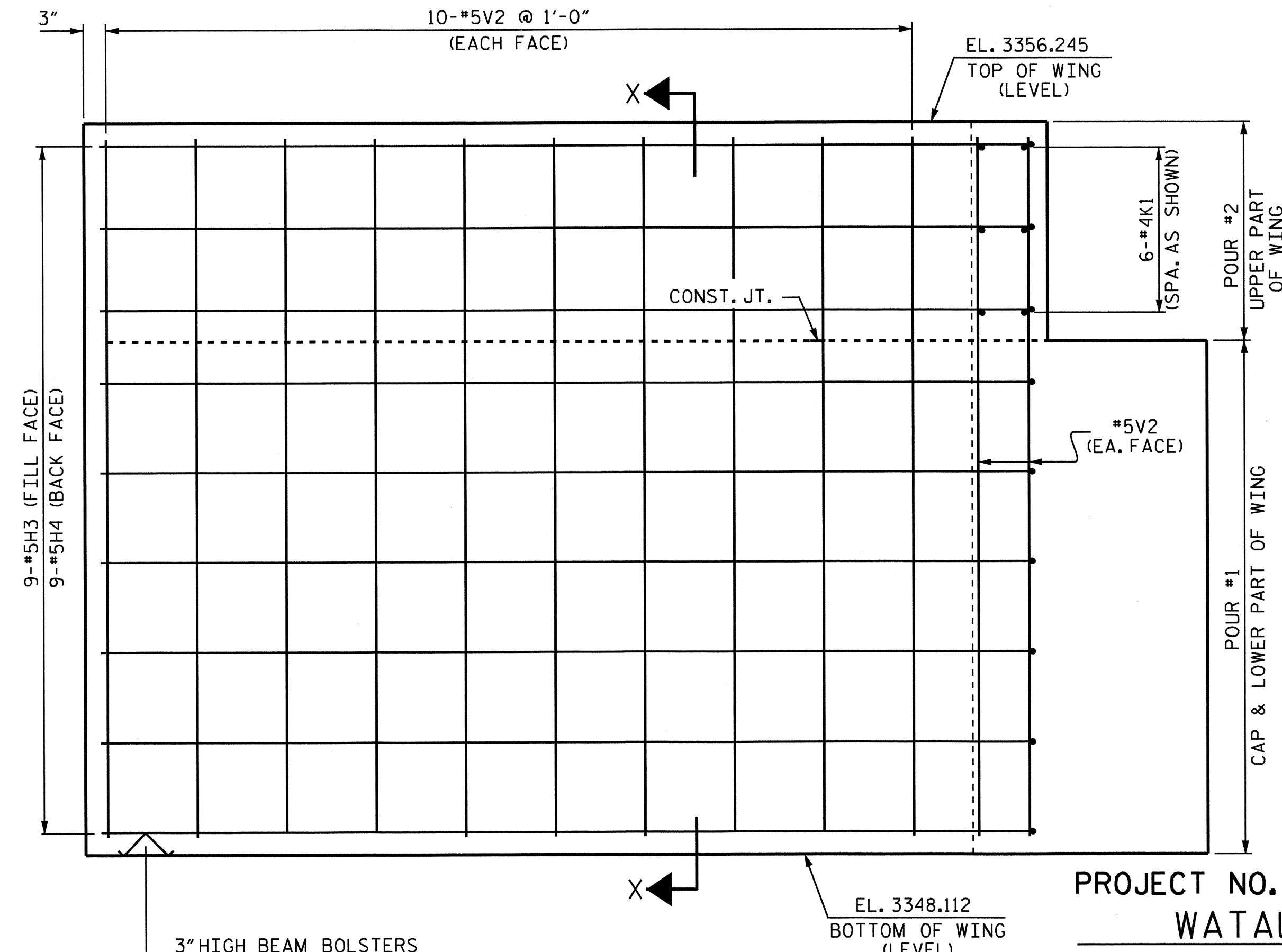
PLAN OF LEFT WING (W1)



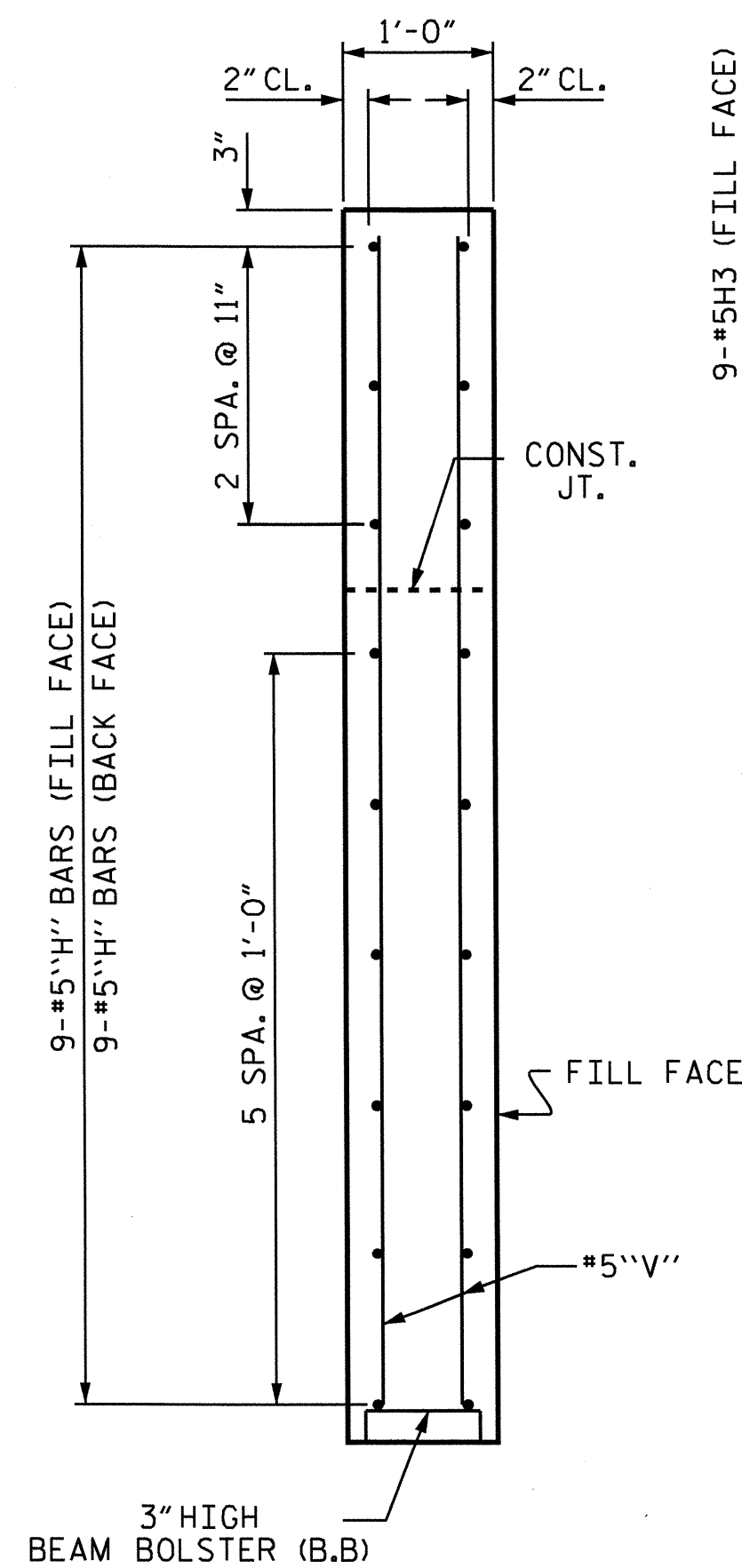
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)



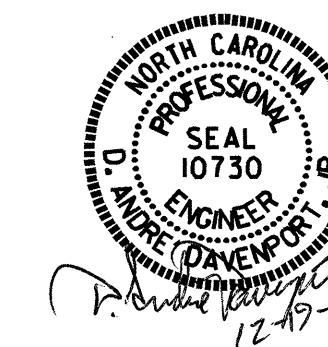
SECTION X-X

PROJECT NO. B-3924  
 WATAUGA COUNTY  
 STATION: 17+52.50-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

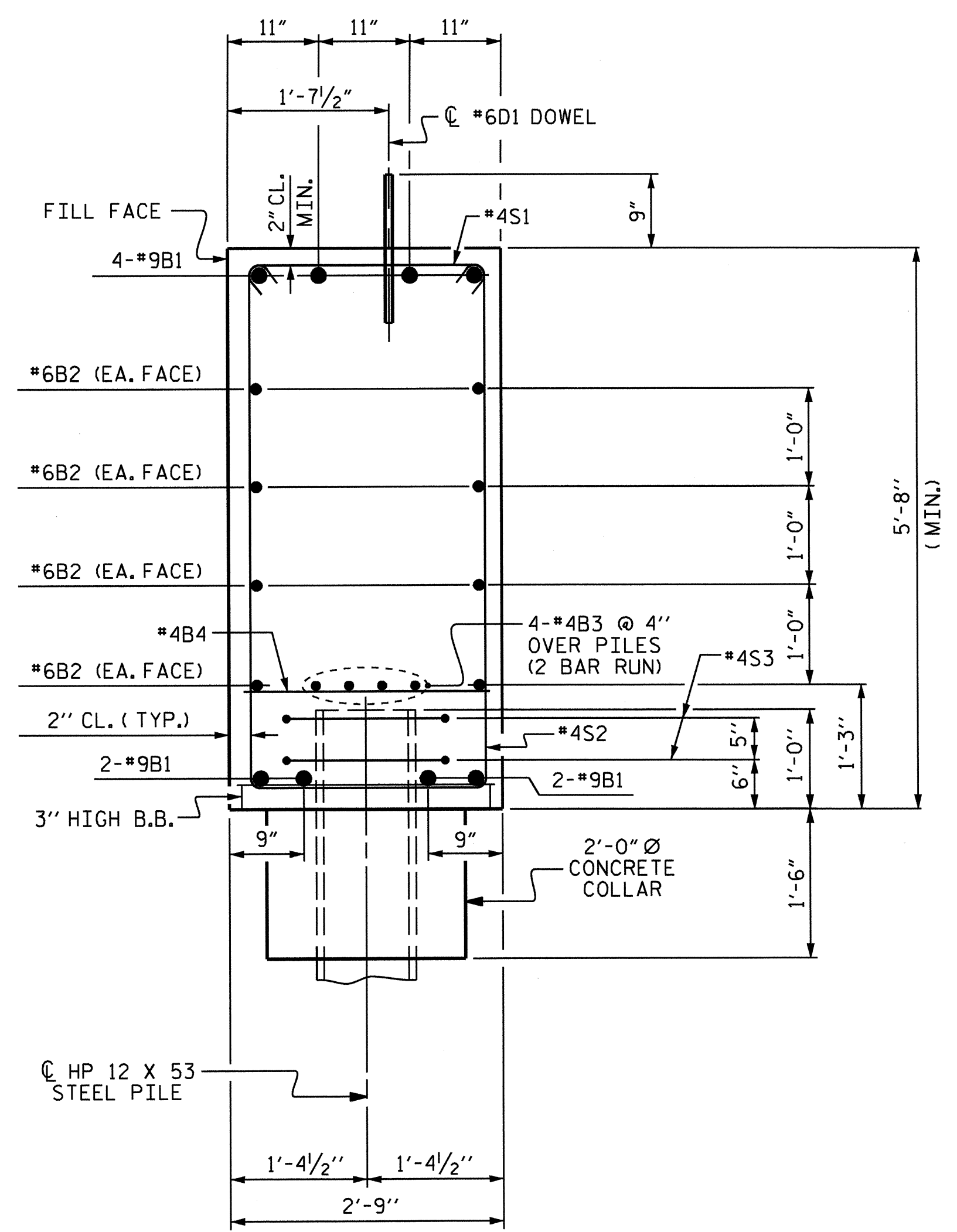
SUBSTRUCTURE  
 END BENT #1



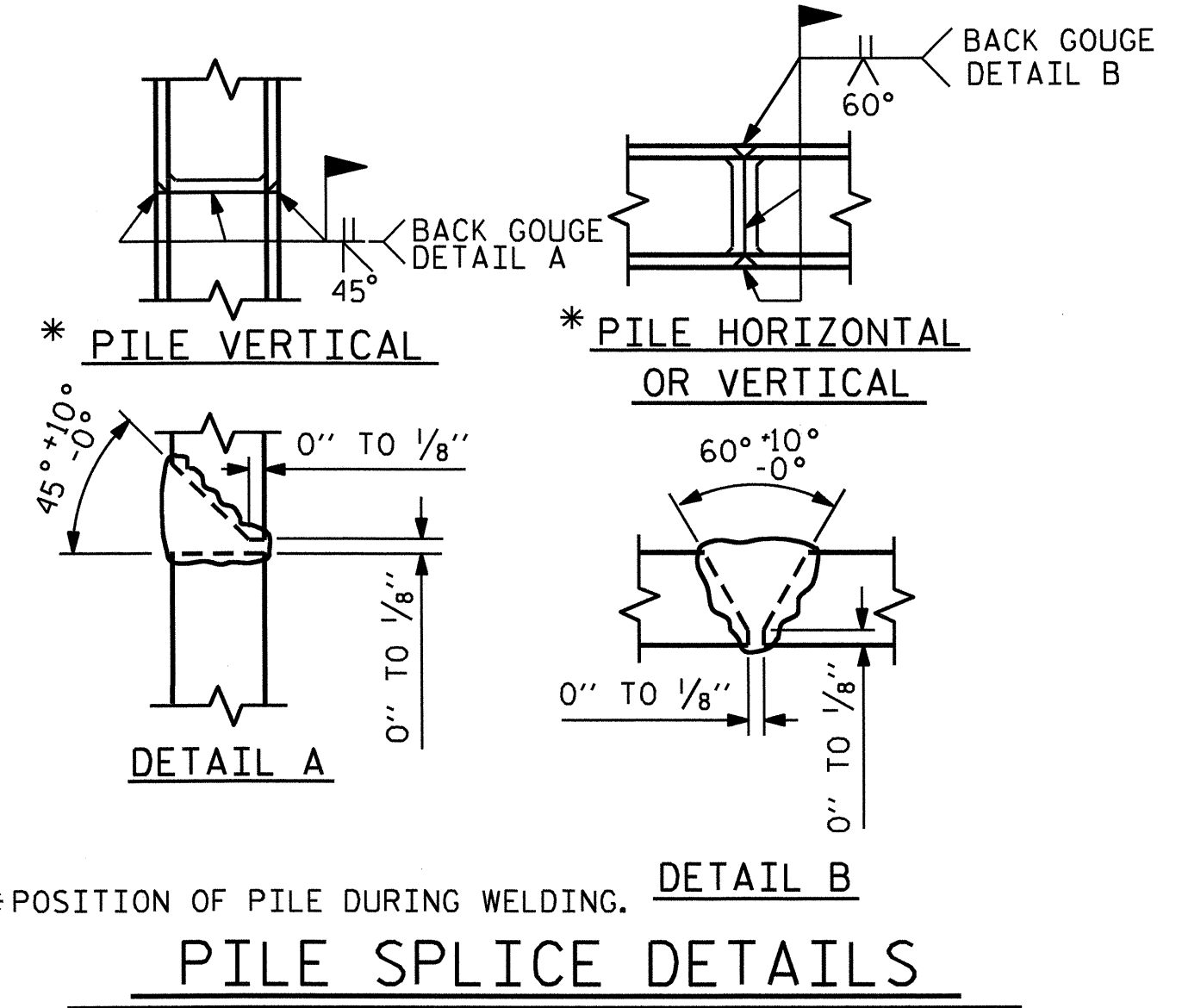
DRAWN BY: D.A. DAVENPORT DATE: 12/10  
 CHECKED BY: E.C. LOCKLEAR DATE: 04/11

14-DEC-2011 14:16  
 R:\Structures\Final\b-3924.sd.e\*.dgn  
 adavenport

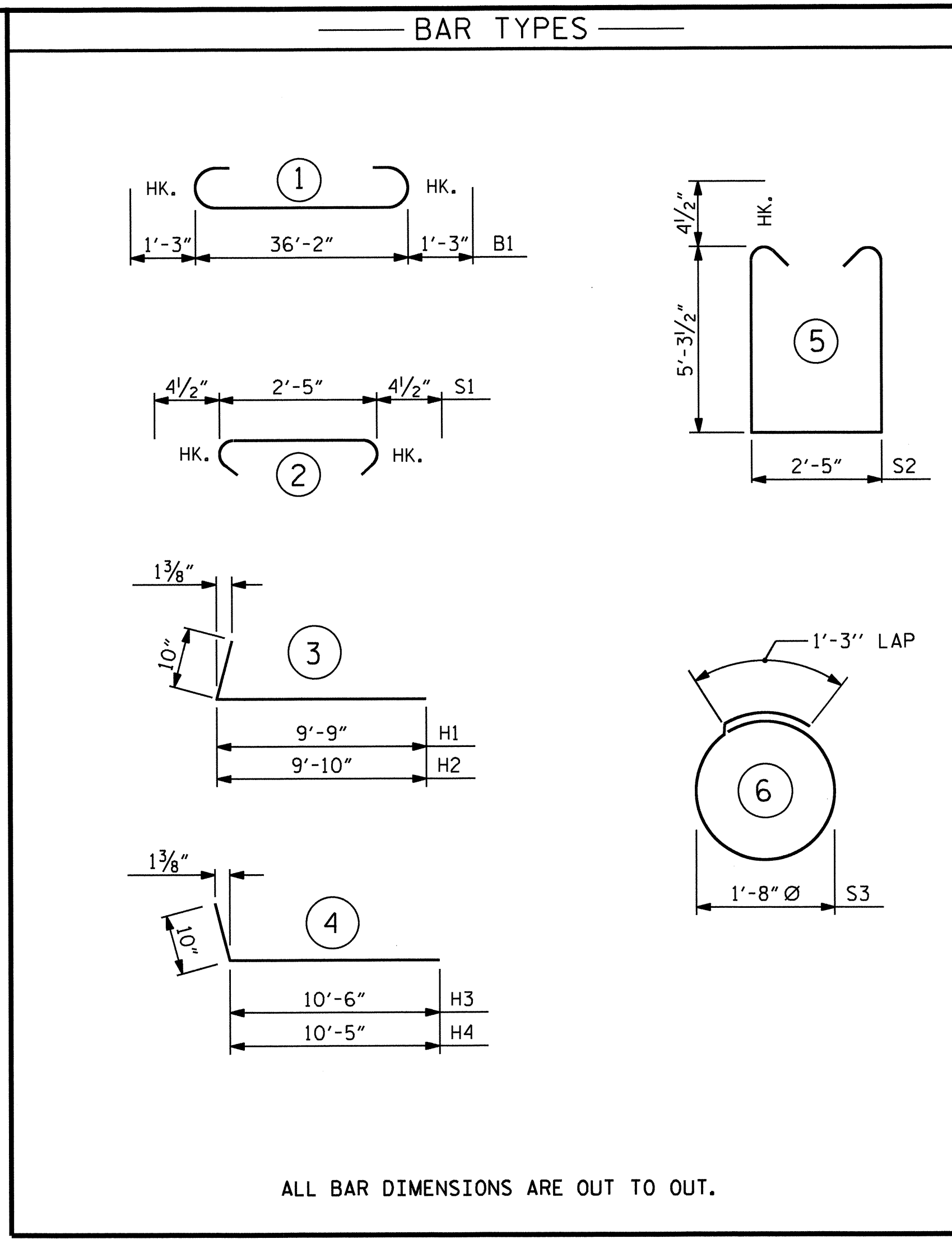
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL SHEETS	24
2			4				



SECTION A-A



PILE SPlice DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-8"	1052
B2	8	#6	STR	36'-3"	436
B3	8	#4	STR	19'-5"	104
B4	9	#4	STR	2'-5"	15
D1	12	#6	STR	1'-6"	27
H1	9	#5	3	10'-7"	99
H2	9	#5	3	10'-8"	100
H3	9	#5	4	11'-4"	106
H4	9	#5	4	11'-3"	106
K1	12	#4	STR	3'-0"	24
S1	37	#4	2	3'-2"	78
S2	37	#4	5	13'-9"	340
S3	12	#4	6	6'-6"	52
V1	28	#5	STR	7'-5"	217
V2	30	#5	STR	7'-9"	242

REINFORCING STEEL = 2998 LBS.

CLASS A CONCRETE BREAKDOWN

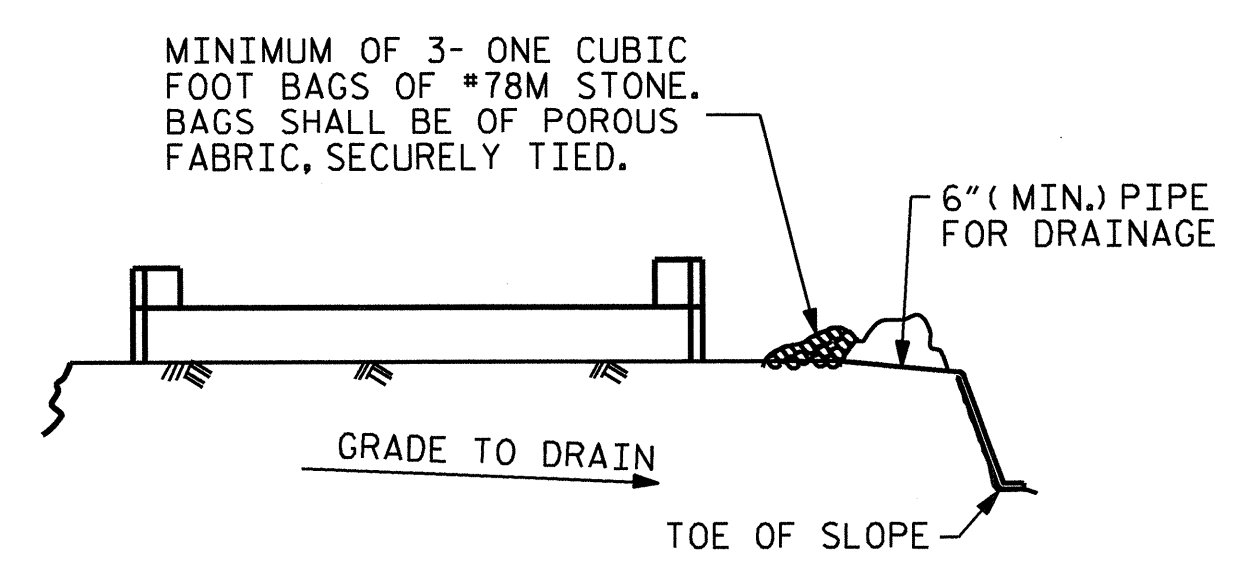
POUR #1 CAP, CONC. COLLARS & LOWER PART OF WINGS 26.2 C.Y.

POUR #2 UPPER PART OF WINGS 2.2 C.Y.

TOTAL CLASS A CONCRETE 28.4 C.Y.

HP 12 X 53 STEEL PILES NO. 6 210 LIN. FT.

STEEL PILE POINTS EACH 6



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

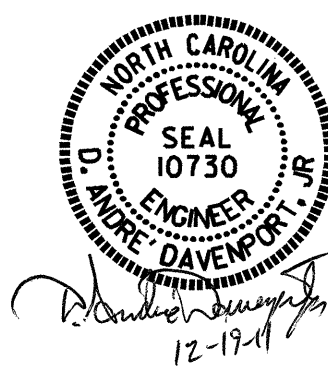
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50-L-  
 SHEET 3 OF 3

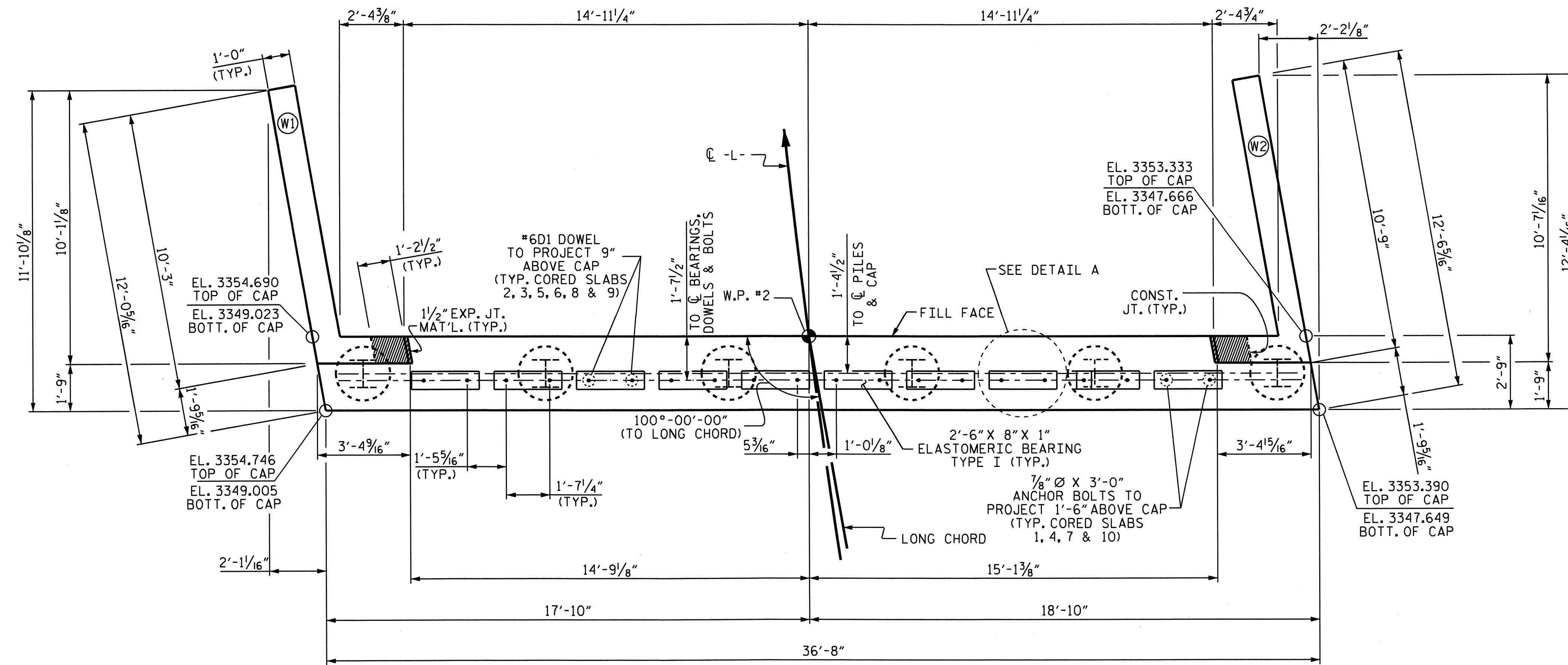
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-18  
TOTAL SHEETS 24



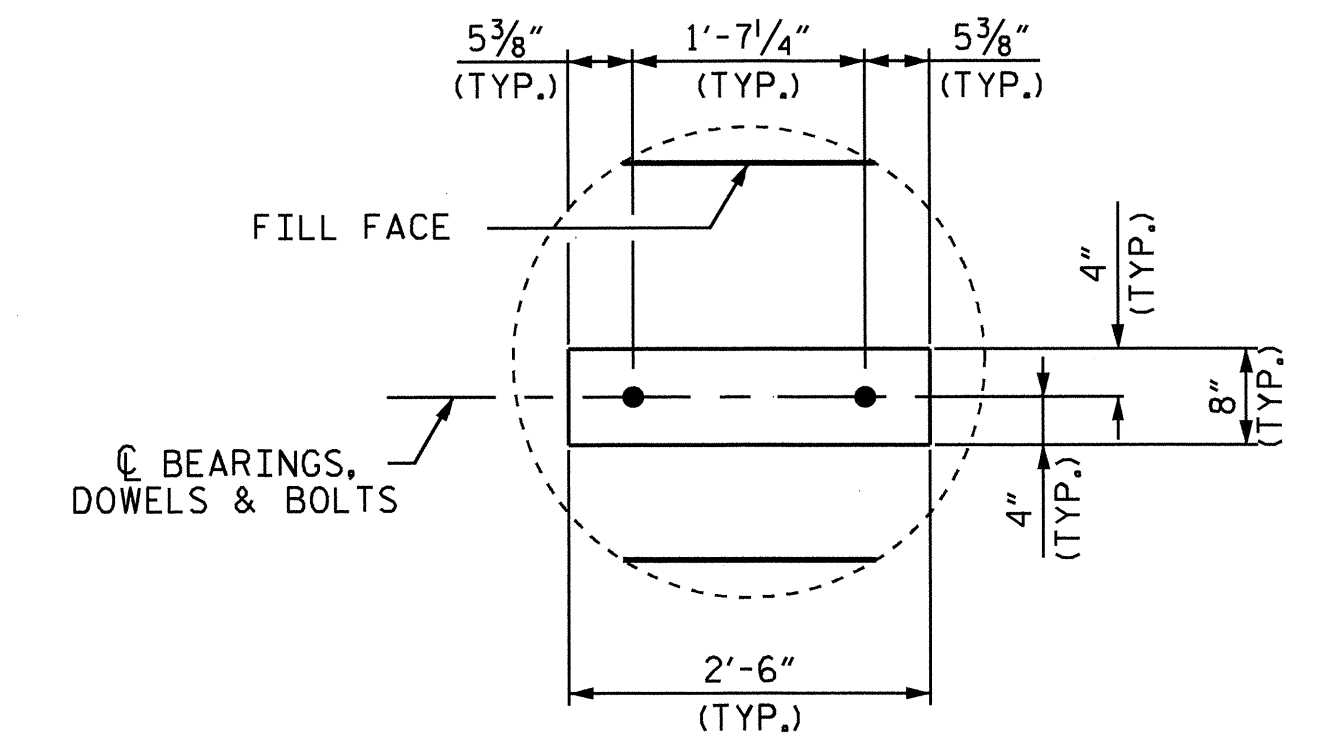
DRAWN BY : D.A. DAVENPORT DATE : 12/10  
 CHECKED BY : E.C. LOCKLEAR DATE : 04/11



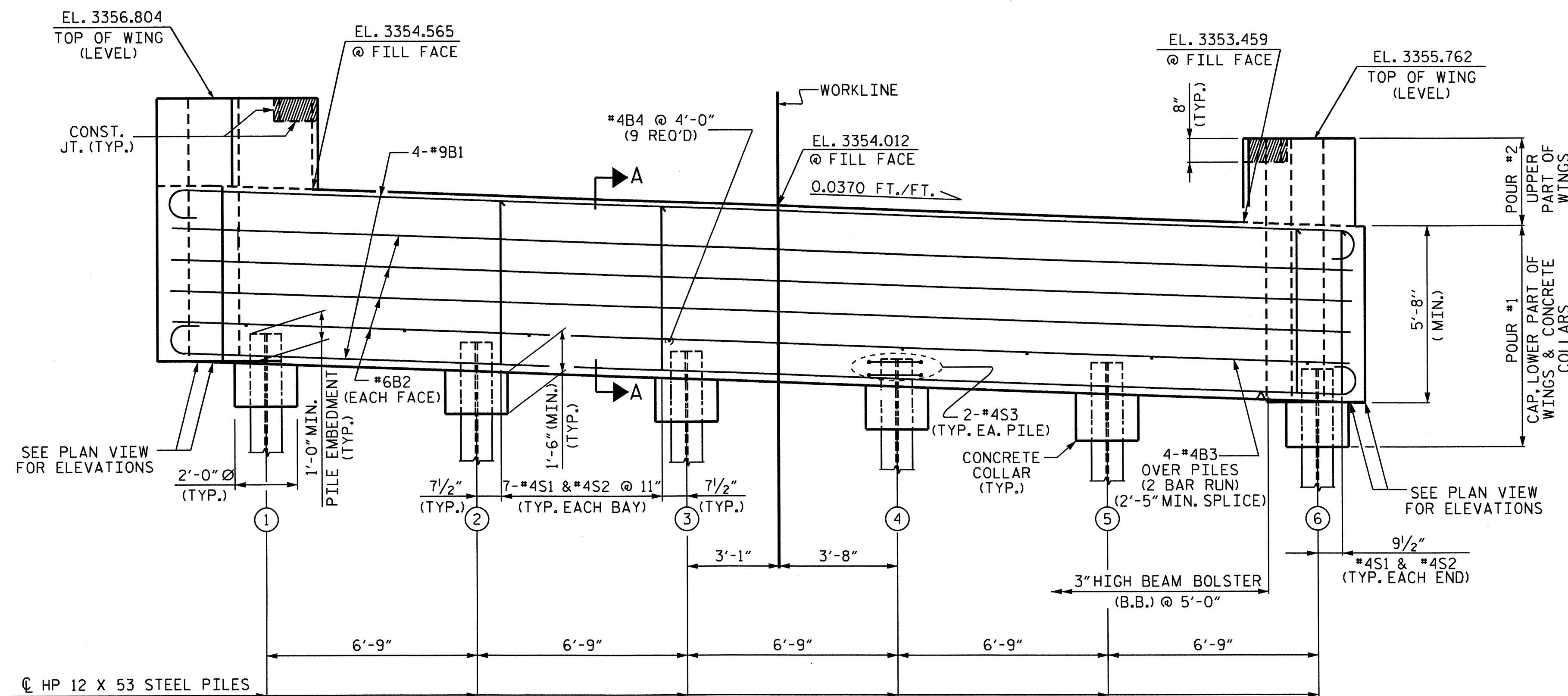


PLAN

**NOTES**  
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.  
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPETS ARE CAST IF SLIP FORMING IS USED.  
 FOR MASS CONCRETE, SEE SPECIAL PROVISIONS.



DETAIL A



ELEVATION

TOP OF PILE ELEVATION	
PILE	ELEVATION
1	3349.977
2	3349.728
3	3349.478
4	3349.228
5	3348.978
6	3348.729

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50 -L-

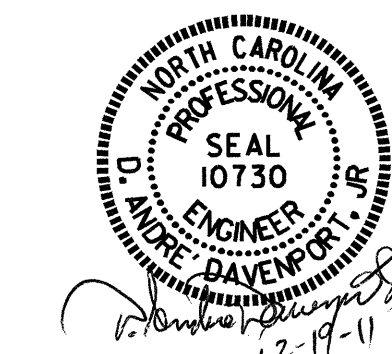
SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 END BENT #2**

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	24
1			3			
2			4			

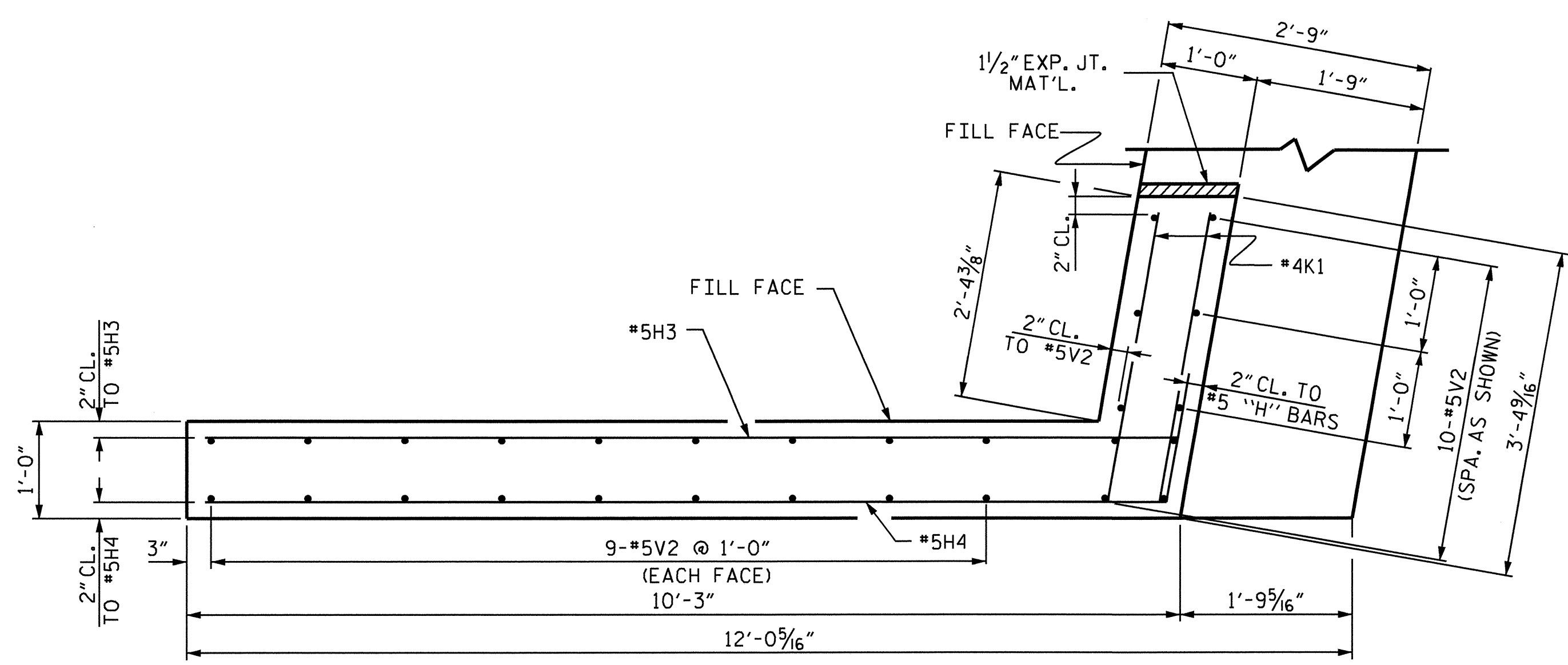
SHEET NO. S-19



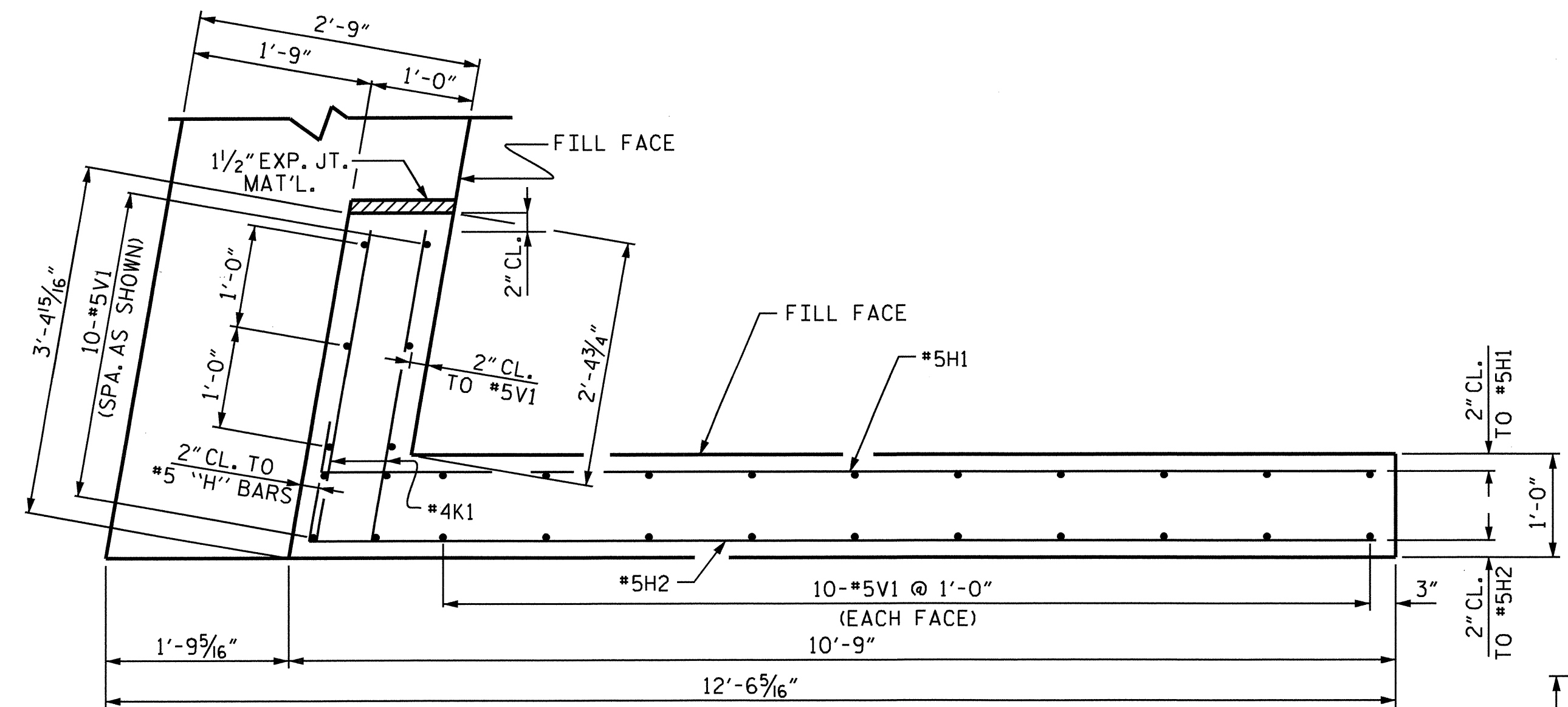
DRAWN BY: D.A. DAVENPORT DATE: 12/10  
 CHECKED BY: E.C. LOCKLEAR DATE: 04/11

19-DEC-2011 07:22  
 R:\Structures\IFinal\b-3924.sd.e\*  
 adavenport

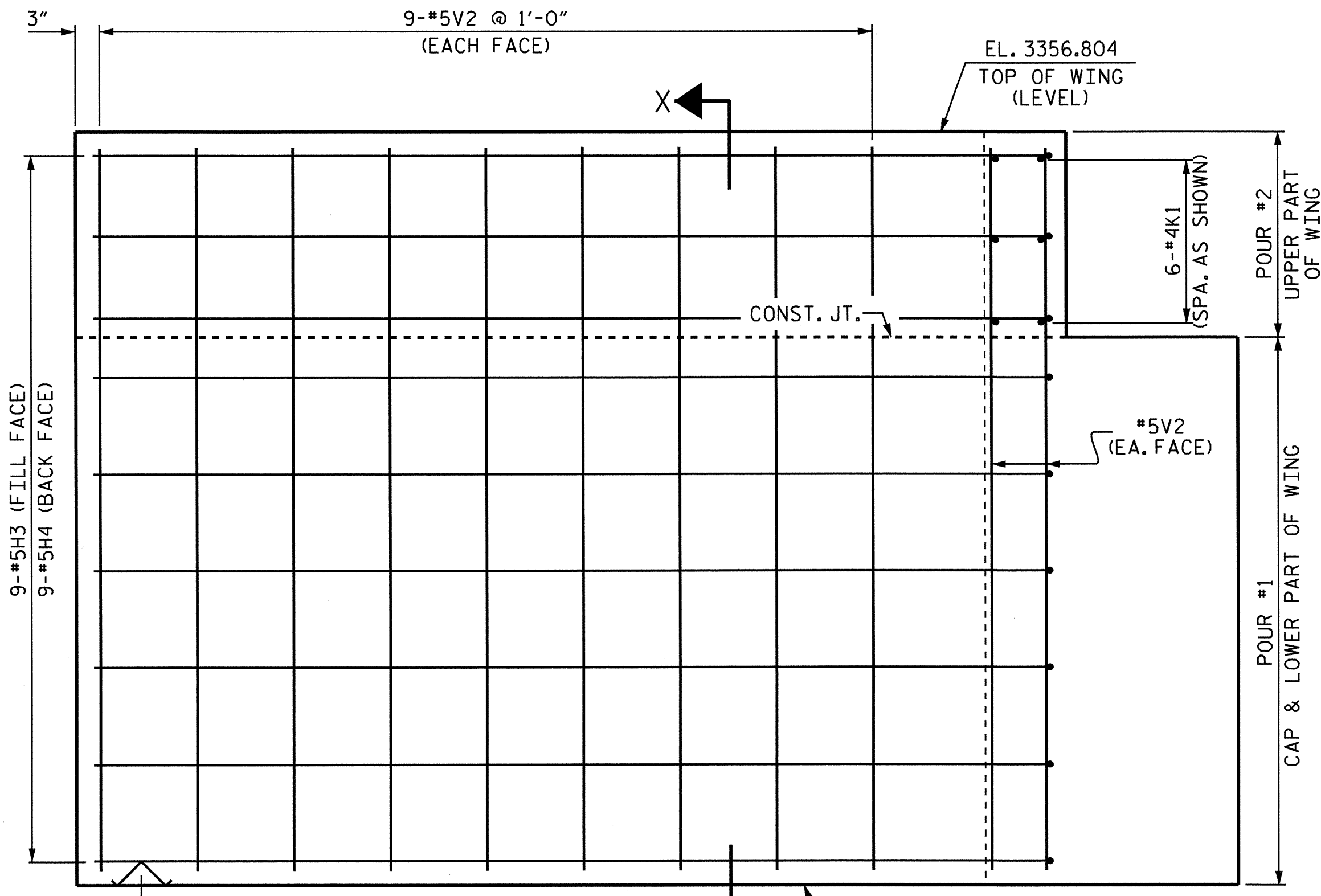




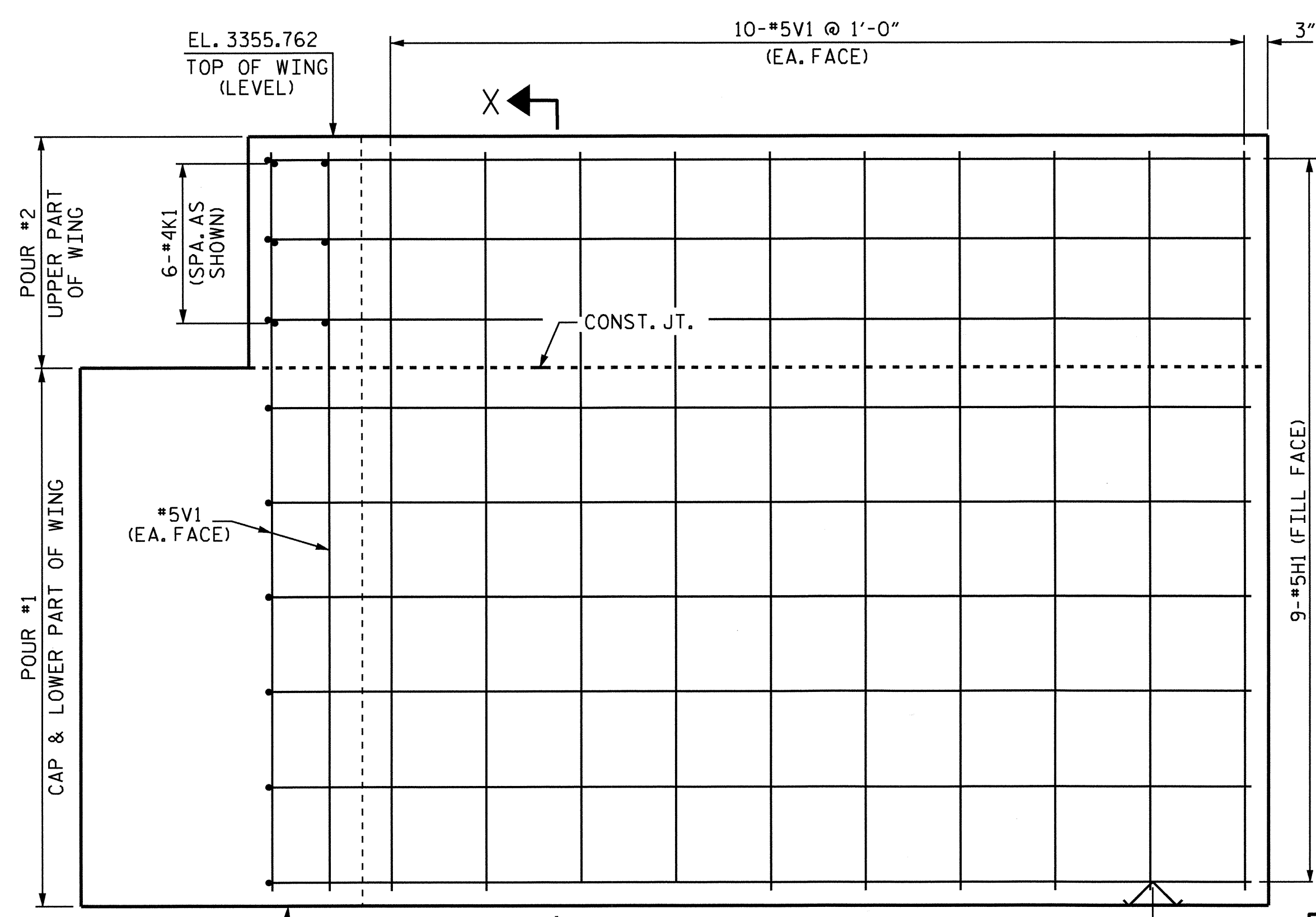
PLAN OF LEFT WING (W1)



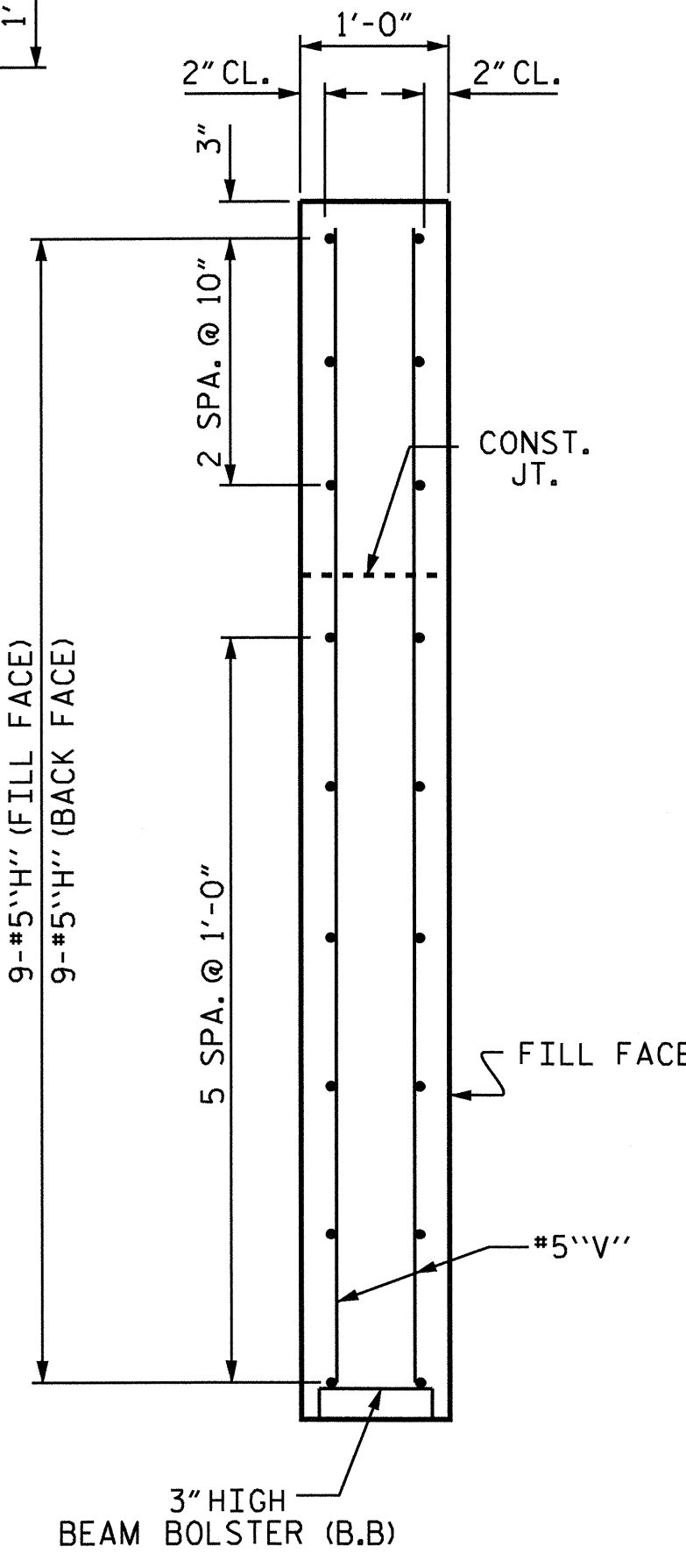
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)



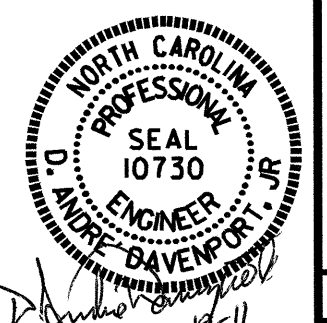
SECTION X-X

PROJECT NO. B-3924  
 WATAUGA COUNTY  
 STATION: 17+52.50-L-

SHEET 2 OF 3

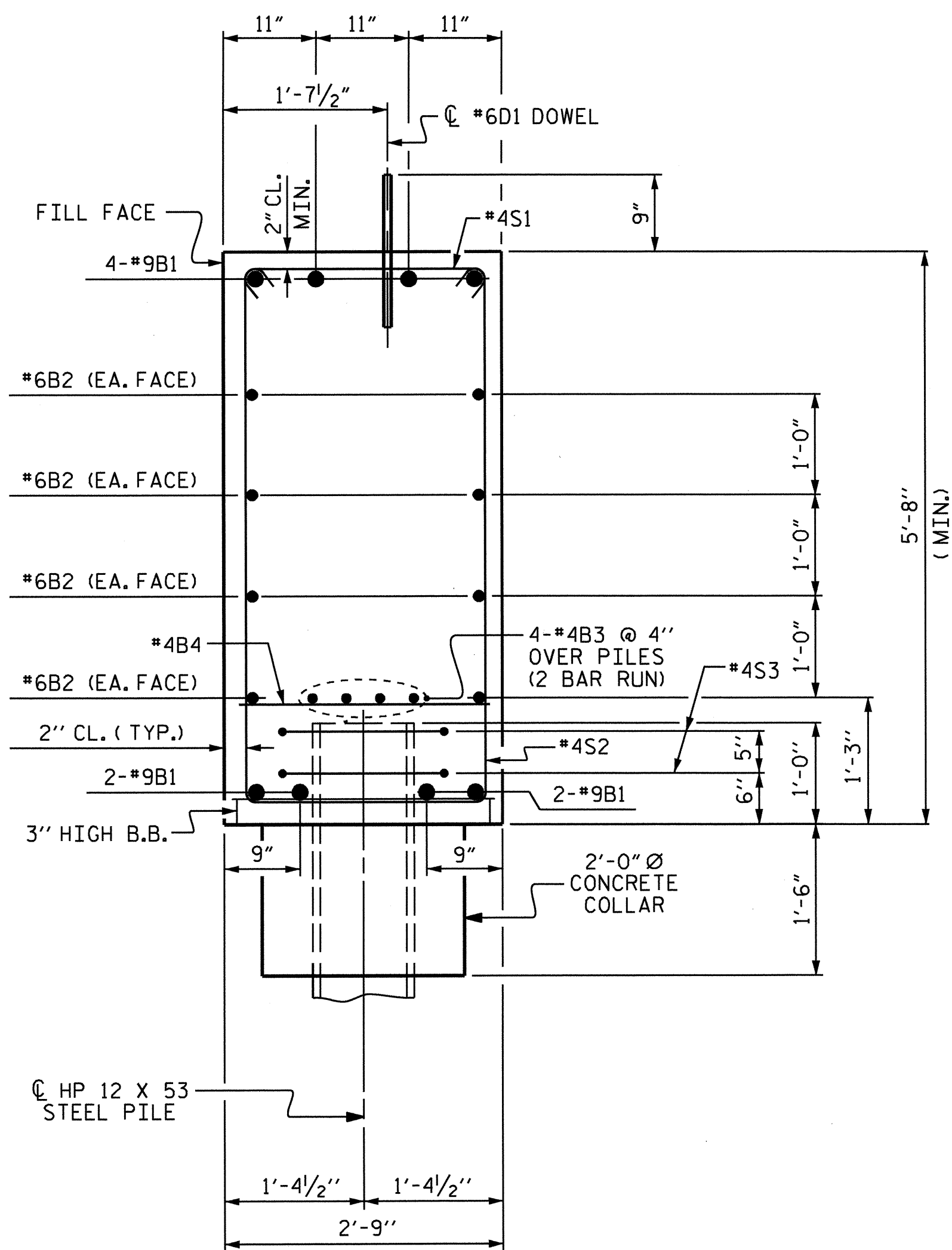
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #2

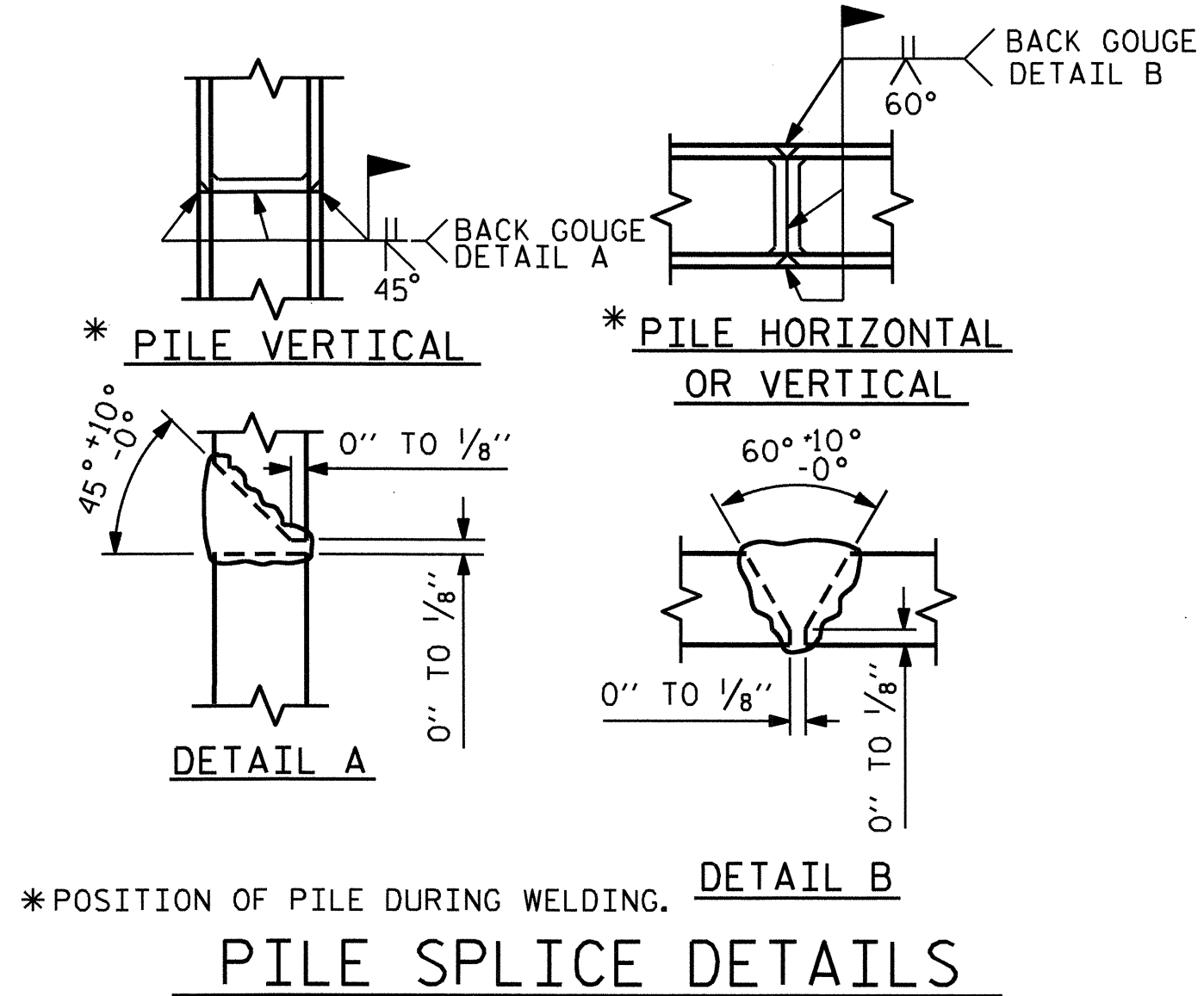


DRAWN BY: D.A. DAVENPORT DATE: 12/10  
 CHECKED BY: E.C. LOCKLEAR DATE: 04/11

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			TOTAL SHEETS 24	
2			4				

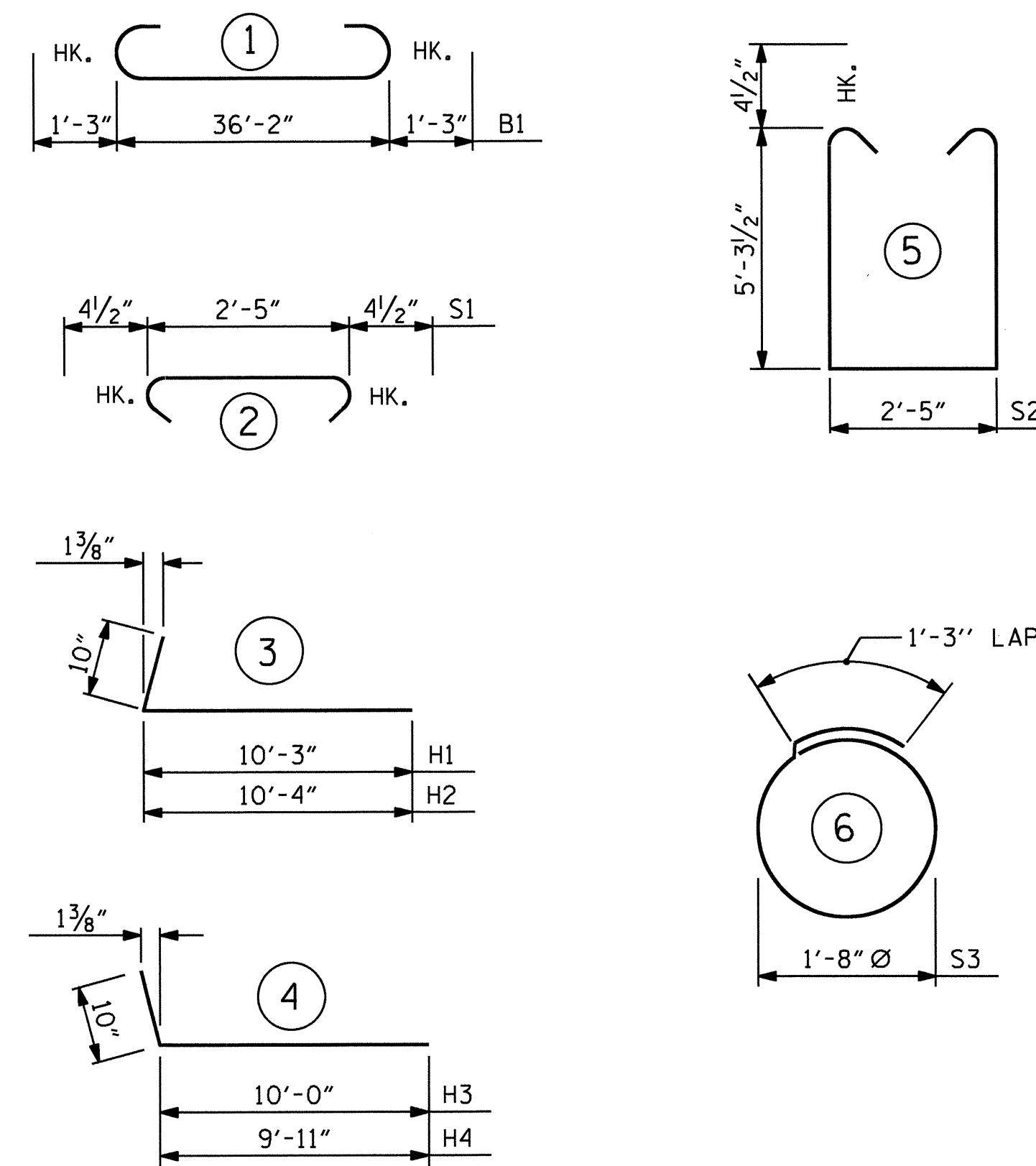


SECTION A-A



\* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



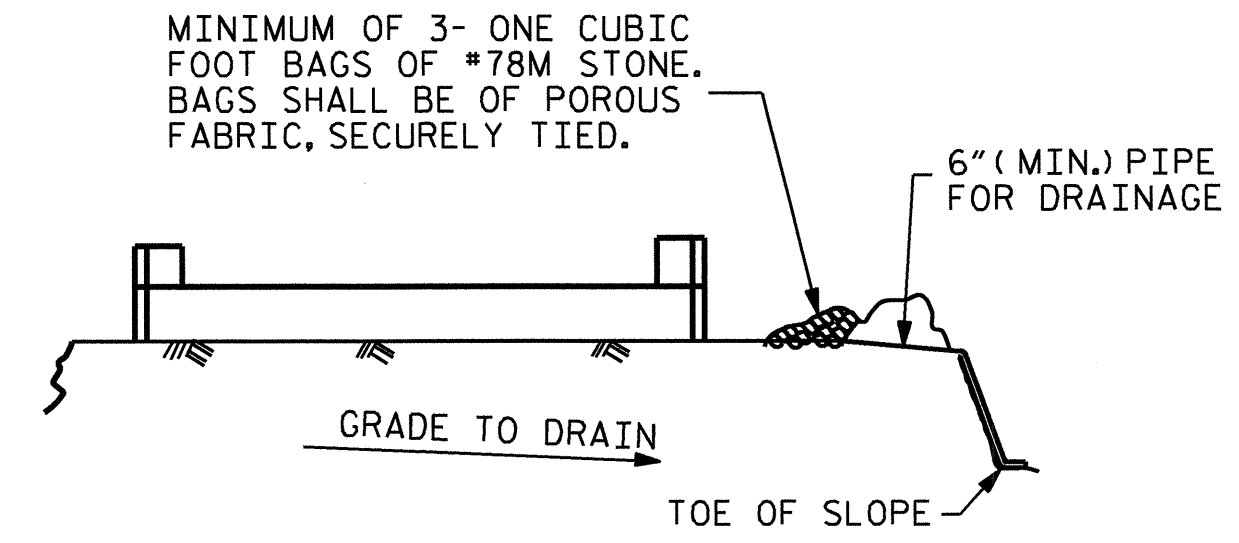
ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-8"	1052
B2	8	#6	STR	36'-3"	436
B3	8	#4	STR	19'-5"	104
B4	9	#4	STR	2'-5"	15
D1	12	#6	STR	1'-6"	27
H1	9	#5	3	11'-1"	104
H2	9	#5	3	11'-2"	105
H3	9	#5	4	10'-10"	102
H4	9	#5	4	10'-9"	101
K1	12	#4	STR	3'-0"	24
S1	37	#4	2	3'-2"	78
S2	37	#4	5	13'-9"	340
S3	12	#4	6	6'-6"	52
V1	30	#5	STR	7'-9"	242
V2	28	#5	STR	7'-5"	217

REINFORCING STEEL = 2999 LBS.

CLASS A CONCRETE BREAKDOWN  
 POUR #1 CAP, CONC. COLLARS & LOWER PART OF WINGS 26.2 C.Y.  
 POUR #2 UPPER PART OF WINGS 2.2 C.Y.  
 TOTAL CLASS A CONCRETE 28.4 C.Y.

HP 12 X 53 STEEL PILES NO. 6 150 LIN. FT.  
 STEEL PILE POINTS EACH 6



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.

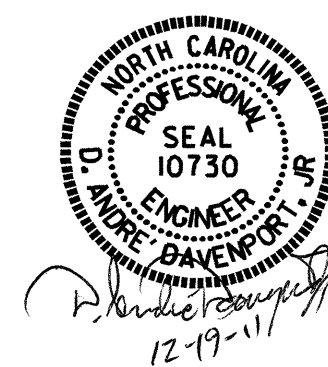
TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-3924  
 WATAUGA COUNTY  
 STATION: 17+52.50-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT #2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS 24
2			4			

DRAWN BY : D.A. DAVENPORT DATE : 12/10  
 CHECKED BY : E.C. LOCKLEAR DATE : 04/11

NOTES

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

GEOTEXTILE SHALL BE TYPE 1 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.

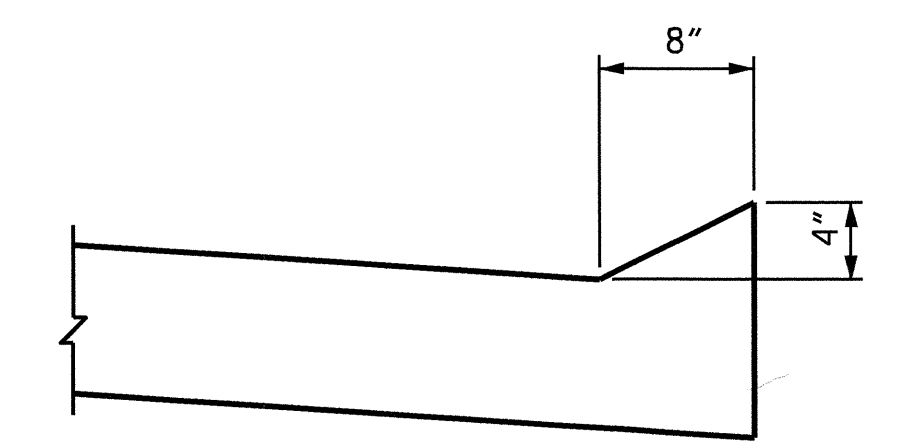
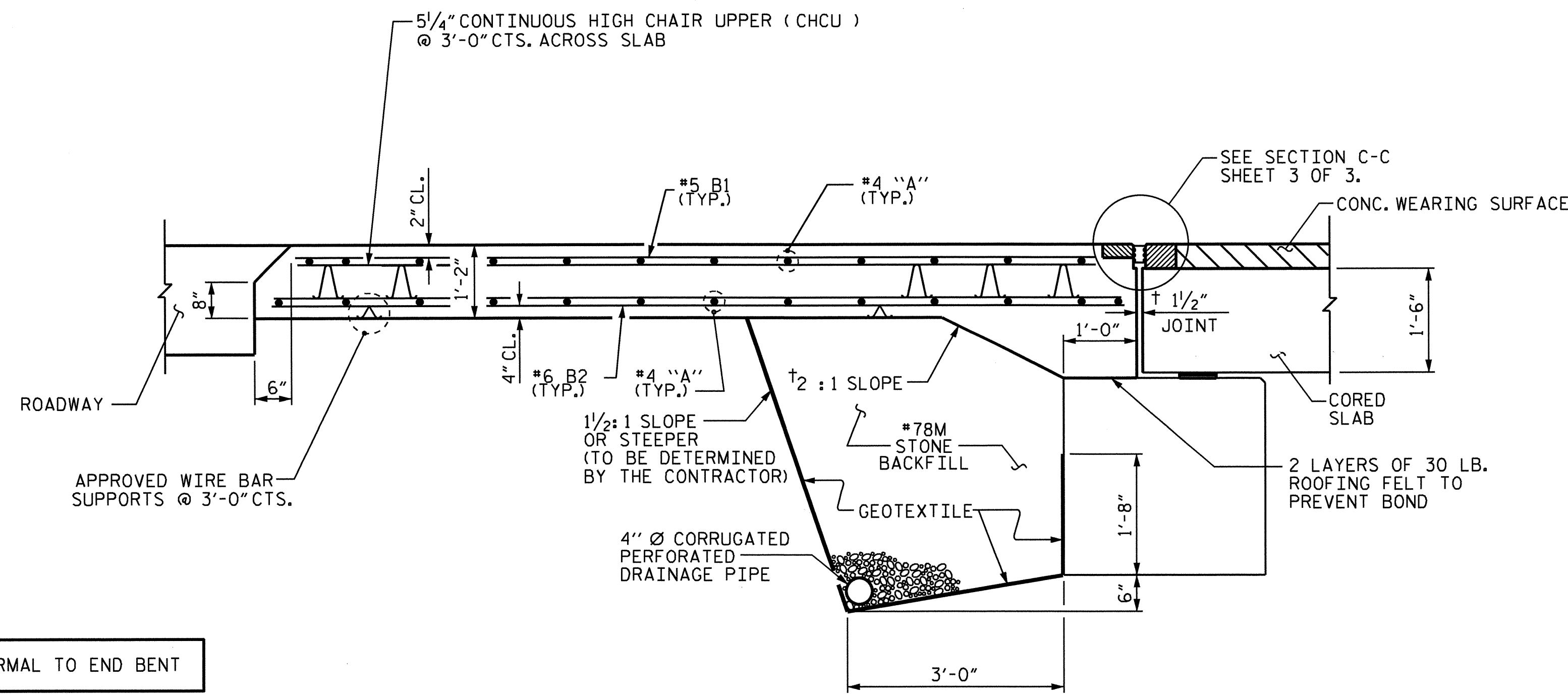
FOR JOINT DETAILS, SEE SHEET 3 OF 3.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

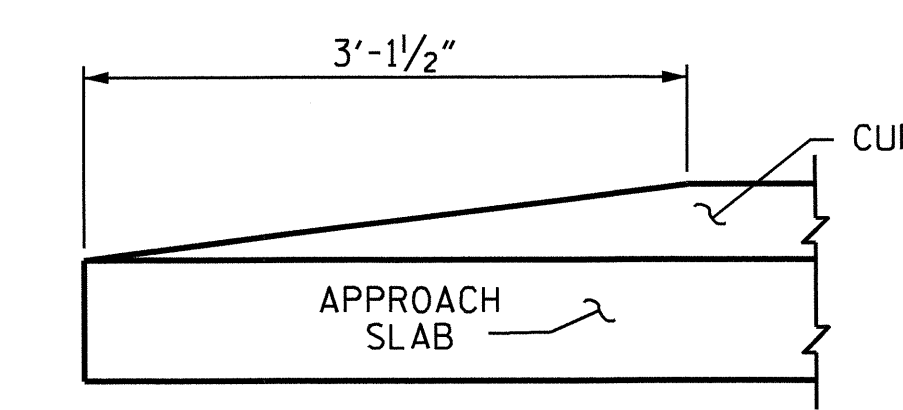
FOR FOAM JOINTS, SEE SPECIAL PROVISIONS.

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

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	24	#4	STR	15'-9"	253	
A2	26	#4	STR	15'-8"	272	
*B1	58	#5	STR	10'-7"	640	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL				LBS.	1281	
*EPOXY COATED REINFORCING STEEL				LBS.	893	
CLASS AA CONCRETE				C. Y.	13.9	
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A3	24	#4	STR	15'-8"	251	
A4	26	#4	STR	15'-7"	271	
*B1	58	#5	STR	10'-7"	640	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL				LBS.	1280	
*EPOXY COATED REINFORCING STEEL				LBS.	891	
CLASS AA CONCRETE				C. Y.	13.9	



SECTION N-N



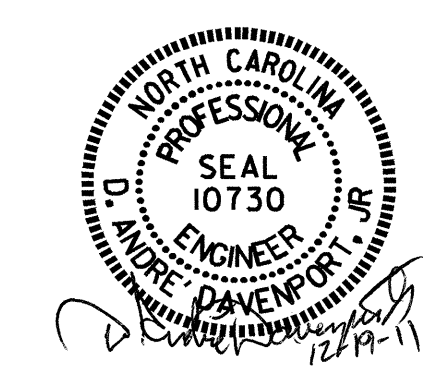
END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50 -L-

SHEET 1 OF 3

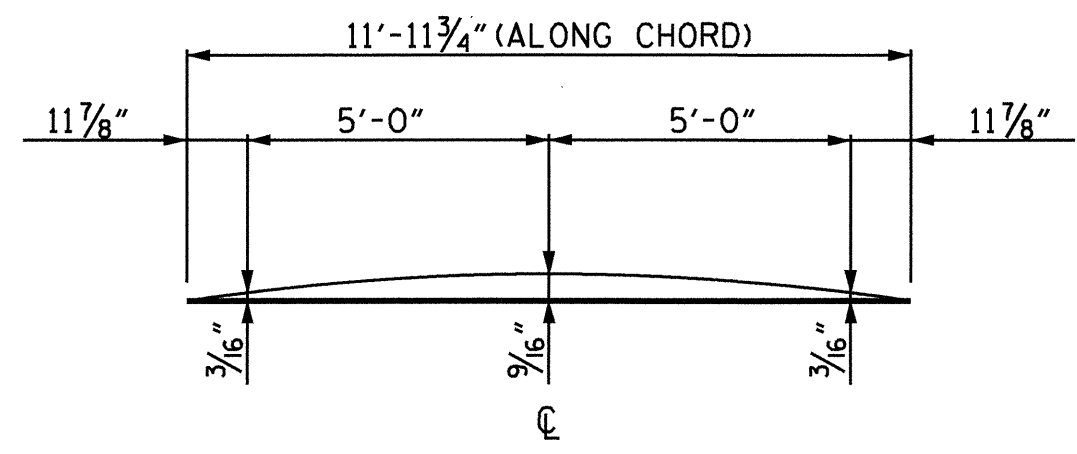
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 (SUB-REGIONAL TIER)



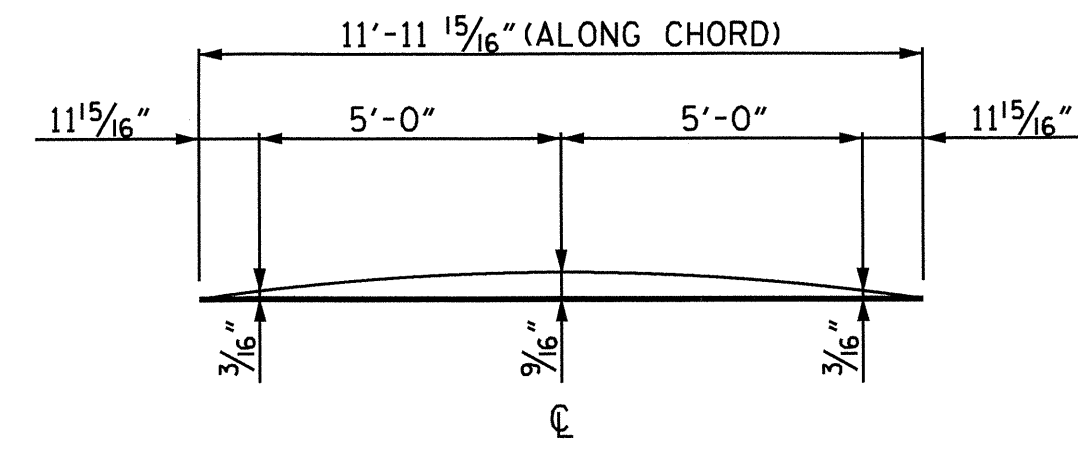
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			S-22	
2			4			24	

ASSEMBLED BY :	W.B. HILL	DATE :	05/10
CHECKED BY :	D.A. GLADDEN	DATE :	7/10
DRAWN BY :	KMM	3-08	REV. 9/27/11
CHECKED BY :	GM	3-08	REV. 10/1/11

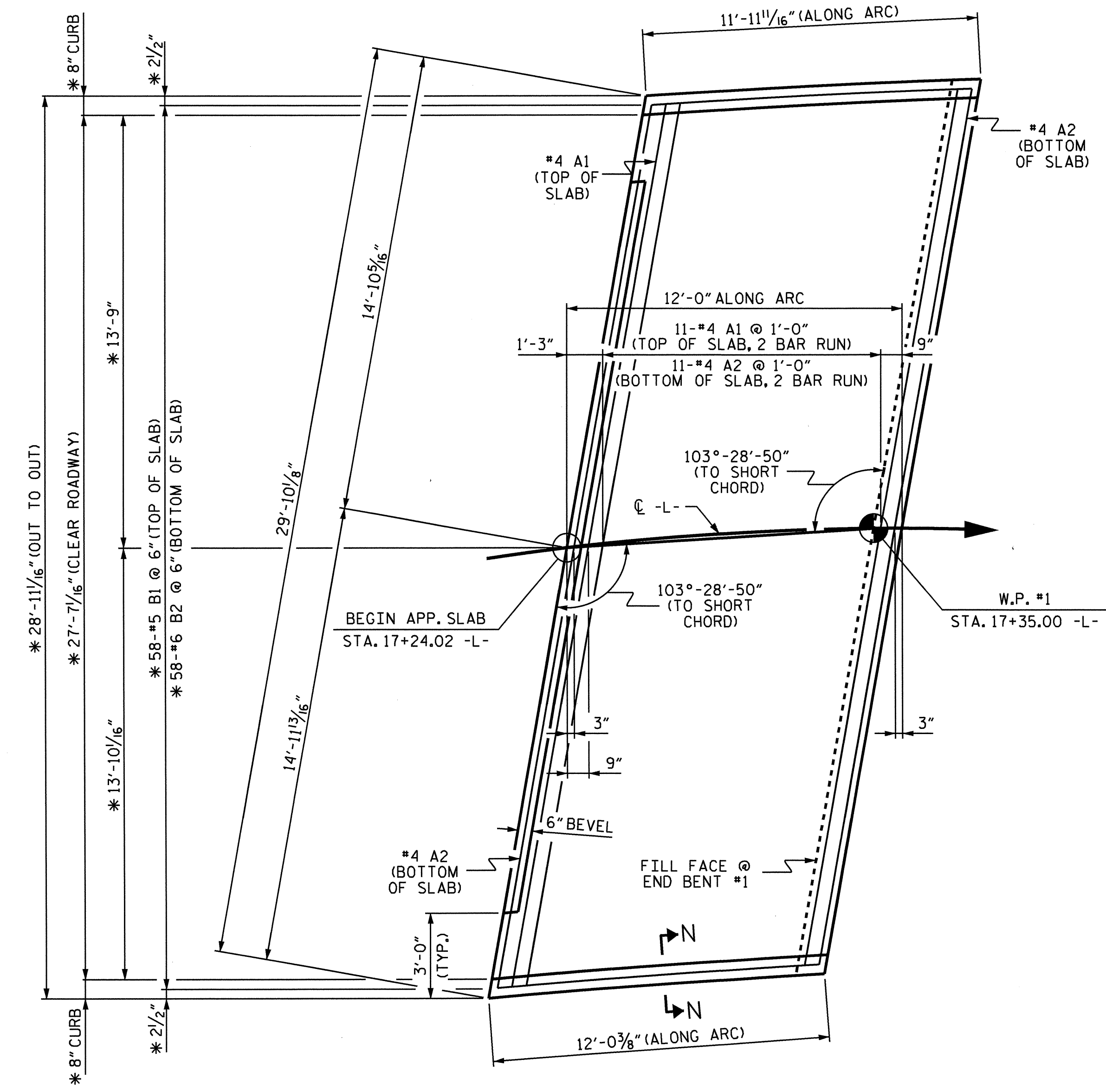




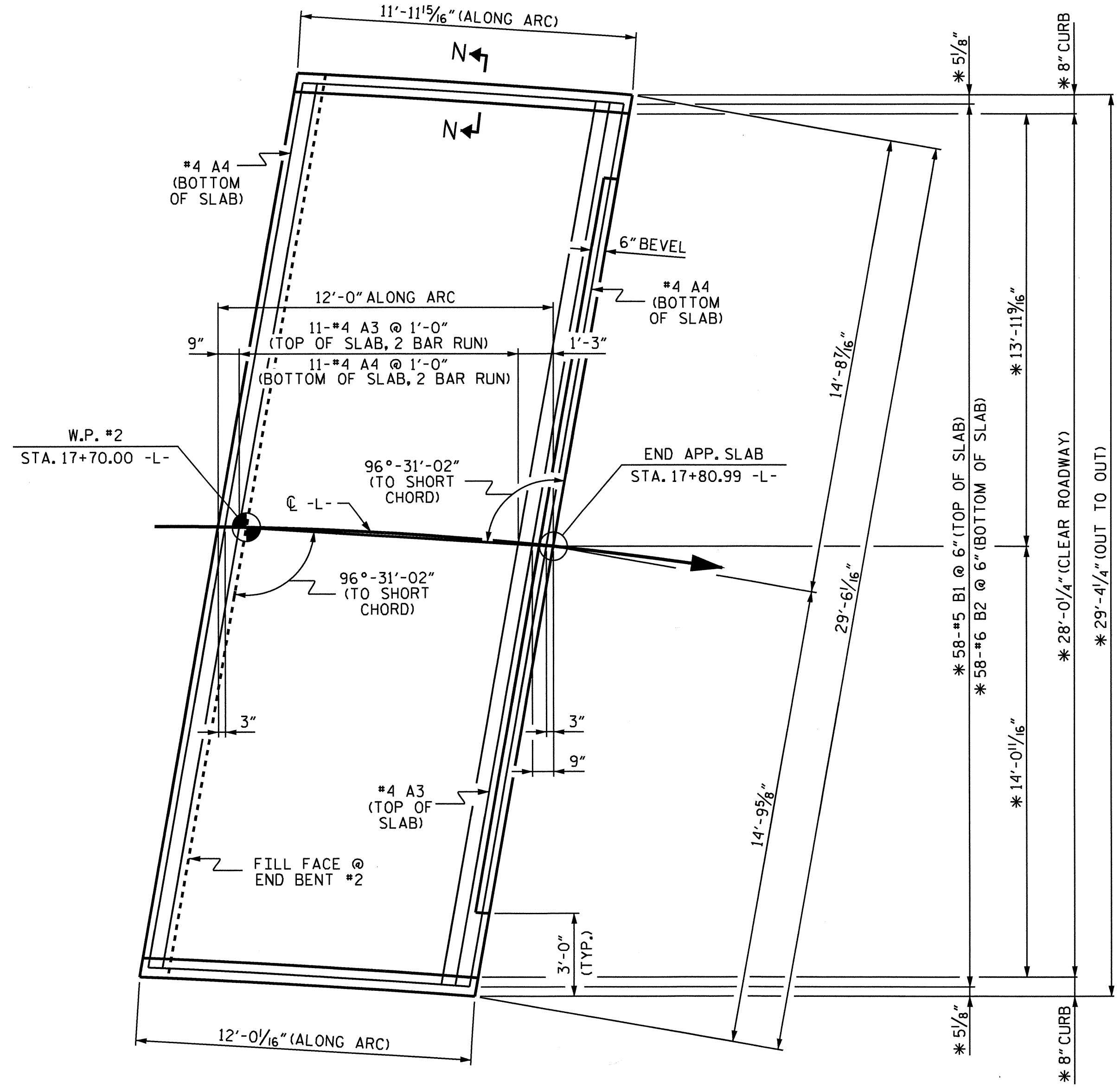
ARC OFFSET  
(LEFT SIDE)



ARC OFFSET  
(LEFT SIDE)

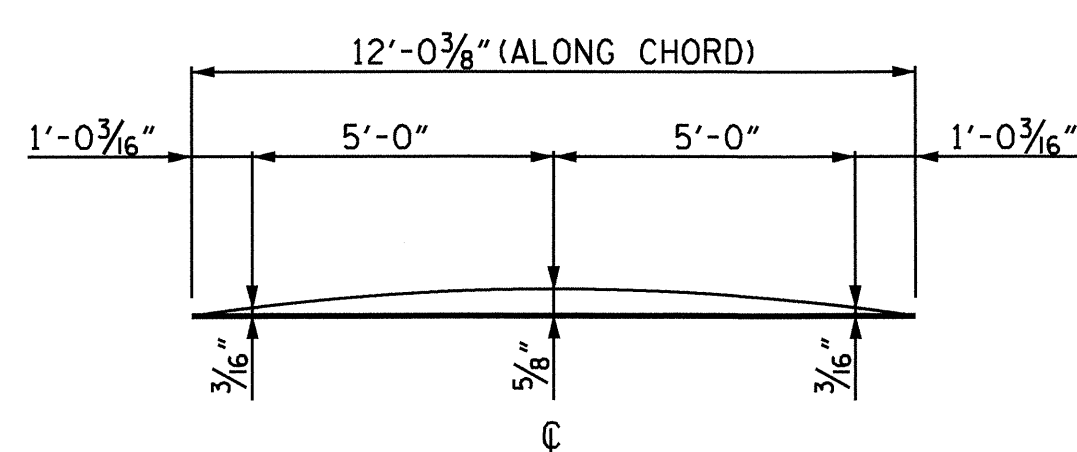


PLAN @ END BENT #1

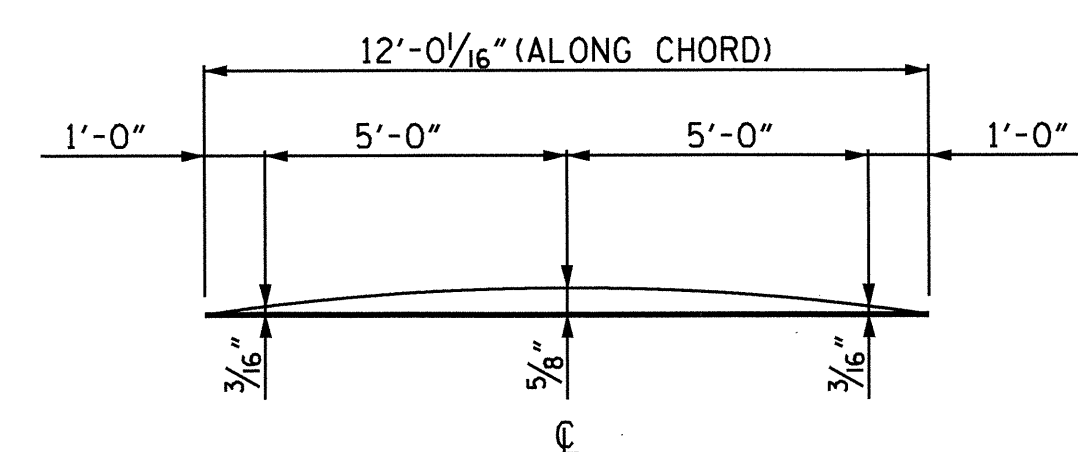


PLAN @ END BENT #2

\* DIMENSIONS ARE TO CIRCLES CONCENTRIC WITH C -L-



ARC OFFSET  
(RIGHT SIDE)

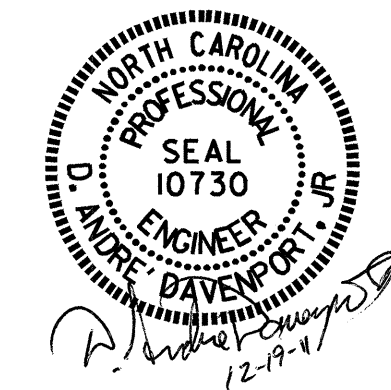


ARC OFFSET  
(RIGHT SIDE)

PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50 -L-

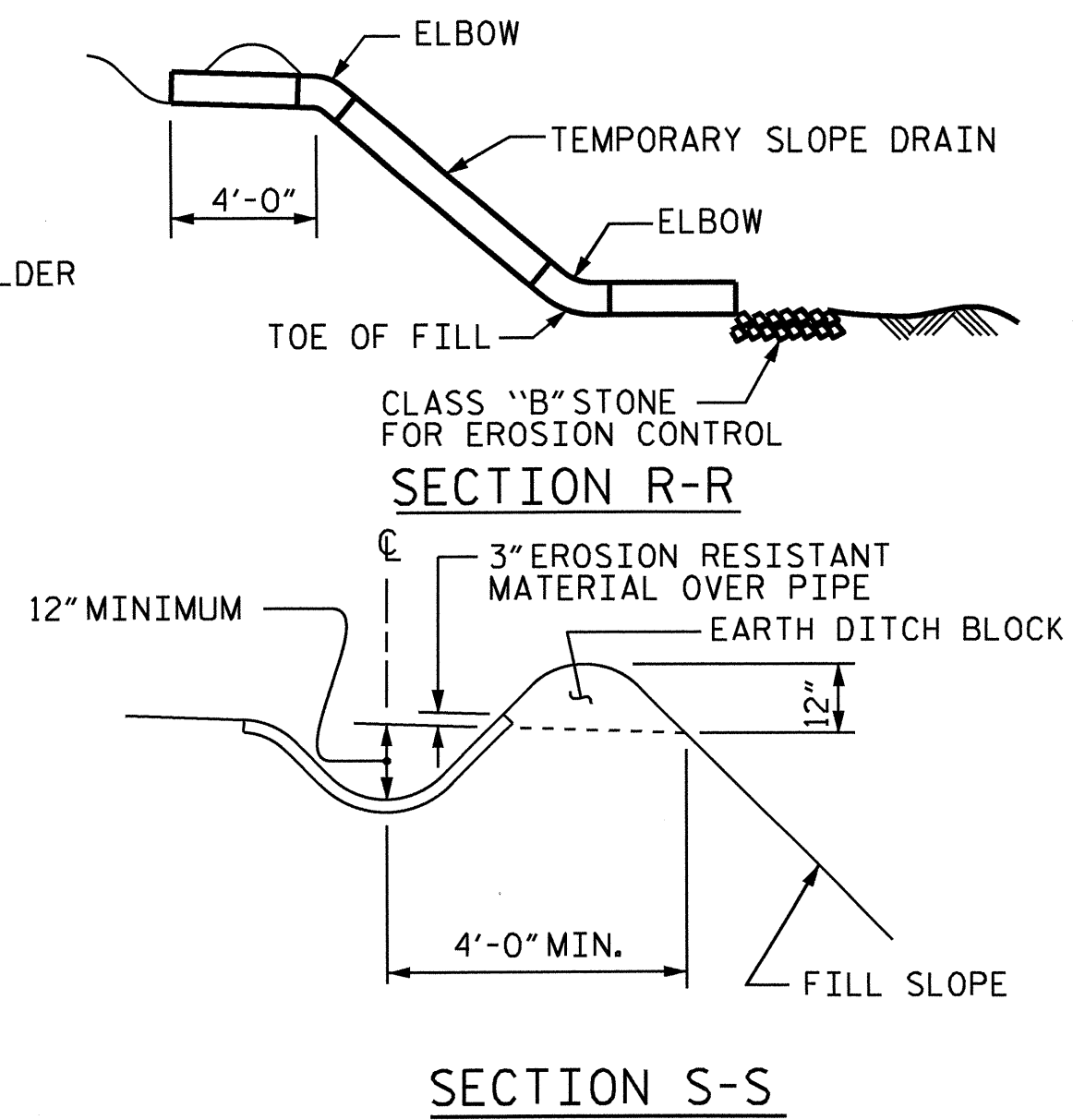
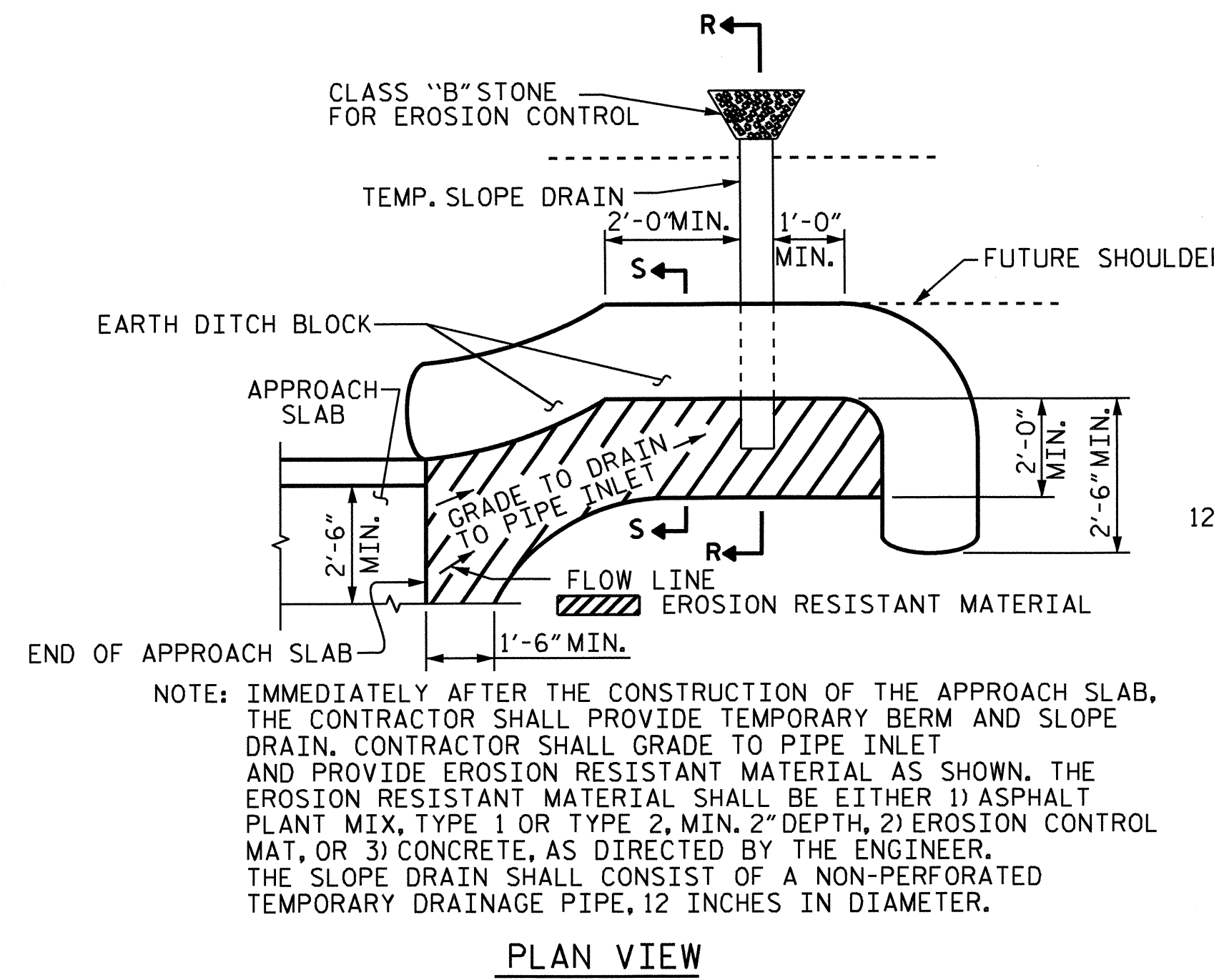
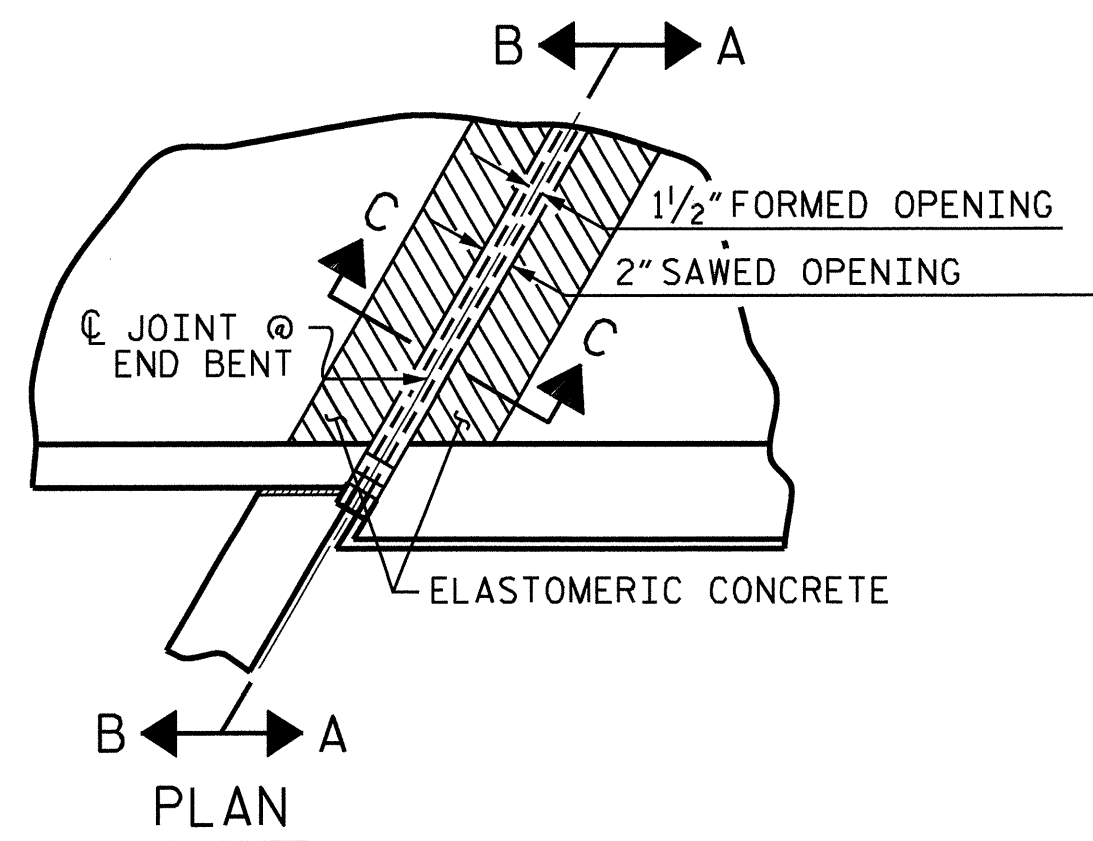
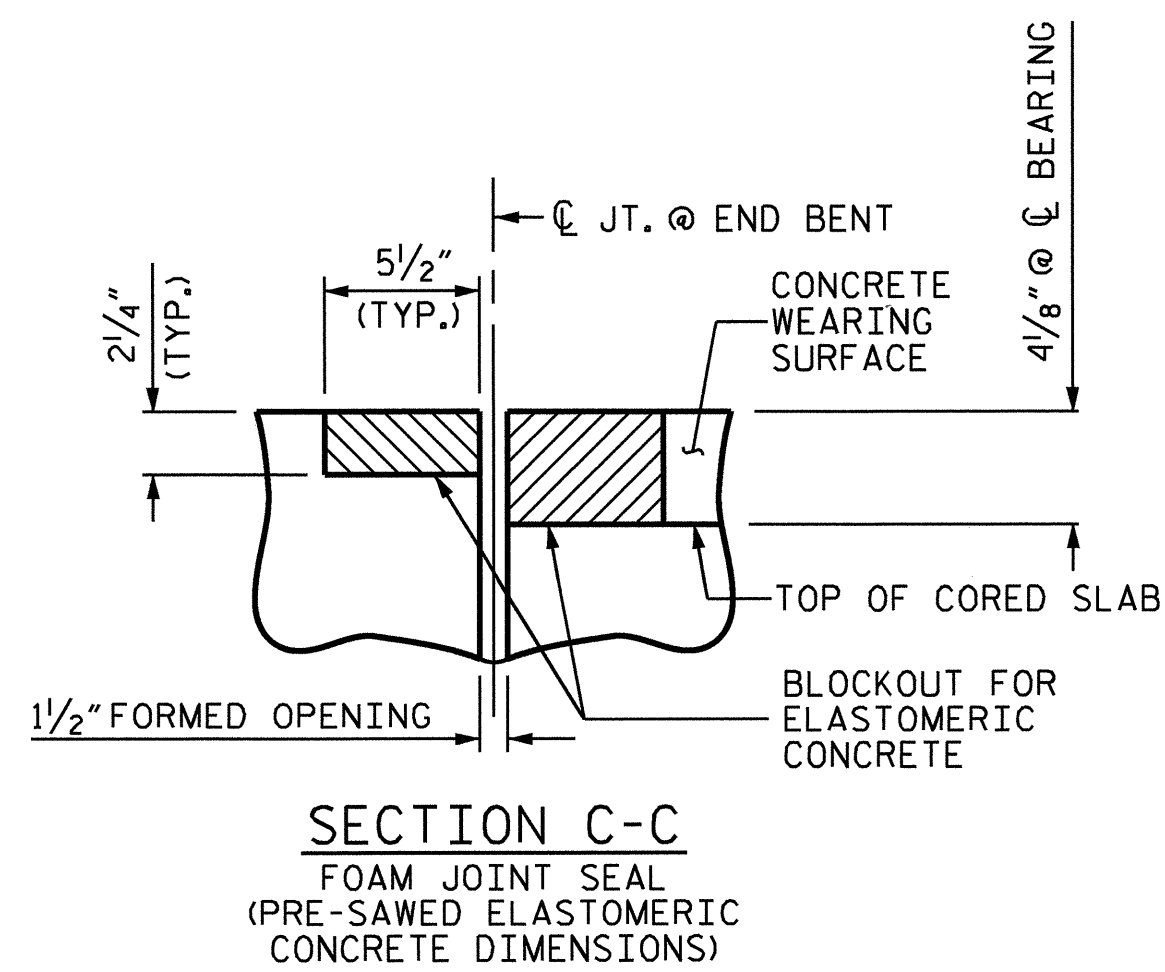
SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGE APPROACH SLAB



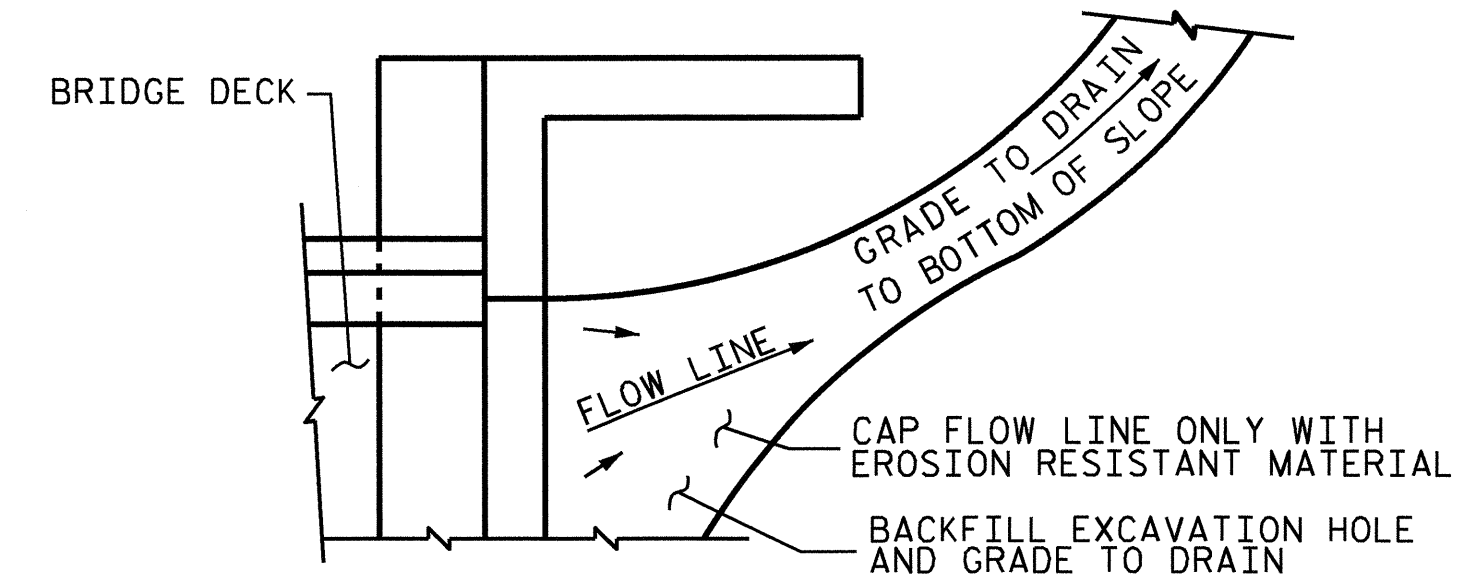
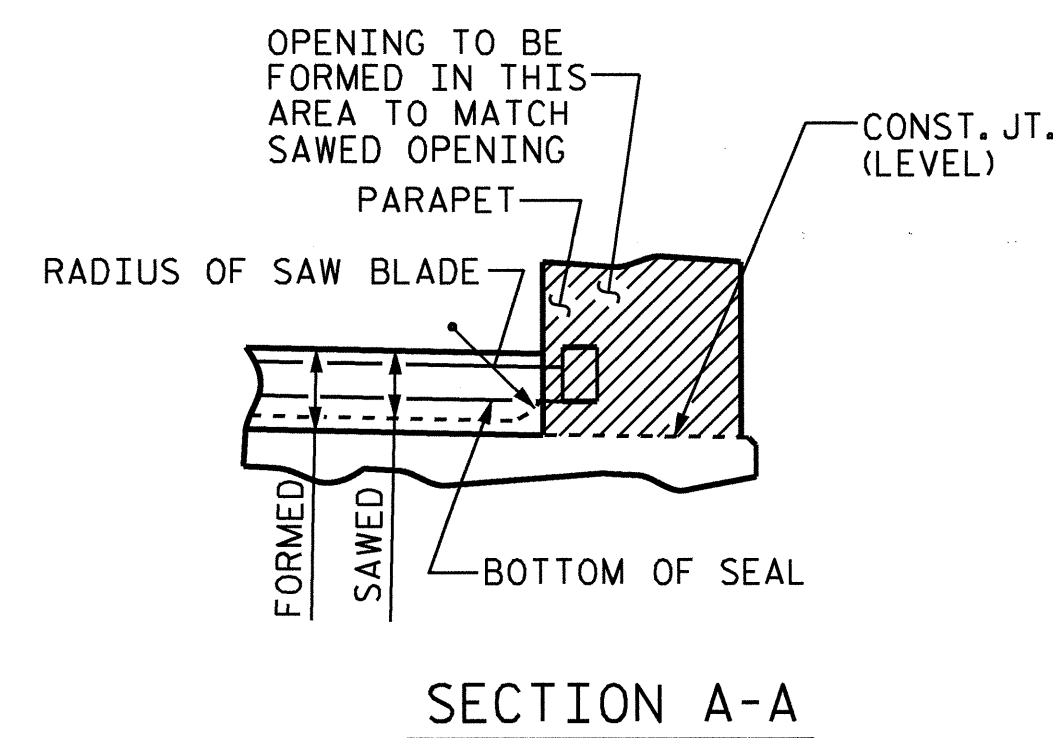
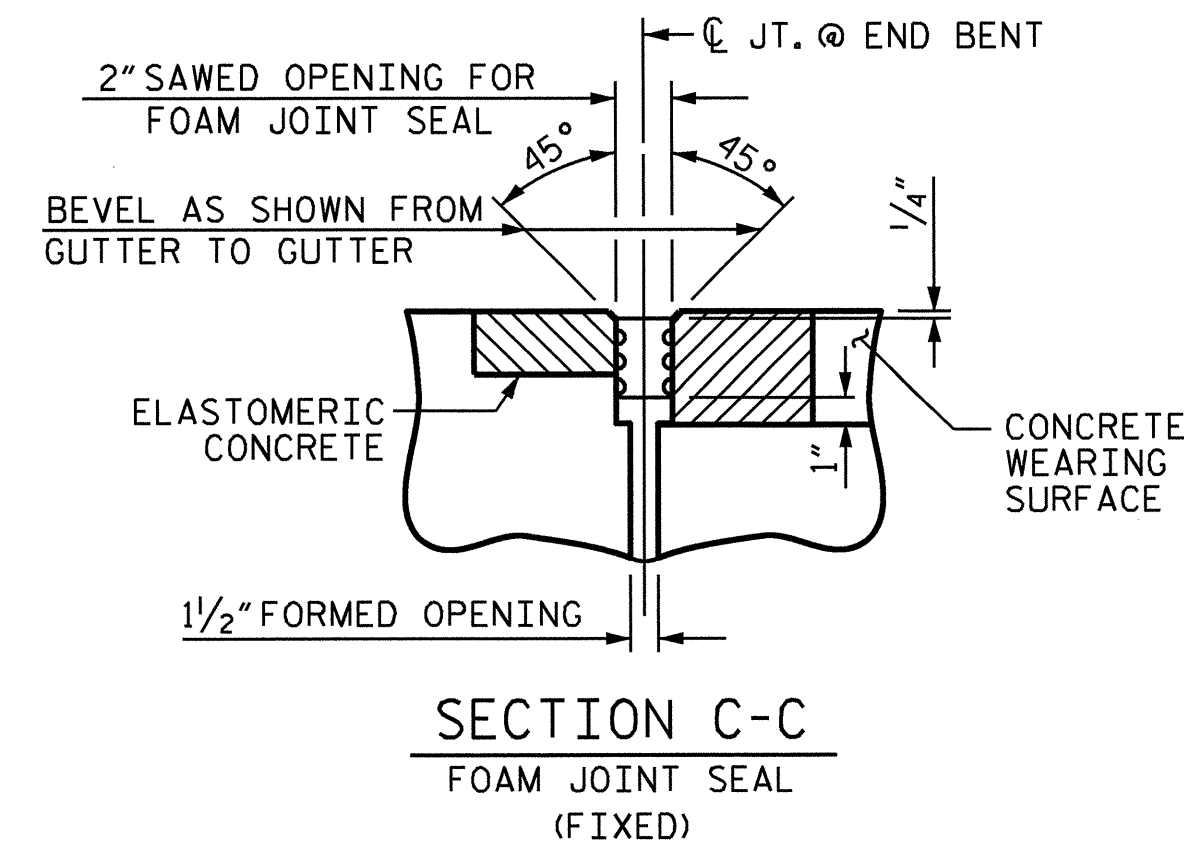
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	S-23
1			3	TOTAL SHEETS
2			4	24

DRAWN BY: W.B. HILL DATE: 05/10  
 CHECKED BY: D.A. GLADDEN DATE: 7/10



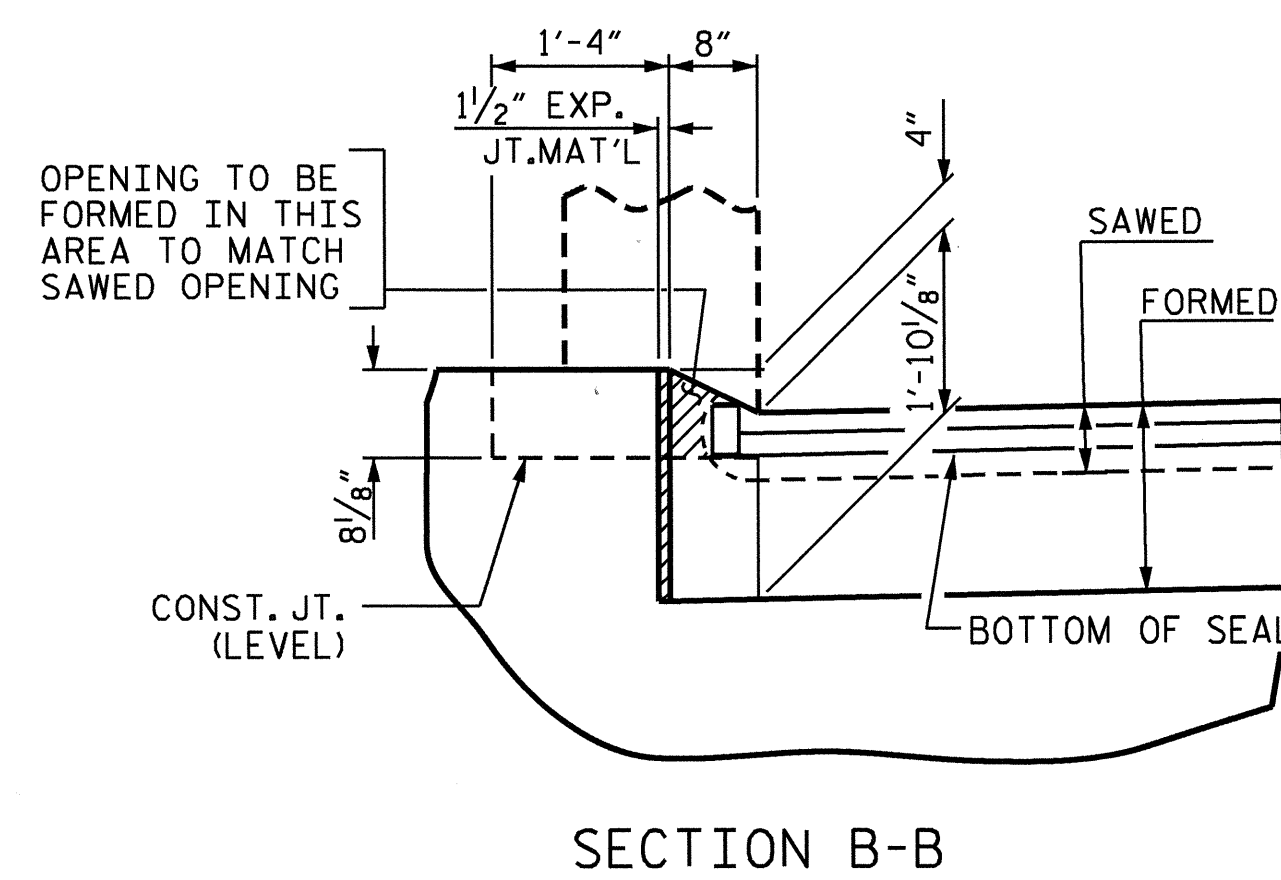
**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



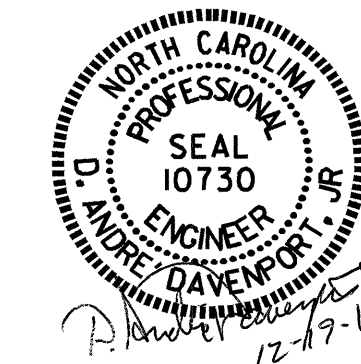
ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.88
2	6.88
TOTAL	13.76

\* BASED ON THE MINIMUM BLOCKOUT SHOWN.



**JOINT SEAL DETAILS @ END BENT**

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF THE PARAPET.



PROJECT NO. B-3924  
WATAUGA COUNTY  
 STATION: 17+52.50-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO.
STANDARD					S-24
BRIDGE APPROACH SLAB DETAILS					TOTAL SHEETS
REVISIONS					24
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY :	W.B. HILL	DATE :	5/10
CHECKED BY :	D.A. GLADDEN	DATE :	7/10
DRAWN BY :	FCJ 11/88	REV. 5/7/03	RWW/JTE
CHECKED BY :	ARB 11/88	REV. 5/1/06RRR	MAA/KMM
		REV. 10/1/11	MAA/GM



## 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