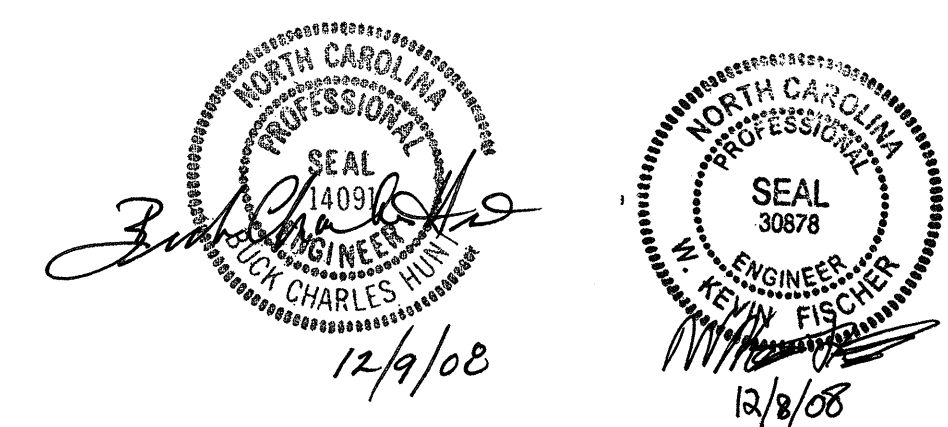


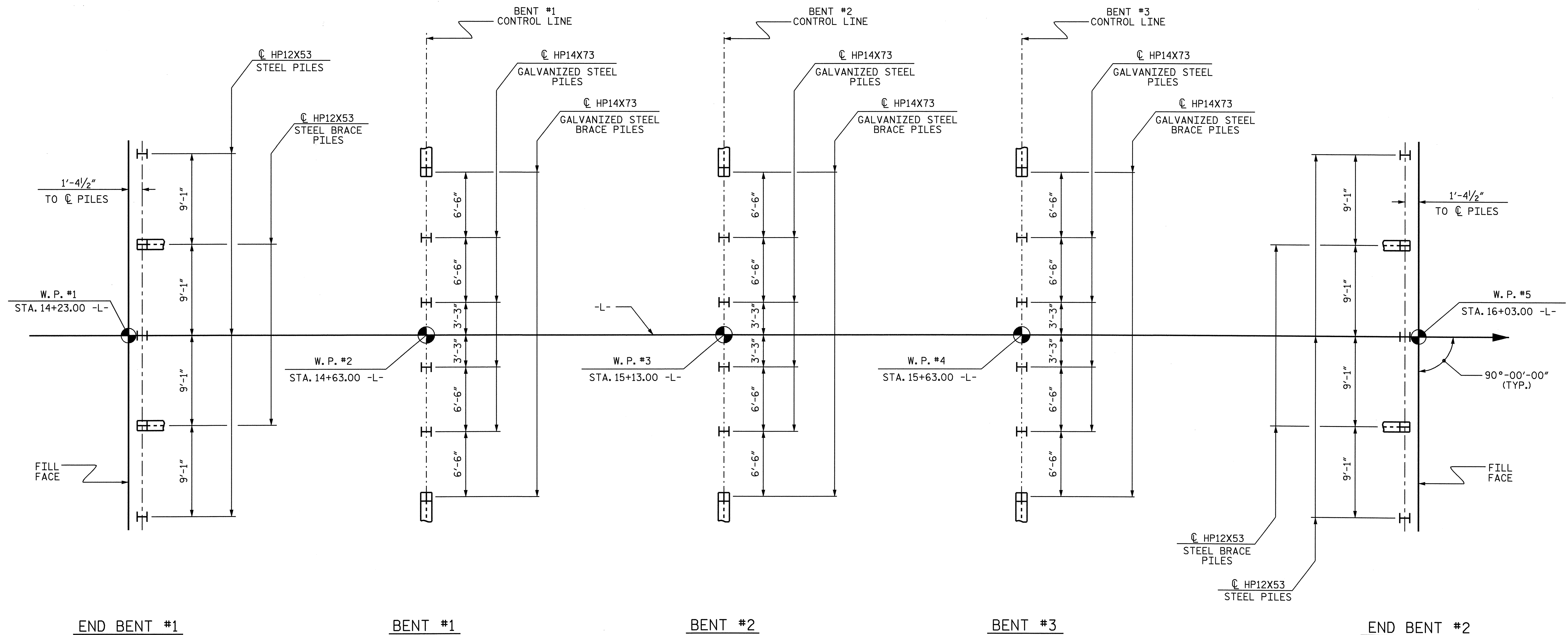
PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-  
 SHEET 1 OF 3 REPLACES BRIDGE #405

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER NORTH  
 POTTS CREEK ON SR 1147  
 (OLD SALISBURY RD.) BETWEEN  
 SR 1215 & SR 1219

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

DRAWN BY: M.K. BEARD DATE: 11/13/08  
 CHECKED BY: K.D. LAYNE DATE: 11/19/08





**FOUNDATION LAYOUT**

BRACE PILES AT BENT #1, BENT #2 AND BENT #3 ARE BATTERED 1/2:1  
 BRACE PILES AT END BENTS ARE BATTERED 3:12  
 DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILES

**FOUNDATION NOTES**

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT #1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

PILES AT BENT #1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 217 TONS PER PILE.

INSTALL PILES AT BENT #1 TO A TIP ELEVATION NO HIGHER THAN 620.0.

THE SCOUR CRITICAL ELEVATION FOR BENT #1 IS ELEVATION 628.0. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

PILES AT BENT #2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 140 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 233 TONS PER PILE.

INSTALL PILES AT BENT #2 TO A TIP ELEVATION NO HIGHER THAN 619.0.

THE SCOUR CRITICAL ELEVATION FOR BENT #2 IS ELEVATION 629.0. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

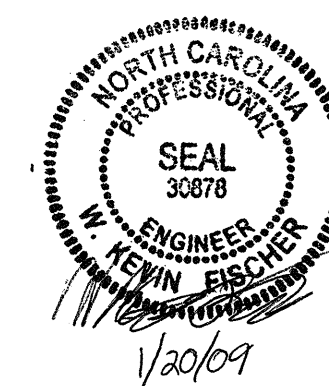
PILES AT BENT #3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 217 TONS PER PILE.

INSTALL PILES AT BENT #3 TO A TIP ELEVATION NO HIGHER THAN 623.0.

THE SCOUR CRITICAL ELEVATION FOR BENT #3 IS ELEVATION 631.5. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

PILES AT END BENT #2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

DRIVE PILES AT END BENTS #1 AND #2, AND AT BENTS #1 THRU #3 TO REFUSAL OR ROCK.



PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

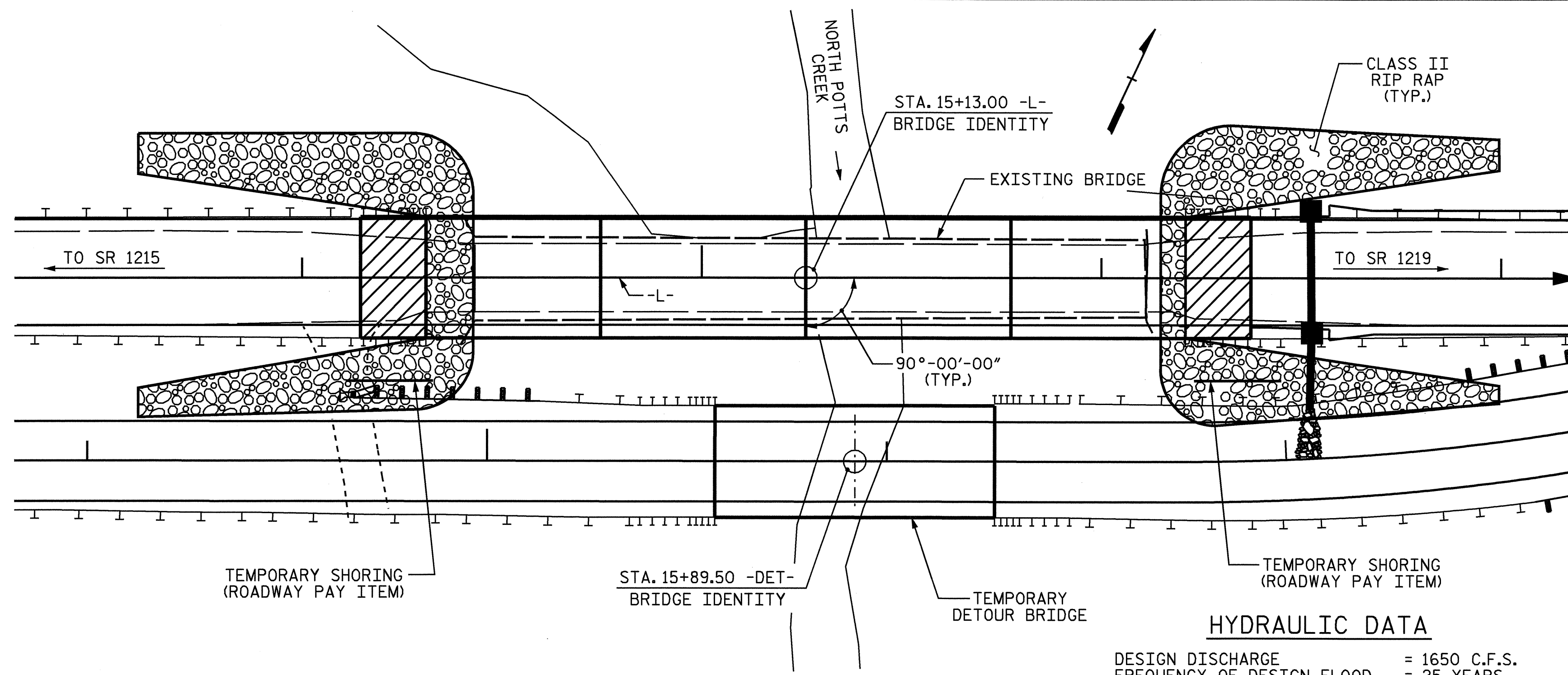
**GENERAL DRAWING**

FOR BRIDGE OVER NORTH  
 POTTS CREEK ON SR 1147  
 (OLD SALISBURY RD.) BETWEEN  
 SR 1215 & SR 1219

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

DRAWN BY : R. G. EMERSON DATE : 11/08  
 CHECKED BY : B. L. GREEN DATE : 11/18/08

BM #1 RR SPIKE IN SOUTHWEST ROOT OF A BLACK GUM, 179.60 FT. LEFT OF STA. 11+89.44 -L-, EL. 661.310



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

**HYDRAULIC DATA**

DESIGN DISCHARGE = 1650 C.F.S.  
 FREQUENCY OF DESIGN FLOOD = 25 YEARS  
 DESIGN HIGH WATER ELEVATION = 657.600  
 DRAINAGE AREA = 6.7 SQ.MI.  
 BASIC DISCHARGE(Q100) = 2450 C.F.S.  
 BASIC HIGH WATER ELEVATION = 658.500

**OVERTOPPING DATA**

OVERTOPPING DISCHARGE = 7000 C.F.S.  
 FREQUENCY OF OVERTOPPING FLOOD = 500 YEARS++  
 OVERTOPPING FLOOD ELEVATION = 663.300

**LOCATION SKETCH**

**NOTES**

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

THE EXISTING STRUCTURE CONSISTING OF 4 SPANS (42'-6" EACH) WITH 3 LINES OF 18" X 33" REINFORCED DECK GIRDERS AND A CLEAR ROADWAY WIDTH OF 17.0' SUPPORTED BY REINFORCED CONCRETE ABUTMENTS AT END BENTS, REINFORCED CONCRETE POST AND BEAMS ON PILE POSTINGS AT BENTS 1 AND 3, AND MASS CONCRETE BENT ON PILE FOOTINGS AT BENT 2 AND LOCATED AT PROPOSED SITE SHALL BE REMOVED.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 3 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.

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 SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 15+13.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

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

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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.

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

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

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

**TOTAL BILL OF MATERIAL**

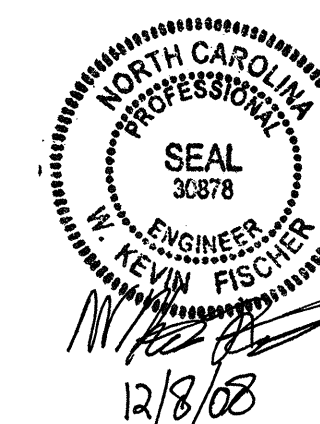
	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP STRUCTURE	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP12X53 STEEL PILES	HP14X73 GALVANIZED STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS			
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE						LUMP SUM							355.50		LUMP SUM	44	1951.14
END BENT #1					12.3		1906	5	250				315	350			
BENT #1					12.0		1792			6	330						
BENT #2					12.0		1792			6	330						
BENT #3					12.0		1792			6	330						
END BENT #2					12.3		1906	5	275				327	363			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	60.6	LUMP SUM	9188	10	525	18	990	355.50	642	713	LUMP SUM	44	1951.14

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE OVER NORTH  
 POTTS CREEK ON SR 1147  
 (OLD SALISBURY RD.) BETWEEN  
 SR 1215 & SR 1219



DRAWN BY: M.K. BEARD DATE: 11/13/08  
 CHECKED BY: K.D. LAYNE DATE: 11/19/08

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

# LOAD AND RESISTANCE FACTOR RATING (LRFR) 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						
						LIVE-LOAD FACTORS (%)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (%)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		DISTANCE FROM LEFT END OF SPAN (FT)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.00	--	1.75	0.275	1.14	B	24.438	0.531	1.00	B	2.444	0.80	0.280	1.20	A	18.906	
	HL-93 (OPERATING)	N/A		1.30	--	1.35	0.275	1.47	B	24.438	0.531	1.30	B	2.444	N/A	--	--	--	--	
	HS-20 (INVENTORY)	36.00	2	1.17	42.120	1.80	0.275	1.37	B	24.438	0.531	1.17	B	2.444	1.00	0.280	1.22	A	18.906	1
	HS-20 (OPERATING)	36.00		1.56	56.160	1.35	0.275	1.83	B	24.438	0.552	1.56	A	1.891	N/A	--	--	--	--	1
LEGAL LOAD RATING	SNSH	13.50		2.49	33.615	1.80	0.275	2.79	B	24.438	0.552	2.49	A	1.891	1.00	0.280	2.23	A	18.906	
	SNGAR BS2	20.00		1.85	37.000	1.80	0.275	2.20	B	24.438	0.552	1.85	A	1.891	1.00	0.280	1.86	A	18.906	
	SNCOT TS3	25.50		1.36	34.680	1.80	0.275	1.52	B	24.438	0.552	1.36	A	1.891	1.00	0.280	1.23	A	18.906	
	SNS3A	27.03		1.31	35.409	1.80	0.275	1.46	B	24.438	0.552	1.31	A	1.891	1.00	0.280	1.18	A	18.906	
	SNAG GRS4	34.93		1.10	38.423	1.80	0.275	1.21	B	24.438	0.552	1.10	A	1.891	1.00	0.280	1.01	A	18.906	
	SNS5A	35.55		1.15	40.883	1.80	0.275	1.18	B	24.438	0.552	1.15	A	1.891	1.00	0.280	0.98	A	18.906	
	SNS6A	39.95		1.07	42.747	1.80	0.275	1.10	B	24.438	0.531	1.07	B	2.444	1.00	0.280	0.93	A	18.906	
	SNS7B	42.00	3	1.05	44.100	1.80	0.275	1.05	B	24.438	0.531	1.07	B	2.444	1.00	0.280	0.89	A	18.906	
	TNT4A	33.08		1.20	39.696	1.80	0.275	1.36	B	24.438	0.552	1.20	A	1.891	1.00	0.280	1.17	A	18.906	
	TNT5B	37.20		1.15	42.780	1.80	0.275	1.21	B	24.438	0.552	1.15	A	1.891	1.00	0.280	1.03	A	18.906	
	TNAG RIT4	38.00		1.46	55.480	1.80	0.275	1.74	B	24.438	0.531	1.46	B	2.444	1.00	0.280	1.38	A	18.906	
	TNT6A	41.60		1.13	47.008	1.80	0.275	1.13	B	24.438	0.552	1.17	A	1.891	1.00	0.280	0.99	A	18.906	1
	TNT7A	42.00		1.08	45.360	1.80	0.275	1.15	B	24.438	0.552	1.08	A	1.891	1.00	0.280	1.02	A	18.906	
	TNT7B	42.00		1.03	43.260	1.80	0.275	1.20	B	24.438	0.531	1.03	B	2.444	1.00	0.280	1.03	A	18.906	
TNAG T5A	45.00		1.24	55.800	1.80	0.275	1.43	B	24.438	0.552	1.24	A	1.891	1.00	0.280	1.23	A	18.906		
TNAG T5B	45.00		1.31	58.950	1.80	0.275	1.65	B	24.438	0.531	1.31	B	2.444	1.00	0.280	1.34	A	18.906		

### LOAD FACTORS:

LIMIT STATE	$\gamma_{dc}$	$\gamma_{dw}$
STRENGTH I	1.25	1.50
SERVICE III	1.00	1.00

### NOTES:

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

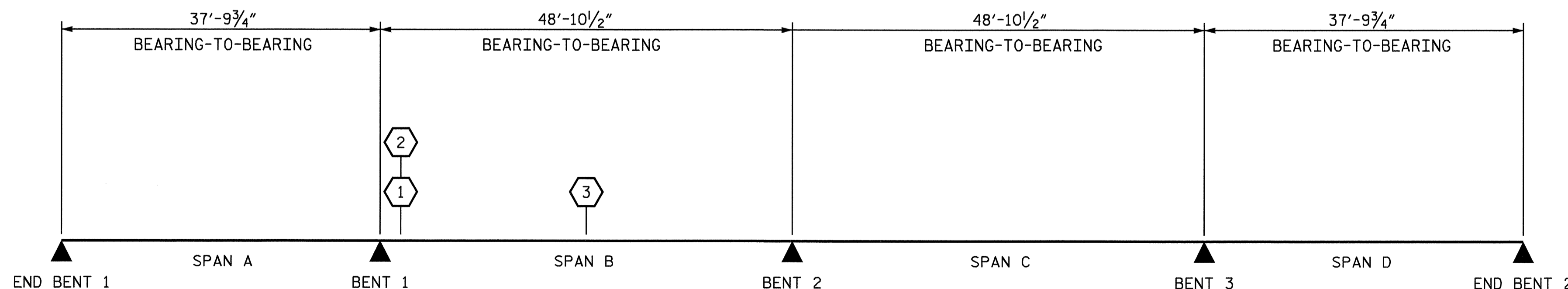
MINIMUM RATING FACTORS FOR LEGAL LOAD RATING ARE BASED ON THE STRENGTH I LIMIT STATE.

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

### COMMENTS:

1. FOR SPANS 'A' OR 'D' & 'B' OR 'C', THE PRESTRESSED CONCRETE GIRDER DESIGN PROGRAM REPORTS EQUAL RATING FACTORS FOR:

LIMIT STATE: STRENGTH I, SHEAR



#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

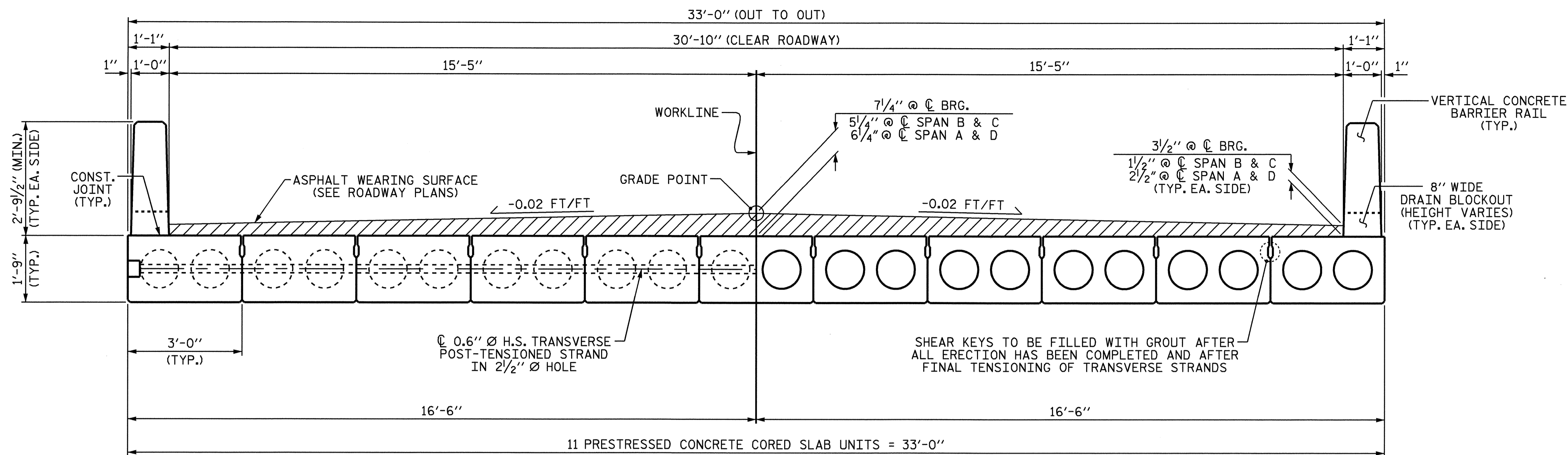


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 PRESTRESSED  
 CONCRETE GIRDERS  
 (NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : R. L. CHESSON DATE : 12/01/08  
 CHECKED BY : B. L. GREEN DATE :  
 DRAWN BY : MAA 1/08  
 CHECKED BY : GM/DJ 2/08

## LRFR SUMMARY

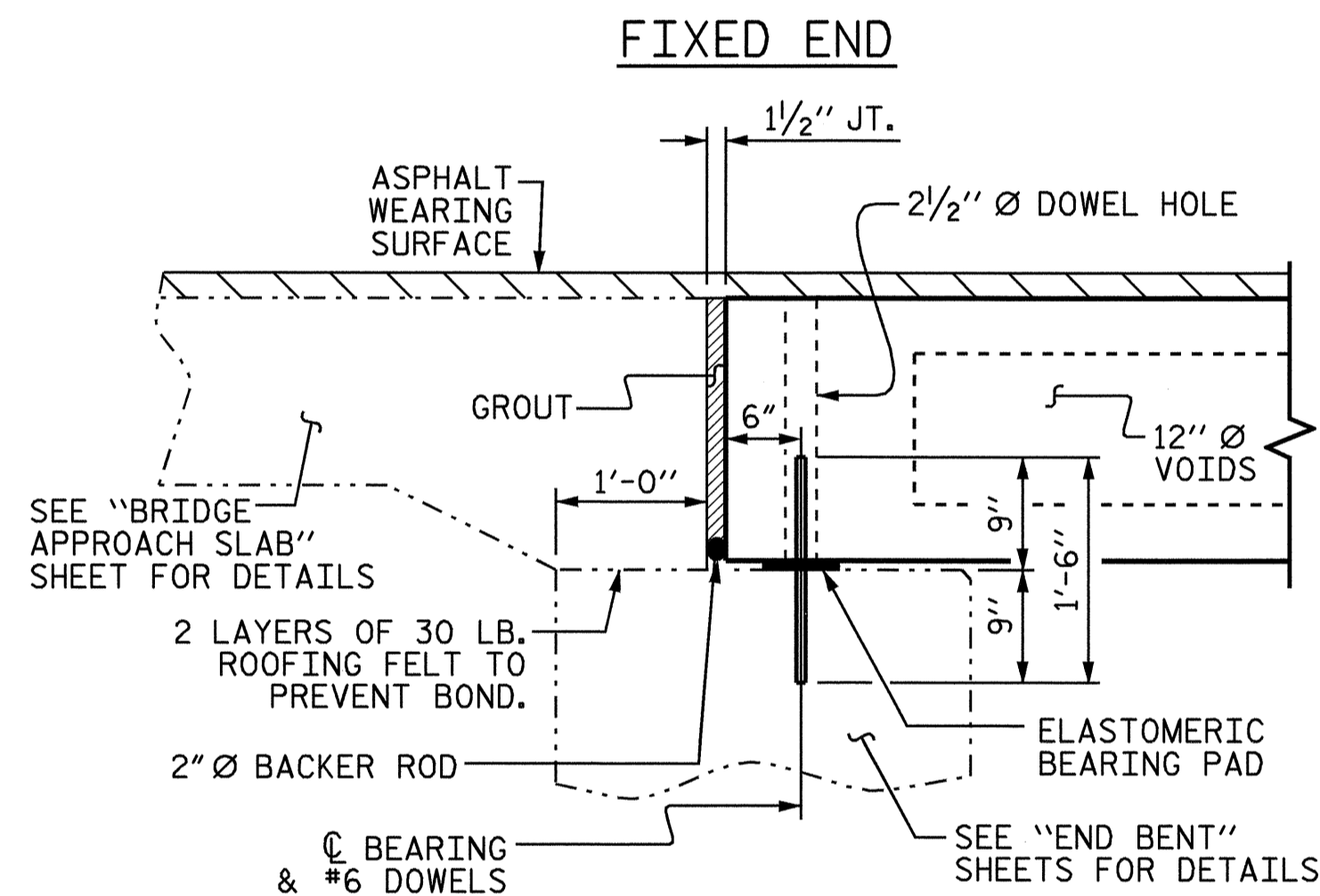
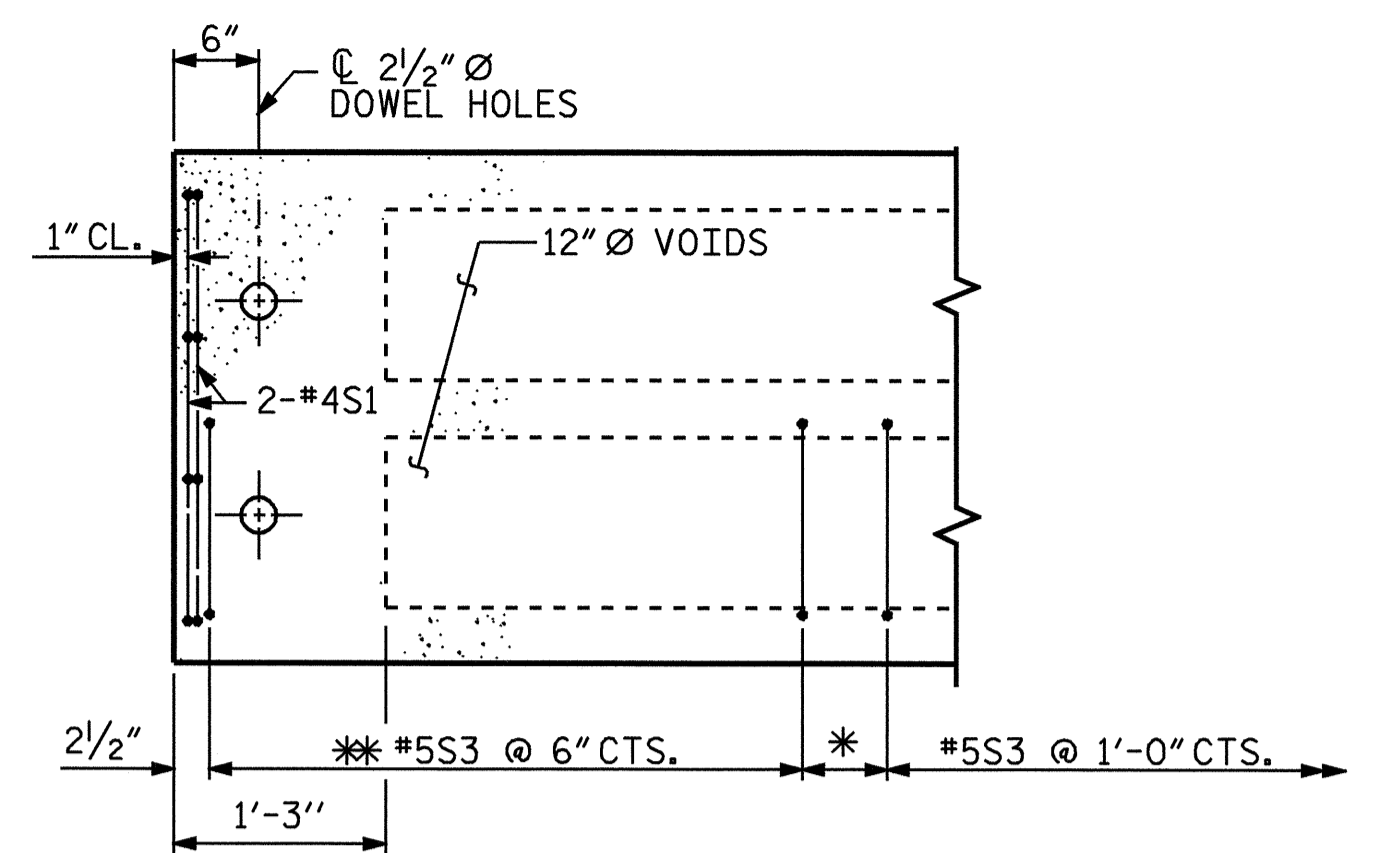


**TYPICAL SECTION**

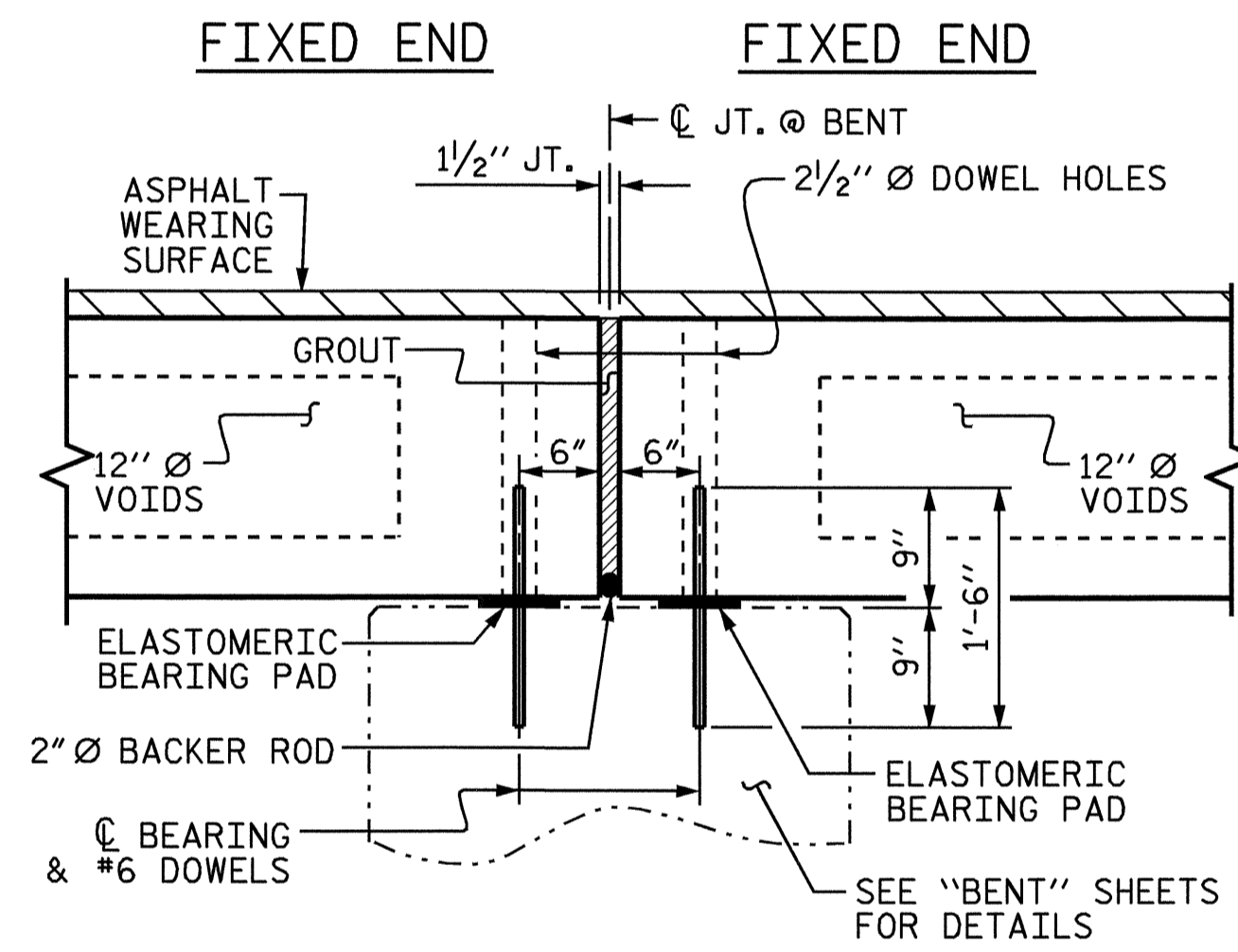
**PART PLAN-EXTERIOR SECTION**

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

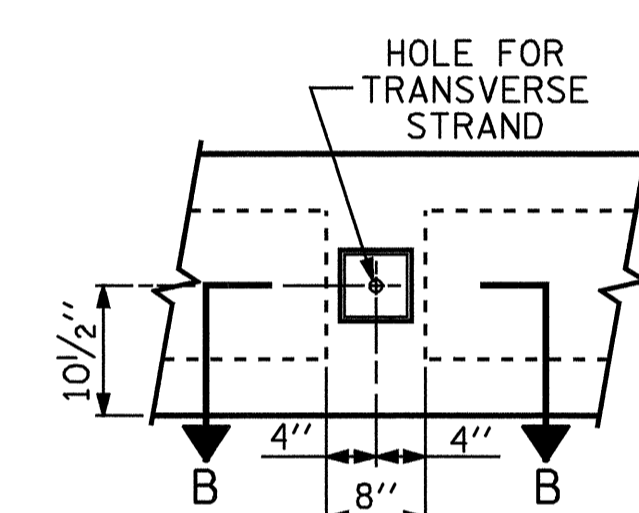
\* SEE PLAN OF CORED SLAB UNIT FOR DIMENSION  
\*\* SEE PLAN OF CORED SLAB UNIT FOR QUANTITY



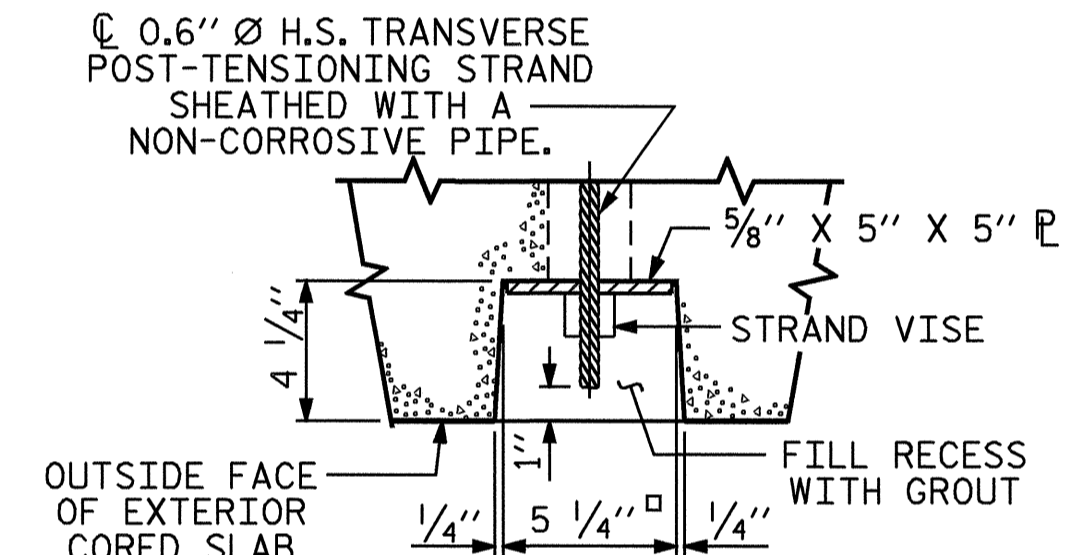
**SECTION AT END BENT**



**SECTION AT BENT**

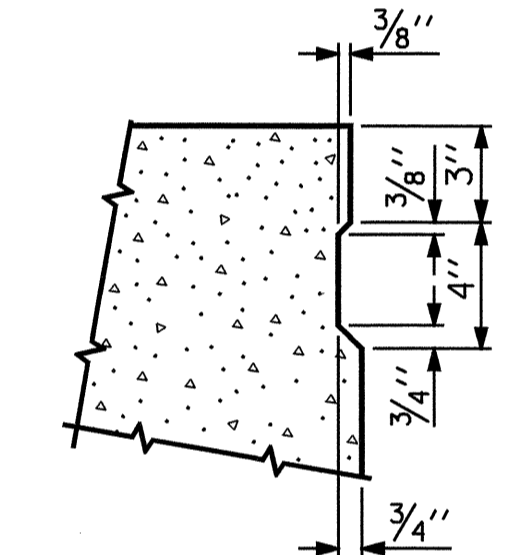


**ELEVATION VIEW**



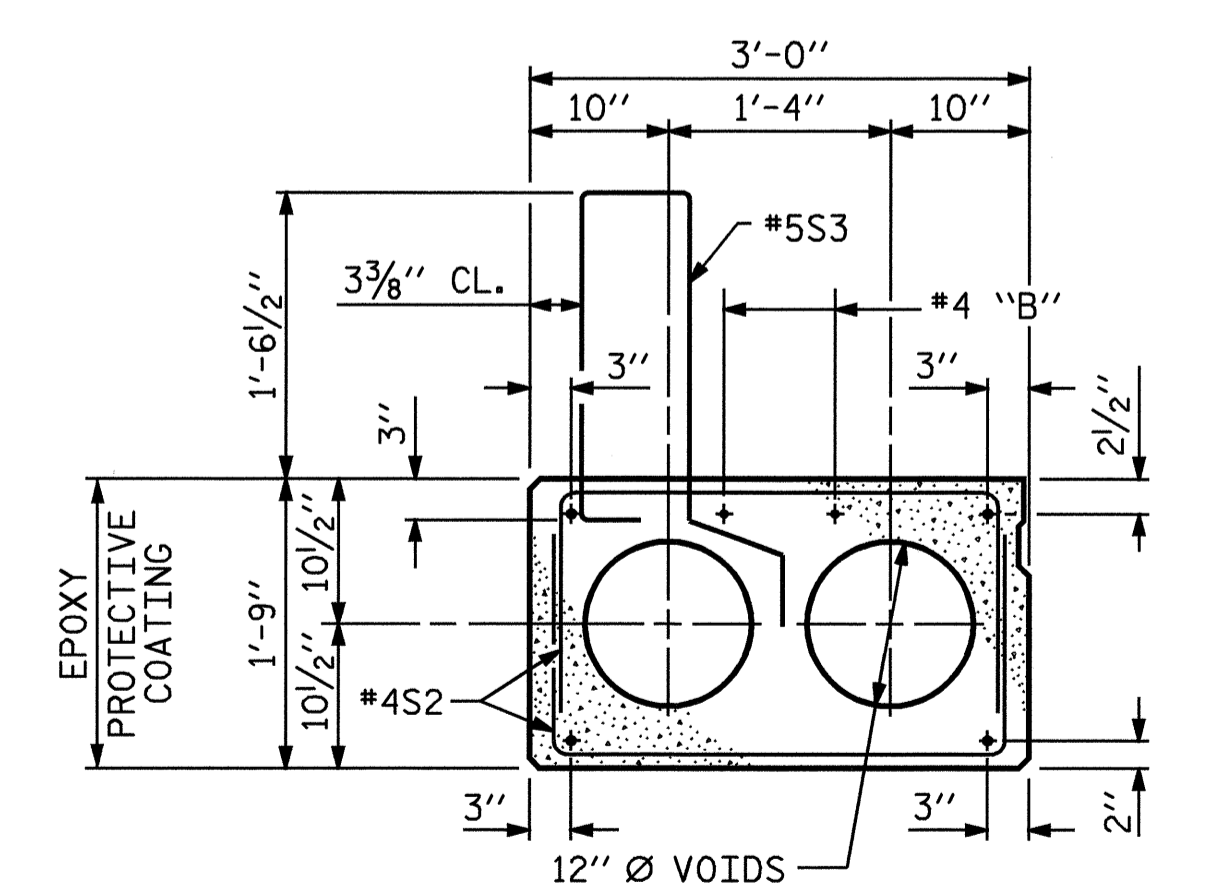
**SECTION B-B**

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



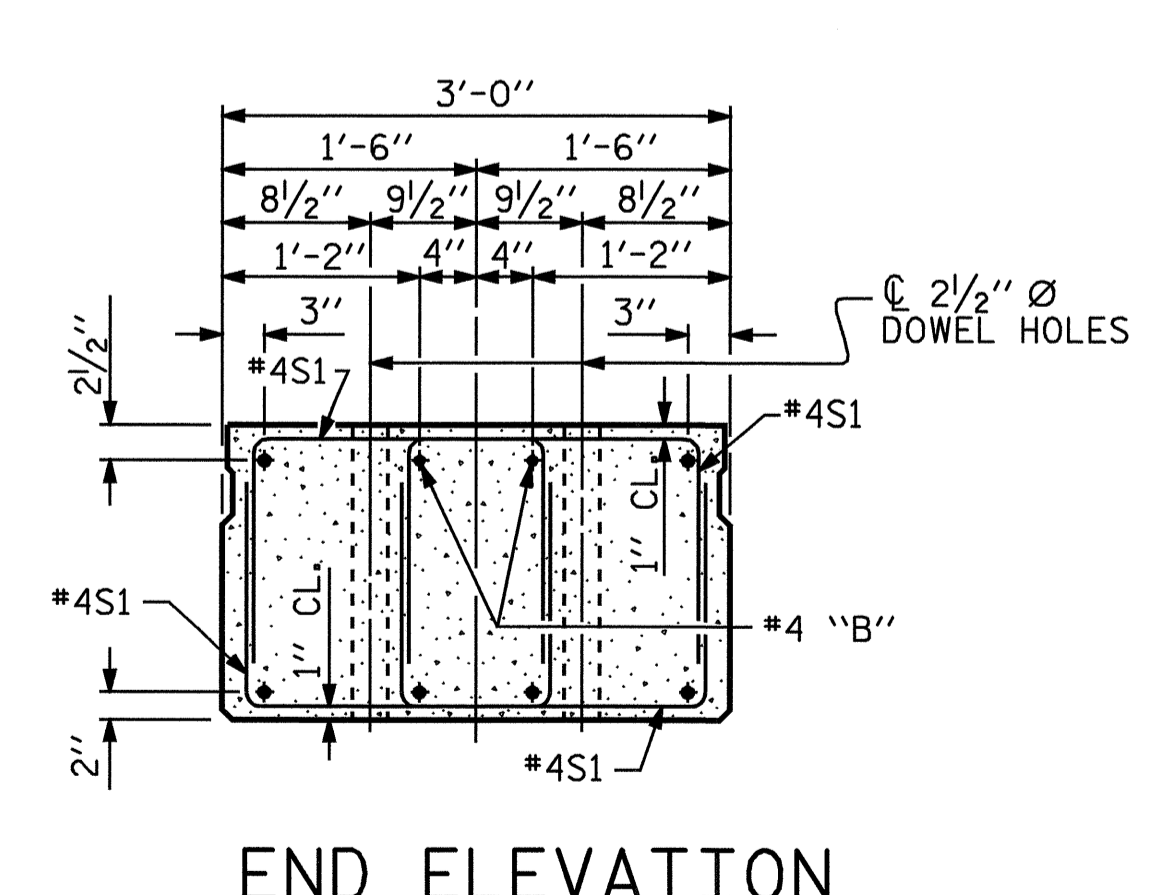
**SHEAR KEY DETAIL**

OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



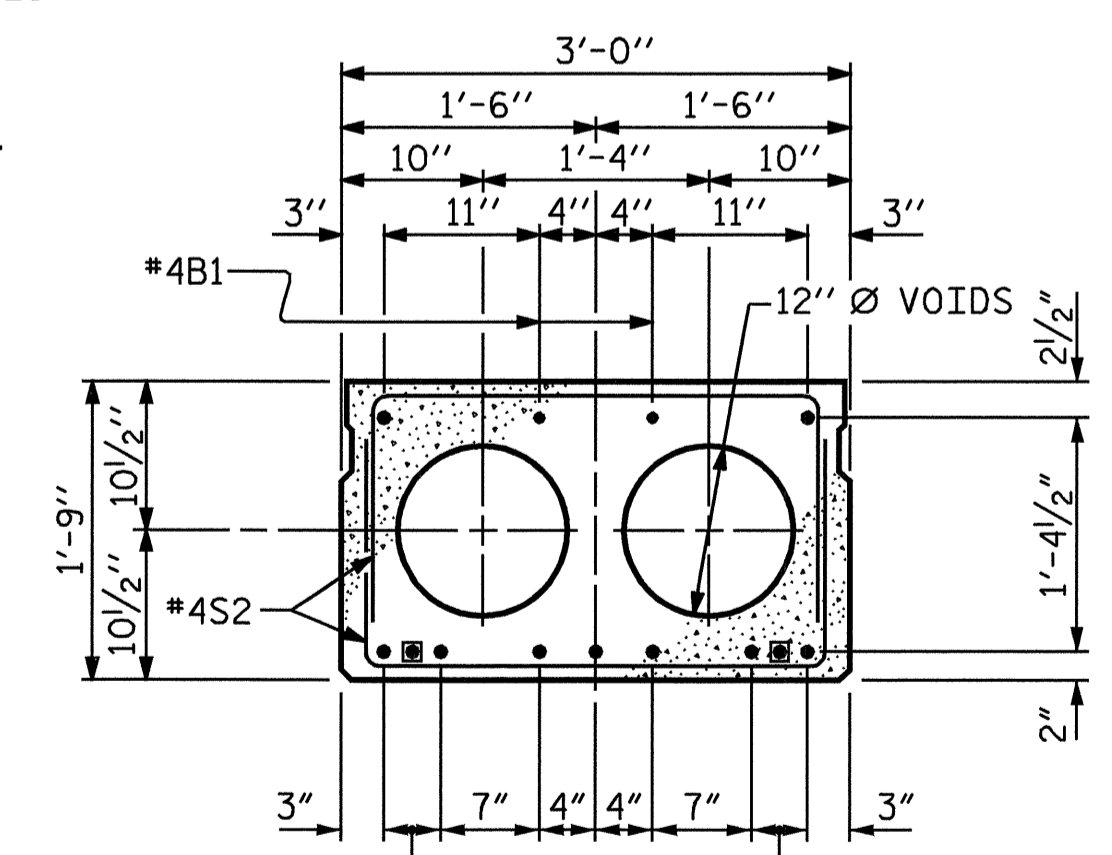
**EXTERIOR SLAB SECTION**

FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.



**END ELEVATION**

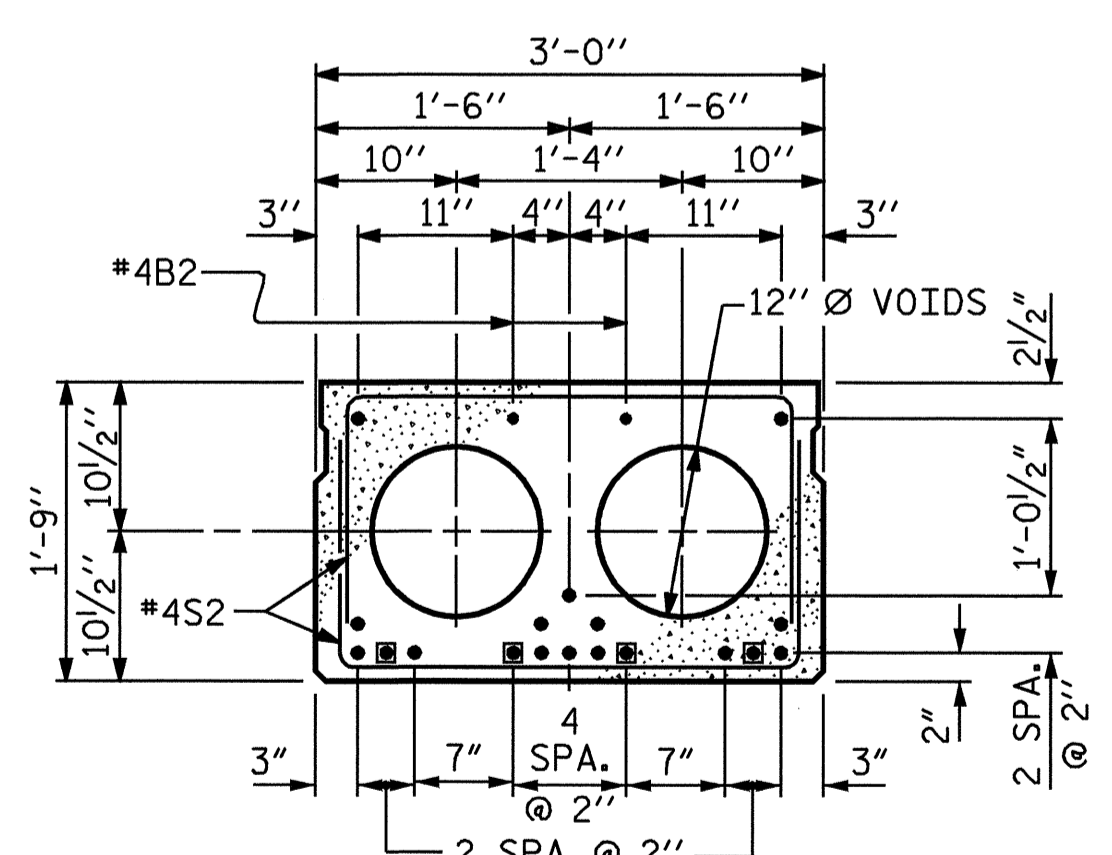
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)  
INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



**SPAN A & SPAN D INTERIOR SLAB SECTION**

**0.6" Ø LOW RELAXATION STRAND LAYOUT**

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



**SPAN B & SPAN C INTERIOR SLAB SECTION**

**0.6" Ø LOW RELAXATION STRAND LAYOUT**

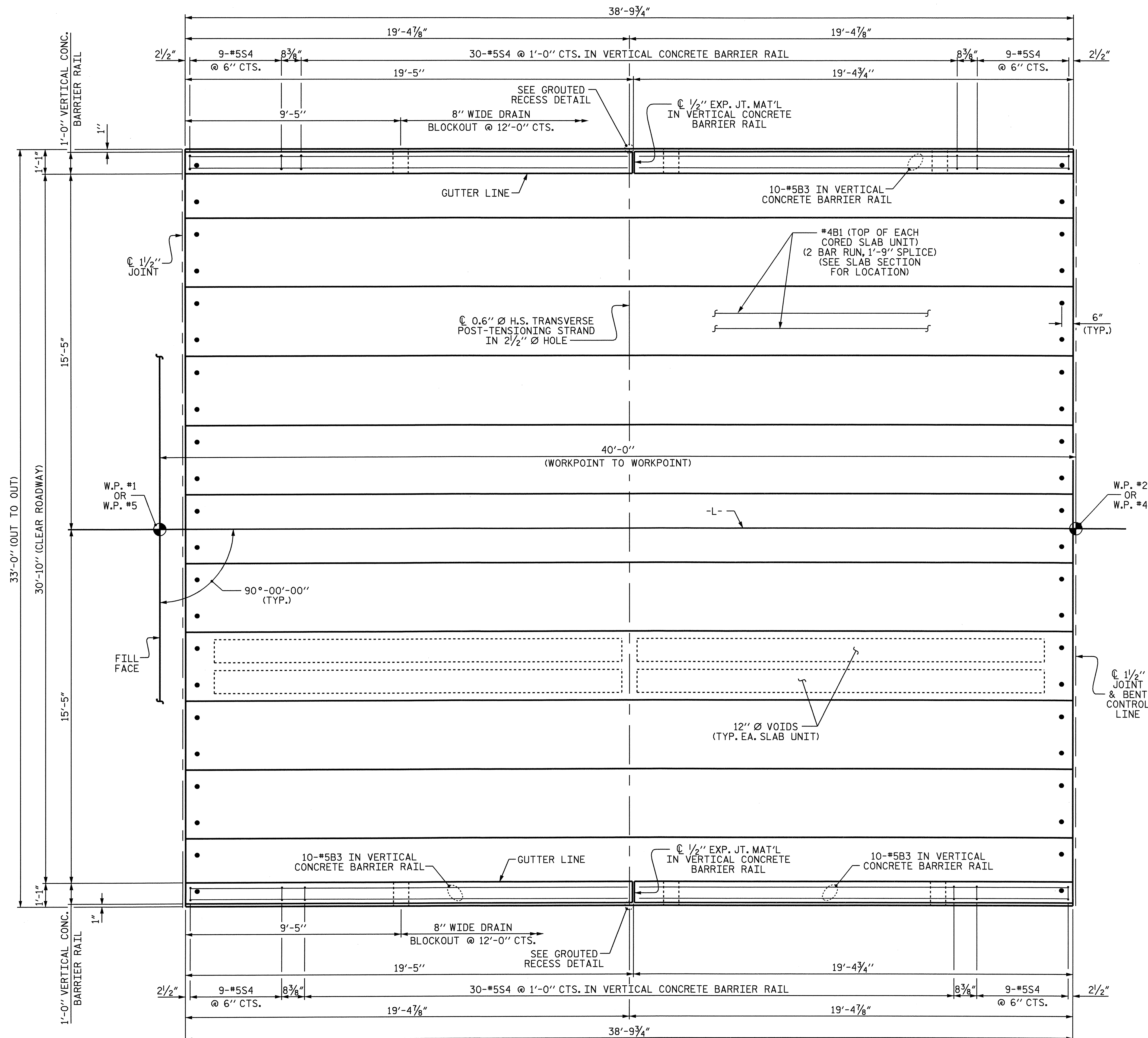
● BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



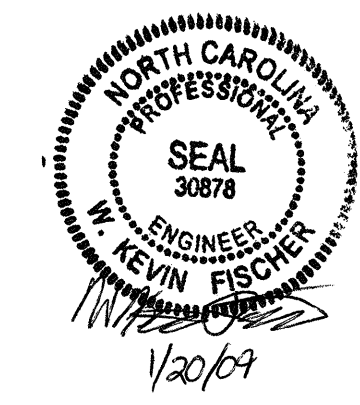
PROJECT NO. B-4097  
DAVIDSON COUNTY  
STATION: 15+13.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						STANDARD	
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT						S-5	
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			23	
2			4				

ASSEMBLED BY : J.P. ADAMS	DATE : 8/18/08
CHECKED BY : R.G. EMERSON	DATE : 8/28/08
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM



PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-



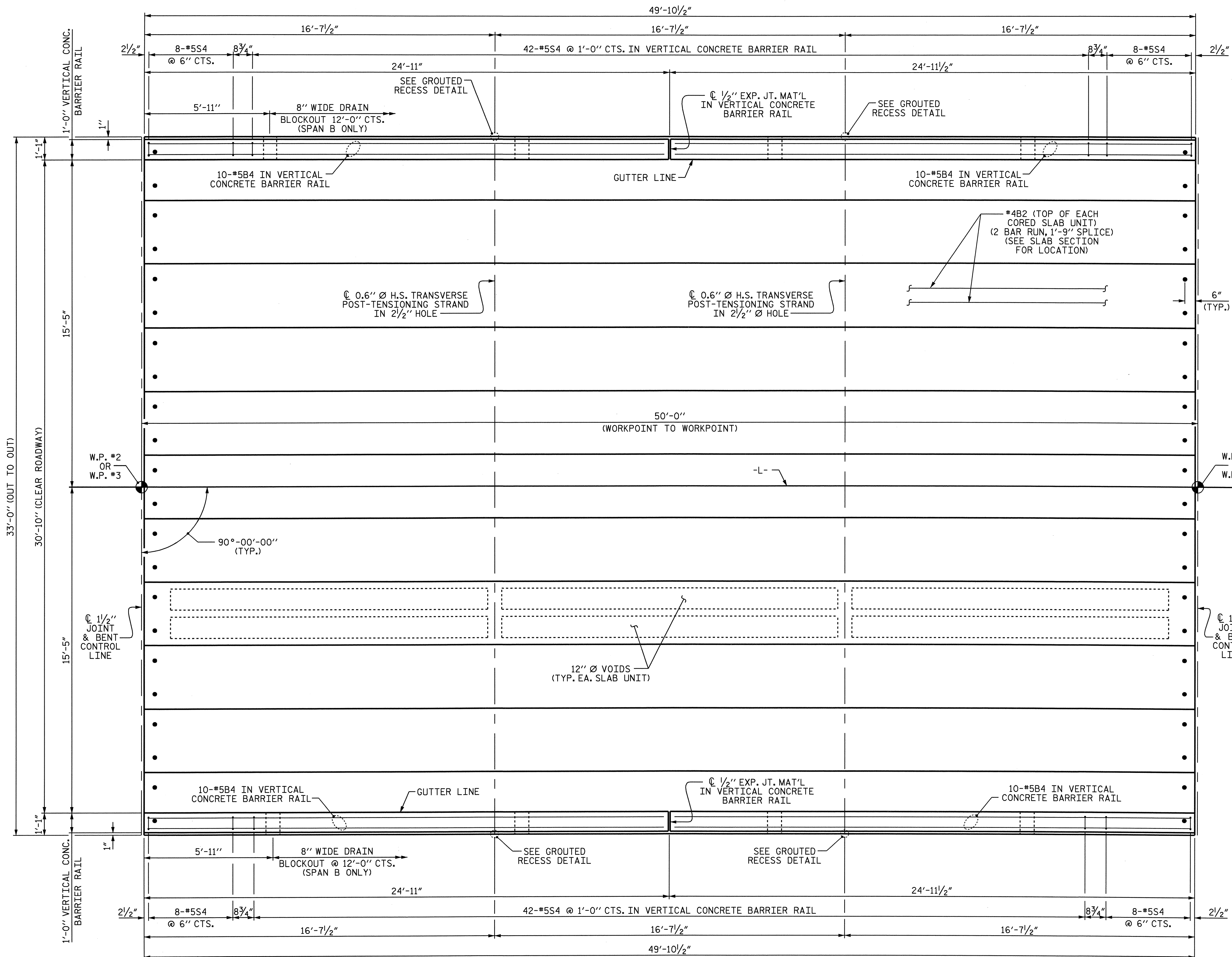
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPAN  
 (SPAN A OR SPAN D)

DRAWN BY: J.P. ADAMS DATE: 8/19/08  
 CHECKED BY: R.G. EMERSON DATE: 8/28/08

FIX. UP-STATION SPAN A → SPAN A OR SPAN D ← UP-STATION SPAN D FIX.  
 SPAN A SHOWN, SPAN D SIMILAR BY ROTATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			23



DRAINAGE SLOTS ARE NOT ALLOWED IN SPAN C



PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN  
 (SPAN B OR SPAN C)

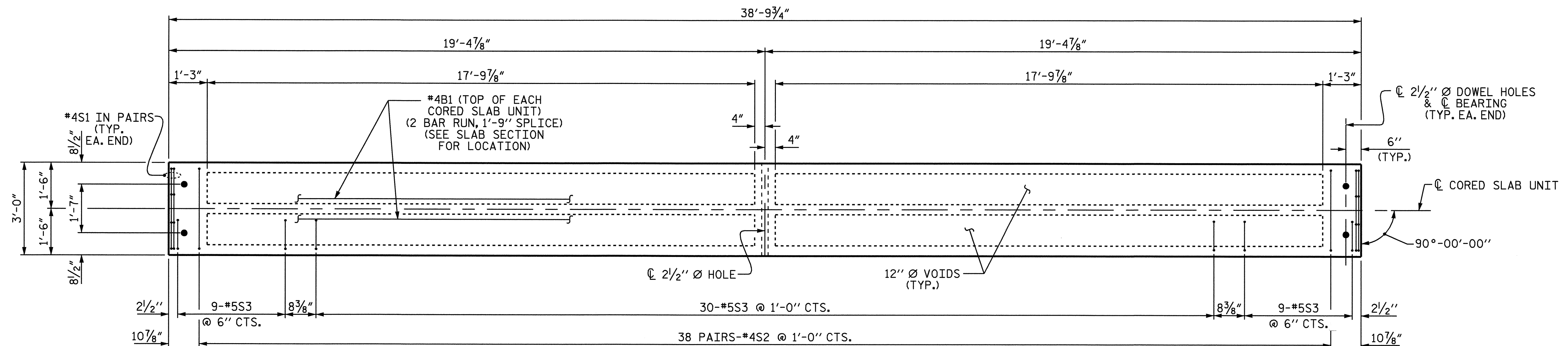
FIX.  
 DRAWN BY: J.P. ADAMS DATE: 8/19/08  
 CHECKED BY: R.G. EMERSON DATE: 8/28/08

**SPAN B OR SPAN C**  
 SPAN B SHOWN, SPAN C SIMILAR  
 EXCEPT OMIT DRAINAGE SLOTS

FIX.

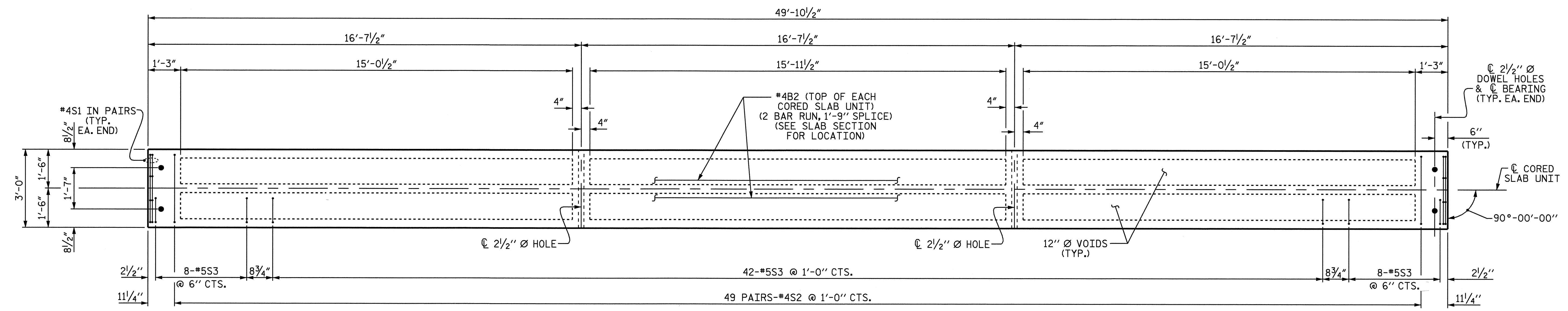
REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			23





**PLAN OF CORED SLAB UNIT - SPAN A OR SPAN D**

EXTERIOR SLAB UNIT SHOWN, INTERIOR SIMILAR EXCEPT OMIT #5S3 BARS.  
FOR #4S1 BARS, SEE PART PLAN-EXTERIOR SECTION.

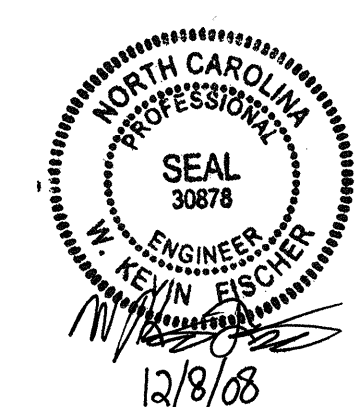


**PLAN OF CORED SLAB UNIT - SPAN B OR SPAN C**

EXTERIOR SLAB UNIT SHOWN, INTERIOR SIMILAR EXCEPT OMIT #5S3 BARS.  
FOR #4S1 BARS, SEE PART PLAN-EXTERIOR SECTION.

PROJECT NO. B-4097  
DAVIDSON COUNTY  
STATION: 15+13.00 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PLAN OF  
CORED SLAB UNIT



DRAWN BY : J.P. ADAMS DATE : 8/19/08  
CHECKED BY : R.G. EMERSON DATE : 8/28/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			23

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.

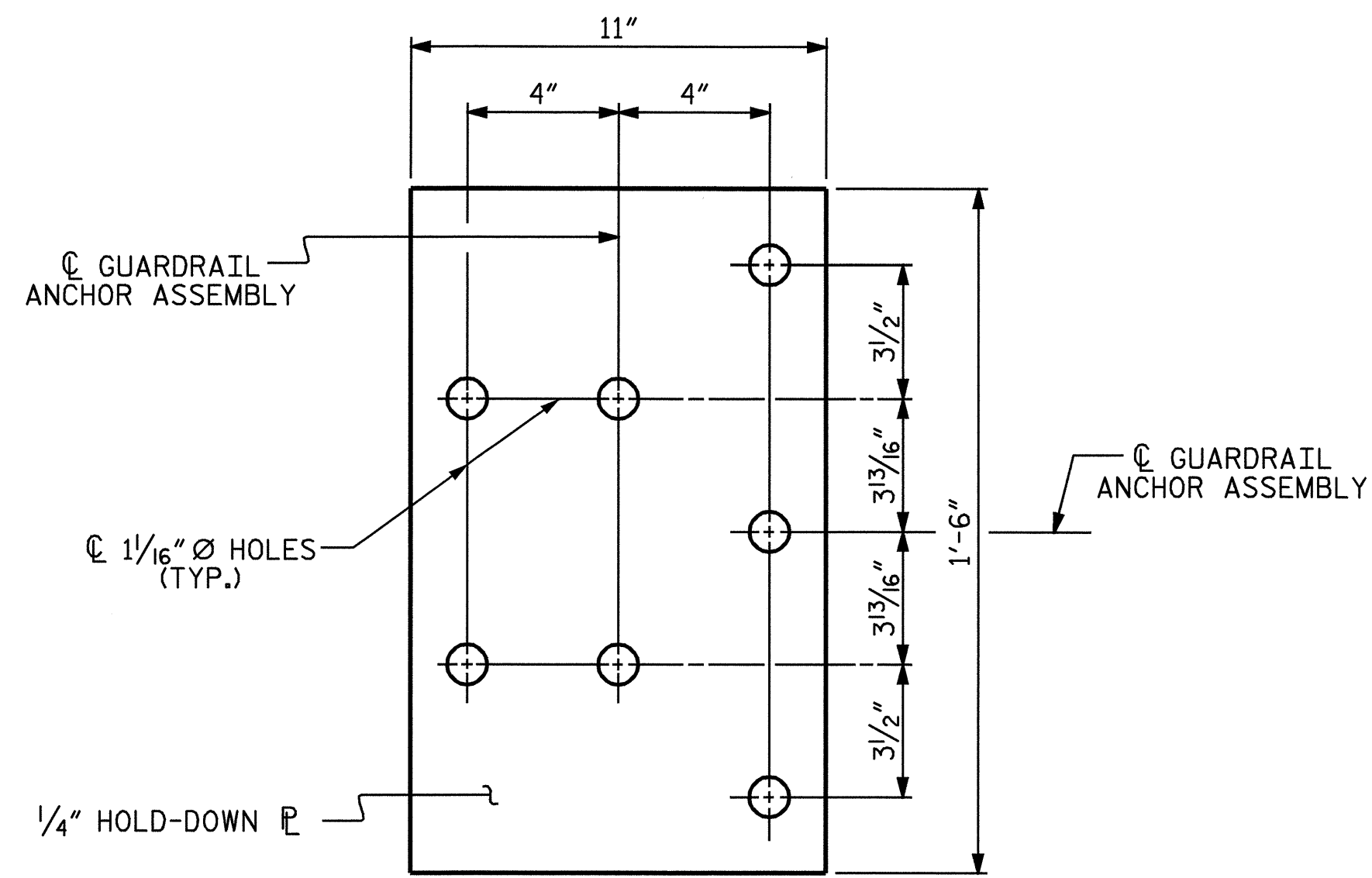
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

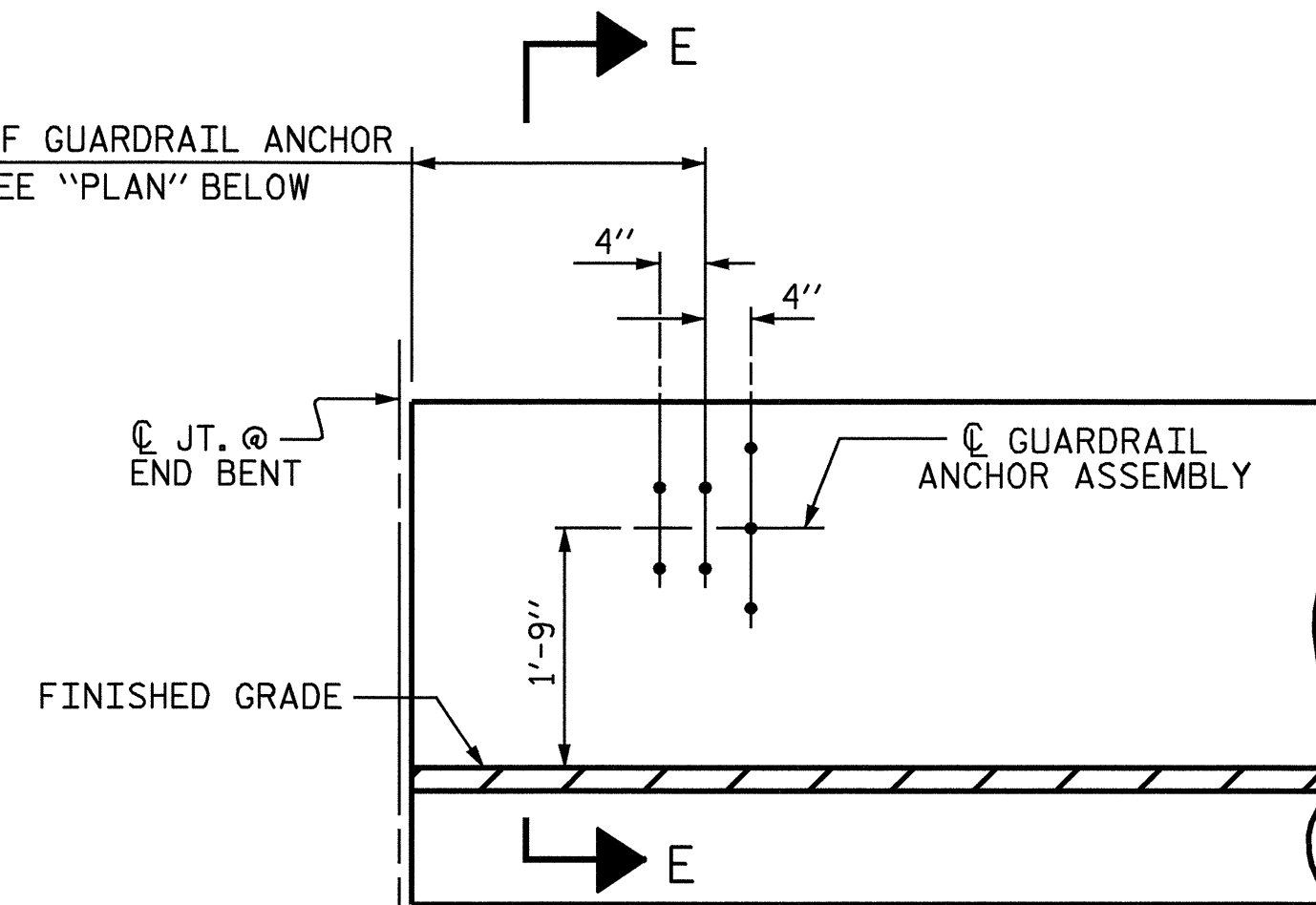
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

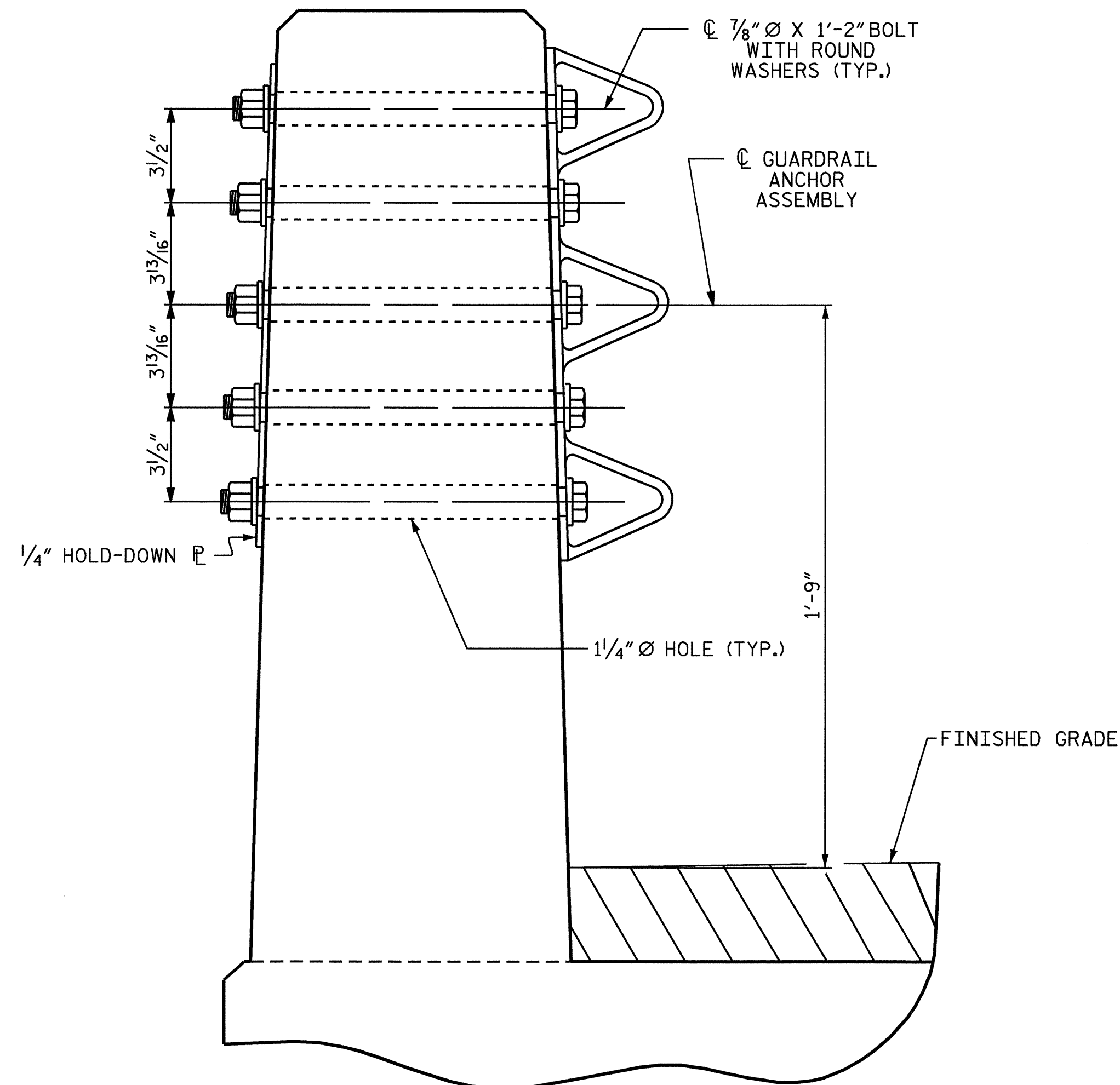


PLAN

FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

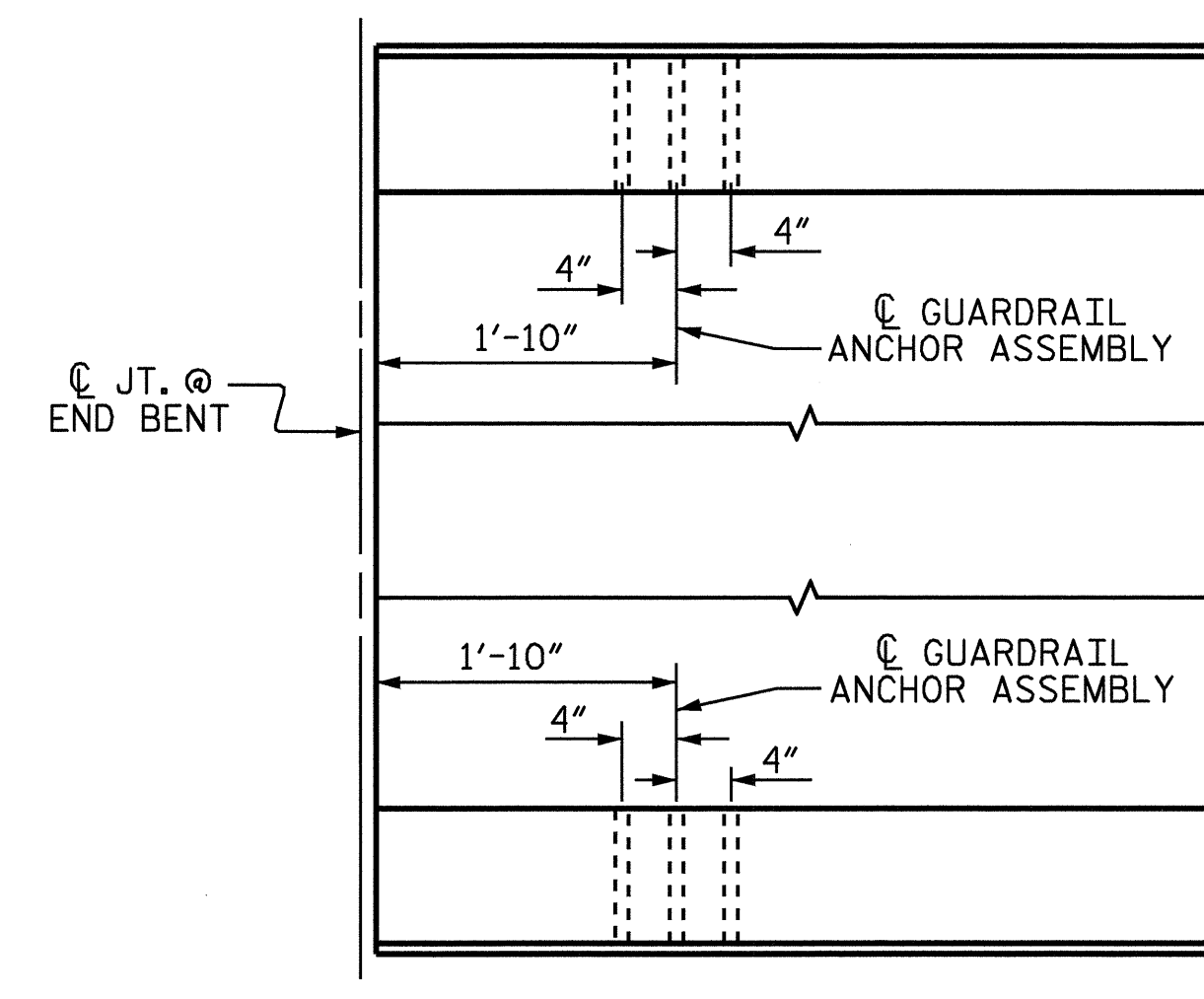


ELEVATION



SECTION E-E

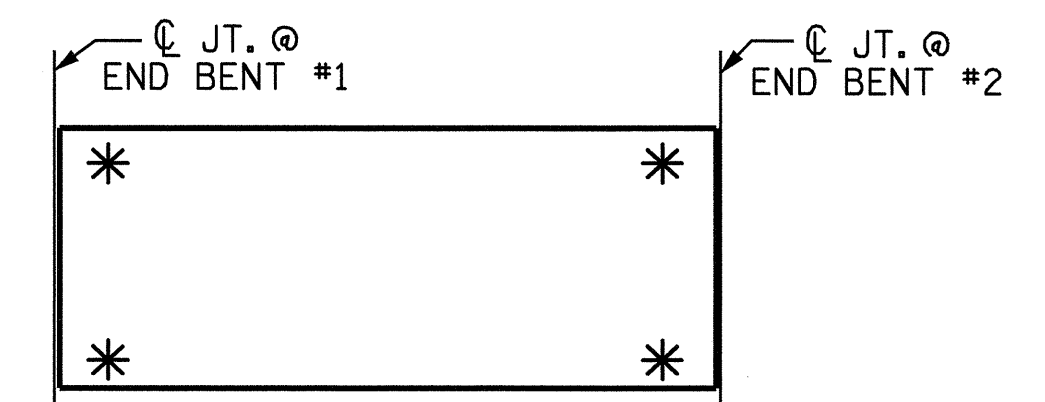
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

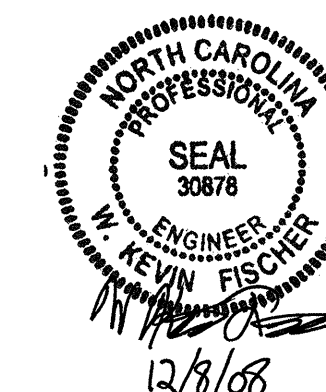


SKETCH SHOWING POINTS OF ATTACHMENTS

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4097  
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 STATION: 15+13.00 -L-

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



ASSEMBLED BY : J.P. ADAMS	DATE : 8/18/08
CHECKED BY : R.G. EMERSON	DATE : 8/28/08
DRAWN BY : MAA 12/06	ADDED 12/15/06
CHECKED BY : GM 12/06	

REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 23
2			4			

**NOTES**

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

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

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

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

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

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI FOR SPANS A & D AND 4400 PSI FOR SPANS B & C.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS, OUTSIDE FACE AND EXPOSED TOP SURFACES OF EXTERIOR CORED SLAB UNITS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE VERTICAL CONCRETE BARRIER RAIL IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

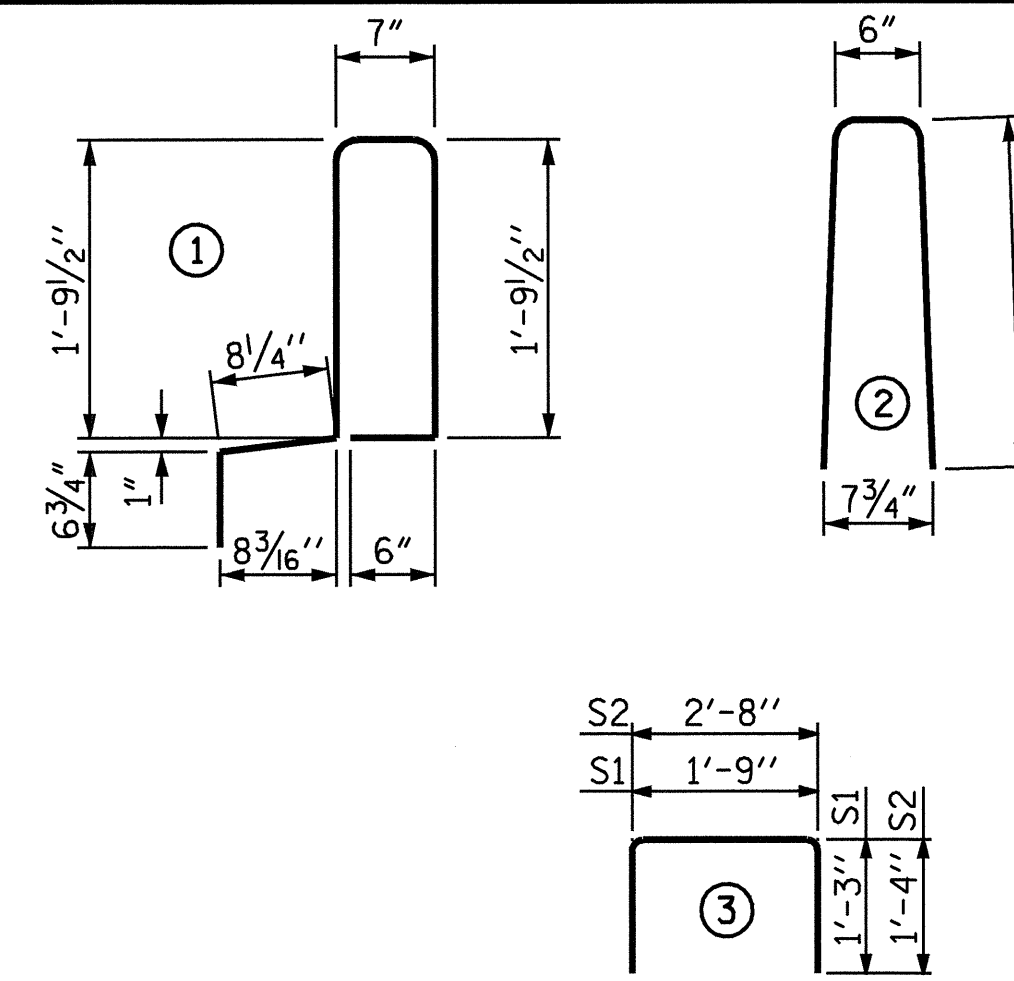
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

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

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTER LINE.

**BAR TYPES**



ALL BAR DIMENSIONS ARE OUT TO OUT.

**BILL OF MATERIAL FOR ONE CORED SLAB SECTION**

SPAN A OR SPAN D				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	20'-2"	54	20'-2"	54
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	76	#4	3	5'-4"	271	5'-4"	271
*S3	48	#5	1	5'-11"	296	----	----
REINFORCING STEEL				348 LBS.		348 LBS.	
*EPOXY COATED REINFORCING STEEL				296 LBS.		----	
5000 P.S.I. CONCRETE				5.4 CU. YDS.		5.4 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 11		No. 11	

**BILL OF MATERIAL FOR ONE CORED SLAB SECTION**

SPAN B OR SPAN C				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	25'-8"	69	25'-8"	69
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	98	#4	3	5'-4"	349	5'-4"	349
*S3	58	#5	1	5'-11"	358	----	----
REINFORCING STEEL				441 LBS.		441 LBS.	
*EPOXY COATED REINFORCING STEEL				358 LBS.		----	
5500 P.S.I. CONCRETE				7.0 CU. YDS.		7.0 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 18		No. 18	

**CORED SLABS REQUIRED**

SPAN	NUMBER	LENGTH	TOTAL LENGTH
<b>SPAN A</b>			
EXTERIOR C.S.	2	38'-9 3/4"	77.63
INTERIOR C.S.	9	38'-9 3/4"	349.31
TOTAL	11		426.94
<b>SPAN B</b>			
EXTERIOR C.S.	2	49'-10 1/2"	99.75
INTERIOR C.S.	9	49'-10 1/2"	448.88
TOTAL	11		548.63
<b>SPAN C</b>			
EXTERIOR C.S.	2	49'-10 1/2"	99.75
INTERIOR C.S.	9	49'-10 1/2"	448.88
TOTAL	11		548.63
<b>SPAN D</b>			
EXTERIOR C.S.	2	38'-9 3/4"	77.63
INTERIOR C.S.	9	38'-9 3/4"	349.31
TOTAL	11		426.94
TOTAL LENGTH (SPANS A, B, C & D)			1951.14

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

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

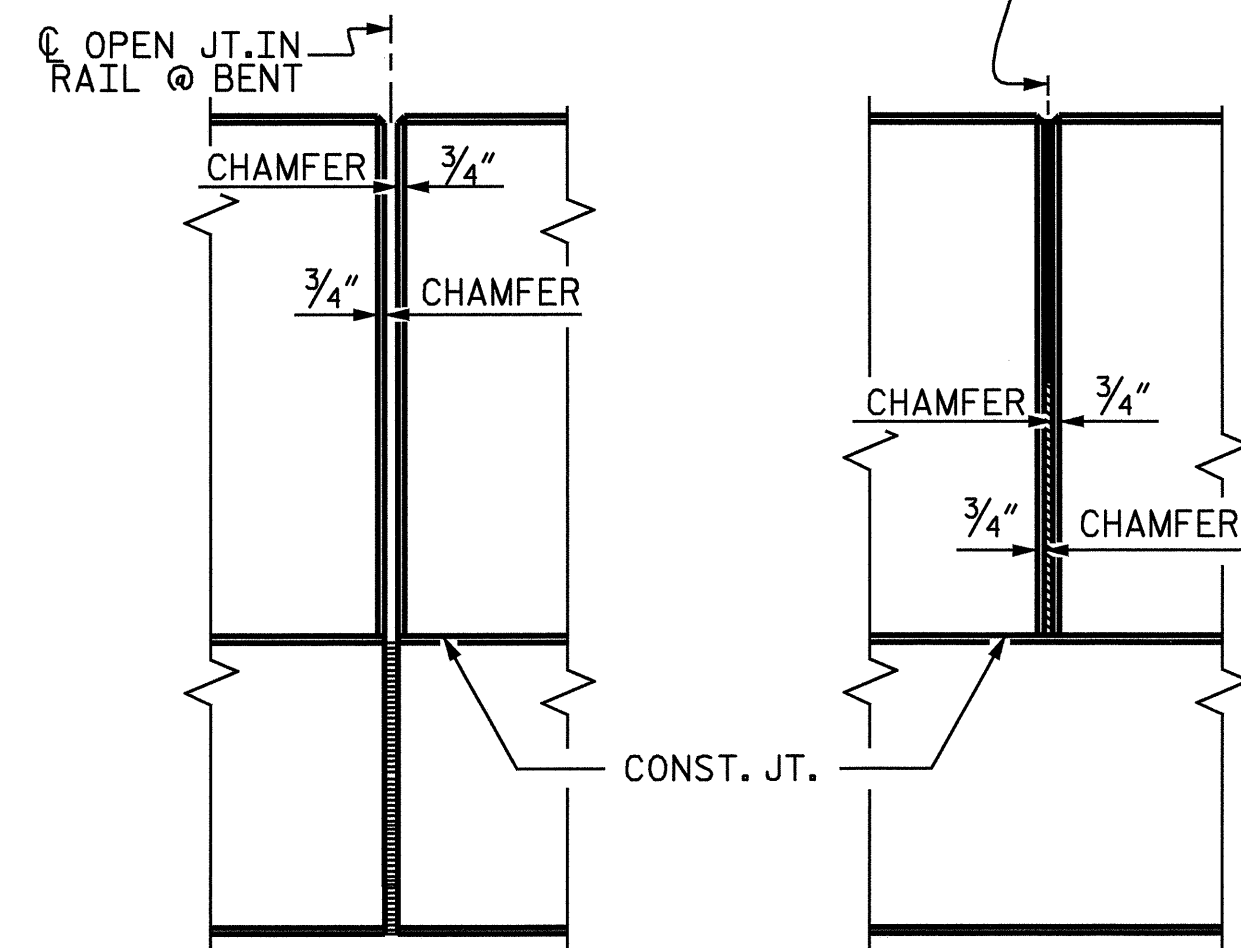
STANDARD  
 3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			23

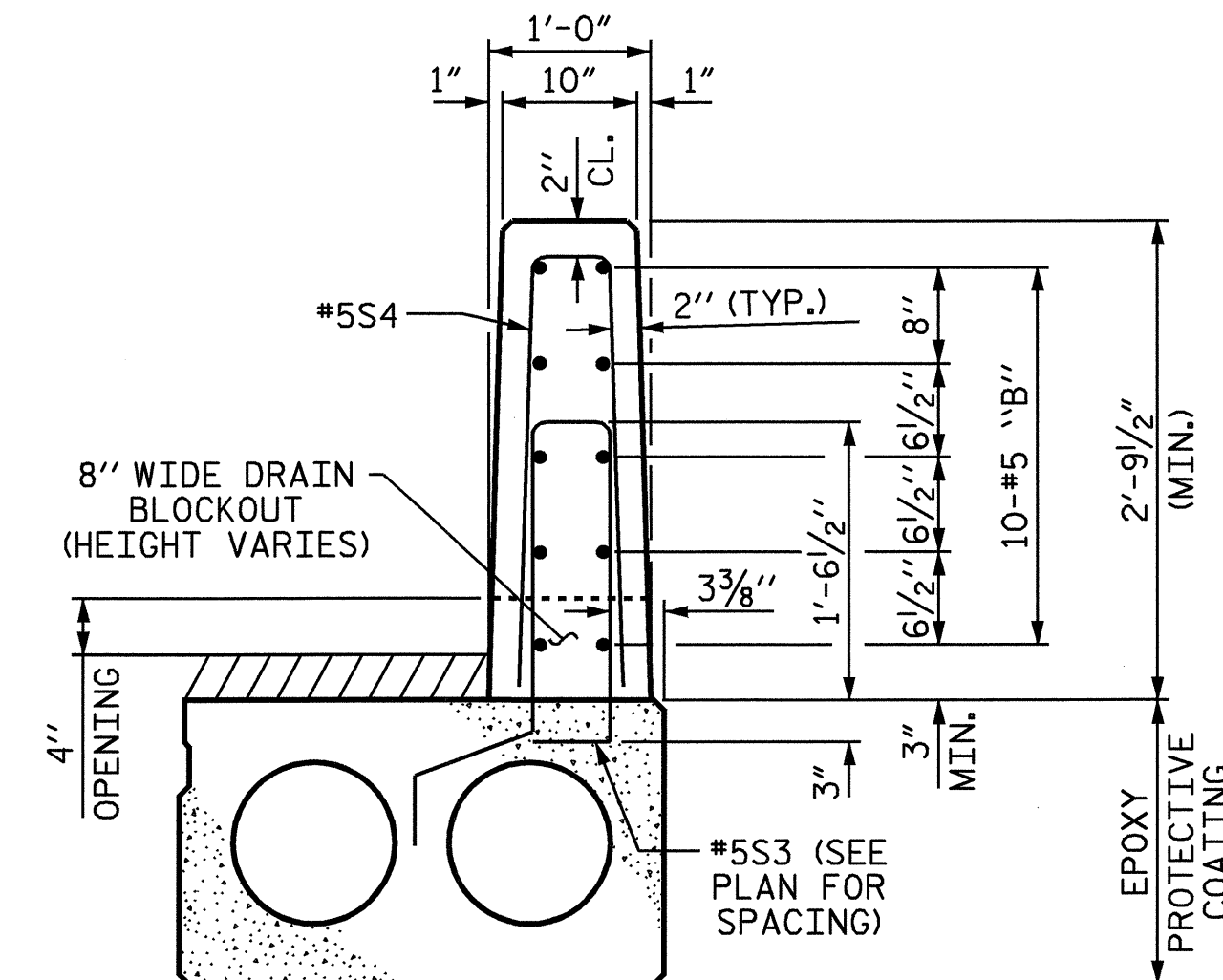


STD. NO. PCS3

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



ELEVATION AT EXPANSION JOINTS



**SECTION THRU RAIL**

FIELD CUT BOTTOM "B" BARS TO CLEAR DRAINAGE SLOTS. DRAINAGE SLOTS MAY BE SHIFTED AS NECESSARY TO CLEAR S3 BARS IN CORED SLAB UNITS.

**VERTICAL CONCRETE BARRIER RAIL DETAILS**

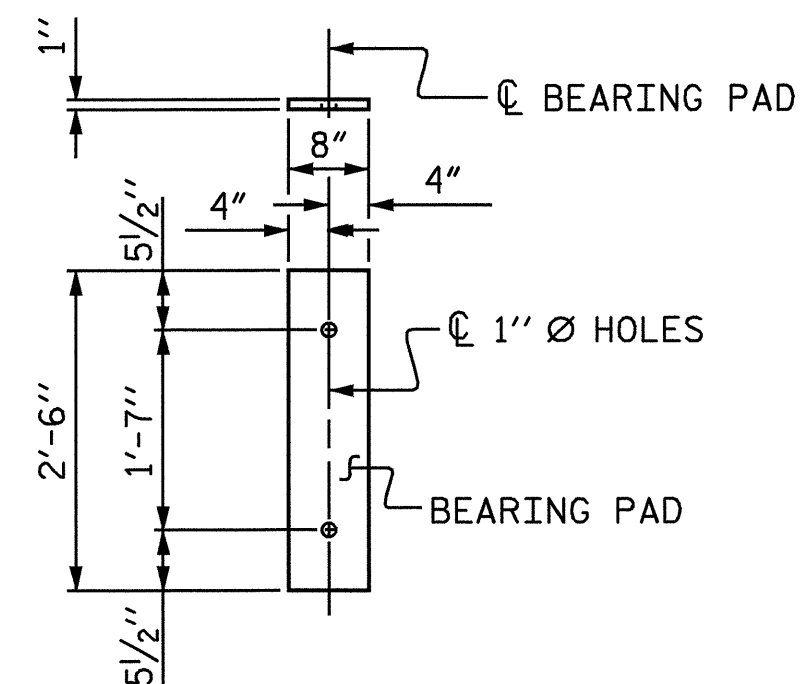
**DEAD LOAD DEFLECTION AND CAMBER**

	SPAN A OR SPAN D 0.6" Ø L.R. STRANDS	SPAN B OR SPAN C 0.6" Ø L.R. STRANDS
CAMBER (SLAB ALONE IN PLACE)	13/16" ↑	2 5/16" ↑
* DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	1/8" ↓	3/8" ↓
FINAL CAMBER	1 1/16" ↑	1 5/16" ↑

\* INCLUDES FUTURE WEARING SURFACE

**BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL**

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*B3	80	#5	STR	19'-0"	1585
*B4	80	#5	STR	24'-6"	2044
*S4	424	#5	2	5'-6"	2432
*EPOXY COATED REINFORCING STEEL				6061 LBS.	
CLASS AA CONCRETE				35.71 CU.YDS.	
TOTAL LIN. FT. OF VERTICAL CONCRETE BARRIER RAIL				355.50 LIN. FT.	

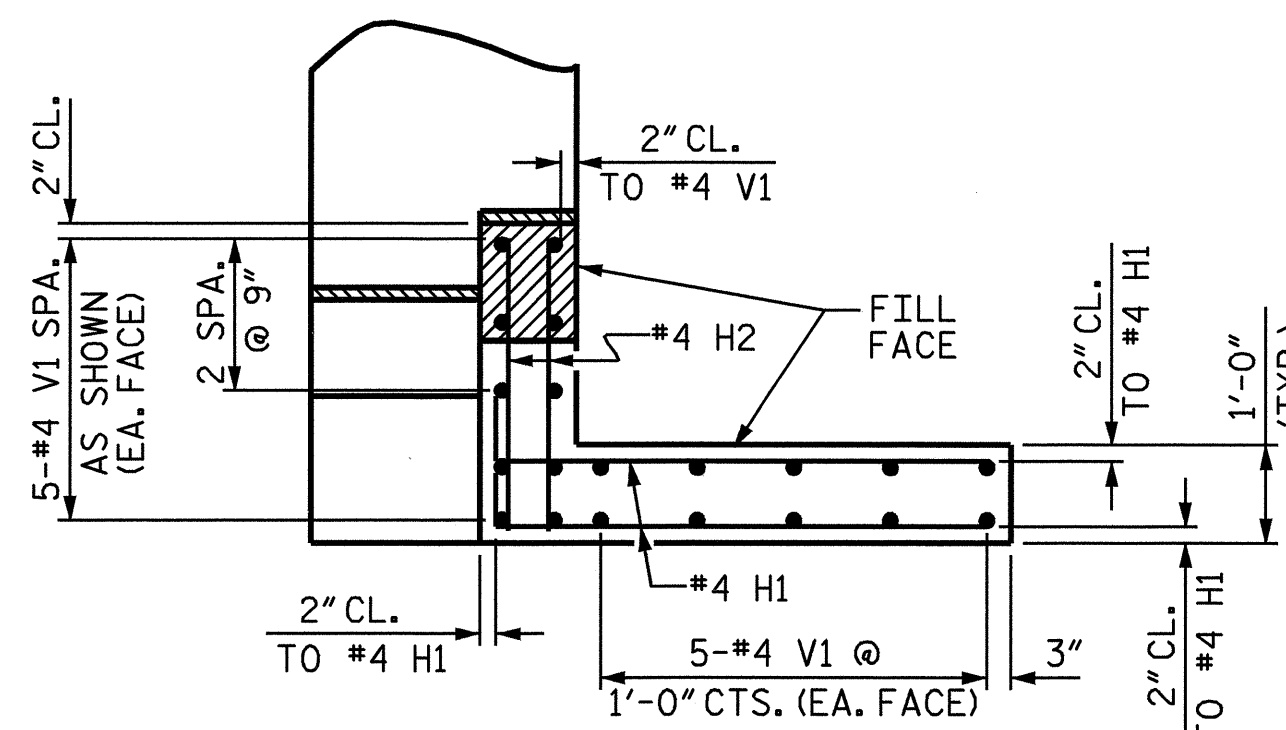


FIXED  
(88 REQ'D.)

**ELASTOMERIC BEARING DETAILS**

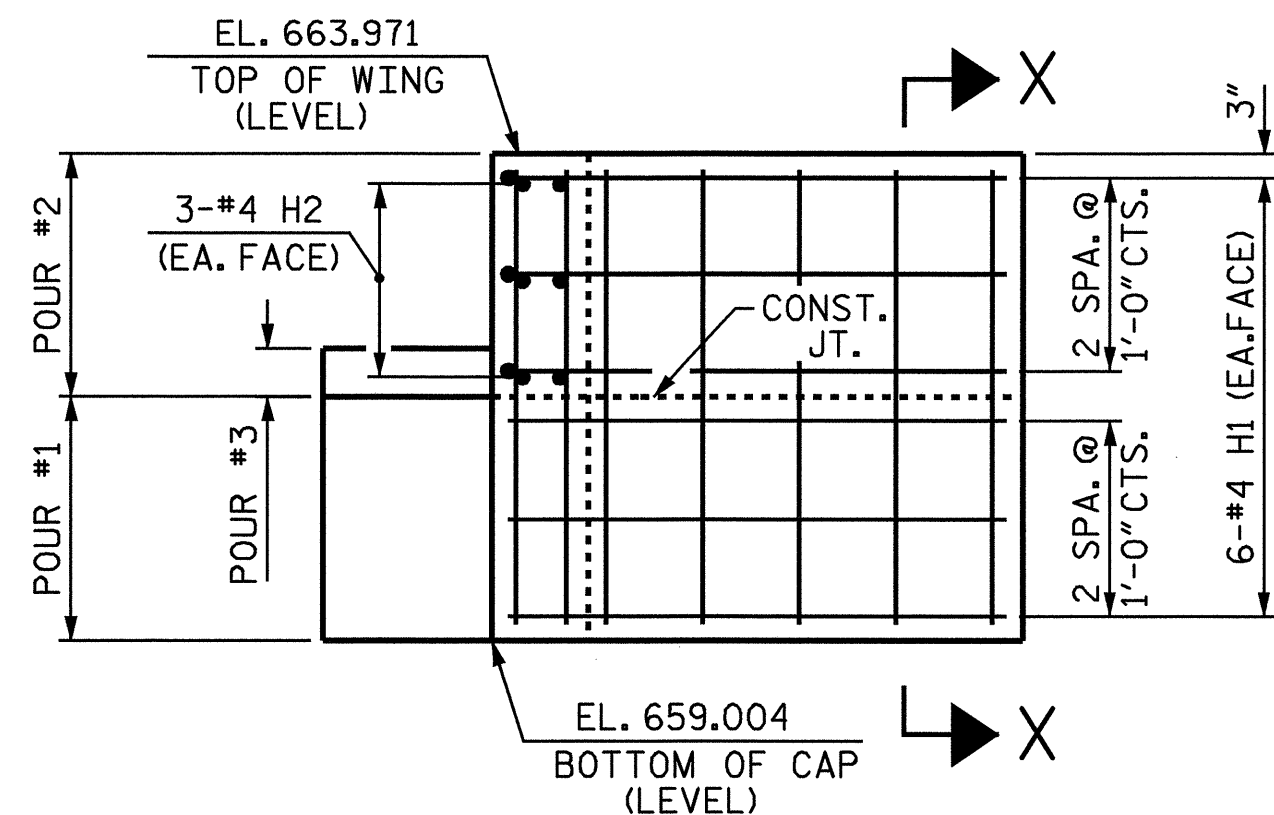
ASSEMBLED BY : J.P. ADAMS DATE : 8/18/08  
 CHECKED BY : R.G. EMERSON DATE : 8/28/08  
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES  
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE  
 REV. 5/1/06 TLA/GM





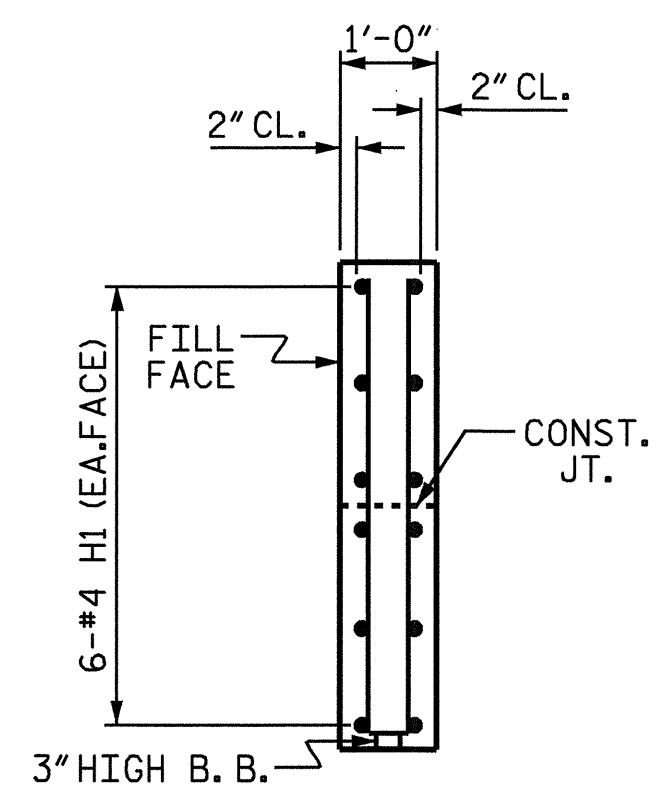
**PLAN OF WING**

LEFT WING (W1) SHOWN, RIGHT WING (W2) SIMILAR.

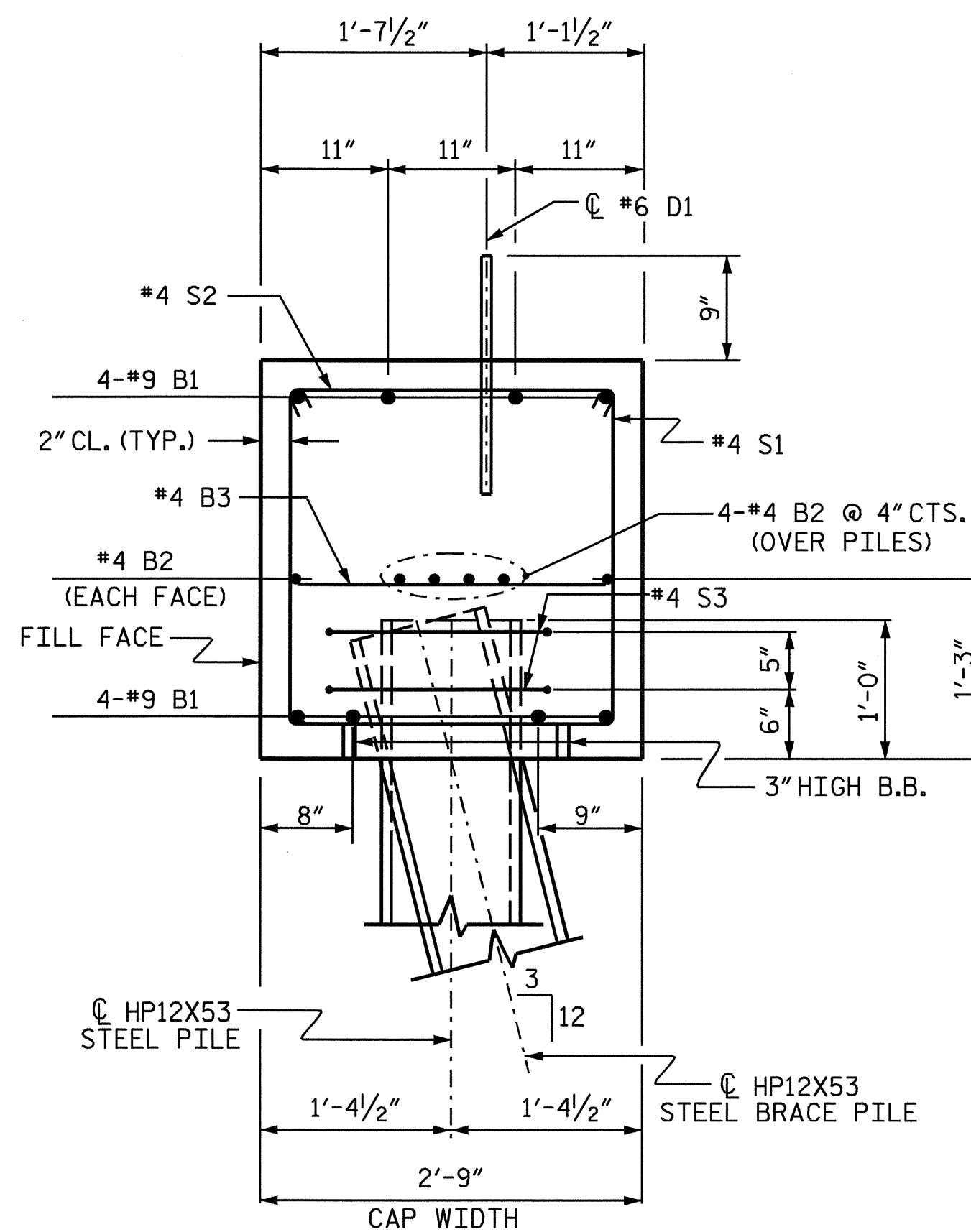


**ELEVATION OF WING**

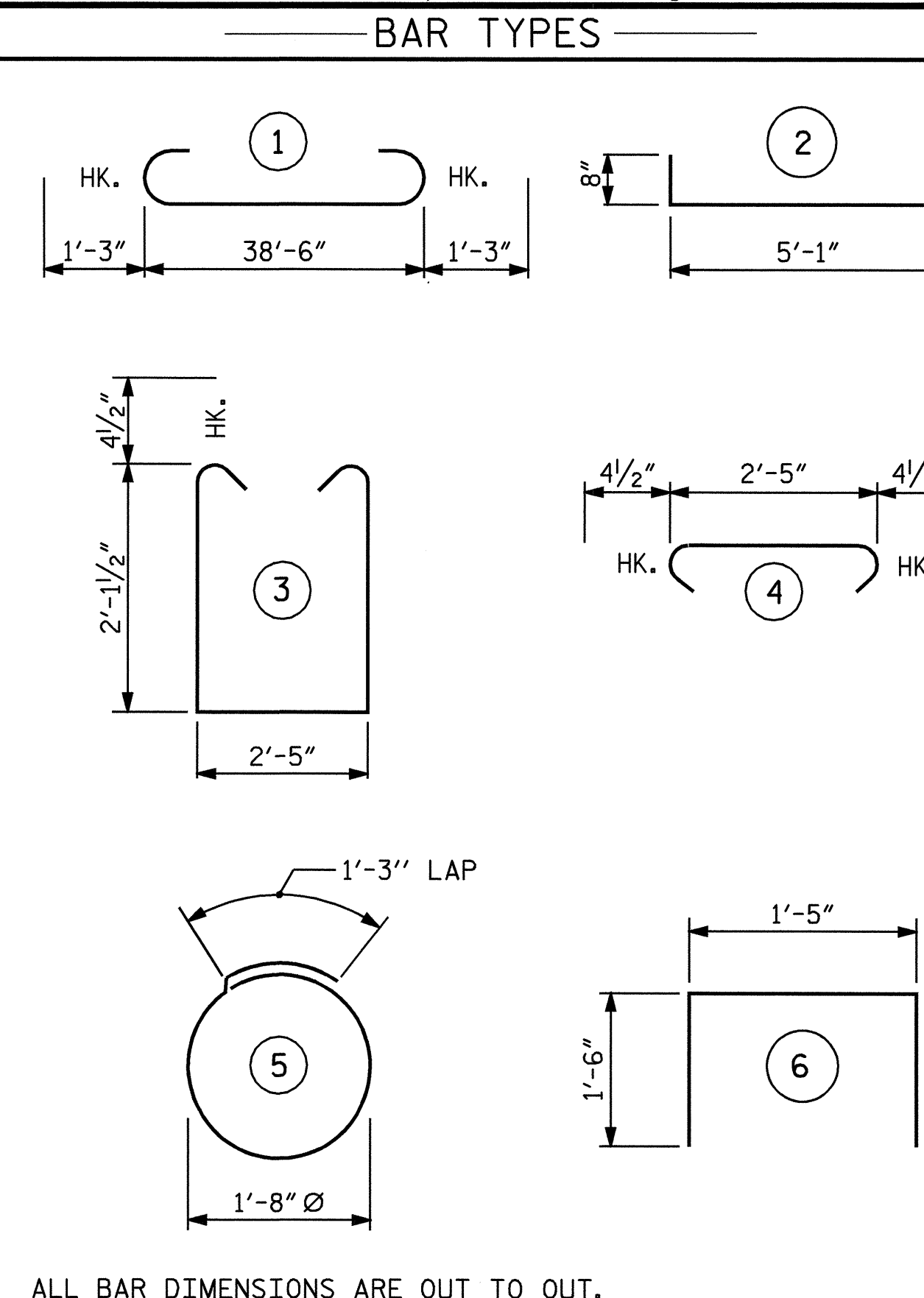
LEFT WING (W1) SHOWN, RIGHT WING (W2) SIMILAR.



**SECTION X-X**

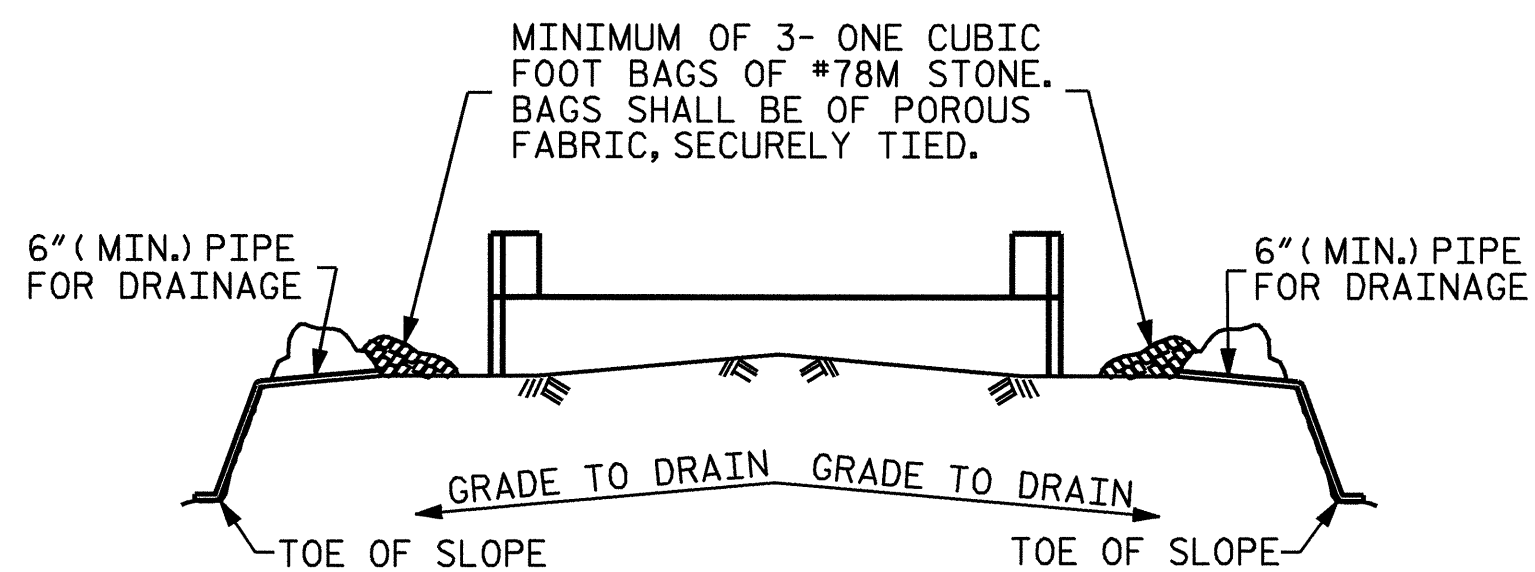


**SECTION THRU CAP**



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #1					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	41'-0"	1115
B2	12	#4	STR.	20'-7"	165
B3	10	#4	STR.	2'-5"	16
D1	22	#6	STR.	1'-6"	50
H1	24	#4	2	5'-9"	92
H2	12	#4	STR.	2'-11"	23
S1	38	#4	3	7'-5"	188
S2	38	#4	4	3'-2"	80
S3	10	#4	5	6'-6"	43
U1	4	#4	6	4'-5"	12
V1	40	#4	STR.	4'-7"	122
REINFORCING STEEL					LBS. 1906
CLASS A CONCRETE BREAKDOWN					
POUR #1					
CAP & LOWER WINGS				10.8	CU. YD.
POUR #2					
UPPER WINGS				1.4	CU. YD.
POUR #3					
LATERAL GUIDES				0.1	CU. YD.
TOTAL CLASS A CONCRETE				12.3	CU. YD.
HP12X53 STEEL PILES					
NO. 5					250 LIN. FT.

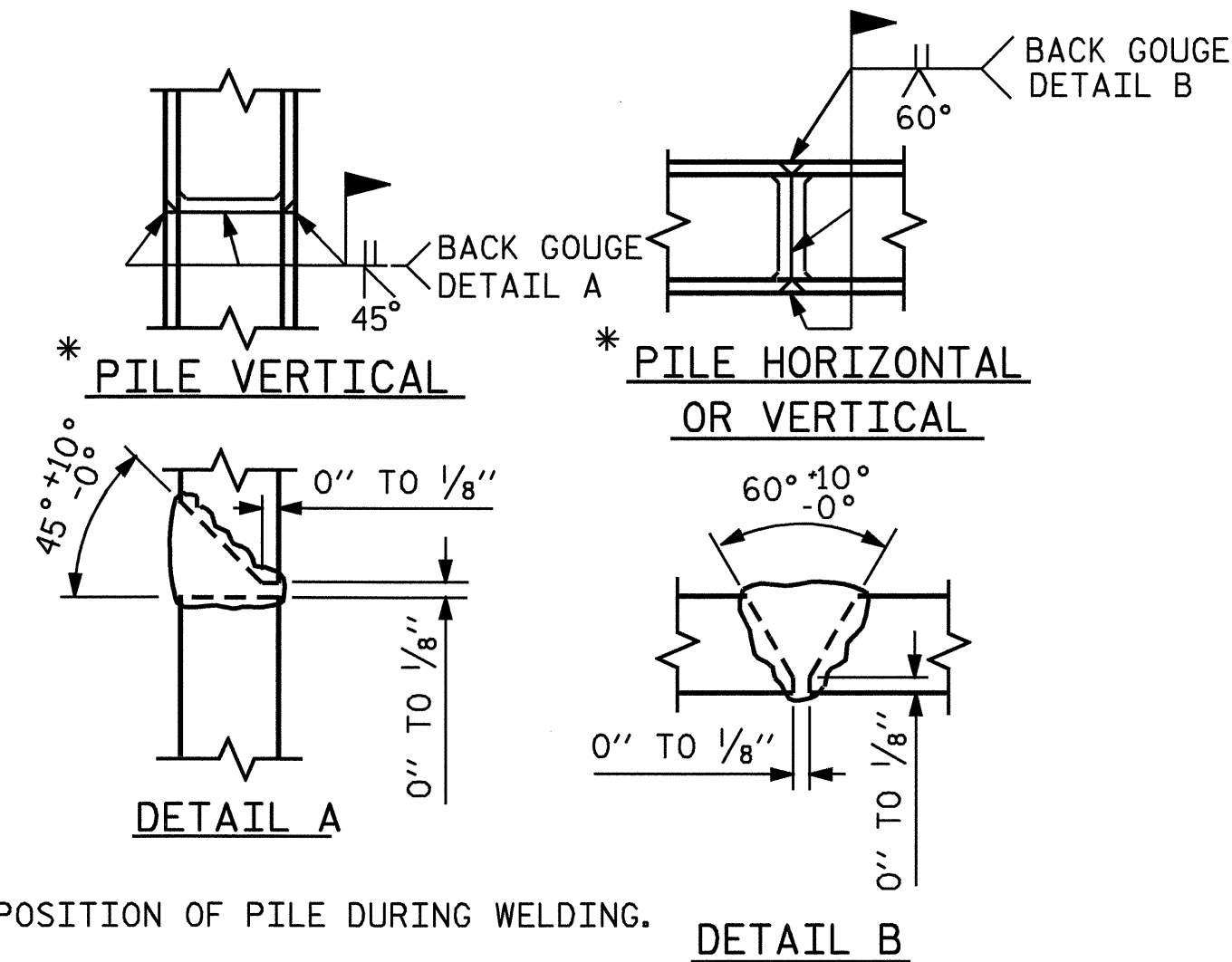


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

**TEMPORARY DRAINAGE AT END BENT**



\* POSITION OF PILE DURING WELDING.

**PILE SPLICE DETAILS**

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

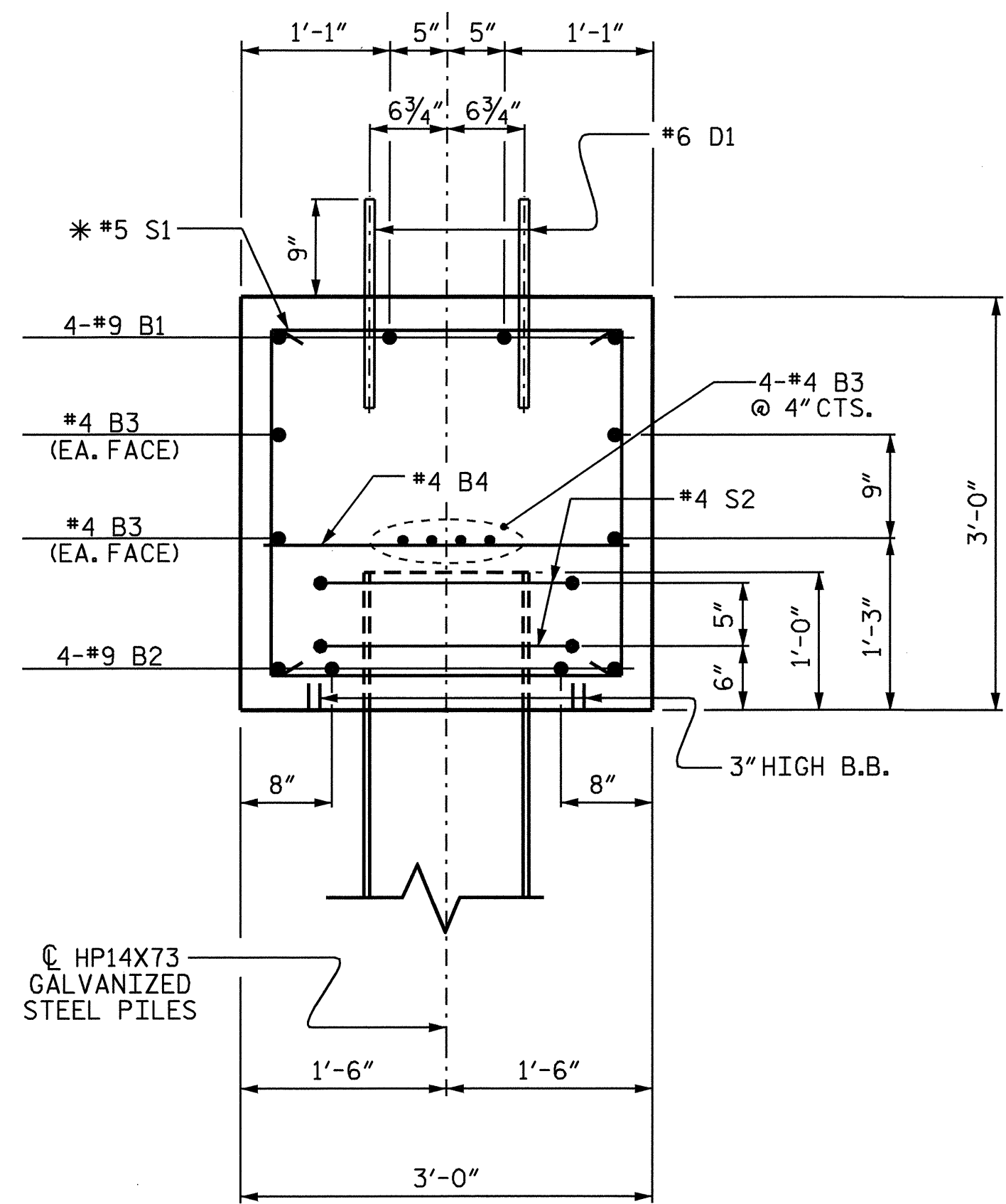
END BENT #1



DRAWN BY: R. G. EMERSON DATE: 10/08  
 CHECKED BY: B. L. GREEN DATE: 11/05/08

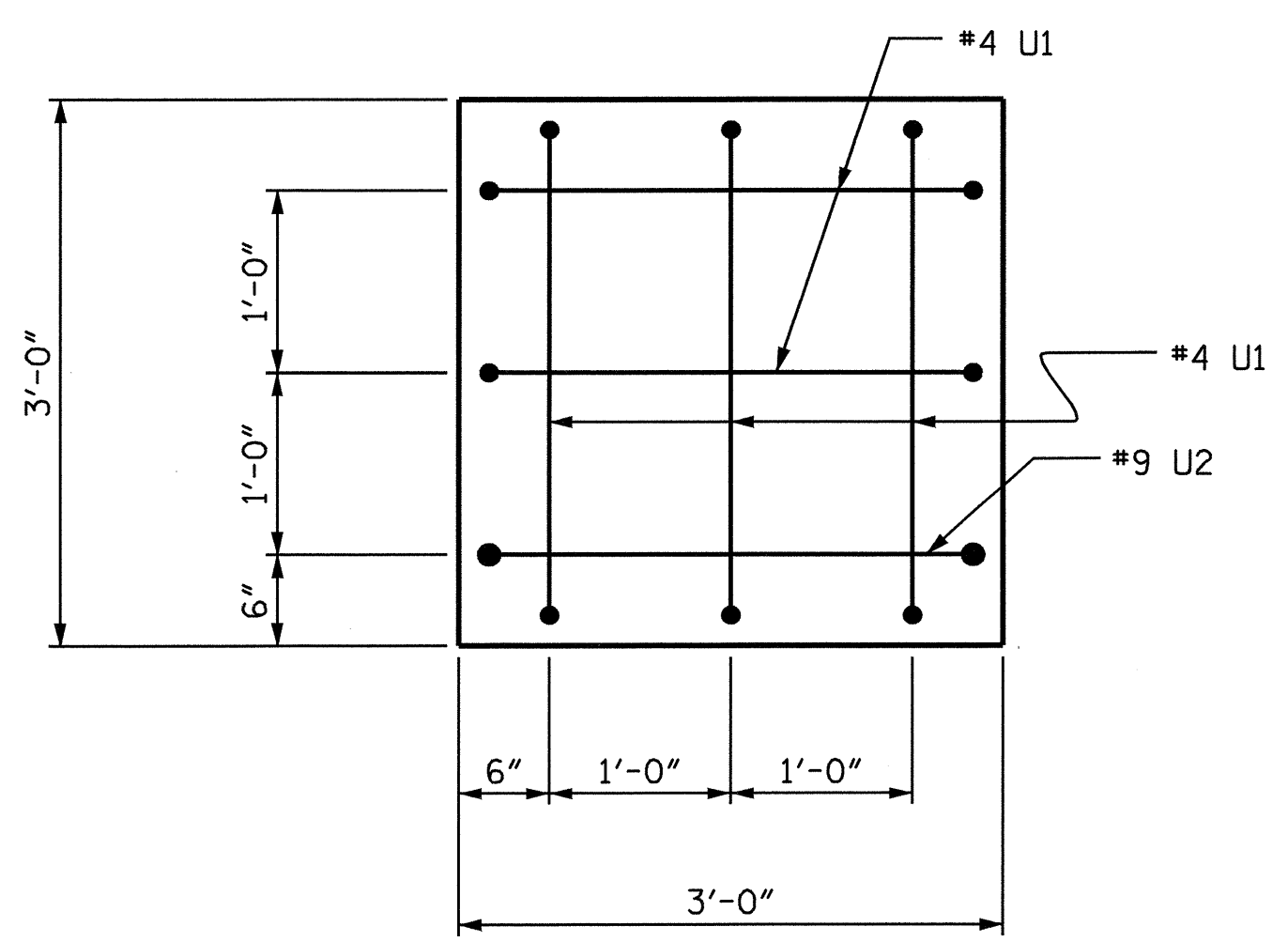
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			23



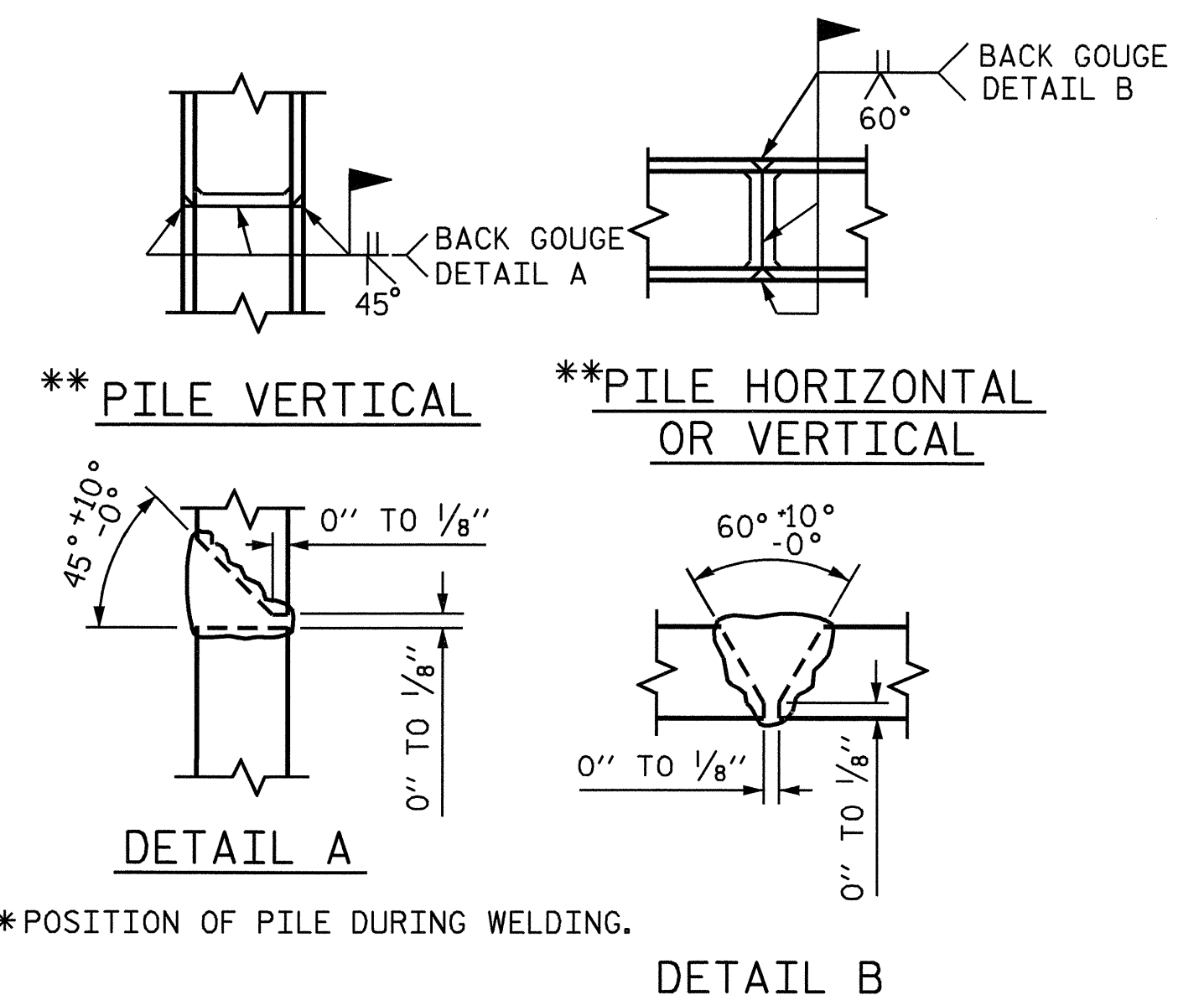


**SECTION THRU CAP**

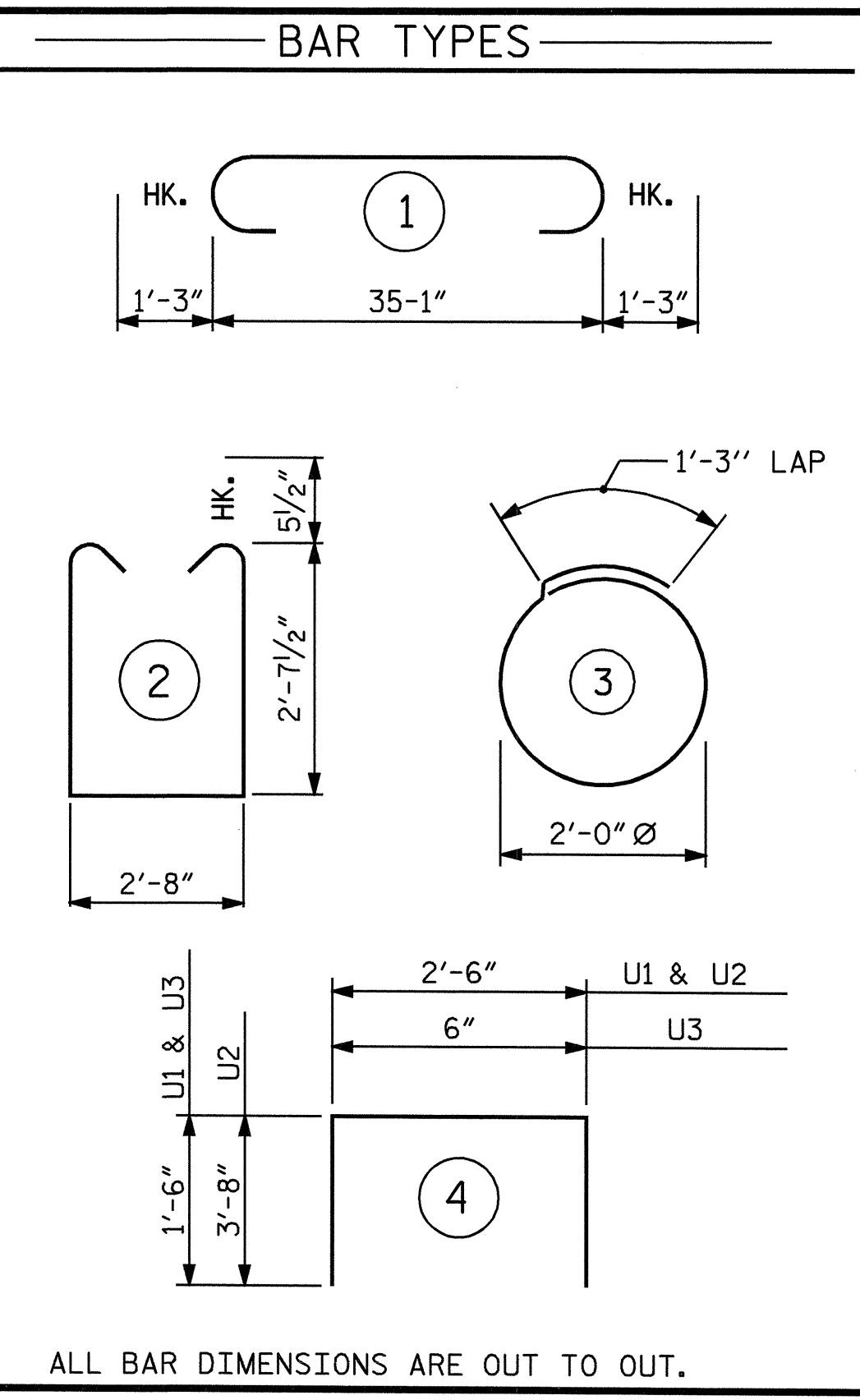
\* -INVERT ALTERNATE STIRRUPS



**END VIEW**



**PILE SPLICE DETAILS**



ALL BAR DIMENSIONS ARE OUT TO OUT.

**BILL OF MATERIAL**

BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	37'-7"	511
B2	4	#9	STR.	35'-3"	479
B3	16	#4	STR.	18'-10"	201
B4	13	#4	STR.	2'-8"	23
D1	44	#6	STR.	1'-6"	99
S1	32	#5	2	8'-10"	295
S2	12	#4	3	7'-7"	61
U1	10	#4	4	5'-6"	37
U2	2	#9	4	9'-10"	67
U3	8	#4	4	3'-6"	19
REINFORCING STEEL					1792 LBS.
CLASS "A" CONCRETE					
POUR #1 CAP					11.9 CY.
POUR #2 LATERAL GUIDE					0.1 CY.
TOTAL					12.0 CY.
HP14X73 GALVANIZED STEEL PILES					
No. 6					330 LIN. FT.

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+31.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT #1

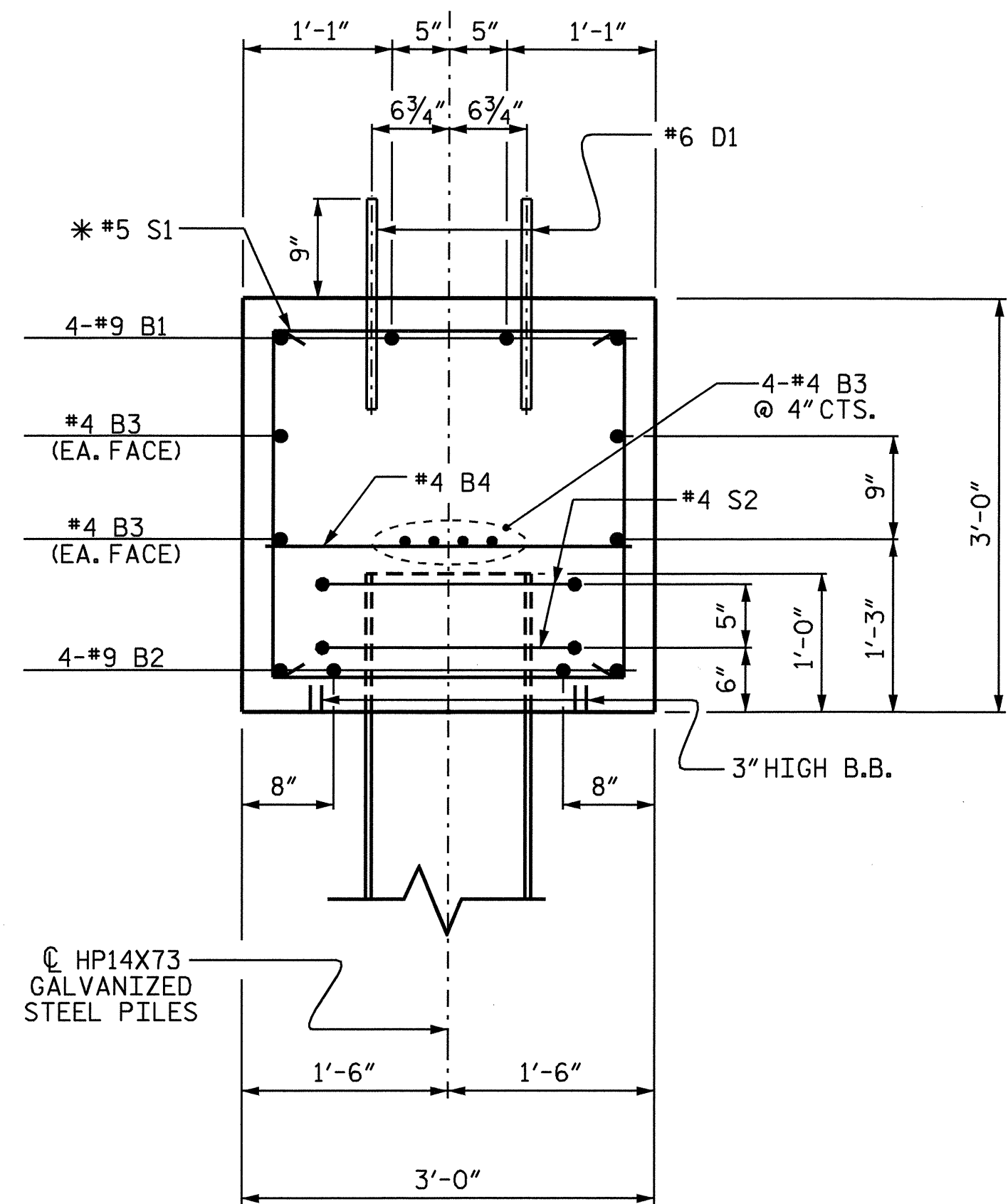


DRAWN BY: R. G. EMERSON DATE: 11/08  
 CHECKED BY: B. L. GREEN DATE: 11/14/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			23

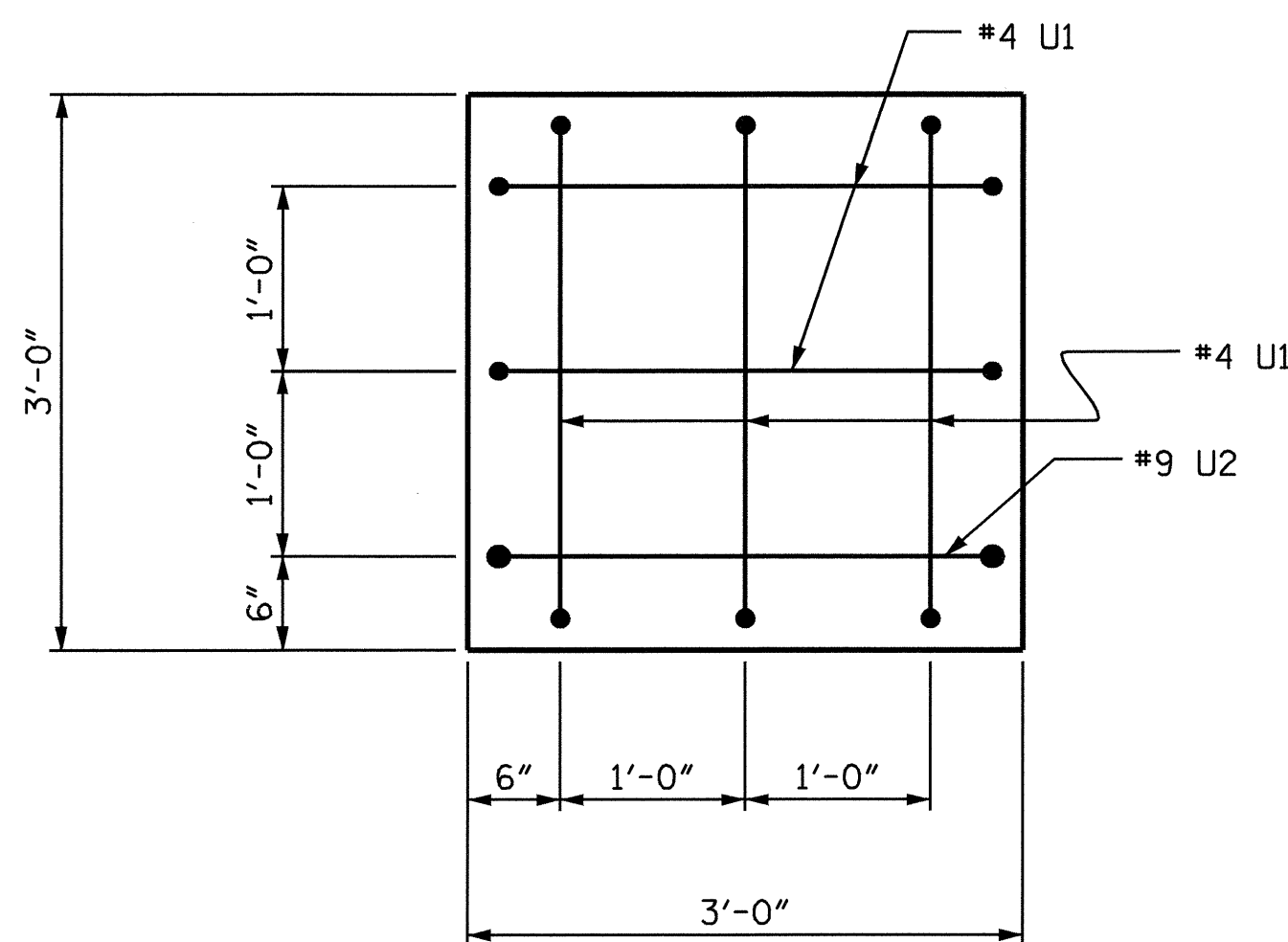




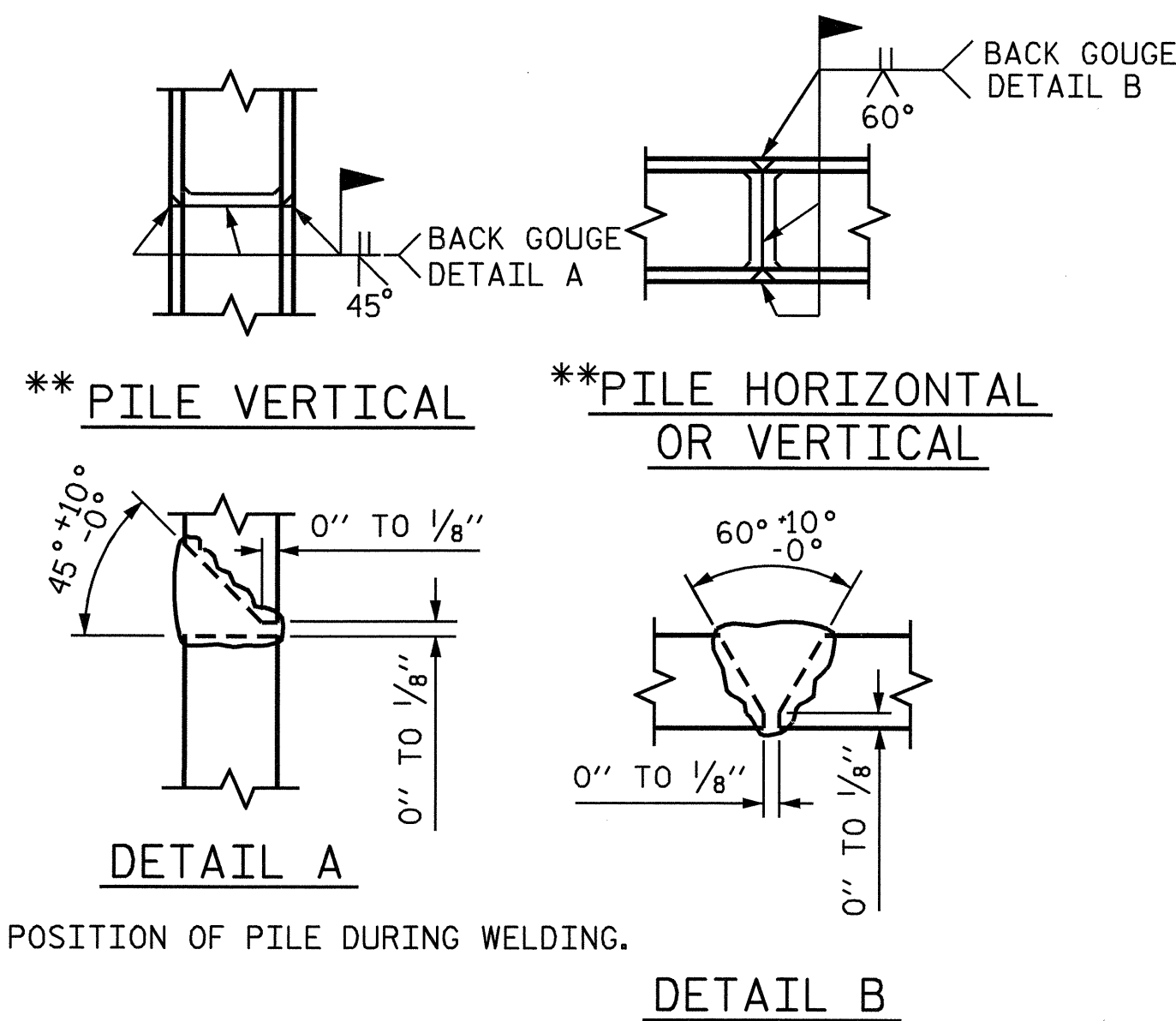


**SECTION THRU CAP**

\* -INVERT ALTERNATE STIRRUPS

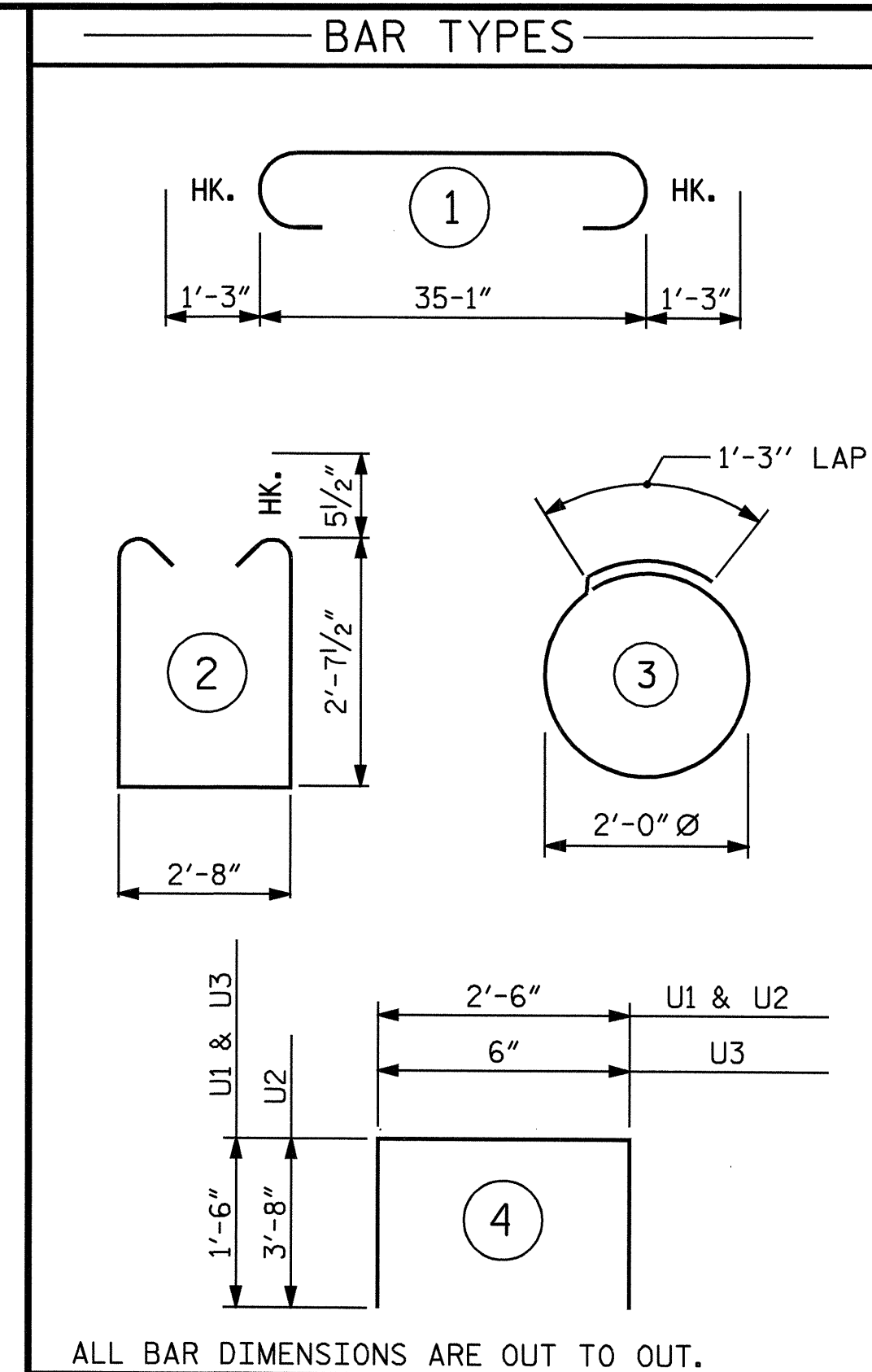


**END VIEW**



**PILE SPLICE DETAILS**

\*\*POSITION OF PILE DURING WELDING.



ALL BAR DIMENSIONS ARE OUT TO OUT.

**BILL OF MATERIAL**

**BENT #2**

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	37'-7"	511
B2	4	#9	STR.	35'-3"	479
B3	16	#4	STR.	18'-10"	201
B4	13	#4	STR.	2'-8"	23
D1	44	#6	STR.	1'-6"	99
S1	32	#5	2	8'-10"	295
S2	12	#4	3	7'-7"	61
U1	10	#4	4	5'-6"	37
U2	2	#9	4	9'-10"	67
U3	8	#4	4	3'-6"	19

REINFORCING STEEL 1792 LBS.

CLASS "A" CONCRETE

POUR #1 CAP 11.9 CY.

POUR #2 LATERAL GUIDE 0.1 CY.

TOTAL 12.0 CY.

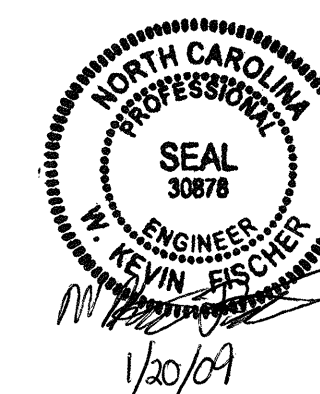
HP14X73 GALVANIZED STEEL PILES No. 6 330 LIN. FT.

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+31.00 -L-

SHEET 2 OF 2

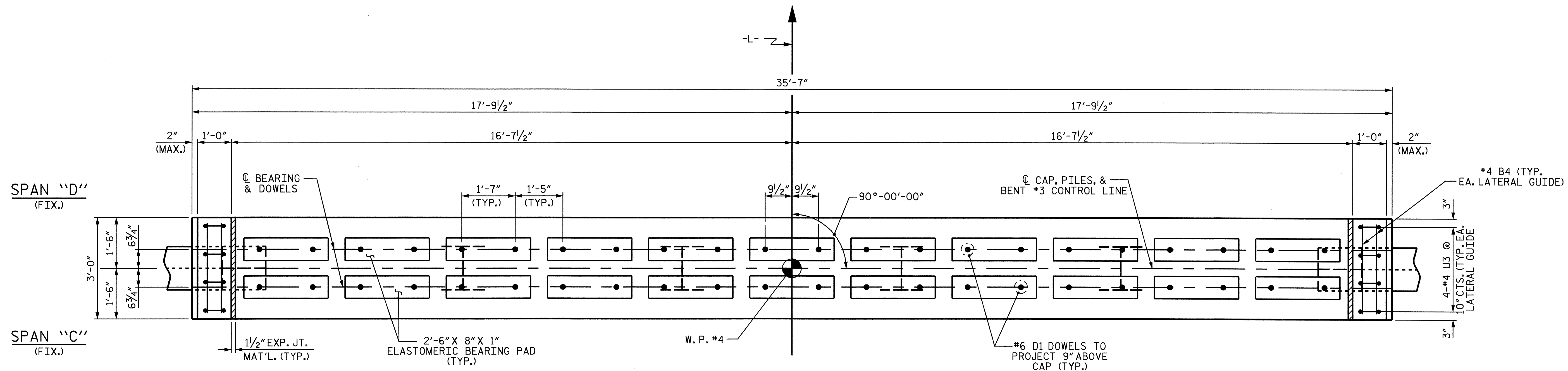
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT #2

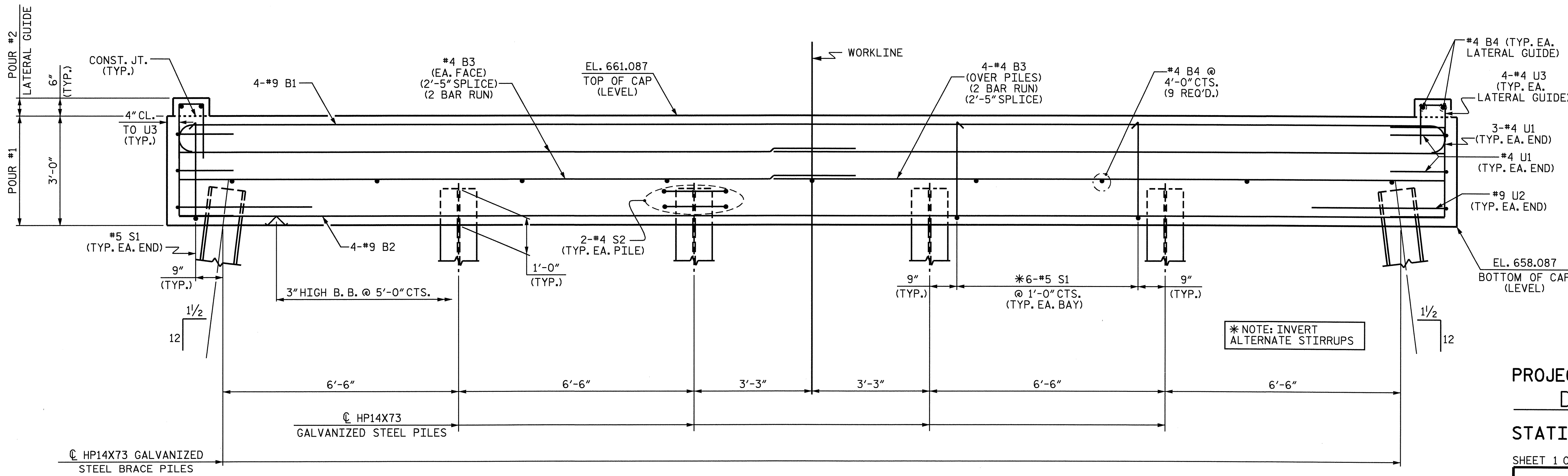


DRAWN BY: R. G. EMERSON DATE: 11/08  
 CHECKED BY: B. L. GREEN DATE: 11/14/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			23



PLAN



ELEVATION

**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 CONCRETE CORED SLAB UNITS ARE IN PLACE.  
 FOR GALVANIZED PILES, A MINIMUM OF 25 FT. OF THE TOP OF EACH PILE SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

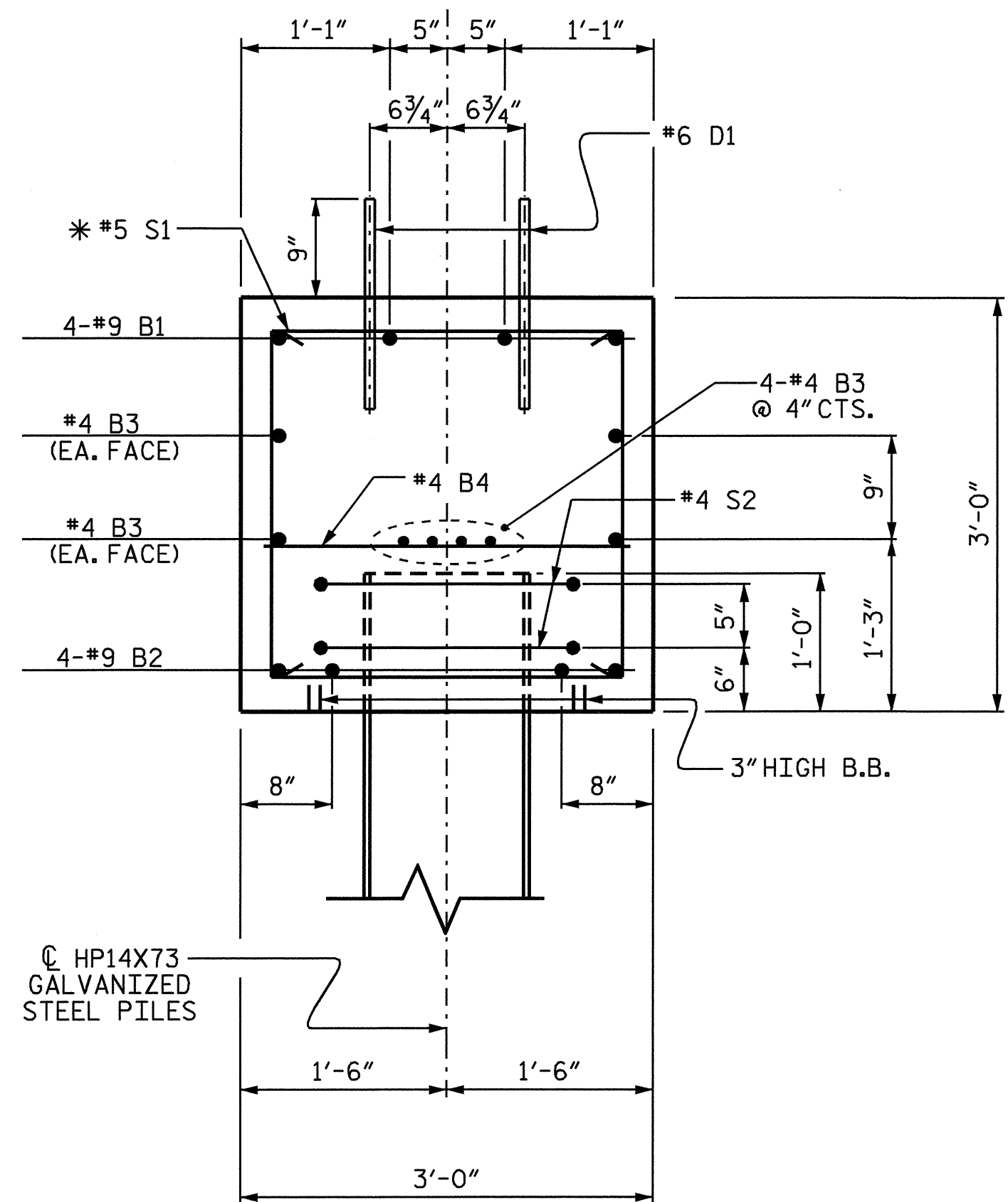


PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+31.00 -L-

SHEET 1 OF 2

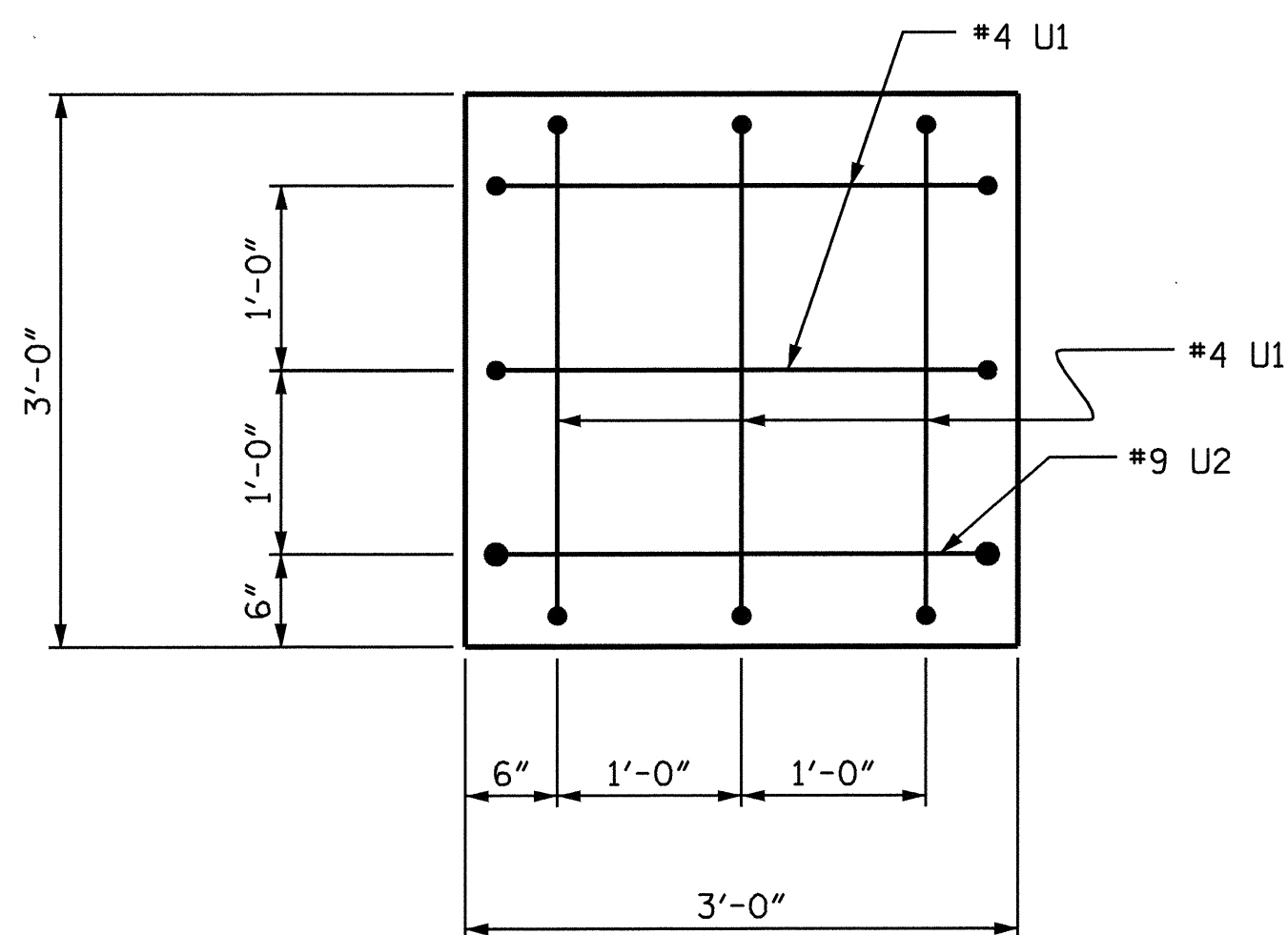
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT #3					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-17
					TOTAL SHEETS 23

DRAWN BY: R. G. EMERSON DATE: 11/08  
 CHECKED BY: B. L. GREEN DATE: 11/14/08

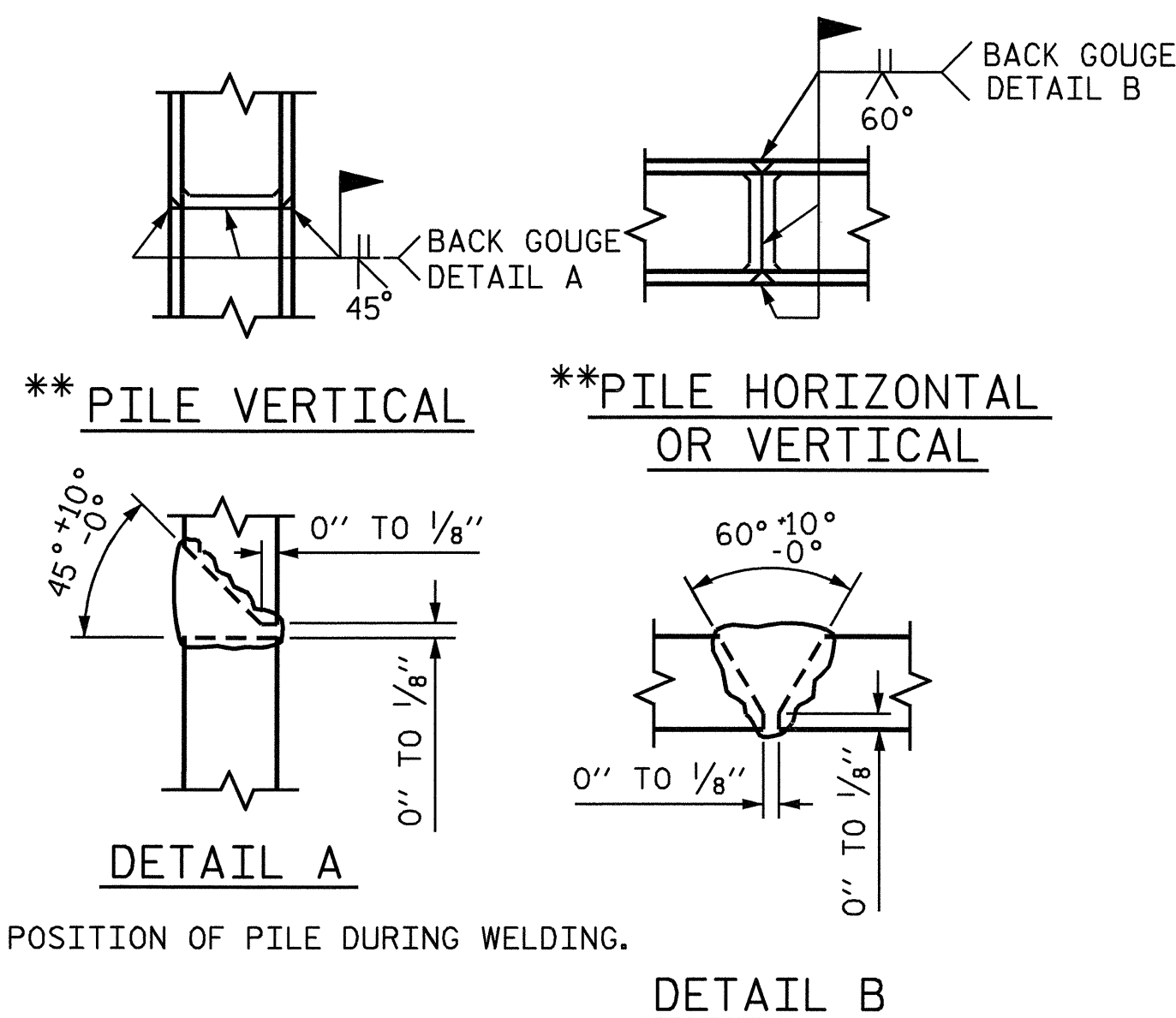


**SECTION THRU CAP**

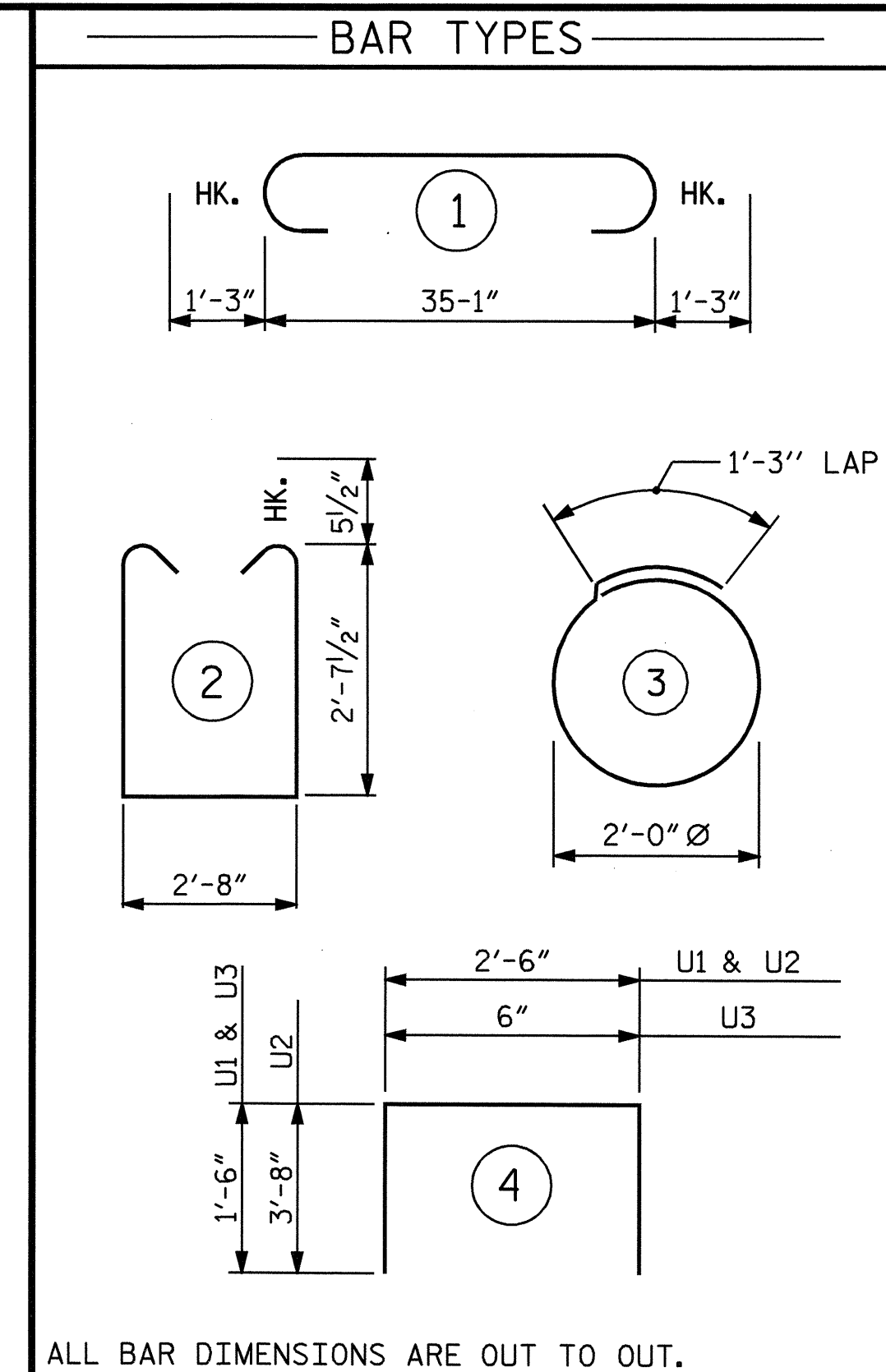
\* -INVERT ALTERNATE STIRRUPS



**END VIEW**



**PILE SPLICE DETAILS**



**BILL OF MATERIAL**

**BENT #3**

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9		37'-7"	511
B2	4	#9	STR.	35'-3"	479
B3	16	#4	STR.	18'-10"	201
B4	13	#4	STR.	2'-8"	23
D1	44	#6	STR.	1'-6"	99
S1	32	#5		8'-10"	295
S2	12	#4		7'-7"	61
U1	10	#4		5'-6"	37
U2	2	#9		9'-10"	67
U3	8	#4		3'-6"	19

REINFORCING STEEL 1792 LBS.

CLASS "A" CONCRETE

POUR #1 CAP 11.9 CY.

POUR #2 LATERAL GUIDE 0.1 CY.

TOTAL 12.0 CY.

HP14X73 GALVANIZED STEEL PILES No. 6 330 LIN. FT.

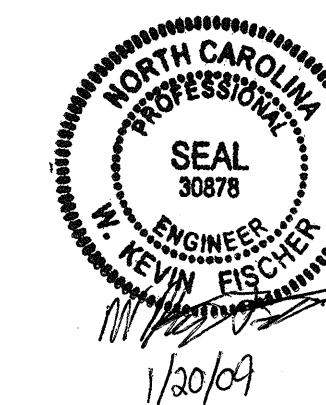
PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+31.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

BENT #3

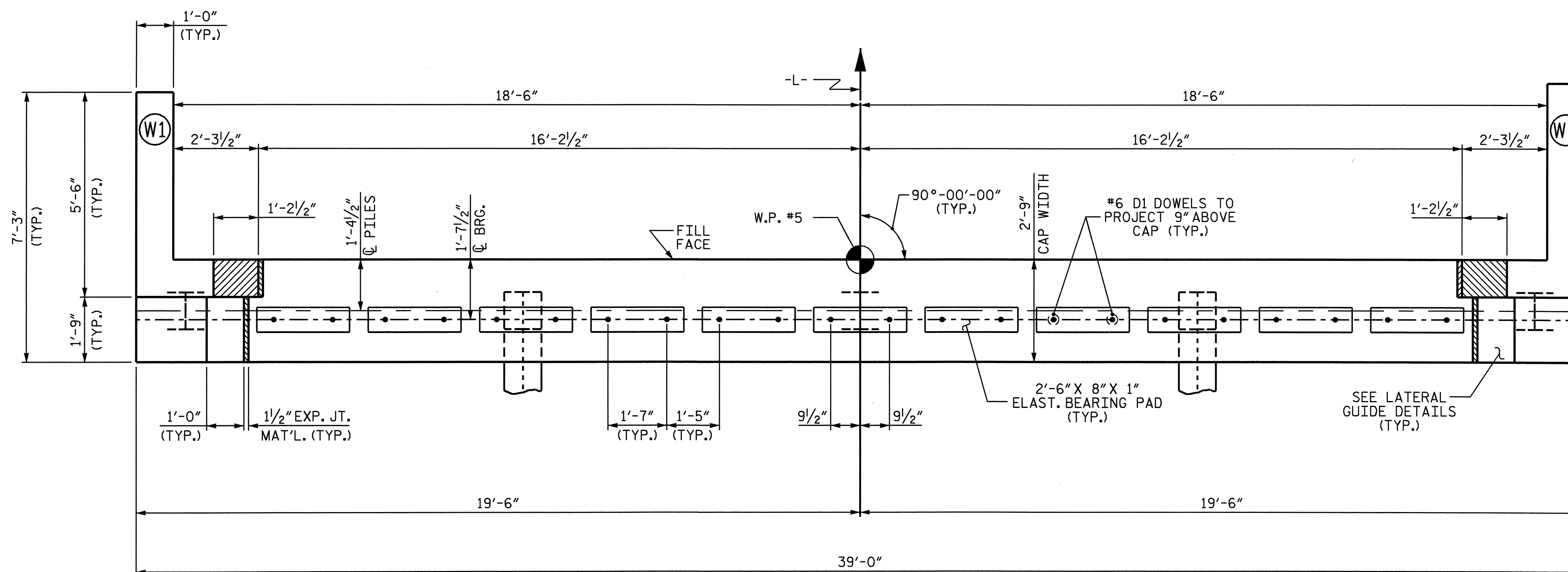


DRAWN BY: R. G. EMERSON DATE: 11/08  
 CHECKED BY: B. L. GREEN DATE: 11/14/08

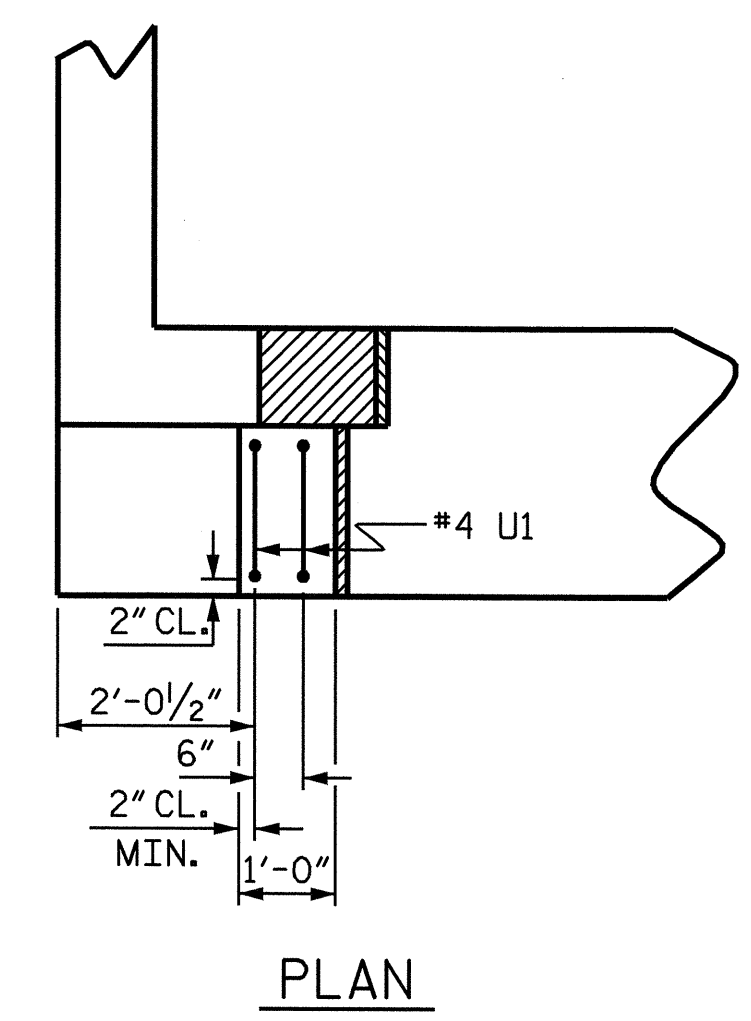
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS 23
2			4			

NOTES

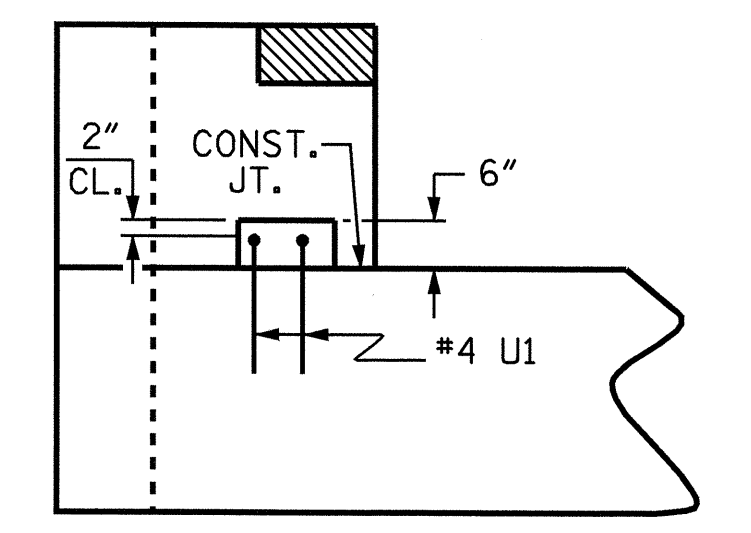
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.  
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.  
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAILS ARE CAST IF SLIP FORMING IS USED.



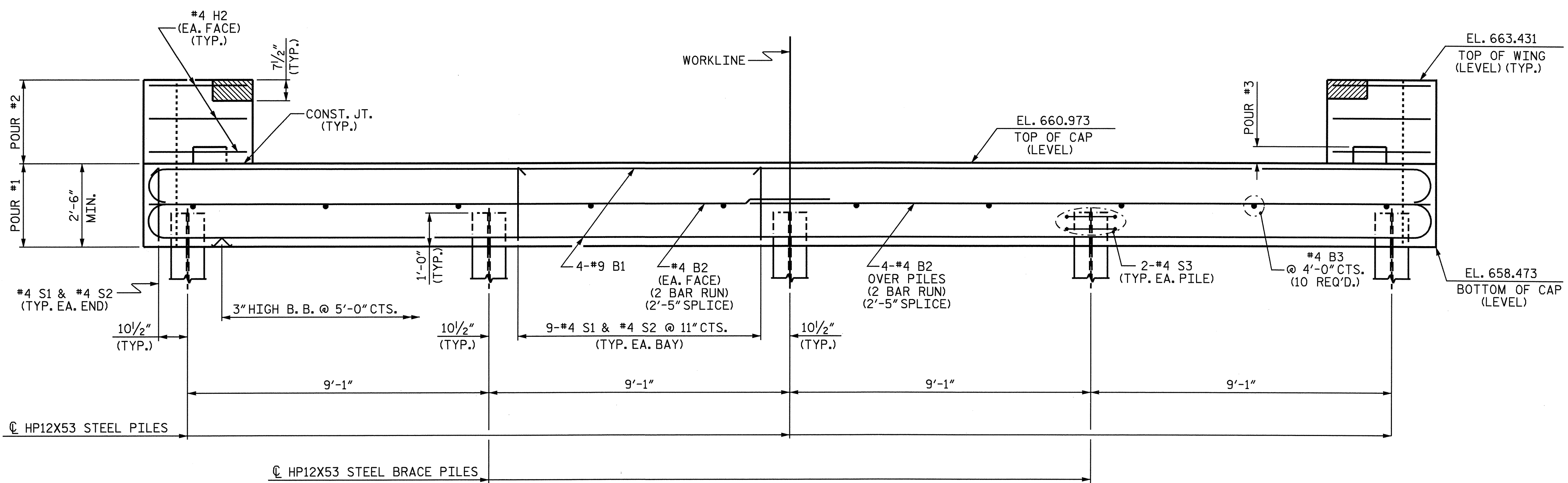
PLAN



PLAN



ELEVATION



ELEVATION

LATERAL GUIDE DETAILS (EACH END SIMILAR)

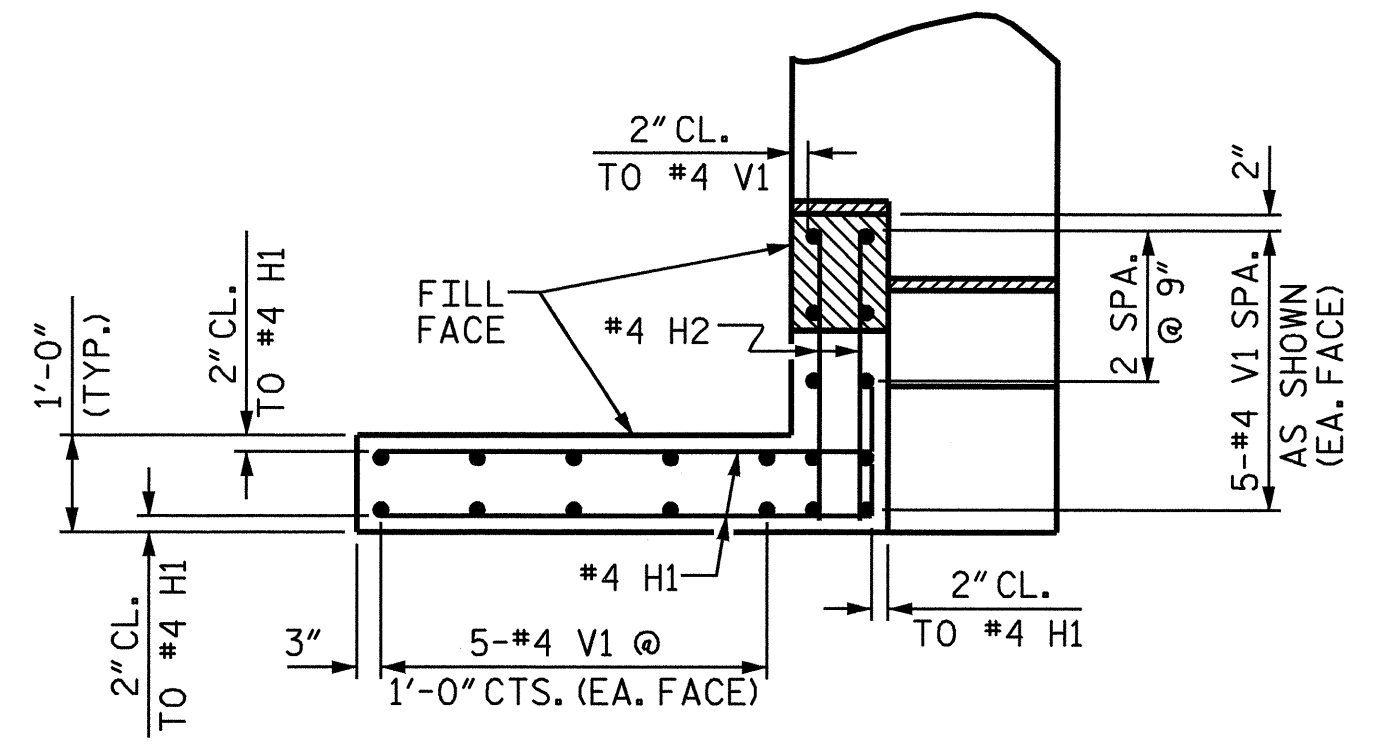
PROJECT NO. B-4097  
 DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

SHEET 1 OF 2



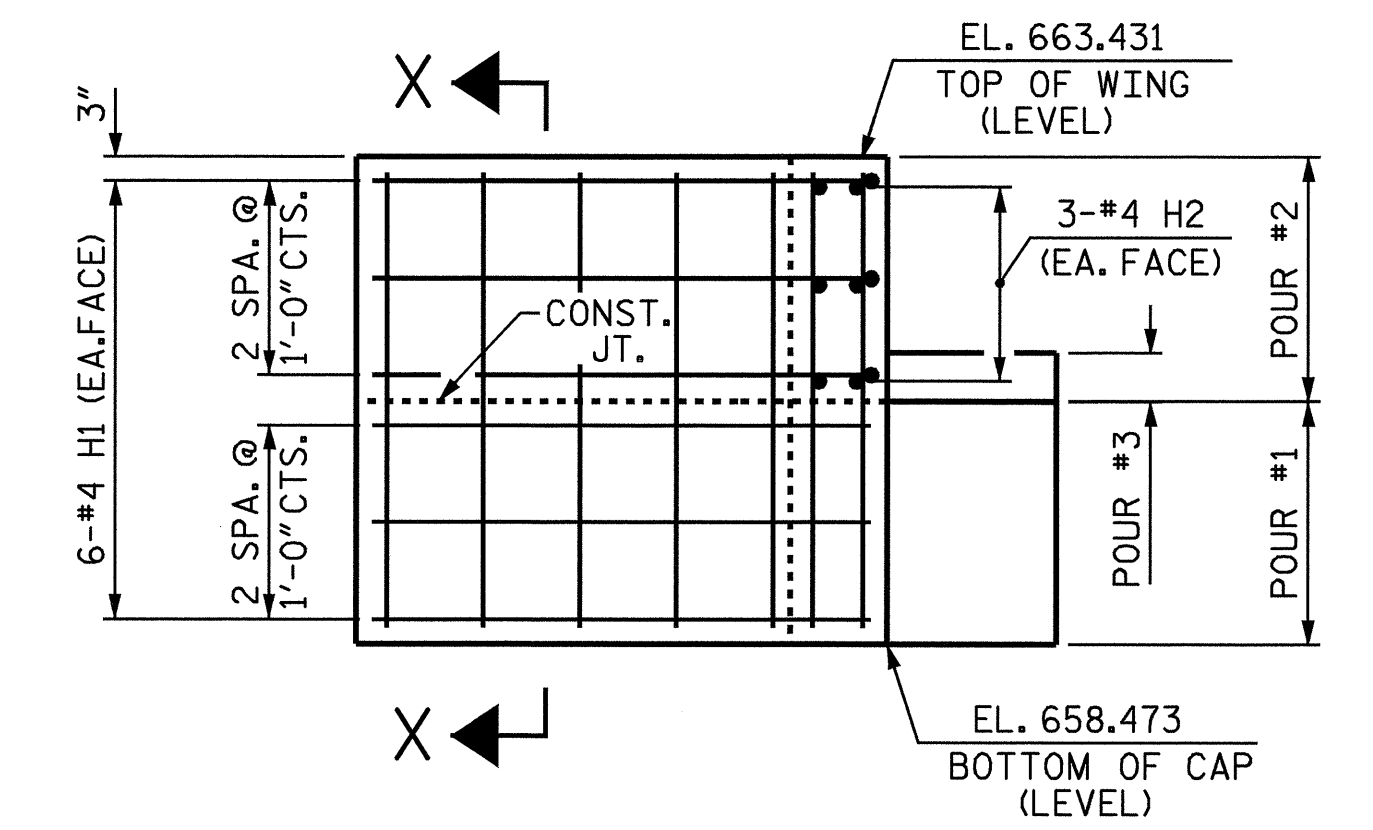
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-19
SUBSTRUCTURE						
END BENT #2						TOTAL SHEETS 23
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: R. G. EMERSON DATE: 10/07  
 CHECKED BY: B. L. GREEN DATE: 11/05/08



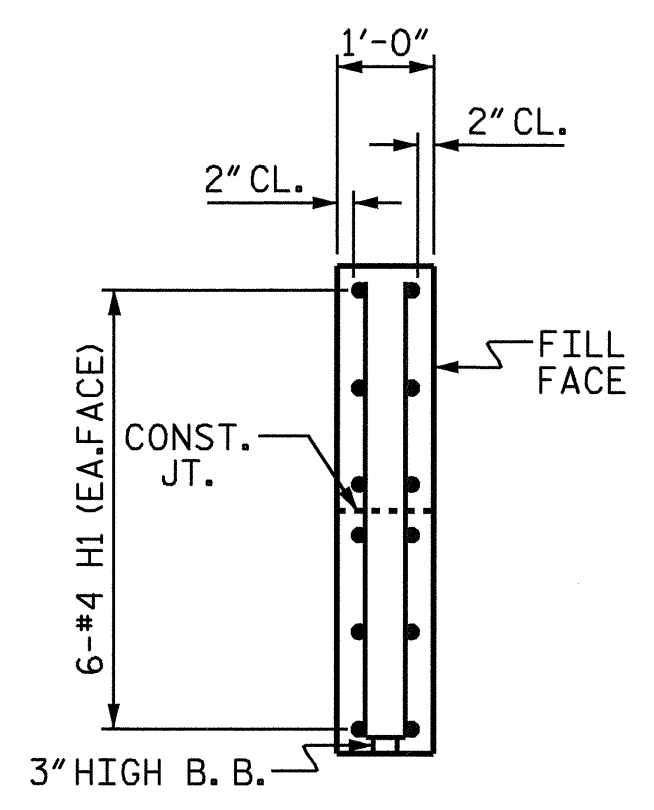
**PLAN OF WING**

LEFT WING (W1) SHOWN, RIGHT WING (W2) SIMILAR.

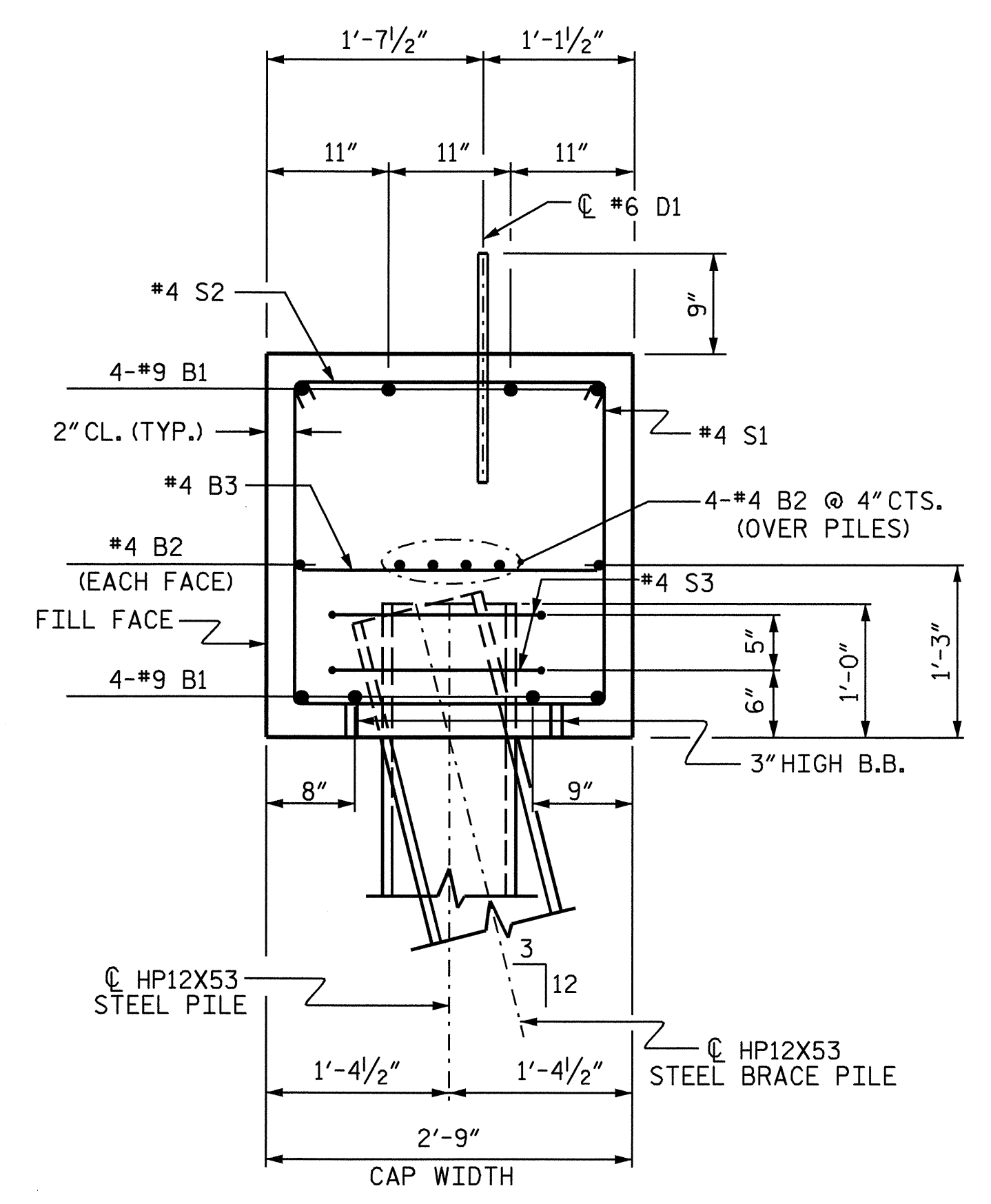


**ELEVATION OF WING**

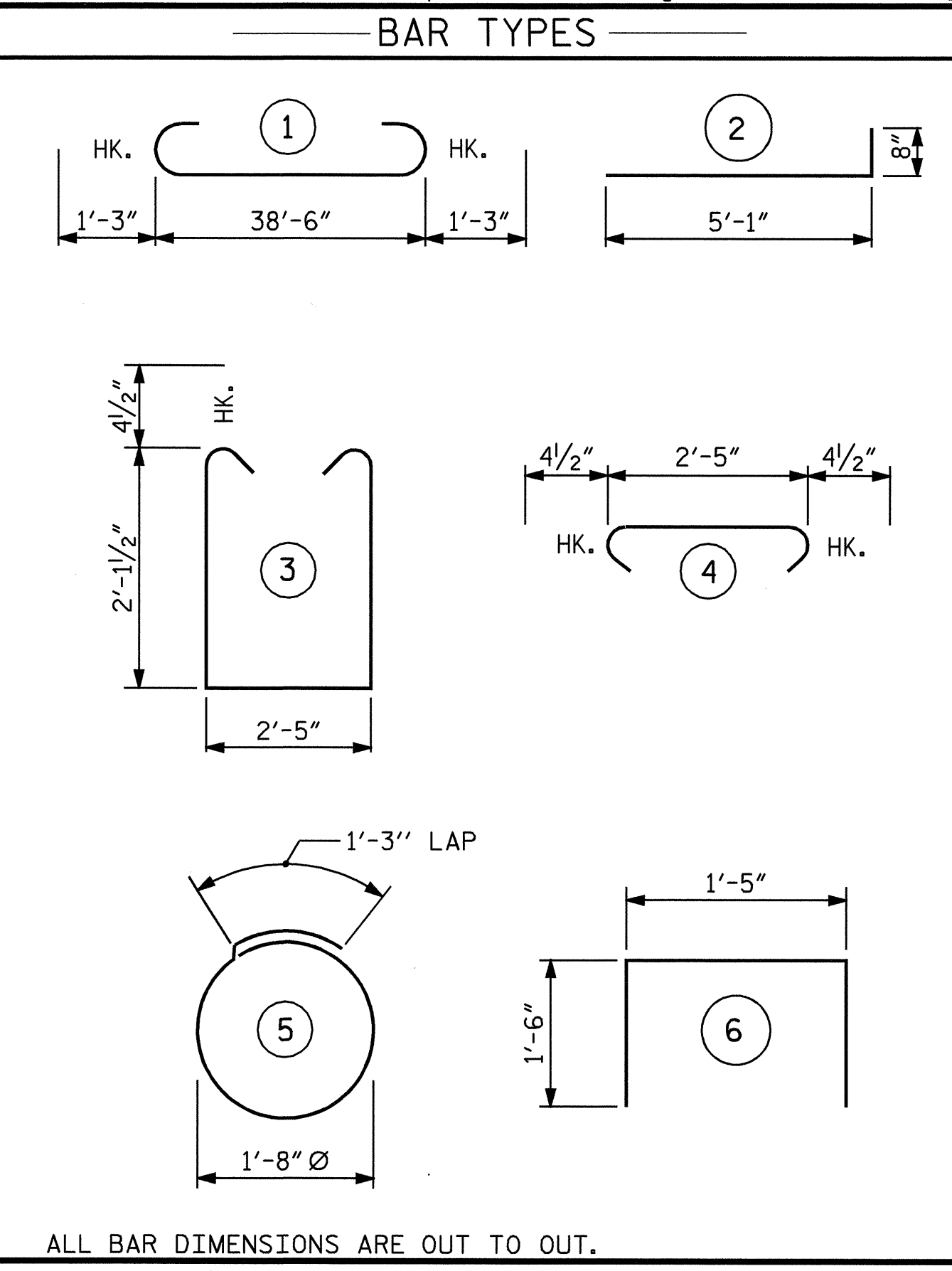
LEFT WING (W1) SHOWN, RIGHT WING (W2) SIMILAR.



**SECTION X-X**

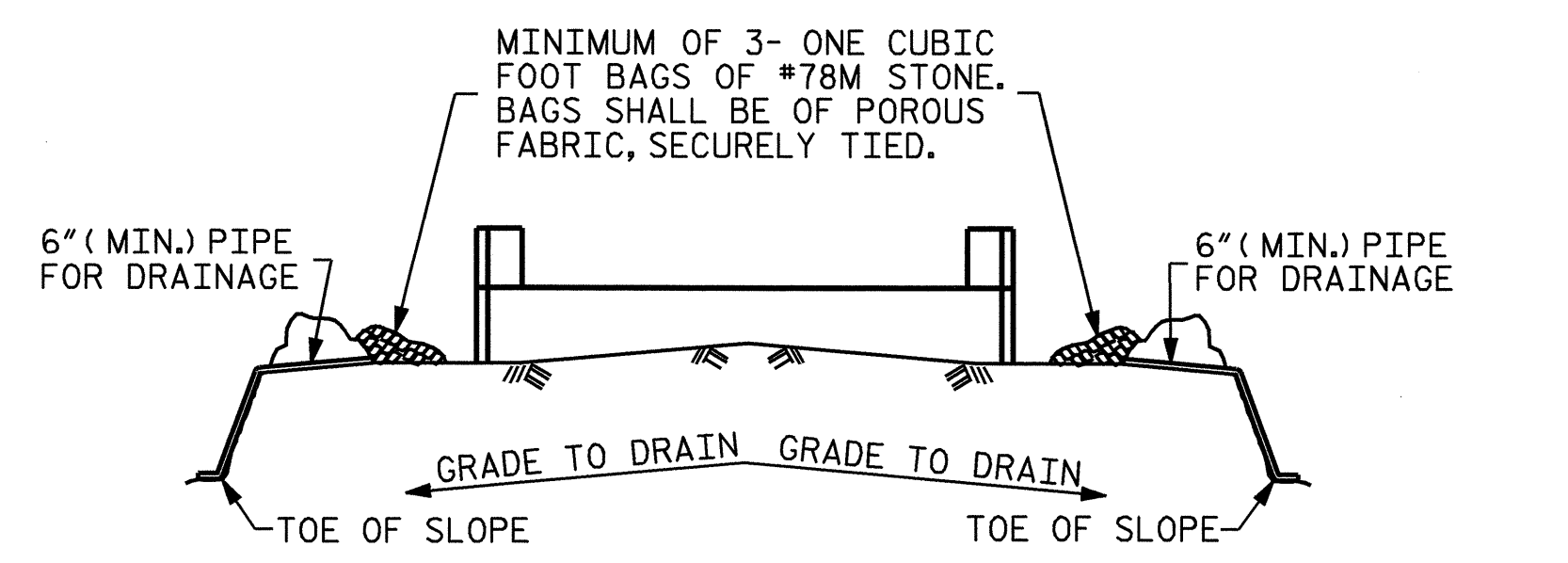


**SECTION THRU CAP**



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	41'-0"	1115
B2	12	#4	STR.	20'-7"	165
B3	10	#4	STR.	2'-5"	16
D1	22	#6	STR.	1'-6"	50
H1	24	#4	2	5'-9"	92
H2	12	#4	STR.	2'-11"	23
S1	38	#4	3	7'-5"	188
S2	38	#4	4	3'-2"	80
S3	10	#4	5	6'-6"	43
U1	4	#4	6	4'-5"	12
V1	40	#4	STR.	4'-7"	122
REINFORCING STEEL					LBS. 1906
CLASS A CONCRETE BREAKDOWN					
POUR #1				CAP & LOWER WINGS	10.8 CU. YD.
POUR #2				UPPER WINGS	1.4 CU. YD.
POUR #3				LATERAL GUIDES	0.1 CU. YD.
TOTAL CLASS A CONCRETE					12.3 CU. YD.
HP12X53 STEEL PILES				NO. 5	275 LIN. FT.

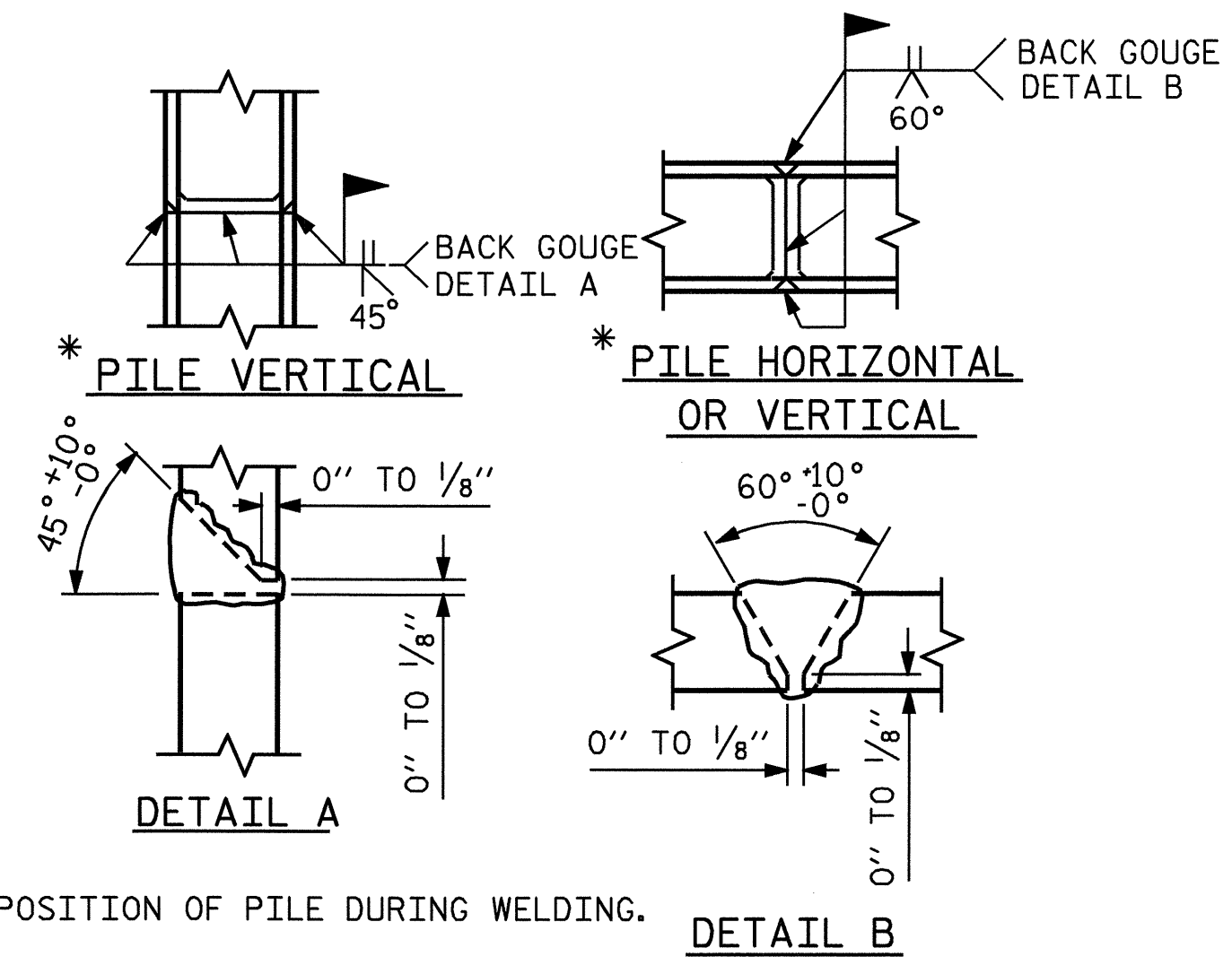


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

**TEMPORARY DRAINAGE AT END BENT**



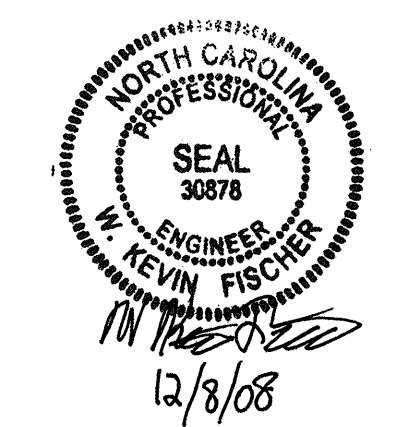
\* POSITION OF PILE DURING WELDING.

**PILE SPLICE DETAILS**

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

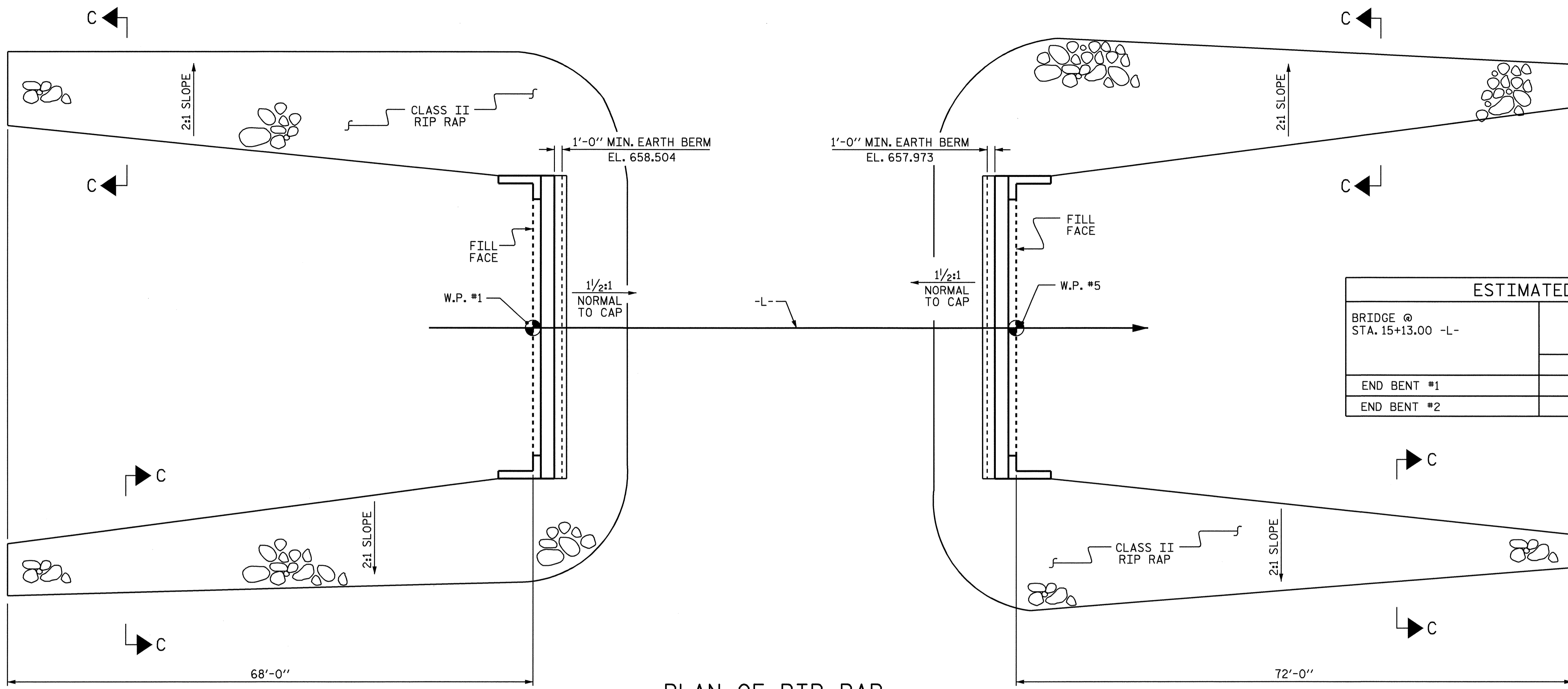
SHEET 2 OF 2

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



DRAWN BY: R. G. EMERSON DATE: 10/07  
 CHECKED BY: B. L. GREEN DATE: 11/05/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			23

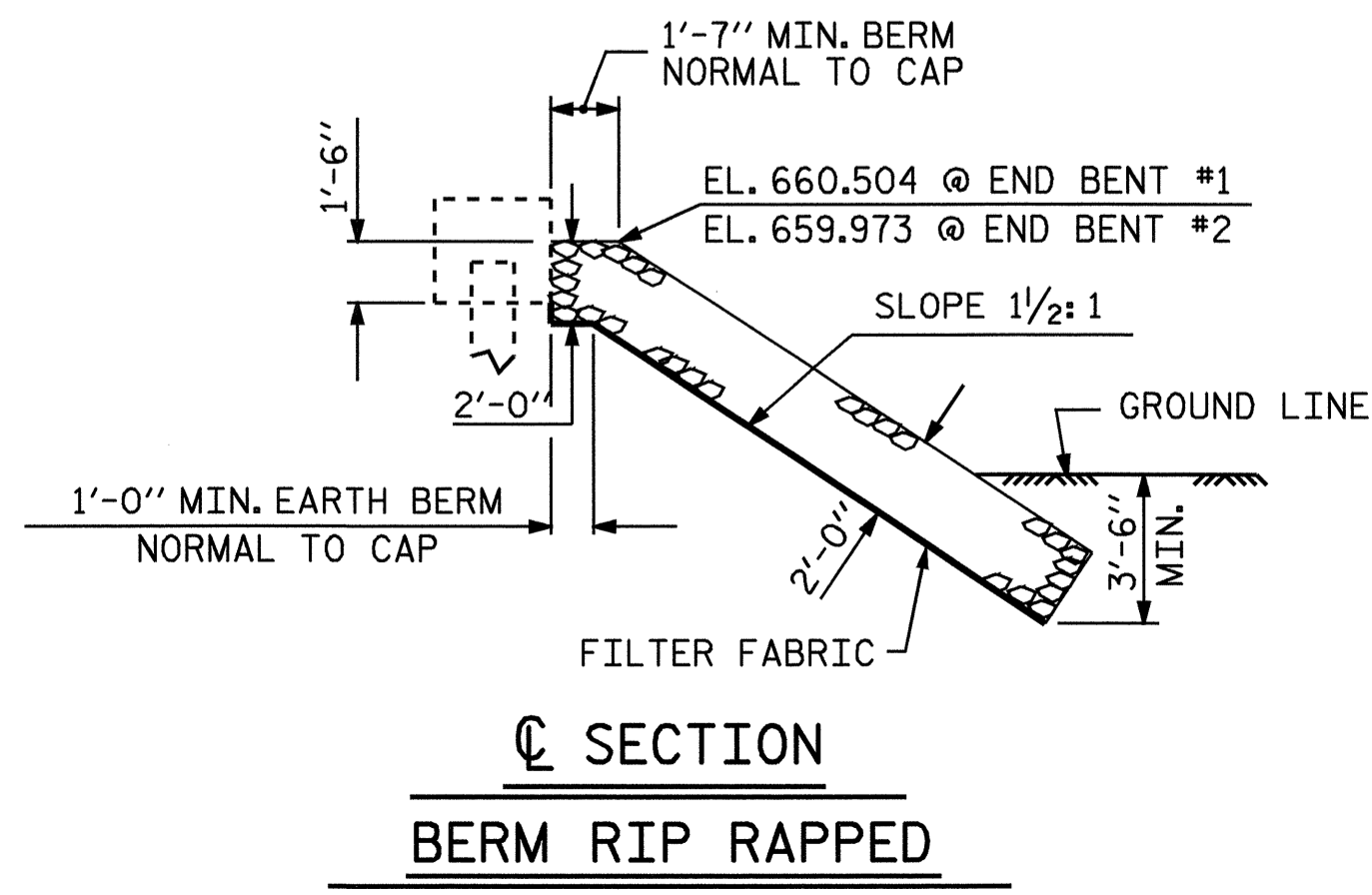


ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+13.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	315	350
END BENT #2	327	363

END BENT #1

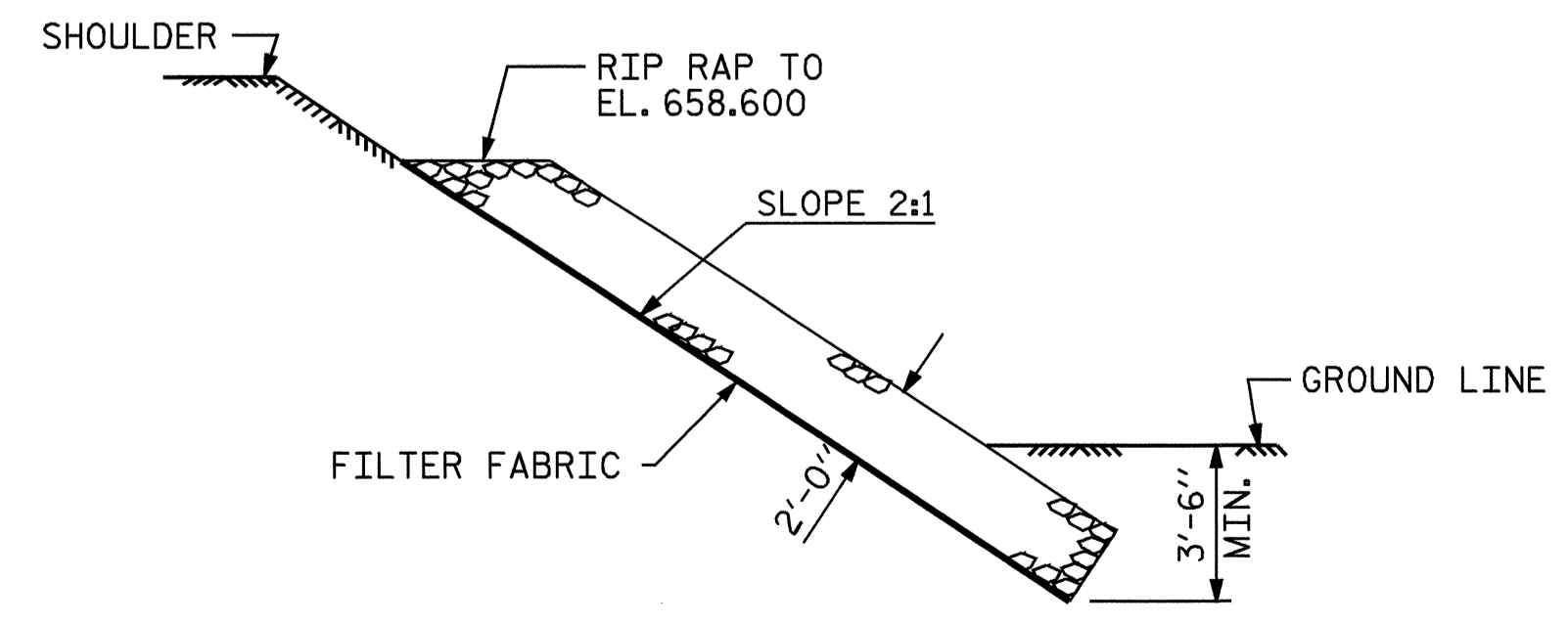
END BENT #2

PLAN OF RIP RAP



SECTION C-C

BERM RIP RAPPED



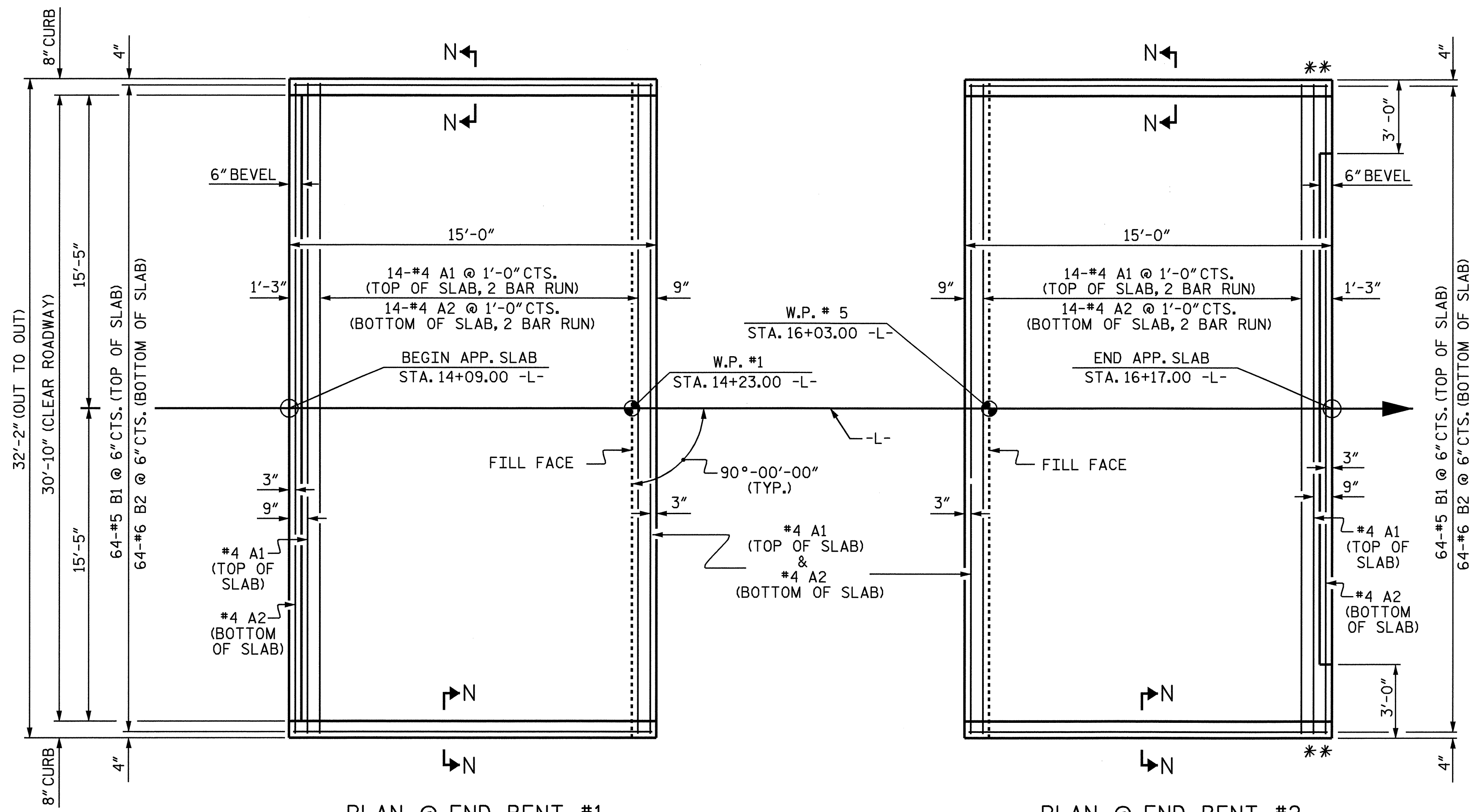
SECTION C-C

PROJECT NO. B-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

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



ASSEMBLED BY : J.P. ADAMS	DATE : 9/10/08
CHECKED BY : M.K. BEARD	DATE : 9/11/08
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM



PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

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

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

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

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

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

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

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

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

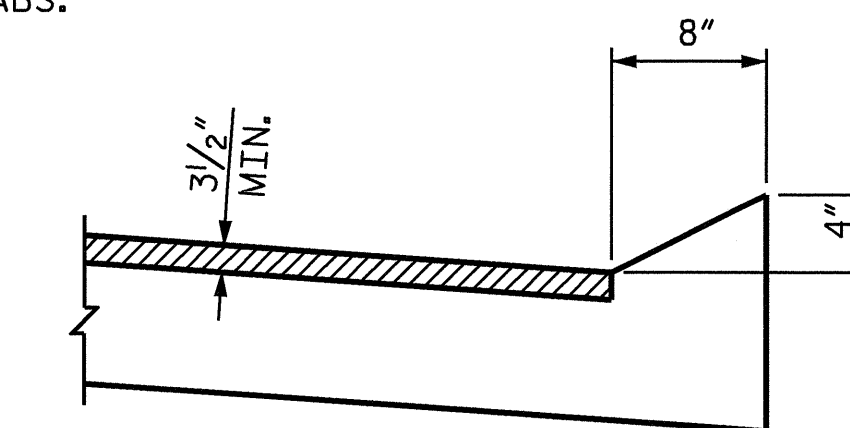
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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

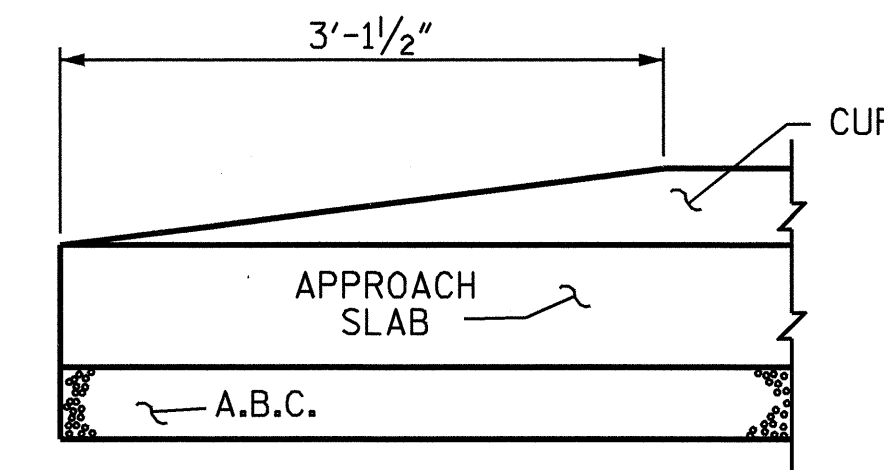
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

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

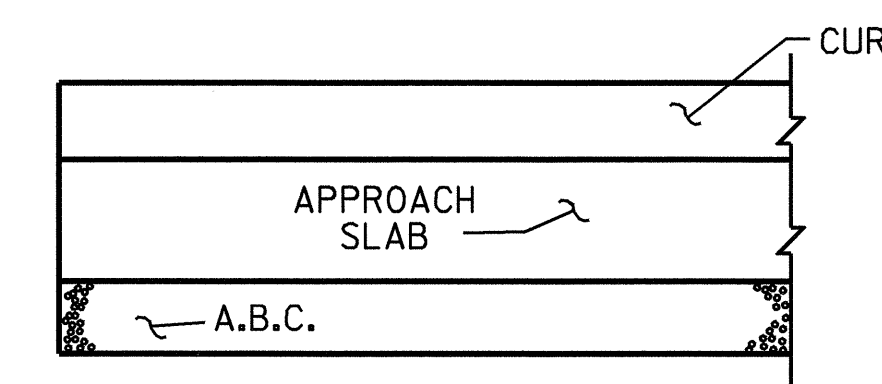
APPROACH SLAB GROOVING IS NOT REQUIRED.



SECTION N-N



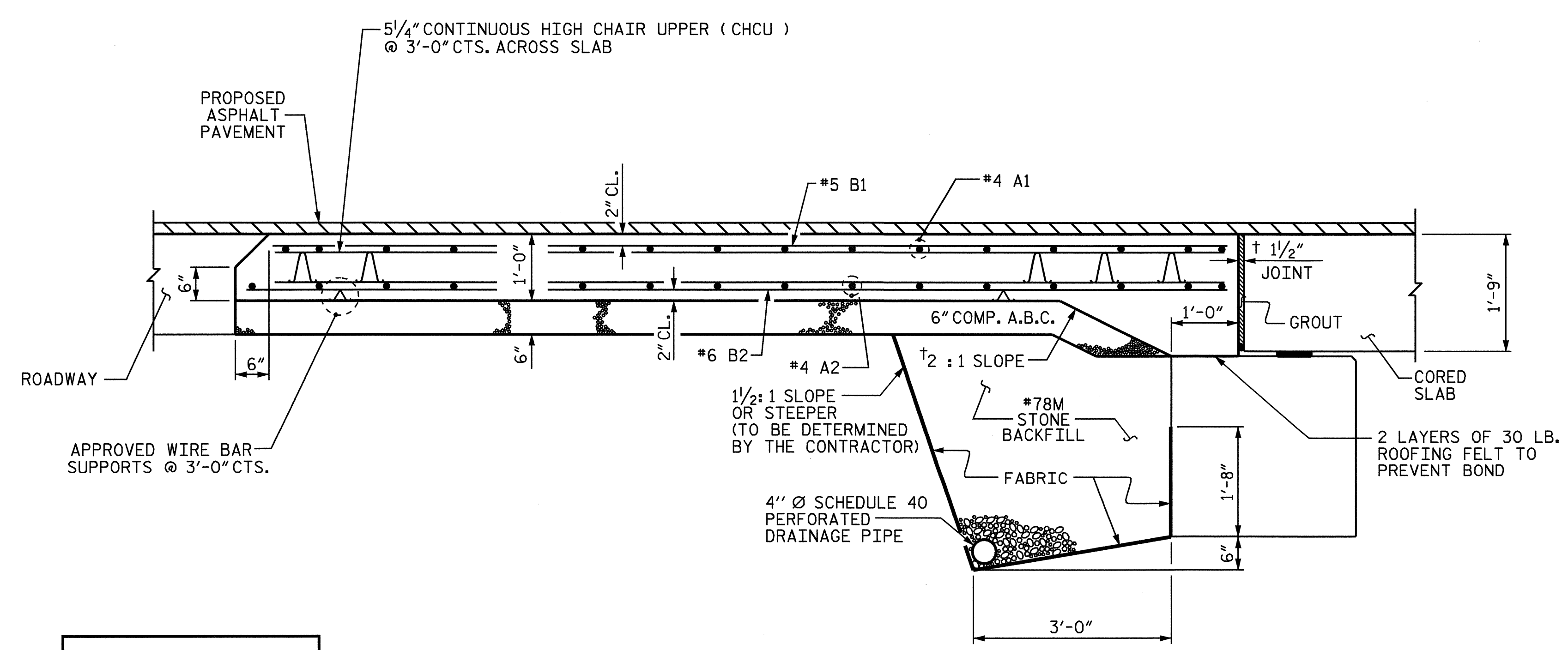
END OF CURB WITHOUT SHOULDER BERM GUTTER



\*\* END OF CURB WITH SHOULDER BERM GUTTER

CURB DETAILS

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



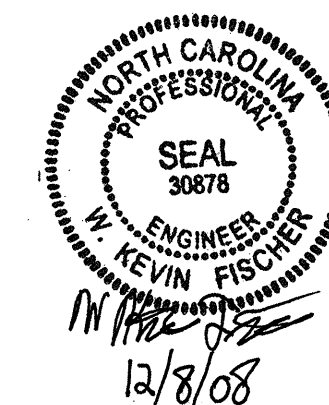
SECTION THRU SLAB

BILL OF MATERIAL FOR ONE APPROACH SLAB (2 REQUIRED)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	32	#4	STR	16'-11"	362
A2	32	#4	STR	16'-10"	360
* B1	64	#5	STR	14'-2"	946
B2	64	#6	STR	14'-8"	1410
REINFORCING STEEL				LBS.	1770
* EPOXY COATED REINFORCING STEEL				LBS.	1308
CLASS AA CONCRETE				C. Y.	19.6

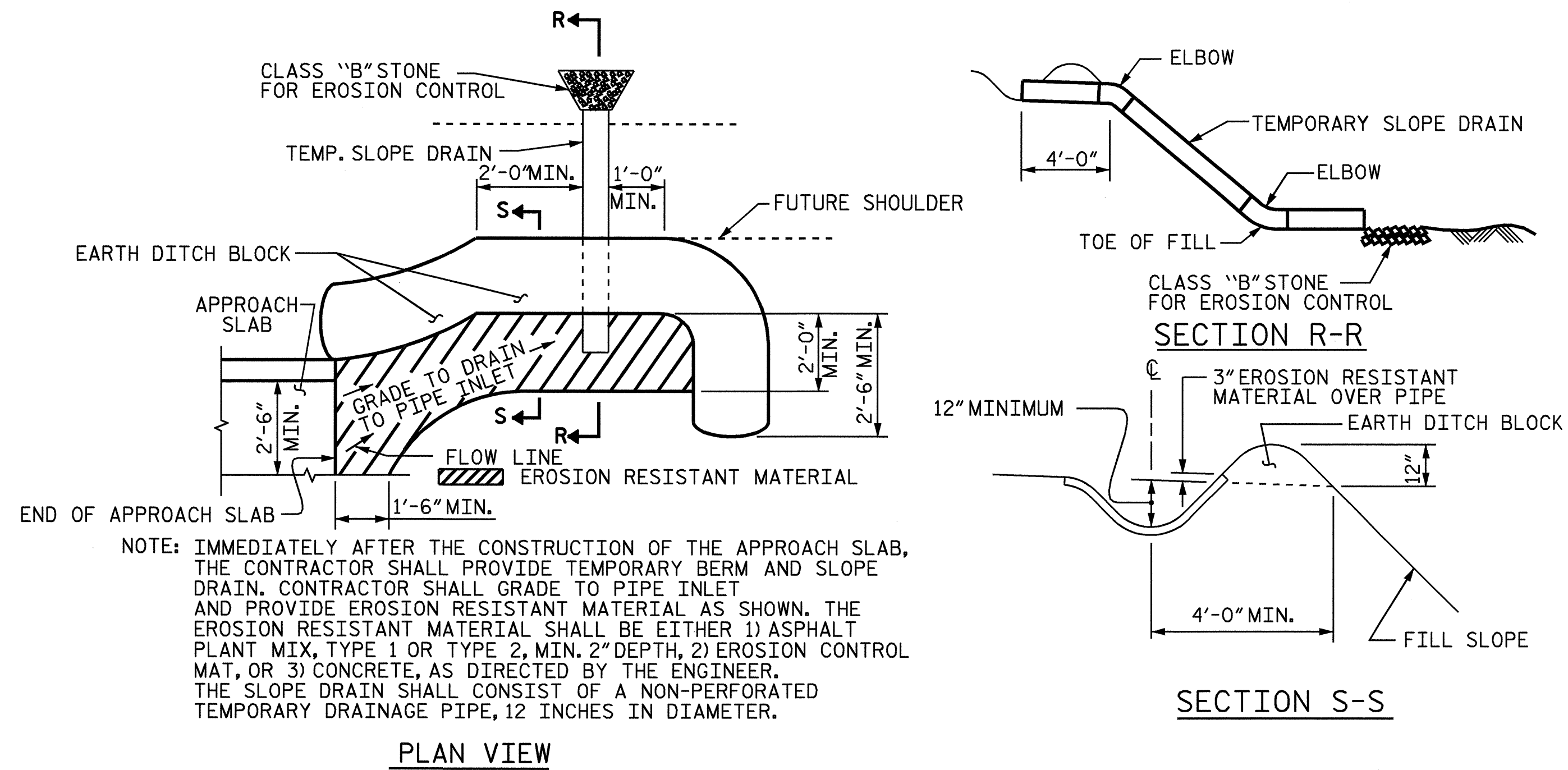
PROJECT NO. B-4097  
 DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

SHEET 1 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB



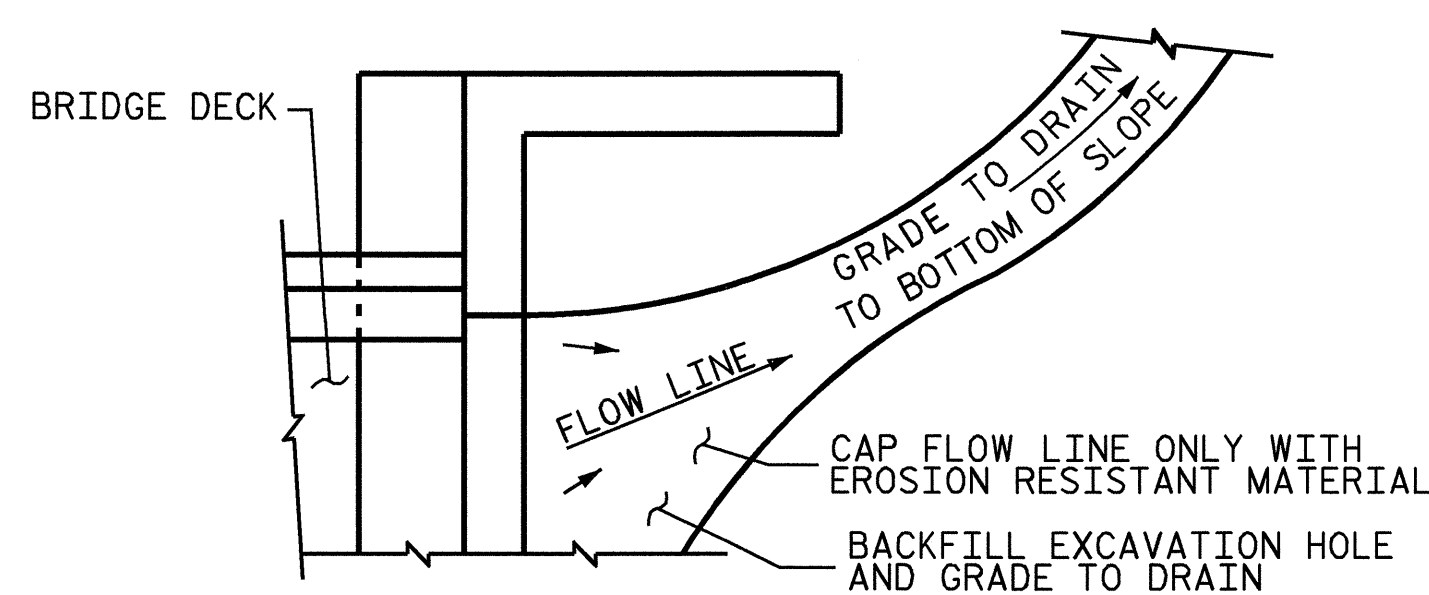
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22	
1			3			TOTAL SHEETS	
2			4			23	

ASSEMBLED BY: B. Bergin	DATE: 8/4/08
CHECKED BY: J.P. Adams	DATE: 8/7/08
DRAWN BY: FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY: EGA 6/87	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM



**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-4097  
DAVIDSON COUNTY  
 STATION: 15+13.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH  
 SLAB DETAILS



ASSEMBLED BY :	B. Bergin	DATE :	8/4/08
CHECKED BY :	J.P. Adams	DATE :	8/7/08
DRAWN BY :	FCJ 11/88	REV. 10/17/00	RWW/LES
CHECKED BY :	ARB 11/88	REV. 5/7/03	RWW/JTE
		REV. 5/1/06R	MAA/KMM

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

STD. NO. BAS10



## 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

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