

TIP PROJECT: B-4148

CONTRACT: C202021

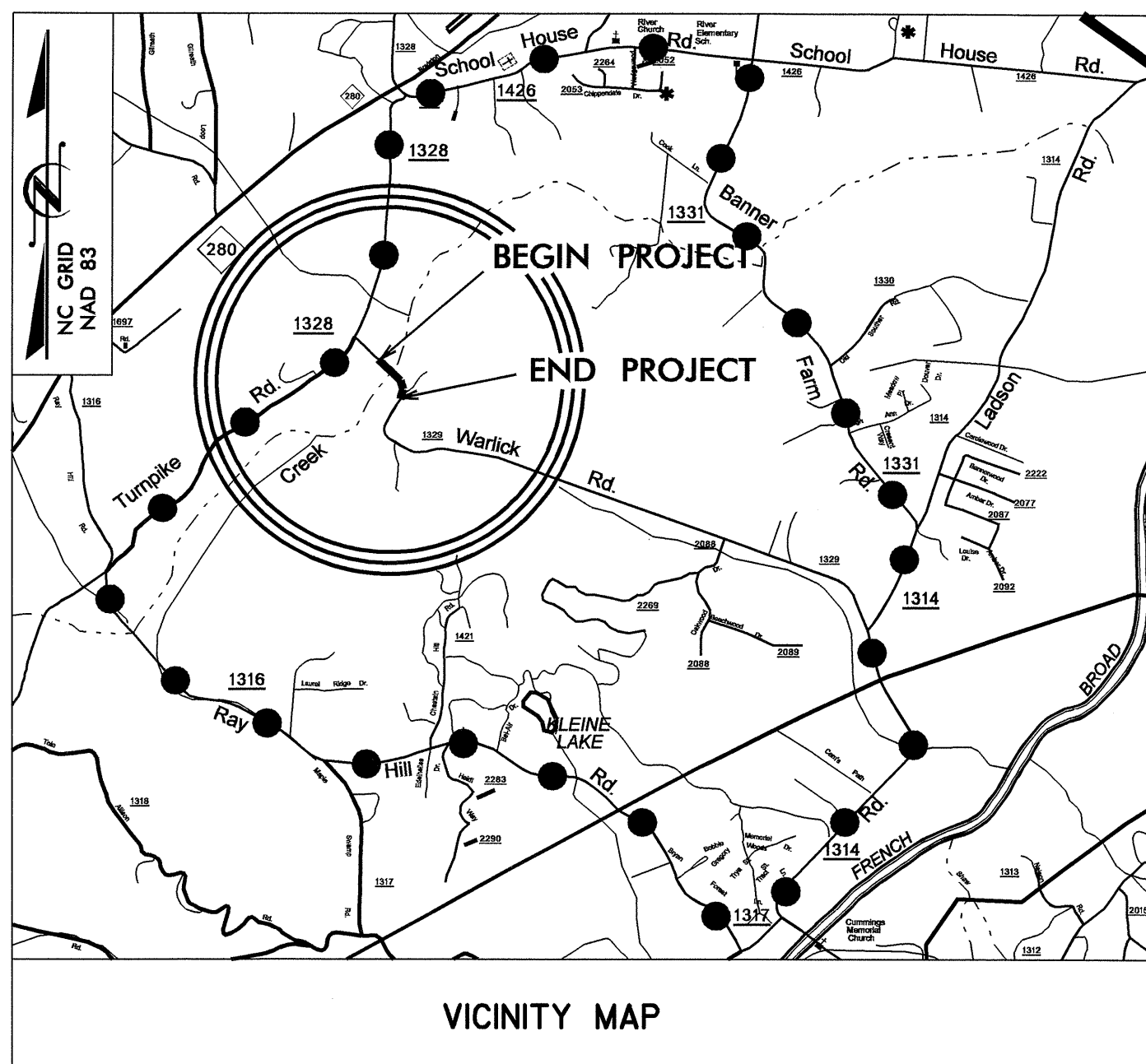
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

LOCATION: BRIDGE NO. 12 OVER BOYLSTON CREEK
ON SR 1329 (WARLICK ROAD)

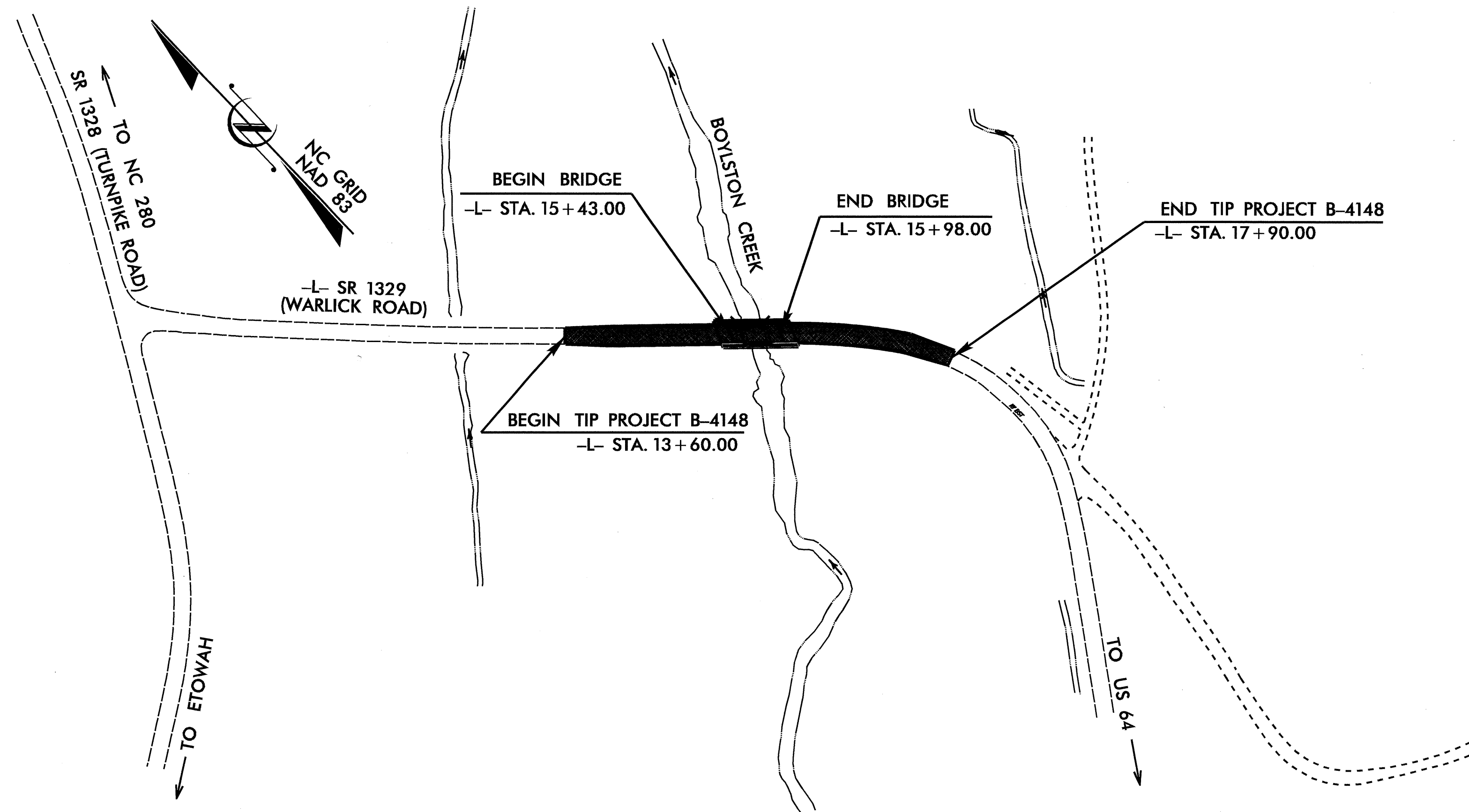
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4148		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33497.1.1	BRZ-1329(4)	P.E.	
33497.2.1	BRZ-1329(4)	R/W	
33497.3.1	BRZ-1329(4)	Constr.	

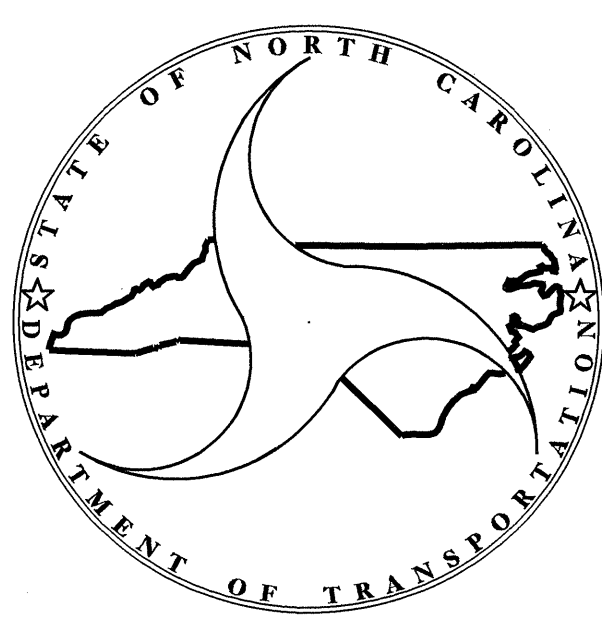


VICINITY MAP

—•—•—•— DETOUR ROUTE



STRUCTURE



DESIGN DATA

ADT 2009 = 700
 ADT 2030 = 1400
 DHV = 10%
 D = 60%
 T = 3% (1% TTST + 2% DUALS)
 V = 50 MPH
 FUNCT. CLASS = RURAL LOCAL
 * DESIGN EXCEPTION REQUIRED FOR SAGCREST K VALUE AND VERTICAL CURVE SSD

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4148 = 0.071 MI
 LENGTH STRUCTURE TIP PROJECT B-4148 = 0.010 MI
 TOTAL LENGTH OF TIP PROJECT B-4148 = 0.081 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE:
JANUARY 20, 2009

B. C. Hunt, PE
PROJECT ENGINEER

W. K. Fischer, PE
PROJECT DESIGN ENGINEER

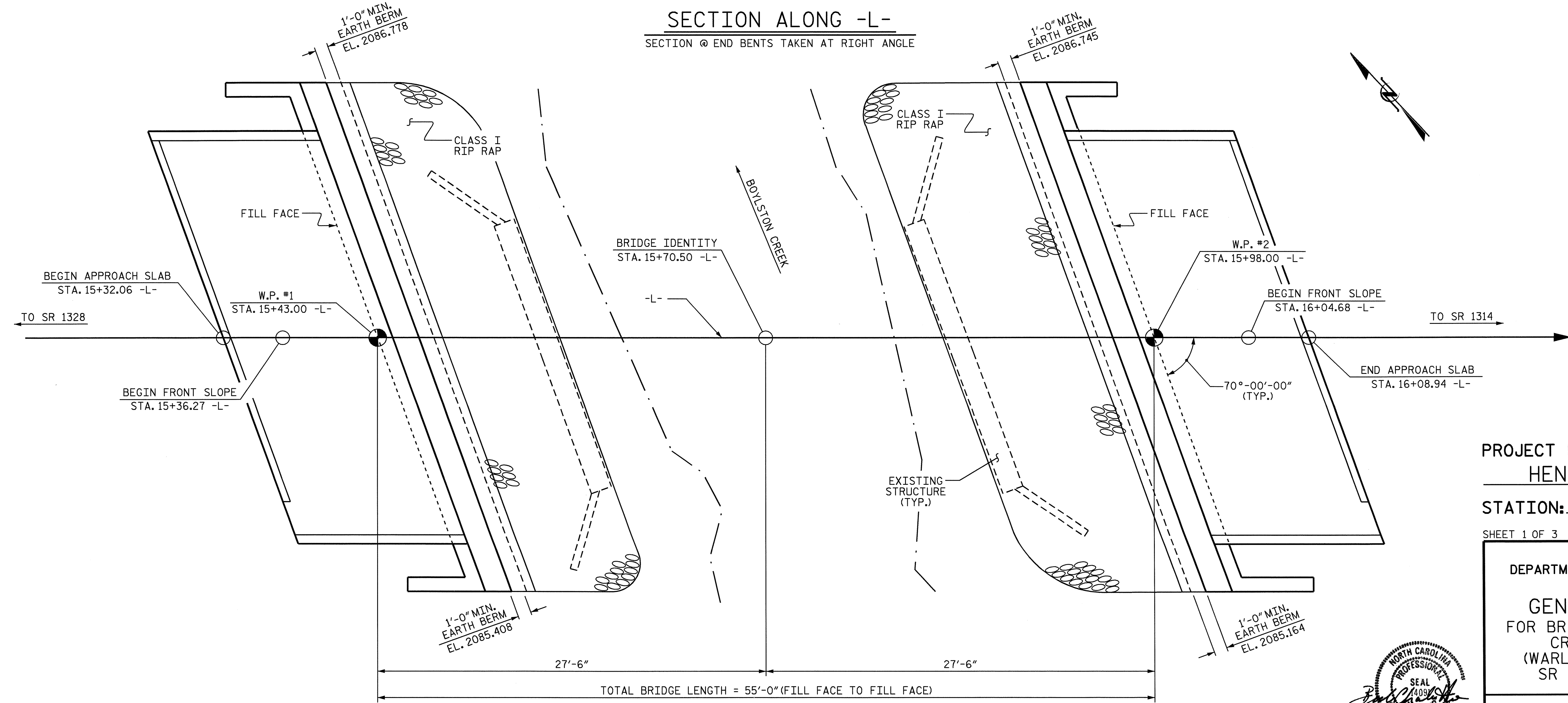
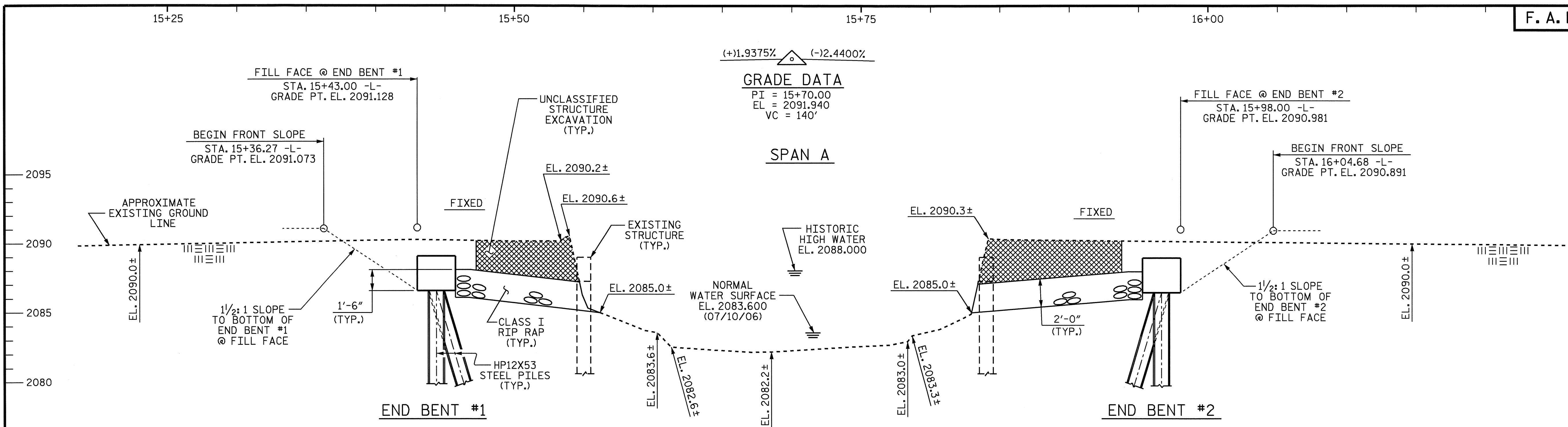
STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.,RALEIGH, NC 27610

STATE BRIDGE DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

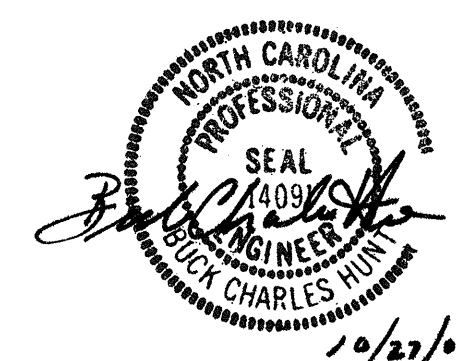
STATE HIGHWAY DESIGN ENGINEER

P.E.



DRAWN BY : M.K. BEARD DATE : 8/1/08
 CHECKED BY : J.P. ADAMS DATE : 8/7/08

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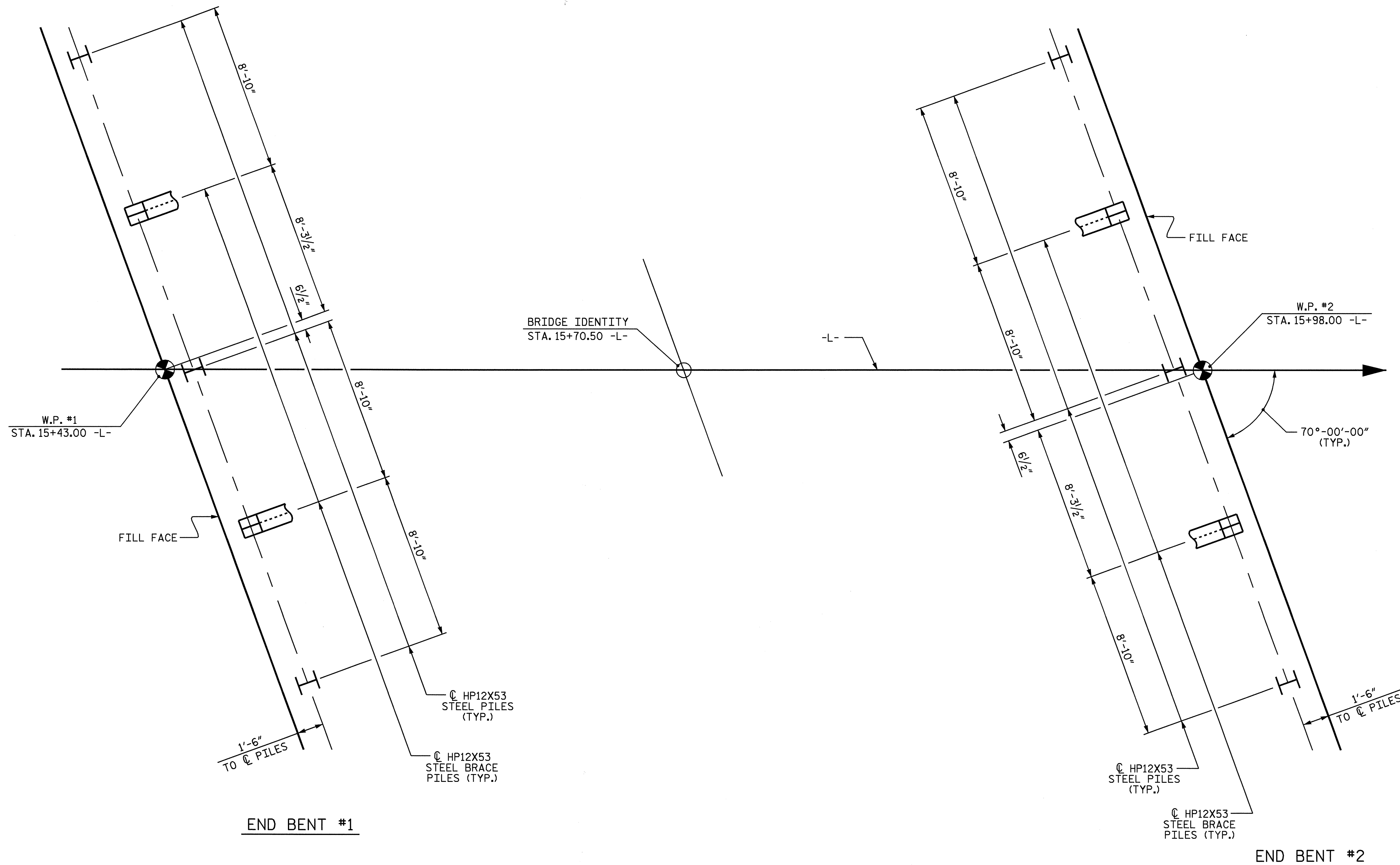


PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE #12

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER BOYLSTON
 CREEK ON SR 1329
 (WARLICK ROAD) BETWEEN
 SR 1328 AND SR 1314

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



FOUNDATION LAYOUT

END BENT BRACE PILES ARE BATTERED AT 3:12
 DIMENSIONS LOCATING END BENT PILES ARE SHOWN TO CENTERLINE OF PILES.

NOTES

DRIVE PILES AT END BENTS #1 & #2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

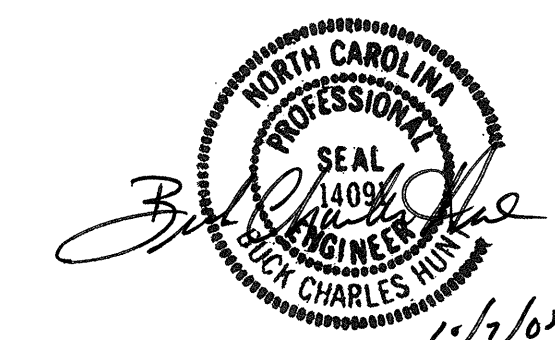
THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS #1 & #2 IS 60 TONS PER PILE.

PROJECT NO. B-4148
 HENDERSON COUNTY
 STATION: 15+70.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

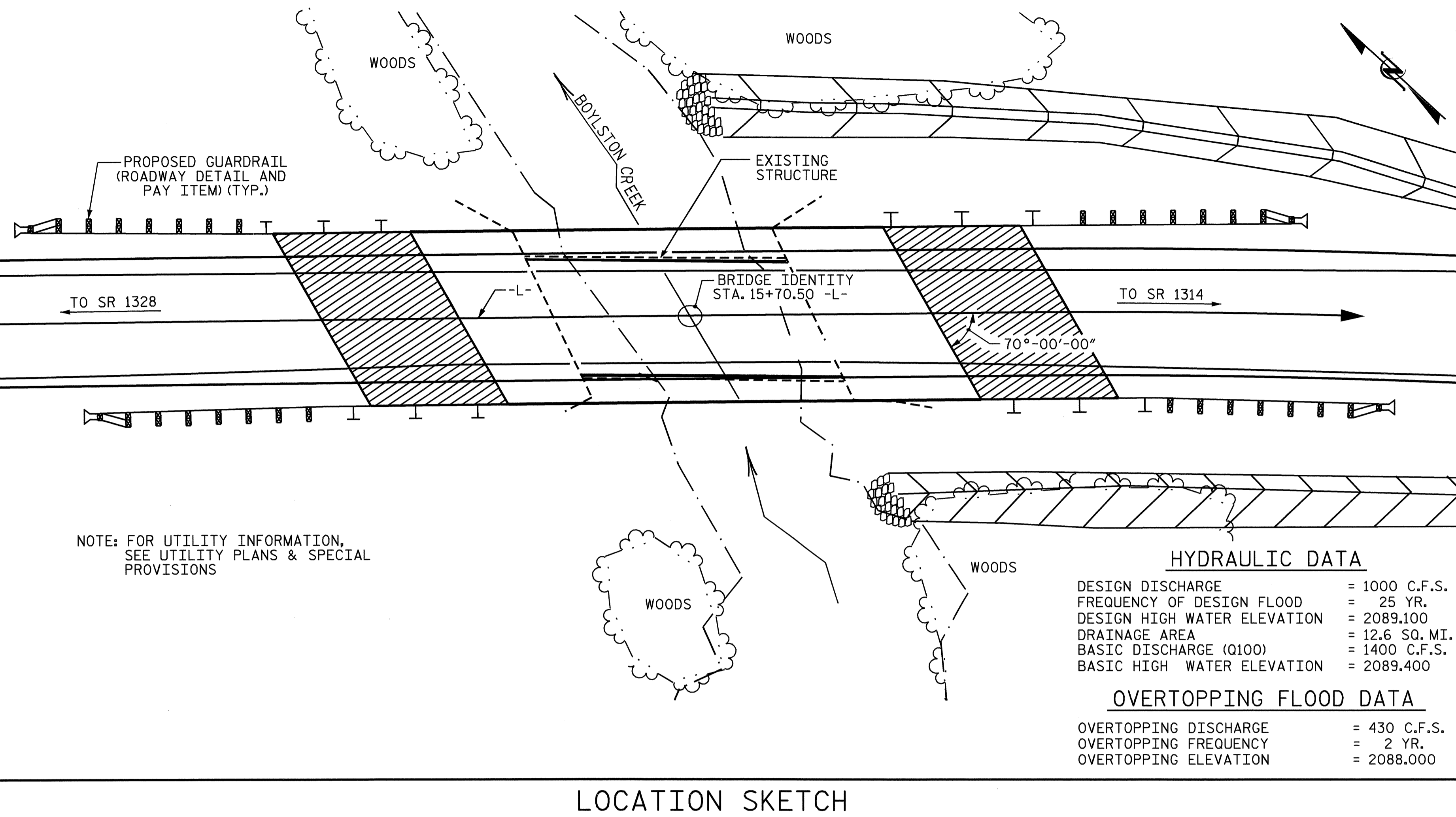
GENERAL DRAWING
 FOR BRIDGE OVER BOYLSTON
 CREEK ON SR 1329
 (WARLICK ROAD) BETWEEN
 SR 1328 AND SR 1314



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

DRAWN BY : M.K. BEARD DATE : 8/4/08
 CHECKED BY : J.P. ADAMS DATE : 8/7/08

B. M. #2'-8" SPIKE IN BASE OF 10" WALNUT TREE -BL- STA. 11+48.89, 79.80' RT., EL. 2089.74



HYDRAULIC DATA

DESIGN DISCHARGE	= 1000 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 2089.100
DRAINAGE AREA	= 12.6 SQ. MI.
BASIC DISCHARGE (Q100)	= 1400 C.F.S.
BASIC HIGH WATER ELEVATION	= 2089.400

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 430 C.F.S.
OVERTOPPING FREQUENCY	= 2 YR.
OVERTOPPING ELEVATION	= 2088.000

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING EXCEPT THAT THE CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS 25 LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 30'-9" WITH A TIMBER FLOOR ON 15 LINES OF 14" I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 20'-1" AND HAVING A SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SITE 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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 3 SHALL BE EXCAVATED FOR A DISTANCE OF 26'-0" 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.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 15+70.50 -L-."

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP12X53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP, CLASS I	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
						NO.	LIN.FT.					NO.	LIN.FT.
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.			LIN.FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE		LUMP SUM		LUMP SUM				105.21			LUMP SUM	10	526.04
END BENT #1			12.1		1877	5	150		38	42			
END BENT #2			11.9		1871	5	125		46	51			
TOTAL	LUMP SUM	LUMP SUM	24.0	LUMP SUM	3748	10	275	105.21	84	93	LUMP SUM	10	526.04

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HENDERSON COUNTY
 STATION: 15+70.50 -L-

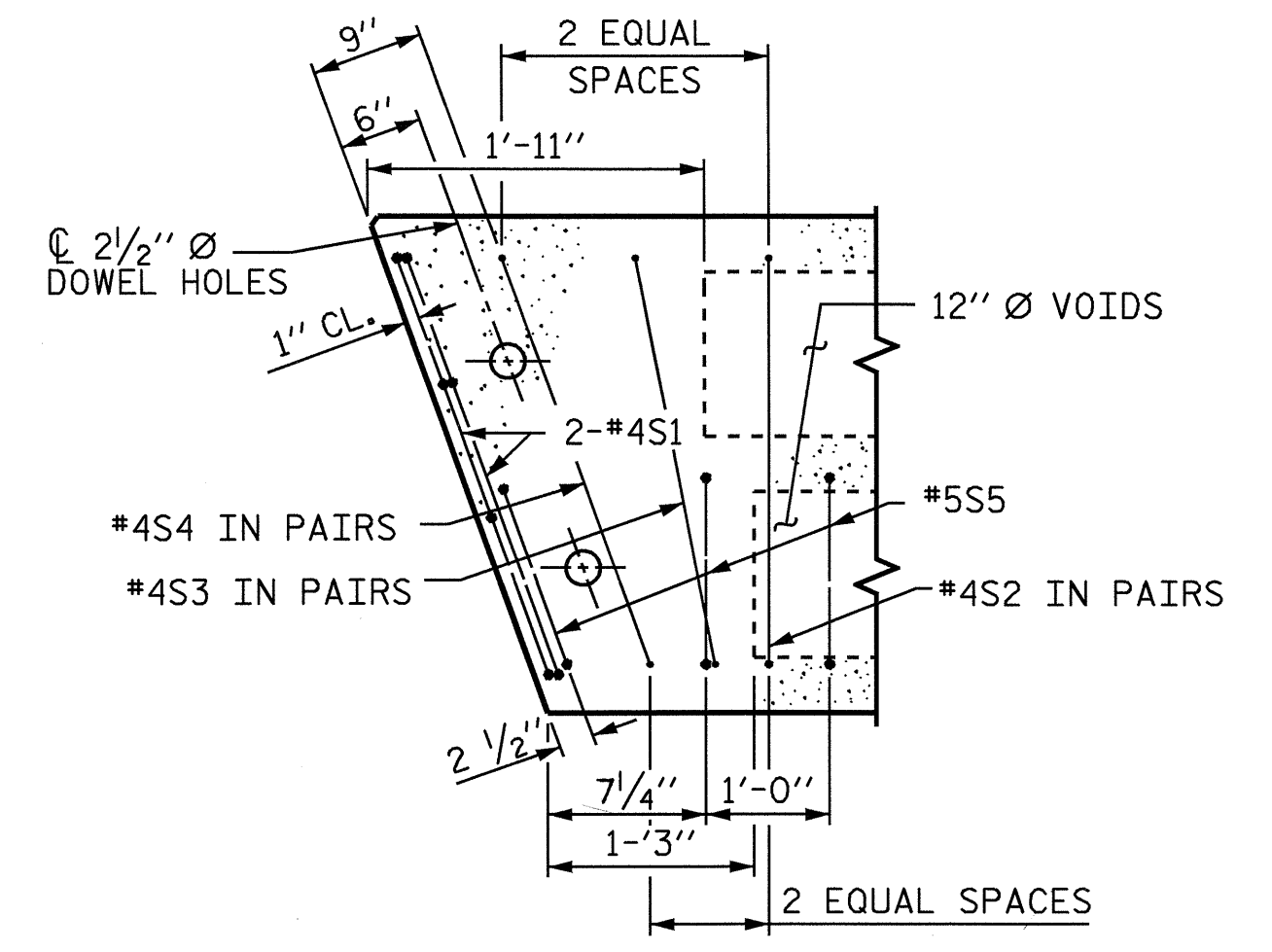
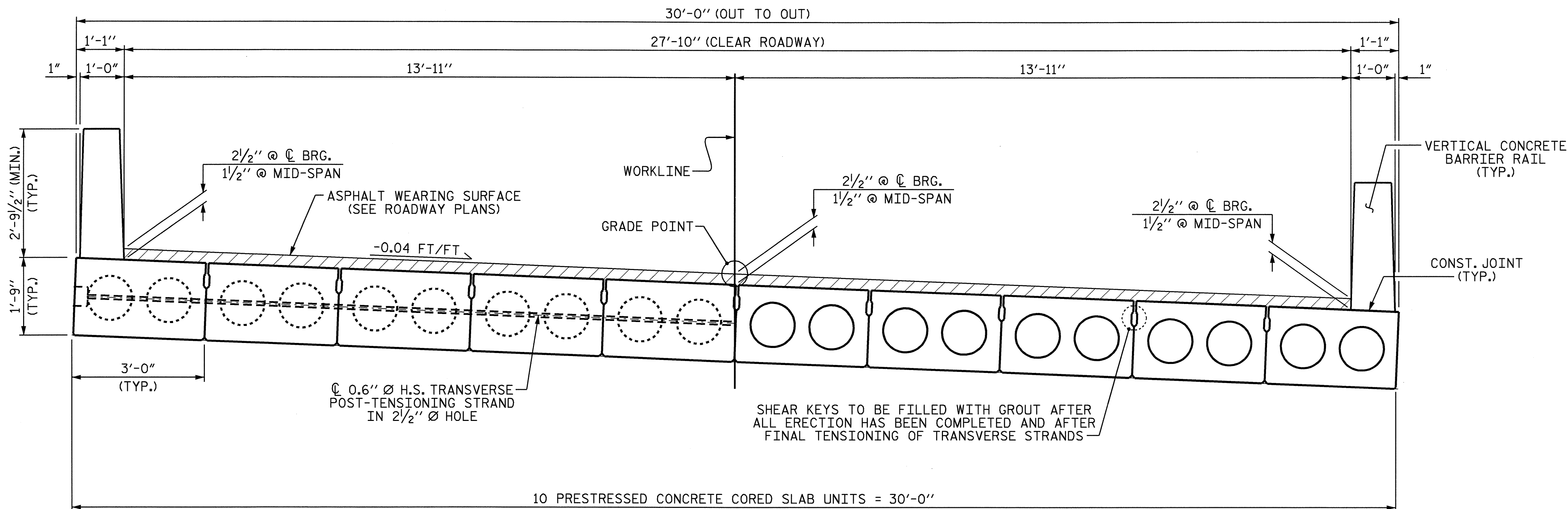
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER BOYLSTON
 CREEK ON SR 1329
 (WARLICK ROAD) BETWEEN
 SR 1328 AND SR 1314

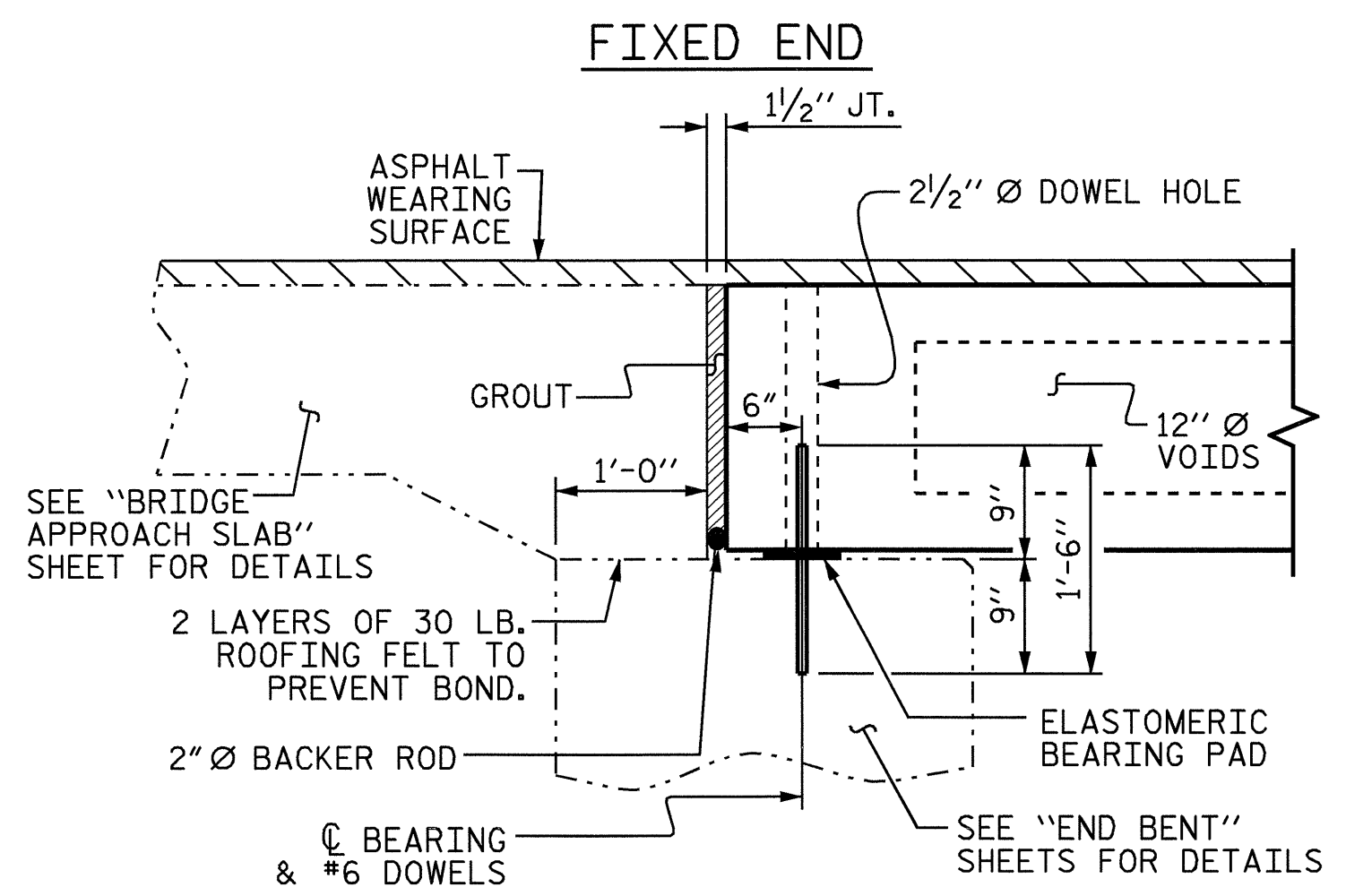
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS 17
2			4			

DRAWN BY : M.K. BEARD DATE : 8/4/08
 CHECKED BY : J.P. ADAMS DATE : 8/7/08

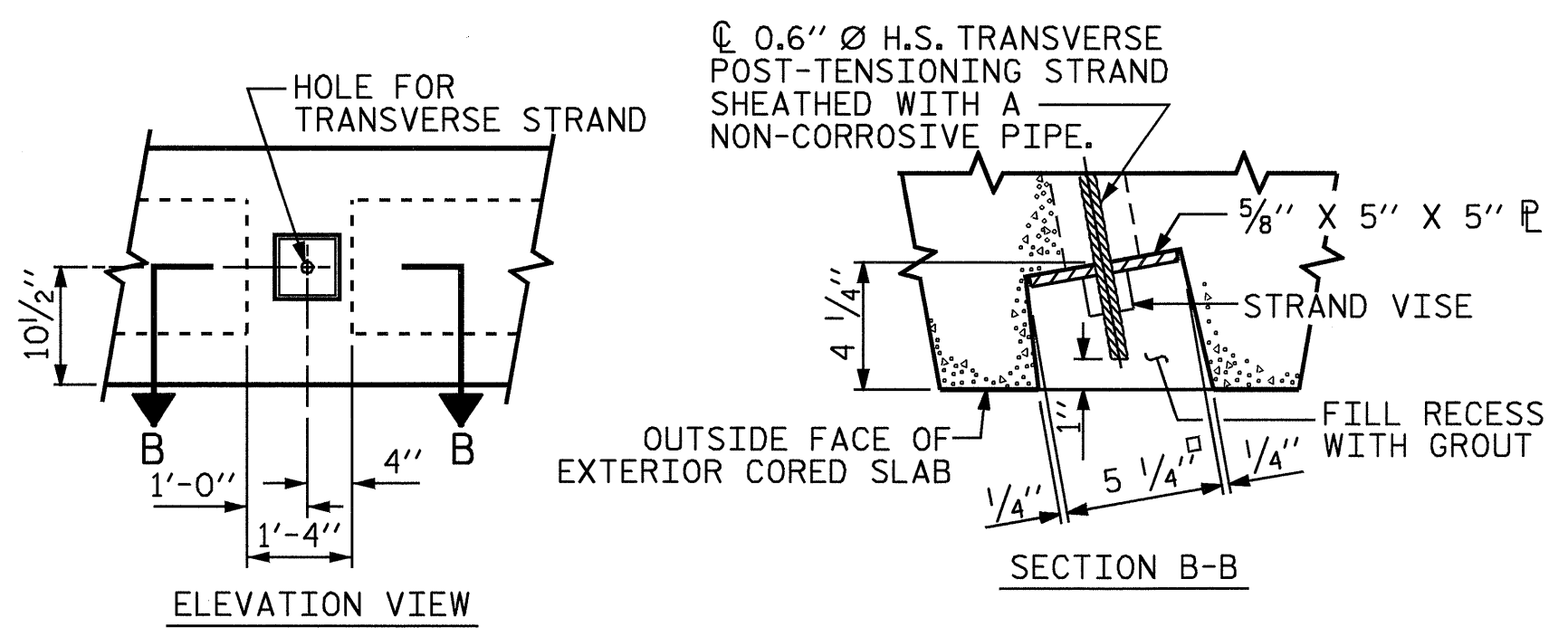


PART PLAN-EXTERIOR SECTION
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S5 BARS.

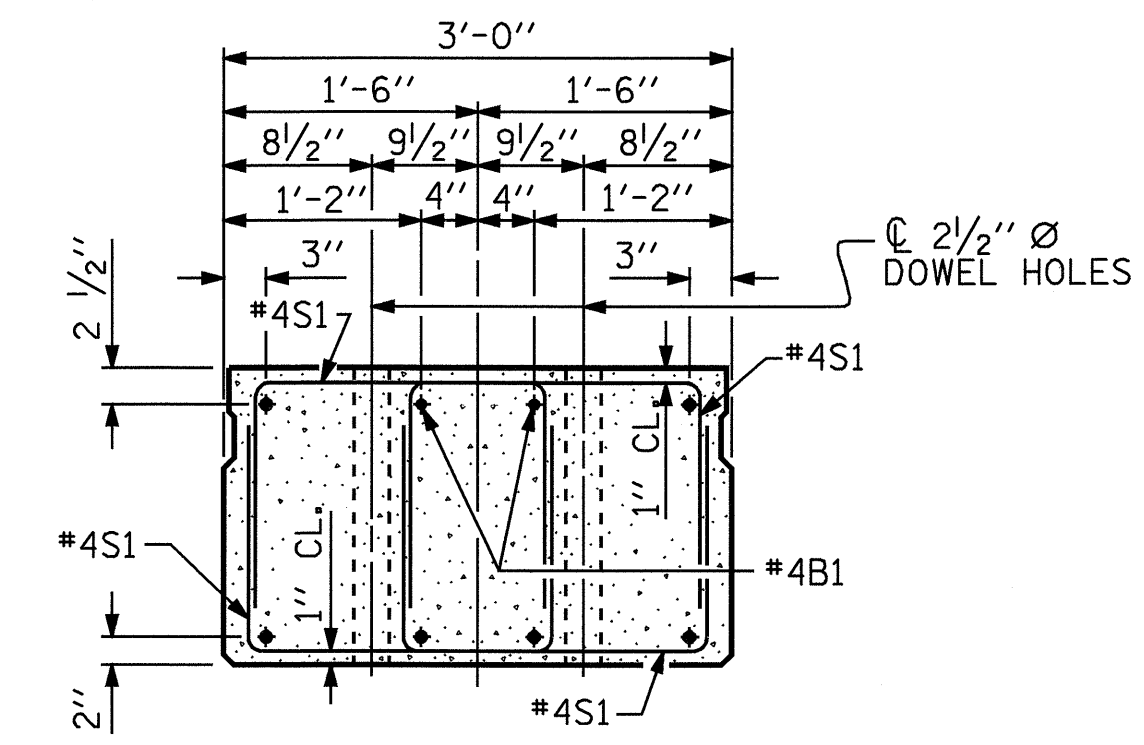
TYPICAL SECTION



SECTION AT END BENT

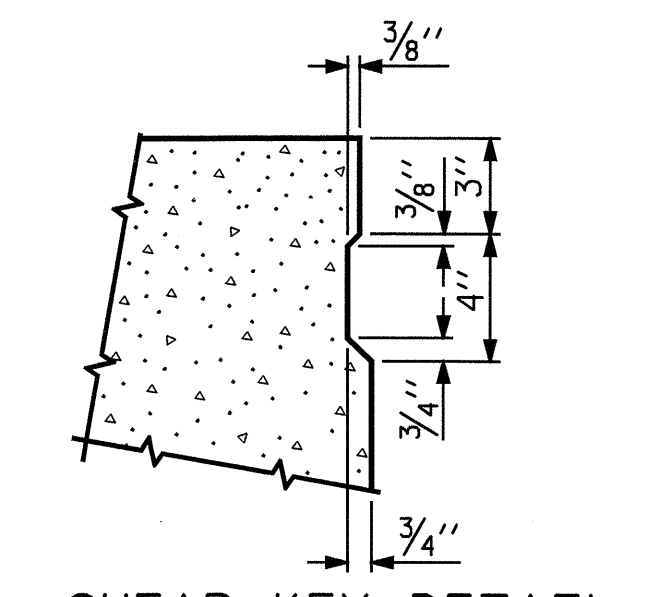


GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



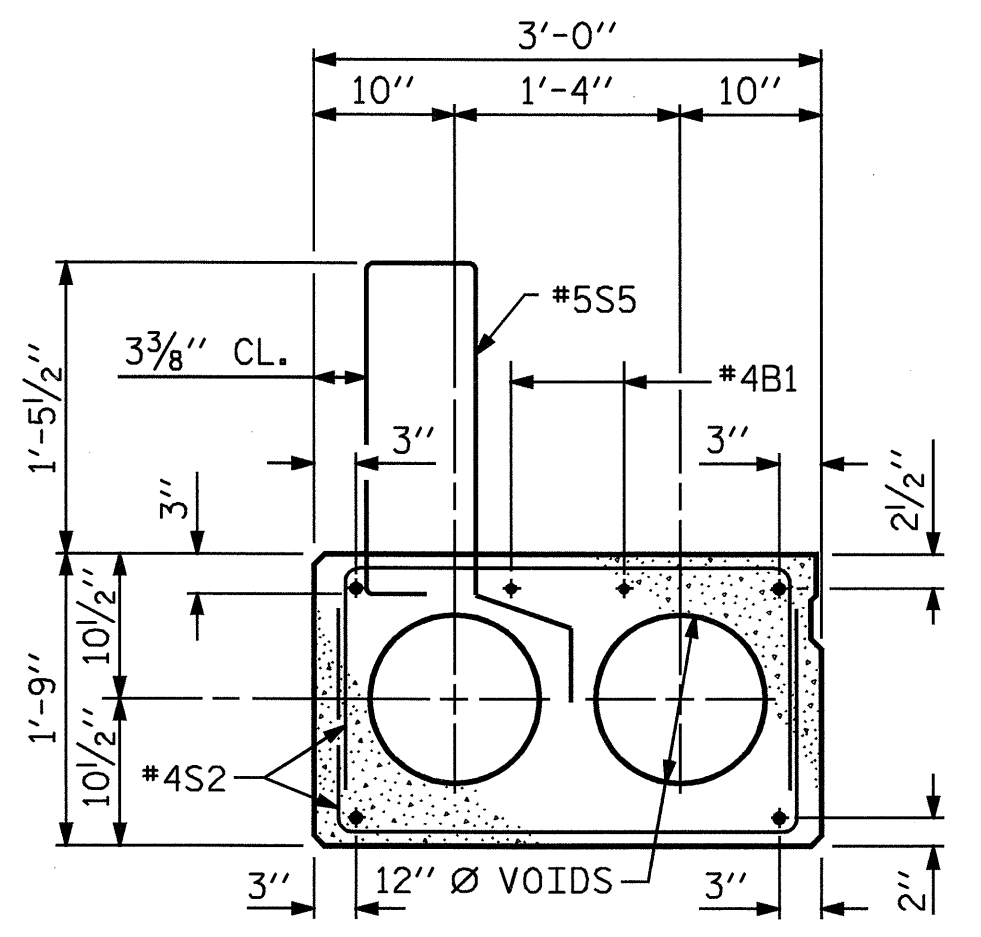
END ELEVATION

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



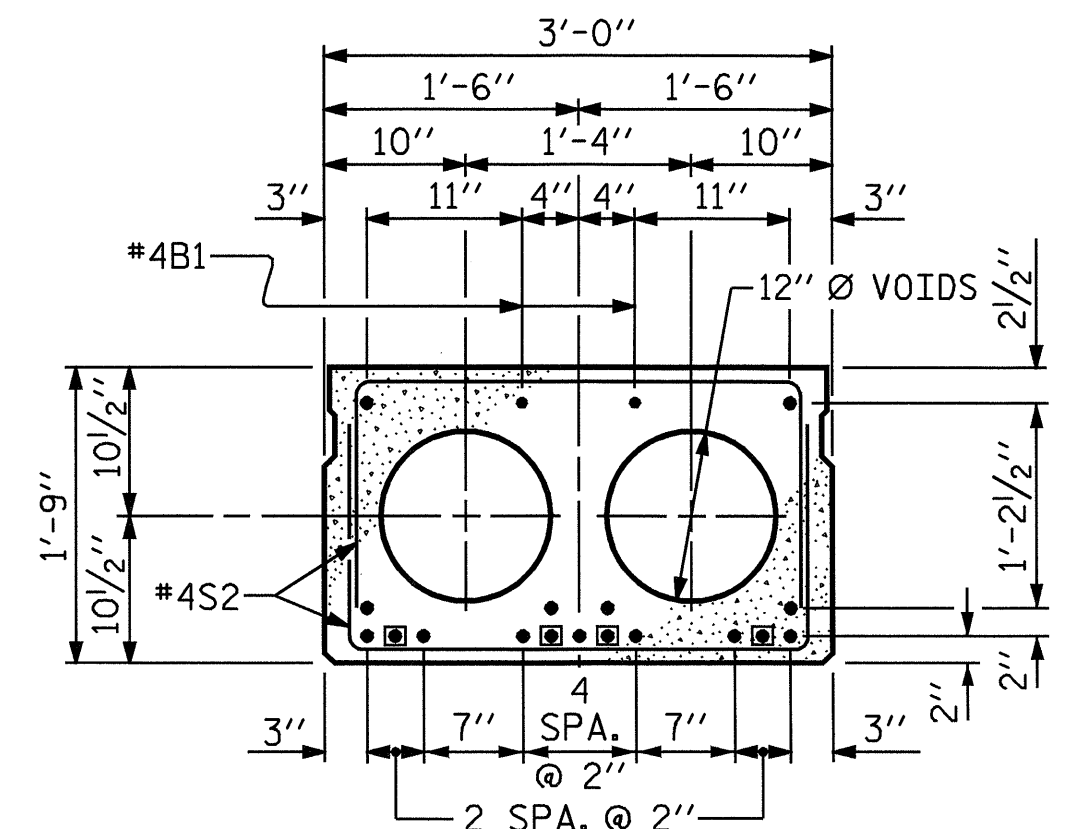
SHEAR KEY DETAIL

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



EXTERIOR SLAB SECTION

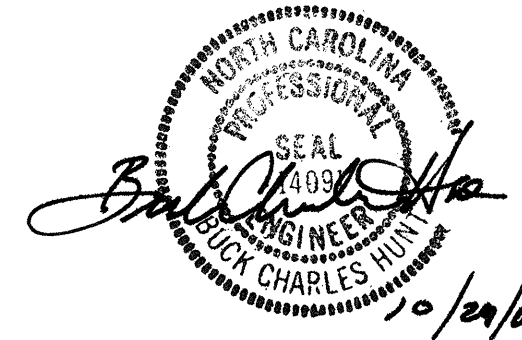
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (17 STRANDS)

0.6" Ø LOW RELAXATION STRAND LAYOUT

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



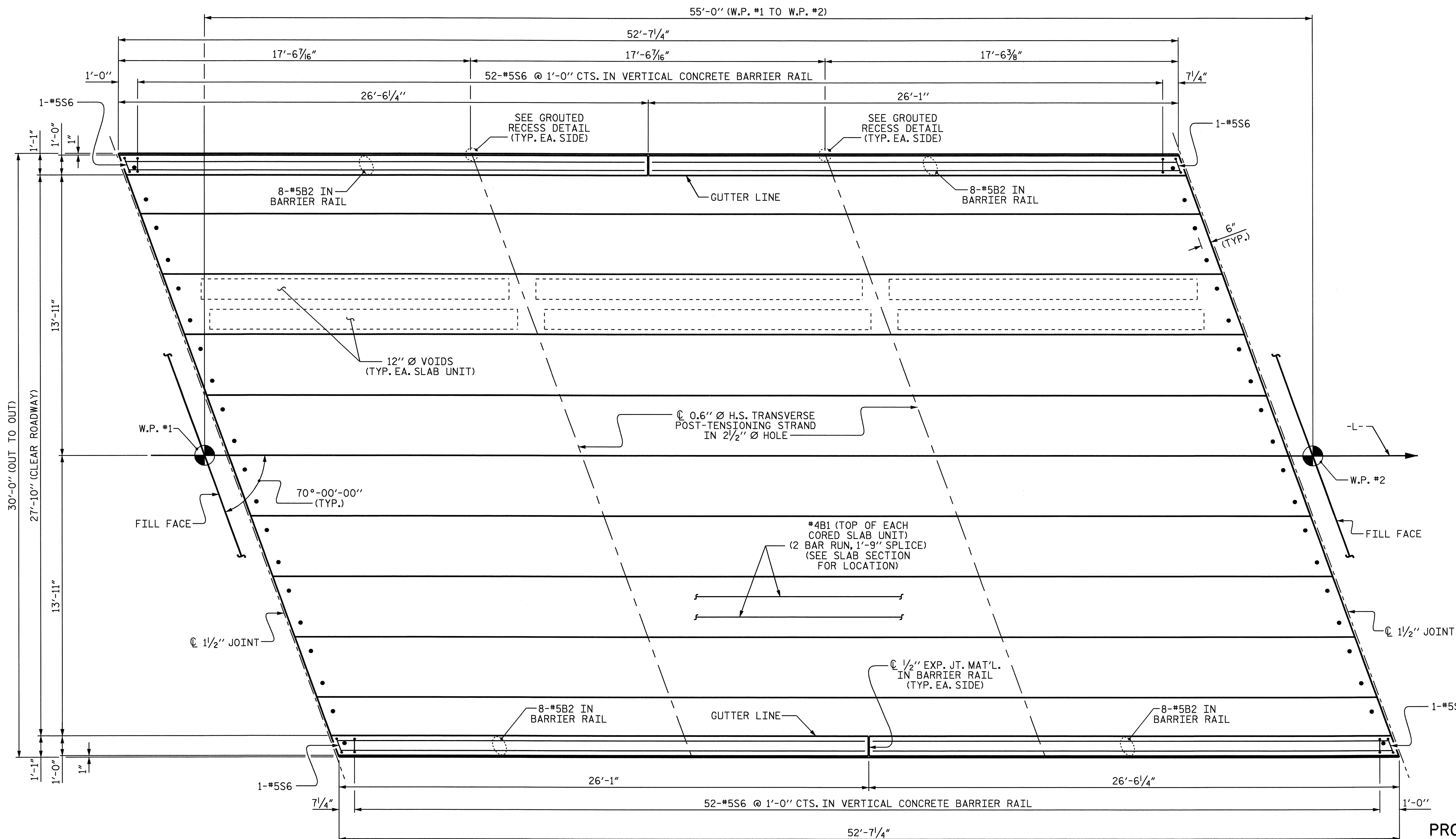
PROJECT NO. B-4148
HENDERSON COUNTY
STATION: 15+70.50 -L-

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-4
1			3			TOTAL SHEETS
2			4			17

ASSEMBLED BY : J.P. ADAMS	DATE : 3/4/08
CHECKED BY : S. DOMBROWSKI	DATE : 6/24/08
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



SPAN A

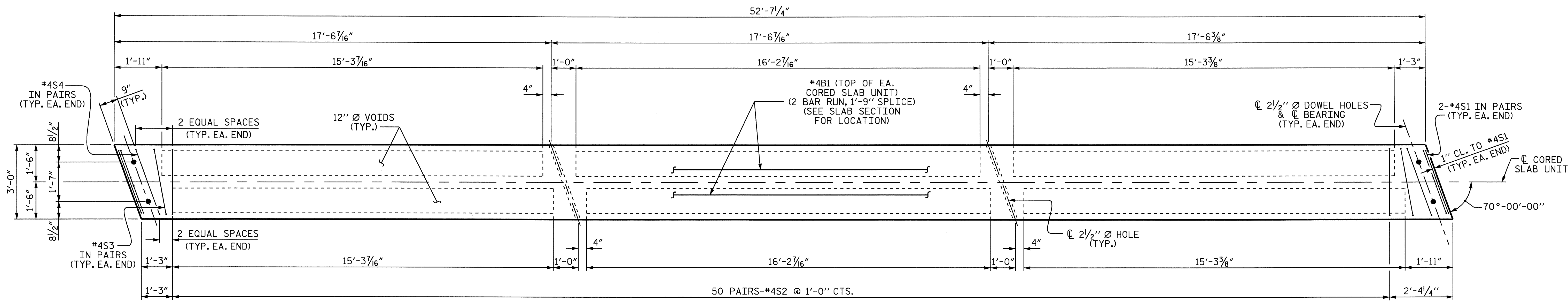
PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					17

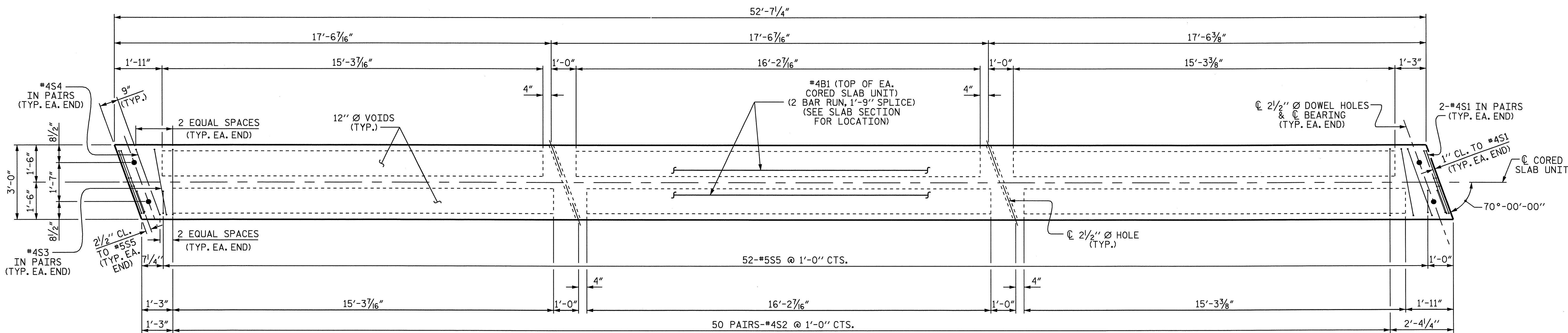


DRAWN BY: J.P. ADAMS DATE: 3/5/08
 CHECKED BY: S. DOMBROWSKI DATE: 6/24/08

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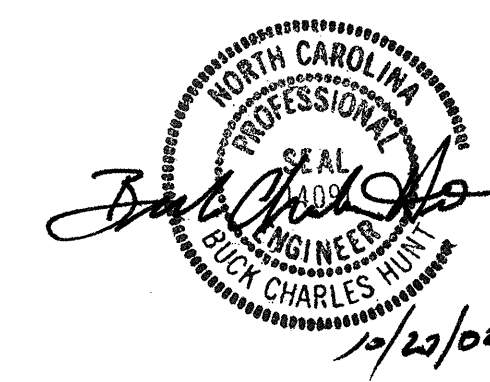
INTERIOR CORED SLAB UNIT



EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-

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



DRAWN BY: J.P. ADAMS DATE: 3/6/08
 CHECKED BY: S. DOMBROWSKI DATE: 6/24/08

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
1			3			TOTAL SHEETS	
2			4			17	

NOTES

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

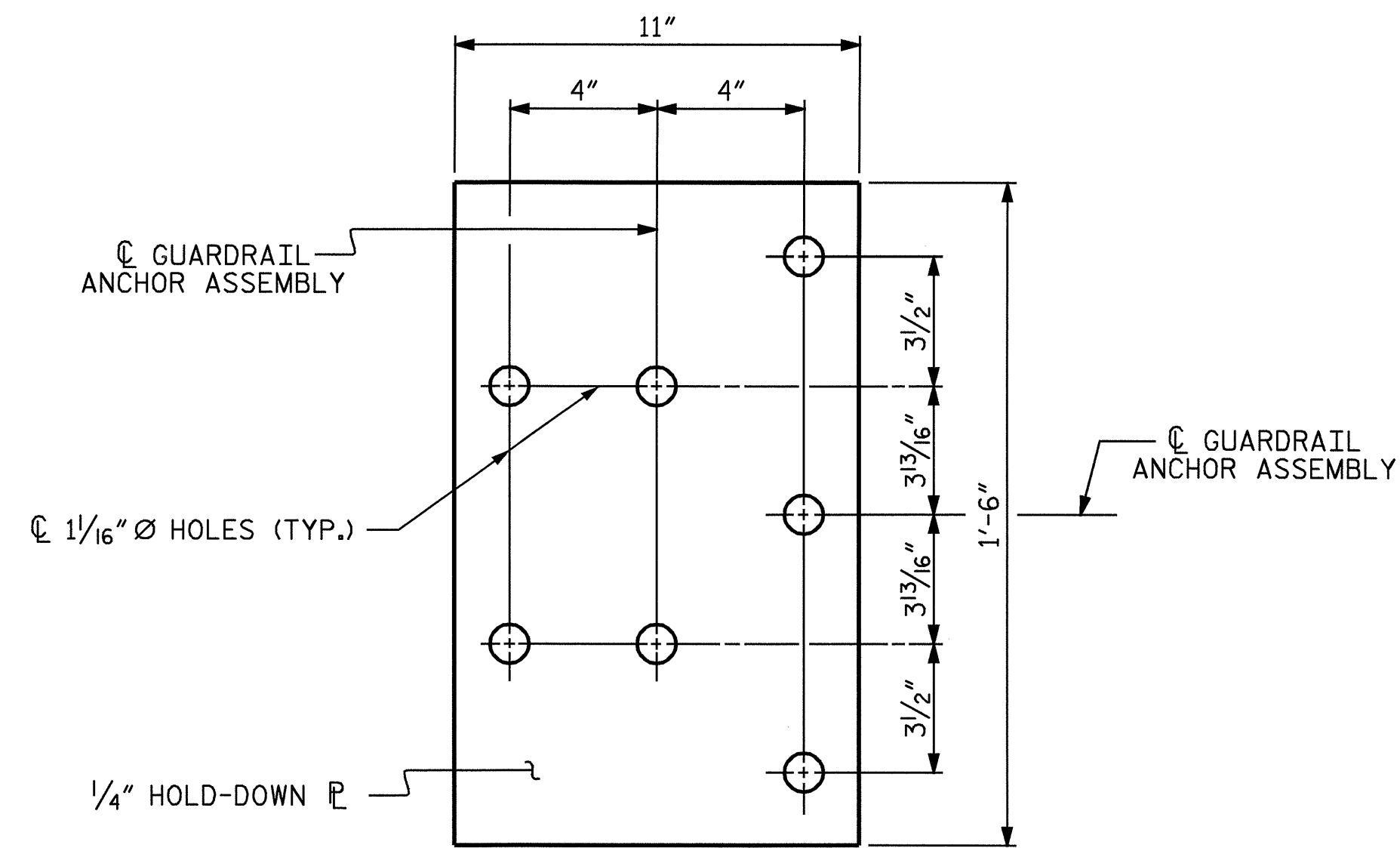
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

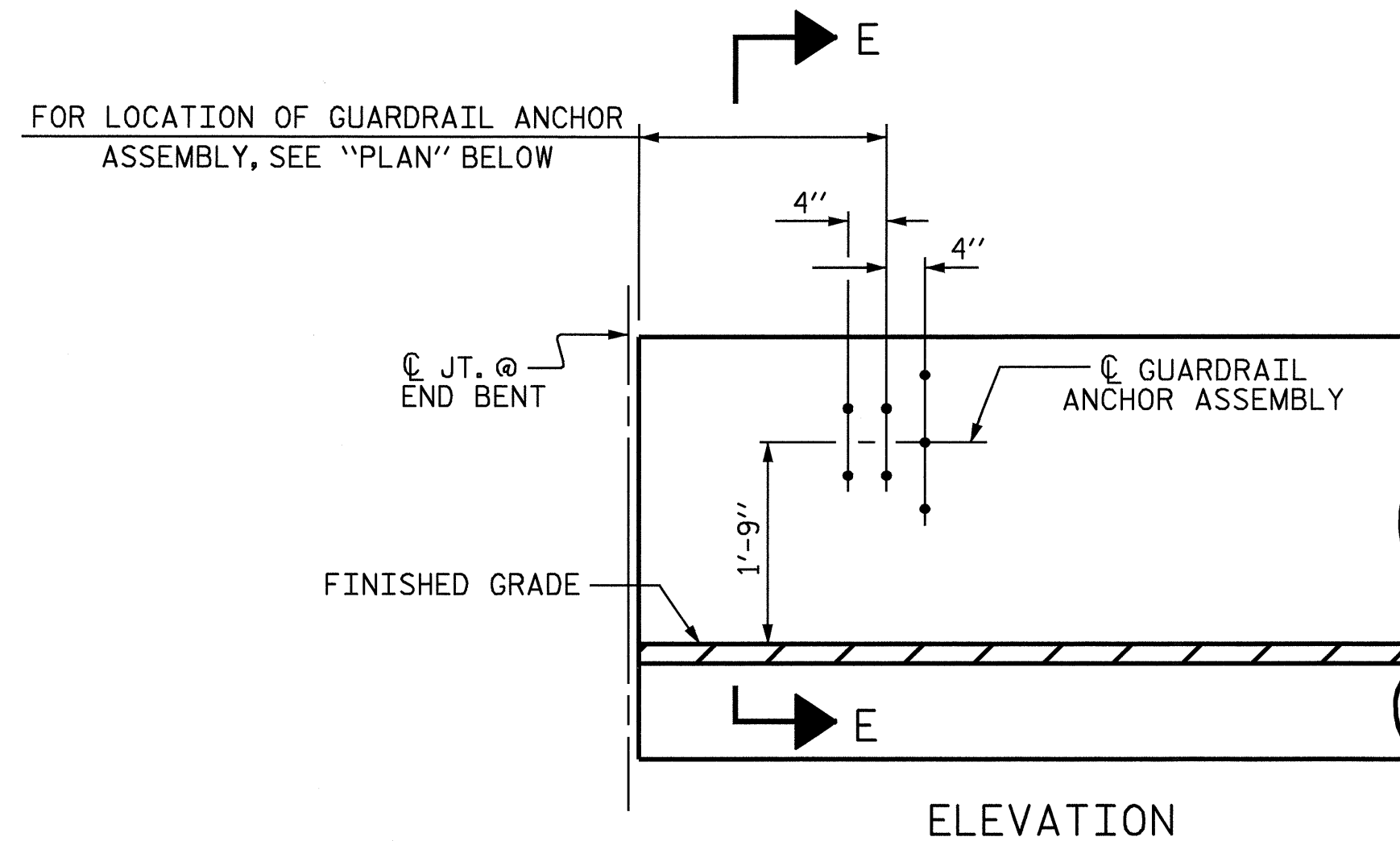
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

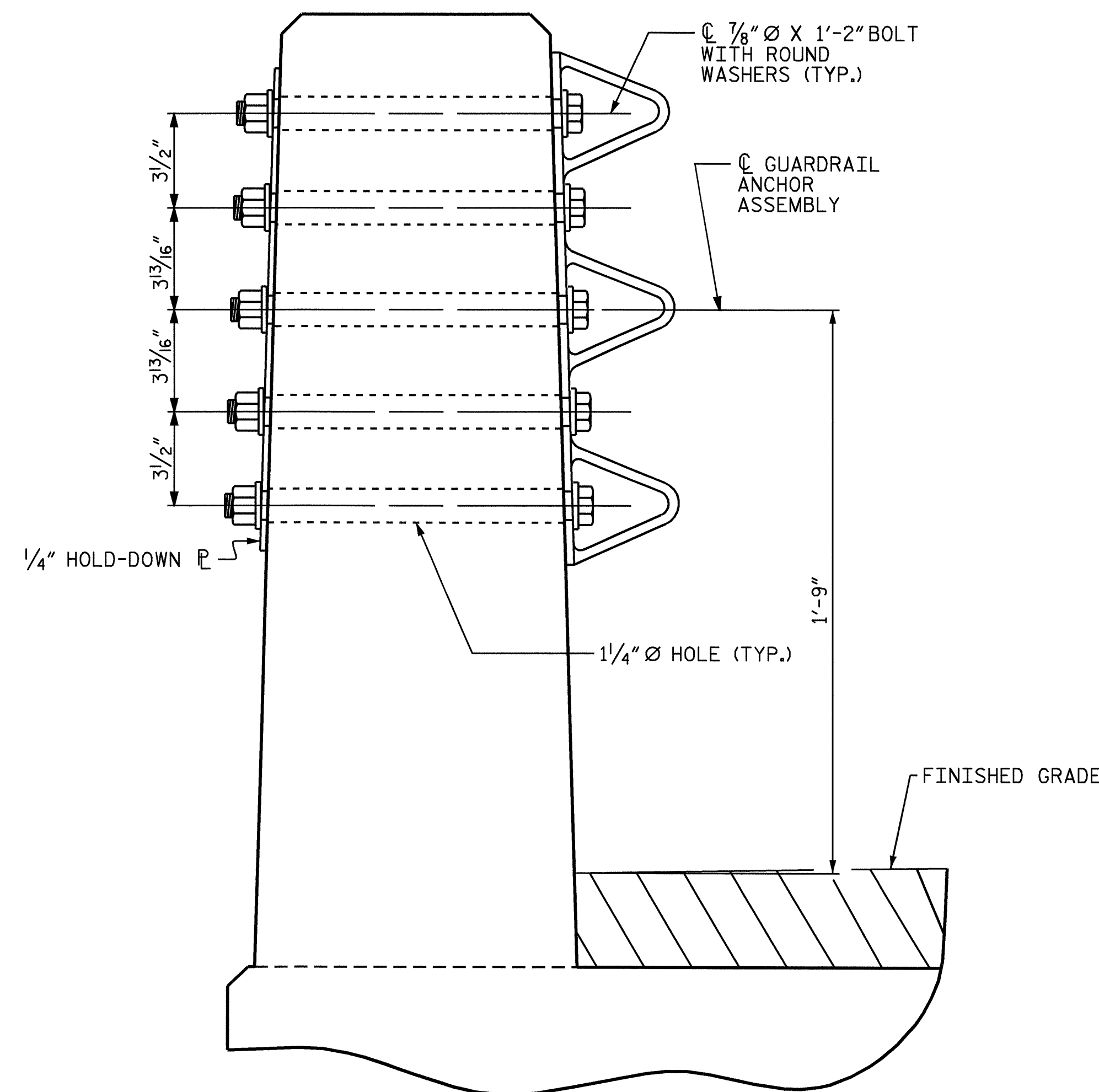
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



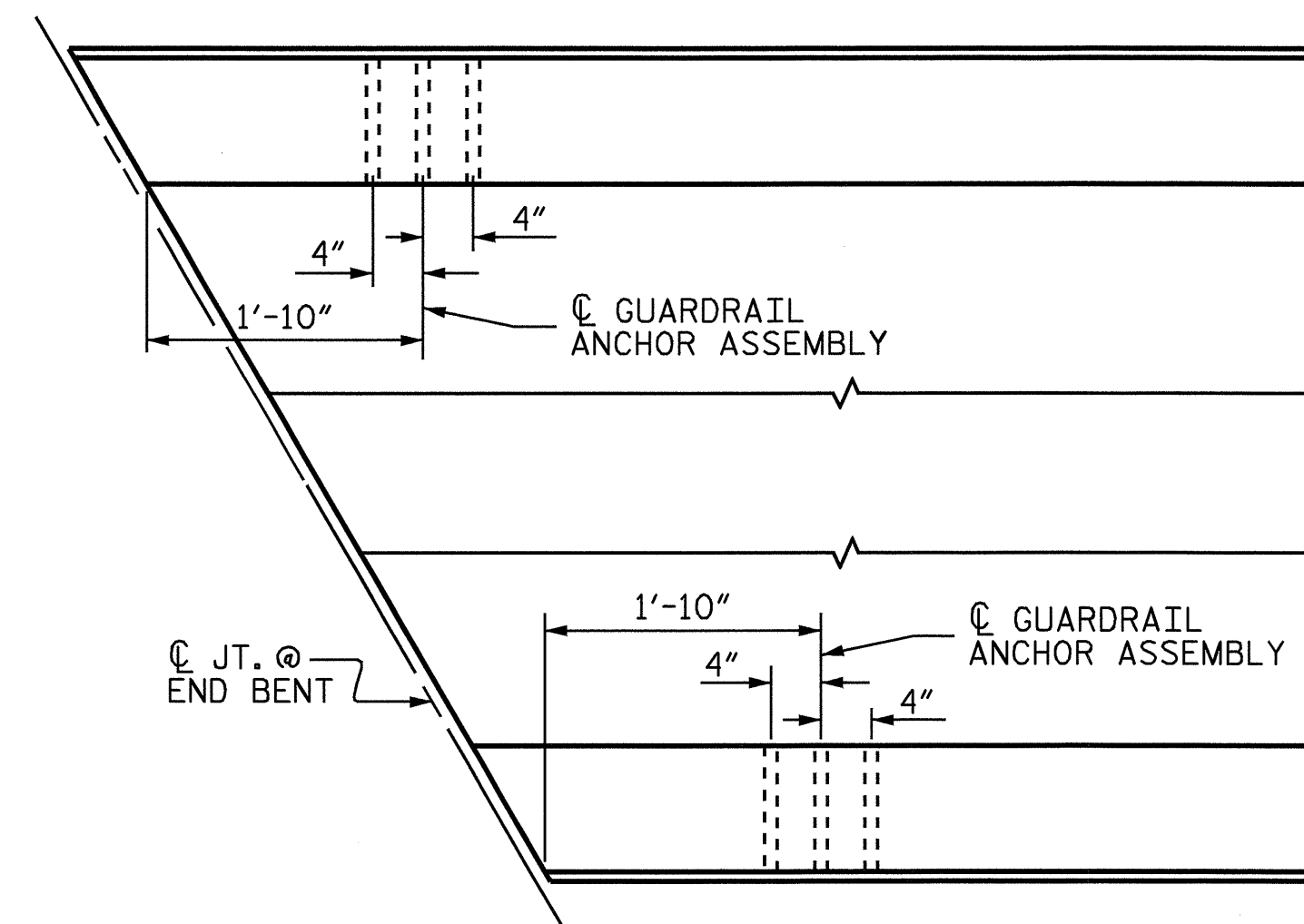
PLAN



ELEVATION



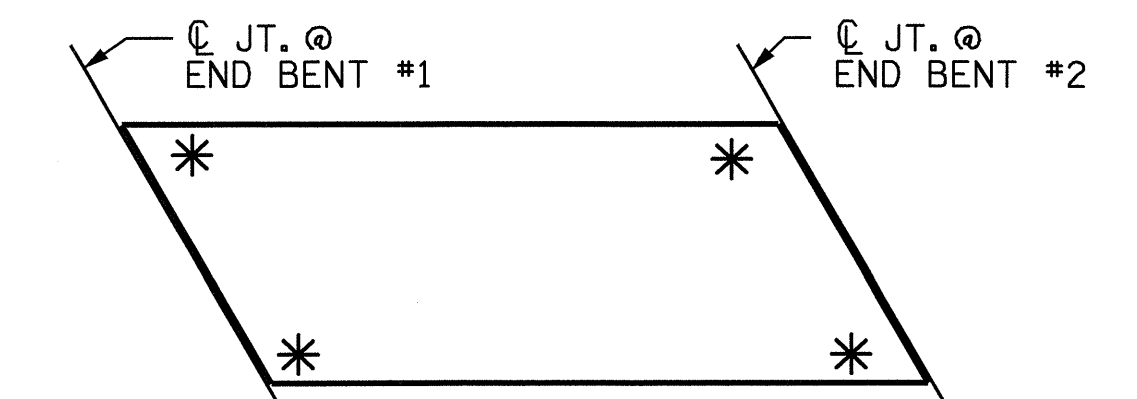
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

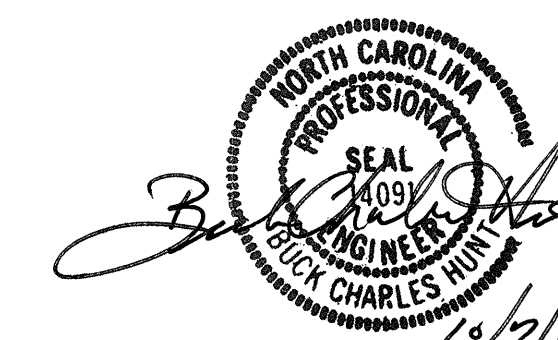


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-

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



ASSEMBLED BY : J.P. ADAMS	DATE : 3/6/08
CHECKED BY : S. DOMBROWSKI	DATE : 6/24/08
DRAWN BY : MAA 12/06	ADDED 12/15/06
CHECKED BY : GM 12/06	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			7
2			4			17

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 SIDWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

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

ALL REINFORCING STEEL IN 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.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

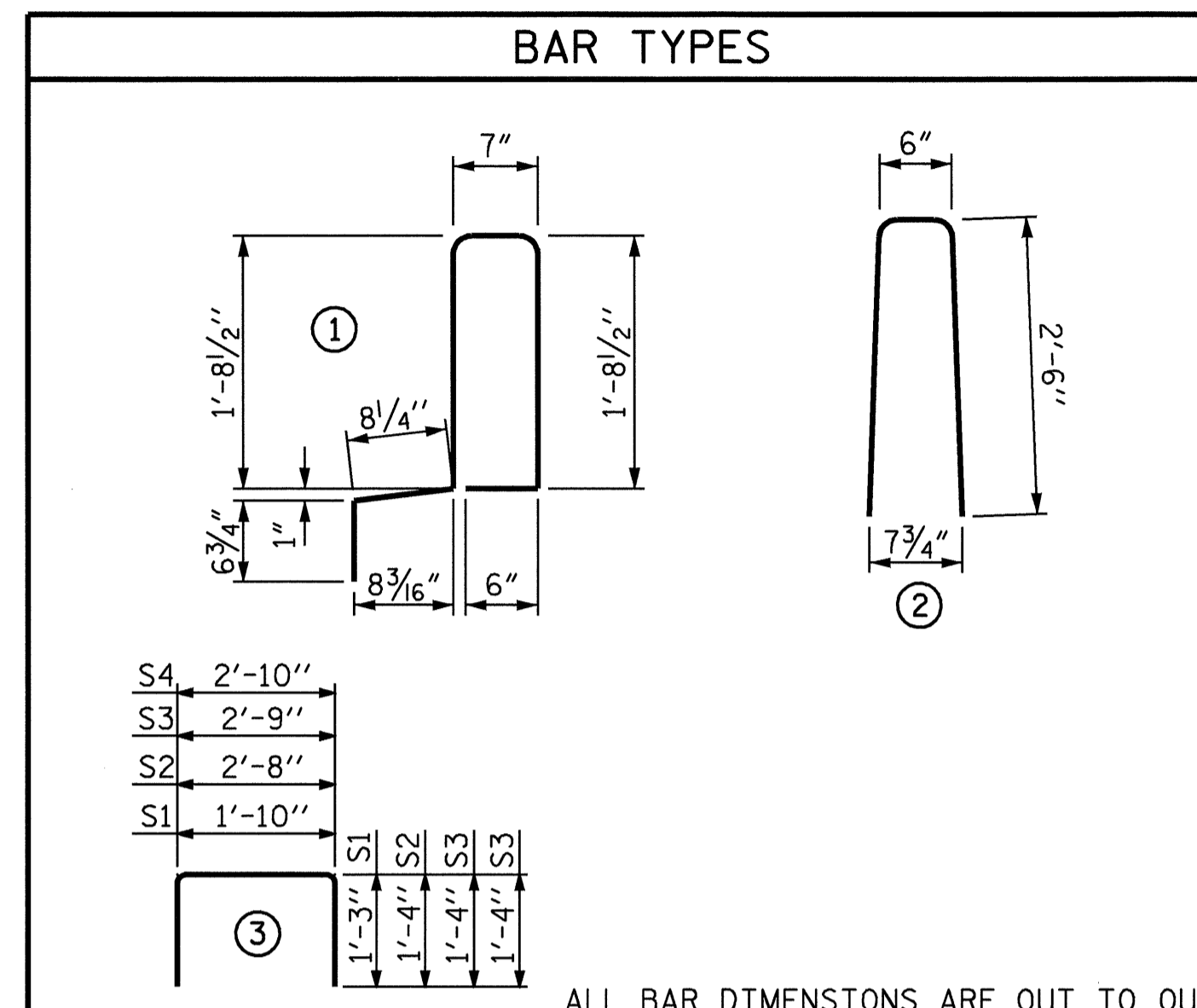
FOR PRESTRESSED MEMBERS, SEE SPECIAL PROVISIONS.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

TRANSVERSE POST TENSIONING OF THE BOX BEAM SECTIONS SHALL BE DONE IN ACCORDANCE WITH THE SPECIAL 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 GUTTERLINE.

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



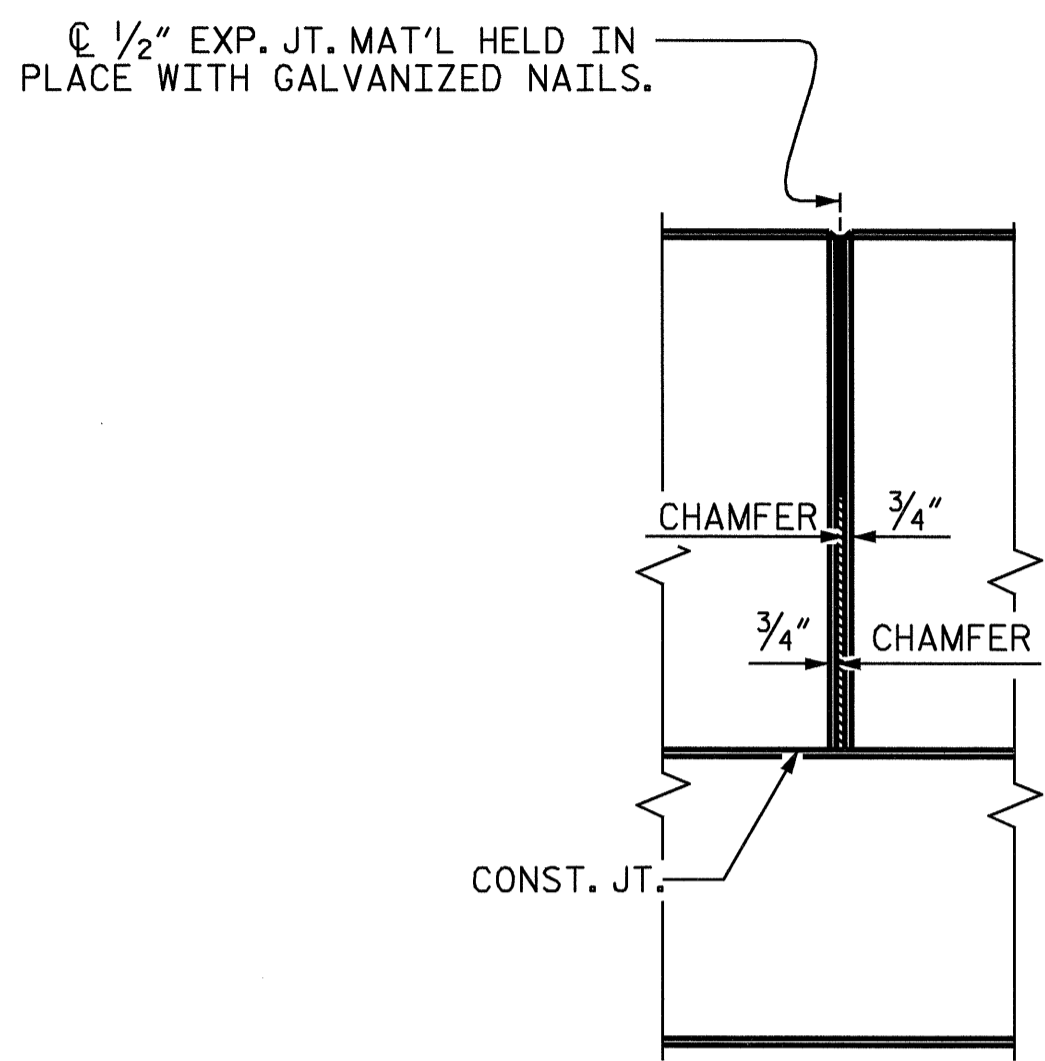
BILL OF MATERIAL FOR ONE CORED SLAB SECTION				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	27'-1"	72	27'-1"	72
S1	8	#4	3	4'-4"	23	4'-4"	23
S2	100	#4	3	5'-4"	356	5'-4"	356
S3	4	#4	3	5'-5"	14	5'-5"	14
S4	4	#4	3	5'-6"	15	5'-6"	15
* S5	54	#5	1	5'-9"	324	----	----
REINFORCING STEEL				480 LBS.		480 LBS.	
* EPOXY COATED REINFORCING STEEL				324 LBS.		----	
5000 P.S.I. CONCRETE				7.5 CU.YDS.		7.5 CU.YDS.	
0.6" Ø L.R. STRANDS				No. 17		No. 17	

DEAD LOAD DEFLECTION AND CAMBER		3'-0" X 1'-9" 0.6" Ø L.R. STRANDS	
CAMBER (SLAB ALONE IN PLACE)		2 3/8"	↑
** DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD		5/16"	↓
FINAL CAMBER		2 1/16"	↑

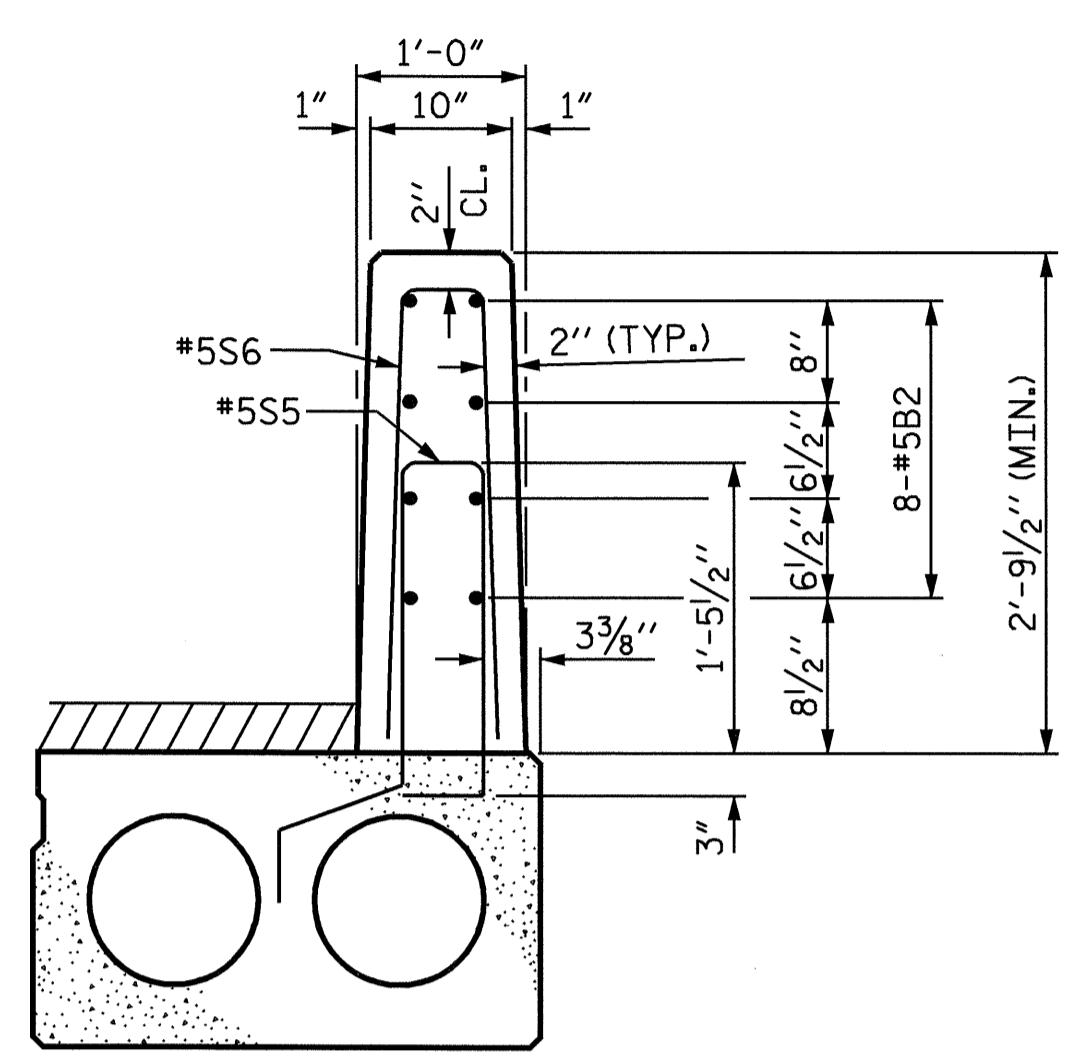
* INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* B2	32	#5	STR	25'-11"	865
* S6	108	#5	2	5'-6"	620
* EPOXY COATED REINFORCING STEEL				1485 LBS.	
CLASS AA CONCRETE				10.5 CU.YDS.	
TOTAL LIN. FT. OF VERTICAL CONCRETE BARRIER RAIL				105.21 LIN. FT.	

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	52'-7 1/4"	105.21
INTERIOR C.S.	8	52'-7 1/4"	420.83
TOTAL	10		526.04

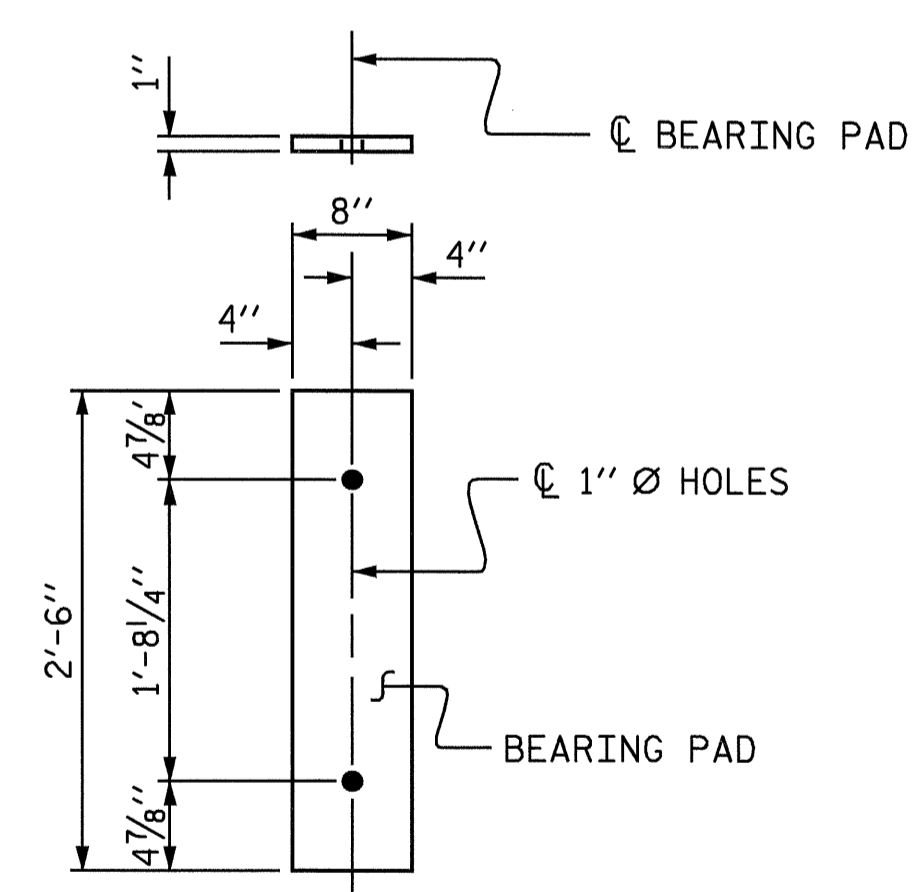


ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

VERTICAL CONCRETE BARRIER RAIL DETAILS



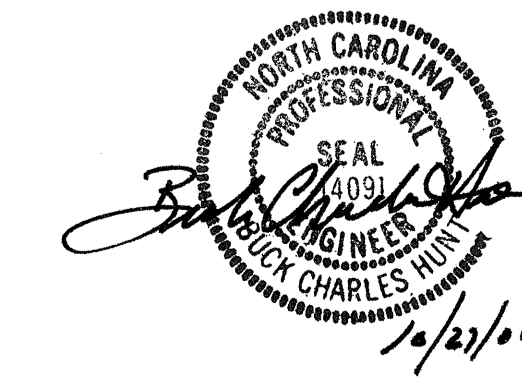
FIXED (20 REQ'D.) ELASTOMERIC BEARING PADS

PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -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-8
1			3			TOTAL SHEETS 17
2			4			



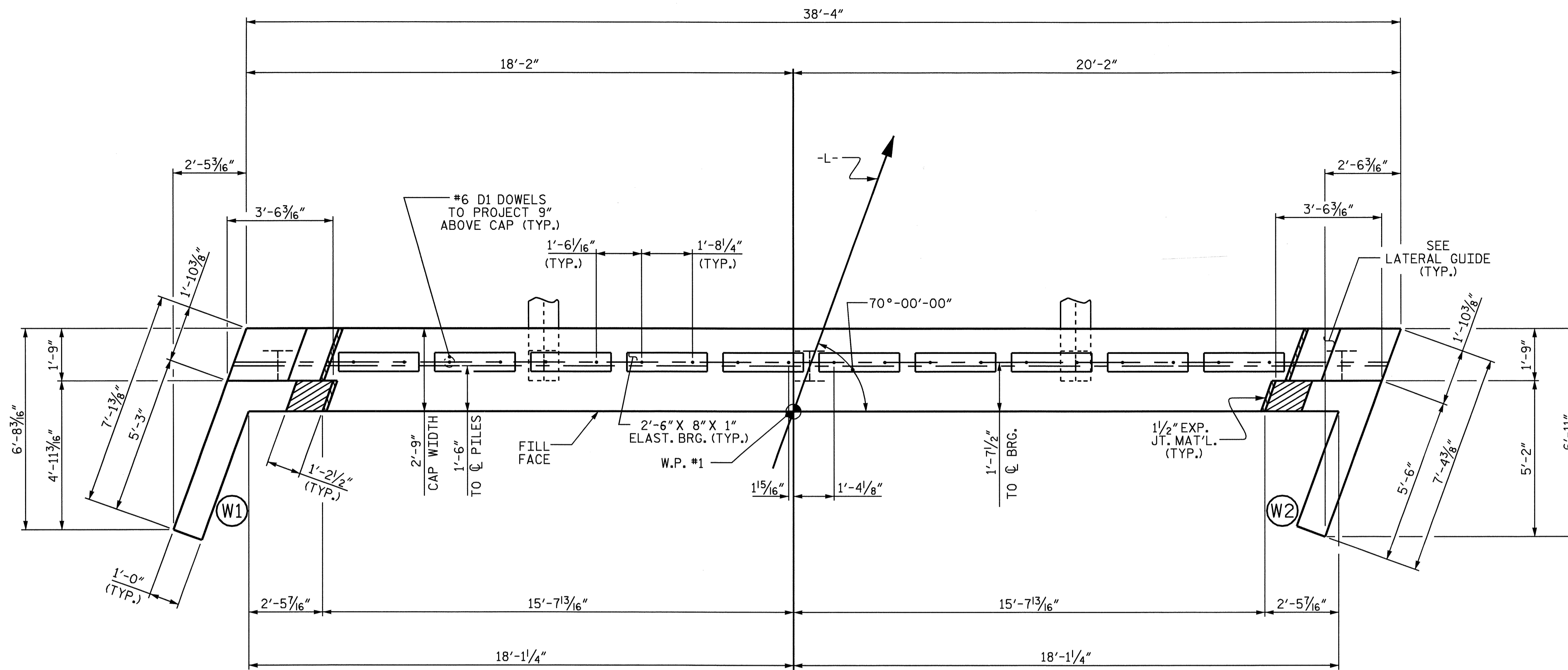
ASSEMBLED BY : J.P. ADAMS DATE : 3/6/08
 CHECKED BY : S. DOMBROWSKI DATE : 6/24/08
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06 TLA/GM

NOTES

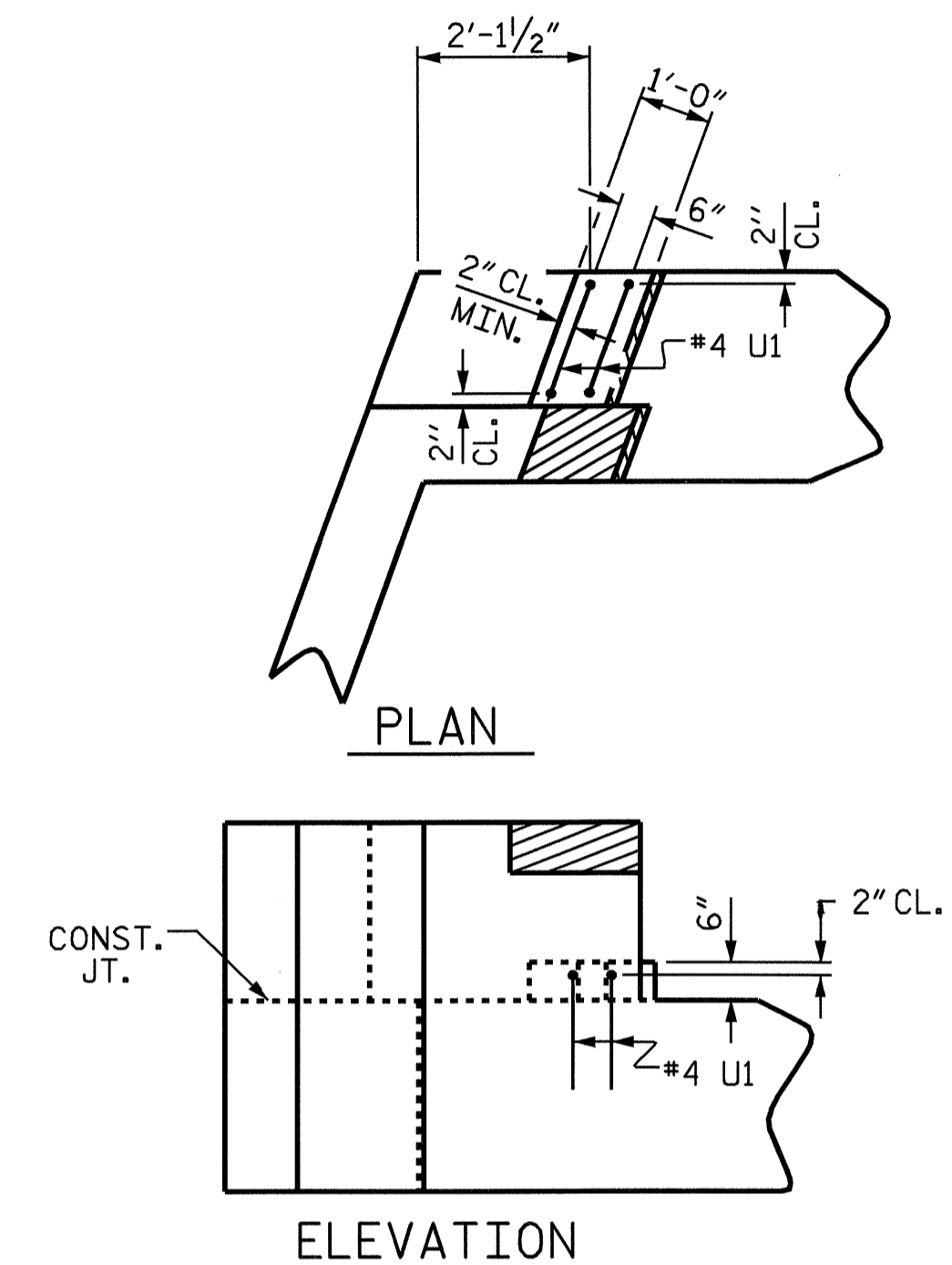
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST.

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

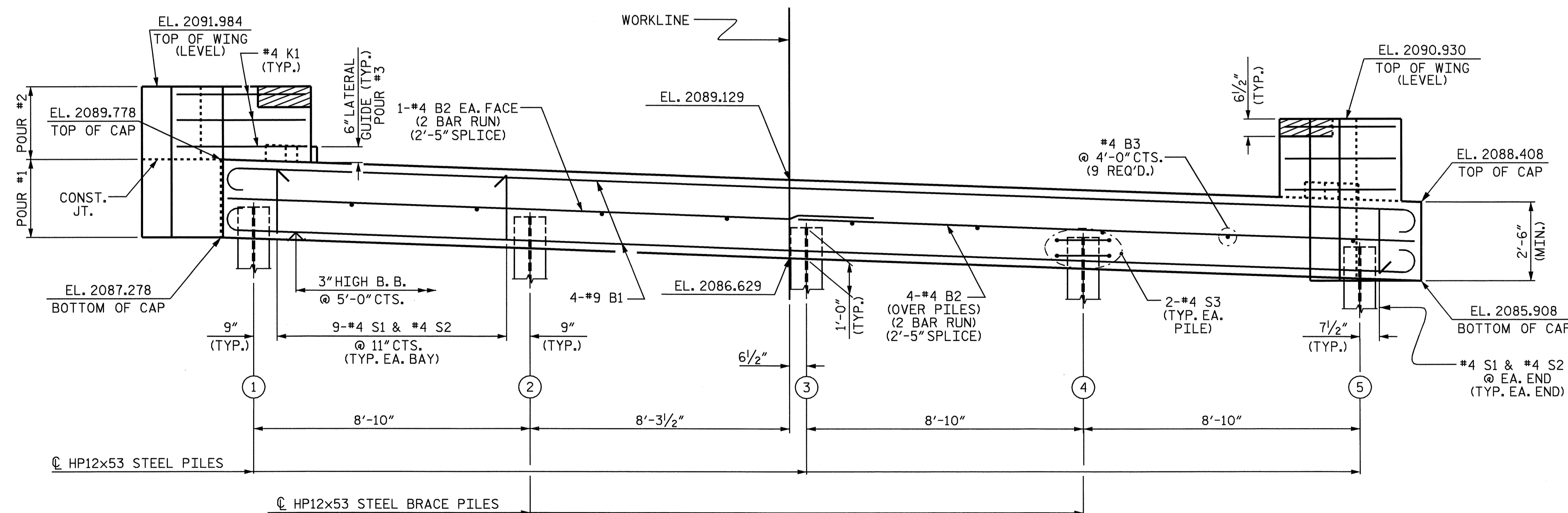


PLAN



LATERAL GUIDE DETAILS

(EACH END SIMILAR)



ELEVATION

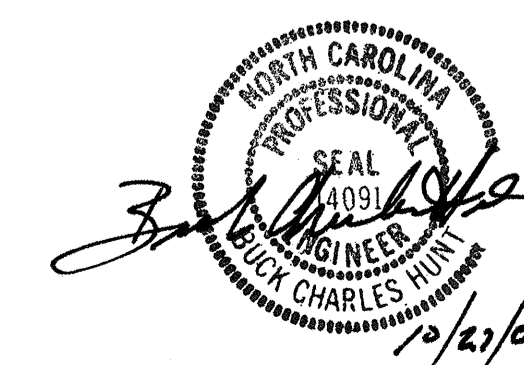
TOP OF PILE ELEVATIONS	
PILE No.	ELEVATION
1	2088.242
2	2087.927
3	2087.611
4	2087.295
5	2086.980

PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

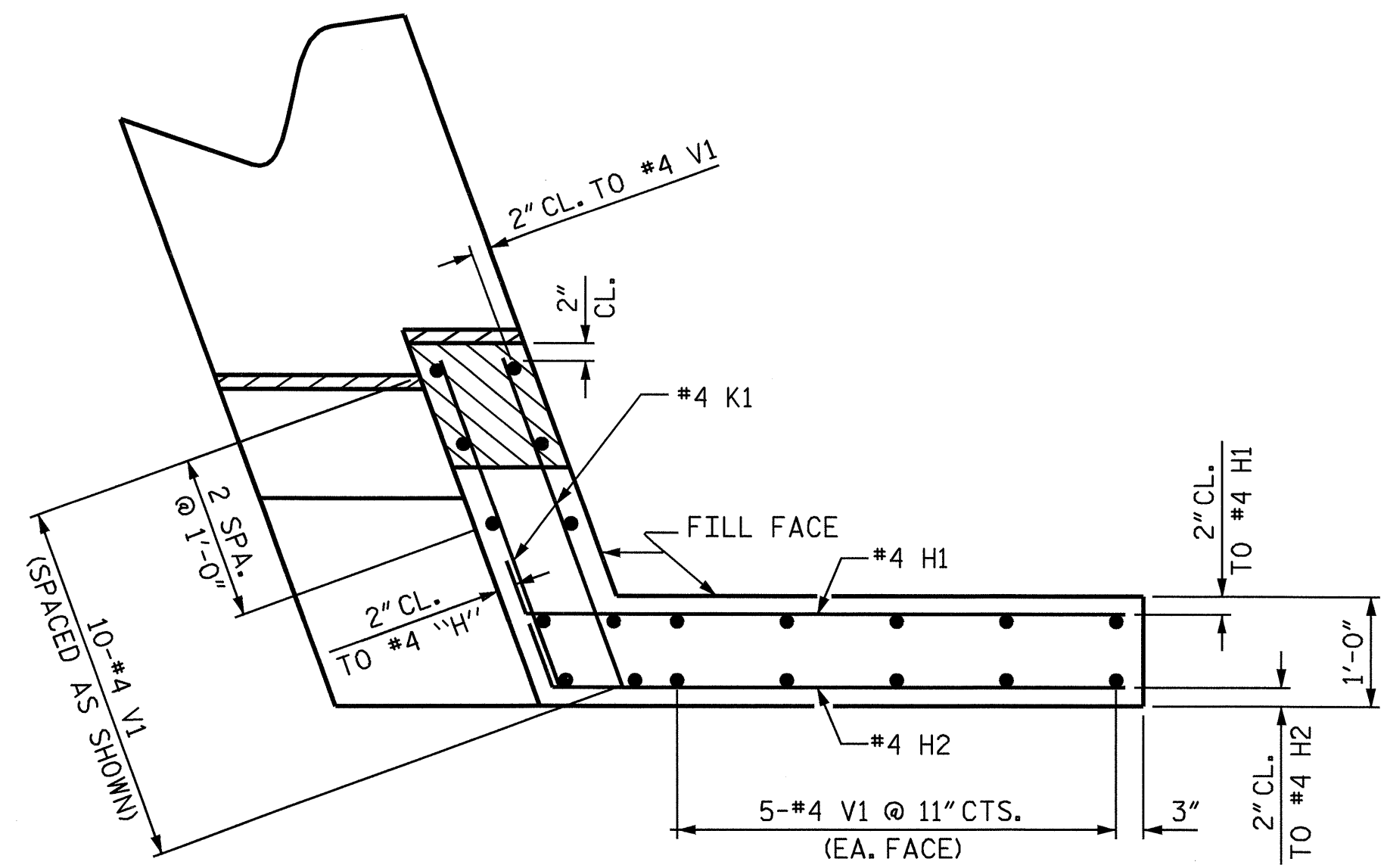
SUBSTRUCTURE
 END BENT #1



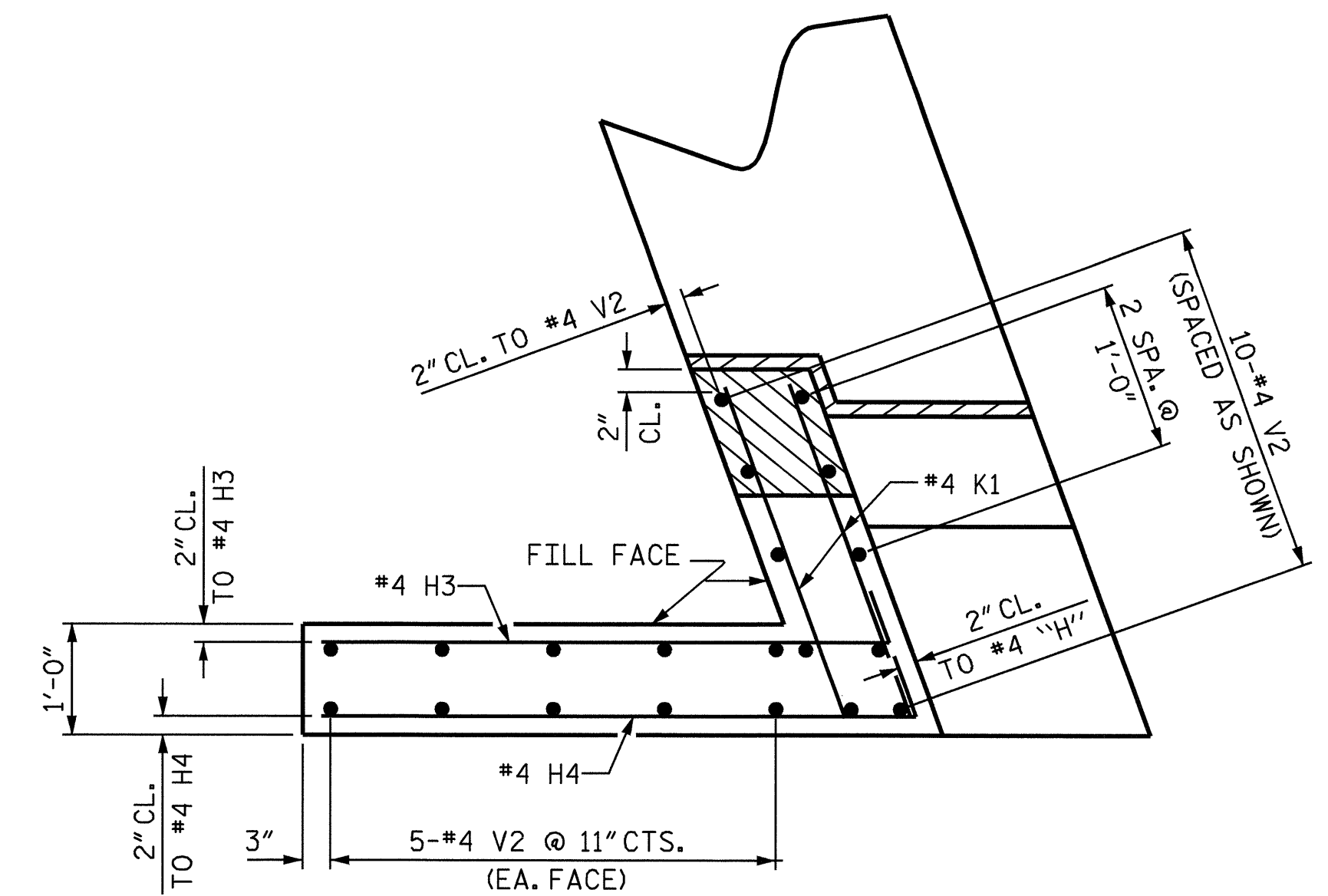
DRAWN BY : R. G. EMERSON DATE : 03/08
 CHECKED BY : J. P. ADAMS DATE : 08/08

27-OCT-2008 12:29
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 jpadams

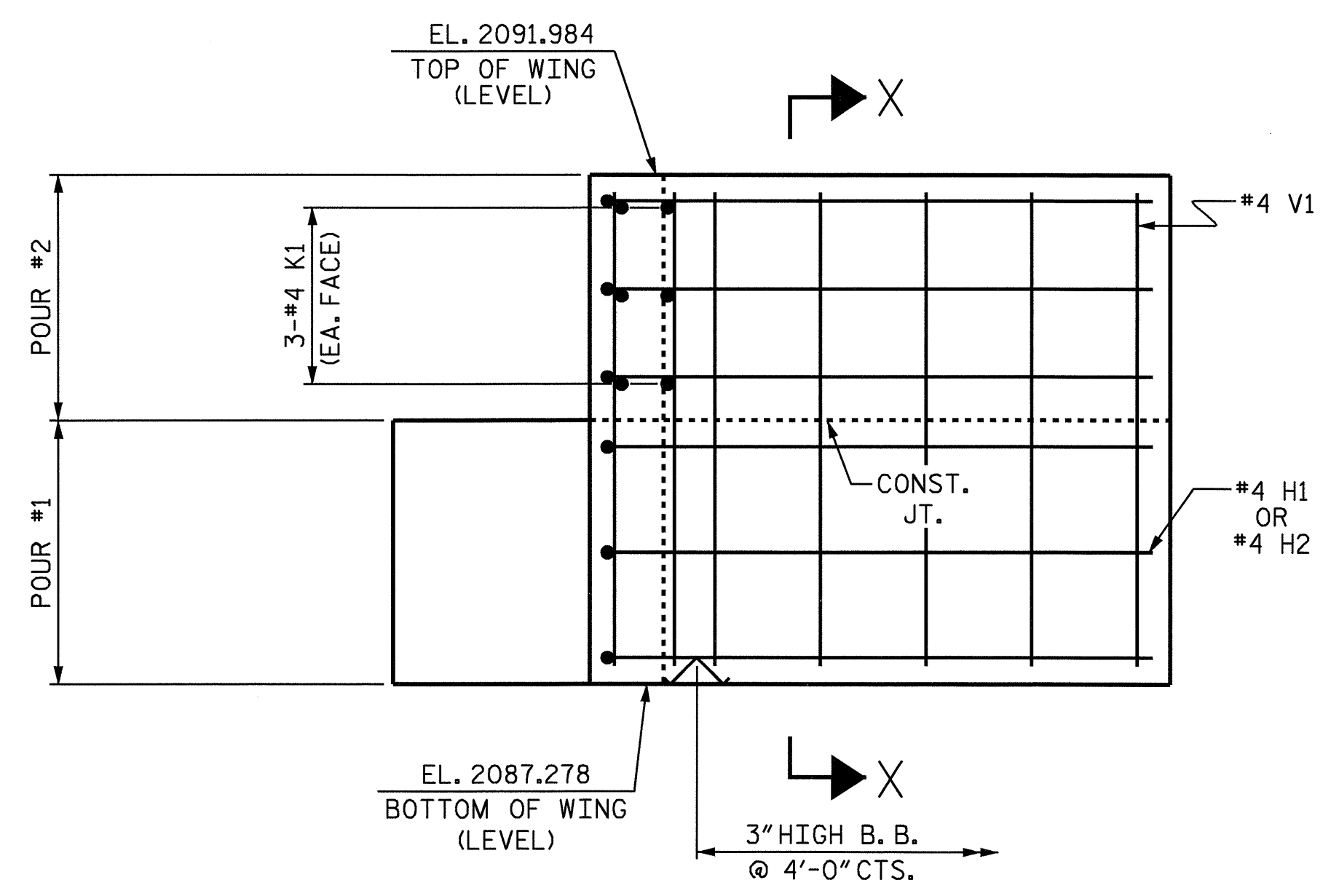
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			17
2			4			



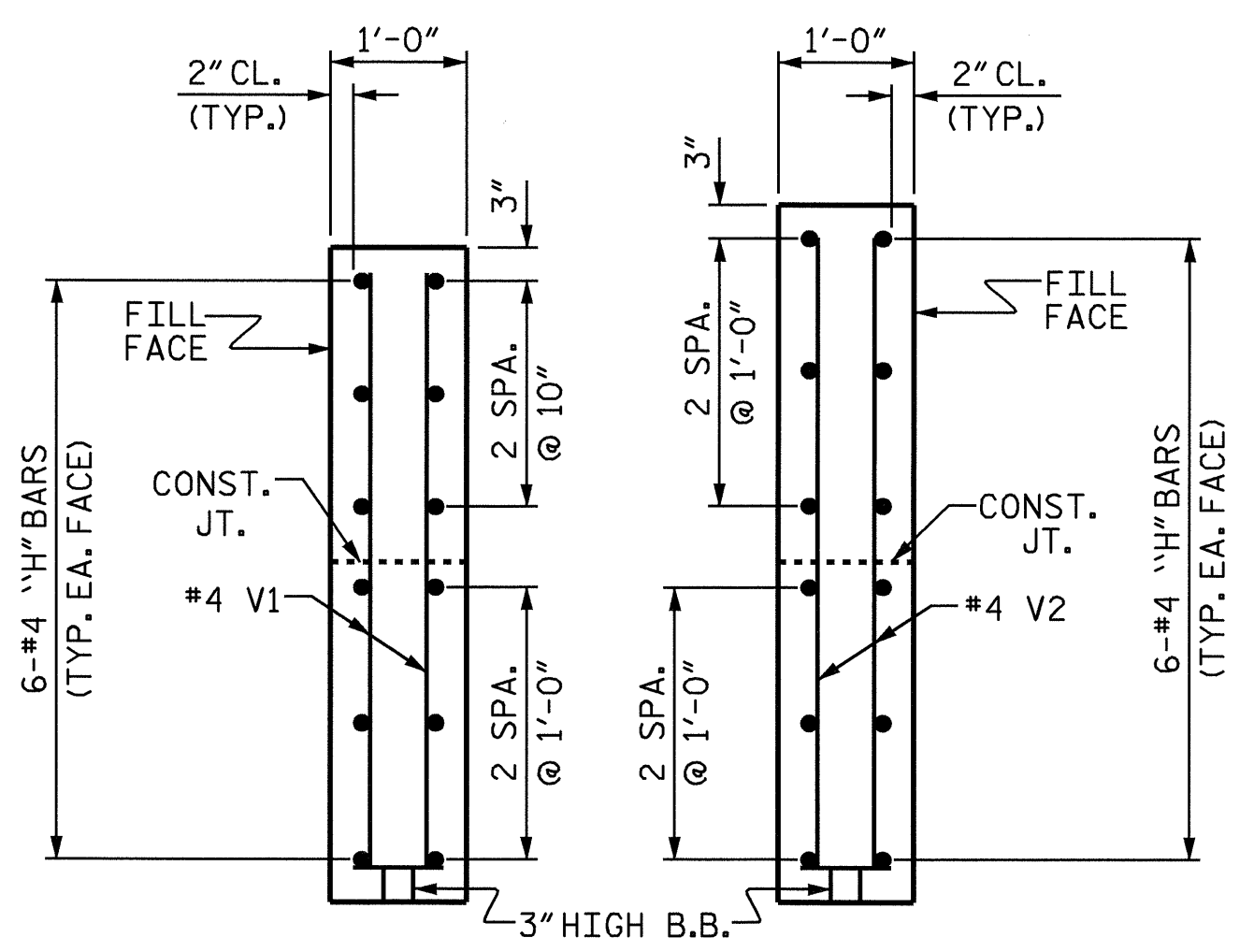
PLAN OF WING-W1



PLAN OF WING-W2

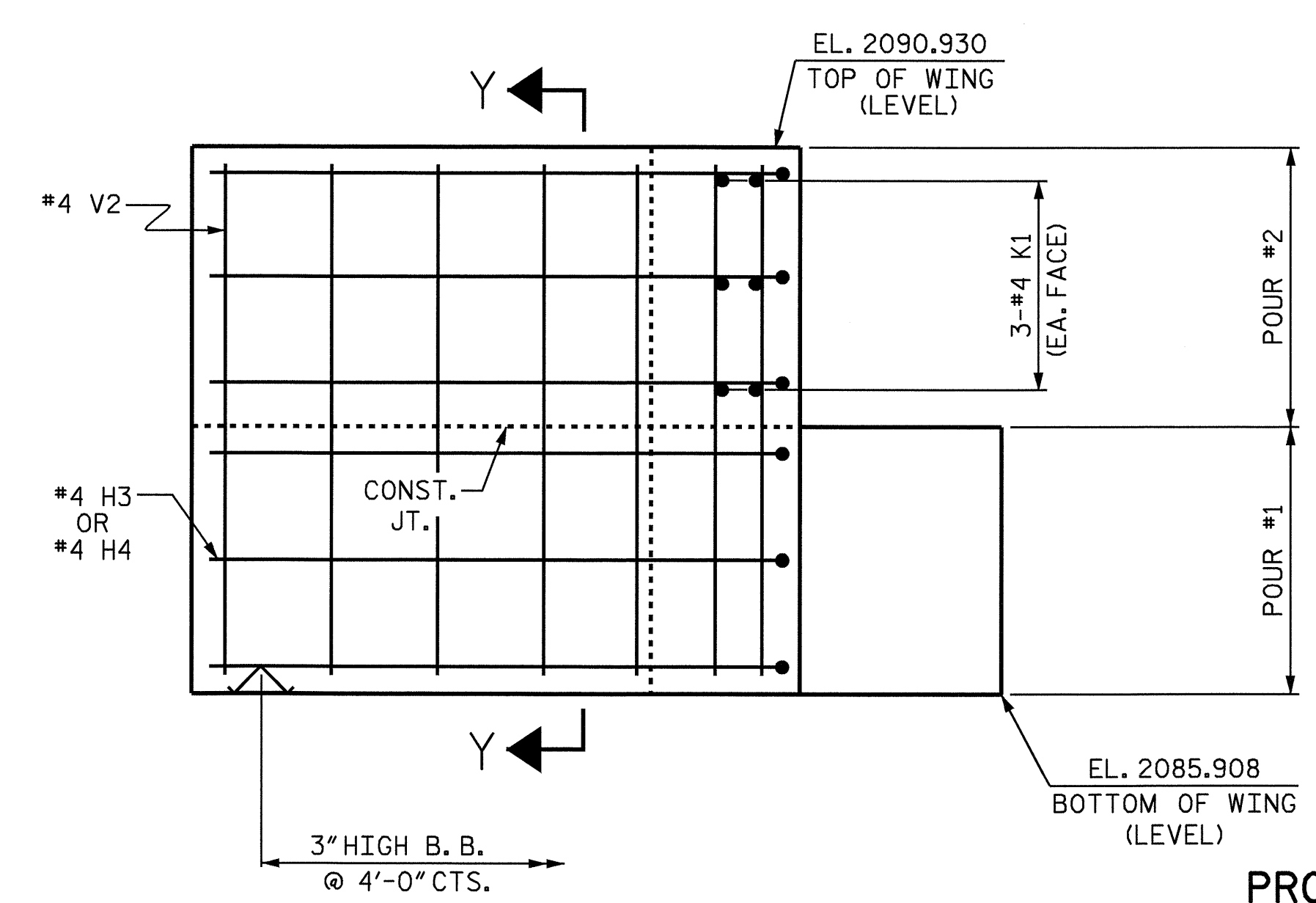


ELEVATION OF WING-W1



SECTION X-X

SECTION Y-Y



ELEVATION OF WING-W2

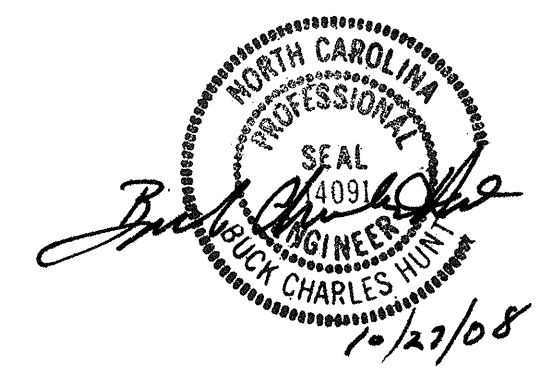
PROJECT NO. B-4148
 HENDERSON COUNTY
 STATION: 15+70.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

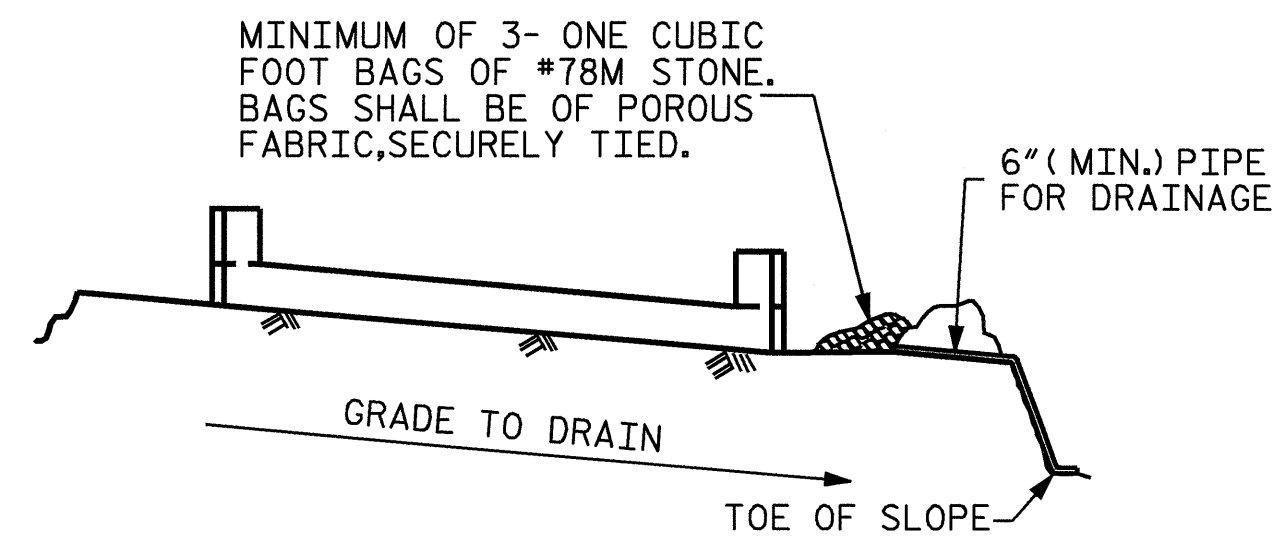
SUBSTRUCTURE
 END BENT #1

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



DRAWN BY: R. G. EMERSON DATE: 03/08
 CHECKED BY: J. P. ADAMS DATE: 08/08

24-OCT-2008 10:50
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 wkfischer



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

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

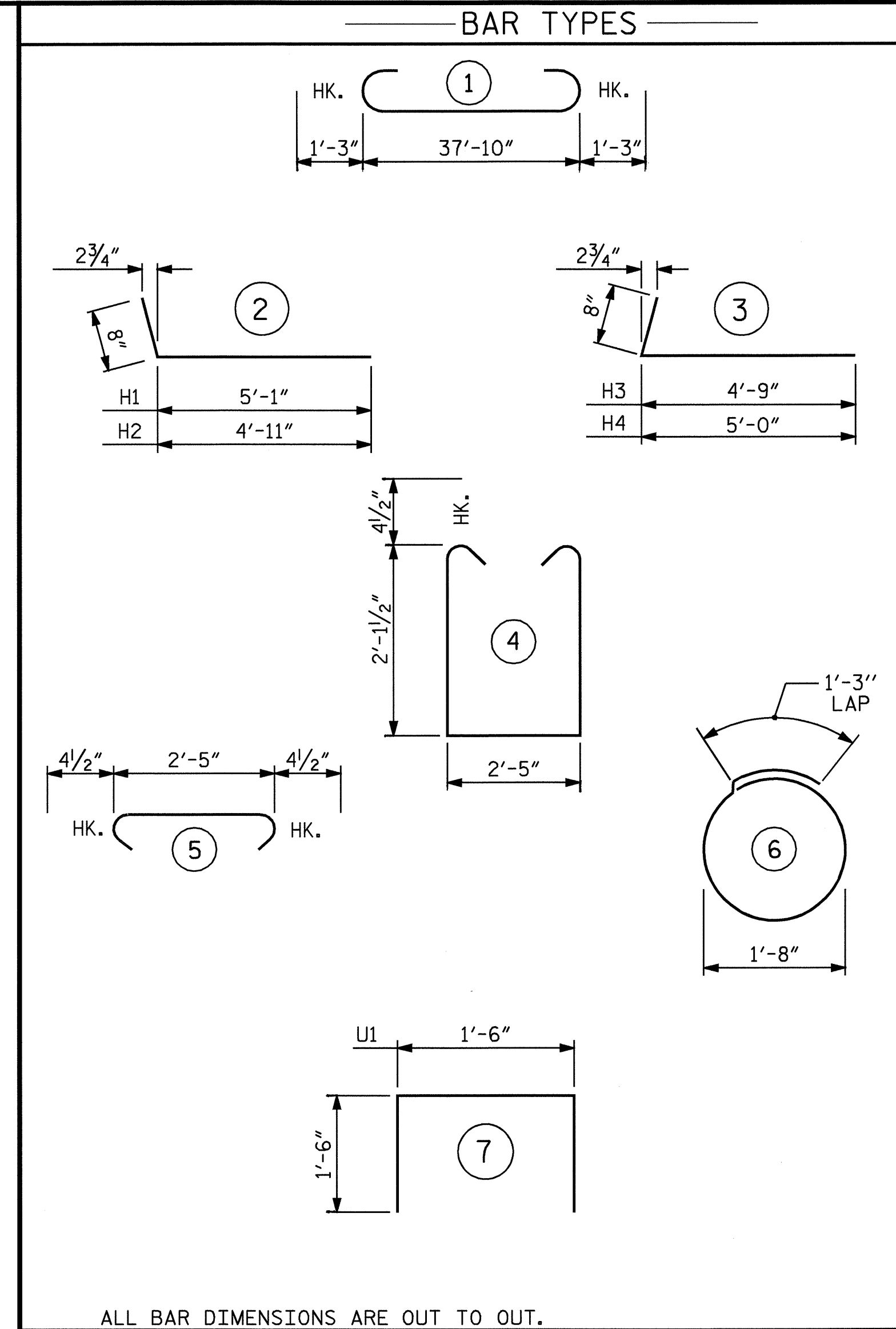
TOE OF SLOPE

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

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

TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #1

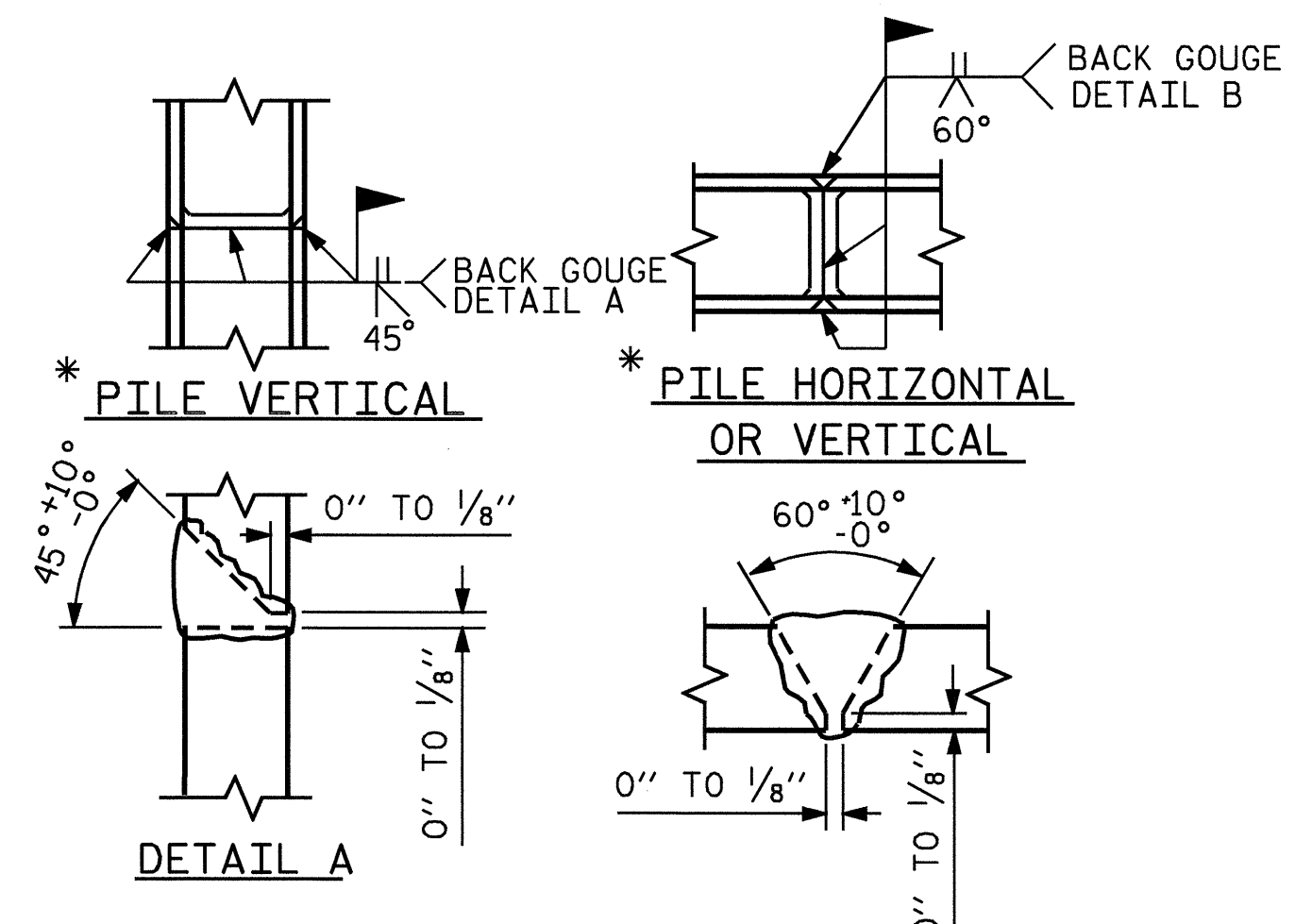
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		40'-4"	1097
B2	12	#4	STR	20'-3"	162
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	6	#4	2	5'-9"	23
H2	6	#4	2	5'-7"	22
H3	6	#4	3	5'-5"	22
H4	6	#4	3	5'-8"	23
K1	12	#4	STR	3'-1"	25
S1	38	#4	4	7'-5"	188
S2	38	#4	5	3'-2"	80
S3	10	#4	6	6'-6"	43
U1	4	#4	7	4'-6"	12
V1	20	#4	STR	4'-4"	58
V2	20	#4	STR	4'-8"	62

REINFORCING STEEL 1877

CLASS "A" CONCRETE BREAKDOWN

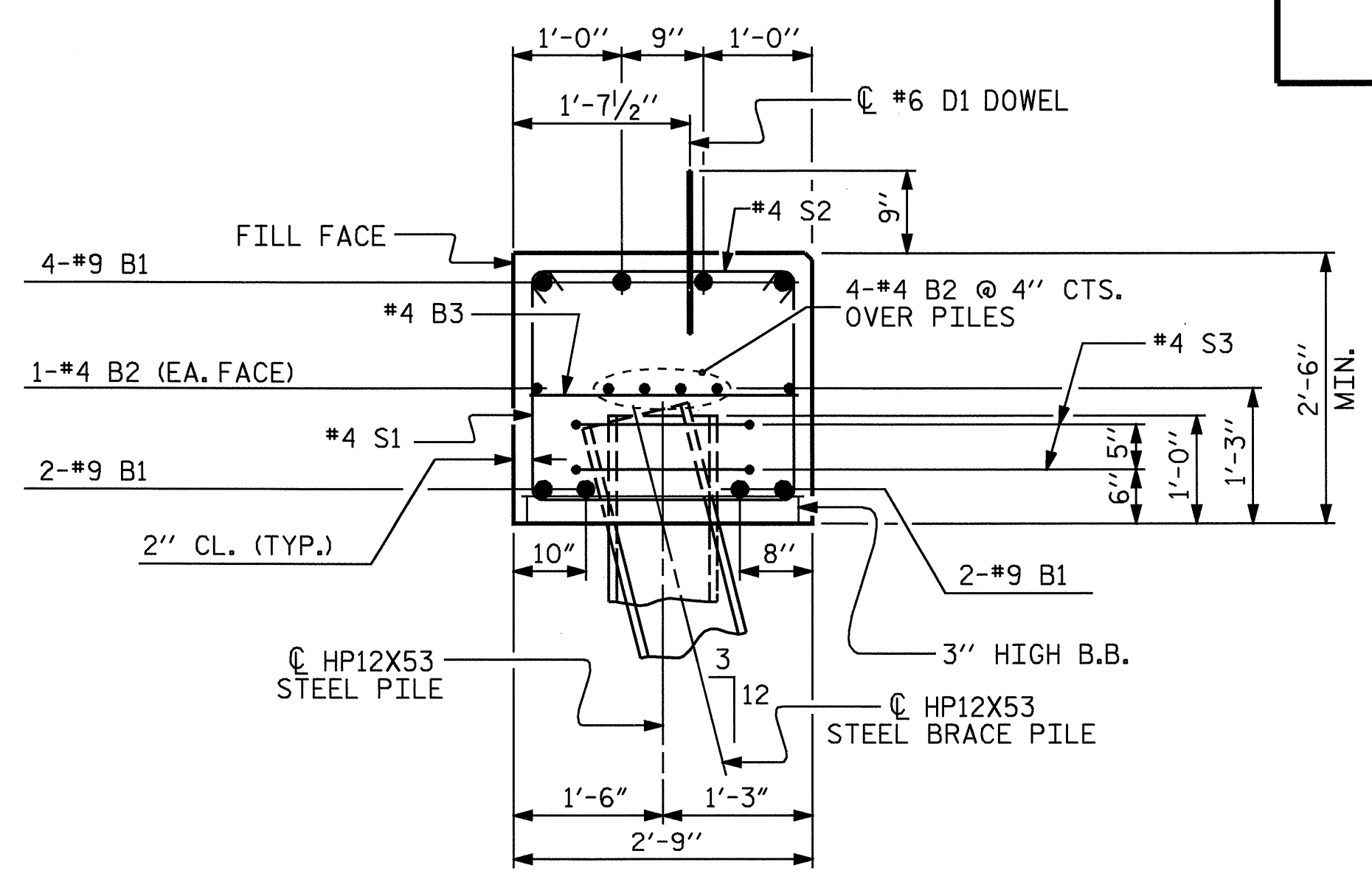
POUR #1 CAP & LOWER WINGS	CU. YDS.	10.6
POUR #2 UPPER WINGS	CU. YDS.	1.4
POUR #3 LATERAL GUIDES	CU. YDS.	0.1
CLASS "A" CONCRETE TOTAL	CU. YDS.	12.1

HP12X53 STEEL PILES NO. 5 LIN. FT. 150



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

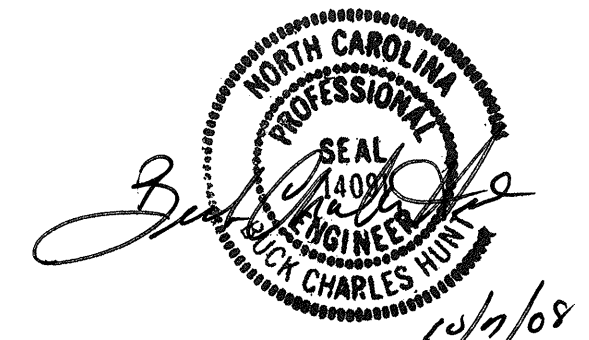


SECTION THRU CAP

PROJECT NO. B-4148
 HENDERSON COUNTY
 STATION: 15+70.50 -L-

SHEET 3 OF 3

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



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	17
2			4				

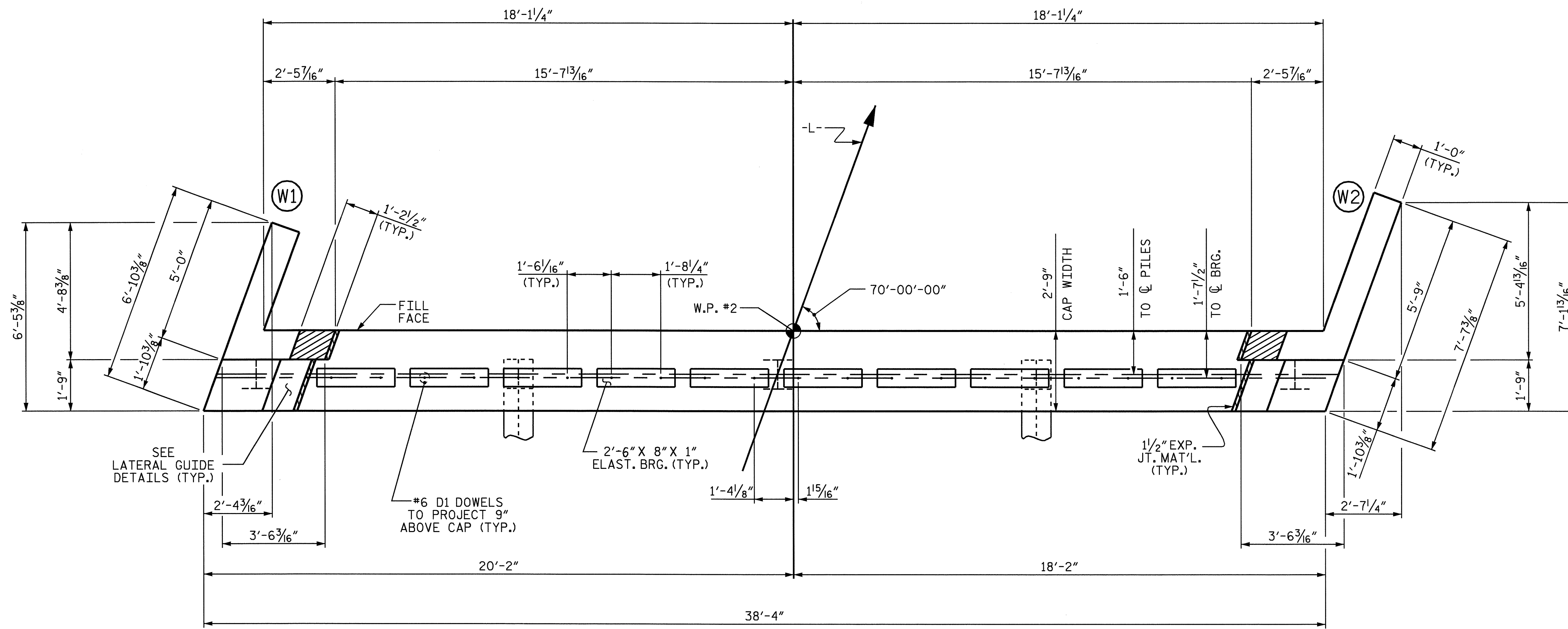
DRAWN BY: R. G. EMERSON DATE: 03/08
 CHECKED BY: J. P. ADAMS DATE: 08/08

NOTES

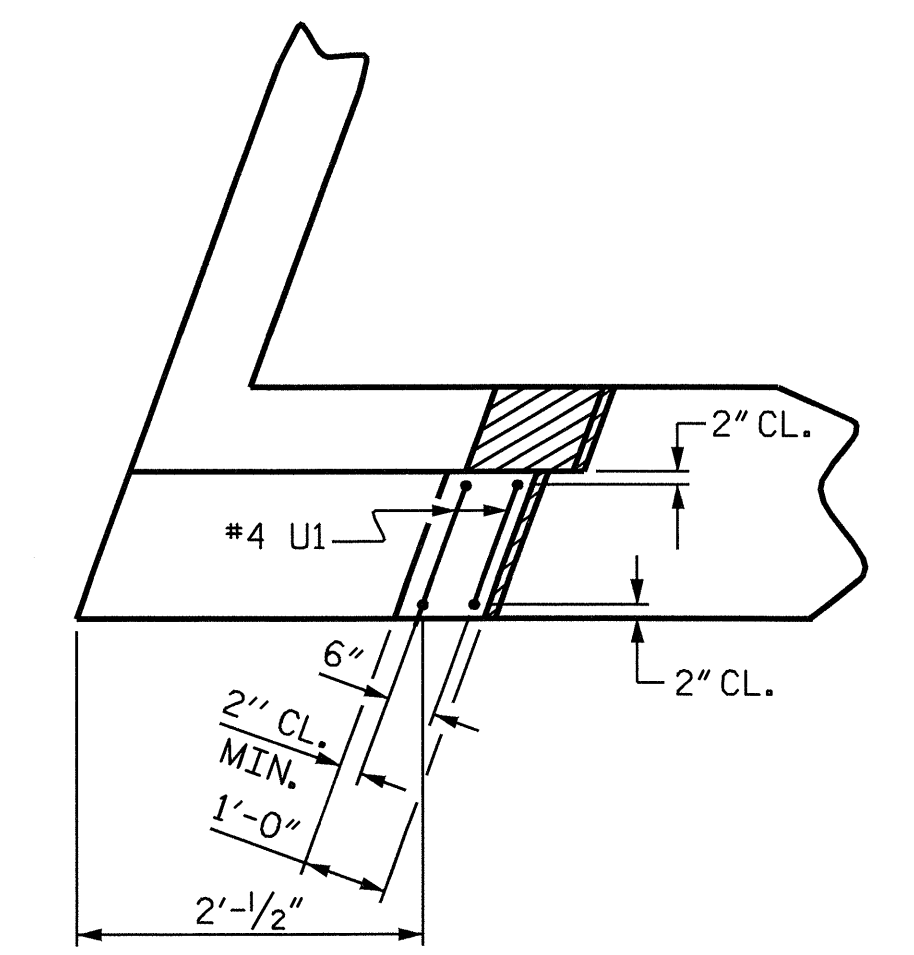
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST.

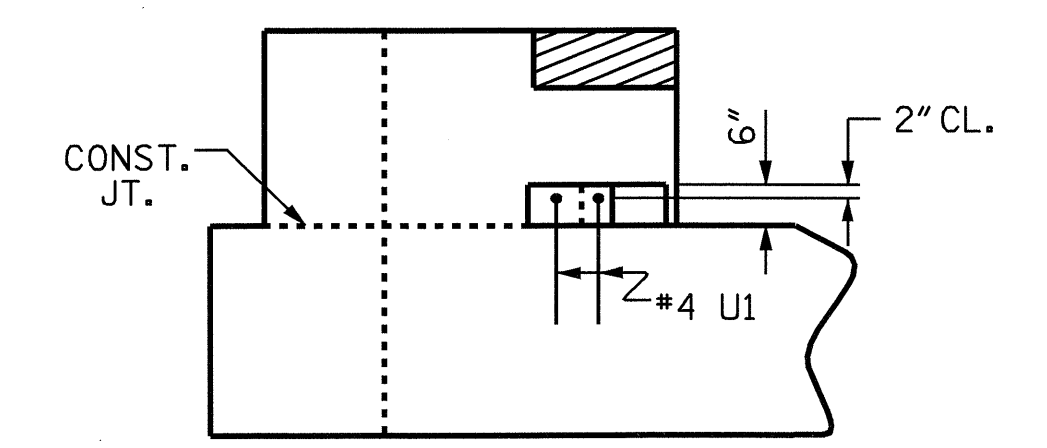
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.



PLAN



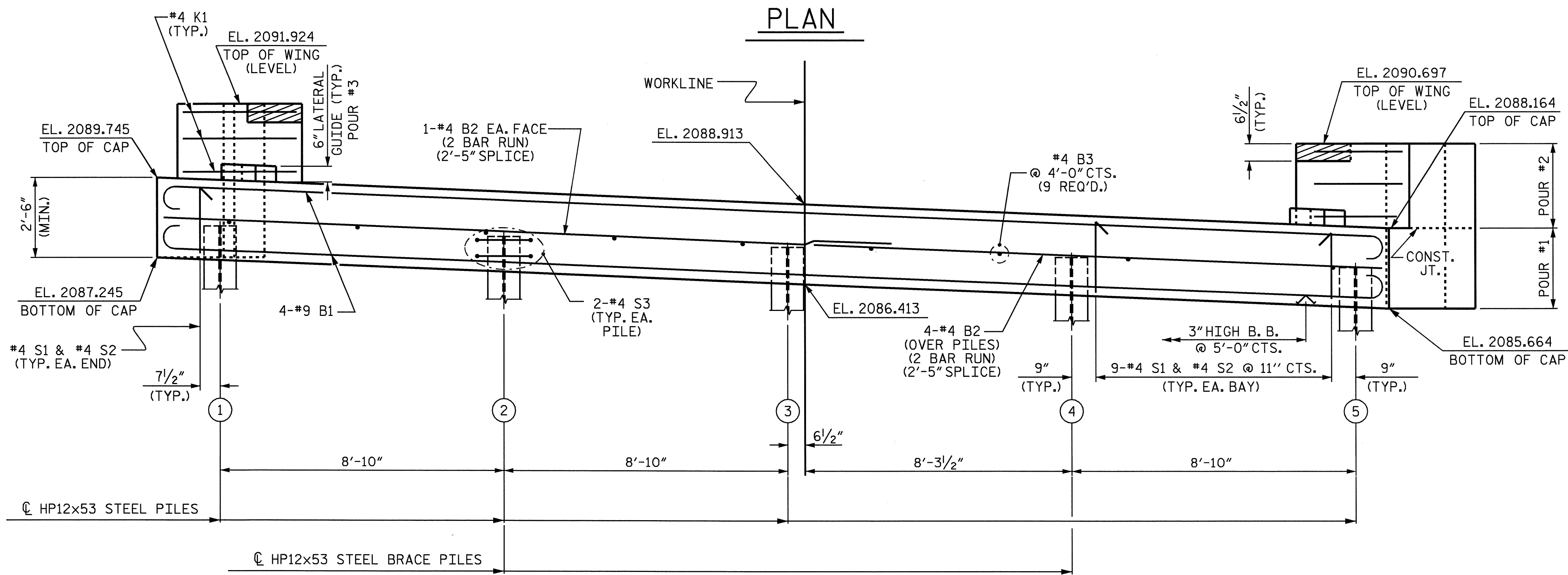
PLAN



ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)



ELEVATION

TOP OF PILE ELEVATIONS	
PILE No.	ELEVATION
1	2088.202
2	2087.837
3	2087.473
4	2087.109
5	2086.744

PROJECT NO. B-4148
 HENDERSON COUNTY
 STATION: 15+70.50 -L-

SHEET 1 OF 3

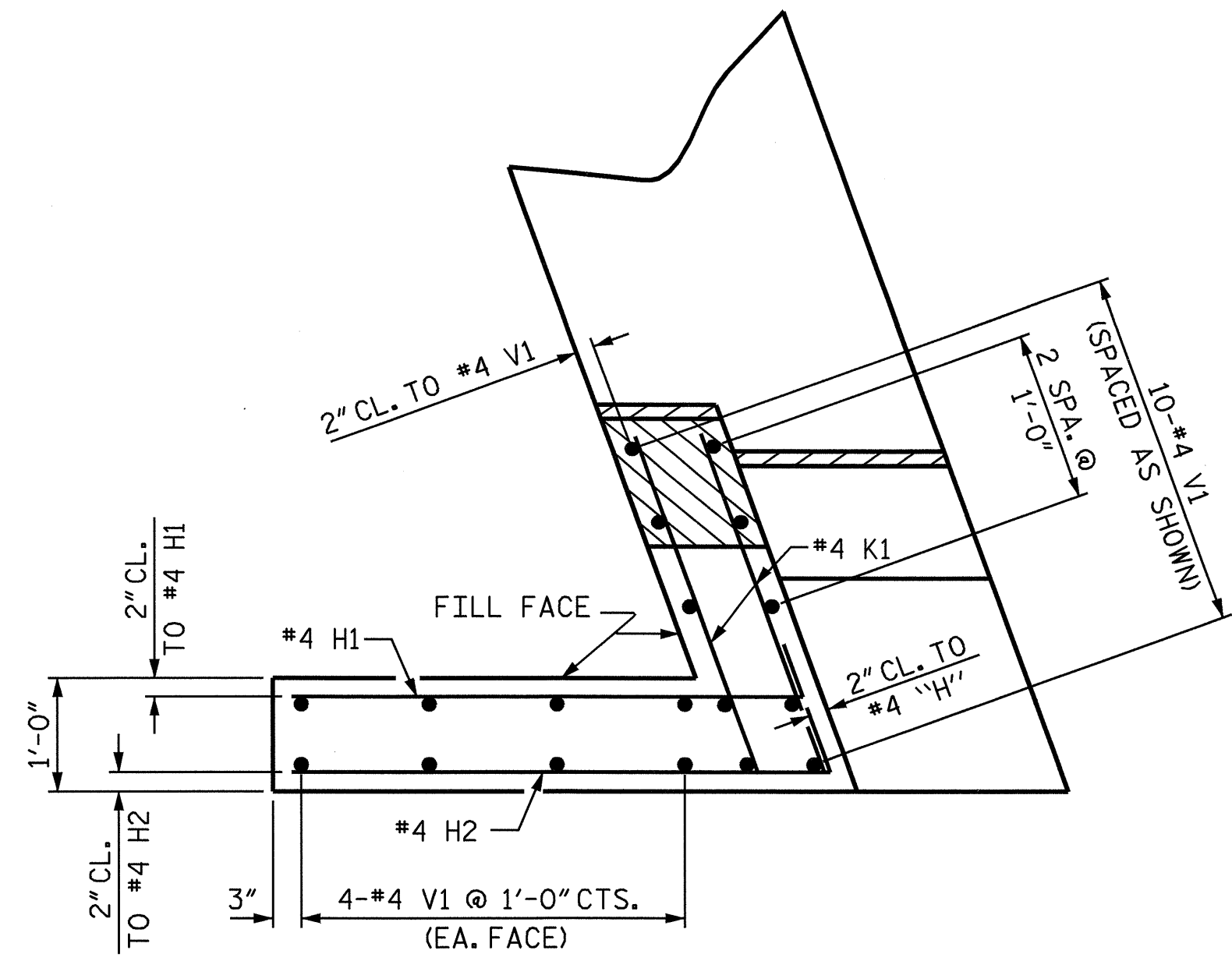
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2



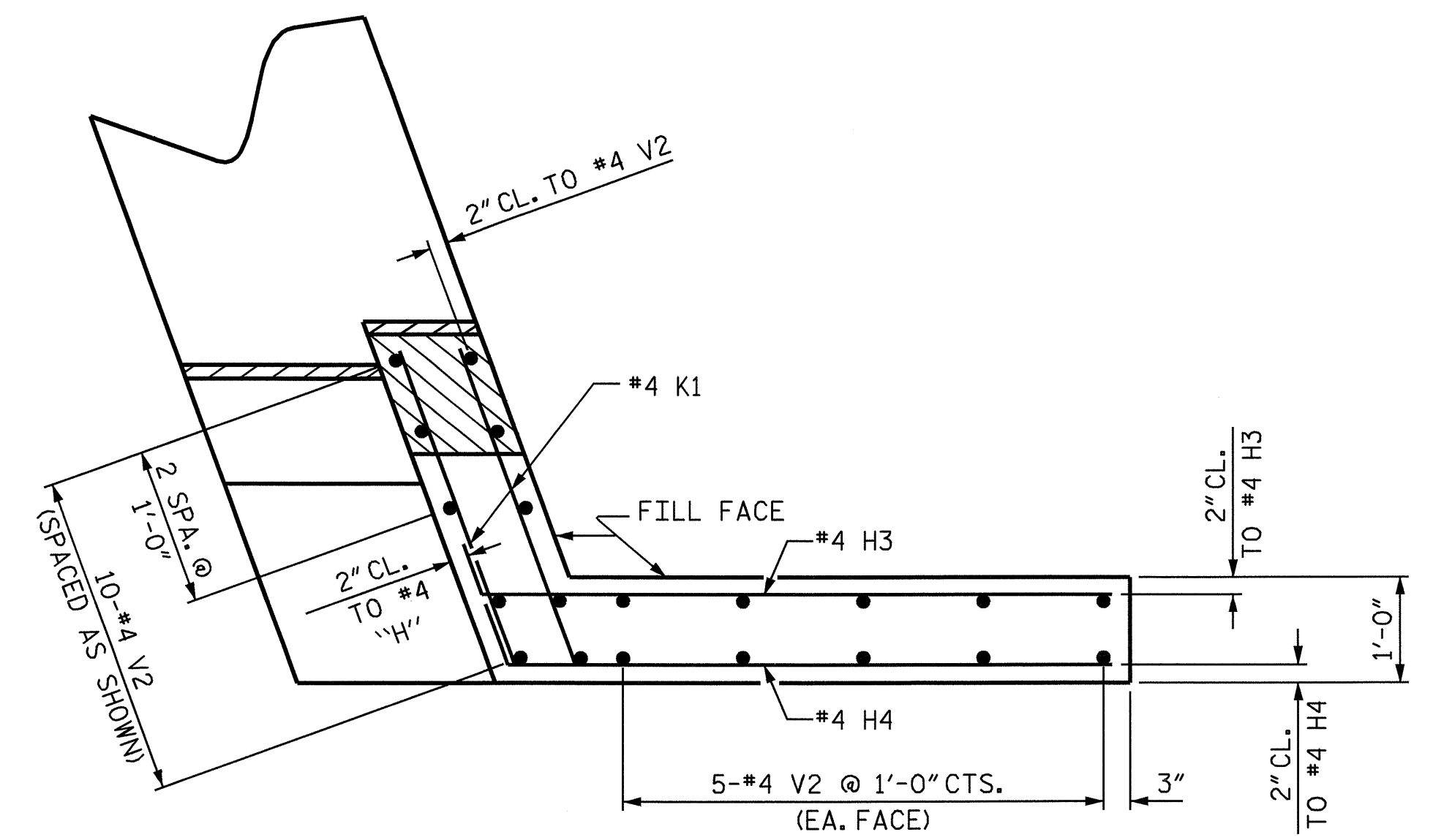
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			17
2			4			

DRAWN BY: R. G. EMERSON DATE: 03/08
 CHECKED BY: J. P. ADAMS DATE: 08/08

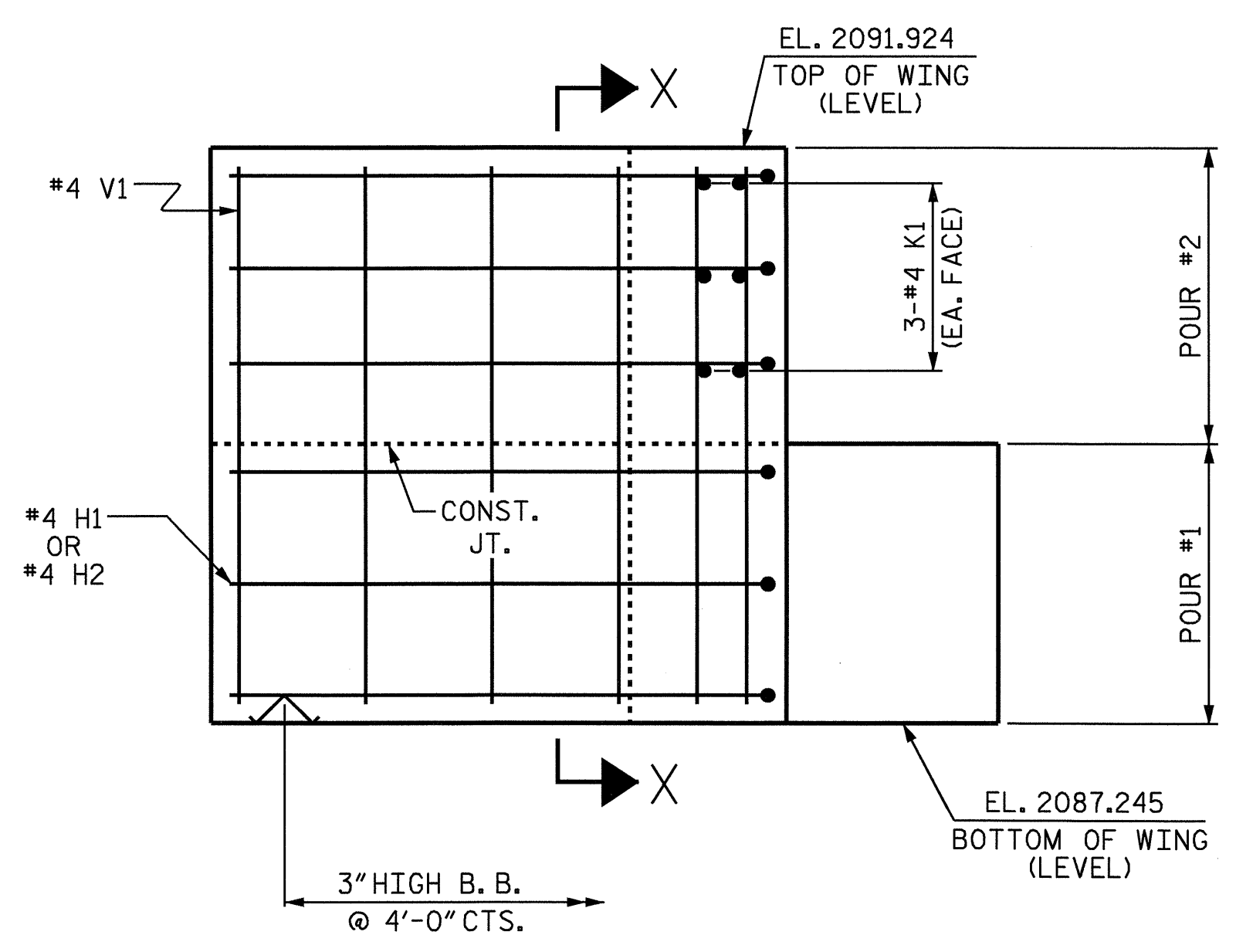
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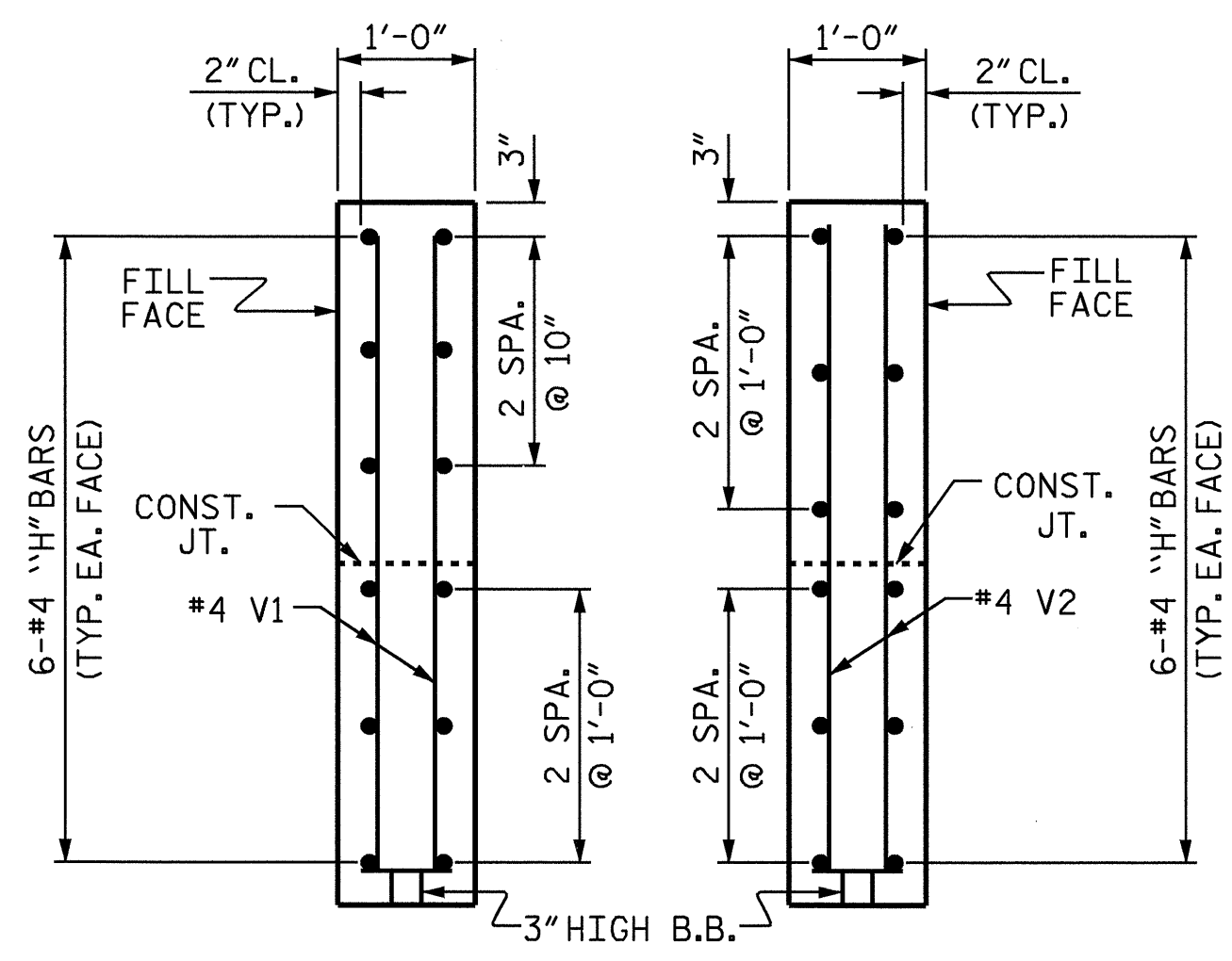
PLAN OF WING-W1



PLAN OF WING-W2

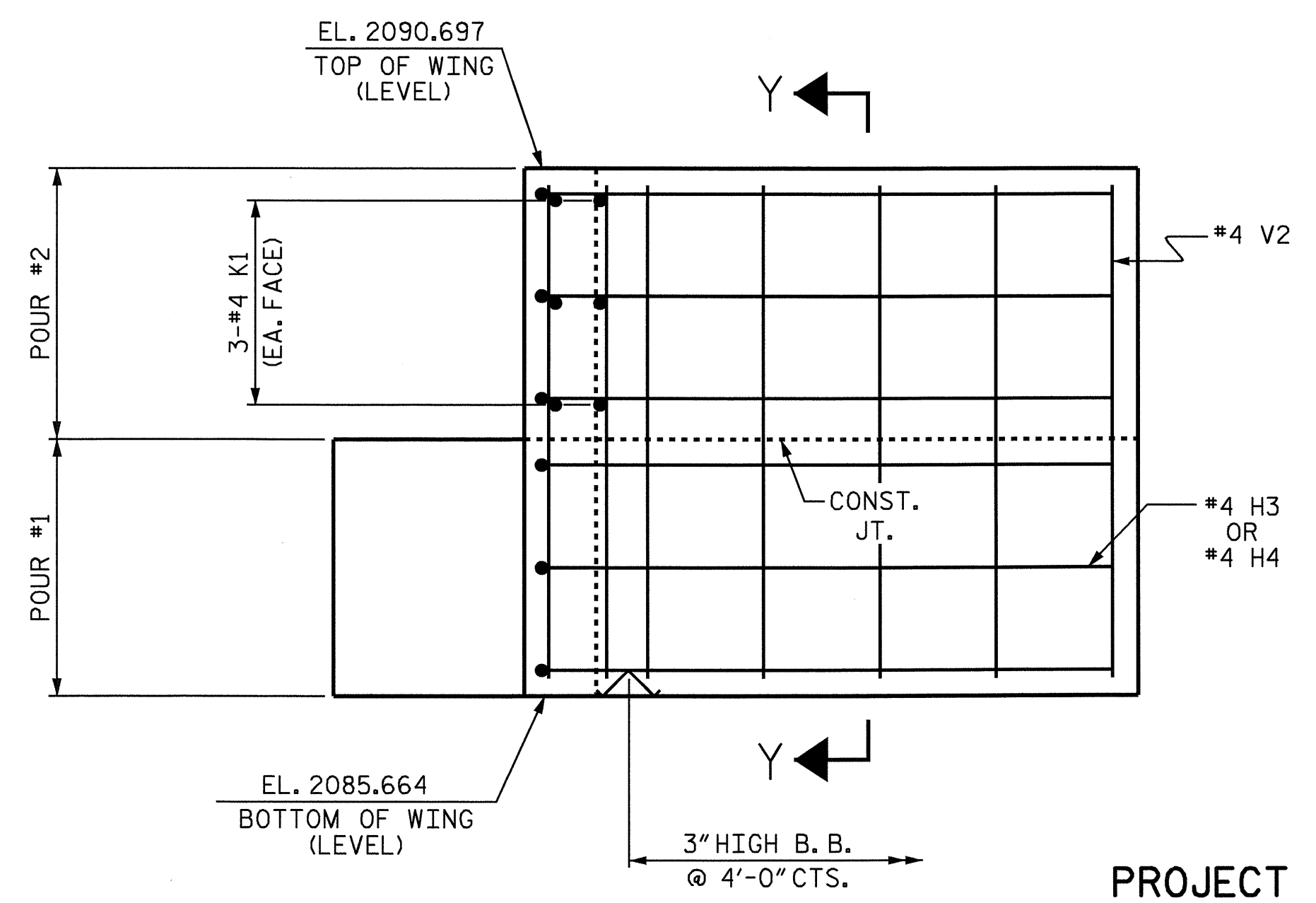


ELEVATION OF WING-W1



SECTION X-X

SECTION Y-Y



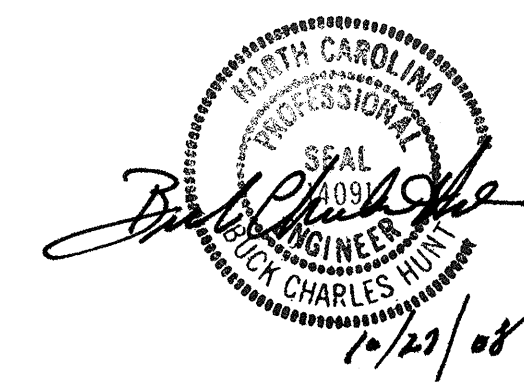
ELEVATION OF WING-W2

PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-

SHEET 2 OF 3

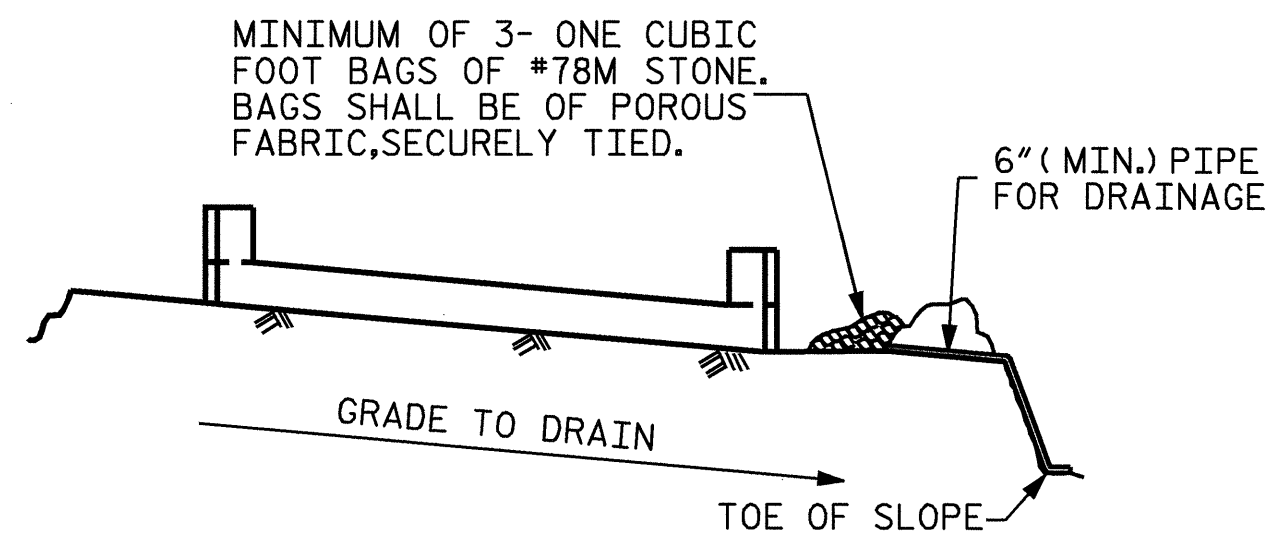
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			17



DRAWN BY : R. G. EMERSON DATE : 03/08
 CHECKED BY : J. P. ADAMS DATE : 08/08

24-OCT-2008 10:40
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 wkfischer



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

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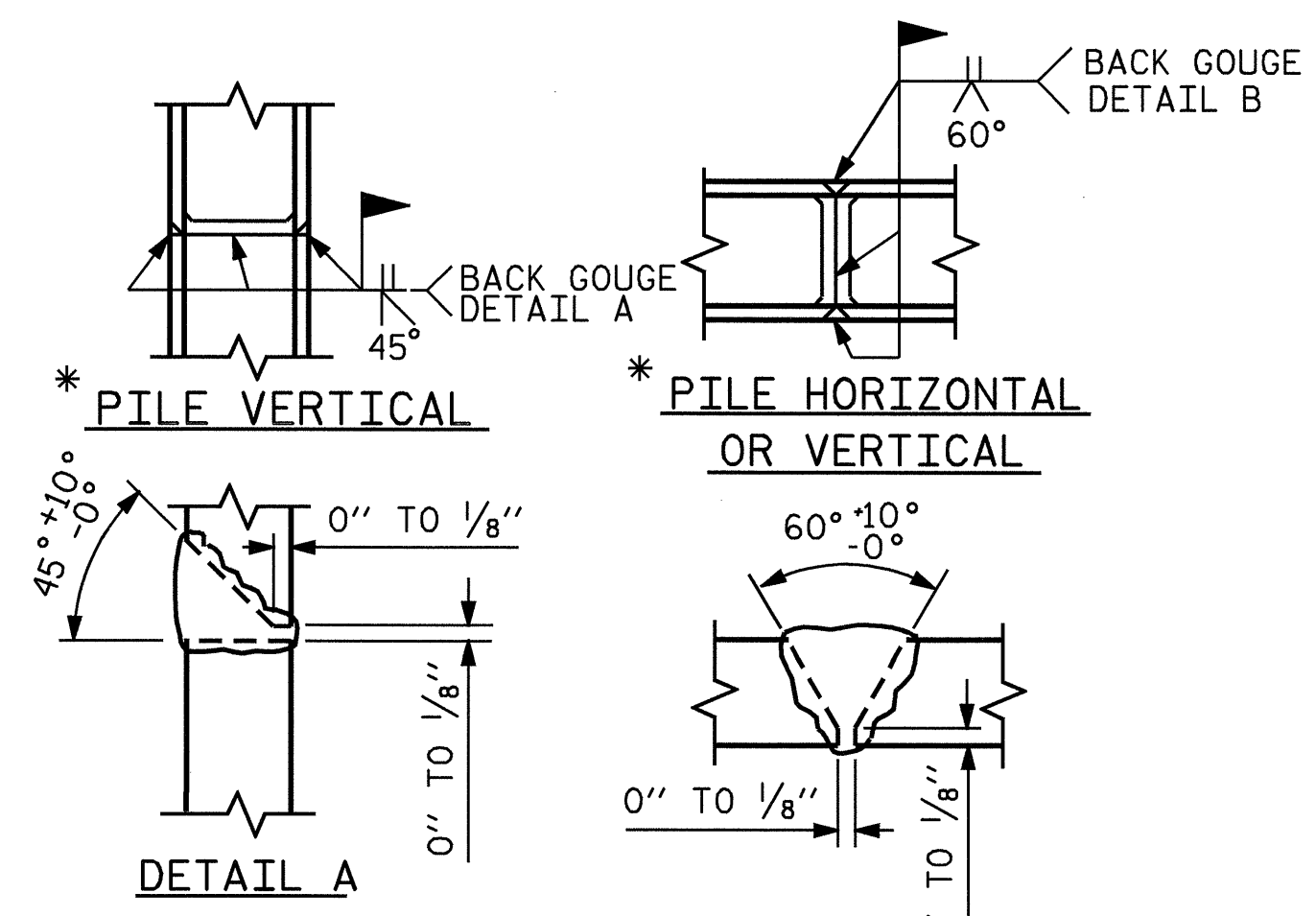
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

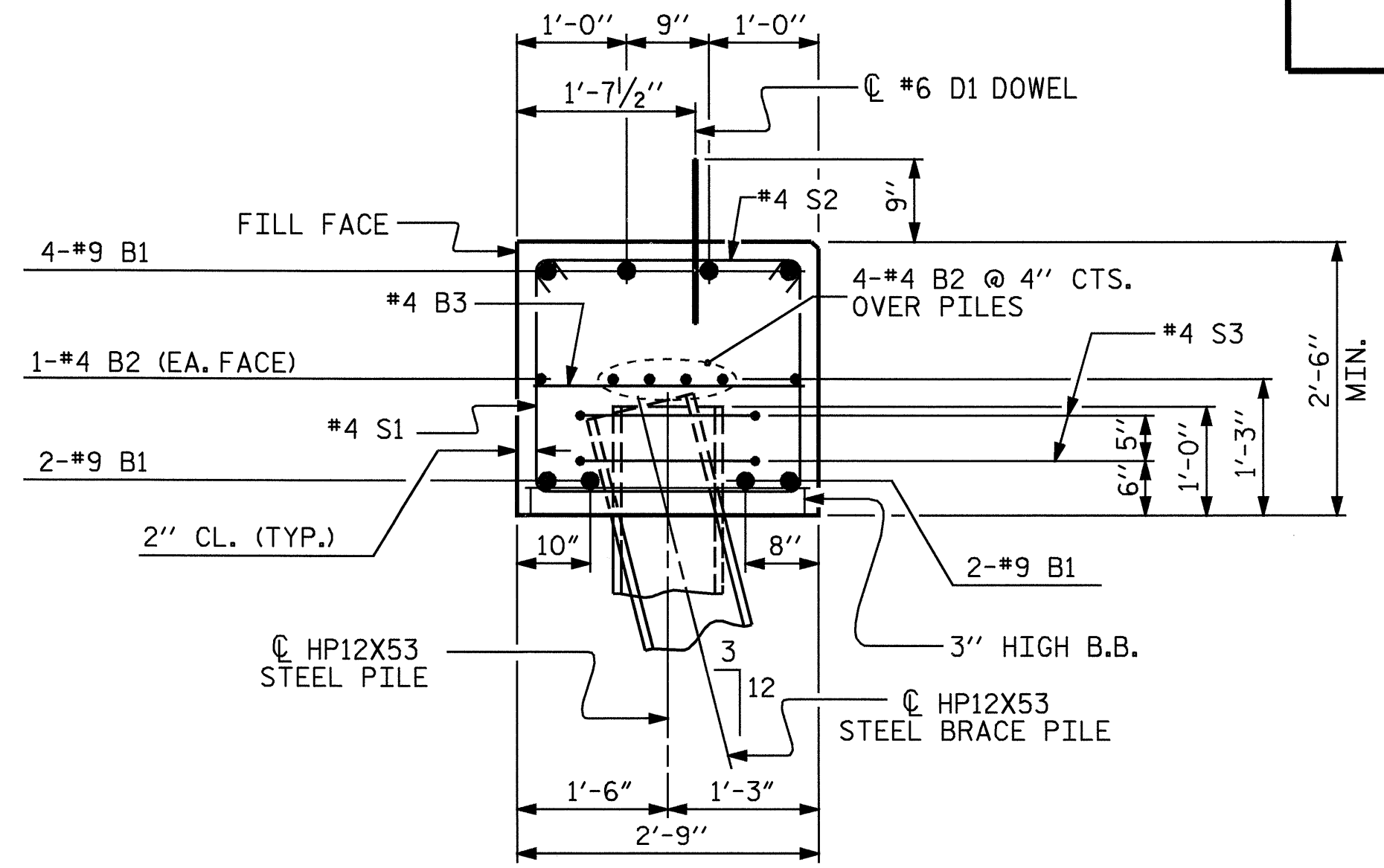
BILL OF MATERIAL					
END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		40'-4"	1097
B2	12	#4	STR	20'-3"	162
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	6	#4	2	4'-11"	20
H2	6	#4	2	5'-2"	21
H3	6	#4	3	6'-3"	25
H4	6	#4	3	6'-1"	24
K1	12	#4	STR	3'-1"	25
S1	38	#4	4	7'-5"	188
S2	38	#4	5	3'-2"	80
S3	10	#4	6	6'-6"	43
U1	4	#4	7	4'-6"	12
V1	18	#4	STR	4'-4"	52
V2	20	#4	STR	4'-8"	62
REINFORCING STEEL					1871
CLASS "A" CONCRETE BREAKDOWN					
POUR #1 CAP & LOWER WINGS				CU. YDS.	10.4
POUR #2 UPPER WINGS				CU. YDS.	1.4
POUR #3 LATERAL GUIDES				CU. YDS.	0.1
CLASS "A" CONCRETE TOTAL				CU. YDS.	11.9
HP12X53 STEEL PILES NO. 5					LIN. FT. 125

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



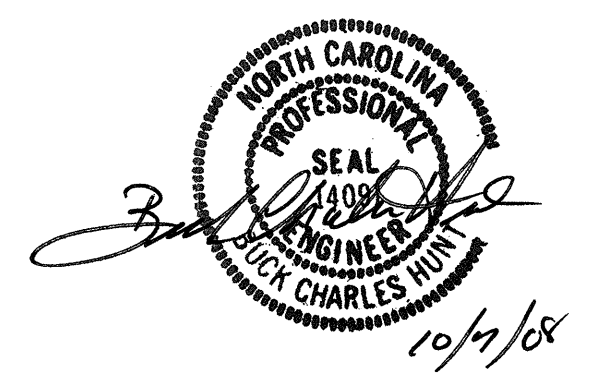
* POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS



SECTION THRU CAP

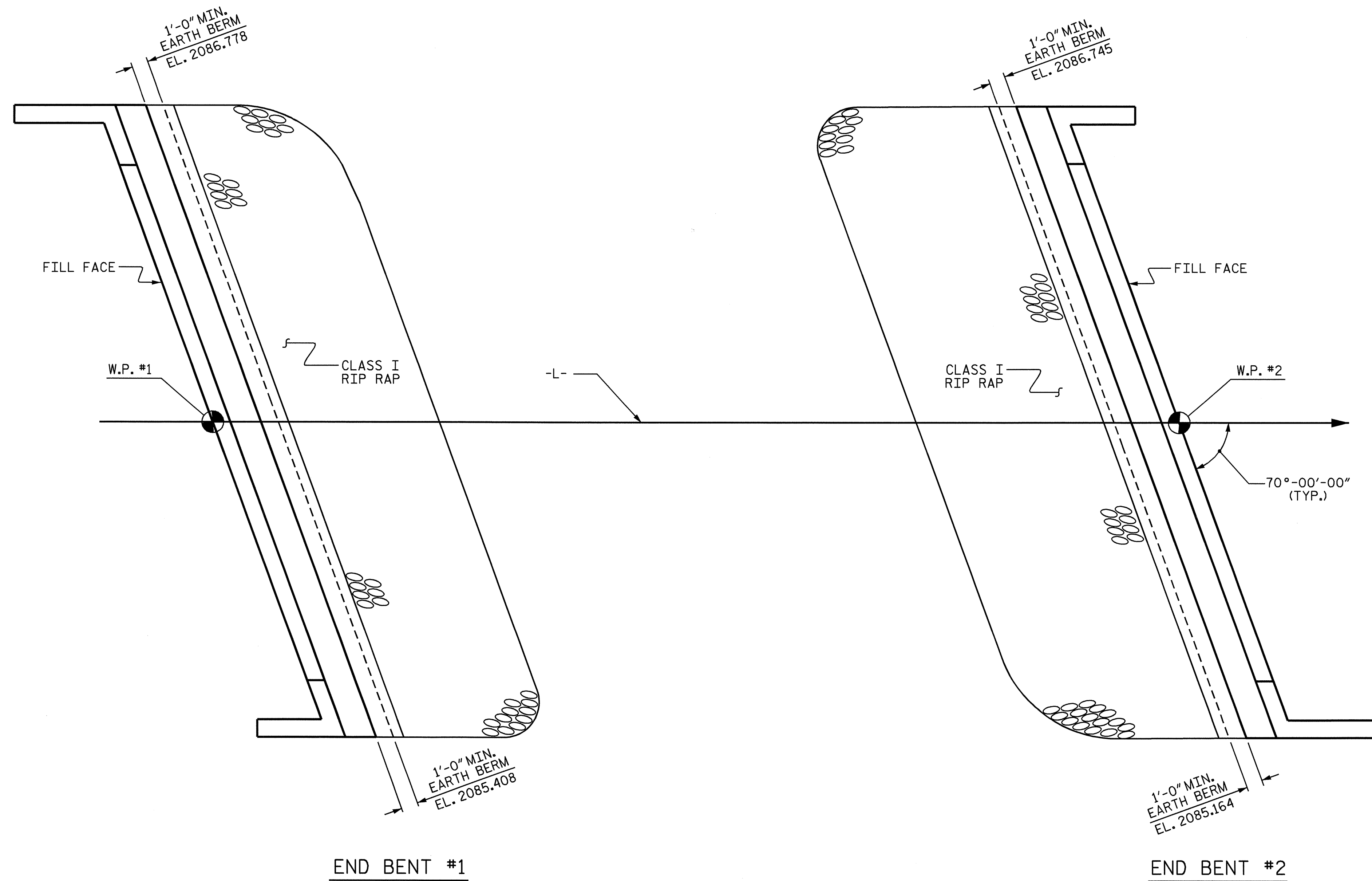
PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-

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



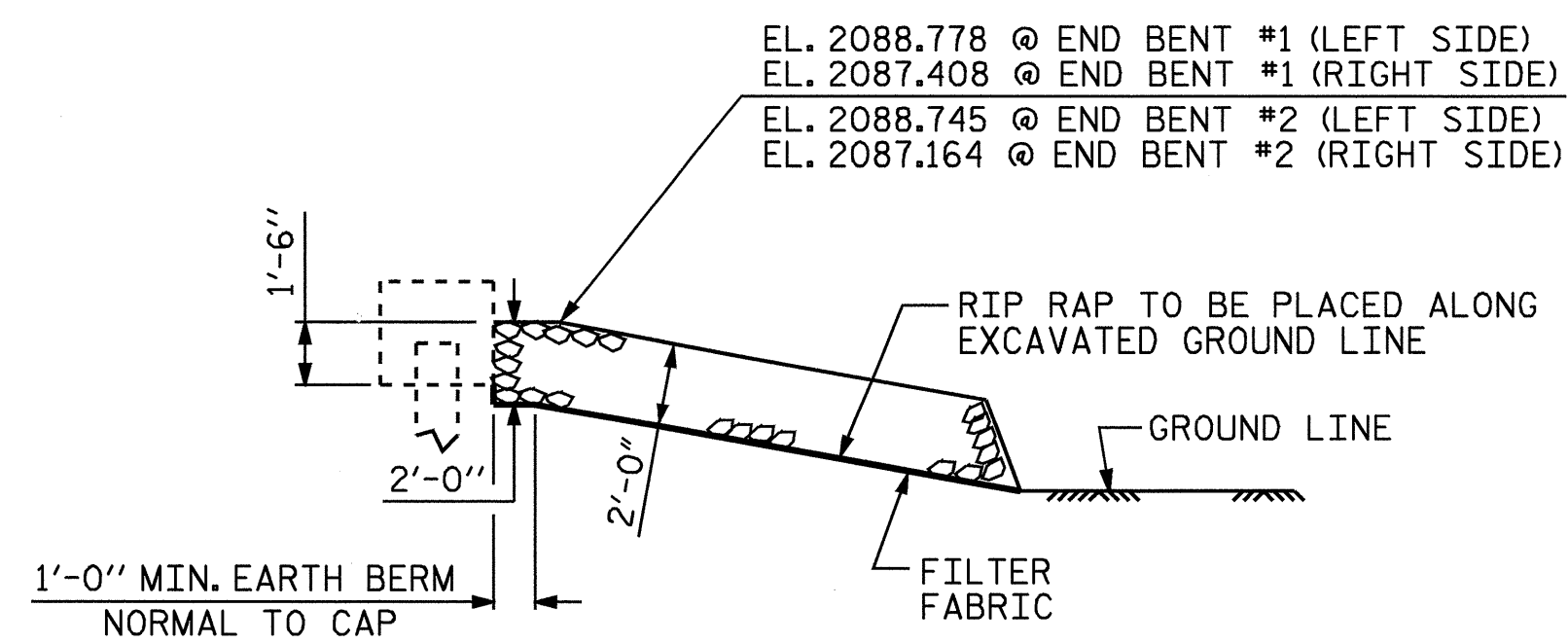
DRAWN BY: R. G. EMERSON DATE: 03/08
 CHECKED BY: J. P. ADAMS DATE: 08/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			17



PLAN

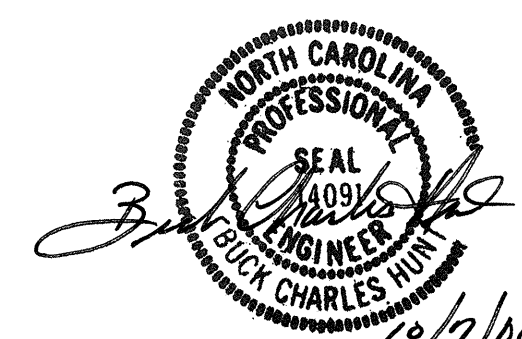
ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+70.50 -L-	RIP RAP CLASS I	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	38	42
END BENT #2	46	51



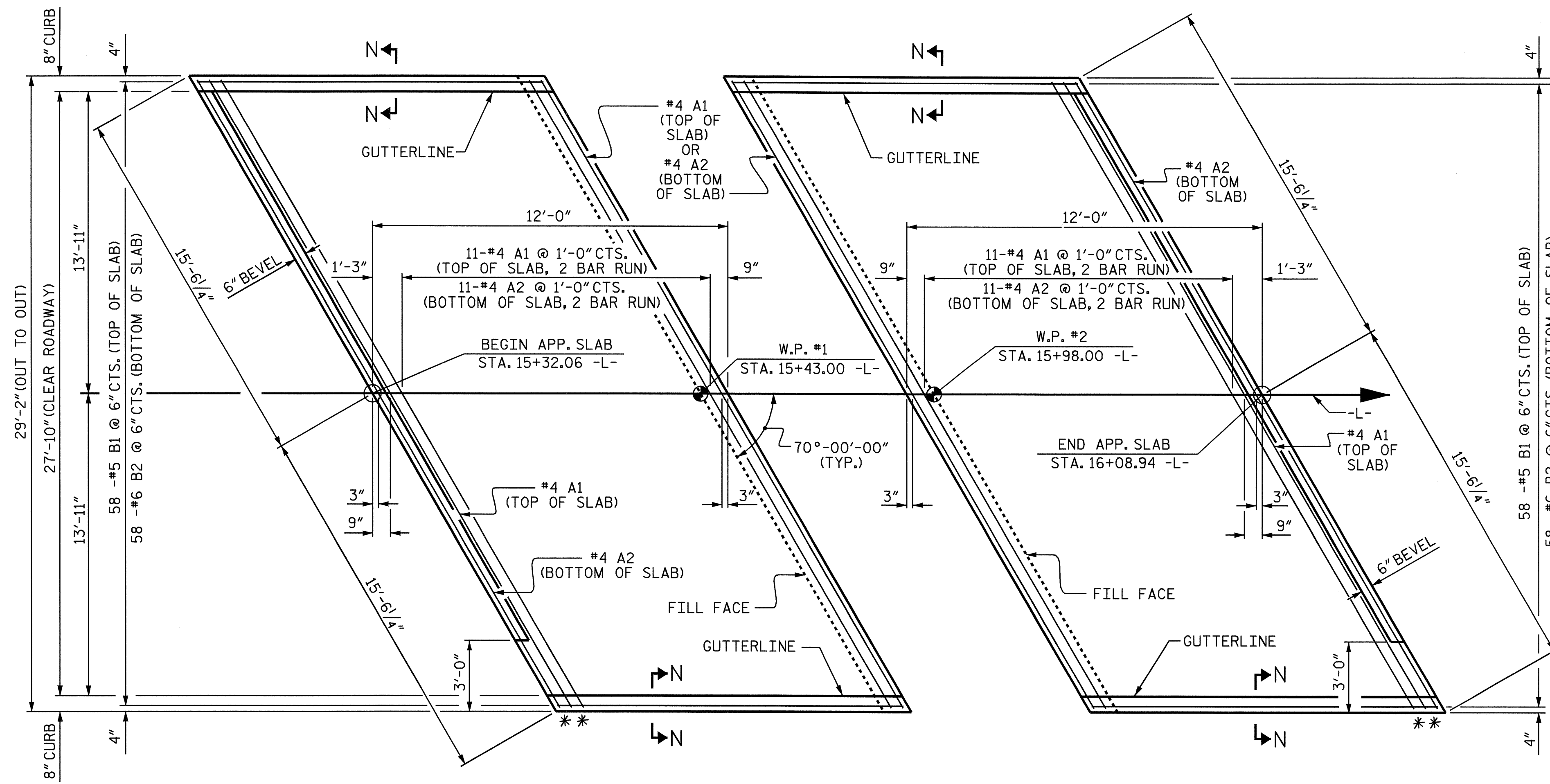
SECTION
BERM RIP RAPPED

PROJECT NO. B-4148
HENDERSON COUNTY
 STATION: 15+70.50 -L-

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

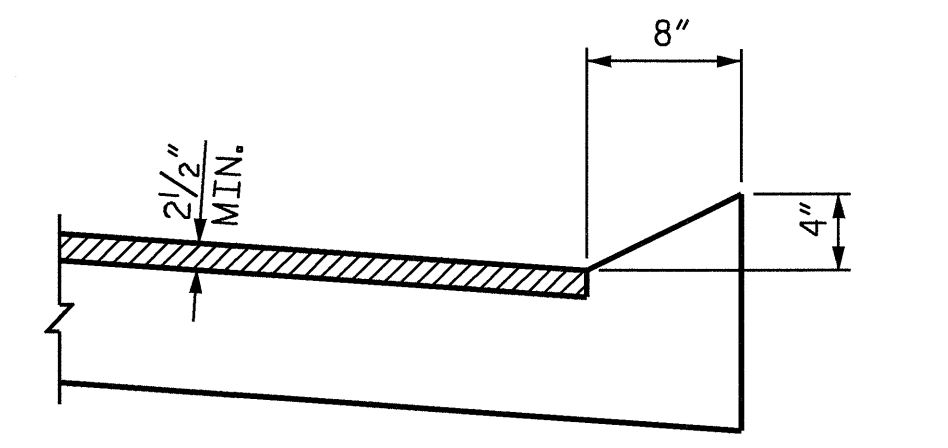


DRAWN BY: M.K. BEARD DATE: 8/8/08
 CHECKED BY: J.P. ADAMS DATE: 8/13/08

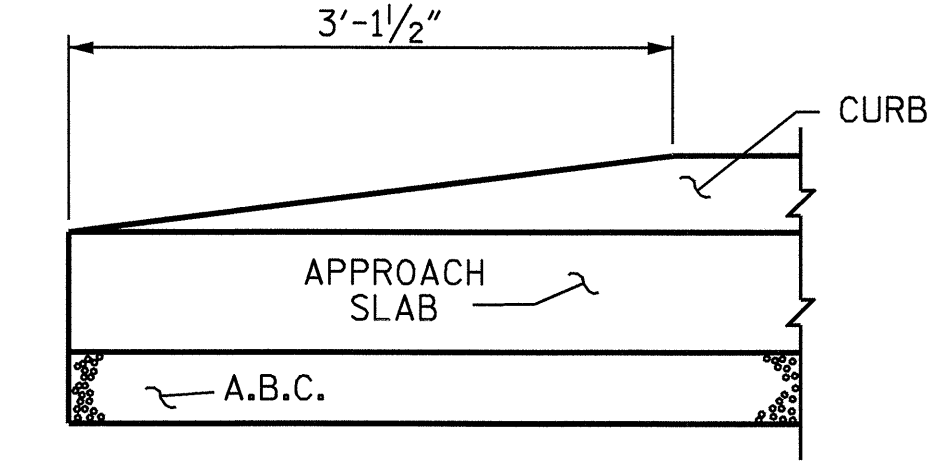


PLAN @ END BENT #1
 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

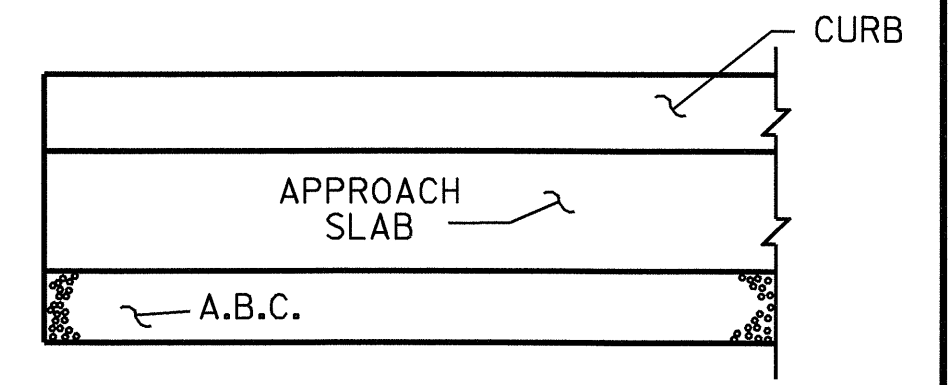
SPLICE CHART	
#4 A1	2'-0"
#4 A2	1'-9"



SECTION N-N



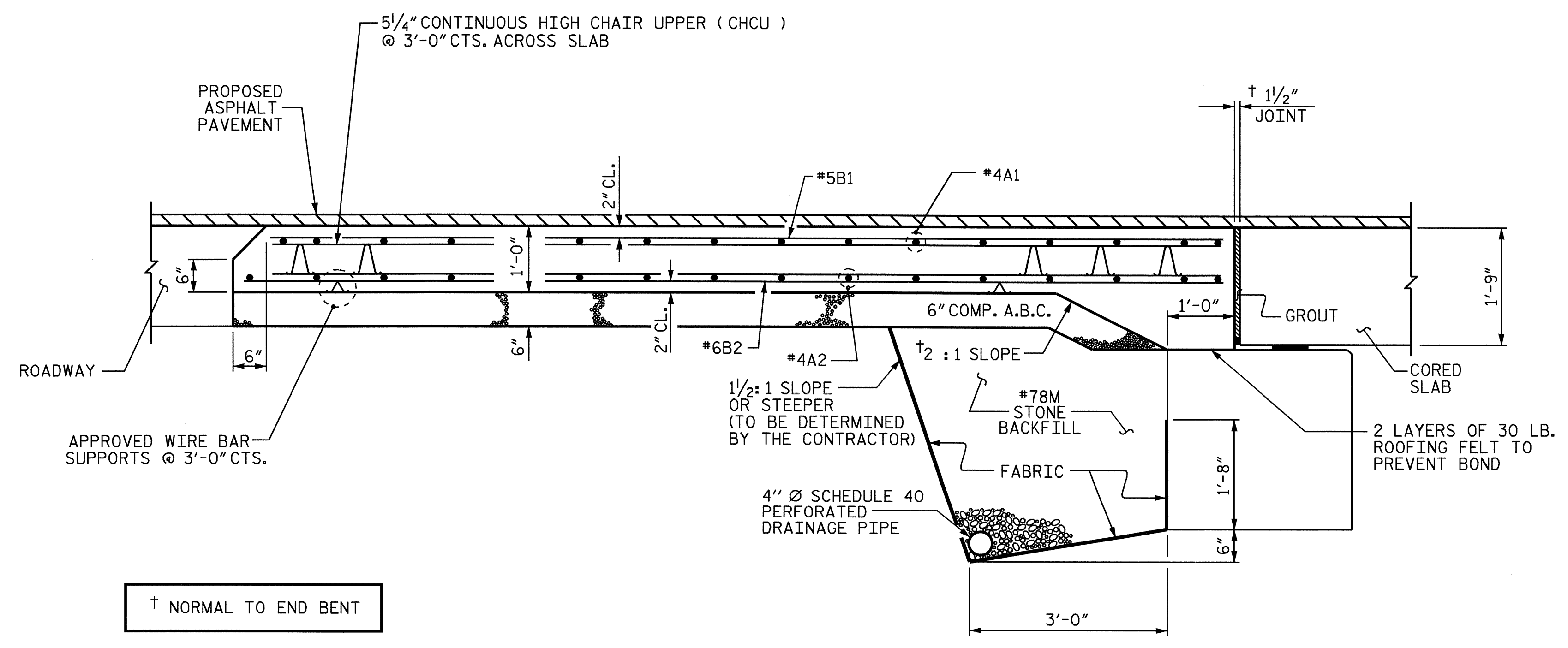
END OF CURB WITHOUT SHOULDER BERM GUTTER



** END OF CURB WITH SHOULDER BERM GUTTER

CURB DETAILS

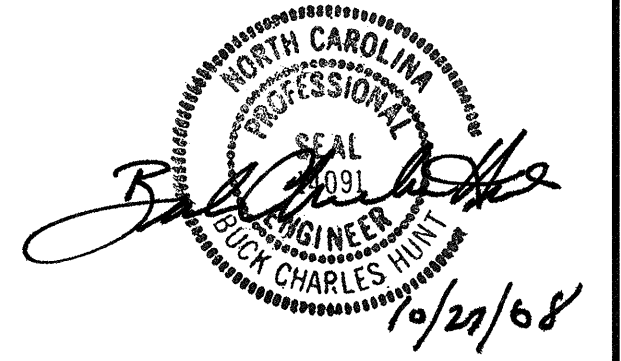
BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-5"	285
A2	26	#4	STR	16'-3"	282
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL					LBS. 1291
*EPOXY COATED REINFORCING STEEL					LBS. 955
CLASS AA CONCRETE					C. Y. 14.5
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	16'-5"	285
A2	26	#4	STR	16'-3"	282
*B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL					LBS. 1291
*EPOXY COATED REINFORCING STEEL					LBS. 955
CLASS AA CONCRETE					C. Y. 14.5



SECTION THRU SLAB

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.



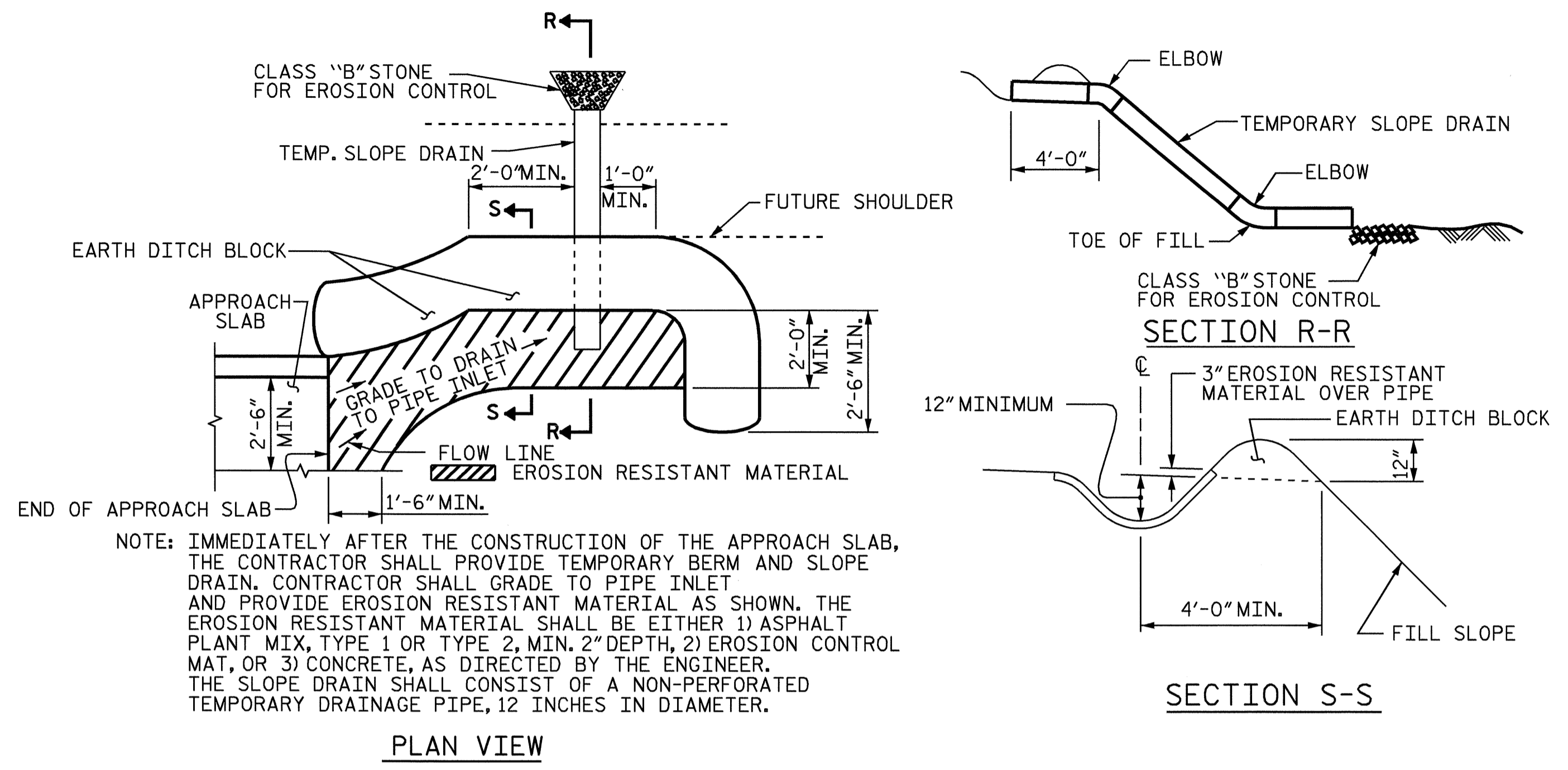
PROJECT NO. B-4148
 HENDERSON COUNTY
 STATION: 15+70.50 -L-

SHEET 1 OF 2

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

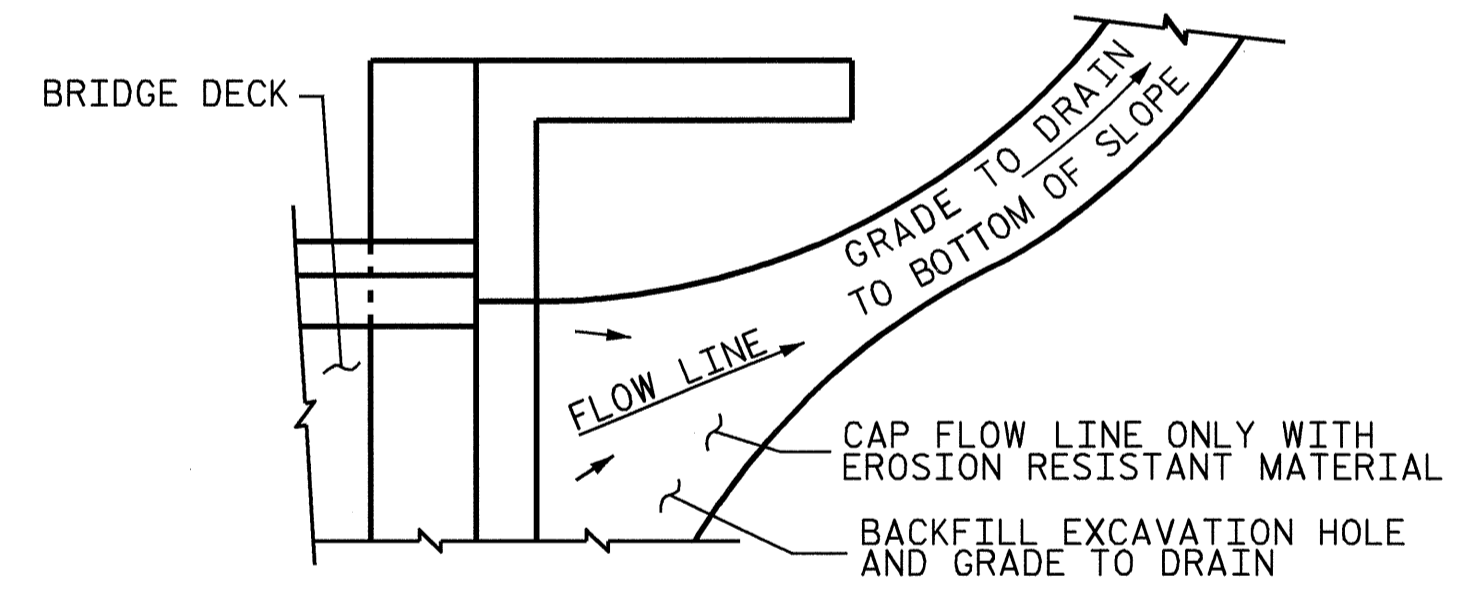
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS	
2			4			17	

ASSEMBLED BY: B. Bergin	DATE: 7/31/08
CHECKED BY: J.P. Adams	DATE: 8/5/08
DRAWN BY: FCJ 6/87	REV. 7/10/01 LES/RDR
CHECKED BY: EGA 6/87	REV. 5/7/03R RWM/JTE
	REV. 5/1/06R KMM/GM



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

TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4148
HENDERSON COUNTY
STATION: 15+70.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD						S-17
BRIDGE APPROACH SLAB DETAILS						TOTAL SHEETS
						17
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY : B. Bergin	DATE : 7/31/08
CHECKED BY : J.P. Adams	DATE : 8/5/08
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

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2002 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN