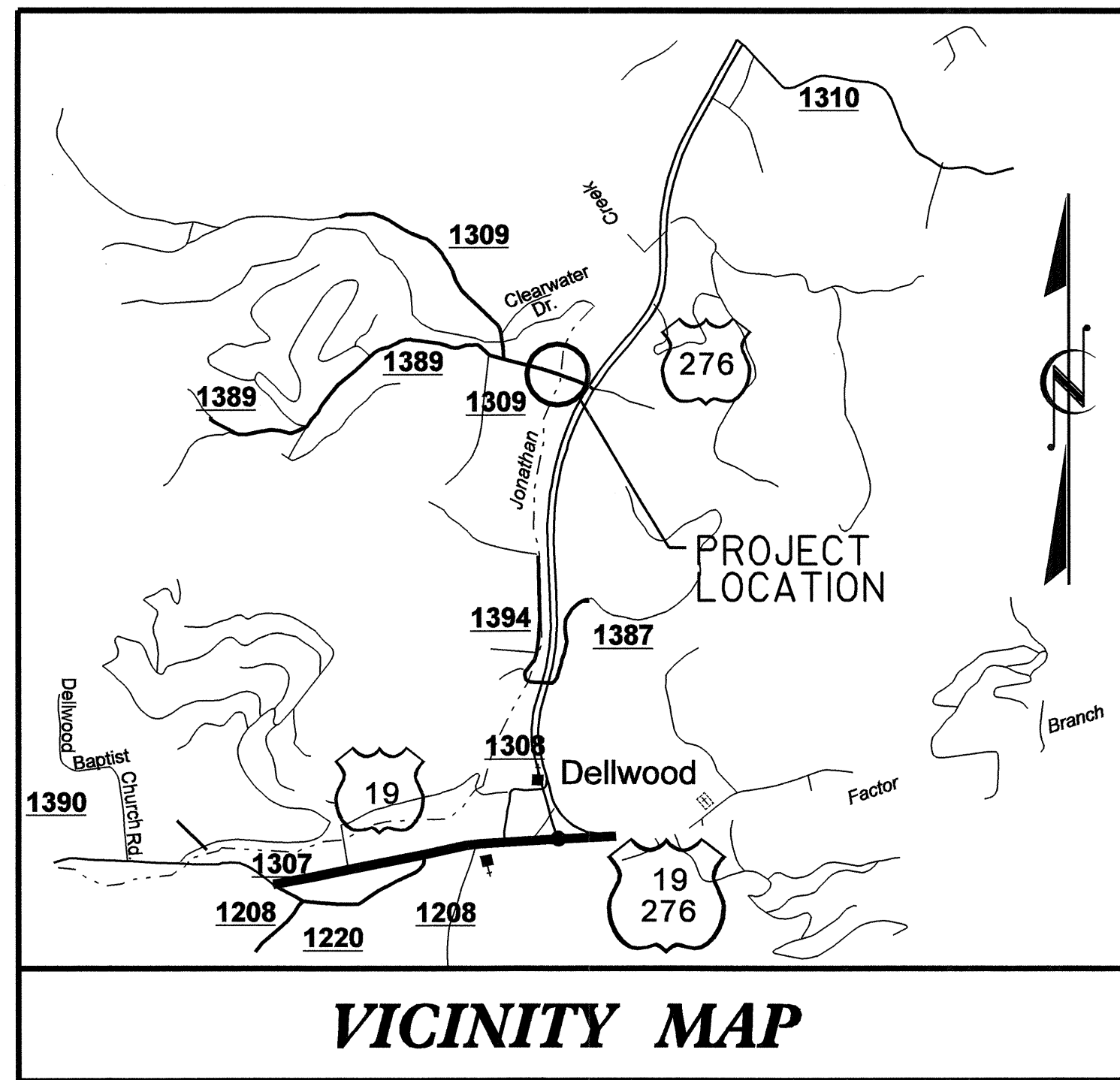


CONTRACT: C201681 TIP PROJECT: B-3854



THE NEAREST SHIPPING POINT IS WAYNESVILLE ON NORFOLK SOUTHERN R.R., 12 +/- MILES FROM BRIDGE.

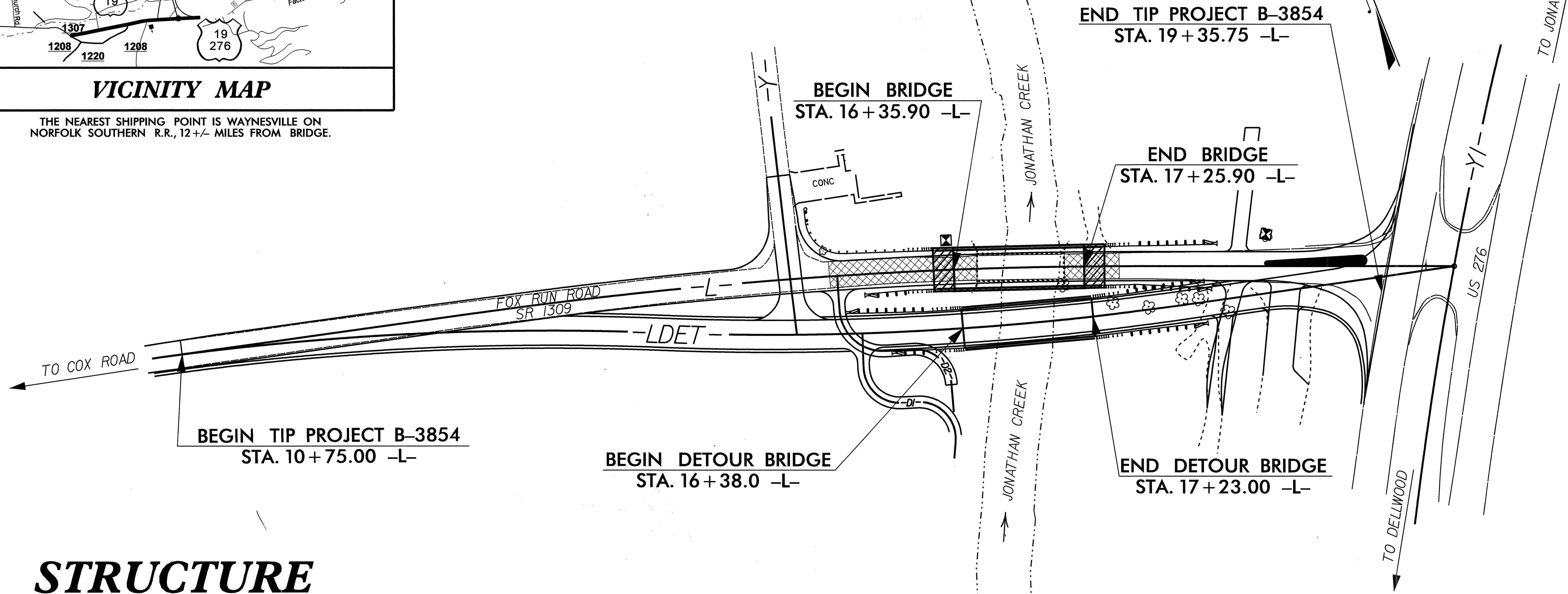
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

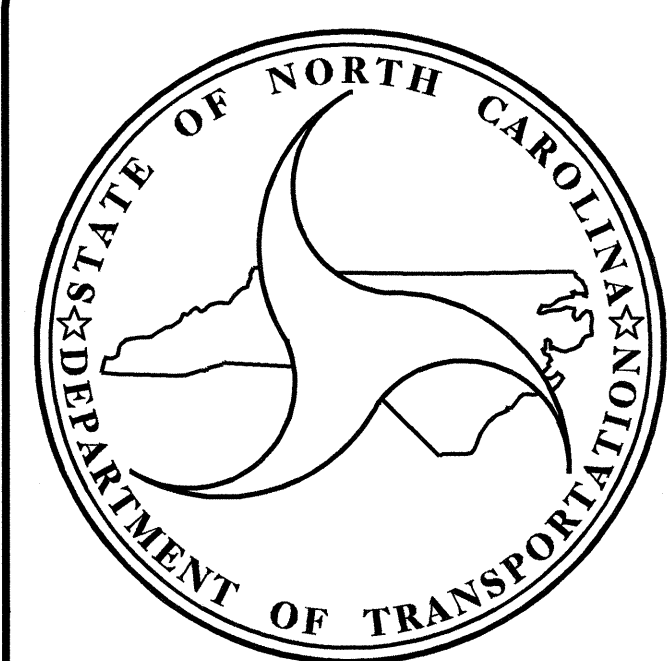
**LOCATION: BRIDGE NO. 329 OVER JONATHAN CREEK
ON SR 1309**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3854		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33301.1.1	BRZ-1309(3)	PE	
33301.2.1	BRZ-1309(3)	RW/UTIL	
33301.3.1	BRZ-1309(3)	CONST.	



STRUCTURE



DESIGN DATA

ADT 2005 =	660
ADT 2030 =	960
DHV =	25 %
D =	60 %
T =	3 % *
V =	40 MPH
* TTST 1% DUAL 2%	
FUNC CLASS =	LOCAL

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT B-3854 =	0.146 mi.
LENGTH STRUCTURE OF TIP PROJECT B-3854 =	0.017 mi.
TOTAL LENGTH OF TIP PROJECT B-3854 =	0.163 mi.

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :
OCTOBER 16, 2007

N.N. BULLOCK, PE PROJECT ENGINEER
A.K. PASCHAL, PE PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER _____ P.E.
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
DIVISION ADMINISTRATOR DATE _____

18-JUL-2007 14:41
R:\STRUCTURES\B3854\FINAL PLANS\B-3854_scd_TSH.dgn
Jshank

GRADE DATA

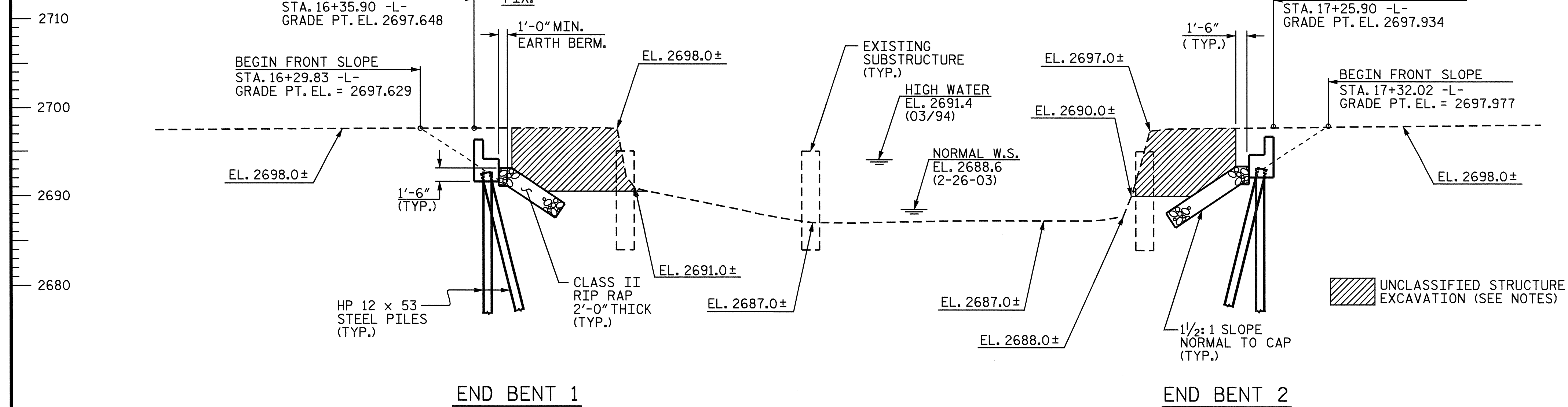
+0.3000% Δ +3.1977%
 PI STA. = 17+72.22 -L-
 EL. = 2698.05
 VC = 120'

NOTES:

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING EXCEPT THAT THE BOX BEAMS HAVE BEEN DESIGNED FOR HS 25.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.
 THE EXISTING STRUCTURE CONSISTING OF TWO (1 @ 20'-3" & 1 @ 40'-3") TIMBER DECK SPANS ON STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 17'-2" ON TIMBER CAP WITH TIMBER POST AND SILL END BENTS AND TIMBER CAP AND PILE BENT WITH A CONCRETE FOOTING AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY. SEE SPECIAL PROVISION FOR "REMOVAL OF EXISTING STRUCTURE @ STA. 16+80.90 -L-".
 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 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.

GRADE DATA

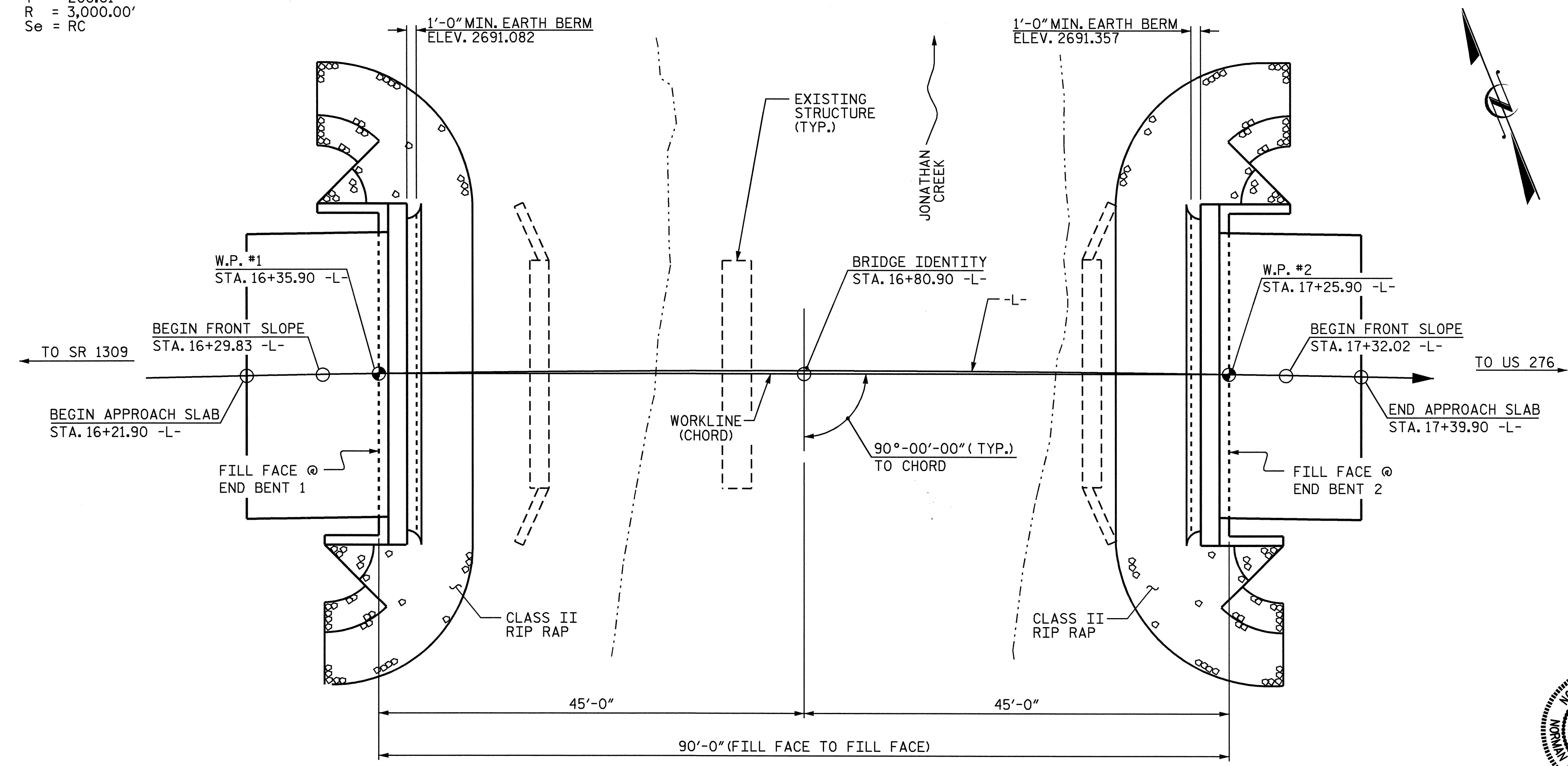
-0.0517% Δ +0.3000%
 PI STA. = 15+80.00 -L-
 EL. = 2697.48
 VC = 80'



HORIZONTAL CURVE DATA

PI STA = 15+41.33 -L-
 Δ = 7°57' 20.0" (RT)
 D = 1°-54'-35.5"
 L = 416.55'
 T = 208.61'
 R = 3,000.00'
 Se = RC

SECTION ALONG -L-
 (SECTIONS @ END BENTS ARE TAKEN @ RIGHT ANGLES.)



THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THE ESTIMATED QUANTITY IS LESS THAN 500 CUBIC YARDS. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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

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.

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

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

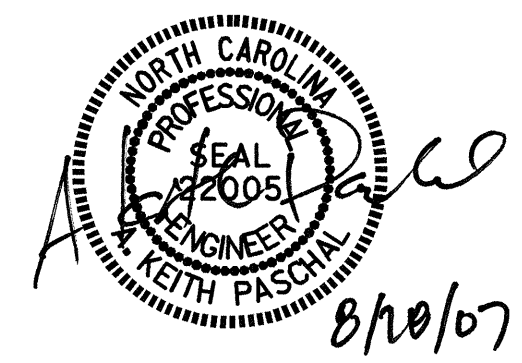
SEE SHEET 3 OF 3 FOR ADDITIONAL NOTES.
 SEE SHEET 2 OF 3 FOR FOUNDATION NOTES.

PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 1 OF 3 REPLACES BRIDGE No. 329

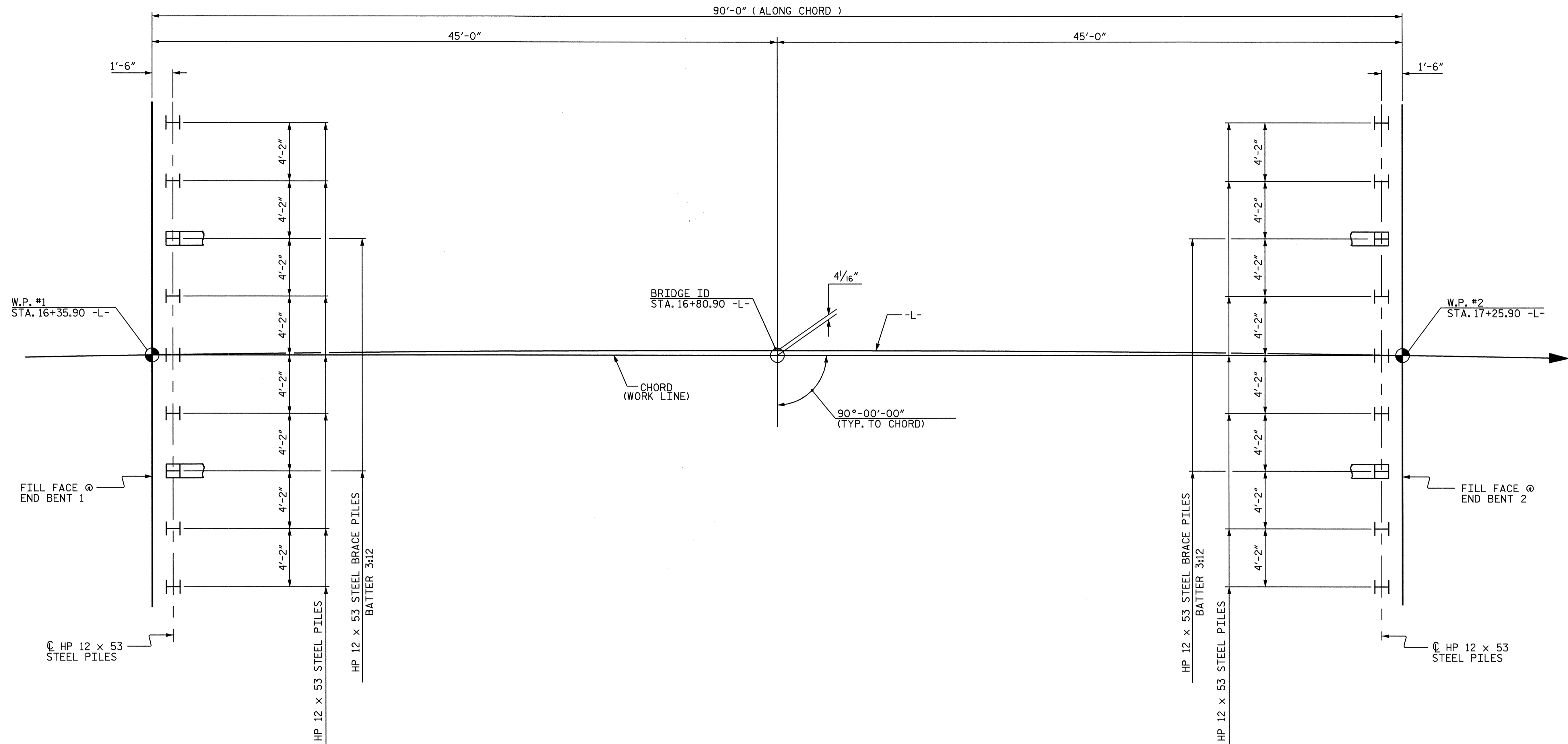
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1389
 OVER JONATHAN CREEK
 BETWEEN SR 1309 AND US 276



DRAWN BY : A.M.KEETER DATE : 9/19/05
 CHECKED BY : J.G.KHARVA DATE : 2/2/06

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



END BENT 1

END BENT 2

LONG CHORD & FOUNDATION LAYOUT

(DIMENSIONS LOCATING END BENT PILES ARE TO THE CENTERLINE OF PILES)

FOUNDATION NOTES:

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 1 & 2 IS 50 TONS PER PILE.

DRIVE PILES AT END BENT 1 & 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

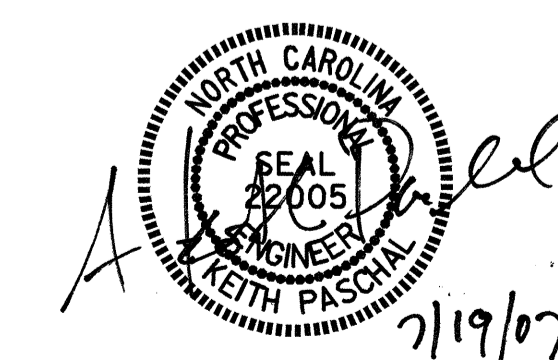
STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT END BENT 1 & 2. SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1389
 OVER JONATHAN CREEK
 BETWEEN SR 1309 AND US 276



DRAWN BY : A.M.KEETER DATE : 10/11/05
 CHECKED BY : J.G.KHARVA DATE : 2/2/06

18-JUL-2007 14:40
 R:\Structures\B3854\FINAL PLANS\B-3854_sd.GD.gdn
 jdhawk

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

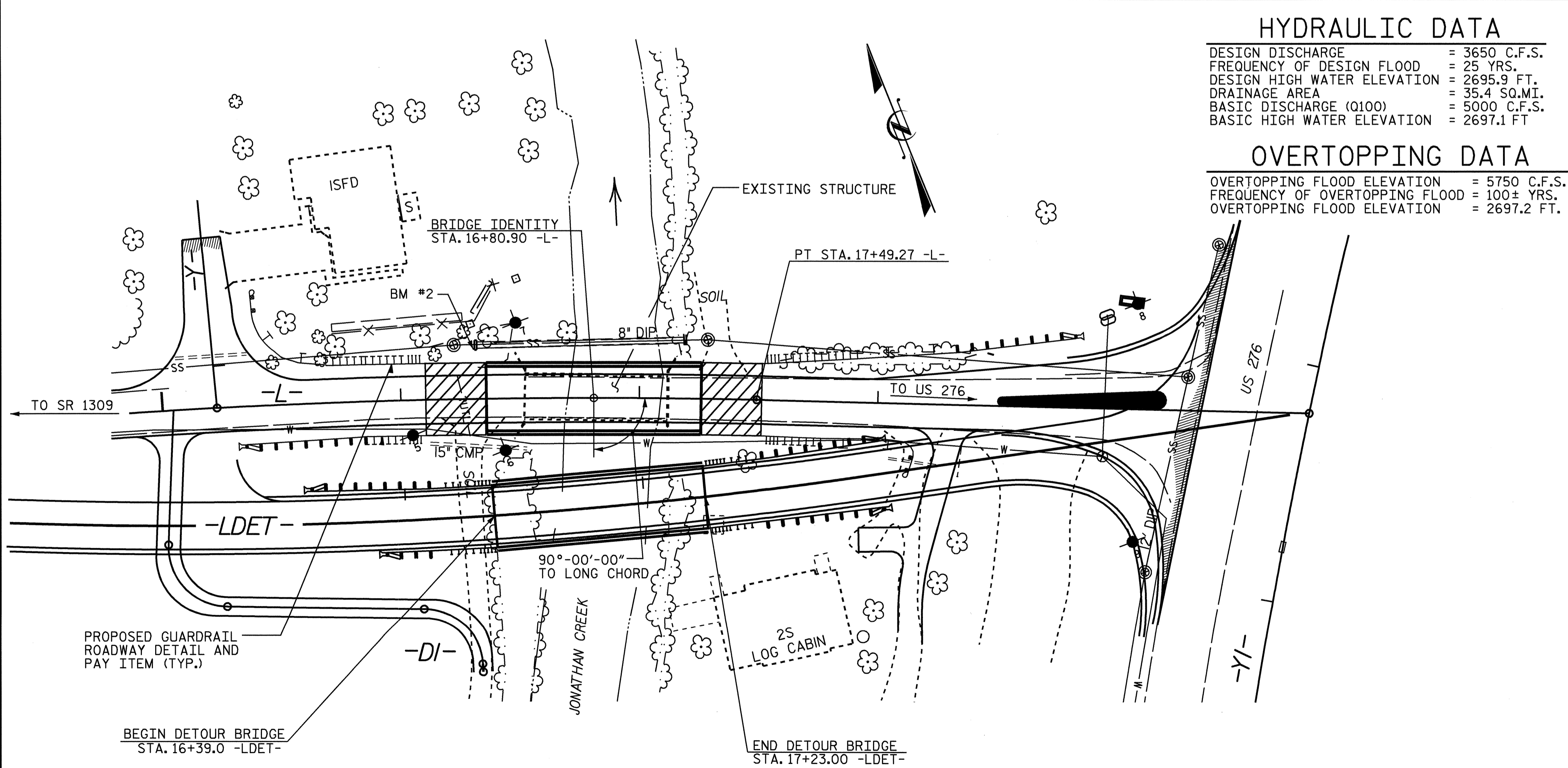
TOTAL BILL OF MATERIAL															
	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	EACH	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE					LUMP SUM					175.33			LUMP SUM	10	876.67
END BENT 1			LUMP SUM	16.9		2523	9	450	9		69	77			
END BENT 2			LUMP SUM	16.9		2523	9	315	9		84	93			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	33.8	LUMP SUM	5046	18	765	18	175.33	153	170	LUMP SUM	10	876.67

NOTES CONT.:

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 16+80.90 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE.

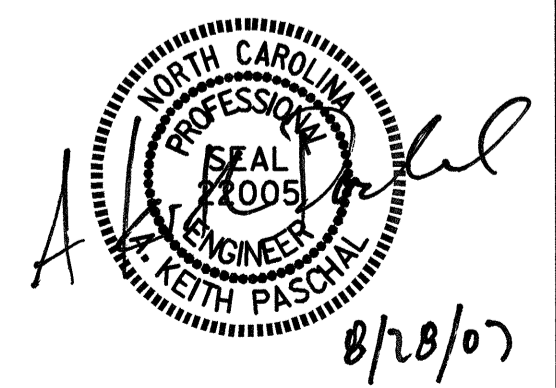
BM #2 : CHISLED SQUARE ON SW CORNER OF CONC. RET. WALL 20.28' LT. STA. 16+30.86 -L- EL. 2697.15'



PROJECT NO. B-3854
 HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 1389
 OVER JONATHAN CREEK
 BETWEEN SR 1309 AND US 276



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

DRAWN BY : A.M. KEETER DATE : 9/19/05
 CHECKED BY : J.G. KHARVA DATE : 2/2/06

LOCATION SKETCH

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			18
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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5600 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

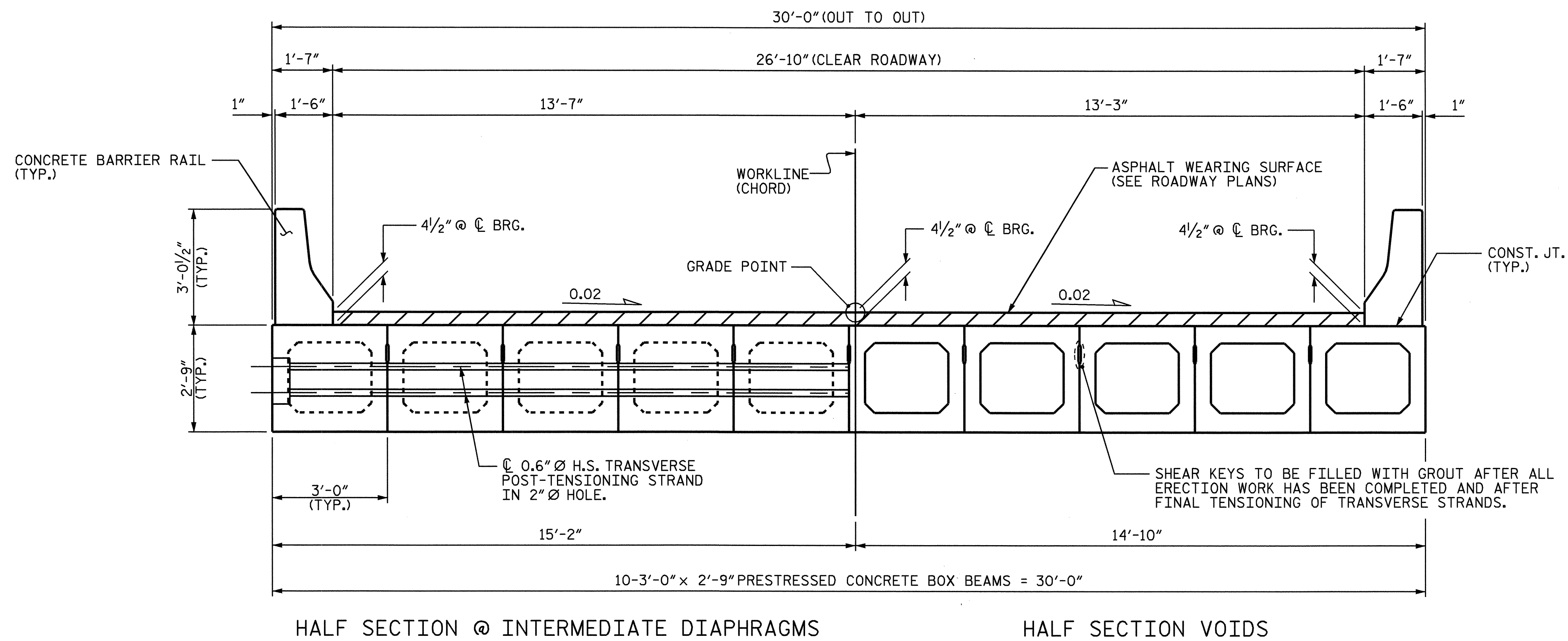
VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION 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.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

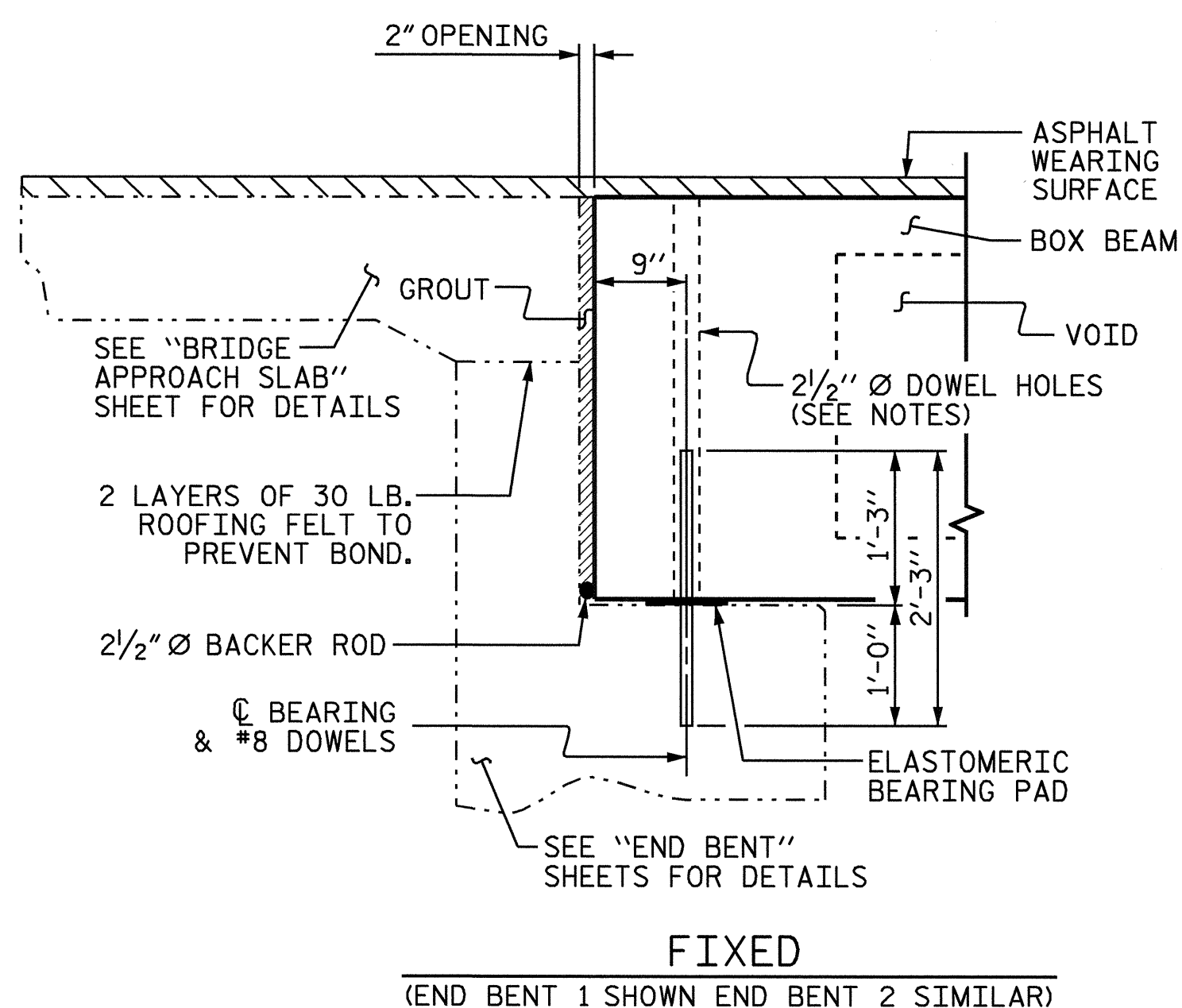
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



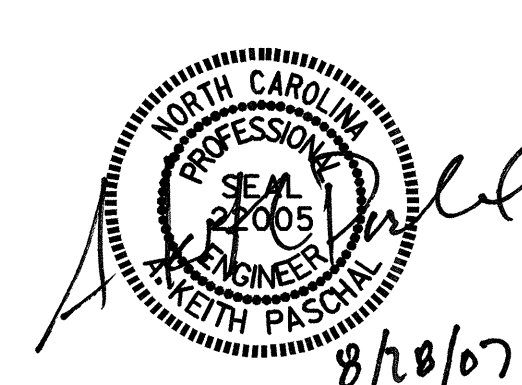
TYPICAL SECTION



SECTION AT END BENTS

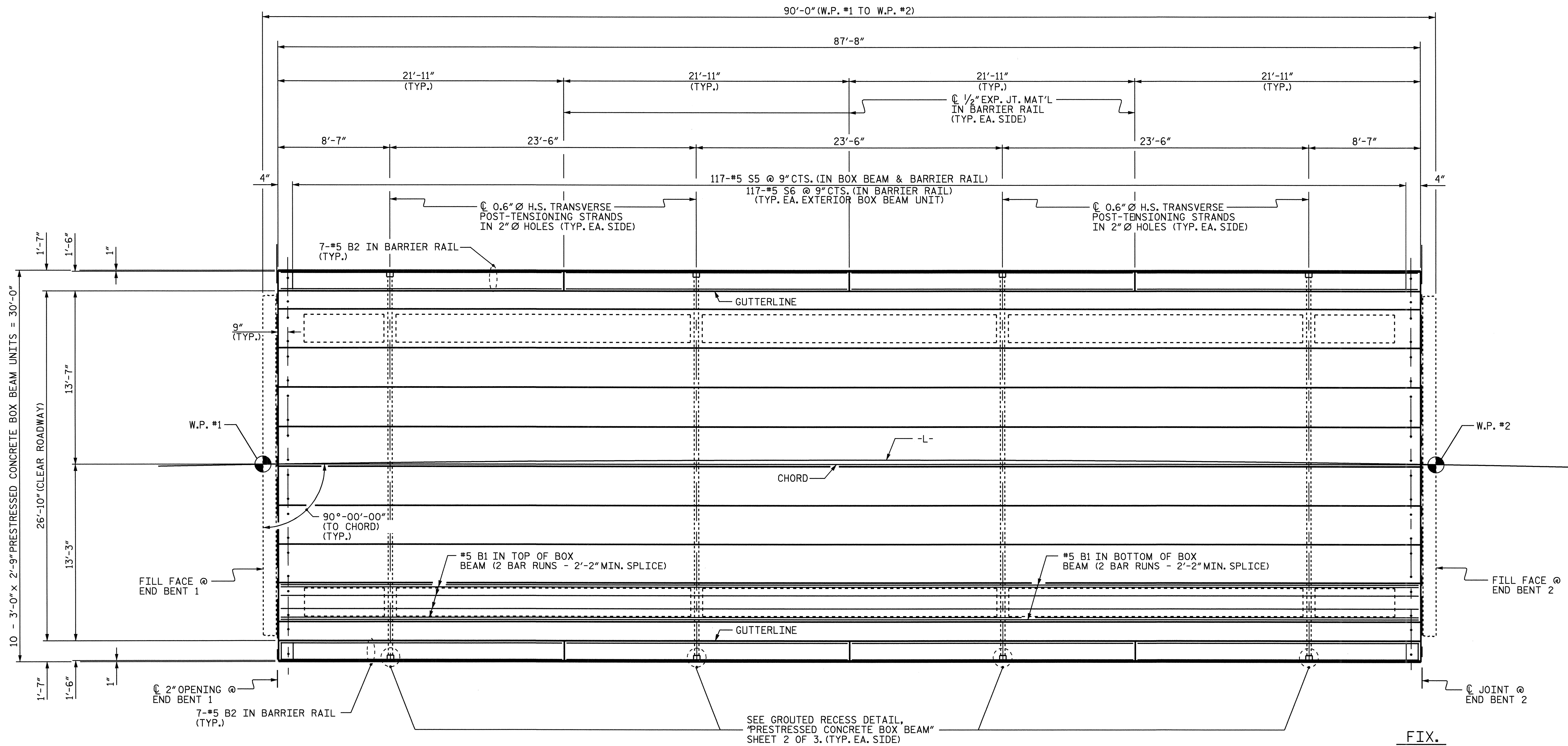
PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

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

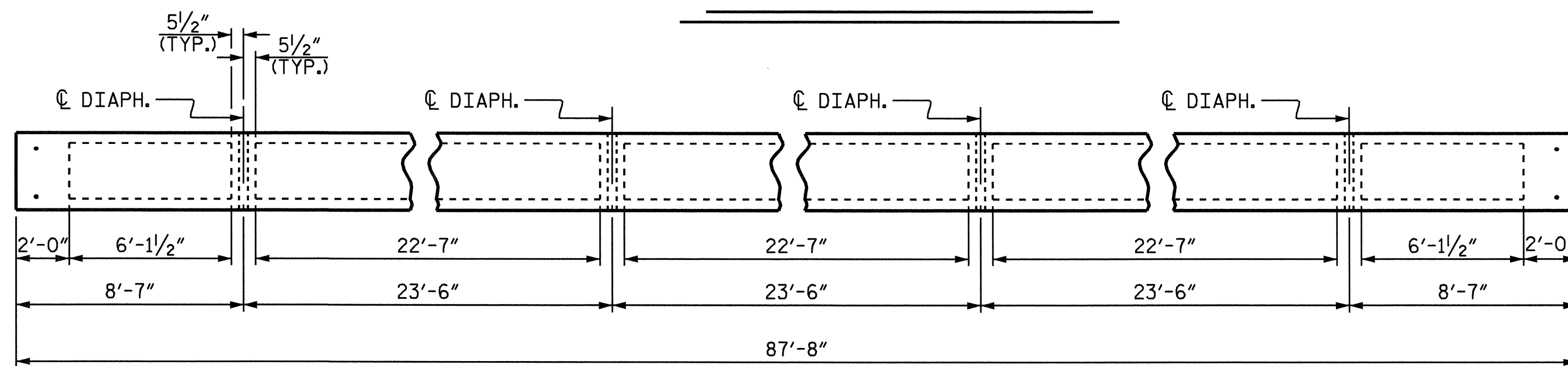


ASSEMBLED BY : A.M. KEETER	DATE : 9/19/05
CHECKED BY : J.G. KHARVA	DATE : 2/2/06
DRAWN BY : TLA 5/05	ADDED 7/11/05R
CHECKED BY : GM 6/05	REV. 5/1/06 TLA/GM

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



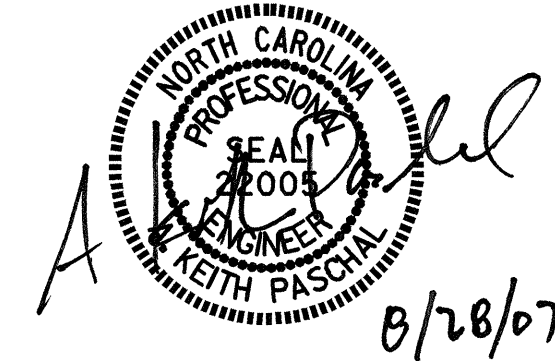
PLAN OF SPAN



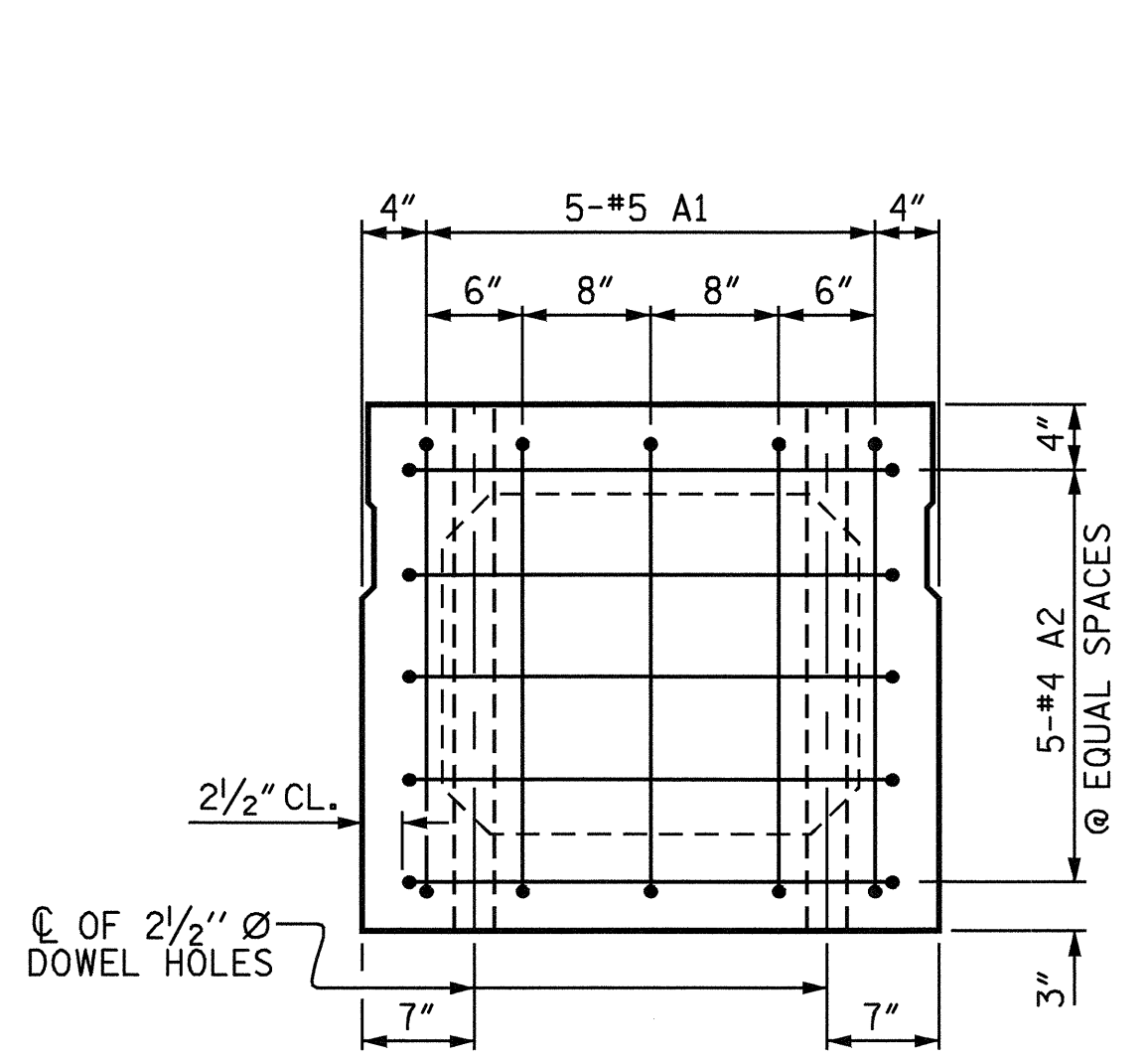
PLAN OF BOX BEAM UNIT
(SHOWING LOCATION OF VOIDS & DIAPHRAGMS)

FIX.
PROJECT NO. B-3854
HAYWOOD COUNTY
STATION: 16+80.90 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-5
TOTAL SHEETS					18

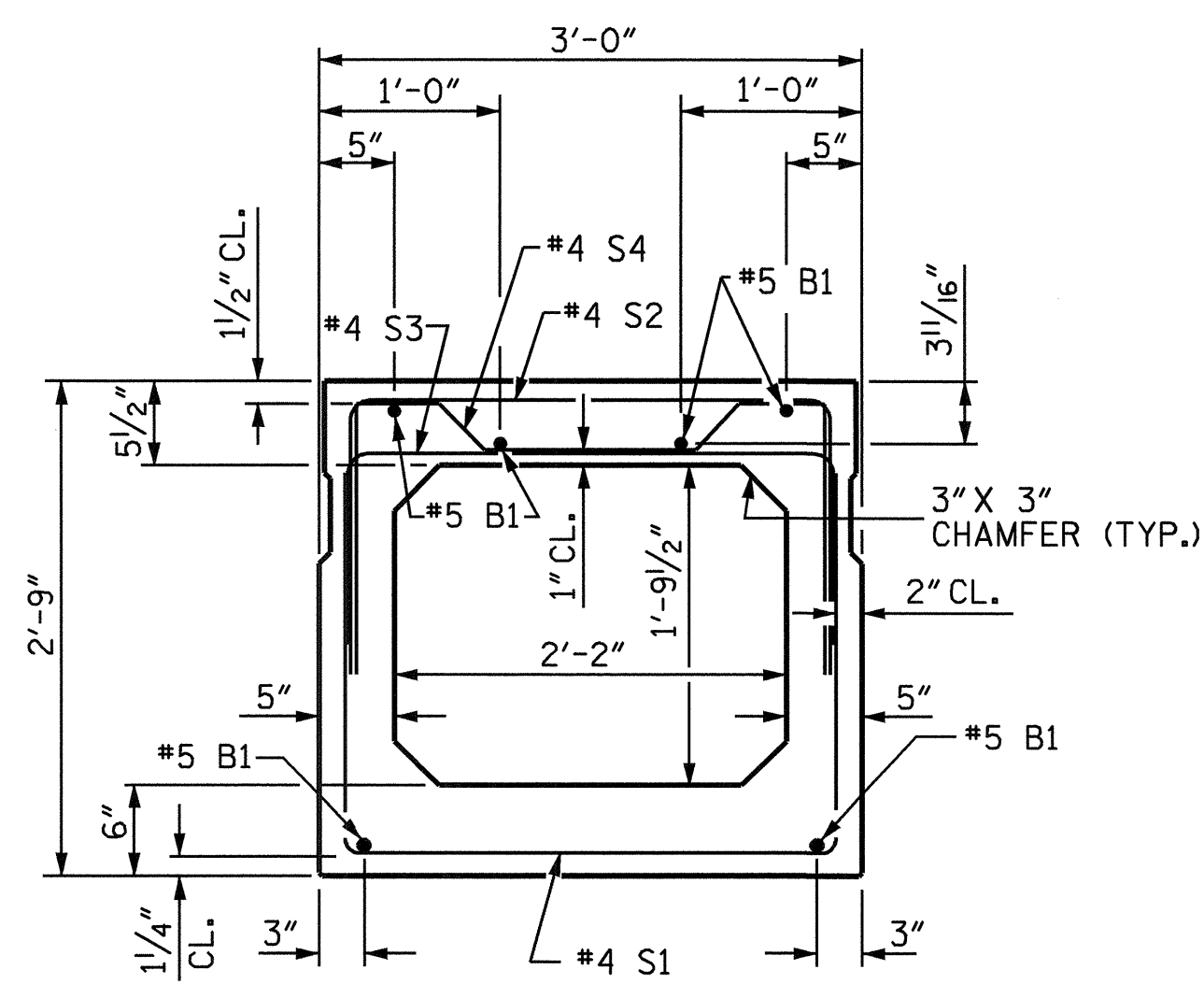


DRAWN BY : A.M. KEETER DATE : 9/19/05
CHECKED BY : J.G. KHARVA DATE : 2/2/06



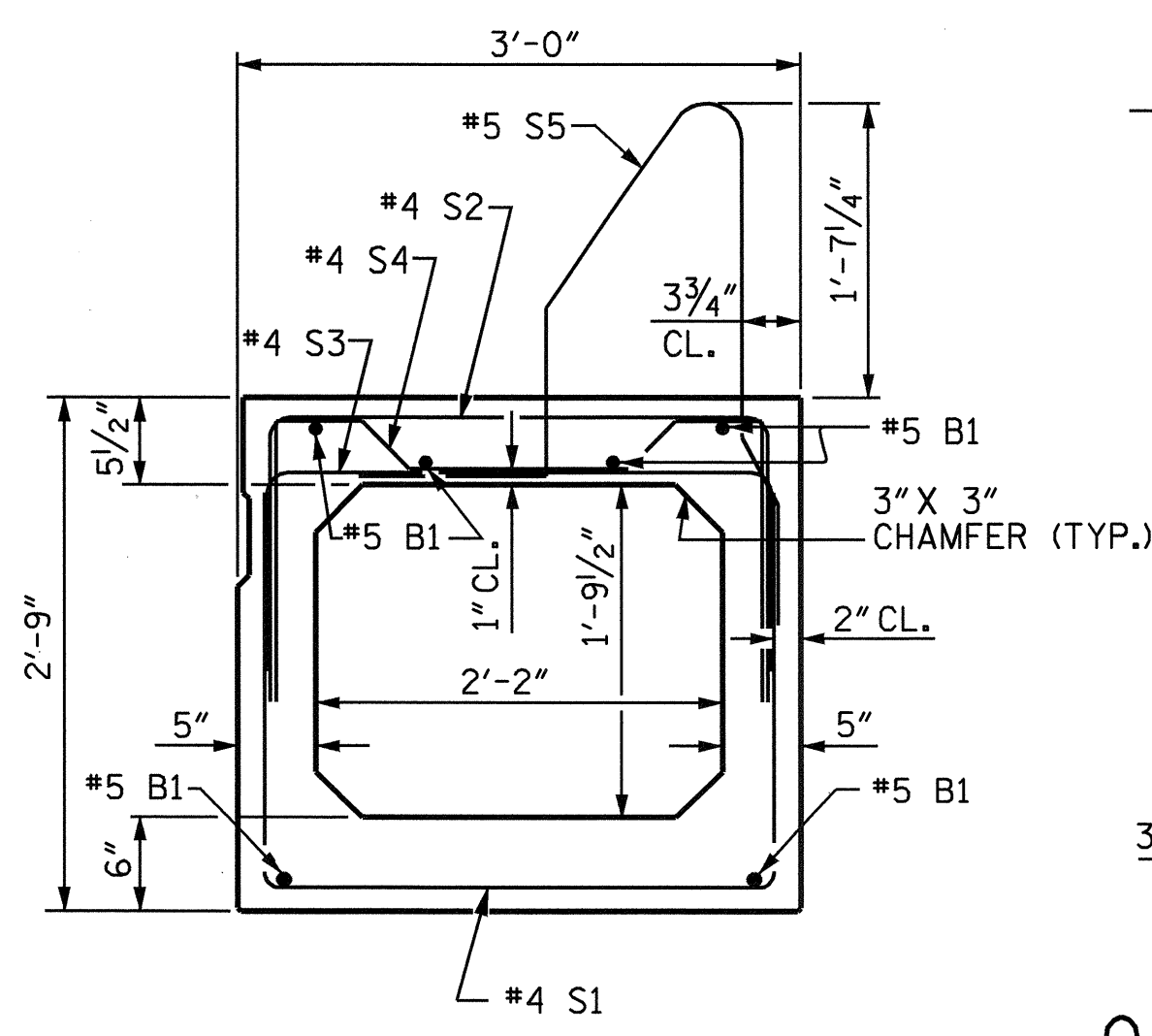
END ELEVATION

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



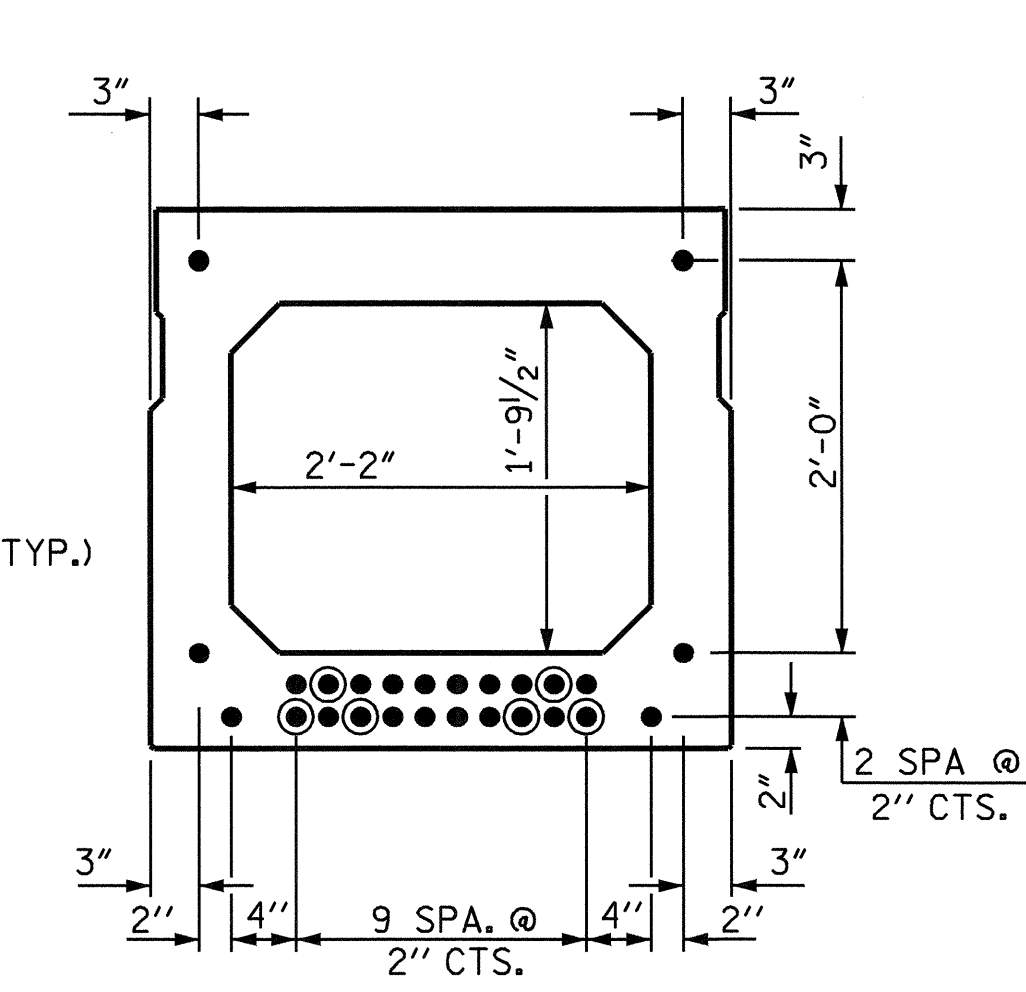
INTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)



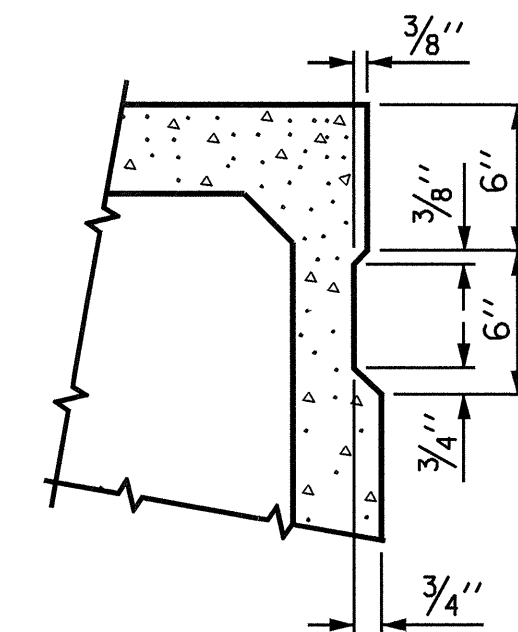
0.6" Ø LOW RELAXATION STRAND LAYOUT

TYPICAL STRAND LOCATION

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

DEBONDING LEGEND

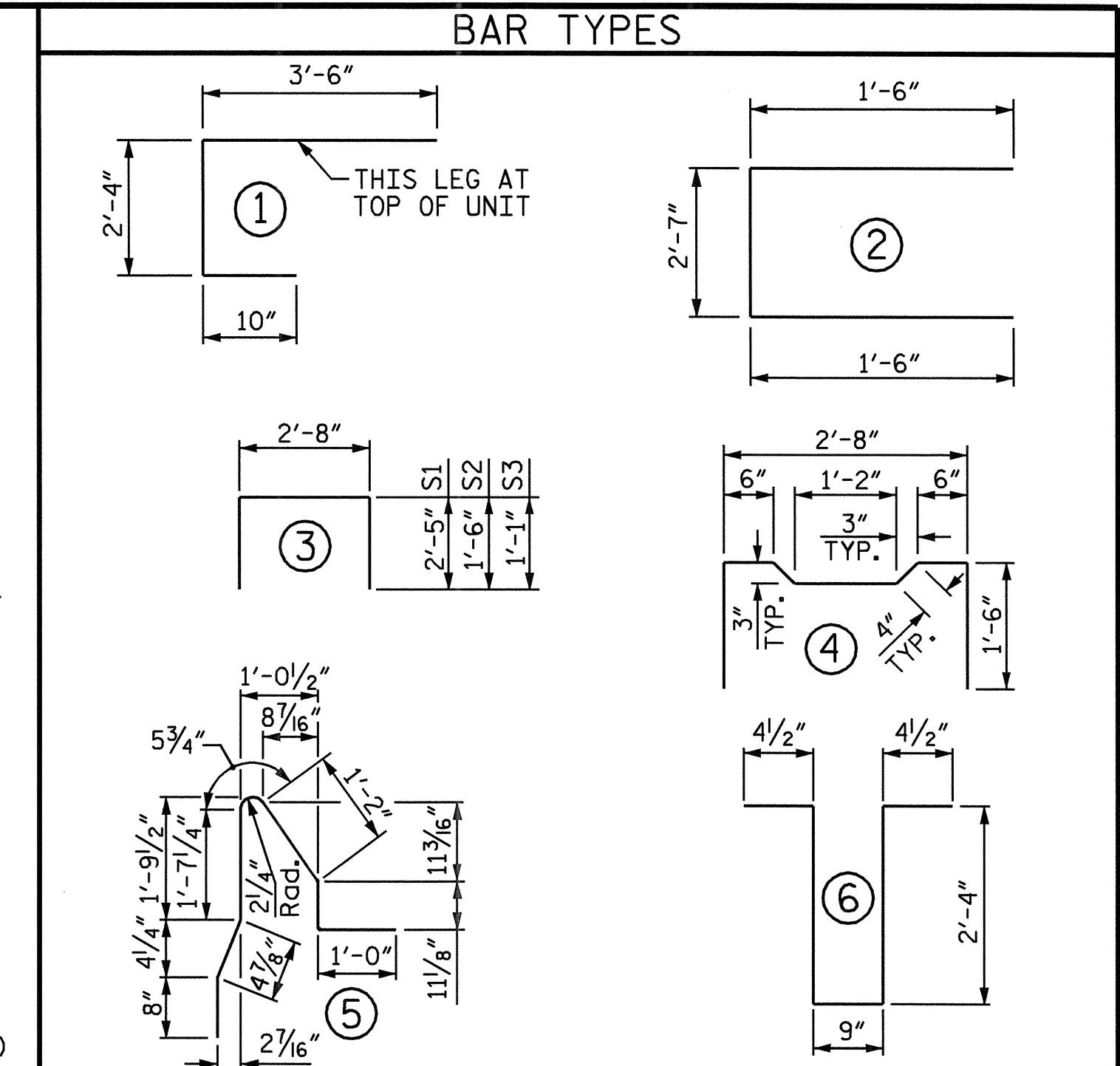
- FULLY BONDED STRANDS
- ⊙ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER



SHEAR KEY DETAIL

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

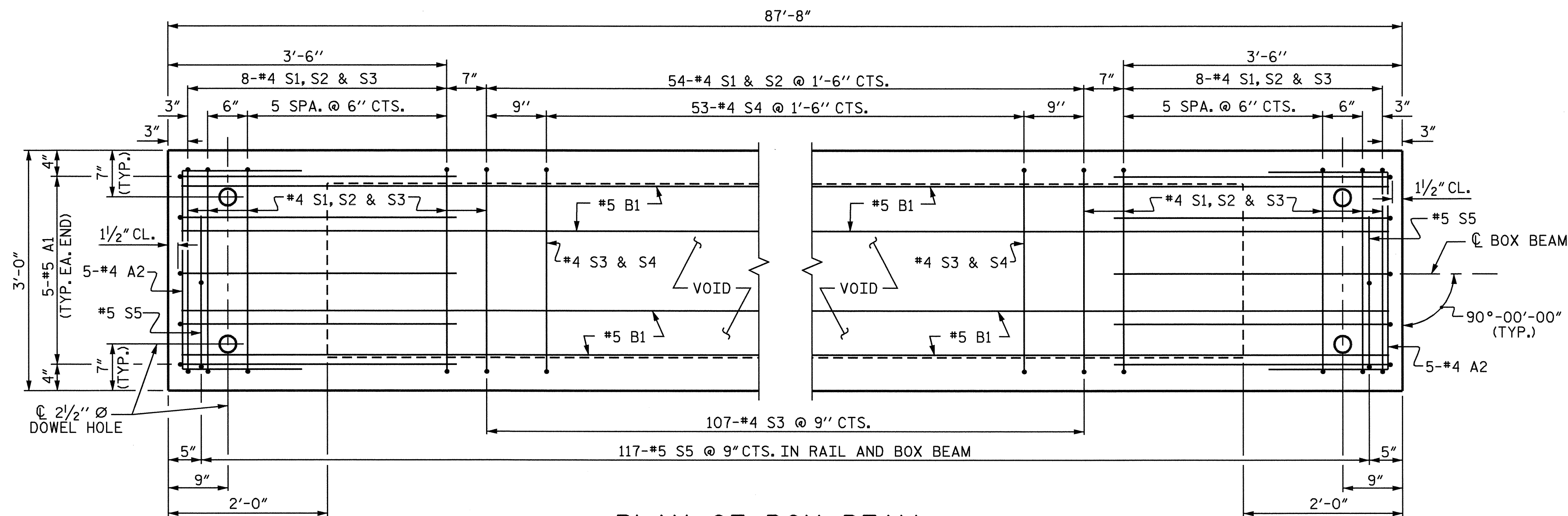
GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
			LENGTH	WEIGHT	LENGTH	WEIGHT
A1	#5	1	6'-8"	70	6'-8"	70
A2	#4	2	5'-7"	127	5'-7"	127
B1	#5	STR	44'-9"	560	44'-9"	560
K1	#4	6	6'-2"	49	6'-2"	49
K2	#4	STR	2'-7"	14	2'-7"	14
S1	#4	3	7'-6"	351	7'-6"	351
S2	#4	3	5'-8"	265	5'-8"	265
S3	#4	3	4'-10"	397	4'-10"	397
S4	#4	4	5'-10"	207	5'-10"	207
* S5	#5	5	6'-3"	762	--	--
REINFORCING STEEL			2040 LBS.		2040 LBS.	
* EPOXY COATED REINF. STEEL			762 LBS.		762 LBS.	
7000 P.S.I. CONCRETE			14.4 CU. YDS.		14.3 CU. YDS.	
0.6" Ø L.R. STRANDS			No. 26		No. 26	



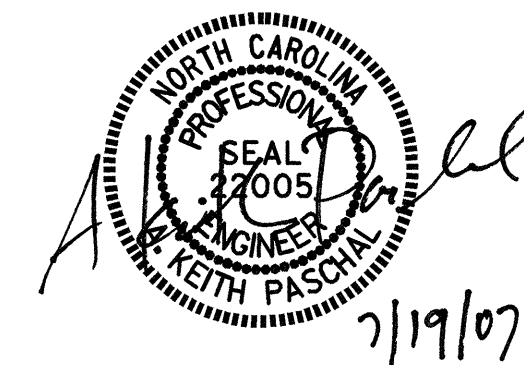
PLAN OF BOX BEAM

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

PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

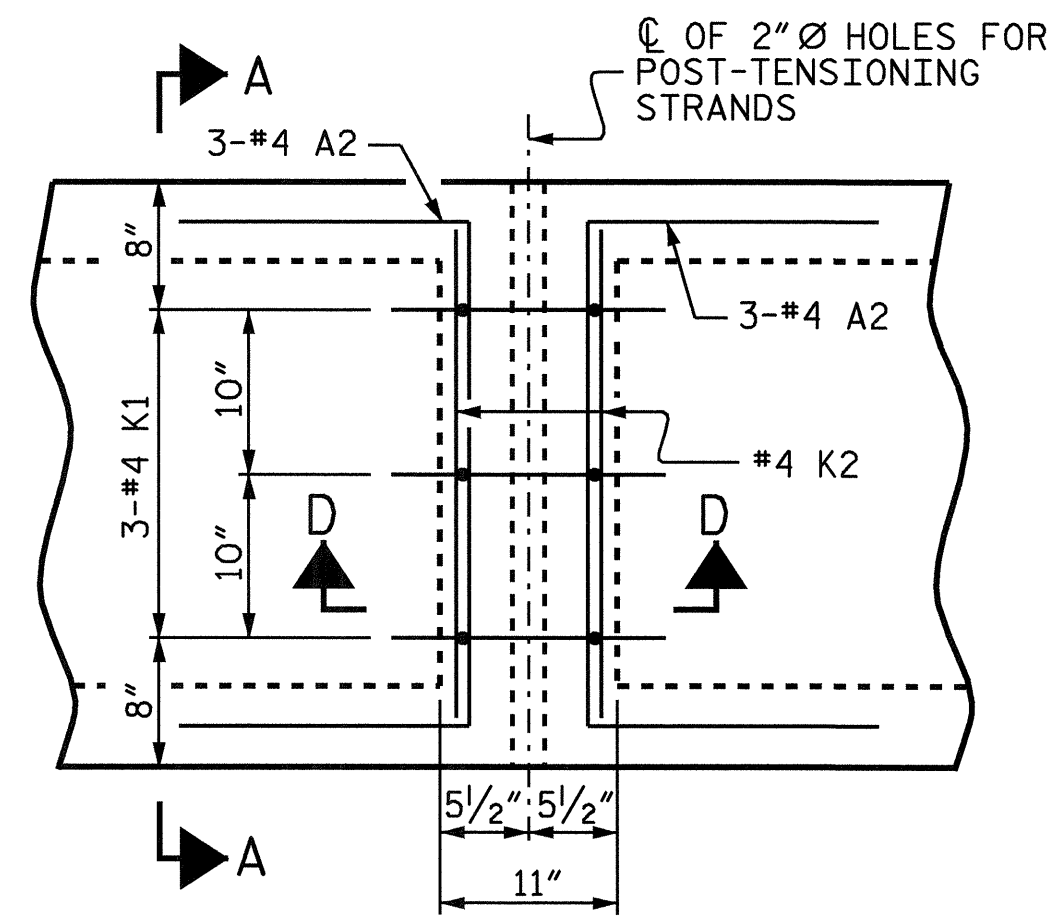
SHEET 1 OF 3

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

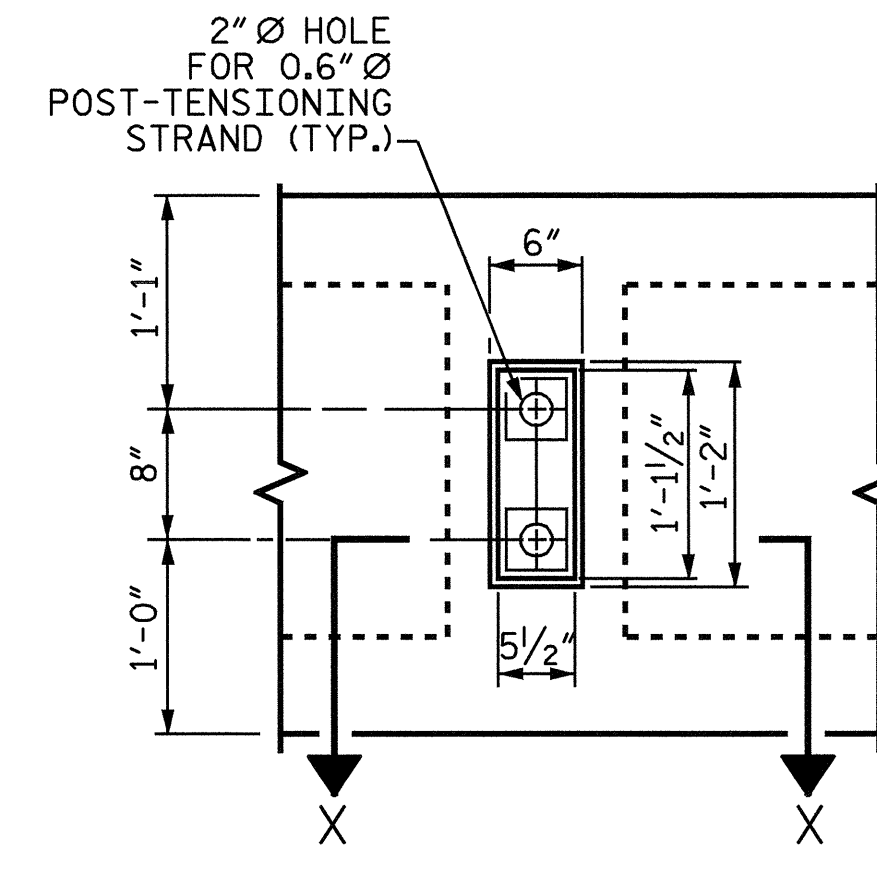


ASSEMBLED BY : A.M.KEETER	DATE : 9/15/05
CHECKED BY : J.G. KHARVA	DATE : 2/7/06
DRAWN BY : TLA 5/05	ADDED 7/11/05
CHECKED BY : GM 6/05	REV. 5/1/06 TLA/GM

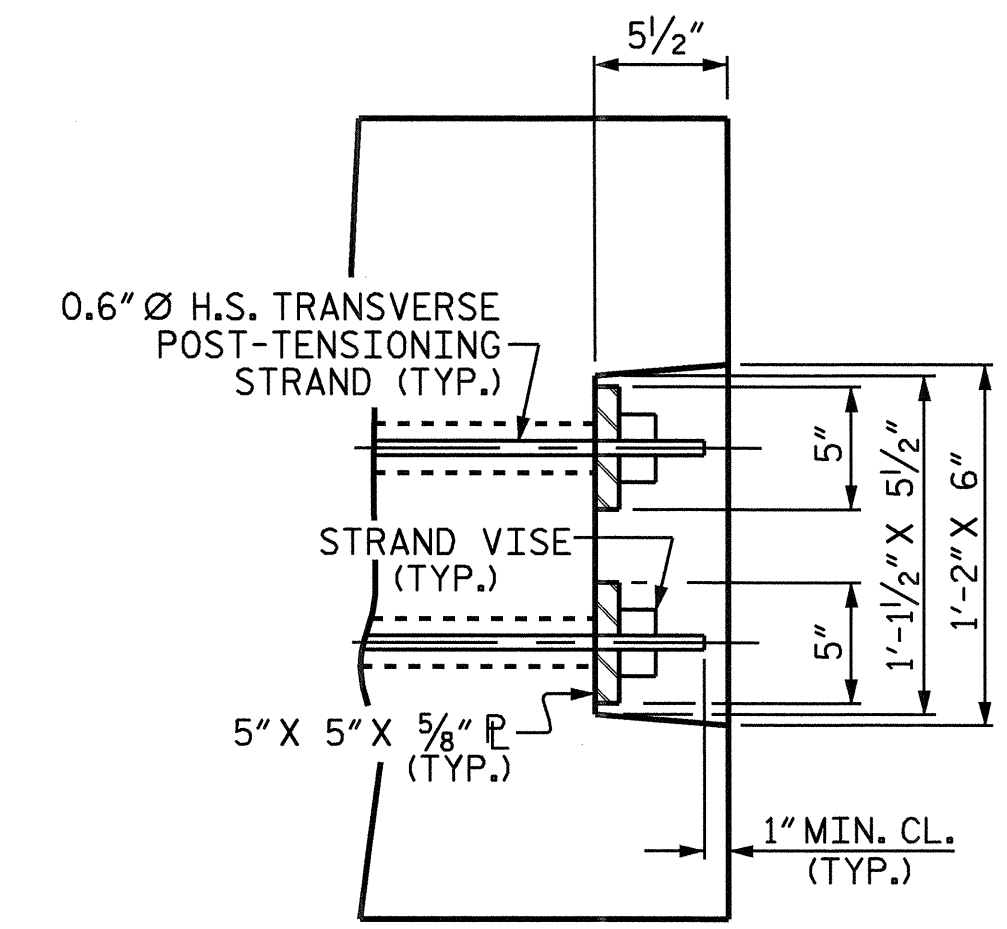
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-6
2			4			18



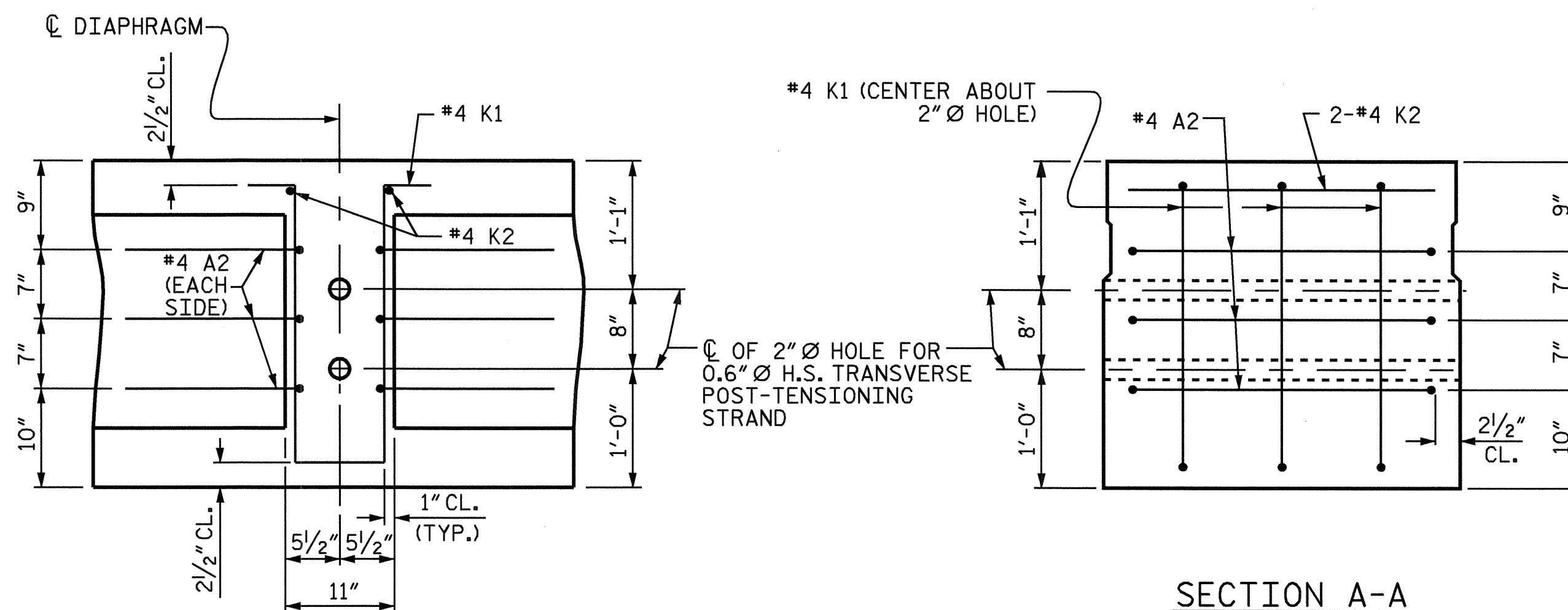
PLAN



VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUDED RECESS

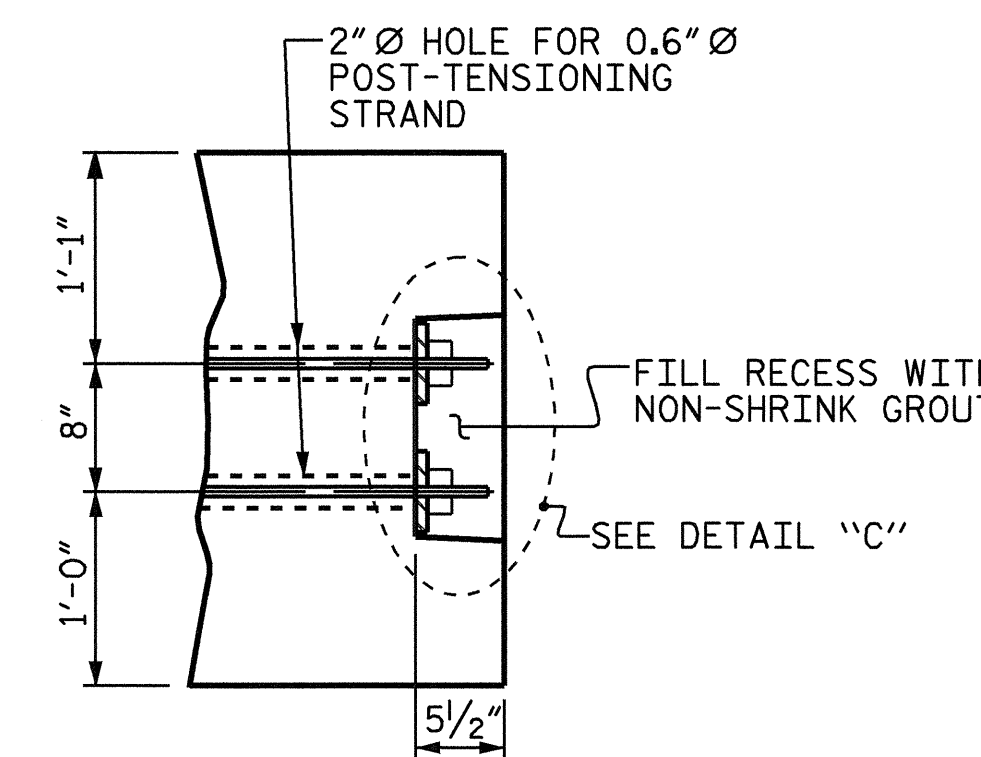


DETAIL "C"

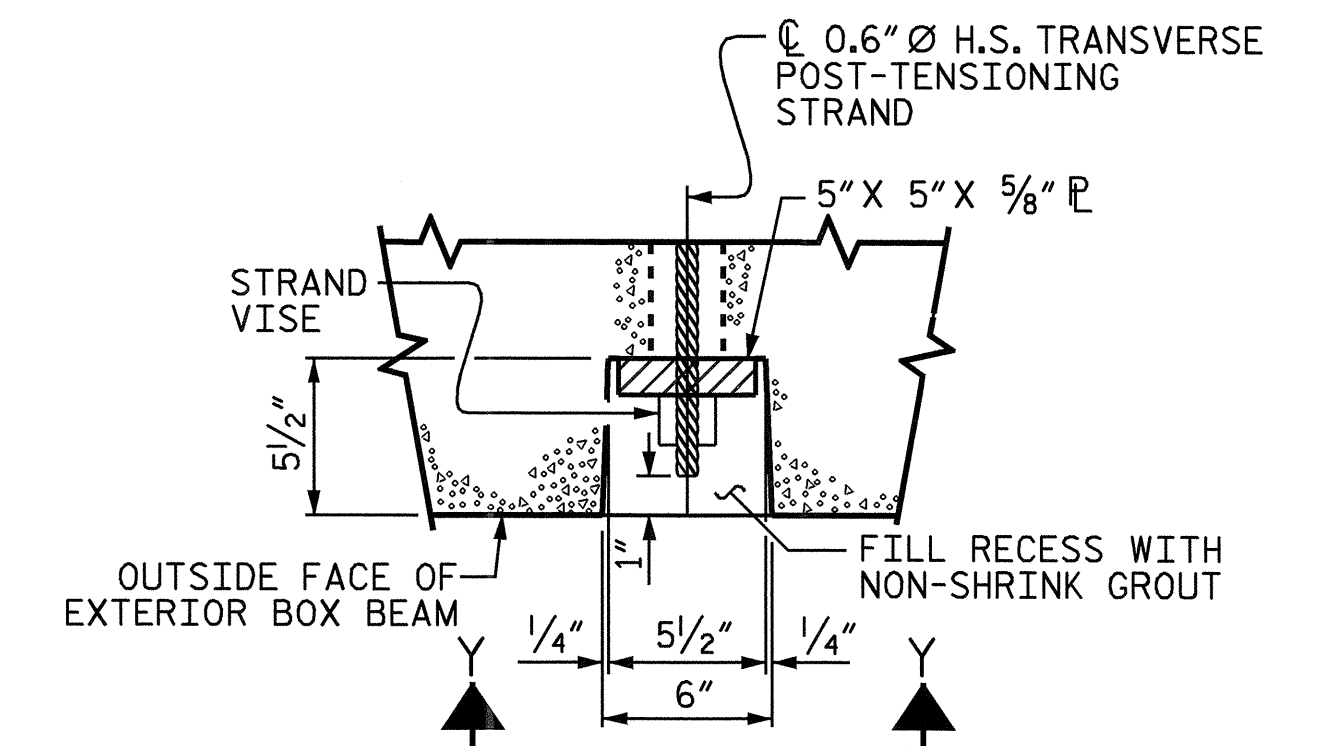


SECTION D-D

SECTION A-A
VOIDS NOT SHOWN



PART SECTION AT RECESS

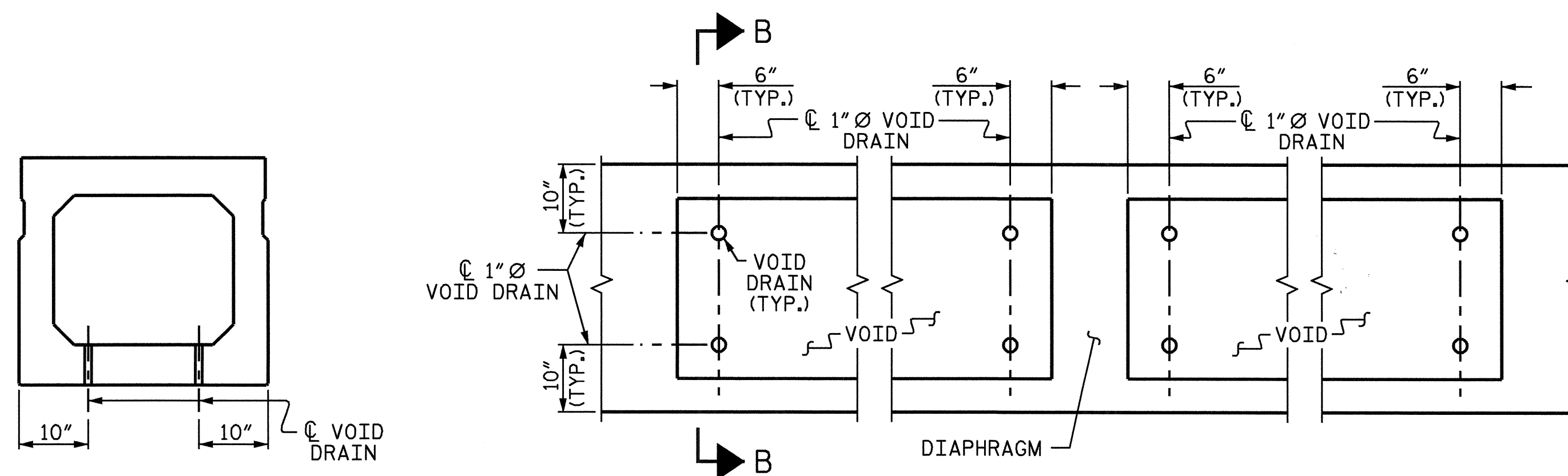


SECTION X-X
SHOWING PLAN VIEW OF GROUDED RECESS

DOUBLE DIAPHRAGM DETAILS

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

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



SECTION B-B

PART PLAN

VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
3'-0" x 2'-9" 0.6" Ø L.R. STRAND	
CAMBER (BEAM ALONE IN PLACE) ↑	4 1/16"
DEFLECTION DUE TO ASPHALT WEARING SURFACE ↓	1 5/16"
FINAL CAMBER ↑	2 3/4"

PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 2 OF 3

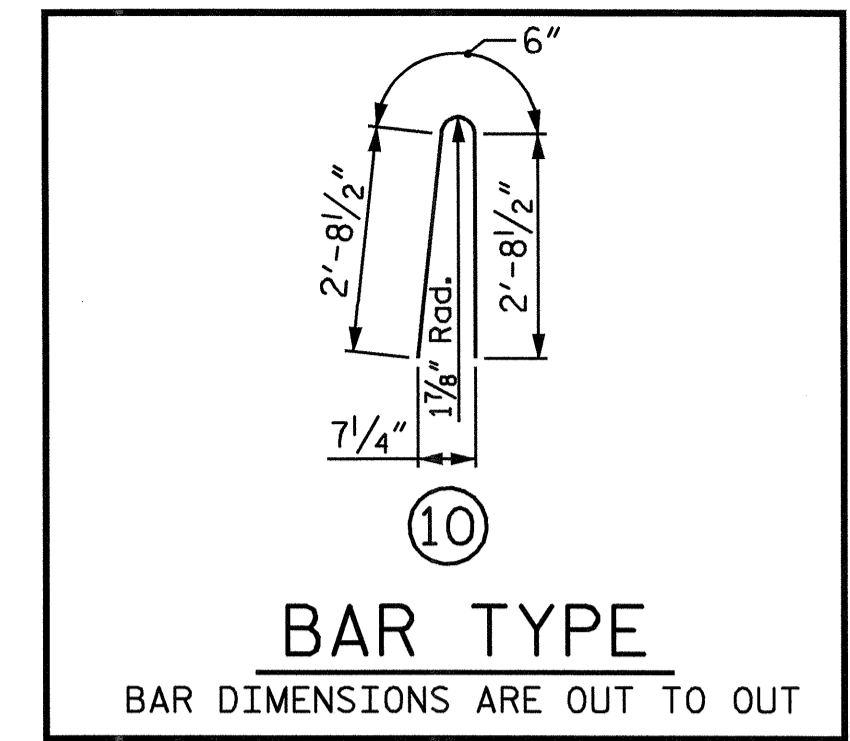
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT



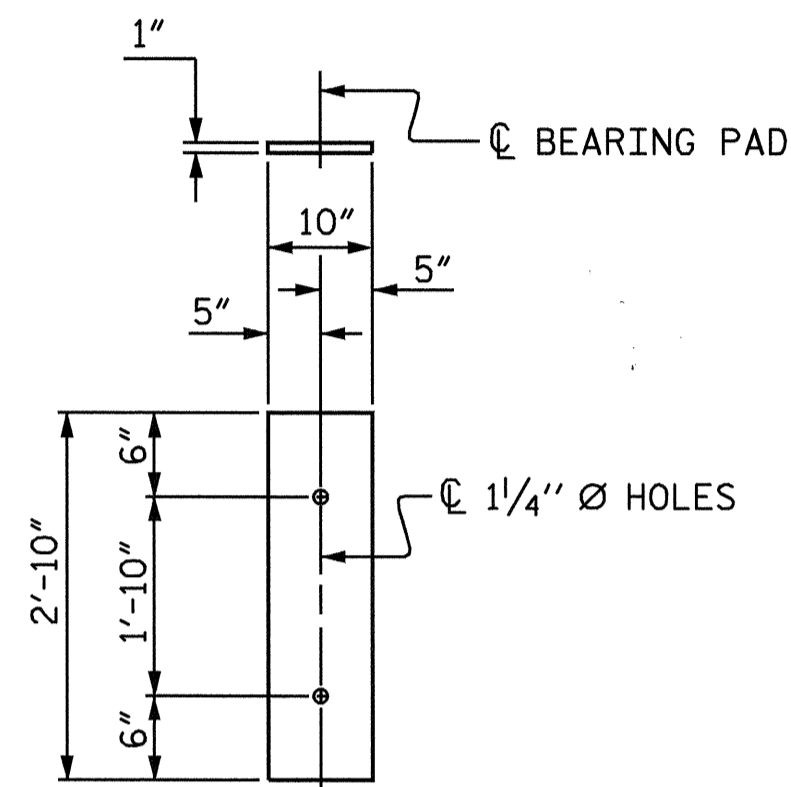
ASSEMBLED BY : A.M. KEETER	DATE : 9/15/05
CHECKED BY : J.G. KHARVA	DATE : 2/7/06
DRAWN BY : TLA 5/05	ADDED 7/11/05
CHECKED BY : GM 6/05	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			18

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
	10	87'-8"	876'-8"
TOTAL	10	—	876'-8"



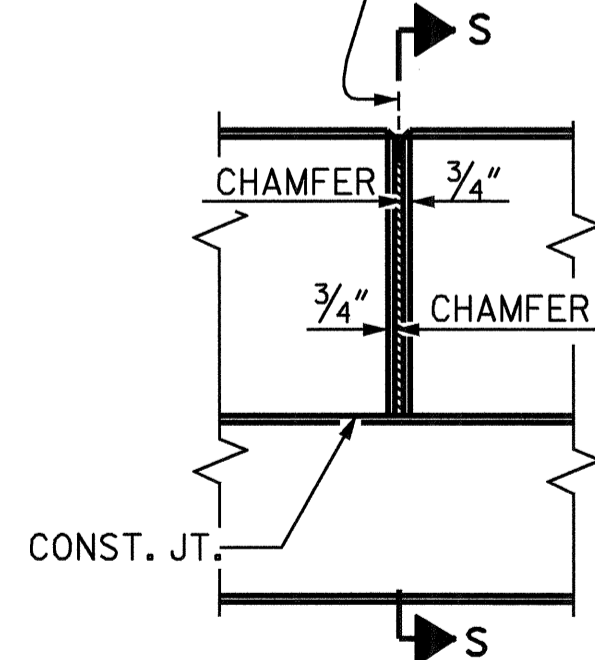
BILL OF MATERIAL FOR CONCRETE BARRIER RAIL					
BAR	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	56	#5	STR	21'-6"	1256
*S6	234	#5	10	5'-11"	1444
* EPOXY COATED REINFORCING STEEL					LBS. 2700
CLASS AA CONCRETE					CU.YDS. 21.2
LIN. FT. OF CONCRETE BARRIER RAIL					LIN. FT. 175.33



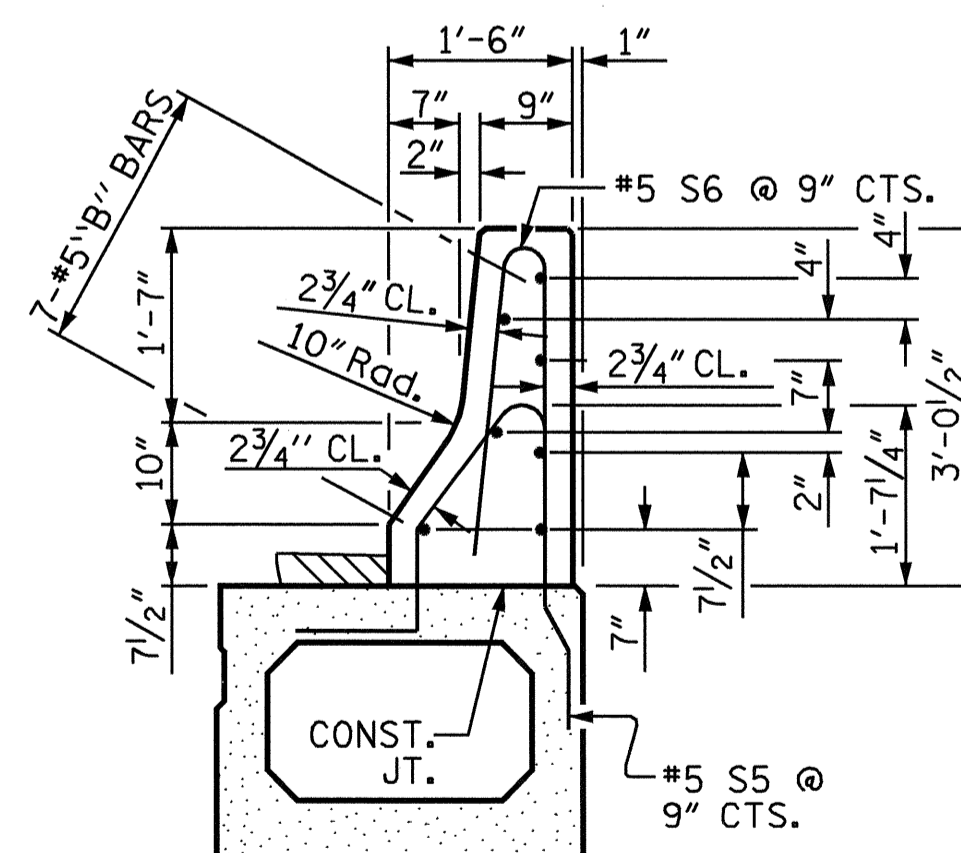
FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

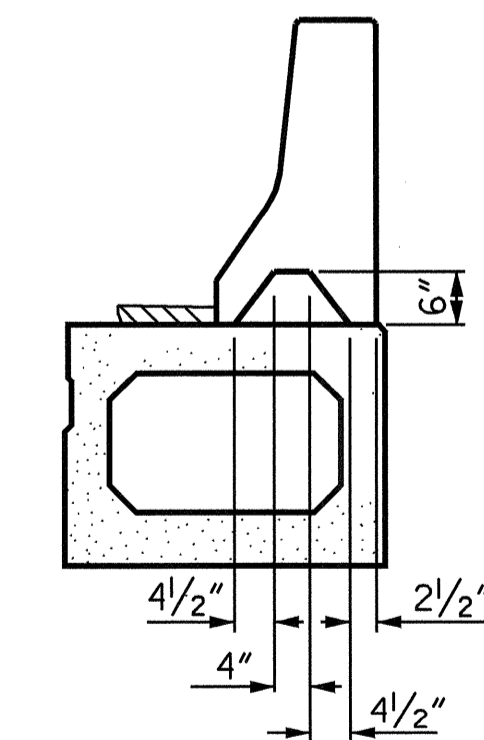
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL



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

BARRIER RAIL DETAILS

PROJECT NO. B-3854
HAYWOOD COUNTY
STATION: 16+80.90 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

NORTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
REITH PASCHALL
8/28/07

ASSEMBLED BY : A.M.KEETER	DATE : 9/19/05
CHECKED BY : J.G.KHARVA	DATE : 2/7/06
DRAWN BY : TLA 5/05	ADDED 7/11/05R
CHECKED BY : GM 6/05	REV. 5/1/06 TLA/GM

28-AUG-2007 14:08
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JDHAWK

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-8
2			4			18

STD. NO. PCBB8

NOTES

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

LEVEL ONE FIELD TESTING IS REQUIRED FOR THE ADHESIVELY ANCHORED BOLTS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

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

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

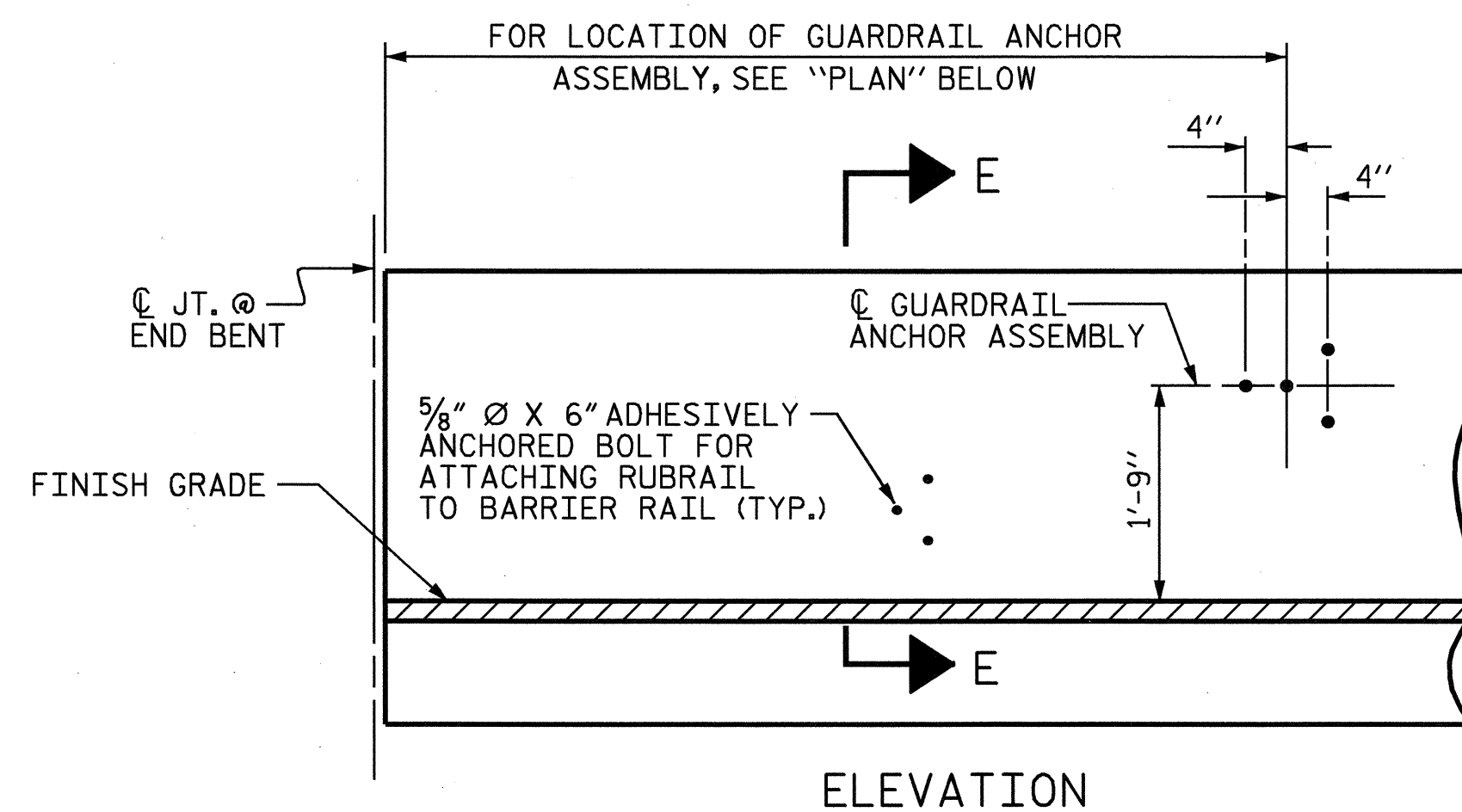
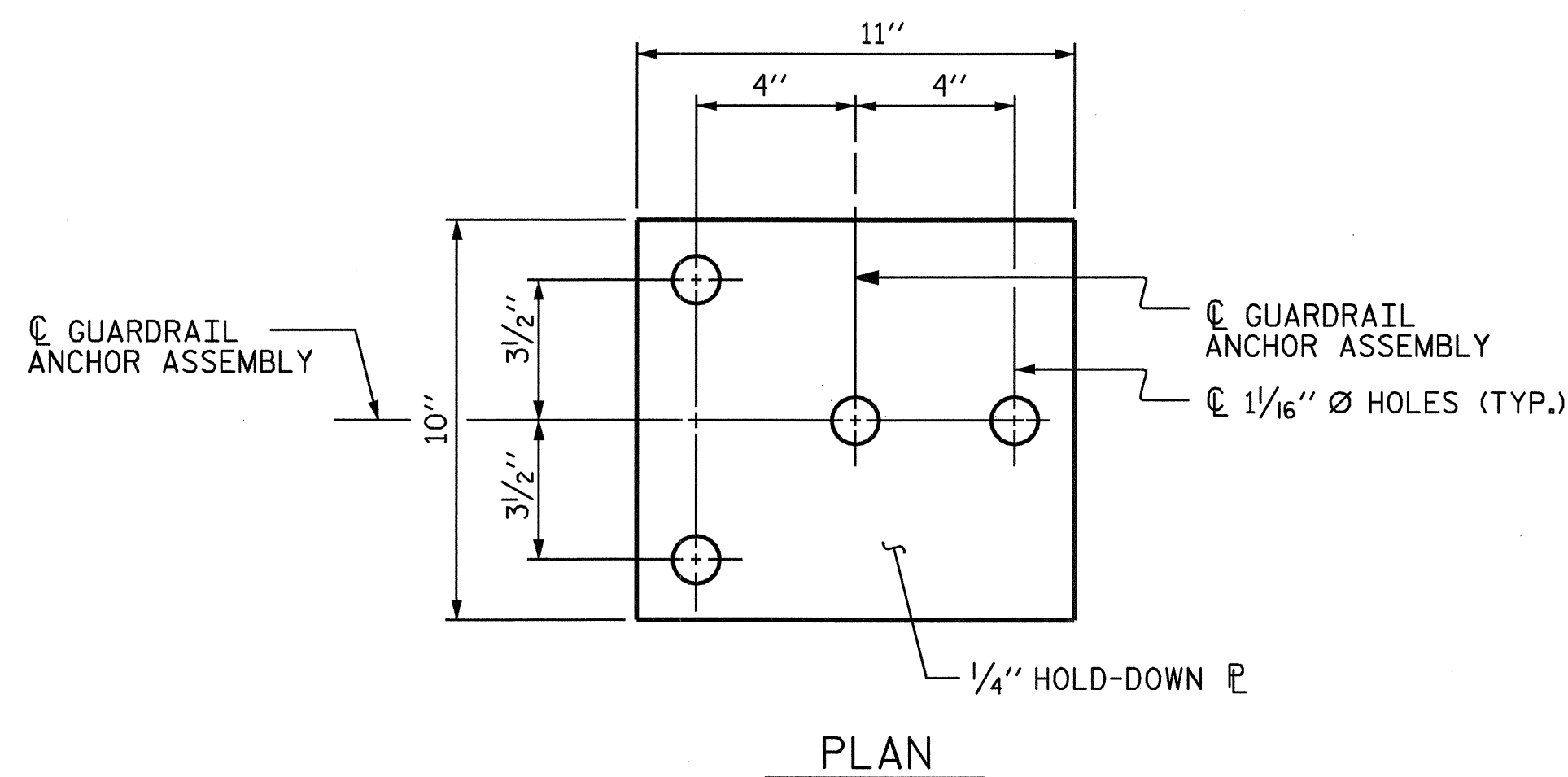
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

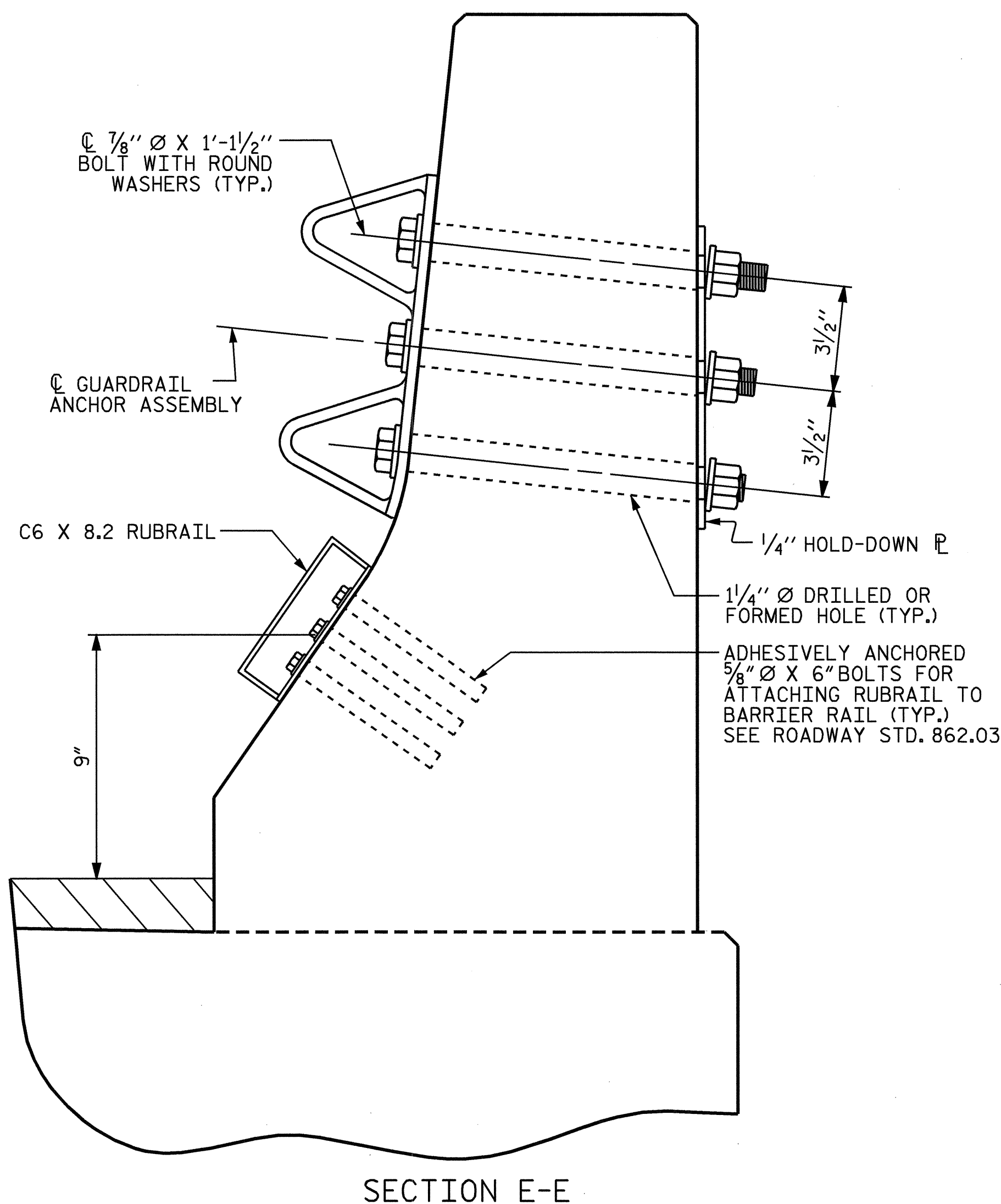
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

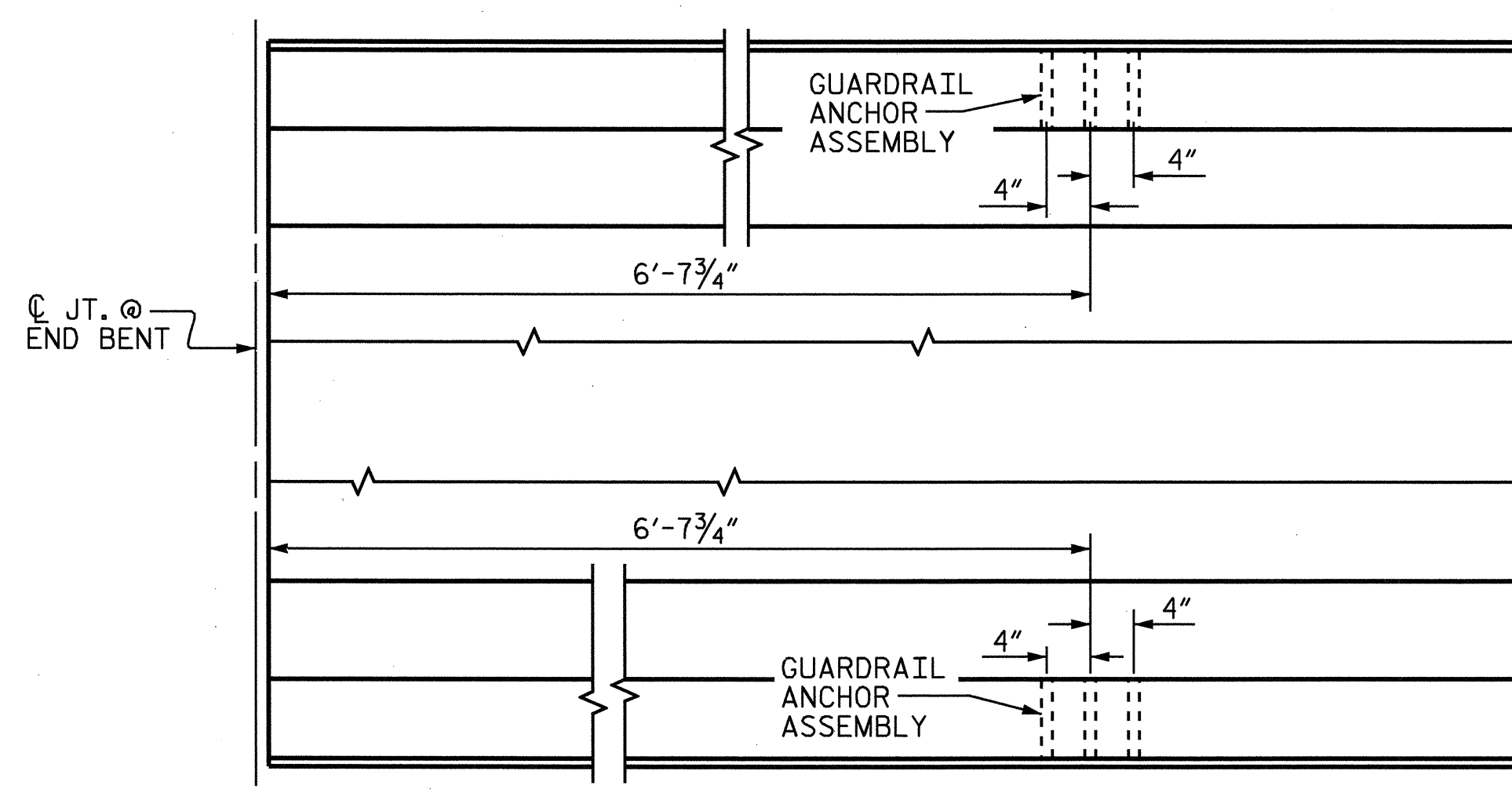
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

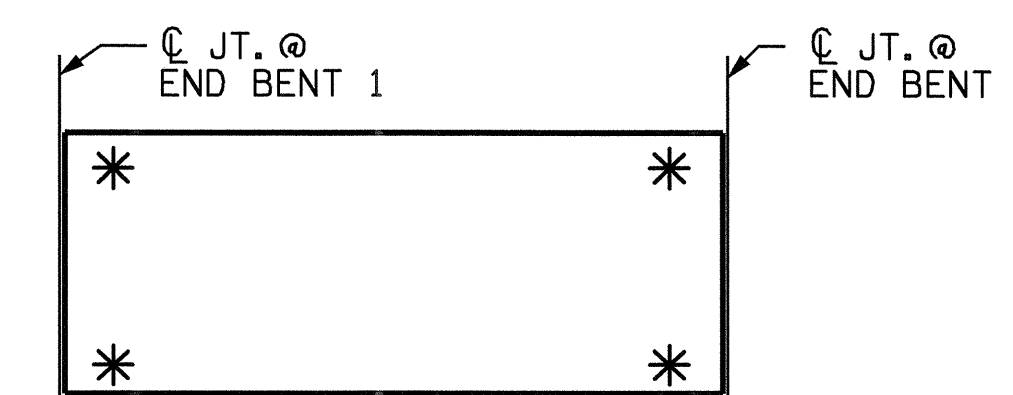


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

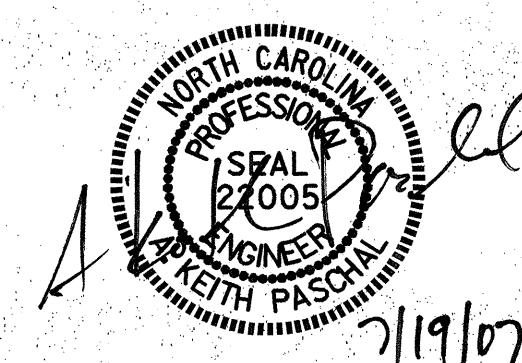
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

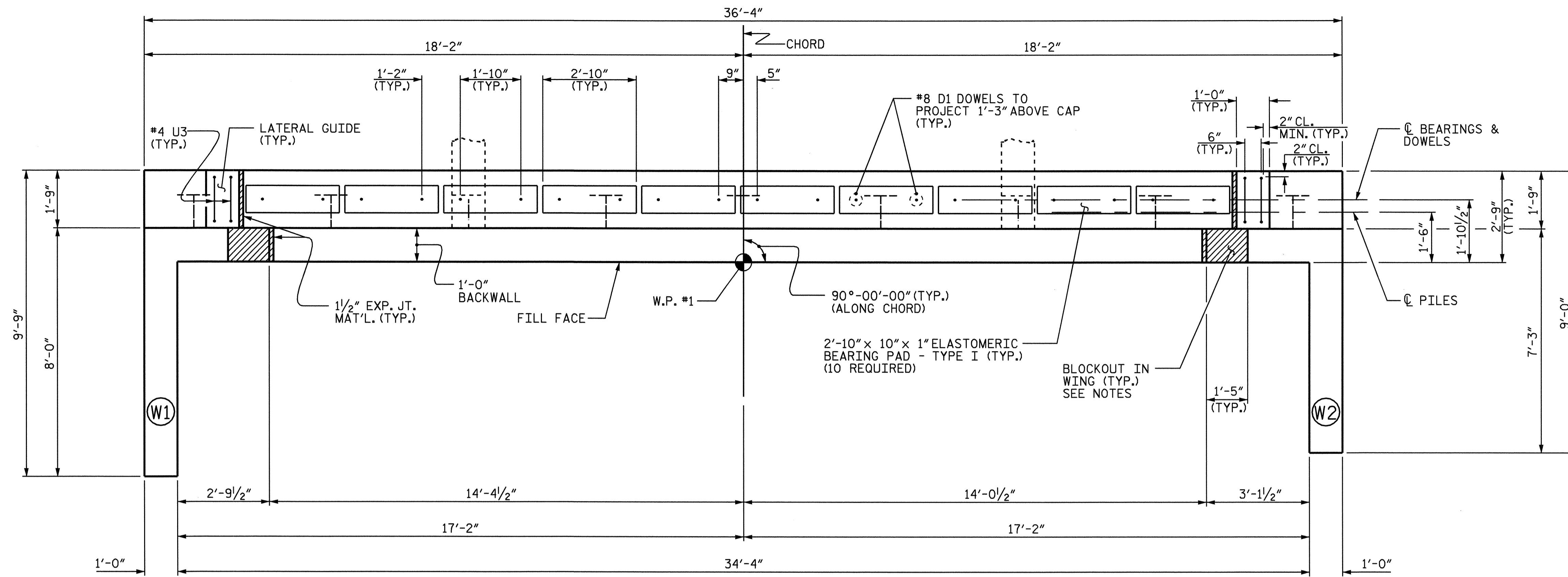
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
**GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL**

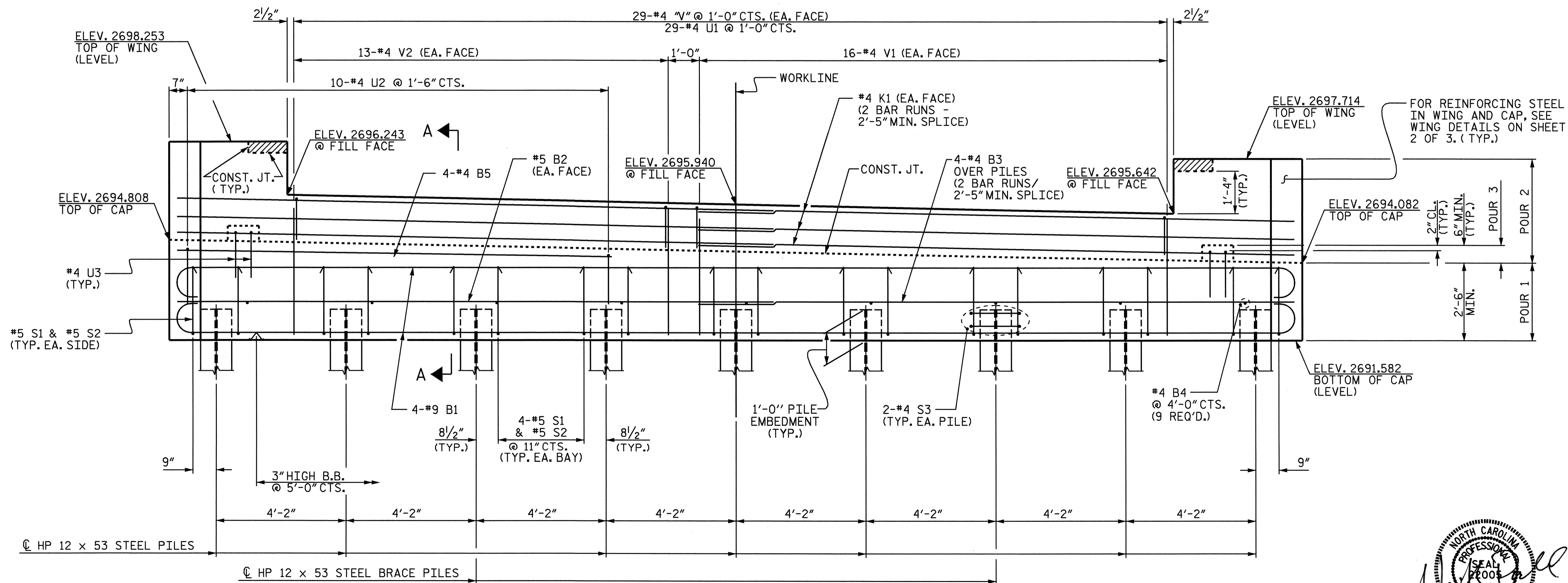
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 18
2			4			



ASSEMBLED BY : A. M. KEETER DATE : 9/19/05
 CHECKED BY : J. G. KHARVA DATE : 2/7/06
 DRAWN BY : TLA 5/06 ADDED 5/1/06
 CHECKED BY : GM 5/06



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 BOX BEAM UNITS ARE IN PLACE.

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

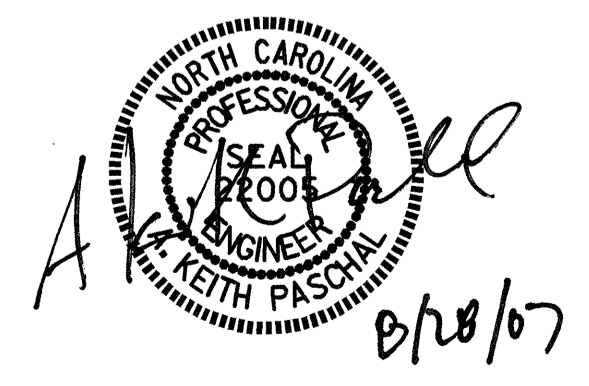
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-3854
 HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 1 OF 3

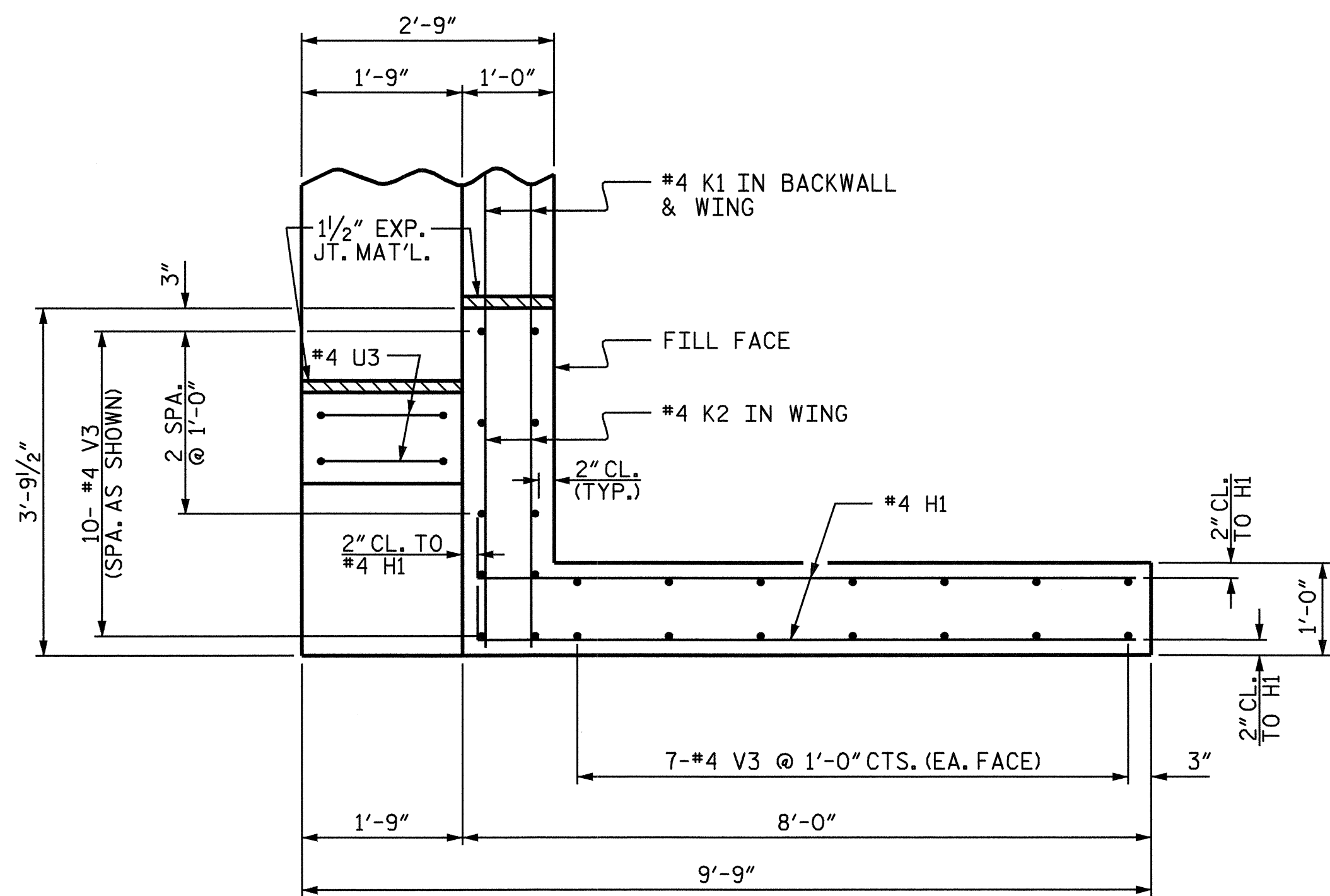
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

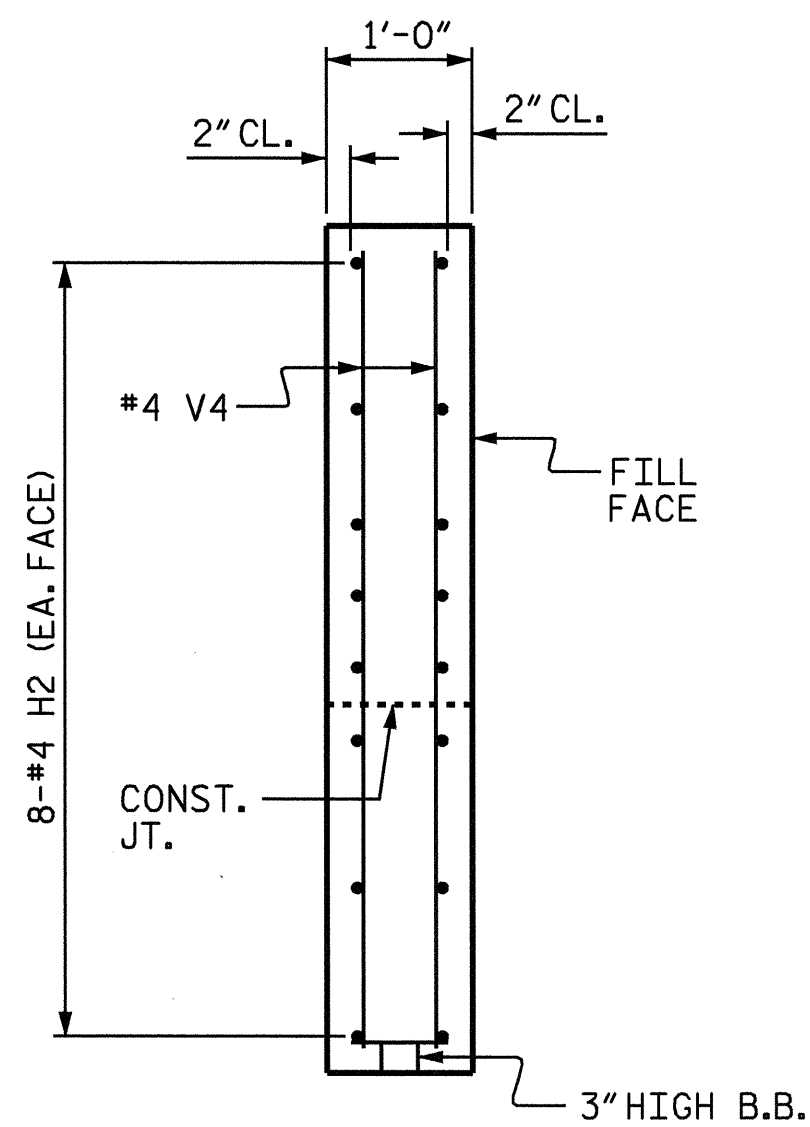


DRAWN BY: A.M. KEETER DATE: 8/21/06
 CHECKED BY: J. MYA DATE: 12/6/06

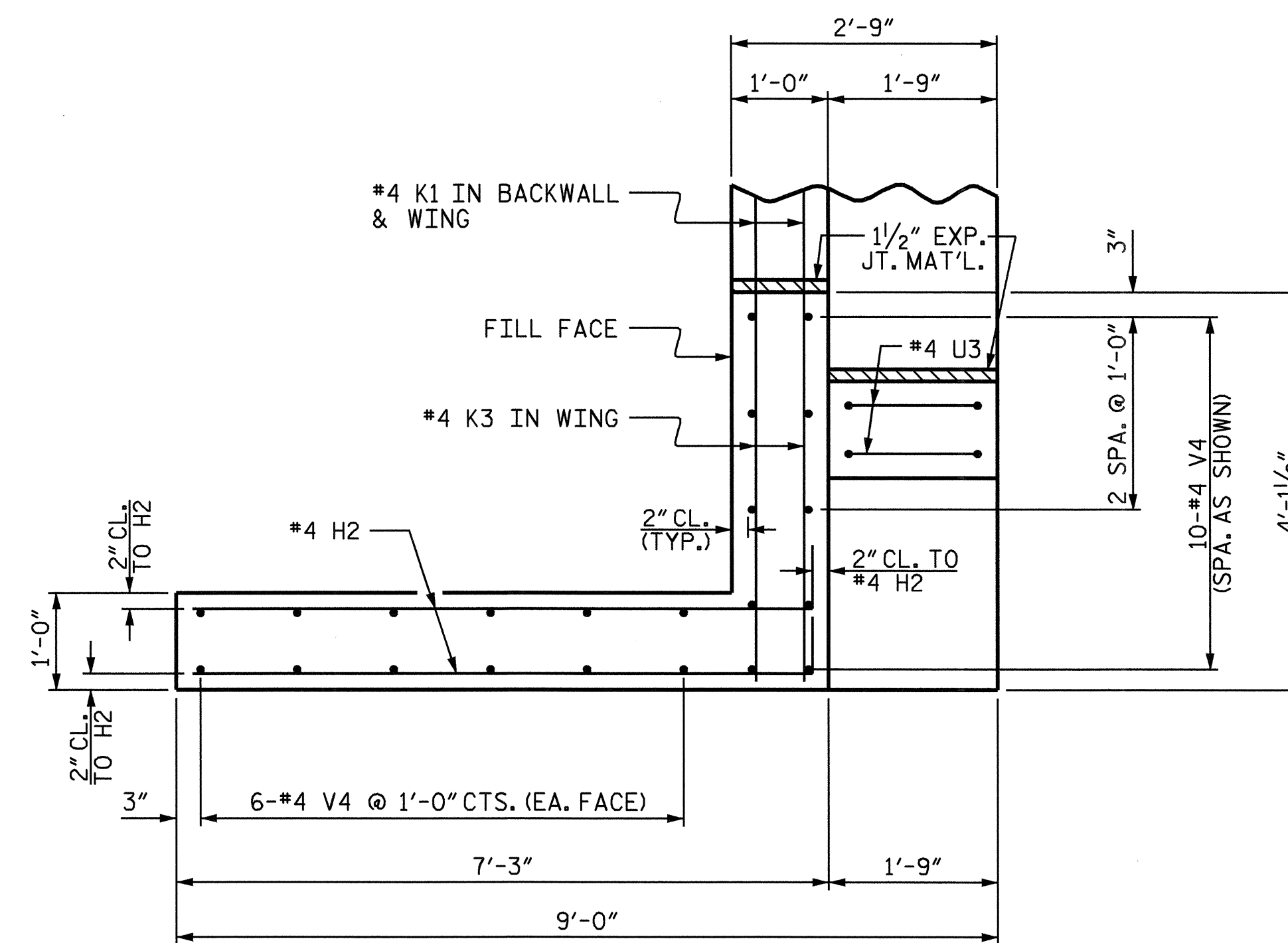
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	
2			4			18	



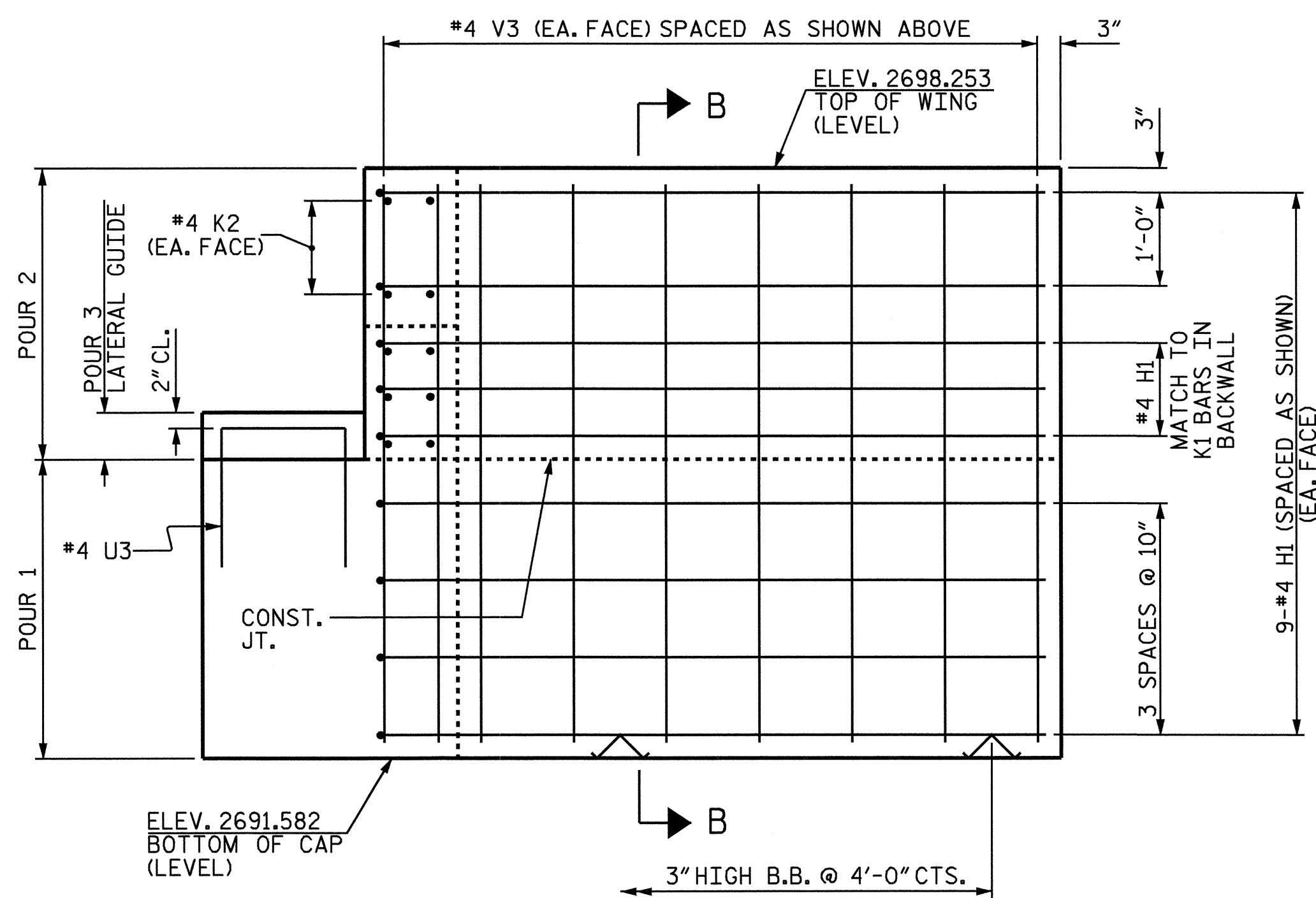
PLAN OF WING (W1)



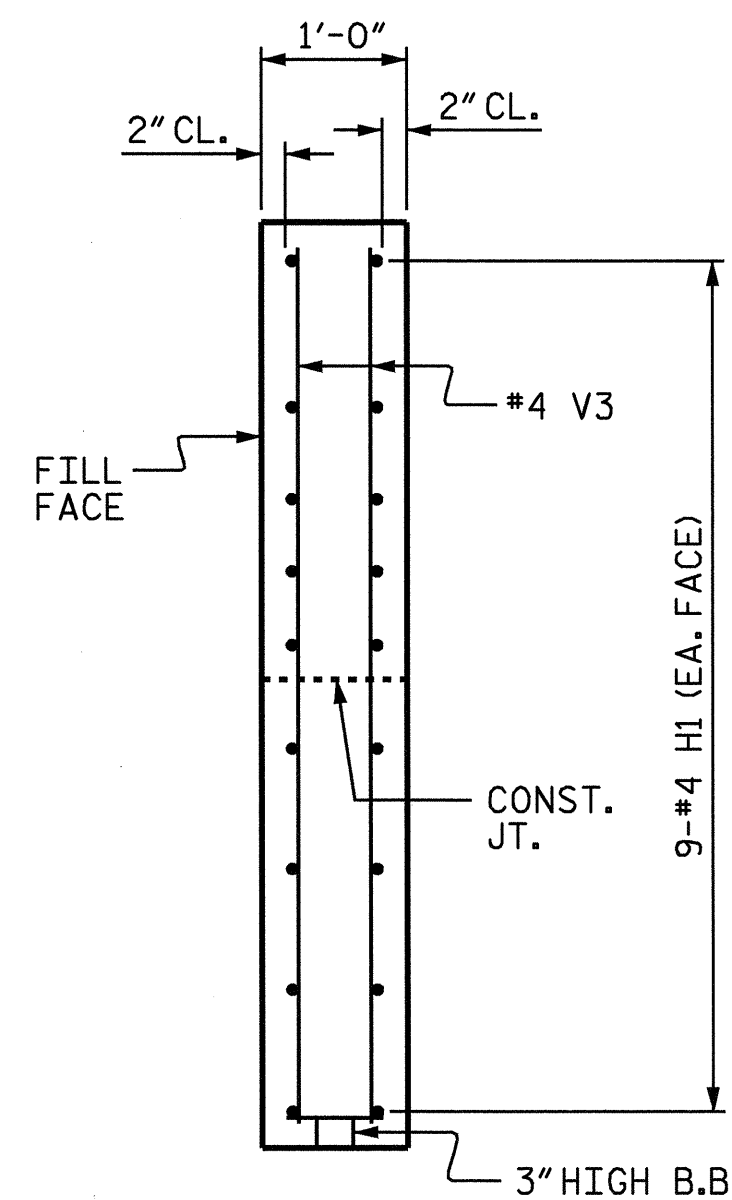
SECTION C-C



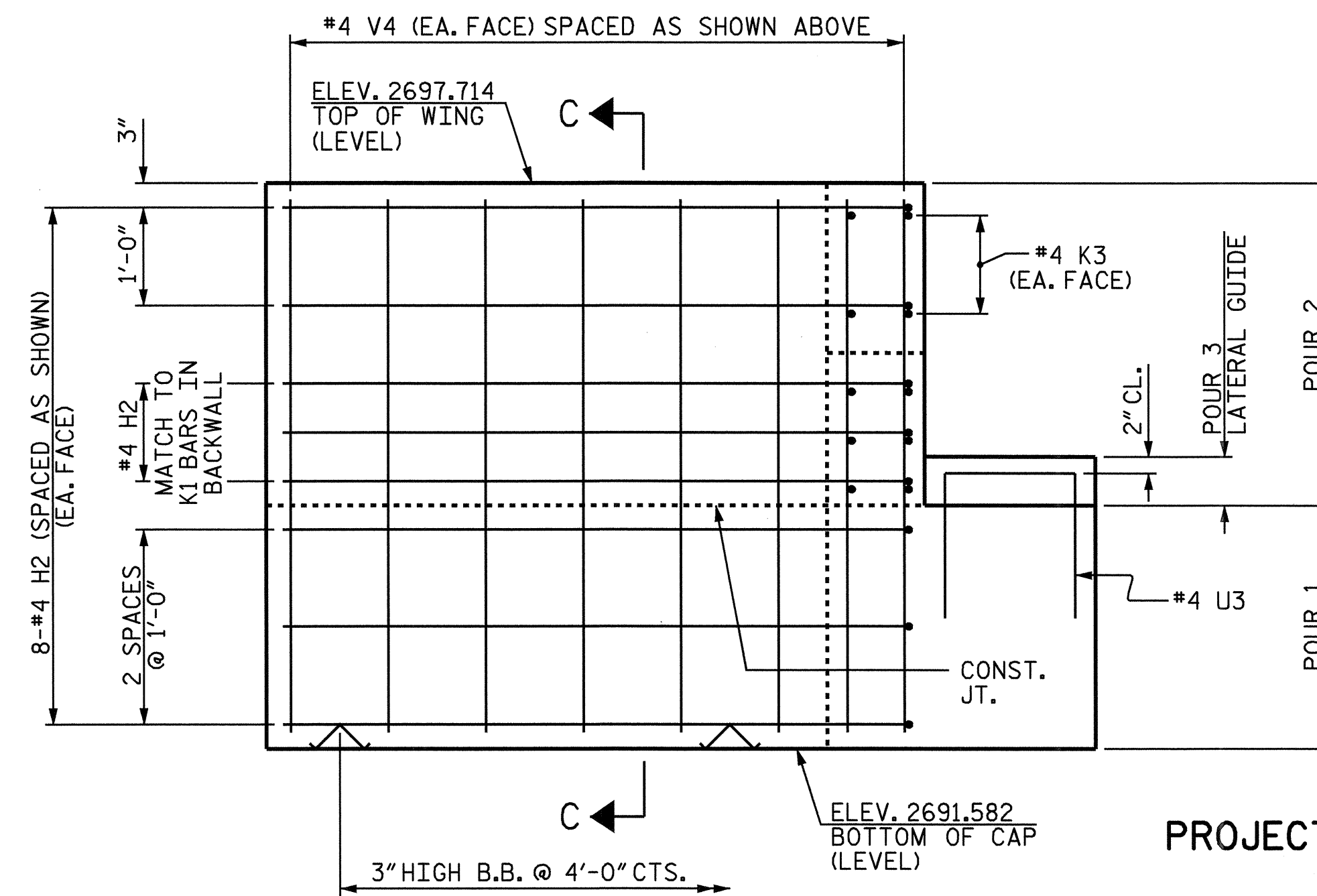
PLAN OF WING (W2)



ELEVATION OF WING (W1)



SECTION B-B



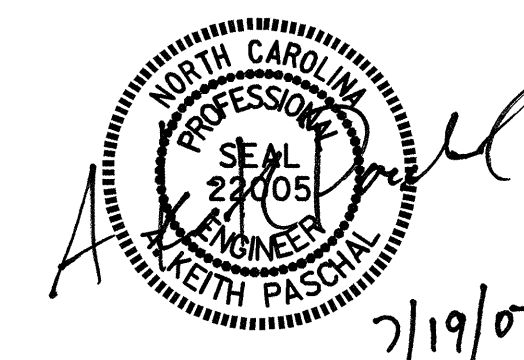
ELEVATION OF WING (W2)

PROJECT NO. B-3854
 HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

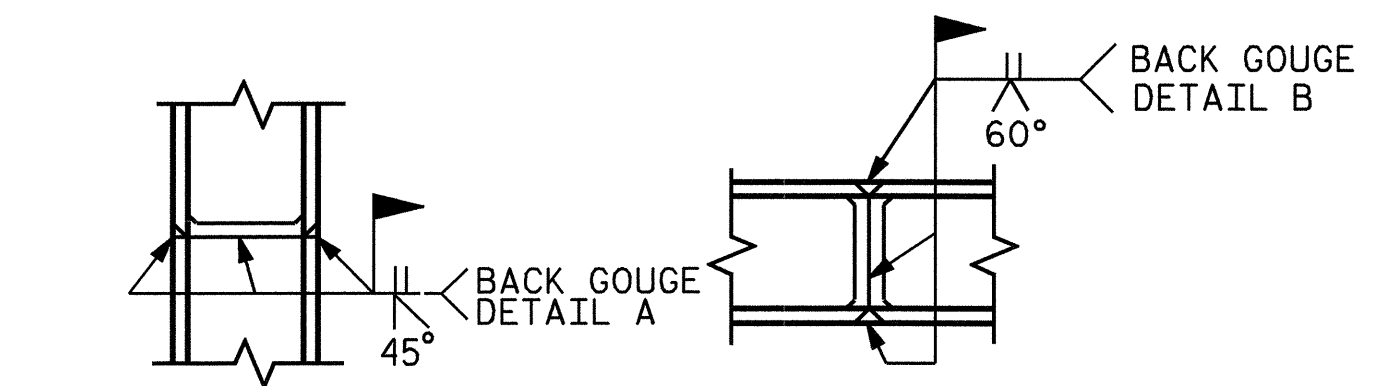
SUBSTRUCTURE
 END BENT 1



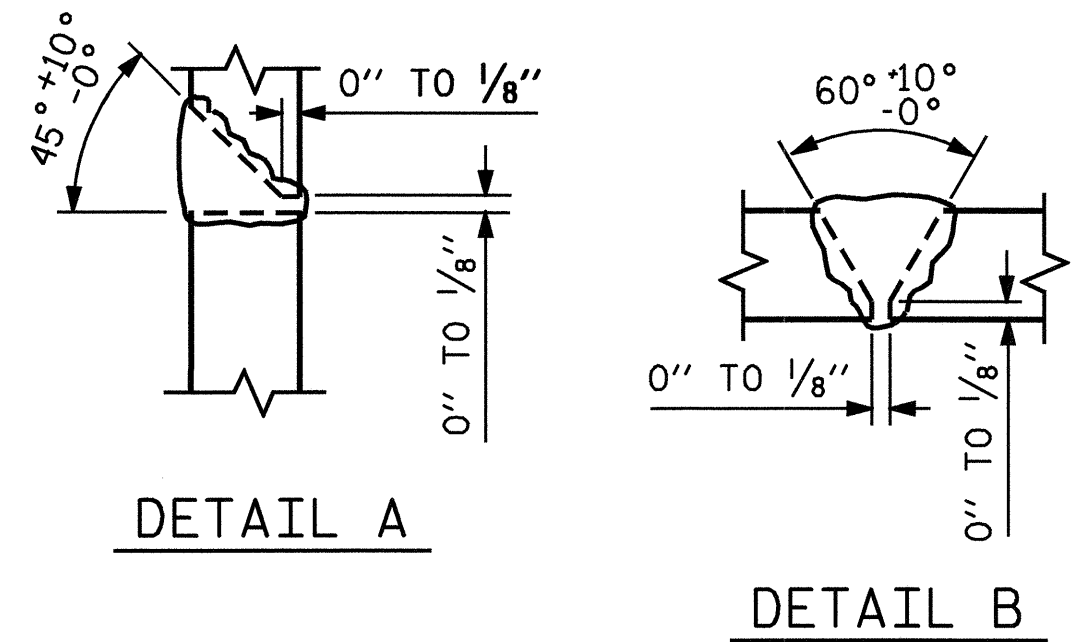
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 Jdhawk

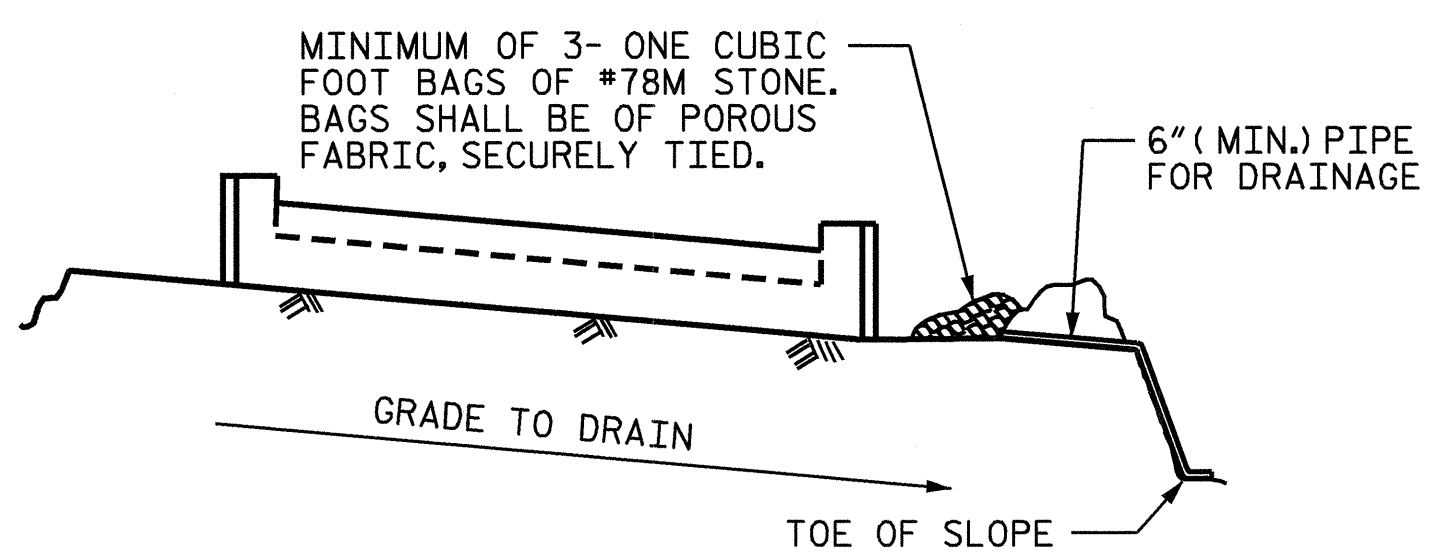
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			18



* PILE VERTICAL * PILE HORIZONTAL OR VERTICAL



* POSITION OF PILE DURING WELDING. PILE SPLICE DETAILS



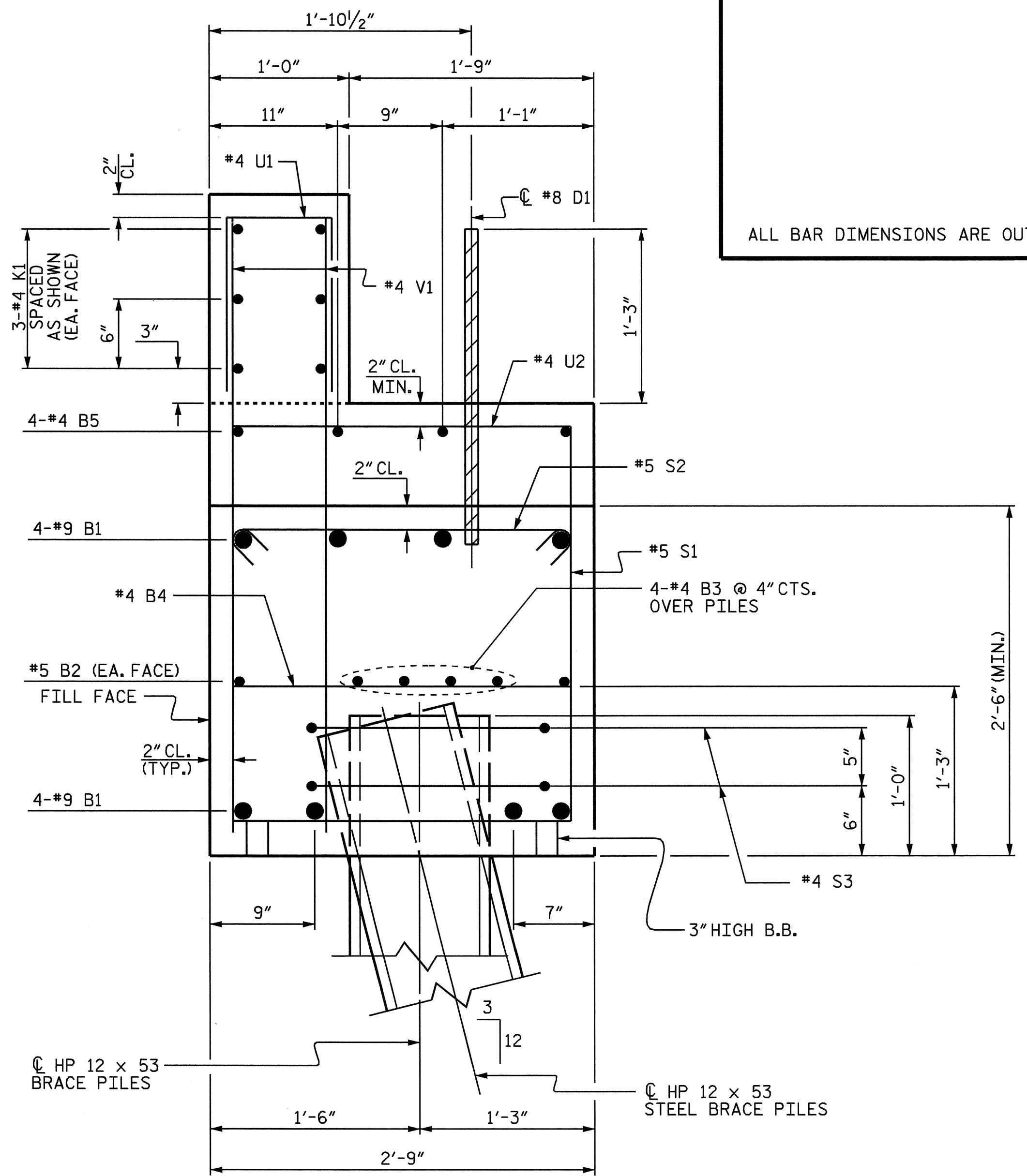
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

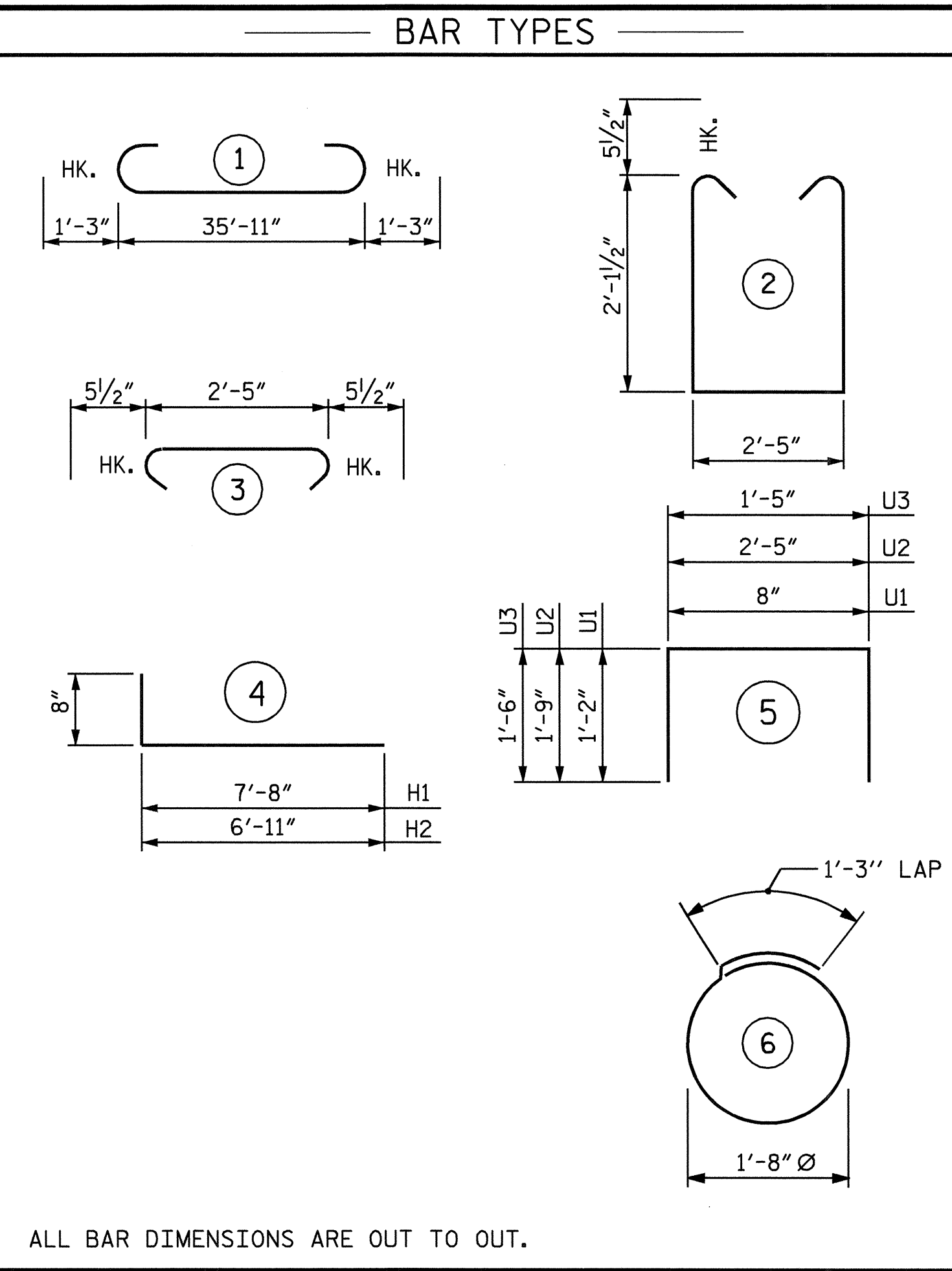
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

DRAWN BY : A.M. KEETER DATE : 8/21/06
 CHECKED BY : J. MYA DATE : 12/6/06



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

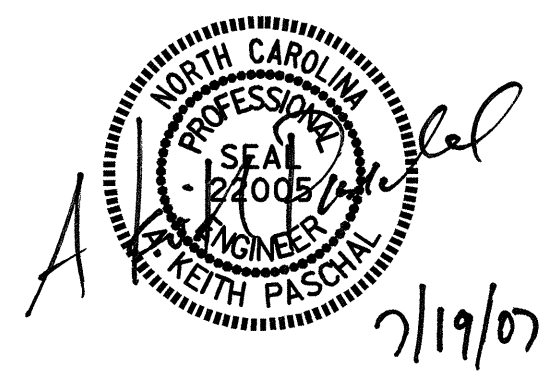
BILL OF MATERIAL						
END BENT 1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	38'-5"	1045	
B2	2	#5	STR	36'-0"	75	
B3	8	#4	STR	19'-3"	103	
B4	9	#4	STR	2'-5"	15	
B5	4	#4	STR	13'-11"	37	
D1	20	#8	STR	2'-3"	120	
H1	18	#4	4	8'-4"	100	
H2	16	#4	4	7'-7"	81	
K1	12	#4	STR	19'-3"	154	
K2	4	#4	STR	3'-5"	9	
K3	4	#4	STR	3'-9"	10	
S1	34	#4	2	7'-7"	172	
S2	34	#4	3	3'-4"	76	
S3	18	#4	6	6'-6"	78	
U1	29	#4	5	3'-0"	58	
U2	10	#4	5	5'-11"	40	
U3	4	#4	5	4'-5"	12	
V1	32	#4	STR	3'-9"	80	
V2	26	#4	STR	4'-1"	71	
V3	24	#4	STR	6'-4"	102	
V4	22	#4	STR	5'-9"	85	
REINFORCING STEEL					LBS.	2523
CLASS A CONCRETE (CU. YDS.)						
POUR 1						
CAP & LOWER PART OF WINGS					12.9	
POUR 2						
BACKWALL & UPPER PART OF WINGS					3.9	
POUR 3						
LATERAL GUIDES					0.1	
TOTAL					16.9	
HP 12 x 53 STEEL PILES						
No. 9					450 LIN.FT.	
STEEL PILE POINTS						
EA.					9	

PROJECT NO. B-3854
 HAYWOOD COUNTY
 STATION: 16+80.90 -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-12
1			3			TOTAL SHEETS
2			4			18

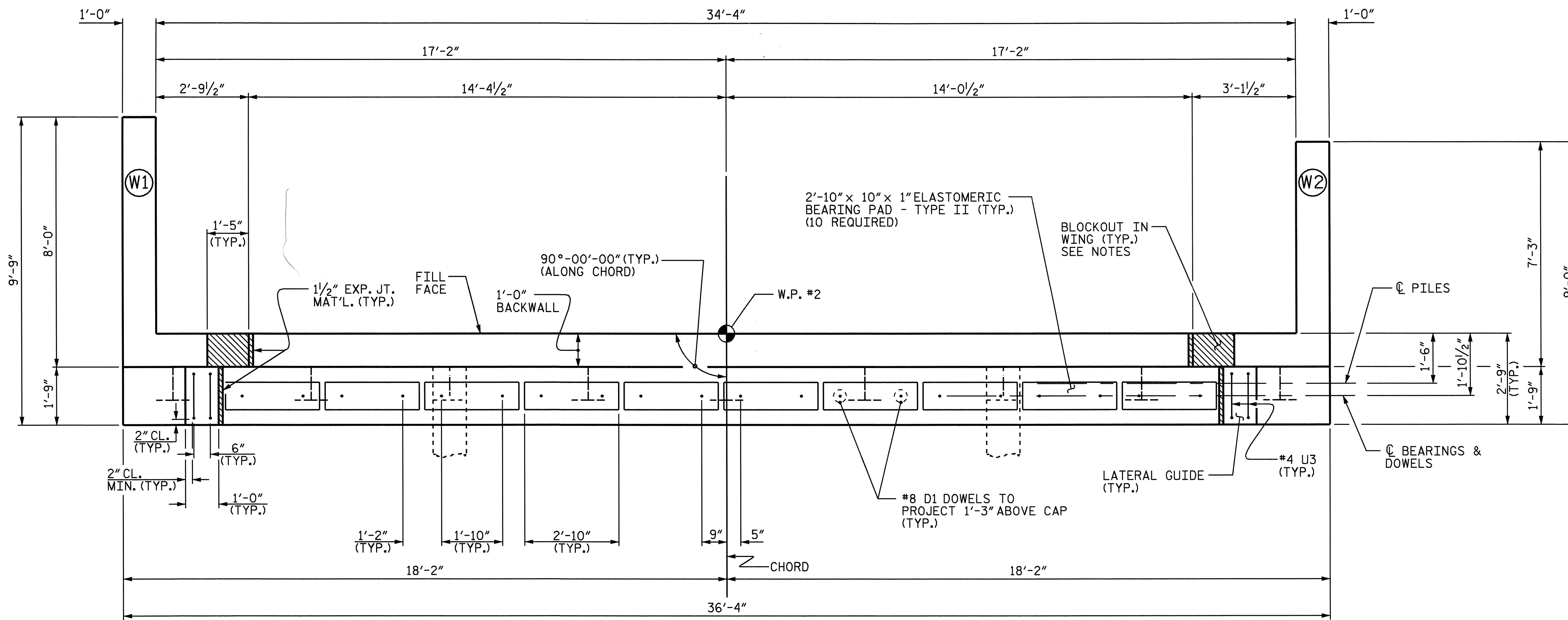
NOTES:

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

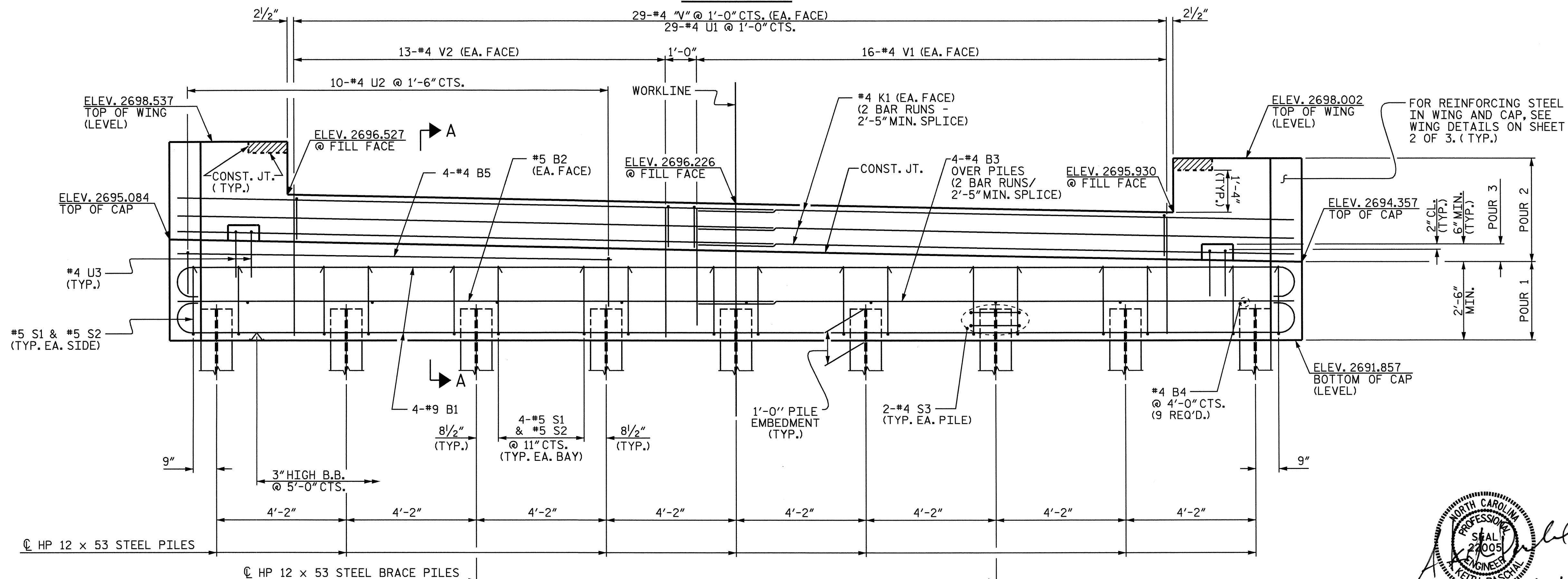
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.

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

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN



ELEVATION

PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

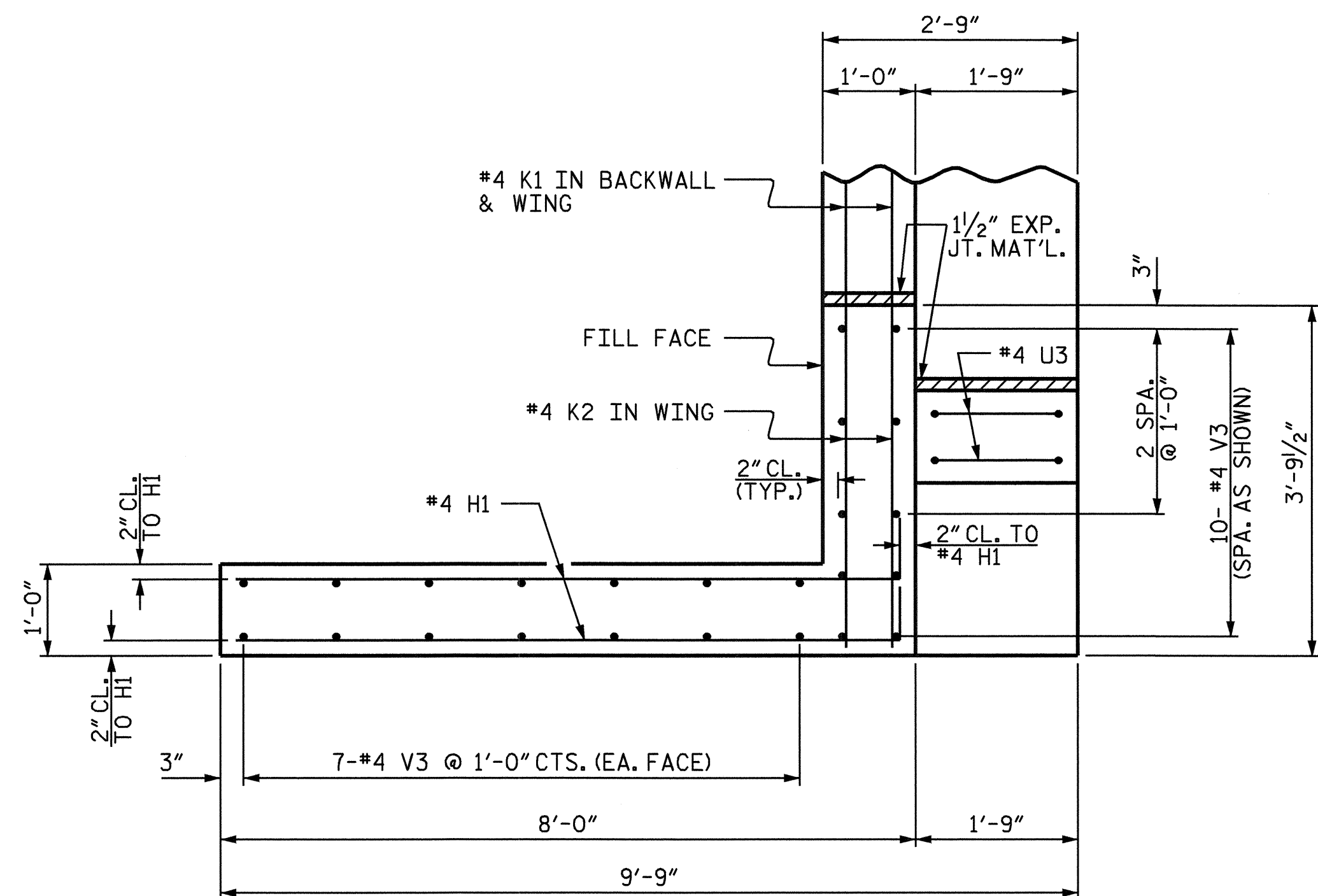
SUBSTRUCTURE
 END BENT 2



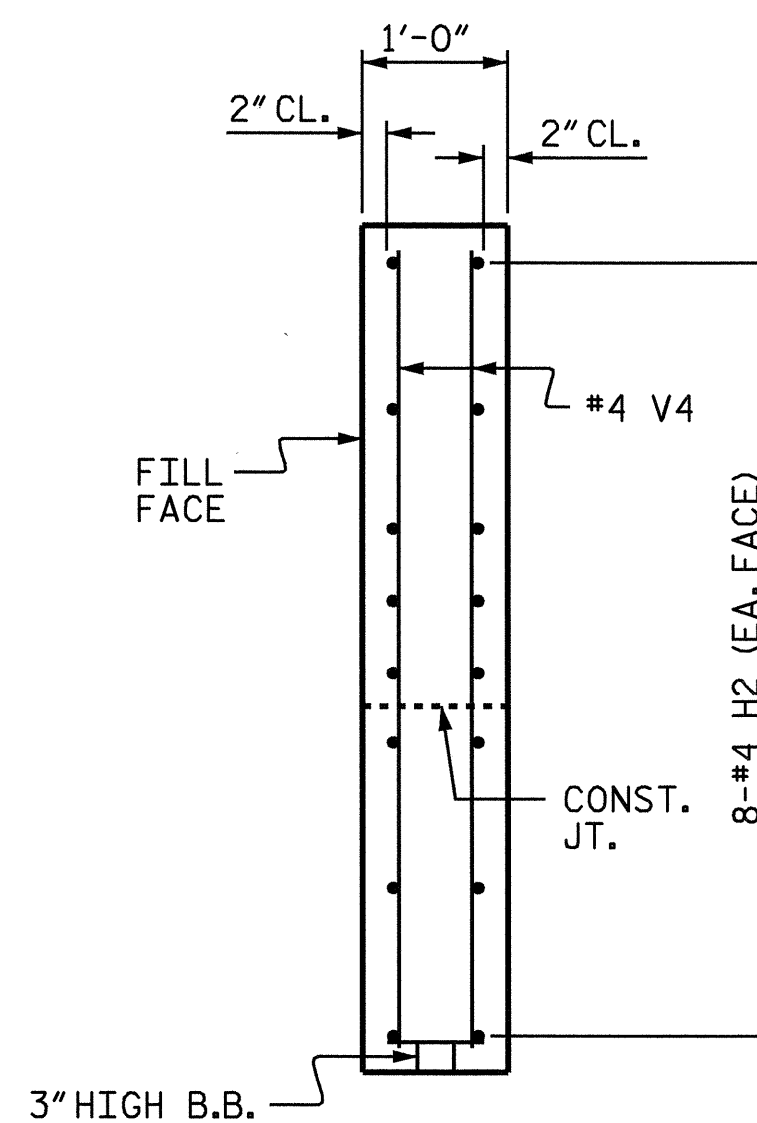
DRAWN BY: A.M. KEETER DATE: 8/22/06
 CHECKED BY: J. MYA DATE: 12/7/06

28-AUG-2007 14:08
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 JHAWK

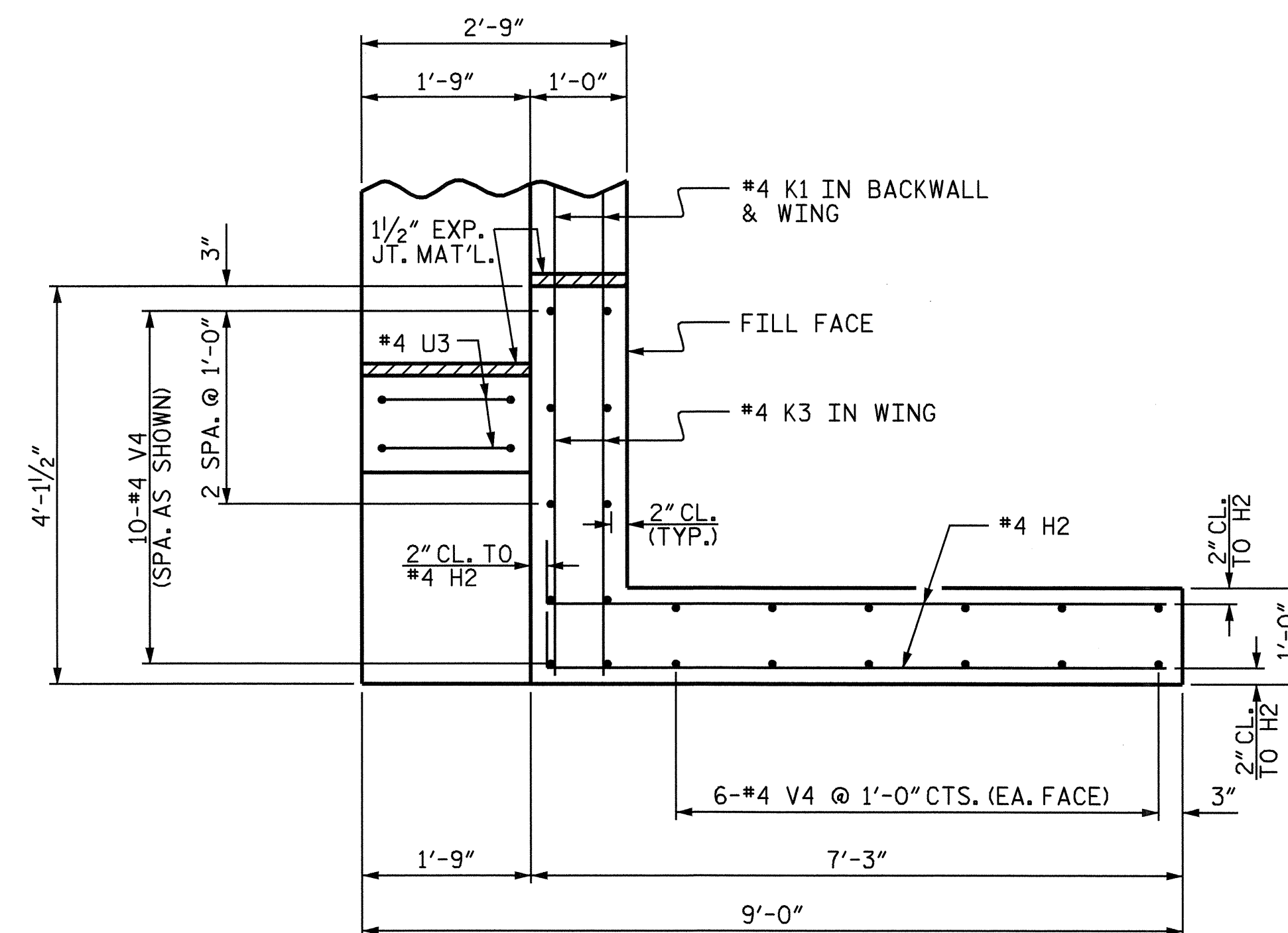
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1			3			TOTAL SHEETS
2			4			18



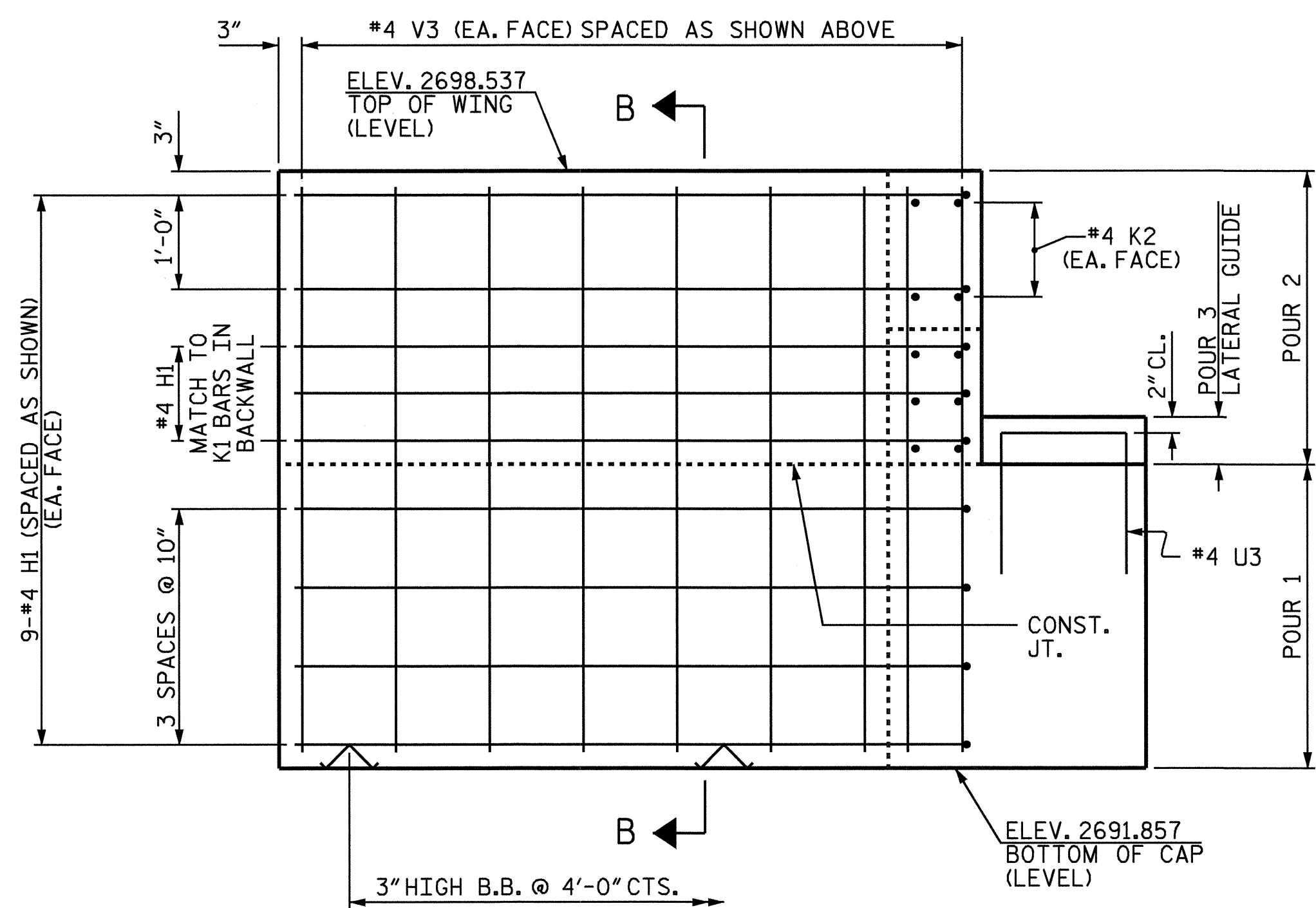
PLAN OF WING (W1)



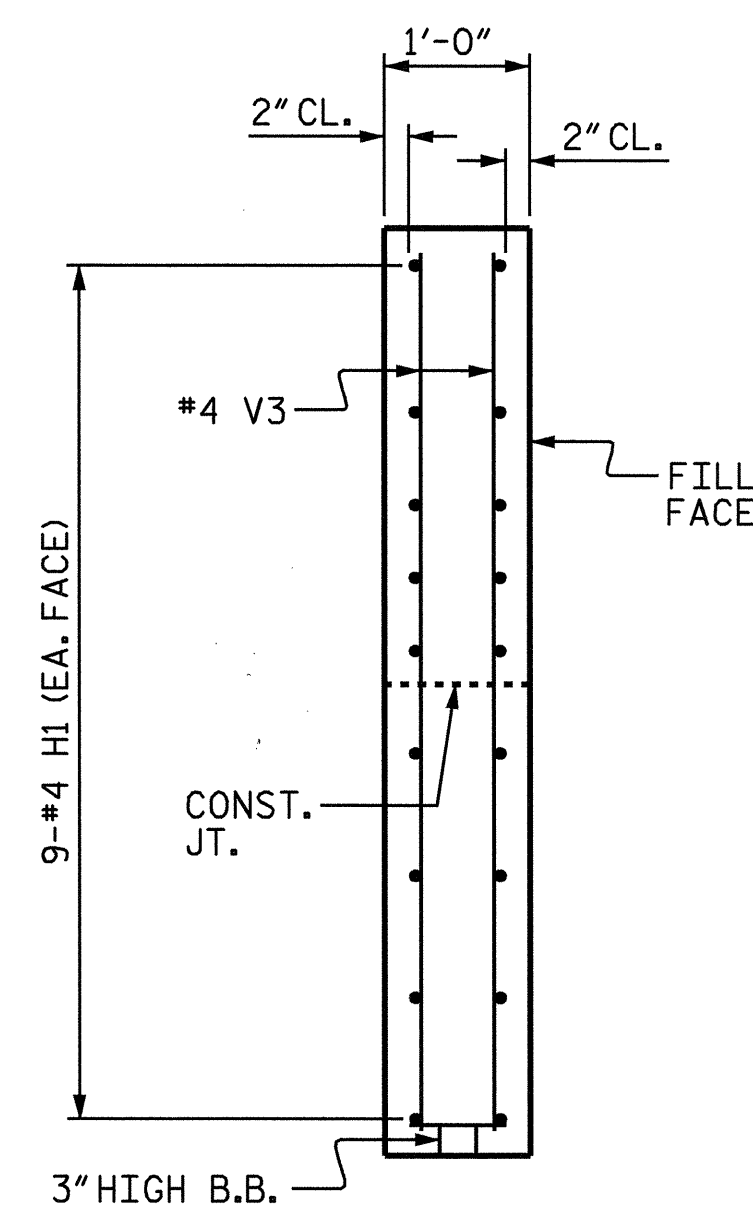
SECTION C-C



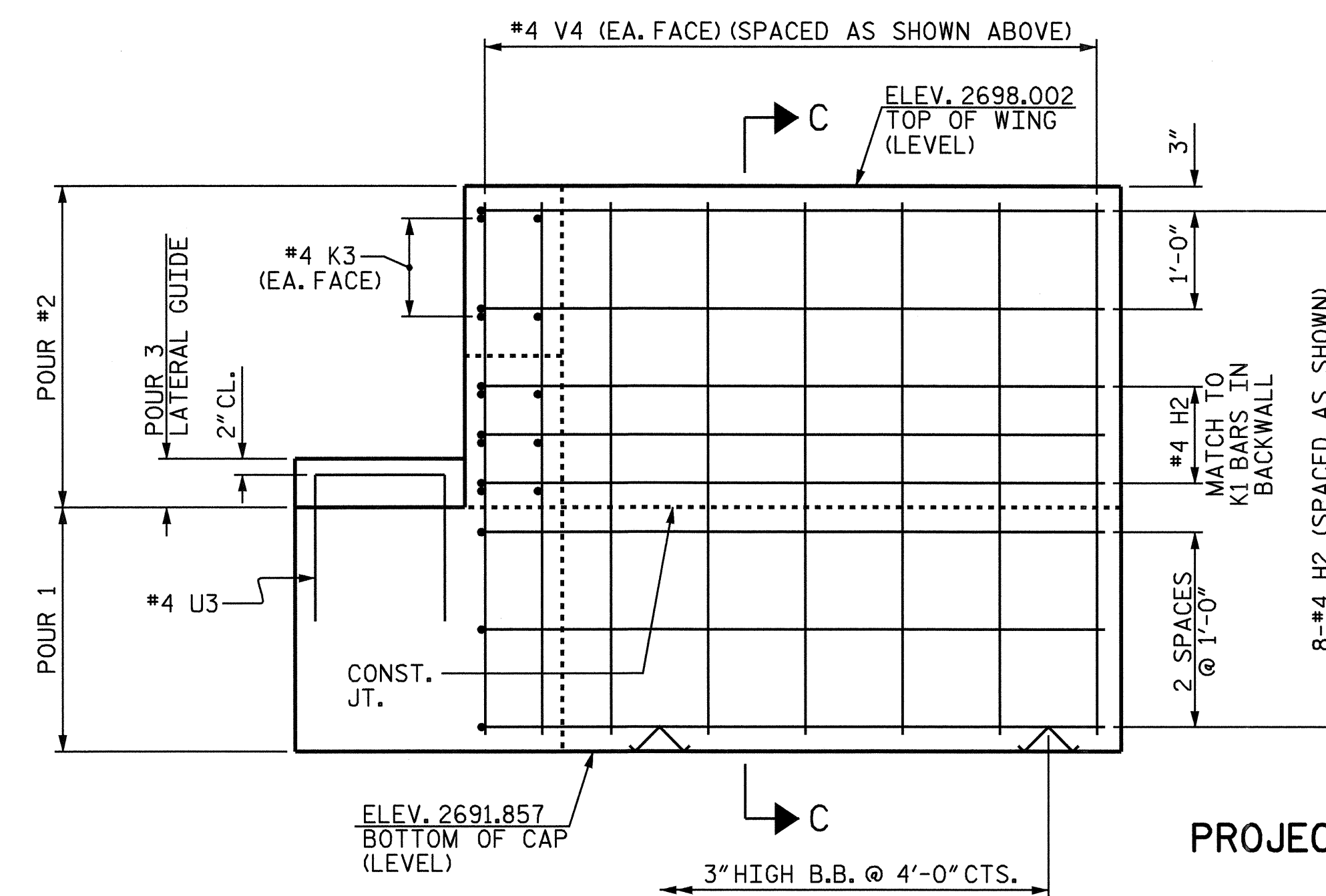
PLAN OF WING (W2)



ELEVATION OF WING (W1)



SECTION B-B



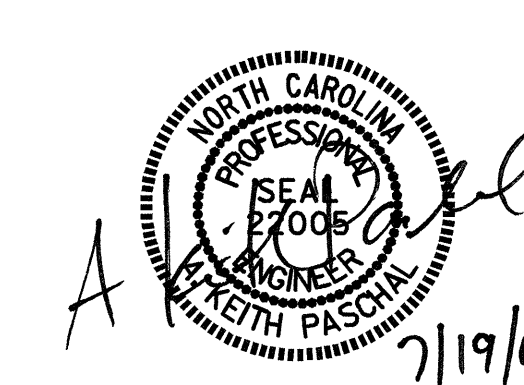
ELEVATION OF WING (W2)

PROJECT NO. B-3854
 HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 2 OF 3

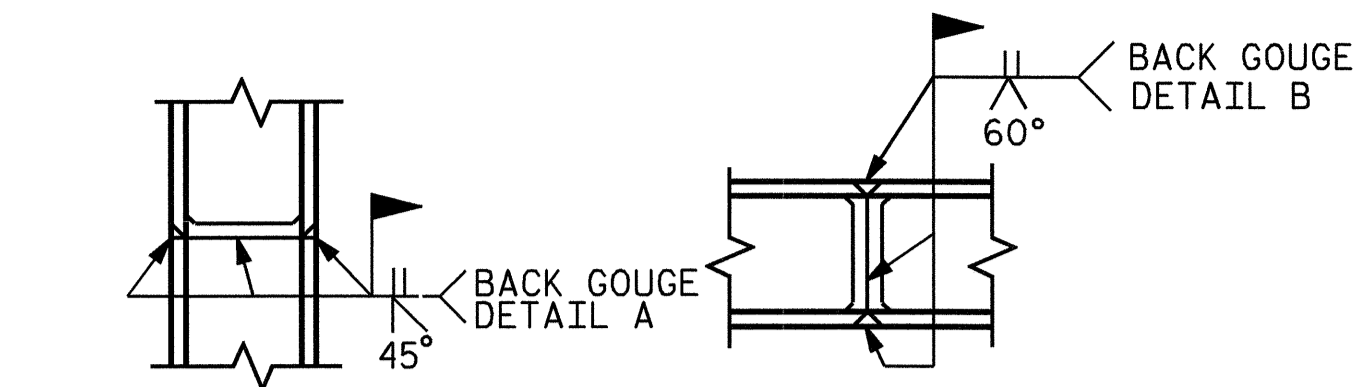
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2

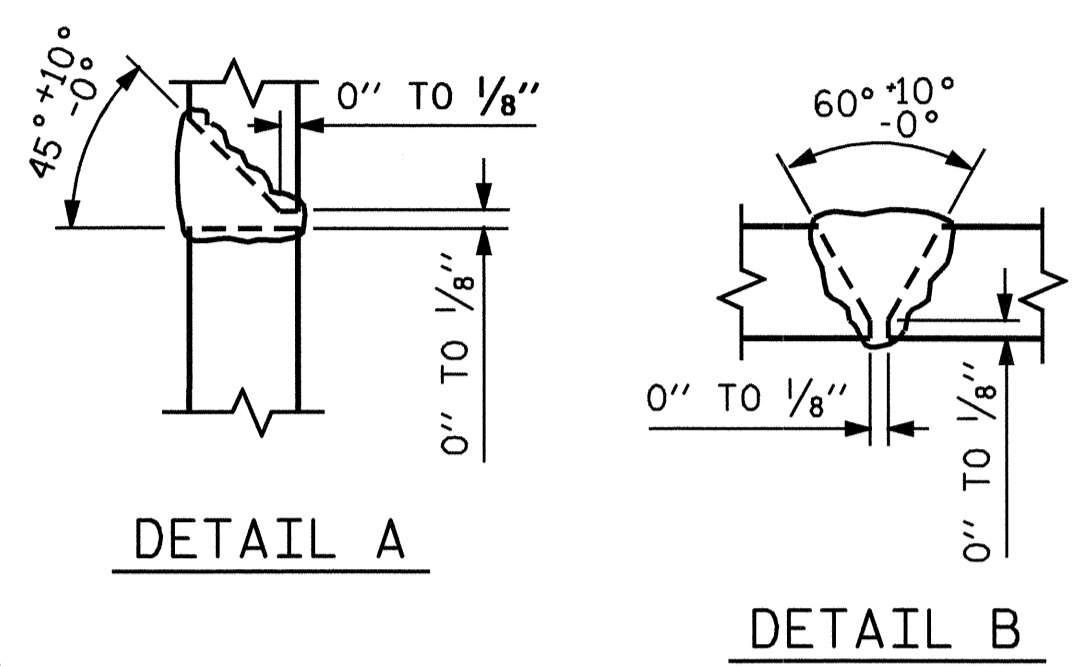


DRAWN BY: A.M. KEETER DATE: 8/21/06
 CHECKED BY: J. MYA DATE: 12/7/06

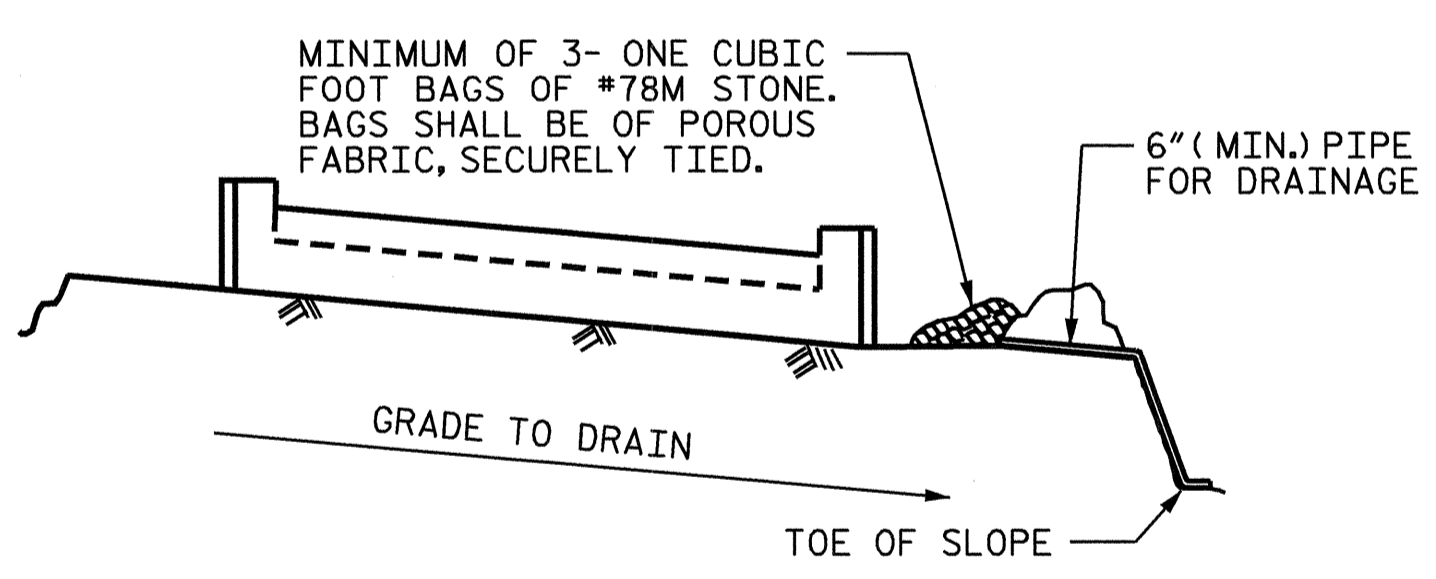
REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			



* PILE VERTICAL * PILE HORIZONTAL OR VERTICAL



* POSITION OF PILE DURING WELDING.
PILE SPLICE DETAILS

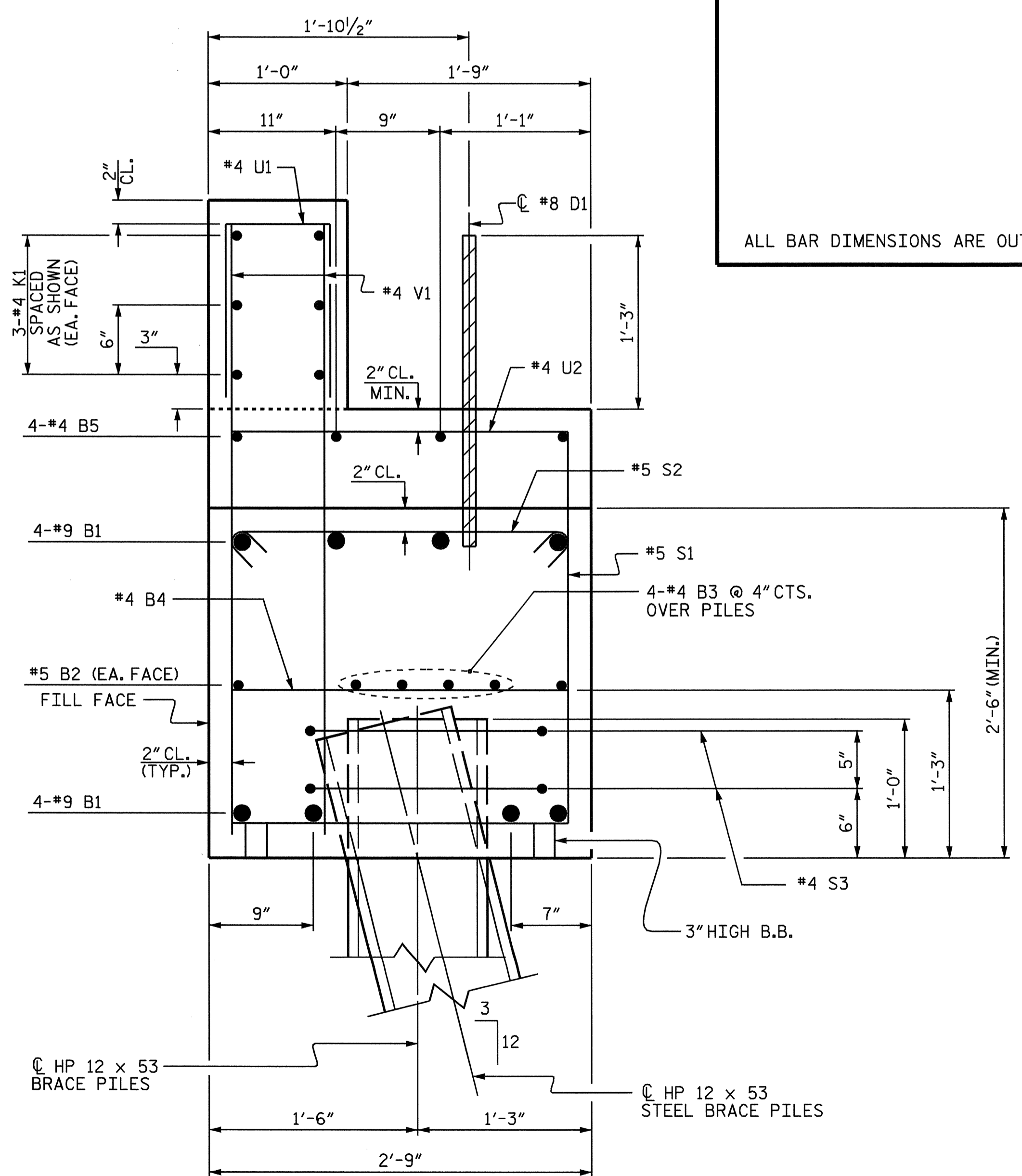


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

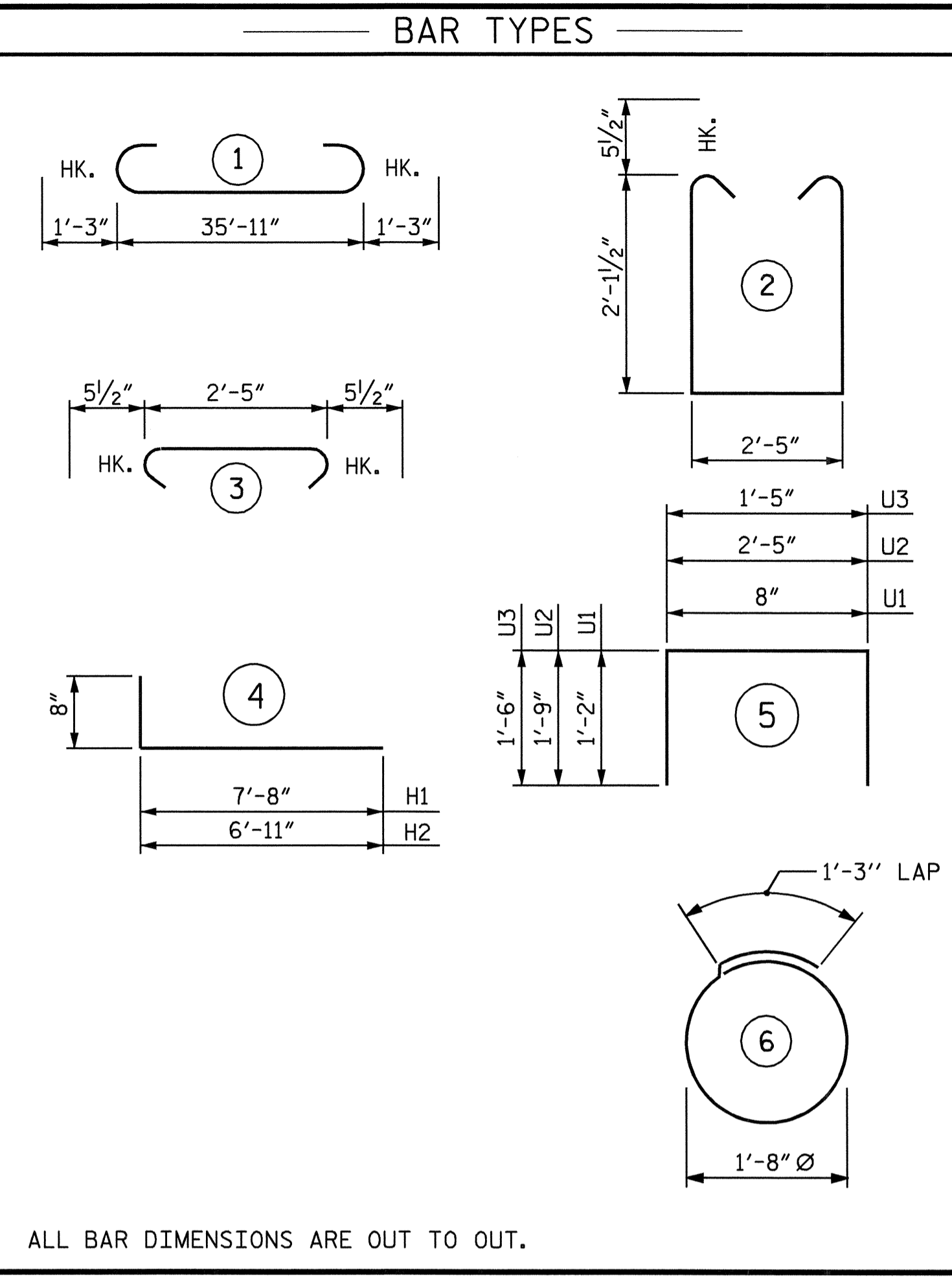
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-5"	1045
B2	2	#5	STR	36'-0"	75
B3	8	#4	STR	19'-3"	103
B4	9	#4	STR	2'-5"	15
B5	4	#4	STR	13'-11"	37
D1	20	#8	STR	2'-3"	120
H1	18	#4	4	8'-4"	100
H2	16	#4	4	7'-7"	81
K1	12	#4	STR	19'-3"	154
K2	4	#4	STR	3'-5"	9
K3	4	#4	STR	3'-9"	10
S1	34	#4	2	7'-7"	172
S2	34	#4	3	3'-4"	76
S3	18	#4	6	6'-6"	78
U1	29	#4	5	3'-0"	58
U2	10	#4	5	5'-11"	40
U3	4	#4	5	4'-5"	12
V1	32	#4	STR	3'-9"	80
V2	26	#4	STR	4'-1"	71
V3	24	#4	STR	6'-4"	102
V4	22	#4	STR	5'-9"	85

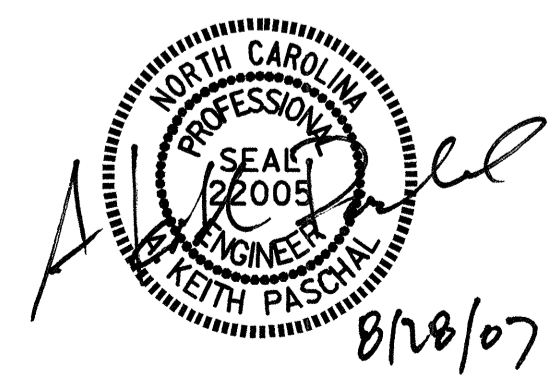
REINFORCING STEEL		LBS.	2523
CLASS A CONCRETE (CU. YDS.)			
POUR 1			
CAP & LOWER PART OF WINGS		12.9	
POUR 2			
BACKWALL & UPPER PART OF WINGS		3.9	
POUR 3			
LATERAL GUIDES		0.1	
TOTAL		16.9	
HP 12 x 53 STEEL PILES			
No. 9		315 LIN.FT.	
STEEL PILE POINTS			
EA.		9	

PROJECT NO. B-3854
HAYWOOD COUNTY
STATION: 16+80.90 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

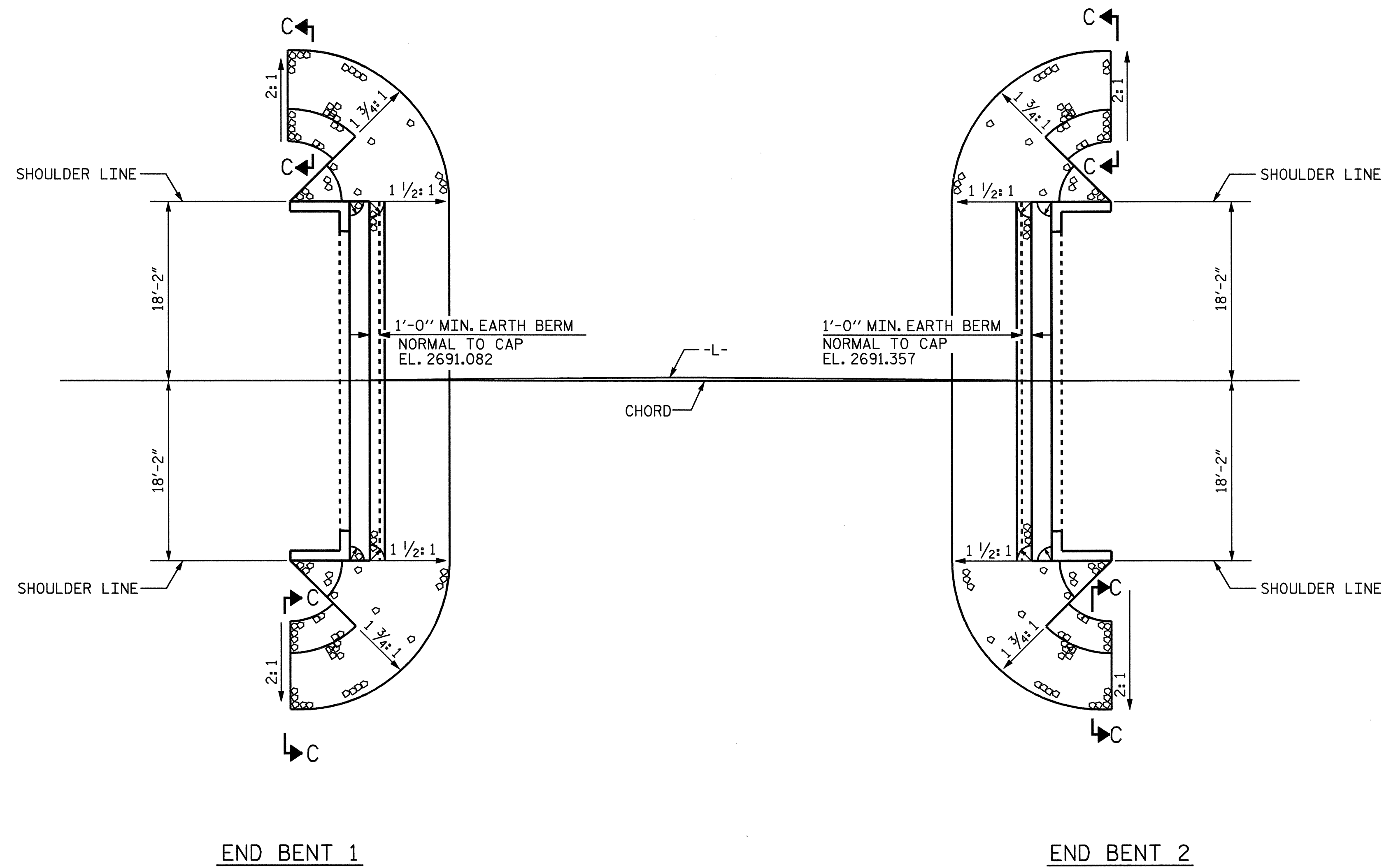
SUBSTRUCTURE
END BENT 2



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	
2			4			18	

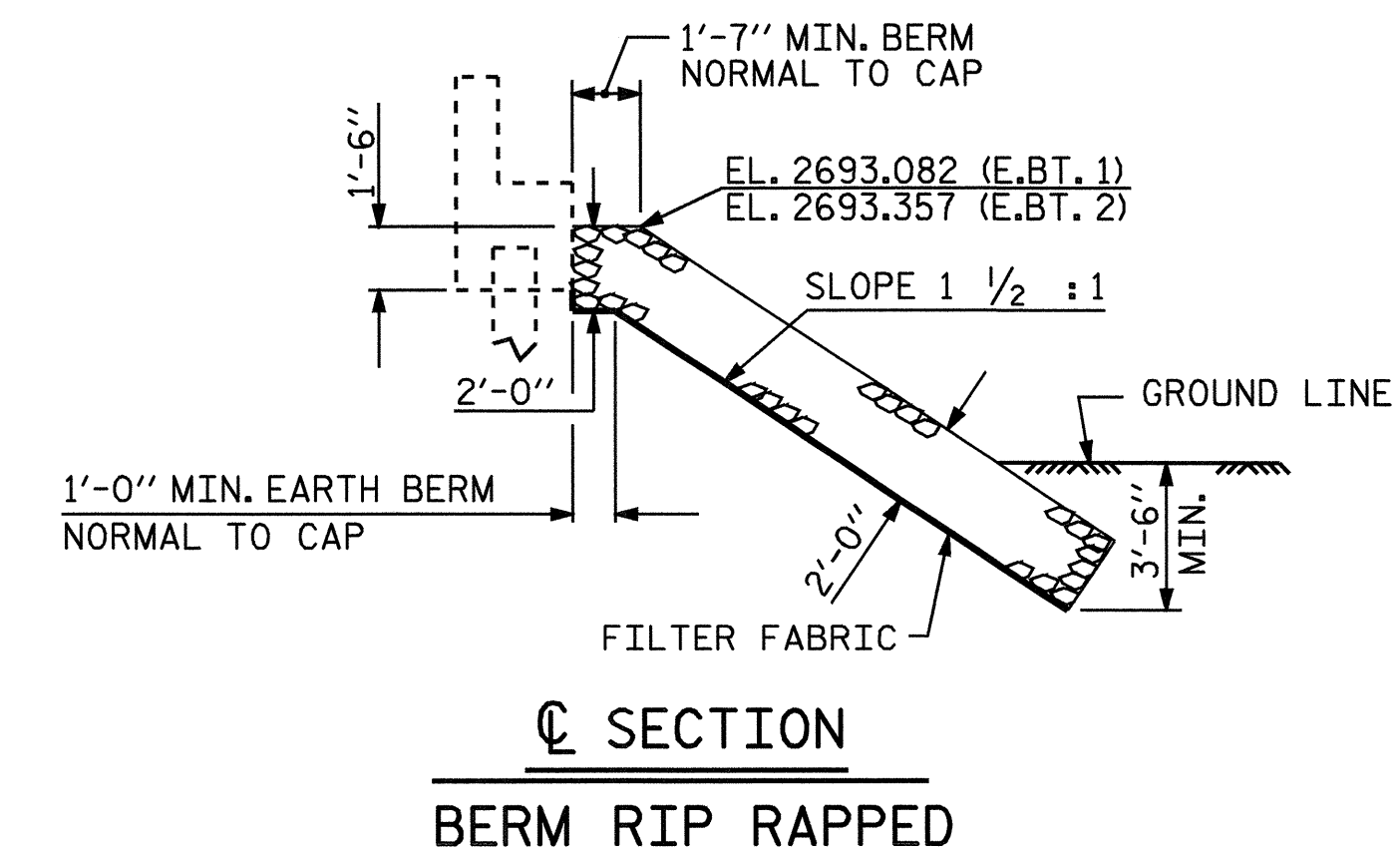
DRAWN BY: A.M. KEETER DATE: 8/21/06
CHECKED BY: J. MYA DATE: 12/7/06

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

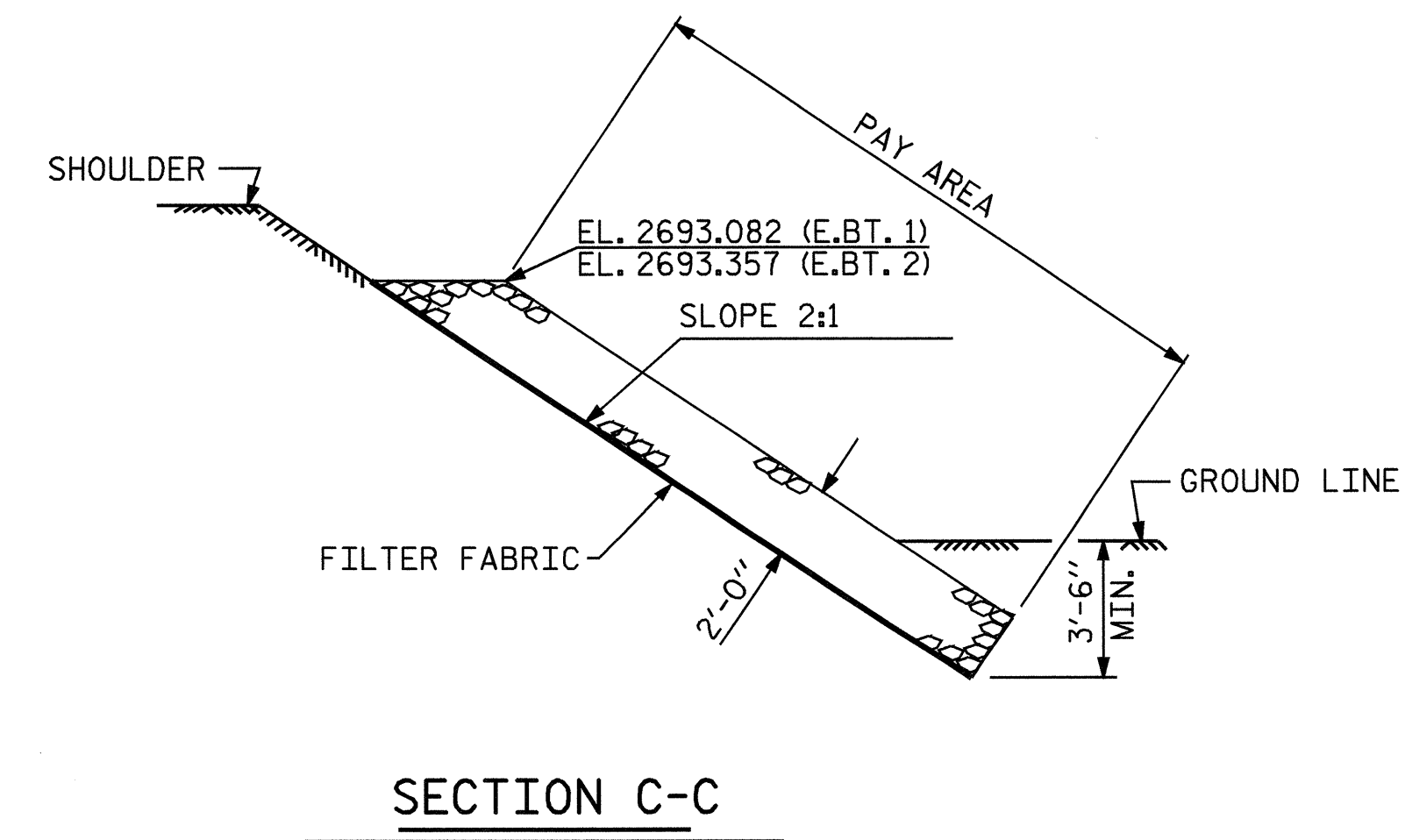


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+80.90-L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	69	77
END BENT 2	84	93

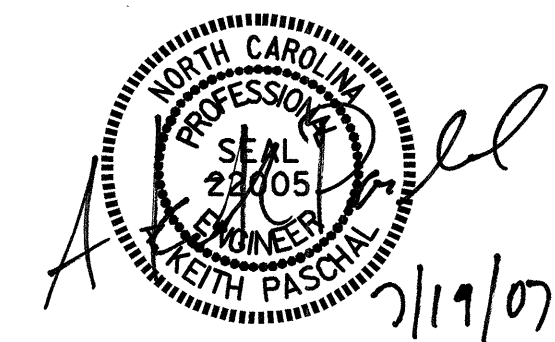


SECTION
BERM RIP RAPPED



SECTION C-C

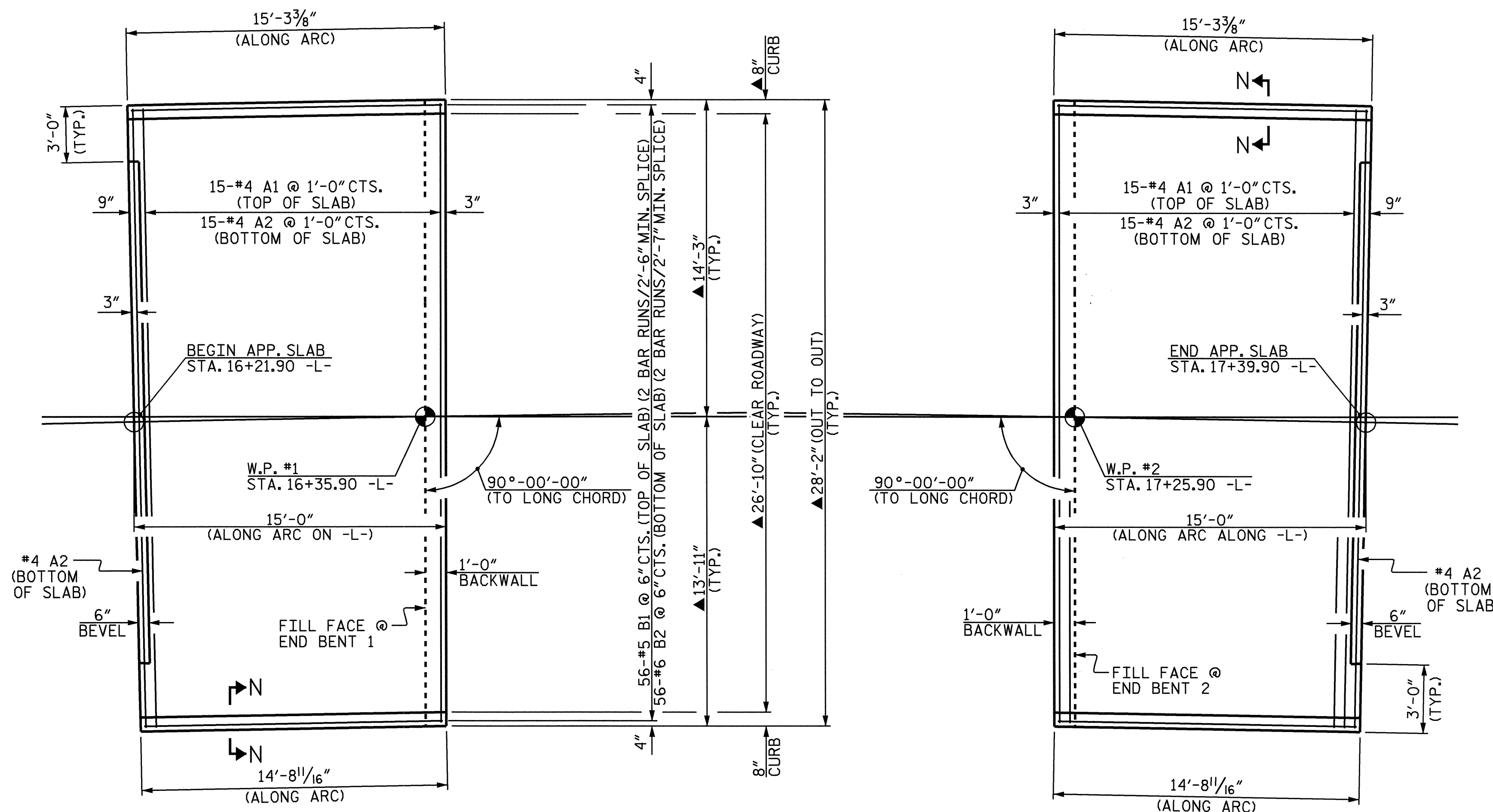
PROJECT NO. B-3854
HAYWOOD COUNTY
STATION: 16+80.90 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-16
STANDARD = RIP RAP DETAILS =						
REVISIONS						TOTAL SHEETS 18
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : A.M.KEETER	DATE : 9/26/05
CHECKED BY : J.G. KHARVA	DATE : 2/7/06
DRAWN BY : FCJ 2/88	REV. 7/17/98 REK/RWW
CHECKED BY : ARB 8/88	REV. 8/16/99 RWW/LES
	REV. 10/17/00 RWW/LES

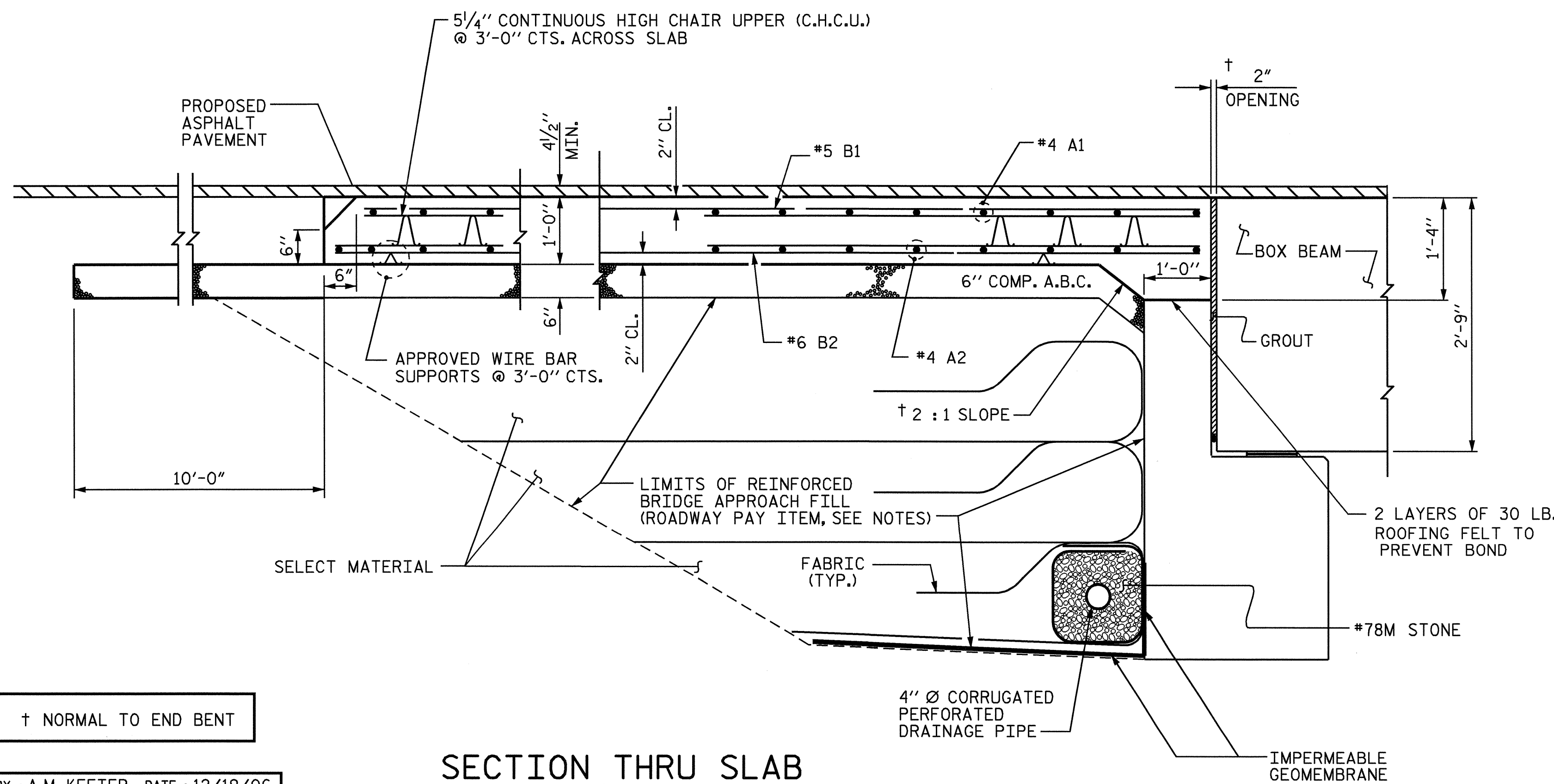
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Jdhawk



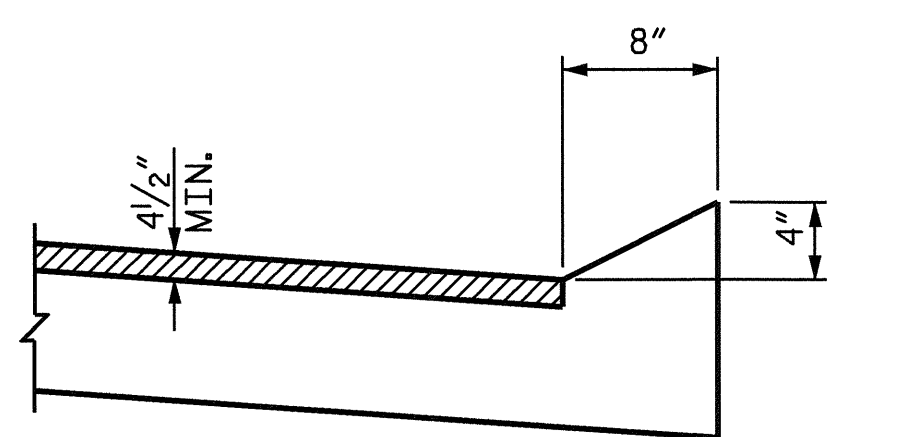
PLAN @ END BENT 1

PLAN @ END BENT 2

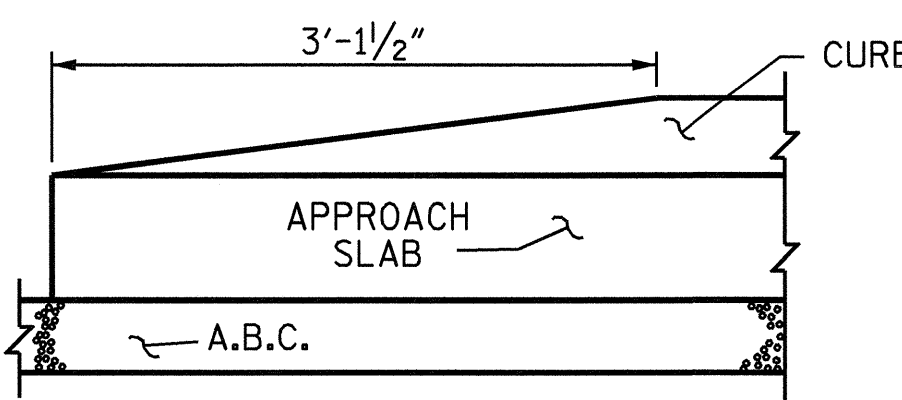
(DIMENSIONS AND REINFORCING SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS)
 ARC OFFSETS ARE NEGLIGIBLE, THEREFORE NOT SHOWN.
 † RADIAL DIMENSIONS ALONG -L-



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

(OMIT TAPER WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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 EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF 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 EXTEND 1'-0" BEYOND THE 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 EXTEND 1'-0" BEYOND THE 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" SHEET S-4.

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	15	#4	STR	27'-10"	279
A2	16	#4	STR	27'-10"	297
*B1	112	#5	STR	8'-9"	1022
B2	112	#5	STR	8'-10"	1486
REINFORCING STEEL					LBS. 1783
* EPOXY COATED REINFORCING STEEL					LBS. 1301
CLASS AA CONCRETE:					
TOTAL SLAB & CURB					C. Y. 16.2

PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 1 OF 2

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

REVISIONS

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

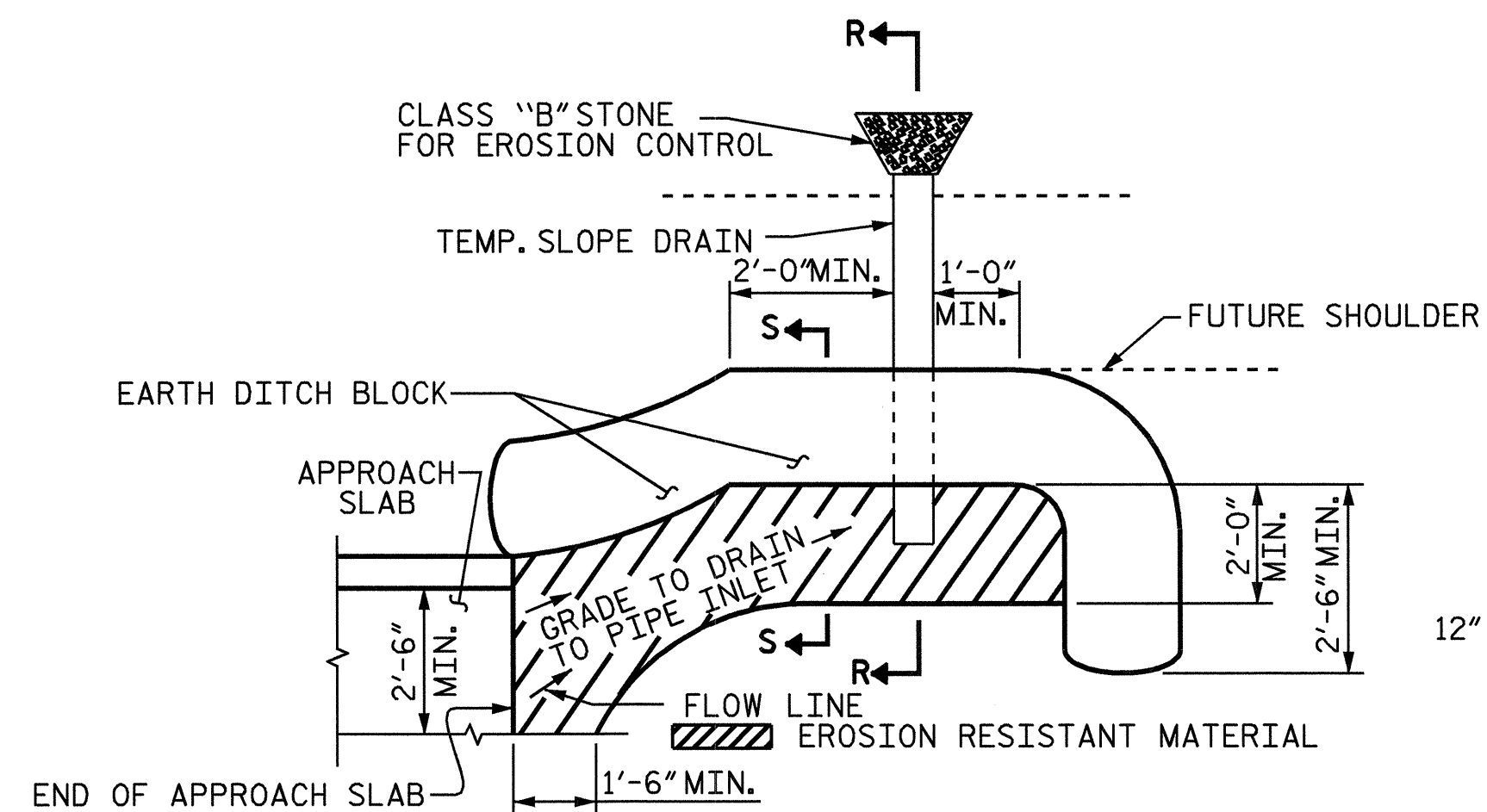
SHEET NO.

S-17

TOTAL SHEETS
18

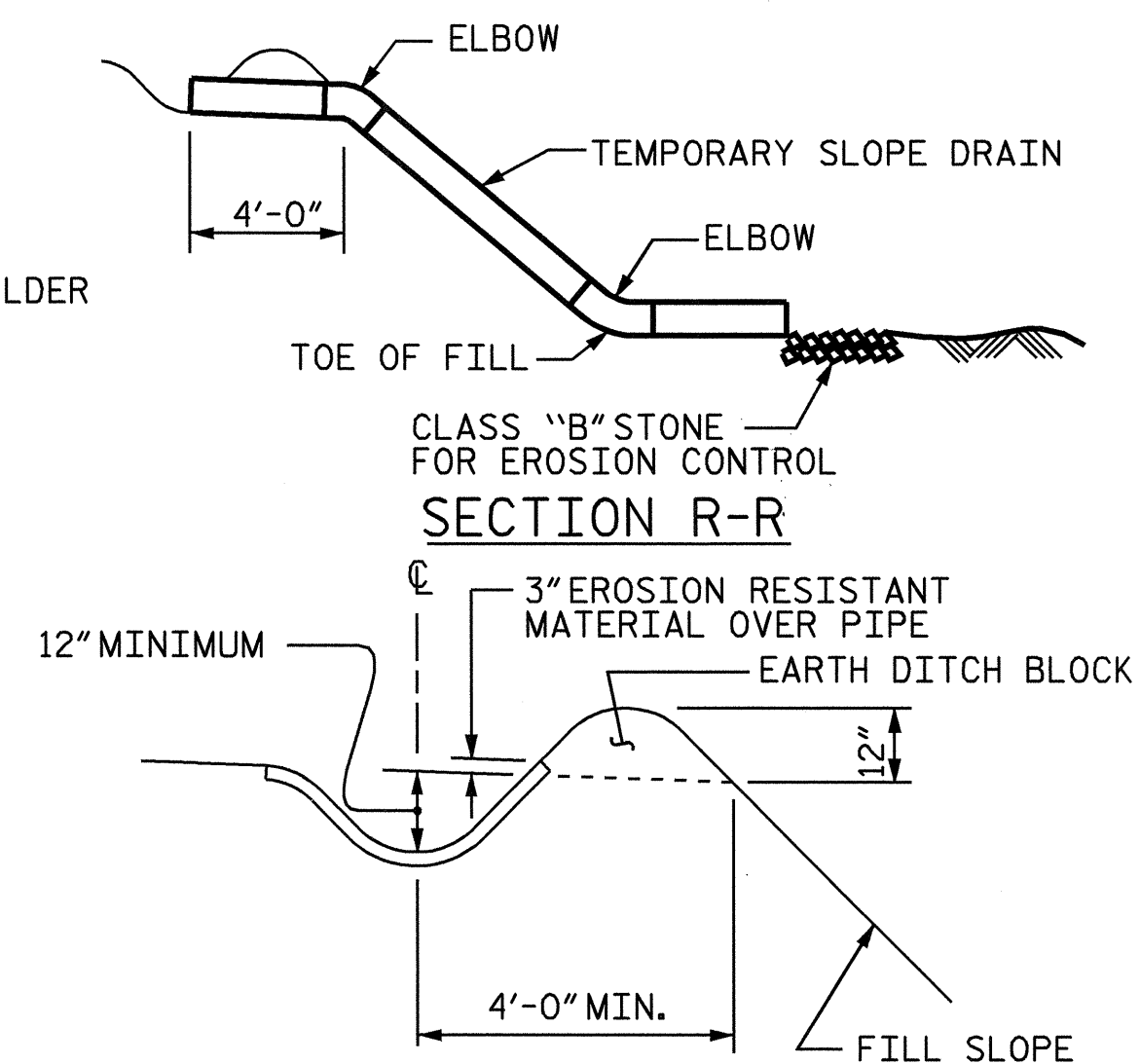


ASSEMBLED BY: A.M. KEETER	DATE: 12/19/06
CHECKED BY: E.G. ALLEN	DATE: 6/29/07
DRAWN BY: EEM	3/95
CHECKED BY: VAP	3/95
REV. 7/10/01	LES/RDR
REV. 5/7/03R	RWW/JTE
REV. 5/1/06	TLA/GM

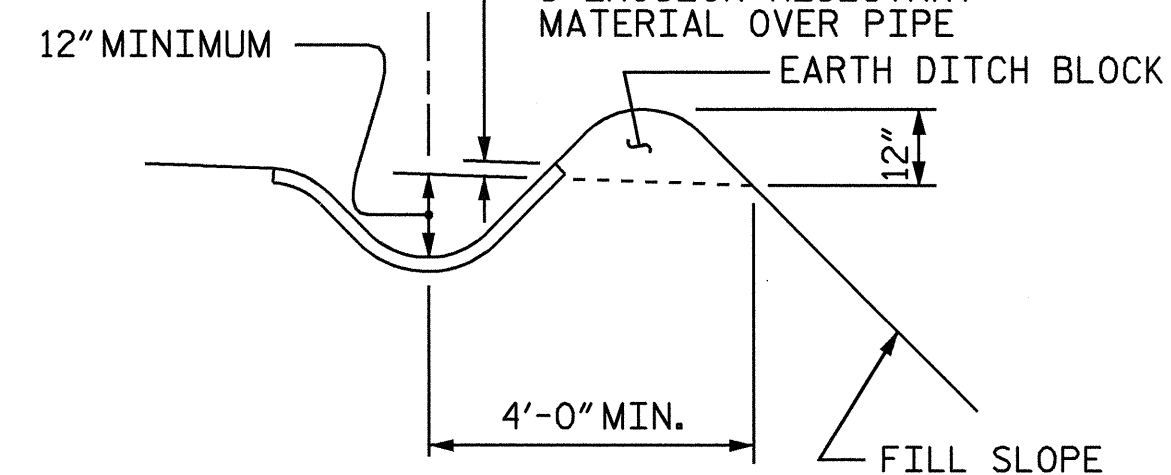


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 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.

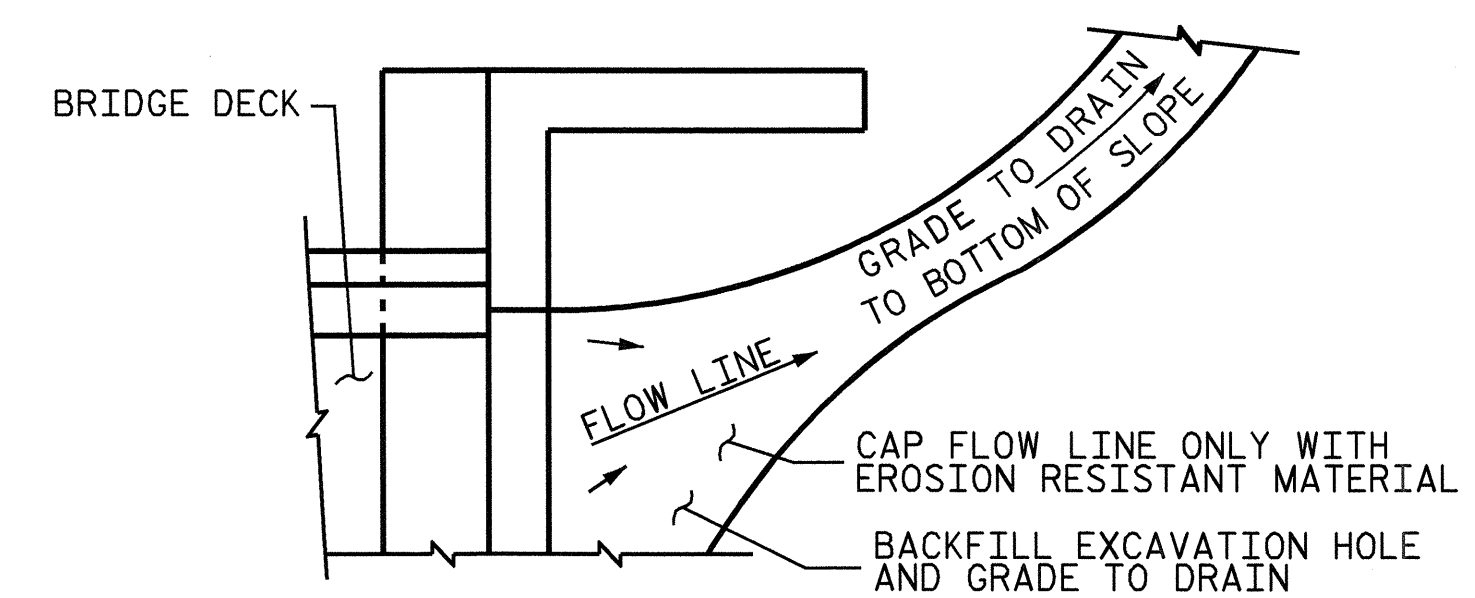
PLAN VIEW



SECTION R-R



SECTION S-S



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

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

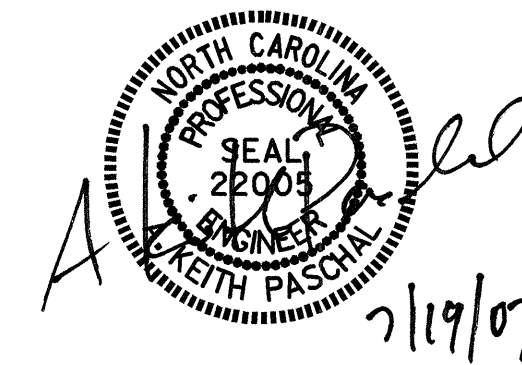
PROJECT NO. B-3854
HAYWOOD COUNTY
 STATION: 16+80.90 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

BRIDGE APPROACH
 SLAB DETAILS



ASSEMBLED BY : A.M. KEETER	DATE : 12/19/06
CHECKED BY : E.G. ALLEN	DATE : 6/29/07
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

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

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