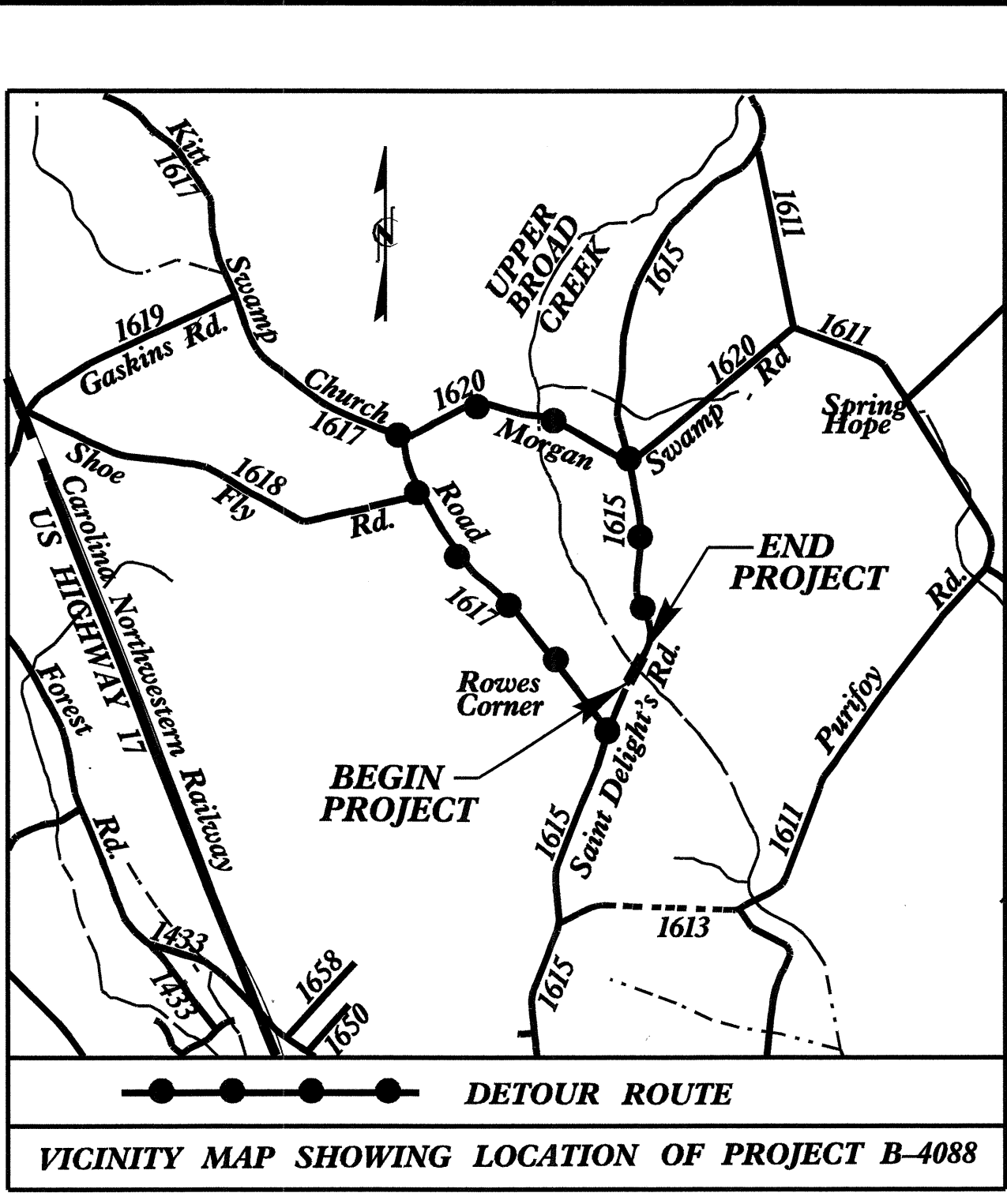


CONTRACT: C201620 TIP PROJECT: B-4088

STRUCTURE

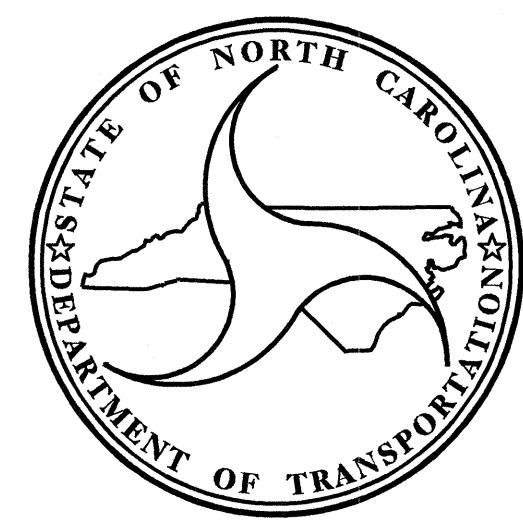
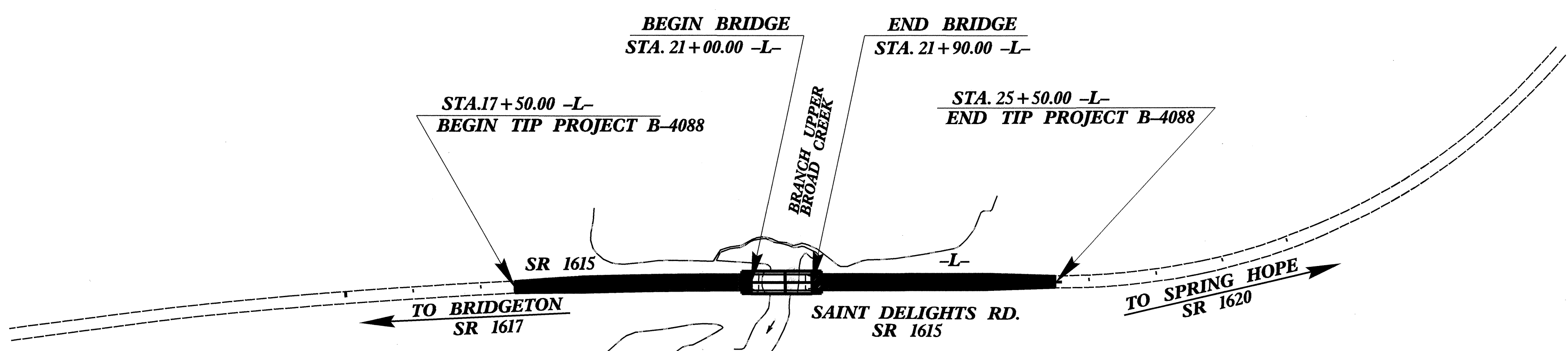
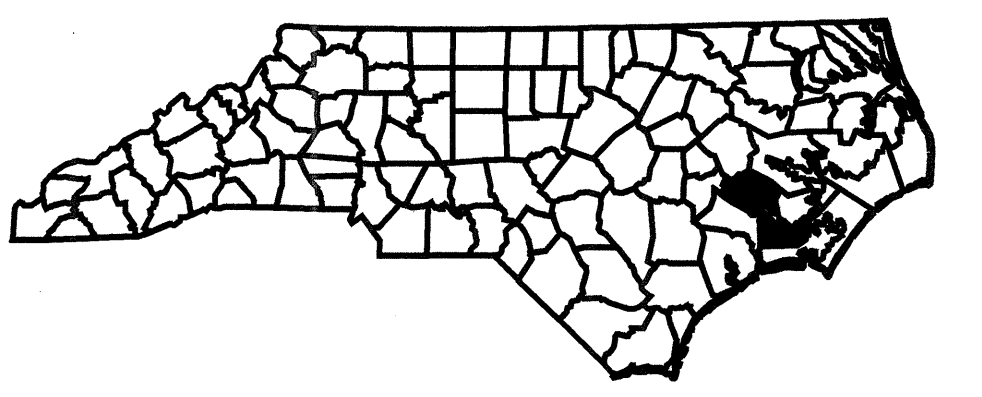


STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
CRAVEN COUNTY

**LOCATION: BRIDGE NO 74 OVER BRANCH UPPER BROAD CREEK
 ON SR 1615**

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4088		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33446.1.1	BRSTP-1615(2)	PE	
33446.2.1	BRSTP-1615(2)	ROW, UTIL	
33446.3.1	BRSTP-1615(2)	CONSTR	



DESIGN DATA	
2005	= 1750
2025	= 2700
DHV	= 11 %
D	= 65 %
T	= 3 % *
V	= 60 MPH
* TTST 1	DUAL 2
CLASS	= RURAL COLLECTOR

PROJECT LENGTH	
Length of Roadway TIP PROJECT B-4088	= 0.135 MI
Length of Structure TIP PROJECT B-4088	= 0.017 MI
Total Length of TIP PROJECT B-4088	= 0.152 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
 1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
 April 17, 2007

JOHN C. FRYE, P. E.
 PROJECT ENGINEER

W. A. DAVIS, P. E.
 PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
 1000 Birch Ridge Dr., NC, 27610

3.6.07

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

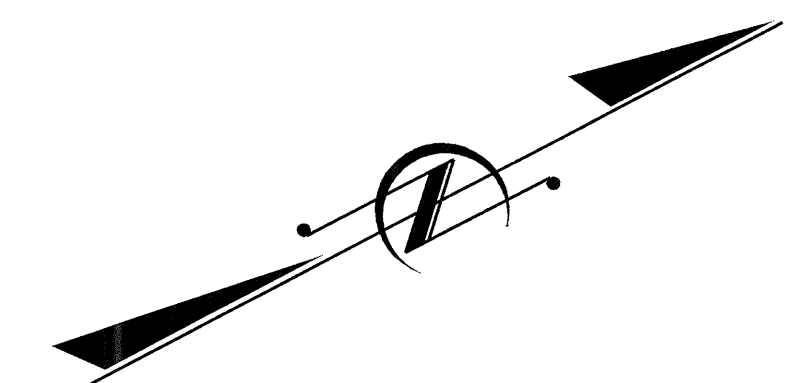
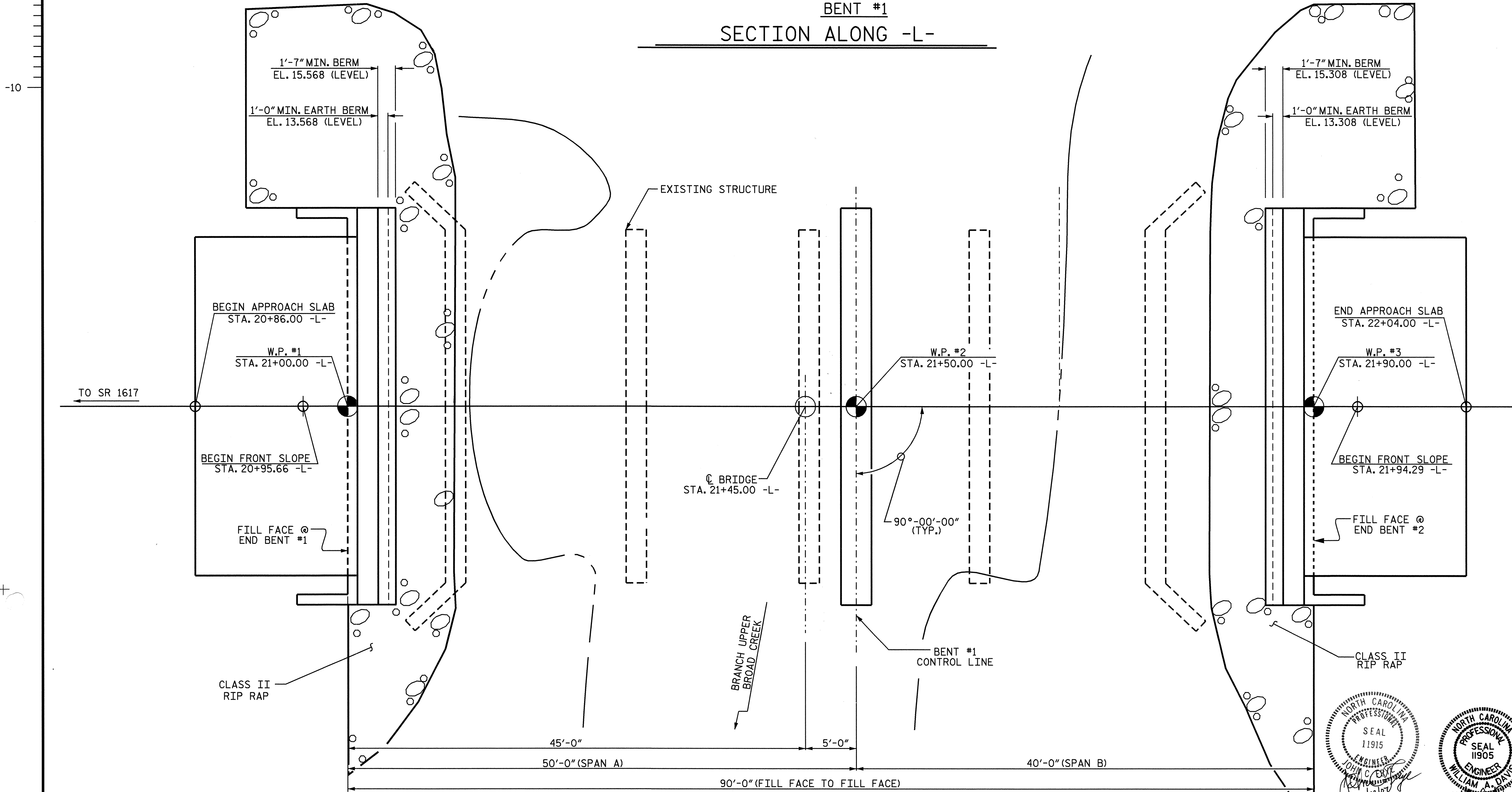
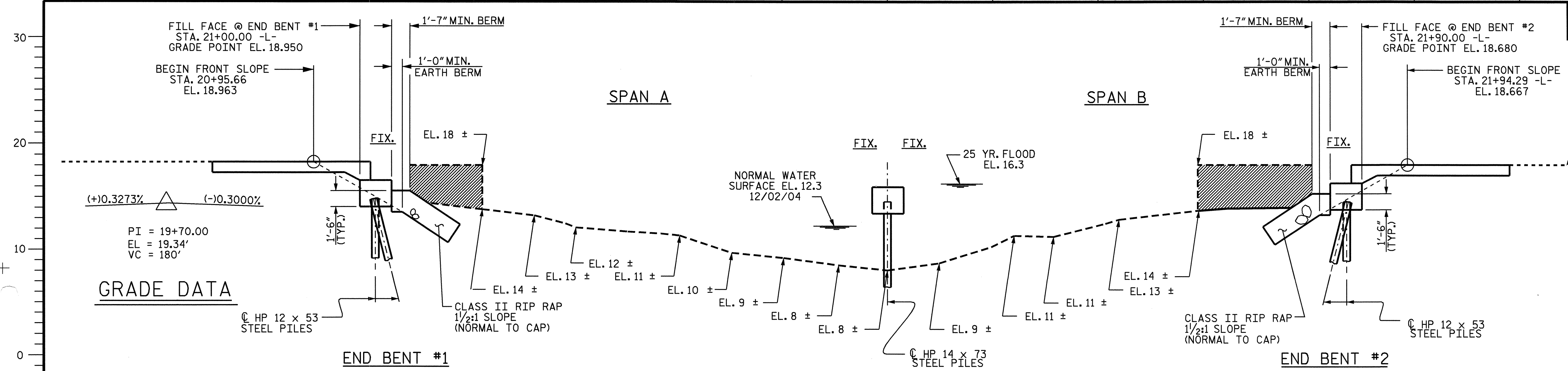
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
 DIVISION ADMINISTRATOR

DATE

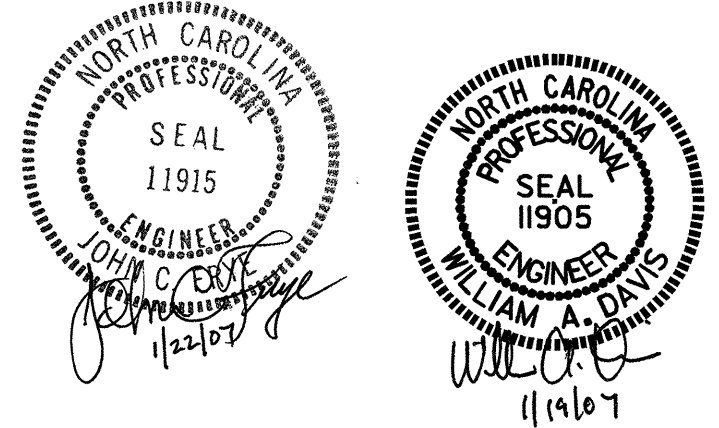
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DRAWN BY : T.L. CLELLAND DATE : 12/06/06
 CHECKED BY : W.A. DAVIS DATE : 12/06/06

19-JAN-2007 08:43
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 qtnguyen

(PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)



PROJECT NO. B-4088
 CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE No. 74

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER BRANCH
 UPPER BROAD CREEK
 ON SR 1615 BETWEEN
 SR 1617 AND SR 1620

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

FOUNDATION NOTES

DRIVE PILES AT END BENT NO.1 AND END BENT NO.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.

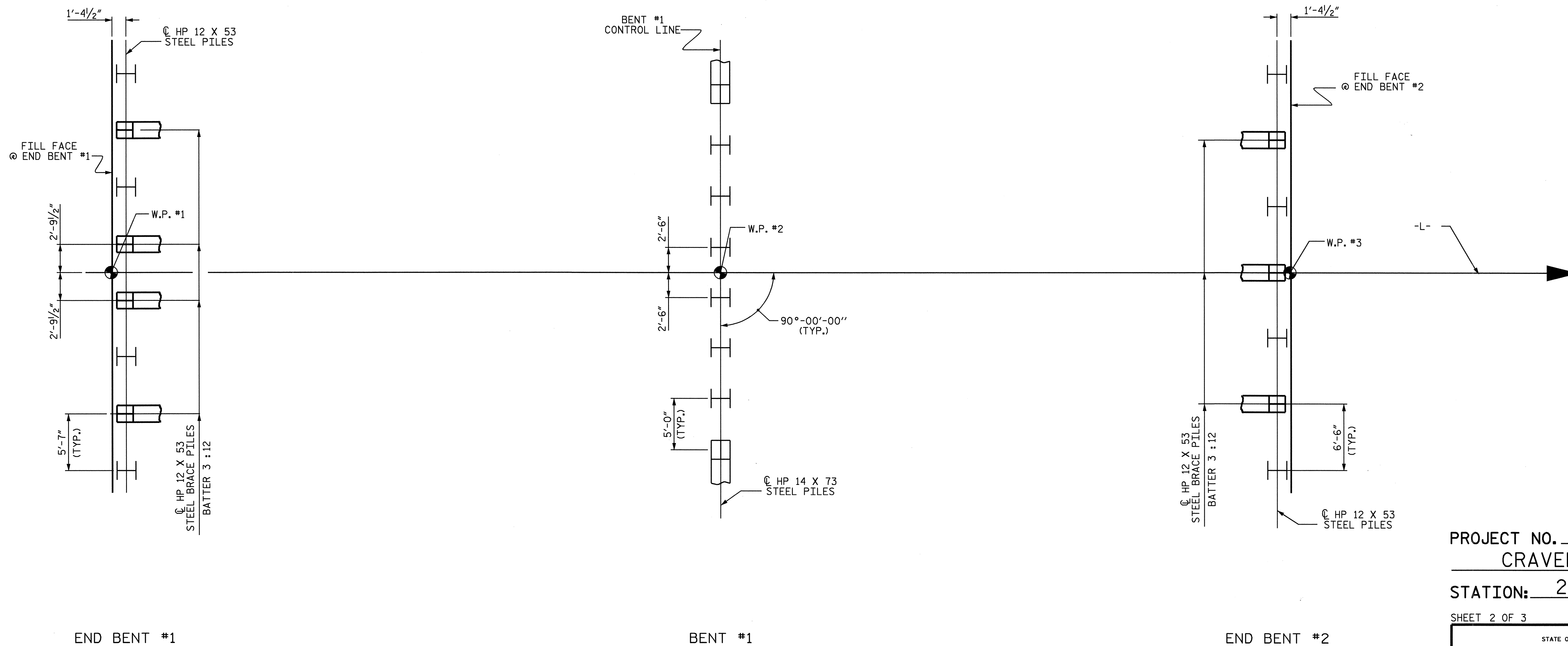
THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO.1 AND END BENT NO.2 IS 50 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A REQUIRED BEARING CAPACITY OF 135 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ANY ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENT NO.1 IS 60 TONS PER PILE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION -5.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. SEE PILE DRIVING ANALYZER SPECIAL PROVISION.



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.)
(EXTERIOR PILES ON BENT NO.1 ARE BATTERED 1 1/2:12)

PROJECT NO. B-4088
CRAVEN COUNTY
STATION: 21+45.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING FOR
BRIDGE OVER BRANCH
UPPER BROAD CREEK
ON SR 1615 BETWEEN
SR 1617 AND SR 1620

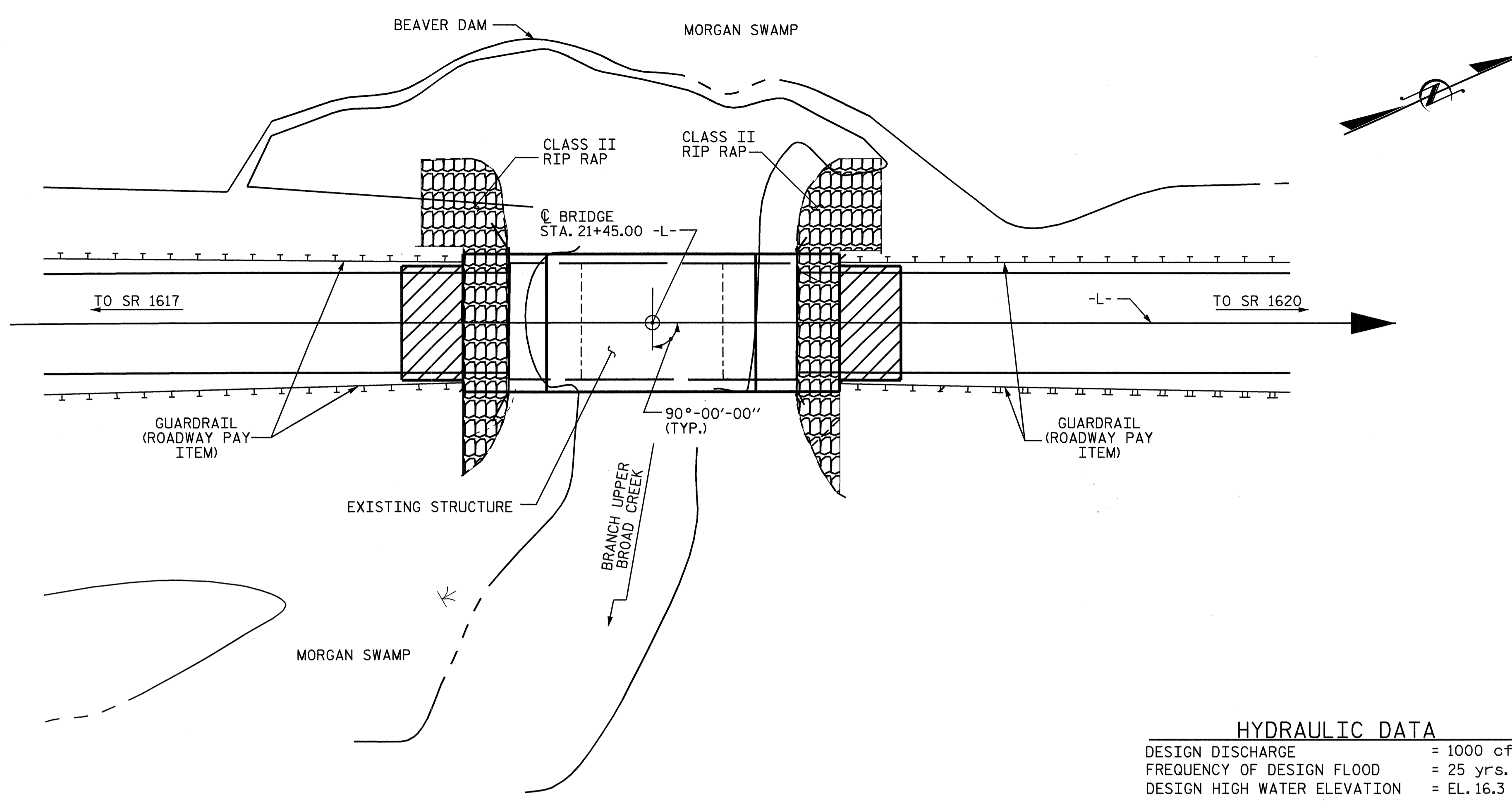


DRAWN BY: T.L. CLELLAND DATE: 12/06/06
CHECKED BY: W.A. DAVIS DATE: 12/06/06

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

BM# 1-RR SPIKE SET IN 20" HARDWOOD, -L- STA. 21+78.32, 87.4' RT., ELEV = 15.04'



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

HYDRAULIC DATA

DESIGN DISCHARGE	= 1000 cfs
FREQUENCY OF DESIGN FLOOD	= 25 yrs.
DESIGN HIGH WATER ELEVATION	= EL. 16.3
DRAINAGE AREA	= 8.3 sq. mi.
BASIC DISCHARGE (Q100)	= 1600 cfs
BASIC HIGH WATER ELEVATION	= EL. 17.7

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 2230 cfs
FREQUENCY OF OVERTOPPING FLOOD	= 200+ yrs.
OVERTOPPING FLOOD ELEVATION	= EL. 18.2

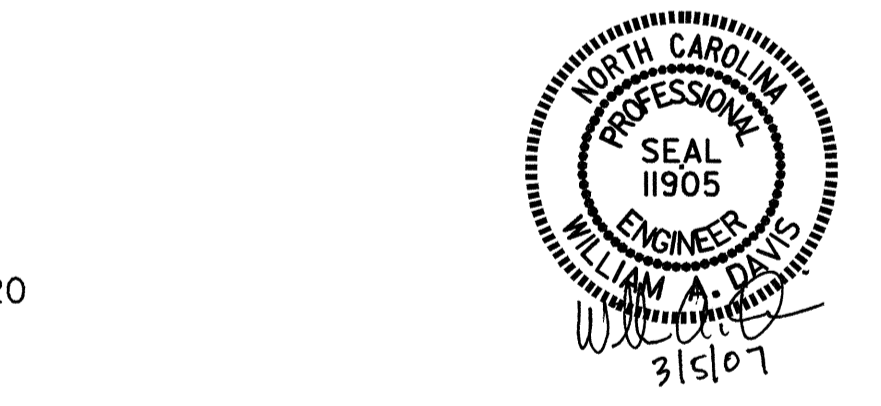
NOTES

- ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.
- 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 FOUR 17 FT. SPANS ON REINFORCED CONCRETE FLOOR ON TIMBER JOISTS WITH A CLEAR ROADWAY WIDTH OF 28 FT. ON TIMBER CAPS AND TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.
- 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.
- 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.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.
- 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.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CONSTRUCTION OF SUPERSTRUCTURE, SEE SPECIAL PROVISIONS.
- FOR CONSTRUCTION OF SUBSTRUCTURE, SEE SPECIAL PROVISIONS.
- THE TOP 20 FT. OF THE HP 14 X 73 STEEL PILES AT BENT NO. 1 SHALL BE ALUMINUM METALLIZED.
- APPLY AN 8 MIL THICK 1350 ALUMINUM (W-AL-1350) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO THE TOP 20 FT. OF THE BENT NO. 1 PILES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.
- AFTER DRIVING THE PILES AT BENT NO. 1 APPLY 1 COAT EACH OF 1080-12 BROWN AND 1080-12 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.
- CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENT AND BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.
- ALL BAR SUPPORTS USED IN THE PARAPET, END BENTS AND BENTS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA ASSISTANCE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	BRIDGE APPROACH SLABS	HP 12 X 53 STEEL PILES	HP 14 X 73 STEEL PILES	PILE REDRIVES	CLASS II RIP RAP (2'-0" THICK)	CONSTRUCTION OF SUBSTRUCTURE	CONSTRUCTION OF SUPERSTRUCTURE		
	LUMP SUM	EA.	EA.	LUMP SUM	LUMP SUM	NO.	LIN. FT.	NO.	LIN. FT.	EA.	TON	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	LUMP SUM			LUMP SUM	LUMP SUM								
END BENT #1						8	440			8	110		
BENT #1		1	1							8	320		
END BENT #2						7	280			7	105		
TOTAL	LUMP SUM	1	1	LUMP SUM	LUMP SUM	12	720	8	320	23	215	LUMP SUM	LUMP SUM

DRAWN BY : T.L. CLELLAND DATE : 12/06/06
 CHECKED BY : W.A. DAVIS DATE : 12/06/06

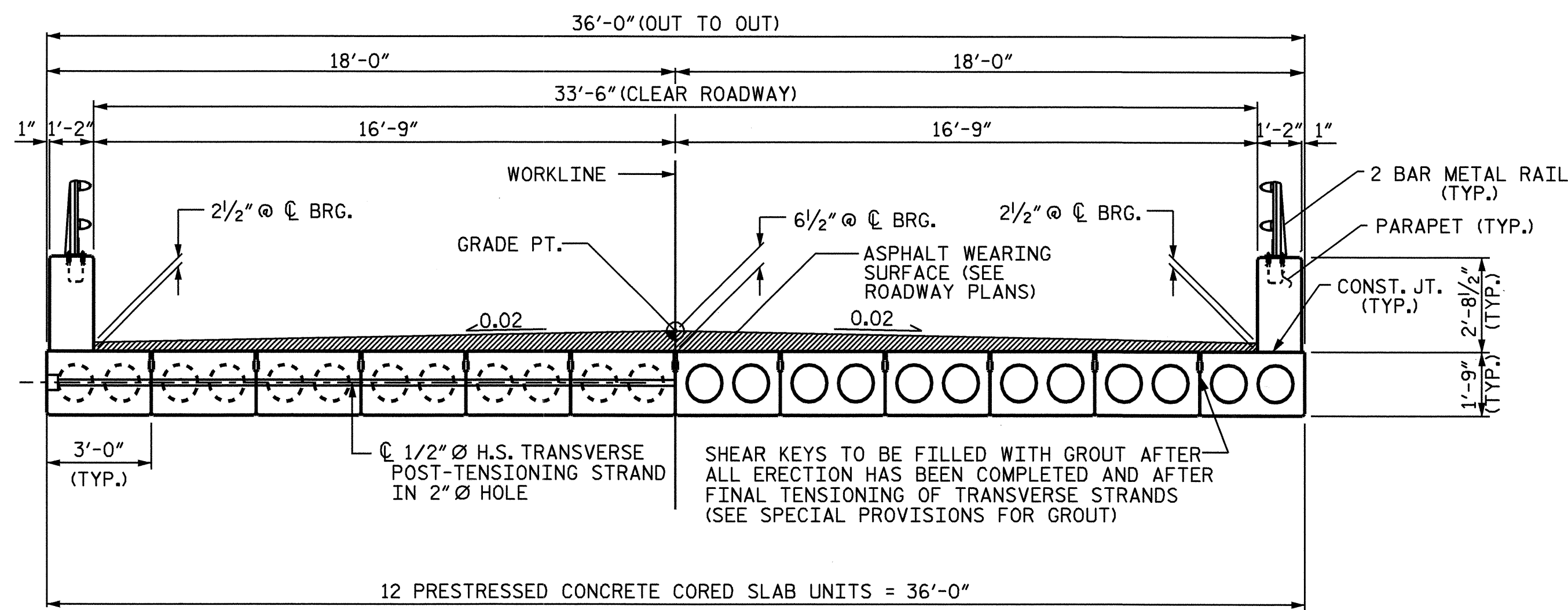


PROJECT NO. B-4088
 CRAVEN COUNTY
 STATION: 21+45.00 -L-

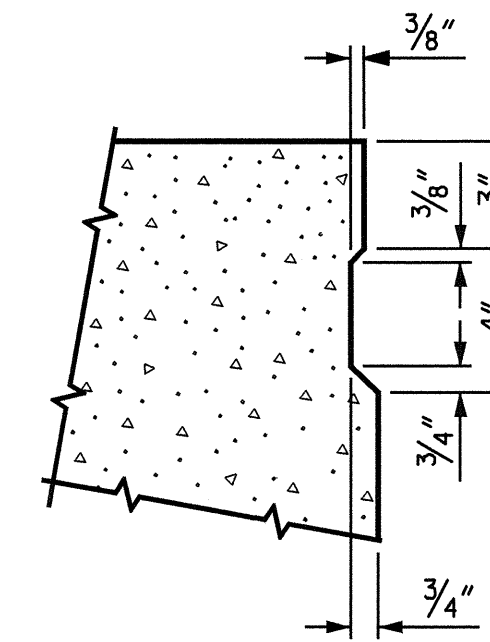
SHEET 3 OF 3

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

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING FOR
 BRIDGE OVER BRANCH
 UPPER BROAD CREEK
 ON SR 1615 BETWEEN
 SR 1617 AND SR 1620

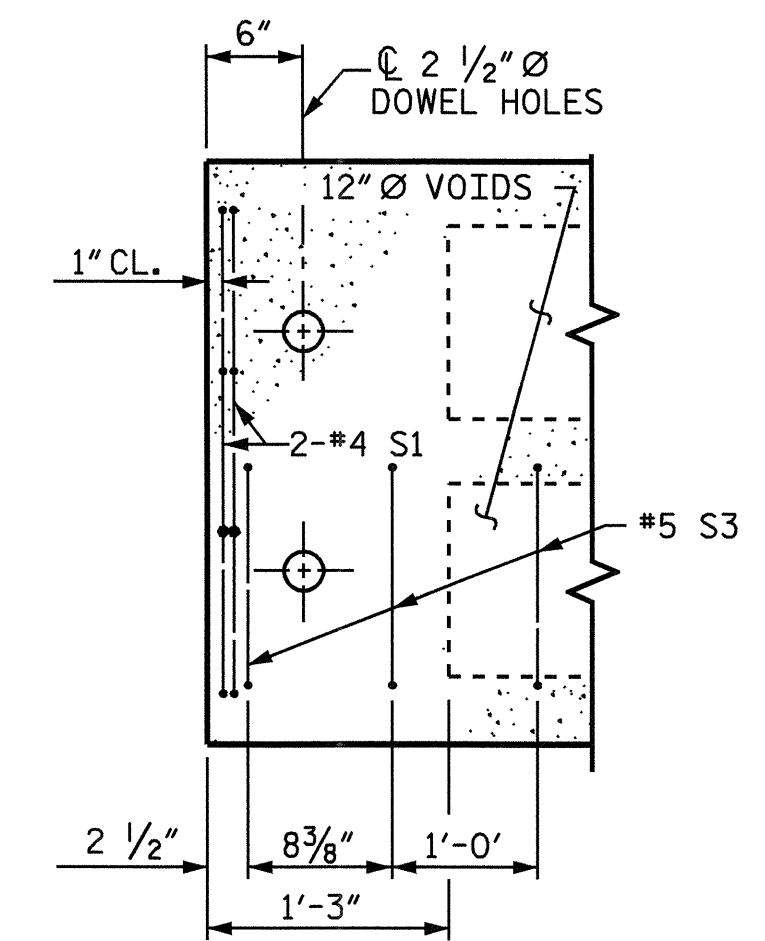


TYPICAL SECTION



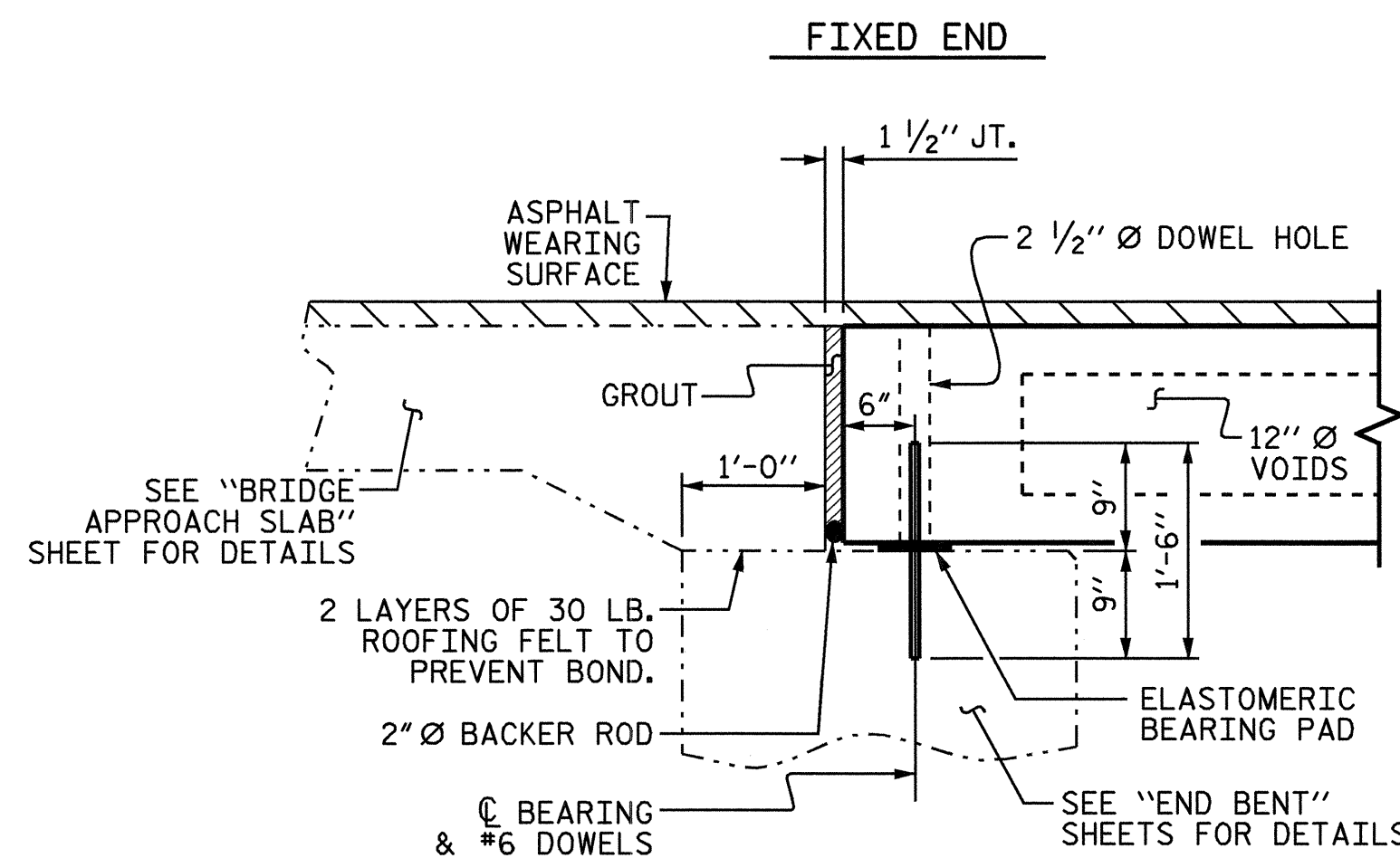
SHEAR KEY DETAIL

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

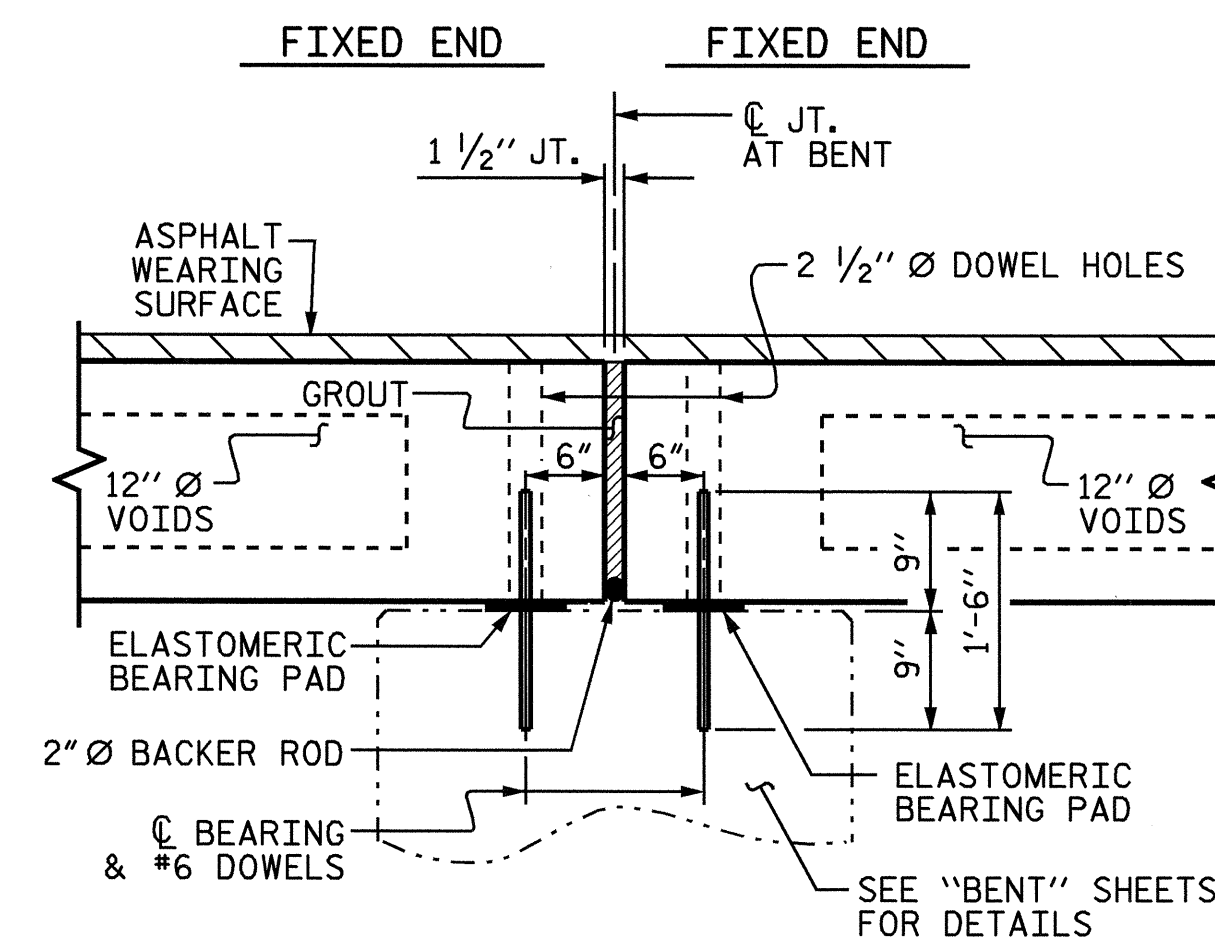


PART PLAN-EXTERIOR SECTION

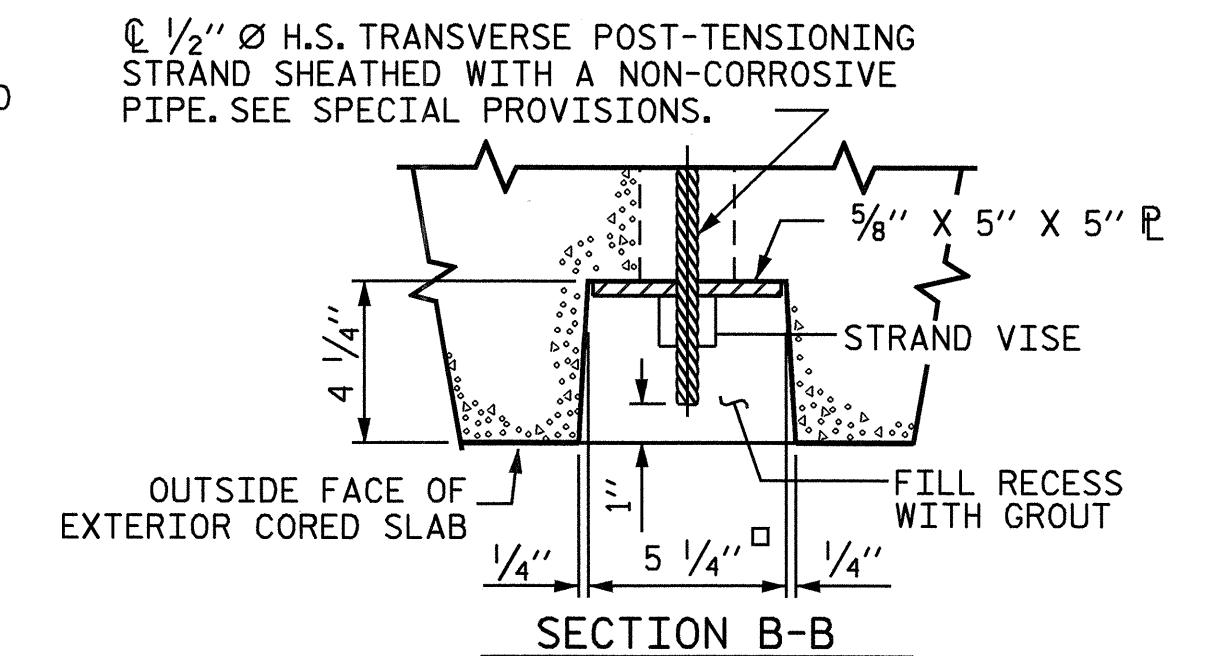
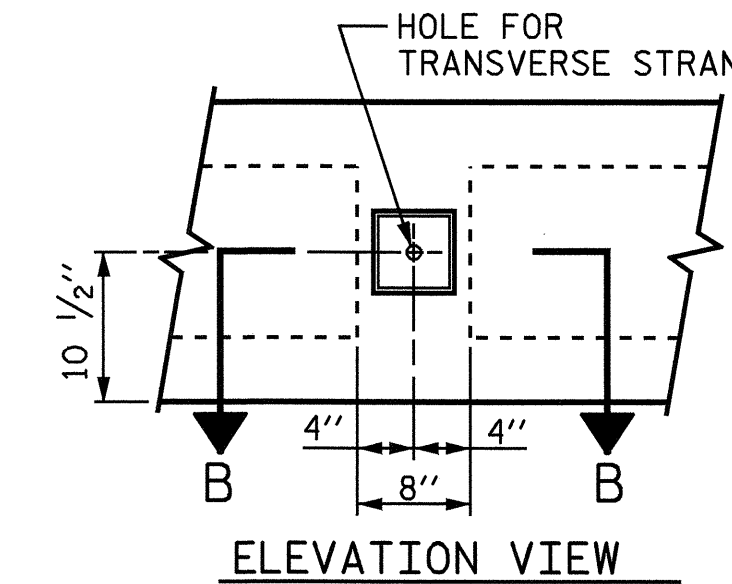
NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



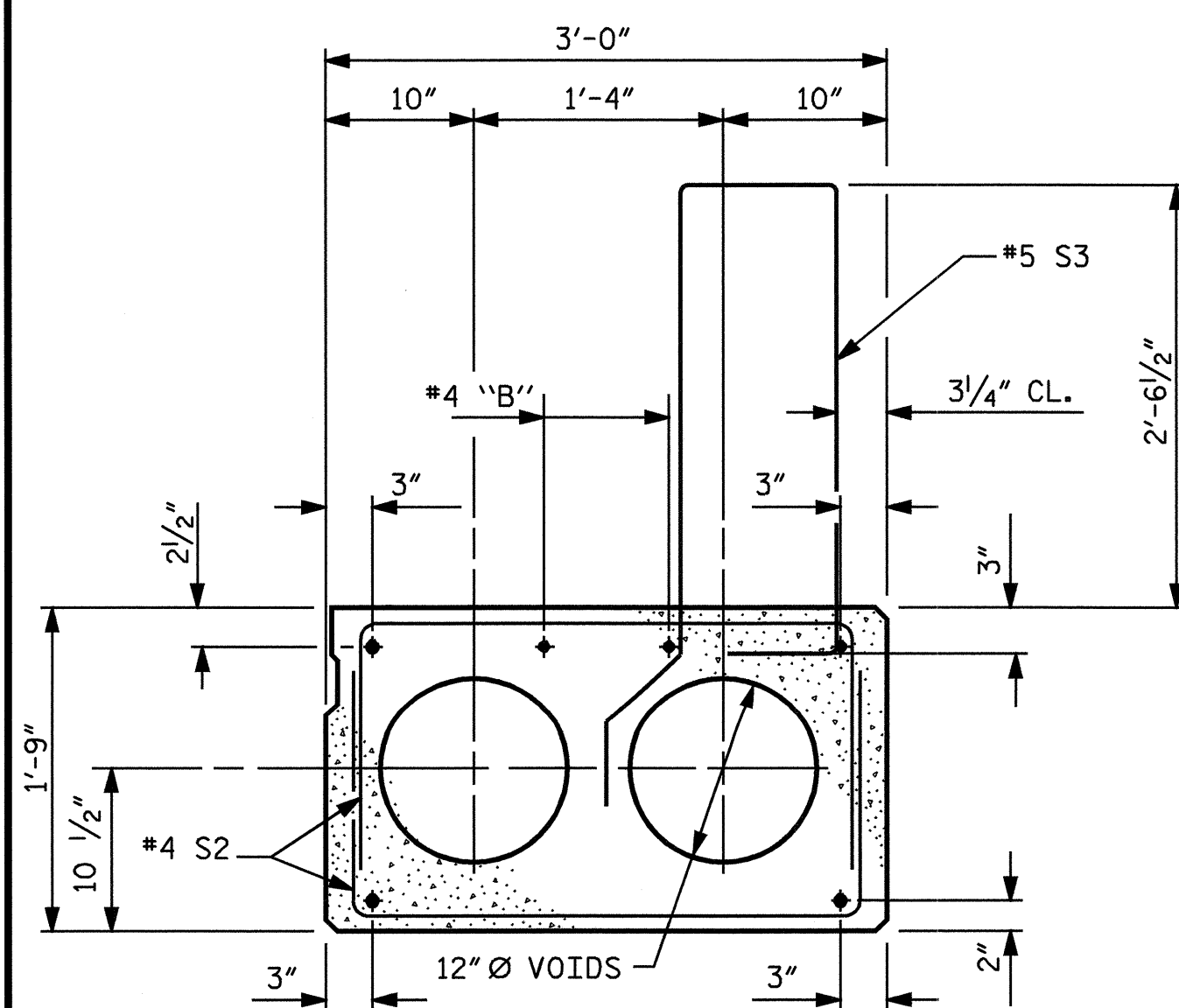
SECTION AT END BENT



SECTION AT BENT

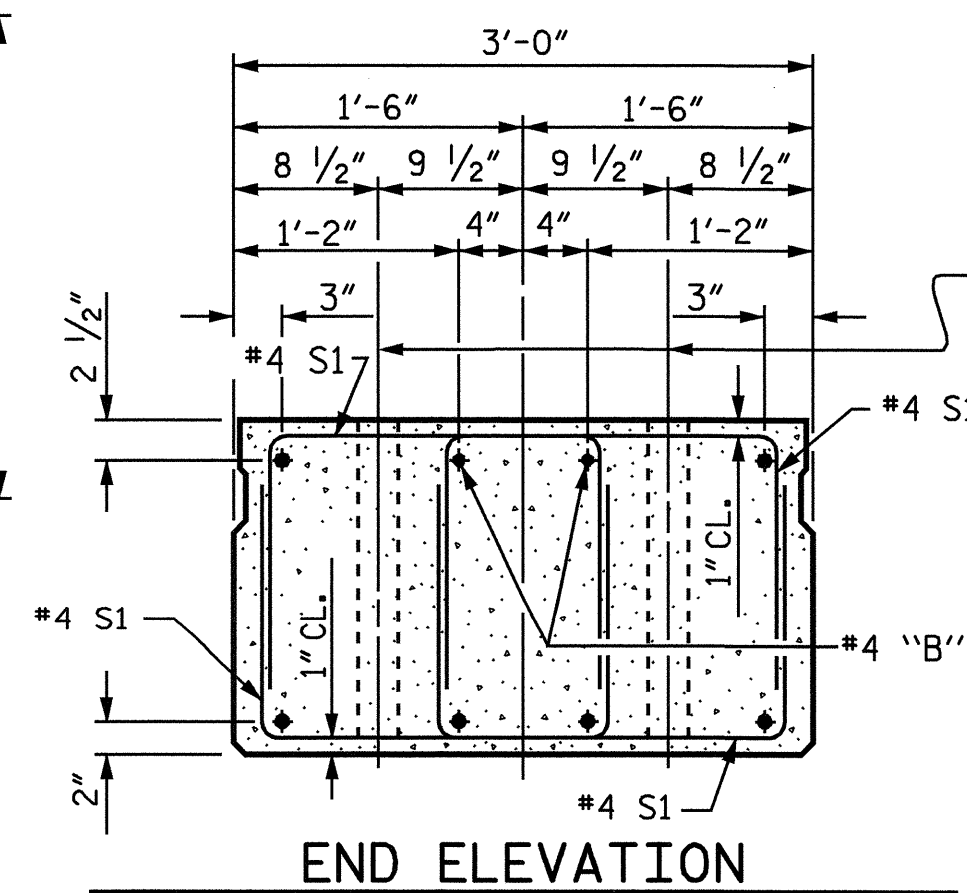


GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

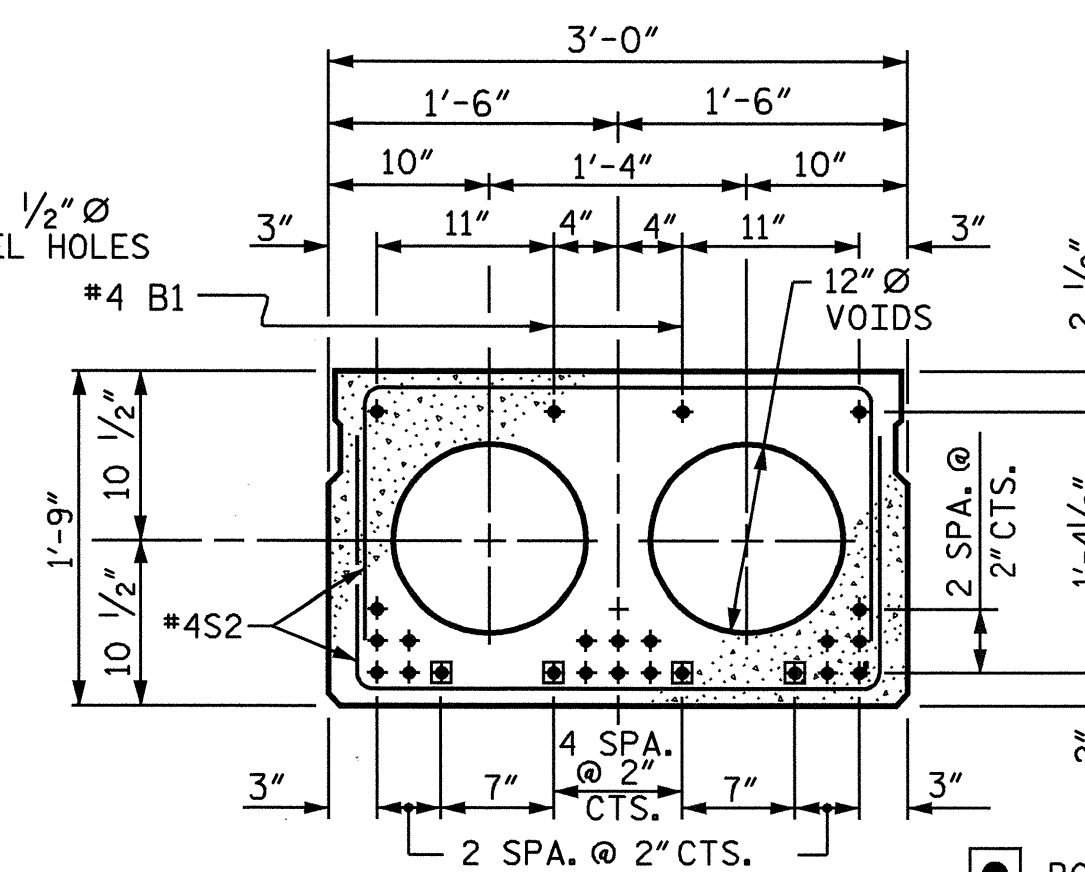


EXTERIOR SLAB SECTION

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



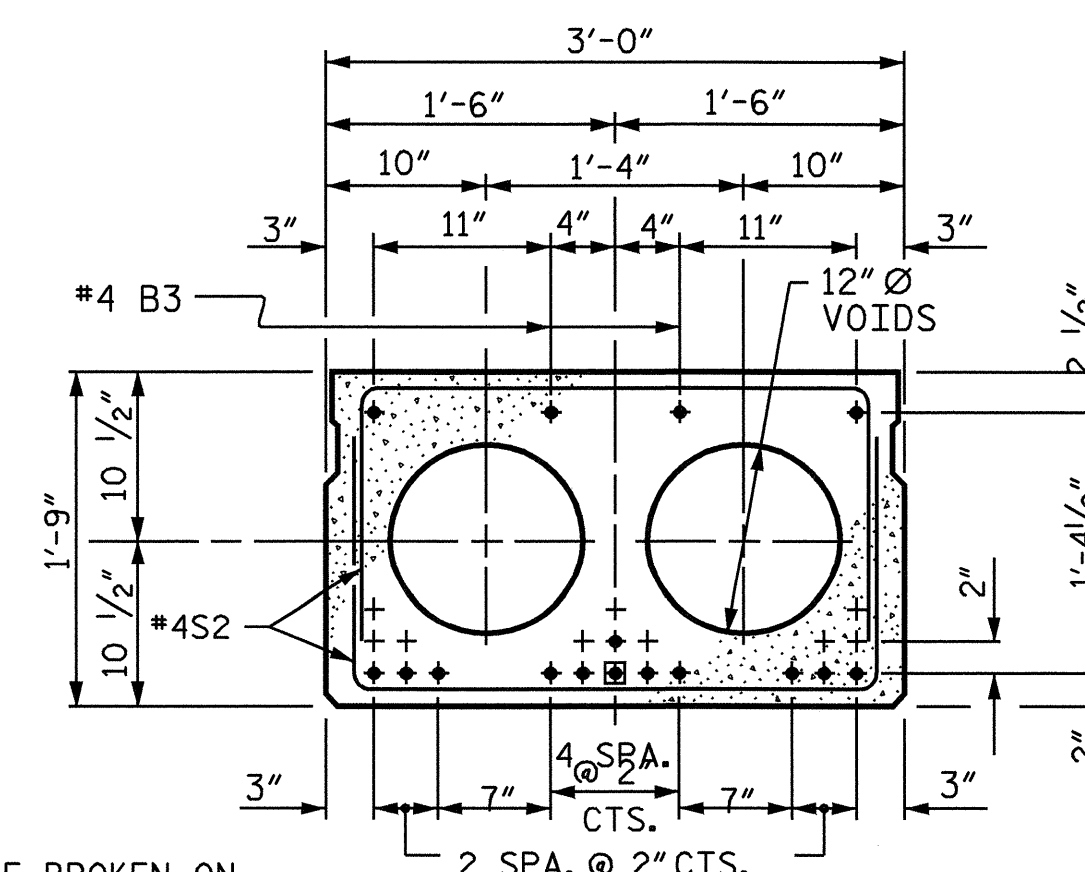
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



INTERIOR SLAB SECTION 1/2" Ø LOW RELAXATION STRAND LAYOUT SPAN A

22 STRANDS, 4 SHEATHED

● 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.



INTERIOR SLAB SECTION 1/2" Ø LOW RELAXATION STRAND LAYOUT SPAN B

14 STRANDS, 1 SHEATHED

DRAWN BY: J. G. KHARVA/TLC DATE: 12/06/06
CHECKED BY: J. D. HAWK/WAD DATE: 12/06/06

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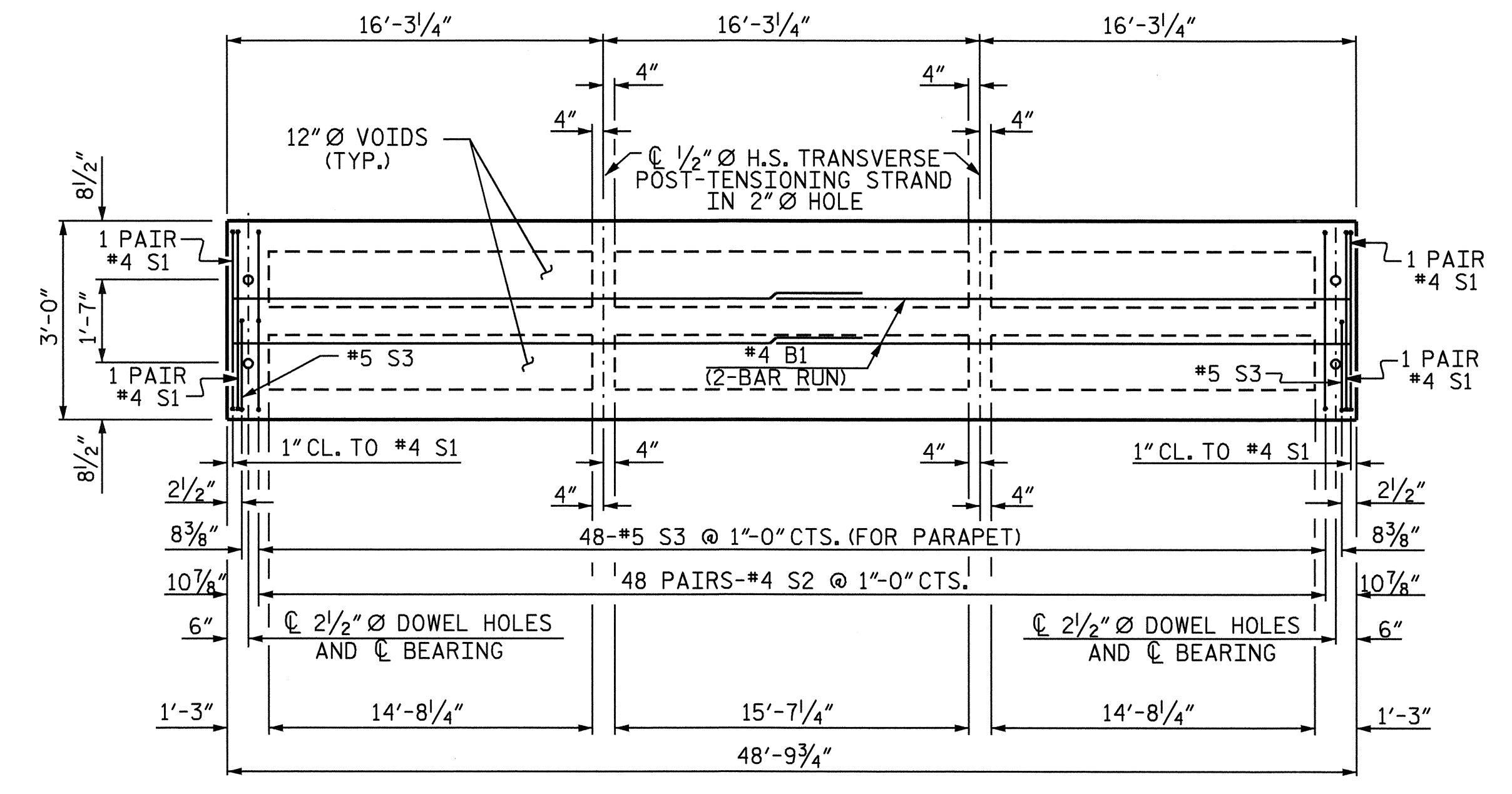
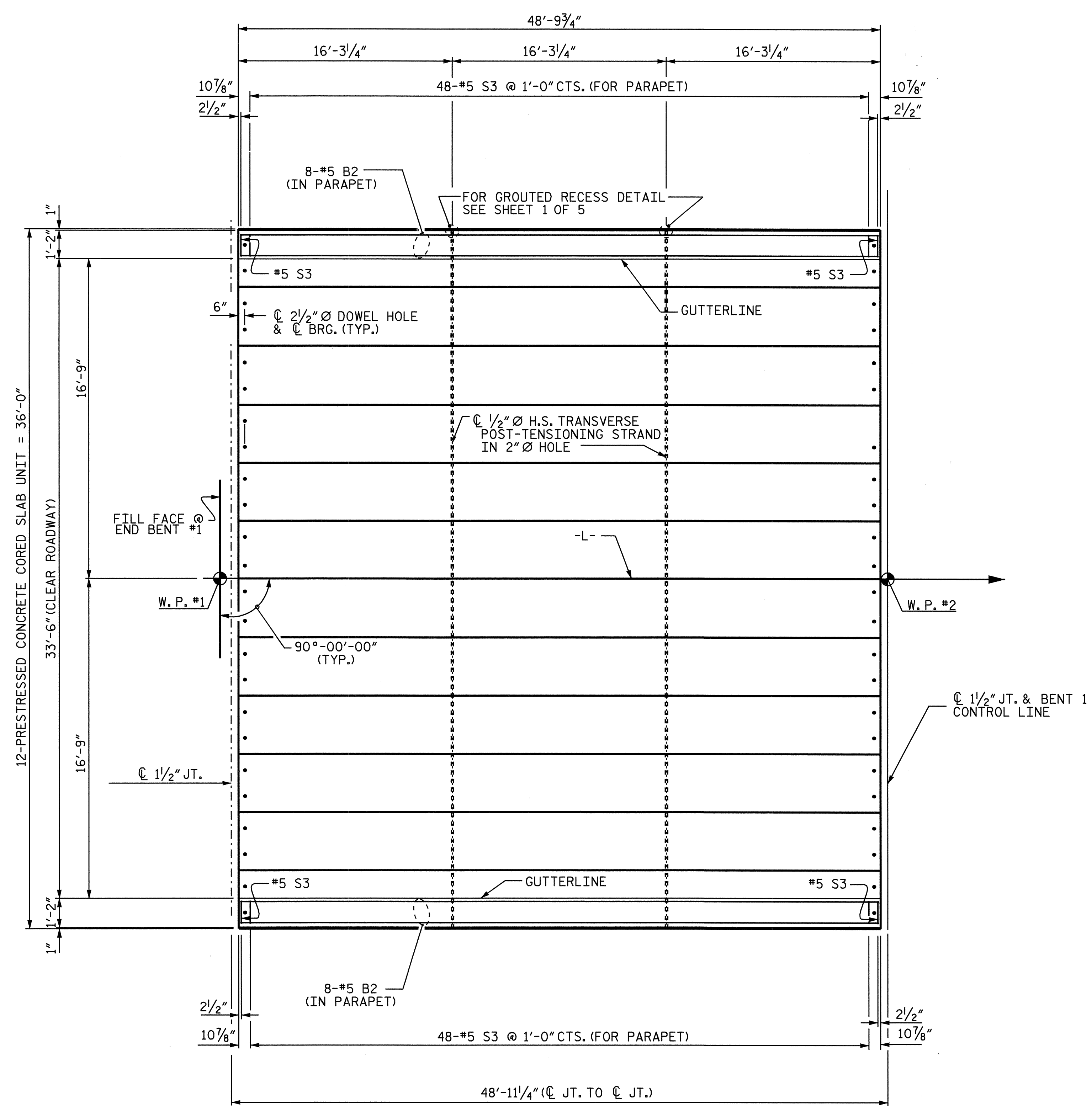
PROJECT NO. B-4088
CRAVEN COUNTY
STATION: 21+45.00 -L-

SHEET 1 OF 5

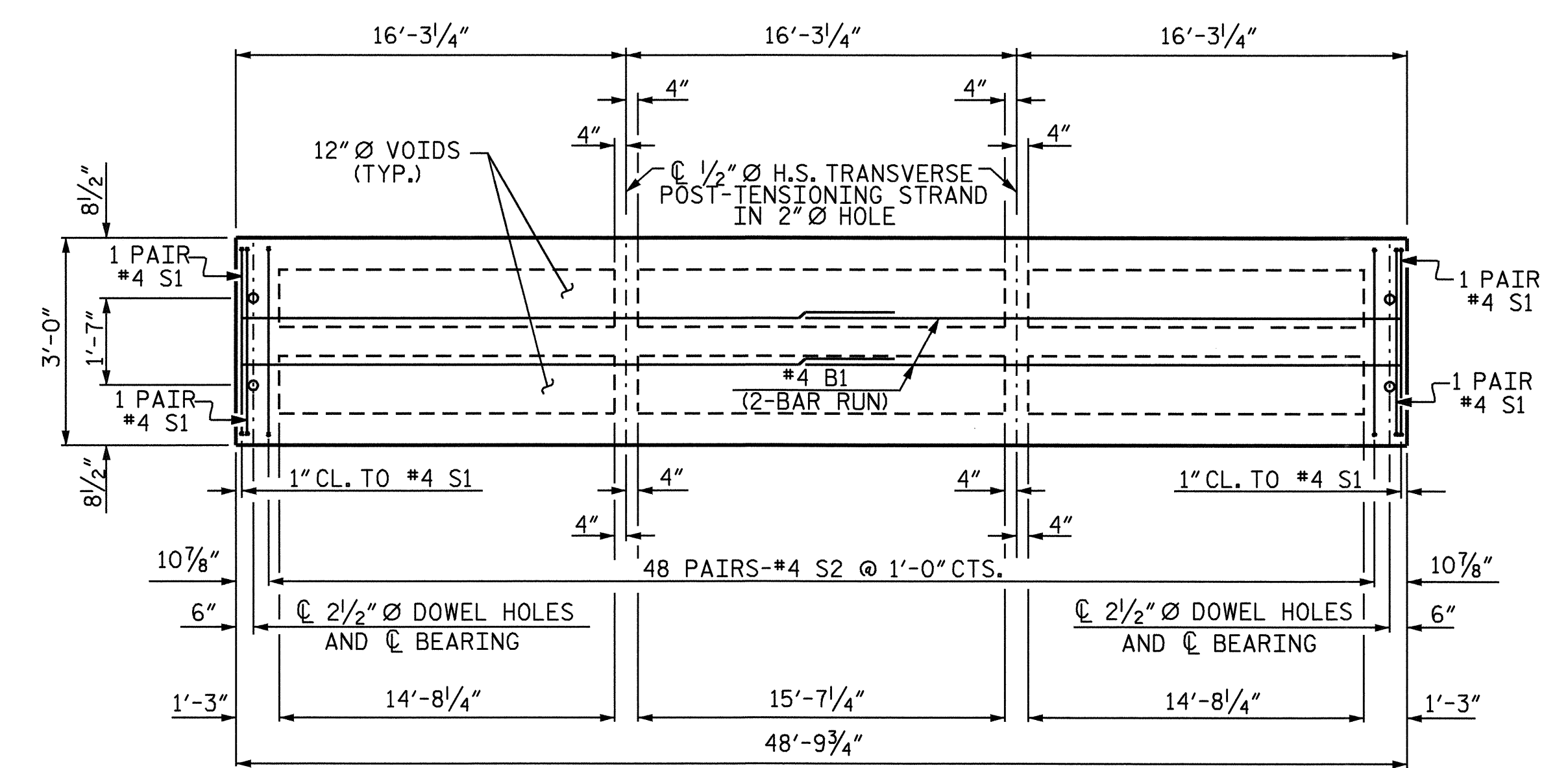
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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			23



PLAN OF EXTERIOR CORED SLAB UNIT



PLAN OF INTERIOR CORED SLAB UNIT

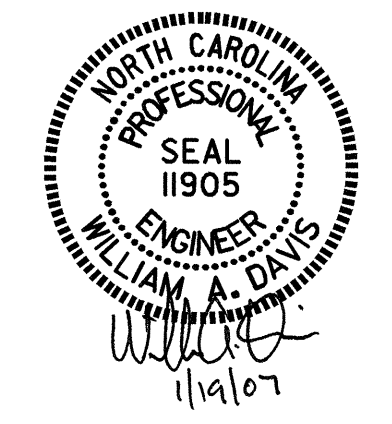
SPAN A

PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 12+45.00 -L-

SHEET 2 OF 5

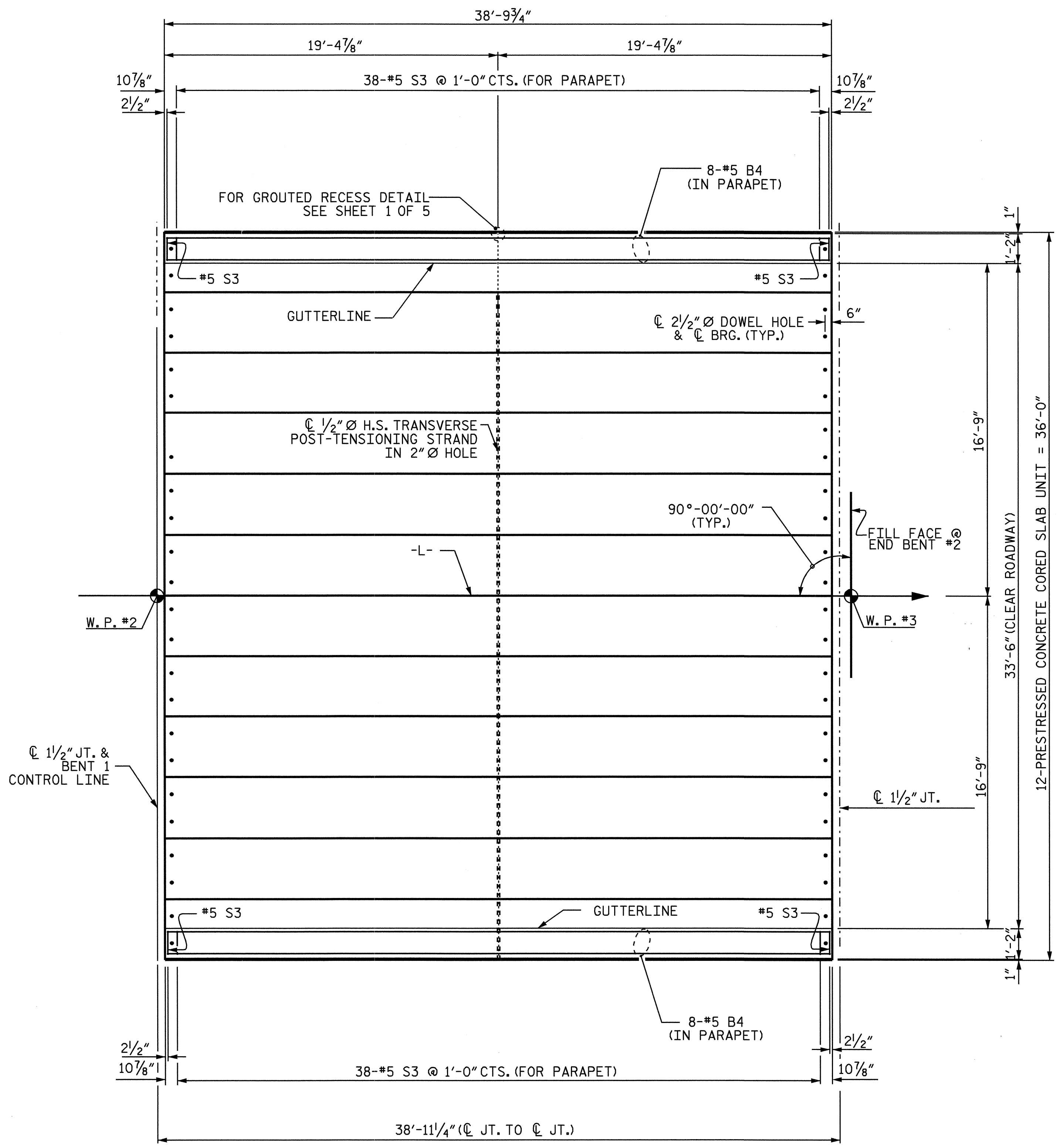
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A

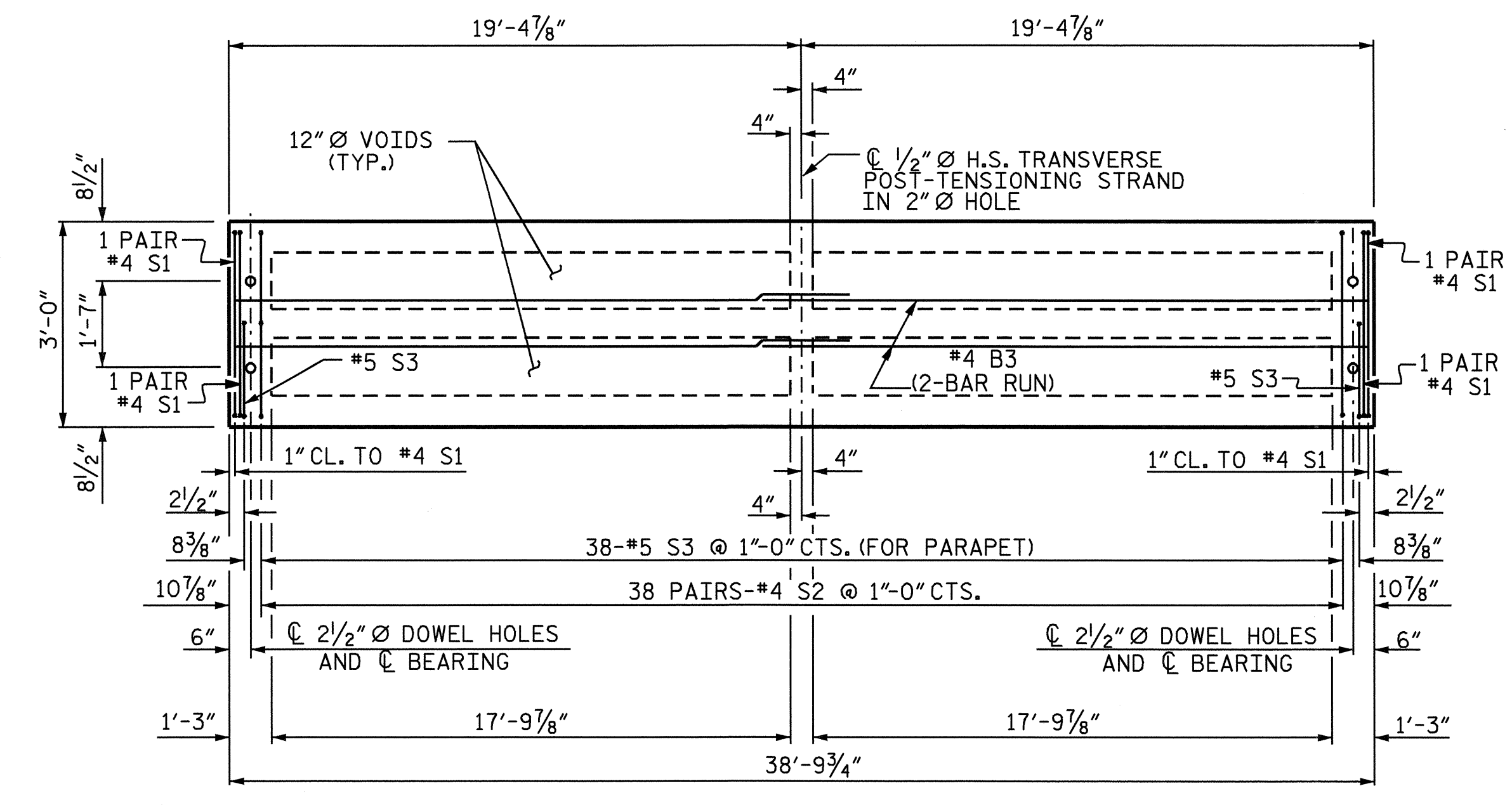


DRAWN BY : J.G. KHARVA/TLC DATE : 12/06/06
 CHECKED BY : J.D. HAWK/WAD DATE : 12/06/06

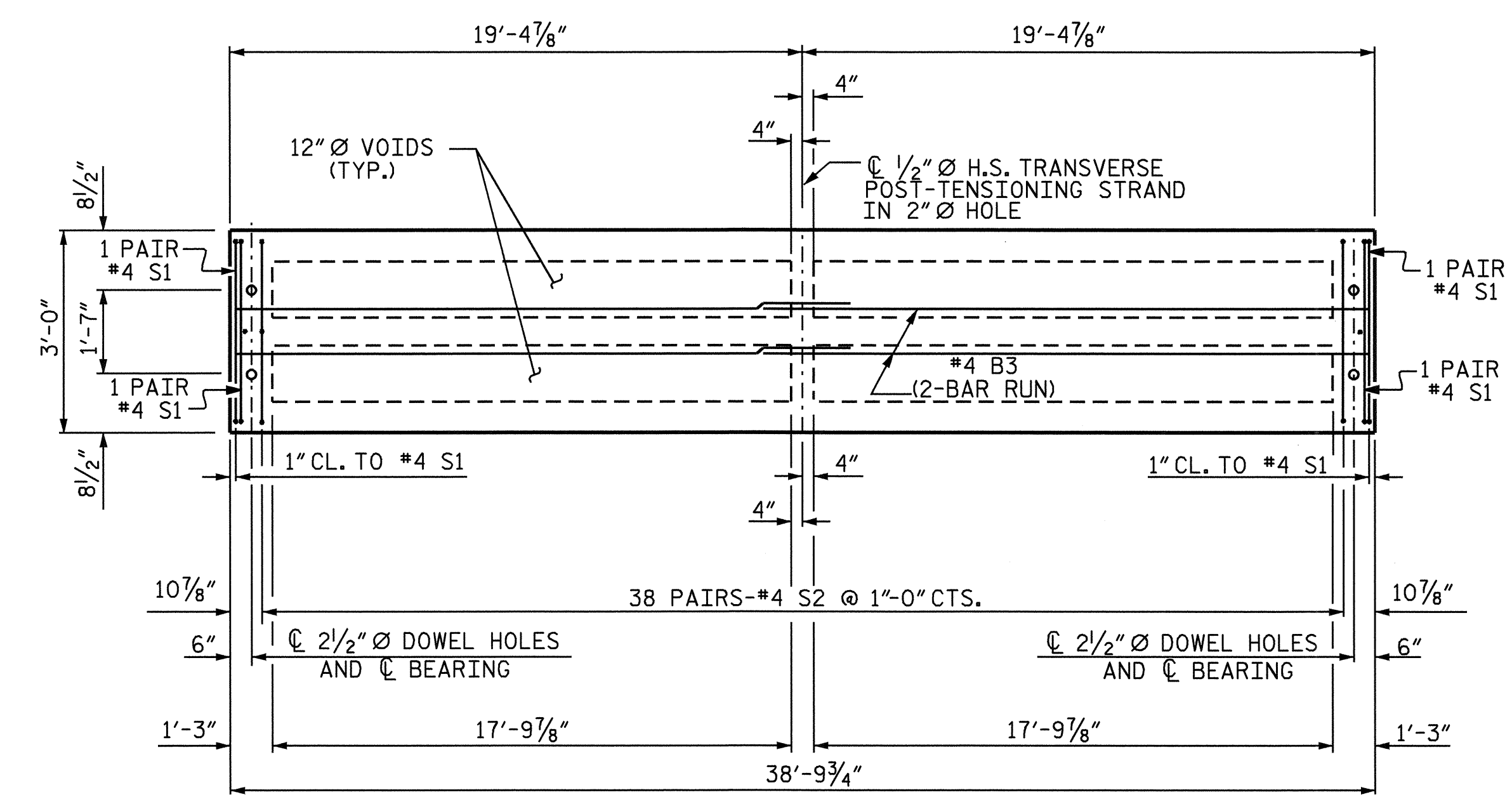
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			23



SPAN B



PLAN OF EXTERIOR CORED SLAB UNIT



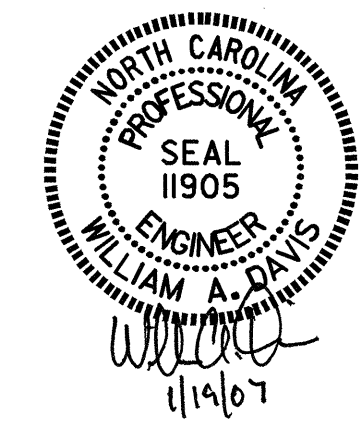
PLAN OF INTERIOR CORED SLAB UNIT

PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 12+45.00 -L-

SHEET 3 OF 5

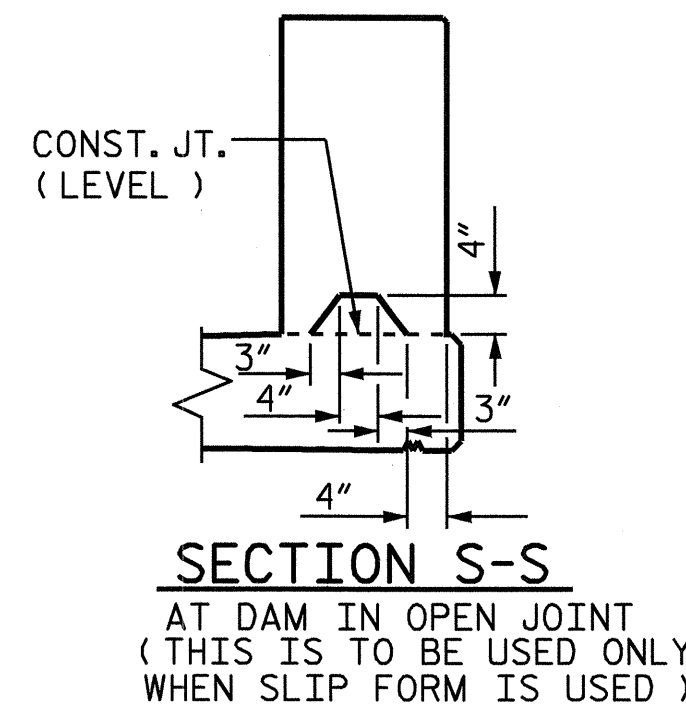
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN B**

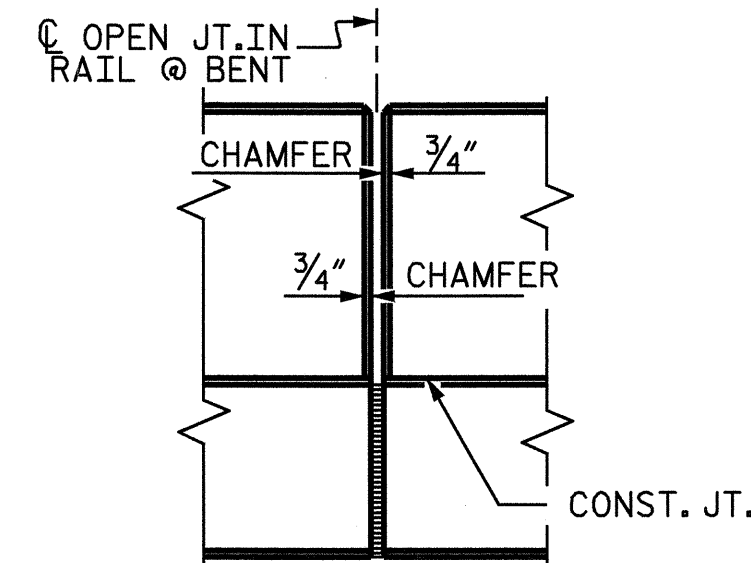


DRAWN BY : J.G. KHARVA/TLC DATE : 12/06/06
 CHECKED BY : J.D. HAWK/WAD DATE : 12/06/06

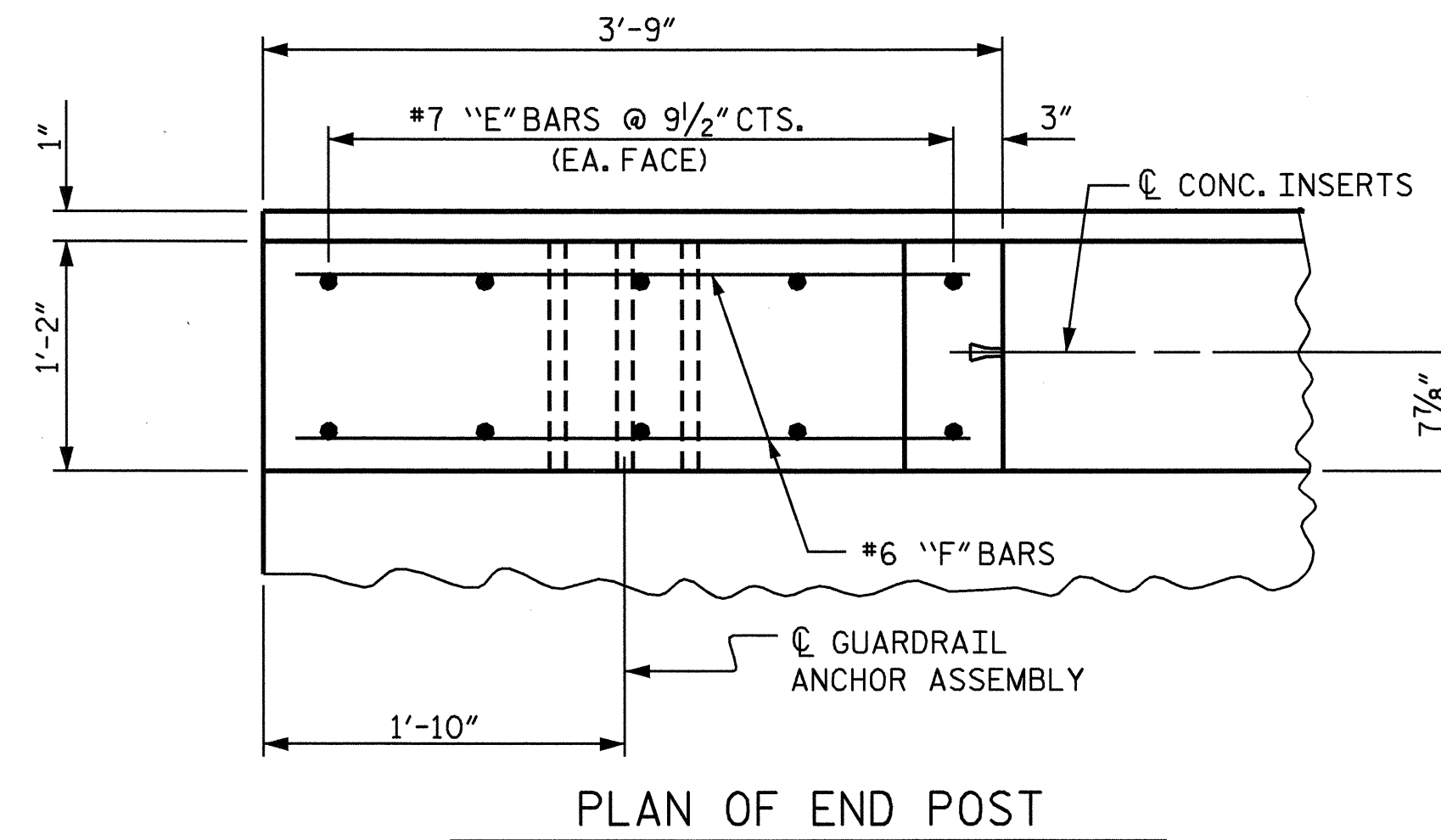
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			23



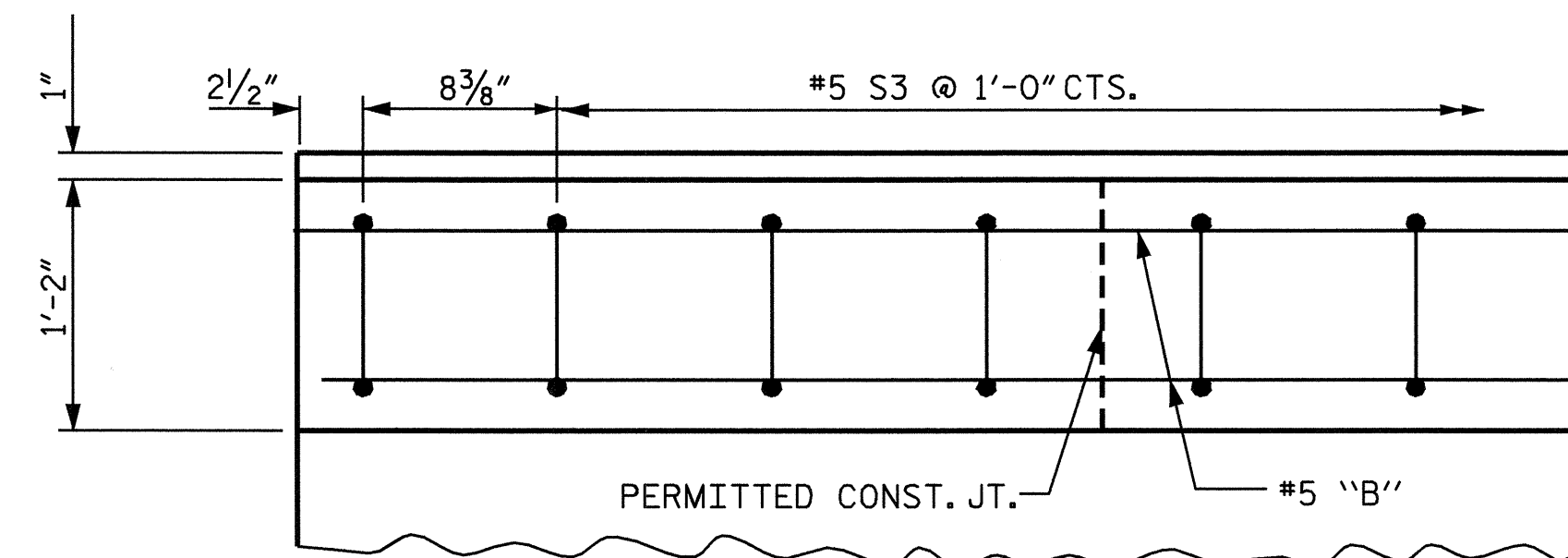
SECTION S-S
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(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



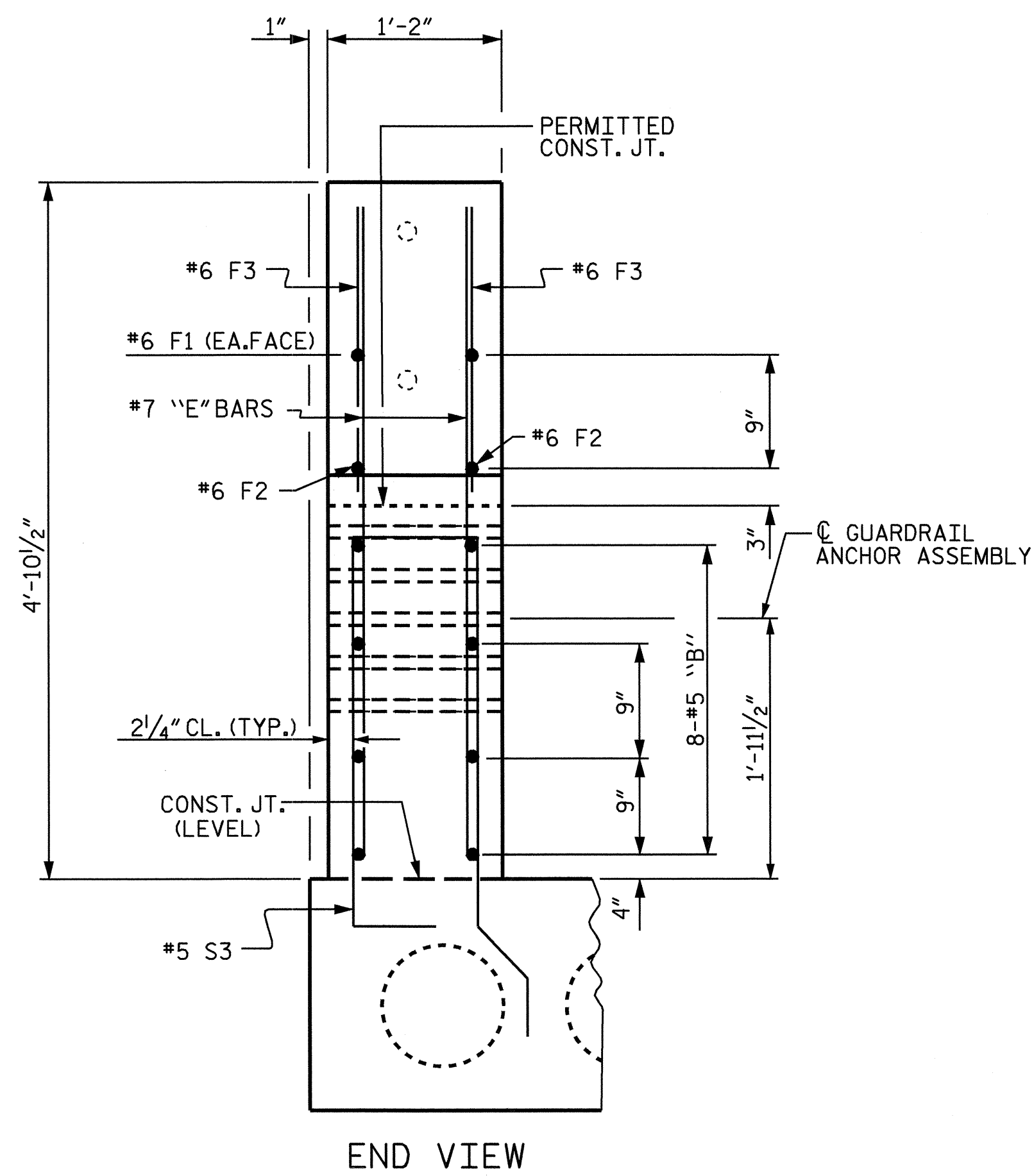
ELEVATION AT JOINTS
PARAPET DETAILS



PLAN OF END POST

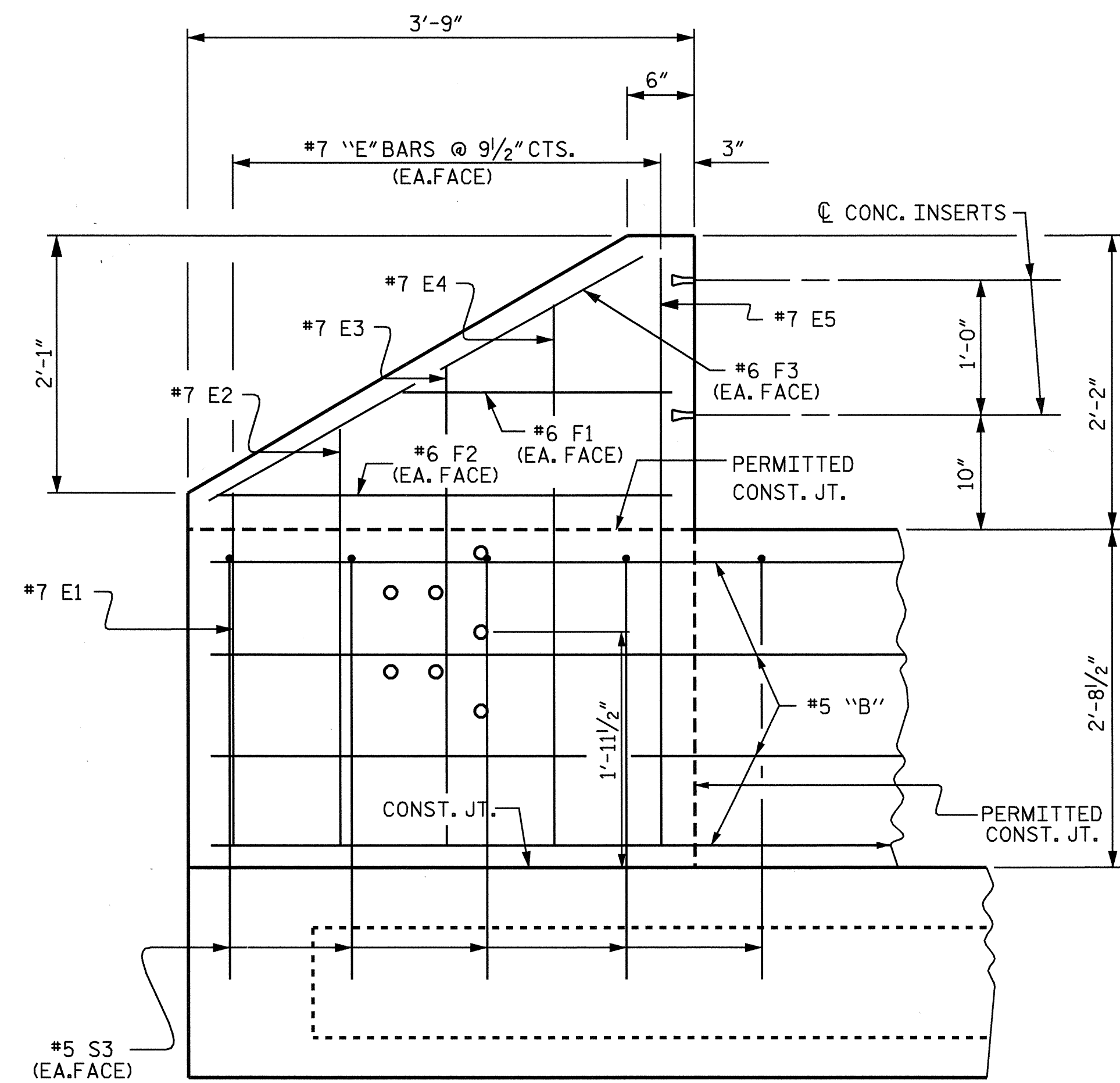


PLAN OF PARAPET



END VIEW

PARAPET AND END POST FOR TWO BAR RAIL



ELEVATION

BILL OF MATERIAL FOR PARAPET AND END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	16	#5	STR	48'-5"	808
*B4	16	#5	STR	38'-5"	641
*E1	8	#7	STR	2'-8"	44
*E2	8	#7	STR	3'-2"	52
*E3	8	#7	STR	3'-8"	60
*E4	8	#7	STR	4'-2"	68
*E5	8	#7	STR	4'-6"	74
*F1	8	#6	STR	1'-10"	22
*F2	8	#6	STR	3'-0"	36
*F3	8	#6	STR	3'-8"	44

* EPOXY COATED REINFORCING STEEL LBS 1849

CLASS "AA" CONCRETE CU.YDS 22.3

1'-2" X 2'-8 1/2" CONCRETE PARAPET LIN. FT. 175.50

NOTES

FOR DETAIL OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAIL" SHEETS.

ALL REINFORCING STEEL IN CONCRETE PARAPETS SHALL BE EPOXY COATED.

ALL BAR SUPPORTS USED IN THE PARAPET AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

COST OF THE PARAPET AND END POSTS SHALL BE INCLUDED IN THE PAY ITEM "CONSTRUCTION OF SUPERSTRUCTURE".

PROJECT NO. B-4088

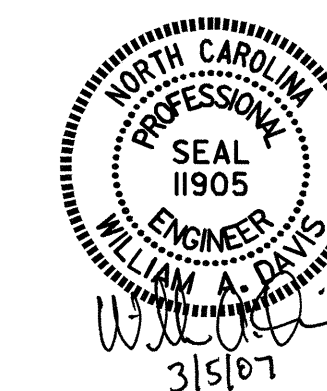
CRAVEN COUNTY

STATION: 12+45.00 -L-

SHEET 4 OF 5

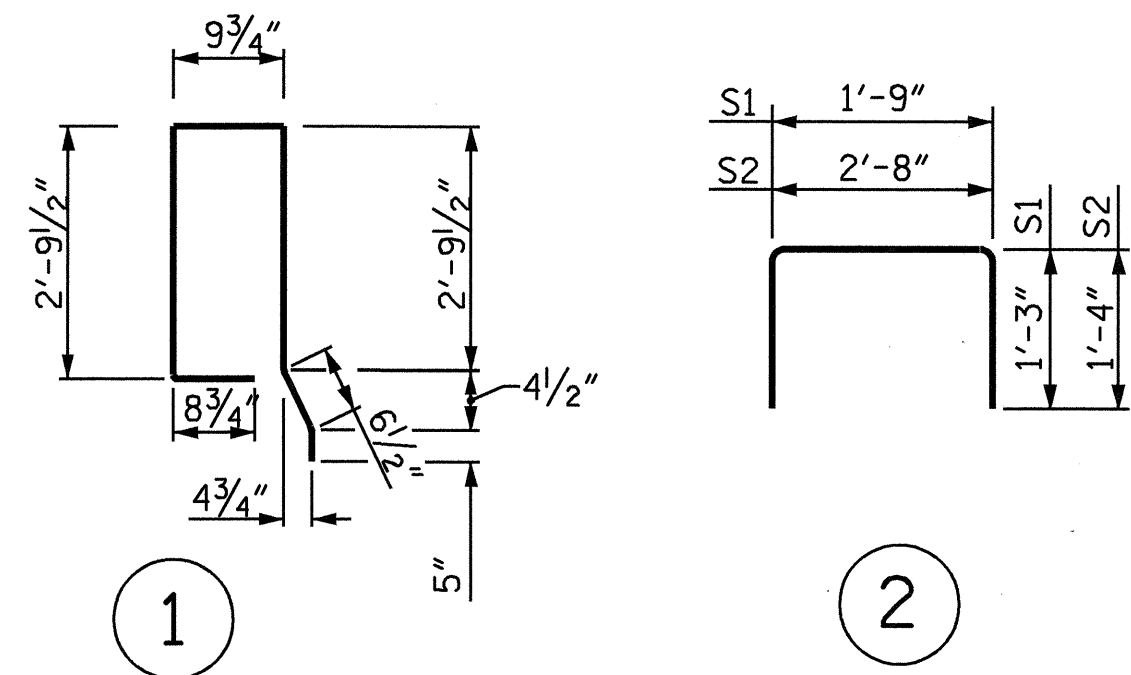
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
1'-2" X 2'-8 1/2"
CONCRETE PARAPET



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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN A				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	# 4	STR	25'-2"	67	25'-2"	67
S1	8	# 4	2	4'-3"	23	4'-3"	23
S2	96	# 4	2	5'-4"	342	5'-4"	342
* S3	50	# 5	1	8'-1"	422		
REINFORCING STEEL				432 LBS.		432 LBS.	
* EPOXY COATED REINFORCING STEEL				422 LBS.			
5,000 P.S.I. CONCRETE				6.7 C. Y.		6.7 C. Y.	
1/2" Ø L.R. STRANDS				No.	22		22

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN B				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	# 4	STR	20'-2"	54	20'-2"	54
S1	8	# 4	2	4'-3"	23	4'-3"	23
S2	76	# 4	2	5'-4"	270	5'-4"	270
* S3	40	# 5	1	8'-1"	337		
REINFORCING STEEL				347 LBS.		347 LBS.	
* EPOXY COATED REINFORCING STEEL				337 LBS.			
5,000 P.S.I. CONCRETE				5.3 C. Y.		5.3 C. Y.	
1/2" Ø L.R. STRANDS				No.	14		14

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.

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 GROUT.

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60.

DEAD LOAD DEFLECTION AND CAMBER

	SPAN A	SPAN B
	3'-0" x 1'-9"	3'-0" x 1'-9"
	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 5/16" ↑	1 3/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	5/16" ↓	1/8" ↓
FINAL CAMBER	1 5/8" ↑	1 1/16" ↑

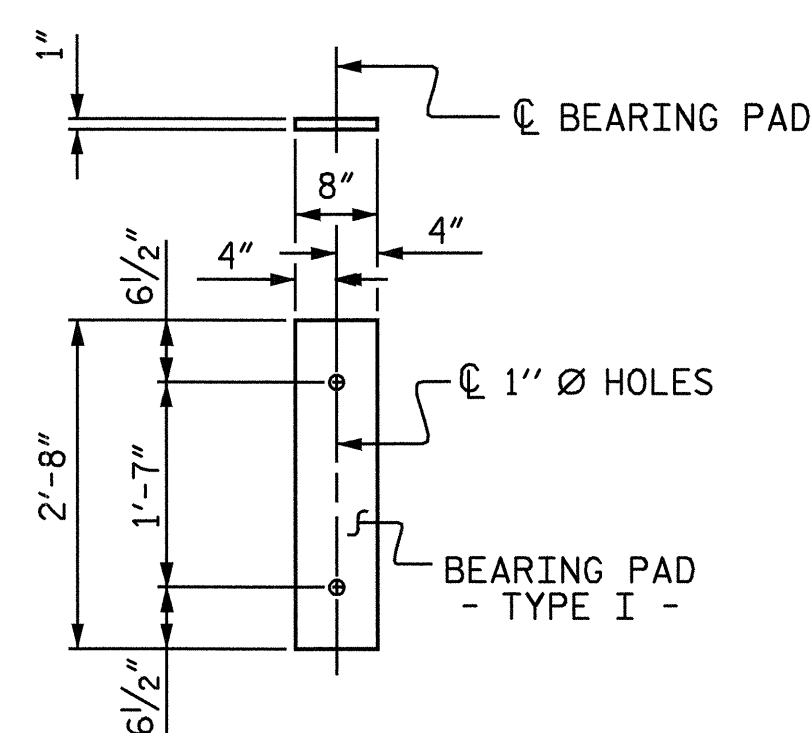
** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED

UNIT TYPE	NUMBER PER SPAN	LENGTH		TOTAL LENGTH
		SPAN A	SPAN B	
INTERIOR	10	48'-9 3/4"	38'-9 3/4"	876'-3"
EXTERIOR	2	48'-9 3/4"	38'-9 3/4"	175'-3"
TOTAL NUMBER	12	585'-9"	465'-9"	1051'-6"

GRADE 270 STRANDS

	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980



FIXED END
(TYPE I - 48 REQUIRED)

ELASTOMERIC BEARING DETAILS

SPLICE CHART

SIZE	LENGTH
4	1'-9"

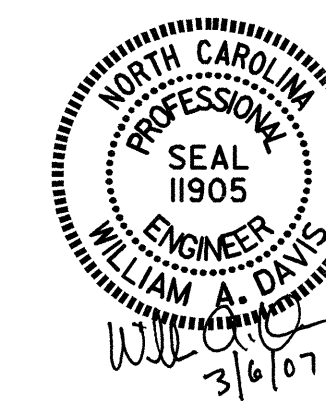
PROJECT NO. B-4088

CRAVEN COUNTY

STATION: 12+45.00 -L-

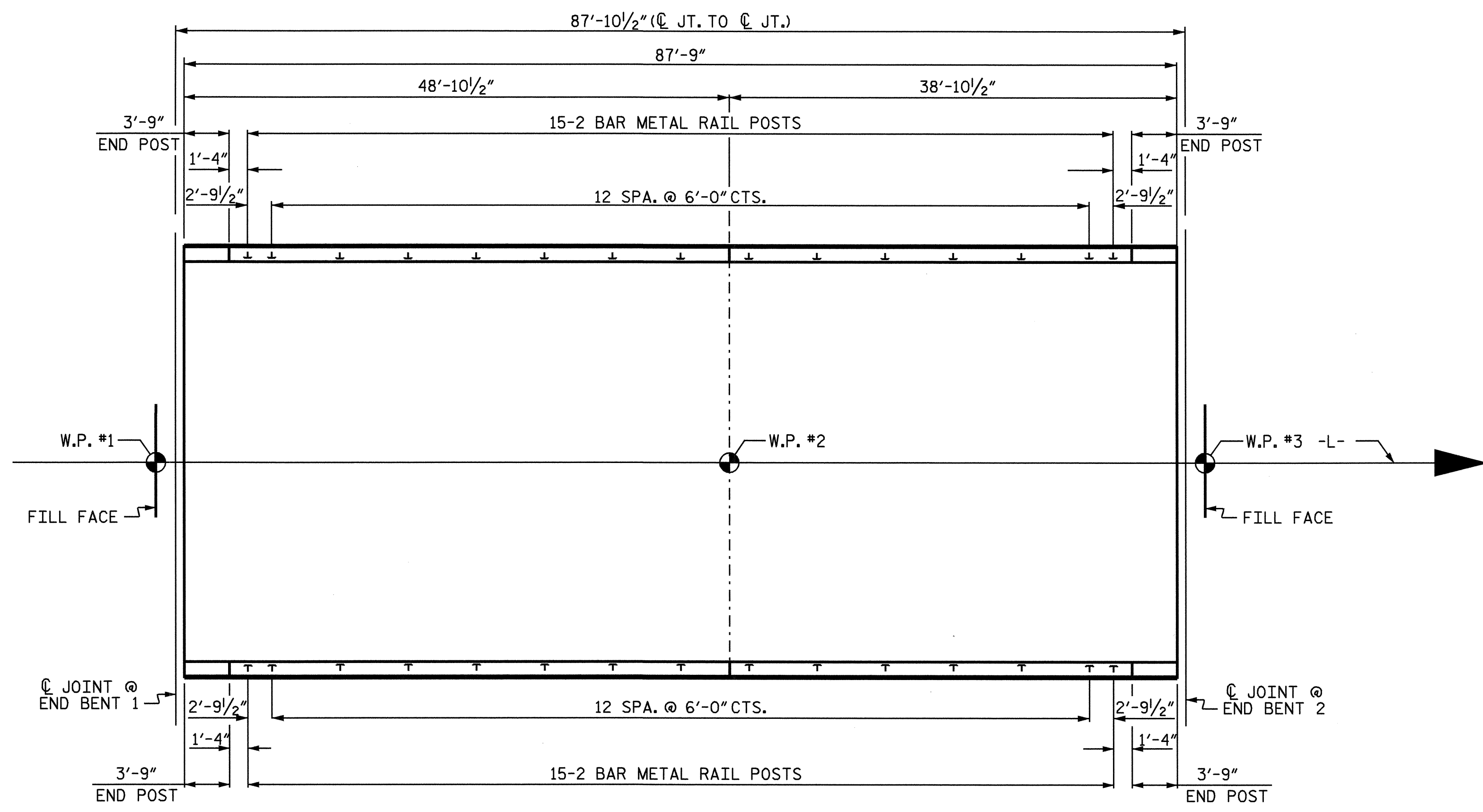
SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED
CONCRETE CORED
SLAB UNIT



ASSEMBLED BY : J.G. KHARVA/TLC DATE : 12/06/06
CHECKED BY : J.D. HAWK/WAD DATE : 12/06/06
DRAWN BY : WJH 4/89
CHECKED BY : FCJ 5/89
REV. 2/6/97 EEM/RCW
REV. 8/16/99 RWW/LES
REV. 10/17/00 RWW/LES

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



SPAN A SPAN B
PLAN OF RAIL POST SPACINGS

NOTES
 STRUCTURAL CONCRETE INSERT

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

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".

B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER, BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES
 METAL RAIL TO END POST CONNECTION

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

A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.

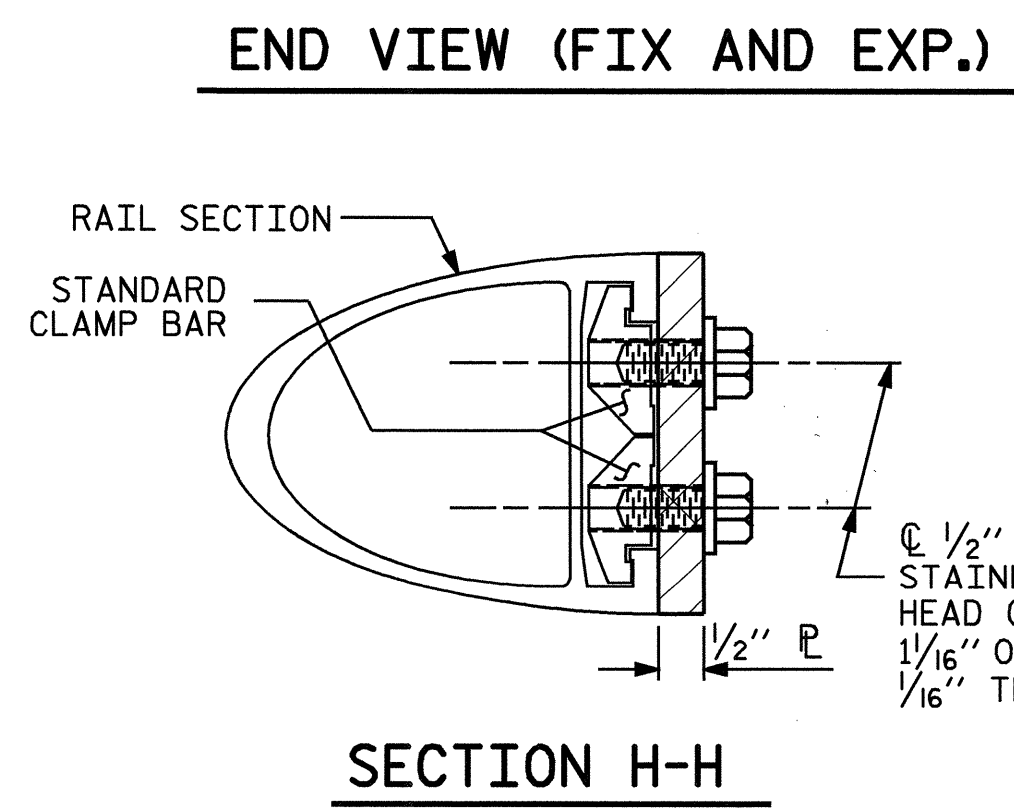
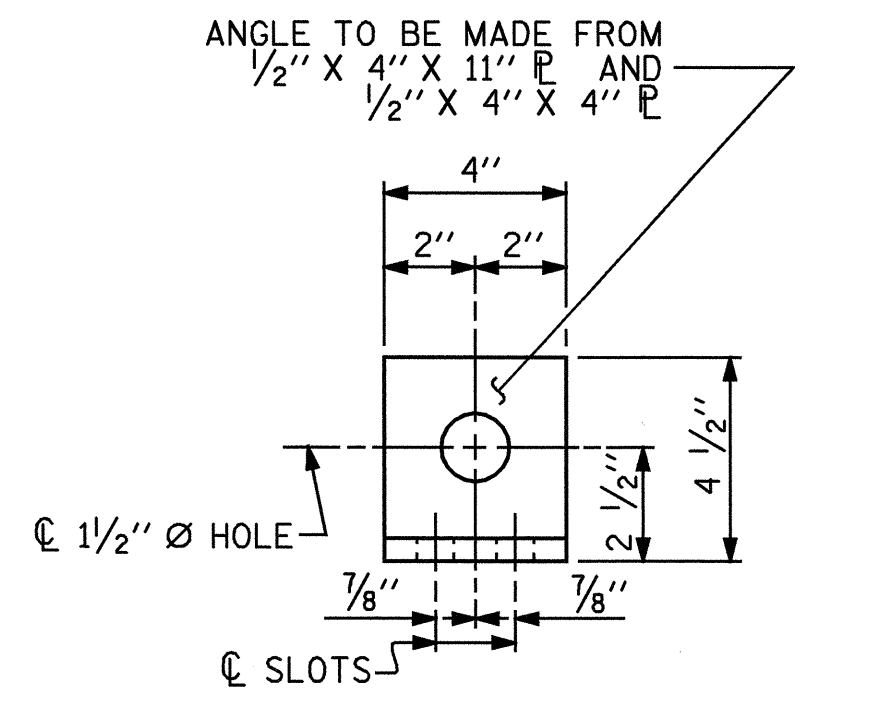
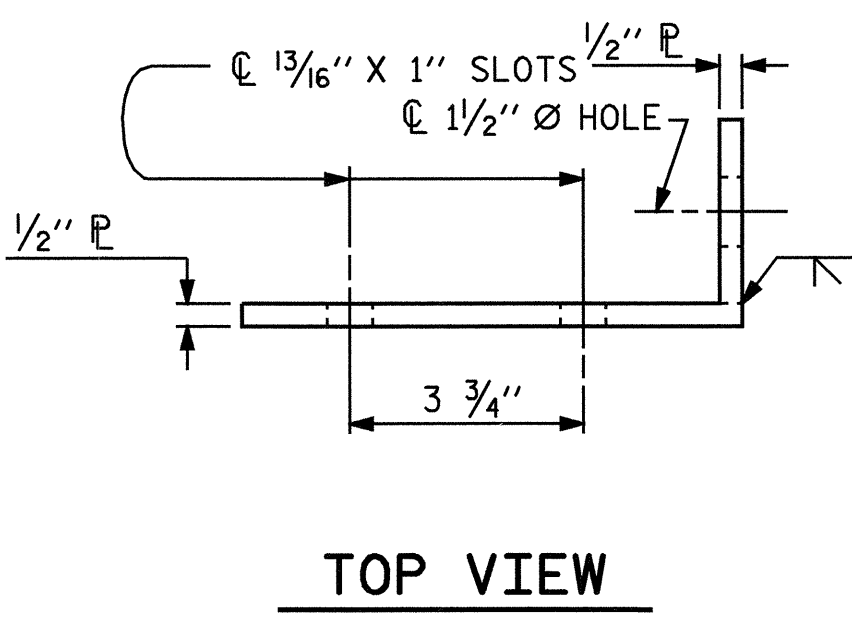
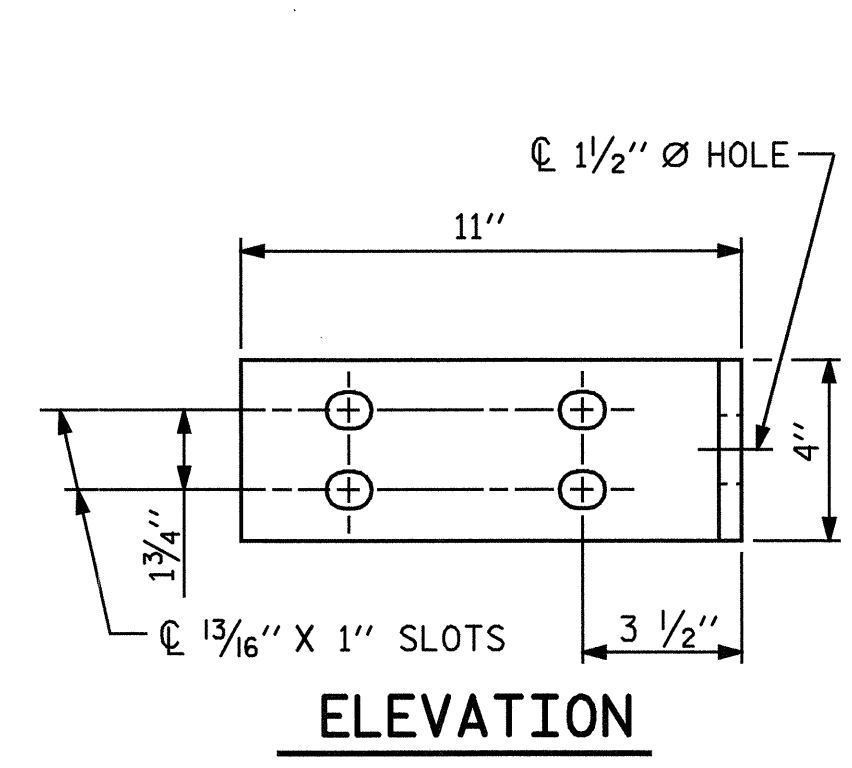
C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.

D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).

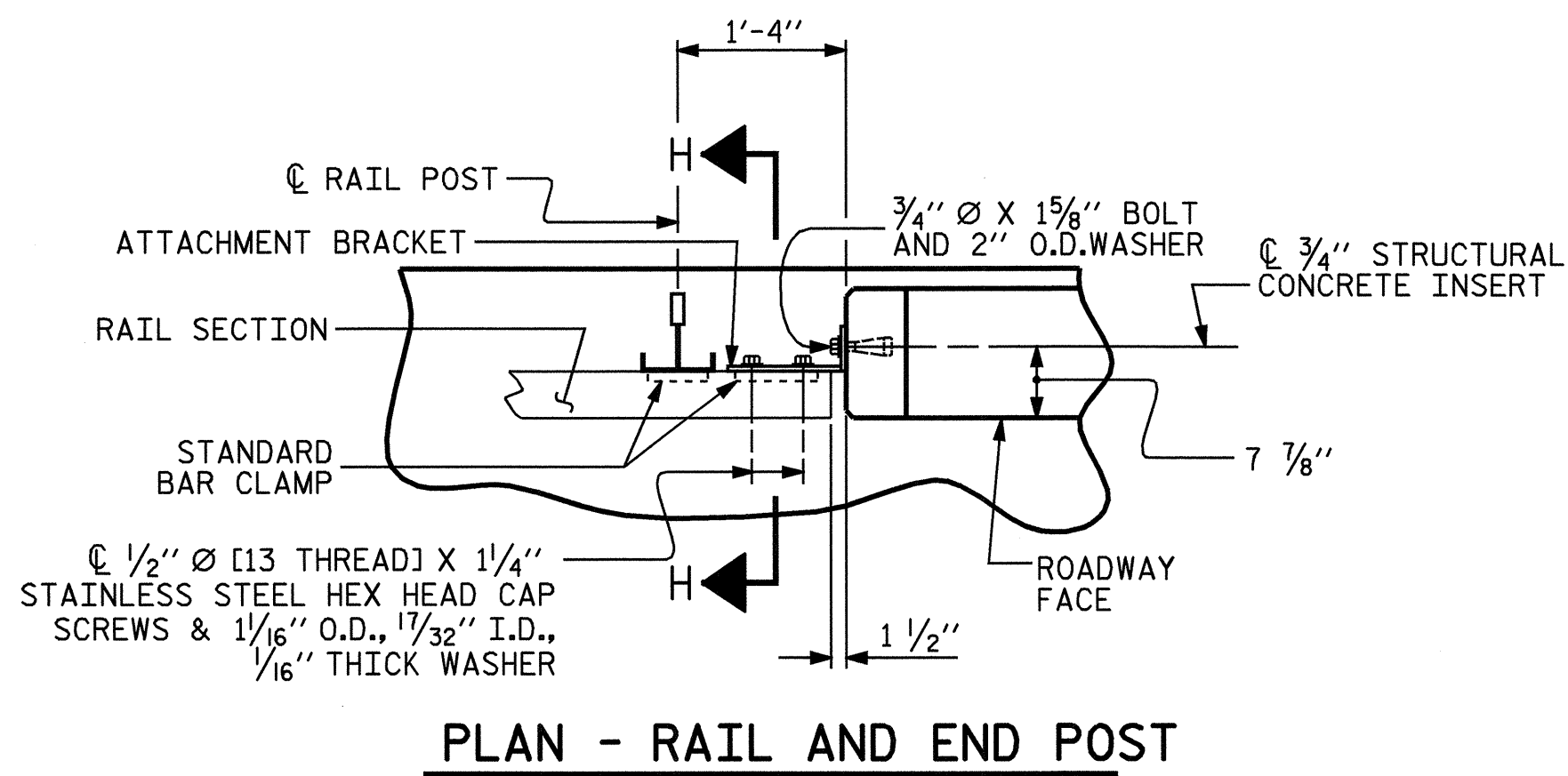
E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

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

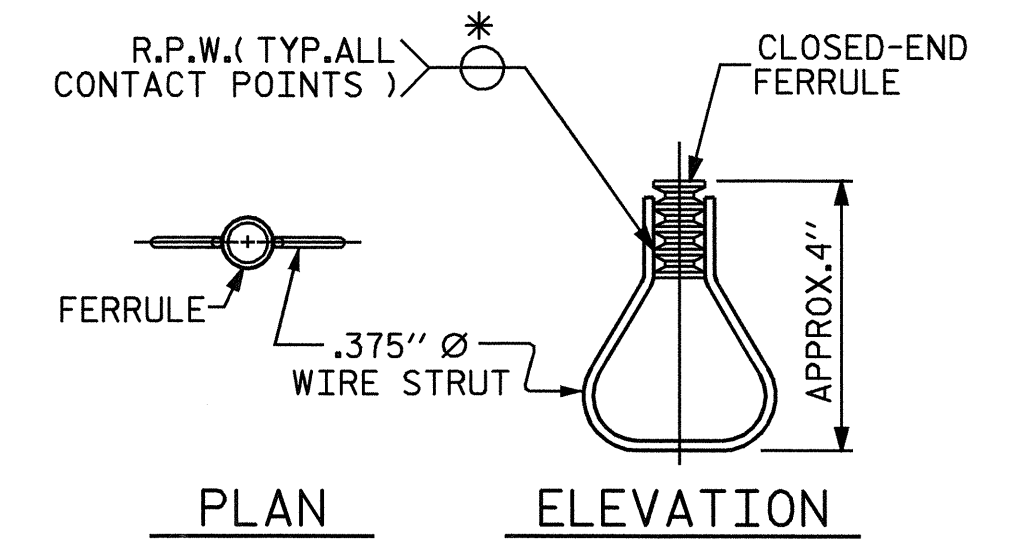
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT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



DETAILS FOR ATTACHING METAL RAIL TO END POST



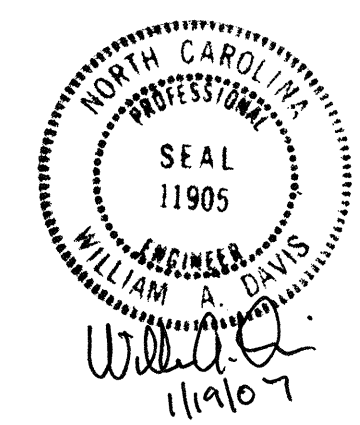
PLAN - RAIL AND END POST



PLAN ELEVATION
STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-



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

ASSEMBLED BY : J. G. KHARVA/TLC	DATE : 12/06/06
CHECKED BY : J. D. HAWK/WAD	DATE : 12/06/06
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

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

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

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

COST OF THE METAL RAIL AND ALL THE ATTACHMENTS SHALL BE INCLUDED IN THE PAY ITEM "CONSTRUCTION OF SUPERSTRUCTURE".

2 BAR METAL RAIL = 160.5 LIN. FT.

PROJECT NO. B-4088

CRAVEN COUNTY

STATION: 21+45.00 -L-

SHEET 1 OF 2

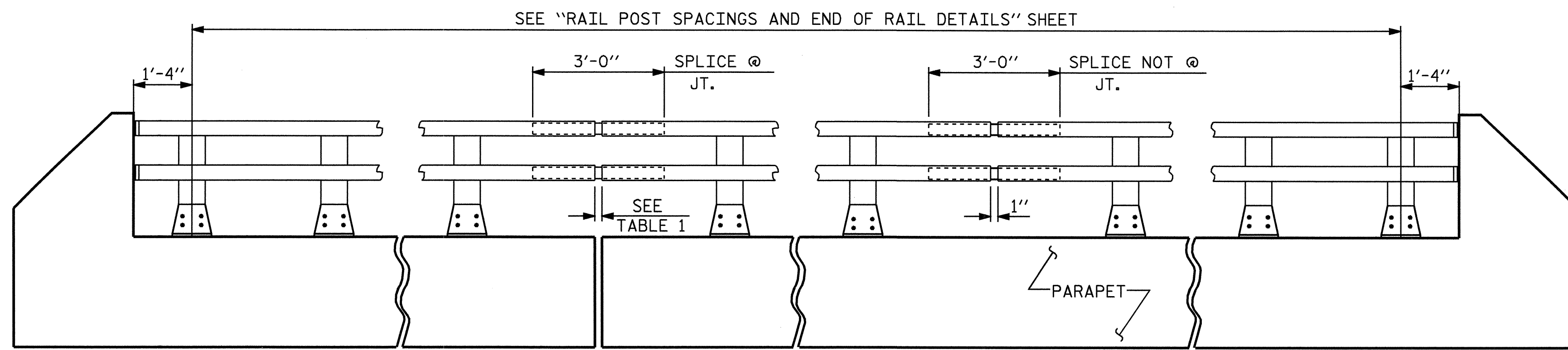
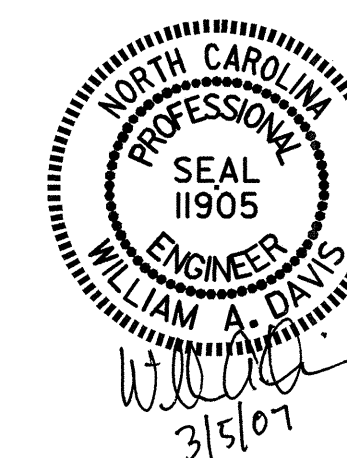
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

2 BAR METAL RAIL

JUNE 1994

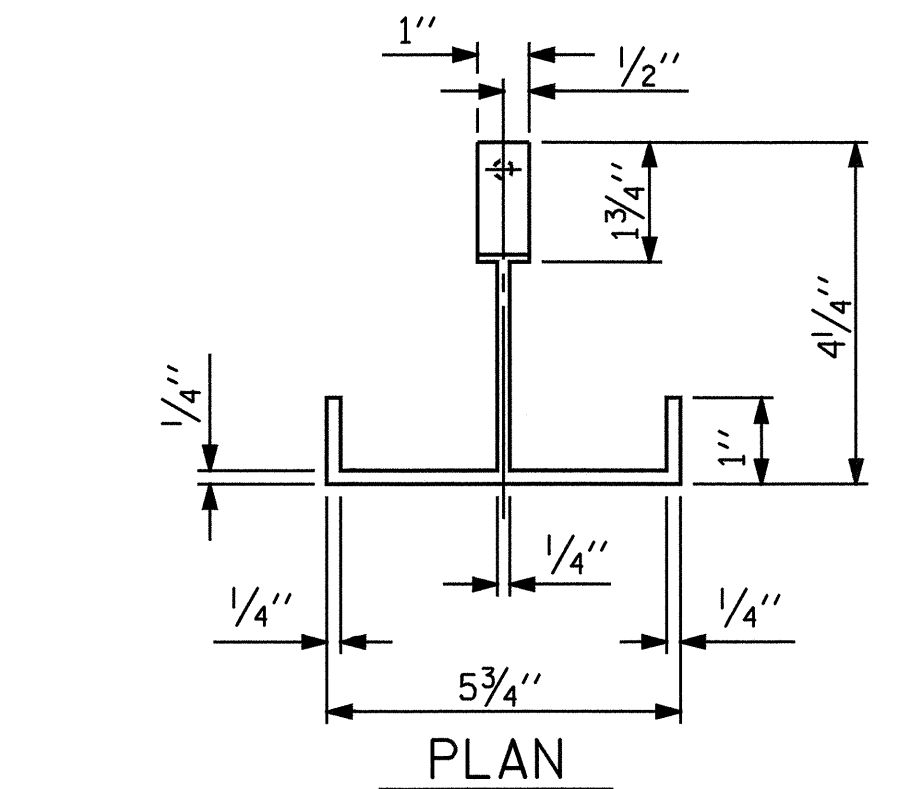
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 23
2			4			



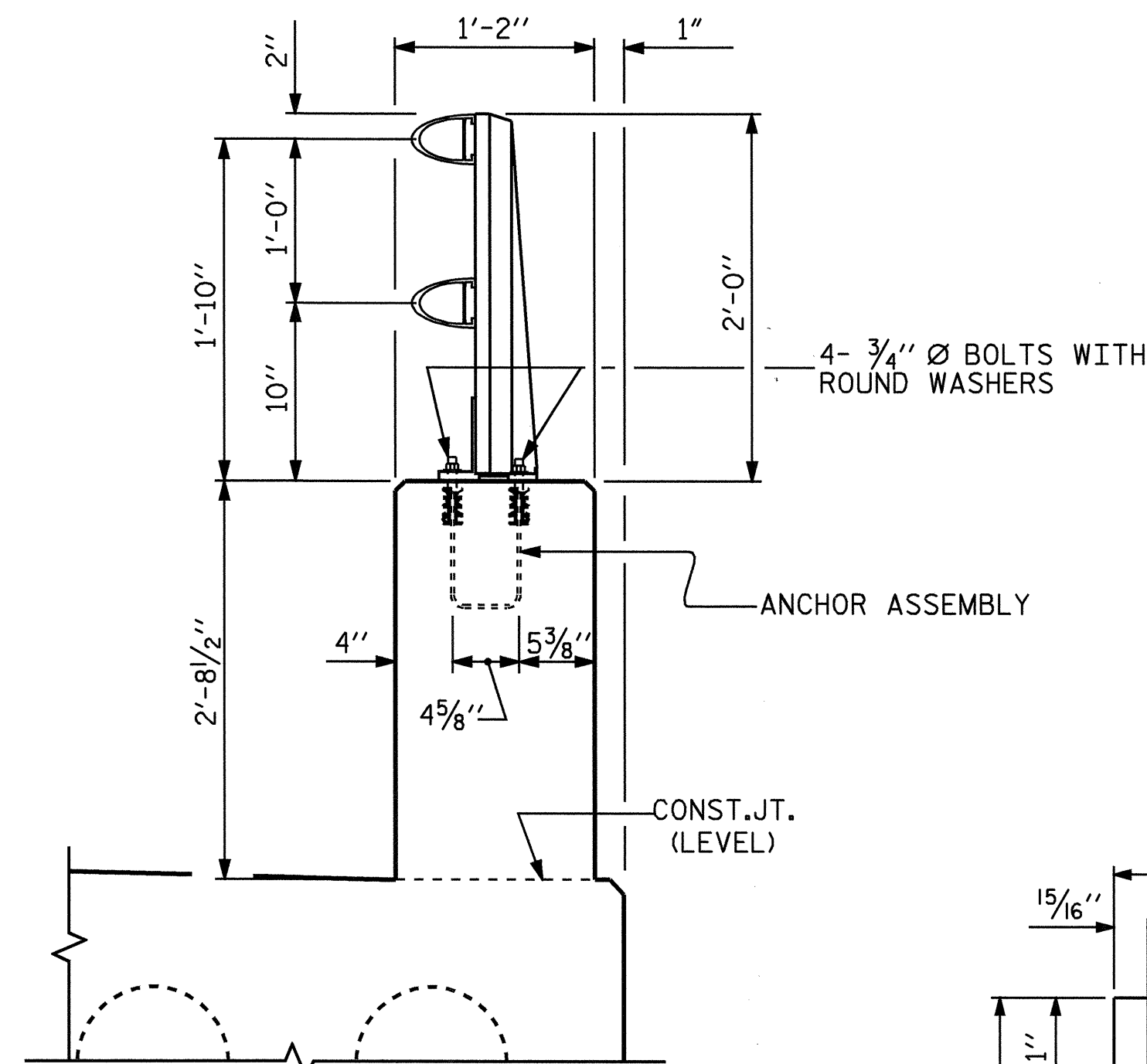
ELEVATION

NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.

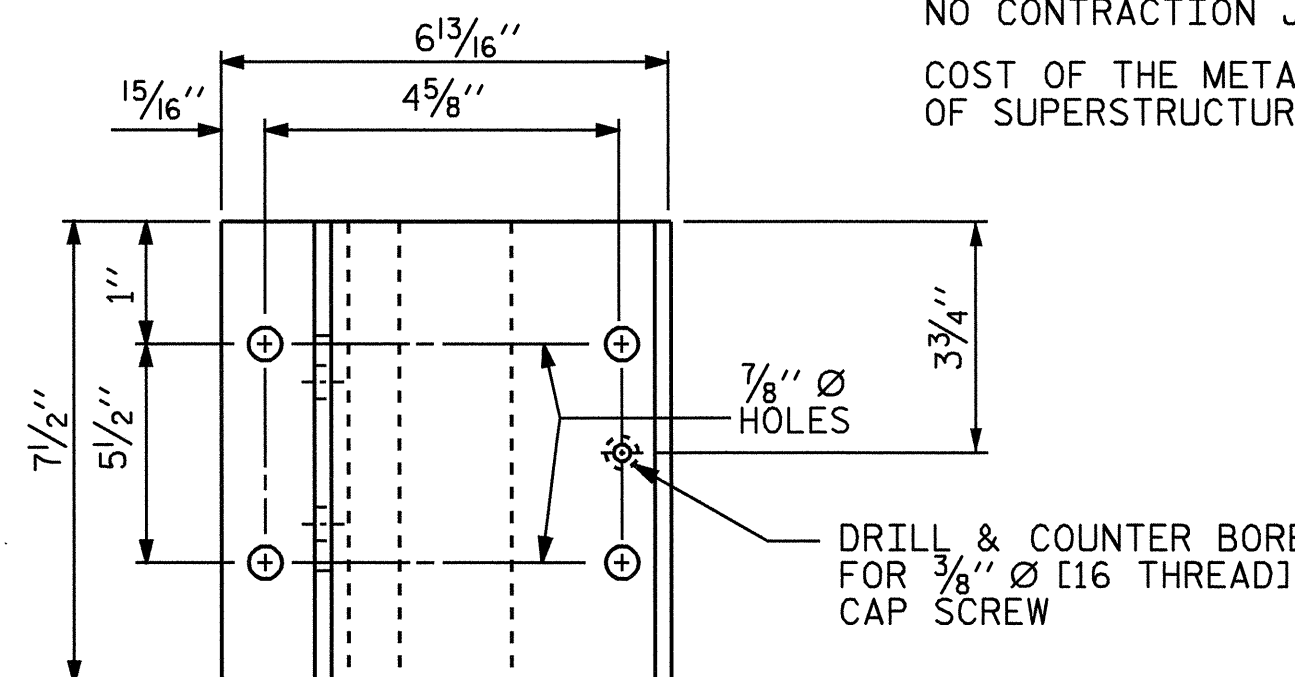
CL JT. @	RAIL OPENING
BENT No. 1	1 1/2"



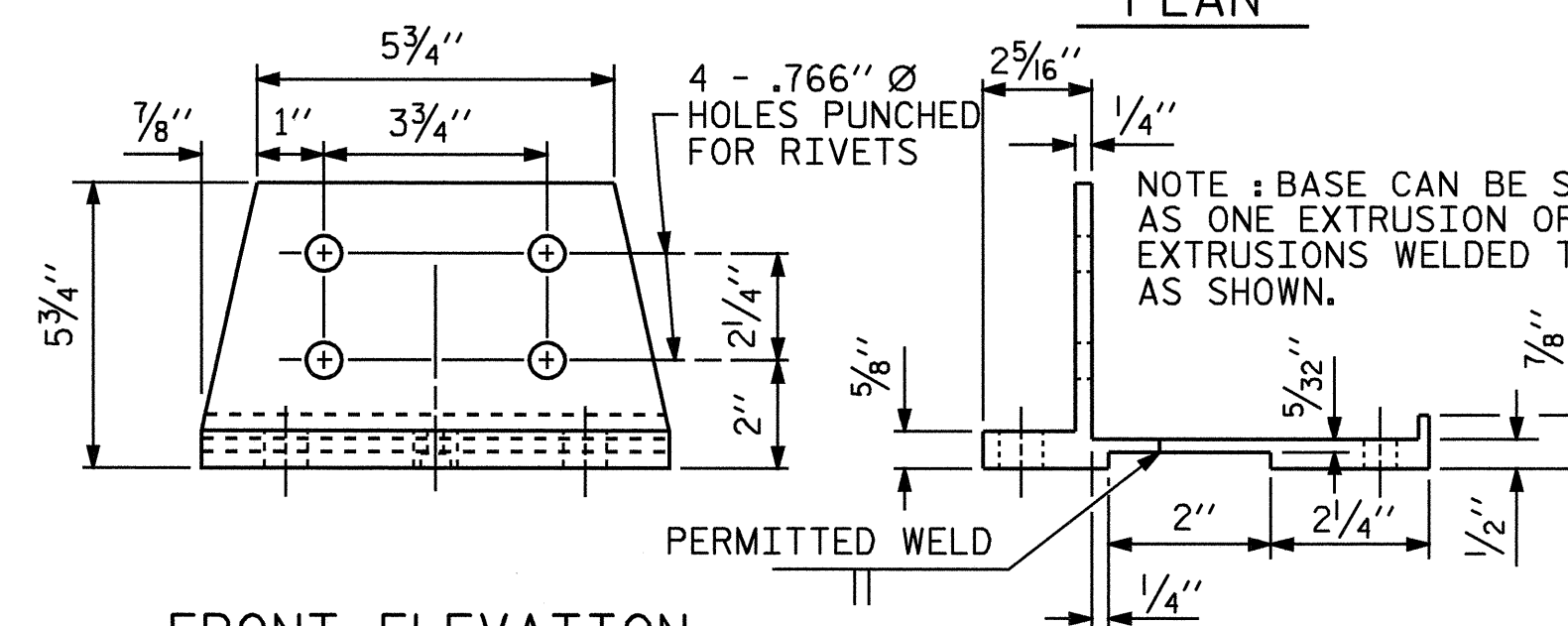
PLAN



SECTION THRU PARAPET AND RAIL



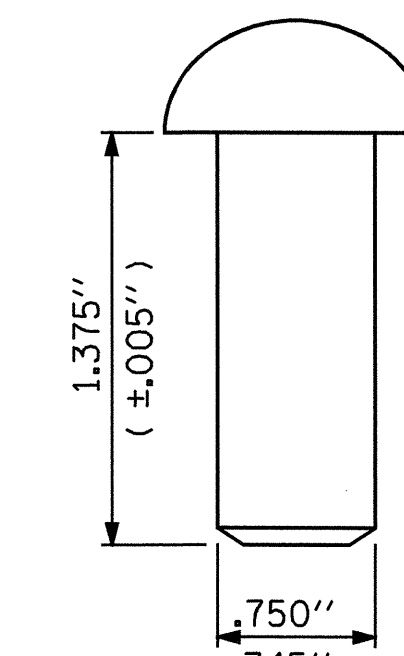
PLAN



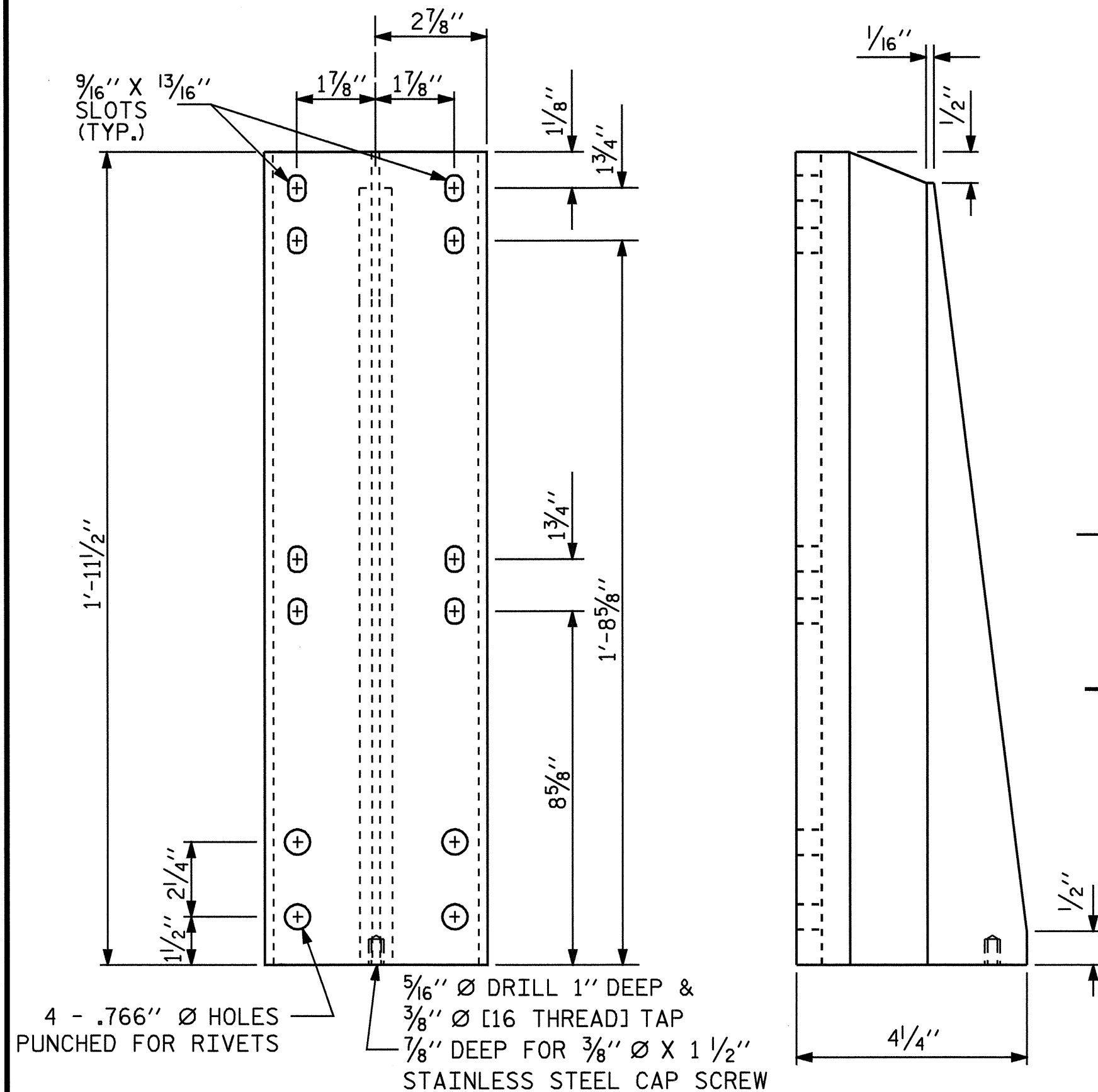
FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL



FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST

ASSEMBLED BY :	J. G. KHARVA/TLC	DATE :	12/06/06
CHECKED BY :	J. D. HAWK/WAD	DATE :	12/06/06
DRAWN BY :	EEM 6/94	REV. 8/16/99	RWW/LES
CHECKED BY :	RGW 6/94	REV. 10/17/00	LES/RDR
		REV. 5/7/03R	RWW/JTE

NOTES

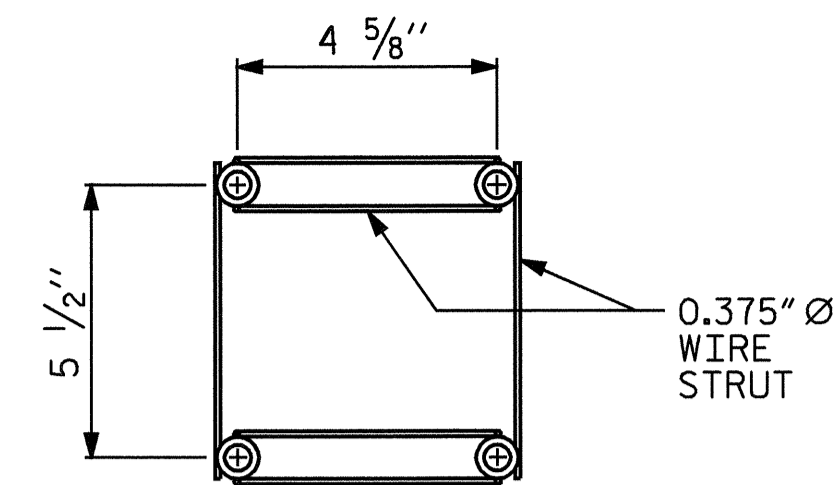
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

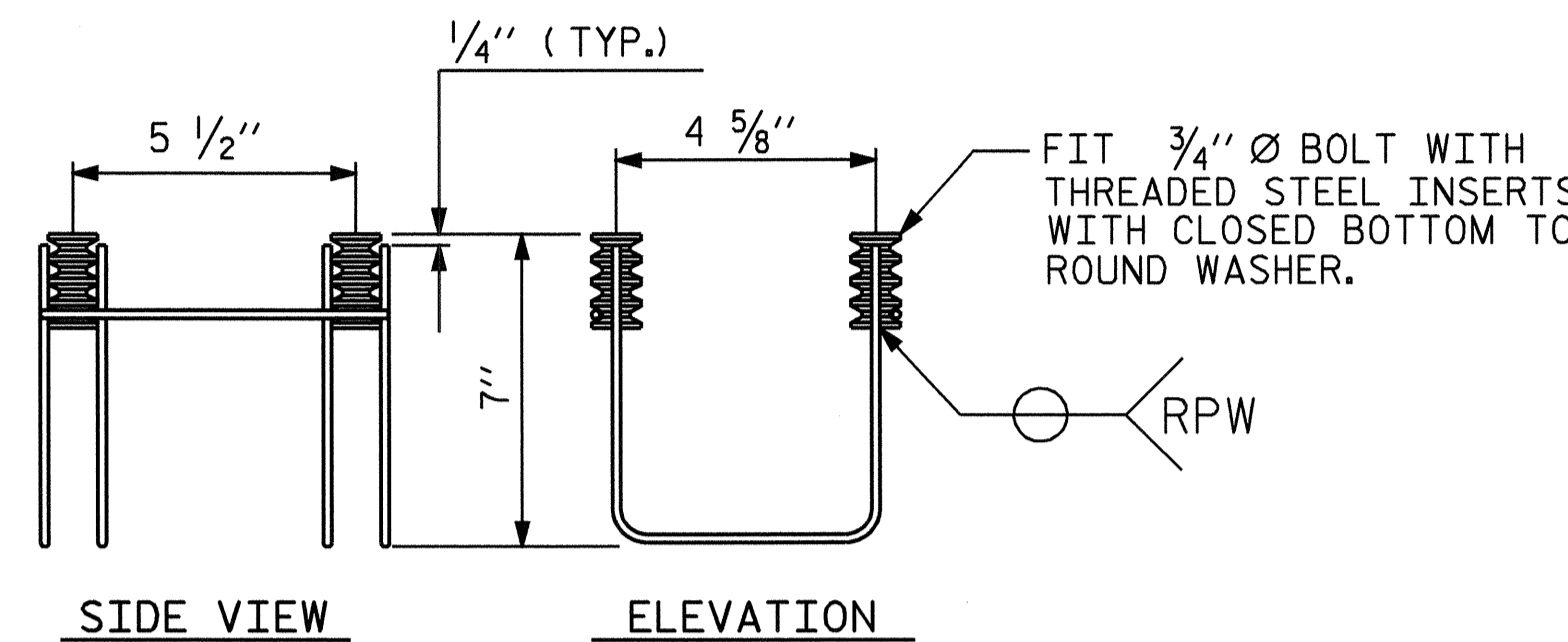
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PAY ITEM "CONSTRUCTION OF SUPERSTRUCTURE".
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR, AT HIS OPTION, MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN LIEU OF THE METAL RAIL ANCHOR ASSEMBLY. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS REQUIRED.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN



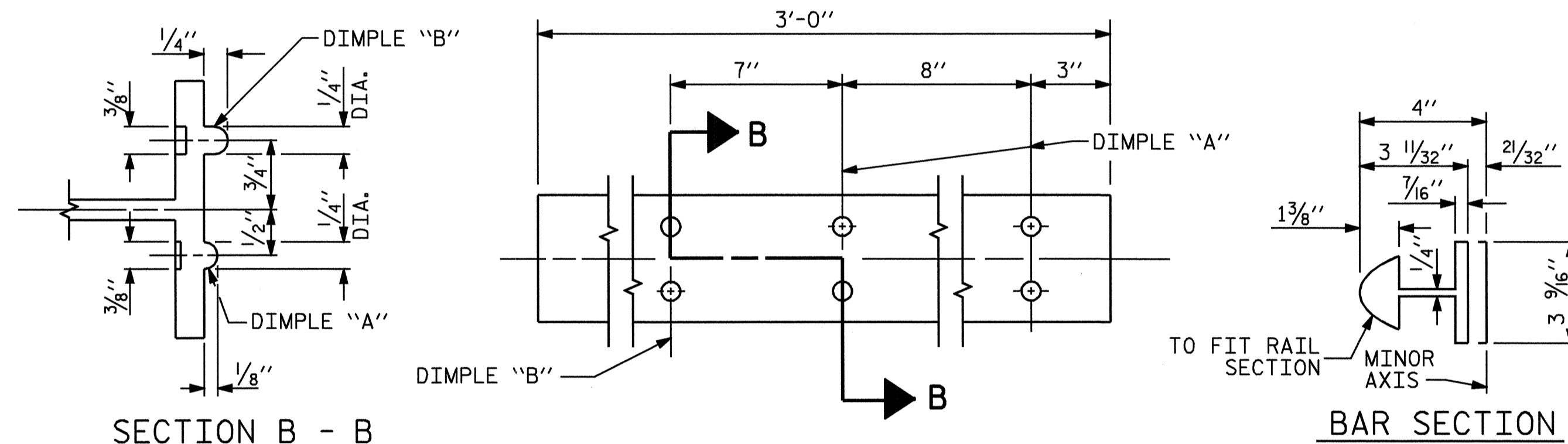
SIDE VIEW

ELEVATION

MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

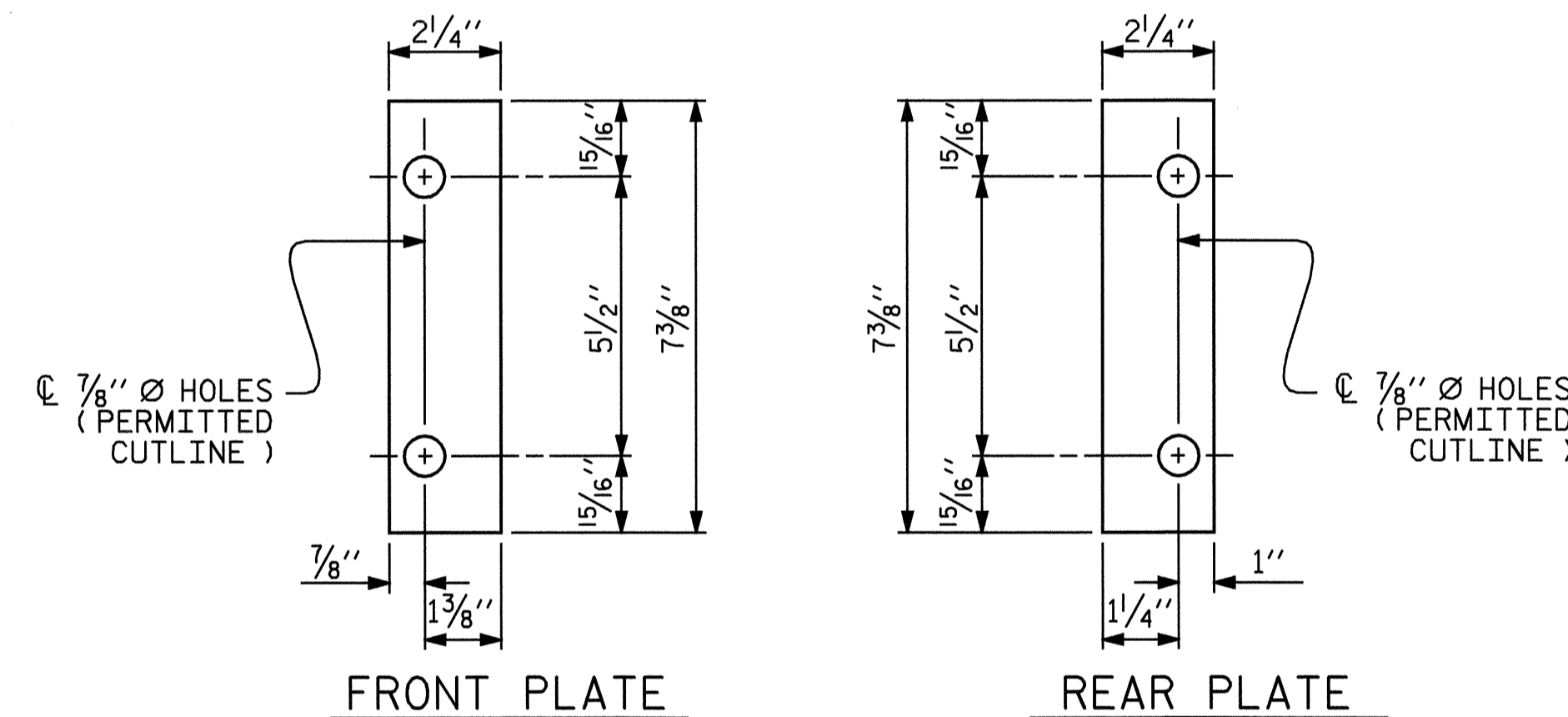
(30 ASSEMBLIES REQUIRED)



SECTION B - B

EXPANSION BAR DETAILS

BAR SECTION

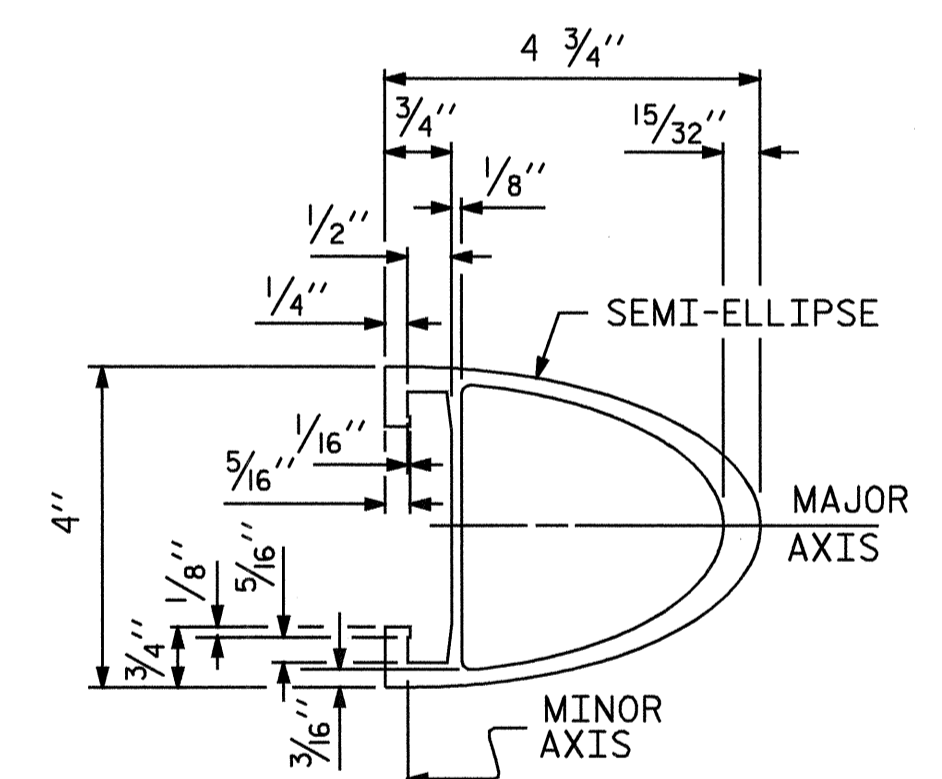


FRONT PLATE

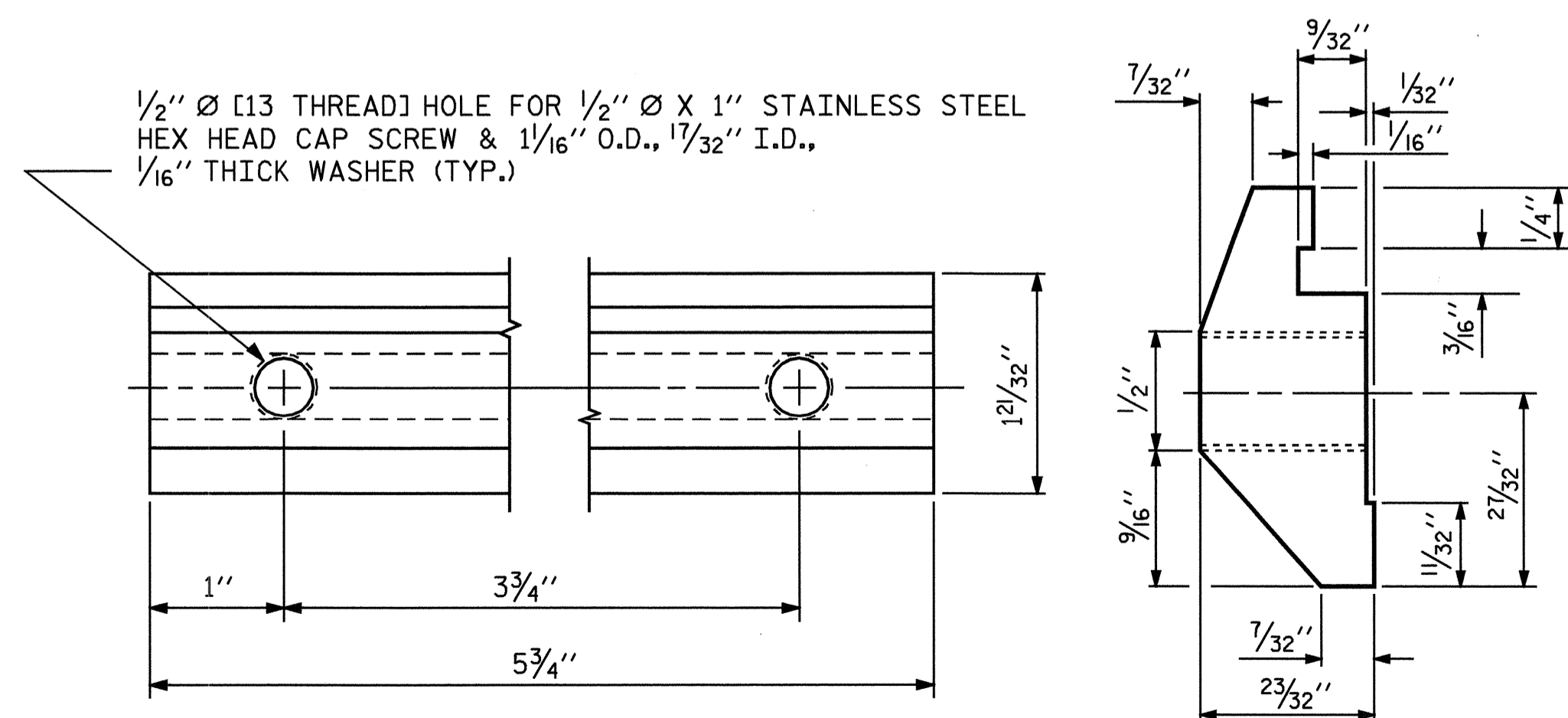
REAR PLATE

SHIM DETAILS

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

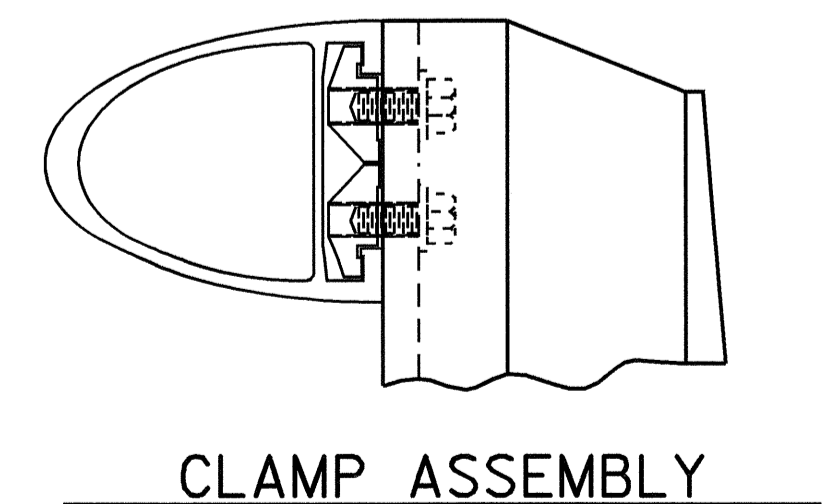


RAIL SECTION

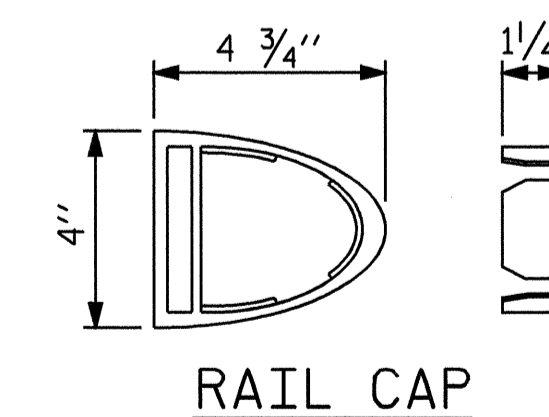


CLAMP BAR DETAIL

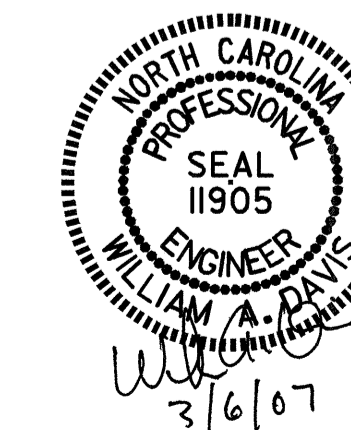
(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP



PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						STANDARD 2 BAR METAL RAIL	
JUNE						1994	
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	
2			4			23	

ASSEMBLED BY :	J. G. KHARVA/TLC	DATE :	12/06/06
CHECKED BY :	J. D. HAWK/WAD	DATE :	12/06/06
DRAWN BY :	EEM 6/94	REV. 2/6/97	EEM/RGW
CHECKED BY :	RGW 6/94	REV. 8/16/99	MAB/LES
		REV. 5/7/03	RWW/JTE

NOTES

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

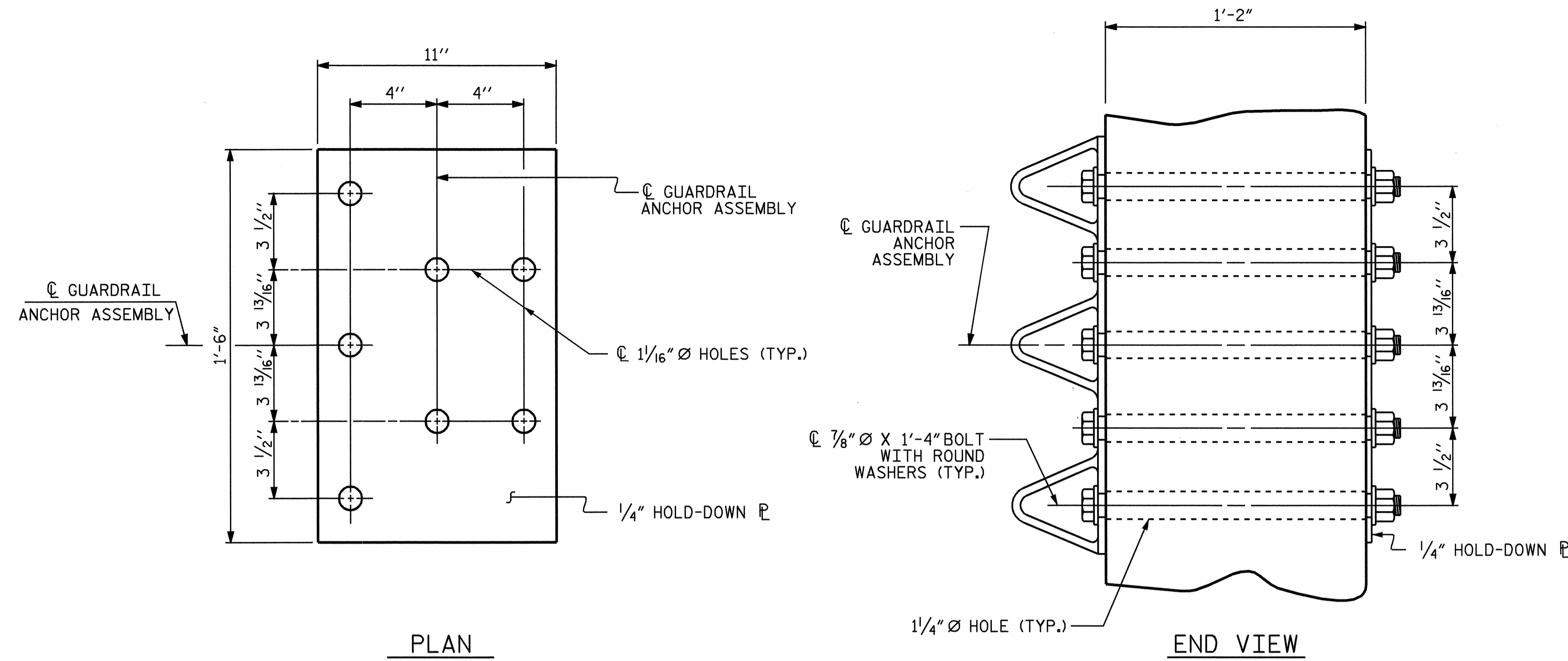
THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

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

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

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

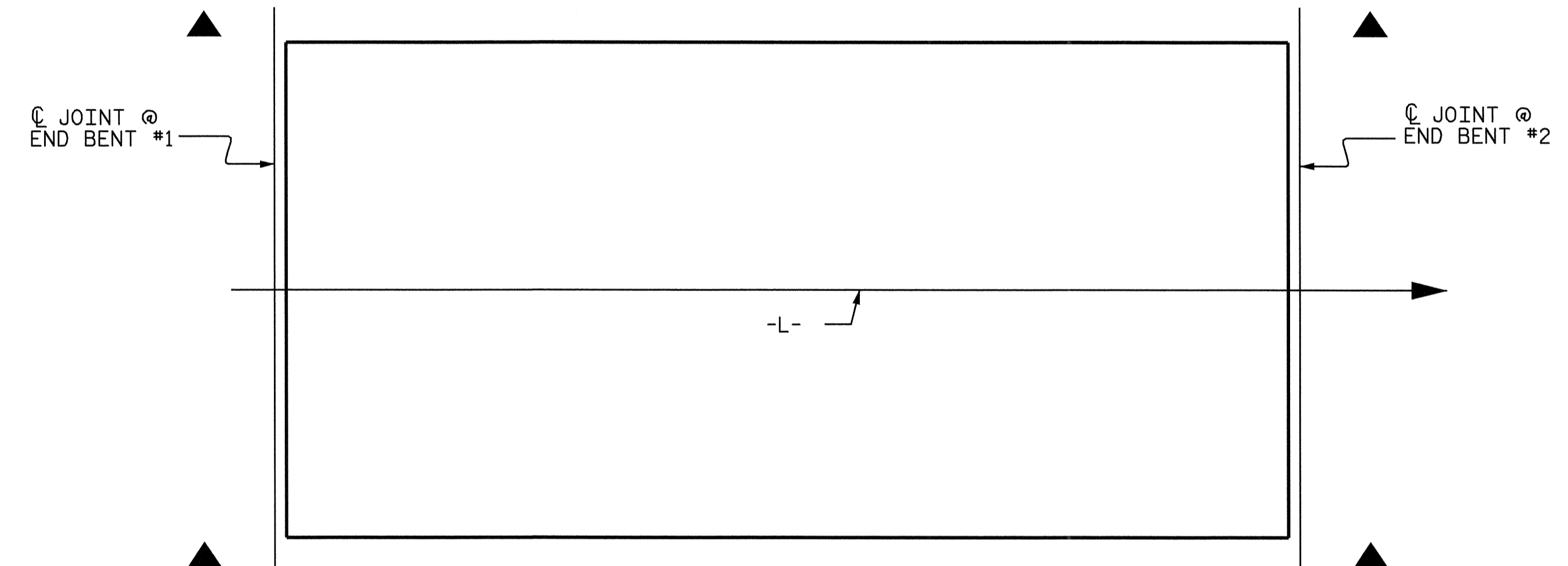
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN

END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS



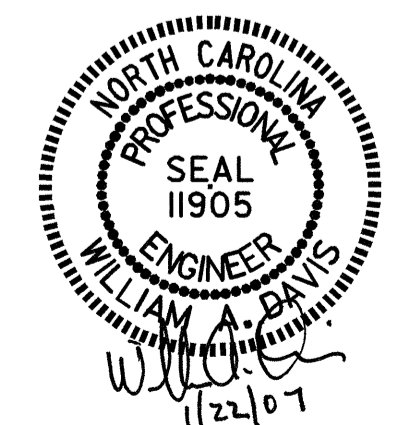
SKETCH SHOWING POINTS OF ATTACHMENT

▲ LOCATION OF GUARDRAIL ATTACHMENT

FOR LOCATION OF GUARDRAIL ANCHOR AT END POST SEE "CONCRETE PARAPET" SHEET.

LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

JUNE 1994

ASSEMBLED BY : J. G. KHARVA/TLC	DATE : 12/06/06
CHECKED BY : J. D. HAWK/WAD	DATE : 12/06/06
DRAWN BY : EEM 6/94	REV. 8/16/99 RWW/LES
CHECKED BY : RGW 6/94	REV. 10/17/00 RWW/LES
	REV. 5/7/03 RWW/JTE

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

NOTES

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

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

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.

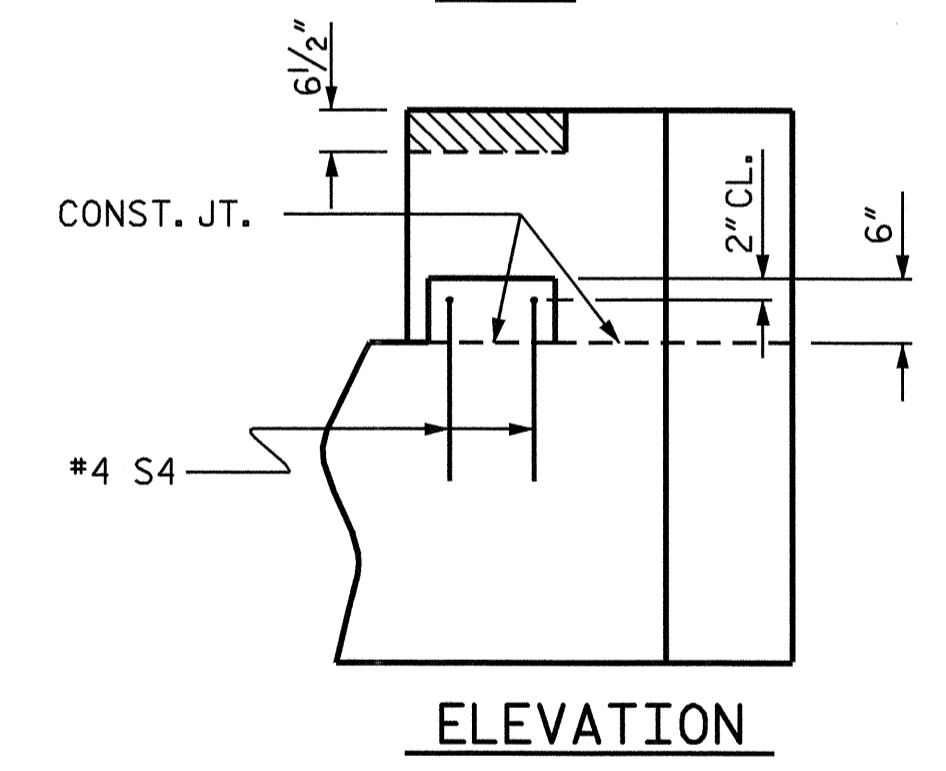
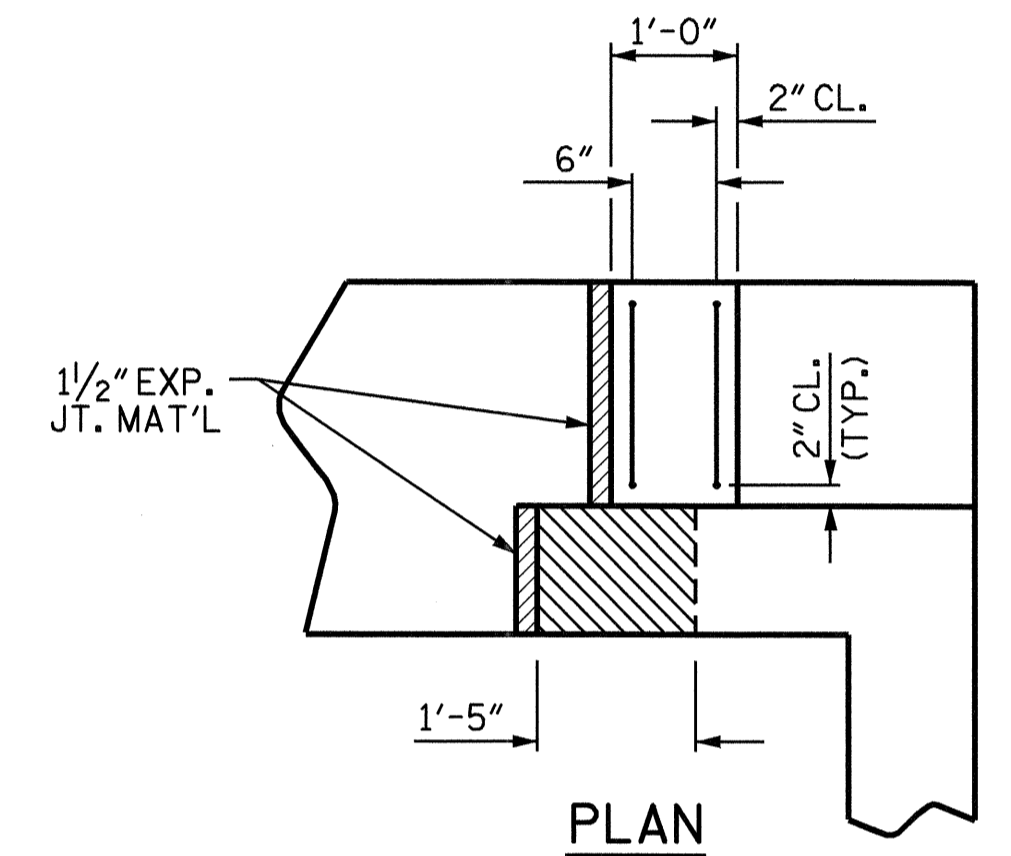
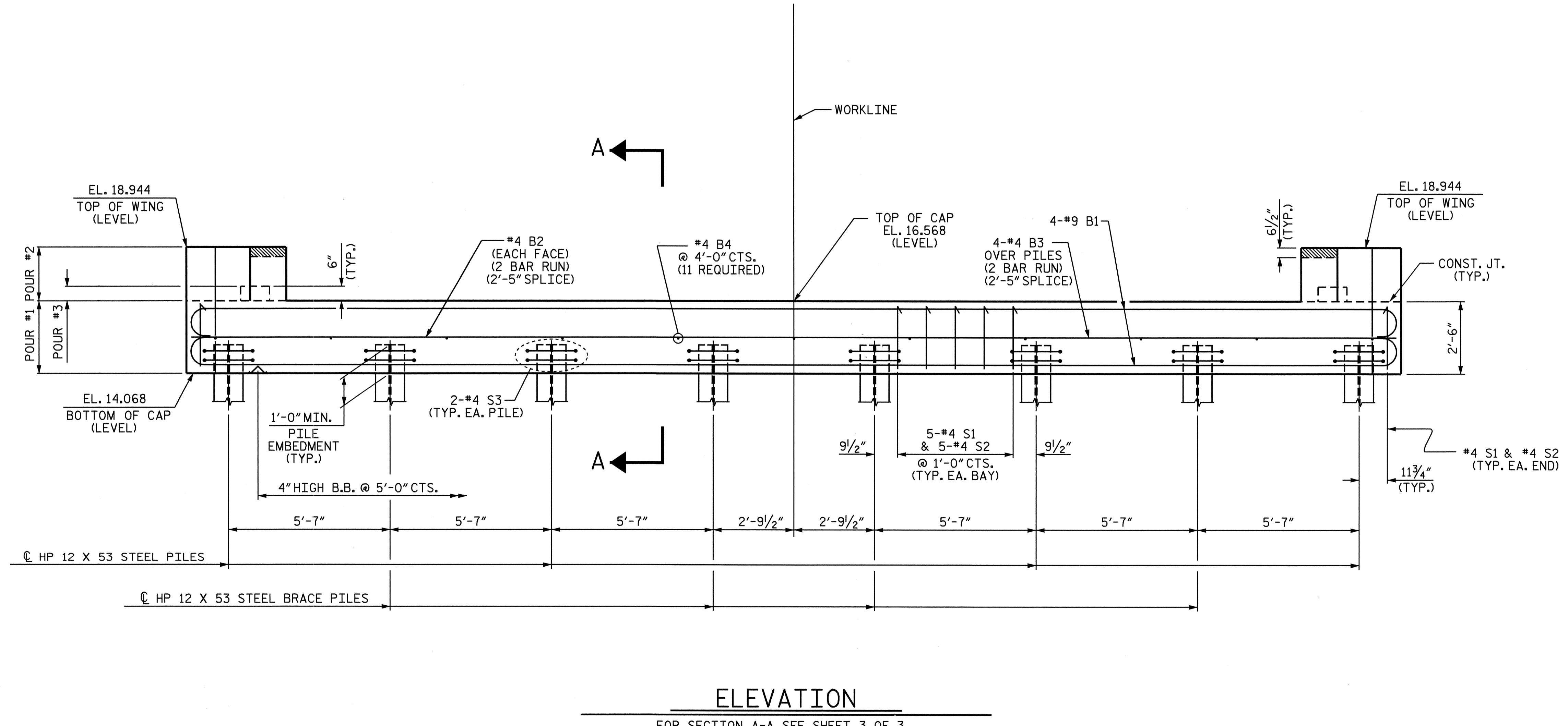
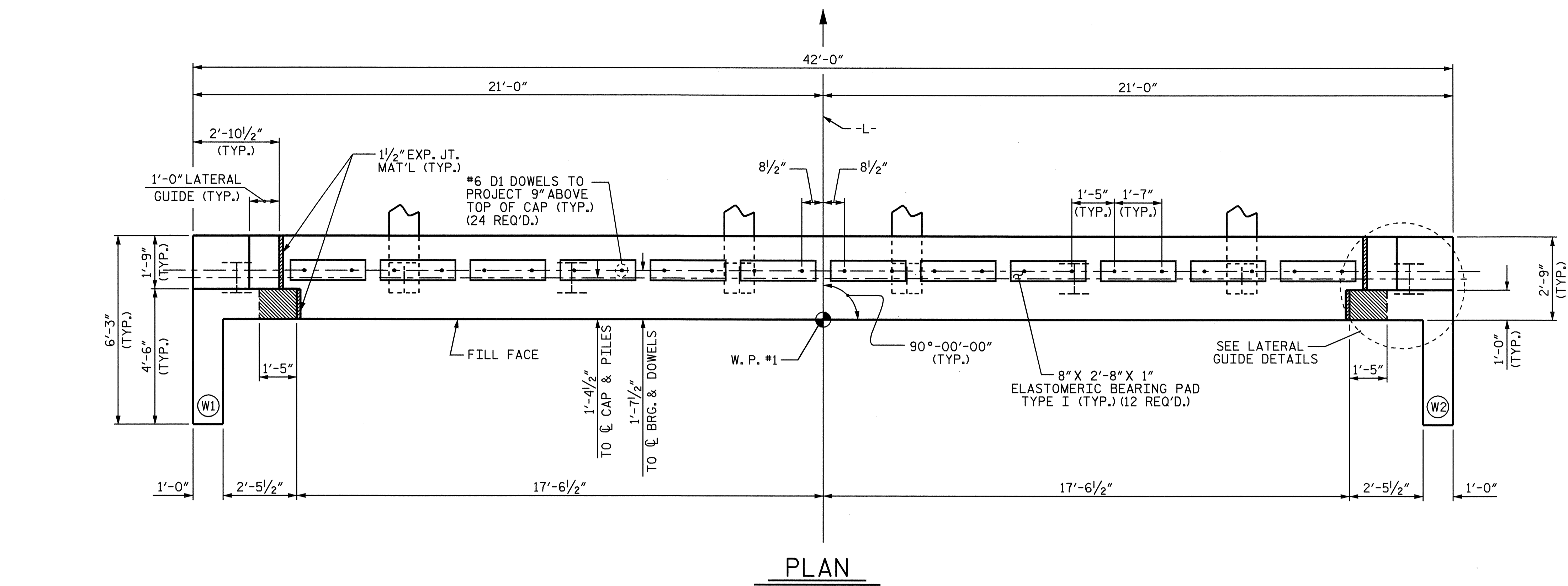
FOR TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

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

ALL BAR SUPPORTS USED IN THE END BENT CAP AND WINGS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT AND BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR



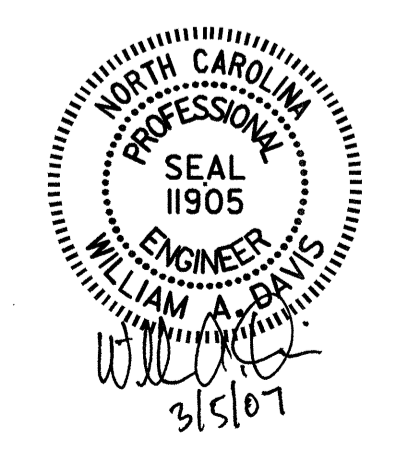
LATERAL GUIDE DETAILS
 (EACH END SIMILAR)

PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

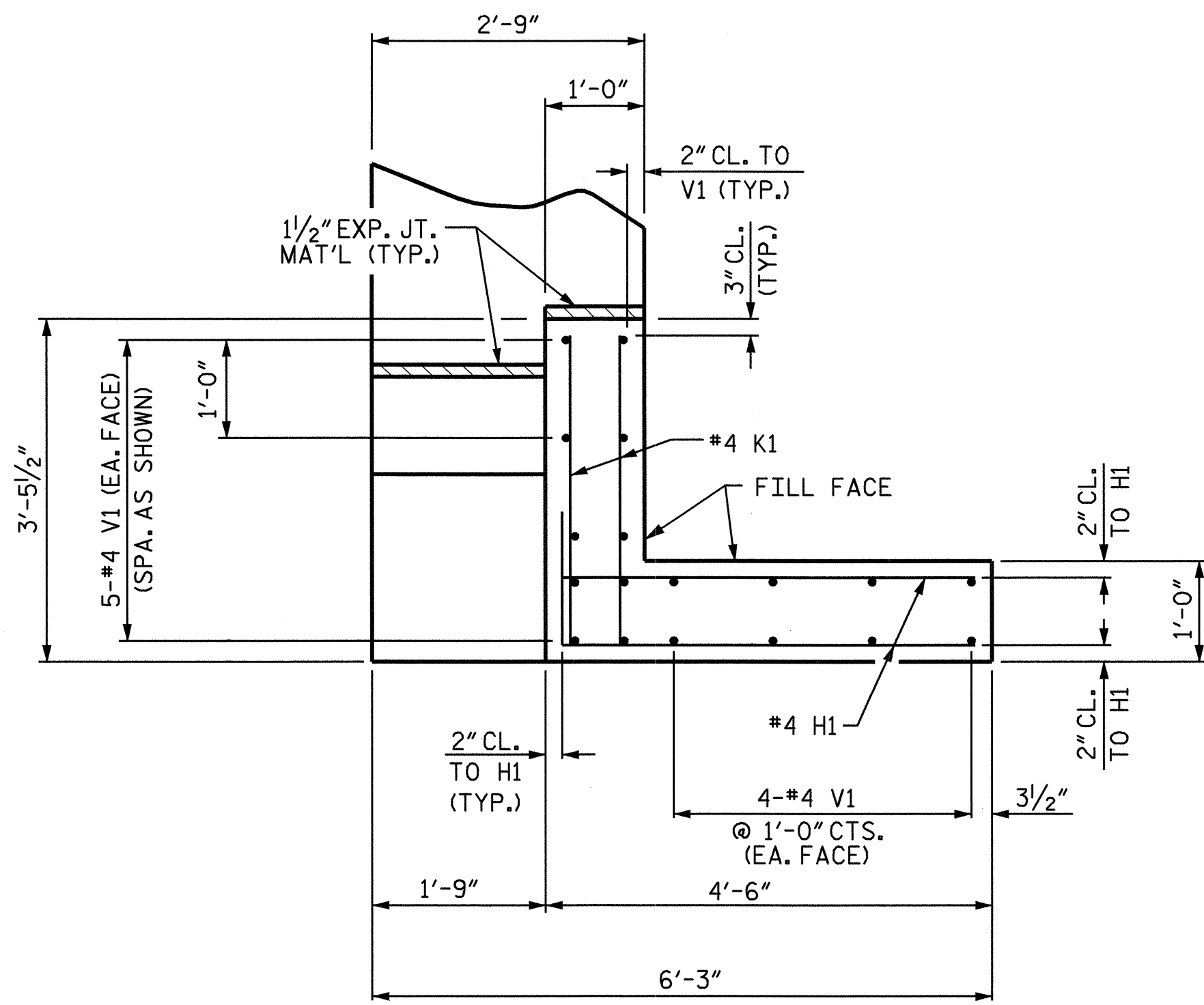
**SUBSTRUCTURE
 END BENT #1**



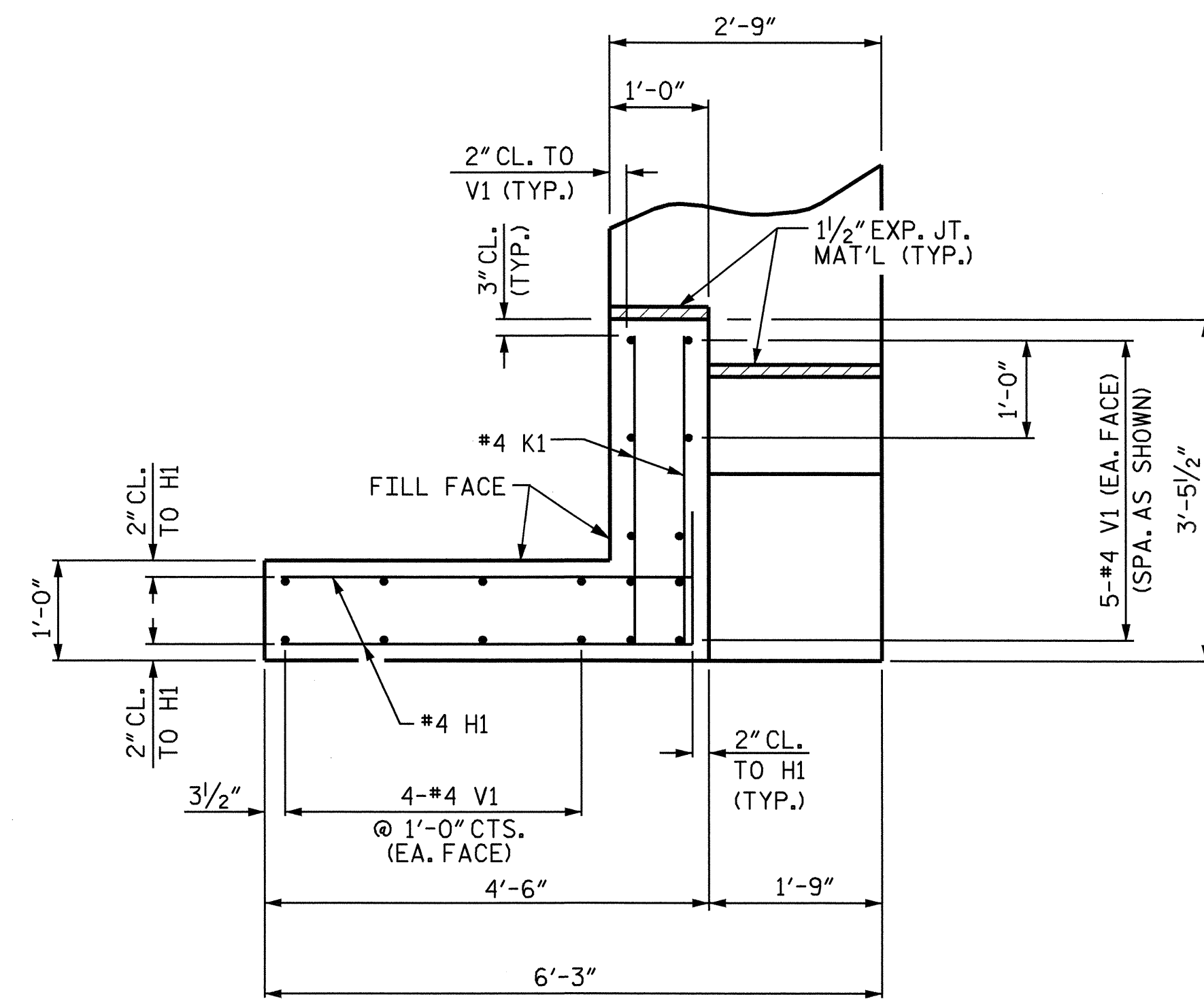
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			23

DRAWN BY : D. G. ELY DATE : 8/06
 CHECKED BY : A. R. CHESSON DATE : 9/06

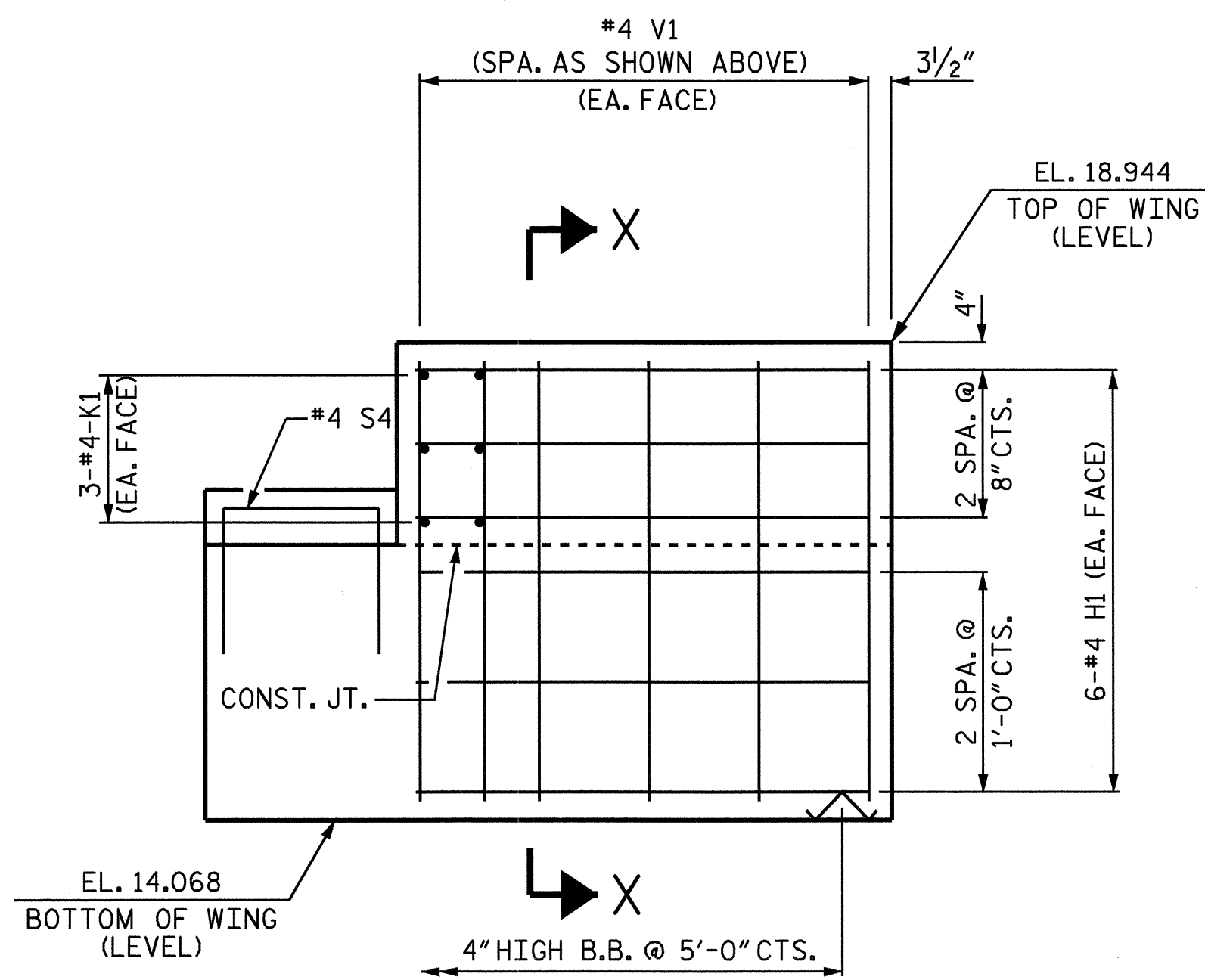
FOR SECTION A-A, SEE SHEET 3 OF 3.



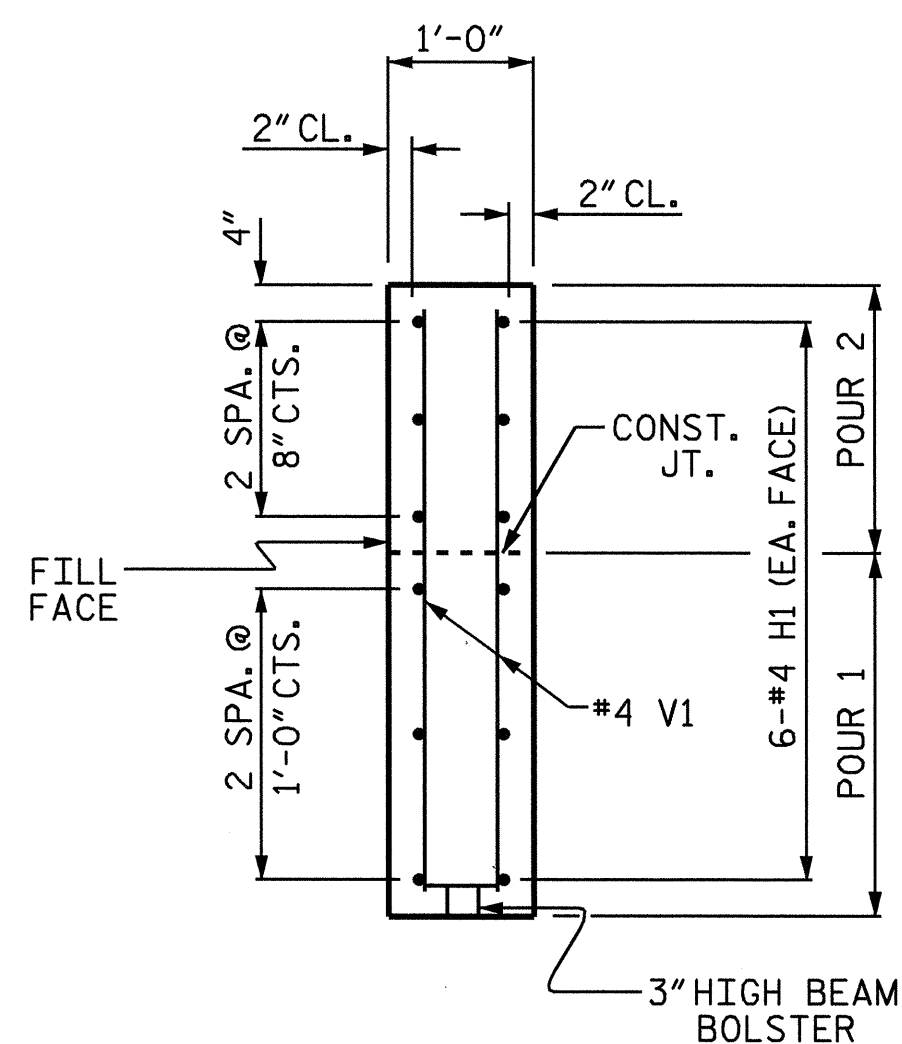
PLAN OF WING - W1



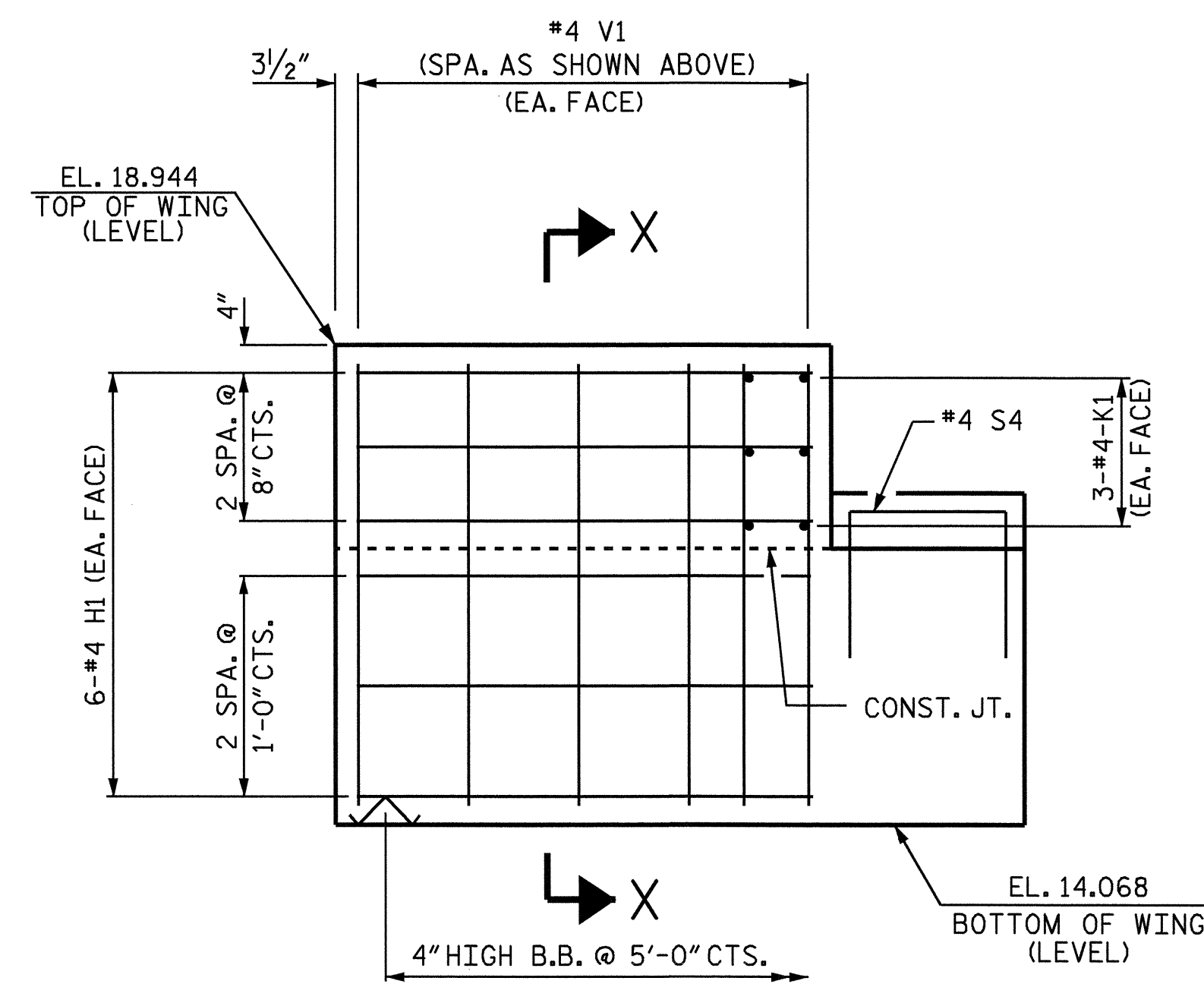
PLAN OF WING - W2



ELEVATION OF WING - W1



SECTION X-X



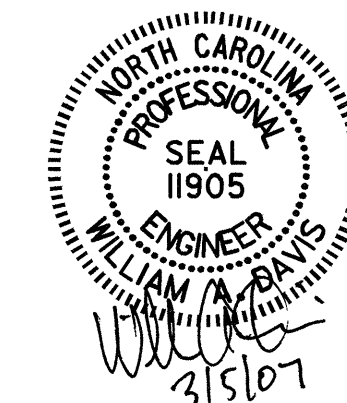
ELEVATION OF WING - W2

PROJECT NO. B-4088
 CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

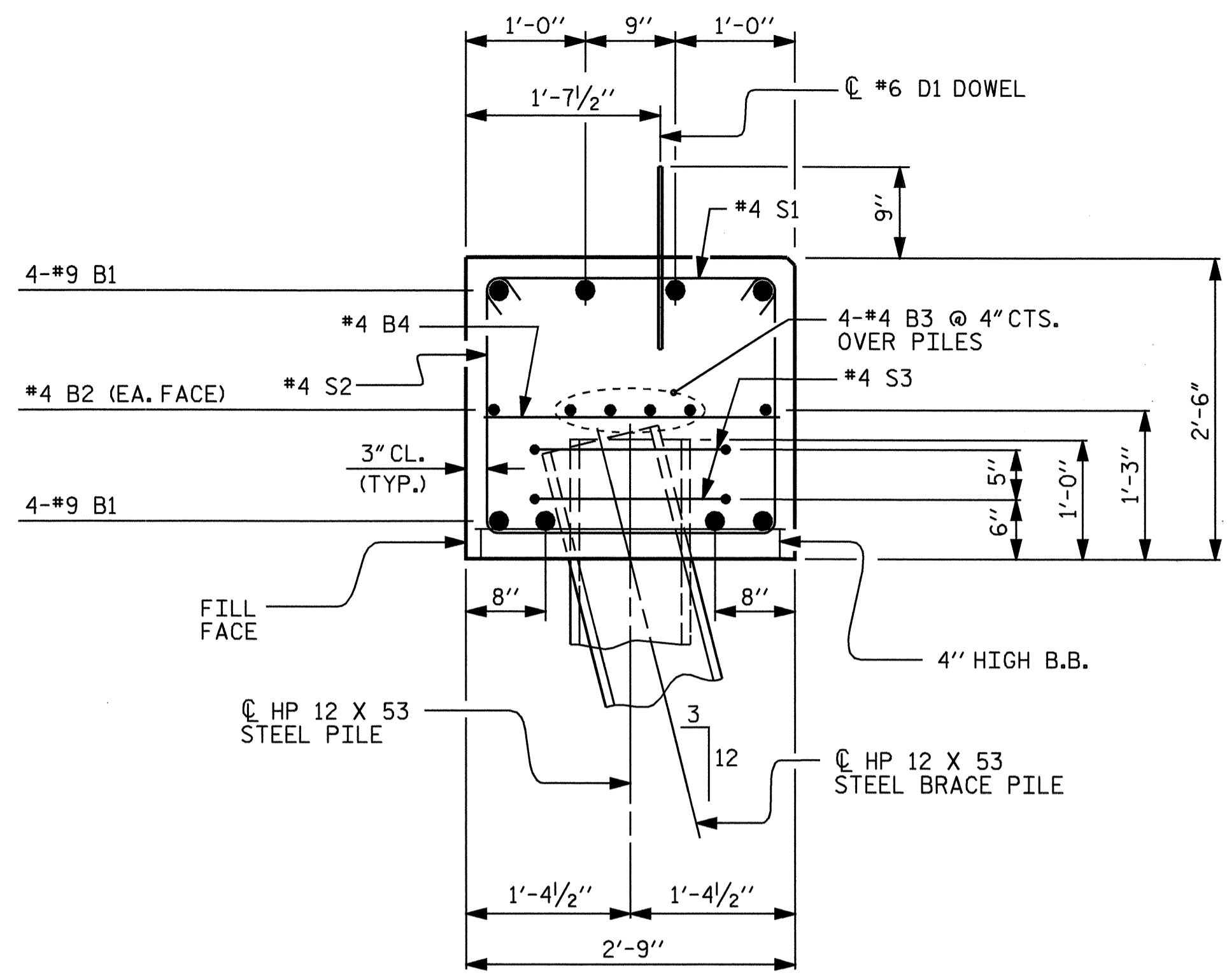
SUBSTRUCTURE
 END BENT #1



DRAWN BY: D. G. ELY DATE: 8/06
 CHECKED BY: A. R. CHESSON DATE: 9/06

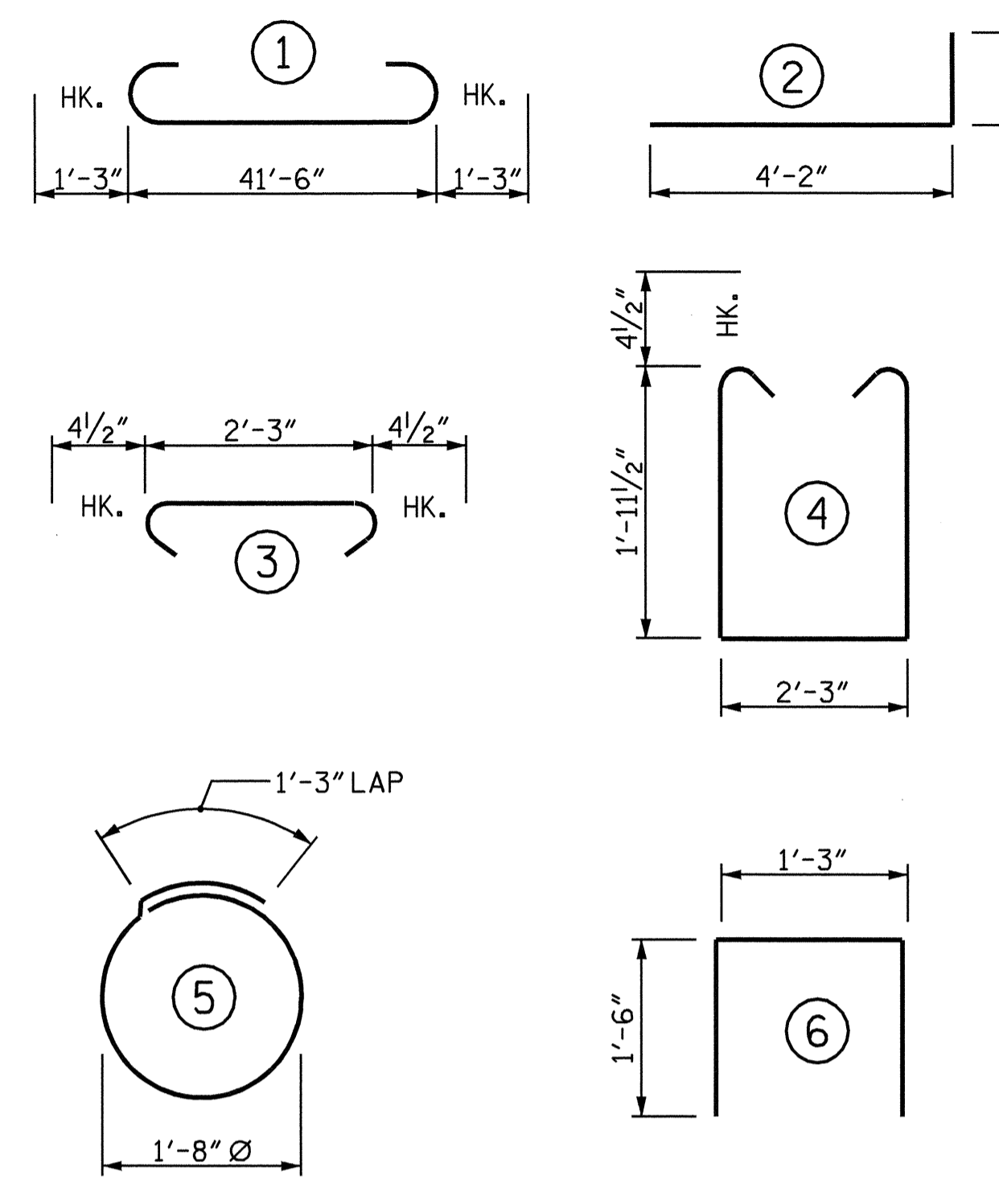
05-MAR-2007 11:52
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 kpnewton

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

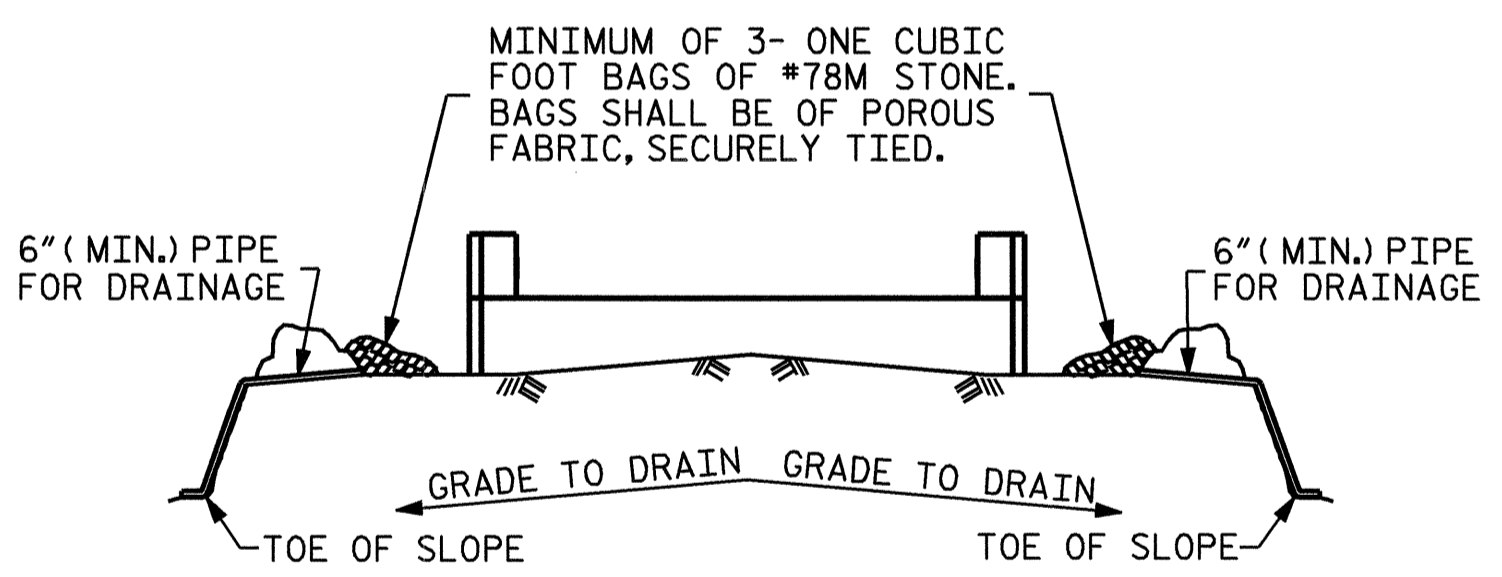


SECTION A-A

BAR TYPES		BILL OF MATERIAL				
		END BENT #1				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B1	8	#9	1	44'-0"	1197	
*B2	4	#4	STR	22'-1"	59	
*B3	8	#4	STR	22'-1"	118	
*B4	11	#4	STR	2'-3"	17	
*D1	24	#6	STR	1'-6"	54	
*H1	24	#4	2	4'-9"	76	
*K1	12	#4	STR	3'-0"	24	
*S1	37	#4	3	3'-0"	74	
*S2	37	#4	4	6'-11"	171	
*S3	16	#4	5	6'-6"	69	
*S4	4	#4	6	4'-3"	11	
*V1	36	#4	STR	4'-3"	102	
* EPOXY COATED REINFORCING STEEL					LBS. 1972	
CLASS 'AA' CONCRETE						
POUR #1: CAP & LOWER WINGS				C.Y.	11.3	
POUR #2: UPPER WINGS				C.Y.	0.8	
POUR #3: (LATERAL GUIDES)				C.Y.	0.1	
TOTAL:				C.Y.	12.2	
HP 12 X 53 STEEL PILES						
NO. 8		440		LIN. FT.		
PILE REDRIVES				EA. 8		



ALL BAR DIMENSIONS ARE OUT TO OUT



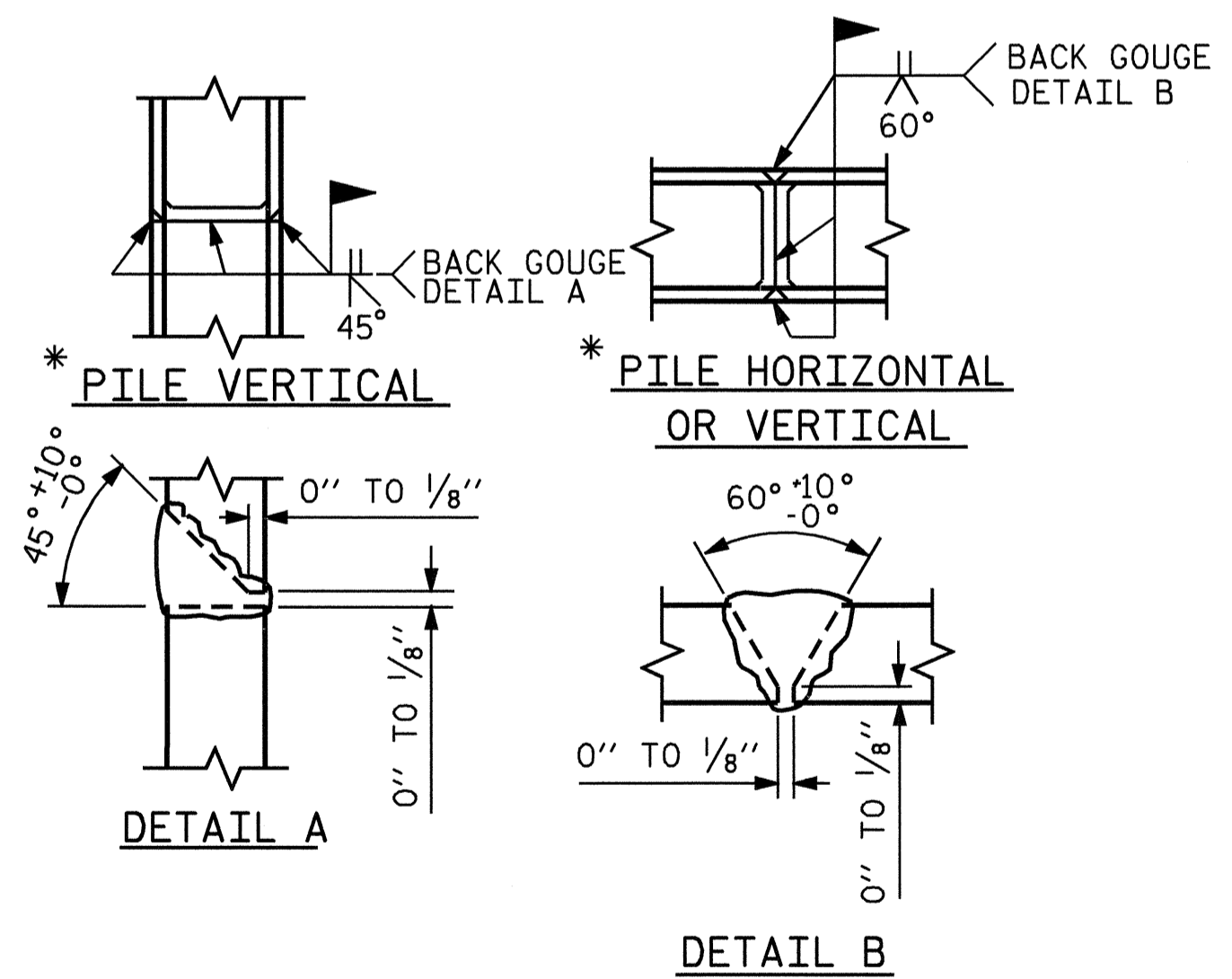
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

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

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

TEMPORARY DRAINAGE AT END BENT



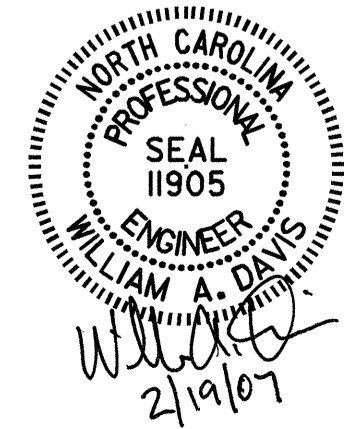
PILE SPICE DETAILS

* POSITION OF PILE DURING WELDING.

PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-15
TOTAL SHEETS					23



DRAWN BY: D. G. ELY DATE: 8/06
 CHECKED BY: A. R. CHESSON DATE: 9/06

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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

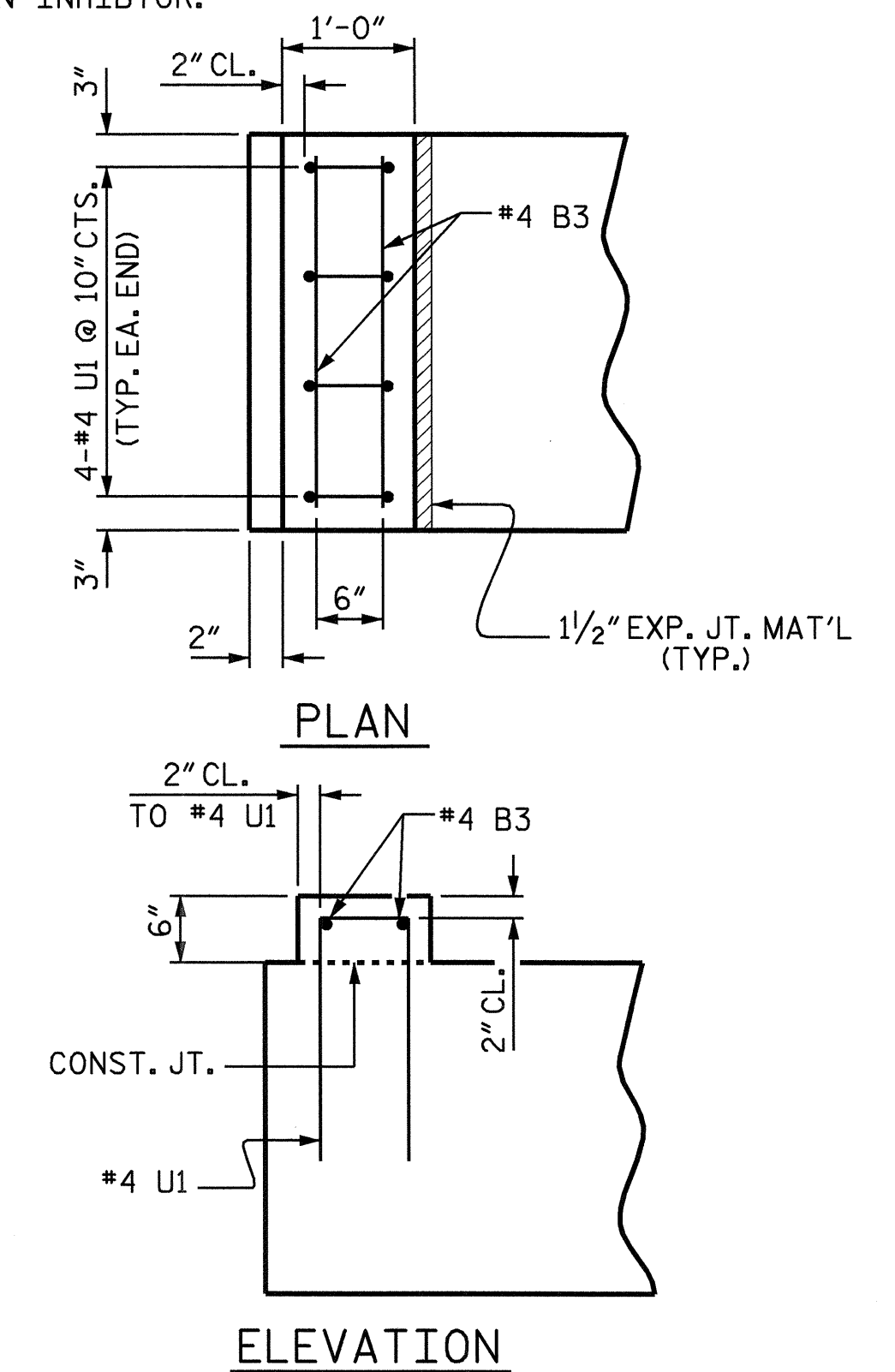
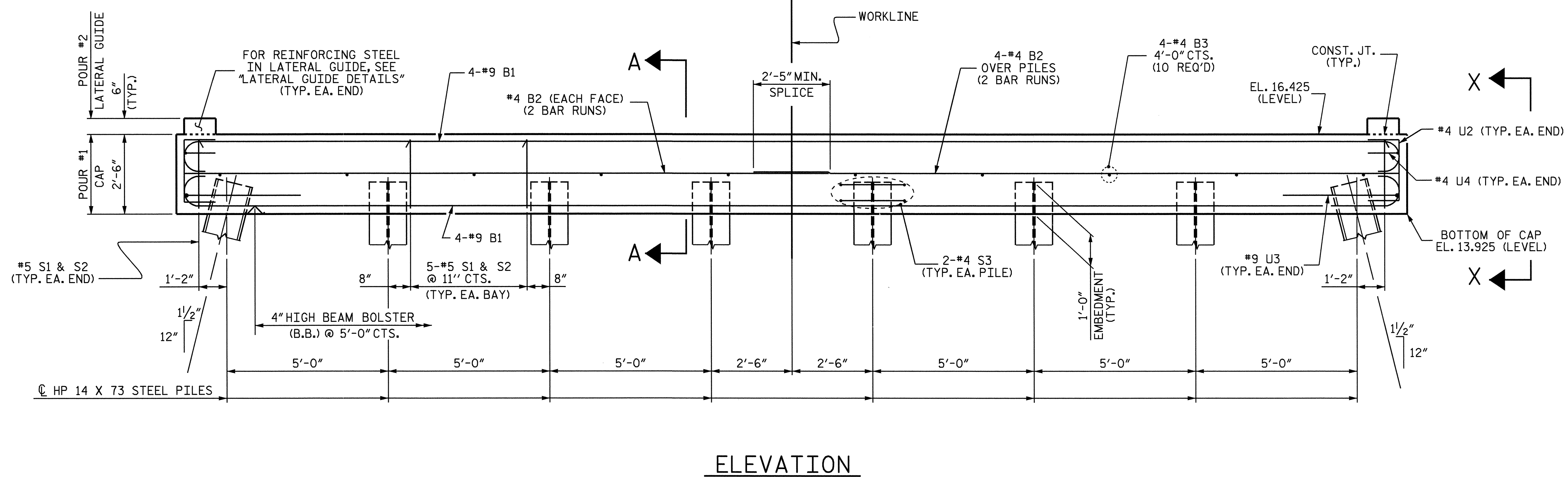
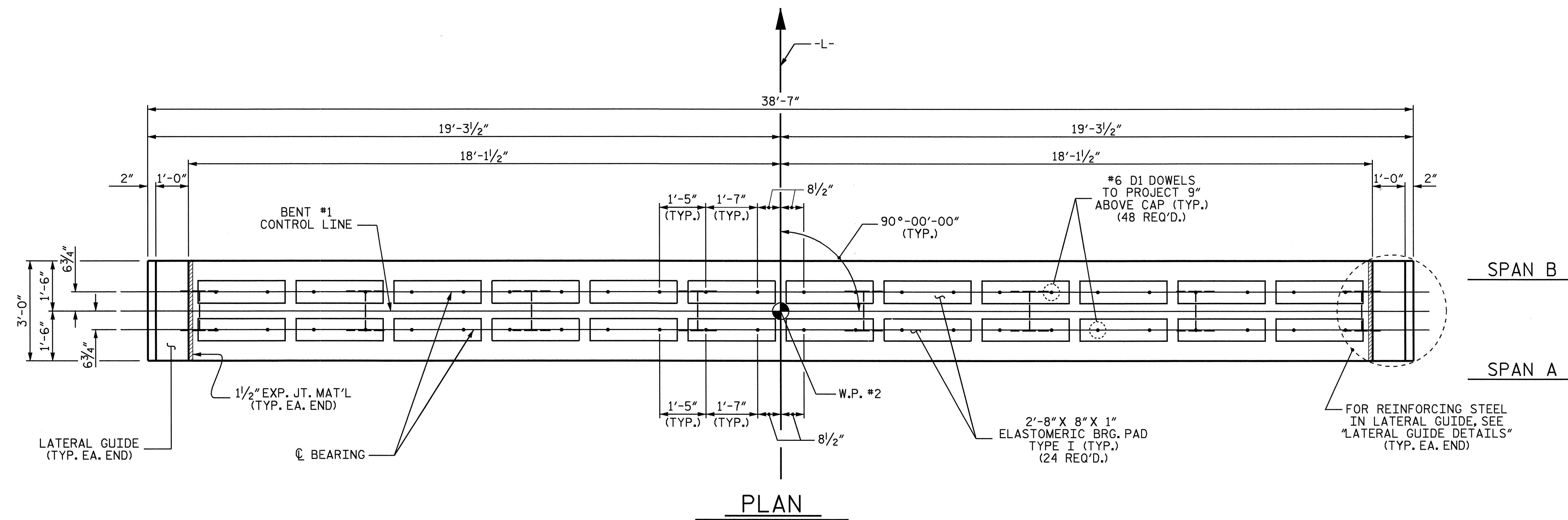
ALL BAR SUPPORTS USED IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TOP 20 FT. OF THE HP 14 X 73 STEEL PILES AT BENT NO. 1 SHALL BE ALUMINUM METALLIZED.

APPLY AN 8 MIL THICK 1350 ALUMINUM (W-AL-1350) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO THE TOP 20 FT. OF THE BENT NO. 1 PILES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS, SEE SPECIAL PROVISIONS.

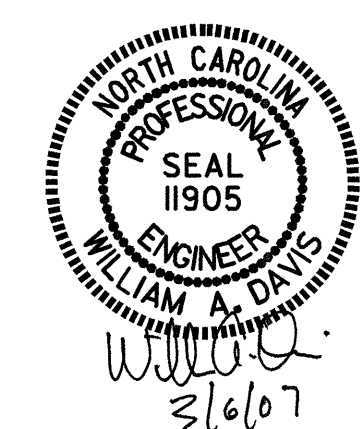
AFTER DRIVING THE PILES AT BENT NO. 1 APPLY 1 COAT EACH OF 1080-12 BROWN AND 1080-12 GRAY PAINT TO THE EMBEDDED SECTION OF THE METALLIZED PILE PRIOR TO CONCRETE EMBEDMENT IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT AND BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.



PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 1 OF 2

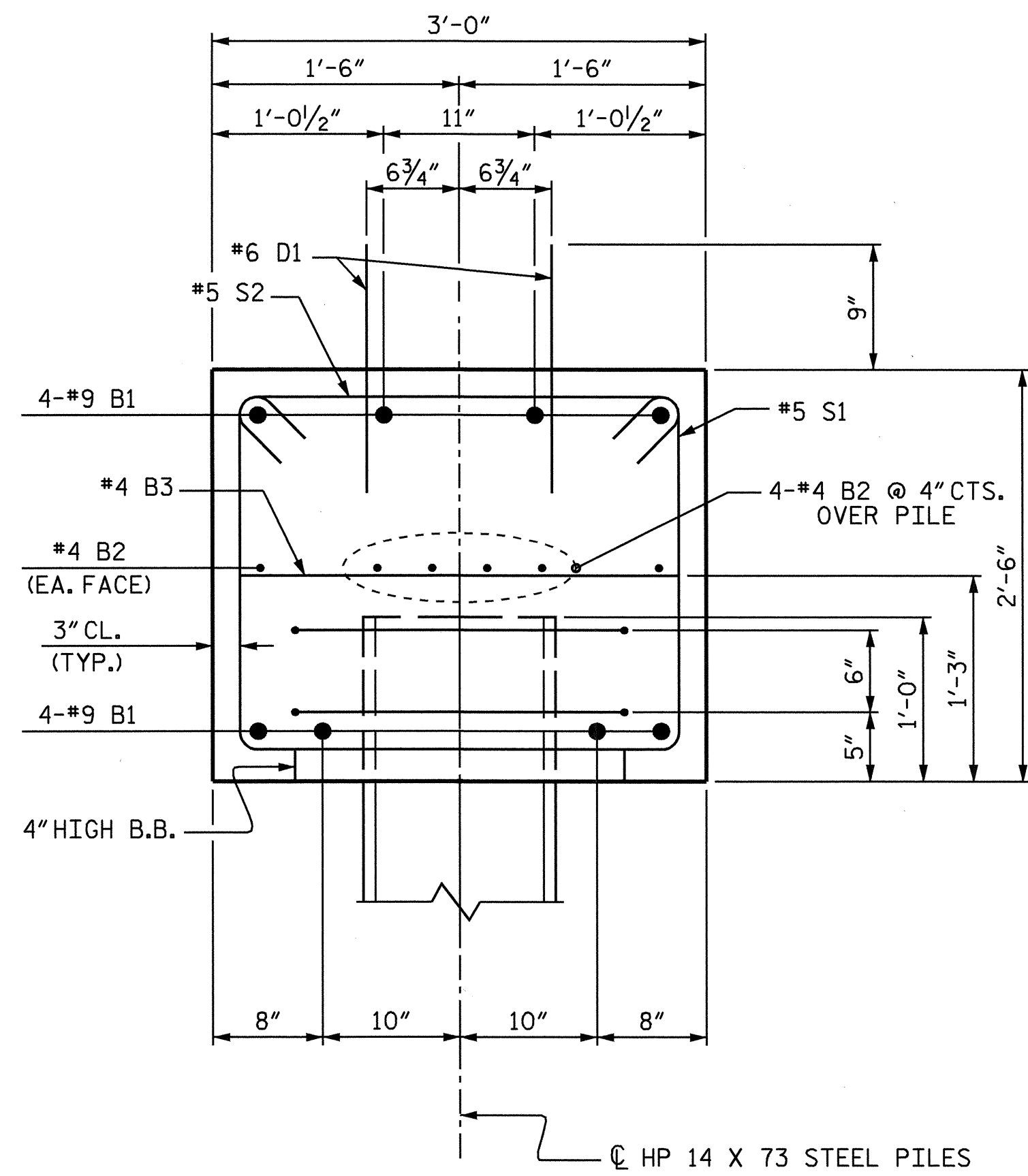


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

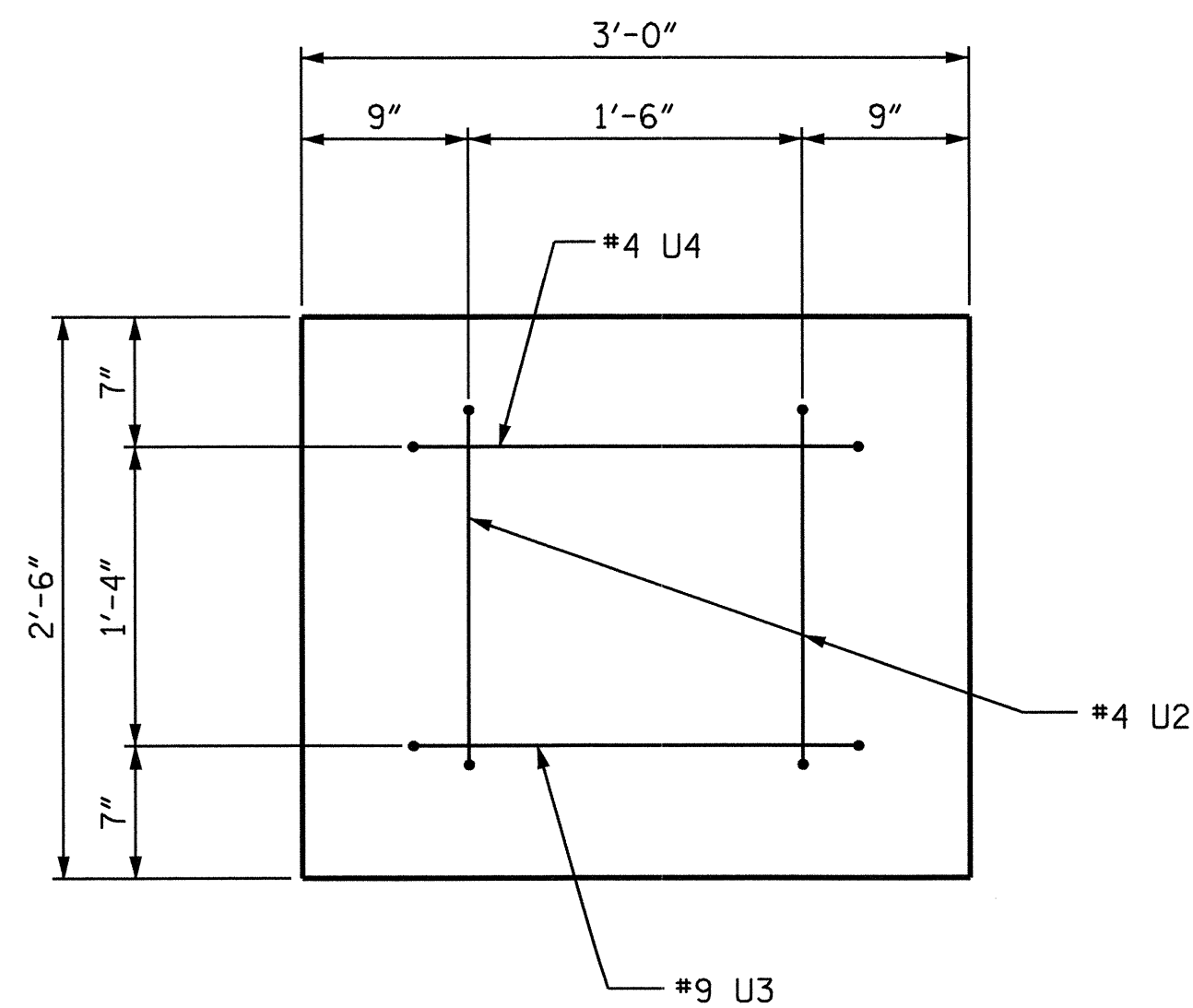
**SUBSTRUCTURE
 BENT #1**

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

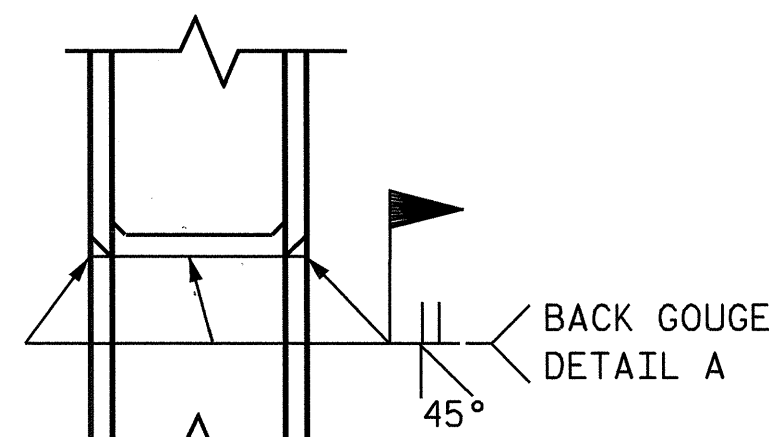
DRAWN BY : A. SORSENGINH/A.R.C. DATE : 12-06
 CHECKED BY : J.G. KHARVA/W.A.D. DATE : 12-06



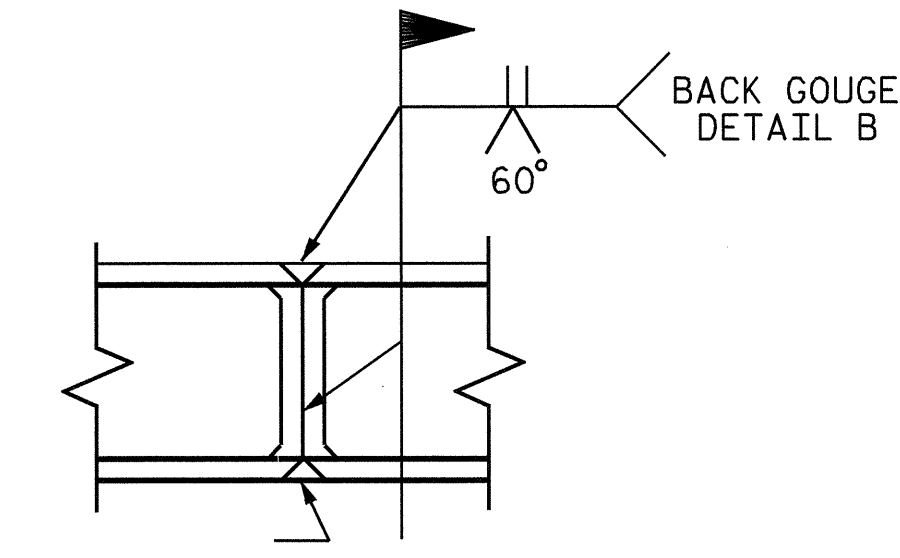
SECTION A-A



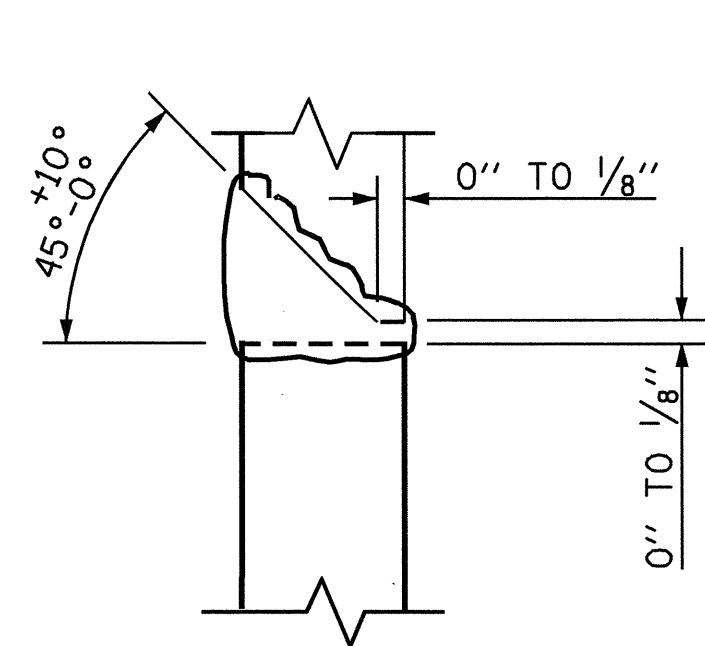
SECTION X-X



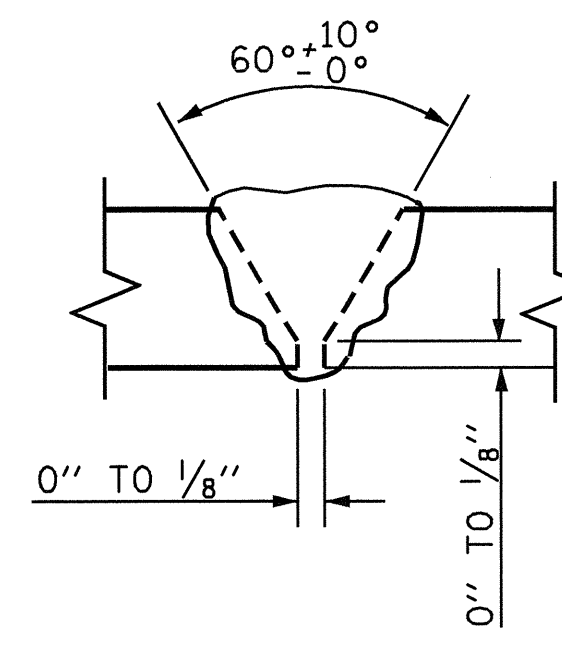
*PILE VERTICAL



* PILE HORIZONTAL OR VERTICAL



DETAIL A



DETAIL B

PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

BILL OF MATERIAL

BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	8	#9	1	40'-7"	1104
* B2	12	#4	STR.	20'-5"	164
* B3	10	#4	STR.	2'-6"	17
* D1	48	#6	STR.	1'-6"	108
* S1	37	#5	3	7'-3"	280
* S2	37	#5	2	3'-3"	125
* S3	16	#4	5	7'-7"	81
* U1	8	#4	4	3'-6"	19
* U2	4	#4	4	4'-10"	13
* U3	2	#9	4	9'-8"	66
* U4	2	#4	4	5'-4"	7

* EPOXY COATED REINF. STEEL = 1984 LBS

CLASS AA CONCRETE BREAKDOWN

POUR #1 (CAP)	C.Y.	10.8
POUR #2 (LAT. GUIDES)	C.Y.	0.1
TOTAL CLASS AA CONCRETE	C.Y.	10.9

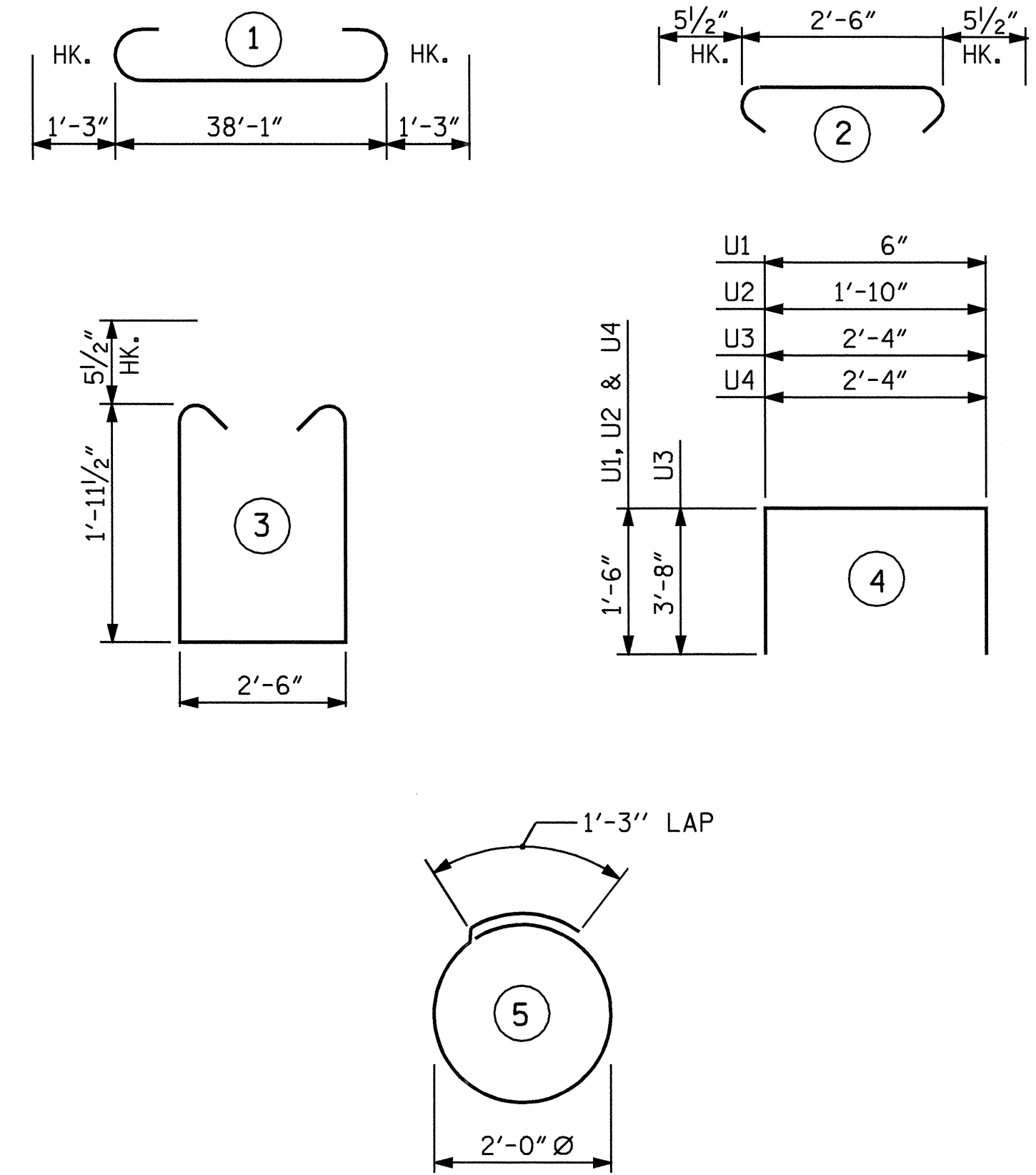
HP 14 X 73 STEEL PILES

NO. 8 LIN. FT. 320

PILE REDRIVES

EA. 8

BAR TYPES



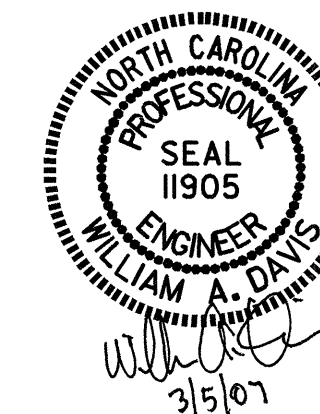
ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4088
 CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1



REVISIONS

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

SHEET NO.
 S-17
 TOTAL SHEETS
 23

DRAWN BY : A. SORSENGINH/A.R.C. DATE : 12-06
 CHECKED BY : J.G. KHARVA/W.A.D. DATE : 12-06

05-MAR-2007 12:38
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NC006

NOTES

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

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

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.

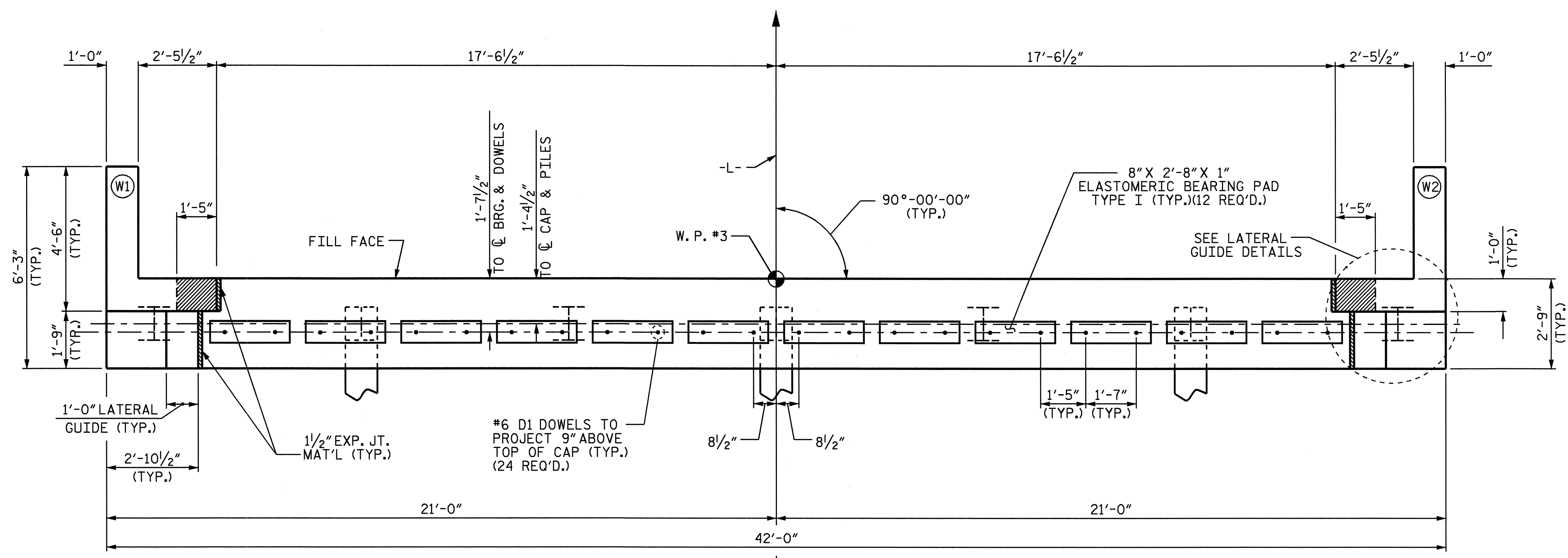
FOR TEMPORARY DRAINAGE DETAILS, SEE SHEET 3 OF 3.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

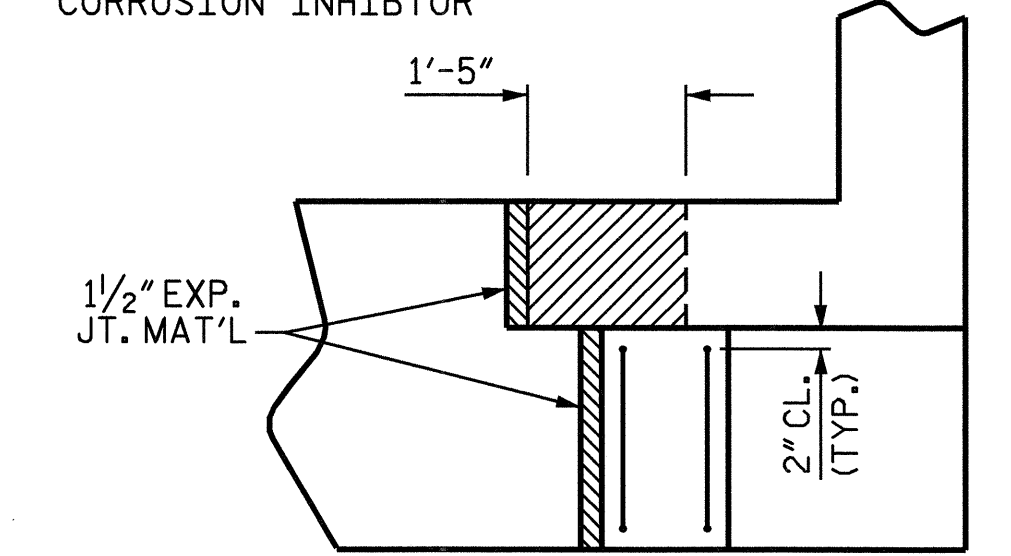
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.

ALL BAR SUPPORTS USED IN THE END BENT CAP AND WINGS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

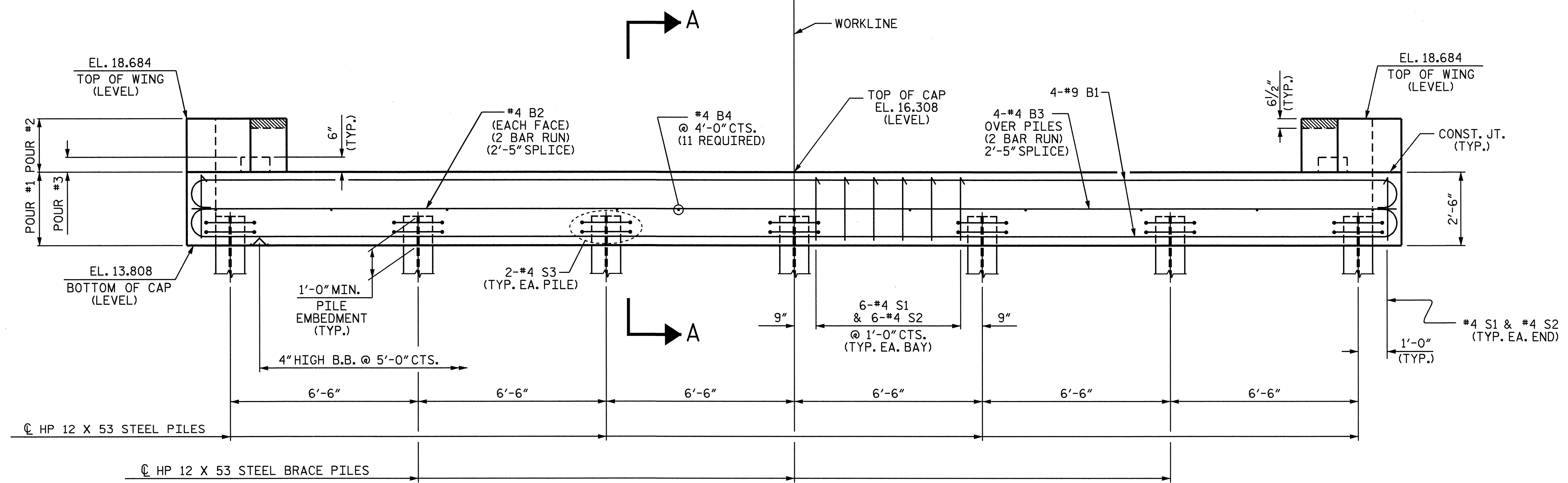
CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE BENT AND BENT CAPS AND SHALL CONTAIN CALCIUM NITRIDE CORROSION INHIBITOR



PLAN

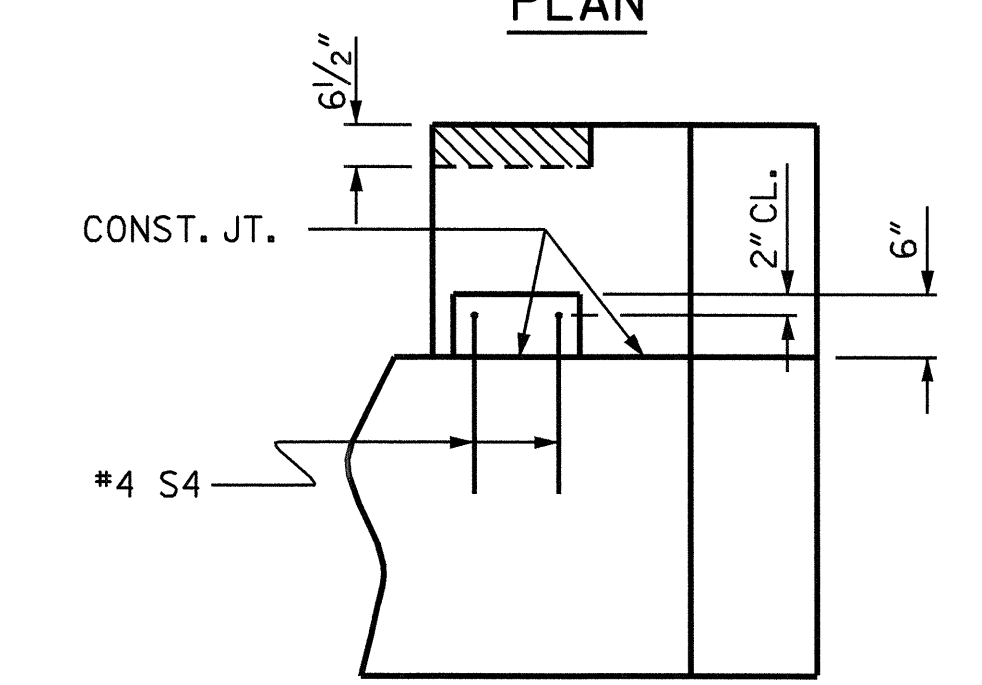


PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 3 OF 3.



ELEVATION

LATERAL GUIDE DETAILS
(EACH END SIMILAR)

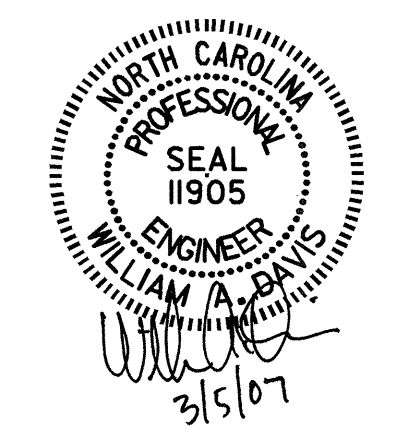
PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 1 OF 3

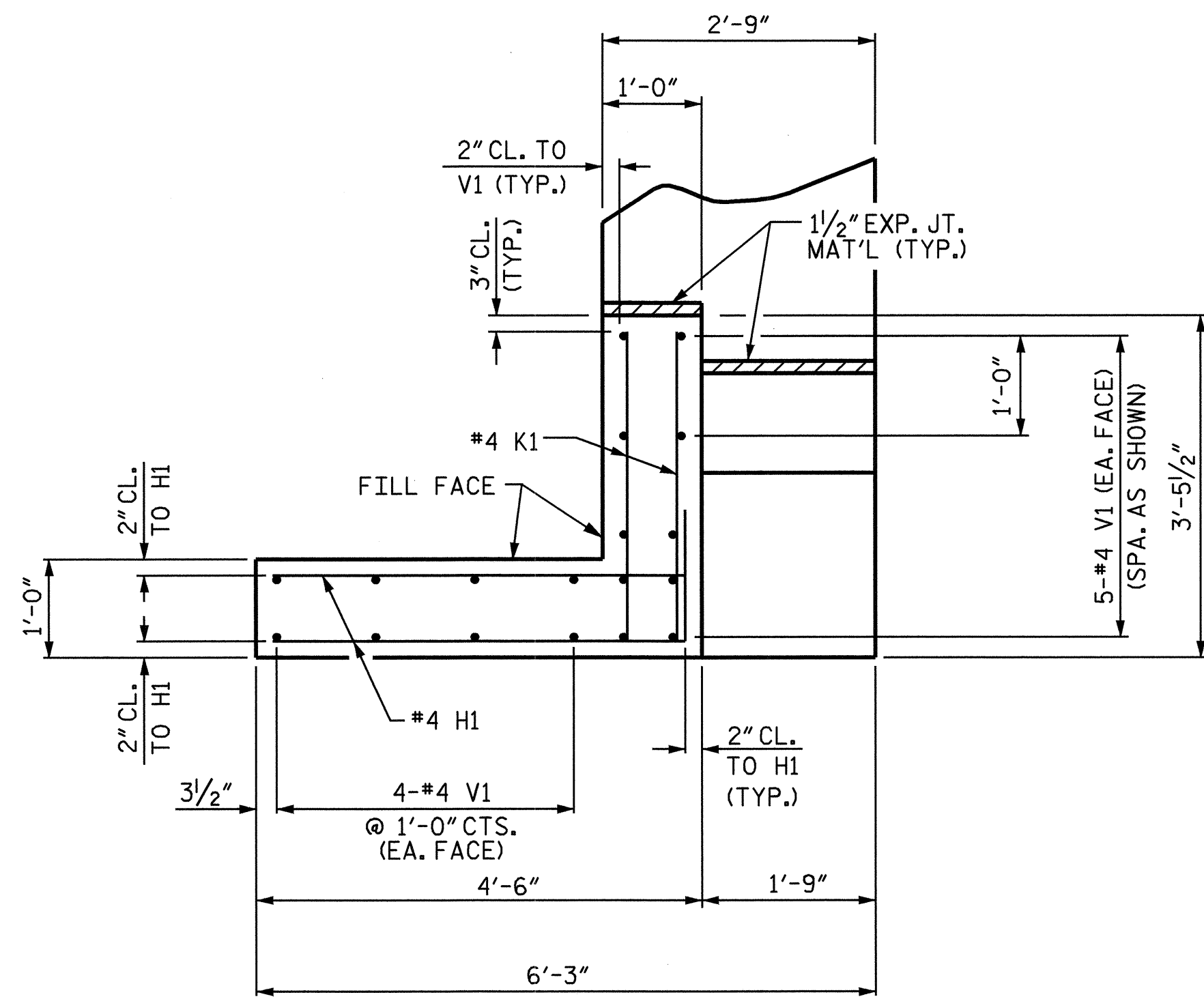
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #2**

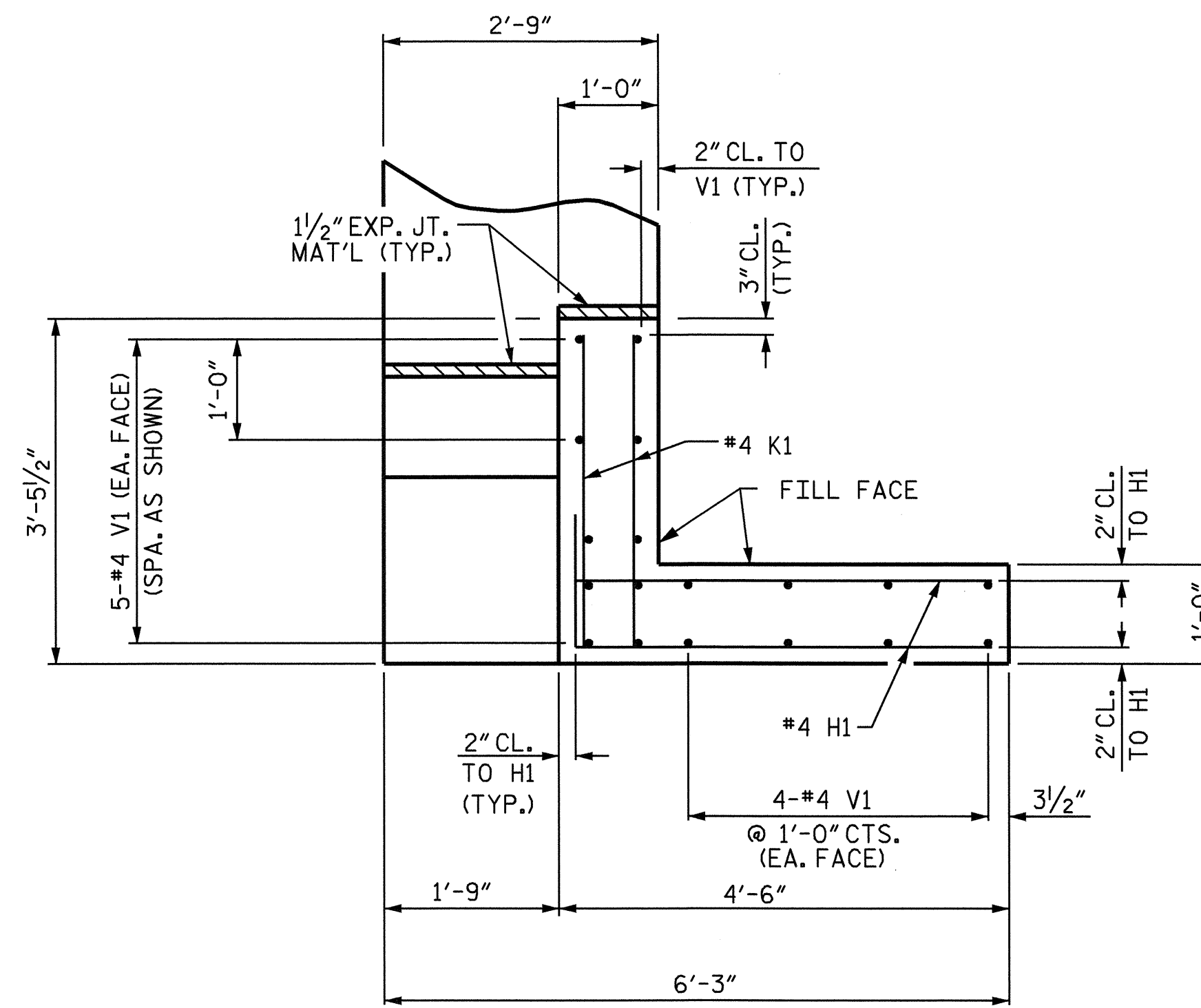
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			23



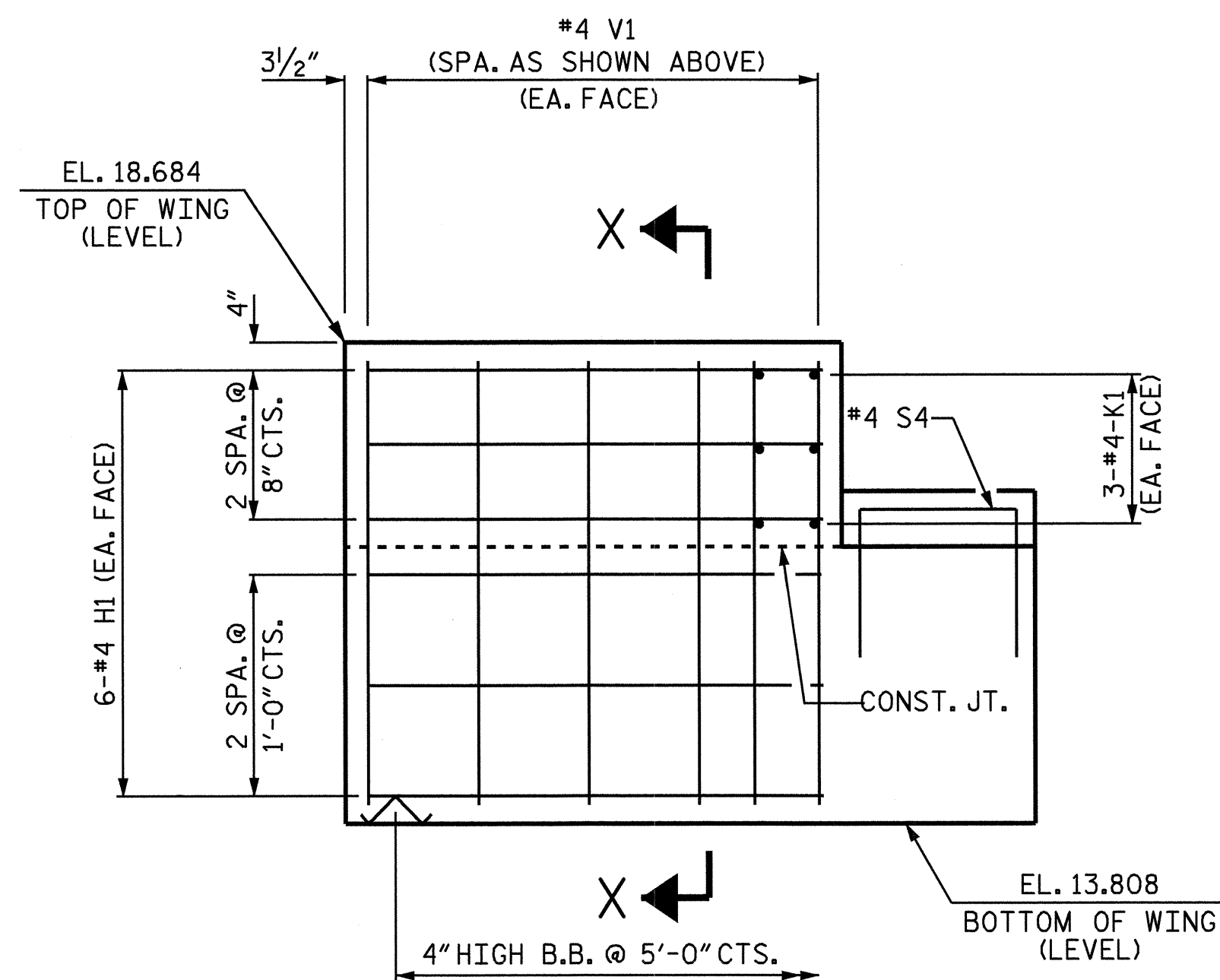
DRAWN BY: D. G. ELY DATE: 8/06
 CHECKED BY: A. R. CHESSON DATE: 9/06



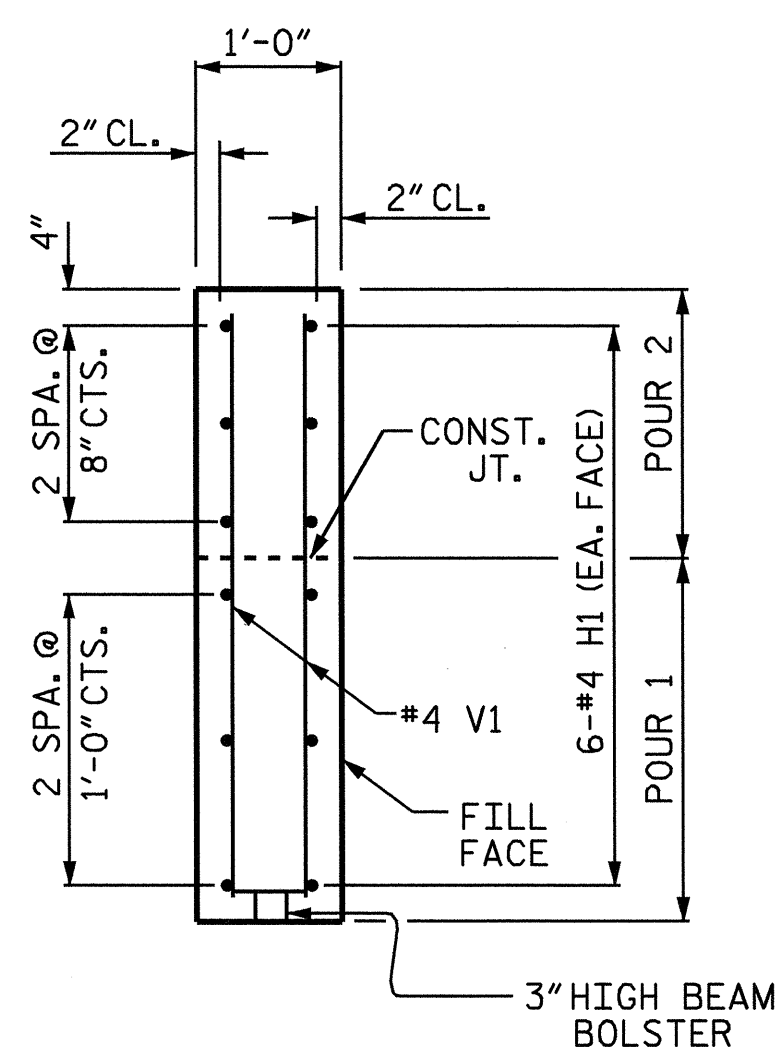
PLAN OF WING - W1



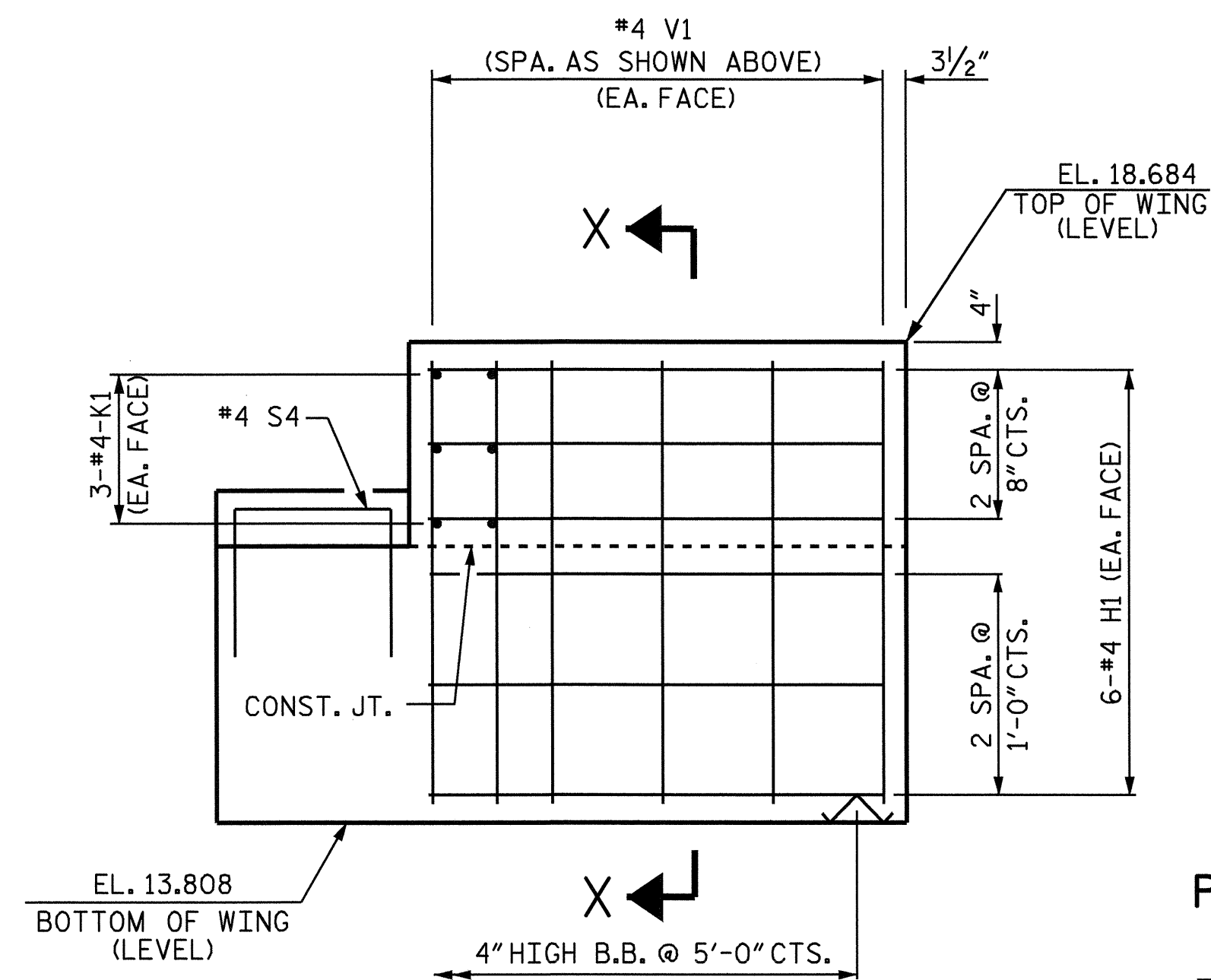
PLAN OF WING - W2



ELEVATION OF WING - W1



SECTION X-X



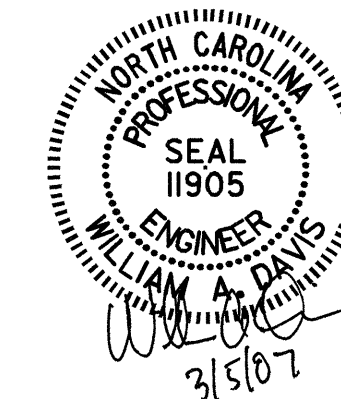
ELEVATION OF WING - W2

PROJECT NO. B-4088
CRAVEN COUNTY
STATION: 21+45.00 -L-

SHEET 2 OF 3

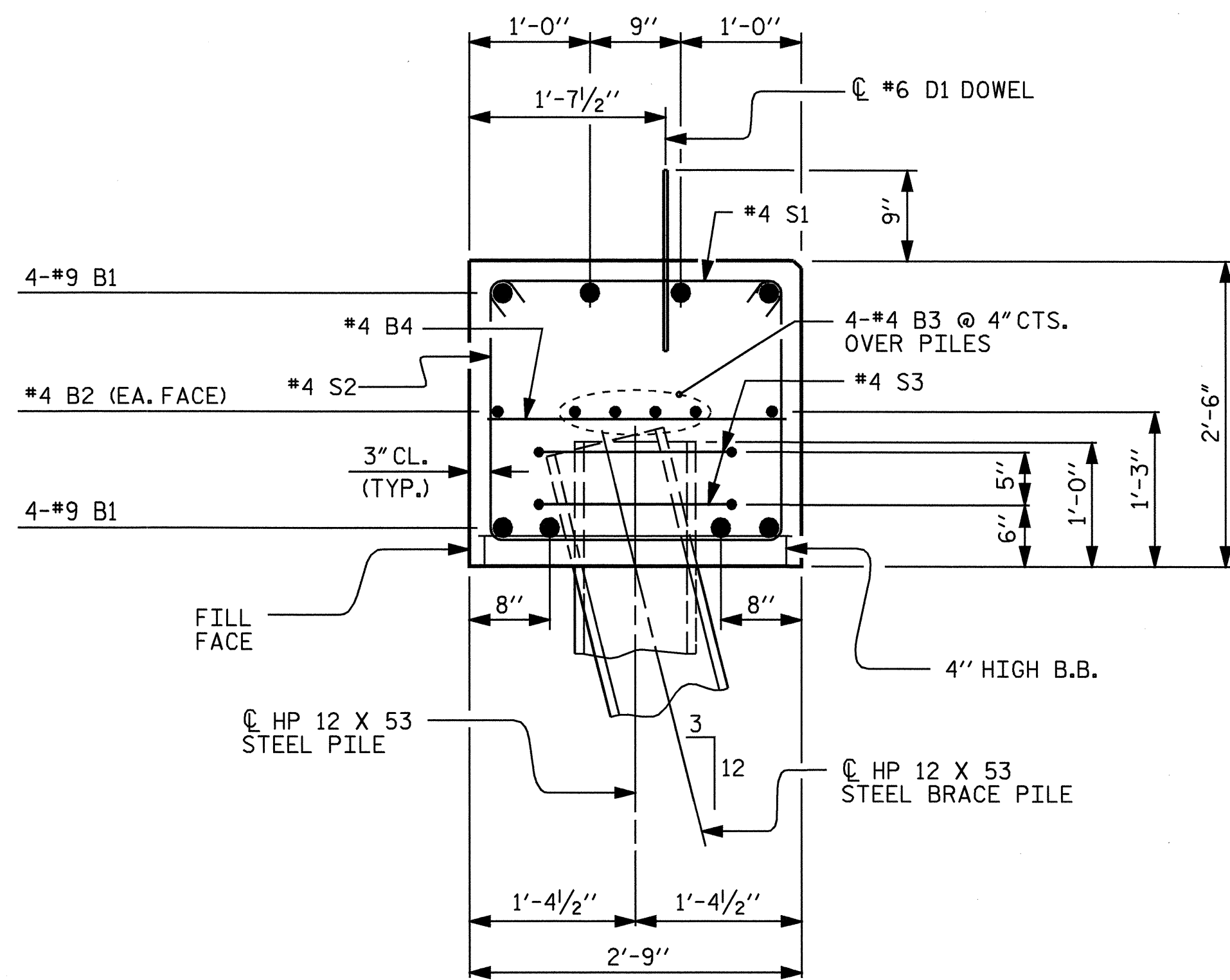
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #2



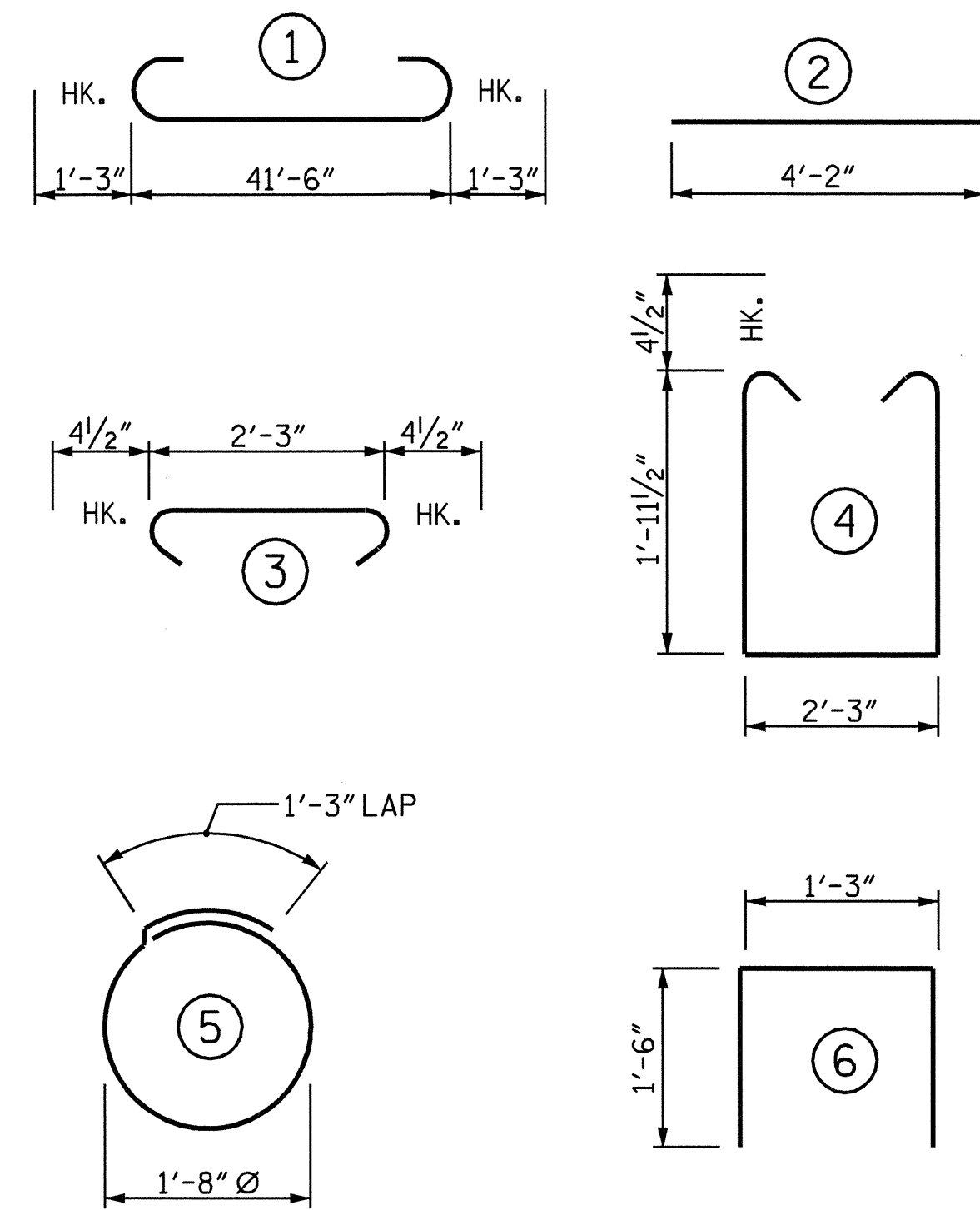
DRAWN BY: D. G. ELY DATE: 8/06
CHECKED BY: A. R. CHESSON DATE: 9/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			23



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT #2

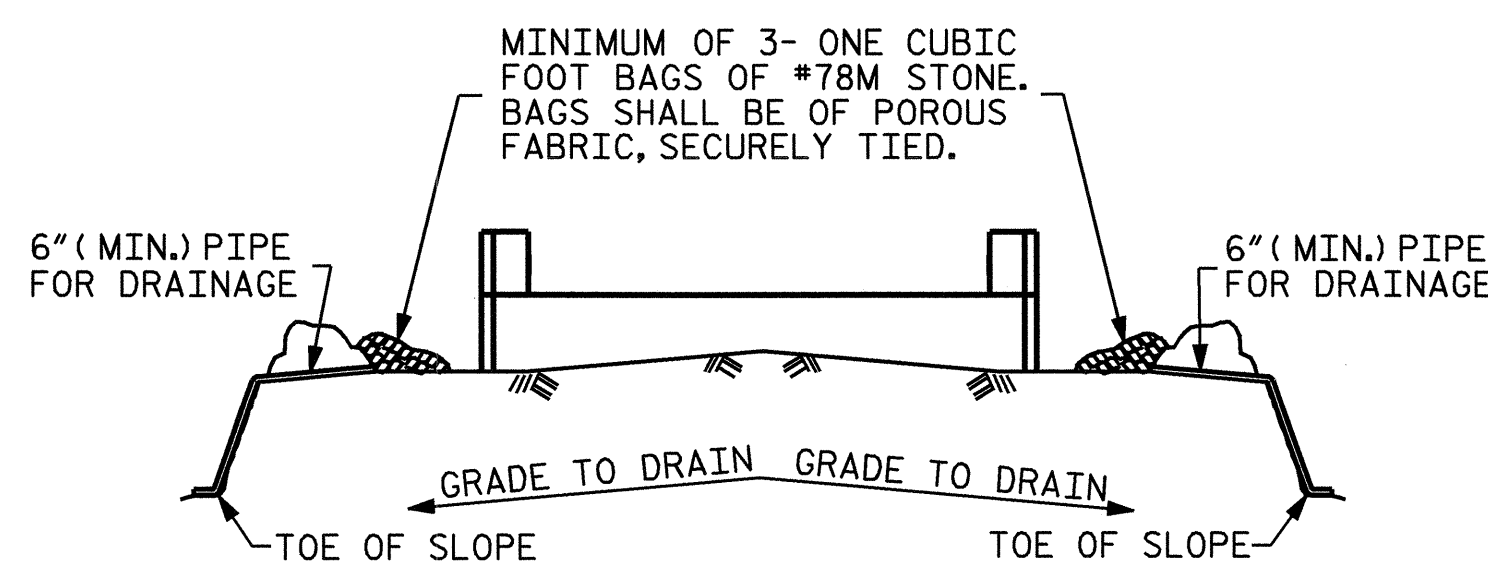
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	8	#9		44'-0"	1197
*B2	4	#4	STR	22'-1"	59
*B3	8	#4	STR	22'-1"	118
*B4	11	#4	STR	2'-3"	17
*D1	24	#6	STR	1'-6"	54
*H1	24	#4		4'-9"	76
*K1	12	#4	STR	3'-0"	24
*S1	38	#4		3'-0"	76
*S2	38	#4		6'-11"	176
*S3	14	#4		6'-6"	61
*S4	4	#4		4'-3"	11
*V1	36	#4	STR	4'-3"	96

* EPOXY COATED REINFORCING STEEL
LBS. 1965

CLASS 'AA' CONCRETE	
POUR #1: CAP & LOWER WINGS	C.Y. 11.3
POUR #2: UPPER WINGS	C.Y. 0.8
POUR #3: (LATERAL GUIDES)	C.Y. 0.1
TOTAL:	C.Y. 12.2

HP 12 X 53 STEEL PILES
NO. 7 280 LIN. FT.

PILE REDRIVES EA. 7

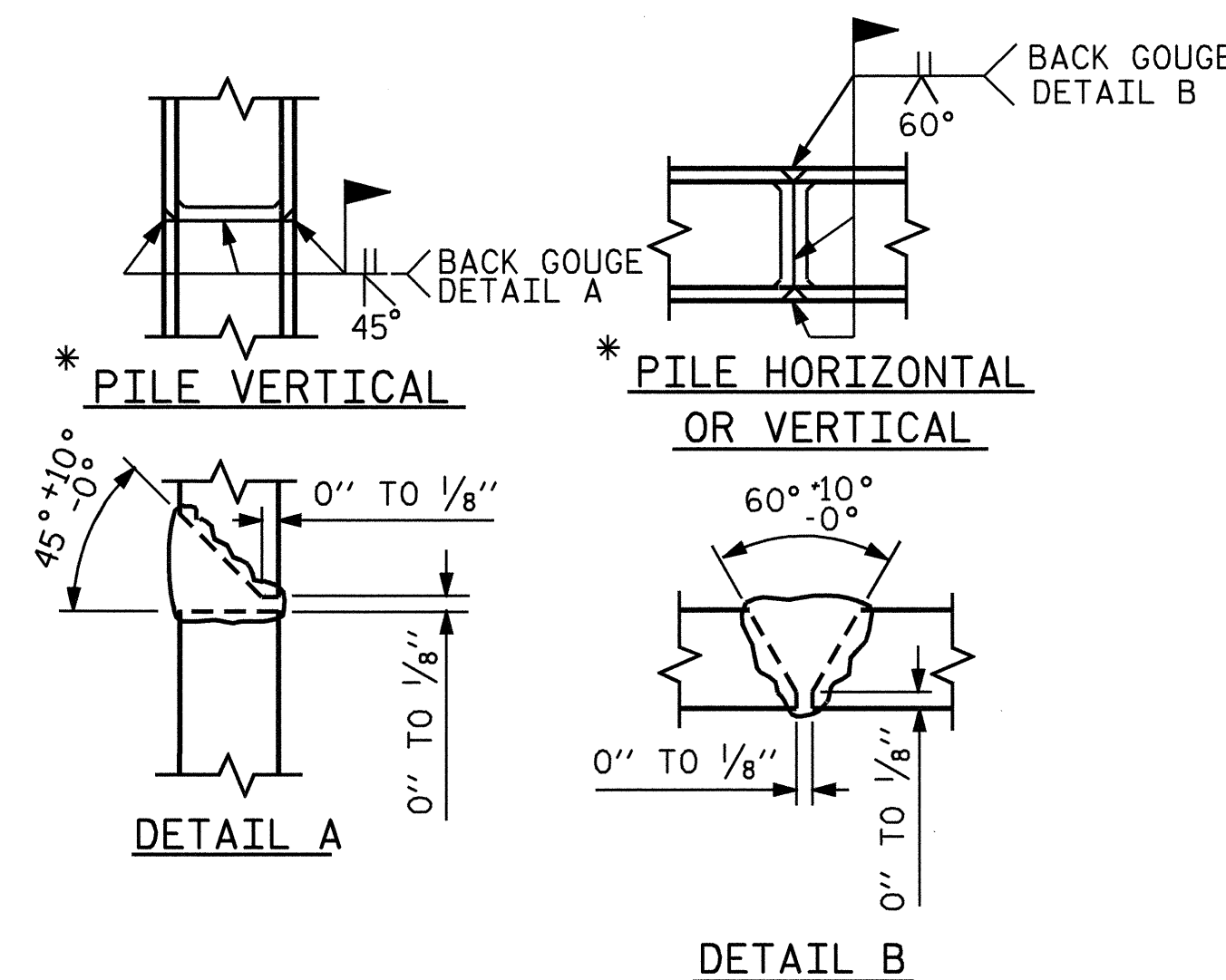


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



PILE SPICE DETAILS

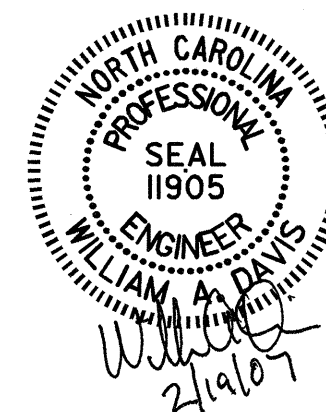
* POSITION OF PILE DURING WELDING.

PROJECT NO. B-4088
 CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 3 OF 3

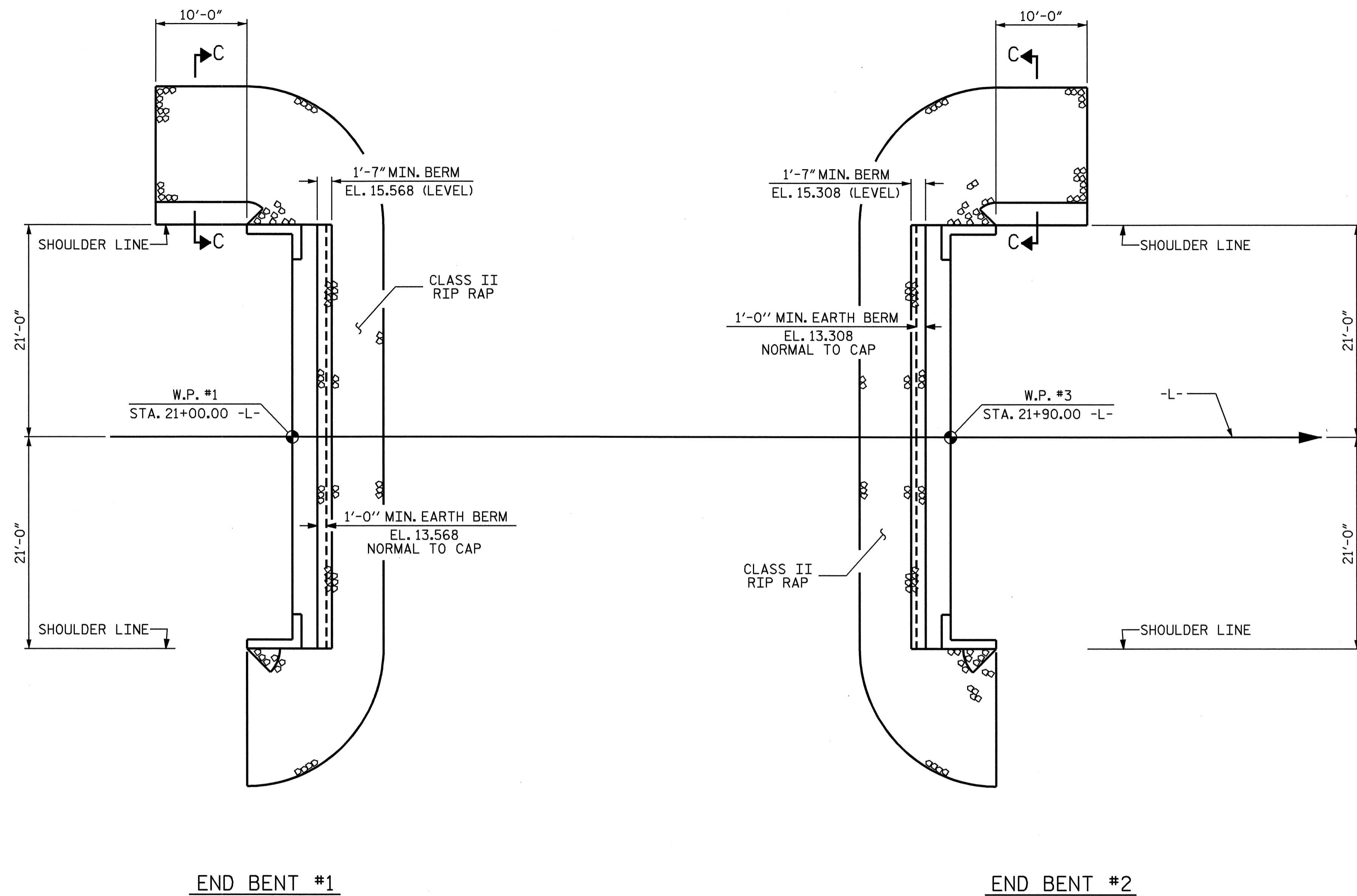
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2



DRAWN BY: D. G. ELY DATE: 8/06
 CHECKED BY: A. R. CHESSON DATE: 9/06

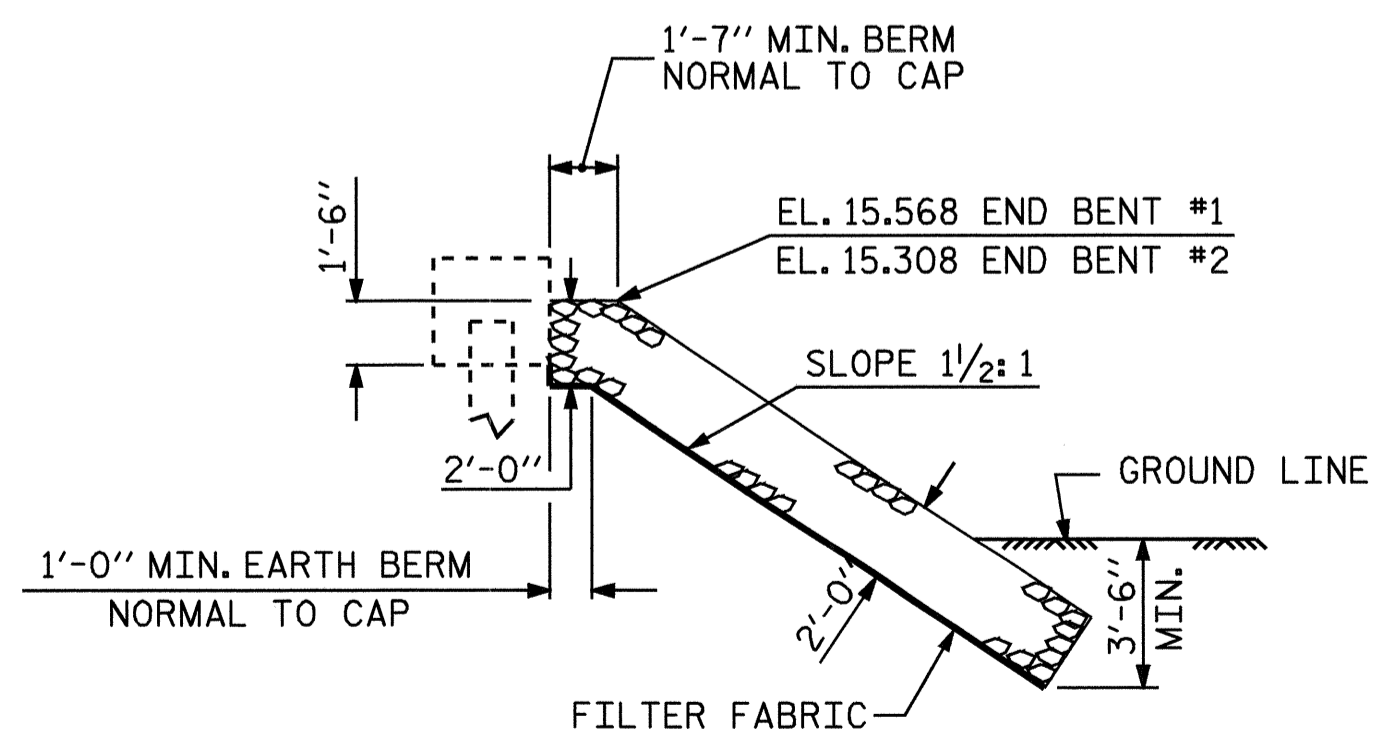
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1			3			TOTAL SHEETS
2			4			23



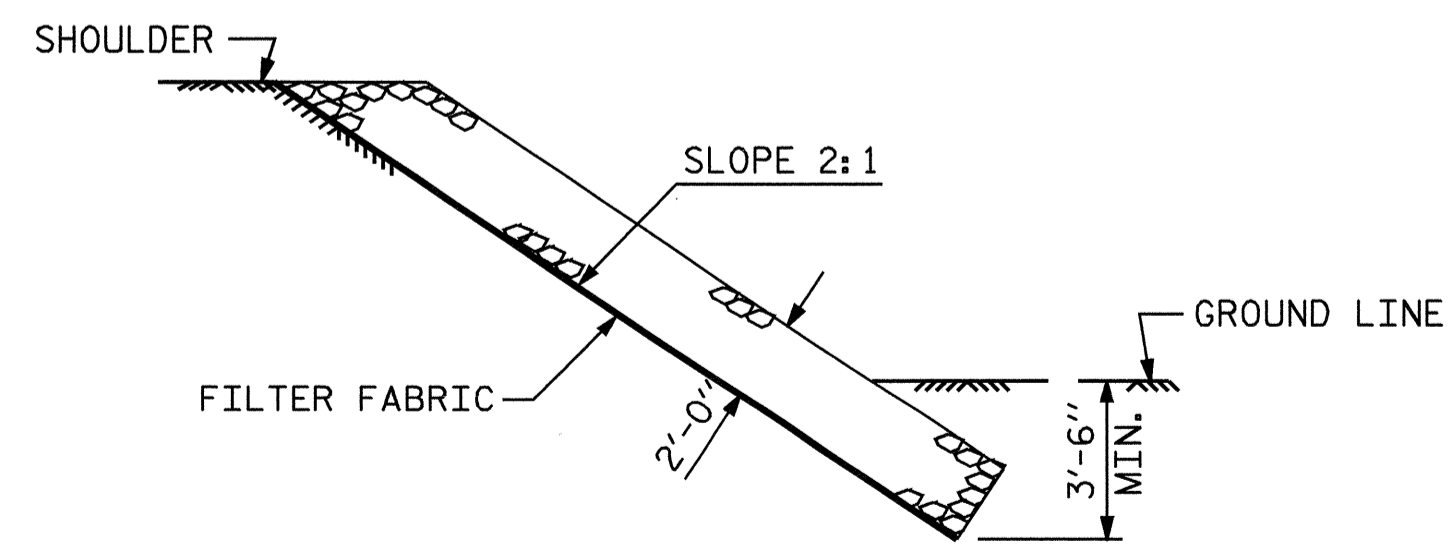
END BENT #1

END BENT #2

PLAN



SECTION C-C



SECTION C-C

BERM RIP RAPPED

NOTES :

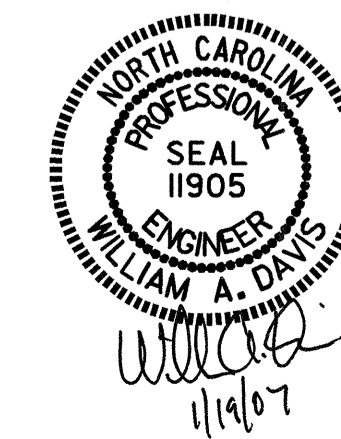
THE COST OF THE FILTER FABRIC SHALL BE INCLUDED IN THE CONTRACT PRICE BID FOR RIP RAP CLASS II.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+45.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TON	SQUARE YARDS
END BENT #1	110	122
END BENT #2	105	116
TOTAL	215	238

ASSEMBLED BY: A. SORSENGINH/A.R.C. DATE: 12-06
 CHECKED BY: J.G. KHARVA/W.A.D. DATE: 12-06
 DRAWN BY: FCJ 2/88
 CHECKED BY: ARB 8/88

REV. 7/17/98 REK/RWW
 REV. 8/16/99 RWW/LES
 REV. 10/17/00 RWW/LES

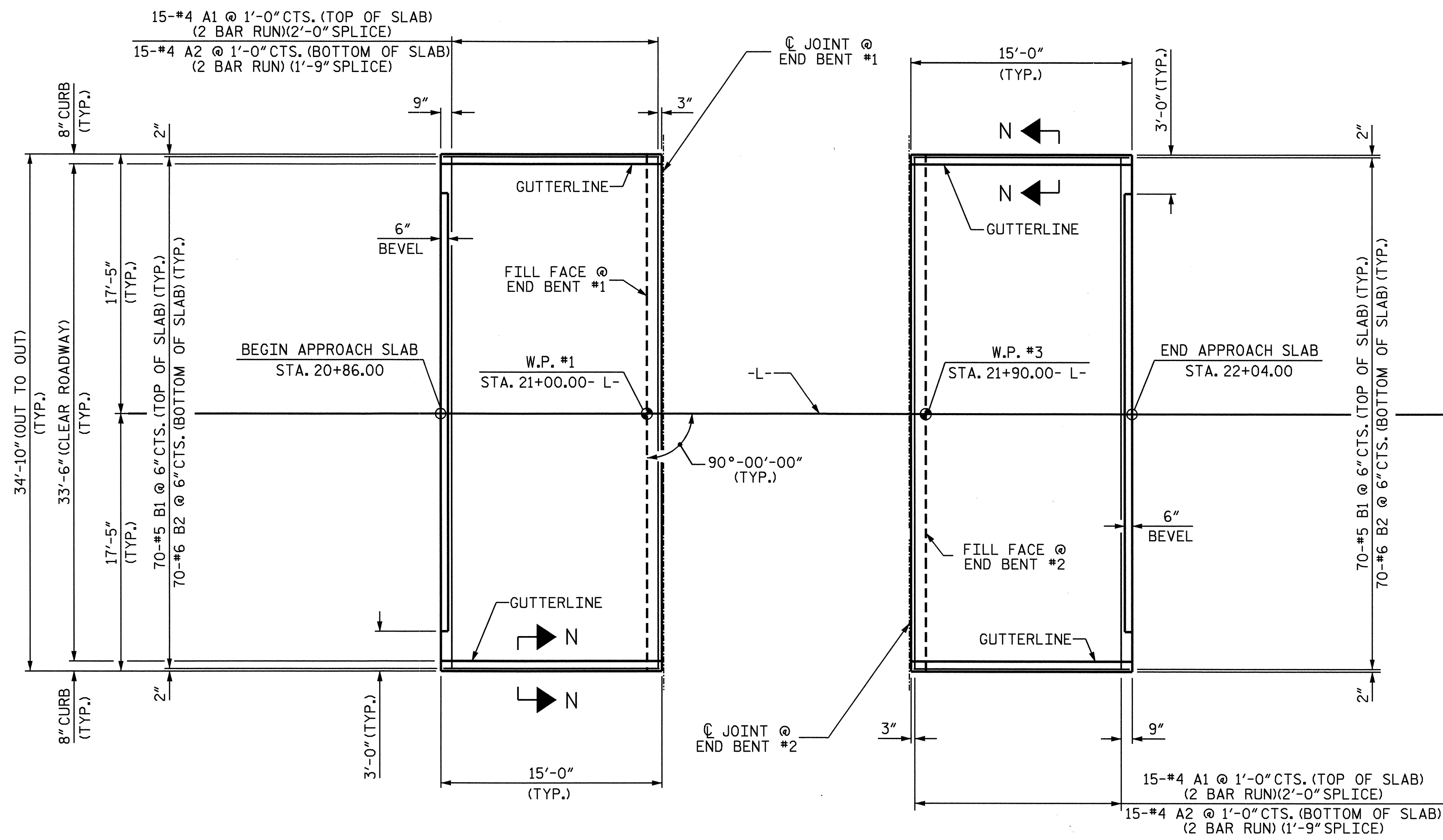
19-JAN-2007 08:52
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PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-

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

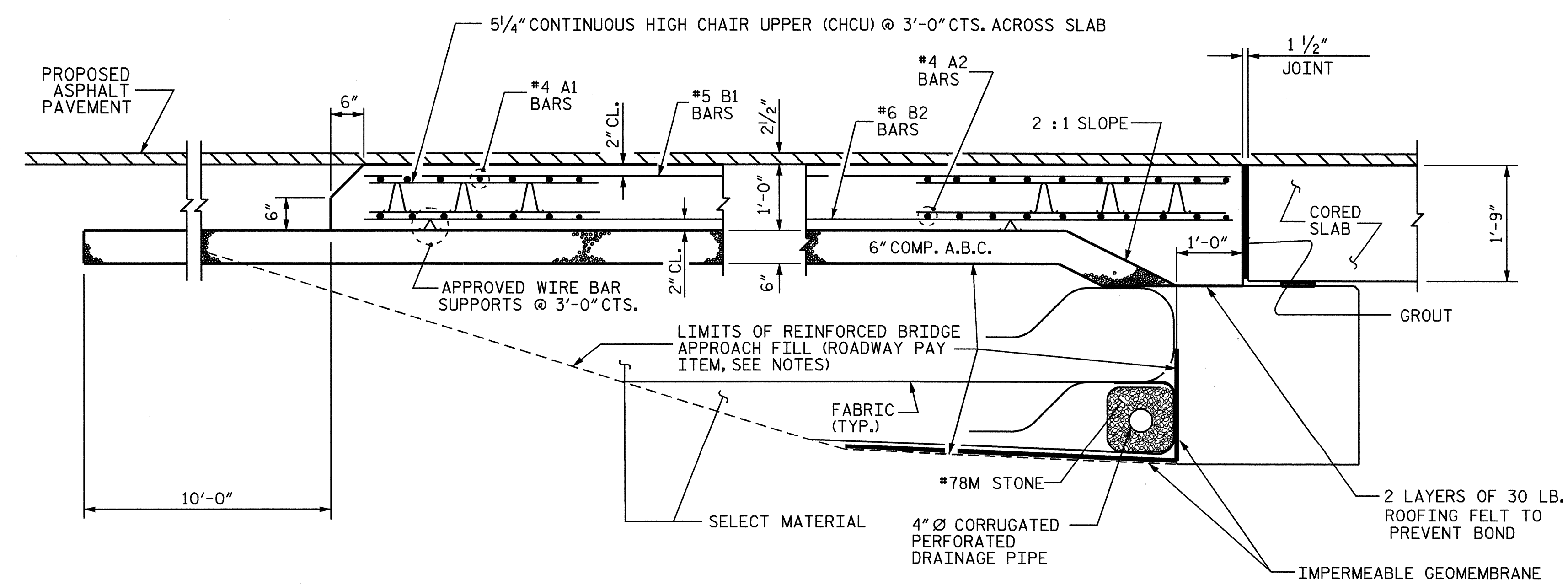
SHEET NO.
S-21
TOTAL SHEETS
23



APPROACH SLAB @ END BENT #1 APPROACH SLAB @ END BENT #2

PLAN

(DIMENSIONS ARE TYPICAL FOR BOTH APPROACH SLABS)



SECTION THRU SLAB

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.

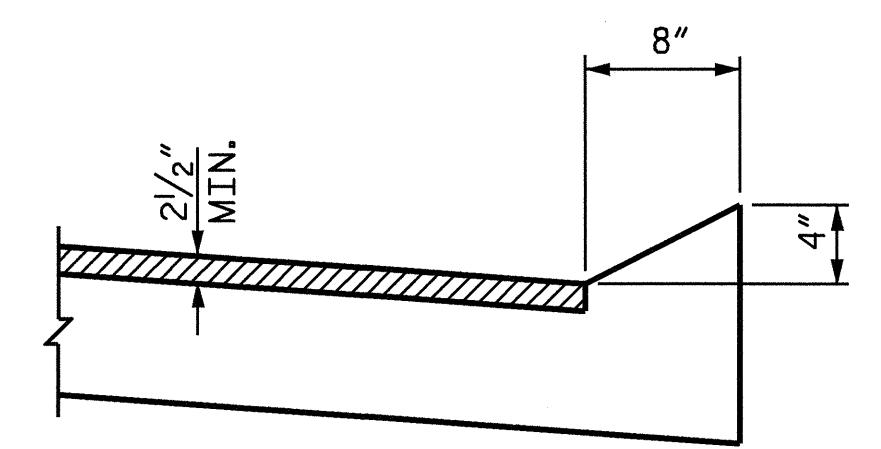
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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.

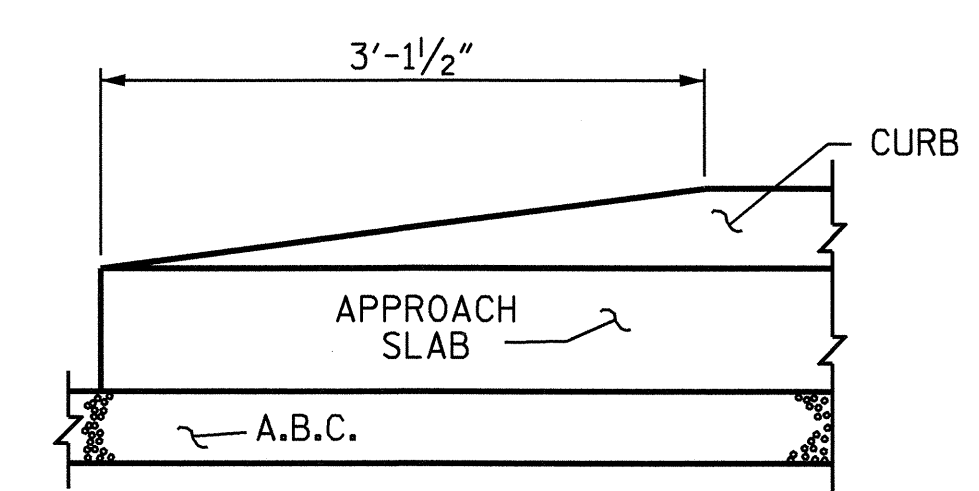
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

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

APPROACH SLAB GROOVING IS NOT REQUIRED.



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	18'-3"	366
A2	30	#4	STR	18'-2"	364
*B1	70	#5	STR	14'-2"	1034
B2	70	#6	STR	14'-8"	1542
REINFORCING STEEL				LBS.	1906
*EPOXY COATED REINFORCING STEEL				LBS.	1400
CLASS AA CONCRETE				C. Y.	21.8
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	18'-3"	366
A2	30	#4	STR	18'-2"	364
*B1	70	#5	STR	14'-2"	1034
B2	70	#6	STR	14'-8"	1542
REINFORCING STEEL				LBS.	1906
*EPOXY COATED REINFORCING STEEL				LBS.	1400
CLASS AA CONCRETE				C. Y.	21.8

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 CRAVEN COUNTY
 STATION: 21+45.00 -L-

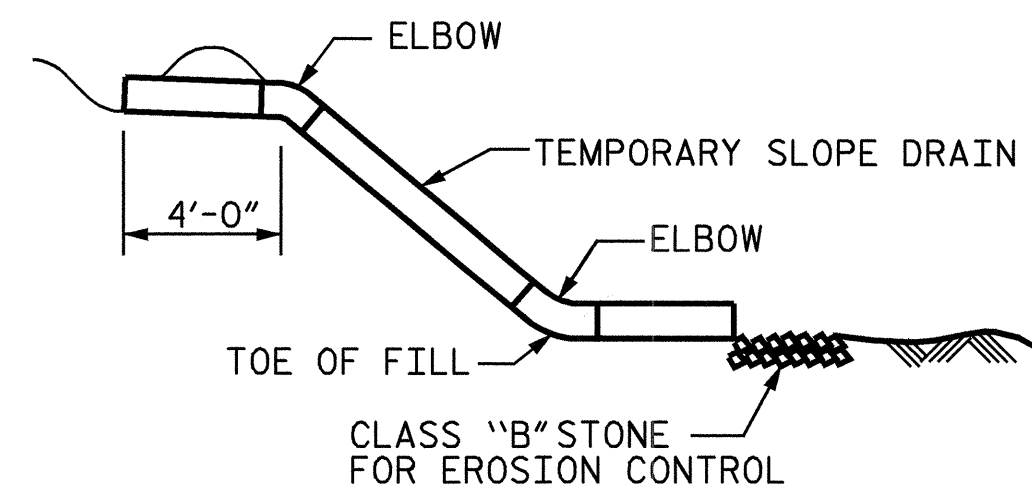
SHEET 1 OF 2

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

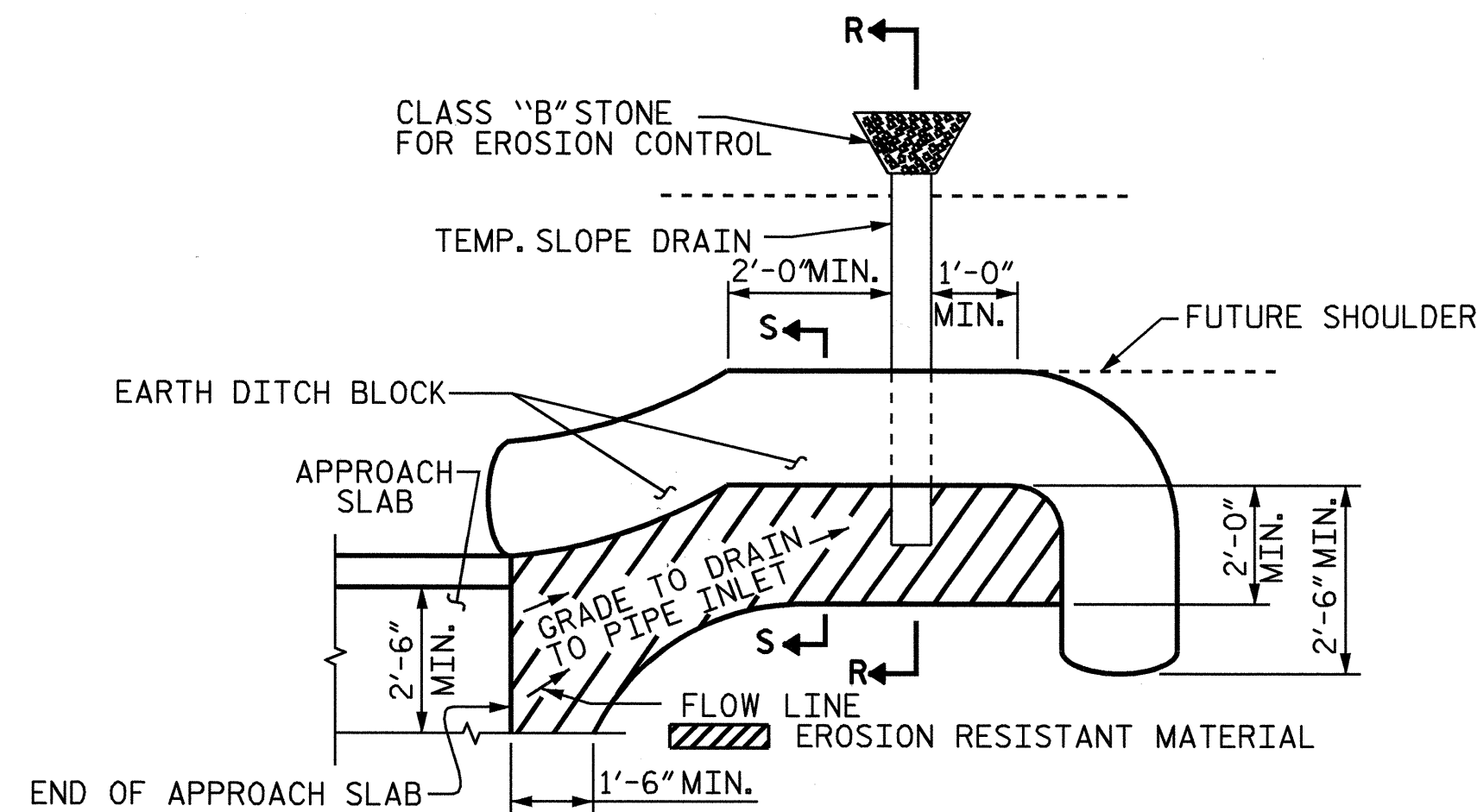


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-22
2			4			TOTAL SHEETS 23

ASSEMBLED BY: A. SORSENGIN/A.R.C.	DATE: 12-06
CHECKED BY: J.G. KHARVA/W.A.D.	DATE: 12-06
DRAWN BY: FCJ	6/87
CHECKED BY: EGA	6/87
REV. 10/17/00	RWW/LES
REV. 7/10/01	LES/RDR
REV. 5/7/03R	RWW/JTE

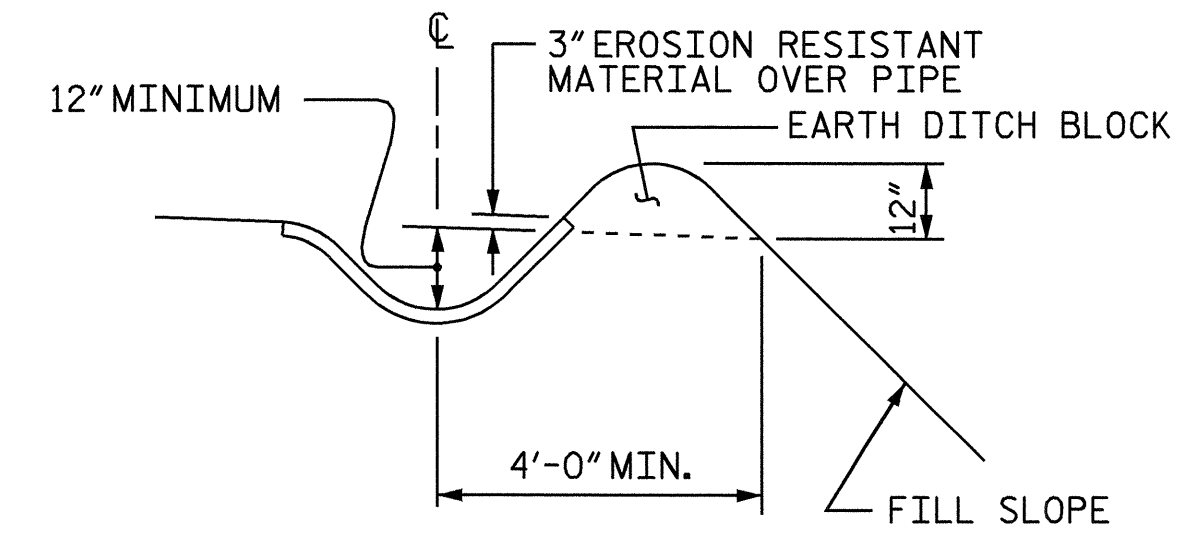


SECTION R-R



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.

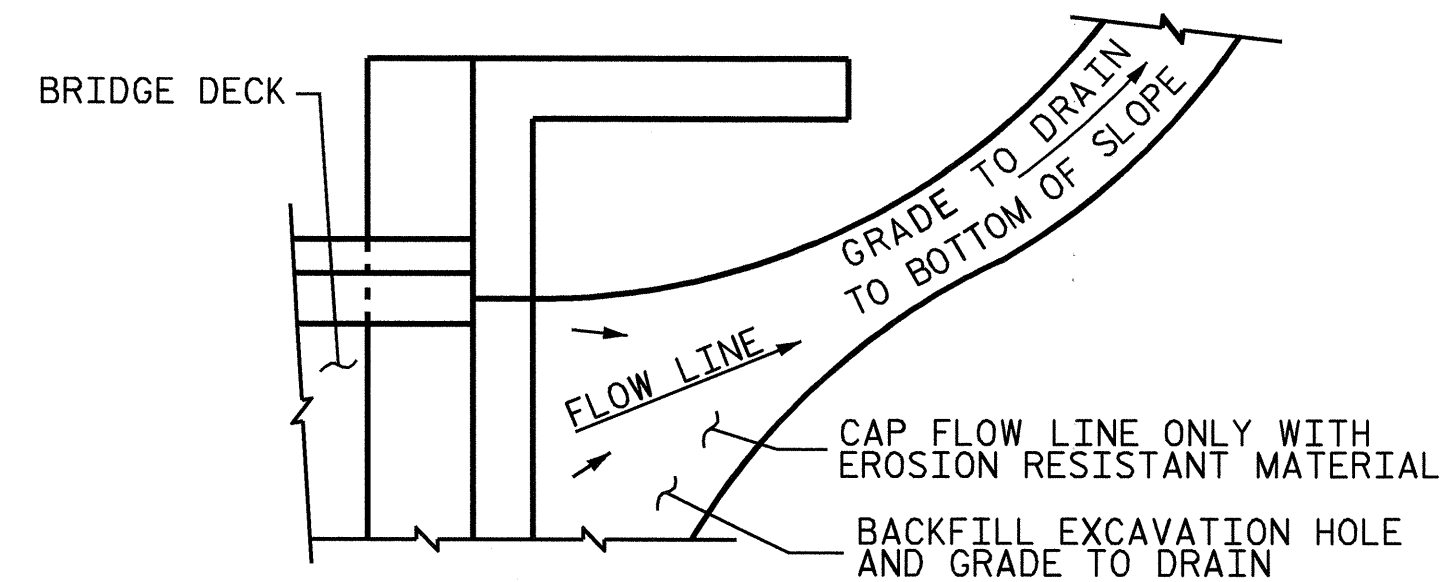
PLAN VIEW



SECTION S-S

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.

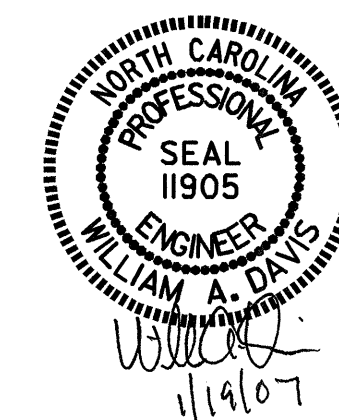
TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4088
CRAVEN COUNTY
 STATION: 21+45.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH
 SLAB DETAILS



ASSEMBLED BY :	A. SORSENGINH	DATE :	1-20-06
CHECKED BY :	J.G. KHARVA	DATE :	1-25-06
DRAWN BY :	FCJ 11/88	REV. 8/16/99	MAB/LES
CHECKED BY :	ARB 11/88	REV. 10/17/00	RWW/LES
		REV. 5/17/03	RWW/JTE

REVISIONS						1988
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-23
2			4			TOTAL SHEETS 23

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