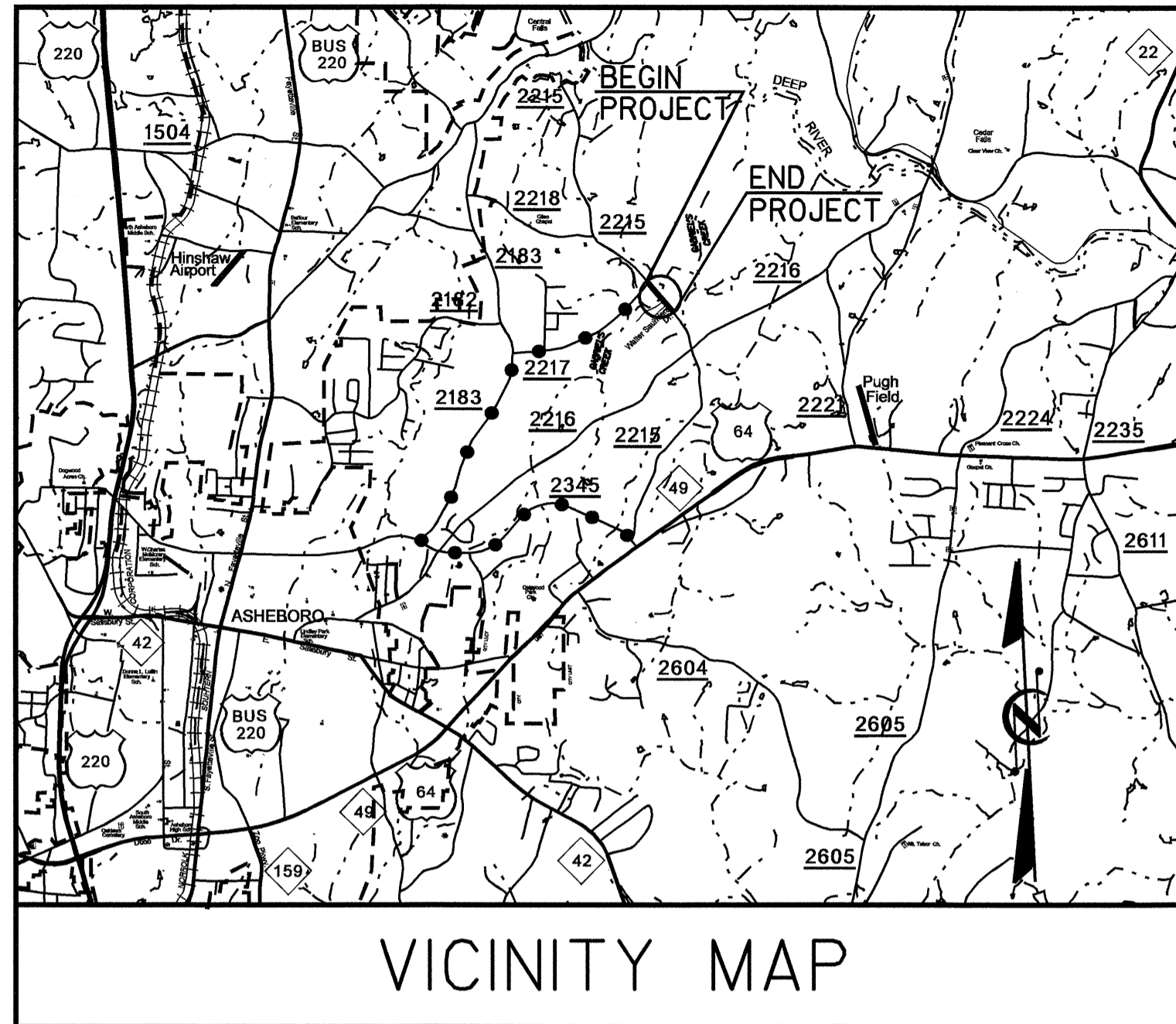


**CONTRACT: C201873 TIP PROJECT: B-4244**

**STRUCTURE**



VICINITY MAP

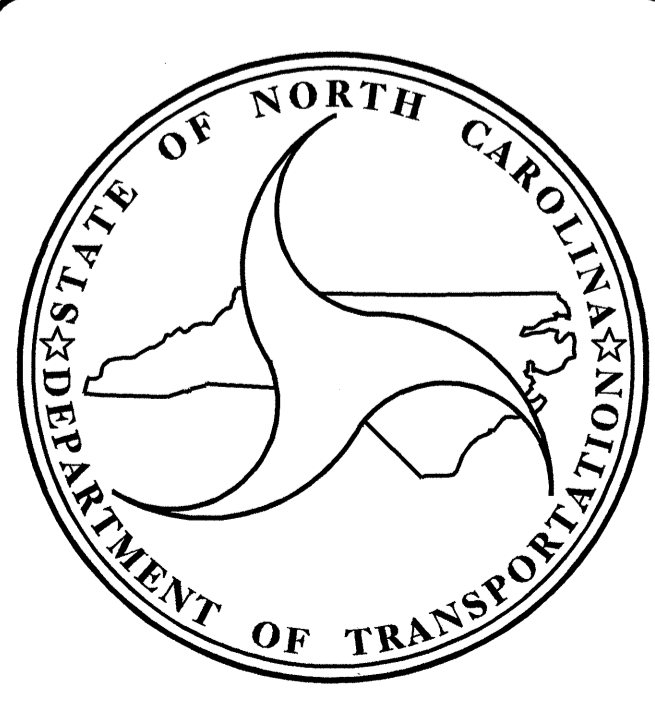
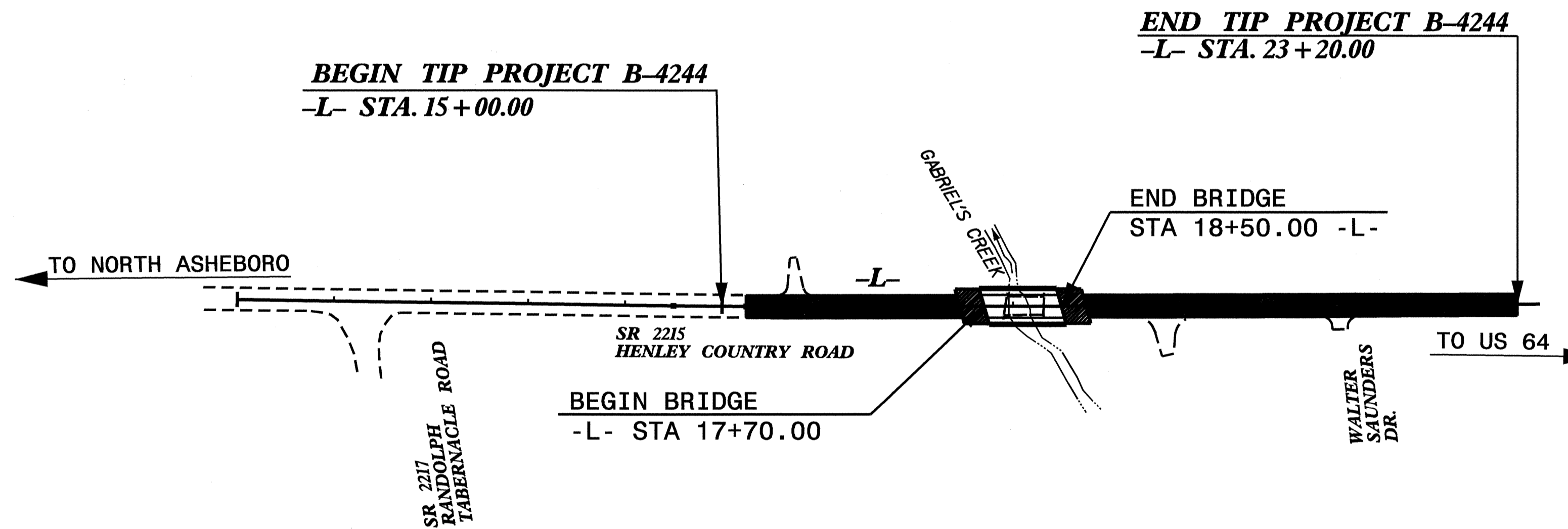
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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**RANDOLPH COUNTY**

LOCATION: BRIDGE NO. 140 OVER GABRIEL'S CREEK ON SR 2215  
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4244		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33587.1.1	BRZ-2215(1)	P.E.	
33587.2.1	BRZ-2215(1)	UTIL. & RW	
33587.3.1	BRZ-2215(1)	CONST.	



**DESIGN DATA**

ADT 2007 = 4,320  
ADT 2027 = 7,970  
DHV = 12 %  
D = 60 %  
T = 3 % \*  
V = 60 MPH  
\* TTST = 1%    DUALS = 2%  
FUNC. CLASS = RURAL LOCAL

**PROJECT LENGTH**

LENGTH ROADWAY OF F.A. PROJECT = 0.140 MI  
LENGTH STRUCTURE OF F.A. PROJECT = 0.015 MI  
TOTAL LENGTH OF STATE PROJECT = 0.155 MI

Prepared In the Office of:

**DIVISION OF HIGHWAYS**

2006 STANDARD SPECIFICATIONS

LETTING DATE :  
JULY 15, 2008

J. C. FRYE, P.E.  
PROJECT ENGINEER

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

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

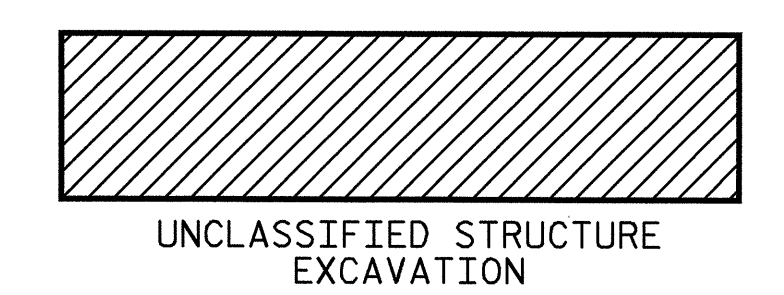
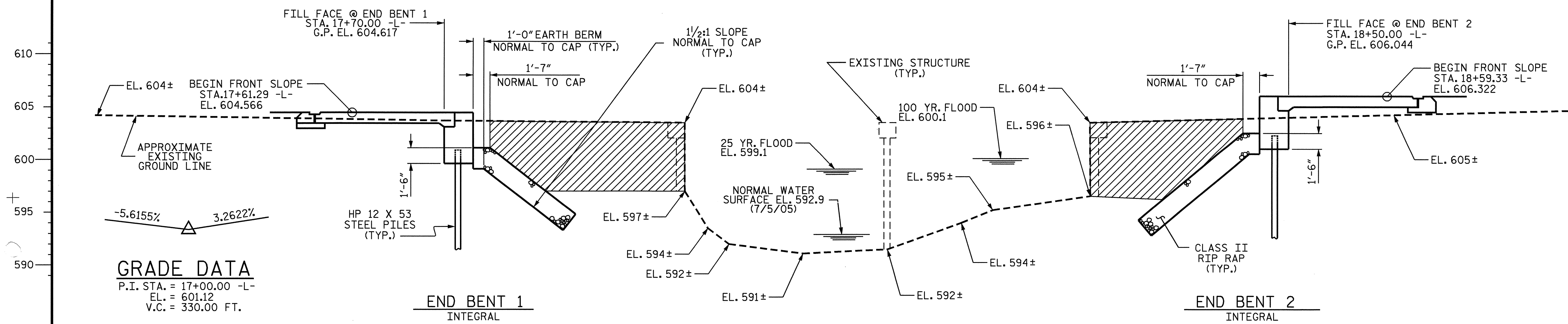
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER  
DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED  
DIVISION ADMINISTRATOR

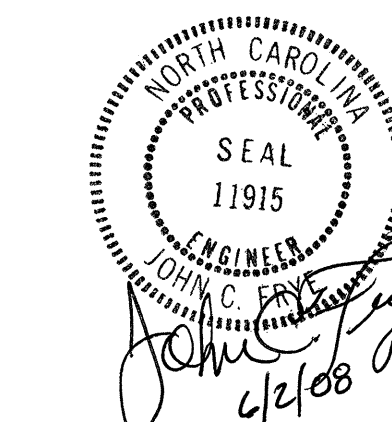
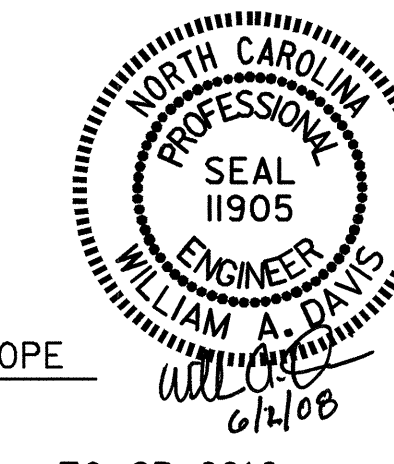
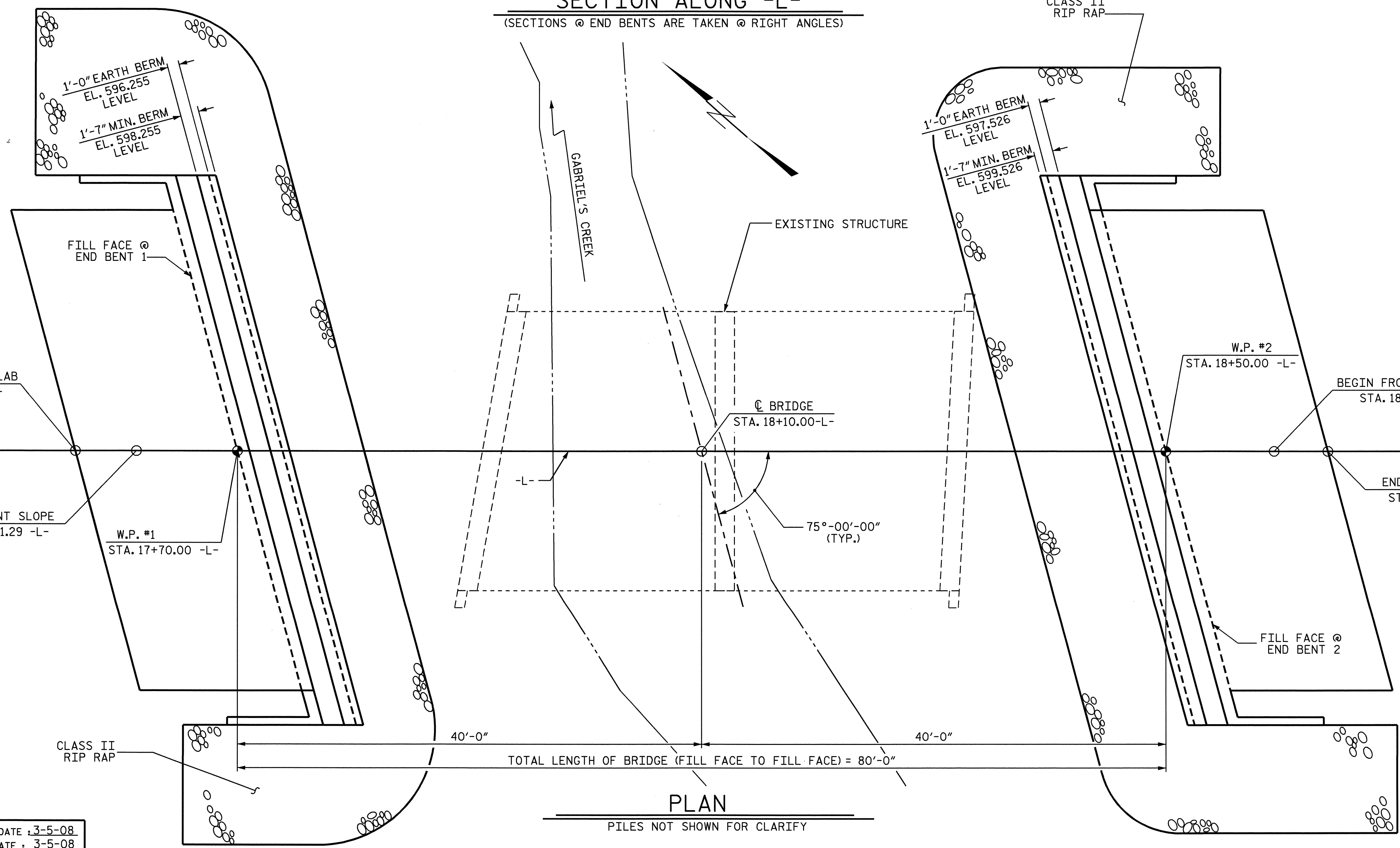
P.E.  
DATE

SPAN A



SECTION ALONG -L-

(SECTIONS @ END BENTS ARE TAKEN @ RIGHT ANGLES)

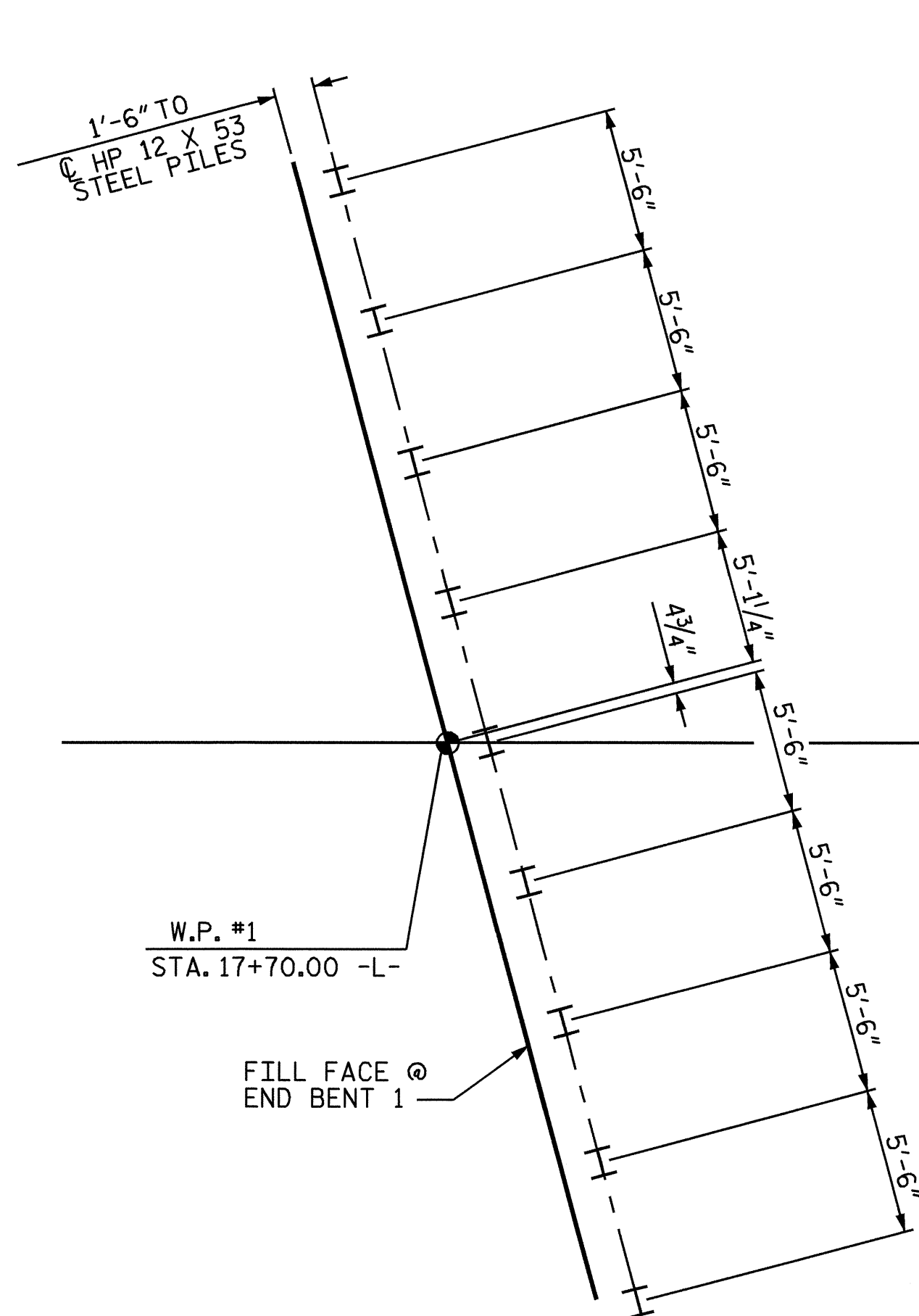


PROJECT NO. B-4244  
 RANDOLPH COUNTY  
 STATION: 18+10.00 -L-  
 SHEET 1 OF 3 REPLACES BRIDGE #140

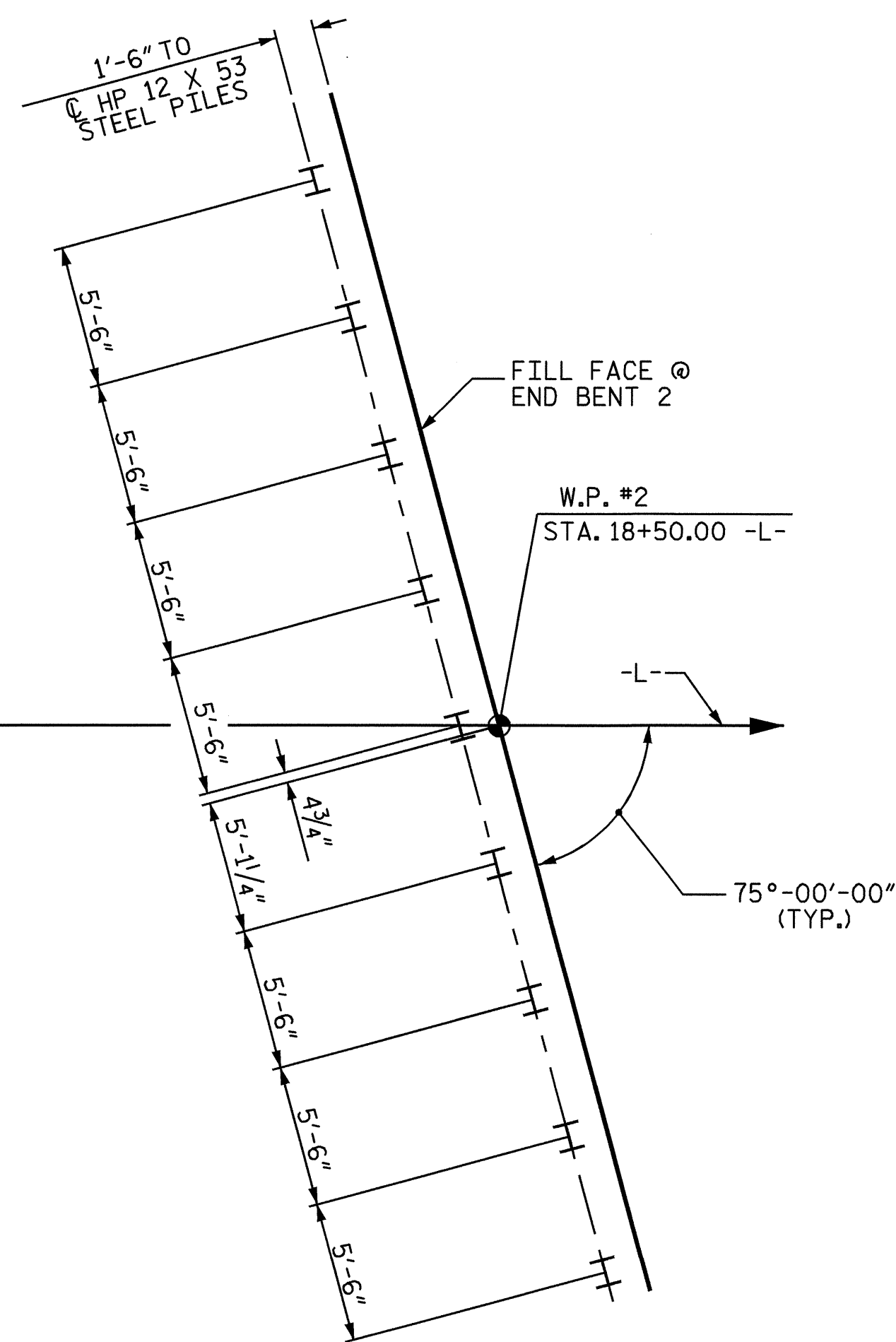
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE OVER  
 GABRIEL'S CREEK  
 ON SR 2215 BETWEEN  
 SR 2217 AND SR 2216

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1	
1			3			TOTAL SHEETS	
2			4			25	

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 compression  
 DRAWN BY : N.M.R. DATE : 3-5-08  
 CHECKED BY : W.A.DAVIS DATE : 3-5-08



END BENT 1



END BENT 2

### FOUNDATION LAYOUT

(ORIENT PILES AS SHOWN)

### CONSTRUCTION SEQUENCE :

1. DRIVE STEEL PILES FOR END BENT 1 AND END BENT 2. COMPLETE POUR 1 OF END BENTS.
2. ONCE CONCRETE HAS ATTAINED THE REQUIRED STRENGTH, INSTALL NUT, WASHER AND SOLE PLATE ON ANCHOR BOLTS. ERECT GIRDERS AND ALIGN SOLE PLATES WITH HOLES IN FLANGES REGARDLESS OF TEMPERATURE AT TIME OF SETTING. SOLE PLATE SHOULD BE WELDED TO THE GIRDER FLANGE BEFORE FALSEWORK IS PLACED. ADJUST LOWER NUT TO SET GIRDER BEARING AT THE PROPER ELEVATION. INSTALL WASHER AND NUT ON TOP OF FLANGES. LEAVE TOP NUT LOOSE TO ALLOW FOR GIRDER END ROTATION AND TRANSLATION DURING DECK POURING SEQUENCE.
3. POUR BRIDGE DECK IN ACCORDANCE WITH THE POURING SEQUENCE OUTLINED ON THE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET EXCEPT THE FINAL TWO POURS CONTAINING THE ABUTMENT. NOTE THAT THE FINAL TWO POURS CONTAINING THE WINGWALLS AND ABUTMENT ARE PLACED WITH THE FINAL POURS OF THE BRIDGE DECK.
4. TIGHTEN THE TOP NUT 1/4 TURN PAST FINGER TIGHT. COMPLETE FINAL TWO DECK POURS WHICH INCLUDES THE ABUTMENT, DECK AND THE WINGWALLS.
5. PLACE THE REINFORCED BRIDGE APPROACH FILL AND BACKFILL IN LIFTS UNTIL THE DESIRED SUBGRADE ELEVATION IS REACHED. CONSTRUCT SLEEPER SLABS.
6. POUR THE APPROACH SLABS STARTING AT THE END FURTHEST FROM THE BACKWALL AND PROGRESSING TOWARDS THE END BENT. POURS SHALL BE PERFORMED DURING THE MORNING HOURS TO MINIMIZE PLACING THE APPROACH SLAB IN TENSION FROM BRIDGE THERMAL MOVEMENTS.

DRAWN BY : A.R.CHESSON DATE : 7-07  
 CHECKED BY : W.A.DAVIS DATE : 3-5-08

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 chesson

### NOTES

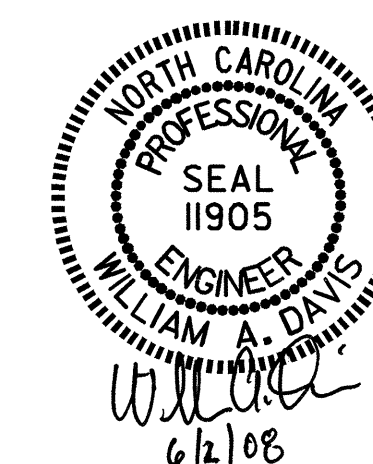
DIMENSIONS LOCATING PILES ARE TO THE PILE CENTERLINE

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

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT NO.1 & NO.2 IS 60 TONS PER PILE.

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

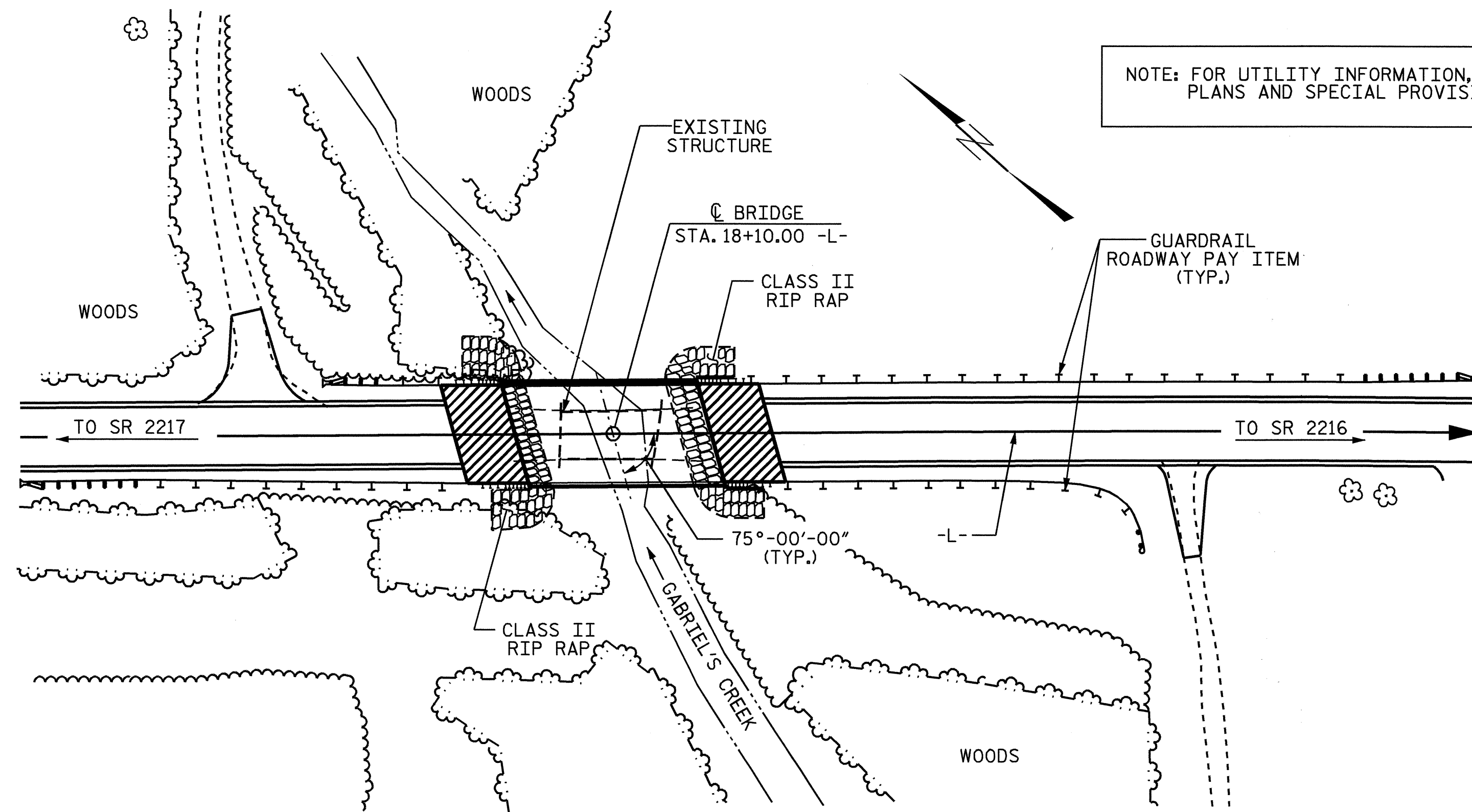
SHEET 2 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE OVER  
 GABRIEL'S CREEK  
 ON SR 2215 BETWEEN  
 SR 2217 AND SR 2216

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			25

BM #2: EL. 607.35, RR SPIKE IN BASE OF POWER POLE (CP&L K794AD) 90.12' RT. OF -L- STA. 19+90.63



— LOCATION SKETCH —

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

**NOTES**

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THE GIRDERS 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.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND NO PAINTING OF STRUCTURAL STEEL IS REQUIRED.

THE EXISTING STRUCTURE CONSISTING OF TWO 17'-9" CONTINUOUS SPANS WITH A TIMBER DECK ON I BEAMS, WITH TIMBER PILES AND CONCRETE INCASED CAPS AND PILES AND LOCATED AT THE PROPOSED BRIDGE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SECTION 412 OF STANDARD SPECIFICATIONS.

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 GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

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.

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

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.

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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR REMOVAL OF EXISTING STRUCTURE AT STATION 18+10.00 -L-."

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION SEQUENCE FOR INTEGRAL END BENTS, SEE SHEET 2 OF 3.

**HYDRAULIC DATA**

DESIGN DISCHARGE = 820 CFS.  
 FREQUENCY OF DESIGN FLOOD = 25 YRS.  
 DESIGN HIGH WATER ELEVATION = 599.1  
 DRAINAGE AREA = 2.34 SQ. MI.  
 BASIC DISCHARGE (Q100) = 1,300 CFS.  
 BASIC HIGH WATER ELEVATION = 600.1

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE = 3,600± CFS.  
 FREQUENCY OF OVERTOPPING FLOOD = 500+YRS.  
 OVERTOPPING FLOOD ELEVATION = 604.3

**TOTAL BILL OF MATERIAL**

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	APPROX. STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS	
	LUMP SUM	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX.LBS.	NO.	LIN.FT.	LIN.FT.	TONS	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	3072	3419		LUMP SUM		86500			156.54			LUMP SUM
END BENT 1					18.3		2658		9	135		109	121	
END BENT 2					18.3		2676		9	135		152	169	
TOTAL	LUMP SUM	LUMP SUM	3072	3419	36.6	LUMP SUM	5334	86500	18	270	156.54	261	290	LUMP SUM

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER  
 GABRIEL'S CREEK  
 ON SR 2215 BETWEEN  
 SR 2217 AND SR 2216

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : A.R.CHESSON DATE : 8-07  
 CHECKED BY : W.A.DAVIS DATE : 3-5-08

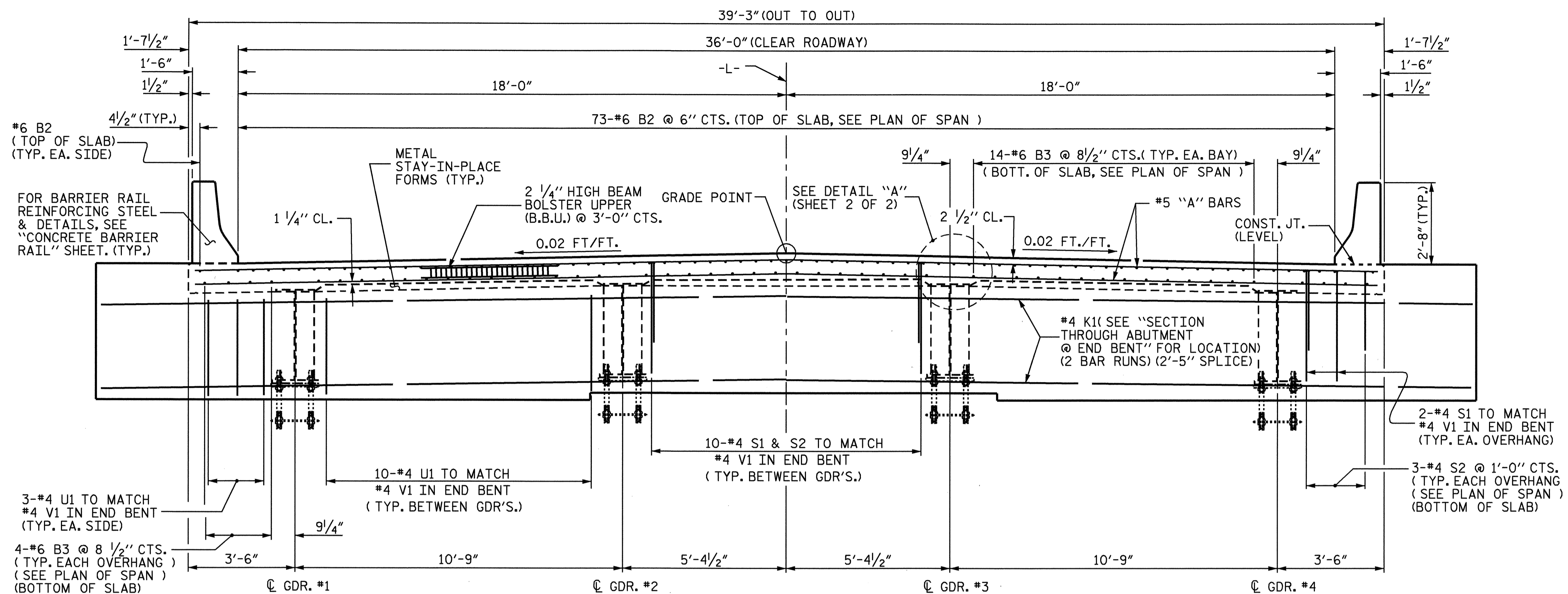
NOTES

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHАРY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

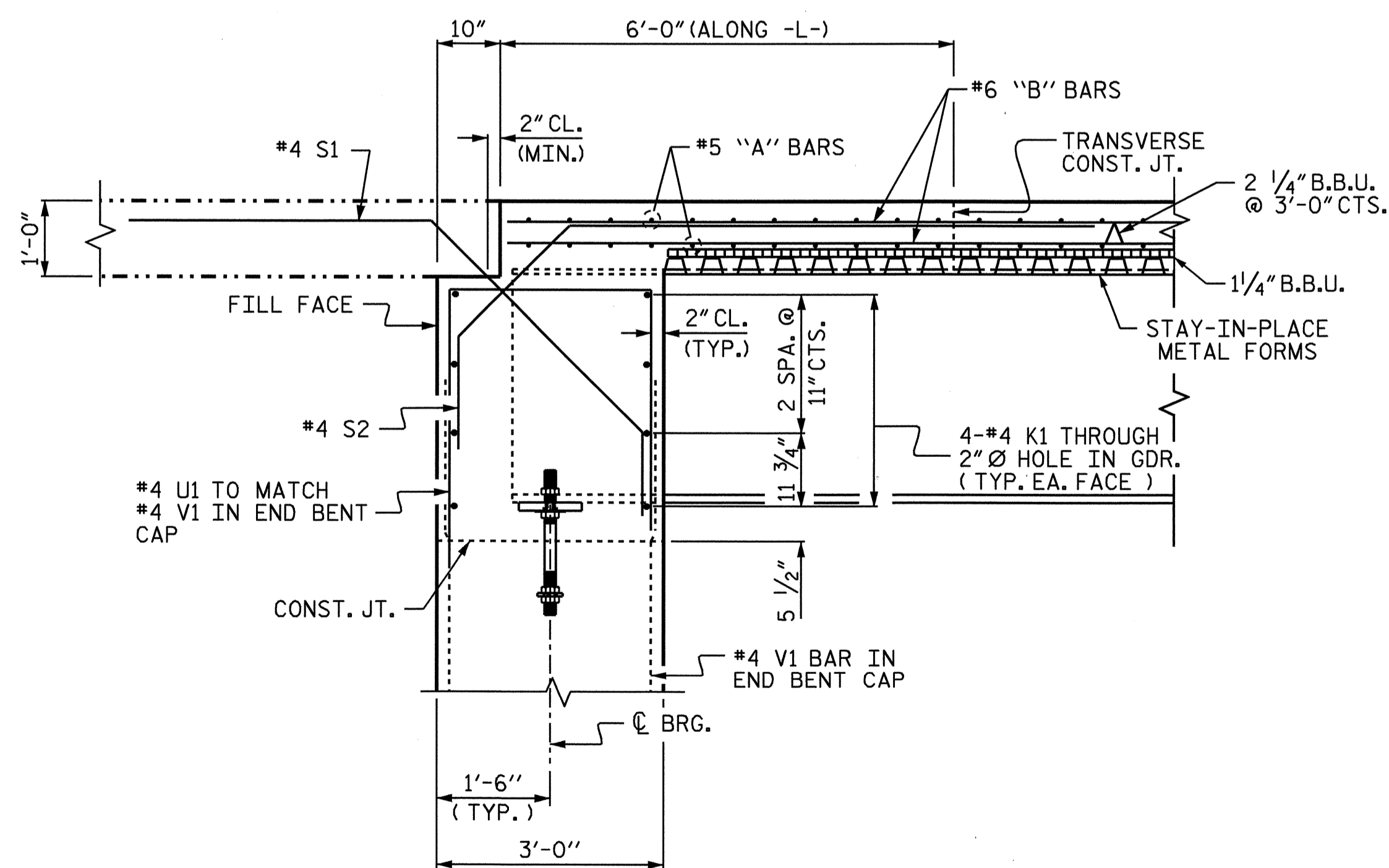
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

FOR WING ELEVATIONS AND DETAILS, SEE "PLAN OF SPAN DETAILS" SHEET.



TYPICAL SECTION

(SHOWING ABUTMENT AT END BENT)  
(APPROACH SLAB BLOCKOUT & WINGS ARE NOT SHOWN FOR CLARITY)



SECTION THROUGH ABUTMENT @ END BENT

PROJECT NO. B-4244  
RANDOLPH COUNTY  
STATION: 18+10.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION

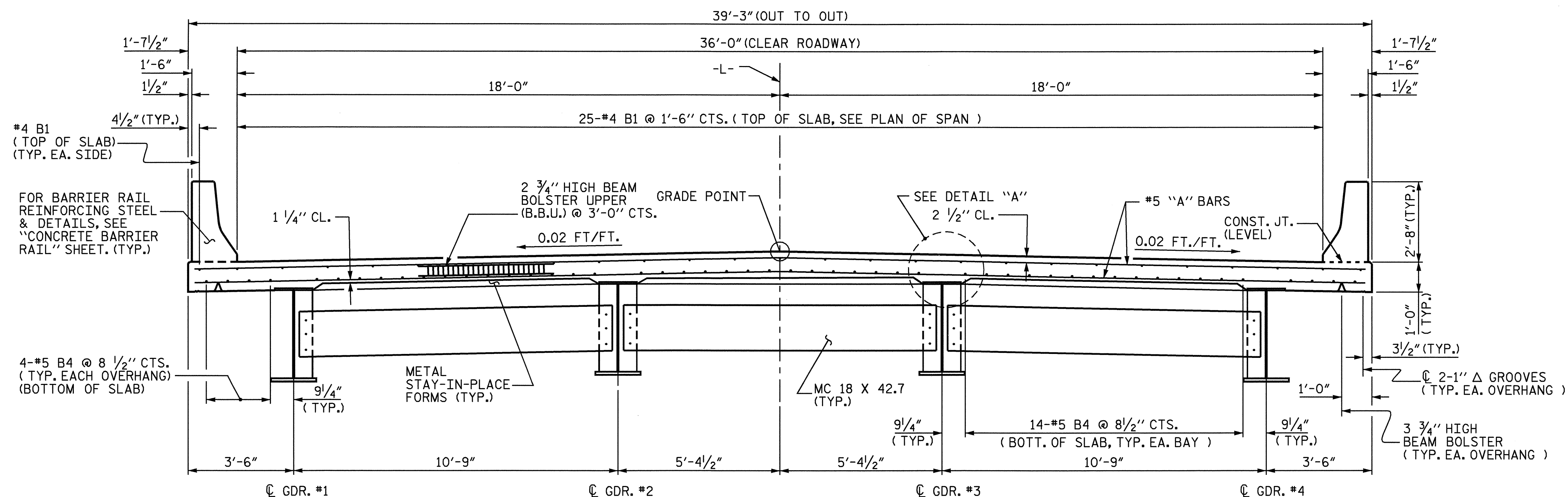


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CHECKED BY: A.R. CHESSON DATE: 7-07

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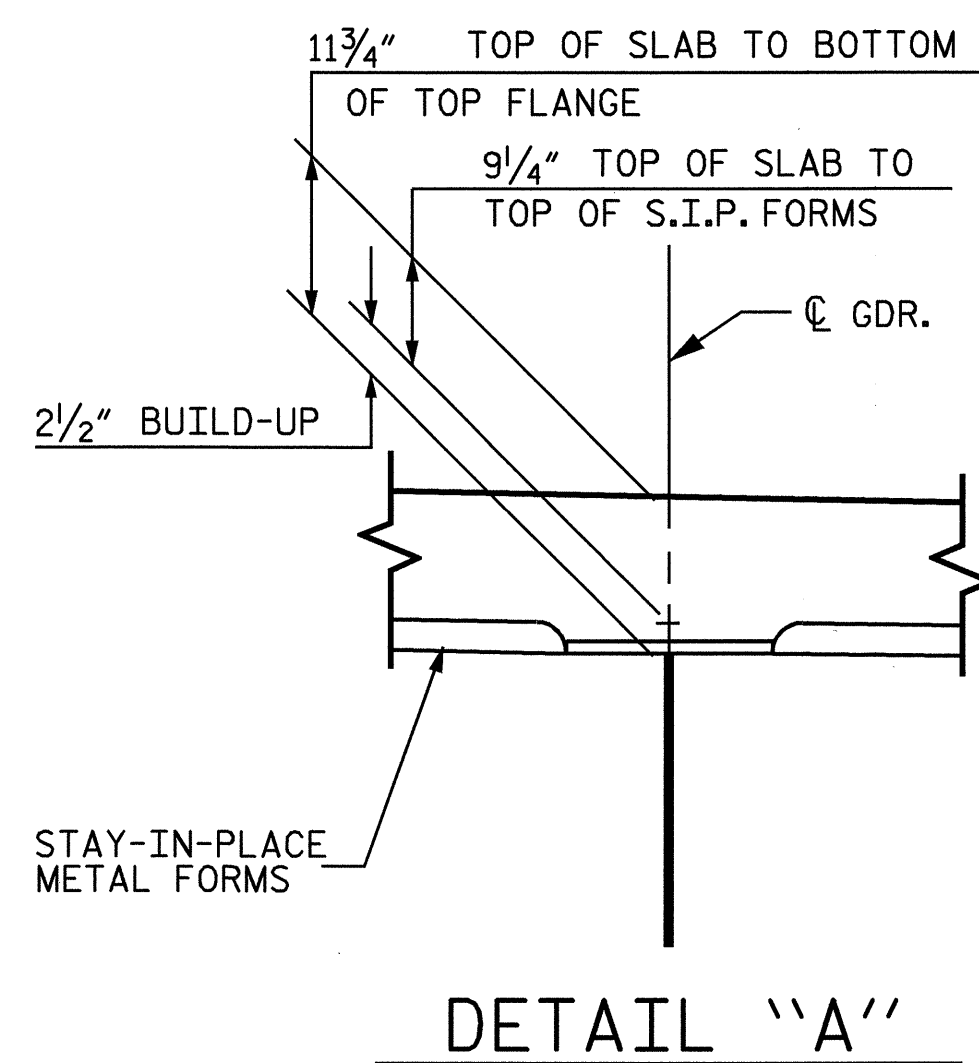
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			25

NC003



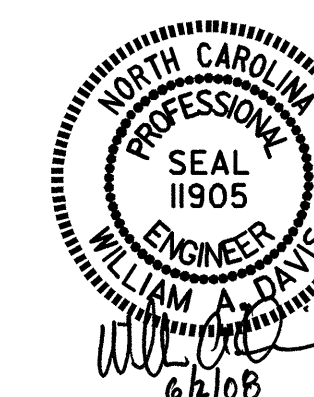
**TYPICAL SECTION**

( SHOWING INTERMEDIATE DIAPHRAGMS )



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 CHECKED BY : A.R. CHESSON DATE : 7-07

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PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			25

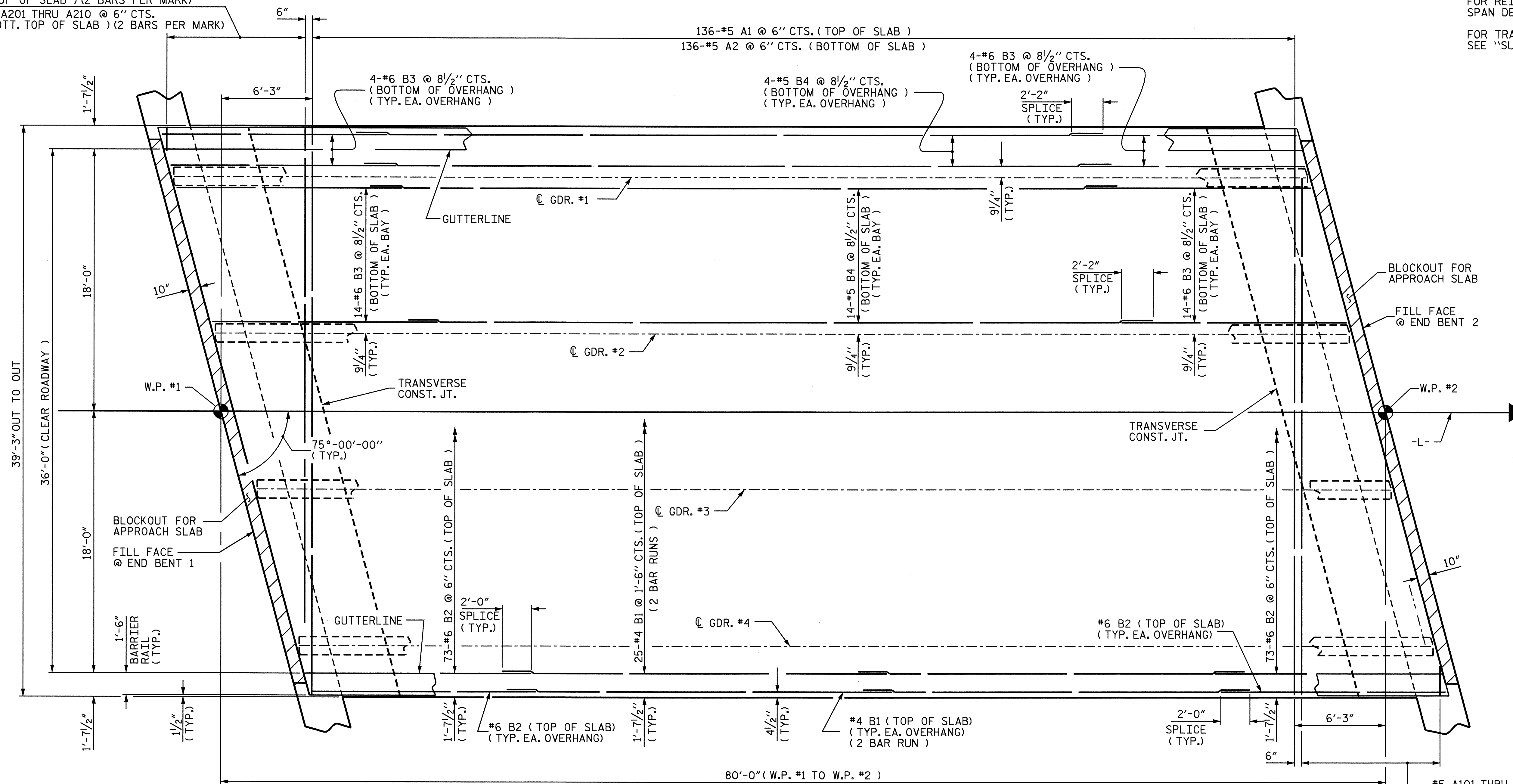
NC006

**NOTE**

FOR REINFORCING STEEL IN ABUTMENTS, SEE "PLAN OF SPAN DETAILS" SHEET.

FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.

#5 A101 THRU A110 @ 6" CTS.  
(TOP OF SLAB) (2 BARS PER MARK)  
#5 A201 THRU A210 @ 6" CTS.  
(BOTT. TOP OF SLAB) (2 BARS PER MARK)



#5 A101 THRU A110 @ 6" CTS.  
(TOP OF SLAB) (2 BARS PER MARK)  
#5 A201 THRU A210 @ 6" CTS.  
(BOTT. OF SLAB) (2 BARS PER MARK)

**PLAN OF SPAN A**

PROJECT NO. B-4244  
RANDOLPH COUNTY  
STATION: 18+10.00 -L-

SHEET 1 OF 4



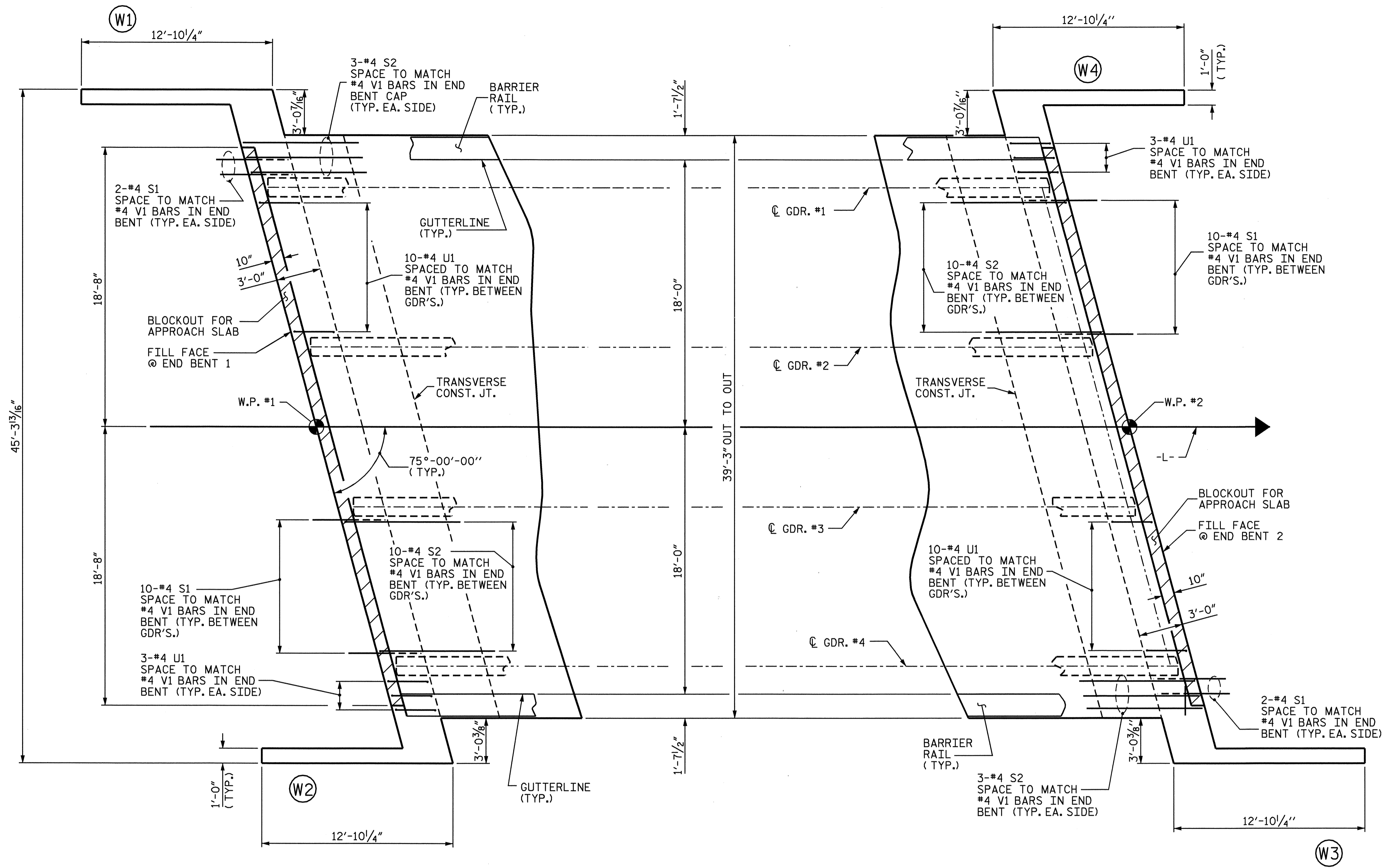
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SUPERSTRUCTURE PLAN OF SPAN A					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-6
					TOTAL SHEETS 25

DRAWN BY: R. W. WRIGHT DATE: 6-07  
CHECKED BY: A.R. CHESSON DATE: 7-07

NOTE

FOR REINFORCING STEEL IN ABUTMENTS, SEE "PLAN OF SPAN DETAILS" SHEET.

FOR TRANSVERSE CONSTRUCTION JOINT DETAIL, SEE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET.



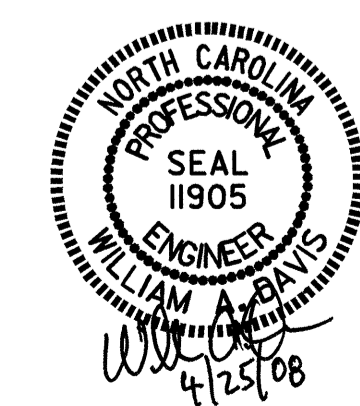
PLAN OF ABUTMENT AT END BENT 1

PLAN OF ABUTMENT AT END BENT 2

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 2 OF 4

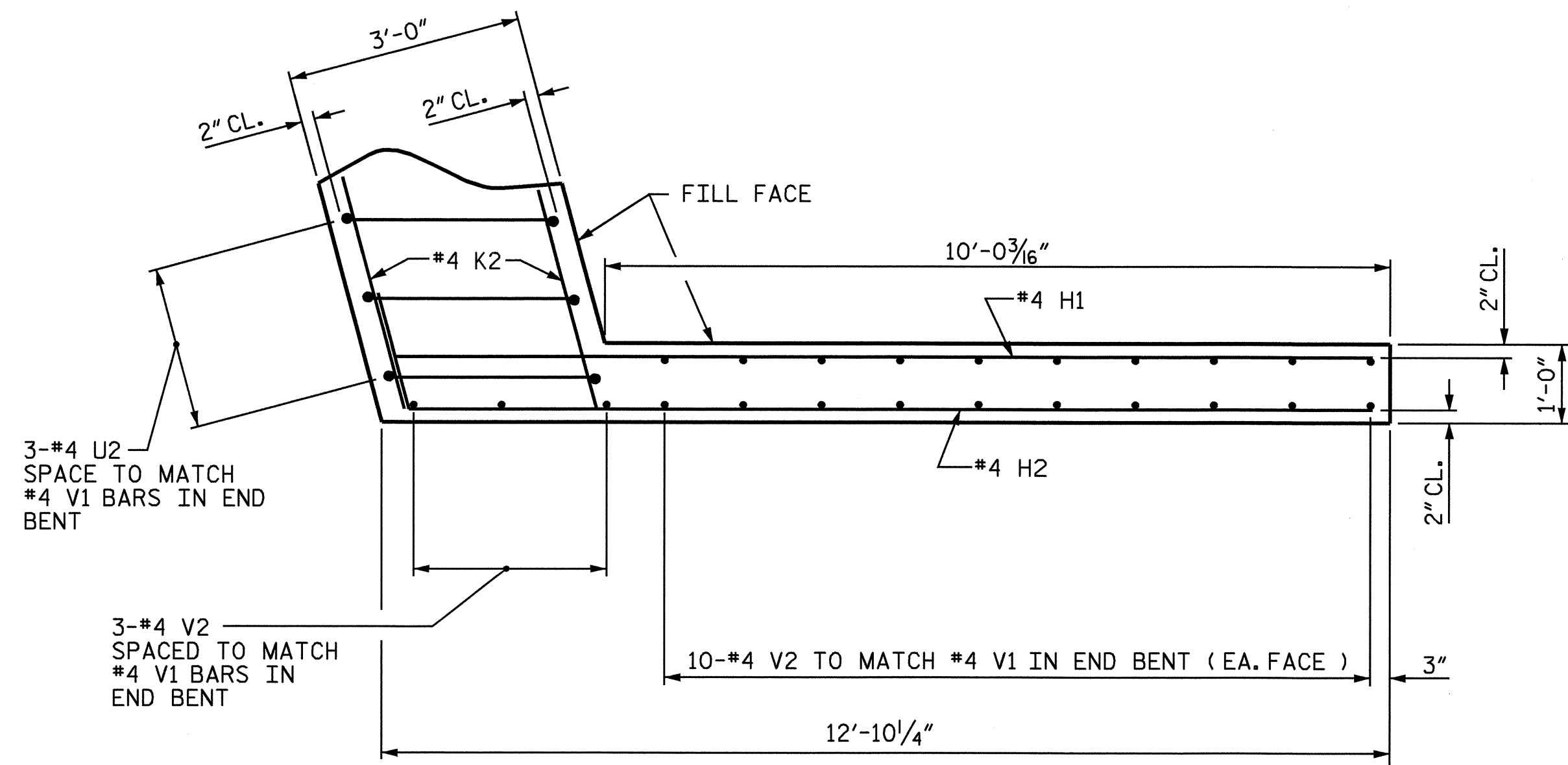
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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPAN  
 DETAILS



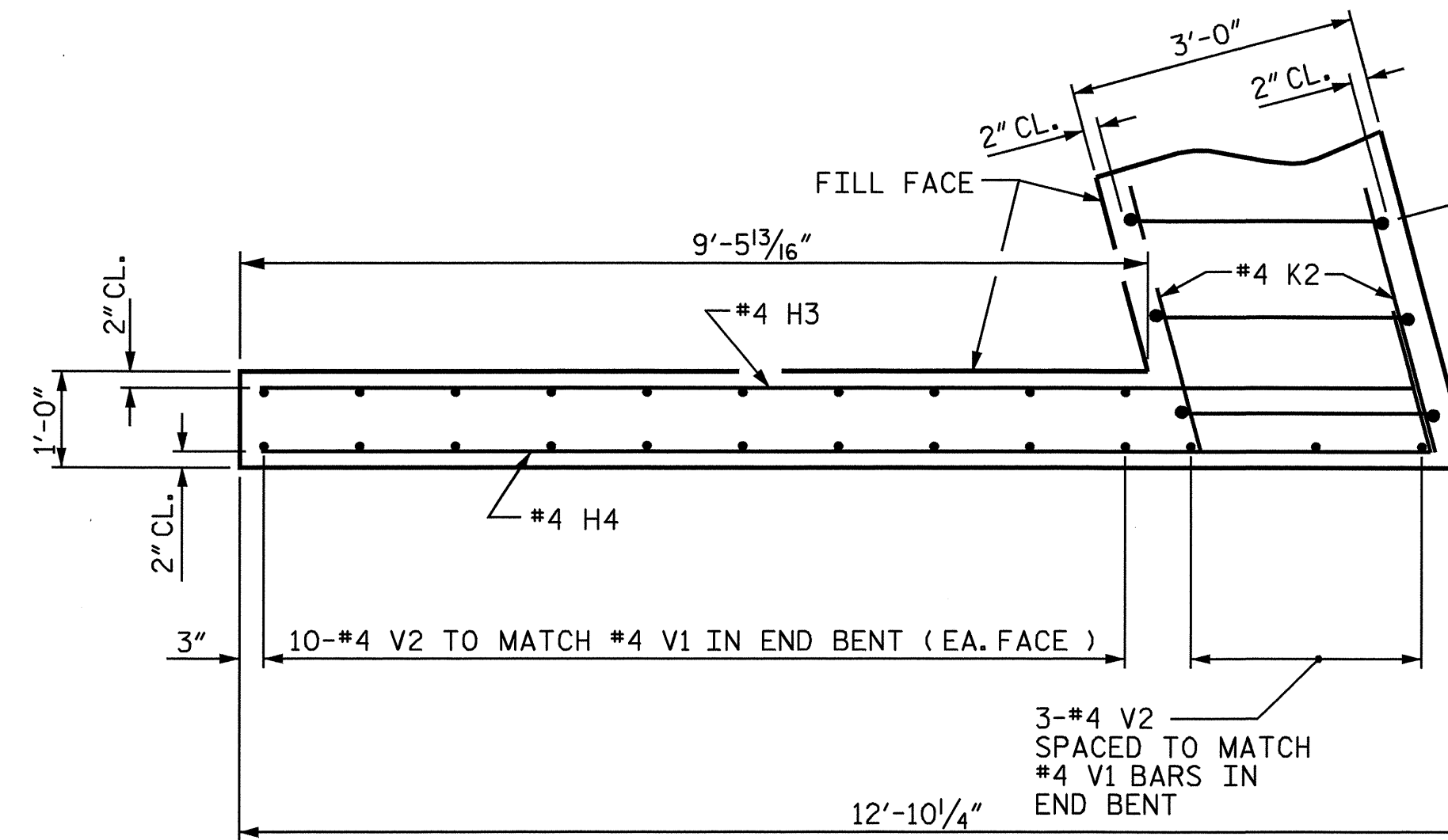
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1			3			TOTAL SHEETS
2			4			25

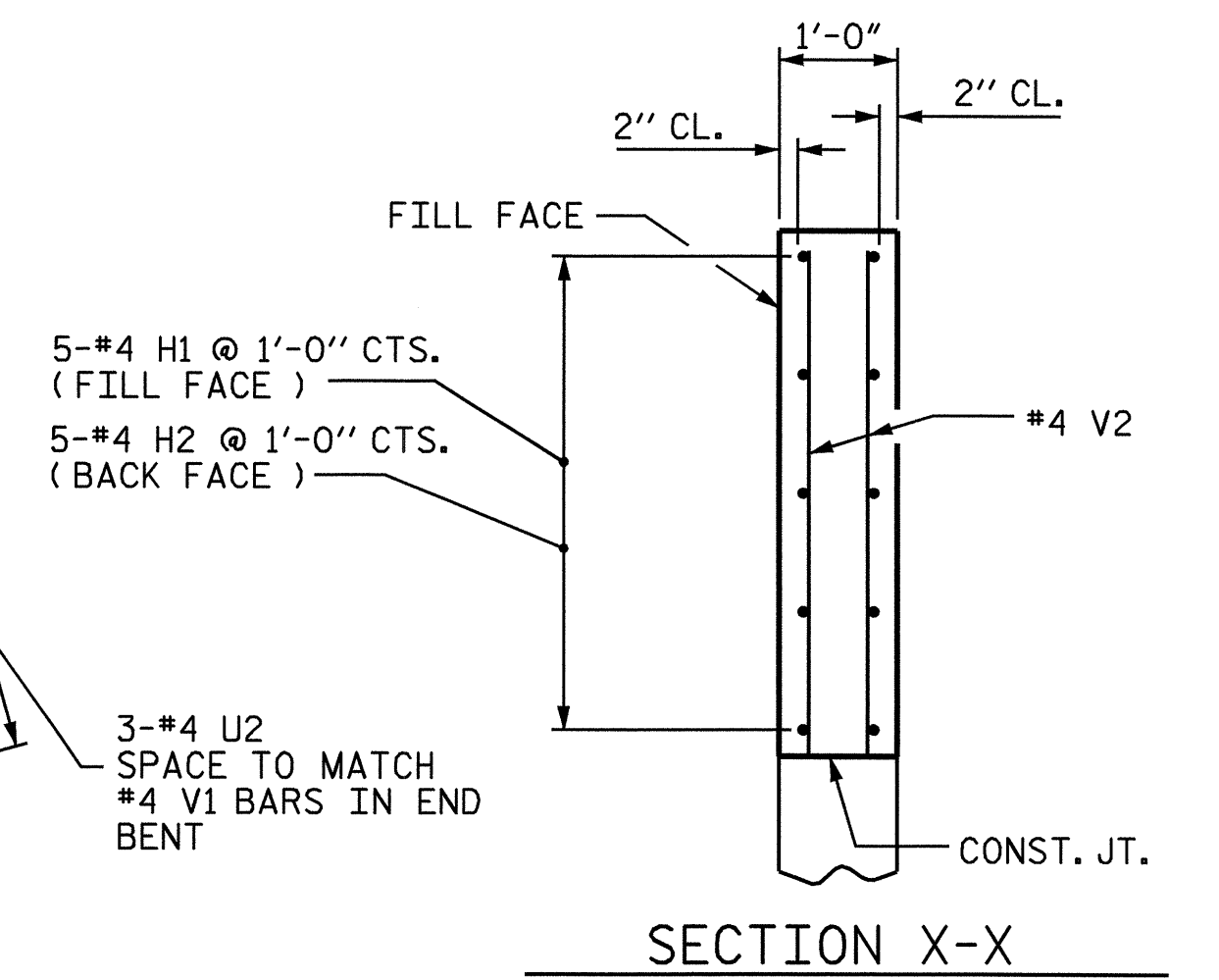




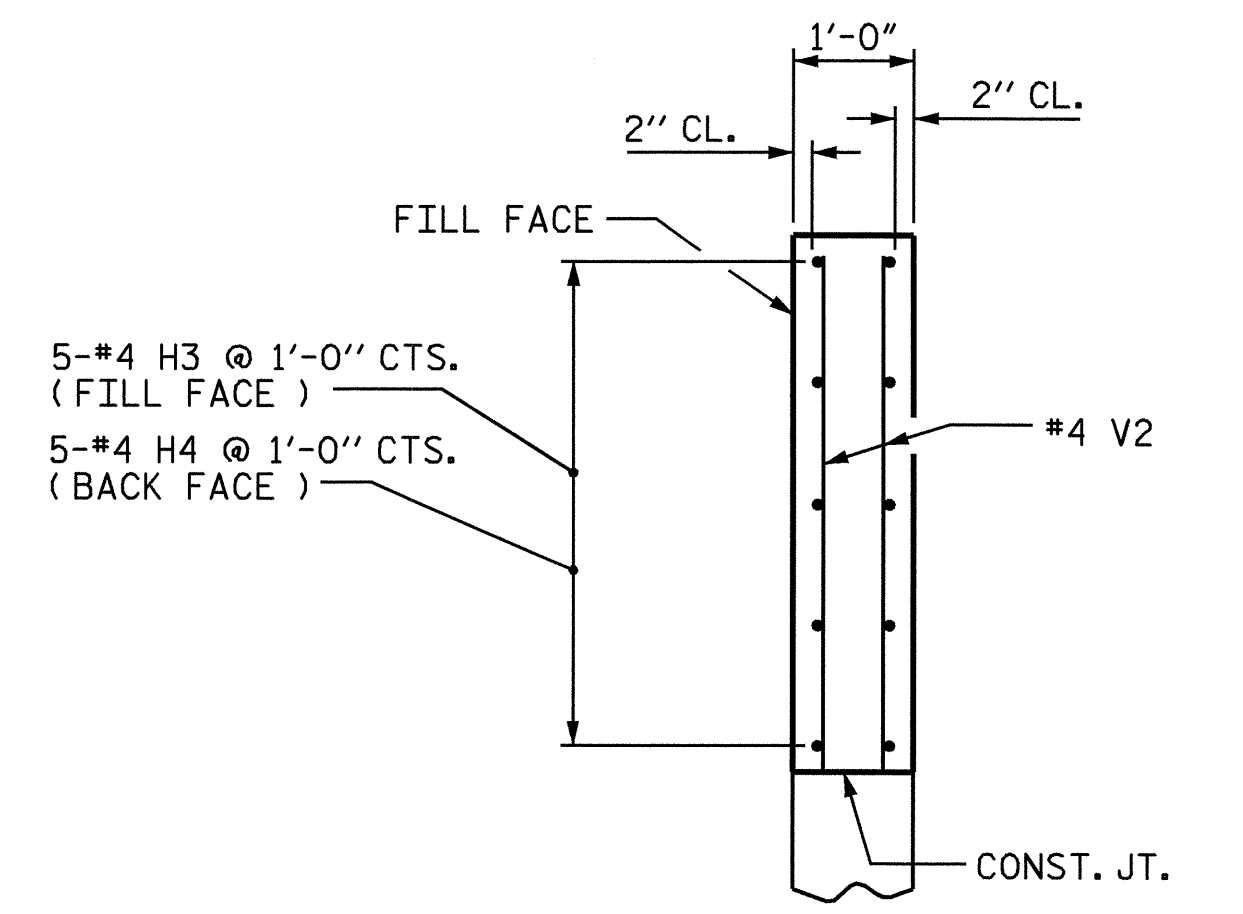
PLAN OF WING W1



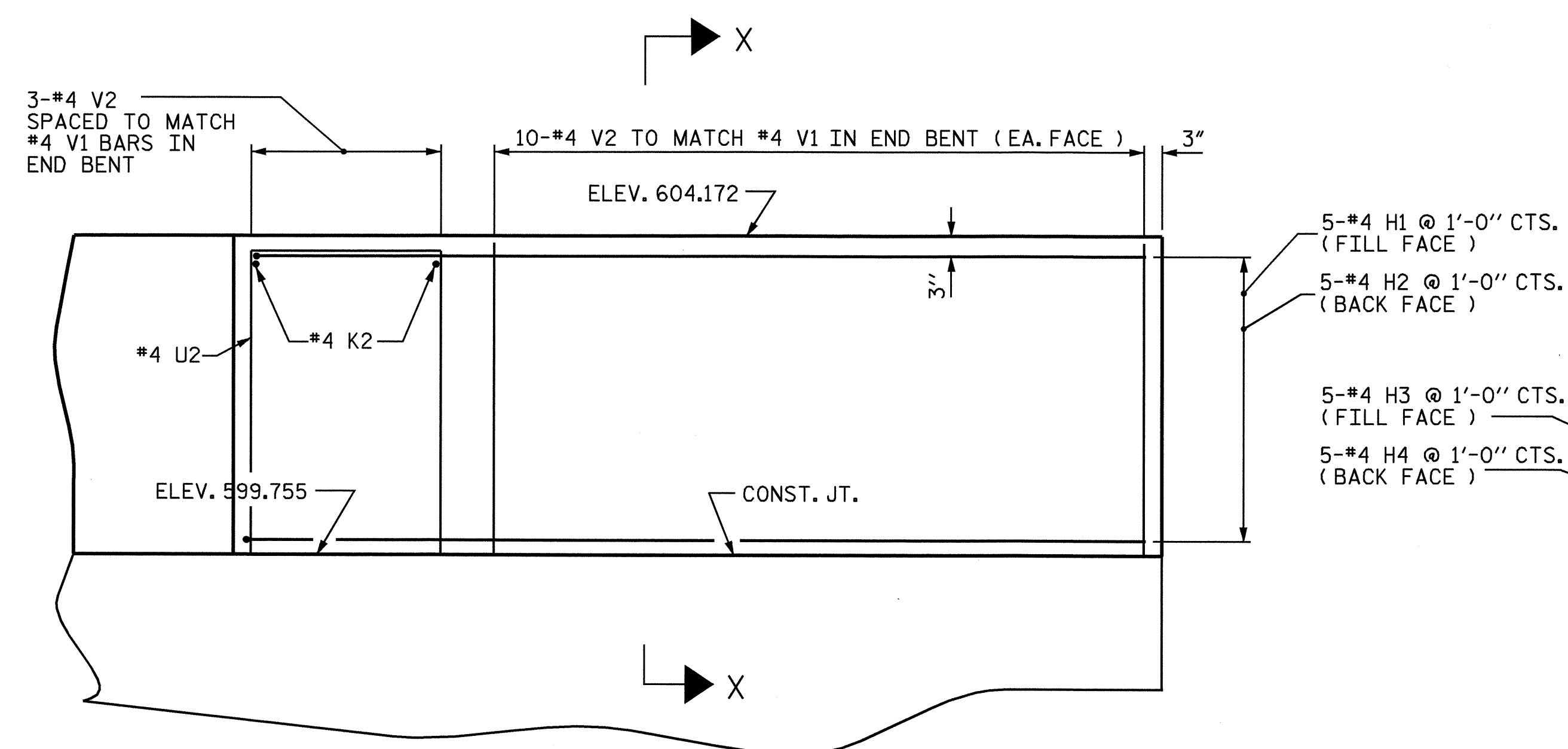
PLAN OF WING W2



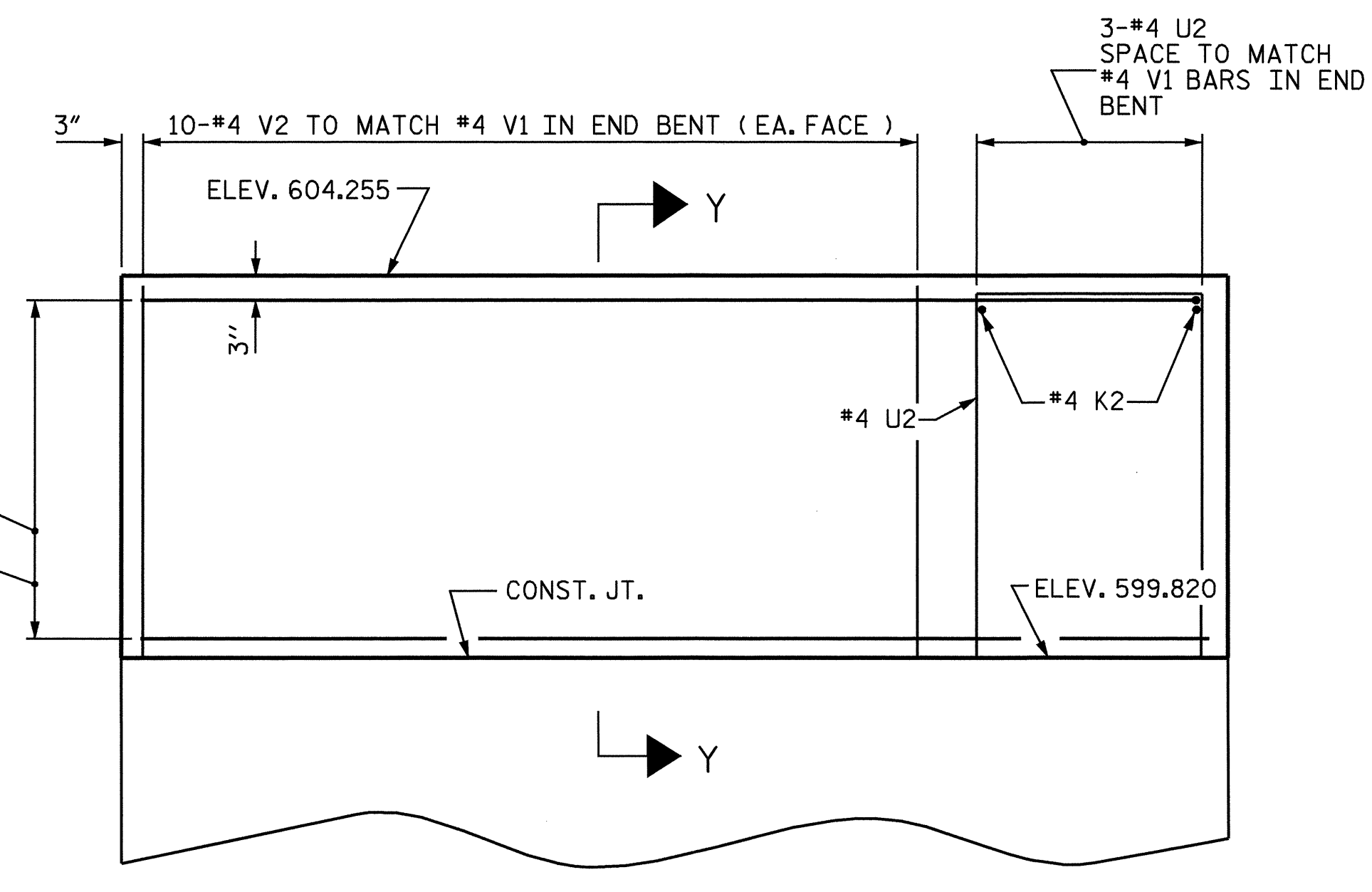
SECTION X-X



SECTION Y-Y



ELEVATION OF WING W1

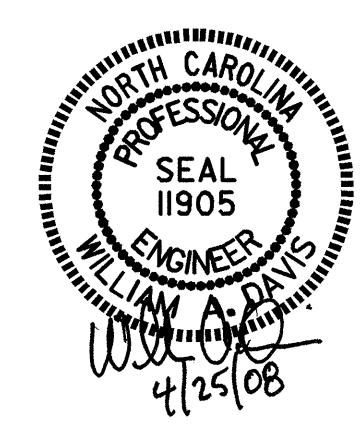


ELEVATION OF WING W2

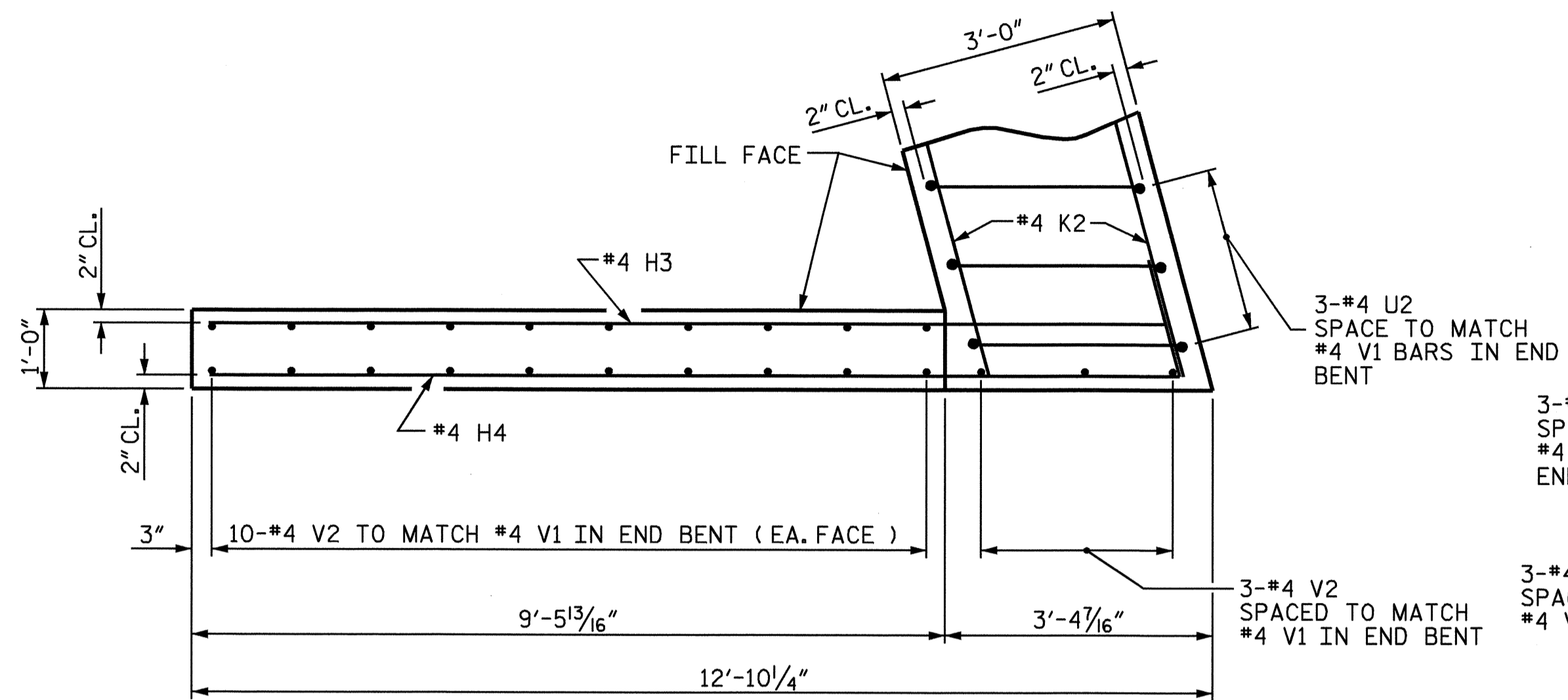
PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 3 OF 4

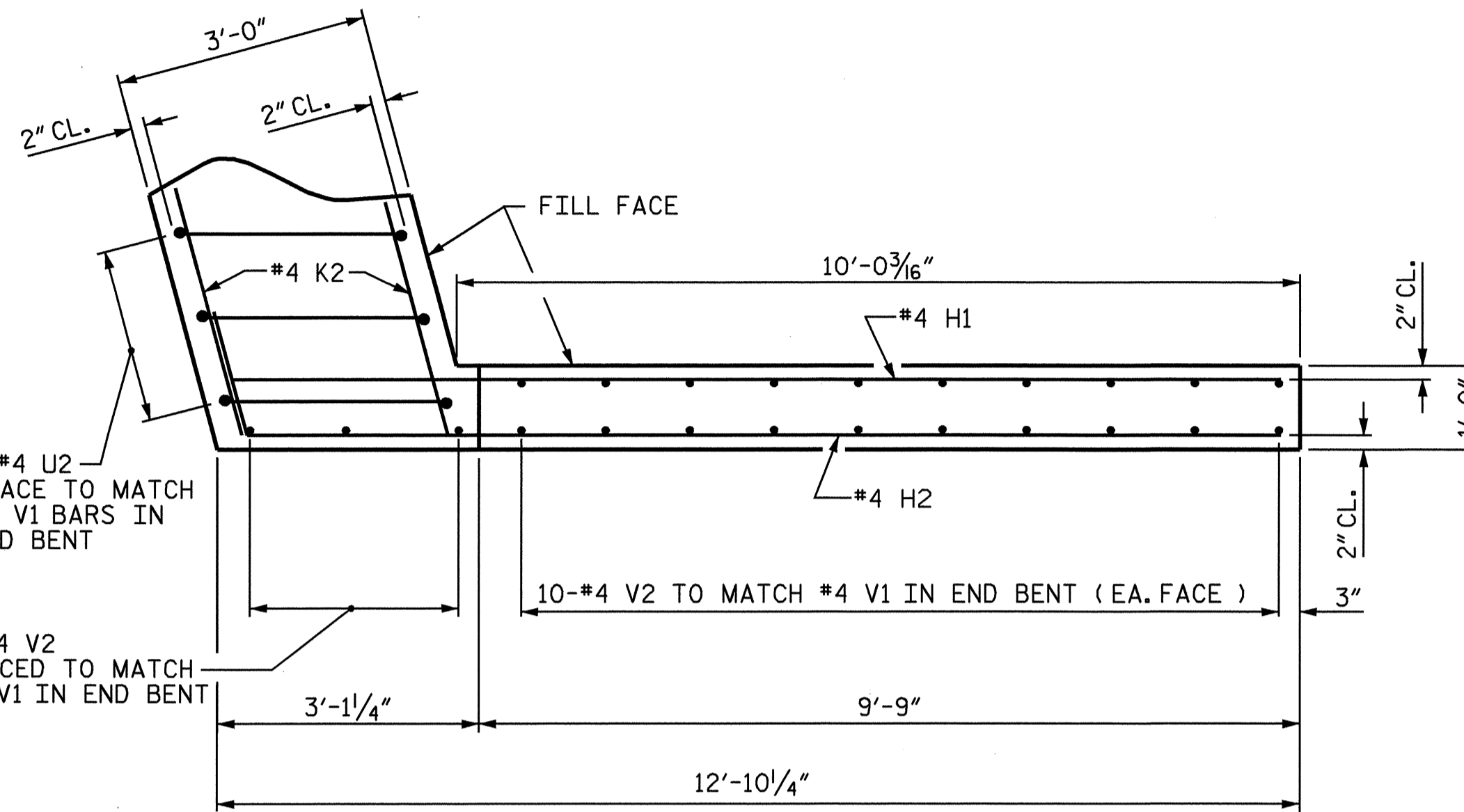
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-8
					TOTAL SHEETS 25



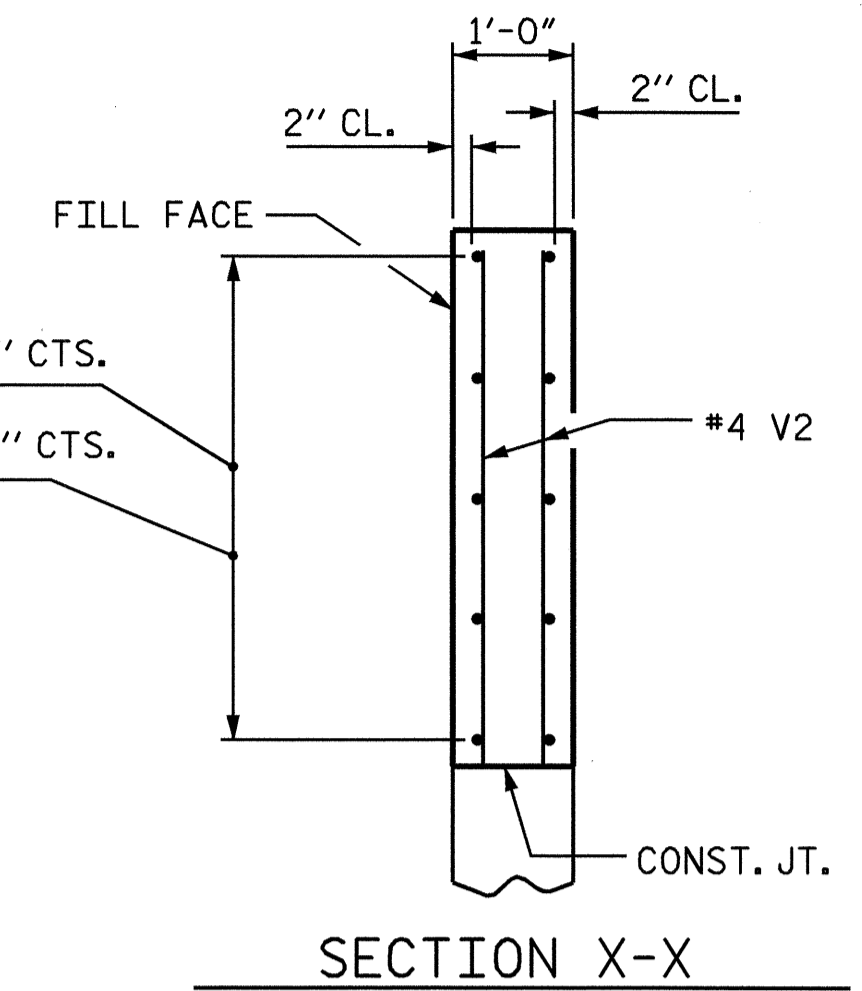
DRAWN BY: R.W. WRIGHT DATE: 3-07  
 CHECKED BY: A.R. CHESSON DATE: 7-07



PLAN OF WING W4

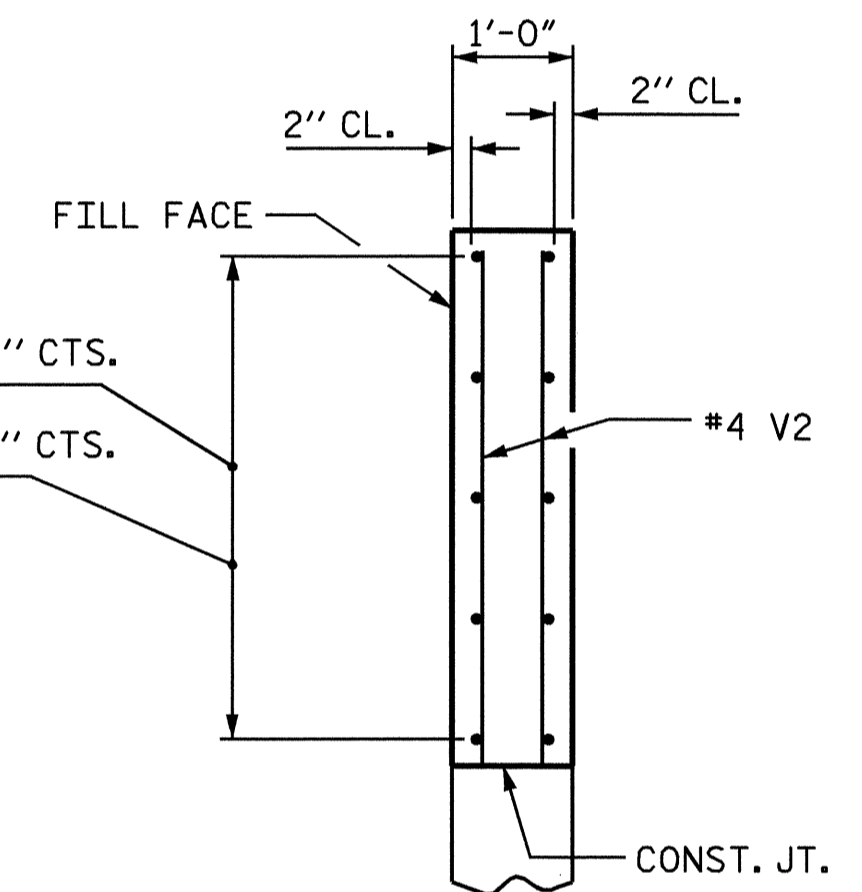


PLAN OF WING W3



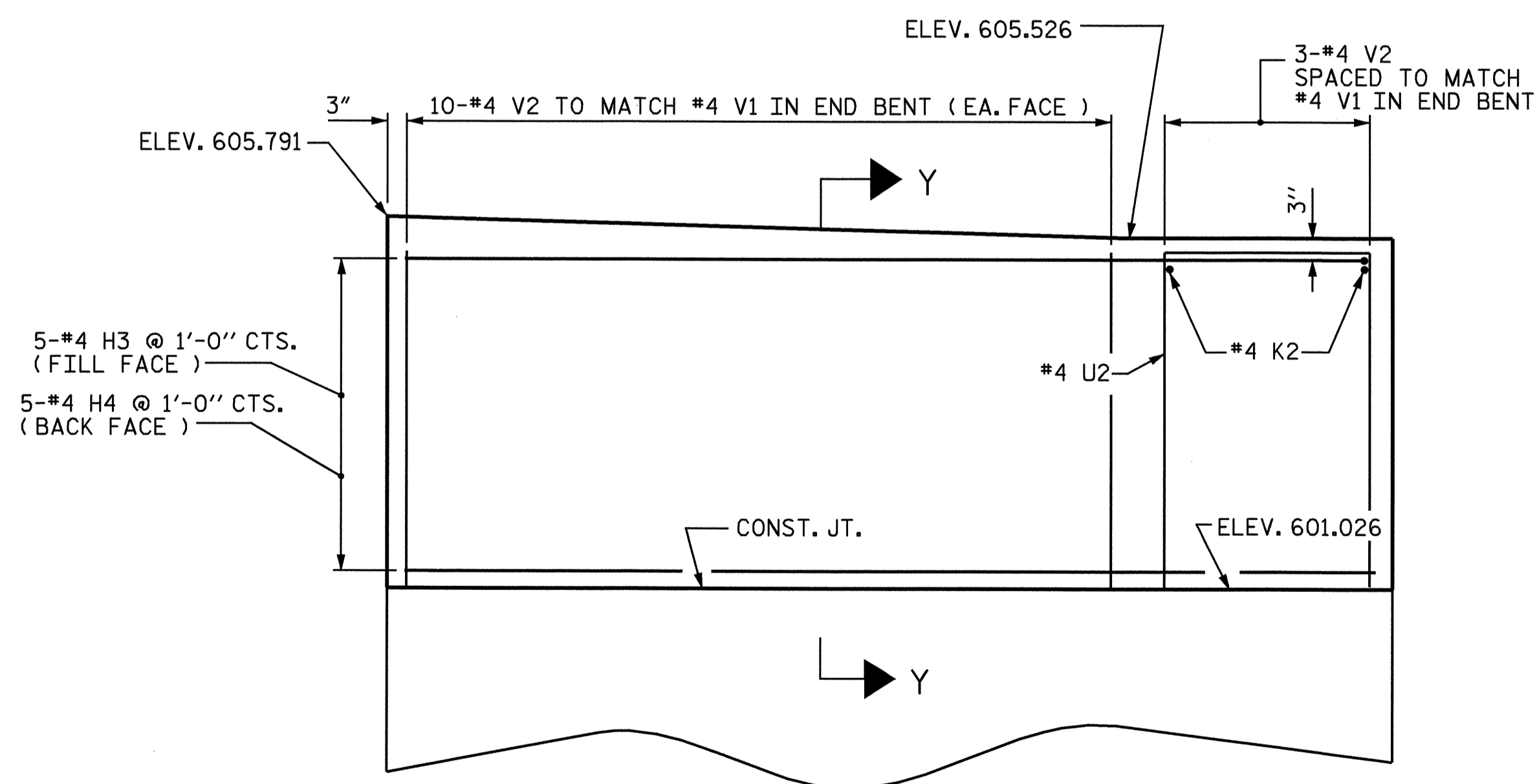
SECTION X-X

5-#4 H1 @ 1'-0" CTS.  
( FILL FACE )  
5-#4 H2 @ 1'-0" CTS.  
( BACK FACE )

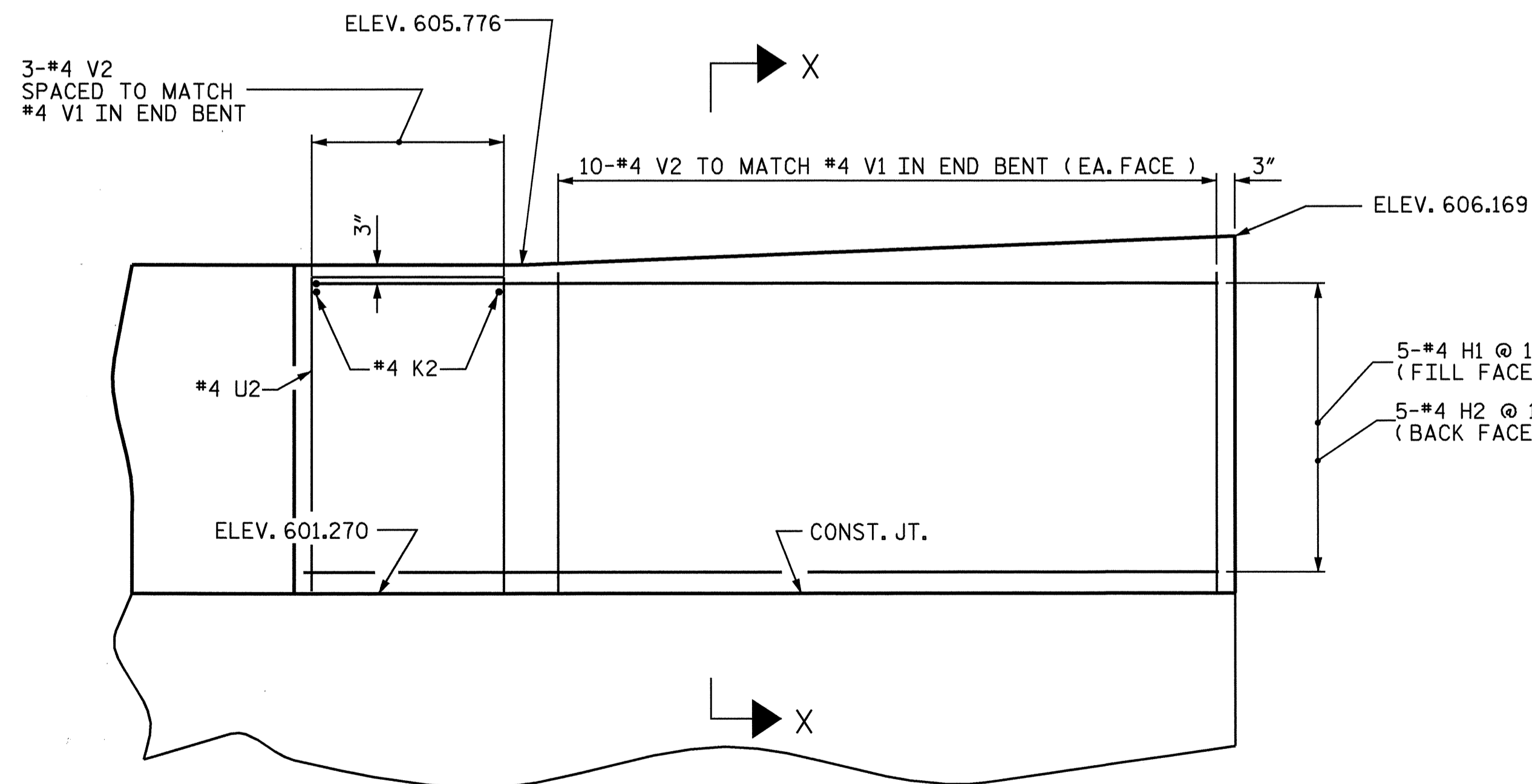


SECTION Y-Y

5-#4 H3 @ 1'-0" CTS.  
( FILL FACE )  
5-#4 H4 @ 1'-0" CTS.  
( BACK FACE )



ELEVATION OF WING W4



ELEVATION OF WING W3

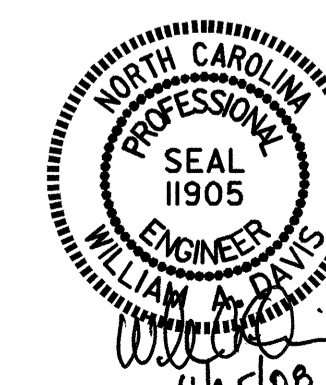
PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 4 OF 4

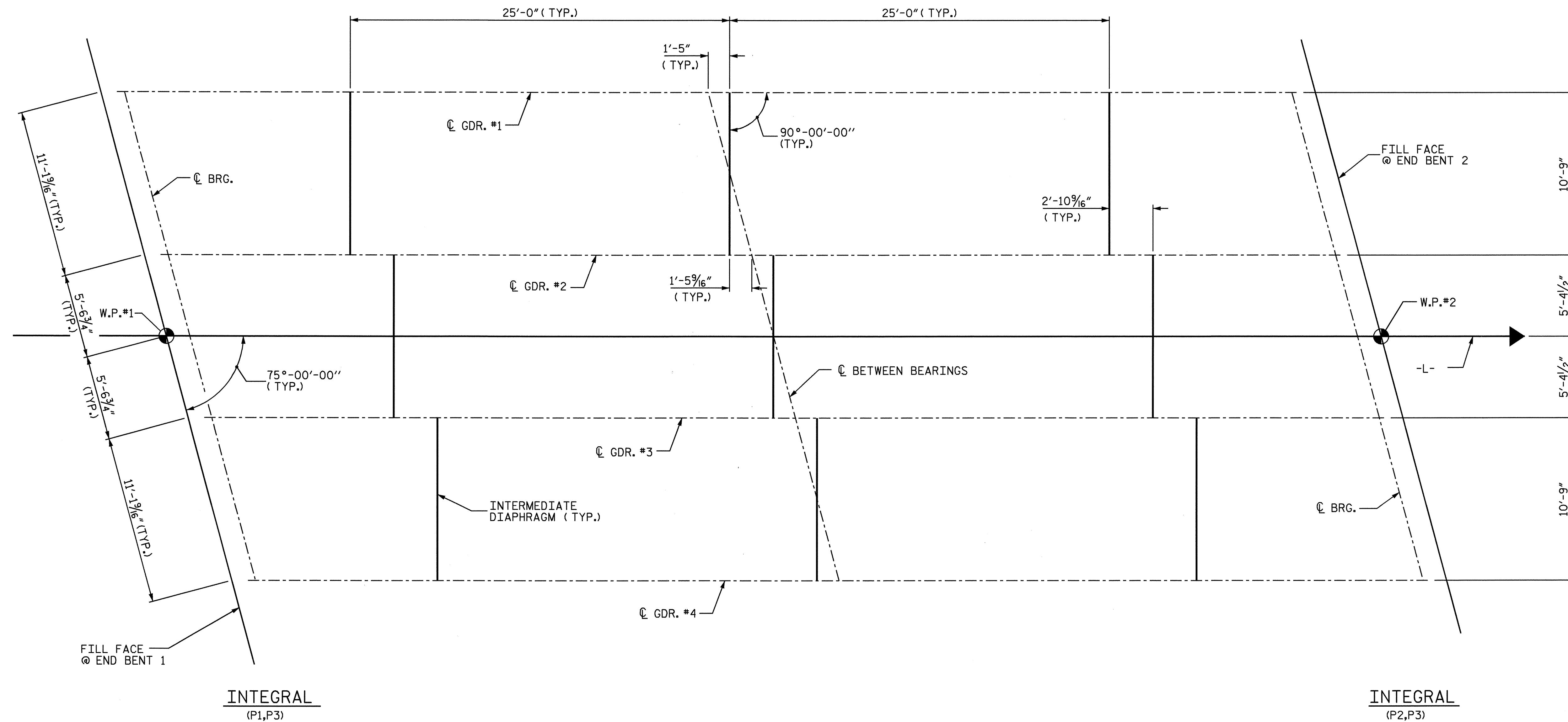
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPAN  
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			25



DRAWN BY: R.W. WRIGHT DATE: 3-07  
 CHECKED BY: A.R. CHESSON DATE: 7-07



INTEGRAL  
(P1,P3)

INTEGRAL  
(P2,P3)

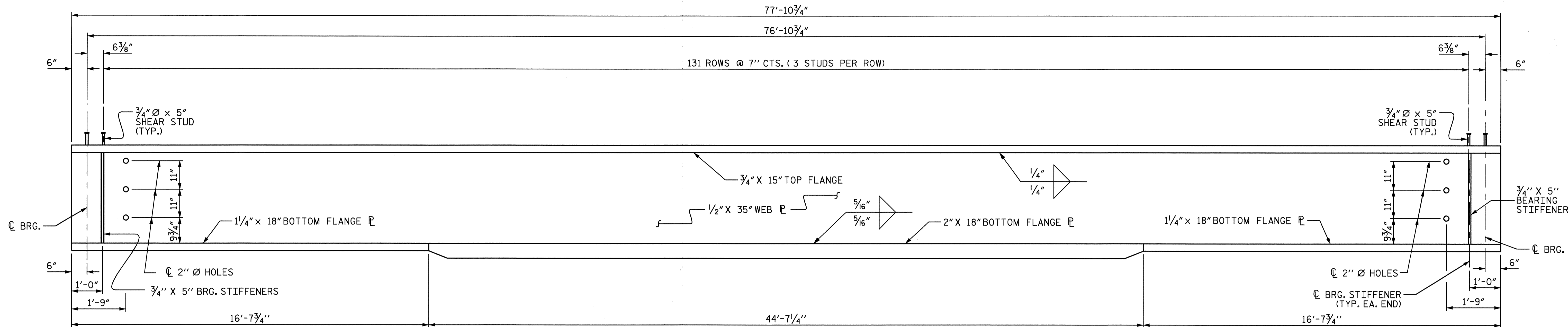
FRAMING PLAN

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

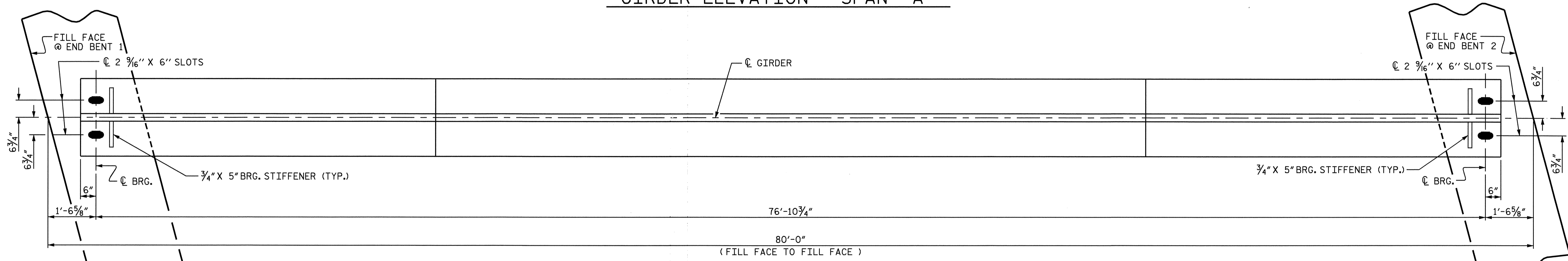


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE FRAMING PLAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10 TOTAL SHEETS 25

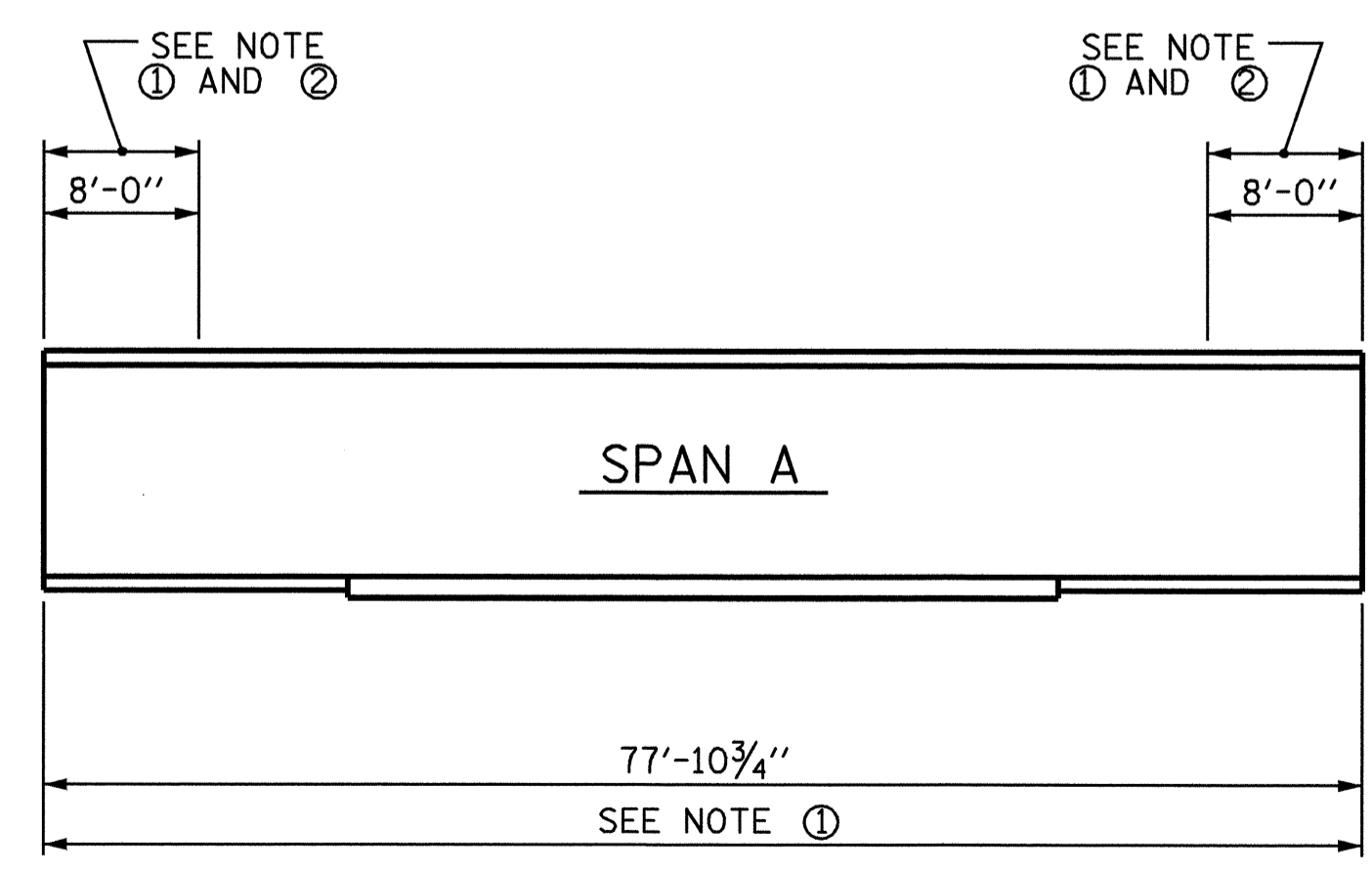
DRAWN BY: R. W. WRIGHT DATE: 6-07  
 CHECKED BY: A.R. CHESSON DATE: 7-07



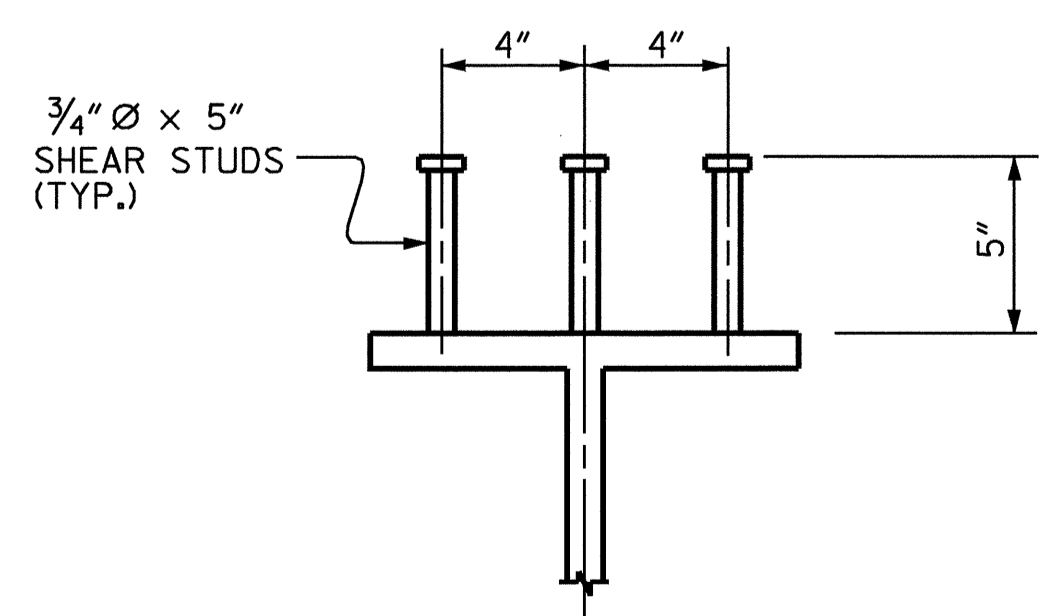
GIRDER ELEVATION - SPAN "A"



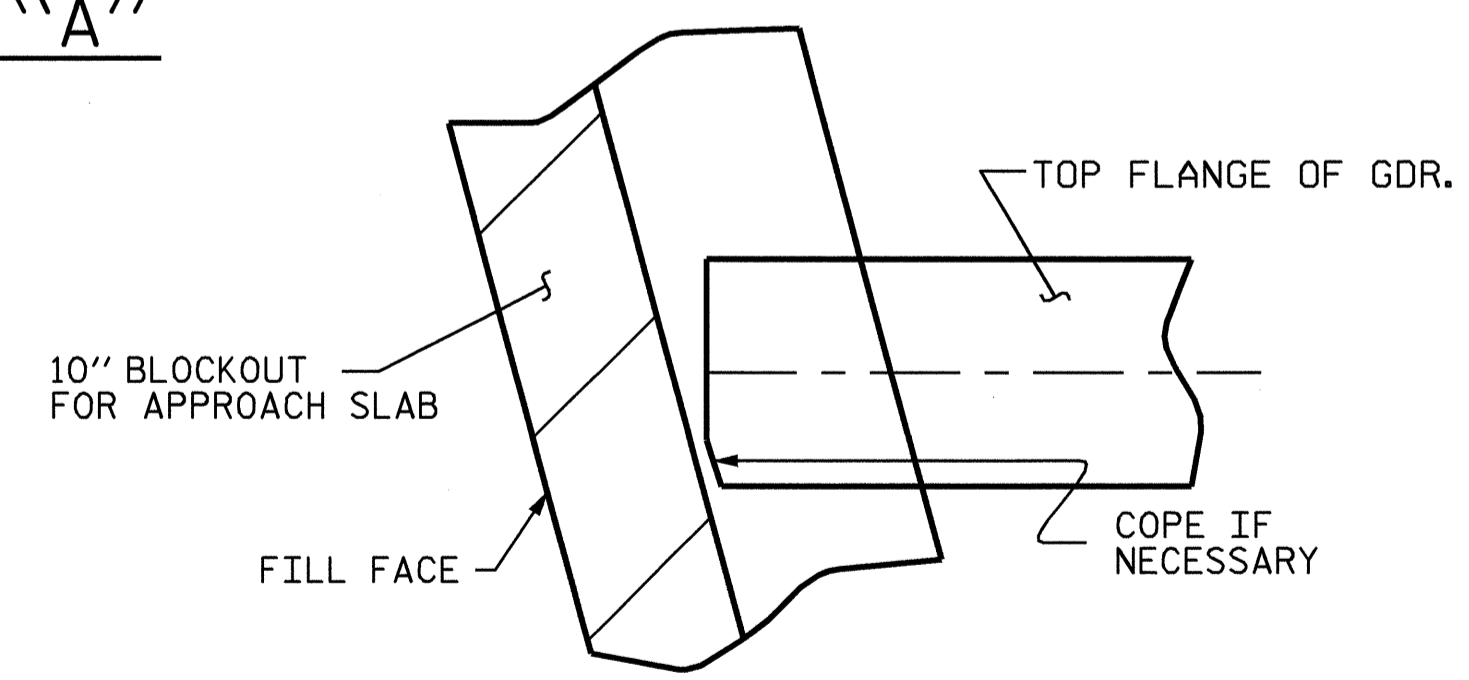
BOTTOM FLANGE DETAIL - SPAN "A"



CHARYP V-NOTCH TEST



SHEAR STUD DETAILS



TOP FLANGE COPE DETAIL (TYP. EA. GIRDER)

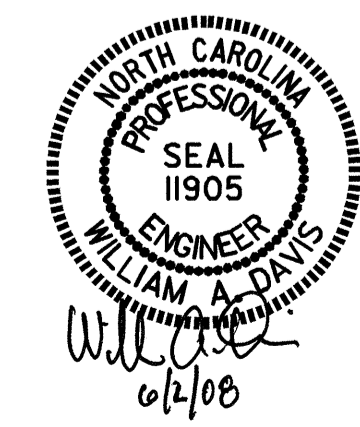
DRAWN BY : R. W. WRIGHT DATE : 6-07  
 CHECKED BY : A.R. CHESSON DATE : 7-07

02-JUN-2008 14:29  
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PROJECT NO. B-4244  
 RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-11 TOTAL SHEETS 25



**NOTES**

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W. NO PAINTING OF STRUCTURAL STEEL IS REQUIRED.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 3/8" Ø HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

END OF GIRDERS SHALL BE PLUMB.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

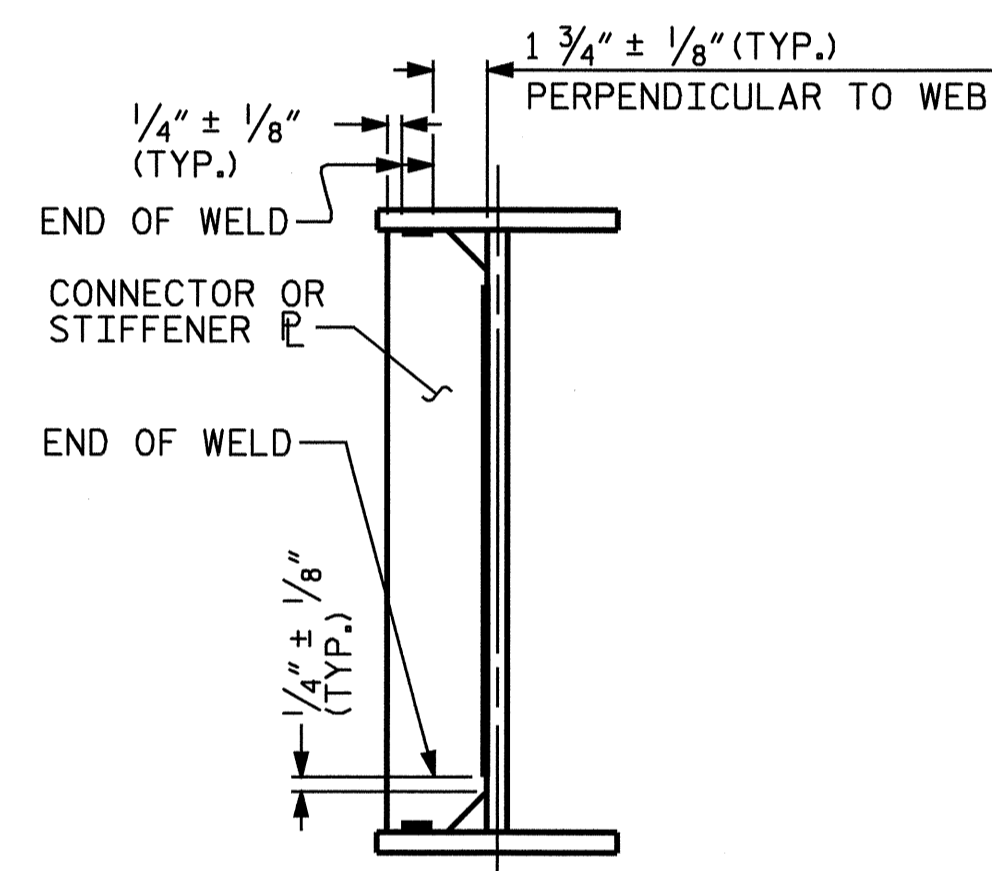
FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
TENTH POINTS	GIRDERS 1 THRU 4										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.012	0.023	0.032	0.037	0.039	0.037	0.032	0.023	0.012	0.000
* DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.039	0.103	0.151	0.182	0.193	0.183	0.152	0.103	0.039	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.004	0.008	0.010	0.012	0.012	0.010	0.010	0.008	0.004	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.055	0.134	0.193	0.231	0.244	0.231	0.193	0.134	0.055	0.000
VERTICAL CURVE ORDINATE (SAG)	0.000	-0.072	-0.127	-0.167	-0.191	-0.199	-0.191	-0.167	-0.127	-0.072	0.000
REQUIRED CAMBER	0	- 3/16"	1/16"	5/16"	1/2"	9/16"	1/2"	5/16"	1/16"	-3/16"	0

\* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.

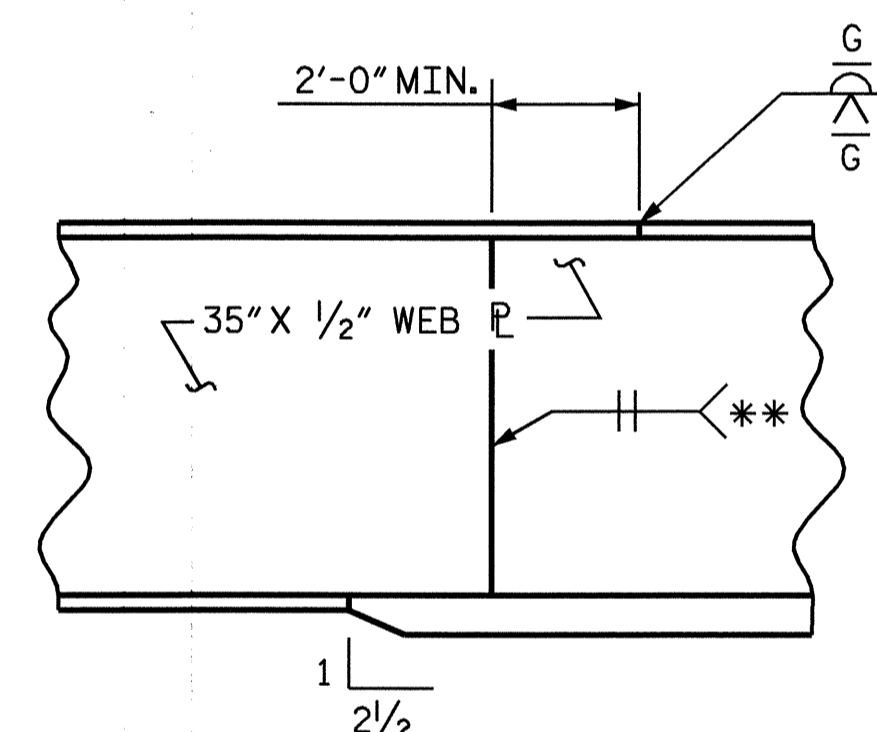
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

REQUIRED CAMBER VALUES SHOWN WITH "-" ARE DOWNWARD.



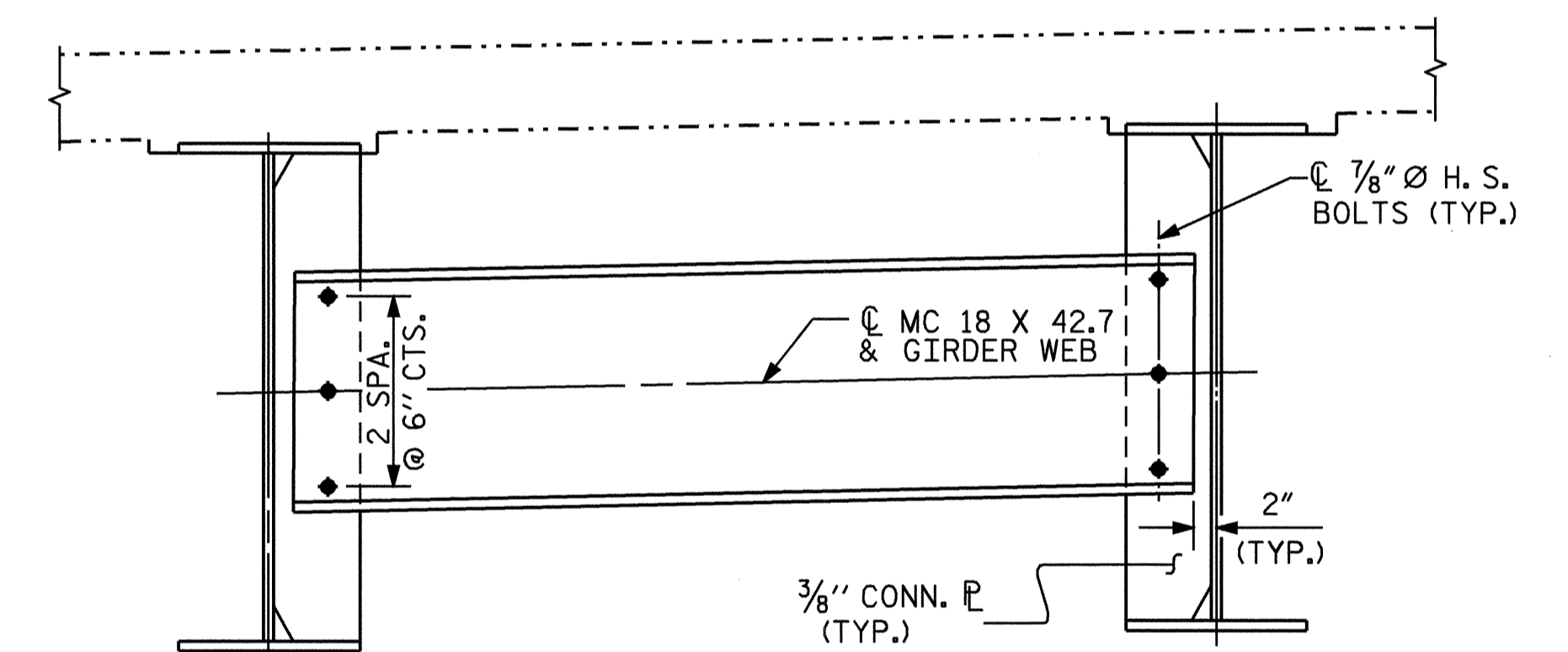
**CONNECTOR PLATE CONNECTIONS**

**WELD TERMINATION DETAILS**

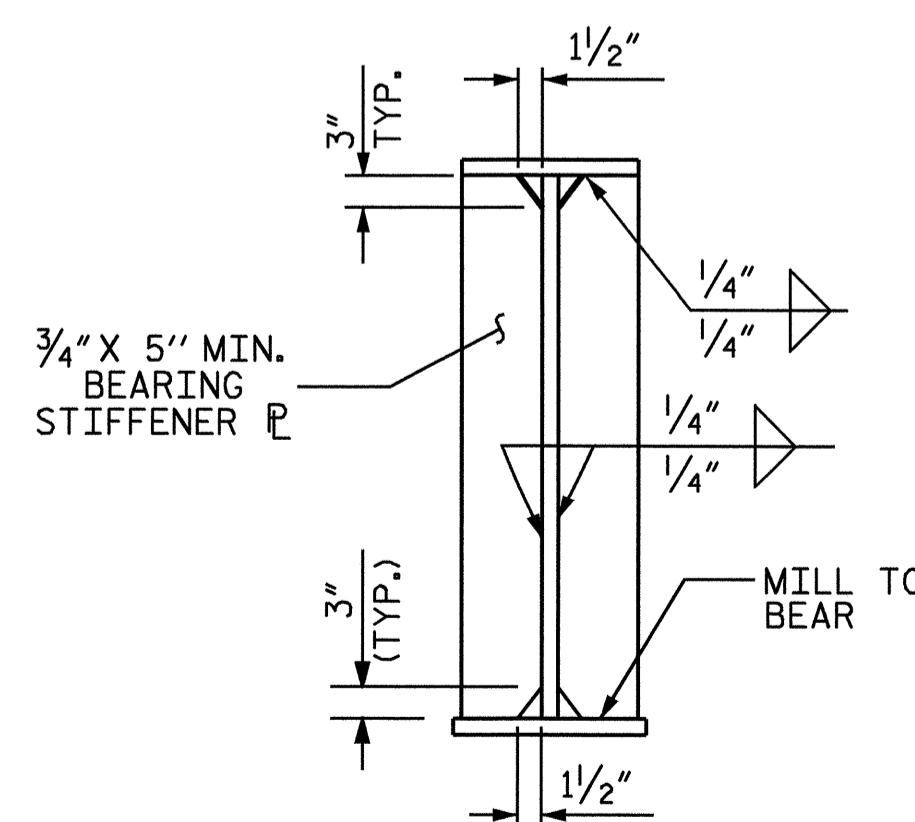


**PERMISSIBLE SHOP FLANGE AND WEB SPLICE**

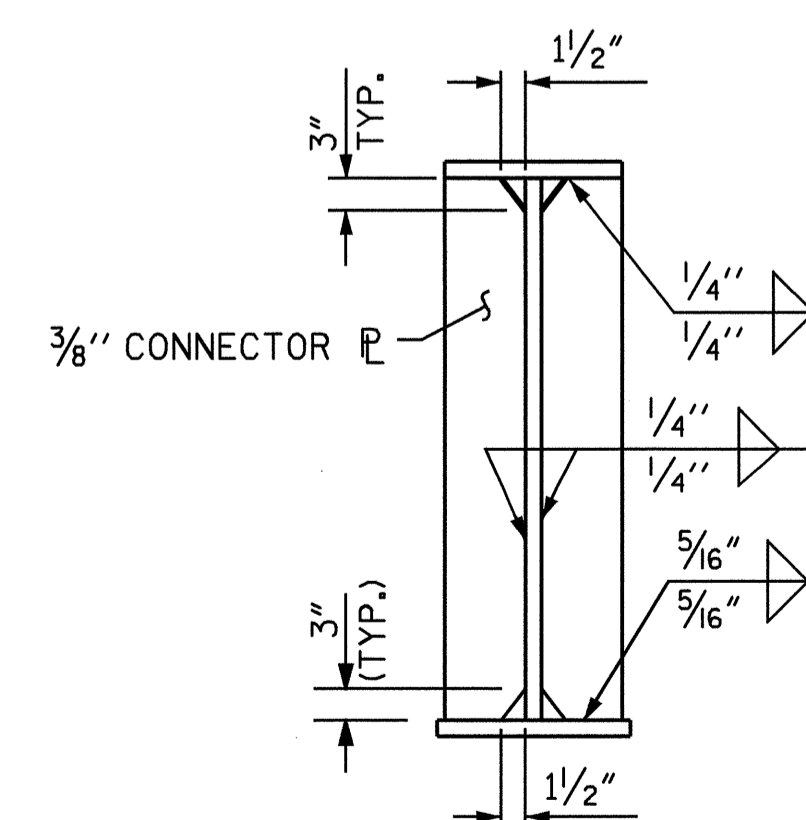
\*\* GRIND SMOOTH AND FLUSH ON OUTSIDE OF EXTERIOR GIRDERS



**TYPICAL INTERMEDIATE DIAPHRAGM**



**BEARING STIFFENER**



**CONNECTOR PLATE DETAILS**



PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 STRUCTURAL STEEL  
 DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS	25
2			4				

DRAWN BY : R. W. WRIGHT DATE : 6-07  
 CHECKED BY : A.R. CHESSON DATE : 7-07

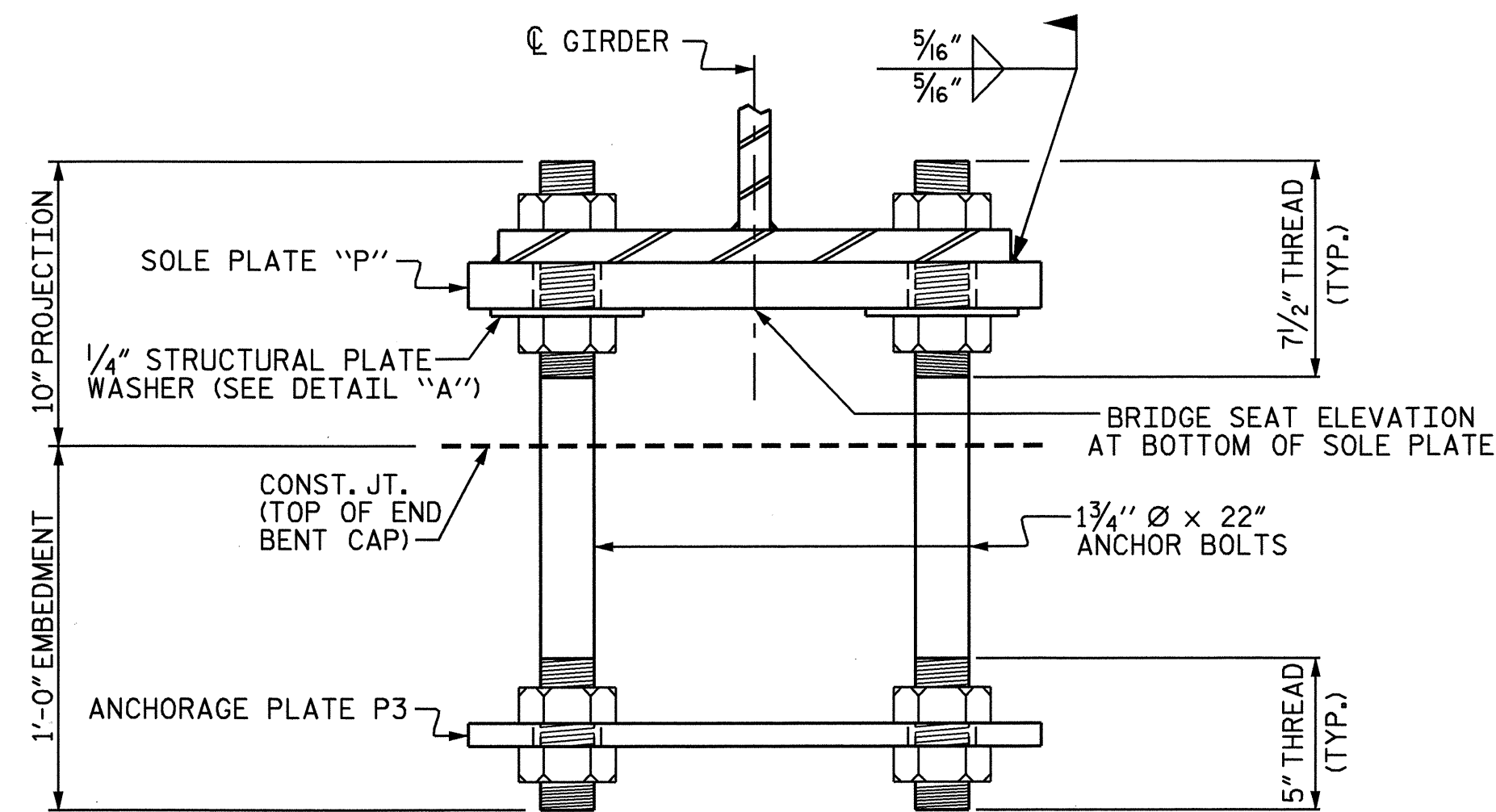
NOTES

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

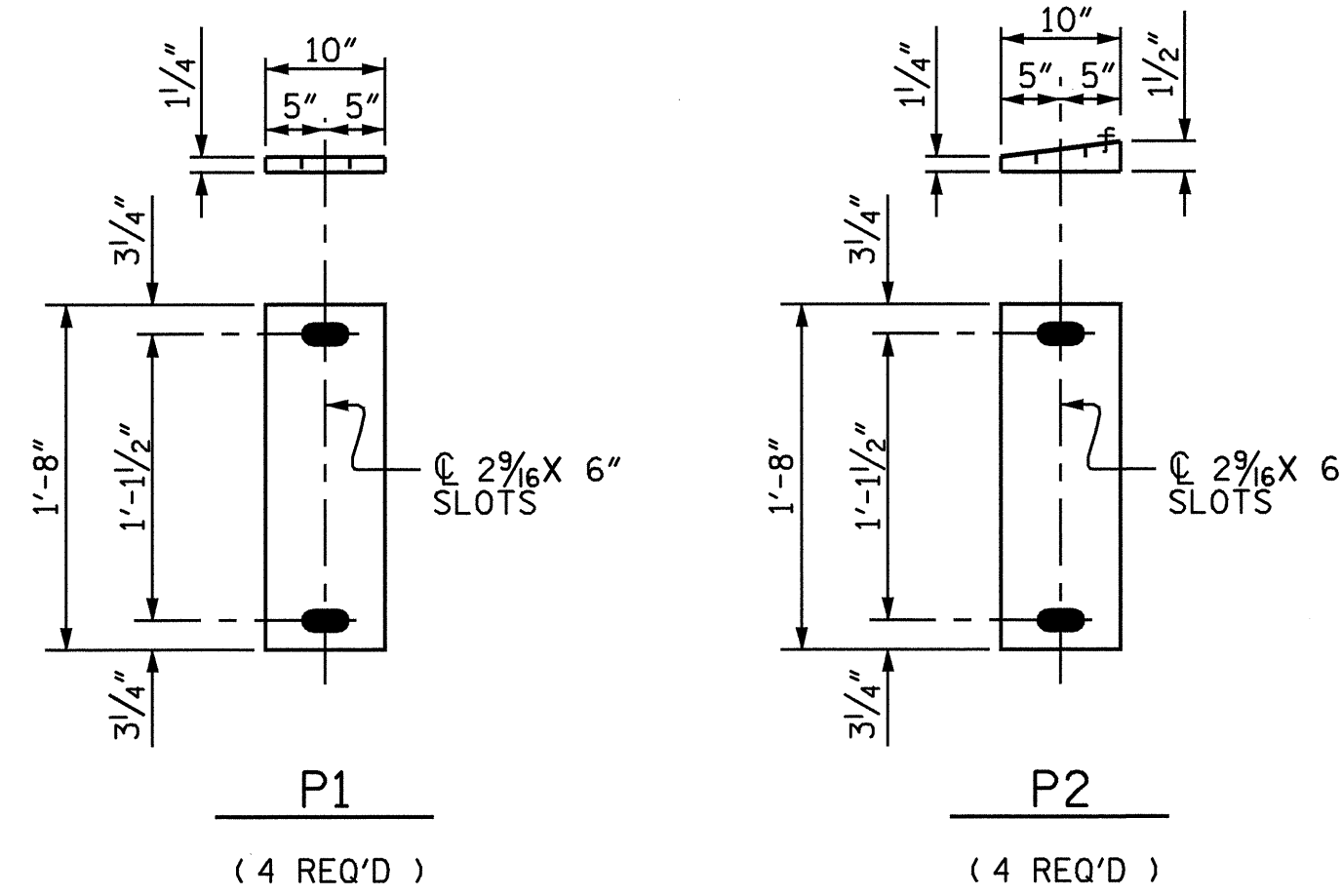
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

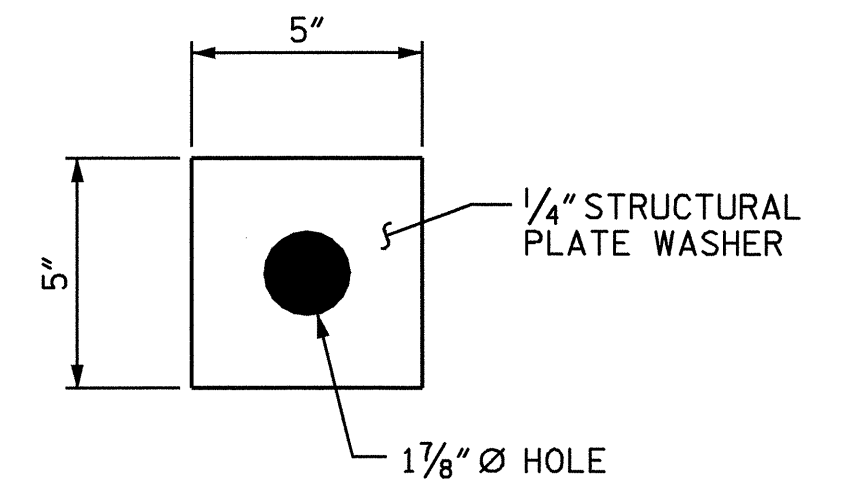
STRUCTURAL PLATE WASHER SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED.



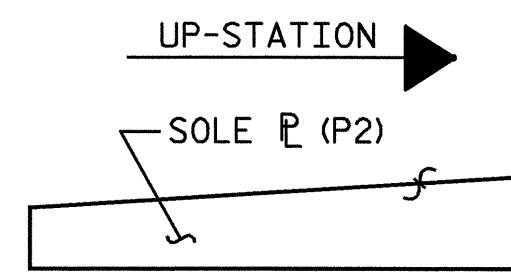
FIXED  
END VIEW



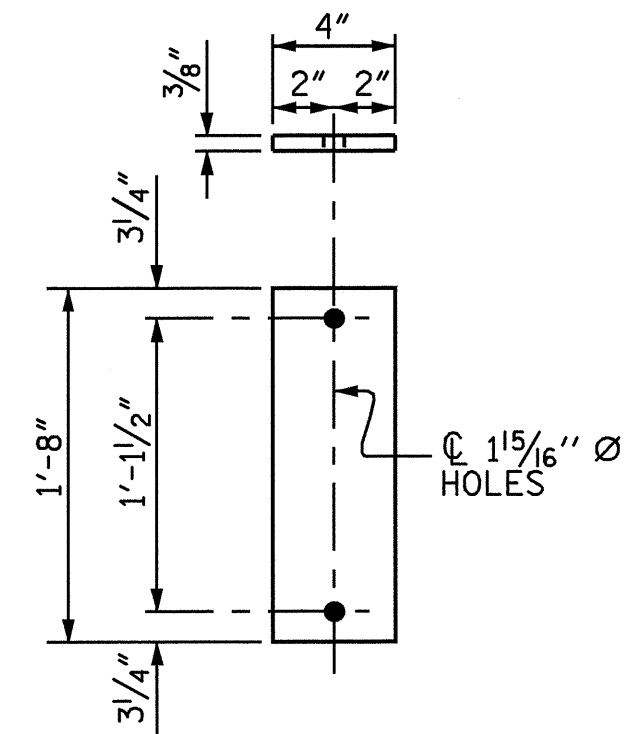
SOLE PLATE DETAILS



DETAIL A



SOLE P PLACEMENT DETAIL

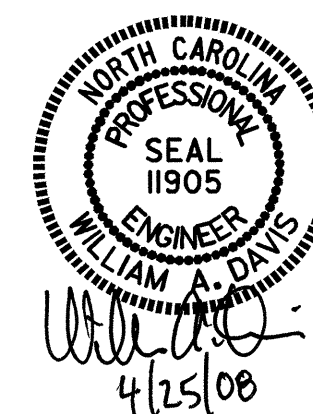


ANCHORAGE PLATE DETAILS

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 BEARING DETAILS



DRAWN BY : R. W. WRIGHT DATE : 6-07  
 CHECKED BY : A.R. CHESSON DATE : 7-07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			25

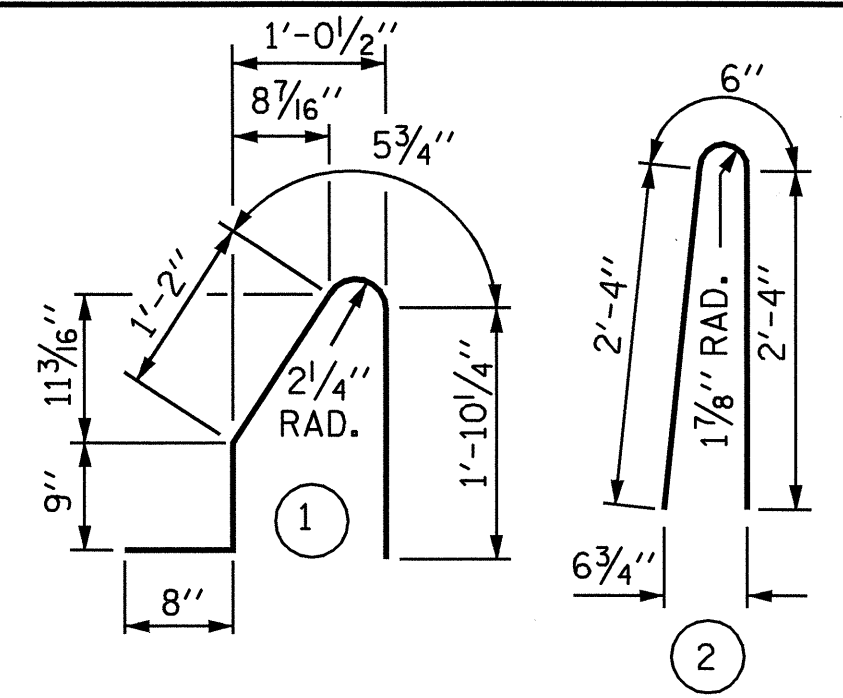
**NOTES**

THE BARRIER RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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. THE 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.

**BAR TYPES**

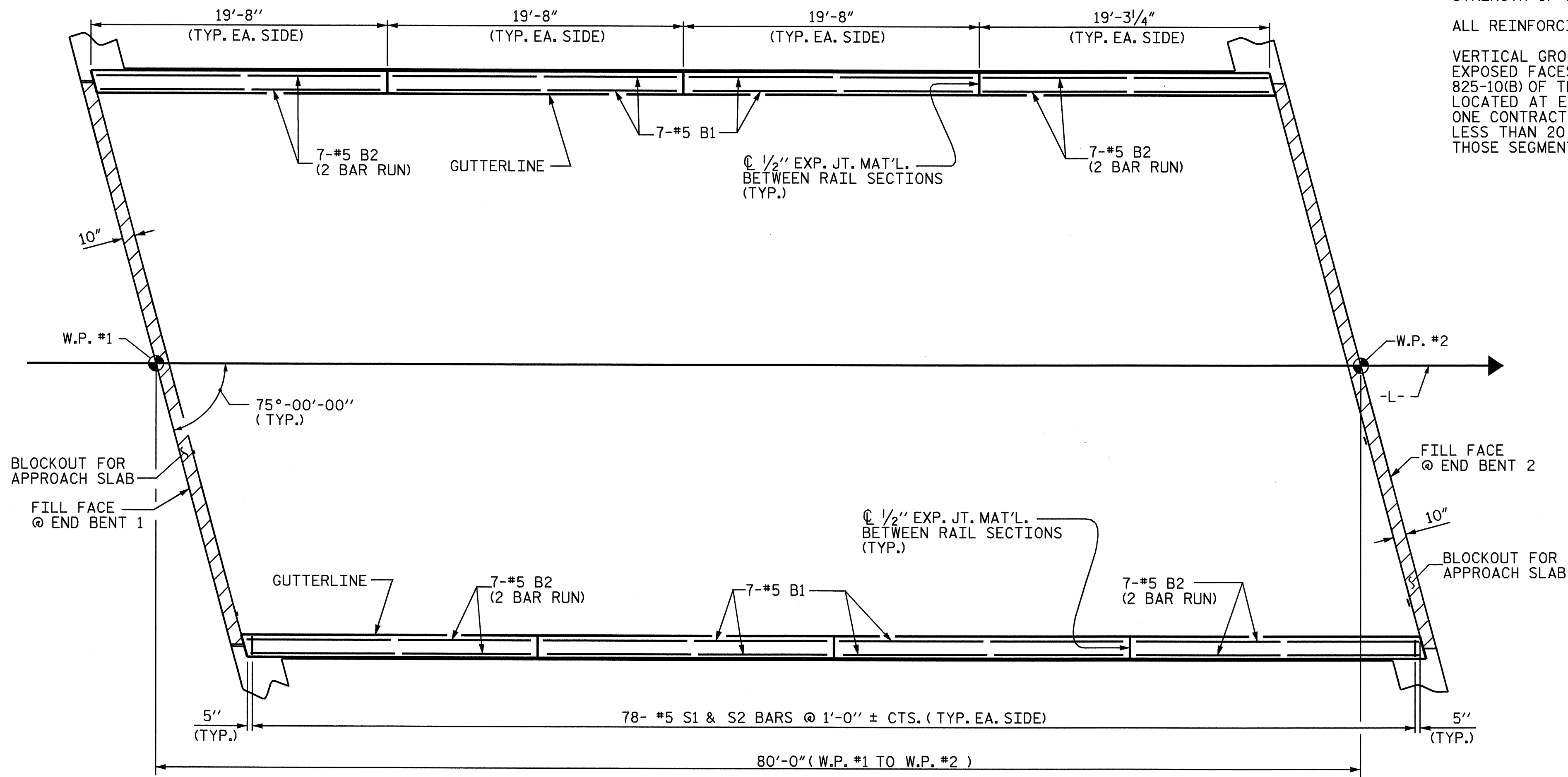


ALL BAR DIMENSIONS ARE OUT TO OUT

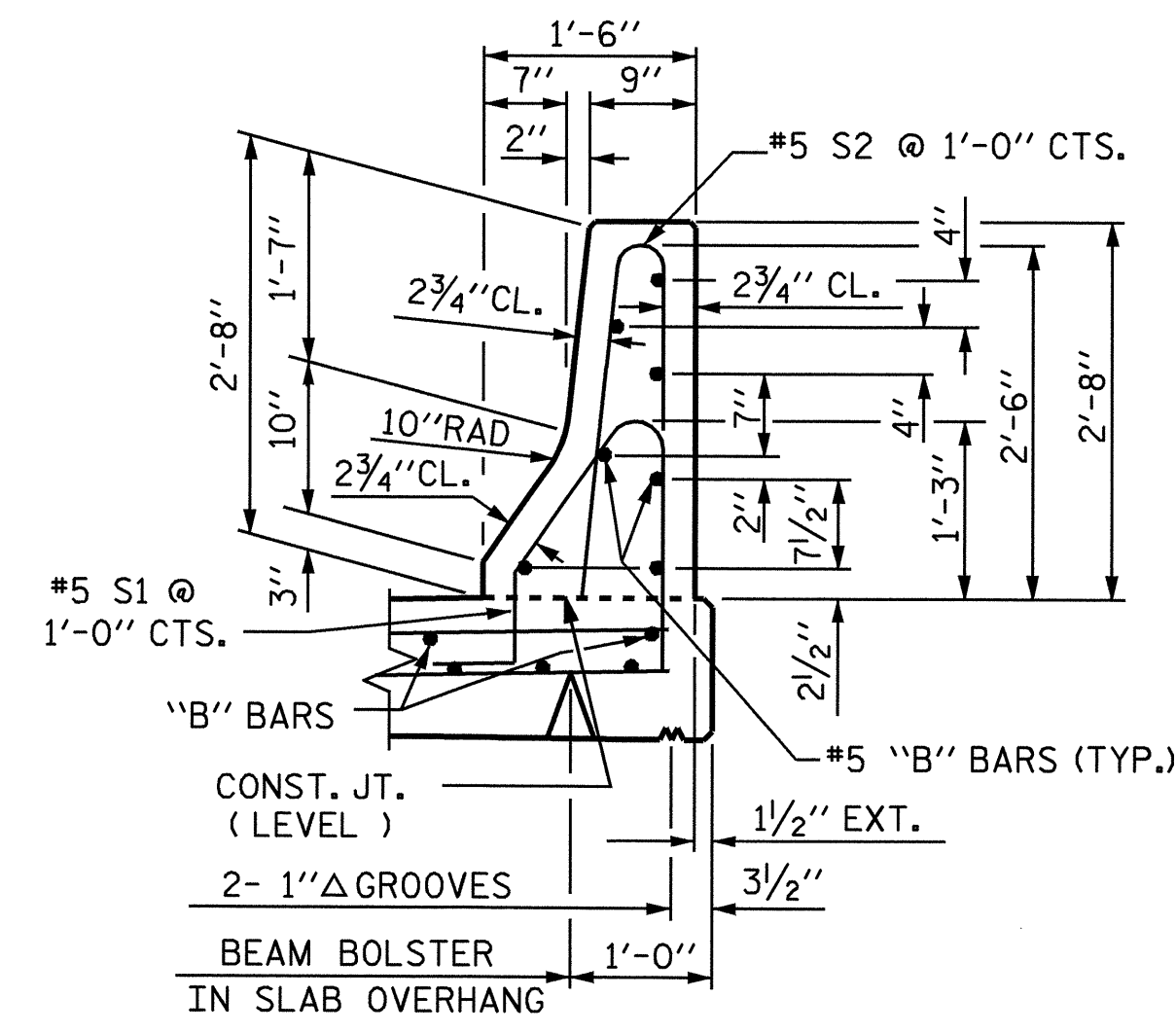
**BILL OF MATERIAL**

FOR CONCRETE BARRIER RAIL ONLY

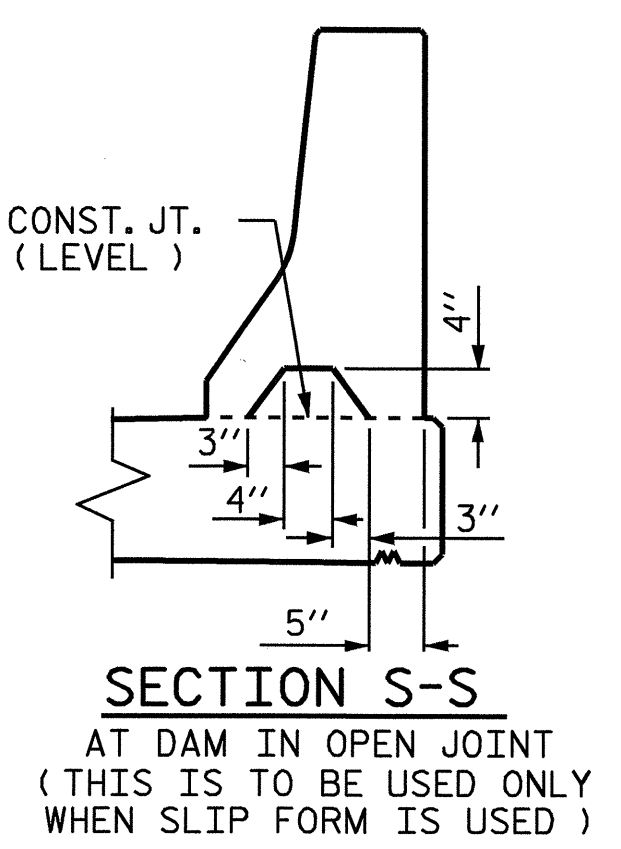
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	28	#5	STR	19'-4"	565
* B2	56	#5	STR	11'-4"	662
* S1	156	#5	1	4'-11"	800
* S2	156	#5	2	5'-2"	841
* EPOXY COATED REINFORCING STEEL					2868 LBS.
CLASS AA CONCRETE					15.7 CU. YDS.
CONCRETE BARRIER RAIL					156.54 LIN. FT.



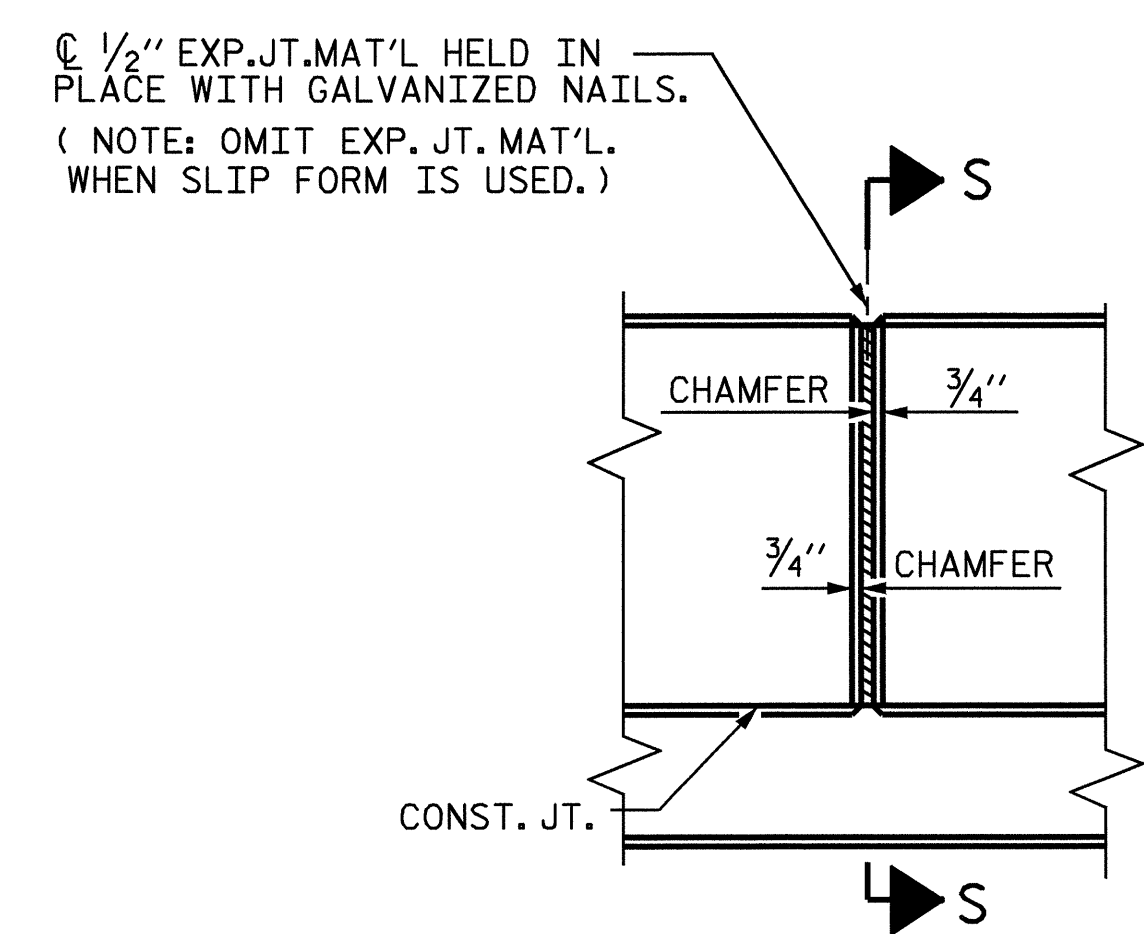
**PLAN OF BARRIER RAIL**



**SECTION THRU RAIL**

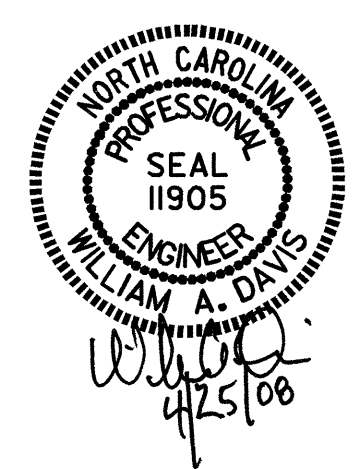


**SECTION S-S**  
AT DAM IN OPEN JOINT  
(THIS IS TO BE USED ONLY  
WHEN SLIP FORM IS USED )



**ELEVATION AT EXPANSION JOINTS**  
**BARRIER RAIL DETAILS**

PROJECT NO. B-4244  
RANDOLPH COUNTY  
STATION: 18+10.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
CONCRETE  
BARRIER RAIL

ASSEMBLED BY : R. W. WRIGHT	DATE : 06-07
CHECKED BY : A. R. CHESSON	DATE : 7-07
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/17/03R RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	
2			4			25	

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 3/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

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 3/8" 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.)

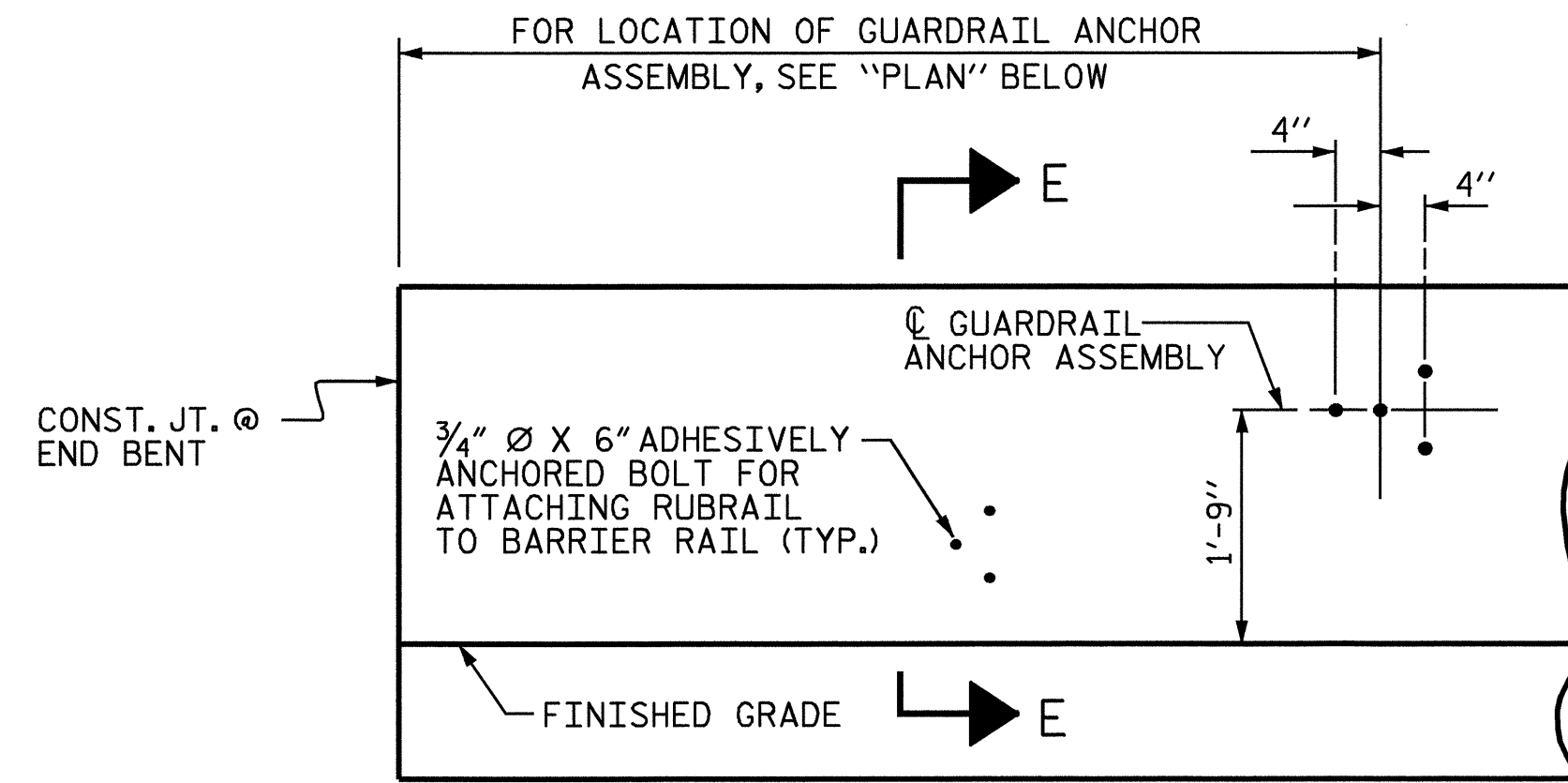
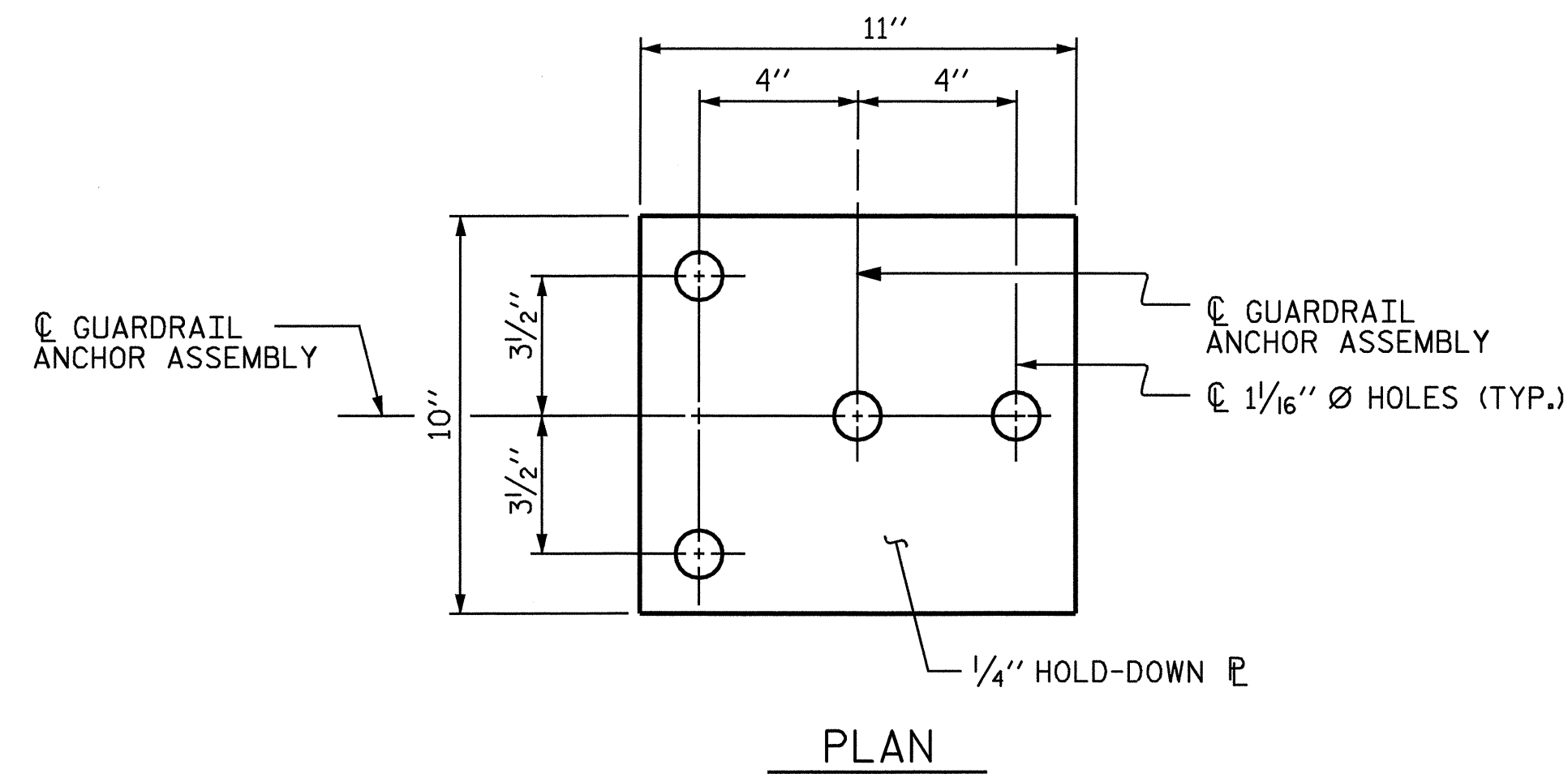
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

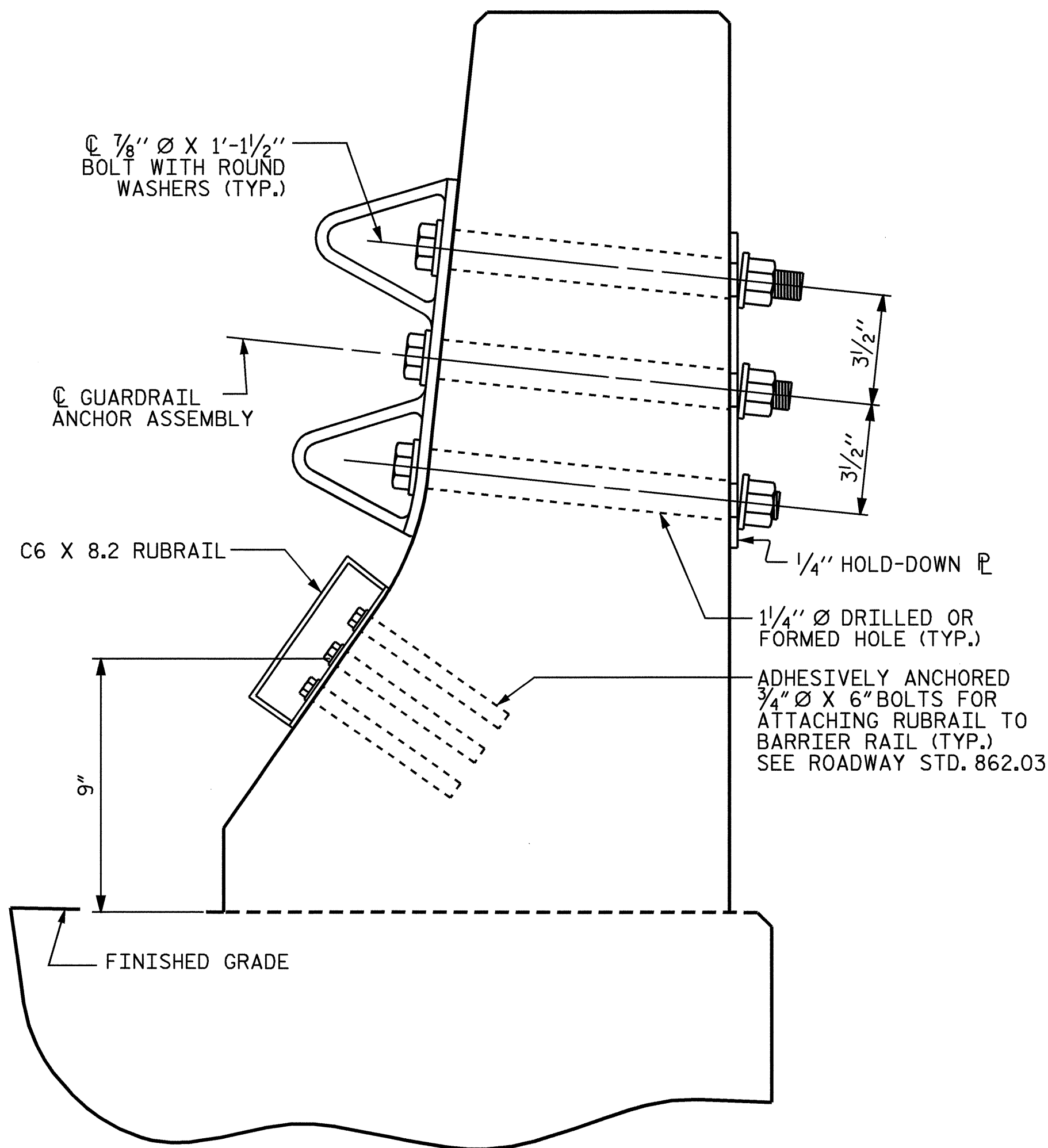
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



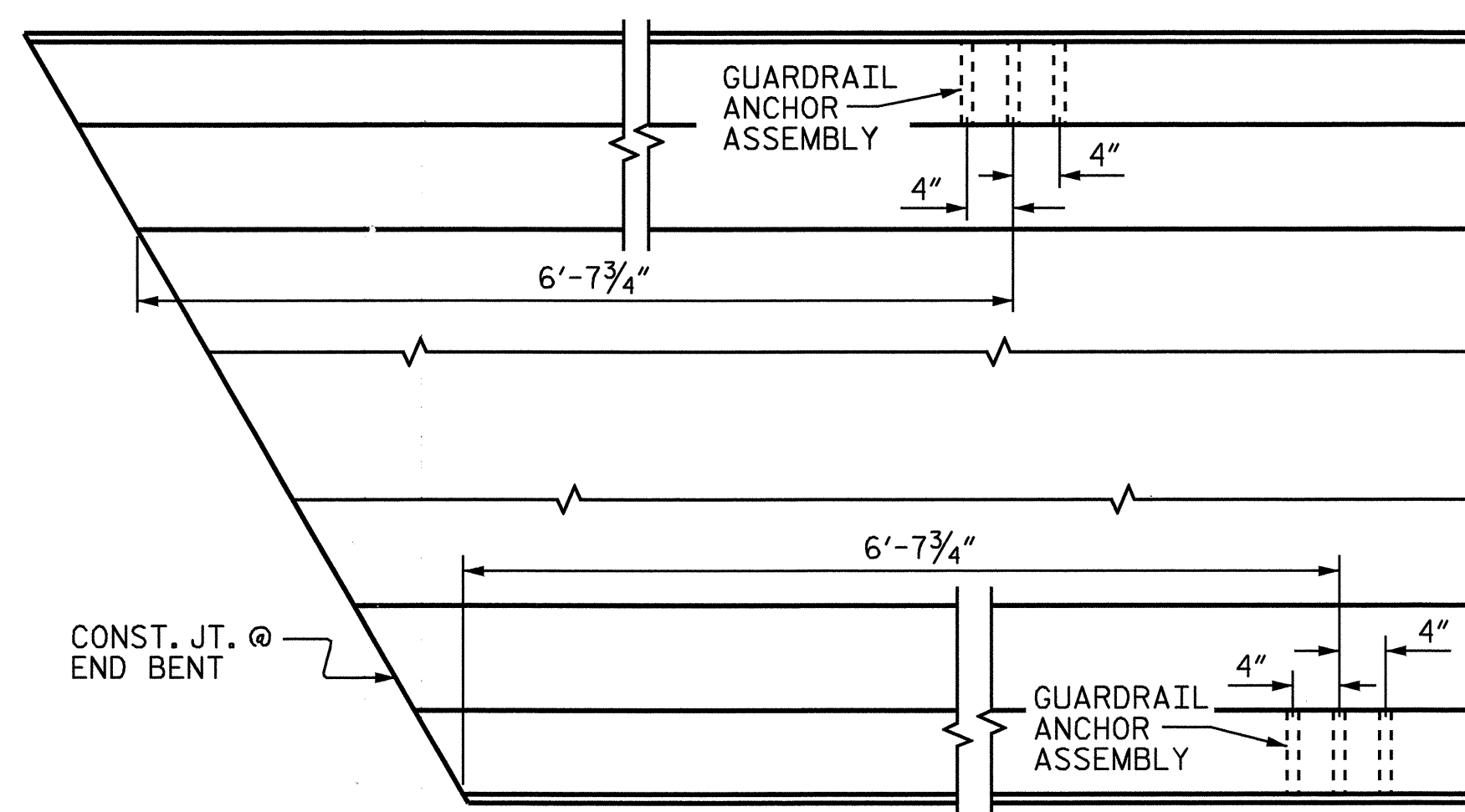
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

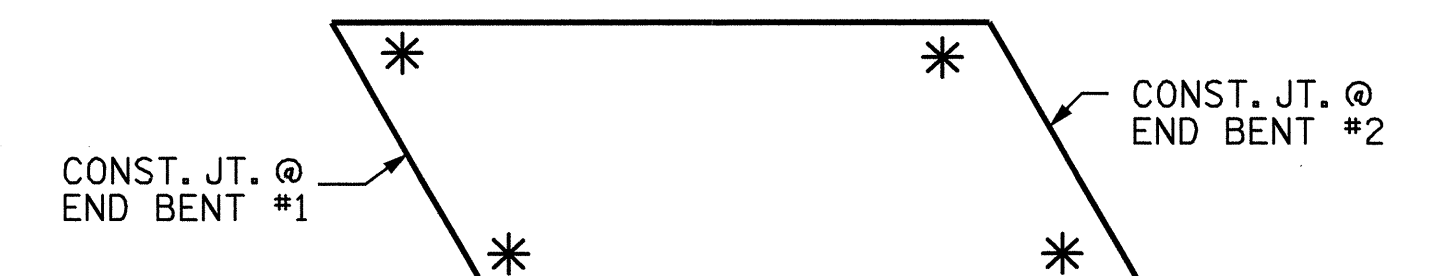
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4244  
 RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

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



ASSEMBLED BY : R. W. WRIGHT DATE : 4-07  
 CHECKED BY : A. R. CHESSON DATE : 7-07  
 DRAWN BY : TLA 5/06  
 CHECKED BY : GM 5/06

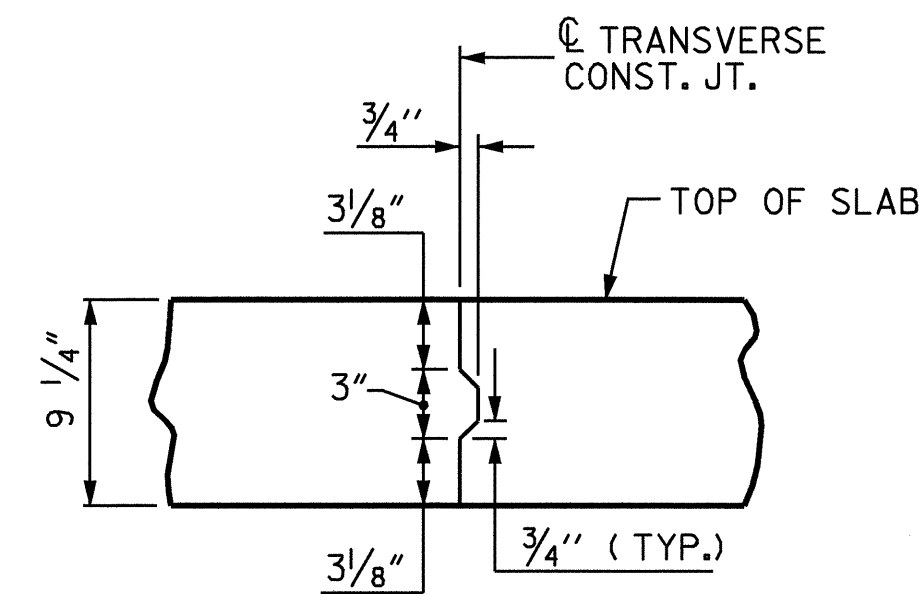
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	
2			4			25	

(SHT 3) STD. NO. GRA2

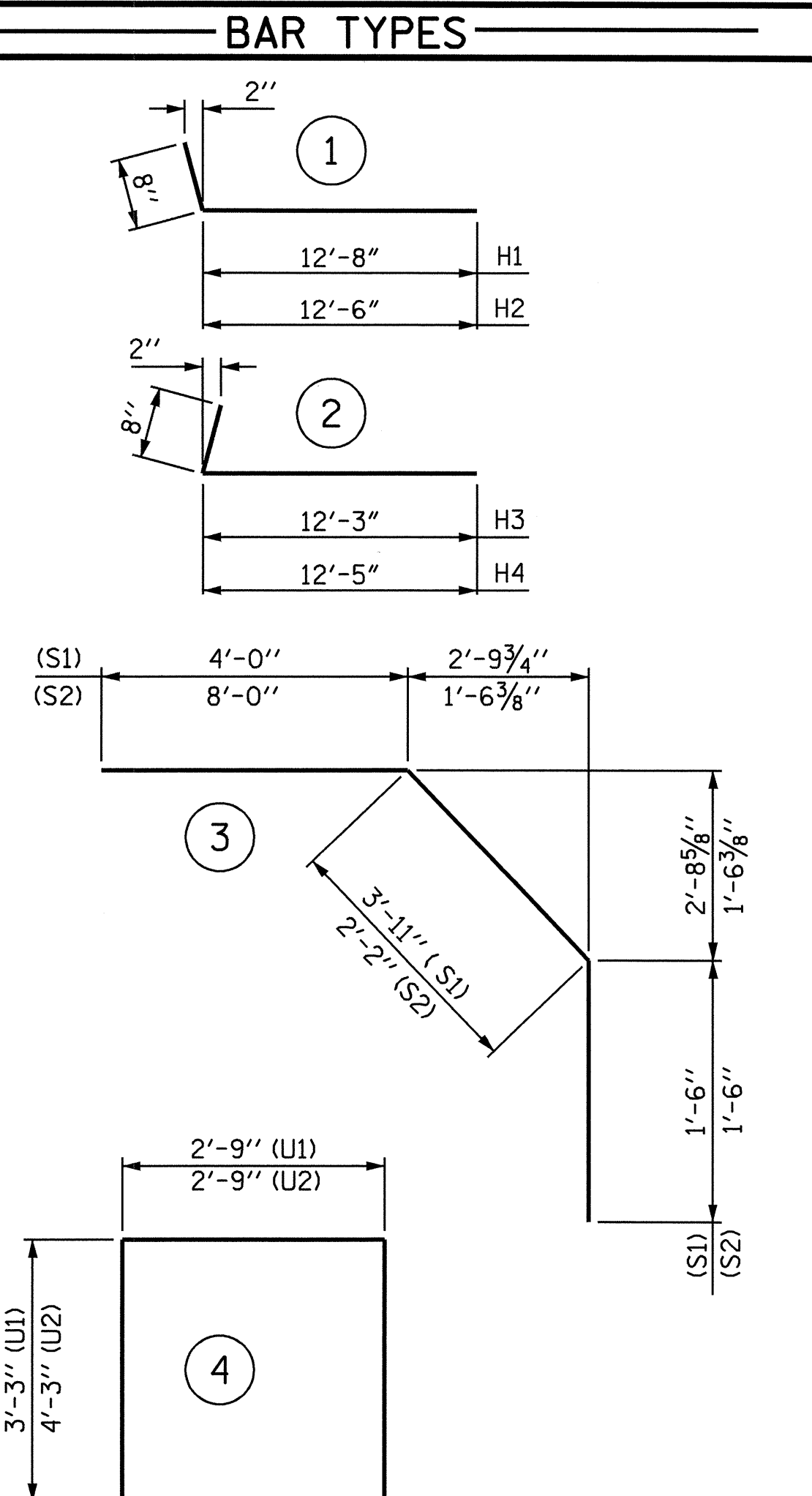


BILL OF MATERIAL						
SPAN A						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* A1	136	#5	STR	38'-11"	5520	
A2	136	#5	STR	38'-11"	5520	
* A101	4	#5	STR	35'-3"	147	
* A102	4	#5	STR	31'-7"	132	
* A103	4	#5	STR	27'-10"	116	
* A104	4	#5	STR	24'-1"	100	
* A105	4	#5	STR	20'-4"	85	
* A106	4	#5	STR	16'-7"	69	
* A107	4	#5	STR	12'-11"	54	
* A108	4	#5	STR	9'-2"	38	
* A109	4	#5	STR	5'-5"	23	
* A110	4	#5	STR	1'-8"	7	
A201	4	#5	STR	35'-3"	147	
A202	4	#5	STR	31'-7"	132	
A203	4	#5	STR	27'-10"	116	
A204	4	#5	STR	24'-1"	100	
A205	4	#5	STR	20'-4"	85	
A206	4	#5	STR	16'-7"	69	
A207	4	#5	STR	12'-11"	54	
A208	4	#5	STR	9'-2"	38	
A209	4	#5	STR	5'-5"	23	
A210	4	#5	STR	1'-8"	7	
* B1	54	#4	STR	26'-6"	956	
* B2	150	#5	STR	15'-6"	2425	
B3	100	#6	STR	15'-6"	2328	
B4	50	#5	STR	51'-3"	2673	
H1	20	#4	1	13'-4"	178	
H2	20	#4	1	13'-2"	176	
H3	20	#4	2	12'-11"	173	
H4	20	#4	2	13'-1"	175	
K1	16	#4	STR	20'-8"	221	
K2	6	#4	STR	3'-7"	14	
* S1	68	#4	3	9'-5"	428	
* S2	72	#4	3	11'-8"	561	
U1	72	#4	4	9'-3"	445	
U2	12	#4	4	11'-3"	90	
V2	92	#4	STR	4'-5"	271	
REINFORCING STEEL				=	13035 LBS	
* EPOXY COATED REINF. STEEL				=	10661 LBS	



**TRANSVERSE CONSTRUCTION JOINT DETAIL**

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT



ALL BAR DIMENSIONS ARE OUT TO OUT

**— SUPERSTRUCTURE BILL OF MATERIAL —**

	CLASS AA CONCRETE ( CU.YDS.)	REINFORCING STEEL ( LBS.)	EPOXY COATED REINFORCING STEEL ( LBS.)
SPAN "A"		13035	10661
POUR #1	95.2		
POUR #2	56.5		
TOTALS**	151.7	13035	10661

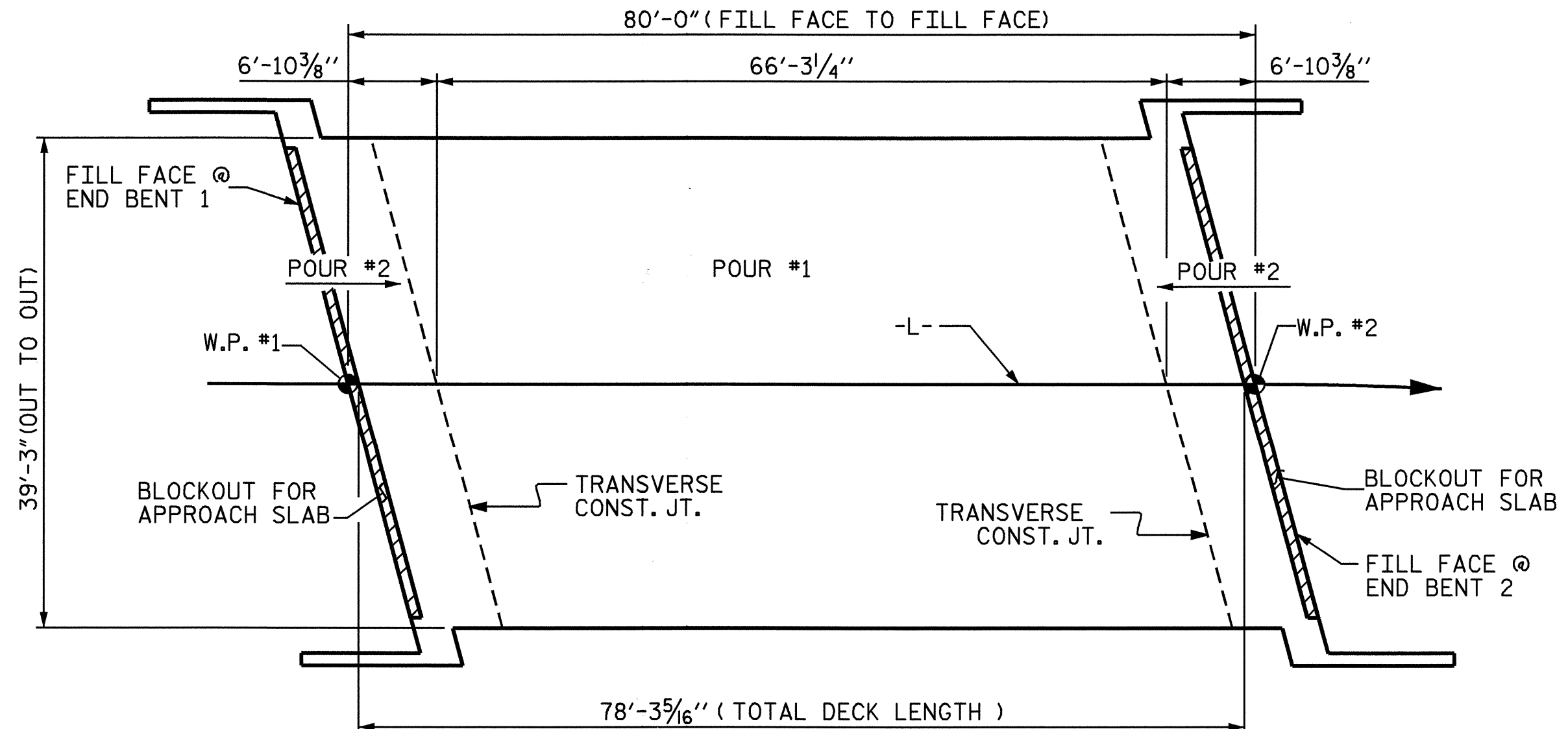
\*\*QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. **B-4244**  
**RANDOLPH** COUNTY  
 STATION: **18+10.00 -L-**

GROOVING BRIDGE FLOORS	
APPROACH SLABS	847 SQ.FT.
BRIDGE DECK	2572 SQ.FT.
TOTAL	3419 SQ.FT.

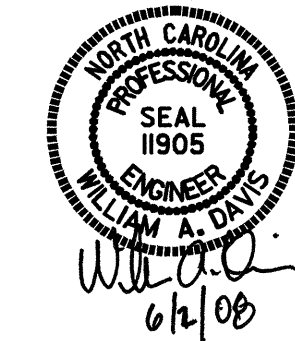
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			



**LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 3,072)**

ASSEMBLED BY : R. W. WRIGHT DATE : 6-07  
 CHECKED BY : A.R. CHESSON DATE : 7-07  
 DRAWN BY : JMB 5/87 REV. 6/1/94 EEM/GRP  
 CHECKED BY : SJD 9/87 REV. 8/16/99 RWW/LES  
 REV. 5/1/06 TLA/GM



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 SUPERSTRUCTURE  
 BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS 25
2			4			

STD. NO. BOM1

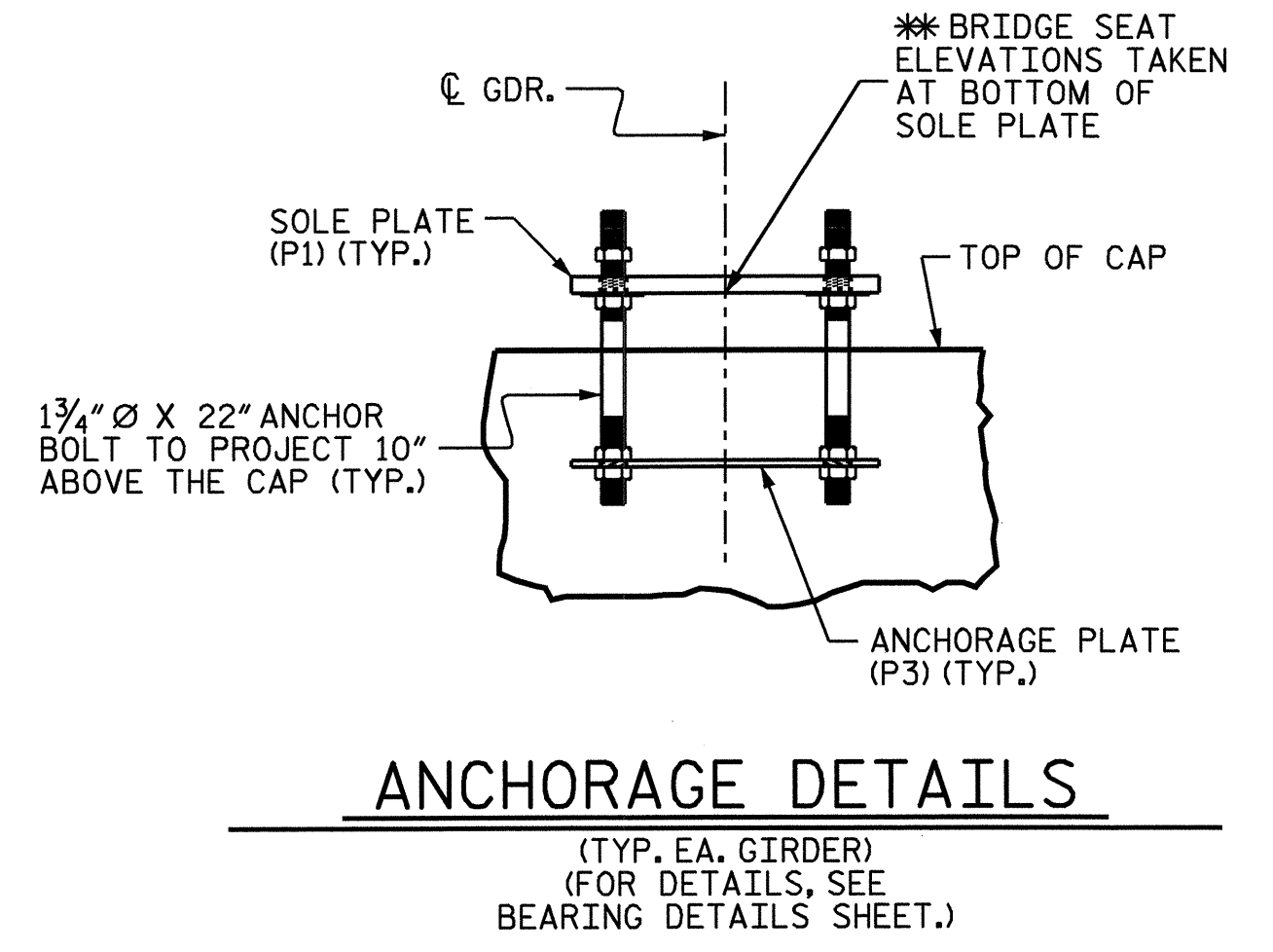
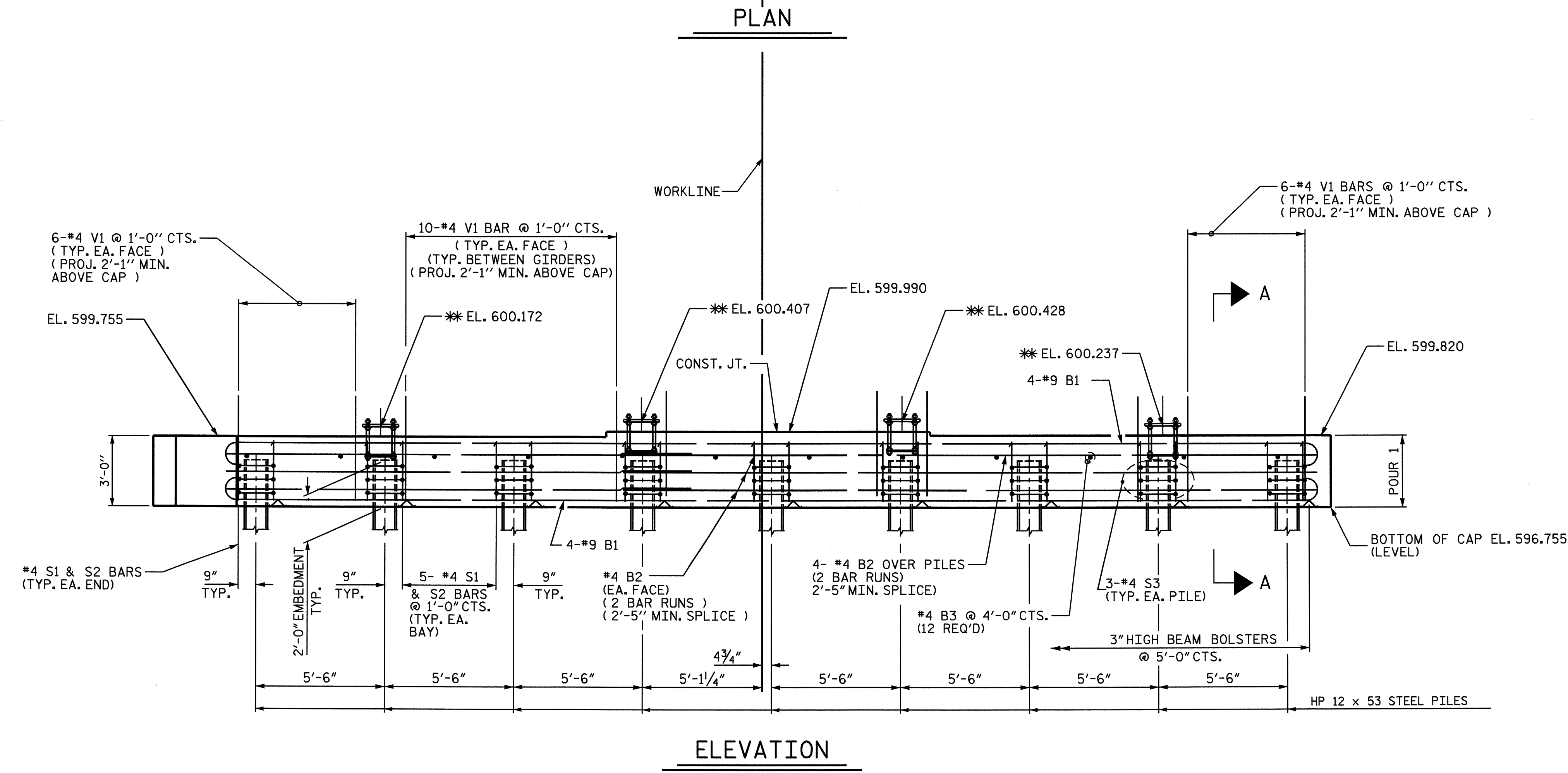
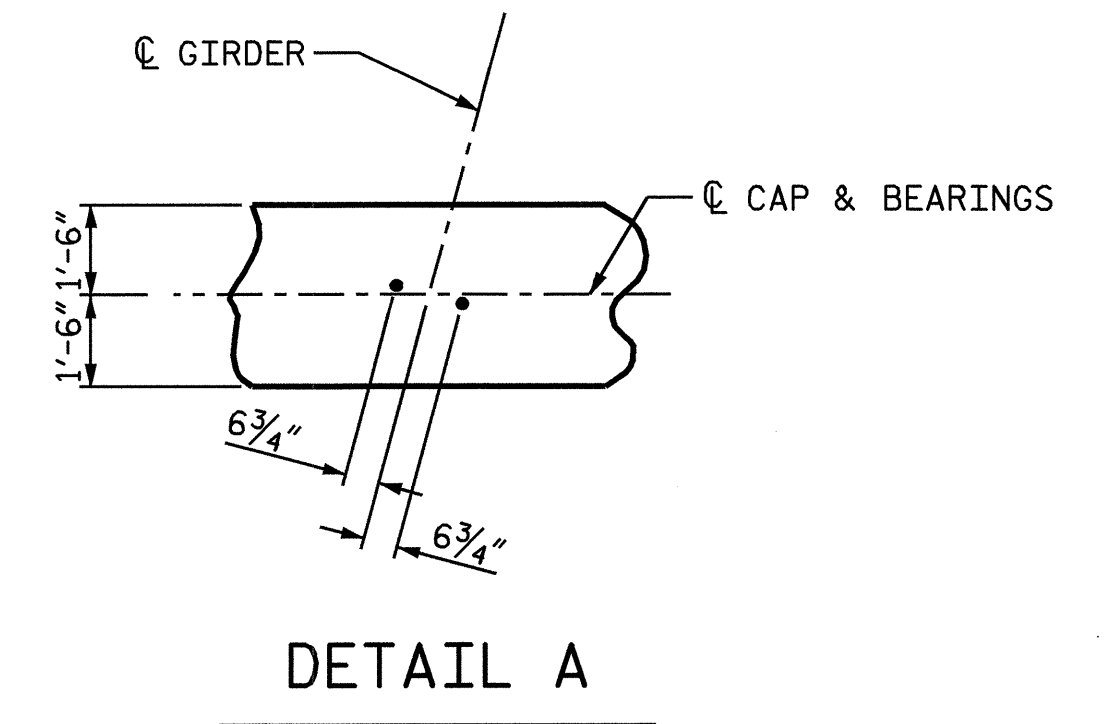
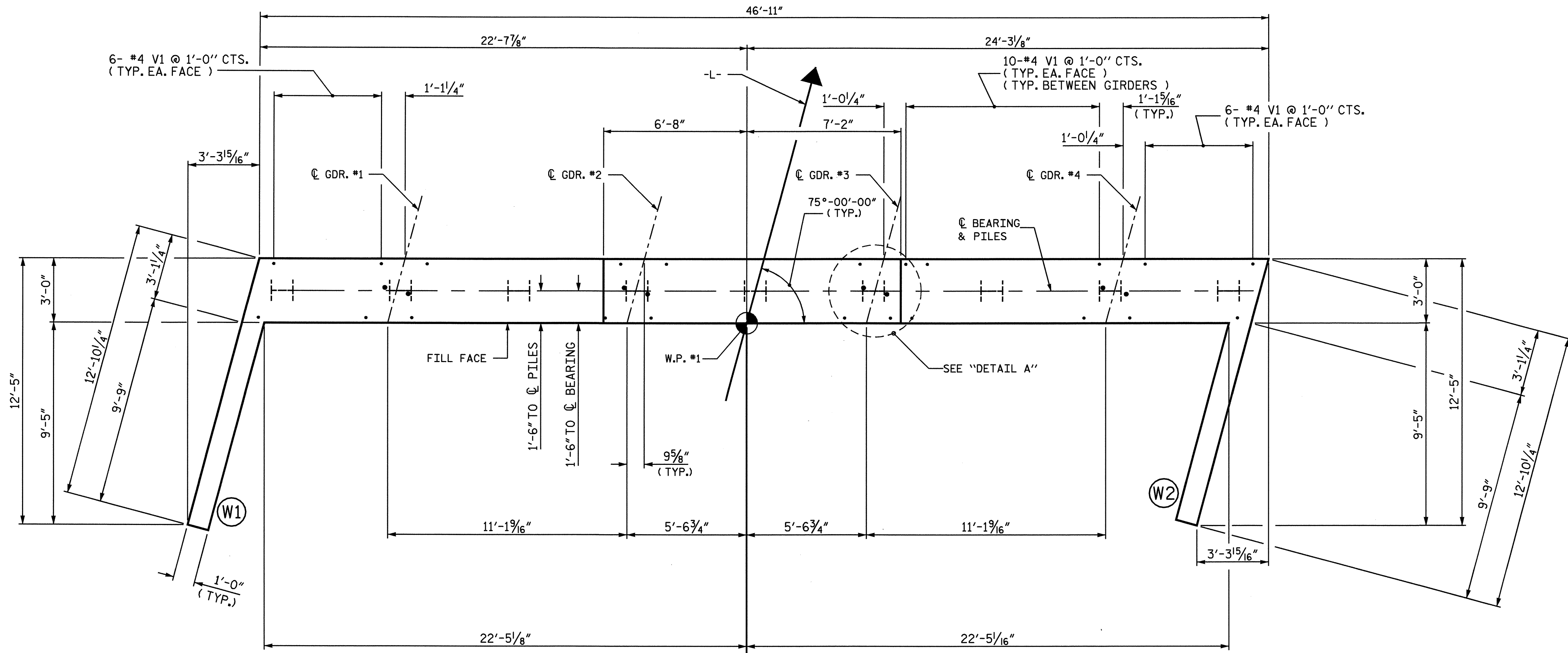
**NOTES**

STIRRUPS AND B2 BARS OVER THE PILES IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR PILE SPLICE DETAILS, SEE END BENT #1, SHEET 3 OF 3.

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.

SEE SUPERSTRUCTURE SHEETS FOR THE ABUTMENT DETAILS.



PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

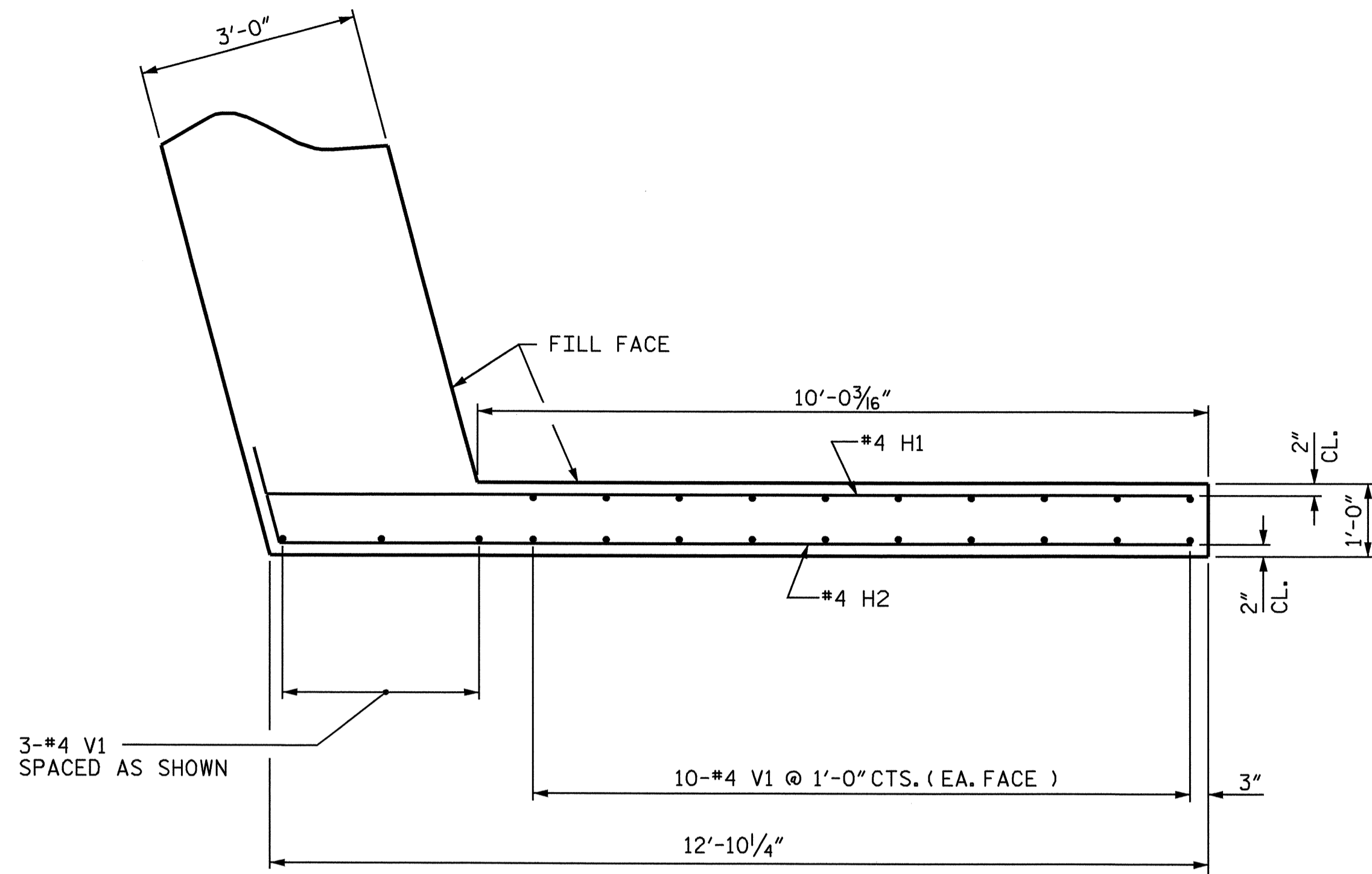
SUBSTRUCTURE

END BENT 1  
 INTEGRAL

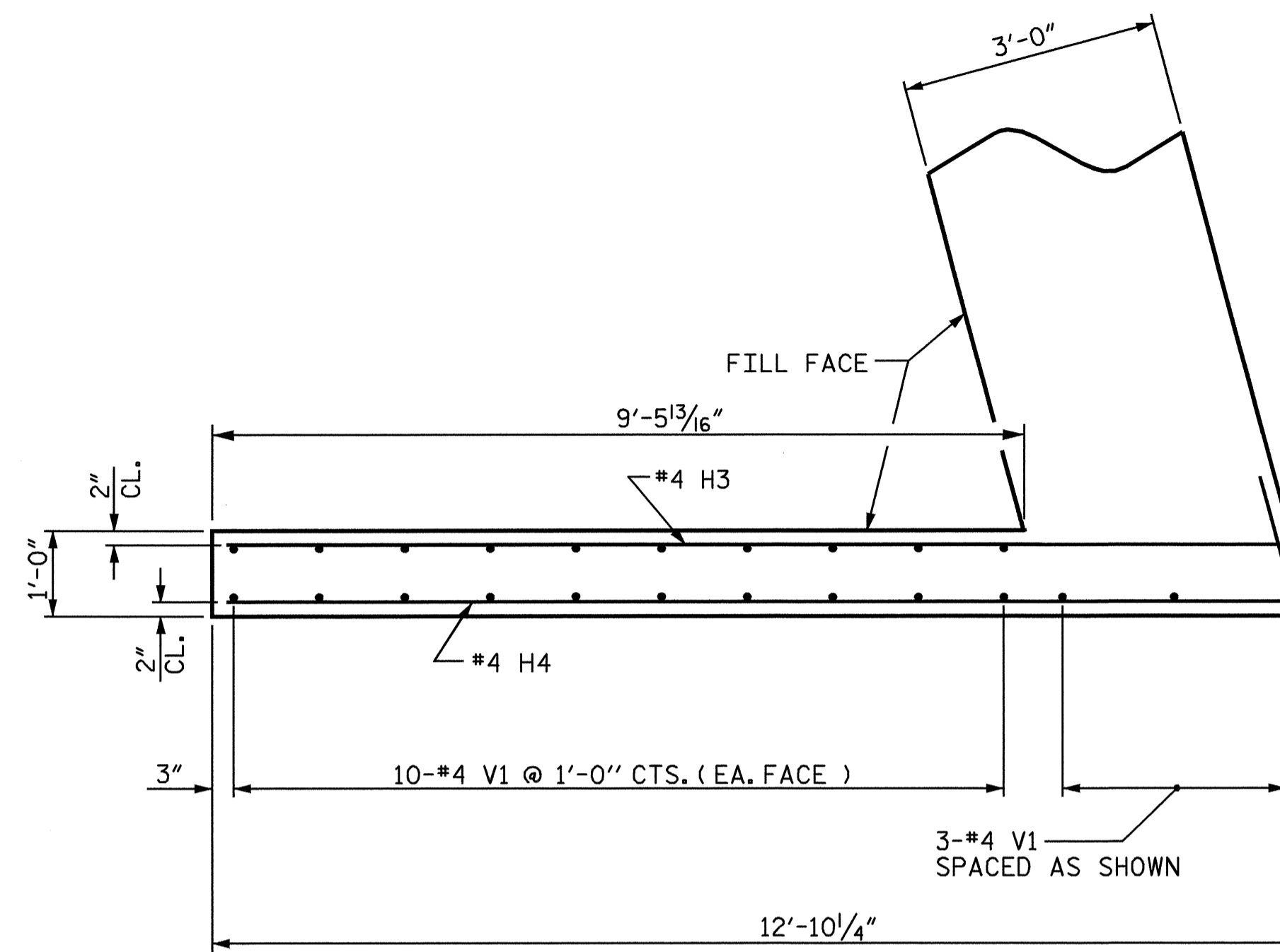
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			25



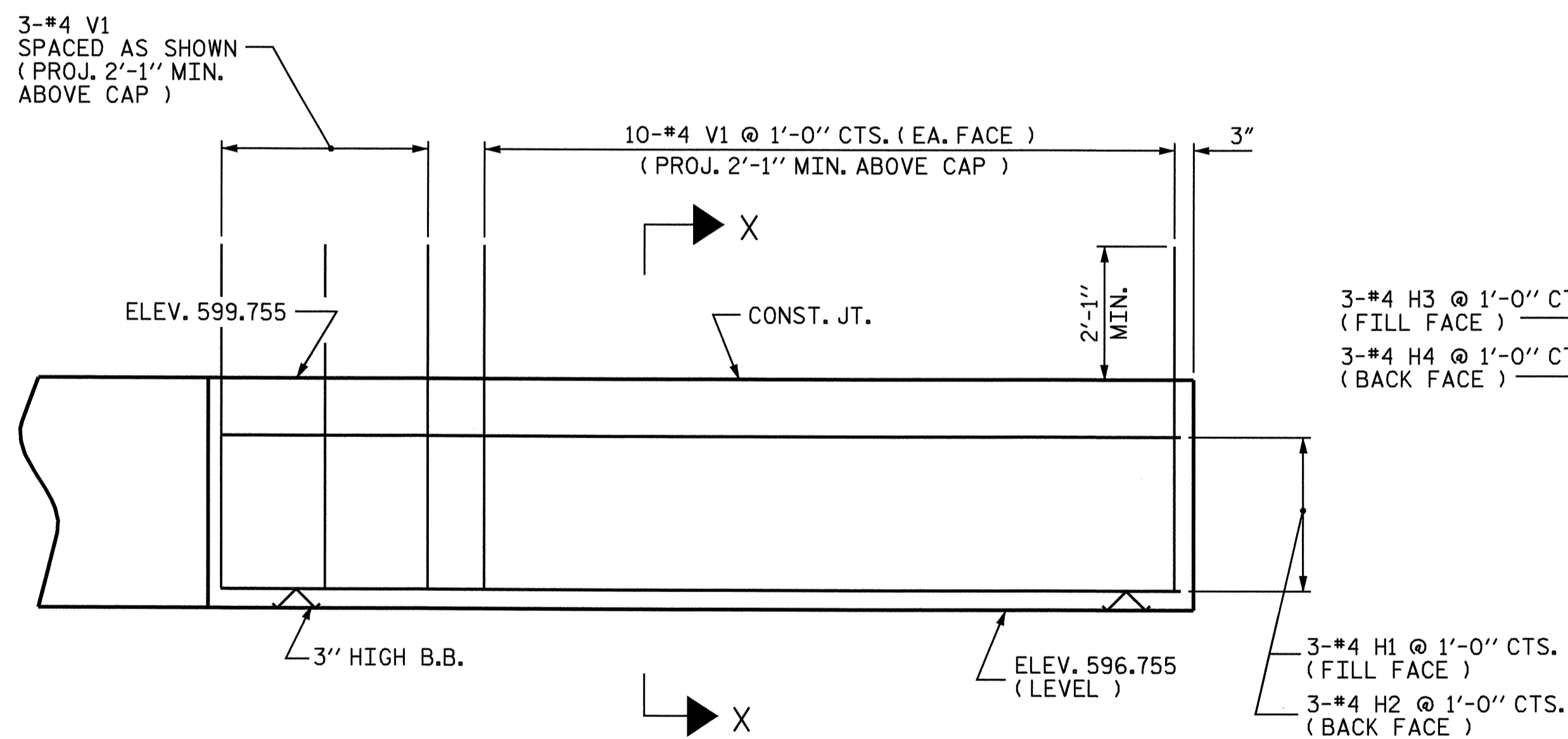
DRAWN BY: R.W. WRIGHT DATE: 3-07  
 CHECKED BY: A.R. CHESSON DATE: 7/07



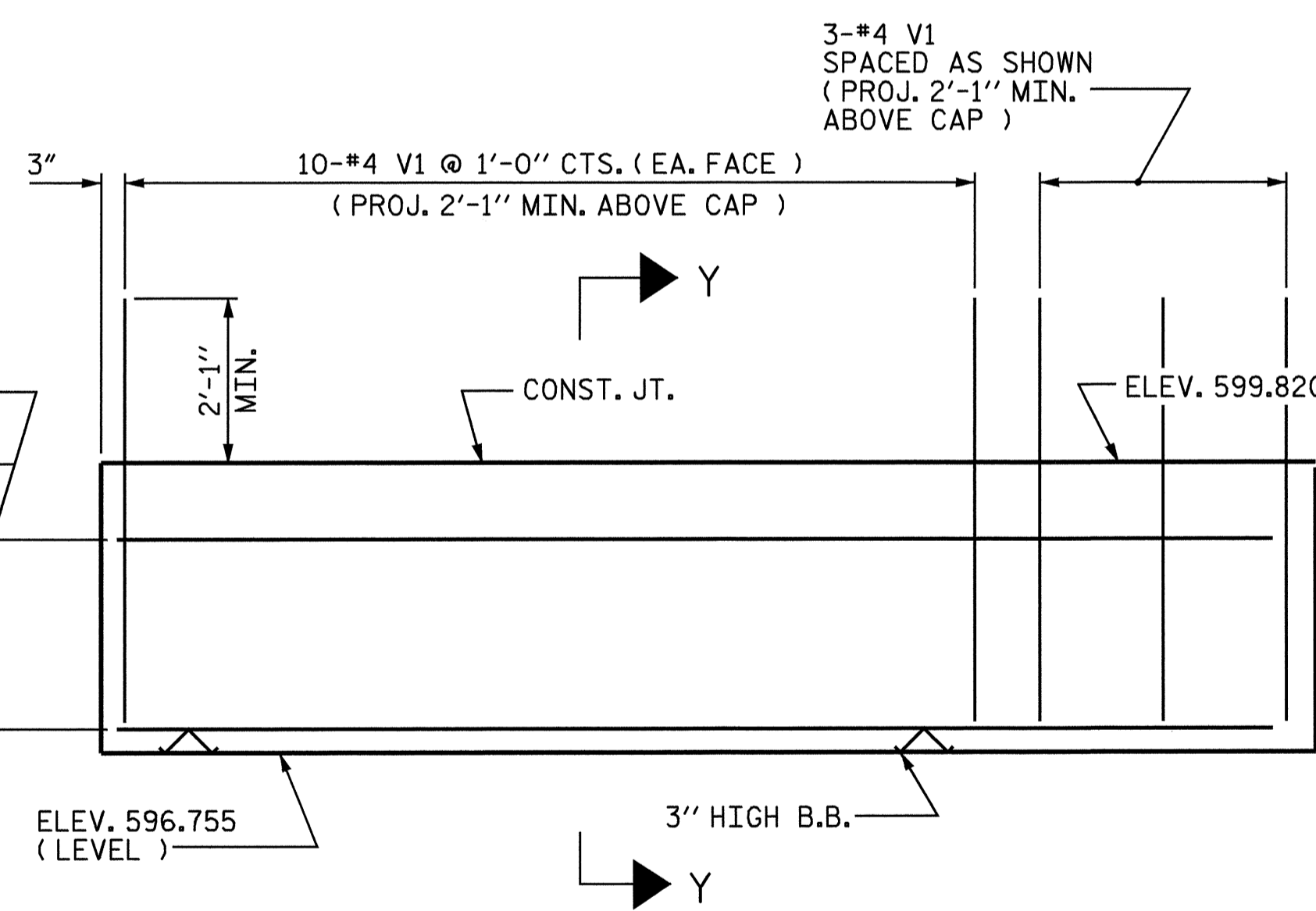
PLAN OF WING W1



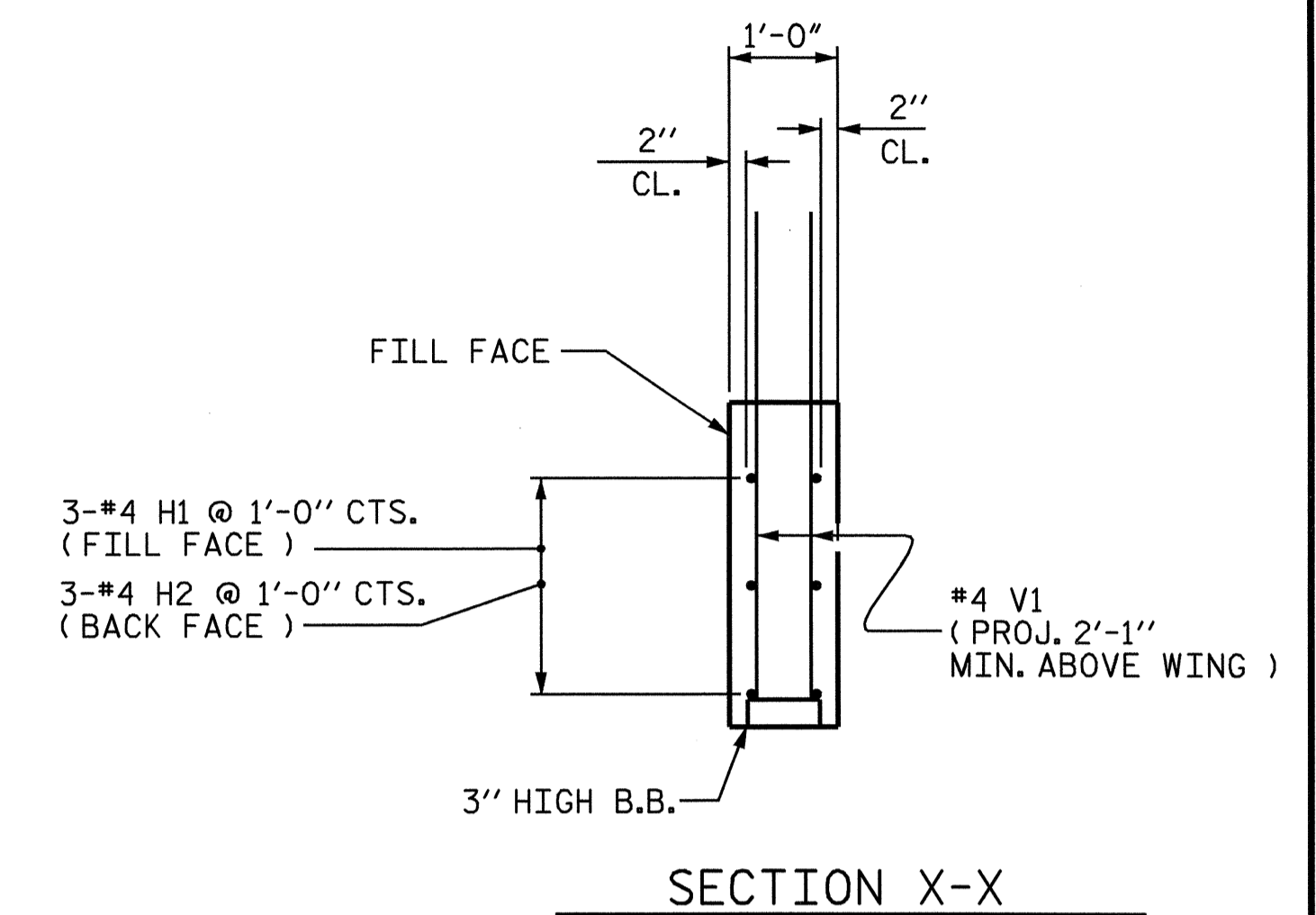
PLAN OF WING W2



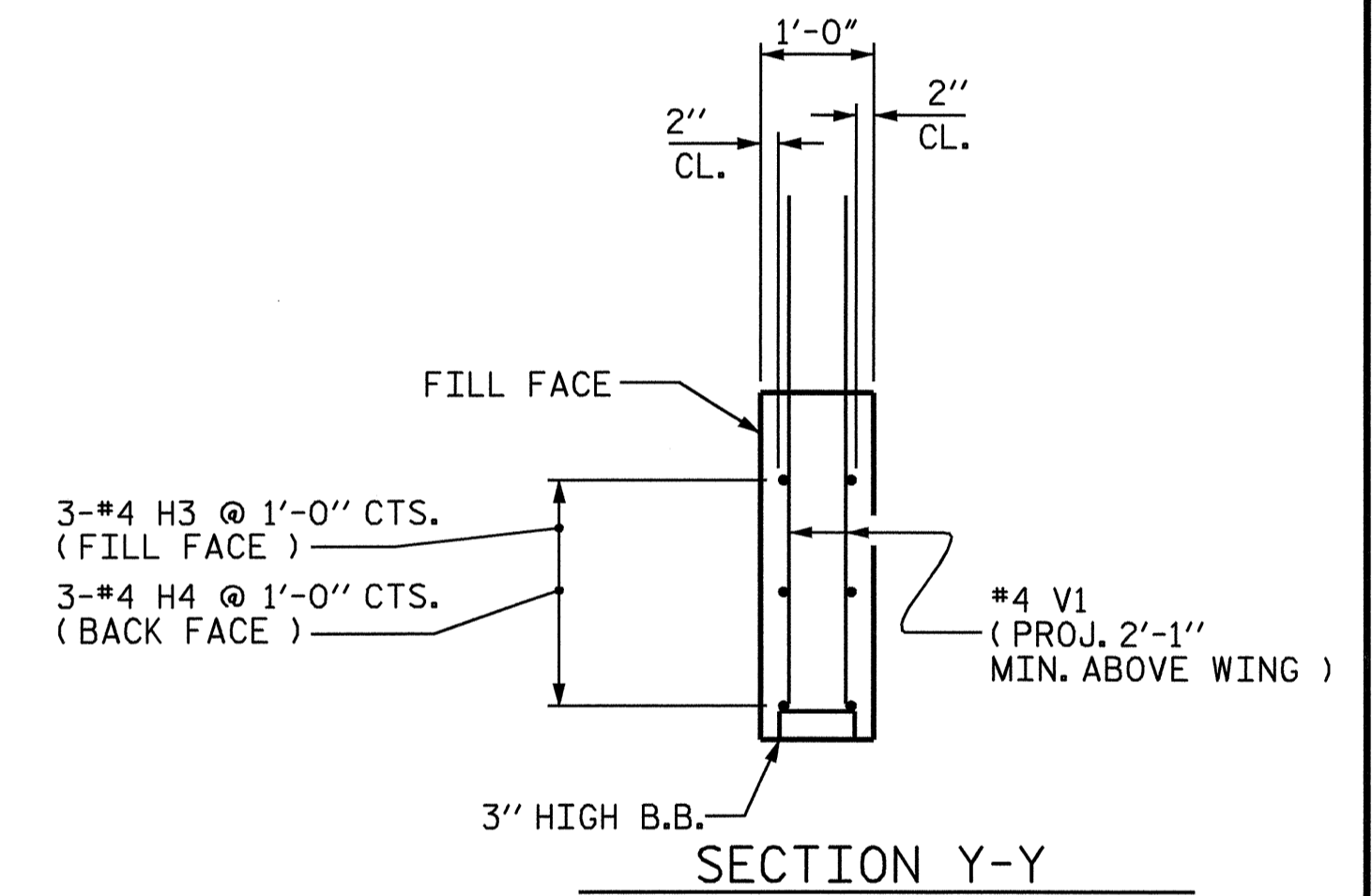
ELEVATION OF WING W1



ELEVATION OF WING W2



SECTION X-X



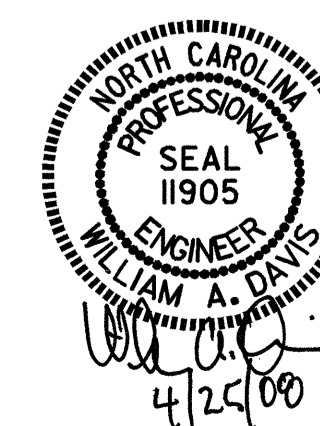
SECTION Y-Y

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE

END BENT 1  
 INTEGRAL

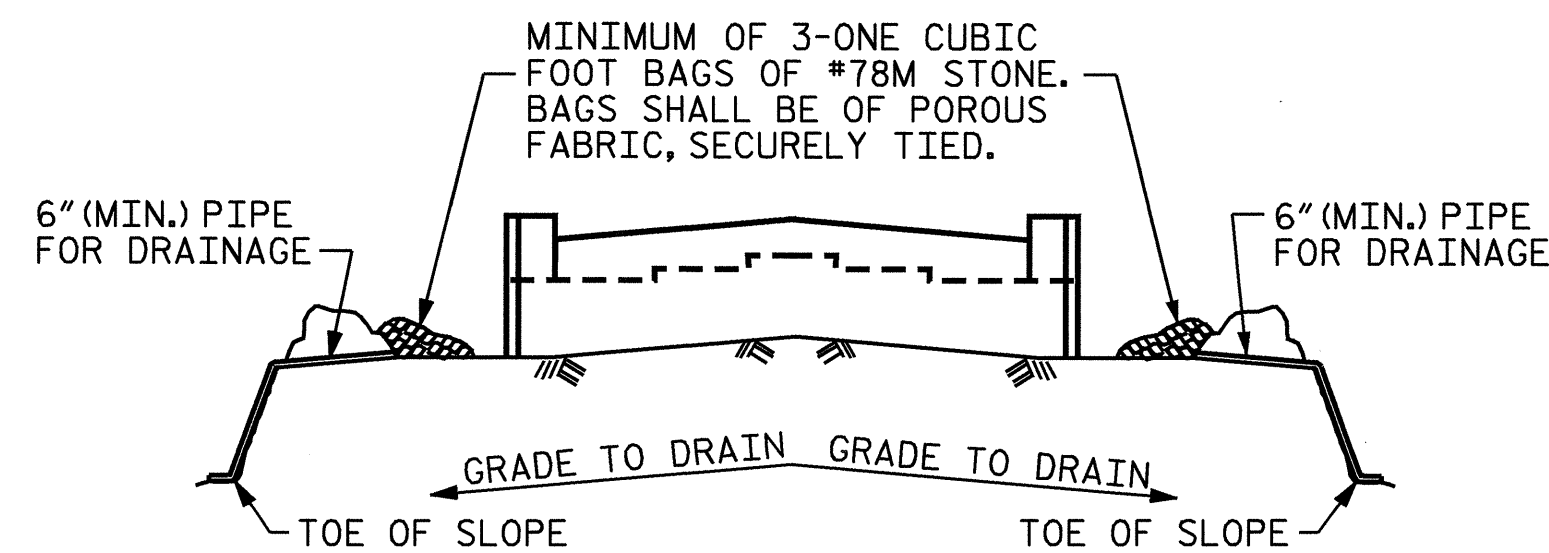


DRAWN BY: R.W. WRIGHT DATE: 3-07  
 CHECKED BY: A.R. CHESSON DATE: 7/07

25-APR-2008 12:19  
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 rwwright

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS 25
2			4			

NC006

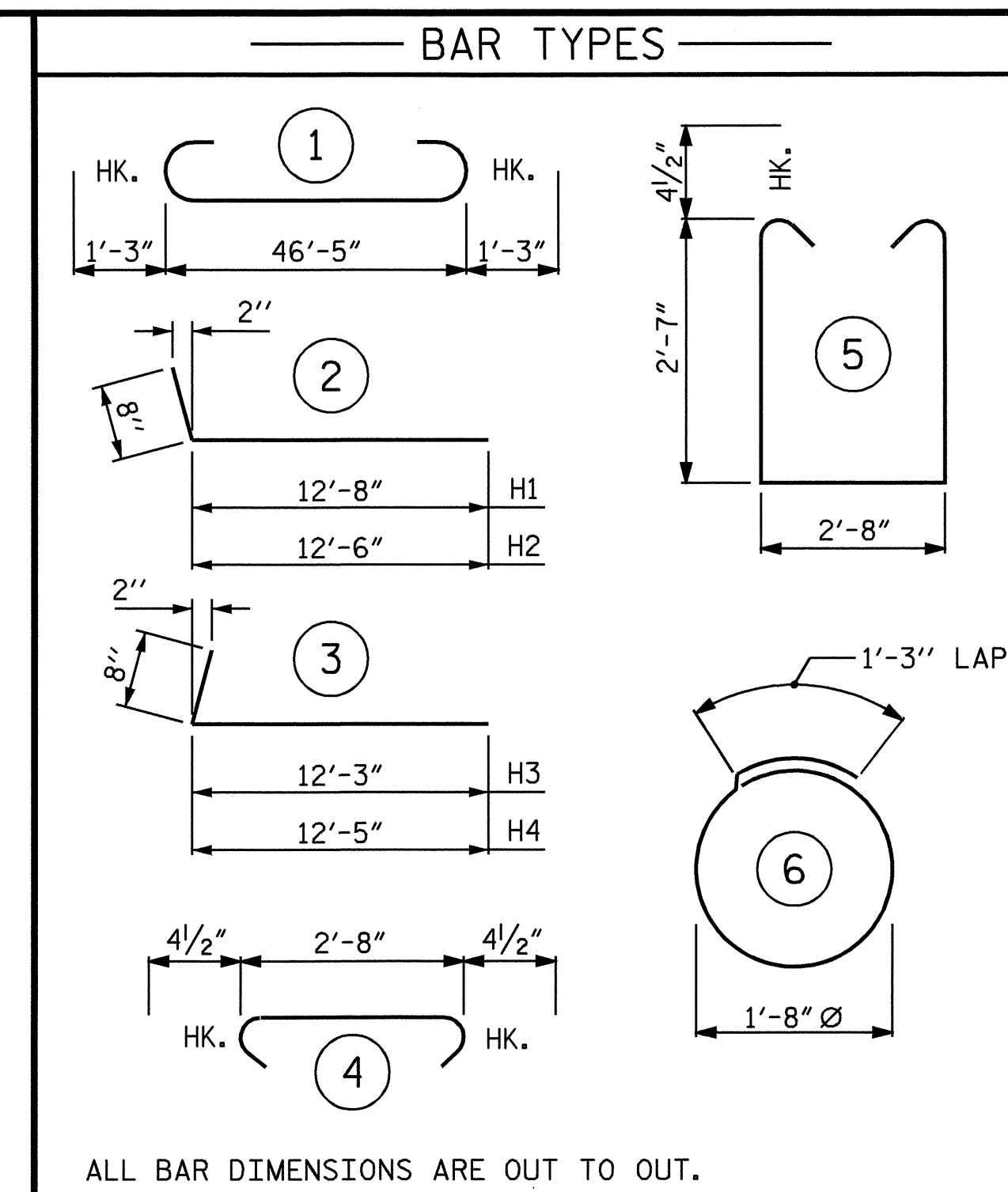


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



ALL BAR DIMENSIONS ARE OUT TO OUT.

### BILL OF MATERIAL

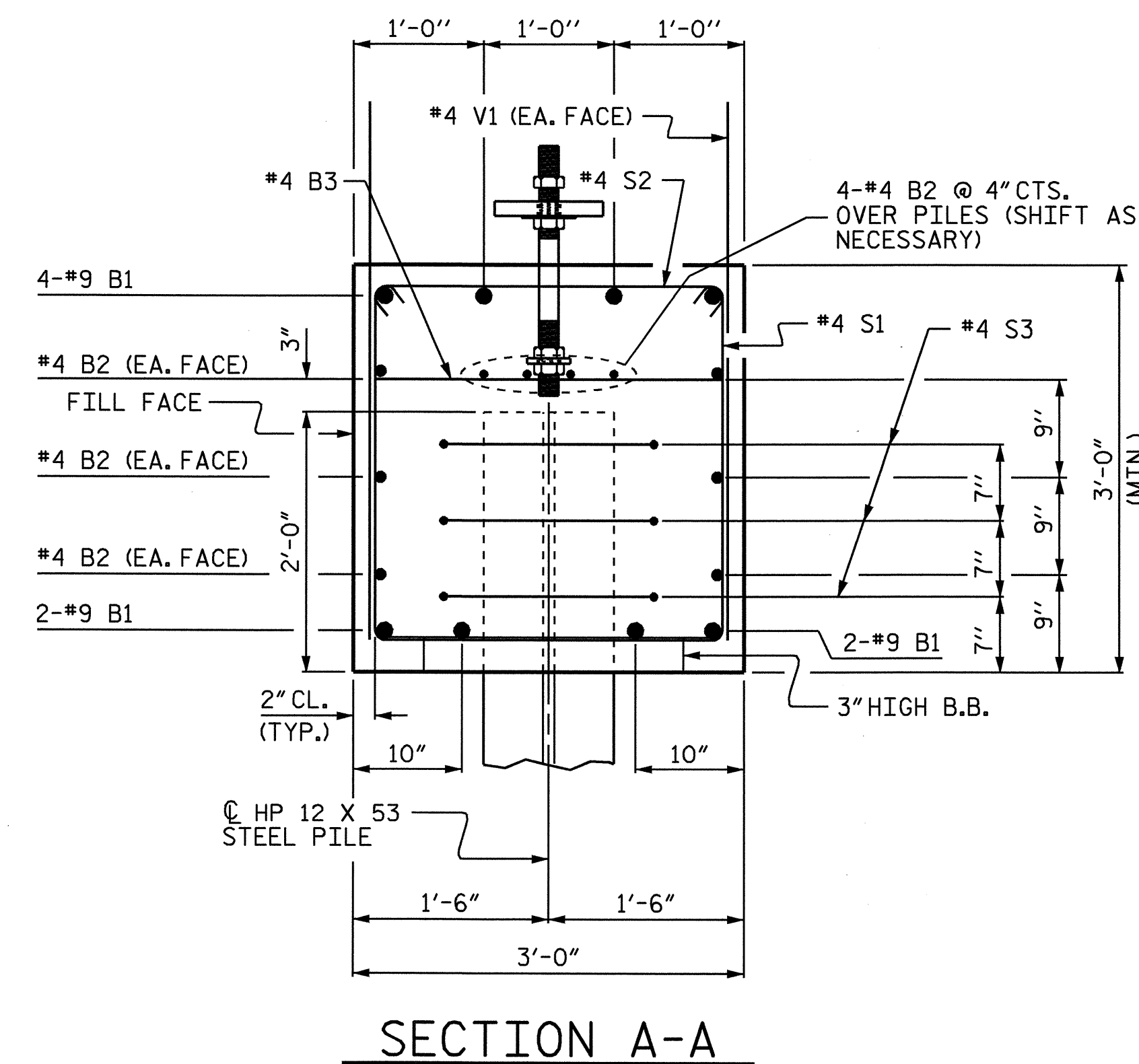
#### END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	48'-11"	1331
B2	20	#4	STR	24'-6"	327
B3	12	#4	STR	2'-8"	21
H1	3	#4	2	13'-4"	27
H2	3	#4	2	13'-2"	26
H3	3	#4	3	12'-11"	26
H4	3	#4	3	13'-1"	26
S1	42	#4	5	8'-7"	241
S2	42	#4	4	3'-5"	96
S3	27	#4	6	6'-6"	117
V1	130	#4	STR	4'-10"	420

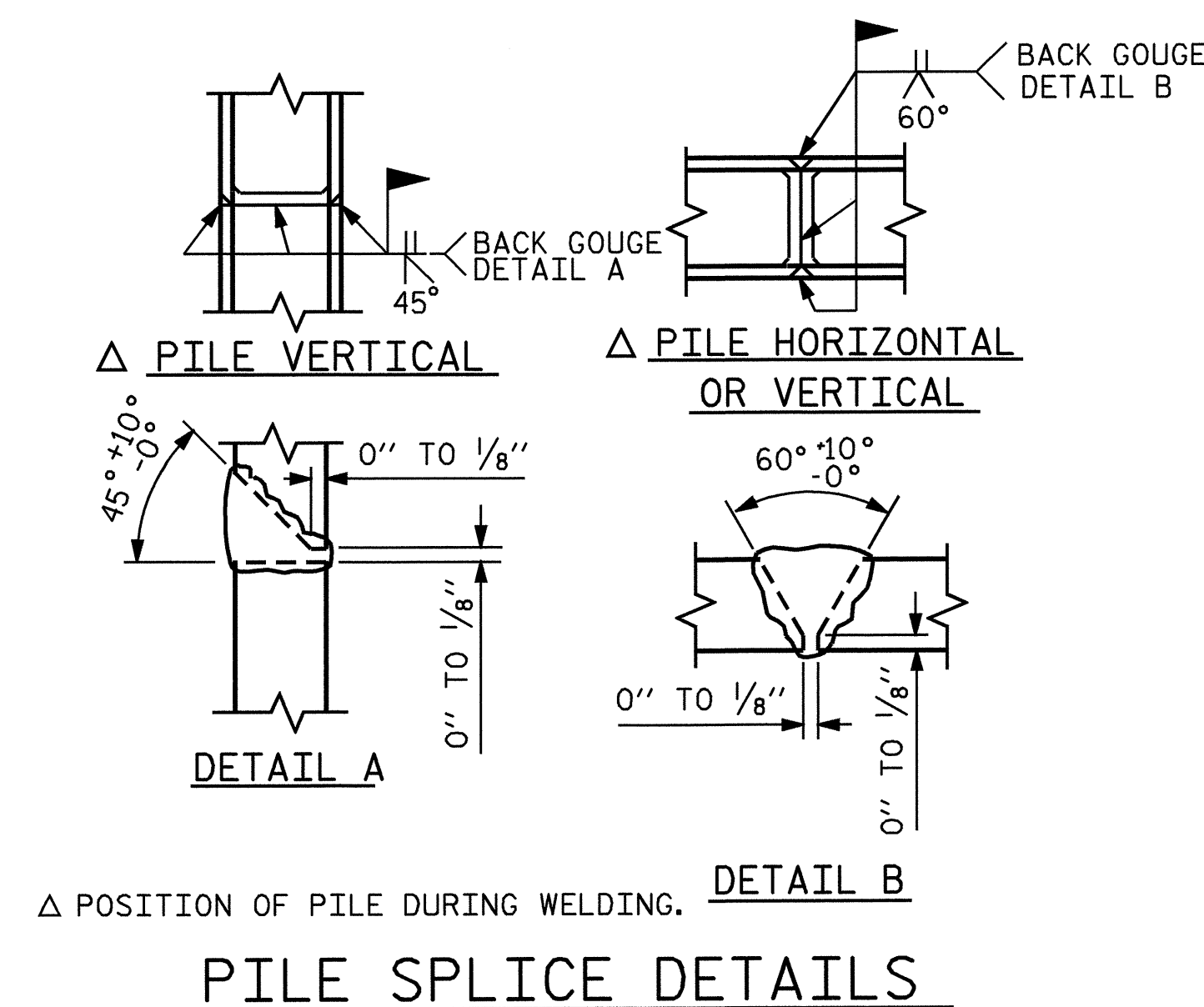
REINFORCING STEEL = 2658 LBS

CLASS A CONCRETE BREAKDOWN :  
 POUR #1 - (CAP & LOWER WINGS) 18.3 C.Y.  
 TOTAL 18.3 C.Y.

HP 12 x 53 STEEL PILES  
 NO. = 9 LIN. FEET = 135



### SECTION A-A



△ POSITION OF PILE DURING WELDING.

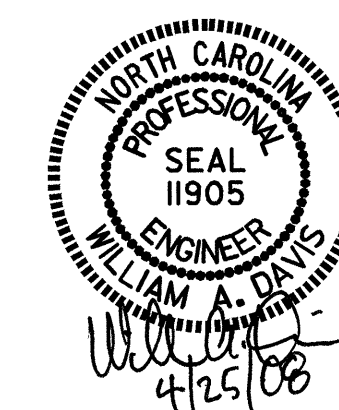
### PILE SPLICE DETAILS

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1  
 INTEGRAL



DRAWN BY: R.W. WRIGHT DATE: 03/07  
 CHECKED BY: A.R. CHESSON DATE: 7/07

25-APR-2008 12:19  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			25

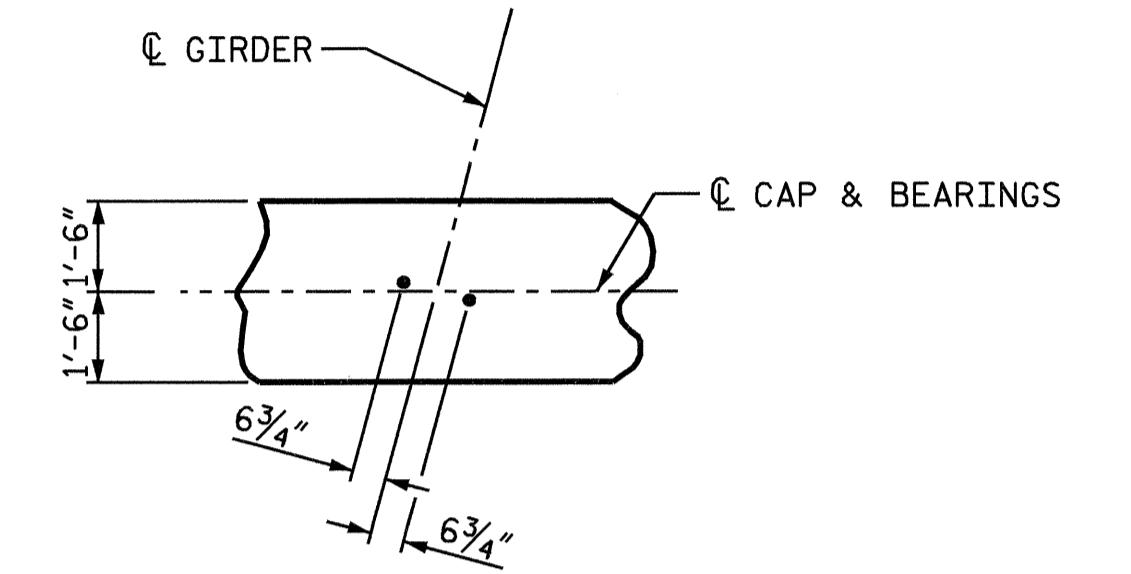
**NOTES**

STIRRUPS AND B2 OVER THE PILES IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

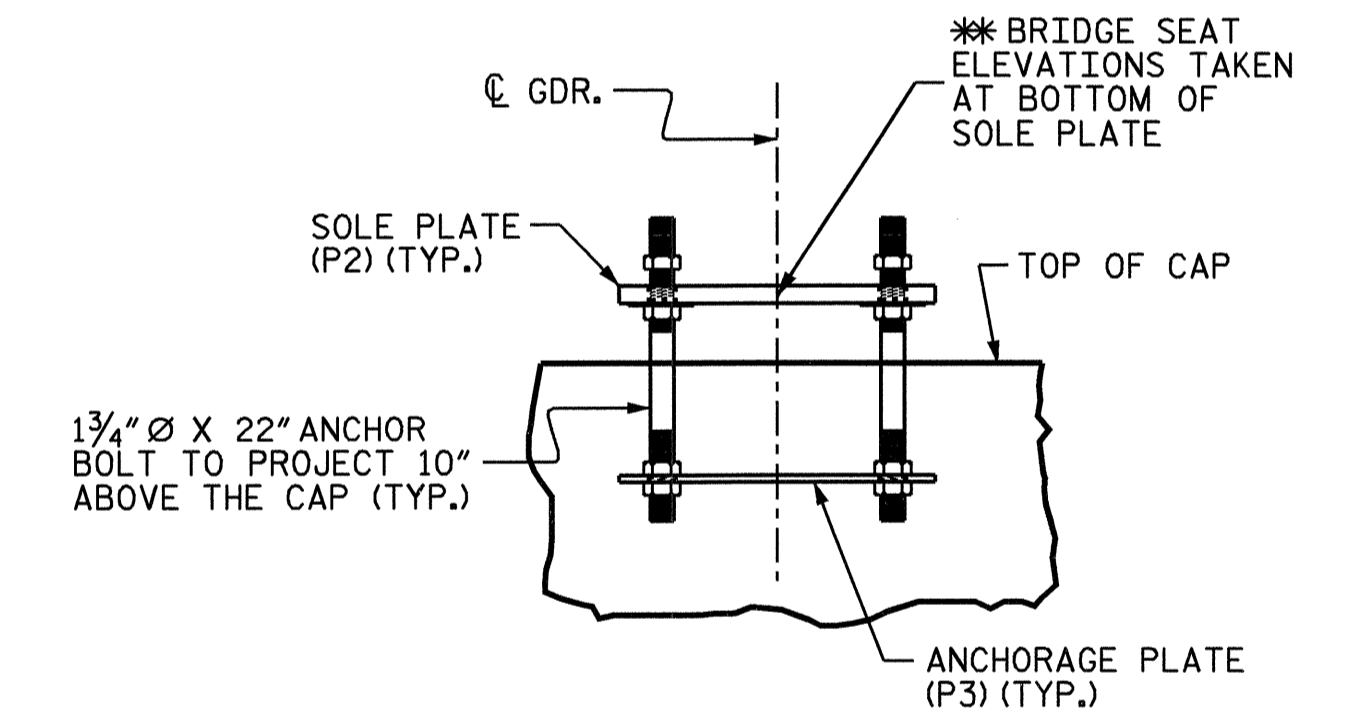
FOR PILE SPLICE DETAILS, SEE END BENT #1, SHEET 3 OF 3.

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.

SEE SUPERSTRUCTURE SHEETS FOR THE ABUTMENT DETAILS.



**DETAIL A**



**ANCHORAGE DETAILS**

(TYP. EA. GIRDER)  
(FOR DETAILS, SEE BEARING DETAILS SHEET.)

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

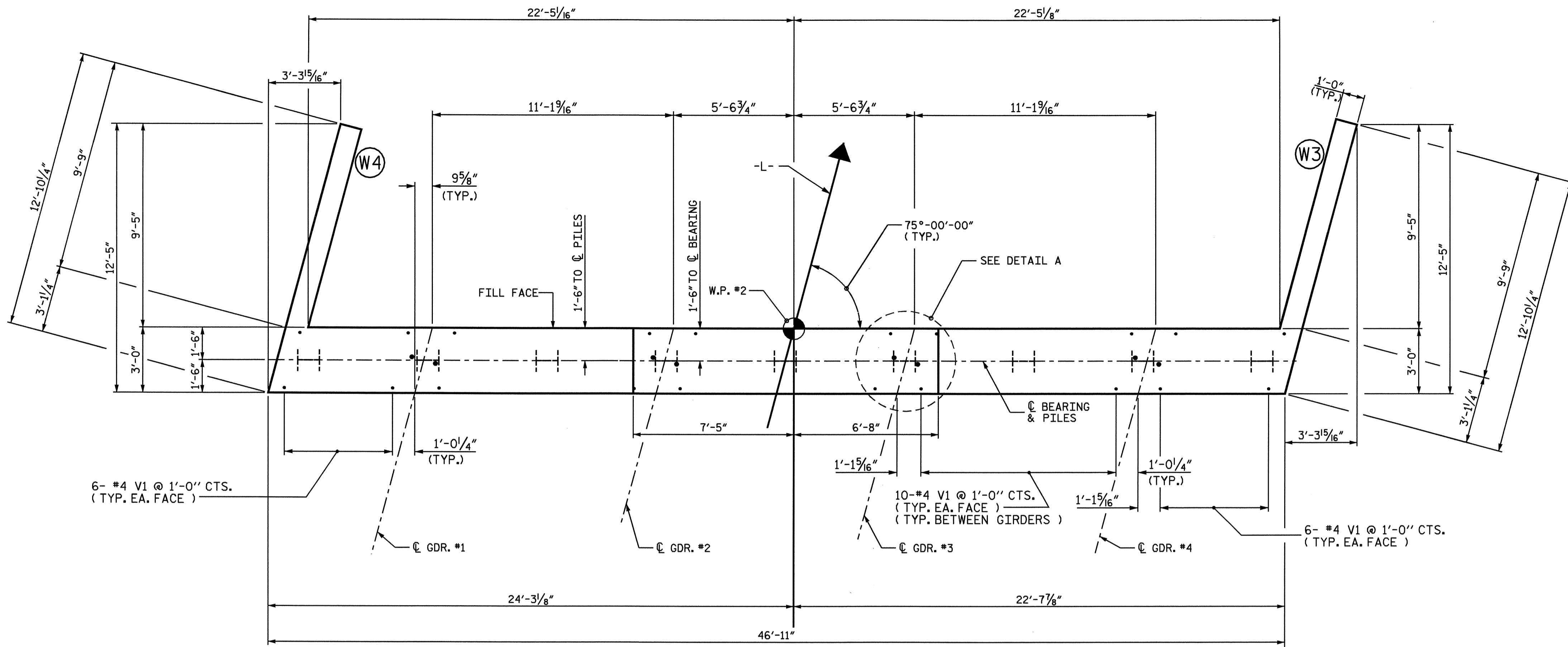
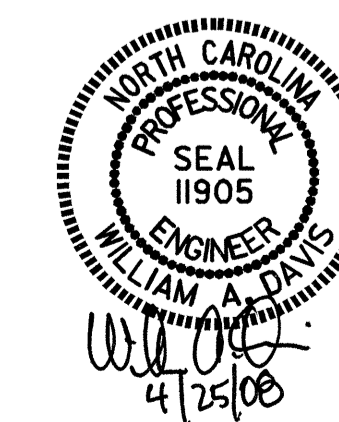
SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

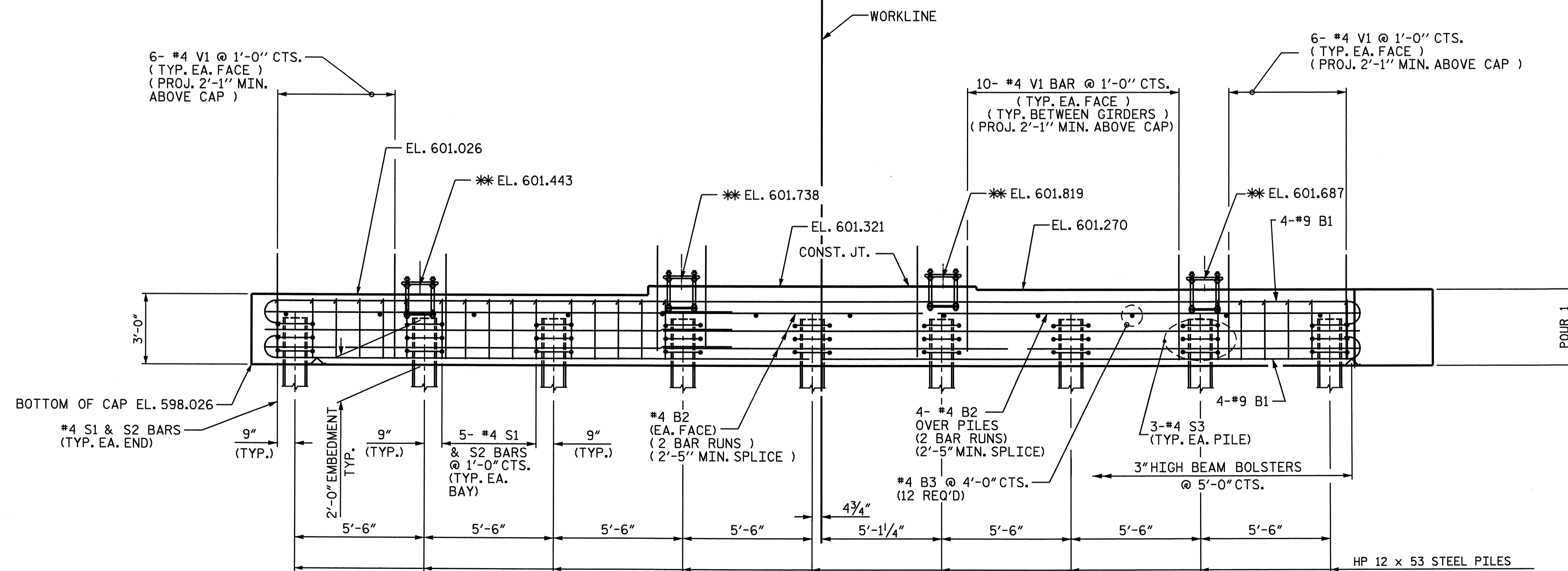
SUBSTRUCTURE

END BENT 2  
 INTEGRAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			25



**PLAN**

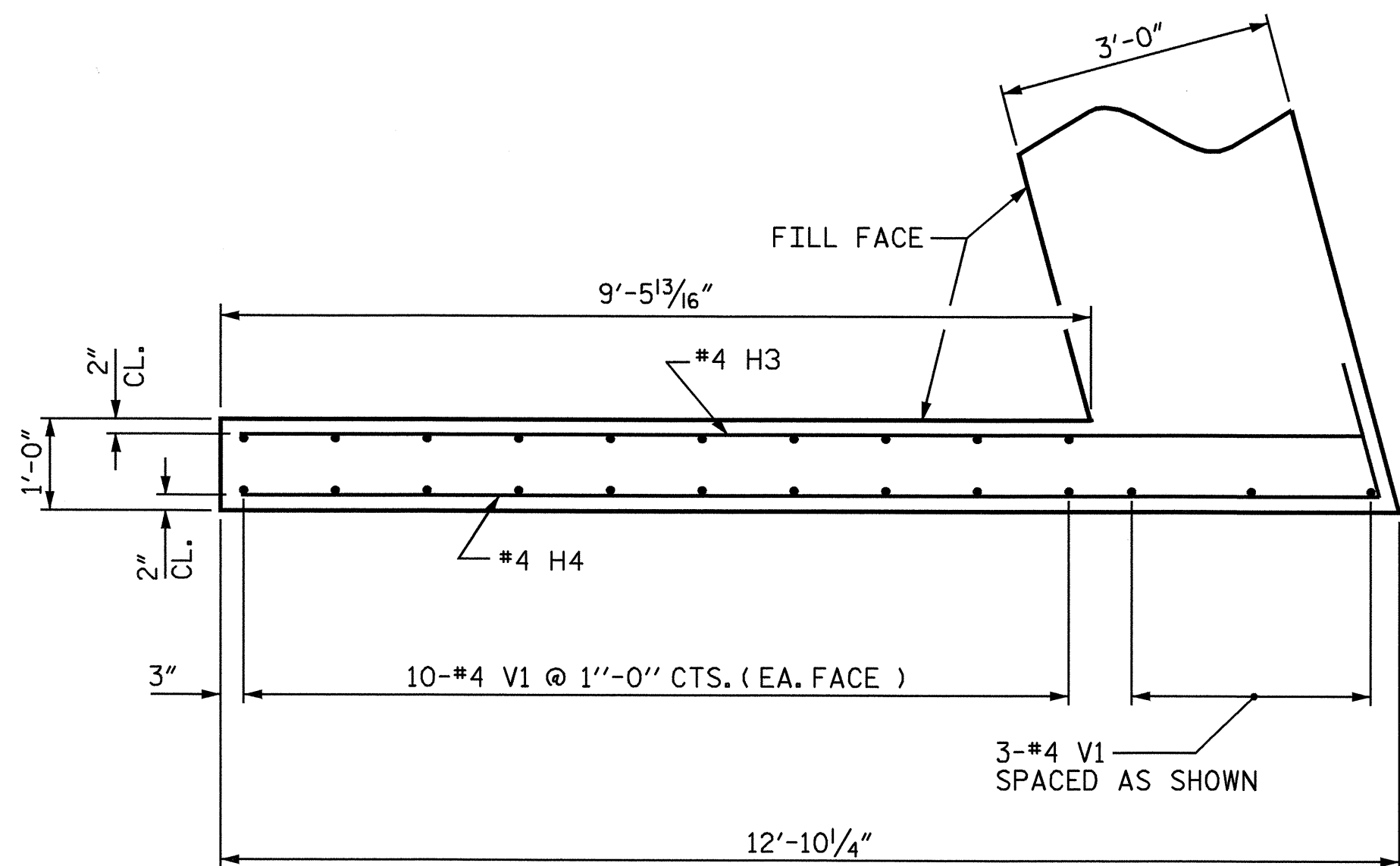


**ELEVATION**

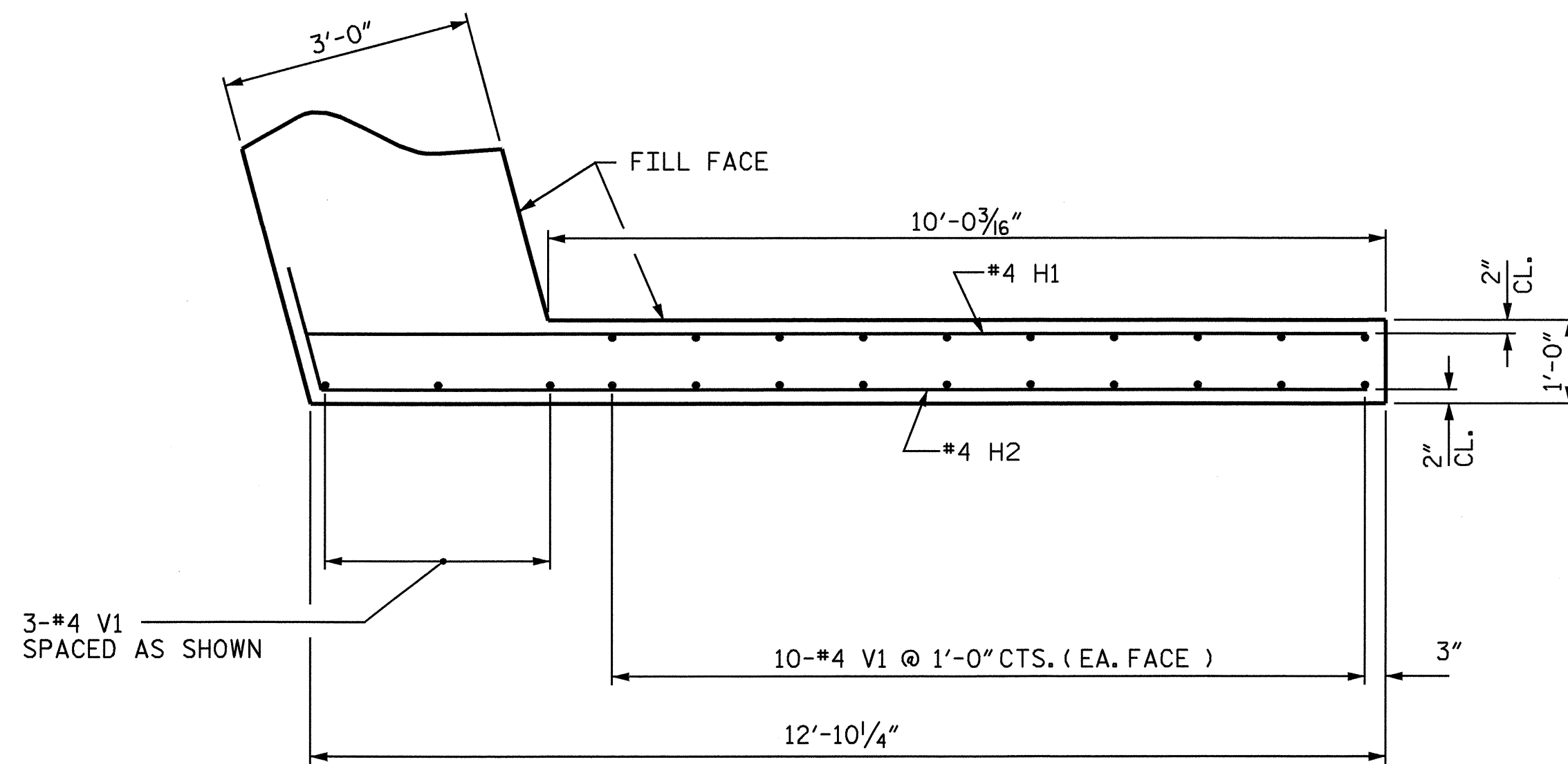
DRAWN BY : R.W. WRIGHT DATE : 3-07  
 CHECKED BY : A.R. CHESSON DATE : 7-07

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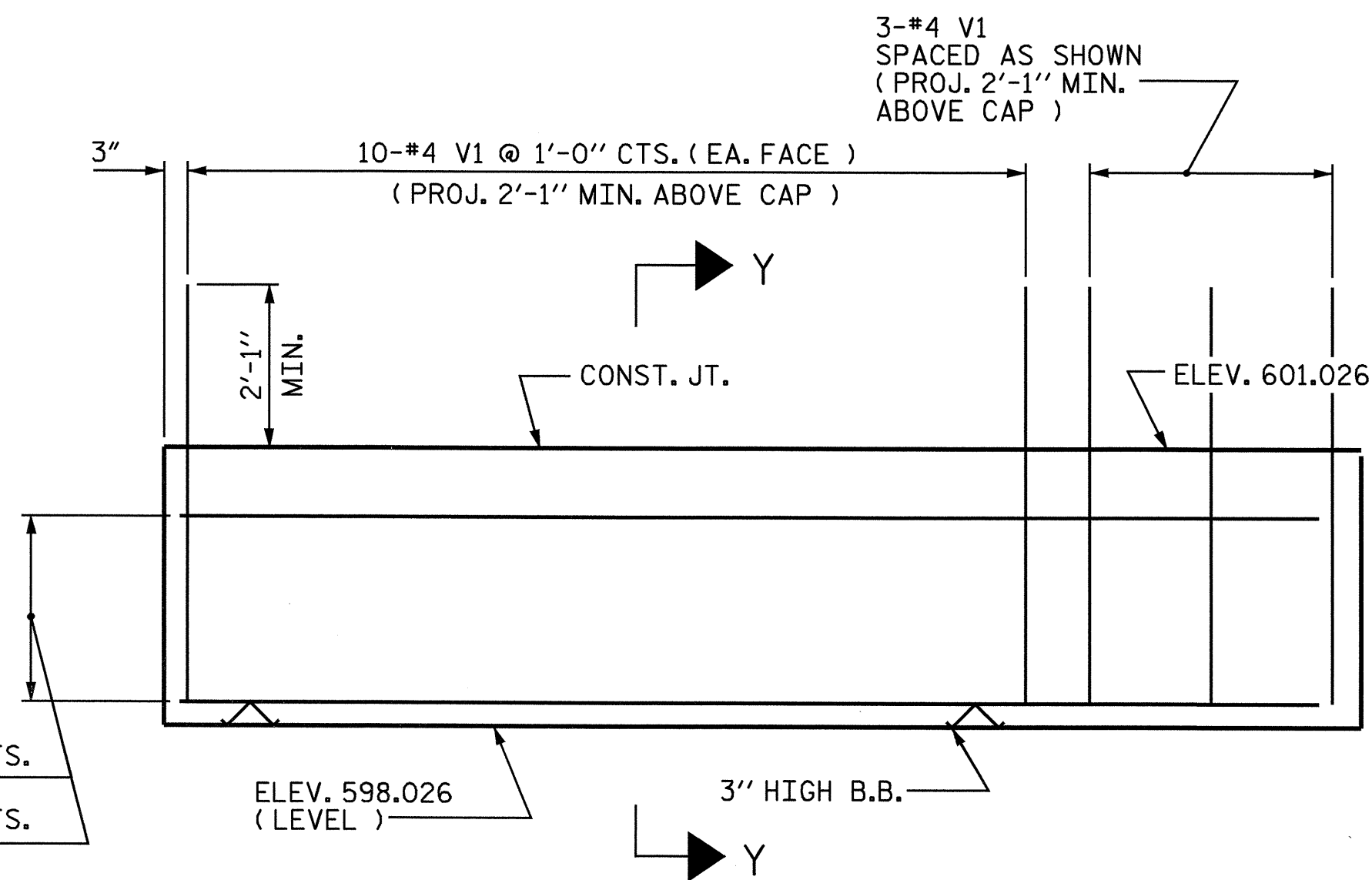
NC005



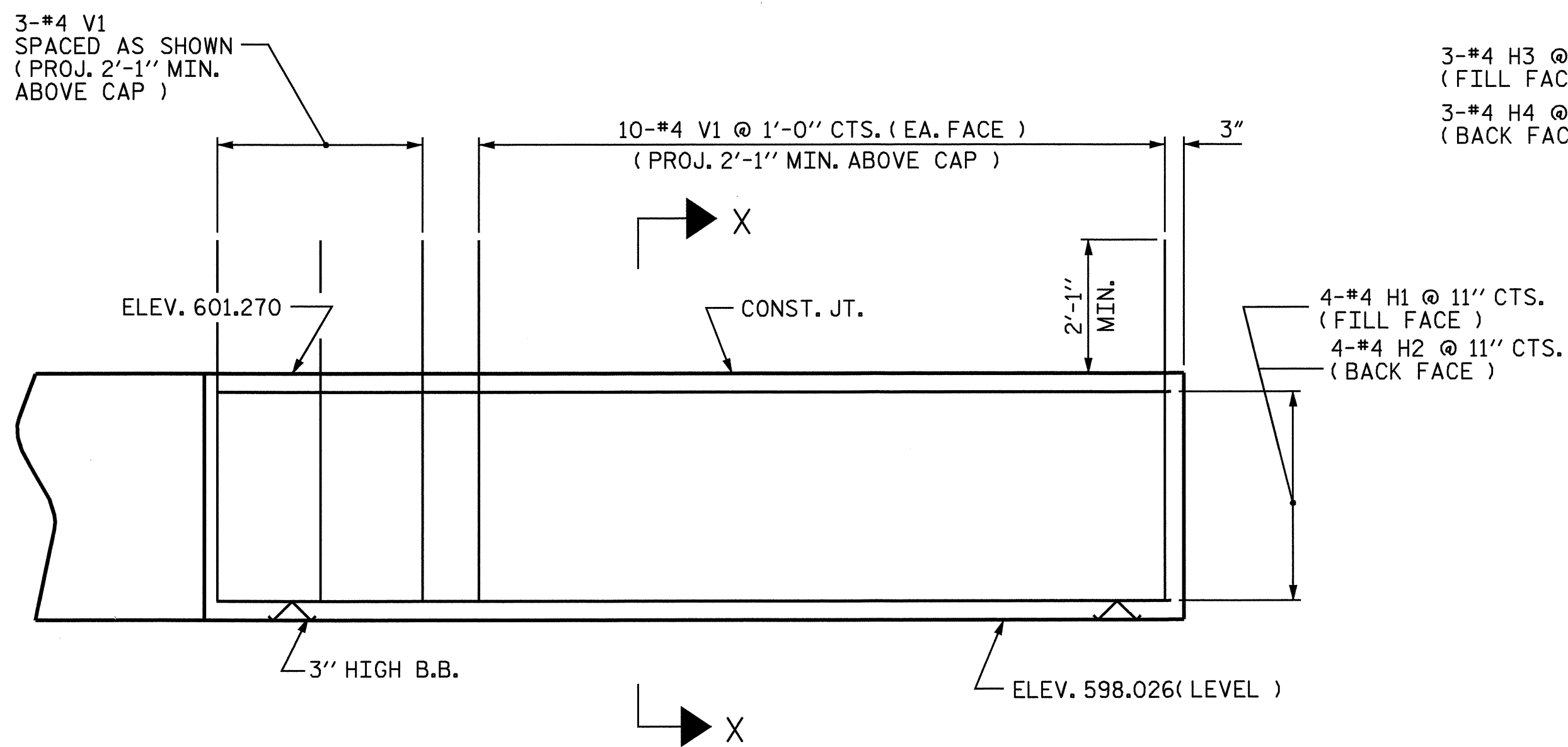
PLAN OF WING W4



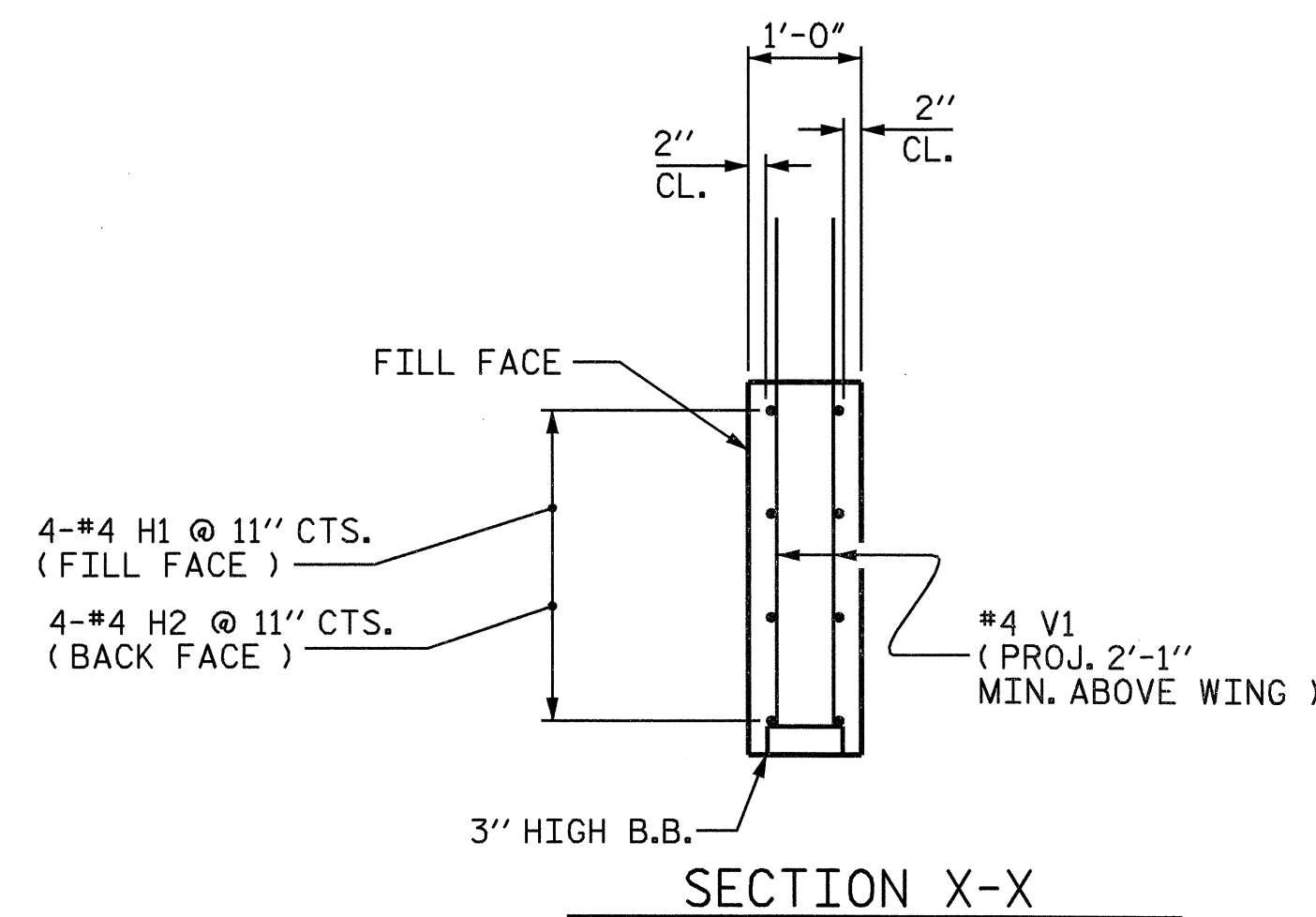
PLAN OF WING W3



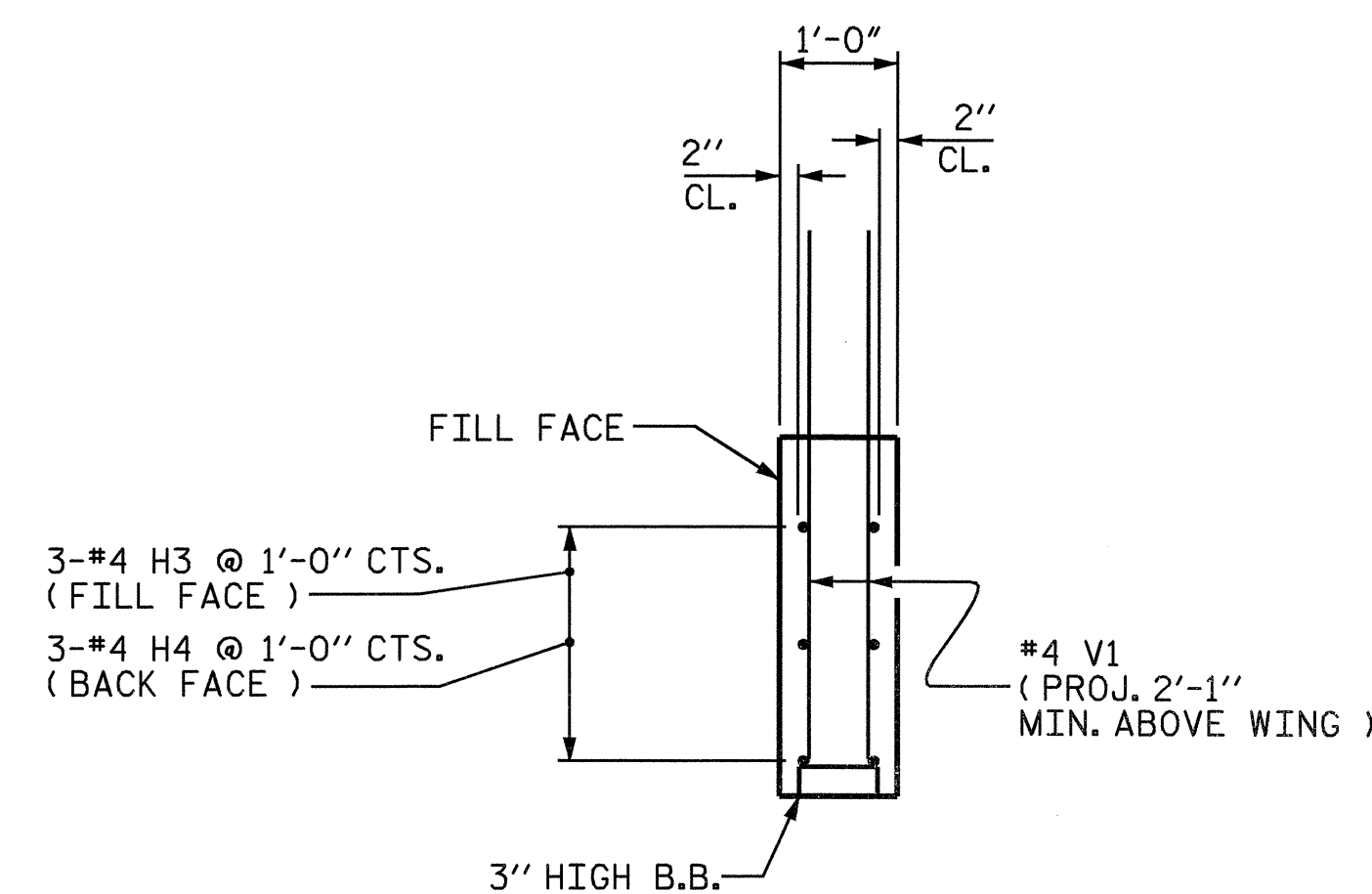
ELEVATION OF WING W4



ELEVATION OF WING W3



SECTION X-X



SECTION Y-Y

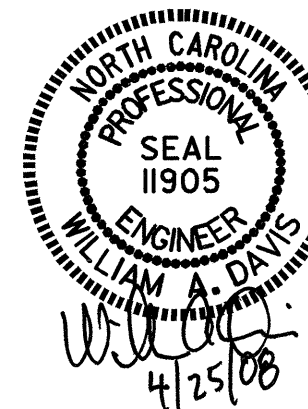
PROJECT NO. B-4244  
 RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 2 OF 3

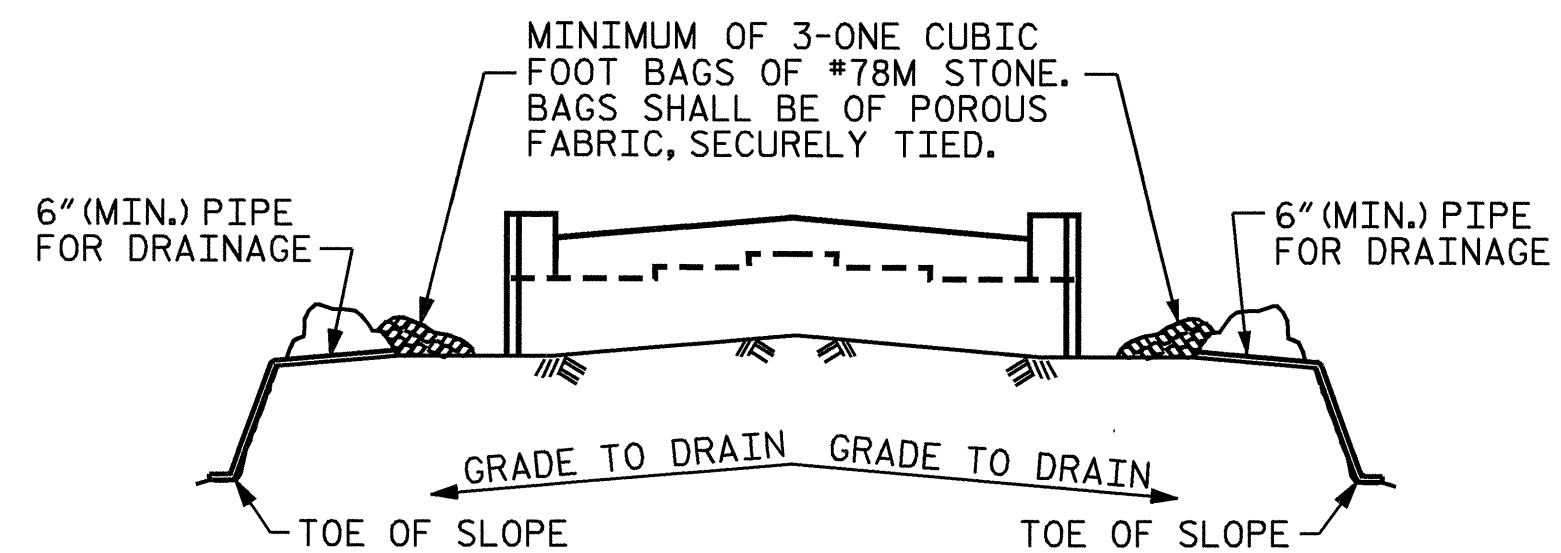
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE

END BENT 2  
 INTEGRAL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL	25
2			4			SHEETS	



DRAWN BY: R.W. WRIGHT DATE: 3-07  
 CHECKED BY: A.R. CHESSON DATE: 7/07

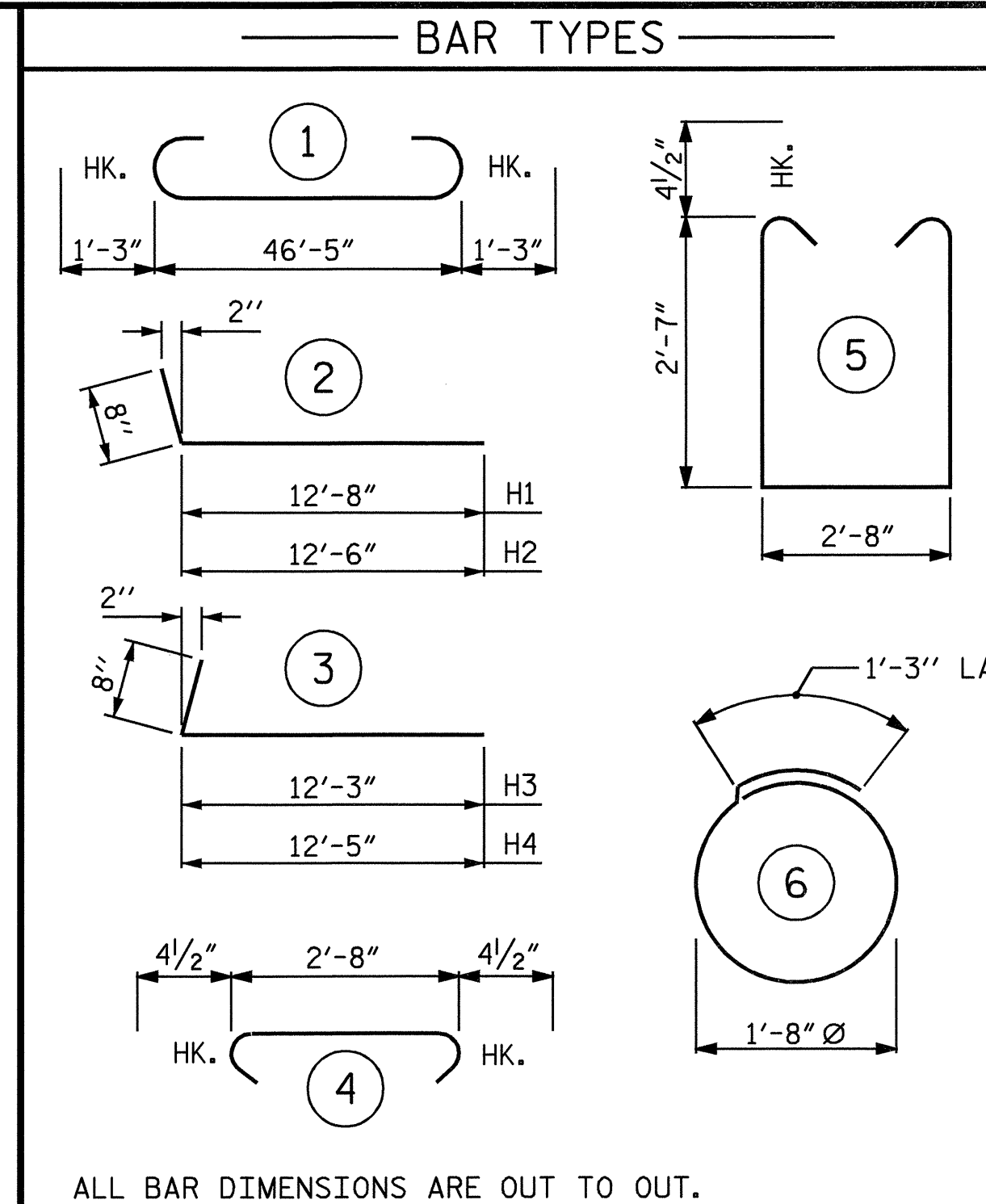


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

### TEMPORARY DRAINAGE AT END BENT



ALL BAR DIMENSIONS ARE OUT TO OUT.

### BILL OF MATERIAL

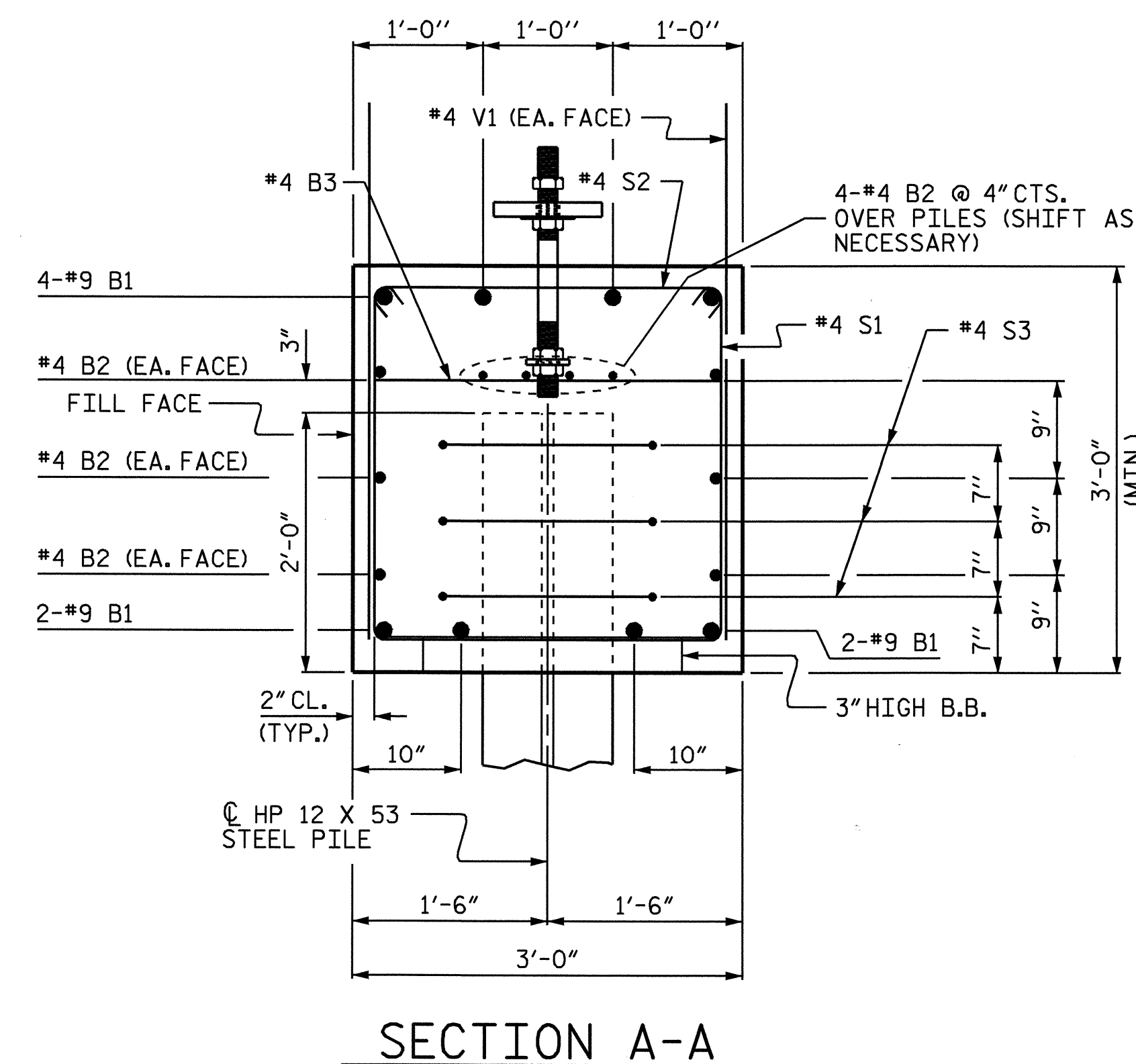
#### END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
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B2	20	#4	STR	24'-6"	327
B3	12	#4	STR	2'-8"	21
H1	4	#4	2	13'-4"	36
H2	4	#4	2	13'-2"	35
H3	3	#4	3	12'-11"	26
H4	3	#4	3	13'-1"	26
S1	42	#4	5	8'-7"	241
S2	42	#4	4	3'-5"	96
S3	27	#4	6	6'-6"	117
V1	130	#4	STR	4'-10"	420

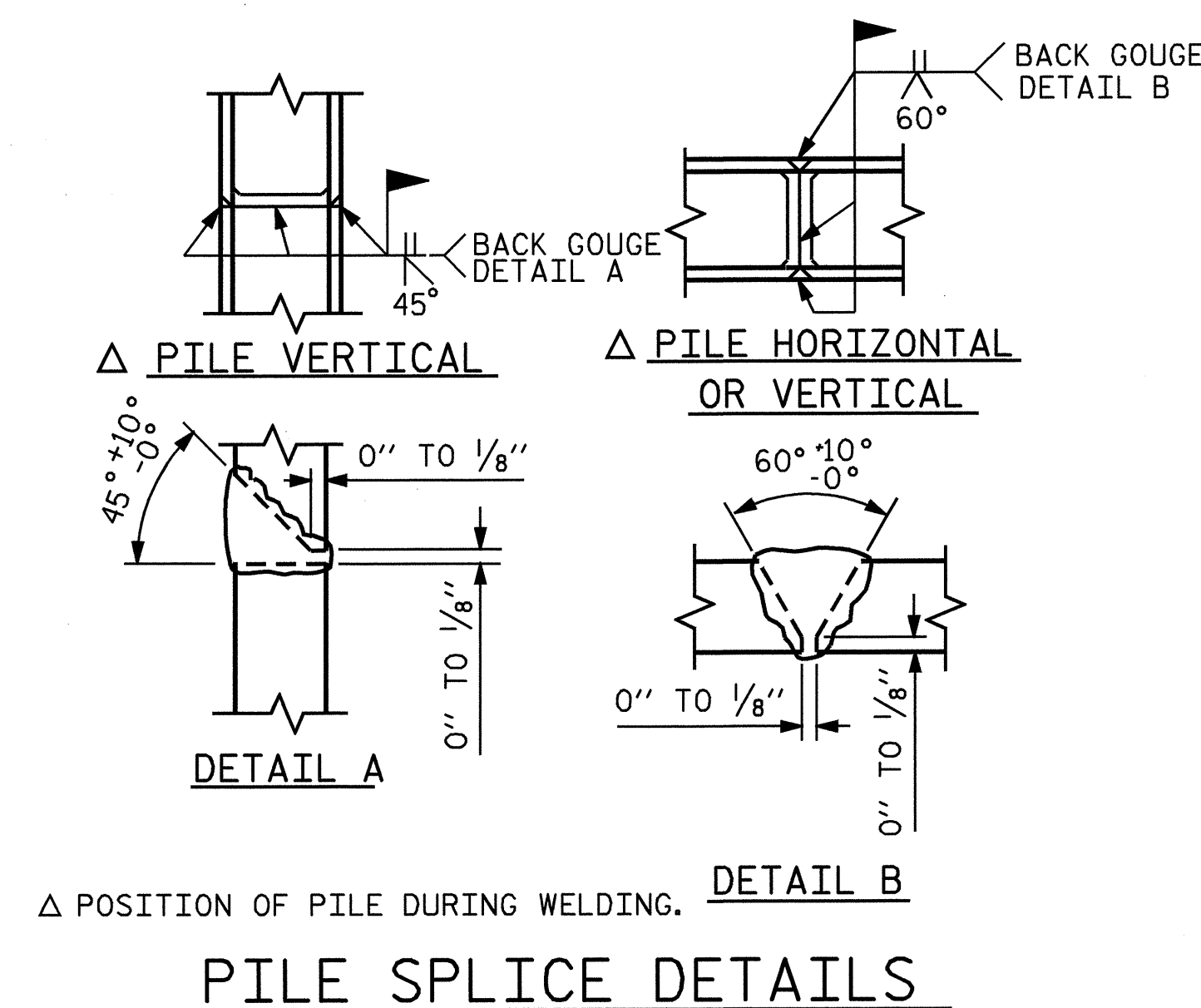
REINFORCING STEEL 2676 LBS

CLASS A CONCRETE BREAKDOWN :  
POUR #1 - (CAP & LOWER WINGS) 18.3 C.Y.  
TOTAL 18.3 C.Y.

HP 12 x 53 STEEL PILES  
NO. = 9 LIN. FEET = 135



### SECTION A-A



△ POSITION OF PILE DURING WELDING.

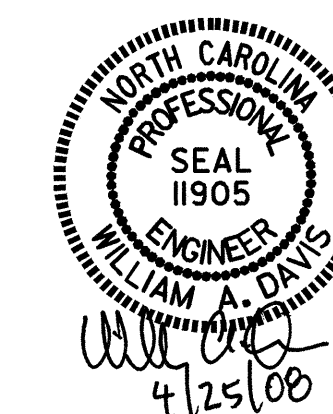
### PILE SPLICE DETAILS

PROJECT NO. B-4244  
RANDOLPH COUNTY  
STATION: 18+10.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

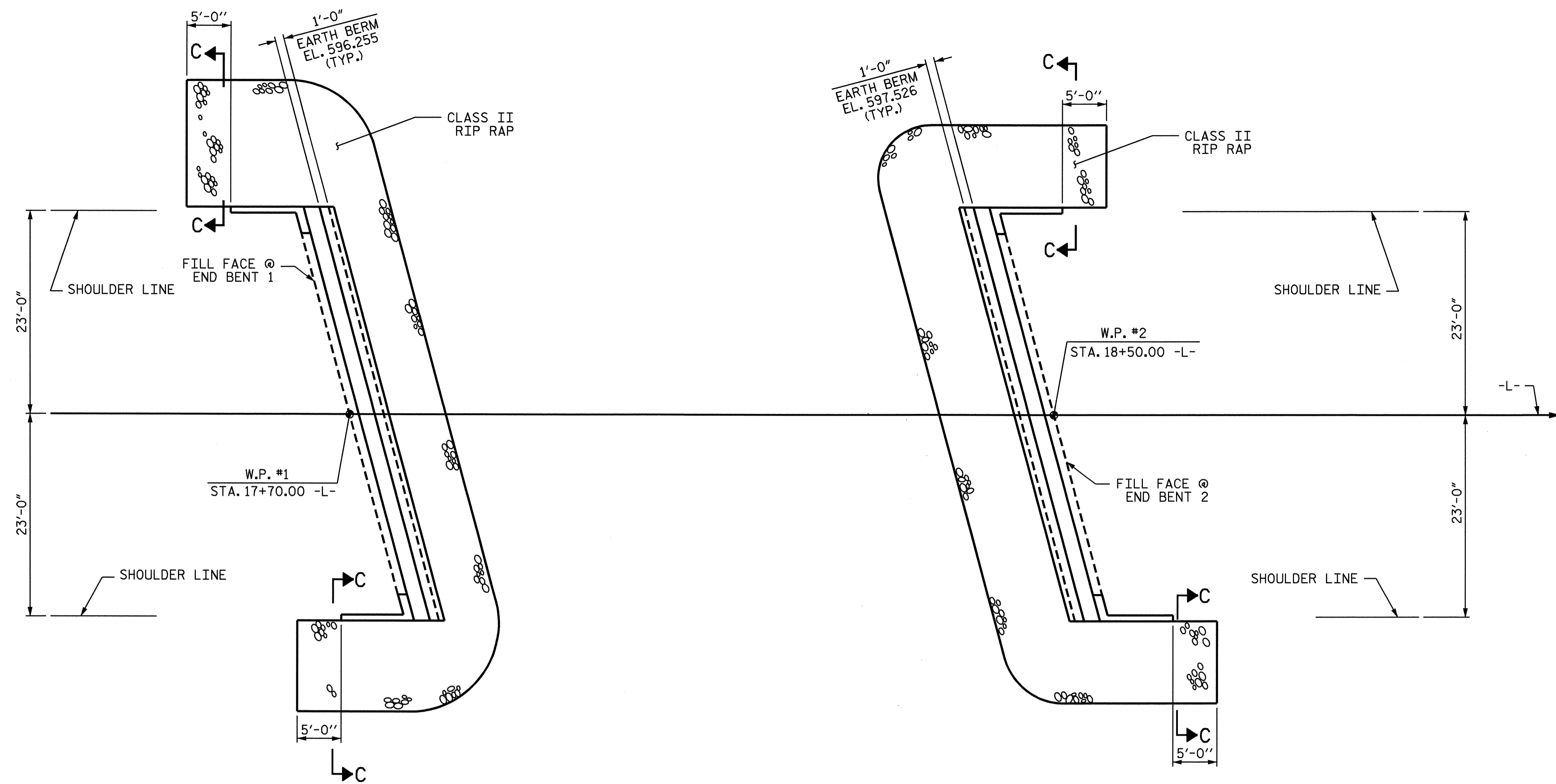
SUBSTRUCTURE  
END BENT 2  
INTEGRAL



DRAWN BY : R.W. WRIGHT DATE : 03/07  
CHECKED BY : A.R. CHESSON DATE : 7/07

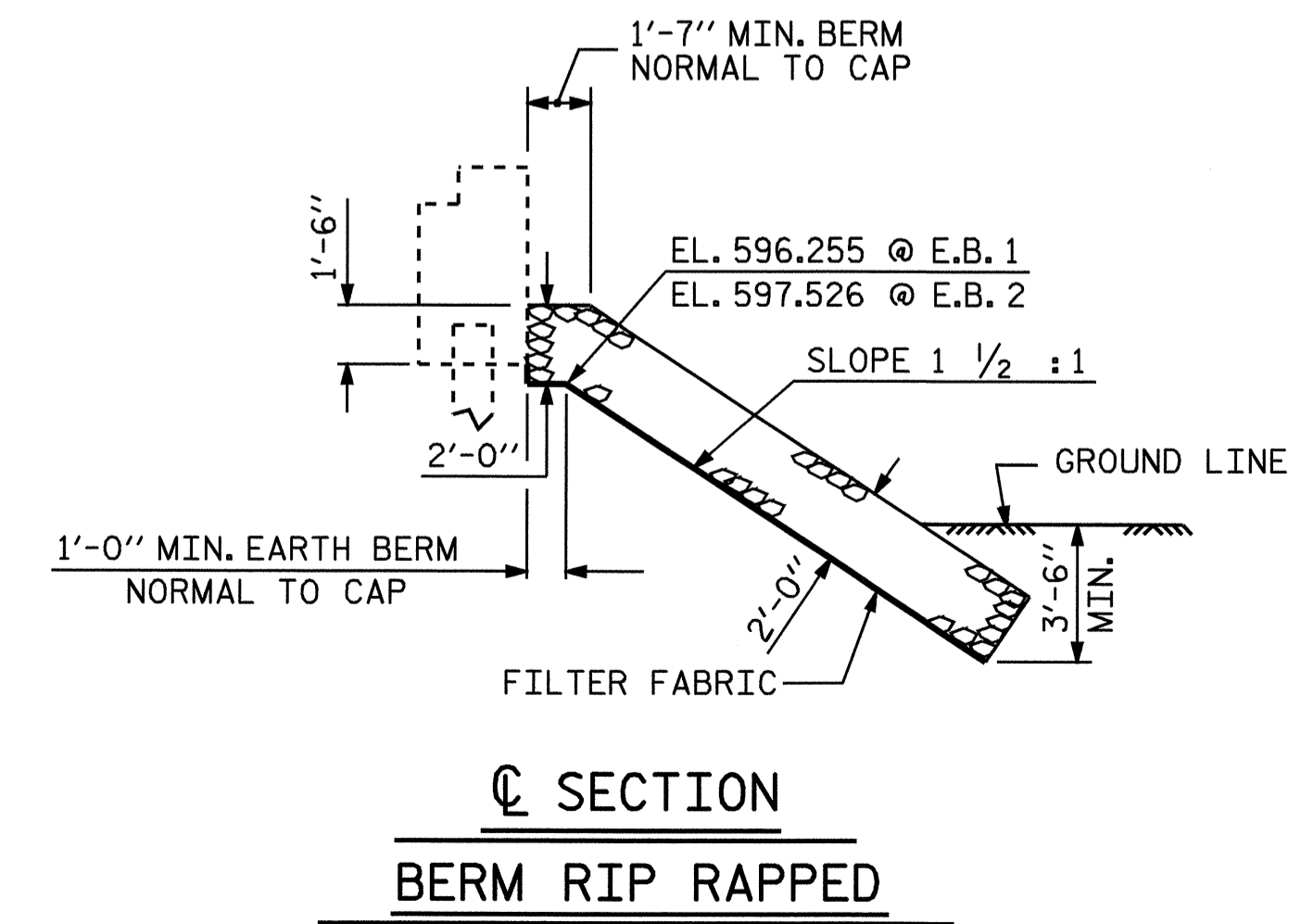
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS 25
2			4			

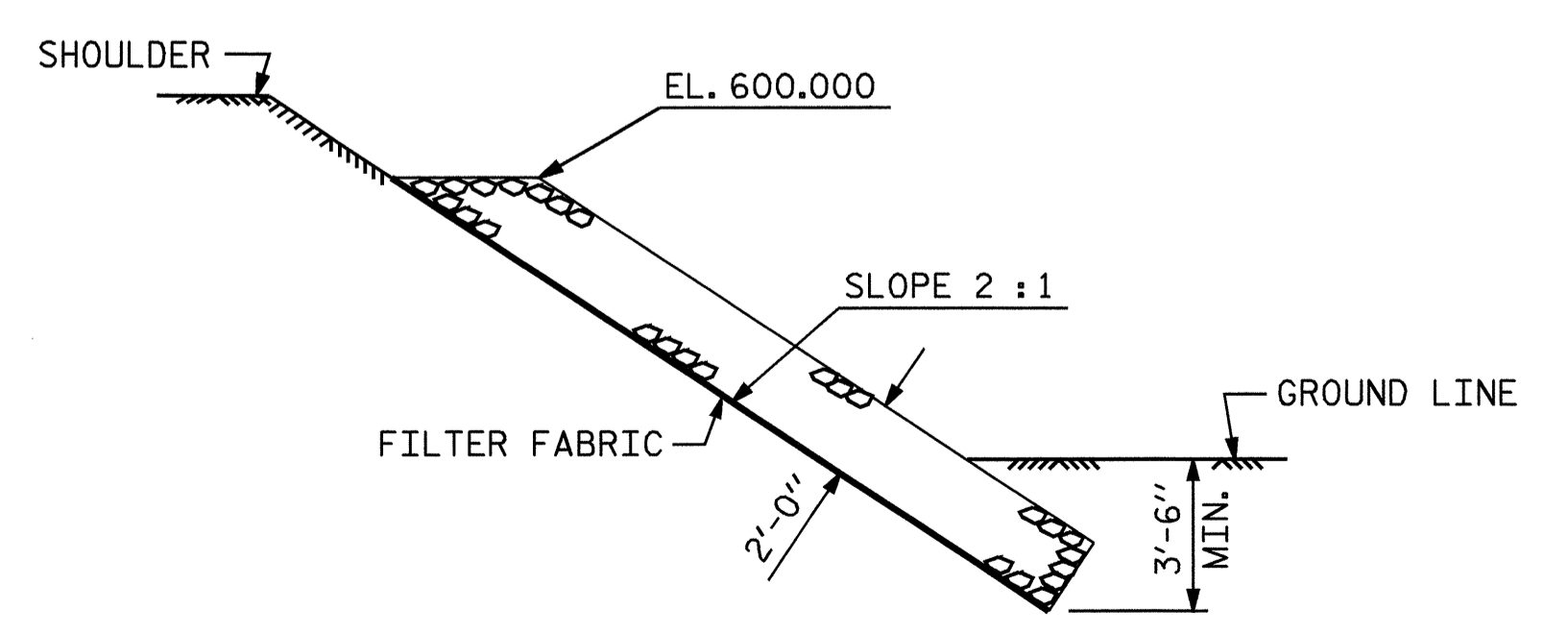


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 18+10.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	109	121
END BENT 2	152	169

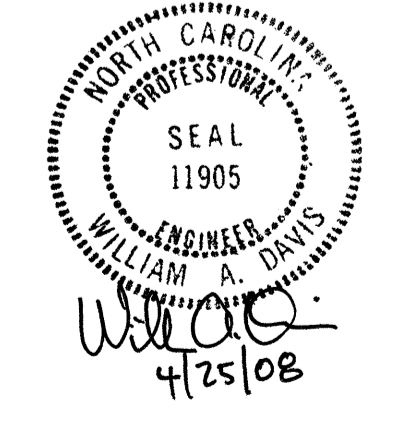


SECTION C-C  
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

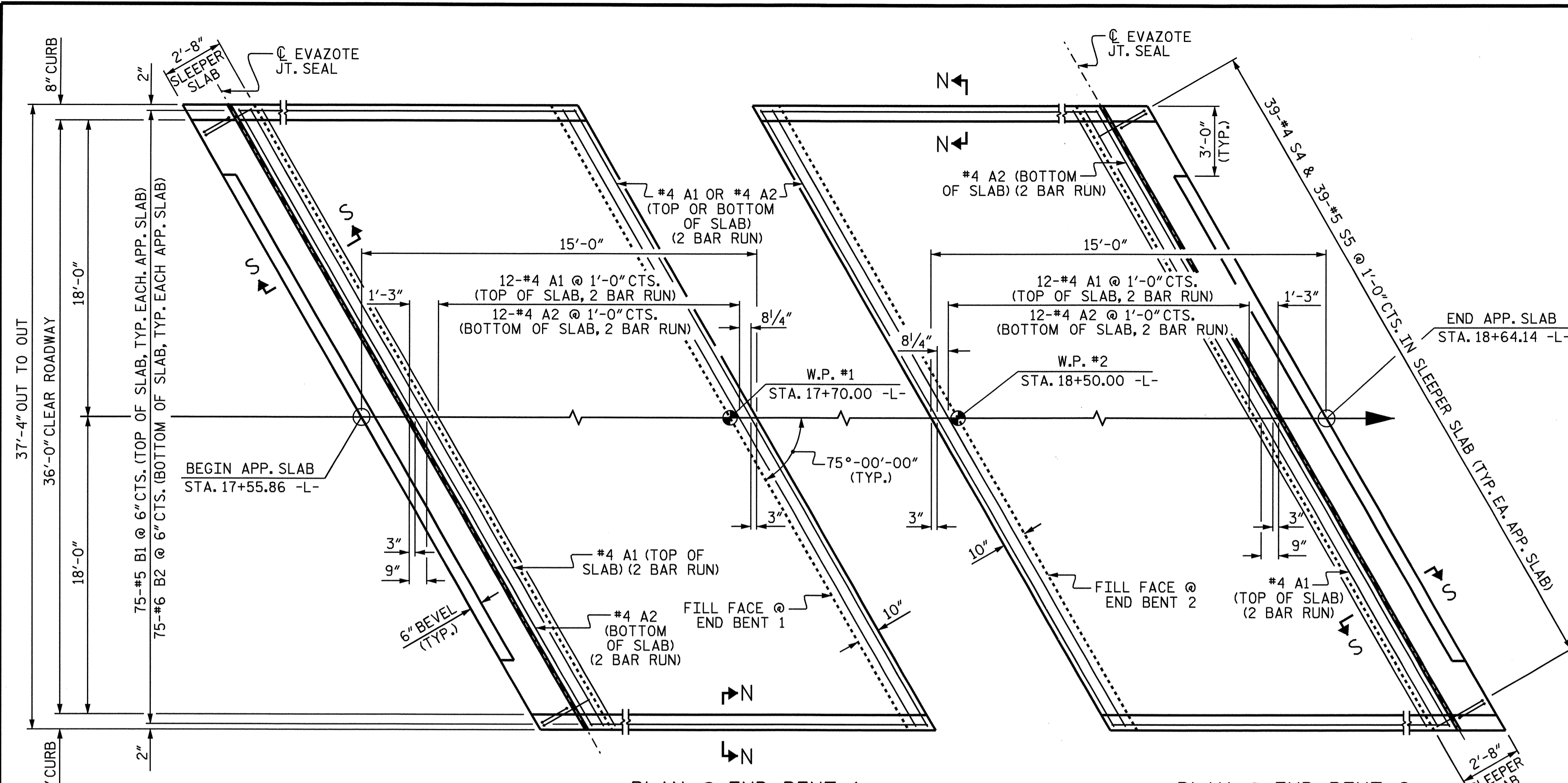


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 —RIP RAP DETAILS—

ASSEMBLED BY: <i>Neil M. Kuffin</i>	DATE: 3/6/08
CHECKED BY: <b>W. A. DAVIS</b>	DATE: 3/7/08
DRAWN BY: REK 1/84	REV. 8/16/99 RWW/LES
CHECKED BY: RDU 1/84	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS 25
2			4			





PLAN @ END BENT 1  
 PLAN @ END BENT 2  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS. #4 A1 BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.

**NOTES**

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

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

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

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

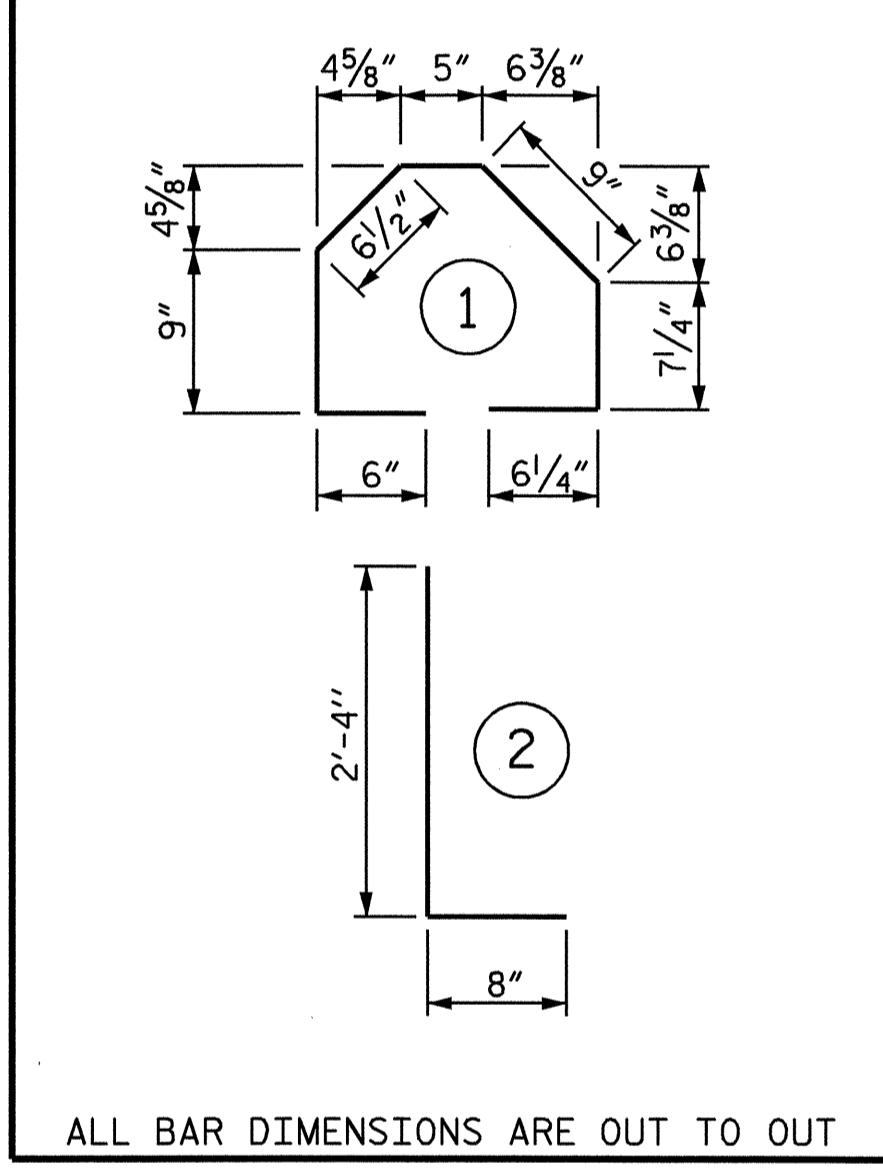
THE VERTICAL JOINT ON THE RIGHT AND LEFT SIDE OF THE APPROACH SLAB AT THE ENDS OF THE EVAZOTE JOINT SHALL BE FILLED WITH SILICONE OR OTHER APPROVED MATERIAL IN ORDER TO PREVENT BACKFILL FROM ENTERING THE JOINT OPENING.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

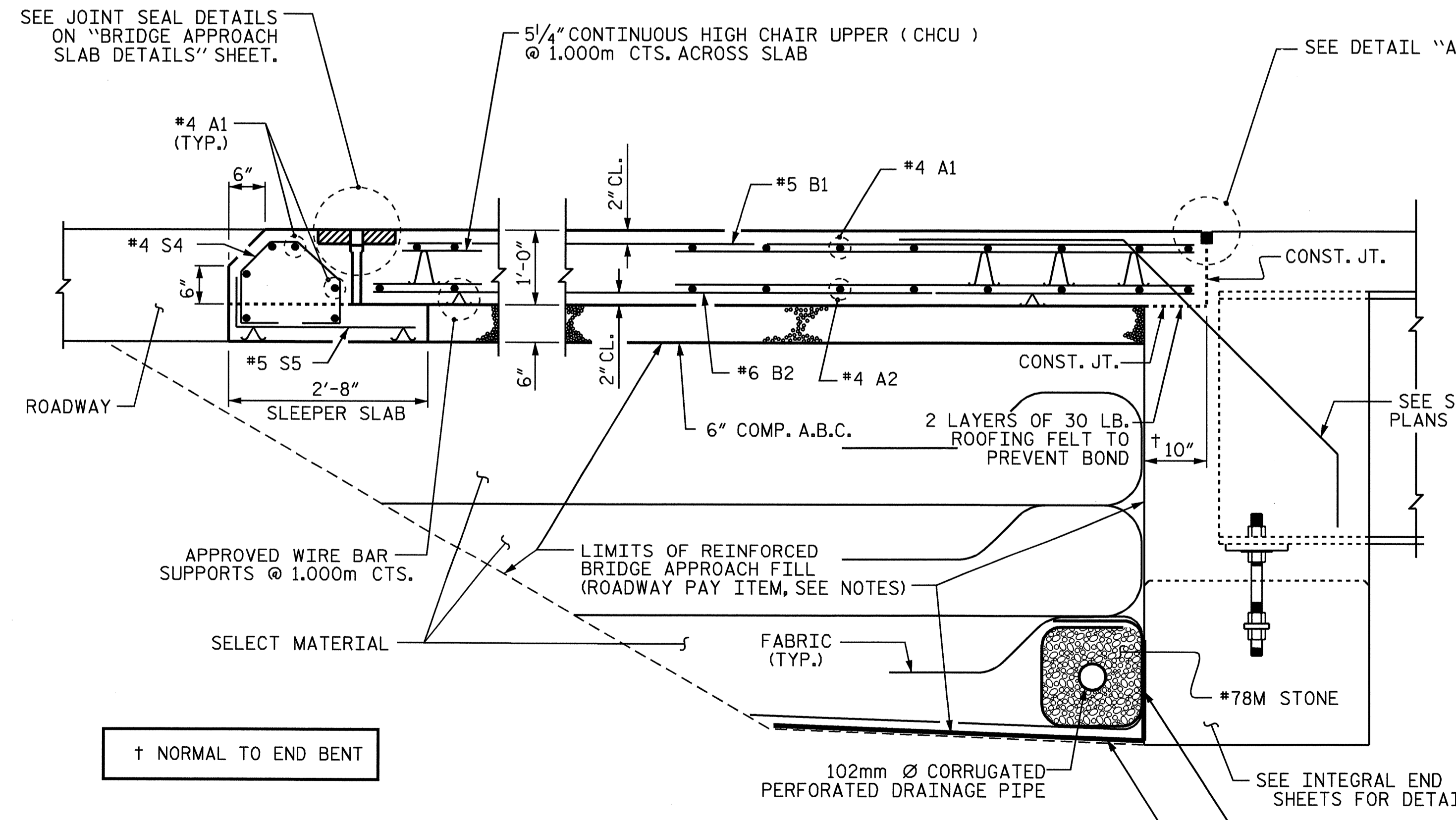
**BILL OF MATERIAL**  
 FOR ONE APPROACH SLAB  
 (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	42	#4	STR	20'-3"	568
A2	28	#4	STR	20'-0"	374
* B1	75	#5	STR	12'-4"	965
B2	75	#6	STR	12'-10"	1446
* S4	39	#4	1	4'-1"	106
S5	39	#5	2	3'-0"	122
<b>REINFORCING STEEL</b>					<b>LBS. 1942</b>
* EPOXY COATED REINFORCING STEEL					<b>LBS. 1639</b>
<b>CLASS AA CONCRETE</b>					
POUR #1 - SLAB & CURB					<b>C. Y. 18.2</b>
POUR #2 - SLEEPER SLAB					<b>C. Y. 4.0</b>
<b>TOTAL</b>					<b>C. Y. 22.2</b>

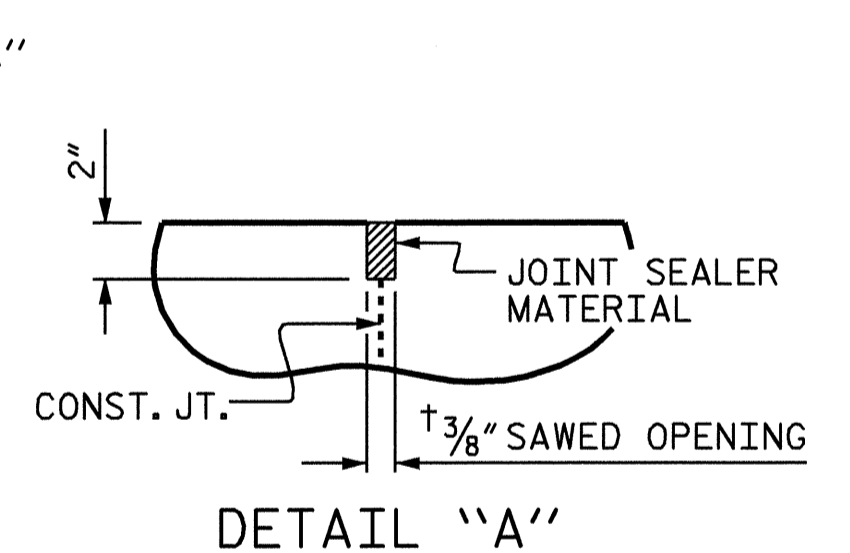
**BAR TYPES**



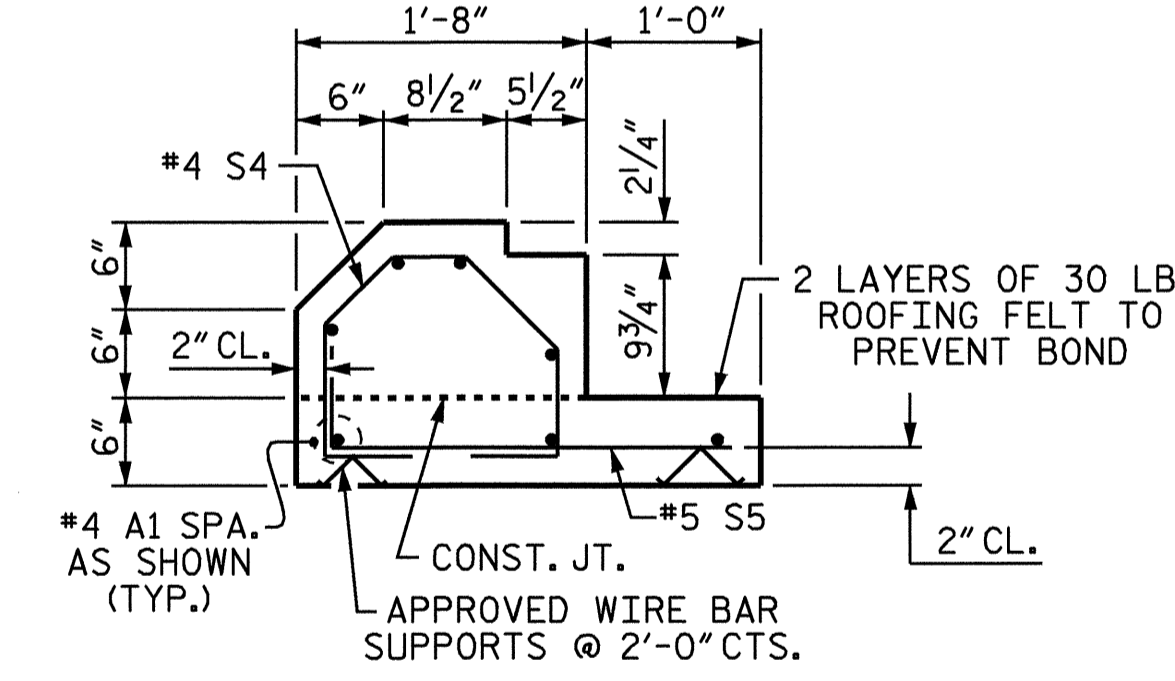
ALL BAR DIMENSIONS ARE OUT TO OUT



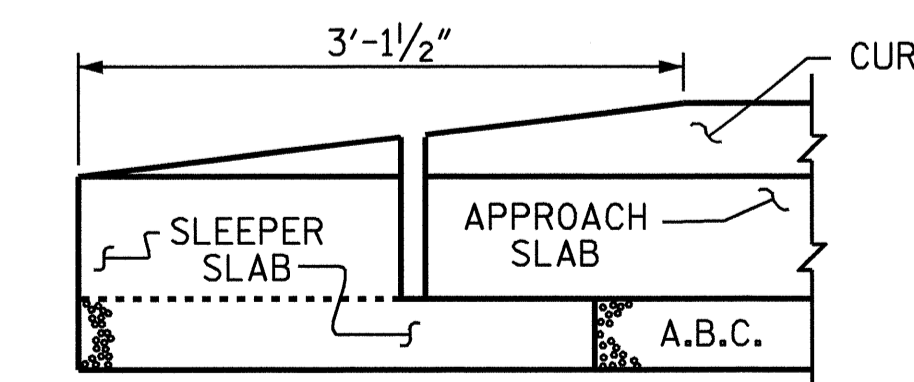
SECTION THRU SLAB



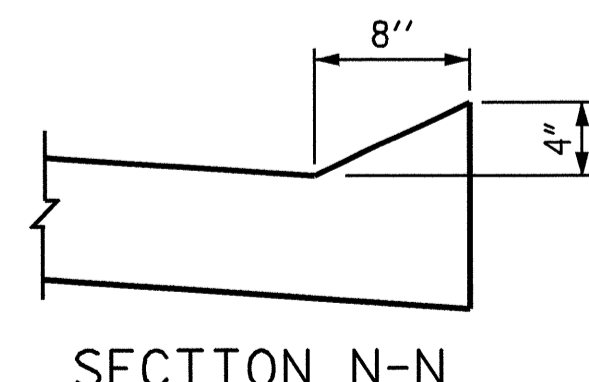
DETAIL "A"



SECTION S-S  
 SHOWING SLEEPER SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER



SECTION N-N

ASSEMBLED BY: A.R.C./N.M.R. DATE: 3/6/08  
 CHECKED BY: W. A. DAVIS DATE: 3/7/08  
 DRAWN BY: TLA 10/05 ADDED 5/1/06R KMM/GM  
 CHECKED BY: GM 5/06

SEE JOINT SEAL DETAILS ON "BRIDGE APPROACH SLAB DETAILS" SHEET.  
 5/4" CONTINUOUS HIGH CHAIR UPPER (CHCU) @ 1.000m CTS. ACROSS SLAB  
 #4 A1 (TYP.)  
 #4 S4  
 #5 S5  
 2'-8" SLEEPER SLAB  
 6" COMP. A.B.C.  
 2 LAYERS OF 30 LB. ROOFING FELT TO PREVENT BOND  
 APPROVED WIRE BAR SUPPORTS @ 1.000m CTS.  
 SELECT MATERIAL  
 FABRIC (TYP.)  
 #78M STONE  
 102mm Ø CORRUGATED PERFORATED DRAINAGE PIPE  
 SEE INTEGRAL END BENT SHEETS FOR DETAILS  
 IMPERMEABLE GEOMEMBRANE

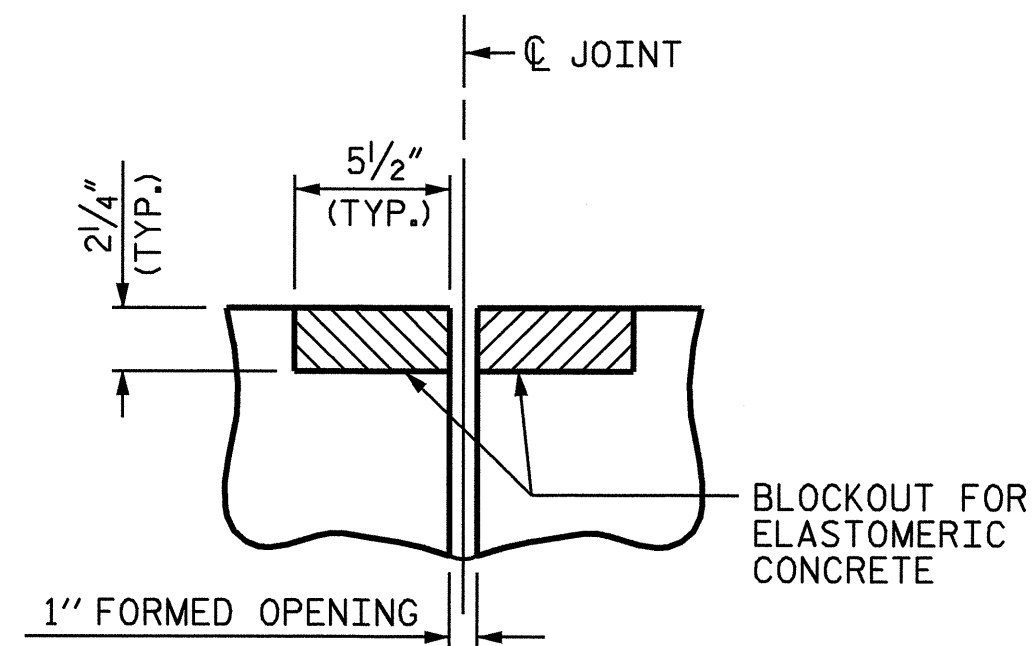


PROJECT NO. B-4244  
 RANDOLPH COUNTY  
 STATION: 18+10.00 -L-  
 SHEET 1 OF 2

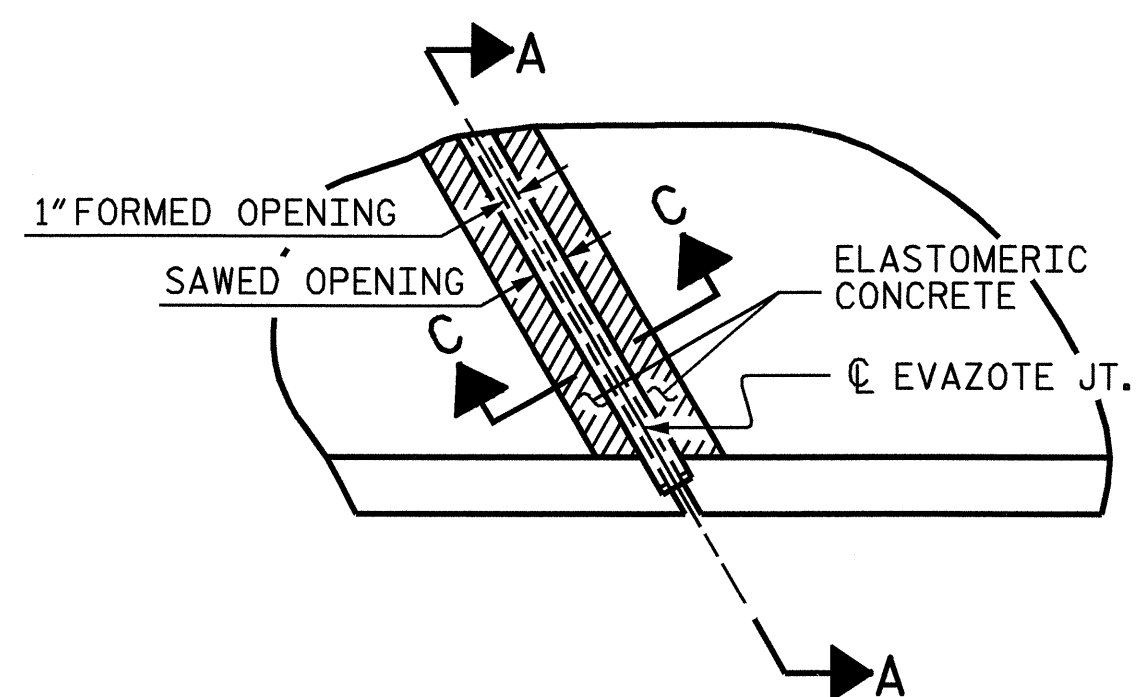
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 BRIDGE APPROACH SLAB  
 FOR INTEGRAL ABUTMENT

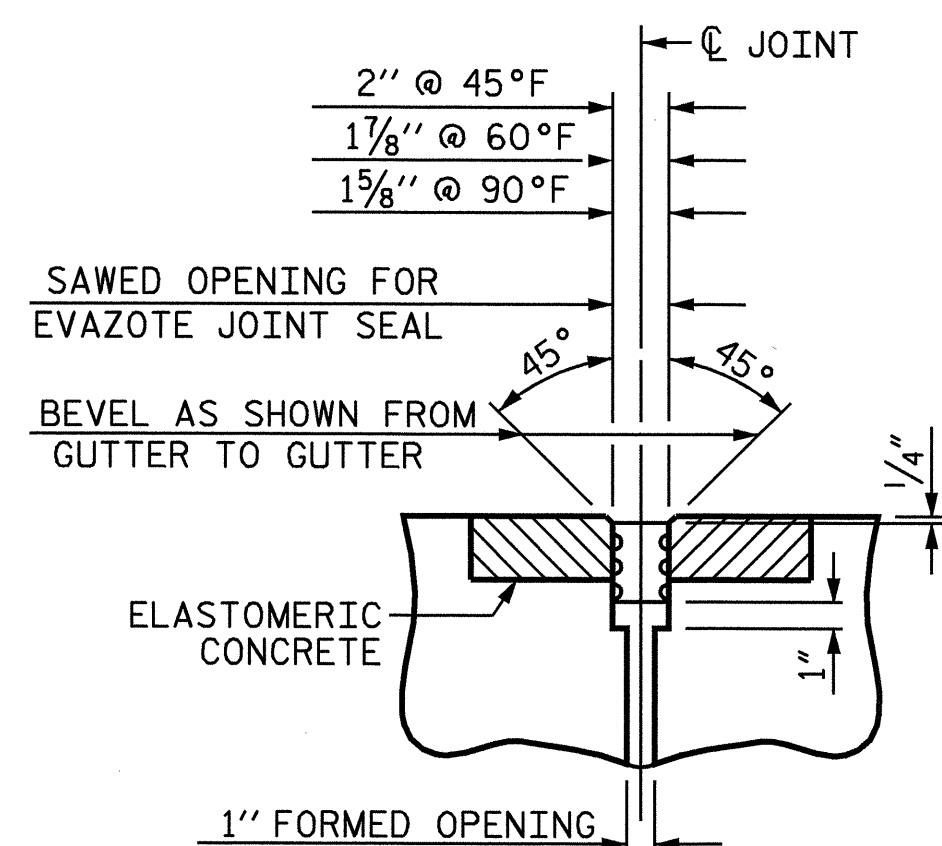
REVISIONS				SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS 25
2			4			



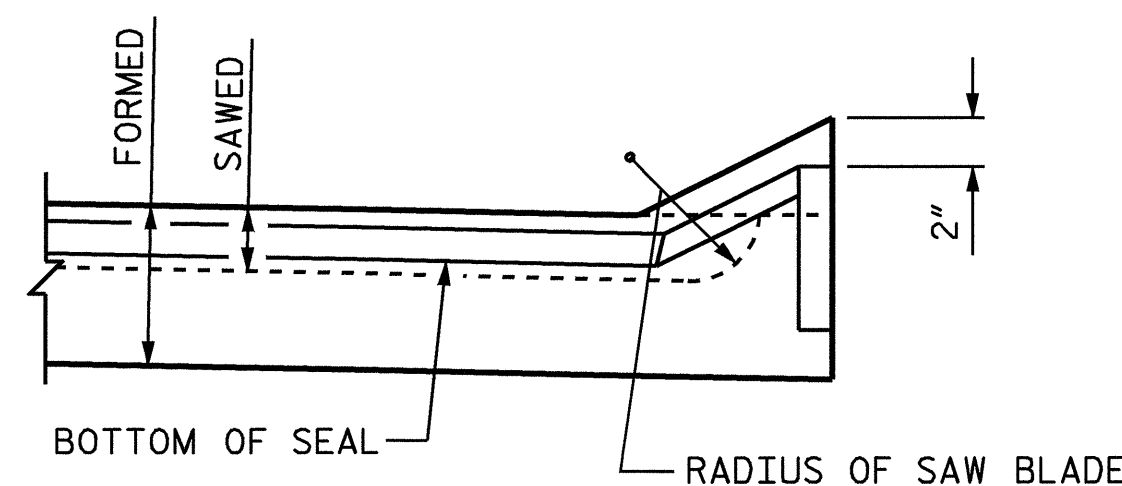
SECTION C-C  
EVAZOTE JOINT SEAL  
(PRE-SAWED ELASTOMERIC  
CONCRETE DIMENSIONS)



PLAN



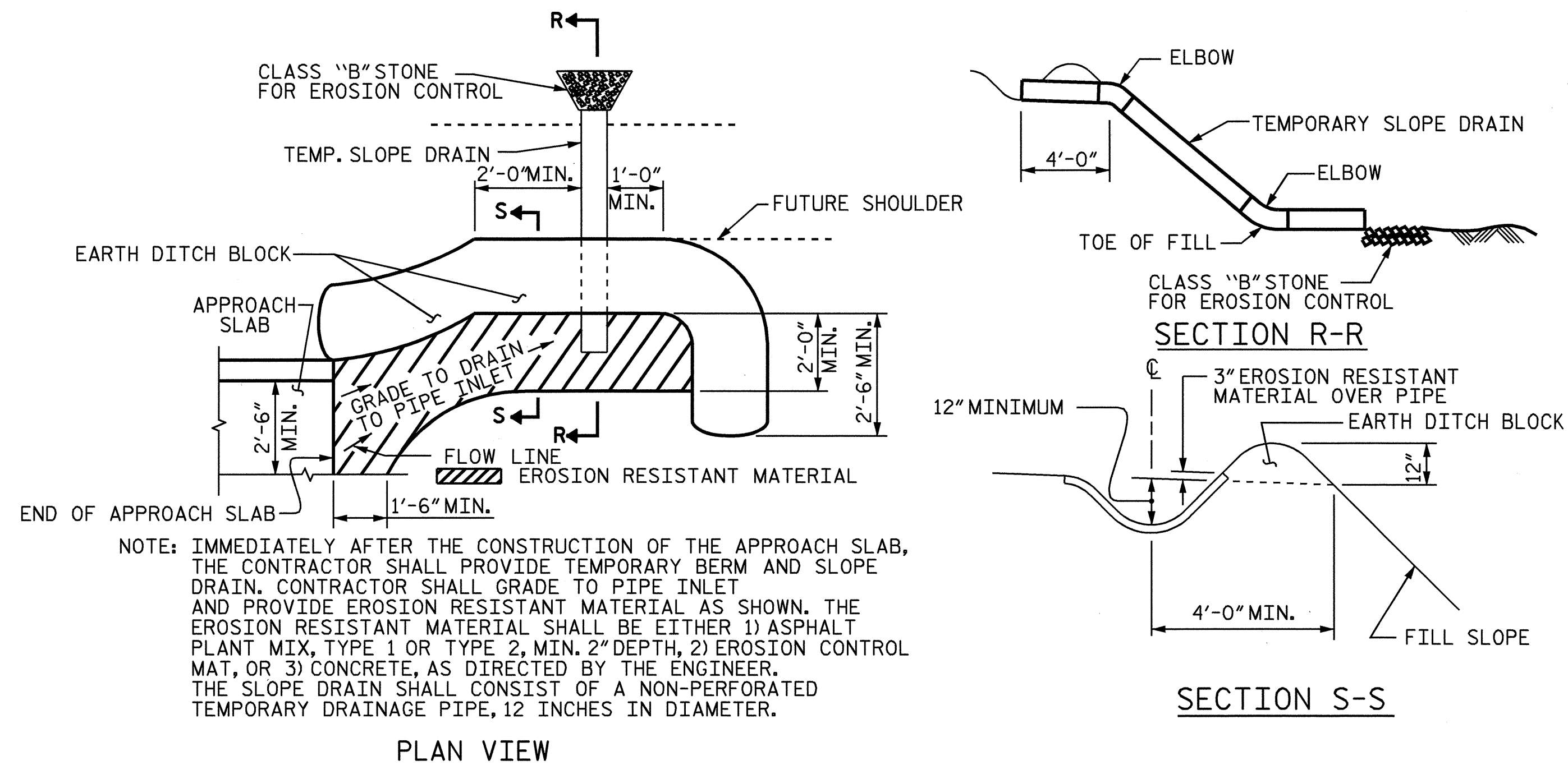
SECTION C-C  
EVAZOTE JOINT SEAL



SECTION A-A

ELASTOMERIC CONCRETE	
APPROACH SLAB NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.2
2	6.2
TOTAL	12.4

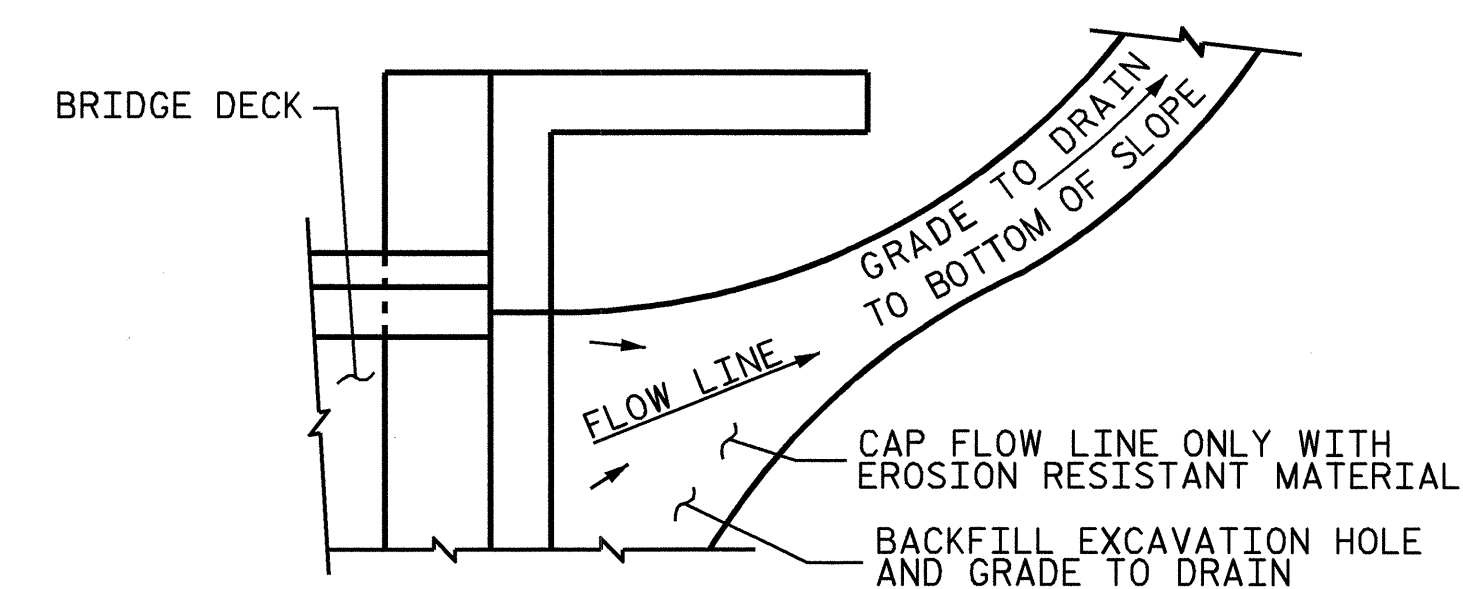
\* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

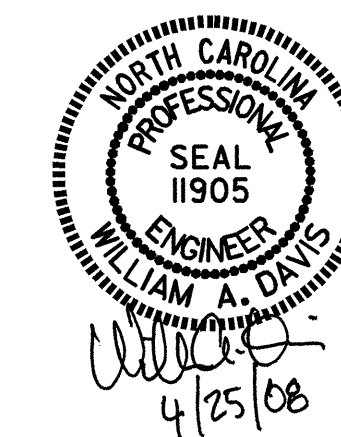


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4244  
RANDOLPH COUNTY  
 STATION: 18+10.00 -L-

SHEET 2 OF 2



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY : A.R.C./N.M.R.	DATE : 3/7/08
CHECKED BY : W.A.DAVIS	DATE : 3/7/08
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

## 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. FINS 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