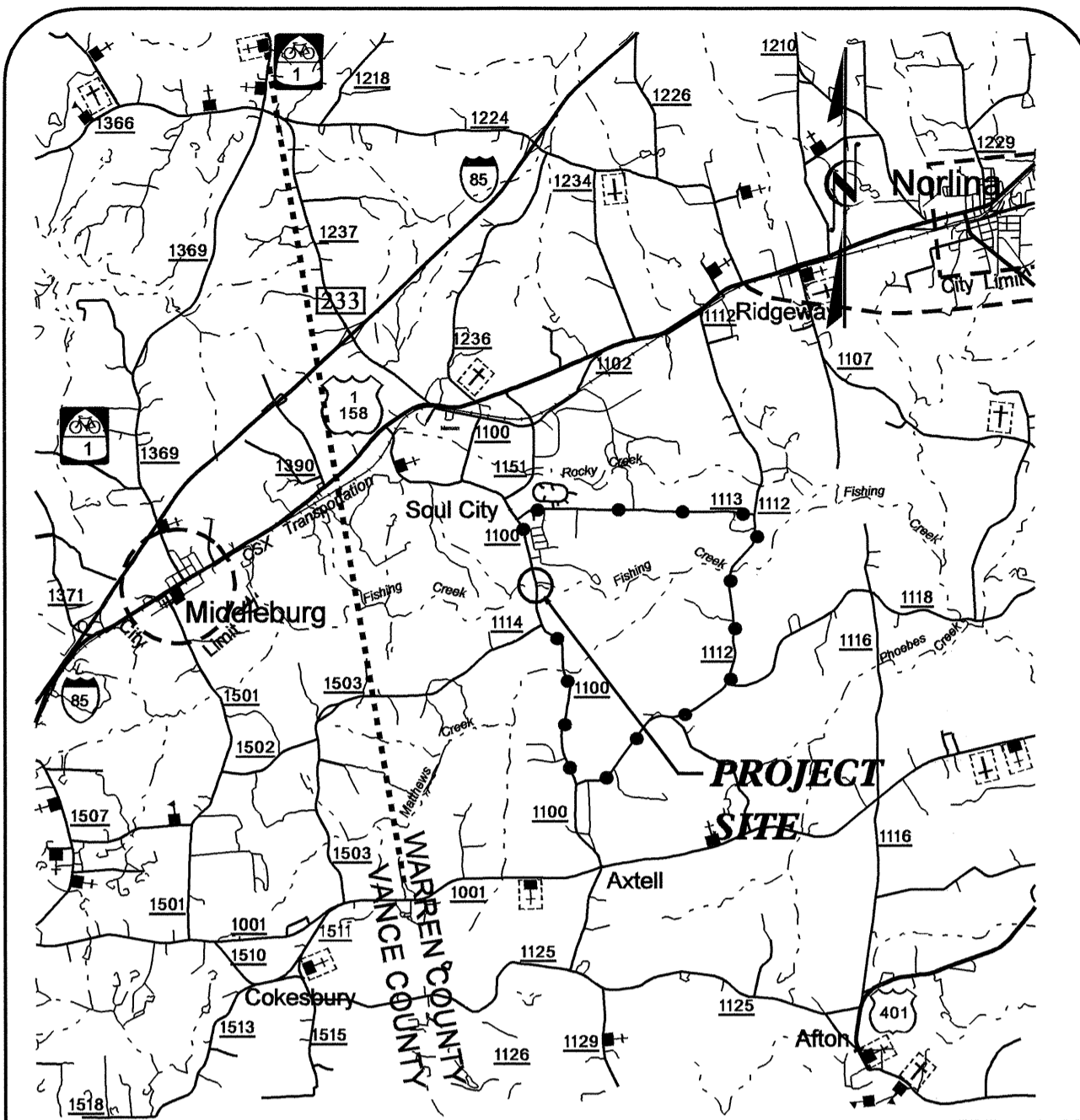


**CONTRACT: C202103 TIP PROJECT: B-3706**



**VICINITY MAP**

●●● DETOUR ROUTE

NEAREST SHIPPING POINT: MANSON ON CSX RR APPROX. 2.2 MILES FROM PROJECT

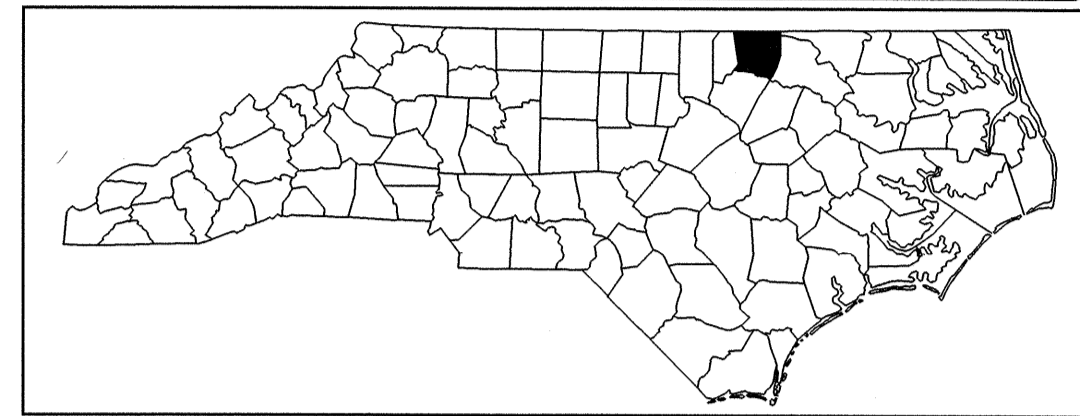
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**WARREN COUNTY**

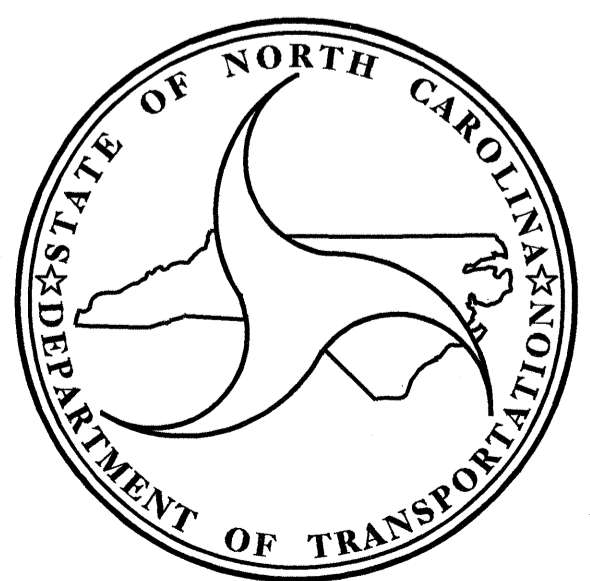
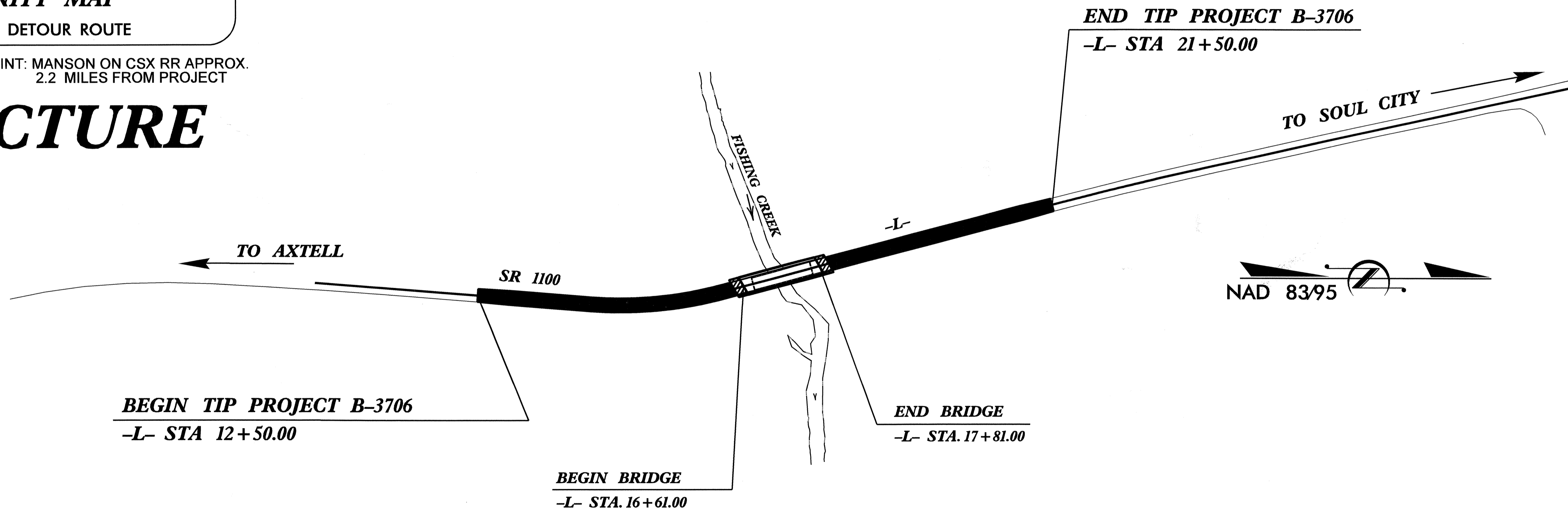
**LOCATION: BRIDGE NO. 20 ON SR 1100 (MANSON-AXTELL ROAD) OVER FISHING CREEK**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3706		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33246.1.1	BRZ-1100(8)	PE	
33246.2.1	BRZ-1100(8)	RW & UTIL.	
33246.3.1	BRZ-1100(8)	CONST.	



**STRUCTURE**



**DESIGN DATA**

ADT 2009 =	900
ADT 2029 =	1525
DHV =	10 %
D =	60 %
T =	5 % *
V =	30 MPH
(* TTST 2% + DUAL 3%)	
FUNC. CLASS. =	RURAL LOCAL

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-3706 =	0.147 MI.
LENGTH OF STRUCTURE TIP PROJECT B-3706 =	0.023 MI.
TOTAL LENGTH OF TIP PROJECT B-3706 =	0.170 MI.

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

---

2006 STANDARD SPECIFICATIONS

**LETTING DATE:**  
April 21, 2009

**N. N. BULLOCK, PE**  
PROJECT ENGINEER

**D. R. CALHOUN, PE**  
PROJECT DESIGN ENGINEER

**STRUCTURE DESIGN UNIT**

**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

P.E.

STATE DESIGN ENGINEER

**DEPARTMENT OF TRANSPORTATION**  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED  
DIVISION ADMINISTRATOR

DATE

22-DEC-2008 09:53  
\\s:\p\project\B-3706\structure\final\plans\B3706.ad\_tsh\_01.dgn  
jwathon

-4.8605% +0.5132%

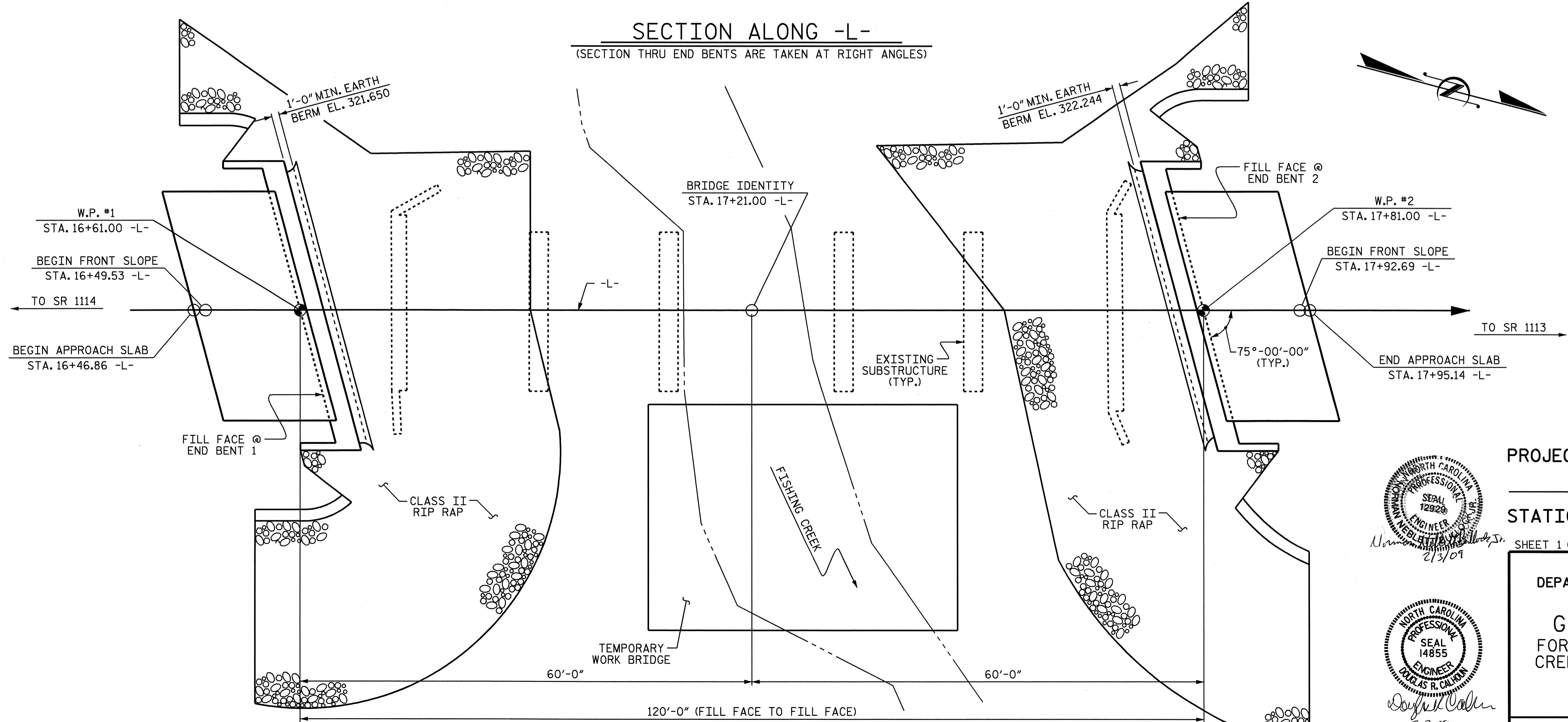
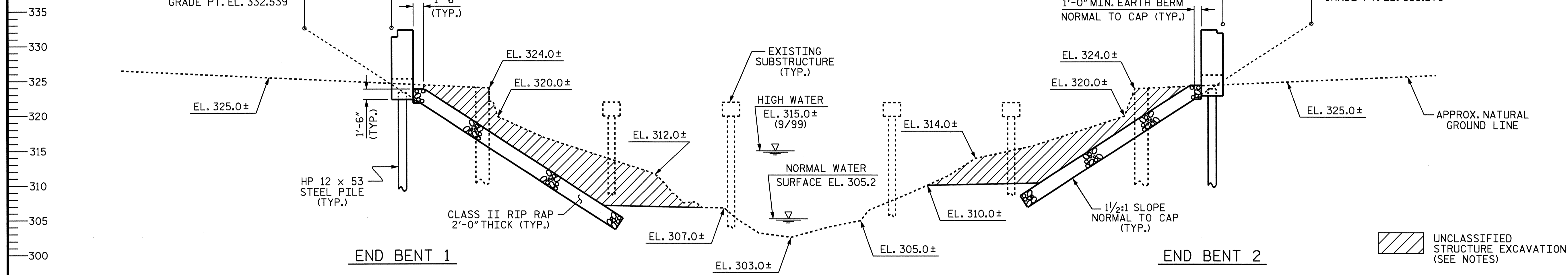
PI = 15+55.00 -L-  
EL. = 332.050  
VC = 200'  
**GRADE DATA**

FILL FACE @ END BENT 1  
STA. 16+61.00 -L-  
GRADE PT. EL. 332.594

+0.5132% +7.4909%  
PI = 19+35.00 -L-  
EL. = 334.000  
VC = 280'  
**GRADE DATA**

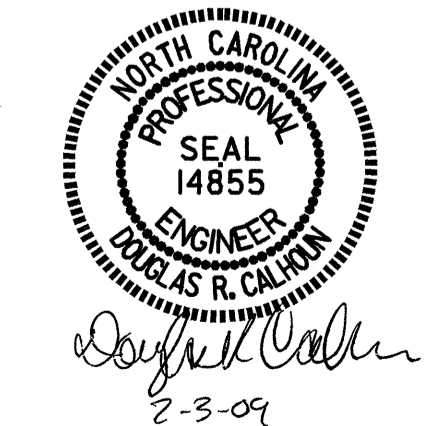
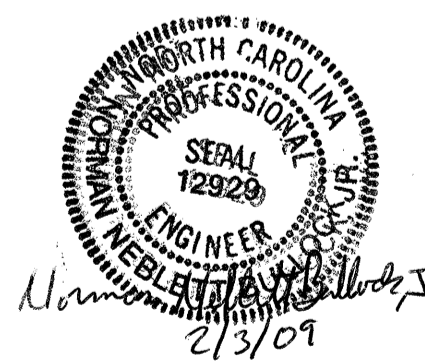
FILL FACE @ END BENT 2  
STA. 17+81.00 -L-  
GRADE PT. EL. 333.210

BEGIN FRONT SLOPE  
STA. 17+92.69 -L-  
GRADE PT. EL. 333.270



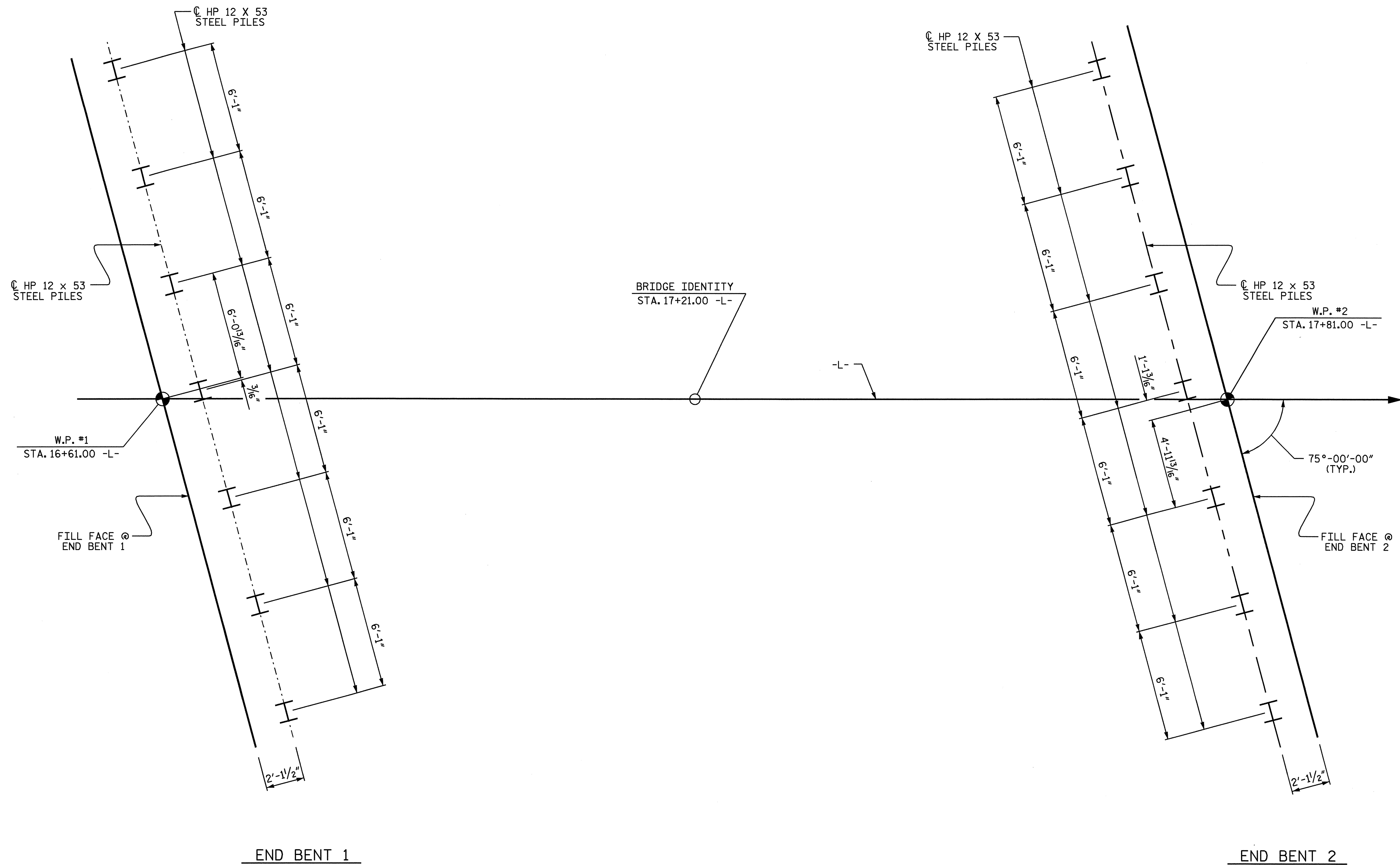
DRAWN BY: J.L. WALTON DATE: 12/5/08  
CHECKED BY: D.R. CALHOUN DATE: 12/9/08

**PLAN**  
(PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)



PROJECT NO. B-3706  
WARREN COUNTY  
STATION: 17+21.00 -L-  
SHEET 1 OF 3 REPLACES BRIDGE #20

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>GENERAL DRAWING FOR BRIDGE OVER FISHING CREEK ON SR 1100 BETWEEN SR 1114 AND SR 1113</b>					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. <b>S-1</b> TOTAL SHEETS <b>21</b>



**FOUNDATION LAYOUT**

(DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILES)

**FOUNDATION NOTES**

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 167 TONS PER A PILE FOR PILES, SEE PILE SPECIAL PROVISIONS.

PROJECT NO. B-3706

WARREN COUNTY

STATION: 17+21.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

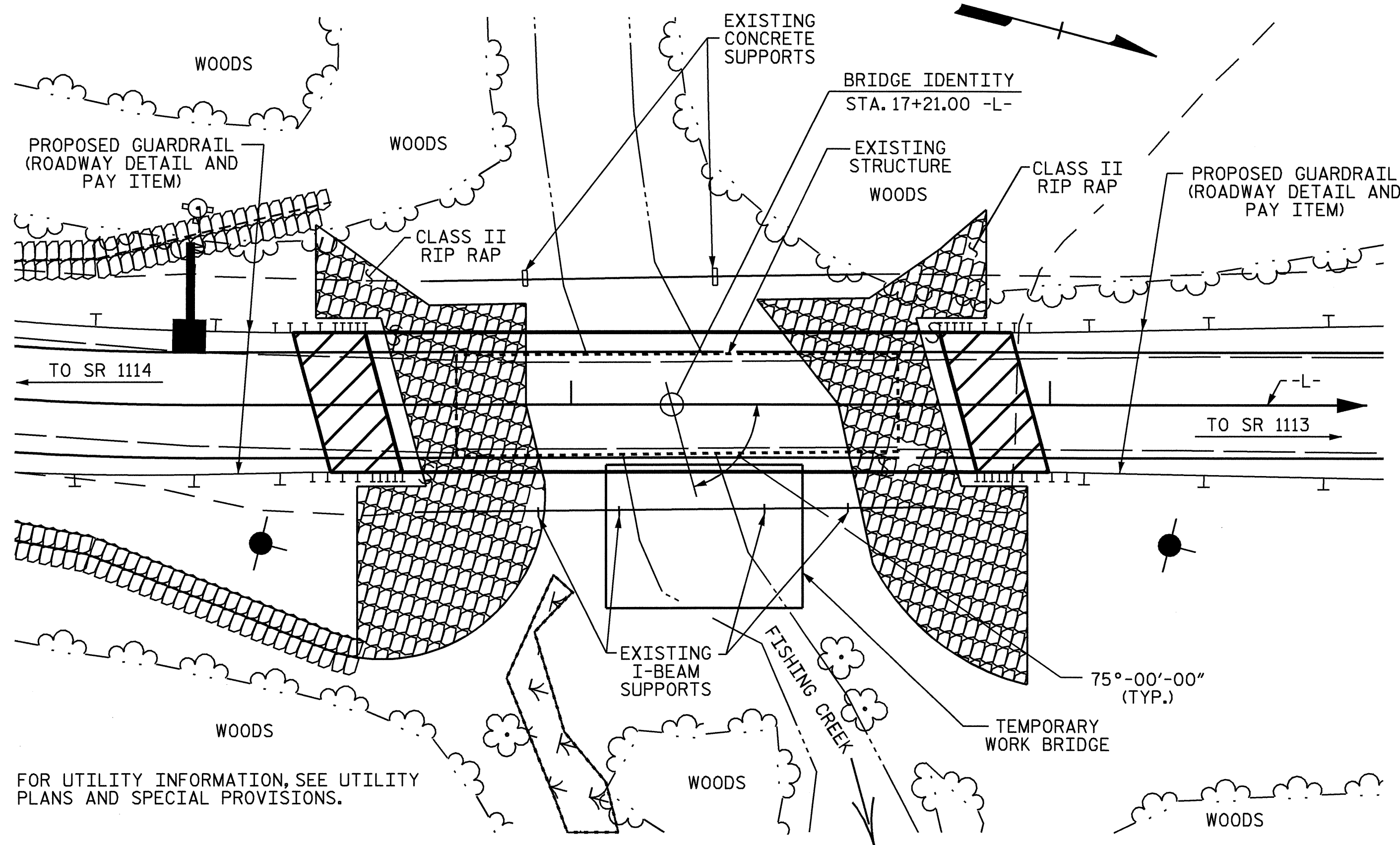
GENERAL DRAWING  
FOR BRIDGE OVER FISHING  
CREEK ON SR 1100 BETWEEN  
SR 1114 AND SR 1113



*Douglas R. Calhoun*  
2-2-09

DRAWN BY : J.L. WALTON DATE : 12/5/08  
CHECKED BY : D.R. CALHOUN DATE : 12/9/08

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



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**HYDRAULIC DATA**

DESIGN DISCHARGE	= 1950 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 314.3
DRAINAGE AREA	= 8.6 SQ. MI.
BASIC DISCHARGE (Q100)	= 2890 C.F.S.
BASIC HIGH WATER ELEVATION	= 316.3

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE	= 4400 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING FLOOD ELEVATION	= 332.8

**LOCATION SKETCH**

**NOTES:**

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

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

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

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE EXISTING STRUCTURE CONSISTING OF FIVE (2 @ 17'-0", 2 @ 17'-9", 1 @ 23'-9" TIMBER DECK ON TIMBER JOIST & I-BEAMS SPANS WITH A CLEAR ROADWAY WIDTH OF 19.2 FT. ON TIMBER CAP AND TIMBER PILE END BENTS AND BENTS AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED.

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

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF -L- AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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

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

A TEMPORARY WORK BRIDGE SHALL BE PERMITTED FOR CONSTRUCTION OF BRIDGE. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 17+21.00 -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 GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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.

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 17+21.00 -L-."

**TOTAL BILL OF MATERIAL**

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	MODIFIED 72" PRESTRESSED CONCRETE GIRDERS	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LIN. FT.	NO.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE				3,870	3,750				468.08		236.55			LUMP SUM	LUMP SUM
END BENT 1			LUMP SUM			23.5		4,180		7	70	270	300		
END BENT 2			LUMP SUM			23.5		4,201		7	105	252	280		
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	3,870	3,750	47.0	LUMP SUM	8,381	468.08	14	175	236.55	580	LUMP SUM	LUMP SUM

DRAWN BY: J.L. WALTON DATE: 12/5/08  
 CHECKED BY: D.R. CALHOUN DATE: 12/9/08

PROJECT NO. B-3706  
 WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE OVER FISHING CREEK ON SR 1100 BETWEEN SR 1114 AND SR 1113

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

# LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.006	--	1.75	0.796	1.67	A	ER	57.800	0.796	1.01	A	EL	57.800	0.80	0.796	1.07	A	ER	57.800		
	HL-93 (OPERATING)	N/A	1	1.304	--	1.35	0.796	2.17	A	ER	57.800	0.796	1.30	A	EL	57.800	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.00	②	1.236	49.324	1.80	0.796	2.35	A	ER	57.800	0.796	1.37	A	EL	57.800	1.00	0.796	1.24	A	ER	57.800		
	HS-20 (OPERATING)	36.00	2	1.827	65.766	1.35	0.796	3.13	A	ER	57.800	0.796	1.83	A	EL	57.800	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.50		3.424	46.224	1.40	0.796	5.68	A	ER	57.800	0.796	3.42	A	EL	57.800	1.00	0.796	2.99	A	ER	57.800	
		NGARBS2	20.00		2.382	47.638	1.40	0.796	4.07	A	ER	57.800	0.796	2.38	A	EL	57.800	1.00	0.796	2.14	A	ER	57.800	
		NAGRIS2	22.00		2.191	48.205	1.40	0.796	3.79	A	ER	57.800	0.796	2.19	A	EL	57.800	1.00	0.796	1.99	A	ER	57.800	
		NCOTTS3	27.25		1.704	46.432	1.40	0.796	2.82	A	ER	57.800	0.796	1.70	A	EL	57.800	1.00	0.796	1.48	A	ER	57.800	
		NAGGRS4	34.93		1.378	48.110	1.40	0.796	2.29	A	ER	57.800	0.796	1.38	A	EL	57.800	1.00	0.796	1.21	A	ER	57.800	
		NS5A	35.55		1.377	48.944	1.40	0.796	2.25	A	ER	57.800	0.796	1.38	A	EL	57.800	1.00	0.796	1.18	A	ER	57.800	
		NS6A	39.95		1.242	49.631	1.40	0.796	2.04	A	ER	57.800	0.796	1.24	A	EL	57.800	1.00	0.796	1.07	A	ER	57.800	
	NS7B	42.00		1.203	50.524	1.40	0.796	1.94	A	ER	57.800	0.796	1.20	A	EL	57.800	1.00	0.796	1.02	A	ER	57.800		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	NAGRIT3	33.00		1.490	49.161	1.40	0.796	2.48	A	ER	57.800	0.796	1.49	A	EL	57.800	1.00	0.796	1.30	A	ER	57.800	
		NT4A	33.08		1.467	48.517	1.40	0.796	2.48	A	ER	57.800	0.796	1.47	A	EL	57.800	1.00	0.796	1.30	A	ER	57.800	
		NT6A	41.60		1.250	52.002	1.40	0.796	2.00	A	ER	57.800	0.796	1.25	A	EL	57.800	1.00	0.796	1.05	A	ER	57.800	
		NT7A	42.00		1.231	51.707	1.40	0.796	2.00	A	ER	57.800	0.796	1.23	A	EL	57.800	1.00	0.796	1.05	A	ER	57.800	
		NT7B	42.00		1.187	49.864	1.40	0.796	2.04	A	ER	57.800	0.796	1.19	A	EL	57.800	1.00	0.796	1.07	A	ER	57.800	
		NAGRIT4	43.00		1.154	49.619	1.40	0.796	1.96	A	ER	57.800	0.796	1.15	A	EL	57.800	1.00	0.796	1.03	A	ER	57.800	
NAGRIT5A		45.00		1.127	50.704	1.40	0.796	1.86	A	ER	57.800	0.796	1.13	A	EL	57.800	1.00	0.796	0.98	A	ER	57.800		
NAGRIT5B	45.00	3	1.100	49.489	1.40	0.796	1.85	A	ER	57.800	0.796	1.10	A	EL	57.800	1.00	0.796	0.97	A	ER	57.800			

### LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LEGAL LOAD RATING FACTORS	YEAR	ADTT	γ <sub>L</sub>
	2009	27	N/A
	2029	46	1.40

### NOTES:

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

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

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

### COMMENTS:

1. THIS BRIDGE HAS BEEN DESIGNED USING SIMPLE SPAN ANALYSIS.

- 2.
- 3.
- 4.

⊠ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

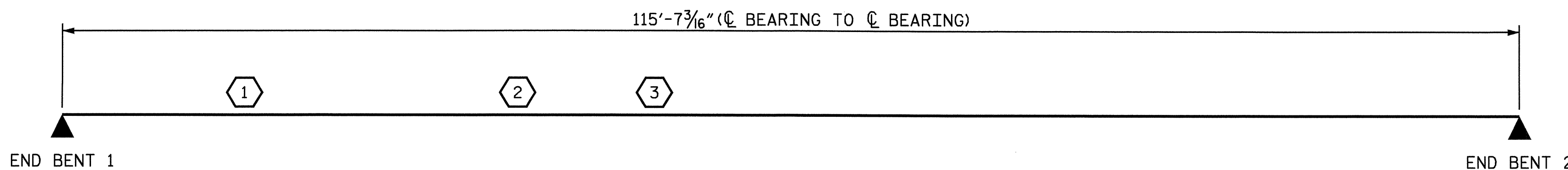
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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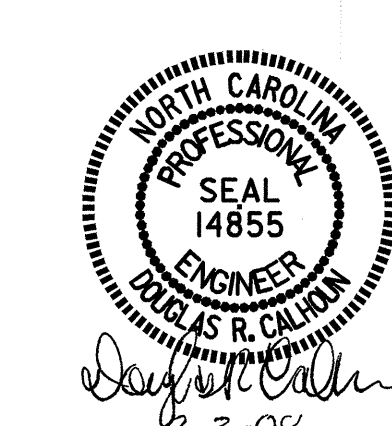
GIRDER LOCATION

I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



## LRFR SUMMARY

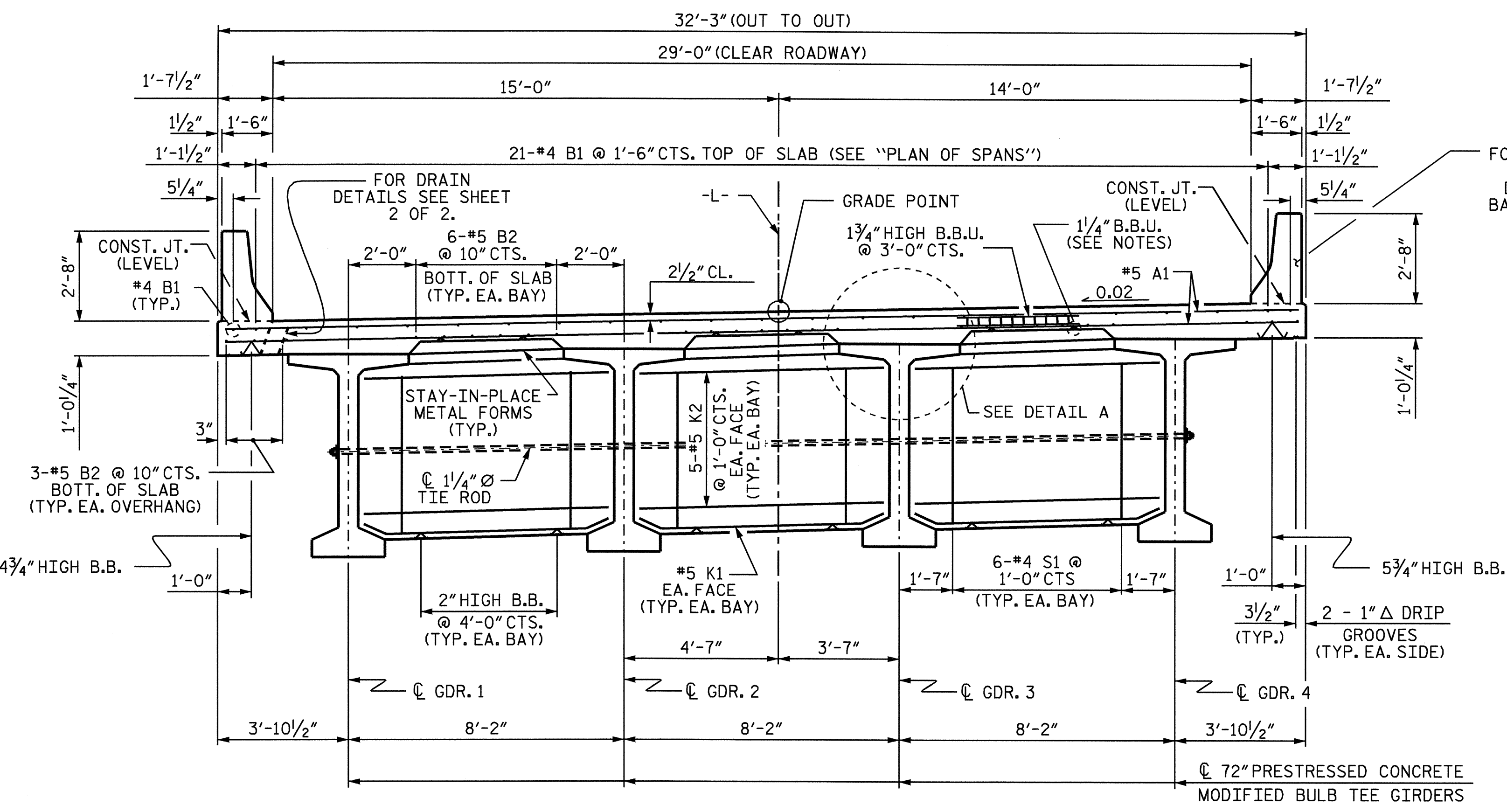
PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-



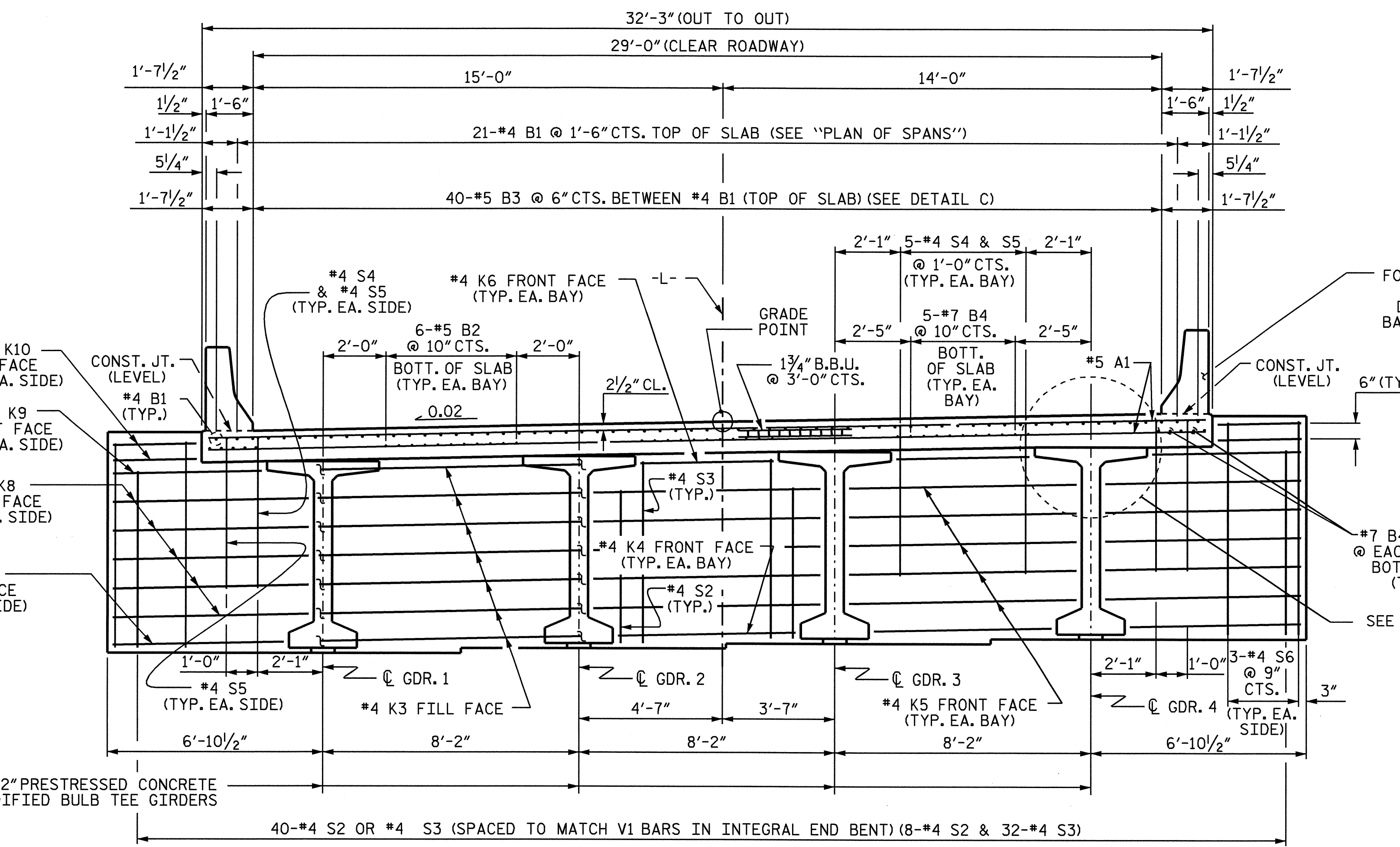
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 PRESTRESSED  
 CONCRETE GIRDERS  
 (NON-INTERSTATE TRAFFIC)

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

ASSEMBLED BY : J.L. WALTON    DATE : 12/5/08  
 CHECKED BY : D.R. CALHOUN    DATE : 12/5/08  
 DRAWN BY : MAA    1/08    REV. 11/12/08R    MAA/GM  
 CHECKED BY : GM/DI 2/08



TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM

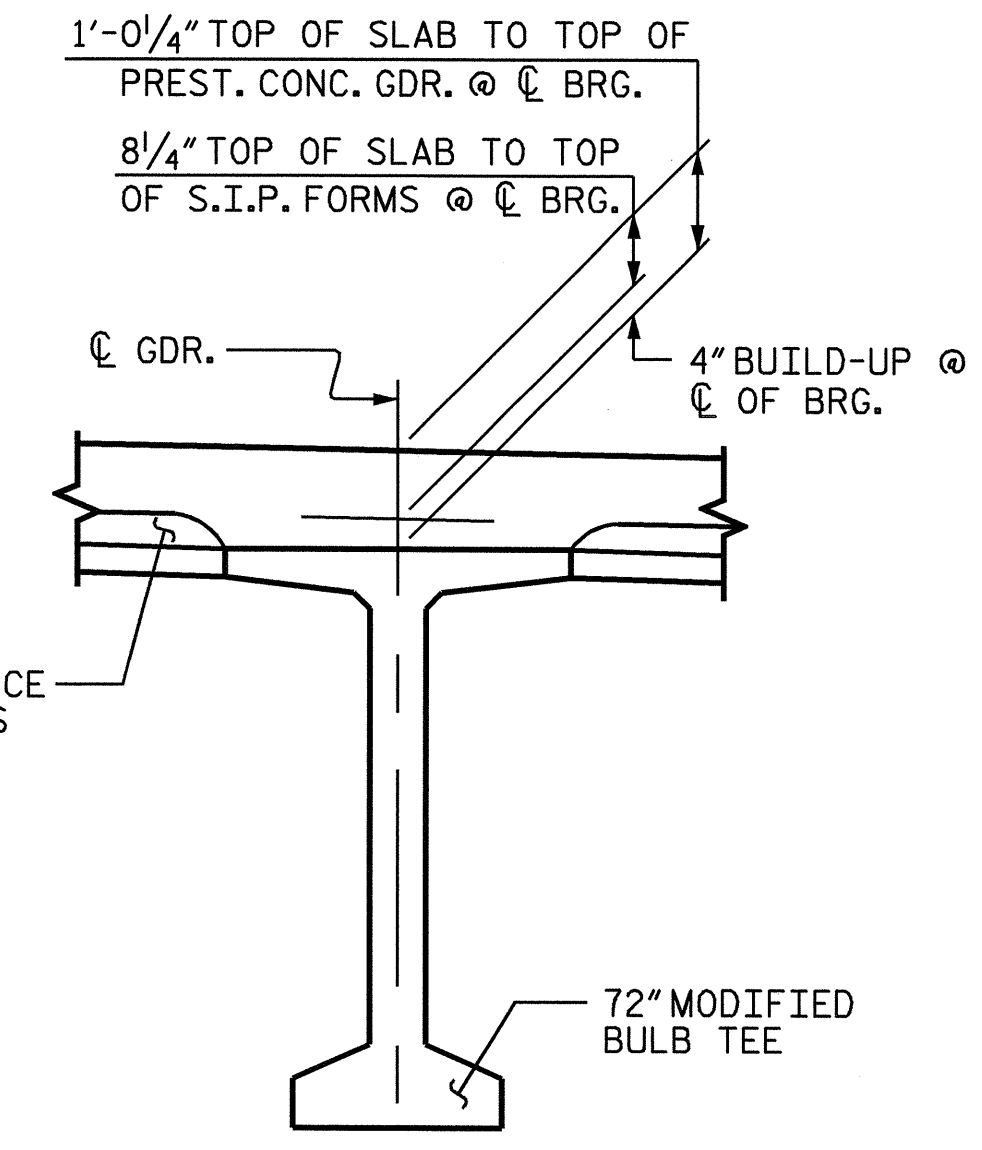


TYPICAL SECTION @ INTEGRAL END BENT

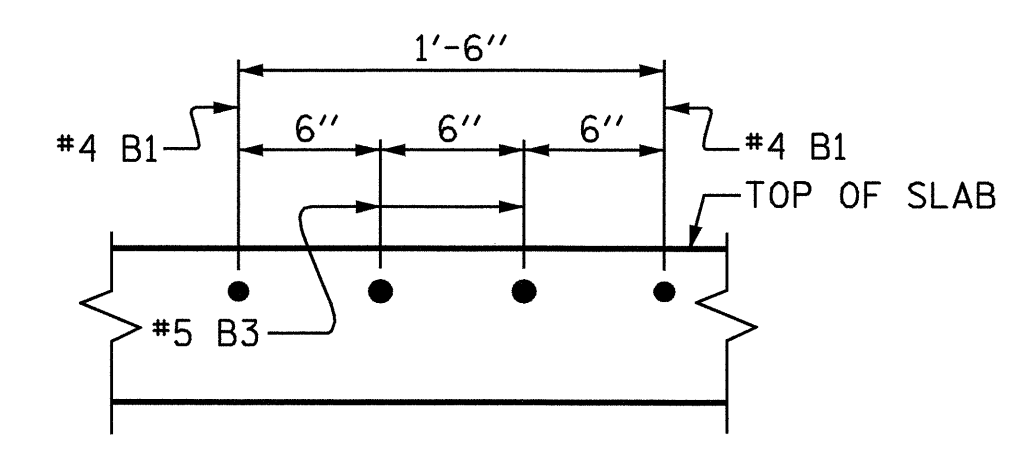
**NOTES:**  
 PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORMS.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 PREVIOUSLY CAST CONCRETE IN THE SPAN SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.  
 TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS, AND THE NUTS ON THE 1/4" DIA. TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.  
 CONCRETE IN INTERMEDIATE DIAPHRAGMS MAY BE CLASS AA IN LIEU OF CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

FOR CONCRETE BARRIER RAIL REINFORCING STEEL AND DETAILS, SEE "CONCRETE BARRIER RAIL" SHEETS. (TYP.)

FOR CONCRETE BARRIER RAIL REINFORCING STEEL AND DETAILS, SEE "CONCRETE BARRIER RAIL" SHEETS. (TYP.)



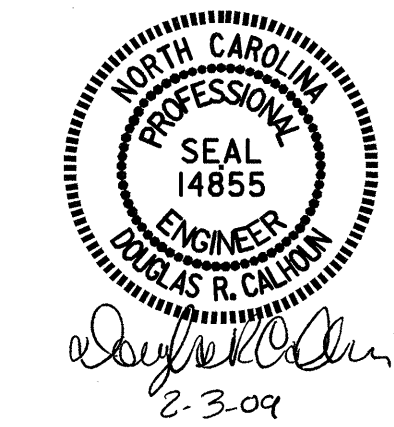
DETAIL A



DETAIL C

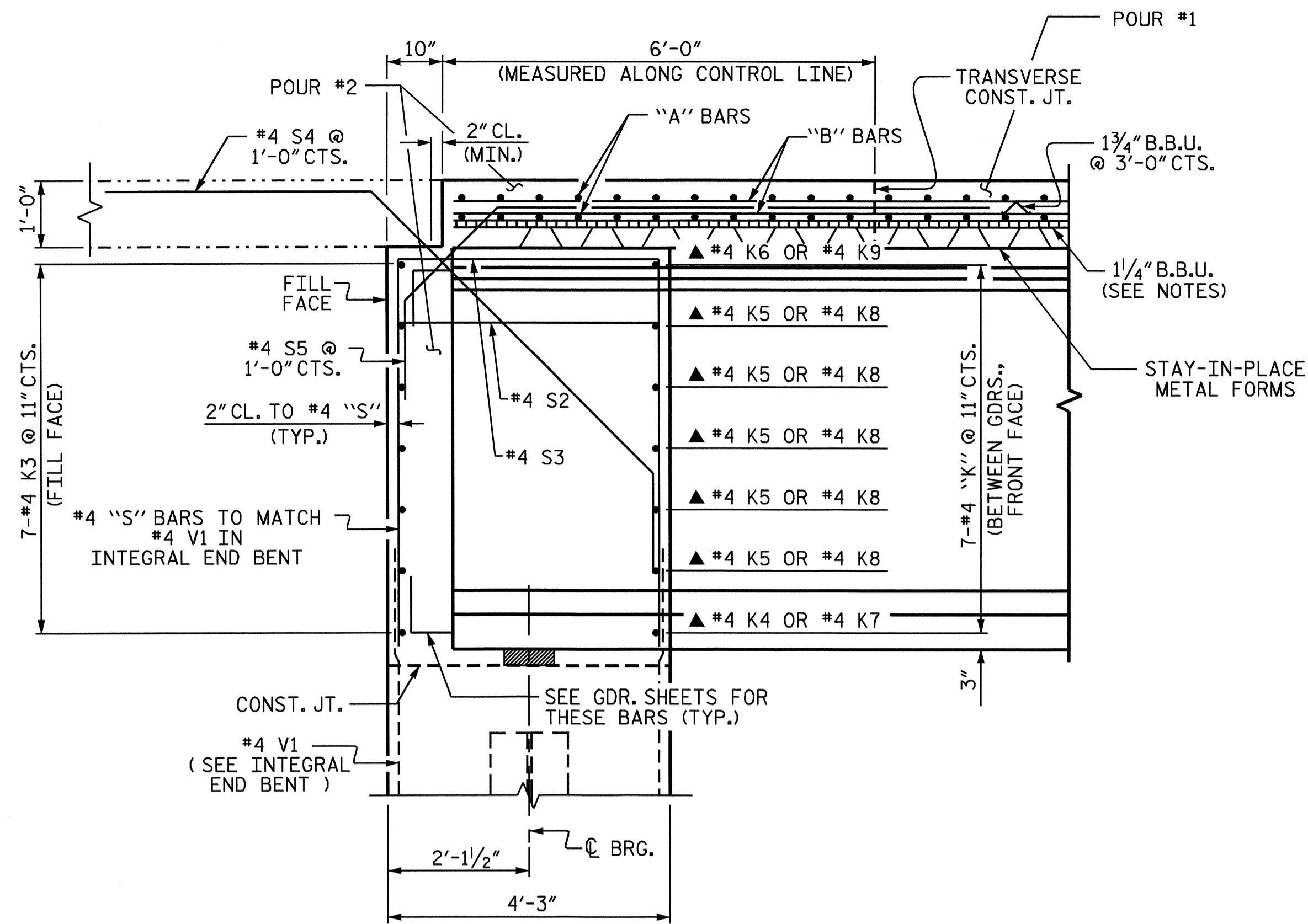
PROJECT NO. B-3706  
 WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 1 OF 2



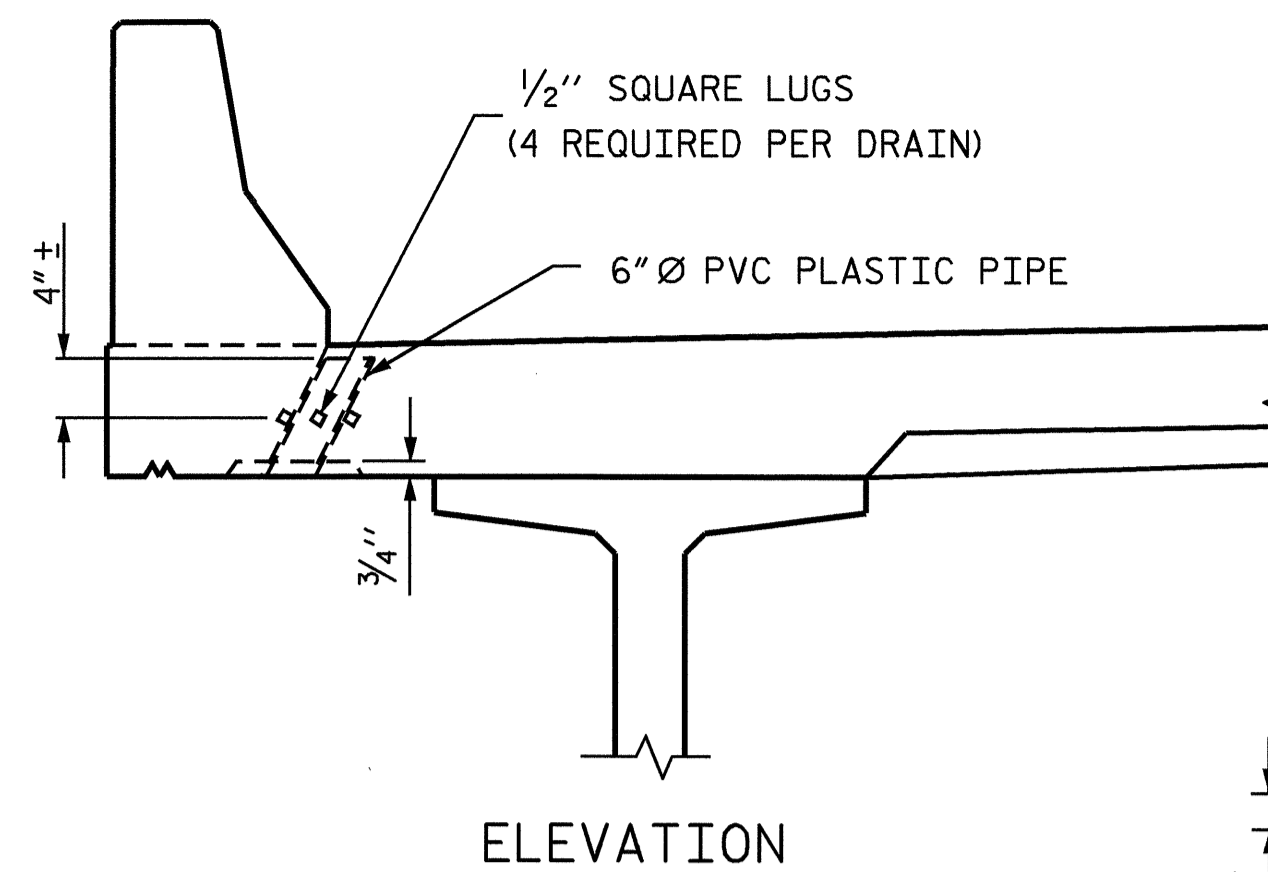
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. <b>S-5</b>
SUPERSTRUCTURE TYPICAL SECTION						
REVISIONS						TOTAL SHEETS <b>21</b>
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: J.L. WALTON DATE: 7/20/08  
 CHECKED BY: D.R. CALHOUN DATE: 10/20/08

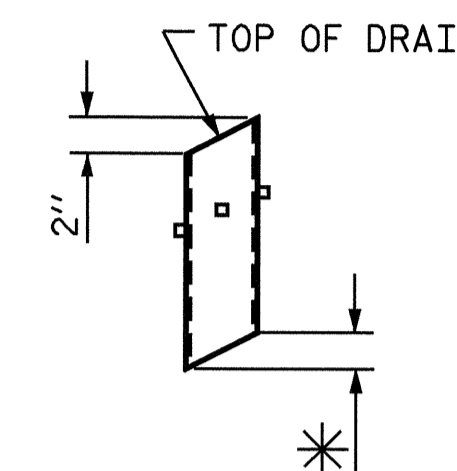


SECTION A-A

▲ (#4 K4 THRU #4 K6 TYP. EA BAY/  
#4 K7 THRU #4 K9 TYP. BOTH ENDS)



ELEVATION

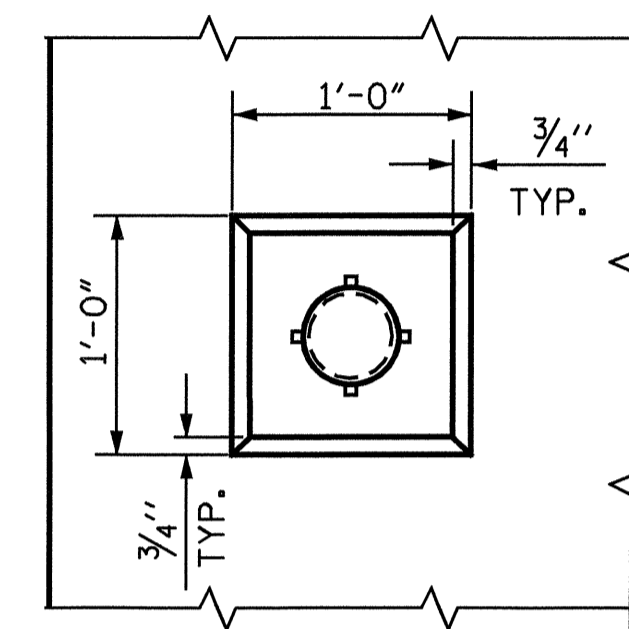


\* TO BE SET TO MATCH SLOPE  
OF BOTTOM OF OVERHANG  
(9 DRAINS REQUIRED)

PIPE DETAIL

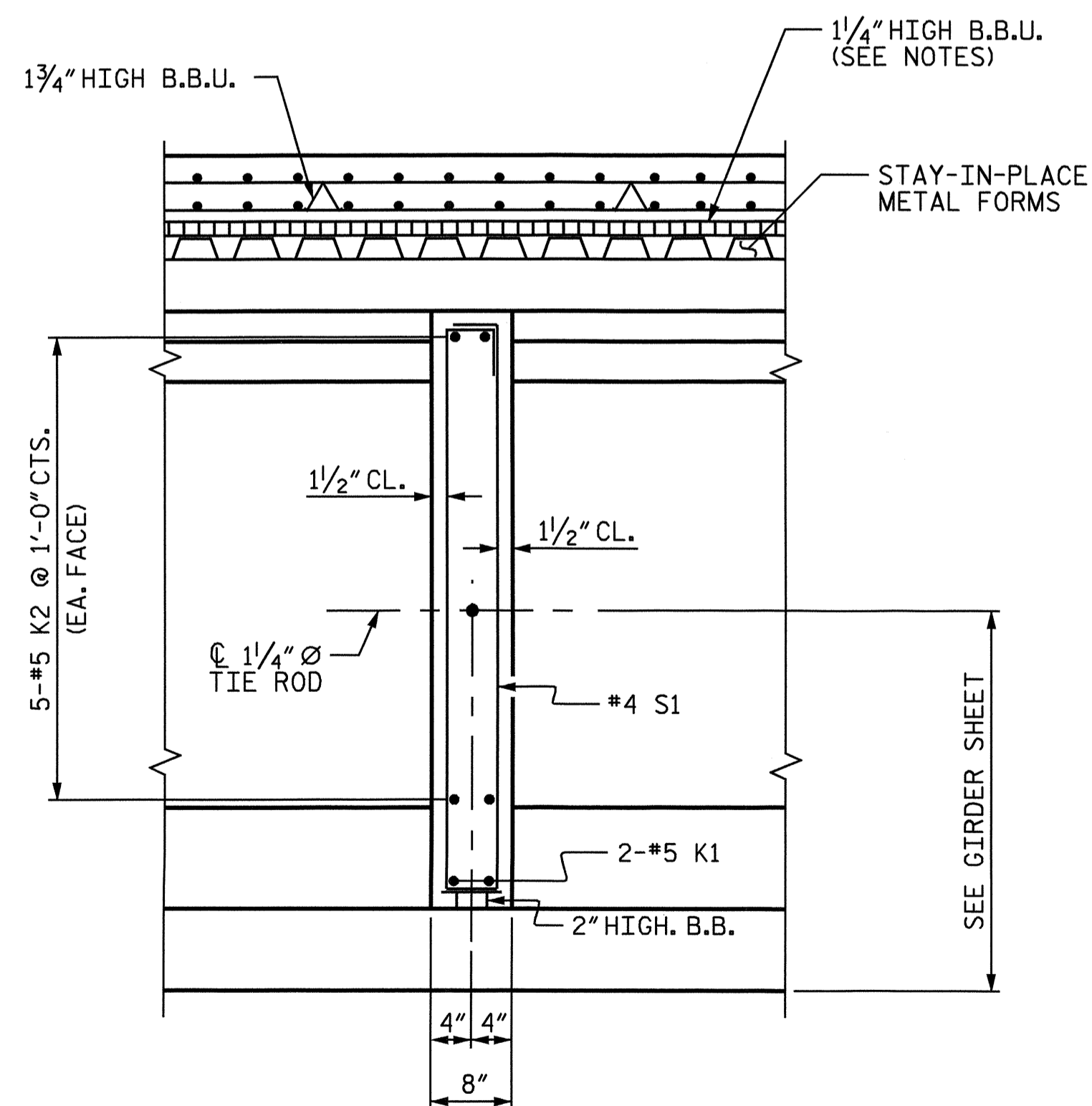
NOTES

TOP OF FLOOR DRAINS TO BE SET  $\frac{3}{8}$ " BELOW SURFACE OF SLAB.  
4 -  $\frac{1}{2}$ " SQUARE LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE  
AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY  
4" FROM THE TOP OF THE PIPE.  
THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40  
AND CONFORM TO ASTM D1785.

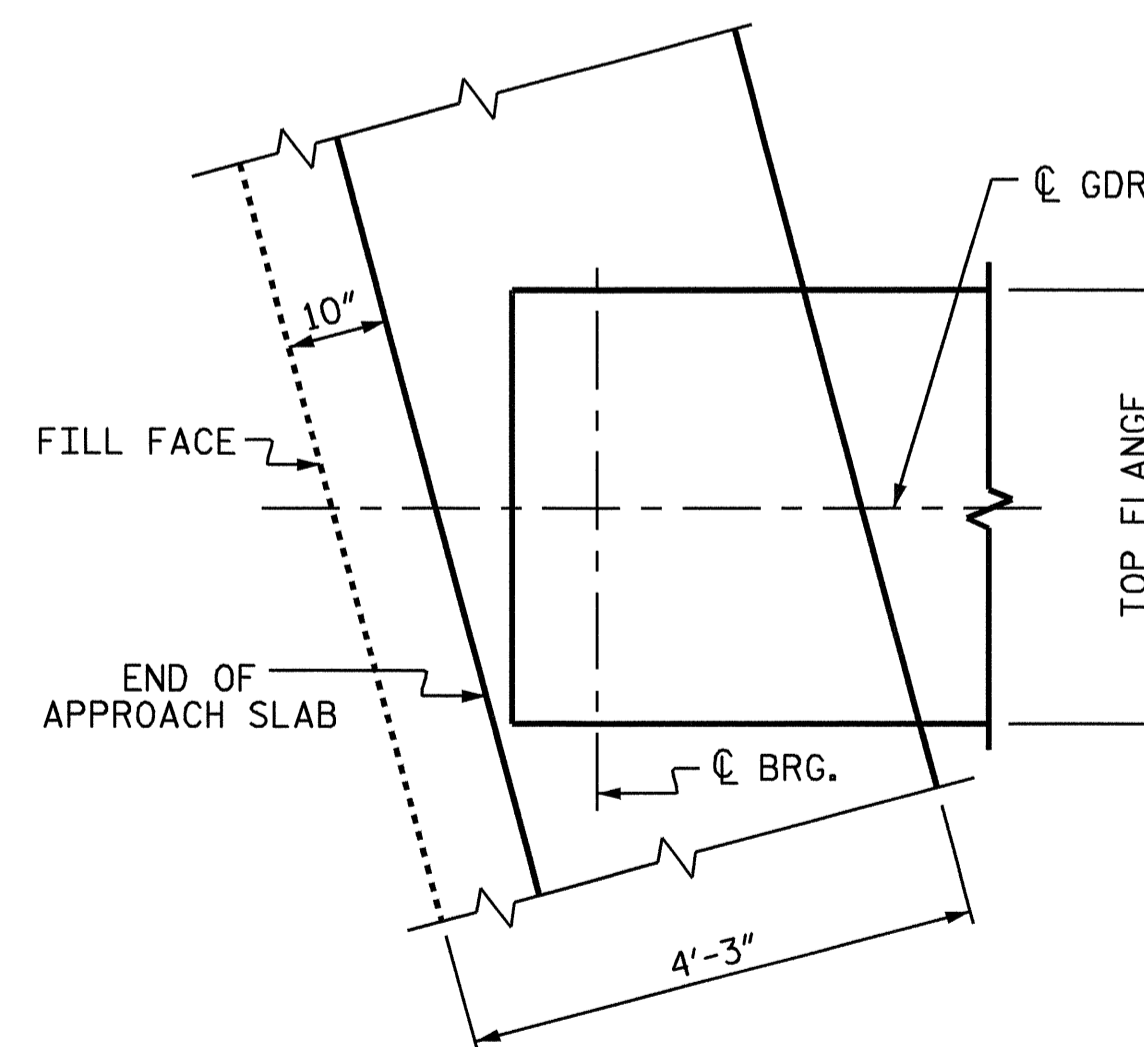


PLAN OF RECESS

DRAIN DETAILS



SECTION B-B



PLAN OF GIRDER AT INTEGRAL END BENT

PROJECT NO. B-3706  
WARREN COUNTY  
STATION: 17+21.00 -L-

SHEET 2 OF 2

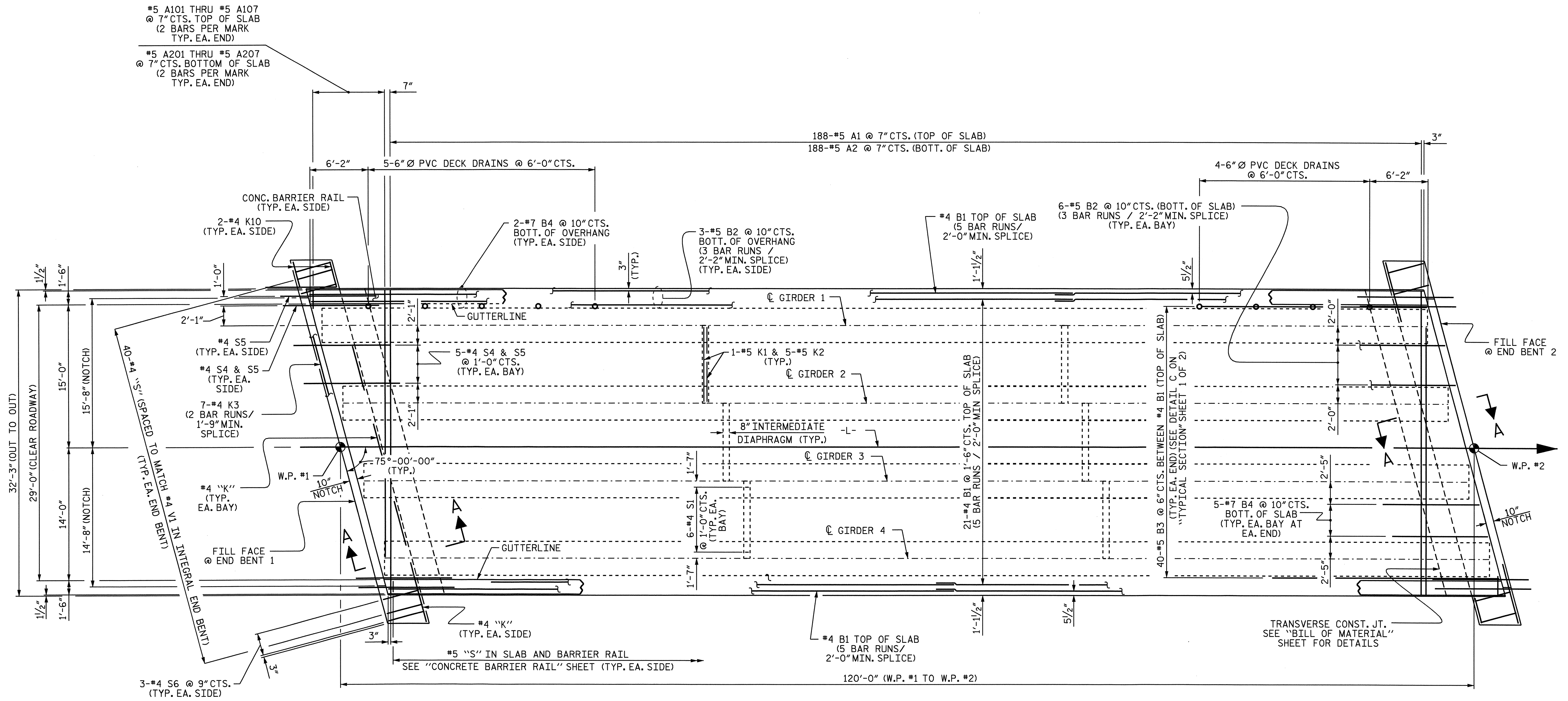
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUPERSTRUCTURE  
TYPICAL SECTION



DRAWN BY: J.L. WALTON DATE: 7/20/08  
CHECKED BY: D.R. CALHOUN DATE: 10/20/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			21



**PLAN OF SPAN**

FOR SECTION A-A AND REINFORCING STEEL IN INTEGRAL END BENT SEE "TYPICAL SECTION" SHEET 2 OF 2.  
 DIMENSIONS AND REINFORCING STEEL SHOWN IN INTEGRAL END BENT 1 OR END BENT 2 ARE TYPICAL FOR BOTH END BENTS.

PROJECT NO. B-3706  
 WARREN COUNTY  
 STATION: 17+21.00 -L-

DRAWN BY: J.L. WALTON DATE: 10/8/08  
 CHECKED BY: D.R. CALHOUN DATE: 11/20/08

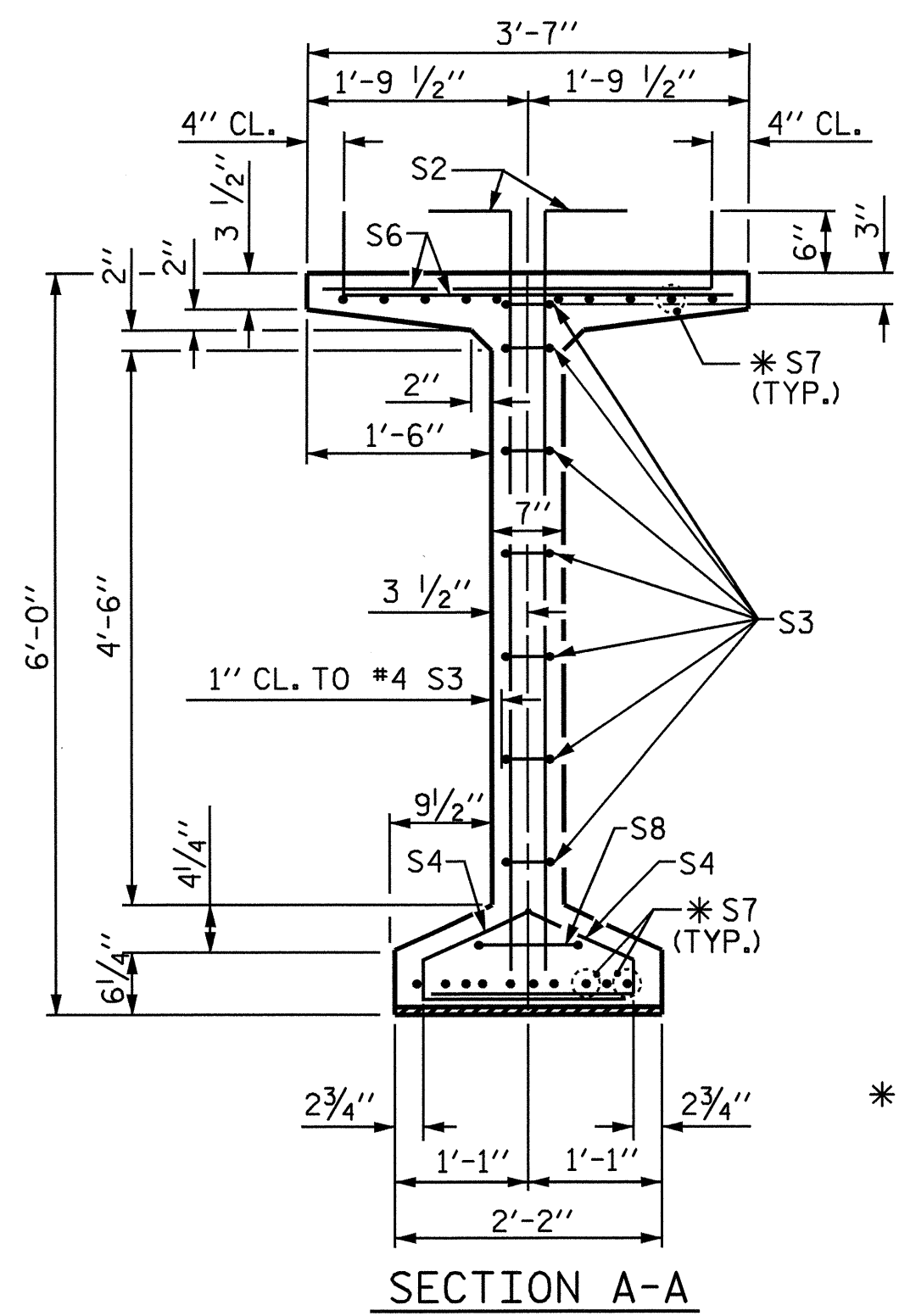


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPAN

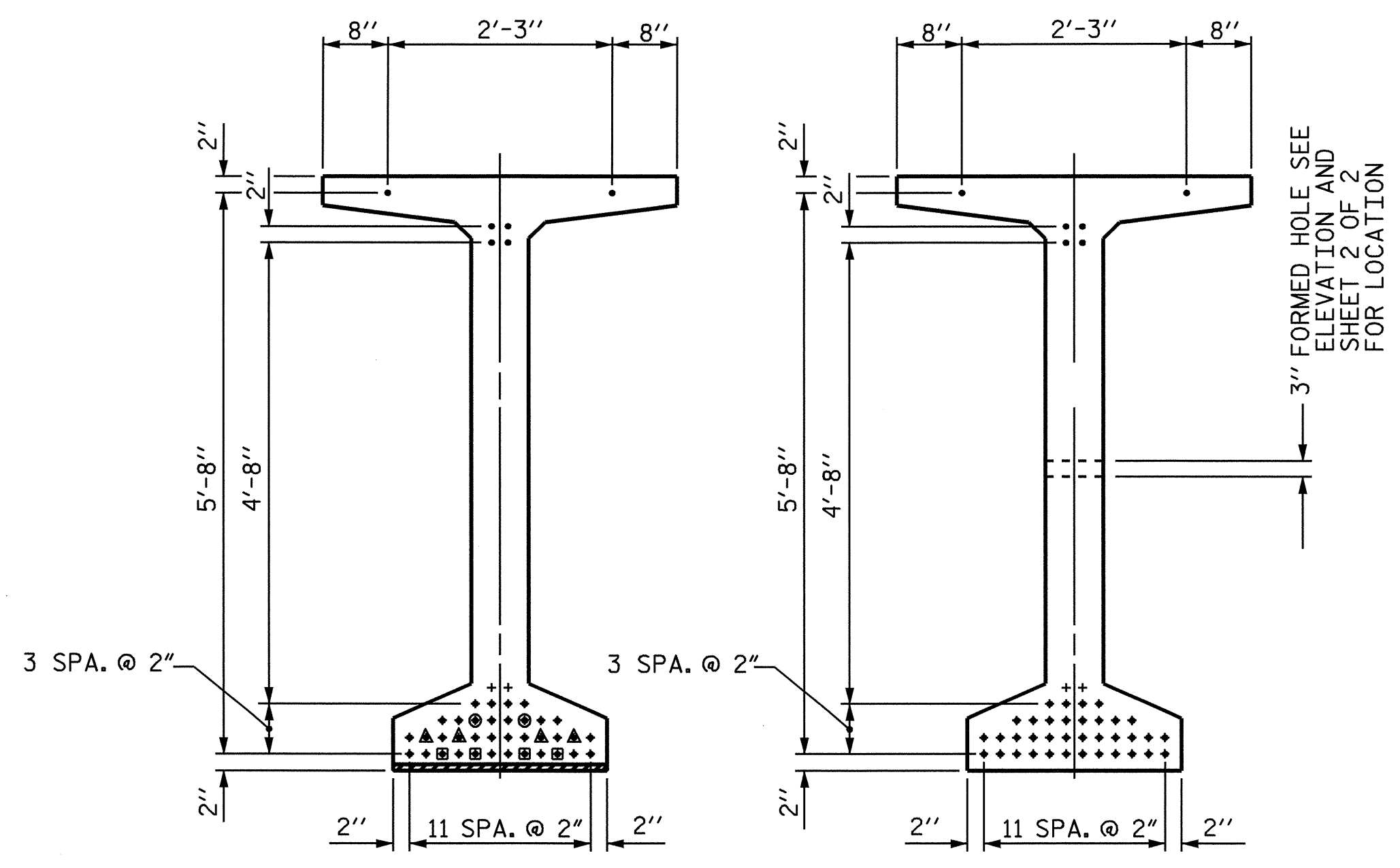
REVISIONS						SHEET NO. S-7 TOTAL SHEETS 21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			





\* FOR S7 BARS, SEE  
DETAIL "C" OF  
PRESTRESSED  
CONCRETE GIRDER  
DETAILS SHEET

SECTION A-A



AT END OF GIRDER AT CL OF GIRDER  
0.6" Ø LOW RELAXATION STRAND LAYOUT

- DEBONDING LEGEND**
- FULLY BONDED STRANDS
  - ◻ STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER
  - ▲ STRANDS DEBONDED FOR 6'-0" FROM END OF GIRDER
  - ⊙ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER

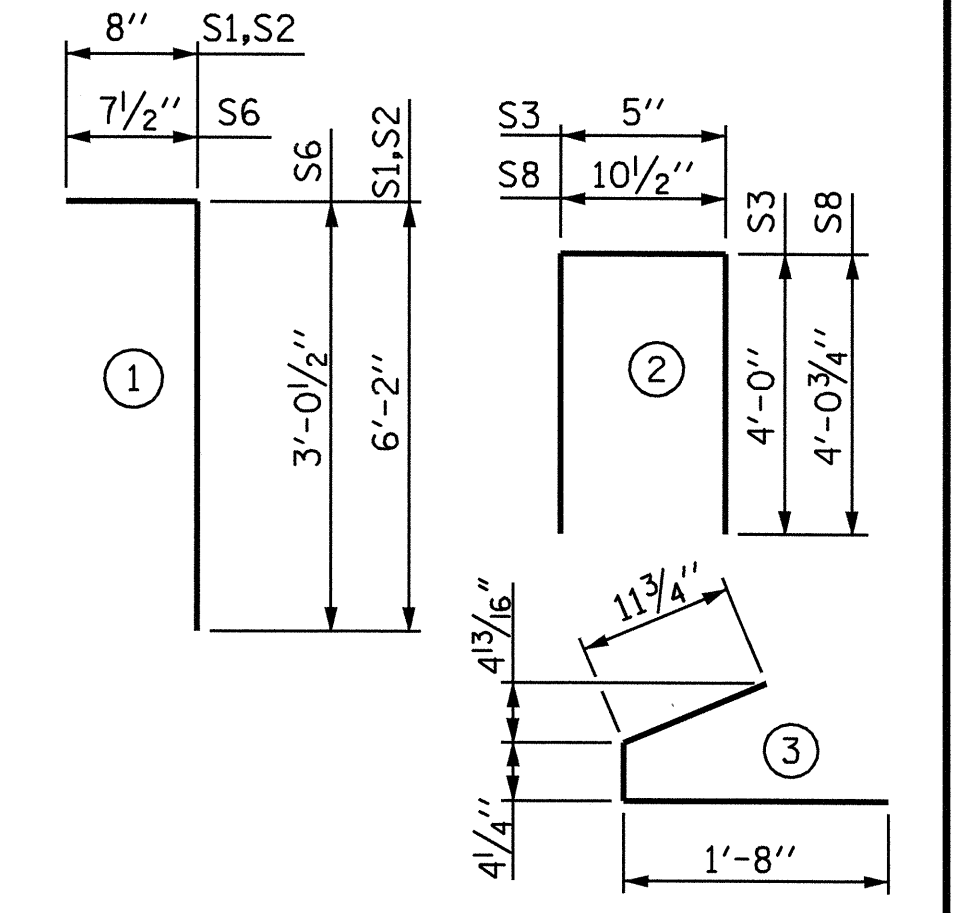
0.6" Ø L. R. GRADE 270 STRANDS		
AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

REINFORCING STEEL FOR ONE GIRDER					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	160	#4	1	6'-10"	730
S2	24	#5	1	6'-10"	171
S3	14	#4	2	8'-5"	79
S4	84	#4	3	3'-0"	168
S6	184	#5	1	3'-8"	704
*S7	40	#5	STR	3'-8"	153
S8	2	#5	2	9'-0"	19
S9	43	#5	STR	3'-3"	146
S10	2	#3	STR	1'-10"	1

\* NOTE: S7 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

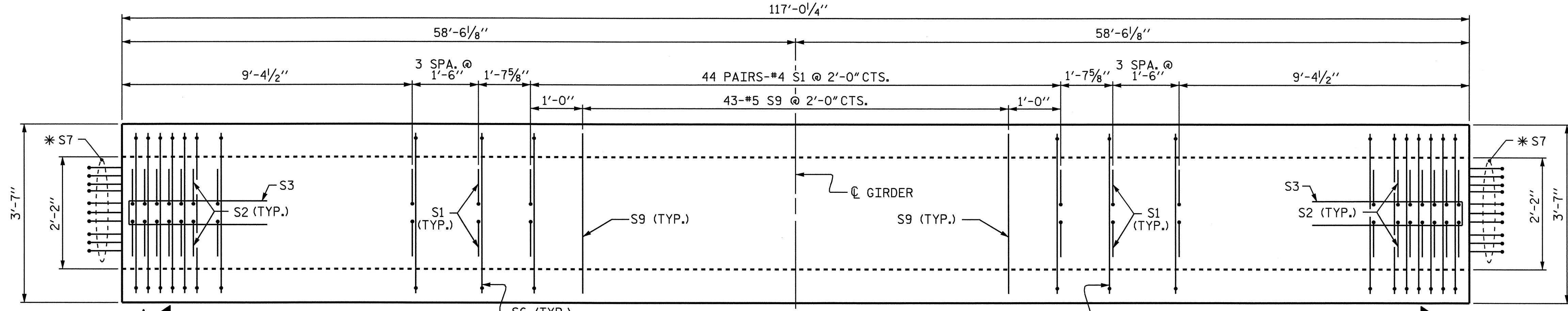
**BAR TYPES**

ALL BAR DIMENSIONS ARE OUT-TO-OUT

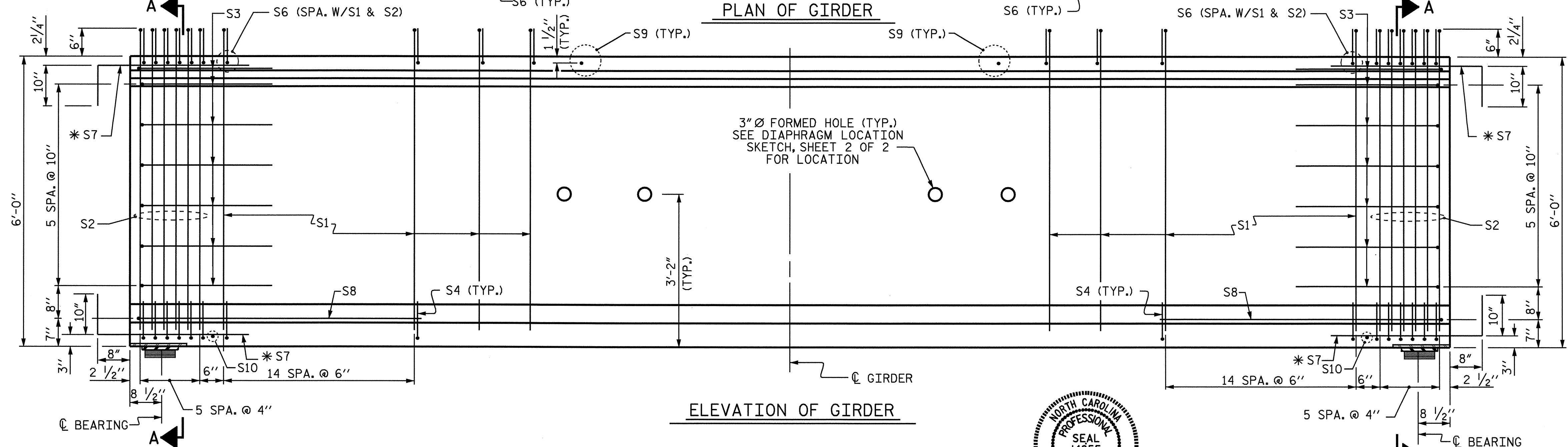


QUANTITIES FOR ONE GIRDER		
REINFORCING STEEL	9000 PSI CONCRETE	0.6" Ø L.R. STRANDS
LB.	C.Y.	No.
2171	25.1	42

GIRDERS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
4	117'-0 1/4"	468'-1"



PLAN OF GIRDER



ELEVATION OF GIRDER

PROJECT NO. B-3706  
WARREN COUNTY  
STATION: 17+21.00 -L-

SHEET 1 OF 2

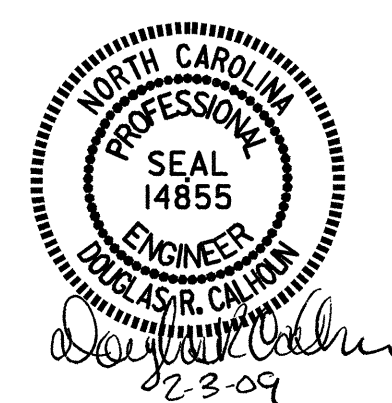
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
72" PRESTRESSED CONCRETE  
MODIFIED BULB TEE  
(WITH 0.6" Ø PARTIALLY  
DEBONDED STRANDS)

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

TOTAL SHEETS: 21

ASSEMBLED BY: J.L. WALTON DATE: 10/8/08  
CHECKED BY: D.R. CALHOUN DATE: 11/20/08  
DRAWN BY: RWW 9/19/02  
CHECKED BY: GM 9/19/02

DATE: 10/8/08  
DATE: 11/20/08  
ADDED: 9/19/02  
REV: 5/1/06  
TLA/GM



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.

TIE ROD ASSEMBLY SHALL BE AASHTO M270 GRADE 36 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 60.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 7000 PSI.

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

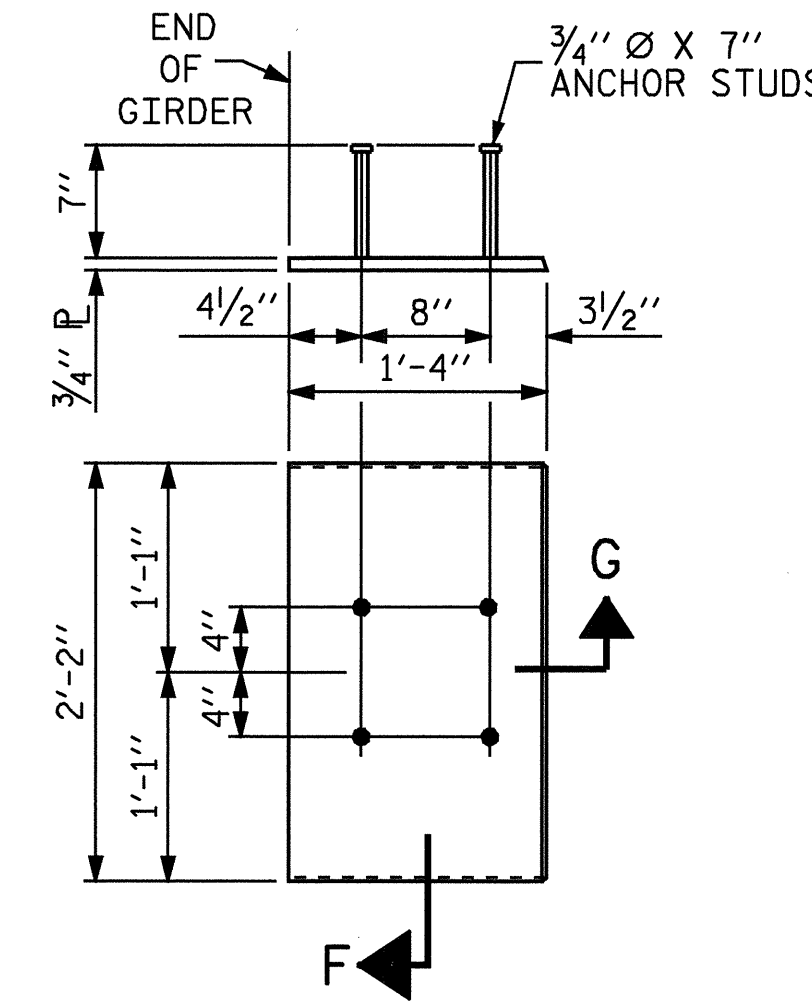
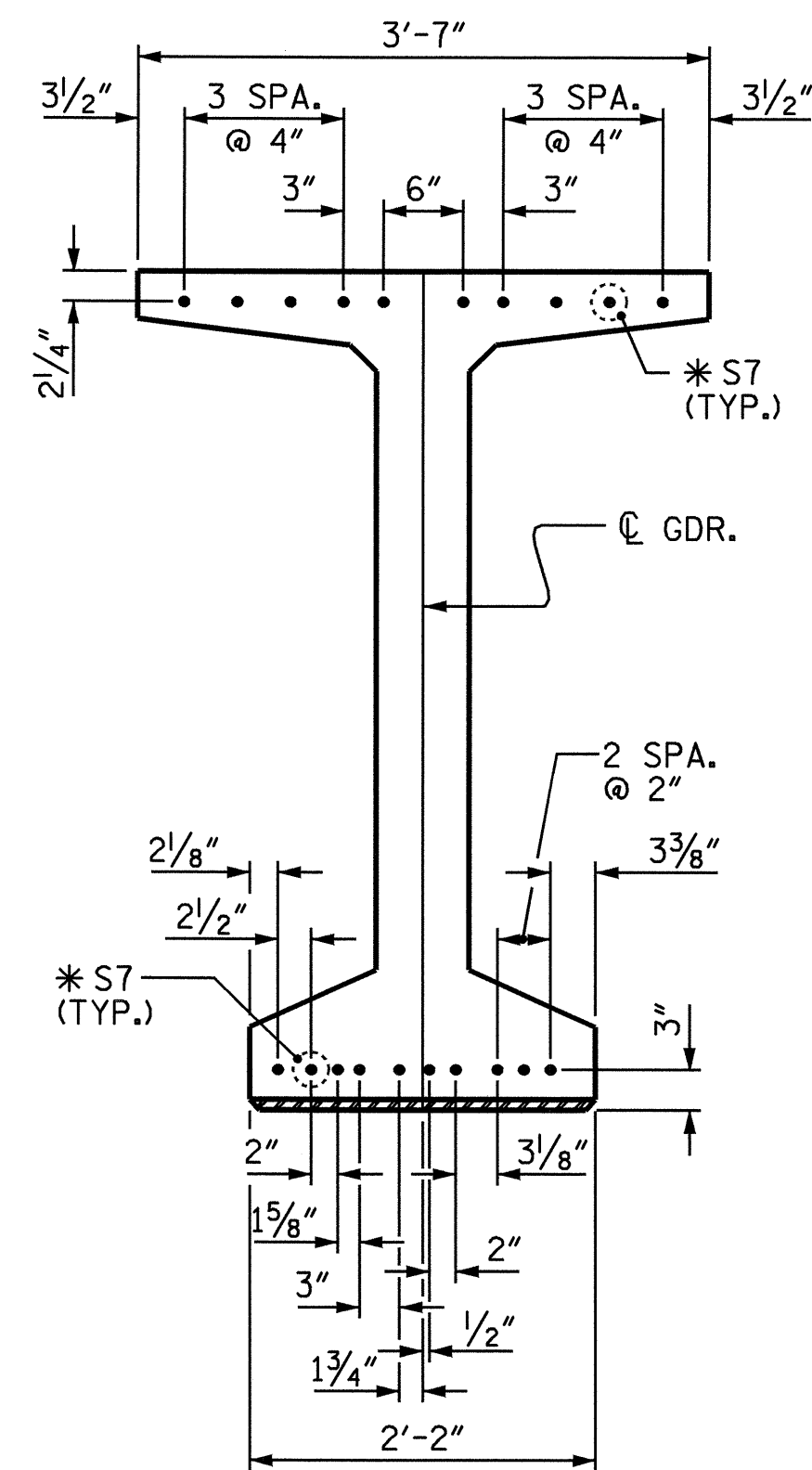
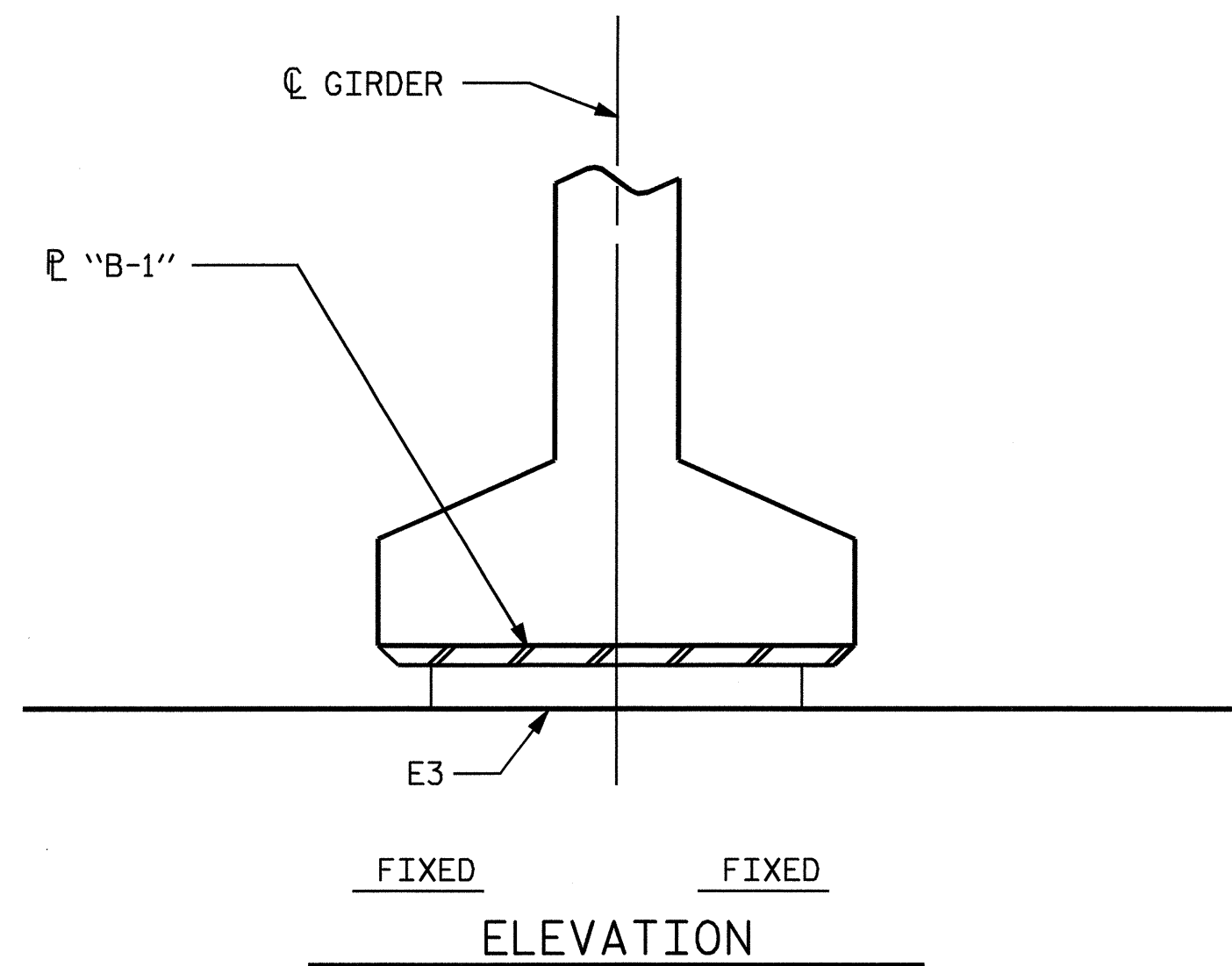
THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

A 2" x 2" CHAMFER IS ALLOWED AT THE INTERSECTION OF THE WEB AND THE BOTTOM FLANGE OF THE 63" AND 72" MODIFIED BULB TEES ONLY.

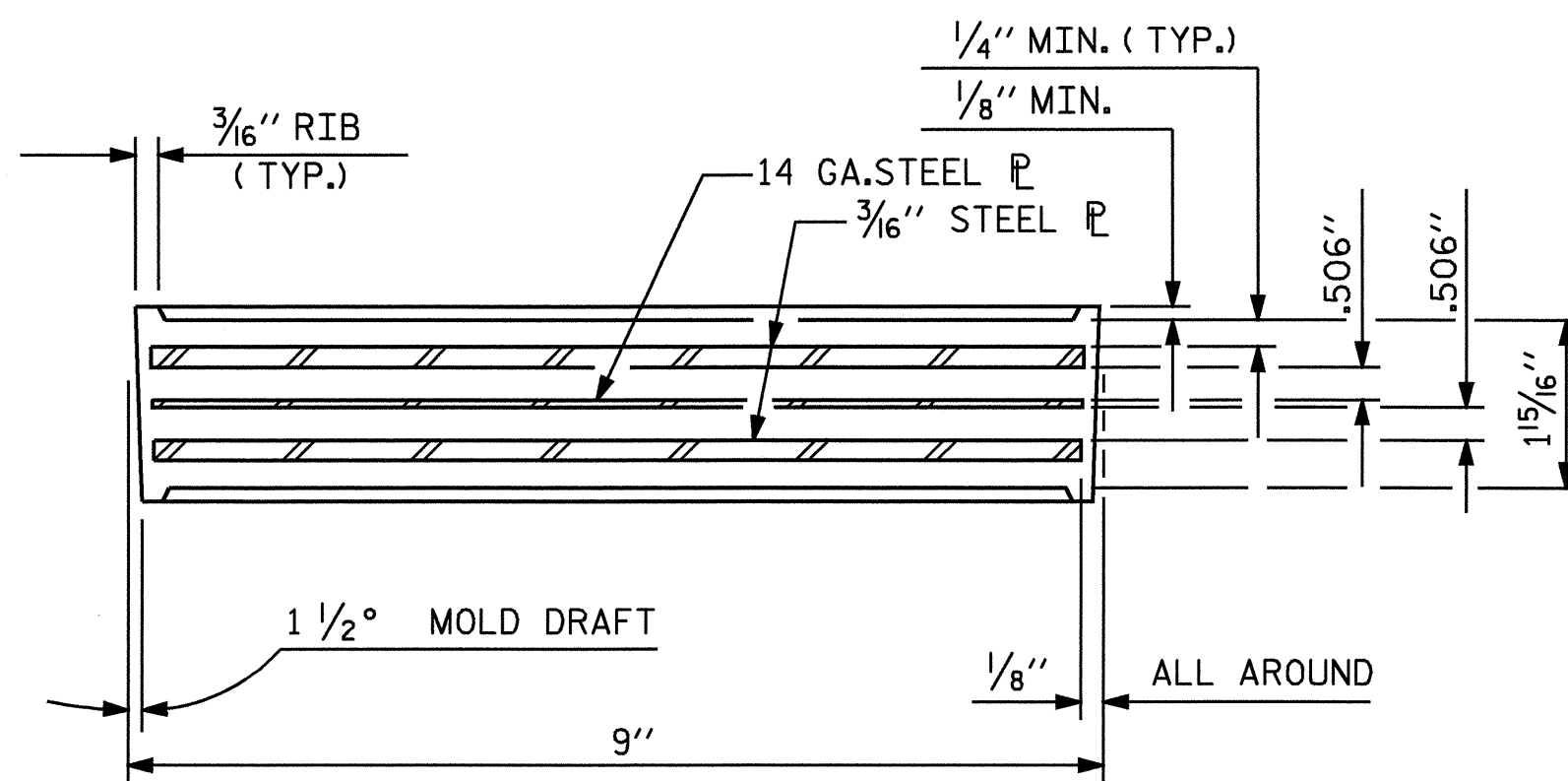
THE CONTRACTOR HAS THE OPTION TO PROVIDE, AT NO ADDITIONAL COST TO THE DEPARTMENT, 2 ADDITIONAL STRANDS AT THE TOP OF THE GIRDER TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 lbs.

FOR CRACK REPAIR OF PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.

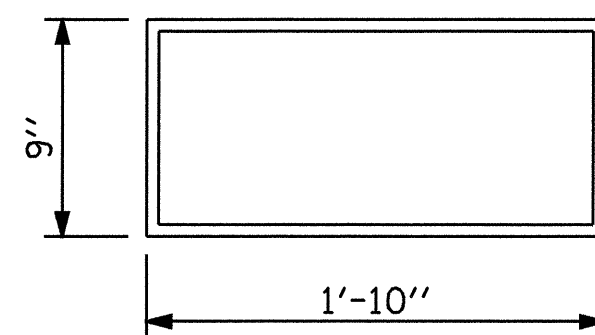
FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE IV GIRDER AND 63" & 72" MODIFIED BULB TEES  
(2 REQ'D PER GIRDER)



TYPICAL SECTION OF ELASTOMERIC BEARINGS

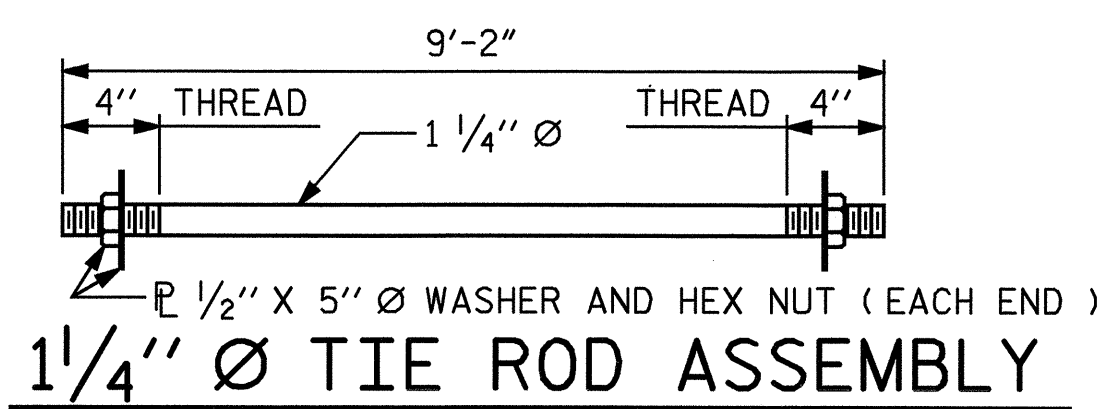


E3 (8 REQ'D.)

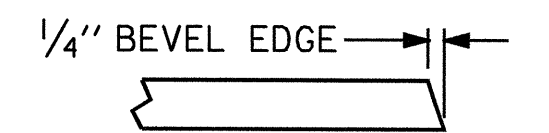
PLAN VIEW OF ELASTOMERIC BEARING

TYPE IV

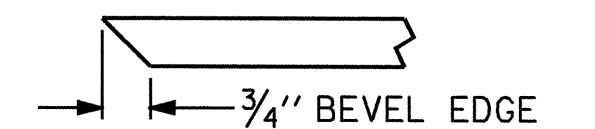
— LOAD RATINGS —	
	MAX. D.L. + L.L.
TYPE IV	137 K



(6 COMPLETE ASSEMBLIES REQUIRED)



SECTION "G"

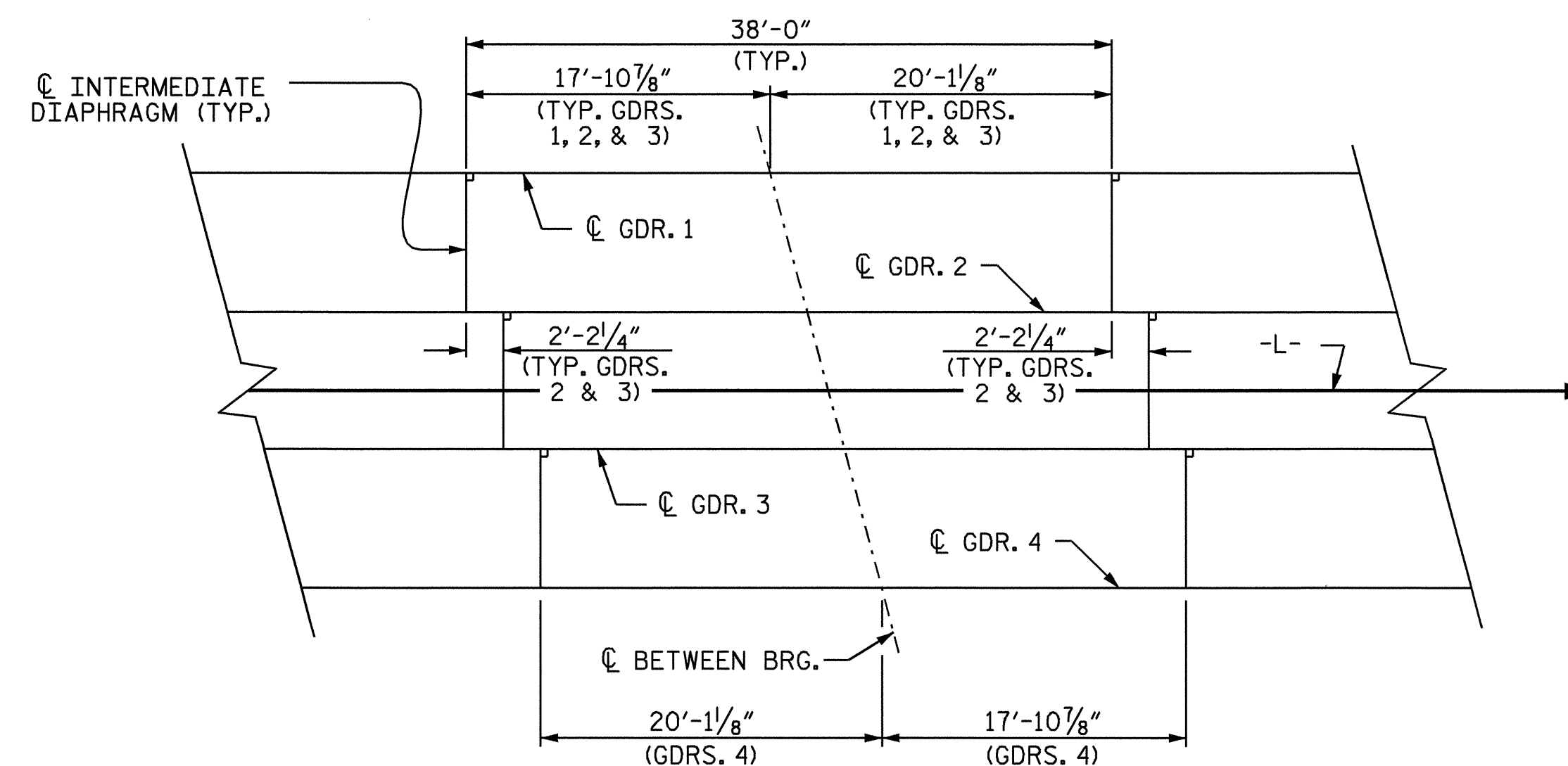


SECTION "F"

(SEE NOTES)

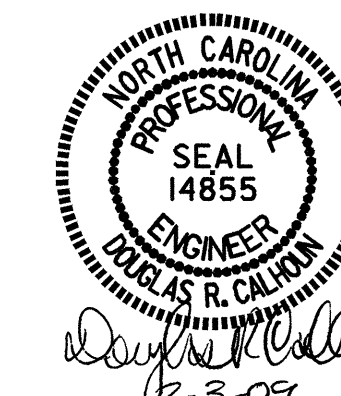
DEAD LOAD DEFLECTION TABLE FOR GIRDERS												
0.6" Ø LOW RELAXATION	GIRDER 1 - 4											
	TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE)	↑	0	.113	.213	.292	.342	.359	.342	.292	.213	.113	0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	↓	0	-.045	-.085	-.116	-.136	-.143	-.13	-.116	-.085	-.045	0
FINAL CAMBER	↑	0	13/16"	19/16"	2 1/8"	2 1/2"	2 5/8"	2 1/2"	2 1/8"	1 3/16"	13/16"	0

\* INCLUDES FUTURE WEARING SURFACE  
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).



DIAPHRAGM LOCATION SKETCH

(SHOWING LOCATION OF 3" Ø FORMED HOLES)



PROJECT NO. B-3706  
WARREN COUNTY  
STATION: 17+21.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
PRESTRESSED CONCRETE GIRDER  
DETAILS & DEAD LOAD  
DEFLECTION TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			21

ASSEMBLED BY : J.L. WALTON	DATE : 10/8/08
CHECKED BY : D.R. CALHOUN	DATE : 11/20/08
DRAWN BY : ELR 11/91	REV. 10/17/00 RWW/LES
CHECKED BY : GRP 11/91	REV. 7/10/01RR LES/RDR
	REV. 5/1/06 TLA/GM

**NOTES**

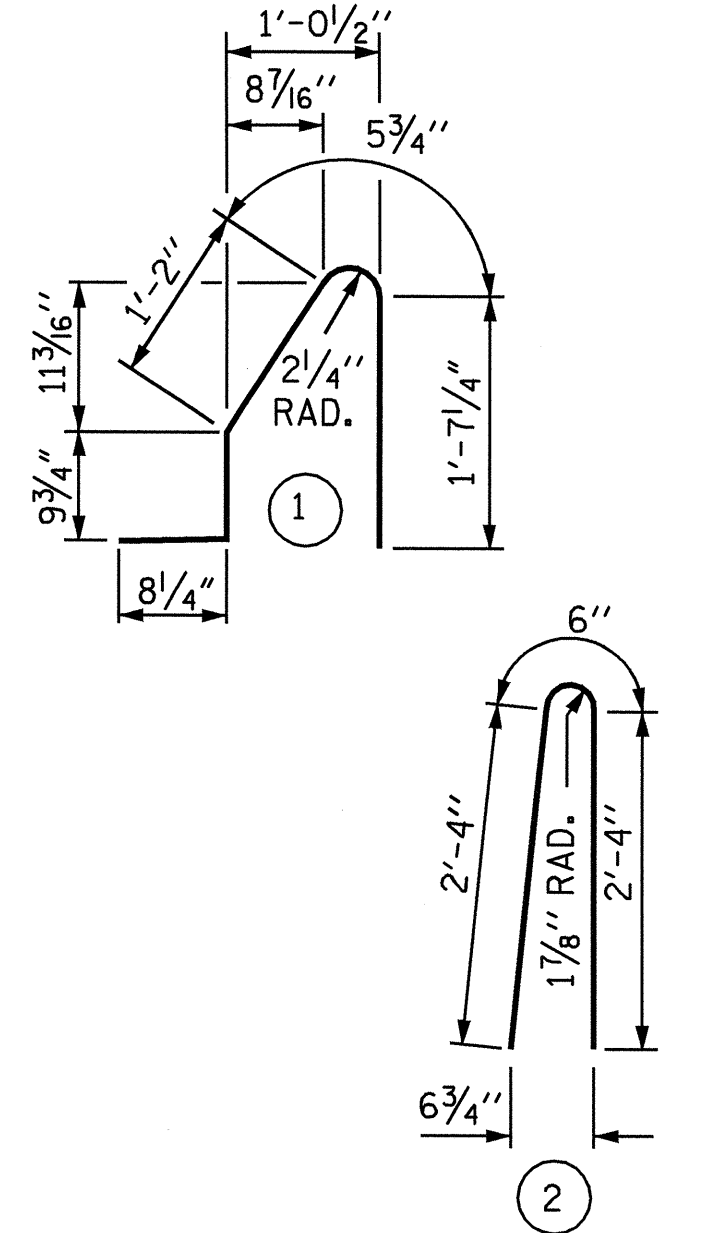
BARRIER RAIL IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

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.

THE #5 S1 & #5 S2 BARS MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE 1/2" EXPANSION JOINT MATERIAL IN BARRIER RAIL.

**BAR TYPES**



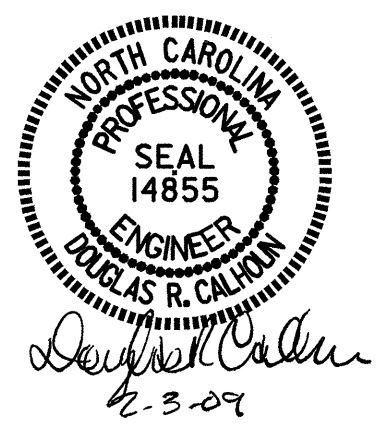
ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL**

FOR CONCRETE BARRIER RAIL ONLY

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	#5	STR	16'-3"	949
* B2	#5	STR	29'-7"	864
* S1	#5	1	4'-9"	1169
* S2	#5	2	5'-2"	1272

\* EPOXY COATED REINFORCING STEEL 4254 LBS.  
 CLASS AA CONCRETE 23.7 CU. YDS.  
 CONCRETE BARRIER RAIL 236.55 LIN. FT.



PROJECT NO. B-3706  
 WARREN COUNTY  
 STATION: 17+21.00 -L-

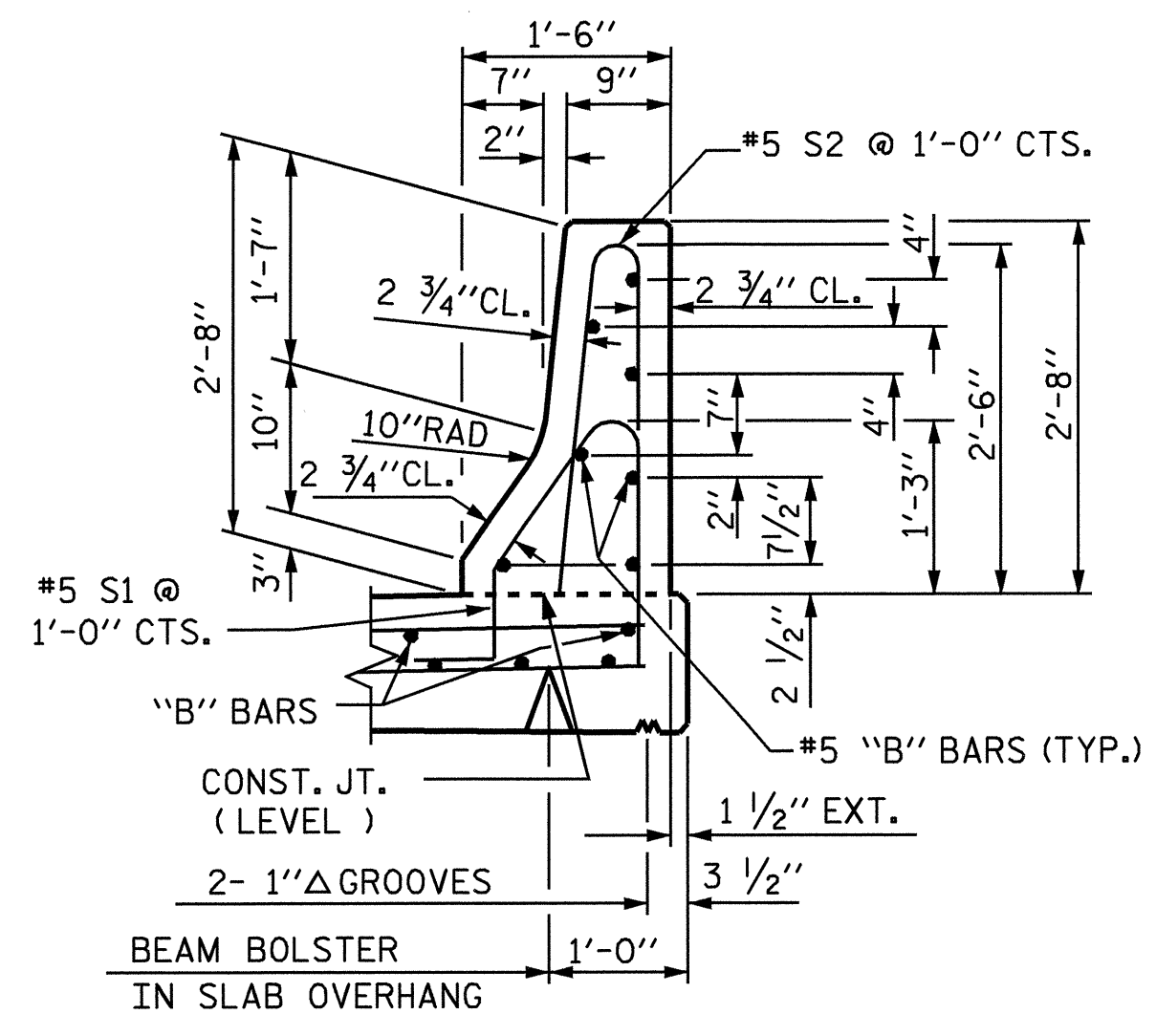
SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

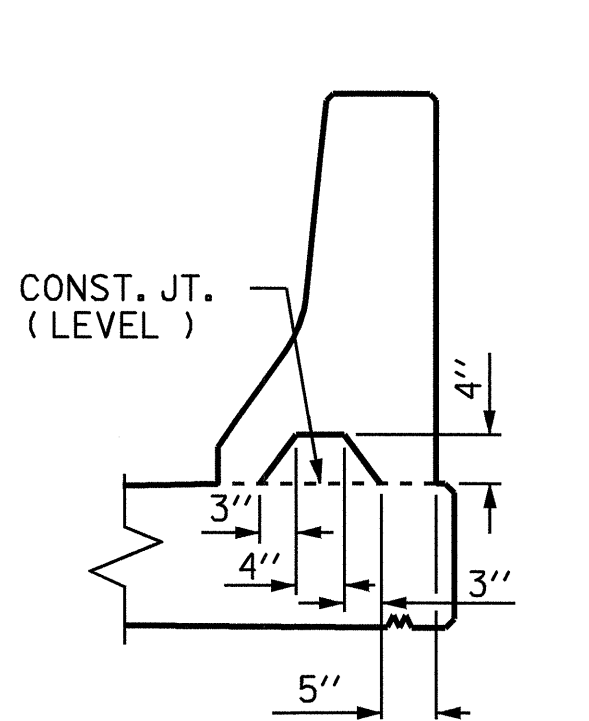
**STANDARD CONCRETE BARRIER RAIL**

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

STD. NO. CBR1

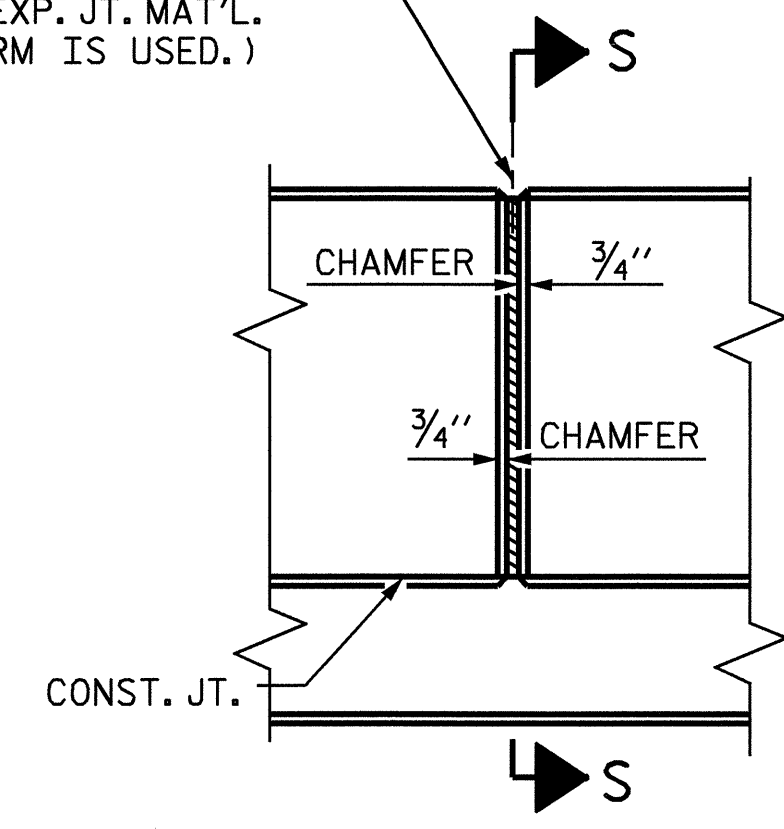


**SECTION THRU RAIL**



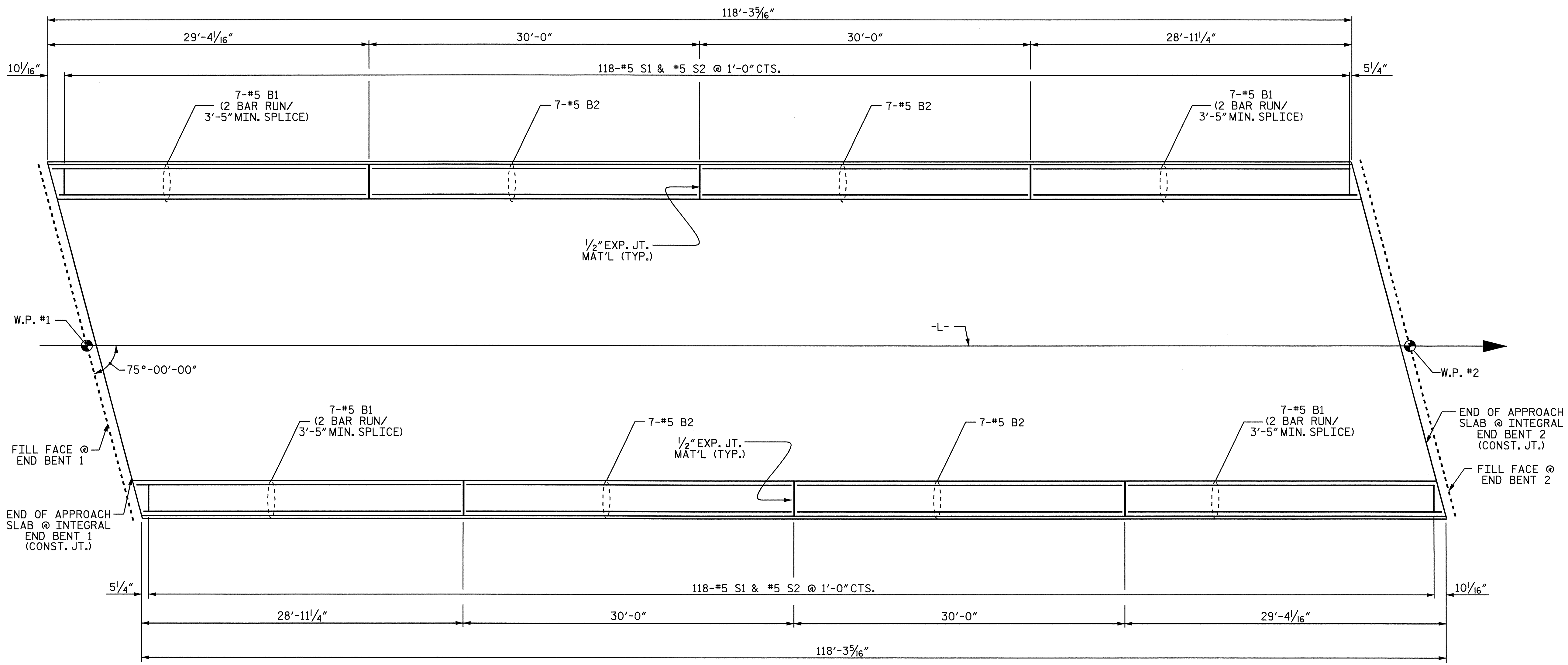
**SECTION S-S**  
 AT DAM IN OPEN JOINT  
 (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

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



**ELEVATION AT EXPANSION JOINTS**

**BARRIER RAIL DETAILS**



**PLAN OF BARRIER RAIL**

ASSEMBLED BY : J.L. WALTON DATE : 7/20/08  
 CHECKED BY : D.R. CALHOUN DATE : 10/20/08  
 DRAWN BY : ARB 5/87 REV. 10/17/00 RWW/LES  
 CHECKED BY : SJD 9/87 REV. 5/7/03R RWW/JTE  
 REV. 5/1/06 TLA/GM

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 1/8" 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

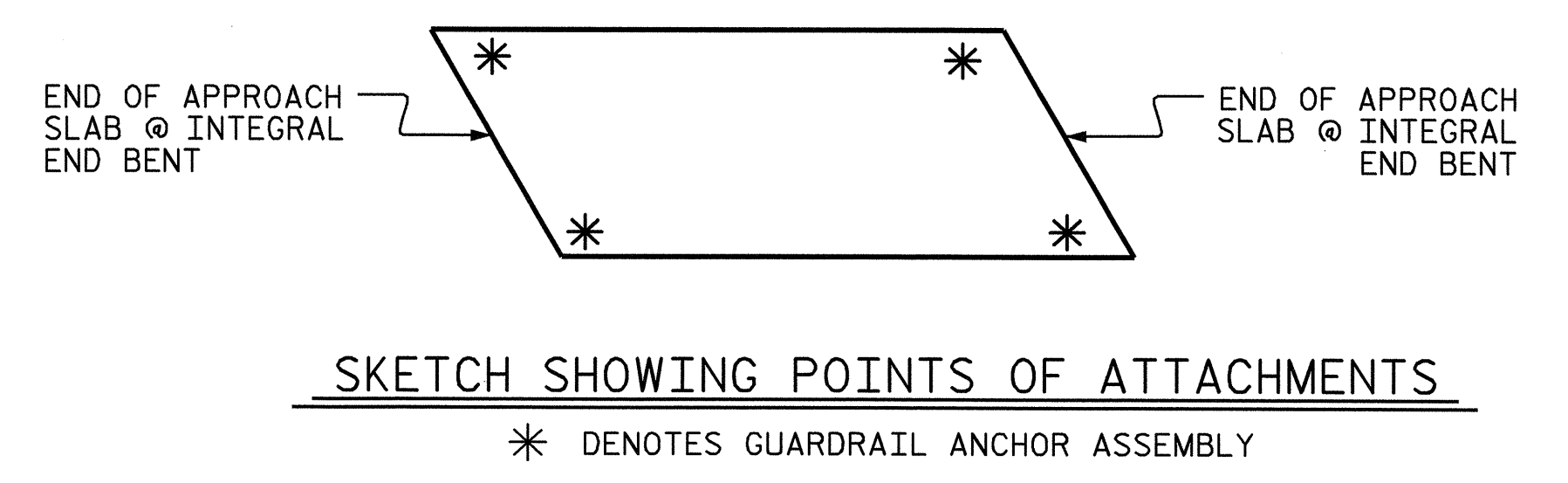
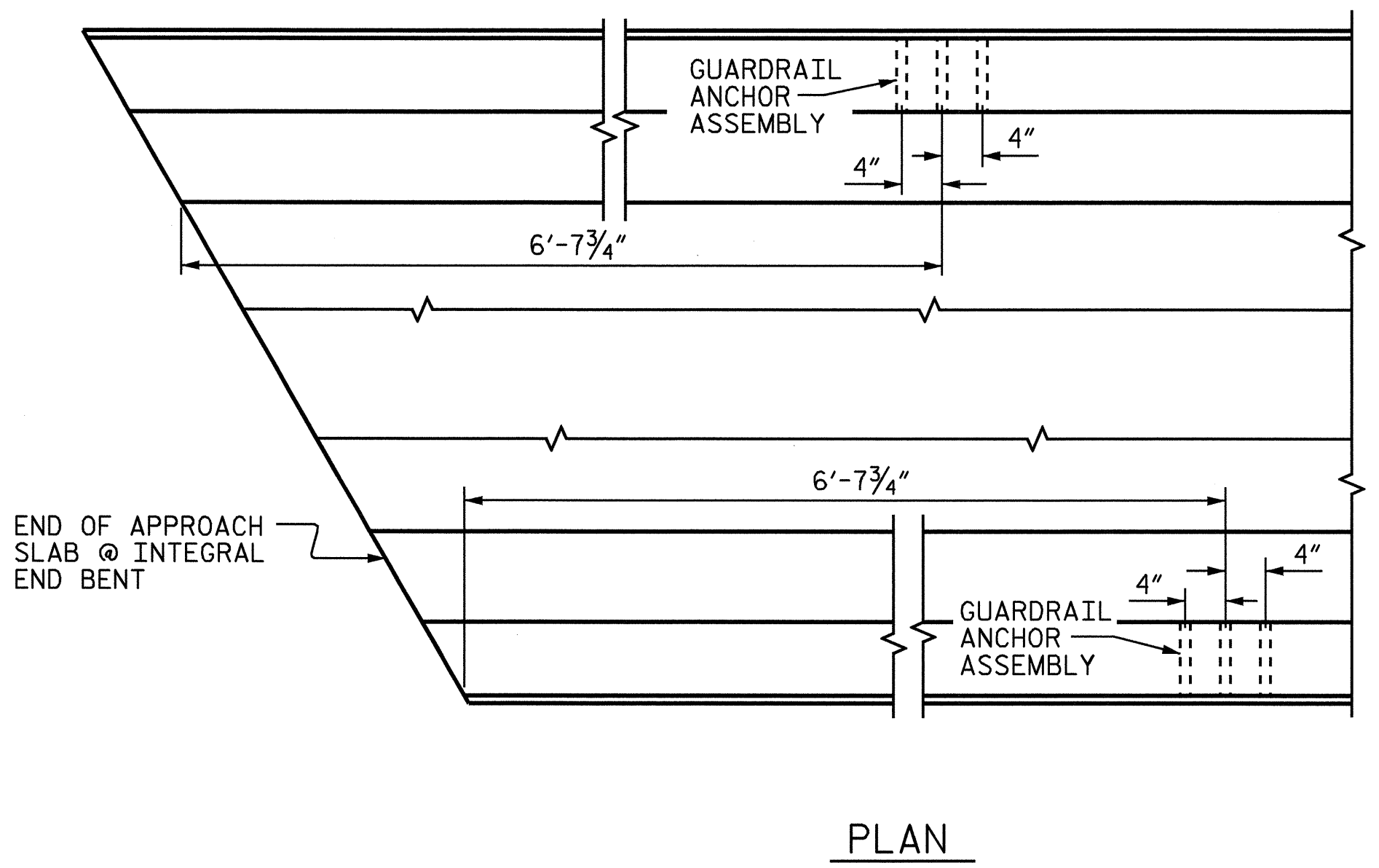
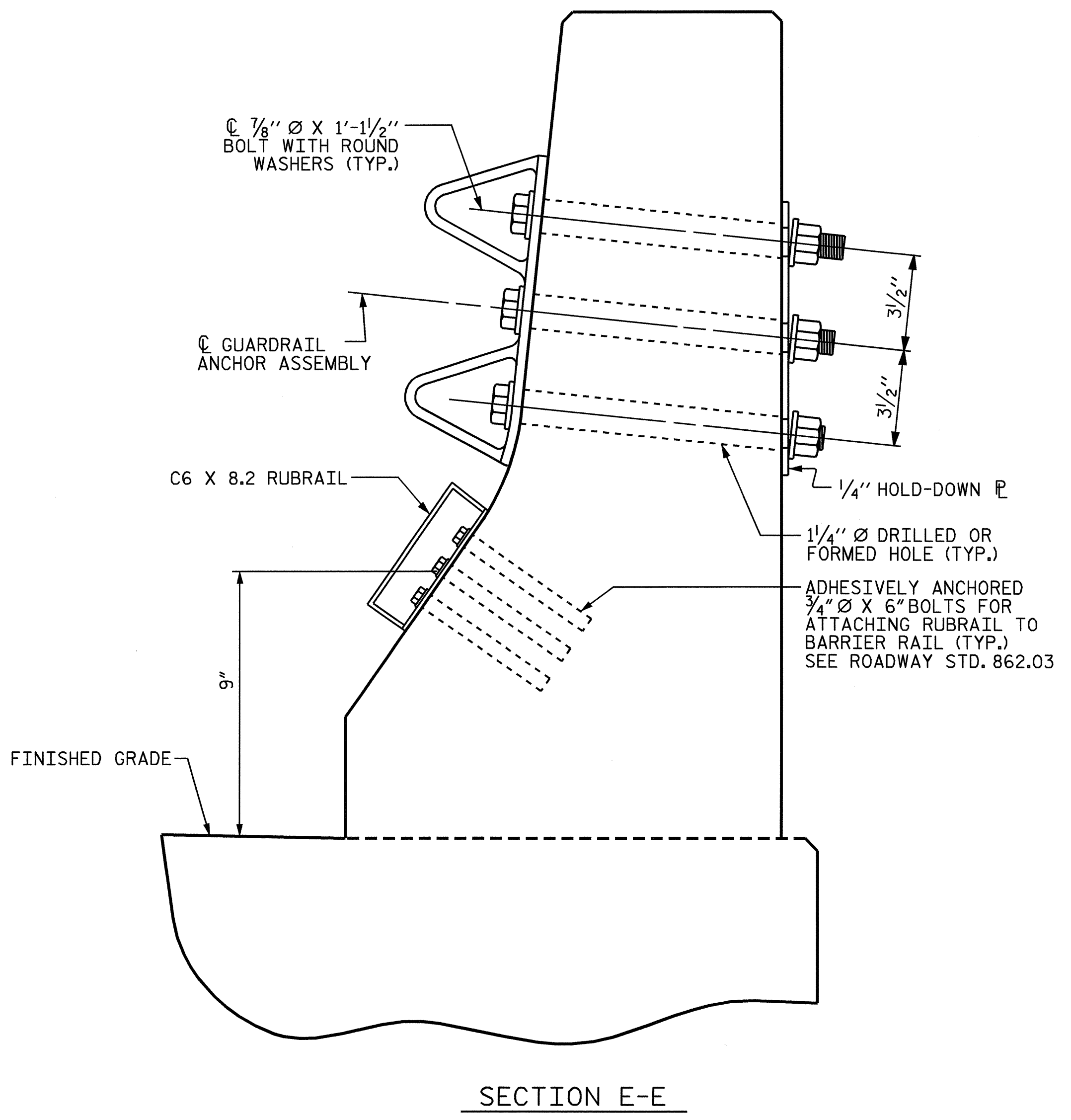
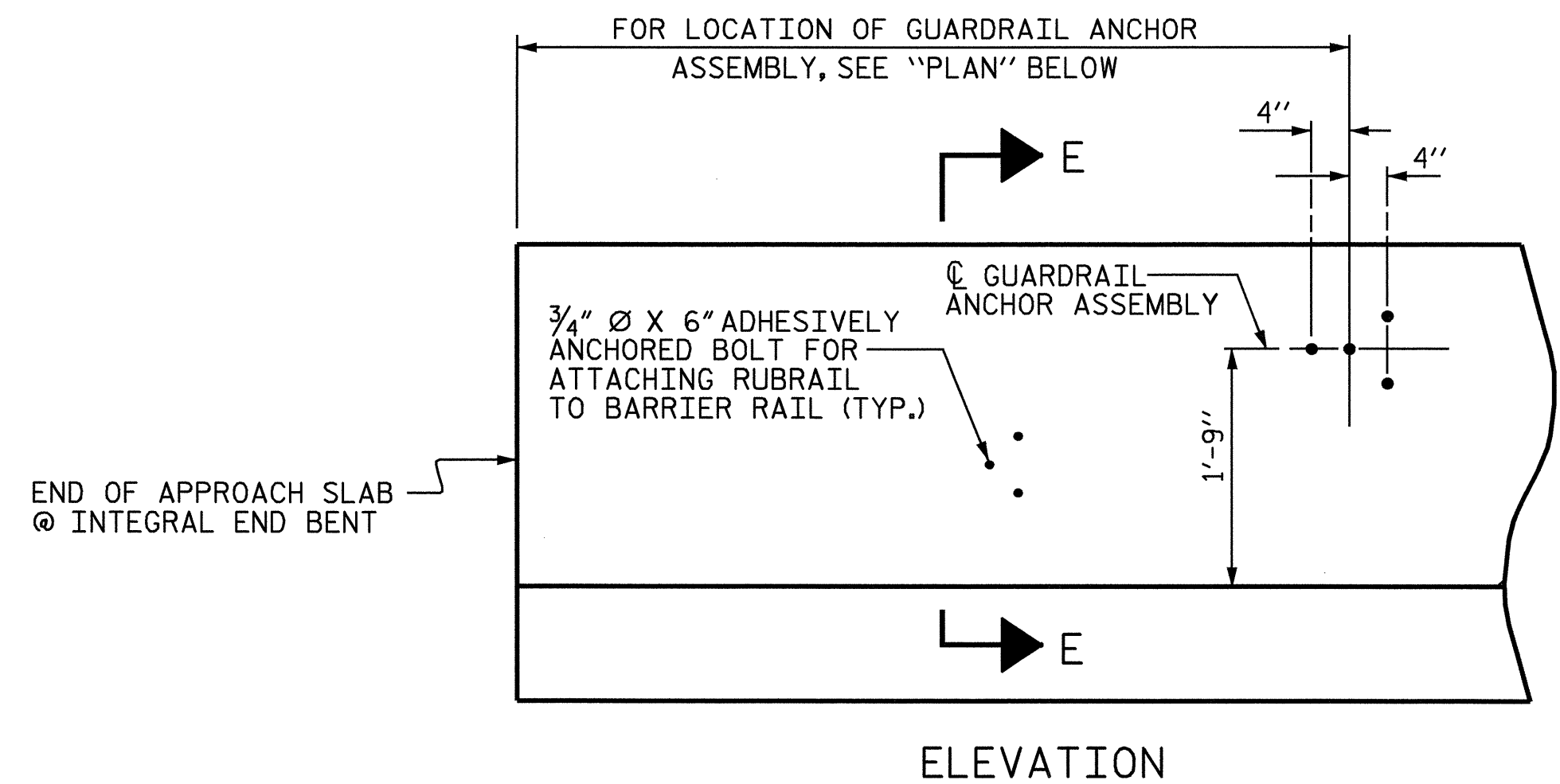
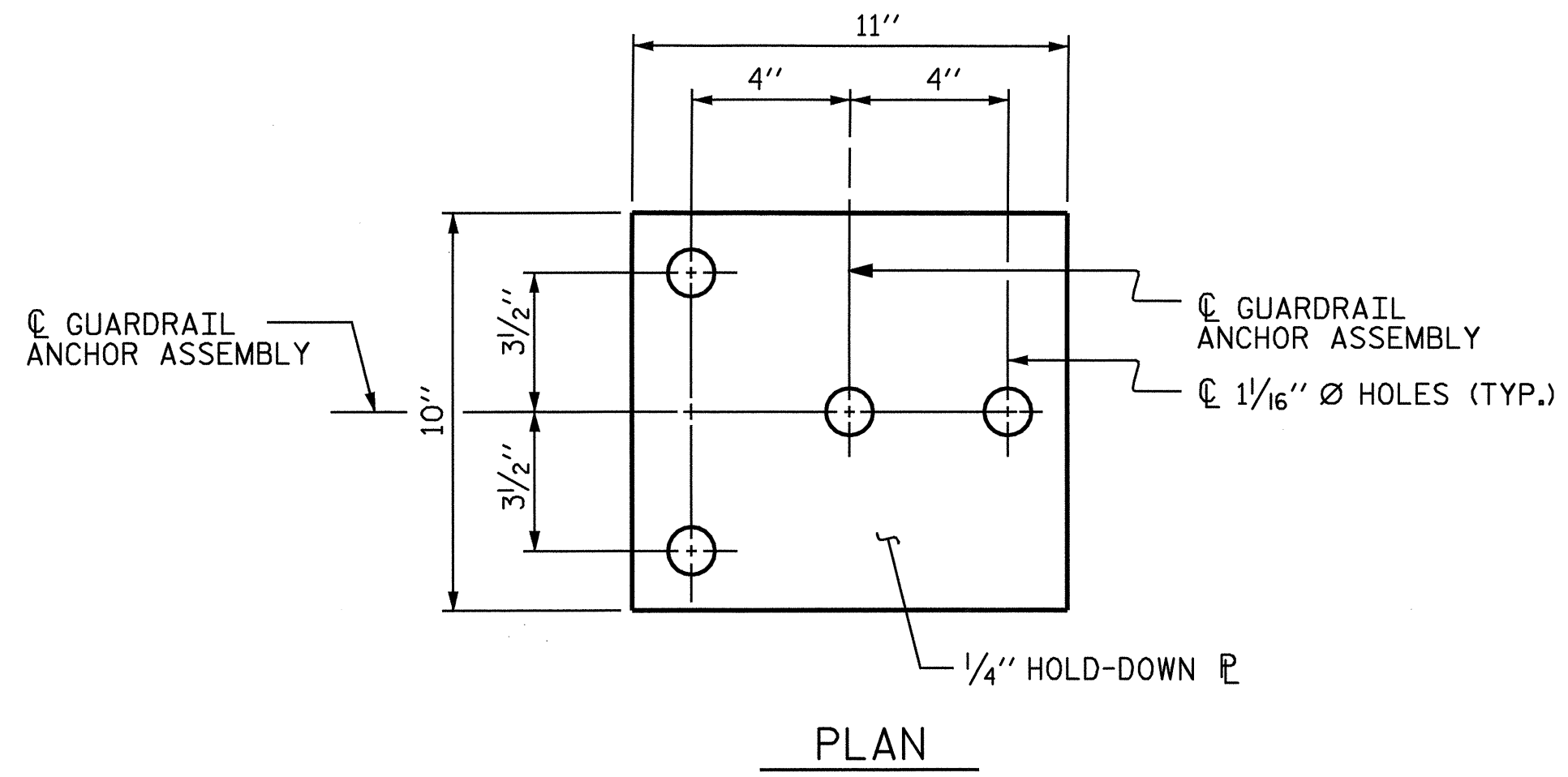
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 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.

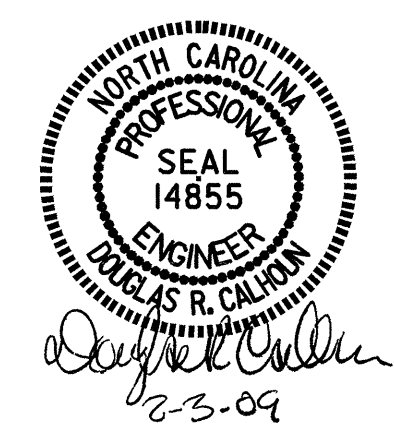
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 2 OF 2

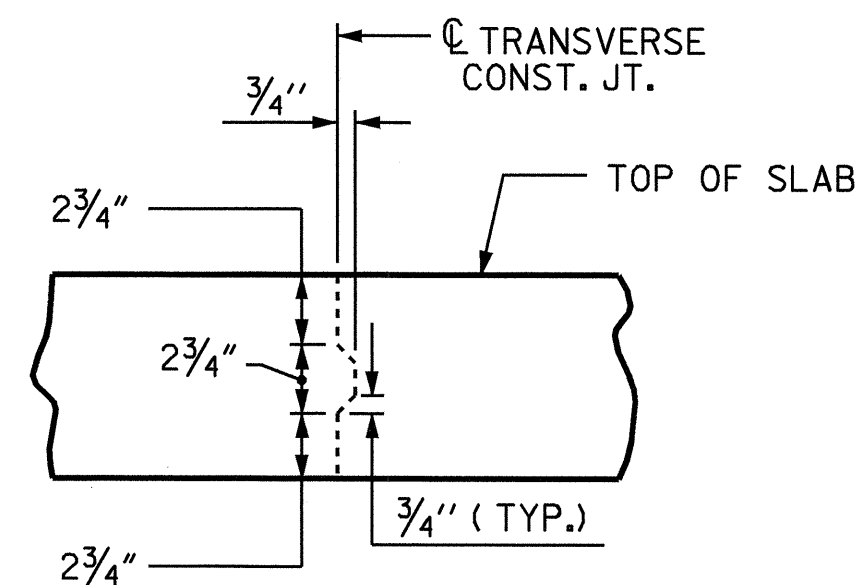
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-11
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL						
REVISIONS						TOTAL SHEETS 21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY : J.L. WALTON DATE : 7/20/08  
 CHECKED BY : D.R. CALHOUN DATE : 10/20/08  
 DRAWN BY : TLA 5/06 ADDED 5/1/06R KMM/GM  
 CHECKED BY : GM 5/06

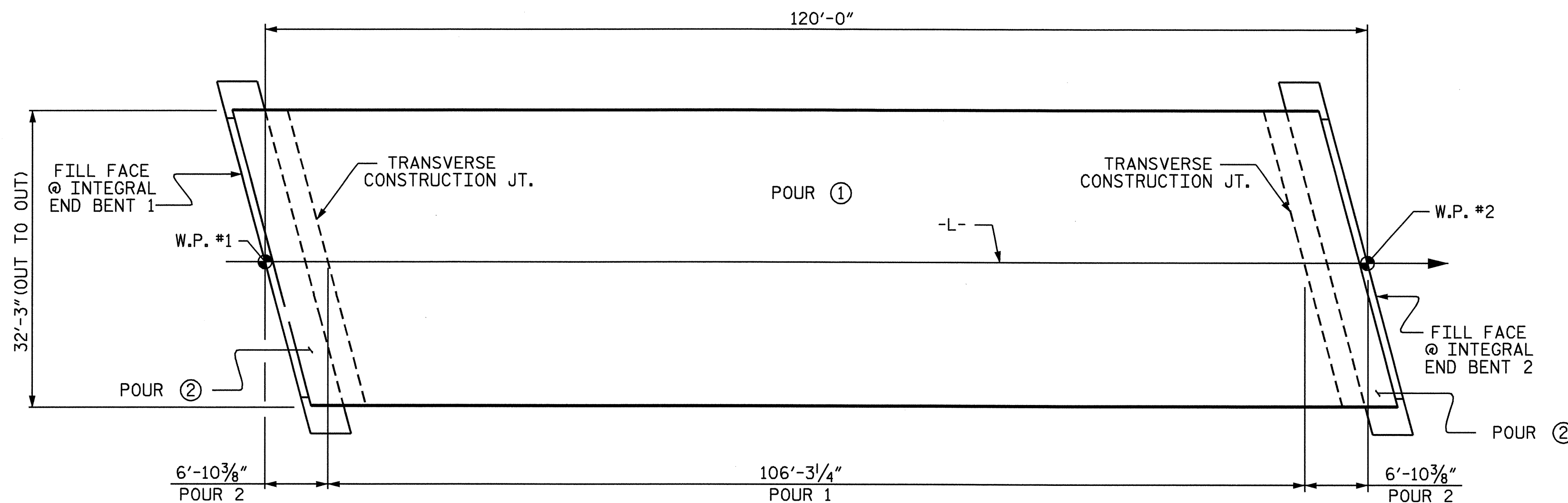
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

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"			



**TRANSVERSE CONSTRUCTION JOINT DETAIL**

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



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB & CONCRETE POUR DETAIL (SQ. FT. = 3,870)

**BILL OF MATERIAL**

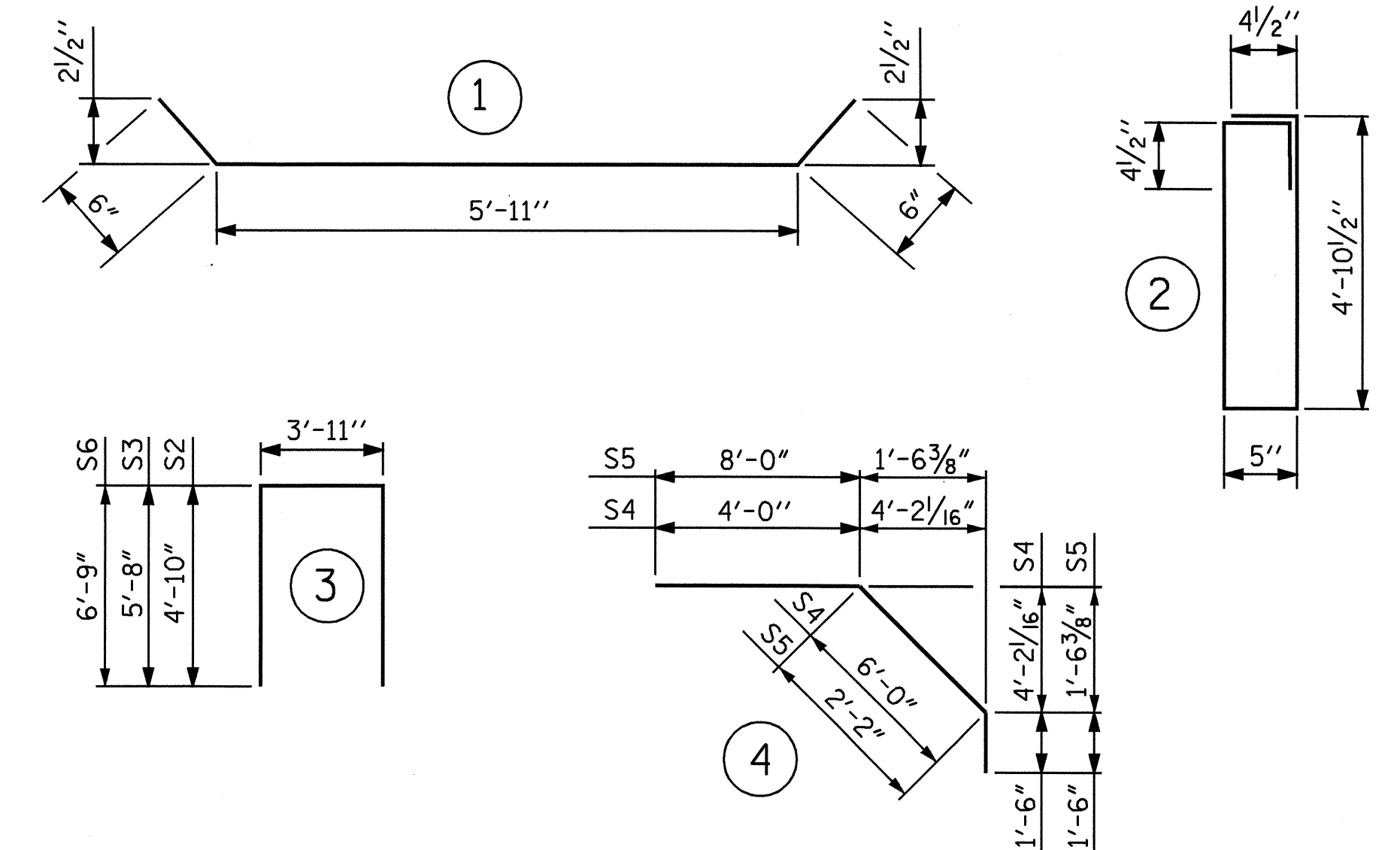
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	188	#5	STR	31'-11"	6258
A2	188	#5	STR	31'-11"	6258
*A101	4	#5	STR	28'-1"	117
*A102	4	#5	STR	23'-9"	99
*A103	4	#5	STR	19'-4"	81
*A104	4	#5	STR	15'-0"	63
*A105	4	#5	STR	10'-0"	42
*A106	4	#5	STR	6'-4"	26
*A107	4	#5	STR	1'-11"	8
A201	4	#5	STR	28'-1"	117
A202	4	#5	STR	23'-9"	99
A203	4	#5	STR	19'-4"	81
A204	4	#5	STR	15'-0"	63
A205	4	#5	STR	10'-0"	42
A206	4	#5	STR	6'-4"	26
A207	4	#5	STR	1'-11"	8
*B1	115	#4	STR	25'-3"	1940
B2	72	#5	STR	40'-9"	3060
B3	80	#5	STR	24'-0"	2003
*B4	38	#7	STR	24'-0"	1864
K1	12	#5	1	6'-11"	87
K2	60	#5	STR	7'-3"	454
K3	28	#4	STR	20'-7"	385
K4	6	#4	STR	5'-10"	23
K5	30	#4	STR	7'-6"	150
K6	6	#4	STR	4'-4"	17
K7	4	#4	STR	5'-7"	15
K8	20	#4	STR	6'-5"	86
K9	4	#4	STR	4'-11"	13
K10	16	#4	STR	2'-9"	29
S1	36	#4	2	11'-4"	273
S2	16	#4	3	13'-7"	145
S3	64	#4	3	15'-3"	652
*S4	34	#4	4	11'-6"	261
*S5	38	#4	4	11'-8"	296
S6	16	#4	3	17'-5"	140

REINFORCING STEEL 14,226 LBS.  
\*EPOXY COATED REINFORCING STEEL 11,055 LBS.

**GROOVING BRIDGE FLOORS**

APPROACH SLABS	684 SQ.FT.
BRIDGE DECK	3066 SQ.FT.
TOTAL	3750 SQ.FT.

**BAR TYPES**



ALL BAR DIMENSIONS ARE OUT TO OUT

**SUPERSTRUCTURE BILL OF MATERIAL**

	CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	122.5		
POUR 2	79.8		
TOTALS**	202.3	14,226	11,055

\*\*QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. B-3706  
WARREN COUNTY  
STATION: 17+21.00 -L-

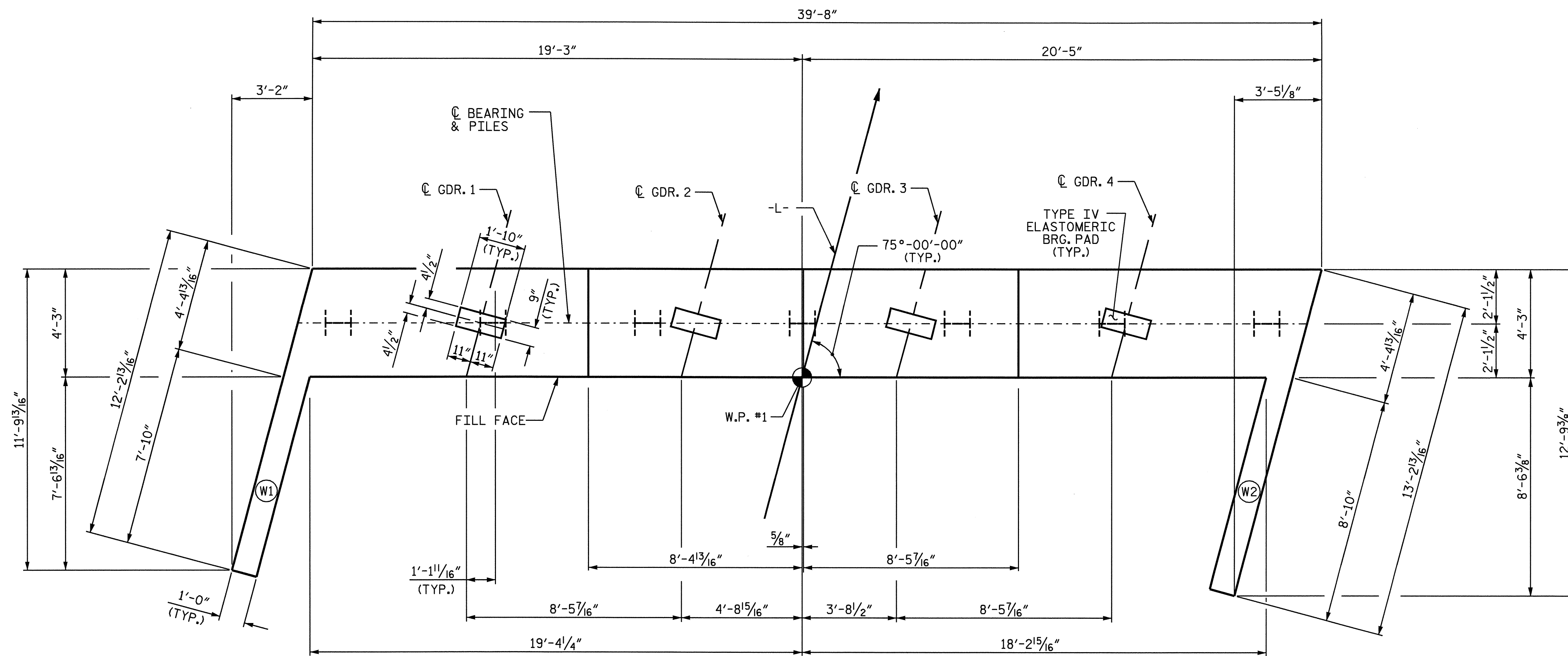
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARD  
SUPERSTRUCTURE  
BILL OF MATERIAL



ASSEMBLED BY : J.L. WALTON	DATE : 10/30/08
CHECKED BY : D.R. CALHOUN	DATE : 11/13/08
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES

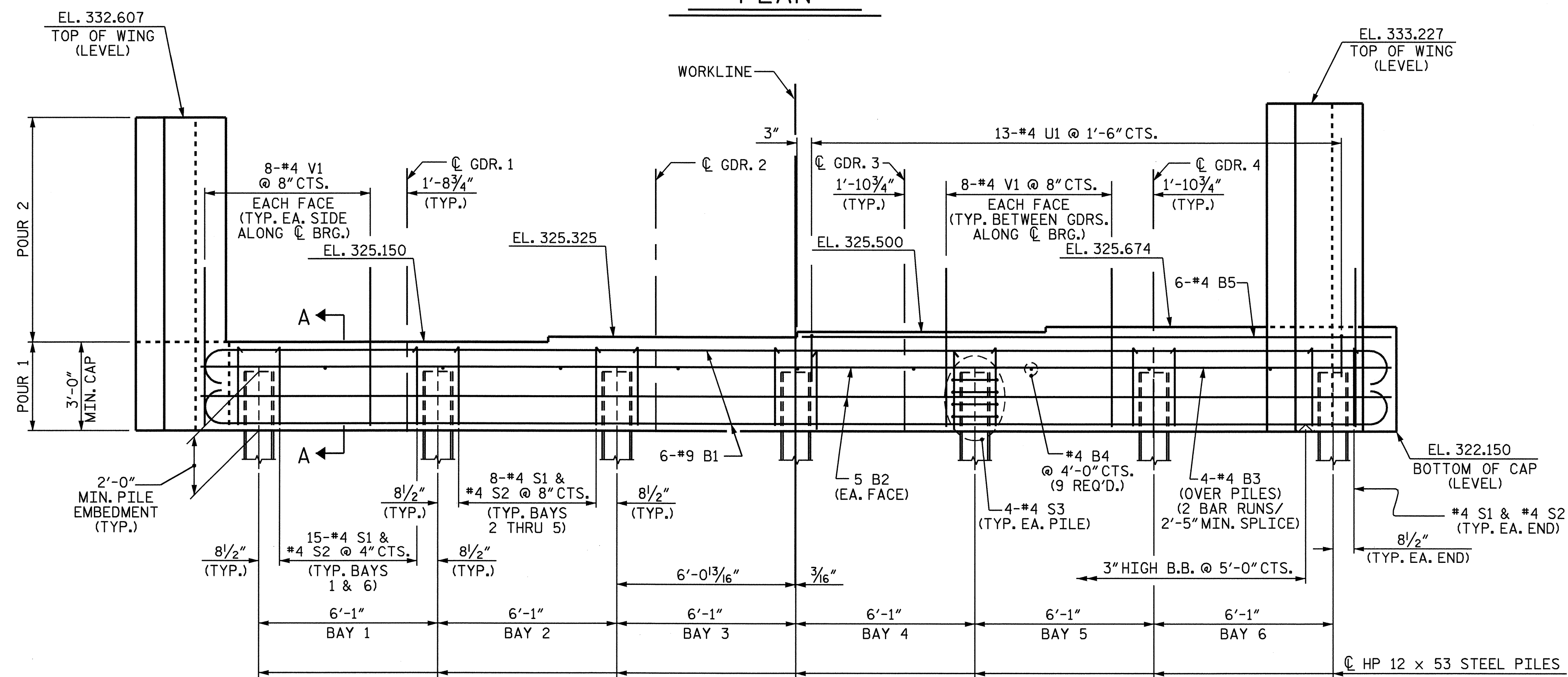
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-12
2			4			21



NOTES

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF WINGS (POUR 2) ARE TO BE POURED WITH POUR 2 OF SUPERSTRUCTURE.



PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

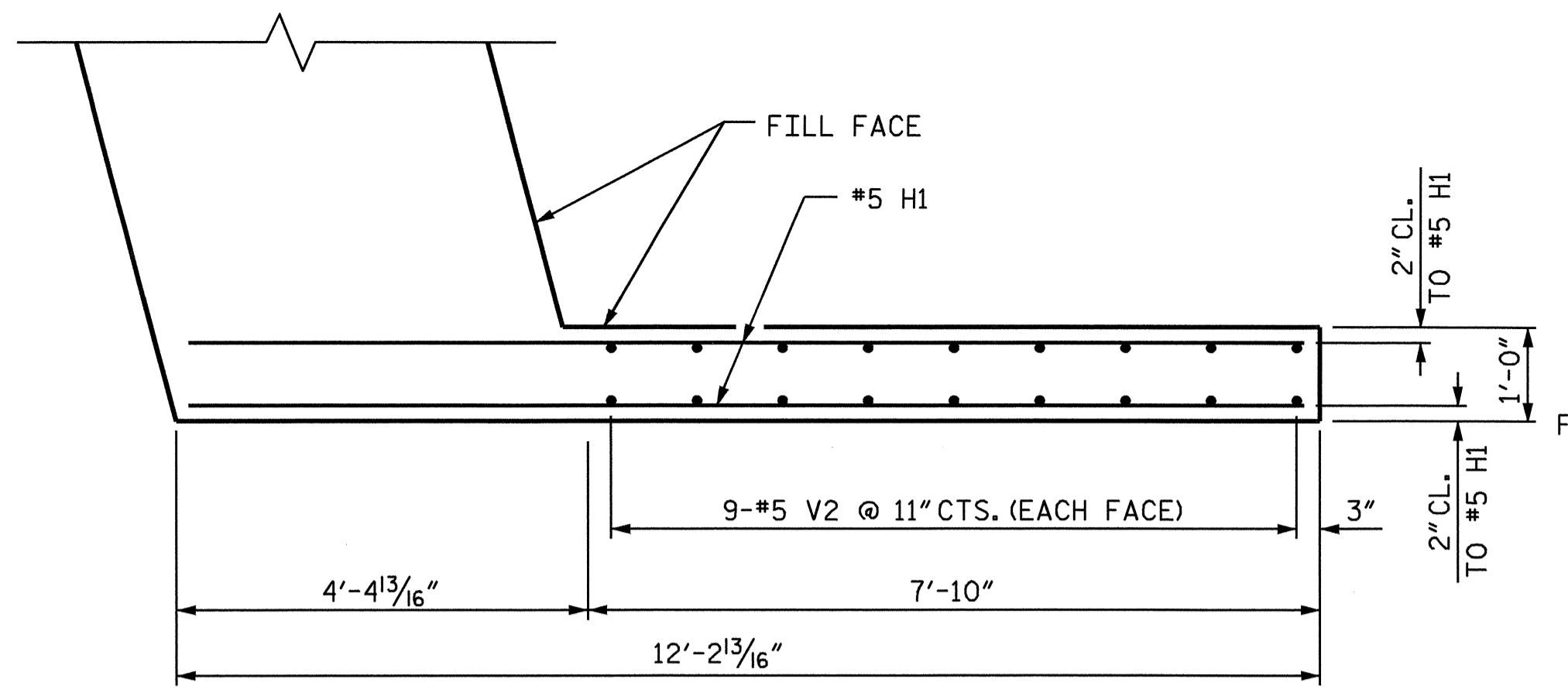
SUBSTRUCTURE  
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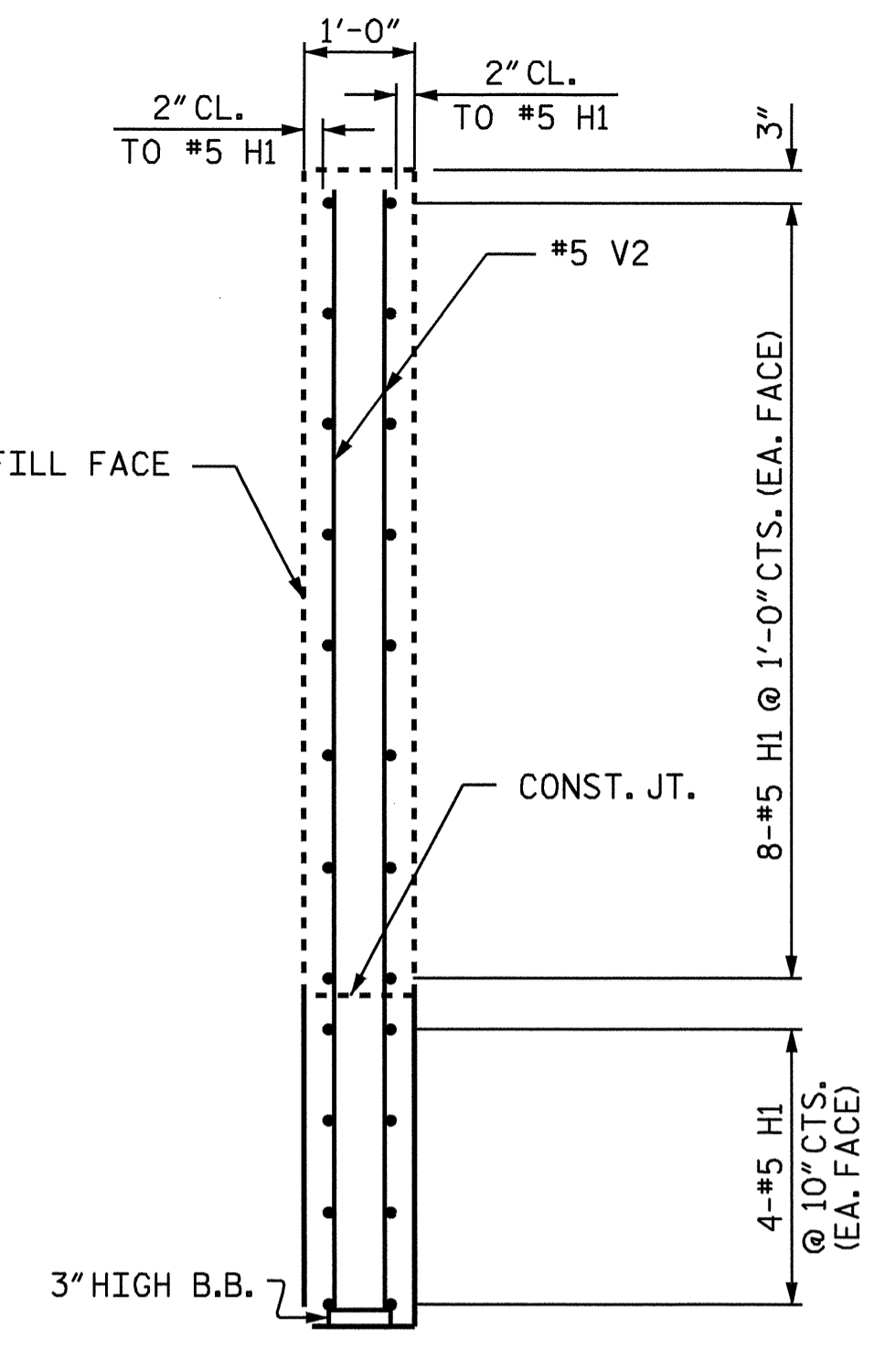
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 CHECKED BY: D.R. CALHOUN DATE: 10/21/08

02-FEB-2009 14:24  
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 gallen

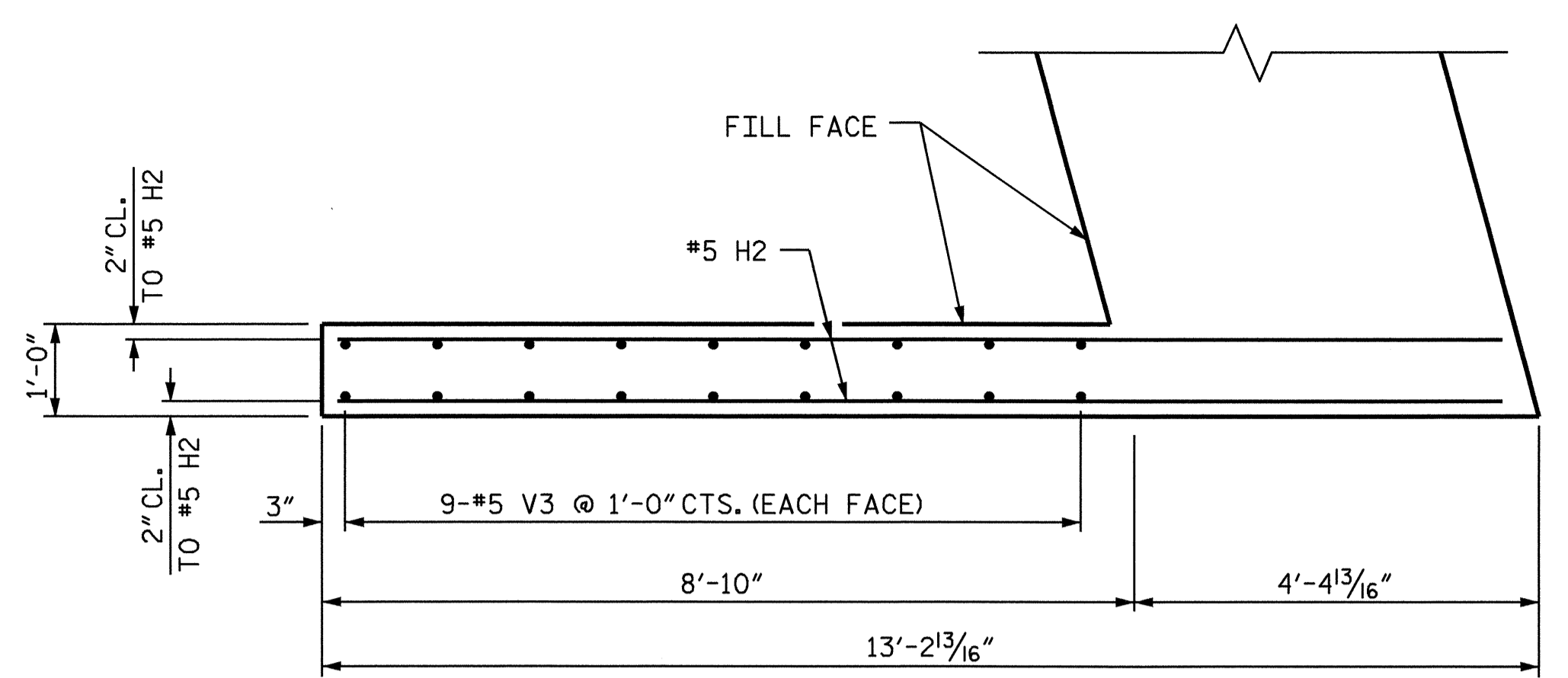
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2			4			21



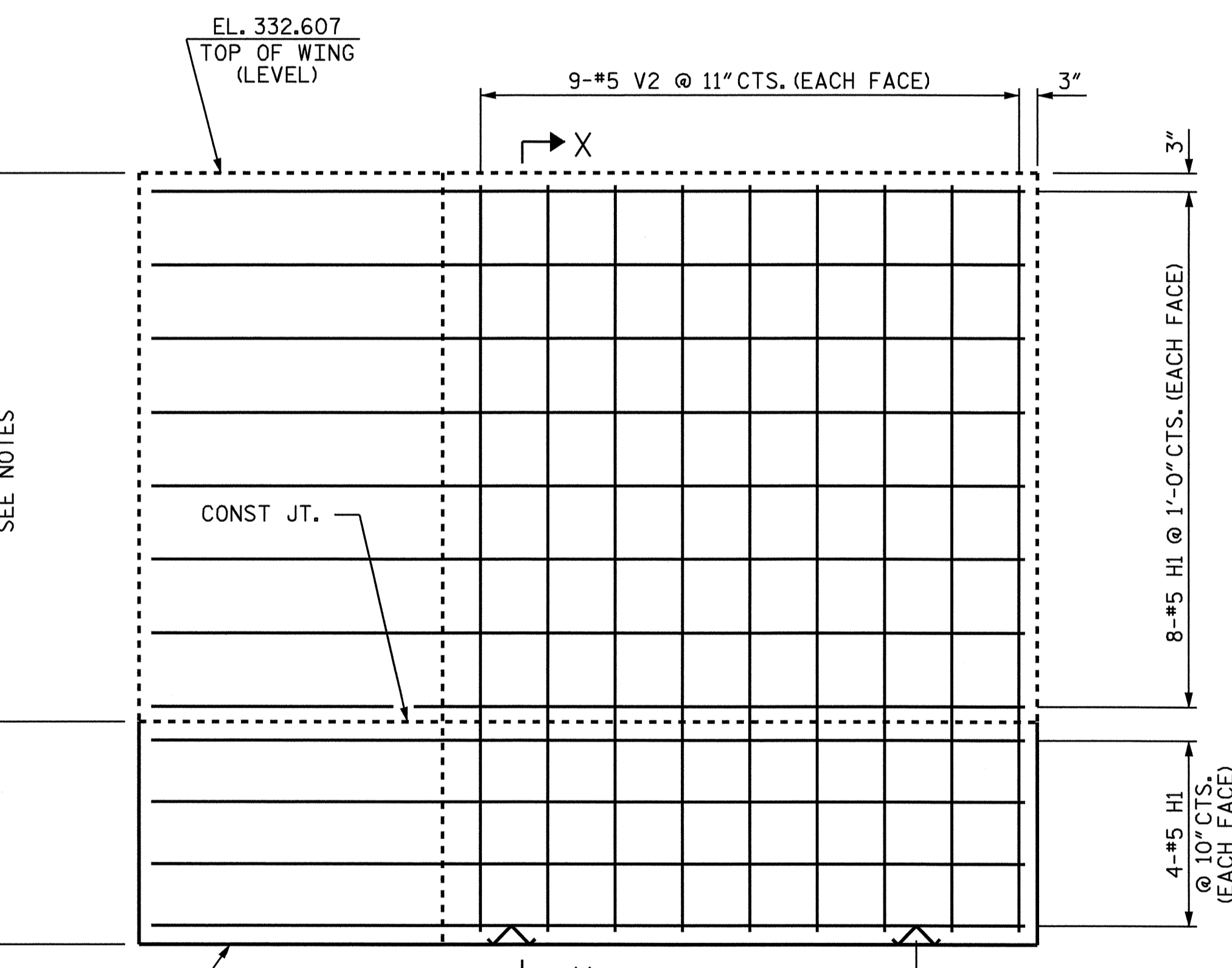
PLAN W1



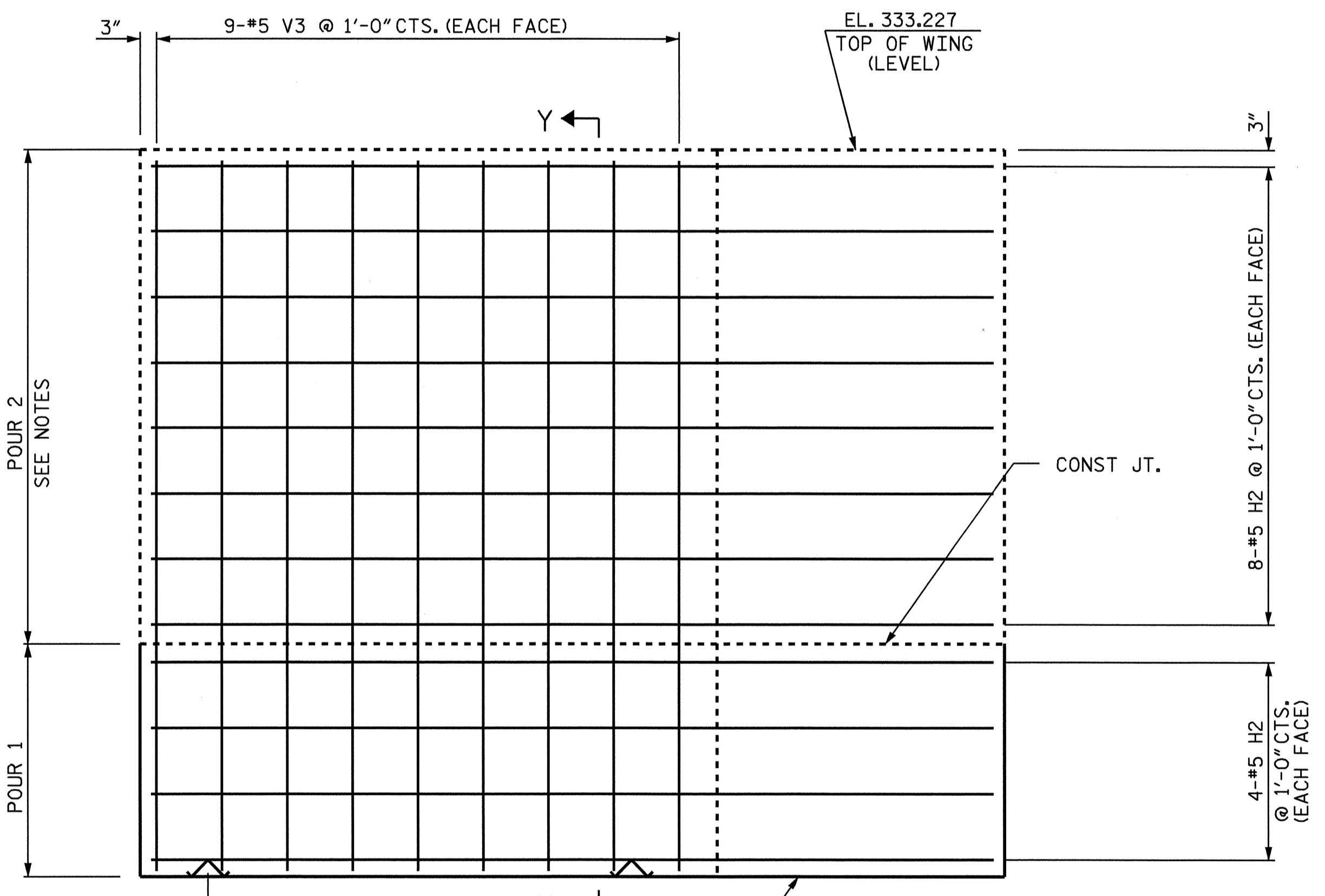
SECTION X-X



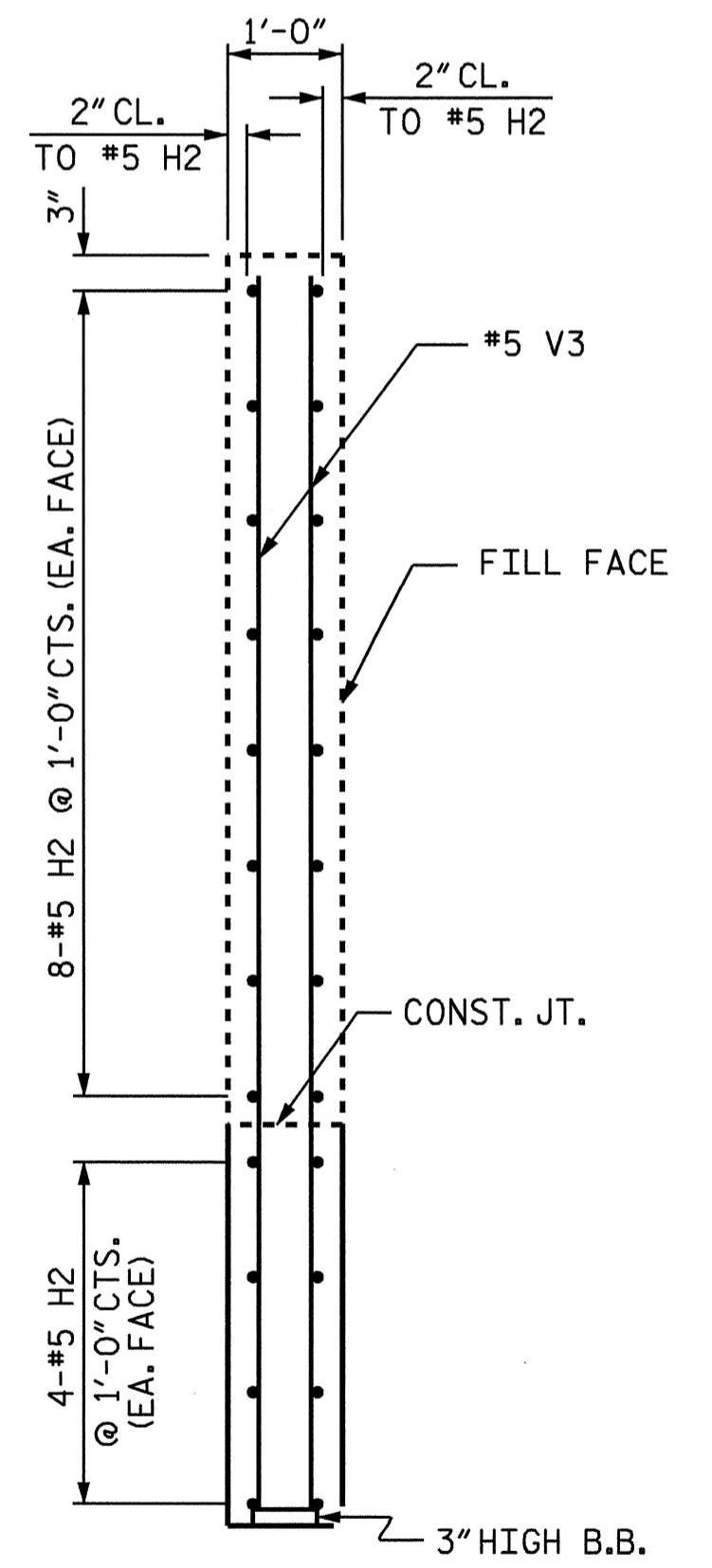
PLAN W2



ELEVATION W1

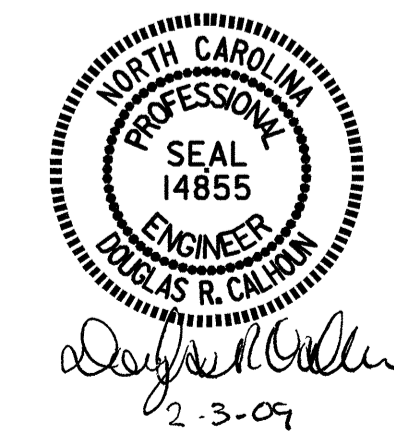


ELEVATION W2



SECTION Y-Y

PROJECT NO. B-3706  
 WARREN COUNTY  
 STATION: 17+21.00 -L-  
 SHEET 2 OF 3

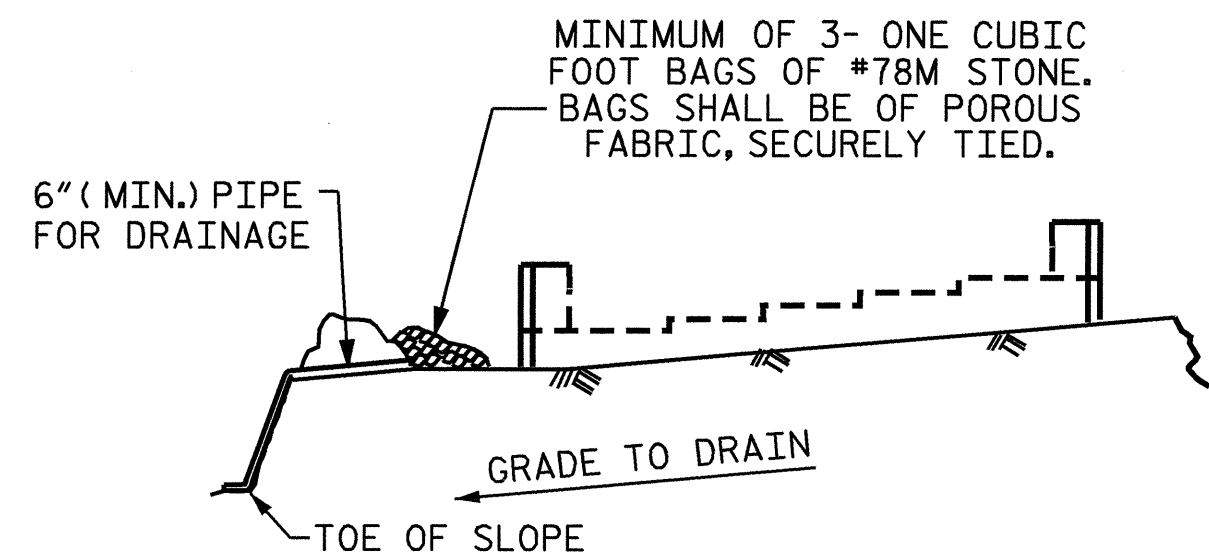


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1

DRAWN BY: J.L. WALTON DATE: 10/19/08  
 CHECKED BY: D.R. CALHOUN DATE: 10/21/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			21

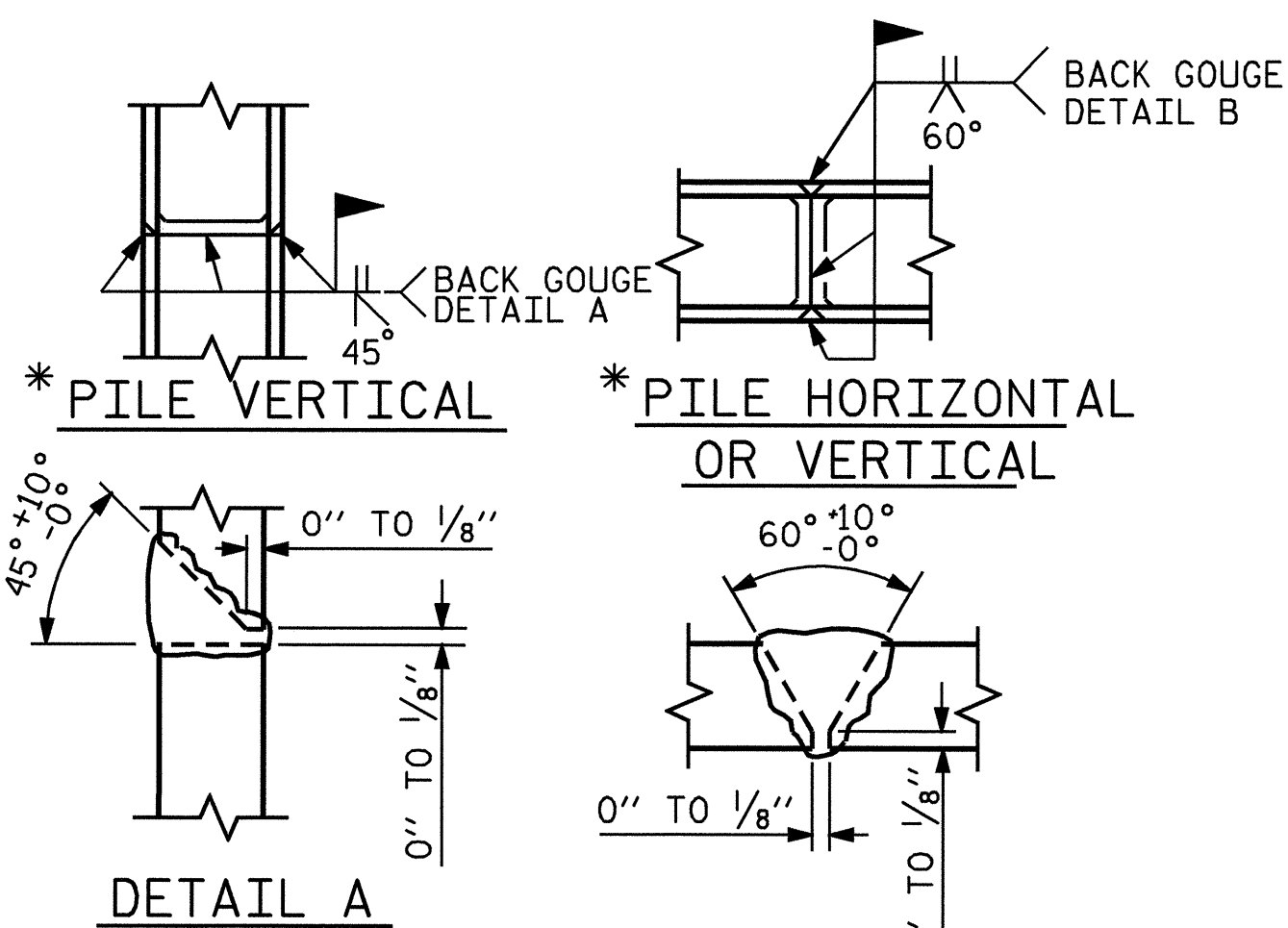
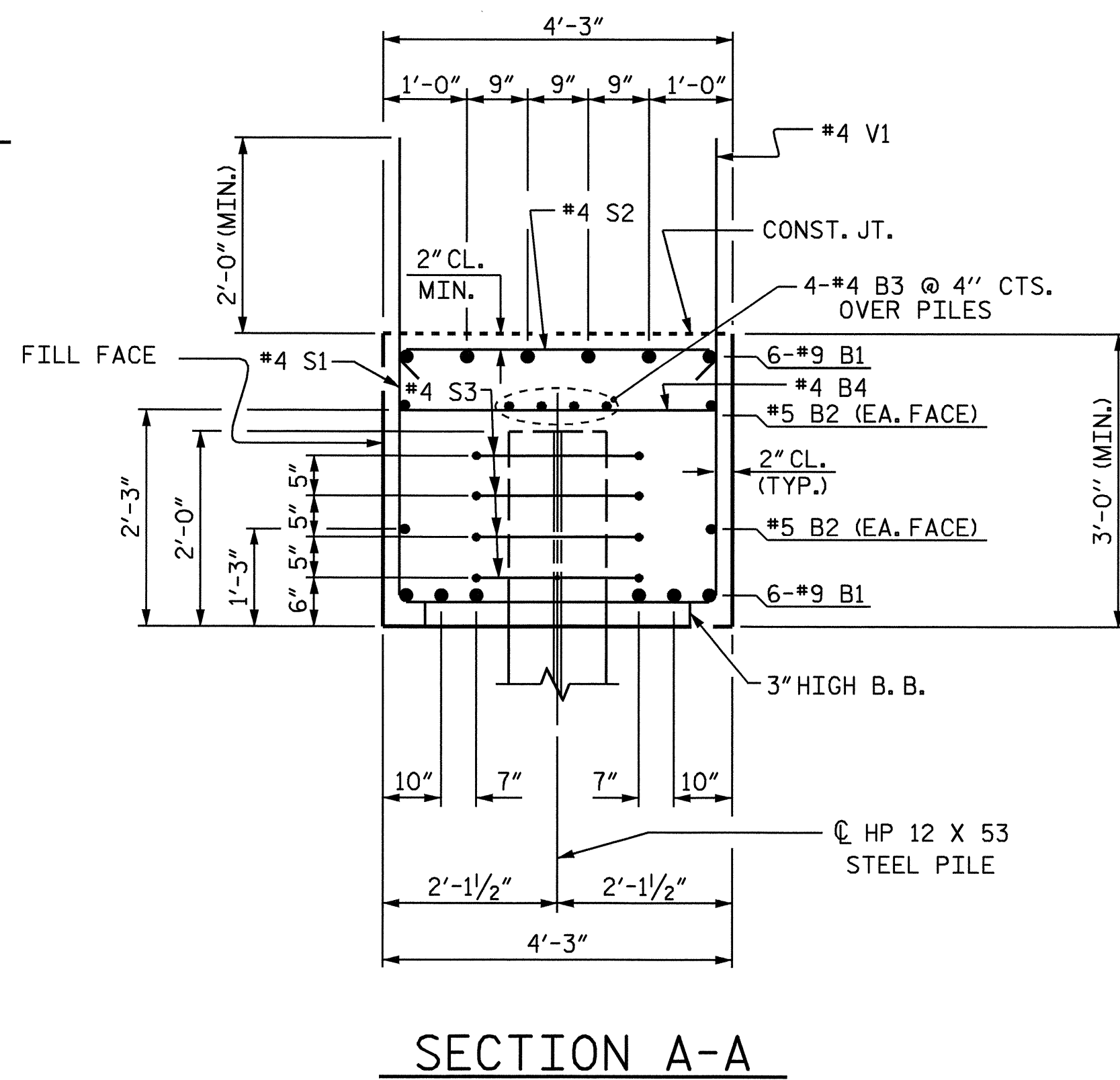


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

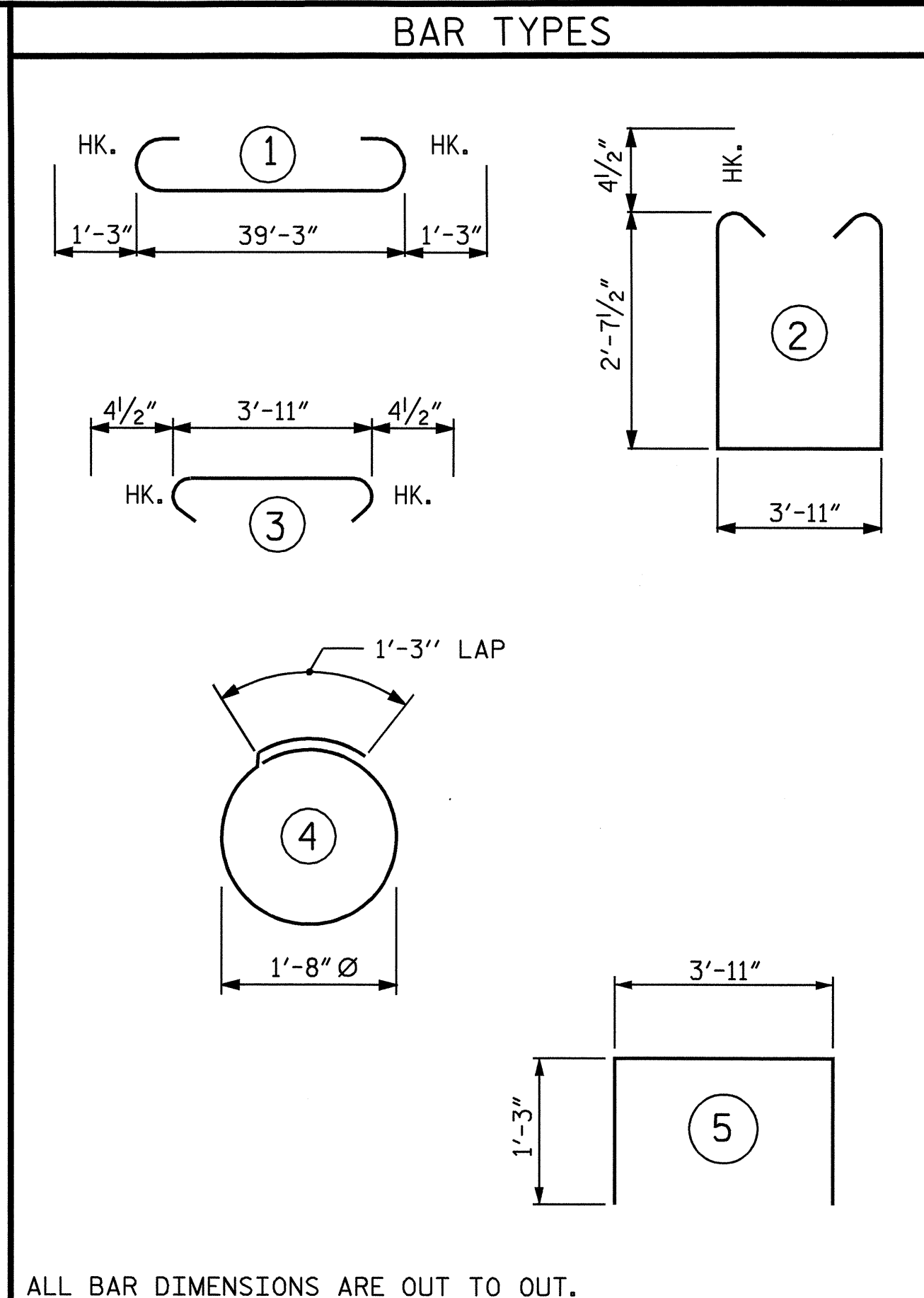
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

### TEMPORARY DRAINAGE AT END BENT



\* POSITION OF PILE DURING WELDING. DETAIL B  
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

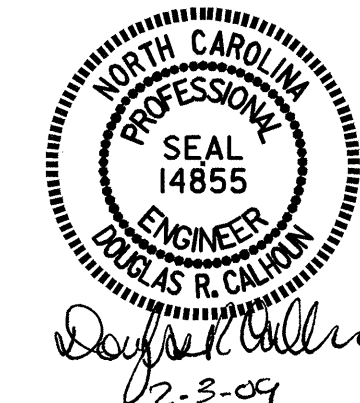
BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9	1	41'-9"	1703
B2	4	#5	STR	39'-4"	164
B3	8	#4	STR	20'-11"	112
B4	9	#4	STR	3'-11"	24
B5	6	#4	STR	18'-11"	76
H1	24	#5	STR	11'-11"	298
H2	24	#5	STR	12'-11"	323
S1	64	#4	2	9'-11"	424
S2	64	#4	3	4'-8"	200
S3	28	#4	3	6'-6"	122
U1	13	#4	5	6'-5"	56
V1	80	#4	STR	5'-5"	289
V2	18	#5	STR	10'-1"	189
V3	18	#5	STR	10'-8"	200

REINFORCING STEEL LBS. 4180  
 CLASS A CONC. BREAKDOWN  
 ▲ POUR 1 (CAP & PART OF LOWER WINGS) 23.5 CU. YD.  
 TOTAL 23.5 CU. YD.  
 HP 12 X 53 STEEL PILES  
 NUMBER = 7 LIN. FT. = 70

▲ UPPER WINGS (POUR 2) TO BE POURED WITH POUR 2 OF THE SUPERSTRUCTURE.

PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 3 OF 3



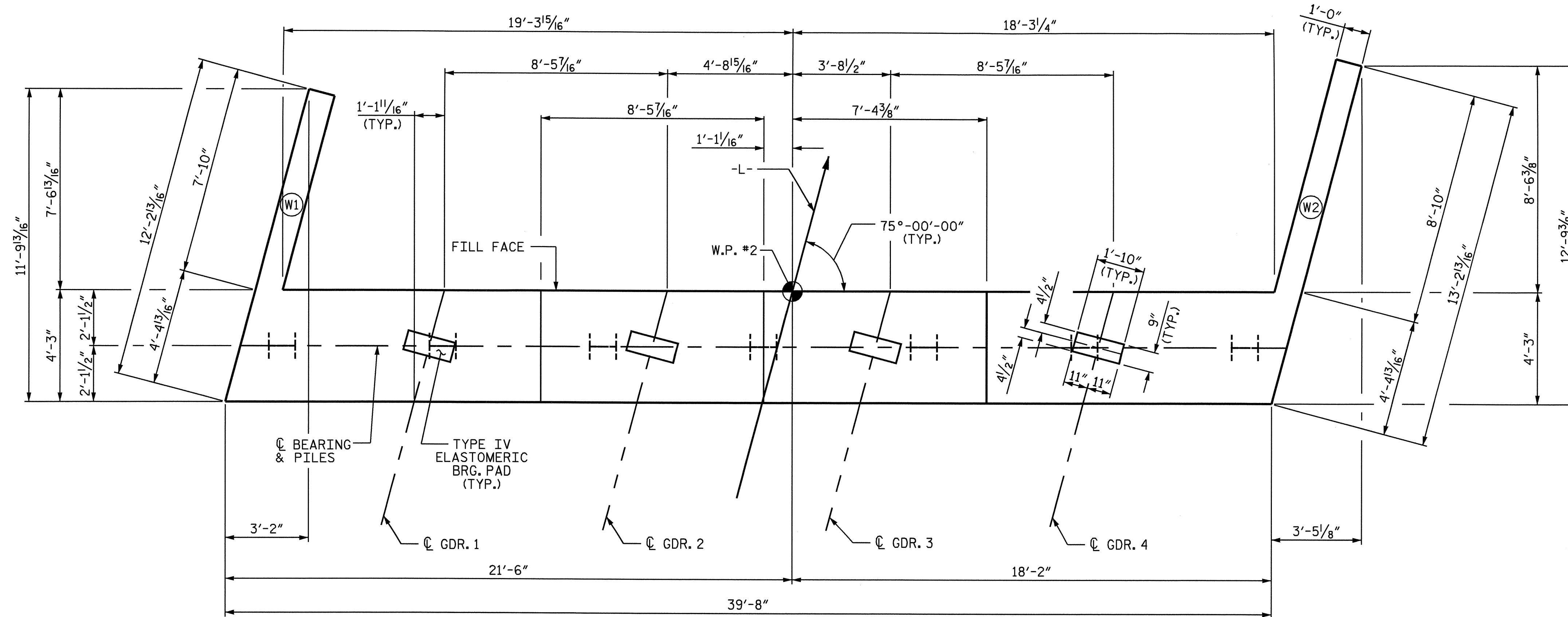
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1

REVISIONS					
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2			4		

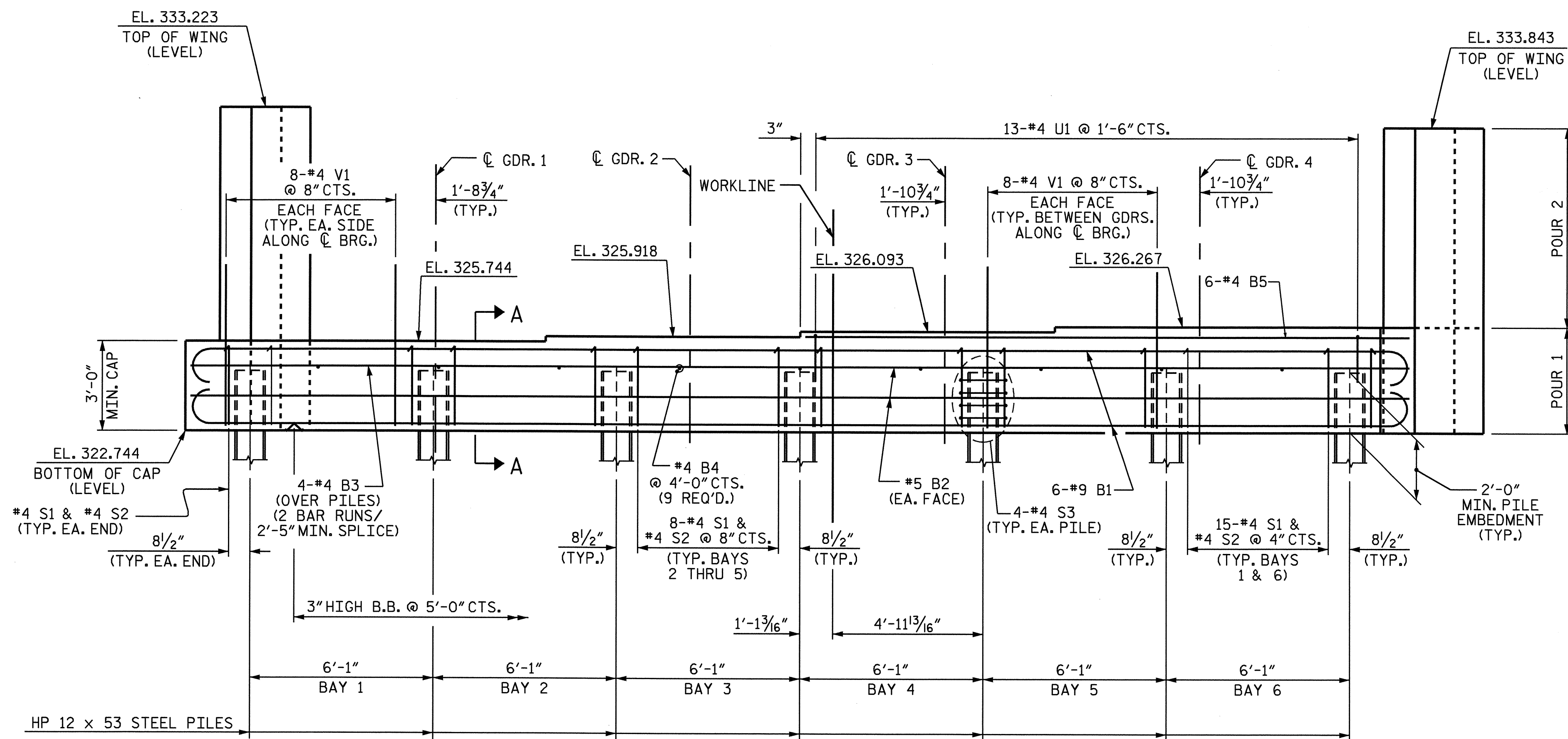
SHEET NO.  
S-15  
 TOTAL SHEETS  
21

DRAWN BY: J.L. WALTON DATE: 10/19/08  
 CHECKED BY: D.R. CALHOUN DATE: 10/21/08





PLAN



ELEVATION

NOTES

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF WINGS (POUR 2) ARE TO BE POURED WITH POUR 2 OF SUPERSTRUCTURE.

PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 1 OF 3

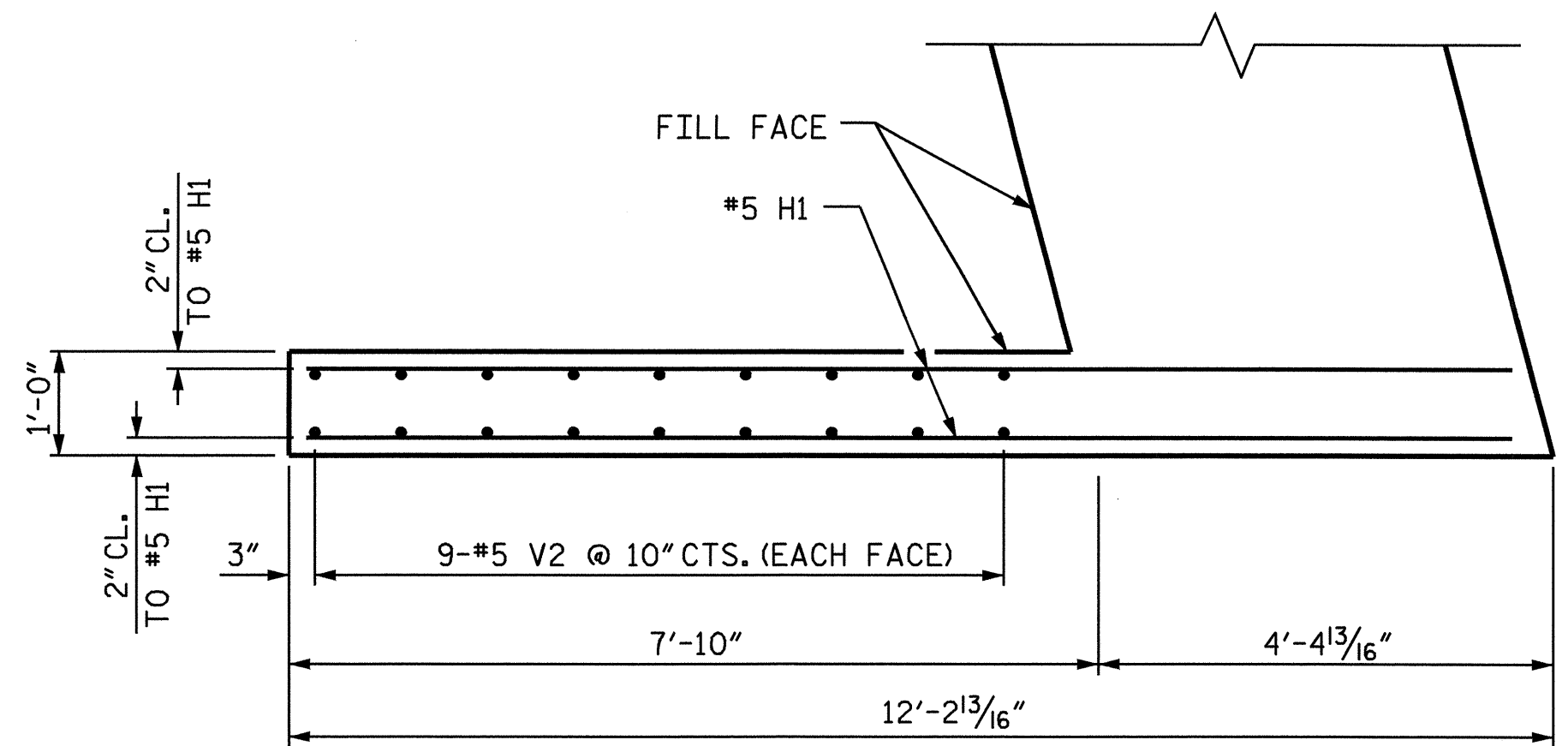


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

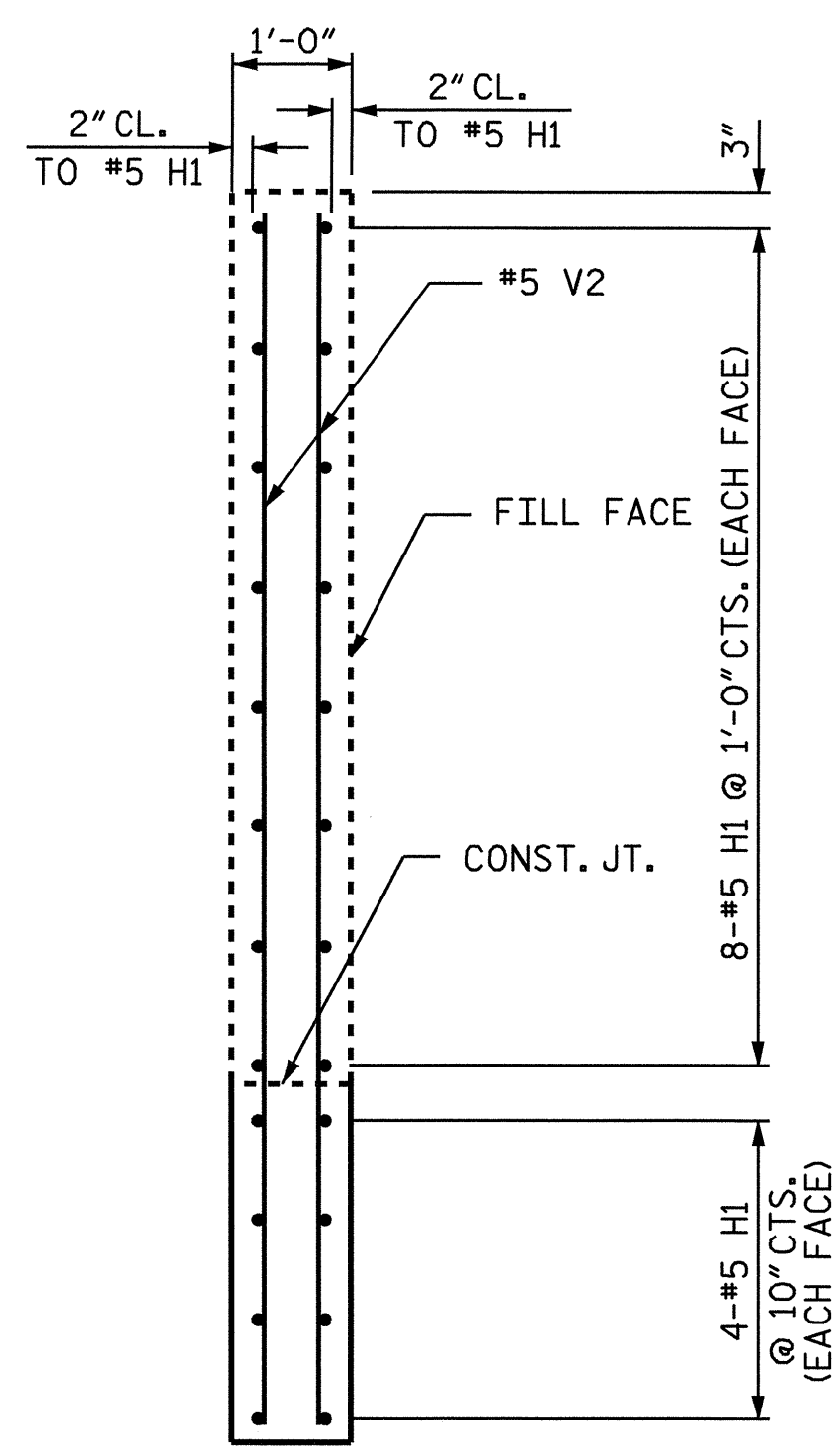
SUBSTRUCTURE  
 END BENT 2

REVISIONS				SHEET NO.	
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2			4		
					TOTAL SHEETS
					21

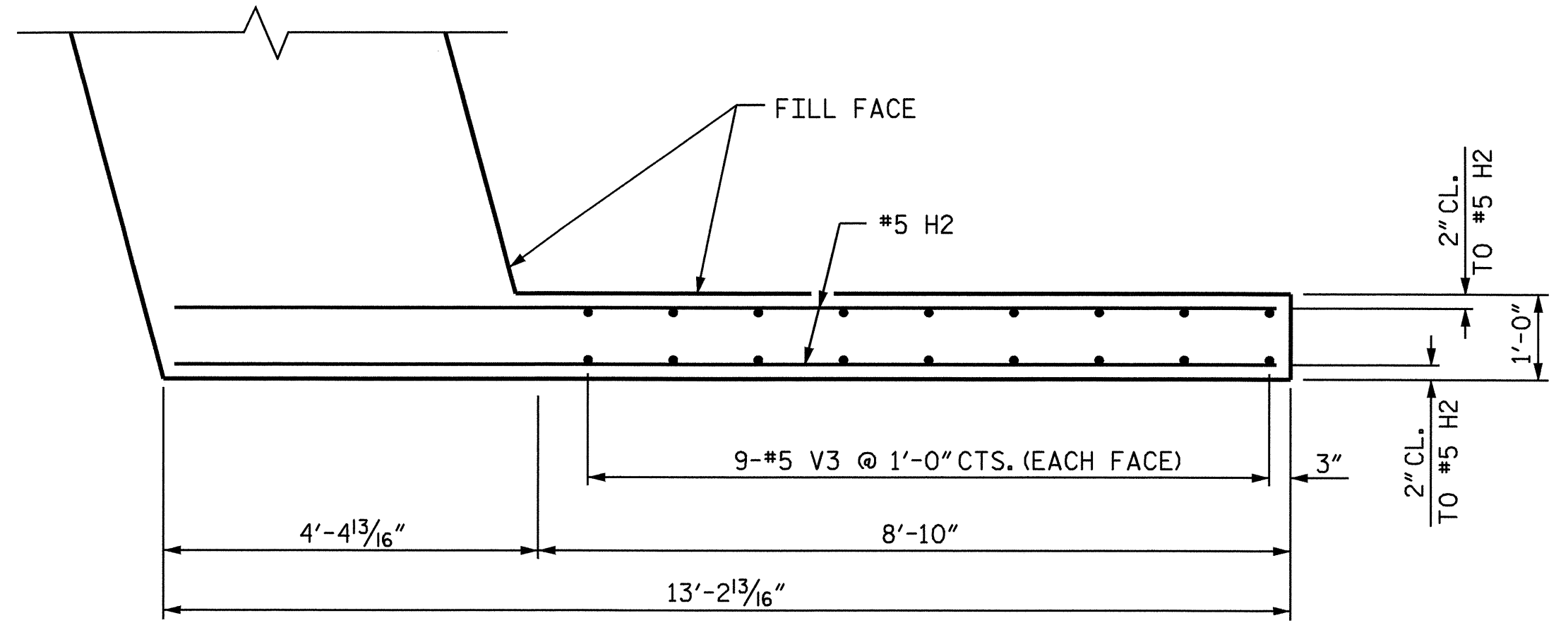
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 CHECKED BY: D.R. CALHOUN DATE: 10/21/08



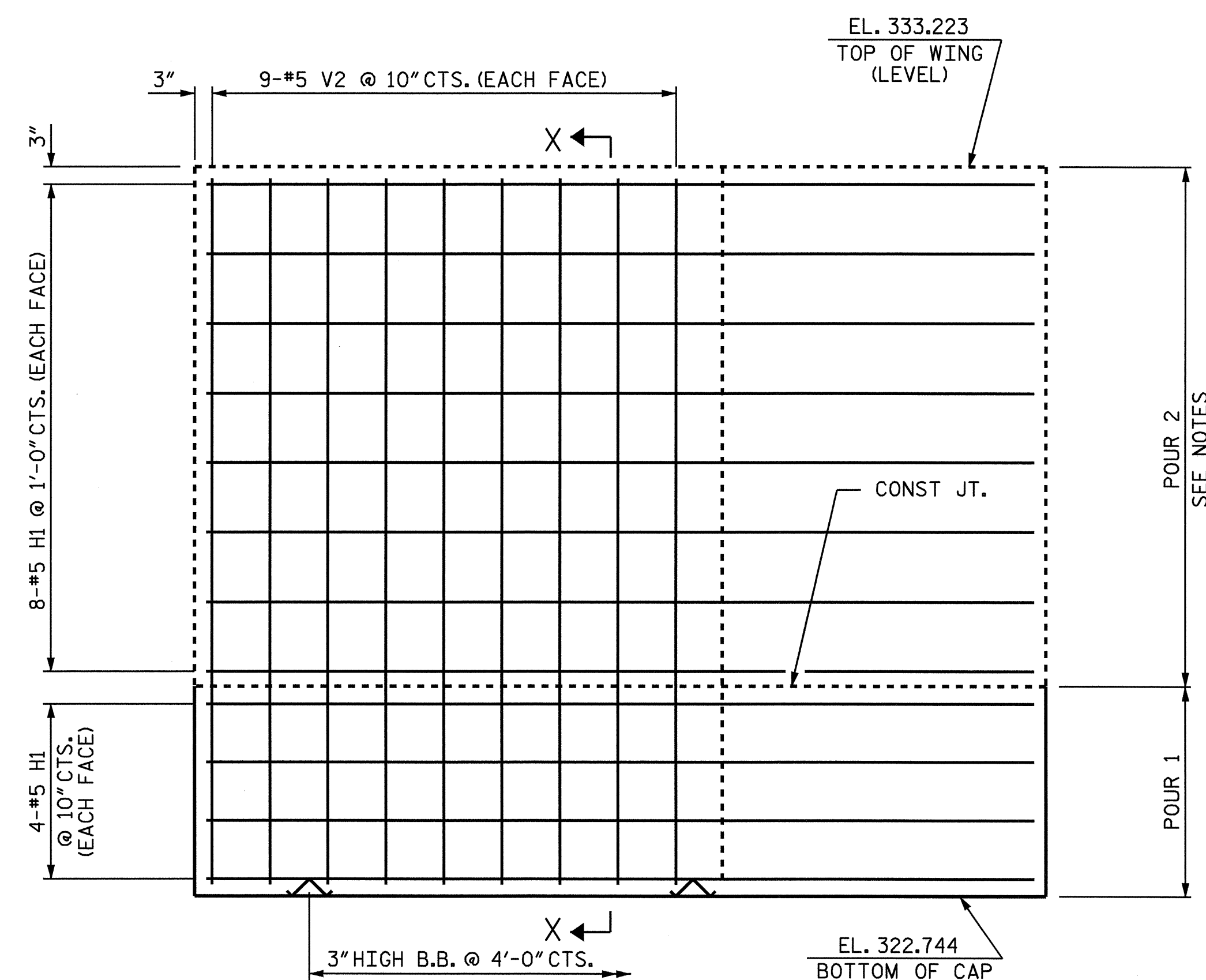
PLAN W1



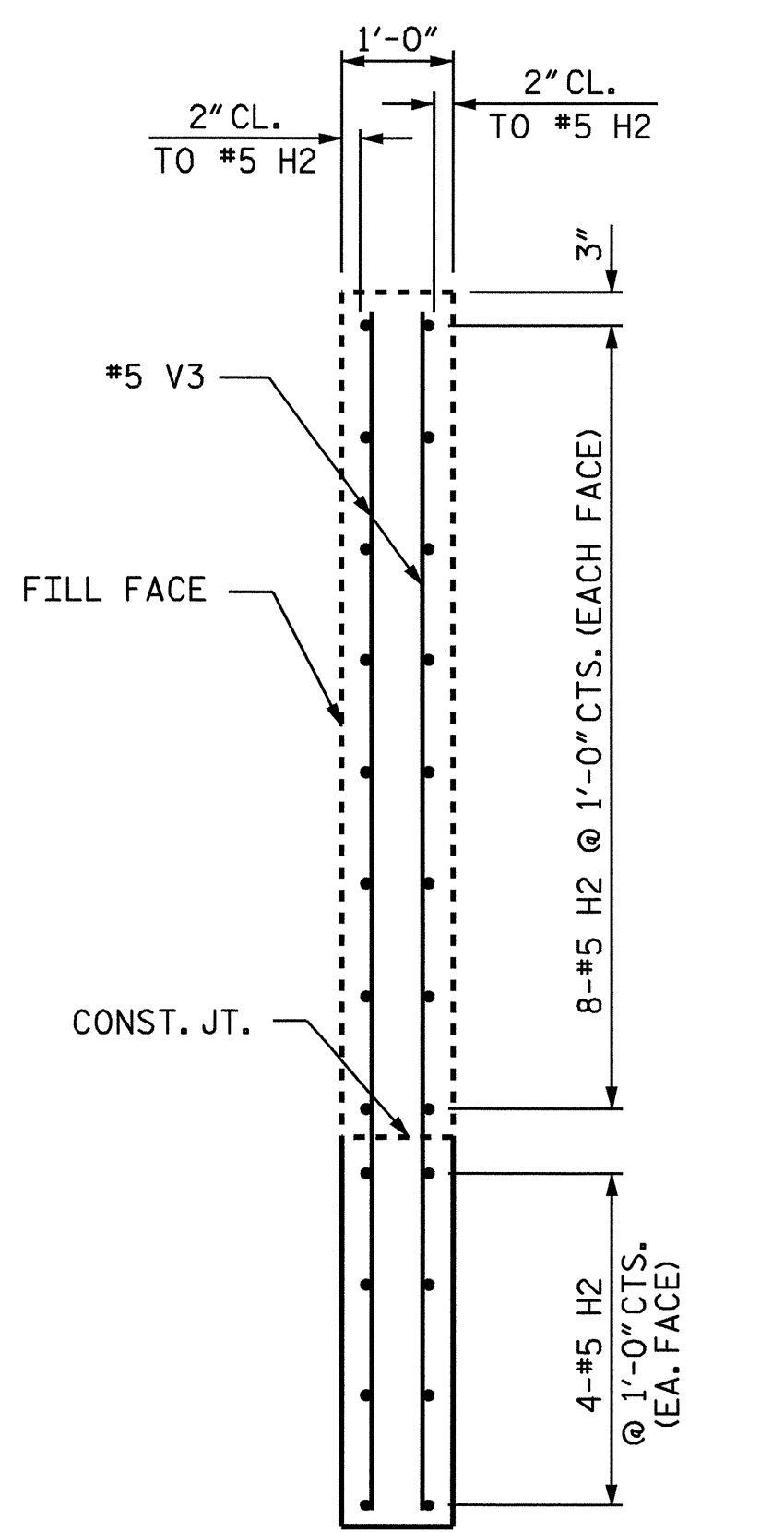
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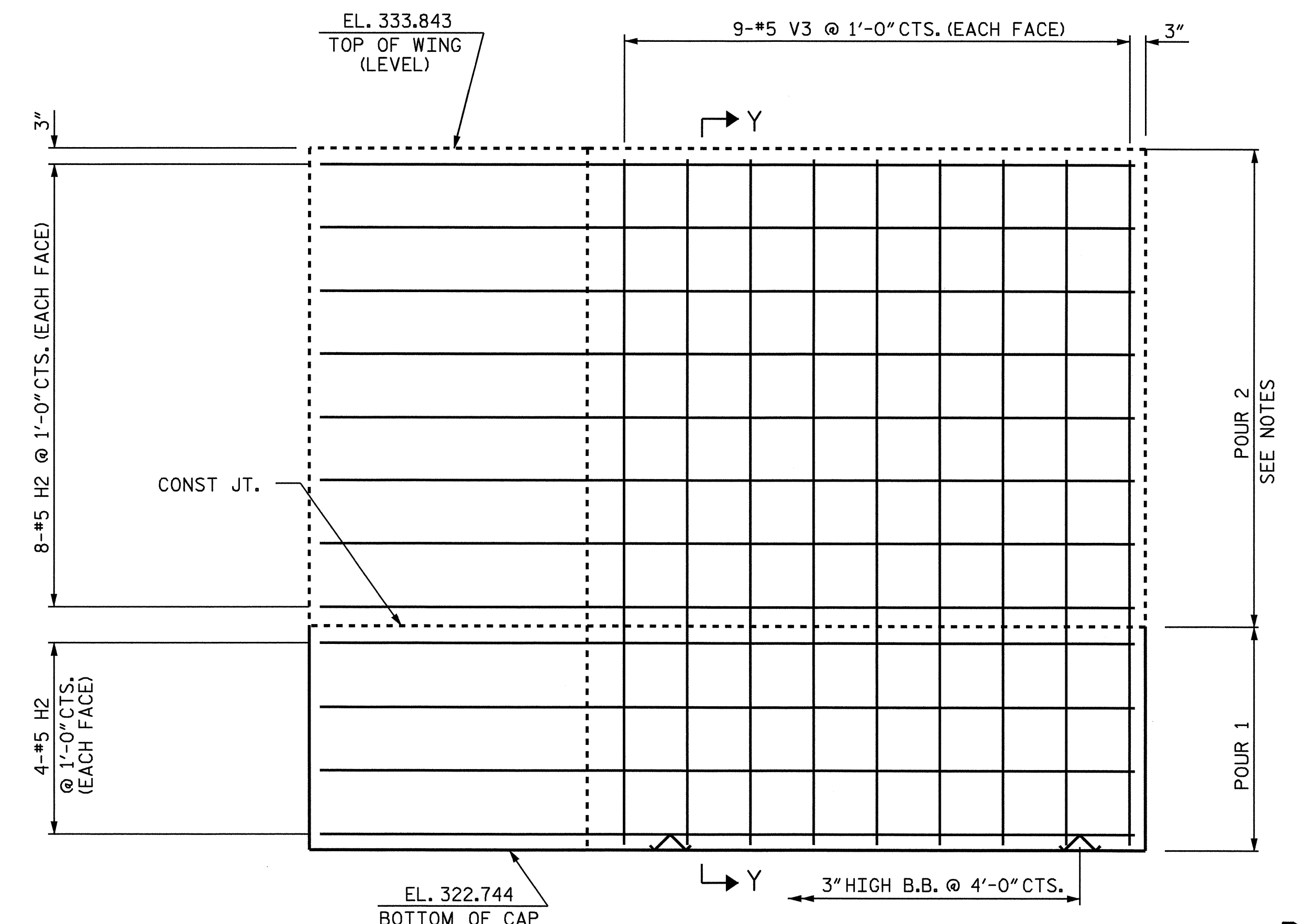
PLAN W2



ELEVATION W1



SECTION Y-Y



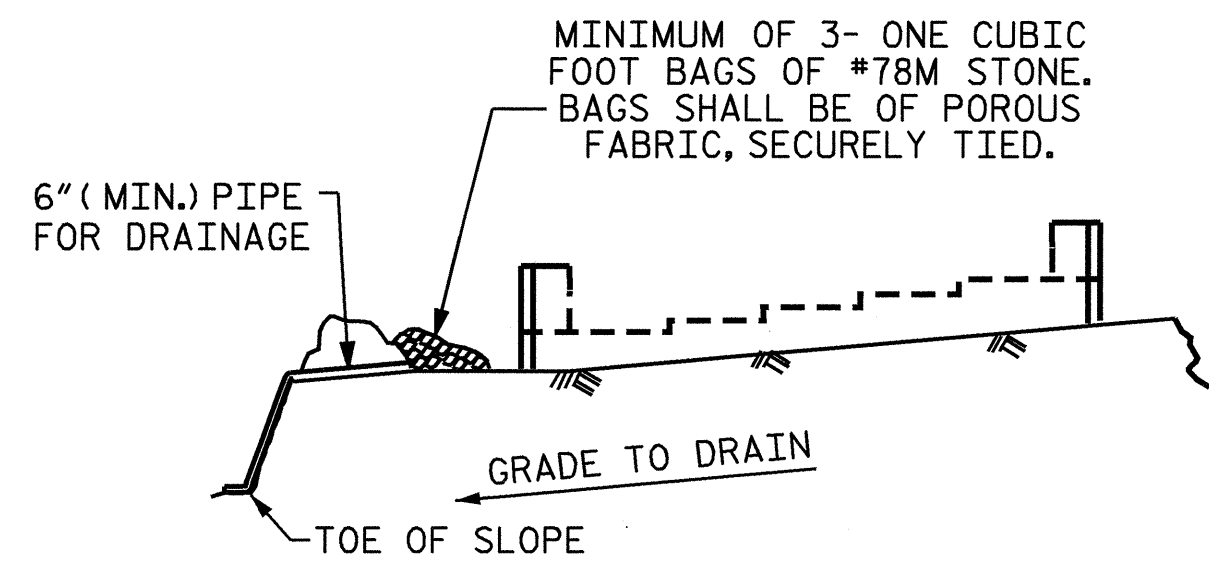
ELEVATION W2

PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-  
 SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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DRAWN BY: J.L. WALTON DATE: 10/19/08  
 CHECKED BY: D.R. CALHOUN DATE: 10/21/08

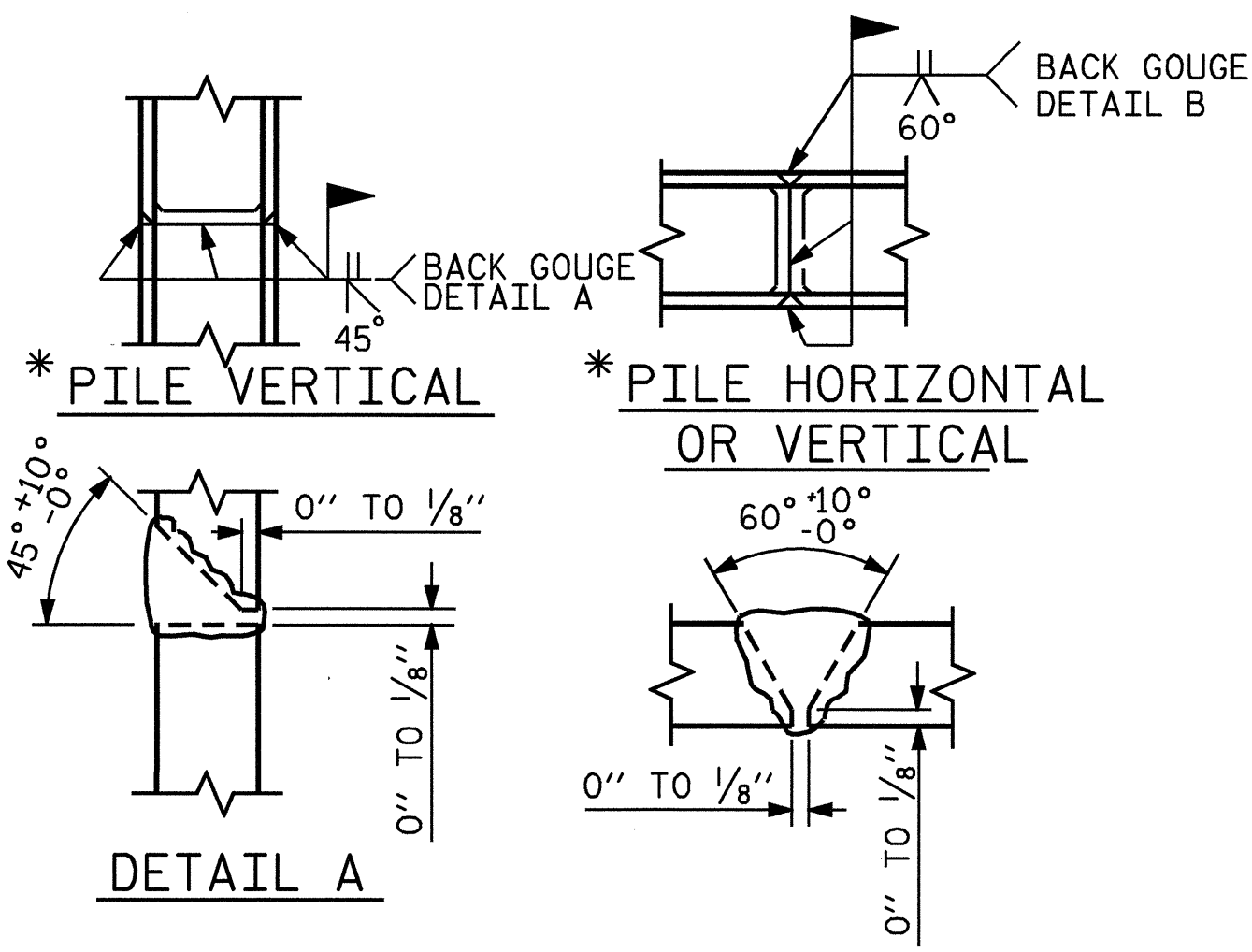
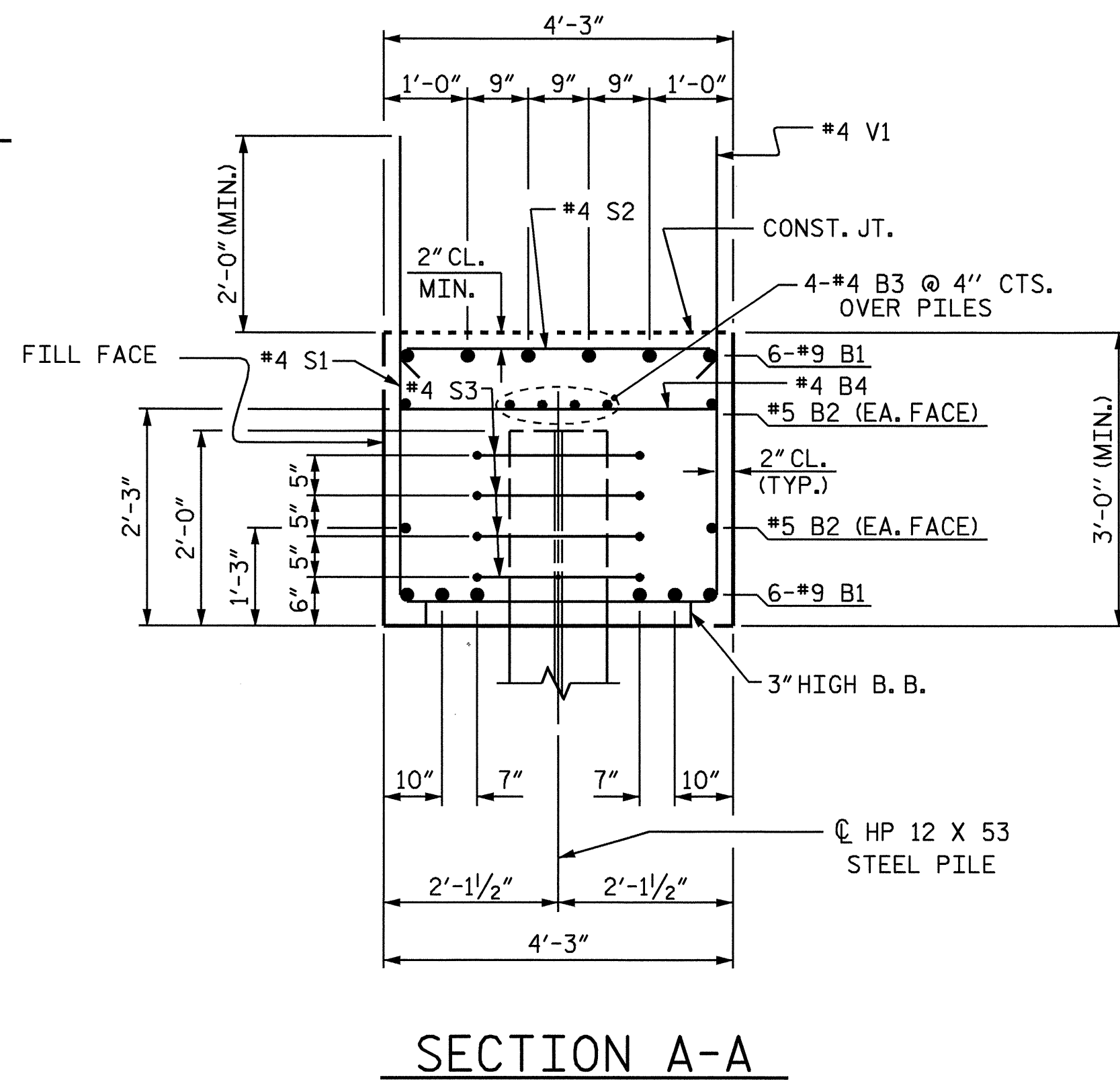


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

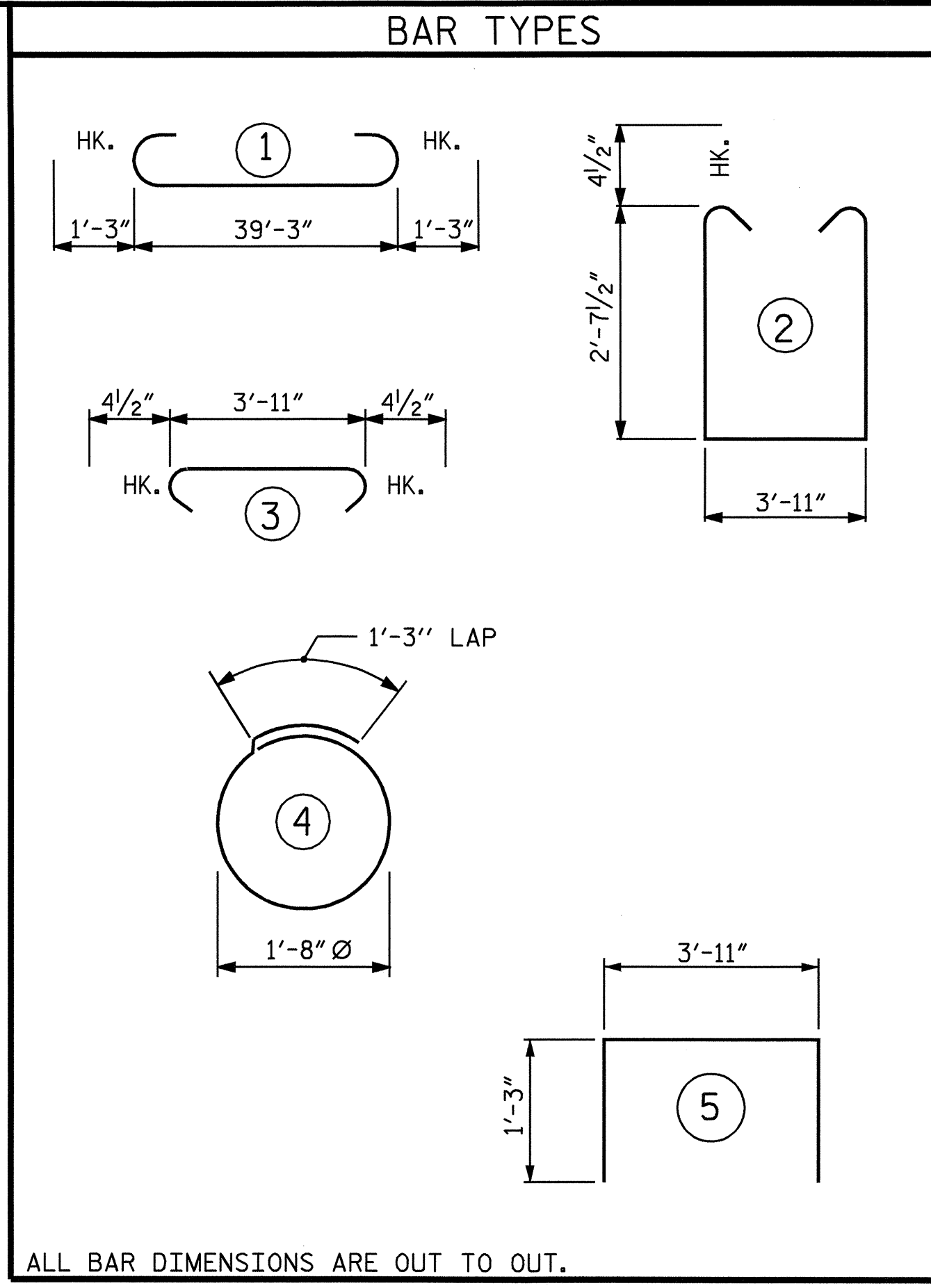
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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### TEMPORARY DRAINAGE AT END BENT



\* POSITION OF PILE DURING WELDING. DETAIL B  
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#9	1	41'-9"	1703
B2	4	#5	STR	39'-4"	164
B3	8	#4	STR	20'-11"	112
B4	9	#4	STR	3'-11"	24
B5	6	#4	STR	18'-11"	76
H1	24	#5	STR	11'-8"	317
H2	24	#5	STR	12'-11"	323
S1	64	#4	2	9'-11"	424
S2	64	#4	3	4'-8"	200
S3	28	#4	3	6'-6"	122
U1	13	#4	5	6'-5"	56
V1	80	#4	STR	5'-5"	289
V2	18	#5	STR	10'-1"	189
V3	18	#5	STR	10'-9"	202

REINFORCING STEEL LBS. 4201  
 CLASS A CONC. BREAKDOWN  
 ▲ POUR 1 (CAP & PART OF LOWER WINGS) 23.5 CU. YD.  
 TOTAL 23.5 CU. YD.  
 HP 12 X 53 STEEL PILES  
 NUMBER = 7 LIN. FT. = 105

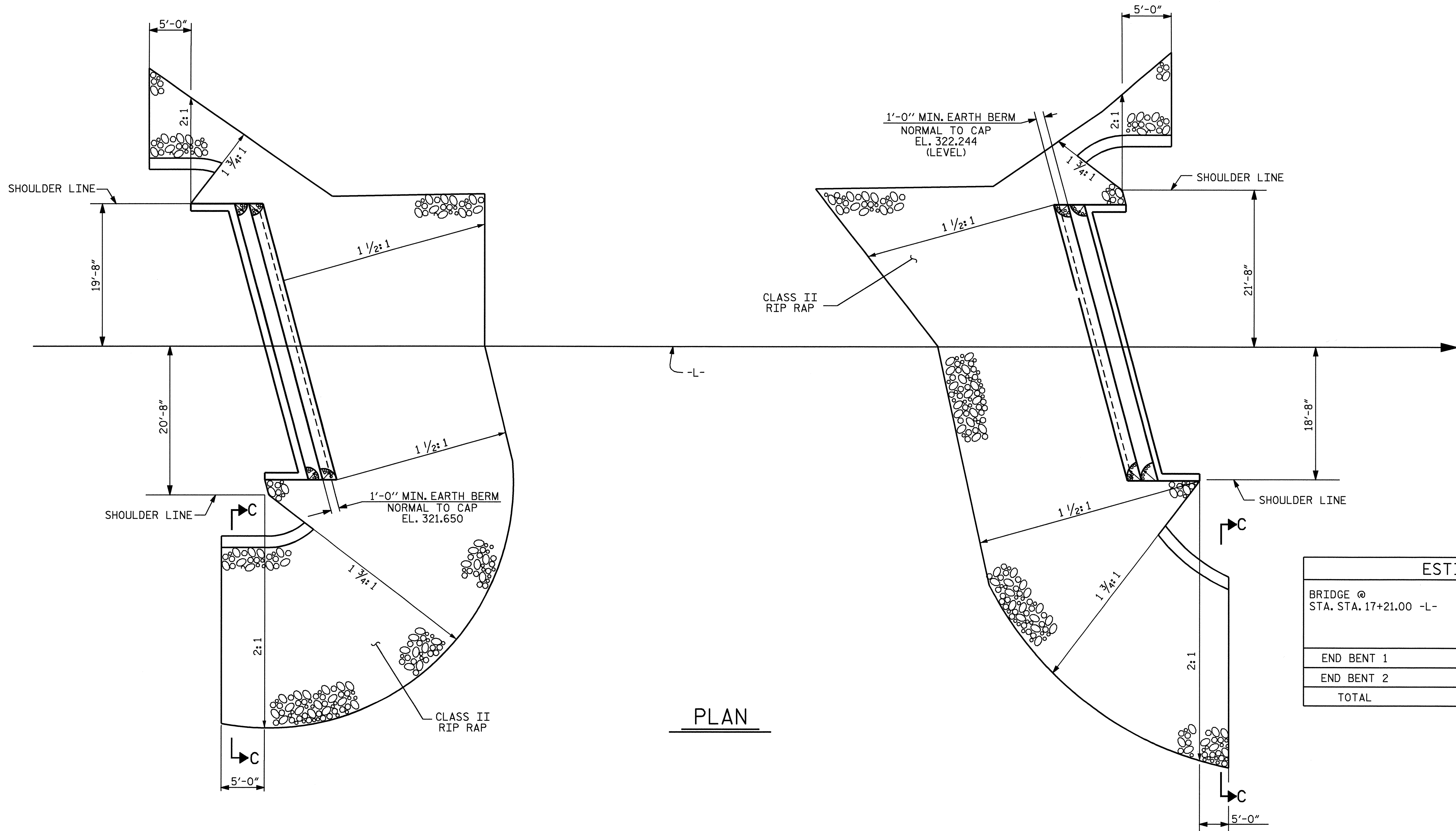
▲ UPPER WINGS (POUR 2) TO BE POURED WITH POUR 2 OF THE SUPERSTRUCTURE.

PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-  
 SHEET 3 OF 3



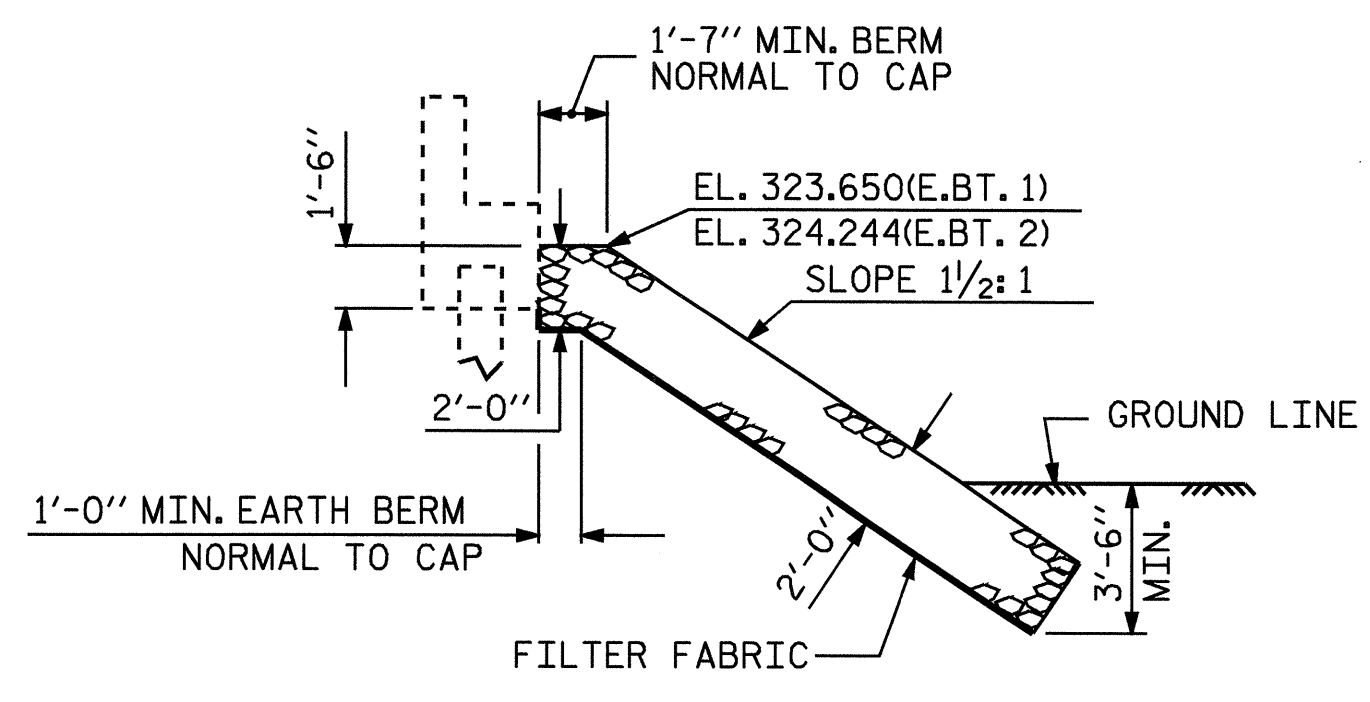
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: J.L. WALTON DATE: 10/19/08  
 CHECKED BY: D.R. CALHOUN DATE: 10/21/08

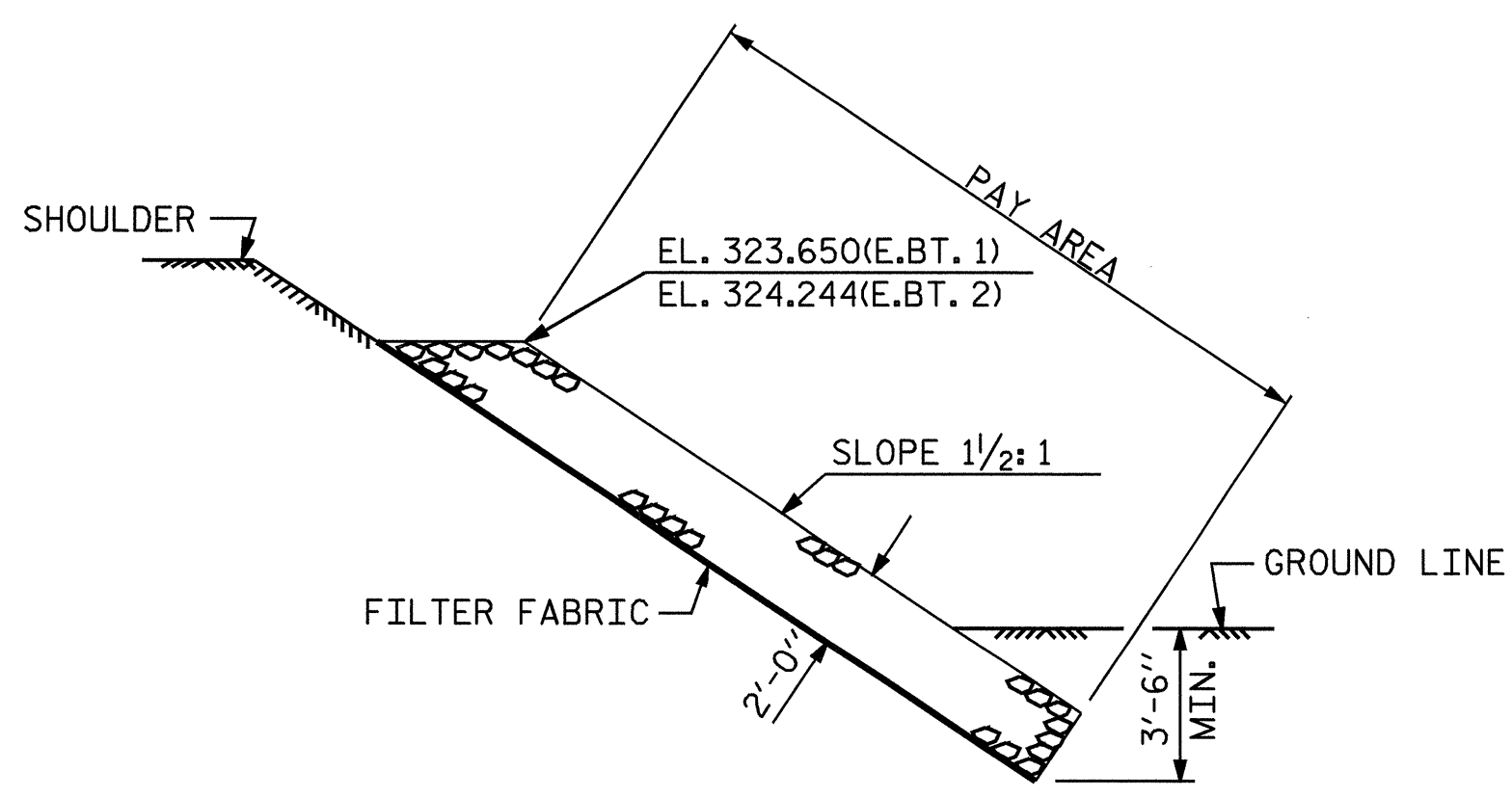


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. STA. 17+21.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	270	300
END BENT 2	252	280
TOTAL	522	580

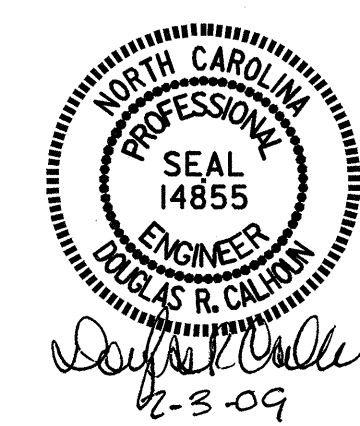


SECTION C-C  
BERM RIP RAPPED



SECTION C-C

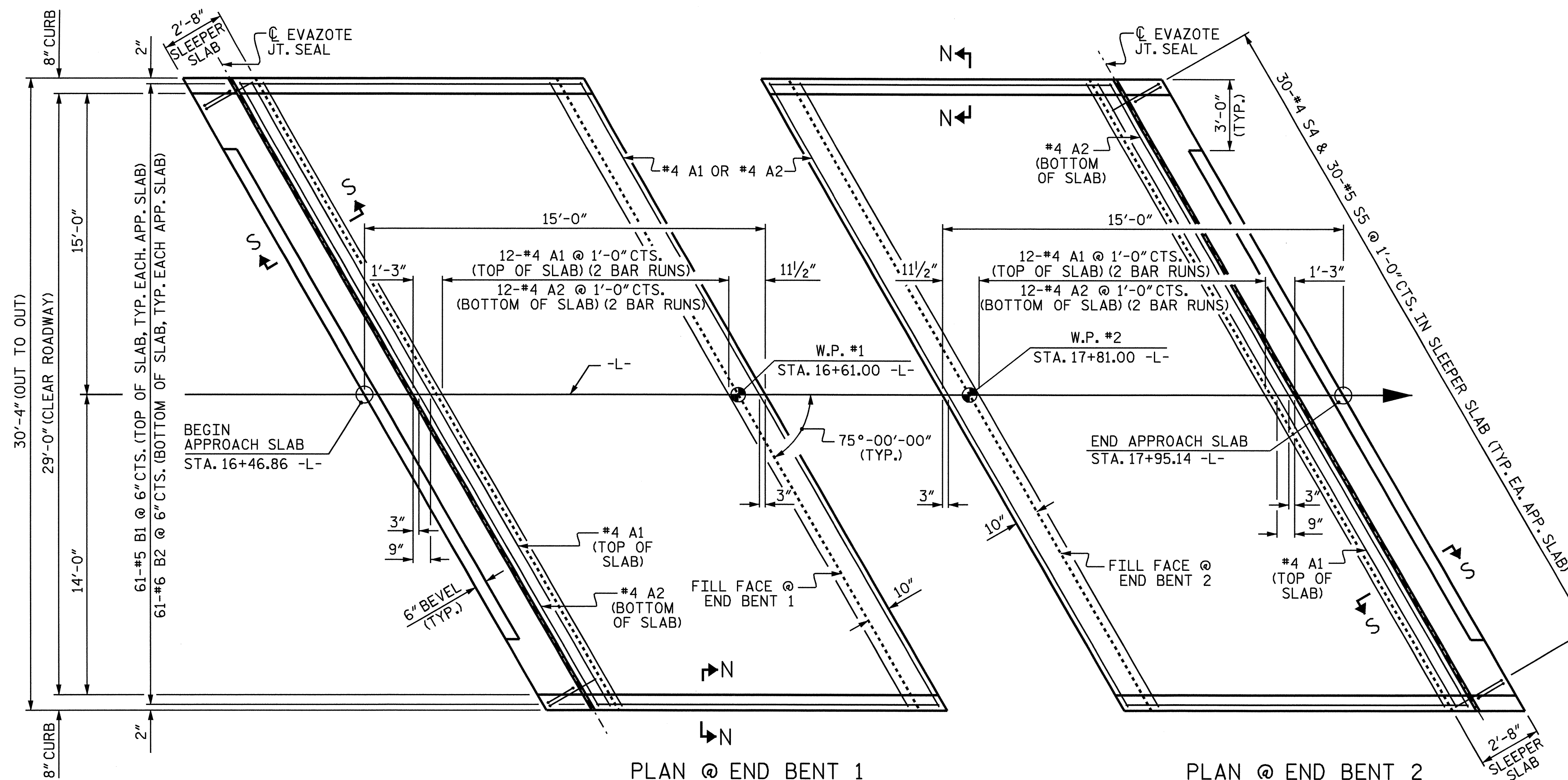
PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-



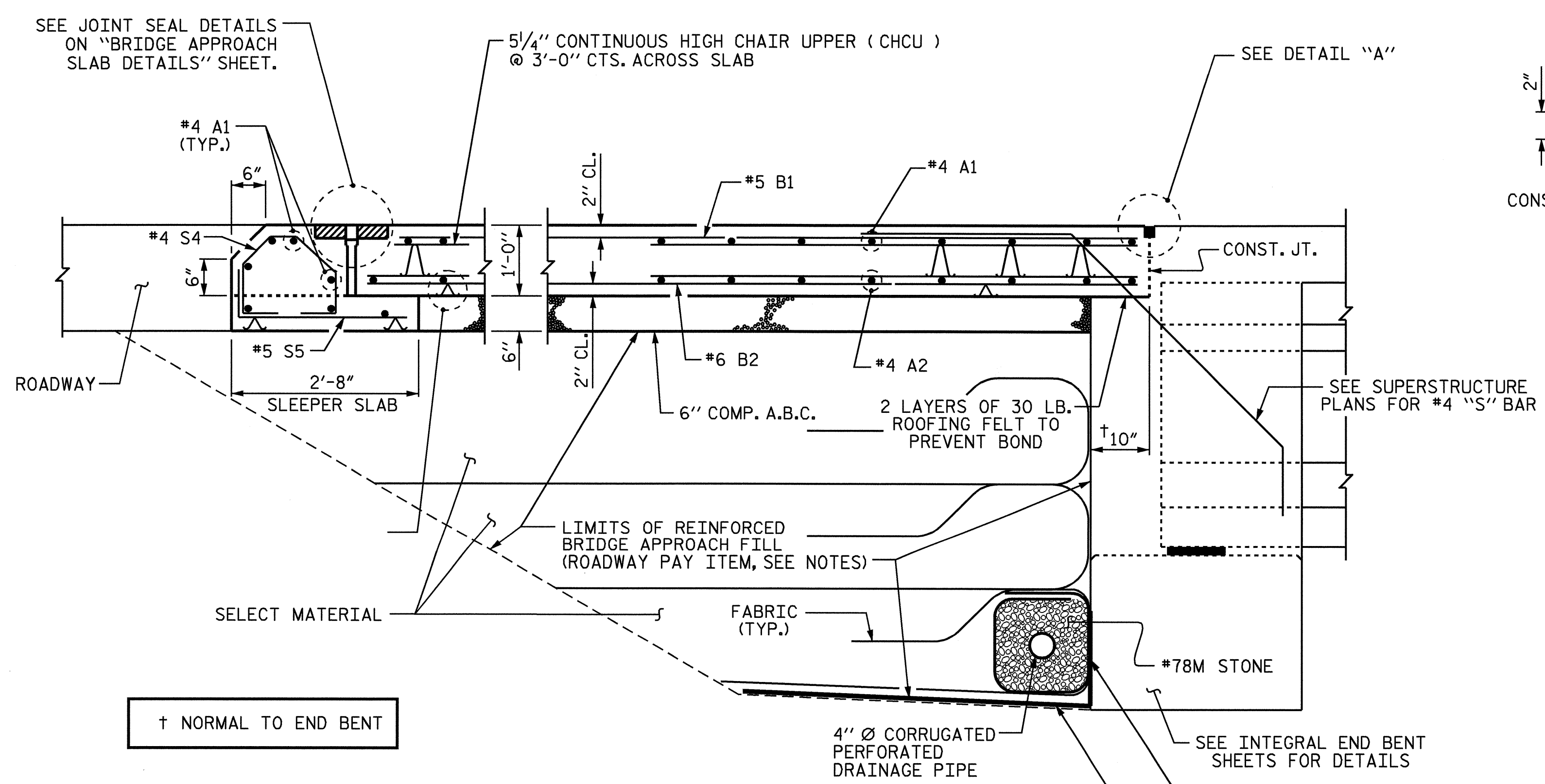
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 RIP RAP DETAILS

REVISIONS						SHEET NO. S-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

ASSEMBLED BY: M.FOWLER DATE: 11/10/08  
 CHECKED BY: J.G. KHARVA DATE: 11/20/08  
 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



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.



SECTION THRU SLAB

ASSEMBLED BY : M.FOWLER  
 CHECKED BY : J.G. KHARVA  
 DATE : 11/6/08  
 DATE : 11/20/08  
 DRAWN BY : TLA 10/05  
 CHECKED BY : GM 5/06  
 ADDED 5/1/06R KMM/GM

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 SLEEPER 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 SLEEPER 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 SLEEPER 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 SAWS 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.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

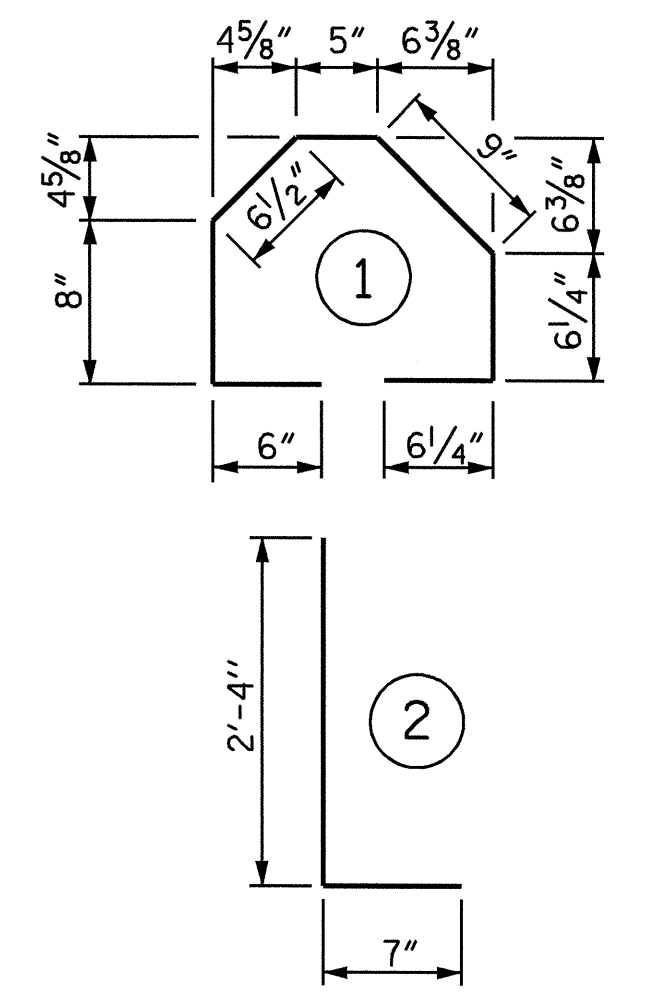
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	42	#4	STR	16'-6"	463
A2	28	#4	STR	16'-5"	307
* B1	61	#5	STR	12'-5"	790
B2	61	#6	STR	12'-10"	1176
* S4	30	#4	1	3'-11"	79
S5	30	#5	2	2'-11"	91

REINFORCING STEEL	LBS.	1574
* EPOXY COATED REINFORCING STEEL	LBS.	1332

CLASS AA CONCRETE		
POUR 1-SLAB & CURB	C. Y.	15.0
POUR 2-SLEEPER SLAB	C. Y.	3.2

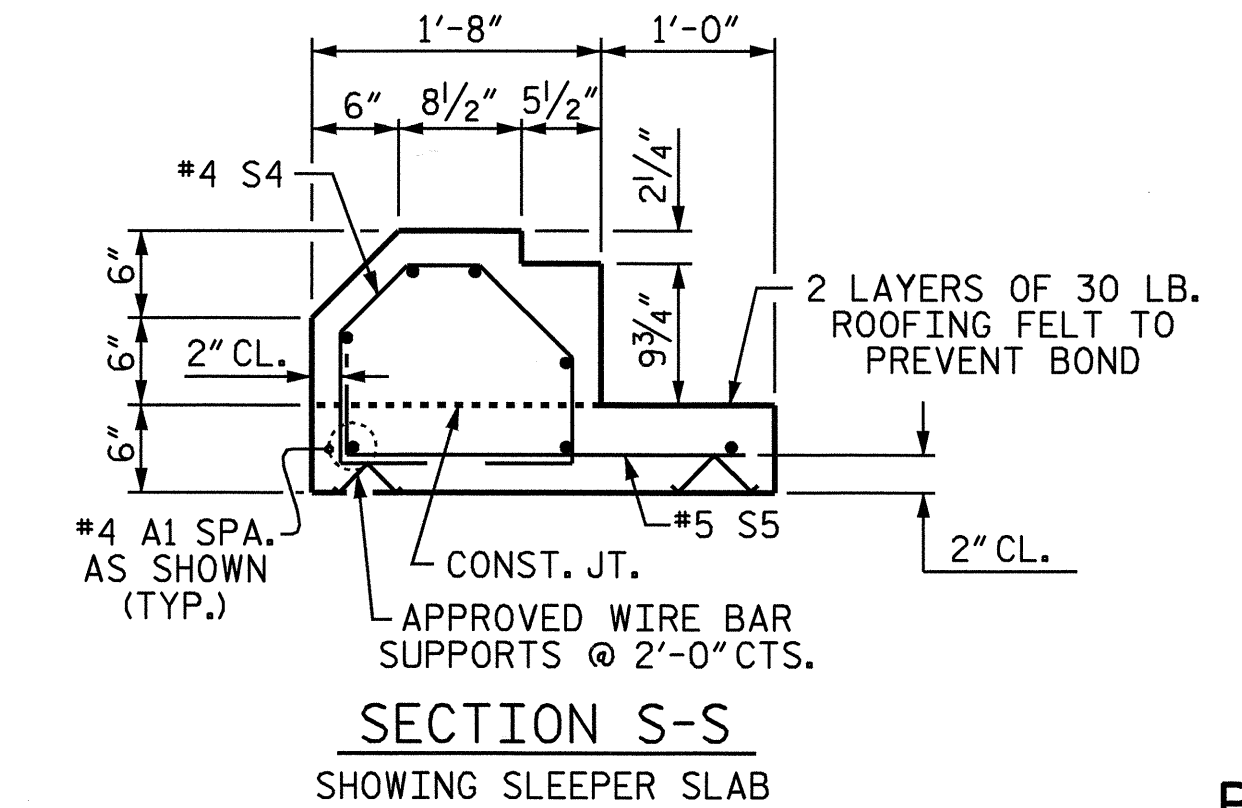
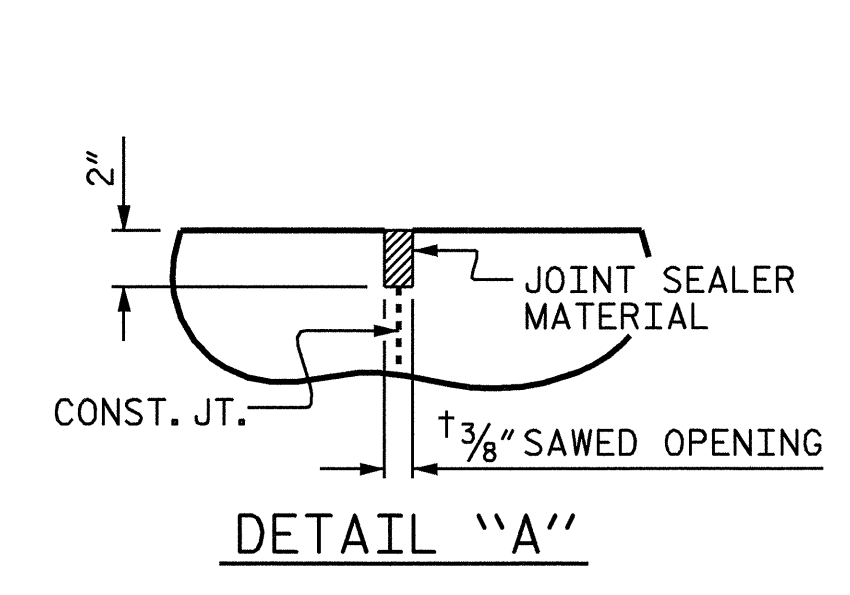
TOTAL	C. Y.	18.2
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BAR TYPES

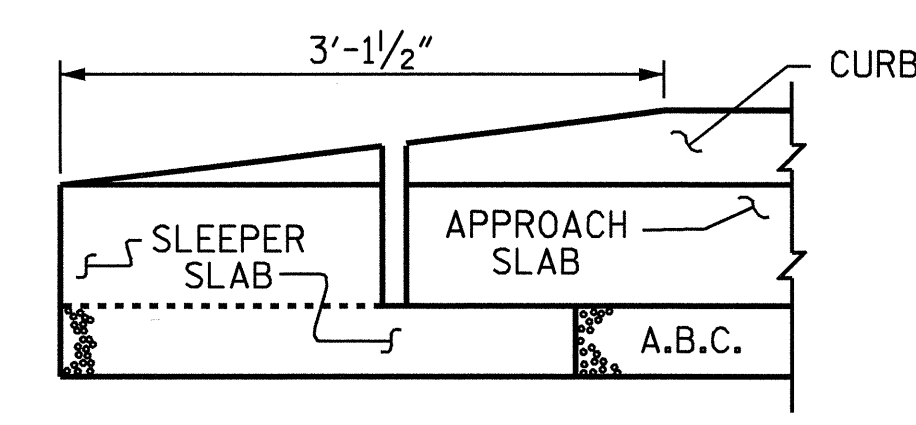


SPLICE BAR LENGTH

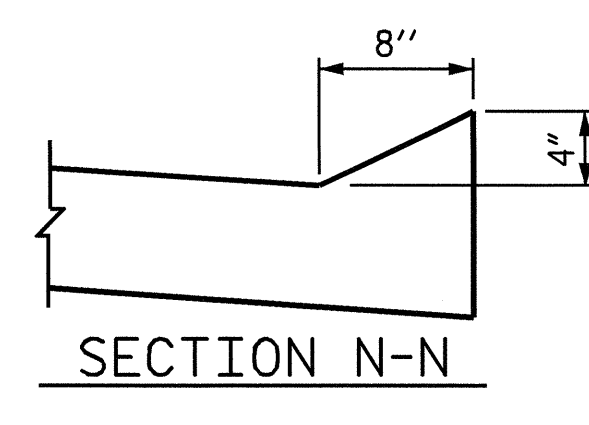
* A1	#4	2'-0"
A2	#4	1'-9"



SECTION S-S  
 SHOWING SLEEPER SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER  
 (OMIT TAPER WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N

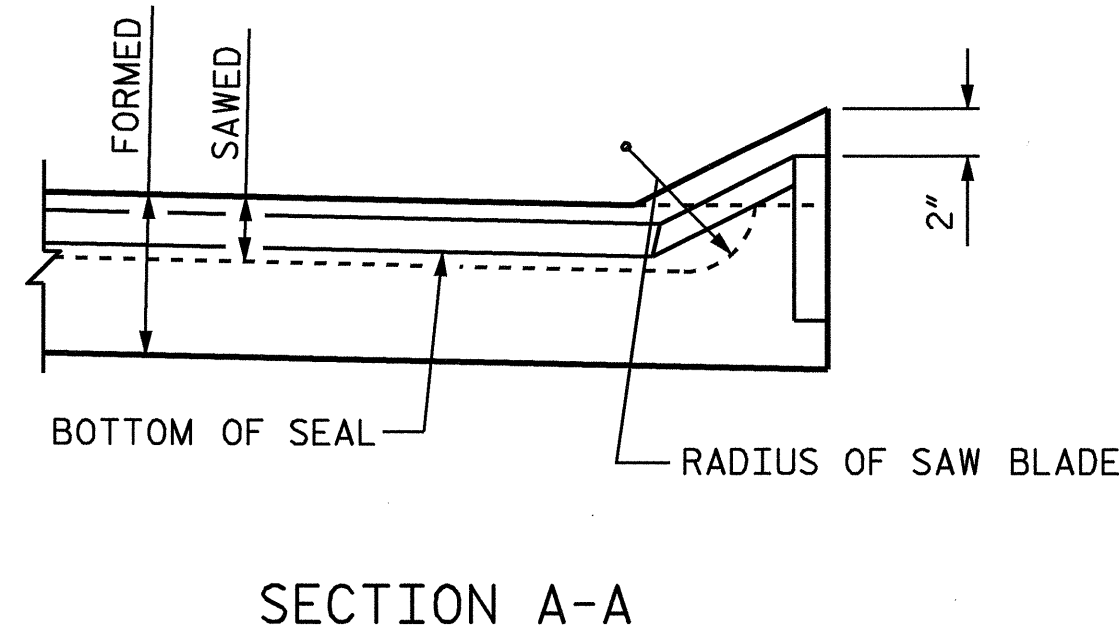
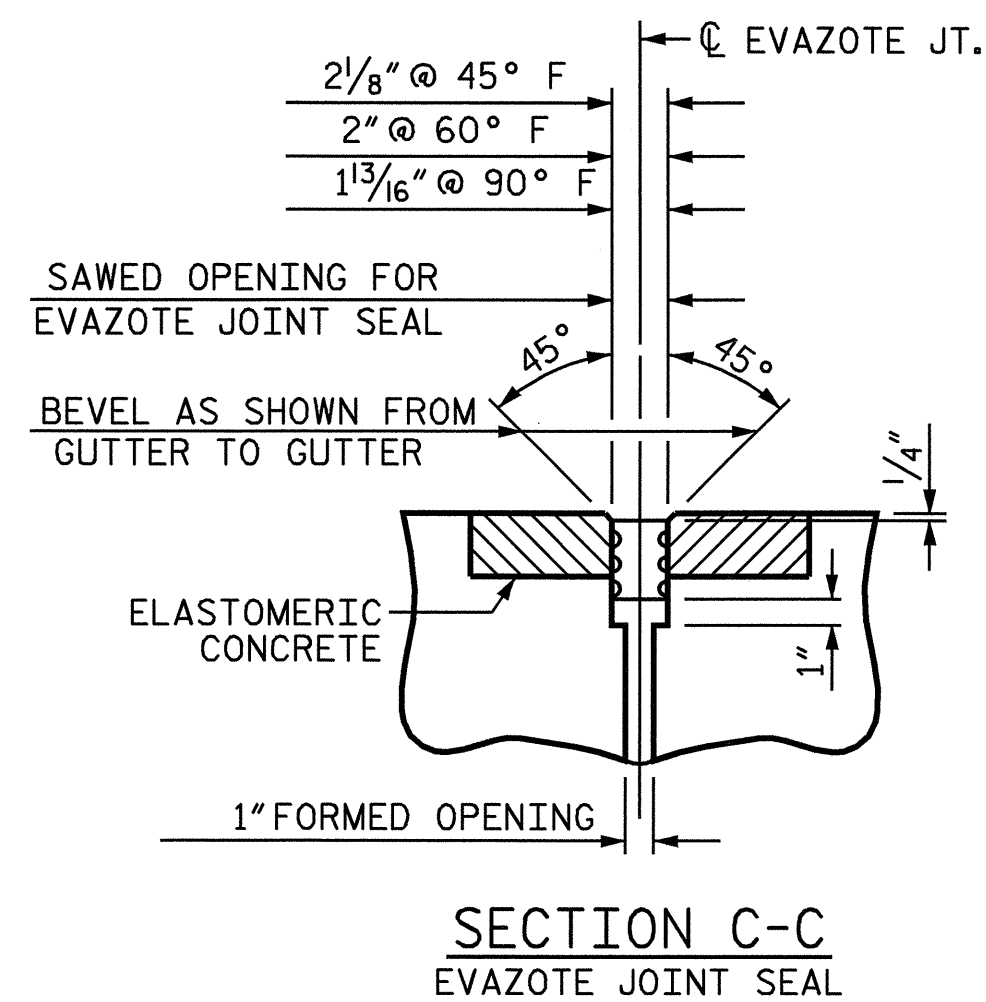
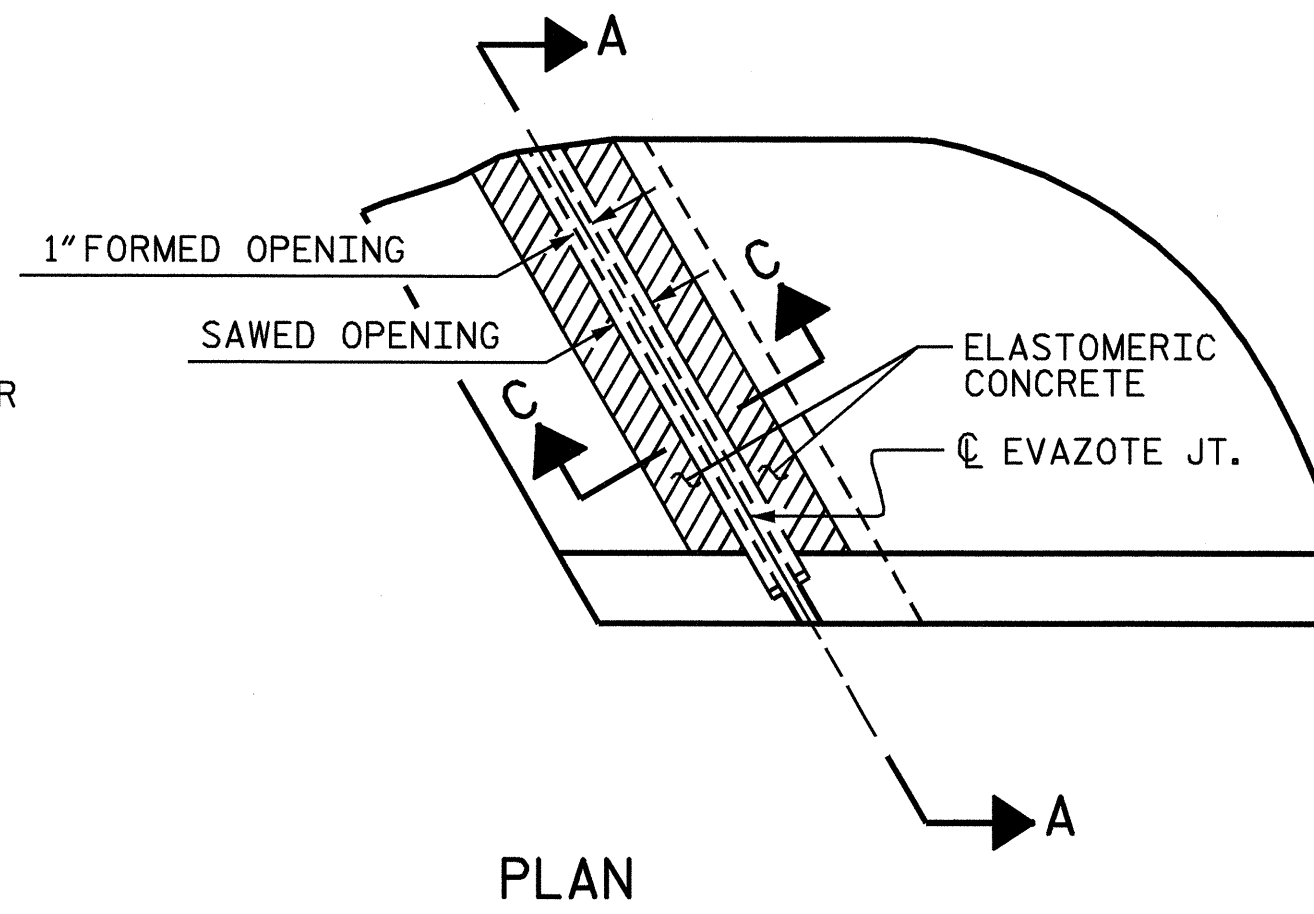
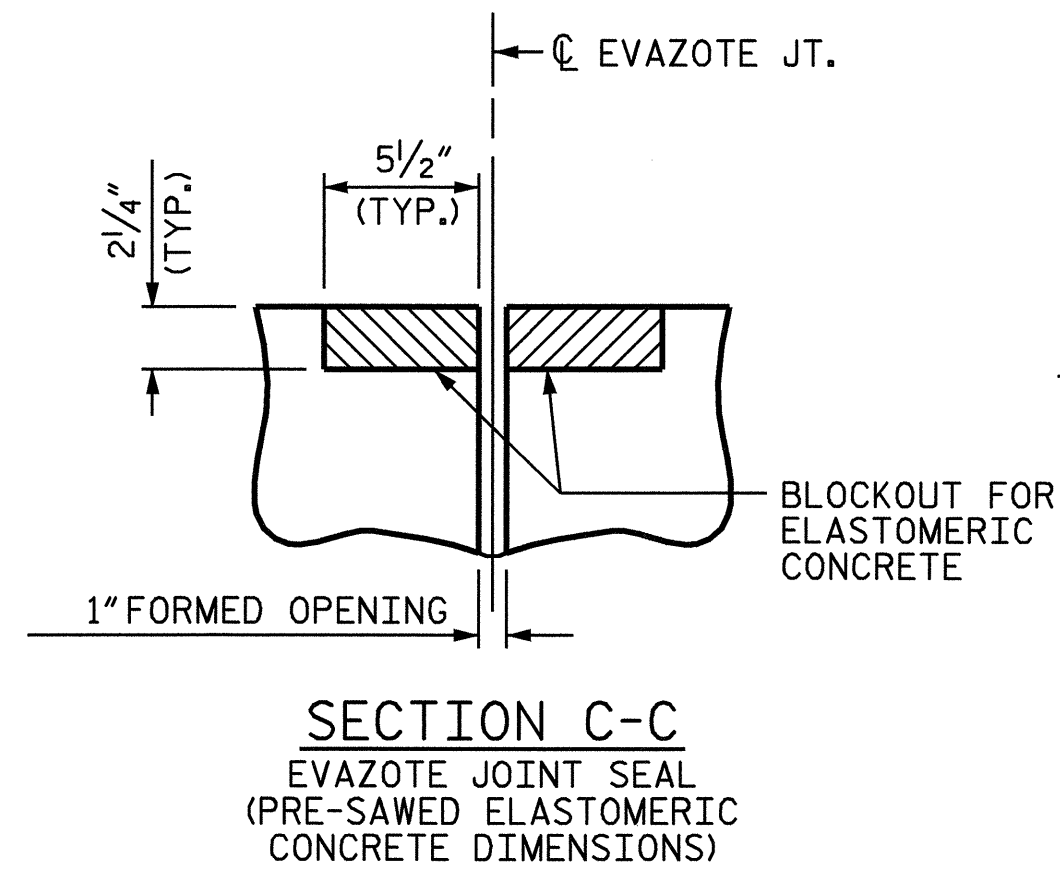
PROJECT NO. B-3706  
 WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR INTEGRAL ABUTMENT

REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 21
2			4			

STD. NO. BAS11 (SHT.3)



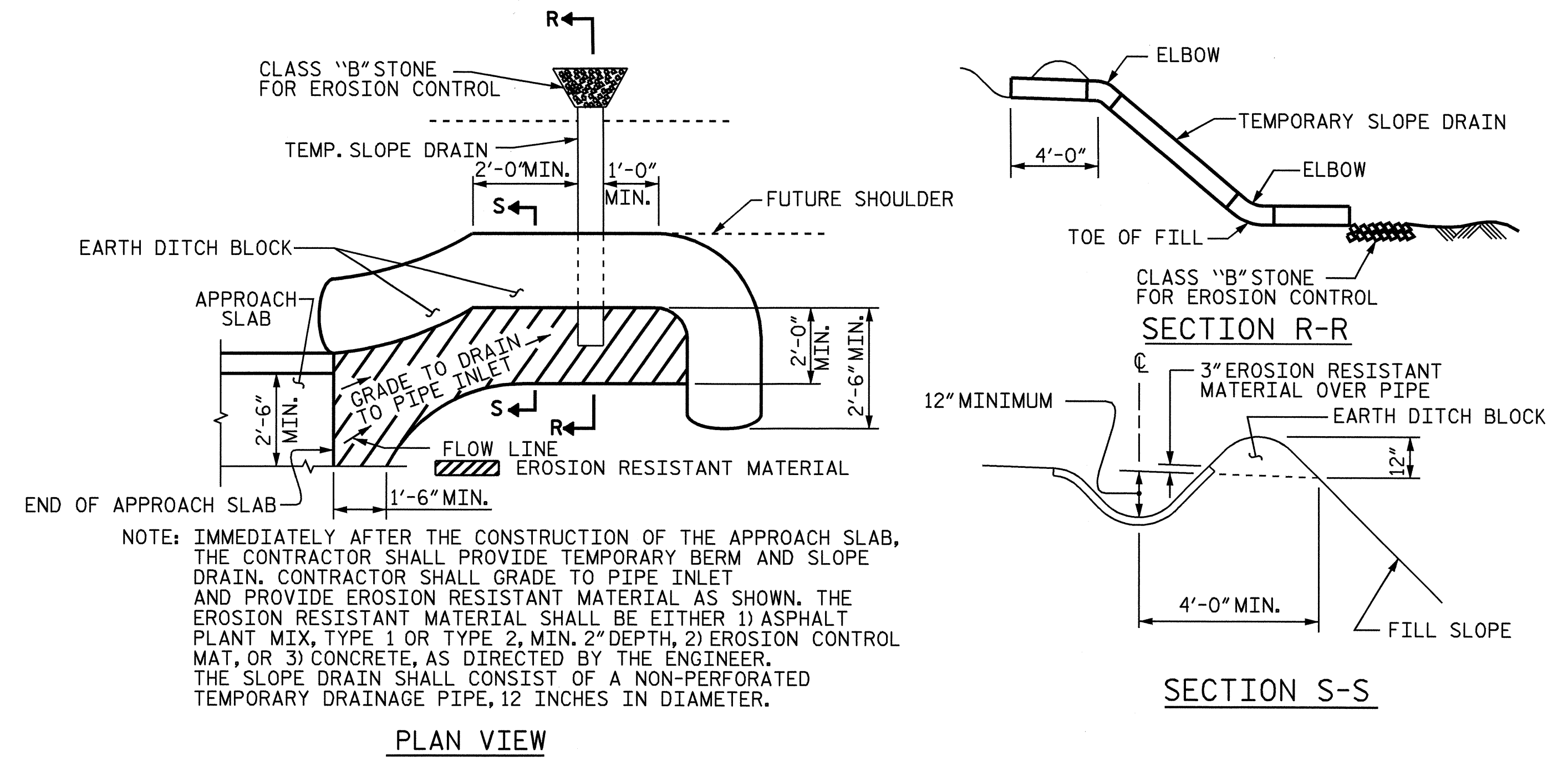
**JOINT SEAL DETAILS @ SLEEPER SLAB**

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED DOWN AS SHOWN IN SECTION A-A.

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.2
2	5.2
TOTAL	10.4

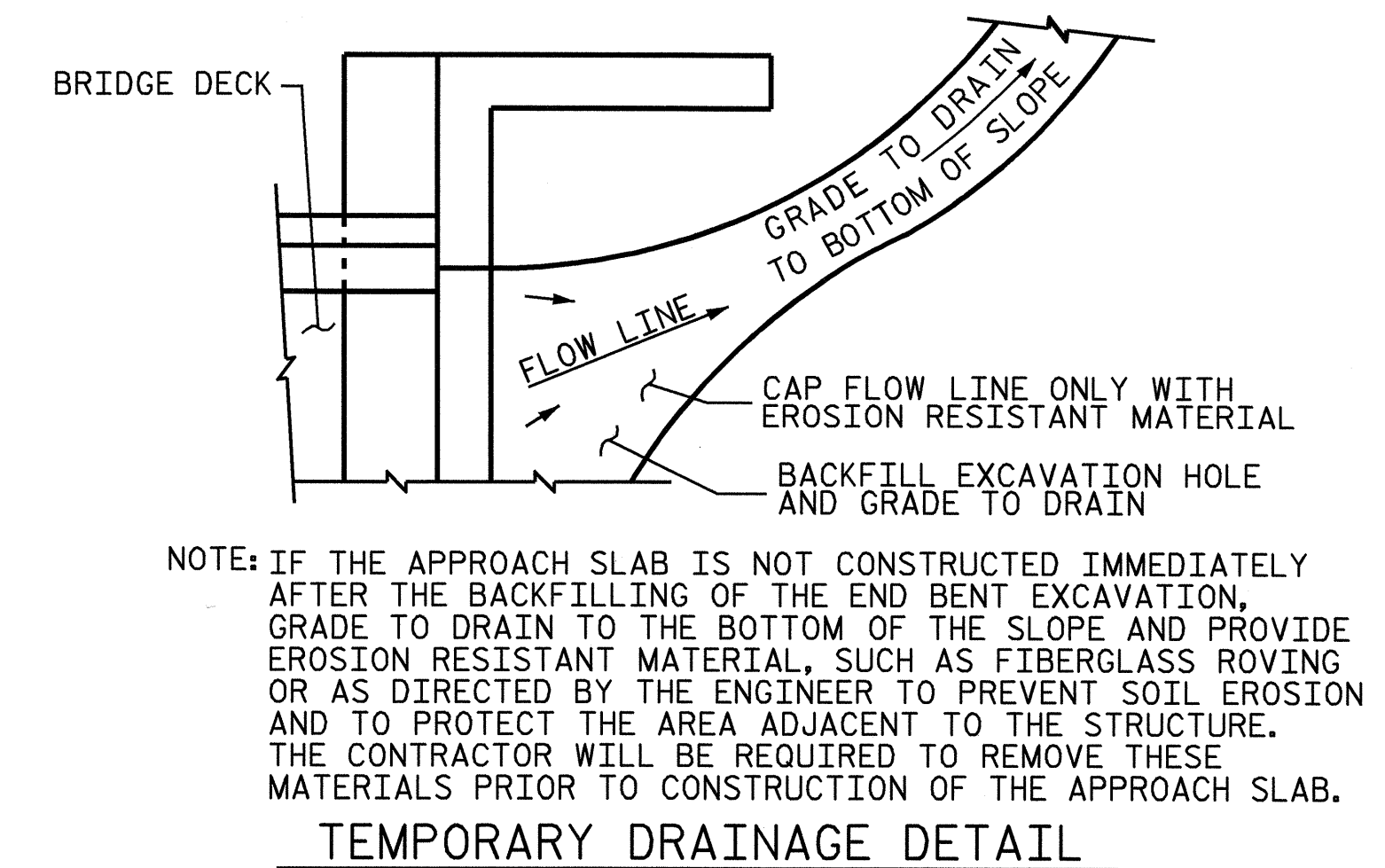
\* BASED ON THE MINIMUM BLOCKOUT SHOWN.

ASSEMBLED BY : M.FOWLER	DATE : 11/6/08
CHECKED BY : J.G. KHARVA	DATE : 11/20/08
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



**TEMPORARY BERM AND SLOPE DRAIN DETAILS**

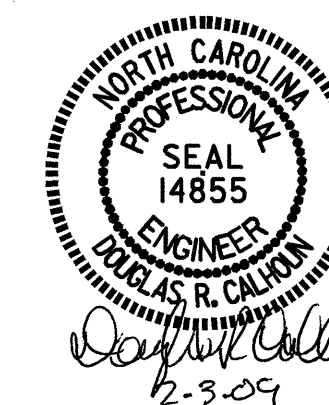
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



PROJECT NO. B-3706  
WARREN COUNTY  
 STATION: 17+21.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				STANDARD		BRIDGE APPROACH SLAB DETAILS	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	
1			3			S-21	
2			4			TOTAL SHEETS 21	



## STANDARD NOTES

### DESIGN DATA:

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

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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

### CONCRETE:

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

### CONCRETE CHAMFERS:

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

### DOWELS:

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

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

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

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

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

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

### STRUCTURAL STEEL:

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

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

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

### HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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