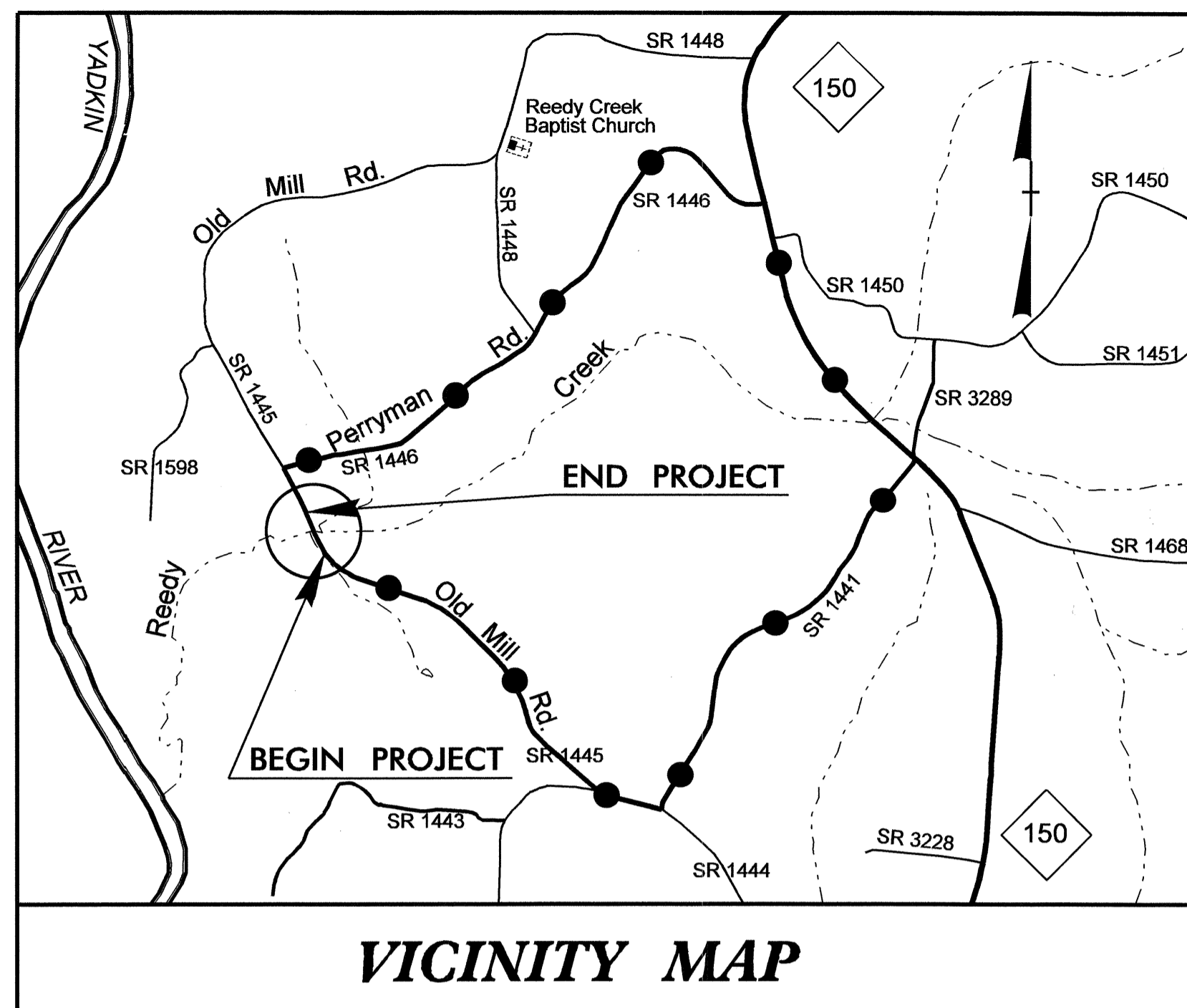


CONTRACT: C202735 TIP PROJECT: B-4694



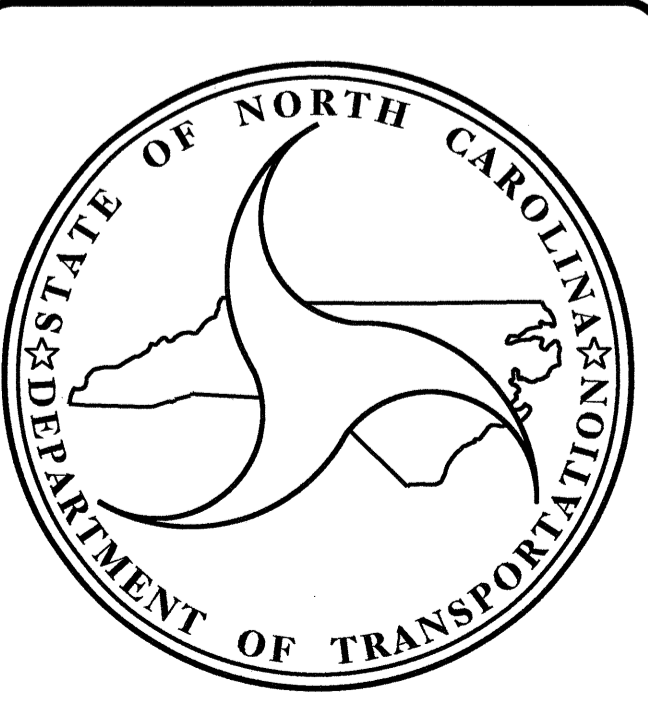
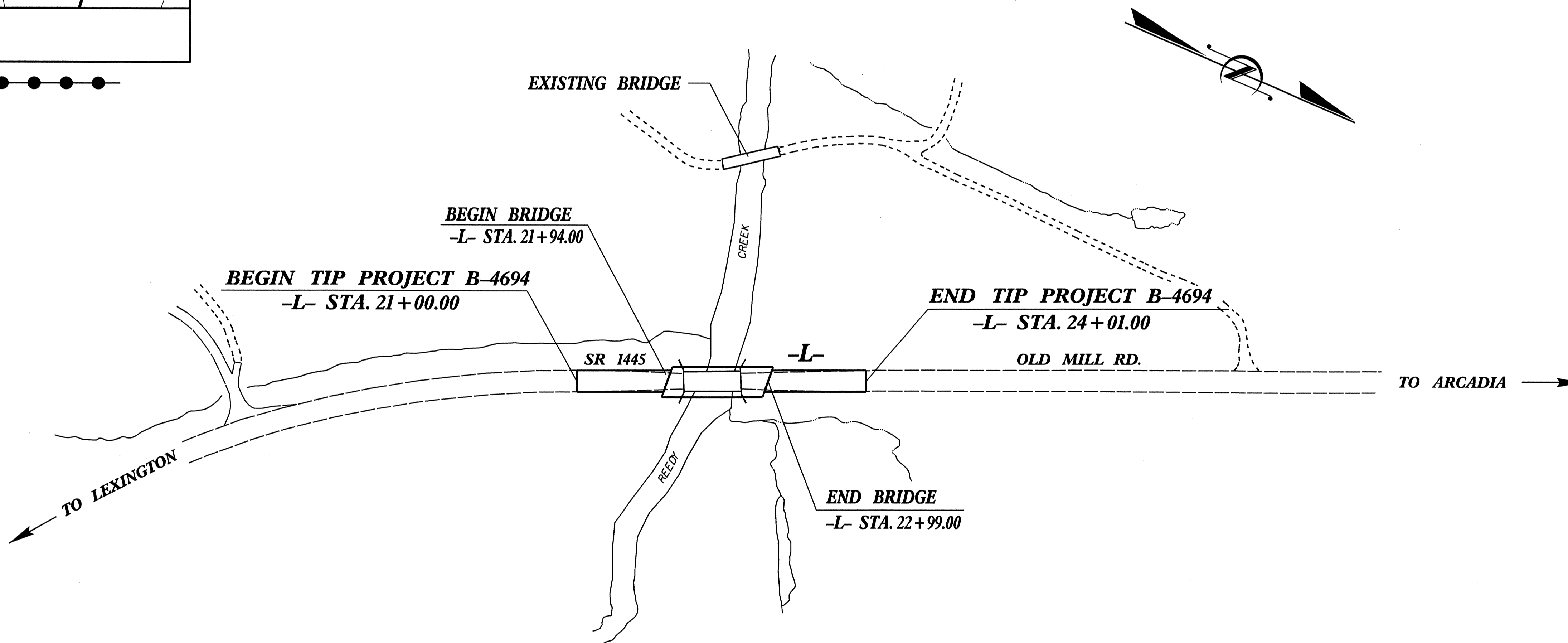
OFF-SITE DETOUR —●●●●●

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DAVIDSON COUNTY

**LOCATION: BRIDGE NO. 52 OVER REEDY CREEK ON
SR 1445 (OLD MILL RD.)**
**TYPE OF WORK: GRADING, DRAINAGE, PAVING AND
STRUCTURE.**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4694		
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
38473.1.1	BRZ-1445(3)	PE	
38473.2.1	BRZ-1445(3)	R.W./UTIL.	
38473.3.1	BRZ-1445(3)	CONST.	

STRUCTURE



DESIGN DATA	
ADT 2009 =	510
ADT 2030 =	800
DHV =	60 %
D =	13 %
T =	3 % *
V =	60 MPH
* TTST 1% DUAL 2%	
FUNC CLASS =	LOCAL

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-4694 =	0.037 MI
LENGTH STRUCTURE TIP PROJECT B-4694 =	0.020 MI
TOTAL LENGTH OF TIP PROJECT B-4694 =	0.057 MI

Prepared In the Office of:	
DIVISION OF HIGHWAYS	
2006 STANDARD SPECIFICATIONS	
LETTING DATE :	J. C. FRYE, P.E. PROJECT ENGINEER
NOVEMBER 15, 2011	T. H. FANG, P.E. PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
DIVISION ADMINISTRATOR DATE

21+50 **GRADE DATA**

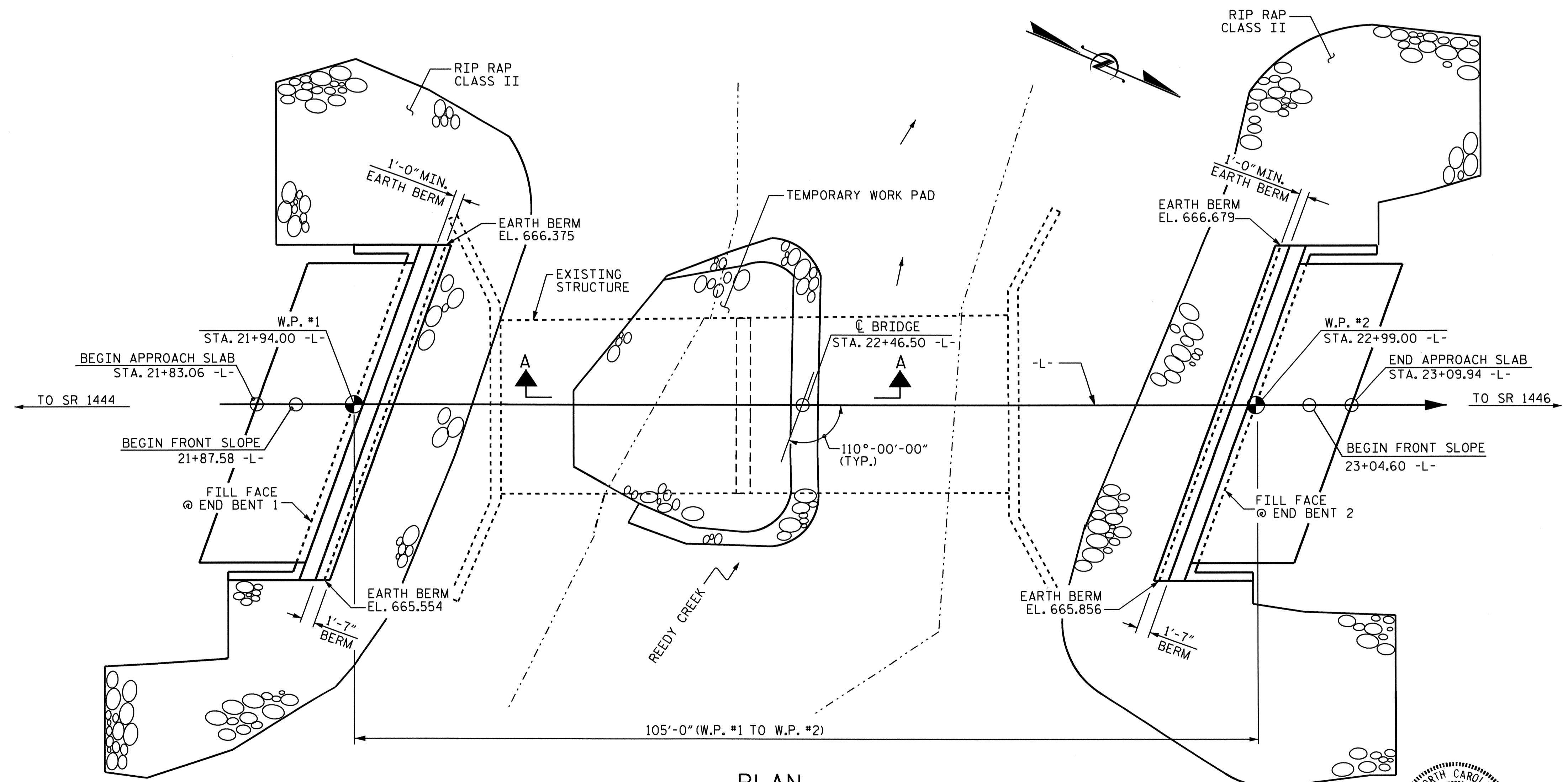
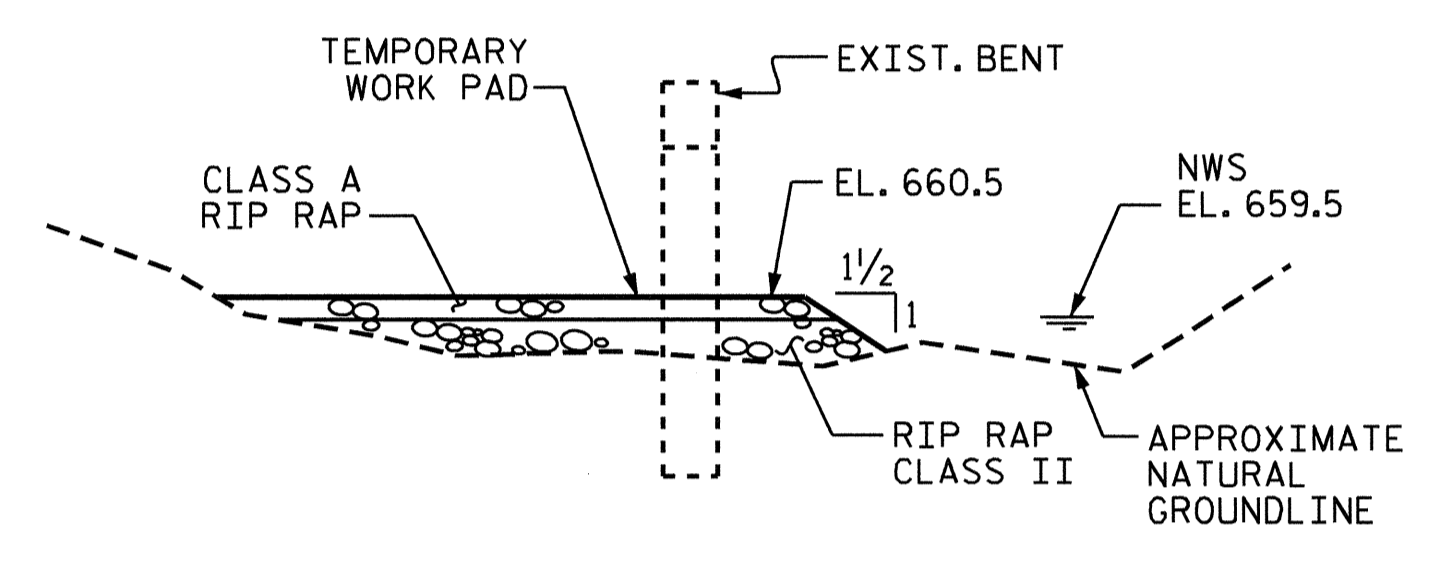
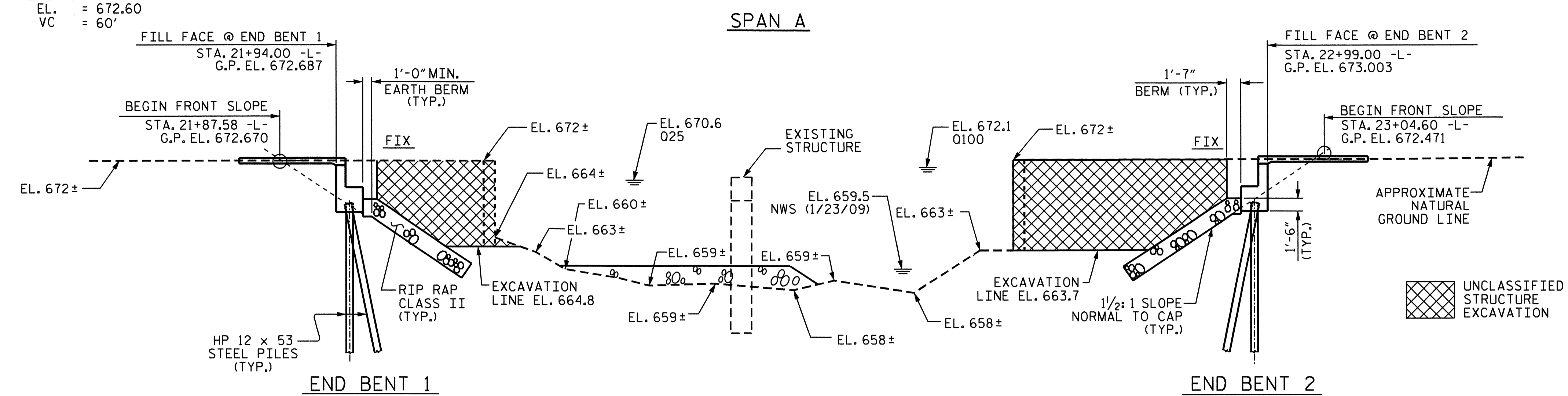
-0.0923% Δ +0.3008%
 P.I. STA. = 21+65.00
 EL. = 672.60
 VC = 60'

22+00

22+50

23+00

680
670
660
650



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

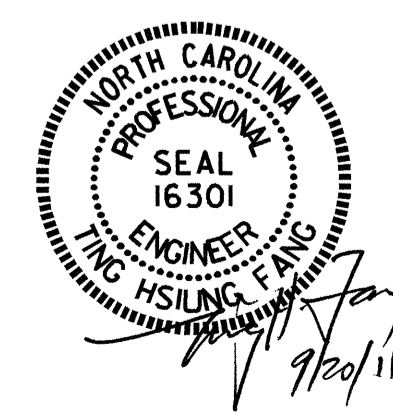
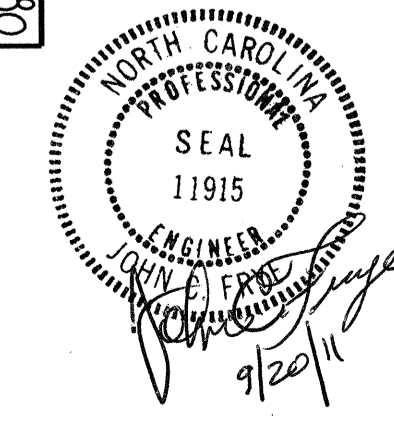
PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 52

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER REEDY CREEK ON SR 1444 BETWEEN SR 1444 AND SR 1446

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

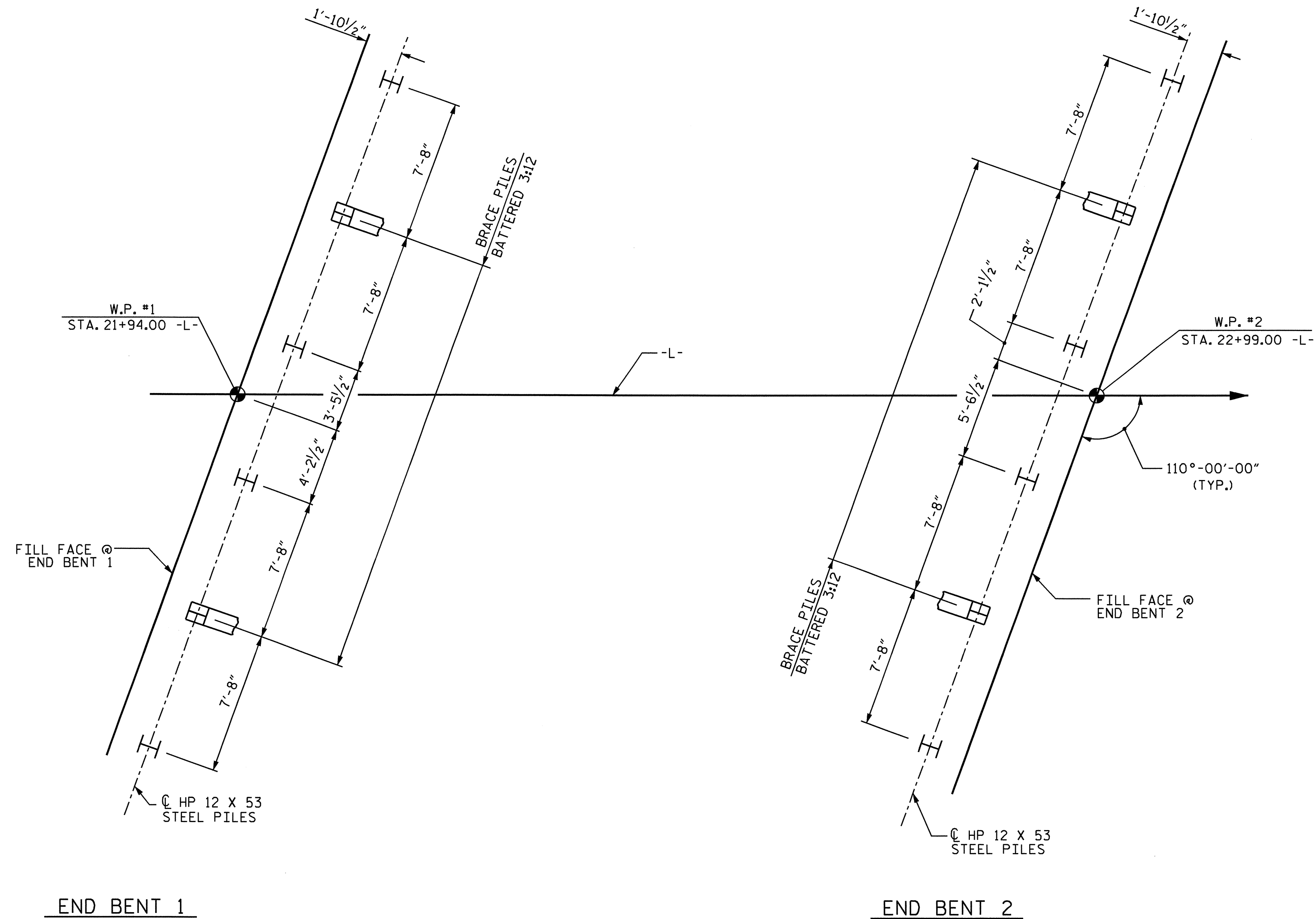
DRAWN BY : HARISH SHAH DATE : 09/09
 CHECKED BY : Q.T. NGUYEN DATE : 5-3-10



NOTES:

FOR PILES, SEE SPECIAL PROVISION.

PILES AT END BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE.

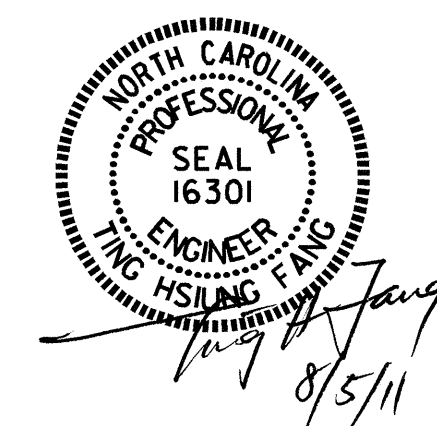


FOUNDATION LAYOUT
DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE

PROJECT NO. B-4694
DAVIDSON COUNTY
STATION: 22+46.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
REEDY CREEK ON SR 1445
BETWEEN SR 1444
AND SR 1446



DRAWN BY : HARISH SHAH DATE : 09/09
CHECKED BY : Q.T. NGUYEN DATE : 5-3-10

05-AUG-2011 10:42
X:\TIP\Projects-B\B4694\Structures\Final Plans\b-4694_sd.dgn
OTNGUYEN

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

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 30'-3", 19.2 FT. CLEAR ROADWAY WIDTH ON TIMBER DECK AND I-BEAMS, ON TIMBER CAP WITH TIMBER PILES, AND LOCATED AT THE CENTERLINE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

IN AS MUCH 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 STA. 22+46.50 -L-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON S-1 SHALL BE EXCAVATED FOR A DISTANCE 31 FT LT, 38 FT RT AT END BENT 1; 30 FT LT, 40 FT RT AT END BENT 2 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 22+46.50 -L-, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

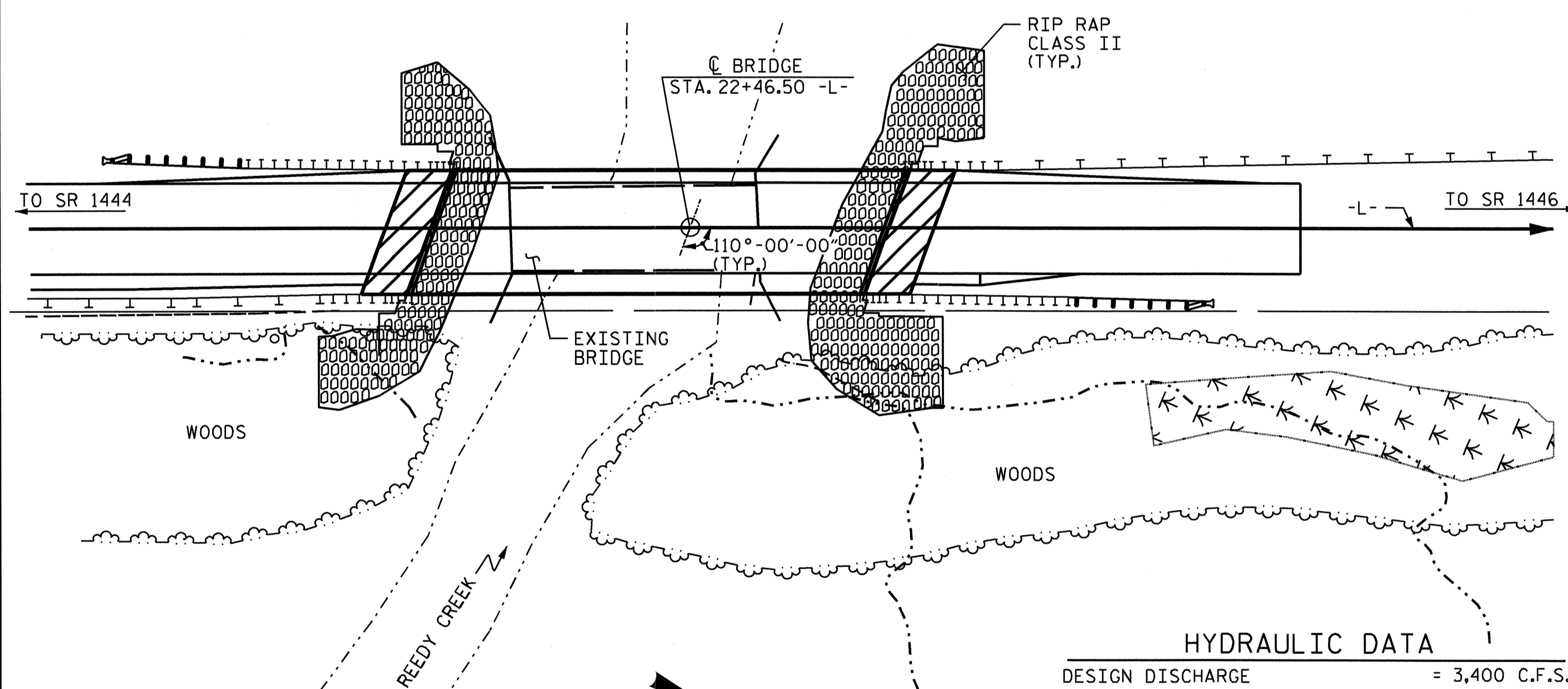
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAMS	
							NO.	LIN. FT.					LIN. FT.	TONS
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.			205.21			LUMP SUM	11	1128.66
END BENT 1				20.1		2767	6	180		130	145			
END BENT 2				20.1		2767	6	180		180	200			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	40.2	LUMP SUM	5534	12	360	205.21	310	345	LUMP SUM	11	1128.66

BM. #2 : RR SPIKE IN BASE OF 36" SYCAMORE TREE, 209.24' LT. OF -L- STA. 22+29.74, EL. 667.57



HYDRAULIC DATA

DESIGN DISCHARGE	= 3,400 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 670.6
DRAINAGE AREA	= 21.2 SQ. MI.
BASIC DISCHARGE (Q100)	= 5,050 C.F.S.
BASIC HIGH WATER ELEVATION	= 672.1

OVERTOPPING FLOOD DATA

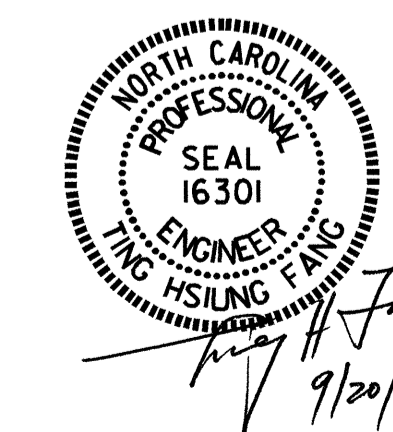
OVERTOPPING DISCHARGE	= 6,750 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 200+ YRS.
OVERTOPPING FLOOD ELEVATION	= 673.0

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

DRAWN BY : HARISH SHAH DATE : 09/09
 CHECKED BY : Q.T. NGUYEN DATE : 5-3-10

15-SEP-2011 15:48
 X:\TIP\Projects-B\B4694\Structures\Final Plans\B-4694_sd.gdgn
 rppatel



PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER REEDY CREEK ON SR 1445 BETWEEN SR 1444 AND SR 1446

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

LOAD AND RESISTANCE FACTOR RATING (LRFD) 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								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.055	--	1.75	0.257	1.07	A	EL	50.505	0.588	1.60	A	EL	20.202	0.80	0.257	1.06	A	EL	50.505		
	HL-93(Opr)	N/A	--	1.389	--	1.35	0.257	1.39	A	EL	50.505	0.588	2.08	A	EL	20.202	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.476	53.139	1.75	0.257	1.50	A	EL	50.505	0.588	2.10	A	EL	20.202	0.80	0.257	1.48	A	EL	50.505		
	HS-20(Opr)	36.000	--	1.942	69.929	1.35	0.257	1.94	A	EL	50.505	0.588	2.72	A	EL	20.202	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.510	47.388	1.40	0.257	4.45	A	EL	50.505	0.588	6.39	A	EL	20.202	0.80	0.257	3.51	A	EL	50.505	
		SNGARBS2	20.000	--	2.538	50.76	1.40	0.257	3.22	A	EL	50.505	0.588	4.50	A	EL	20.202	0.80	0.257	2.54	A	EL	50.505	
		SNAGRIS2	22.000	--	2.372	52.189	1.40	0.257	3.01	A	EL	50.505	0.588	4.16	A	EL	20.202	0.80	0.257	2.37	A	EL	50.505	
		SNCOTTS3	27.250	--	1.745	47.538	1.40	0.257	2.21	A	EL	50.505	0.588	3.19	A	EL	20.202	0.80	0.257	1.74	A	EL	50.505	
		SNAGGRS4	34.925	--	1.428	49.866	1.40	0.257	1.81	A	EL	50.505	0.588	2.61	A	EL	20.202	0.80	0.257	1.43	A	EL	50.505	
		SNS5A	35.550	--	1.398	49.708	1.40	0.257	1.77	A	EL	50.505	0.588	2.63	A	EL	20.202	0.80	0.257	1.40	A	EL	50.505	
		SNS6A	39.950	--	1.271	50.764	1.40	0.257	1.61	A	EL	50.505	0.588	2.38	A	EL	20.202	0.80	0.257	1.27	A	EL	50.505	
	TTST	SNS7B	42.000	--	1.210	50.804	1.40	0.257	1.53	A	EL	50.505	0.588	2.33	A	EL	20.202	0.80	0.257	1.21	A	EL	50.505	
		TNAGRIT3	33.000	--	1.546	51.016	1.40	0.257	1.96	A	EL	50.505	0.588	2.85	A	EL	20.202	0.80	0.257	1.55	A	EL	50.505	
		TNT4A	33.075	--	1.549	51.249	1.40	0.257	1.97	A	EL	50.505	0.588	2.79	A	EL	20.202	0.80	0.257	1.55	A	EL	50.505	
		TNT6A	41.600	--	1.256	52.23	1.40	0.257	1.59	A	EL	50.505	0.588	2.45	A	EL	20.202	0.80	0.257	1.26	A	EL	50.505	
		TNT7A	42.000	--	1.256	52.743	1.40	0.257	1.59	A	EL	50.505	0.588	2.40	A	EL	20.202	0.80	0.257	1.26	A	EL	50.505	
		TNT7B	42.000	--	1.285	53.952	1.40	0.257	1.63	A	EL	50.505	0.588	2.28	A	EL	20.202	0.80	0.257	1.28	A	EL	50.505	
		TNAGRIT4	43.000	--	1.233	53.011	1.40	0.257	1.56	A	EL	50.505	0.588	2.21	A	EL	20.202	0.80	0.257	1.23	A	EL	50.505	
TNAGT5A	45.000	--	1.168	52.538	1.40	0.257	1.48	A	EL	50.505	0.588	2.18	A	EL	20.202	0.80	0.257	1.17	A	EL	50.505			
TNAGT5B	45.000	3	1.158	52.109	1.40	0.257	1.47	A	EL	50.505	0.588	2.11	A	EL	20.202	0.80	0.257	1.16	A	EL	50.505			

LOAD FACTORS:

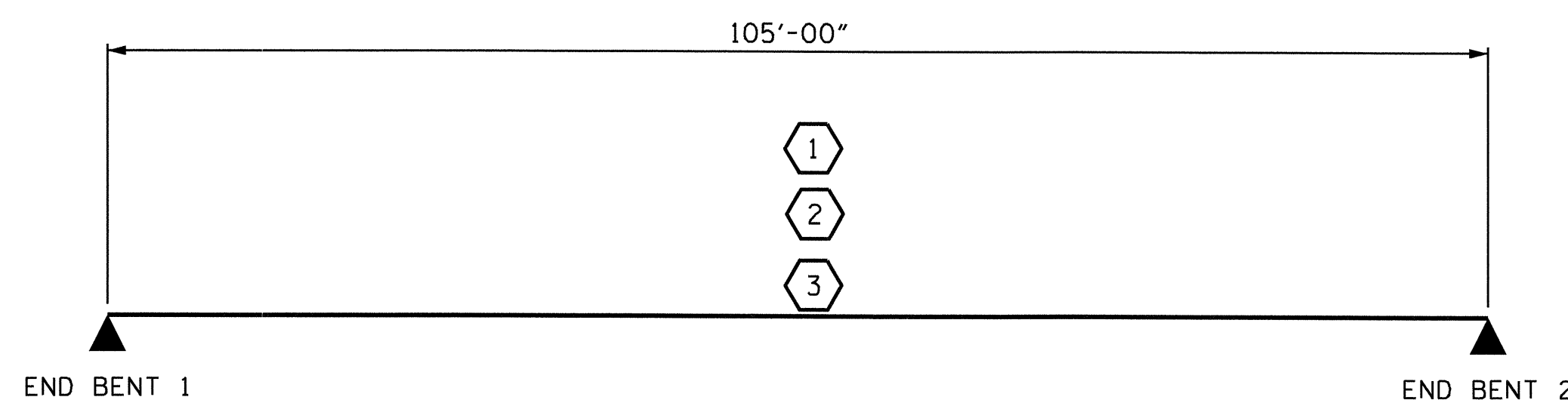
DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

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

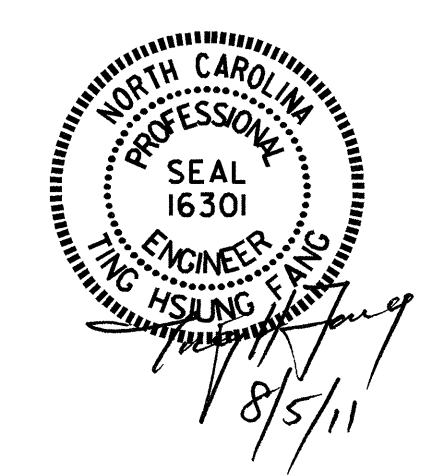
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-



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

ASSEMBLED BY : E.I. OMILE	DATE : 3-24-10
CHECKED BY : R.P. PATEL	DATE : 3-24-10
DRAWN BY : MAA 1/08	REV. 11/12/08R MAA/GM
CHECKED BY : GM/DI 2/08	

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

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH GROUT.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5400 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

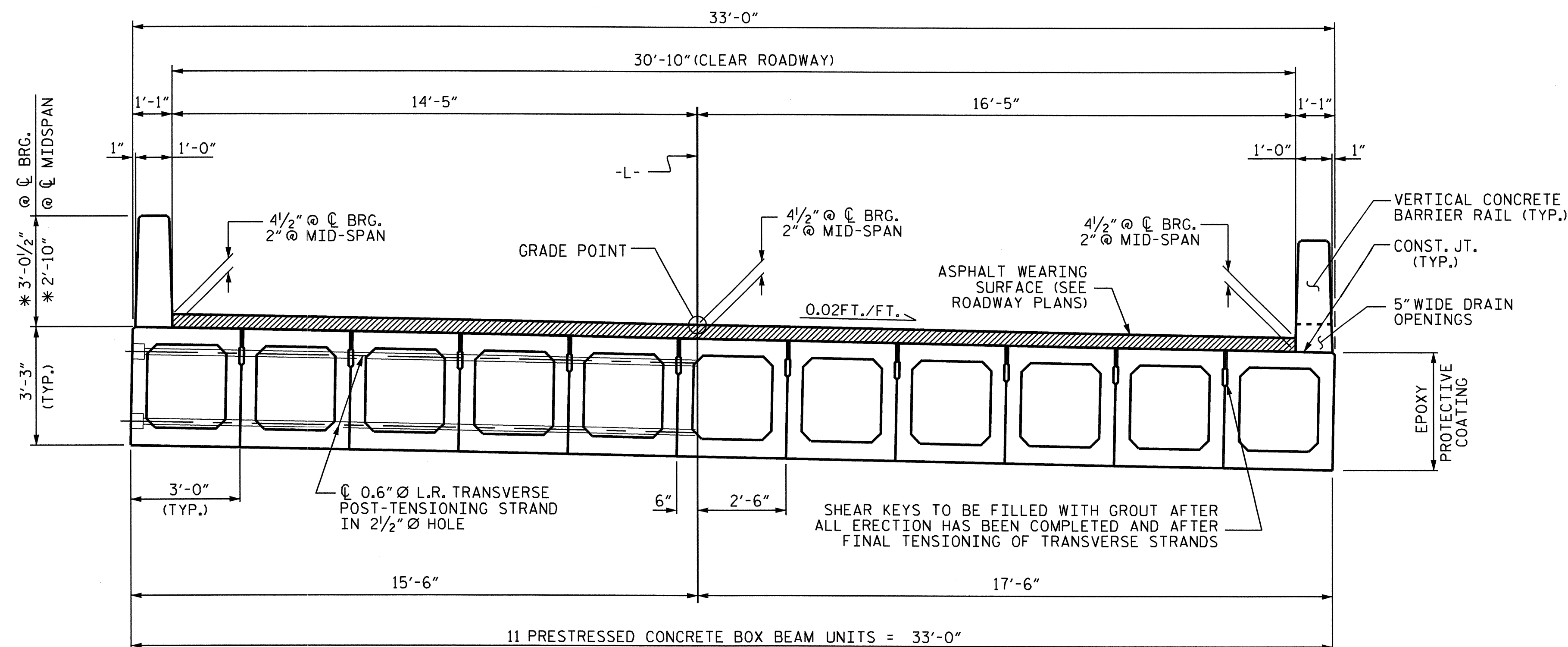
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS AND EXTERIOR FACE OF THE EXTERIOR BOX BEAMS.

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

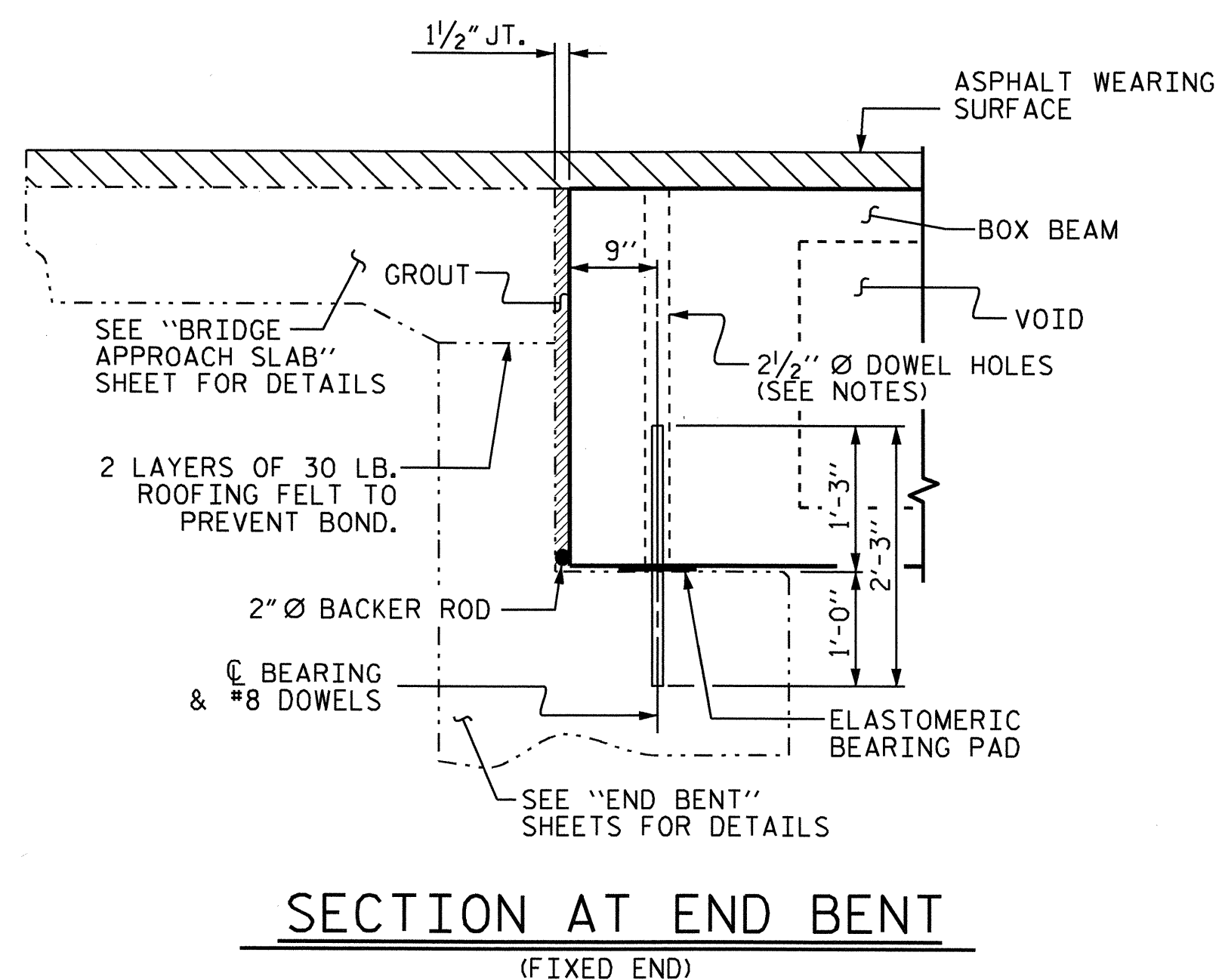
THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



TYPICAL SECTION

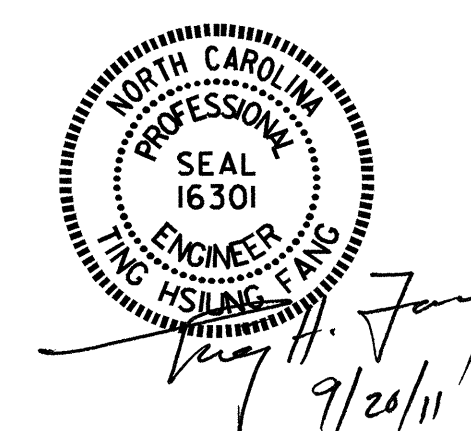
* THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.



SECTION AT END BENT (FIXED END)

PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

SHEET 1 OF 5

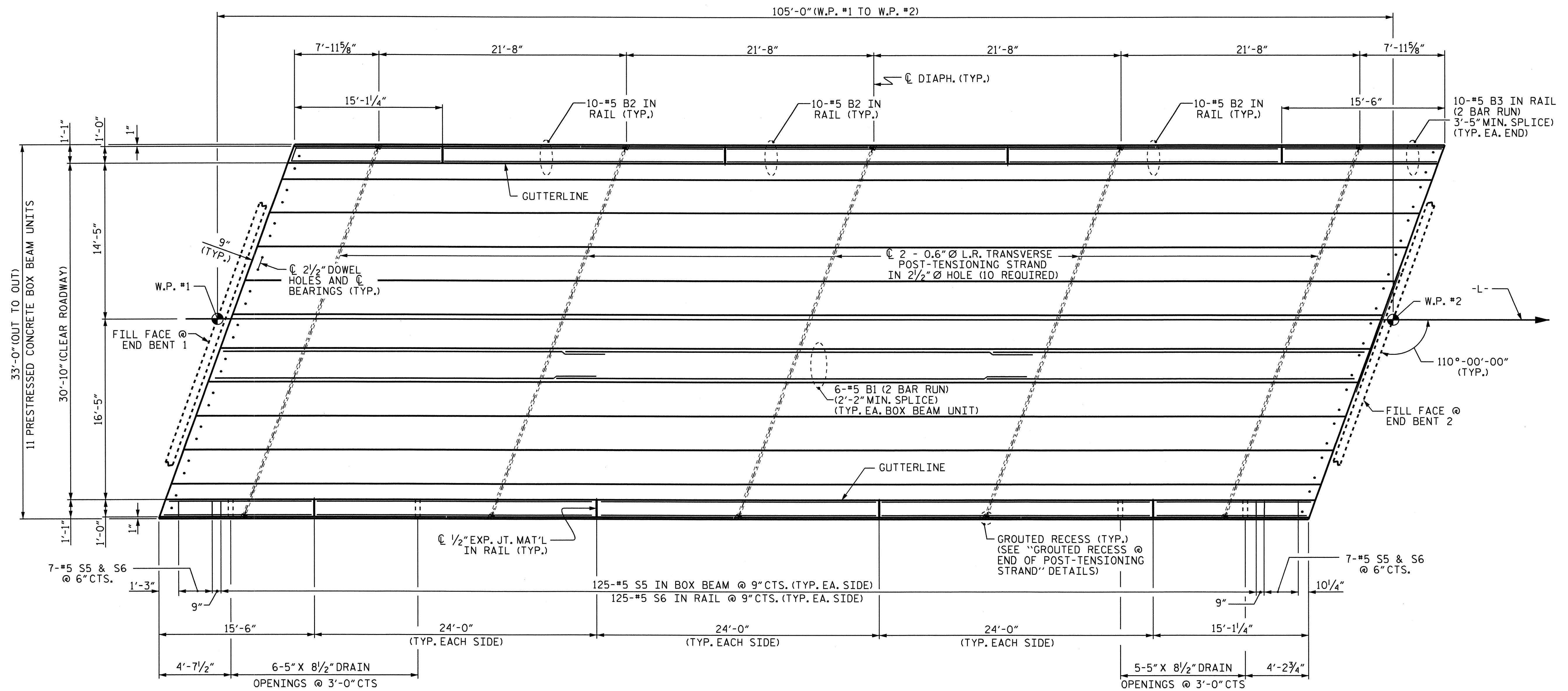


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 3'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

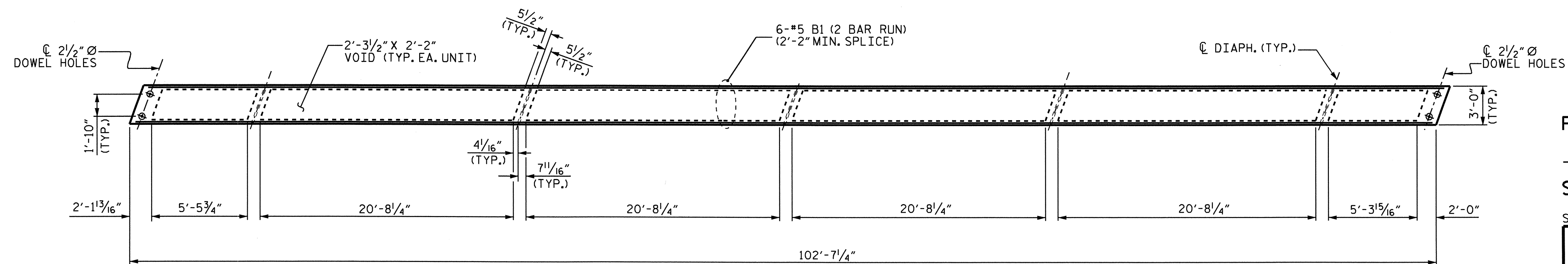
ASSEMBLED BY : HARISH SHAH DATE : 09-09
 CHECKED BY : O.T. NGUYEN DATE : 5-3-10
 DRAWN BY : TLA 5/05
 CHECKED BY : GM 6/05

ADDED 7/11/05R
 REV. 5/1/06R KMM/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			18



PLAN



PLAN OF BOX BEAM UNIT

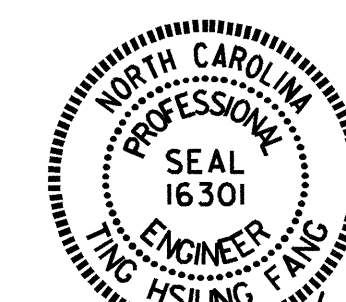
SHOWING LOCATION OF VOIDS AND DIAPHRAGMS

PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN
 SPAN A

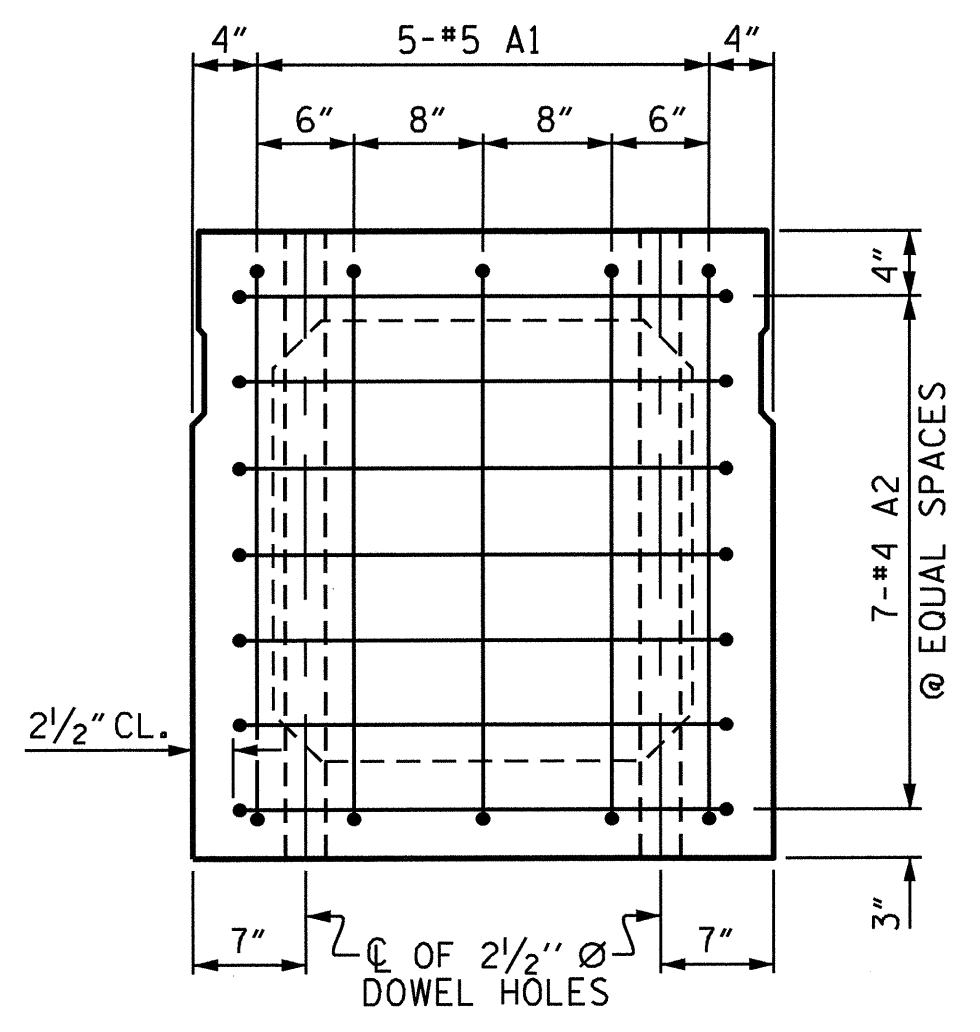


Hsiung F. Yang
 9/20/11

DRAWN BY : HARISH SHAH DATE : 09/09
 CHECKED BY : Q.T. NGUYEN DATE : 5-04-10

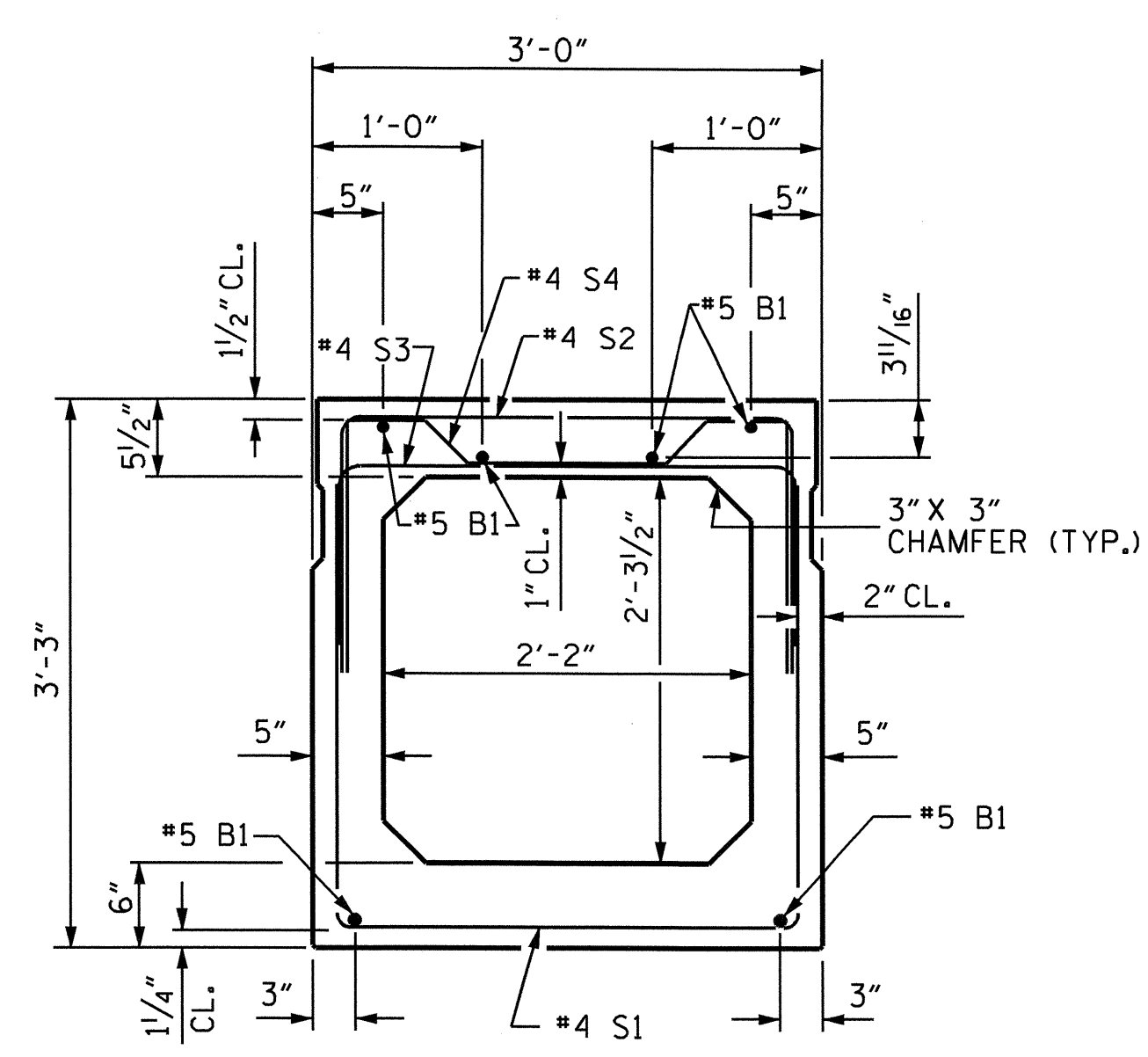
20-SEP-2011 09:04
 O:\Structures\Final Plans\b-4694.sd.bx.dgn
 rppotel

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

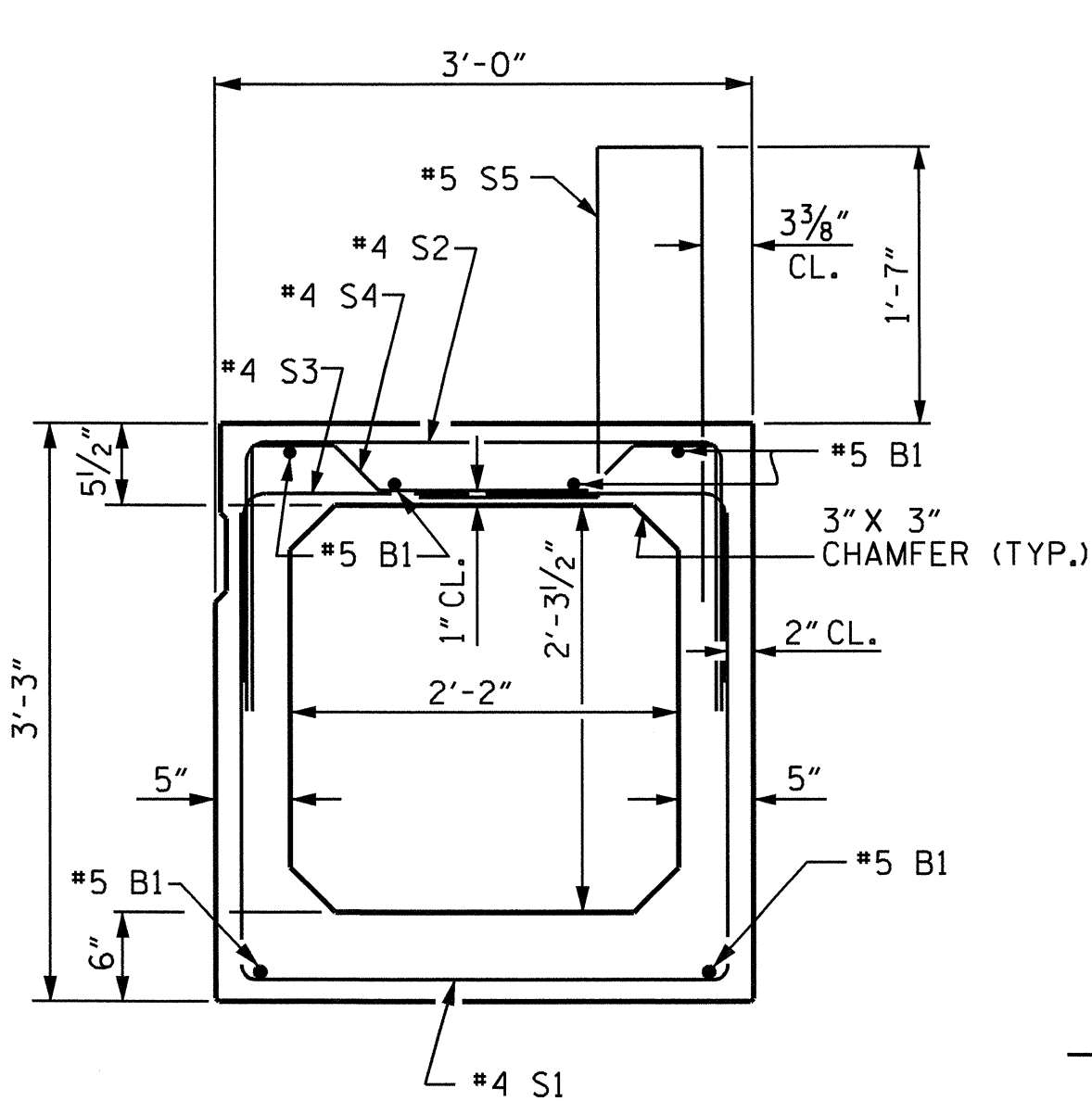


END ELEVATION

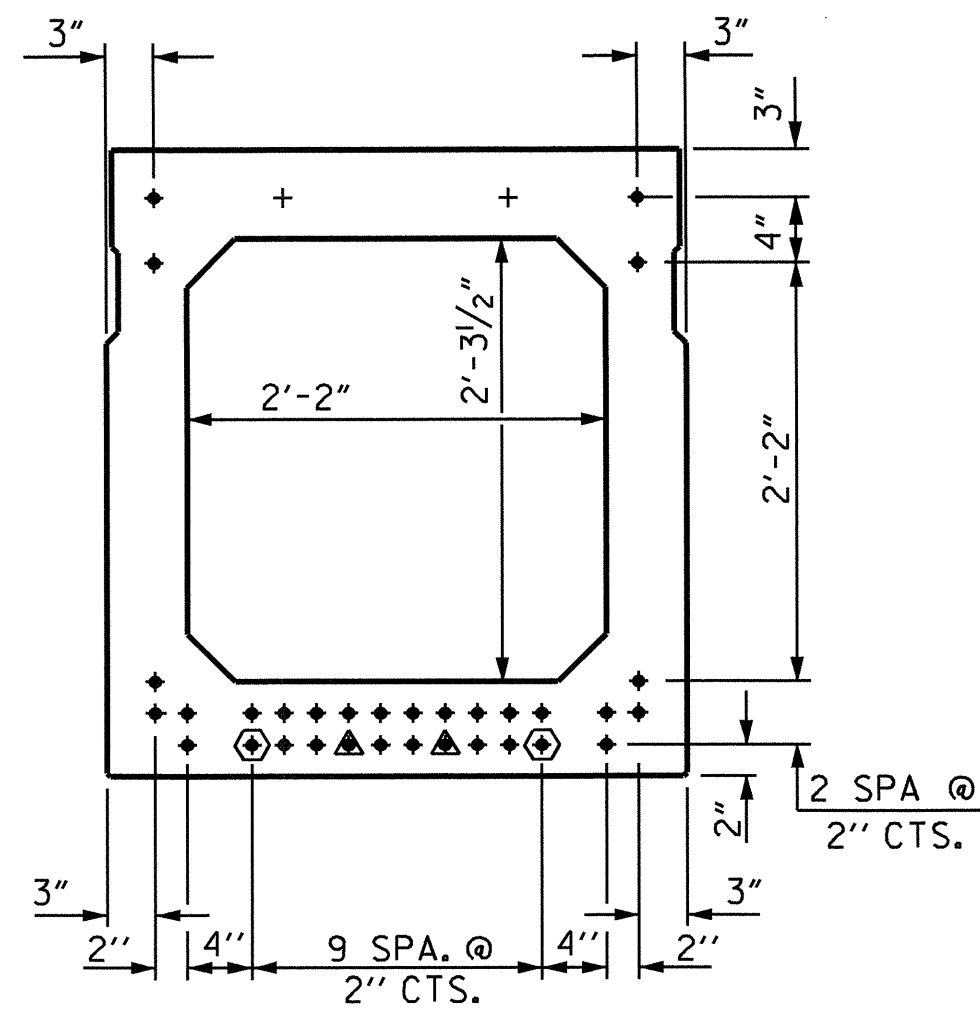
SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)



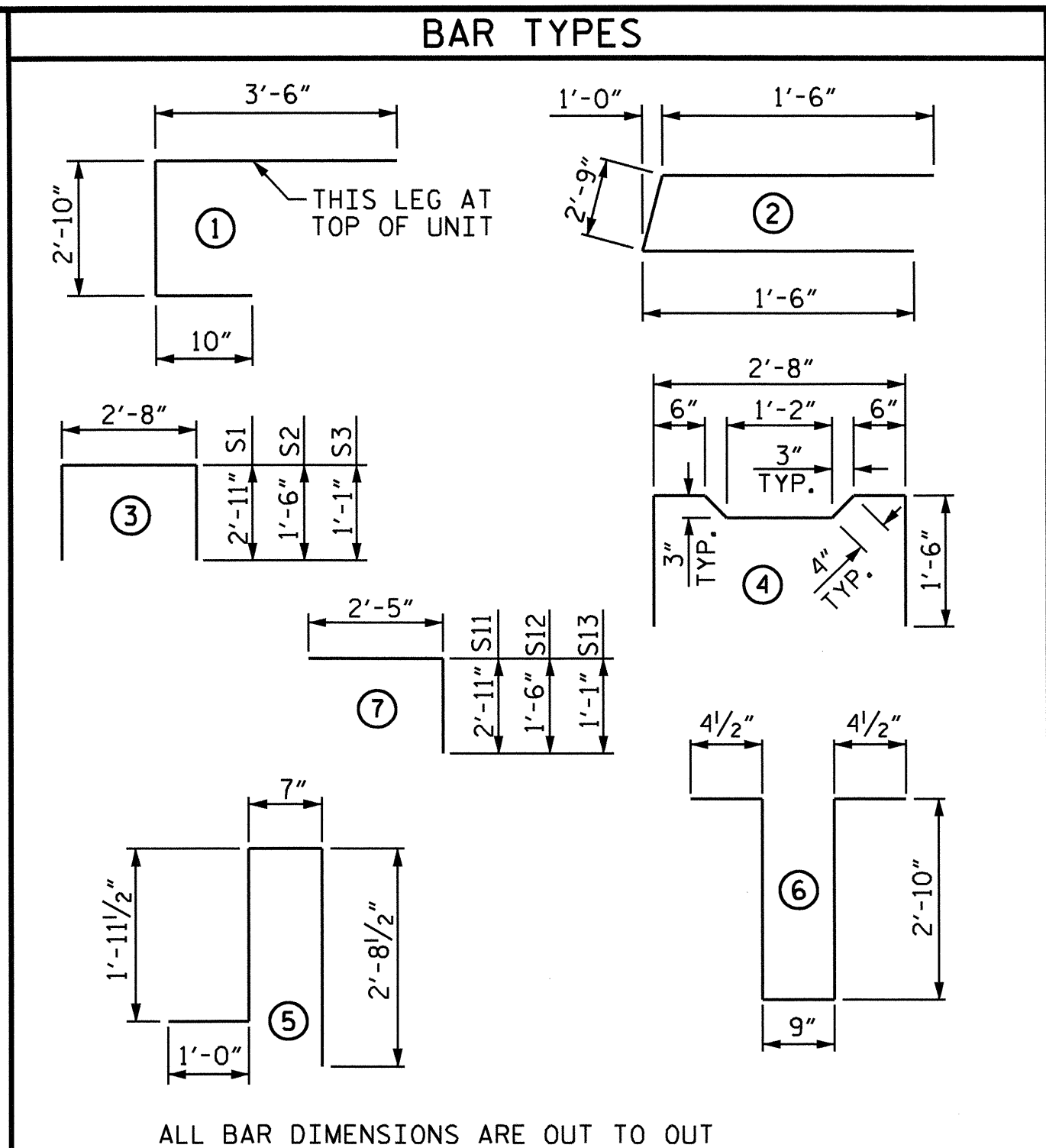
EXTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)



TYPICAL STRAND LOCATION
(32 STRANDS REQUIRED)

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

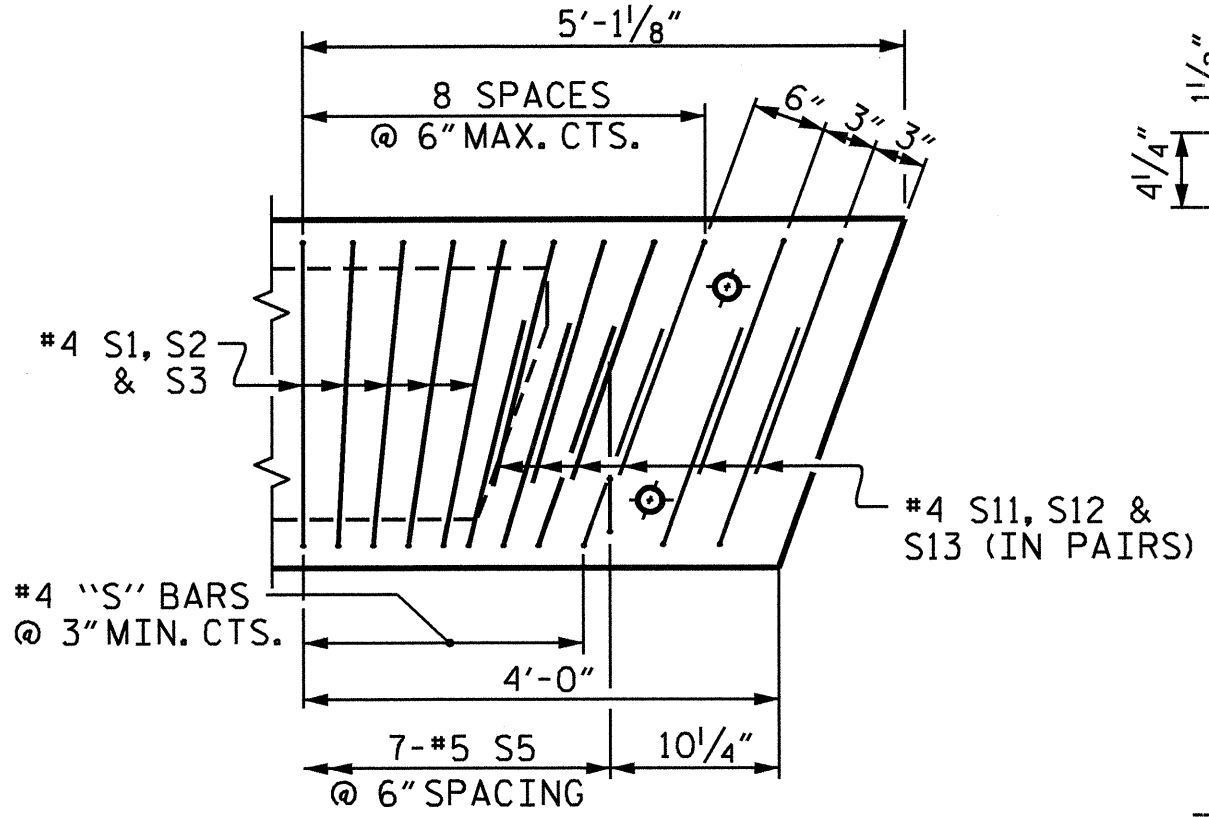
0.6" Ø LOW RELAXATION STRAND LAYOUT



ALL BAR DIMENSIONS ARE OUT TO OUT

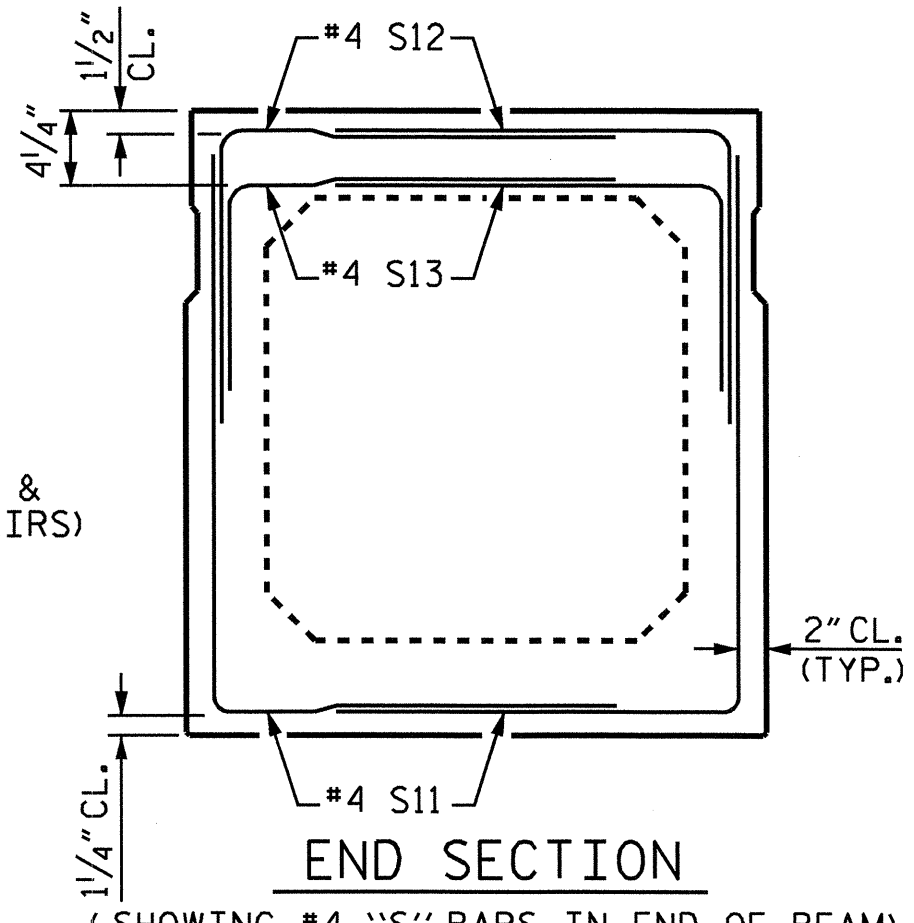
BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	7'-2"	75	7'-2"	75
A2	44	#4	2	5'-9"	169	5'-9"	169
B1	12	#5	STR	52'-3"	654	52'-3"	654
K1	15	#4	6	7'-2"	72	7'-2"	72
K2	10	#4	STR	2'-9"	18	2'-9"	18
S1	82	#4	3	8'-6"	466	8'-6"	466
S2	82	#4	3	5'-8"	310	5'-8"	310
S3	135	#4	3	4'-10"	436	4'-10"	436
S4	62	#4	4	5'-10"	242	5'-10"	242
S11	24	#4	7	5'-4"	86	5'-4"	86
S12	24	#4	7	3'-11"	63	3'-11"	63
S13	24	#4	7	3'-6"	56	3'-6"	56
*S5	139	#5	5	6'-3"	906	--	--
REINFORCING STEEL				3,553	LBS.	2,647	LBS.
* EPOXY COATED REINF. STEEL				906	LBS.	--	--
7000 P.S.I. CONCRETE				20.1	CU. YDS.	19.9	CU. YDS.
0.6" Ø L.R. STRANDS				No. 32		No. 32	



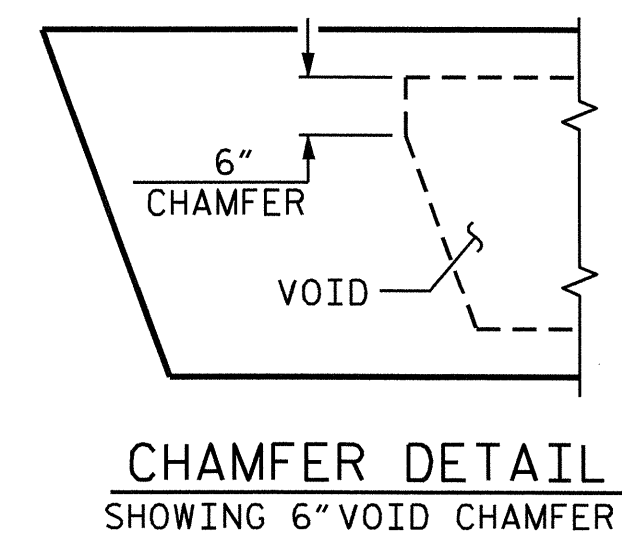
DETAIL "B"

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. "B" BARS AND "A" BARS NOT SHOWN.

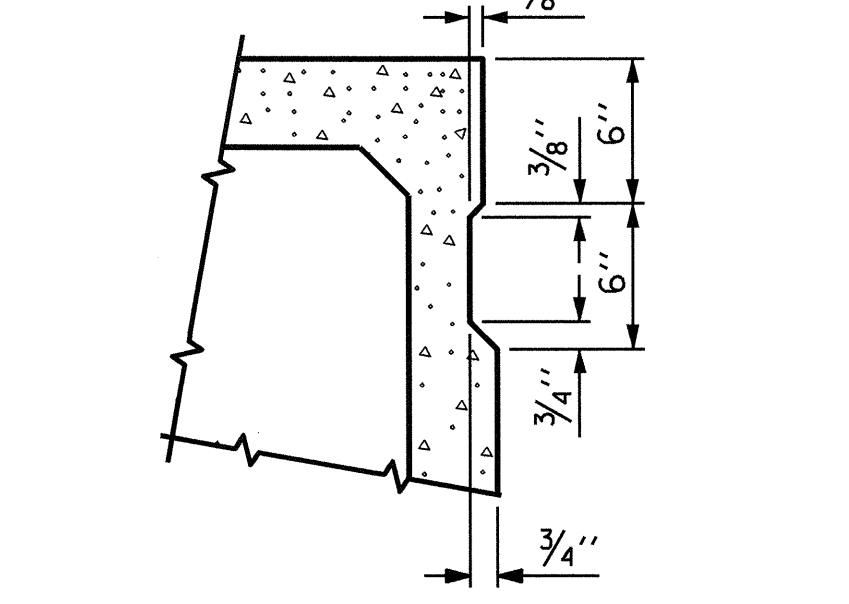


END SECTION

(SHOWING #4 "S" BARS IN END OF BEAM)



CHAMFER DETAIL
SHOWING 6" VOID CHAMFER



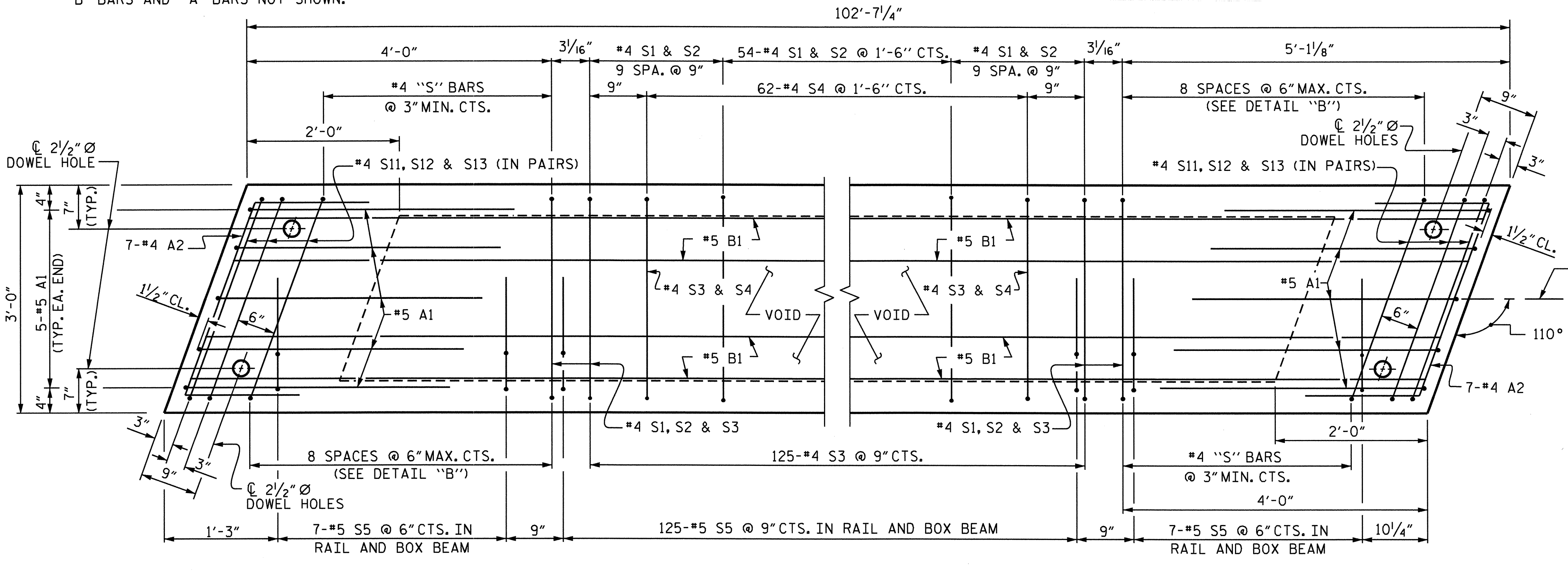
SHEAR KEY DETAIL

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

DEBONDING LEGEND

- FULLY BONDED STRANDS
- STRANDS DEBONDED FOR 12'-0" FROM END OF GIRDER
- STRANDS DEBONDED FOR 4'-0" FROM END OF GIRDER

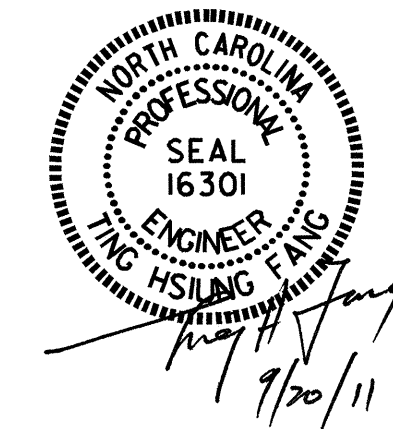
GRADE 270 STRANDS		0.6" Ø L.R.
AREA (SQUARE INCHES)		0.217
ULTIMATE STRENGTH (LBS. PER STRAND)		58,600
APPLIED PRESTRESS (LBS. PER STRAND)		43,950



PLAN OF BOX BEAM

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

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A	11	102'-7 1/4"	1128'-7 3/4"



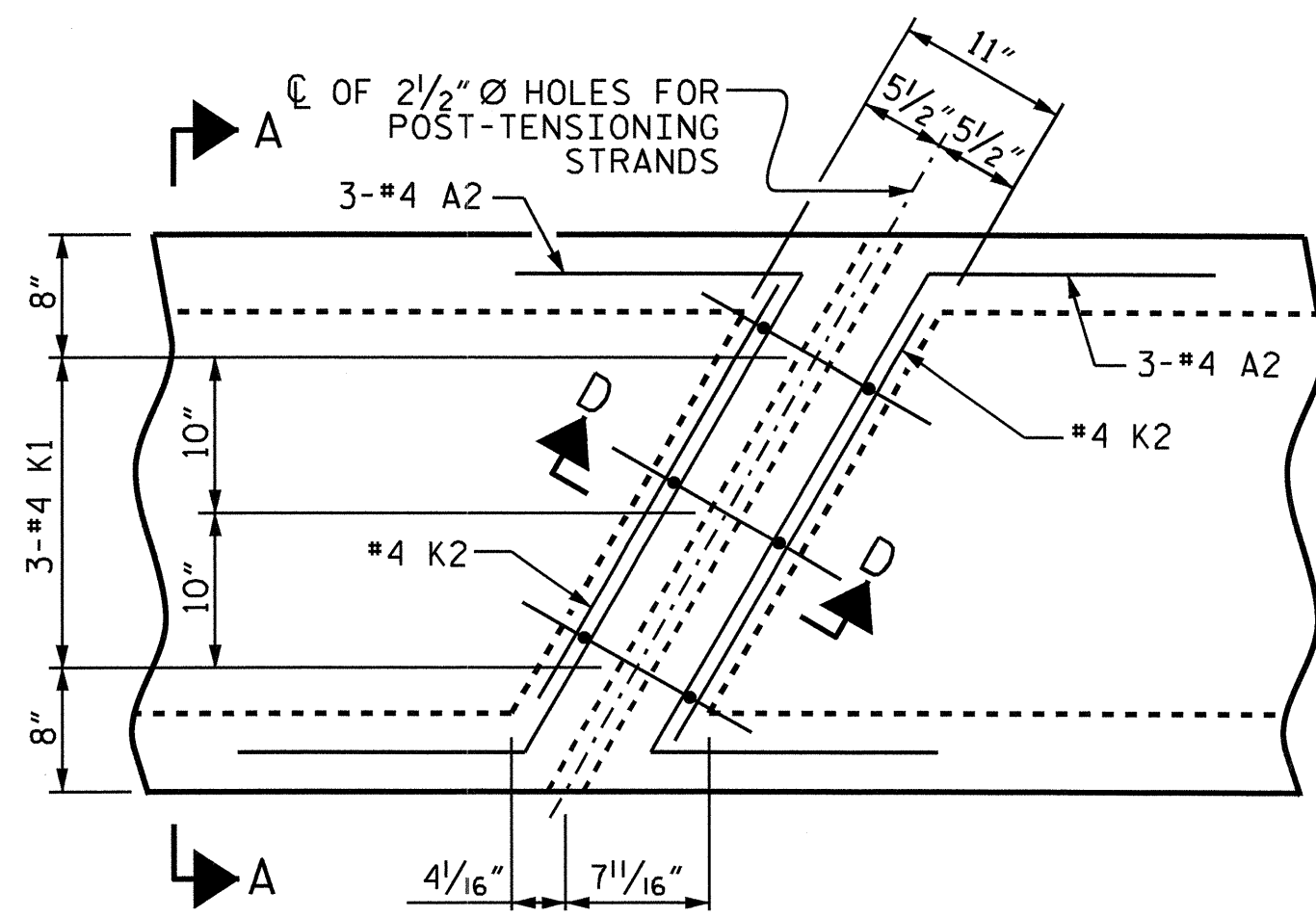
PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-
 SHEET 3 OF 5

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

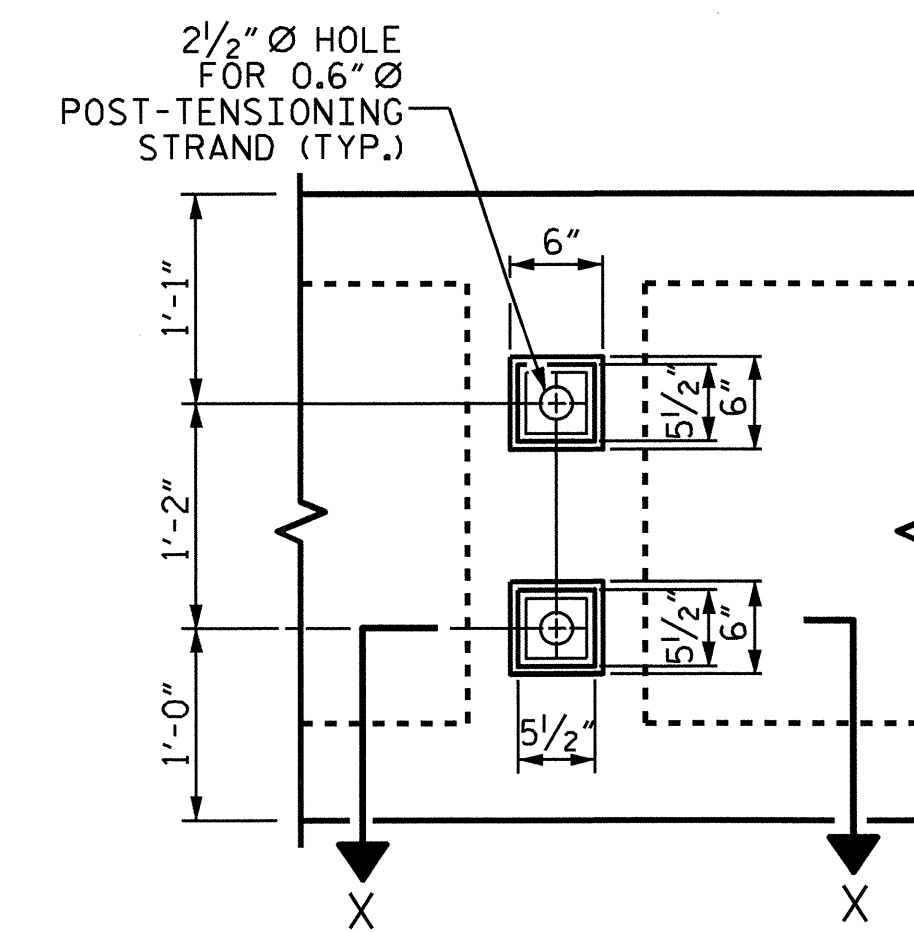
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			18

ASSEMBLED BY: HARISH SHAH DATE: 09/09
 CHECKED BY: O.T. NGUYEN DATE: 5-04-10
 DRAWN BY: TLA 5/05
 CHECKED BY: GM 6/05

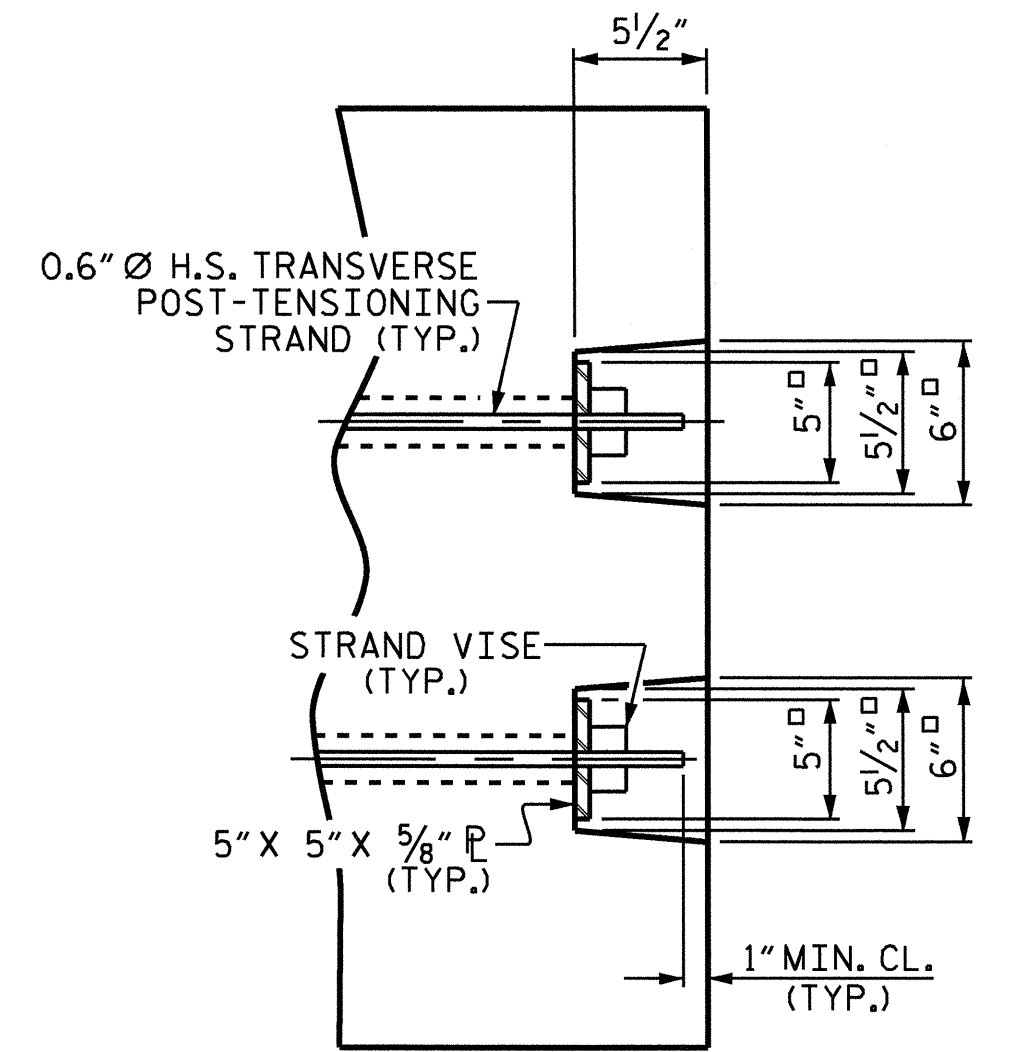
19-SEP-2011 09:38
 O:\Structures\Final Plans\B-4694.sd.bx.dgn
 rppotel



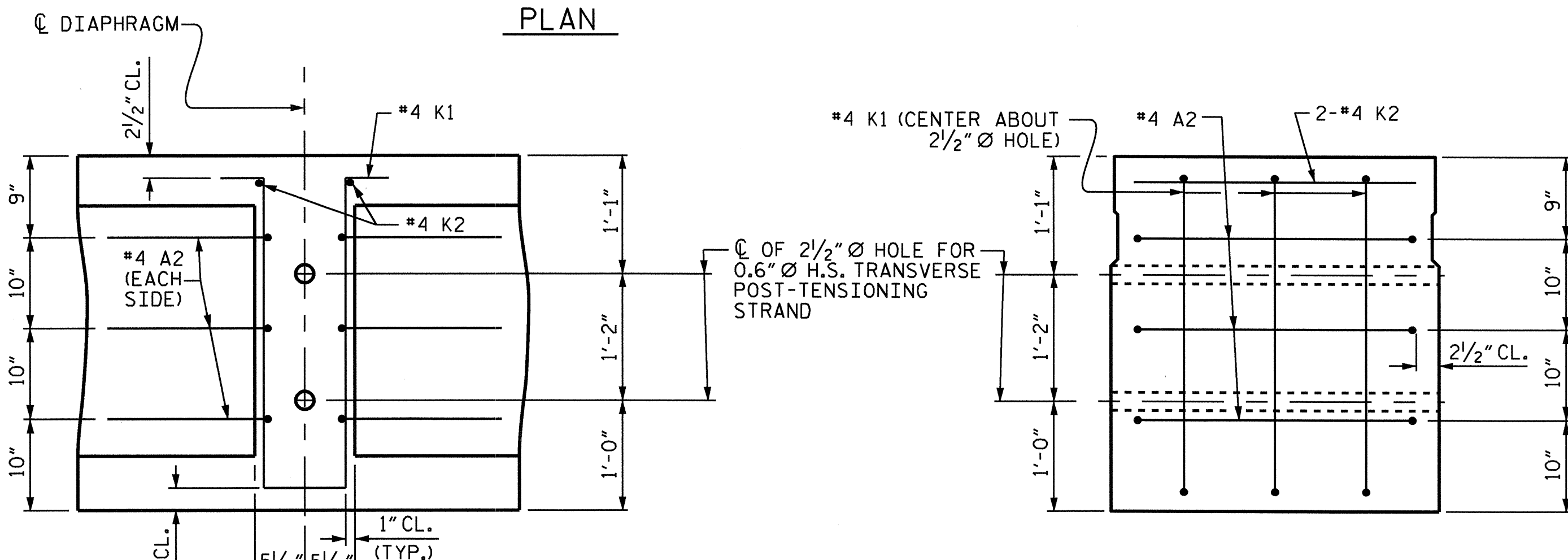
DEAD LOAD DEFLECTION AND CAMBER	
	0.6" Ø L.R. STRAND
	SPAN A
CAMBER (BEAM ALONE IN PLACE)	3 3/4"
DEFLECTION DUE TO ASPHALT WEARING SURFACE	1 1/8"
FINAL CAMBER	2 5/8"



VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUDED RECESS



DETAIL "C"

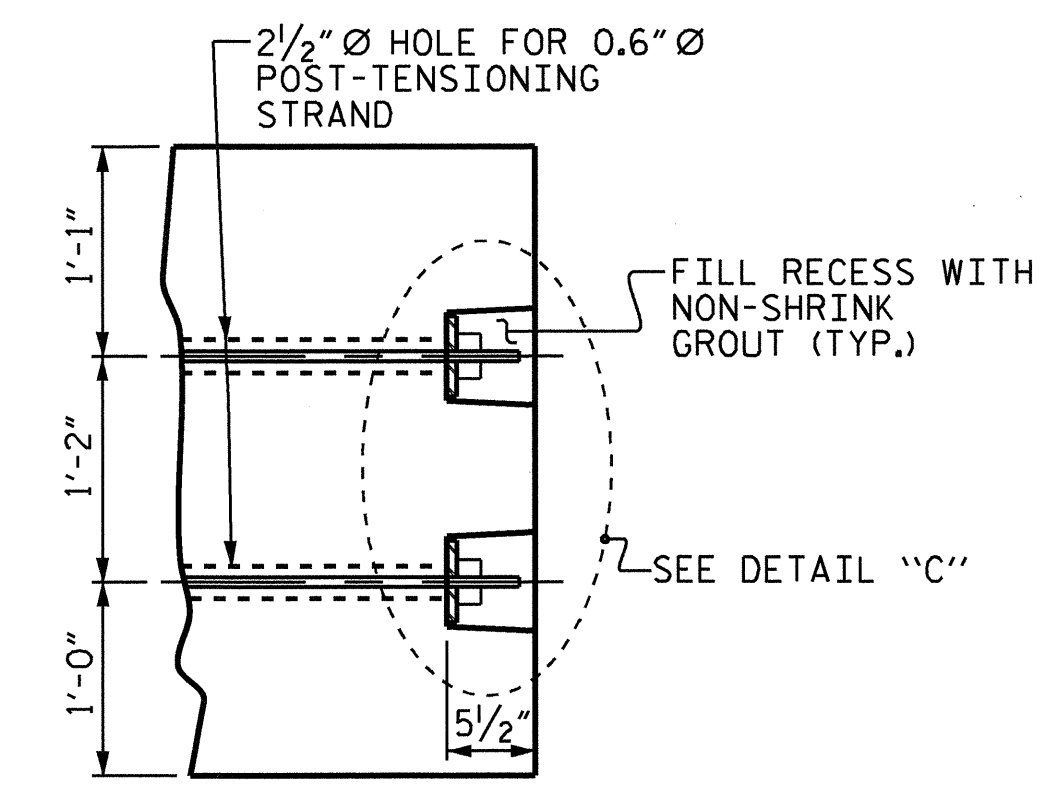


SECTION D-D

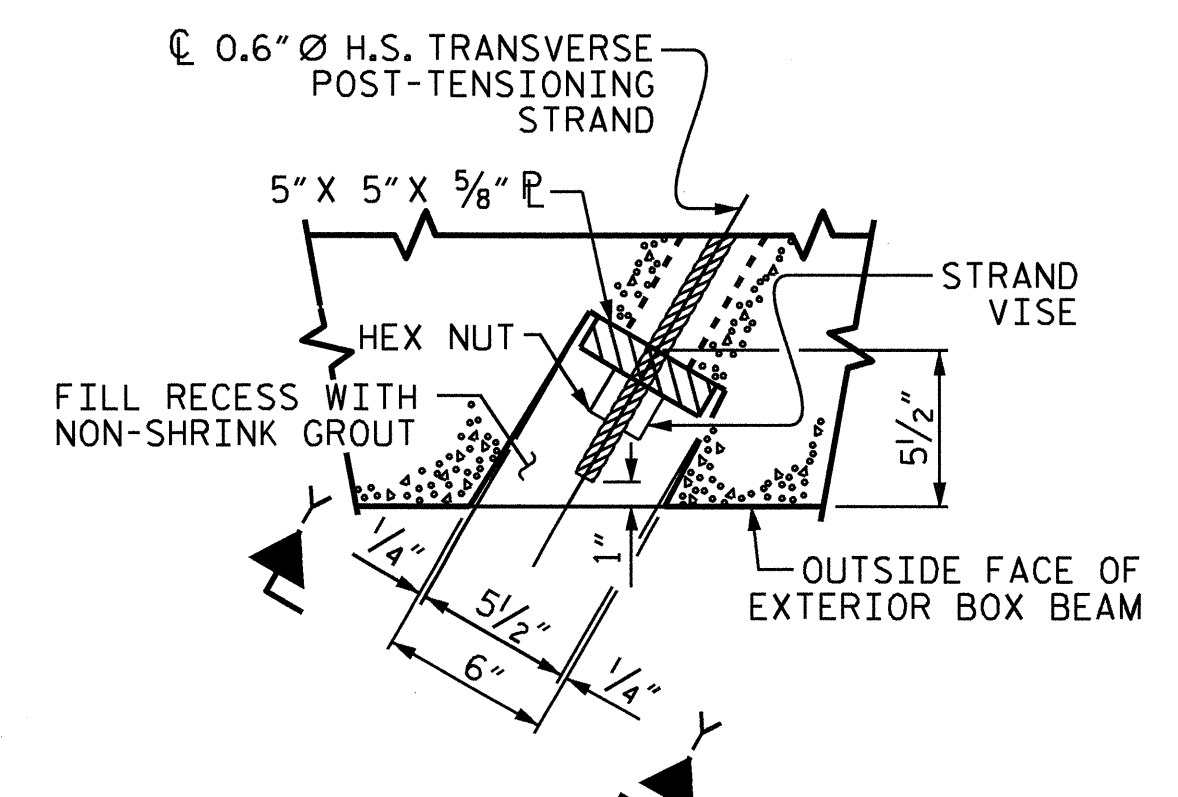
SECTION A-A
VOIDS NOT SHOWN

DIAPHRAGM DETAILS

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

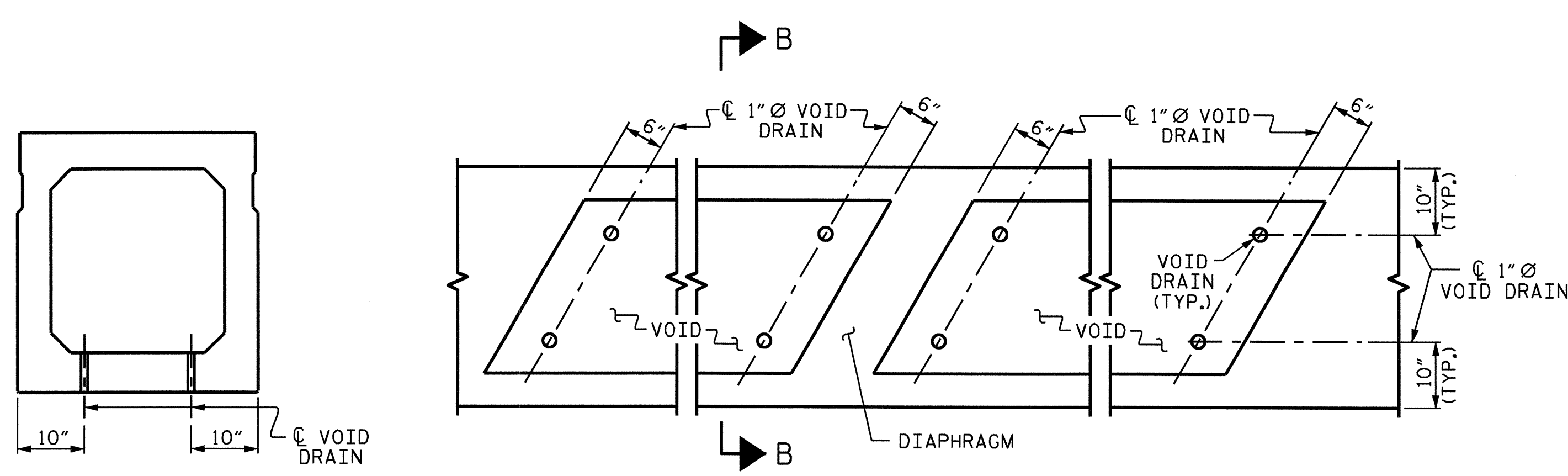


PART SECTION AT RECESS



SECTION X-X

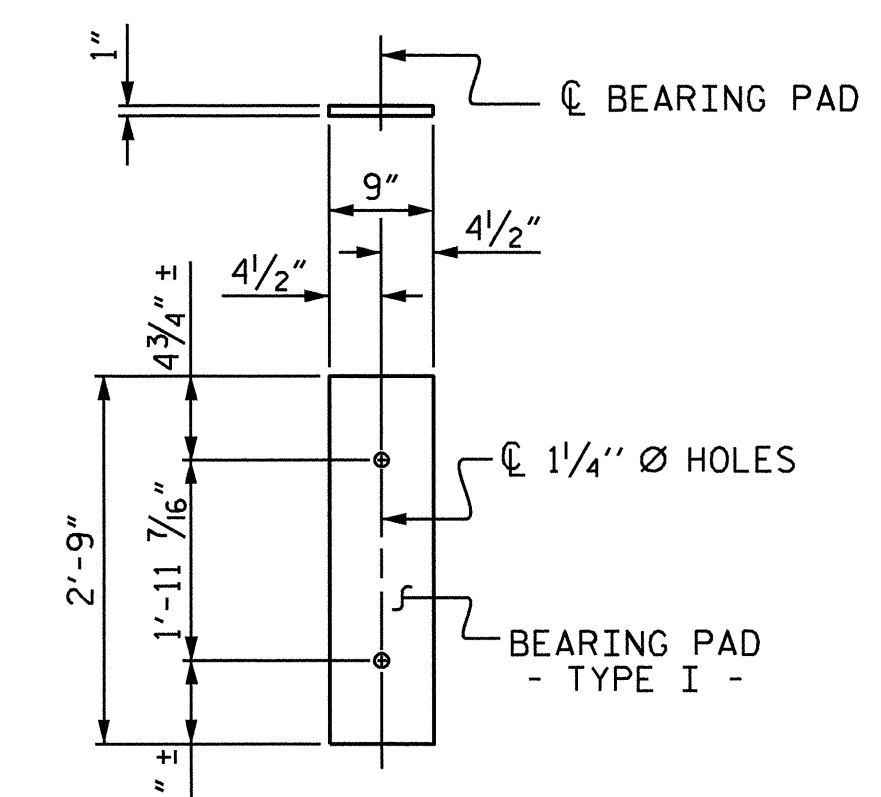
GROUDED RECESS DETAIL AT
END OF POST-TENSIONED STRANDS
OF EXTERIOR BOX BEAM



SECTION B-B

PART PLAN

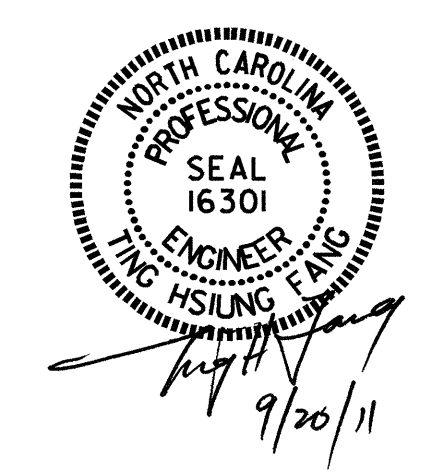
VOID DRAIN DETAILS
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL
BE 60 DUROMETER HARDNESS

PROJECT NO. B-4694
DAVIDSON COUNTY
STATION: 22+46.50 -L-
SHEET 4 OF 5



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

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

ASSEMBLED BY: HARISH SHAH DATE: 09/09
CHECKED BY: O.T. NGUYEN DATE: 5-04-10
DRAWN BY: TLA 5/05
CHECKED BY: GM 6/05
ADDED 7/11/05
REV. 5/1/06 TLA/GM

NOTES

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

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

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

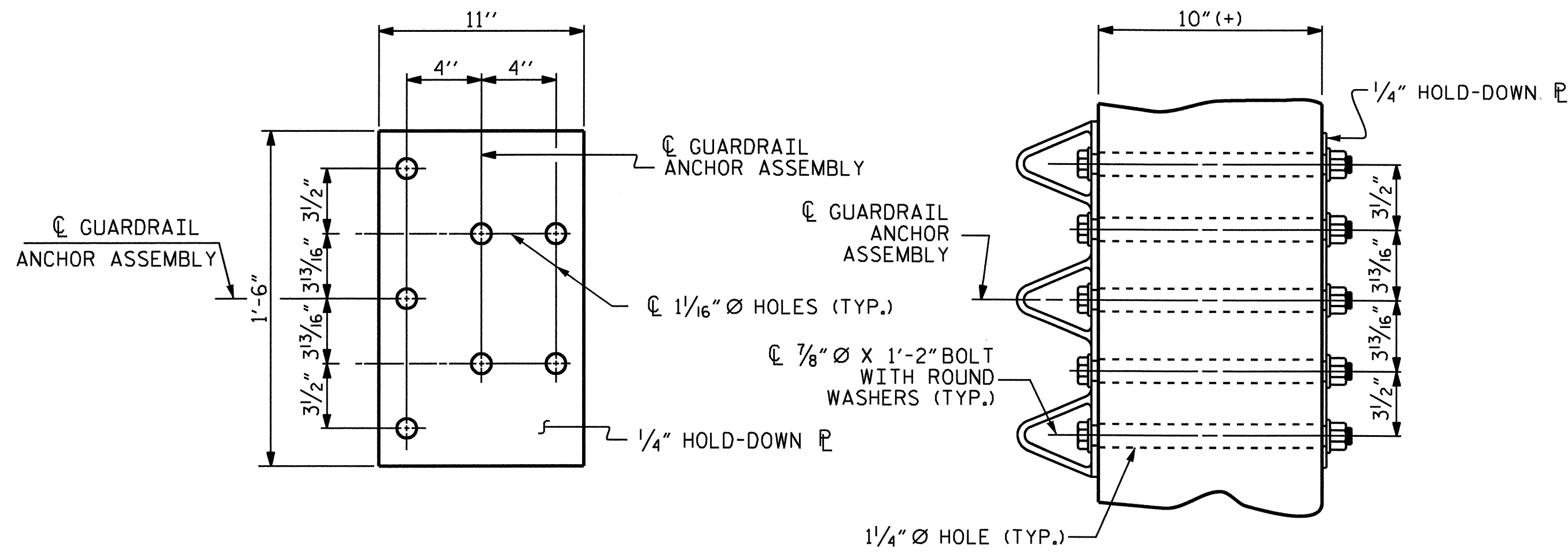
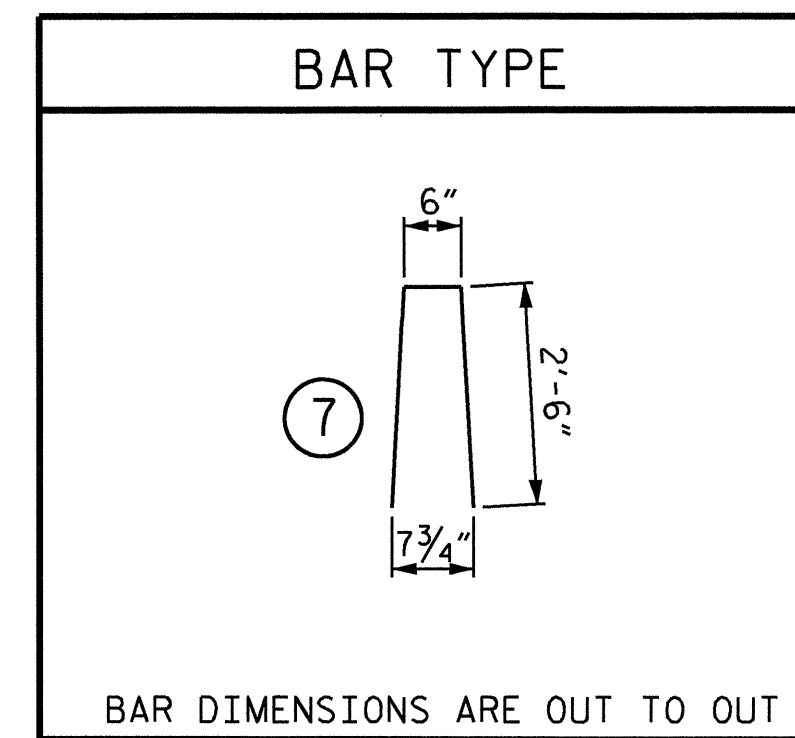
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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

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

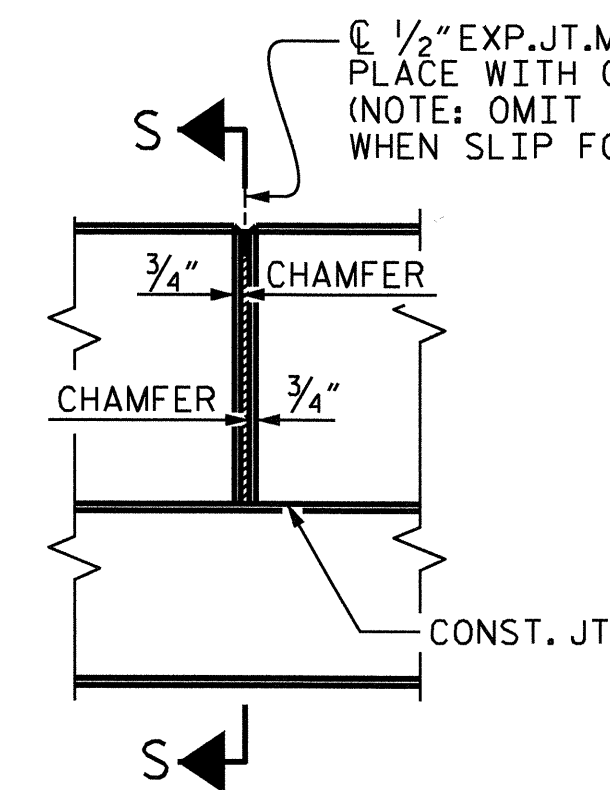
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

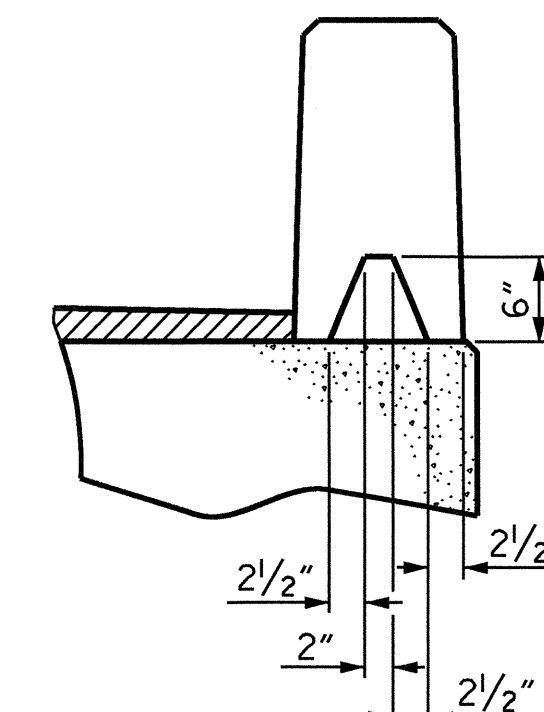


PLAN
END VIEW
GUARDRAIL ANCHOR ASSEMBLY DETAILS

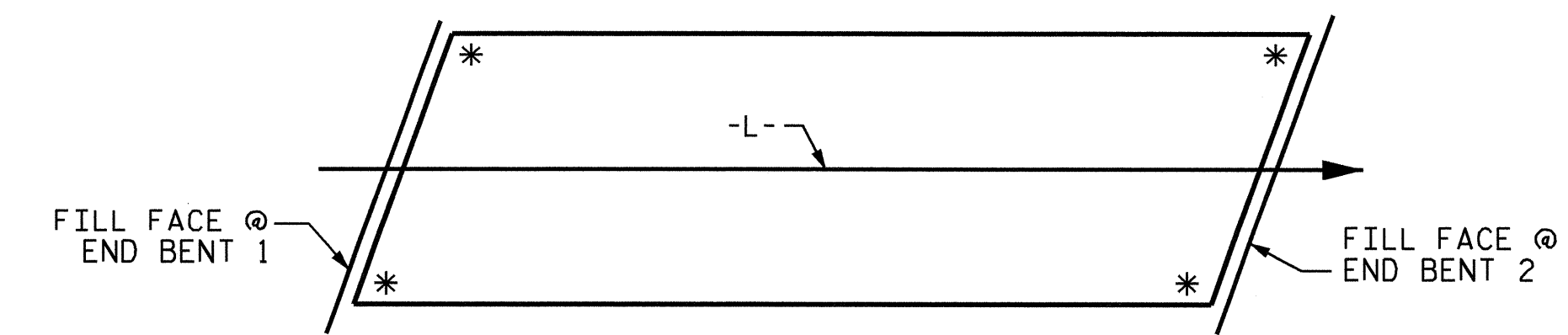
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	60	#5	STR	23'-7"	1476
*B3	80	#5	STR	9'-3"	772
*S6	278	#5	7	5'-6"	1595
* EPOXY COATED REINFORCING STEEL					LBS. 3843
CLASS AA CONCRETE					CU.YDS. 20.6
TOTAL LENGTH OF VERTICAL CONCRETE BARRIER RAIL					205.21 LIN. FT.



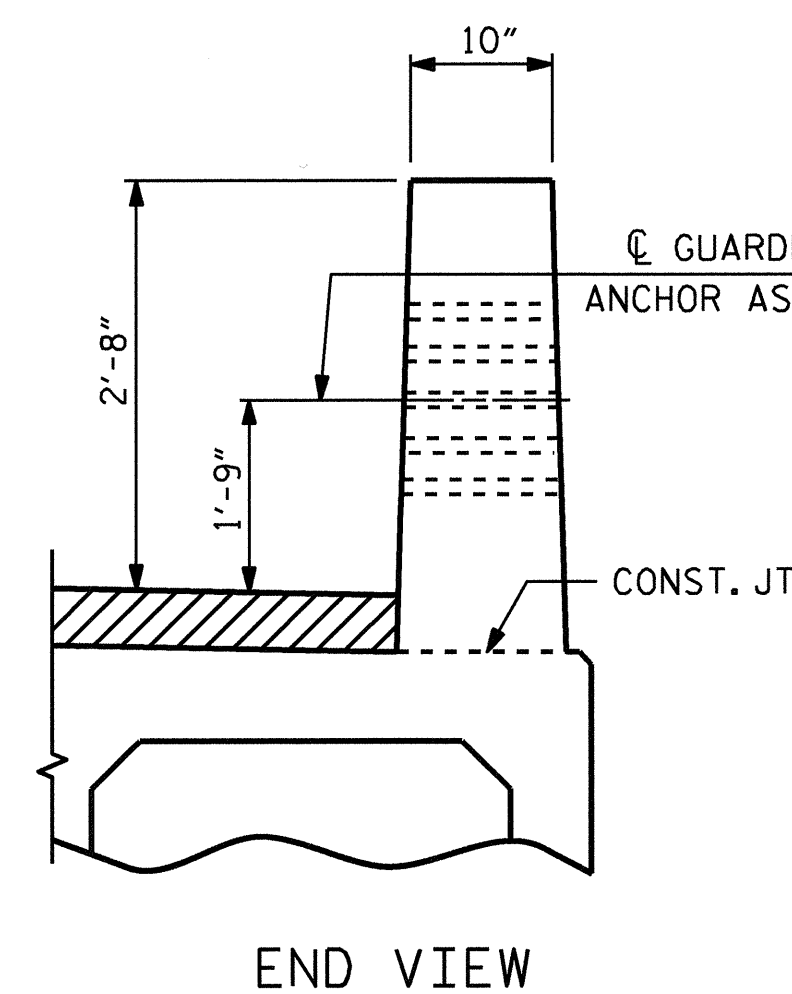
ELEVATION AT EXPANSION JOINTS



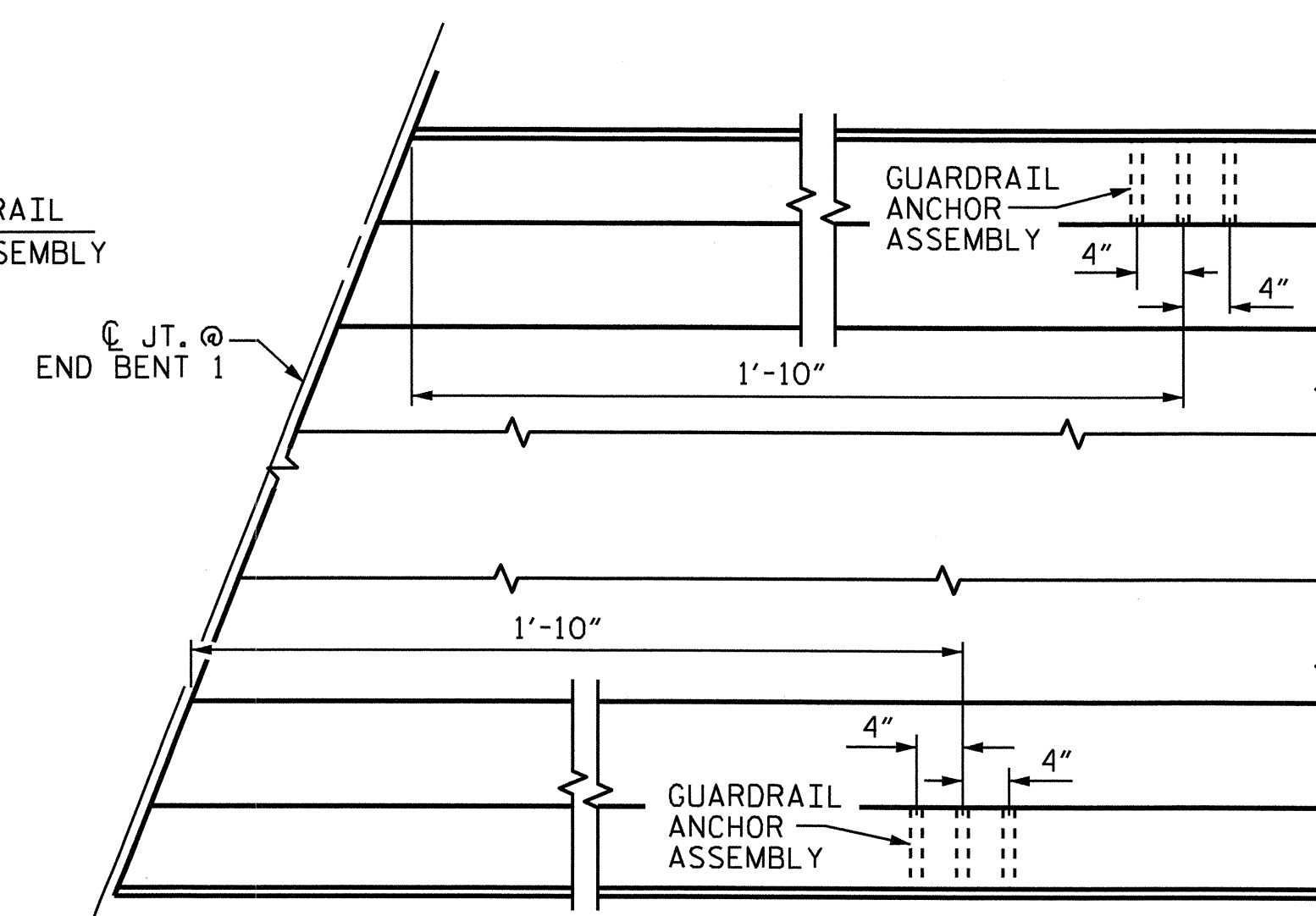
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



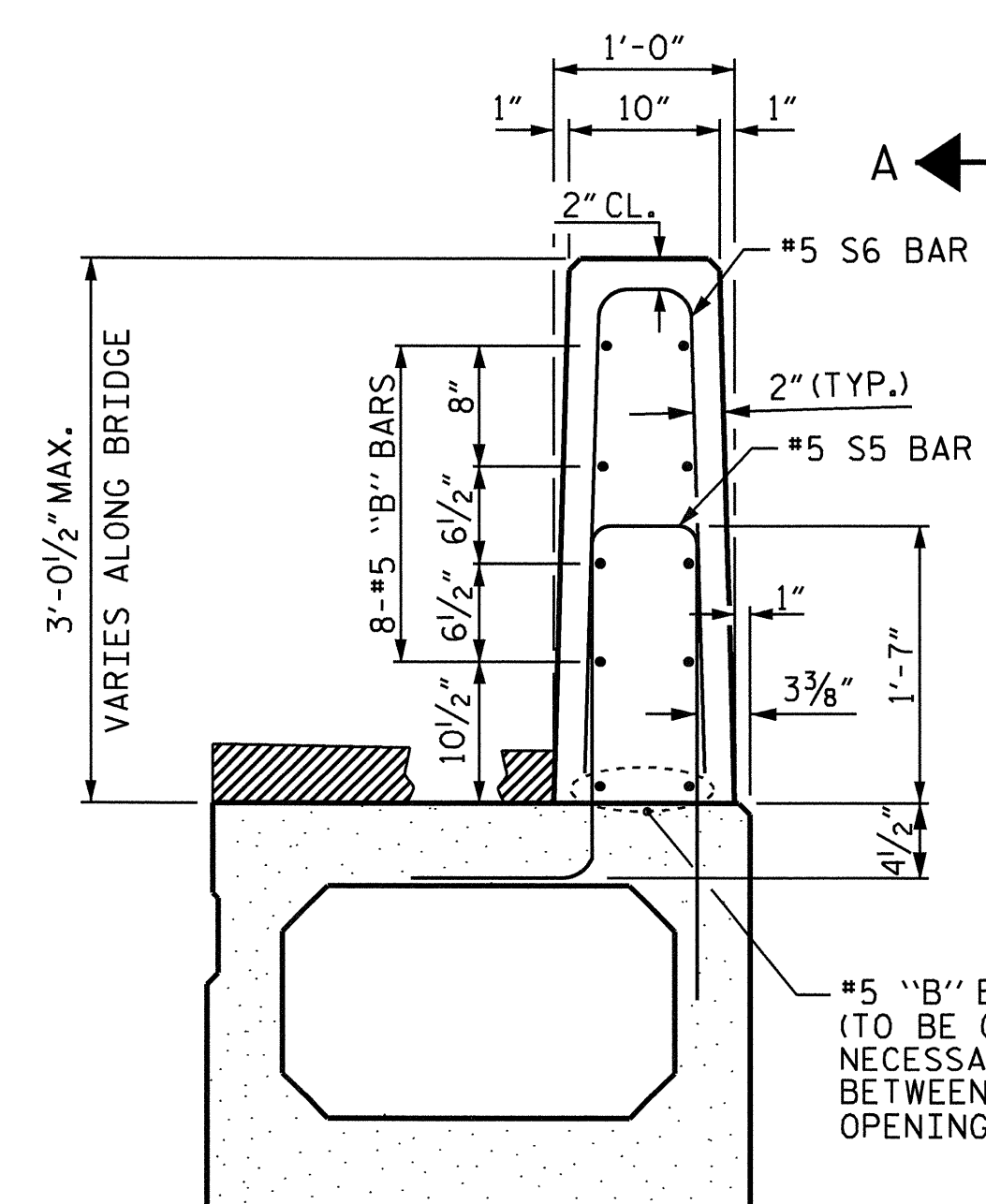
SKETCH SHOWING POINTS OF ATTACHMENT



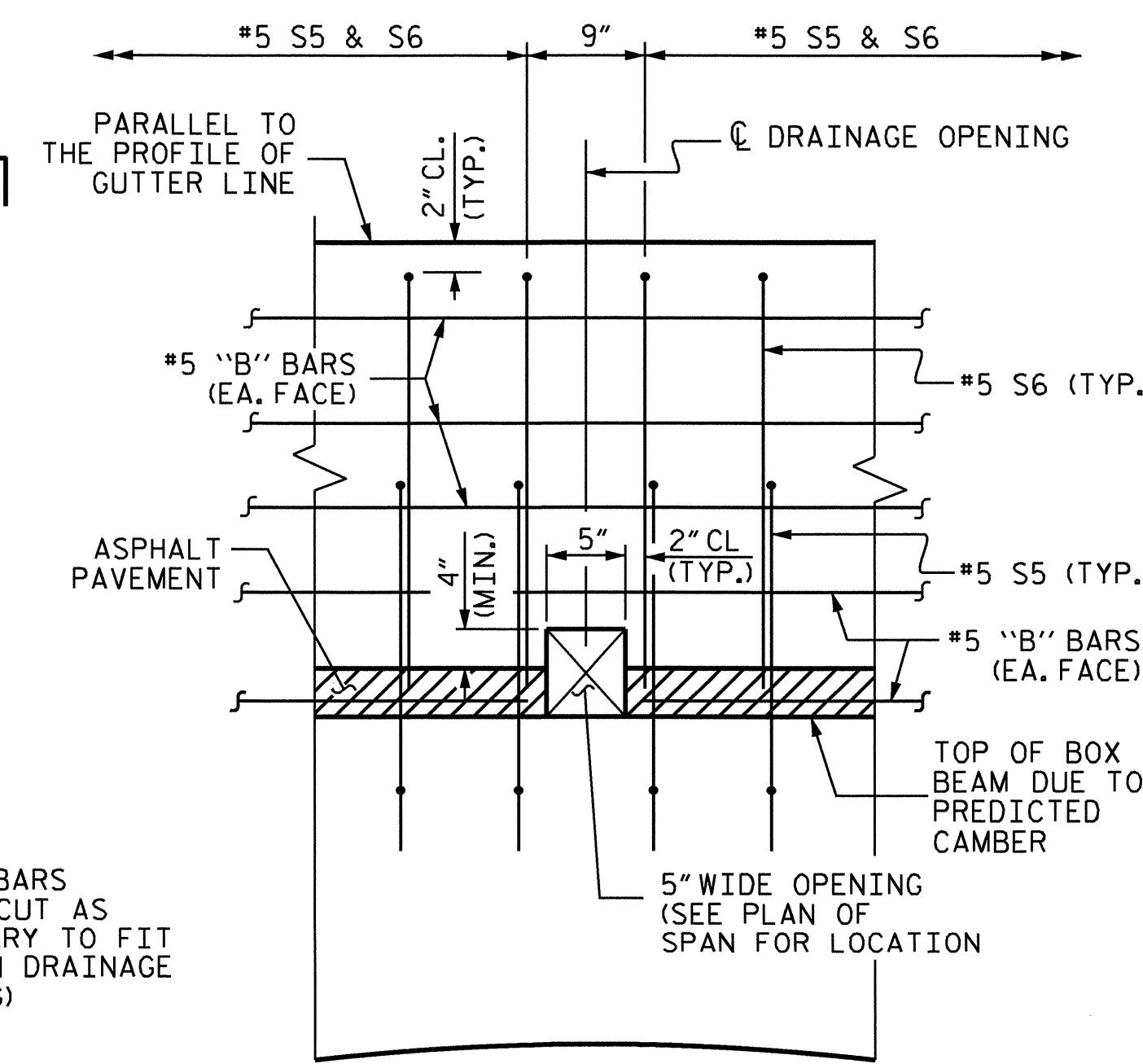
END VIEW



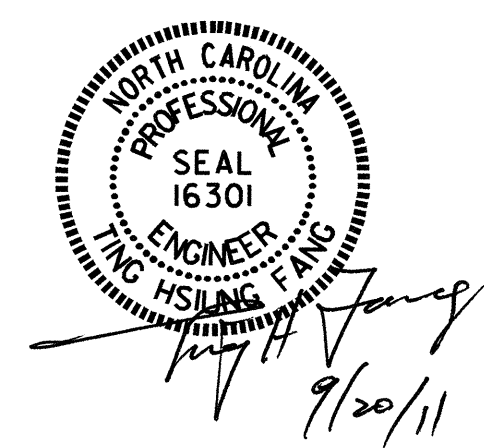
PLAN
LOCATION OF GUARDRAIL ANCHOR
END BENT 1 SHOWN, END BENT 2 SIMILAR.



SECTION THRU RAIL
SHOWN AT CL BEARING



VIEW A-A



PROJECT NO. B-4694
DAVIDSON COUNTY
STATION: 22+46.50 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
VERTICAL CONCRETE BARRIER RAIL AND GUARDRAIL ANCHORAGE DETAILS

ASSEMBLED BY : HARISH SHAH DATE : 09-09
CHECKED BY : O.T. NGUYEN DATE : 05-04-10
DRAWN BY : TLA 5/05
CHECKED BY : GM 6/05

ADDED 7/11/05R
REV. 5/1/06R TLA/GM

19-SEP-2011 09:38
O:\Structures\Final Plans\B-4694.sd.bx.dgn
rppatel

VERTICAL CONCRETE BARRIER DETAILS
FOR PLAN VIEW OF VERTICAL CONCRETE BARRIER RAIL, SEE "PLAN OF SPAN" SHEETS.

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

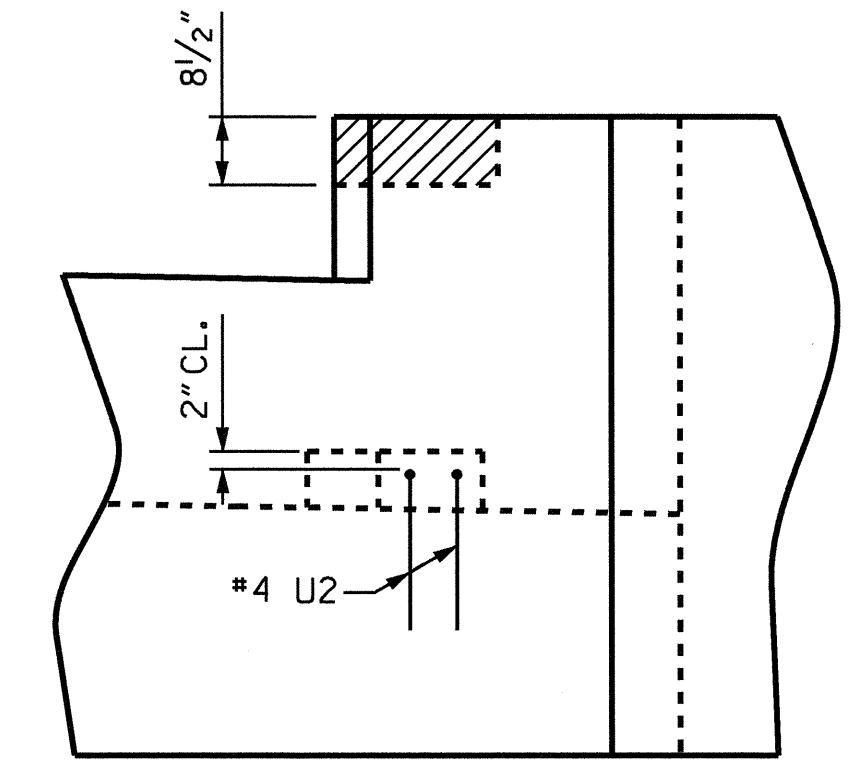
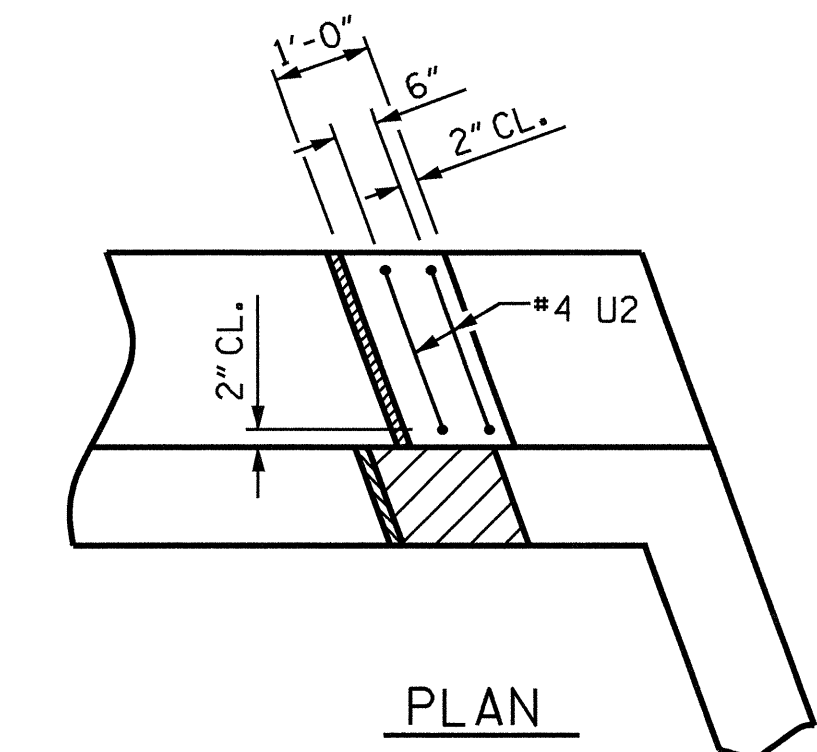
NOTES

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

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

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

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.

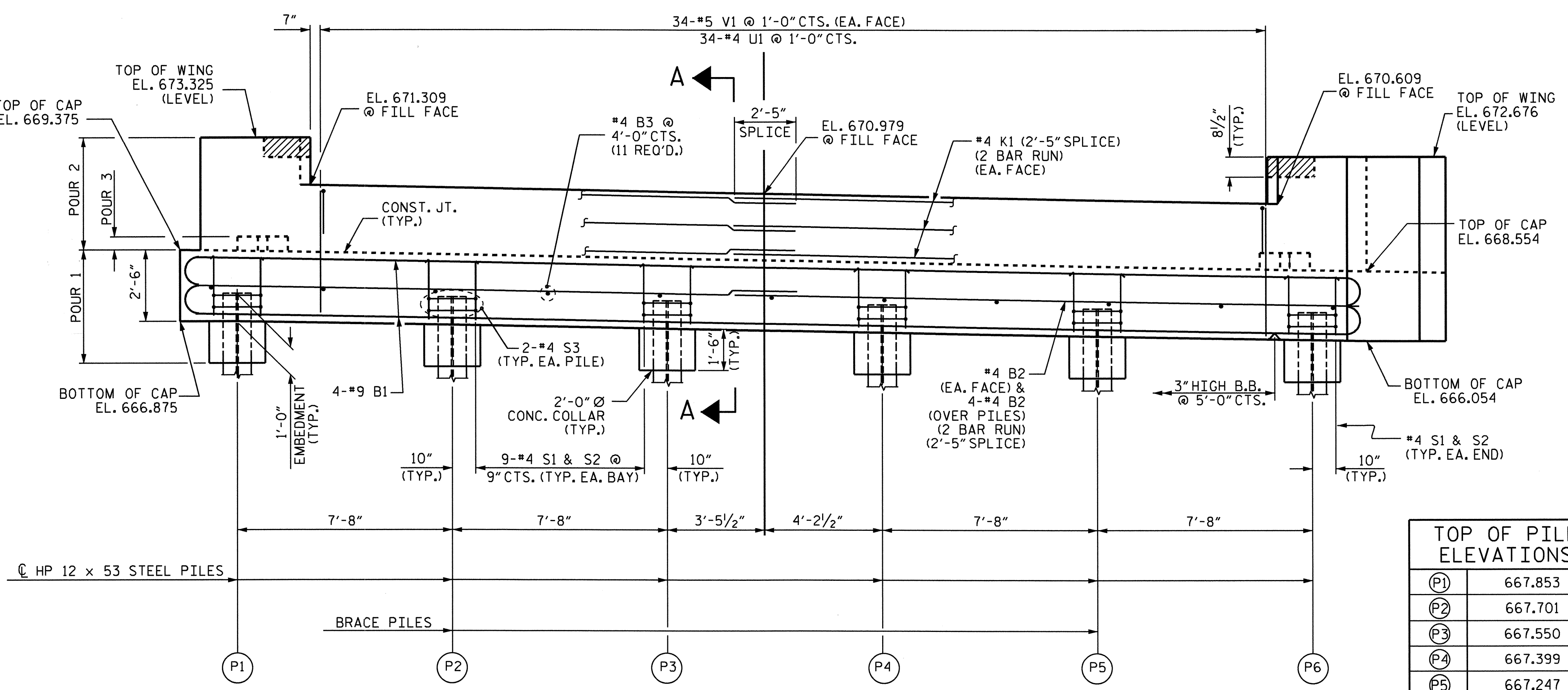
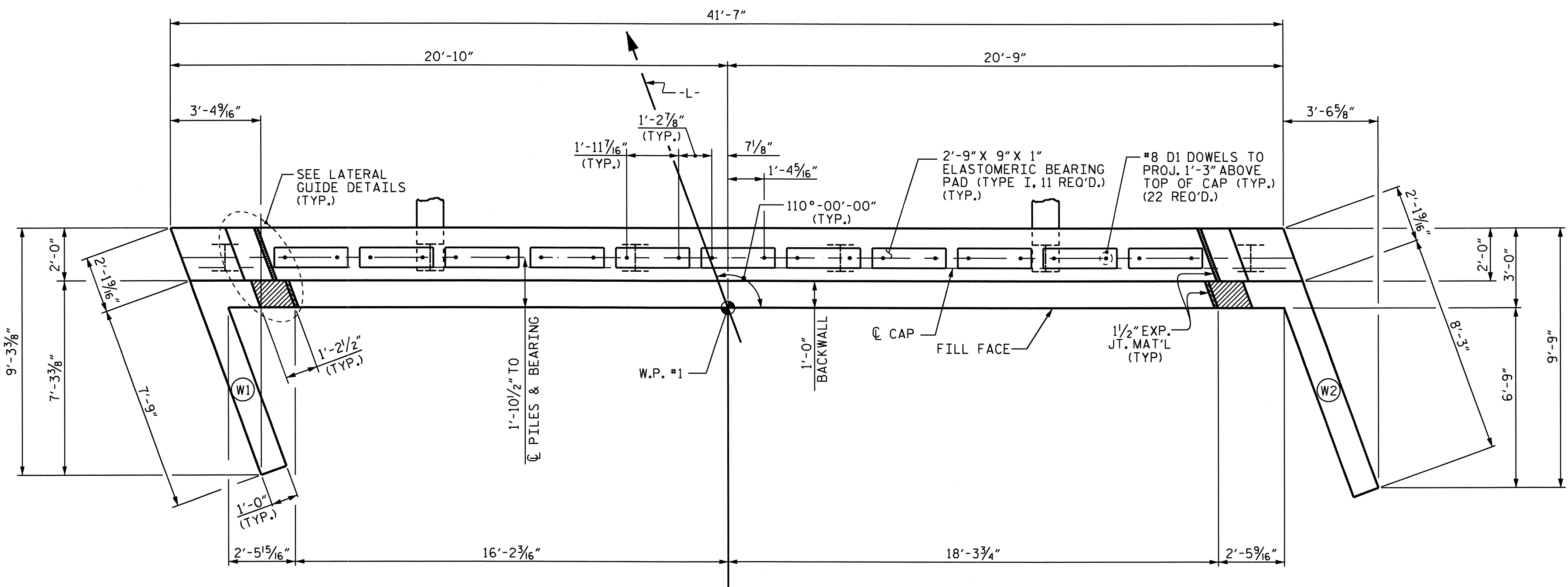
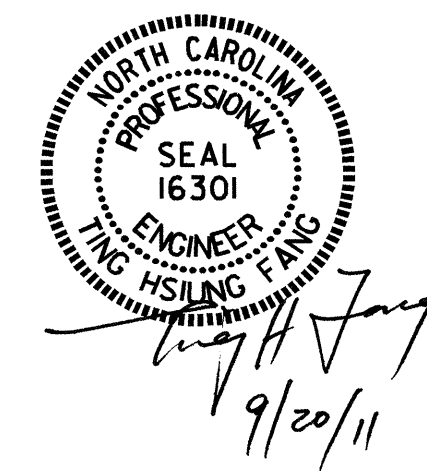


LATERAL GUIDE DETAILS
(EACH END SIMILAR)

PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

SHEET 1 OF 3

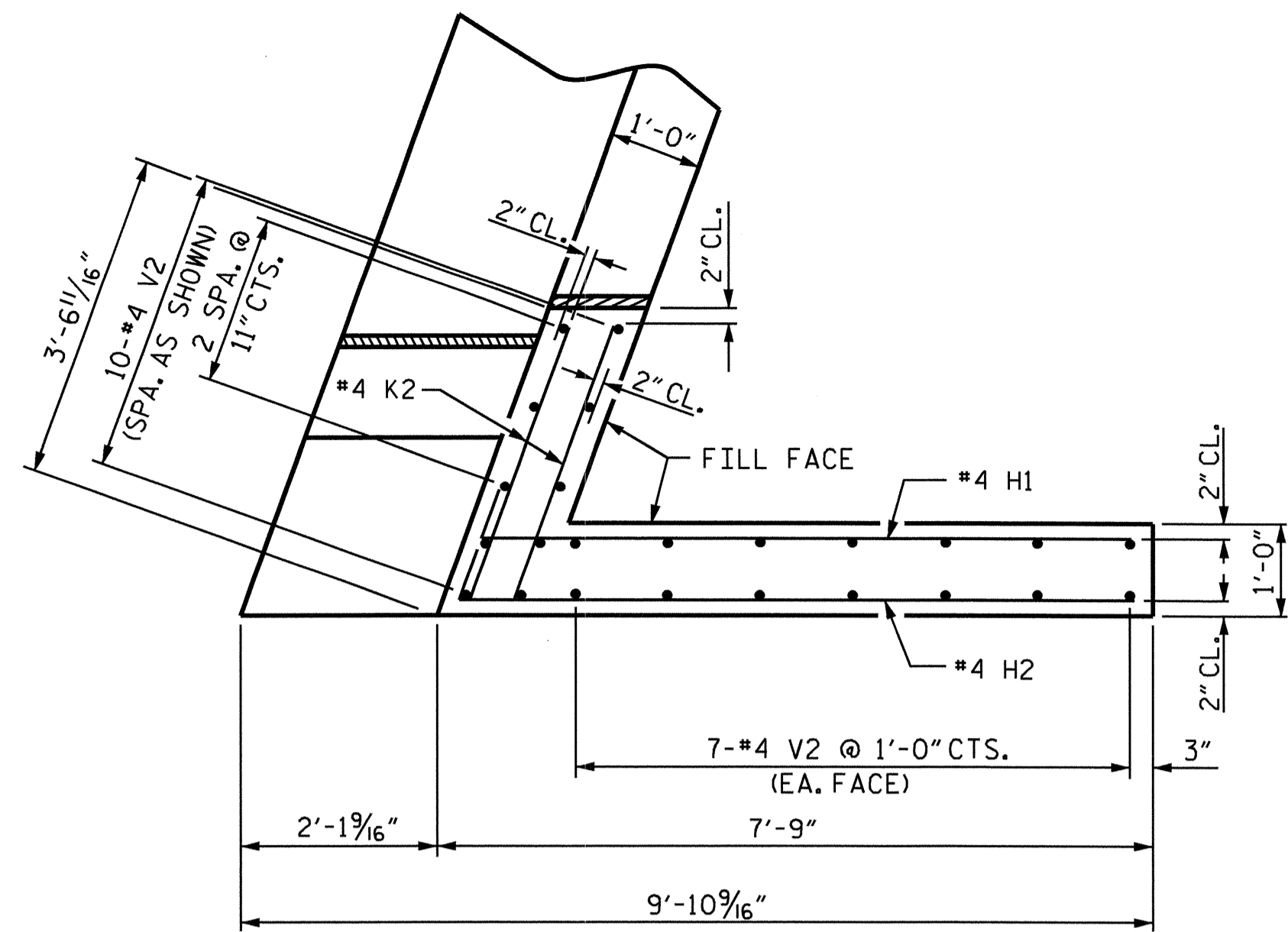
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 18



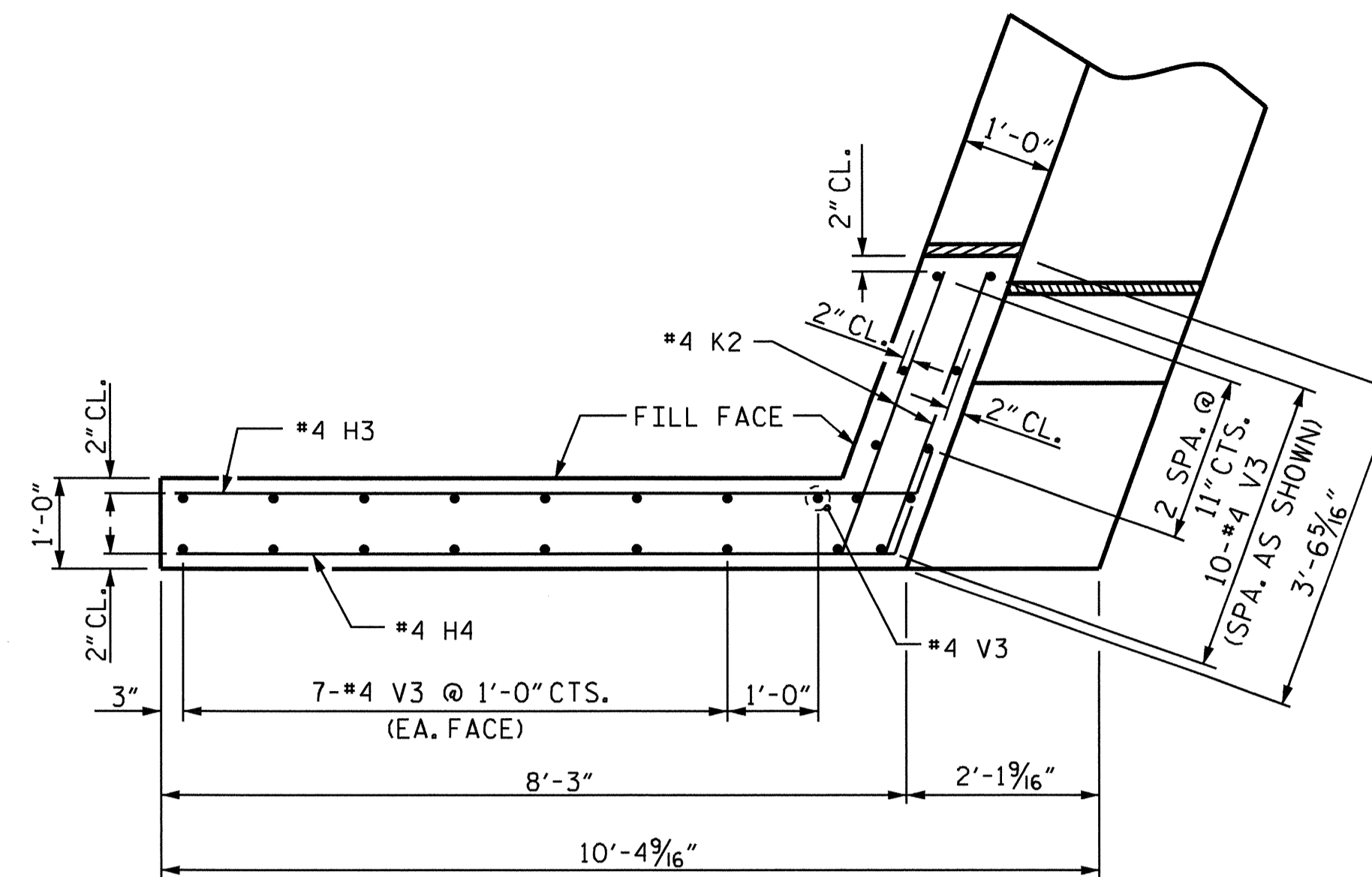
ELEVATION
LEFT WING NOT SHOWN FOR CLARITY

DRAWN BY: HARISH SHAH DATE: 09/09
 CHECKED BY: Q.T. NGUYEN DATE: 5-5-10

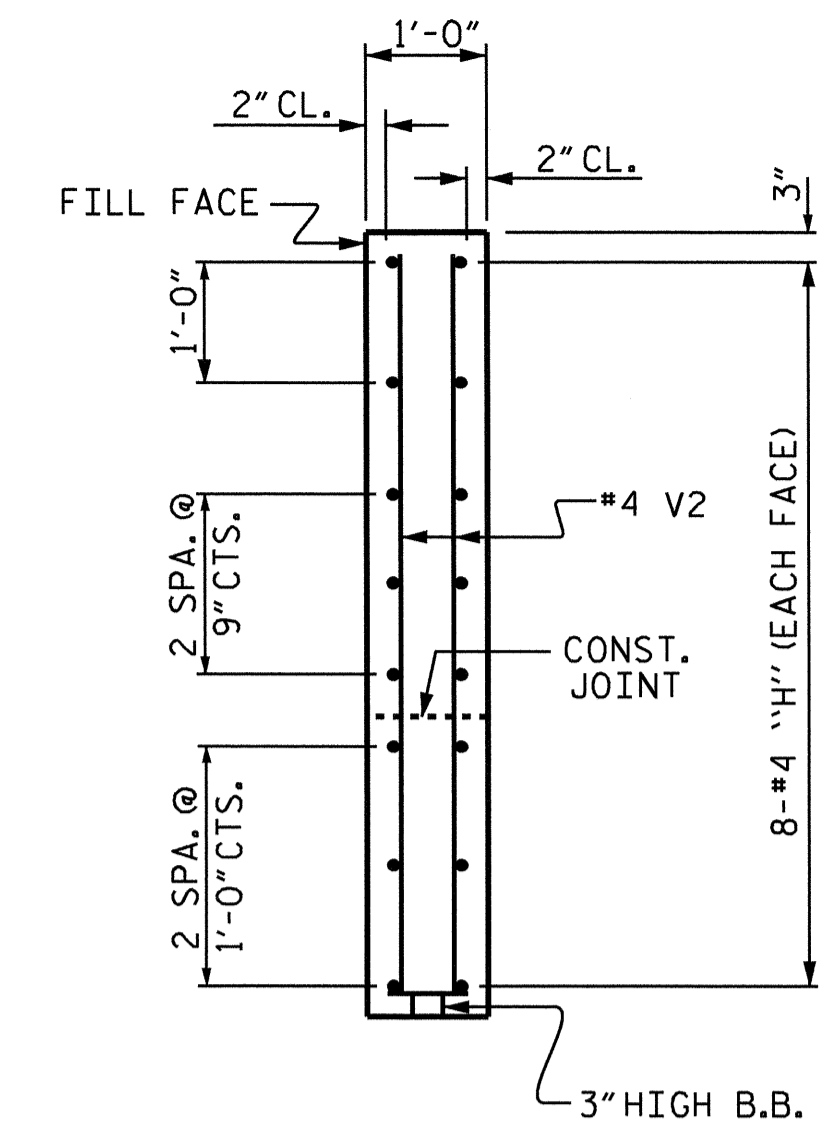
19-SEP-2011 09:38
 X:\TIP\Projects-B\B4694\Structures\Final Plans\b-4694.ed.tb.dgn
 rppatel



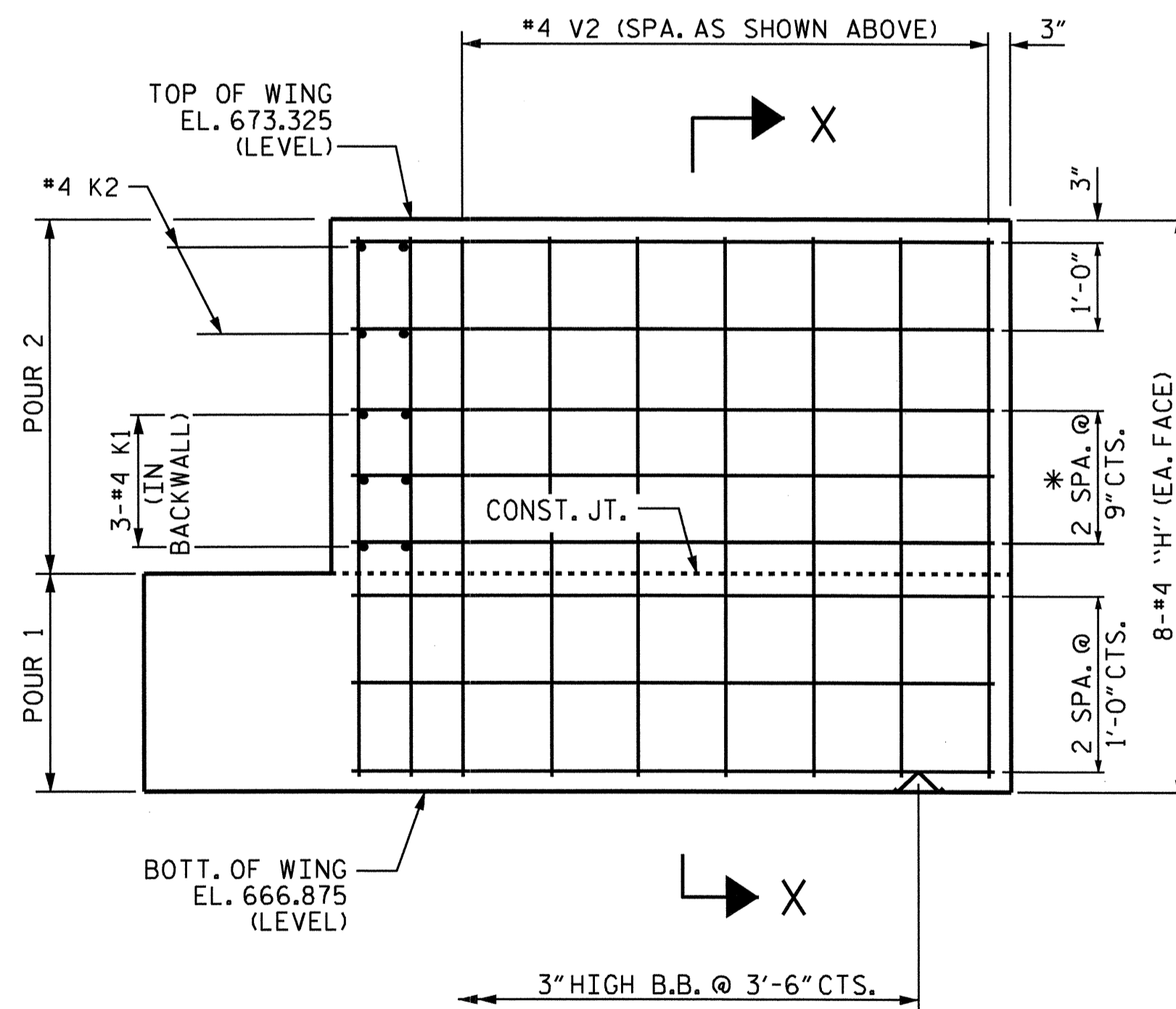
PLAN OF WING (W1)



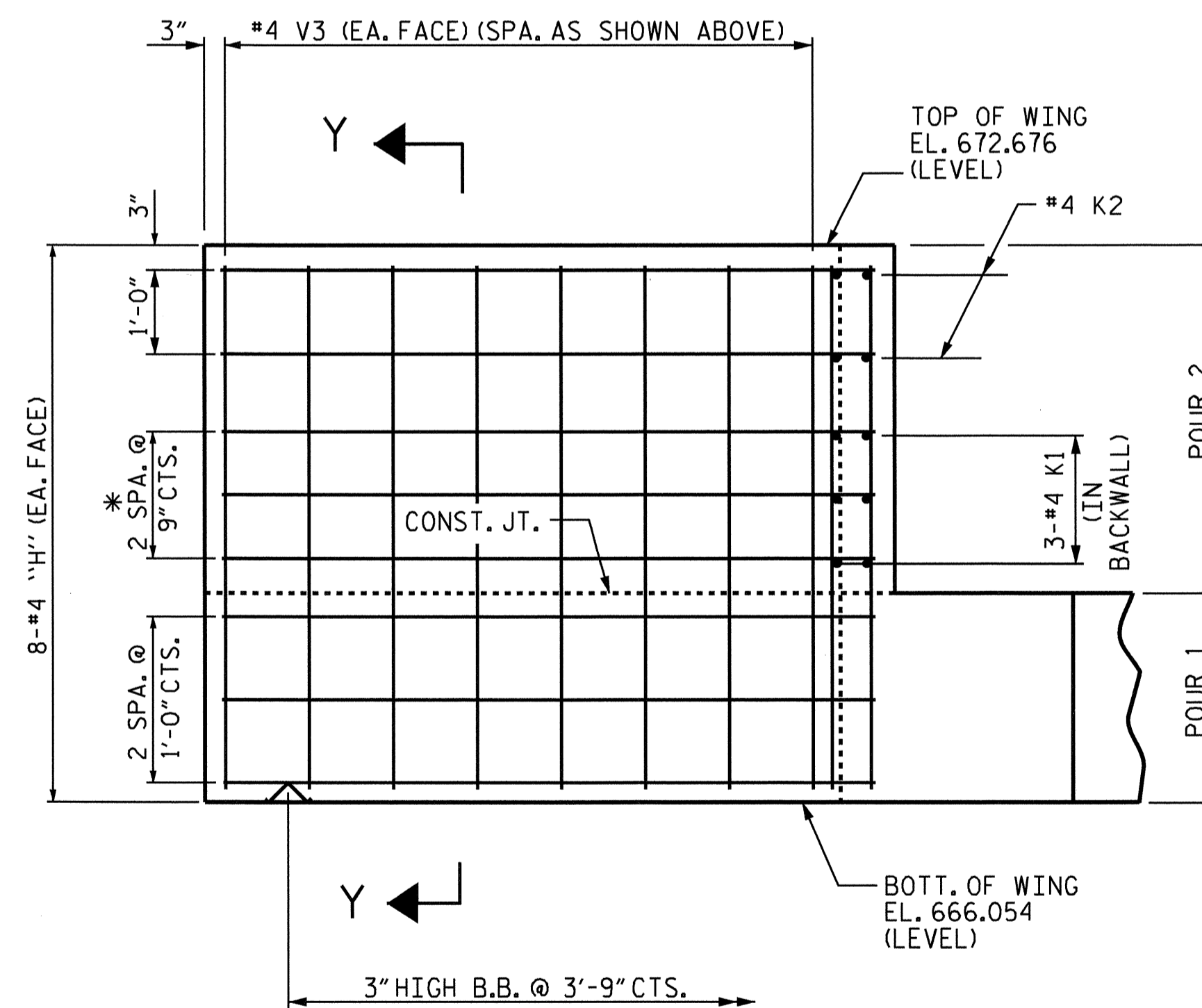
PLAN OF WING (W2)



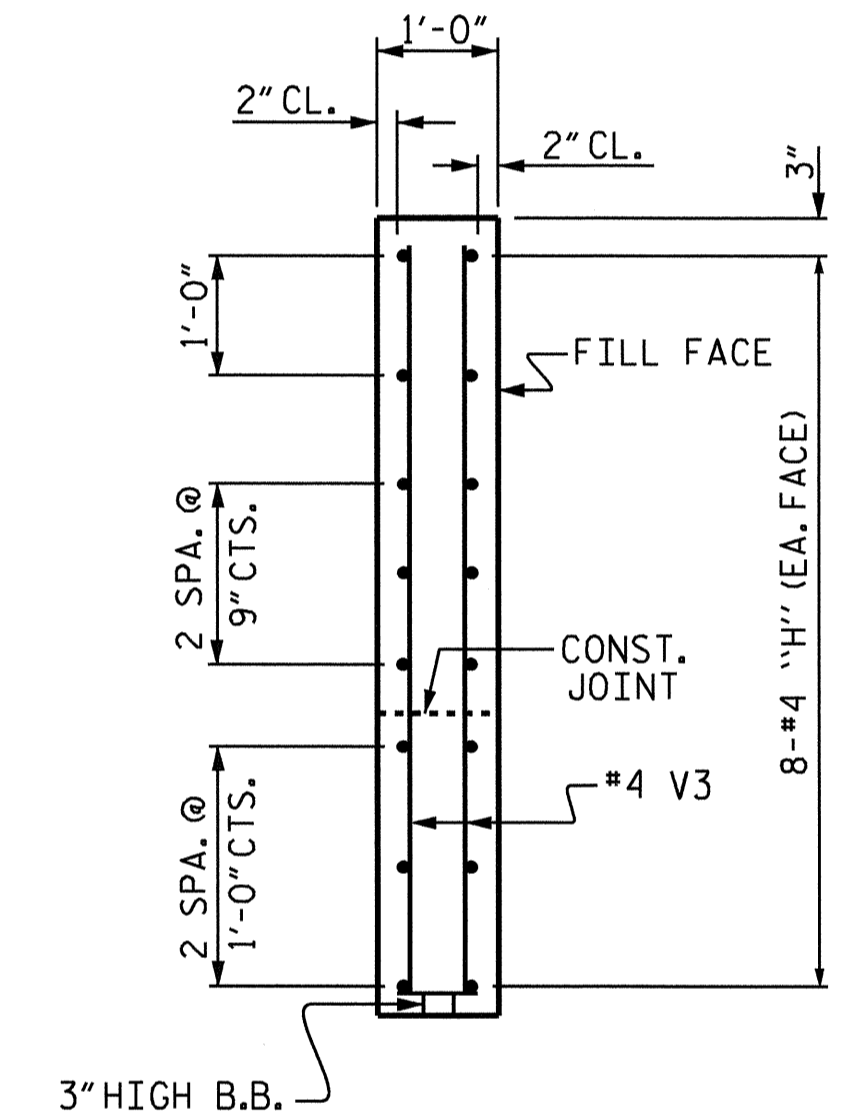
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

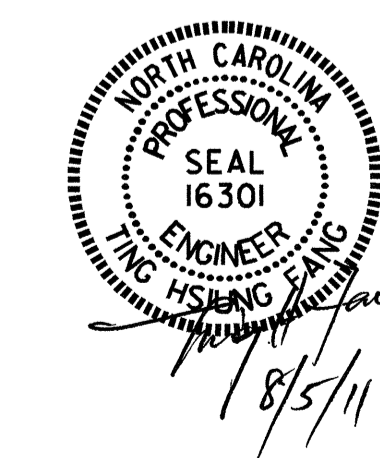


SECTION Y-Y

* MATCH WITH K1 BARS IN BACKWALL

DRAWN BY : HARISH SHAH DATE : 09/09
 CHECKED BY : O.T. NGUYEN DATE : 5-5-10

05-AUG-2011 10:42
 X:\TIPPO\Projects-B\B4694\Structures\Final Plans\b-4694.sd.eb*.dgn
 OTNGUYEN

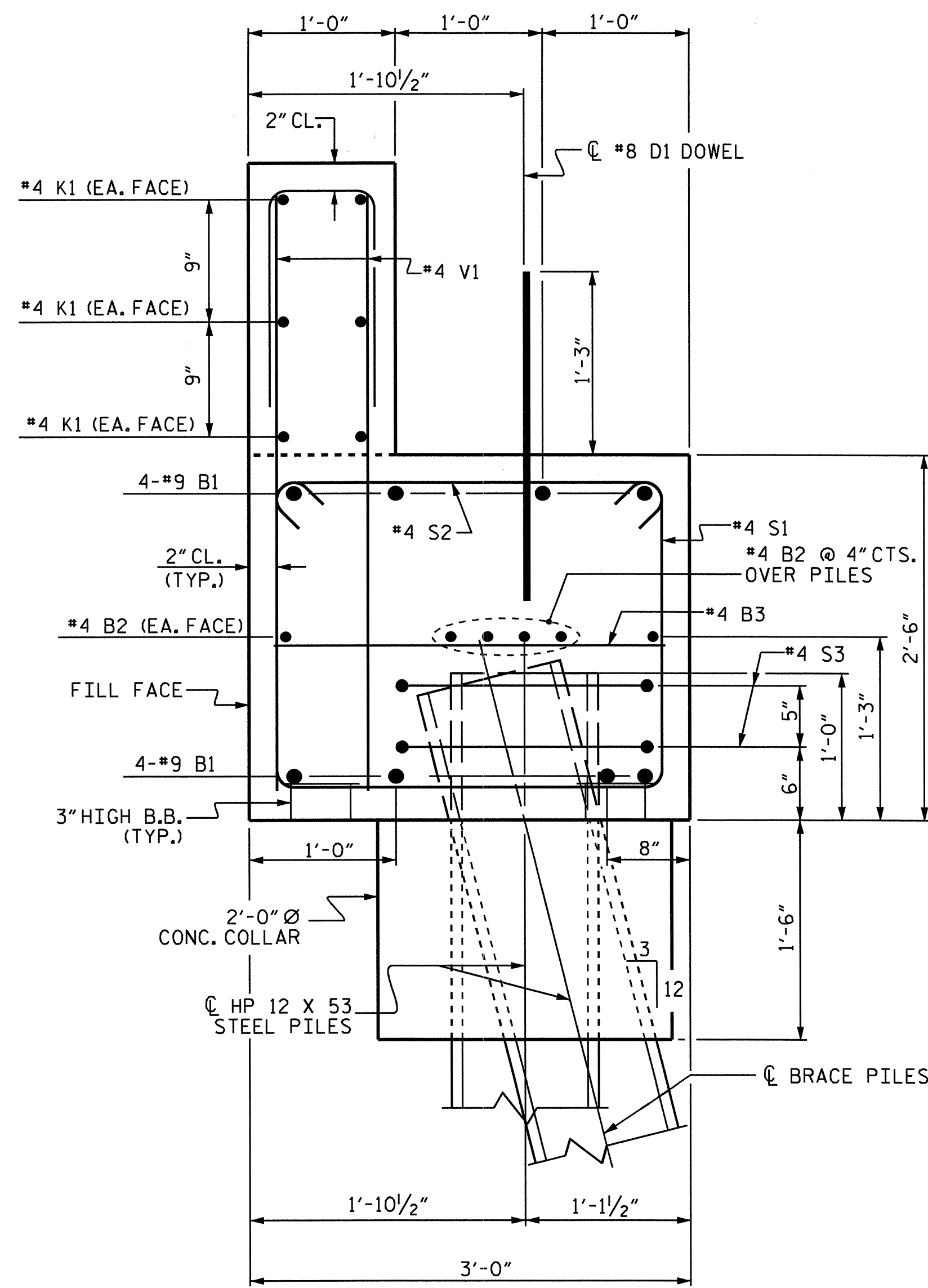


PROJECT NO. B-4694
 DAVIDSON COUNTY
 STATION: 22+46.50 -L-

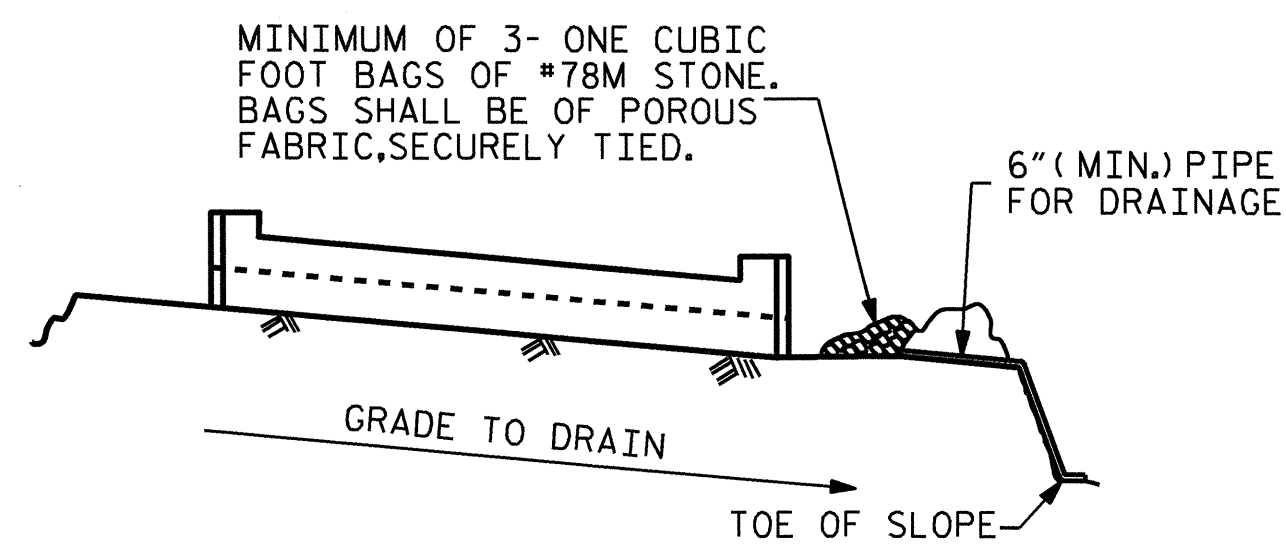
SHEET 2 OF 3

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

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



SECTION A-A



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

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

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

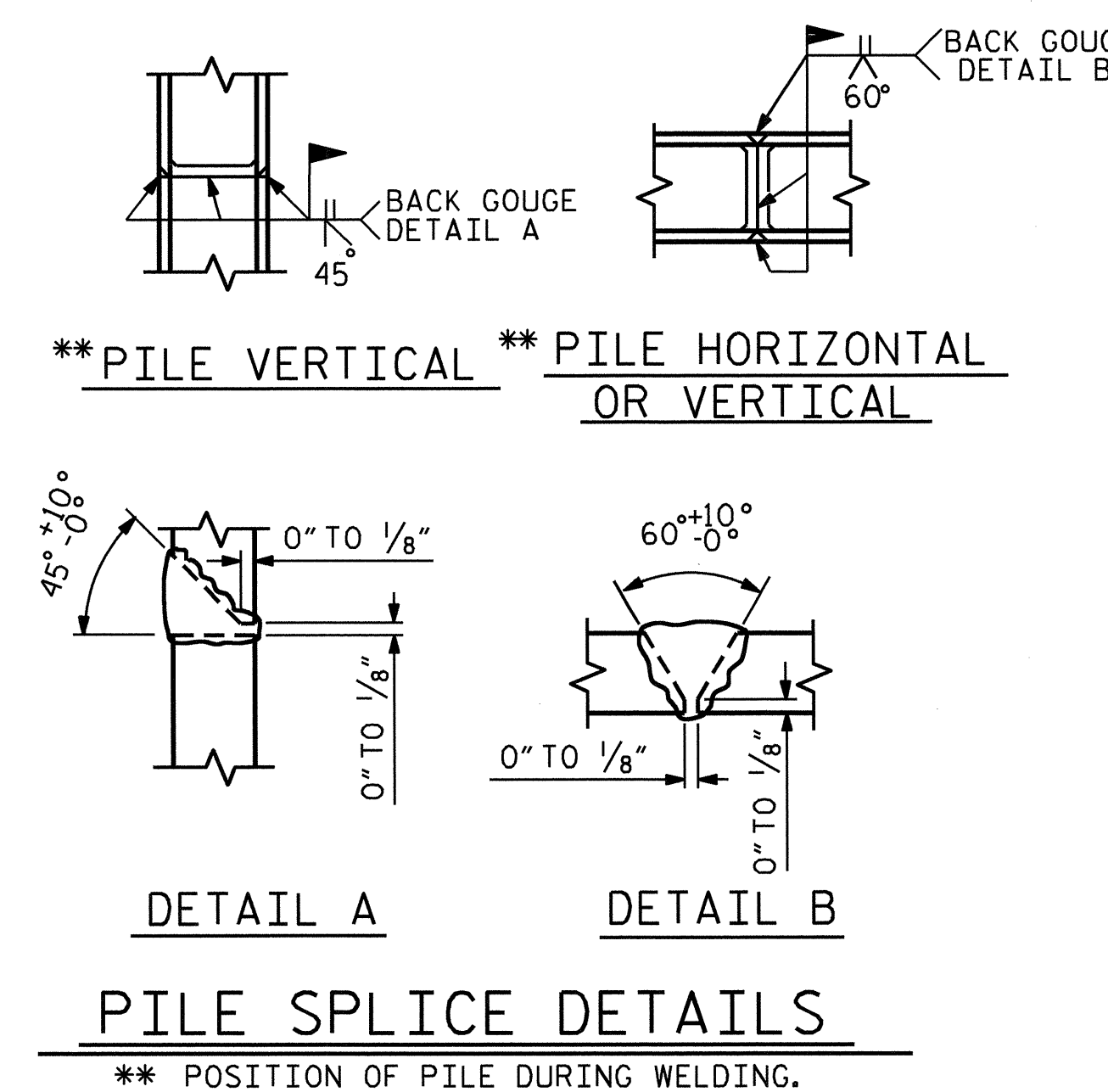
TEMPORARY DRAINAGE AT END BENT

DRAWN BY : HARISH SHAH DATE : 09-09
 CHECKED BY : Q.T. NGUYEN DATE : 5-5-10

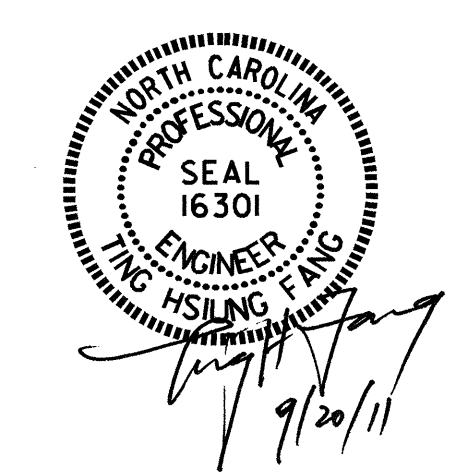
15-SEP-2011 15:48
 X:\TIP\Projects-B\B4694\Structures\Final Plans\b-4694_sd.eb*.dgn
 rppatel

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		43'-7"	1185
B2	12	#4	STR	21'-10"	175
B3	11	#4	STR	2'-8"	20
D1	22	#8	STR	2'-3"	132
H1	8	#4	3	7'-10"	42
H2	8	#4	3	8'-1"	43
H3	8	#4	2	8'-10"	47
H4	8	#4	2	8'-7"	46
K1	12	#4	STR	21'-10"	175
K2	8	#4	STR	2'-11"	16
S1	47	#4	4	7'-8"	241
S2	47	#4	5	3'-5"	107
S3	12	#4	6	6'-6"	52
U1	34	#4	7	3'-8"	83
U2	4	#4	7	4'-8"	12
V1	68	#4	STR	4'-2"	189
V2	24	#4	STR	6'-1"	98
V3	25	#4	STR	6'-3"	104
REINFORCING STEEL					2767 LBS
CLASS A CONC. BREAKDOWN					
POUR 1 (CONC. COLLARS, CAP & LOWER WINGS)					13.9 C.Y.
POUR 2 (UPPER WINGS & BACKWALL)					6.1 C.Y.
POUR 3 (LATERAL GUIDES)					0.1 C.Y.
TOTAL					20.1 C.Y.
HP 12 X 53 STEEL PILES No. 6					LIN. FT. 180

ALL BAR DIMENSIONS ARE OUT TO OUT.



PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-
 SHEET 3 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-12
					TOTAL SHEETS 18

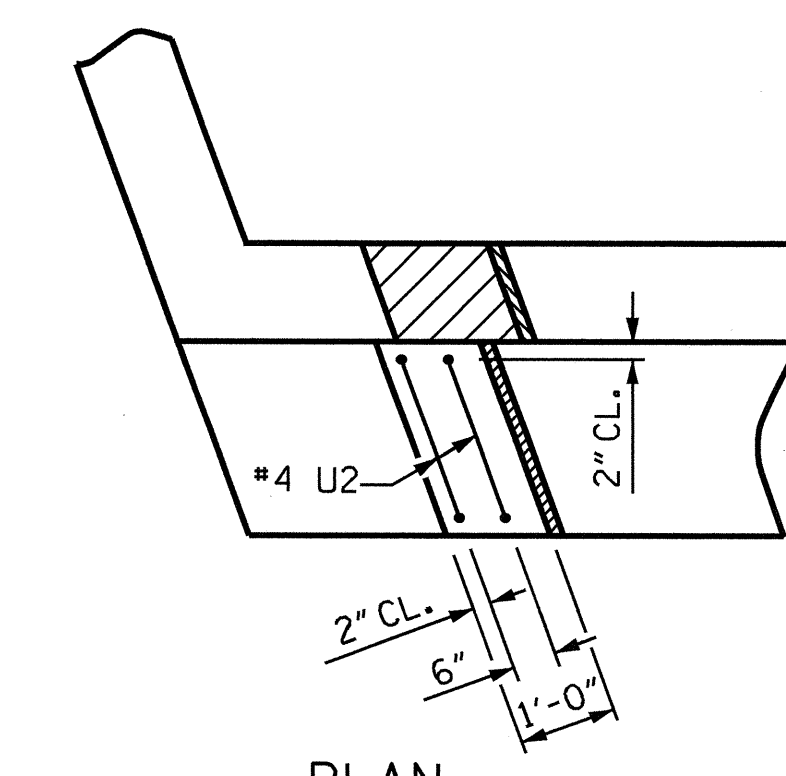
NOTES

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

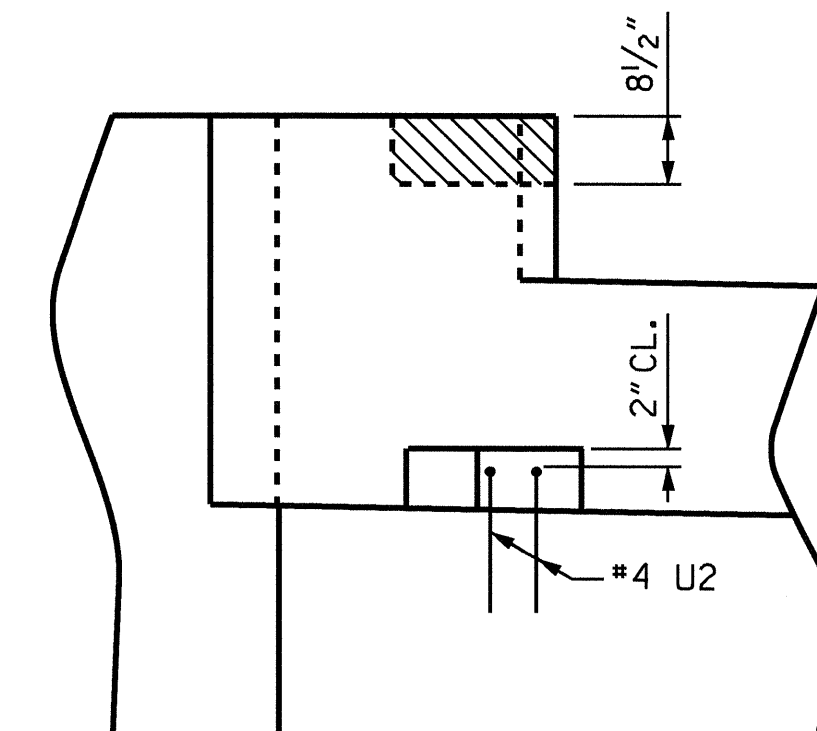
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER PRESTRESSED BOX BEAMS ARE IN PLACE.

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

THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.



PLAN



ELEVATION

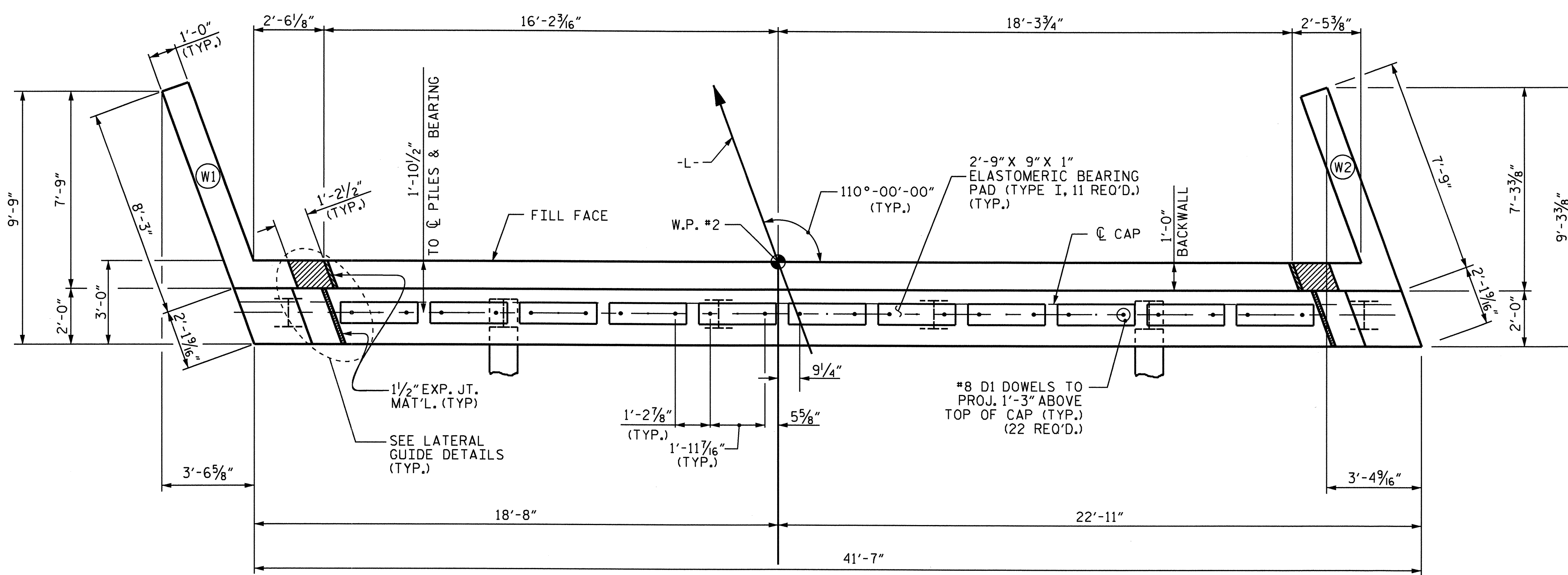
LATERAL GUIDE DETAILS

(EACH END SIMILAR)

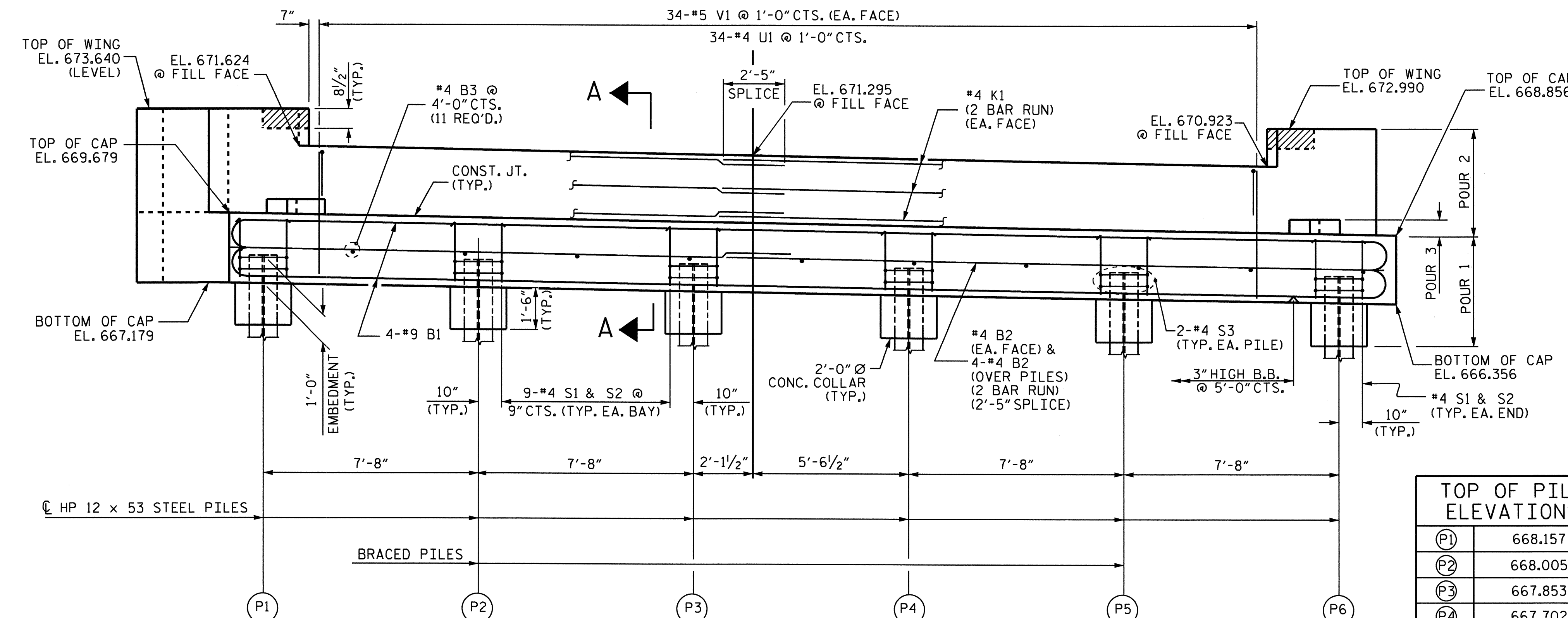
PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

SHEET 1 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		
					SHEET NO.
					S-13
					TOTAL SHEETS
					18



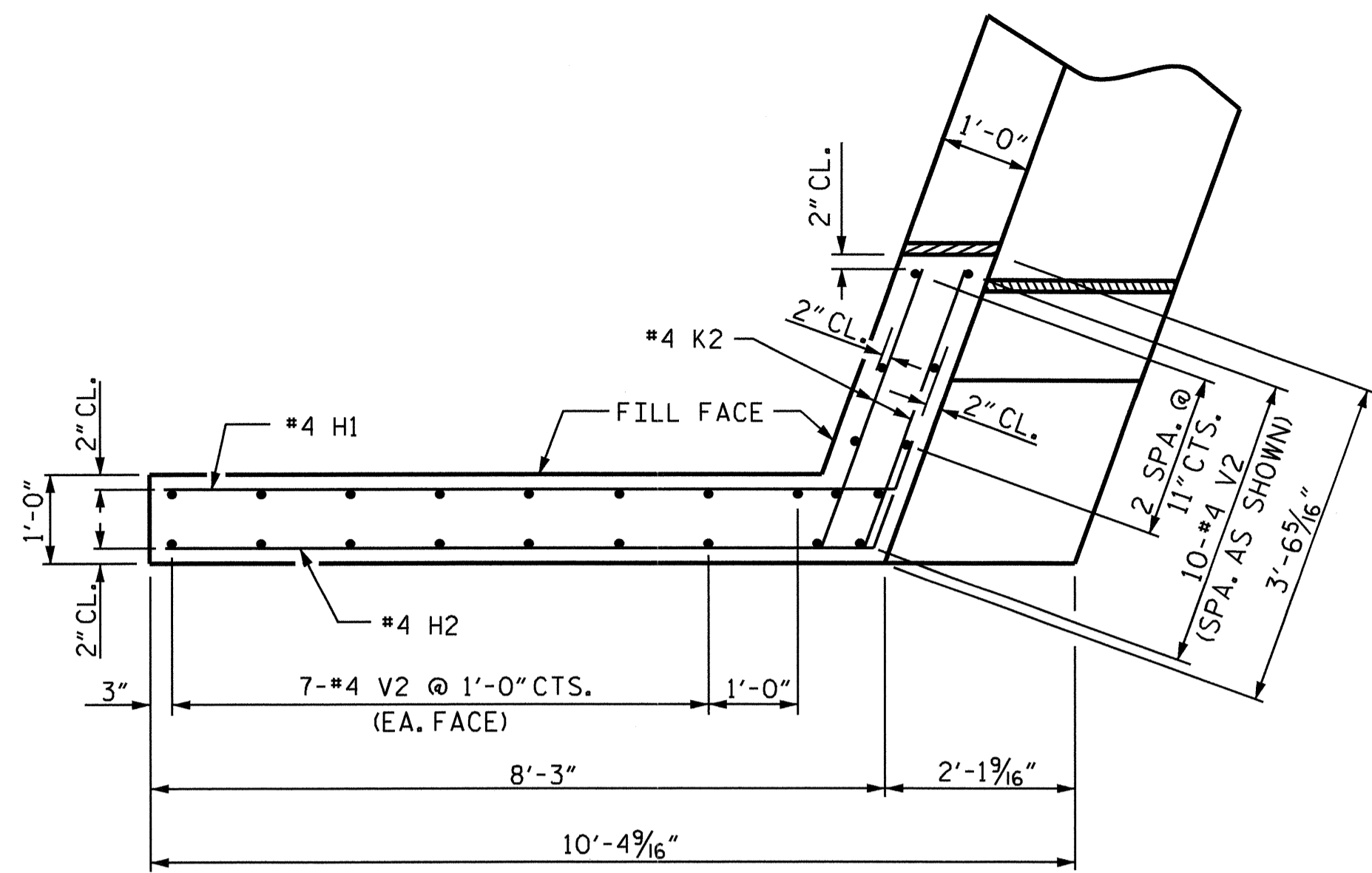
PLAN



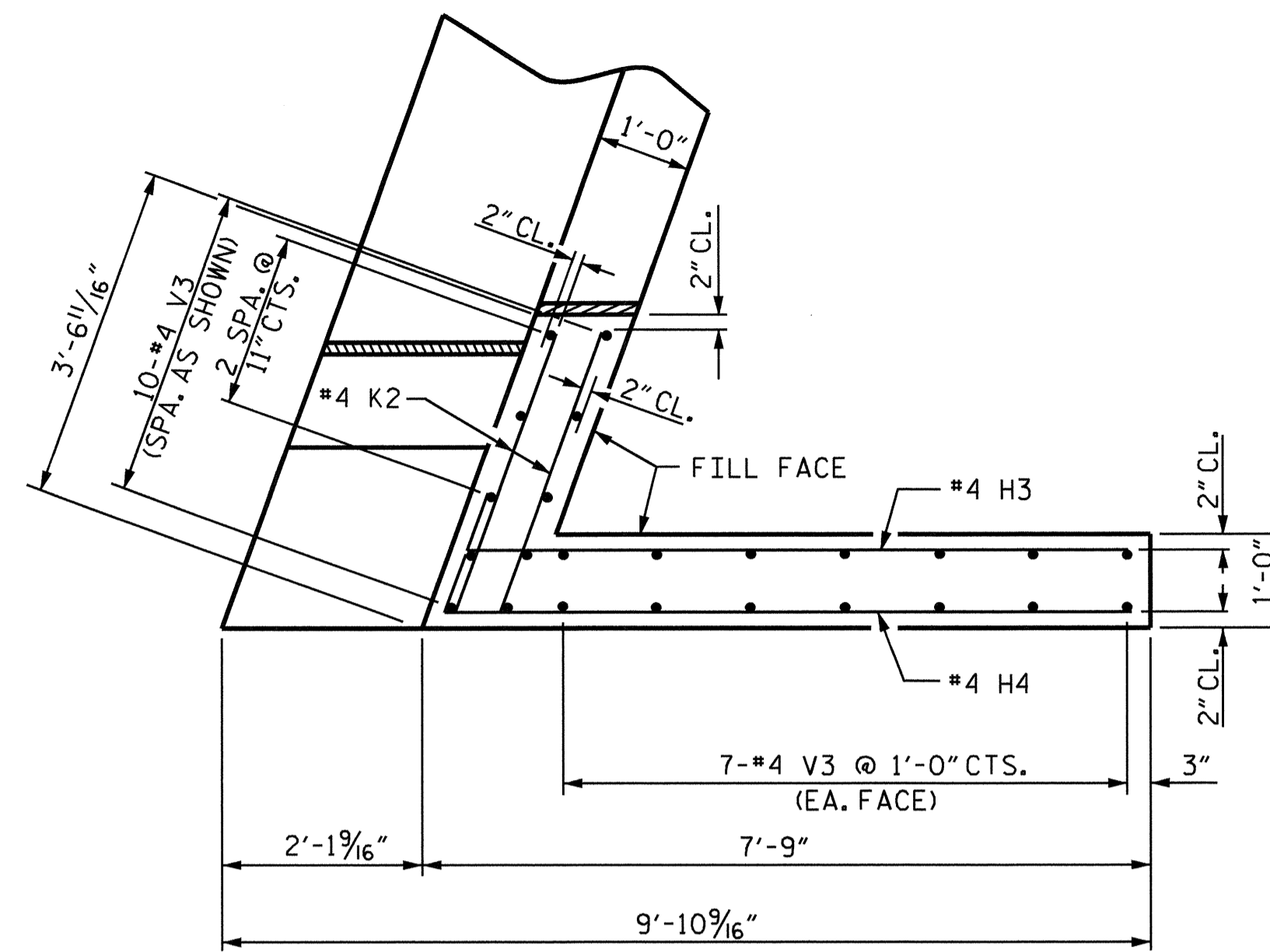
ELEVATION

TOP OF PILE ELEVATIONS	
P1	668.157
P2	668.005
P3	667.853
P4	667.702
P5	667.550
P6	667.398

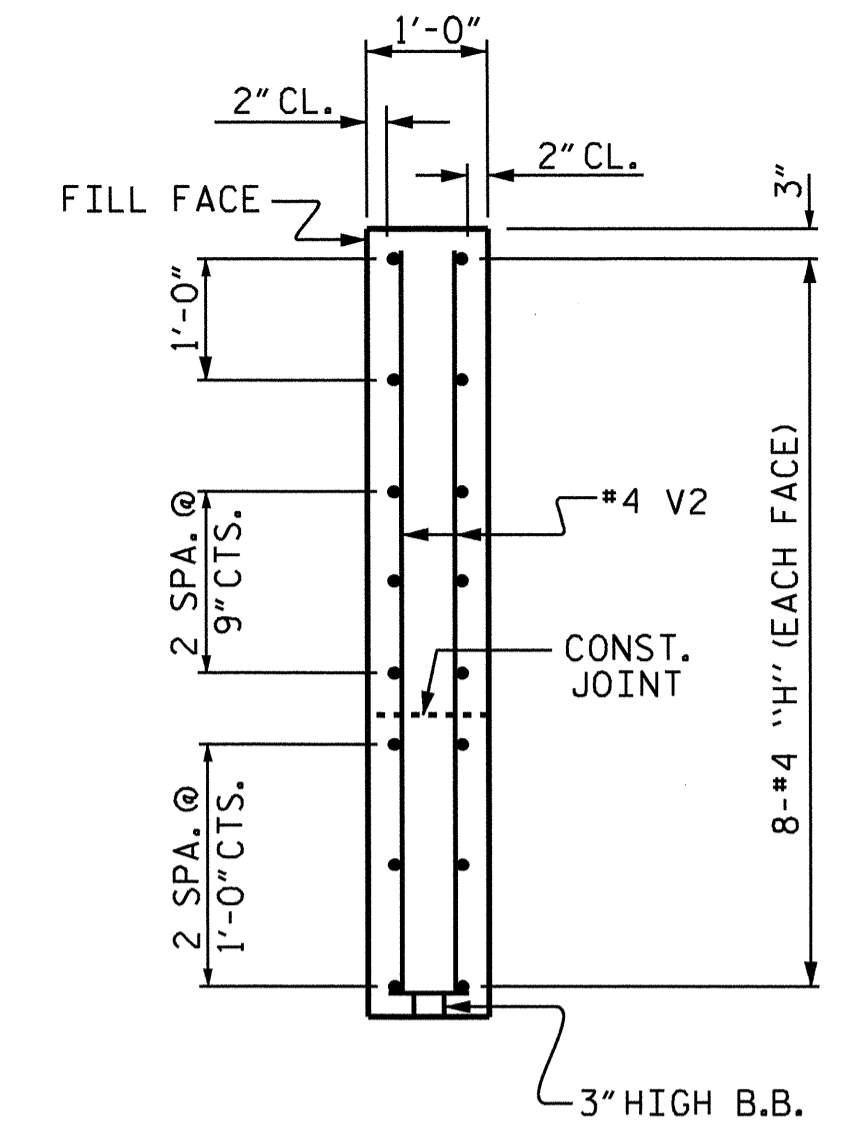
DRAWN BY : HARISH SHAH DATE : 09/09
 CHECKED BY : Q.T. NGUYEN DATE : 5-5-10



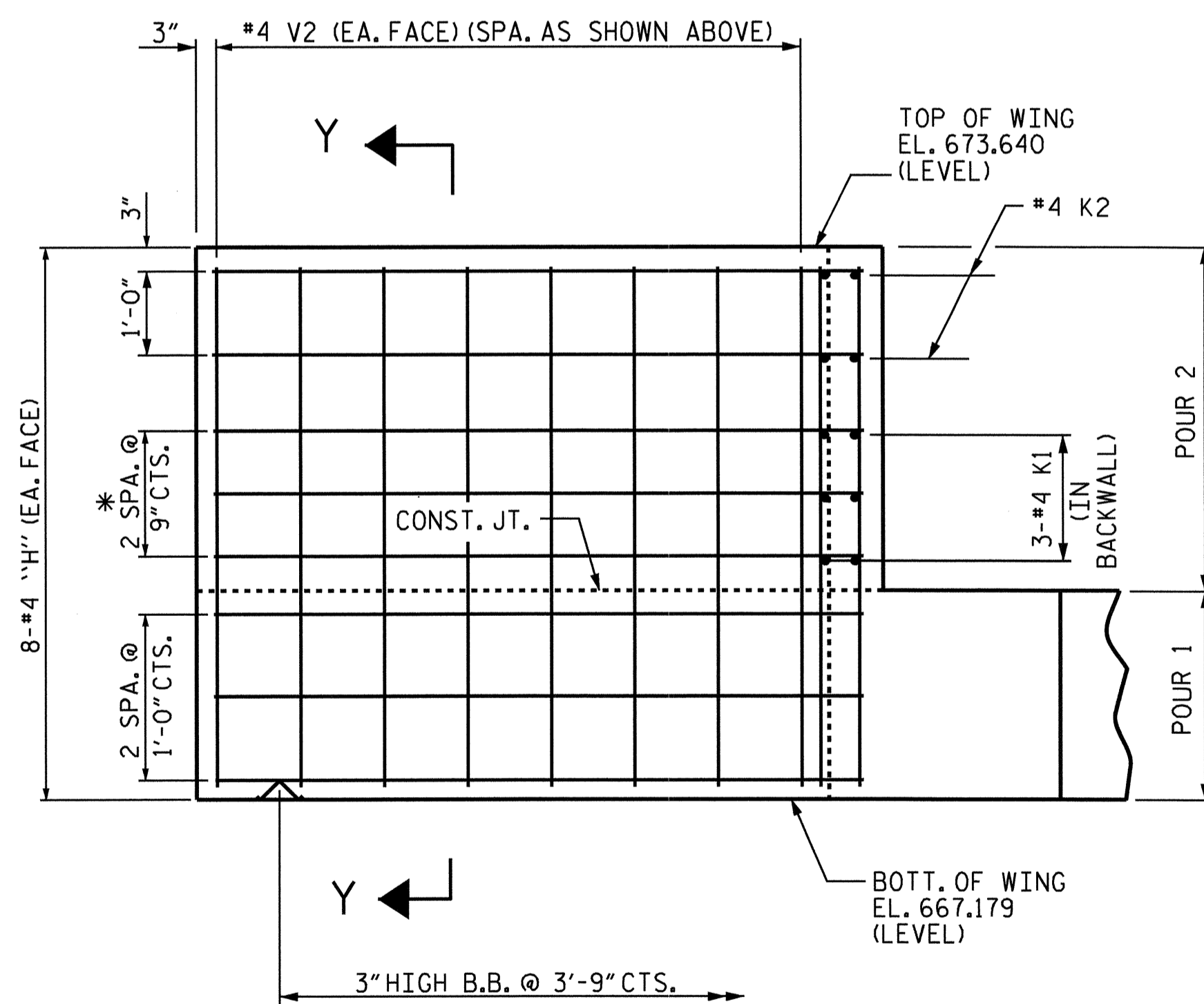
PLAN OF WING (W1)



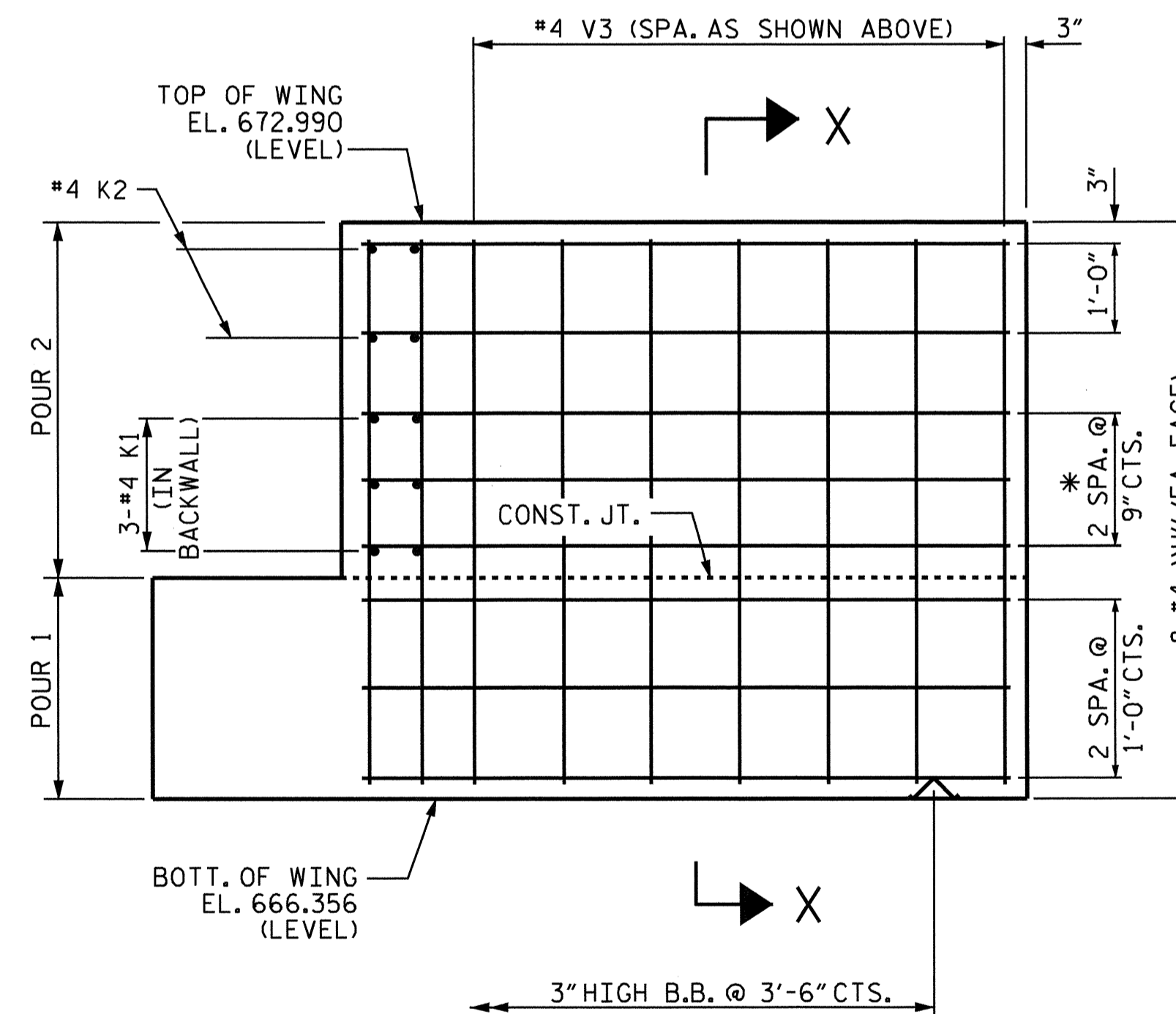
PLAN OF WING (W2)



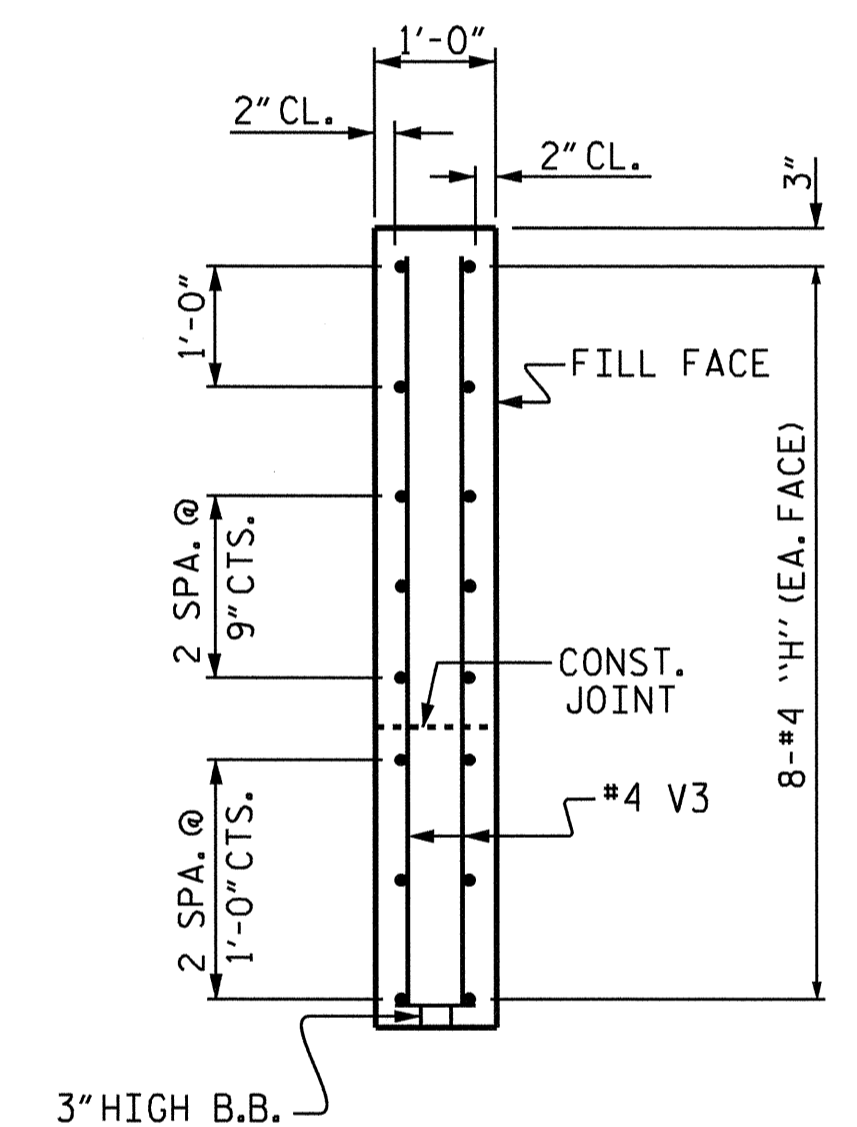
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

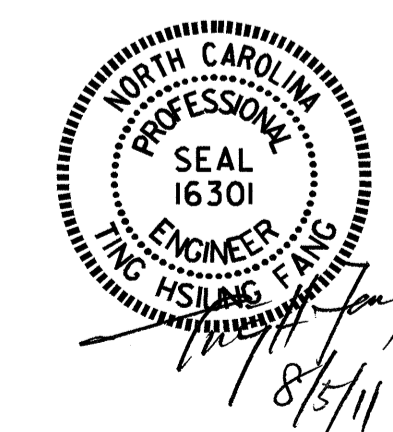


SECTION Y-Y

* MATCH WITH K1 BARS IN BACKWALL

PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

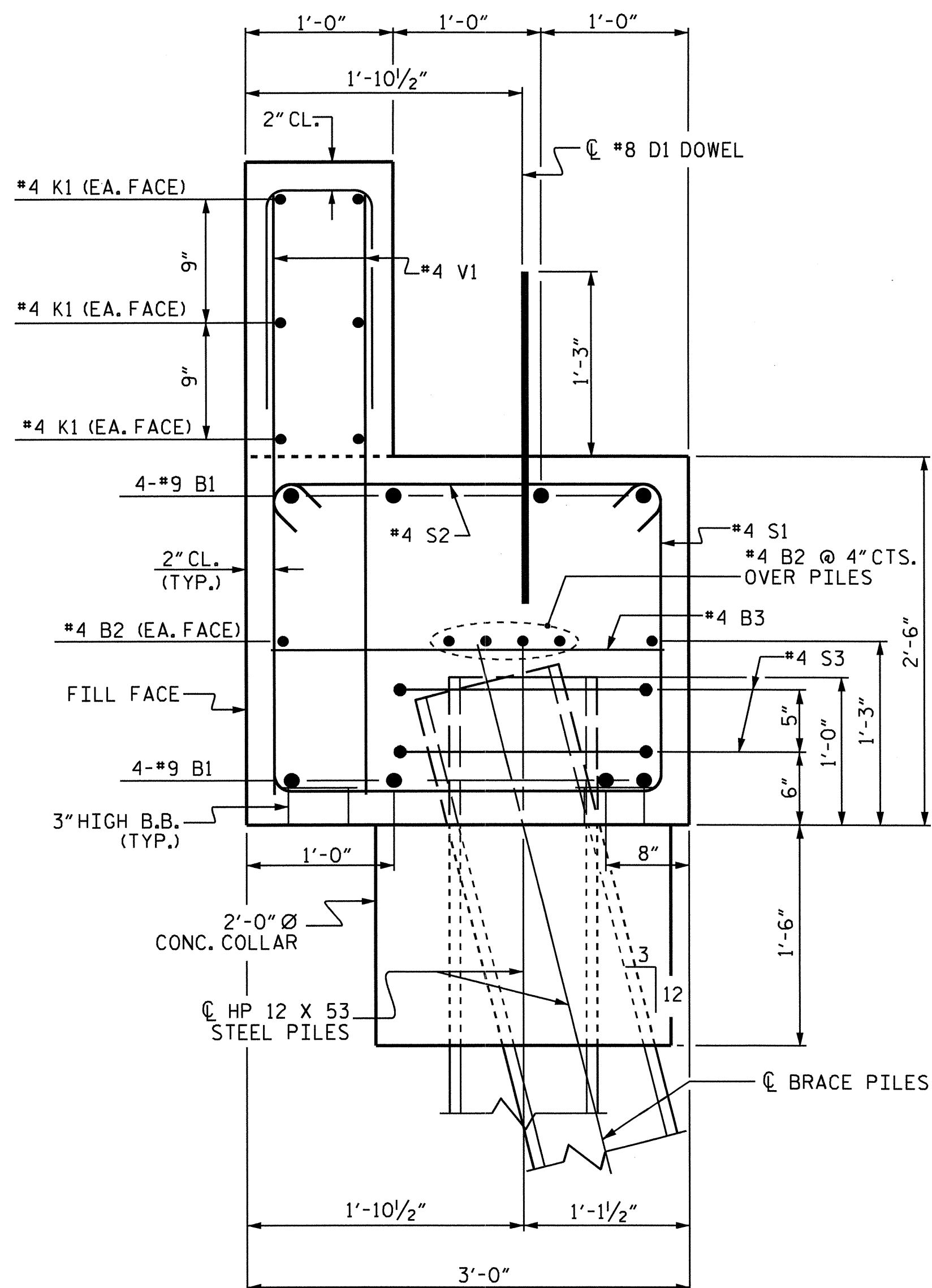
SHEET 2 OF 3



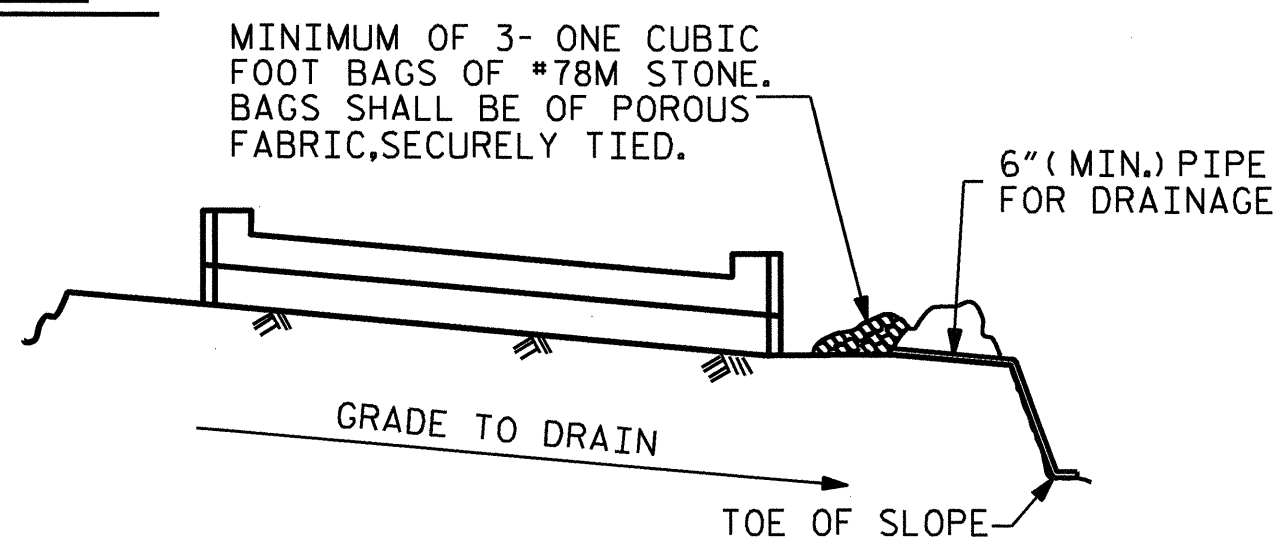
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-14					TOTAL SHEETS 18

DRAWN BY : HARISH SHAH DATE : 09/09
 CHECKED BY : Q.T. NGUYEN DATE : 5-5-10

05-AUG-2011 10:42
 X:\TIP\Projects-B\B4694\Structures\Final Plans\B-4694.sd,eb*.dgn
 QINGUYEN



SECTION A-A



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

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

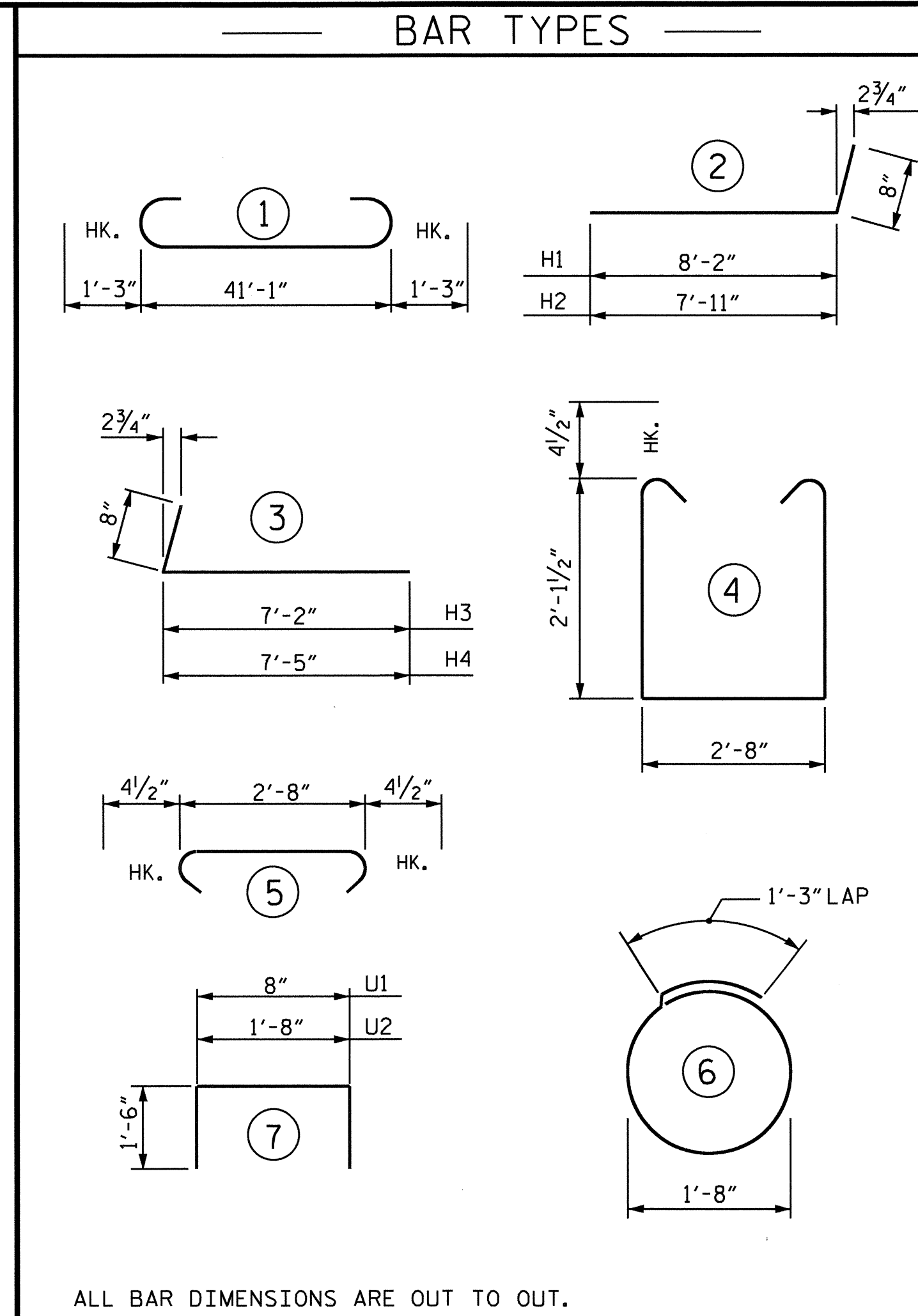
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT

DRAWN BY : HARISH SHAH DATE : 09-09
 CHECKED BY : O.T. NGUYEN DATE : 5-5-10

15-SEP-2011 15:48
 X:\TIP\Projects-B\B4694\Structures\Final Plans\b-4694.sd.eb.dgn
 rppatel



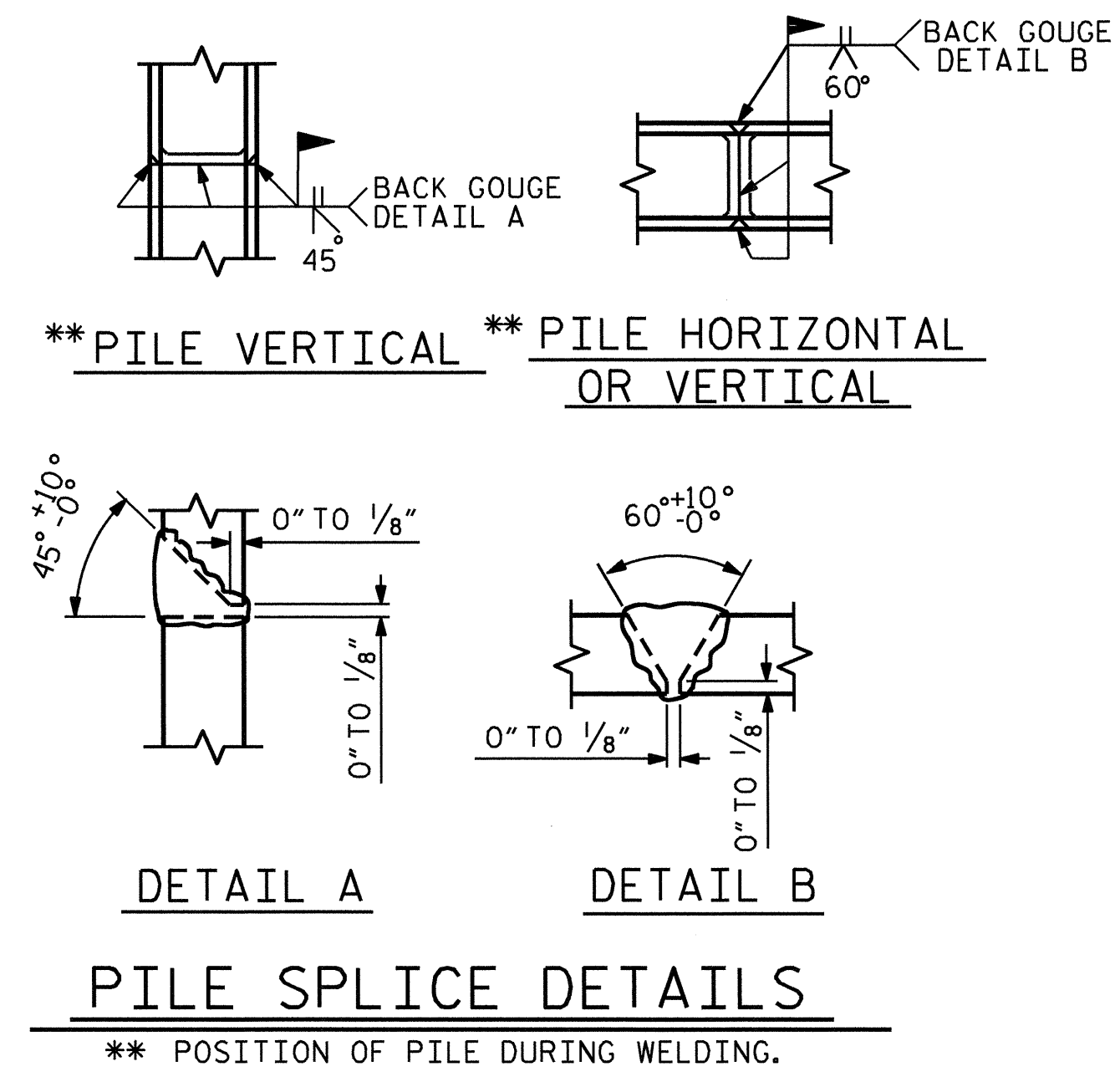
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-7"	1185
B2	12	#4	STR	21'-10"	175
B3	11	#4	STR	2'-8"	20
D1	22	#8	STR	2'-3"	132
H1	8	#4	2	8'-10"	47
H2	8	#4	2	8'-7"	46
H3	8	#4	3	7'-10"	42
H4	8	#4	3	8'-1"	43
K1	12	#4	STR	21'-10"	175
K2	8	#4	STR	2'-11"	16
S1	47	#4	4	7'-8"	241
S2	47	#4	5	3'-5"	107
S3	12	#4	6	6'-6"	52
U1	34	#4	7	3'-8"	83
U2	4	#4	7	4'-8"	12
V1	68	#4	STR	4'-2"	189
V2	25	#4	STR	6'-1"	102
V3	24	#4	STR	6'-3"	100

REINFORCING STEEL	2767	LBS
CLASS A CONC. BREAKDOWN		
POUR 1 (CONC. COLLARS, CAP & LOWER WINGS)	13.9	C.Y.
POUR 2 (UPPER WINGS & BACKWALL)	6.1	C.Y.
POUR 3 (LATERAL GUIDES)	0.1	C.Y.
TOTAL	20.1	C.Y.
HP 12 X 53 STEEL PILES No. 6	LIN. FT.	180



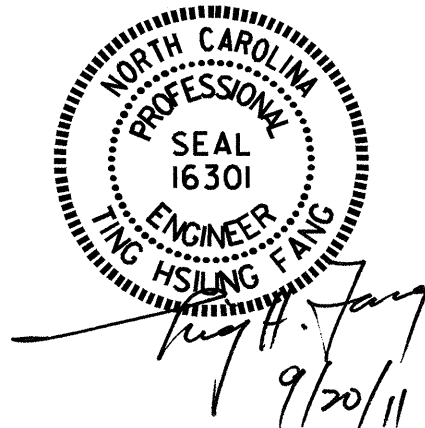
DETAIL A DETAIL B

PILE SPLICE DETAILS

** POSITION OF PILE DURING WELDING.

PROJECT NO. B-4694
 DAVIDSON COUNTY
 STATION: 22+46.50 -L-

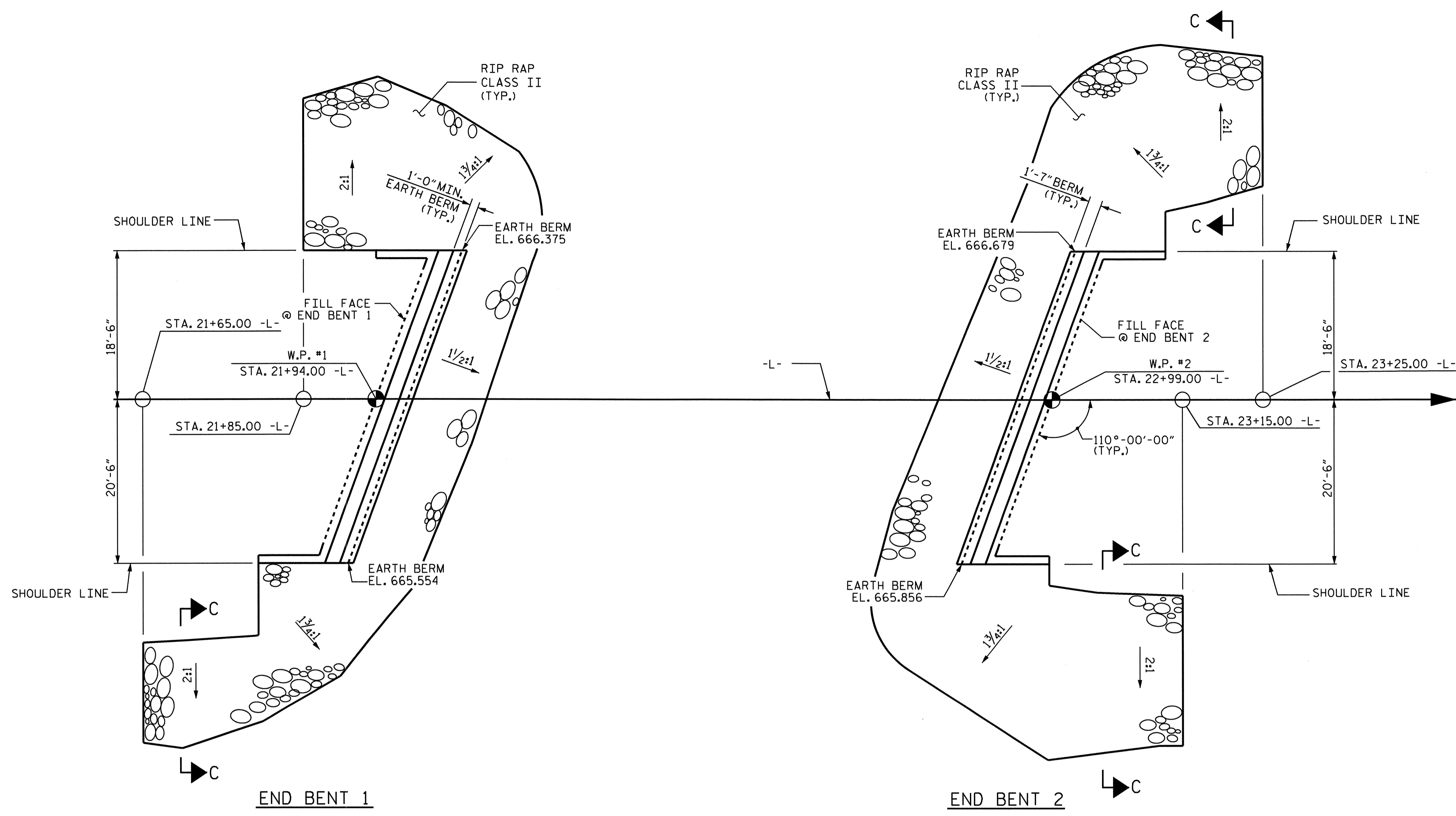
SHEET 3 OF 3



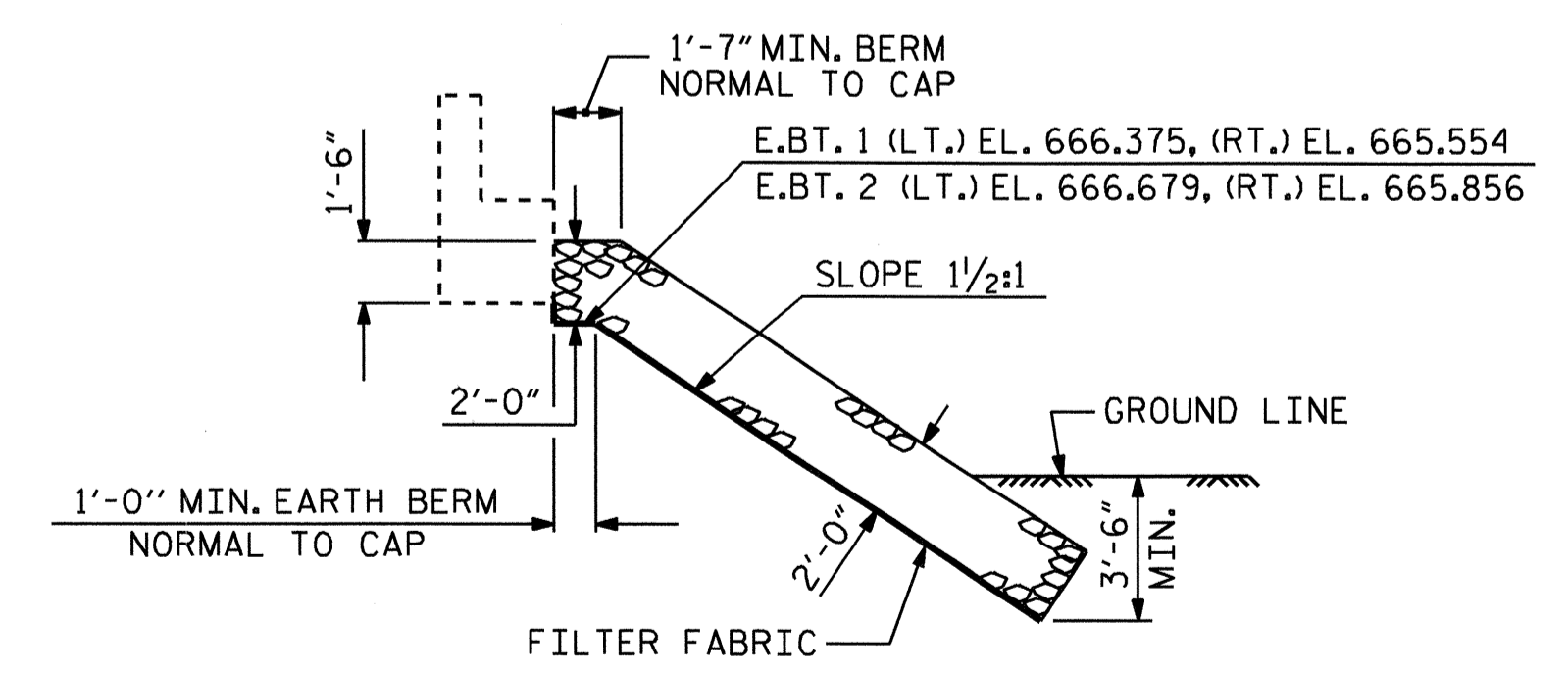
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

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

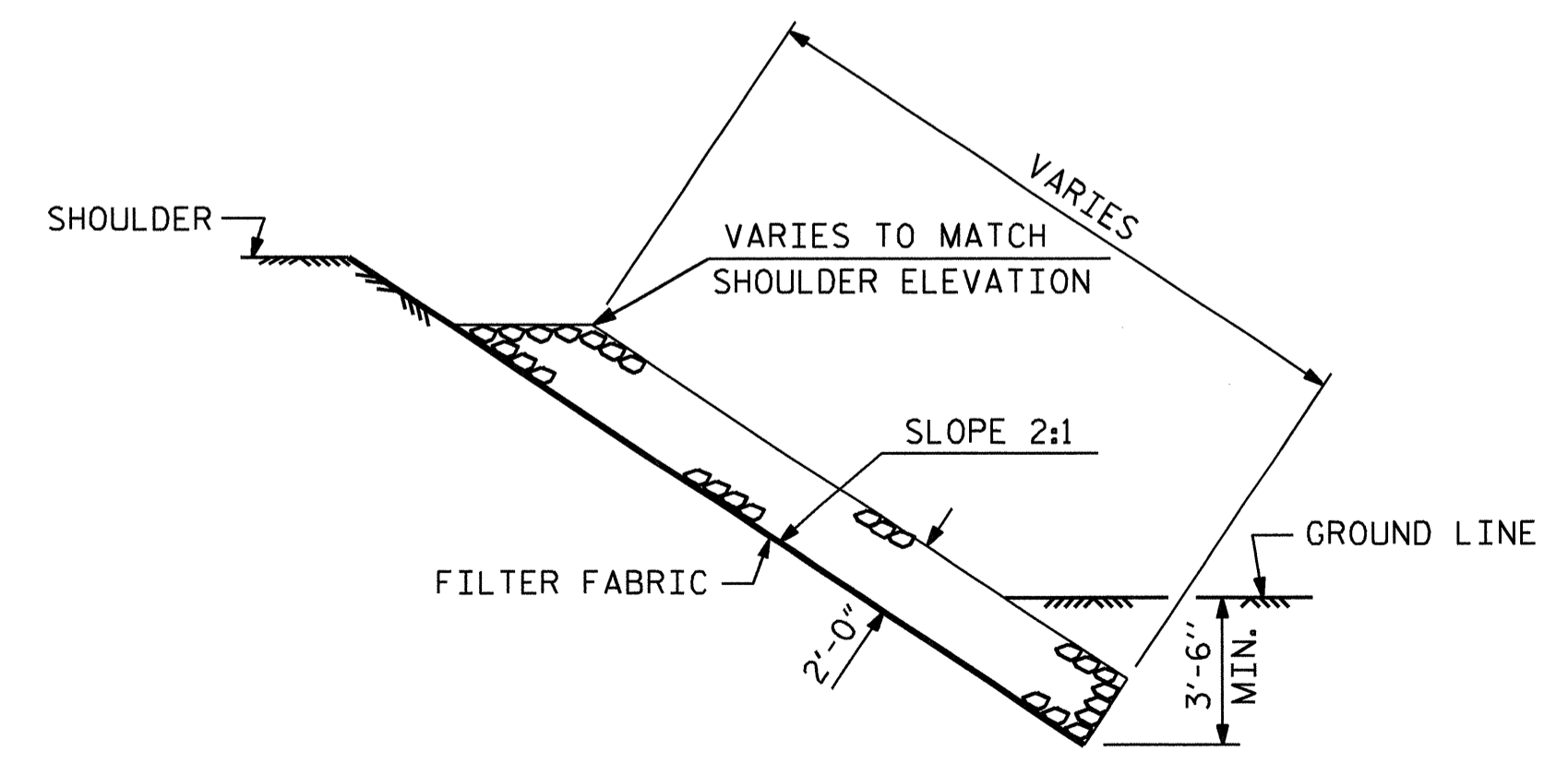
ESTIMATED QUANTITIES		
BRIDGE @ STA. 22+46.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	130	145
END BENT 2	180	200
TOTAL	310	345



PLAN

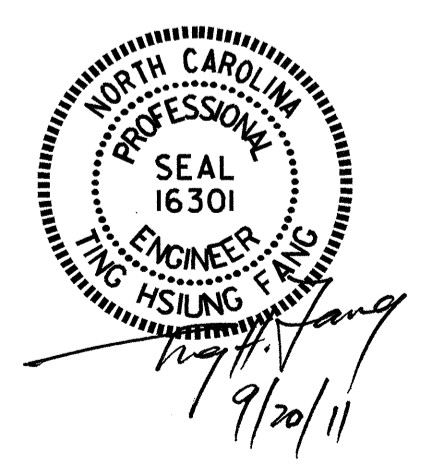


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

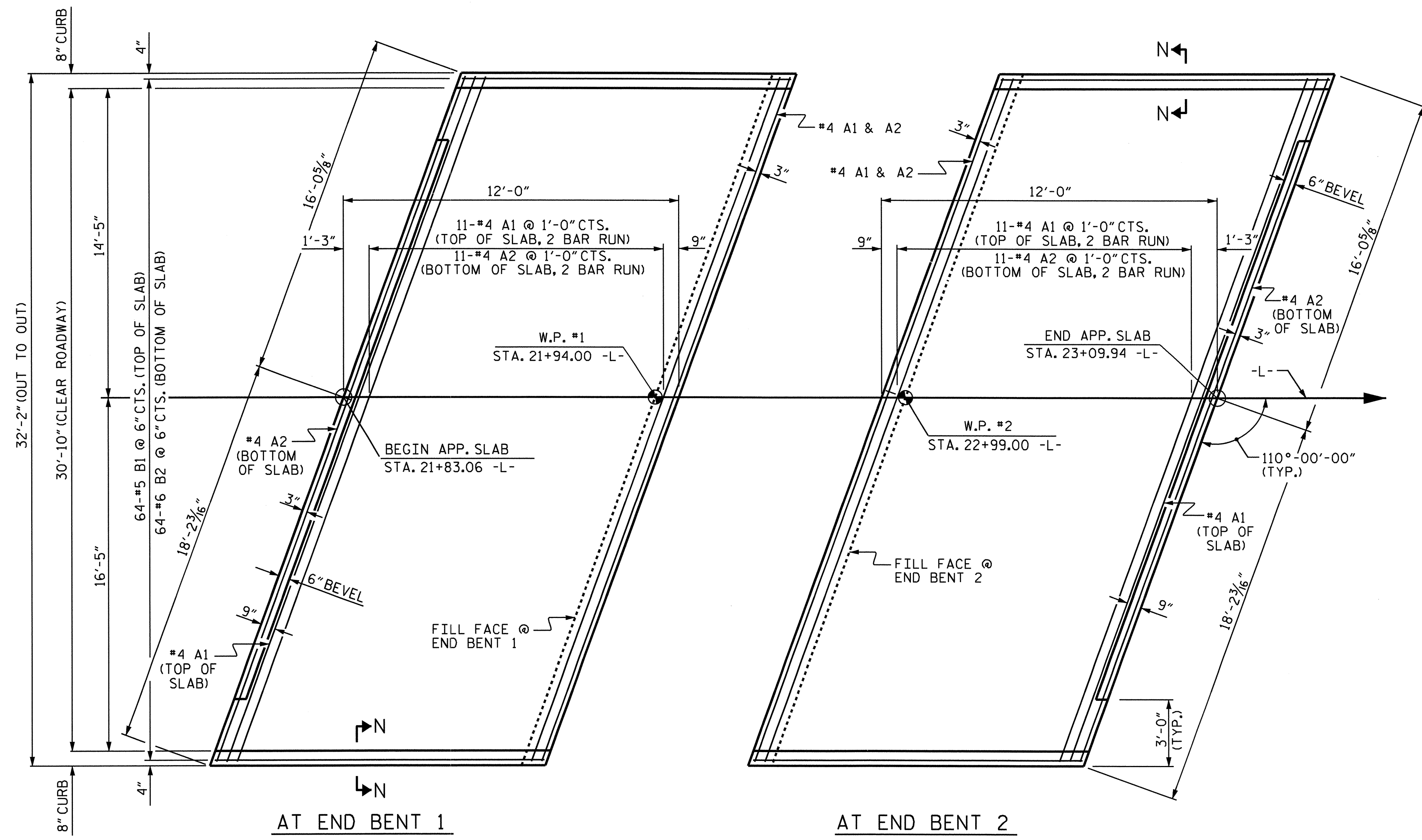


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
RIP RAP DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : HARISH SHAH DATE : 9/09/09
 CHECKED BY : Q.T. NGUYEN DATE : 5-10-10

16-SEP-2011 09:36
 O:\Structures\Final Plans\B-4694.SD.RR.dgn
 hshah

SHEET NO.
S-16
 TOTAL SHEETS
18

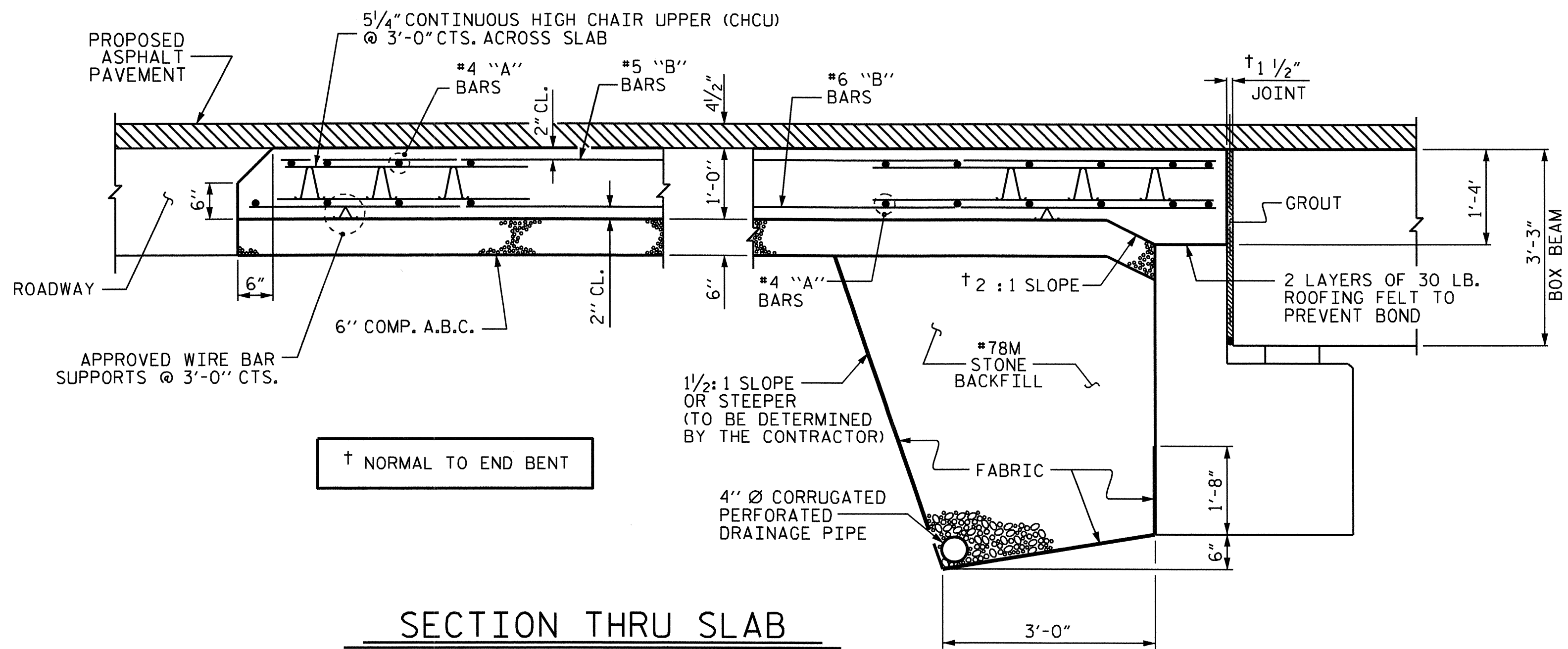


AT END BENT 1

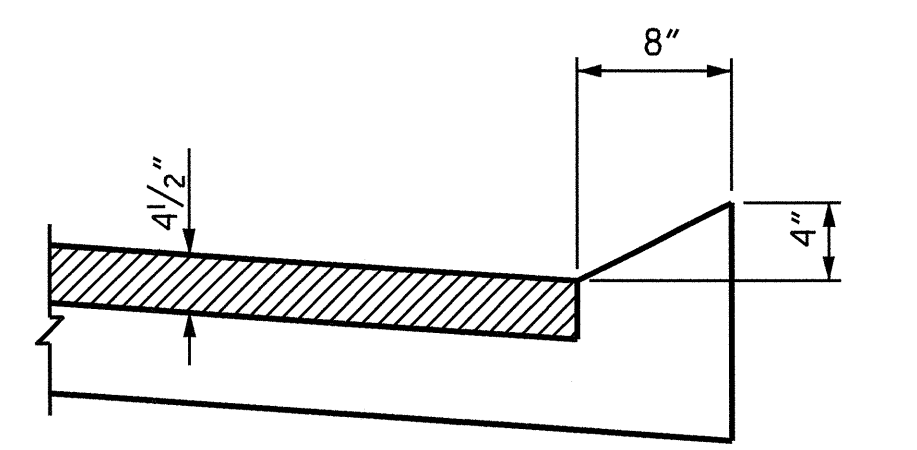
AT END BENT 2

PLAN

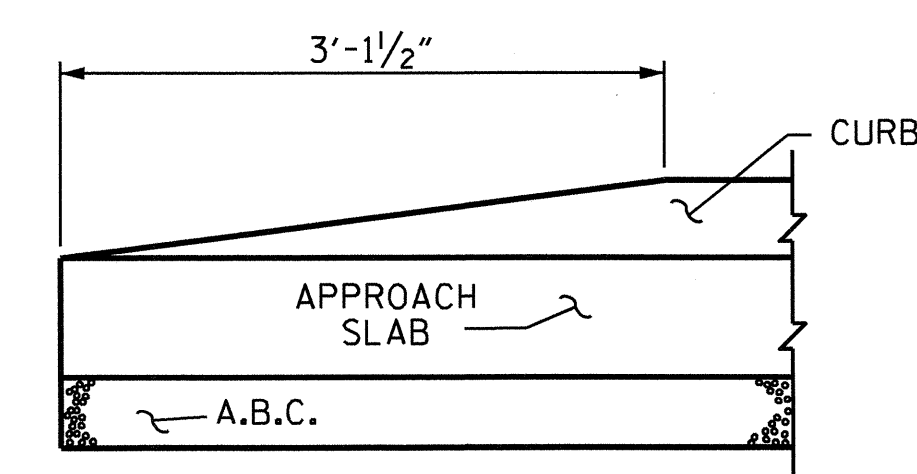
REINFORCING STEEL AND DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

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

FABRIC SHALL BE TYPE I ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

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

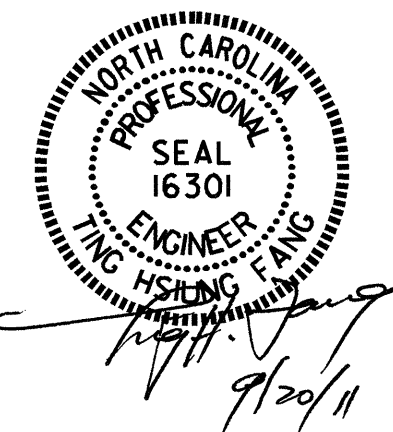
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER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

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D.)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	17'-11"	311
A2	26	#4	STR	17'-10"	310
*B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1431
*EPOXY COATED REINFORCING STEEL				LBS.	1056
CLASS AA CONCRETE				C. Y.	14.8

SPlice CHART		
BAR	SIZE	SPlice
A1	#4	2'-0"
A2	#4	1'-9"



PROJECT NO. B-4694
DAVIDSON COUNTY
 STATION: 26+46.50 -L-
 SHEET 1 OF 2

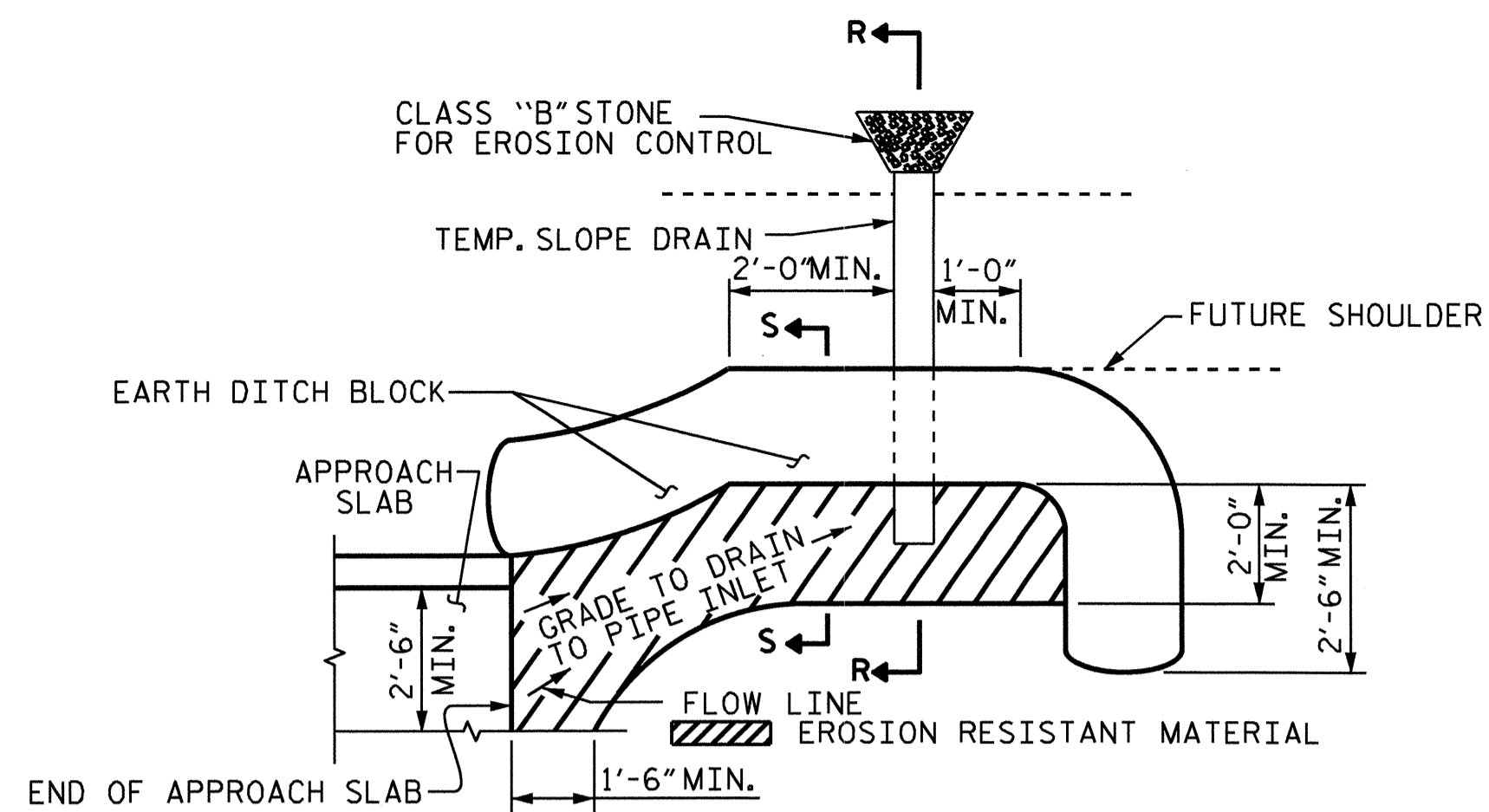
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM UNIT
 (SUB-REGIONAL TIER)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL SHEETS	18
2			4				

ASSEMBLED BY : HARISH SHAH DATE : 9-11-09
 CHECKED BY : O.T. NGUYEN DATE : 5-10-10
 DRAWN BY : KMM 3-08
 CHECKED BY : GM 3-08

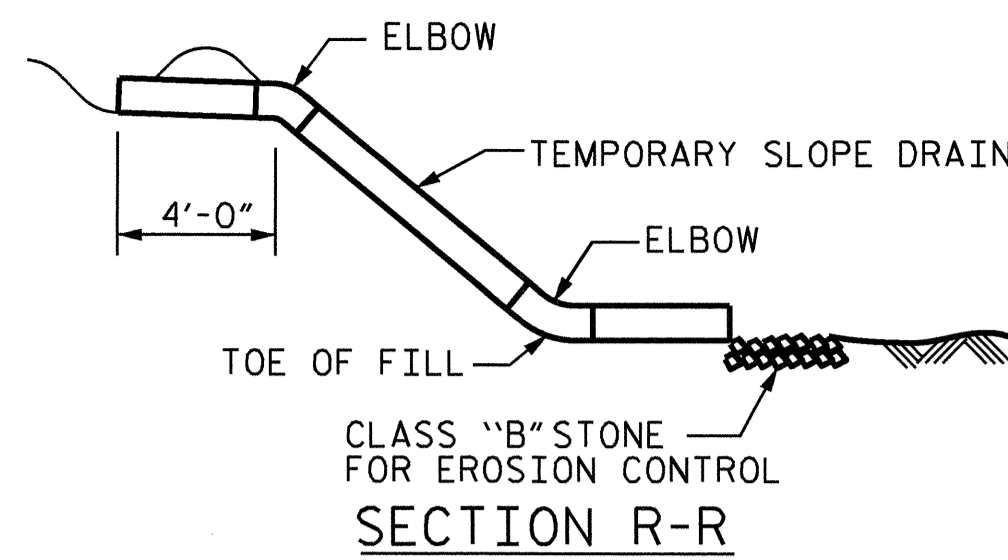
19-SEP-2011 09:38
 X:\TIP\Projects\B-4694\Structures\Final Plans\B-4694.sd.os.dgn
 rppatel

(SHT 3c) STD. NO. BAS13

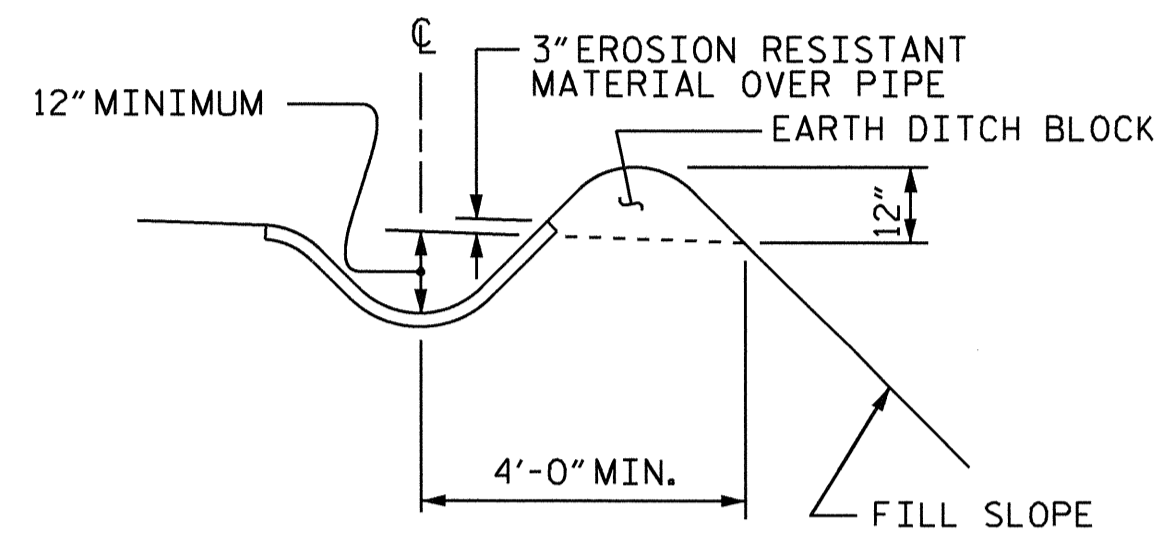


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



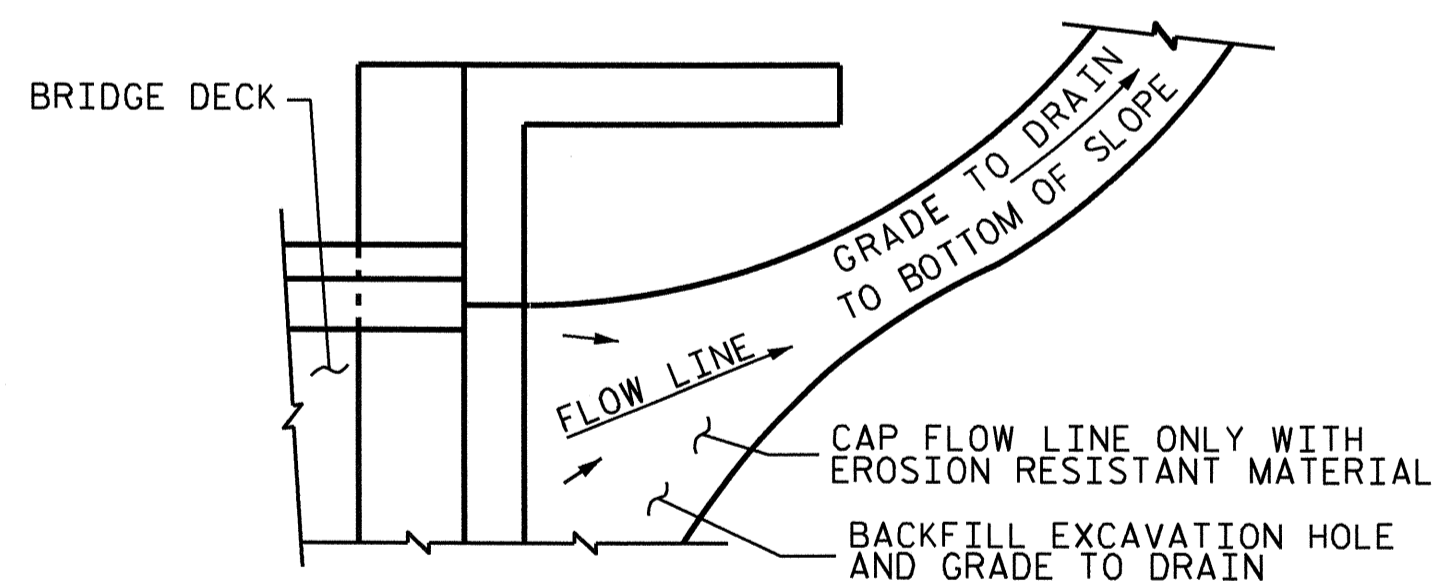
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

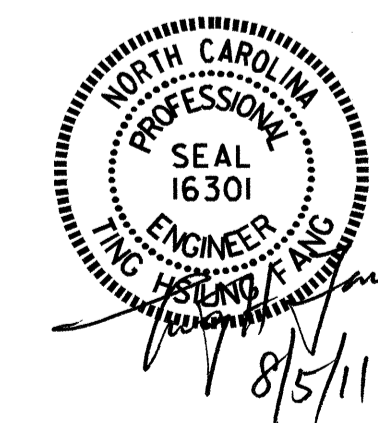


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4694
DAVIDSON COUNTY
 STATION: 22+46.50 -L-

SHEET 2 OF 2



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

ASSEMBLED BY :	HARISH SHAH	DATE :	09/09
CHECKED BY :	Q.T. NGUYEN	DATE :	5-10-10
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

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

STD. NO. BAS10

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. FINISH 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