

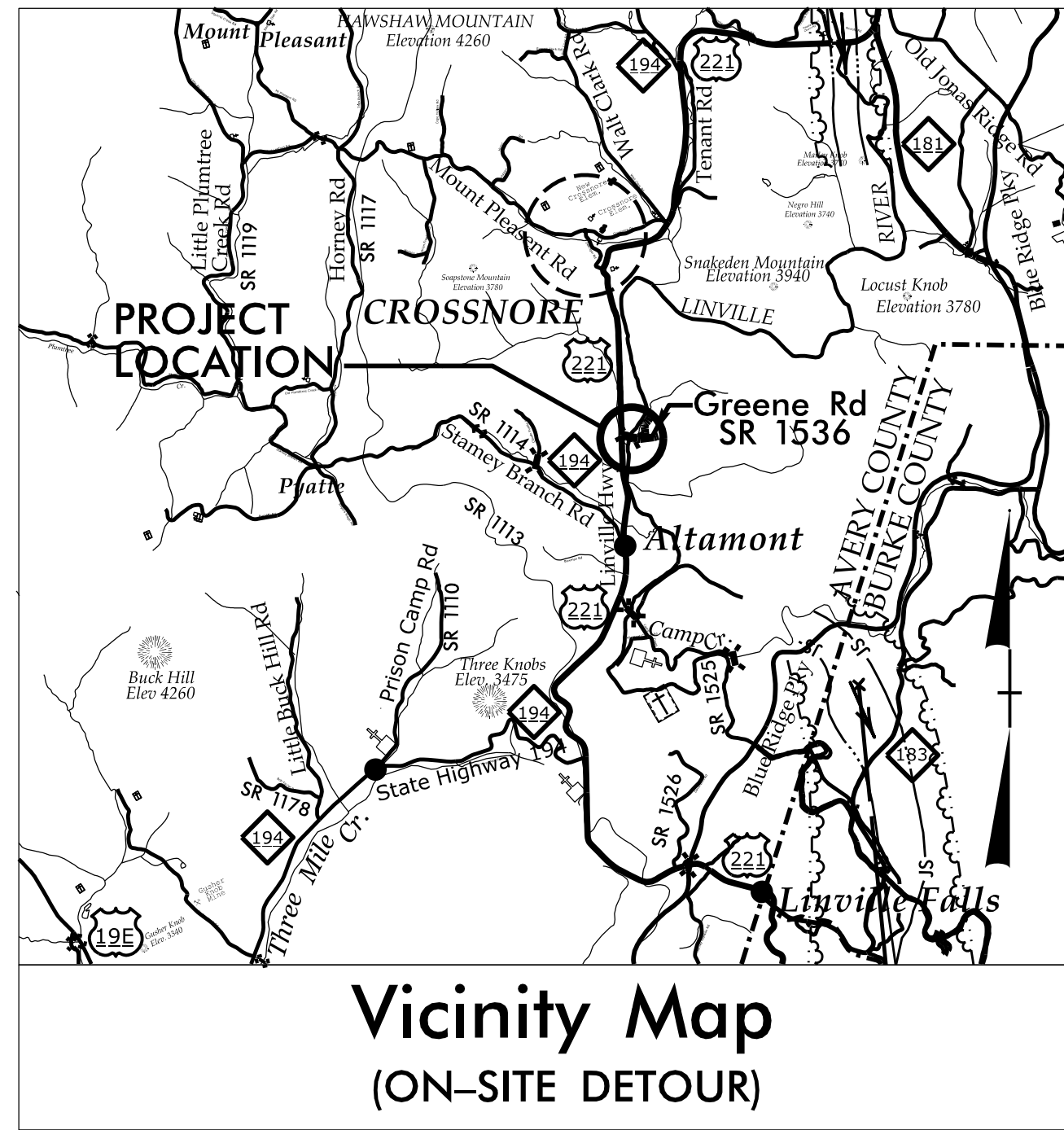
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with their signature on that page.**

**This file or an individual page
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TIP PROJECT: B-5383

CONTRACT: C203848

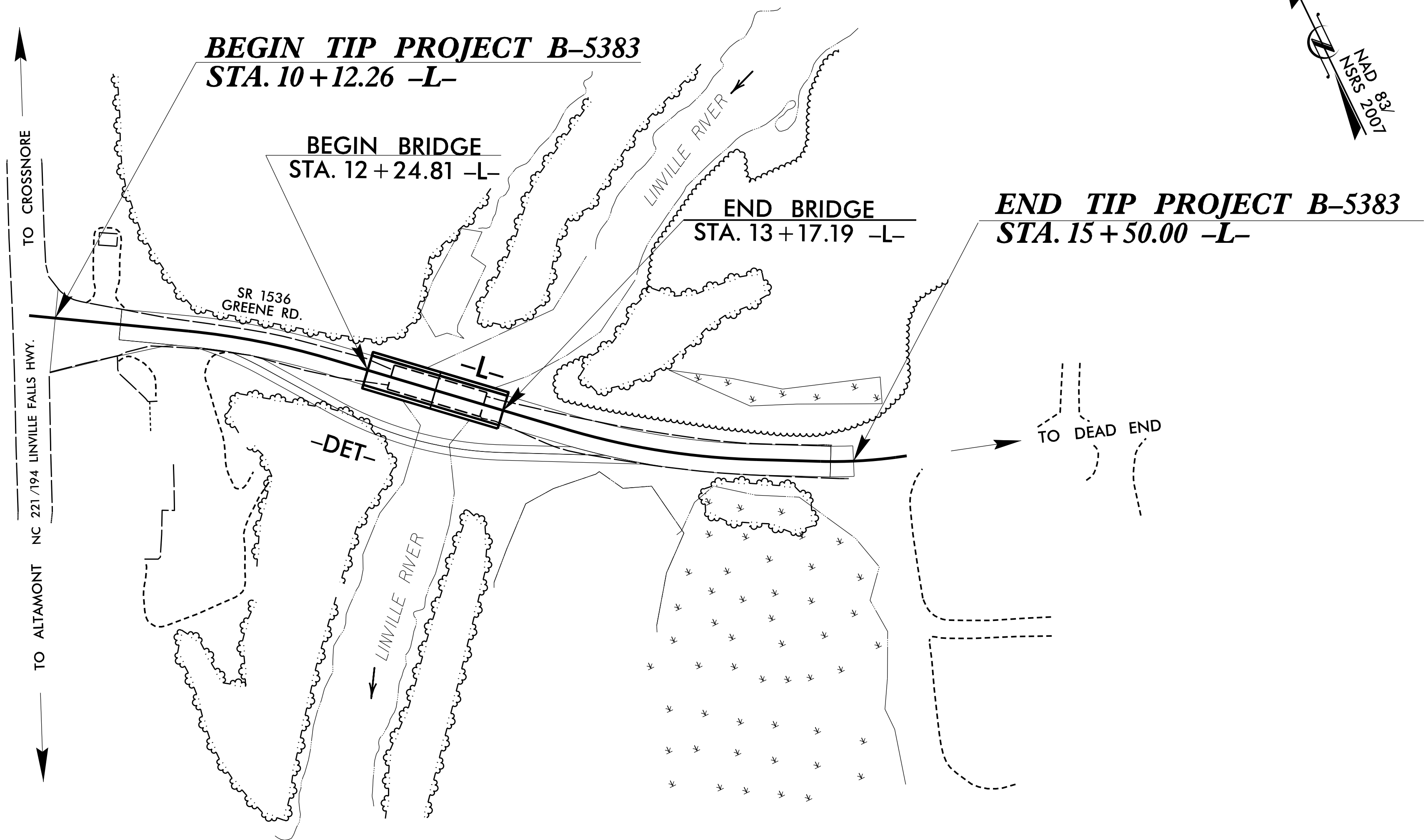
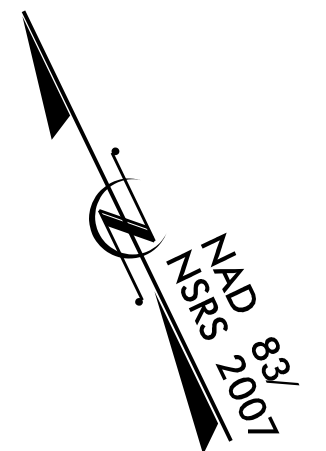
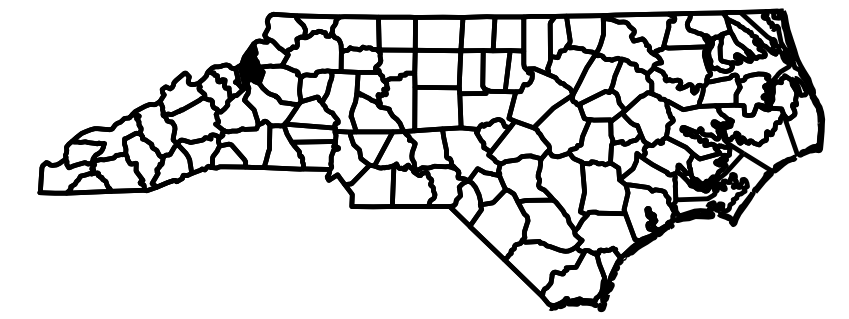


Vicinity Map
(ON-SITE DETOUR)

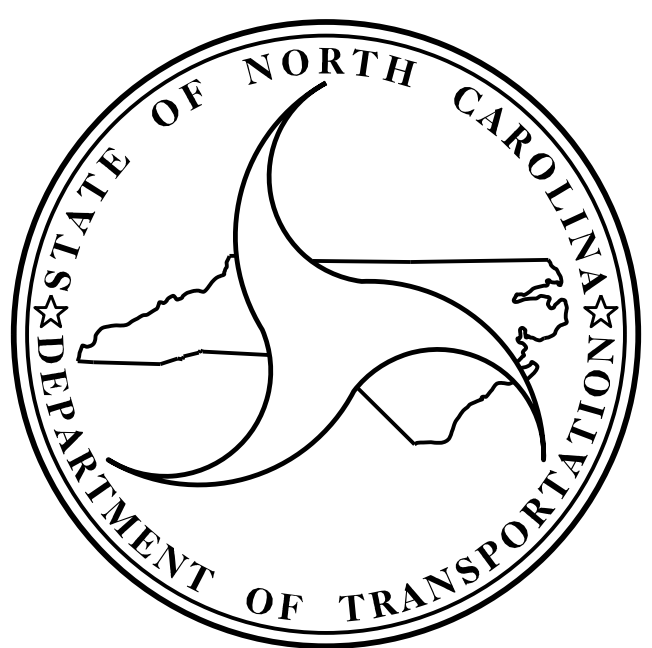
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
AVERY COUNTY

LOCATION: BRIDGE No. 143 OVER LINVILLE RIVER ON SR 1536 (GREEN ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5383		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46098.1.1		P.E.	
46098.2.1		RW	
46098.3.1		CONST.	



STRUCTURE



DESIGN DATA

ADT 2016	=	114
ADT 2036	=	186
K	=	14 %
D	=	60 %
T	=	8 % *
V	=	40 MPH
* (TTST 1 %, DUAL 7 %)		
FUNC. CLASS. = LOCAL SUB-REGIONAL TIER		

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5383	=	0.085 MILES
LENGTH STRUCTURE TIP PROJECT B-5383	=	0.017 MILES
<hr/>		
TOTAL LENGTH TIP PROJECT B-5383	=	0.102 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

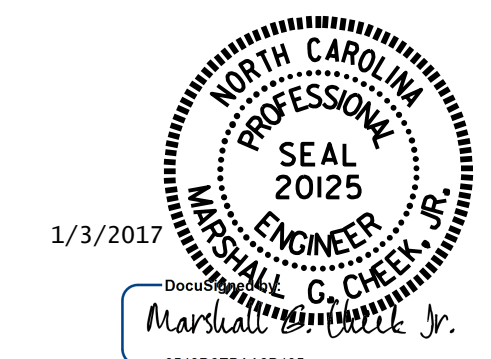
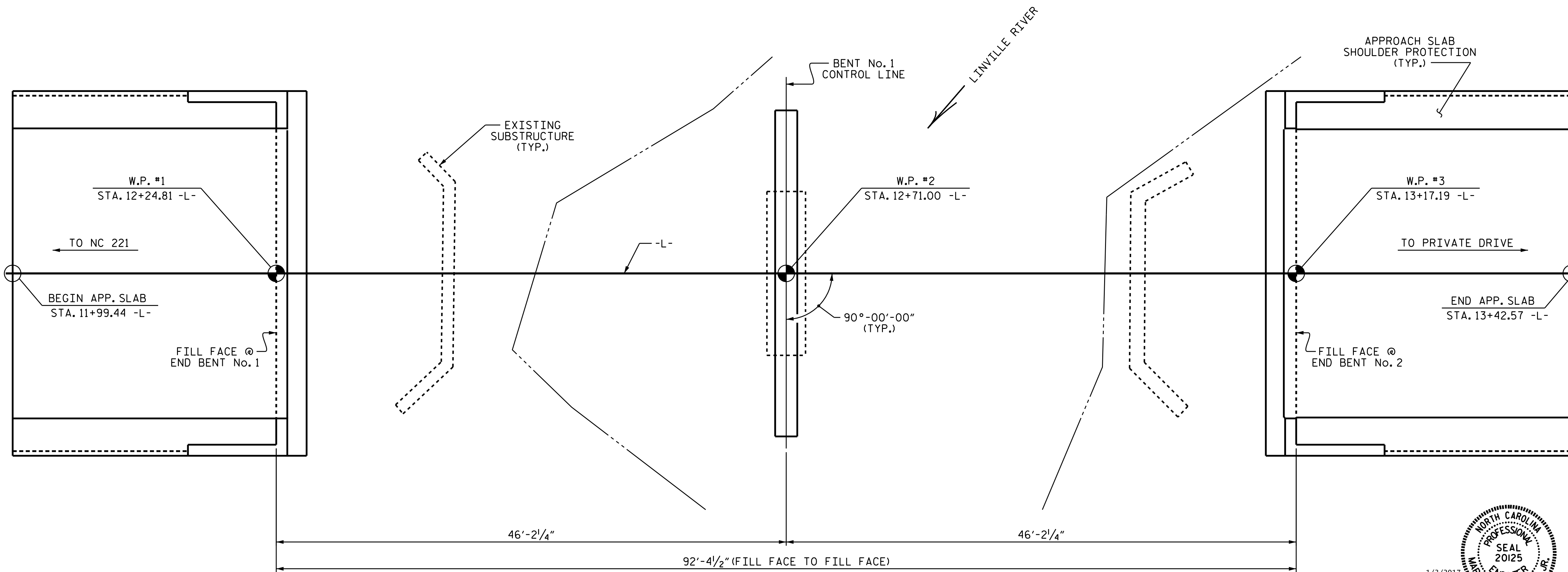
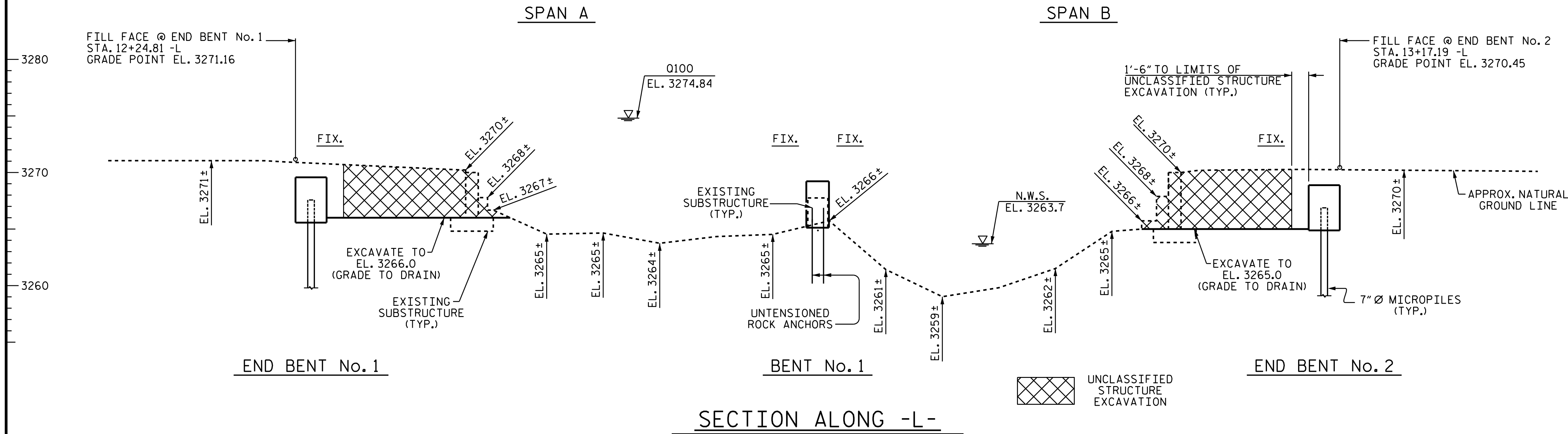
LETTING DATE :
FEBRUARY 21, 2017

MARC G. CHEEK, PE
PROJECT DESIGN ENGINEER

12+20 12+40 12+60 12+80 13+00 13+20 13+40

(-)3.8113% (-)0.7779%
 P.I. STA. = 11+38.00 -L-
 EL. = 3271.84
 L = 150'
GRADE DATA

(-)0.7779% (+) 2.1813%
 P.I. STA. = 13+97.00 -L-
 EL. = 3269.83
 L = 146'
GRADE DATA



PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 -L-
 SHEET 1 OF 2 REPLACES BRIDGE No. 143

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 LINVILLE RIVER
 ON SR 1536 BETWEEN
 NC 221 AND PRIVATE DRIVE

DRAWN BY : B.N. GRADY/MEP DATE : 11/15
 CHECKED BY : M. G. CHEEK DATE : 11-8-16

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	ELASTOMERIC BEARINGS	ASBESTOS ASSESSMENT	BRIDGE DECK GRINDING	T101 RAIL	3'-0" X 1'-7 1/2" PRESTRESSED CONCRETE CORED SLABS	2" Ø ANCHOR HOLE NOT IN SOIL	APPROACH SLAB SHOULDER PROTECTION	7" Ø MICROPILES	VERIFICATION TESTS	
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LUMP SUM	LUMP SUM	LUMP SUM	LINE FT.	NO.	LINE FT.	LINE FT.	SQ. YDS.	EACH	EACH
SUPERSTRUCTURE					LUMP SUM		LUMP SUM		LUMP SUM	282.00	18	810.00				
END BENT No. 1			LUMP SUM	17.2		2230							21.1	5		
BENT No. 1				11.7		2421						37.00				1
END BENT No. 2			LUMP SUM	17.2		2230							21.1	5		
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	46.1	LUMP SUM	6881	LUMP SUM	LUMP SUM	LUMP SUM	282.00	18	810.00	37.00	42.2	10	1

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 12+71.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT LEFT AND 25 FT RIGHT OF THE CENTERLINE ROADWAY AT END BENT No. 1 AND A DISTANCE OF 20 FT LEFT AND 50 FEET RIGHT AT END BENT No. 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF 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.

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

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."

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.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR BRIDGE DECK GRINDING, SEE SPECIAL PROVISIONS.

FOR T101 RAIL, SEE SPECIAL PROVISIONS.

FOR 3'-0" X 1'-7 1/2" PRESTRESSED CONCRETE CORED SLABS, SEE SPECIAL PROVISIONS.

THE EXISTING 2 SPAN STRUCTURE (1 @ 31'-6", 1 @ 32'-6") CONSISTING OF A TIMBER FLOOR ON 5 LINES OF STEEL I-BEAMS WITH AN 1" ASPHALT OVERLAY ON A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE ABUTMENTS AND REINFORCED CONCRETE PIER SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE.

HYDRAULIC DATA

DESIGN DISCHARGE..... 2730 CFS
 FREQUENCY OF DESIGN FLOOD..... 5 YRS.
 DESIGN HIGH WATER ELEVATION..... 3270.4
 DRAINAGE AREA..... 30.9 SQ. MI.
 BASE DISCHARGE (Q100)..... 9980 CFS
 BASE HIGH WATER ELEVATION..... 3274.84

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE..... 2730 CFS
 FREQUENCY OF OVERTOPPING FLOOD..... 5 YRS.
 OVERTOPPING FLOOD ELEVATION..... 3270.2

FOUNDATION NOTES

FOR 7" Ø MICROPILES, SEE MICROPILES SPECIAL PROVISION.

DESIGN BOND LENGTH FOR MICROPILES AT END BENT No. 1 FOR A FACTORED RESISTANCE OF 150 TONS PER PILE.

INSTALL REINFORCING CASINGS FOR MICROPILES AT END BENT No. 1 TO A TIP ELEVATION NO HIGHER THAN 3255.5 AND WITH A PENETRATION OF A LEAST 10 FT. INTO ROCK WHICH IS DEFINED AS CONTINUOUS INTACT NATURAL MATERIAL.

USE REINFORCING CASINGS WITH YIELD STRENGTHS OF AT LEAST 45 KSI AND A MINIMUM WALL THICKNESS OF 0.5 INCHES FOR MICROPILES AT END BENT No. 1.

FOR ROCK ANCHORS, SEE UNTENSIONED ROCK ANCHORS SPECIAL PROVISION.

ROCK ANCHORS AT BENT No. 1 ARE DESIGNED FOR A FACTORED UPLIFT RESISTANCE OF 17.5 TONS PER ANCHOR WITH A MINIMUM BOND LENGTH OF 3.5 FT.

BOTTOM OF CAP AT BENT No. 1 TO BE FORMED DIRECTLY ON EXPOSED ROCK OUTCROP.

USE #8 GALVANIZED THREADED STEEL REBAR WITH YIELD STRENGTH OF AT LEAST 75 KSI FOR ANCHORS AT BENT No. 1.

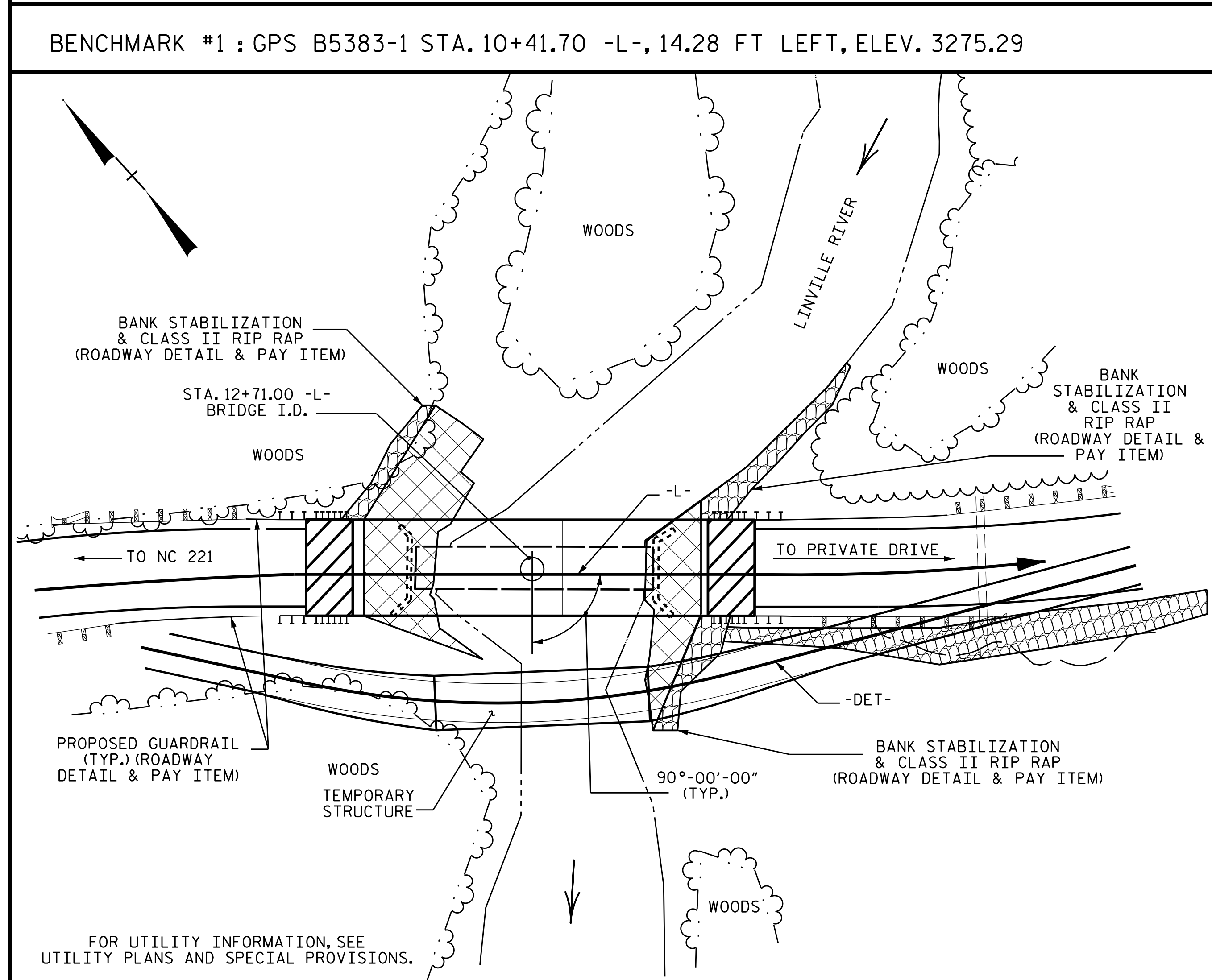
GROUT THE HOLES AT BENT No. 1 IN A MANNER THAT NO GROUT COMES IN CONTACT WITH THE STREAM. CONTRACTOR TO INCLUDE GROUTING SEQUENCE TO BE REVIEWED BY NCDOT.

DESIGN BOND LENGTH FOR MICROPILES AT END BENT No. 2 FOR A FACTORED RESISTANCE OF 150 TONS PER PILE.

INSTALL REINFORCING CASINGS FOR MICROPILES AT END BENT No. 2 TO A TIP ELEVATION NO HIGHER THAN 3249 AND WITH A PENETRATION OF AT LEAST 10 FT. INTO ROCK.

USE REINFORCING CASINGS WITH YIELD STRENGTH OF AT LEAST 45 KSI AND A MINIMUM WALL THICKNESS OF 0.5 INCHES FOR MICROPILES AT END BENT No. 2.

FOR VERIFICATION TESTS, SEE UNTENSIONED ROCK ANCHORS SPECIAL PROVISION.



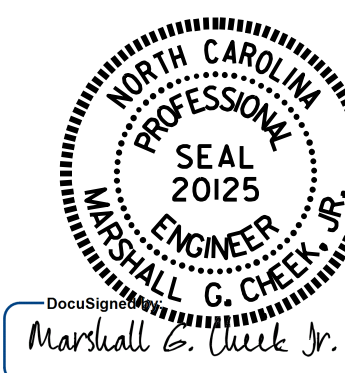
LOCATION SKETCH

PROJECT NO. B-5383

AVERY COUNTY

STATION: 12+71.00 -L-

SHEET 2 OF 2



1/4/2017

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 LINVILLE RIVER
 ON SR 1536 BETWEEN
 NC 221 AND PRIVATE DRIVE

DRAWN BY : M. POOLE DATE : 10-15
 CHECKED BY : M.G. CHEEK DATE : 11-16

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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

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	1.088	--	1.75	0.277	1.34	45'	EL	22	0.539	1.23	45'	EL	2.2	0.80	0.277	1.09	45'	EL	22		
	HL-93(0pr)	N/A	--	1.590	--	1.35	0.277	1.74	45'	EL	22	0.539	1.59	45'	EL	2.2	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.336	48.104	1.75	0.277	1.65	45'	EL	22	0.539	1.45	45'	EL	2.2	0.80	0.277	1.34	45'	EL	22		
	HS-20(0pr)	36.000	--	1.882	67.763	1.35	0.277	2.14	45'	EL	22	0.539	1.88	45'	EL	2.2	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.611	35.252	1.4	0.277	4.02	45'	EL	22	0.539	4.01	45'	EL	2.2	0.80	0.277	2.61	45'	EL	22	
		SNGARBS2	20.000	--	2.108	42.166	1.4	0.277	3.25	45'	EL	22	0.539	2.94	45'	EL	2.2	0.80	0.277	2.11	45'	EL	22	
		SNAGRIS2	22.000	--	2.067	45.466	1.4	0.277	3.15	45'	EL	17.6	0.539	2.77	45'	EL	2.2	0.80	0.277	2.07	45'	EL	22	
		SNCOTTS3	27.250	--	1.304	35.527	1.4	0.277	2.01	45'	EL	22	0.539	2.01	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		SNAGGRS4	34.925	--	1.150	40.181	1.4	0.277	1.77	45'	EL	22	0.539	1.74	45'	EL	2.2	0.80	0.277	1.15	45'	EL	22	
		SNS5A	35.550	--	1.121	39.841	1.4	0.277	1.73	45'	EL	22	0.539	1.79	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
		SNS6A	39.950	--	1.056	42.175	1.4	0.277	1.63	45'	EL	22	0.539	1.67	45'	EL	2.2	0.80	0.277	1.06	45'	EL	22	
	SNS7B	42.000	3	1.006	42.268	1.4	0.277	1.55	45'	EL	22	0.539	1.68	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22		
	TTST	TNAGRIT3	33.000	--	1.296	42.759	1.4	0.277	2	45'	EL	22	0.539	1.96	45'	EL	2.2	0.80	0.277	1.30	45'	EL	22	
		TNT4A	33.075	--	1.309	43.305	1.4	0.277	2.02	45'	EL	22	0.539	1.88	45'	EL	2.2	0.80	0.277	1.31	45'	EL	22	
		TNT6A	41.600	--	1.099	45.712	1.4	0.277	1.69	45'	EL	22	0.539	1.83	45'	EL	2.2	0.80	0.277	1.10	45'	EL	22	
		TNT7A	42.000	--	1.120	47.043	1.4	0.277	1.73	45'	EL	22	0.539	1.69	45'	EL	2.2	0.80	0.277	1.12	45'	EL	22	
		TNT7B	42.000	--	1.166	48.975	1.4	0.277	1.8	45'	EL	22	0.539	1.61	45'	EL	2.2	0.80	0.277	1.17	45'	EL	22	
		TNAGRIT4	43.000	--	1.111	47.757	1.4	0.277	1.71	45'	EL	22	0.539	1.55	45'	EL	2.2	0.80	0.277	1.11	45'	EL	22	
TNAGT5A		45.000	--	1.033	46.505	1.4	0.277	1.59	45'	EL	22	0.539	1.59	45'	EL	2.2	0.80	0.277	1.03	45'	EL	22		
TNAGT5B	45.000	--	1.009	45.408	1.4	0.277	1.56	45'	EL	22	0.539	1.47	45'	EL	2.2	0.80	0.277	1.01	45'	EL	22			

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)

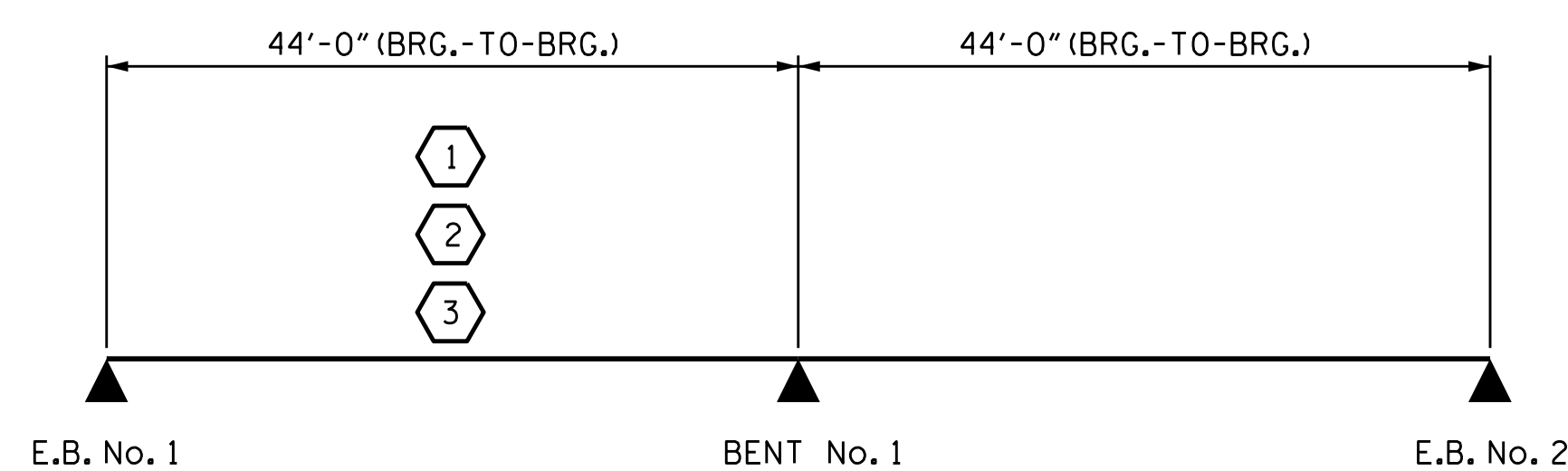
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

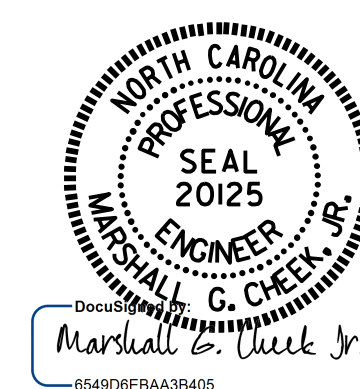
GIRDER LOCATION

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



LRFR SUMMARY
FOR SPAN A & B

PROJECT NO. B-5383
AVERY COUNTY
STATION: 12+71.00 -L-

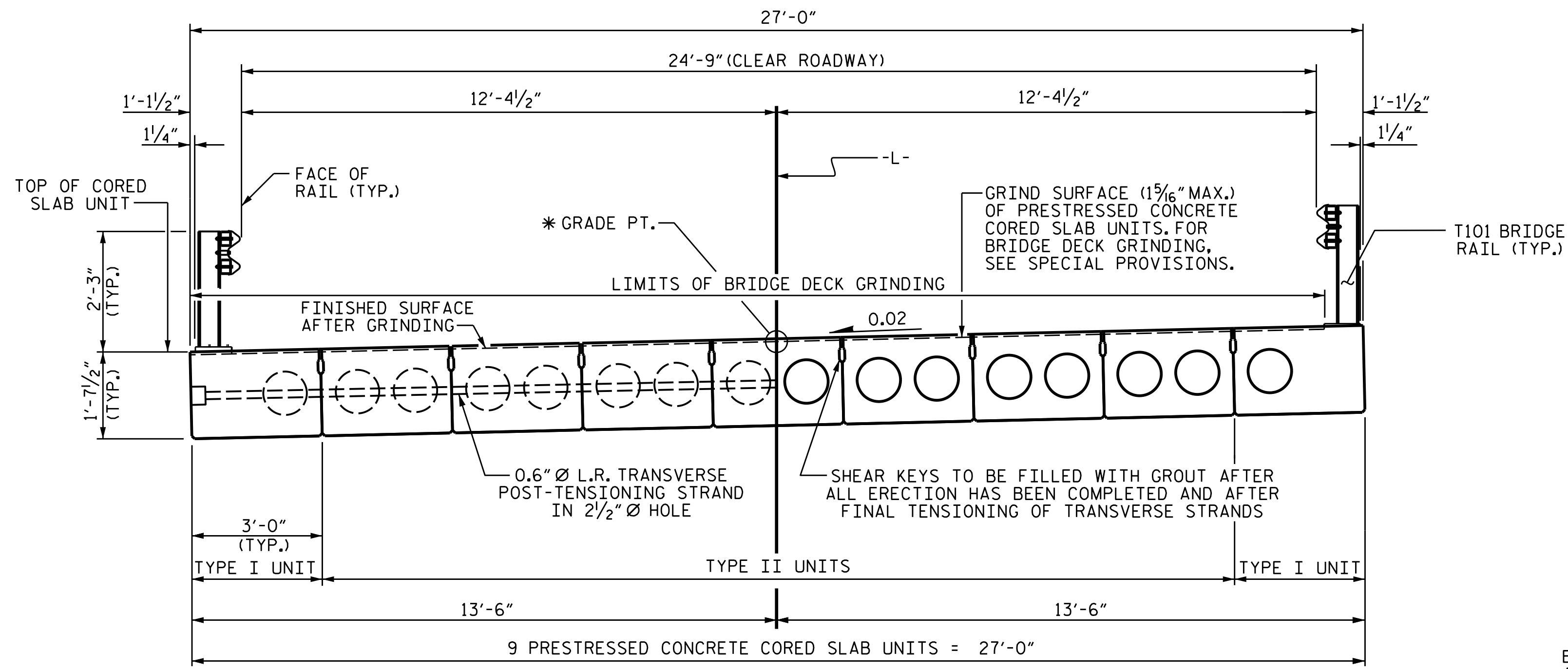


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
45' CORED SLAB UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : W.J. HARRIS DATE : 10/16
CHECKED BY : M.G. CHEEK DATE : 11/16
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

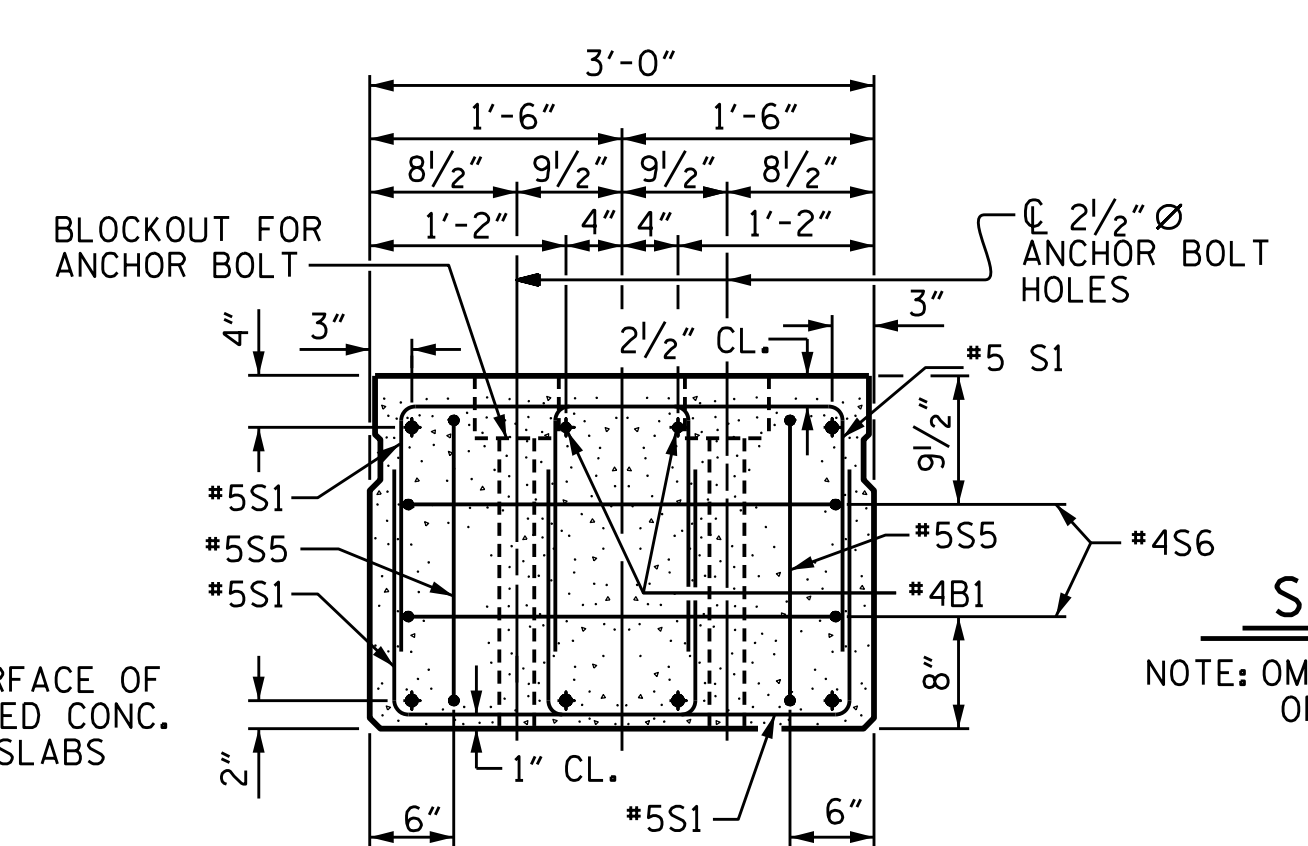


PART PLAN-TYPE I SECTION

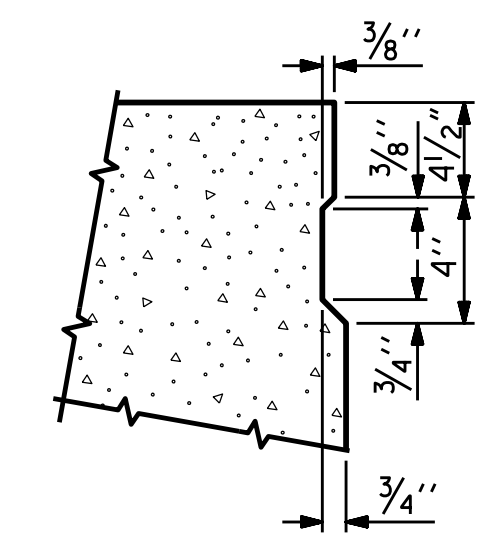
PART PLAN-TYPE II SECTION



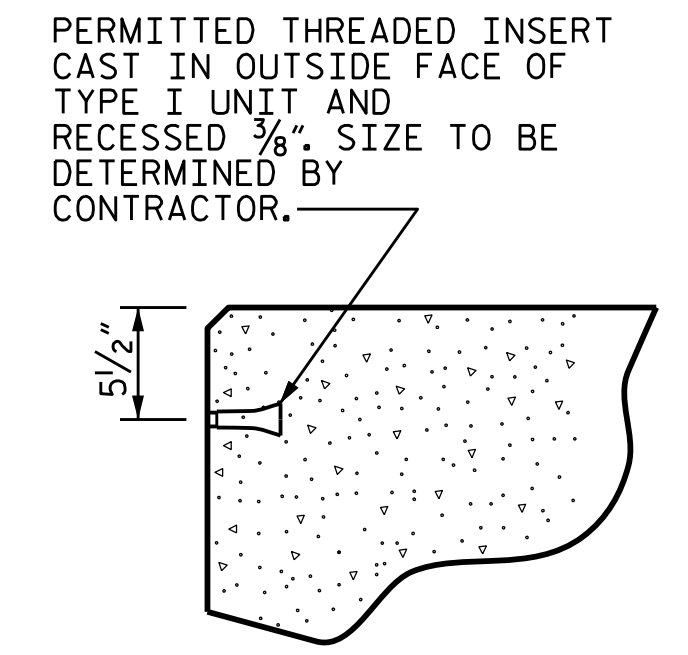
TYPICAL SECTION



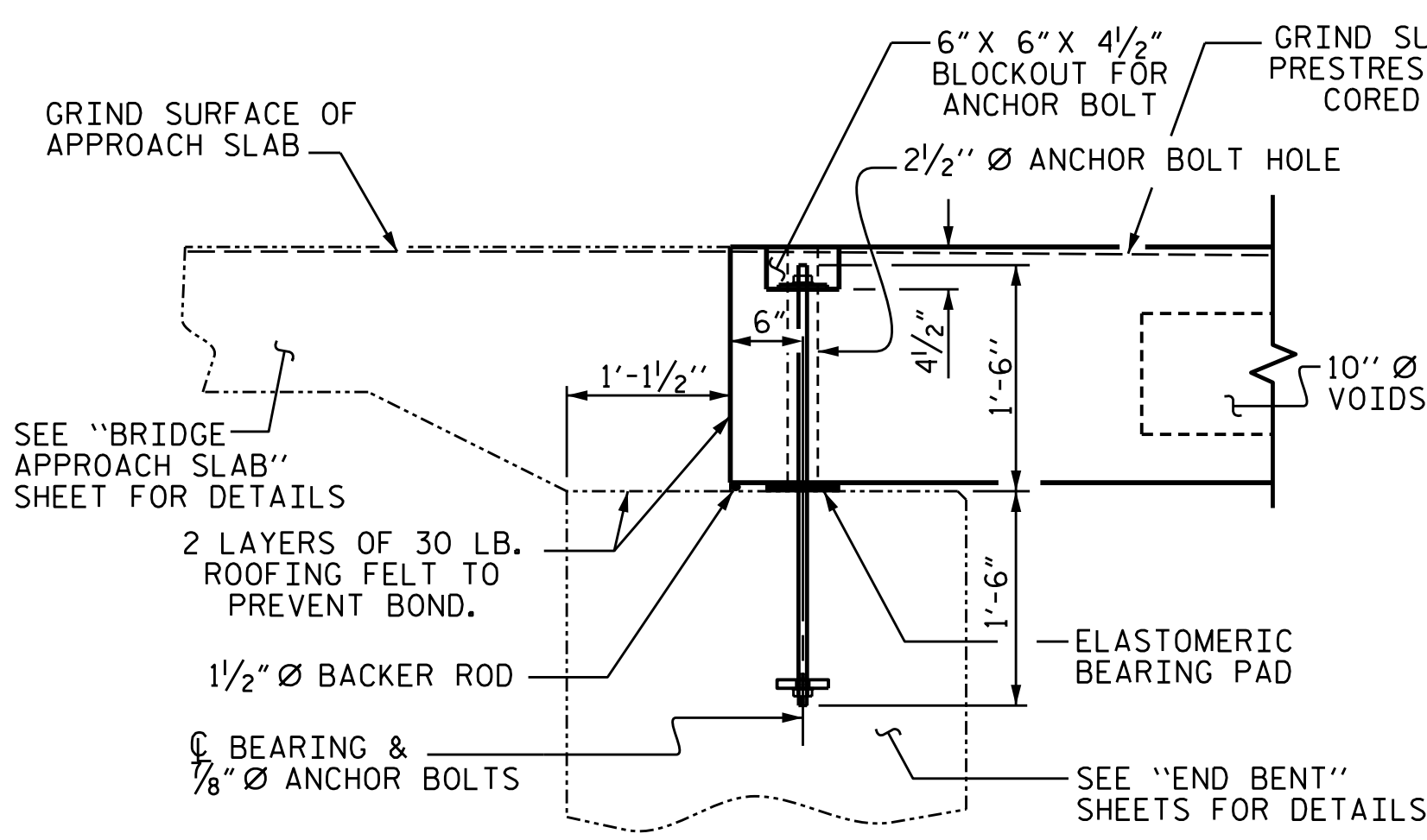
END ELEVATION



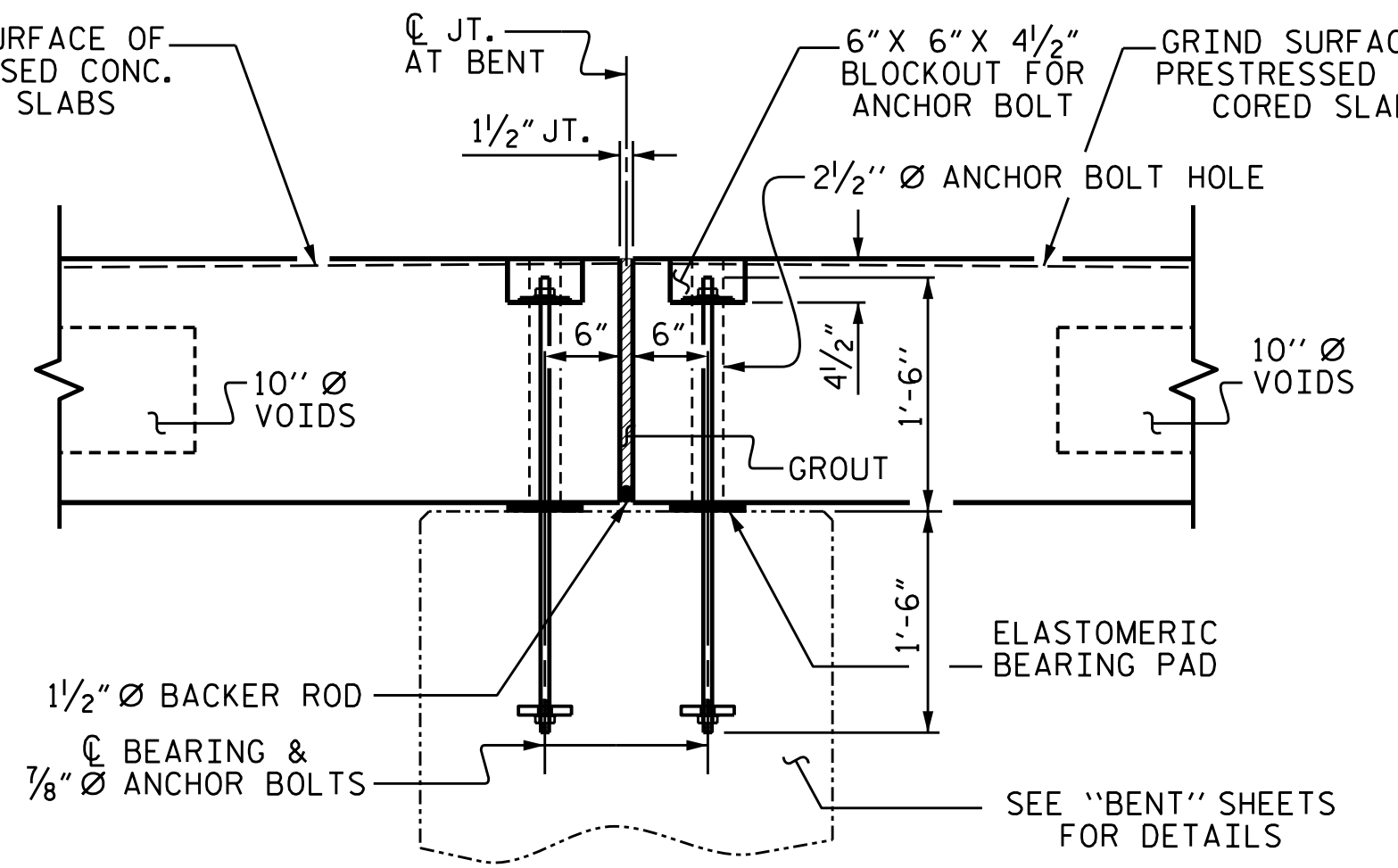
SHEAR KEY DETAIL



THREADED INSERT DETAIL

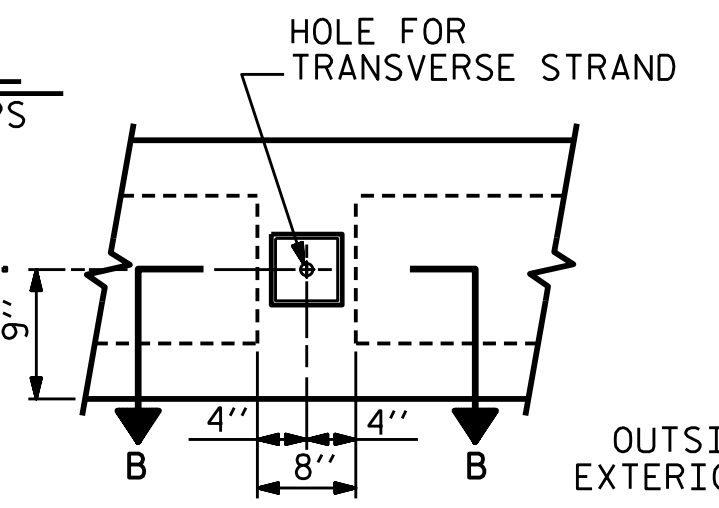


SECTION AT END BENT

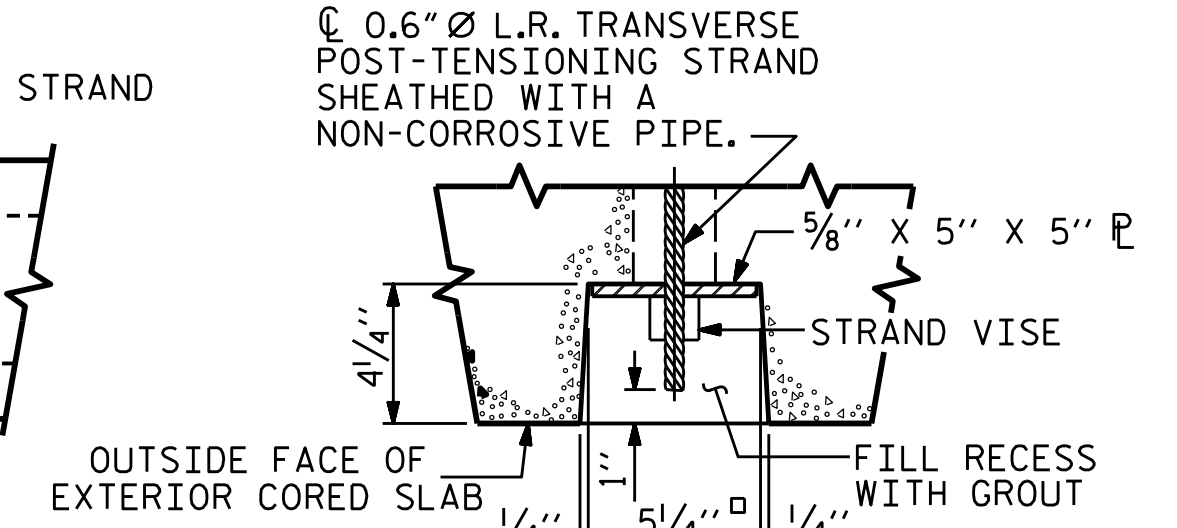


SECTION AT BENT

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) TYPE II UNIT SHOWN - TYPE I UNIT SIMILAR EXCEPT SHEAR KEY LOCATIONS.

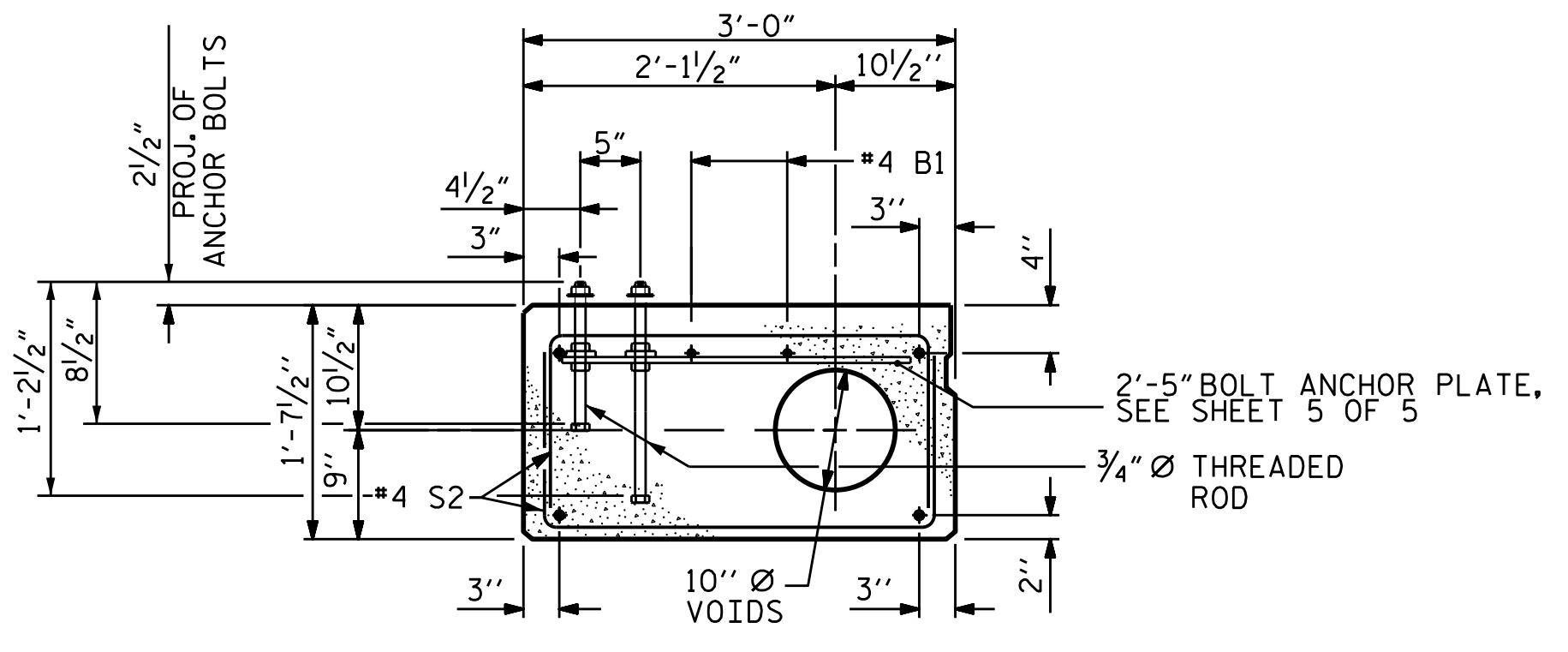


ELEVATION VIEW

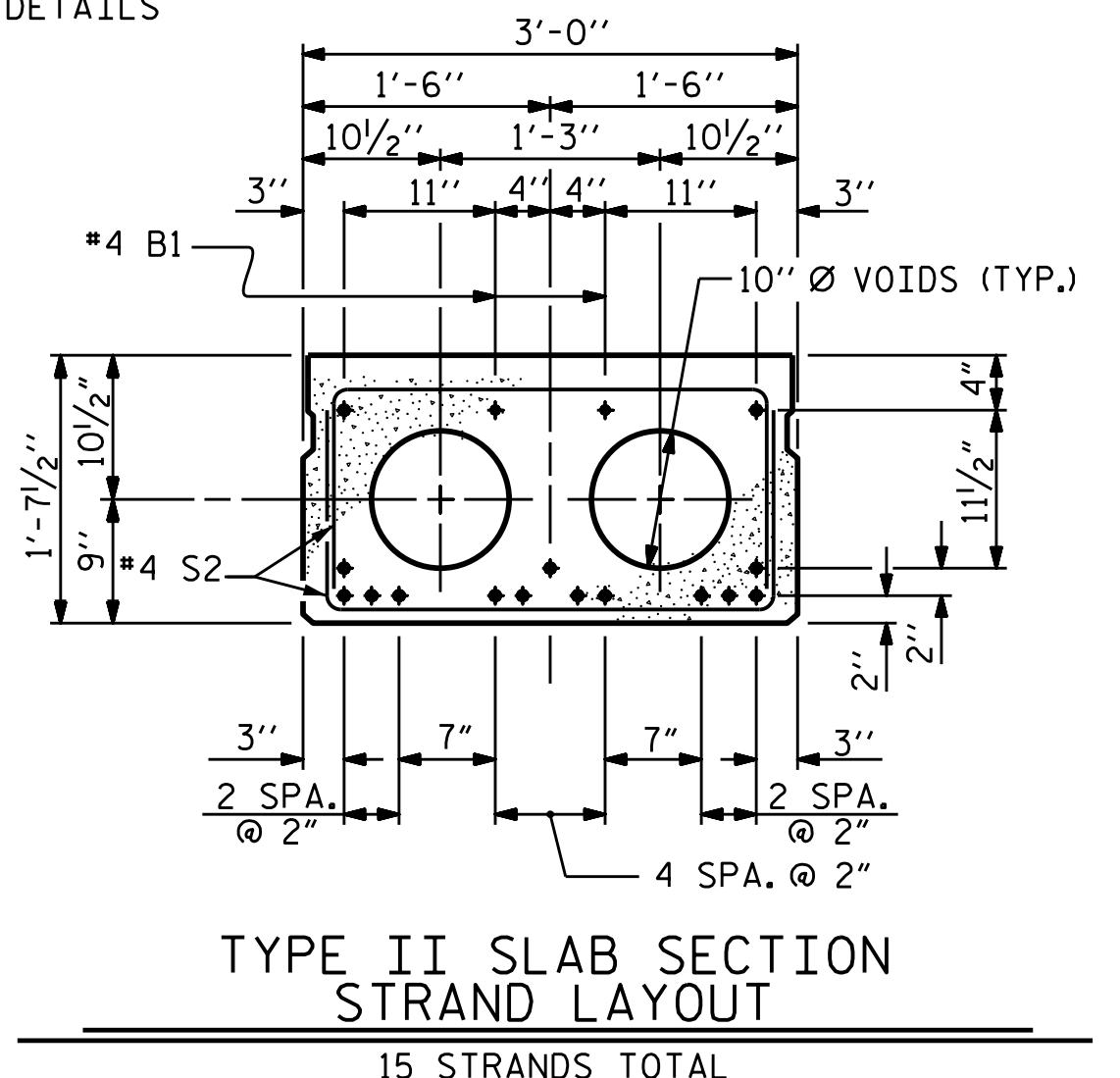


SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



TYPE I SLAB SECTION



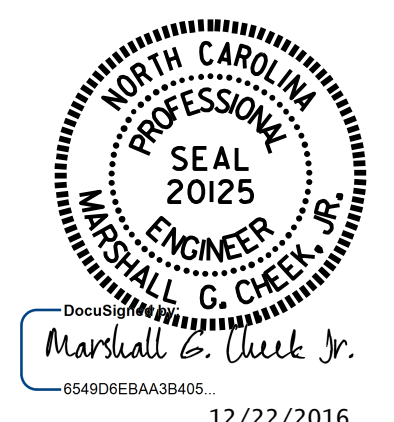
TYPE II SLAB SECTION STRAND LAYOUT

15 STRANDS TOTAL

FOR PRESTRESSED STRAND LAYOUT, SEE "TYPE II SLAB SECTION STRAND LAYOUT" FOR T101 ANCHOR ASSEMBLY DETAILS, SEE SHEET 5 OF 5.

DRAWN BY: M. POOLE DATE: 7/16
 CHECKED BY: W.J. HARRIS DATE: 10/16
 DESIGN ENGINEER OF RECORD: W.J. HARRIS DATE: 10/16

*****SYTIME*****
 *****USER*****



PROJECT NO. B-5383
 AVERY COUNTY
 STATION: 12+71.00 -L-

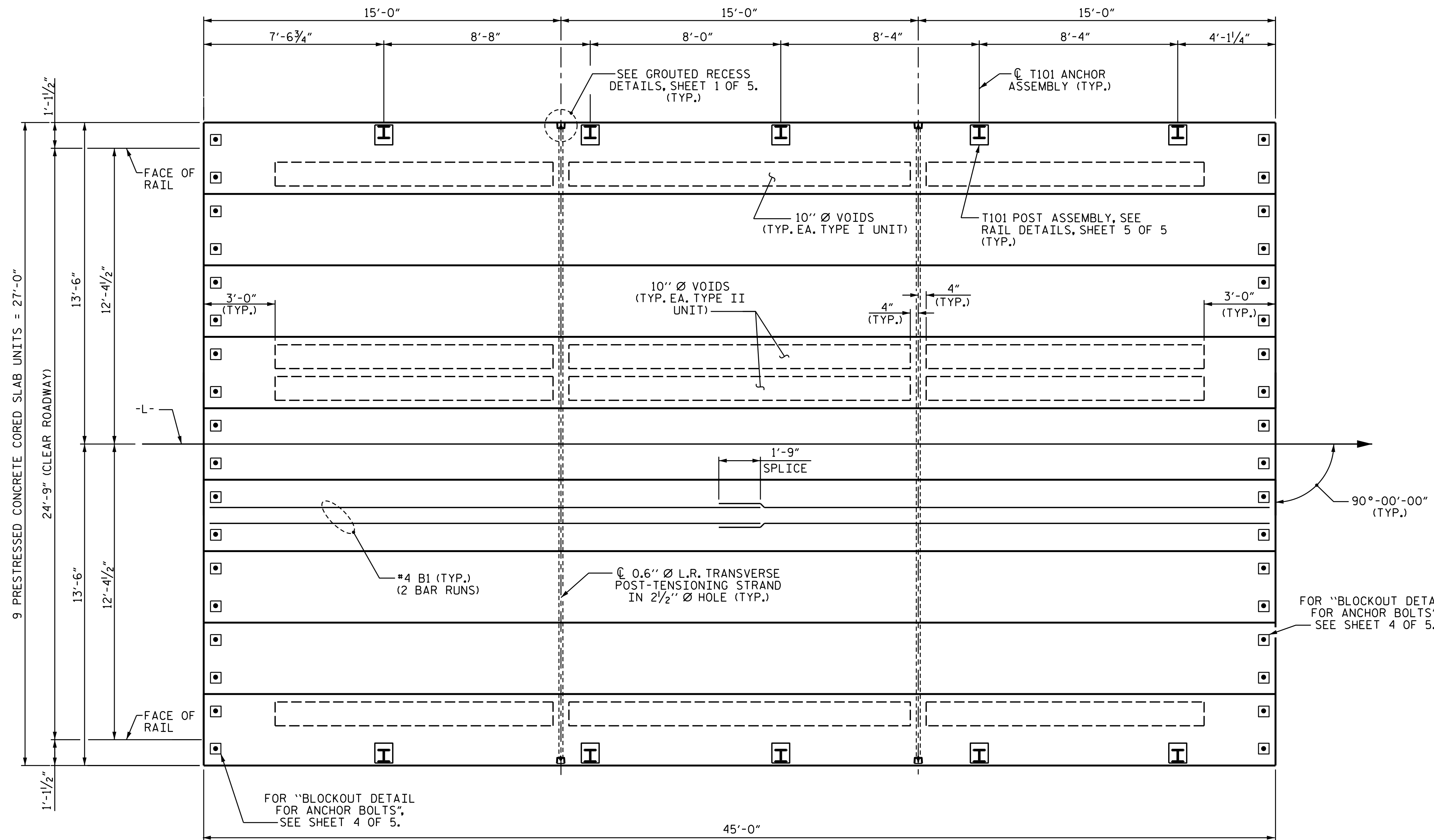
SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-7 1/2"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT

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

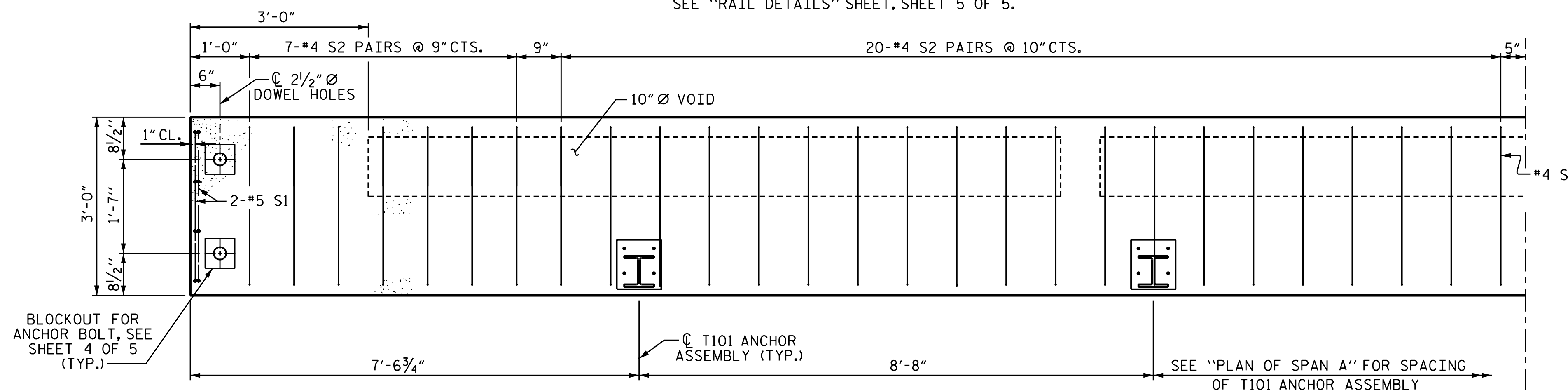
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

12/22/2016



PLAN OF SPAN A

T101 RAIL NOT SHOWN, FOR T101 RAIL, SEE "RAIL DETAILS" SHEET, SHEET 5 OF 5.



HALF-PLAN OF TYPE I UNIT SPAN A

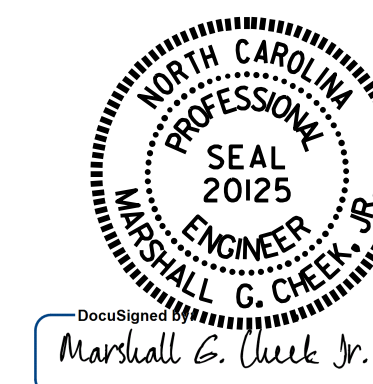
NOTE: TYPE I UNIT SHOWN - TYPE II UNIT SIMILAR EXCEPT ADD ONE VOID AND REMOVE T101 ANCHOR ASSEMBLY.

PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPAN A
 24'-9" CLEAR ROADWAY
 90° SKEW



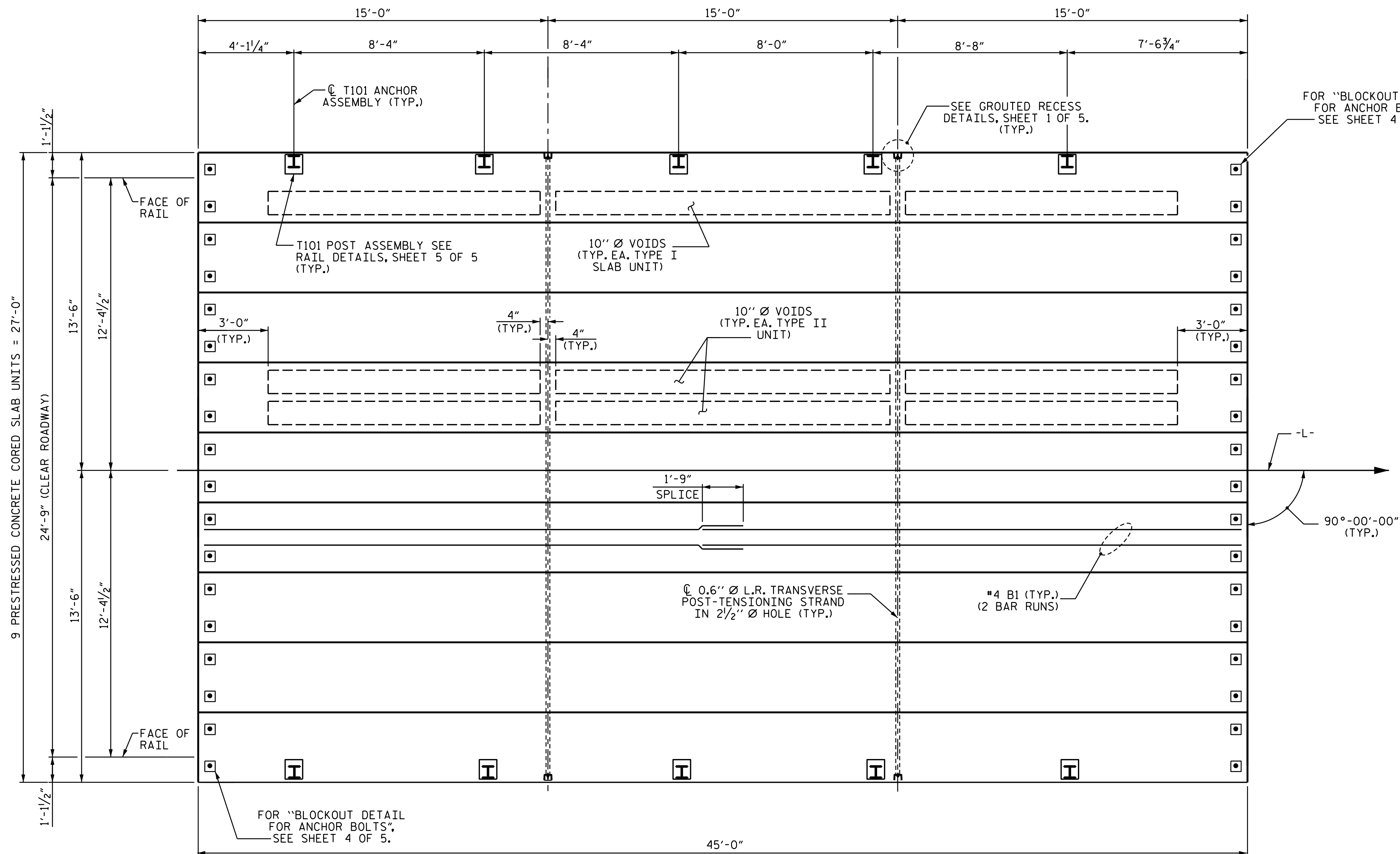
12/22/2016

DRAWN BY : M. POOLE DATE : 7/16
 CHECKED BY : W.J. HARRIS DATE : 10/16
 DESIGN ENGINEER OF RECORD: W.J. HARRIS DATE : 10/16

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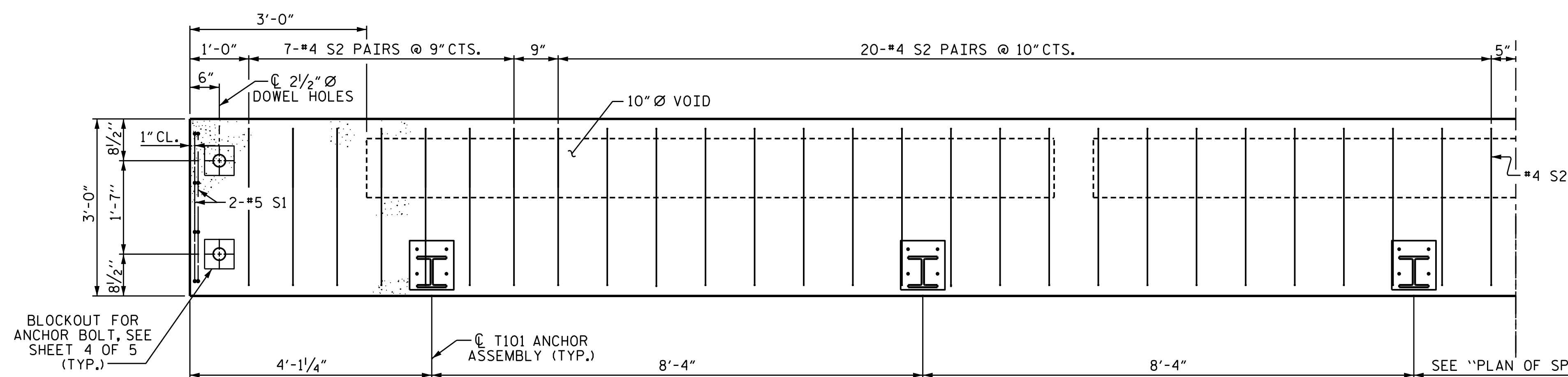
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			16

STD. NO. 21" PCS_27_90S_45L



PLAN OF SPAN B

T101 RAIL NOT SHOWN, FOR T101 RAIL, SEE "RAIL DETAILS" SHEET.



HALF-PLAN OF TYPE I UNIT SPAN B

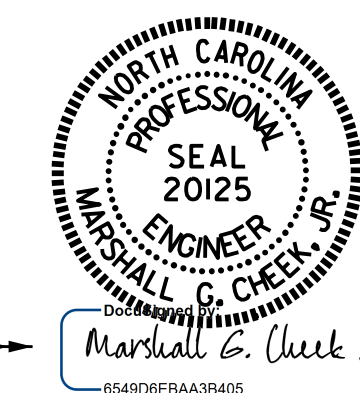
NOTE: TYPE I UNIT SHOWN - TYPE II UNIT SIMILAR EXCEPT ADD ONE VOID AND REMOVE T101 POST ASSEMBLY.

PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPAN B
 24'-9" CLEAR ROADWAY
 90° SKEW

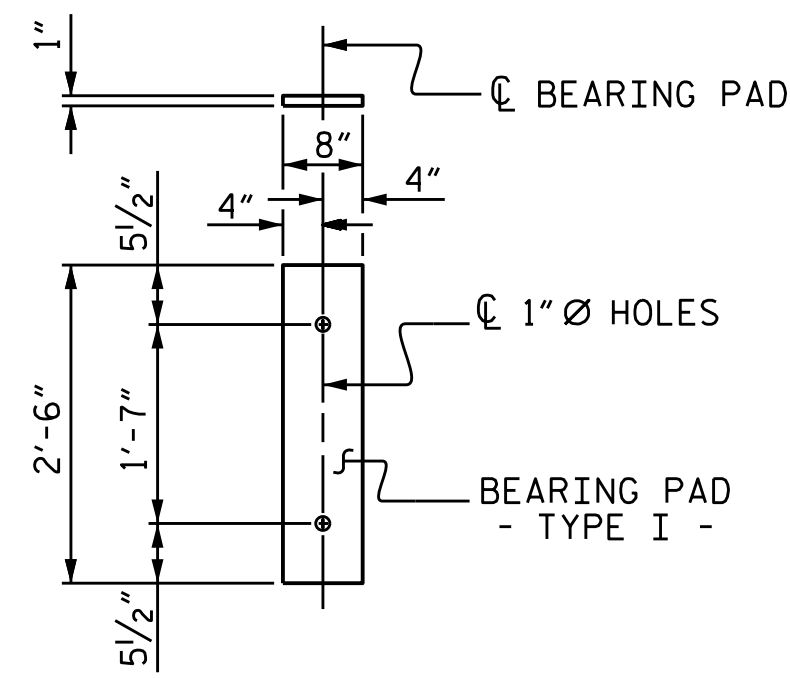


Marshall C. Cheek Jr.
 1/5/2017

DRAWN BY: M. POOLE DATE: 7/16
 CHECKED BY: W.J. HARRIS DATE: 10/16
 DESIGN ENGINEER OF RECORD: W.J. HARRIS DATE: 10/16

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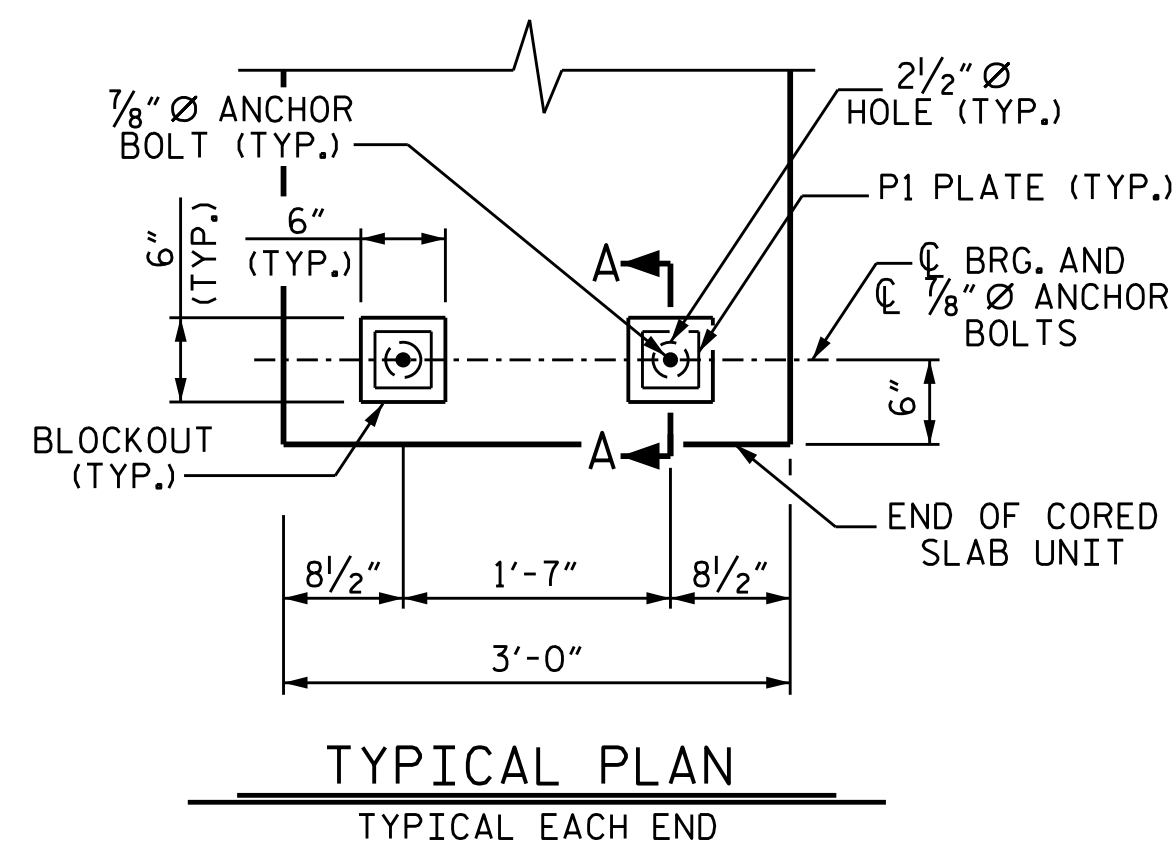
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2			4			16



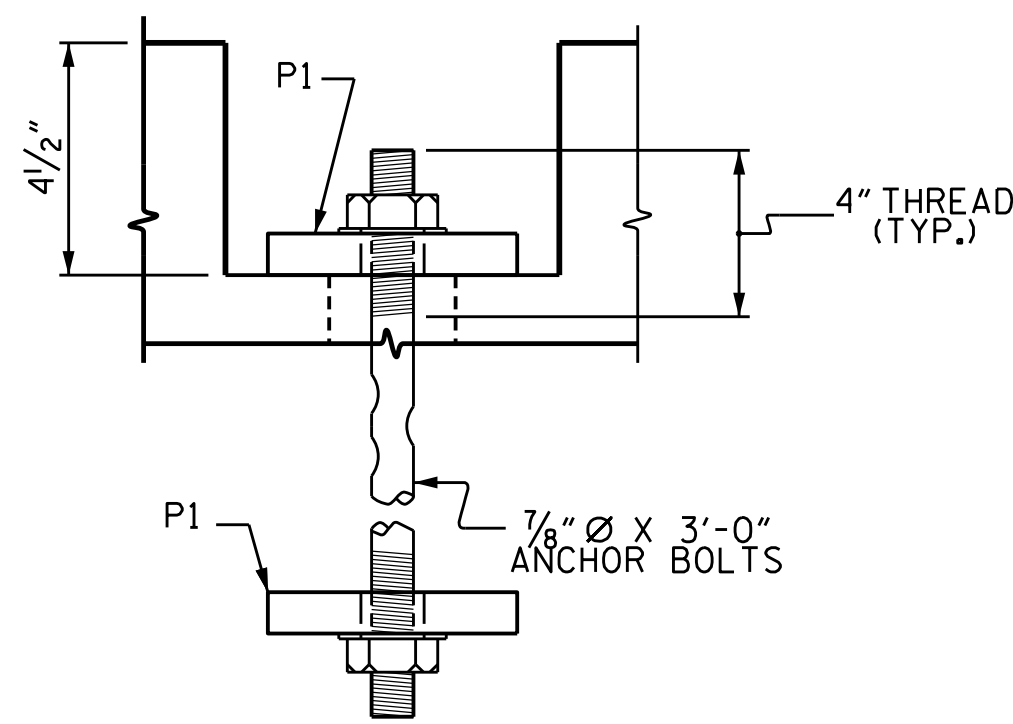
FIXED END
(TYPE I - 36 REQ'D)

ELASTOMERIC BEARING DETAILS

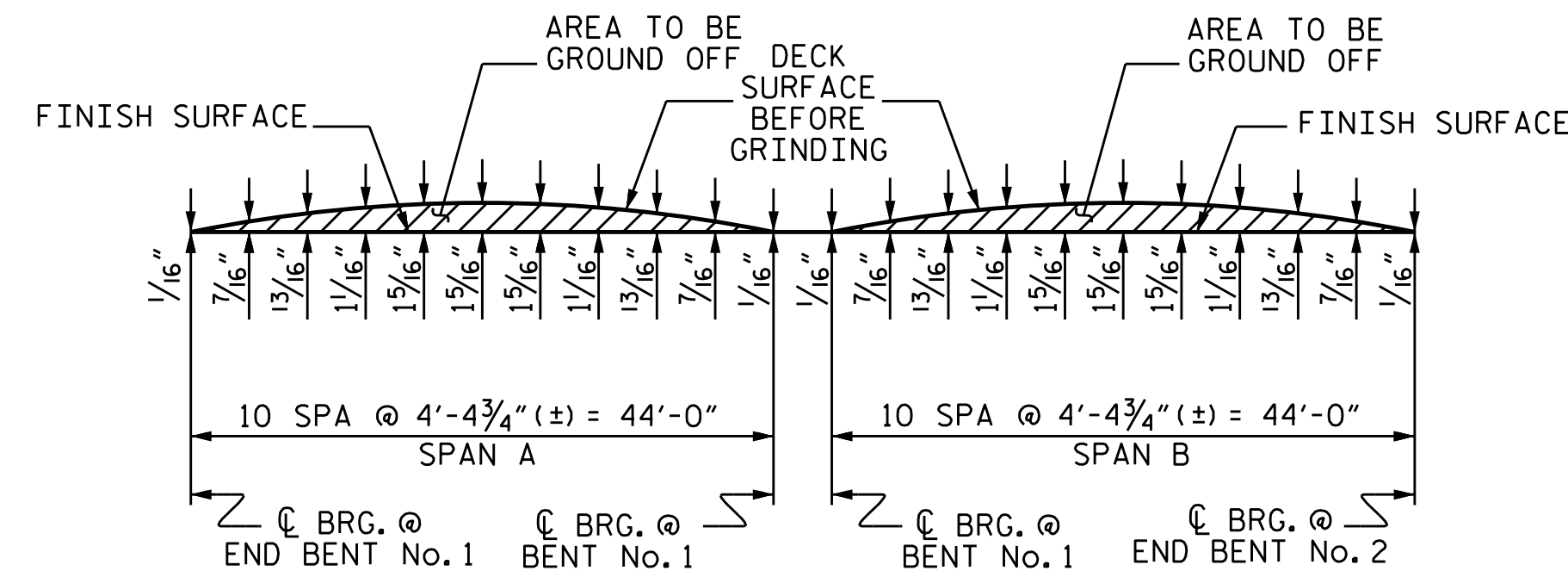
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.



TYPICAL PLAN
TYPICAL EACH END



SECTION A-A



SCHEMATIC OF GRINDING ON THE SURFACE OF CORED SLAB UNIT

VALUES FOR GRINDING ARE BASED ON THE ADJUSTED FINAL CAMBER AND ARE CONSTANT IN THE TRANSVERSE DIRECTION BETWEEN GUTTERLINES.

CORED SLABS REQUIRED			
45' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	4	45'-0"	180
INTERIOR C.S.	14	45'-0"	630
TOTAL	18		810

CONCRETE RELEASE STRENGTH	
UNIT	PSI
45' UNITS	4500

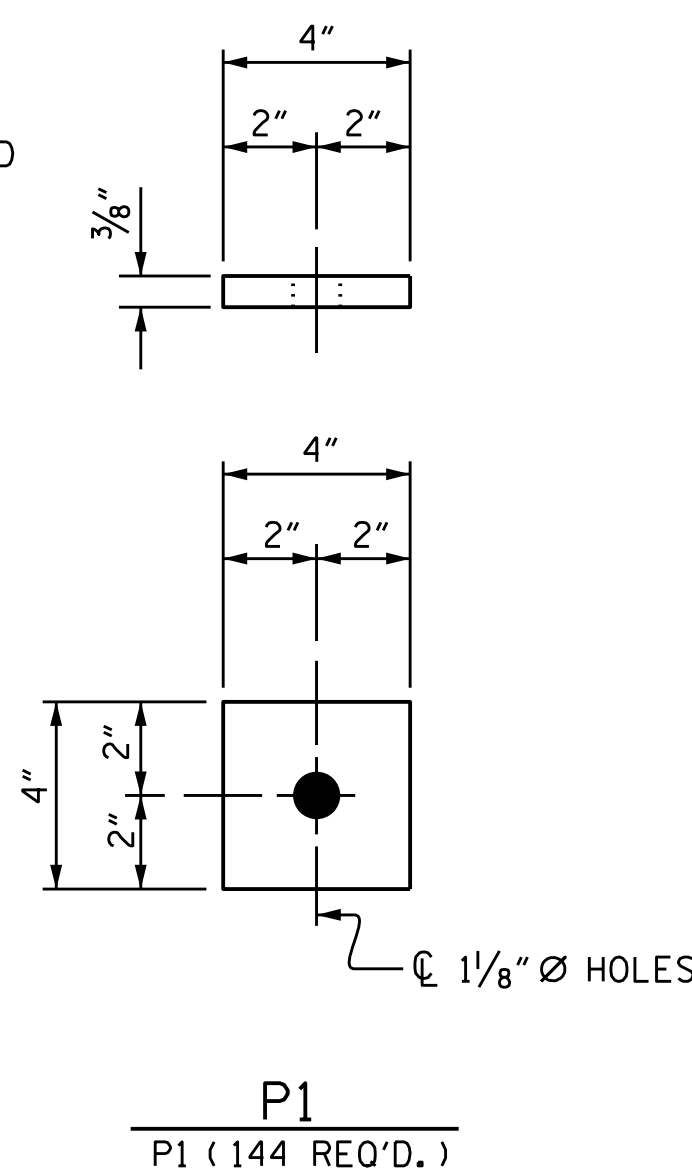
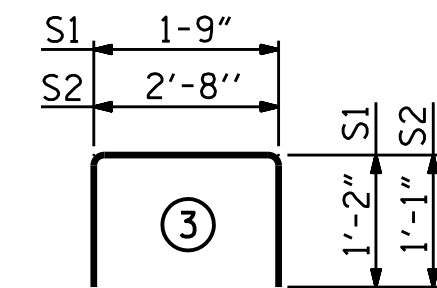


PLATE DETAILS
P1 (144 REQ'D.)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-1"	34	4'-1"	34
S2	108	#4	3	4'-10"	333	4'-10"	333
REINFORCING STEEL				LBS.	429		429
6000 P.S.I. CONCRETE				CU. YDS.	5.9		5.9
0.6" Ø L.R. STRANDS				No.	15		15

DEAD LOAD DEFLECTION AND CAMBER

45' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	3/16" ↓
FINAL CAMBER	1/8" ↑

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 CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

THE COST OF THE T101 RAIL ANCHOR ASSEMBLIES CAST WITH THE TYPE I CORED SLABS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

PROJECT NO. B-5383

AVERY COUNTY

STATION: 12+71.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-7 1/2"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

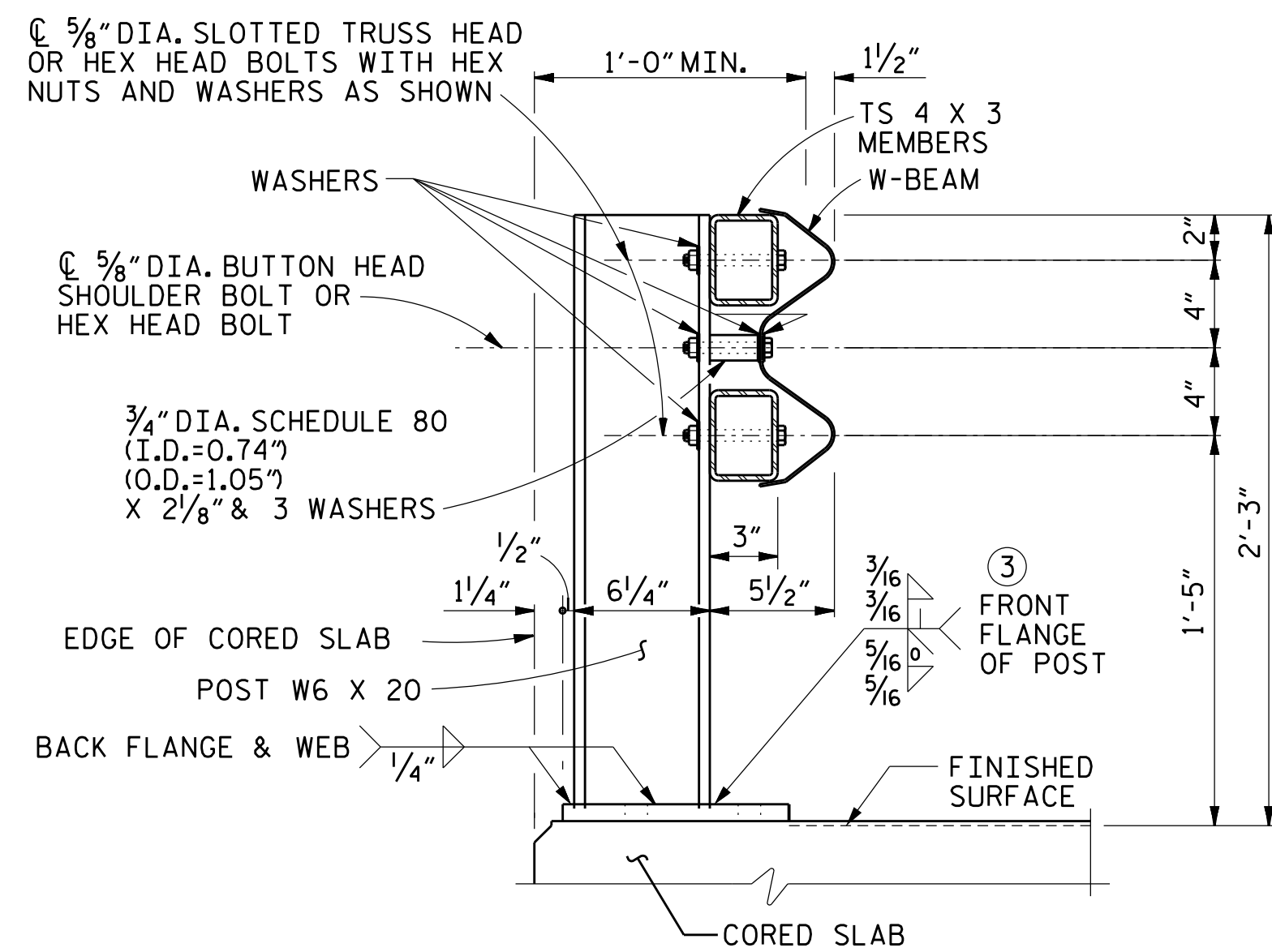


1/3/2017

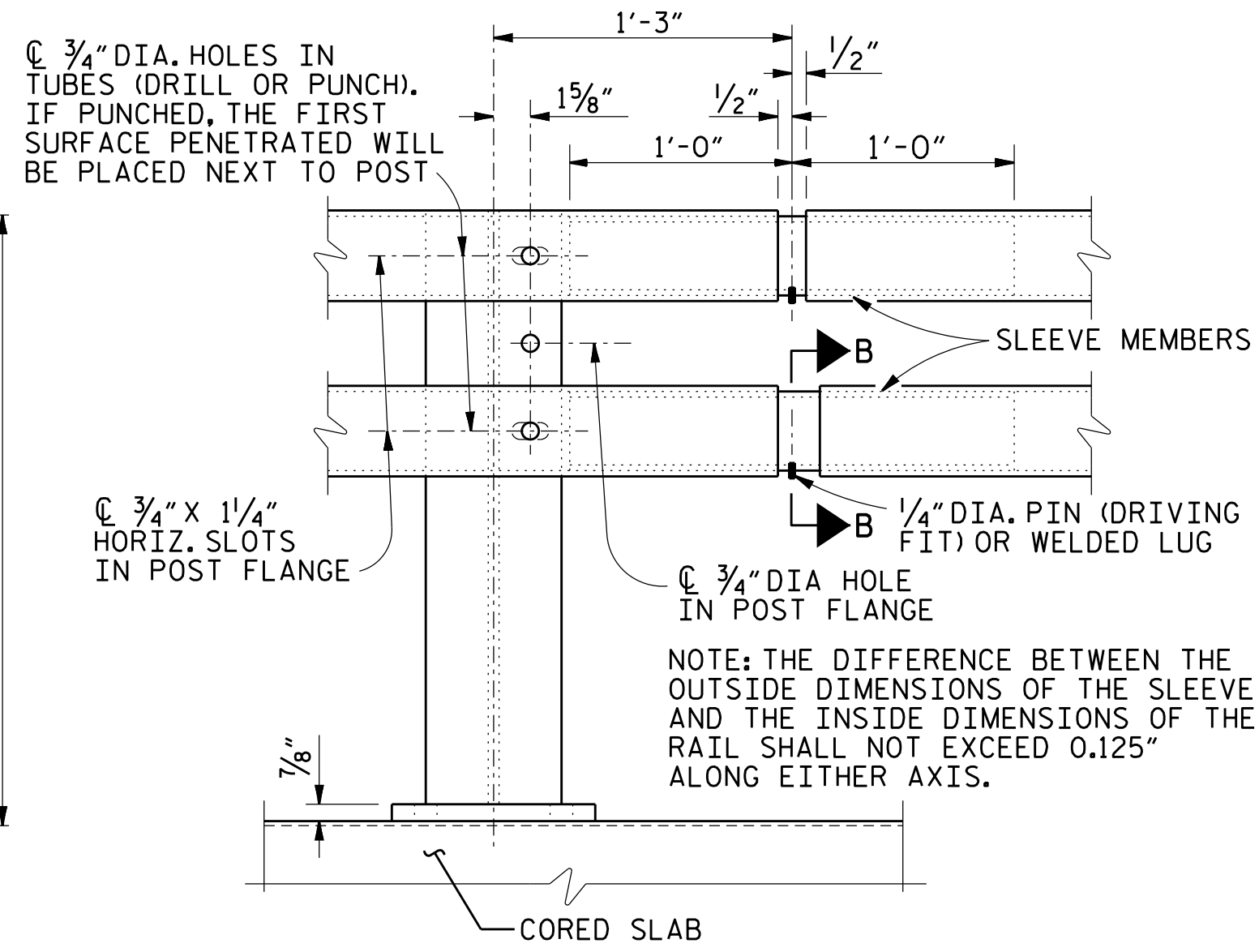
DRAWN BY: M. POOLE DATE: 7/16
CHECKED BY: W.J. HARRIS DATE: 10/16
DESIGN ENGINEER OF RECORD: W.J. HARRIS DATE: 10/16

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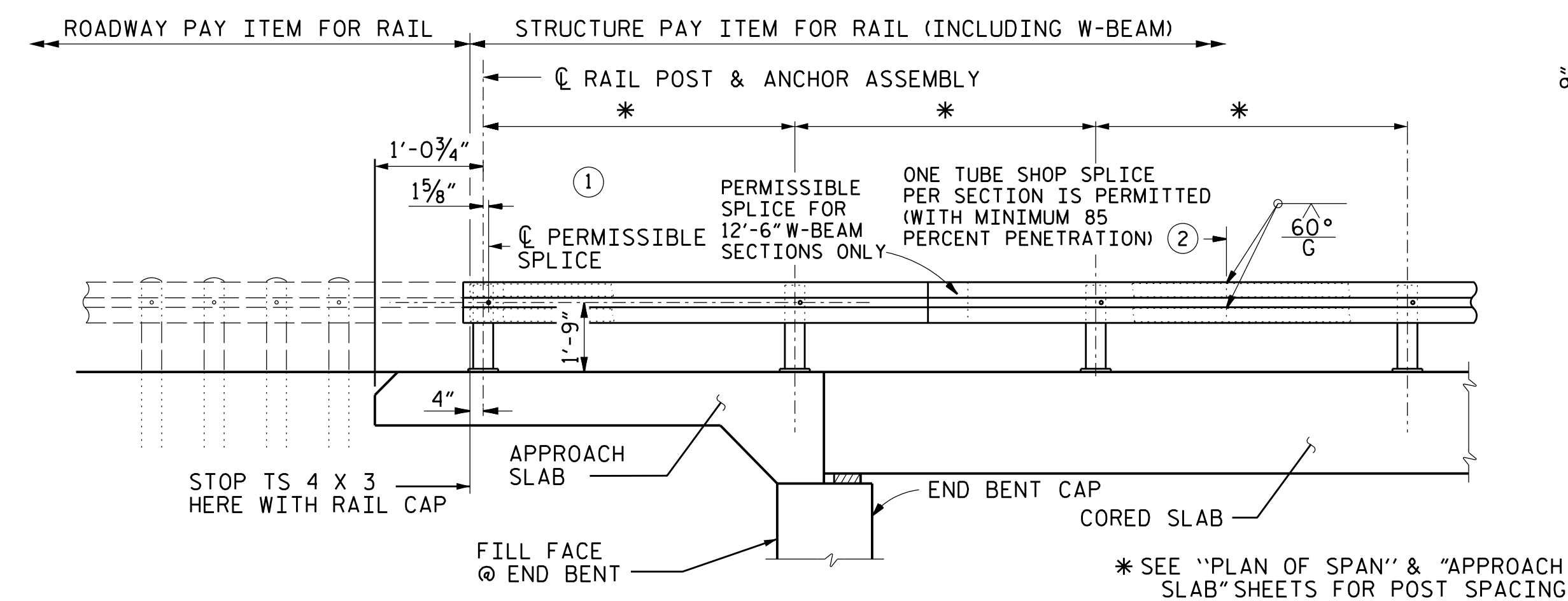
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			16



SECTION THRU RAIL

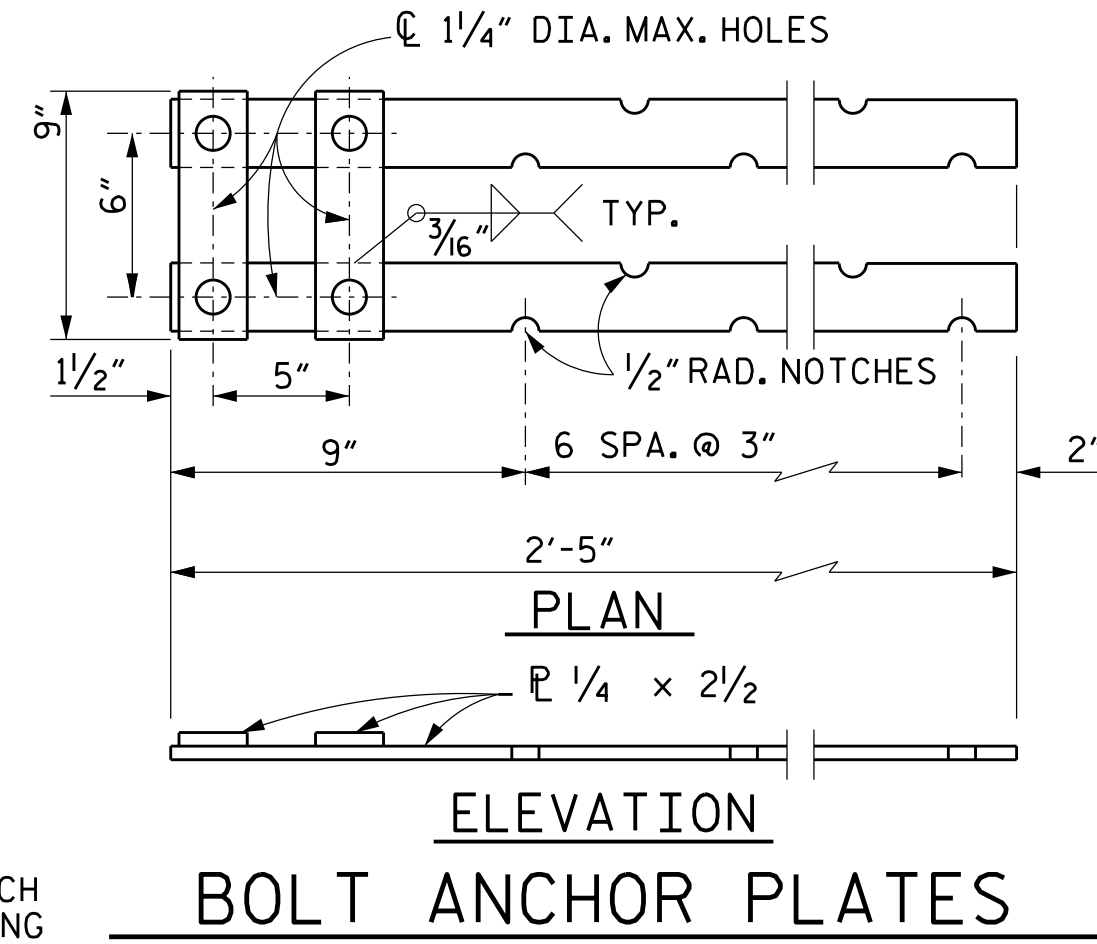


TUBE SPLICE DETAILS



ELEVATION OF T101 RAIL

(EACH END SIMILAR)



BOLT ANCHOR PLATES

NOTES

RAILING SHALL BE CONTINUOUS FROM APPROACH SLAB TO APPROACH SLAB AS DETAILED IN "ELEVATION OF T101 RAIL". TS 4 X 3 MEMBERS SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF THREE POSTS. JOINTS IN TS 4 X 3 MEMBERS SHALL BE SPLICED AS DETAILED.

CERTIFIED MILL REPORTS ARE REQUIRED FOR THE TS 4 X 3 MEMBERS AND THE RAILS POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CORED SLABS.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALL RAIL COMPONENTS SHALL BE GALVANIZED UNLESS OTHERWISE SHOWN ON THE PLANS.

MATERIAL AND GALVANIZING SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

POSTS, POST BASE PLATE, AND ANCHOR PLATES: AASHTO M270 GRADE 36 STRUCTURAL STEEL-GALVANIZED TO AASHTO M111.

TS 4 X 3 MEMBERS AND SLEEVE MEMBERS: SEE "TUBE AND SLEEVE MEMBERS" CHART - GALVANIZED TO AASHTO M111.

HIGH STRENGTH ANCHOR BOLTS SHALL CONFORM TO ASTM 1554 GRADE 105. HEAVY HEX NUTS SHALL CONFORM TO ASTM A563 DH, AND WASHERS TO ASTM F436, TYPE 1. NUTS AND WASHERS SHALL BE GALVANIZED TO AASHTO M111.

W-BEAM RAILING SHALL BE 12 GAGE STEEL NOMINAL THICKNESS OF 0.1046", EXCLUSIVE OF PROTECTIVE COATING. RAILING MAY VARY SLIGHTLY AND SHALL CONFORM TO AASHTO M-180.

AT EXPANSION SLOTS IN W-BEAM RAIL, TIGHTEN BOLTS SLIGHTLY.

NUTS FOR ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND GIVEN AN ADDITIONAL 1/4 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

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

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

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

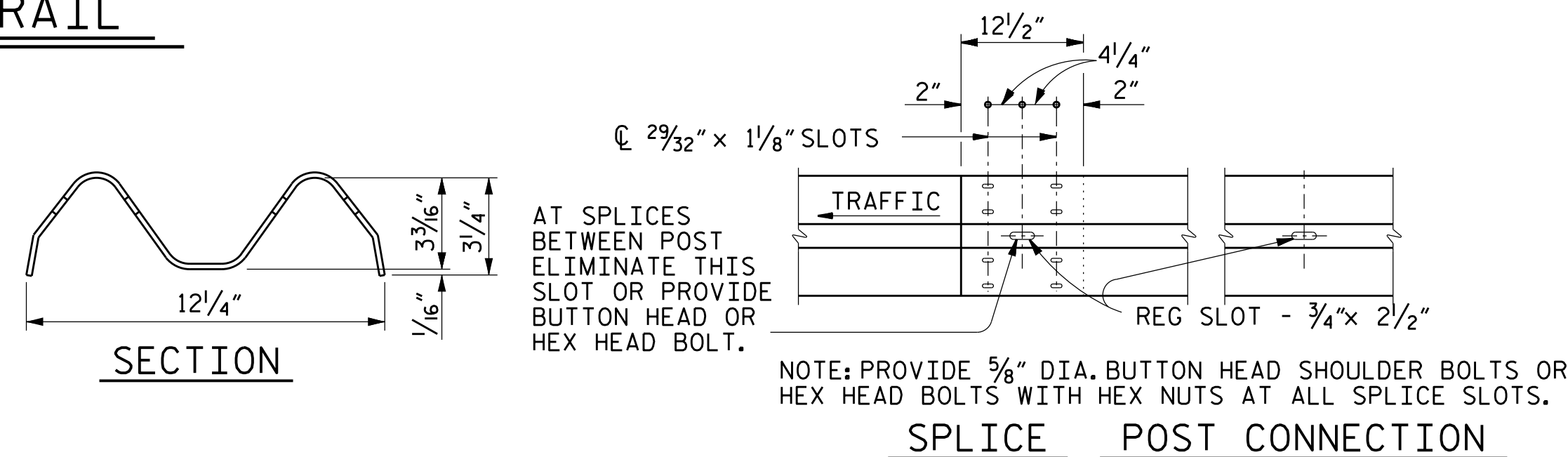
ERECTION DRAWINGS SHOWING SECTION LENGTHS, SPLICE LOCATIONS, RAIL POST SPACING AND ANCHOR BOLT SETTING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- ① SPLICE MAY BE ON EITHER SIDE OF BRIDGE RAIL POST WEB.
- ② THE WELD MAY BE SQUARE GROOVE OR SINGLE VEE GROOVE. GRIND SMOOTH.
- ③ IN LIEU OF FRONT FLANGE WELD SHOWN, A 3/8" FILLET WELD ALL AROUND INCLUDING EDGES OF FLANGE MAY BE USED.

PAY LENGTH = 282.00 LIN. FT.

TUBE & SLEEVE MEMBERS		
RAIL MEMBER	SLEEVE THICKNESS	
MATERIAL	THICKNESS	MATERIAL - A36
A 500 GRADE C	0.188"	0.188"
A 500 GRADE B	0.250"	0.250"
A 500 GRADE A OR A 501	0.313"	0.250"

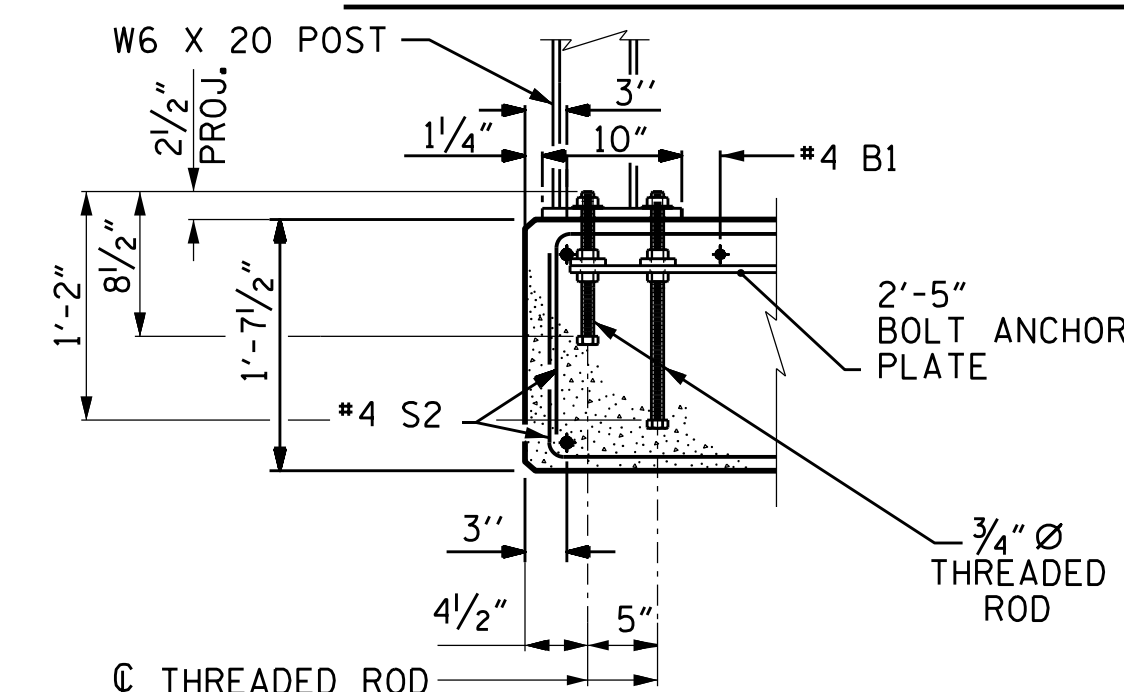
NOTE: OTHER SECTIONS OF EQUAL OR GREATER STRENGTH ARE ACCEPTABLE FOR SLEEVES.



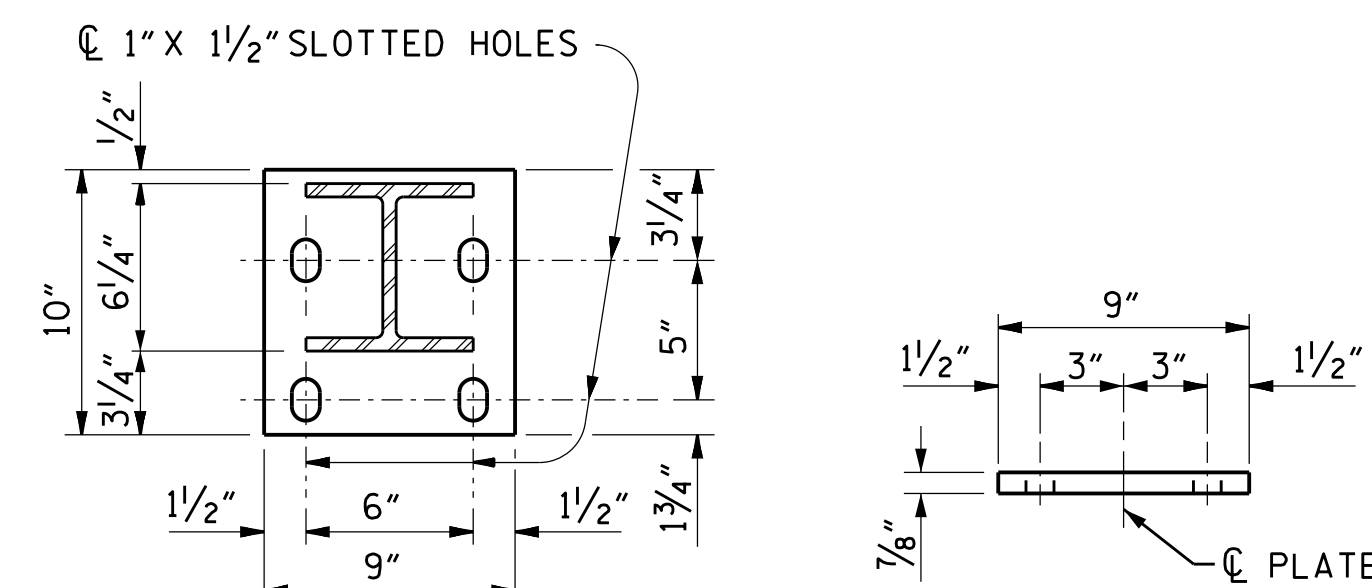
SECTION

SPLICE POST CONNECTION

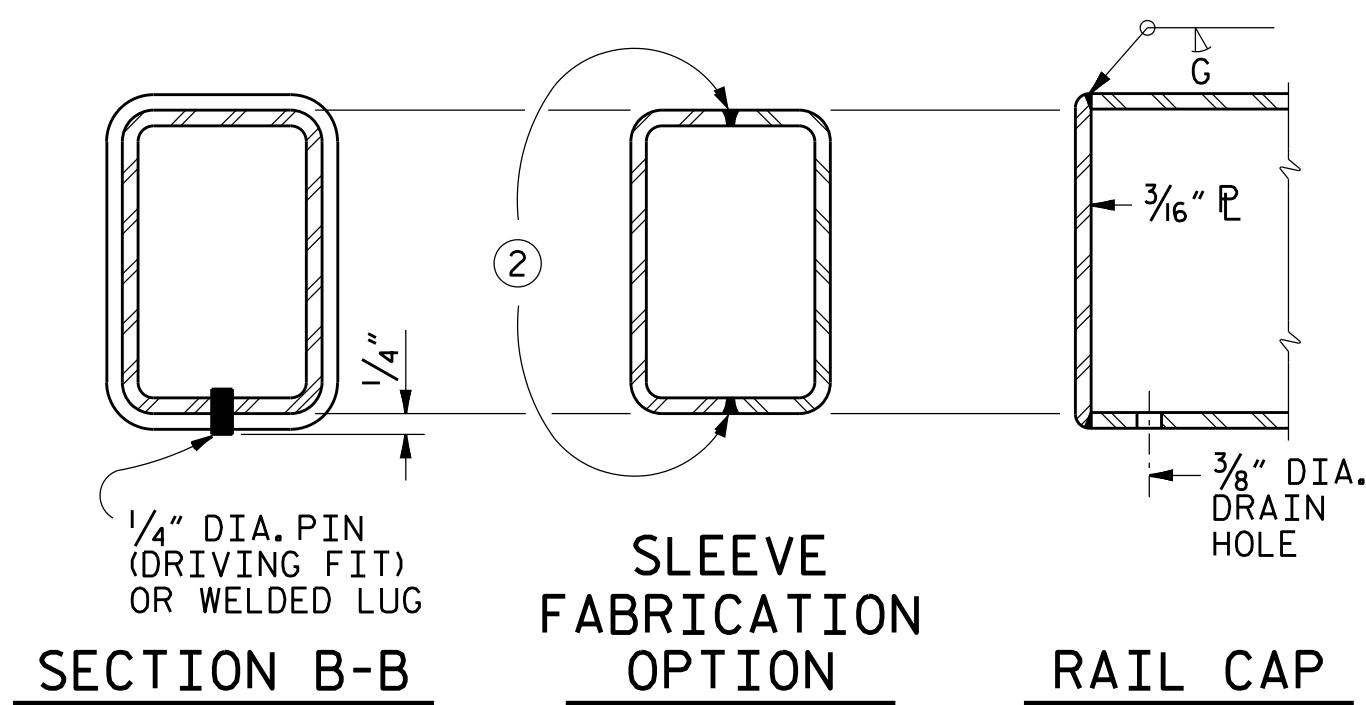
W-BEAM DETAILS



POST MOUNTING DETAILS



PLAN
ELEVATION
BASE PLATE DETAILS



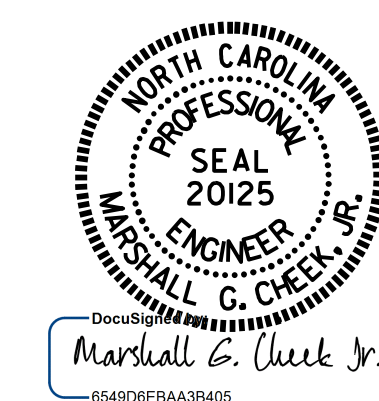
SECTION B-B
SLEEVE FABRICATION OPTION
RAIL CAP

DRAWN BY: M. POOLE DATE: 07/16
 CHECKED BY: W.J. HARRIS DATE: 10/16
 DESIGN ENGINEER OF RECORD: W.J. HARRIS DATE: 10/16

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PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 -L-

SHEET 5 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 RAIL DETAILS
 (T101 RAIL)**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-8
2			4			TOTAL SHEETS 16

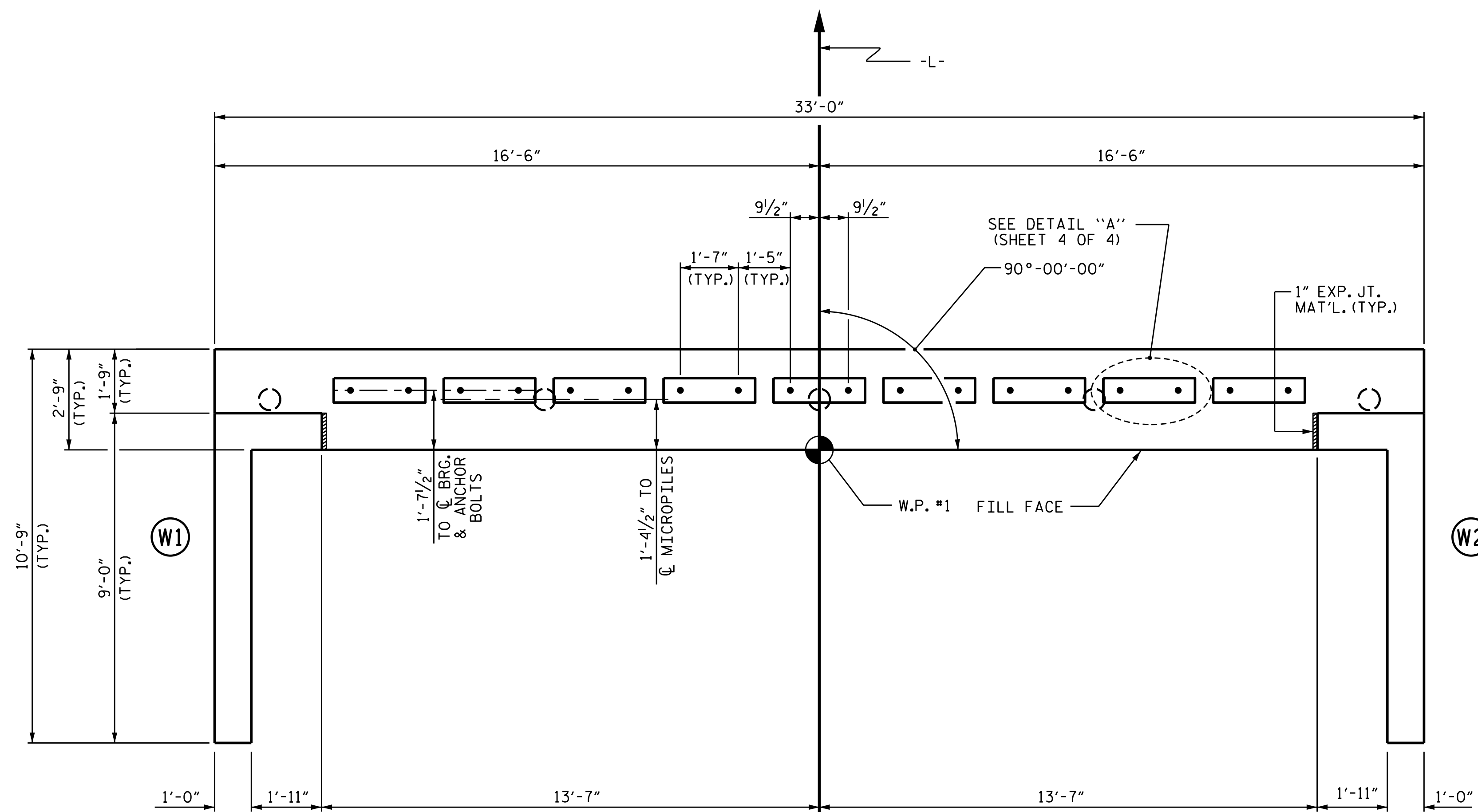
NOTES

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

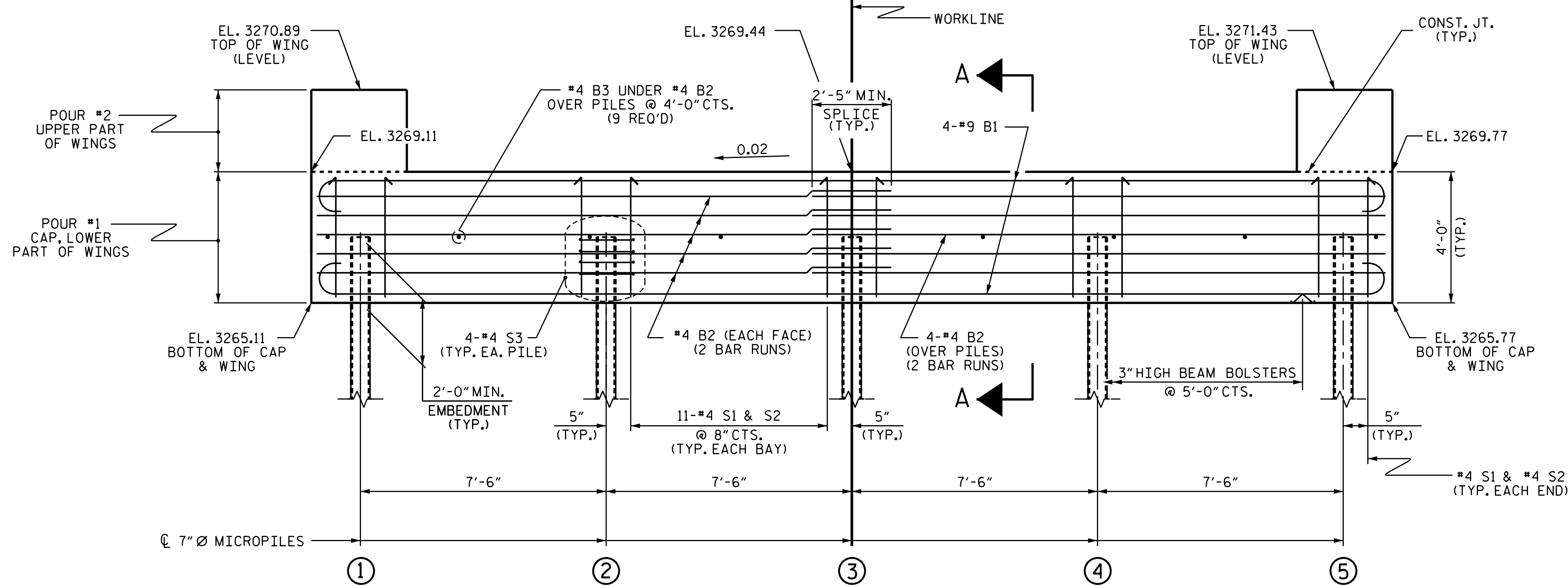
FOR WING DETAILS, SEE SHEET 3 OF 4.

FOR MICROPILES, SEE GEOTECHNICAL SPECIAL PROVISIONS.

THE COST OF THE 7/8" Ø ANCHOR BOLTS, NUTS, WASHERS, AND PLATES CAST WITH THE END BENT CAP SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.



PLAN



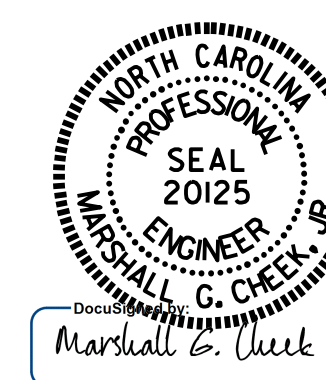
ELEVATION

WINGS NOT SHOWN FOR CLARITY, FOR SECTION A-A, SEE SHEET 4 OF 4.

TOP OF PILE ELEVATIONS	
①	3267.14
②	3267.29
③	3267.44
④	3267.59
⑤	3267.74

PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 -L-

SHEET 1 OF 4



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 16

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*****SYSTEM*****
 *****DGN*****
 *****USER*****

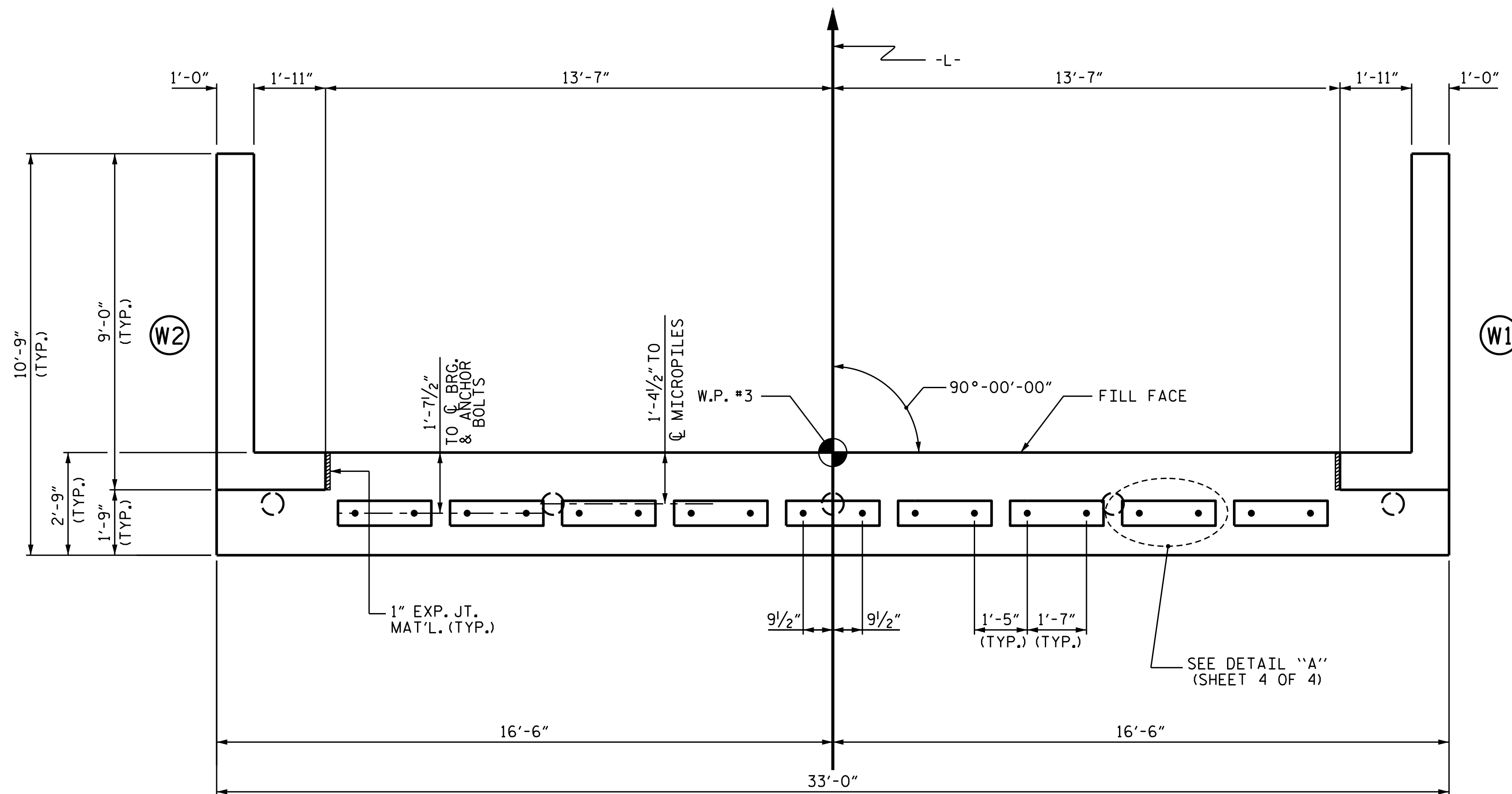
NOTES

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

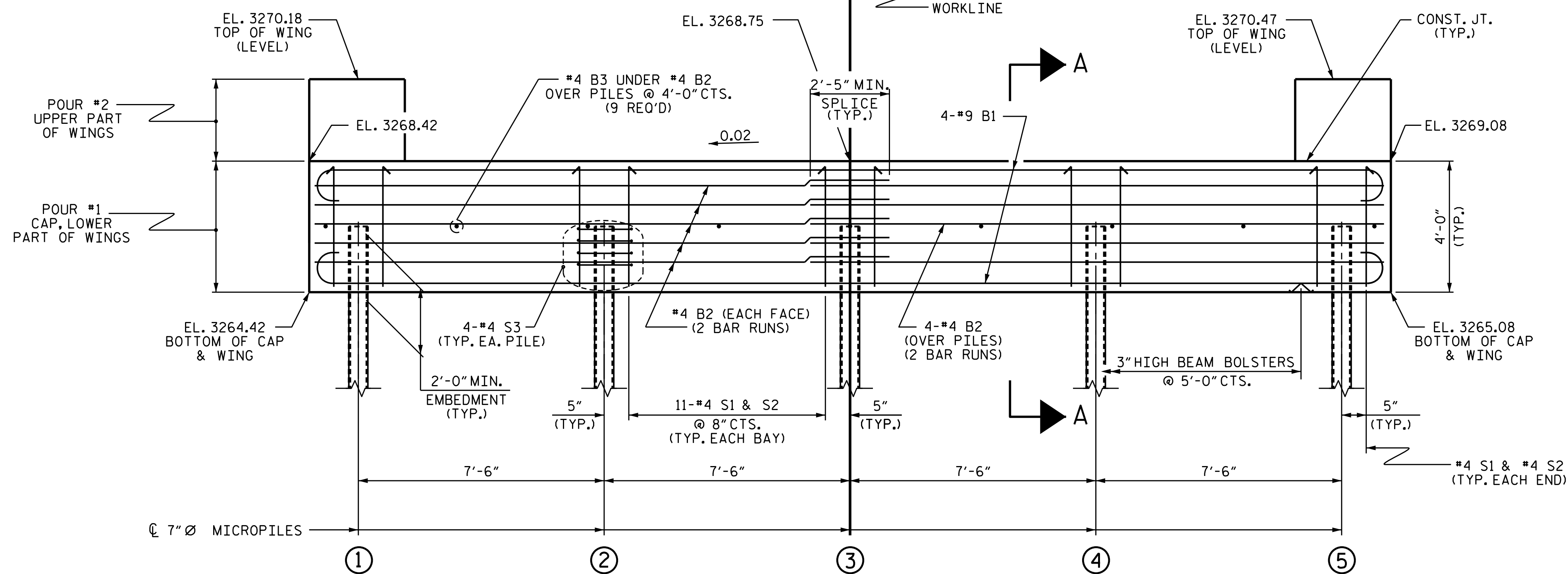
FOR WING DETAILS, SEE SHEET 3 OF 4.

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THE COST OF THE 7/8" Ø ANCHOR BOLTS, NUTS, WASHERS, AND PLATES CAST WITH THE END BENT CAP SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.



PLAN



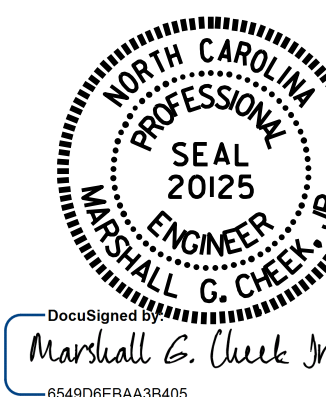
ELEVATION

WINGS NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 4.

TOP OF PILE ELEVATIONS	
①	3266.45
②	3266.60
③	3266.75
④	3266.90
⑤	3267.05

PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 L-

SHEET 2 OF 4



12/22/2016

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

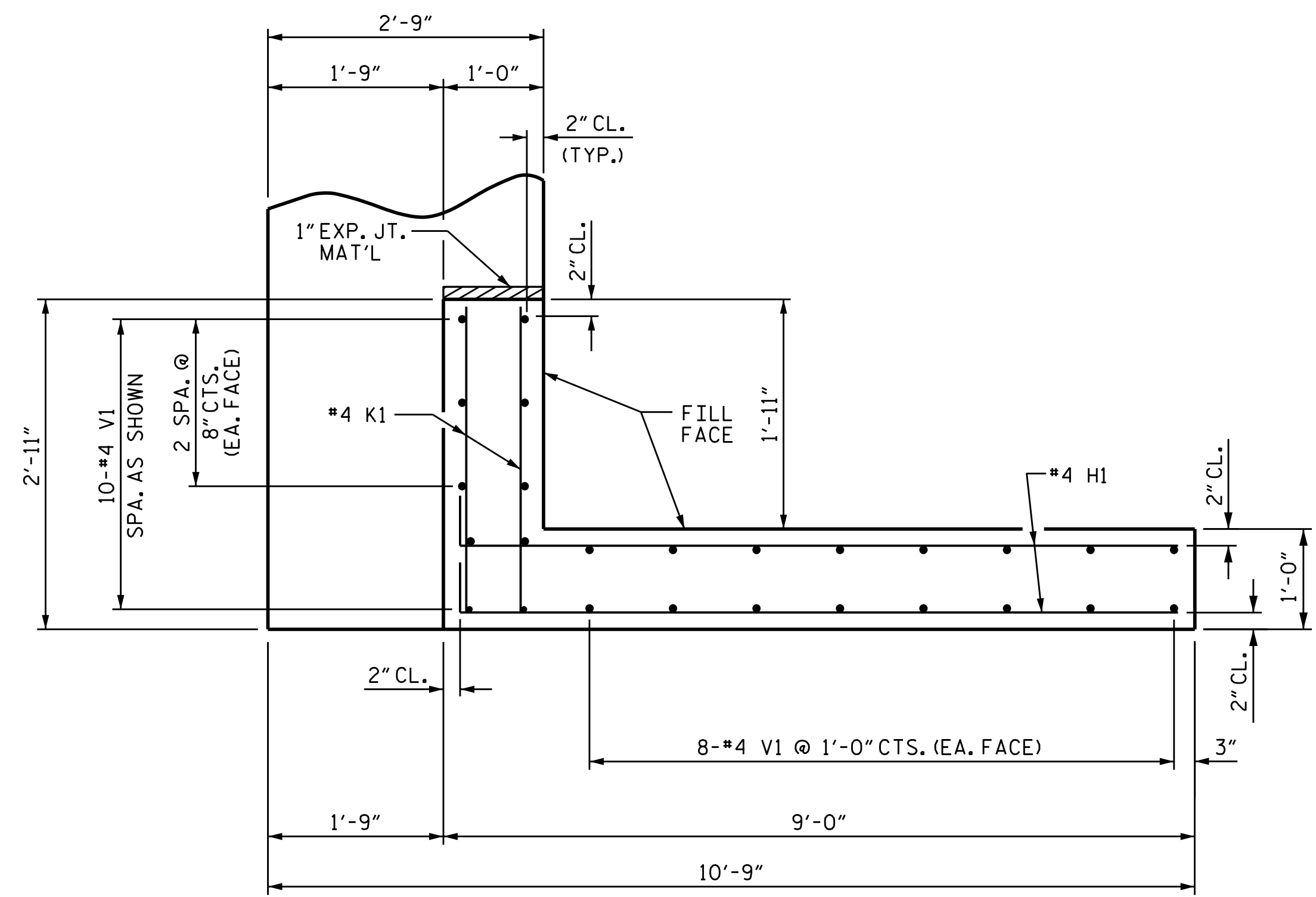
SUBSTRUCTURE
 END BENT No. 2

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			16

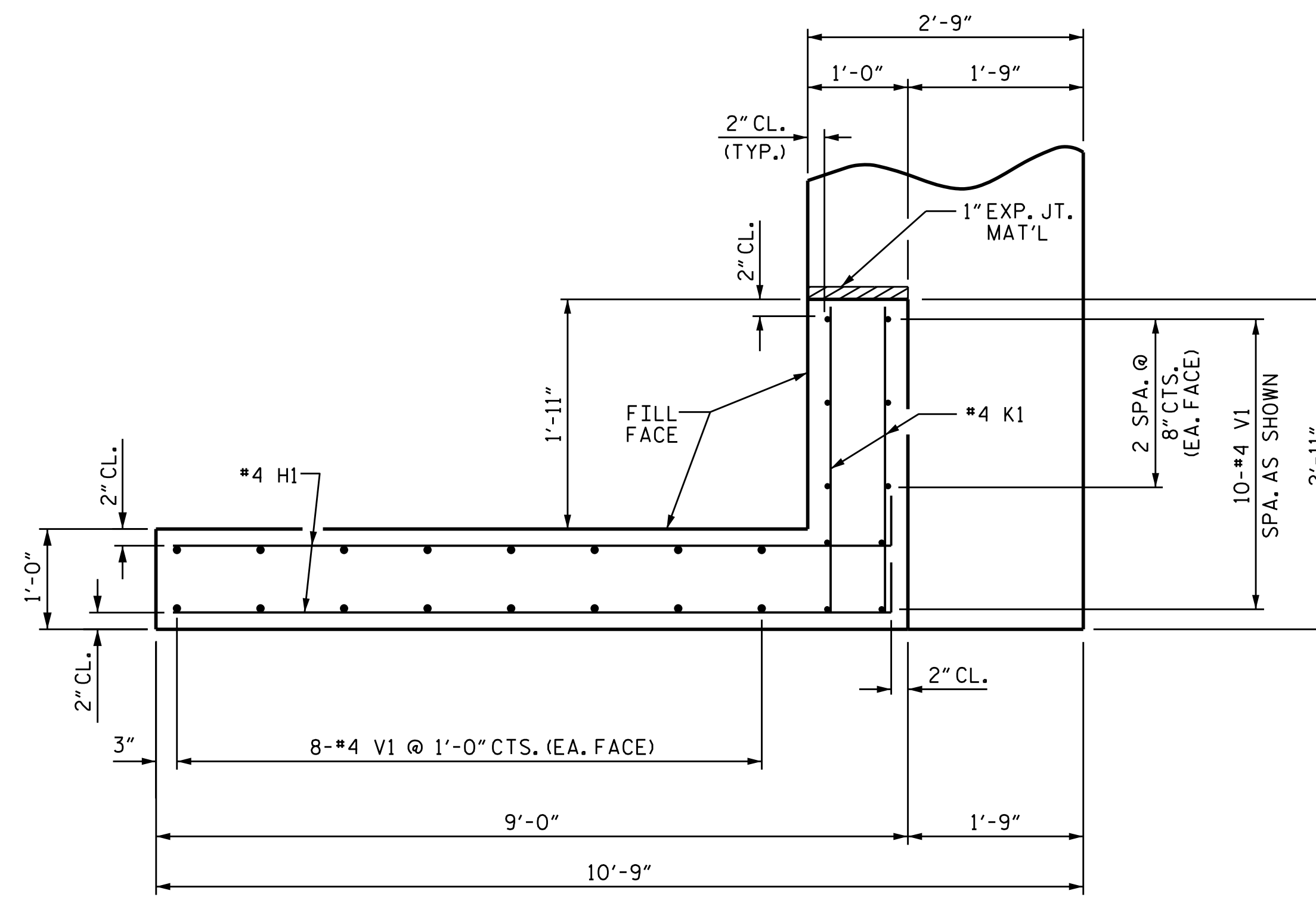
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 CHECKED BY : W. J. HARRIS DATE : 11-16
 DESIGN ENGINEER OF RECORD: W. J. HARRIS DATE : 11-16

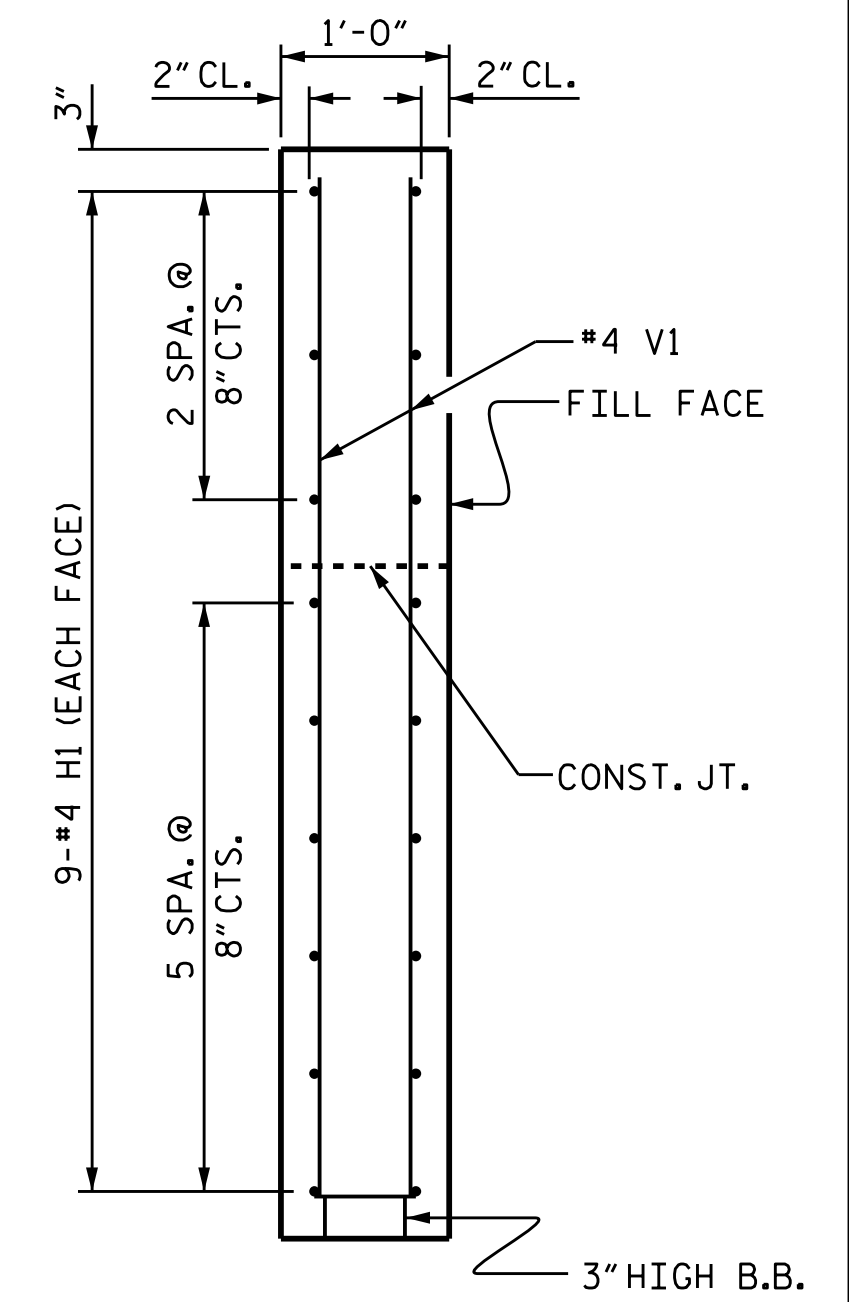
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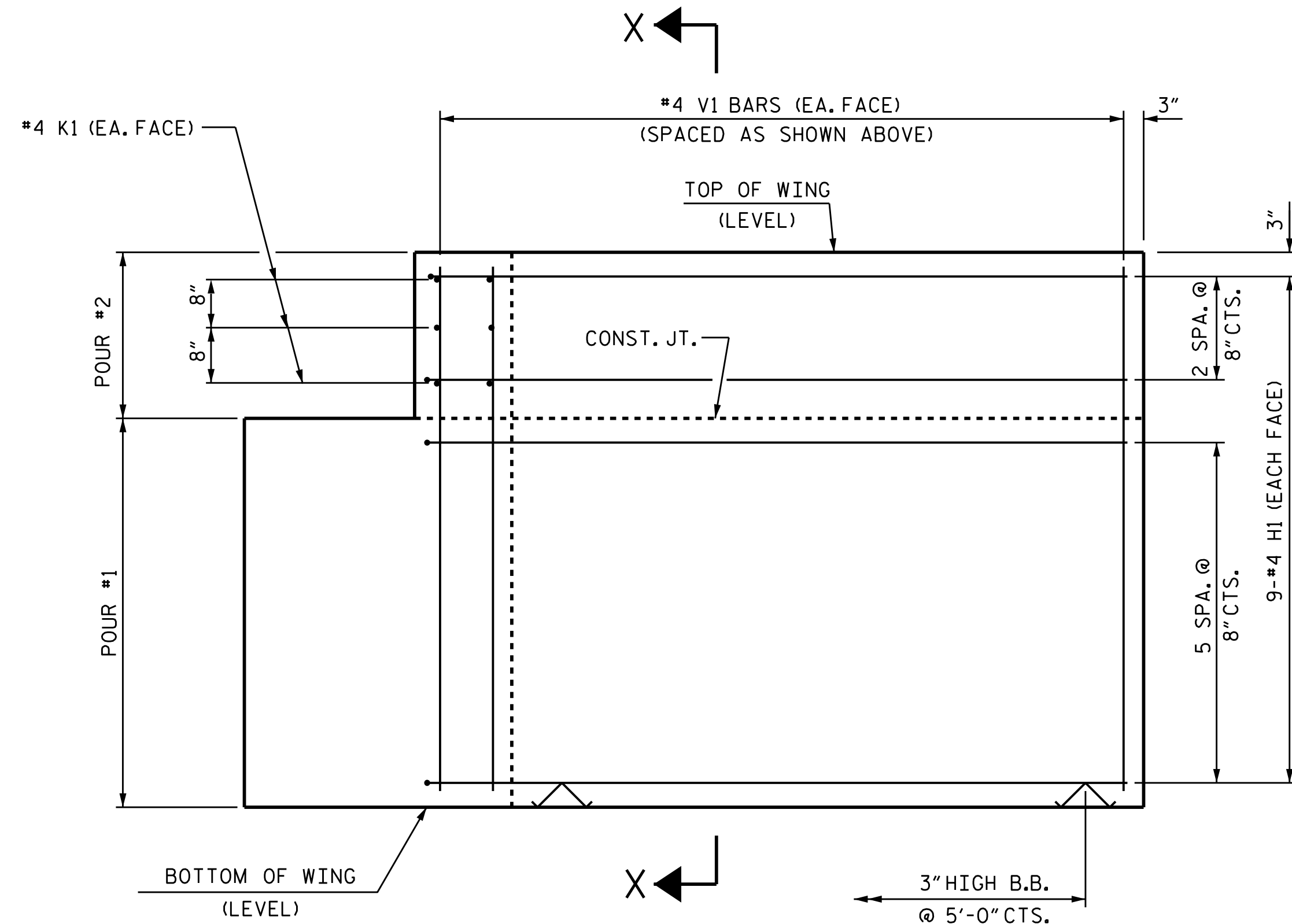
PLAN OF WING (W1)



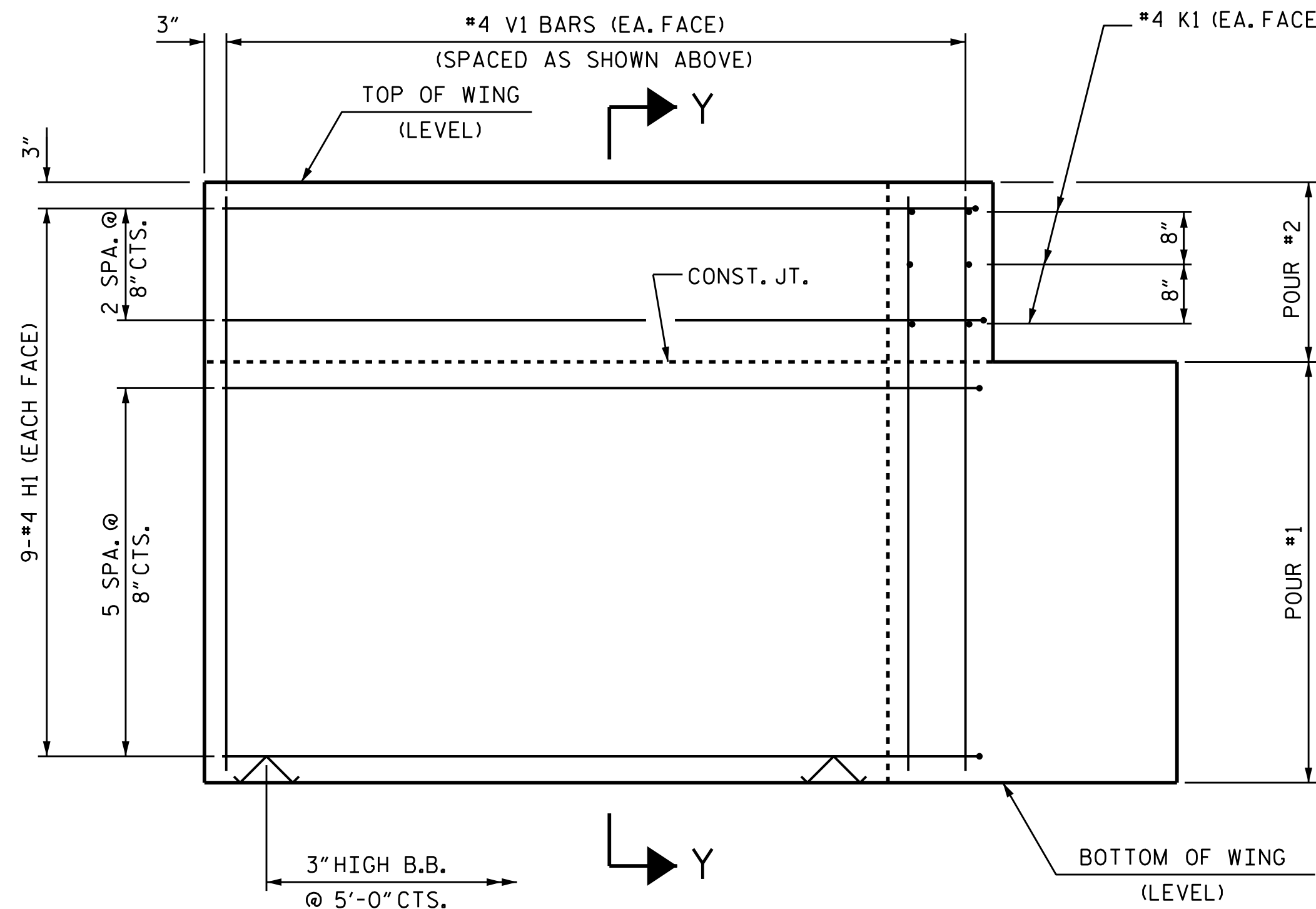
PLAN OF WING (W2)



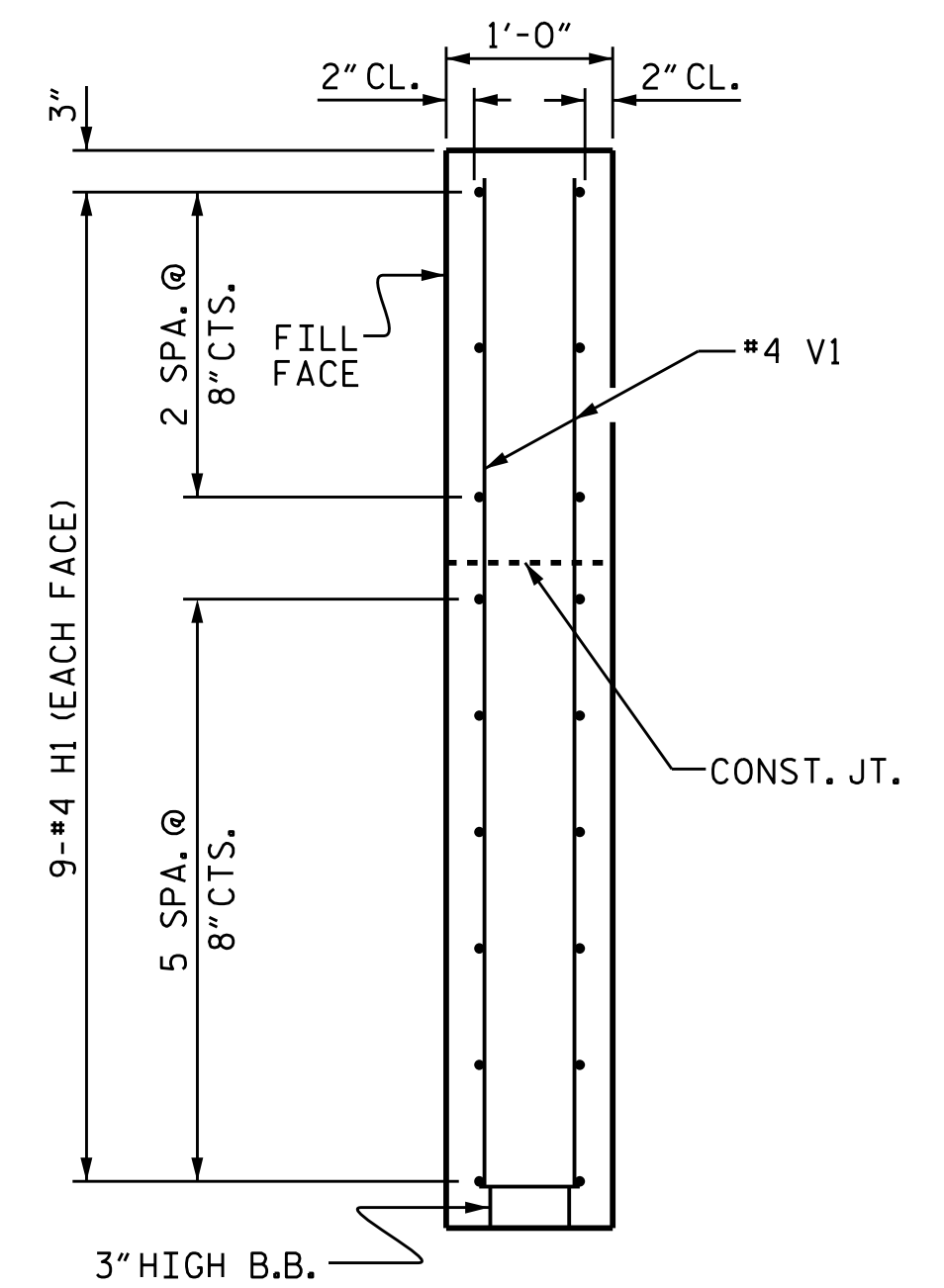
SECTION X-X



ELEVATION OF WING (W1)



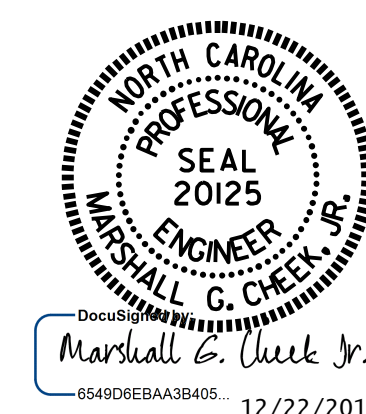
ELEVATION OF WING (W2)



SECTION Y-Y

PROJECT NO. B-5383
 AVERY COUNTY
 STATION: 12+71.00 -L-

SHEET 3 OF 4



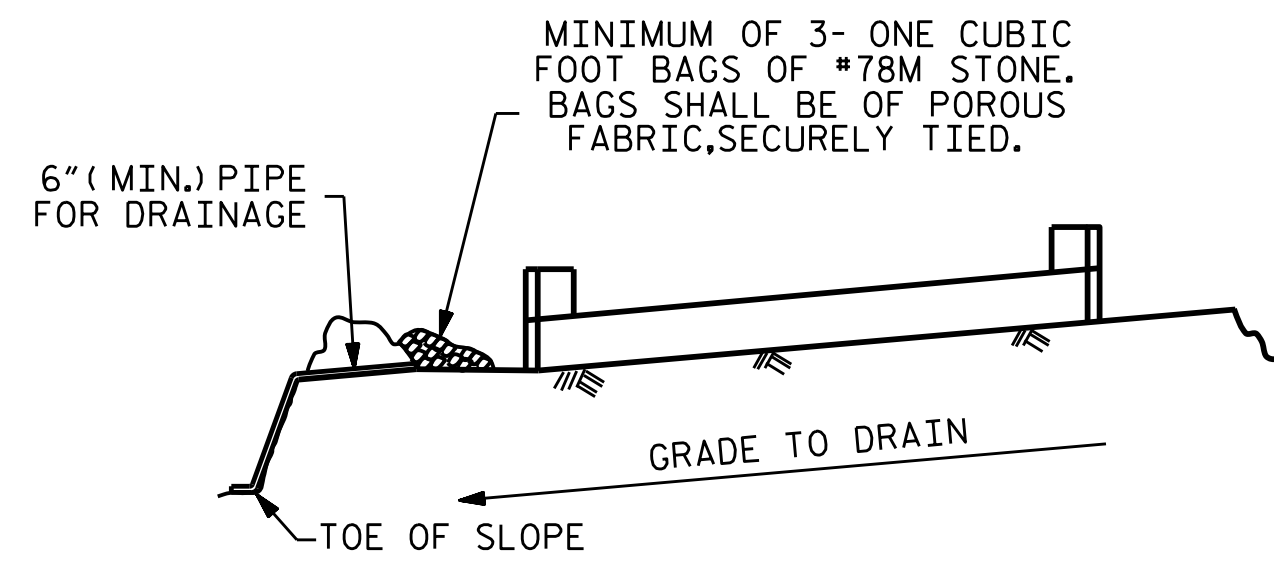
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT
 WING DETAILS

DRAWN BY: M. POOLE DATE: 9-16
 CHECKED BY: W. J. HARRIS DATE: 11-16
 DESIGN ENGINEER OF RECORD: W. J. HARRIS DATE: 11-16

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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	
2			4			16	

WING DETAILS

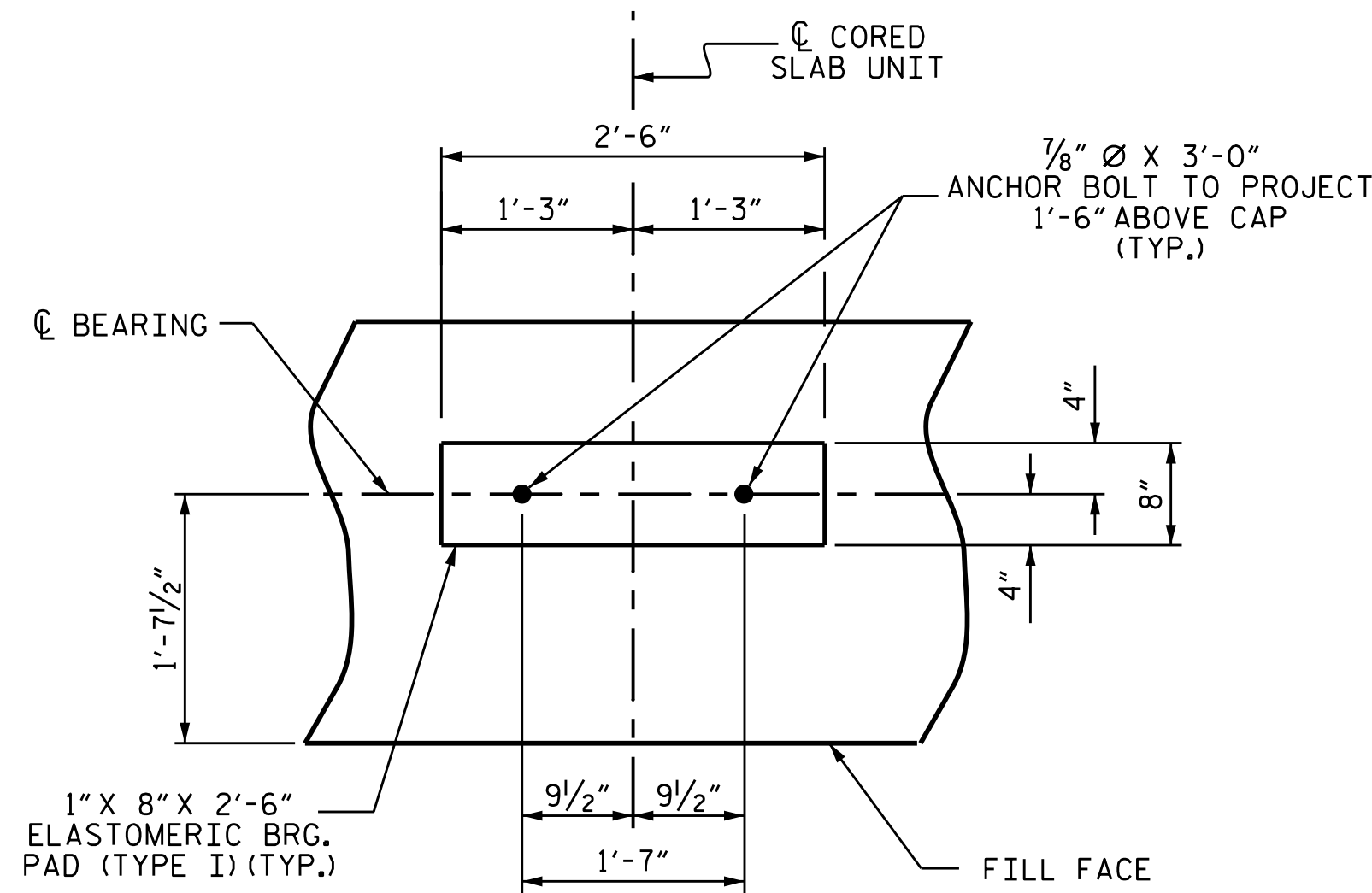


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

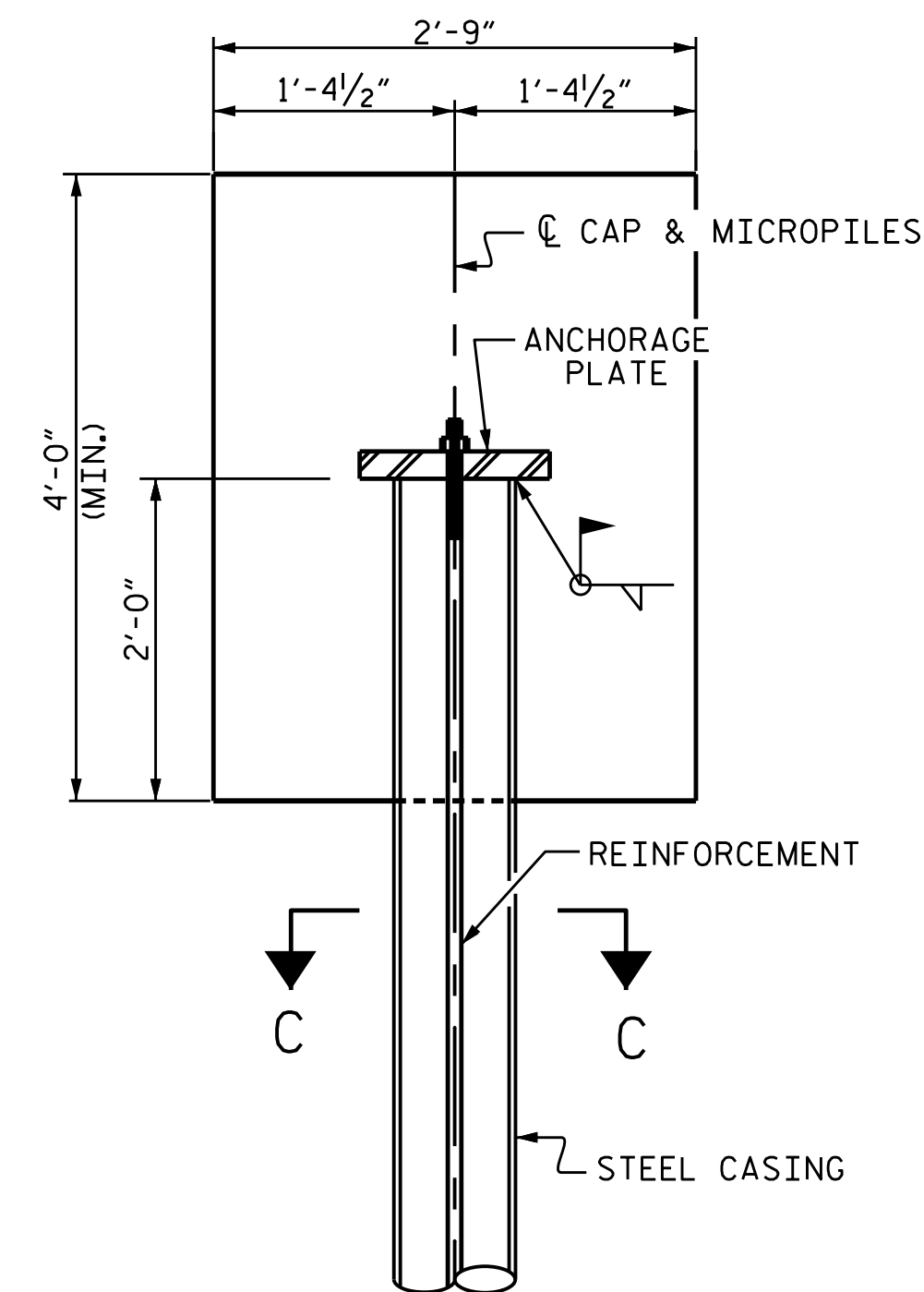
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



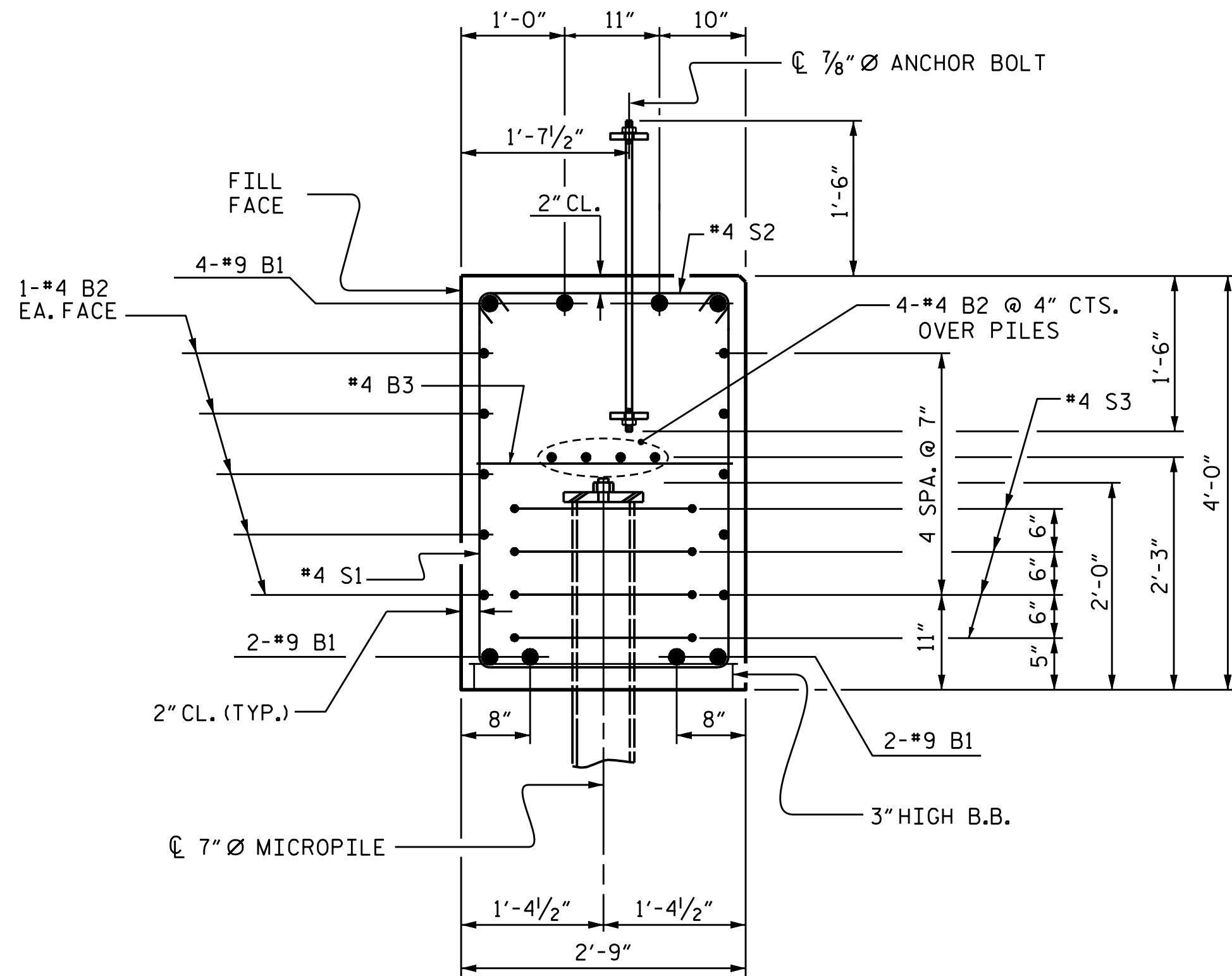
DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



MICROPILE DETAIL

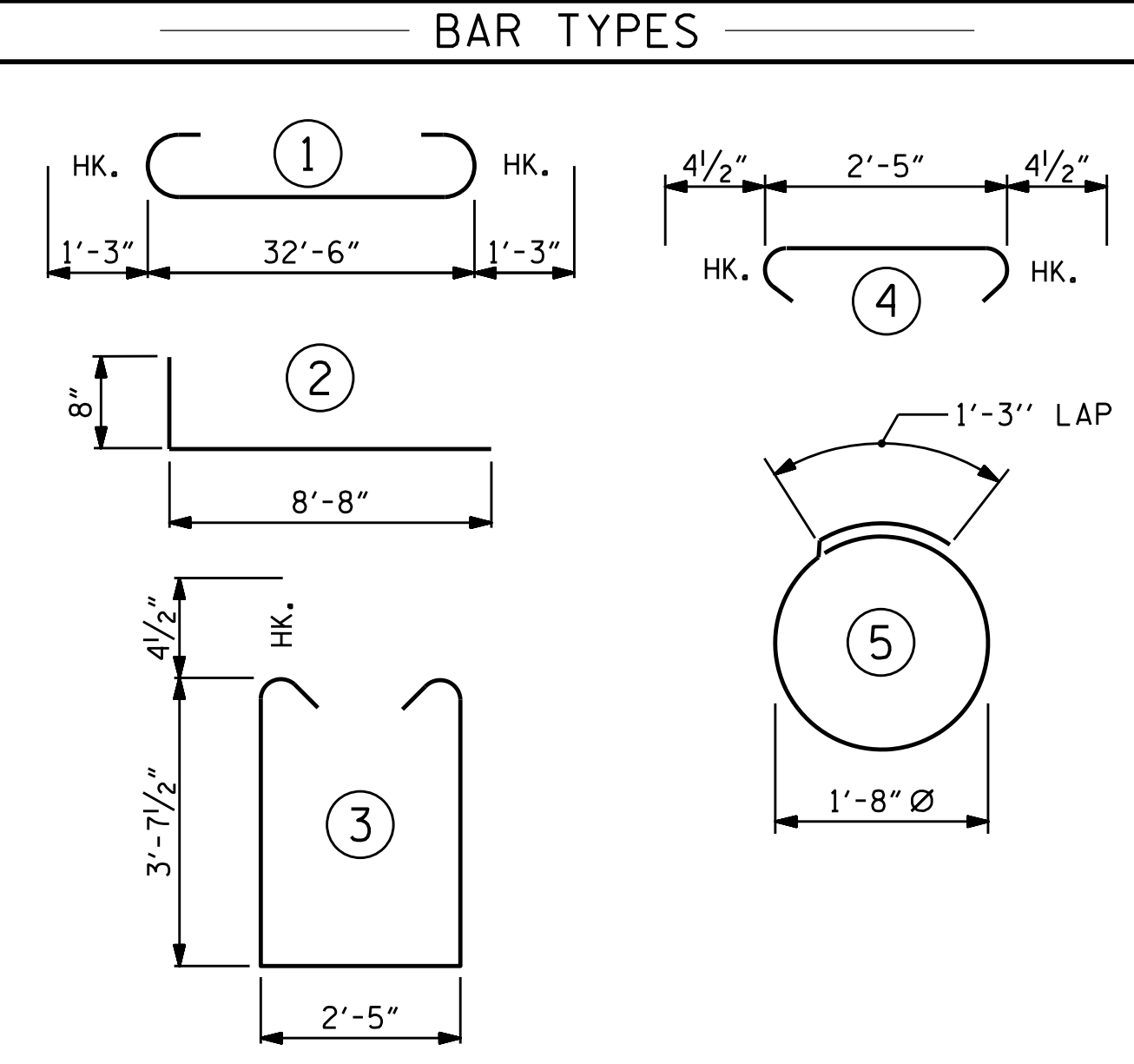
(TYP. EACH MICROPILE)



SECTION A-A

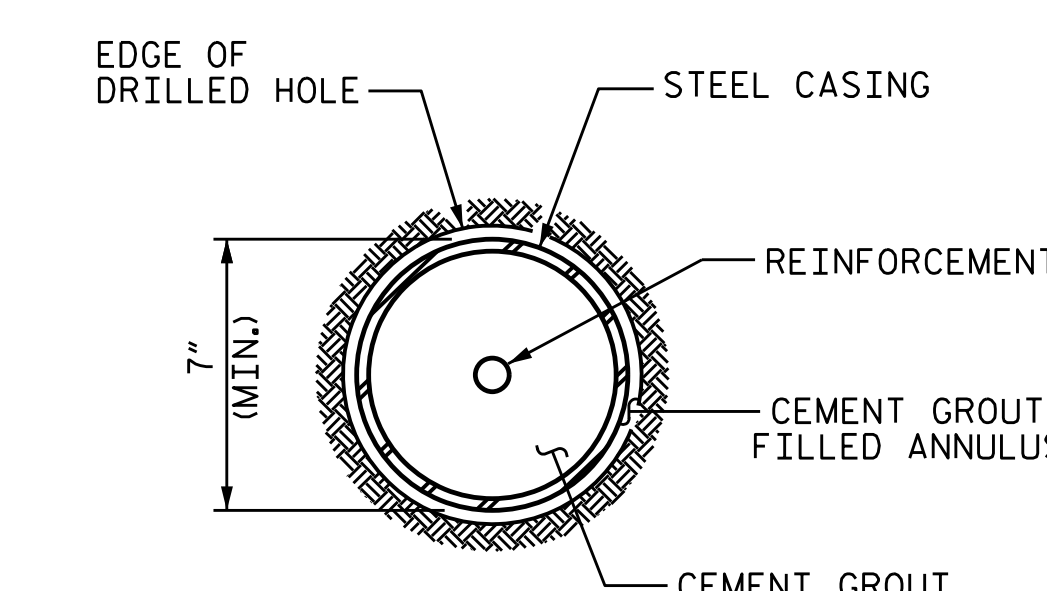
FOR 7/8" DIA. ANCHOR BOLT ASSEMBLY, SEE "BLOCKOUT DETAIL FOR ANCHOR BOLTS", SHEET S-7.

BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#8		35'-0"	952	
B2	#4	STR	17'-7"	329	
B3	#4	STR	2'-5"	15	
H1	#4		9'-4"	224	
K1	#4	STR	2'-7"	21	
S1	#4		10'-5"	320	
S2	#4		3'-2"	97	
S3	#4		6'-6"	87	
V1	#4	STR	5'-4"	185	
REINFORCING STEEL (FOR ONE END BENT)				2230 LBS.	
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP & LOWER PART OF WINGS			15.8 C.Y.	
POUR #2	UPPER PART OF WINGS			1.4 C.Y.	
TOTAL CLASS A CONCRETE				17.2 C.Y.	



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1 7" Ø MICROPILES No: 5 EACH	END BENT No. 2 7" Ø MICROPILES No: 5 EACH
---	---



SECTION C-C

PROJECT NO. B-5383
 AVERY COUNTY
 STATION: 12+71.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1 & 2
 DETAILS



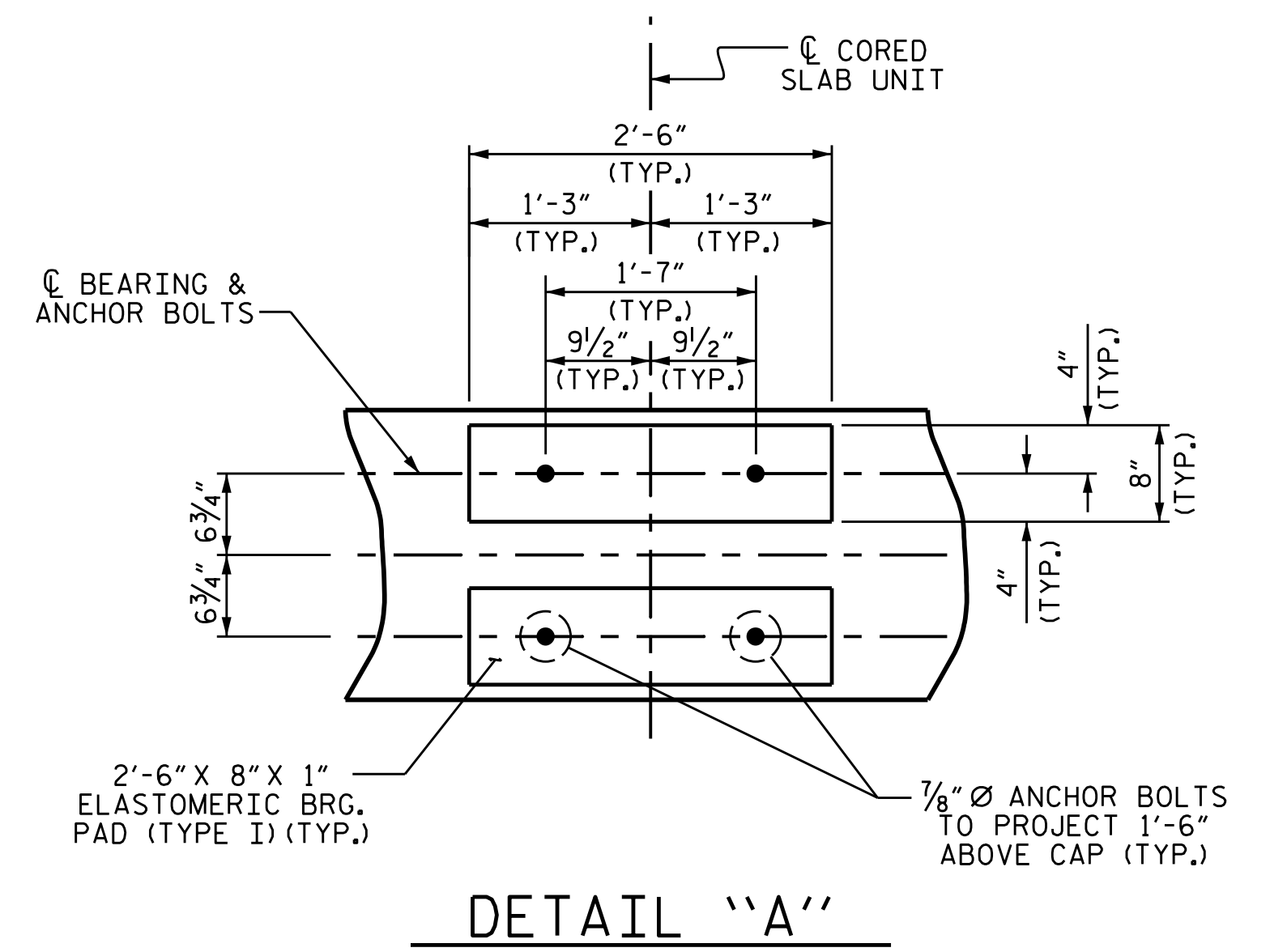
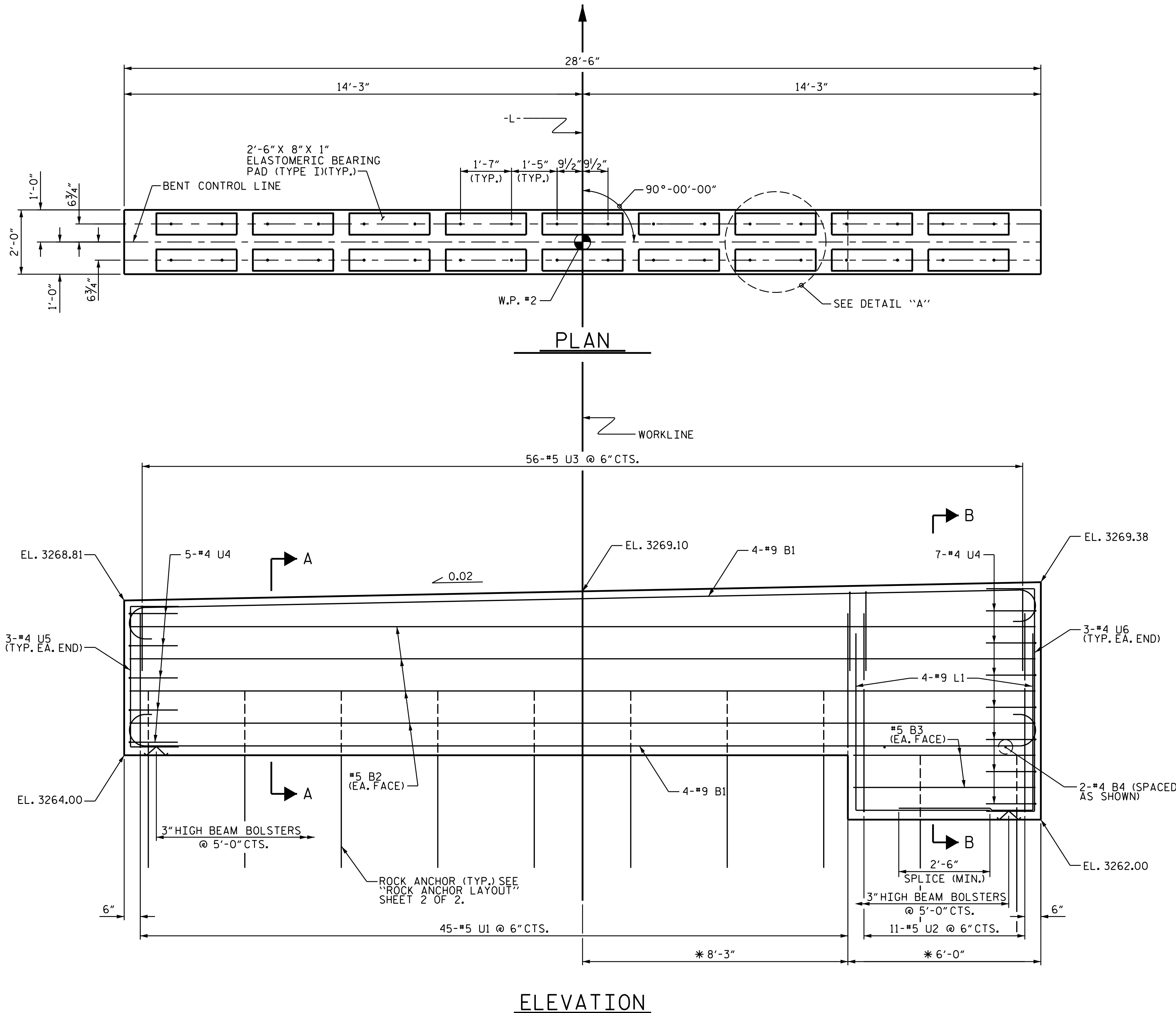
DRAWN BY: M. POOLE	DATE: 9-16
CHECKED BY: W. J. HARRIS	DATE: 11-16
DESIGN ENGINEER OF RECORD: W. J. HARRIS	DATE: 11-16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			16

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS AND ROCK ANCHORS.
 FOR UNTENSIONED ROCK ANCHORS, SEE GEOTECHNICAL SPECIAL PROVISIONS.
 THE COST OF THE 7/8" ANCHOR BOLTS, NUTS, WASHERS, AND PLATES CAST WITH THE BENT CAP SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
 THE COST OF THE NUTS, WASHERS, AND PLATES USED WITH THE ROCK ANCHORS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR 2" Ø ANCHOR HOLE NOT IN SOIL.
 THE BOTTOM OF THE CAP ELEVATIONS SHOWN ARE APPROXIMATE. THE BOTTOM OF THE CAP SHALL BE FORMED DIRECTLY ON THE ROCK OUTCROPPING. THE BOTTOM LAYER OF REINFORCING STEEL SHALL BE A MINIMUM OF 3" CL. FROM THE BOTTOM OF THE CAP.
 * THE DIMENSIONS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. THESE DIMENSIONS SHALL BE ADJUSTED AS NECESSARY TO FORM THE CAP DIRECTLY ON AND AGAINST THE ROCK OUTCROPPING.



PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 -L-

SHEET 1 OF 2



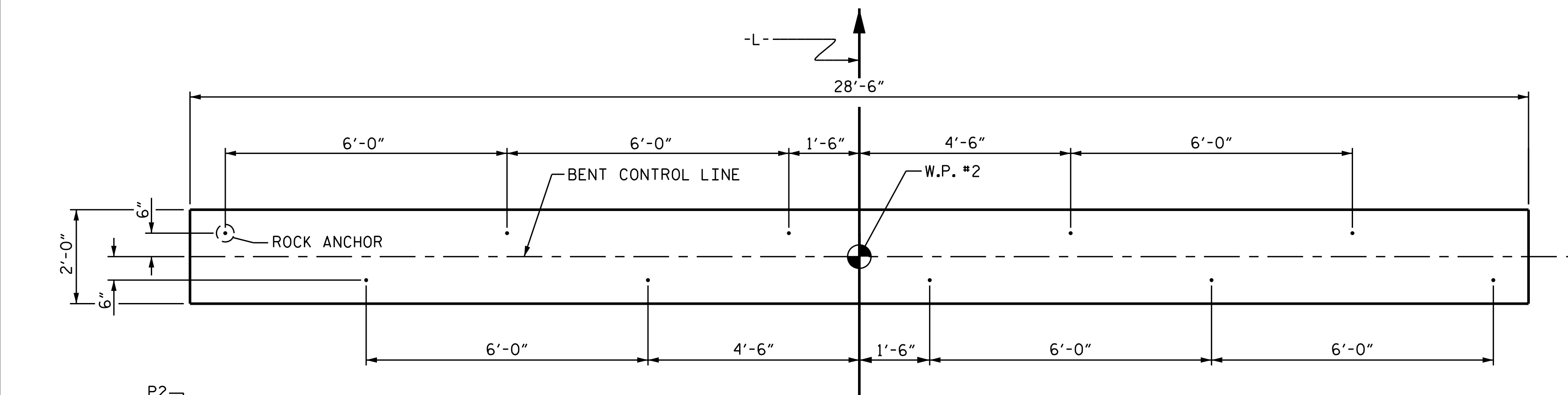
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 1

DRAWN BY: W.J. HARRIS DATE: 11/16
 CHECKED BY: M.G. CHEEK DATE: 11/16
 DESIGN ENGINEER OF RECORD: W.J. HARRIS DATE: 11/16

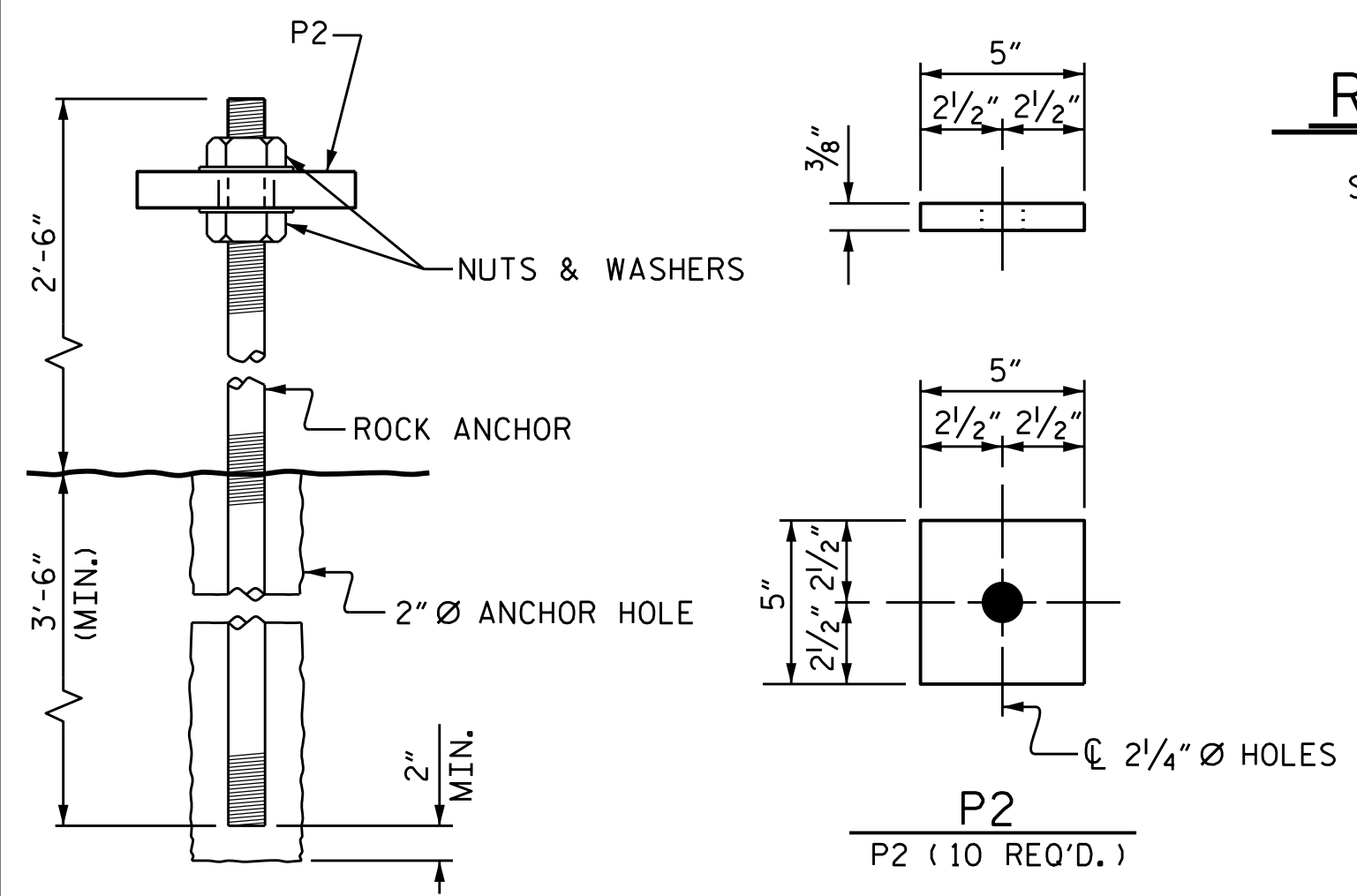
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			16

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

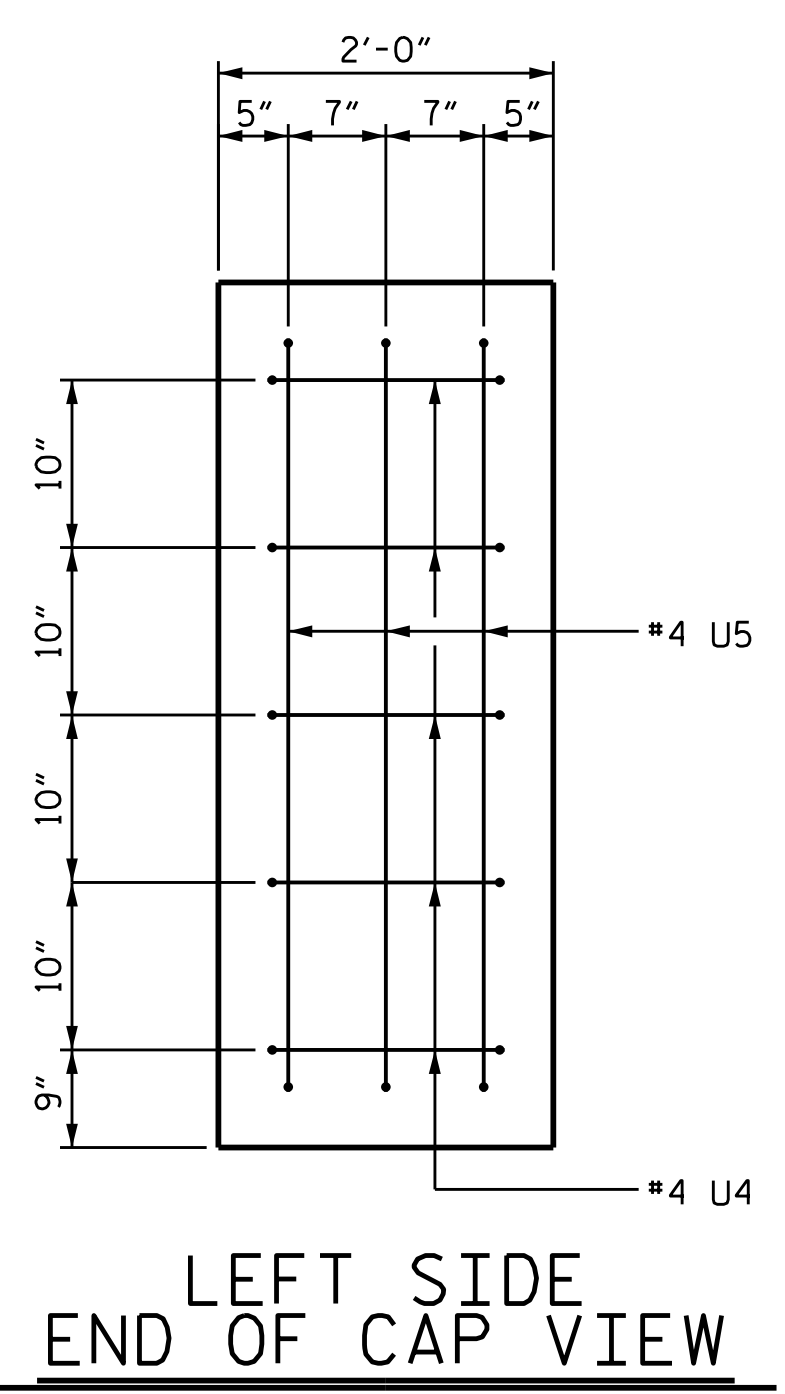
12/22/2016



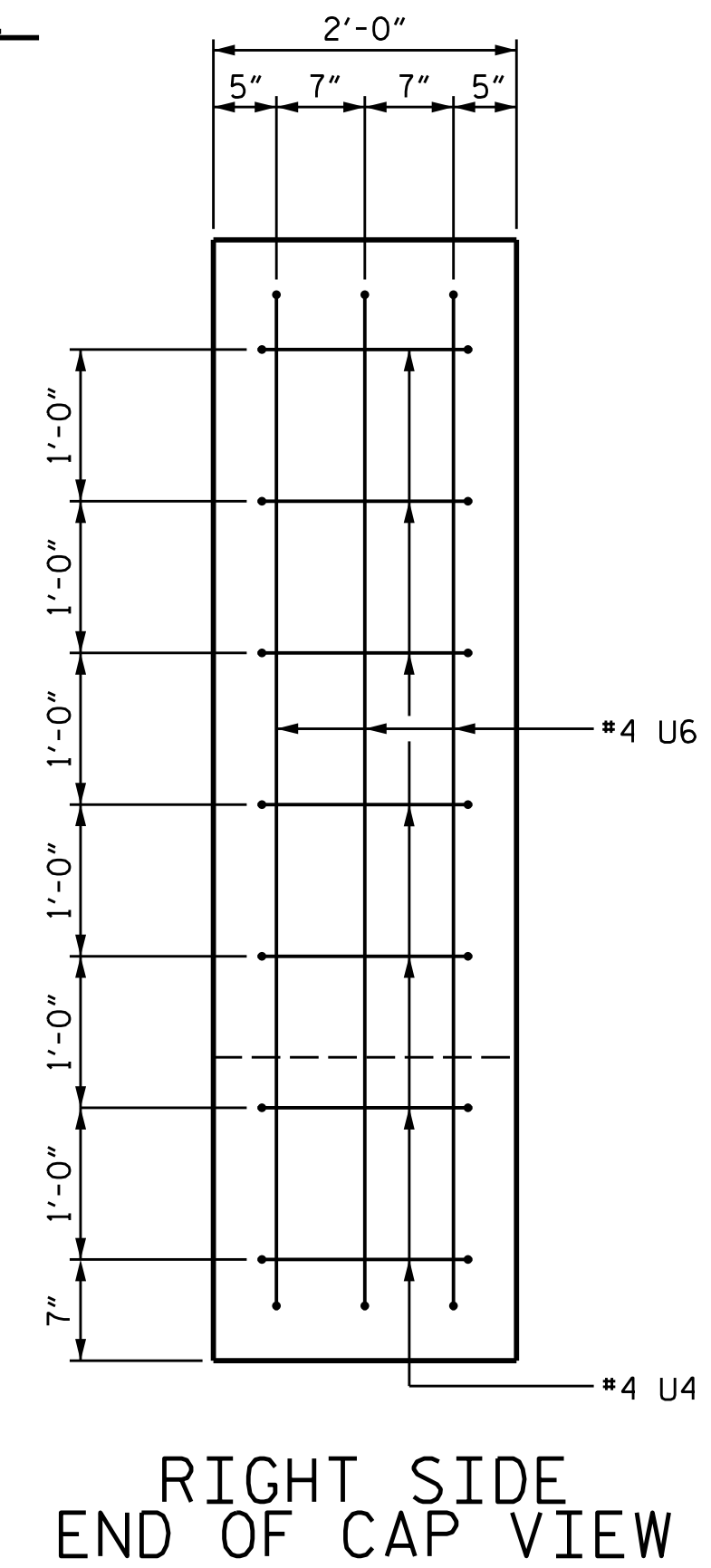
ROCK ANCHOR LAYOUT
FOR "UNTENSIONED ROCK ANCHORS"
SEE GEOTECHNICAL SPECIAL PROVISIONS.



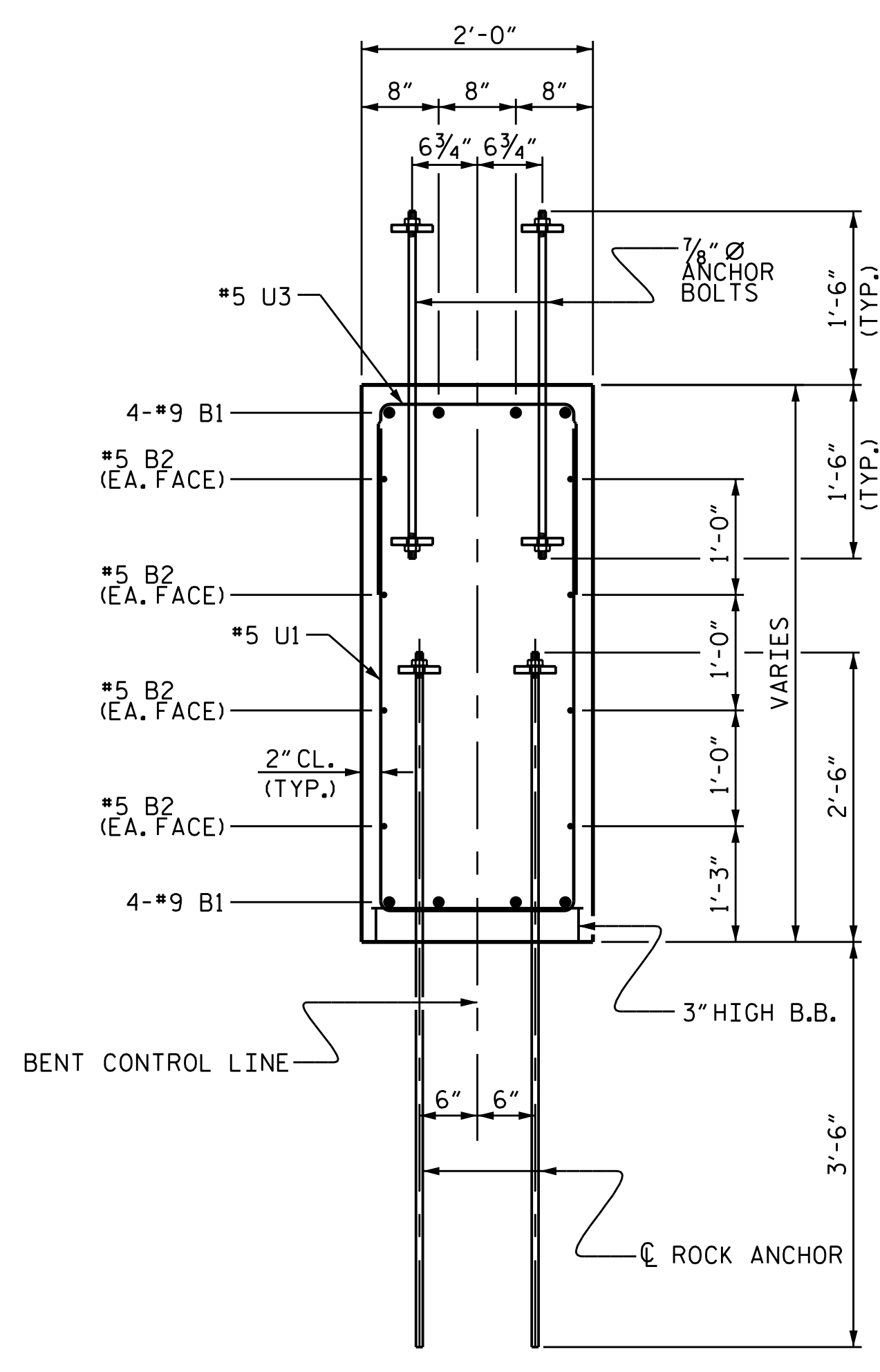
ROCK ANCHOR DETAIL



**LEFT SIDE
END OF CAP VIEW**

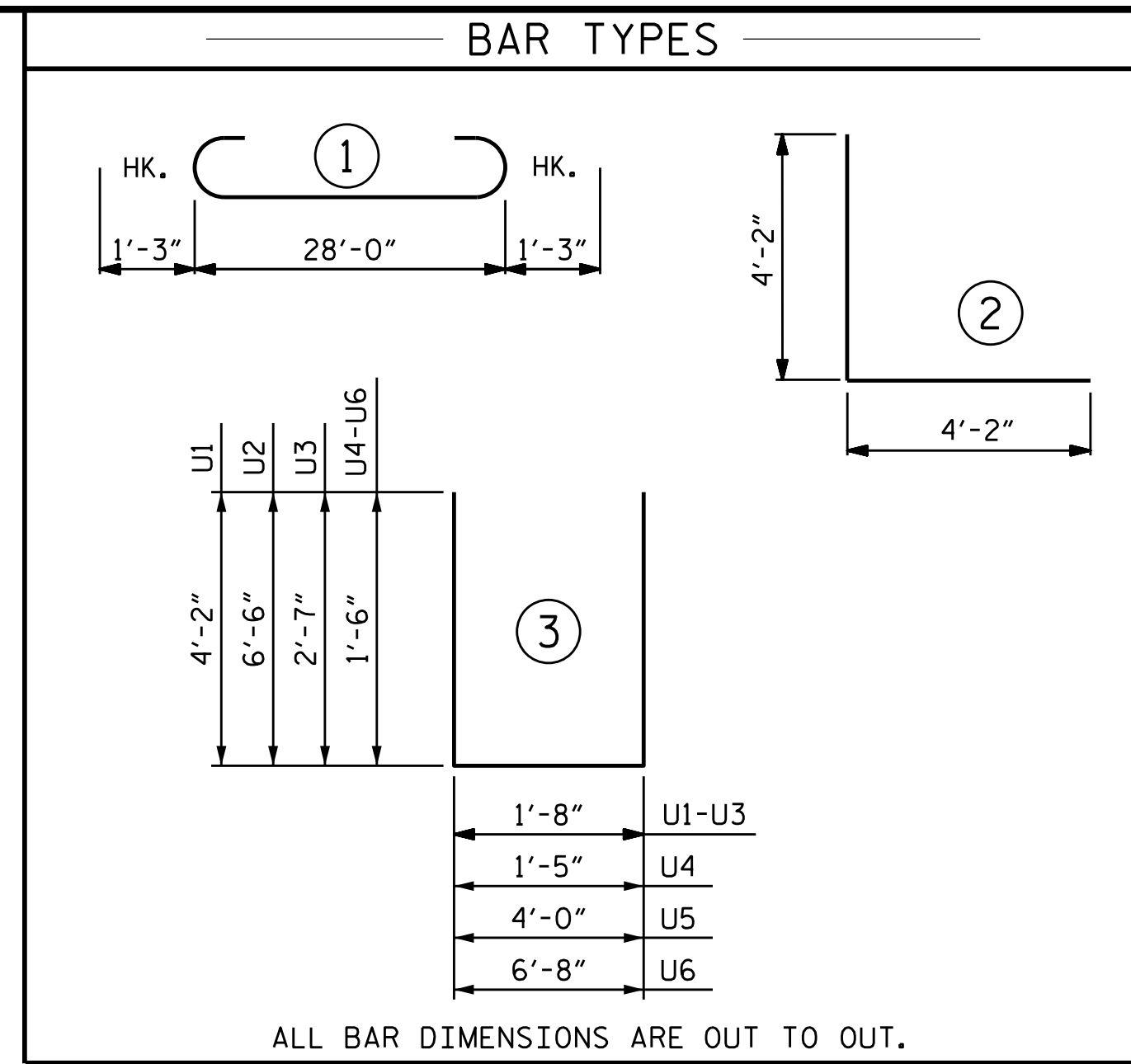


**RIGHT SIDE
END OF CAP VIEW**



SECTION A-A

FOR 7/8" Ø ANCHOR BOLT ASSEMBLY,
SEE "BLOCKOUT DETAIL FOR ANCHOR BOLTS", SHEET S-7.



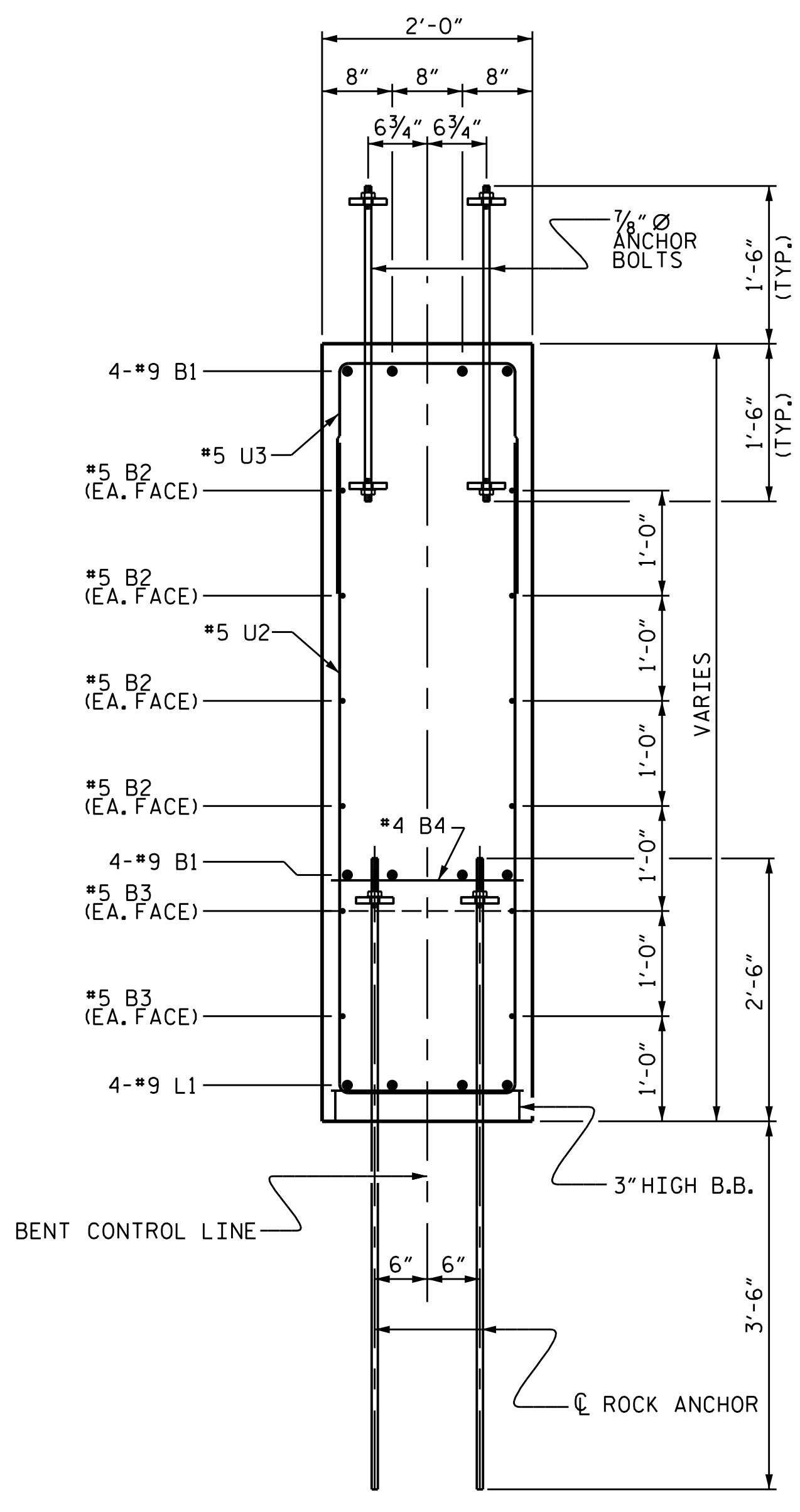
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT No. 1

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#8		30'-6"	830	
B2	#8	#5 STR	28'-2"	235	
B3	4	#5 STR	5'-6"	23	
B4	2	#4 STR	1'-8"	2	
L1	8	#9	8'-4"	227	
U1	45	#5	3	10'-0"	469
U2	11	#5	3	14'-8"	168
U3	56	#5	3	6'-10"	399
U4	12	#4	3	4'-5"	35
U5	3	#4	3	7'-0"	14
U6	3	#4	3	9'-8"	19

REINFORCING STEEL	2421 LBS.
CLASS A CONCRETE	
CAP	11.7 C.Y.
TOTAL CLASS A CONCRETE	11.7 C.Y.
2" Ø ANCHOR HOLE NOT IN SOIL	37.00 LIN. FT.
VERIFICATION TESTS	1 EA.



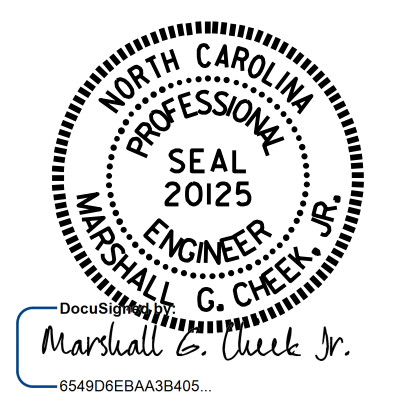
SECTION B-B

FOR 7/8" Ø ANCHOR BOLT ASSEMBLY,
SEE "BLOCKOUT DETAIL FOR ANCHOR BOLTS", SHEET S-7.

DRAWN BY :	W.J. HARRIS	DATE :	11/16
CHECKED BY :	M.G. CHEEK	DATE :	11/16
DESIGN ENGINEER OF RECORD :	W.J. HARRIS	DATE :	11/16

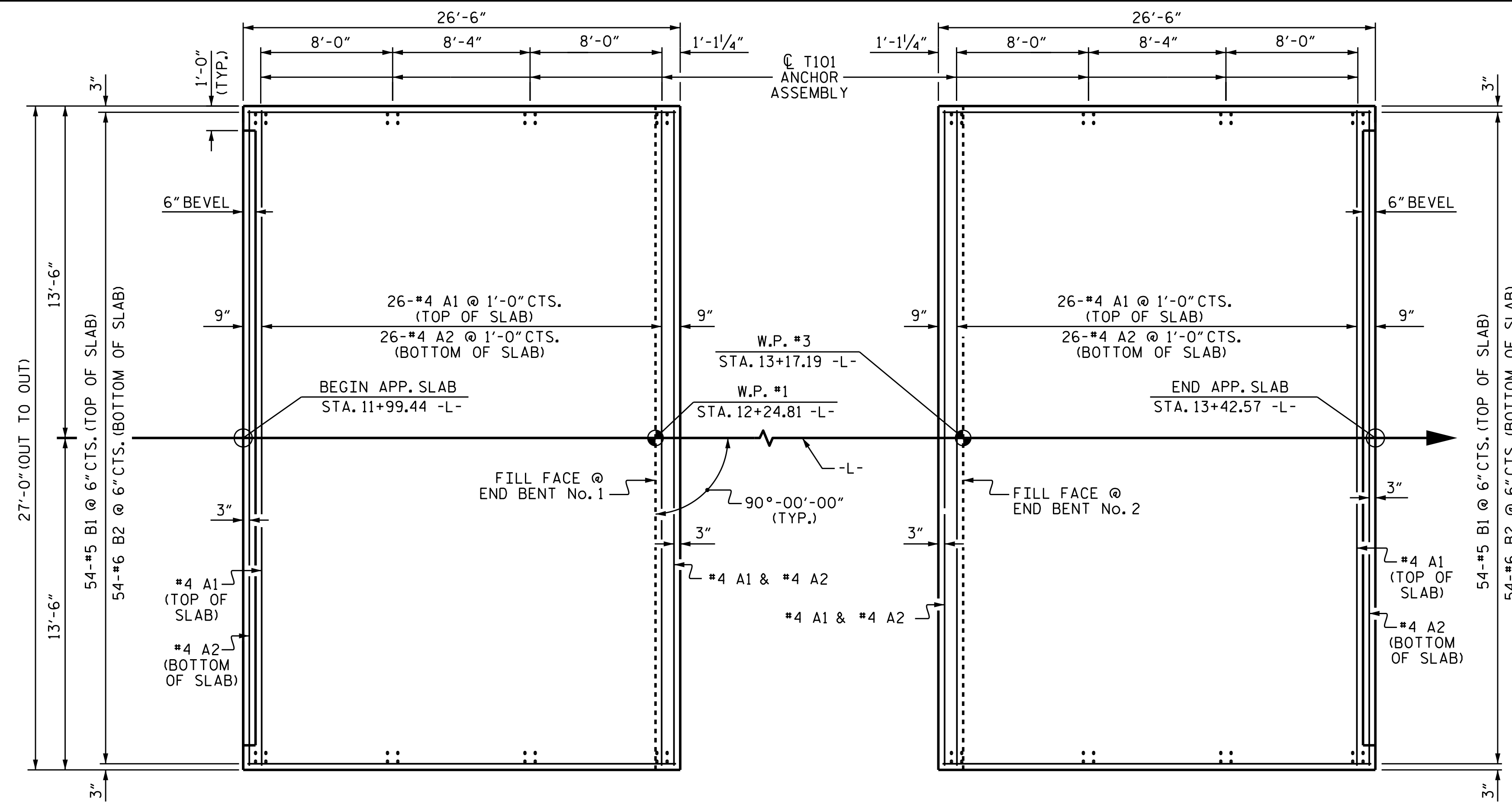
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PROJECT NO. B-5383
AVERY COUNTY
STATION: 12+71.00 -L-
SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUBSTRUCTURE
BENT No. 1**

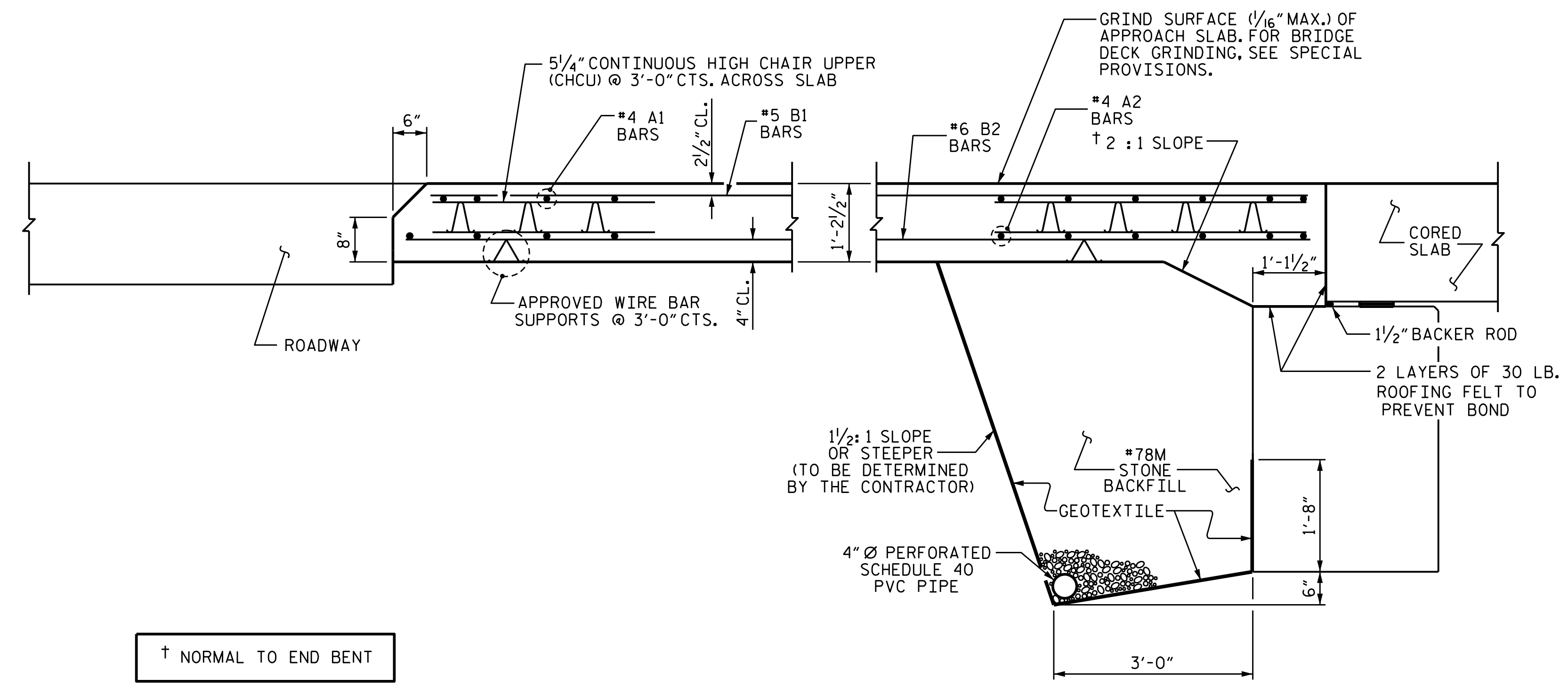
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-14
2			4			16



PLAN @ END BENT No. 1

PLAN @ END BENT No. 2

DIMENSIONS SHOWN ARE TYPICAL FOR EACH APPROACH SLAB



SECTION THRU SLAB

NOTES

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

GEOTEXTILE SHALL BE TYPE 1 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.

APPROACH SLAB GROOVING IS NOT REQUIRED.

PAYMENT FOR T101 RAIL ON THE APPROACH SLABS SHALL BE INCLUDED IN THE PRICE BID FOR "T101 RAIL".

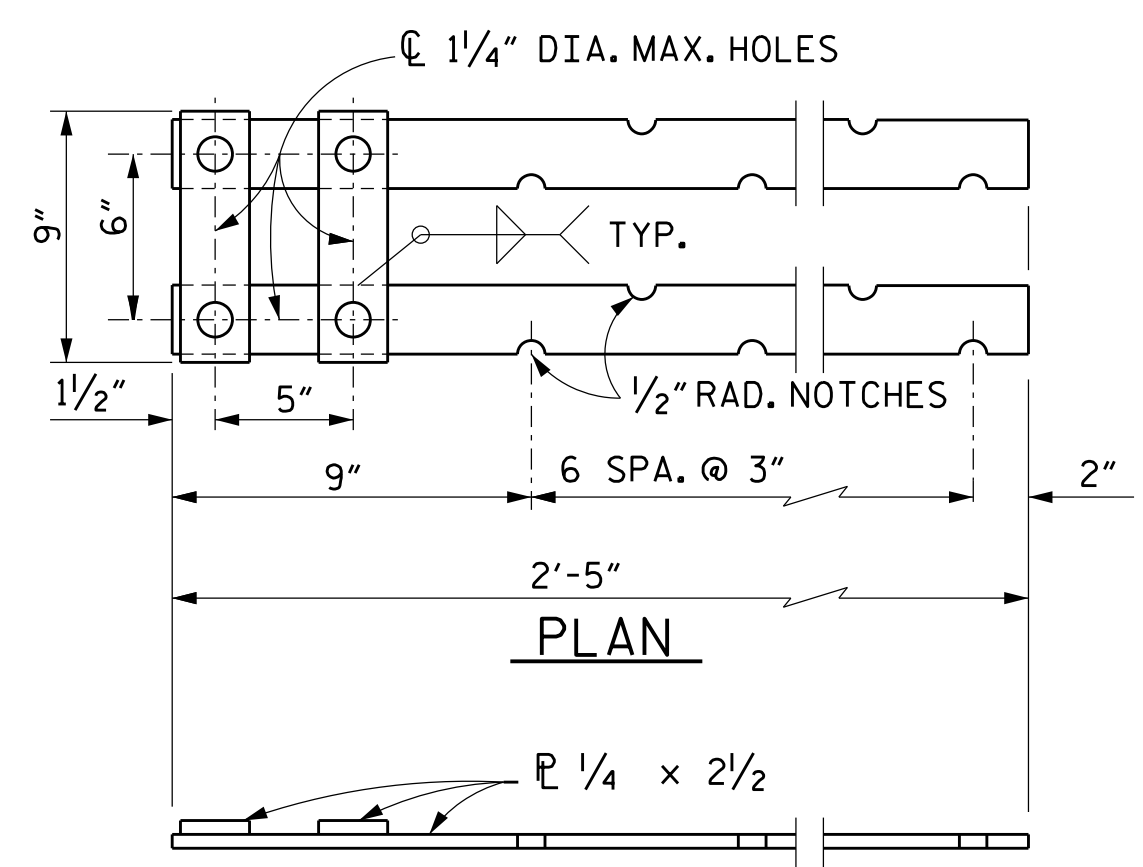
THE COST OF THE T101 ANCHOR ASSEMBLY CAST IN THE APPROACH SLAB SHALL BE INCLUDED IN THE PRICE BID FOR T101 RAIL.

FOR T101 RAIL, SEE "SUPERSTRUCTURE RAIL DETAILS (T101 RAIL)".

DO NOT BEGIN BRIDGE DECK GRINDING UNTIL APPROACH SLABS ARE FULLY CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR GRINDING APPROACH SLABS, SEE SPECIAL PROVISIONS FOR "BRIDGE DECK GRINDING".

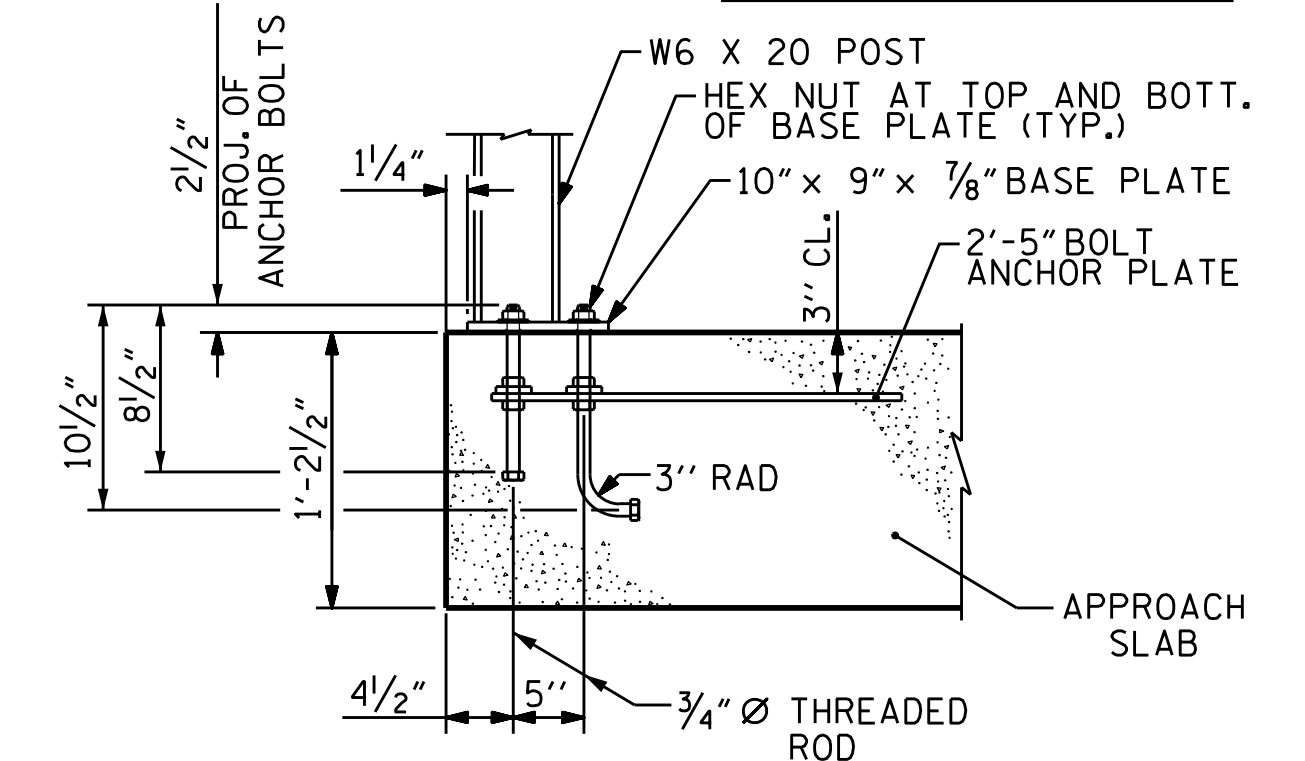
BILL OF MATERIAL					
APPROACH SLAB AT EB No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	26'-8"	499
A2	26	#4	STR	26'-8"	499
*B1	54	#5	STR	24'-3"	1366
B2	54	#6	STR	24'-8"	2001
REINFORCING STEEL				LBS.	2500
*EPOXY COATED REINFORCING STEEL				LBS.	1865
CLASS AA CONCRETE				C. Y.	32.8
APPROACH SLAB AT EB No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	26'-8"	463
A2	26	#4	STR	26'-8"	463
*B1	54	#5	STR	24'-3"	1366
B2	54	#6	STR	24'-8"	2001
REINFORCING STEEL				LBS.	2500
*EPOXY COATED REINFORCING STEEL				LBS.	1865
CLASS AA CONCRETE				C. Y.	32.8

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



ELEVATION

BOLT ANCHOR PLATES



POST MOUNTING DETAIL

T101 ANCHOR ASSEMBLY DETAILS

FOR POST AND BASE PLATE SEE "SUPERSTRUCTURE RAIL DETAILS (T101 RAIL)".

PROJECT NO. B-5383
 AVERY COUNTY
 STATION: 12+71.00 -L

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)

ASSEMBLED BY : W.J. HARRIS DATE : 10/16
 CHECKED BY : M.G. CHEEK DATE : 11/9/16

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 16
2			4			

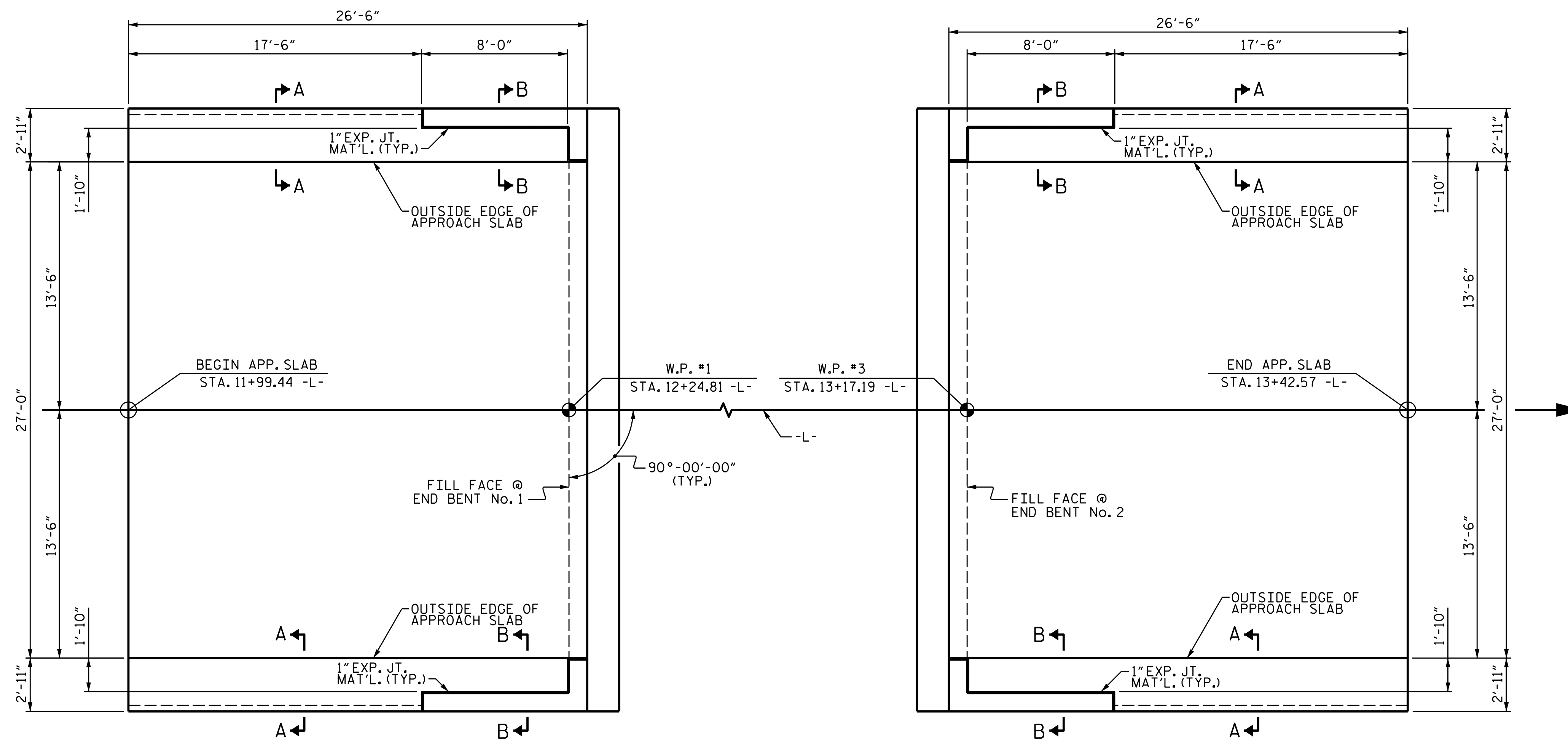
NOTES

APPROACH SLAB SHOULDER PROTECTION SHALL BE PLACED AS SHOWN IN THE DETAILS.

APPROACH SLAB SHOULDER PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS. THE COST OF THE WELDED WIRE FABRIC SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR APPROACH SLAB SHOULDER PROTECTION.

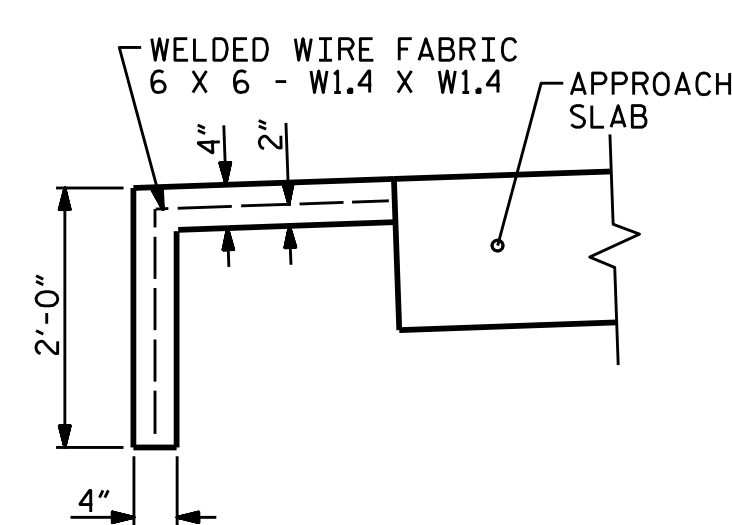
FOR APPROACH SLAB SHOULDER PROTECTION, SEE SPECIAL PROVISIONS.

BRIDGE @ STA. 12+71.00 -L-	APPROACH SLAB SHOULDER PROTECTION	WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
APPROACH SLAB No. 1	21.1	190
APPROACH SLAB No. 2	21.1	190

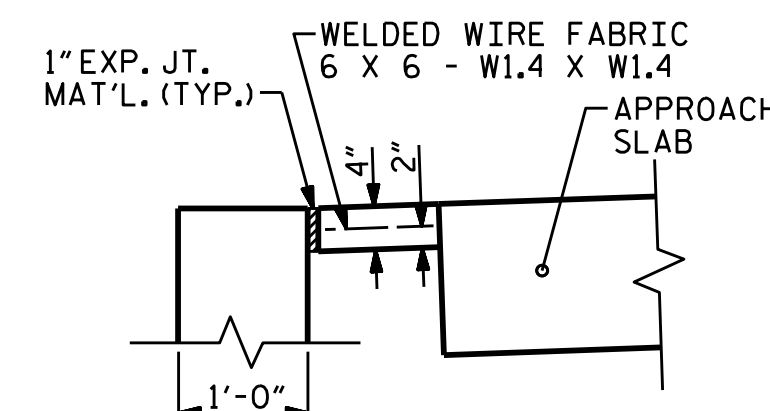


PLAN @ END BENT No. 1

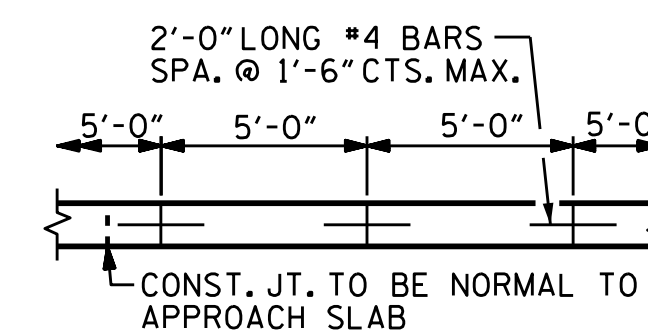
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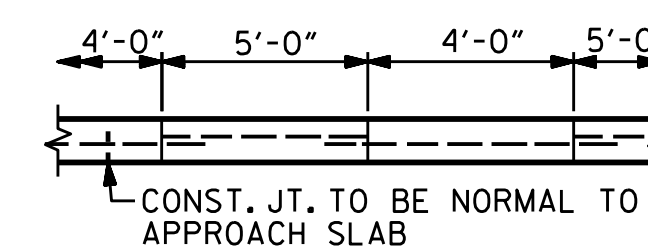
SECTION A-A



SECTION B-B



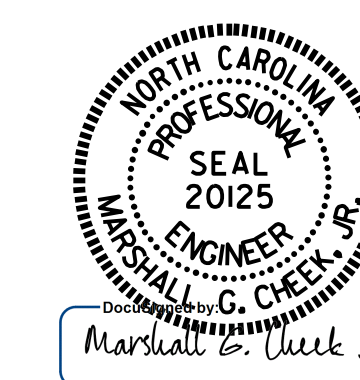
POURING DETAIL



OPTIONAL POURING DETAIL

PROJECT NO. B-5383
AVERY COUNTY
 STATION: 12+71.00 -L

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BRIDGE APPROACH SLAB
 SHOULDER PROTECTION

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

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

ASSEMBLED BY : W.J. HARRIS DATE : 10/16
 CHECKED BY : M.G. CHEEK DATE : 11/9/16

*****SYSTEM*****
 *****DCN*****
 *****USERNAME*****

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 2012 "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