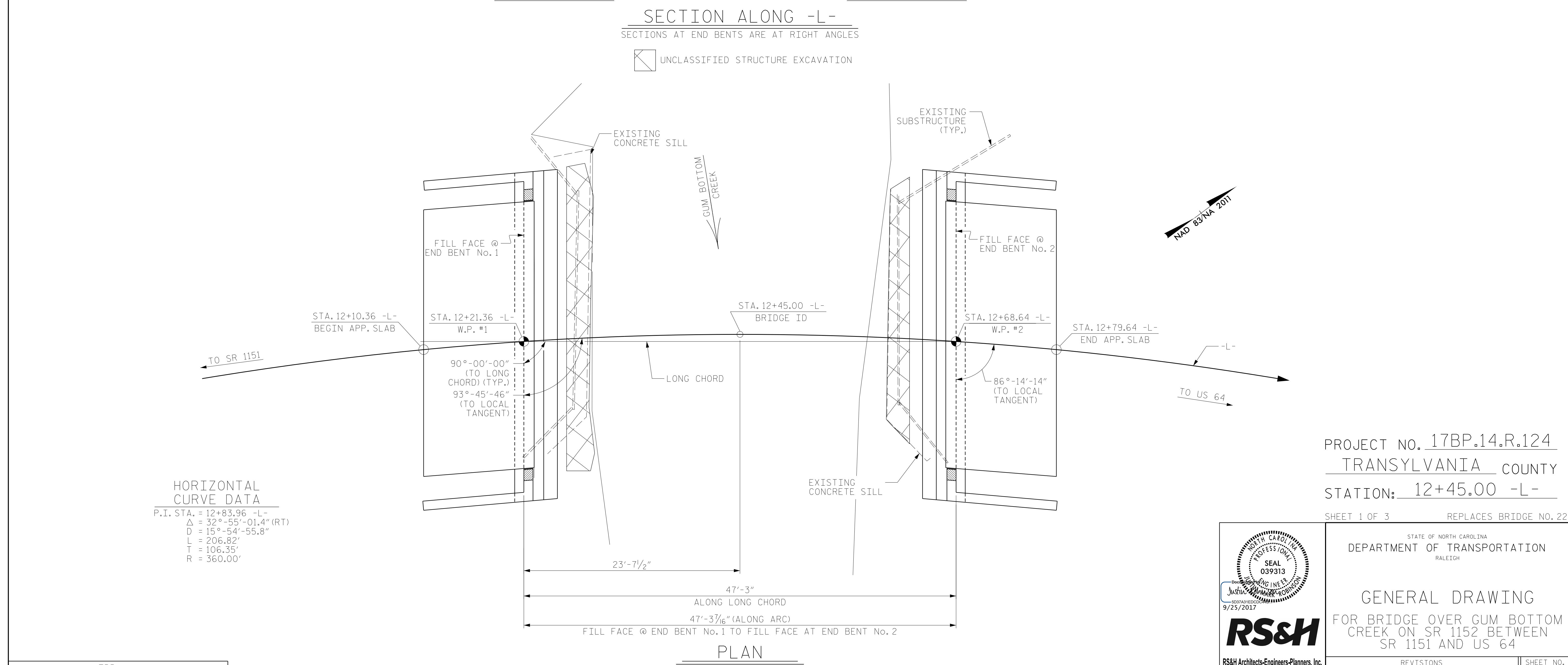
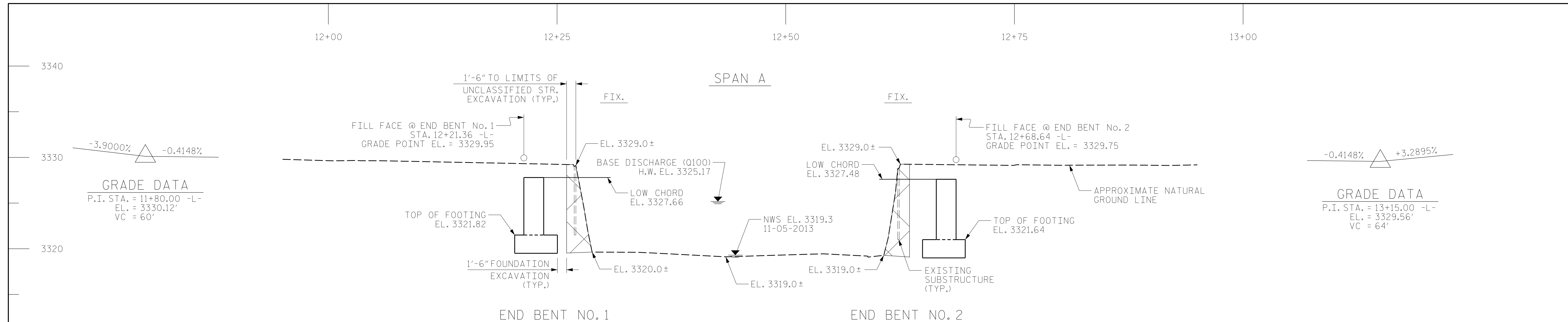


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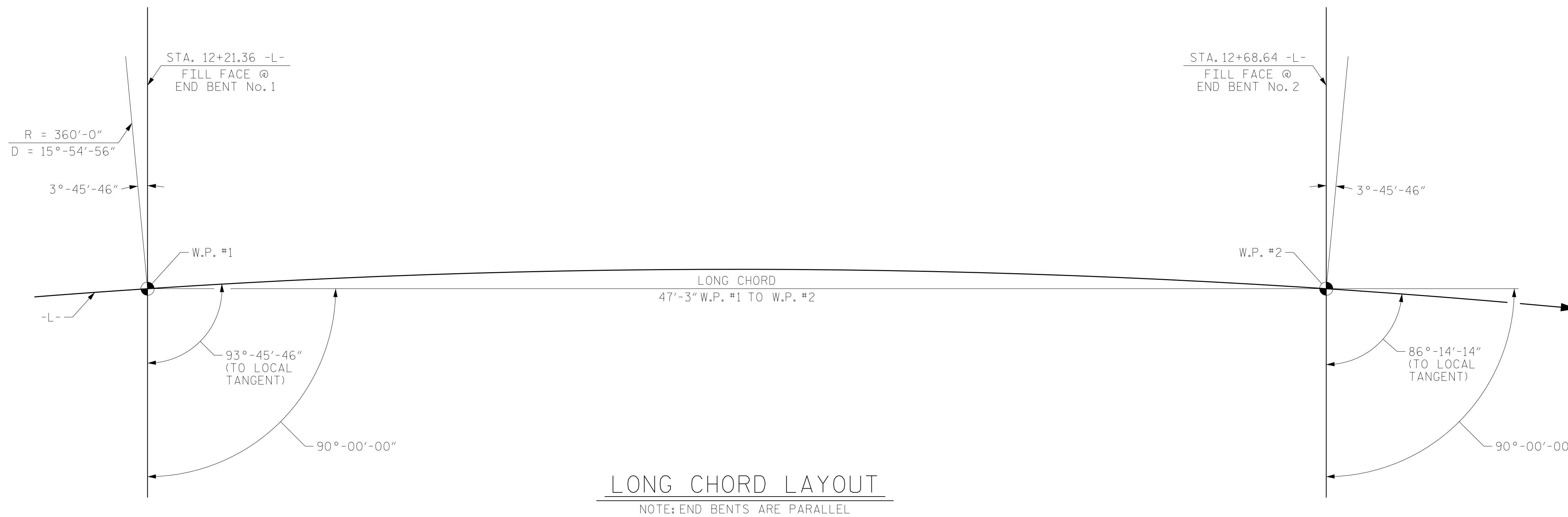


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 CHECKED BY : MAL DATE : 12/2014  
 DESIGN ENGINEER OF RECORD : JMR DATE : 12/2014

PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-  
 SHEET 1 OF 3 REPLACES BRIDGE NO. 22

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 North Carolina License No. 30734-F-0403-C-03

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE OVER GUM BOTTOM CREEK ON SR 1152 BETWEEN SR 1151 AND US 64					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-1
TOTAL SHEETS					15



PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-

SHEET 2 OF 3

DRAWN BY : TRP DATE : 12/2014  
 CHECKED BY : MAL DATE : 12/2014  
 DESIGN ENGINEER OF RECORD : JMR DATE : 12/2014

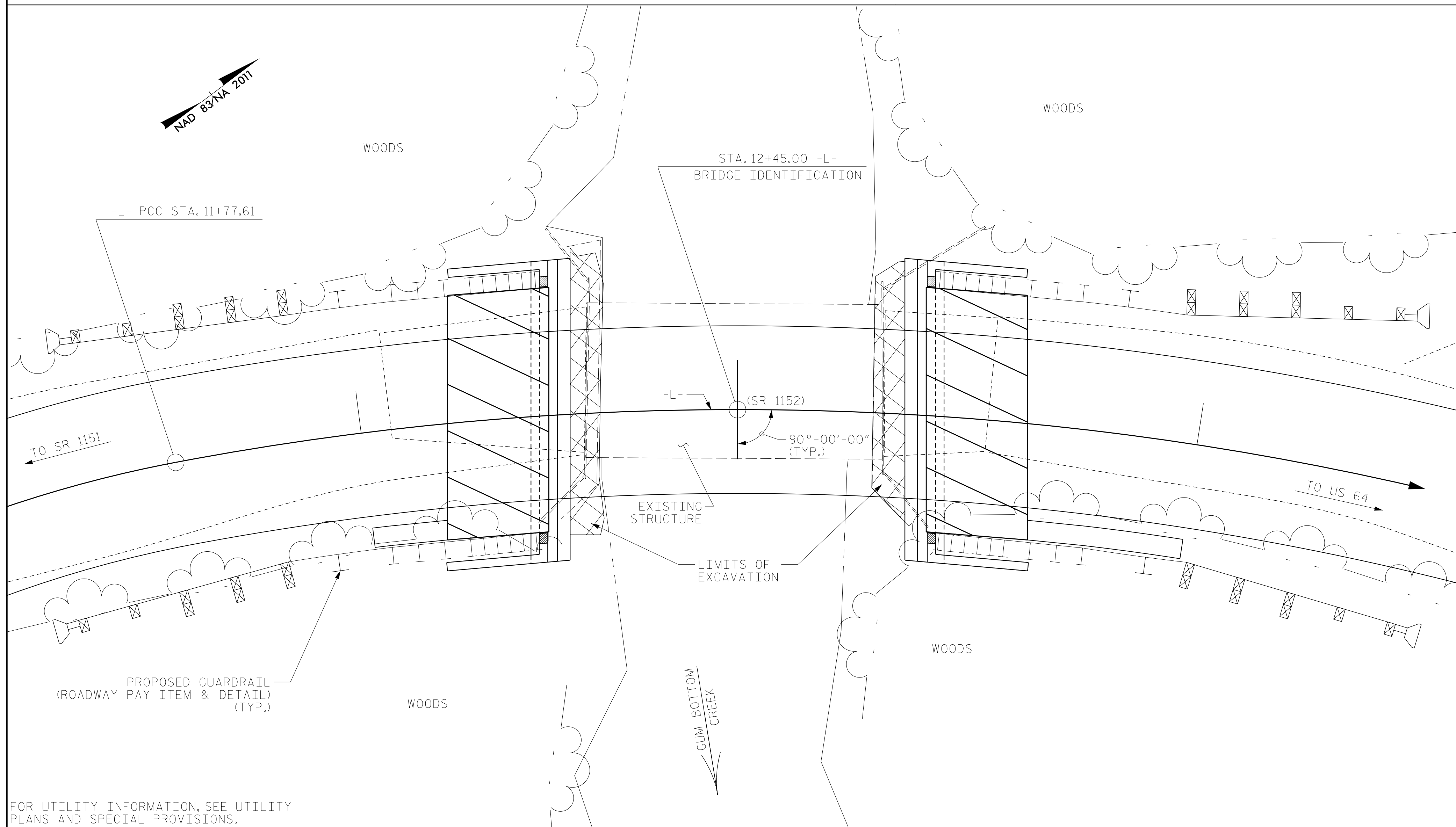
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 FOR BRIDGE OVER GUM BOTTOM  
 CREEK ON SR 1152 BETWEEN  
 SR 1151 AND US 64

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

BENCHMARK #1: NAIL IN BASE OF 24" OAK 12.98' RT. OF STA. 6+66.72 -BL- EL. 3335.10'



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

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 ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS
- 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 EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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 SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 35'-6" ON A TIMBER DECK ON I-BEAMS AT VARIOUS CENTERS ON TIMBER CAPS AND POST AND SILLS ON CONCRETE FOOTINGS LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS NOT PRESENTLY POSTED FOR A 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.

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 18 FEET LEFT AND 14 FEET RIGHT OF THE CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 12+45.00 -L-."

FOUNDATION NOTES

THE SCOUR CRITICAL ELEVATION FOR END BENTS NO. 1 AND 2 ARE THE BOTTOM OF THE FOOTING ELEVATIONS. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFETIME OF THE STRUCTURE.

THE SPREAD FOOTINGS AT END BENTS NO. 1 AND 2 MAY BE DESIGNED FOR A FACTORED RESISTANCE OF UP TO 10 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED NOMINAL BEARING RESISTANCE OF 22.2 TSF JUST BEFORE PLACING CONCRETE.

KEY IN SPREAD FOOTING AT END BENTS NO. 1 AND 2 AT LEAST 12 INCHES INTO WEATHERED ROCK OR AT LEAST 12 INCHES INTO CRYSTALLINE ROCK WITH MINIMUM THICKNESS SHOWN ON THE PLANS.

TOTAL BILL OF MATERIALS

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION FOR END BENT	UNCLASSIFIED STRUCTURE EXCAVATION	BRIDGE APPROACH SLABS	CLASS A CONCRETE	REINFORCING STEEL	VERTICAL CONCRETE BARRIER RAIL	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	ASBESTOS ASSESSMENT
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LBS.	LIN. FT.	LUMP SUM	NO. LIN. FT.	LUMP SUM
SUPERSTRUCTURE				LUMP SUM			90.00	LUMP SUM	10 450'-0"	LUMP SUM
END BENT 1		LUMP SUM	LUMP SUM		38.5	4429				
END BENT 2		LUMP SUM	LUMP SUM		38.5	4429				
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	77.0	8858	90.00	LUMP SUM	10 450'-0"	LUMP SUM

HYDRAULIC DATA

DESIGN DISCHARGE	= 480 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 3324.5
DRAINAGE AREA	= 1.29 SQ. MI.
BASE DISCHARGE (Q100)	= 700 CFS
BASE HIGH WATER ELEVATION	= 3325.17

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 3205 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 YRS+
OVERTOPPING FLOOD ELEVATION	= 3329.7

PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-

SHEET 3 OF 3

DRAWN BY : TRP DATE : 12/2014  
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 DESIGN ENGINEER OF RECORD : JMR DATE : 12/2014



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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER GUM BOTTOM CREEK ON SR 1152 BETWEEN SR 1151 AND US 64

REVISIONS

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

SHEET NO.

S-3
TOTAL SHEETS 15

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

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	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.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

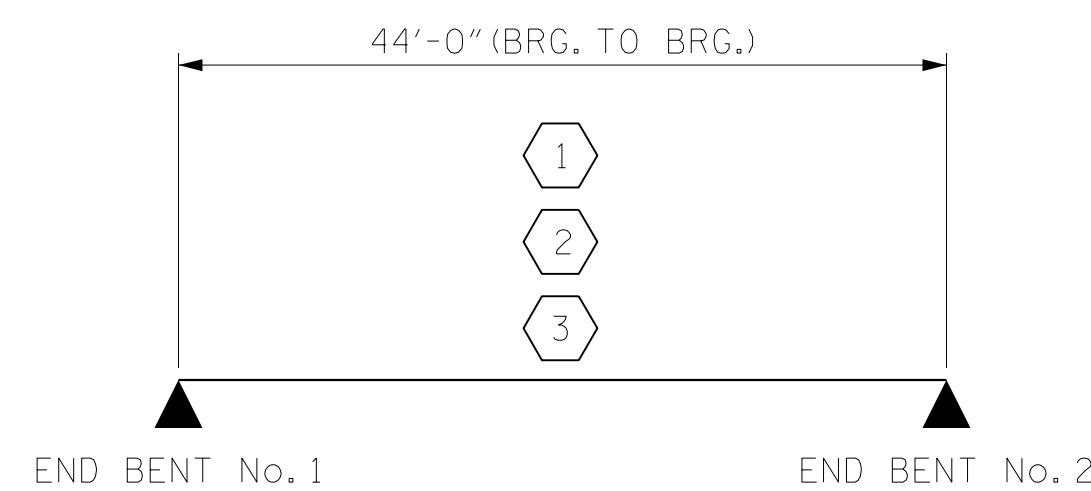
3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

---

GIRDER LOCATION

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



LRFR SUMMARY  
FOR SPAN 'A'

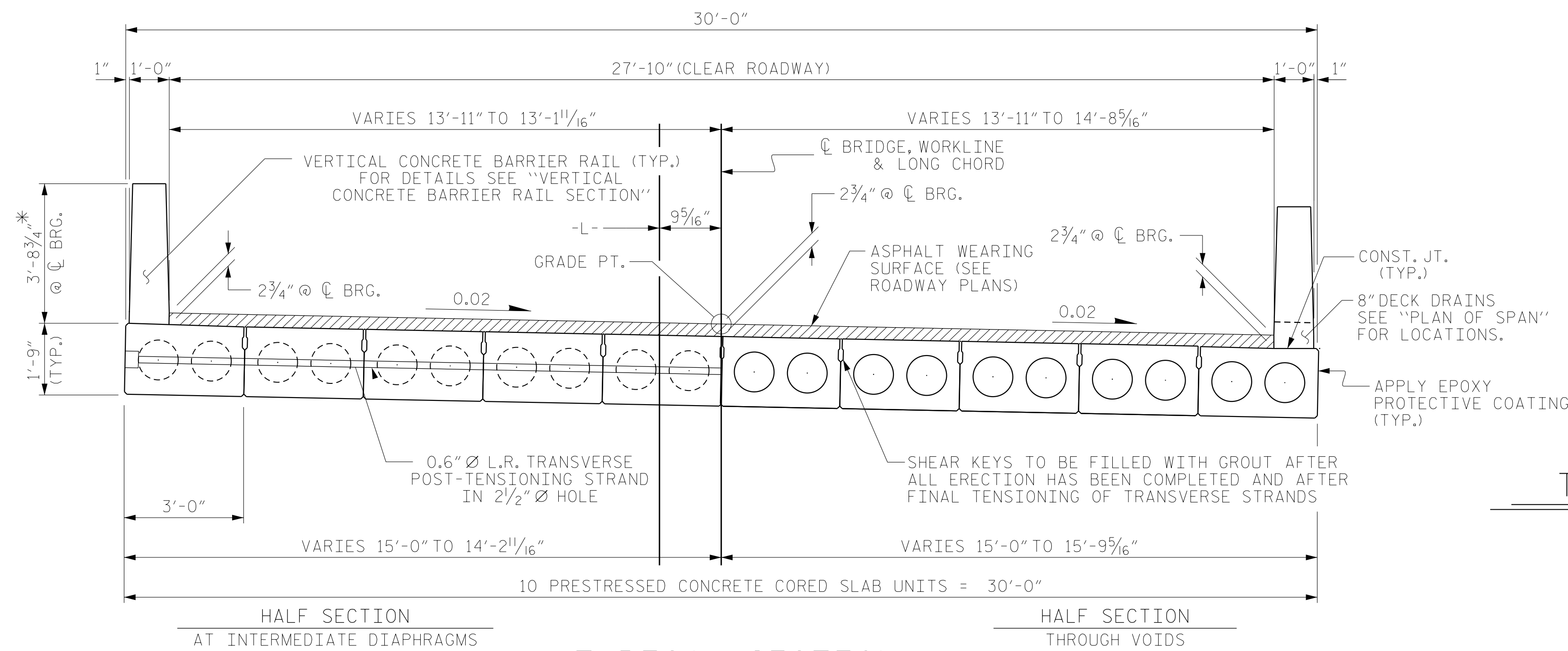
PROJECT NO. 17BP.14.R.124  
TRANSYLVANIA COUNTY  
STATION: 12+45.00 -L-

ASSEMBLED BY : TRP	DATE : 11/2014
CHECKED BY : MAL	DATE : 11/2014
DRAWN BY : CVC 6/10	.
CHECKED BY : DNS 6/10	.

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

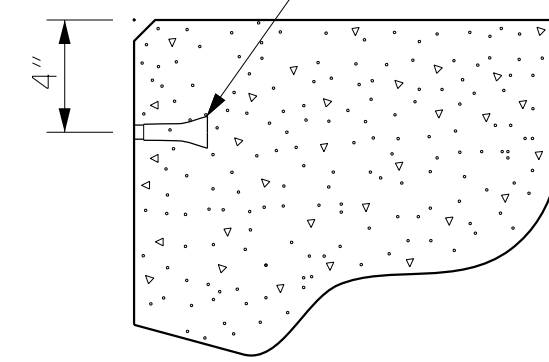
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			15



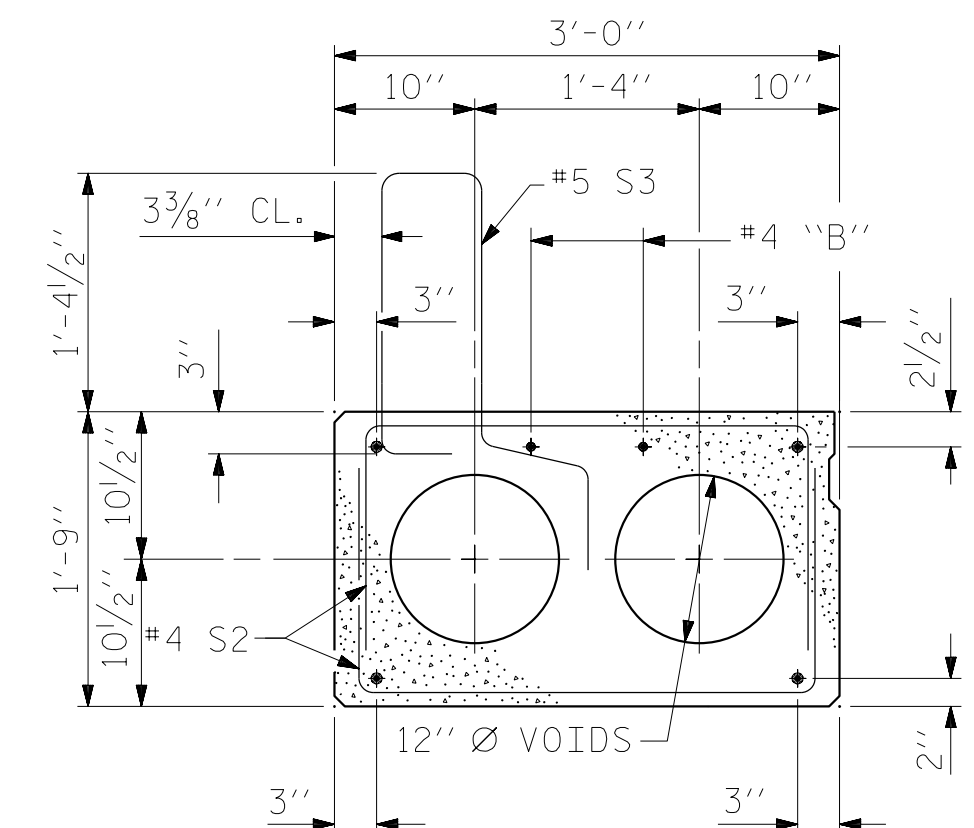
TYPICAL SECTION

\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL, SHEET 3 OF 3.

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.

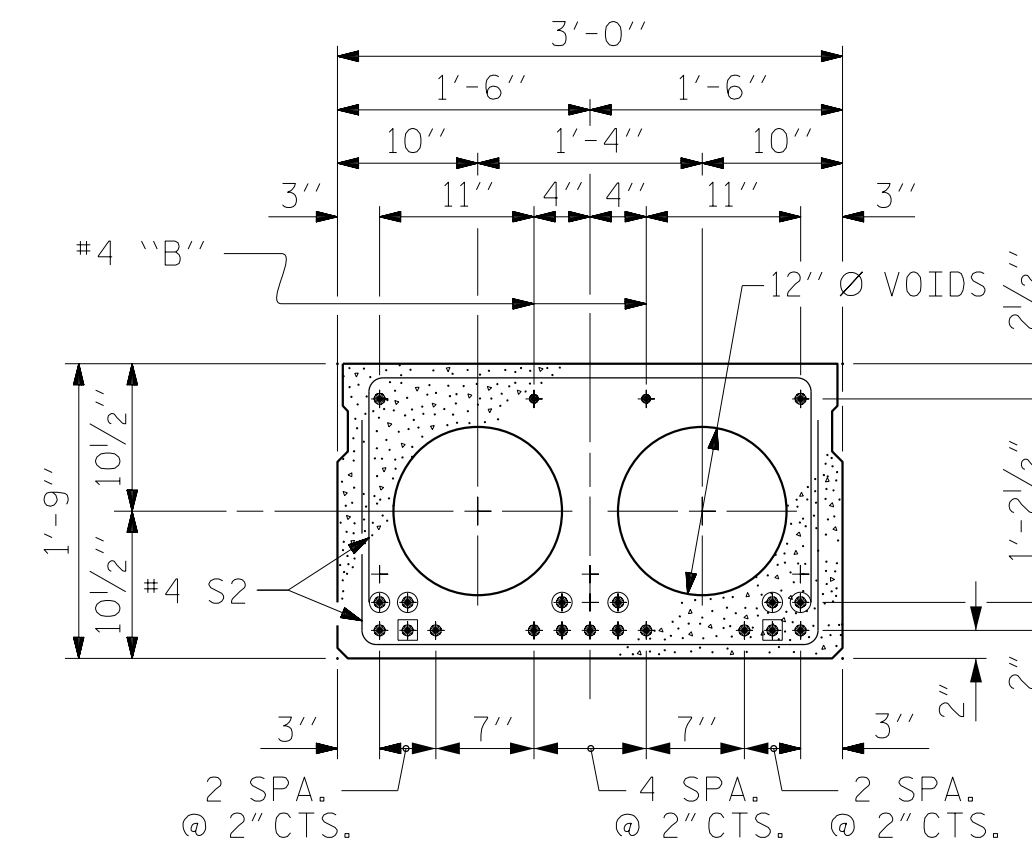


THREADED INSERT DETAIL



EXT. SLAB SECTION

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



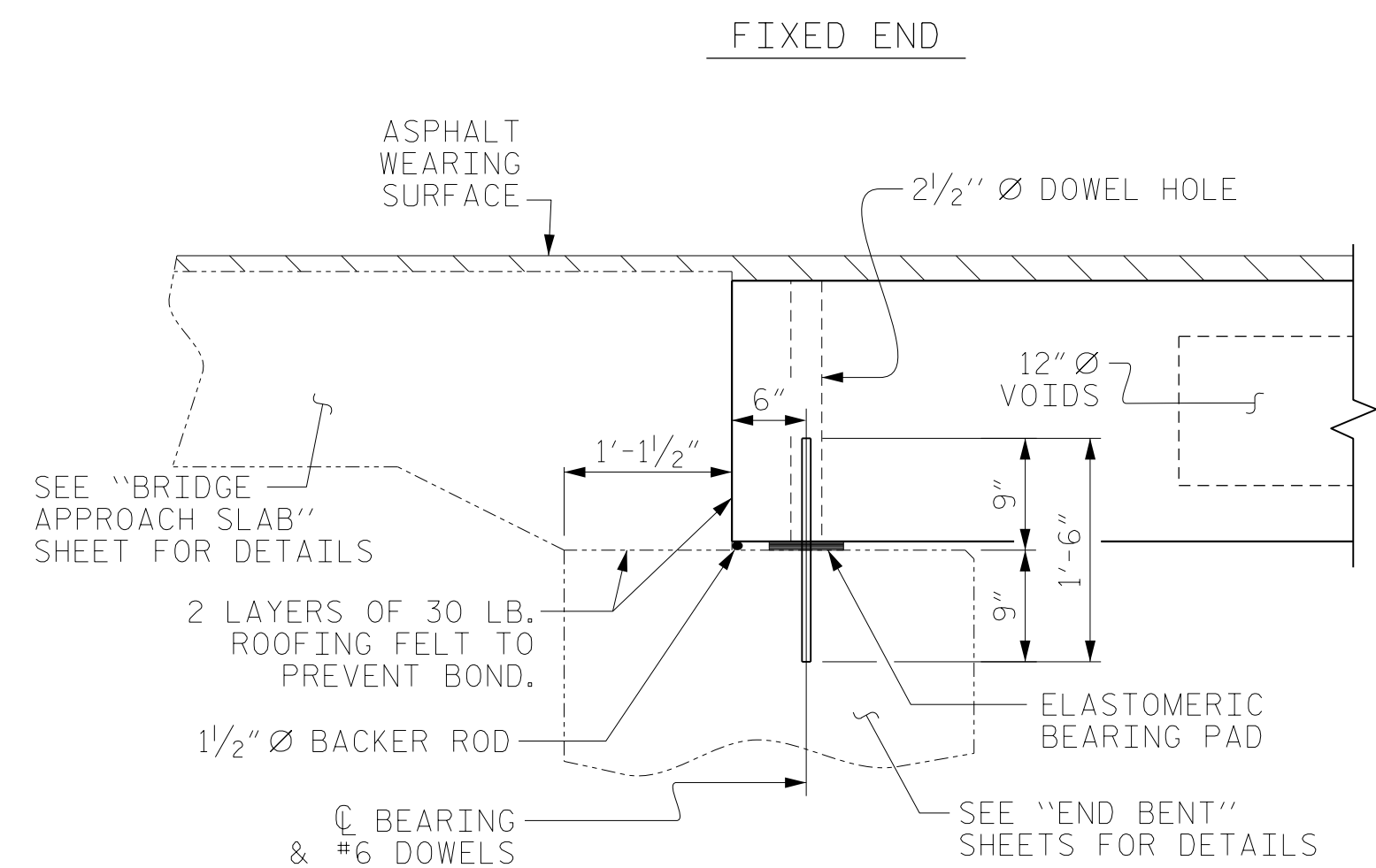
INTERIOR SLAB SECTION (45' UNIT)

(13 STRANDS REQUIRED)

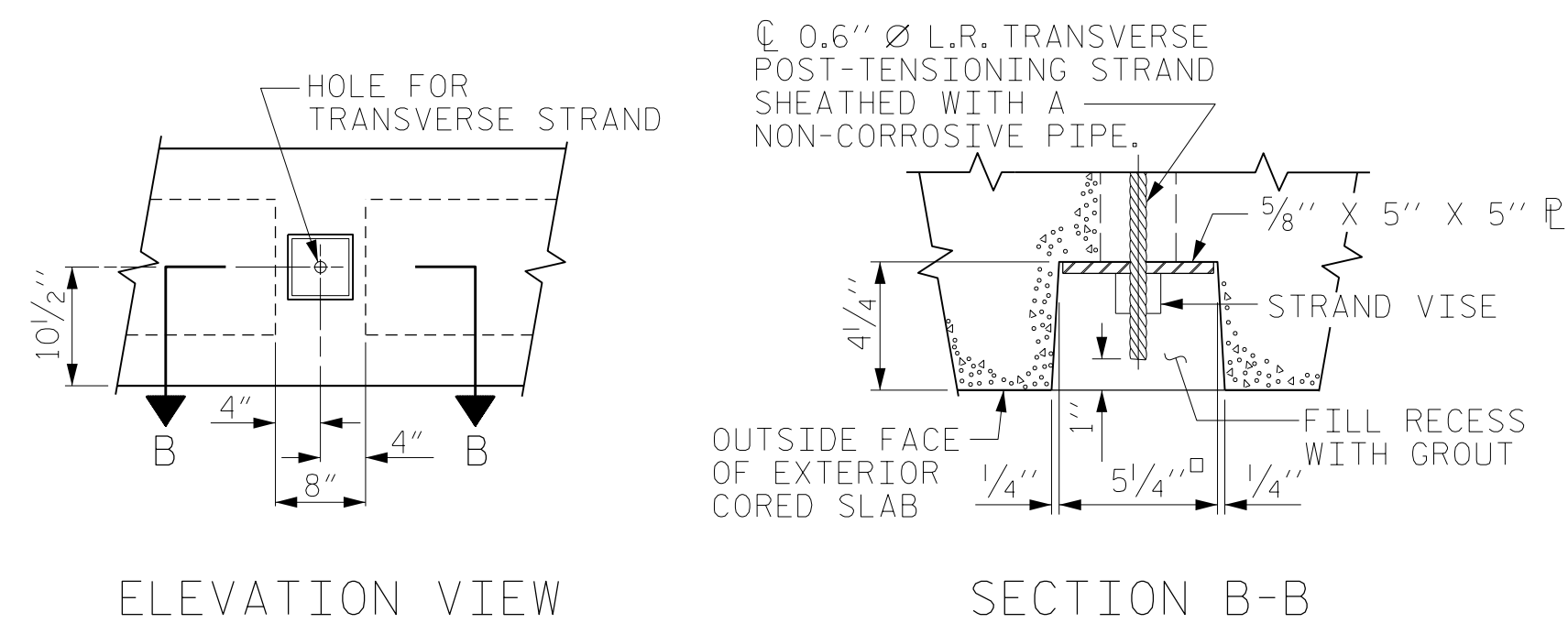
0.6" Ø LOW RELAXATION STRAND LAYOUT

- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

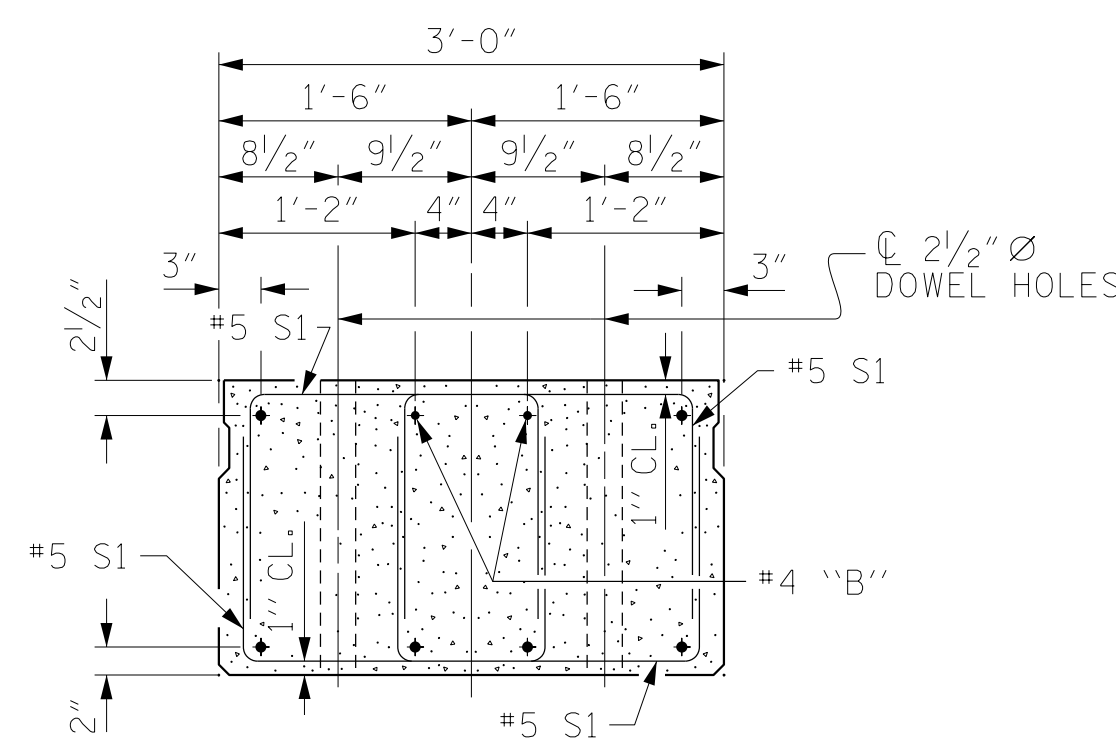
DEBONDING LEGEND



SECTION AT END BENT

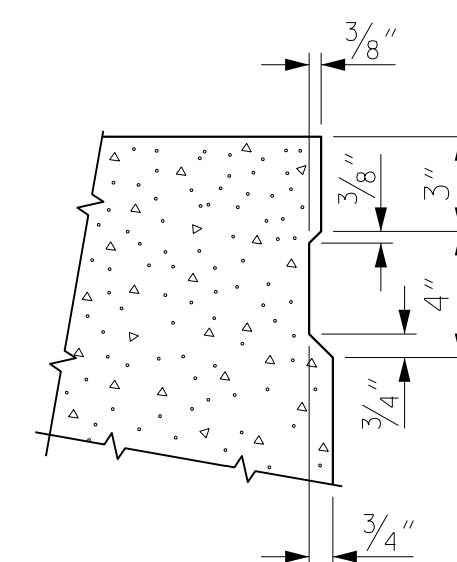


GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



END ELEVATION

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



SHEAR KEY DETAIL

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

PROJECT NO. 17BP.14.R.124  
TRANSYLVANIA COUNTY  
STATION: 12+45.00 -L-

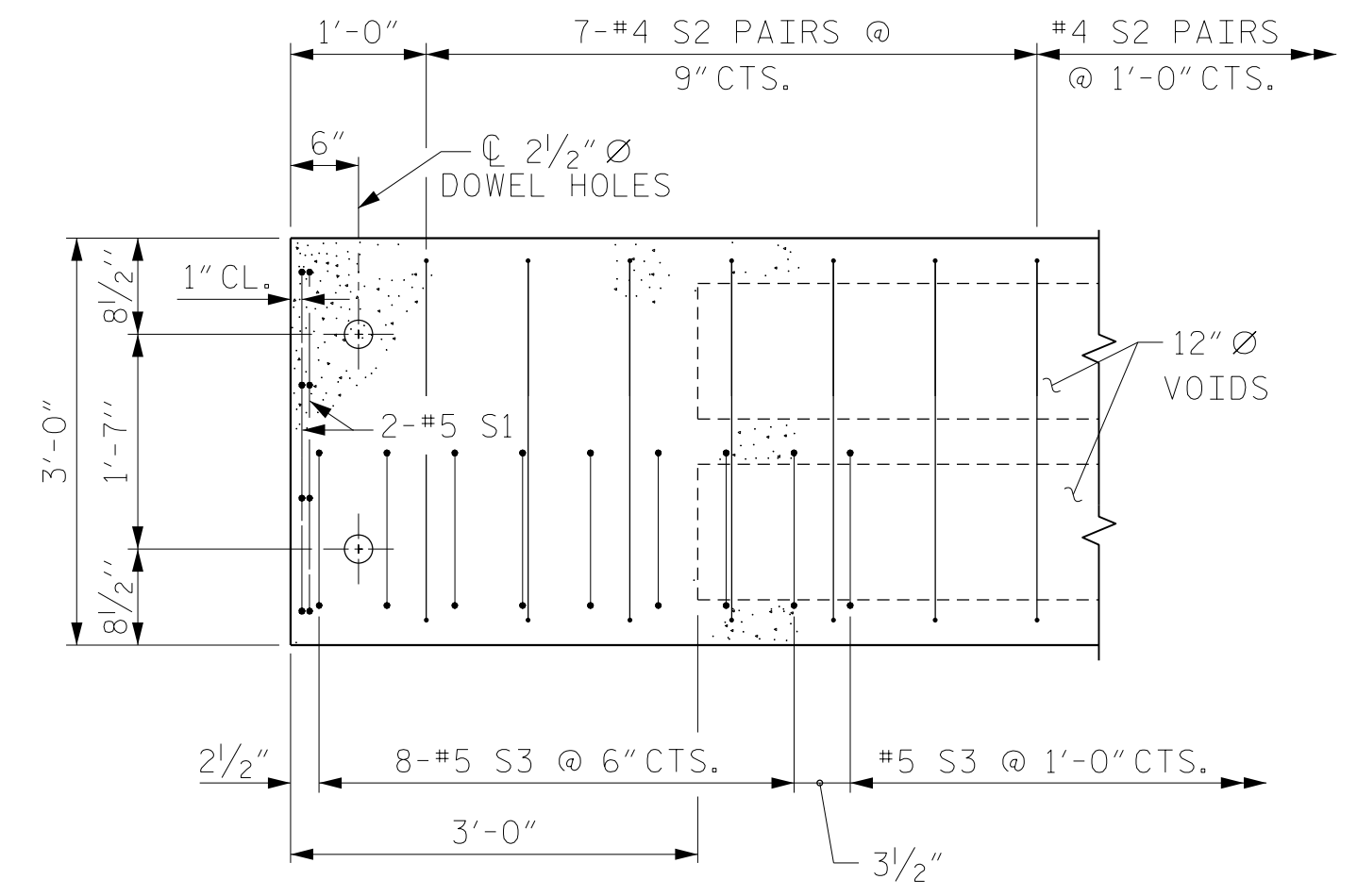
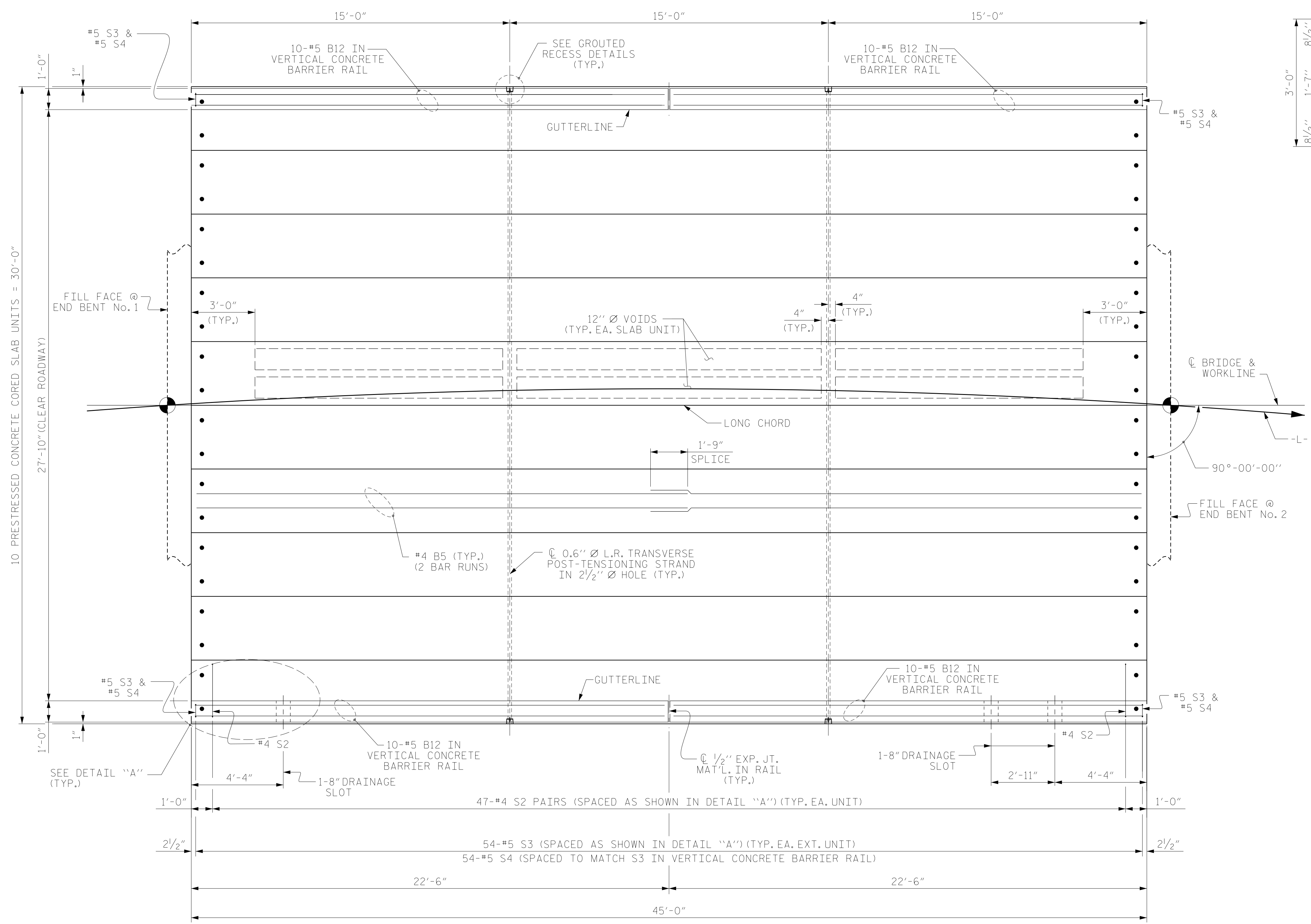
SHEET 1 OF 3



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 1'-9"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15

ASSEMBLED BY :	TRP	DATE :	11/2014
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CHECKED BY :	BCH 6/09	REV. 8/14	MAA/TMG



**DETAIL "A"**  
 (TYPICAL EACH END OF UNIT)  
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF SPAN A

PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-

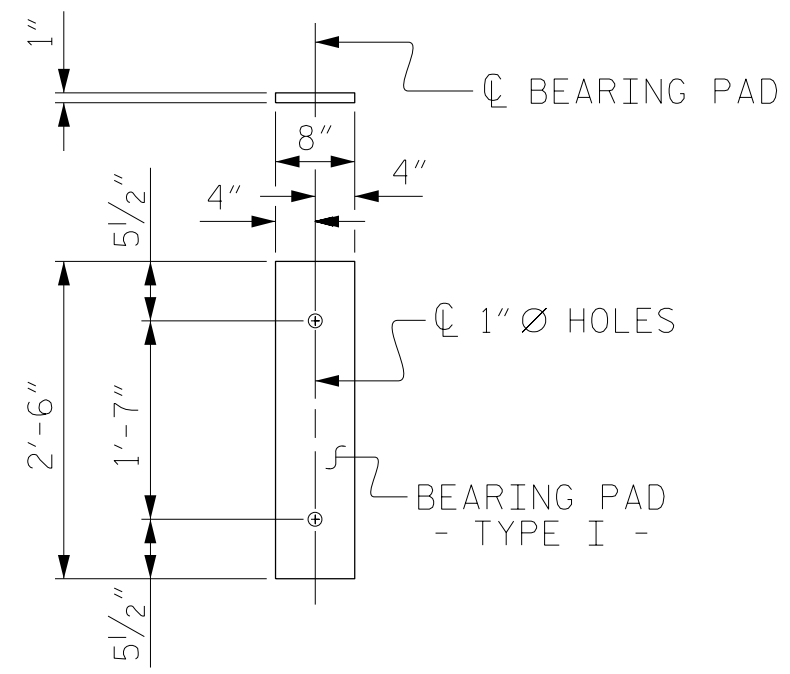
SHEET 2 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 PLAN OF 45' UNIT  
 27'-10" CLEAR ROADWAY  
 90° SKEW

ASSEMBLED BY :	TRP	DATE :	11/2014
CHECKED BY :	MAL	DATE :	11/2014
DRAWN BY :	DGE 3/09	REV. 12/5/11	MAA/AAC
CHECKED BY :	BCH 3/09	REV. 8/14	MAA/TMG

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			15



FIXED END  
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

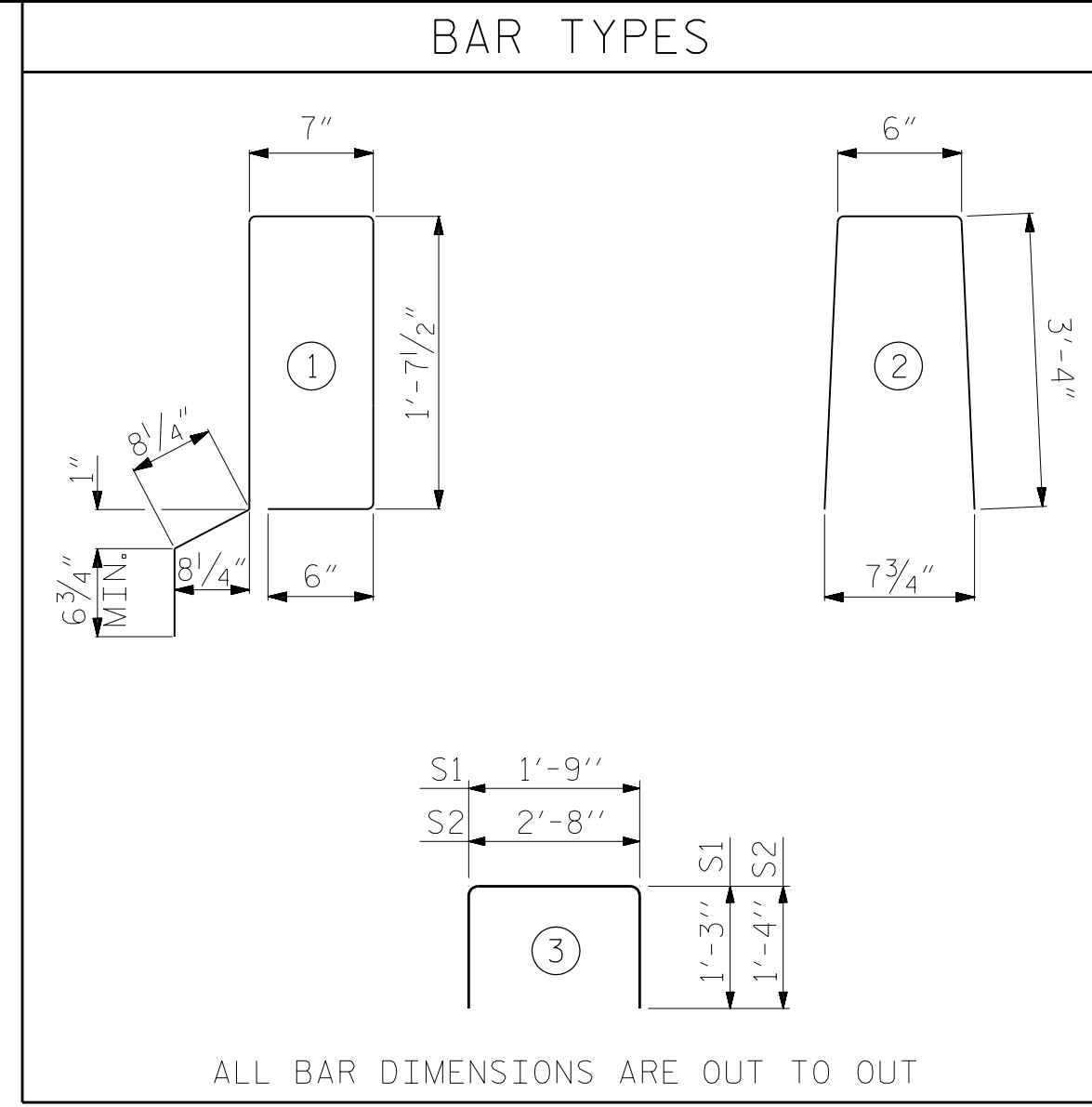
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
45' UNIT	2"	3'-8"

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
45' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	7/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	3/4" ↑

\*\* INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	94	#4	3	5'-4"	335	5'-4"	335
* S3	54	#5	1	5'-7"	314		
REINFORCING STEEL				LBS.	432		432
* EPOXY COATED REINFORCING STEEL				LBS.	314		
5000 P.S.I. CONCRETE				CU. YDS.	6.5		6.5
0.6" Ø L.R. STRANDS				No.	13		13

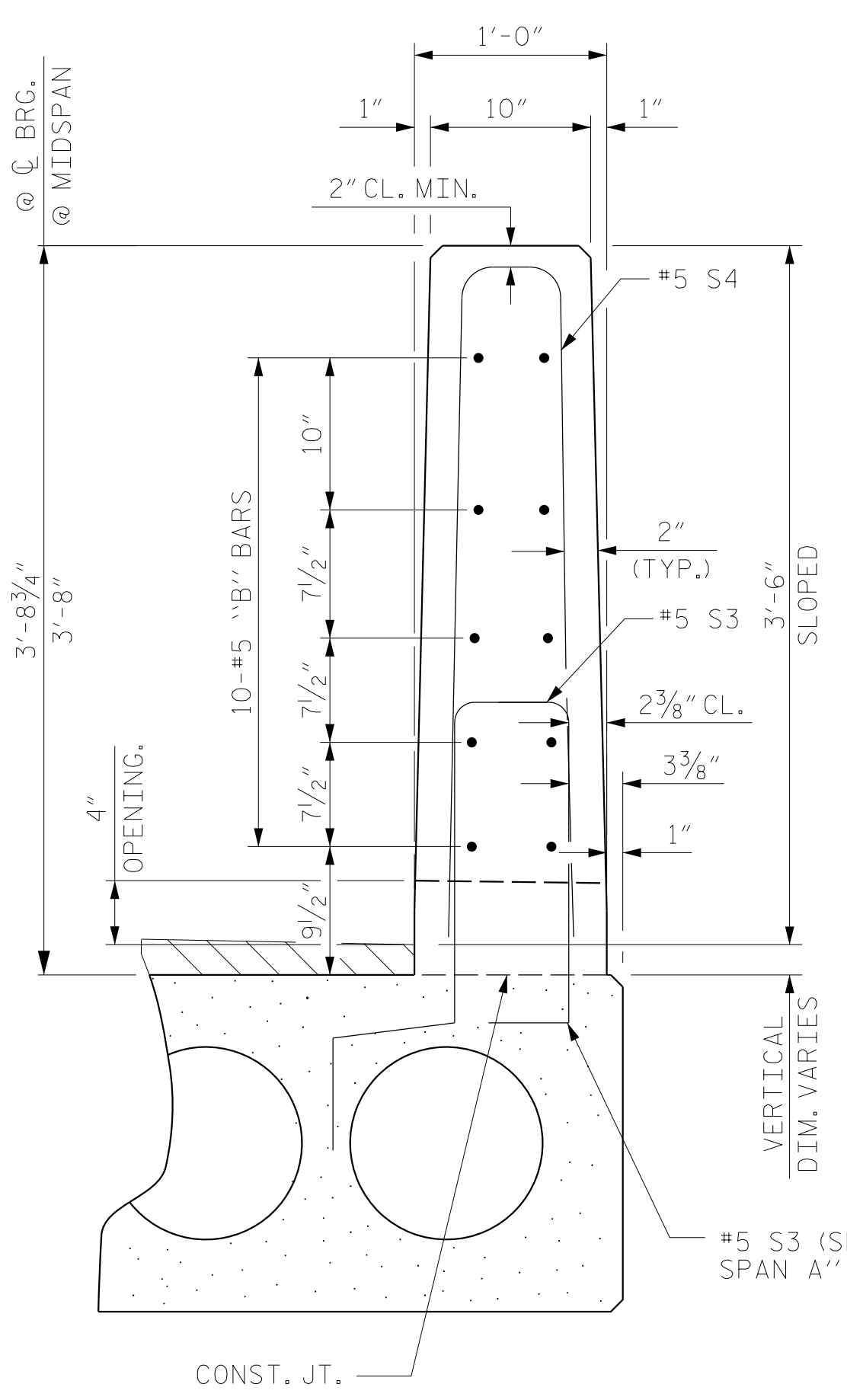


CONCRETE RELEASE STRENGTH	
UNIT	PSI
45' UNIT	4000

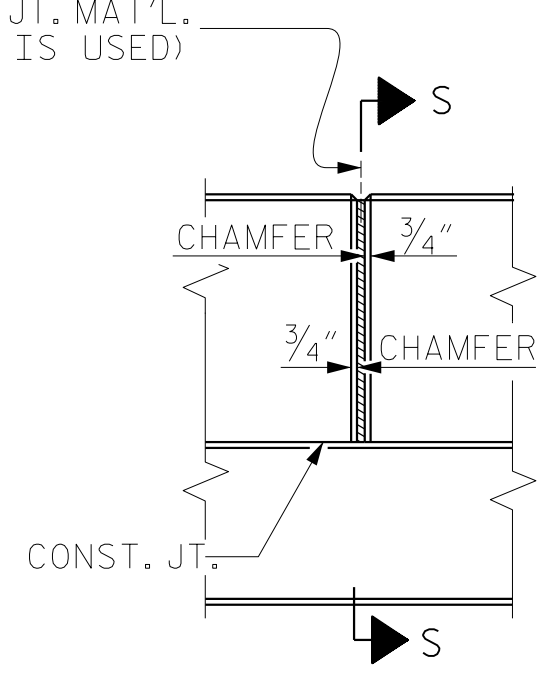
GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA ( SQUARE INCHES )	0.217
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950

CORED SLABS REQUIRED			
45' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	45'-0"	90'-0"
INTERIOR C.S.	8	45'-0"	360'-0"
TOTAL	10		450'-0"

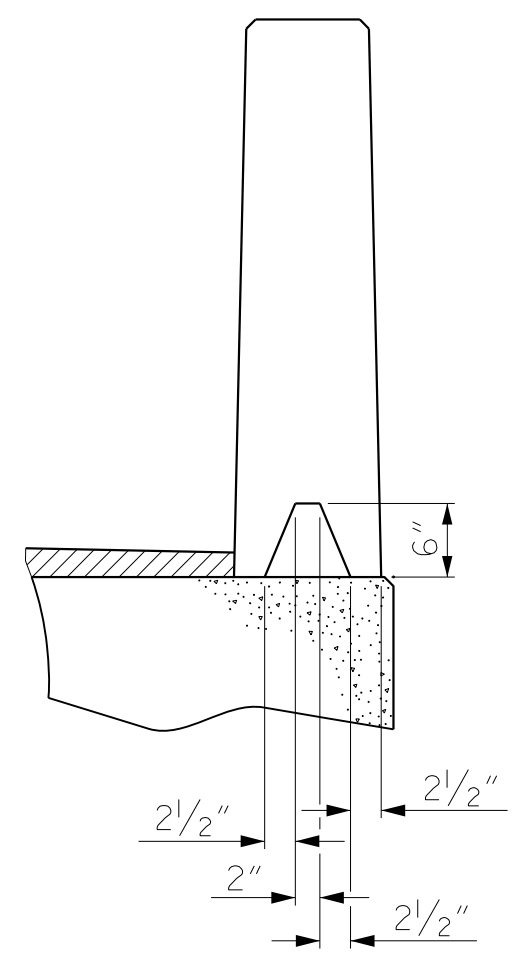
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
45' UNIT						
* B12	40	40	#5	STR	22'-1"	921
* S4	108	108	#5	2	7'-2"	807
* EPOXY COATED REINFORCING STEEL				LBS.		1728
CLASS AA CONCRETE				CU. YDS.		11.5
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		90.00



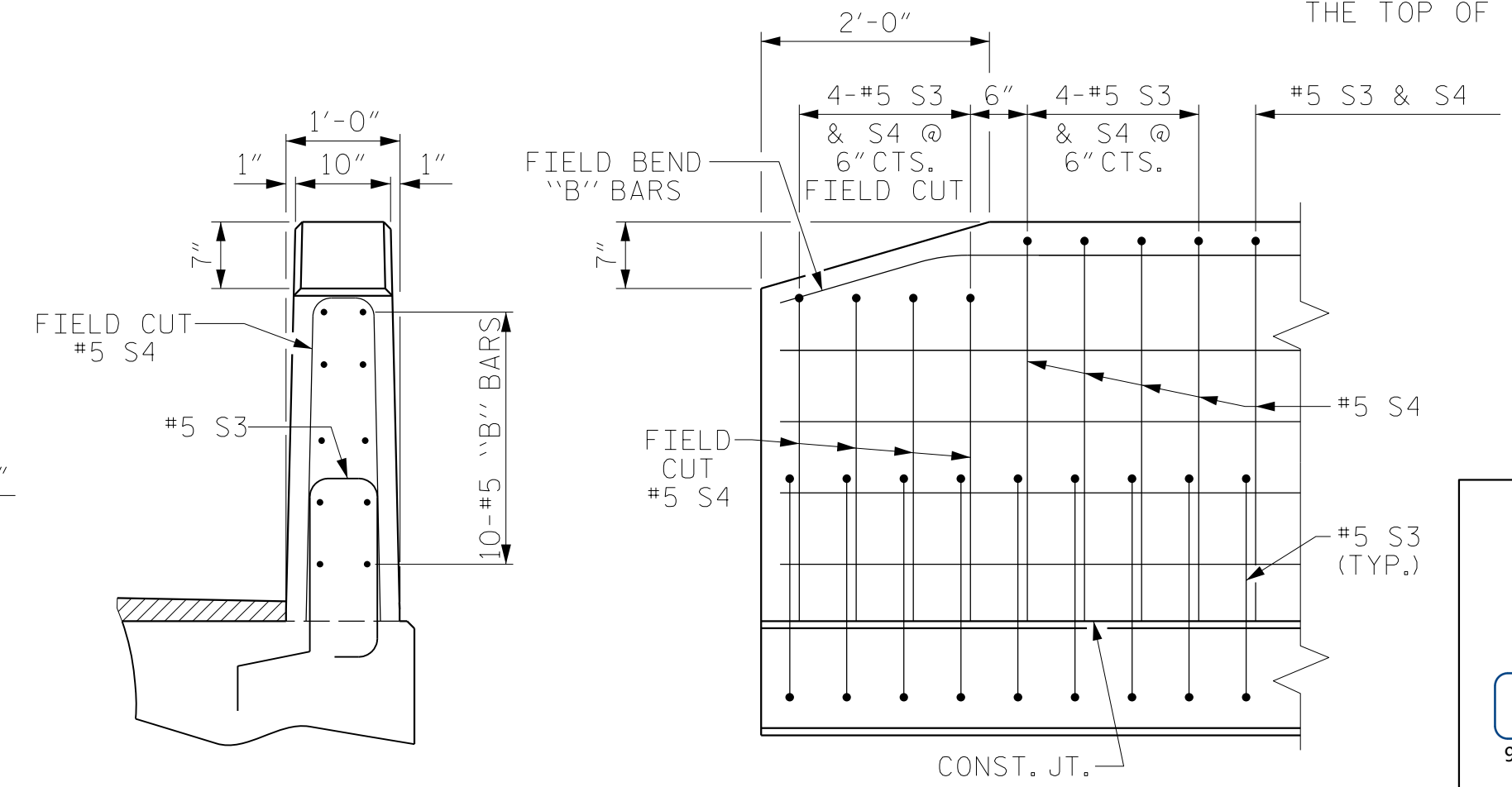
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



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



END VIEW SIDE VIEW

END OF RAIL DETAILS

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 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

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.

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A 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.

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.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS AND EXTERIOR FACE OF THE EXTERIOR CORED SLAB UNITS THAT REQUIRE DRAINS IN THE BARRIER RAIL.

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.

PROJECT NO. 17BP.14.R.124  
TRANSYLVANIA COUNTY  
STATION: 12+45.00 -L-  
SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 1'-9"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
90° SKEW

REVISIONS

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

SHEET NO. S-7  
TOTAL SHEETS 15

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ASSEMBLED BY : TRP	DATE : 11/2014
CHECKED BY : MAL	DATE : 11/2014
DRAWN BY : DGE 5/09	REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09	REV. 8/14 MAA/TMG



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.)

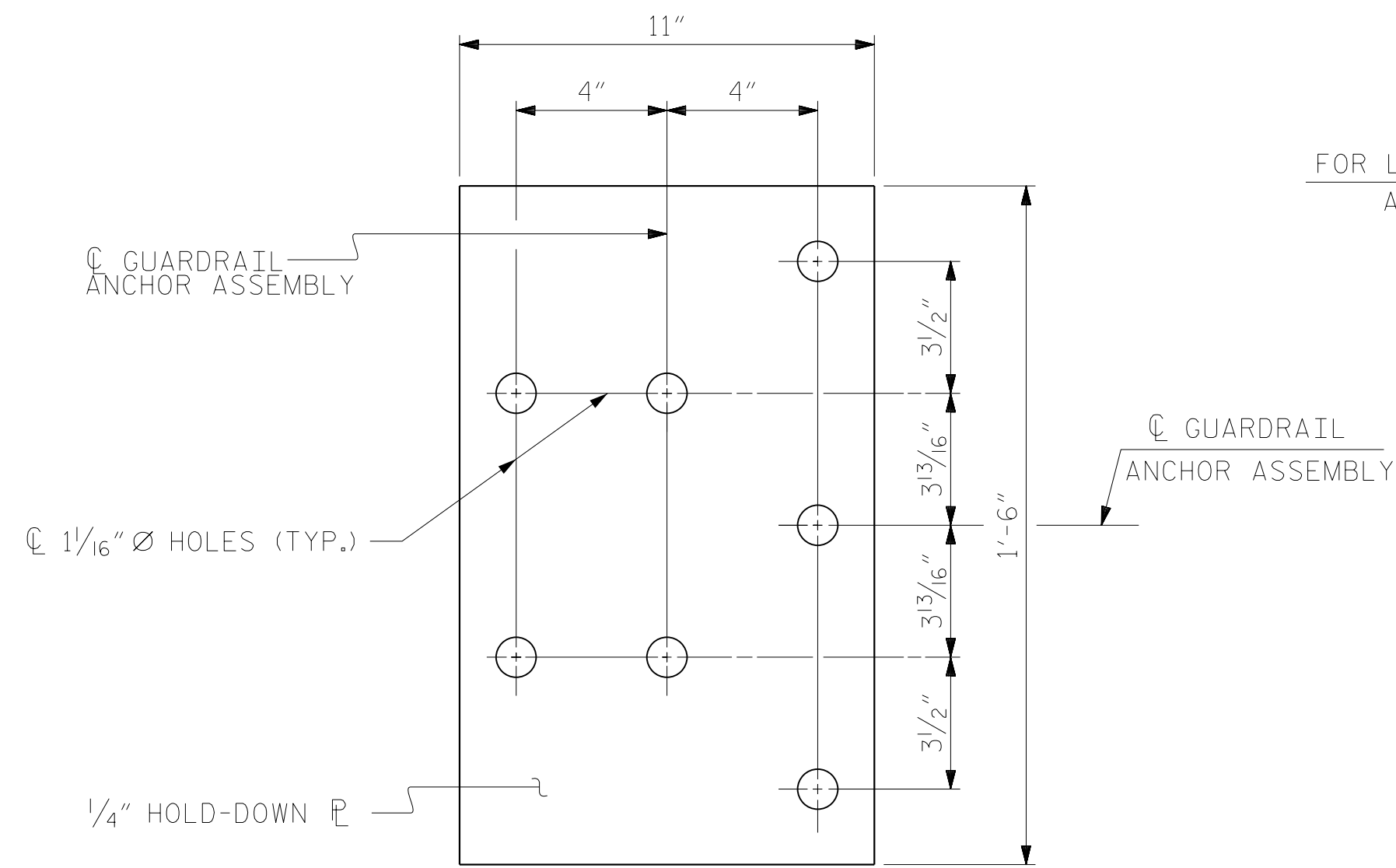
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

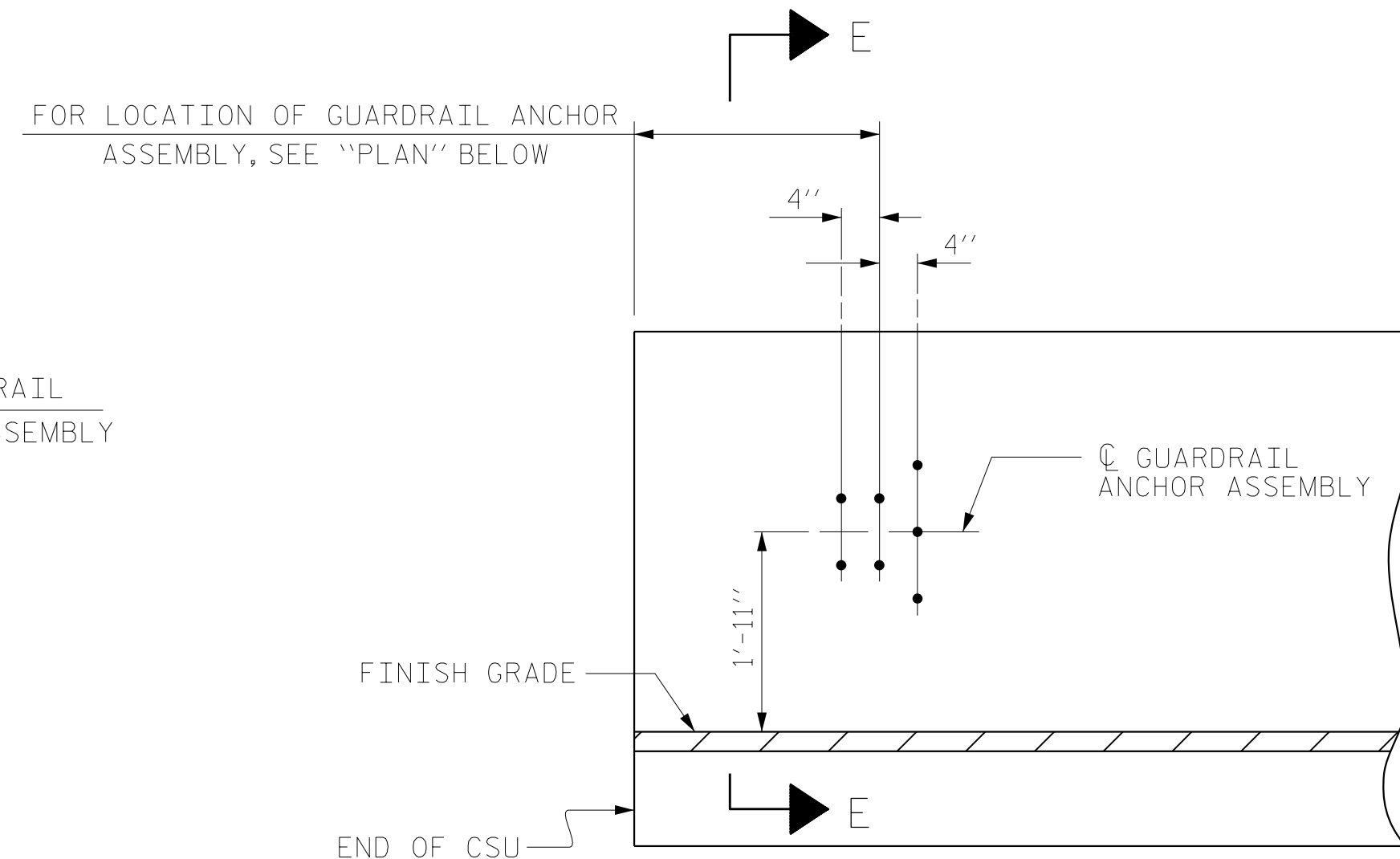
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

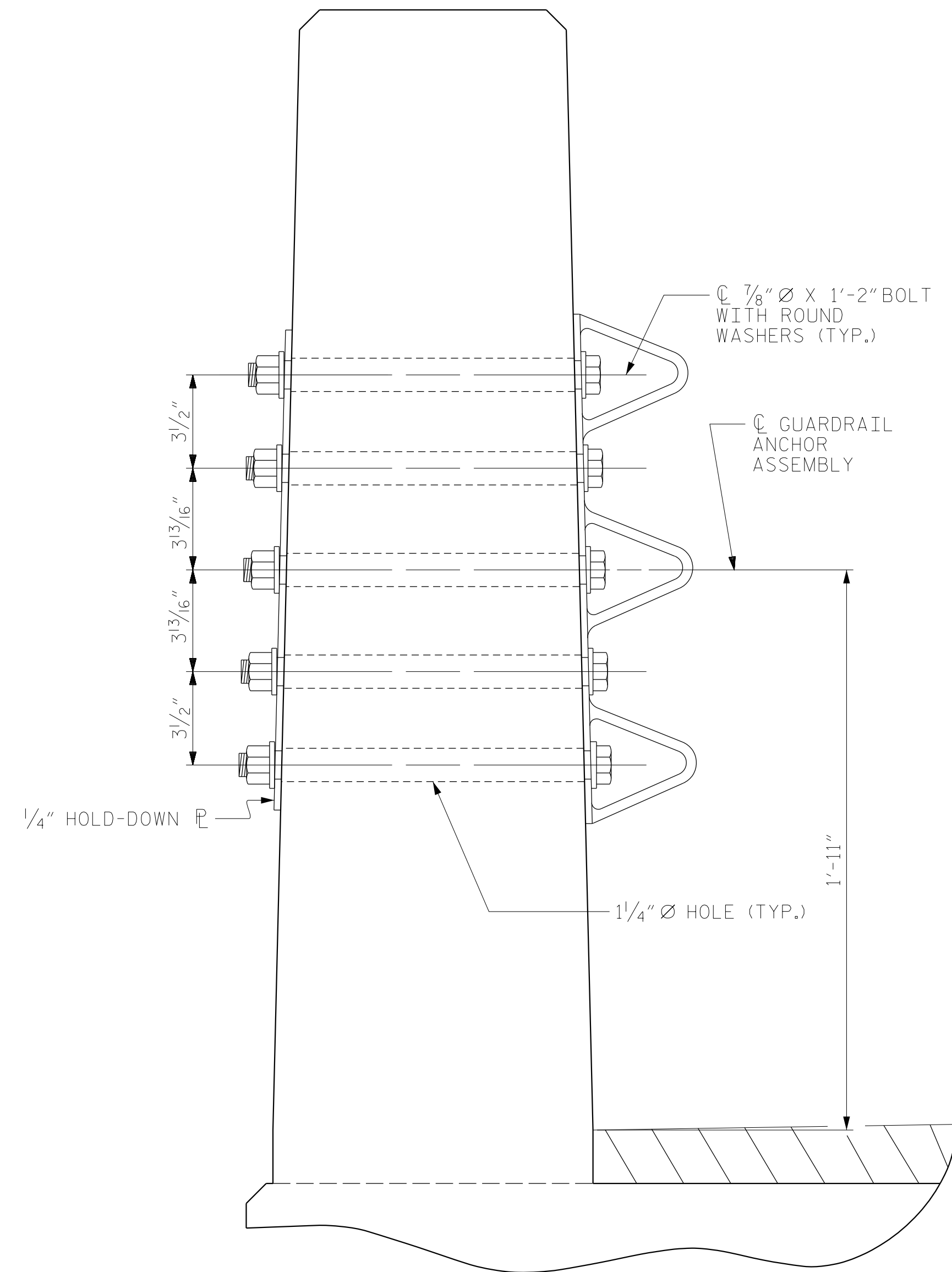
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



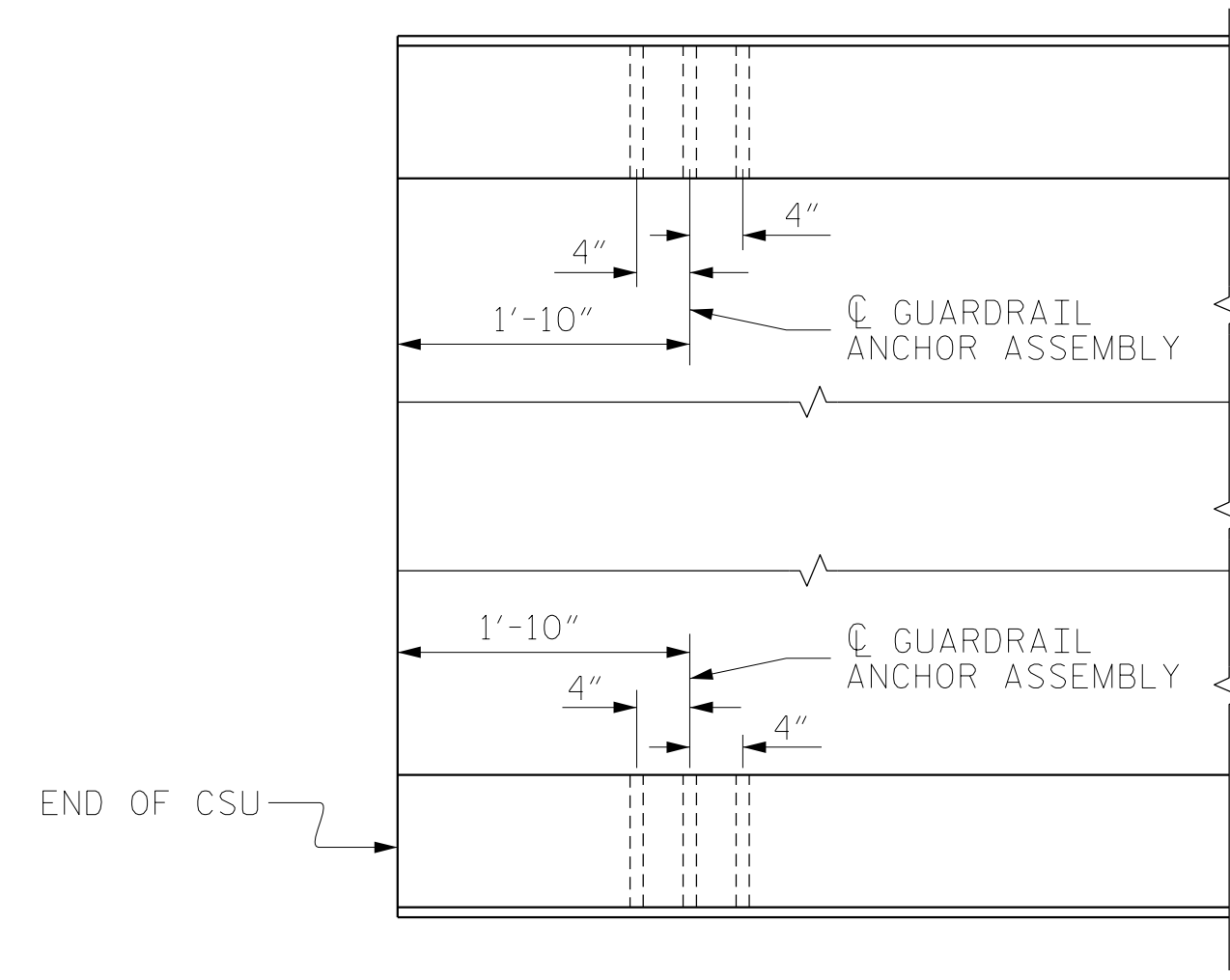
PLAN



ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

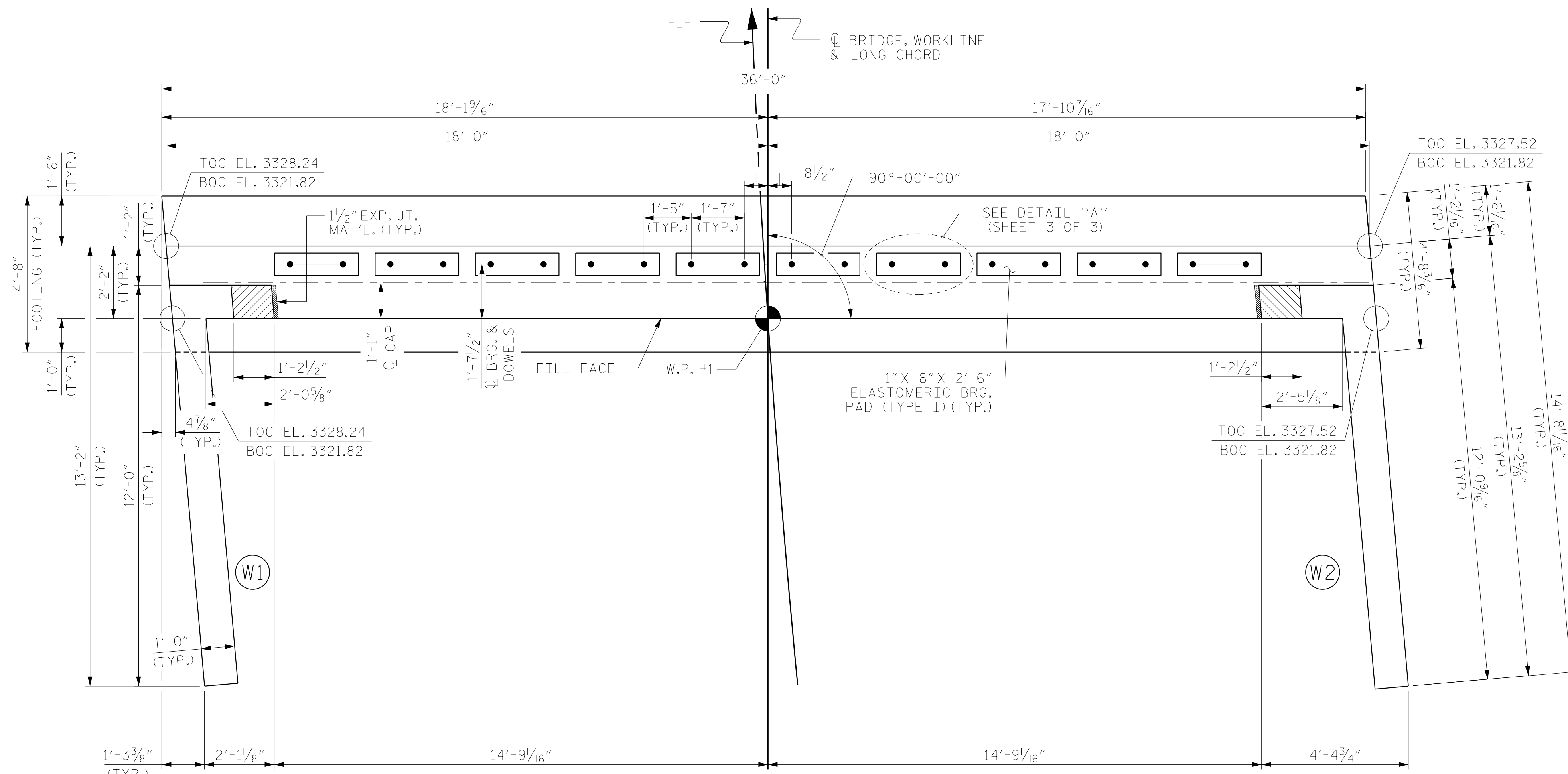
\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.14.R.124  
TRANSYLVANIA COUNTY  
STATION: 12+45.00 -L-

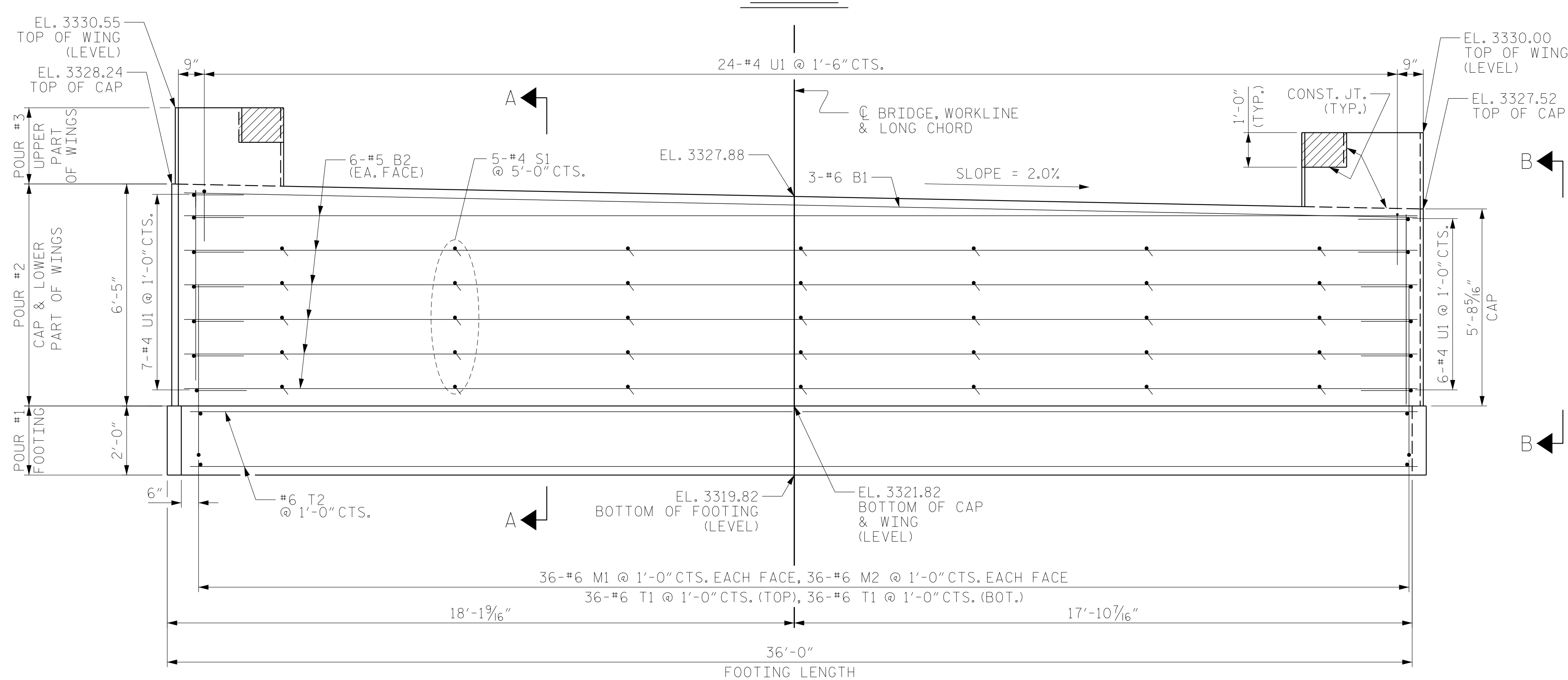
ASSEMBLED BY :	TRP	DATE :	11/2014
CHECKED BY :	MAL	DATE :	11/2014
DRAWN BY :	MAA 5/10	ADDED :	5/6/10
CHECKED BY :	GM 5/10	REV. :	10/1/11
		REV. :	12/5/11

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-8
STANDARD GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL						TOTAL SHEETS 15
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

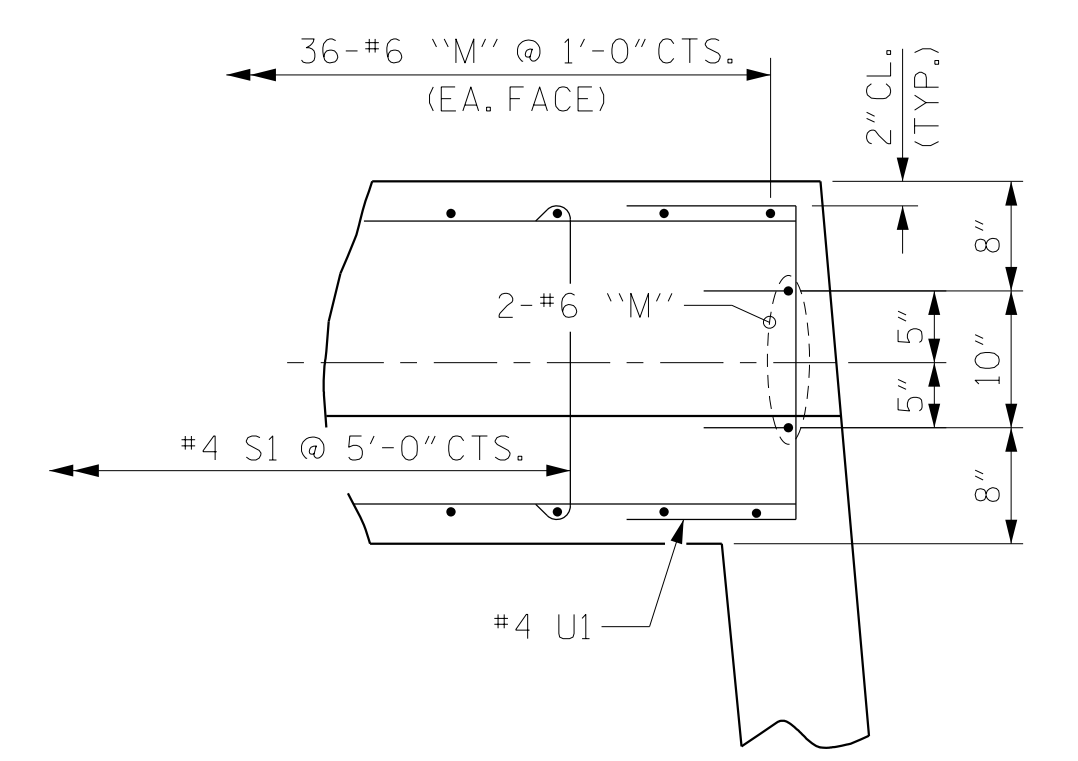


PLAN

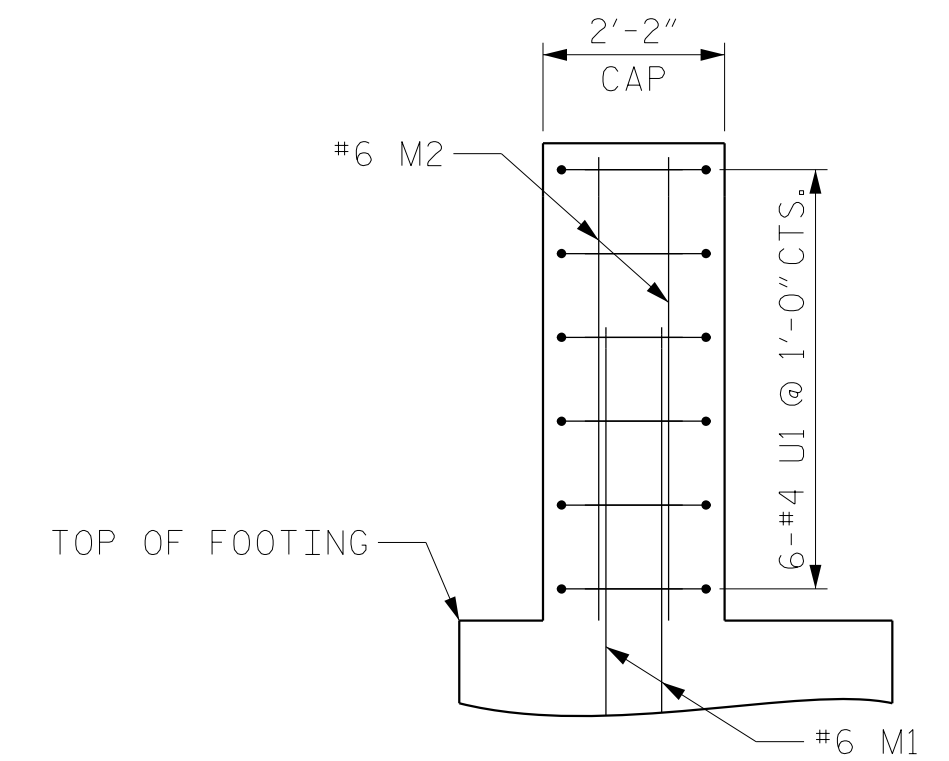


ELEVATION  
WINGS NOT SHOWN FOR CLARITY.

**NOTES**  
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.  
 FOR WING DETAILS, SEE SHEET 2 OF 3.  
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



CAP PART PLAN VIEW  
RIGHT END, LEFT END SIMILAR



VIEW B-B

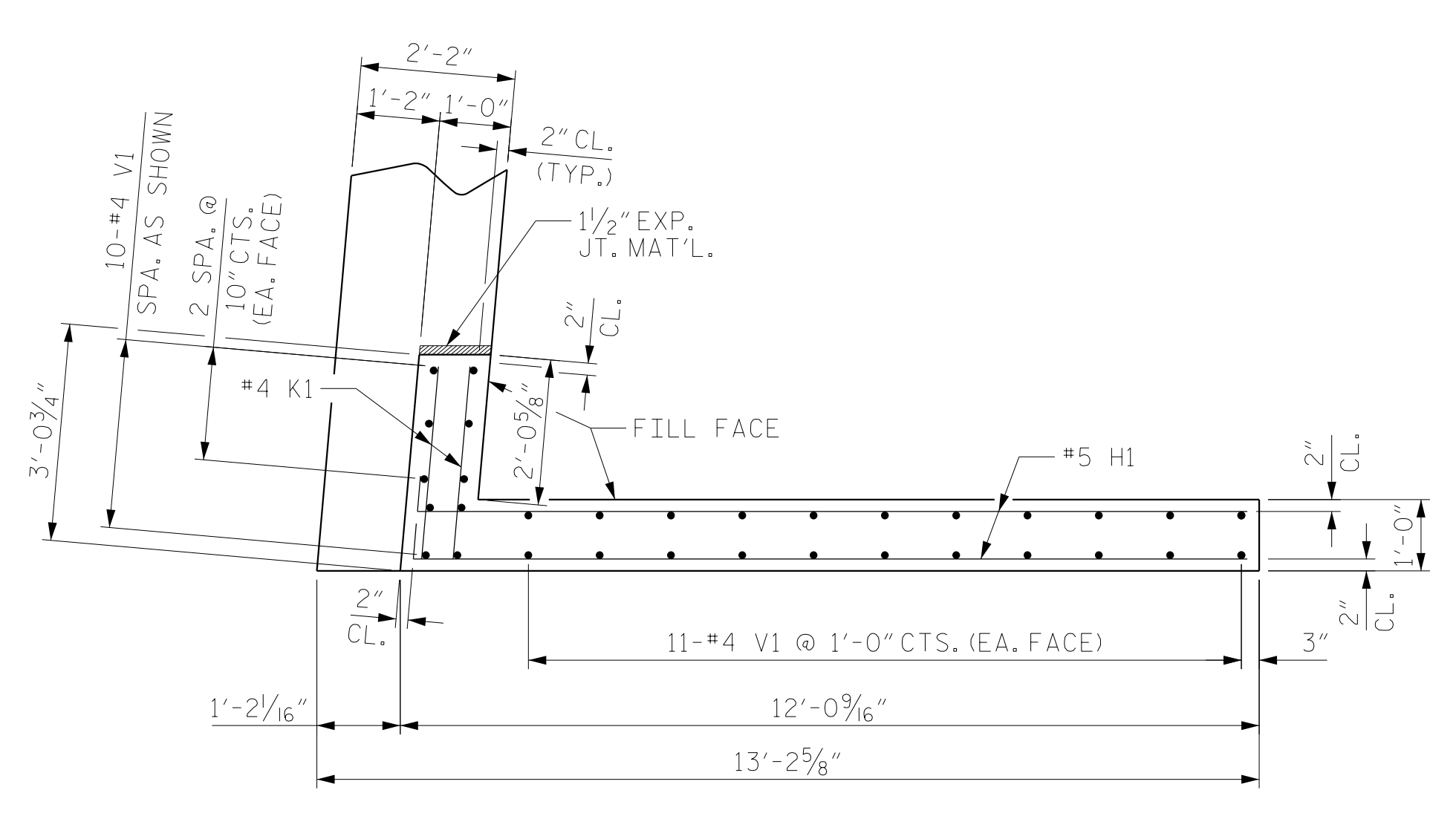
PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-

SHEET 1 OF 3

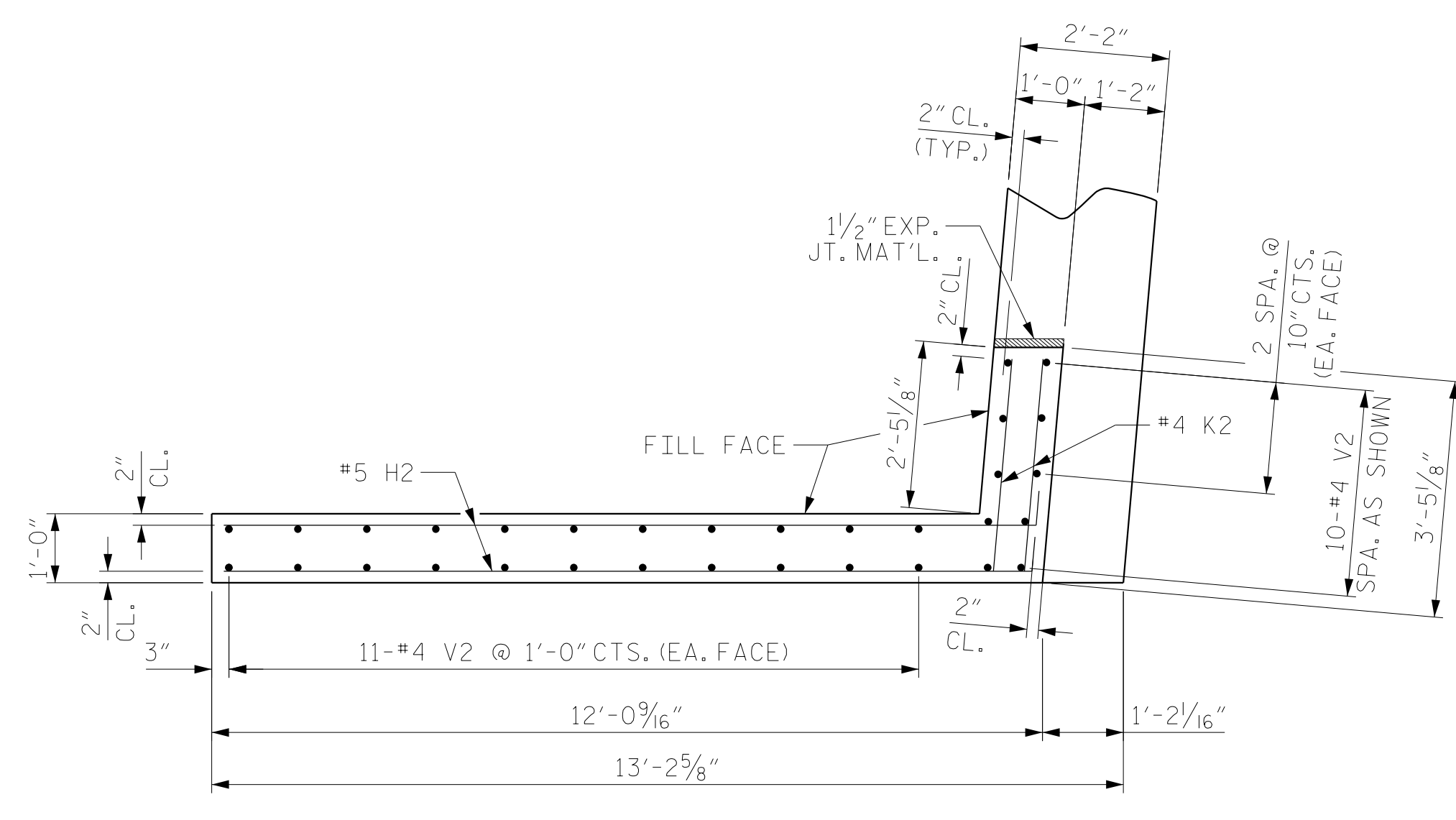
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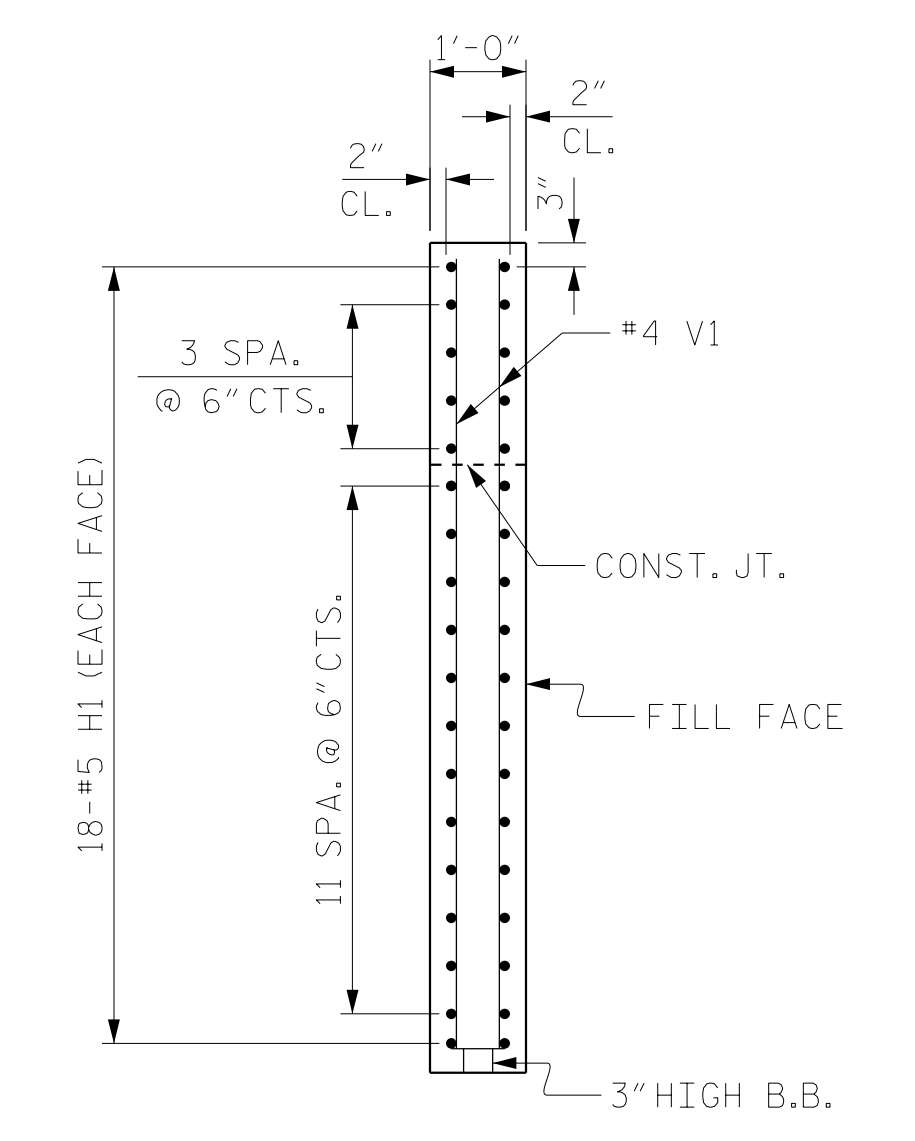
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-9
TOTAL SHEETS					15



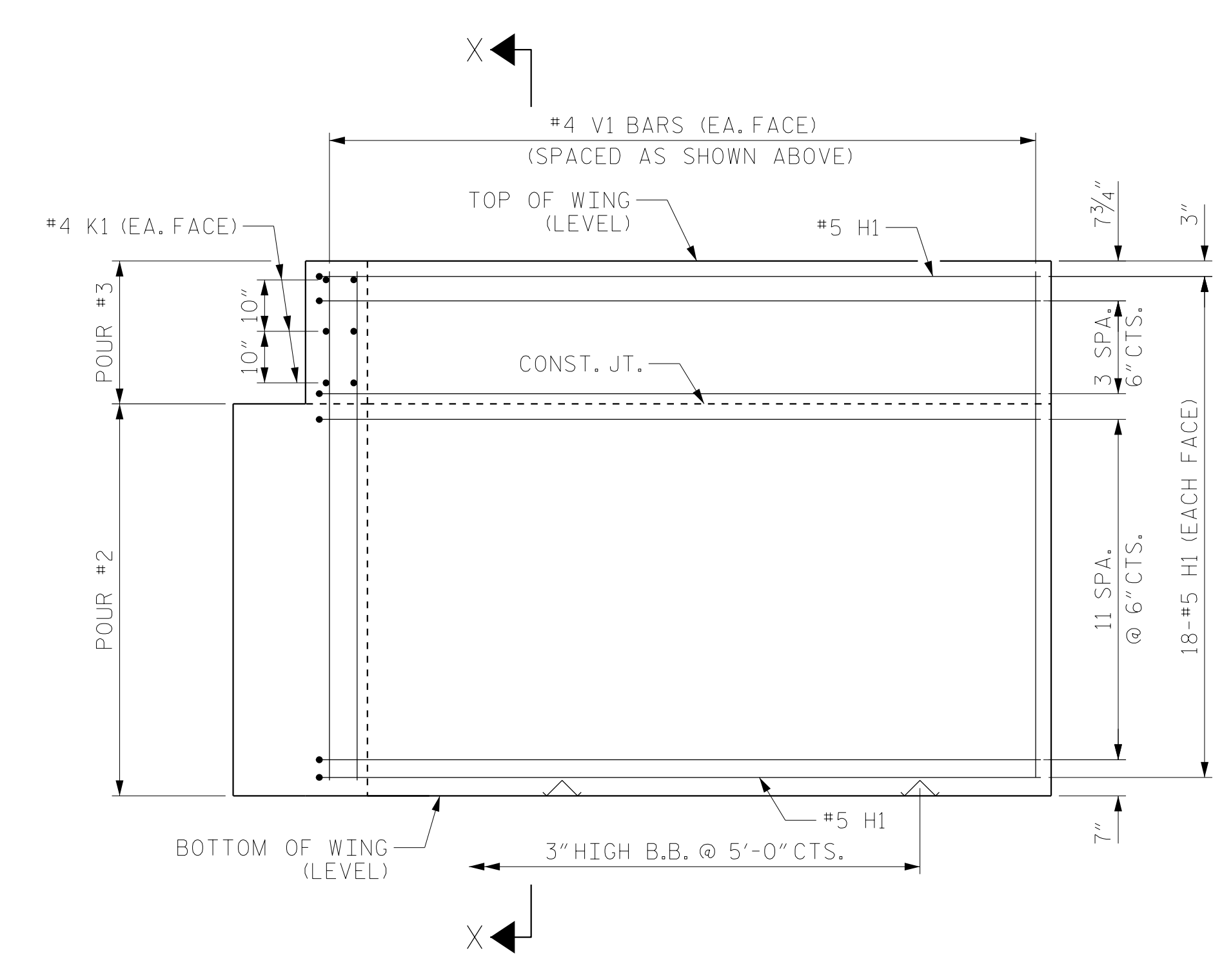
PLAN OF WING (W1)



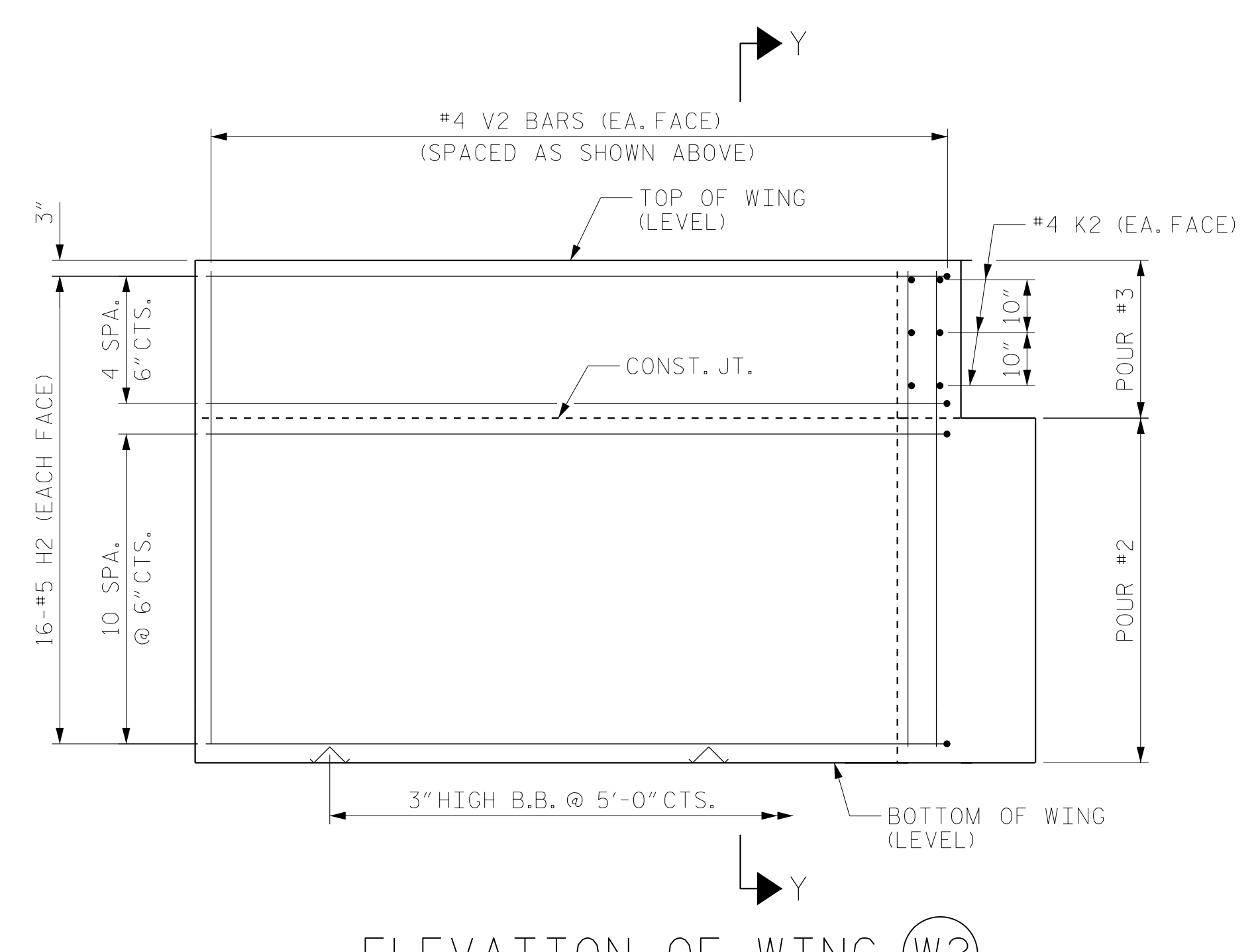
PLAN OF WING (W2)



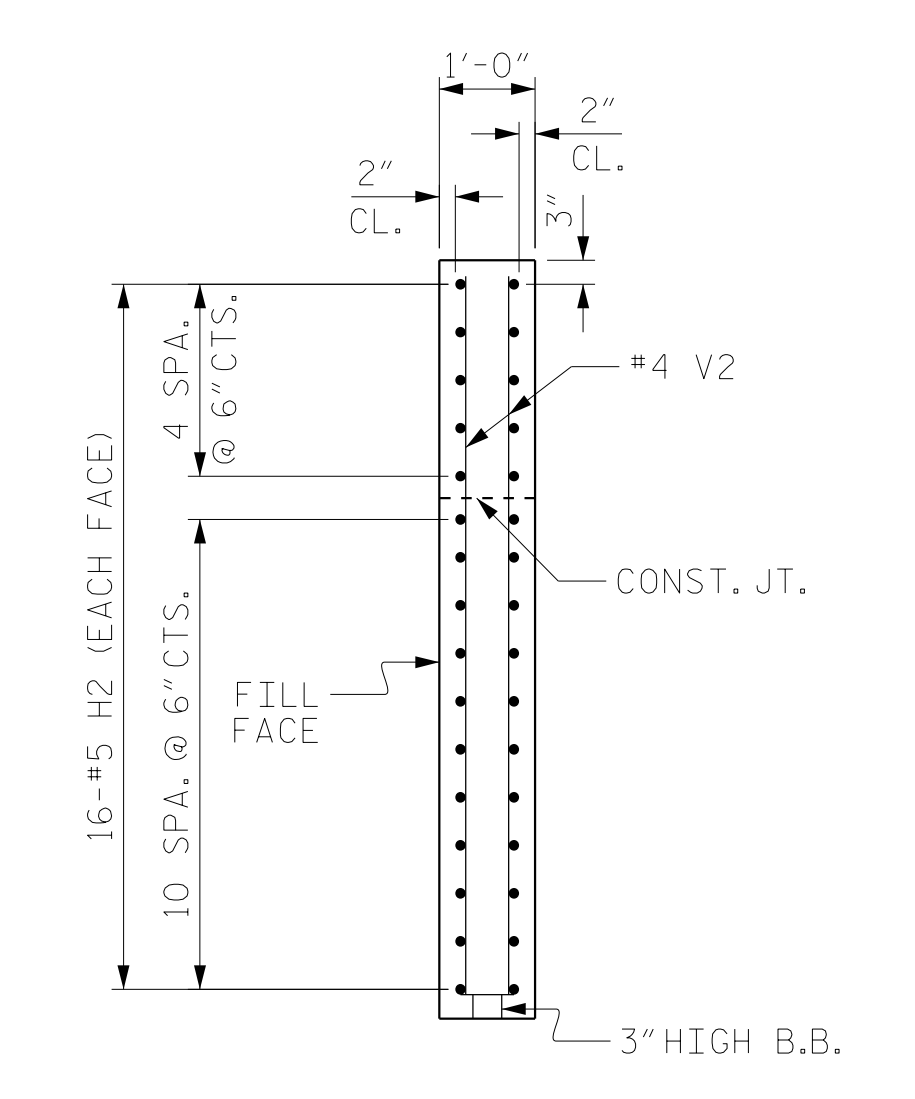
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

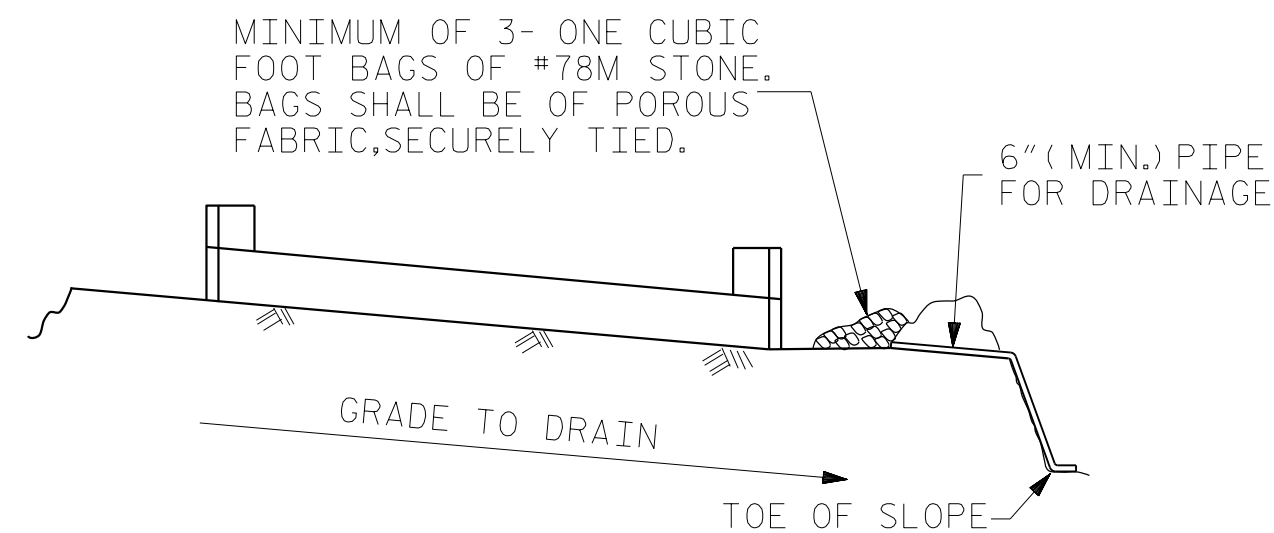
WING DETAILS  
FOOTINGS NOT SHOWN FOR CLARITY

PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-  
 SHEET 2 OF 3

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS END BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-10					TOTAL SHEETS 15

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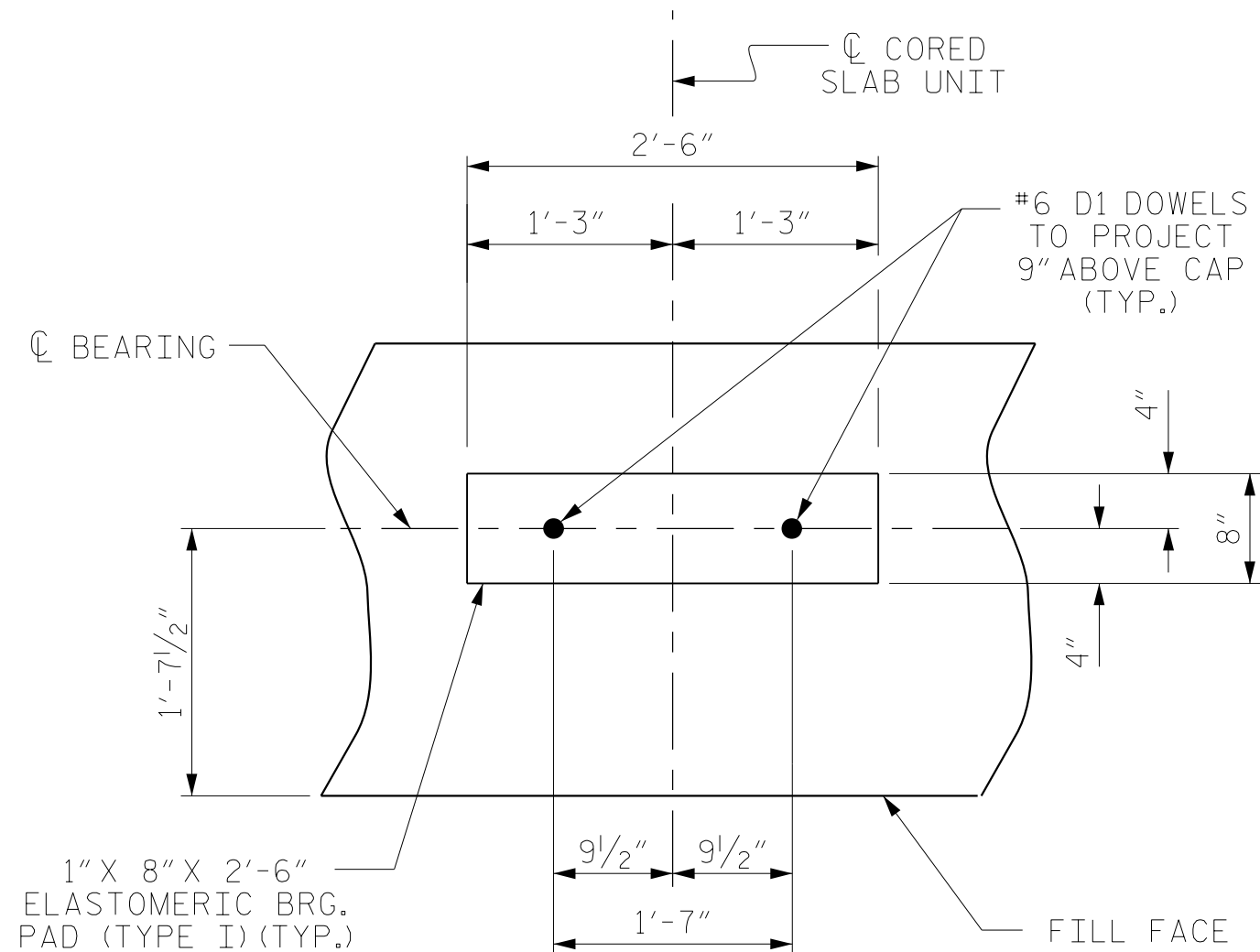


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

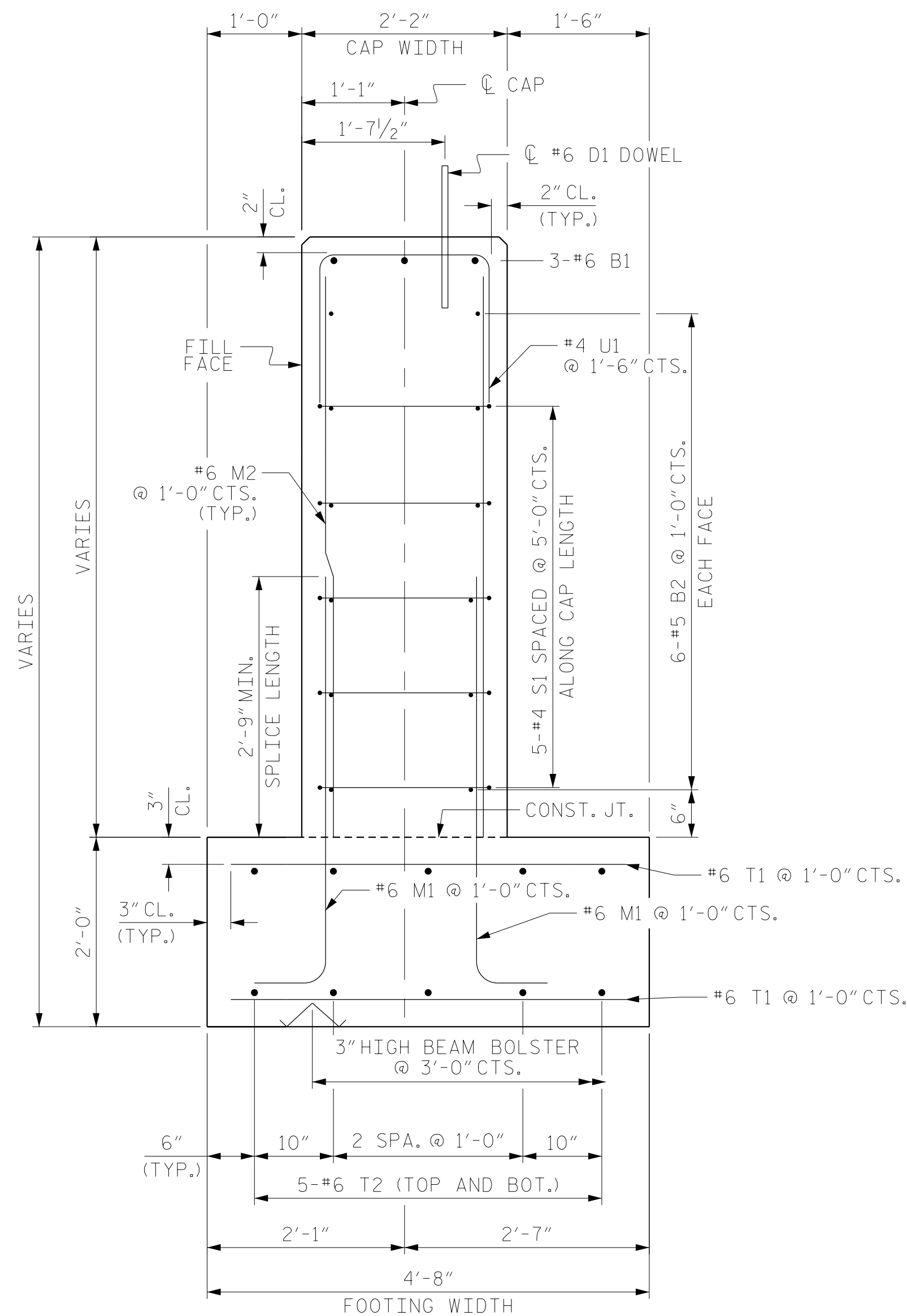
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

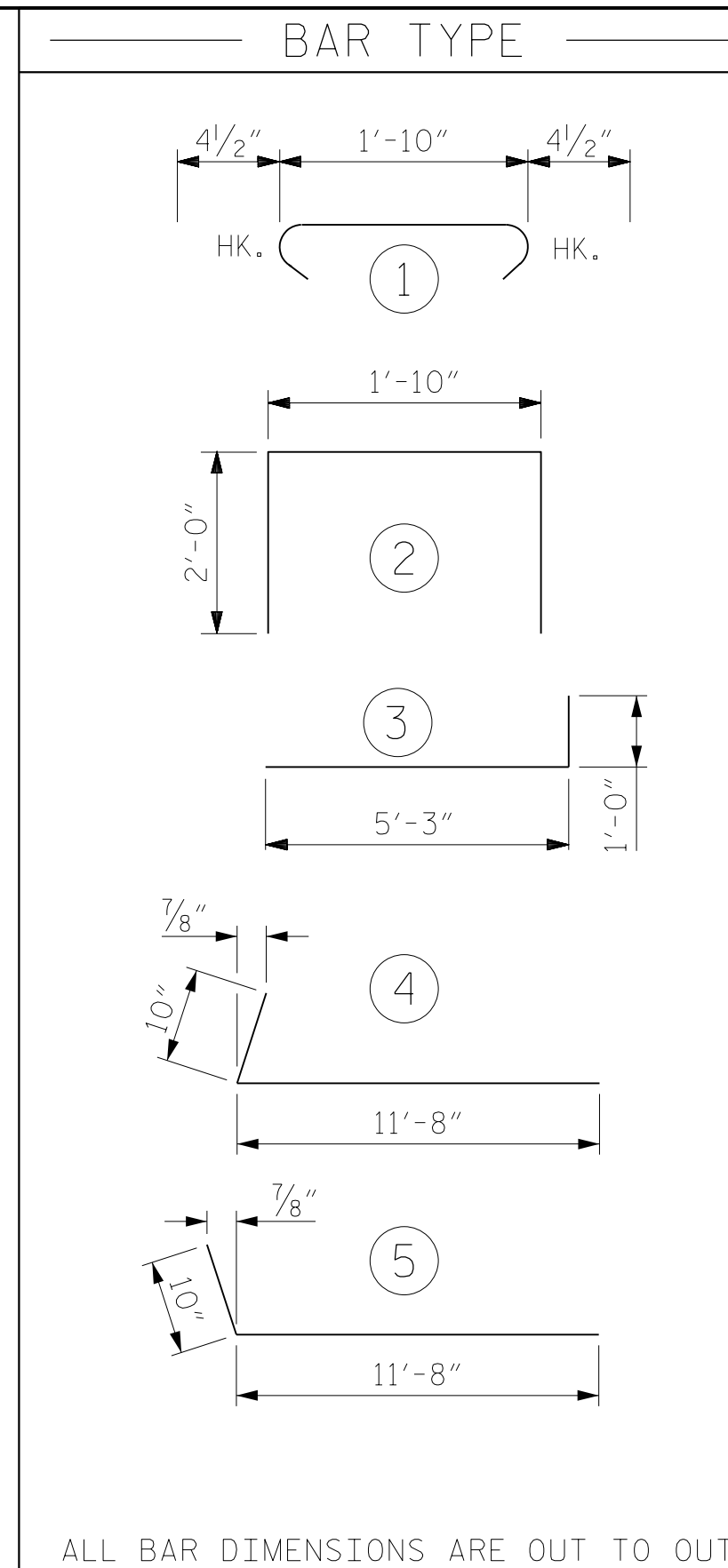
### TEMPORARY DRAINAGE AT END BENT



DETAIL "A"



SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	3	#6	STR	35'-6"	160
B2	12	#5	STR	35'-6"	444
D1	20	#6	STR	1'-6"	45
H1	36	#5	4	12'-6"	469
H2	32	#5	5	12'-6"	417
K1	6	#4	STR	2'-8"	11
K2	6	#4	STR	3'-0"	12
M1	76	#6	3	6'-3"	713
M2	76	#6	STR	5'-6"	628
S1	35	#4	1	2'-7"	60
T1	72	#6	STR	4'-2"	451
T2	10	#6	STR	35'-6"	533
V1	32	#4	STR	8'-3"	176
V2	32	#4	STR	7'-9"	166
U1	37	#4	2	5'-10"	144
REINFORCING STEEL (FOR ONE END BENT)					4429 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 FOOTING					12.4 C.Y.
POUR #2 CAP & LOWER PART OF WINGS					22.9 C.Y.
POUR #3 UPPER PART OF WINGS					3.2 C.Y.
TOTAL CLASS A CONCRETE					38.5 C.Y.

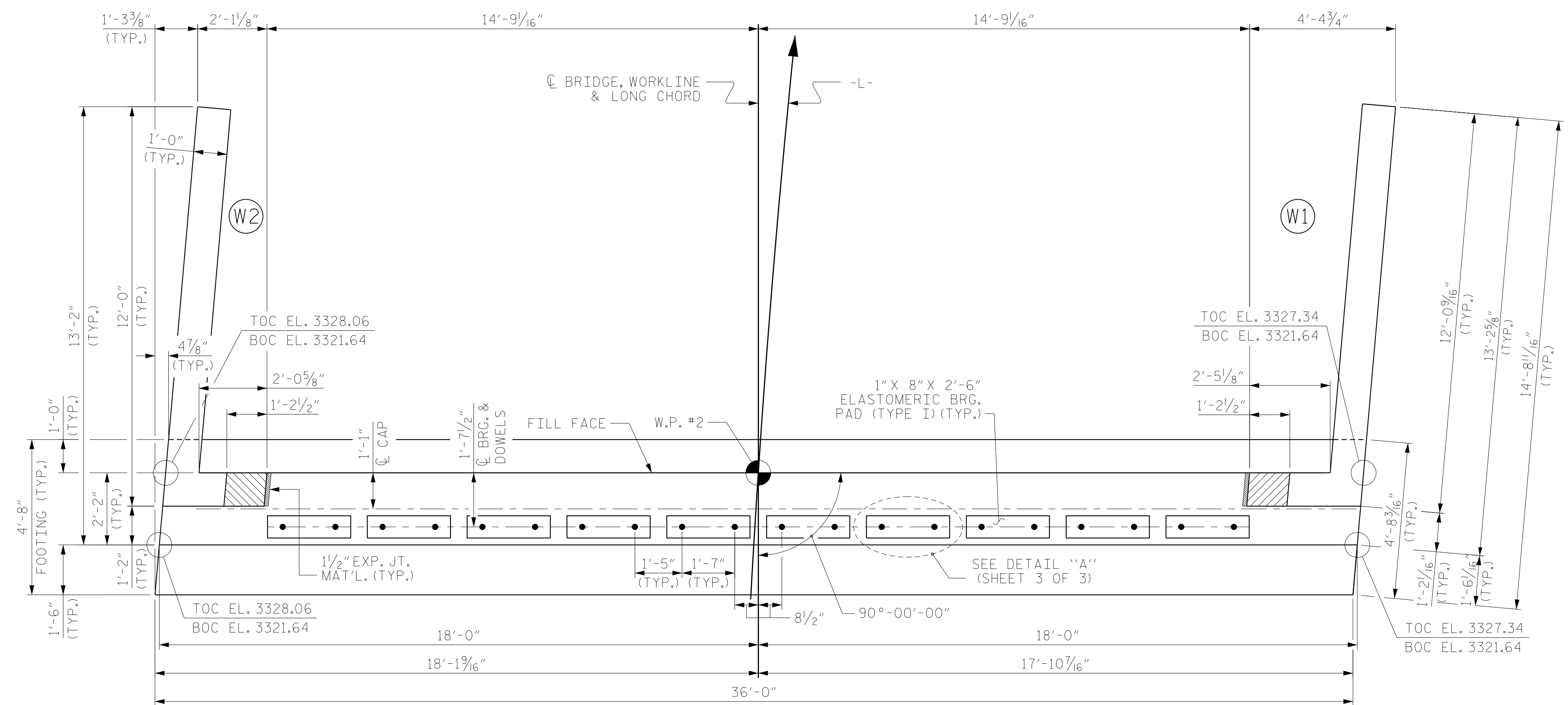
PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-

SHEET 3 OF 3

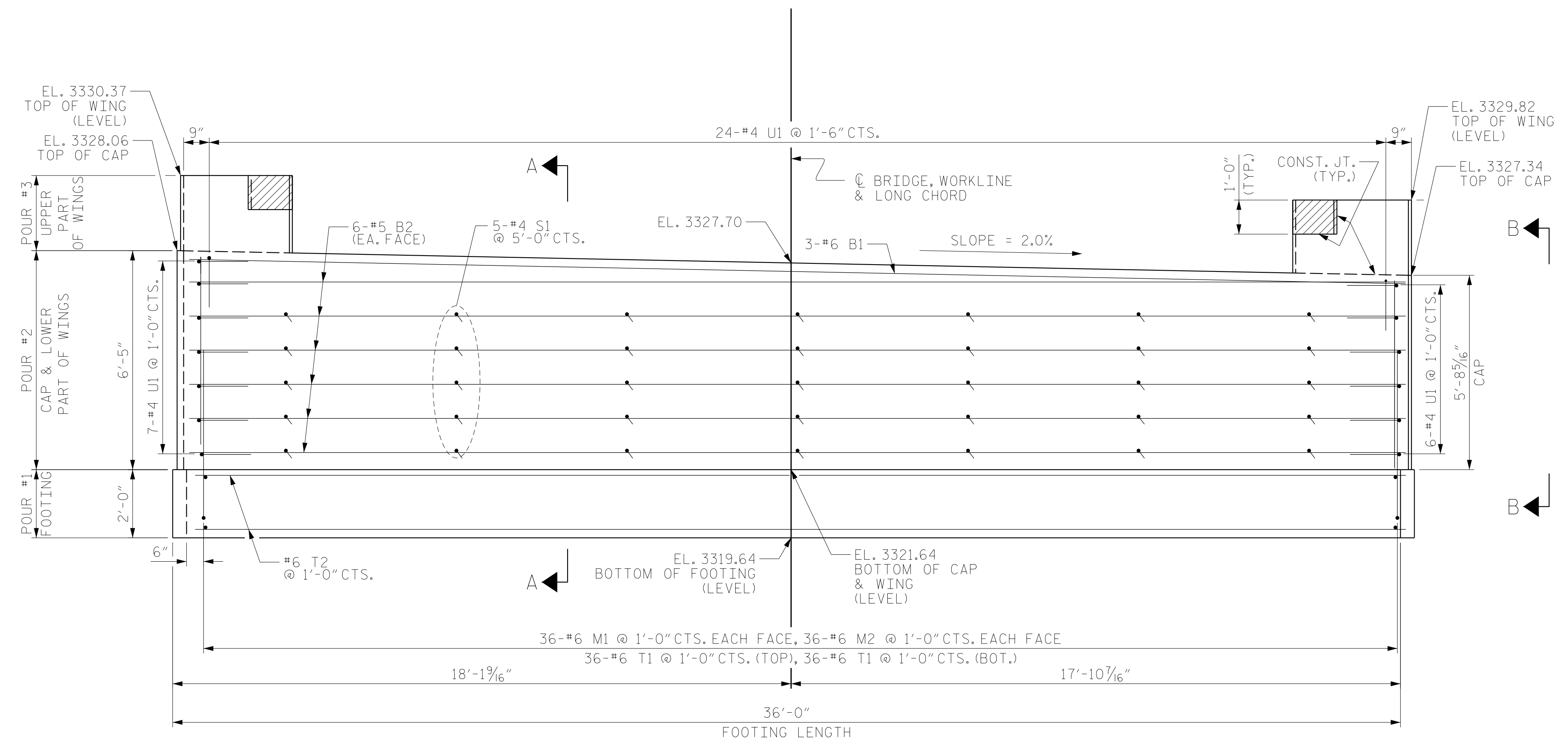


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 1 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : MAL DATE : 02/2015  
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 DESIGN ENGINEER OF RECORD : JMR DATE : 02/2015



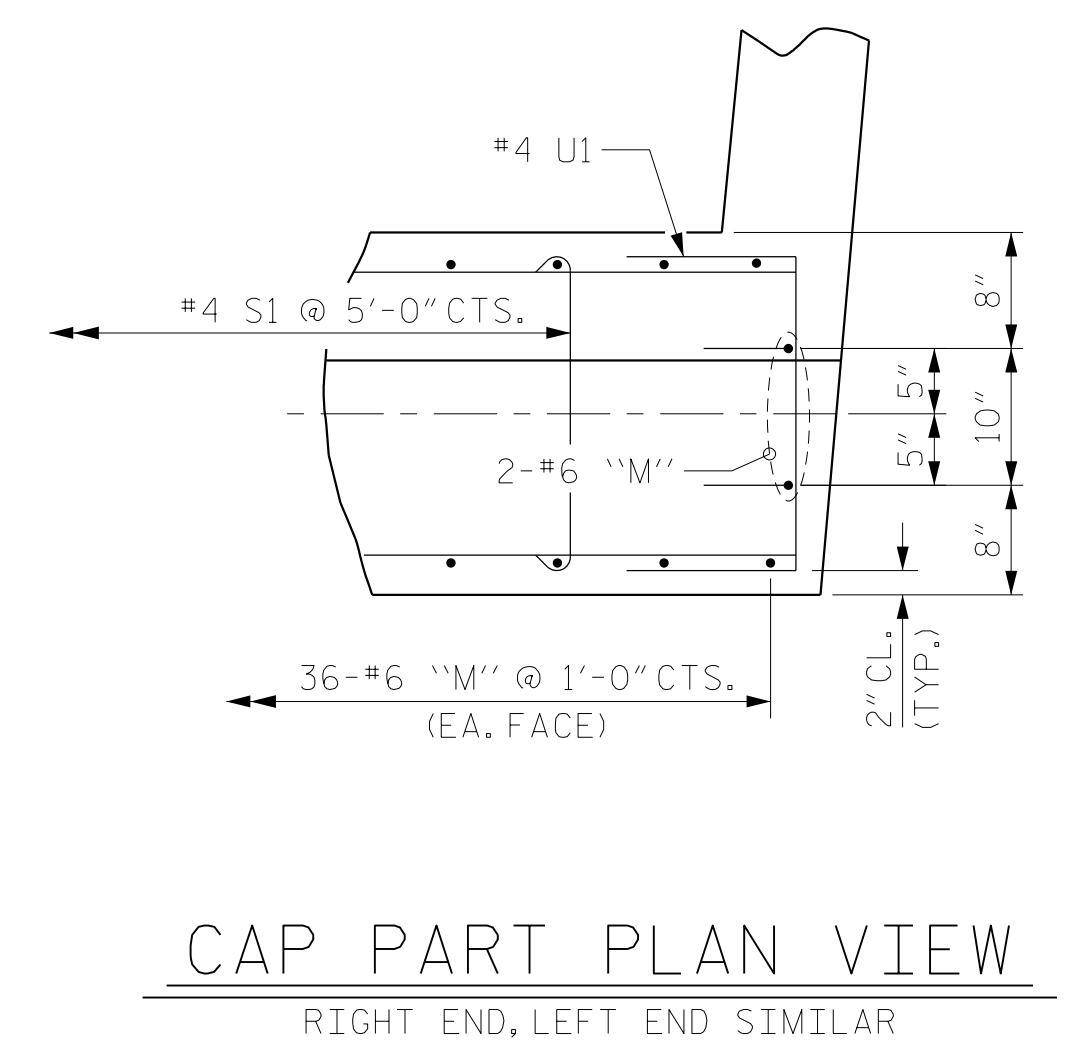
PLAN



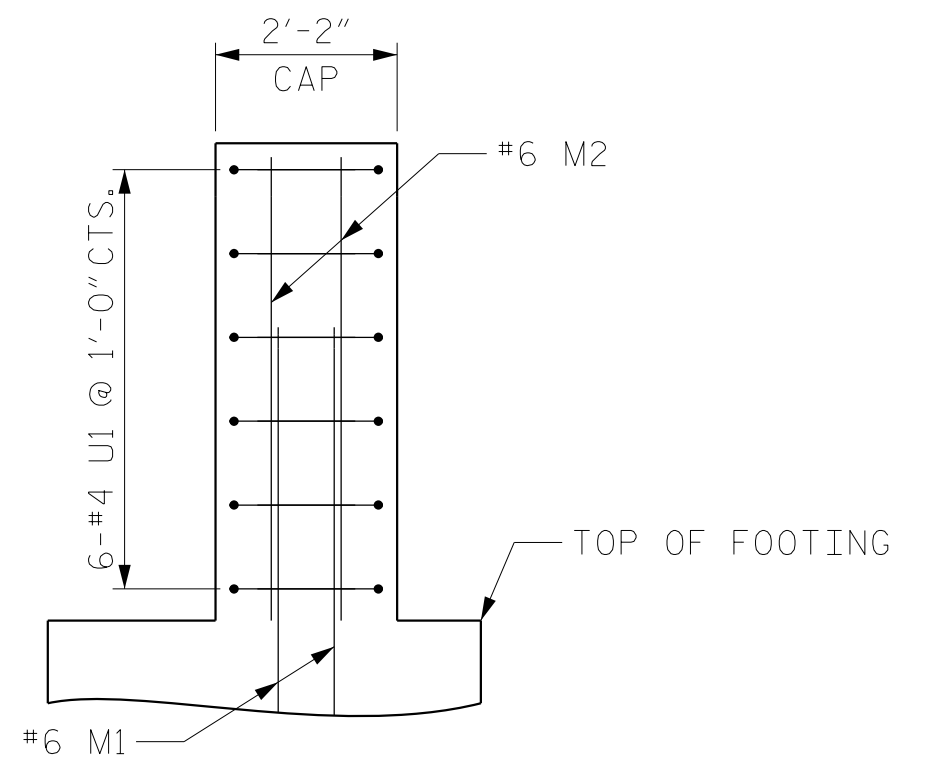
ELEVATION

WINGS NOT SHOWN FOR CLARITY.

**NOTES**  
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.  
 FOR WING DETAILS, SEE SHEET 2 OF 3.  
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



CAP PART PLAN VIEW  
 RIGHT END, LEFT END SIMILAR



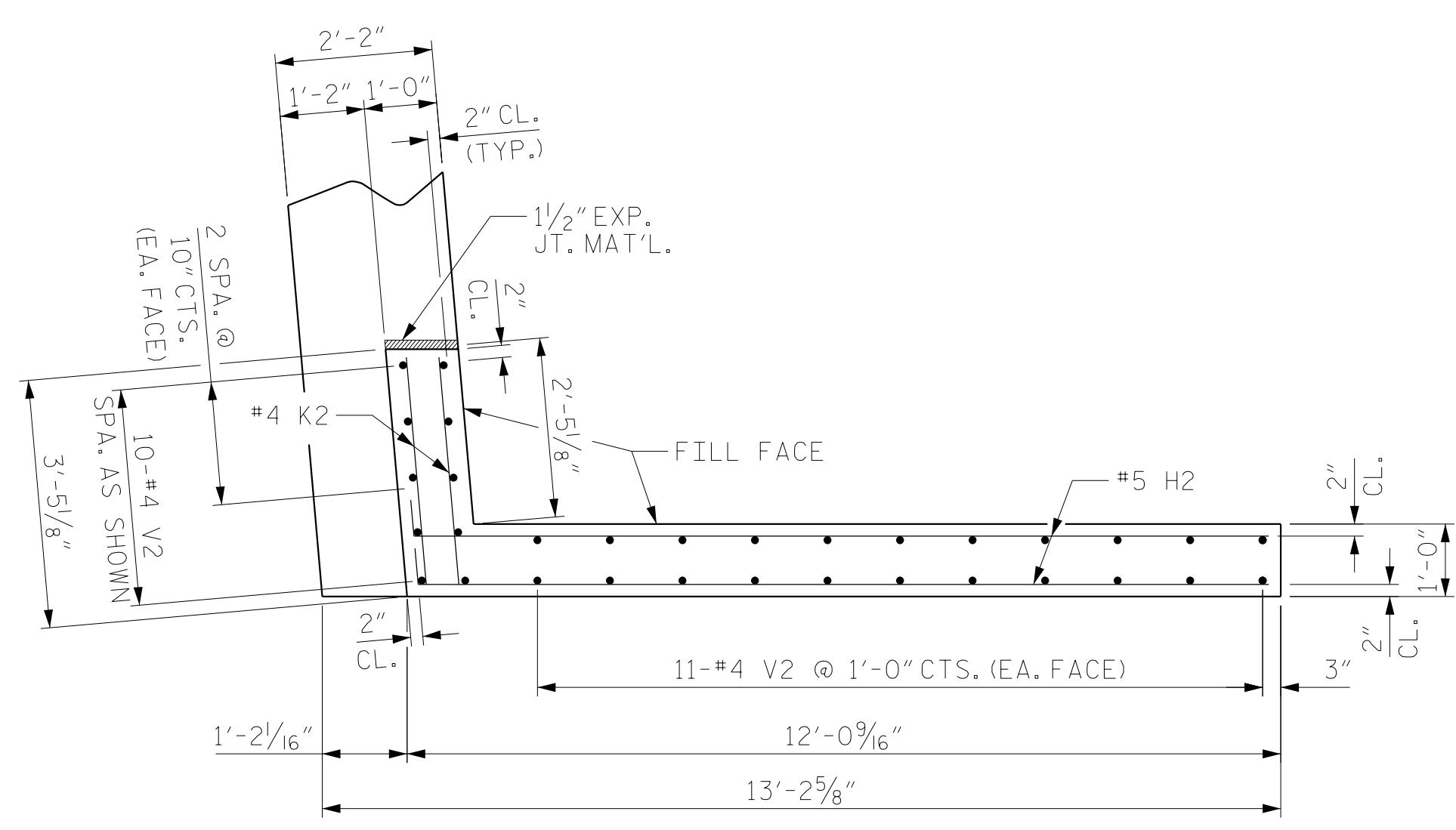
VIEW B-B

PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-  
 SHEET 1 OF 3

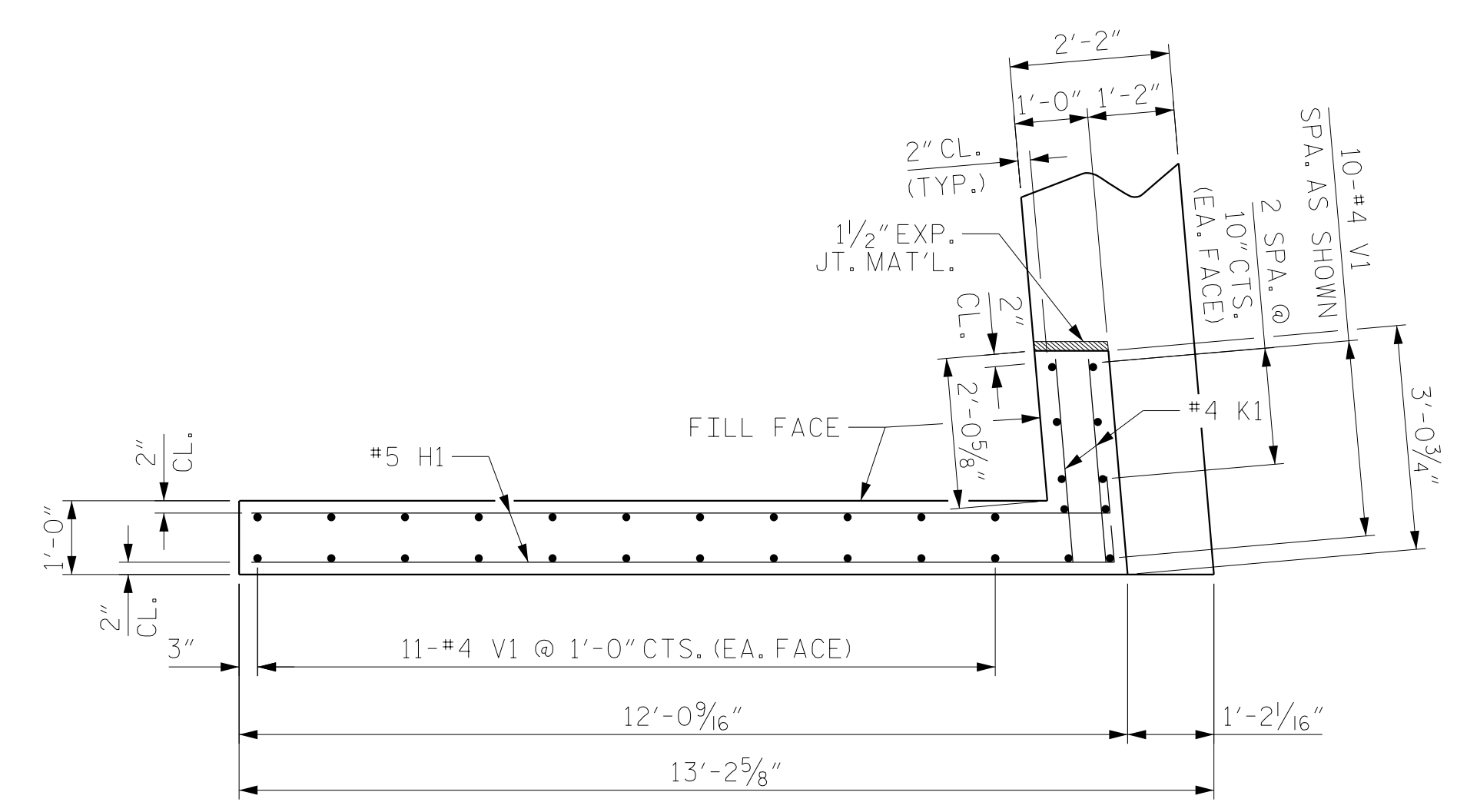


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT No. 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-12
TOTAL SHEETS					15

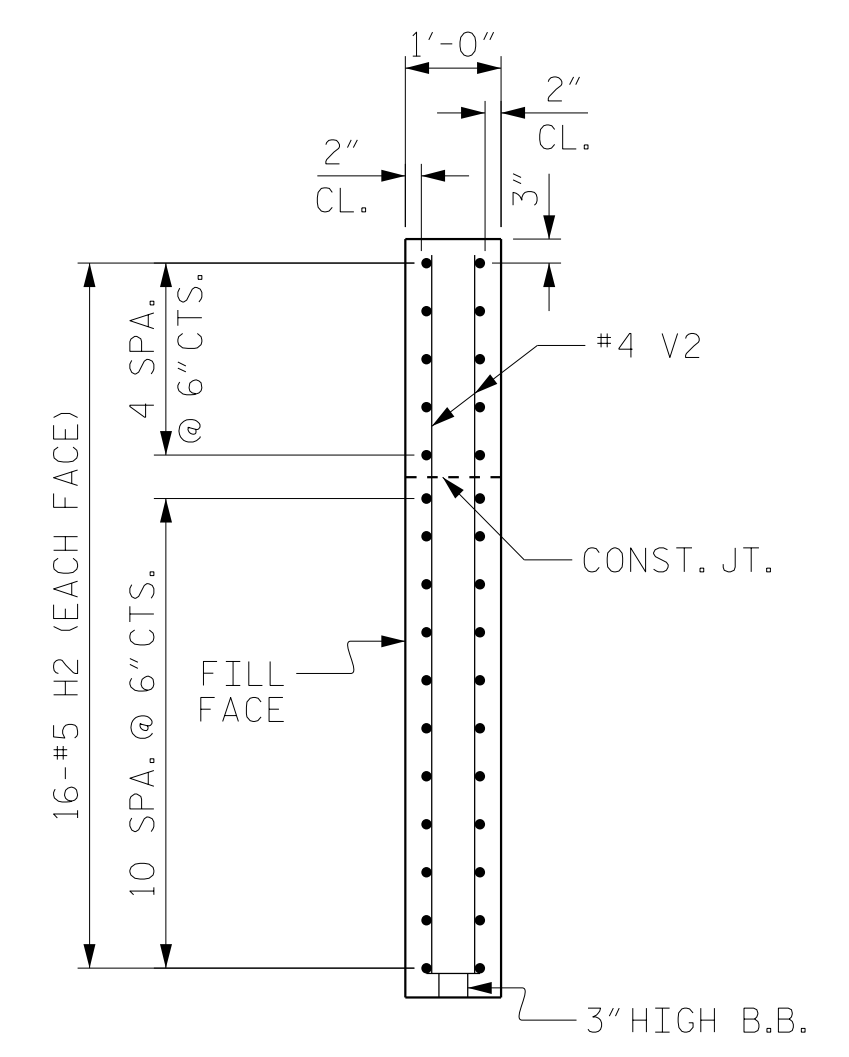
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 DESIGN ENGINEER OF RECORD: JMR DATE: 02/2015



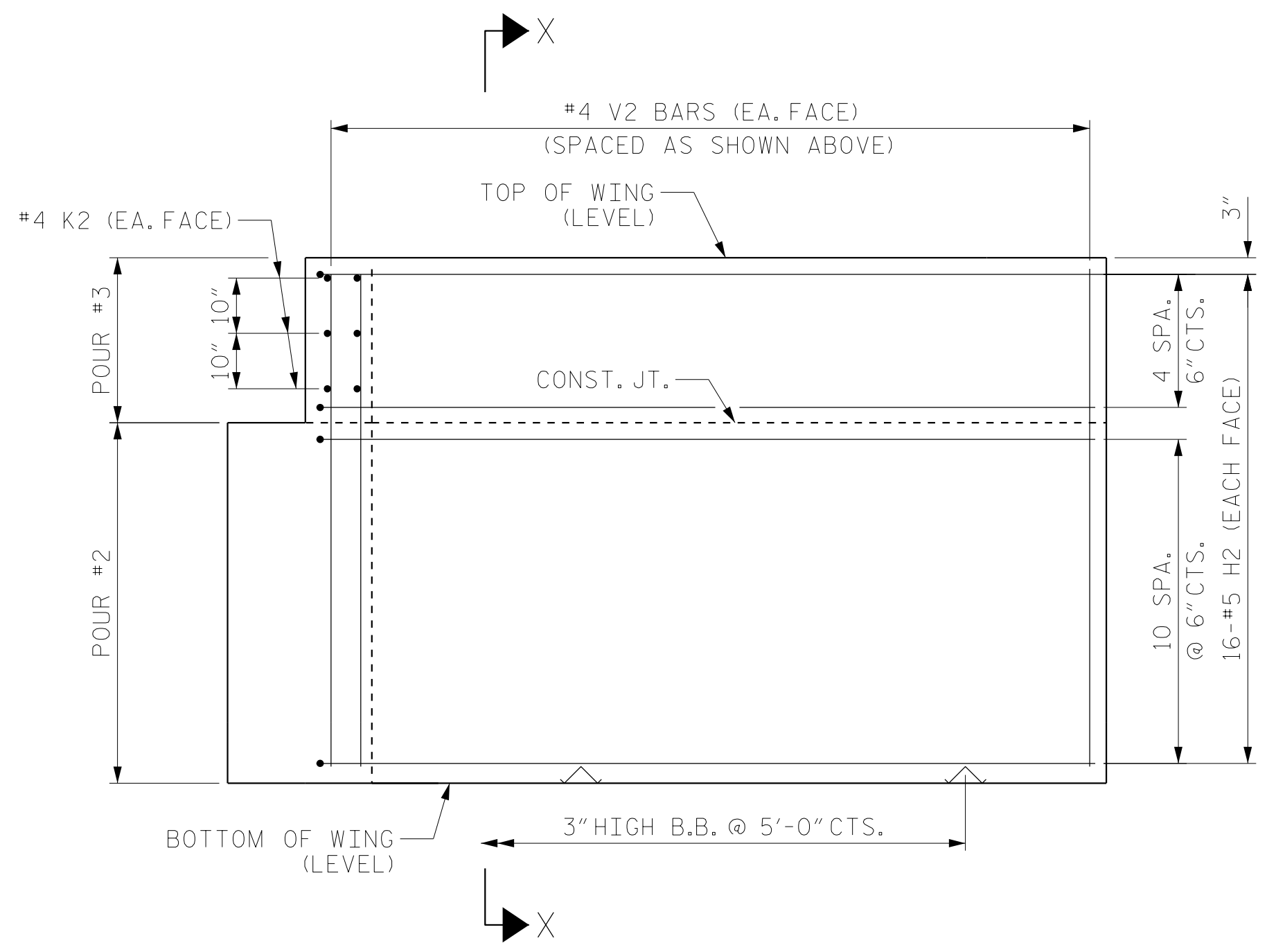
PLAN OF WING (W1)



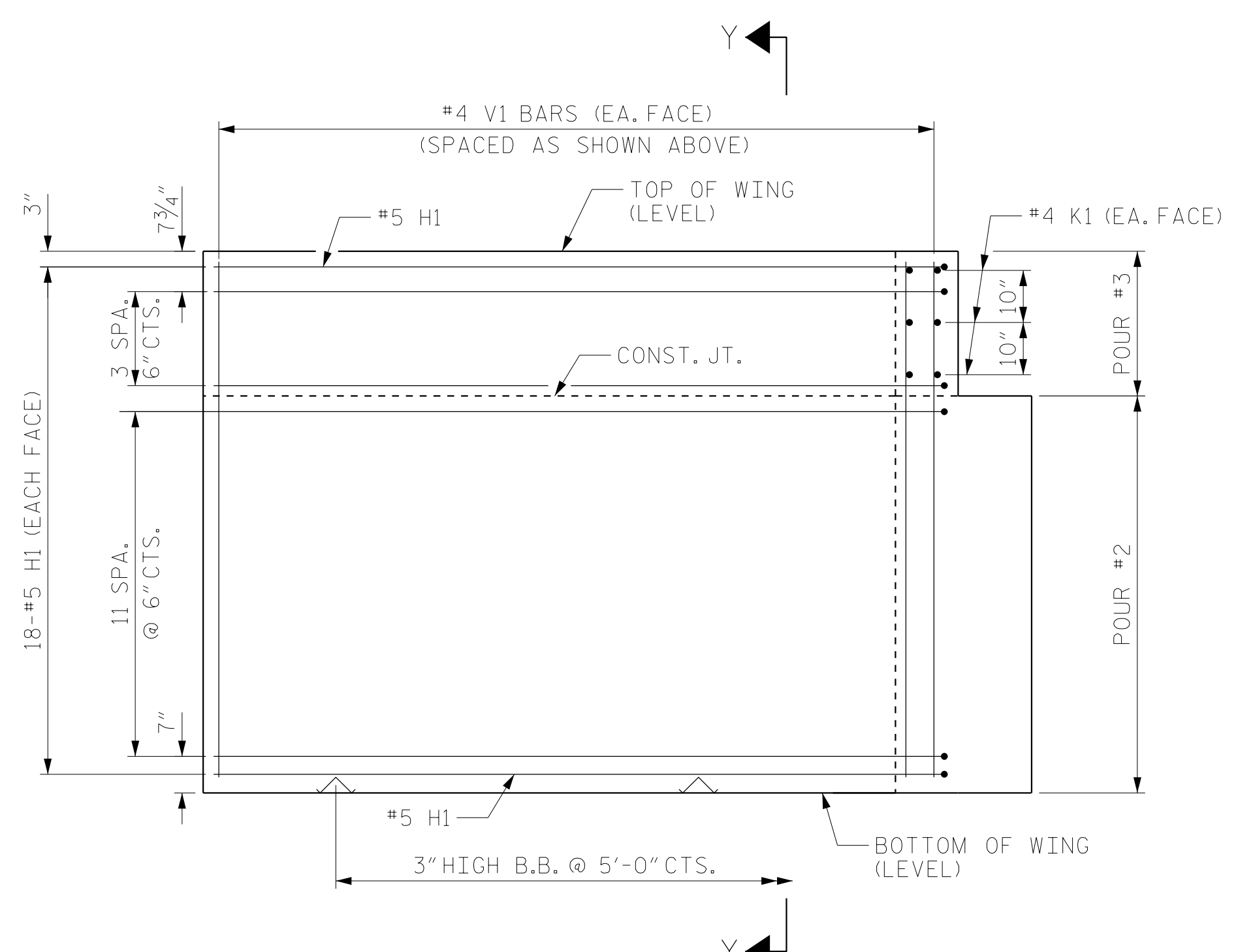
PLAN OF WING (W2)



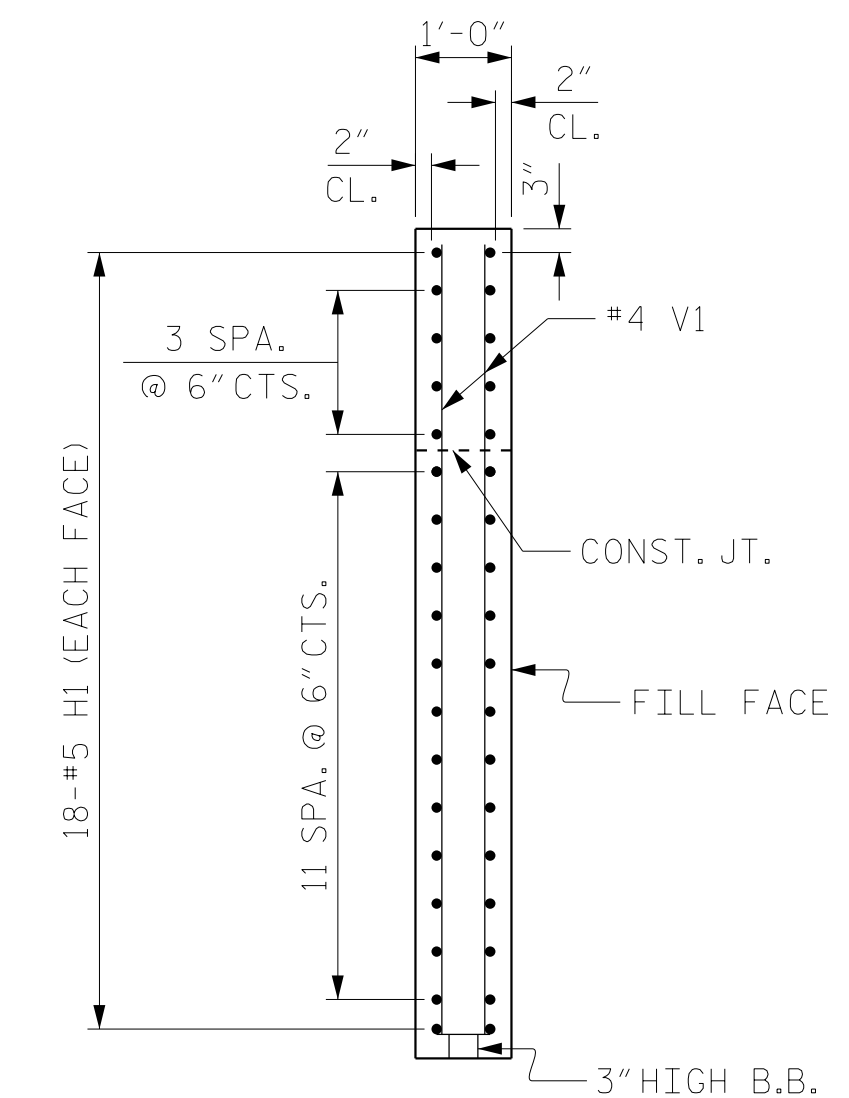
SECTION X-X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y

WING DETAILS

FOOTINGS NOT SHOWN FOR CLARITY

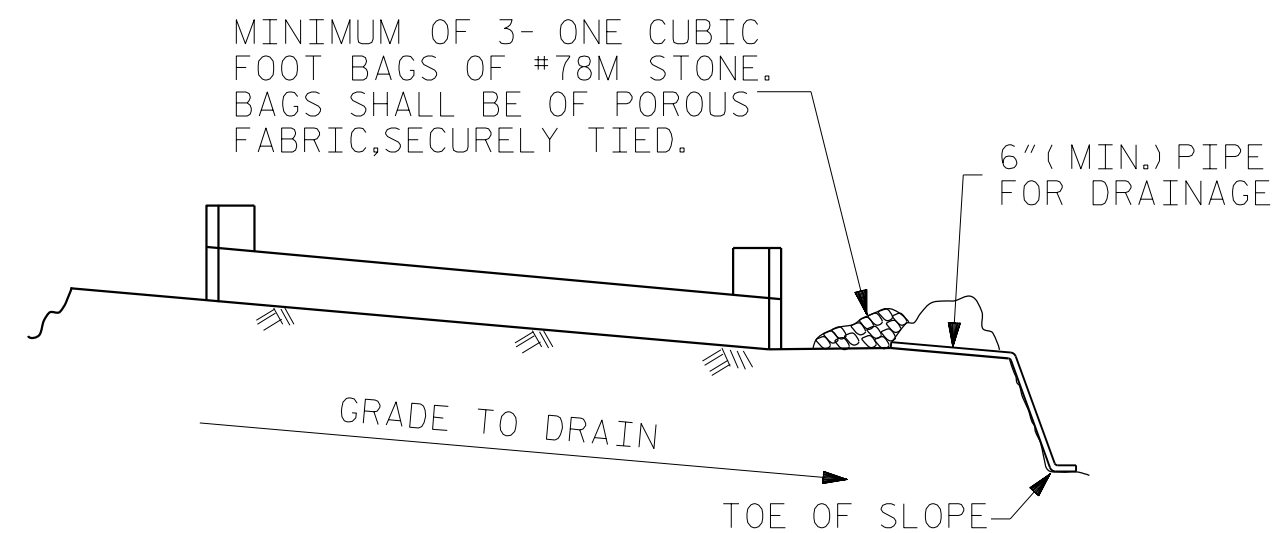
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TRANSYLVANIA COUNTY  
STATION: 12+45.00 -L-

SHEET 2 OF 3

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SUBSTRUCTURE END BENT WING DETAILS END BENT No. 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-13
TOTAL SHEETS					15

DRAWN BY :	MAL	DATE :	02/2015
CHECKED BY :	JMR	DATE :	02/2015
DESIGN ENGINEER OF RECORD :	JMR	DATE :	02/2015

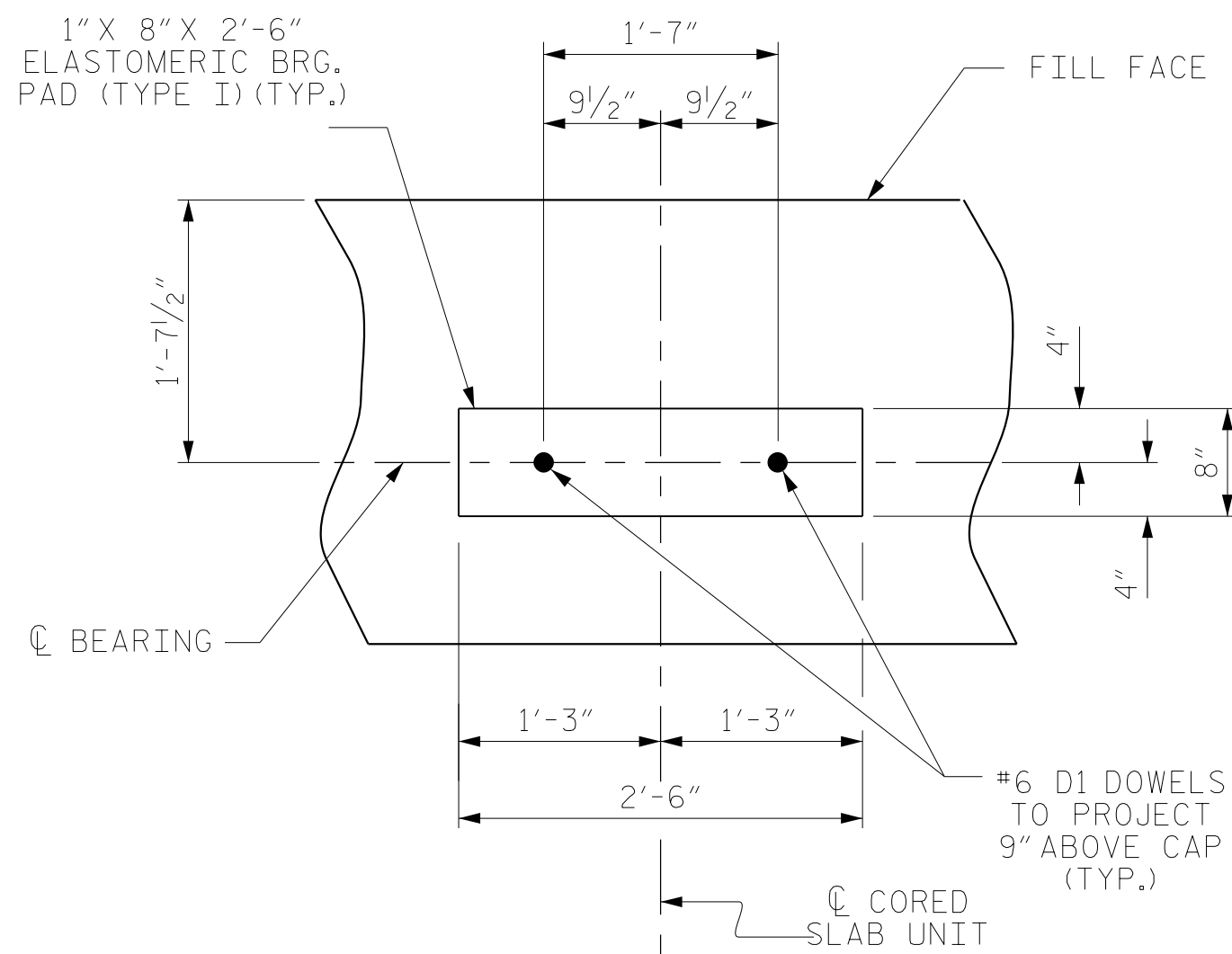


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

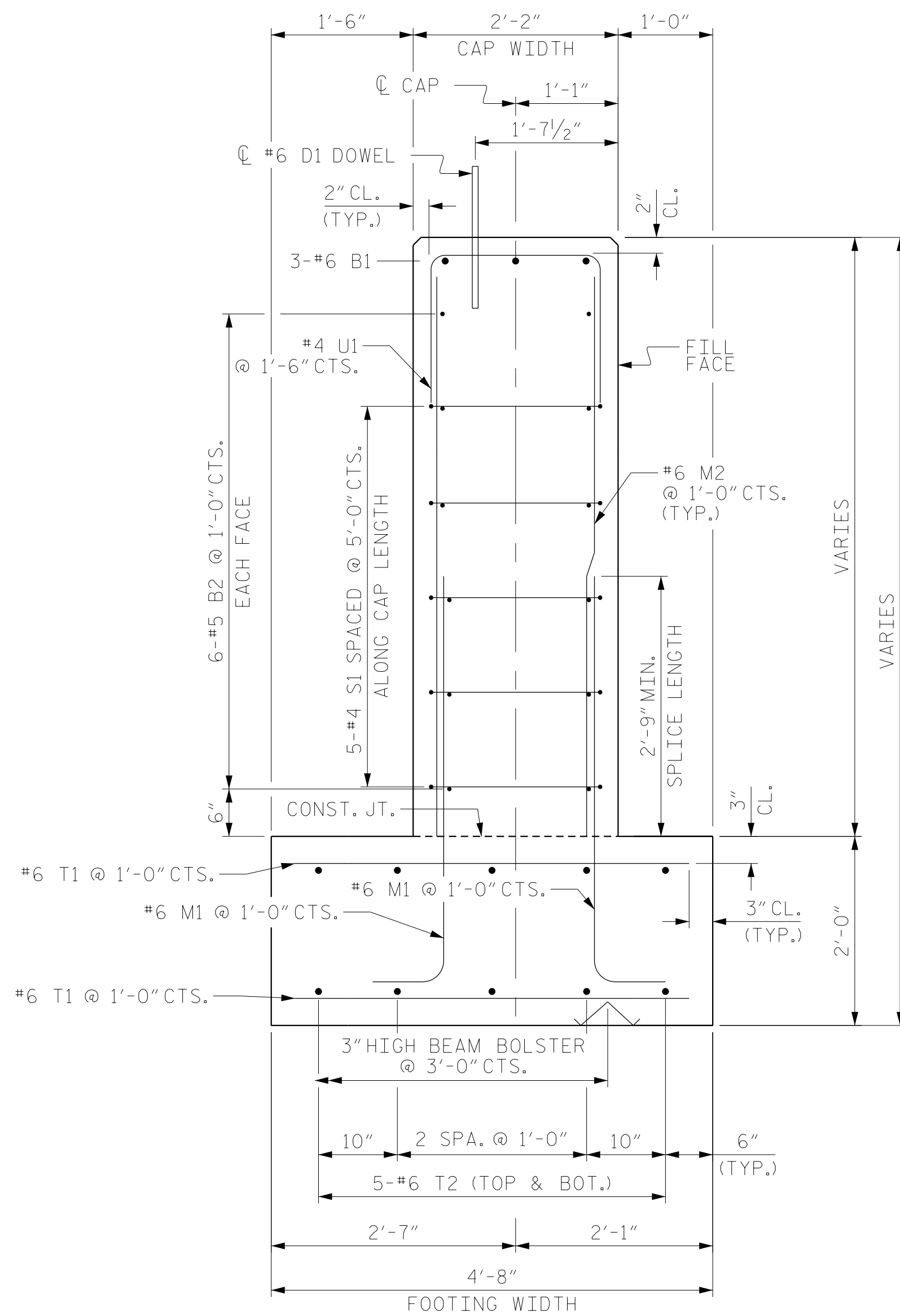
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

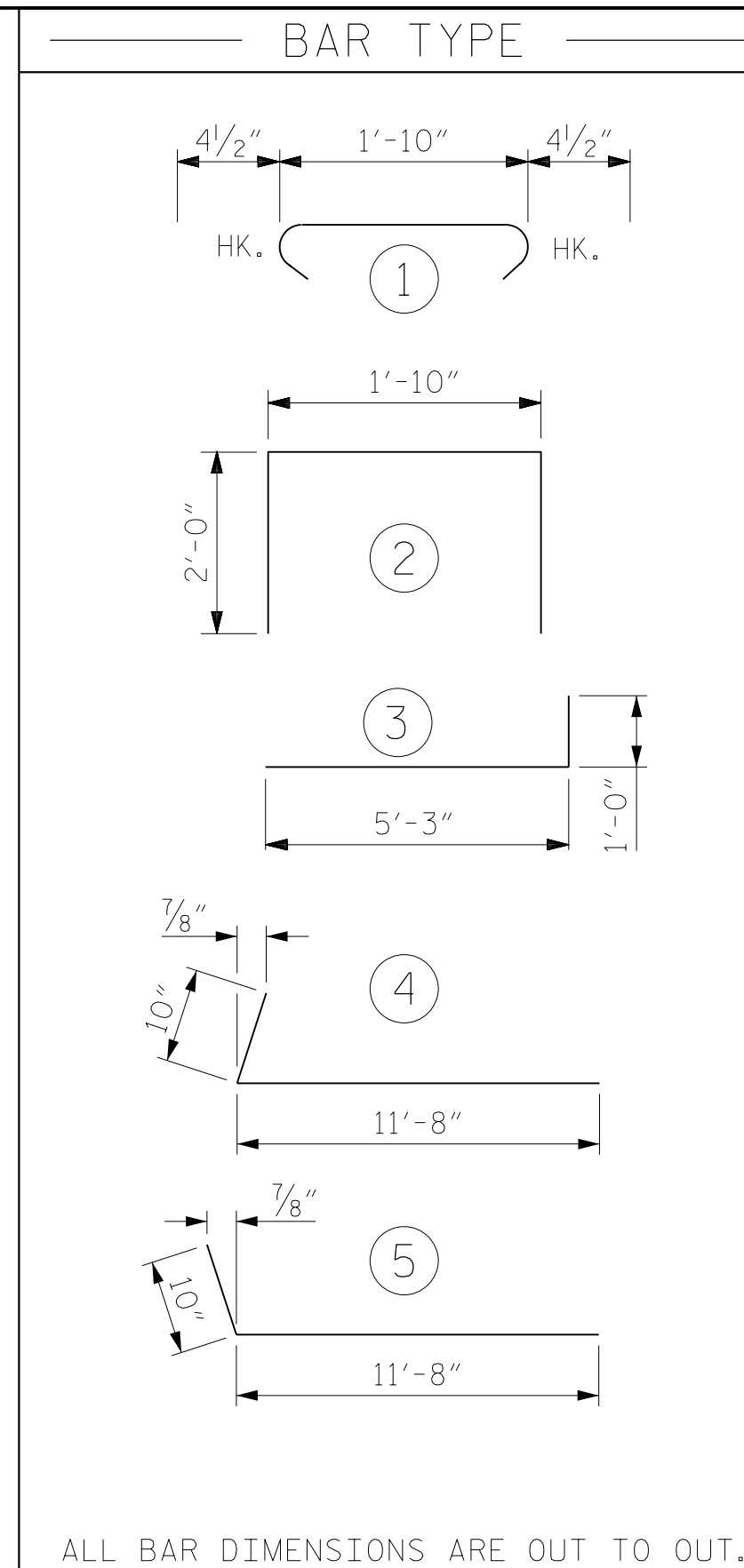
### TEMPORARY DRAINAGE AT END BENT



DETAIL "A"



SECTION A-A

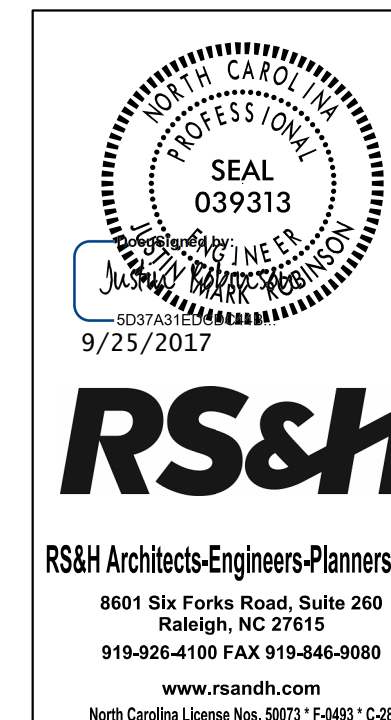


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	3	#6	STR	35'-6"	160
B2	12	#5	STR	35'-6"	444
D1	20	#6	STR	1'-6"	45
H1	36	#5	4	12'-6"	469
H2	32	#5	5	12'-6"	417
K1	6	#4	STR	2'-8"	11
K2	6	#4	STR	3'-0"	12
M1	76	#6	3	6'-3"	713
M2	76	#6	STR	5'-6"	628
S1	35	#4	1	2'-7"	60
T1	72	#6	STR	4'-2"	451
T2	10	#6	STR	35'-6"	533
V1	32	#4	STR	8'-3"	176
V2	32	#4	STR	7'-9"	166
U1	37	#4	2	5'-10"	144
REINFORCING STEEL (FOR ONE END BENT)					4429 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 FOOTING					12.4 C.Y.
POUR #2 CAP & LOWER PART OF WINGS					22.9 C.Y.
POUR #3 UPPER PART OF WINGS					3.2 C.Y.
TOTAL CLASS A CONCRETE					38.5 C.Y.

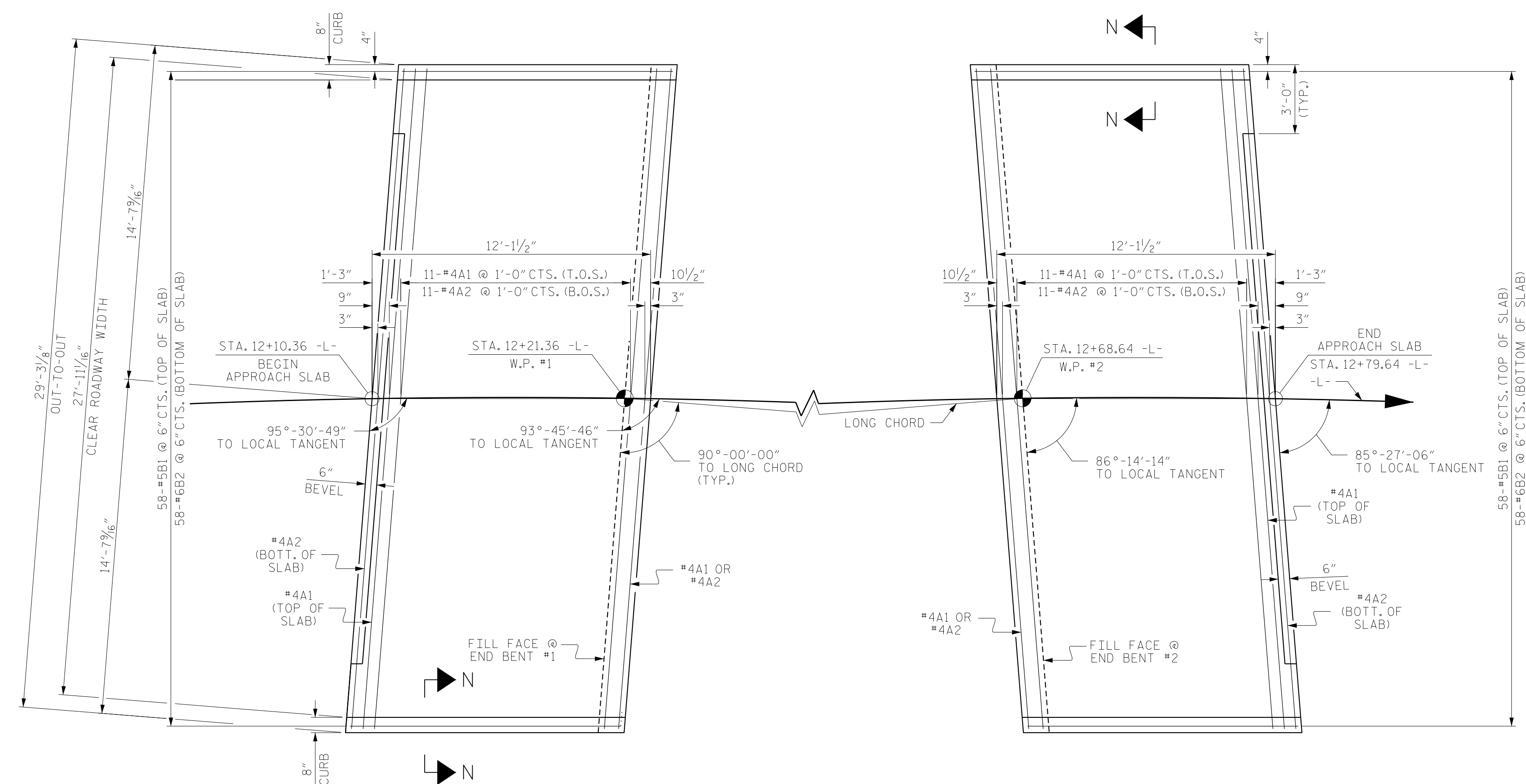
PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-

SHEET 3 OF 3



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : MAL DATE : 02/2015  
 CHECKED BY : JMR DATE : 02/2015  
 DESIGN ENGINEER OF RECORD : JMR DATE : 02/2015



**PLAN @ END BENT #1**      **PLAN @ END BENT #2**  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

**NOTES**

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4"Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, 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.

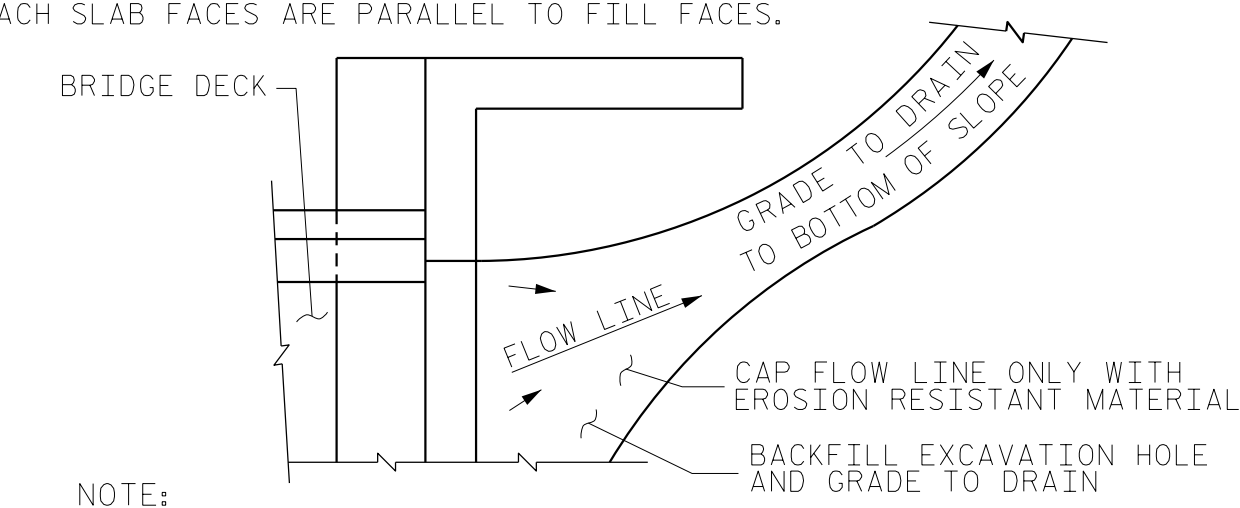
FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

THE OUTFALL OF THE 4"Ø DRAINAGE PIPE SHALL BE ABOVE WATER SURFACE ELEVATION AS DIRECTED BY THE ENGINEER.

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.

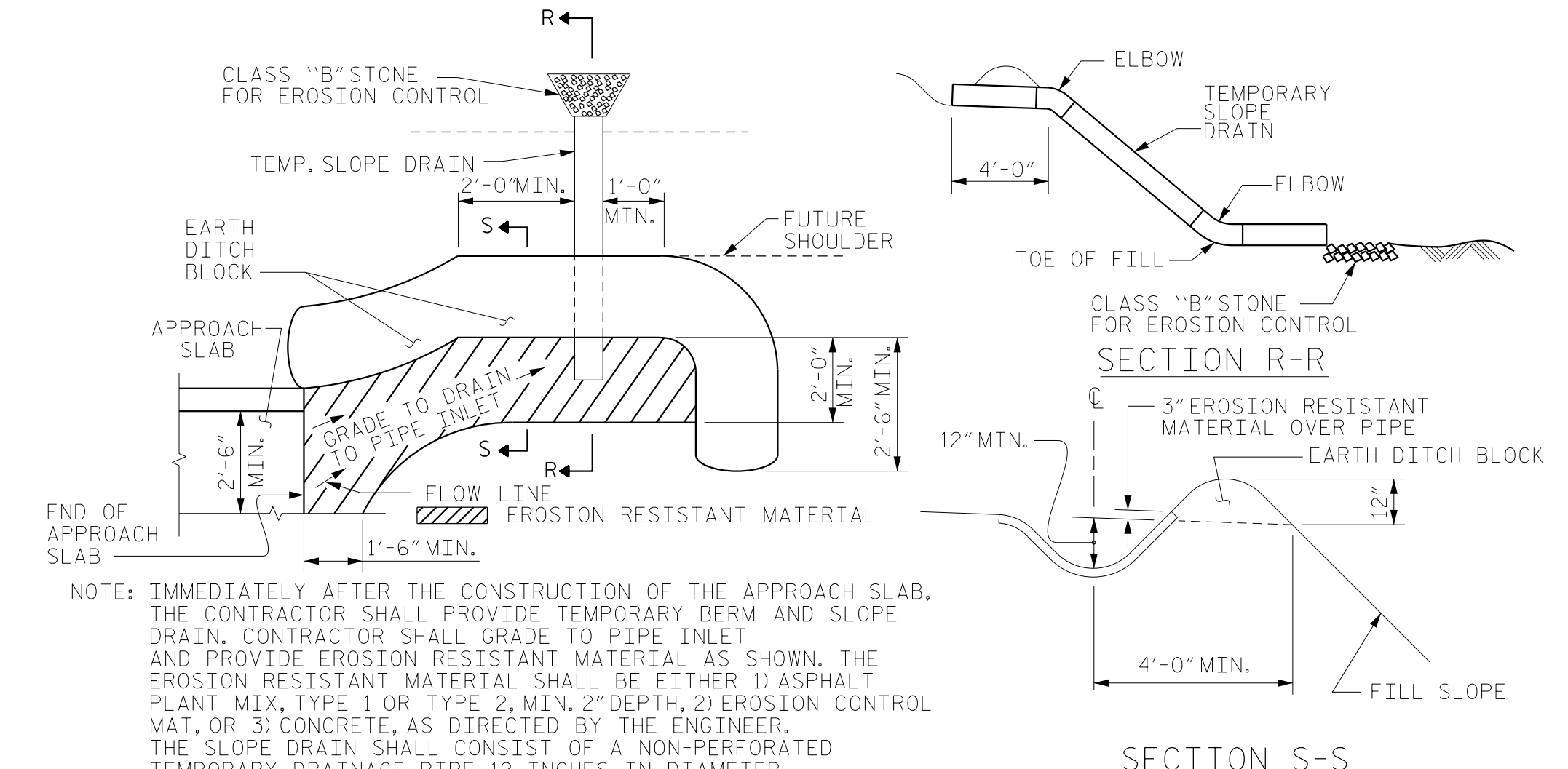
APPROACH SLAB GROOVING IS NOT REQUIRED.

APPROACH SLAB FACES ARE PARALLEL TO FILL FACES.

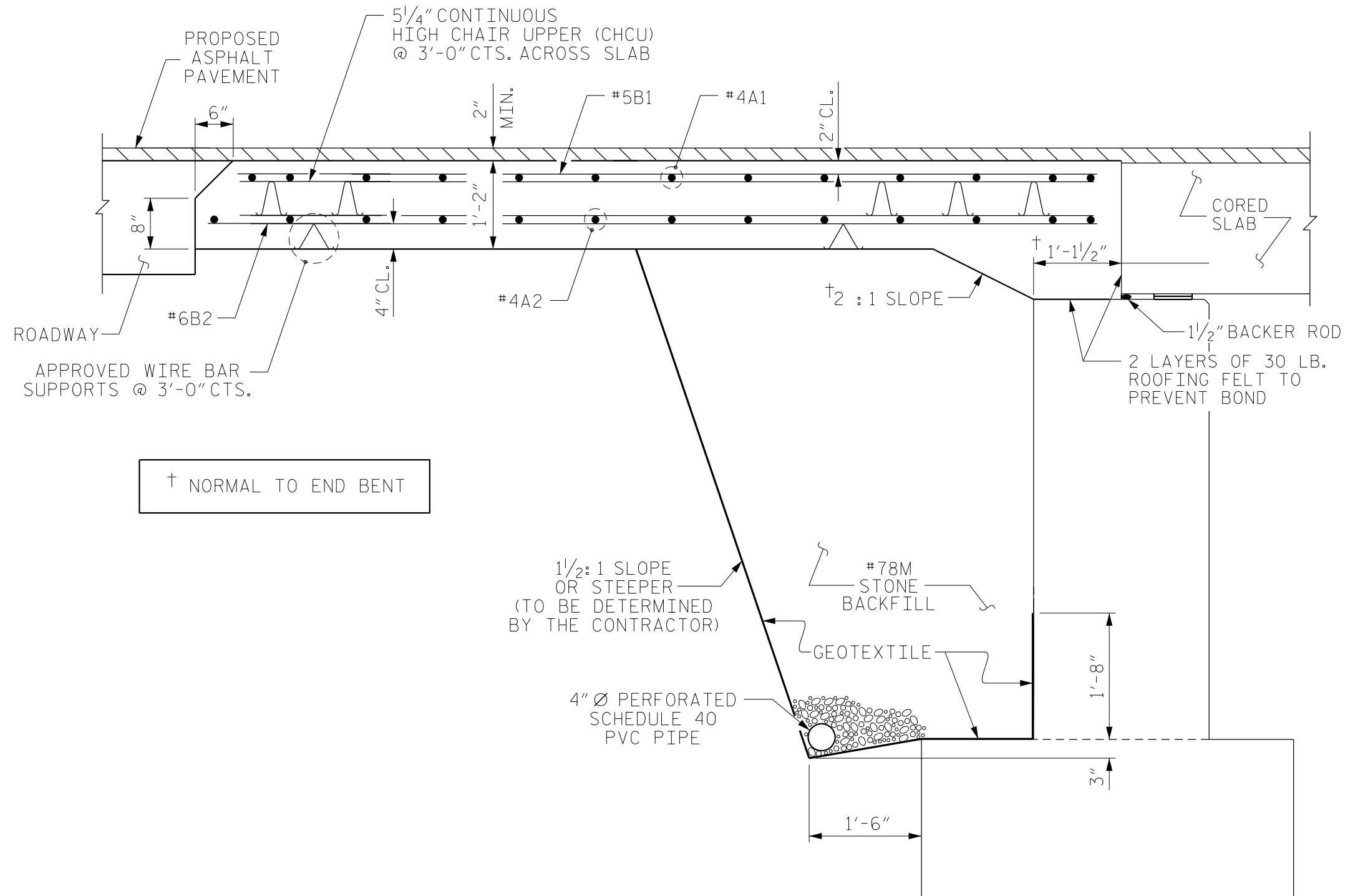


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

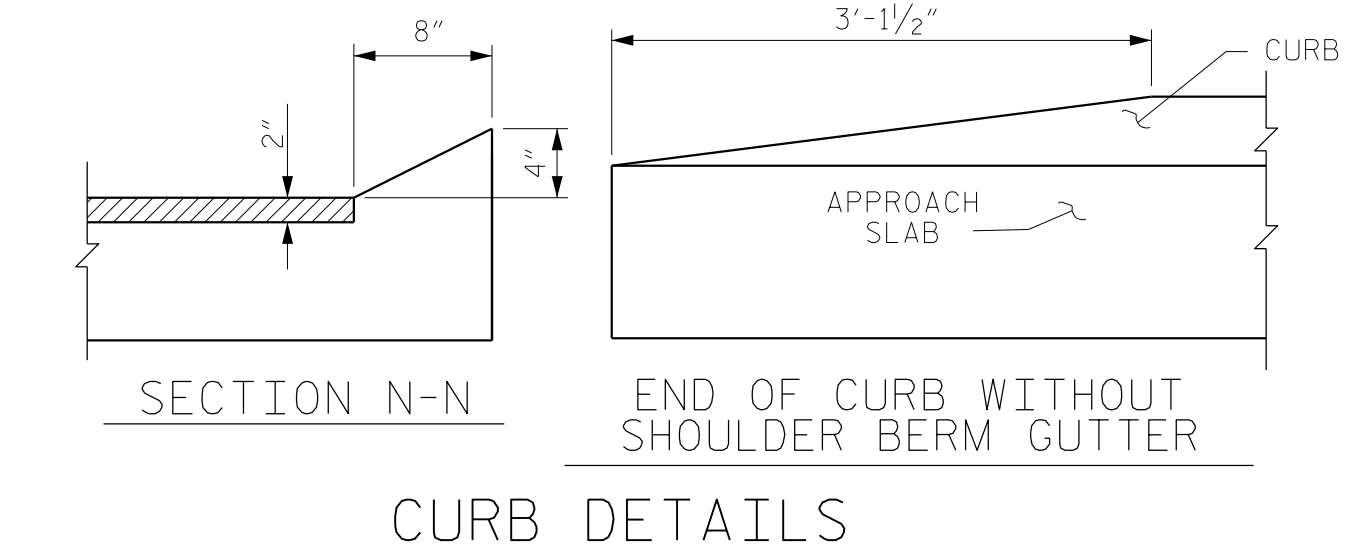
**TEMPORARY DRAINAGE DETAIL**



**TEMPORARY BERM AND SLOPE DRAIN DETAILS**  
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



**SECTION THRU SLAB**



**SPLICE LENGTHS**

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

**BILL OF MATERIAL**

**APPROACH SLAB AT EB #1**

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR 28'-10"	25Q	
A2	13	#4	STR 28'-10"	25Q	
*B1	58	#5	STR 11'-2"	676	
B2	58	#6	STR 11'-8"	1016	
REINFORCING STEEL				LBS.	1266
*EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.8

**APPROACH SLAB AT EB #2**

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR 28'-10"	25Q	
A2	13	#4	STR 28'-10"	25Q	
*B1	58	#5	STR 11'-2"	676	
B2	58	#6	STR 11'-8"	1016	
REINFORCING STEEL				LBS.	1266
*EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.8

DRAWN BY : MAL      DATE : 12/2014  
 CHECKED BY : TRP      DATE : 12/2014  
 DESIGN ENGINEER : JMR      DATE : 12/2014  
 OF RECORD :

PROJECT NO. 17BP.14.R.124  
 TRANSYLVANIA COUNTY  
 STATION: 12+45.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

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

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



## 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

STD. NO. SN