

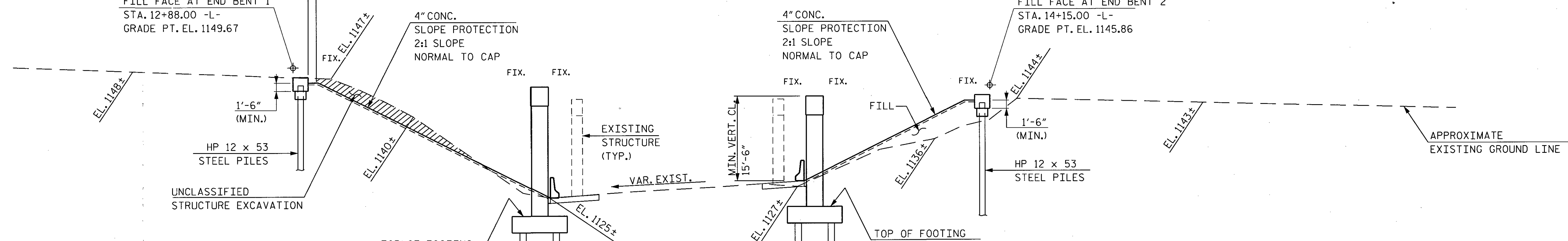
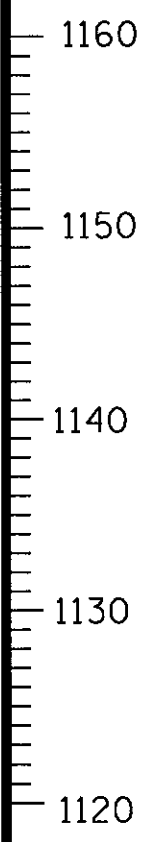
PVI = 12+50.00 -L-
 EL. = 1,150.81
 V.C. = 50.00 FT.

(-1.8946% (-) (-)3.0000%)

-L- GRADE DATA

FILL FACE AT END BENT 1
 STA. 12+88.00 -L-
 GRADE PT. EL. 1149.67

FILL FACE AT END BENT 2
 STA. 14+15.00 -L-
 GRADE PT. EL. 1145.86



HORIZONTAL CURVE DATA -Y1-

PI Sta 11+97.08
 $\Delta = 9^\circ 16' 24.6''$ (RT)
 $D = 2^\circ 21' 28.3''$
 $L = 393.30'$
 $T = 197.08'$
 $R = 2,430.00'$

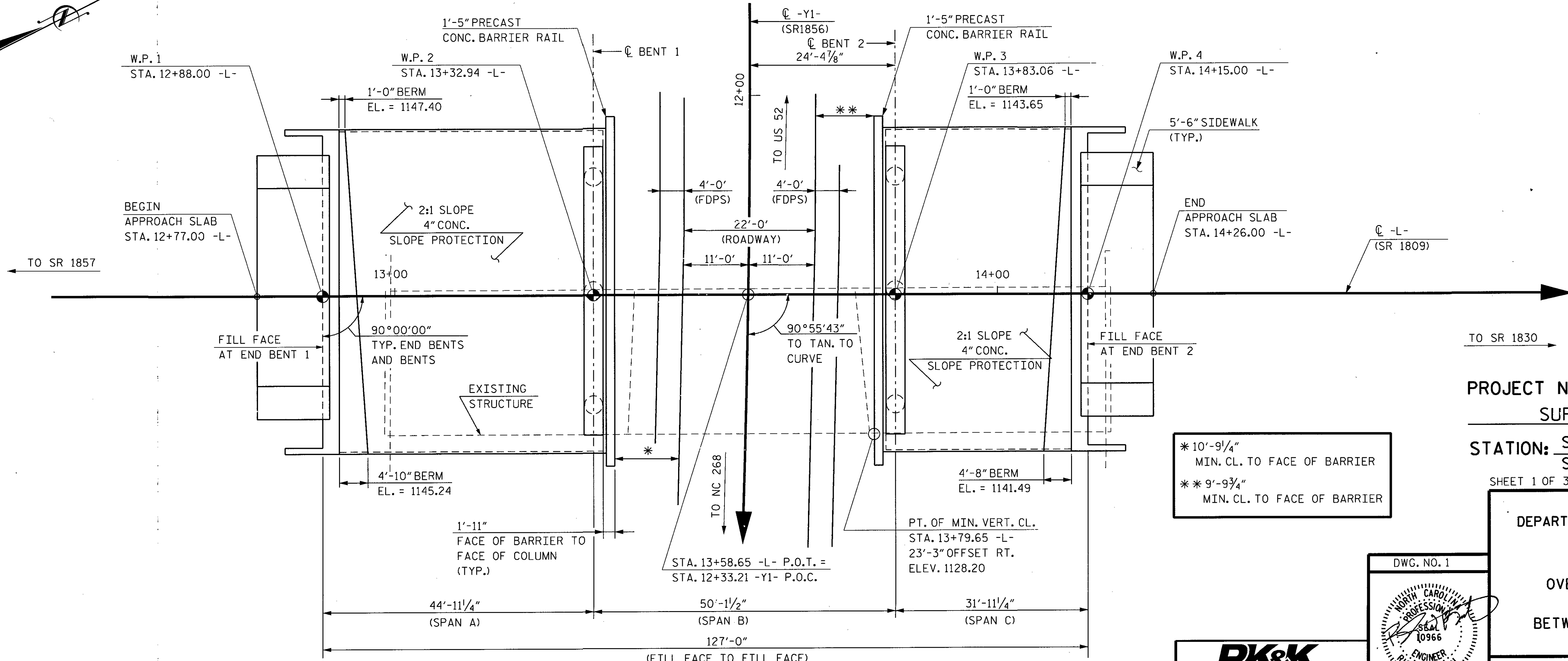
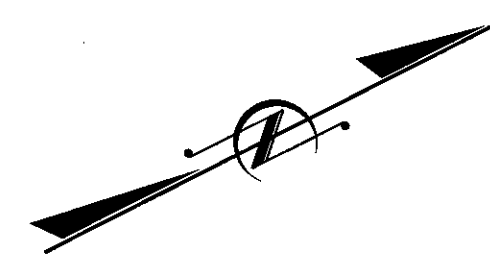
END BENT 1

BENT 1

BENT 2

END BENT 2

SECTION ALONG C-L-

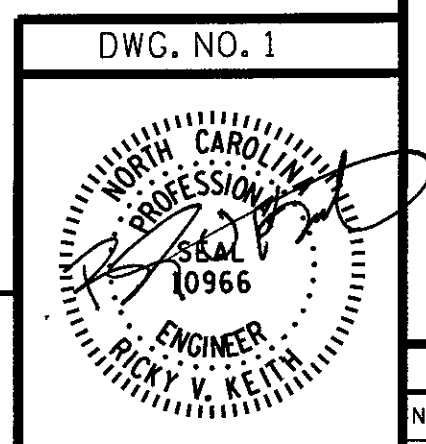


PLAN
 (PILES AND FOOTINGS NOT SHOWN IN PLAN VIEW)

PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: STA. 13+58.65 -L- P.O.T. =
STA. 12+33.21 Y1- P.O.C.
 SHEET 1 OF 3 REPLACES BRIDGE NO. 244

* 10'-9 1/4"
 MIN. CL. TO FACE OF BARRIER
 * 9'-9 3/4"
 MIN. CL. TO FACE OF BARRIER

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE
 OVER OLD US 52 (SR 1856)
 ON SR 1809
 BETWEEN SR 1857 AND SR 1830

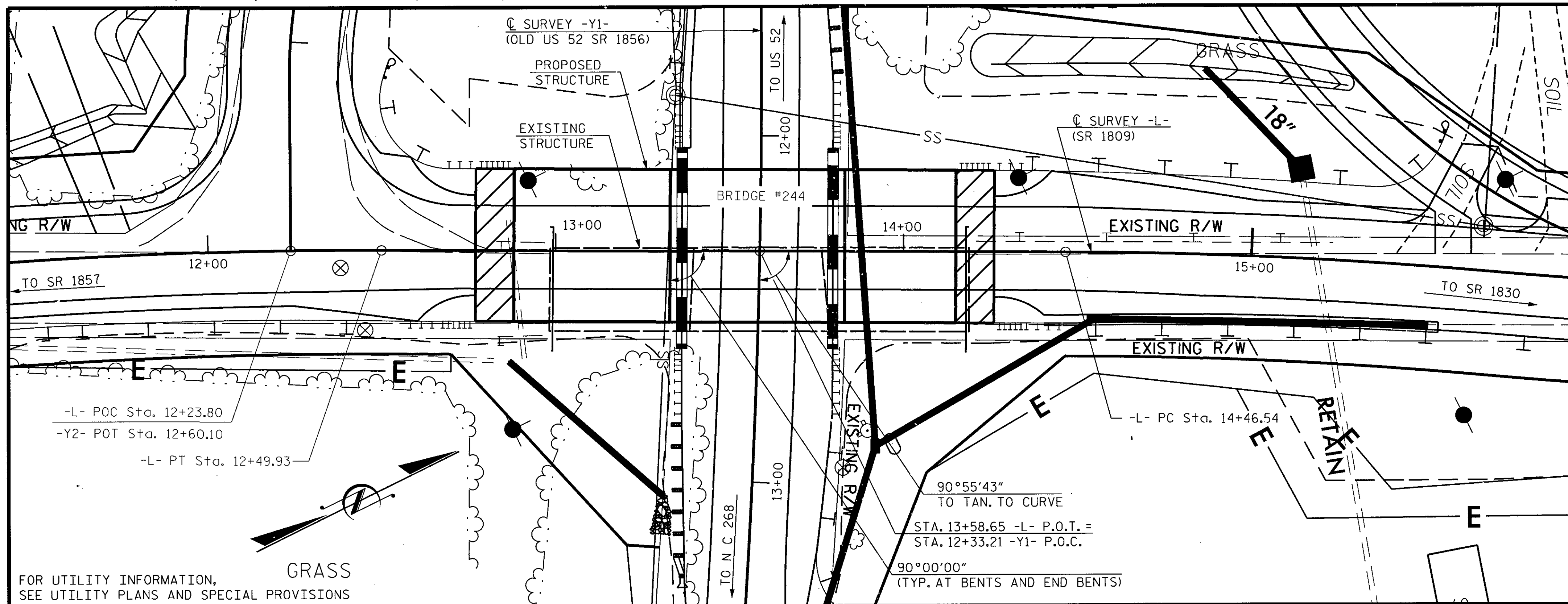


RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NUMBER: F-0112

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS 27
2			4			

DRAWN BY : F.D. WEEDEN DATE : OCT. 2014
 CHECKED BY : R.V. KEITH DATE : OCT. 2014

BENCH MARK: BD-5111V-2, EL. 1138.49, -L- STATION 17+16.11, 20.26' LEFT, GPS MONUMENT



LOCATION SKETCH

TOTAL BILL OF MATERIALS

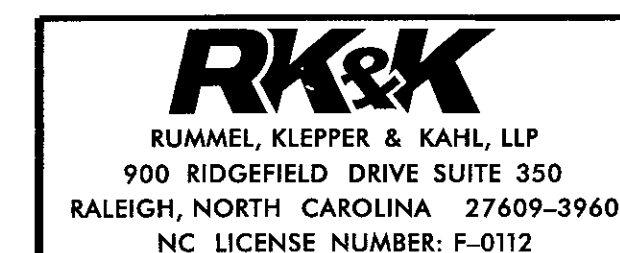
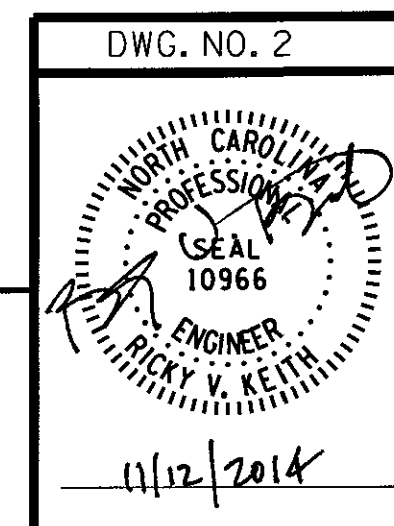
	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS AA CONCRETE	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	HP 14 X 73 STEEL PILES	STEEL PILE POINTS	TWO BAR METAL RAIL	1'-2" x 2'-6" PRESTRESSED CONCRETE PARAPET	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS	CONCRETE STAIN			
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YD.	CU. YD.	LUMP SUM	LBS.	LBS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	SO. YDS.	LUMP SUM	NO.	LIN. FT.	SO. FT.
SUPERSTRUCTURE	LUMP SUM			LUMP SUM	67.8		LUMP SUM		2,233					258.75	273.75		LUMP SUM	48	1,992	2,341		
END BENT NO. 1						18.1		2,805			7	420					289					
BENT NO. 1		LUMP SUM				50.7		7,097		1,452		12	660	12								
BENT NO. 2		LUMP SUM				47.6		6,770		1,188		12	720	12								
END BENT NO. 2						17.9		2,796			6	420		6			218					
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	67.8	134.3	LUMP SUM	19,468	2,233	2,640	13	840	24	1,380	37	258.75	273.75	507	LUMP SUM	48	1,992	2,341

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: STA. 13+58.65 -L- P.O.T. =
STA. 12+33.21 Y1- P.O.C.

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE
 OVER OLD US 52 (SR1856)
 ON SR 1809
 BETWEEN SR 1857 AND SR 1830



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS 27
2			4			

DRAWN BY: F.D. WEEDEN DATE: OCT. 2014
 CHECKED BY: R.V. KEITH DATE: OCT. 2014

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.

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS, 1 @ 40'-3", AND 1 @ 40'-0' AND 1 @ 40'-3" WITH A REINFORCED CONCRETE FLOOR ON I BEAM SUPERSTRUCTURE WITH A CLEAR ROADWAY WIDTH OF 24'-0" ON A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE SPILL THROUGH END BENTS AND REINFORCED CONCRETE POST AND BEAM BENTS AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED, SEE SPECIAL PROVISION FOR "REMOVAL OF EXISTING STRUCTURE, AT STATION 13+58.65 -L-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FEET EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE AT STATION 13+58.65 -L-, SEE SPECIAL PROVISIONS.

THE ELEVATION(S) AND CLEARANCE(S) SHOWN ON THE PLANS AT THE POINT(S) OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATION(S) ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

THE EXISTING PAVEMENT WITHIN THE AREA OF THE END BENT PILES SHALL BE REMOVED AND THE ROADBED SCARIFIED TO A MINIMUM DEPTH OF 2'-0".

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 13+58.65 -L-."

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

FOR CONCRETE STAIN, SEE SPECIAL PROVISIONS.

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 185 TONS PER PILE.

PILES AT BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.

DRIVE PILES AT BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.

STEEL H-PILE PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1, BENT NO.1, BENT NO.2, AND END BENT NO.2.

FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING, FOR PDA SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

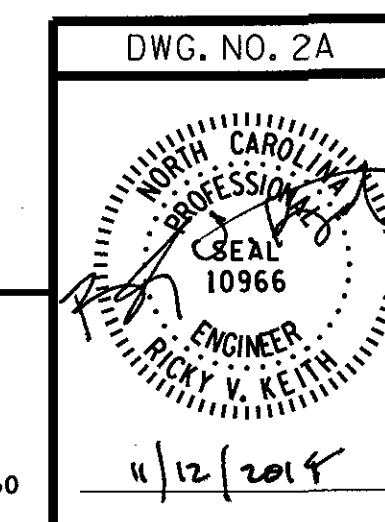
PROJECT NO. BD-5111V

SURRY COUNTY

STATION: STA. 13+58.65 -L- P.O.T =
STA. 12+33.21 Y1- P.O.C.

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE
OVER OLD US 52 (SR1856)
ON SR 1809
BETWEEN SR 1857 AND SR 1830



RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NUMBER: F-0112

DRAWN BY: F.D. WEEDEN DATE: OCT. 2014
CHECKED BY: R.V. KEITH DATE: OCT. 2014

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE								COMMENT NUMBER
						MOMENT					SHEAR					MOMENT								
						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	1.04	--	1.75	0.275	1.04	B	ER	24.497	0.55	1.2	C	ER	1.488	0.80	0.275	1.04	B	ER	24.497		
	HL-93(OPr)	N/A	--	1.34	--	1.35	0.275	1.34	B	ER	24.497	0.55	1.56	C	ER	1.488	N/A	--	--	--	--	--		
	HS-20(InV)	36.000	2	1.4	50.467	1.75	0.275	1.4	B	ER	24.497	0.55	1.42	C	ER	1.488	0.80	0.275	1.41	B	ER	24.497		
	HS-20(OPr)	36.000	--	1.82	65.420	1.35	0.275	1.82	B	ER	24.497	0.55	1.84	C	ER	1.488	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	2.63	35,563	1.4	0.275	3.57	B	ER	24.497	0.55	3.51	C	ER	1.488	0.80	0.276	2.63	C	ER	14.876	
		SNGARBS2	20,000	--	2.26	45,230	1.4	0.275	2.82	B	ER	24.497	0.55	2.7	C	ER	1.488	0.80	0.275	2.26	B	ER	24.497	
		SNAGRIS2	22,000	--	2.2	48,396	1.4	0.275	2.74	B	ER	24.497	0.55	2.6	C	ER	1.488	0.80	0.275	2.20	B	ER	24.497	
		SNCOTTS3	27,250	--	1.32	36,004	1.4	0.275	1.78	B	ER	24.497	0.55	1.77	C	ER	1.488	0.80	0.276	1.32	C	ER	14.876	
		SNAGGRS4	34,925	--	1.24	43,373	1.4	0.275	1.55	B	ER	24.497	0.55	1.62	C	ER	1.488	0.80	0.275	1.24	B	ER	24.497	
		SNS5A	35,550	--	1.21	43,053	1.4	0.275	1.51	B	ER	24.497	0.55	1.72	C	ER	1.488	0.80	0.275	1.21	B	ER	24.497	
		SNS6A	39,950	--	1.13	45,239	1.4	0.275	1.41	B	ER	24.497	0.55	1.62	C	ER	1.488	0.80	0.275	1.13	B	ER	24.497	
	SNS7B	42,000	--	1.08	45,325	1.4	0.275	1.34	B	ER	24.497	0.55	1.65	C	ER	1.488	0.80	0.275	1.08	B	ER	24.497		
	TTST	TNAGRIT3	33,000	--	1.39	45,780	1.4	0.275	1.73	B	ER	24.497	0.55	1.91	C	ER	1.488	0.80	0.275	1.39	B	ER	24.497	
		TNT4A	33,075	--	1.4	46,285	1.4	0.275	1.74	B	ER	24.497	0.55	1.78	C	ER	1.488	0.80	0.275	1.40	B	ER	24.497	
		TNT6A	41,600	--	1.17	48,490	1.4	0.275	1.45	B	ER	24.497	0.55	1.73	C	ER	1.488	0.80	0.275	1.17	B	ER	24.497	
		TNT7A	42,000	--	1.18	49,695	1.4	0.275	1.47	B	ER	24.497	0.55	1.64	C	ER	1.488	0.80	0.275	1.18	B	ER	24.497	
		TNT7B	42,000	--	1.23	51,810	1.4	0.275	1.54	B	ER	24.497	0.55	1.6	C	ER	1.488	0.80	0.275	1.23	B	ER	24.497	
		TNAGRIT4	43,000	--	1.17	50,337	1.4	0.275	1.46	B	ER	24.497	0.55	1.54	C	ER	1.488	0.80	0.275	1.17	B	ER	24.497	
TNACT5A		45,000	--	1.09	49,209	1.4	0.275	1.36	B	ER	24.497	0.51	1.65	B	ER	2.45	0.80	0.275	1.09	B	ER	24.497		
TNACT5B	45,000	3	1.07	48,213	1.4	0.275	1.33	B	ER	24.497	0.55	1.45	C	ER	1.488	0.80	0.275	1.07	B	ER	24.497			

NOTES:

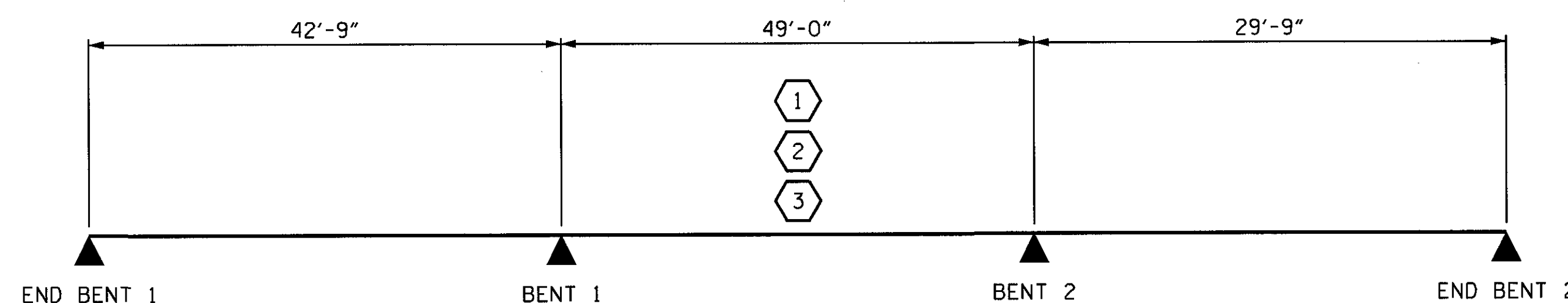
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

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	

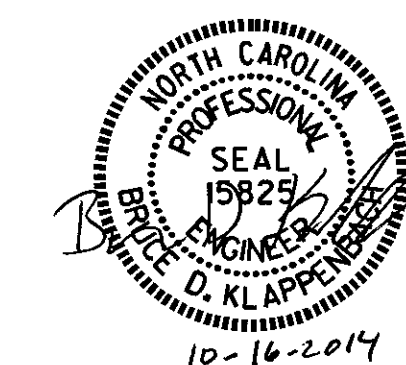


LRFR SUMMARY

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65 -L-

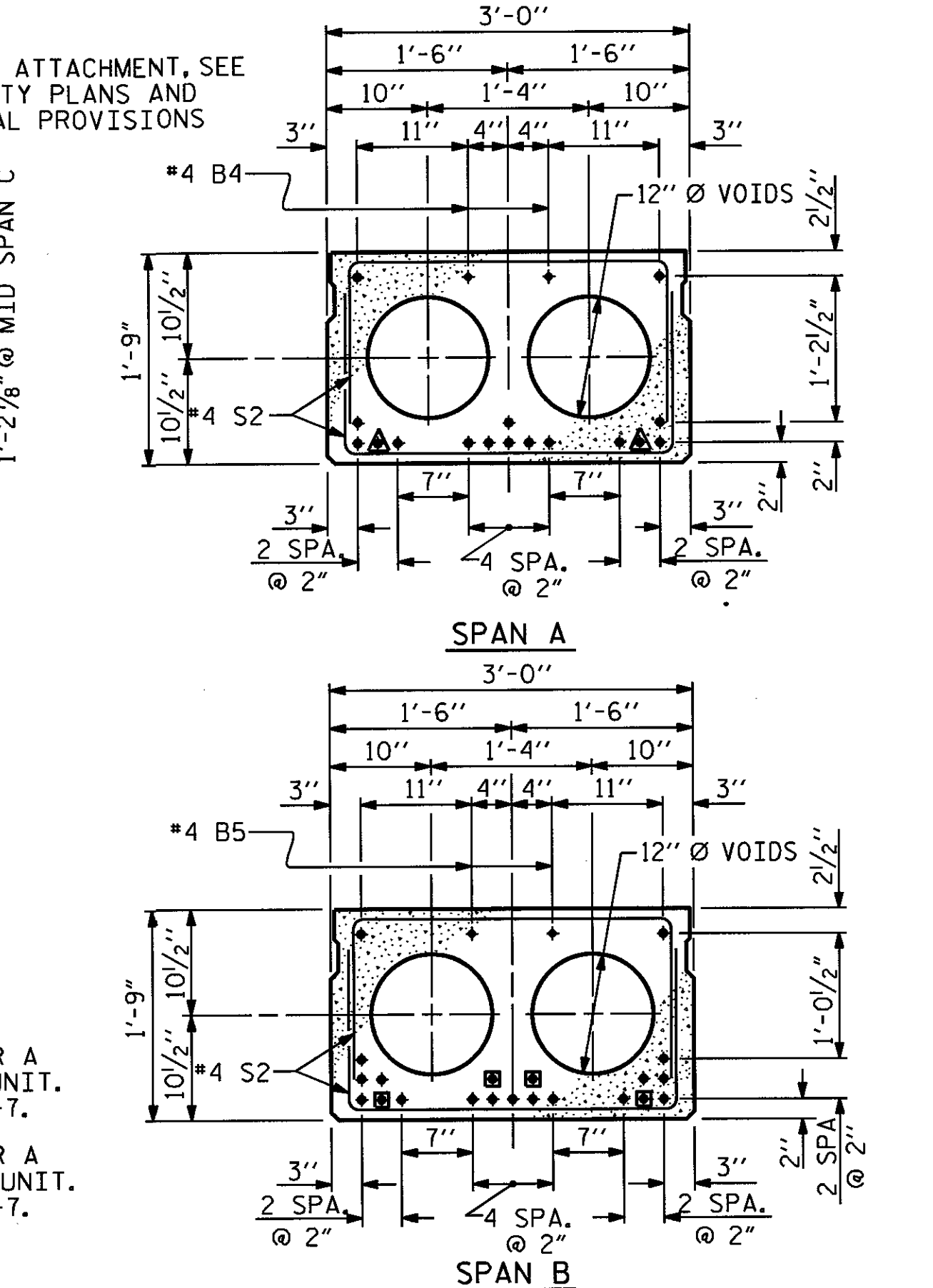
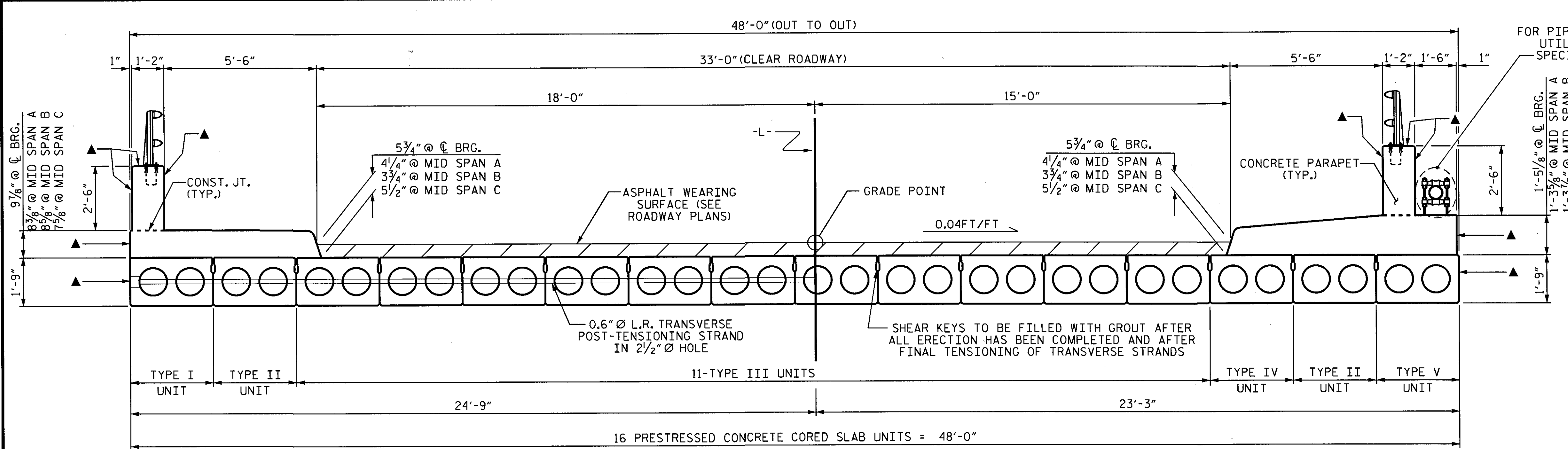
ASSEMBLED BY: S.T. CHAMPION DATE: JUNE '13
 CHECKED BY: H.P. KIM DATE: JUNE '13
 DRAWN BY: MAA 1/08
 CHECKED BY: GM/DI 2/08

REV. 11/12/08RR MAA/GM
 REV. 10/11/11 MAA/GM



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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS 27
2			4			



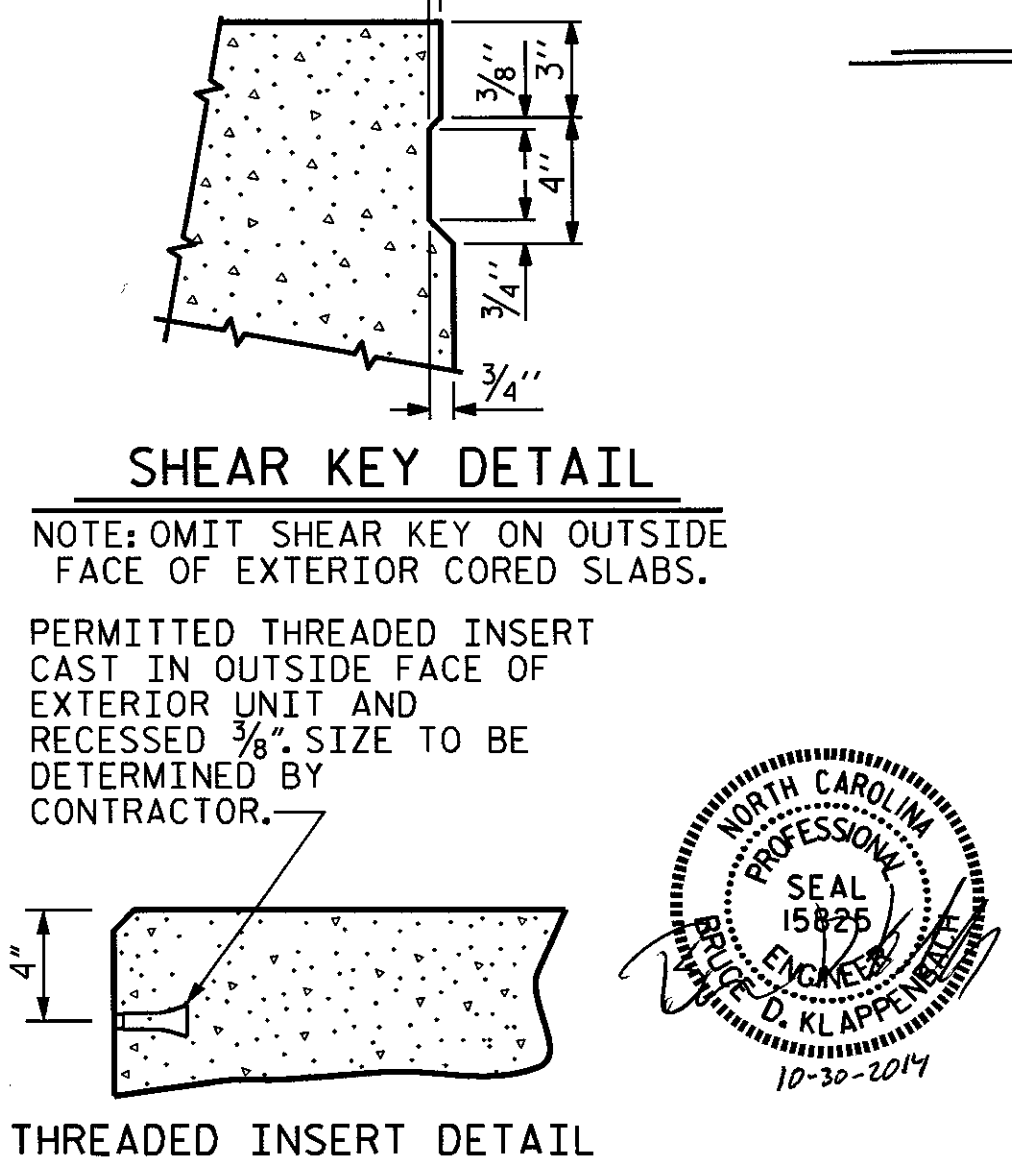
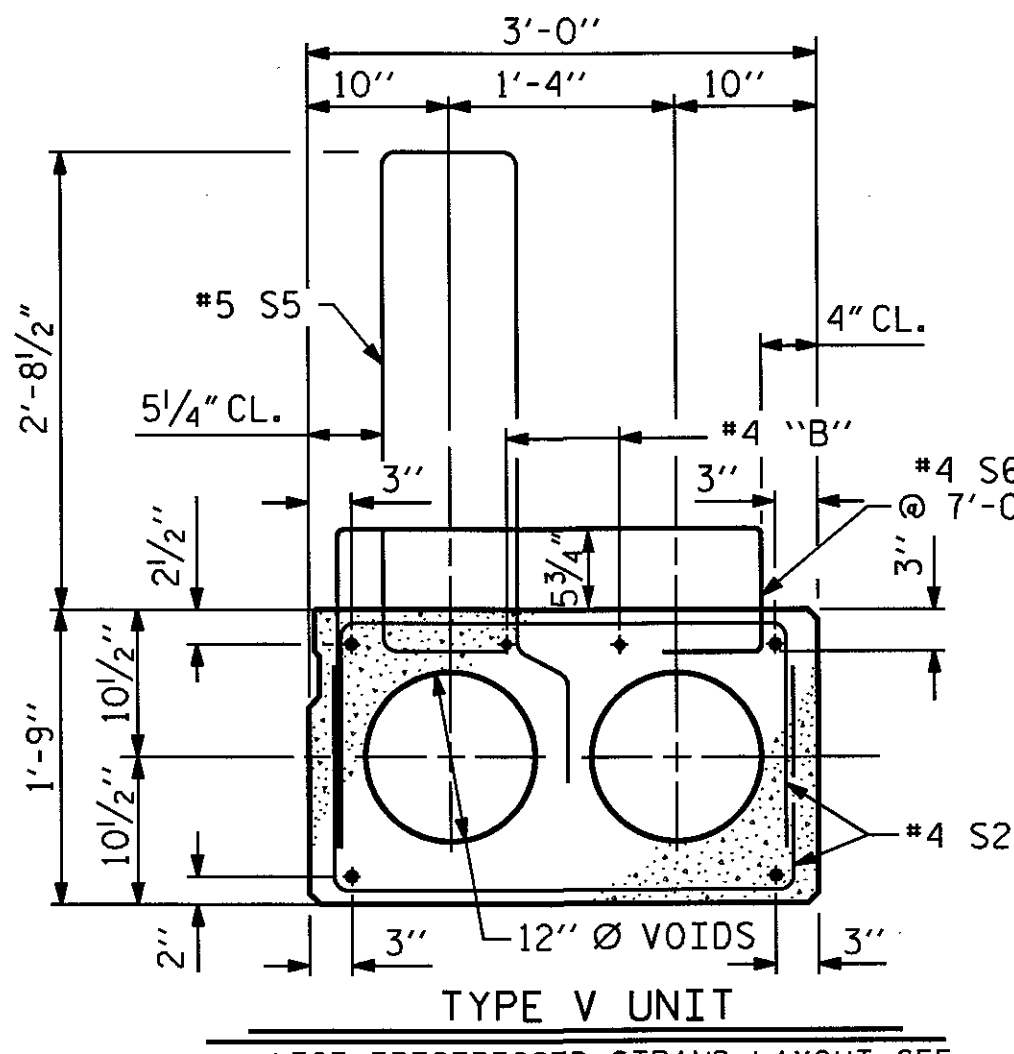
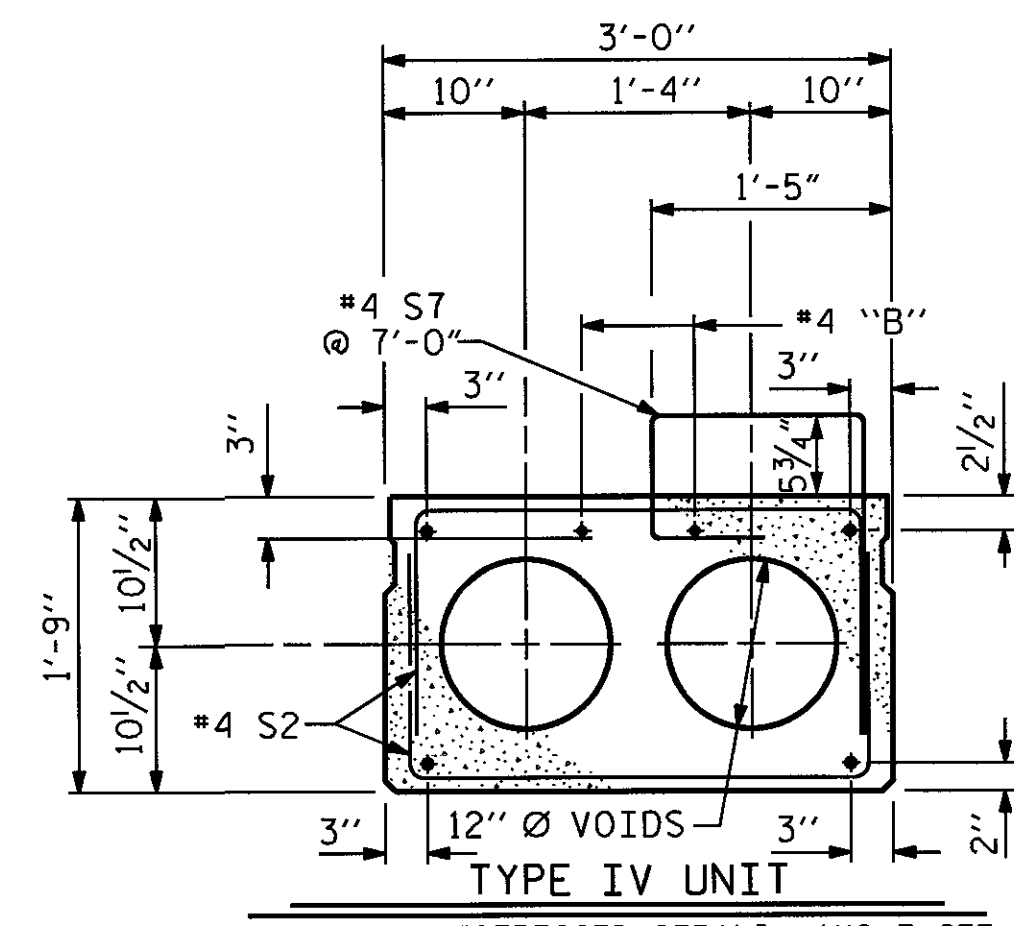
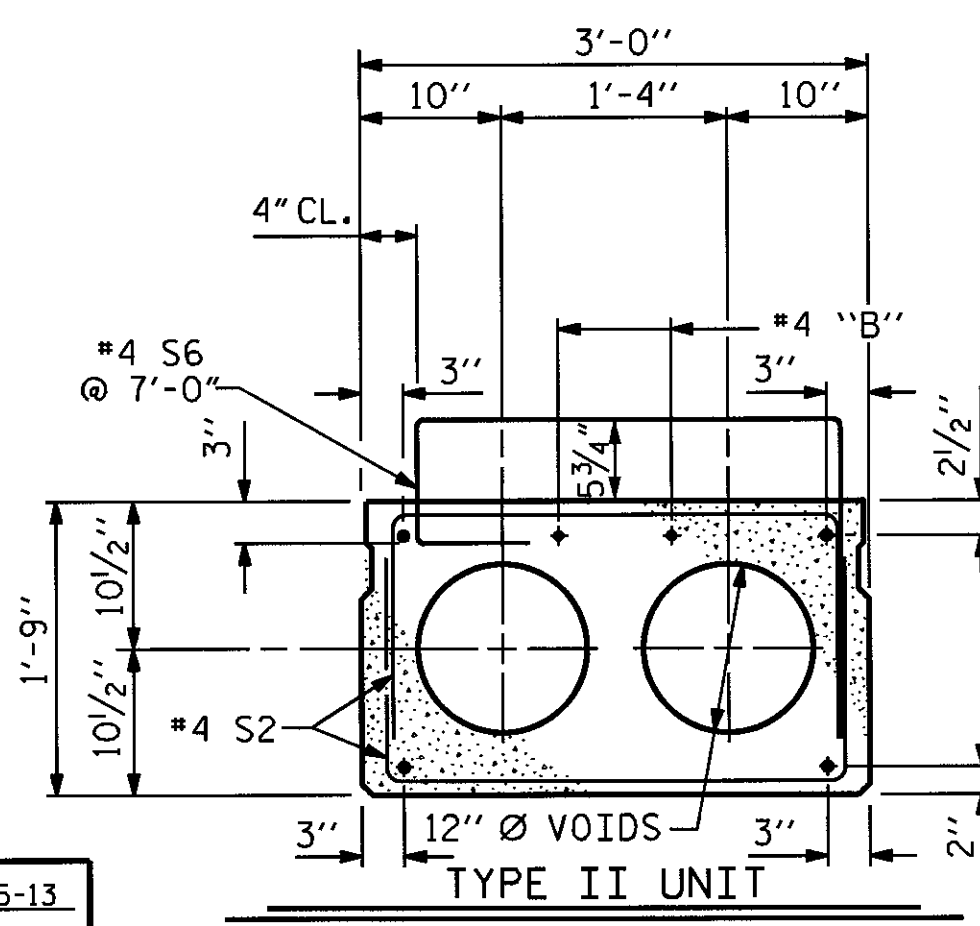
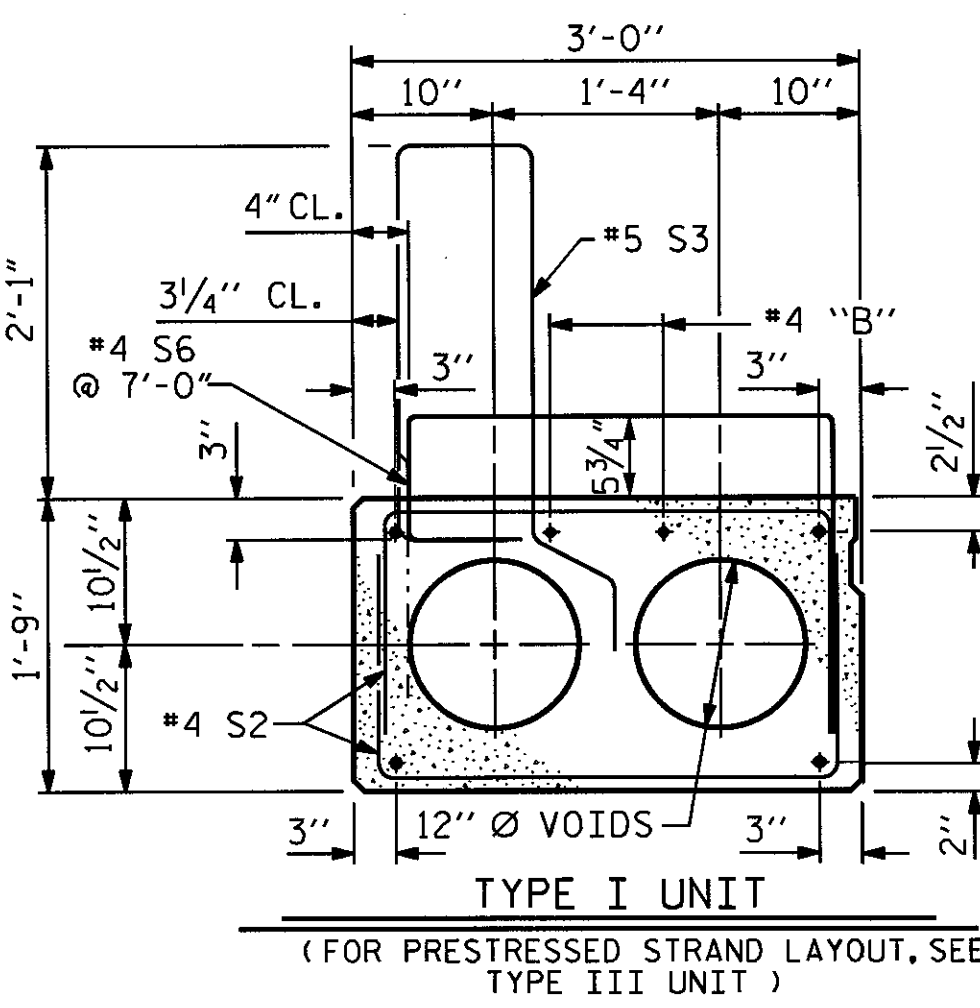
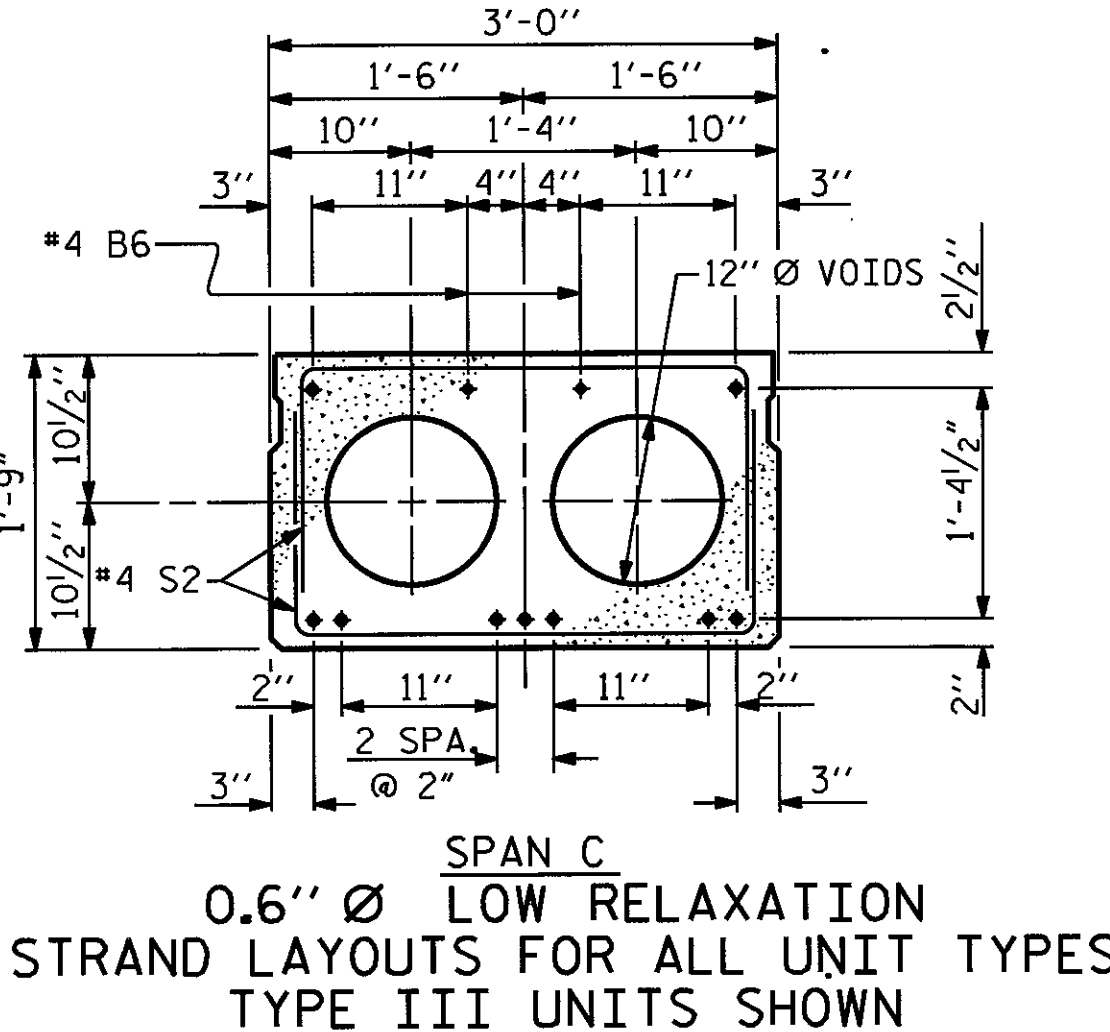
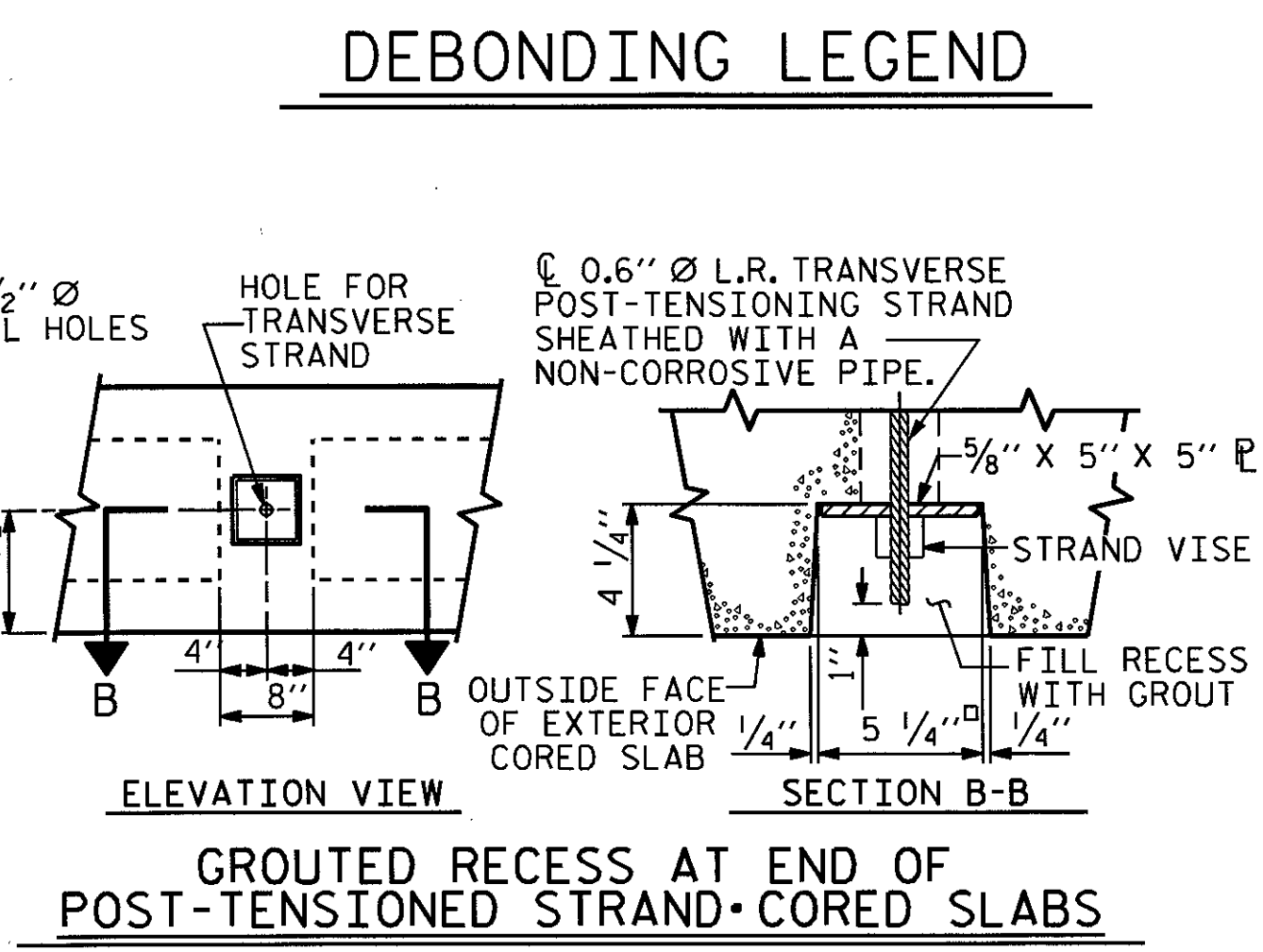
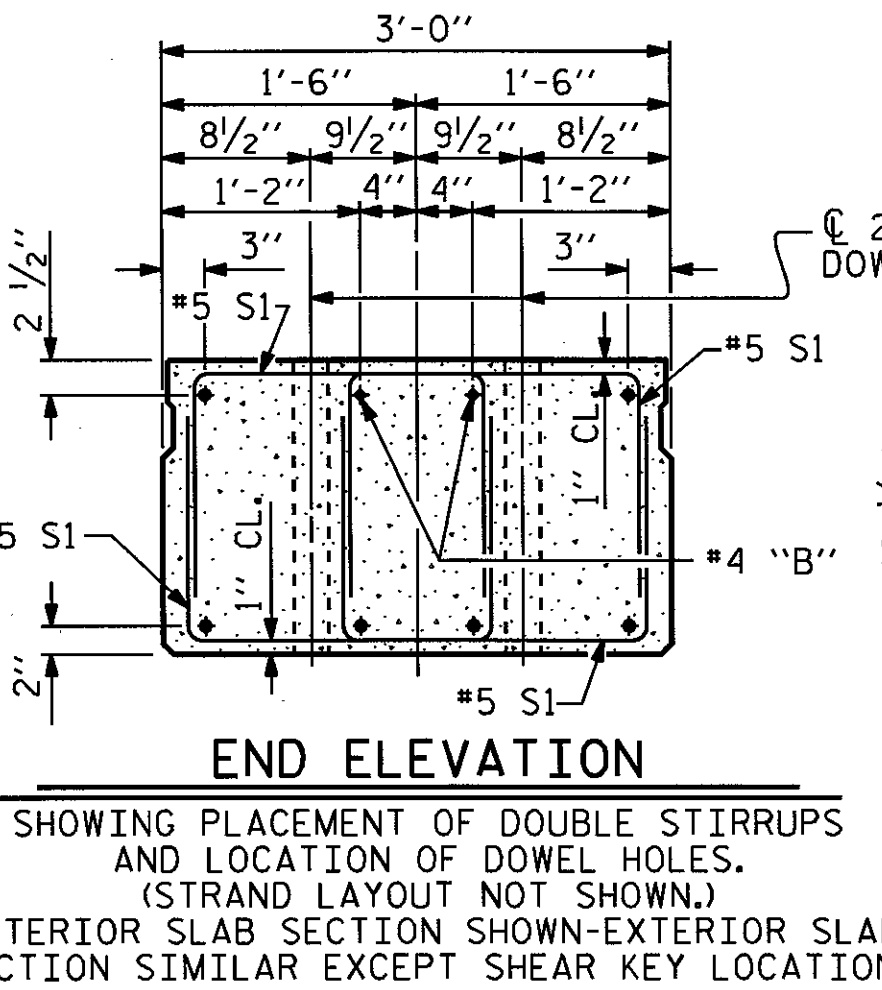
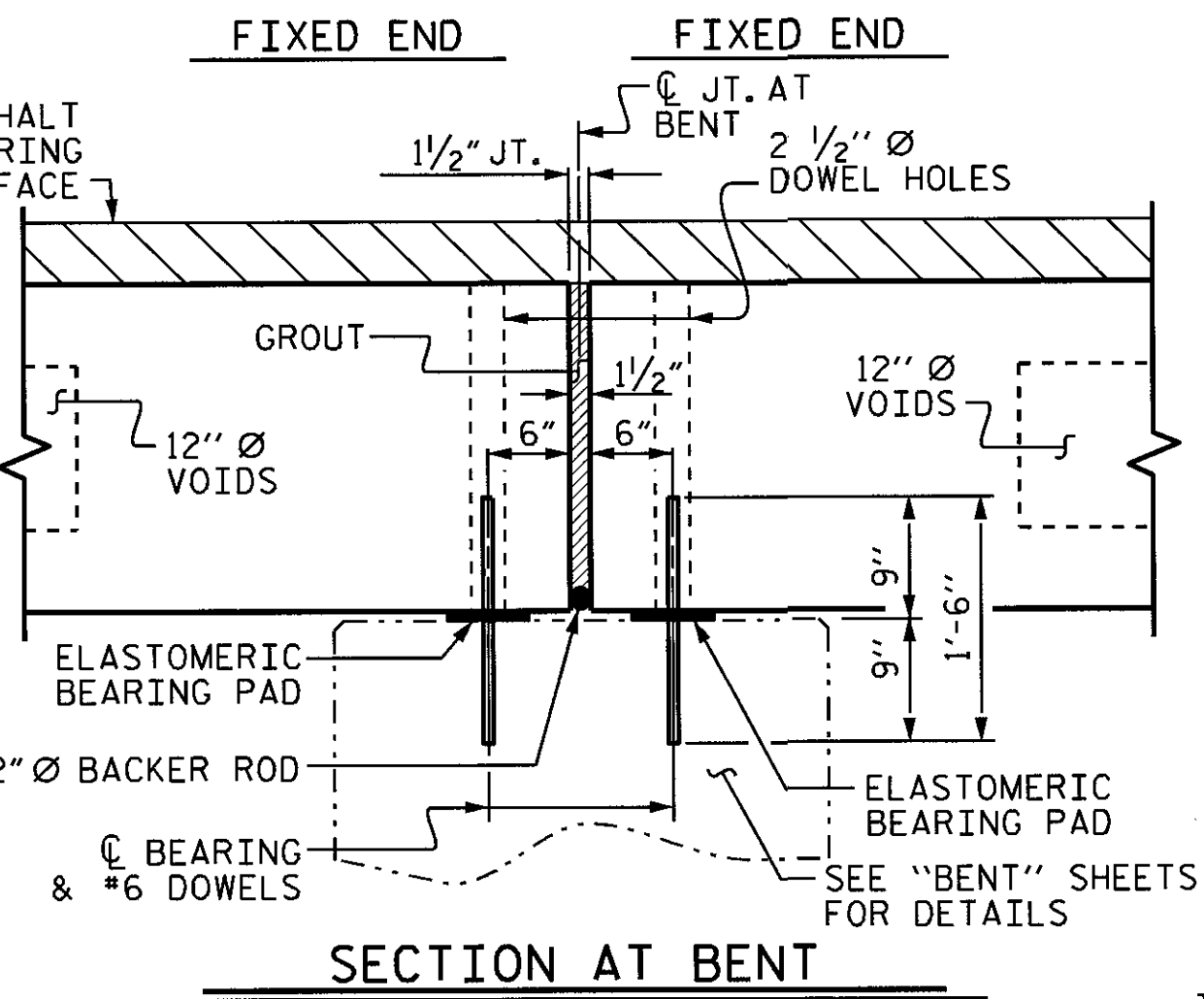
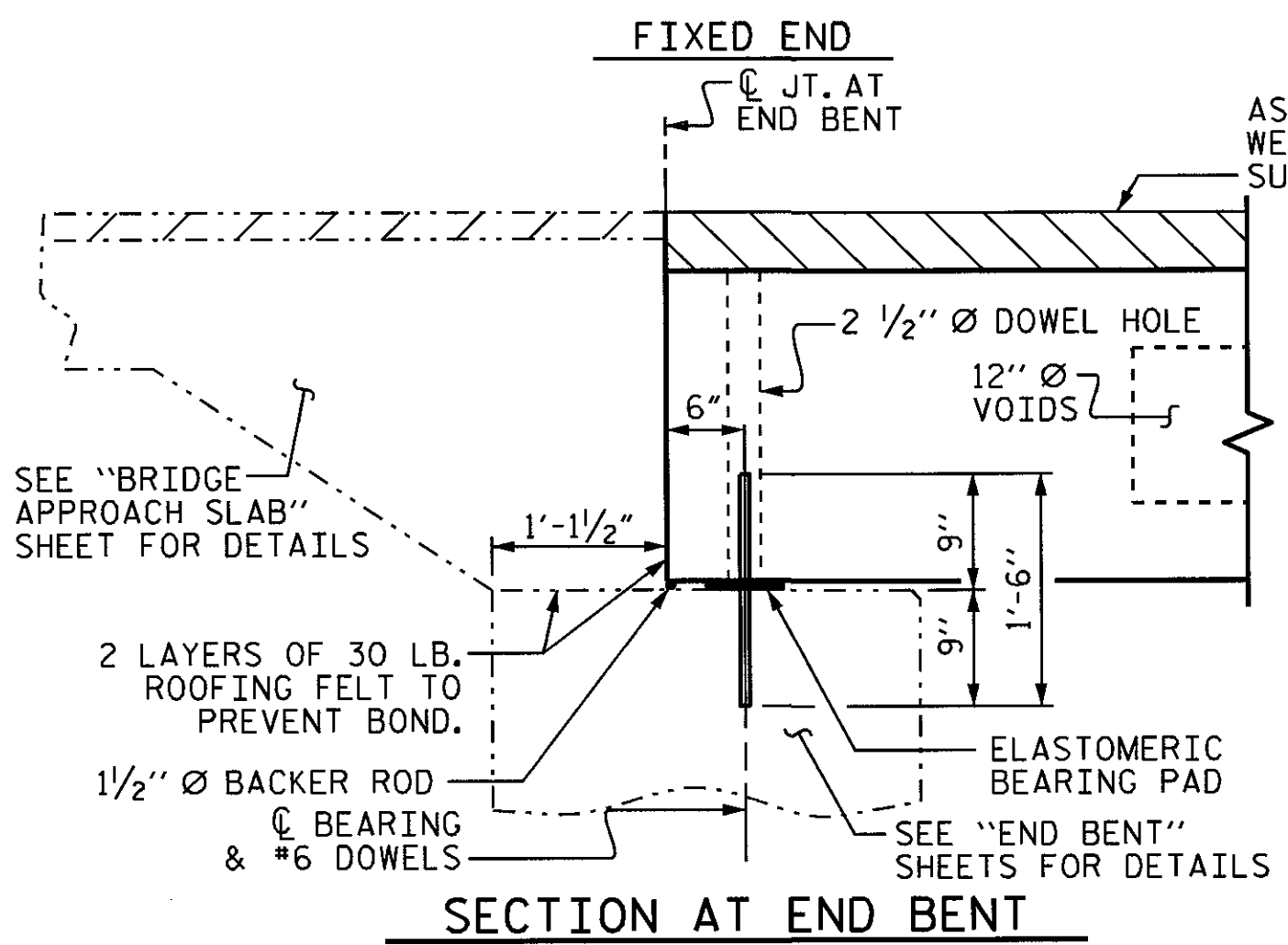
▲ FOR SURFACES TO BE STAINED, SEE STAINING DETAILS ON SHEET S-15. SEE SPECIAL PROVISIONS FOR "CONCRETE STAIN."

HALF SECTION AT INTERMEDIATE DIAPHRAGMS **TYPICAL SECTION THROUGH VOIDS**

* THE MAXIMUM PARAPET HEIGHT AND ASPHALT WEARING SURFACE THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND ASPHALT WEARING SURFACE THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 8'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

■ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 10'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.



DRAWN BY: H. T. BARBOUR DATE: 4-25-13
 CHECKED BY: D. HODGE DATE: 6-13
 DESIGN ENGINEER OF RECORD: S. I. CHAMPION DATE: 6-13

(FOR PRESTRESSED STRAND LAYOUT, SEE TYPE III UNIT)

(FOR PRESTRESSED STRAND LAYOUT, SEE TYPE III UNIT)

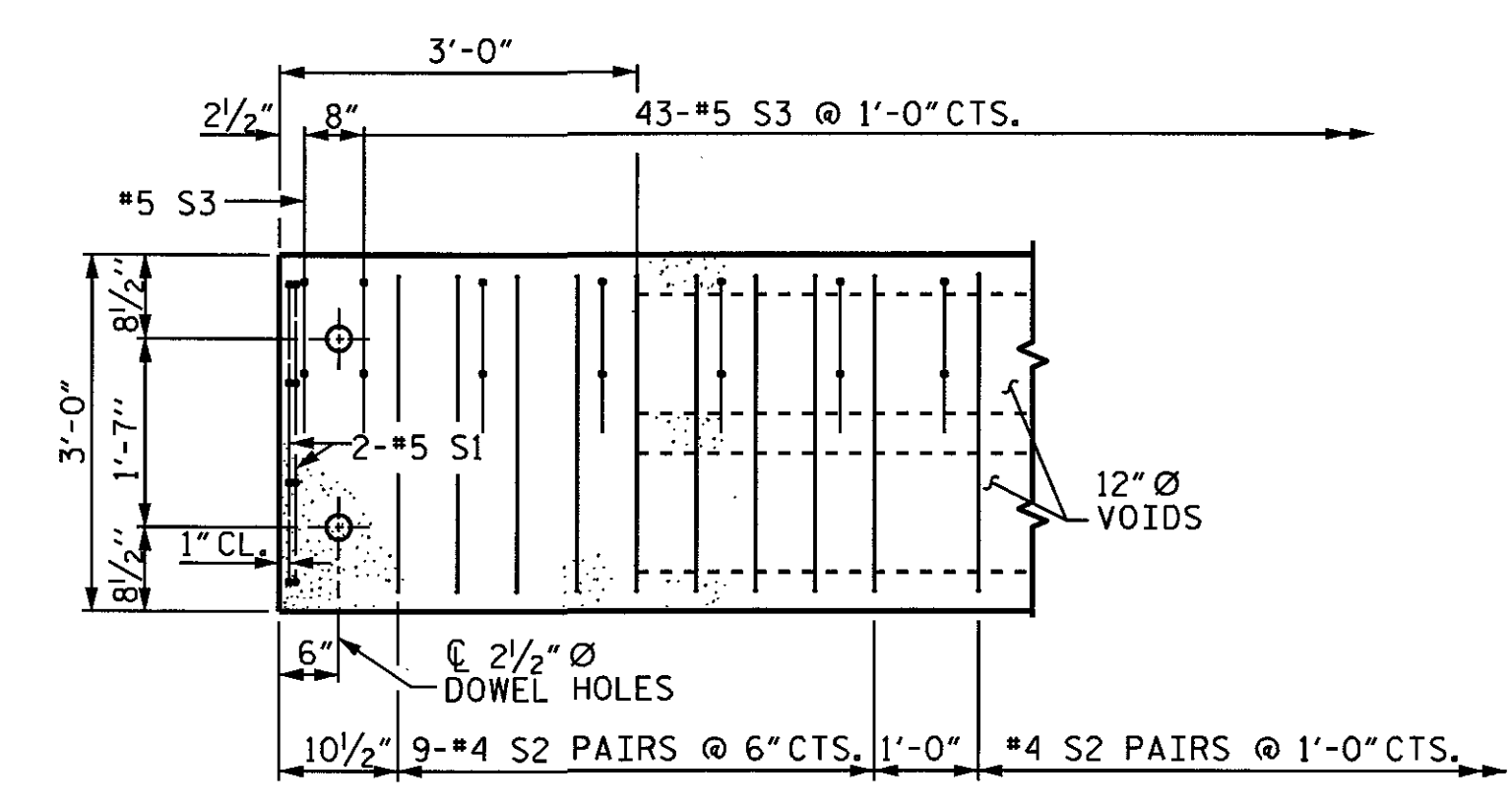
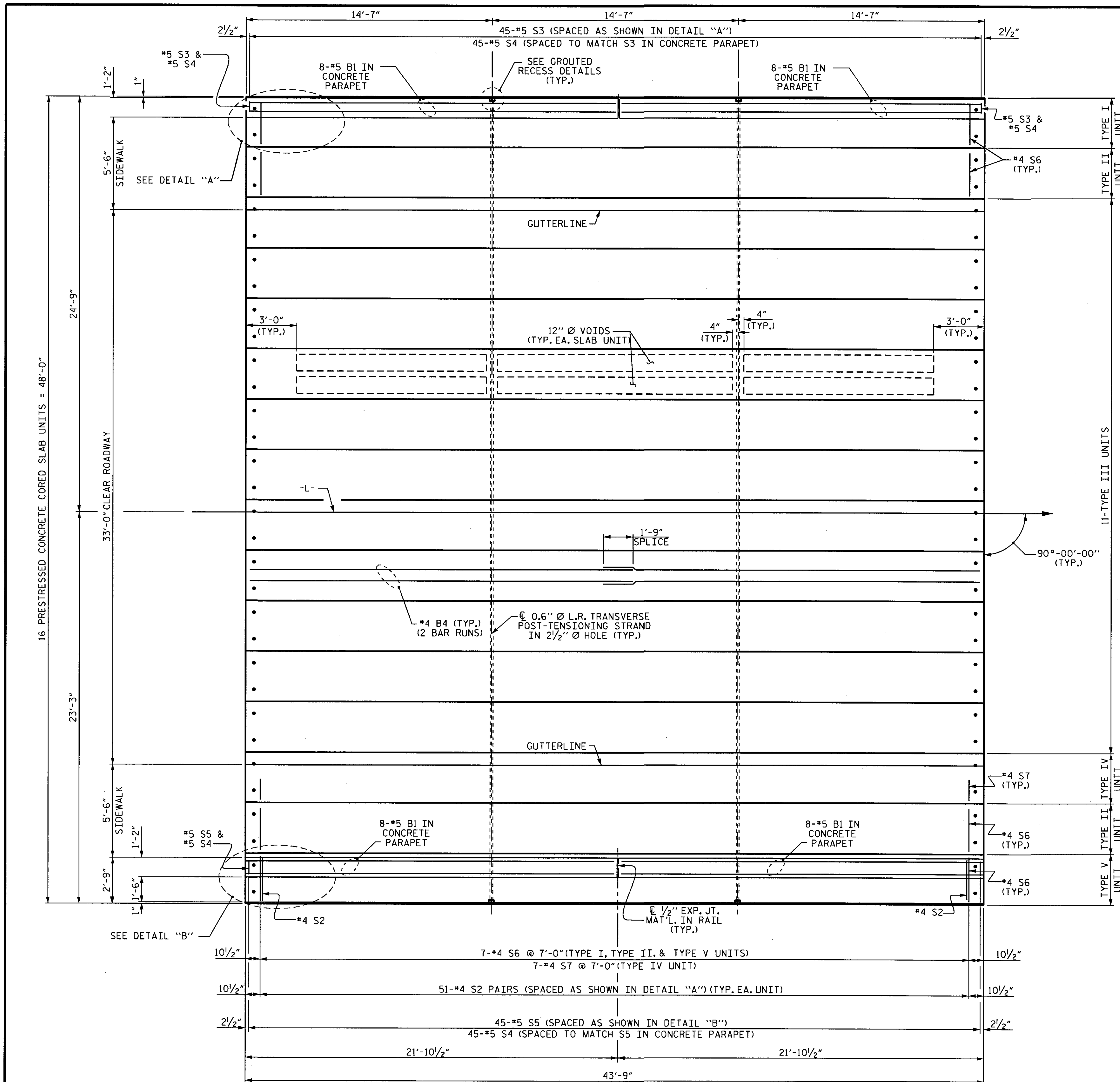
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

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



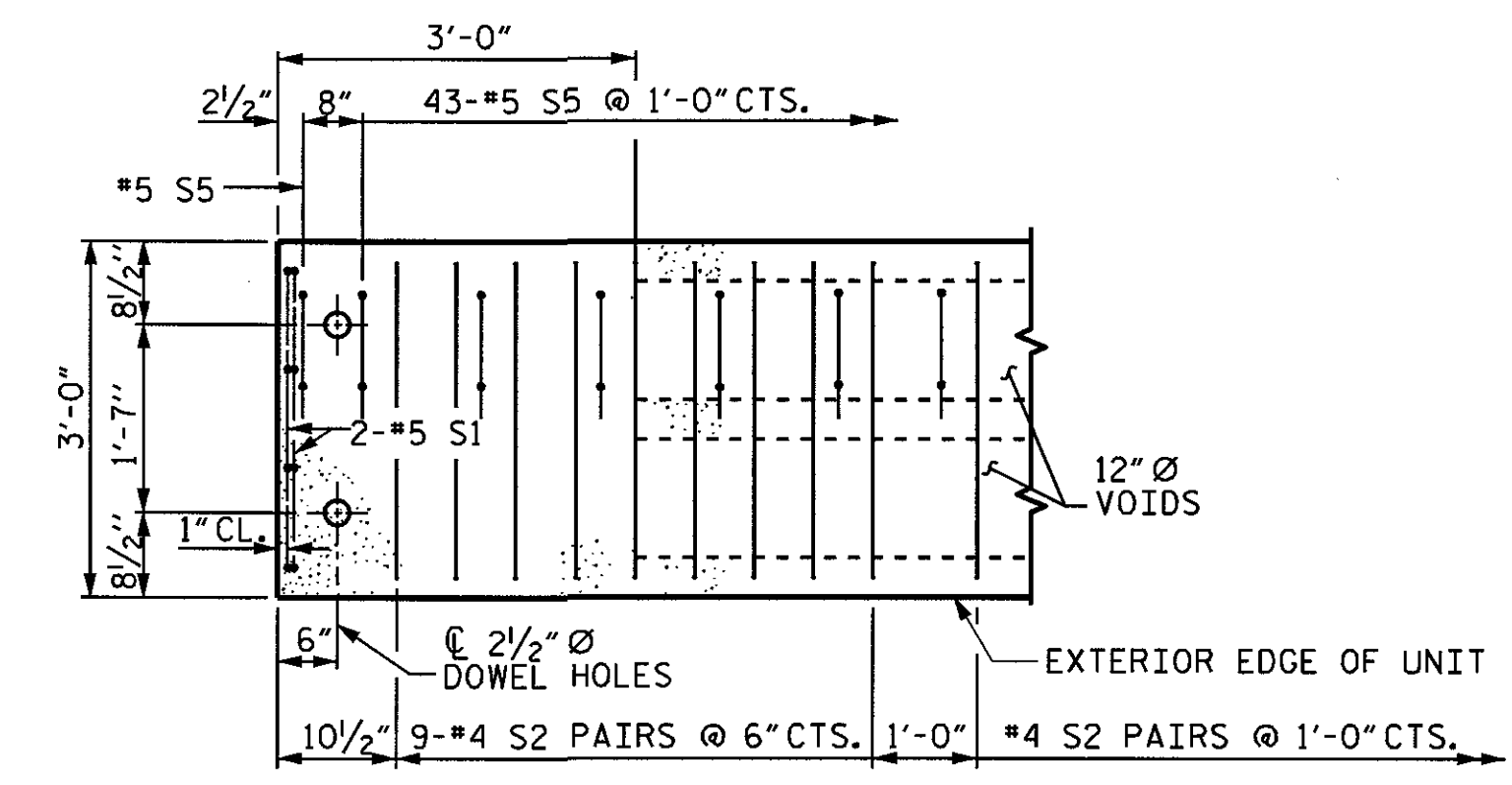
PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

REVISIONS						SHEET NO. S-4
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 27
2			4			



DETAIL "A"

NOTE: TYPE I UNIT SHOWN - TYPE II, TYPE III & TYPE IV UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.
#4 "S" BARS IN SIDEWALK NOT SHOWN FOR CLARITY.



DETAIL "B"

NOTE: TYPE V UNIT SHOWN.
#4 "S" BARS IN SIDEWALK NOT SHOWN FOR CLARITY.

DRAWN BY: H. T. BARBOUR DATE: 4-26-13
 CHECKED BY: D. HODGE DATE: 6-13
 DESIGN ENGINEER OF RECORD: S. T. CHAMPION DATE: 6-13

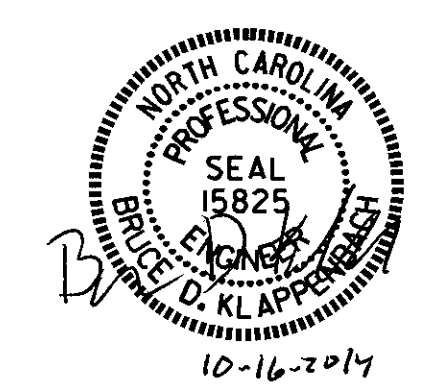
PLAN OF UNIT

16-OCT-2014 12:12
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 bkloppenbach

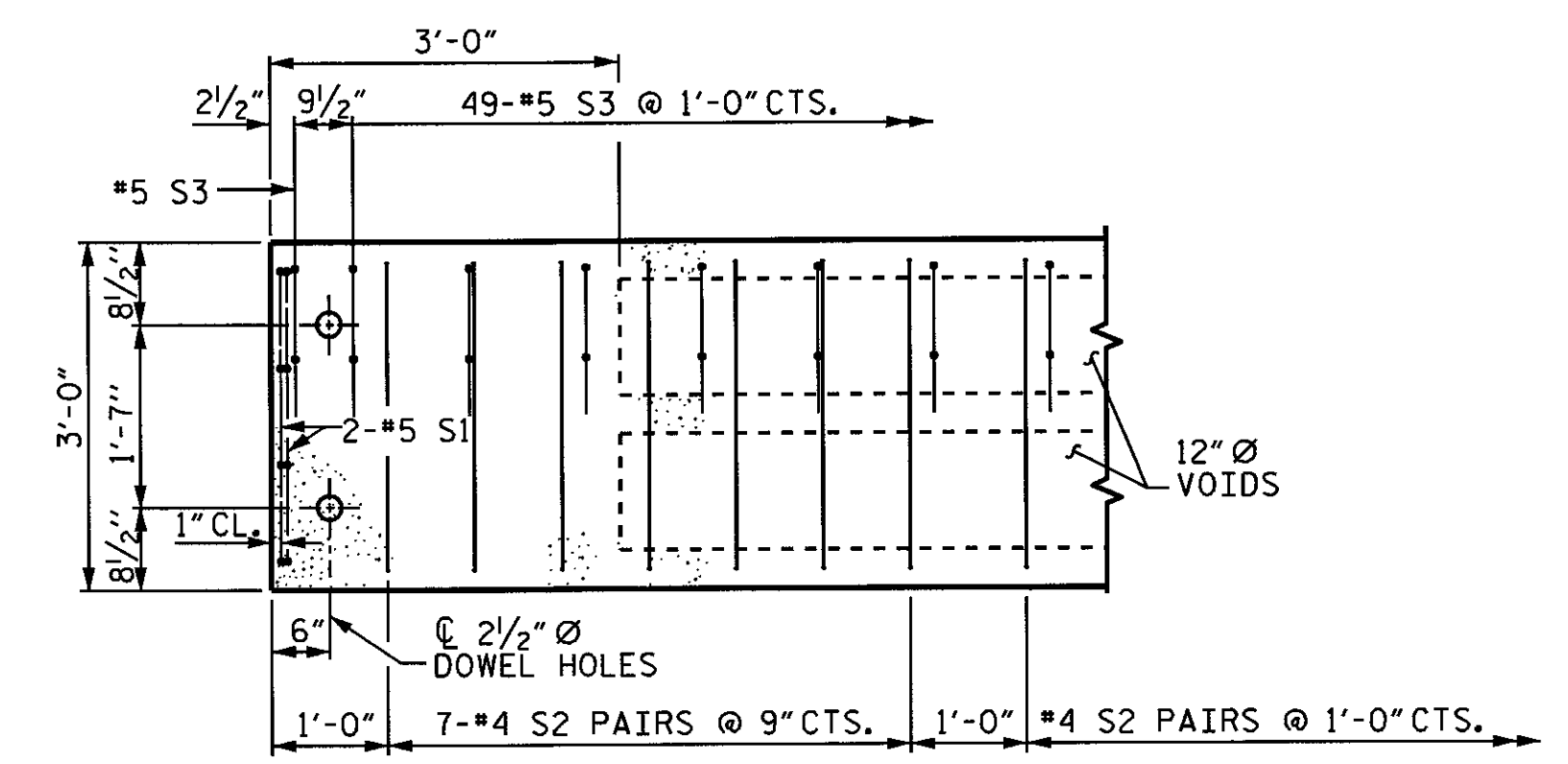
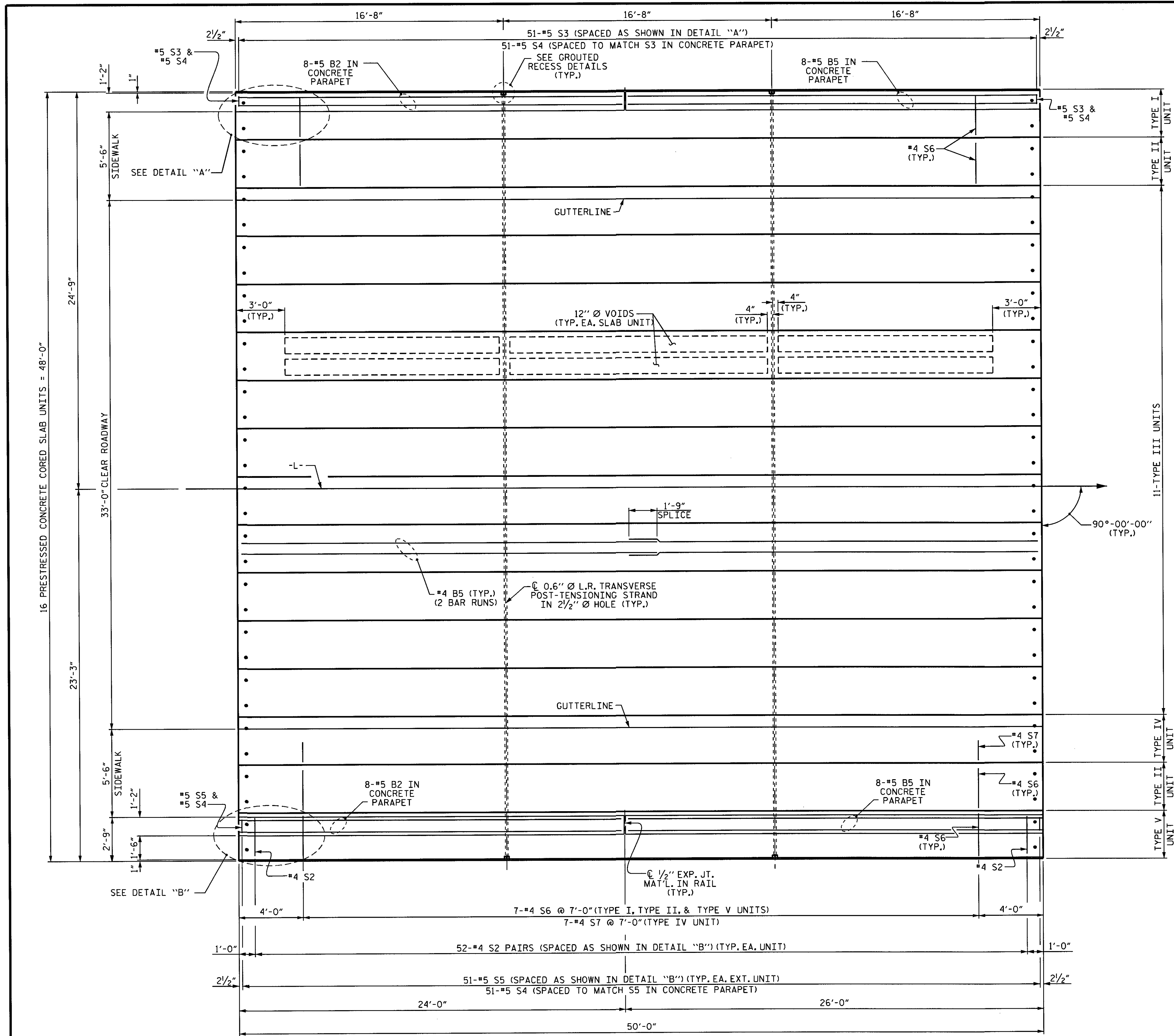
PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: 13+58.65-L-
 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A



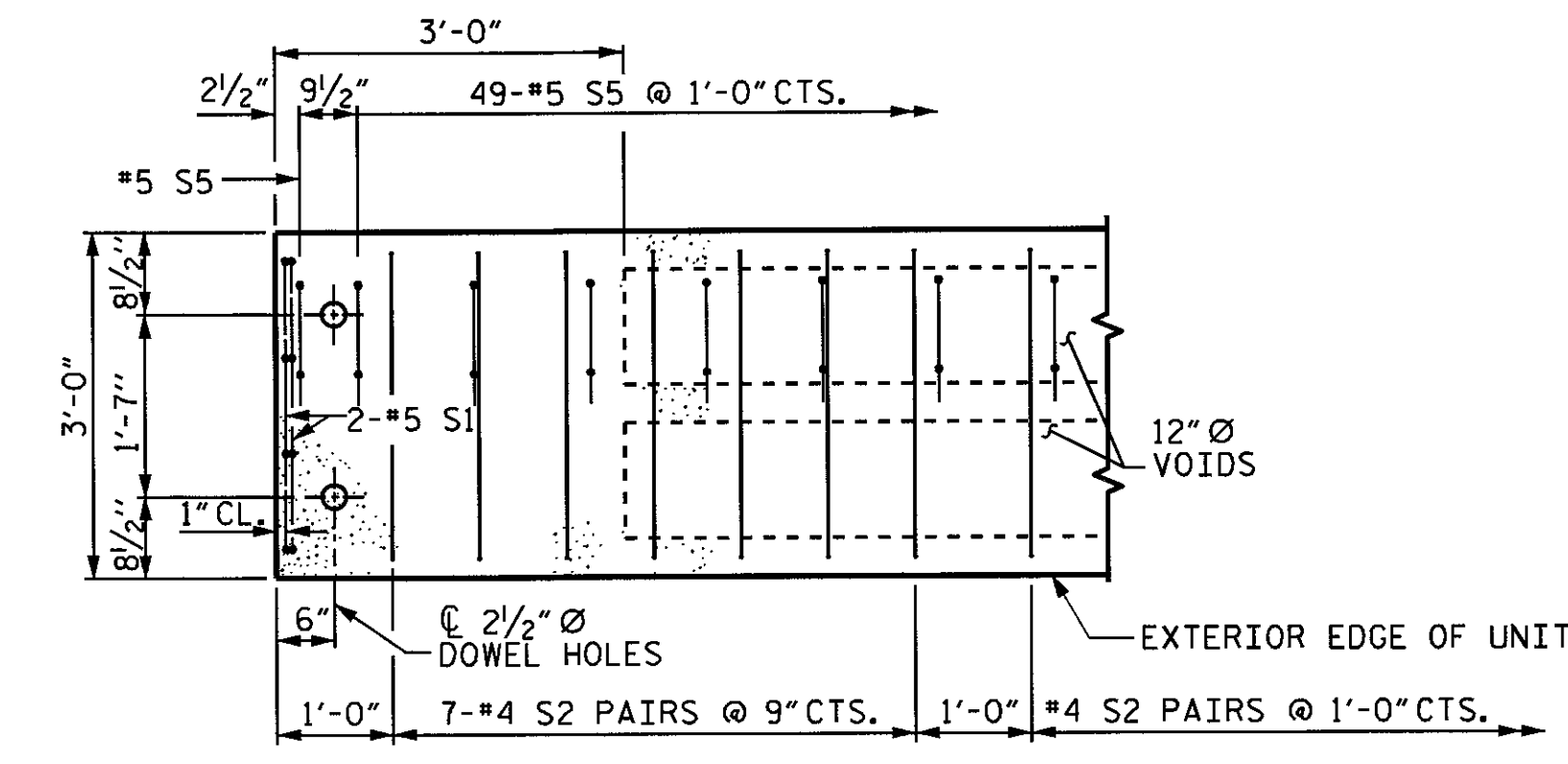
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			27



DETAIL "A"

NOTE: TYPE I UNIT SHOWN - TYPE II, TYPE III & TYPE IV UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

#4 "S" BARS IN SIDEWALK NOT SHOWN FOR CLARITY.



DETAIL "B"

NOTE: TYPE V UNIT SHOWN.

#4 "S" BARS IN SIDEWALK NOT SHOWN FOR CLARITY.

PROJECT NO. BD-5111V

SURRY COUNTY

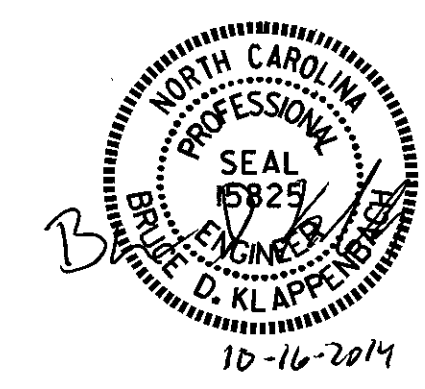
STATION: 13+58.65-L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE
PLAN OF SPAN B**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			27

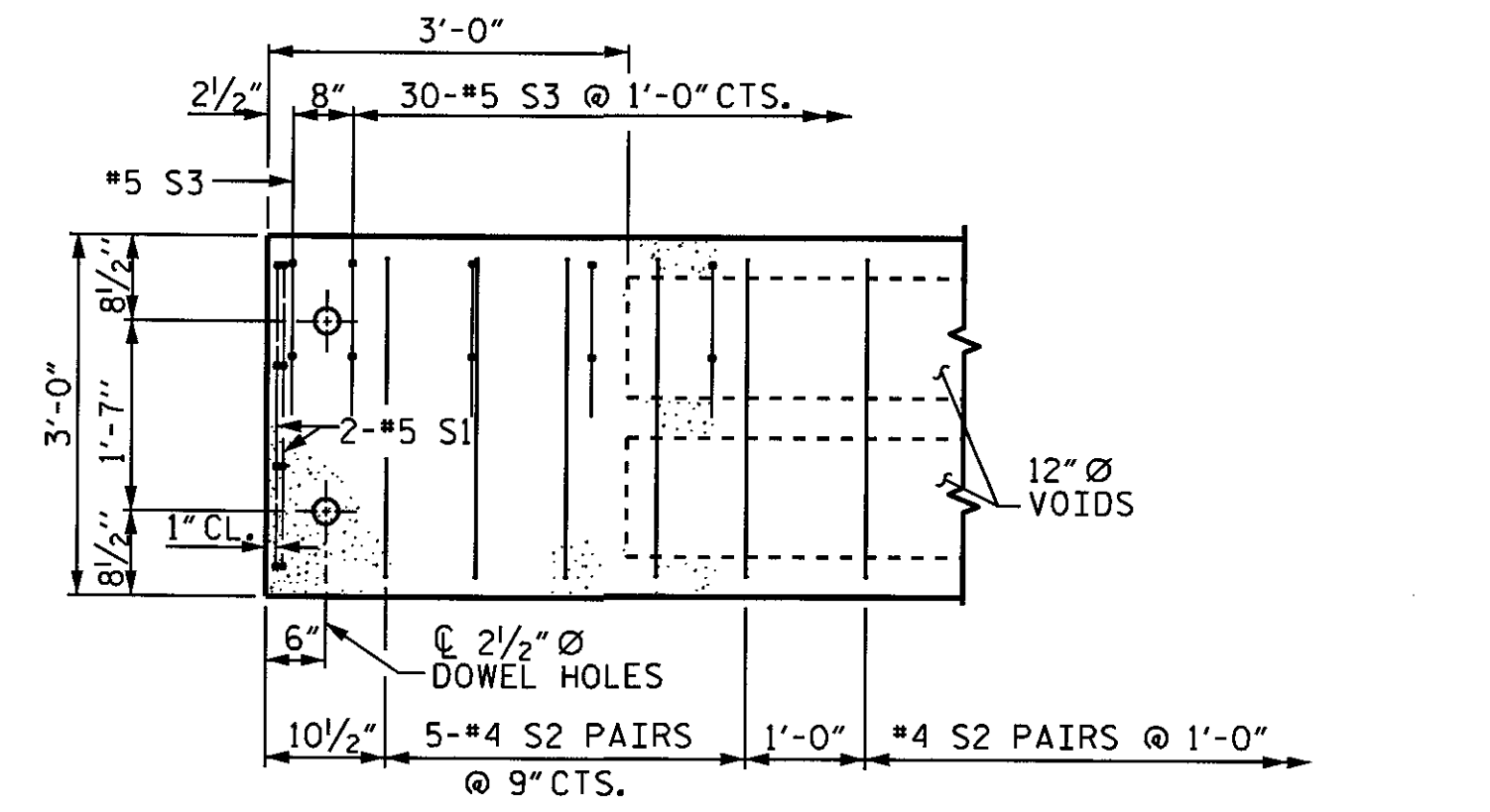
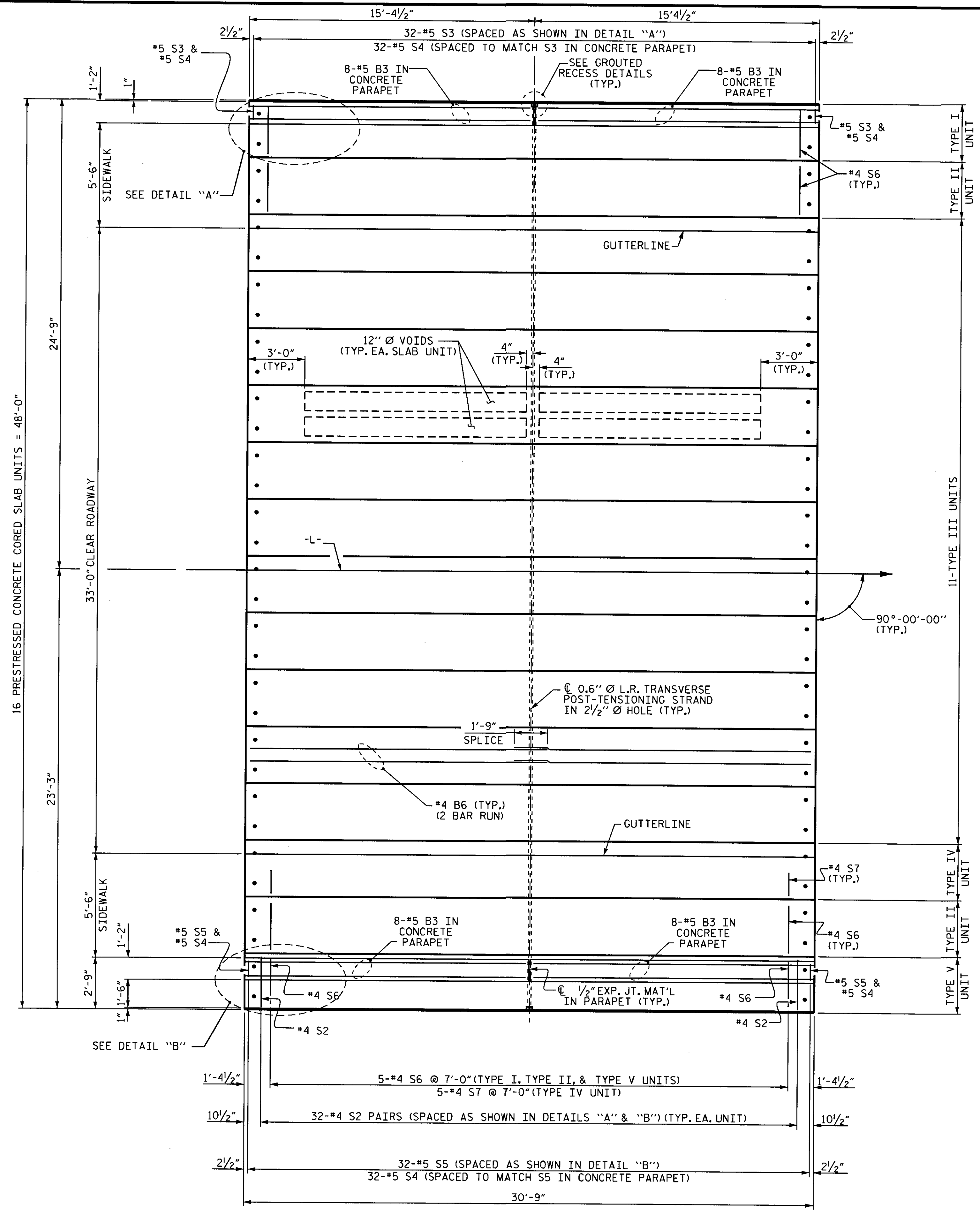


DRAWN BY: H. T. BARBOUR DATE: 4-26-13

CHECKED BY: D. HODGE DATE: 6-13

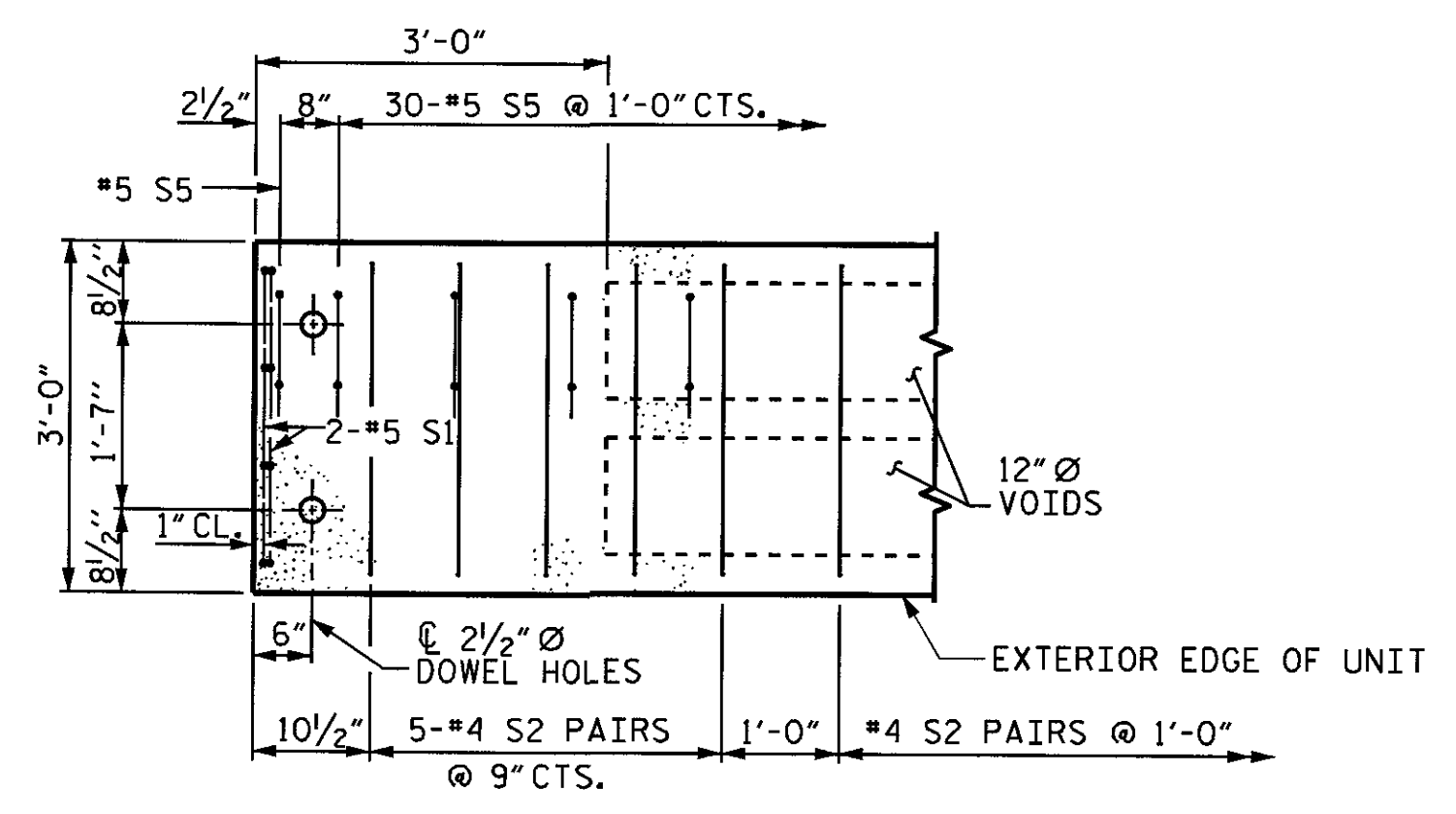
DESIGN ENGINEER OF RECORD: S. T. CHAMPION DATE: 6-13

PLAN OF UNIT



DETAIL "A"

NOTE: TYPE I UNIT SHOWN - TYPE II, TYPE III & TYPE IV UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.
#4 "S" BARS IN SIDEWALK NOT SHOWN FOR CLARITY.



DETAIL "B"

NOTE: TYPE V UNIT SHOWN.
#4 "S" BARS IN SIDEWALK NOT SHOWN FOR CLARITY.

PLAN OF UNIT

DRAWN BY : H. I. BARBOUR DATE : 4-26-13
 CHECKED BY : D. HODGE DATE : 6-13
 DESIGN ENGINEER OF RECORD : S. T. CHAMPION DATE : 6-13

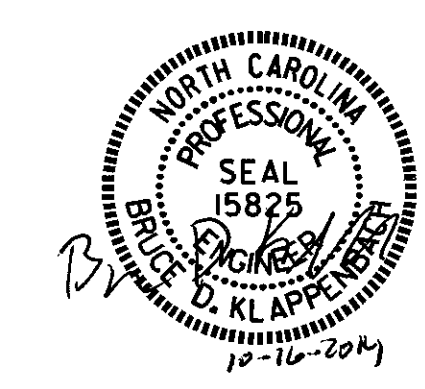
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 bklappenbach

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN C



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			27

BILL OF MATERIAL

SIDEWALK					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B7	60	#4	STR	26'-6"	1062
* G1	126	#4	STR	6'-2"	519
* G2	126	#4	STR	7'-9"	652
* EPOXY COATED REINF. STEEL					2233 LBS
CLASS AA CONCRETE					67.8 C. Y.

NOTES

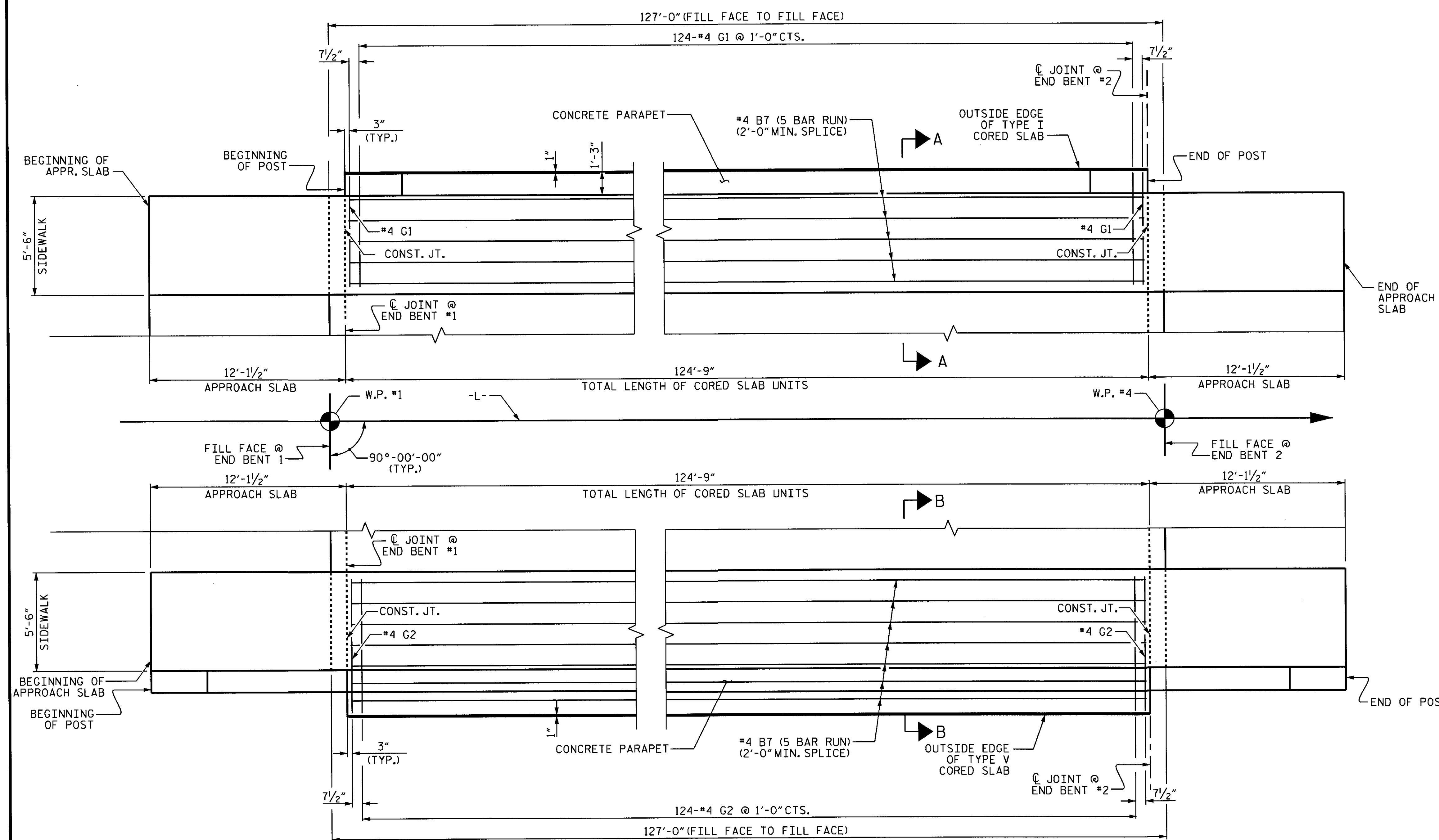
ALL REINFORCING STEEL IN THE SIDEWALK SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF SIDEWALK IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

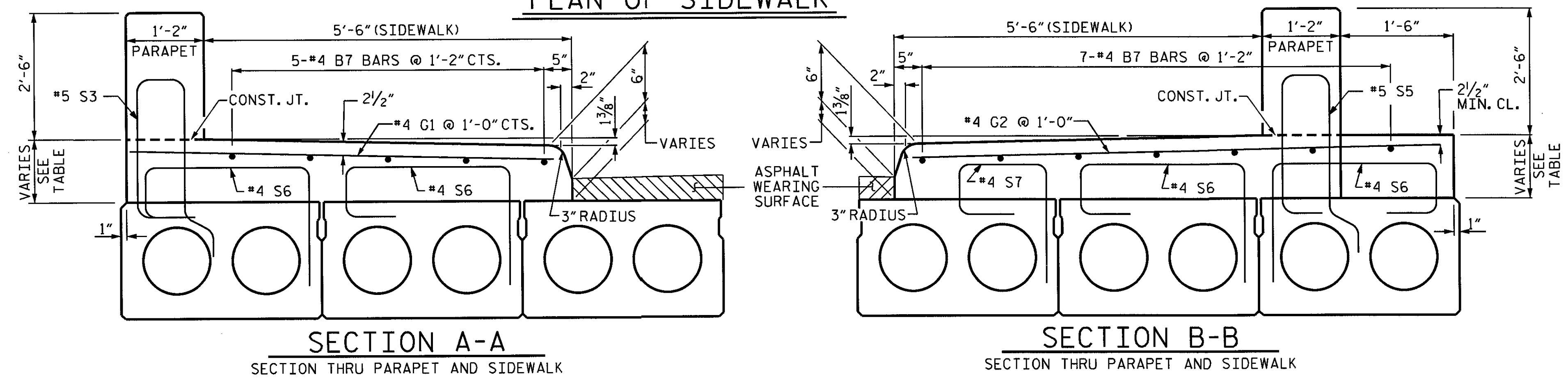
PAYMENT FOR SIDEWALK ON BRIDGE SHALL BE INCLUDED IN THE PAY ITEMS IN "TOTAL OF BILL OF MATERIAL" FOR CLASS AA CONCRETE AND EPOXY COATED REINFORCING STEEL. PAYMENT FOR SIDEWALK ON APPROACH SLABS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR "BRIDGE APPROACH SLAB"

	SPAN	@ C BEARINGS	
		@ MID-SPAN	@ MID-SPAN
LEFT	A	9 7/8"	8 3/8"
	B	9 7/8"	7 7/8"
	C	9 7/8"	9 5/8"
RIGHT	A	1'-5 1/8"	1'-3 5/8"
	B	1'-5 1/8"	1'-3 1/8"
	C	1'-5 1/8"	1'-4 7/8"

SIDEWALK HEIGHT IS BASED ON PREDICTED FINAL CAMBER AND VARIES BETWEEN C BEARING AND MID-SPAN FOR ALL SPANS.



PLAN OF SIDEWALK



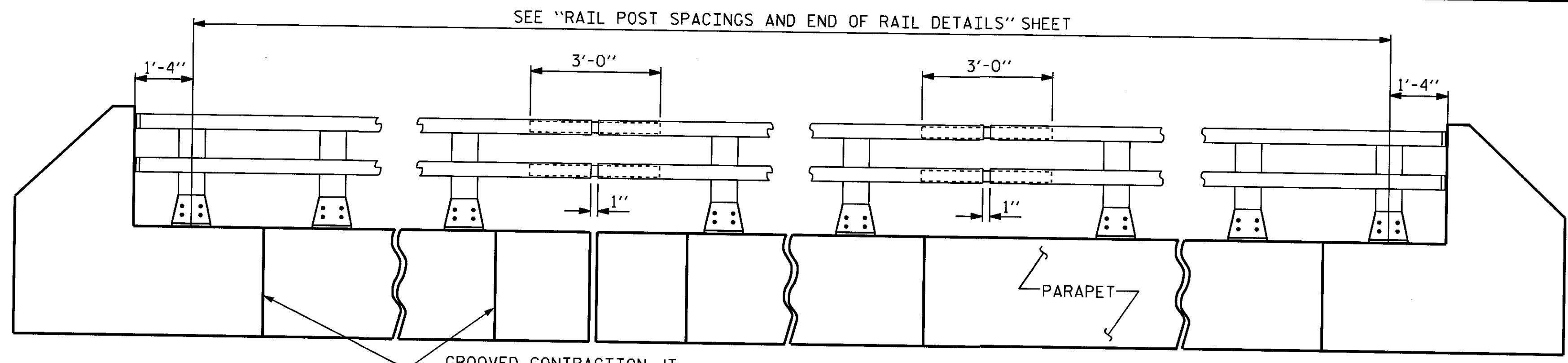
PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: 13+58.65-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
SIDEWALK DETAILS

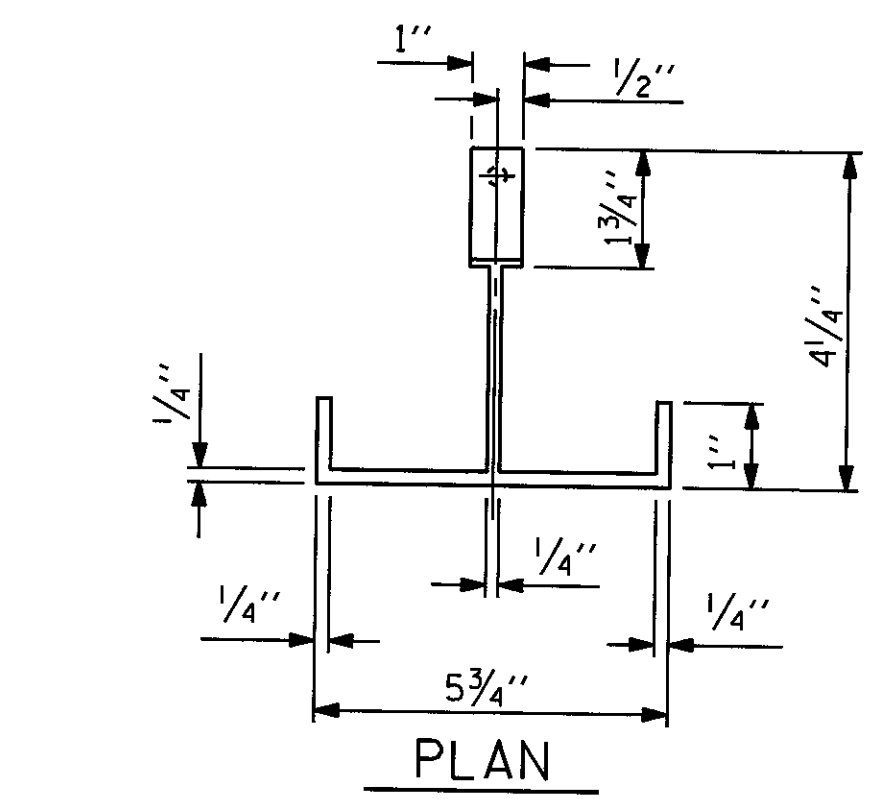


DRAWN BY: H. I. BARBOUR DATE: 5-2-13
 CHECKED BY: D. HODGE DATE: 6-13
 DESIGN ENGINEER OF RECORD: S. T. CHAMPION DATE: 6-13

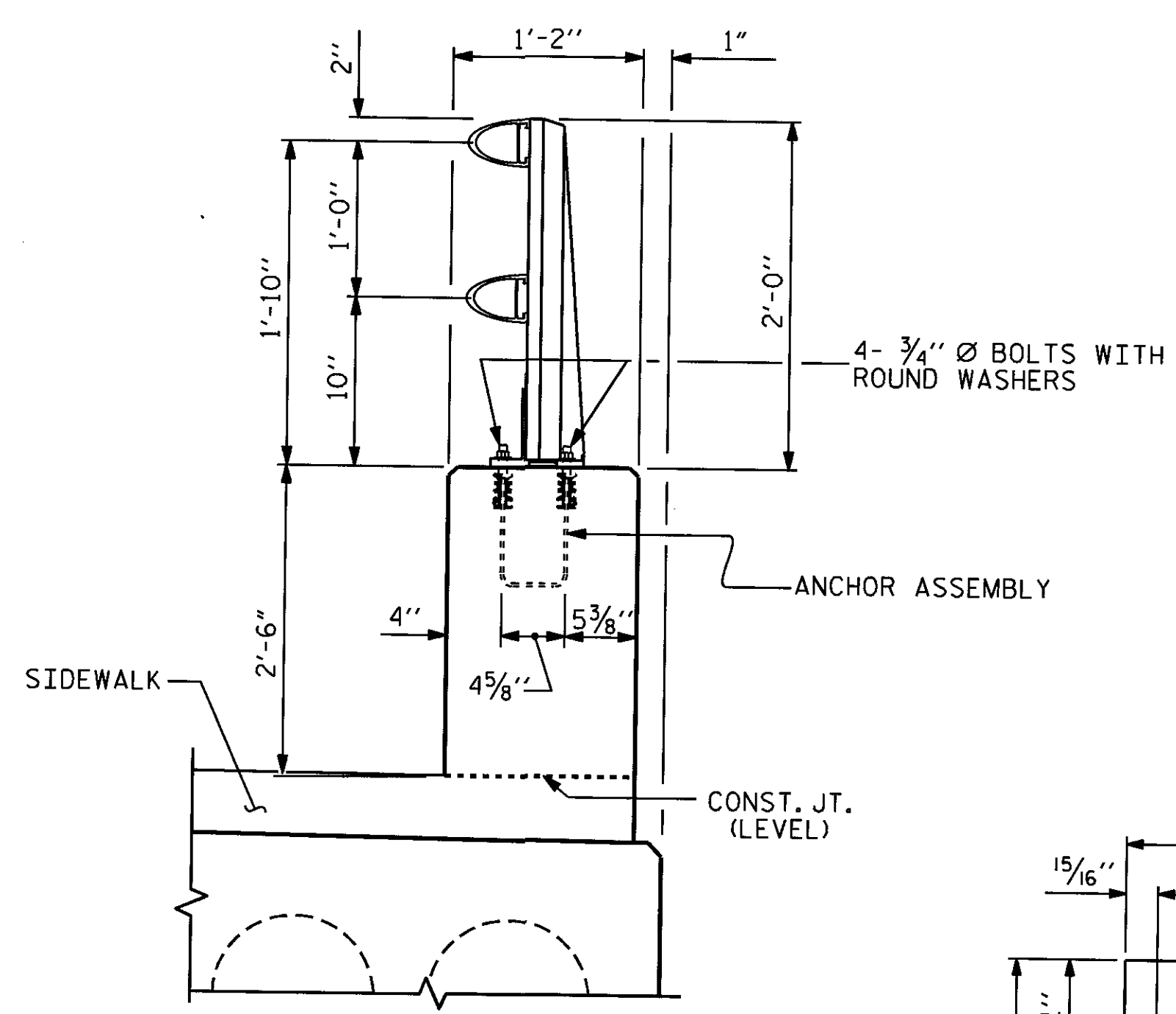
REVISIONS						SHEET NO. S-8
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			



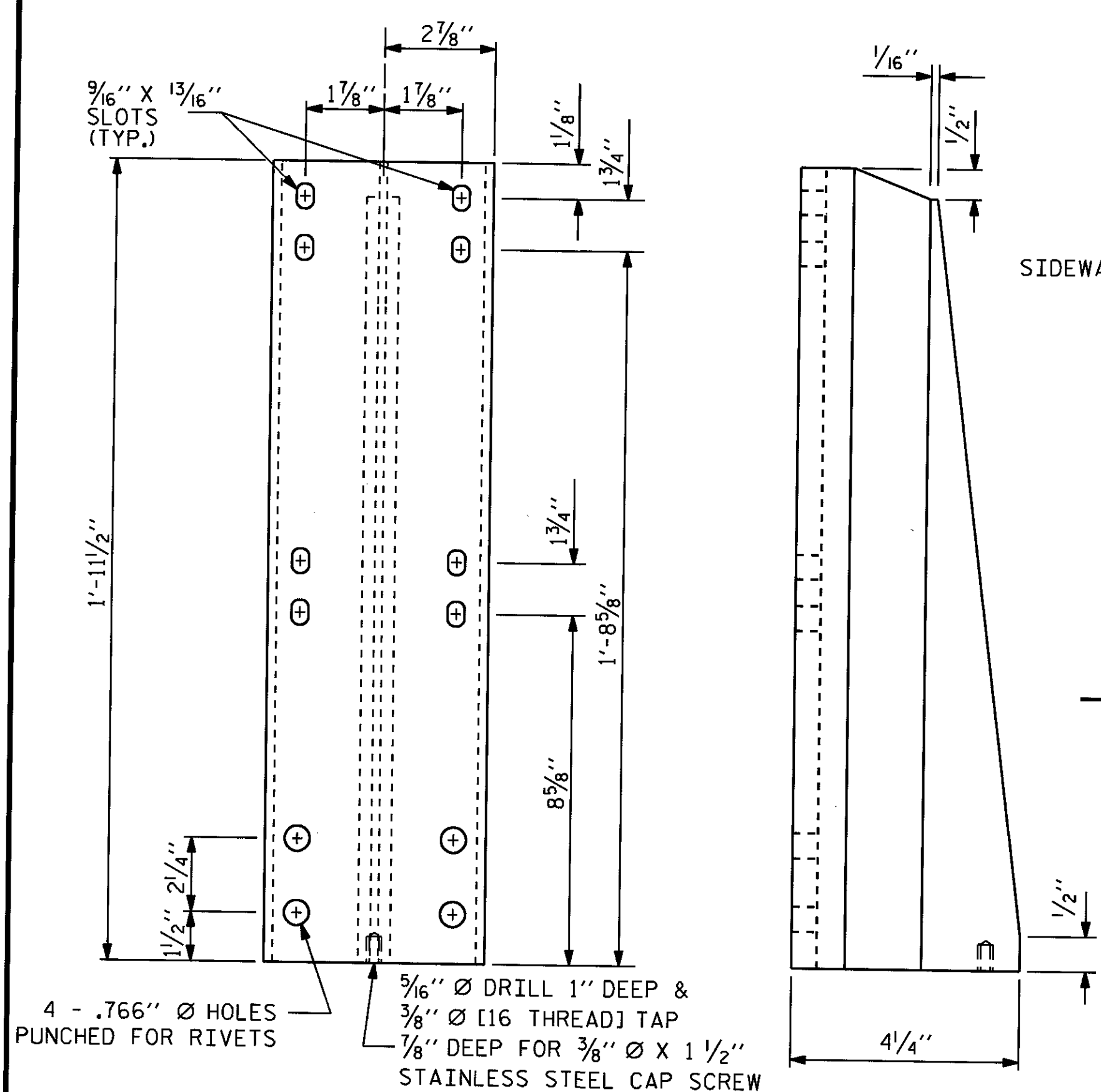
ELEVATION
 NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE 'RAIL POST SPACINGS AND END OF RAIL DETAILS' SHEET.



PLAN



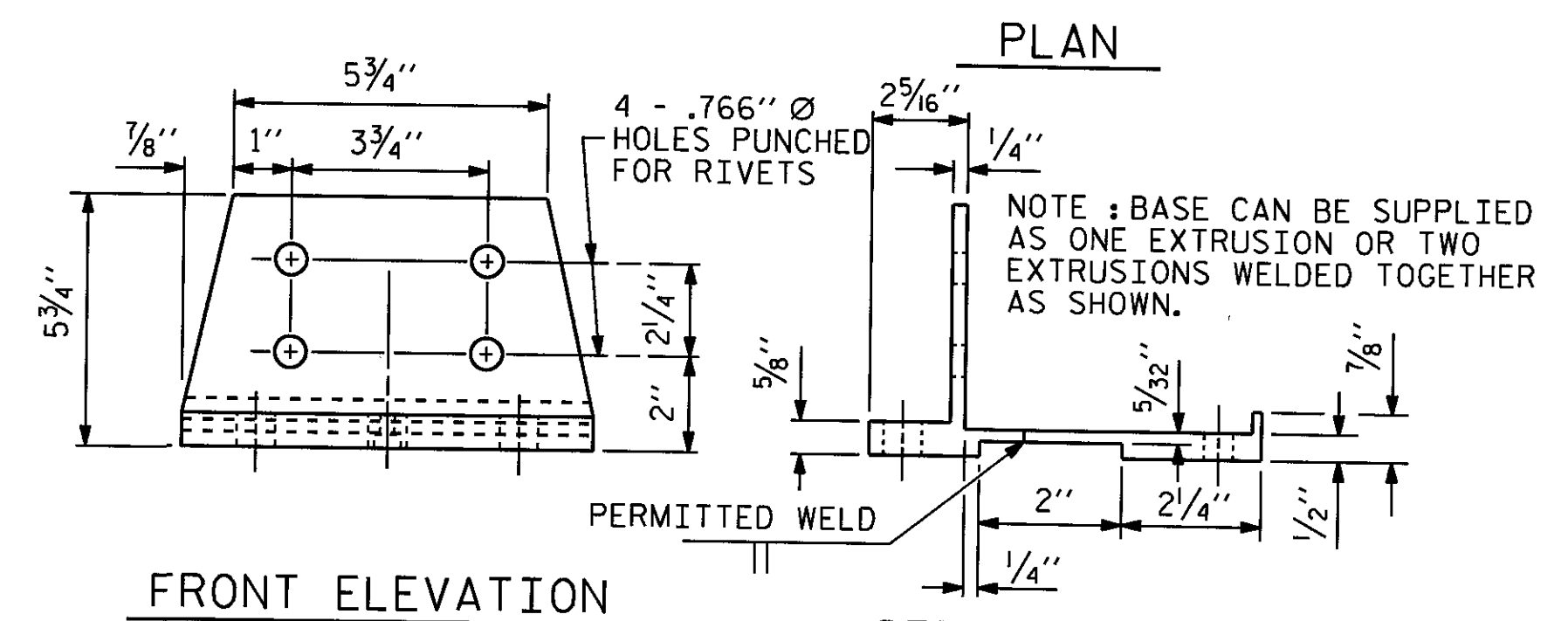
SECTION THRU PARAPET AND RAIL



FRONT ELEVATION

SIDE ELEVATION

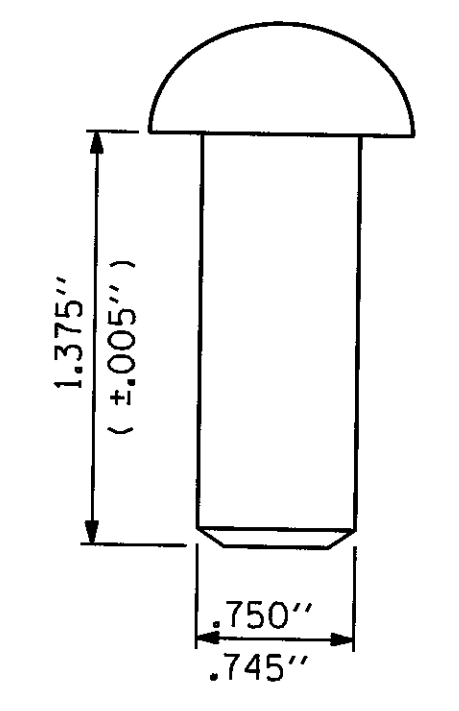
DETAILS OF POST



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

ANODIZING

ALUMINUM FOR POSTS, BASES, RAILS, EXPANSION BARS, CLAMP BARS, RIVETS, CAPS, SHIMS, ATTACHMENT BRACKETS AND HOLD-DOWN PLATES SHALL BE ANODIZED. THE CONTRACTOR SHALL SUBMIT THREE (3) SETS OF ASTM B-221 6061-T6 ALUMINUM SAMPLES ANODIZED MEDIUM BRONZE, DARK BRONZE, AND EXTRA DARK BRONZE TO THE ENGINEER.

ANY DAMAGE TO THE ANODIZED SURFACE OF THE RAIL OR COMPONENTS DURING CONSTRUCTION SHALL BE REPAIRED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AT THE DIRECTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

AFTER A SHADE OF BRONZE HAS BEEN SELECTED FOR THE RAILING, THE CONTRACTOR SHALL SUBMIT A SAMPLE OF COMPATIBLE EXTERIOR ACRYLIC HOUSE PAINT TO THE ENGINEER. THIS PAINT SHALL MATCH THE ANODIZED RAIL COLOR AS CLOSELY AS POSSIBLE. AFTER ERECTION OF THE ANODIZED ALUMINUM RAILING, ALL EXPOSED ANCHOR BOLTS, NUTS, WASHERS, MACHINE SCREWS, CAP SCREWS, BOLTS, AND BUILT UP ANGLES SHALL BE COATED WITH TWO COATS OF THIS PAINT.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS. FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

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

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE B25-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

PAY LENGTH = 258.75 LIN. FT.

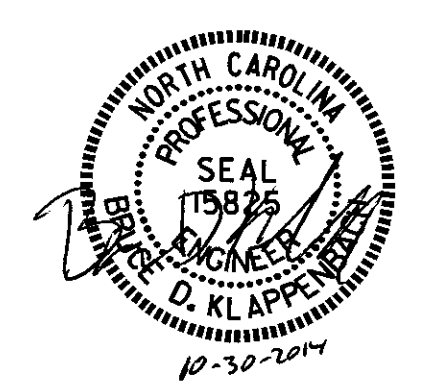
PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

2 BAR METAL RAIL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	5-9	
1			3			TOTAL SHEETS 27	
2			4				



ASSEMBLED BY: H. T. BARBOUR DATE: 4-29-13
 CHECKED BY: D. HODGE DATE: 6-13
 DRAWN BY: EEM 6/94 REV. 5/7/03R RWW/JTE
 CHECKED BY: RGW 6/94 REV. 5/1/06 TLA/GM
 REV. 10/1/11 MAA/GM

NOTES

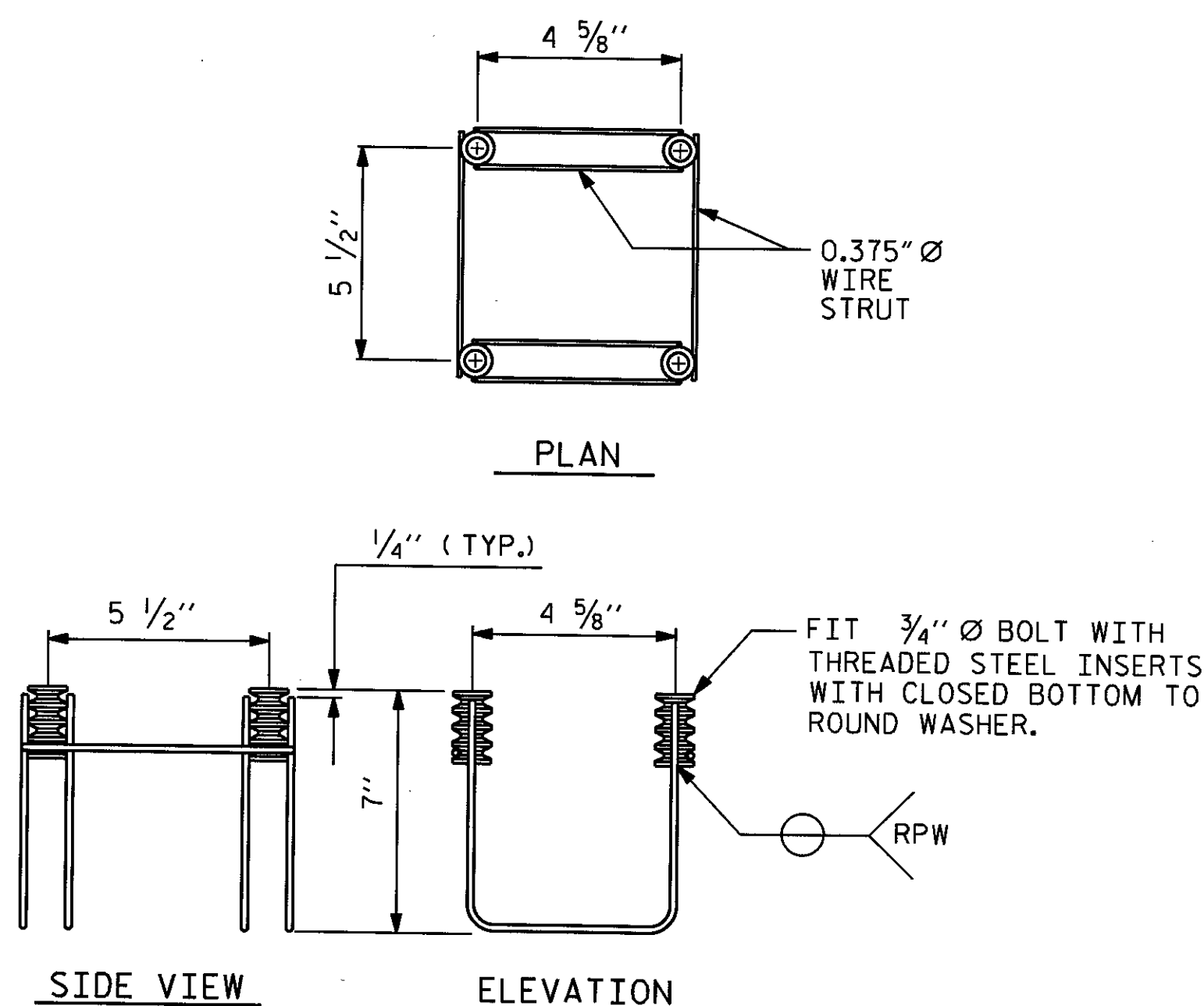
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/6" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLY TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

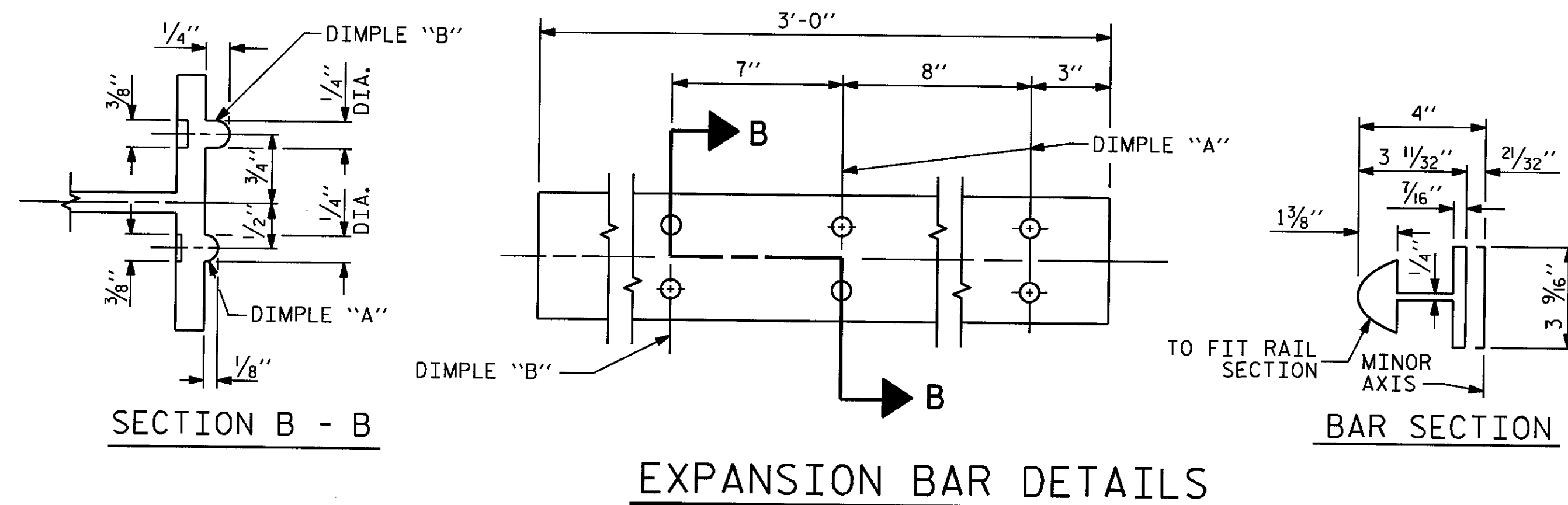
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

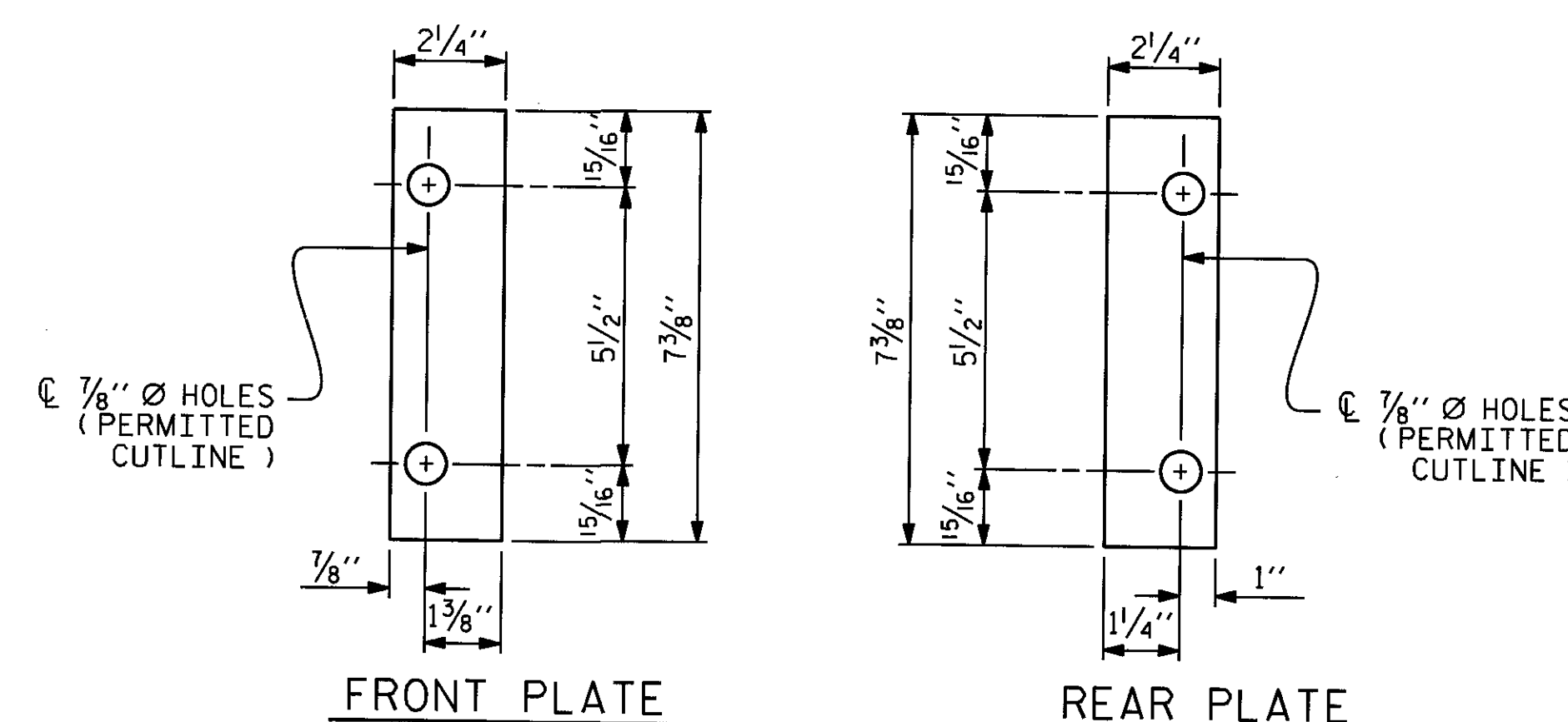


4-BOLT METAL RAIL ANCHOR ASSEMBLY

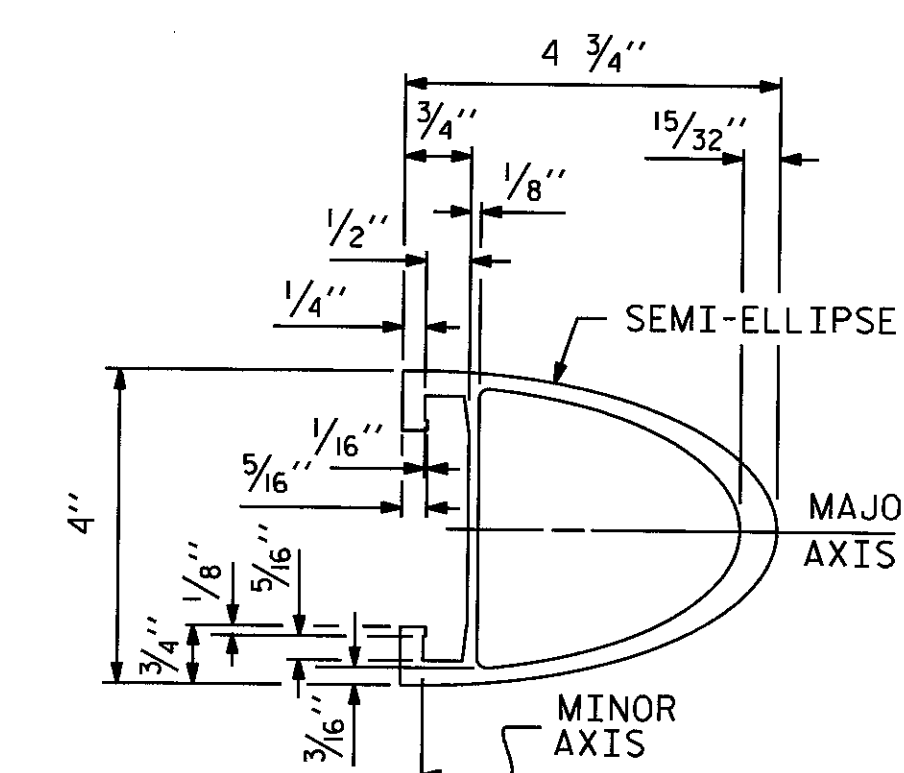
(46 ASSEMBLIES REQUIRED)



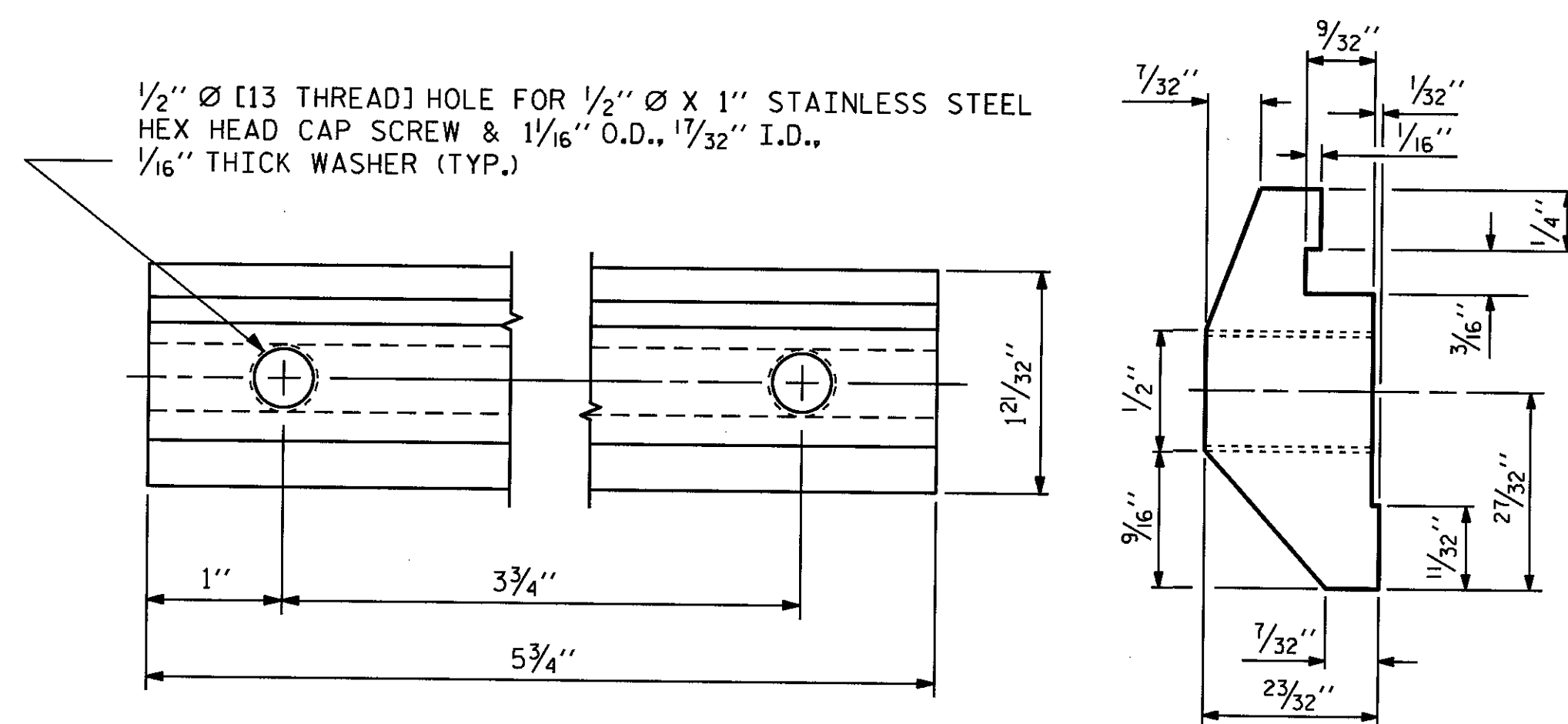
EXPANSION BAR DETAILS



SHIM DETAILS

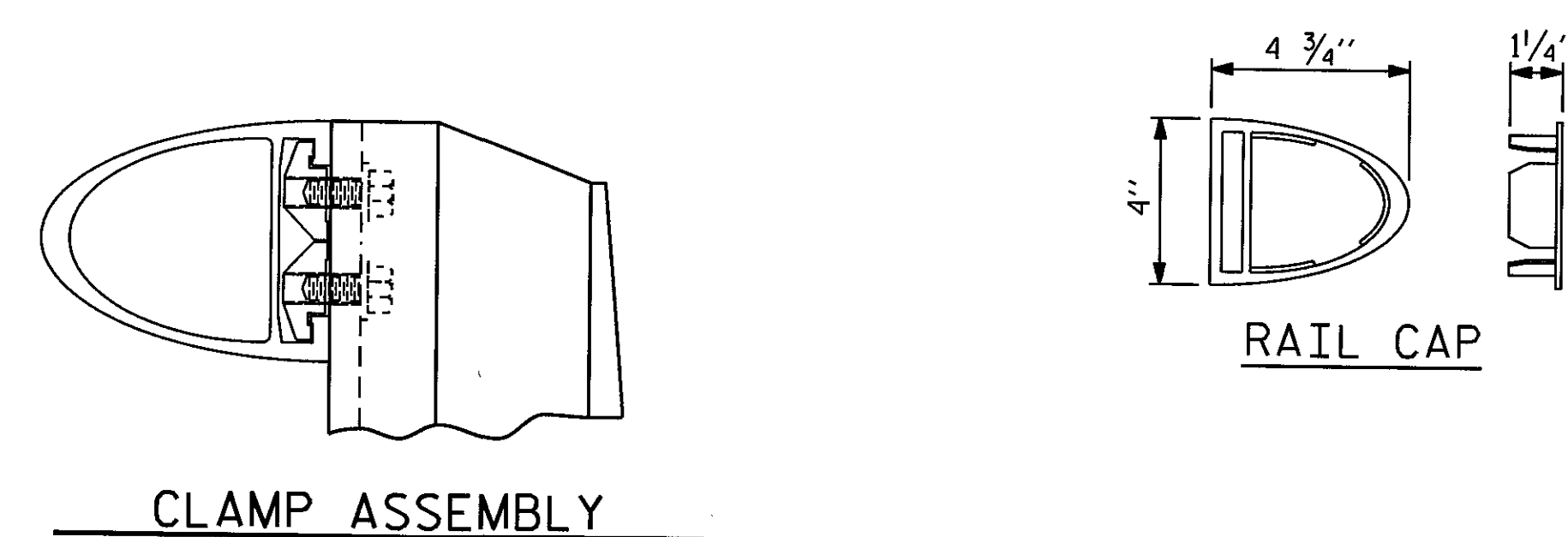


RAIL SECTION



CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY

RAIL CAP

PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
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 RALEIGH

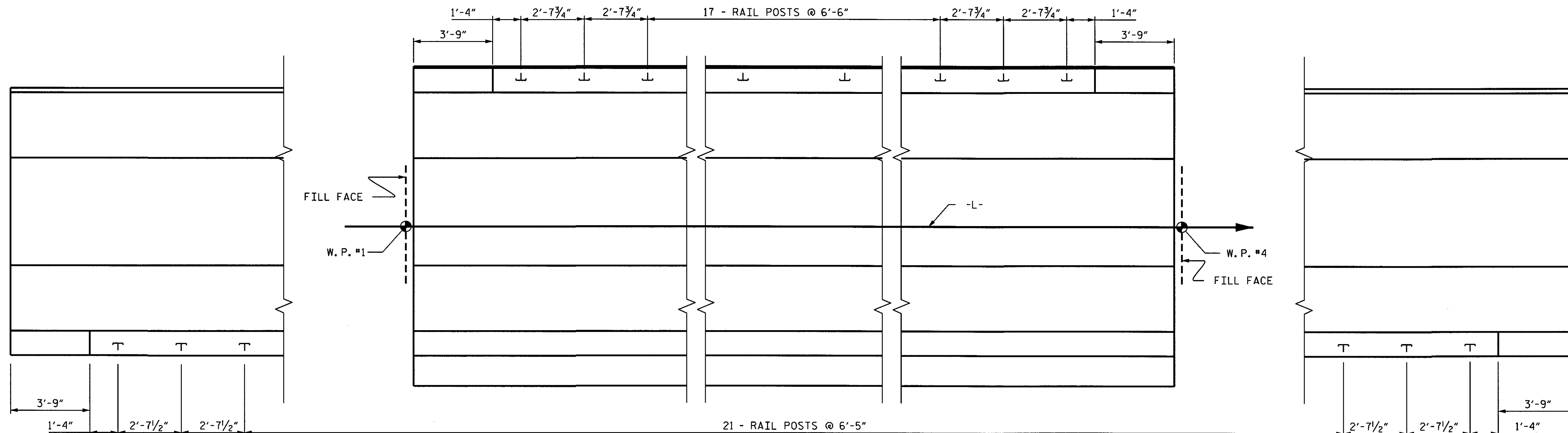
STANDARD

2 BAR METAL RAIL

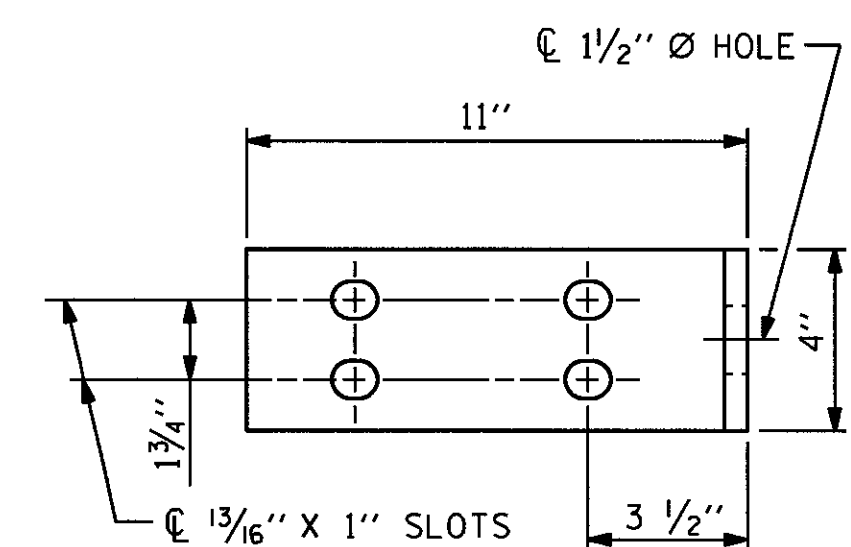


ASSEMBLED BY :	H. T. BARBOUR	DATE :	4-29-13
CHECKED BY :	D. HODGE	DATE :	6-13
DRAWN BY :	EEM 6/94	REV. 8/16/99	MAB/LES
CHECKED BY :	RGW 6/94	REV. 5/1/06R	KMM/GM
		REV. 10/1/11	MAA/GM

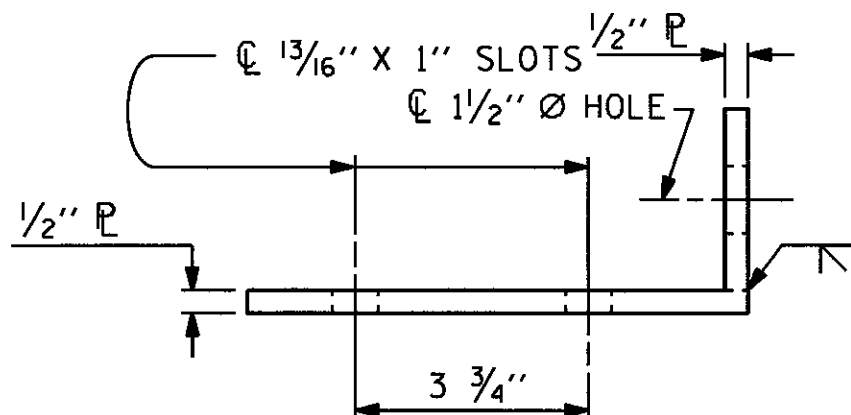
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
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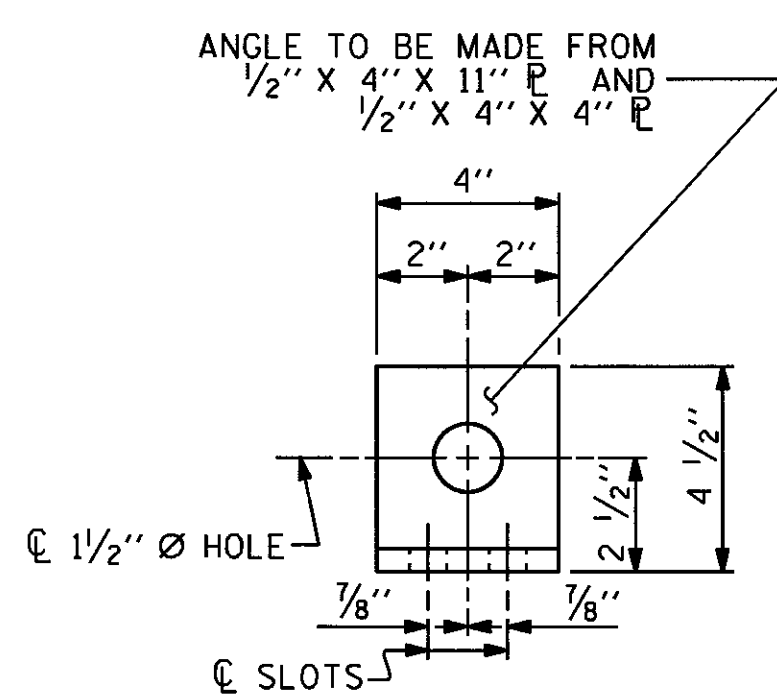
PLAN OF RAIL POST SPACINGS



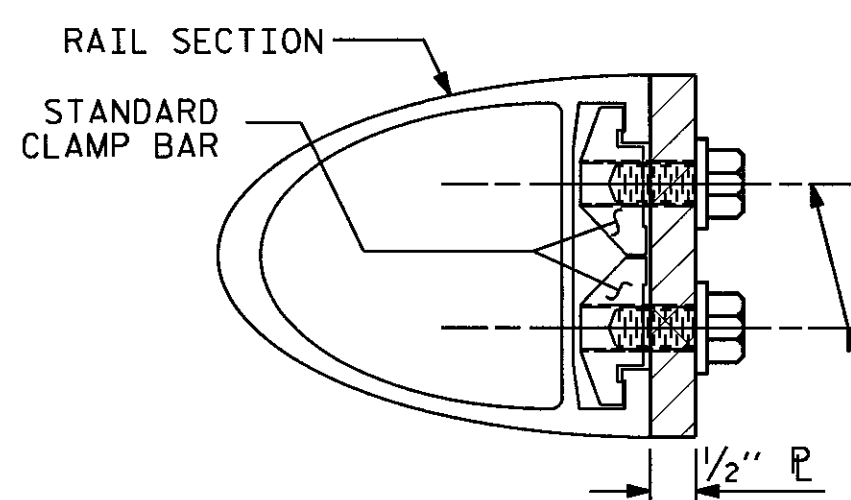
ELEVATION



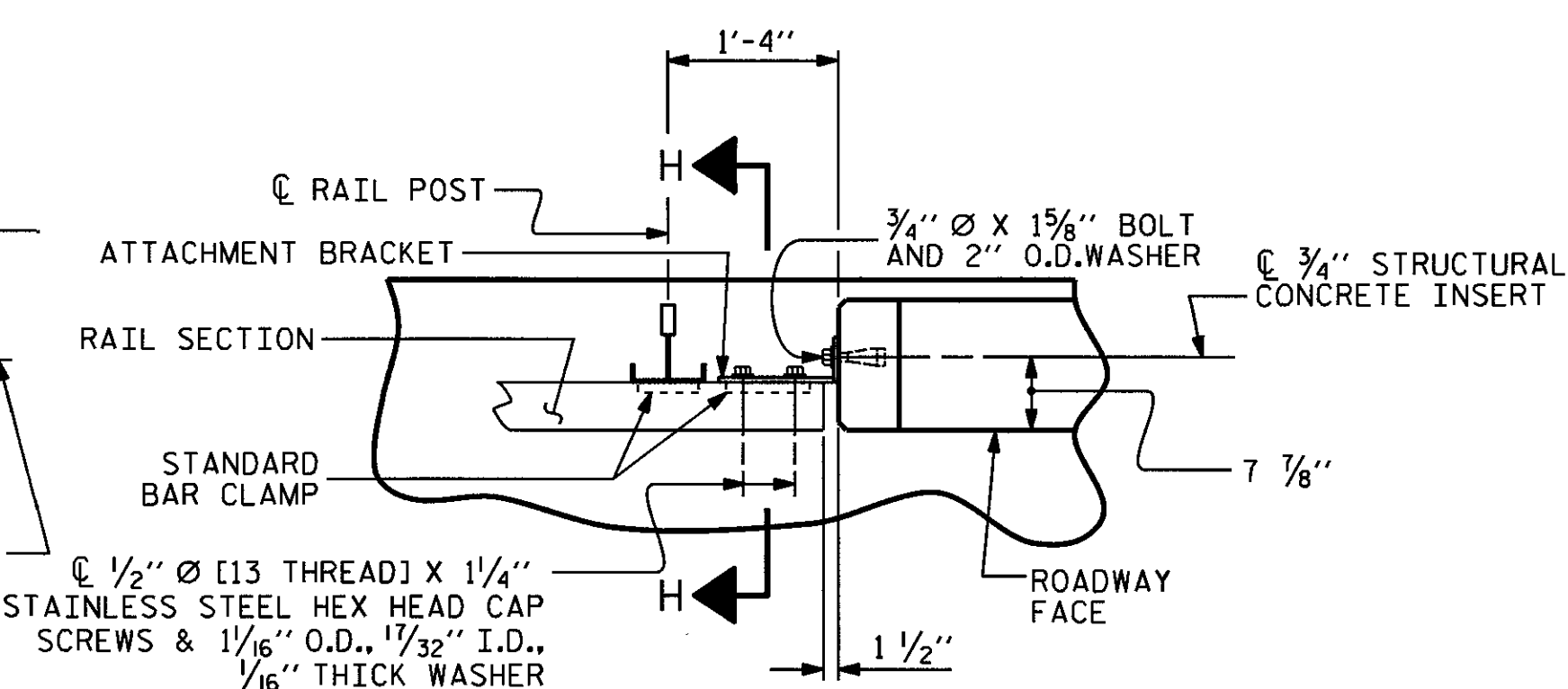
TOP VIEW



END VIEW



SECTION H-H



PLAN - RAIL AND END POST

DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- 1 - 3/4" x 1 5/8" BOLT WITH WASHER, BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 1 5/8" GALVANIZED BOLT AND WASHER, THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" x 1 1/2" WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

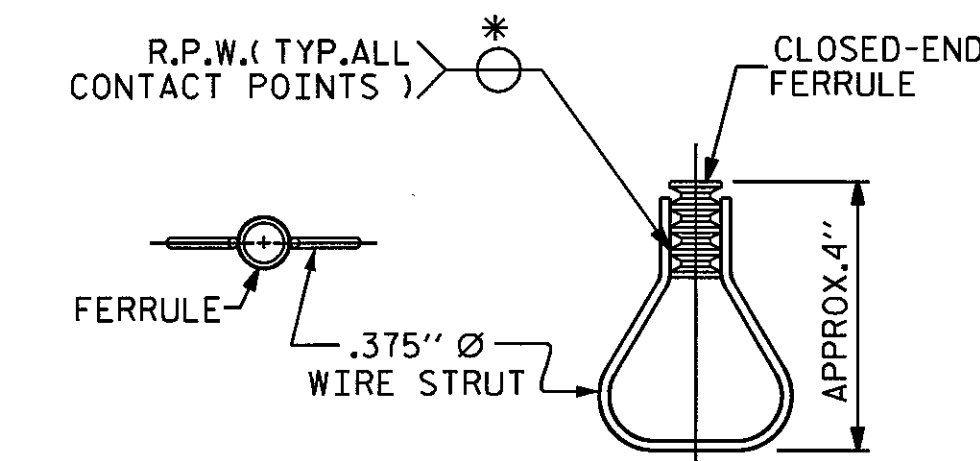
- 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" x 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" x 1 5/8" BOLT SHALL HAVE N.C. THREADS.
- CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°.
- STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- 1/2" PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" x 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" x 1 5/8" BOLT SHALL APPLY TO THE 3/4" x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN ELEVATION

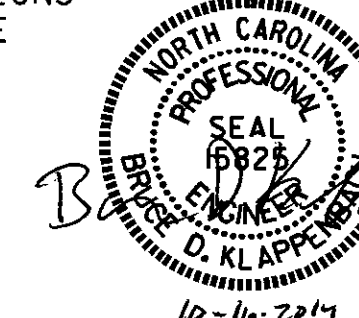
STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

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STATE OF NORTH CAROLINA
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 RALEIGH

RAIL POST SPACINGS AND END OF RAIL DETAILS

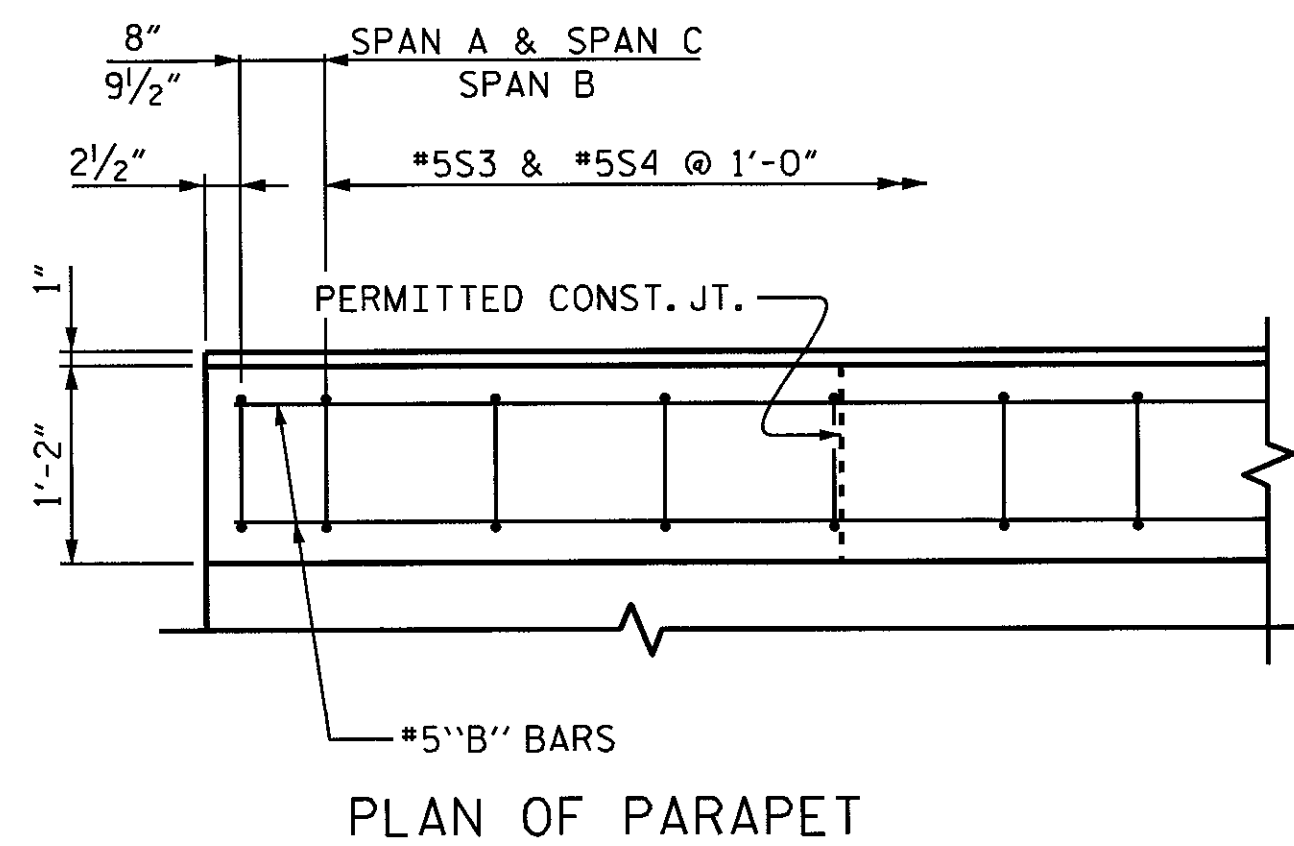


REVISIONS						SHEET NO. S-II
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

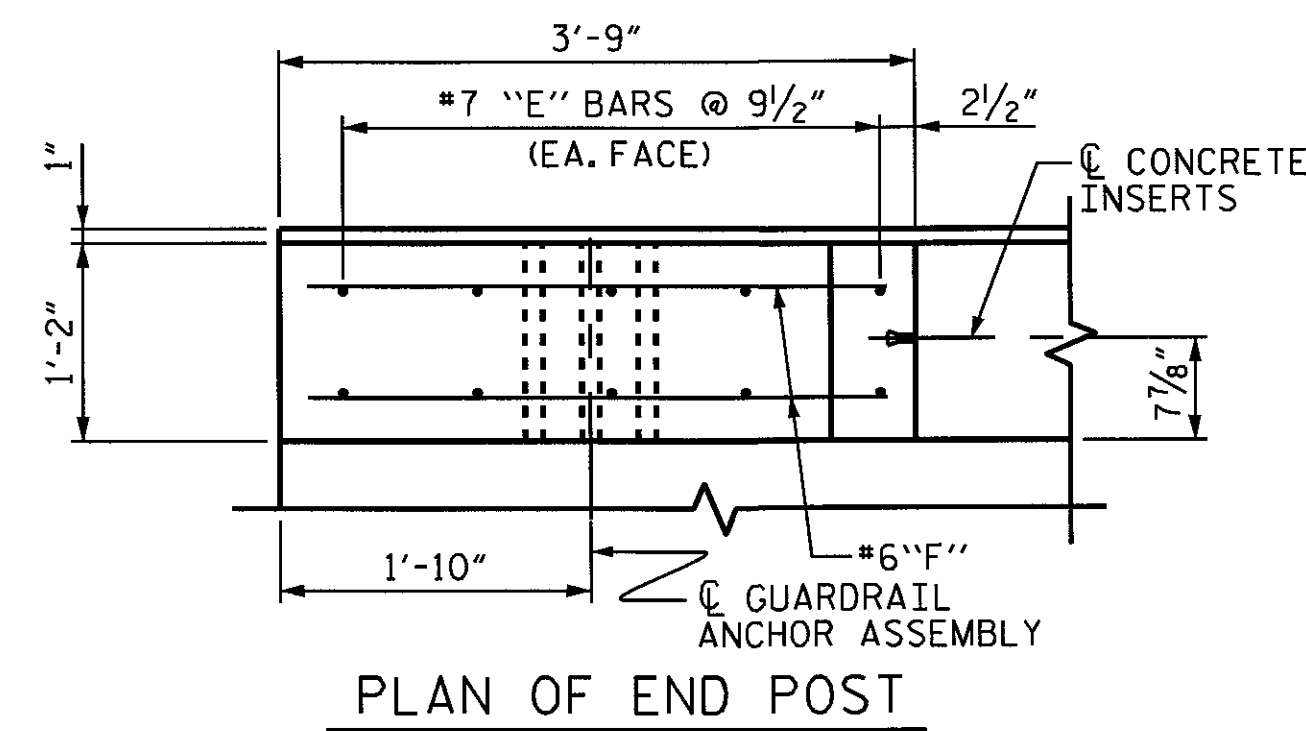
ASSEMBLED BY : H. T. BARBOUR	DATE : 4-30-13
CHECKED BY : D. HODGE	DATE : 6-13
DRAWN BY : FCJ 1/88	REV. 5/7/03 RWW/JTE
CHECKED BY : CRK 3/89	REV. 5/1/06 TLA/GM
	REV. 10/1/11 MAA/GM

NOTES

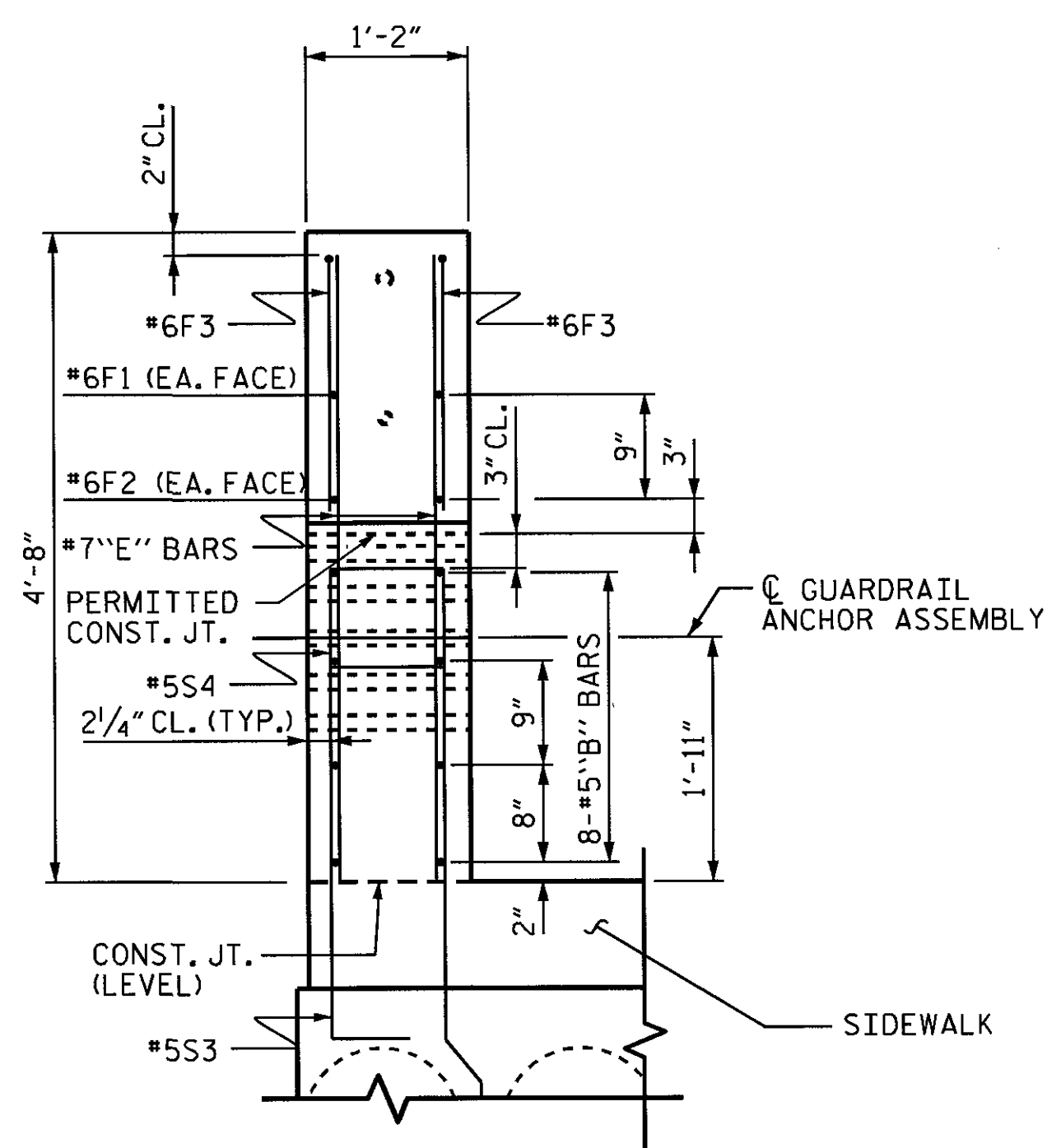
ALL REINFORCING STEEL IN THE PARAPET SHALL BE EPOXY COATED.
 FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEETS.
 THE REINFORCING STEEL AND CONCRETE IN THE END POSTS IS INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE PARAPET.



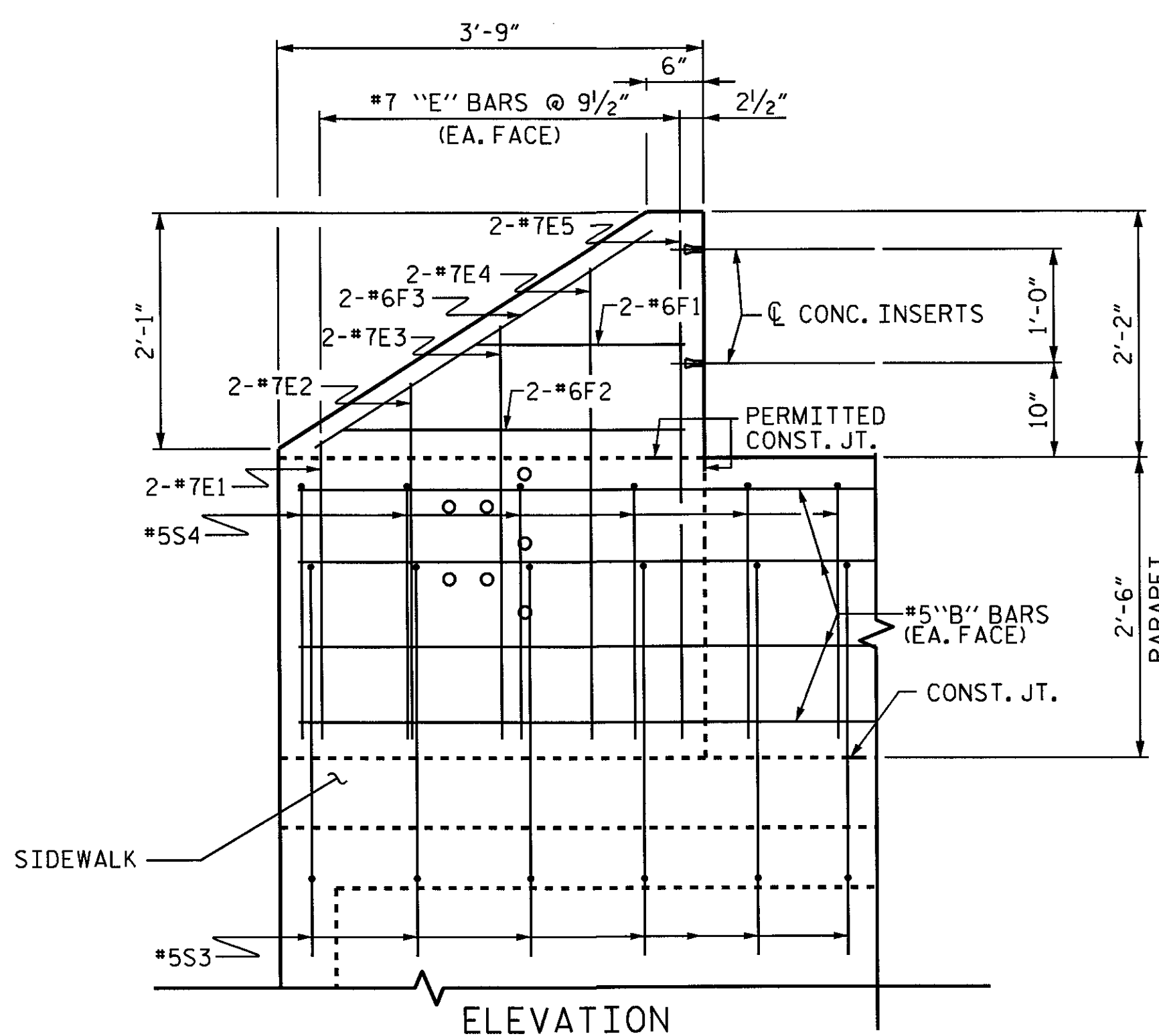
PLAN OF PARAPET



PLAN OF END POST

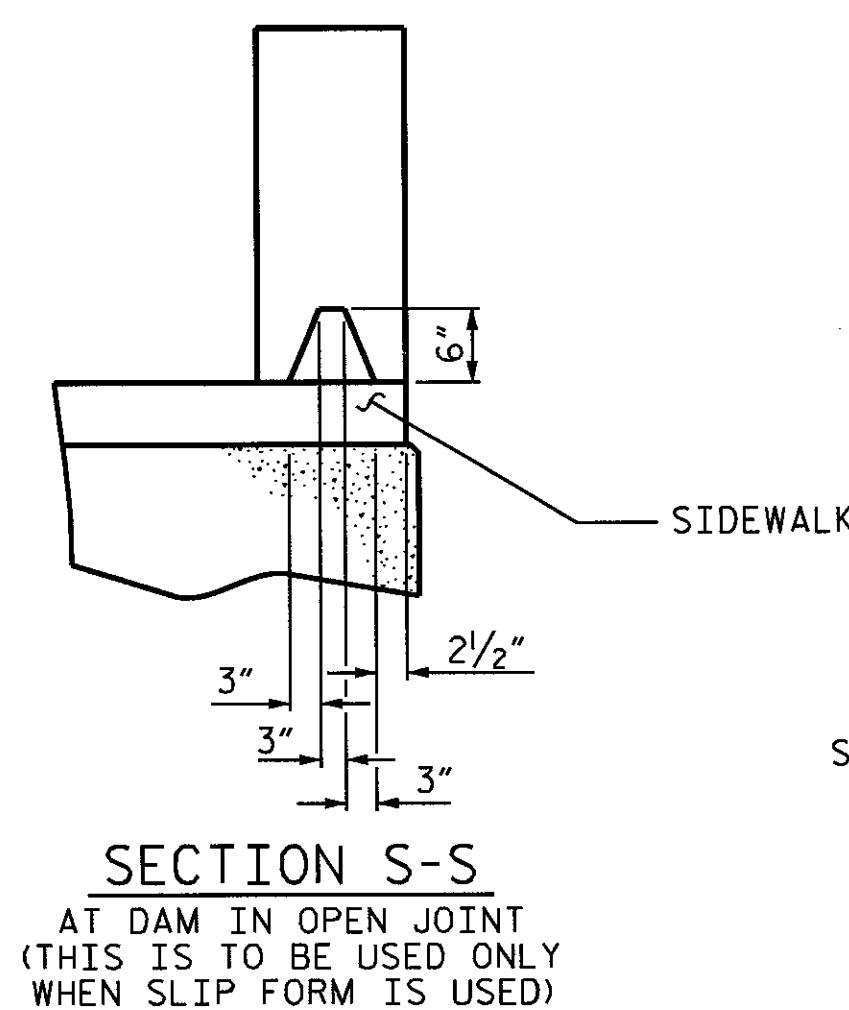


END VIEW

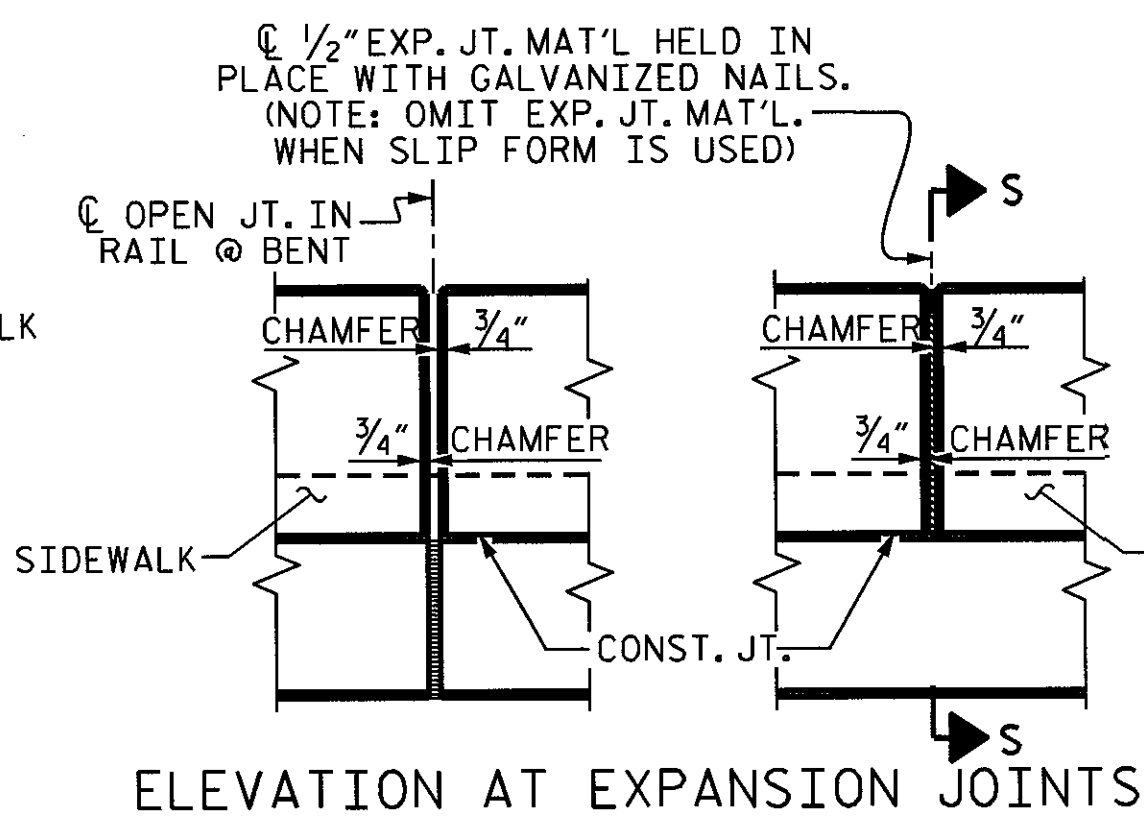


ELEVATION

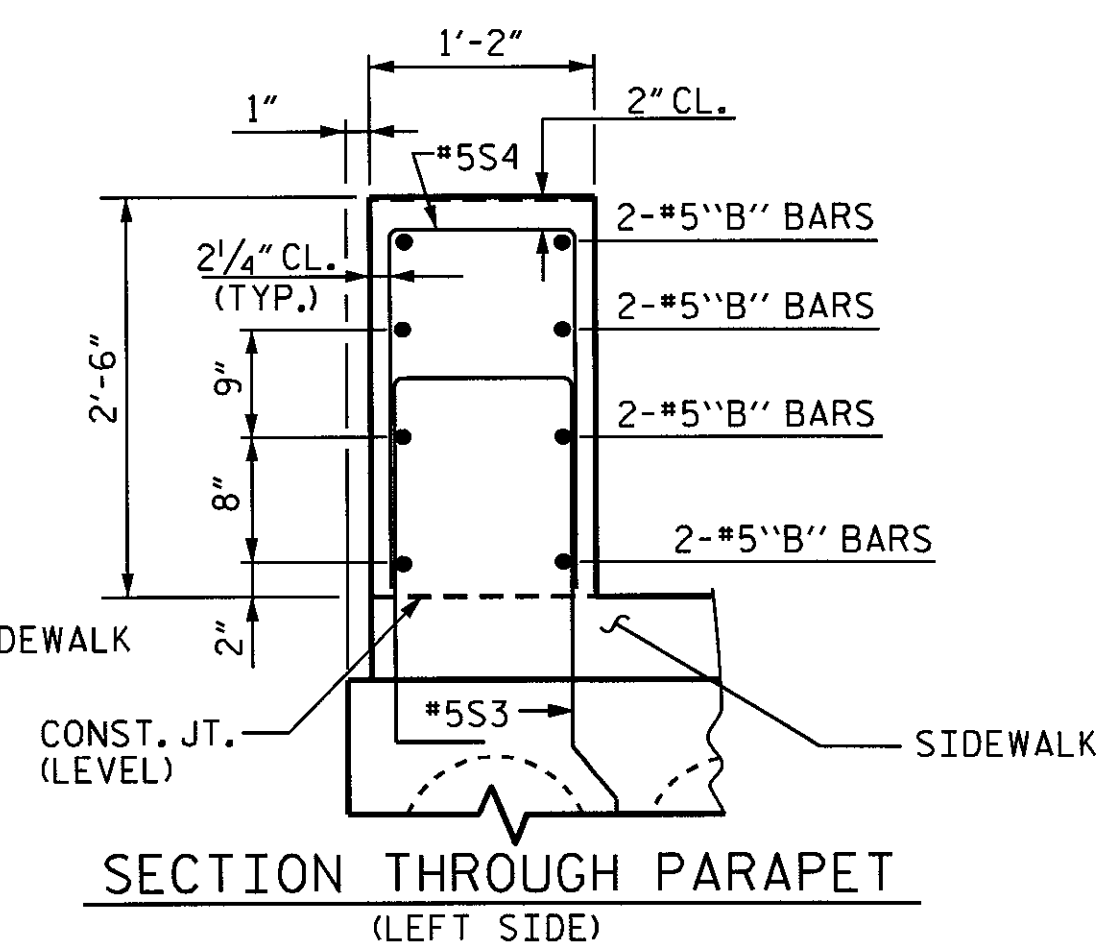
PARAPET AND END POST FOR TWO BAR RAIL ON BRIDGE



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



ELEVATION AT EXPANSION JOINTS



SECTION THROUGH PARAPET
 (LEFT SIDE)

PARAPET DETAILS

BILL OF MATERIAL FOR TWO CONCRETE END POSTS AND PARAPET ON BRIDGE (LEFT SIDE)

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* B1	16	#5	STR	21'-6"	359
* B2	8	#5	STR	23'-7"	197
* B3	16	#5	STR	15'-0"	250
* B5	8	#5	STR	25'-7"	213
* E1	4	#7	STR	2'-5"	20
* E2	4	#7	STR	2'-11"	24
* E3	4	#7	STR	3'-5"	28
* E4	4	#7	STR	3'-11"	32
* E5	4	#7	STR	4'-4"	35
* F1	4	#6	STR	1'-10"	11
* F2	4	#6	STR	3'-0"	18
* F3	4	#6	STR	3'-4"	20
* S4	128	#5	1	5'-1"	679

* EPOXY COATED REINFORCING STEEL

LBS. 1886

CLASS AA CONCRETE CU.YDS. 13.9

LIN. FT. OF CONCRETE PARAPET 124.75

BAR TYPE

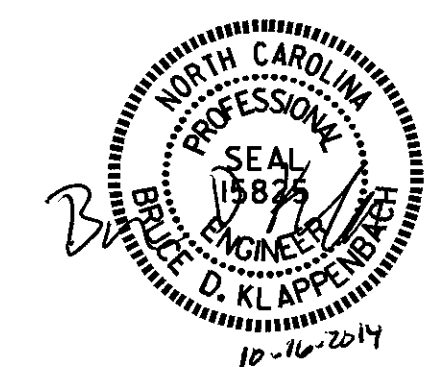
ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PARAPET AND
 END POST DETAILS
 FOR TWO BAR
 METAL RAIL
 (LEFT SIDE)

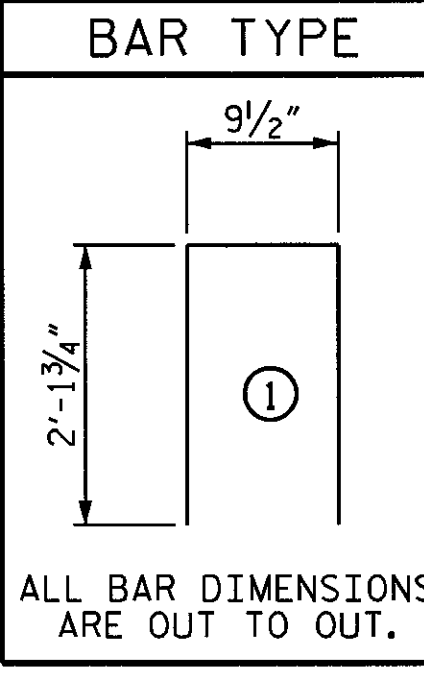


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS 27	
2			4				

DRAWN BY : H. I. BARBOUR DATE : 4-29-13
 CHECKED BY : D. HODGE DATE : 6-13

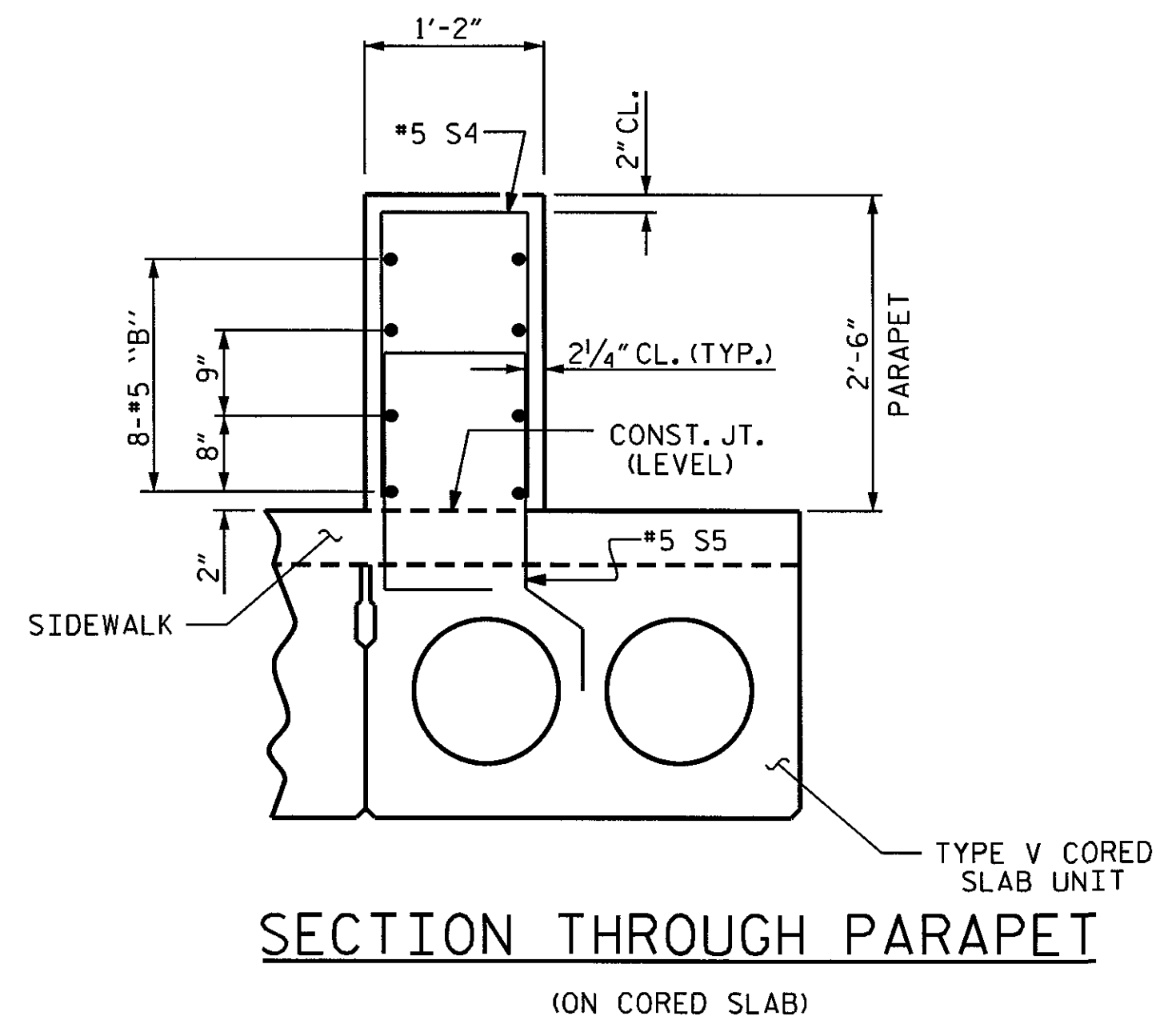
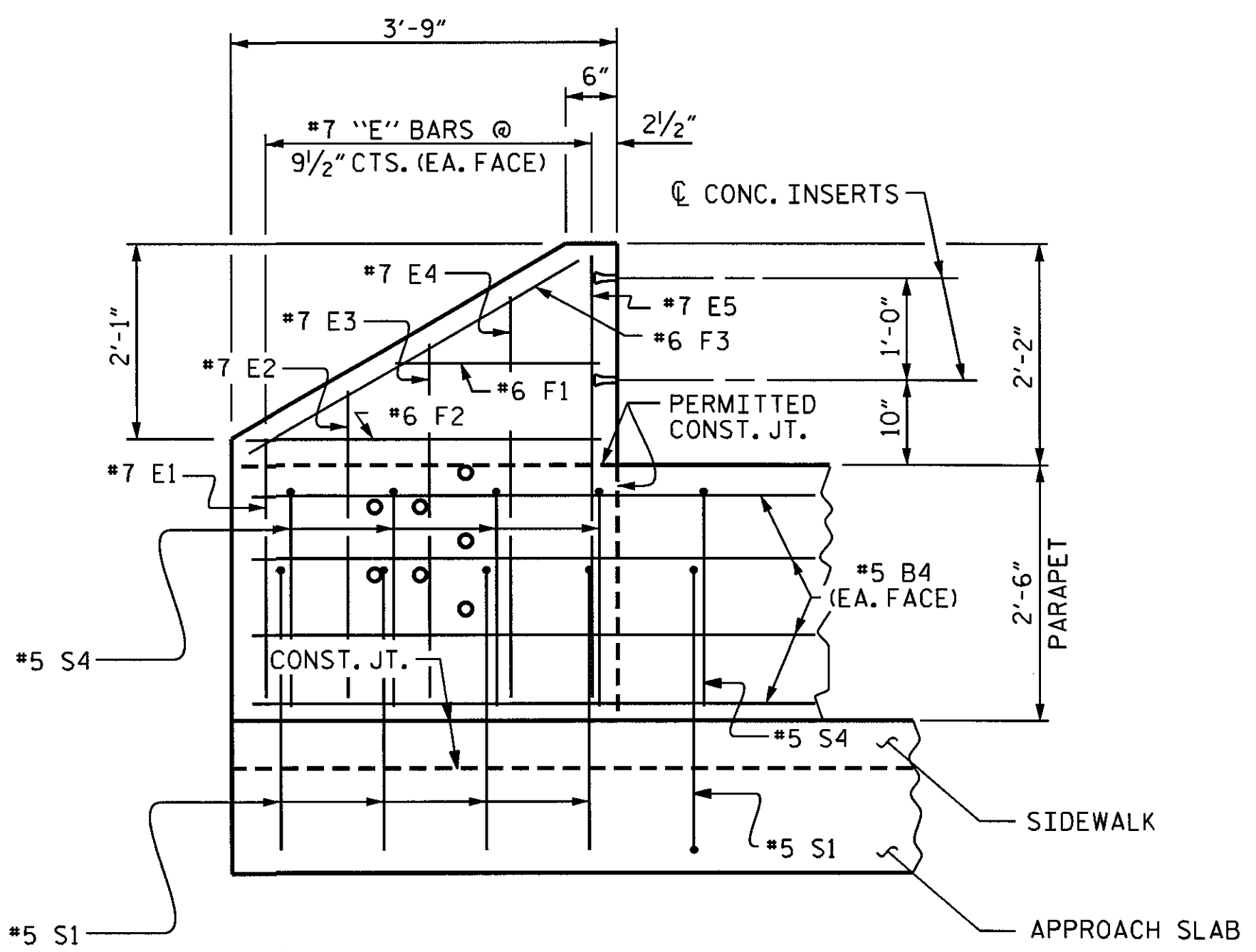
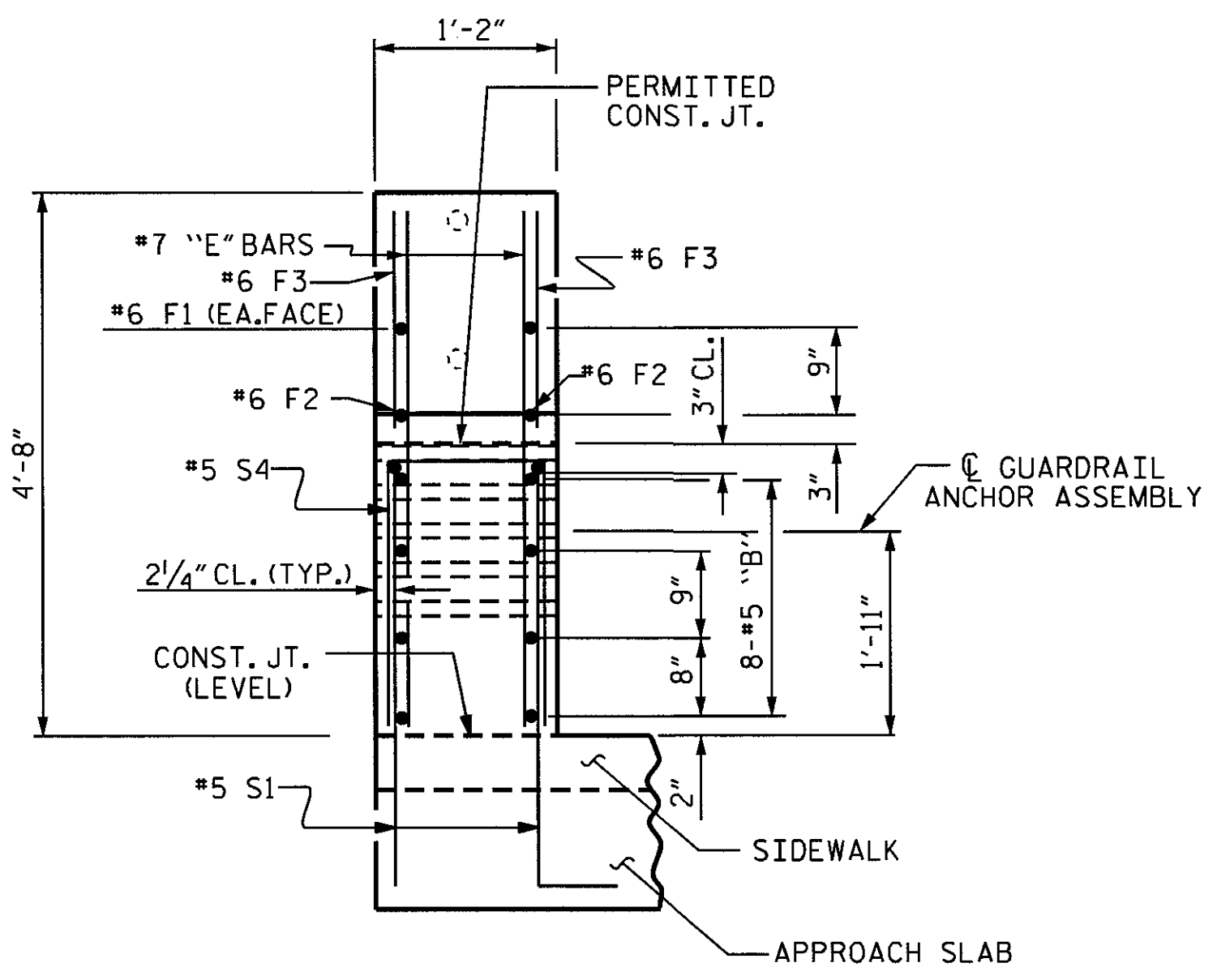
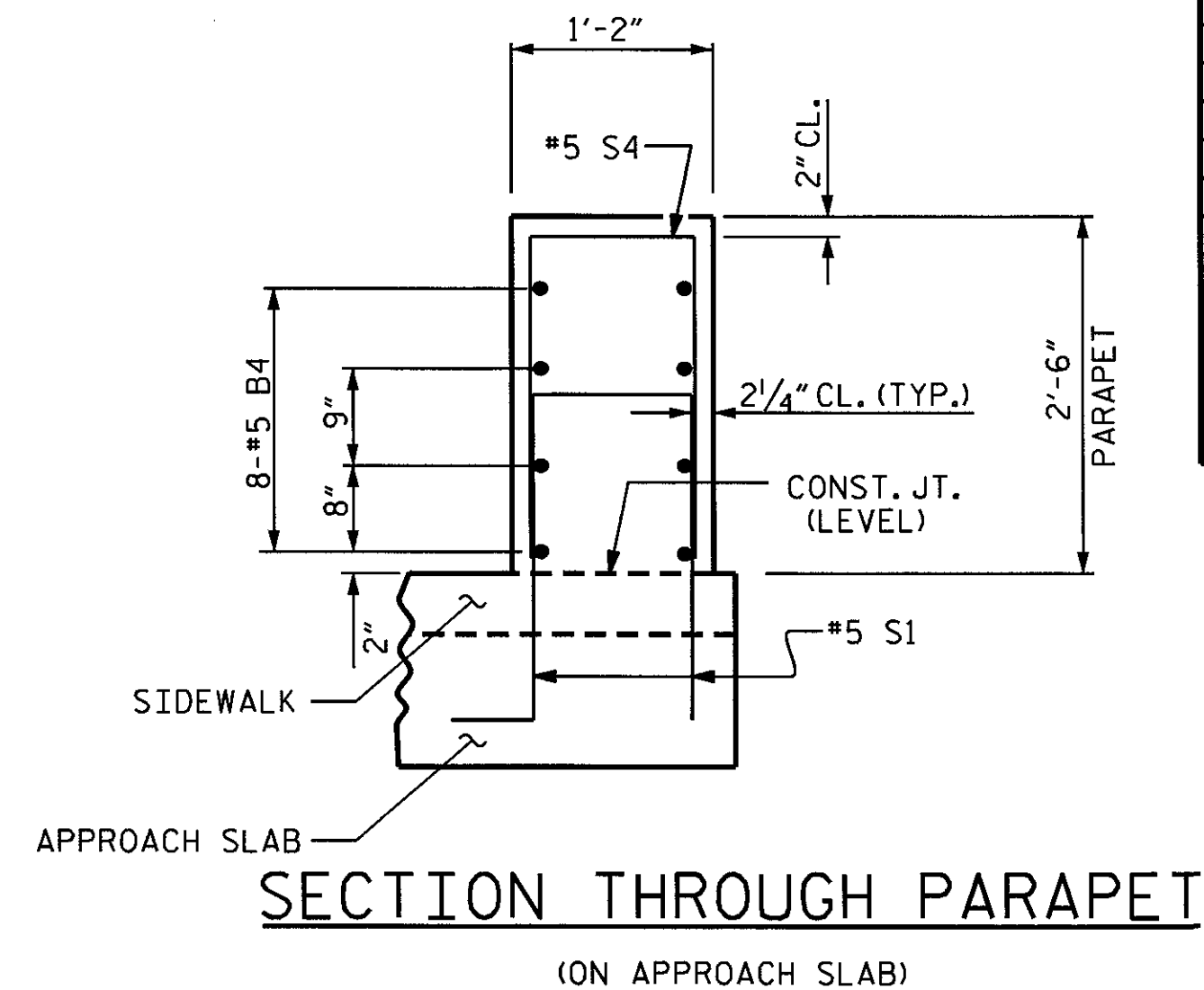
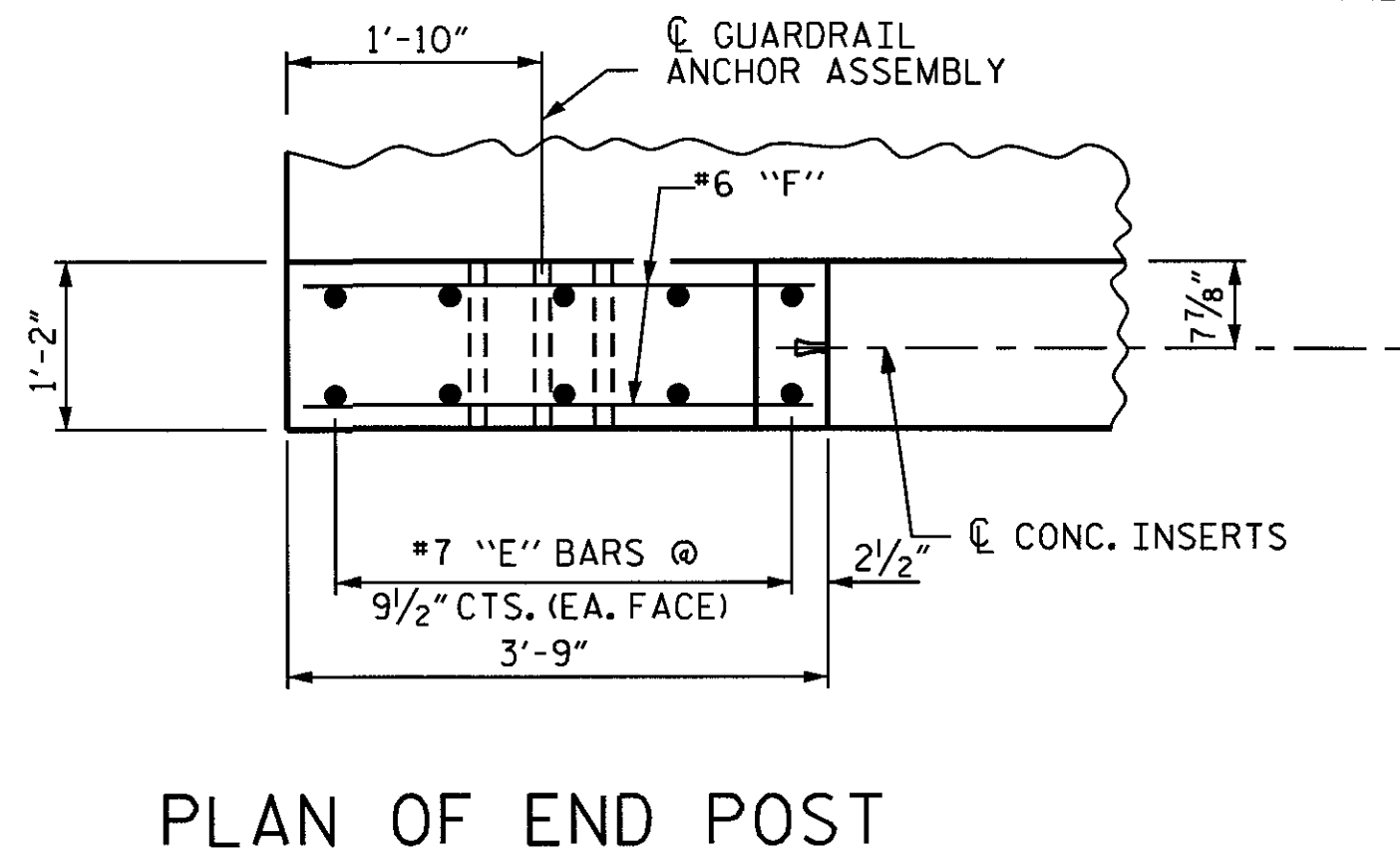
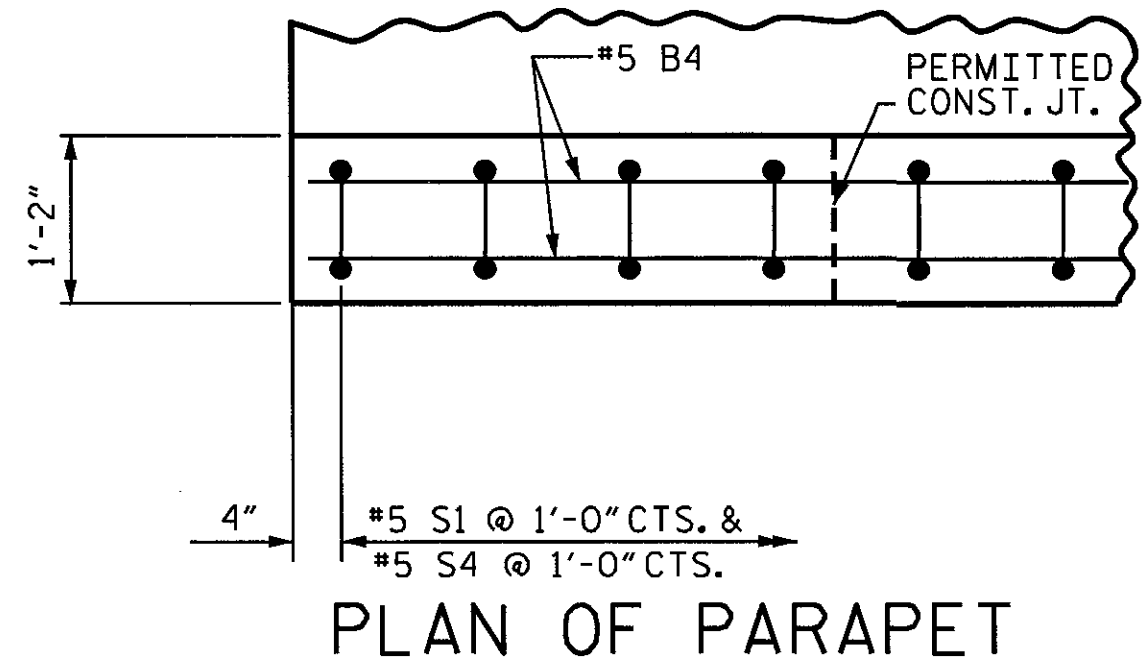
NOTES

ALL REINFORCING STEEL IN THE PARAPET SHALL BE EPOXY COATED.
 FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEETS.
 THE REINFORCING STEEL AND CONCRETE IN THE END POSTS IS INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE PARAPET.



BILL OF MATERIAL FOR TWO CONCRETE END POSTS AND PARAPET ON BRIDGE (RIGHT SIDE)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	16	#5	STR	21'-6"	359
* B2	8	#5	STR	23'-7"	197
* B3	16	#5	STR	15'-0"	250
* B4	16	#5	STR	11'-9"	196
* B5	8	#5	STR	25'-7"	213
* E1	4	#7	STR	2'-5"	20
* E2	4	#7	STR	2'-11"	24
* E3	4	#7	STR	3'-5"	28
* E4	4	#7	STR	3'-11"	32
* E5	4	#7	STR	4'-4"	35
* F1	4	#6	STR	1'-10"	11
* F2	4	#6	STR	3'-0"	18
* F3	4	#6	STR	3'-4"	20
* S4	152	#5	1	5'-1"	806
* EPOXY COATED REINF. STEEL					LBS. 2209
CLASS AA CONCRETE					CU. YDS. 16.5
LIN. FT. OF CONCRETE PARAPET					149.0



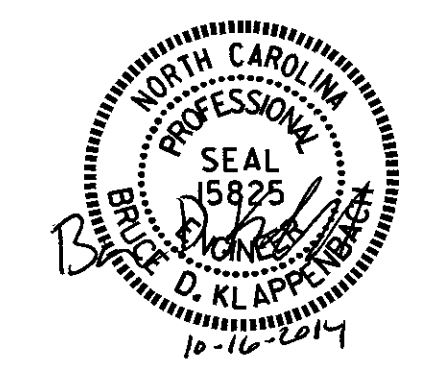
PARAPET AND END POST FOR TWO BAR RAIL ON APPROACH SLAB

THE #5 S1 BARS ARE INCLUDED IN THE BILL OF MATERIAL OF THE APPROACH SLAB.

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
PARAPET AND END POST DETAILS FOR TWO BAR METAL RAIL (RIGHT SIDE)



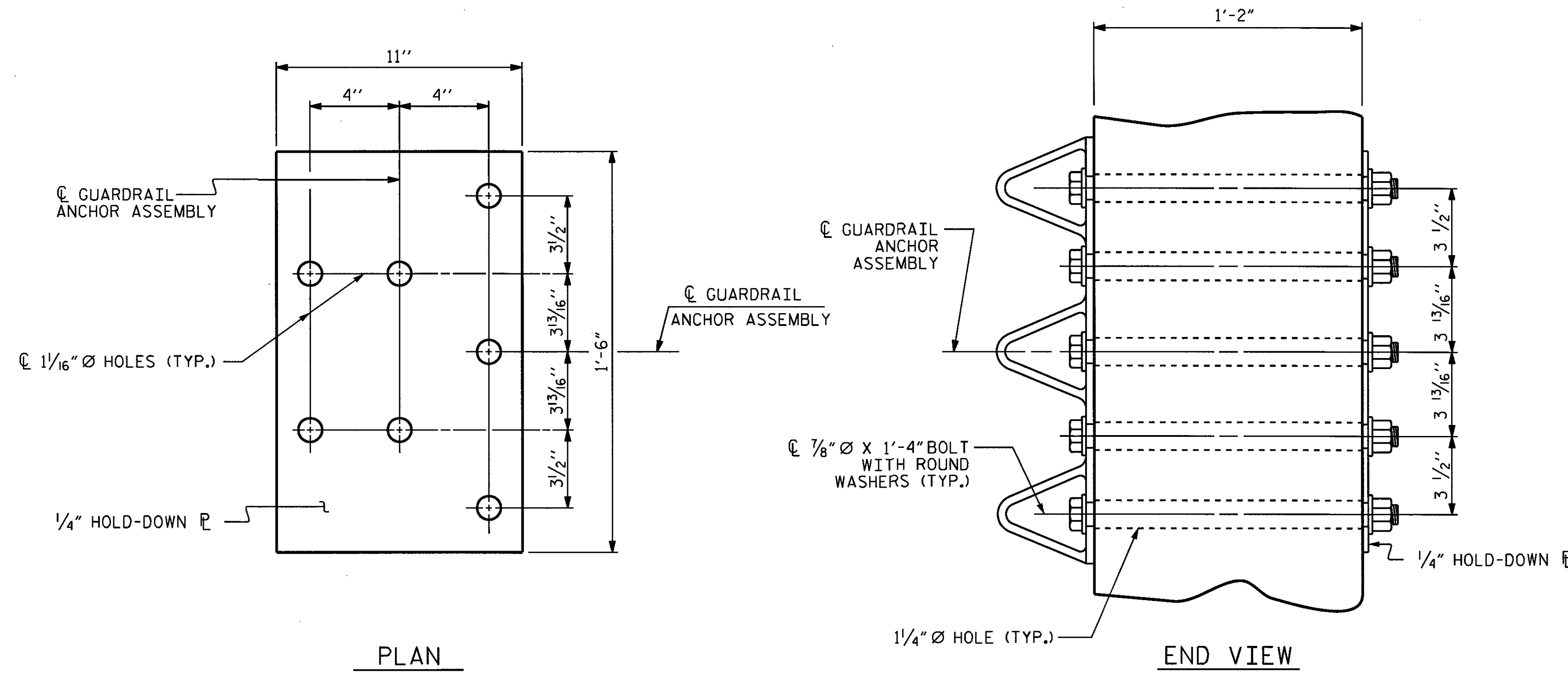
REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

DRAWN BY: H. T. BARBOUR DATE: 4-29-13
 CHECKED BY: D. HODGE DATE: 6-13

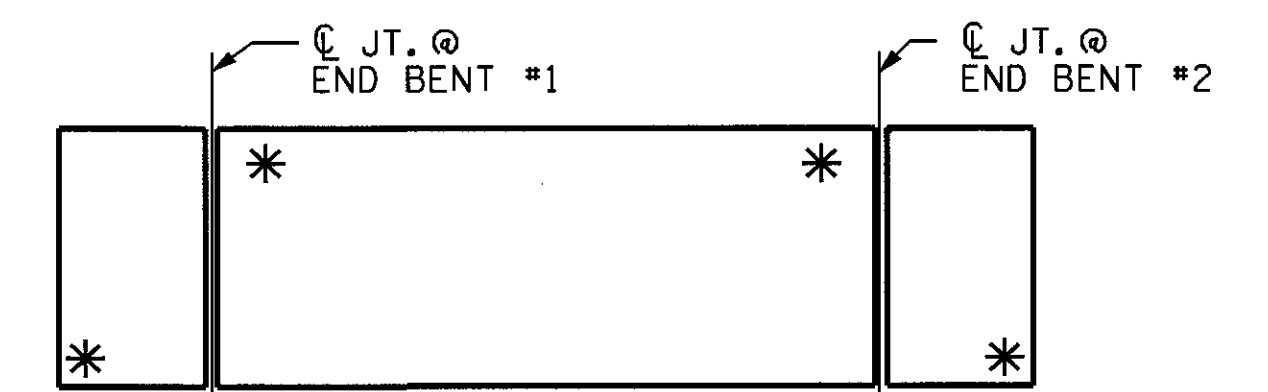
16-OCT-2014 12:12
 R:\Structures\Plans\FINAL PLANS\B05111V_SD_TS.dgn
 bkloppenbach

NOTES

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" 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 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. 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 ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST 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.

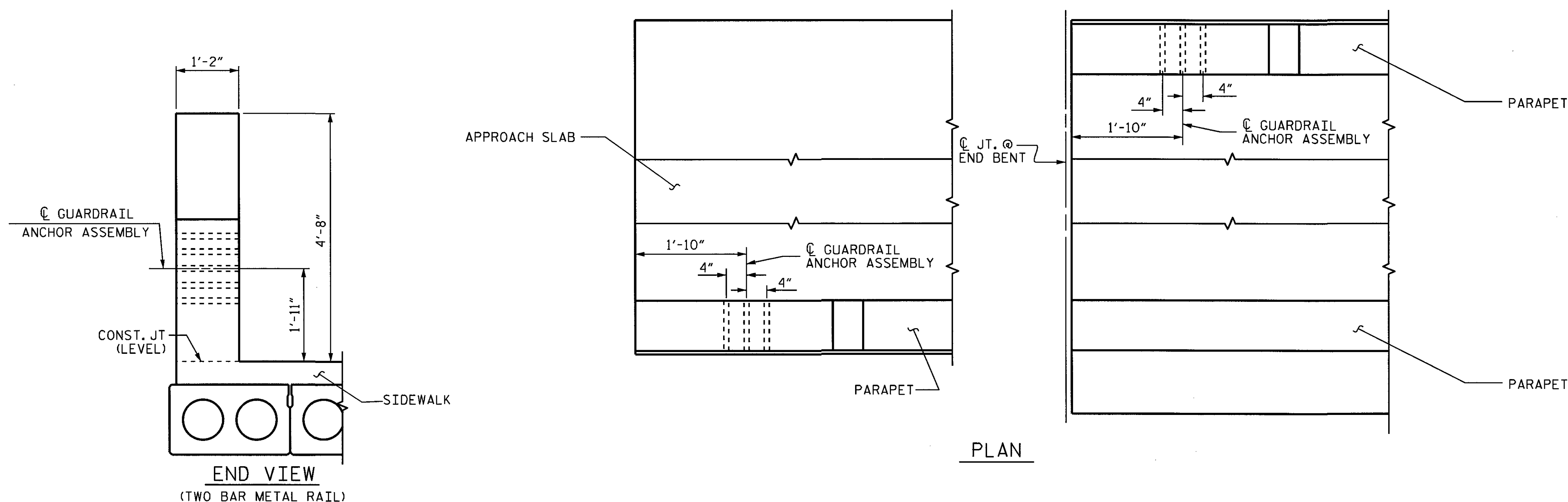


GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

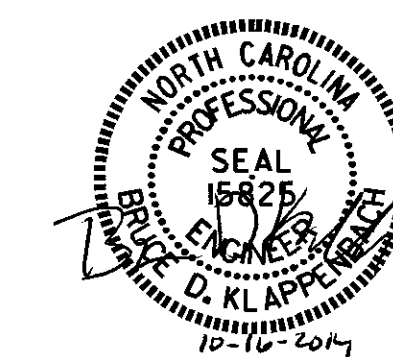
* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS



REVISIONS						SHEET NO. 5-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

ASSEMBLED BY : H. T. BARBOUR	DATE : 4-29-13
CHECKED BY : D. HODGE	DATE : 6-13
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11
	REV. 12/5/11
	MAA/GM
	MAA/GM

**BILL OF MATERIAL FOR ONE
43'-9" CORED SLAB UNIT SPAN A**

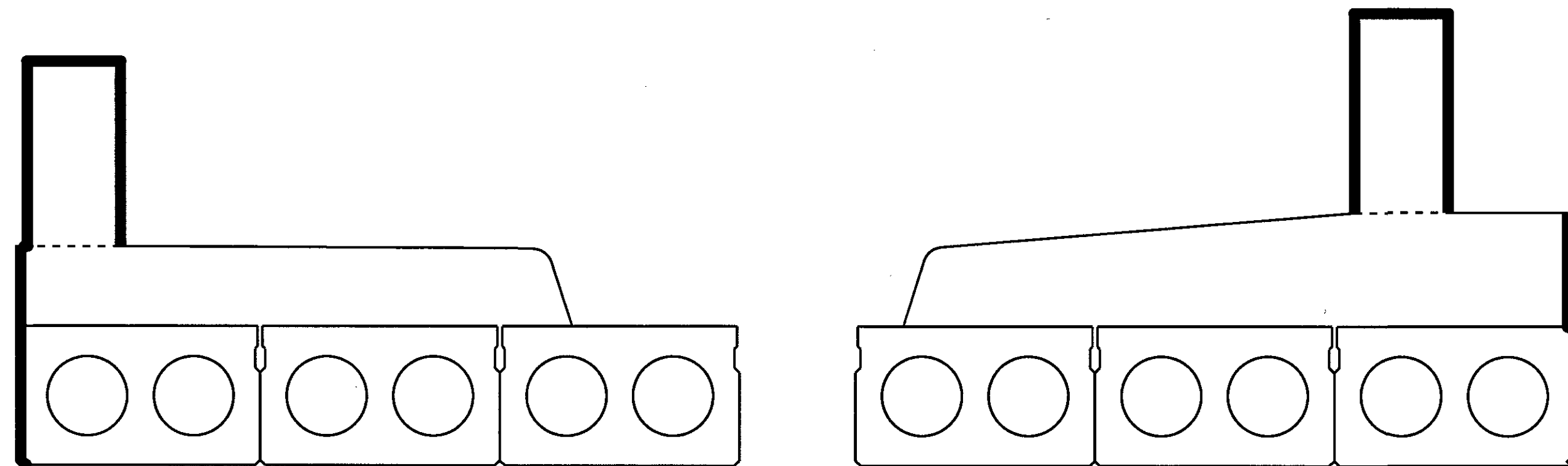
BAR	NUMBER	SIZE	TYPE	TYPE I UNIT LENGTH WEIGHT	TYPE II UNIT LENGTH WEIGHT	TYPE III UNIT LENGTH WEIGHT	TYPE IV UNIT LENGTH WEIGHT	TYPE V UNIT LENGTH WEIGHT
B4	4	#4	STR	22'-7" 60	22'-7" 60	22'-7" 60	22'-7" 60	22'-7" 60
S1	8	#5	3	4'-3" 35	4'-3" 35	4'-3" 35	4'-3" 35	4'-3" 35
S2	102	#4	3	5'-4" 363	5'-4" 363	5'-4" 363	5'-4" 363	5'-4" 363
*S3	45	#5	1	7'-1" 332				
*S5	45	#5	1					8'-3" 387
*S6	7	#4	2	5'-9" 27	5'-9" 27			5'-9" 27
*S7	7	#4	2				4'-6" 21	
REINFORCING STEEL		LBS.		458	458	458	458	458
* EPOXY COATED								
REINFORCING STEEL		LBS.		359	27	0	21	414
5000 P.S.I. CONCRETE		CU. YDS.		6.3	6.3	6.3	6.3	6.3
0.6" Ø L.R. STRANDS		No.		16	16	16	16	16

**BILL OF MATERIAL FOR ONE
50' CORED SLAB UNIT SPAN B**

BAR	NUMBER	SIZE	TYPE	TYPE I UNIT LENGTH WEIGHT	TYPE II UNIT LENGTH WEIGHT	TYPE III UNIT LENGTH WEIGHT	TYPE IV UNIT LENGTH WEIGHT	TYPE V UNIT LENGTH WEIGHT
B5	4	#4	STR	25'-9" 69	25'-9" 69	25'-9" 69	25'-9" 69	25'-9" 69
S1	8	#5	3	4'-3" 35	4'-3" 35	4'-3" 35	4'-3" 35	4'-3" 35
S2	104	#4	3	5'-4" 371	5'-4" 371	5'-4" 371	5'-4" 371	5'-4" 371
*S3	51	#5	1	7'-1" 377				
*S5	51	#5	1					8'-3" 439
*S6	7	#4	2	5'-9" 27	5'-9" 27			5'-9" 27
*S7	7	#4	2				4'-6" 21	
REINFORCING STEEL		LBS.		475	475	475	475	475
* EPOXY COATED								
REINFORCING STEEL		LBS.		404	27	0	21	466
6500 P.S.I. CONCRETE		CU. YDS.		7.2	7.2	7.2	7.2	7.2
0.6" Ø L.R. STRANDS		No.		21	21	21	21	21

**BILL OF MATERIAL FOR ONE
30'-9" CORED SLAB UNIT SPAN C**

BAR	NUMBER	SIZE	TYPE	TYPE I LENGTH WEIGHT	TYPE II LENGTH WEIGHT	TYPE III UNIT LENGTH WEIGHT	TYPE IV UNIT LENGTH WEIGHT	TYPE V UNIT LENGTH WEIGHT
B6	4	#4	STR	16'-1" 43	16'-1" 43	16'-1" 43	16'-1" 43	16'-1" 43
S1	8	#5	3	4'-3" 35	4'-3" 35	4'-3" 35	4'-3" 35	4'-3" 35
S2	64	#4	3	5'-4" 228	5'-4" 228	5'-4" 228	5'-4" 228	5'-4" 228
*S3	32	#5	1	7'-1" 236				
*S5	32	#5	1					8'-3" 275
*S6	5	#4	2	5'-9" 19	5'-9" 19			5'-9" 19
*S7	5	#4	2				4'-6" 15	
REINFORCING STEEL		LBS.		306	306	306	306	306
* EPOXY COATED								
REINFORCING STEEL		LBS.		255	19	0	15	294
5000 P.S.I. CONCRETE		CU. YDS.		4.5	4.5	4.5	4.5	4.5
0.6" Ø L.R. STRANDS		No.		9	9	9	9	9



BRIDGE STAINING DETAIL

SURFACES TO BE STAINED.
SEE SPECIAL PROVISIONS FOR "CONCRETE STAIN."

CONCRETE STAIN = 2341 SF

DRAWN BY: H. T. BARBOUR DATE: 4-30-13
CHECKED BY: D. HODGE DATE: 6-13
DESIGN ENGINEER OF RECORD: S. T. CHAMPION DATE: 6-13

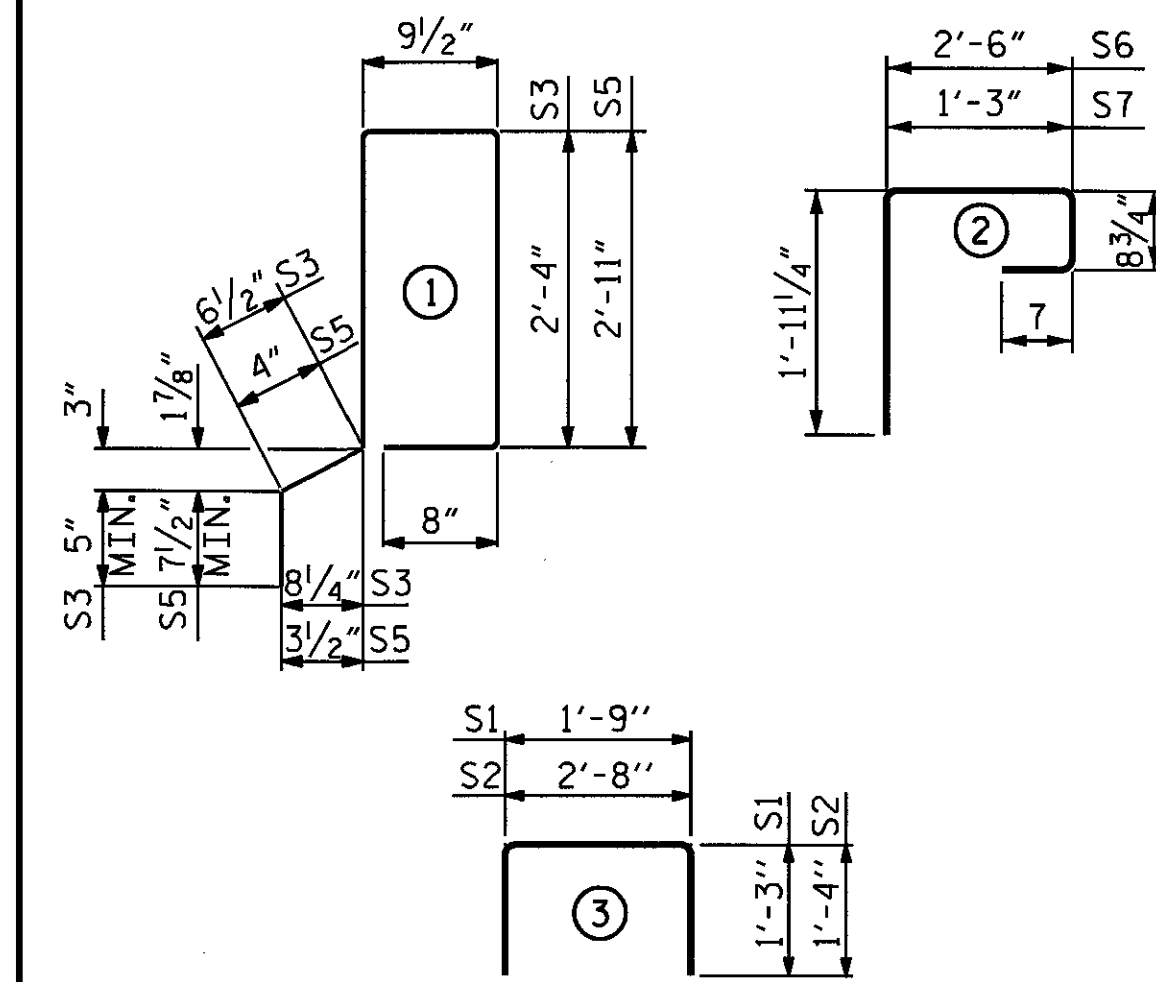
GRADE 270 STRANDS

	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

	NUMBER	LENGTH	TOTAL LENGTH
SPAN A			
EXTERIOR C.S.	2	43'-9"	87'-6"
INTERIOR C.S.	14	43'-9"	612'-6"
TOTAL	16		700'-0"
SPAN B			
EXTERIOR C.S.	2	50'-0"	100'-0"
INTERIOR C.S.	14	50'-0"	700'-0"
TOTAL	16		800'-0"
SPAN C			
EXTERIOR C.S.	2	30'-9"	61'-6"
INTERIOR C.S.	14	30'-9"	430'-6"
TOTAL	16		492'-0"
TOTAL	48		1992'-0"

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

DEAD LOAD DEFLECTION AND CAMBER

43'-9" CORED SLAB UNIT SPAN A	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 ⁹ / ₁₆ " ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/2" ↓
FINAL CAMBER	1 ⁵ / ₁₆ " ↓

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

50'-0" CORED SLAB UNIT SPAN B	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2 ⁵ / ₈ " ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1 ¹ / ₁₆ " ↓
FINAL CAMBER	1 ⁵ / ₁₆ " ↓

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

30'-9" CORED SLAB UNIT SPAN C	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3/8" ↓
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/8" ↓
FINAL CAMBER	1/4" ↓

** INCLUDES FUTURE WEARING SURFACE

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 2¹/₂" 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 SIDEWALKS AND PARPETS 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 PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS, A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET 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.

PLACEMENT OF THE ASPHALT WEARING SURFACE SHALL OCCUR AFTER CASTING THE SIDEWALK AND PARAPET.

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

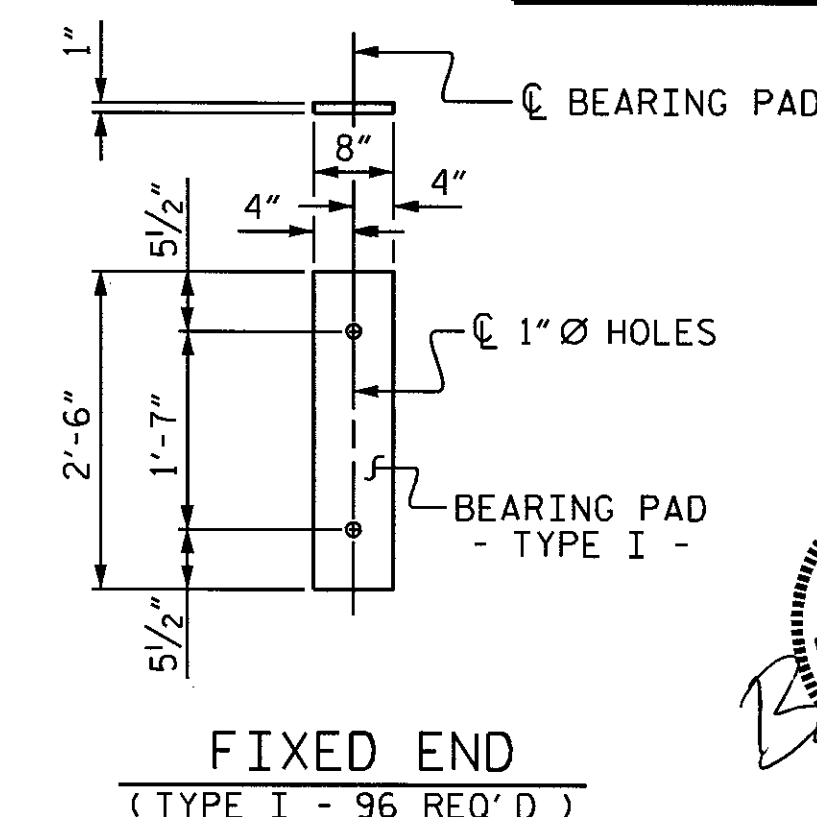
THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

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.

CONCRETE RELEASE STRENGTH

UNIT	PSI
43'-9" UNITS SPAN A	4000
50'-0" UNITS SPAN B	5000
30'-9" UNITS SPAN C	4000



ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

PROJECT NO. BD-5111V
SURRY COUNTY
STATION: 13+58.65-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" x 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-15
2			4			TOTAL SHEETS 27

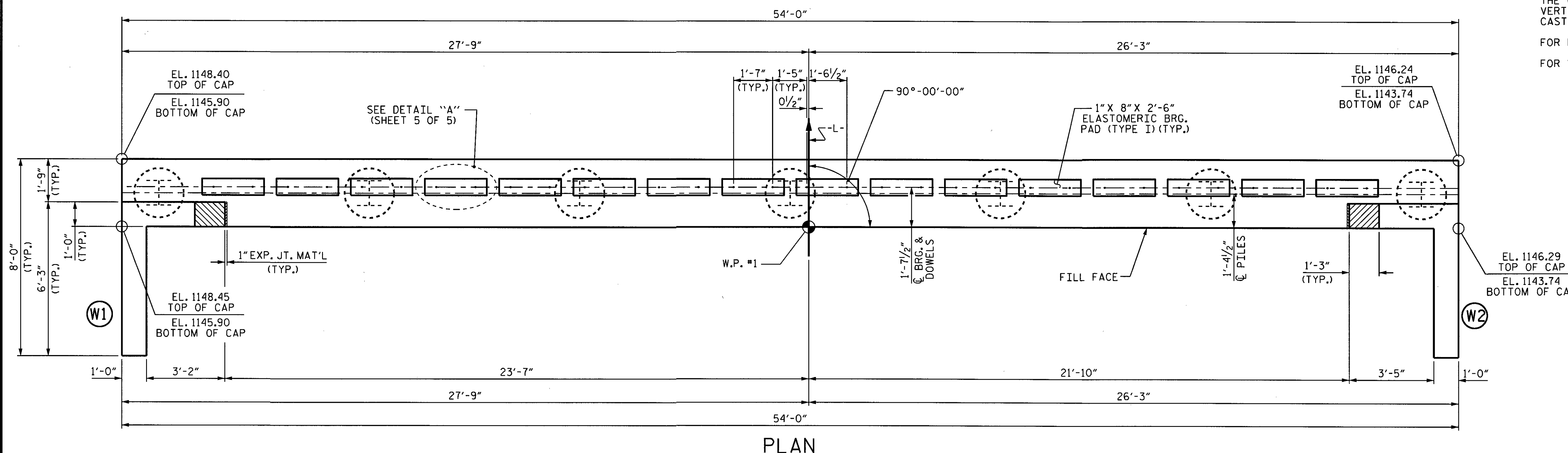
NOTES

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

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 PILE SPLICE DETAILS, SEE SHEET 5 OF 5.

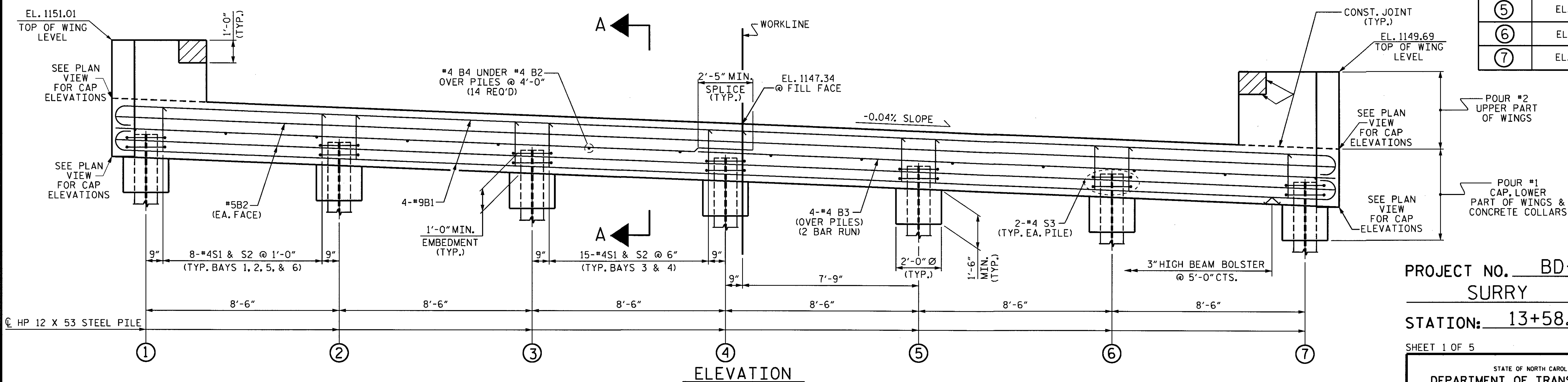
FOR WING DETAILS, SEE SHEET 2 OF 5.



PLAN

TOP OF PILE ELEVATIONS

①	EL. 1146.84
②	EL. 1146.50
③	EL. 1146.16
④	EL. 1145.82
⑤	EL. 1145.48
⑥	EL. 1145.14
⑦	EL. 1144.80



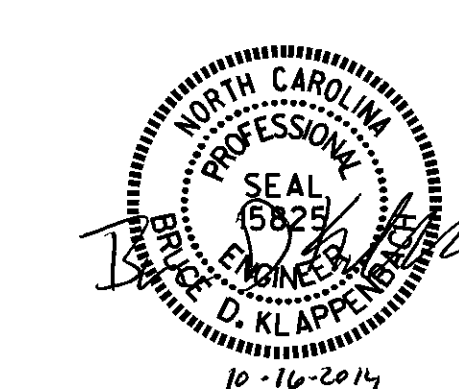
ELEVATION

PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

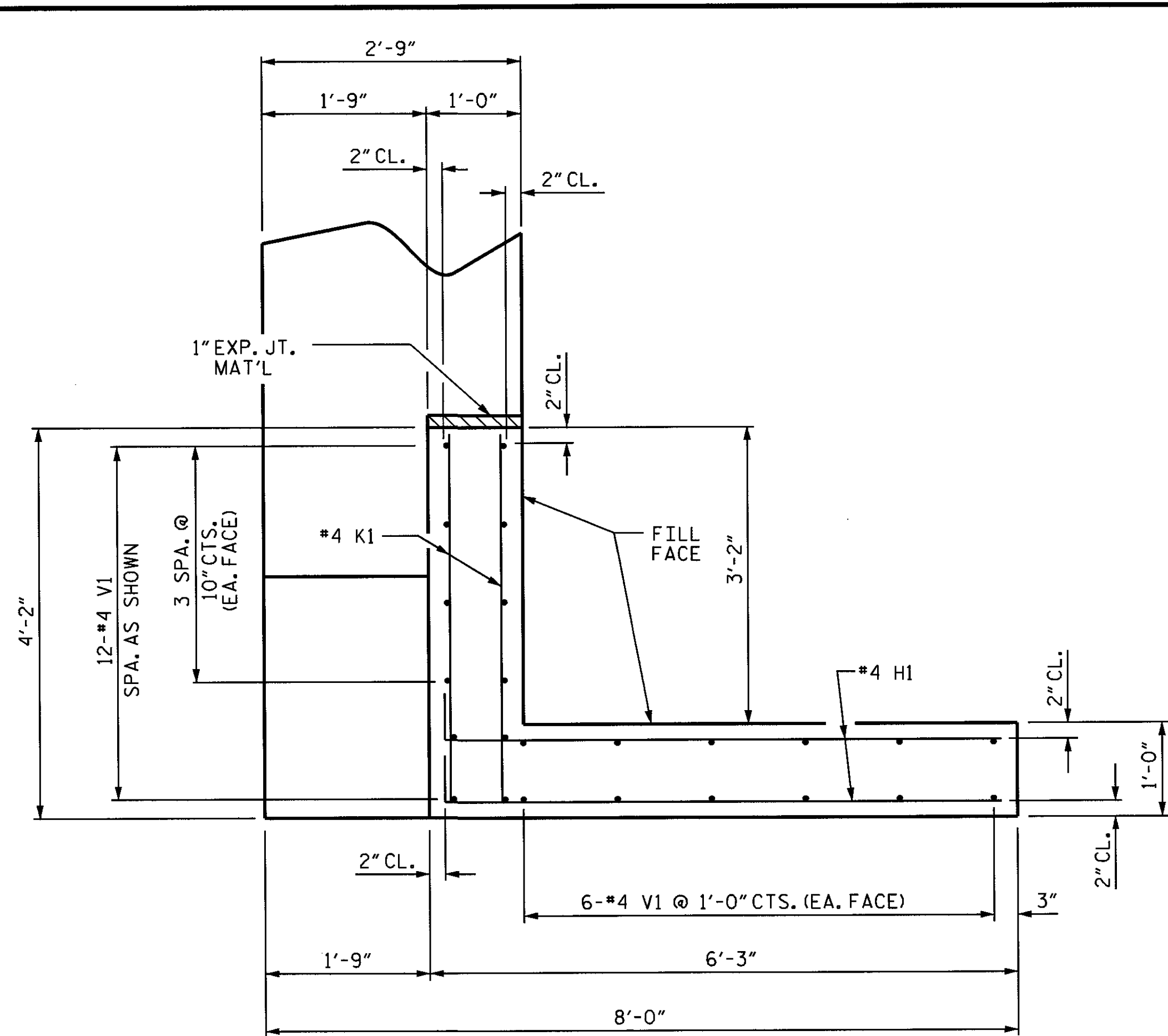
**SUBSTRUCTURE
 END BENT #1**



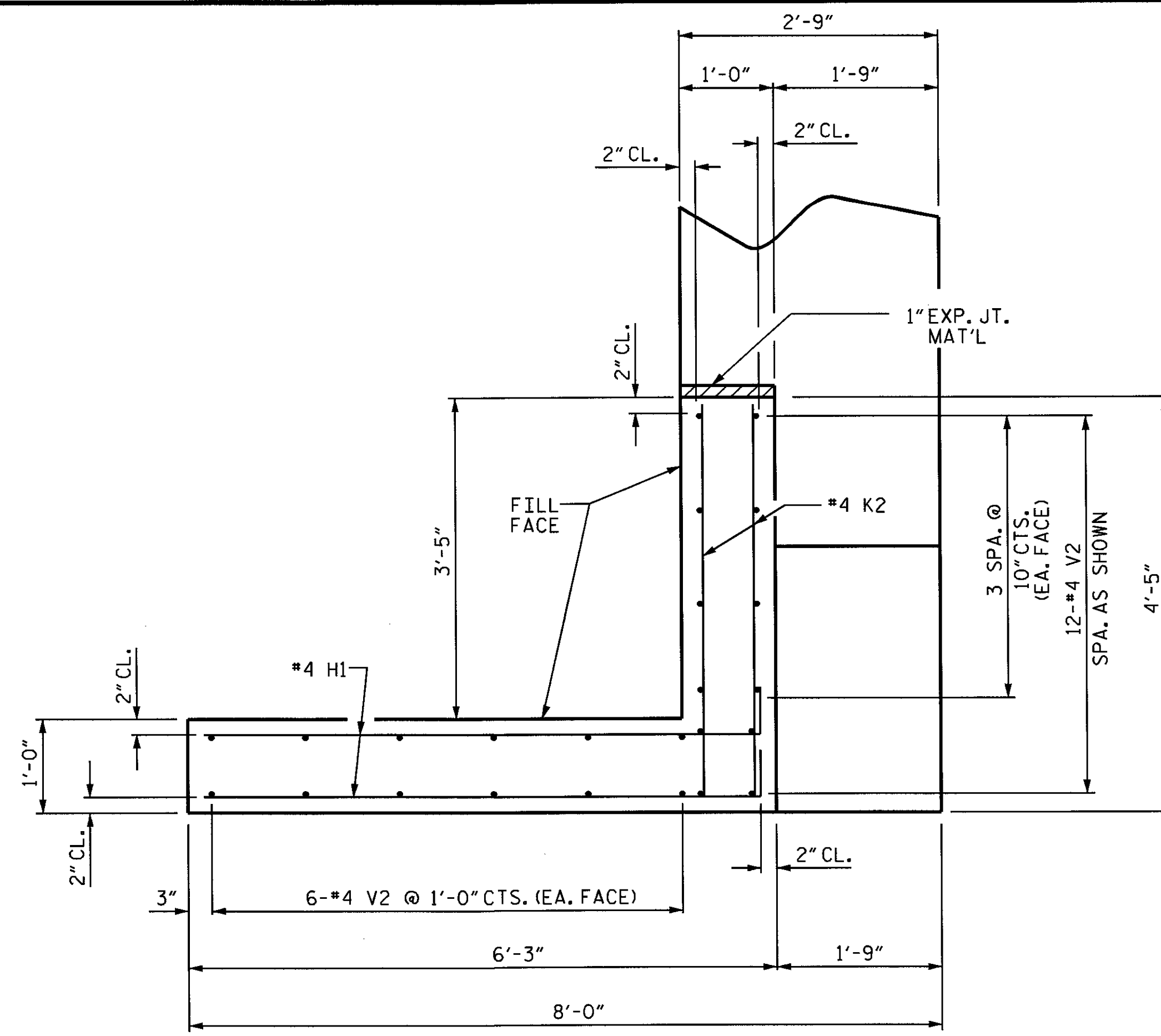
DRAWN BY: H. T. BARBOUR DATE: 5-6-13
 CHECKED BY: D. A. DAVENPORT DATE: 5-13
 DESIGN ENGINEER OF RECORD: S. T. CHAMPION DATE: 6-13

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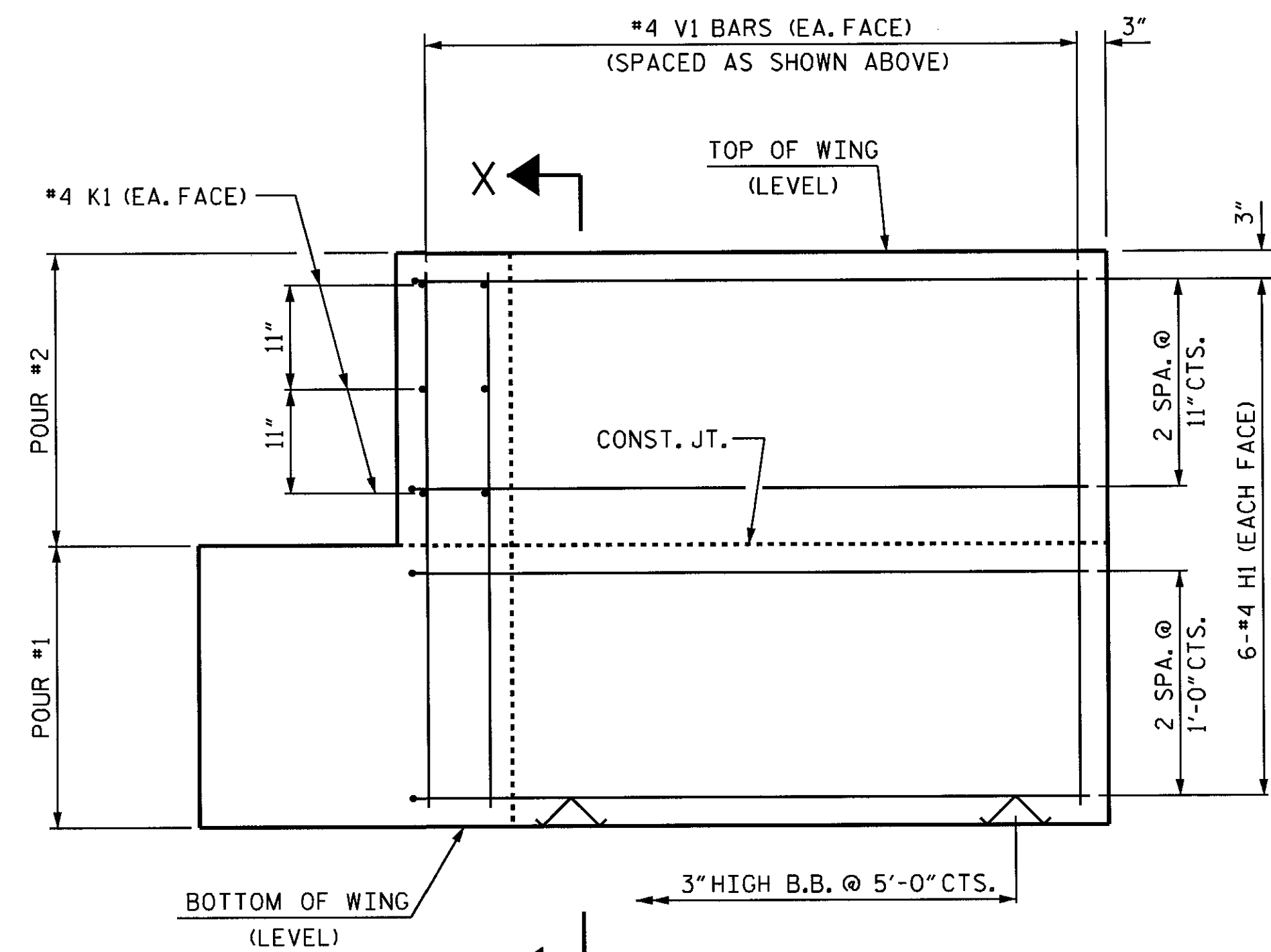
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			TOTAL SHEETS
						27



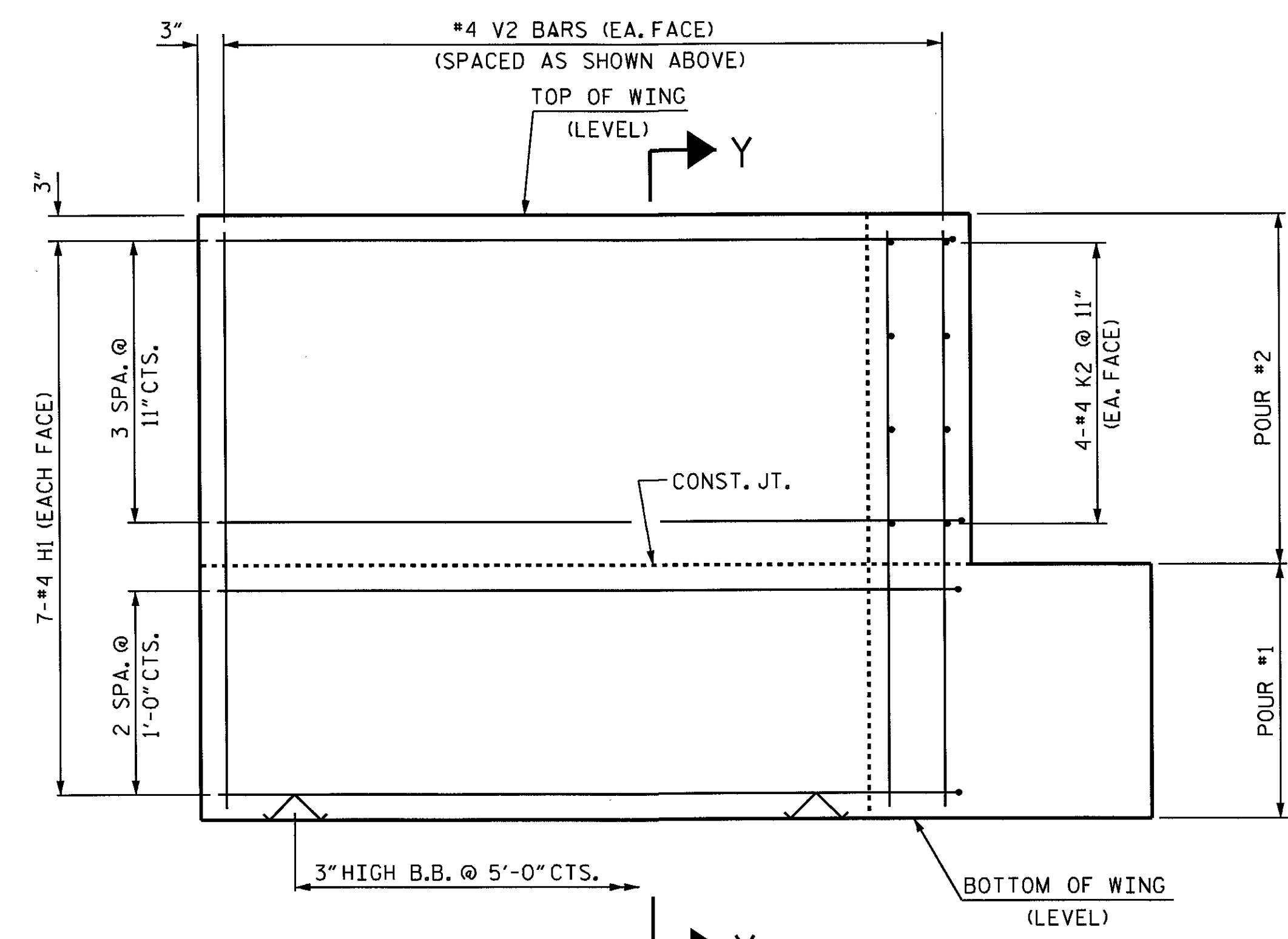
PLAN OF WING (W1)



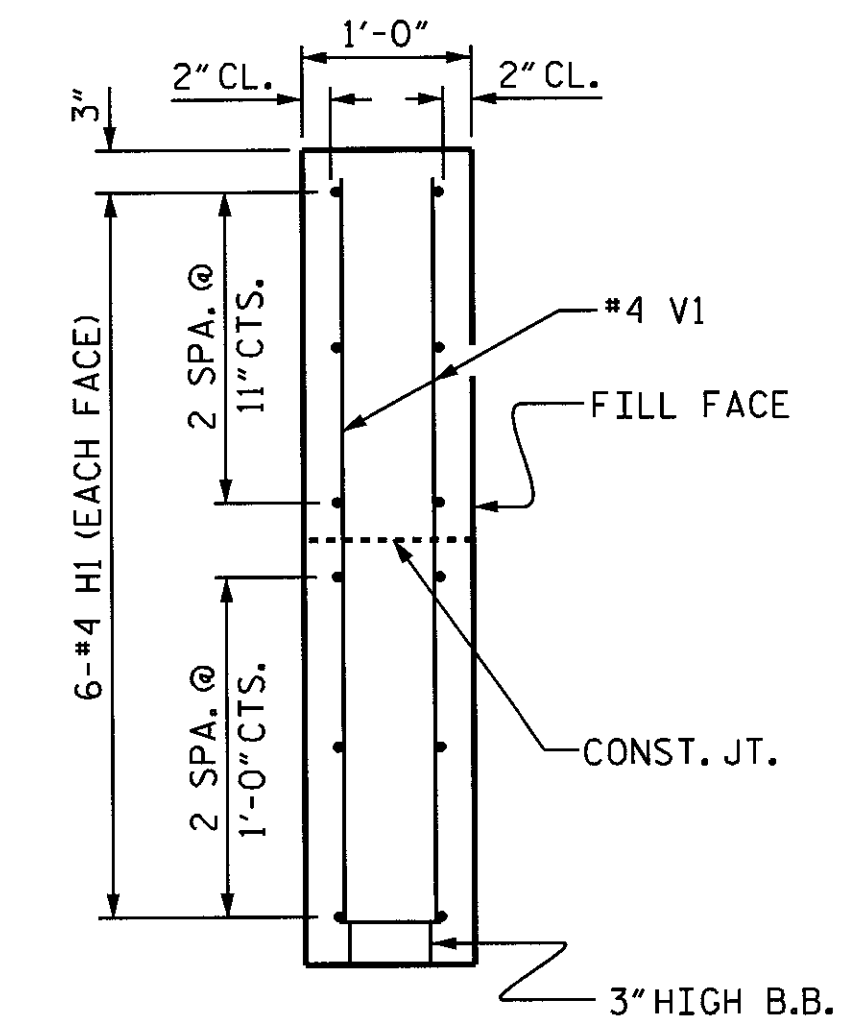
PLAN OF WING (W2)



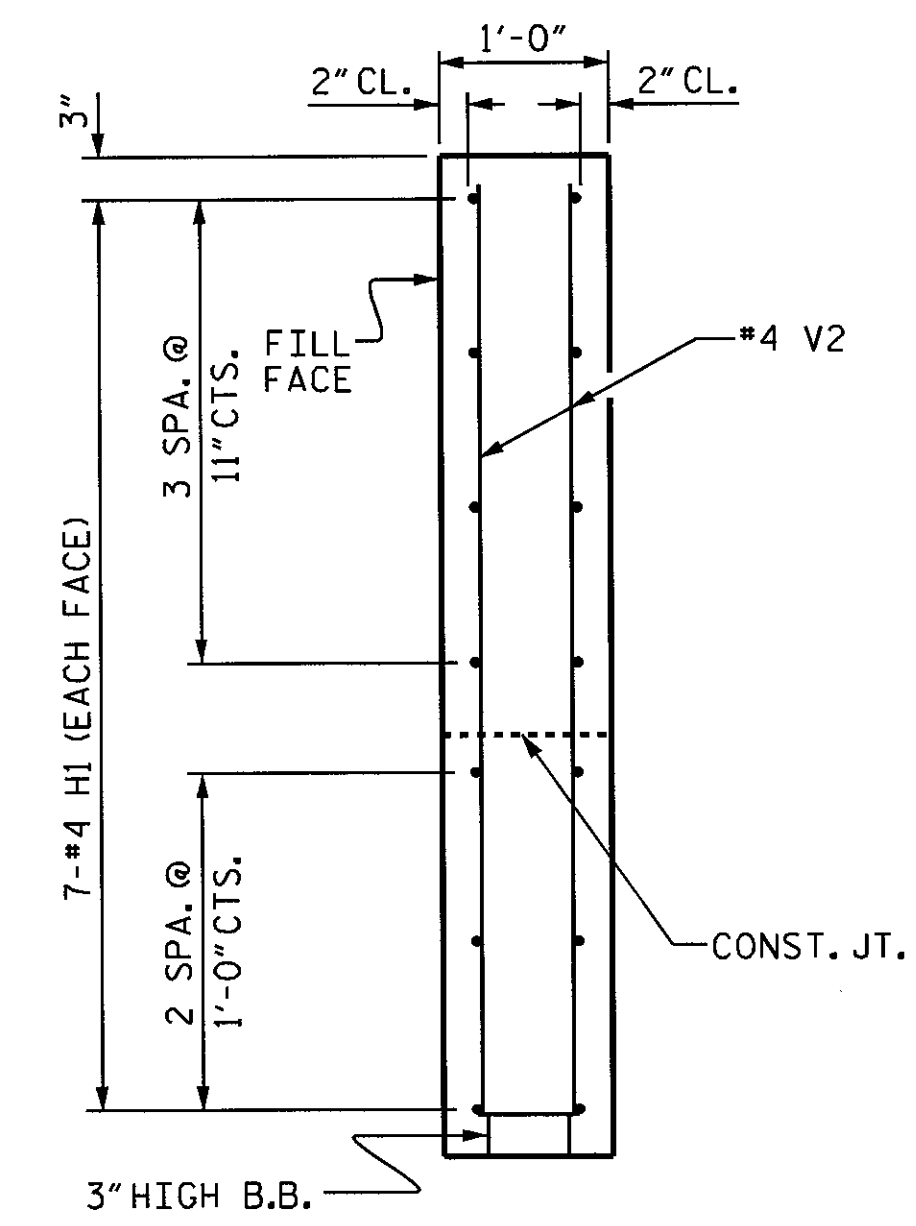
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

WING DETAILS

DRAWN BY : H. T. BARBOUR DATE : 5-6-13
 CHECKED BY : D. A. DAVENPORT DATE : 5-13
 DESIGN ENGINEER OF RECORD : S. T. CHAMPION DATE : 6-13

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PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: 13+58.65-L-
 SHEET 2 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #1 WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-17
					TOTAL SHEETS 27

STD. NO. EB_39_90S

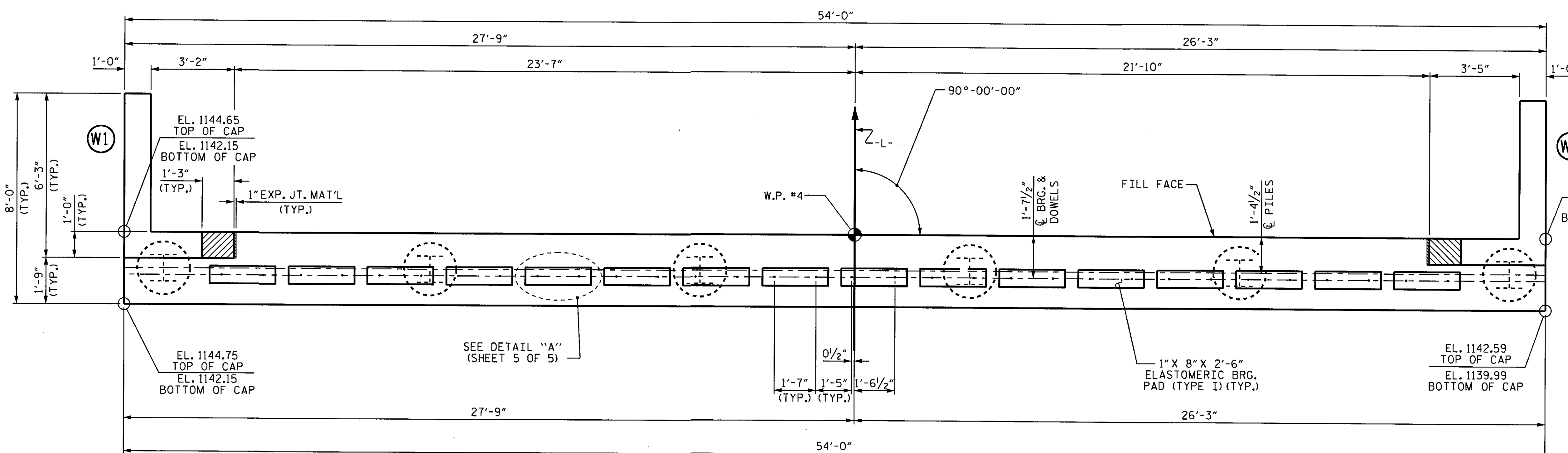
NOTES

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

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.

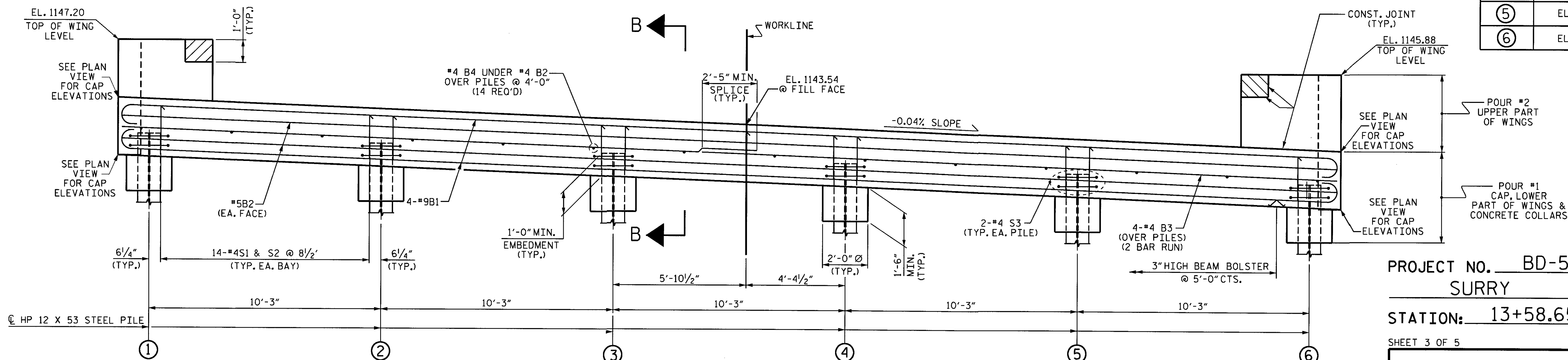
FOR PILE SPLICE DETAILS, SEE SHEET 5 OF 5.

FOR WING DETAILS, SEE SHEET 4 OF 5.



PLAN

TOP OF PILE ELEVATIONS	
①	EL. 1143.10
②	EL. 1142.69
③	EL. 1142.28
④	EL. 1141.87
⑤	EL. 1141.46
⑥	EL. 1141.05



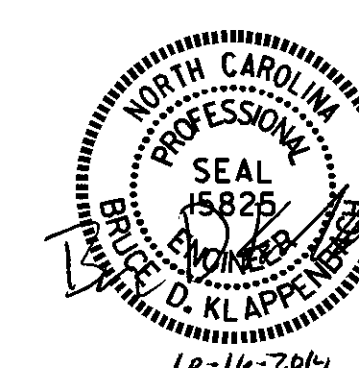
ELEVATION

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

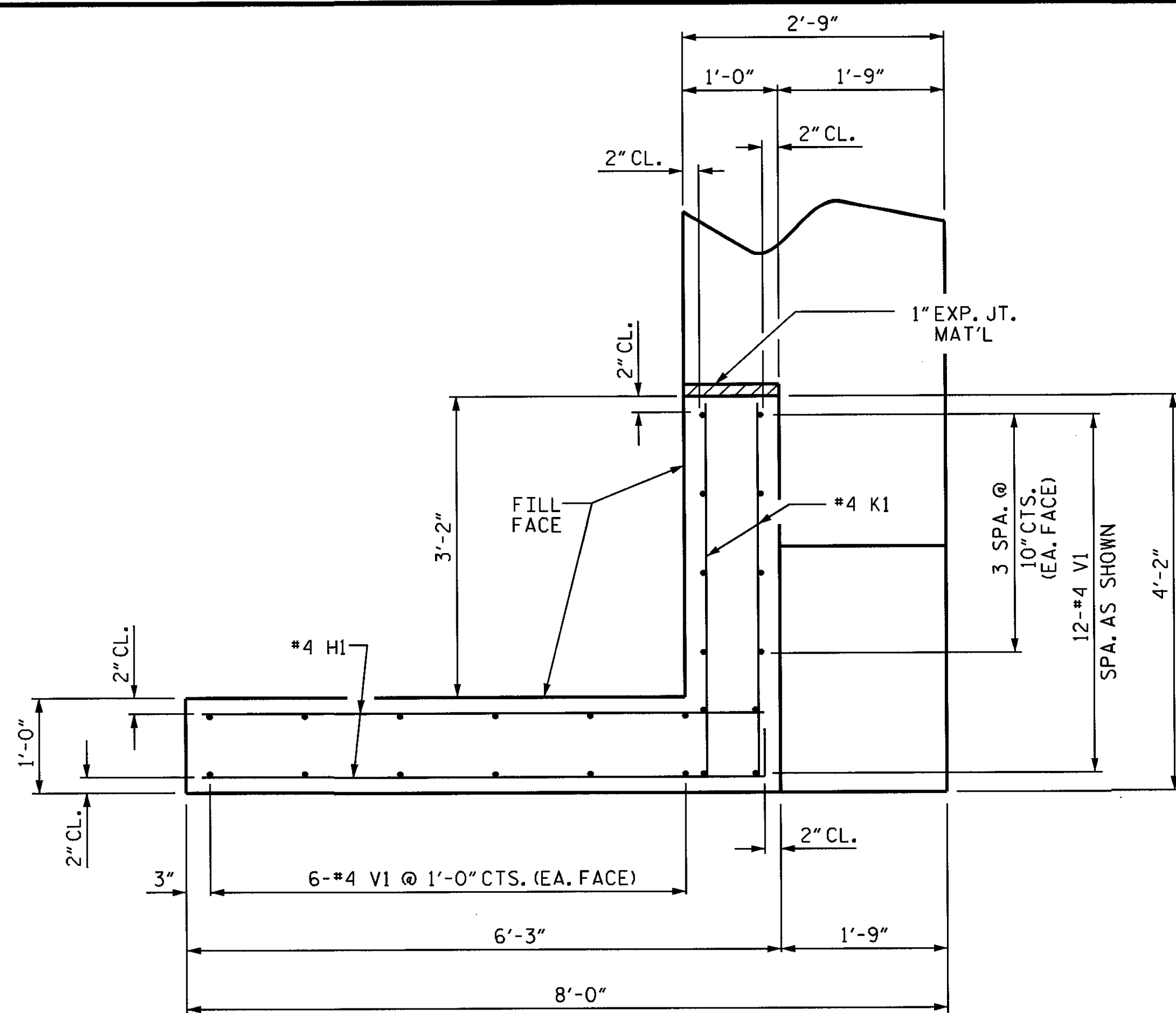
SUBSTRUCTURE
 END BENT #2



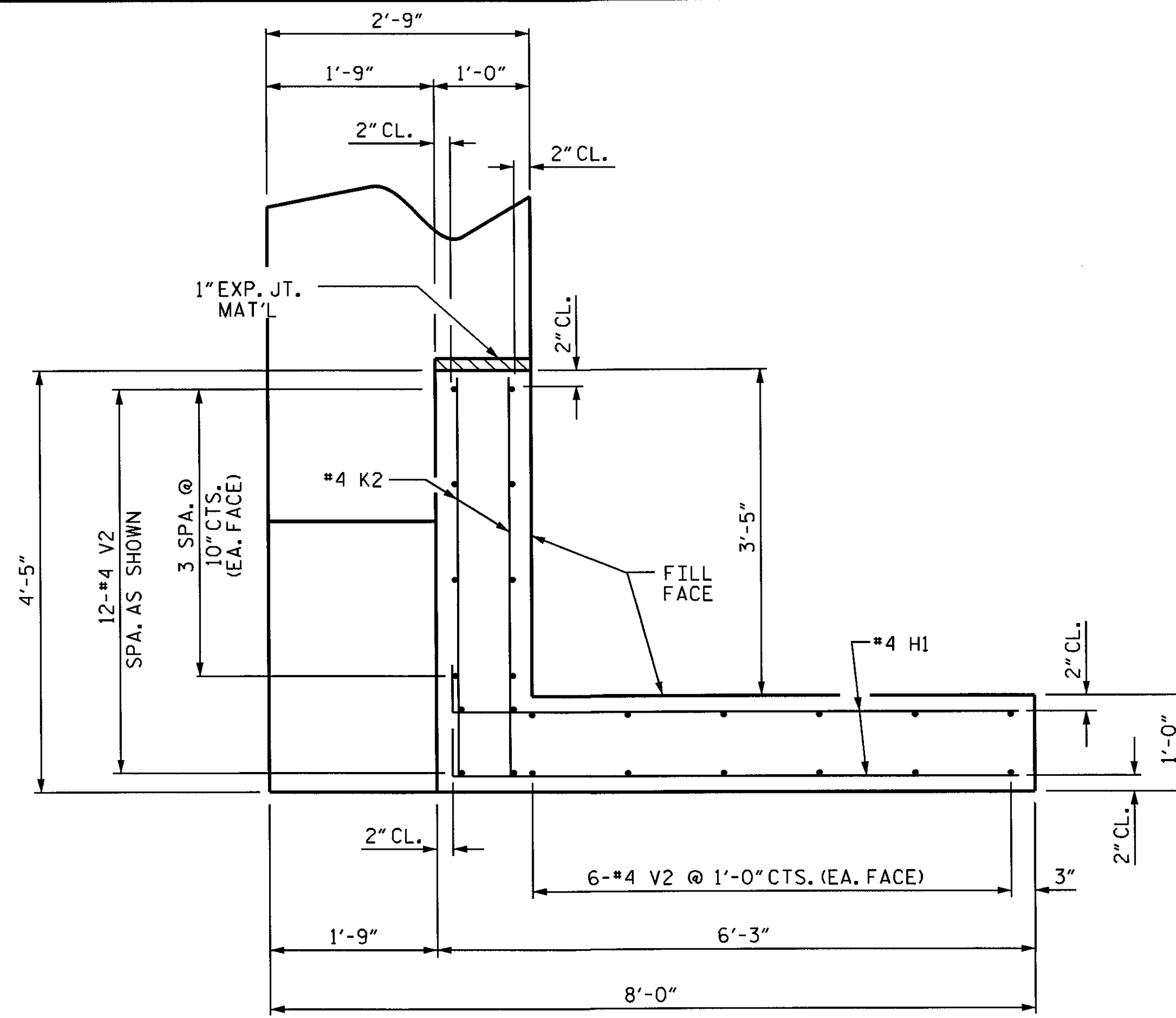
DRAWN BY: H. T. BARBOUR DATE: 5-6-13
 CHECKED BY: D. A. DAVENPORT DATE: 5-13
 DESIGN ENGINEER OF RECORD: S. I. CHAMPION DATE: 6-13

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

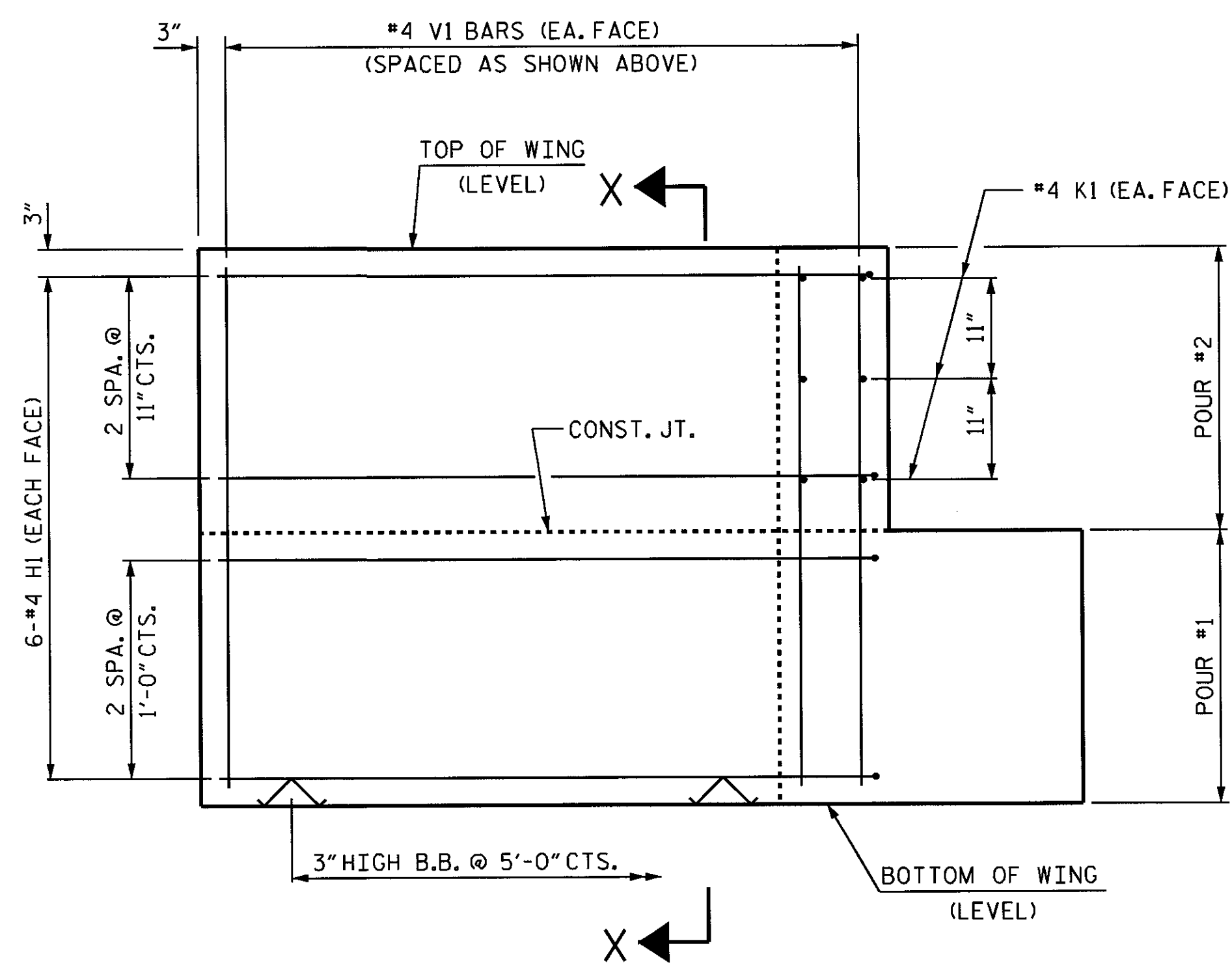
S-18
 TOTAL SHEETS
 27



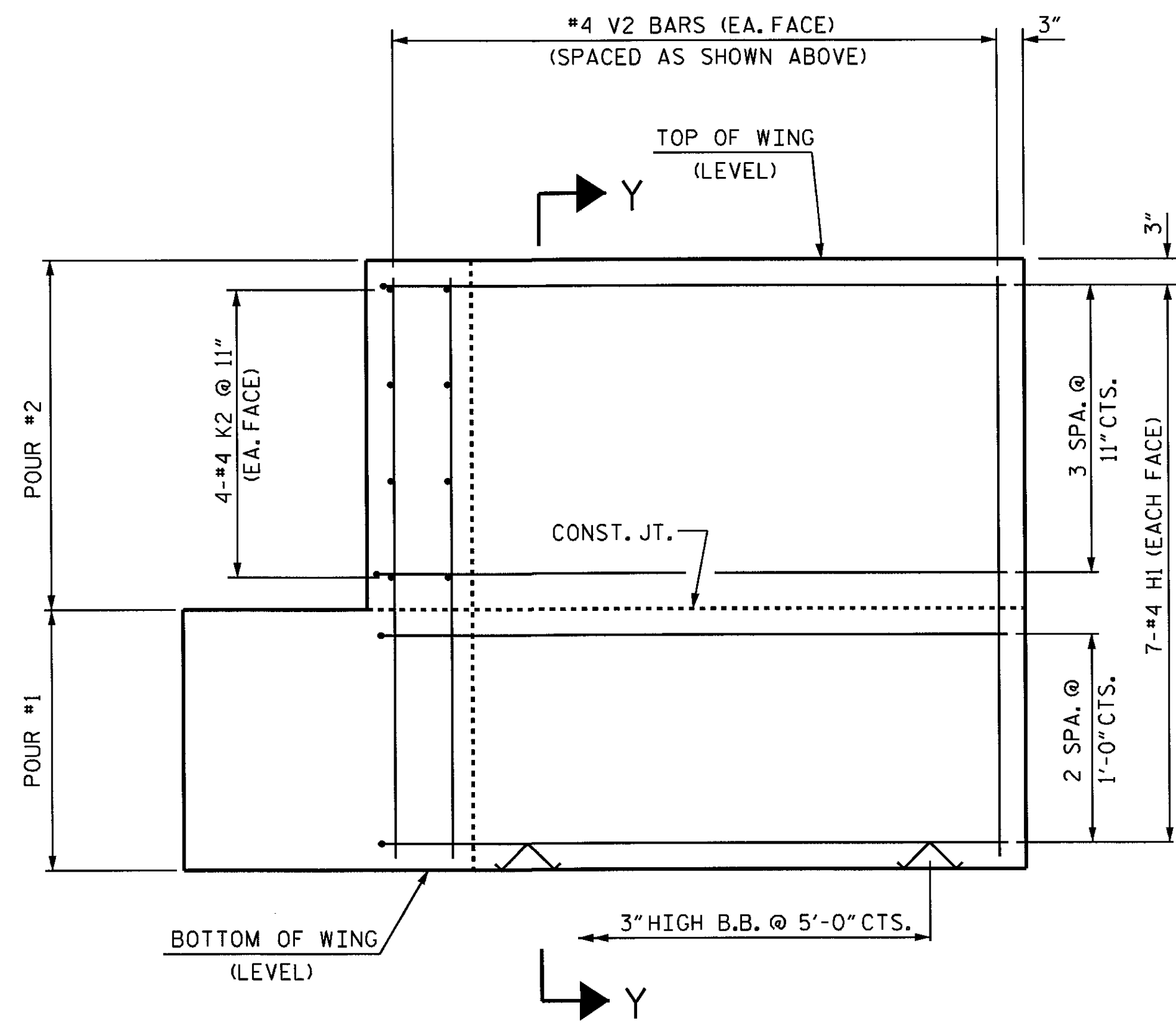
PLAN OF WING (W1)



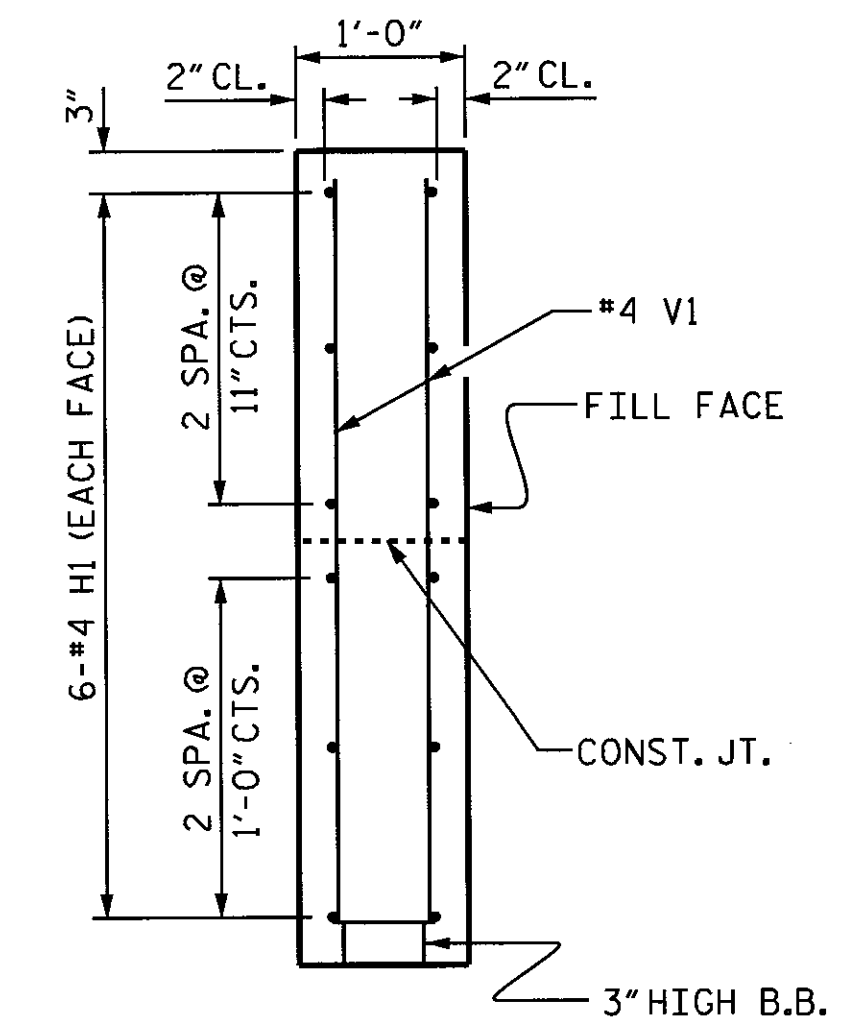
PLAN OF WING (W2)



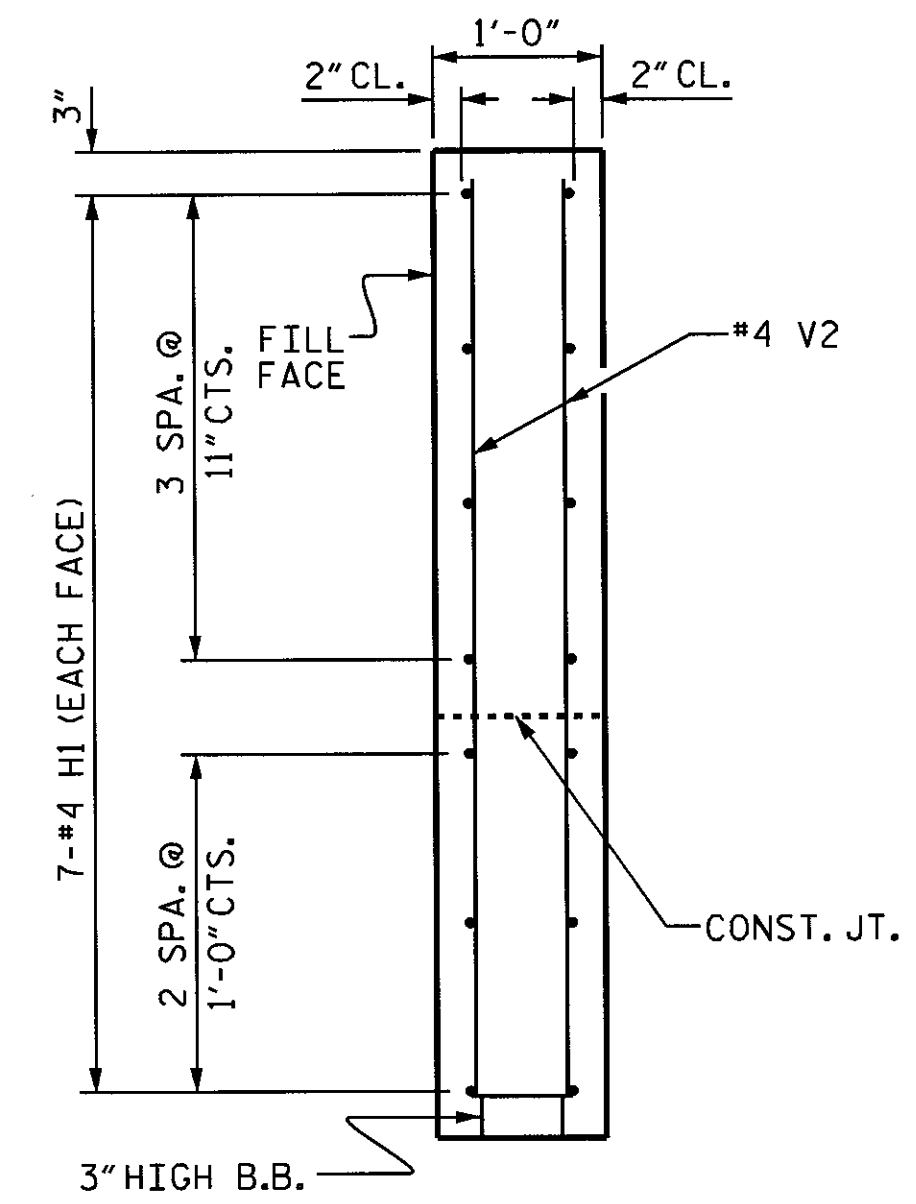
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X

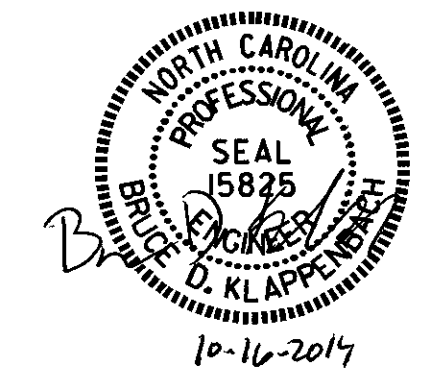


SECTION Y-Y

WING DETAILS

DRAWN BY : H. T. BARBOUR DATE : 5-6-13
 CHECKED BY : D. A. DAVENPORT DATE : 5-13
 DESIGN ENGINEER OF RECORD : S. T. CHAMPION DATE : 6-13

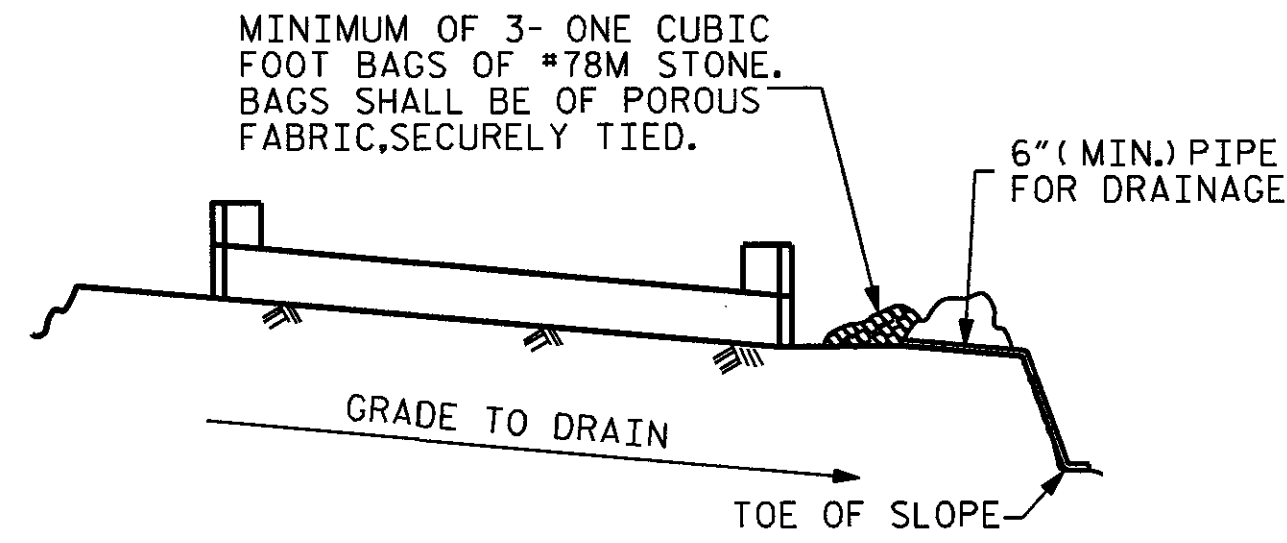
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PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-
 SHEET 4 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2 WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-19
					TOTAL SHEETS 27

STD. NO. EB_39_90S

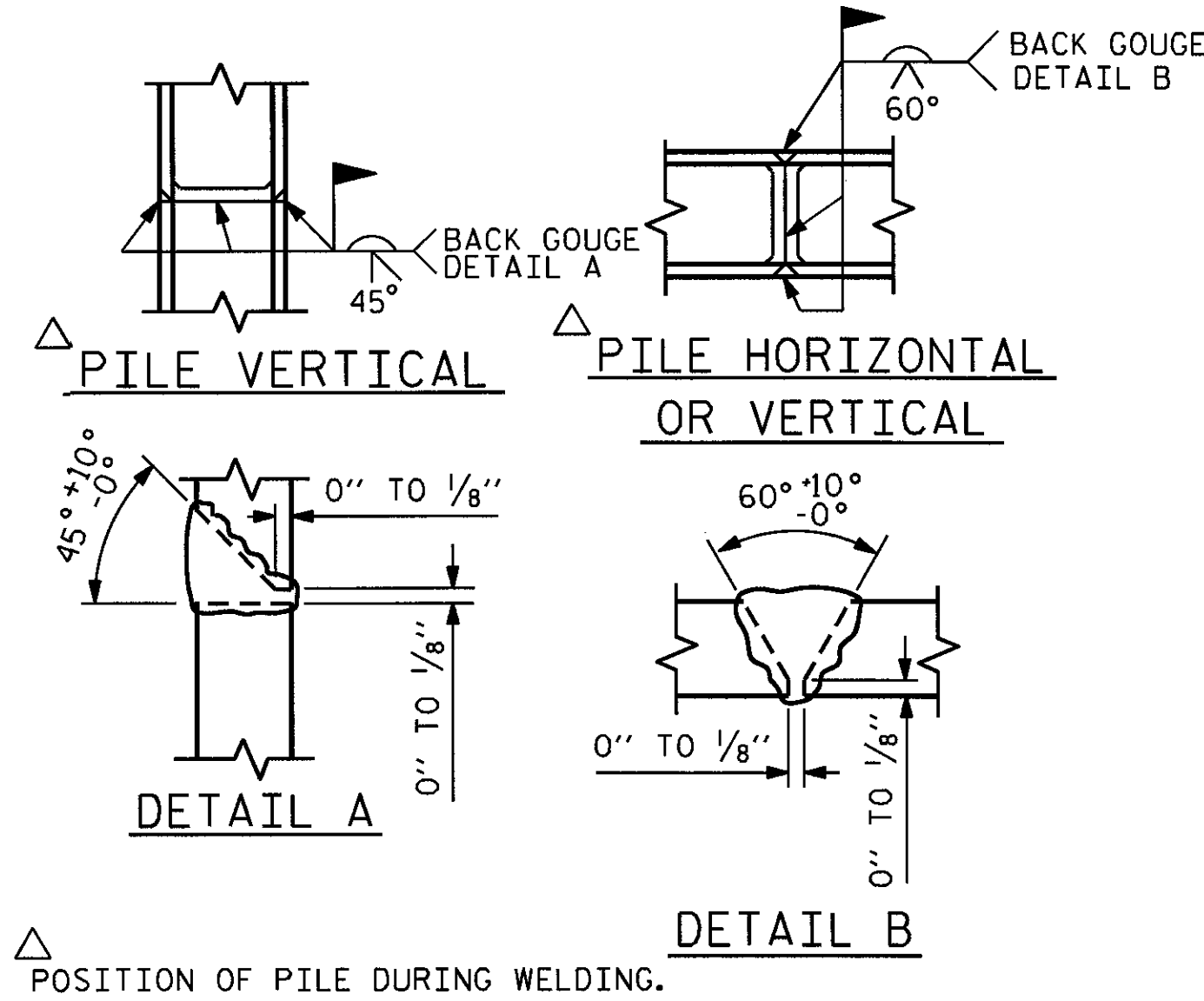


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

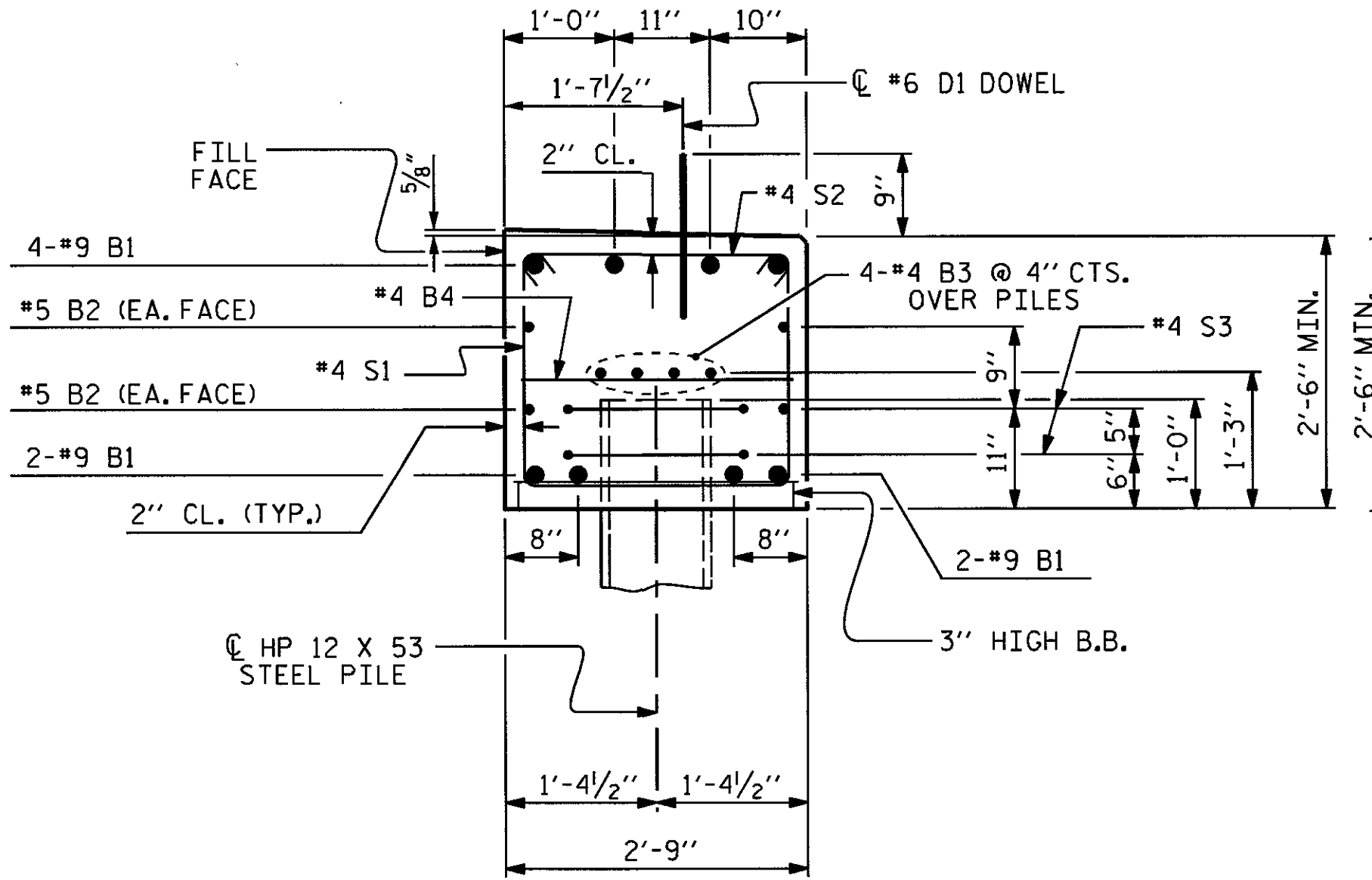
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

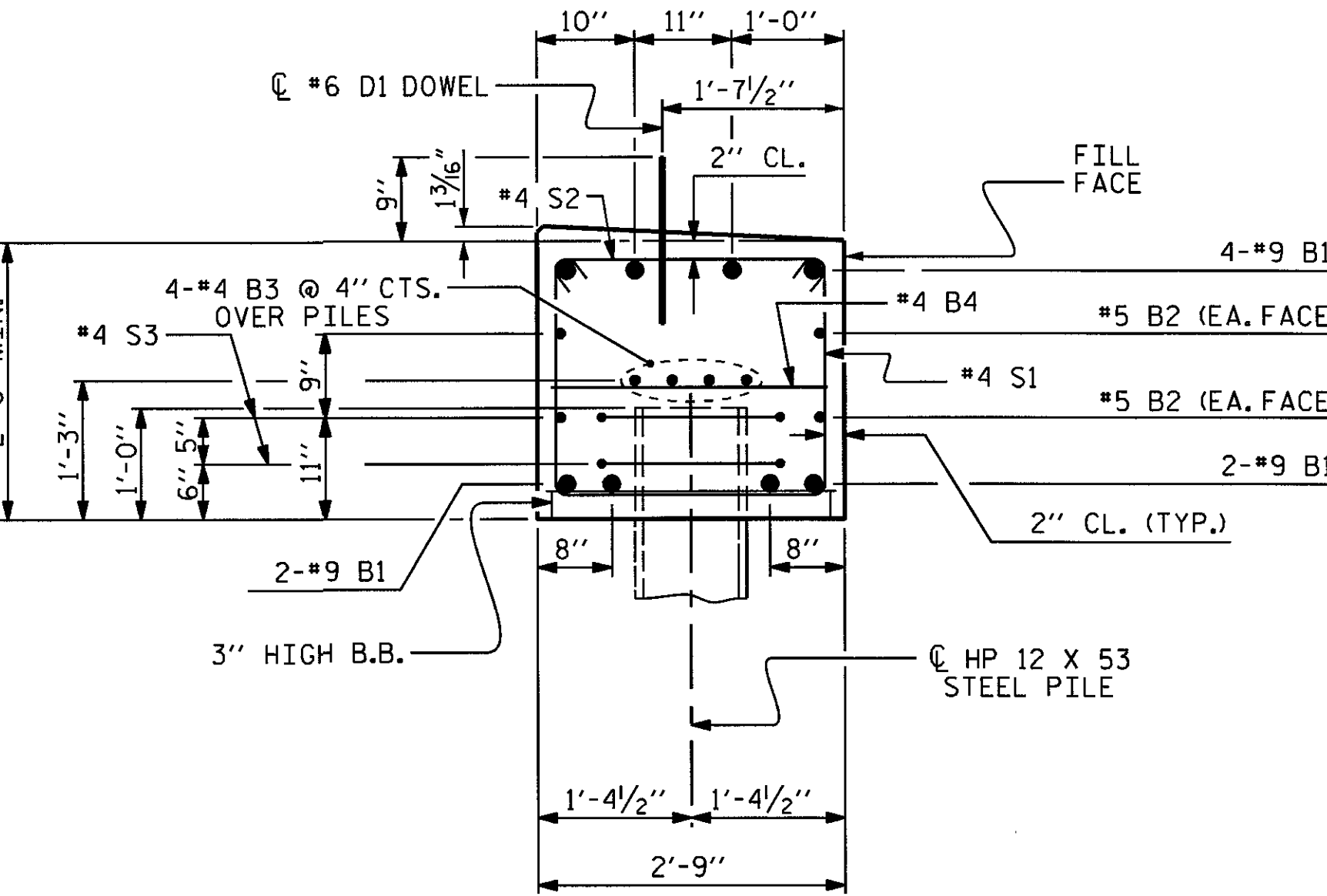


PILE SPLICE DETAILS



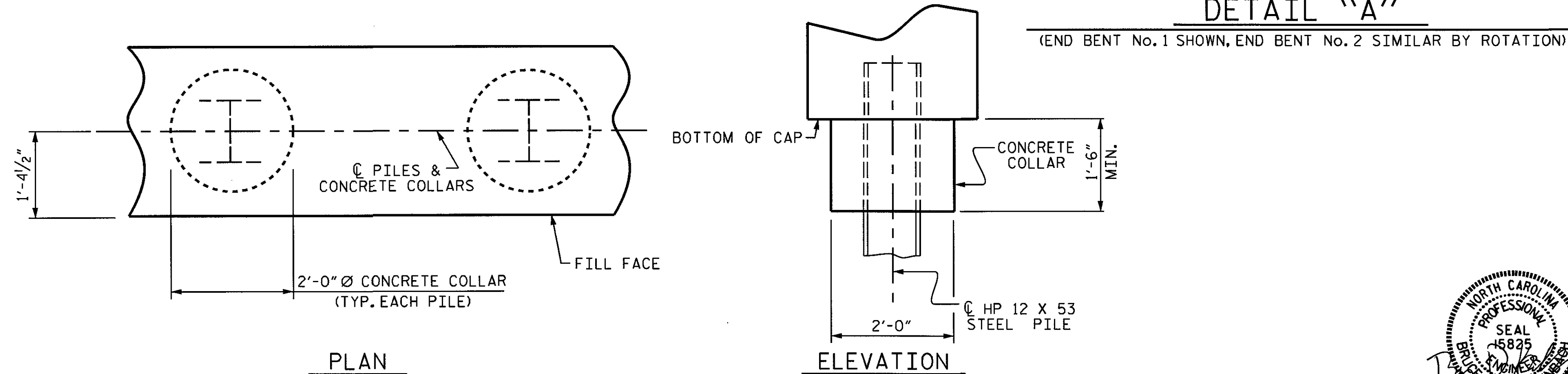
SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



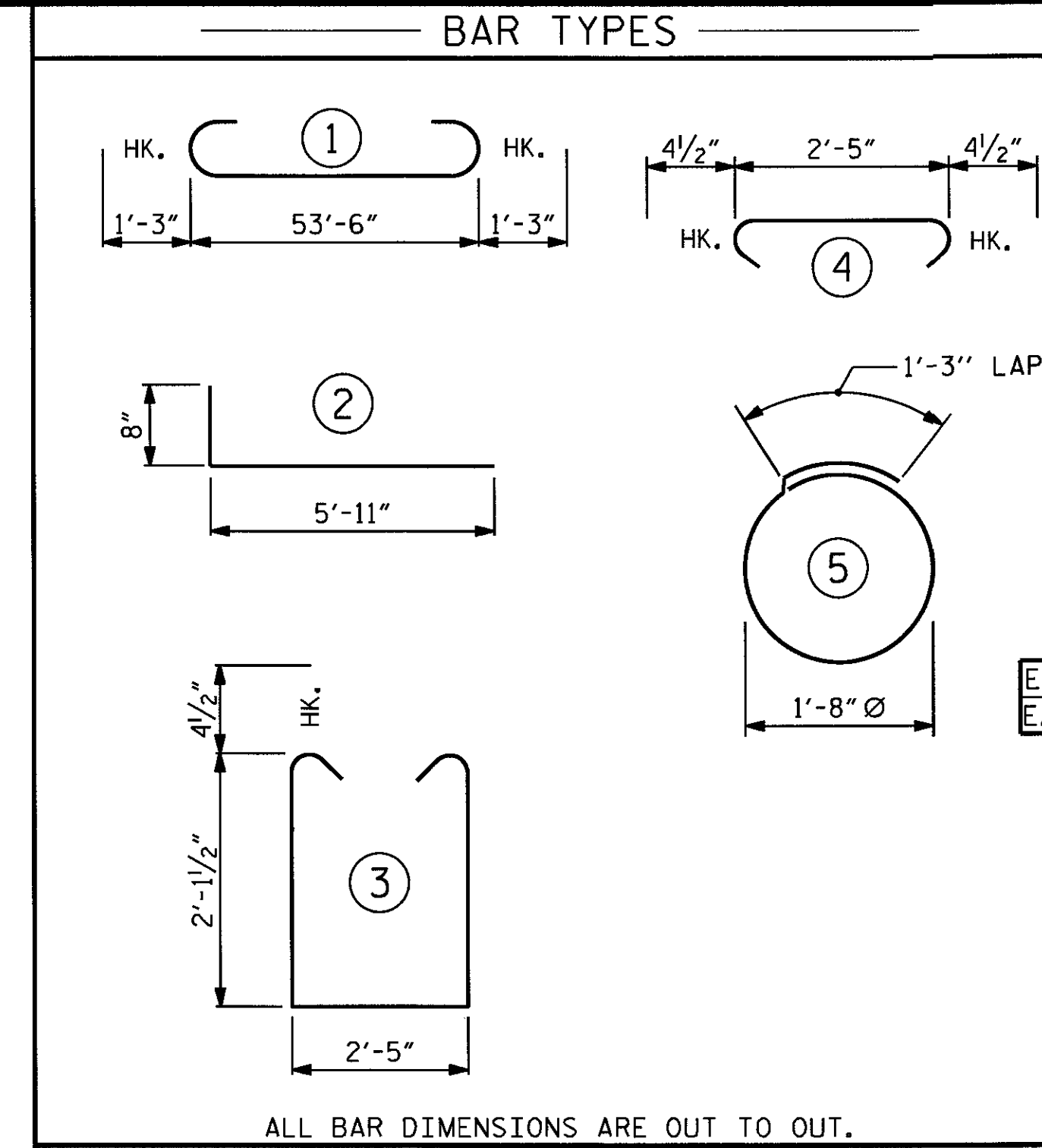
SECTION B-B

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



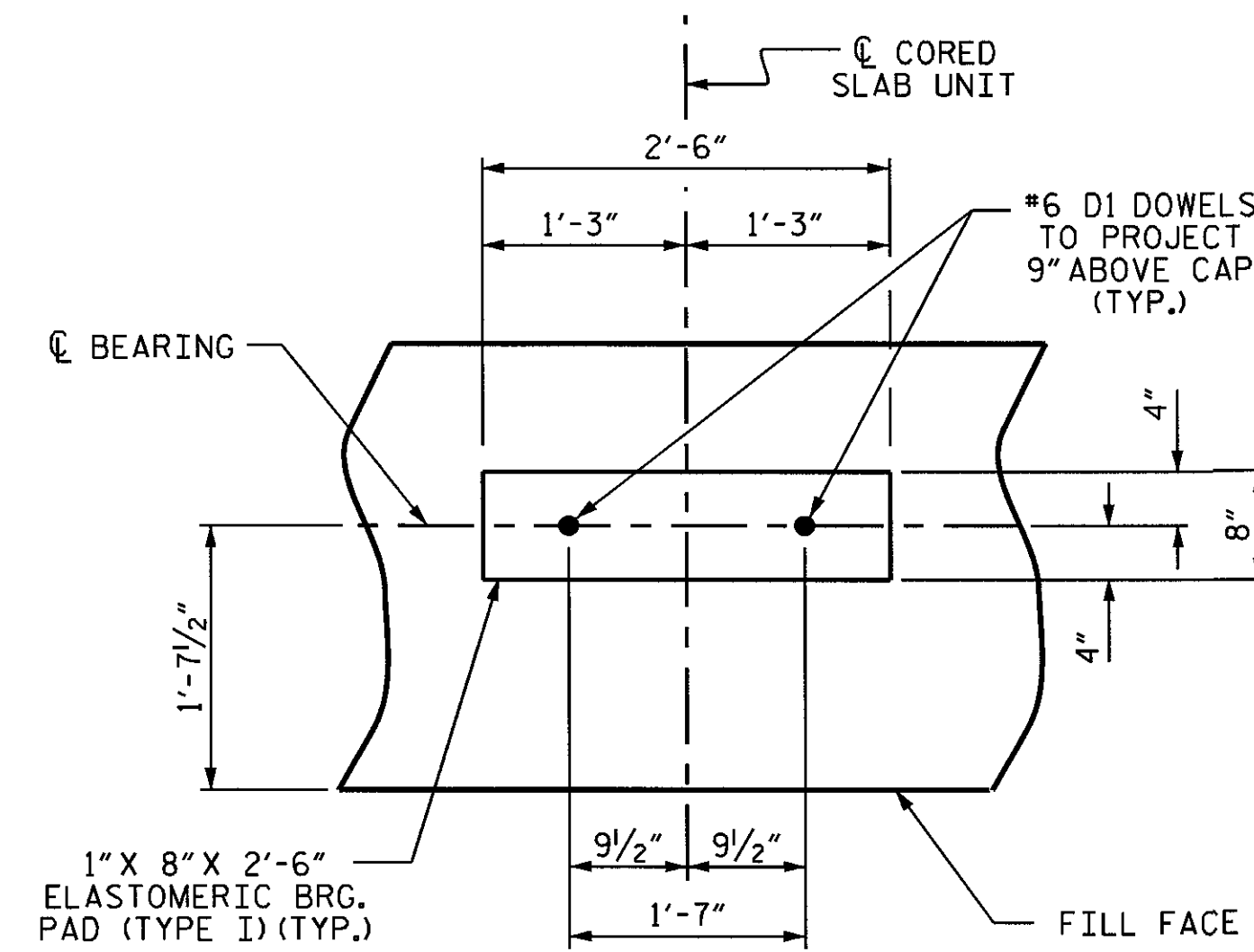
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES	NO: 7	HP 12 X 53 STEEL PILES	NO: 6
LIN. FT. = 420		LIN. FT. = 420	
STEEL PILE POINTS	NO: 7	STEEL PILE POINTS	NO: 6



DETAIL "A"

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

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	8	#9	1	56'-0"	1523	
B2	4	#5	STR	53'-8"	224	
B3	8	#4	STR	28'-1"	150	
B4	14	#4	STR	2'-5"	23	
D1	32	#6	STR	1'-6"	72	
H1	26	#4	2	6'-7"	114	
K1	6	#4	STR	3'-10"	15	
K2	8	#4	STR	4'-1"	22	
S1	62	#4	3	7'-5"	307	
S2	62	#4	4	3'-2"	131	
E.B. #1	S3	14	#4	5	6'-6"	61
E.B. #2	S3	12	#4	5	6'-6"	52
V1	24	#4	STR	4'-8"	75	
V2	24	#4	STR	5'-6"	88	

REINFORCING STEEL (END BENT #1) 2805 LBS.

REINFORCING STEEL (END BENT #2) 2796 LBS.

CLASS A CONCRETE BREAKDOWN (FOR END BENT #1)

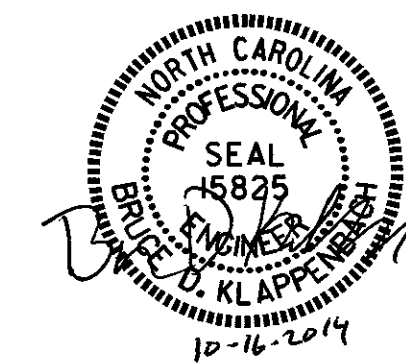
POUR #1	CAP, LOWER PART OF WINGS & COLLARS	16.0 C.Y.
POUR #2	UPPER PART OF WINGS	2.1 C.Y.
TOTAL CLASS A CONCRETE		18.1 C.Y.

CLASS A CONCRETE BREAKDOWN (FOR END BENT #2)

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	15.8 C.Y.
POUR #2	UPPER PART OF WINGS	2.1 C.Y.
TOTAL CLASS A CONCRETE		17.9 C.Y.

DRAWN BY: H. T. BARBOUR DATE: 5-6-13
 CHECKED BY: D. A. DAVENPORT DATE: 5-13
 DESIGN ENGINEER OF RECORD: S. T. CHAMPION DATE: 6-13

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PROJECT NO. BD-5111V
 SURRY COUNTY
 STATION: 13+58.65-L-

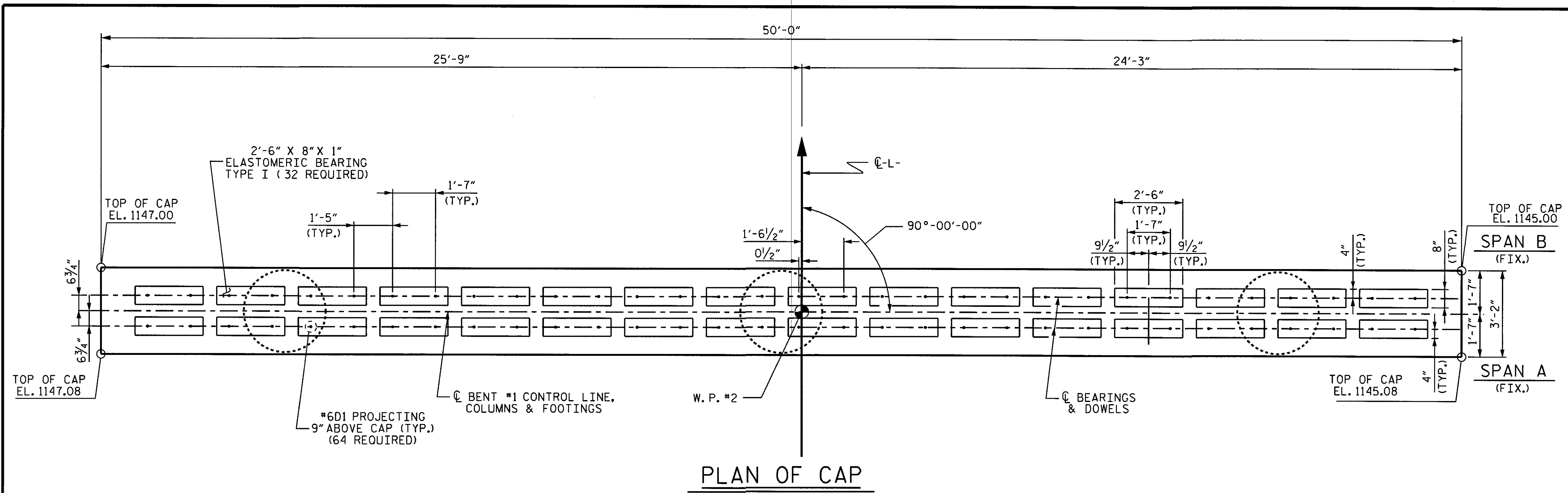
SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

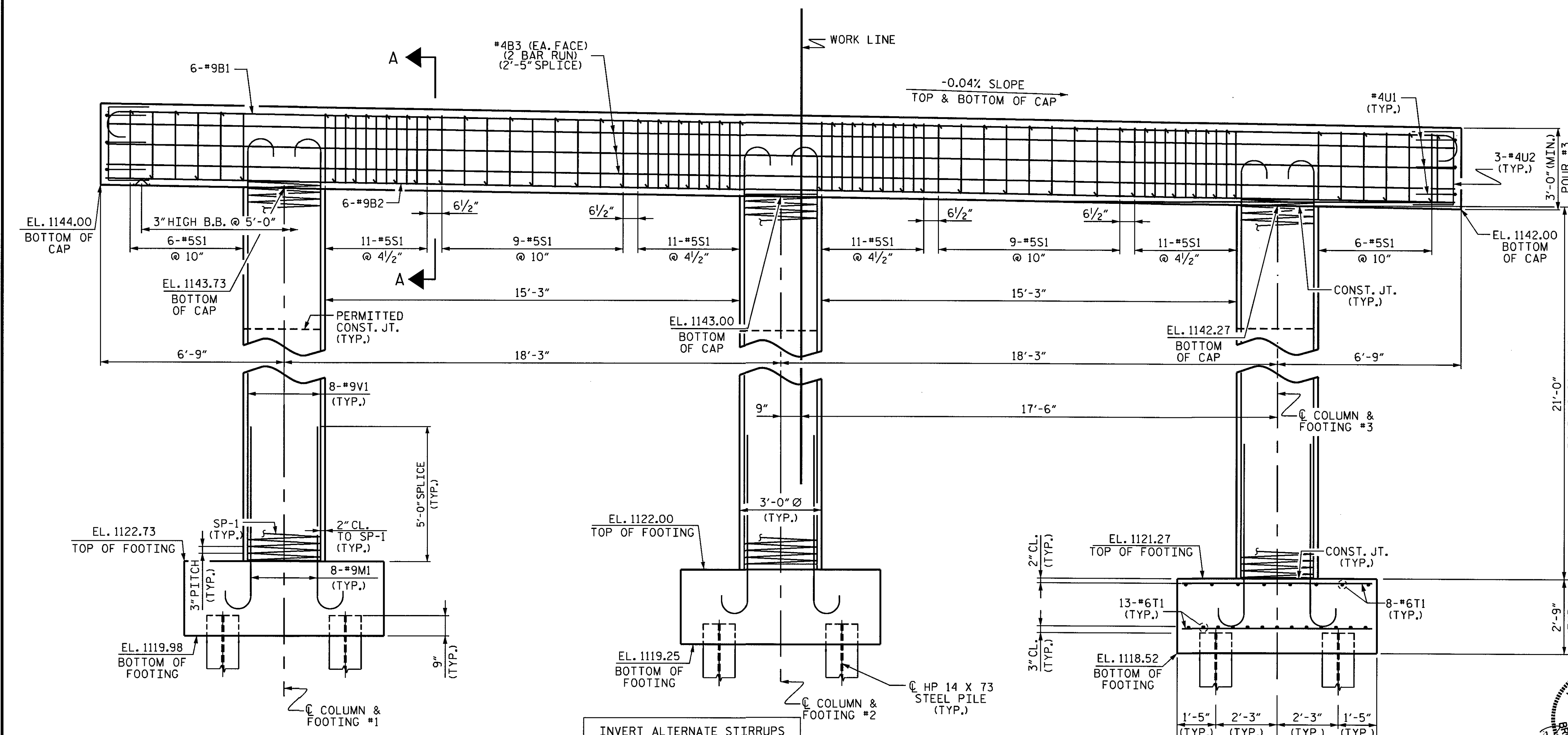
SUBSTRUCTURE
 END BENT No. 1 & 2
 DETAILS

REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			

STD. NO. EB-39-90S



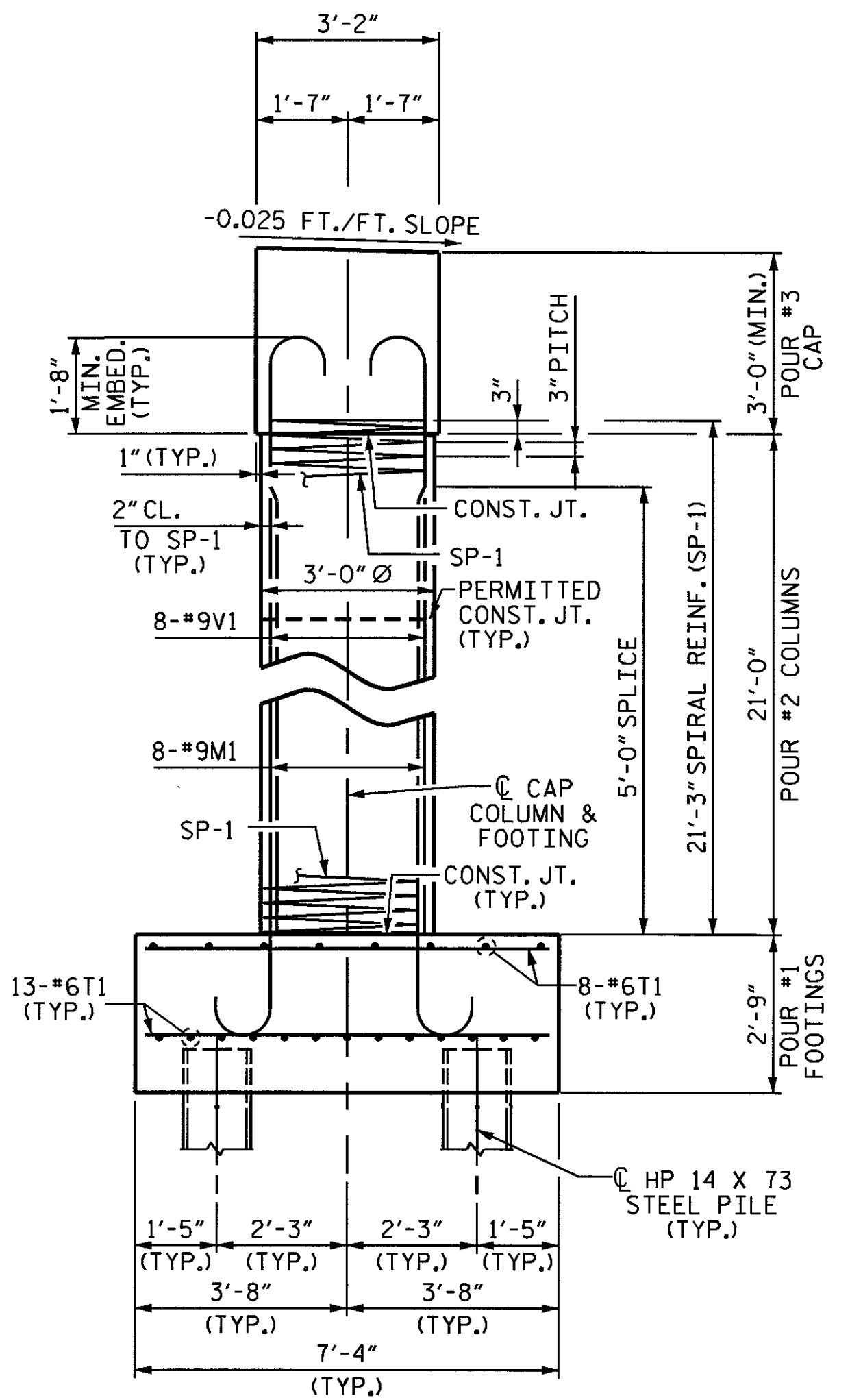
PLAN OF CAP



ELEVATION

FOOTINGS ARE IDENTICAL UNLESS OTHERWISE NOTED

NOTES
 STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

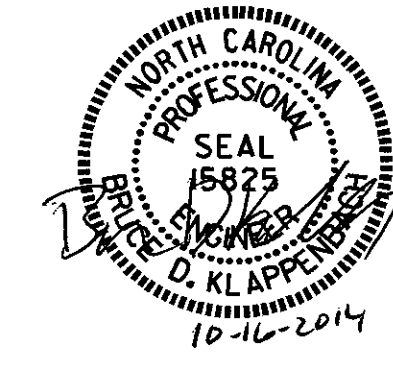


RIGHT END ELEVATION

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

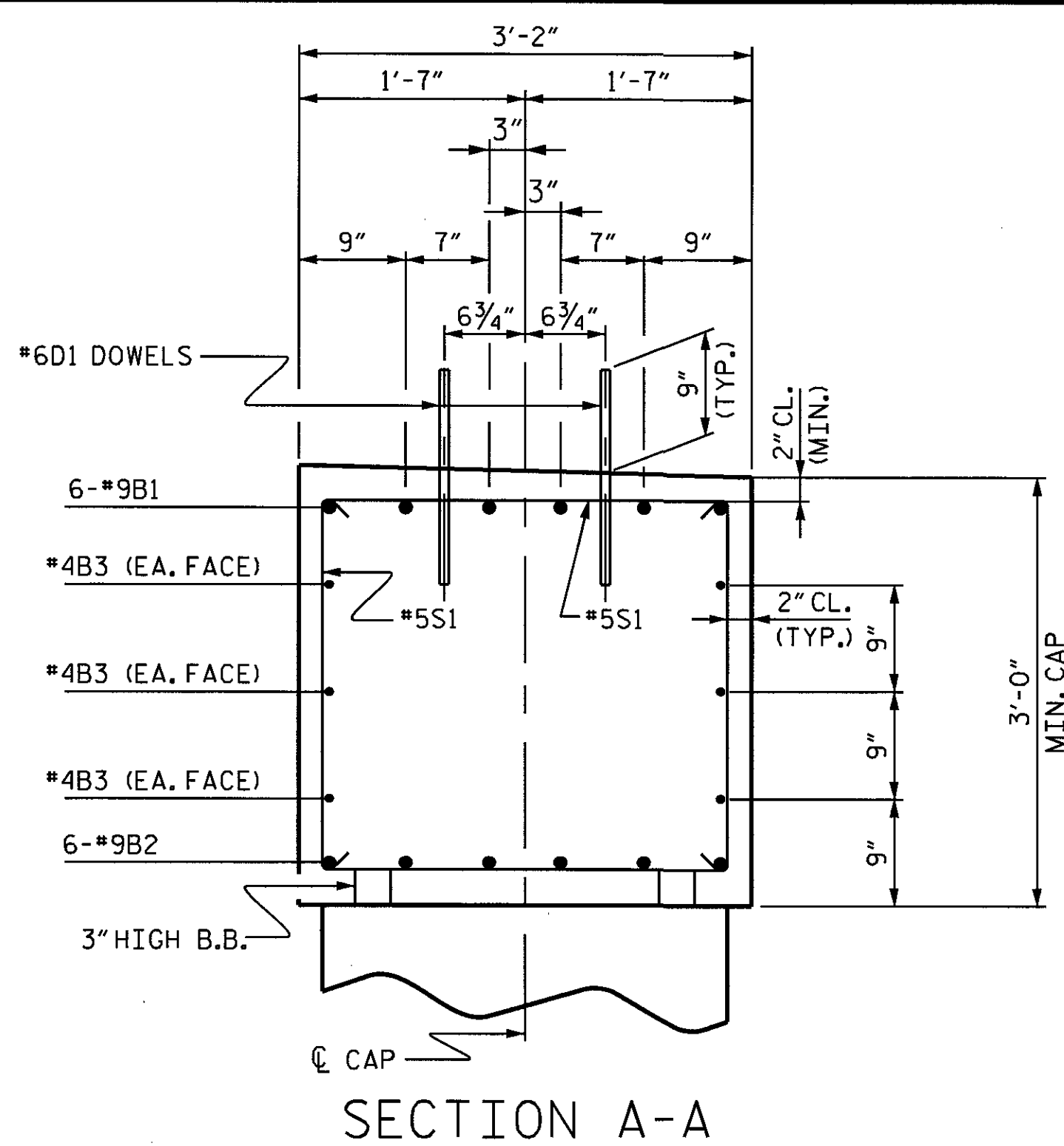
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			2		
2			4		
					SHEET NO. S-21
					TOTAL SHEETS 27

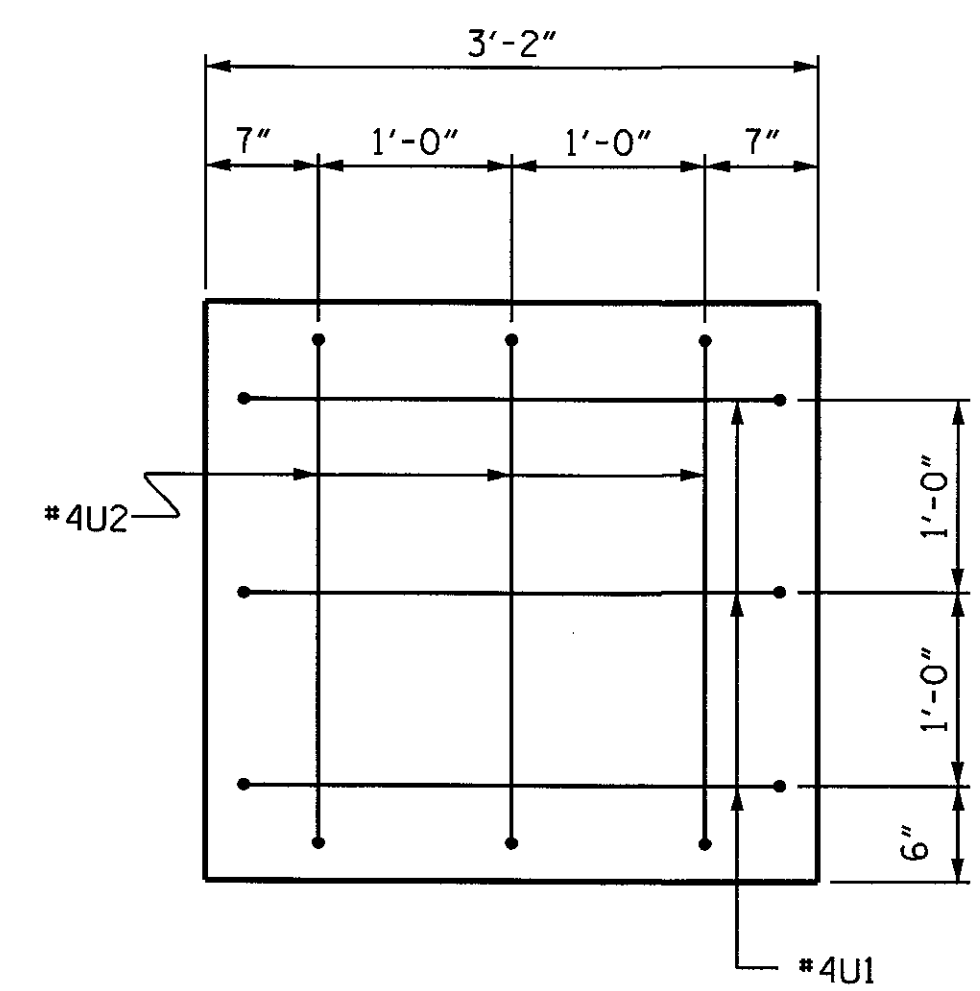


DRAWN BY: D.A. DAVENPORT DATE: 05/29/13
 CHECKED BY: R.L. CHESSON DATE: 06/04/13
 DESIGN ENGINEER OF RECORD: S.T. CHAMPION DATE: 6-13

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SECTION A-A



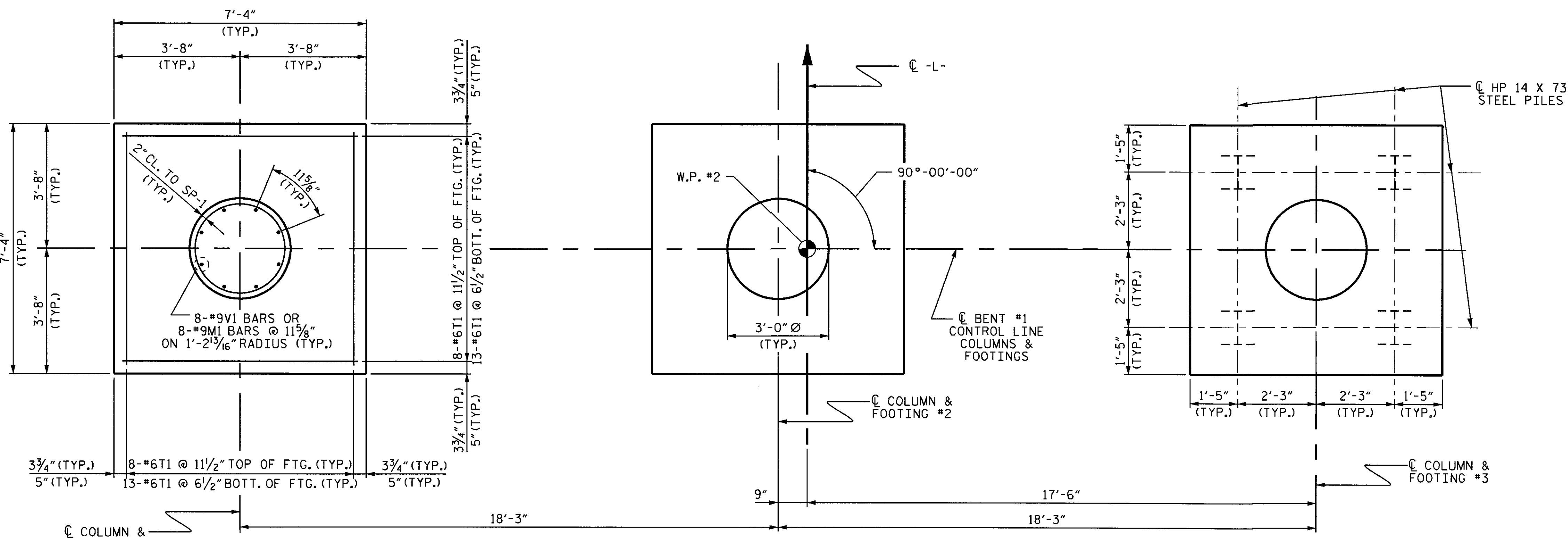
END VIEW

(TYP. EA. END)
 2" MIN. CONCRETE COVER FROM
 END OF CAP REQUIRED FOR ALL #4U1,
 #4U2 BARS. #4U1, #4U2 BARS MAY BE
 SHIFTED UP TO 2" TO CLEAR "B" BARS.

BAR TYPES		BILL OF MATERIAL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	6	#9	1	52'-0"	1061	
B2	6	#9	STR	49'-8"	1013	
B3	12	#4	STR	26'-1"	209	
D1	64	#6	STR	1'-6"	144	
M1	24	#9	2	8'-0"	653	
S1	74	#5	3	9'-0"	695	
T1	126	#6	STR	7'-0"	1325	
U1	6	#4	4	5'-8"	23	
U2	6	#4	4	5'-6"	22	
V1	24	#9	2	23'-11"	1952	
REINFORCING STEEL				=	7097 LBS	
SP-1	3	*	5	724'-8"	1452	
SPIRAL REINFORCING STEEL				=	1452 LBS	
CLASS A CONCRETE						
POUR #1 FOOTINGS				CU. YDS.	16.4	
POUR #2 COLUMNS				CU. YDS.	16.5	
POUR #3 CAP				CU. YDS.	17.8	
TOTAL				CU. YDS.	50.7	
HP 14 X 73 STEEL PILES						
NO. 12				LIN. FT.	660	
STEEL PILE POINTS					NO. 12	

ALL BAR DIMENSIONS ARE OUT TO OUT.

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PLAN OF COLUMNS AND FOOTINGS

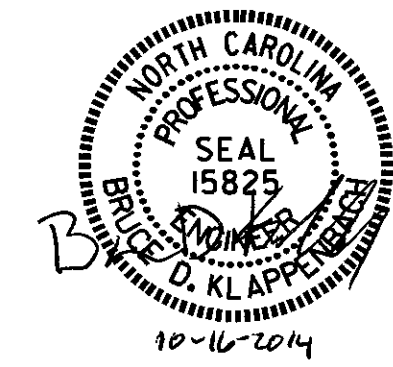
ALL FOOTINGS ARE TYPICAL UNLESS OTHERWISE NOTED

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 2 OF 2

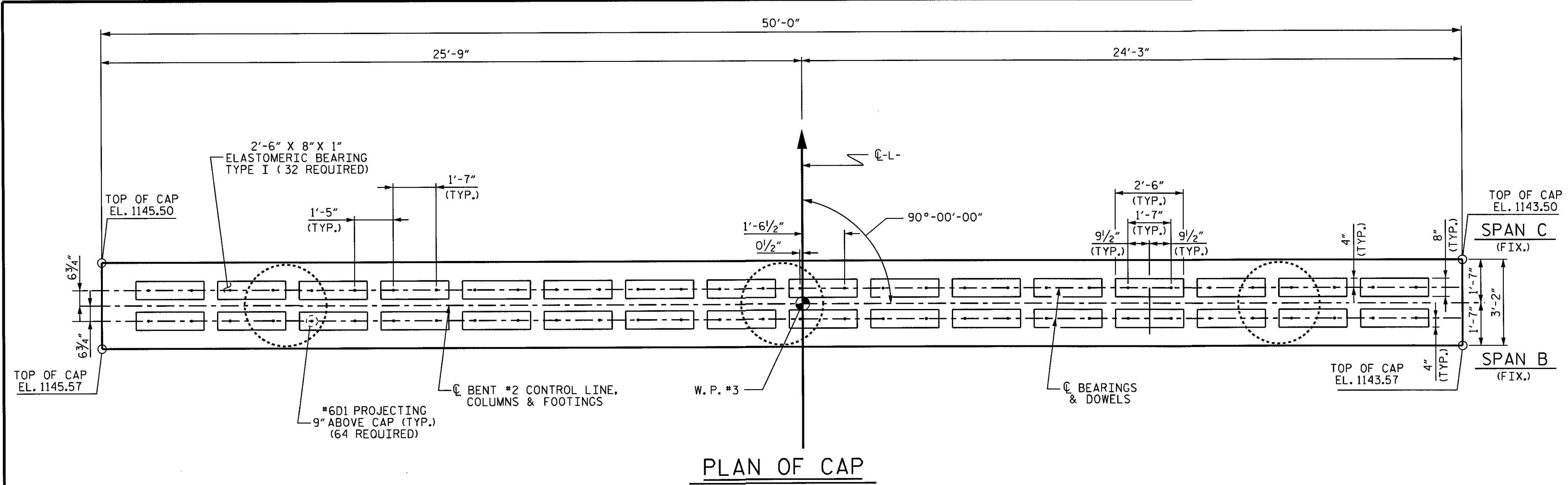
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1

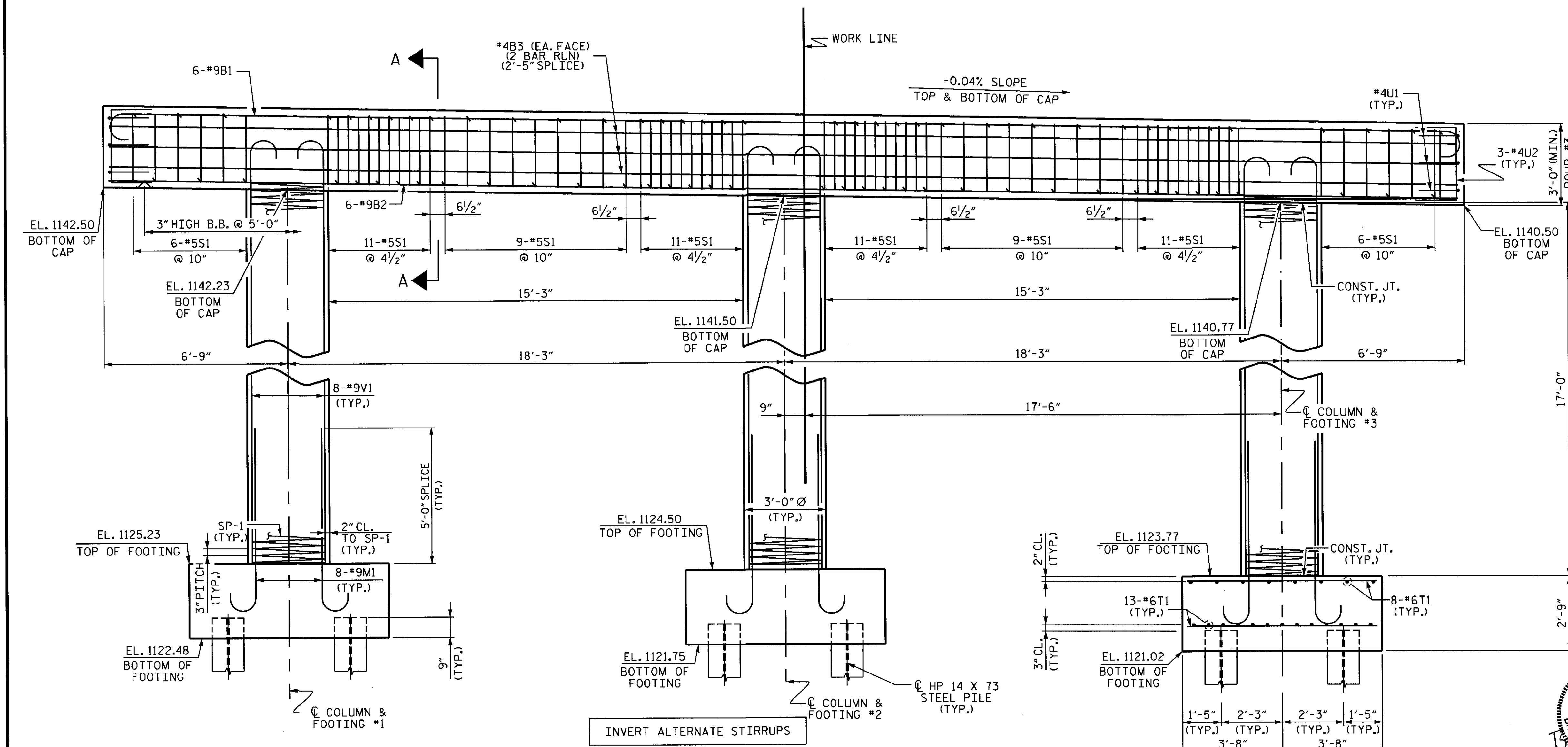


DRAWN BY: D.A. DAVENPORT DATE: 05/29/13
 CHECKED BY: R.L. CHESSON DATE: 06/04/13
 DESIGN ENGINEER OF RECORD: S.T. CHAMPION DATE: 6-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			27



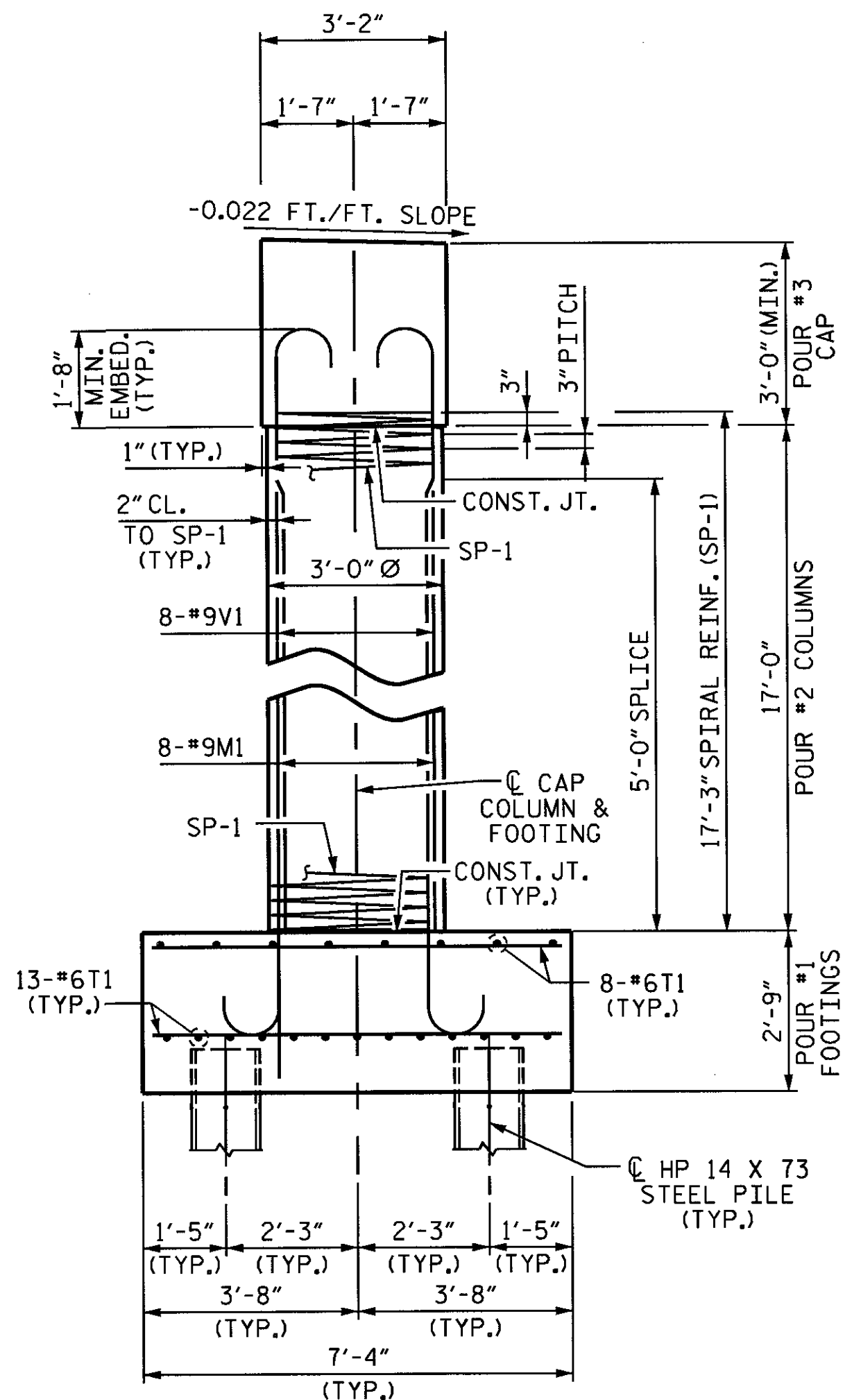
PLAN OF CAP



ELEVATION

FOOTINGS ARE IDENTICAL UNLESS OTHERWISE NOTED

NOTES
 STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.



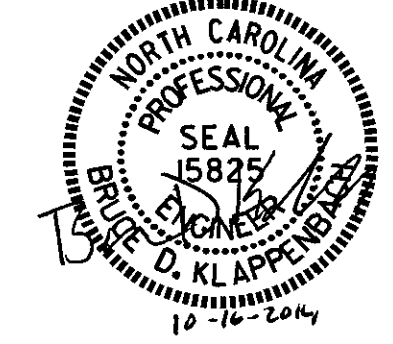
RIGHT END ELEVATION

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

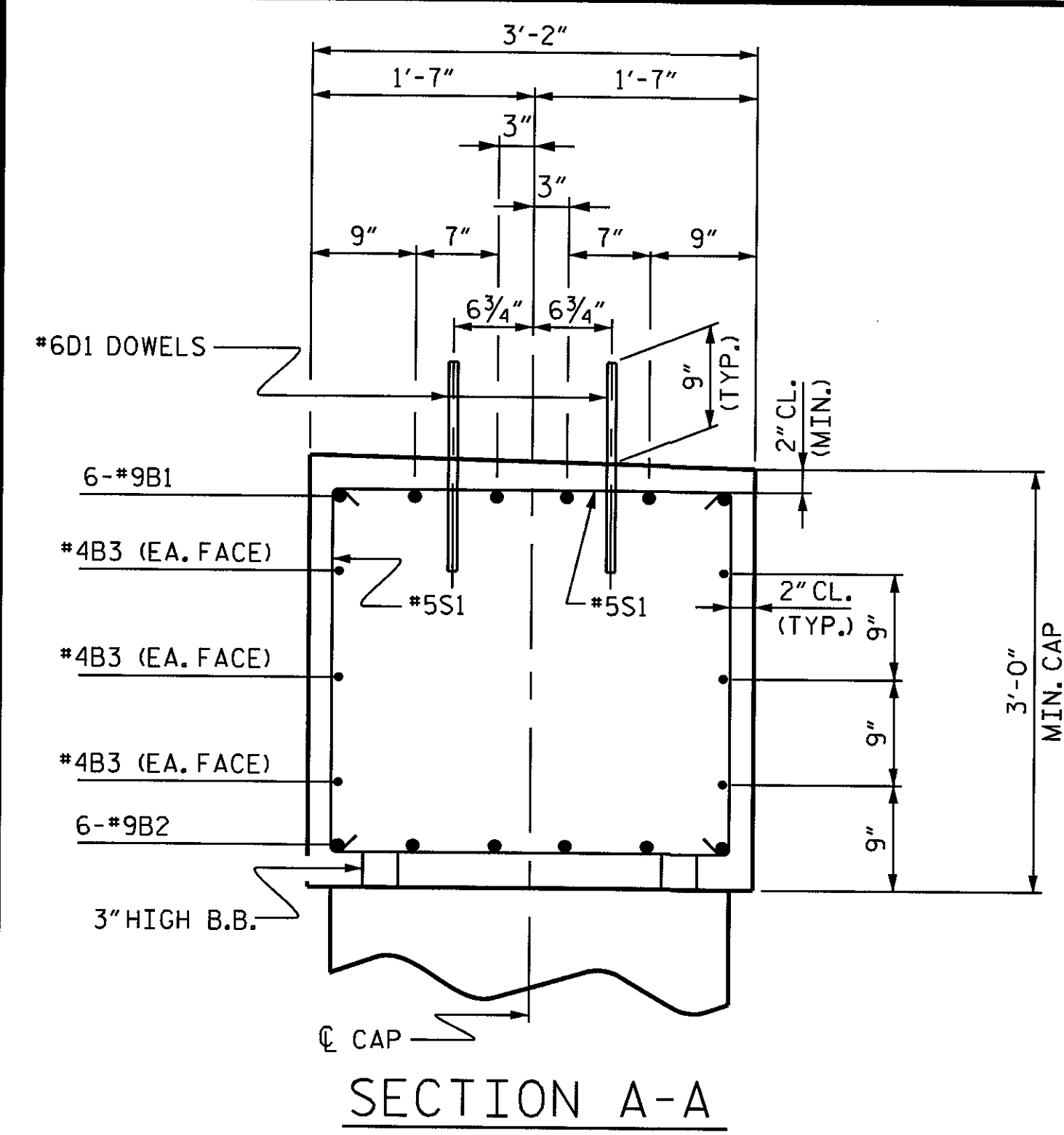
SUBSTRUCTURE
 BENT #2



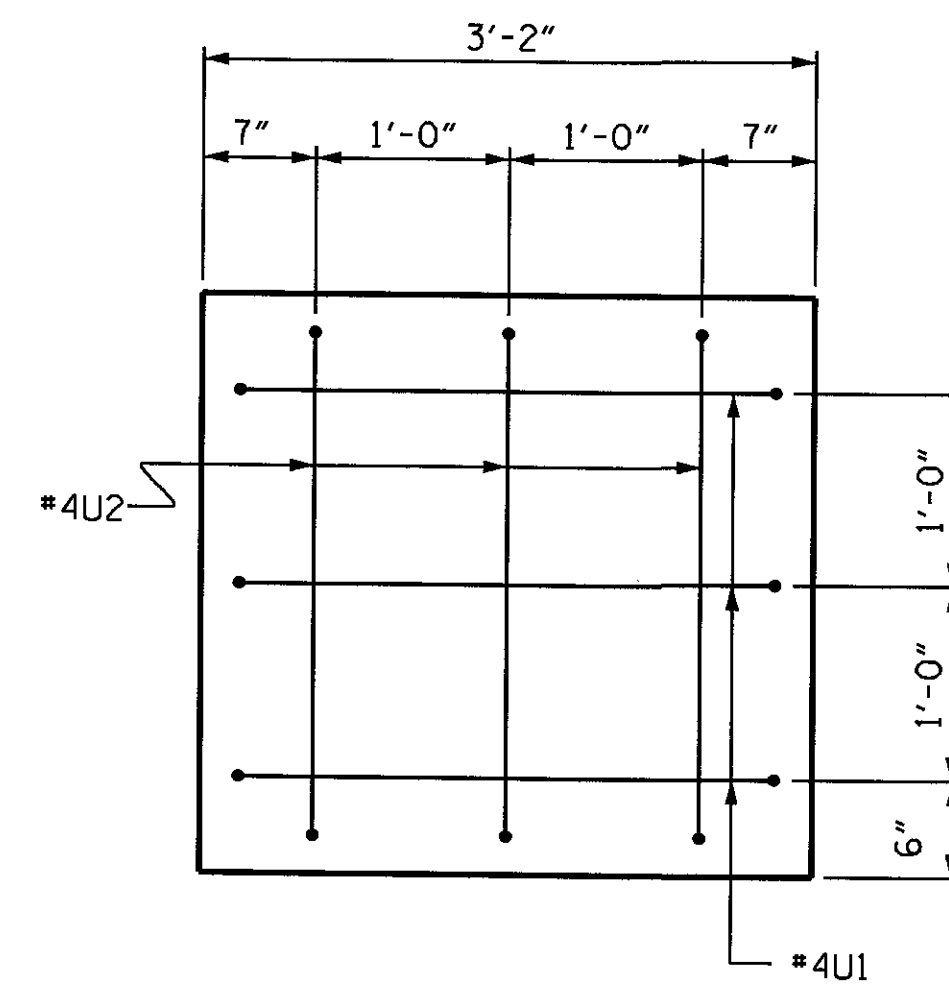
DRAWN BY: D.A. DAVENPORT DATE: 05/30/13
 CHECKED BY: R.L. CHESSON DATE: 06/04/13
 DESIGN ENGINEER OF RECORD: S.T. CHAMPION DATE: 6-13

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REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 27
2			4			



SECTION A-A

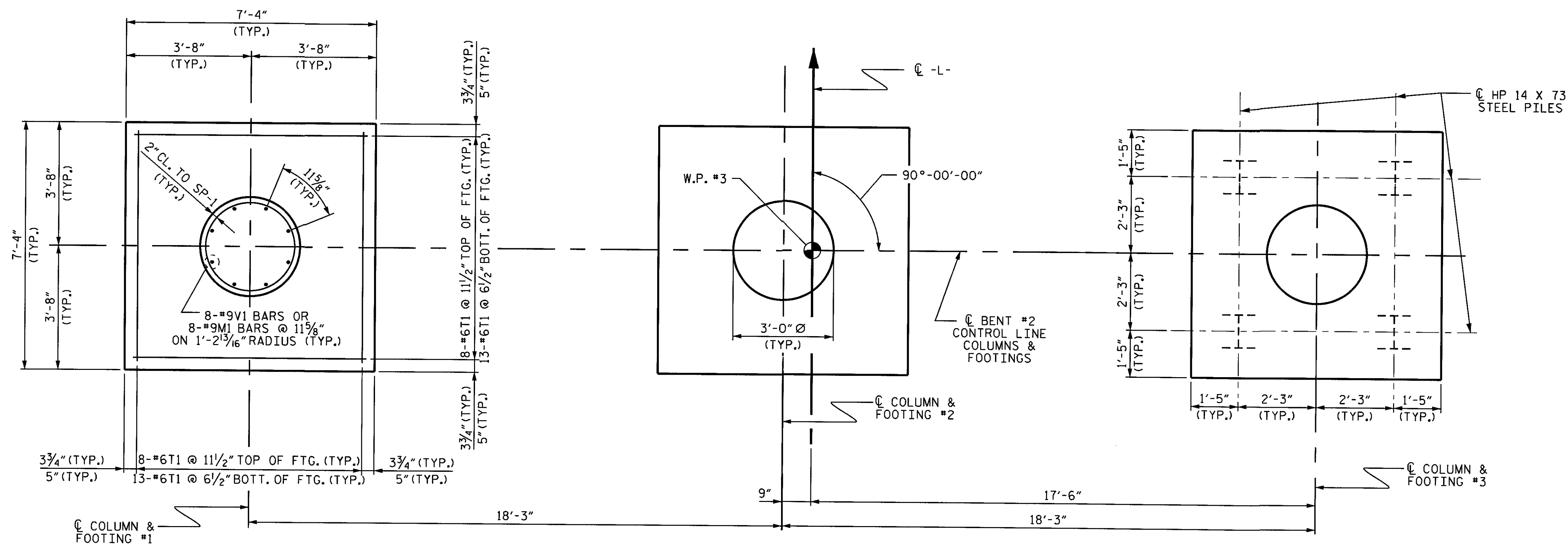


END VIEW

(TYP. EA. END)
2" MIN. CONCRETE COVER FROM
END OF CAP REQUIRED FOR ALL #4U1,
#4U2 BARS. #4U1, #4U2 BARS MAY BE
SHIFTED UP TO 2" TO CLEAR "B" BARS.

BAR TYPES		BILL OF MATERIAL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	6	#9	1	52'-0"	1061	
B2	6	#9	STR	49'-8"	1013	
B3	12	#4	STR	26'-1"	209	
D1	64	#6	STR	1'-6"	144	
M1	24	#9	2	8'-0"	653	
S1	74	#5	3	9'-0"	695	
T1	126	#6	STR	7'-0"	1325	
U1	6	#4	4	5'-8"	23	
U2	6	#4	4	5'-6"	22	
V1	24	#9	2	19'-11"	1625	
REINFORCING STEEL				=	6770 LBS	
SP-1	3	*	5	592'-11"	1188	
SPIRAL REINFORCING STEEL				=	1188 LBS	
CLASS A CONCRETE						
POUR #1 FOOTINGS				CU. YDS.	16.4	
POUR #2 COLUMNS				CU. YDS.	13.4	
POUR #3 CAP				CU. YDS.	17.8	
TOTAL				CU. YDS.	47.6	
HP 14 X 73 STEEL PILES						
NO. 12				LIN. FT.	720	
STEEL PILE POINTS						
				NO. 12		

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.



PLAN OF COLUMNS AND FOOTINGS

ALL FOOTINGS ARE TYPICAL UNLESS OTHERWISE NOTED

DRAWN BY : D.A. DAVENPORT DATE : 05/30/13
CHECKED BY : R.L. CHESSON DATE : 06/04/13
DESIGN ENGINEER : S.T. CHAMPION DATE : 6-13
OF RECORD :

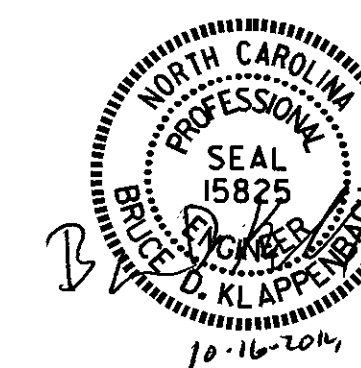
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PROJECT NO. BD-5111V
SURRY COUNTY
STATION: 13+58.65-L-

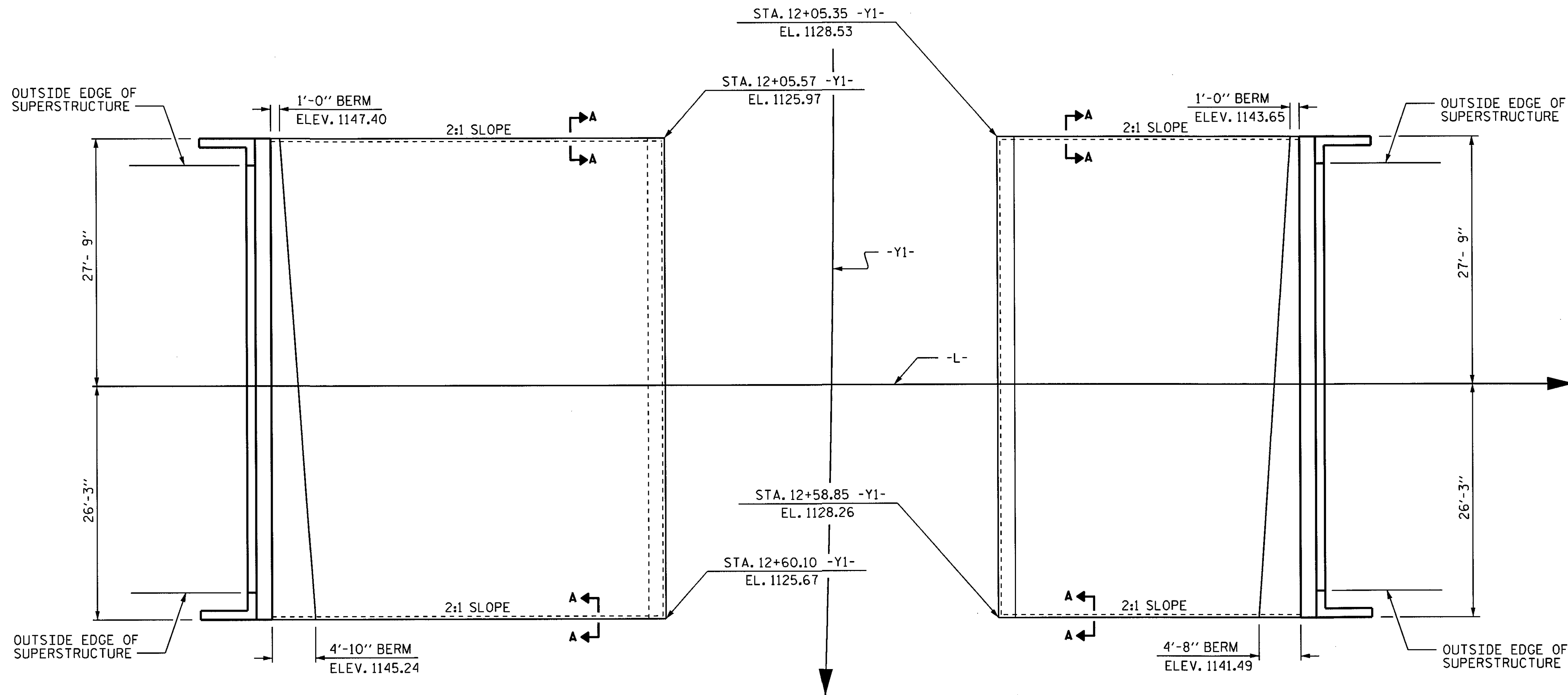
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #2



REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	5-24
1			3		TOTAL SHEETS
2			4		27



PLAN AT END BENT #1

PLAN AT END BENT #2

GENERAL NOTES

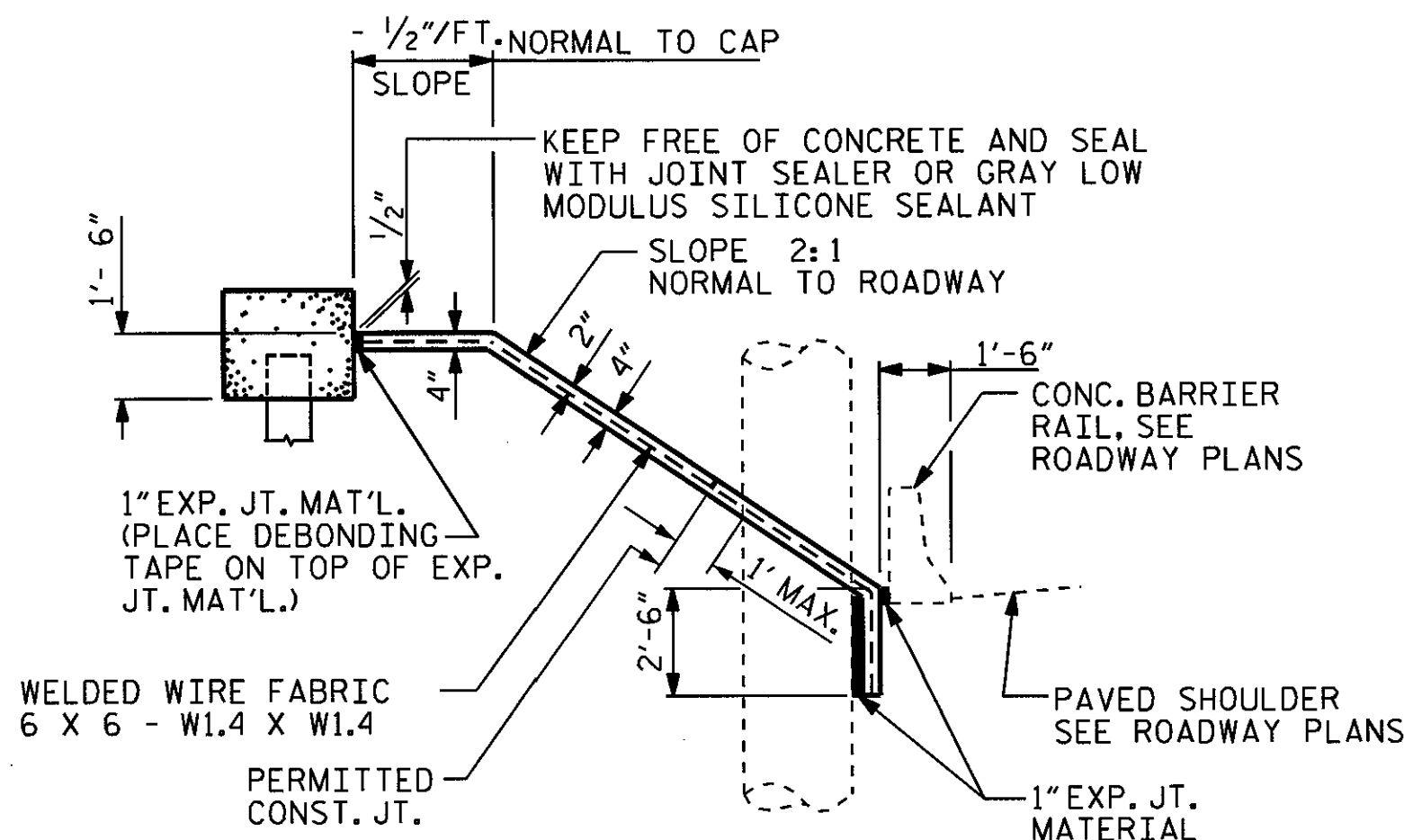
SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. THE CONTRACTOR, AT HIS OPTION, MAY USE ALTERNATE "B" ONLY FOR HIGHWAY OVER HIGHWAY GRADE SEPARATIONS WITH 2:1 END BENT SLOPE IN RURAL, UNPOPULATED AREAS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

ALTERNATE "A"

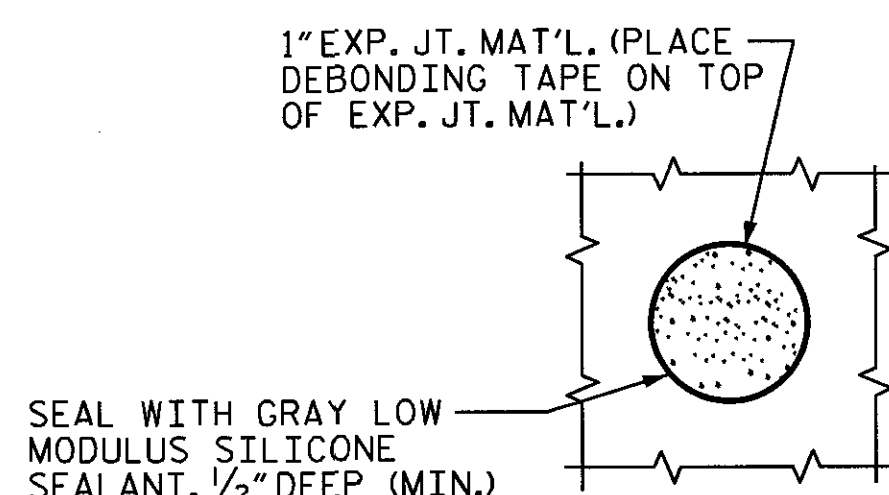
ALTERNATE "A" SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

BRIDGE @ STA. 13+58.65 -L-	4" INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	289	578
END BENT 2	218	436
TOTAL	507	1014

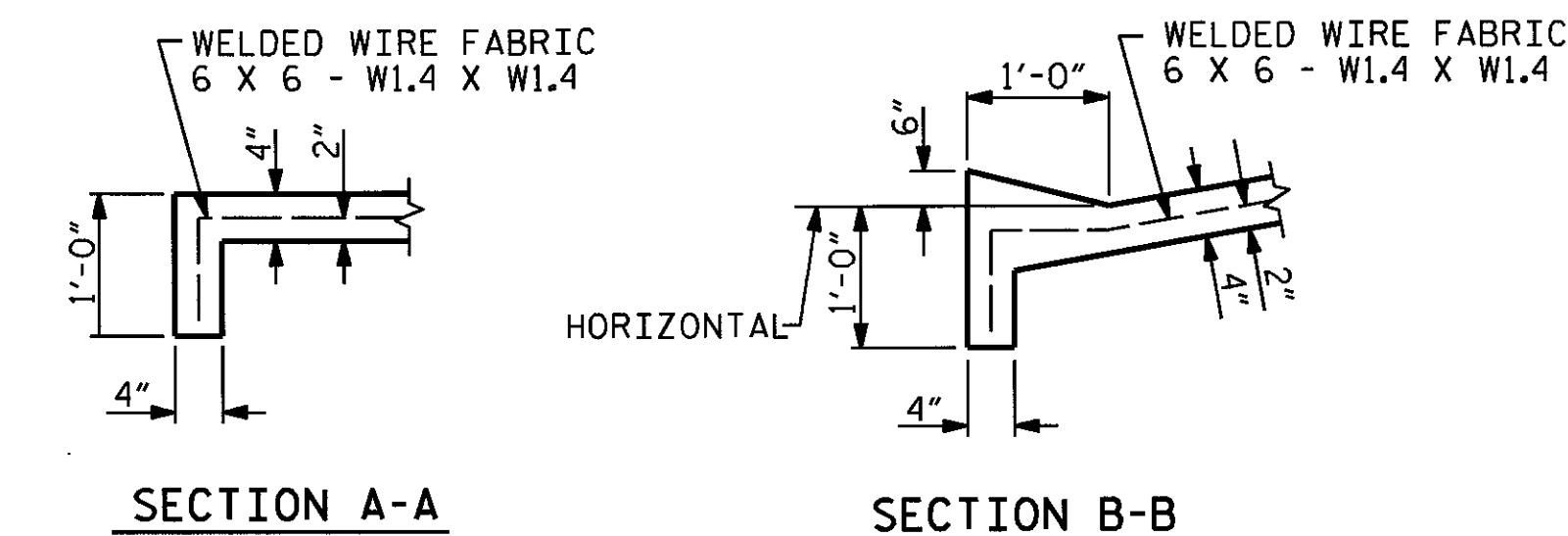
* QUANTITY SHOWN IS BASED ON 5' POURS.



SECTION ALONG C ROADWAY WITH SHOULDER PIER

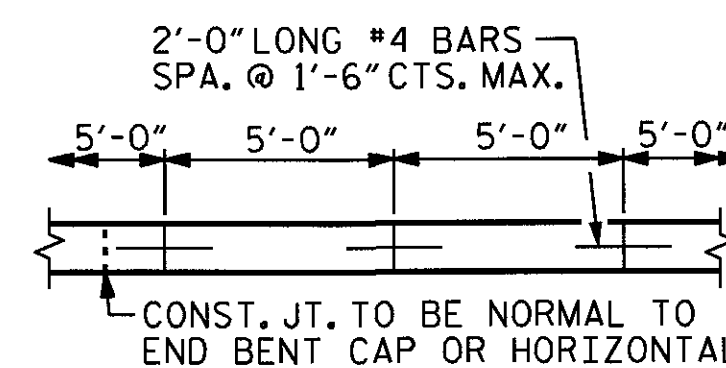


PLAN WHERE CONCRETE SLOPE PROTECTION MUST BE PLACED AROUND A BENT COLUMN

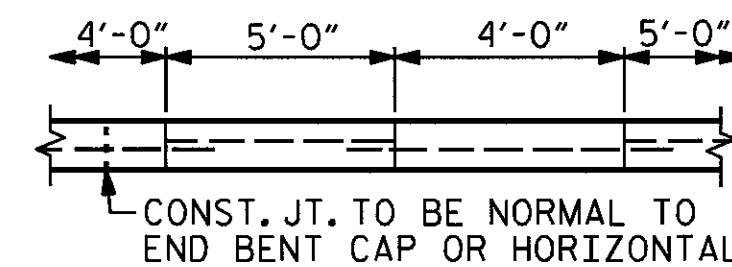


SECTION A-A

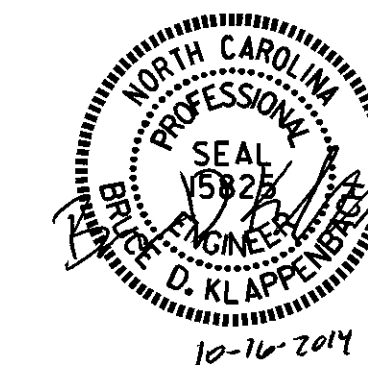
SECTION B-B



POURING DETAIL



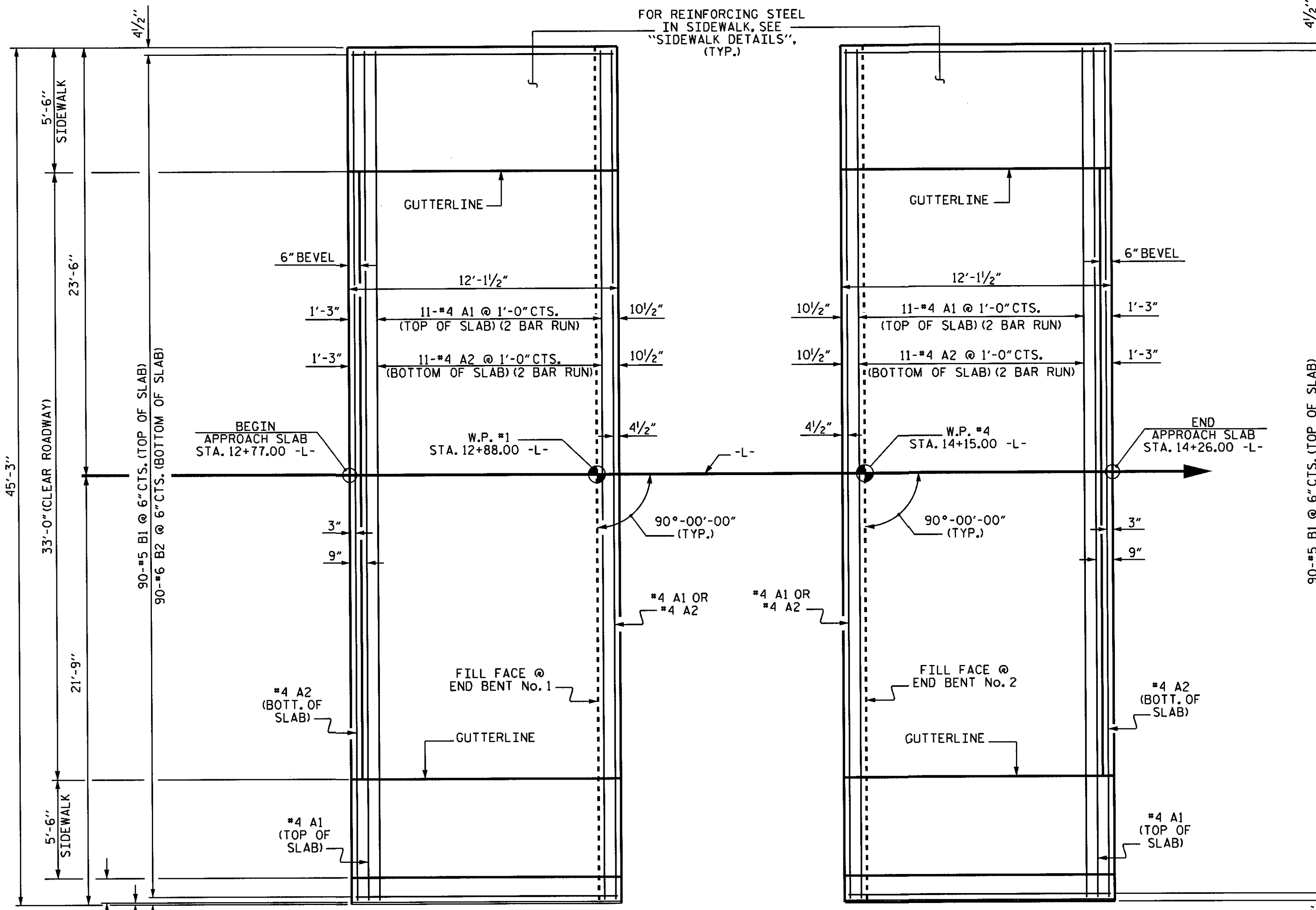
OPTIONAL POURING DETAIL



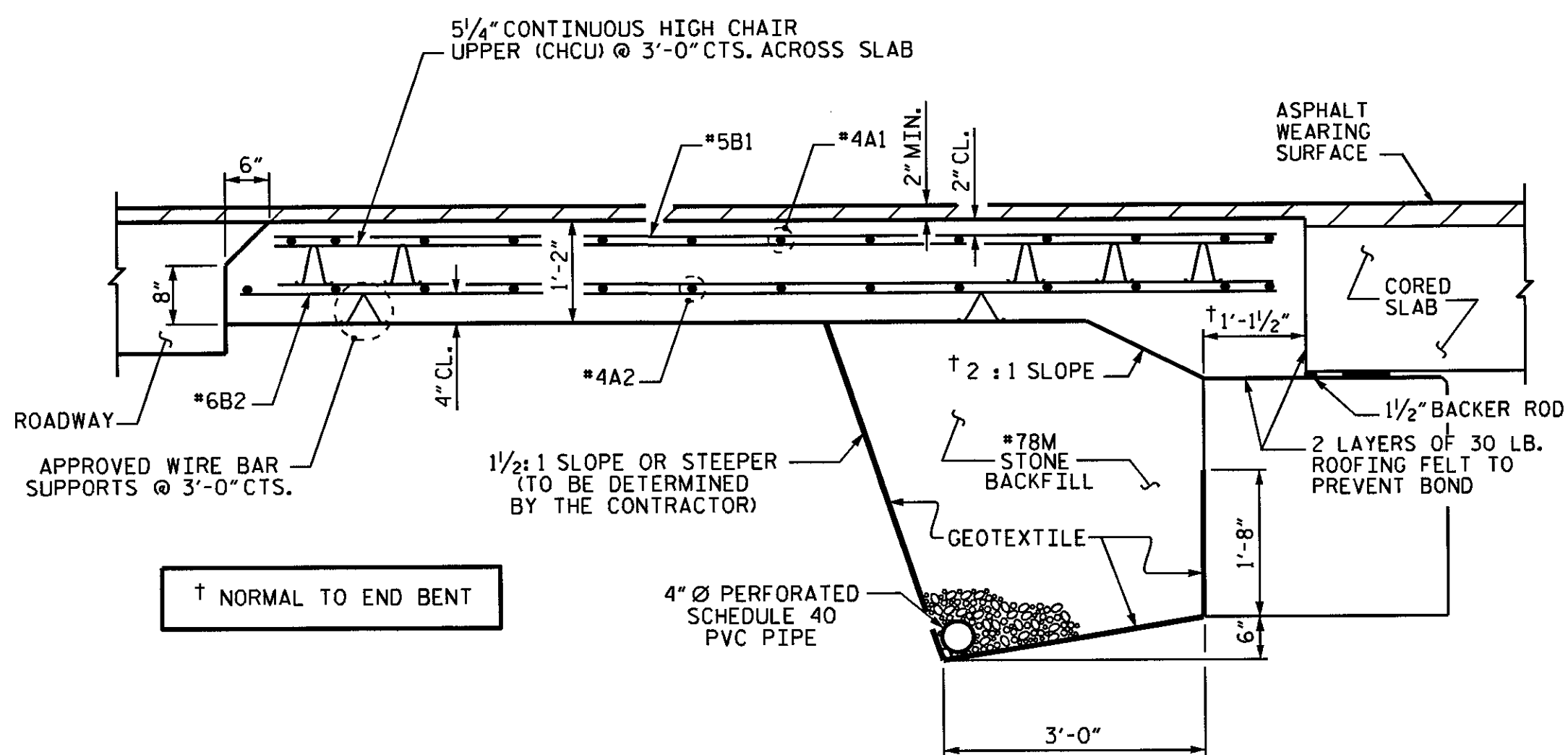
PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD SLOPE PROTECTION DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY : D. A. GLADDEN DATE : 6-13-13
 CHECKED BY : B. D. KLAPPENBACH DATE : 6-25-13
 DRAWN BY : ELR 5/92 REV. 5/1/06 TLA/GM
 CHECKED BY : GRP 6/92 REV. 10/1/11 MAA/GM
 REV. 12/21/11 MAA/GM



PLAN @ END BENT No. 1 **PLAN @ END BENT No. 2**
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

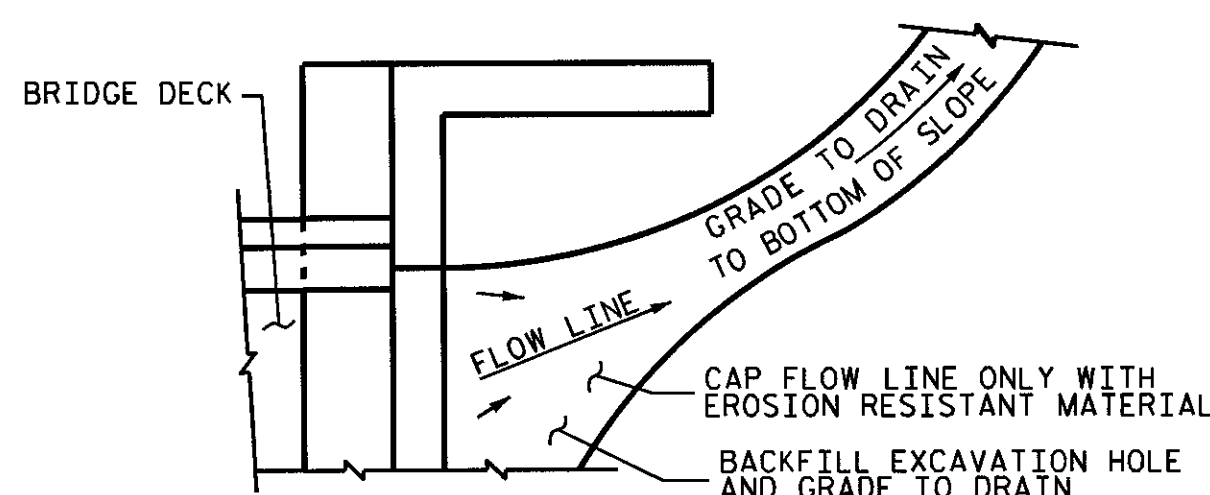


SECTION THRU SLAB

ASSEMBLED BY: M. POOLE DATE: 03/13
 CHECKED BY: D.A. GLADDEN DATE: 06/13
 DRAWN BY: SHS/MAA 5-09 REV. 12-11 MAA/AAC
 CHECKED BY: BCH 5-09

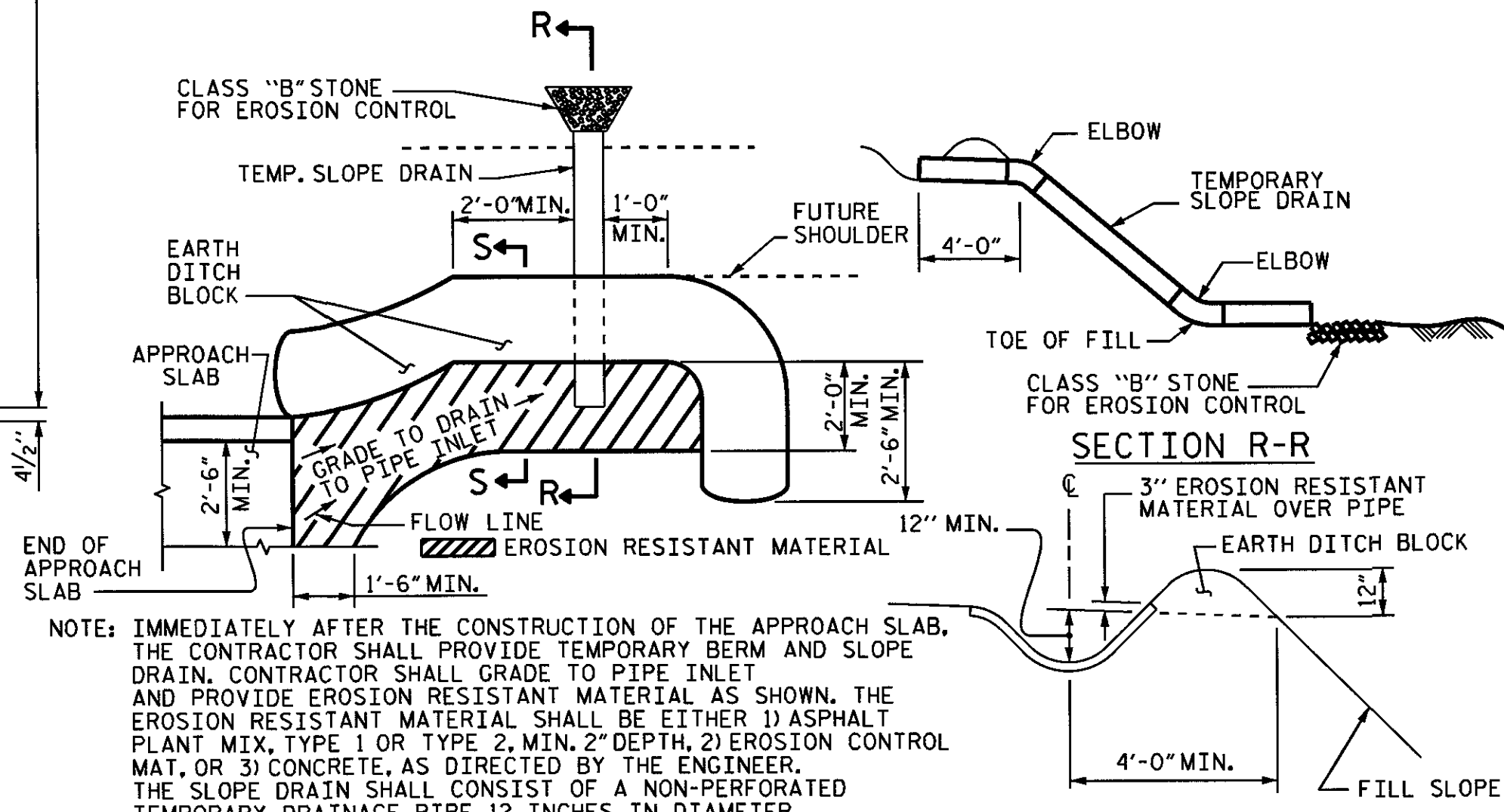
NOTES

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.
 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.
 FOR REINFORCING STEEL IN PARAPET, EXCEPT FOR #4 S1 BARS, SEE "PARAPET AND END POST DETAILS FOR TWO BAR METAL RAIL" SHEET.



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

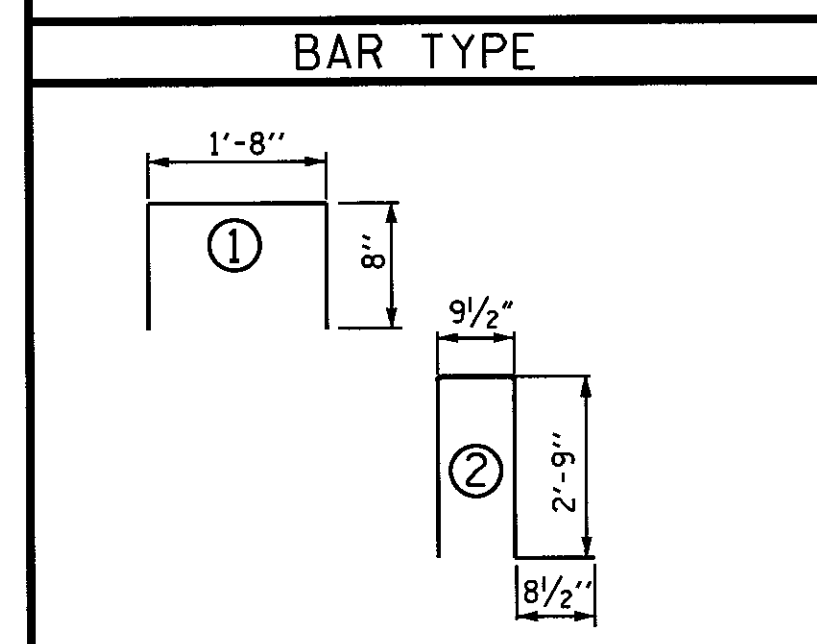


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW **SECTION R-R** **SECTION S-S**
TEMPORARY BERM AND SLOPE DRAIN DETAILS
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

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 No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	23'-6"	408
A2	26	#4	STR	23'-4"	405
*B1	90	#5	STR	11'-2"	1048
B2	90	#6	STR	11'-8"	1577
*B3	11	#4	STR	11'-8"	86
*G1	13	#4	STR	5'-0"	43
*S1	13	#5	2	7'-0"	95
*U1	6	#4	1	3'-0"	12
REINFORCING STEEL				LBS.	1982
*EPOXY COATED REINFORCING STEEL				LBS.	1692
CLASS AA CONCRETE					
POUR #1 SLAB				C. Y.	26.8
POUR #2 SIDEWALK				C. Y.	3.5
TOTAL				C. Y.	30.3
APPROACH SLAB AT EB No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	23'-6"	408
A2	26	#4	STR	23'-4"	405
*B1	90	#5	STR	11'-2"	1048
B2	90	#6	STR	11'-8"	1577
*B3	11	#4	STR	11'-8"	86
*G2	13	#4	STR	6'-3"	54
*S1	13	#5	2	7'-0"	95
*U1	6	#4	1	3'-0"	12
REINFORCING STEEL				LBS.	1982
*EPOXY COATED REINFORCING STEEL				LBS.	1703
CLASS AA CONCRETE					
POUR #1 SLAB				C. Y.	26.8
POUR #2 SIDEWALK				C. Y.	3.5
TOTAL				C. Y.	30.3

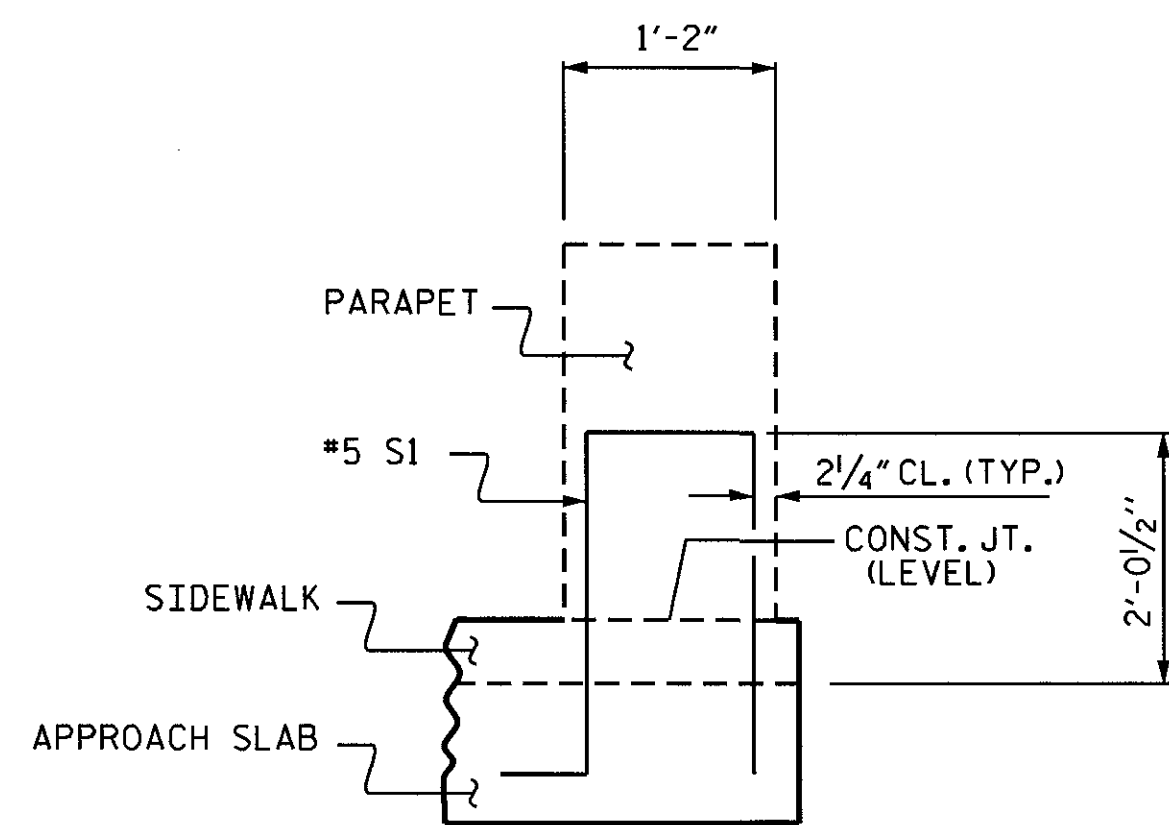


PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65 -L-

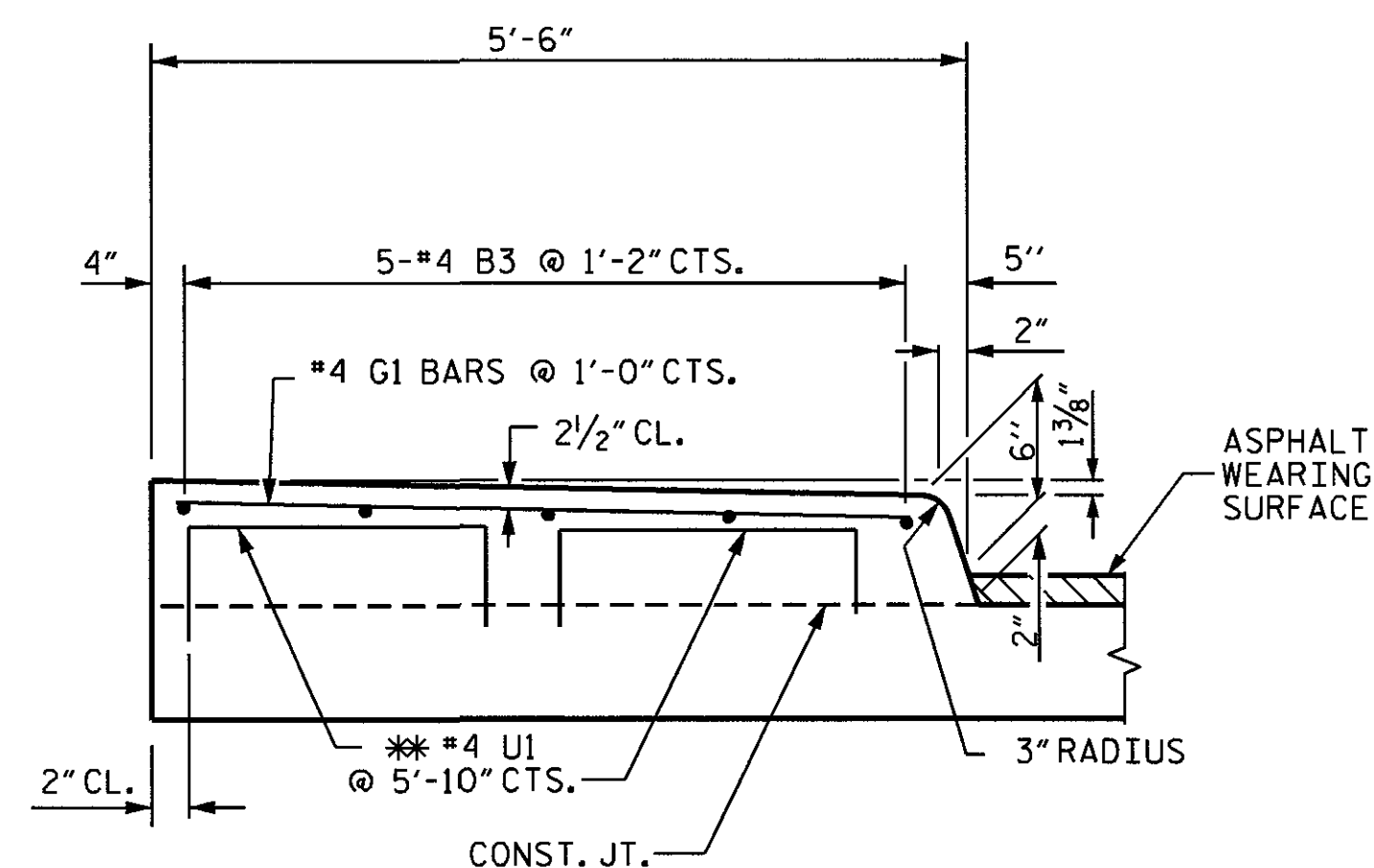
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW					
NO. REVISIONS					SHEET NO.
BY:	DATE:	NO.	BY:	DATE:	S-26
1		3			TOTAL SHEETS 27
2		4			

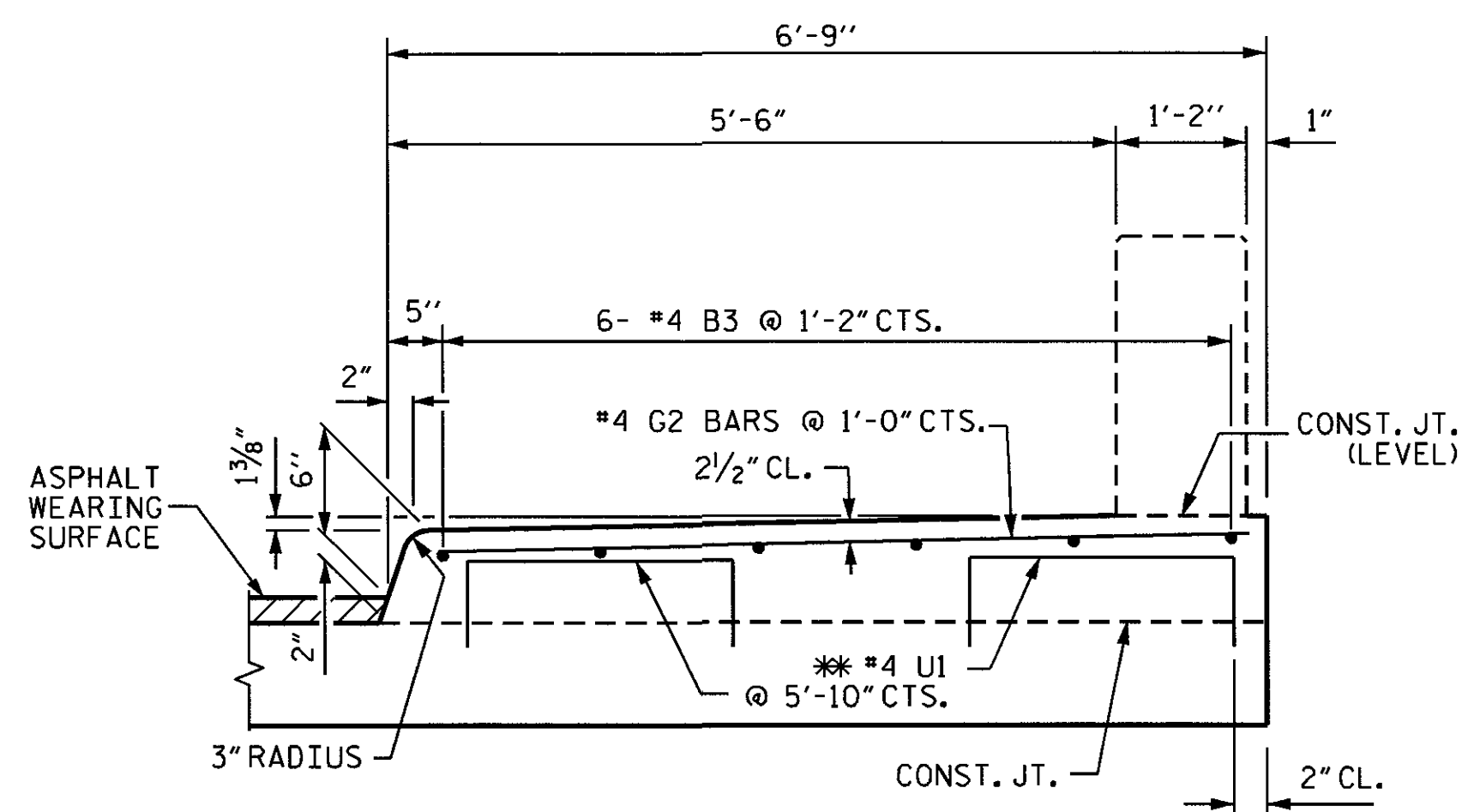




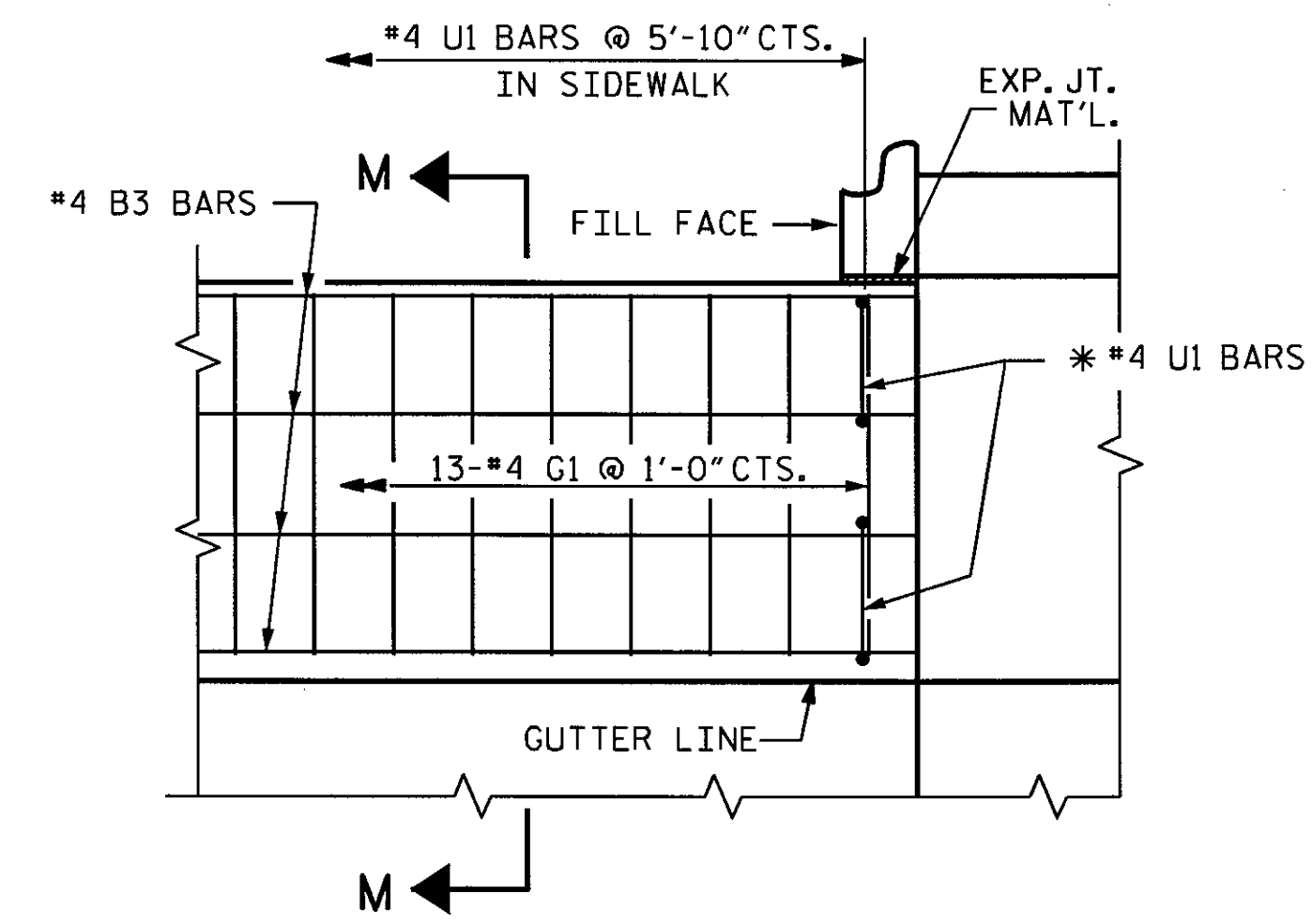
SECTION THROUGH PARAPET



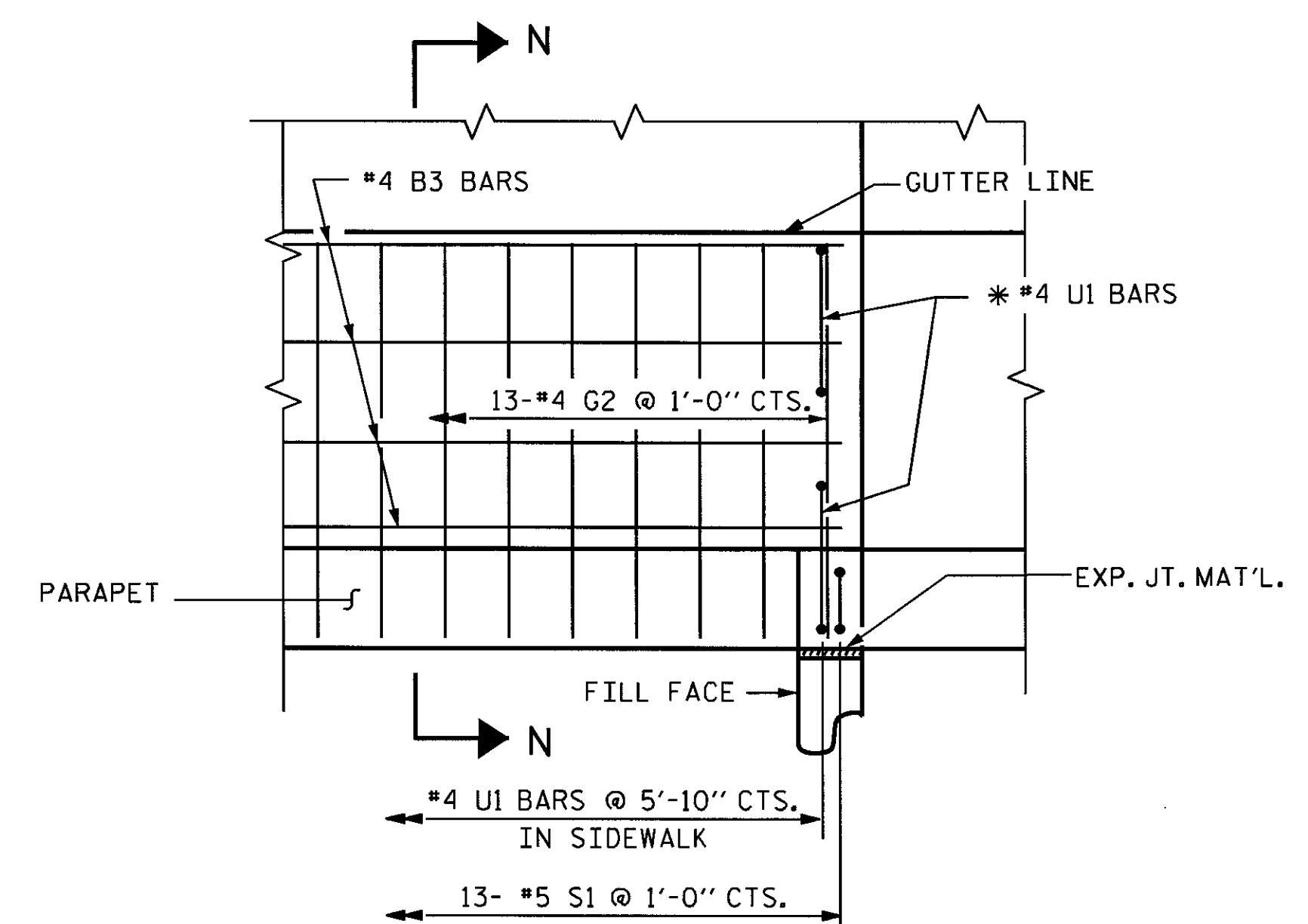
SECTION M-M



SECTION N-N



SECTION M-M



SECTION N-N

PLAN

DETAILS OF SIDEWALK ON APPROACH SLAB

PROJECT NO. BD-5111V
SURRY COUNTY
 STATION: 13+58.65 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-27
					TOTAL SHEETS 27



ASSEMBLED BY : M. POOLE	DATE : 03/13
CHECKED BY : D.A. GLADDEN	DATE : 06/13
DRAWN BY : FCJ 11/88	REV. 10/11 MAA/GM
CHECKED BY : ARB 11/88	REV. 7/12 MAA/GM
	REV. 10/12 MAA/GM

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

6/2/09

PAVEMENT SCHEDULE	
C	1 1/2" SURFACE COURSE, TYPE SF9.5A
D	VAR. DEPTH INTER. COURSE, TYPE I19.0B
E	5 1/2" BASE COURSE, TYPE B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

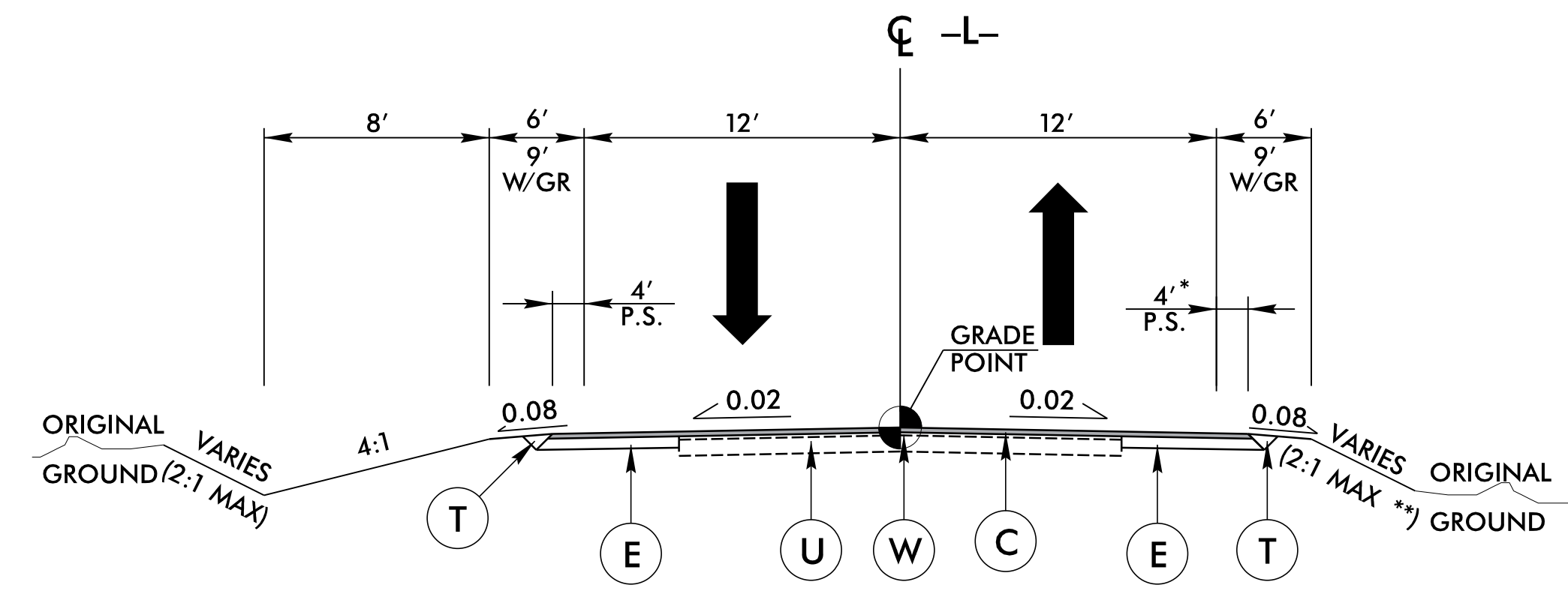
PROJECT REFERENCE NO. BD-5111V	SHEET NO. 2
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ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23982

ENGINEER STEPHEN E. ROBERTS

Stephen E. Roberts 1-2015

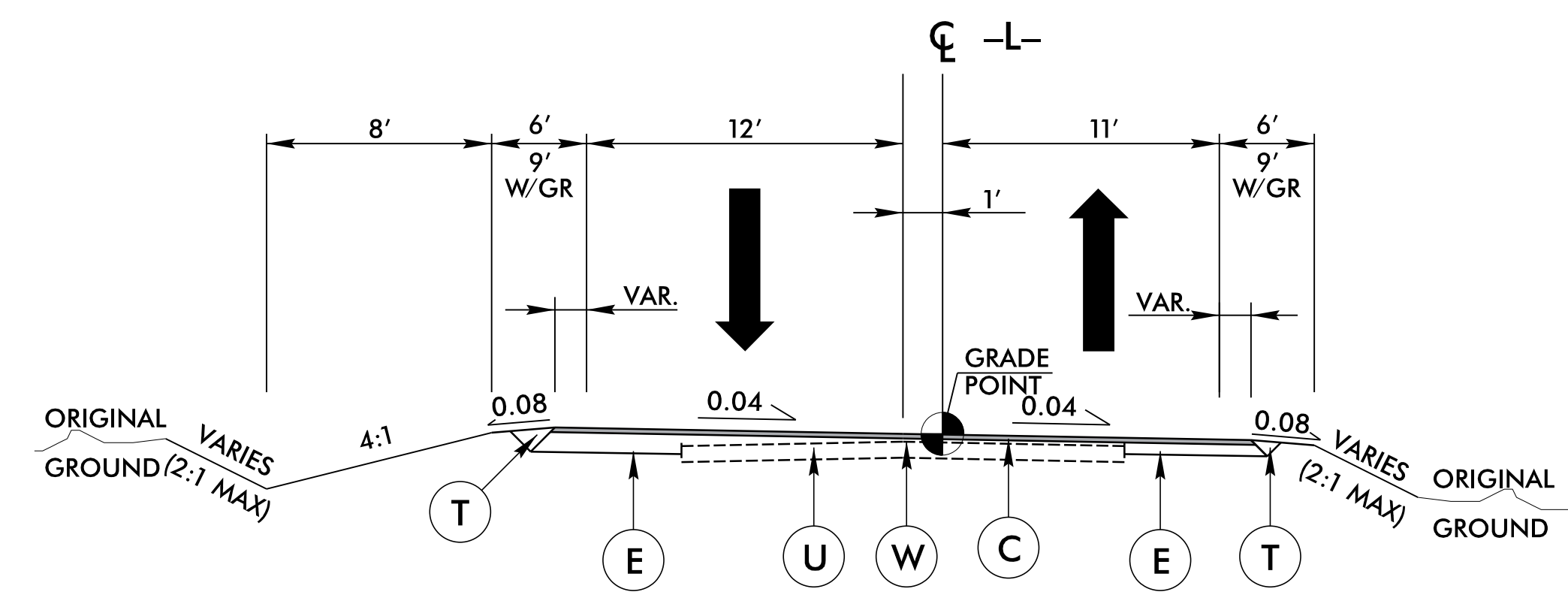


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
 -L- STA. 10+03.92 TO 12+32.26
 -L- STA. 14+86.54 TO 16+92.54

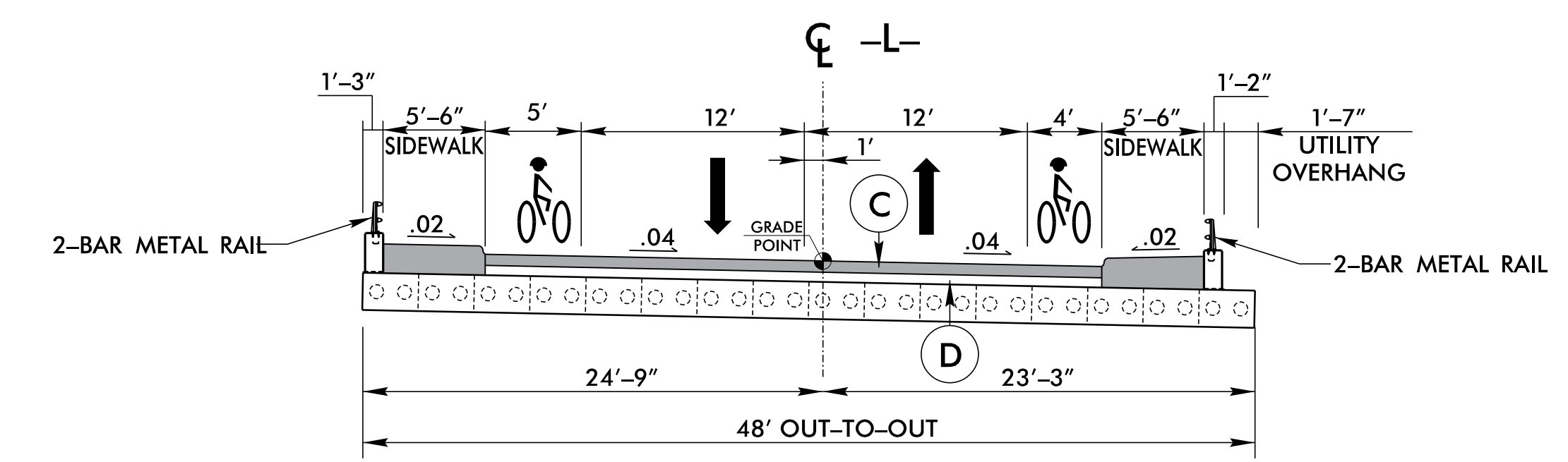
NOTE: TRANSITION BETWEEN TYPICAL SECTIONS NO. 1 AND NO. 2 AT THE FOLLOWING LOCATIONS:
 -L- STA. 12+32.26 TO 12+72.26
 -L- STA. 14+46.54 TO 14+86.54

* GRASS SHOULDER TRANSITION UP TO STA. 11+10.85 RT WHERE 4' PAVED SHOULDER BEGINS



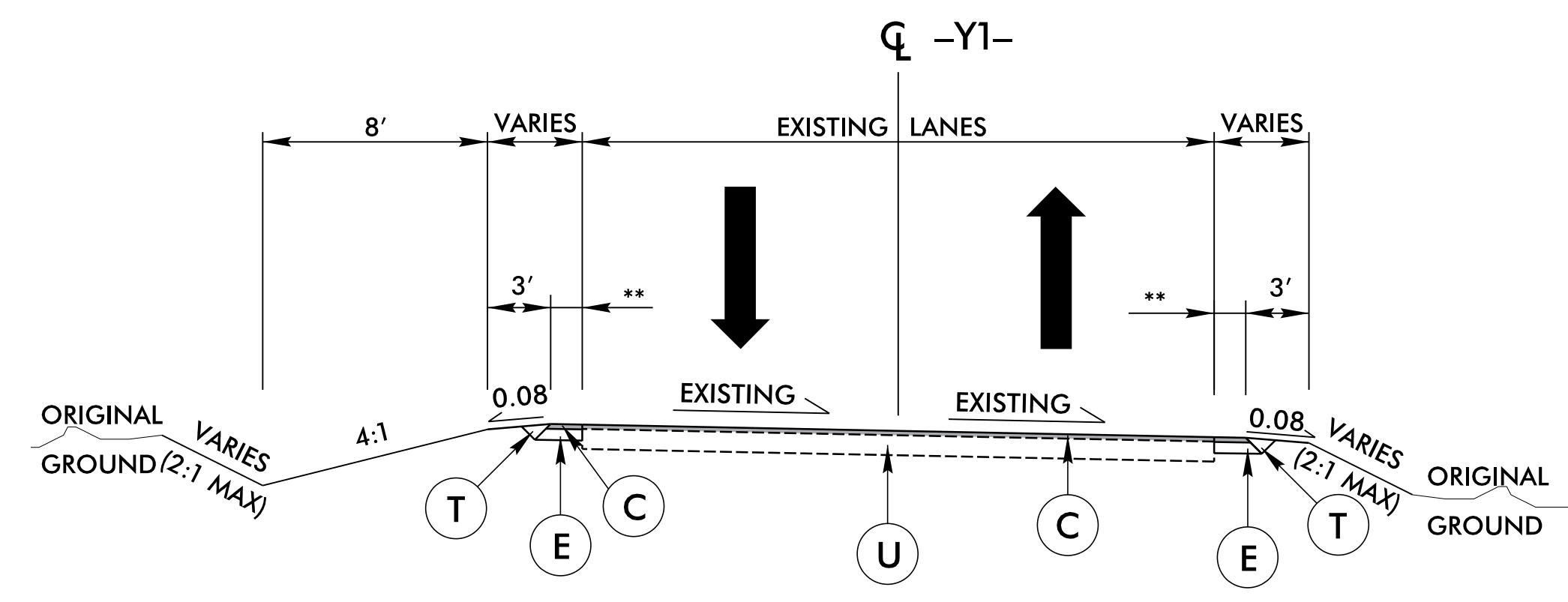
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA. 12+72.26 TO 12+88.00 (BEGIN BRIDGE)
 -L- STA. 14+15.00 (END BRIDGE) TO 14+46.54



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
 -L- STA. 12+88.00 (BEGIN BRIDGE) TO 14+15.00 (END BRIDGE)



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
 -Y1- STA. 10+86.35 TO 13+86.99

** PAVED SHOULDER EXTENDS TO FACE OF GUARDRAIL

NOTE: OVERLAY EXISTING PAVEMENT FOR PAVEMENT MARKINGS AFTER CLOSING ONSITE DETOUR. FOR LIMITS OF OVERLAY, SEE TRAFFIC CONTROL PLANS.

PLANS PREPARED BY :

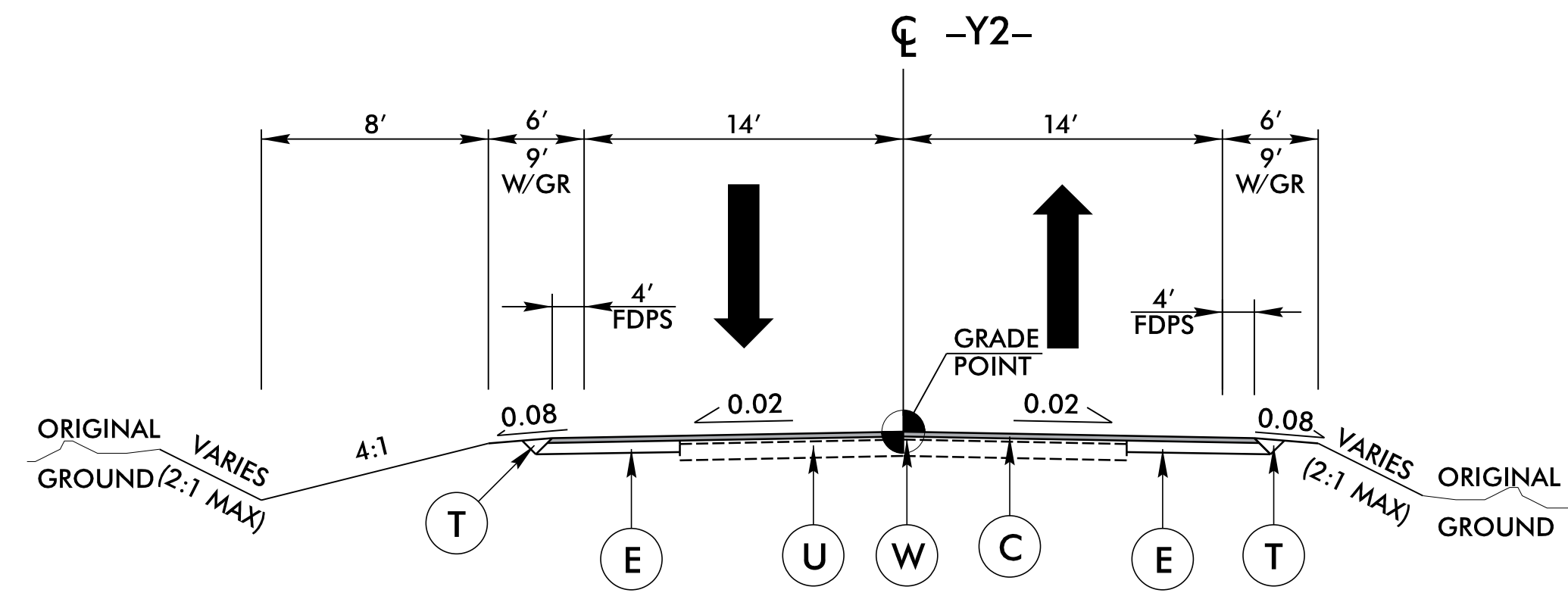
RK&K

RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NO. F-0112 • (919) 878-9560

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6/2/09

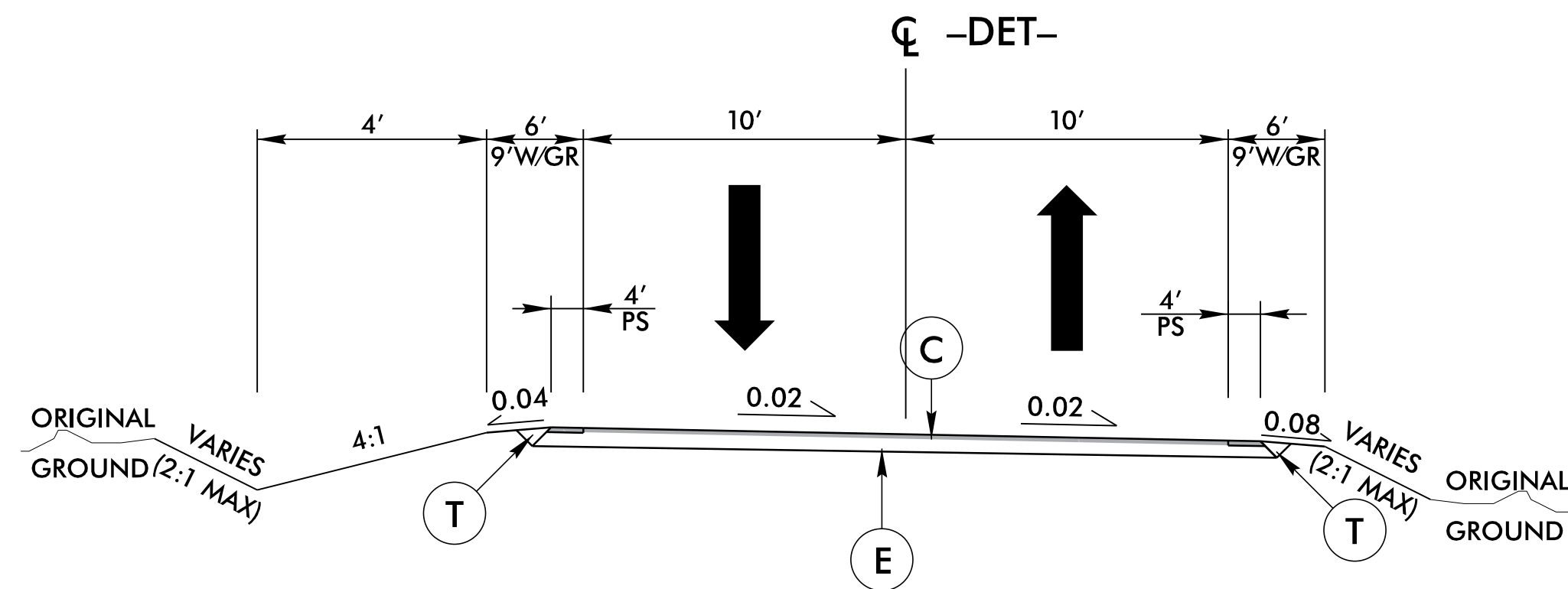
PAVEMENT SCHEDULE	
C	1 1/2" SURFACE COURSE, TYPE SF9.5A
E	5 1/2" BASE COURSE, TYPE B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
-Y2- STA. 11+20.00 TO 12+48.10

NOTE: OVERLAY EXISTING PAVEMENT FOR PAVEMENT MARKINGS AFTER CLOSING ONSITE DETOUR. FOR LIMITS OF OVERLAY, SEE TRAFFIC CONTROL PLANS.



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-DET- STA. 10+58.83 TO 13+76.90



PROJECT REFERENCE NO. BD-5111V	SHEET NO. 2A
ROADWAY DESIGN ENGINEER	
Stephen E. Roberts 1-2015	

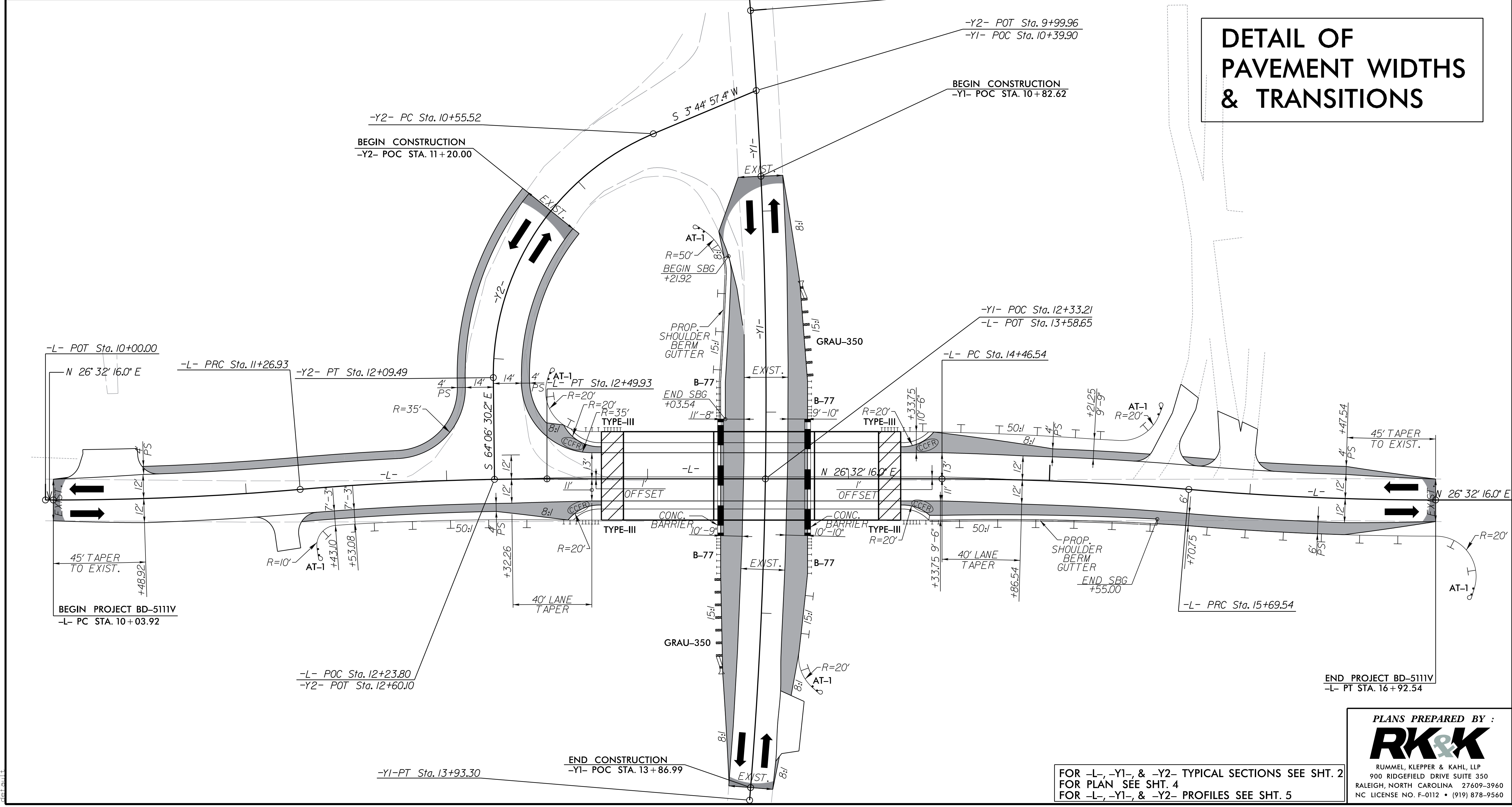
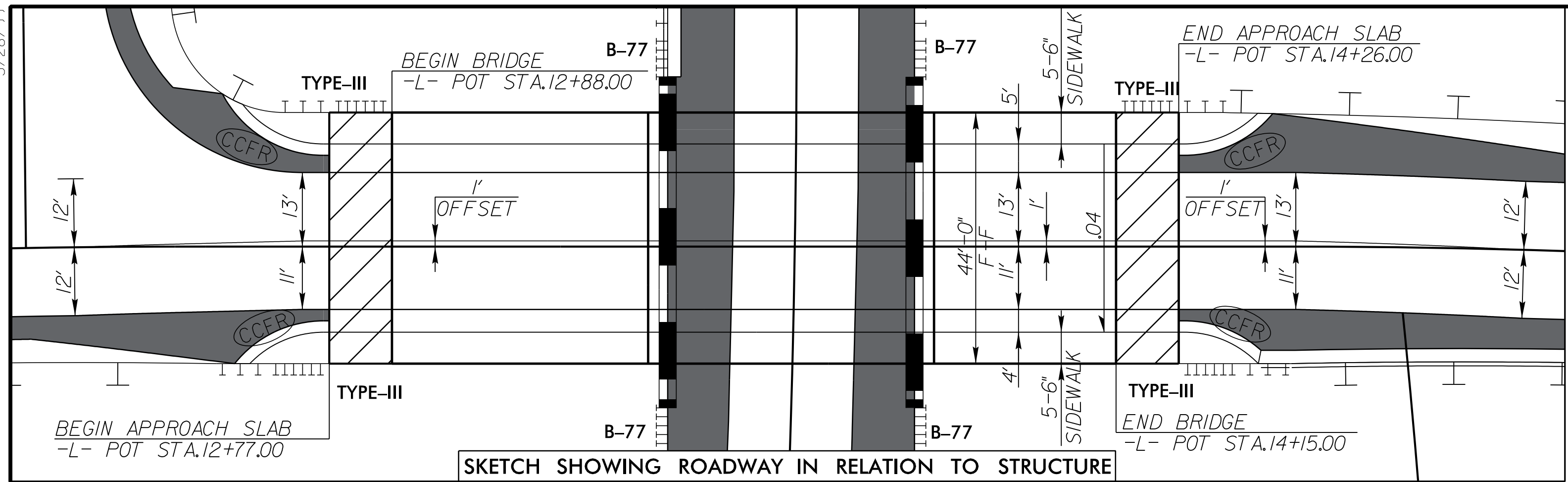
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PLANS PREPARED BY :

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

5/28/99

PROJECT REFERENCE NO. BD-5111V	SHEET NO. 2B
ROADWAY DESIGN ENGINEER	
	
GRAPHIC SCALES 	



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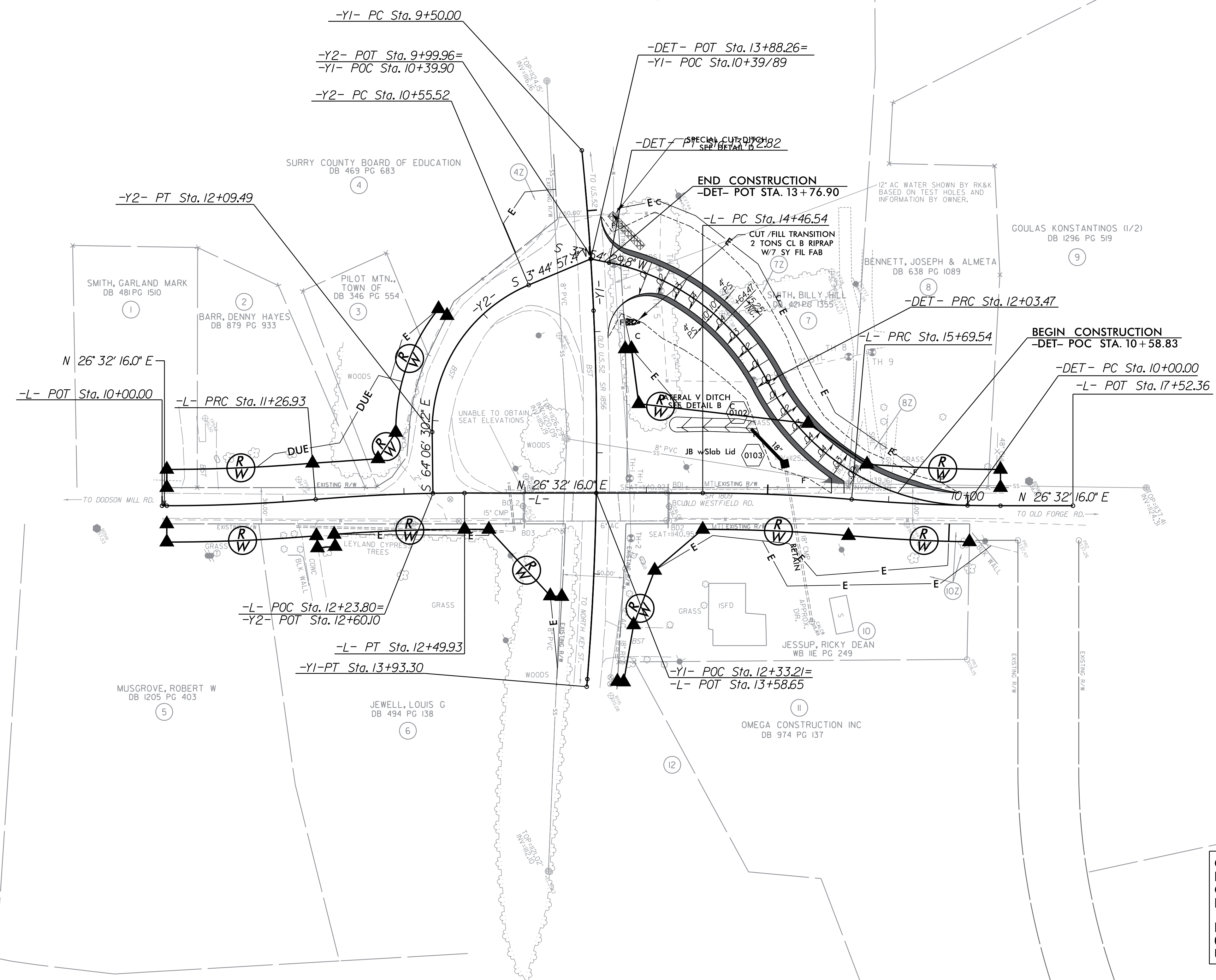
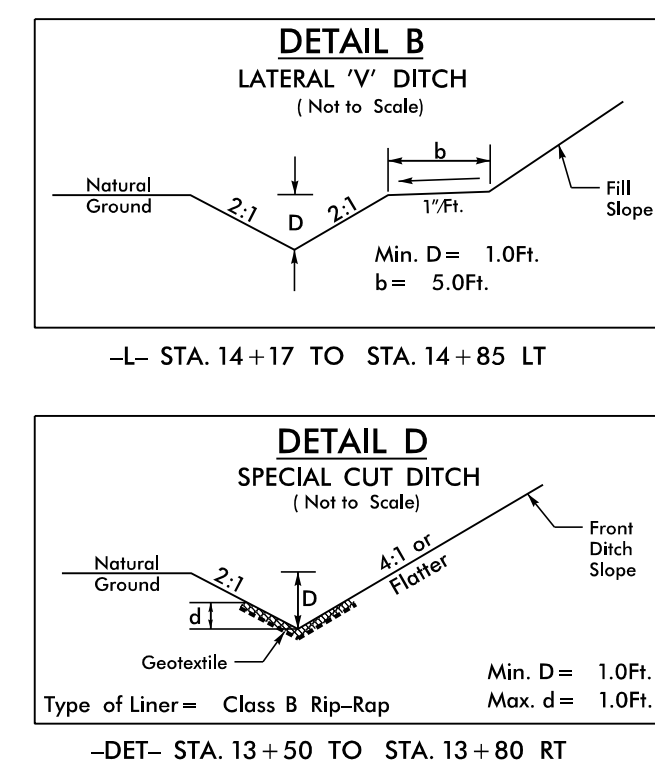
FOR -L-, -Y1-, & -Y2- TYPICAL SECTIONS SEE SHT. 2
 FOR PLAN SEE SHT. 4
 FOR -L-, -Y1-, & -Y2- PROFILES SEE SHT. 5

PLANS PREPARED BY :

 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEMOUNT DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NO. F-0112 • (919) 878-9560

PROJECT REFERENCE NO. BD-5111V	SHEET NO. 2C
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
GRAPHIC SCALES	
<p>25 0 25 50 PLANS</p>	

DETAIL OF DETOUR



-DET-	
PI Sta 11+12.72	PI Sta 12+94.23
$\Delta = 61' 21' 27.2'' (RT)$	$\Delta = 51' 04' 06.1'' (LT)$
$D = 30' 09' 20.4''$	$D = 30' 09' 20.4''$
$L = 203.47'$	$L = 169.35'$
$T = 112.72'$	$T = 90.76'$
$R = 190.00'$	$R = 190.00'$
$SE = 0.04$	$SE = 0.04$
$V = 30\text{mph}$	$V = 30\text{mph}$

COMPLETE ADDITIONAL RESURFACING FOR PAVEMENT MARKINGS TO THE LIMITS SHOWN ON THE TRAFFIC CONTROL PLANS AFTER DETOUR IS NO LONGER IN USE.

DRIVEWAY TO BE LEFT IN PLACE FOR PARCEL 07Z AT DETOUR INTERSECTION WITH OLD US 52. FOR LIMITS OF DRIVEWAY, SEE SHT 4.

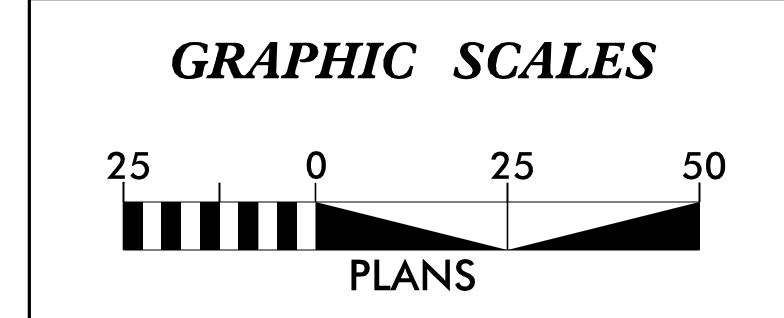
PLANS PREPARED BY :

RK&K

RUMMEL KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR -DET- TYPICAL SECTION SEE SHT. 2A
FOR -DET- PROFILES SEE SHT. 5

PROJECT REFERENCE NO. BD-511V	SHEET NO. 4
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 23982 STEPHEN E. ROBERTS	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 27434 MATTHEW L. DOW

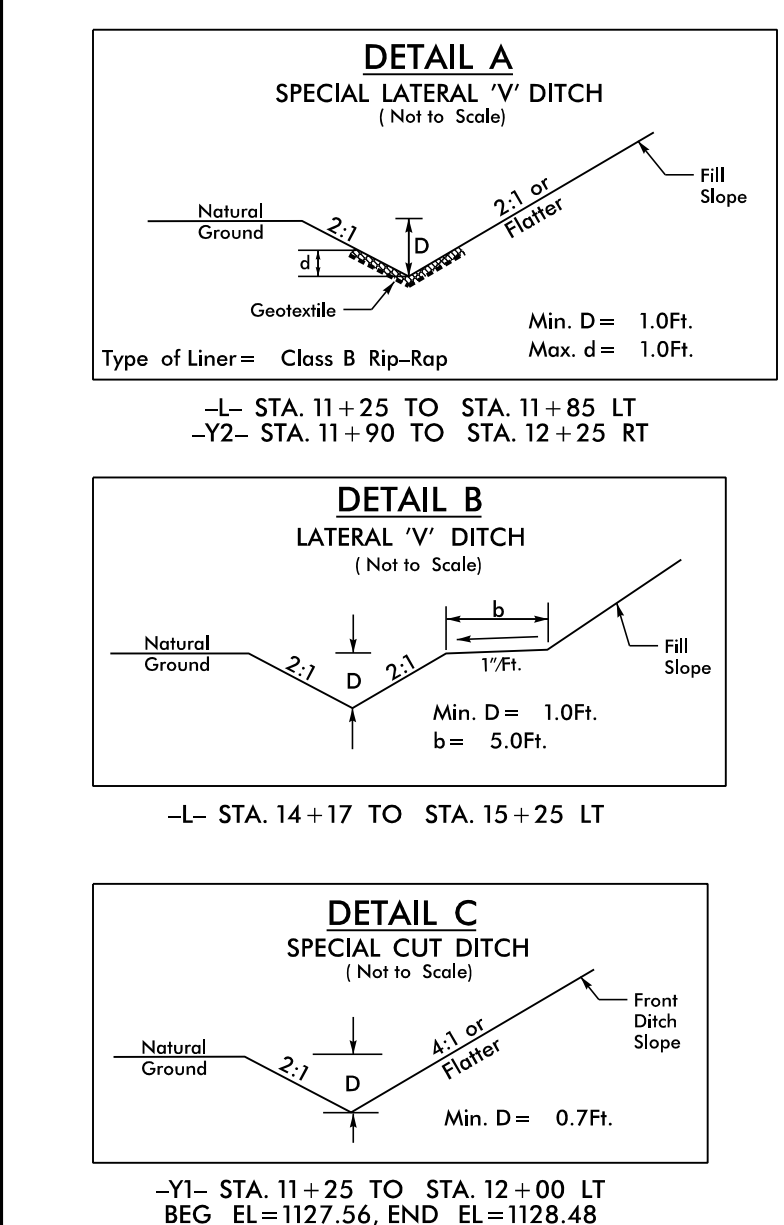
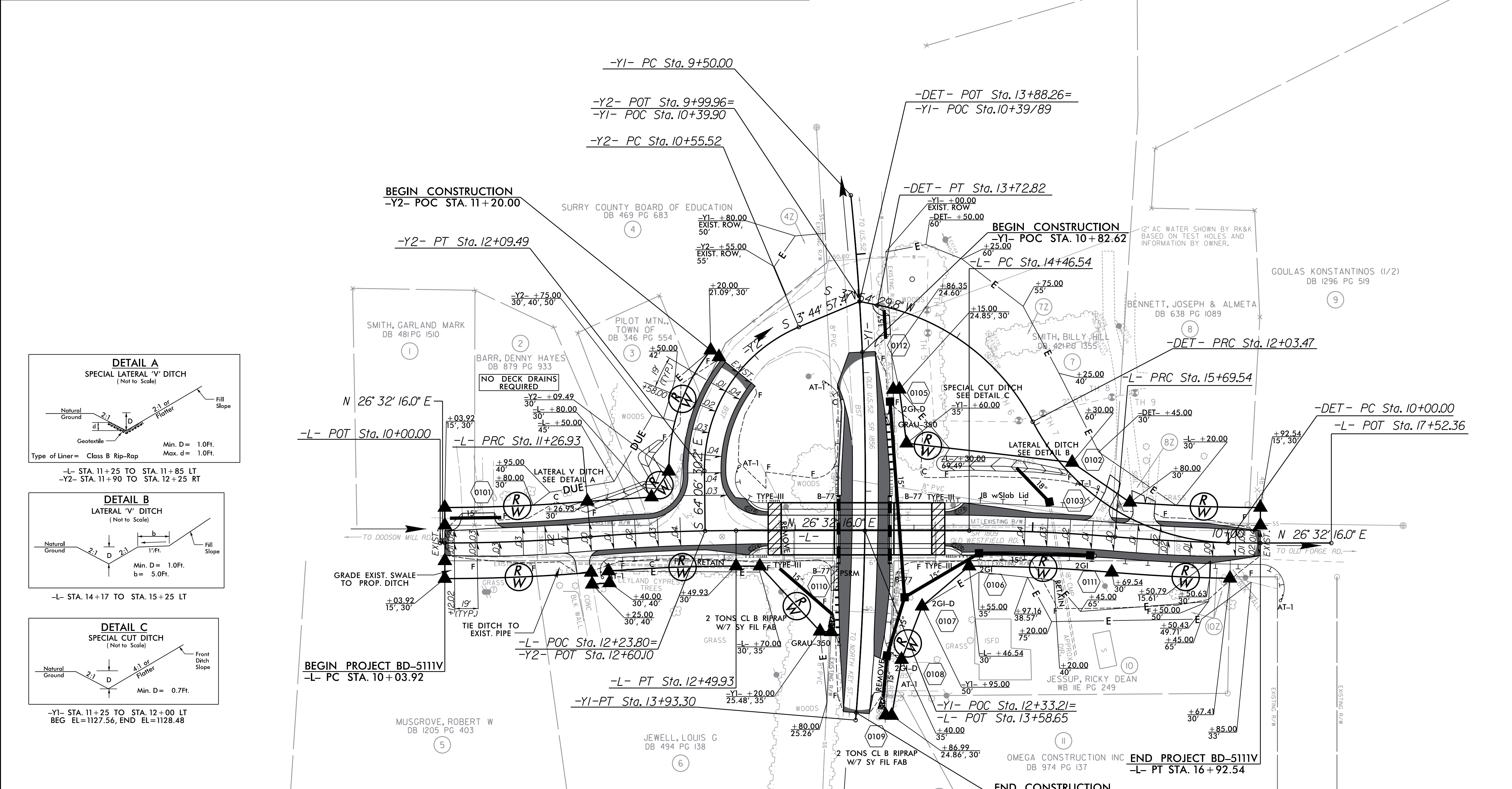
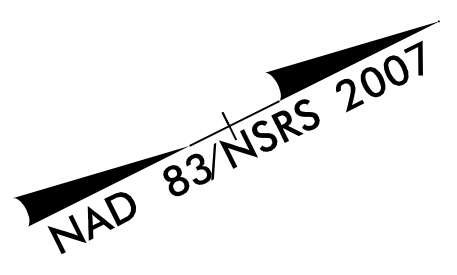


DESIGN SPEED = 40mph
ADT = 3,000 (2010)

SURRY #244

-L-		-Y1-		-Y2-	
PI Sta 10+65.46 Δ = 4° 53' 38.6" (LT) D = 3' 58' 43.9" L = 123.00' T = 61.54' R = 1,440.00' SE = 0.03 V = 30mph	PI Sta 11+88.46 Δ = 4° 53' 38.6" (RT) D = 3' 58' 43.9" L = 123.00' T = 61.54' R = 1,440.00' SE = 0.04 V = 40mph	PI Sta 15+08.08 Δ = 4° 53' 38.6" (RT) D = 3' 58' 43.9" L = 123.00' T = 61.54' R = 1,440.00' SE = 0.04 V = 40mph	PI Sta 16+31.08 Δ = 4° 53' 38.6" (LT) D = 3' 58' 43.9" L = 123.00' T = 61.54' R = 1,440.00' SE = 0.02 V = 20mph*	PI Sta 11+97.08 Δ = 9° 16' 24.6" (RT) D = 2' 21' 28.3" L = 393.30' T = 197.08' R = 2,430.00' SE = existing V = 50mph	PI Sta 11+42.97 Δ = 67° 51' 27.6" (LT) D = 44' 04' 25.2" L = 153.96' T = 87.45' R = 130.00' SE = 0.04 V = 20mph

* DESIGN EXCEPTION REQUIRED



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BD511V-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 965581.5314(±ft) EASTING: 1566672.4256(±ft) ELEVATION: 1138.4920(±ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000223008

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD511V-2" TO "-L-" STATION 15 N 24° 55' 04.6" E 715.8 (±ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

OVERLAY EXISTING PAVEMENT FOR PAVEMENT MARKINGS ALONG -Y1- AND -Y2- AFTER CLOSING ONSITE DETOUR. FOR LIMITS OF OVERLAY, SEE TRAFFIC CONTROL PLANS.

CONSTRUCTION WILL NOT DISTURB SIGN LOCATED AT -L- STA. 16+75 RT.

CONSTRUCTION WILL NOT DISTURB EXISTING FENCE ALONG PARCEL 4. FOR APPROXIMATE FENCE LIMITS, SEE SIGNAL PLANS.

PARCEL #	PROPERTY OWNER'S NAME	TOTAL AREA	RIGHT-OF-WAY AREAS			CONSTRUCTION EASEMENT	PERMANENT DRAINAGE UTILITY EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
			AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT				
1	SMITH, GARLAND MARK	N/A	0.009 Ac.	N/A	N/A	0 Ac.	0 Ac.	0 Ac.	0 Ac.
2	BARR, DENNY HAYES	N/A	0.056 Ac.	N/A	N/A	0 Ac.	0.020 Ac.	0 Ac.	0 Ac.
3	PILOT MTN., TOWN OF	N/A	0.039 Ac.	N/A	N/A	0.010 Ac.	0.041 Ac.	0 Ac.	0 Ac.
4	SURRY CO. BOARD OF EDUCATION	N/A	0.014 Ac.	N/A	N/A	0.002 Ac.	0.007 Ac.	0 Ac.	0 Ac.
4Z	SURRY CO. BOARD OF EDUCATION	N/A	0 Ac.	N/A	N/A	0.033 Ac.	0 Ac.	0 Ac.	0 Ac.
5	MUSGROVE, ROBERT W	N/A	0.025 Ac.	N/A	N/A	0 Ac.	0 Ac.	0 Ac.	0 Ac.
6	JEWELL, LOUIS G	N/A	0.088 Ac.	N/A	N/A	0.010 Ac.	0 Ac.	0 Ac.	0 Ac.
7	SMITH, BILLY HILL	N/A	0.251 Ac.	N/A	N/A	0.020 Ac.	0 Ac.	0 Ac.	0 Ac.
7Z	SMITH, BILLY HILL	N/A	0 Ac.	N/A	N/A	0.483 Ac.	0 Ac.	0 Ac.	0 Ac.
8	BENNETT, JOSEPH & ALMETA	N/A	0.046 Ac.	N/A	N/A	0 Ac.	0 Ac.	0 Ac.	0 Ac.
8Z	BENNETT, JOSEPH & ALMETA	N/A	0 Ac.	N/A	N/A	0.018 Ac.	0 Ac.	0 Ac.	0 Ac.
9	GOULAS KONSTANTINOS	N/A	0.003 Ac.	N/A	N/A	0 Ac.	0 Ac.	0 Ac.	0 Ac.
10	JESSUP, RICKY DEAN	N/A	0.106 Ac.	N/A	N/A	0.096 Ac.	0 Ac.	0 Ac.	0 Ac.
10Z	JESSUP, RICKY DEAN	N/A	0.006 Ac.	N/A	N/A	0.058 Ac.	0 Ac.	0 Ac.	0 Ac.
11	OMEGA CONSTRUCTION INC.	N/A	0 Ac.	N/A	N/A	0.004 Ac.	0 Ac.	0 Ac.	0 Ac.
12	UNKNOWN	N/A	0.002 Ac.	N/A	N/A	0 Ac.	0 Ac.	0 Ac.	0 Ac.

FOR -L-, -Y1-, & -Y2- TYPICAL SECTIONS SEE SHTS. 2, 2A
FOR PAVEMENT DETAILS SEE SHT. 2B
FOR DETOUR DETAILS SEE SHT. 2C
FOR -L-, -Y1-, & -Y2- PROFILES SEE SHT. 5

PLANS PREPARED BY :


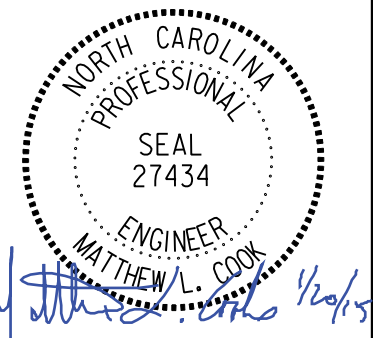
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

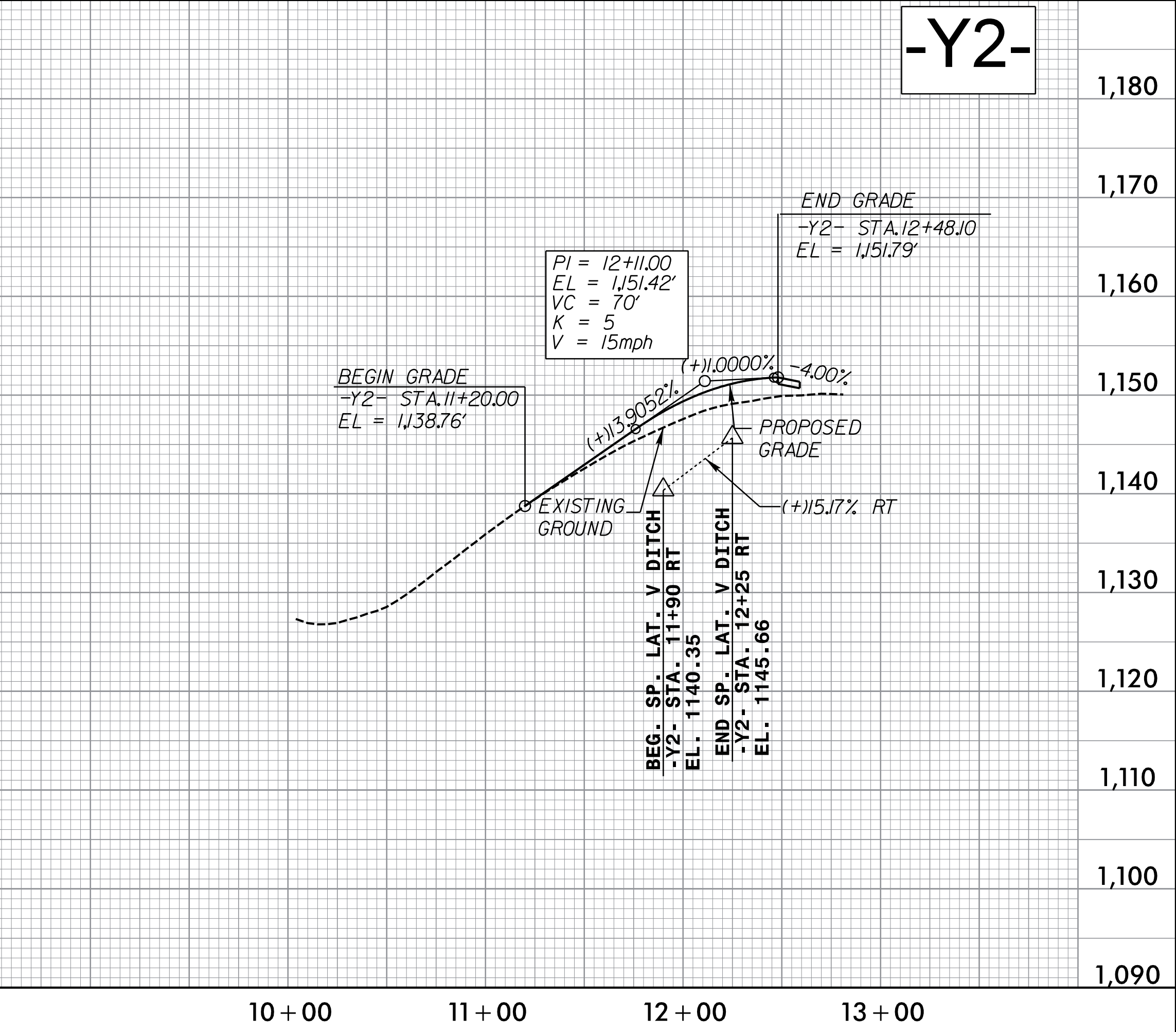
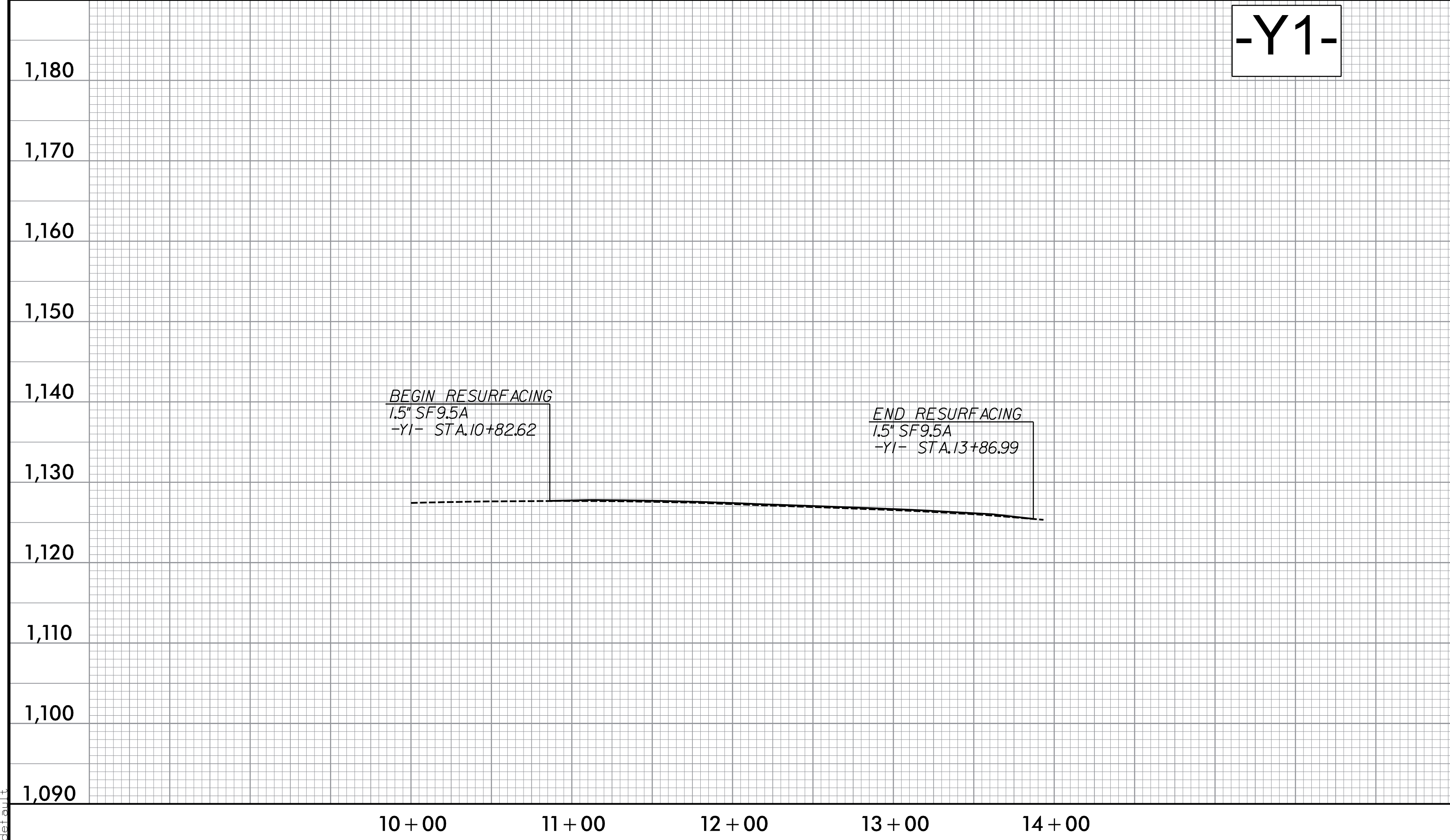
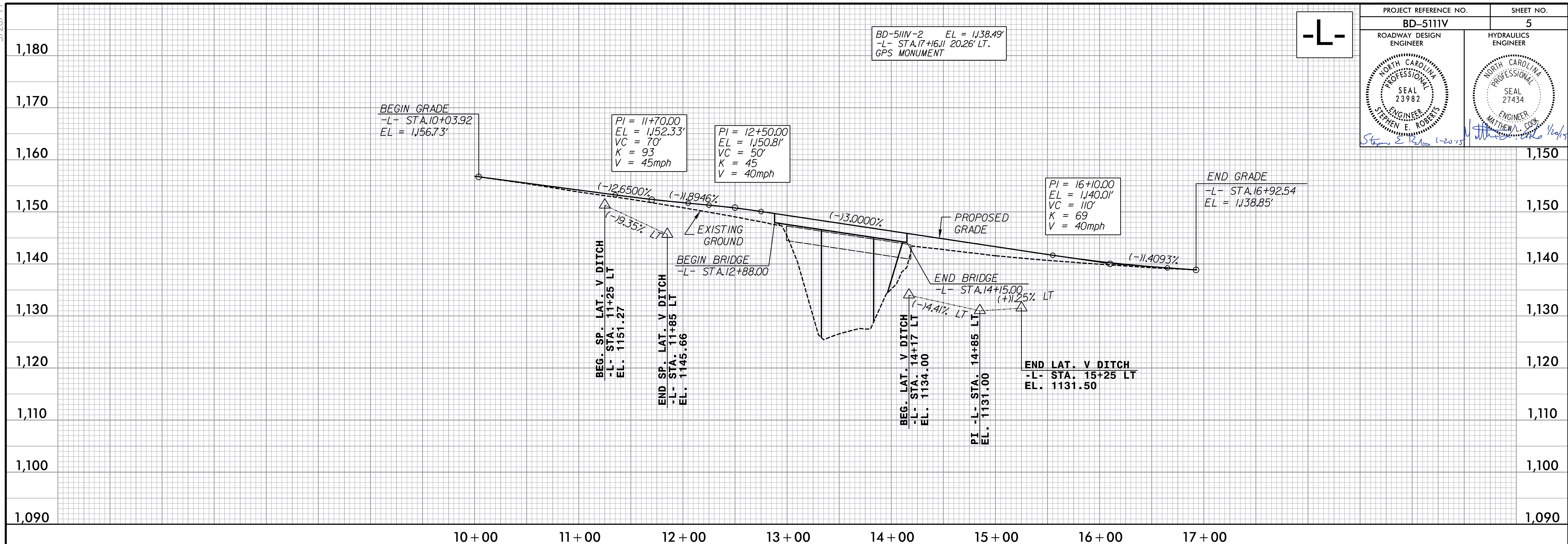
ROW REVISION - 04/03/13 - REVISED TCE ALONG -Y2- STA. 11+20.00 RT TO 11+75.00 RT FOR PARCEL NOS. 3 & 4.
ROW REVISION - 4/03/13 - REVISED TCE AND ROW ALONG -Y- STA. 11+95.00 RT TO 16+85.00 RT FOR PARCEL NOS. 10 & 11.
ROW REVISION - 4/22/13 - DELETED TCE FROM -L- STA. 10+03.92 RT TO 11+25.00 RT FOR PARCEL NOS. 5 & 6.
ROW REVISION - 4/22/13 - ADDED PARCEL NO. 10Z WITH REQUIRED TCE AND ROW.
ROW REVISION - 12/04/14 - ADDED PARCEL NOS. 4Z, 7Z, AND 8Z WITH REQUIRED TCE FOR TEMPORARY RAMP AND SIGNAL.

3/18/2015
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5/28/99

-L-

PROJECT REFERENCE NO. BD-5111V	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 SEAL 23982 ENGINEER STEPHEN E. ROBERTS	 SEAL 27434 ENGINEER MATTHEW L. COOK



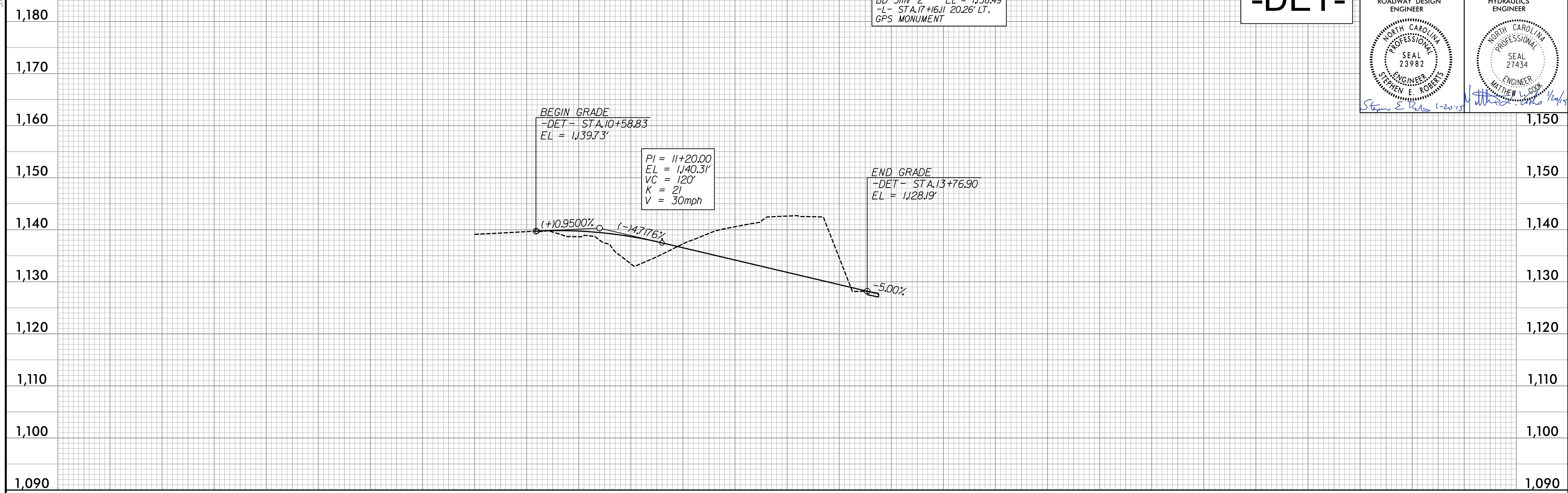
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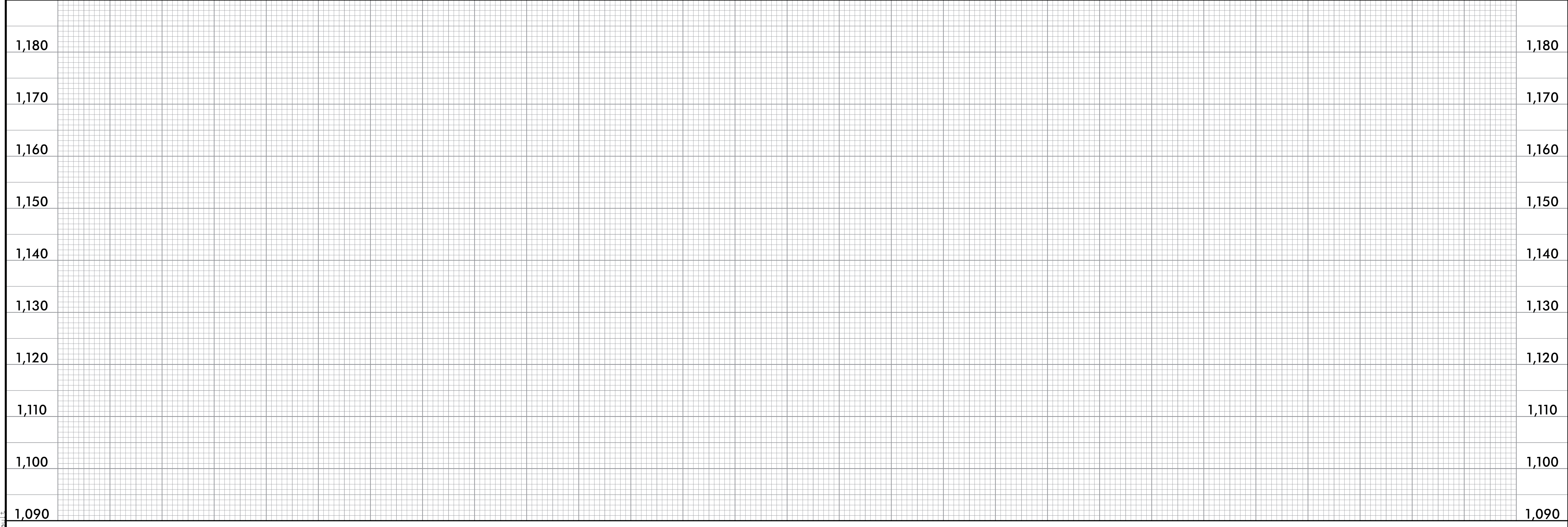
-DET-

BD-5111V-2 EL = 1138.49'
-L- STA.17+16.11 20.26' LT.
GPS MONUMENT

PROJECT REFERENCE NO. BD-5111V	SHEET NO. 6
ROADWAY DESIGN ENGINEER STEPHEN E. ROBERTS NORTH CAROLINA PROFESSIONAL SEAL 23982 1-20-15	HYDRAULICS ENGINEER MATTHEW L. BOON NORTH CAROLINA PROFESSIONAL SEAL 27434 1-20-15



10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

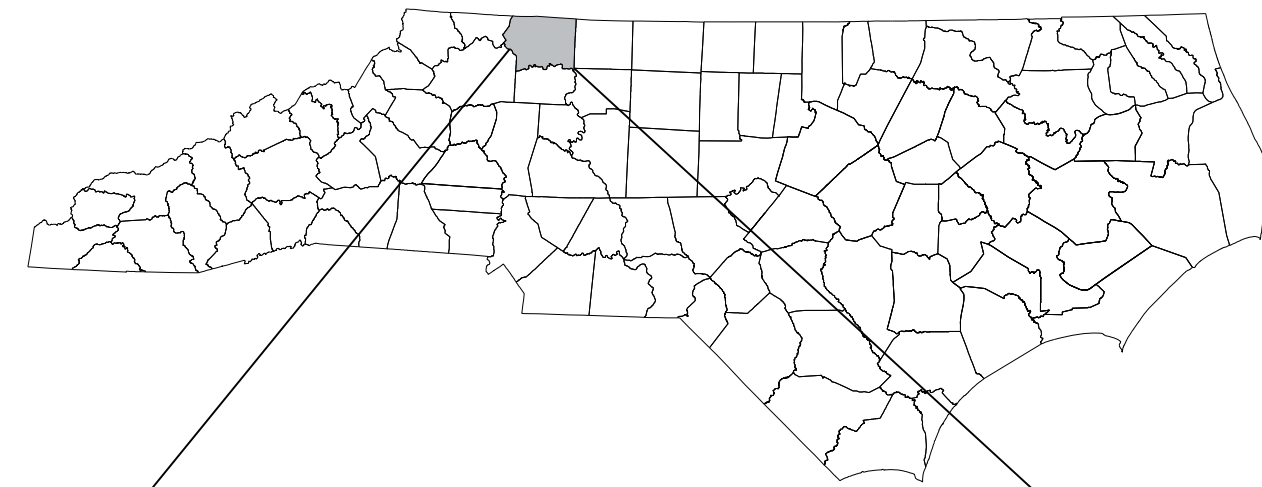


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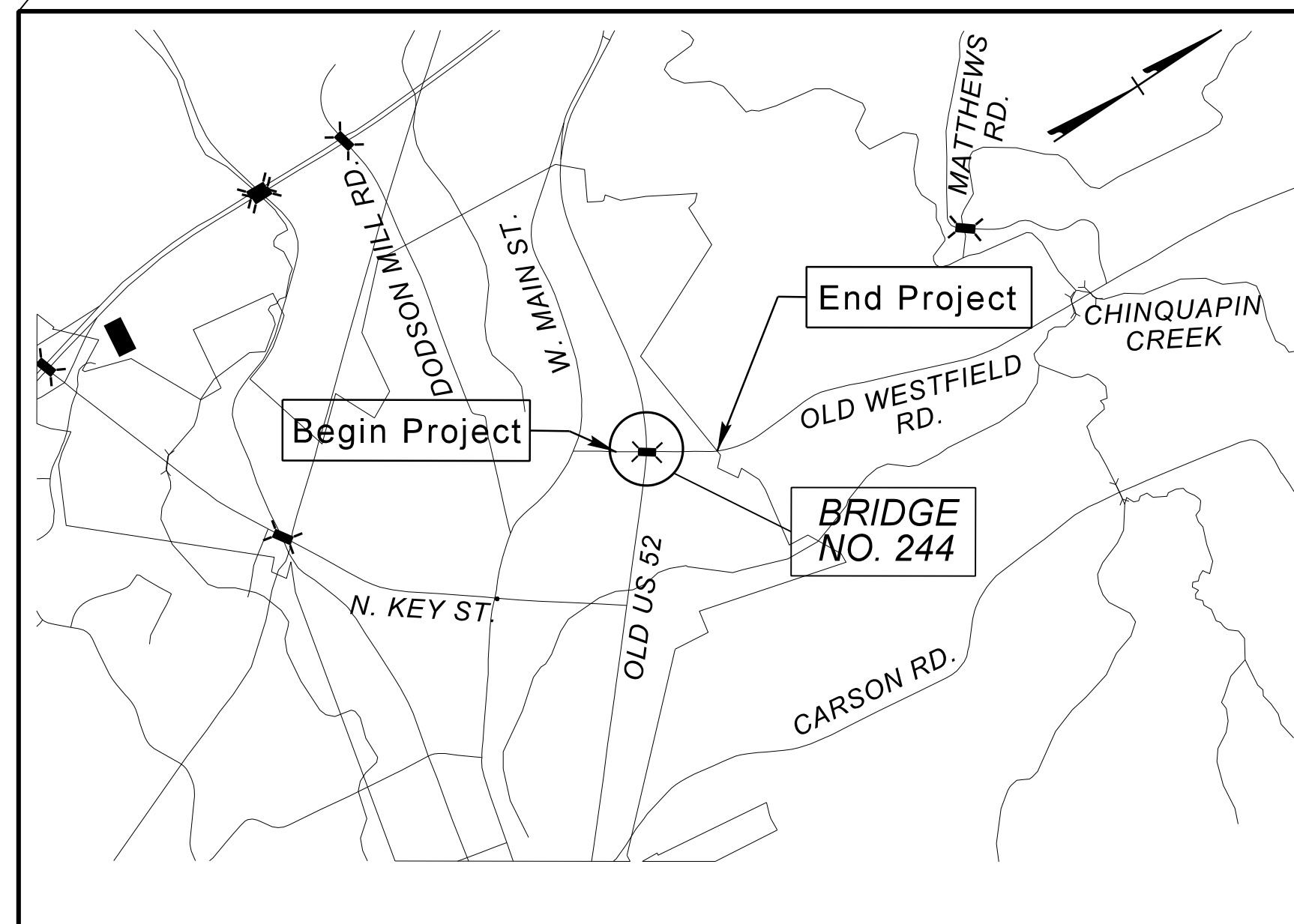
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

SURRY COUNTY



VICINITY MAP
BRIDGE #244



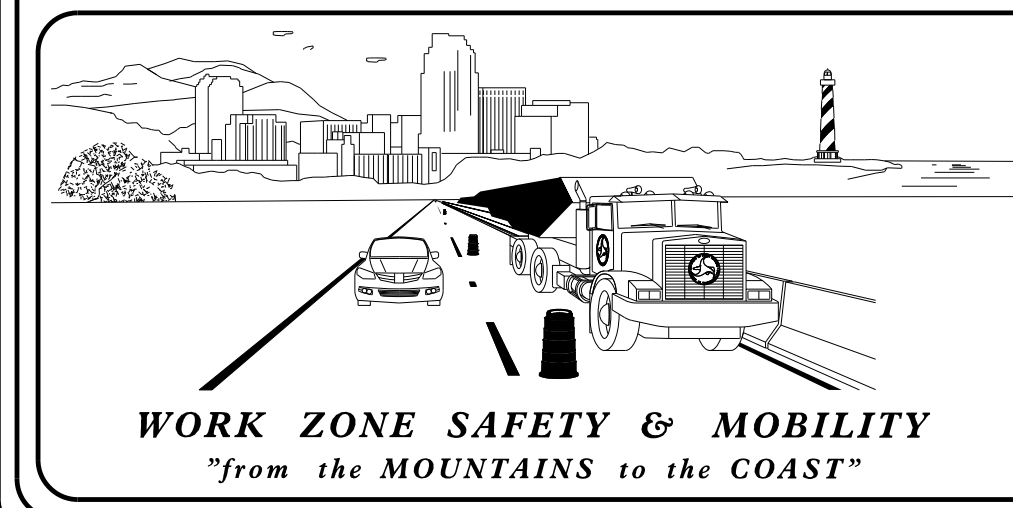
INDEX OF SHEETS	
<u>SHEET NO.</u>	<u>TITLE</u>
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND TEMPORARY PAVEMENT MARKING SCHEDULE
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-2	TRAFFIC CONTROL PHASING
TMP-3	OFFSITE DETOUR SR 1856, (OLD US 52)
TMP-4	PHASE I DETAIL
TMP-5	PHASE II DETAIL
TMP-6	PHASE III DETAIL

SHEET NO.
TMP-1

BD-5111V

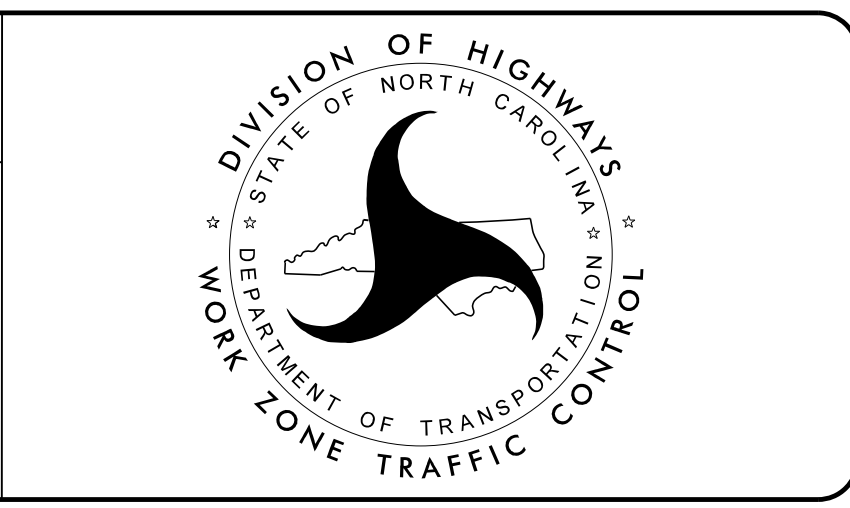
TIP PROJECT:

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N.C.D.O.T. DIVISION ELEVEN OFFICE
801 STATESVILLE ROAD NORTH WILKESBORO, NC 28659
PHONE: (336) 667-9111 FAX: (336) 667-4549

JAMI C. GUYNN DIVISION 11 BRIDGE PROGRAM MANAGER



PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
DIVISION OF HIGHWAYS

APPROVED: _____
DATE: _____

SEAL

LEGEND

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESS
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHIONS
1165.01	WORK ZONE VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN
- PORTABLE CONCRETE BARRIER
- TEMPORARY SHORING

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING SCHEDULE

- PA - 4" WHITE EDGELINE, PAINT, 2X
 - PD - 4" WHITE MINI-SKIP, 3 FT. - 9 FT. SP., PAINT, 2X
 - PE - 4" WHITE SOLID LANE LINE, PAINT, 2X
 - PI - 4" DOUBLE YELLOW CENTERLINE, PAINT, 2X
 - P2 - 24" WHITE STOP BAR, PAINT, 2X
 - P8 - 4" WHITE MINI-SKIP, 2 FT. - 6 FT. SP., PAINT, 2X
 - QB - RIGHT TURN ARROW SYMBOL, PAINT, 2X
 - QC - STRAIGHT ARROW SYMBOL, PAINT, 2X
 - QD - COMBINATION LEFT/STRAIGHT TURN ARROW SYMBOL, PAINT, 2X
 - MH - YELLOW & YELLOW, TEMPORARY RAISED PAVEMENT MARKER
 - MI - CRYSTAL & RED, TEMPORARY RAISED PAVEMENT MARKER
- 2X = 2 APPLICATIONS

I2/10/2014 R:\TrafficControl\TCP\TMP New 1182014\BD511V...tmp01a.dgn mcole

PLANS PREPARED BY : RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560	APPROVED: _____ DATE: _____ SEAL ENGINEER KEVIN W. B. S. R. by DEC 16, 2014	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	ROADWAY STANDARD DRAWINGS & LEGEND
	(Empty space for signature or notes)		

MANAGEMENT STRATEGIES

- A) USING ROADWAY STANDARD DRAWING 1101.01 INSTALL ADVANCE WORK ZONE WARNING SIGNS.
- B) USING ROADWAY STANDARD DRAWING 1101.02 MAINTAIN TRAFFIC ON SR 1856 (OLD US 52) AND SR 1809 (OLD WESTFIELD RD) WHILE CONSTRUCTING TEMPORARY RAMP, (-DET-) ROADWAY AND INSTALLING THE TEMPORARY SIGNAL SYSTEM.
- C) USING ROADWAY STANDARD DRAWING 1101.02 MAINTAIN TRAFFIC ON -L- SR 1809, (OLD WESTFIELD RD) AND -Y1- SR 1856, (OLD US 52) WHILE CONSTRUCTING PROPOSED ROADWAY WIDENING.
- D) ACTIVATE THE TEMPORARY SIGNAL SYSTEM AND SHIFT TRAFFIC TO THE TEMPORARY RAMP, (-DET-) AND CLOSE EXISTING BRIDGE #244 AND -L- SR 1806, (OLD WESTFIELD RD) ROADWAY APPROACHES TO TRAFFIC.
- E) DEMOLISH AND REMOVE EXISTING BRIDGE #244.
- F) CONSTRUCT REMAINING -L- SR 1809, (OLD WESTFIELD RD) PROPOSED ROADWAY WIDENING, APPROACHES AND PROPOSED BRIDGE #244.
- G) USING ROADWAY STANDARD DRAWING 1101.02 SHIFT TRAFFIC TO THE PROPOSED TRAFFIC PATTERN.
- H) USING ROADWAY STANDARD DRAWING 1101.02 MAINTAIN TRAFFIC ON -L- SR 1809, (OLD WESTFIELD RD) AND -Y1- SR 1856, (OLD US 52) WHILE REMOVING THE TEMPORARY RAMP, (-DET).
- I) USING ROADWAY STANDARD DRAWING 1101.02 PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS, (PAINT) ON -L-, -Y1- AND -Y2-.
- I) OPEN -L-, -Y1- AND -Y2- TO THEIR PROPOSED TRAFFIC PATTERN.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

MAINTAIN THE EXISTING TRAFFIC PATTERN FOR ALL ROADWAYS, EXCEPT WHERE ROAD CLOSURE FOR CERTAIN CONSTRUCTION OPERATIONS IS PERMITTED SUBJECT TO THE ROAD CLOSURE RESTRICTIONS LISTED BELOW. WHEN A ROAD CLOSURE IS USED, REOPEN THE TRAVEL LANES BY THE END OF THE ROAD CLOSURE DURATION TO ALLOW THE TRAFFIC QUEUE TO DEplete BEFORE RE-CLOSING THE ROADWAY.

A. DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1809, (OLD WESTFIELD RD)	MONDAY THROUGH SATURDAY
SR 1856, (OLD US 52 HWY)	6:00 A.M. TO 9:00 A.M. AND 4:00 P.M. TO 7:00 P.M.

B. DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1856, (OLD US 52 HWY)	MONDAY THROUGH SUNDAY 6:00 A.M. TO 9:00 P.M.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C. REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED.
- D. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, THE DESIGN-BUILD TEAM SHALL CLOSE THE NEAREST OPEN SHOULDER USING NCDOT JANUARY 2012 ROADWAY STANDARD DRAWING NO. 1101.04, UNLESS THE WORK AREA IS PROTECTED BY AN APPROVED TEMPORARY TRAFFIC BARRIER OR GUARDRAIL.
- E. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, THE DESIGN-BUILD TEAM SHALL CLOSE THE NEAREST OPEN TRAVEL LANE USING NCDOT JANUARY 2012 ROADWAY STANDARD DRAWING NO. 1101.02, UNLESS THE WORK AREA IS PROTECTED BY AN APPROVED TEMPORARY TRAFFIC BARRIER OR GUARDRAIL.
- F. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FEET OF AN OPEN TRAVEL LANE, THE DESIGN-BUILD TEAM SHALL CLOSE THE NEAREST OPEN TRAVEL LANE USING NCDOT JANUARY 2012 ROADWAY STANDARD DRAWING NO. 1101.02, UNLESS THE WORK AREA IS PROTECTED BY AN APPROVED TEMPORARY TRAFFIC BARRIER OR GUARDRAIL.

GENERAL NOTES, (CONTINUED)

- G. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, THE NCDOT JANUARY 2012 ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- H. PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.
- SIGNING-DETOUR SIGNING
- I. INSTALL AND MAINTAIN ALL DETOUR SIGNING WITHIN AND OFF THE PROJECT LIMITS.
- J. COVER OR REMOVE ALL DETOUR SIGNS WITHIN AND OFF THE PROJECT LIMITS WHEN A DETOUR IS NOT IN OPERATION.
- K. INSTALL ADVANCE WORK ZONE WARNING SIGNS WHE WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- L. ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- TRAFFIC BARRIER
- M. INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.
- N. ONCE THE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.
- O. PROTECT THE APPROACH END OF TEMPORARY BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.
- P. PROTECT THE APPROACH END OF TEMPORARY BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF TEMPORARY BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS:

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH OR HIGHER	30 FT

- Q. INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE THE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINING WITH THE DOWNSTREAM SIDE OF TRAFFIC.
- R. INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

TRAFFIC CONTROL DEVICES

- S. USE TRAFFIC CONTROL DEVICES THAT CONFORM TO ALL NCDOT REQUIREMENTS AND ARE LISTED ON THE APPROVED PRODUCTS LIST.
- T. THE USE OF ANY DEVICES THAT ARE NOT SHOWN ON THE APPROVED PRODUCTS LIST SHALL REQUIRE WRITTEN APPROVAL FROM THE PROJECT ENGINEER.
- U. PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY. STAGGER OR OVERLAP BARRICADES TO ALLOW FOR INGRESS OR EGRESS.

TEMPORARY TRAFFIC SIGNALS

- V. INSTALL AND MAINTAIN THE TEMPORARY SIGNAL SYSTEM NEEDED TO MAINTAIN TRAFFIC DURING CONSTRUCTION.
- W. CONTACT THE DIVISION TRAFFIC OFFICE TO OBTAIN CONSULTATION AND APPROVAL OF THE TEMPORARY TRAFFIC SIGNAL(S) LOCATION AND TIMING BEFORE A TEMPORARY TRAFFIC SIGNAL IS MADE OPERATIONAL.
- X. NOTIFY THE ENGINEER IN WRITING A MINIMUM OF ONE MONTH BEFORE A TEMPORARY TRAFFIC SIGNAL INSTALLATION IS REQUIRED.

PERMANENT SIGNING


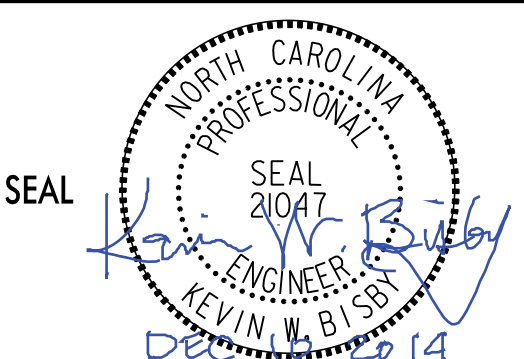

- Y. REPLACE ANY EXISTING SIGNS DAMAGED BY CONSTRUCTION OPERATIONS. THE SIGNS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR ACCORDING TO NCDOT'S SPECIFICATIONS.

PAVEMENT MARKINGS AND MARKERS

- Z. INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN.
- AA. INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD TYPE	MARKING PAINT	MARKER
ASPHALT		RAISED REFLECTIVE
- AB. INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.
- AC. PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- AD. TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- AE. REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

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<p>PLANS PREPARED BY :</p>  <p>RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560</p>	<p>APPROVED: _____ DATE: _____</p> <div style="text-align: center;">  <p>SEAL</p> </div>	<div style="text-align: center;">  <p>SEAL</p> </div>	<h2>TRANSPORTATION OPERATIONS PLAN</h2>
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TRAFFIC CONTROL PHASING

PHASE I

STEP 1: ERECT ADVANCED WORK ZONE SIGNS ON -L- SR 1809, (OLD WESTFIELD RD), AND -Y1- SR 1856, (OLD US 52 HWY) IN ACCORDANCE WITH RDWY STD 1101.01 SHEET 3.

ERECT -Y1- SR 1856, (OLD US 52 HWY) OFFSITE DETOUR SIGNS, (KEEPING COVERED UNTIL USE) ON -L- SR 1809, (OLD WESTFIELD RD) AND -Y1- SR 1856, (OLD US 52 HWY), (SEE TMP-3).

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1 TO MAINTAIN TRAFFIC, CONSTRUCT TEMPORARY DETOUR, (-DET-) ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -DET- STA 10+58 +/- TO -DET- STA 13+76 +/-, (SEE TMP-4).

USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1 TO MAINTAIN TRAFFIC, CONSTRUCT PROPOSED SOUTHBOUND WIDENING ALONG -L- SR 1809, (OLD WESTFIELD RD) FROM -L- STA 10+03 +/- TO -L- STA 12+76 +/- AND FROM -L- STA 14+18 +/- TO -L- STA 15+53 +/-, UP TO THE EXISTING EDGE AND ELEVATION OF EXISTING PAVEMENT, (SEE TMP-4).

USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1 TO MAINTAIN TRAFFIC, CONSTRUCT PROPOSED WIDENING ALONG -Y1- SR 1856, (OLD US 52 HWY) FROM -Y1- STA 10+82 +/- TO -Y1- STA 13+86 +/-, UP TO THE EXISTING EDGE AND ELVATION OF EXISTING PAVEMENT, (SEE TMP-4).

USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1 TO MAINTAIN TRAFFIC, CONSTRUCT PROPOSED WIDENING ALONG -Y2- EXISTING RAMP FROM -Y2- STA 11+20 +/- TO -Y2- STA 12+60 +/-, UP TO THE EXISTING EDGE AND ELVATION OF EXISTING PAVEMENT, (SEE TMP-4).

USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, INSTALL TEMPORARY SIGNAL SYSTEM AT THE INTERSECTION WITH THE TEMPORARY DETOUR (-DET-) AND -Y1- SR 1856, (OLD US 52 HWY) AND -Y2-, (RAMP), (SEE TMP-4).

PHASE II

NOTE:
COMPLETE THE WORK REQUIRED IN PHASE II, STEP 1 IN A CONTINUOUS OPERATION.

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, (ALTERNATING LANE CLOSURES), WEDGE/PAVE PROPOSED -L-, SR 1809, (OLD WESTFIELD RD) FROM -L- STA 10+03 TO -L- STA 12+00, -Y2-, (RAMP) FROM -Y2- STA 11+20 +/- TO -Y2- STA 12+50 +/-, TEMPORARY ON-SITE DETOUR, (-DET-) FROM -DET- STA 9+00 +/- TO -DET- STA 10+00 +/-, PLACE TEMPORARY PAVEMENT MARKINGS AND PAVEMENT MARKERS ON -L- SR 1809, (OLD WESTFIELD RD) FROM -L- STA 10+03 TO -L- STA 12+00, -Y2-, (RAMP) FROM -Y2- STA 10+35 +/- TO -Y2- STA 12+50 +/-, TEMPORARY ON-SITE DETOUR, (-DET-) FROM -DET- STA 10+00 +/- TO -DET- STA 13+67 +/- AND FROM -Y1- SR 1856, (OLD US 52 HWY) FROM -Y1- STA 8+26 +/- TO -Y1- STA 13+86 +/-, ACTIVATE THE TEMPORARY SIGNAL SYSTEM AT -Y1-, -Y2- AND -DET- AND SHIFT TRAFFIC TO ITS TEMPORARY TRAFFIC PATTERN, (SEE TMP-5).

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.03 SHEETS 1 AND 2, CLOSE -L- SR 1809, (OLD WESTFIELD RD) TO TRAFFIC. DEMOLISH AND REMOVE EXISTING BRIDGE NO. 244, (SEE TMP-3 AND TMP-5).

USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, PLACE PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHIONS ALONG THE SHOULDERS OF -Y1- SR 1856, (OLD US 52 HWY) FROM -Y1- STA 11+58 +/- TO -Y1- STA 12+75 +/- AND FROM -Y1- STA 11+70 +/- TO -Y1- STA 13+00 +/-, (SEE TMP-5).

STEP 3: USING ROADWAY STANDARD DRAWING 1101.02 SHEET 1, CONSTRUCT PROPOSED BRIDGE NO. 244 AND ROADWAY APPROACHES FROM -L- STA 12+00 +/- TO -L- STA 15+53 +/-, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, (SEE TMP-5).

USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, CONSTRUCT PROPOSED -L- SR 1809, (OLD WESTFIELD RD) NORTHBOUND WIDENING FROM -L- STA 10+03 +/- TO -L- STA 12+00 +/- AND FROM -L- STA 15+53 +/- TO -L- STA 16+92 +/-, UP TO THE EXISTING EDGE AND ELEVATION OF EXISTING PAVEMENT, (SEE TMP-5).

PHASE III

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, OBLITERATE AND REMOVE THE TEMPORARY ON-SITE DETOUR, (SEE TMP-6).

USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, REMOVE THE PORTABLE CONCRETE BARRIER AND TEMPORARY CRASH CUSHIONS FROM -Y1- SR 1856, (OLD US 52 HWY).

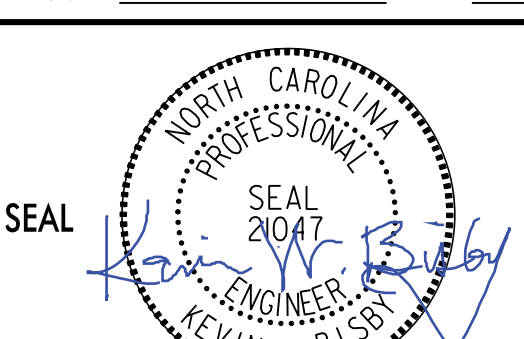
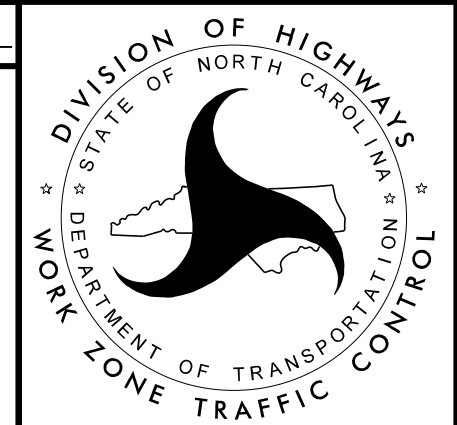
USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, CONSTRUCT REMAINING -L- SR 1809, (OLD WESTFIELD RD) WIDENING FROM -L- STA 15+40 +/- TO -L- STA 16+92 +/- UP TO THE EXISTING EDGE AND ELEVATION OF EXISTING PAVEMENT, (SEE TMP-6).

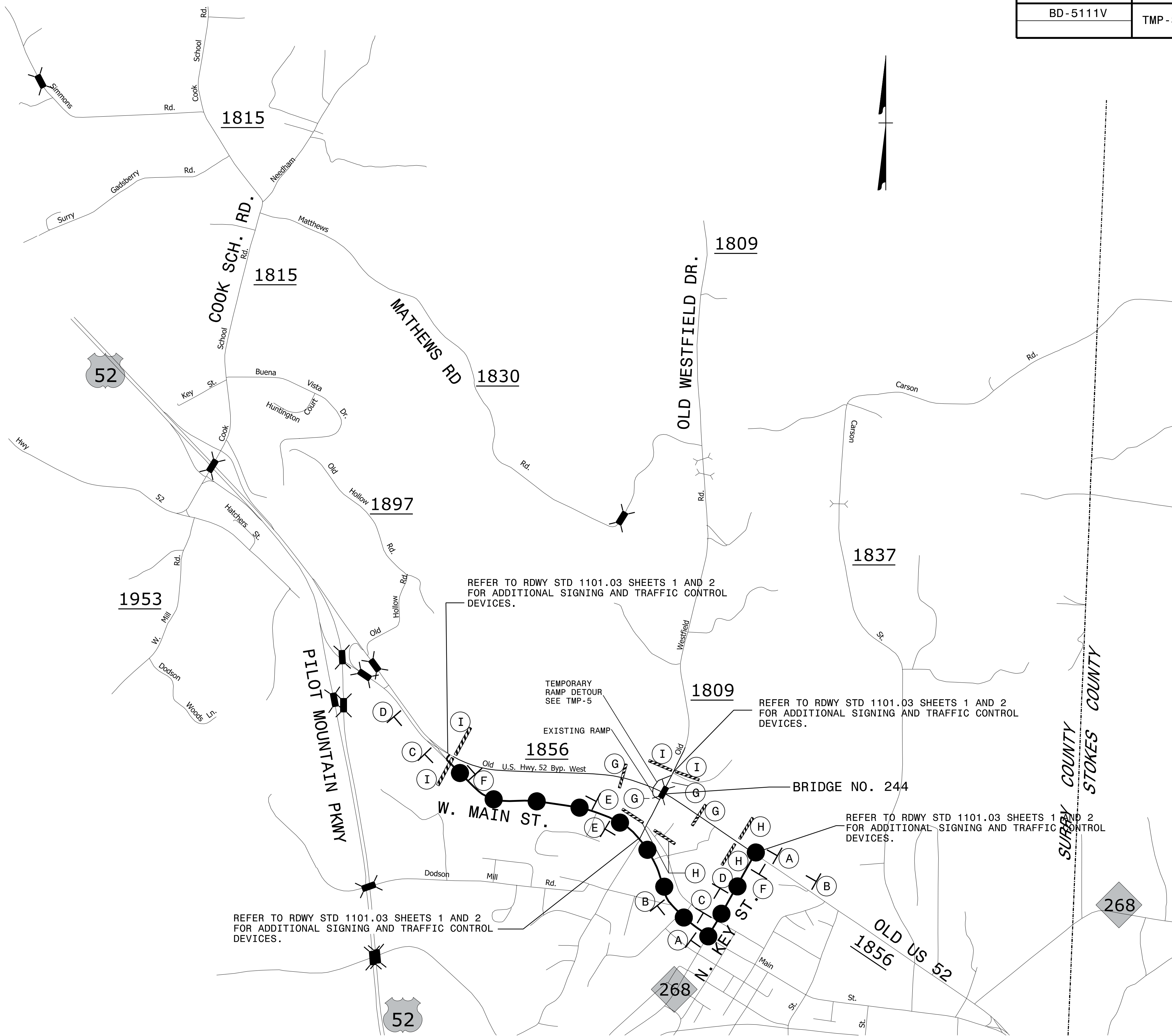
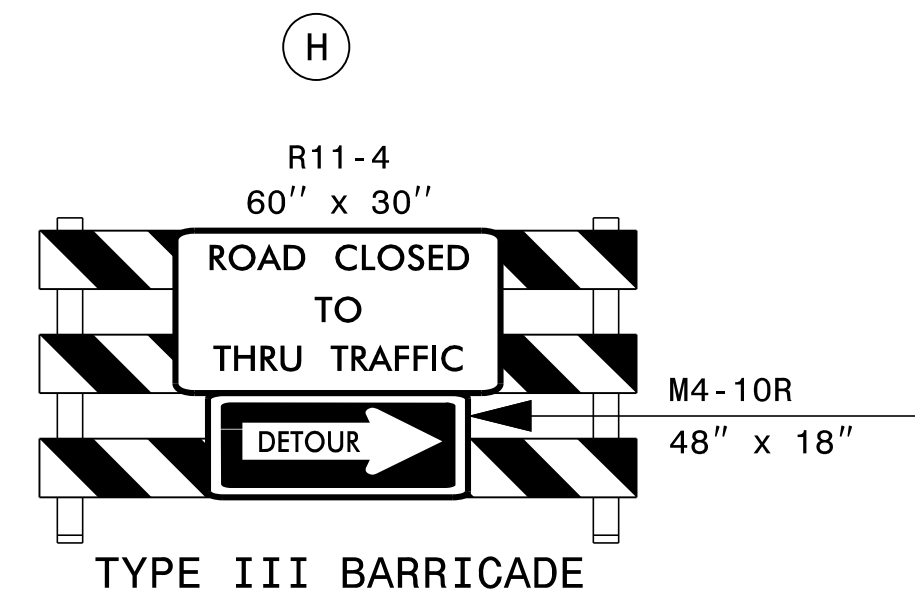
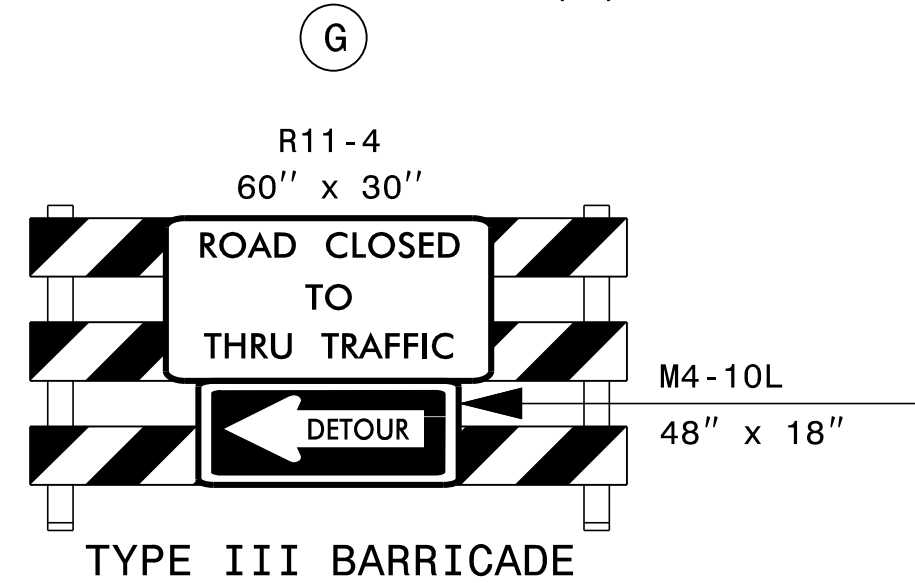
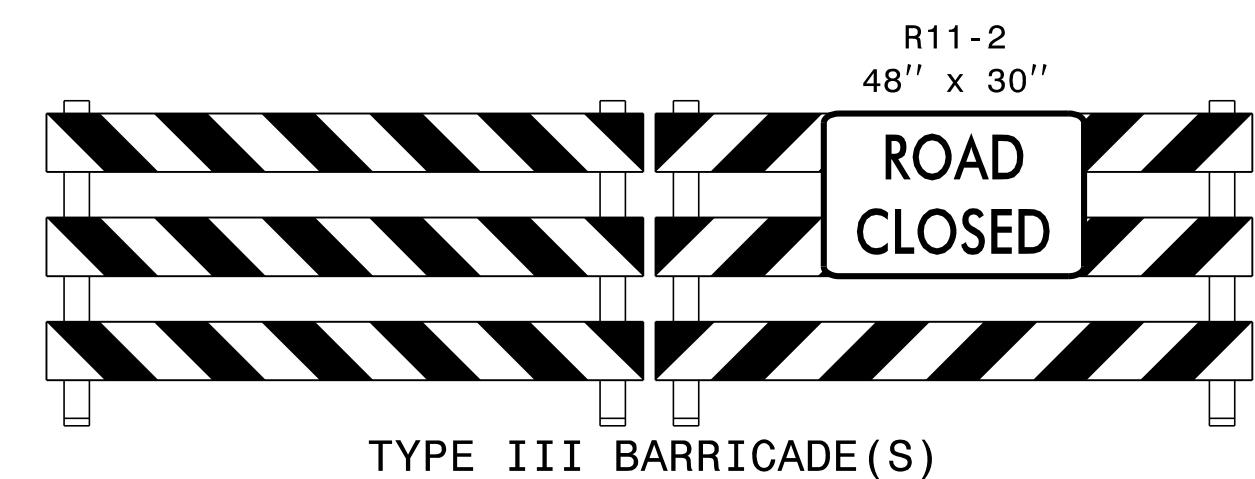
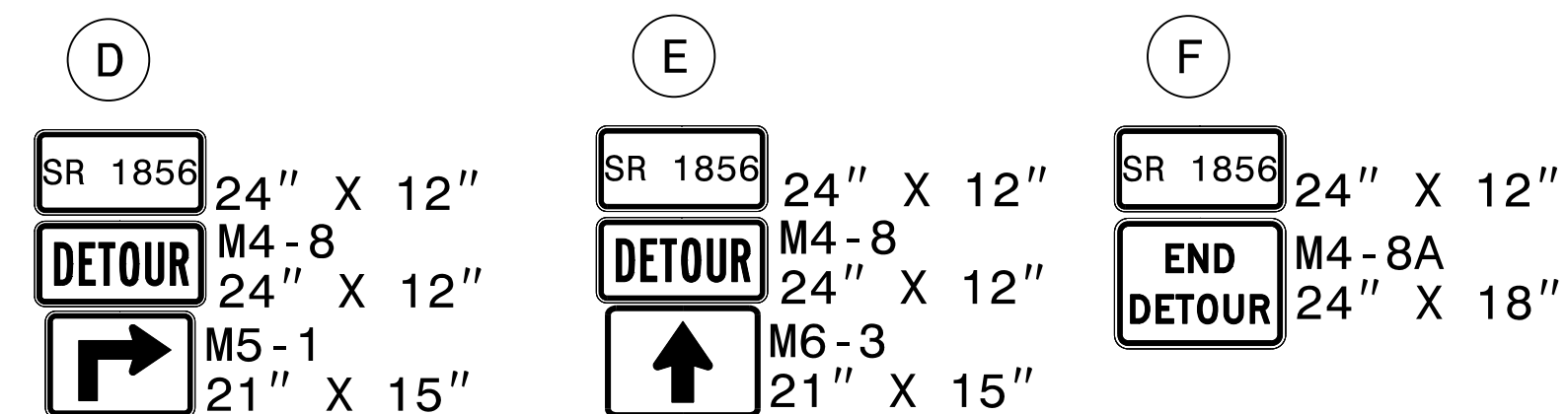
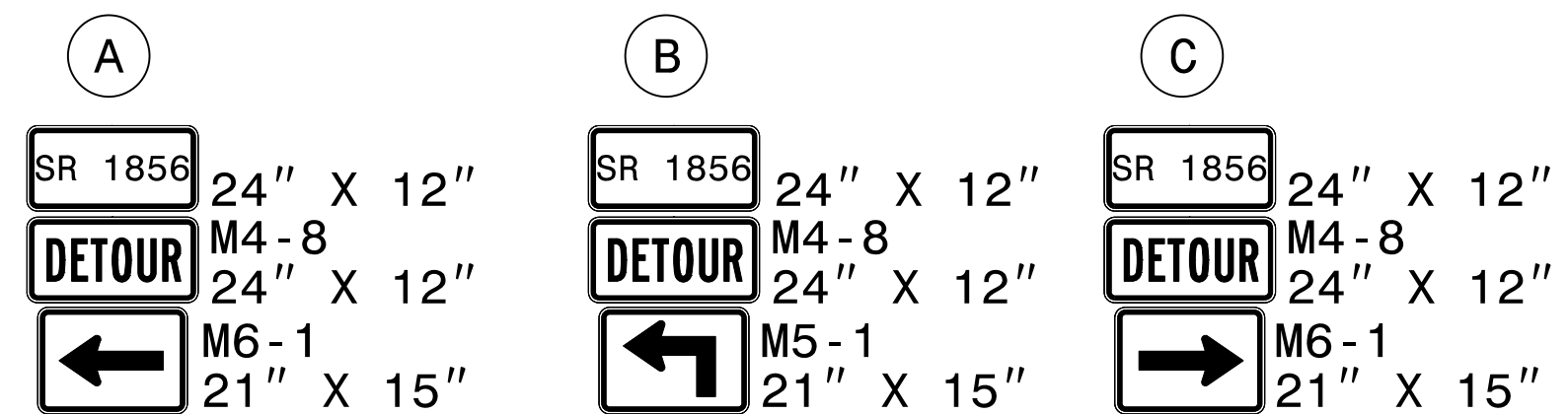
NOTE:
COMPLETE THE WORK REQUIRED IN PHASE III, STEP 2 IN A CONTINUOUS OPERATION.

STEP 2: USING RDWY STD 1101.02 SHEET 1 (ALTERNATING LANE CLOSURES), REMOVE THE TEMPORARY SIGNAL SYSTEM AT -Y1- AND -Y2-.

STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEET 1, PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS ON -L- SR 1809, (OLD WESTFIELD RD) -L- STA. 10+03 TO -L- STA. 16+92, -Y1- SR 1856, (OLD US 52 HWY) -Y1- STA. 8+26 +/- TO -Y1- STA 13+86 +/- AND -Y2-, (RAMP) -Y2- STA 10+26 +/- TO -Y2- STA 12+38 +/-, (SEE FINAL PAVEMENT MARKING PLANS).

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<p style="text-align: center;">PLANS PREPARED BY :</p> <p style="text-align: center;"><i>RK&K</i></p> <p style="text-align: center; font-size: small;">RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560</p>	<p style="text-align: center;">APPROVED: _____ DATE: _____</p>	<div style="text-align: center;">  <p>SEAL</p> </div>	<div style="text-align: center;">  </div>	<h1 style="margin: 0;">TRAFFIC CONTROL PHASING</h1>
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REFER TO RDWY STD 1101.03 SHEETS 1 AND 2 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES.

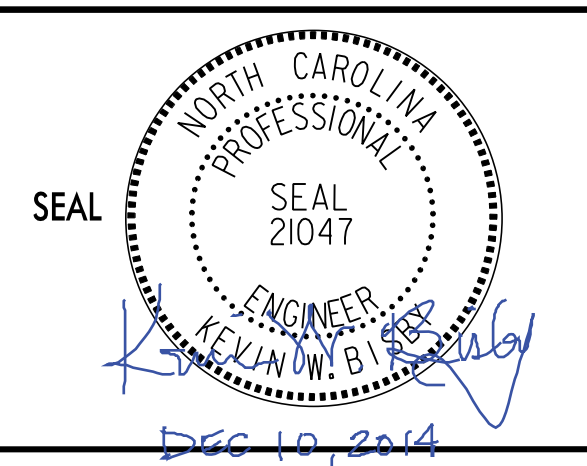
REFER TO RDWY STD 1101.03 SHEETS 1 AND 2 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES.

REFER TO RDWY STD 1101.03 SHEETS 1 AND 2 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES.

REFER TO RDWY STD 1101.03 SHEETS 1 AND 2 FOR ADDITIONAL SIGNING AND TRAFFIC CONTROL DEVICES.

NOTE: SR 1856, (OLD US 52 HWY) OFFSITE DETOUR SHALL ONLY BE USED FROM 9:00 P.M. THROUGH 6:00 A.M. FOR CONSTRUCTION OPERATIONS FOR THE REMOVAL OF EXISTING BRIDGE 244 AND SETTING BOX BEAMS FOR THE PROPOSED BRIDGE 244.

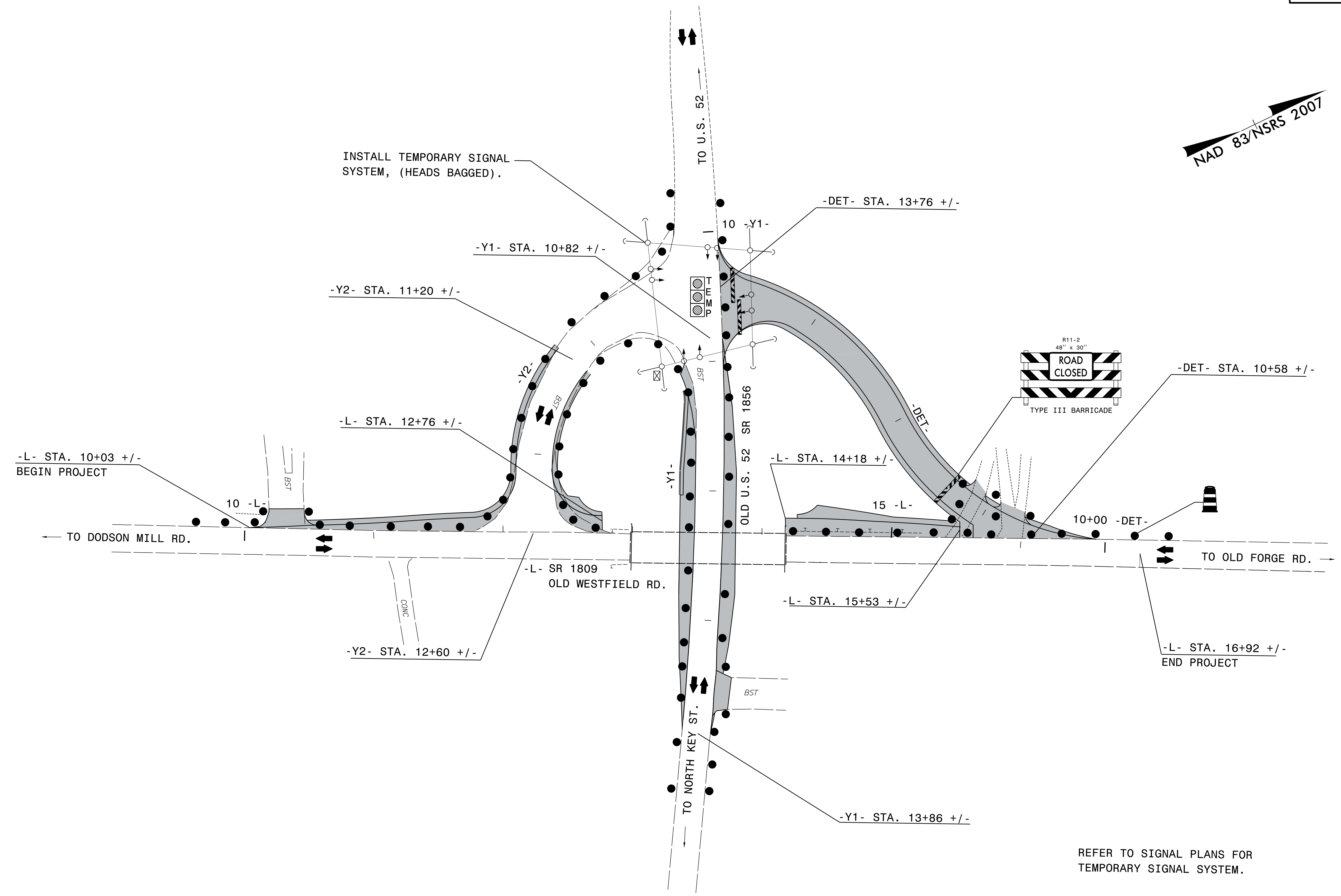
PLANS PREPARED BY:
RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NO. F-0112 • (919) 878-9560



OFFSITE DETOUR FOR SR 1856 OLD US 52	
SCALE: NONE	REVISIONS
DATE: 12/2014	
DWG. BY: MAC	
DESIGN BY: MAC	
REVIEWED BY: KWB	

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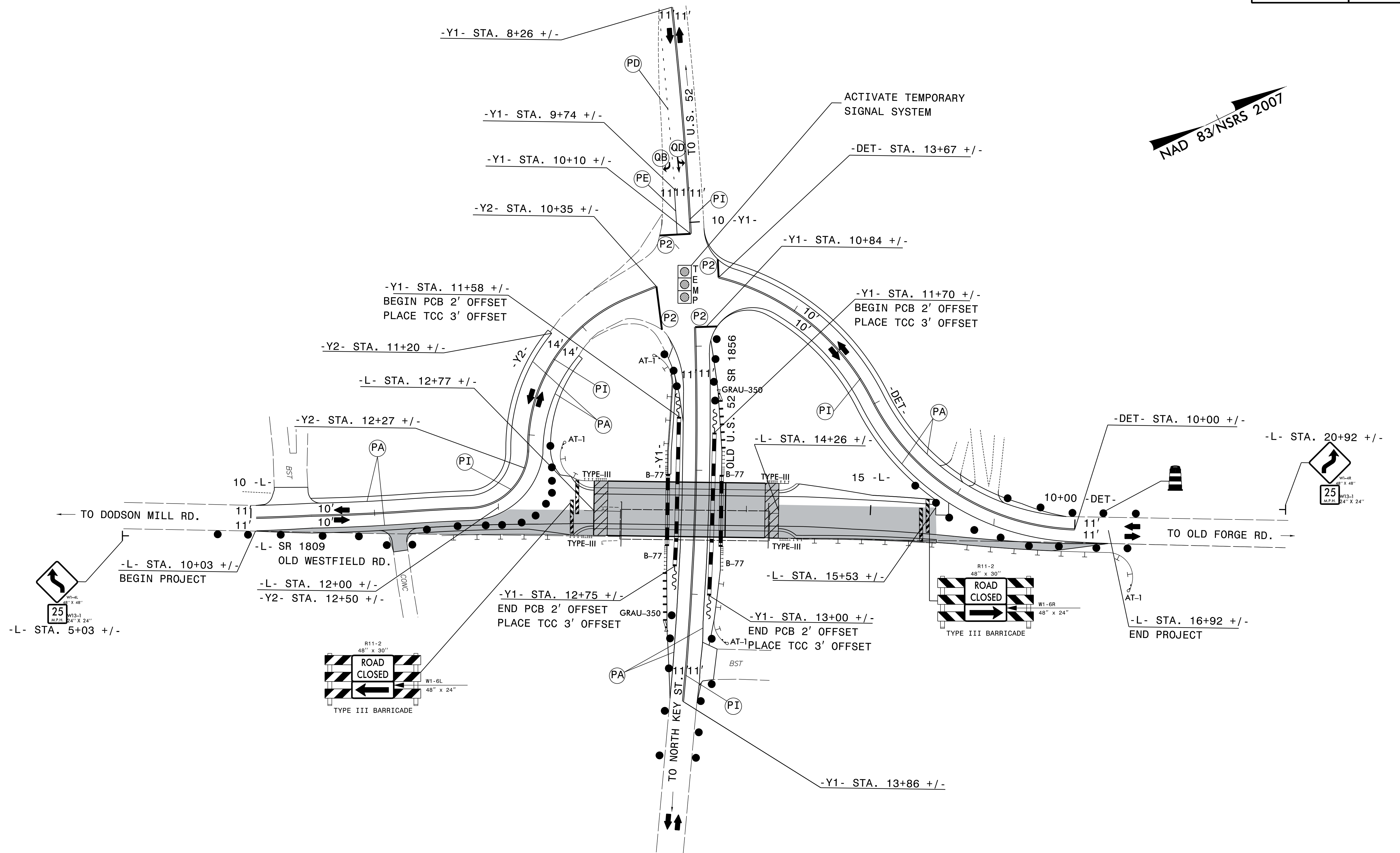
NAD 83/NSRS 2007



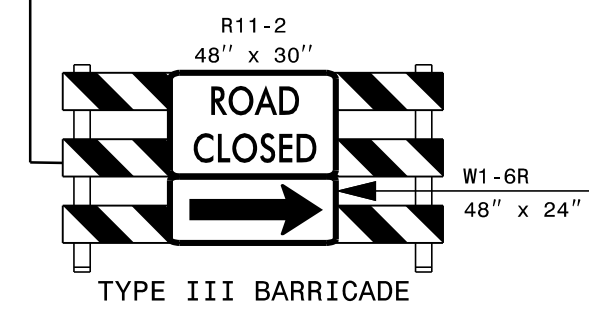
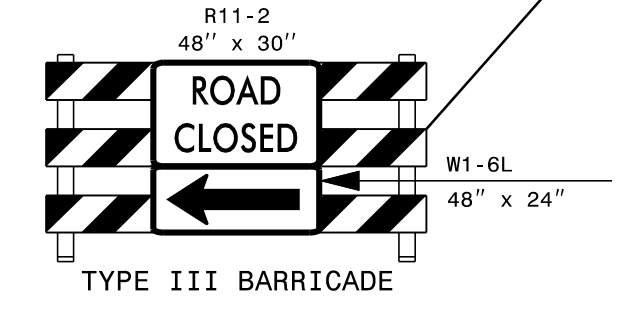
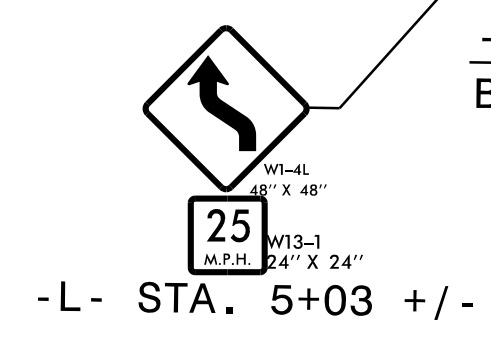
REFER TO SIGNAL PLANS FOR
TEMPORARY SIGNAL SYSTEM.

12/10/2014 R:\TrafficControl\TCP\TMP New 1182014\BD5111V tmp04.dgn mcole

<p>PLANS PREPARED BY :</p> <p>RK&K</p> <p>RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560</p>	<p>APPROVED: _____ DATE: _____</p> <p>SEAL</p> <p>NORTH CAROLINA PROFESSIONAL SEAL 21047</p> <p>ENGINEER</p> <p>KEVIN W. BISHOP</p> <p>DEC 10, 2014</p>	<p>DIVISION OF HIGHWAYS</p> <p>STATE OF NORTH CAROLINA</p> <p>DEPARTMENT OF TRANSPORTATION</p> <p>WORK ZONE TRAFFIC CONTROL</p>	<p>PHASE I DETAIL</p>
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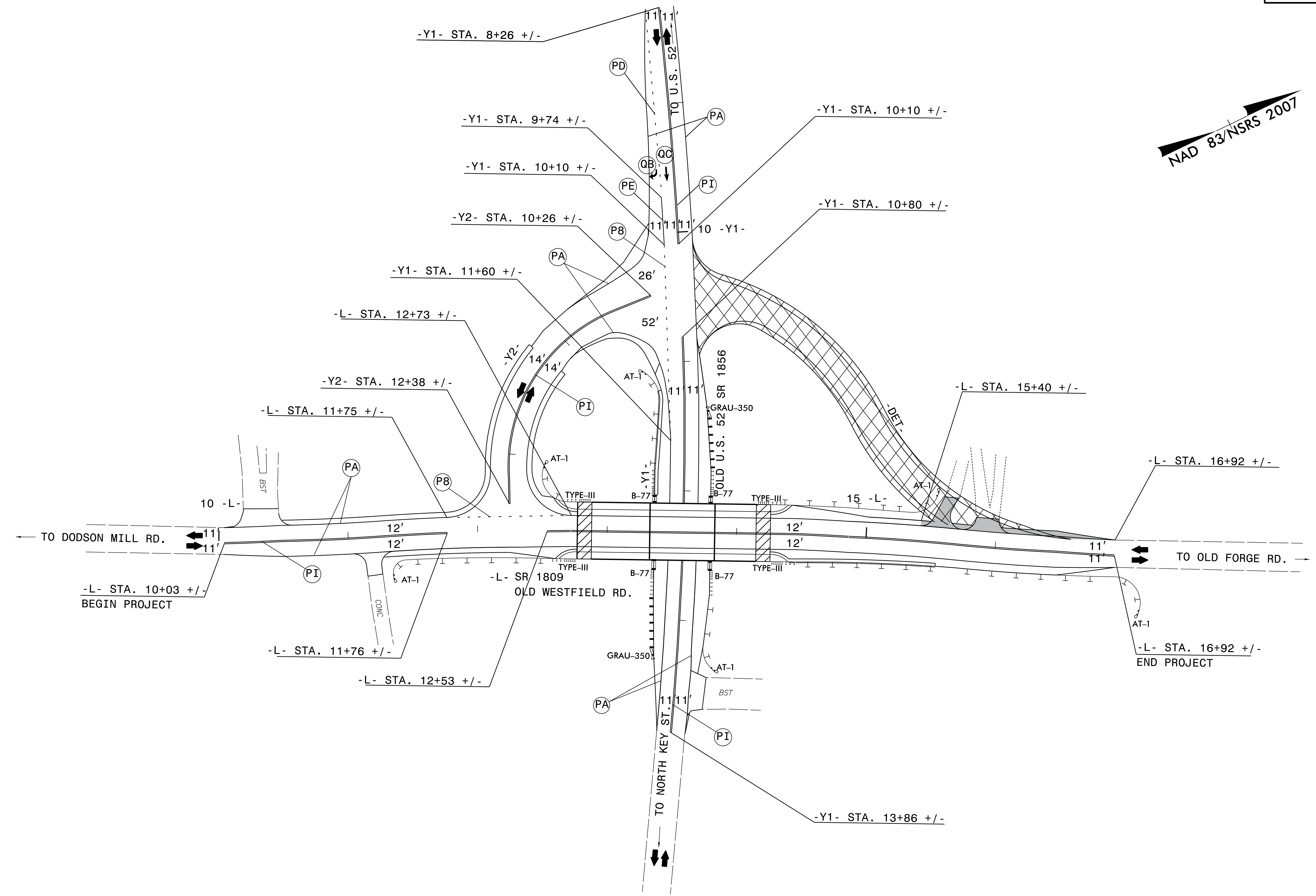
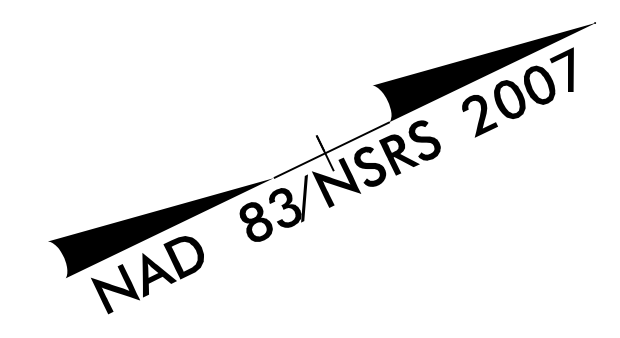


NAD 83/NSRS 2007



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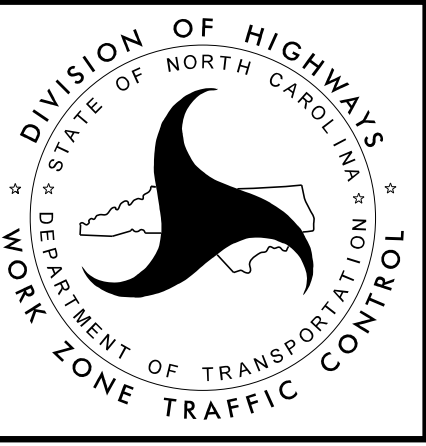
PLANS PREPARED BY : RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560	APPROVED: _____ DATE: _____	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	PHASE II DETAIL
	SEAL 		



12/10/2014
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PLANS PREPARED BY :
RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NO. F-0112 • (919) 878-9560

APPROVED: _____ DATE: _____
 SEAL



PHASE III DETAIL

BD-511V

TIP PROJECT:

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN
SURRY COUNTY**

PROJECT REFERENCE NO. BD-5111V	SHEET NO. PM-1
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ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

INDEX

SHEET NO.	DESCRIPTION
PM-1	PAVEMENT MARKING PLAN TITLE SHEET
PM-2	PAVEMENT MARKING DETAIL

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- LINE	PAINT	NONE
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

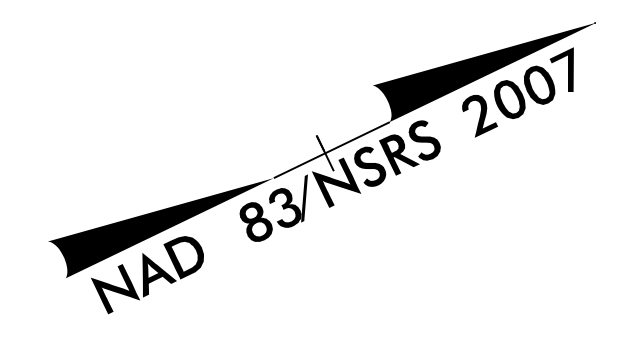
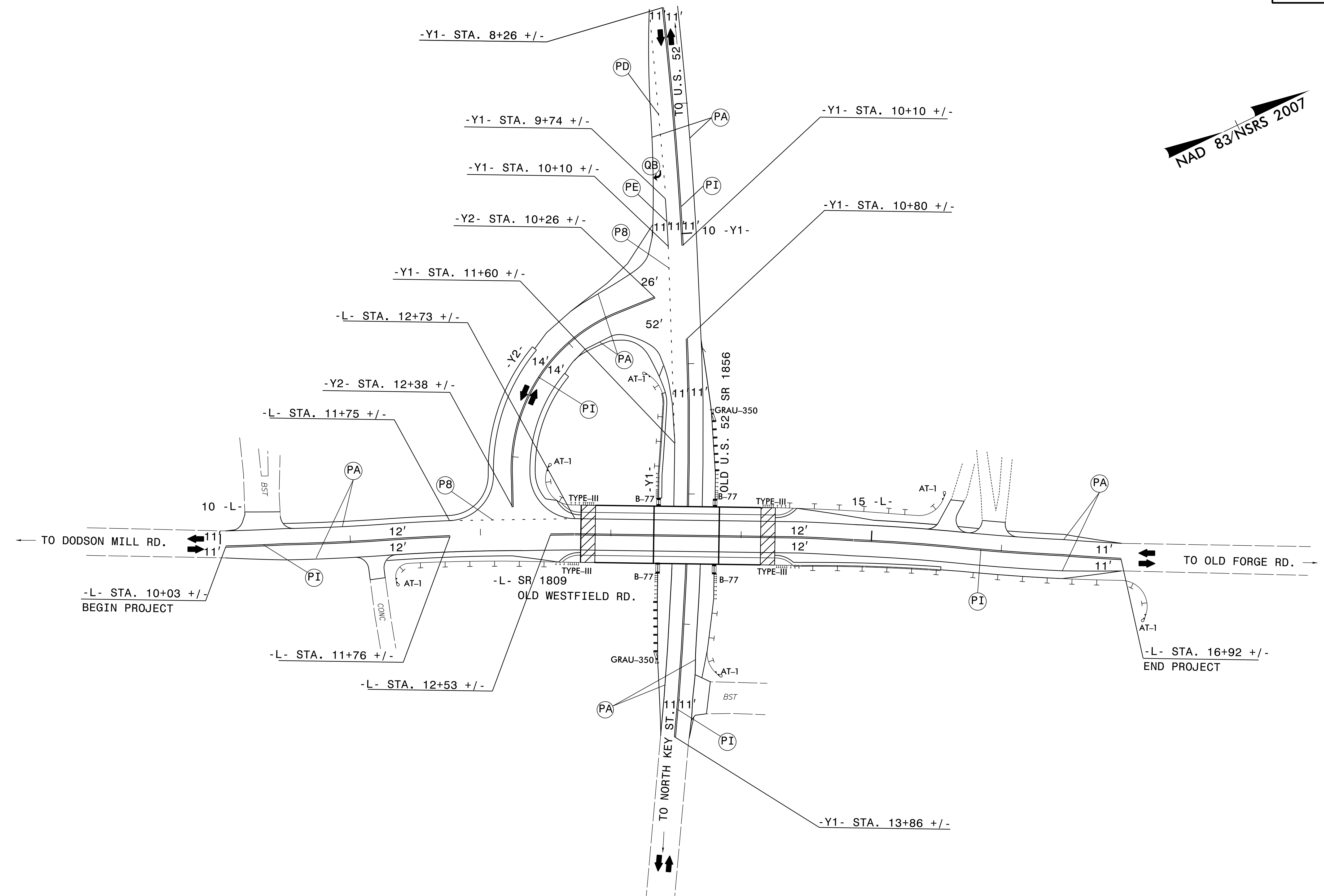
PAVEMENT MARKING SCHEDULE

- (PA) - 4" WHITE EDGELINE, PAINT, 2X
- (PD) - 4" WHITE MINI-SKIP, 3 FT. - 9 FT. SP., PAINT, 2X
- (PE) - 4" WHITE SOLID LANE LINE, PAINT, 2X
- (PI) - 4" DOUBLE YELLOW CENTERLINE, PAINT, 2X
- (P2) - 24" WHITE STOP BAR, PAINT, 2X
- (P8) - 4" WHITE MINI-SKIP, 2 FT. - 6 FT. SP., PAINT, 2X
- (QB) - RIGHT TURN ARROW SYMBOL, PAINT, 2X

2X = TWO APPLICATIONS

PAVEMENT MARKING PLAN
 PLANS PREPARED BY :
K. W. BISBY, P.E. PROJECT ENGINEER
A. TUTT PROJECT DESIGNER

PLANS PREPARED BY :
RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 NC LICENSE NO. F-0112 • (919) 878-9560



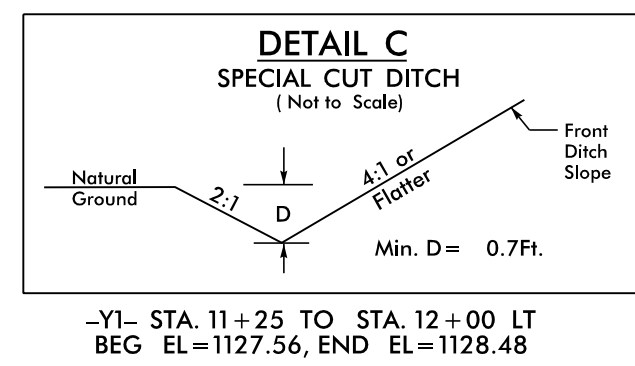
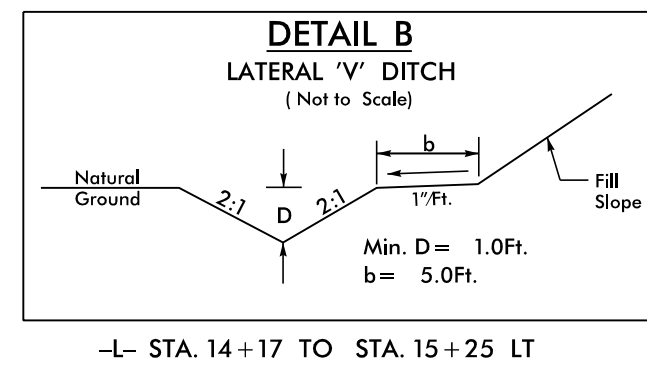
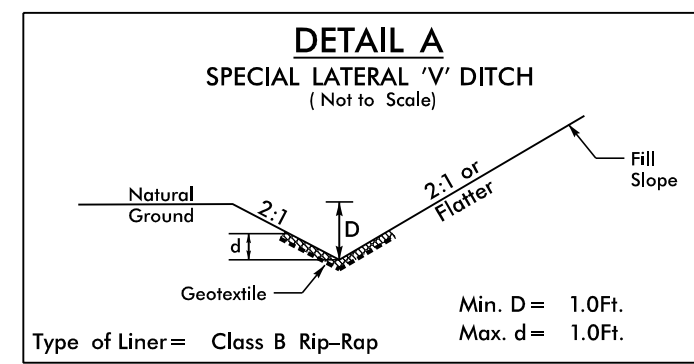
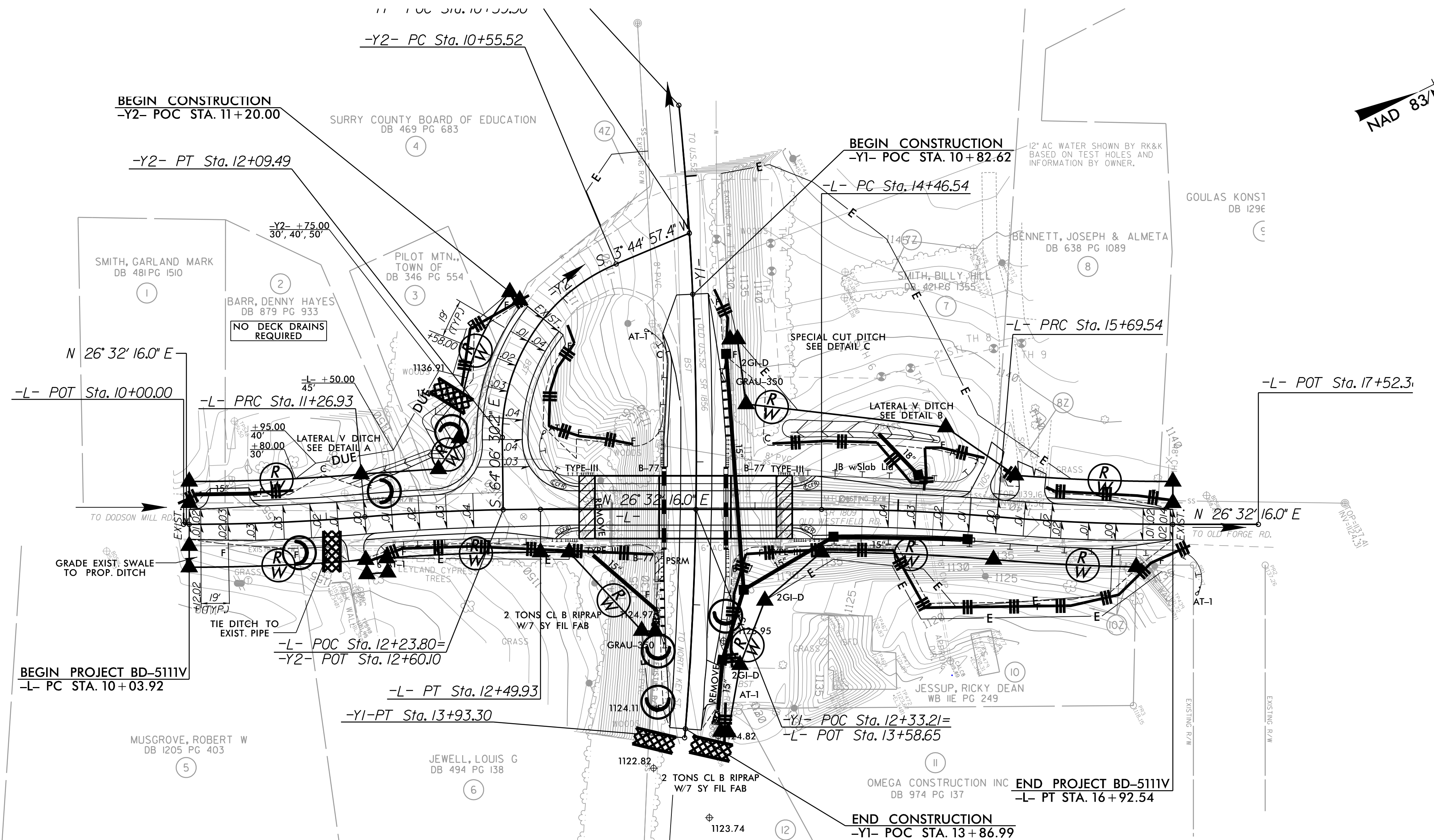
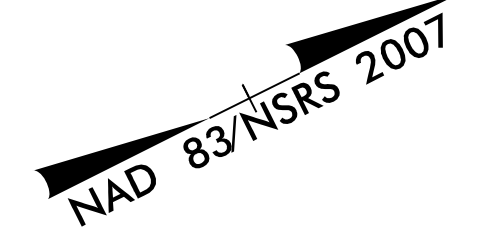
12/10/2014
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 mcole

<p>PLANS PREPARED BY :</p> <p>RK&K</p> <p>RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560</p>	<p>APPROVED: _____ DATE: _____</p> <p>SEAL</p>		<p>PAVEMENT MARKING DETAIL</p>
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EROSION CONTROL PLAN

PROJECT REFERENCE NO. BD-511V SHEET NO. EC-1

2012 STANDARD SPECIFICATIONS



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III III
1622.01	Temporary Berms and Slope Drains	— — — — —
1630.02	Silt Basin Type B	[Hatched Basin]
1630.03	Temporary Silt Ditch	— —
1630.05	Temporary Diversion	—>—
1630.06	Special Stilling Basin	[Stilling Basin]
1632.03	Rock Inlet Sediment Trap Type C	[Rock Inlet Trap]
1633.01	Temporary Rock Silt Check Type-A	[Rock Silt Check]
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	[Rock Silt Check with Matting]
1633.02	Temporary Rock Silt Check Type-B	[Rock Silt Check]
	Wattle	[Wattle]
	Wattle with Polyacrylamide (PAM)	[Wattle with PAM]
1634.02	Temporary Rock Sediment Dam Type-B	[Rock Sediment Dam]
1655.01	Rock Pipe Inlet Sediment Trap Type-A	[Rock Pipe Inlet Trap]

MATTHEW L. COOK
LEVEL III NAME

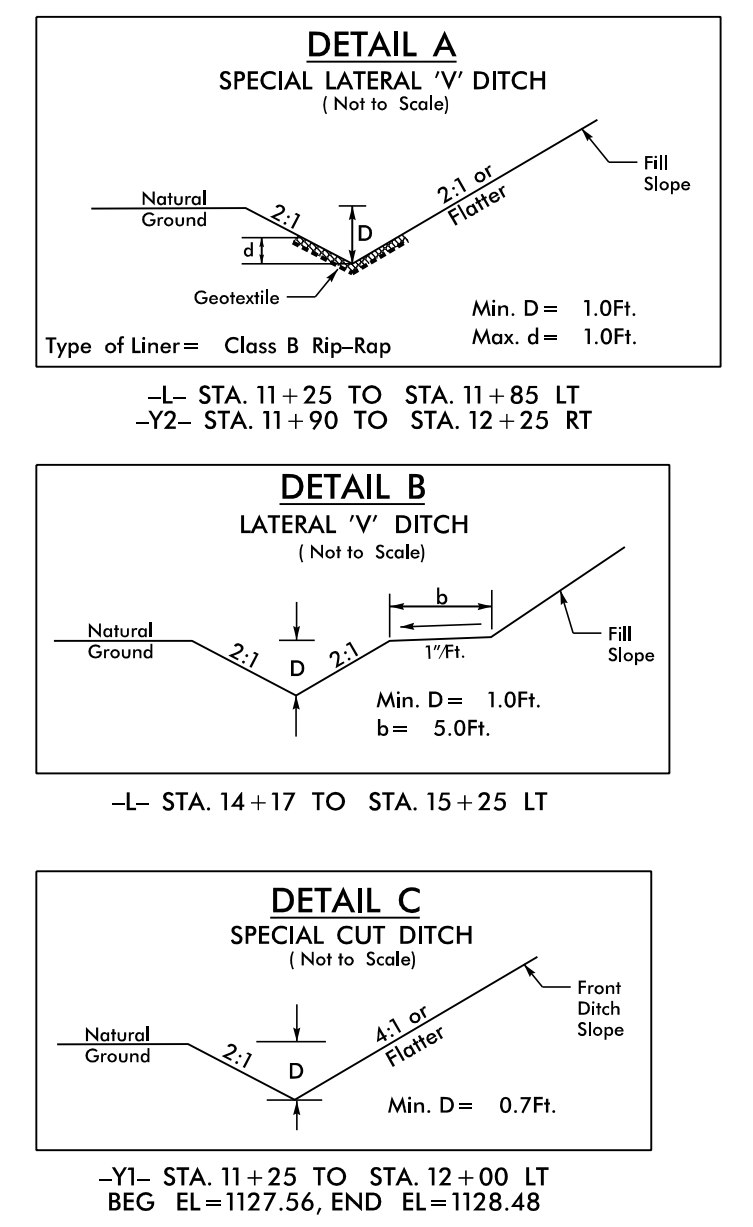
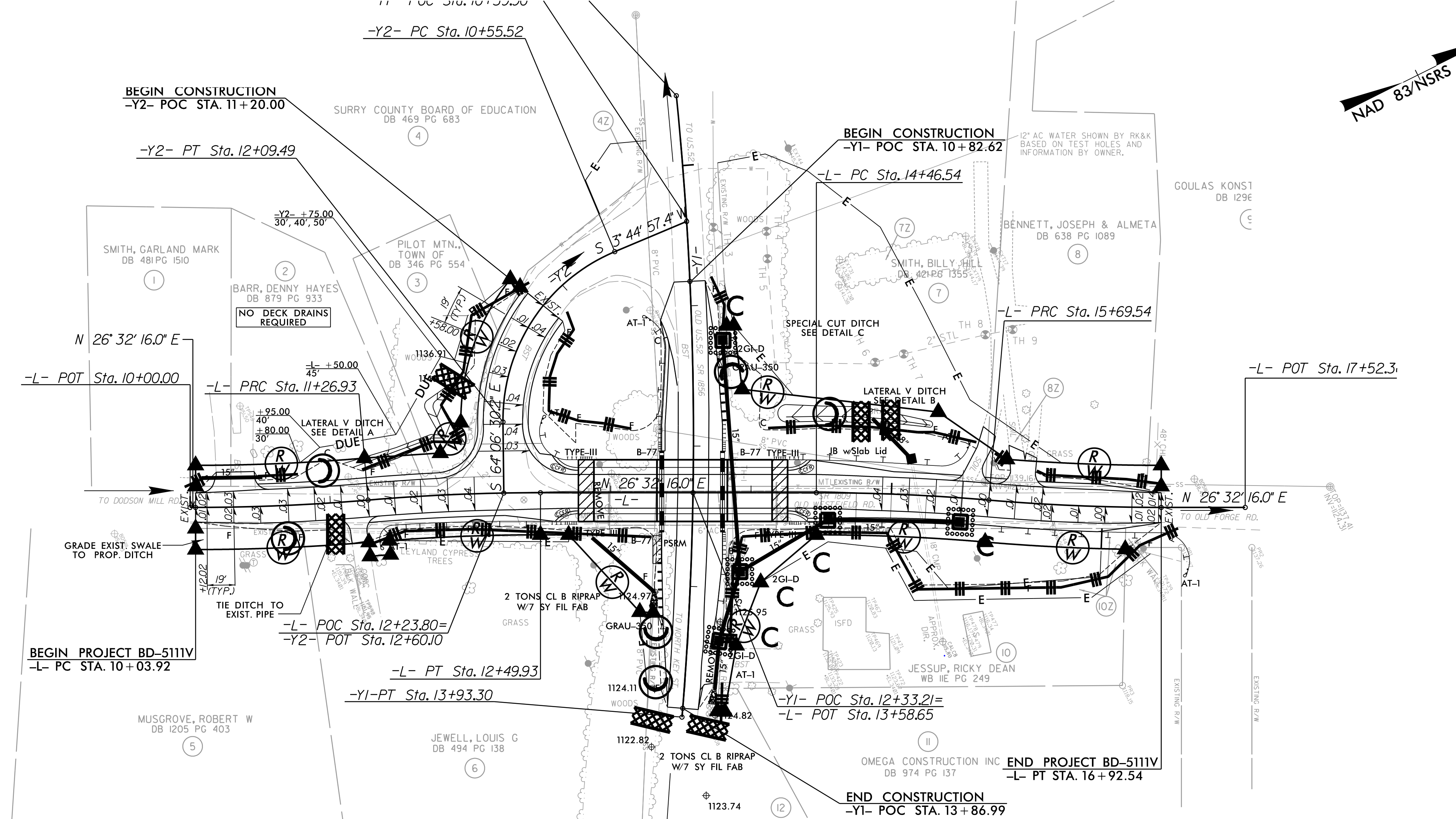
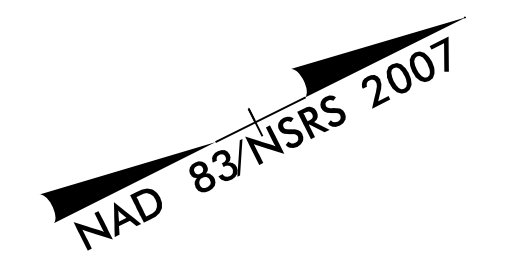
3550
LEVEL III CERTIFICATION NO.

2012 STANDARD DRAWINGS

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

PLANS PREPARED BY:
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EROSION CONTROL PLAN



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
STA. 10+25 TO STA. 10+75 LT. (35 SY)
STA. 11+00 TO STA. 11+25 LT. (20 SY)
STA. 14+17 TO STA. 15+25 LT. (55 SY)

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	— — — — — —
1606.01	Special Sediment Control Fence	— — — — — —
1622.01	Temporary Berms and Slope Drains	— — — — — —
1630.02	Silt Basin Type B	▨
1630.03	Temporary Silt Ditch	— — — — — —
1630.05	Temporary Diversion	— — — — — —
1630.06	Special Stilling Basin	— — — — — —
1632.05	Rock Inlet Sediment Trap Type C	□
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle	— — — — — —
	Wattle with Polyacrylamide (PAM)	— — — — — —
1634.02	Temporary Rock Sediment Dam Type-B	▨
1655.01	Rock Pipe Inlet Sediment Trap Type-A	— — — — — —

MATTHEW L. COOK
LEVEL III NAME

3550
LEVEL III CERTIFICATION NO.

2012 STANDARD DRAWINGS

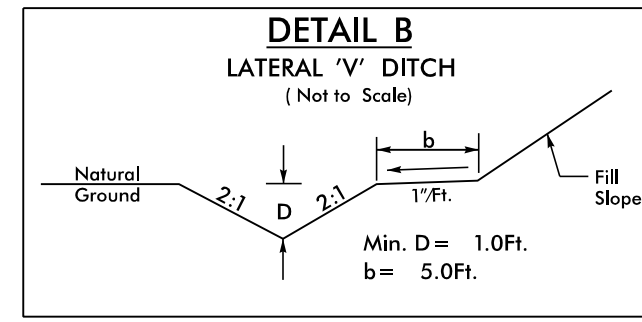
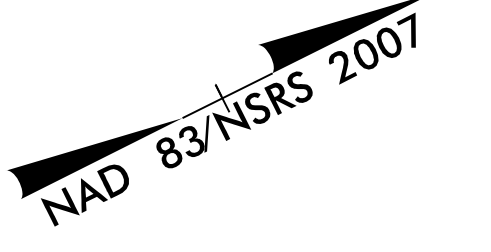
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1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

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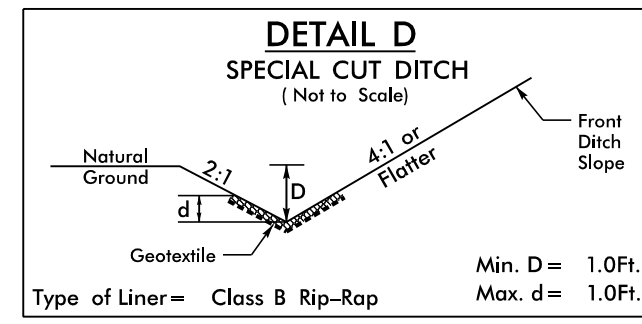
EROSION CONTROL PLAN

PROJECT REFERENCE NO. **BD-511V**
SHEET NO. **EC-2**

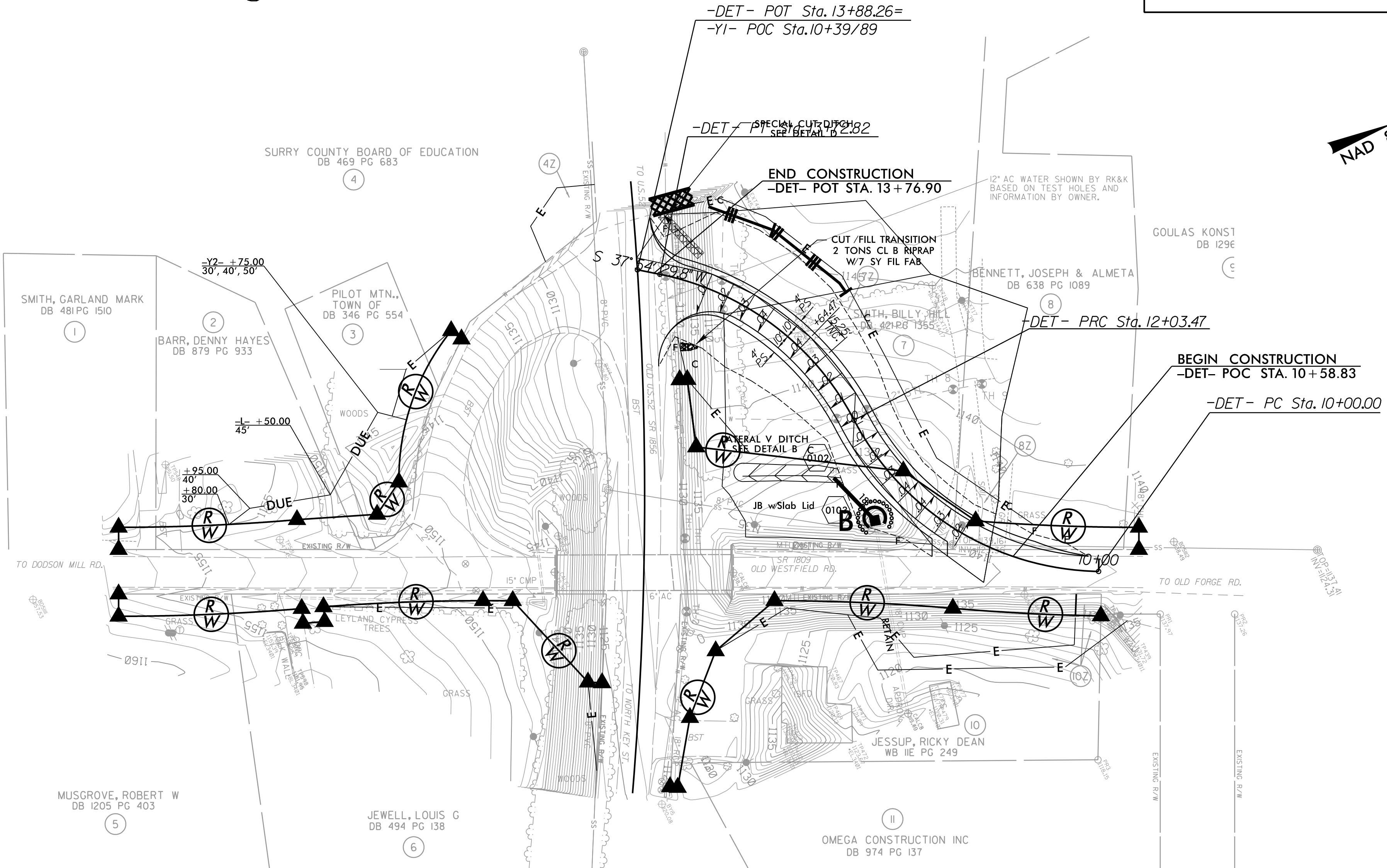
2012 STANDARD SPECIFICATIONS



-L- STA. 14+17 TO STA. 14+85 LT



-DET- STA. 13+50 TO STA. 13+80 RT



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

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ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	--- --- ---
1606.01	Special Sediment Control Fence	--- --- --- --- ---
1622.01	Temporary Berms and Slope Drains	---▲---▲---▲---
1630.02	Silt Basin Type B	▨
1630.03	Temporary Silt Ditch	--- ---
1630.05	Temporary Diversion	--->---
1630.06	Special Stilling Basin	▣
1632.05	Rock Inlet Sediment Trap Type C	▣
1633.01	Temporary Rock Silt Check Type-A	▤
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▤
1633.02	Temporary Rock Silt Check Type-B	▤
	Wattle	---)---
	Wattle with Polyacrylamide (PAM)	---)---
1634.02	Temporary Rock Sediment Dam Type-B	▣
1655.01	Rock Pipe Inlet Sediment Trap Type-A	▣

MATTHEW L. COOK
LEVEL III NAME

3550
LEVEL III CERTIFICATION NO.

2012 STANDARD DRAWINGS

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Sediment Control Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

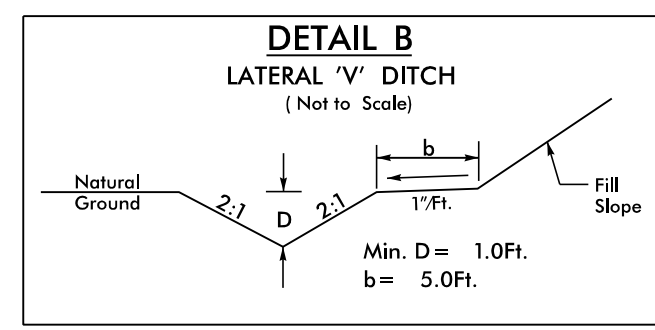
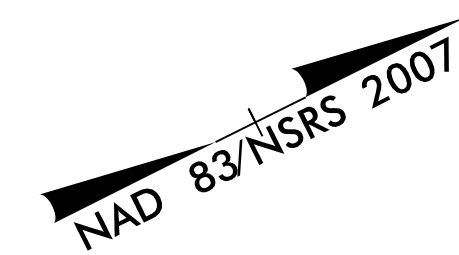
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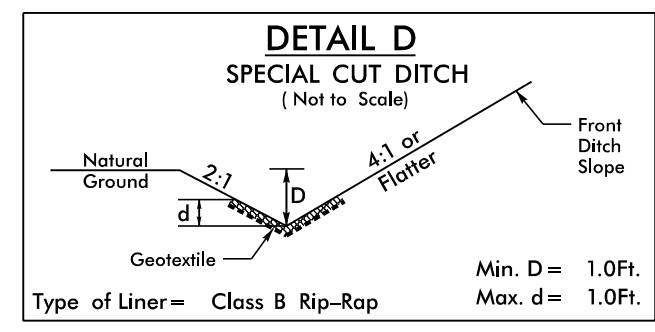
EROSION CONTROL PLAN

PROJECT REFERENCE NO. BD-511V
SHEET NO. EC-2A

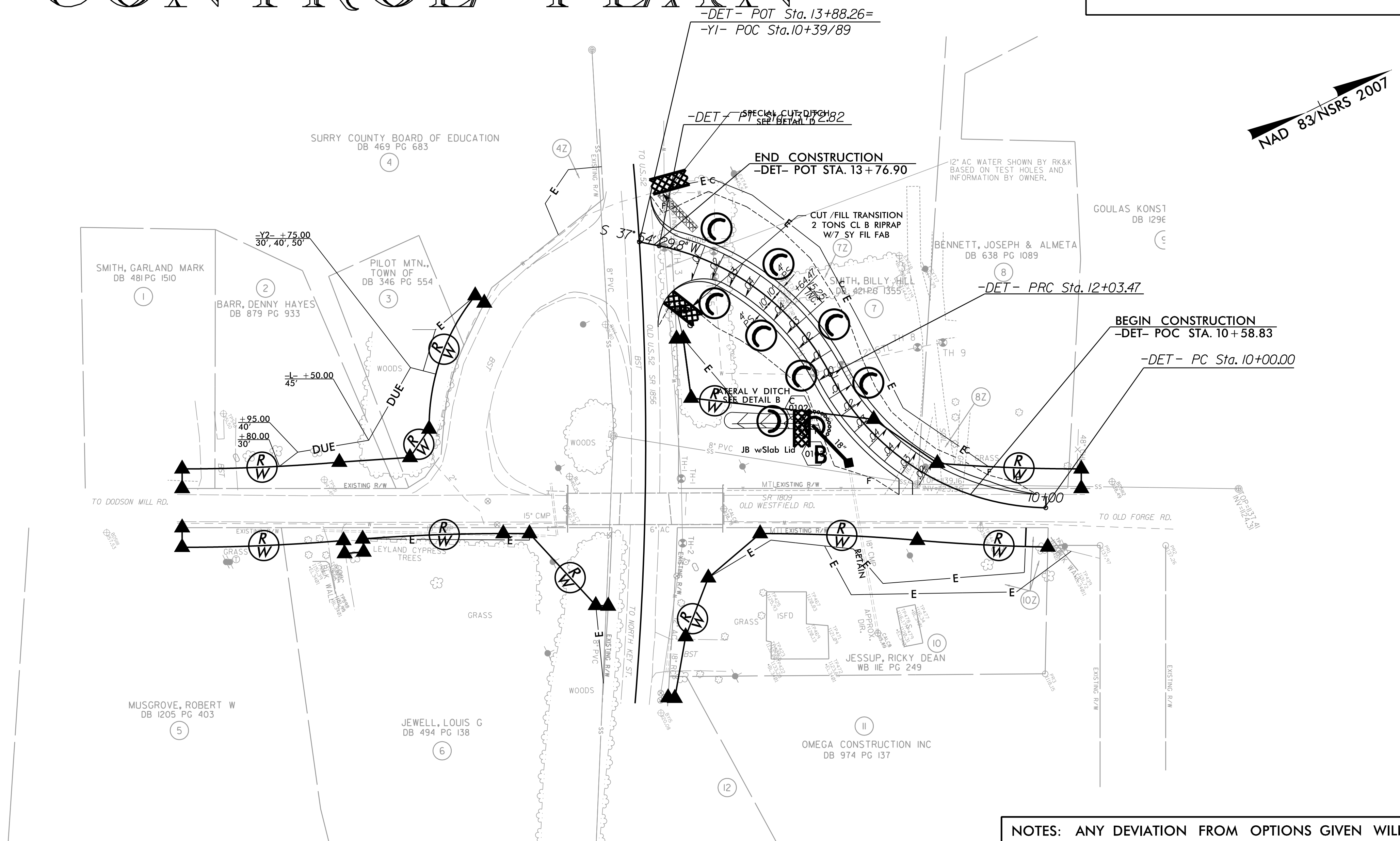
2012 STANDARD SPECIFICATIONS



-L- STA. 14+17 TO STA. 14+85 LT



-DET- STA. 13+50 TO STA. 13+80 RT



NOTES:
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NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	▨
1630.03	Temporary Silt Ditch	— T —
1630.05	Temporary Diversion	— T —
1630.06	Special Stilling Basin	— T —
1632.05	Rock Inlet Sediment Trap Type C	□
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle	— T —
	Wattle with Polyacrylamide (PAM)	— T —
1634.02	Temporary Rock Sediment Dam Type-B	— T —
1655.01	Rock Pipe Inlet Sediment Trap Type-A	— T —

MATTHEW L. COOK
LEVEL III NAME
3550
LEVEL III CERTIFICATION NO.

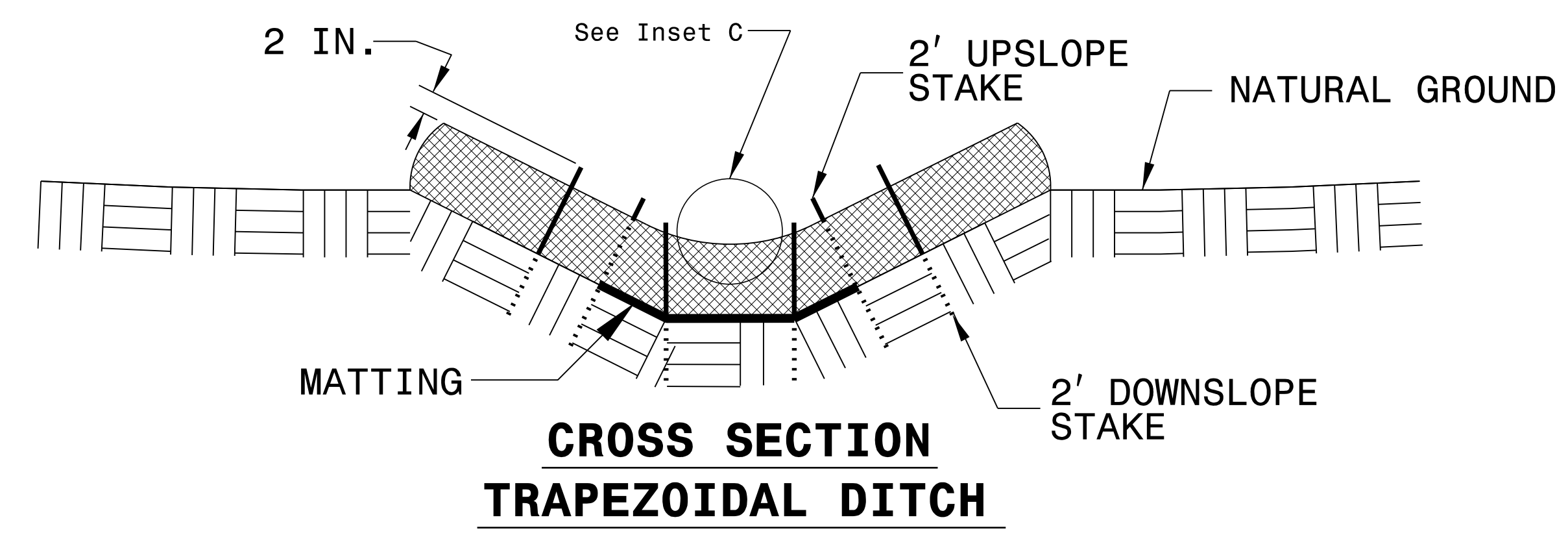
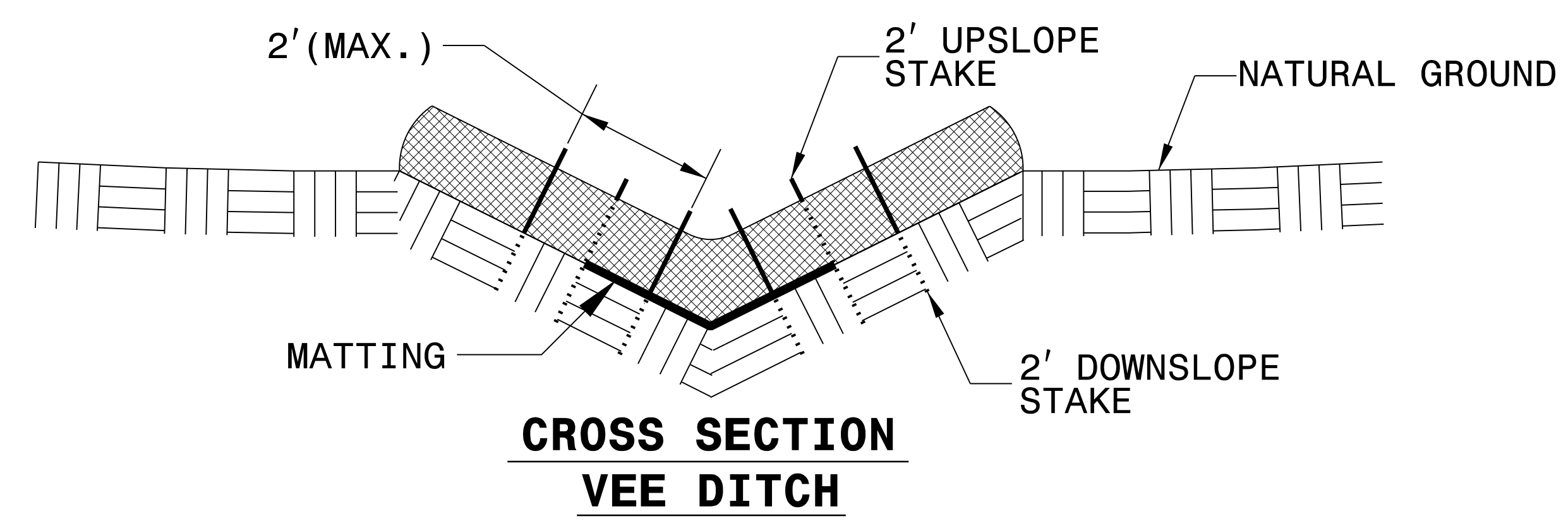
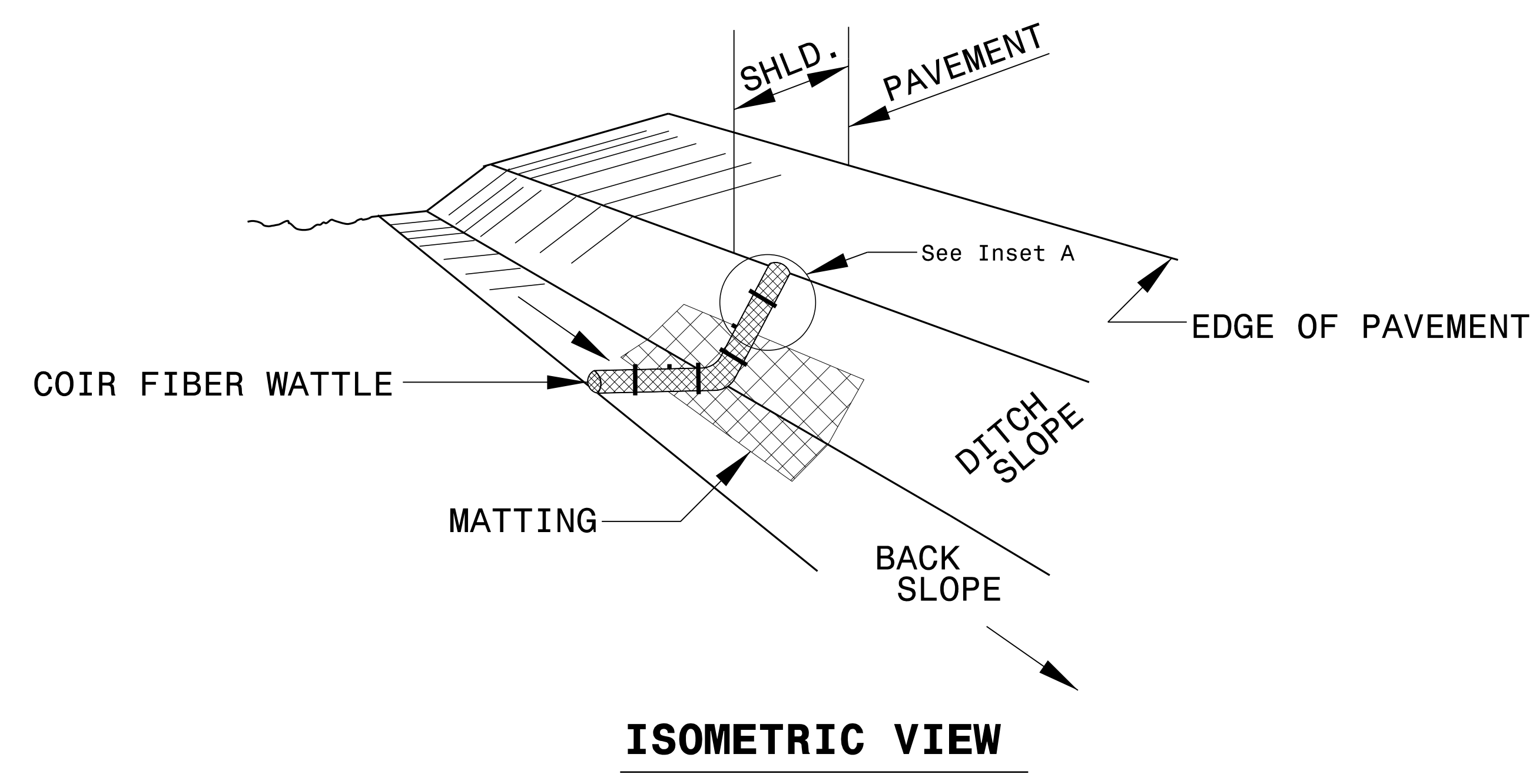
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

PLANS PREPARED BY :
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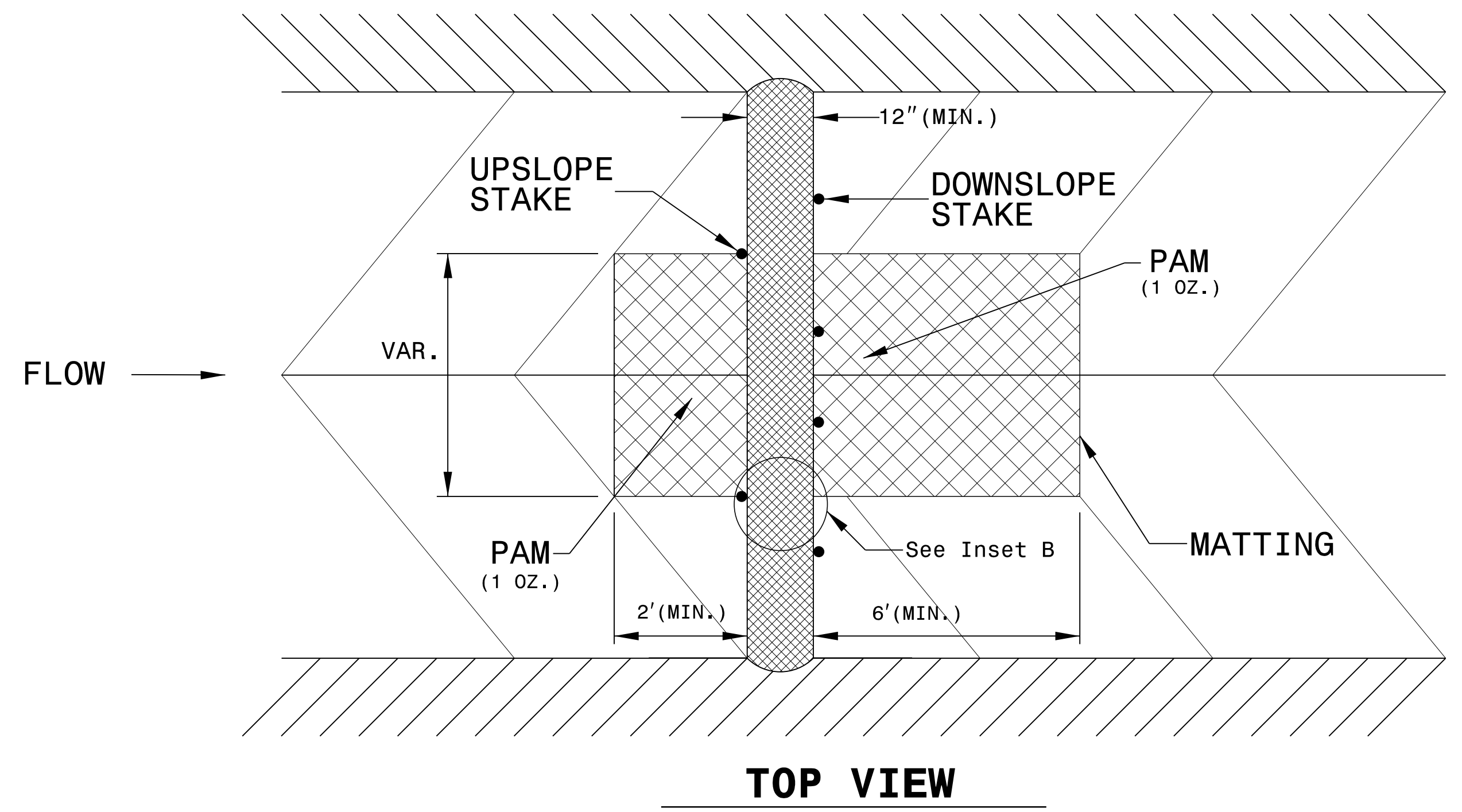
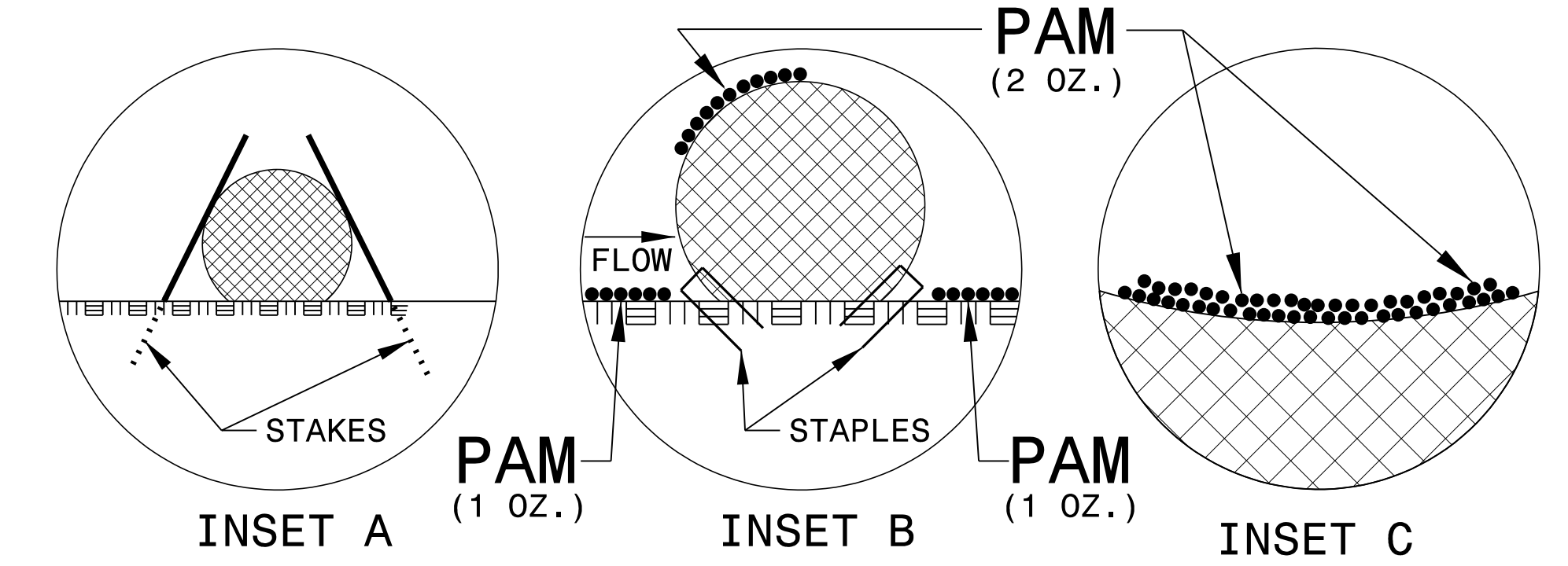
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PROJECT REFERENCE NO. <i>BD-5111V</i>	SHEET NO. <i>EC-3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



- NOTES:
- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
 - ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
 - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
 - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
 - INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
 - PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
 - INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>BD-511V</i>	SHEET NO. <i>EC-4</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

CONTRACT: TIP PROJECT: BD-511V

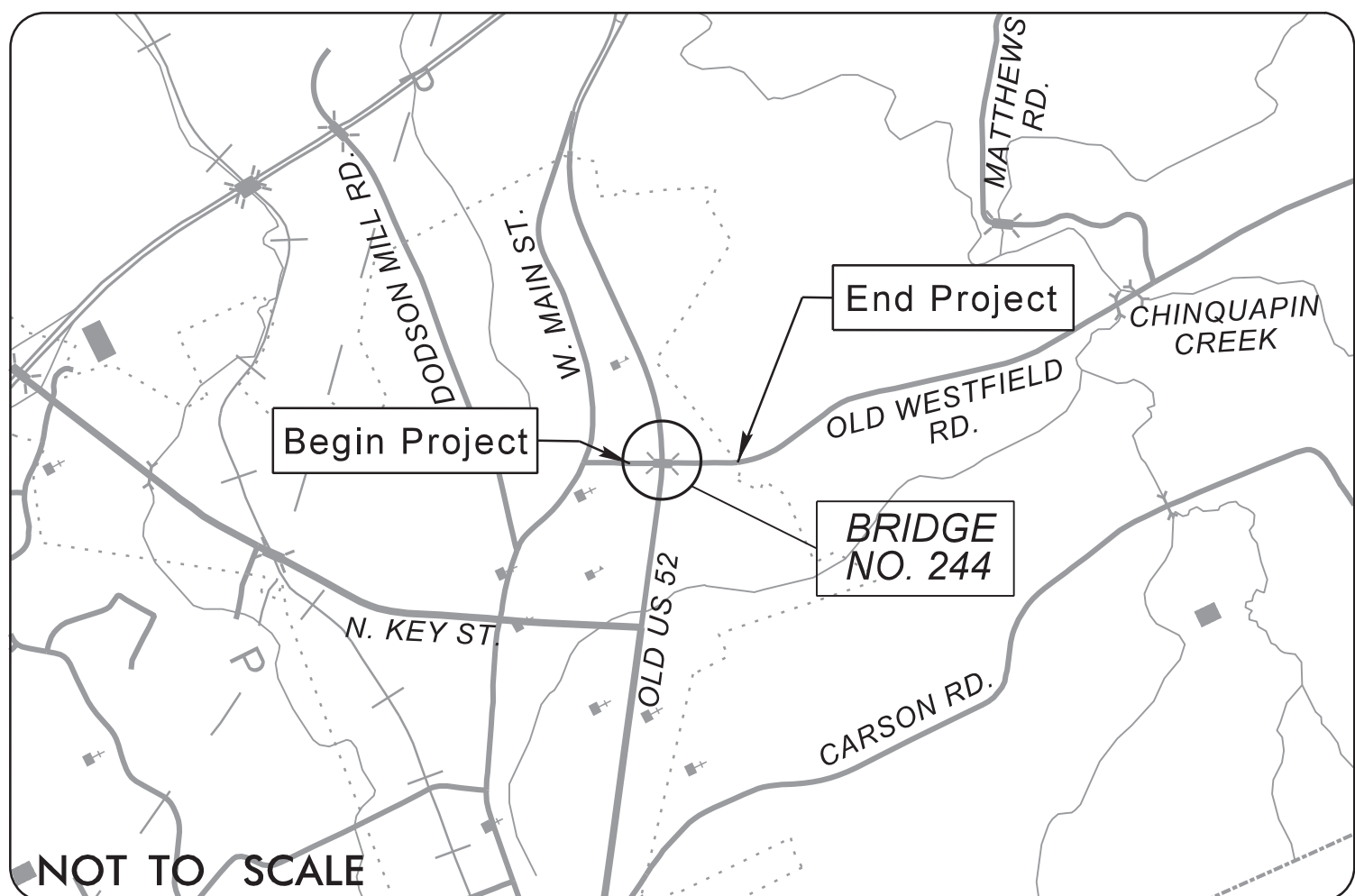
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURRY COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45357.1.22	BRZ-1809(5)	PE	

LOCATION: SR 1908 (OLD WESTFIELD RD.) OVER SR 1856 (OLD US 52)

TYPE OF WORK: LOW IMPACT BRIDGE REPLACEMENT - TEMPORARY DETOUR SIGNAL

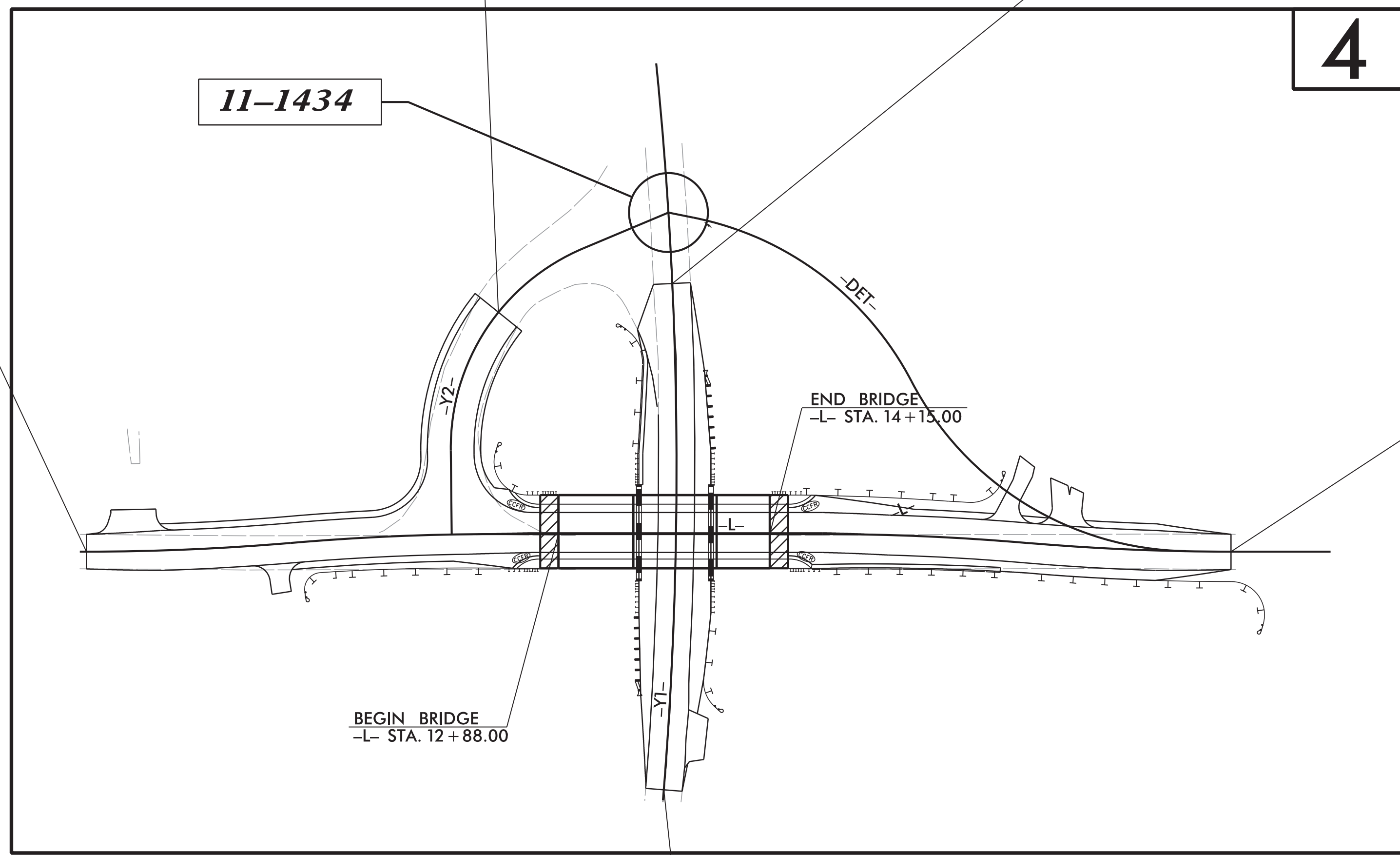


VICINITY MAP

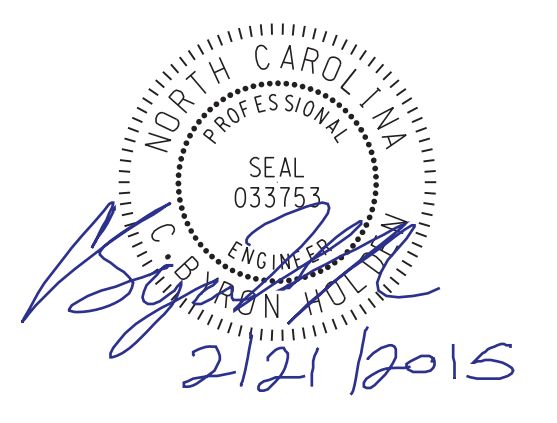
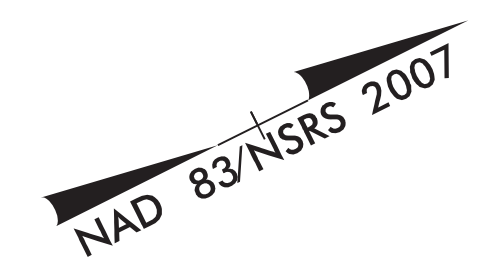
BEGIN CONSTRUCTION
 -Y2- STA. 11 + 20.00

 BEGIN CONSTRUCTION
 -Y1- STA. 10 + 82.62

BEGIN PROJECT BD-511V
 -L- STA. 10 + 03.92



END CONSTRUCTION
 -Y1- STA. 13 + 86.99



Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.

Sheet #	Reference #	Location/Description
Sig. 1 Sig. 2-3	11-1434	TITLE SHEET SR 1856 (OLD US 52) AT OLD WESTFIELD RD. TEMPORARY DETOUR RAMPS

RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE, SUITE 350
 RALEIGH, NORTH CAROLINA 27609
 NC LICENSE NO. F-0112
 1-888-521-4455 OR 919-878-9560

FOR
DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 2013

B. Keith Skinner, P.E.
 PROJECT ENGINEER

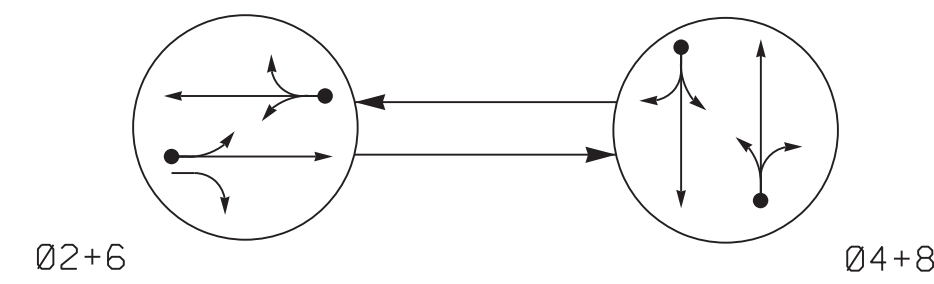
Stephen E. Roberts, P.E.
 PROJECT DESIGN ENGINEER

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

Timothy J. Williams, PE - Western Region Signals Engineer
George C. Brown, PE - Signal Equipment Design Engineer
Greg A. Fuller, PE - State ITS and Signals Engineer

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

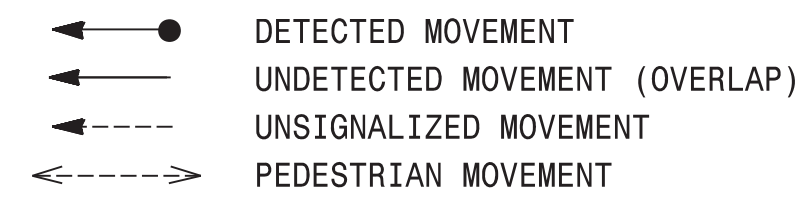
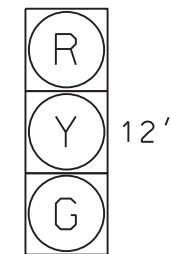


TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLASH
21,22	G	R	Y
41,42	R	G	R
61,62	G	R	Y
81,82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.

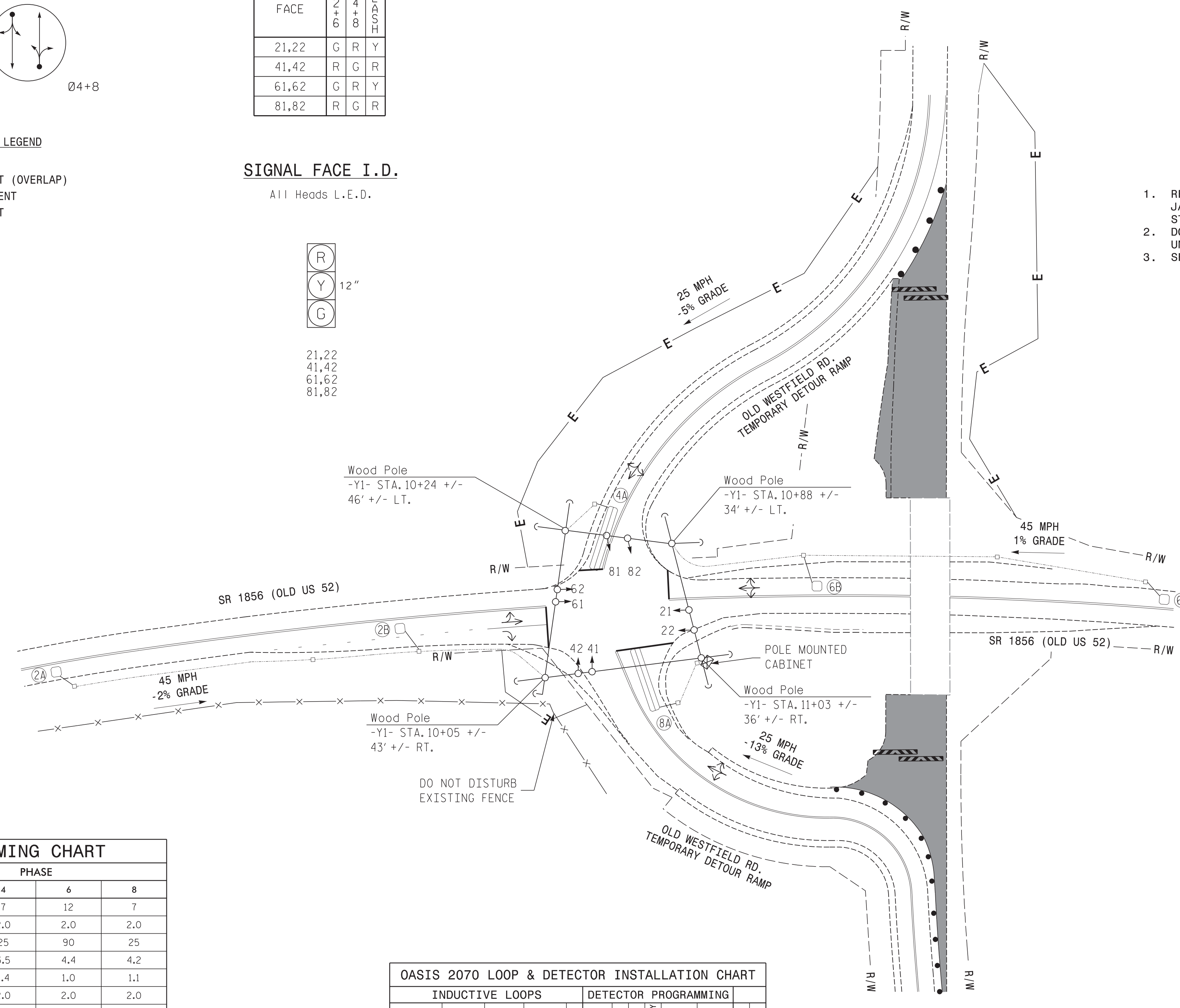


21,22
41,42
61,62
81,82

2 PHASE
FULLY ACTUATED
(ISOLATED)

NOTES

- REFER TO "ROADWAY STANDARD DRAWINGS NCDOT" DATED JANUARY 2012 AND "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.
- DO NOT PROGRAM SIGNAL FOR LATE NIGHT FLASHING OPERATION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- SET ALL DETECTOR UNITS TO PRESENCE MODE.



OASIS 2070 TIMING CHART

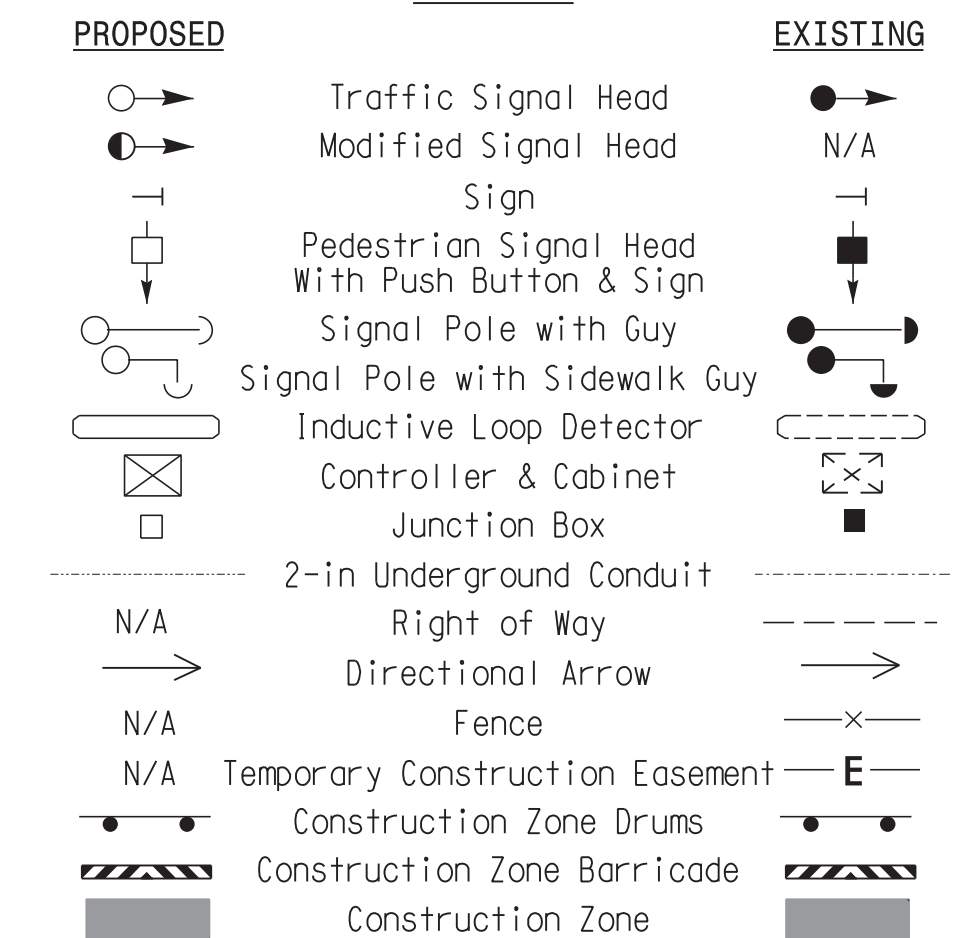
FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	12	7	12	7
Extension 1 *	2.0	2.0	2.0	2.0
Max Green 1 *	90	25	90	25
Yellow Clearance	4.7	3.5	4.4	4.2
Red Clearance	1.1	1.4	1.0	1.1
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	INDUCTIVE LOOPS			DETECTOR PROGRAMMING						
	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING EXTENSION	STRETCH FULL TIME DELAY	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	5	Y	2	Y Y	- 1.6	-	-	Y
2B	6X6	90	3	Y	2	Y Y	-	-	-	Y
4A	6X40	0	2-4-2	Y	4	Y Y	-	-	-	Y
6A	6X6	300	5	Y	6	Y Y	- 1.6	-	-	Y
6B	6X6	90	3	Y	6	Y Y	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y Y	-	-	-	Y

LEGEND

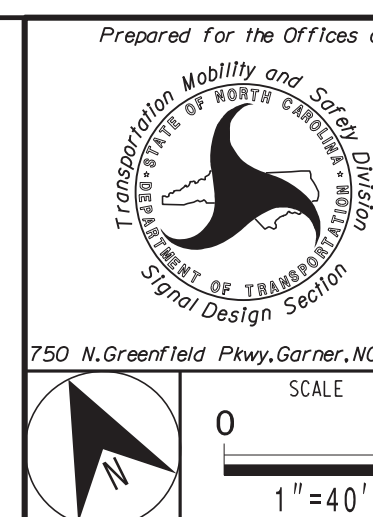


TEMPORARY DETOUR SIGNAL DESIGN

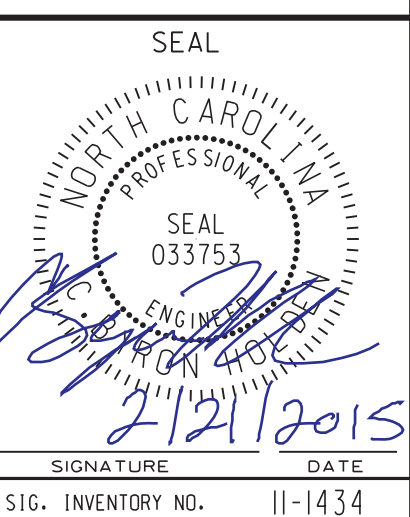
PLANS PREPARED BY :



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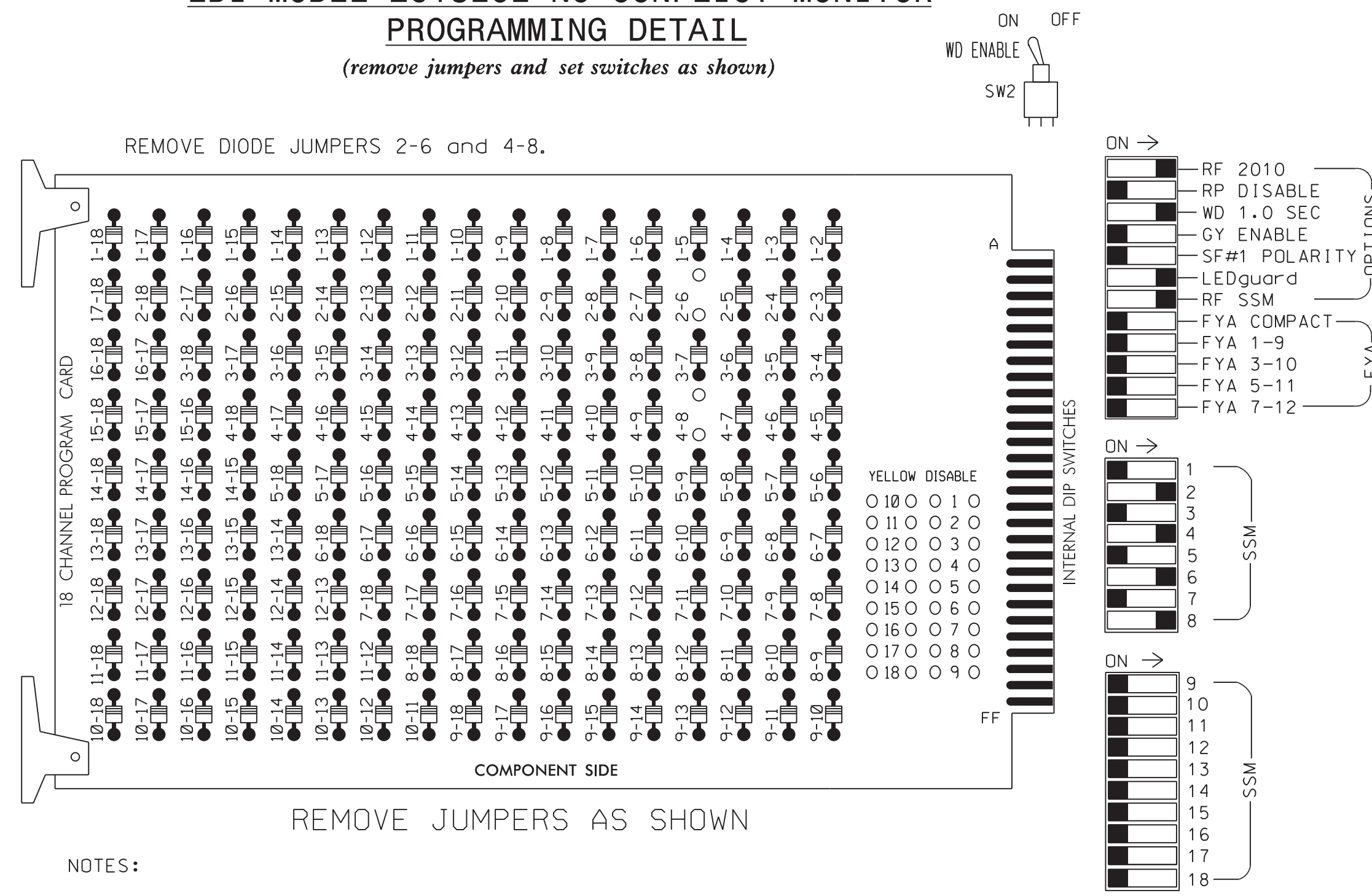
SR 1856 (OLD US 52) AT OLD WESTFIELD RD. TEMPORARY DETOUR RAMPS	
DIVISION 11	SURRY CO. PILOT MOUNTAIN
PLAN DATE: 2/21/2015	REVIEWED BY: K. Bisby
PREPARED BY: B. Holden	REVIEWED BY:
REVISIONS	INIT. DATE



2/21/2015 8:41:00 AM I:\Projects\2015\SR1856\05111V\Sig. 11-1434.dgn B.Holden

**EDI MODEL 2018ECL-NC CONFLICT MONITOR
PROGRAMMING DETAIL**

(remove jumpers and set switches as shown)



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
Hand icon												
Person icon												

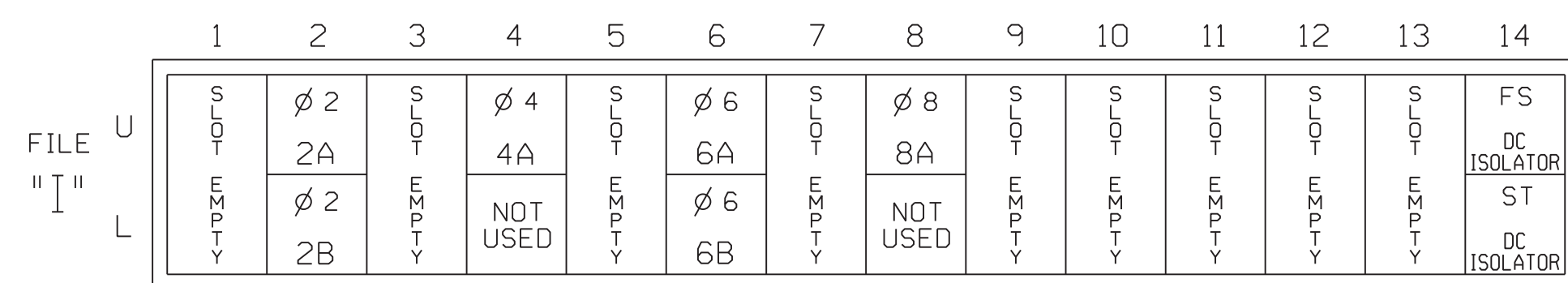
NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....336S
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S5,S8,S11
 PHASES USED.....2,4,6,8
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)



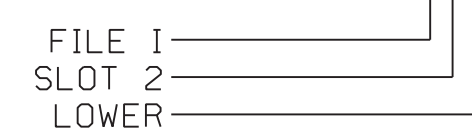
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-3,4	I2U	39	1	2	2	Y	Y		1.6	
2B	TB23-3,4	I2L	43	5	12	2	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			
6A	TB21-11,12	I6U	40	2	6	6	Y	Y		1.6	
6B	TB23-11,12	I6L	44	6	16	6	Y	Y			
8A	TB22-1,2	I8U	42	4	8	8	Y	Y			

INPUT FILE POSITION LEGEND: I2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 11-1434
 DESIGNED: 2/21/2015
 SEALED: 2/21/2015
 REVISED:

TEMPORARY DETOUR SIGNAL

<p>PLANS PREPARED BY :</p> <p>RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560</p>	<p>ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p>Prepared for the Offices of:</p> <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SR 1856 (OLD US 52) AT OLD WESTFIELD RD. TEMPORARY DETOUR RAMPS</p> <p>DIVISION 11 SURRY COUNTY PILOT MOUNTAIN</p> <p>PLAN DATE: 2/21/2015 REVIEWED BY: B. Holden</p> <p>PREPARED BY: K. Bisby REVIEWED BY:</p>	<p>SEAL</p> <p>ENGINEER KEVIN W. BISBY FEB 21, 2015</p>				
	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE			
REVISIONS	INIT.	DATE					

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