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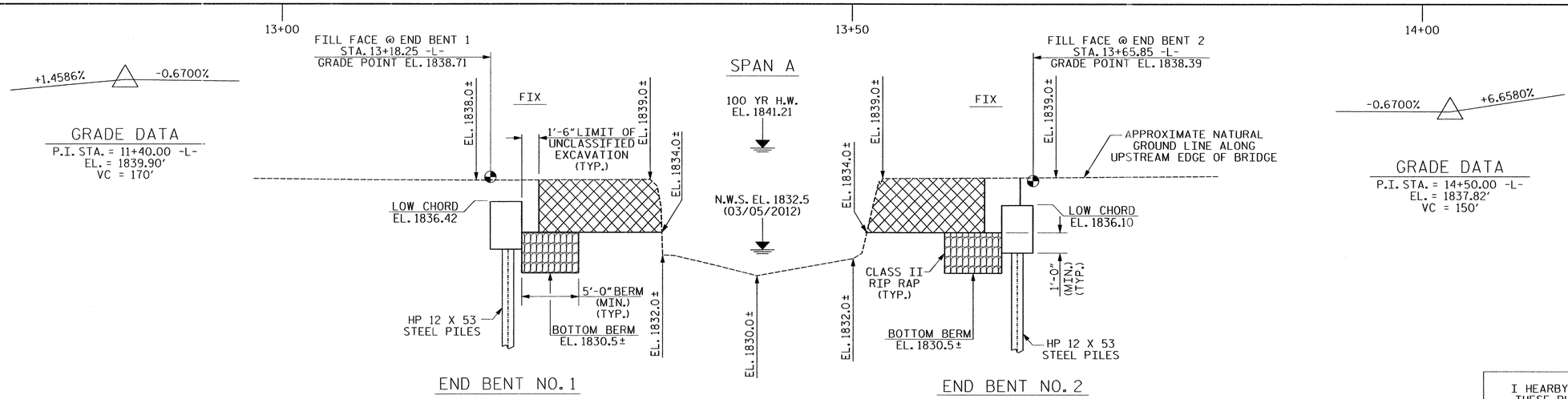
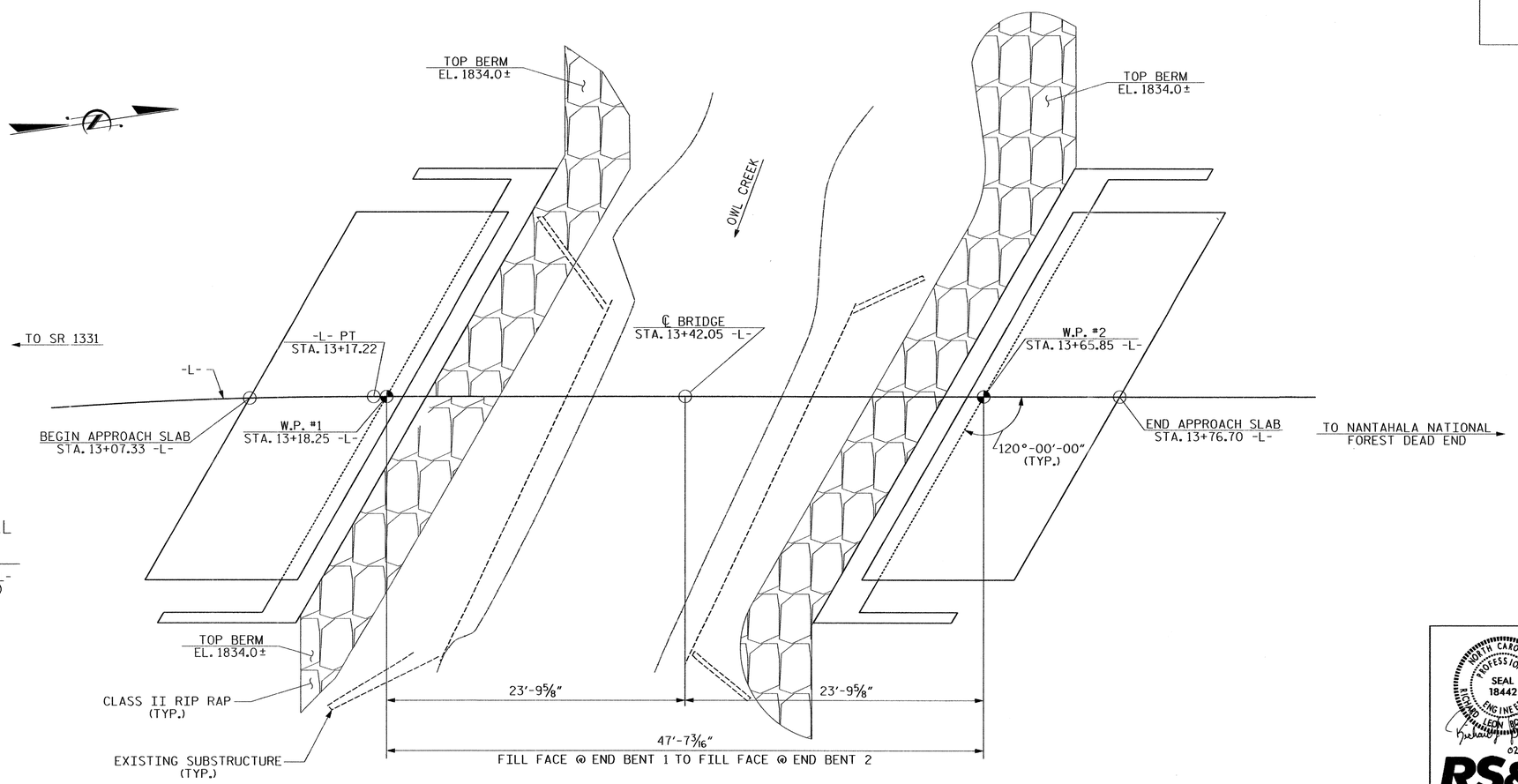


SECTION ALONG ℄ -L-

SECTIONS @ END BENTS ARE AT RIGHT ANGLES

UNCLASSIFIED STRUCTURE EXCAVATION

I HEARBY CERTIFY THESE PLANS ARE AS-BUILT PLANS.



PLAN

(PILES NOT SHOWN FOR CLARITY)

-L- HORIZONTAL CURVE DATA

P.I. STA. = 12+74.86 -L-
Δ = 13° 56' 18.5" (RT)
D = 16° 22' 12.8"
L = 85.15'
T = 42.78'
R = 350.00'
RO = SEE PLANS

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 17

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER LEON ROLLINS 02-09-2015

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www.rsandh.com
North Carolina License Nos. 00073 * F-0493 * C-28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

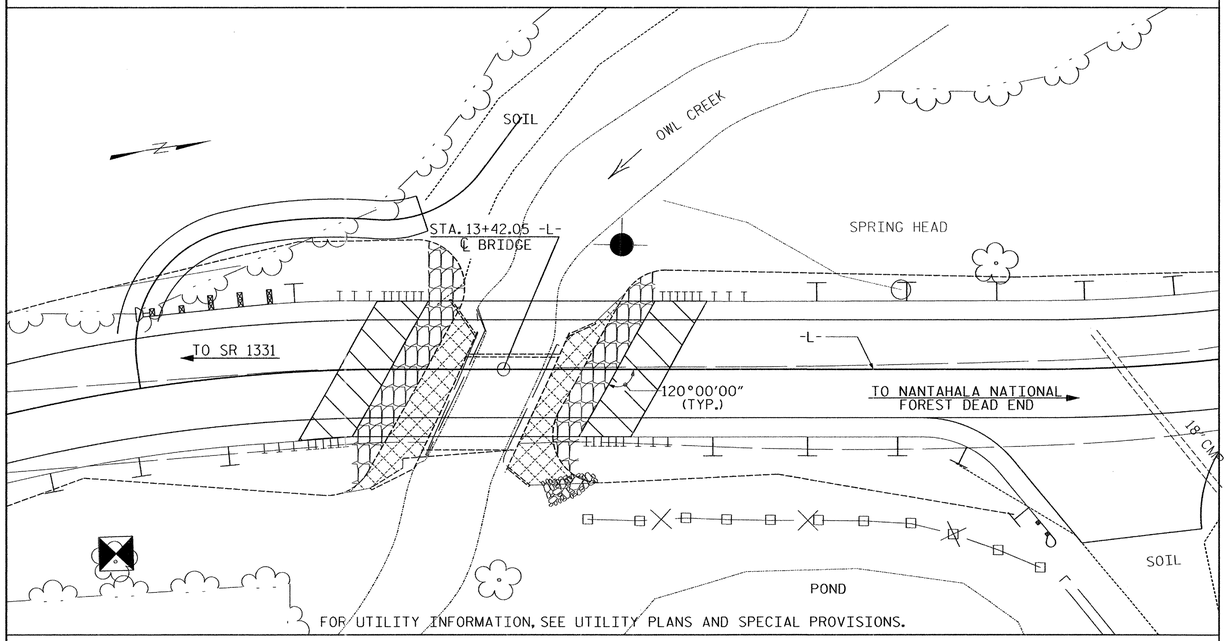
GENERAL DRAWING

FOR BRIDGE OVER OWL CREEK
ON SR 1340 BETWEEN
SR 1331 AND DEAD END

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

DRAWN BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012

BENCHMARK: BM#1: 8 INCH SPIKE IN BASE OF 24 INCH TWIN POPLAR
TREE 33.45' RT. OF STA. 12+54.02 -L- EL. 1835.96



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF ONE 20'-6" SPAN, 11 13¾" X 5¾" TIMBER JOISTS, WITH A CLEAR ROADWAY WIDTH OF 9'-0", A TIMBER FLOOR ON TIMBER ABUTMENTS AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING BRIDGE.

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

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 2 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. 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. SEE SECTION 412 OF THE STANDARD SPECIFICATION

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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

HYDRAULIC DATA

DESIGN DISCHARGE	= 800 CFS
FREQUENCY OF DESIGN FLOOD	= 5 YRS
DESIGN HIGH WATER ELEVATION	= 1837.3
DRAINAGE AREA	= 5.95 SQ. MI.
BASIC DISCHARGE (Q100)	= 2450 CFS
BASIC HIGH WATER ELEVATION	= 1841.21

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1060 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 10 YRS±
OVERTOPPING FLOOD ELEVATION	= 1838.3

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATION.

PILES AT END BENTS NO. 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 74 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 123 TONS PER PILE.

INSTALL PILES AT END BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 1822 FT.

INSTALL PILES AT END BENT NO. 2 TO A TIP ELEVATION NO HIGHER THAN 1806 FT.

PREDRILLING FOR PILES MAY BE REQUIRED AT THE RIGHT SIDE OF END BENT NO. 1. IF REQUIRED, PREDRILL PILE LOCATIONS TO EL. 1820 FT. WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDILLING DIAMETER OF 12 IN. FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PREDRILLING FOR PILES MAY BE REQUIRED AT THE RIGHT SIDE OF END BENT NO. 2. IF REQUIRED, PREDRILL PILE LOCATIONS TO EL. 1800 FT. WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDILLING DIAMETER OF 12 IN. FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIALS

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	PREDRILLING FOR PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE										90.3				10	450
END BENT 1			22.4		2716	5	100	5	40		50	42			
END BENT 2			22.4		2716	5	175	5	100		63	50			
TOTAL	LUMP SUM	LUMP SUM	44.8	LUMP SUM	5432	10	275	10	140	90.3	113	92	LUMP SUM	10	450

PROJECT NO. 17BP.14.R.57
CHEROKEE COUNTY
STATION: 13+42.05 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER LEON WOLLMAN
2-09-2015

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North Carolina License Nos. 00072 * F-0493 * C-28

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER OWL CREEK
ON SR 1340 BETWEEN
SR 1331 AND DEAD END

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

DRAWN BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.179	--	1.75	0.251	1.48	45'	EL	21.923	0.654	**1.18**	45'	EL	**8.769**	0.80	0.251	1.20	45'	EL	21.923	
		HL-93(Opr)	N/A	--	1.529	--	1.35	0.251	1.92	45'	EL	21.923	0.654	1.53	45'	EL	8.769	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.36	48.973	1.75	0.251	1.82	45'	EL	21.923	0.654	**1.36**	45'	EL	**8.769**	0.80	0.251	1.47	45'	EL	21.923	
		HS-20(Opr)	36.000	--	1.763	63.484	1.35	0.251	2.36	45'	EL	21.923	0.654	1.76	45'	EL	8.769	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.873	38.783	1.4	0.251	4.44	45'	EL	21.923	0.654	3.59	45'	EL	8.769	0.80	0.251	2.87	45'	EL	21.923	
		SNGARBS2	20.000	--	2.321	46.427	1.4	0.251	3.59	45'	EL	21.923	0.654	2.69	45'	EL	8.769	0.80	0.251	2.32	45'	EL	21.923	
		SNAGRIS2	22.000	--	2.277	50.09	1.4	0.251	3.48	45'	EL	17.538	0.654	2.55	45'	EL	8.769	0.80	0.251	2.28	45'	EL	21.923	
		SNCOTTS3	27.250	--	1.434	39.088	1.4	0.251	2.22	45'	EL	21.923	0.654	1.81	45'	EL	8.769	0.80	0.251	1.43	45'	EL	21.923	
		SNAGGRS4	34.925	--	1.266	44.231	1.4	0.251	1.96	45'	EL	21.923	0.654	1.6	45'	EL	8.769	0.80	0.251	1.27	45'	EL	21.923	
		SNS5A	35.550	--	1.234	43.856	1.4	0.251	1.91	45'	EL	21.923	0.654	1.67	45'	EL	8.769	0.80	0.251	1.23	45'	EL	21.923	
		SNS6A	39.950	--	1.162	46.437	1.4	0.251	1.8	45'	EL	21.923	0.654	1.57	45'	EL	8.769	0.80	0.251	1.16	45'	EL	21.923	
		SNS7B	42.000	3	1.108	46.54	1.4	0.251	1.71	45'	EL	21.923	0.654	1.61	45'	EL	8.769	0.80	0.251	1.11	45'	EL	21.923	
	TTST	TNAGRIT3	33.000	--	1.427	47.083	1.4	0.251	2.21	45'	EL	21.923	0.654	1.83	45'	EL	8.769	0.80	0.251	1.43	45'	EL	21.923	
		TNT4A	33.075	--	1.442	47.687	1.4	0.251	2.23	45'	EL	21.923	0.654	1.74	45'	EL	8.769	0.80	0.251	1.44	45'	EL	21.923	
		TNT6A	41.600	--	1.21	50.352	1.4	0.251	1.87	45'	EL	21.923	0.654	1.71	45'	EL	8.769	0.80	0.251	1.21	45'	EL	21.923	
		TNT7A	42.000	--	1.234	51.826	1.4	0.251	1.91	45'	EL	21.923	0.654	1.59	45'	EL	8.769	0.80	0.251	1.23	45'	EL	21.923	
		TNT7B	42.000	--	1.285	53.952	1.4	0.251	1.99	45'	EL	21.923	0.654	1.52	45'	EL	8.769	0.80	0.251	1.28	45'	EL	21.923	
		TNAGRIT4	43.000	--	1.224	52.616	1.4	0.251	1.89	45'	EL	21.923	0.654	1.46	45'	EL	8.769	0.80	0.251	1.22	45'	EL	21.923	
		TNAGT5A	45.000	--	1.138	51.23	1.4	0.251	1.76	45'	EL	21.923	0.654	1.52	45'	EL	8.769	0.80	0.251	1.14	45'	EL	21.923	
		TNAGT5B	45.000	--	1.111	50.015	1.4	0.251	1.72	45'	EL	21.923	0.654	1.38	45'	EL	8.769	0.80	0.251	1.11	45'	EL	21.923	

LOAD FACTORS:

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

NOTES:

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

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

COMMENTS:

1.

2.

3.

4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

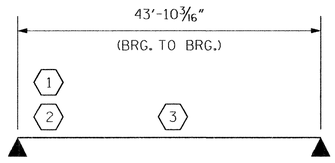
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

ASSEMBLED BY :	MKO	DATE :	07/2012
CHECKED BY :	JMR	DATE :	11/2012
DRAWN BY : CVC	6/10		
CHECKED BY : DNS	6/10		

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON ROLLINGS
2-09-2015

RS&H

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 45' CORED SLAB UNIT 60° SKEW & 120° SKEW
(NON-INTERSTATE TRAFFIC)

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

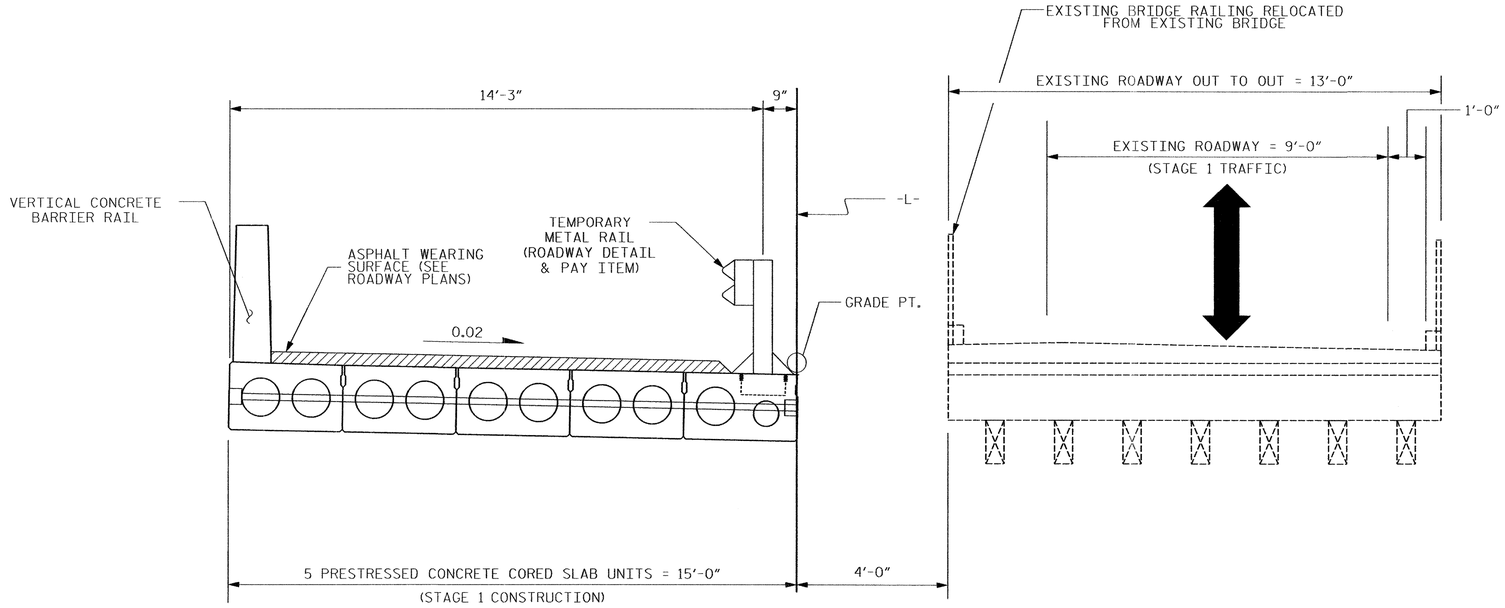
STD. NO. 21LRFR1_60&120S_45L

NOTES:

FOR TRAFFIC PHASING, SEE TRAFFIC CONTROL PLANS

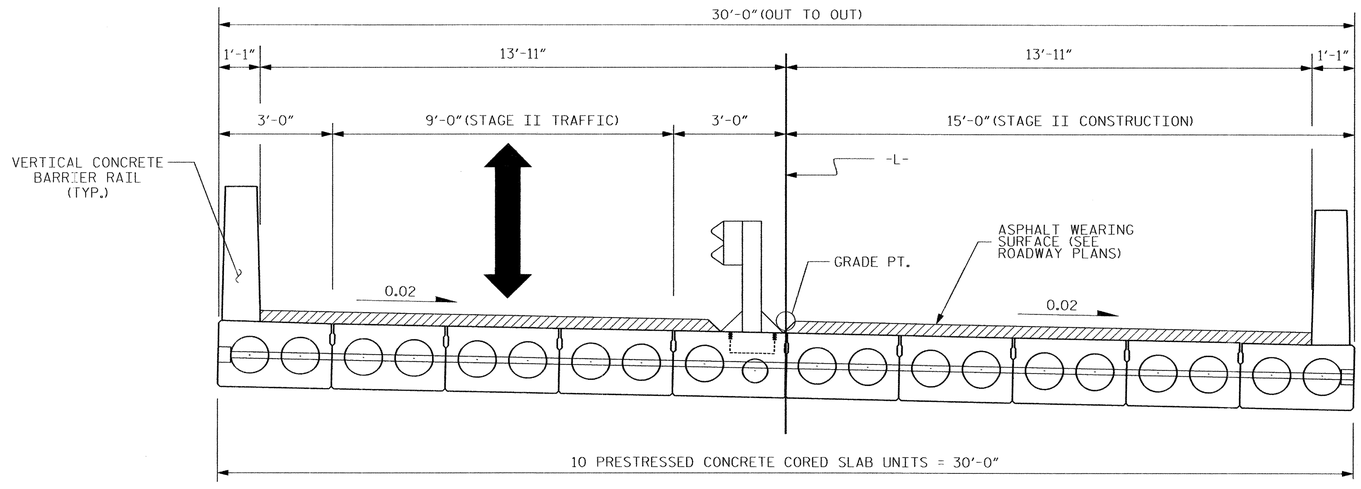
FOR STAGED CONSTRUCTION DETAILS, SEE RAODWAY PLANS

THE TEMPORARY METAL RAIL USED IN STAGE I IS A ROADWAY DETAIL AND PAY ITEM



STAGE I CONSTRUCTION

EXISTING BRIDGE STAGE I TRAFFIC



STAGE II TRAFFIC

STAGE II CONSTRUCTION

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER III
2-09-2015

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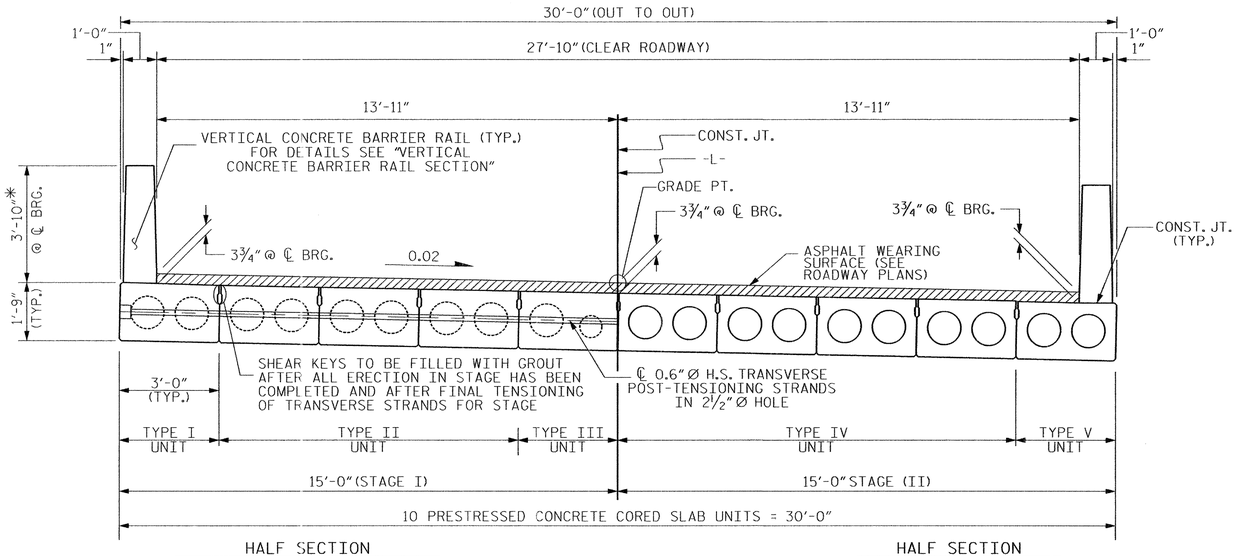
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

CONSTRUCTION SEQUENCE

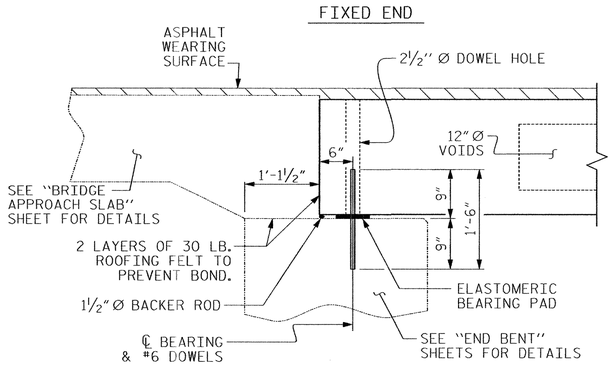
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			22

DRAWN BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012

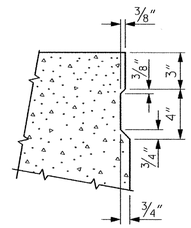


TYPICAL SECTION

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

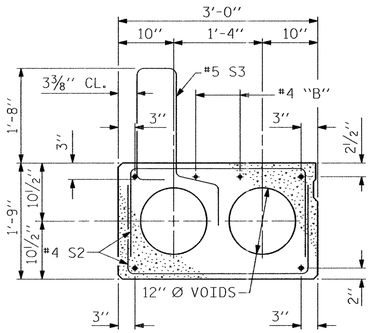


SECTION AT END BENT



SHEAR KEY DETAIL

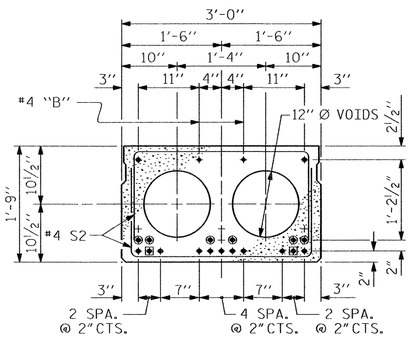
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



EXT. SLAB SECTION

(TYPE I & TYPE V)

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

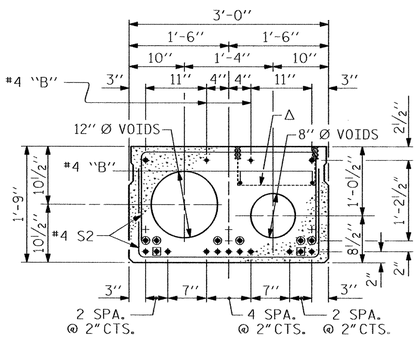


INTERIOR SLAB SECTION (45' UNIT)

(TYPE II & TYPE IV)

0.6" Ø LOW RELAXATION STRAND LAYOUT

(13 STRANDS REQUIRED)



INTERIOR SLAB SECTION (45' UNIT)

(TYPE III)

0.6" Ø LOW RELAXATION STRAND LAYOUT

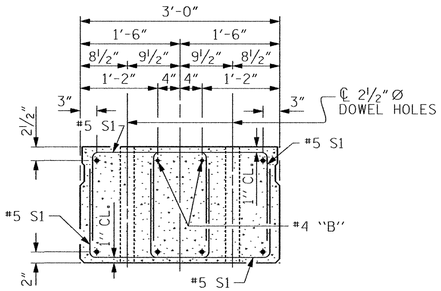
(13 STRANDS REQUIRED)

Δ FOR TEMPORARY GUARDRAIL ANCHOR ASSEMBLY LOCATION, SEE "ANCHORAGE DETAILS FOR TEMPORARY GUARDRAIL ANCHOR ASSEMBLY FOR TYPE III CORED SLAB UNIT" SHEET.

DEBONDING LEGEND

▣ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.



END ELEVATION

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

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 1 OF 8

ASSEMBLED BY :	MKO	DATE : 07/2012	
CHECKED BY :	JMR	DATE : 11/2012	
DRAWN BY : DGE	5/09	REV. 12/11	MAA/AAC
CHECKED BY : BCH	6/09	.	

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER LEON BOLLINGER 2-09-2015

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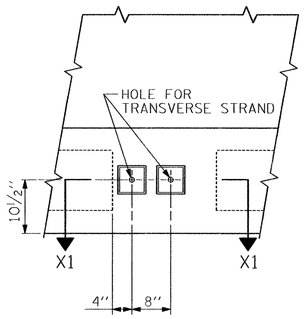
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 120° SKEW

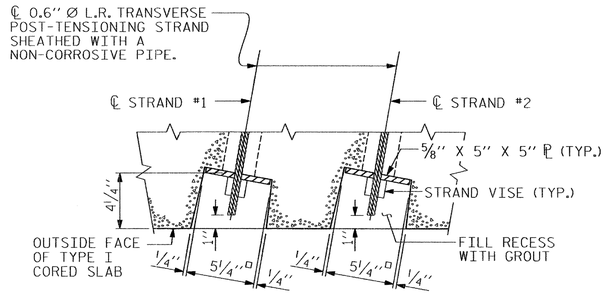
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			22

STD. NO. 21"PCS2_30_120S



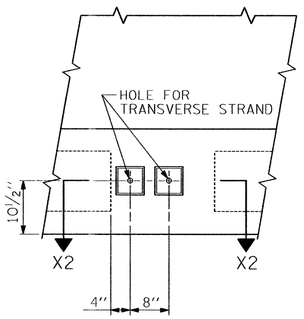
VIEW A1-A1

SEE "PLAN OF SPAN A (STAGE I)" (SHEET 3 OF 8)



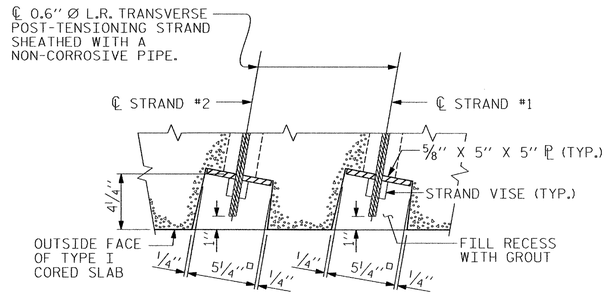
SECTION X1-X1

UPSTATION



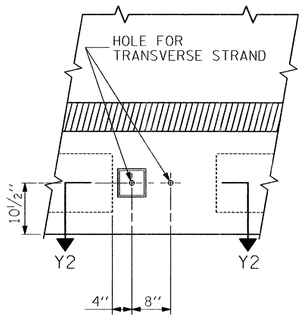
VIEW A2-A2

SEE "PLAN OF SPAN A (STAGE I)" (SHEET 3 OF 8)



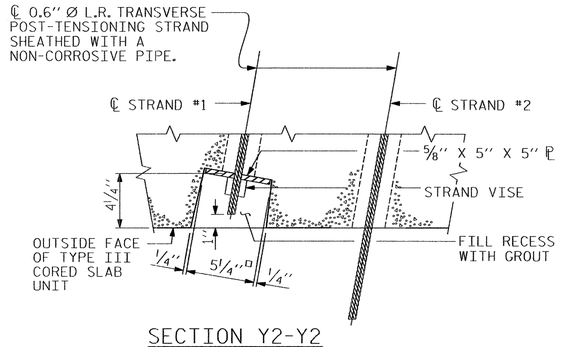
SECTION X2-X2

DOWNSTATION



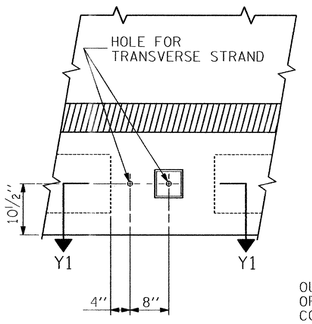
VIEW B2-B2

SEE "PLAN OF SPAN A (STAGE I)" (SHEET 3 OF 8)



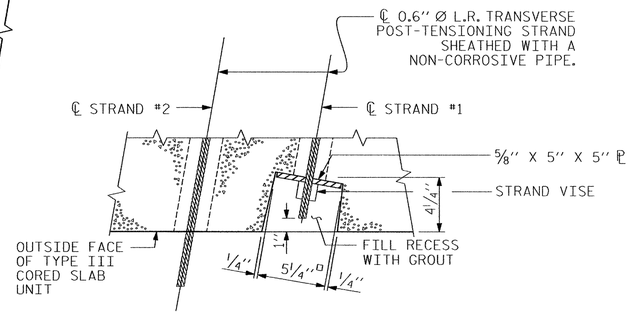
SECTION Y2-Y2

DOWNSTATION



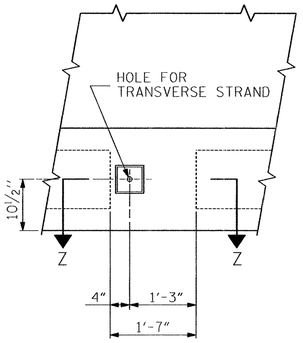
VIEW B1-B1

SEE "PLAN OF SPAN A (STAGE I)" (SHEET 3 OF 8)



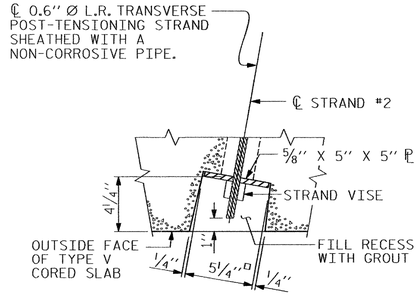
SECTION Y1-Y1

UPSTATION



VIEW C-C

SEE "PLAN OF SPAN A (STAGE II)" (SHEET 4 OF 8)



SECTION Z-Z

UPSTATION

STRAND #1 GOES THROUGH 5 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION)

STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION)

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

ASSEMBLED BY :	MKO	DATE : 07/2012	
CHECKED BY :	JMR	DATE : 11/2012	
DRAWN BY : DGE	5/09	REV. 12/11	MAA/AAC
CHECKED BY : BCH	6/09	.	

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 2 OF 8

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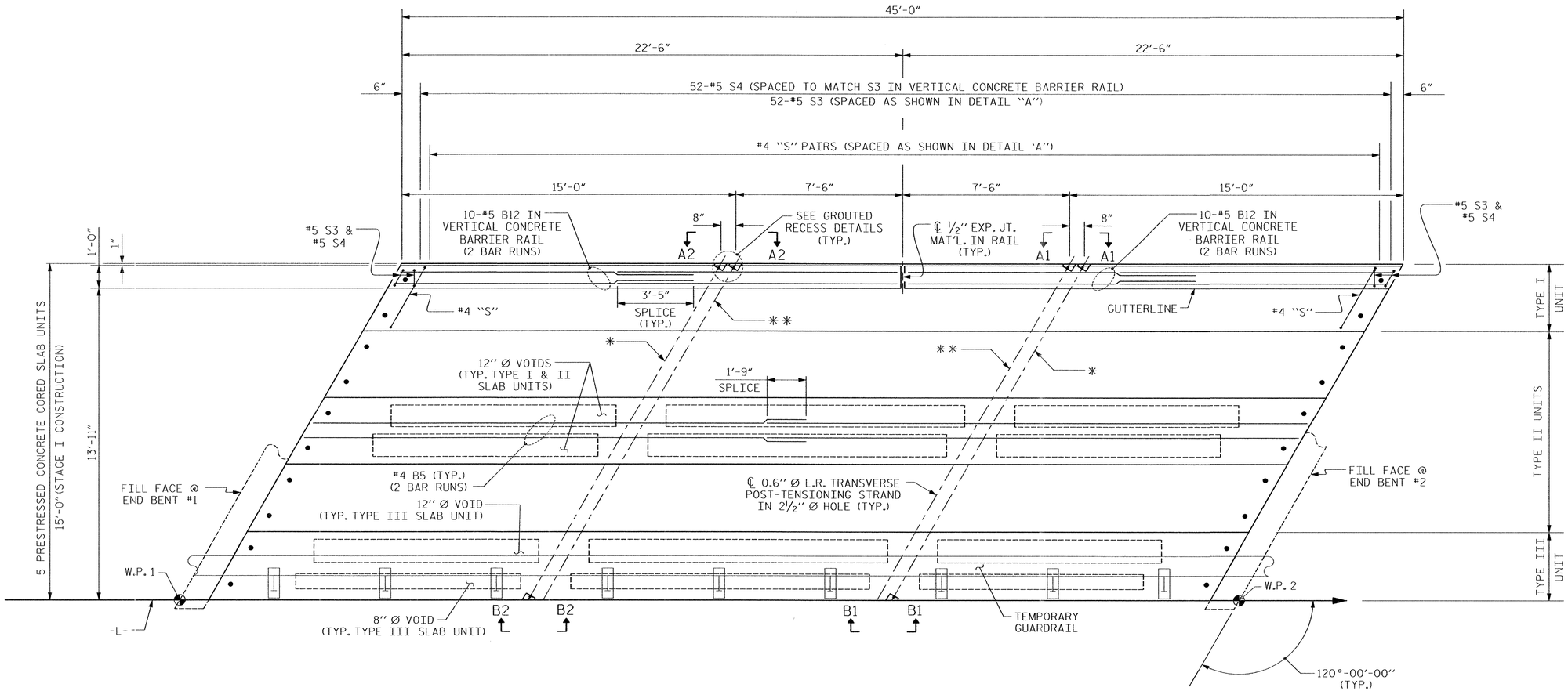
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

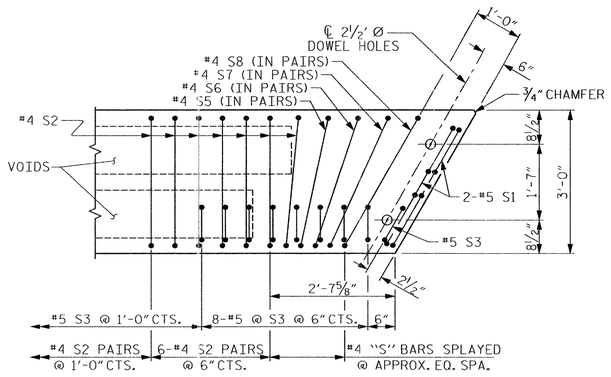
STANDARD

3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			22

STD. NO. 21"PCS2_30_120S





DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF SPAN A (STAGE I)

* STRAND #1 GOES THROUGH 5 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION)

** STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION)

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 3 OF 8

DRAWN BY : MKO DATE : 07/2012

CHECKED BY : JMR DATE : 11/2012

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON MOLLINGER
2-09-2015

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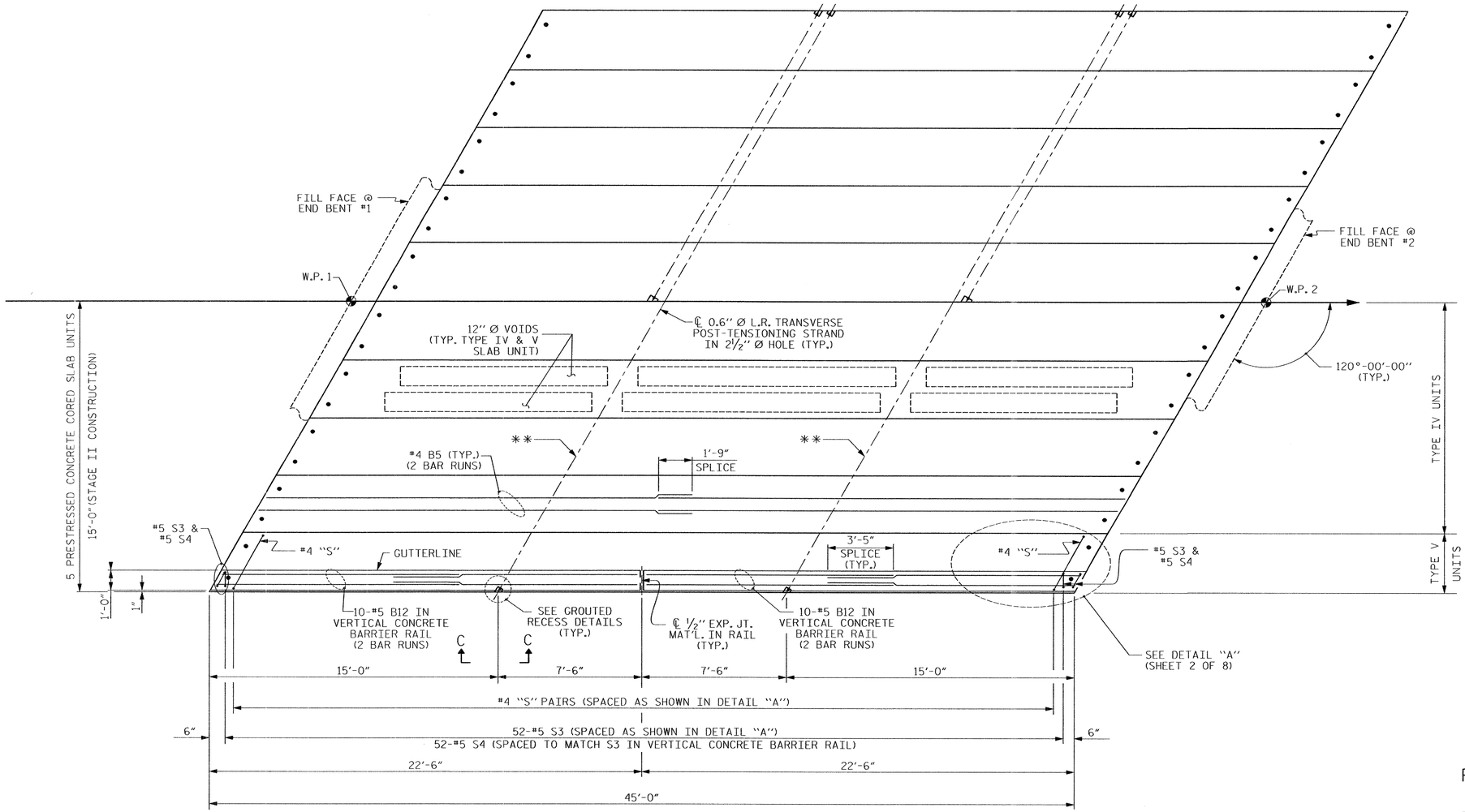
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9" PRESTRESS CONCRETE CORED SLAB UNIT PLAN OF 45' UNIT 27'-10" CLEAR ROADWAY 120° SKEW (STAGE I)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			22



PLAN OF SPAN A (STAGE II)

** STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION)

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 4 OF 8

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18442 RICHARD LEON ROLLINS, JR.
2-09-2015

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9" PRESTRESS CONCRETE CORED SLAB UNIT PLAN OF 45' UNIT

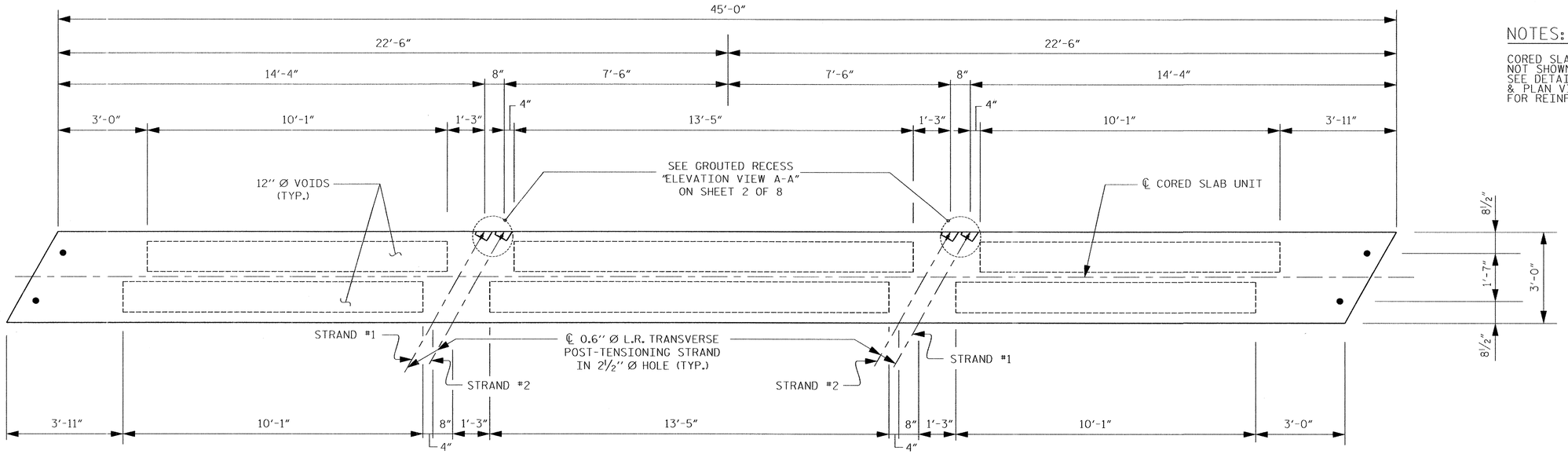
27'-10" CLEAR ROADWAY
120° SKEW
(STAGE II)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012

2/4/2015
$$$$$$$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$
5:02:12 PM

STD. NO. 21"PCS_30_120S_45L



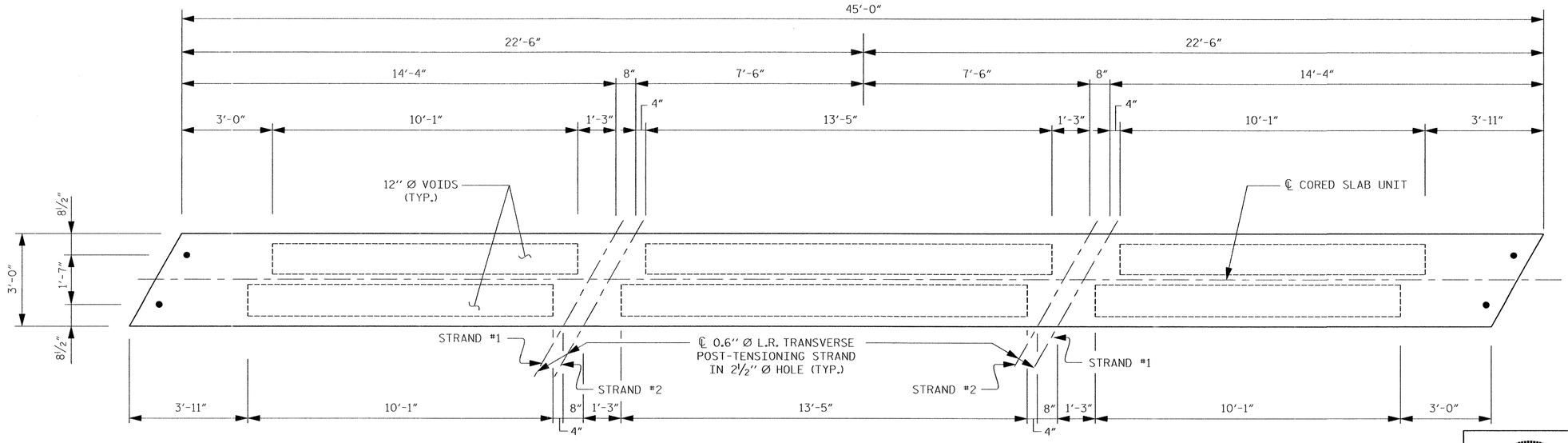
NOTES:

CORED SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. SEE DETAIL "A", SHEET 3 OF 8 & PLAN VIEW SHEET 3 OF 8 FOR REINFORCEMENT DETAILS.

PLAN OF EXTERIOR CORED SLAB UNIT (TYPE I)

STRAND #1 GOES THROUGH 5 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE I CONSTRUCTION.

STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE II CONSTRUCTION.



PLAN OF INTERIOR CORED SLAB UNIT (TYPE II)

STRAND #1 GOES THROUGH 5 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE I CONSTRUCTION.

STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE II CONSTRUCTION.

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 5 OF 8

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER JAMES MARK LEON BOLLINGER 2-09-2015

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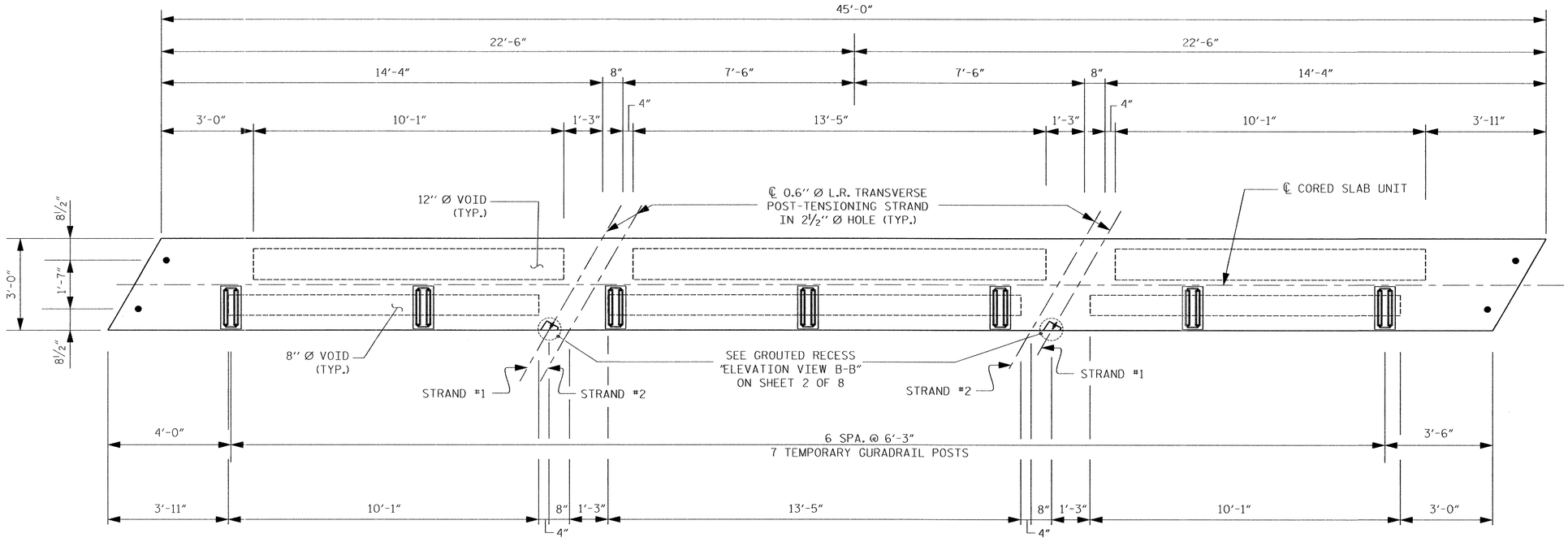
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3′-0″ X 1′-9″ PRESTRESS CONCRETE CORED SLAB UNIT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			22

DRAWN BY : MKO DATE : 07/2012

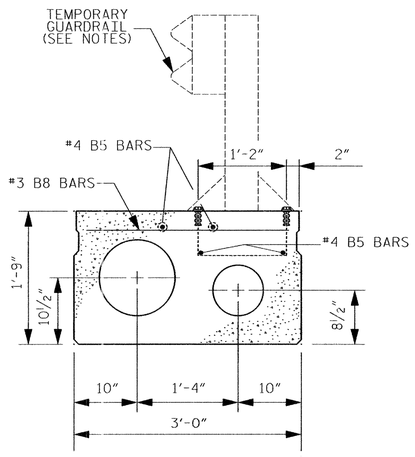
CHECKED BY : JMR DATE : 11/2012



PLAN OF INTERIOR CORED SLAB UNIT (TYPE III)

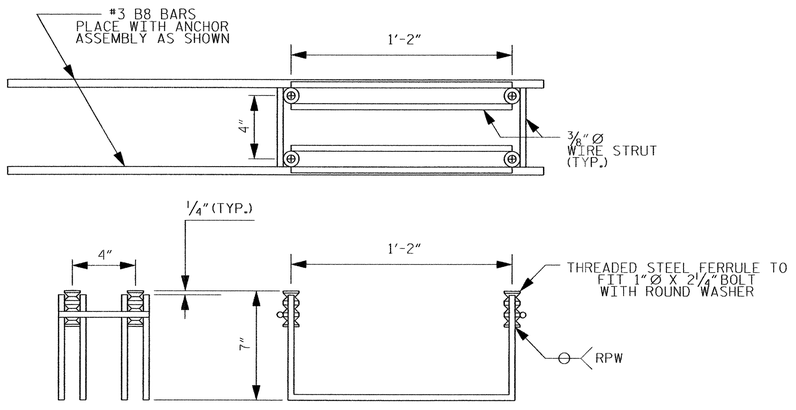
STRAND #1 GOES THROUGH 5 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE I CONSTRUCTION.

STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE II CONSTRUCTION.



SECTION OF ANCHOR ASSEMBLY LOCATION

(TYPE III UNIT OF STAGE 1)



TEMPORARY GUARDRAIL ANCHOR ASSEMBLY

(7 ASSEMBLIES REQUIRED IN CORED SLAB UNIT III)
(4 ASSEMBLIES REQUIRED IN THE APPROACH SLAB)

NOTES:

CORED SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. SEE DETAIL "A", SHEET 3 OF 8 AND PLAN VIEW SHEET 3 OF 8 FOR REINFORCEMENT DETAILS.

THE TEMPORARY GUARDRAIL ANCHOR 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 2½".

B. 4 - 1"Ø X 2¼" 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 1"Ø X 2¼" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS AF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

C. WIRE STRUTS SHOWN IN THE TEMPORARY GUARDRAIL ANCHOR ASSEMBLY DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE SIRENGTH OF 100,000 P.S.I. AS AN OPTION, A ⅛" WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 P.S.I. IS ACCEPTABLE.

TEMPORARY GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE TEMPORARY GUARDRAIL ANCHOR ASSEMBLY COMPLETE IN PLACE, SHALL BE INCLUDED, AS APPLICABLE, IN THE UNIT CONTRACT PRICE BID FOR 3'-0"X 1'-9" PRESTRESSED CONCRETE CORED SLAB OR LUMP SUM PRICE BID FOR APPROACH SLAB.

FERRULES TO BE PLACED DURING CASTING OF THE CORED SLAB UNITS OR POURING OF THE APPROACH SLAB AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR THE TEMPORARY GUARDRAIL, POSTS AND POST BASE PLATES ARE INCLUDED IN ROADWAY PAY ITEMS.

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 6 OF 8

DRAWN BY : MKO DATE : 07/2012

CHECKED BY : JMR DATE : 11/2012

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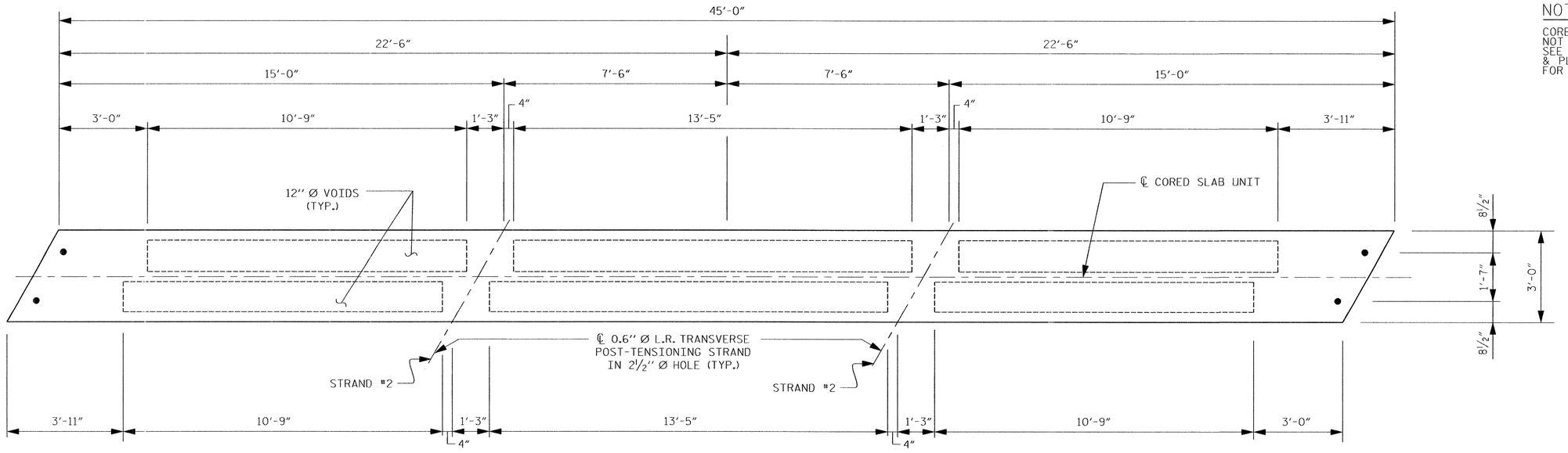
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9" PRESTRESS CONCRETE CORED SLAB UNIT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			22

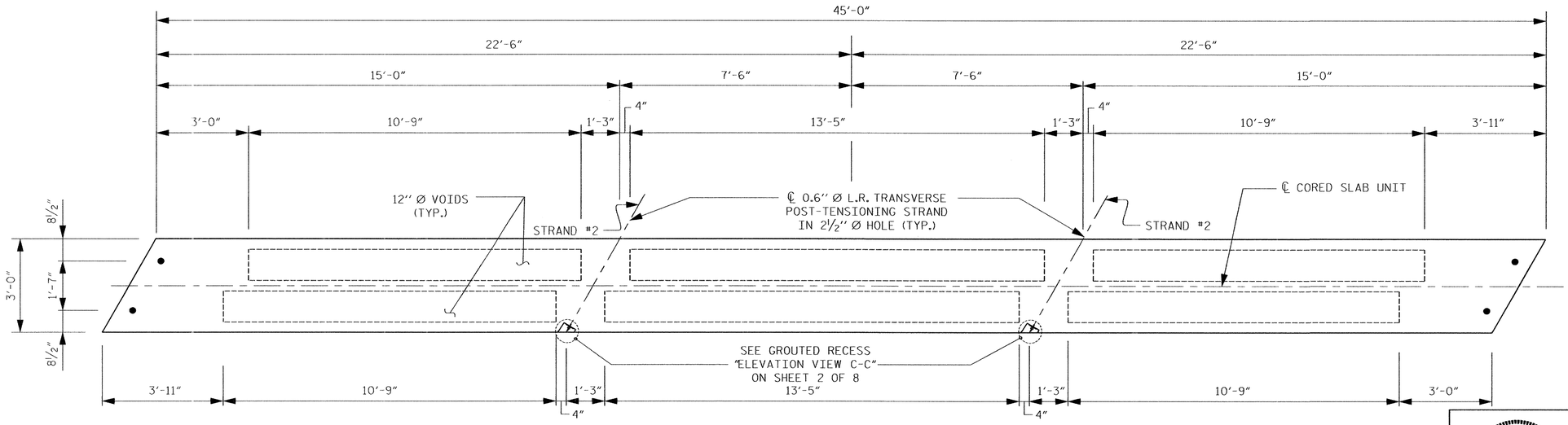
NOTES:

CORED SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. SEE DETAIL "A", SHEET 3 OF 8 & PLAN VIEW SHEET 4 OF 8 FOR REINFORCEMENT DETAILS.



PLAN OF INTERIOR CORED SLAB UNIT (TYPE IV)

STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE II CONSTRUCTION.



PLAN OF EXTERIOR CORED SLAB UNIT (TYPE V)

STRAND #2 GOES THROUGH ALL 10 CORED SLAB UNITS AND WILL BE TENSIONED DURING STAGE II CONSTRUCTION.

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 7 OF 8

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER III
2-09-2015

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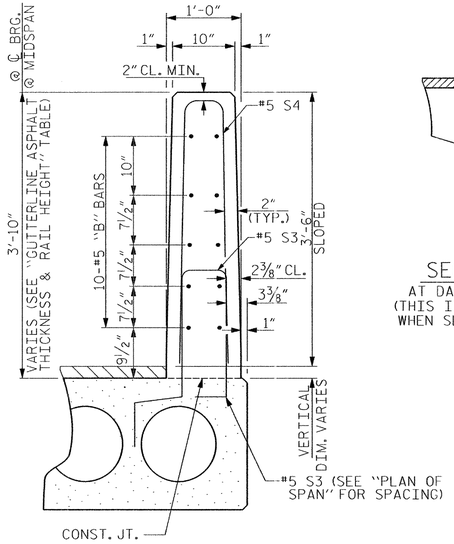
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

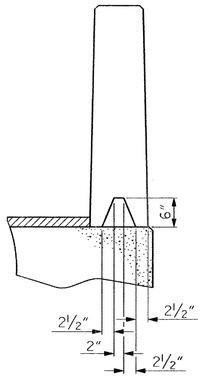
3'-0" X 1'-9" PRESTRESS CONCRETE CORED SLAB UNIT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			22

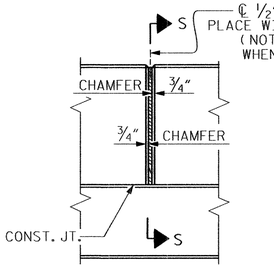
DRAWN BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012



SECTION THRU RAIL

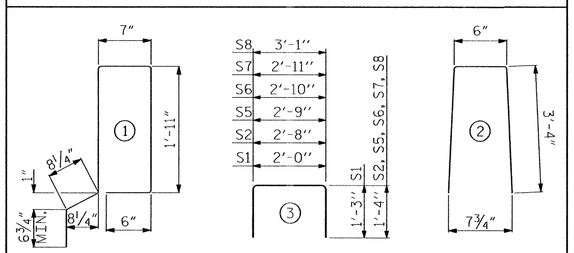


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
	SUPERED SECTION	
45' UNITS	2⅝"	3'-8⅛"

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT

				STAGE I						STAGE II			
				TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62			23'-3"	62	23'-3"	62
B5	8	#4	STR					23'-3"	124				
B8	14	#3	STR					2'-8"	14				
S1	8	#5	3	4'-6"	38	4'-6"	38	4'-6"	38	4'-6"	38	4'-6"	38
S2	92	#4	3	5'-4"	328	5'-4"	328	5'-4"	328	5'-4"	328	5'-4"	328
✳ S3	54	#5	1	6'-2"	347							6'-2"	347
S5	4	#4	3	5'-5"	14	5'-5"	14	5'-5"	14	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15	5'-6"	15	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15	5'-7"	15	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15	5'-9"	15	5'-9"	15	5'-9"	15
REINFORCING STEEL			LBS.		487		487		563		487		487
✳EPOXY COATED REINFORCING STEEL			LBS.		347								347
6500 P.S.I. CONCRETE			CU. YDS.		6.6		6.6		6.6		6.6		6.6
0.6"Ø L.R. STRANDS			No.	13		13		13		13		13	

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

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

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

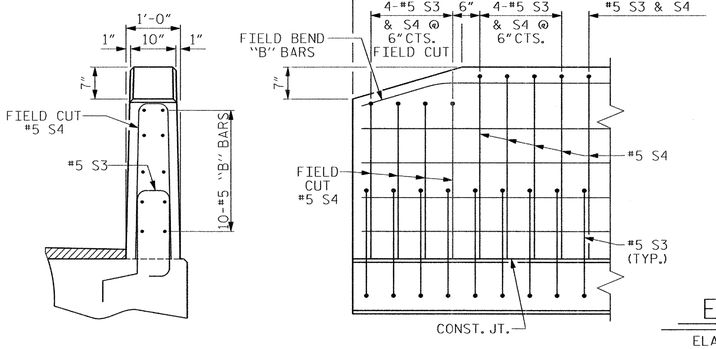
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

GRADE 270 STRANDS

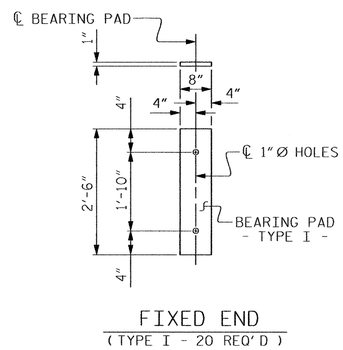
	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

VERTICAL CONCRETE BARRIER RAIL SECTION



END VIEW SIDE VIEW

END OF RAIL DETAILS



FIXED END
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

STAGE I						STAGE II					
BAR	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B12	40	#5	STR	13'-0"	542	✳B12	40	#5	STR	13'-0"	542
✳ S4	54	#5	2	7'-2"	404	✳ S4	54	#5	2	7'-2"	404
✳EPOXY COATED REINFORCING STEEL			LBS.		946	✳EPOXY COATED REINFORCING STEEL			LBS.		946
CLASS AA CONCRETE			CU.YDS.		5.9	CLASS AA CONCRETE			CU.YDS.		5.9
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.		45.15	TOTAL VERTICAL CONCRETE BARRIER RAIL			LN. FT.		45.15

CONCRETE RELEASE STRENGTH

UNIT	PSI
45' UNITS	4000

CORED SLABS REQUIRED

		NUMBER	LENGTH	TOTAL LENGTH
STAGE I	TYPE I	1	45'-0"	45'-0"
	TYPE II	3	45'-0"	135'-0"
	TYPE III	1	45'-0"	45'-0"
	STAGE I TOTAL	5		225'-0"
STAGE II	TYPE IV	4	45'-0"	180'-0"
	TYPE V	1	45'-0"	45'-0"
	STAGE II TOTAL	5		225'-0"
	TOTAL	10		450'-0"

DEAD LOAD DEFLECTION AND CAMBER

45' CORED SLAB UNIT	TYPE I 0.6"Ø L.R. STRAND	TYPE II 0.6"Ø L.R. STRAND	TYPE III 0.6"Ø L.R. STRAND	TYPE IV 0.6"Ø L.R. STRAND	TYPE V 0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1¼" ↑	1¼" ↑	1¼" ↑	1¼" ↑	1¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✳✳	⅛" ↓	⅛" ↓	⅛" ↓	⅛" ↓	⅛" ↓
FINAL CAMBER	1⅛" ↑	1⅛" ↑	1⅛" ↑	1⅛" ↑	1⅛" ↑

✳✳ INCLUDES FUTURE WEARING SURFACE

PROJECT NO. 17BP.14.R.57
CHEROKEE COUNTY
STATION: 13+42.05 -L-

SHEET 8 OF 8

ASSEMBLED BY :	MKO	DATE :	07/2012
CHECKED BY :	JMR	DATE :	11/2012
DRAWN BY :	DGE 5/09	REV. 12/11	MAA/AAC
CHECKED BY :	BCH 6/09	.	

2/4/2015
\#DGN\#
5:03:24 PM

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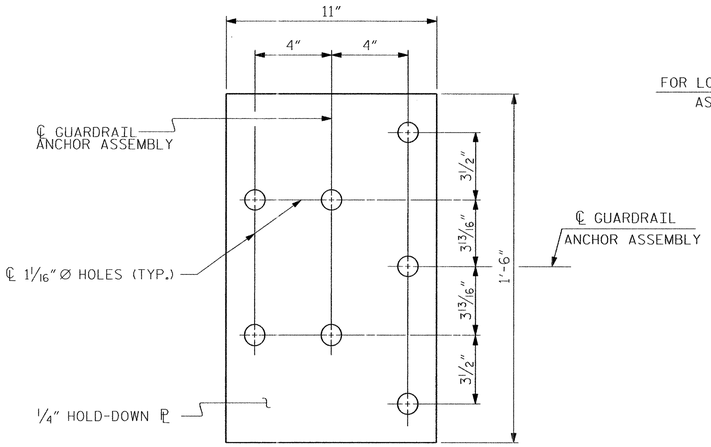
NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER JR. 2-09-2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

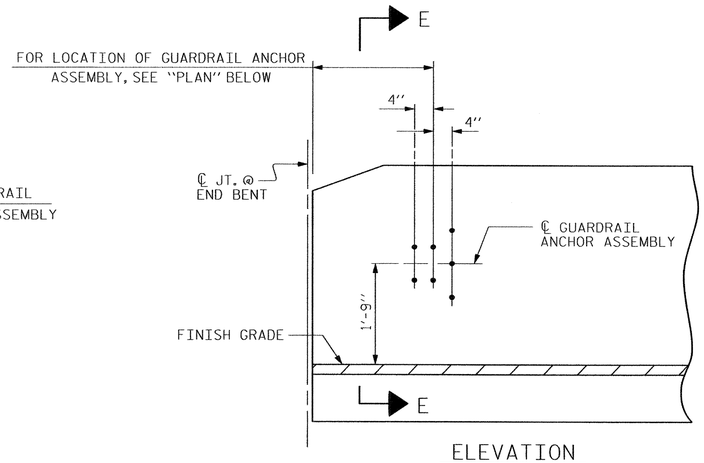
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			22

STD. NO. 21"PCS3_30_120S



PLAN



ELEVATION

NOTES

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

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

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

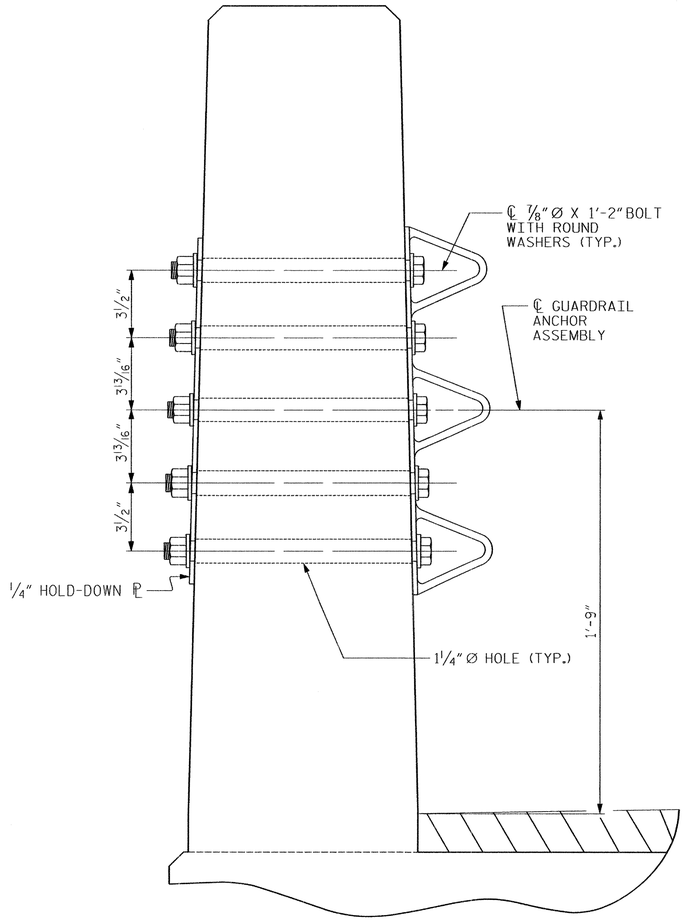
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

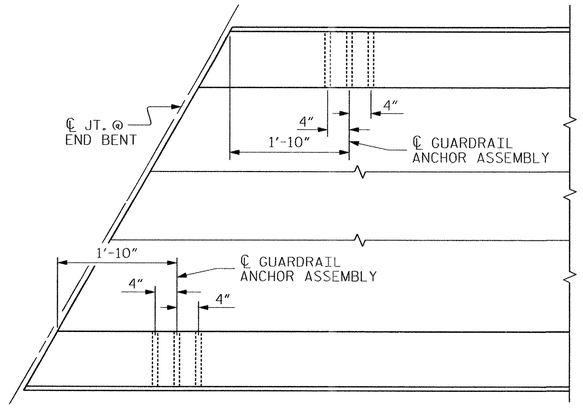
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

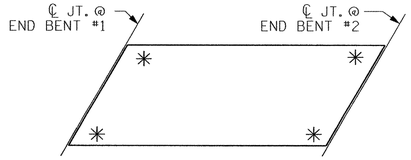
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E



PLAN



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

GUARDRAIL ANCHOR ASSEMBLY DETAILS
LOCATION OF GUARDRAIL ANCHOR AT END POST

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

ASSEMBLED BY :	MKO	DATE :	07/2012
CHECKED BY :	JMR	DATE :	11/2012
DRAWN BY : MAA 5/10	ADDED 5/6/10		
CHECKED BY : GM 5/10	REV. 10/1/11		MAA/GM
	REV. 12/5/11		MAA/GM

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 1 OF 1

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER LEON BOLLINGER RICHARDSON & SMITH 2-09-2015

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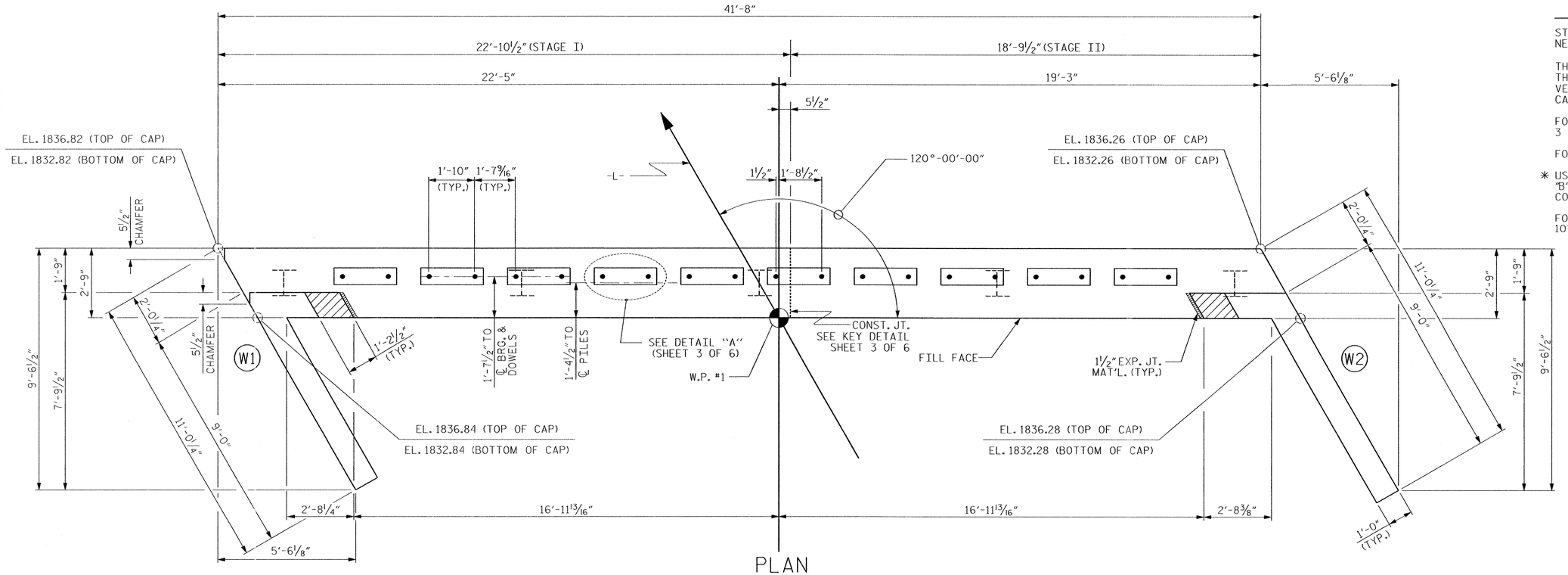
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

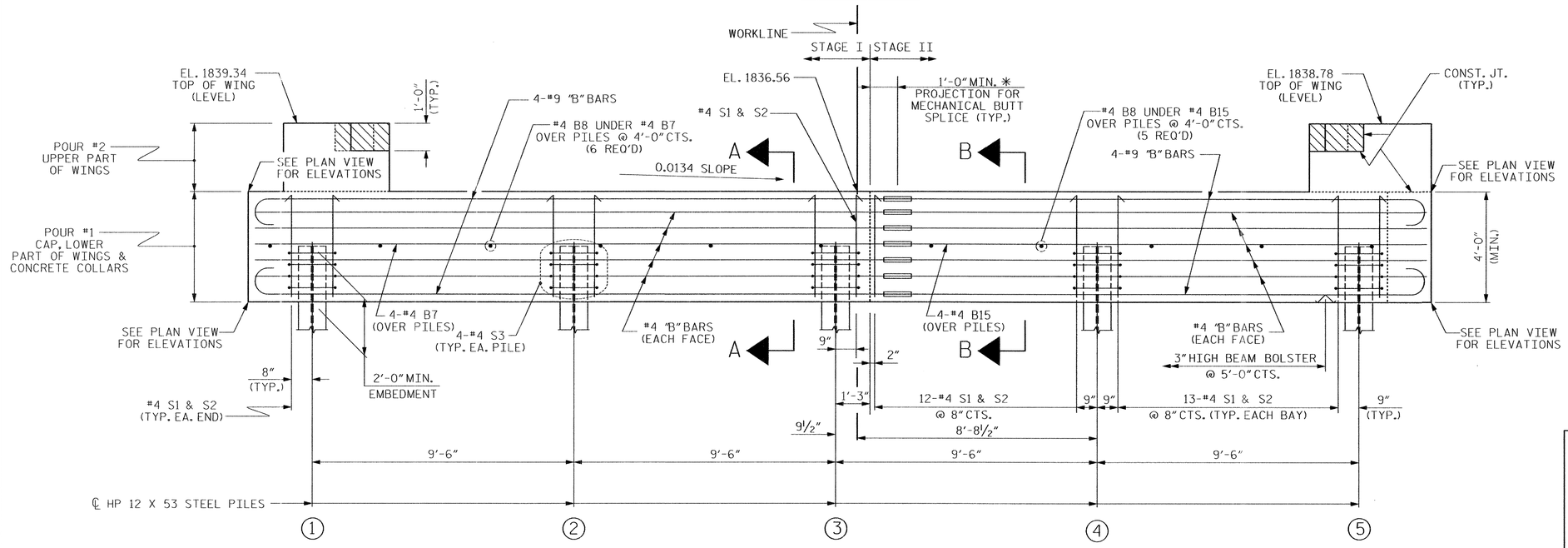
STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			22

STD. NO. GRA3



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A & B-B, SEE SHEET 3 OF 6.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 6.

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 3 OF 6.

FOR WING DETAILS, SEE SHEET 2 OF 6.

✳ USE MECHANICAL BUTT SPLICE FOR ALL "B" BARS EXTENDING FROM STAGE 1 CONSTRUCTION JOINT.

FOR MECHANICAL BUTT SPLICES, SEE SECTION 1070-9 OF THE STANDARD SPECIFICATIONS.

✳ #4 BARS MAY BE SPLICED IF A SPLICE OF 2'-5" CAN BE ACHIEVED. BAR LENGTHS SHOWN IN BILL OF MATERIAL CORRESPOND TO THE USE OF MECHANICAL SPLICES.

TOP OF PILE ELEVATIONS	
①	1834.83
②	1834.70
③	1834.57
④	1834.44
⑤	1834.32

PROJECT NO. 17BP.14.R.57
CHEROKEE COUNTY
STATION: 13+42.05 -L-
SHEET 1 OF 6

ASSEMBLED BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012
DRAWN BY : DGE 02/10
CHECKED BY : MKT 02/10

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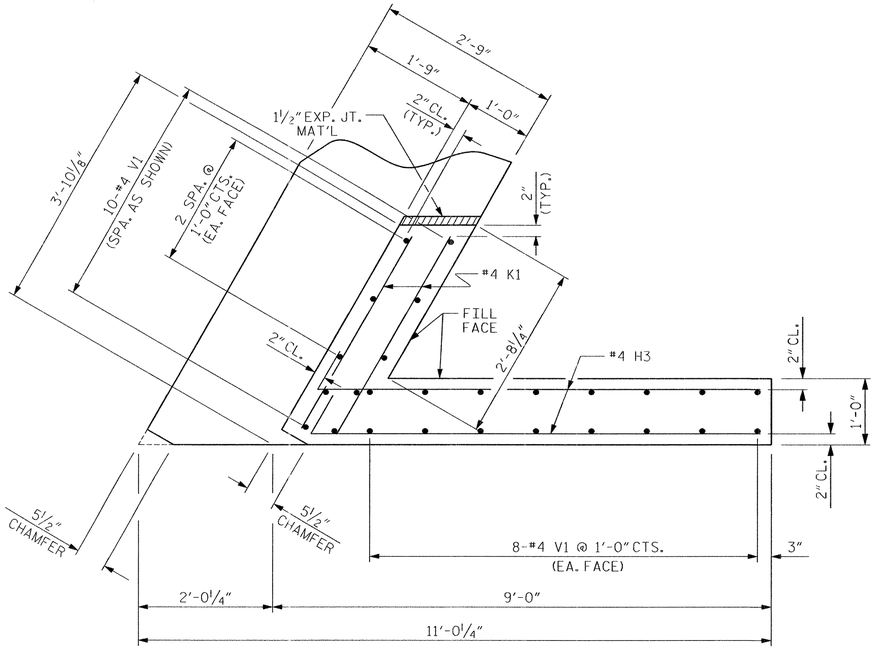
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

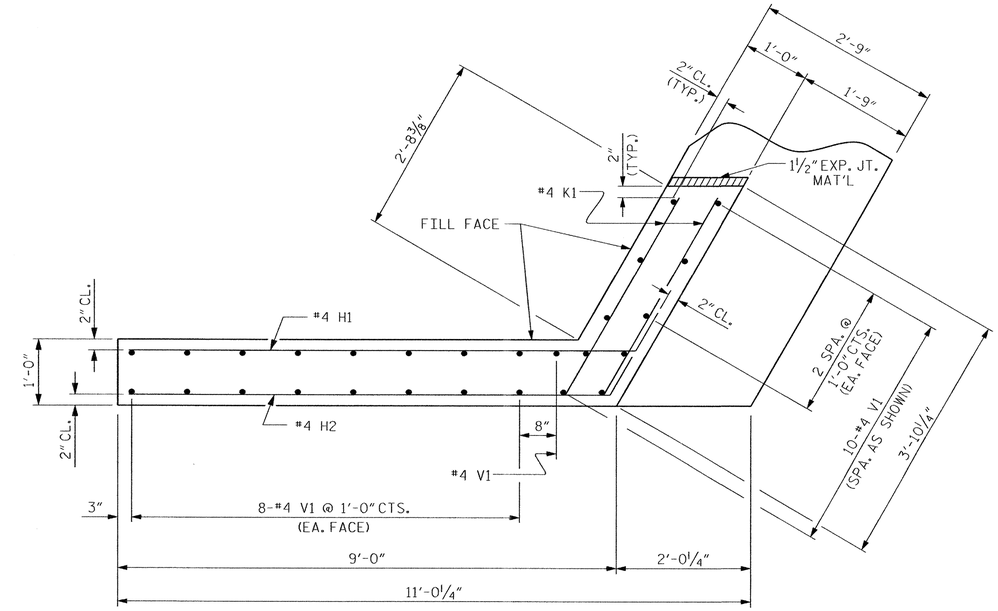
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			22

STD. NO. EB_30_120S4



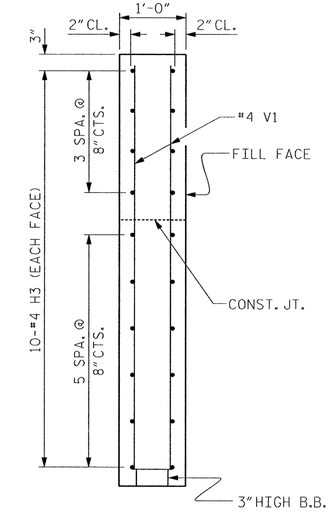
PLAN OF WING (W1)

STAGE I

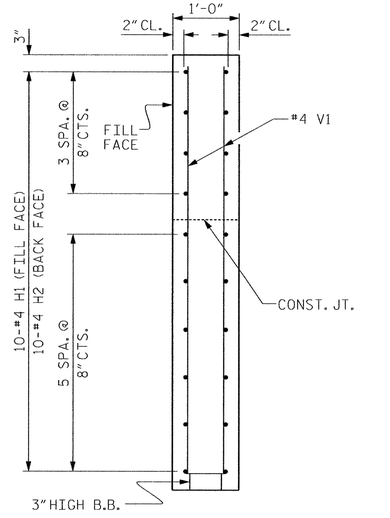


PLAN OF WING (W2)

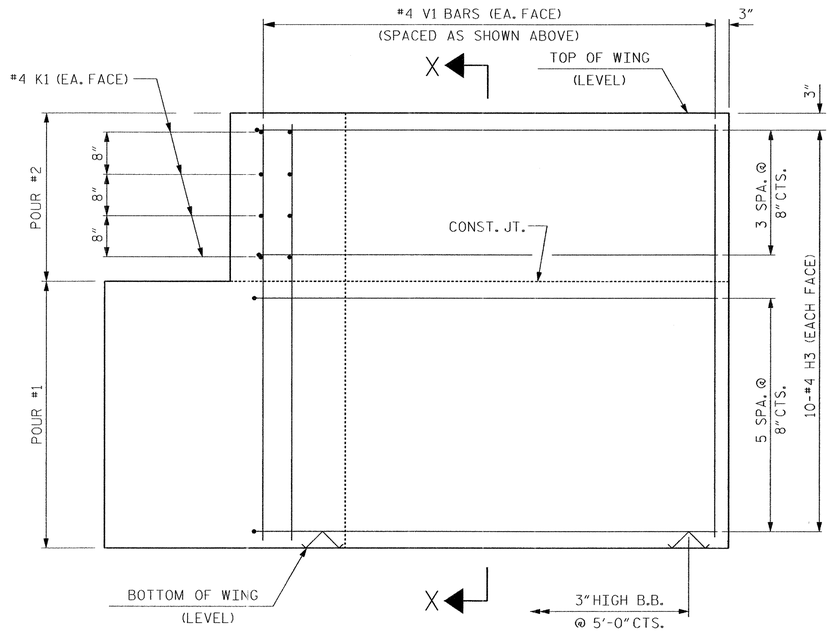
STAGE II



SECTION X-X

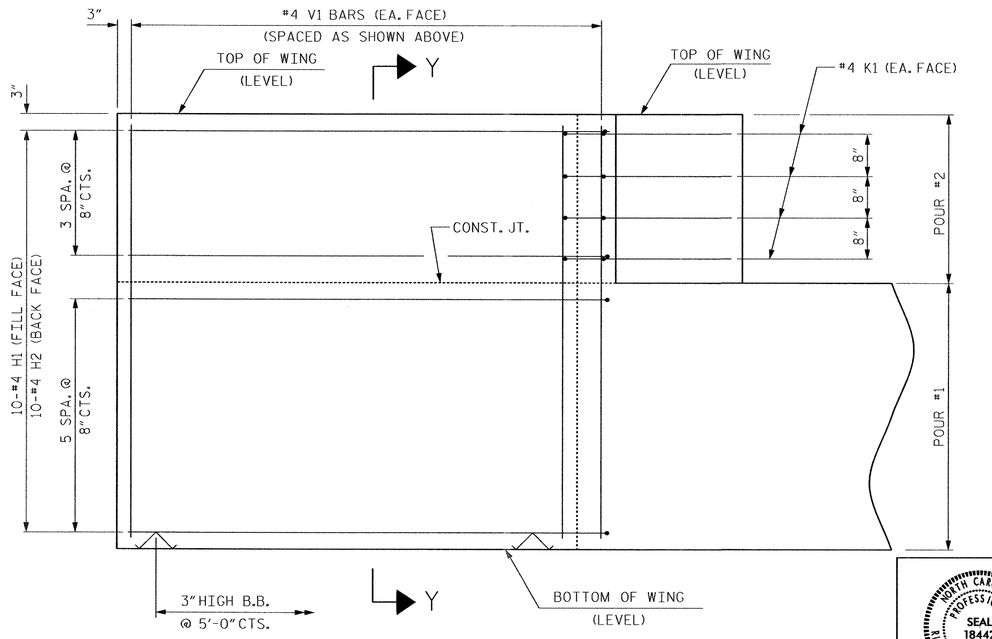


SECTION Y-Y



ELEVATION OF WING (W1)

STAGE I



ELEVATION OF WING (W2)

STAGE II

WING DETAILS

ASSEMBLED BY :	MKO	DATE : 07/2012	
CHECKED BY :	JMR	DATE : 11/2012	
DRAWN BY :	DGE	12/09	
CHECKED BY :	MKT	01/10	

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 2 OF 6

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2-09-2015

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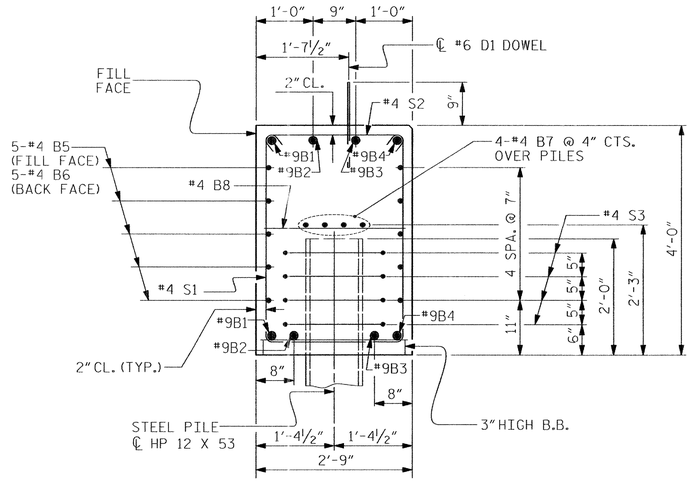
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

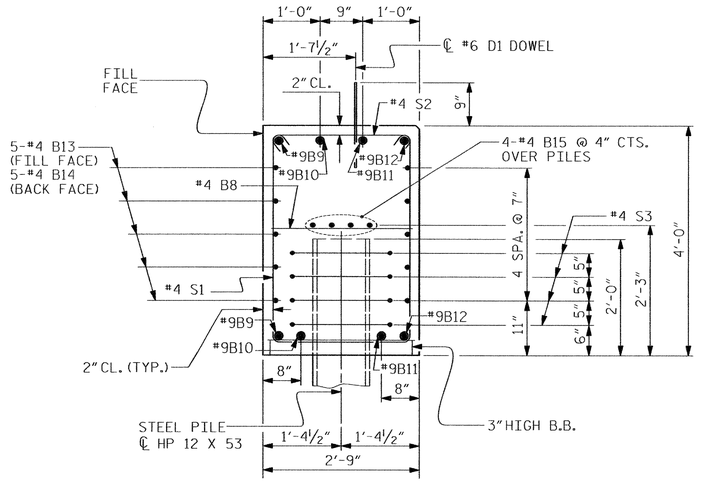
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			22

STD. NO. EB_30_120S4



SECTION A-A

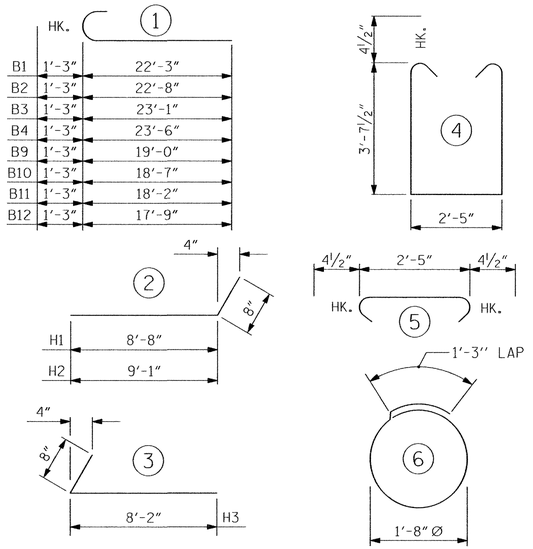
(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



SECTION B-B

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

	STAGE I	STAGE II	TOTAL
REINFORCING STEEL =	1454 LBS.	1262 LBS.	2716 LBS.
CLASS A CONCRETE POUR #1 CAP, LOWER PART OF WINGS AND COLLARS	10.7 C.Y.	9.5 C.Y.	20.2 C.Y.
POUR #2 UPPER PART OF WINGS	1.1 C.Y.	1.1 C.Y.	2.2 C.Y.
TOTAL CLASS A CONCRETE	11.8 C.Y.	10.6 C.Y.	22.4 C.Y.
HP 12X53 STEEL PILES	NO. 3 60 LIN. FT	NO. 2 40 LIN. FT	NO. 5 100 LIN. FT
STEEL PILE POINTS	3 EA.	2 EA.	5 EA.

BILL OF MATERIAL

END BENT #1

STAGE I

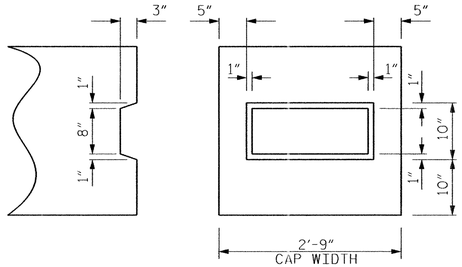
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	#9	1	23'-6"	160
B2	2	#9	1	23'-11"	163
B3	2	#9	1	24'-4"	165
B4	2	#9	1	24'-9"	168
B5	5	#4	STR	22'-4"	75
B6	5	#4	STR	23'-7"	79
B7	4	#4	STR	22'-9"	61
B8	6	#4	STR	2'-5"	10
D1	11	#6	STR	1'-6"	25
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-3"	17
S1	28	#4	4	10'-5"	195
S2	28	#4	5	3'-2"	59
S3	12	#4	6	6'-6"	52
V1	26	#4	STR	6'-2"	107

REINFORCING STEEL = 1454 LBS.

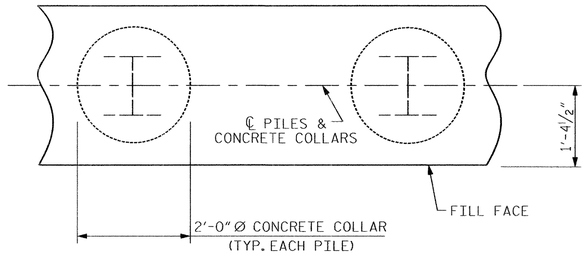
STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B8	5	#4	STR	2'-5"	8
B9	2	#9	1	20'-3"	138
B10	2	#9	1	19'-10"	135
B11	2	#9	1	19'-5"	132
B12	2	#9	1	19'-0"	129
B13	5	#4	STR	19'-1"	64
B14	5	#4	STR	17'-10"	60
B15	4	#4	STR	18'-8"	50
D1	9	#6	STR	1'-6"	20
H1	10	#4	2	9'-4"	62
H2	10	#4	2	9'-9"	65
K1	8	#4	STR	3'-3"	17
S1	26	#4	4	10'-5"	181
S2	26	#4	5	3'-2"	55
S3	8	#4	6	6'-6"	35
V1	27	#4	STR	6'-2"	111

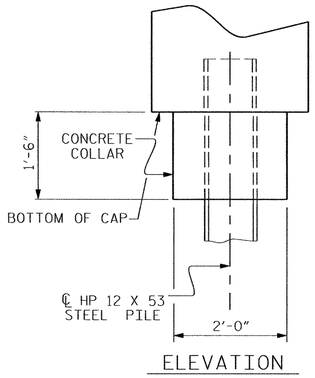
REINFORCING STEEL = 1262 LBS.



KEY DETAIL

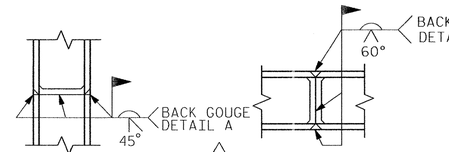


PLAN



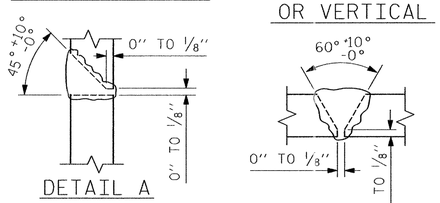
ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL

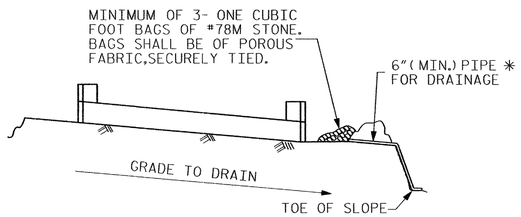


DETAIL A

DETAIL B

△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



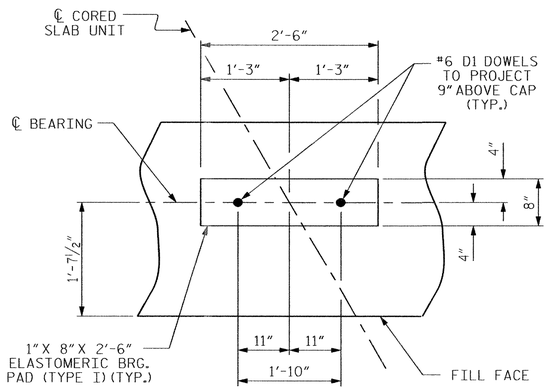
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

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

* MODIFY DRAIN TO RELEASE BETWEEN BRIDGES AND IN FRONT OF END BENTS FOR STAGE 1.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

ASSEMBLED BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012
DRAWN BY : DGE 12/09
CHECKED BY : MKT 01/10

PROJECT NO. 17BP.14.R.57
CHEROKEE COUNTY
STATION: 13+42.05 -L-
SHEET 3 OF 6

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STATE OF NORTH CAROLINA
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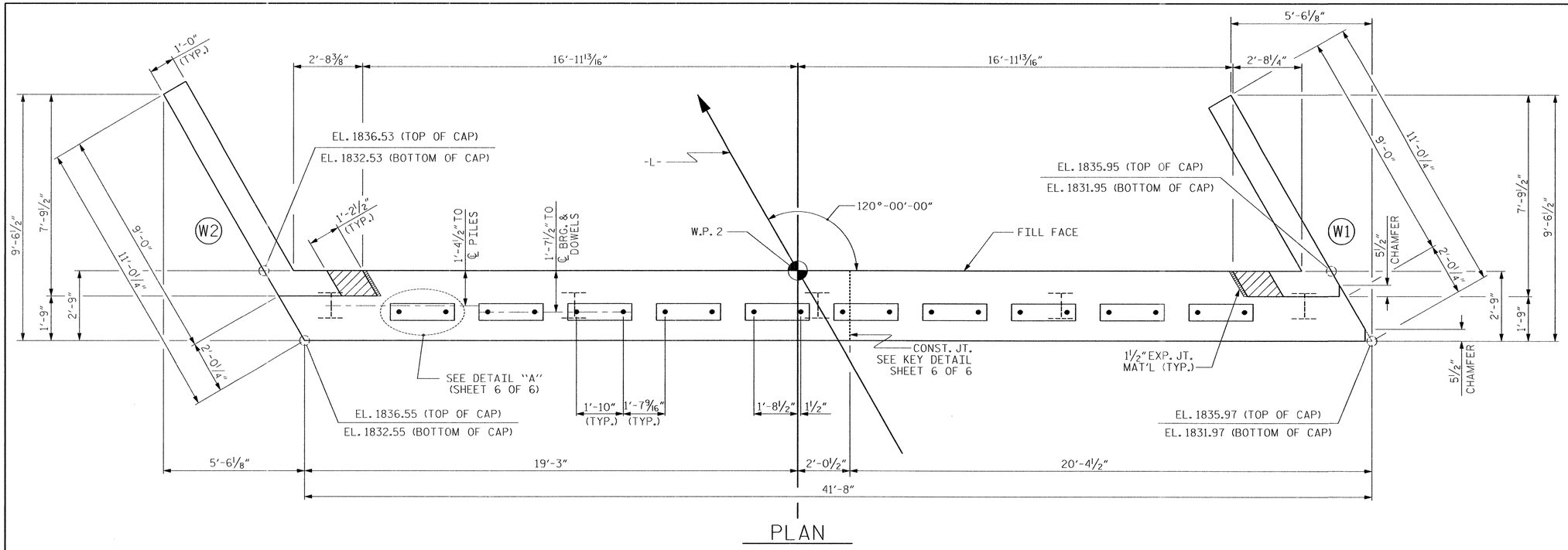
RALEIGH

SUBSTRUCTURE

END BENT No. 1 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			22

STD. NO. EB_30_120S4



PLAN

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 6 OF 6.

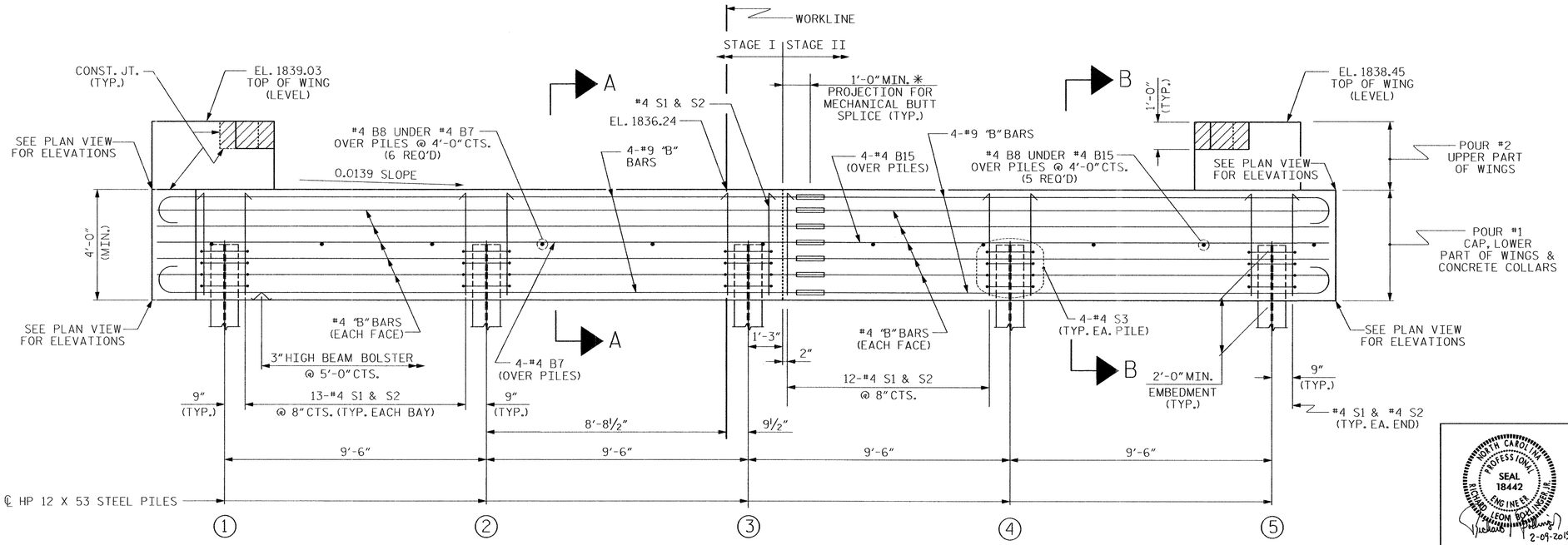
FOR WING DETAILS, SEE SHEET 5 OF 6.

* USE MECHANICAL BUTT SPLICE FOR ALL "B" BARS EXTENDING FROM STAGE 1 CONSTRUCTION JOINT.

FOR MECHANICAL BUTT SPLICES, SEE SECTION 1070-9 OF THE STANDARD SPECIFIACTIONS.

* #4 BARS MAY BE SPLICED IF A SPLICE OF 2'-5" CAN BE ACHEIVED. BAR LENGTHS SHOWN IN BILL OF MATERIAL CORRESPOND TO THE USE OF MECHANICAL SPLICES.

TOP OF PILE ELEVATIONS	
①	1834.50
②	1834.36
③	1834.23
④	1834.10
⑤	1833.97



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A & B-B, SEE SHEET 6 OF 6.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 6 OF 6.

ASSEMBLED BY : MKO	DATE : 07/2012		
CHECKED BY : JMR	DATE : 11/2012		
DRAWN BY : DGE 02/10			
CHECKED BY : MKT 02/10			

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PROJECT NO. 17BP.14.R.57
CHEROKEE COUNTY
STATION: 13+42.05 -L-

SHEET 4 OF 6

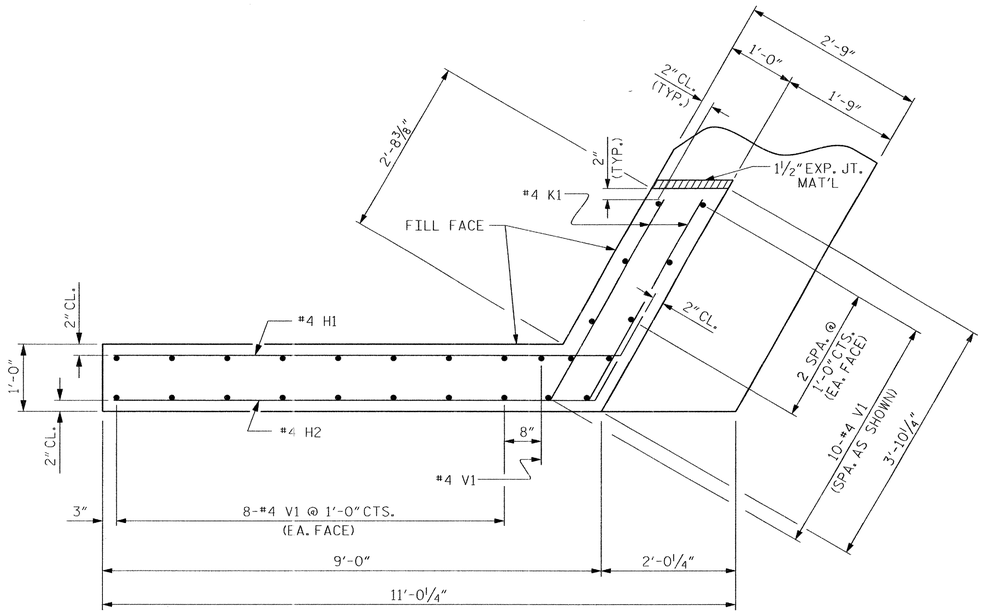
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

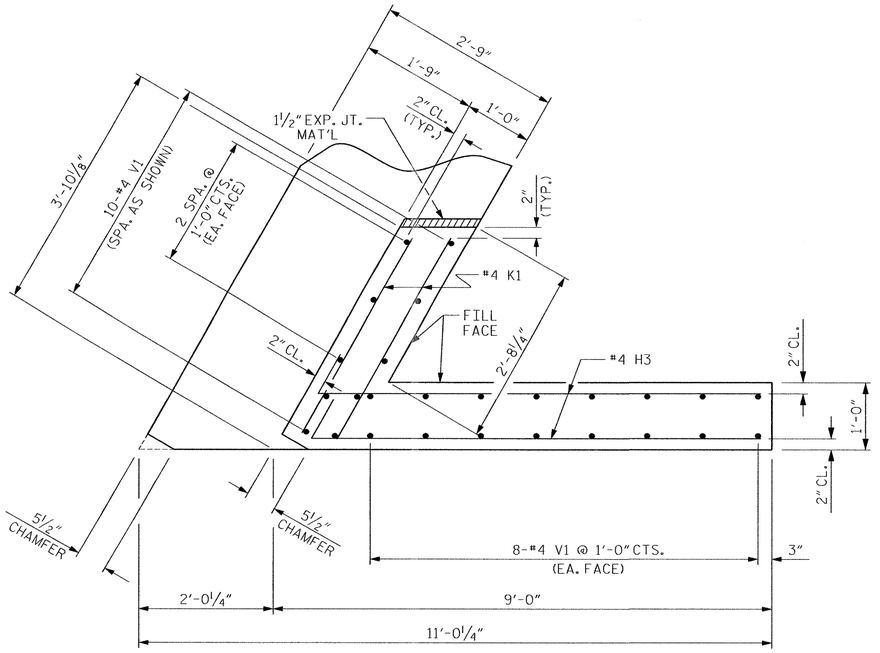
END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			22

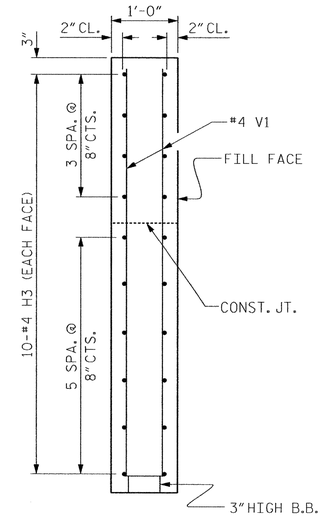
STD. NO. EB_30_120S4



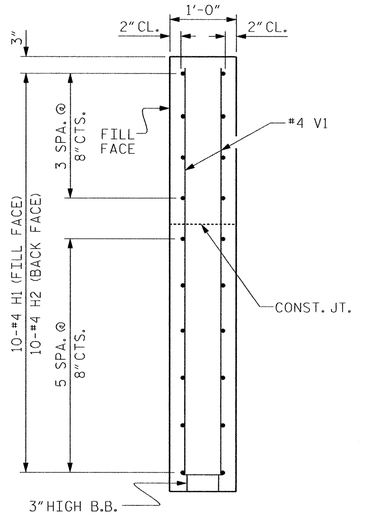
PLAN OF WING (W2)
STAGE I



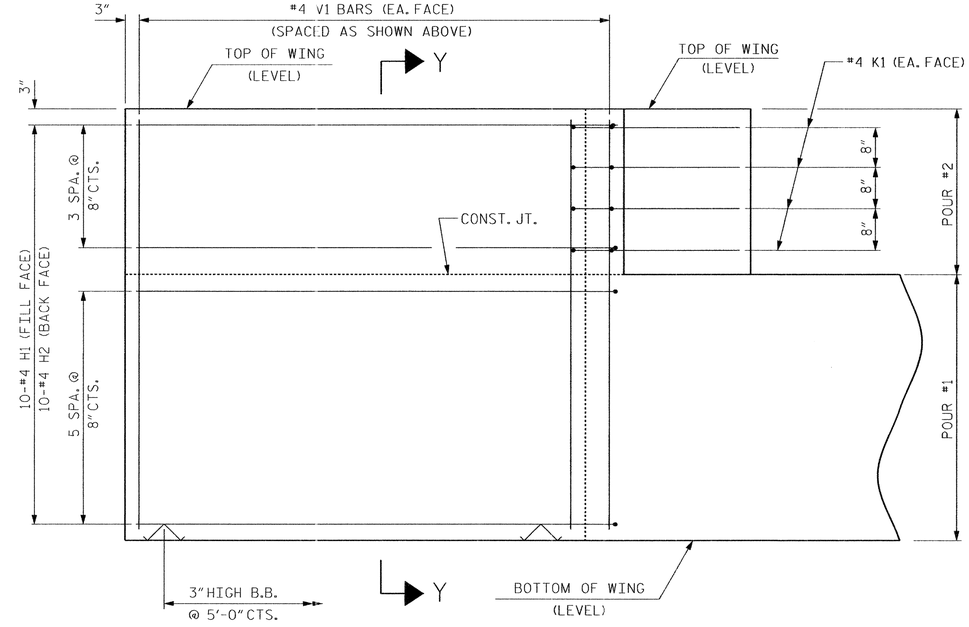
PLAN OF WING (W1)
STAGE II



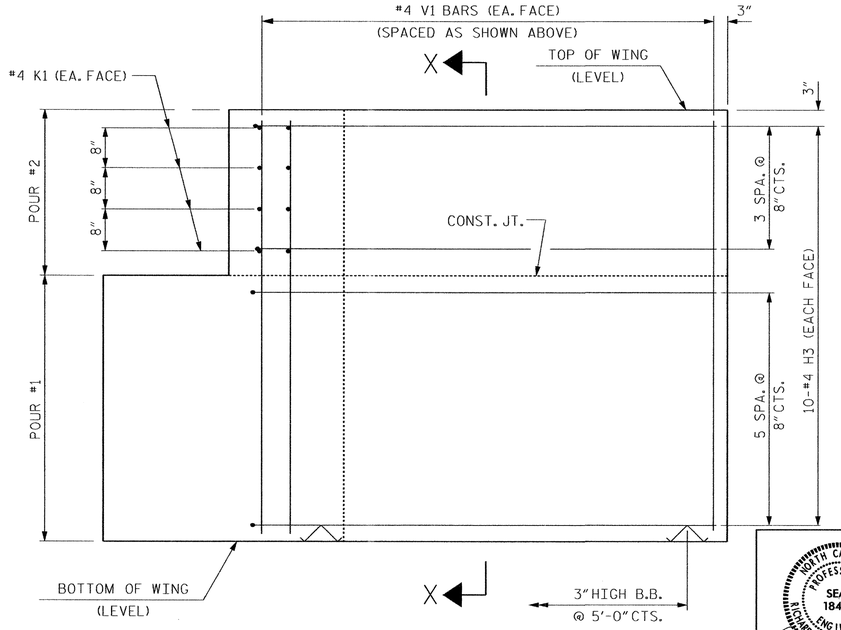
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W2)
STAGE I



ELEVATION OF WING (W1)
STAGE II

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 5 OF 6

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RALEIGH

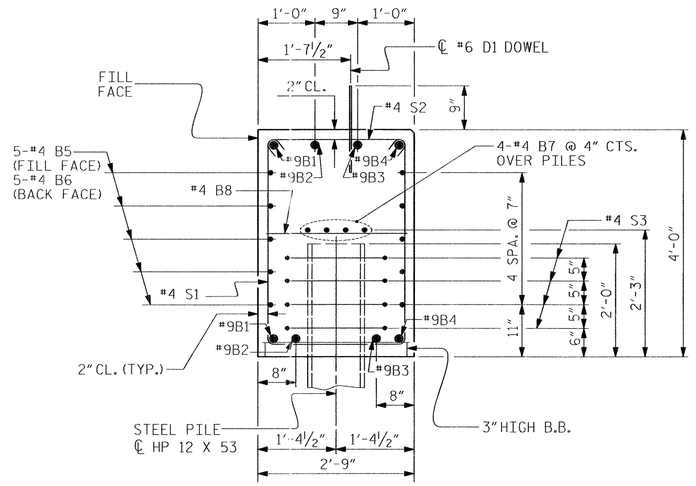
SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			22

ASSEMBLED BY :	MKO	DATE : 07/2012
CHECKED BY :	JMR	DATE : 11/2012
DRAWN BY : DGE 12/09	CHECKED BY : MKT 01/10	

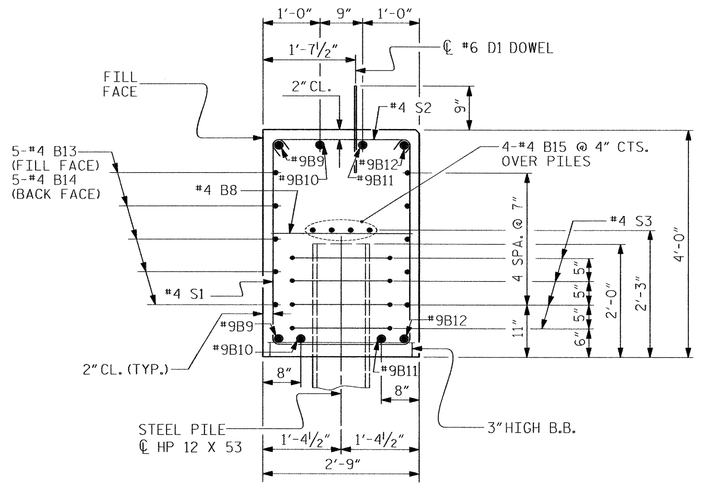
WING DETAILS

STD. NO. EB_30_120S4



SECTION A-A

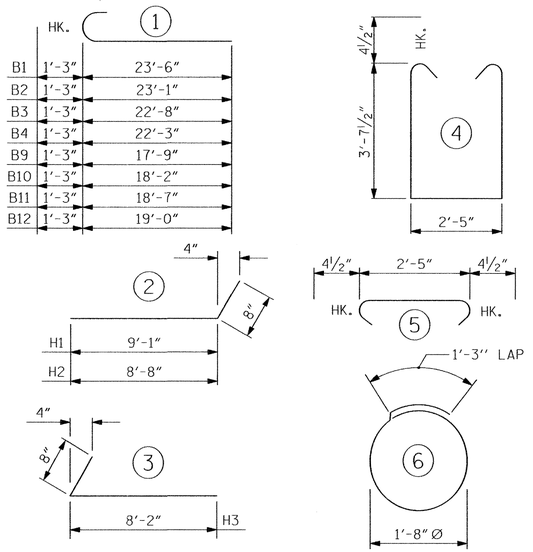
(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



SECTION B-B

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

	STAGE I	STAGE II	TOTAL
REINFORCING STEEL =	1467 LBS.	1249 LBS.	2716 LBS.
CLASS A CONCRETE POUR #1 CAP, LOWER PART OF WINGS AND COLLARS	10.7 C.Y.	9.5 C.Y.	20.2 C.Y.
POUR #2 UPPER PART OF WINGS	1.1 C.Y.	1.1 C.Y.	2.2 C.Y.
TOTAL CLASS A CONCRETE	11.8 C.Y.	10.6 C.Y.	22.4 C.Y.
HP 12X53 STEEL PILES	NO. 3 105 LIN. FT	NO. 2 70 LIN. FT	NO. 5 175 LIN. FT
STEEL PILE POINTS	3 EA.	2 EA.	5 EA.

BILL OF MATERIAL

END BENT #2

STAGE I

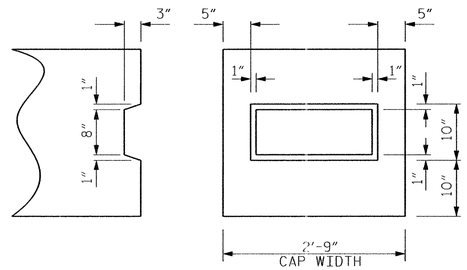
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	#9	1	24'-9"	168
B2	2	#9	1	24'-4"	165
B3	2	#9	1	23'-11"	163
B4	2	#9	1	23'-6"	160
B5	5	#4	STR	23'-7"	79
B6	5	#4	STR	22'-4"	75
B7	4	#4	STR	22'-9"	61
B8	6	#4	STR	2'-5"	10
D1	11	#6	STR	1'-6"	25
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
K1	8	#4	STR	3'-3"	17
S1	28	#4	4	10'-5"	195
S2	28	#4	5	3'-2"	59
S3	12	#4	6	6'-6"	52
V1	27	#4	STR	6'-2"	111

REINFORCING STEEL = 1467 LBS.

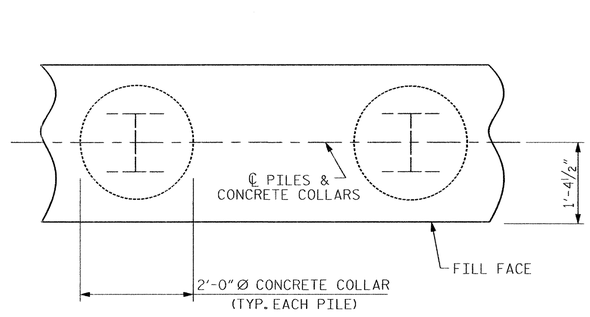
STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B8	5	#4	STR	2'-5"	8
B9	2	#9	1	19'-0"	129
B10	2	#9	1	19'-5"	132
B11	2	#9	1	19'-10"	135
B12	2	#9	1	20'-3"	138
B13	5	#4	STR	17'-10"	60
B14	5	#4	STR	19'-1"	64
B15	4	#4	STR	18'-8"	50
D1	9	#6	STR	1'-6"	20
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-3"	17
S1	26	#4	4	10'-5"	181
S2	26	#4	5	3'-2"	55
S3	8	#4	6	6'-6"	35
V1	26	#4	STR	6'-2"	107

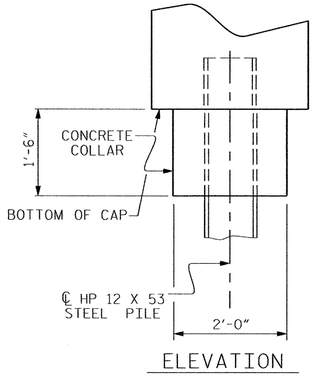
REINFORCING STEEL = 1249 LBS.



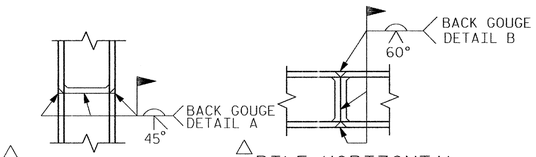
KEY DETAIL



PLAN

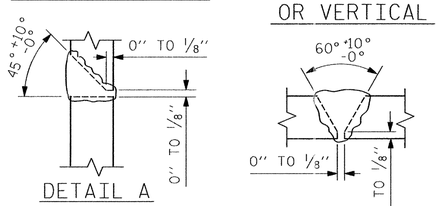


ELEVATION



△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



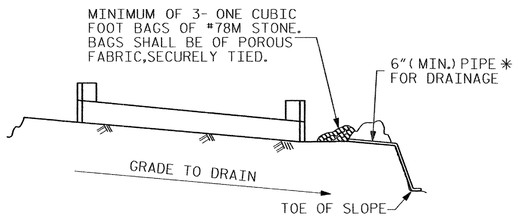
DETAIL A

DETAIL B

△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

CORROSION PROTECTION FOR STEEL PILES DETAIL



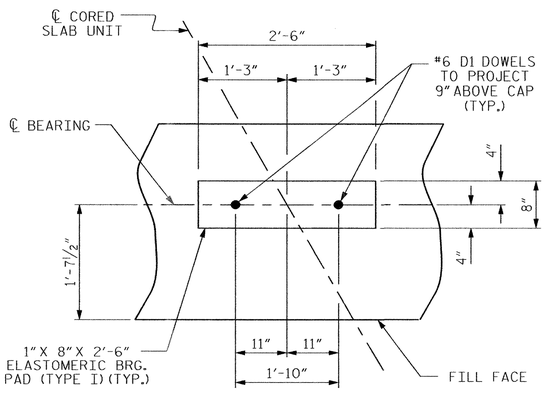
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

*MODIFY DRAIN TO RELEASE BETWEEN BRIDGES AND IN FRONT OF END BENTS FOR STAGE 1.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

ASSEMBLED BY :	MKO	DATE : 07/2012
CHECKED BY :	JMR	DATE : 11/2012
DRAWN BY : DGE	12/09	
CHECKED BY : MKT	01/10	

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOLLINGER 2-09-2015

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REVISIONS						SHEET NO.
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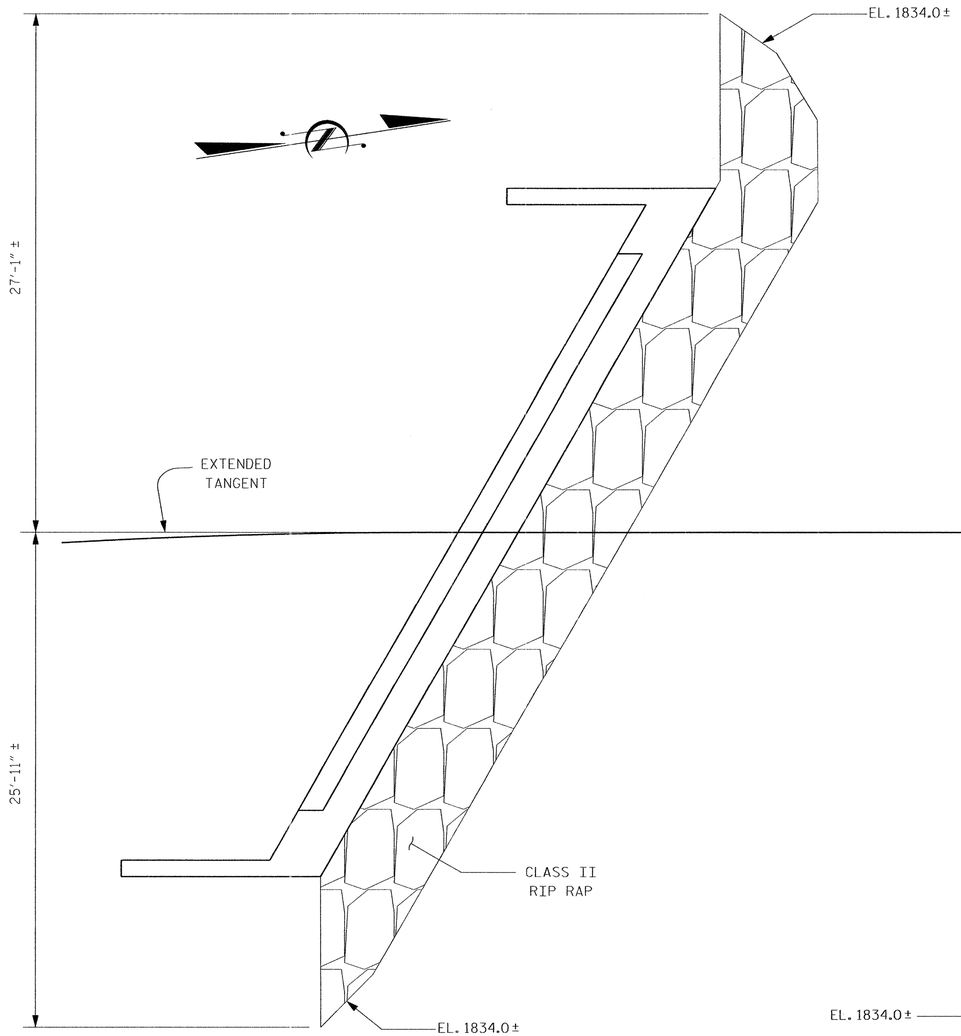
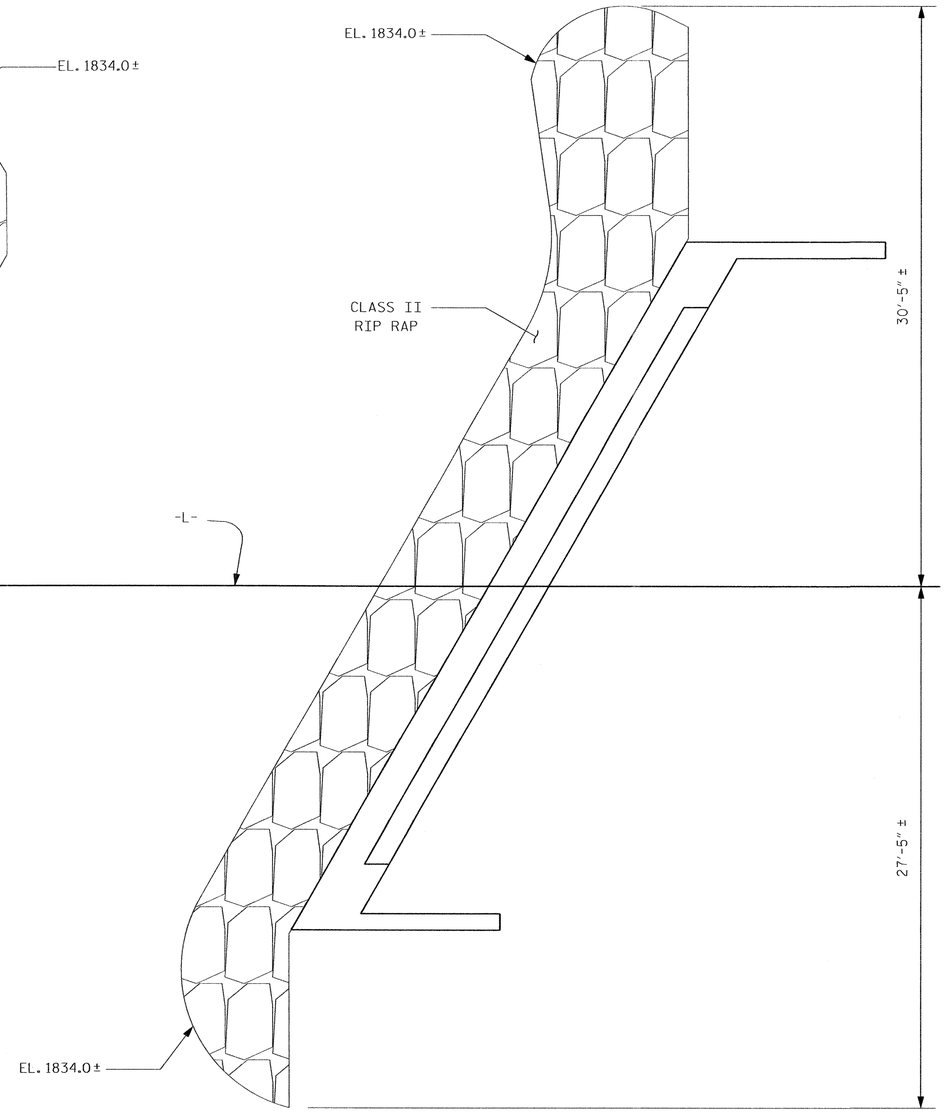
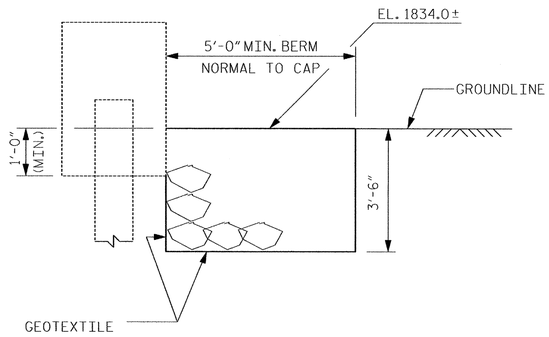
1			3			TOTAL SHEETS
2			4			22

STD. NO. EB_30_120S4

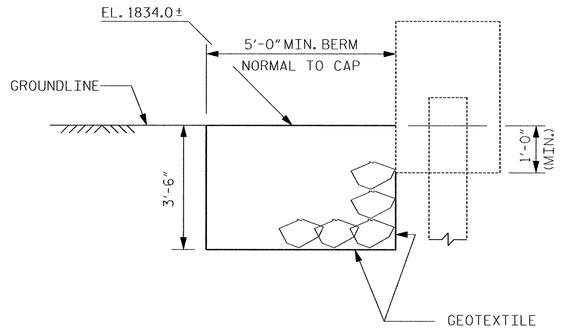




PLAN



℄ SECTION @ END BENT NO. 1



℄ SECTION @ END BENT NO. 2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+42.05 -L-	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	50	42
END BENT 2	63	50

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 1 OF 1

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOWLING 2-09-2015

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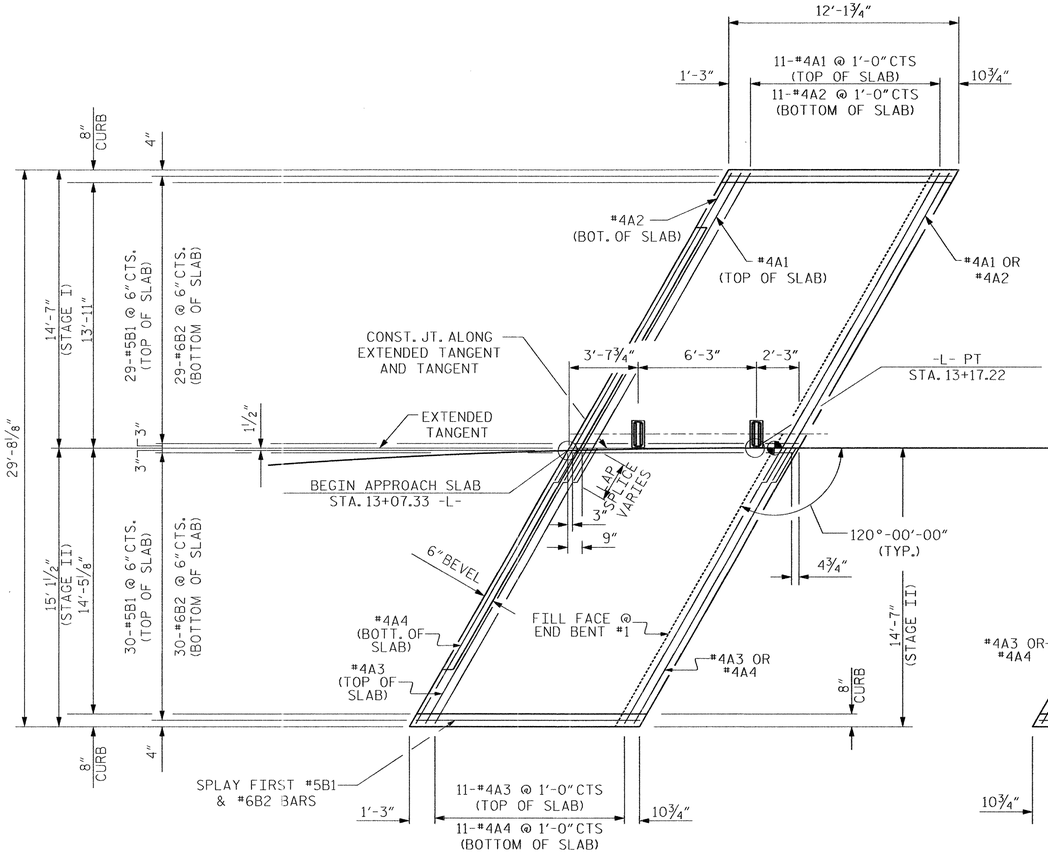
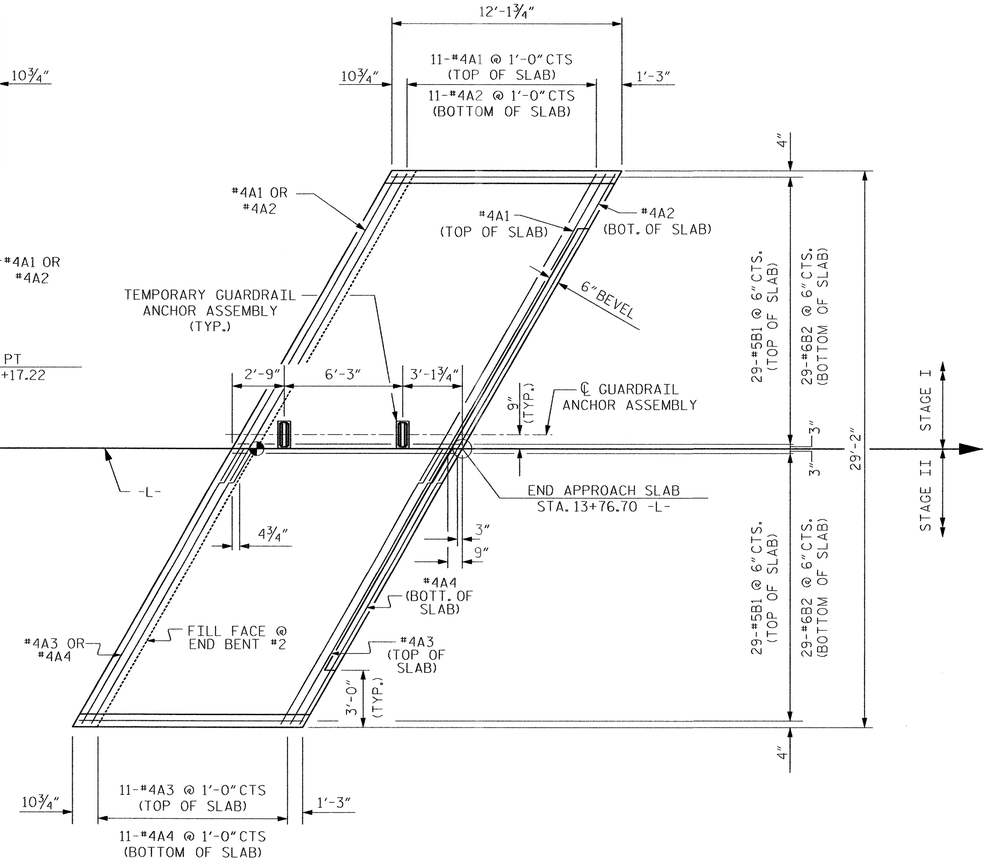
RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			22

DRAWN BY : MKO DATE : 07/2012
CHECKED BY : JMR DATE : 11/2012



PLAN @ END BENT #1



PLAN @ END BENT #2

FOR INSERT DETAILS FOR TEMPORARY GUARDRAIL, SEE "SECTION OF ANCHOR ASSEMBLY LOCATION" AND "TEMPORARY GUARDRAIL ANCHOR ASSEMBLY" DETAILS ON S-10.

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

STAGE I

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	13	#4	STR	19'-2"	166
A2	13	#4	STR	19'-1"	166
✳ B1	29	#5	STR	11'-1"	335
B2	29	#6	STR	11'-7"	505
REINFORCING STEEL				LBS.	671
✳ EPOXY COATED REINFORCING STEEL				LBS.	501
CLASS AA CONCRETE				C.Y.	8.6

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	13	#4	STR	18'-8"	162
A2	13	#4	STR	18'-7"	161
✳ B1	29	#5	STR	11'-1"	335
B2	29	#6	STR	11'-7"	505
REINFORCING STEEL				LBS.	666
✳ EPOXY COATED REINFORCING STEEL				LBS.	497
CLASS AA CONCRETE				C.Y.	8.6

STAGE II

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A3	13	#4	STR	17'-3"	150
A4	13	#4	STR	17'-2"	149
✳ B1	30	#5	STR	11'-1"	347
B2	30	#6	STR	11'-7"	522
REINFORCING STEEL				LBS.	671
✳ EPOXY COATED REINFORCING STEEL				LBS.	497
CLASS AA CONCRETE				C.Y.	8.9

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A3	13	#4	STR	16'-8"	145
A4	13	#4	STR	16'-7"	144
✳ B1	29	#5	STR	11'-1"	335
B2	29	#6	STR	11'-7"	505
REINFORCING STEEL				LBS.	649
✳ EPOXY COATED REINFORCING STEEL				LBS.	480
CLASS AA CONCRETE				C.Y.	8.6

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 1 OF 2

DRAWN BY : MKO DATE : 07/2012

CHECKED BY : JMR DATE : 11/2012

NORTH CAROLINA PROFESSIONAL SEAL 18442 ENGINEER RICHARD LEON BOWLING 2-09-2015

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			22

NOTES

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

GEOTEXTILE SHALL BE TYPE 1IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

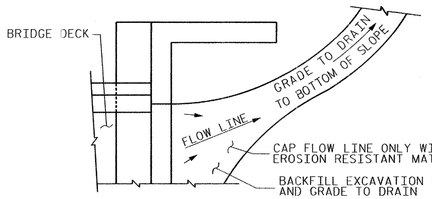
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS. THE 4" DRAINAGE PIPE OUTFALL NEEDS TO BE ABOVE THE WATER SURFACE ELEVATION.

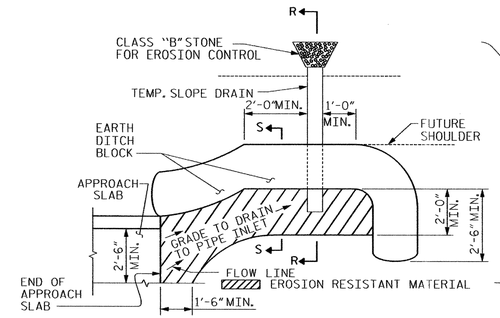
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



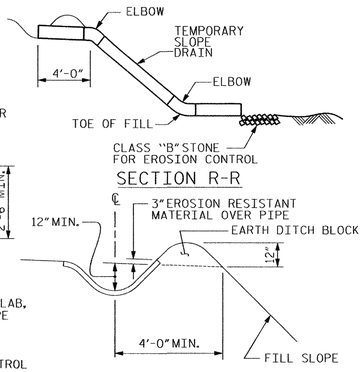
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

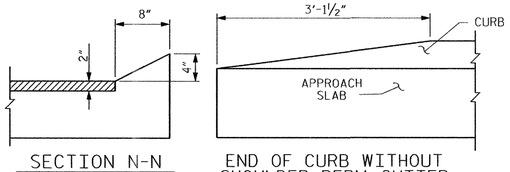


SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

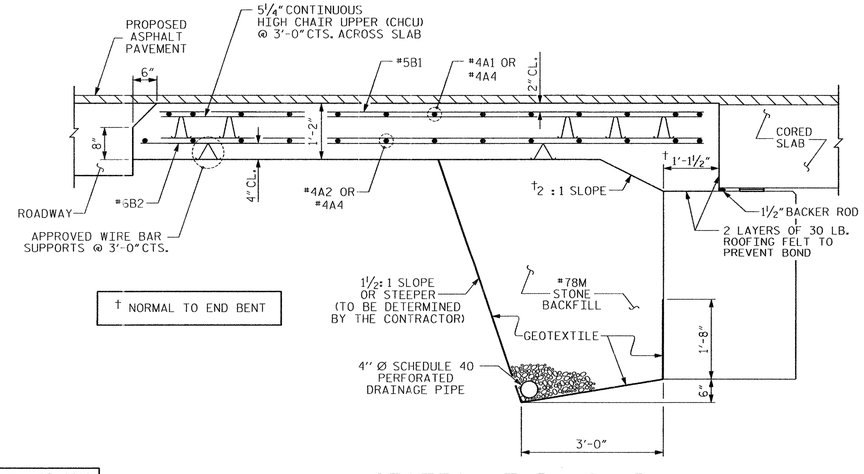
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



SECTION THRU SLAB

ASSEMBLED BY :	MKO	DATE : 07/2012	
CHECKED BY :	JMR	DATE : 11/2012	
DRAWN BY : SHS/MAA 5-09	REV. 12-11	MAA/AAC	
CHECKED BY : BCH 5-09			

PROJECT NO. 17BP.14.R.57

CHEROKEE COUNTY

STATION: 13+42.05 -L-

SHEET 2 OF 2

RS&H

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB DETAILS FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW

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

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. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (c) RGW REV. 5-7-03 RWW (c) JTE REV. 10-1-11 MAA (c) GM
REV. 8-16-99 RWW (c) LES REV. 5-1-06 TLA (c) GM