09/08/99

PROJECT: B-5551

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

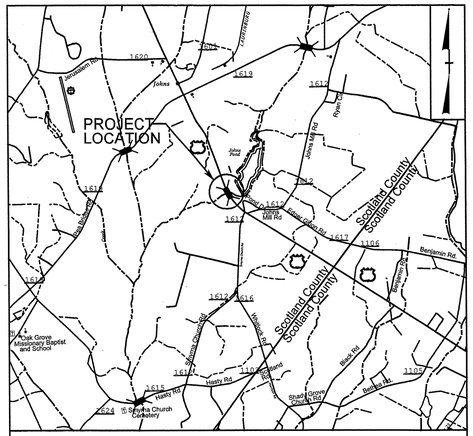
SCOTLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5551	1	43

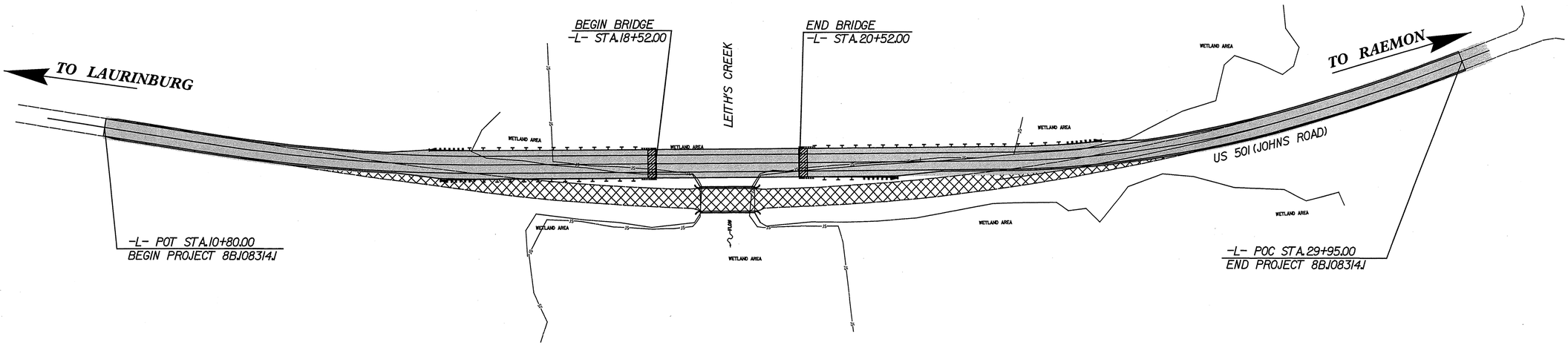
STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION
8B.108314.1		PE
8B.108314.1		R/W & UTIL.
43684.3.FR1	BRSTP-0501(29)	CONST.

LOCATION: ***BRIDGE NO. 18 OVER LEITH'S CREEK ON US 501 (JOHNS ROAD)***

TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, STRUCTURE***



VICINITY MAP



STRUCTURE

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 2013 = 4810
D = 50 %
T = 8 % *
V = 55 MPH

FUNC CLASS = MINOR ARTERIAL
* TTST 4% DUAL 4%

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 8B.108314.1= 0.325 MI
LENGTH OF STRUCTURE PROJECT 8B.108314.1= 0.038 MI
TOTAL LENGTH OF PROJECT 8B.108314.1= 0.363 MI

Baker
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Cary, North Carolina 27518
NC License No. : F-1084

FOR THE NORTH CAROLINA DEPT. OF TRANSPORATION

2012 STANDARD SPECIFICATIONS

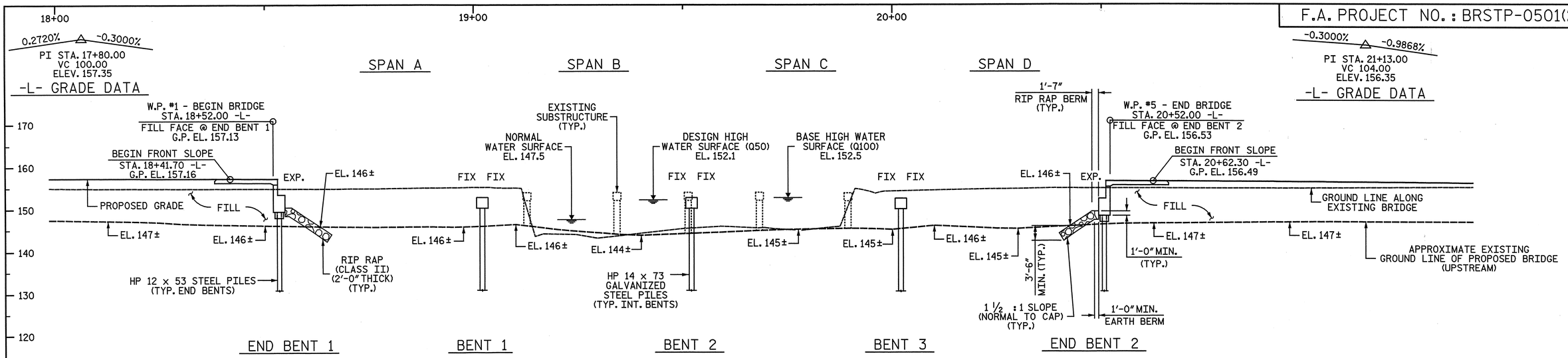
LETTING DATE:
OCTOBER 15, 2013

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

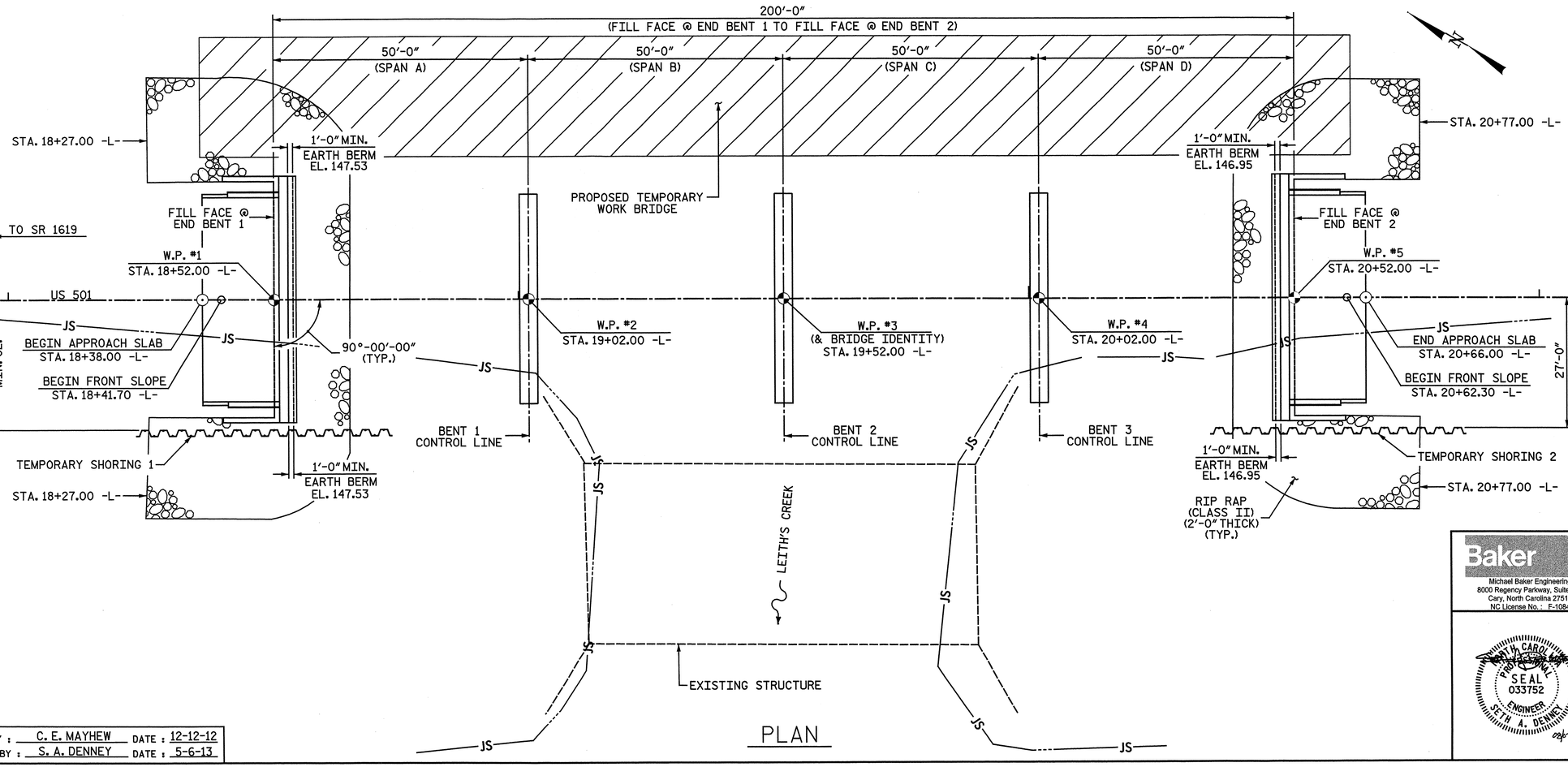
10:39:40 AM
V:\Projects\NCDOT\Division 6\n-Call SEP\Scotland 18\DWG\Final\Scot_18_000_SD_COV.dgn
nbspadke

F.A. PROJECT NO. : BRSTP-0501(29)



SECTION ALONG SURVEY -L-

END BENTS AND BENTS ON SECTION AT RIGHT ANGLES



PLAN

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 18

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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A DENNEY 08/7/13

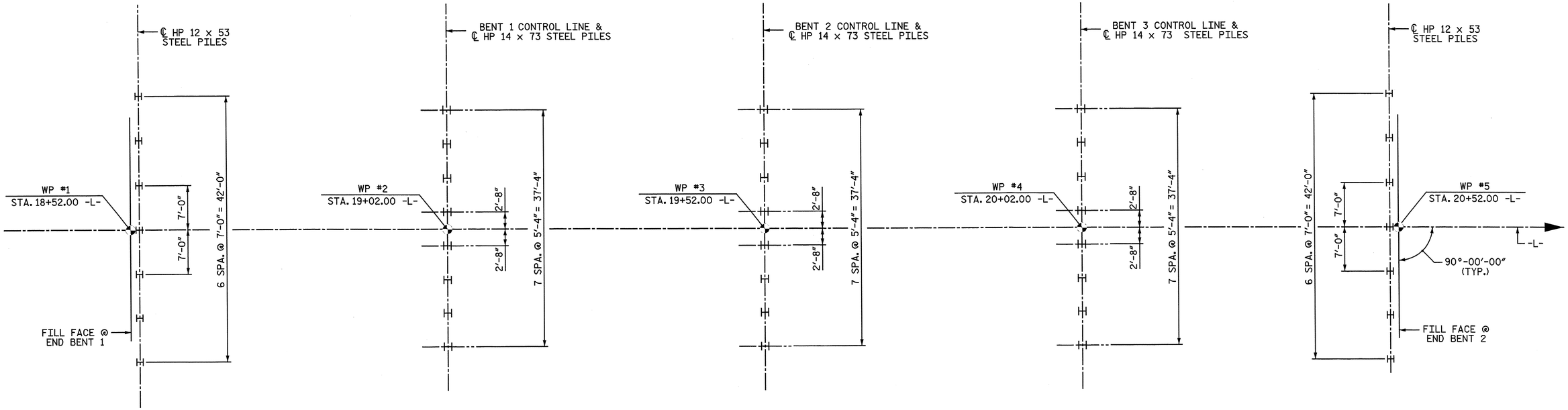
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON RELOCATED
US 501 OVER LEITH'S CREEK
BETWEEN SR 1619 & SR 1612

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	2
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : C. E. MAYHEW DATE : 12-12-12
CHECKED BY : S. A. DENNEY DATE : 5-6-13



END BENT 1 | BENT 1 | BENT 2 | BENT 3 | END BENT 2

FOUNDATION LAYOUT

ALL BENTS ARE PARALLEL

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS 1 & 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.

DRIVE PILES AT END BENTS 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

PILES AT BENTS 1, 2, AND 3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.

DRIVE PILES AT BENTS 1, 2, AND 3 TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE.

INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN 116 FEET.

INSTALL PILES AT BENT 2 TO A TIP ELEVATION NO HIGHER THAN 117 FEET.

INSTALL PILES AT BENT 3 TO A TIP ELEVATION NO HIGHER THAN 117 FEET.

TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING MAY BE REQUIRED. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS (AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION).

THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION 135 FEET. THE SCOUR CRITICAL ELEVATION FOR BENTS 2 AND 3 IS ELEVATION 137 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 3

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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
06/07/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON RELOCATED US 501 OVER LEITH'S CREEK BETWEEN SR 1619 & SR 1612

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	3
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 3-14-13
CHECKED BY : S. A. DENNEY DATE : 5-6-13

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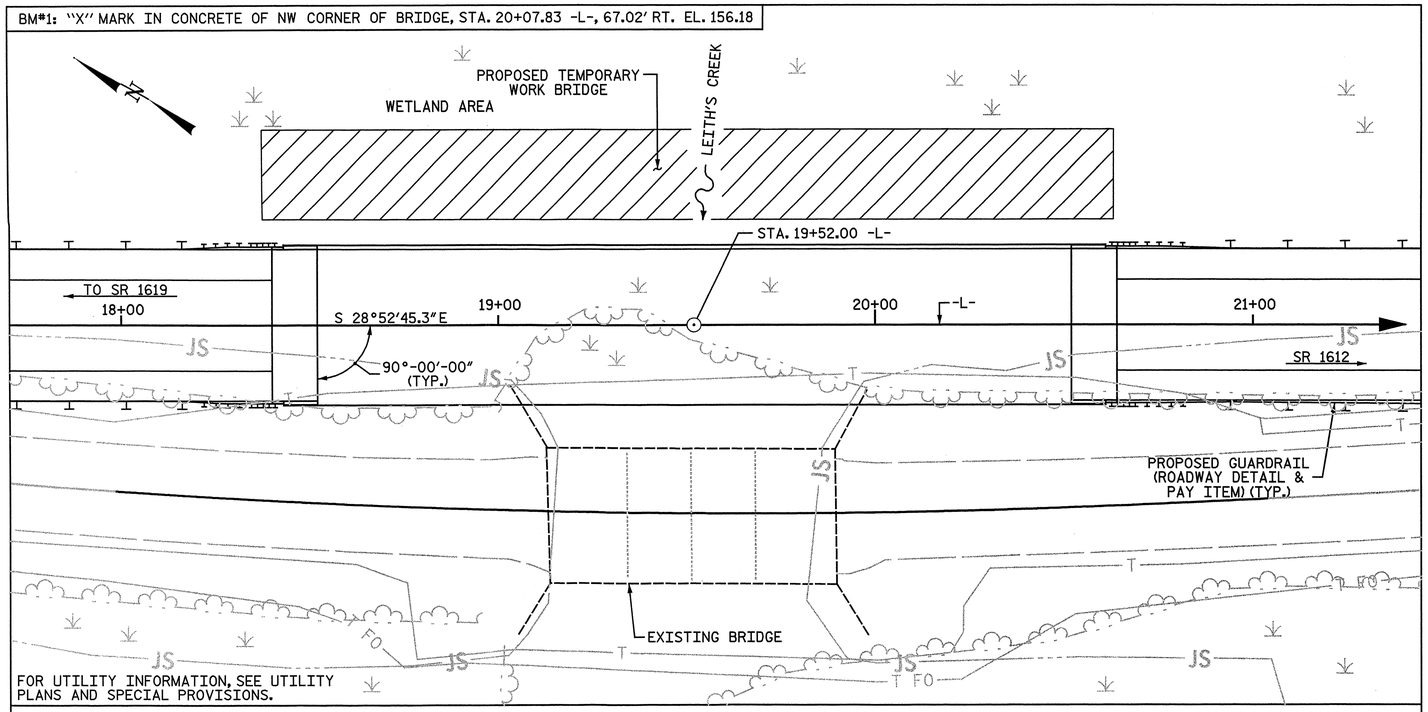

LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING

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

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 2.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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 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.

AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 17'-4", 1 SPAN @ 17'-0", AND 1 SPAN @ 17'-4" WITH A CONCRETE DECK ON TIMBER CAP PILES AND A CLEAR ROADWAY OF 30.2' ON TIMBER JOISTS AND BULKHEADS, AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

FOR INTERIOR BENTS 1, 2, & 3, ONLY PARTIAL GALVANIZING OF THE PILES IS REQUIRED. SEE INTERIOR BENT SHEETS FOR REQUIRED GALVANIZED LENGTHS. PAYMENT FOR PARTIALLY GALVANIZED PILES WILL BE MADE UNDER THE CONTRACT UNIT PRICE FOR GALVANIZED STEEL PILES.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY ACCESS AT STA. 19+52.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 2200 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YR
DESIGN HIGH WATER ELEVATION	= 152.1
DRAINAGE AREA	= 29 SQ. MI.
BASE DISCHARGE (Q100)	= 2631 CFS
BASE HIGH WATER ELEVATION	= 152.5

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 5800 CFS
FREQUENCY OF OVERTOPPING FLOOD	= > 500 YR
OVERTOPPING FLOOD ELEVATION	= 154.7

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMP. ACCESS @ STA. 19+52.00-L-	REMOVAL OF EXISTING STRUCTURE @ STATION 19+52.00 -L-	PDA TESTING	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	36" PRESTRESSED CONCRETE GIRDERS		HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS
	LUMP SUM	LUMP SUM	EACH	SQ. FT.	SQ.FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN. FT.	NO.	LIN. FT.		LIN. FT.	TONS	SY	LUMP SUM	LUMP SUM
SUPERSTRUCTURE				8,362	8,344		LUMP SUM		24	1,170						435.8			LUMP SUM	LUMP SUM
END BENT 1						33.6		4,591			7	420			7		335	372		
BENT 1						15.3		2,711					8	480	8					
BENT 2						15.3		2,711					8	520	8					
BENT 3						15.3		2,711					8	480	8					
END BENT 2						33.5		4,591			7	420			7		368	409		
TOTAL	LUMP SUM	LUMP SUM	1	8,362	8,344	113.0	LUMP SUM	17,317	24	1,170	14	840	24	1,480	38	435.8	703	781	LUMP SUM	LUMP SUM

DRAWN BY : C. E. MAYHEW DATE : 12-12-12
CHECKED BY : S. A. DENNEY DATE : 5-6-13

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-
SHEET 3 OF 3

Baker
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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY 05/01/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON RELOCATED US 501 OVER LEITH'S CREEK BETWEEN SR 1619 & SR 1612

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	4
1			3			TOTAL SHEETS
2			4			43

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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						
							LIVE-LOAD FACTORS (γ_{LL})	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)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	(1)	1.27	--	1.75	0.68	1.29	B	I	23.90	0.79	1.53	B	I	14.10	0.80	0.68	1.27	B	I	23.90	1
		HL-93 (OPERATING)	N/A		1.68	--	1.35	0.68	1.68	B	I	23.90	0.79	2.09	B	I	43.60	N/A	--	--	--	--	--	1,2
		HS-20 (INVENTORY)	36.000	(2)	1.57	56.52	1.75	0.68	1.60	B	I	23.90	0.79	1.91	B	I	43.60	0.80	0.68	1.57	B	I	23.90	1
		HS-20 (OPERATING)	36.000		2.07	74.52	1.35	0.68	2.07	B	I	23.90	0.79	2.49	B	I	43.60	N/A	--	--	--	--	--	1,2
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.18	42.93	1.40	0.68	4.04	B	I	23.90	0.79	5.44	B	I	43.60	0.80	0.68	3.18	B	I	23.90	1
		SNGARBS2	20.000		2.52	50.40	1.40	0.68	3.20	B	I	23.90	0.79	3.96	B	I	43.60	0.80	0.68	2.52	B	I	23.90	1
		SNAGRIS2	22.000		2.46	54.12	1.40	0.68	3.12	B	I	19.00	0.79	3.72	B	I	43.60	0.80	0.68	2.46	B	I	23.90	1
		SNCOTTS3	27.250		1.59	43.33	1.40	0.68	2.01	B	I	23.90	0.79	2.69	B	I	43.60	0.80	0.68	1.59	B	I	23.90	1
		SNAGGRS4	34.925		1.38	48.20	1.40	0.68	1.76	B	I	23.90	0.79	2.30	B	I	43.60	0.80	0.68	1.38	B	I	23.90	1
		SNS5A	35.550		1.35	47.99	1.40	0.68	1.71	B	I	23.90	0.79	2.38	B	I	43.60	0.80	0.68	1.35	B	I	23.90	1
		SNS6A	39.950		1.26	50.34	1.40	0.68	1.60	B	I	23.90	0.79	2.20	B	I	43.60	0.80	0.68	1.26	B	I	23.90	1
		SNS7B	42.000	(3)	1.20	50.40	1.40	0.68	1.53	B	I	23.90	0.79	2.19	B	I	43.60	0.80	0.68	1.20	B	I	23.90	1
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.55	51.15	1.40	0.68	1.97	B	I	23.90	0.79	2.60	B	I	43.60	0.80	0.68	1.55	B	I	23.90	1
		TNT4A	33.075		1.56	51.60	1.40	0.68	1.98	B	I	23.90	0.79	2.49	B	I	43.60	0.80	0.68	1.56	B	I	23.90	1
		TNT6A	41.600		1.30	54.08	1.40	0.68	1.66	B	I	23.90	0.79	2.42	B	I	43.60	0.80	0.68	1.30	B	I	23.90	1
		TNT7A	42.000		1.32	55.44	1.40	0.68	1.68	B	I	23.90	0.79	2.23	B	I	43.60	0.80	0.68	1.32	B	I	23.90	1
		TNT7B	42.000		1.38	57.96	1.40	0.68	1.75	B	I	23.90	0.79	2.09	B	I	43.60	0.80	0.68	1.38	B	I	23.90	1
		TNAGRIT4	43.000		1.31	56.33	1.40	0.68	1.66	B	I	23.90	0.79	2.04	B	I	43.60	0.80	0.68	1.31	B	I	23.90	1
		TNAGT5A	45.000		1.22	54.90	1.40	0.68	1.55	B	I	23.90	0.79	2.08	B	I	43.60	0.80	0.68	1.22	B	I	23.90	1
		TNAGT5B	45.000	(3)	1.20	54.00	1.40	0.68	1.52	B	I	23.90	0.79	1.93	B	I	43.60	0.80	0.68	1.20	B	I	23.90	1

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. ALL DISTANCES ARE MEASURED FROM THE CENTERLINE BEARING AT THE LEFT END OF SPAN.
2. SERVICE III LIMIT STATE NOT APPLICABLE AT THE OPERATING LEVEL.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

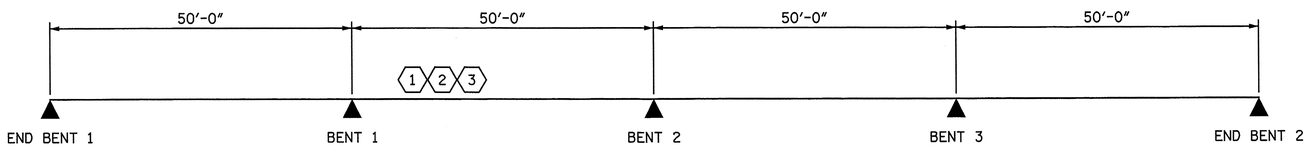
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
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NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
06/07/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 1-17-13
CHECKED BY : S. A. DENNEY DATE : 2-22-13

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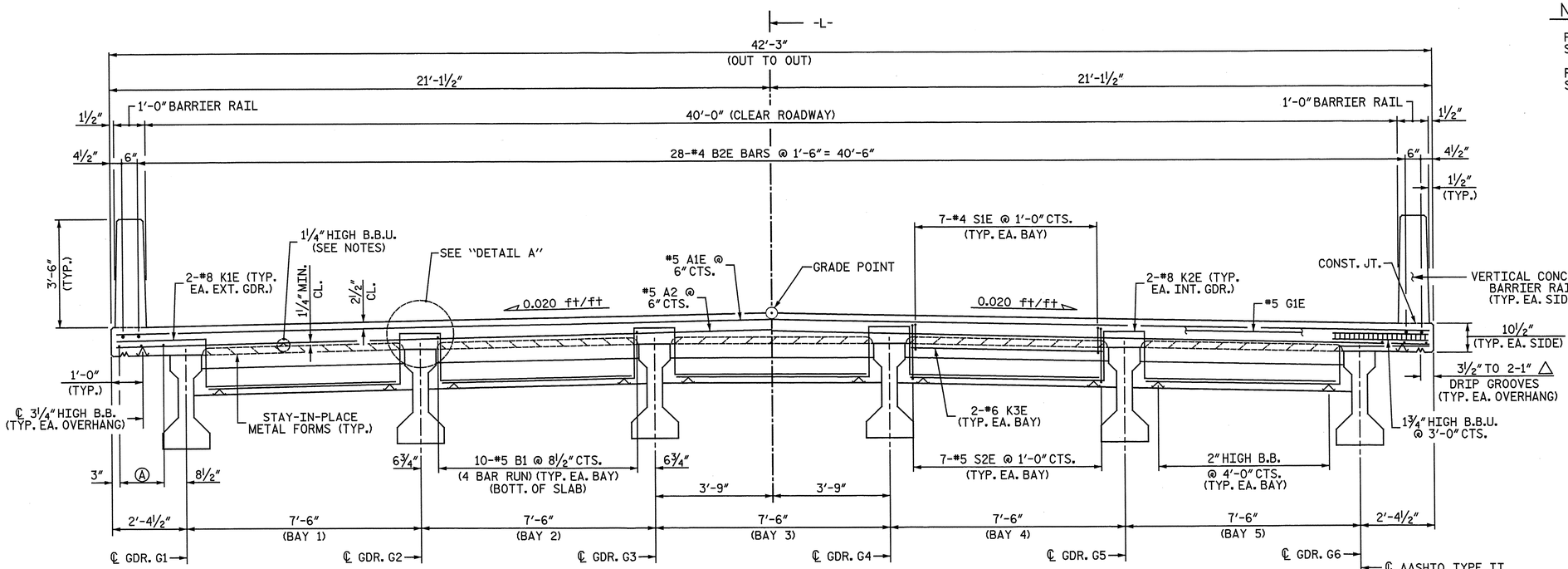
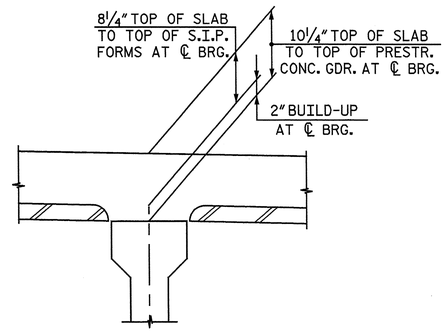
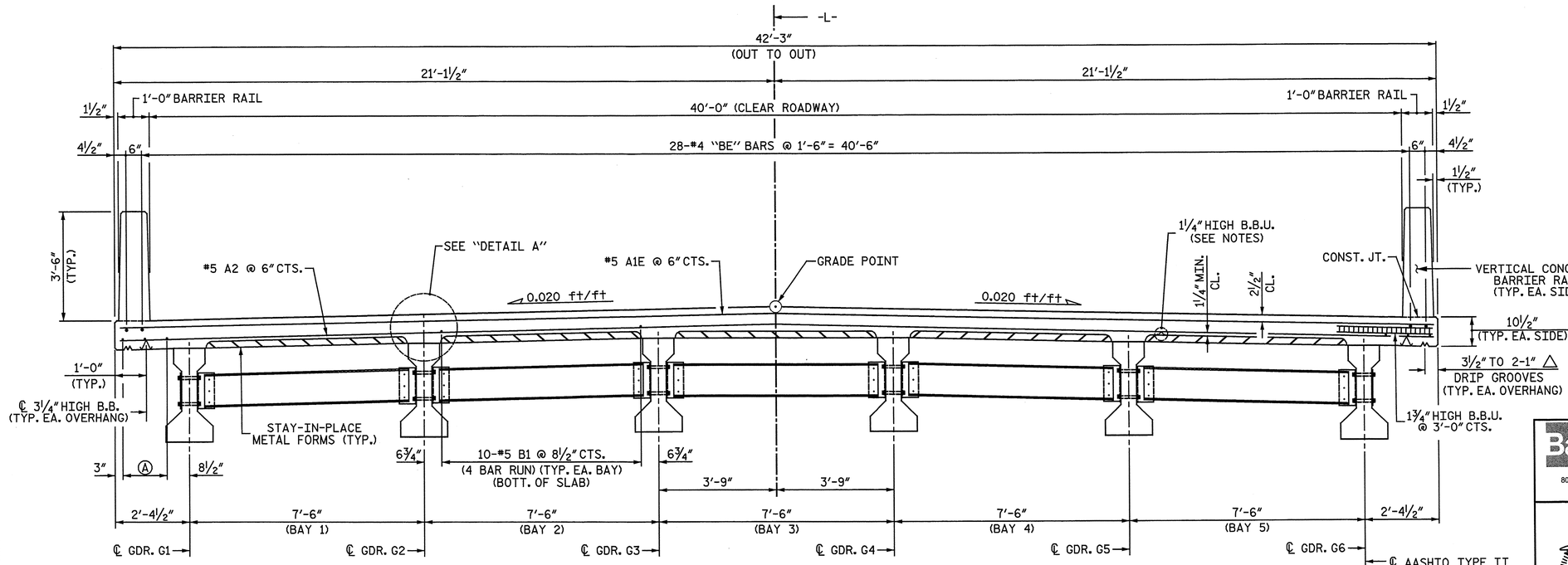


TYPICAL SECTION @ END BENT



DETAIL A

(TYP. EA. GDR. @ EA. BENT)



Ⓐ 3-#5 B1 @ 8½" CTS. (4 BAR RUN) (TYP. EA. OVERHANG) (BOTT. OF SLAB)

TYPICAL SECTION @ MID SPAN

NOTES:

FOR SUPERSTRUCTURE NOTES, SEE "TYPICAL SECTION DETAILS", SHEET 3 OF 3.

FOR ADDITIONAL INFORMATION ON DECK SLAB REINFORCEMENT, SEE "PLAN OF SPAN" SHEETS.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 3

DRAWN BY : MDM / JNA DATE : 12-12-12

CHECKED BY : S. A. DENNEY DATE : 2-5-13

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
6/6/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	6
1			3			TOTAL SHEETS
2			4			43

nbspeaks
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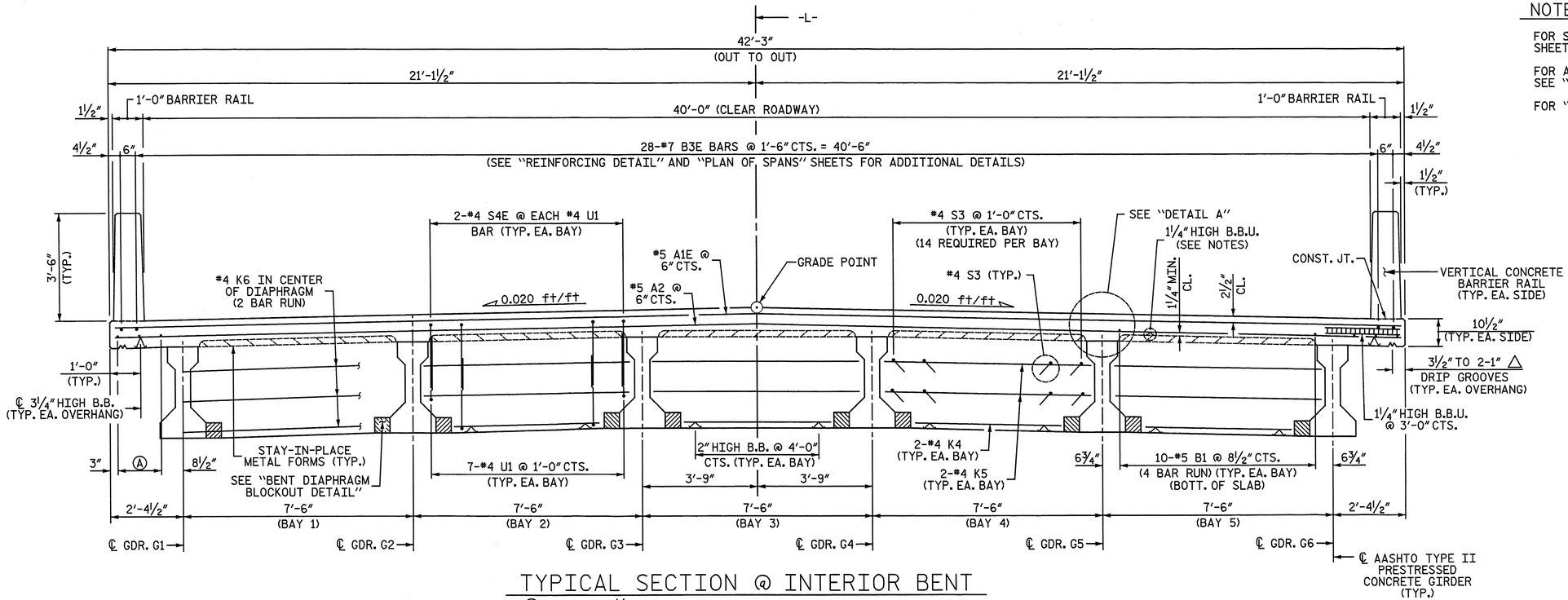


TYPICAL SECTION @ INTERIOR BENT

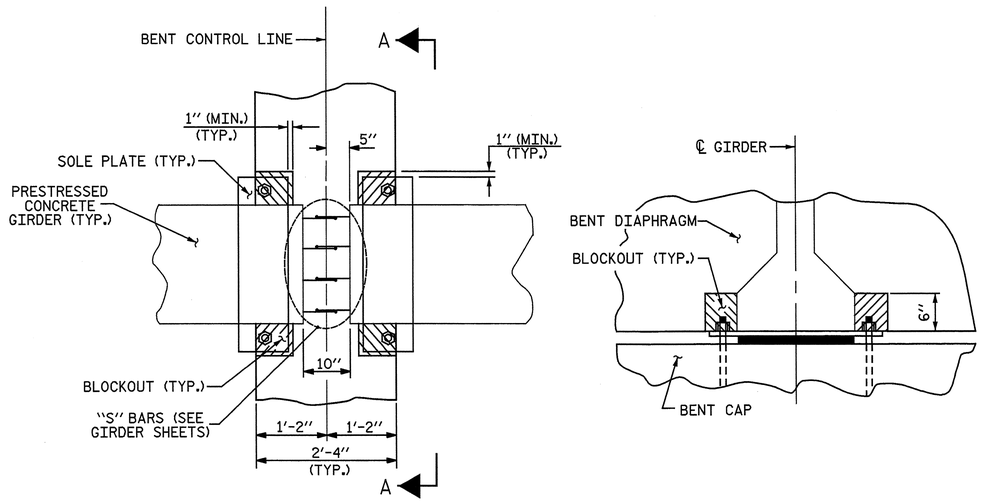
Ⓐ 3-#5 B1 @ 8½" CTS. (4 BAR RUN) (TYP. EA. OVERHANG) (BOTT. OF SLAB)

NOTES:

FOR SUPERSTRUCTURE NOTES, SEE "TYPICAL SECTION DETAILS", SHEET 3 OF 3.

FOR ADDITIONAL INFORMATION ON DECK SLAB REINFORCEMENT, SEE "PLAN OF SPAN" SHEETS.

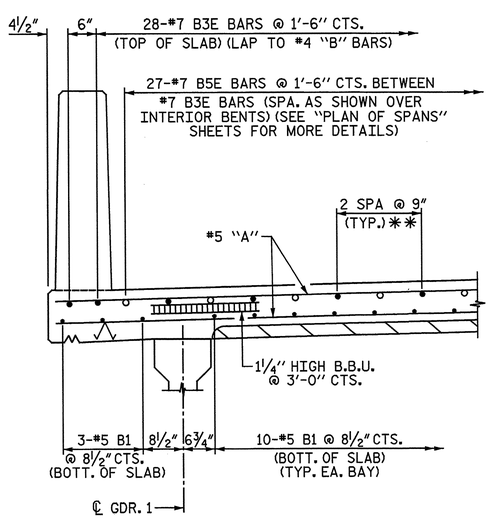
FOR "DETAIL A", SEE "TYPICAL SECTION", SHEET 1 OF 3.



PLAN

SECTION A-A

BENT DIAPHRAGM BLOCKOUT DETAIL



** TYP. SPACING OF NON-CONTINUOUS REINFORCING BARS BETWEEN CONTINUOUS REINFORCING OVER INTERIOR BENTS (SPA. AS SHOWN)

REINFORCING DETAIL

- ○ INDICATES NON-CONTINUOUS REINFORCING STEEL OVER BENT.
- ● INDICATES CONTINUOUS REINFORCING STEEL FROM END BENT 1 TO END BENT 2.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 3

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NC License No.: F-1084

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	7
1			3			TOTAL SHEETS
2			4			43

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NOTES:

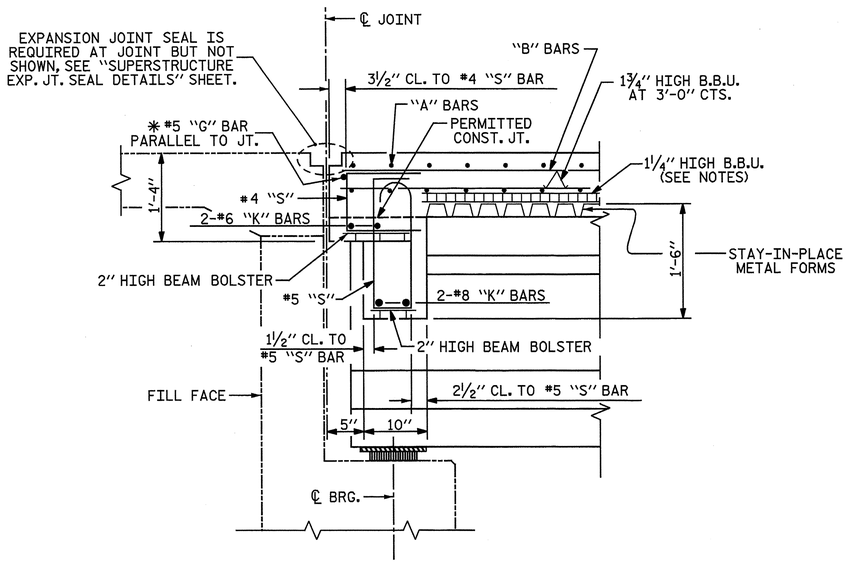
PROVIDE 1¼" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF "A" BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 2 ½" ABOVE THE TOP OF THE REMOVABLE FORM.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

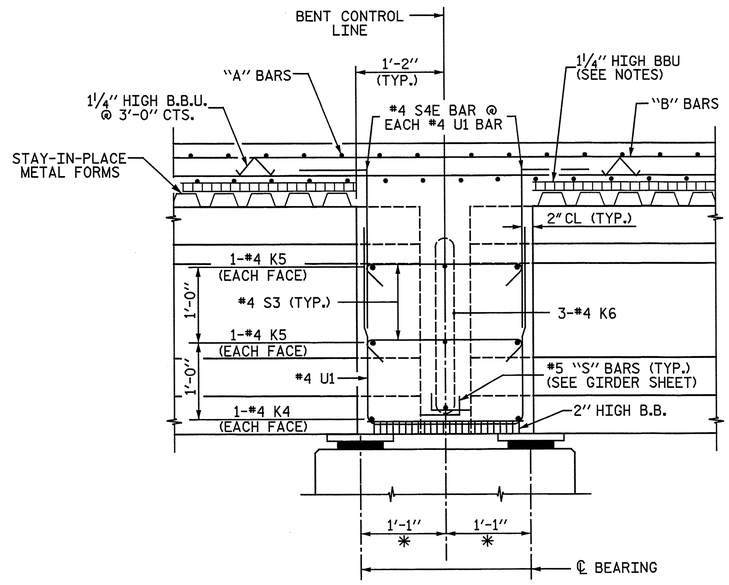
STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

FOR ADDITIONAL INFORMATION ON DECK SLAB REINFORCING, SEE "PLAN OF SPANS" SHEETS.



SECTION THRU END BENT

* #5G BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



SECTION THRU CONTINUOUS BENT DIAPHRAGM

* DIMENSION ALONG ℄ GIRDER

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 3 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	8
1			3			TOTAL SHEETS
2			4			43

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CHECKED BY : S. A. DENNEY DATE : 2-5-13

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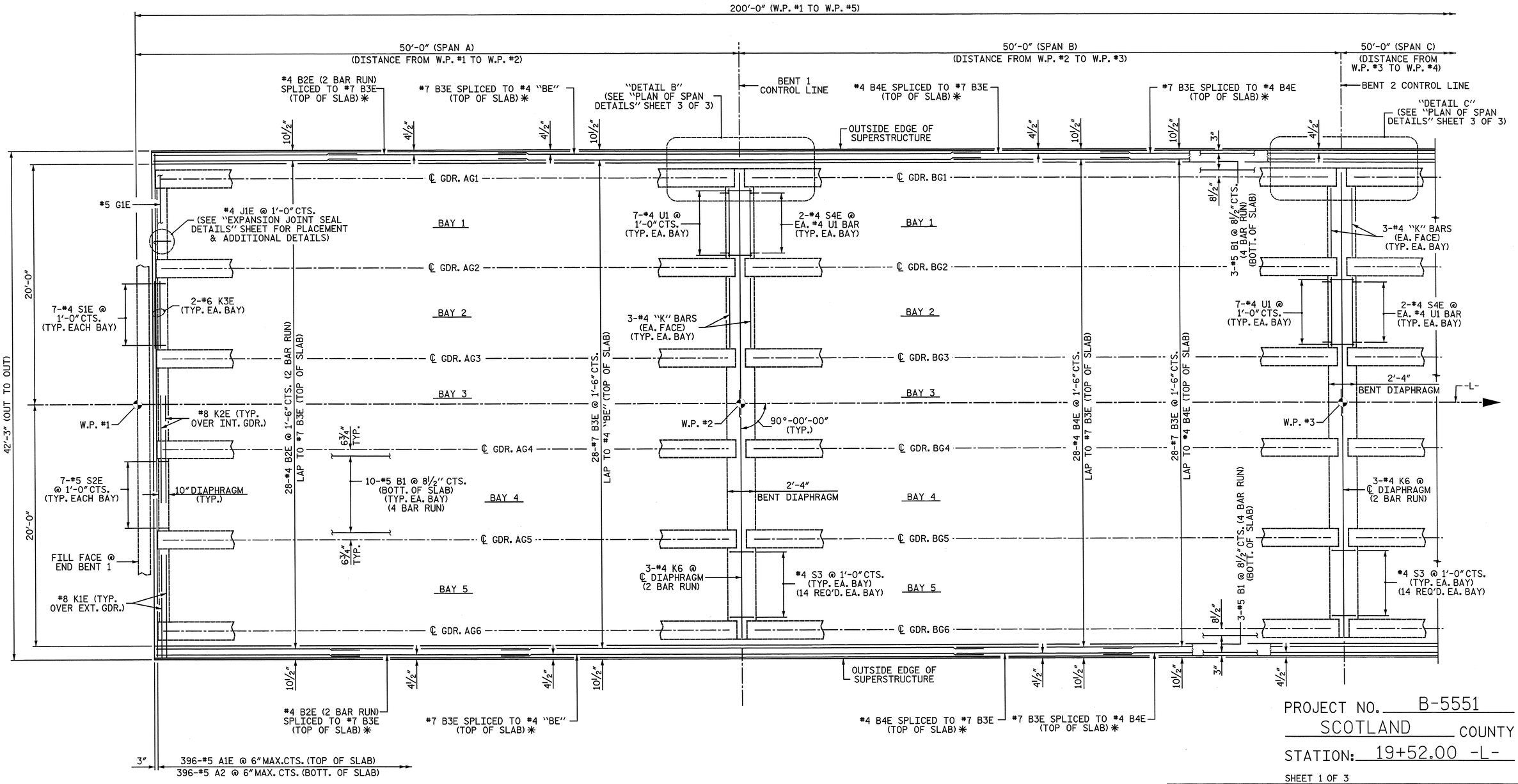
NOTES:

FOR POUR SEQUENCE AND LOCATION OF CONSTRUCTION JOINTS, SEE SUPERSTRUCTURE "BILL OF MATERIAL" SHEET.



SPAN A SPAN B

PLAN OF SPANS

✳ SEE "TYPICAL SECTION" SHEET 2 OF 3 FOR PLACEMENT.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPANS

SPANS A & B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			TOTAL SHEETS
2			4			43

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CHECKED BY : S. A. DENNEY DATE : 2-5-13

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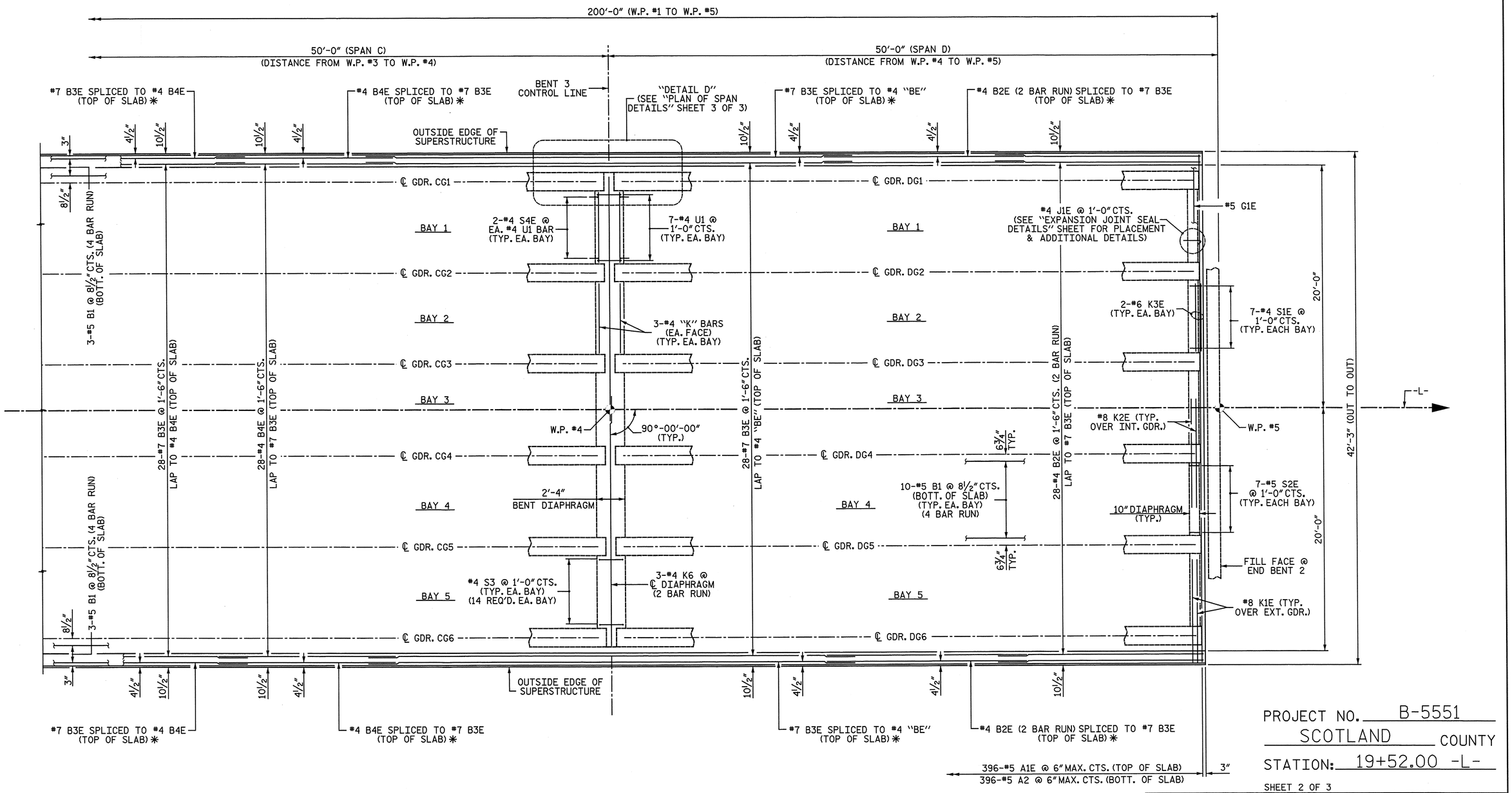
NOTES:

FOR POUR SEQUENCE AND LOCATION OF CONSTRUCTION JOINTS, SEE SUPERSTRUCTURE "BILL OF MATERIAL" SHEET.



SPAN C SPAN D

PLAN OF SPANS

* SEE "TYPICAL SECTION" SHEET 2 OF 3 FOR PLACEMENT.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS

SPANS C & D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	10
1			3			TOTAL SHEETS
2			4			43

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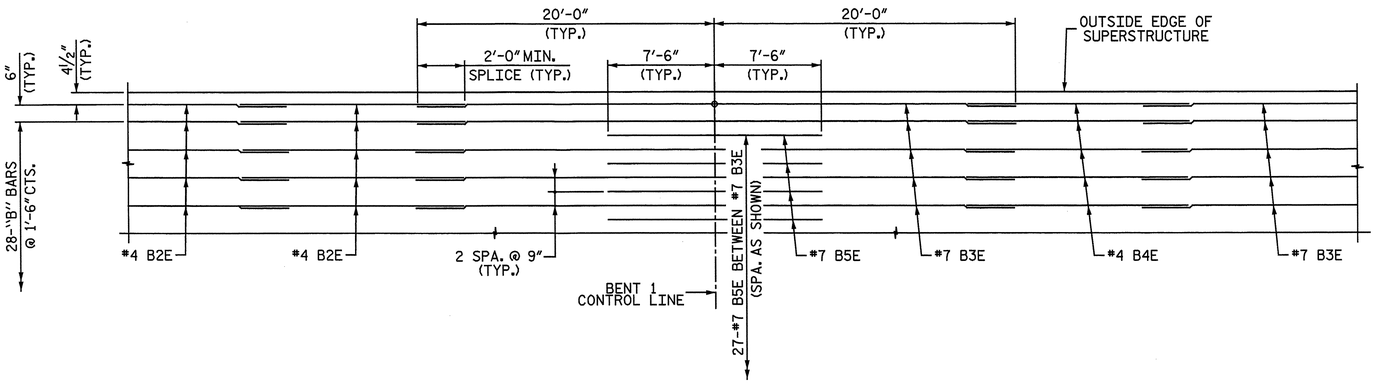
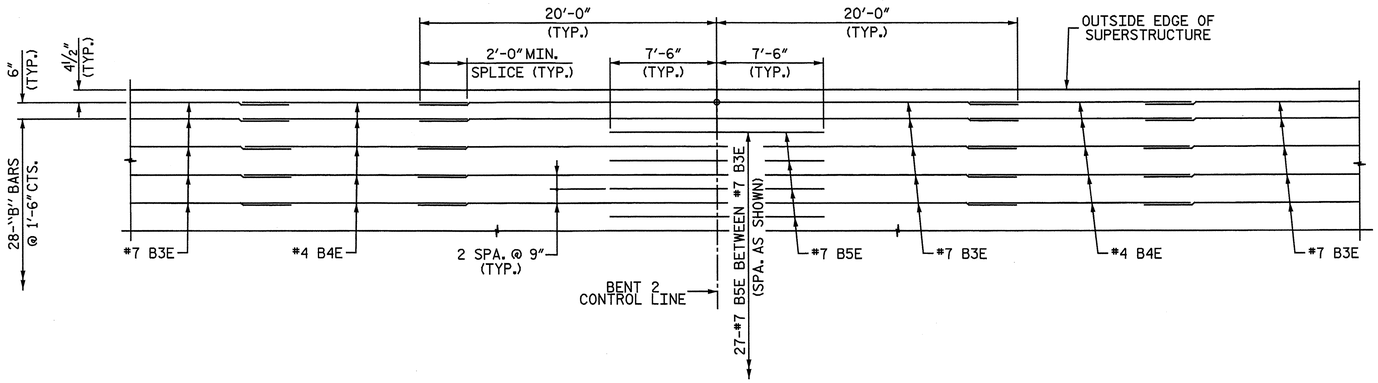
NOTES:

FOR POUR SEQUENCE AND LOCATION OF CONSTRUCTION JOINTS, SEE SUPERSTRUCTURE "BILL OF MATERIAL" SHEET.



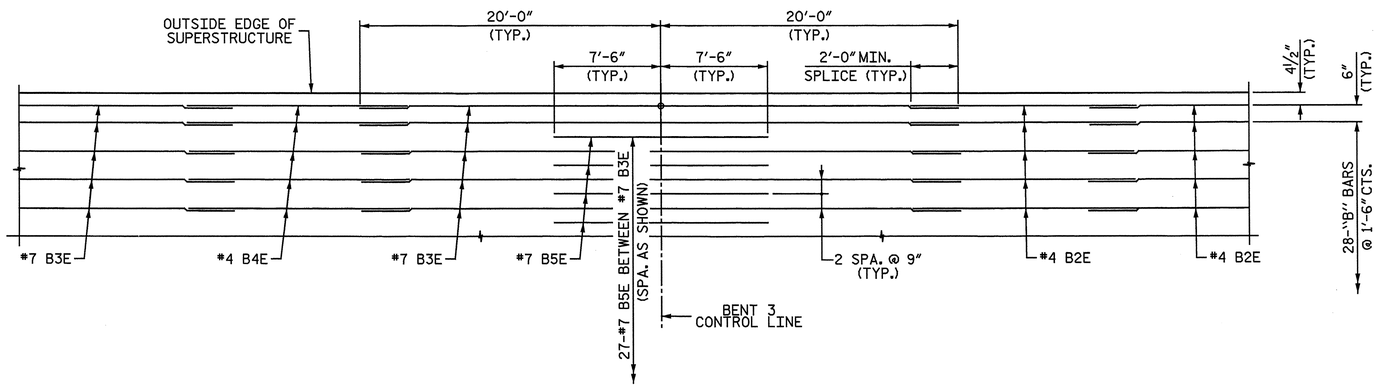
DETAIL B

(TOP OF SLAB REINFORCING STEEL OVER BENT 1 SHOWN)



DETAIL C

(TOP OF SLAB REINFORCING STEEL OVER BENT 2 SHOWN)



DETAIL D

(TOP OF SLAB REINFORCING STEEL OVER BENT 3 SHOWN)

LONGITUDINAL REINFORCEMENT LAYOUT OVER BENTS

(TOP OF SLAB REINFORCING STEEL SHOWN IS SYMMETRICAL ABOUT BRIDGE CENTERLINE)

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 3 OF 3

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6/6/13

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RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	11
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-7-13

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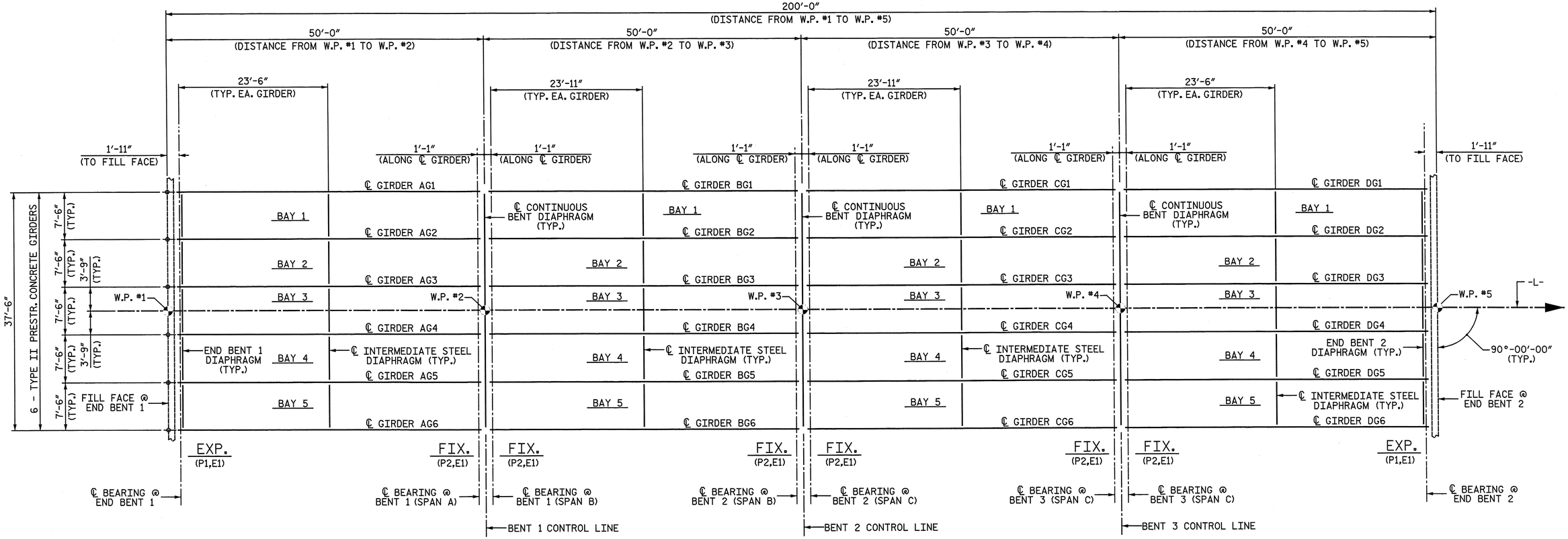
NOTE:

FOR STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE II PRESTRESSED CONCRETE GIRDERS", SHEET 6 OF 6.



FRAMING PLAN

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

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04/02/13

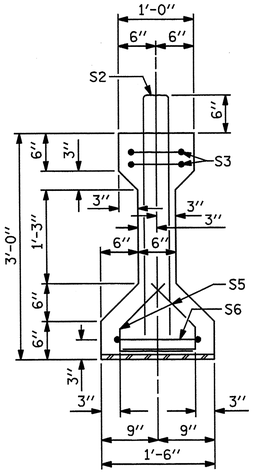
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

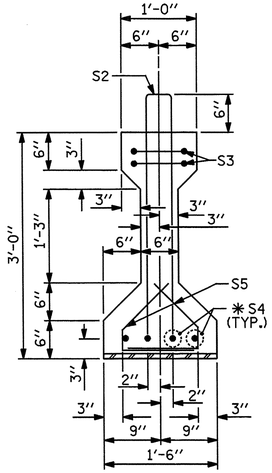
FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	12
1			3			TOTAL SHEETS
2			4			43

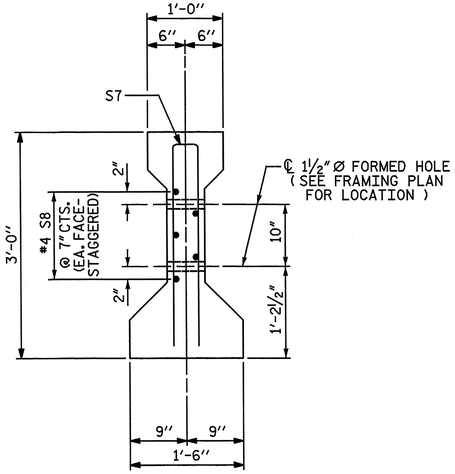
DRAWN BY : J. N. AUSTIN DATE : 1-17-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13



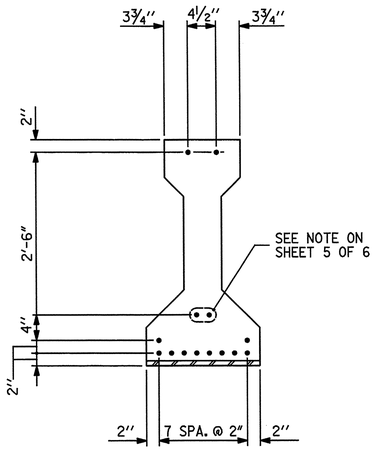
SECTION A-A



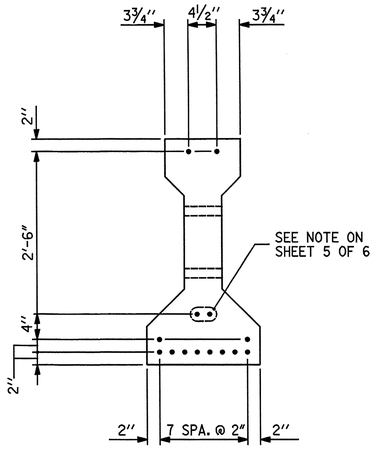
SECTION B-B



SECTION C-C
(S1 BARS NOT SHOWN)

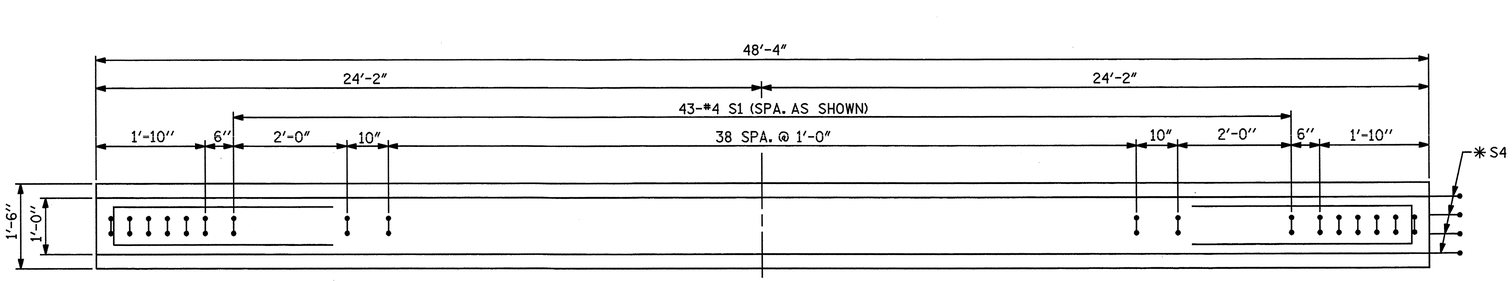


AT END OF GIRDER

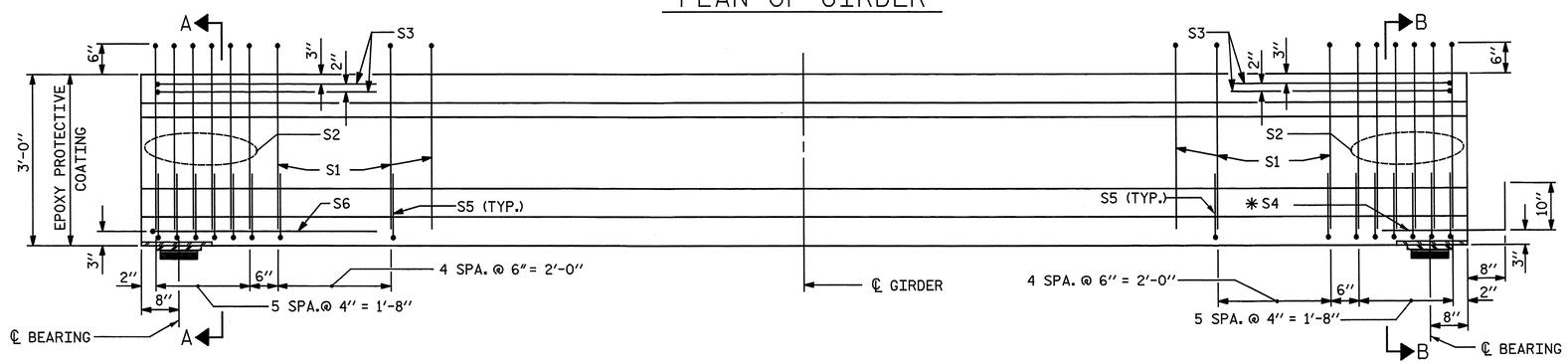


AT ℄ OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

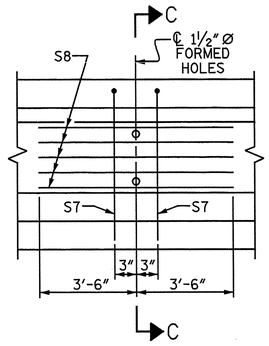


PLAN OF GIRDER



EXP. FIX

ELEVATION OF GIRDER
(SEE "PARTIAL ELEVATION" FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

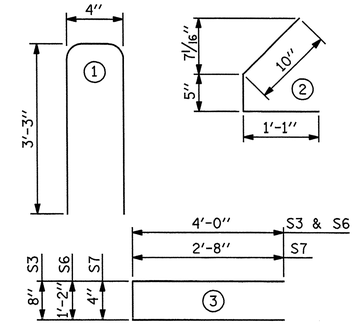
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	43	#4	1	6'-10"	196
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
✱S4	4	#5	STR	3'-8"	15
S5	44	#4	2	2'-4"	69
S6	1	#4	3	9'-2"	6
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

✱NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL LB.	6,000 PSI CONCRETE C.Y.	0.6" Ø L.R. STRANDS No.
EACH GIRDER	430	4.6	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
6	48'-4"	290'-0"

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 6

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13

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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
06/07/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD

SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	13
1			3			TOTAL SHEETS
2			4			43

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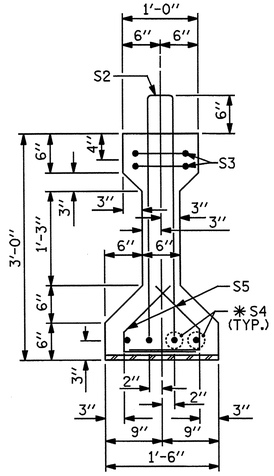
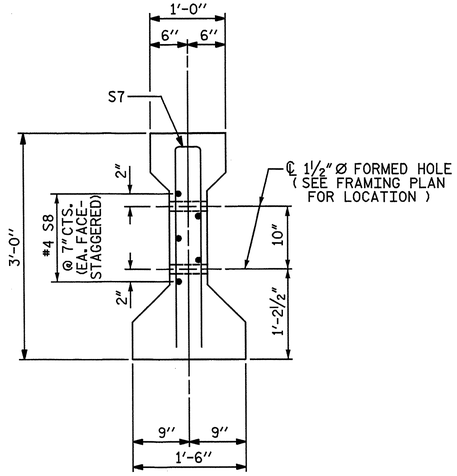
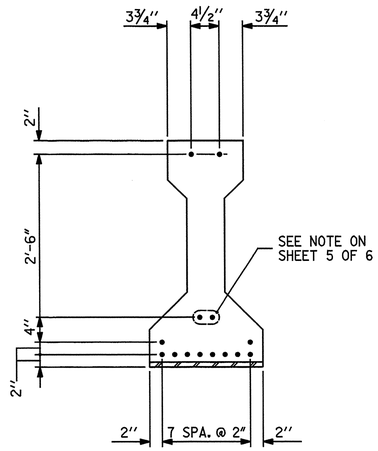


SECTION A-A

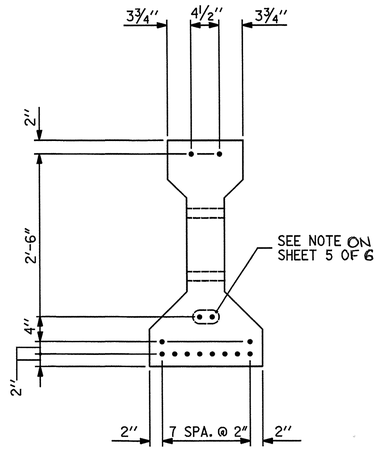


SECTION B-B

(S1 BARS NOT SHOWN)

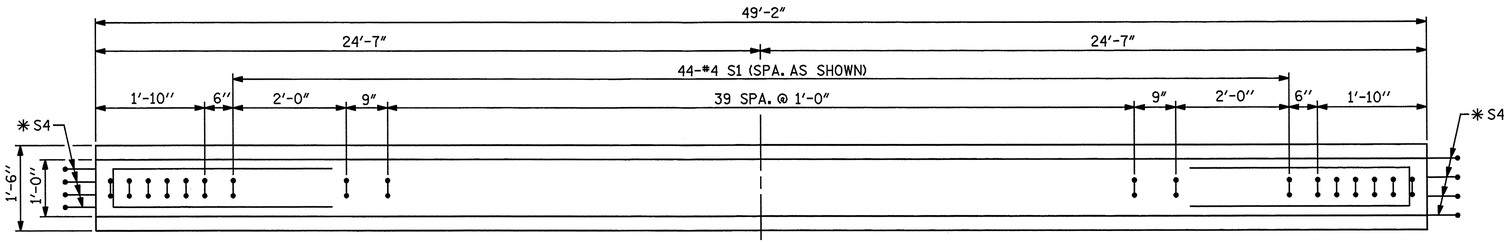


AT END OF GIRDER

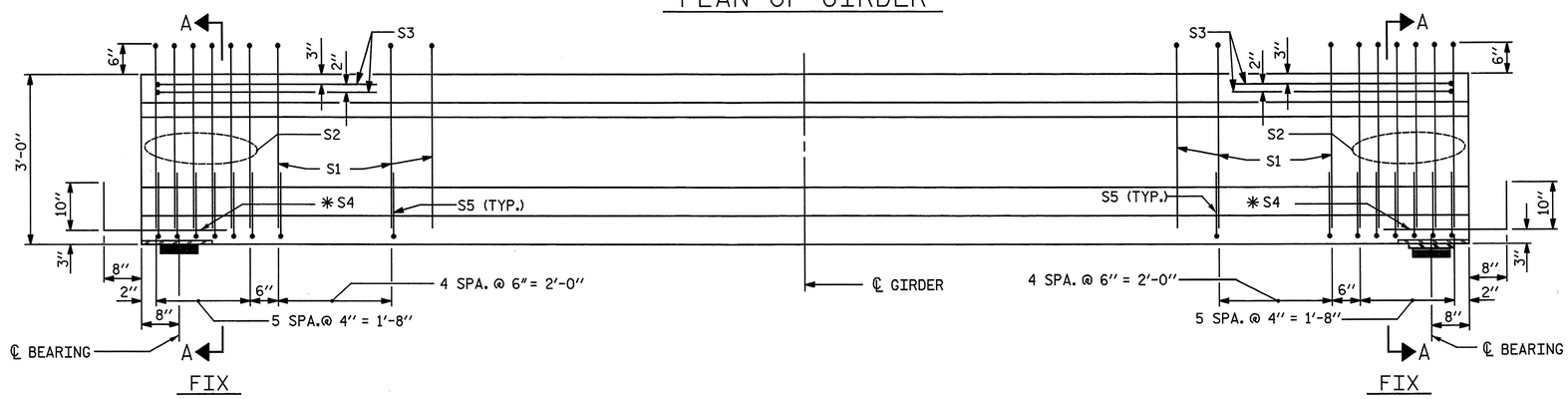


AT ℄ OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT

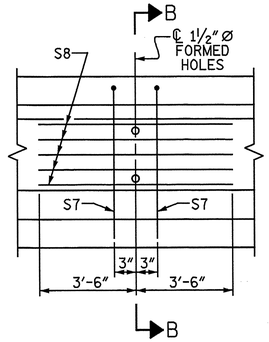


PLAN OF GIRDER



ELEVATION OF GIRDER

(SEE "PARTIAL ELEVATION" FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

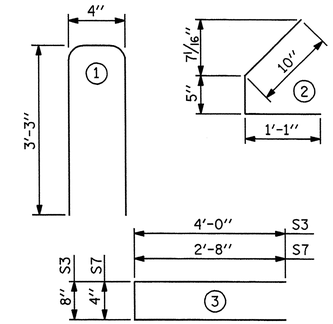
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	44	#4	1	6'-10"	201
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
✱S4	8	#5	STR	3'-8"	31
S5	44	#4	2	2'-4"	69
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

✱NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL LB.	6,000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
EACH GIRDER	445	4.7	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
6	49'-2"	295'-0"

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 6

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6/07/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

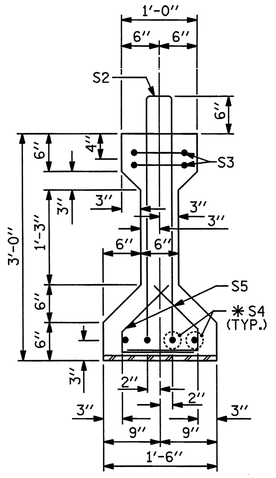
SUPERSTRUCTURE

AASHTO TYPE II PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD

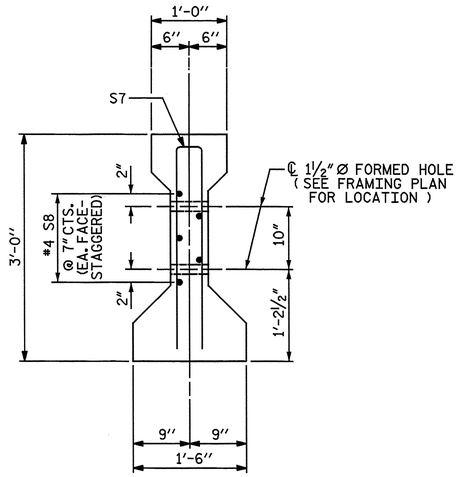
SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	14
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13

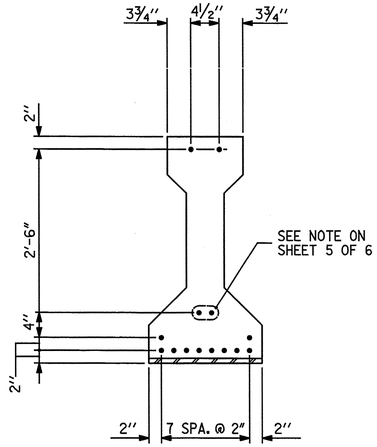


SECTION A-A

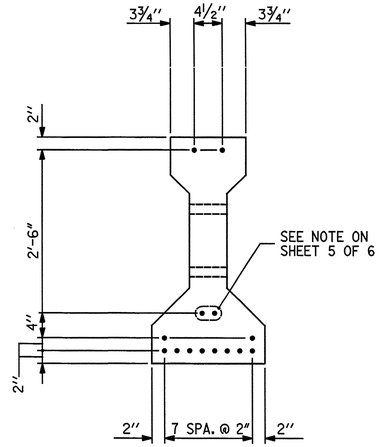


SECTION B-B

(S1 BARS NOT SHOWN)

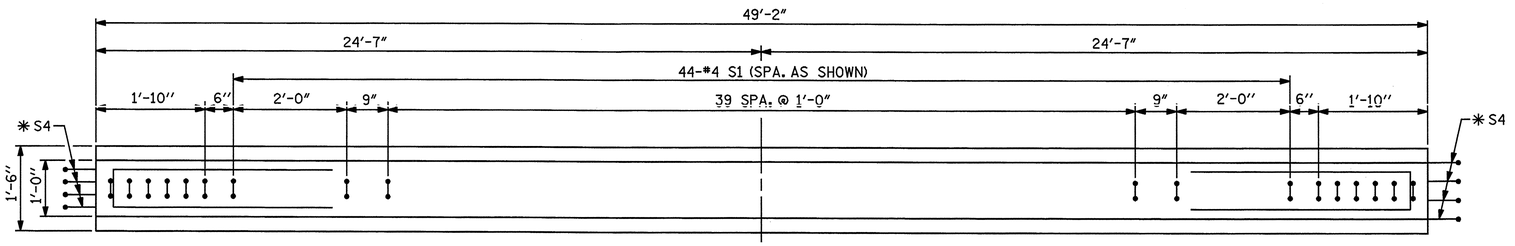


AT END OF GIRDER

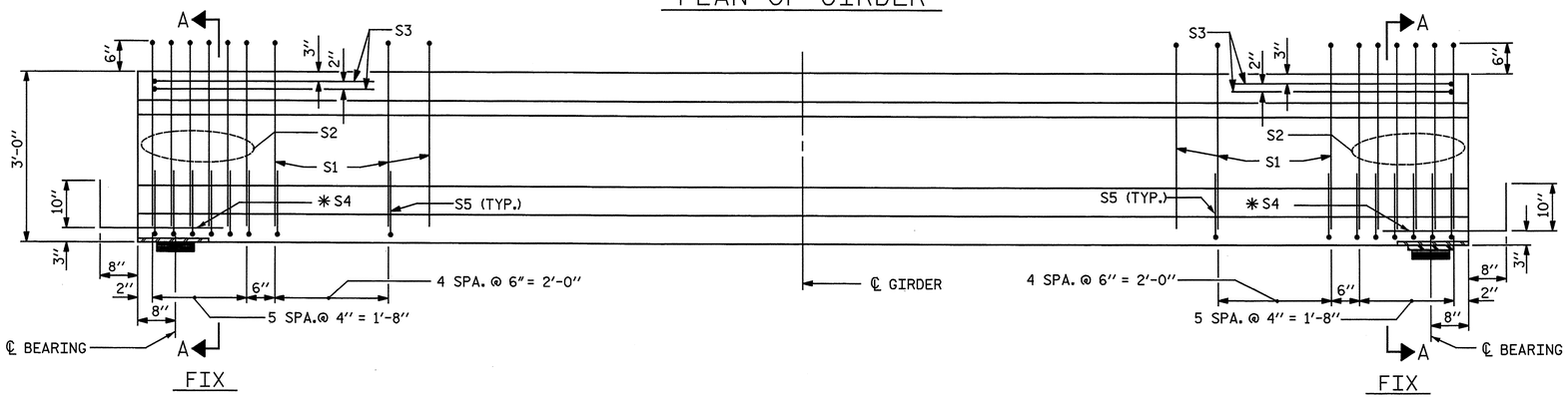


AT ℄ OF GIRDER

0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER

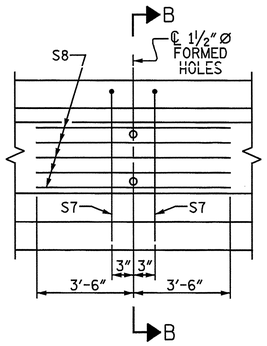


FIX

FIX

ELEVATION OF GIRDER

(SEE "PARTIAL ELEVATION" FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

0.6" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.217	58,600	43,950

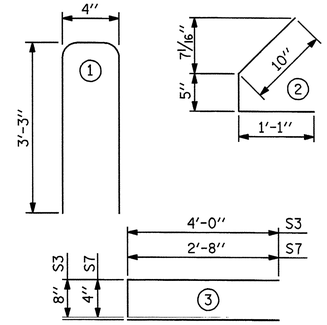
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	44	#4	1	6'-10"	201
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
✱S4	8	#5	STR	3'-8"	31
S5	44	#4	2	2'-4"	69
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

✱NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL LB.	6,000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
EACH GIRDER	445	4.7	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
6	49'-2"	295'-0"

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 3 OF 6

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Cary, North Carolina 27518
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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
6/5/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

AASHTO TYPE II PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD

SPAN C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13

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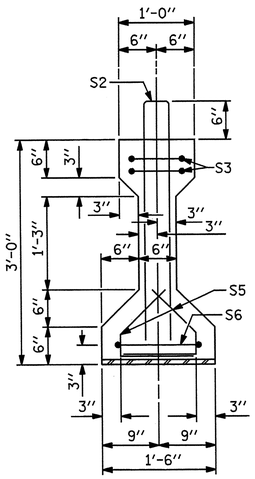
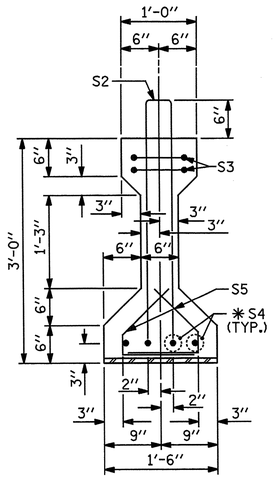
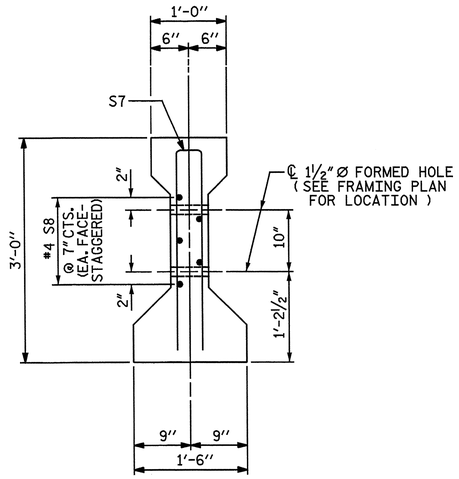


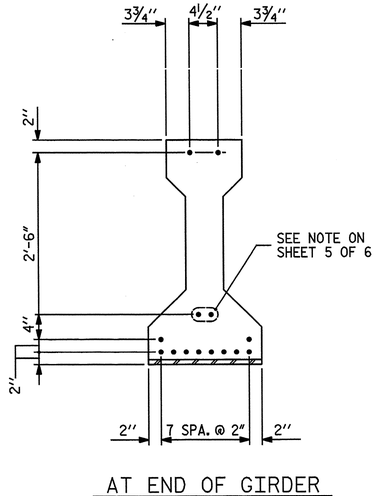
SECTION A-A



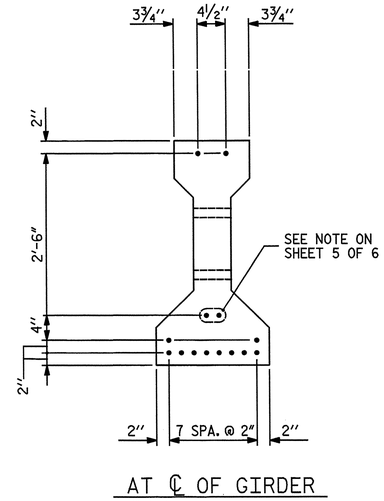
SECTION B-B



SECTION C-C
(S1 BARS NOT SHOWN)

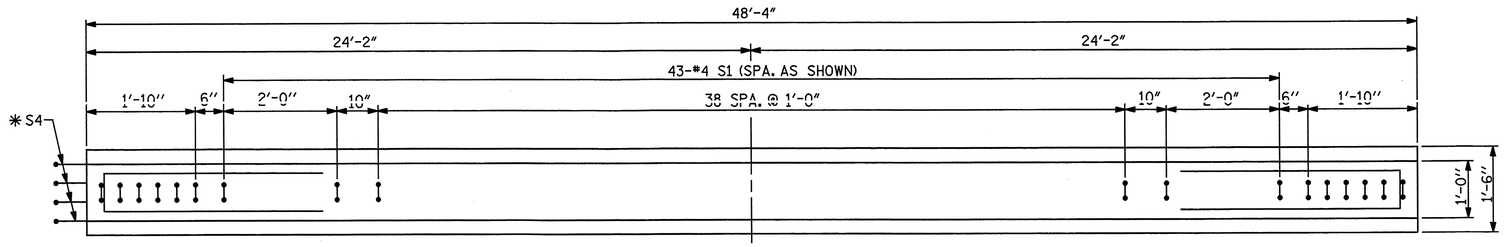


AT END OF GIRDER

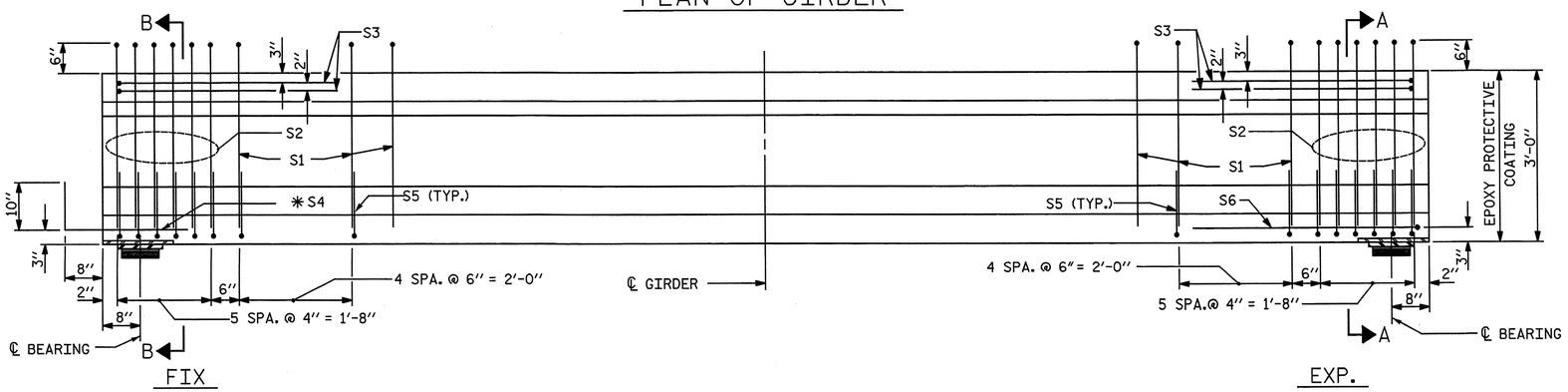


AT ℄ OF GIRDER

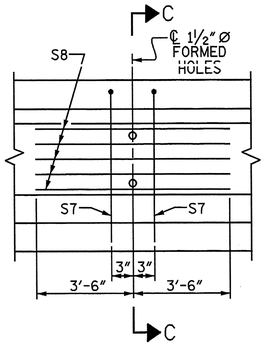
0.6" Ø LOW RELAXATION STRAND LAYOUT



PLAN OF GIRDER



ELEVATION OF GIRDER
(SEE "PARTIAL ELEVATION" FOR ADDITIONAL "S" BARS)



PARTIAL ELEVATION

0.6" Ø L. R. GRADE 270 STRANDS		
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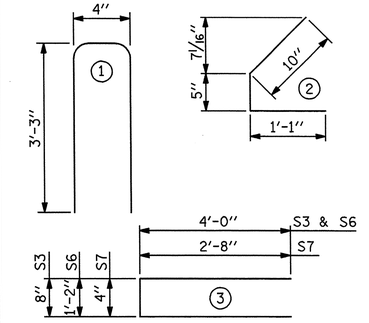
S2	12	#5	1	6'-10"	86
S3	4	#4	3	8'-8"	23
✱S4	4	#5	STR	3'-8"	15
S5	44	#4	2	2'-4"	69
S6	1	#4	3	9'-2"	6
S7	2	#5	3	5'-8"	12
S8	5	#4	STR	7'-0"	23

✱NOTE: S4 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL LB.	6,000 PSI CONCRETE C.Y.	0.6" Ø L. R. STRANDS No.
EACH GIRDER	430	4.6	12

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
6	48'-4"	290'-0"

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 4 OF 6

Baker
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NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
6/5/13

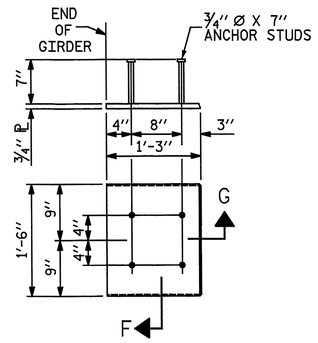
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

AASHTO TYPE II
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	16
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13



EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE II GIRDER

(2 REQ'D PER GIRDER)

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 SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

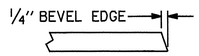
AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5000 PSI.

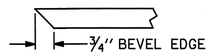
DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

THE TWO STRANDS SHOWN ARE PROVIDED TO FACILITATE TYING OF THE REINFORCING STEEL. THESE STRANDS SHALL BE PULLED TO A LOAD OF 4500 LBS.



SECTION G



SECTION F

(SEE NOTES)

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 5 OF 6

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6/07/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

AASHTO TYPE II

PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	17
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : M. D. MAYHEW DATE : 8-31-12
CHECKED BY : R. F. DeCOLA DATE : 9-10-12

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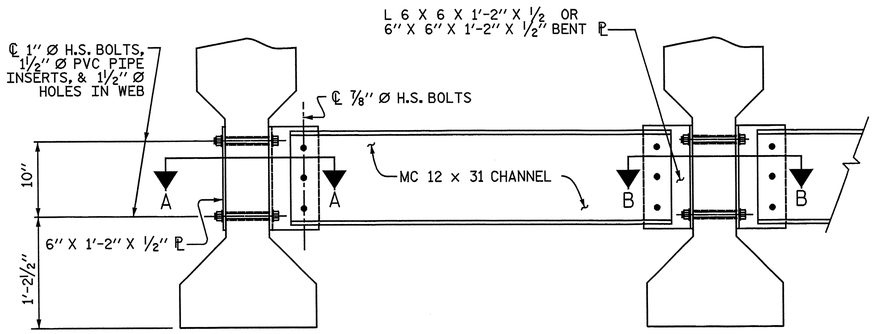
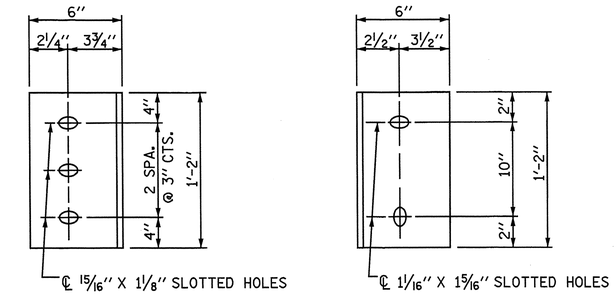


EXTERIOR GIRDER INTERIOR GIRDER

PART SECTION AT INTERMEDIATE DIAPHRAGM



DIAPHRAGM FACE WEB FACE

CONNECTION PLATE DETAILS

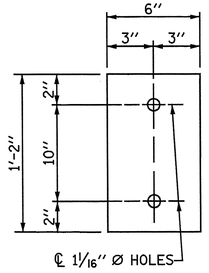
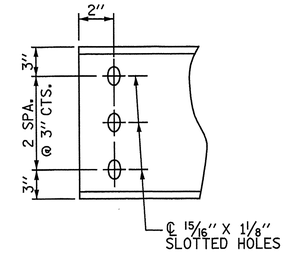
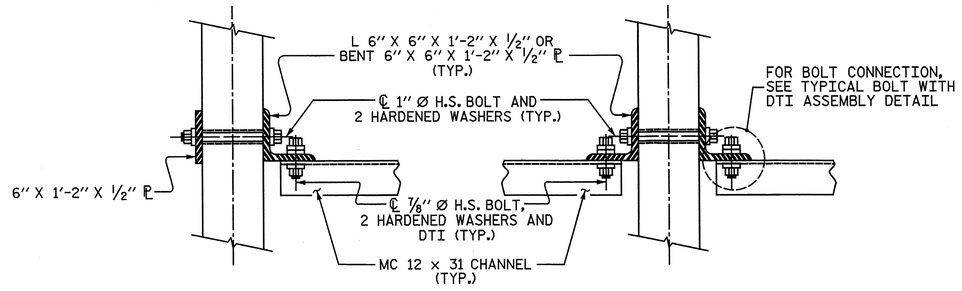


PLATE DETAILS

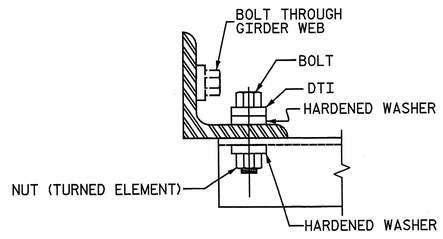


CHANNEL END



SECTION A-A SECTION B-B

CONNECTION DETAILS



BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE ASTM A325 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL 1/4 TURN.

THE PLATES, BENT PLATES, CHANNELS, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY AN 8 MIL THICK 99.99 PERCENT ZINC (W-Zn-1) THERMAL SPRAYED COATING WITH A 0.5 MIL THICK SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST 1/4" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-
SHEET 6 OF 6

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6/6/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE II PRESTRESSED CONCRETE GIRDERS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	18
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 12-12-12
CHECKED BY : S. A. DENNEY DATE : 2-5-13

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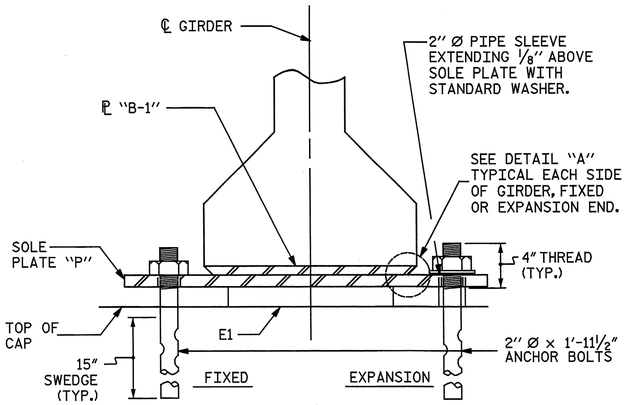

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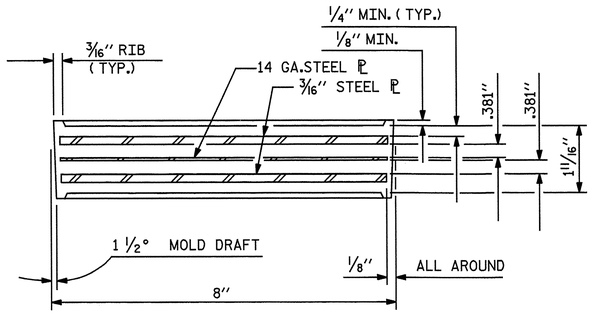
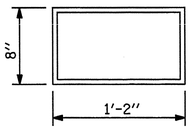


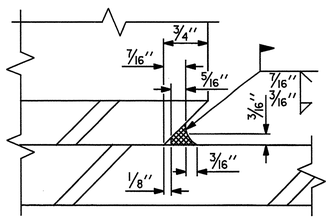
TYPICAL SECTION OF ELASTOMERIC BEARINGS



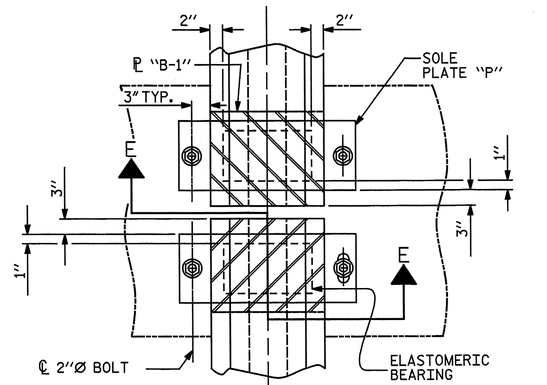
E1 (48 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARINGS

TYPE II

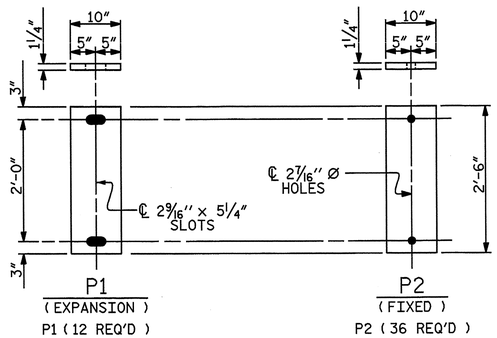


DETAIL A



TYPICAL HALF PLAN (SHOWING CONTINUOUS BENT)

TYPICAL HALF PLAN (SHOWING SIMPLE SPAN BENT)



SOLE PLATE DETAILS ("P")

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE II	145 k

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
04/02/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

ELASTOMERIC BEARING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	19
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13

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6/6/2013 10:22:23 AM
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DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN A

0.6'' Ø LOW RELAXATION STRANDS	GIRDER AG1 & AG6										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.009	0.019	0.027	0.031	0.033	0.031	0.027	0.019	0.009	0.000
FINAL CAMBER (IN.) ↑	0	1/4″	7/16″	1/2″	9/16″	9/16″	9/16″	1/2″	7/16″	1/4″	0

0.6'' Ø LOW RELAXATION STRANDS	GIRDER AG2 THRU AG5										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.011	0.023	0.033	0.039	0.041	0.039	0.033	0.023	0.011	0.000
FINAL CAMBER (IN.) ↑	0	3/16″	3/8″	7/16″	1/2″	1/2″	1/2″	7/16″	3/8″	3/16″	0

SPAN B

0.6'' Ø LOW RELAXATION STRANDS	GIRDER BG1 & BG6										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.009	0.019	0.027	0.031	0.033	0.031	0.027	0.019	0.009	0.000
FINAL CAMBER (IN.) ↑	0	1/4″	7/16″	1/2″	9/16″	9/16″	9/16″	1/2″	7/16″	1/4″	0

0.6'' Ø LOW RELAXATION STRANDS	GIRDER BG2 THRU BG5										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.011	0.023	0.033	0.039	0.041	0.039	0.033	0.023	0.011	0.000
FINAL CAMBER (IN.) ↑	0	3/16″	3/8″	7/16″	1/2″	1/2″	1/2″	7/16″	3/8″	3/16″	0

✳INCLUDES FUTURE WEARING SURFACE.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 2

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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
6/6/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER DEFLECTIONS AND CAMBER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	20
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 1-17-13
CHECKED BY : S. A. DENNEY DATE : 2-22-13

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN C

0.6'' Ø LOW RELAXATION STRANDS	GIRDER CG1 & CG6										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.009	0.019	0.027	0.031	0.033	0.031	0.027	0.019	0.009	0.000
FINAL CAMBER (IN.) ↑	0	1/4″	7/16″	1/2″	9/16″	9/16″	9/16″	1/2″	7/16″	1/4″	0

0.6'' Ø LOW RELAXATION STRANDS	GIRDER CG2 THRU CG5										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.011	0.023	0.033	0.039	0.041	0.039	0.033	0.023	0.011	0.000
FINAL CAMBER (IN.) ↑	0	3/16″	3/8″	7/16″	1/2″	1/2″	1/2″	7/16″	3/8″	3/16″	0

SPAN D

0.6'' Ø LOW RELAXATION STRANDS	GIRDER DG1 & DG6										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.009	0.019	0.027	0.031	0.033	0.031	0.027	0.019	0.009	0.000
FINAL CAMBER (IN.) ↑	0	1/4″	7/16″	1/2″	9/16″	9/16″	9/16″	1/2″	7/16″	1/4″	0

0.6'' Ø LOW RELAXATION STRANDS	GIRDER DG2 THRU DG5										
TENTH POINTS BETWEEN BRGS.	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) (FT.) ↑	0.000	0.032	0.056	0.072	0.082	0.085	0.082	0.072	0.056	0.032	0.000
✳DEFLECTION DUE TO SUPERIMPOSED D.L. (FT.) ↓	0.000	0.011	0.023	0.033	0.039	0.041	0.039	0.033	0.023	0.011	0.000
FINAL CAMBER (IN.) ↑	0	3/16″	3/8″	7/16″	1/2″	1/2″	1/2″	7/16″	3/8″	3/16″	0

✳INCLUDES FUTURE WEARING SURFACE.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 2

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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
10/01/13

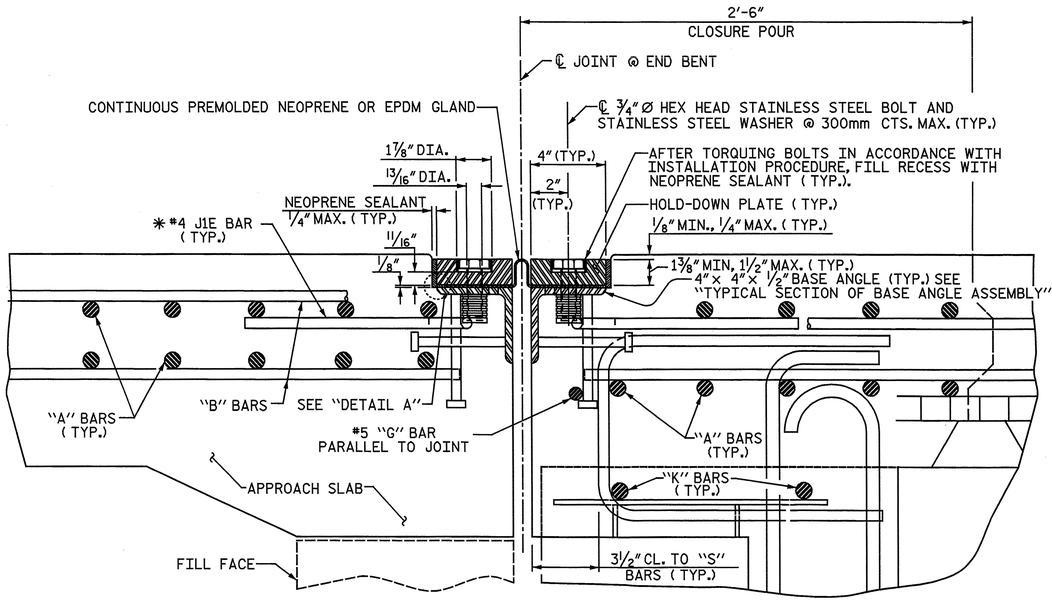
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER DEFLECTIONS AND CAMBER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	21
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 1-17-13
CHECKED BY : S. A. DENNEY DATE : 2-22-13



EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- PRESTRESSED GIRDER SUPERSTRUCTURE

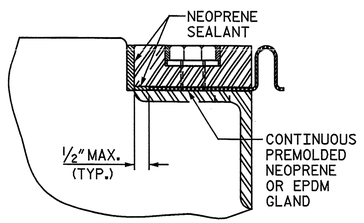
* THE QUANTITY OF #4 J1E BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1E BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF J1E BARS SPECIFIED, ADDITIONAL J1E BARS WILL NOT BE REQUIRED.

INSTALLATION PROCEDURE

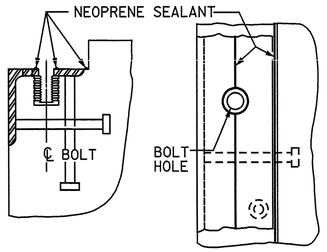
1. A TEMPLATE OR OTHER SUITABLE DEVICE SHALL BE USED TO FORM THE TOP OF THE EXPANSION JOINT SEAL BLOCKOUT TO THE PROPER DEPTH AND WIDTH. THE TEMPLATE SHALL BE 4⅛" TO 4¼" WIDE AND OF SUCH THICKNESS AS TO PROVIDE FOR CORRECT FINAL ELEVATION OF TOP OF HOLD-DOWN PLATES. THE TEMPLATE SHALL BE ATTACHED TO THE BASE ANGLE ASSEMBLY WITH THE ¾" Ø HEX HEAD BOLTS PROVIDED FOR THE HOLD-DOWN PLATES. A 1" Ø HOLE SHALL BE PROVIDED IN THE TEMPLATE CENTERED OVER EACH WEEP HOLE IN THE 4" X 4" X ½" BASE ANGLE. OTHER METHODS OF INSURING DRAINAGE THROUGH WEEP HOLES MAY BE EMPLOYED SUBJECT TO ENGINEER'S APPROVAL.
2. AFTER THE CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE THE TEMPLATE. THOROUGHLY CLEAN THE BOLT HOLES AND THE ANGLE PLATE. REMOVE ANY EXCESS CONCRETE THAT COMES OUT OF THE WEEP HOLES. ANY DAMAGED STEEL SHALL BE COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
3. LAY THE GLAND ON THE BASE ANGLE AND FIELD MARK THE GLAND FOR THE BOLT HOLES. HOLES IN THE GLAND SHALL BE PUNCHED ⅞" IN DIAMETER WITH A HAND PUNCH.
4. IN ORDER TO CHECK FOR PROPER ALIGNMENT, PLACE THE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. DO NOT APPLY NEOPRENE SEALANT. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE BUT DO NOT TIGHTEN. THE ENGINEER SHALL INSPECT THE JOINT SEAL DEVICE FOR PROPER ALIGNMENT.
5. AFTER INSPECTION, REMOVE THE HOLD-DOWN PLATES AND GLAND. APPLY NEOPRENE SEALANT TO THE BASE ANGLE IN ACCORDANCE WITH THE "INSTALLATION SKETCH". PLACE GLAND AND HOLD-DOWN PLATES ON THE BASE ANGLE. BOLT THE HOLD-DOWN PLATES TO THE BASE ANGLE ASSEMBLY AND TORQUE THE BOLTS TO 88 FT-LBS WITH A TORQUE WRENCH. CHECK THE TORQUE AFTER THREE (3) HOURS AND, IF NECESSARY, RETIGHTEN TO 88 FT-LBS. A FINAL CHECK SHALL BE MADE AT SEVEN (7) DAYS. TORQUE SHALL NOT BE LESS THAN 80 FT-LBS AFTER SEVEN (7) DAYS.
6. AFTER PROPER TORQUING, CLEAN THE BOLT HOLE RECESSES AND THE RECESS BETWEEN THE JOINT SEAL DEVICE AND CONCRETE, COMPLETELY FILL THESE RECESSES WITH NEOPRENE SEALANT.

GENERAL NOTES

1. FOR EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.
2. ALL PLATES AND ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL HOLD-DOWN BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL CONFORM TO ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.
3. A PREMOLDED CORRUGATED OR NON-CORRUGATED GLAND SHALL BE USED FOR JOINTS SKEWED BETWEEN 50° THRU 130°. FOR JOINTS SKEWED LESS THAN 50° OR MORE THAN 130°, ONLY A CORRUGATED GLAND SHALL BE USED.
4. CLOSED END FERRULES AND STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
5. SURFACES COMING IN CONTACT WITH NEOPRENE SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
6. UPON COMPLETION OF SHOP FABRICATION, THE HOLD DOWN PLATE AND BASE ANGLE ASSEMBLY, AS SHOWN IN THE " TYPICAL SECTION OF BASE ANGLE ASSEMBLY", SHALL BE METALLIZED. SEE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
7. BASE ANGLE ASSEMBLY SHALL BE CONTINUOUS FOR THE LENGTH OF THE JOINT. AT CROWN BREAKS, THE ENDS OF THE BASE ANGLE ASSEMBLY SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED WELD SHALL BE GROUND SMOOTH AND COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
8. FIELD SPLICES OF HOLD-DOWN PLATES SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. HOLD-DOWN PLATES SHALL NOT EXCEED 20' LENGTHS UNLESS APPROVED BY THE ENGINEER.
9. NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
10. THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE ¾" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

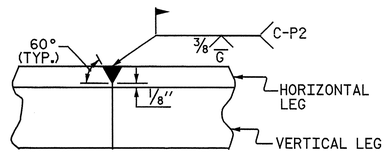


DETAIL A

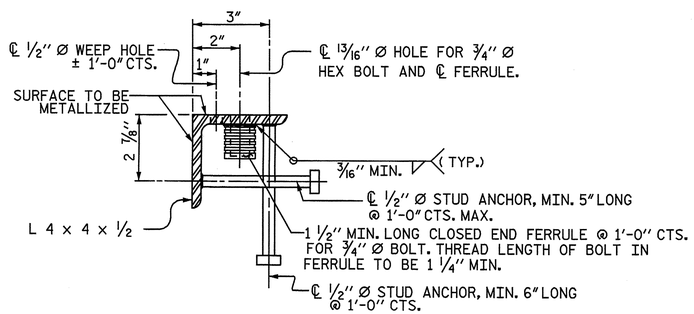


CROSS SECTION PLAN VIEW

INSTALLATION SKETCH



DETAIL- FIELD WELD SPLICE OF BASE ANGLE



TYPICAL SECTION OF BASE ANGLE ASSEMBLY

MOVEMENT AND SETTING AT JOINT					
END BENT NO.	SKEW ANGLE	TOTAL MOVEMENT (ALONG ℄ RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	90°	⅞"	1⅝"	1 1⁄16"	1 3⁄16"
2	90°	⅞"	1⅝"	1 1⁄16"	1 3⁄16"

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-
SHEET 1 OF 3

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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
04/02/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

EXPANSION JOINT SEAL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	22
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13

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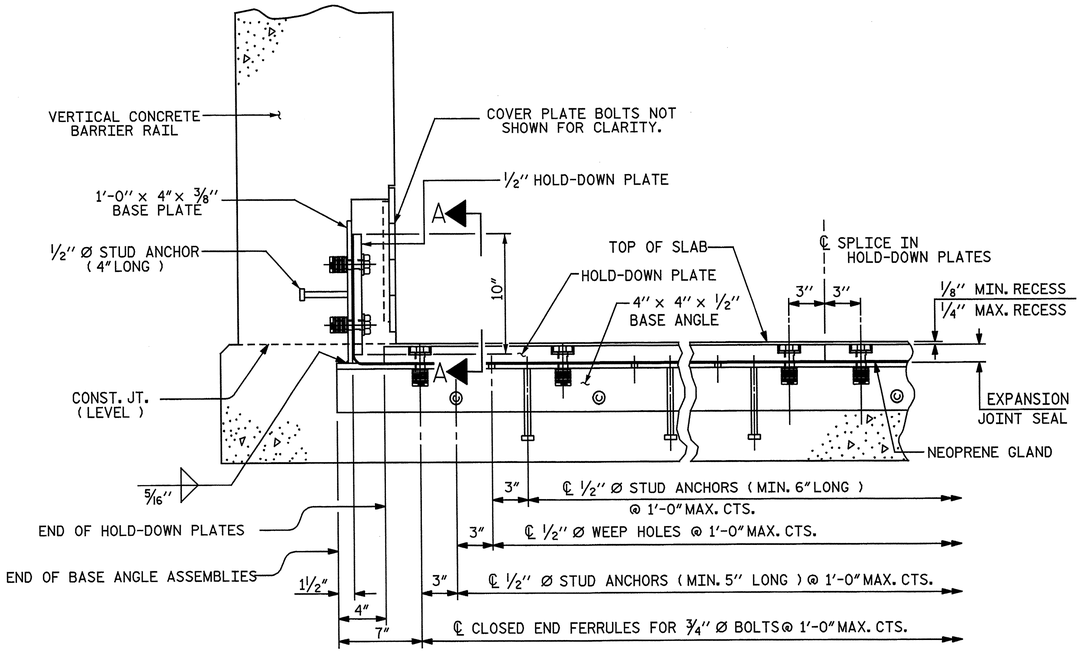
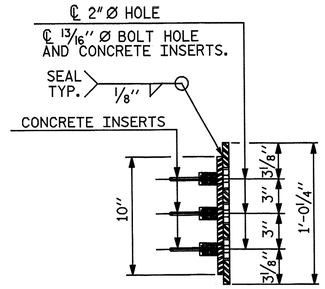
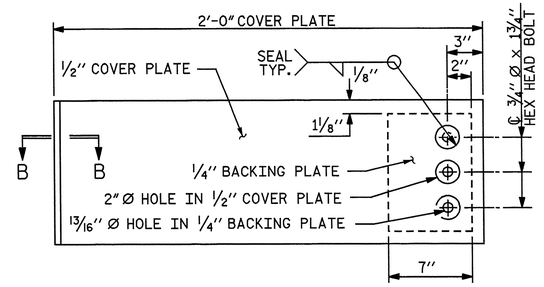
Filename: Y:\Projects\NCDOT\Division On-Call\SEPI\Scotland 18\DWG\Final\Scot_18_02I_SD_EJI.dgn



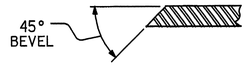
SECTION THRU VERTICAL BARRIER NORMAL TO JOINT



END VIEW

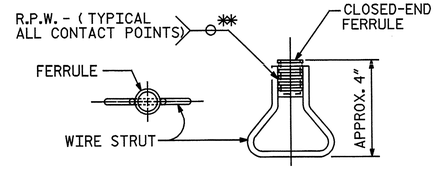


ELEVATION VIEW



SECTION B-B

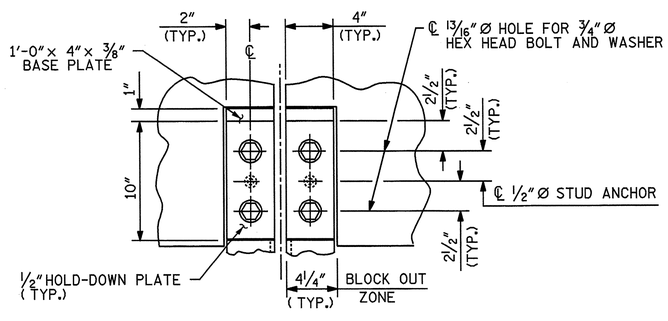
COVER PLATE DETAILS



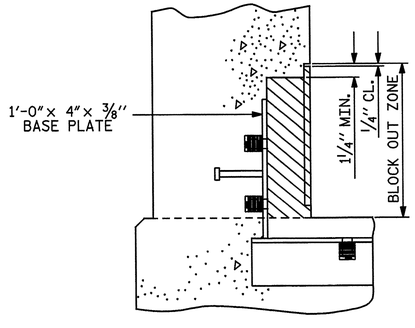
PLAN ELEVATION

CONCRETE INSERT

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



SECTION A - A



BLOCK OUT DETAIL

SEE "SECTION A-A" FOR OTHER DETAILS.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 3

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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
06/07/13

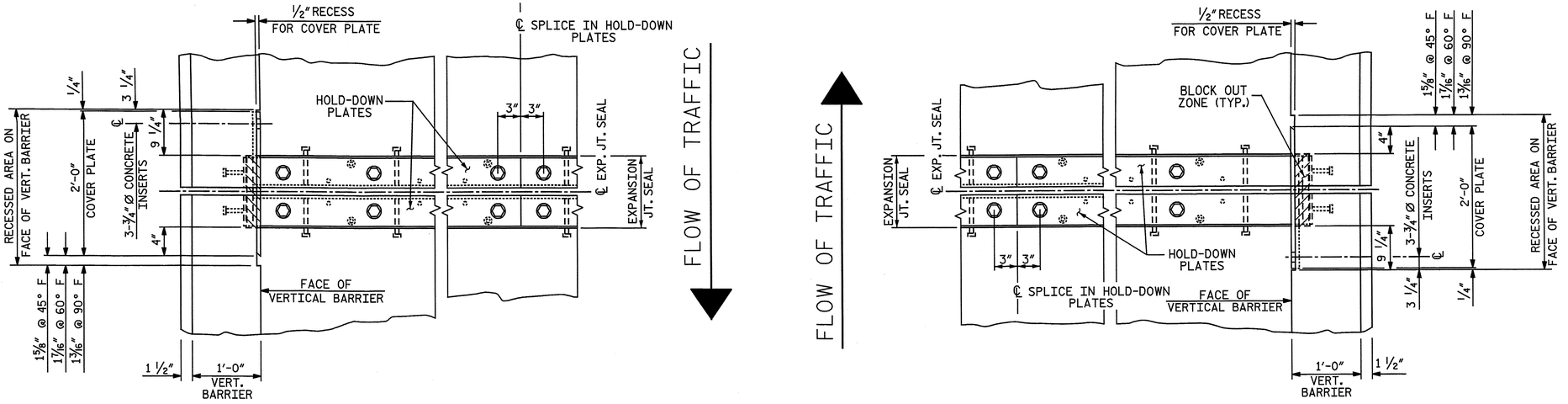
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

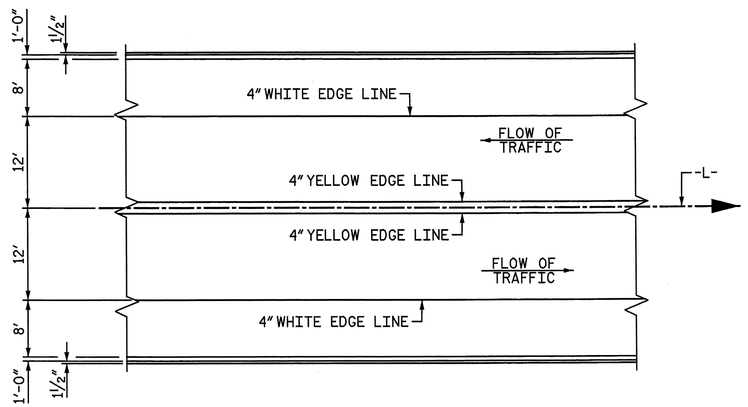
EXPANSION JOINT SEAL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	23
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13



PLAN OF EXPANSION JOINT SEAL



PAVEMENT MARKING ALIGNMENT

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-
SHEET 3 OF 3

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
6/6/13

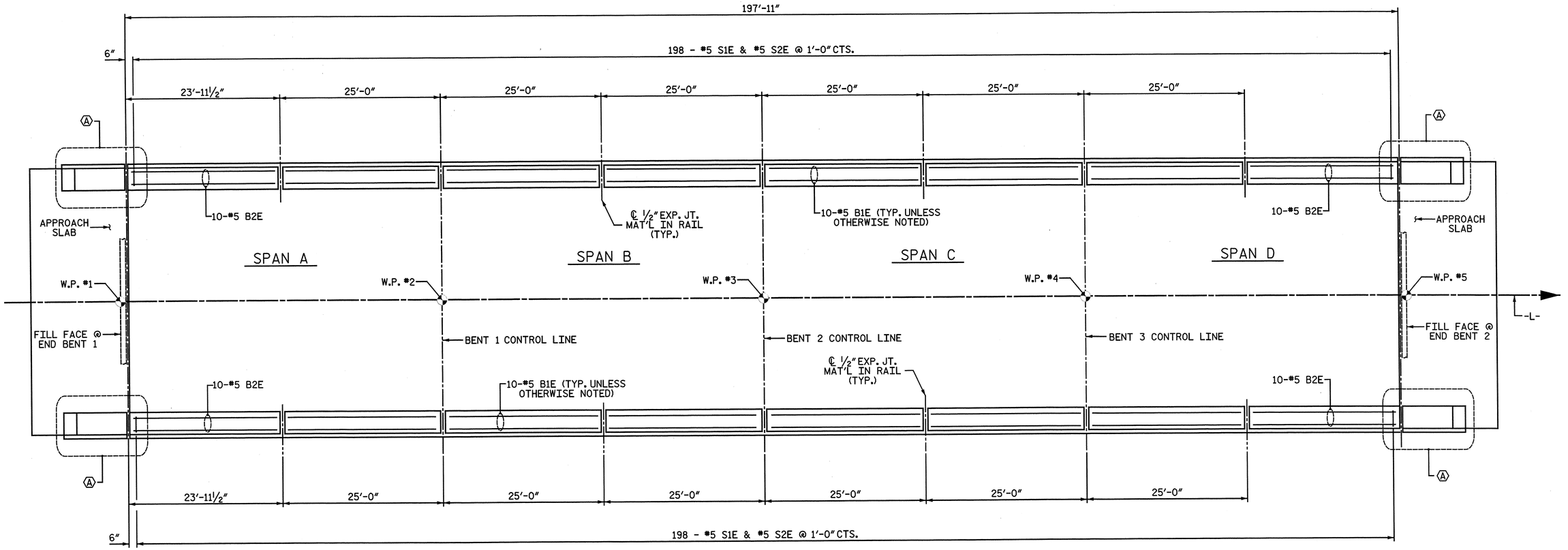
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

EXPANSION JOINT SEAL DETAILS

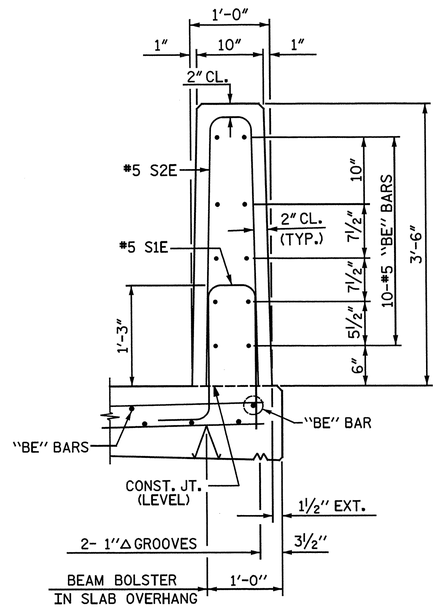
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	24
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-8-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13

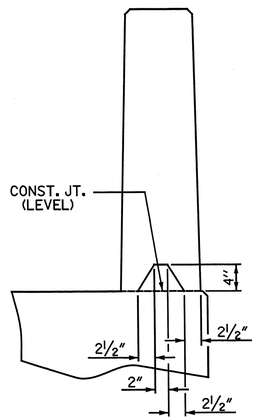


PLAN OF VERTICAL CONCRETE BARRIER RAIL

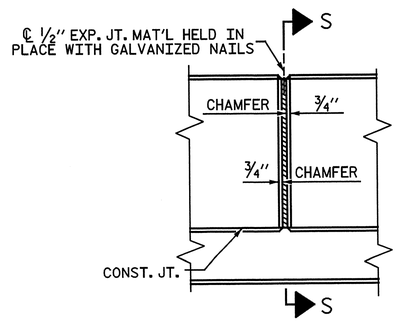
Ⓐ SEE "PLAN OF VERTICAL CONCRETE BARRIER RAIL" DETAILS ON "BRIDGE APPROACH SLAB DETAILS", SHEET 2 OF 3.



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
(OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)

VERTICAL CONCRETE BARRIER RAIL DETAILS

DRAWN BY : N.B.S. / J.N.A. DATE : 11-27-12
CHECKED BY : S. A. DENNEY DATE : 2-25-13

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PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-
SHEET 1 OF 2

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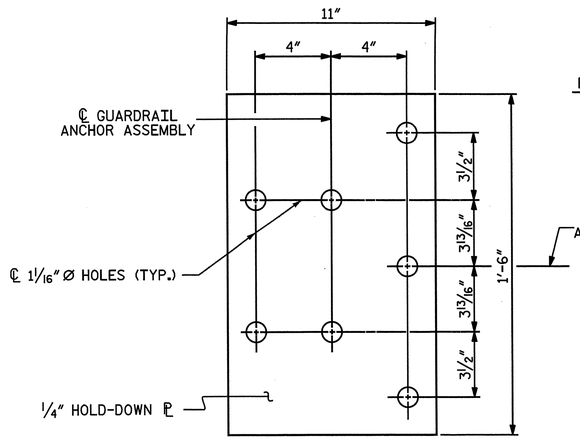
NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
6/24/13

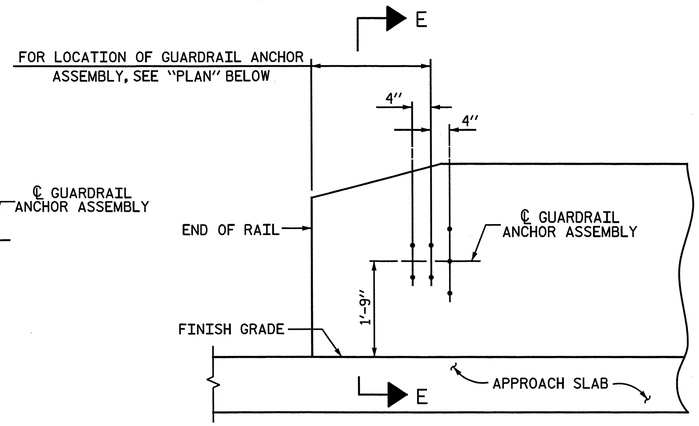
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

VERTICAL CONCRETE BARRIER RAIL

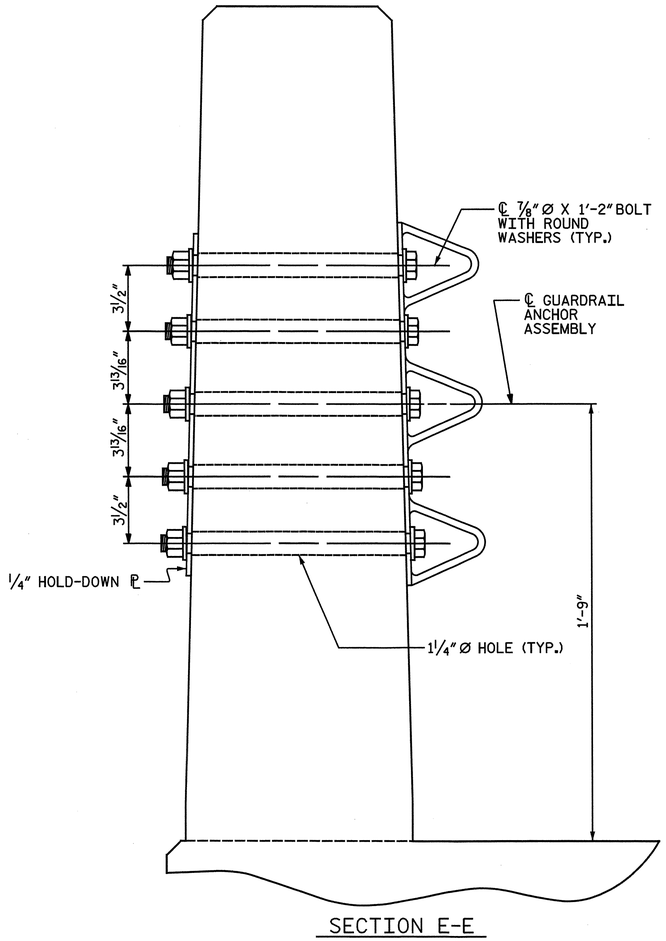
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	25
1			3			TOTAL SHEETS
2			4			43



PLAN



ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES:

THE VERTICAL CONCRETE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

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

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

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

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

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

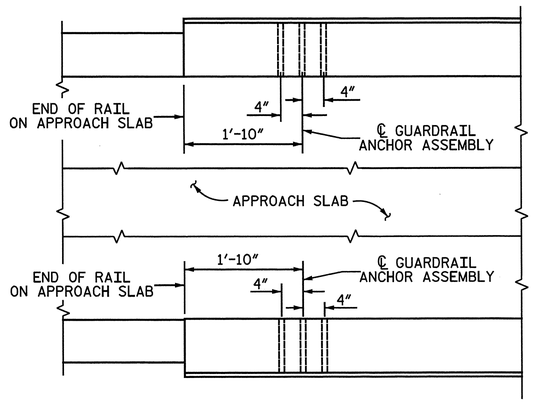
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

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

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

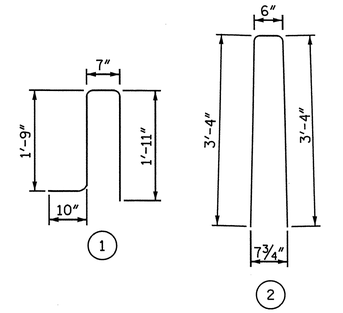


PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

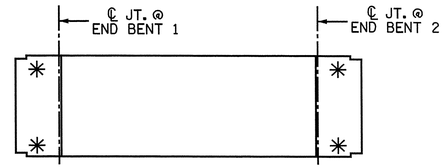
BILL OF MATERIAL

FOR VERTICAL CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1E	120	5	STR	24′ - 7″	3,077
B2E	40	5	STR	23′ - 7″	984
S1E	396	5	1	5′ - 1″	2,100
S2E	396	5	2	7′ - 2″	2,960
EPOXY COATED REINFORCING STEEL				LBS.	9,121
CLASS AA CONCRETE				C.Y.	51.7
▲VERTICAL CONCRETE BARRIER RAIL				LIN. FT.	435.8

"E" SUFFIX DENOTES EPOXY COATED REINFORCING STEEL

▲ LENGTH OF VERTICAL CONCRETE BARRIER RAIL ON APPROACH SLABS ARE INCLUDED IN THIS LENGTH.



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 2

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

VERTICAL CONCRETE BARRIER RAIL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	26
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N.B.S. / J.N.A. DATE : 11-29-12
CHECKED BY : S. A. DENNEY DATE : 2-25-13

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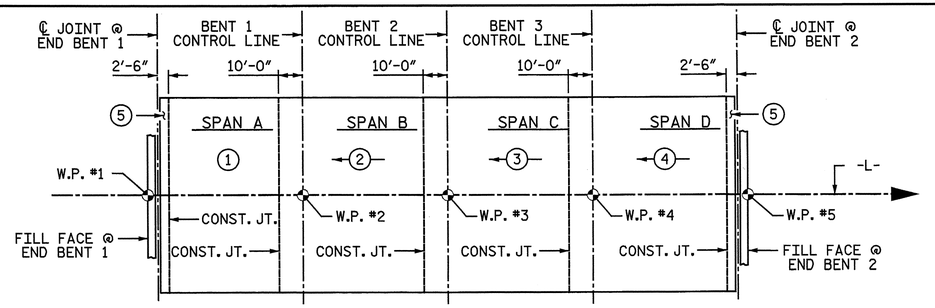
REINFORCING STEEL SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	396	5	STR	41′ - 11″	17,313
A2	396	5	STR	41′ - 11″	17,313
B1	224	5	STR	51′ - 0″	11,915
B2E	120	4	STR	16′ - 4″	1,309
B3E	90	7	STR	40′ - 0″	7,358
B4E	60	4	STR	14′ - 0″	561
B5E	81	7	STR	15′ - 0″	2,483
G1E	2	5	STR	41′ - 11″	87
J1E	84	4	8	1′ - 5″	79
K1E	8	8	2	10′ - 8″	228
K2E	16	8	3	16′ - 11″	723
K3E	20	6	STR	6′ - 2″	185
K4	30	4	STR	4′ - 6″	90
K5	60	4	STR	6′ - 6″	261
K6	18	4	STR	19′ - 8″	236
S1E	70	4	1	2′ - 3″	105
S2E	70	5	4	4′ - 10″	353
S3	210	4	6	2′ - 9″	386
S4E	210	4	7	4′ - 5″	620
U1	105	4	5	7′ - 4″	514
REINFORCING STEEL				LBS.	30,715
EPOXY COATED REINFORCING STEEL				LBS.	31,404
CLASS "AA" CONCRETE				C.Y.	259.1

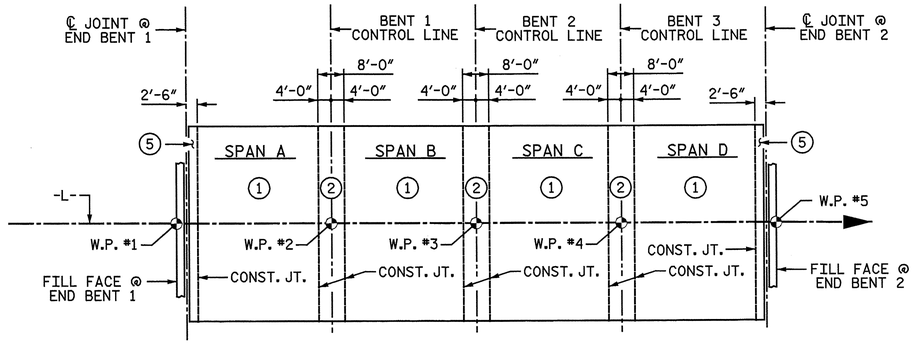
POUR TOTALS

CLASS AA CONCRETE	
	(CU. YDS.)
POUR #1	41.7
POUR #2	66.9
POUR #3	66.9
POUR #4	74.2
POUR #5	9.4
TOTAL	259.1



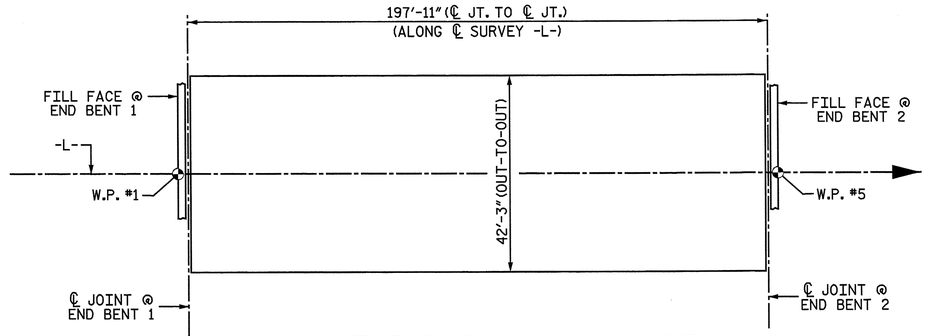
POUR SEQUENCE

(#) DENOTES POUR NUMBER AND DIRECTION



OPTIONAL POURING SEQUENCE

POUR (2) CANNOT BE STARTED UNTIL BOTH ADJACENT (1) POURS REACH A MINIMUM OF 3,000 PSI.



LAYOUT FOR COMPUTING AREA REINFORCED CONCRETE DECK SLAB

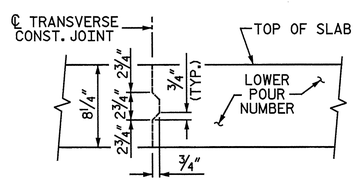
(SQ. FT. = 8,362)

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2′-0″	1′-9″	2′-0″	1′-9″	2′-9″
#5	2′-6″	2′-2″	2′-6″	2′-2″	3′-5″
#6	3′-0″	2′-7″	3′-10″	2′-7″	4′-4″
#7	5′-3″	3′-6″			
#8	6′-10″	4′-7″			

GROOVING BRIDGE FLOORS

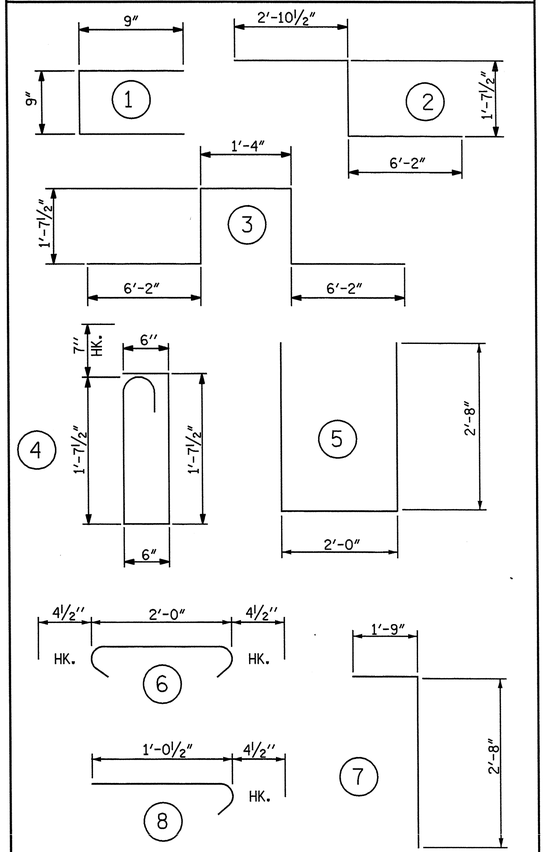
APPROACH SLABS	1,061	SQ.FT.
BRIDGE DECK	7,283	SQ.FT.
TOTAL	8,344	SQ.FT.



TRANSVERSE CONSTRUCTION JOINT IN DECK SLAB

REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
SPANS A-D	259.1	30,715	31,404
TOTALS**	259.1	30,715	31,404

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

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DEPARTMENT OF TRANSPORTATION
RALEIGH

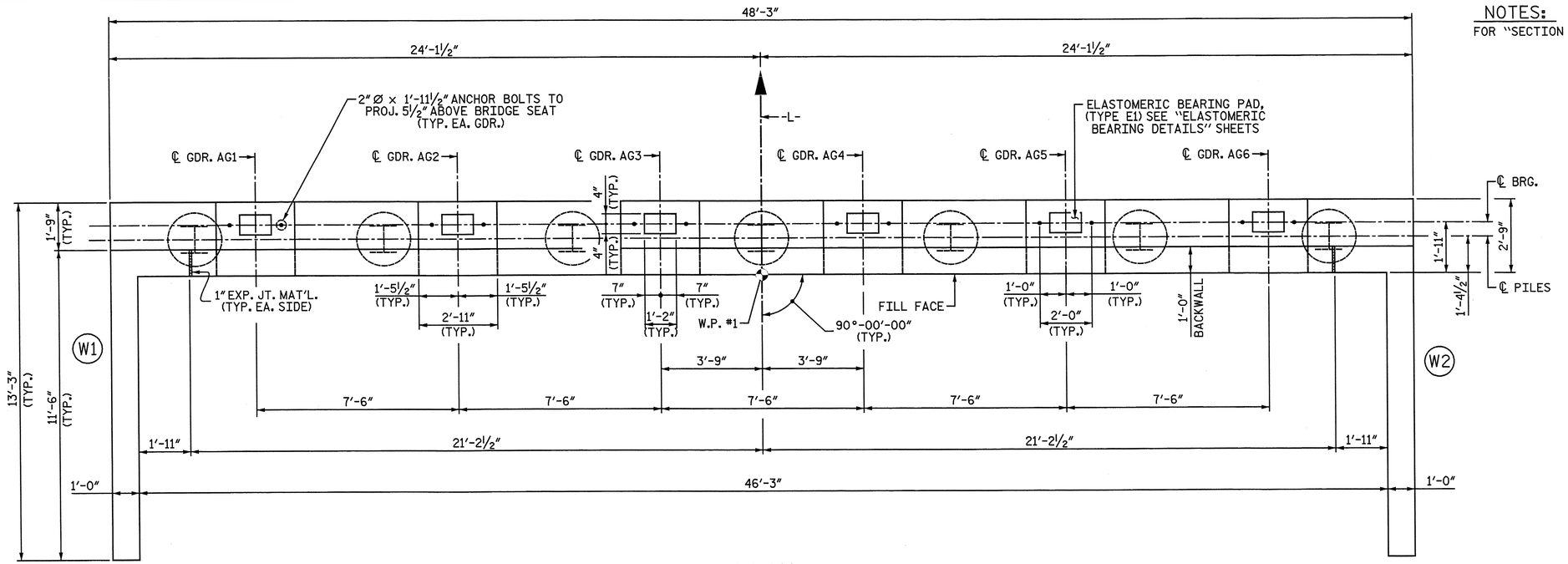
SUPERSTRUCTURE

BILL OF MATERIAL

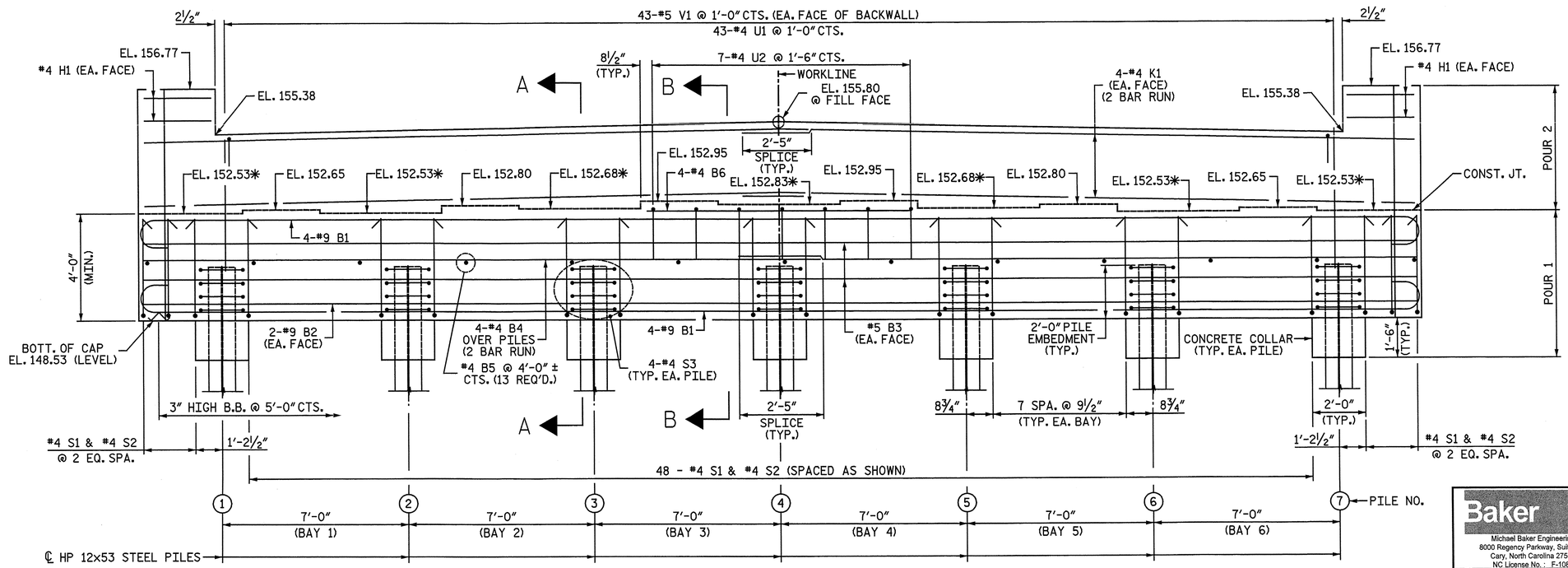
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	27
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : J. N. AUSTIN DATE : 1-22-13
CHECKED BY : S. A. DENNEY DATE : 2-5-13

NOTES:
FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 3 OF 3.



PLAN



ELEVATION

*FOR LOCATION OF ELEVATION BETWEEN BRIDGE SEATS, SEE "SECTION A-A" AND "SECTION B-B" ON SHEET 3 OF 3.

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-

SHEET 1 OF 3

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04/02/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	28
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 1-5-13
CHECKED BY : A. M. HOUSTON DATE : 3-4-13

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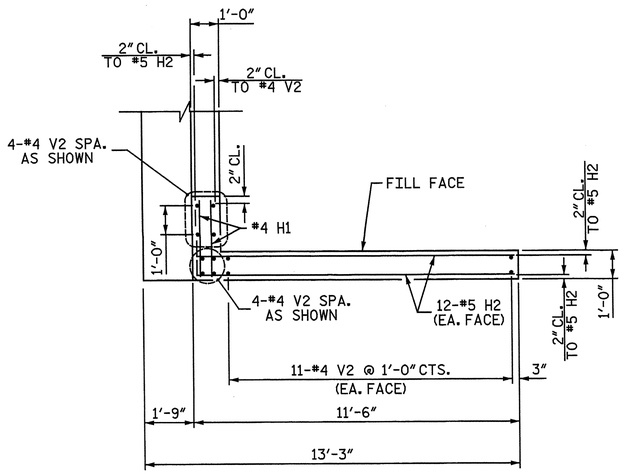
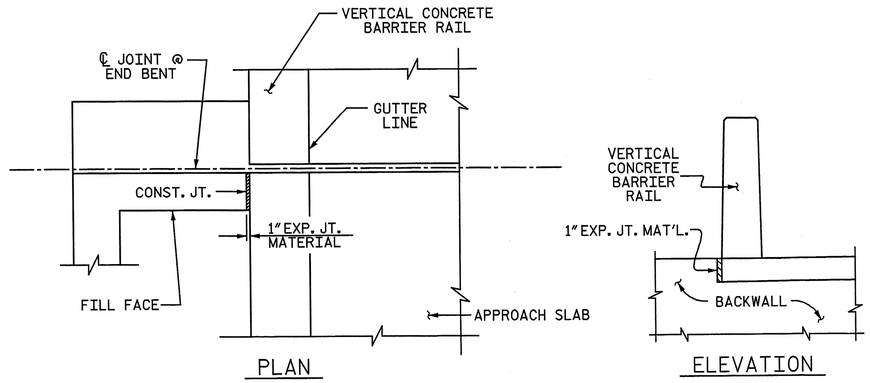
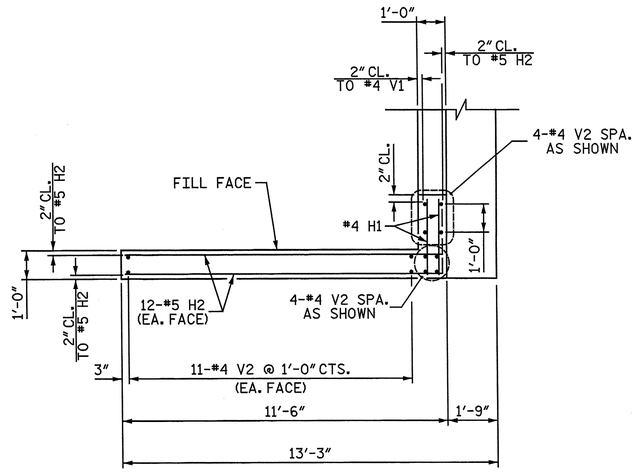


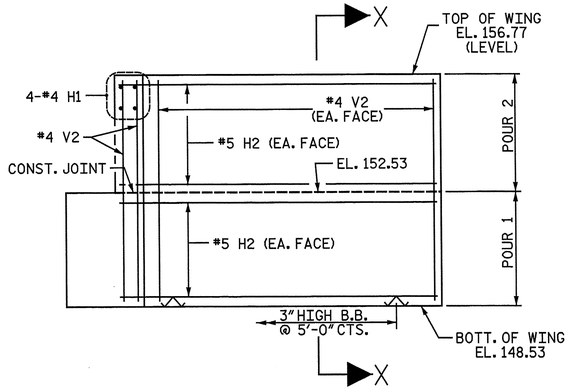
PLAN OF LEFT WING WALL (W1)



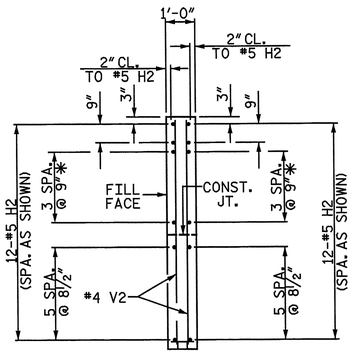
WING WALL DETAIL



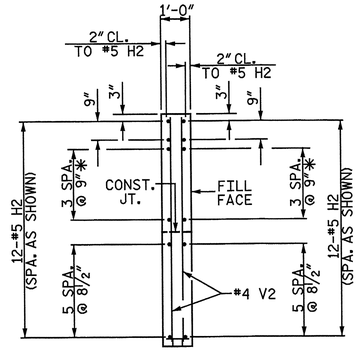
PLAN OF RIGHT WING WALL (W2)



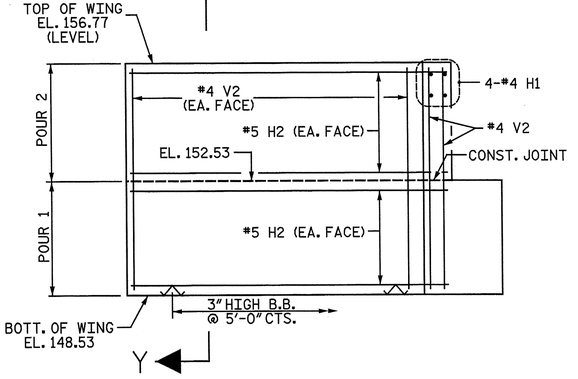
ELEVATION OF LEFT WING WALL (W1)



SECTION X-X



SECTION Y-Y



ELEVATION OF RIGHT WING WALL (W2)

*MATCH H2 BARS TO K1 BARS IN BACKWALL

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 WING WALL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	29
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 2-22-13
CHECKED BY : A. M. HOUSTON DATE : 3-4-13

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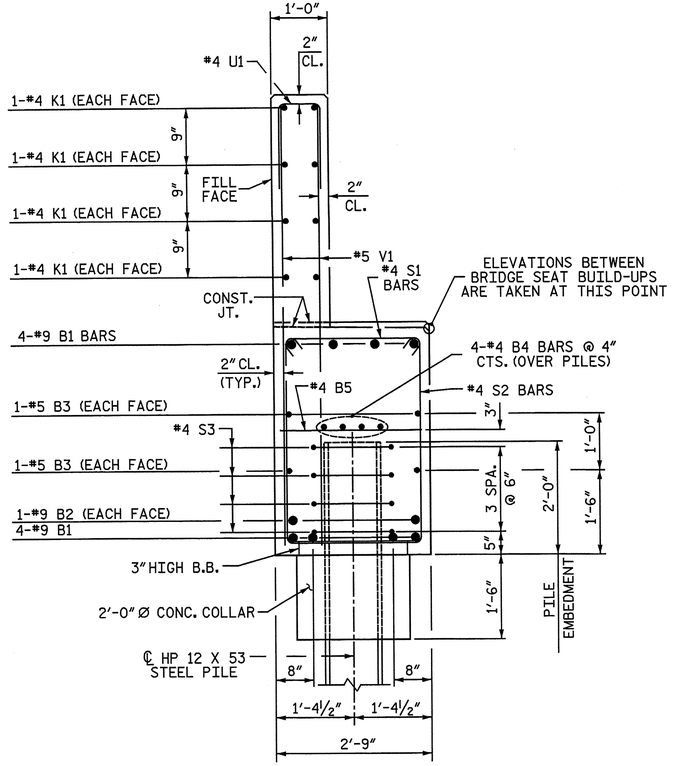
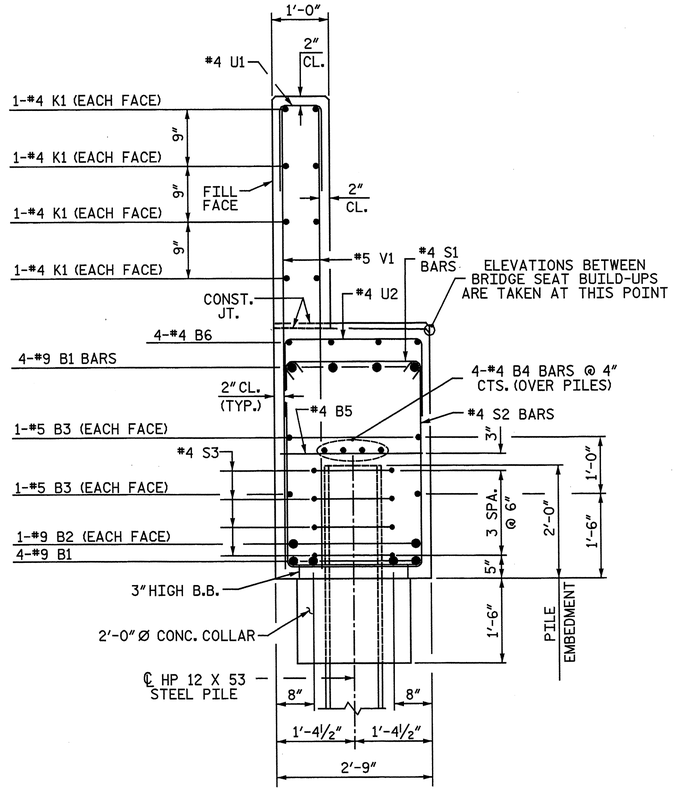
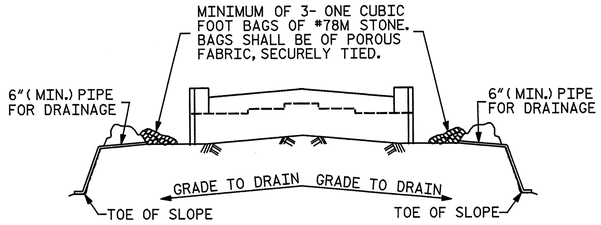


SECTION A-A



SECTION B-B

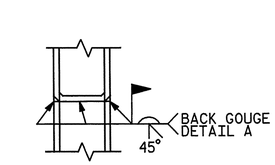


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

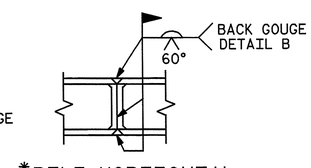
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

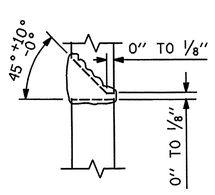
TEMPORARY DRAINAGE AT END BENT



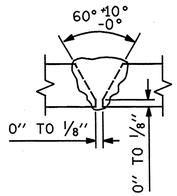
*PILE VERTICAL



*PILE HORIZONTAL OR VERTICAL



DETAIL A

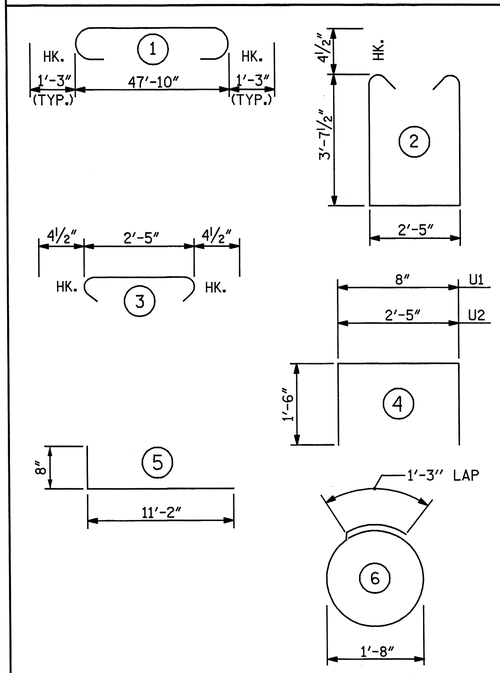


DETAIL B

PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	50' - 4"	1,369
B2	2	9	STR	47' - 11"	326
B3	4	5	STR	47' - 11"	200
B4	8	4	STR	25' - 2"	134
B5	13	4	STR	2' - 5"	21
B6	4	4	STR	10' - 1"	27
H1	8	4	STR	2' - 7"	14
H2	48	5	5	11' - 10"	592
K1	16	4	STR	25' - 2"	269
S1	54	4	3	3' - 2"	114
S2	54	4	2	10' - 5"	376
S3	28	4	6	6' - 6"	122
U1	43	4	4	3' - 8"	105
U2	7	4	4	5' - 5"	25
V1	86	5	STR	6' - 6"	583
V2	60	4	STR	7' - 10"	314

REINFORCING STEEL LBS. 4,591

CLASS "A" CONCRETE BREAKDOWN

POUR #1 - CAP, LOWER WING WALLS & CONC. COLLARS	C.Y.	24.8
POUR #2 - BACKWALL & UPPER WING WALLS	C.Y.	8.8
TOTAL CLASS "A" CONCRETE	C.Y.	33.6

HP 12x53 STEEL PILES NO. 7 LIN. FT. 420

PILE REDRIVES EA. 7

NOTES:

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 3 OF 3

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

SEAL 033752 ENGINEER SETH A. DENNIS 6/6/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	30
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 2-26-13
CHECKED BY : A. M. HOUSTON DATE : 3-4-13

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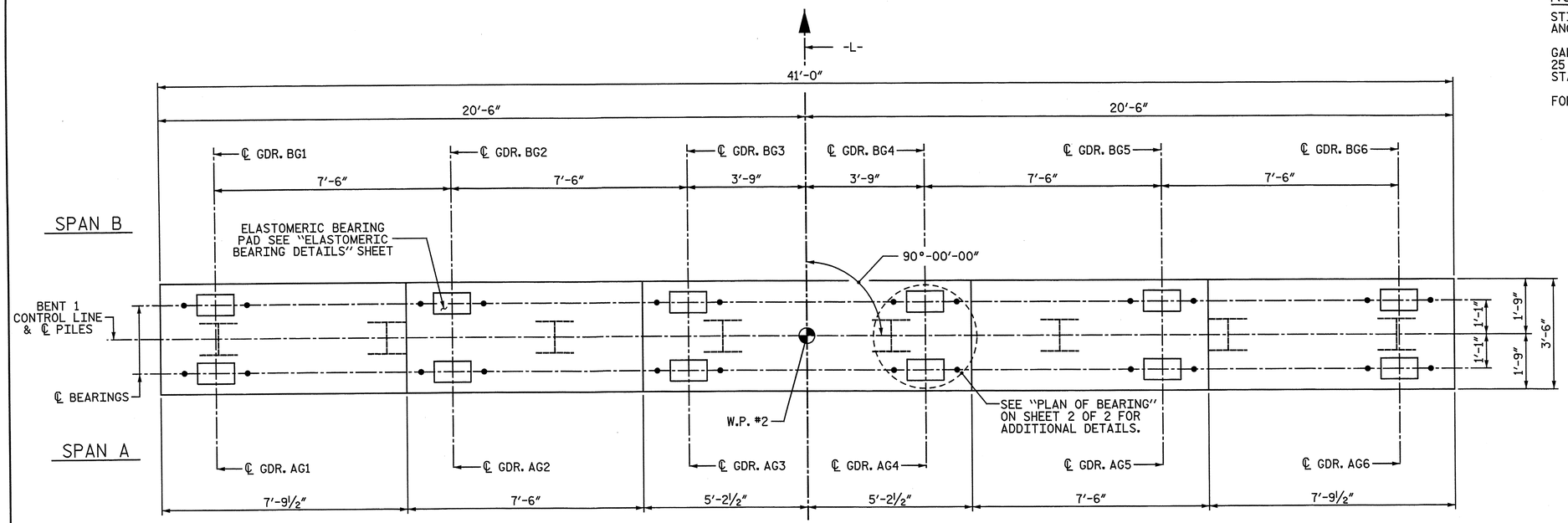
NOTES:

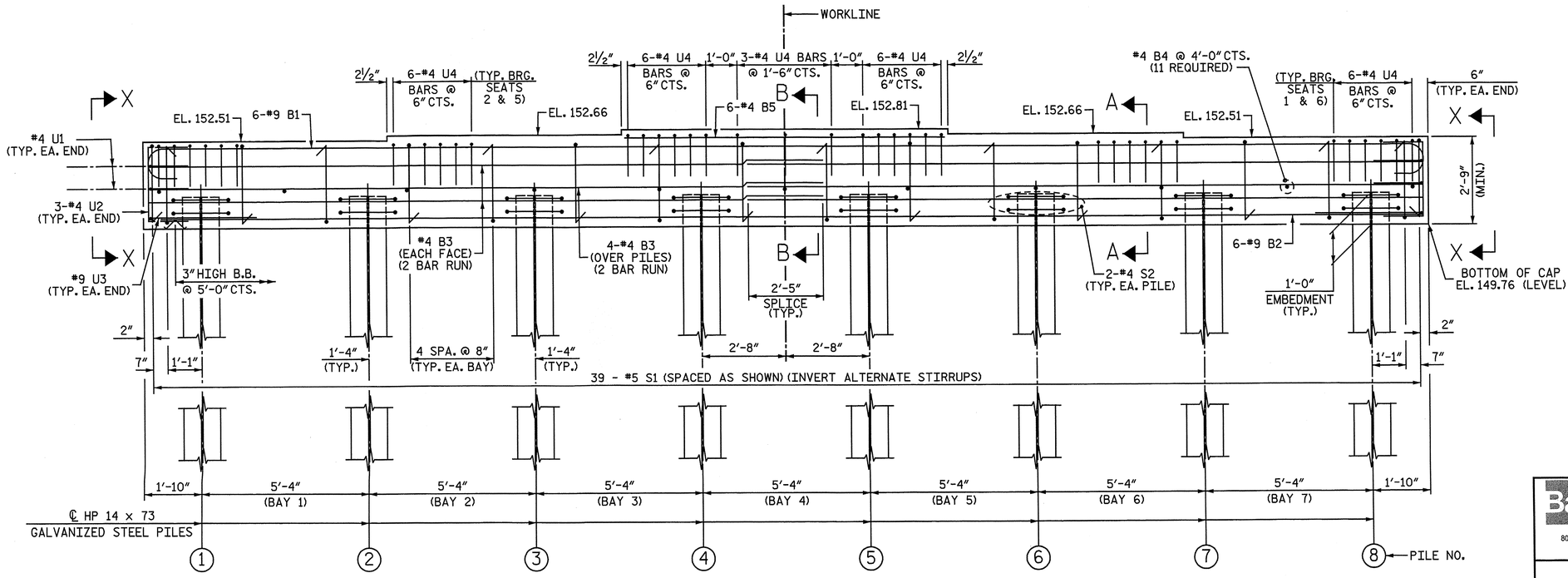
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 25 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 2 OF 2.



PLAN



ELEVATION

DRAWN BY : C. E. MAYHEW DATE : 3-4-13
CHECKED BY : A. M. HOUSTON DATE : 3-10-13

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PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-

SHEET 1 OF 2

Baker
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8000 Regency Parkway, Suite 600
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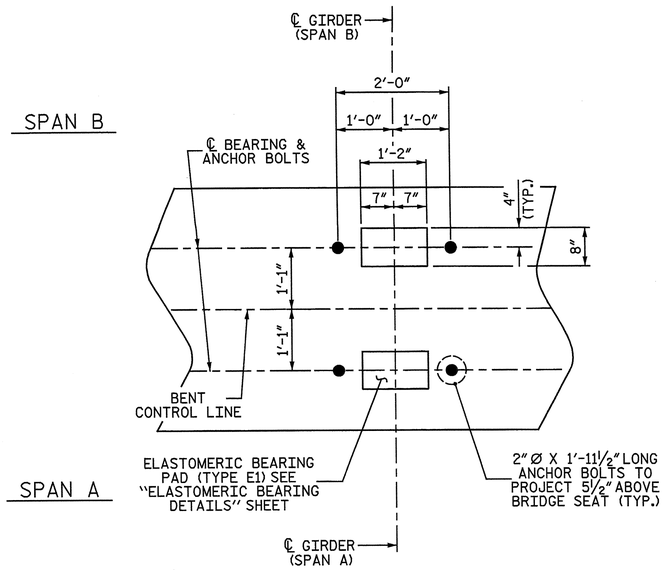
NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
04/17/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

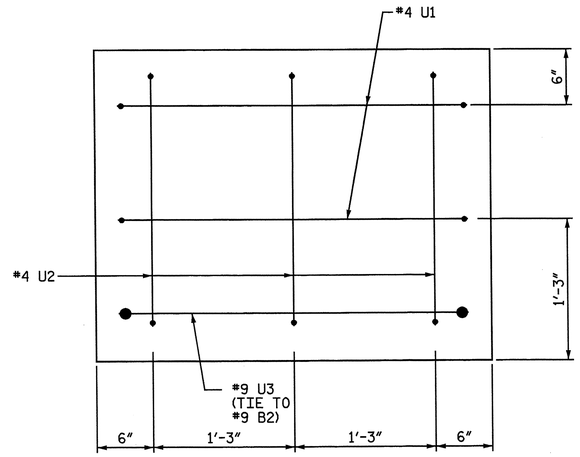
BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	31
1			3			TOTAL SHEETS
2			4			43



PLAN OF BEARING

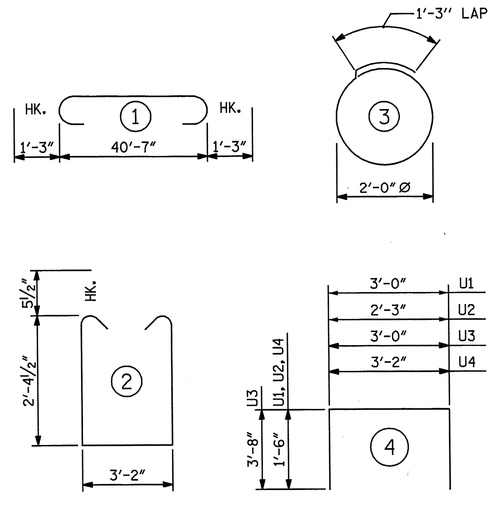
ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.



SECTION X-X

(TYPICAL BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-1"	879
B2	6	#9	STR	40'-8"	830
B3	16	#4	STR	21'-7"	231
B4	11	#4	STR	3'-2"	23
B5	6	#4	STR	10'-1"	40
S1	39	#5	2	8'-10"	359
S2	16	#4	3	7'-7"	81
U1	4	#4	4	6'-0"	16
U2	6	#4	4	5'-3"	21
U3	2	#9	4	10'-4"	70
U4	39	#4	4	6'-2"	161

REINFORCING STEEL 2,711 LBS

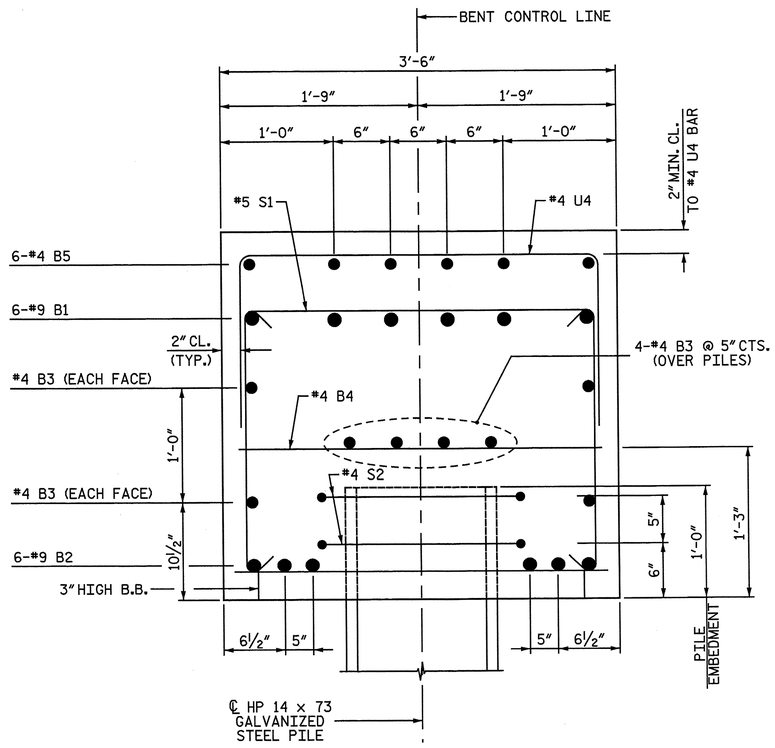
CLASS "A" CONCRETE BREAKDOWN

POUR #1 (CAP)	C.Y.	15.3
TOTAL CLASS "A" CONCRETE	C.Y.	15.3

HP 14 x 73 GALVANIZED STEEL PILES

No. 8	LIN. FT.	480
PILE REDRIVES	EA.	8

SECTION A-A



SECTION B-B

DRAWN BY : C. E. MAYHEW DATE : 3-4-13
CHECKED BY : A. M. HOUSTON DATE : 3-10-13

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PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-

SHEET 2 OF 2

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
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NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY
6/06/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1 DETAILS

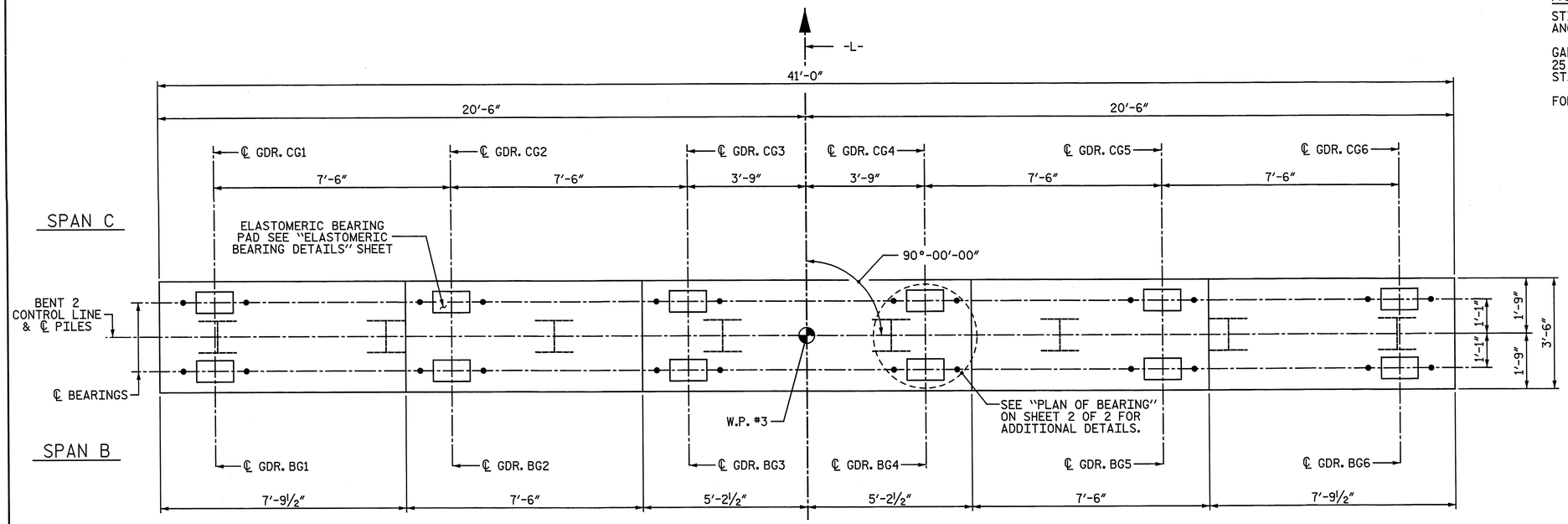
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	32
1			3			TOTAL SHEETS
2			4			43

NOTES:

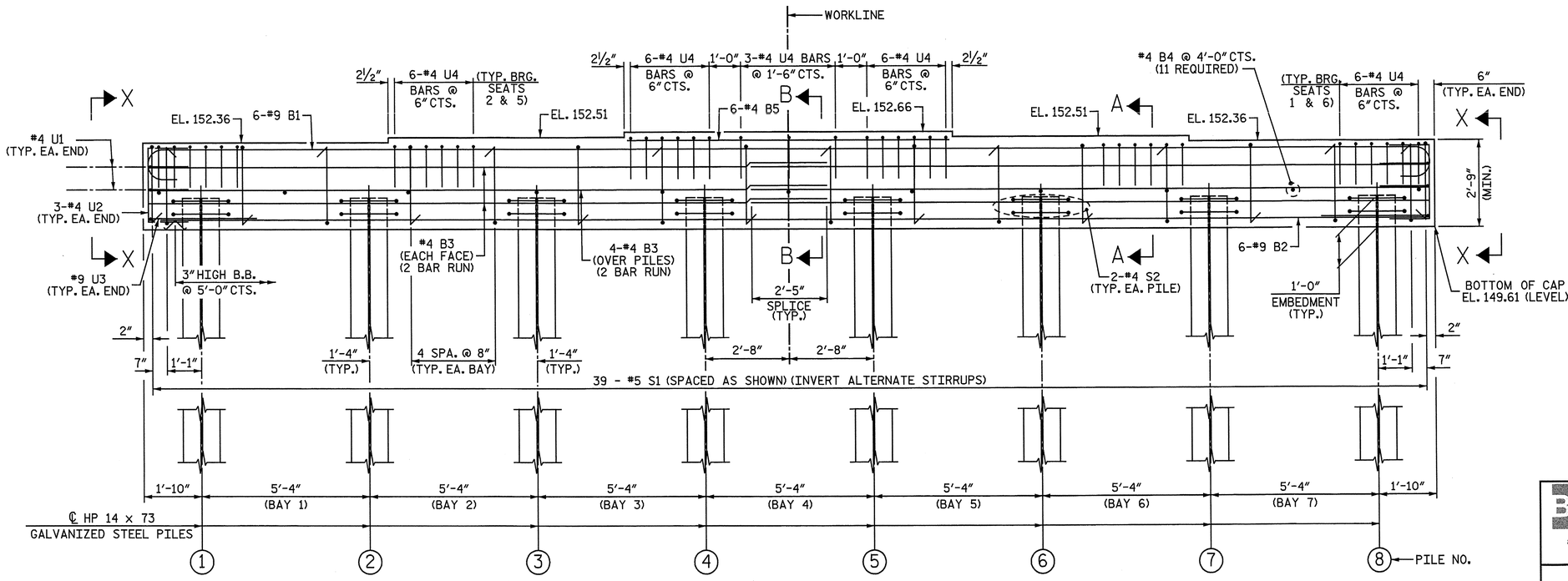
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 25 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 2 OF 2.



PLAN



ELEVATION

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 2

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY

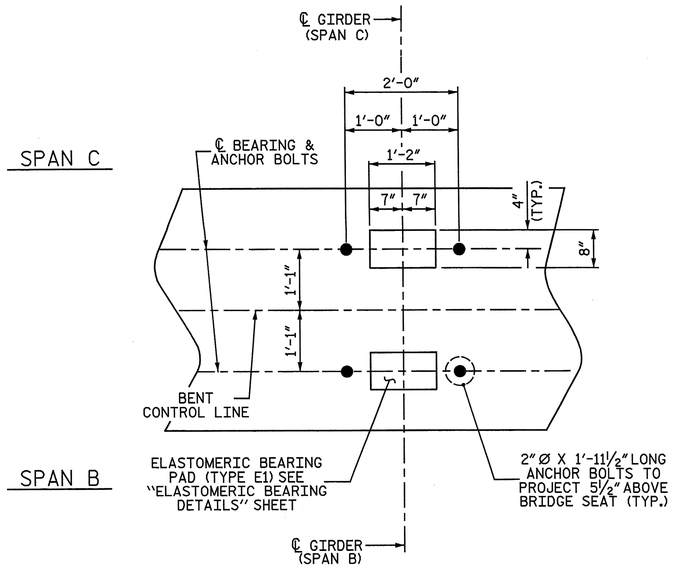
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 2

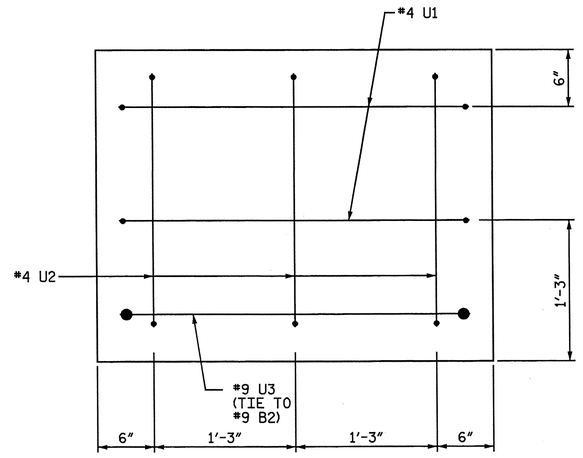
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	33
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : C. E. MAYHEW DATE : 3-6-13
CHECKED BY : A. M. HOUSTON DATE : 3-12-13



PLAN OF BEARING

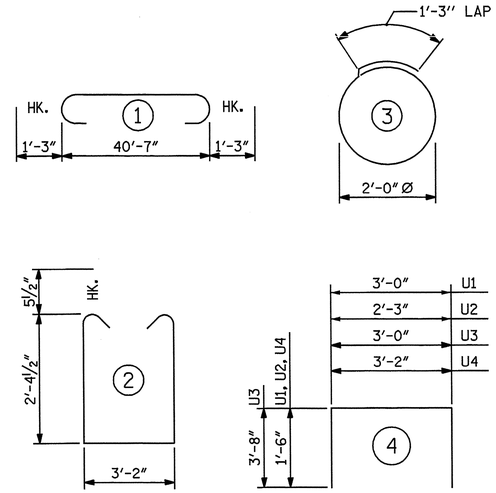
ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.



SECTION X-X

(TYPICAL BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-1"	879
B2	6	#9	STR	40'-8"	830
B3	16	#4	STR	21'-7"	231
B4	11	#4	STR	3'-2"	23
B5	6	#4	STR	10'-1"	40
S1	39	#5	2	8'-10"	359
S2	16	#4	3	7'-7"	81
U1	4	#4	4	6'-0"	16
U2	6	#4	4	5'-3"	21
U3	2	#9	4	10'-4"	70
U4	39	#4	4	6'-2"	161

REINFORCING STEEL 2,711 LBS

CLASS "A" CONCRETE BREAKDOWN

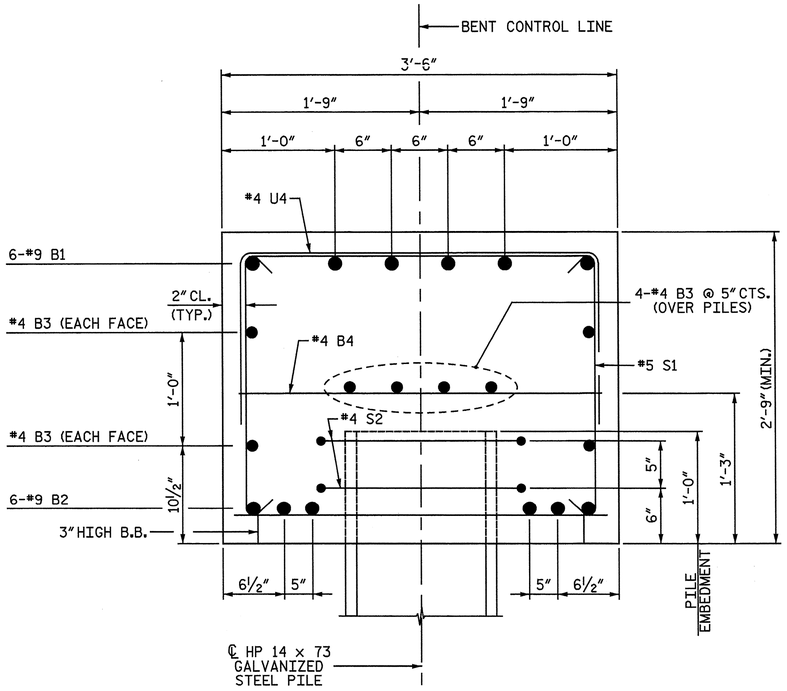
POUR #1 (CAP) C.Y. 15.3

TOTAL CLASS "A" CONCRETE C.Y. 15.3

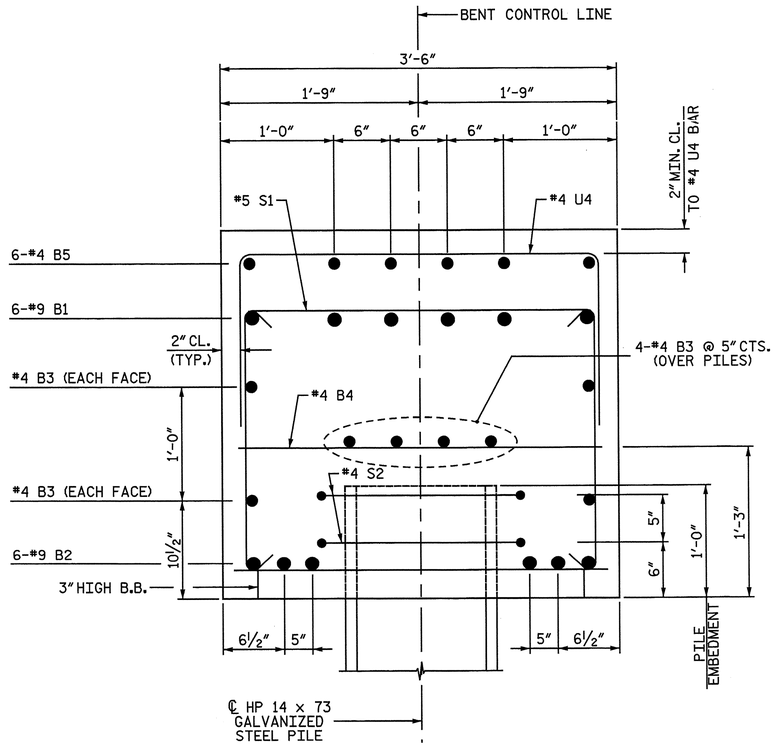
HP 14 x 73 GALVANIZED STEEL PILES

No. 8 LIN. FT. 520

PILE REDRIVES EA. 8



SECTION A-A



SECTION B-B

DRAWN BY : C. E. MAYHEW DATE : 3-4-13

CHECKED BY : A. M. HOUSTON DATE : 3-19-13

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PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 2

Baker
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NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNIS
6/5/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 2 DETAILS

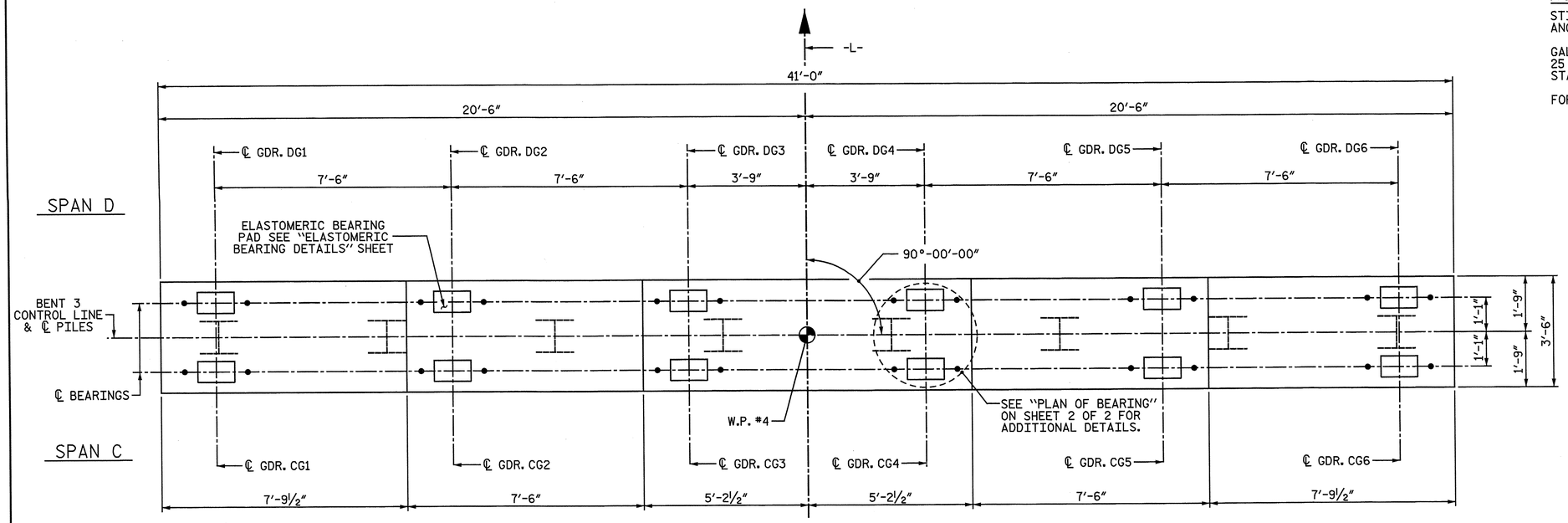
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	34
1			3			TOTAL SHEETS
2			4			43

NOTES:

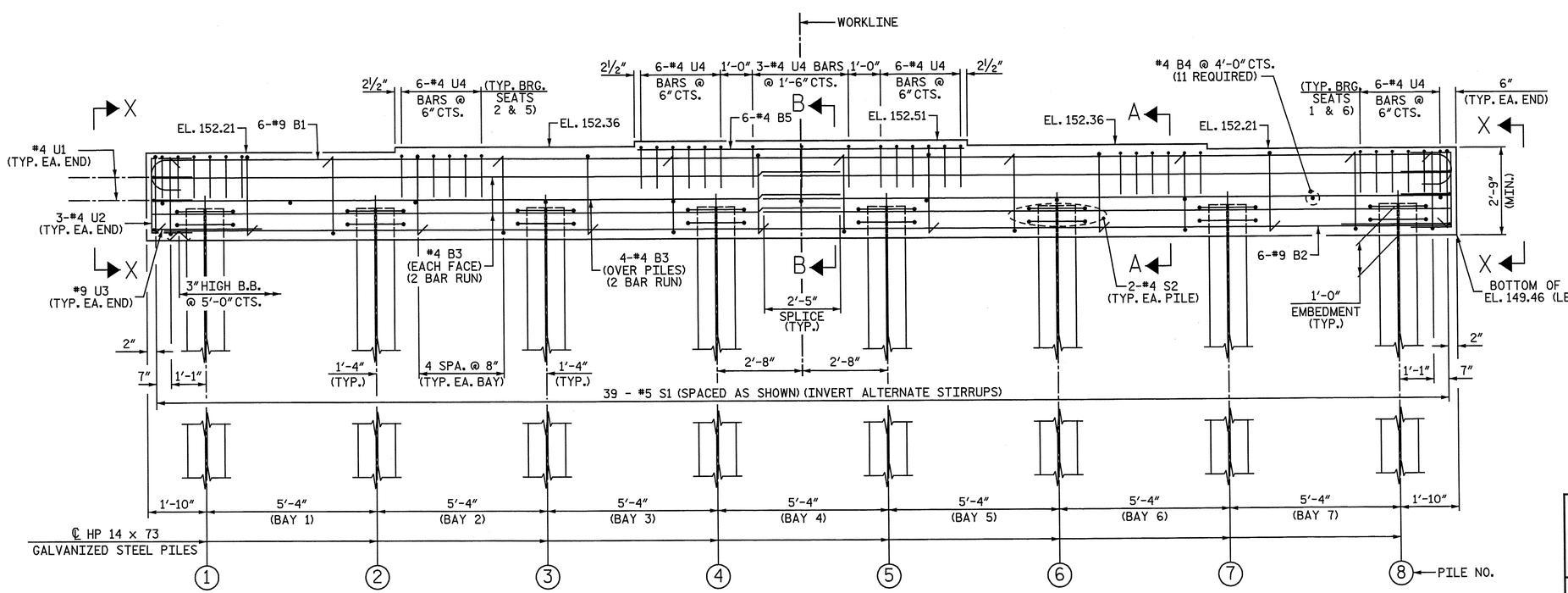
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 25 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 2 OF 2.



PLAN



ELEVATION

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 2

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNEY 06/07/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	35
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : C. E. MAYHEW DATE : 3-7-13
CHECKED BY : A. M. HOUSTON DATE : 3-13-13

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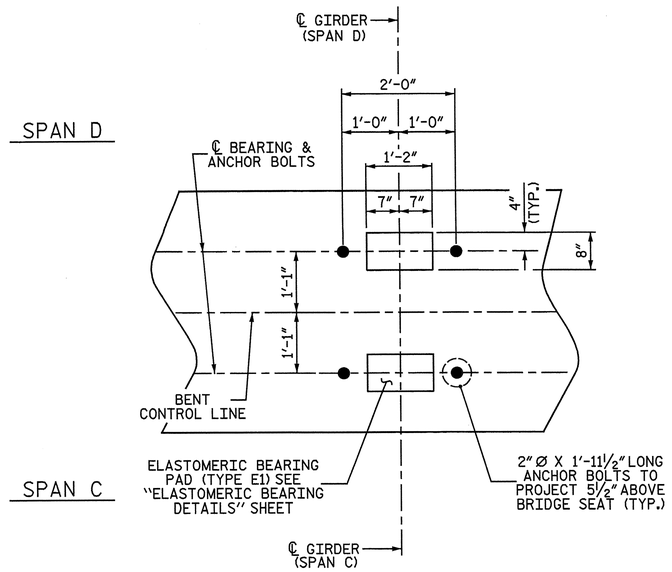
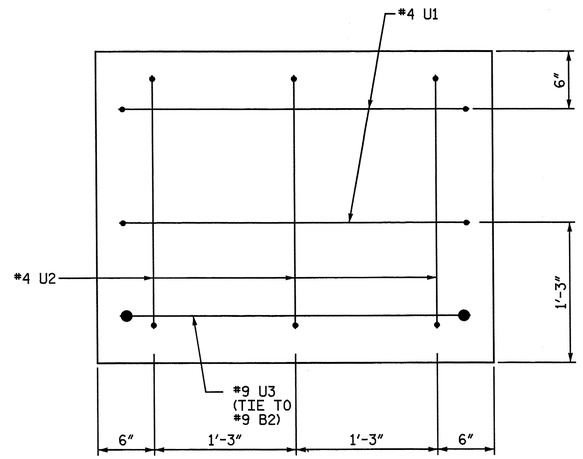


PLAN OF BEARING

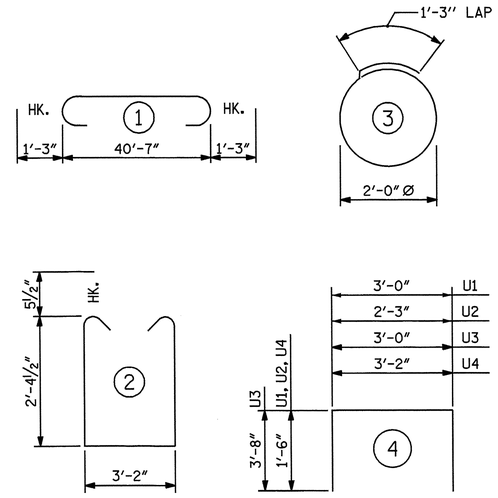
ALL DIMENSIONS AND DETAILS SHOWN ARE TYPICAL FOR ALL BEARINGS @ EACH BRIDGE SEAT LOCATION.



SECTION X-X

(TYPICAL BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 3

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	43'-1"	879
B2	6	#9	STR	40'-8"	830
B3	16	#4	STR	21'-7"	231
B4	11	#4	STR	3'-2"	23
B5	6	#4	STR	10'-1"	40
S1	39	#5	2	8'-10"	359
S2	16	#4	3	7'-7"	81
U1	4	#4	4	6'-0"	16
U2	6	#4	4	5'-3"	21
U3	2	#9	4	10'-4"	70
U4	39	#4	4	6'-2"	161

REINFORCING STEEL 2,711 LBS

CLASS "A" CONCRETE BREAKDOWN

POUR #1 (CAP) C.Y. 15.3

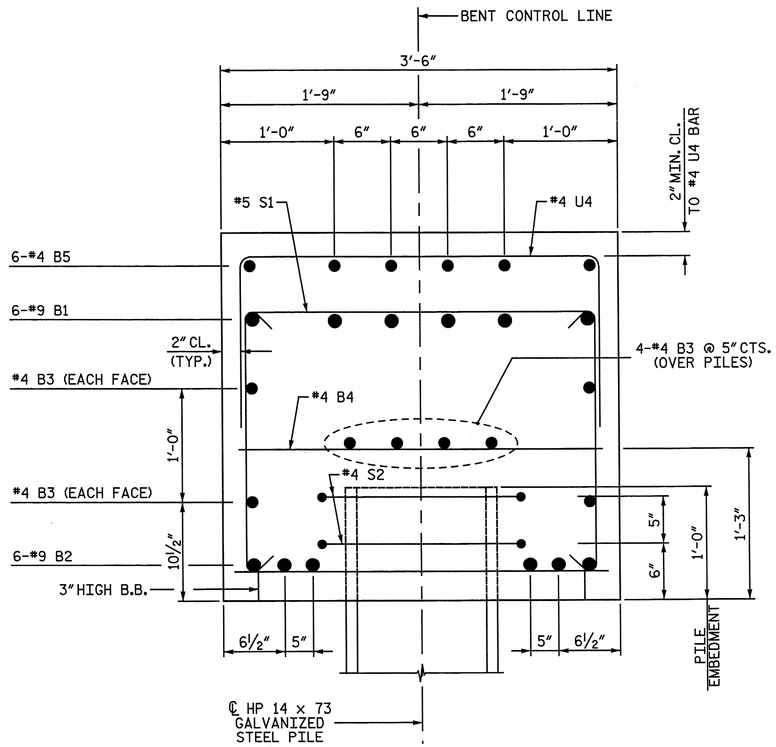
TOTAL CLASS "A" CONCRETE C.Y. 15.3

HP 14 x 73 GALVANIZED STEEL PILES

No. 8 LIN. FT. 480

PILE REDRIVES EA. 8

SECTION A-A



SECTION B-B

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 2

Baker
Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNIS 04/02/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 3 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	36
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : C. E. MAYHEW DATE : 3-18-13
CHECKED BY : A. M. HOUSTON DATE : 3-19-13

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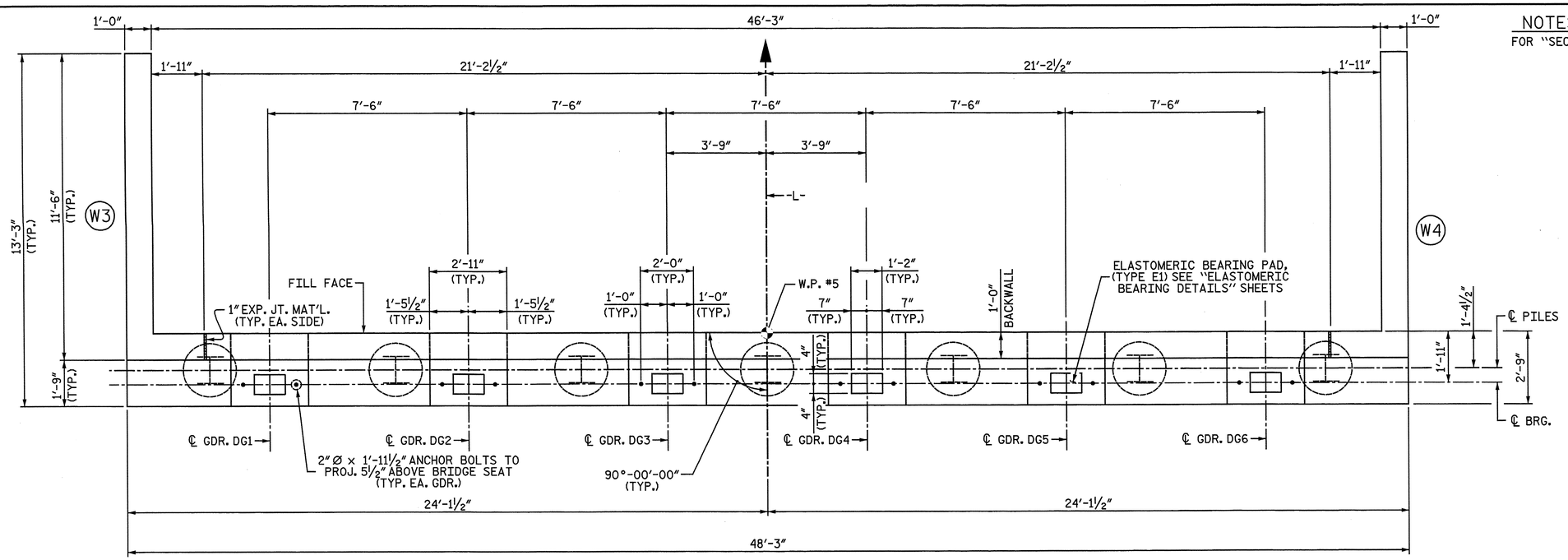
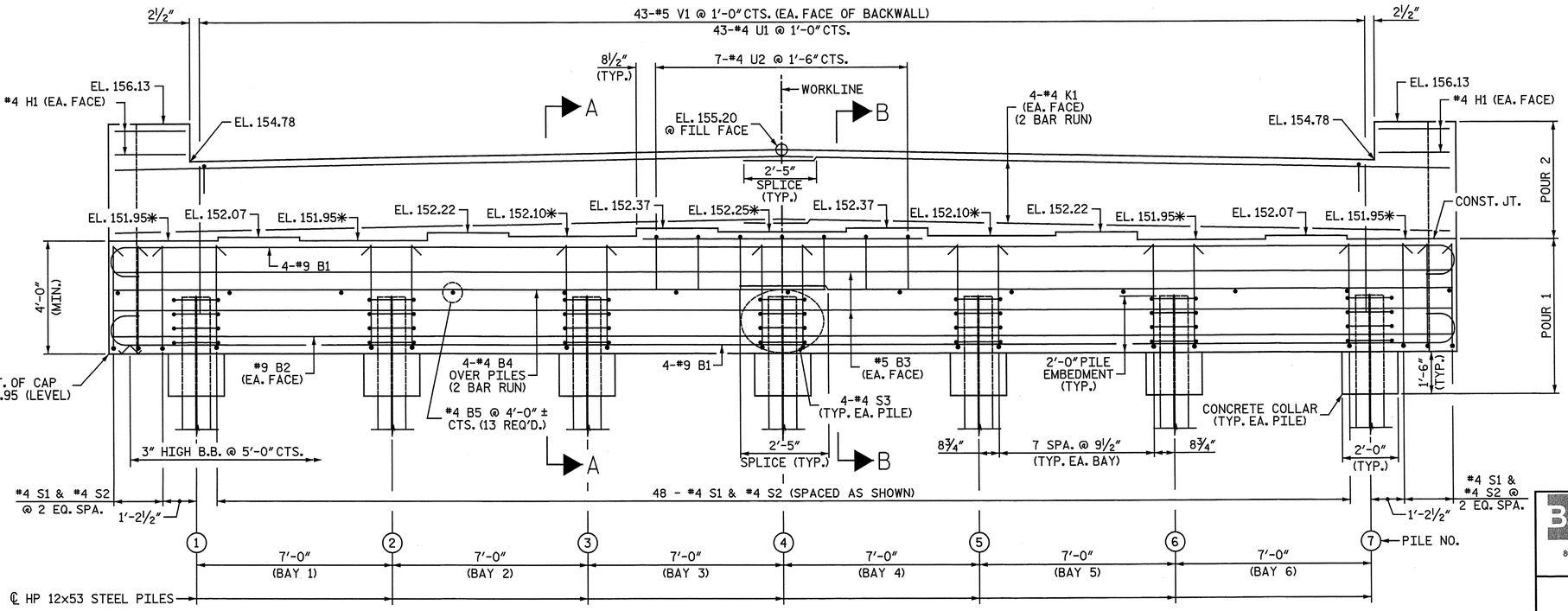
NOTES:
FOR "SECTION A-A" AND "SECTION B-B", SEE SHEET 3 OF 3.



PLAN



ELEVATION

*FOR LOCATION OF ELEVATION BETWEEN BRIDGE SEATS, SEE "SECTION A-A" AND "SECTION B-B" ON SHEET 3 OF 3

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-
SHEET 1 OF 3

Baker
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8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

NORTH CAROLINA PROFESSIONAL SEAL 033752 ENGINEER SETH A. DENNIS
06/07/13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	37
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : M. D. MAYHEW DATE : 3-20-13
CHECKED BY : A. M. HOUSTON DATE : 3-21-13

nbspeaks
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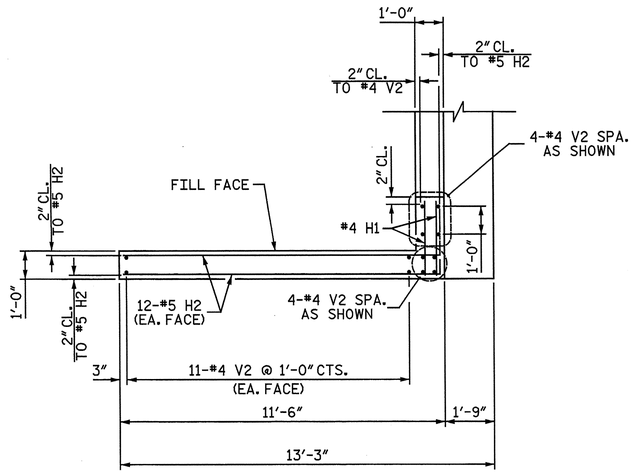
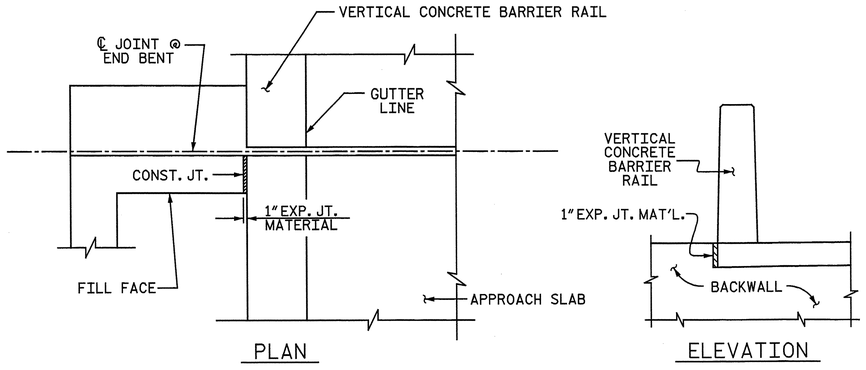
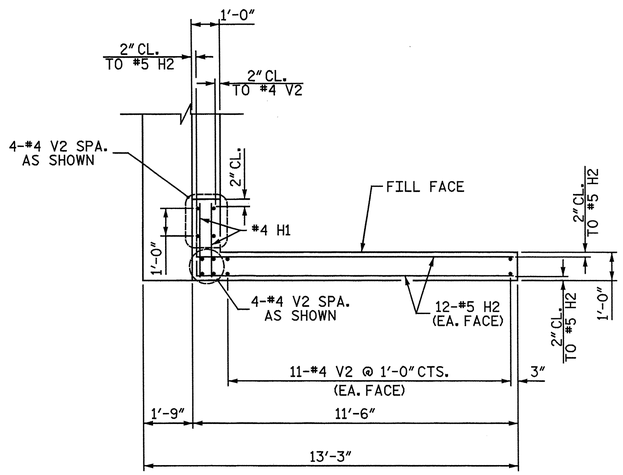


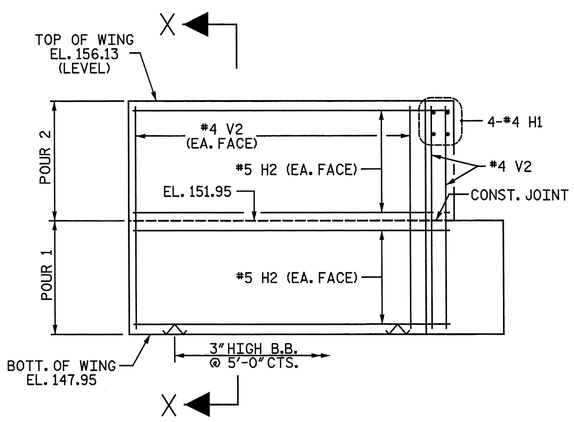
PLAN OF LEFT WING WALL (W3)



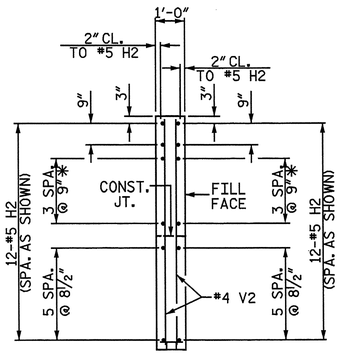
WING WALL DETAIL



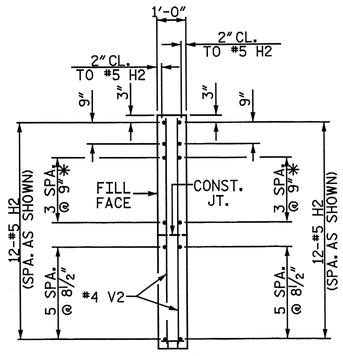
PLAN OF RIGHT WING WALL (W4)



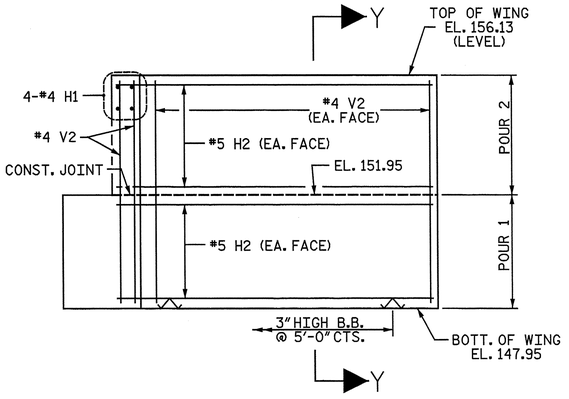
ELEVATION OF LEFT WING WALL (W3)



SECTION X-X



SECTION Y-Y



ELEVATION OF RIGHT WING WALL (W4)

*MATCH H2 BARS TO K1 BARS IN BACKWALL

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2
WING WALL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	38
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : M. D. MAYHEW DATE : 3-20-13
CHECKED BY : A. M. HOUSTON DATE : 3-21-13

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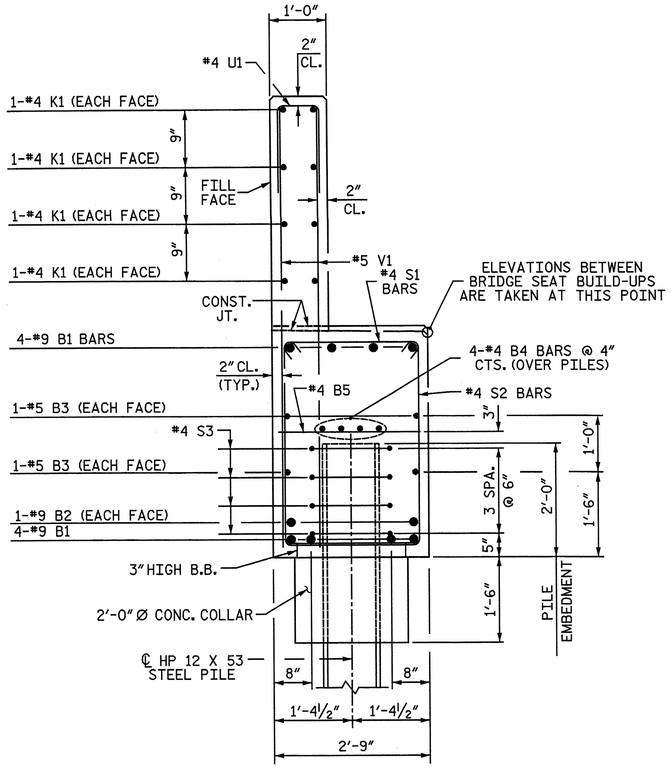
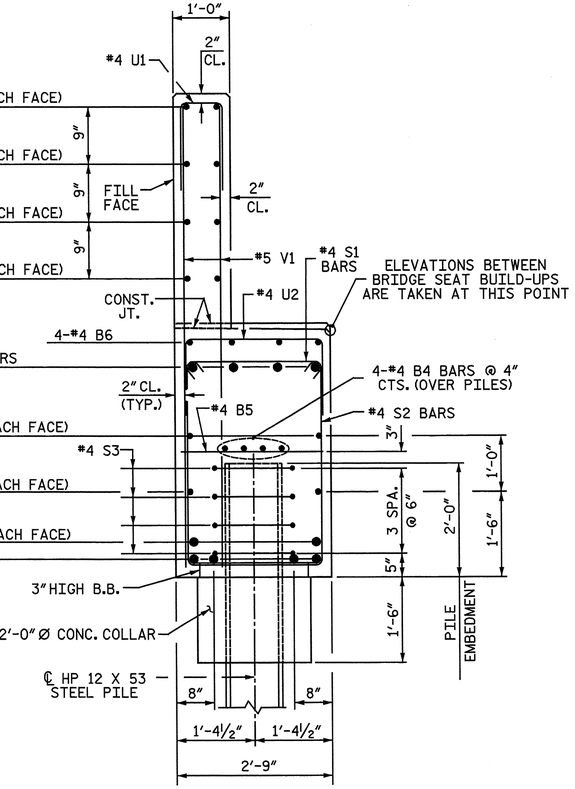
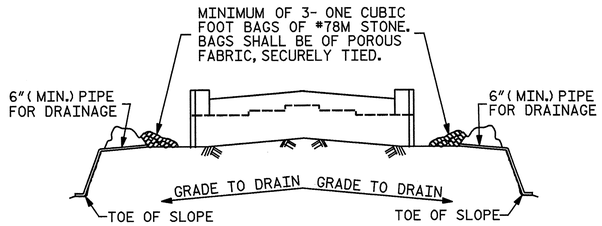


SECTION A-A



SECTION B-B

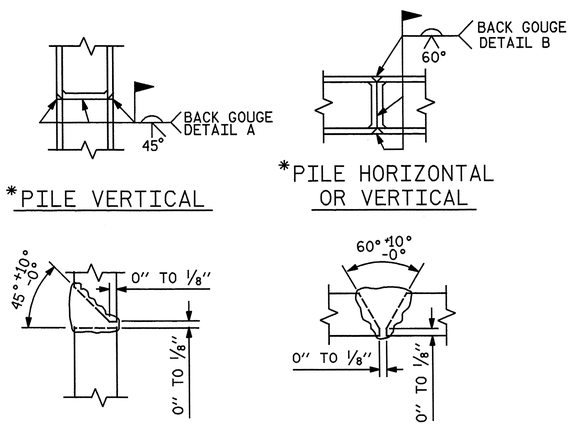


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

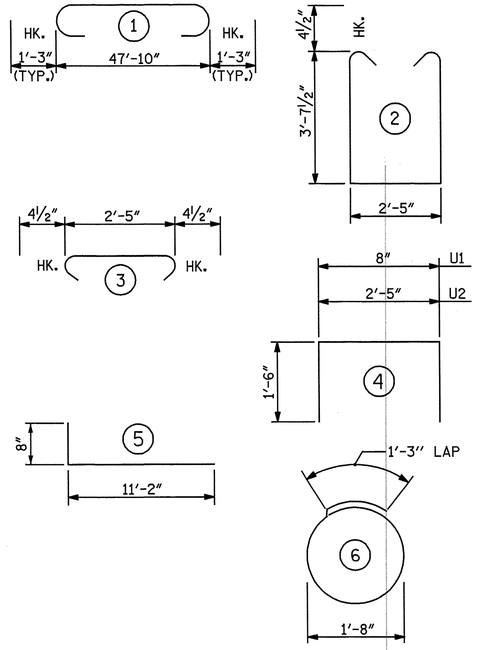
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	50' - 4"	1,369
B2	2	9	STR	47' - 11"	326
B3	4	5	STR	47' - 11"	200
B4	8	4	STR	25' - 2"	134
B5	13	4	STR	2' - 5"	21
B6	4	4	STR	10' - 1"	27
H1	8	4	STR	2' - 7"	14
H2	48	5	5	11' - 10"	592
K1	16	4	STR	25' - 2"	269
S1	54	4	3	3' - 2"	114
S2	54	4	2	10' - 5"	376
S3	28	4	6	6' - 6"	122
U1	43	4	4	3' - 8"	105
U2	7	4	4	5' - 5"	25
V1	86	5	STR	6' - 6"	583
V2	60	4	STR	7' - 10"	314

REINFORCING STEEL LBS. 4,591

CLASS "A" CONCRETE BREAKDOWN

POUR #1 - CAP, LOWER WING WALLS & CONC. COLLARS	C.Y.	24.8
POUR #2 - BACKWALL & UPPER WING WALLS	C.Y.	8.7
TOTAL CLASS "A" CONCRETE	C.Y.	33.5

HP 12x53 STEEL PILES NO. 7 LIN. FT. 420

PILE REDRIVES EA. 7

NOTES:

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

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

INSTALL THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 3 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

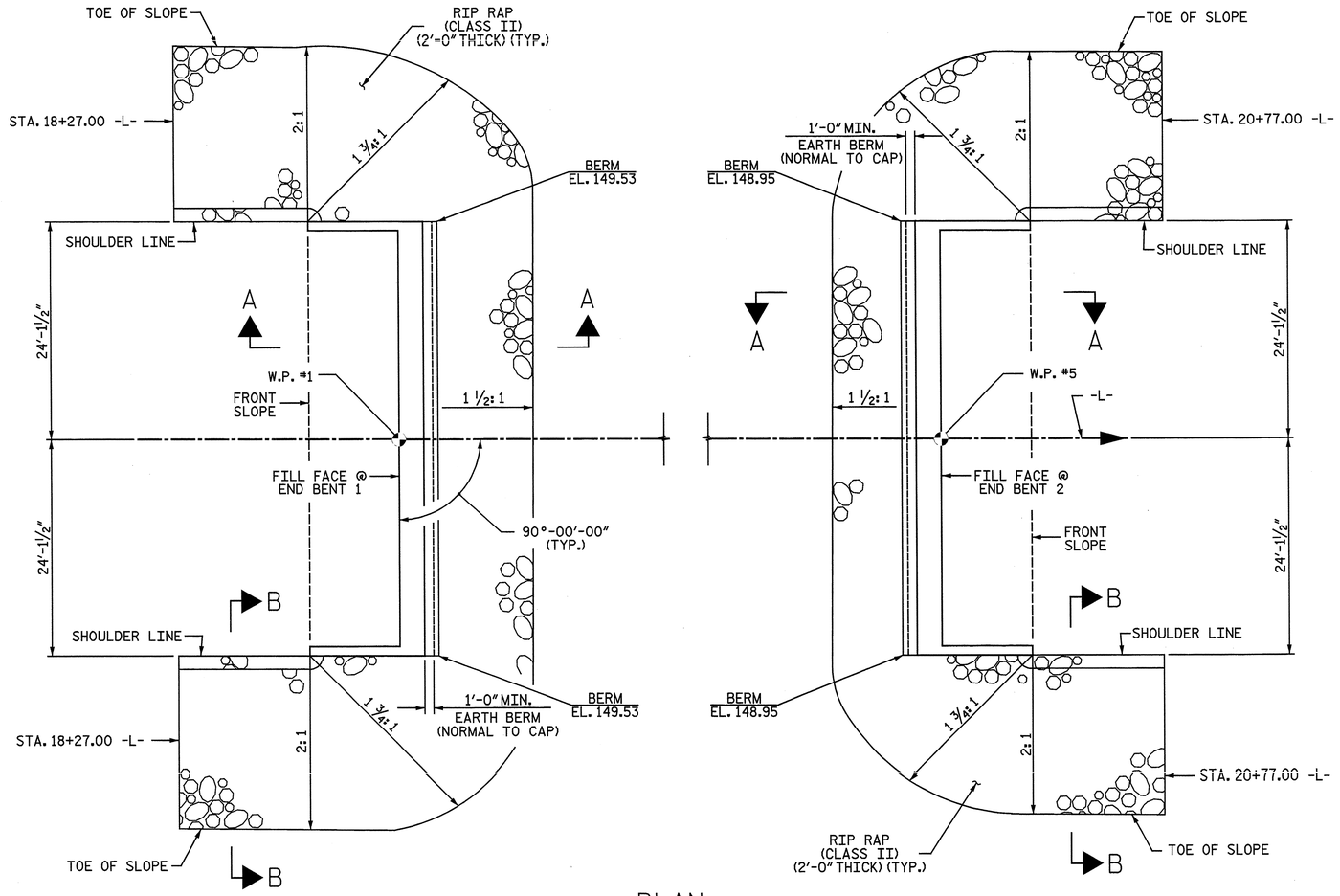
SUBSTRUCTURE

END BENT 2 DETAILS

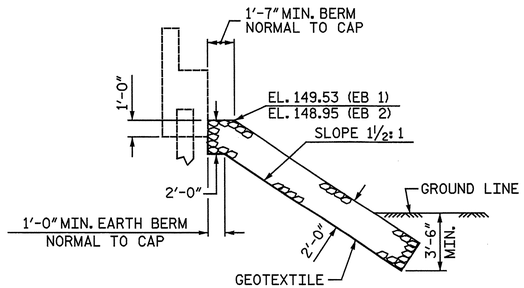
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	39
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 3-20-13
CHECKED BY : A. M. HOUSTON DATE : 3-21-13

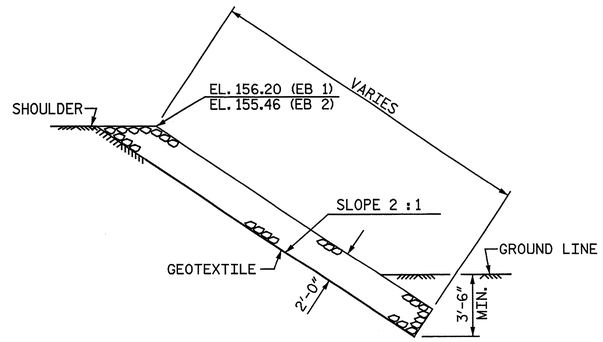
NOTES:
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



PLAN



SECTION A-A



SECTION B-B

ESTIMATED QUANTITIES

BRIDGE @ STA. 19+52.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	335	372
END BENT 2	368	409

PROJECT NO. B-5551
SCOTLAND COUNTY
STATION: 19+52.00 -L-

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06/07/13

STATE OF NORTH CAROLINA
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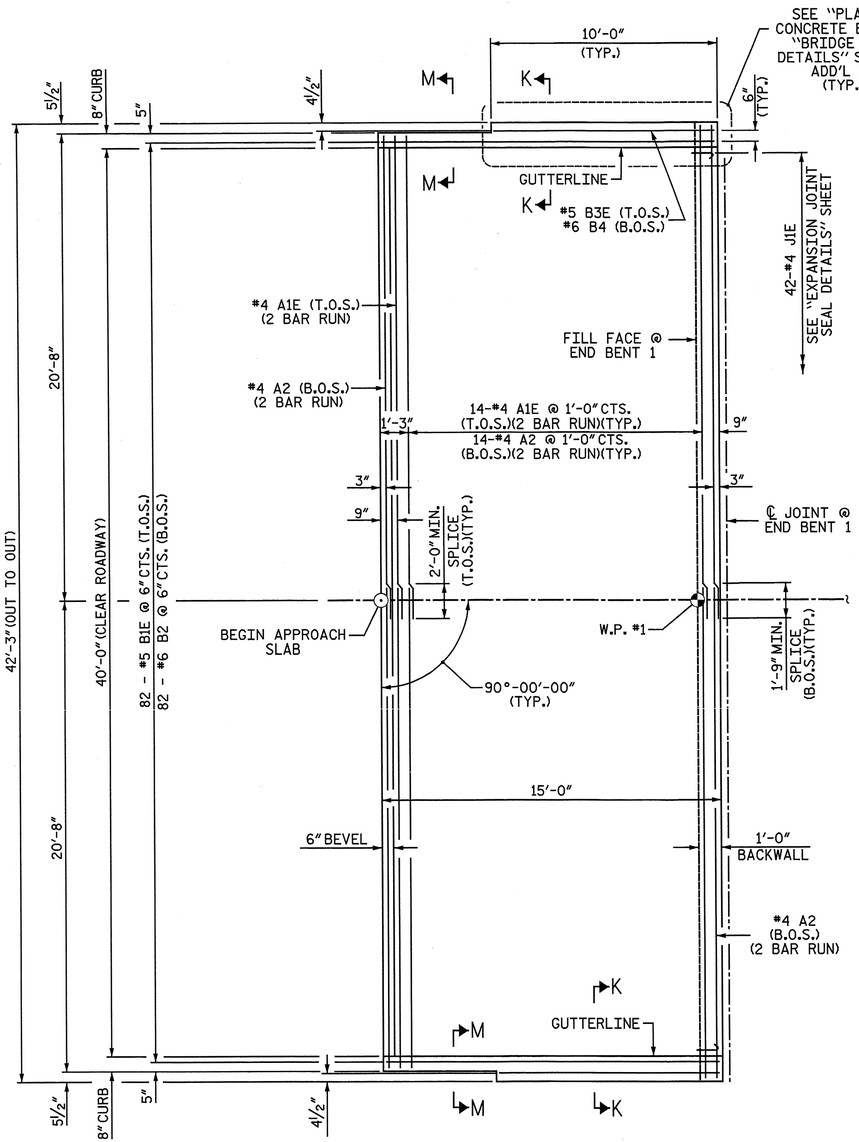
RALEIGH

RIP RAP DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	40
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 1-24-13
CHECKED BY : S. A. DENNEY DATE : 2-25-13



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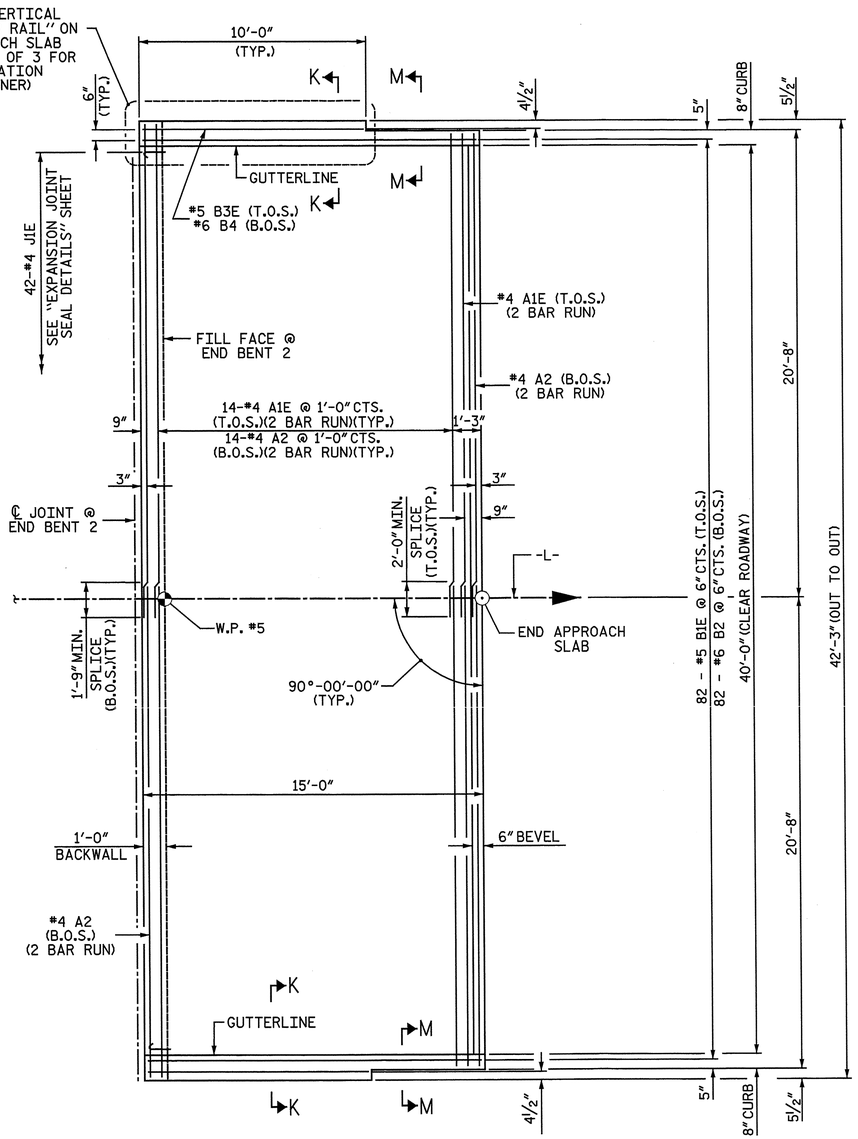


@ END BENT 2

PLAN OF APPROACH SLABS

T.O.S. - DENOTES TOP OF SLAB

B.O.S. - DENOTES BOTTOM OF SLAB

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

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

NOTES:

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

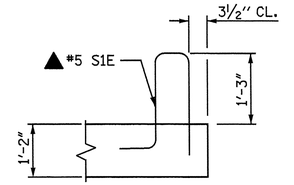
FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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

THE VERTICAL CONCRETE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

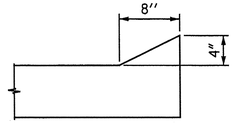
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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. THE 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.

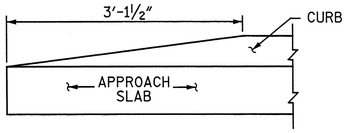


SECTION K-K

▲ SEE SHEET 3 OF 3 FOR DETAILS



SECTION M-M



END OF CURB WITHOUT SHOULDER BERM GUTTER

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 1 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	41
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 1-5-13
CHECKED BY : S. A. DENNEY DATE : 3-14-13

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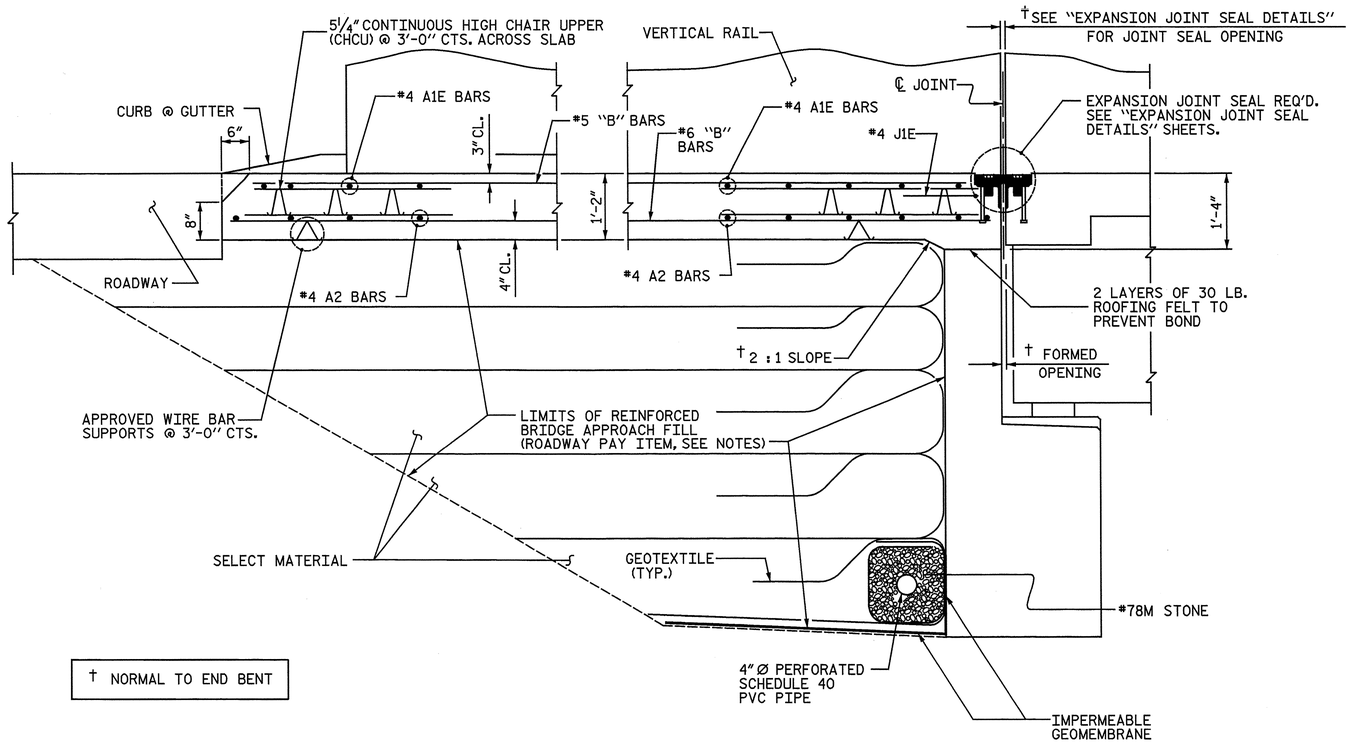
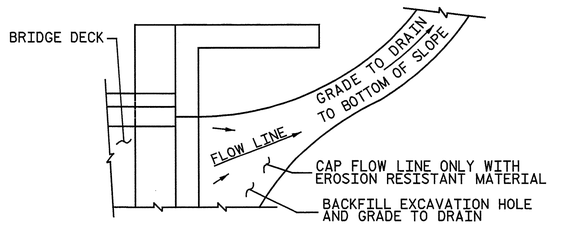


SECTION THRU SLAB

SHOWING SECTION WITHOUT CONCRETE WEARING SURFACE



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

BILL OF MATERIAL

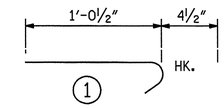
APPROACH SLAB AT EB 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	30	4	STR	22' - 0"	441
A2	32	4	STR	21' - 10"	467
B1E	82	5	STR	13' - 8"	1,169
B2	82	6	STR	14' - 8"	1,806
B3E	2	5	STR	9' - 8"	20
B4	2	6	STR	9' - 8"	29
J1E	42	4	1	1' - 5"	40
EPOXY COATED REINFORCING STEEL				LBS.	1,670
REINFORCING STEEL				LBS.	2,302
CLASS AA CONCRETE				C.Y.	27.3

APPROACH SLAB AT EB 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1E	30	4	STR	22' - 0"	441
A2	32	4	STR	21' - 10"	467
B1E	82	5	STR	13' - 8"	1,169
B2	82	6	STR	14' - 8"	1,806
B3E	2	5	STR	9' - 8"	20
B4	2	6	STR	9' - 8"	29
J1E	42	4	1	1' - 5"	40
EPOXY COATED REINFORCING STEEL				LBS.	1,670
REINFORCING STEEL				LBS.	2,302
CLASS AA CONCRETE				C.Y.	27.3

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT

QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED. SEE SHEET 3 OF 3.

THE QUANTITY OF #4 J1E BARS ON THE BILL OF MATERIAL IS BASED ON 1'-0" CENTERS. J1E BARS SHALL BE PLACED AT EACH VERTICAL STUD ANCHOR BOLT. IN THE EVENT THAT THE NUMBER OF VERTICAL STUD ANCHORS EXCEEDS THE NUMBER OF JE1 BARS SPECIFIED, ADDITIONAL J1E BARS WILL NOT BE REQUIRED.

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 2 OF 3

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06/07/13

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DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	42
1			3			TOTAL SHEETS
2			4			43

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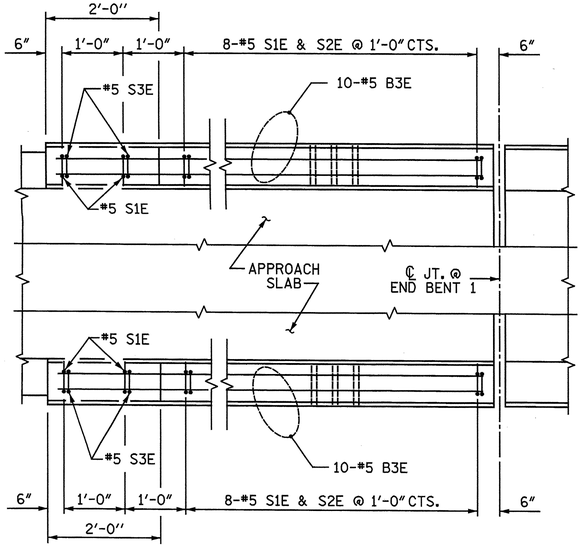

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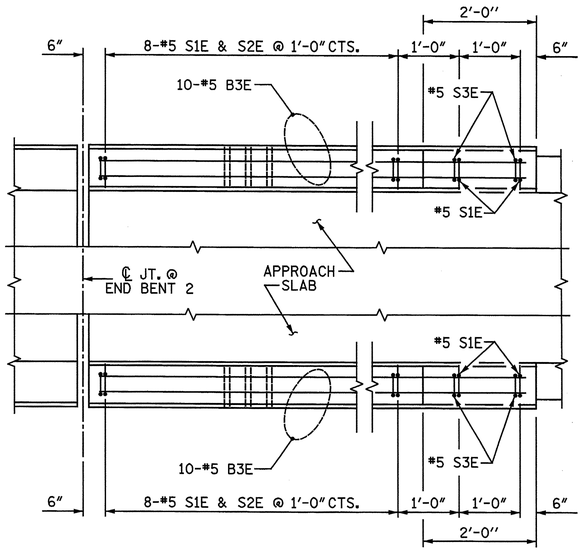
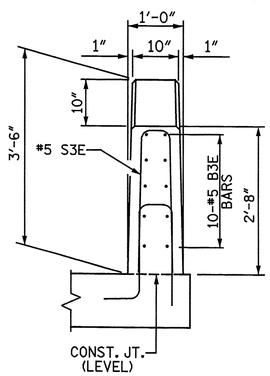
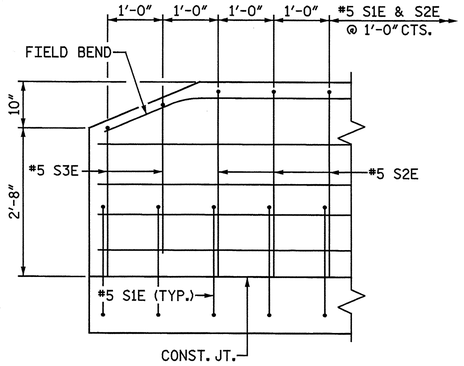


@ END BENT 2

PLAN OF VERTICAL CONCRETE BARRIER RAIL

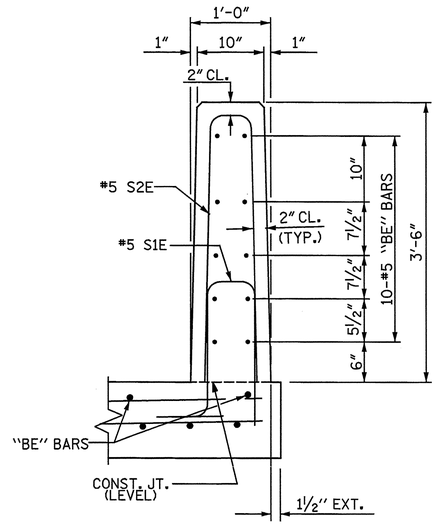


PLAN



END VIEW

END OF RAIL DETAILS

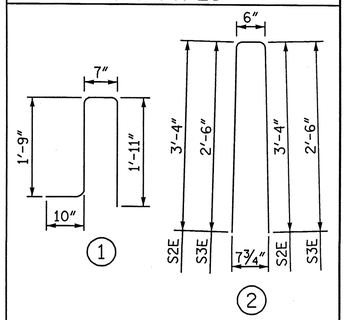


SECTION THRU RAIL

NOTES:

THE COST OF THE VERTICAL CONCRETE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "VERTICAL CONCRETE BARRIER RAIL".

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

VERTICAL CONCRETE BARRIER RAIL ONLY ON APPROACH SLAB @ END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3E	20	5	STR	9' - 8"	202
S1E	20	5	1	5' - 1"	106
S2E	16	5	2	7' - 2"	120
S3E	4	5	2	5' - 6"	23
EPOXY COATED REINFORCING STEEL				LBS.	451
CLASS AA CONCRETE				C.Y.	2.3
VERTICAL CONCRETE BARRIER RAIL				LIN. FT.	20.0

VERTICAL CONCRETE BARRIER RAIL ONLY ON APPROACH SLAB @ END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3E	20	5	STR	9' - 8"	202
S1E	20	5	1	5' - 1"	106
S2E	16	5	2	7' - 2"	120
S3E	4	5	2	5' - 6"	23
EPOXY COATED REINFORCING STEEL				LBS.	451
CLASS AA CONCRETE				C.Y.	2.3
VERTICAL CONCRETE BARRIER RAIL				LIN. FT.	20.0

"E" SUFFIX DENOTES EPOXY COATED REINFORCING STEEL

PROJECT NO. B-5551

SCOTLAND COUNTY

STATION: 19+52.00 -L-

SHEET 3 OF 3

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	43
1			3			TOTAL SHEETS
2			4			43

DRAWN BY : N. B. SPEAKS DATE : 2-6-13
CHECKED BY : S. A. DENNEY DATE : 3-14-13

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Filename: Y:\Projects\NCDOT\Division On-Call SEP1\Scotland 18\DWG\Final\Scot_18_042_SD_AS3.dgn

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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

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REV. 8-16-99 RWW (W) LES REV. 5-1-06 TLA (W) GM