CONTRACT: C202178

TIP PROJECT: U–4444AA

STRUCTURE & WALL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

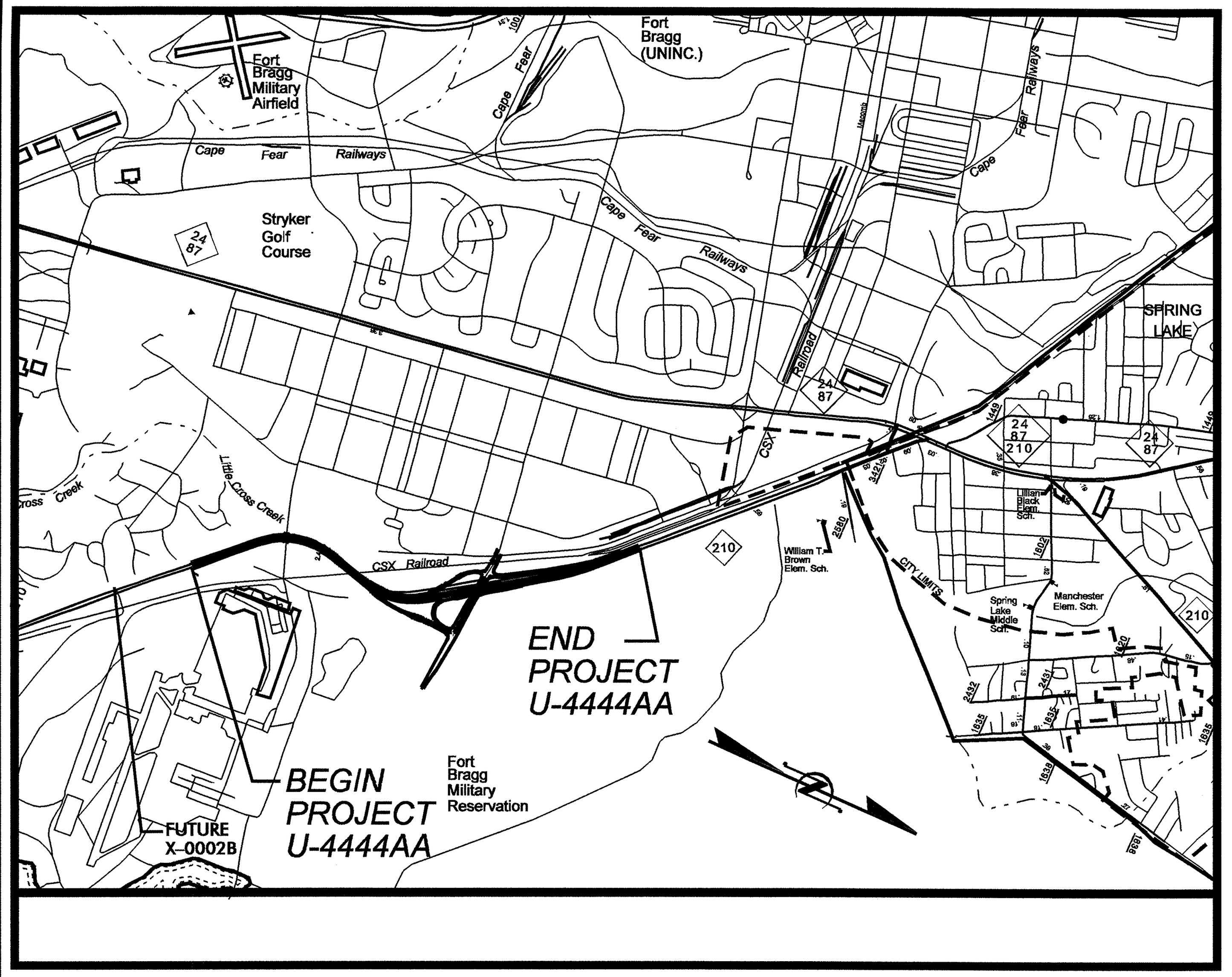
CUMBERLAND COUNTY

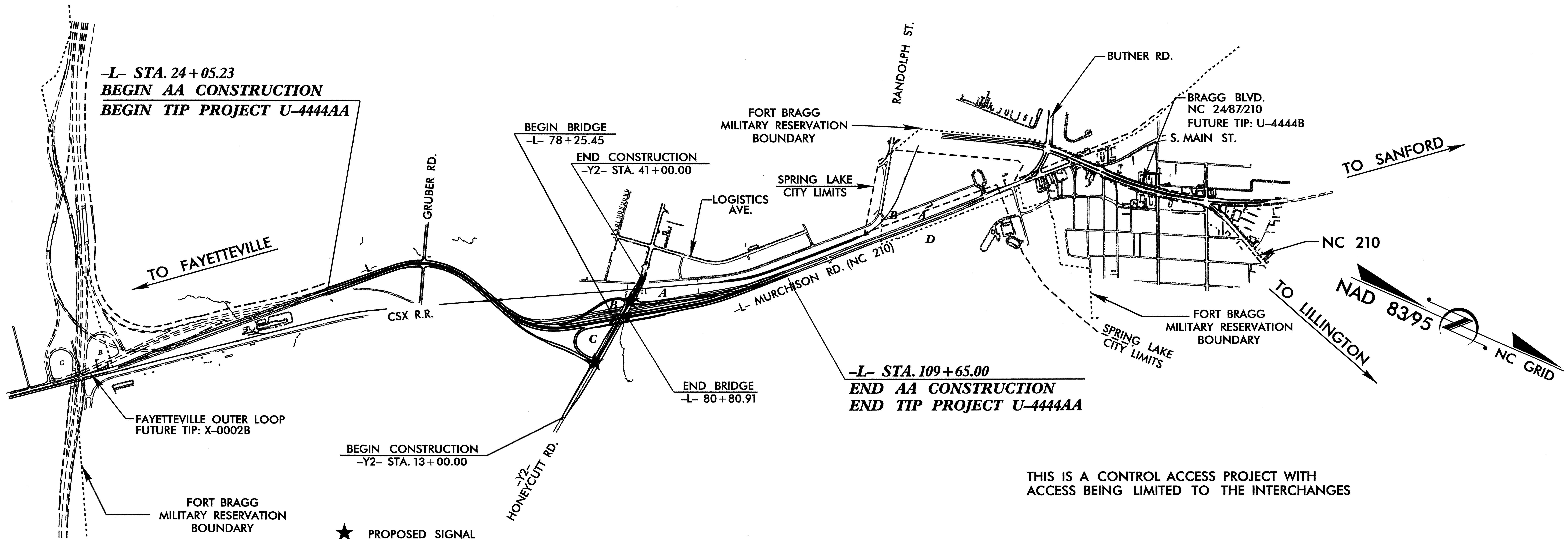
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U–4444AA		

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
36492.1.2	STP–210(11)	PE
36492.2.1	STP–210(11)	RW & UTL
36492.3.1	STP–210(20)	CONSTRUCTION

LOCATION: NC 210 (MURCHISON ROAD) FROM FAYETTEVILLE OUTER LOOP TO JUST NORTH OF HONEYCUTT RD.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, AND STRUCTURES





★ PROPOSED SIGNAL

THIS IS A CONTROL ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGES

DESIGN DATA

ADT 2009 = 47,568
ADT 2035 = 72,600
DHV = 11 %
D ≐ 55 %
T = 6 % *
V = 60 MPH
* TTST 2% DUAL 4%
FUNC. CLASS. = URBAN FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U–4444AA = 1.573 Miles
LENGTH STRUCTURES TIP PROJECT U–4444AA = 0.048 Miles
TOTAL LENGTH STATE TIP PROJECT U–4444AA = 1.621 Miles

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
September 15, 2009

OMAR R. AZIZI, PE
PROJECT ENGINEER

TIMOTHY L. COGGINS, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DRIVE
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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F.A. PROJECT NO. STP-210(20)

77+00 78+00 79+00 80+00 81+00

GRADE DATA

(+) 3.8000% (-) 0.8100%

PI STA = 75+80.00 -L-
EL = 302.98'
VC = 700'

GRADE DATA

(-) 0.8100% (-) 4.0000%

PI STA = 82+50.00 -L-
EL = 297.55'
VC = 490'

310 300 290 280 270 260 250

SPAN A SPAN B

FILL FACE @ END BENT #1
STA. 78+25.45 -L-
GRADE POINT EL. = 300.632
TOP OF DECK EL. = 300.412

FILL FACE @ END BENT #2
STA. 80+80.91 -L-
GRADE POINT EL. = 298.732
TOP OF DECK EL. = 298.512

EXP. FIXED EXP.

1'-6" (TYP.)
HP 12X53 STEEL PILES
4" CONCRETE SLOPE PROTECTION (TYP.)
PROPOSED GUARDRAIL (ROADWAY DETAIL AND PAY ITEM)
16'-3" MIN. VERT. CLEARANCE
1½:1 SLOPE NORMAL TO CAP (TYP.)
HP 12X53 STEEL PILES

EL. 274.8± EL. 278.1± EL. 277.6± FILL EL. 276.9± EL. 274.9± EL. 274.7± 24" GALVANIZED STEEL PIPE PILE EL. 274.5± EL. 273.5± EL. 270.5± EL. 271.5± FILL EL. 266.8± EL. 267.7± EL. 274.9± EL. 276.5± EL. 276.8± EL. 275.5±

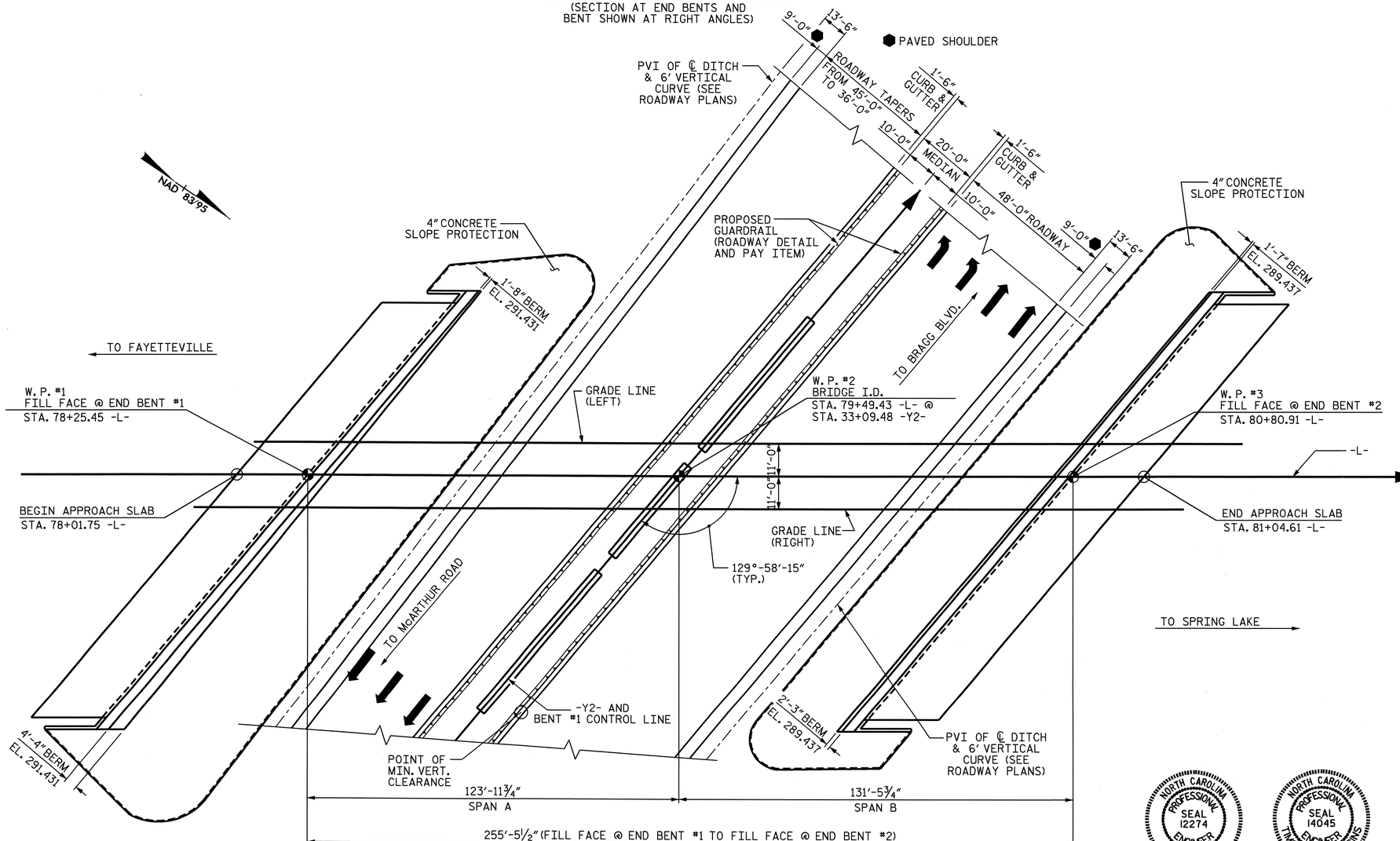
END BENT #1 BENT #1 END BENT #2

SECTION ALONG -L-

(SECTION AT END BENTS AND BENT SHOWN AT RIGHT ANGLES)

PLAN

(PILES NOT SHOWN FOR CLARITY)



PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L- = 33+09.48 -Y2-

SHEET 1 OF 3 BRIDGE NO. 409

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 210
OVER HONEYCUTT RD.
BETWEEN CSX RR
AND RANDOLPH ST.

NORTH CAROLINA PROFESSIONAL SEAL 12274 ENGINEER OMAR R. AZIZI
8-4-09

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-12-09
CHECKED BY : T. L. COGGINS DATE : 6/9/09

04-AUG-2009 16:46
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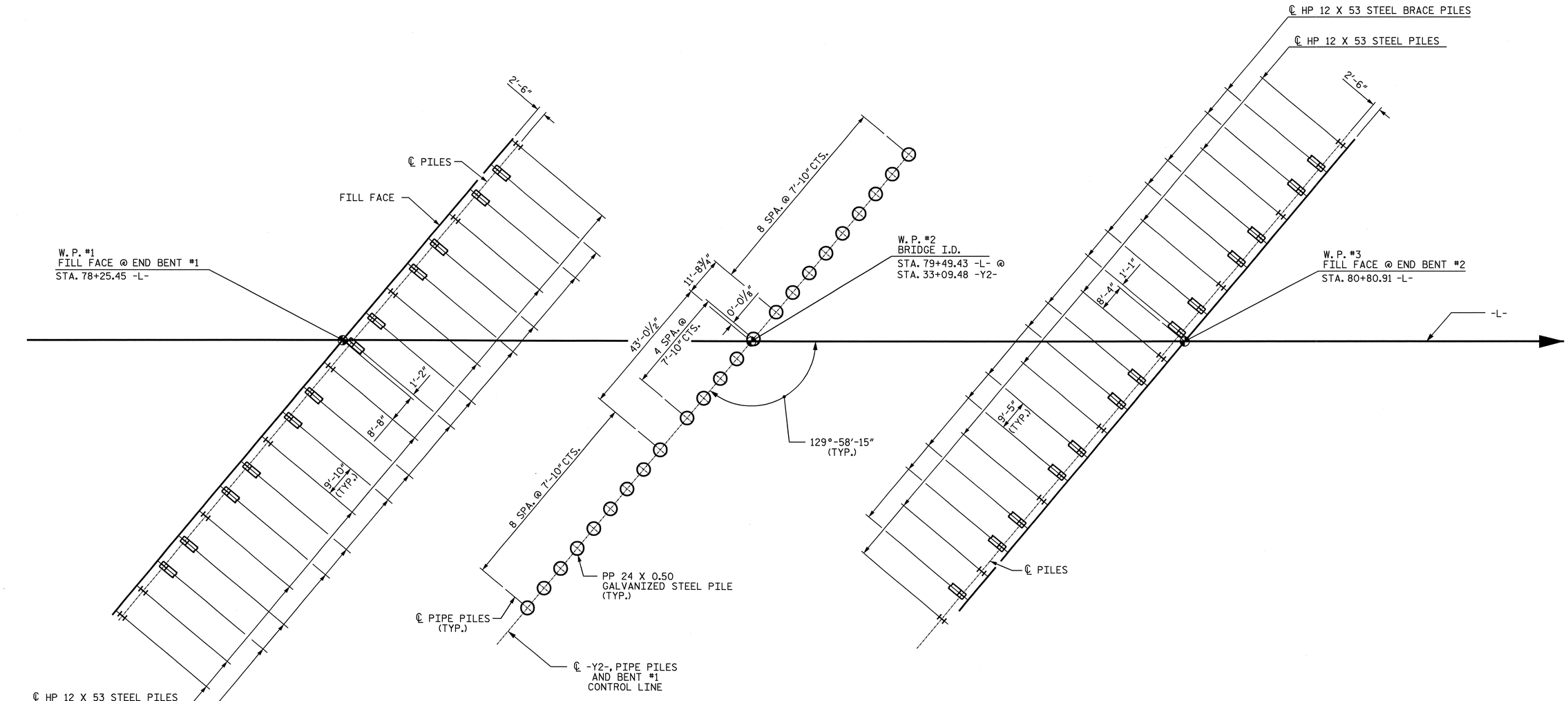
STR. #1



FOUNDATION LAYOUT

BRACE PILES AT END BENTS ARE BATTERED 3 : 12.
ALL PP 24 X 0.50 GALVANIZED PILES ARE VERTICAL.

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 210
OVER HONEYCUTT RD.
BETWEEN CSX RR
AND RANDOLPH ST.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-12-09
CHECKED BY : T. L. COGGINS DATE : 6/9/09

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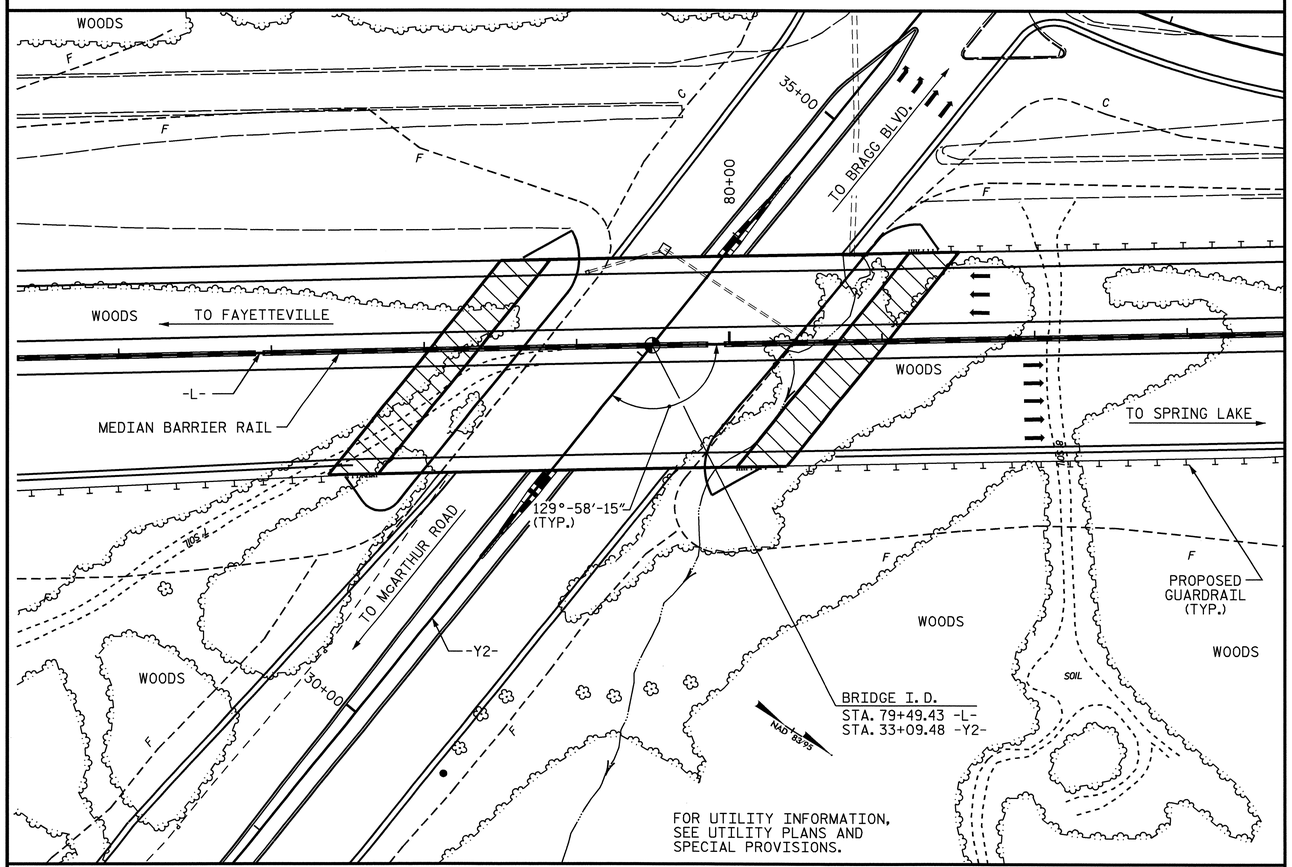
STR. #1

TOTAL BILL OF MATERIAL

	PDA TESTING	PDA ASSISTANCE	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES		PP 24 X 0.50 GALVANIZED STEEL PILES		PIPE PILE PLATES	PILE REDRIVES	CONCRETE BARRIER RAIL	CONCRETE MEDIAN BARRIER	4" SLOPE PROTECTION	POT BEARINGS	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	EACH	EACH	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX.LBS.	NO.	LIN.FT.	NO.	LIN.FT.	EACH	EACH	LIN.FT.	LIN.FT.	SQ.YDS.	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			35,699	38,918		LUMP SUM		1,257,000							505.48	252.74		LUMP SUM	LUMP SUM	LUMP SUM
END BENT NO.1					138.9		25,017		20	1,500				10			1,019			
BENT NO.1	1	1			97.5		15,979				23	2,645	23	12						
END BENT NO.2					147.5		25,332		21	1,470				10			976			
TOTAL	1	1	35,699	38,918	383.9	LUMP SUM	66,328	1,257,000	41	2,970	23	2,645	23	32	505.48	252.74	1,995	LUMP SUM	LUMP SUM	LUMP SUM

BM82: RR SPIKE IN BASE OF 15" PINE, STA. 82+68.45 -L-, 30.65' LT., ELEV. 274.92'.



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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

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.

REMOVABLE FORMS 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.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE AT STATION 79+49.43 -L-, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR FORMS FOR CONCRETE BRIDGE DECKS, SEE SPECIAL PROVISIONS.

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT BOTH END BENTS ARE DESIGNED FOR A FACTORED RESISTANCE OF 115 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 195 TONS PER PILE.

PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 316 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 527 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 243.0 FT.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 45-75 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 150-180 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT NO. 1. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

PIPE PILE PLATES ARE REQUIRED FOR PIPE PILES AT BENT NO. 1. USE PIPE PILE PLATES WITH A DIAMETER EQUAL TO THE PIPE PILE DIAMETER.

TESTING THE FIRST PRODUCTION PILE WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT NO. 1. FOR PILE DRIVING ANALYZER, SEE PILES SPECIAL PROVISION.

GALVANIZE THE TOP 30 FEET MINIMUM OF EACH PP 24 X 0.50 GALVANIZED STEEL PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 210
OVER HONEYCUTT RD.
BETWEEN CSX RR
AND RANDOLPH ST.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-12-09
CHECKED BY : T. L. COGGINS DATE : 6/9/09

04-AUG-2009 16:46
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STR. #1

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE											SERVICE II LIMIT STATE						COMMENT NUMBER
							LIVE-LOAD FACTORS (γ_{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ_{LL})	MOMENT					
								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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	1	1.10	--	1.75	0.780	1.15	B	INT.	0	1.034	1.10	B	INT.	0	1.30	0.780	1.27	B	INT.	0	
		HL-93 (OPERATING)	N/A		1.42	--	1.35	0.780	1.49	B	INT.	0	1.034	1.42	B	INT.	0	1.00	0.780	1.65	B	INT.	0	
		HS-20 (INVENTORY)	36.00	2	1.66	59.76	1.80	0.780	2.83	B	INT.	0	1.034	1.66	B	INT.	0	1.30	0.780	5.66	B	INT.	0	
		HS-20 (OPERATING)	36.00		2.22	79.92	1.35	0.780	3.77	B	INT.	0	1.034	2.22	B	INT.	0	1.00	0.780	7.36	B	INT.	0	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		4.55	61.43	1.70	0.780	7.87	B	INT.	0	1.034	4.55	B	INT.	0	1.30	0.780	13.06	B	INT.	0	
		SNGARBS2	20.000		3.11	62.20	1.70	0.780	5.35	B	INT.	0	1.034	3.11	B	INT.	0	1.30	0.780	10.10	B	INT.	0	
		SNAGRIS2	22.000		2.85	62.70	1.70	0.780	4.88	B	INT.	0	1.034	2.85	B	INT.	0	1.30	0.780	9.19	B	INT.	0	
		SNCOTTS3	27.250		2.26	61.59	1.70	0.780	3.89	B	INT.	0	1.034	2.26	B	INT.	0	1.30	0.780	7.34	B	INT.	0	
		SNAGGRS4	34.925		1.79	62.52	1.70	0.780	3.05	B	INT.	0	1.034	1.79	B	INT.	0	1.30	0.780	5.75	B	INT.	0	
		SNS5A	35.550		1.77	62.92	1.70	0.780	3.00	B	INT.	0	1.034	1.77	B	INT.	0	1.30	0.780	5.66	B	INT.	0	
		SNS6A	39.950		1.59	63.52	1.70	0.780	2.68	B	INT.	0	1.034	1.59	B	INT.	0	1.30	0.780	5.06	B	INT.	0	
		SNS7B	42.000		1.52	63.84	1.70	0.780	2.55	B	INT.	0	1.034	1.52	B	INT.	0	1.30	0.780	4.81	B	INT.	0	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.92	63.36	1.70	0.780	3.25	B	INT.	0	1.034	1.92	B	INT.	0	1.30	0.780	6.15	B	INT.	0	
		TNT4A	33.075		1.90	62.84	1.70	0.780	3.24	B	INT.	0	1.034	1.90	B	INT.	0	1.30	0.780	6.12	B	INT.	0	
		TNT6A	41.600		1.56	64.90	1.70	0.780	2.59	B	INT.	0	1.034	1.56	B	INT.	0	1.30	0.780	4.89	B	INT.	0	
		TNT7A	42.000		1.54	64.68	1.70	0.780	2.57	B	INT.	0	1.034	1.54	B	INT.	0	1.30	0.780	4.85	B	INT.	0	
		TNT7B	42.000		1.52	63.84	1.70	0.780	2.58	B	INT.	0	1.034	1.52	B	INT.	0	1.30	0.780	4.88	B	INT.	0	
		TNAGRIT4	43.000		1.48	63.64	1.70	0.780	2.50	B	INT.	0	1.034	1.48	B	INT.	0	1.30	0.780	4.72	B	INT.	0	
		TNAGT5A	45.000		1.43	64.35	1.70	0.780	2.40	B	INT.	0	1.034	1.43	B	INT.	0	1.30	0.780	4.52	B	INT.	0	
		TNAGT5B	45.000	3	1.41	63.45	1.70	0.780	2.38	B	INT.	0	1.034	1.41	B	INT.	0	1.30	0.780	4.50	B	INT.	0	
FATIGUE		HL-93 (INVENTORY)	γ_{LL}=0.75																					

LOAD FACTORS:

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

LEGAL LOAD RATING FACTORS	YEAR	ADTT	γ_L
	2009	1570	N/A
	2030	2237	1.70

NOTES:

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

ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.

2.

3.

4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93) **

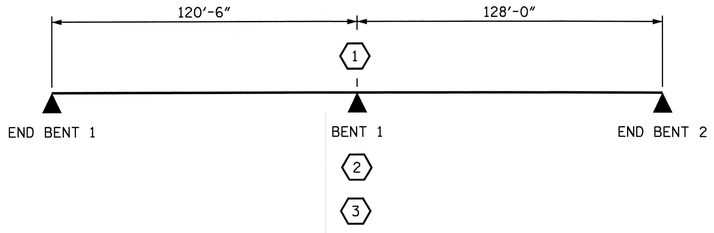
(2) DESIGN LOAD RATING (HS-20) **

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-4
1			3			TOTAL SHEETS
2			4			50

STD. NO. LRFR3

ASSEMBLED BY : E. E. MURRAY DATE : 6/9/09
CHECKED BY : M. L. RORIE DATE : 6/9/09
DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08
REV. 11/12/08R MAA/GM

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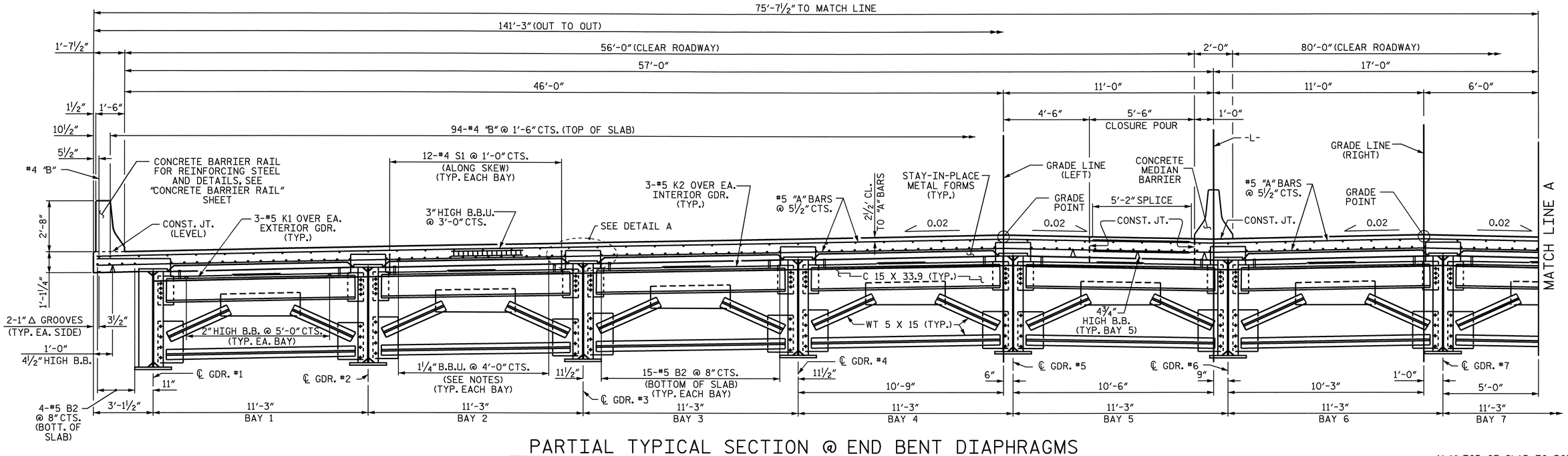
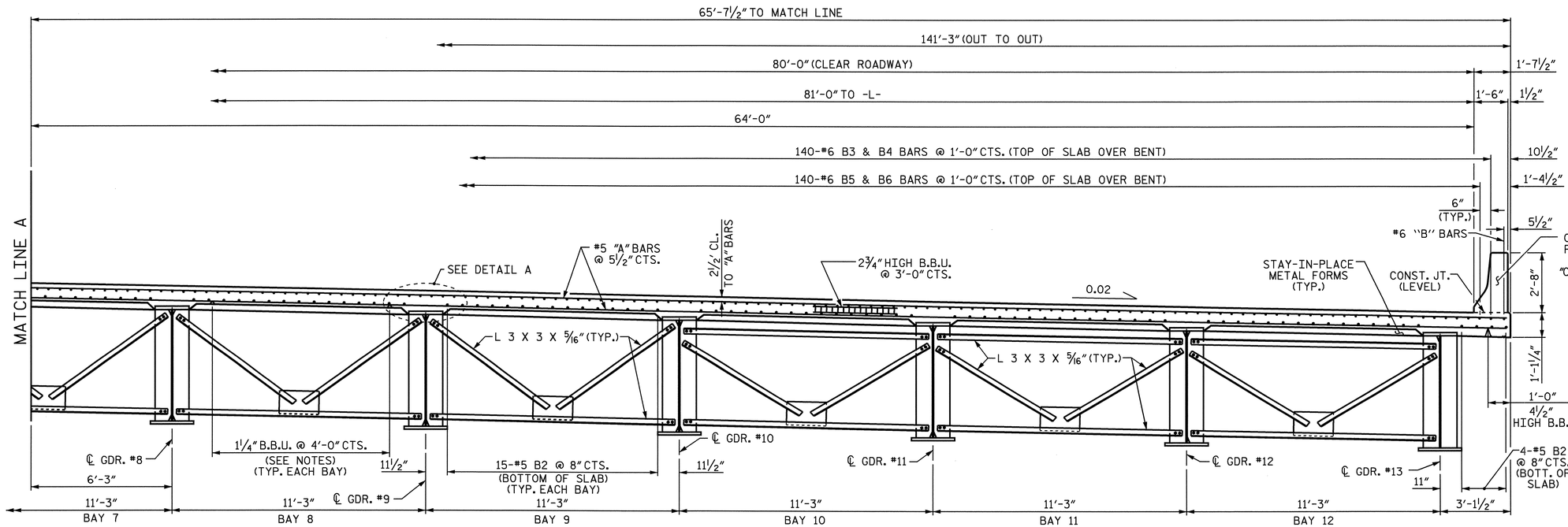
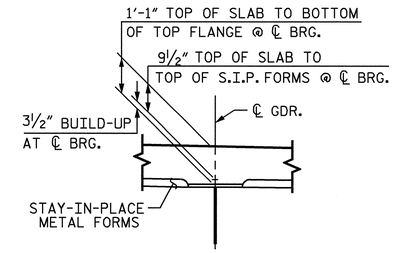


PARTIAL TYPICAL SECTION @ END BENT DIAPHRAGMS



PARTIAL TYPICAL SECTION @ INTERMEDIATE DIAPHRAGMS



DETAIL A

PARTIAL TYPICAL SECTION @ BENT DIAPHRAGMS

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-5
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 2-16-09
CHECKED BY : T.L. AVERETTE DATE : 5-27-09

04-AUG-2009 15:35
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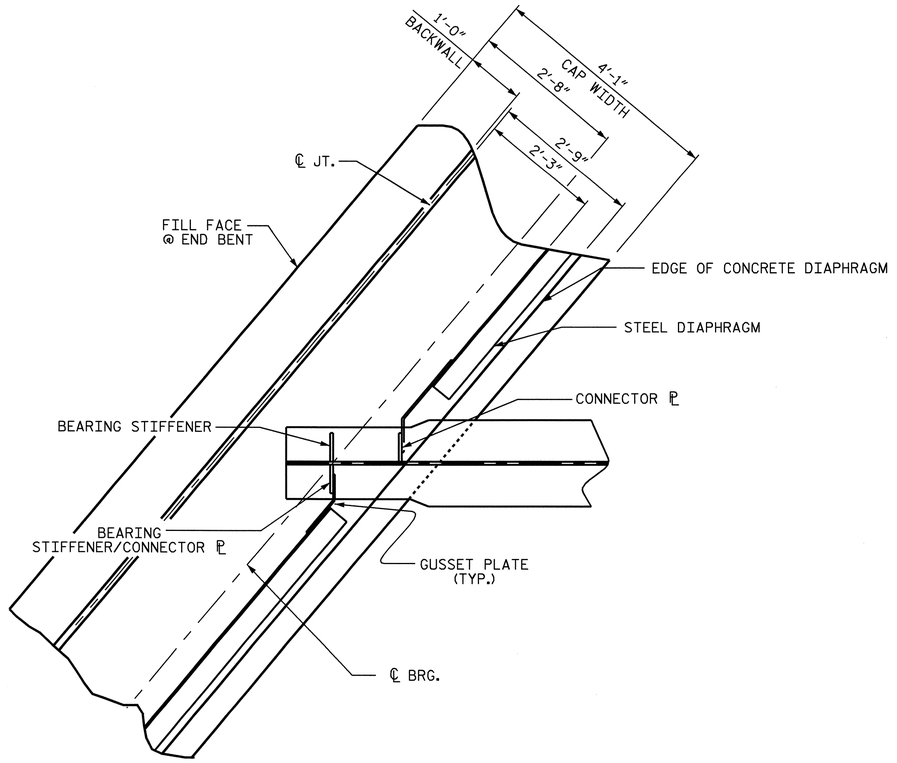
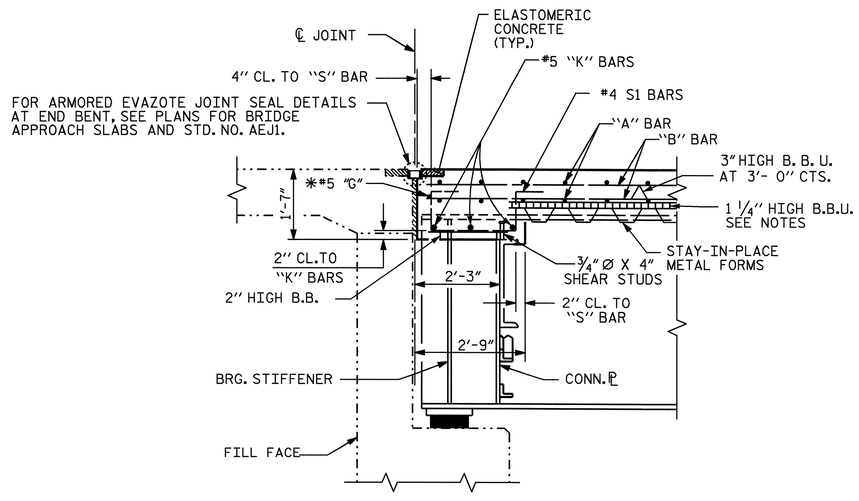
STR. #1



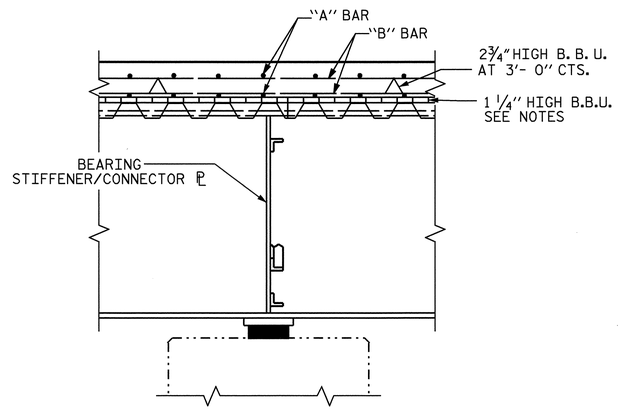
PLAN OF GIRDER @ END BENT JOINT

END BENT #1 SHOWN, END BENT #2 SIMILAR



SECTION THRU END BENT DIAPHRAGM

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



SECTION THRU BENT DIAPHRAGM

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 2½" ABOVE THE TOP OF THE REMOVABLE FORM.

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.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

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

NO STAY-IN-PLACE FORMS ALLOWED IN BAY 5.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
8/4/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-6
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 2-23-09
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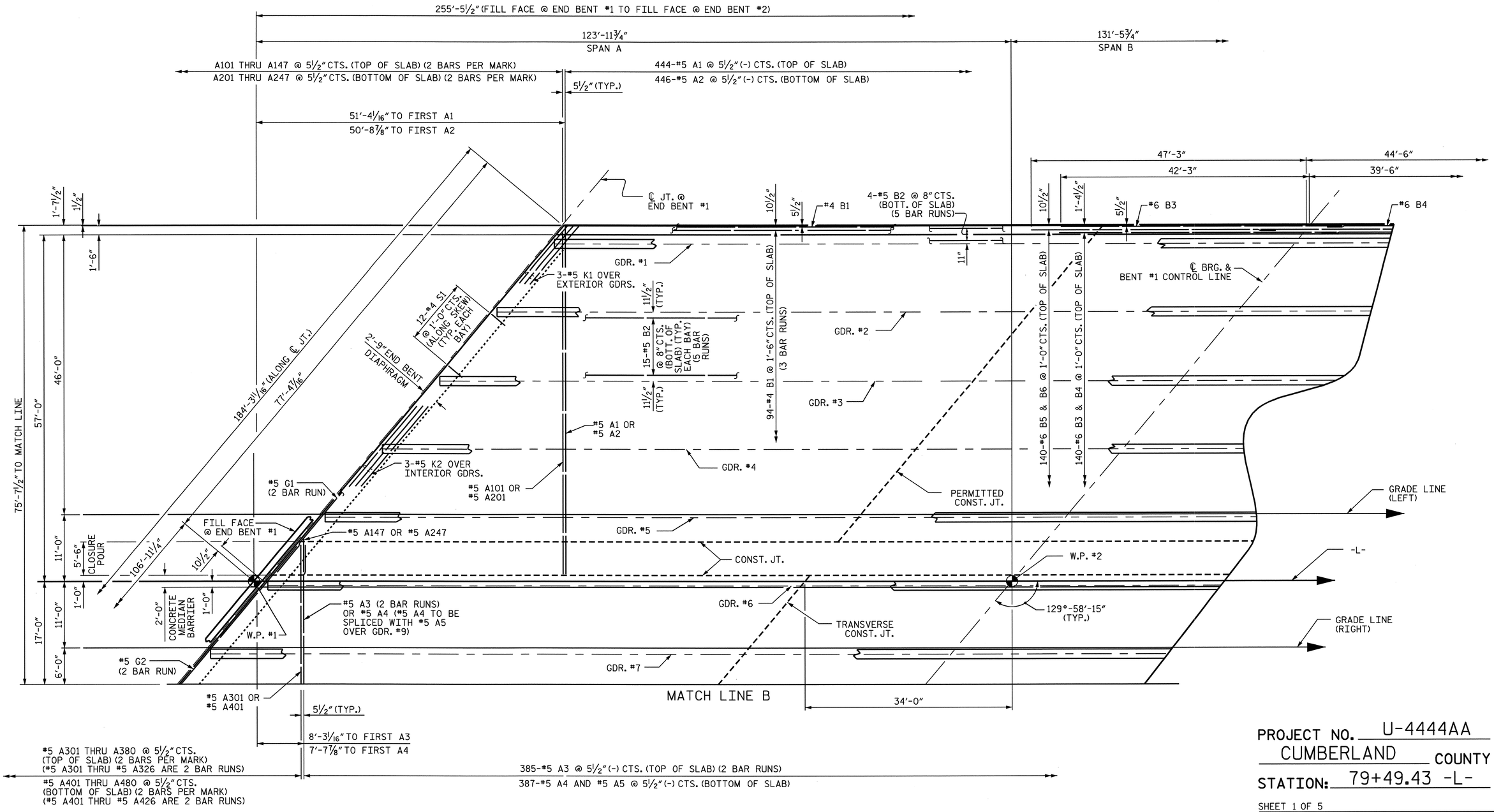
STR. #1



PARTIAL PLAN

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR TOP OF SLAB REINFORCING STEEL LAYOUT, SEE SHEET 5 OF 5.

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN A
LEFT OF MATCH LINE B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-7
1			3			TOTAL SHEETS
2			4			50

STR. #1 NC005

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY J. L. COGGINS 8/4/09

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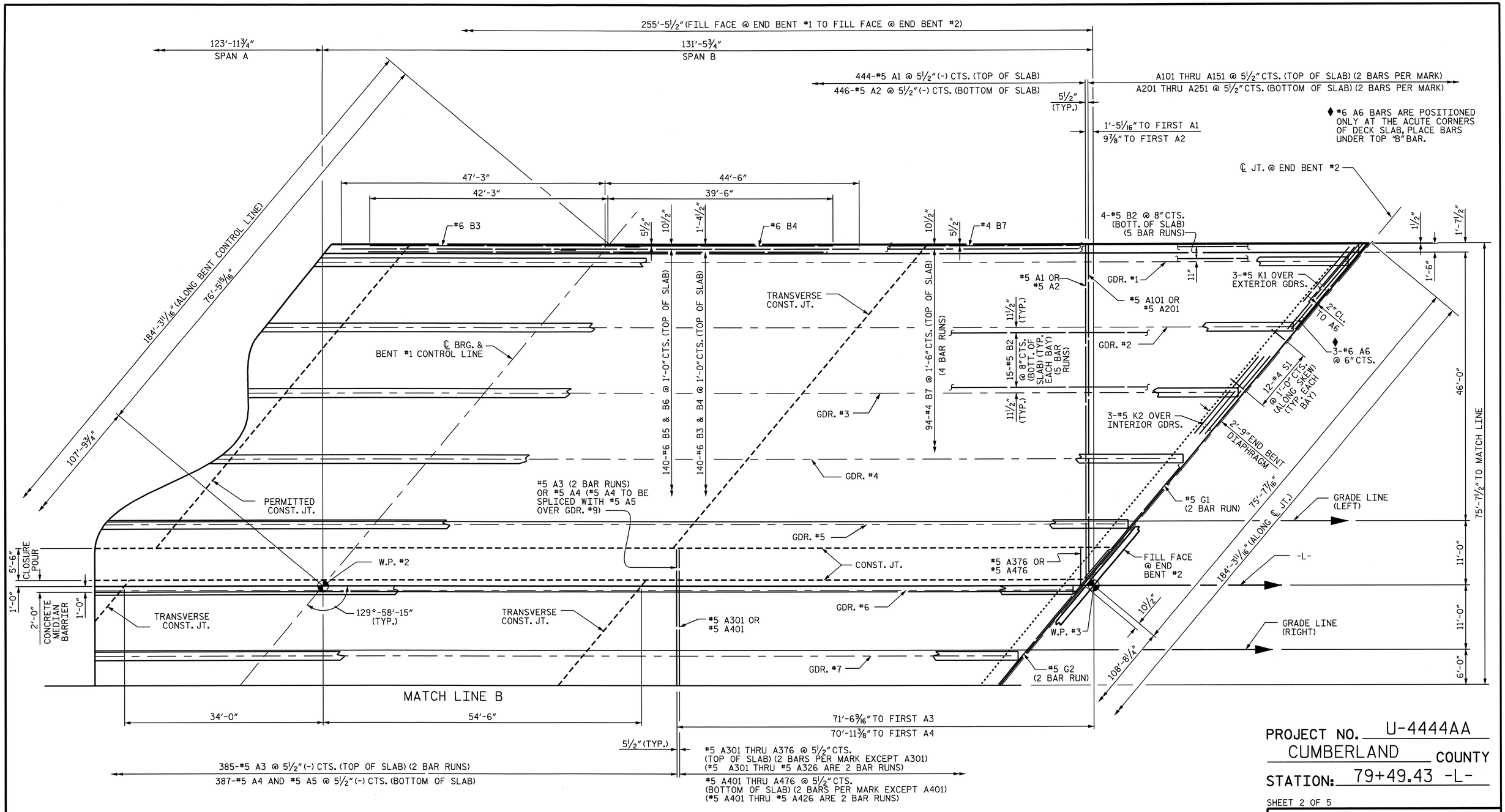

PARTIAL PLAN

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR TOP OF SLAB REINFORCING STEEL LAYOUT, SEE SHEET 5 OF 5.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN B
LEFT OF MATCH LINE B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-8
1			3			TOTAL SHEETS
2			4			50

STR. #1 NC00DS

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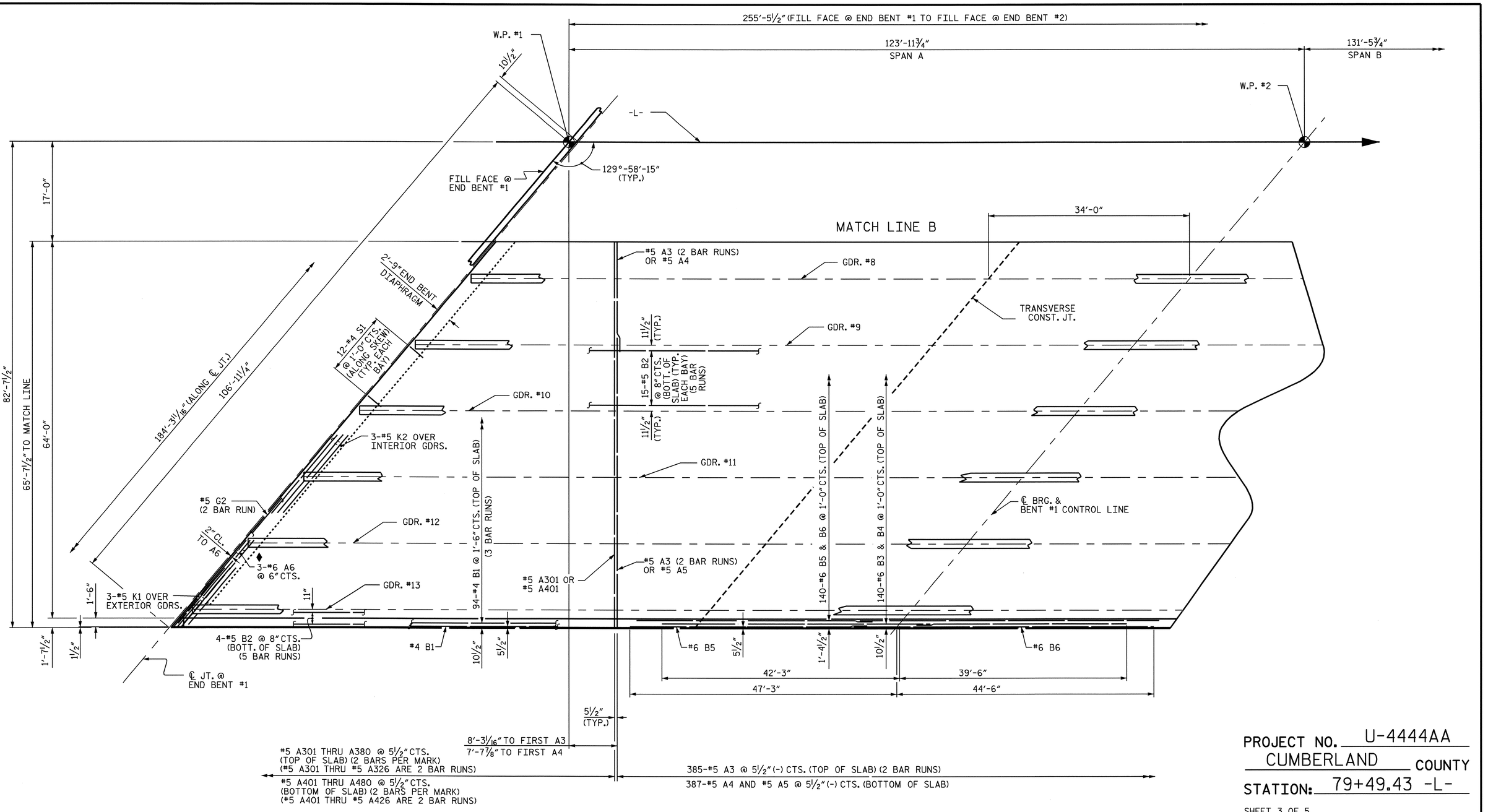

♦ #6 A6 BARS ARE POSITIONED ONLY AT THE ACUTE CORNERS OF DECK SLAB, PLACE BARS UNDER TOP "B" BAR.

PARTIAL PLAN

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR TOP OF SLAB REINFORCING STEEL LAYOUT, SEE SHEET 5 OF 5.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN A
RIGHT OF MATCH LINE B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			50

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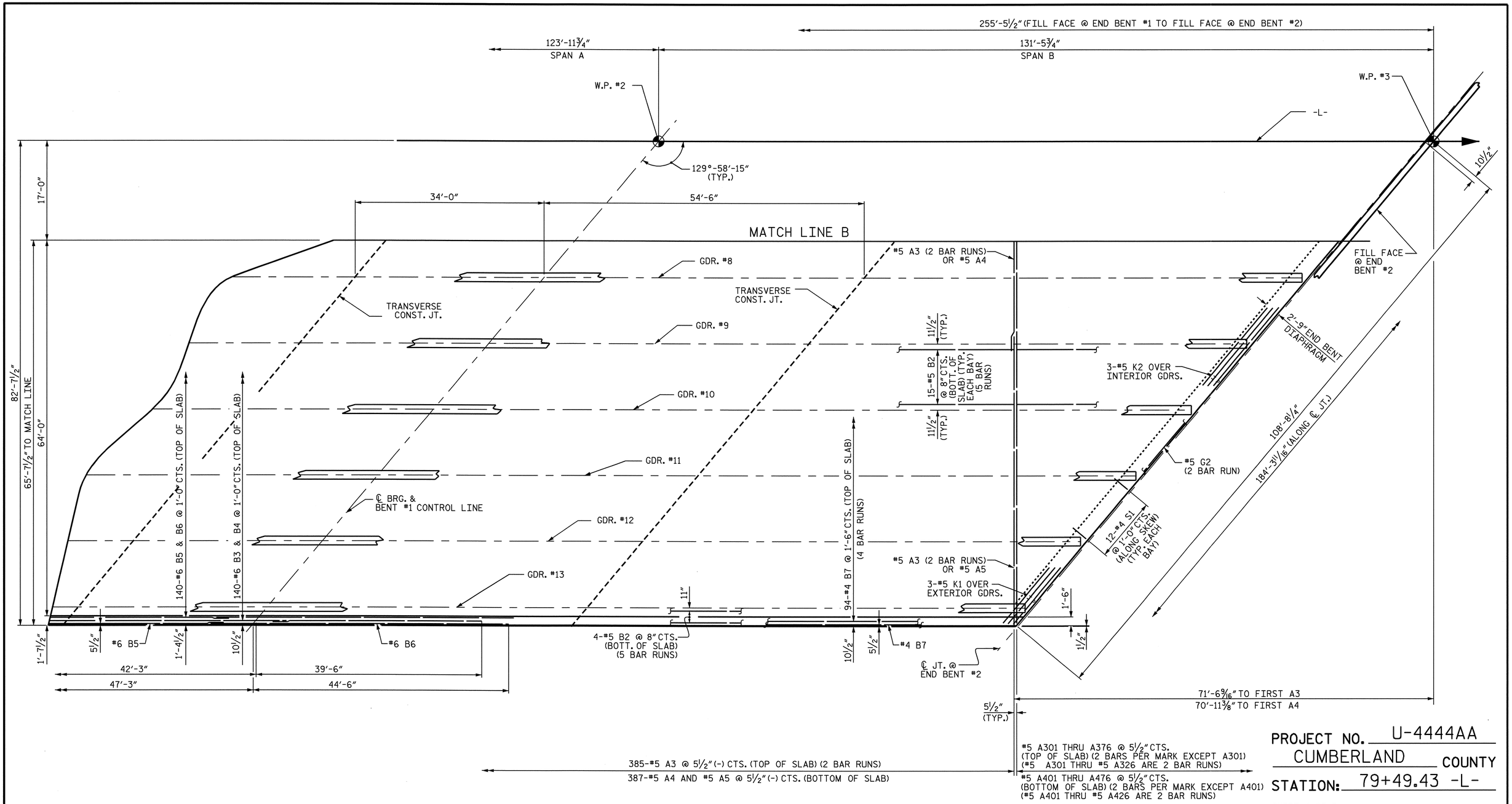

PARTIAL PLAN

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR TOP OF SLAB REINFORCING STEEL LAYOUT, SEE SHEET 5 OF 5.

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN B
RIGHT OF MATCH LINE B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-10
1			3			TOTAL SHEETS
2			4			50

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

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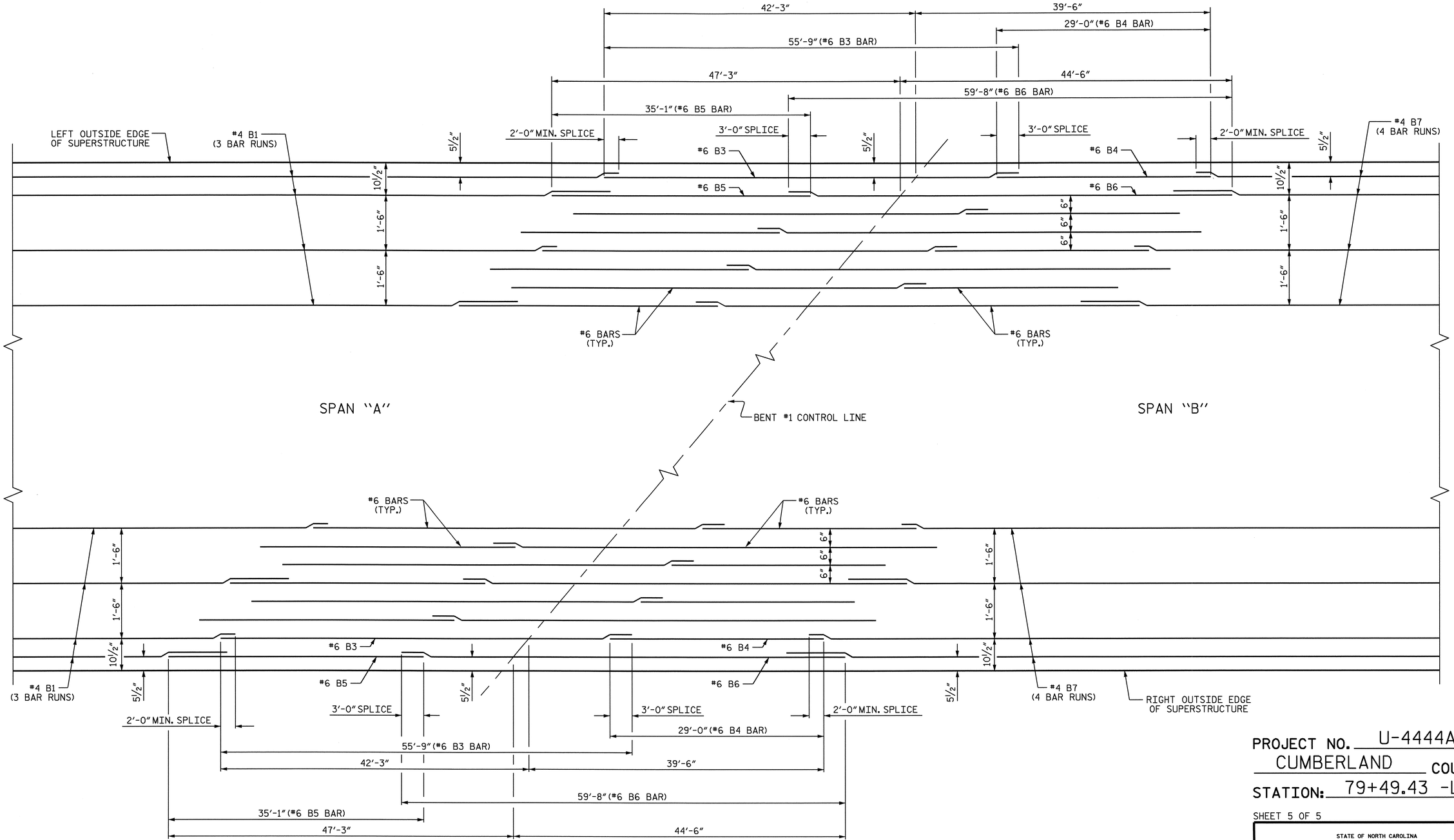

TOP OF SLAB REINFORCING STEEL LAYOUT

SHOWING TOP OF SLAB LONGITUDINAL REINFORCING STEEL ONLY

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPANS
TOP OF SLAB REINFORCING STEEL LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			50

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

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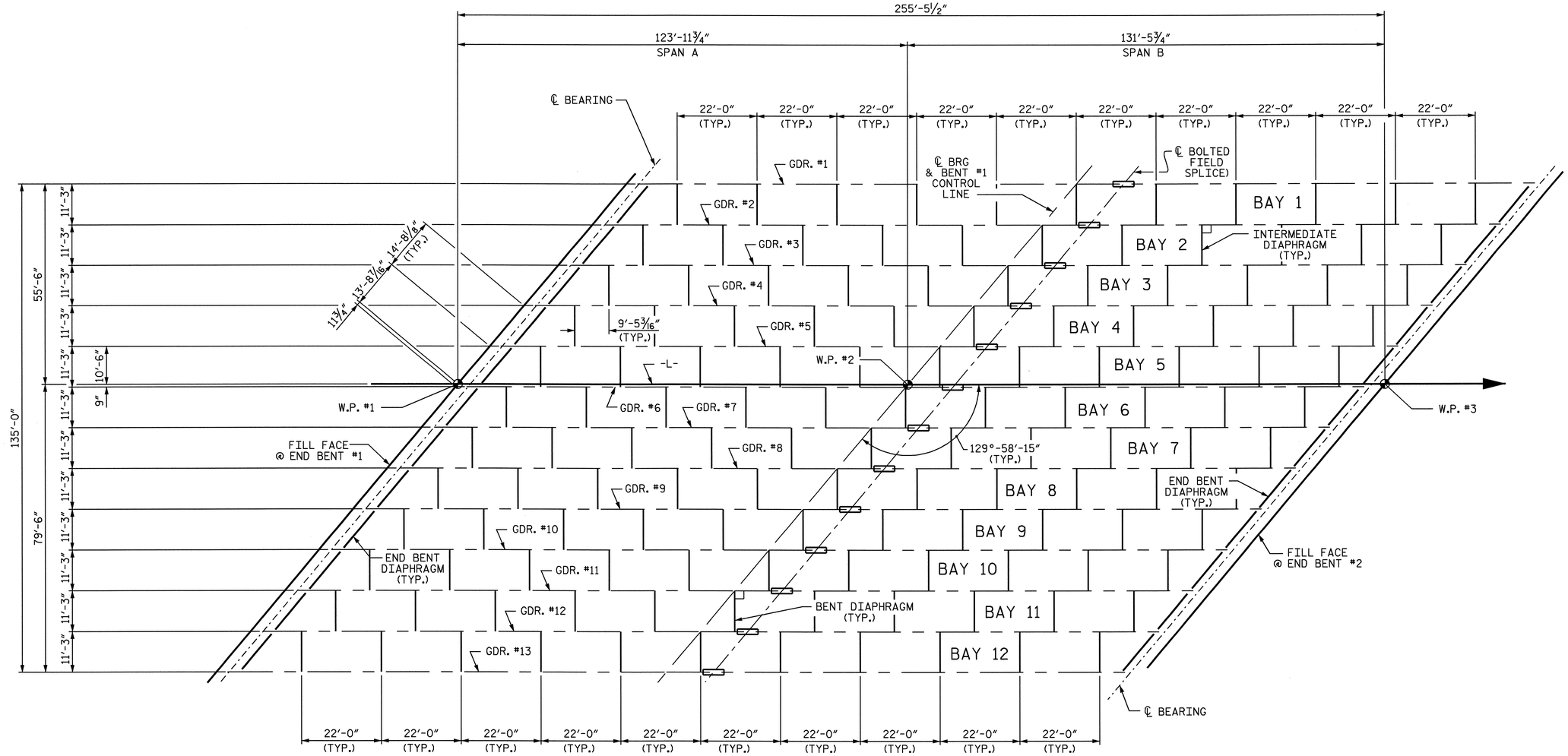

SPAN A

SPAN B

FRAMING PLAN

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
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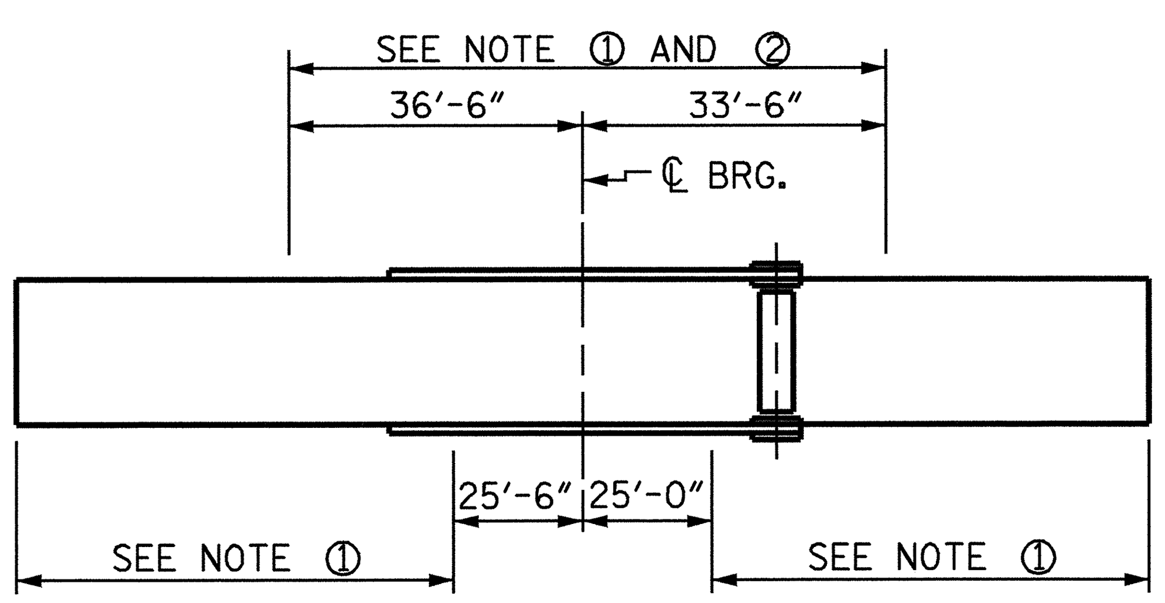
STR. #1

NC005

GIRDER ELEVATION

BOTTOM FLANGE DETAIL

INTERIOR GIRDER SHOWN. EXTERIOR GIRDER SIMILAR, EXCEPT NO CONNECTOR PLATES SHALL BE PLACED ON THE OUTSIDE OF WEB.

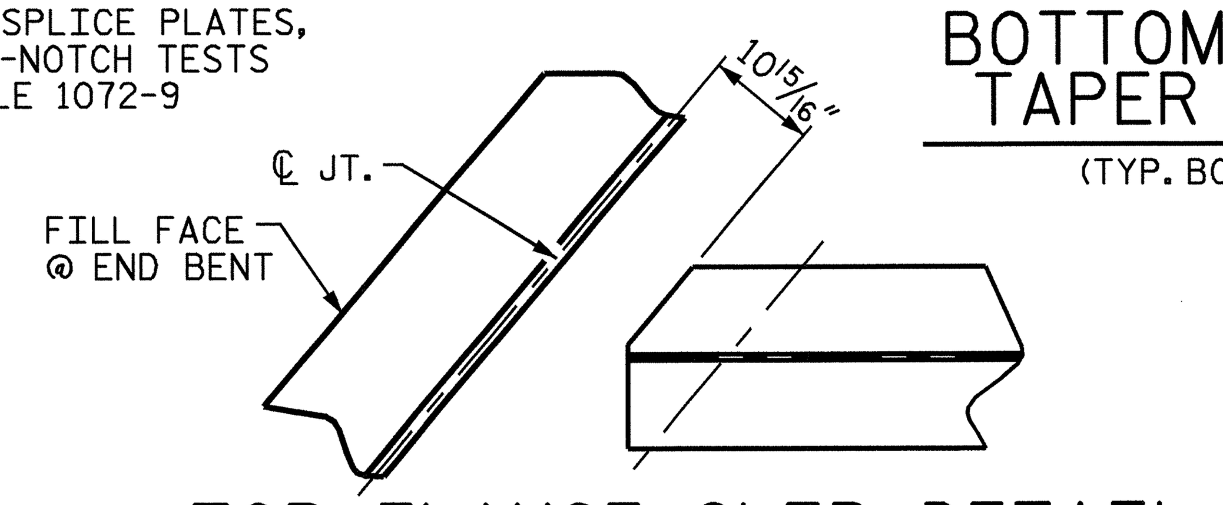


GIRDER MAKE UP

NOTE ① : CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS. ALSO, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR ALL WEB PLATES, WEB SPLICE PLATES, AND FLANGE SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

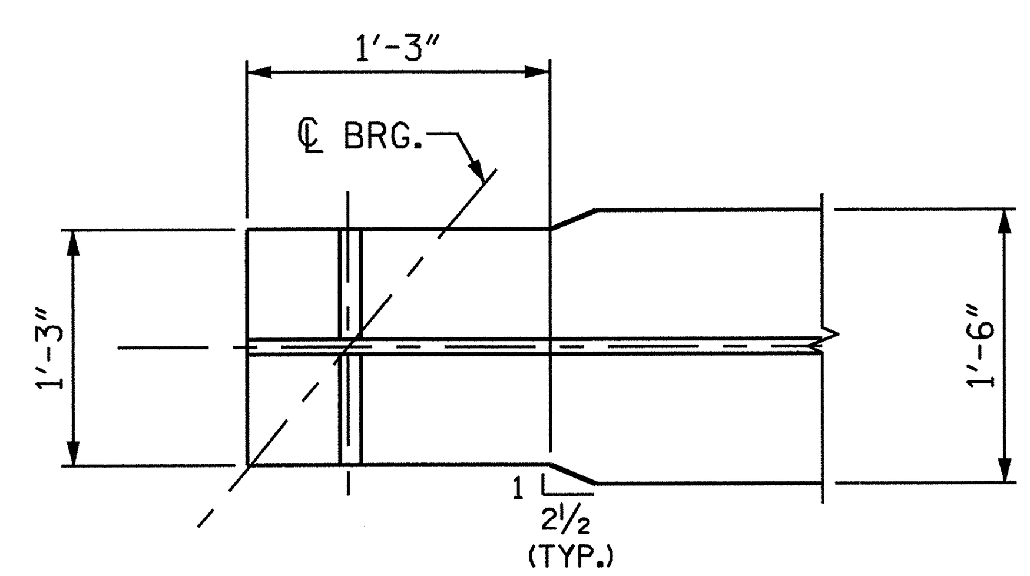
NOTE ② : NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION

CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS



TOP FLANGE CLIP DETAIL

(TYP. BOTH ENDS)



BOTTOM FLANGE TAPER DETAIL

(TYP. BOTH ENDS)

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS

[illegible]
8/4/09

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS

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

SHEET NO. S-13
TOTAL SHEETS 50

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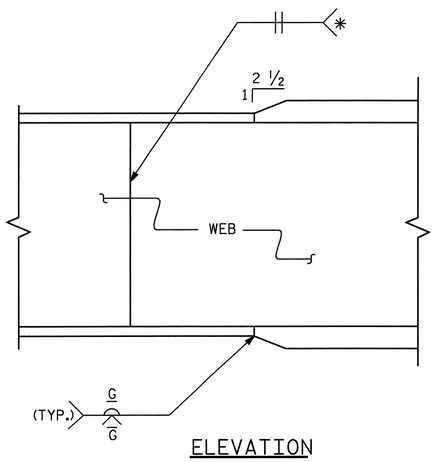
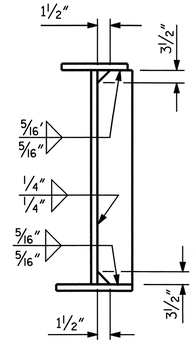


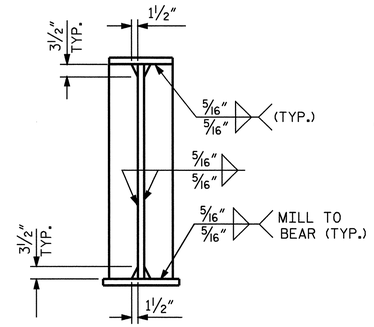
✳ GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS

ELEVATION

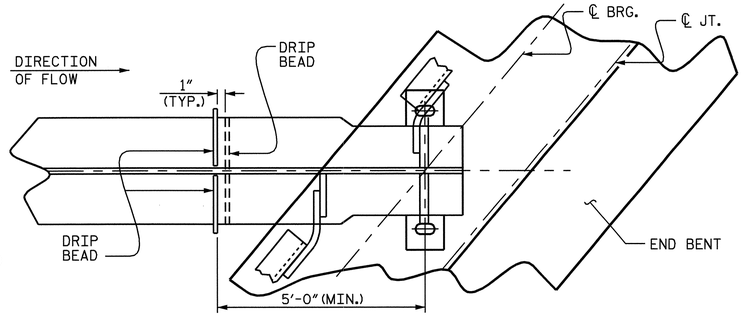
TYPICAL FLANGE AND WEB BUTT JOINT



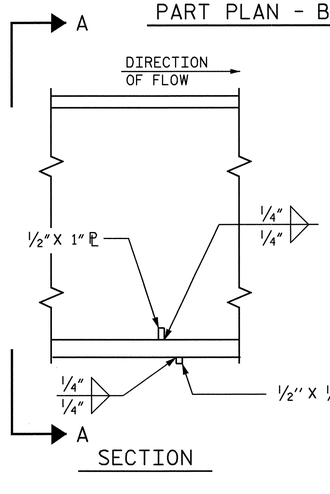
CONNECTOR PLATE DETAILS



BEARING STIFFENER PLATE DETAILS



PART PLAN - BOTTOM FLANGE



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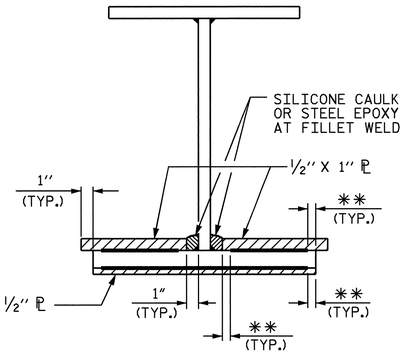
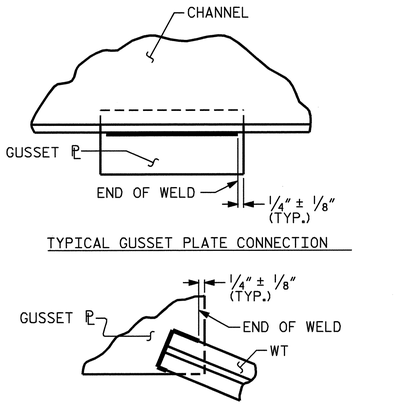


VIEW A-A

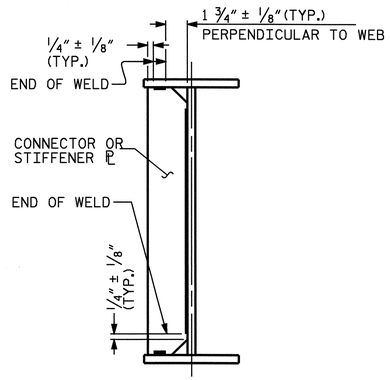
✳✳SEE "WELD TERMINATION DETAILS"

DRIP BEAD DETAILS



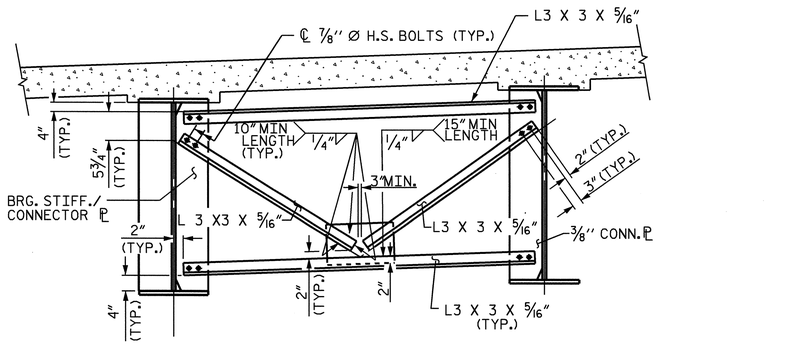
TYPICAL GUSSET PLATE CONNECTION

TYPICAL "TEE" TO GUSSET PLATE CONNECTION



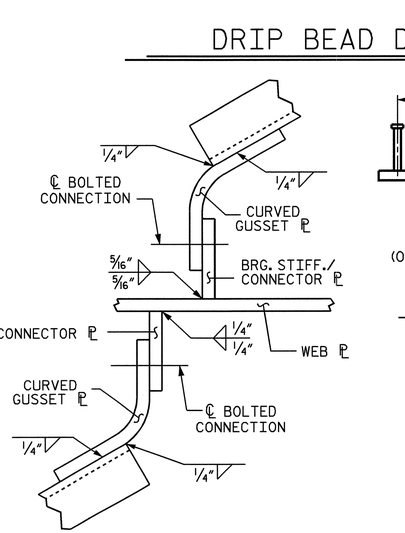
TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS

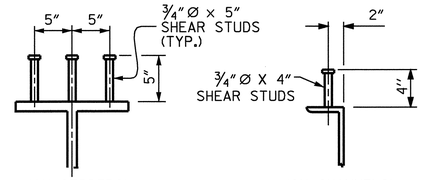


TYPICAL BENT DIAPHRAGM

(LOOKING UPSTATION)

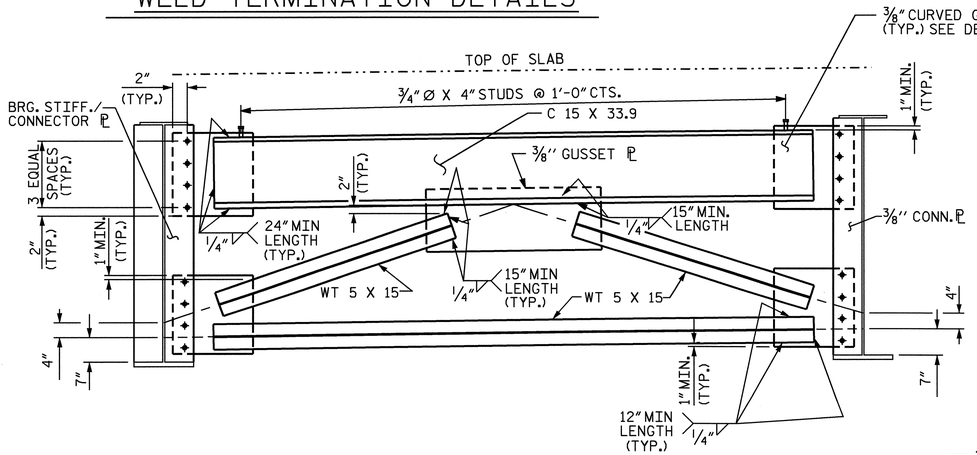


DETAIL "C"

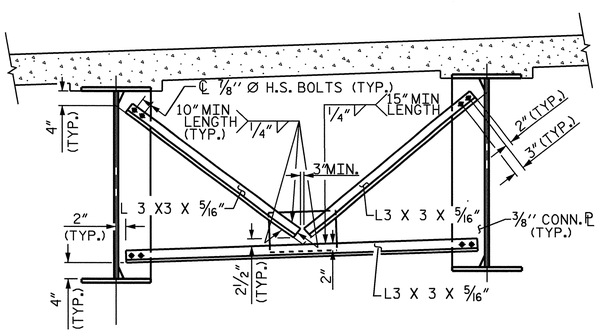


(ON GIRDERS) (ON CHANNELS)

SHEAR STUD DETAILS



TYPICAL END BENT CROSSFRAME



TYPICAL INTERMEDIATE DIAPHRAGM

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

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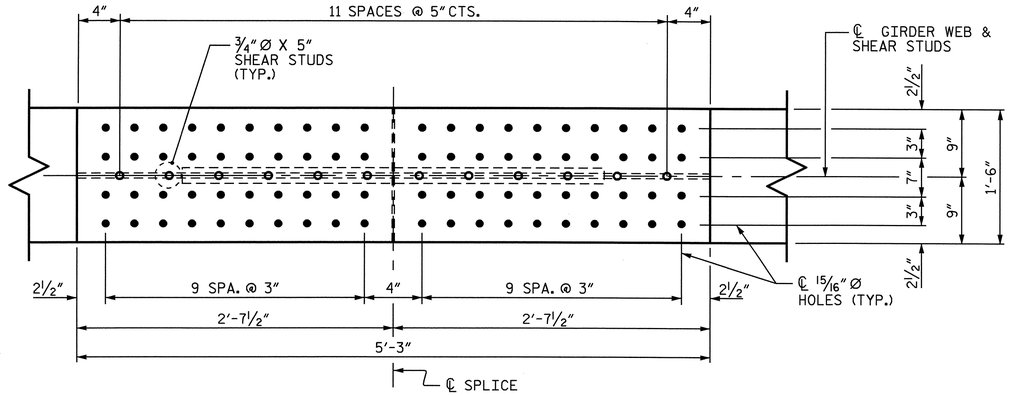
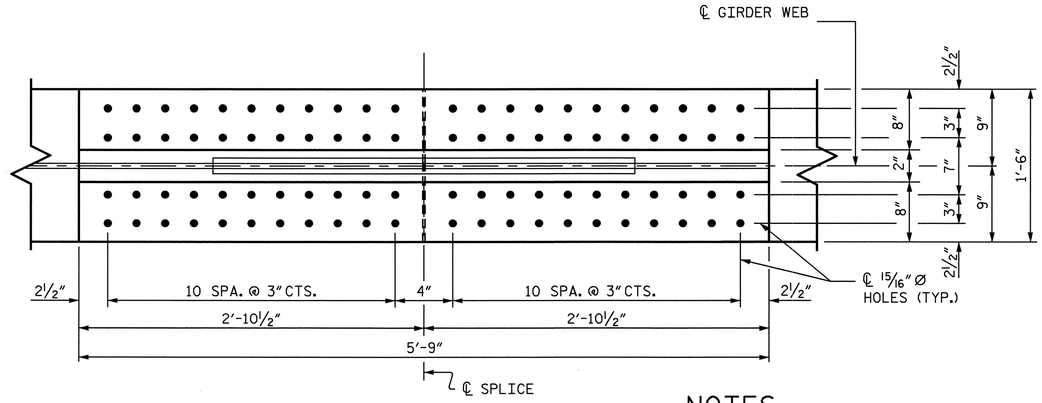
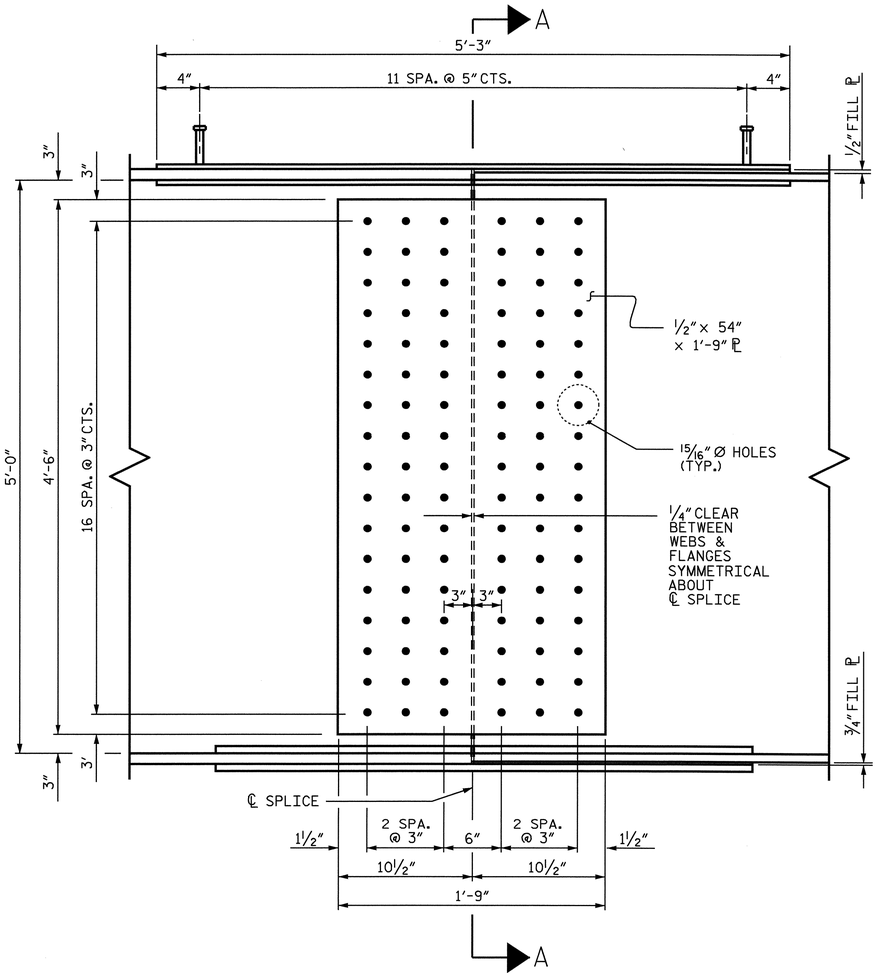


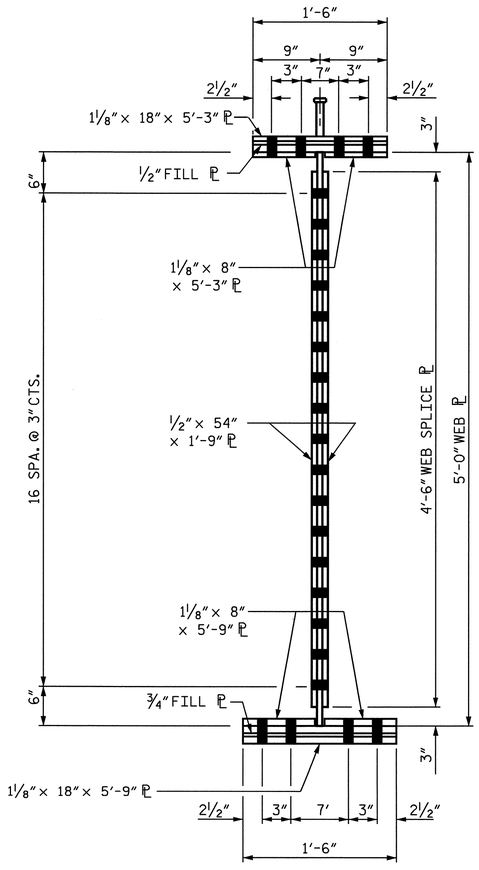
PLAN (TOP OF TOP FLANGE)



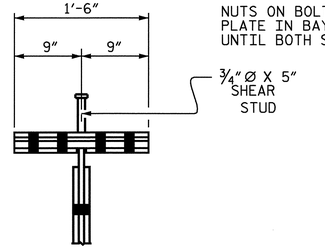
PLAN (TOP OF BOTTOM FLANGE)



ELEVATION



SECTION A-A



SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

NOTES :

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE ⅞″DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED. FOR HIGH-STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6″MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1″IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS. FOR DIRECT TENSION INDICATOR WASHERS, SEE SPECIAL PROVISIONS.

END OF BEAMS AND GIRDERS SHALL BE PLUMB.

BEARING STIFFENERS ACTING AS CONNECTOR PLATES MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISIONS.

NUTS ON BOLTS FOR CONNECTING DIAPHRAGM TO CONNECTOR PLATE IN BAY 5 SHALL BE LEFT LOOSE FOR PURPOSE OF ADJUSTMENT UNTIL BOTH SIDES OF SLAB HAVE BEEN POURED.

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS BOLTED FIELD SPLICE

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			50

BOLTED FIELD SPLICE DETAILS

DRAWN BY : PEGGY PARISI DATE : 4-2-09
CHECKED BY : T.L.AVERETTE DATE : 6-8-09

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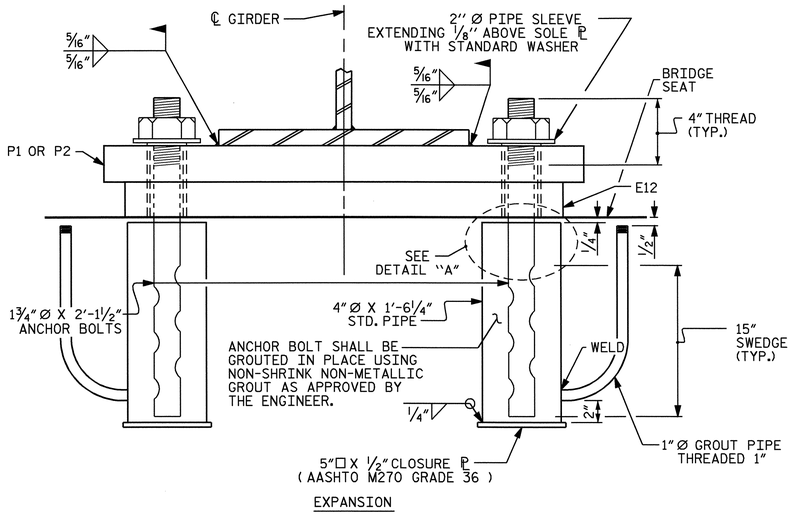
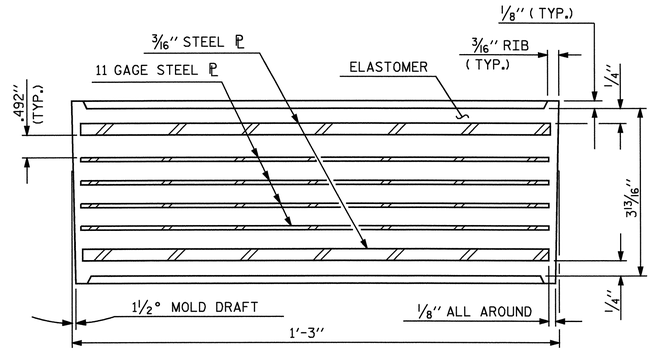
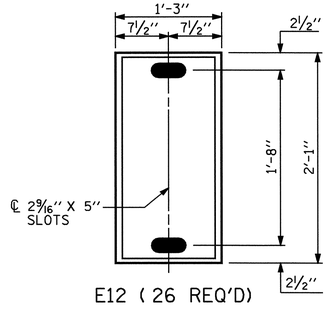


END VIEW



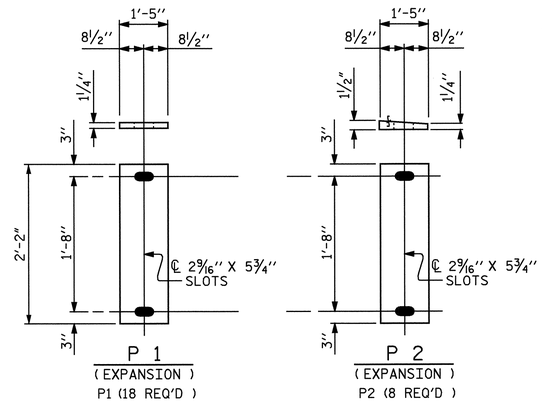
TYPICAL SECTION OF ELASTOMERIC BEARING



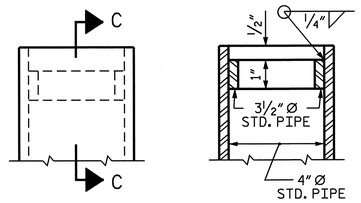
E12 (26 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE VI



SOLE PLATE DETAILS ("P")



SECTION C-C

DETAIL "A"

NOTES

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.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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 BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, 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.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE CLOSURE PLATE, GROUT PIPE AND STANDARD PIPE FOR THE EXPANSION ASSEMBLY NEED NOT BE GALVANIZED.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURE, WHICH MAY BE REQUIRED BY THE ENGINEER, TO RESET ELASTOMERIC BEARINGS DUE TO GIRDER TRANSLATION AND END ROTATION:

1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED THEN THE ANCHOR BOLTS AND ELASTOMERIC BEARING SLOTS CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.
2. AFTER CENTERING THE ELASTOMERIC BEARING SLOTS AND ANCHOR BOLTS, THE ANCHOR BOLTS SHALL BE GROUTED.

   THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

-LOAD RATINGS-	
	MAX.D.L.+ L.L.
TYPE VI	262 k

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

ELASTOMERIC BEARING DETAILS

(STEEL SUPERSTRUCTURE)

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/14/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-16
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY : PEGGY PARISI	DATE : 4-2-09		
CHECKED BY : T.L AVERETTE	DATE : 6/03/09		
DRAWN BY : EEM 10/95	REV. 10/17/00	RWW/LES	
CHECKED BY : PEK 10/95	REV. 7/10/01	LES/RDR	
	REV. 5/1/06	TLA/GM	

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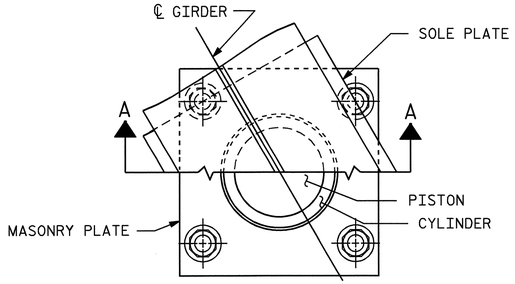
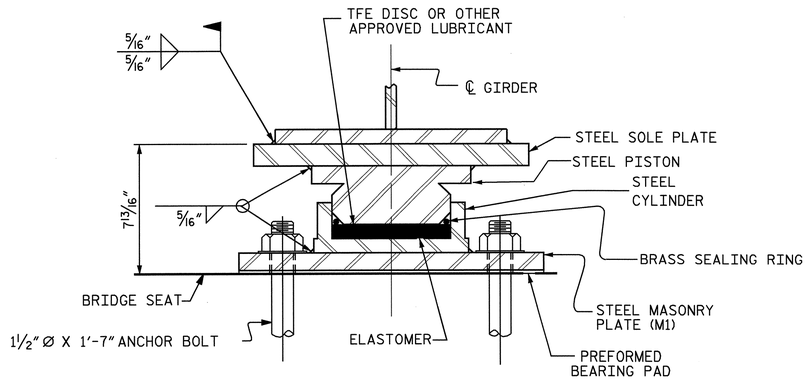
STR. #1

STD. NO. EB2



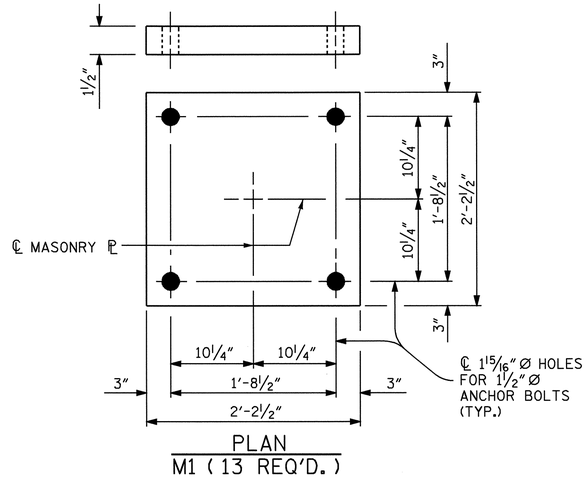
CUT-AWAY PLAN



SECTION A-A

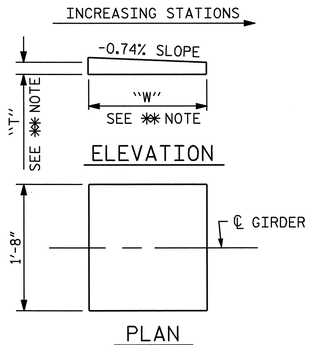
PB1, FIXED
(13 REQ'D.)

POT BEARING DETAILS



PLAN
M1 (13 REQ'D.)

MASONRY PLATE DETAILS



ELEVATION

PLAN

** NOTE:
DIMENSIONS "W" AND "T" ARE TO BE DETERMINED BY THE MANUFACTURER.

SOLE PLATE DETAILS (S1)

NOTES

FOR POT BEARINGS, SEE SPECIAL PROVISIONS.

AT ALL POINTS OF SUPPORT IN SPANS A & B, NUTS FOR ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND GIVEN AN ADDITIONAL ¼ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

WHEN WELDING THE SOLE PLATE TO THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE BEARING DOES NOT EXCEED 250°F TEMPERATURES ABOVE THIS MAY DAMAGE THE TFE OR ELASTOMER.

SOLE PLATES SHOULD BE WELDED TO GIRDER FLANGES BEFORE FALSEWORK IS PLACED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE CONTRACTOR MAY SUBSTITUTE DISC BEARINGS FOR THE POT BEARINGS SHOWN. FOR OPTIONAL DISC BEARINGS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL ADJUST THE GIRDER BUILDUPS AS NECESSARY TO INCORPORATE A MAXIMUM PERMISSIBLE VARIATION IN POT BEARING DEPTH OF ½", SEE SPECIAL PROVISION FOR POT BEARINGS.

TABLE FOR LOADS AND MOVEMENTS

BEARING	LOCATION	VERTICAL LOAD (KIPS)			LATERAL LOAD (KIPS)	TOTAL MOVEMENT (INCHES)
		DEAD	LIVE	TOTAL		
PB1 (FIXED)	BENT #1	388.5	211.2	599.7	77.7	0

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

POT BEARING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY : PEGGY PARISI DATE : 4-9-09
CHECKED BY : T.L AVERETTE DATE : 6/03/09

DRAWN BY : RWW 8/99
CHECKED BY : LES 8/99

REV. 7/10/01 LES/RDR
REV. 5/7/03 RWW/JTE
REV. 5/1/06 TLA/GM

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STR. #1

STD. NO. PB1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN A
GIRDER 1

@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.002	0.003	0.004	0.005	0.005	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.024	0.046	0.068	0.085	0.101	0.111	0.117	0.120	0.118	0.112	0.103	0.091	0.076	0.060	0.043	0.028	0.015	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.016	0.029	0.040	0.048	0.054	0.057	0.059	0.058	0.054	0.049	0.044	0.039	0.034	0.029	0.025	0.020	0.015	0.010	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000
REQUIRED CAMBER	0	1/2"	7/8"	1 5/16"	1 5/8"	1 7/8"	2"	2 1/8"	2 1/8"	2 1/16"	1 15/16"	1 3/4"	1 9/16"	1 5/16"	1 1/16"	13/16"	9/16"	3/8"	3/16"	1/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN A
GIRDER 2

@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.002	0.003	0.004	0.005	0.005	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.024	0.046	0.068	0.085	0.101	0.111	0.117	0.120	0.118	0.112	0.103	0.091	0.076	0.060	0.043	0.028	0.015	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.018	0.033	0.045	0.056	0.063	0.069	0.072	0.073	0.071	0.067	0.061	0.054	0.047	0.040	0.034	0.027	0.020	0.014	0.007	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/2"	15/16"	1 3/8"	1 11/16"	1 15/16"	2 3/16"	2 1/4"	2 5/16"	2 1/4"	2 1/8"	1 15/16"	1 3/4"	1 1/2"	1 3/16"	15/16"	11/16"	7/16"	1/4"	1/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN A
GIRDER 3

@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.002	0.003	0.004	0.005	0.005	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.024	0.046	0.068	0.085	0.101	0.111	0.117	0.120	0.118	0.112	0.103	0.091	0.076	0.060	0.043	0.028	0.015	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.019	0.036	0.050	0.062	0.071	0.079	0.083	0.086	0.086	0.083	0.078	0.071	0.062	0.053	0.044	0.036	0.027	0.018	0.009	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/2"	1"	1 7/16"	1 3/4"	2 1/16"	2 1/4"	2 3/8"	2 1/2"	2 7/16"	2 5/16"	2 3/16"	1 15/16"	1 11/16"	1 3/8"	1 1/16"	3/4"	1/2"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 1 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-18
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:32
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STR. #1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN A GIRDER 4																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.023	0.044	0.065	0.081	0.096	0.106	0.111	0.114	0.112	0.107	0.098	0.087	0.072	0.057	0.041	0.027	0.014	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.020	0.038	0.054	0.067	0.078	0.086	0.092	0.096	0.097	0.096	0.093	0.087	0.078	0.068	0.057	0.045	0.034	0.023	0.011	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/2"	1"	1 7/16"	1 3/4"	2 1/16"	2 5/16"	2 7/16"	2 1/2"	2 1/2"	2 7/16"	2 5/16"	2 1/16"	1 13/16"	1 1/2"	1 3/16"	7/8"	9/16"	5/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN A GIRDER 5																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.002	0.003	0.004	0.005	0.005	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.024	0.046	0.068	0.085	0.101	0.111	0.117	0.120	0.118	0.112	0.103	0.091	0.076	0.060	0.043	0.028	0.015	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.021	0.040	0.057	0.071	0.083	0.093	0.100	0.104	0.107	0.106	0.104	0.099	0.092	0.082	0.070	0.056	0.042	0.028	0.014	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	9/16"	1 1/16"	1 1/2"	1 7/8"	2 3/16"	2 7/16"	2 5/8"	2 11/16"	2 11/16"	2 5/8"	2 1/2"	2 1/4"	2"	1 11/16"	1 3/8"	1"	11/16"	3/8"	3/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN A GIRDER 6																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.002	0.003	0.004	0.005	0.005	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.024	0.046	0.068	0.085	0.101	0.111	0.117	0.120	0.118	0.112	0.103	0.091	0.076	0.060	0.043	0.028	0.015	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.022	0.042	0.059	0.074	0.087	0.097	0.105	0.110	0.113	0.114	0.112	0.108	0.101	0.092	0.081	0.067	0.051	0.034	0.017	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	9/16"	1 1/16"	1 1/2"	1 15/16"	2 1/4"	2 1/2"	2 11/16"	2 3/4"	2 3/4"	2 11/16"	2 9/16"	2 3/8"	2 1/8"	1 13/16"	1 1/2"	1 1/8"	13/16"	7/16"	3/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
January 8, 2010

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 2 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:32
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padkins

STR. #1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN A GIRDER 7																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.002	0.003	0.004	0.005	0.005	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.024	0.046	0.068	0.085	0.101	0.111	0.117	0.120	0.118	0.112	0.103	0.091	0.076	0.060	0.043	0.028	0.015	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.023	0.043	0.061	0.076	0.089	0.100	0.108	0.114	0.117	0.118	0.117	0.113	0.107	0.098	0.088	0.074	0.059	0.040	0.020	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	9/16"	1 1/16"	1 9/16"	1 15/16"	2 1/4"	2 9/16"	2 11/16"	2 13/16"	2 13/16"	2 3/4"	2 5/8"	2 7/16"	2 3/16"	1 7/8"	1 9/16"	1 1/4"	7/8"	9/16"	1/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN A GIRDERS 8, 9 AND 10																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.023	0.044	0.065	0.081	0.096	0.106	0.111	0.114	0.112	0.107	0.098	0.087	0.072	0.057	0.041	0.027	0.014	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.023	0.043	0.061	0.077	0.090	0.100	0.109	0.115	0.118	0.120	0.118	0.115	0.109	0.100	0.090	0.077	0.061	0.043	0.023	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	9/16"	1 1/16"	1 1/2"	1 7/8"	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 3/4"	2 3/4"	2 9/16"	2 7/16"	2 3/16"	1 7/8"	1 9/16"	1 1/4"	7/8"	9/16"	1/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN A GIRDERS 11, 12 AND 13																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.005	0.010	0.015	0.018	0.022	0.024	0.025	0.026	0.025	0.024	0.022	0.020	0.016	0.013	0.009	0.006	0.003	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.018	0.034	0.050	0.063	0.074	0.082	0.086	0.088	0.087	0.083	0.076	0.067	0.056	0.044	0.032	0.021	0.011	0.004	0.000	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.001	0.002	0.003	0.004	0.005	0.005	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.024	0.046	0.068	0.085	0.101	0.111	0.117	0.120	0.118	0.112	0.103	0.091	0.076	0.060	0.043	0.028	0.015	0.005	0.000	0.000
VERTICAL CURVE ORDINATE	0.000	0.023	0.043	0.061	0.077	0.090	0.100	0.109	0.115	0.118	0.120	0.118	0.115	0.109	0.100	0.090	0.077	0.061	0.043	0.023	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	9/16"	1 1/16"	1 9/16"	1 15/16"	2 5/16"	2 9/16"	2 11/16"	2 13/16"	2 13/16"	2 13/16"	2 5/8"	2 1/2"	2 1/4"	1 15/16"	1 5/8"	1 1/4"	15/16"	9/16"	1/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 3 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:32
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STR. #1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 1																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.023	0.046	0.066	0.083	0.098	0.110	0.120	0.126	0.131	0.132	0.131	0.127	0.120	0.111	0.099	0.085	0.068	0.048	0.025	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	3/8"	13/16"	1 1/4"	1 3/4"	2 3/16"	2 5/8"	3"	3 5/16"	3 9/16"	3 11/16"	3 3/4"	3 11/16"	3 9/16"	3 5/16"	2 15/16"	2 9/16"	2"	1 3/8"	3/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 2																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.020	0.039	0.059	0.076	0.092	0.104	0.114	0.121	0.126	0.128	0.127	0.124	0.117	0.109	0.097	0.083	0.066	0.047	0.025	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	5/16"	11/16"	1 3/16"	1 5/8"	2 1/8"	2 9/16"	2 15/16"	3 1/4"	3 1/2"	3 5/8"	3 11/16"	3 11/16"	3 1/2"	3 5/16"	2 15/16"	2 1/2"	2"	1 3/8"	3/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 3																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.016	0.033	0.049	0.065	0.081	0.094	0.105	0.113	0.118	0.121	0.121	0.118	0.113	0.104	0.094	0.080	0.064	0.046	0.024	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/4"	5/8"	1 1/16"	1 1/2"	2"	2 7/16"	2 13/16"	3 1/8"	3 3/8"	3 9/16"	3 5/8"	3 5/8"	3 7/16"	3 1/4"	2 7/8"	2 1/2"	1 15/16"	1 3/8"	1/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY K. COGGINS
8/4/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 4 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-21
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:32
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padkins

STR. #1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 4																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.008	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.037	0.058	0.080	0.103	0.124	0.142	0.157	0.168	0.173	0.173	0.168	0.157	0.141	0.120	0.094	0.065	0.034	0.000
VERTICAL CURVE ORDINATE	0.000	0.013	0.027	0.040	0.054	0.067	0.080	0.092	0.101	0.107	0.111	0.112	0.110	0.105	0.098	0.089	0.076	0.061	0.044	0.023	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/4"	9/16"	15/16"	1 3/8"	1 3/4"	2 3/16"	2 9/16"	2 15/16"	3 3/16"	3 3/8"	3 7/16"	3 3/8"	3 1/4"	3 1/16"	2 3/4"	2 3/8"	1 7/8"	1 5/16"	1 1/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 5																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.011	0.022	0.032	0.043	0.054	0.064	0.075	0.085	0.093	0.098	0.100	0.100	0.096	0.091	0.082	0.071	0.057	0.041	0.022	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	3/16"	1/2"	7/8"	1 1/4"	1 5/8"	2 1/16"	2 7/16"	2 13/16"	3 1/8"	3 5/16"	3 3/8"	3 3/8"	3 1/4"	3 1/16"	2 3/4"	2 3/8"	1 7/8"	1 5/16"	1 1/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 6																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.008	0.017	0.025	0.034	0.042	0.050	0.059	0.067	0.076	0.082	0.086	0.087	0.085	0.081	0.074	0.065	0.053	0.038	0.020	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	3/16"	7/16"	3/4"	1 1/8"	1 1/2"	1 7/8"	2 1/4"	2 9/16"	2 7/8"	3 1/8"	3 3/16"	3 1/4"	3 1/8"	2 15/16"	2 11/16"	2 5/16"	1 13/16"	1 1/4"	1 1/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/14/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 5 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:32
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padkins

STR. #1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 7																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.006	0.013	0.019	0.025	0.032	0.038	0.044	0.051	0.057	0.063	0.069	0.072	0.072	0.070	0.065	0.057	0.047	0.034	0.018	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/8"	3/8"	11/16"	1 1/16"	1 3/8"	1 3/4"	2 1/16"	2 3/8"	2 11/16"	2 7/8"	3"	3 1/16"	3"	2 13/16"	2 9/16"	2 3/16"	1 3/4"	1 1/4"	5/8"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 8																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.008	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.037	0.058	0.080	0.103	0.124	0.142	0.157	0.168	0.173	0.173	0.168	0.157	0.141	0.120	0.094	0.065	0.034	0.000
VERTICAL CURVE ORDINATE	0.000	0.005	0.009	0.014	0.018	0.023	0.027	0.032	0.037	0.041	0.046	0.050	0.055	0.057	0.057	0.054	0.049	0.041	0.030	0.016	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/8"	3/8"	5/8"	15/16"	1 1/4"	1 9/16"	1 7/8"	2 1/8"	2 3/8"	2 9/16"	2 11/16"	2 3/4"	2 11/16"	2 9/16"	2 5/16"	2"	1 5/8"	1 1/8"	5/8"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 9																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.008	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.037	0.058	0.080	0.103	0.124	0.142	0.157	0.168	0.173	0.173	0.168	0.157	0.141	0.120	0.094	0.065	0.034	0.000
VERTICAL CURVE ORDINATE	0.000	0.006	0.009	0.012	0.015	0.018	0.021	0.024	0.026	0.029	0.032	0.035	0.038	0.041	0.043	0.043	0.040	0.034	0.025	0.014	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/8"	3/8"	9/16"	7/8"	1 3/16"	1 1/2"	1 3/4"	2"	2 1/4"	2 3/8"	2 1/2"	2 9/16"	2 1/2"	2 3/8"	2 3/16"	1 15/16"	1 3/16"	1 1/16"	9/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 6 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:33
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STR. #1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 10																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.008	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.037	0.058	0.080	0.103	0.124	0.142	0.157	0.168	0.173	0.173	0.168	0.157	0.141	0.120	0.094	0.065	0.034	0.000
VERTICAL CURVE ORDINATE	0.000	0.008	0.013	0.016	0.017	0.018	0.020	0.021	0.022	0.024	0.025	0.026	0.027	0.029	0.030	0.031	0.030	0.027	0.021	0.012	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	3/16"	3/8"	5/8"	7/8"	1 3/16"	1 1/2"	1 3/4"	1 15/16"	2 3/16"	2 5/16"	2 3/8"	2 3/8"	2 3/8"	2 1/4"	2 1/16"	1 13/16"	1 7/16"	1 1/16"	9/16"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 11																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.010	0.018	0.023	0.025	0.025	0.025	0.024	0.024	0.024	0.023	0.023	0.023	0.022	0.022	0.022	0.021	0.020	0.016	0.009	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	3/16"	7/16"	3/4"	1 1/16"	1 5/16"	1 5/8"	1 7/8"	2 1/16"	2 1/4"	2 3/8"	2 7/16"	2 7/16"	2 3/8"	2 1/4"	2 1/16"	1 3/4"	1 7/16"	1"	1/2"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B GIRDER 12																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.013	0.023	0.030	0.034	0.036	0.035	0.033	0.031	0.029	0.027	0.025	0.023	0.021	0.019	0.017	0.015	0.014	0.011	0.007	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/4"	1/2"	13/16"	1 1/8"	1 7/16"	1 11/16"	1 15/16"	2 3/16"	2 5/16"	2 7/16"	2 1/2"	2 7/16"	2 3/8"	2 3/16"	2"	1 11/16"	1 3/8"	15/16"	1/2"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 7 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:33
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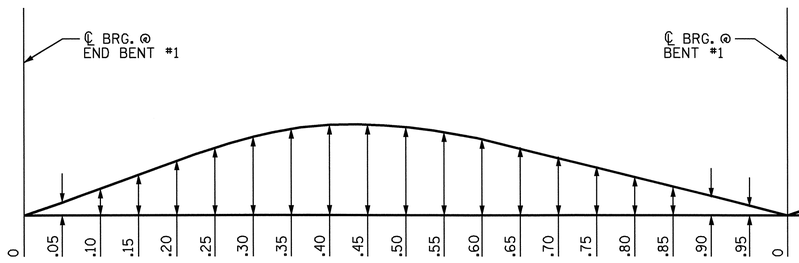
STR. #1

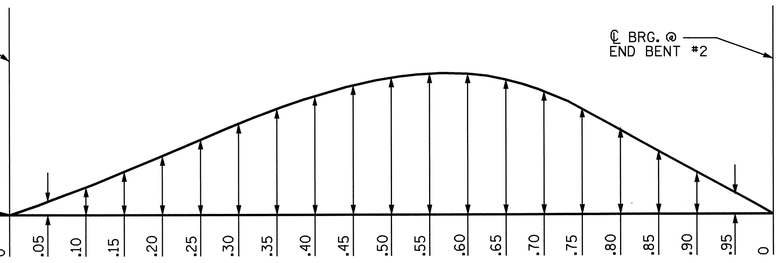
DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN B																				
	GIRDER 13																				
@ TWENTIETH POINTS BETWEEN ℄ BEARINGS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.002	0.004	0.008	0.013	0.018	0.023	0.028	0.032	0.035	0.038	0.039	0.039	0.038	0.035	0.032	0.027	0.021	0.015	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.005	0.015	0.029	0.045	0.062	0.080	0.096	0.110	0.122	0.130	0.134	0.134	0.130	0.122	0.109	0.093	0.073	0.050	0.026	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.007	0.020	0.039	0.061	0.084	0.108	0.130	0.149	0.165	0.176	0.182	0.182	0.176	0.165	0.148	0.126	0.099	0.068	0.035	0.000
VERTICAL CURVE ORDINATE	0.000	0.015	0.027	0.037	0.044	0.048	0.049	0.048	0.045	0.041	0.037	0.034	0.030	0.026	0.023	0.019	0.016	0.012	0.008	0.005	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/4"	3/16"	15/16"	1 1/4"	1 9/16"	1 7/8"	2 1/8"	2 5/16"	2 1/2"	2 9/16"	2 9/16"	2 9/16"	2 7/16"	2 1/4"	2"	1 11/16"	1 5/16"	15/16"	1/2"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).



SPAN A



SPAN B

SCHEMATIC CAMBER ORDINATES

SLOPE FOR THE ZERO CAMBER BASE LINE VARIES.

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 8 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DEAD LOAD DEFLECTIONS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : PEGGY PARISI DATE : 5-26-09
CHECKED BY : T.L. AVERETTE DATE : 6-05-09

04-AUG-2009 15:33
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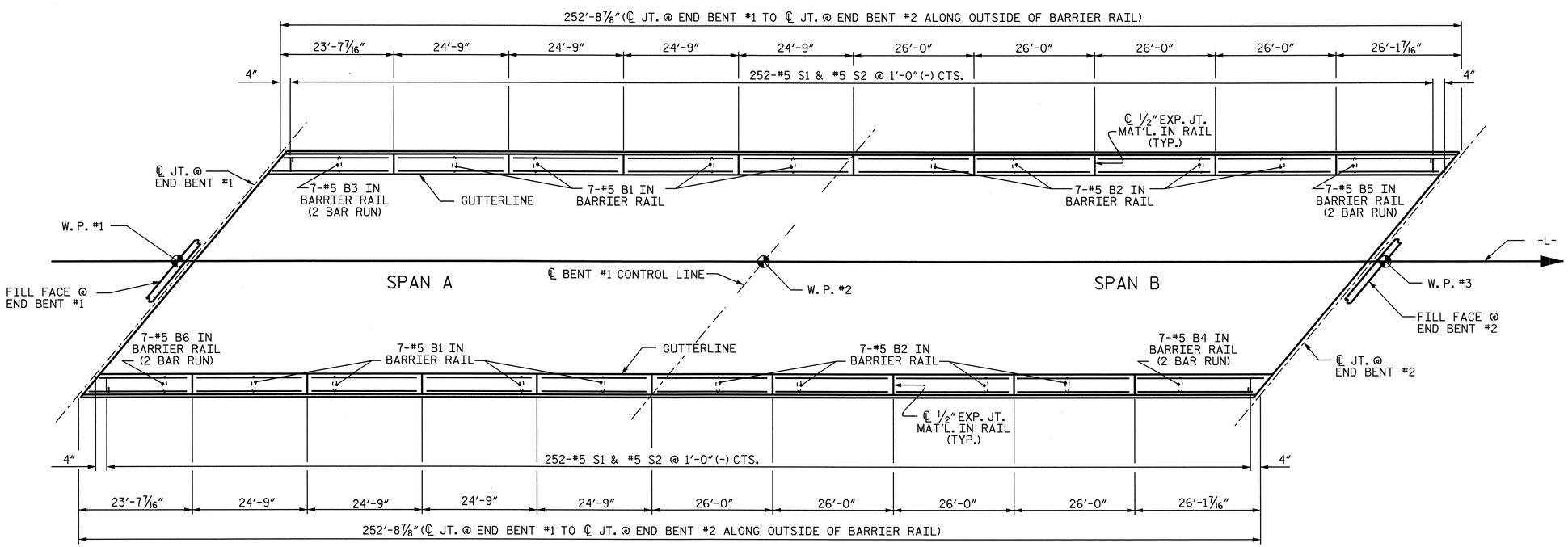
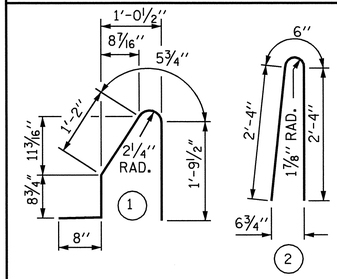
padkins

STR. #1



PLAN

BAR TYPES



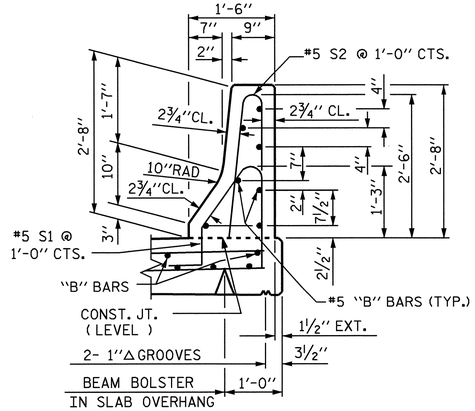
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

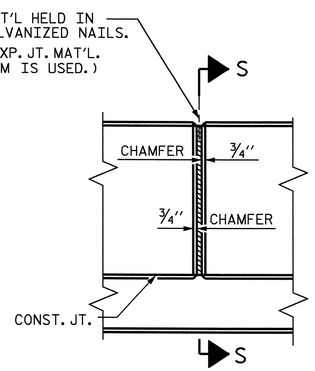
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	56	#5	STR	24'-4"	1421
✳ B2	56	#5	STR	25'-7"	1494
✳ B3	14	#5	STR	13'-10"	202
✳ B4	14	#5	STR	15'-1"	220
✳ B5	14	#5	STR	14'-6"	212
✳ B6	14	#5	STR	13'-3"	193
✳ S1	504	#5	1	4'-10"	2541
✳ S2	504	#5	2	5'-2"	2716

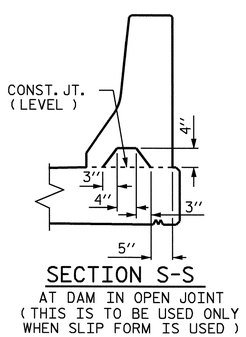
✳ EPOXY COATED REINFORCING STEEL	8999	LBS.
CLASS AA CONCRETE	50.6	CU. YDS.
CONCRETE BARRIER RAIL	505.48	LIN. FT.



SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS



SECTION S-S

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

BARRIER RAIL DETAILS

NOTES

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

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

VERTICAL 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.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY : PEGGY PARISI	DATE : 4-2-09		
CHECKED BY : T.L. AVERETTE	DATE : 6-4-09		
DRAWN BY : ARB 5/87	REV. 10/17/00	RWW/LES	
CHECKED BY : SJD 9/87	REV. 5/7/03R	RWW/JTE	
	REV. 5/1/06	TLA/GM	

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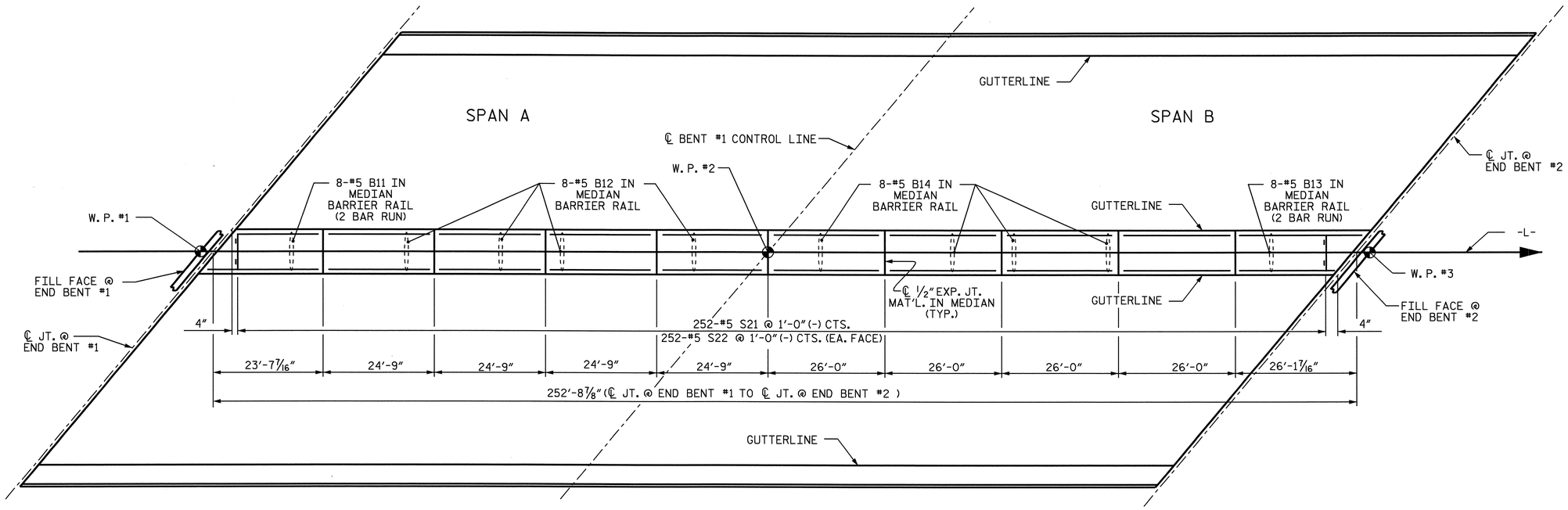
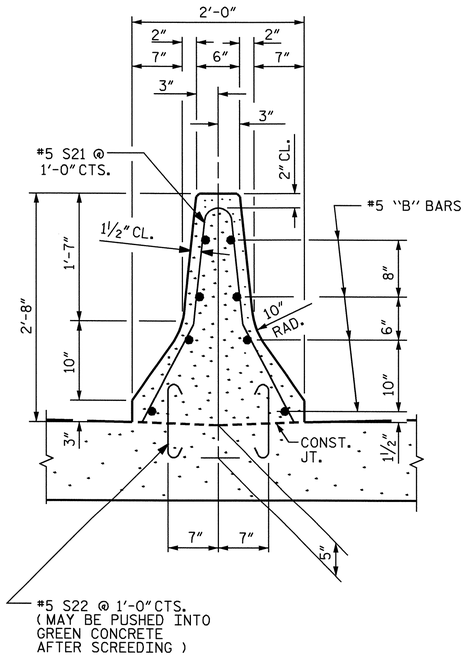
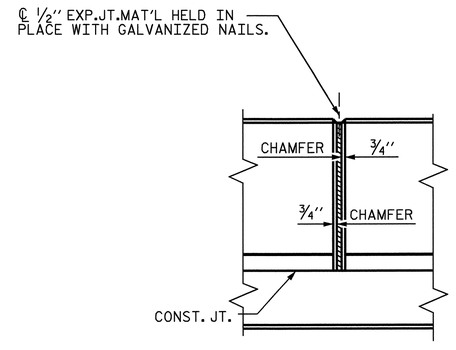
STR. #1 STD. NO. CBR1



PLAN



SECTION THRU CONCRETE MEDIAN BARRIER



ELEVATION AT EXPANSION JOINTS

NOTES

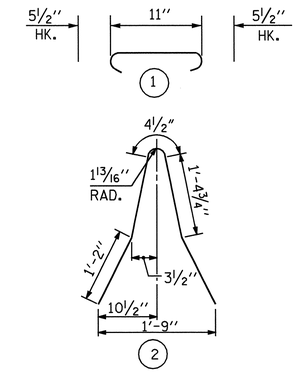
CONCRETE MEDIAN BARRIER IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN CONCRETE MEDIAN BARRIER SHALL BE EPOXY COATED.

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

SEE APPROACH SLAB SHEETS FOR DETAILS OF MEDIAN BARRIER RAIL ON APPROACH SLAB.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE MEDIAN BARRIER ON BRIDGE ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B11	16	#5	STR	13'-9"	229
✳ B12	32	#5	STR	24'-4"	812
✳ B13	16	#5	STR	15'-0"	250
✳ B14	32	#5	STR	25'-7"	854
✳ S21	252	#5	2	5'-6"	1446
✳ S22	504	#5	1	1'-10"	964
✳ EPOXY COATED REINFORCING STEEL					4545 LBS.
CLASS AA CONCRETE					26.7 CU. YDS.
CONCRETE MEDIAN BARRIER					252.74 LIN. FT.

FOR CONCRETE MEDIAN BARRIER ON APPROACH SLABS ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B3	16	#5	STR	24'-4"	406
✳ S21	48	#5	2	5'-6"	275
✳ S22	96	#5	1	1'-10"	184
✳ EPOXY COATED REINFORCING STEEL				LBS.	865
CLASS AA CONCRETE				C. Y.	5.3
CONCRETE MEDIAN BARRIER				LIN. FT.	50.0

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE MEDIAN BARRIER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY : PEGGY PARISI DATE : 4-2-09		
CHECKED BY : T.L. AVERETTE DATE : 6-4-09		
DRAWN BY : ARB 5/87	REV. 10/17/00	RWW/LES
CHECKED BY : SJD 9/87	REV. 5/7/03R	RWW/JTE
	REV. 5/1/06	TLA/GM

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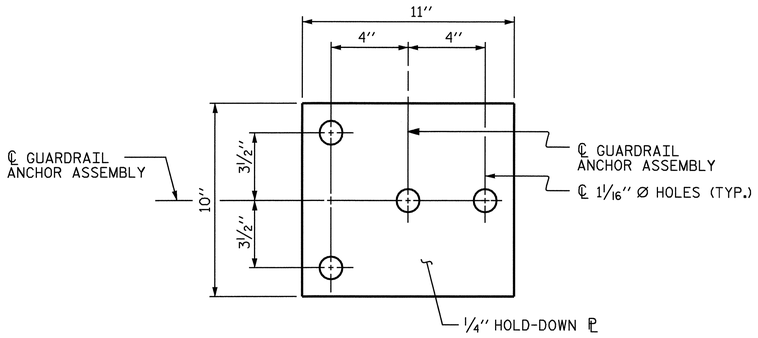
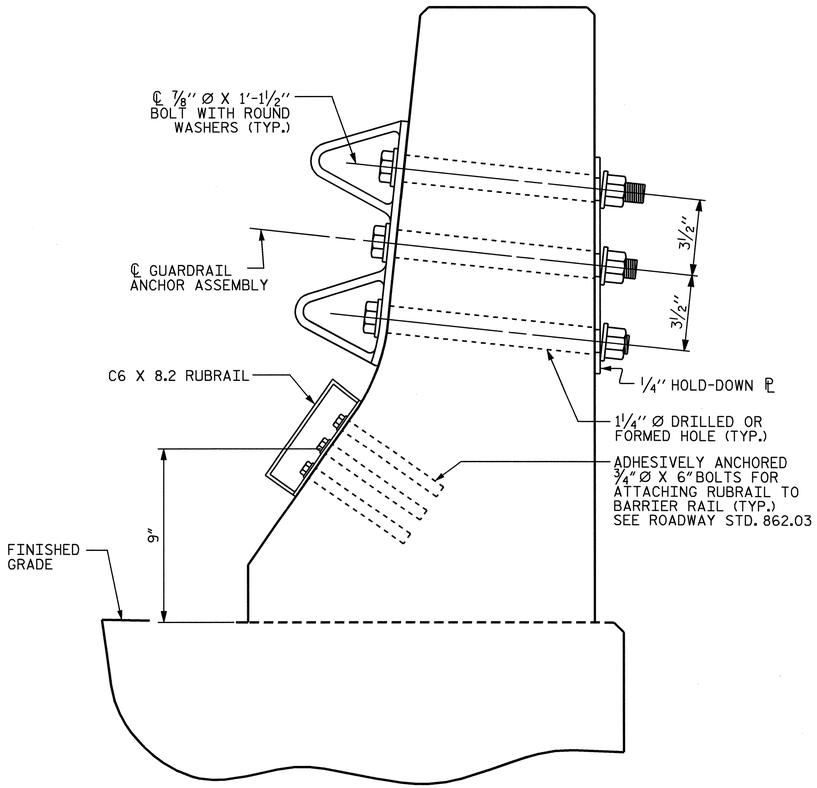
STR. #1

CONCRETE MEDIAN BARRIER DETAILS

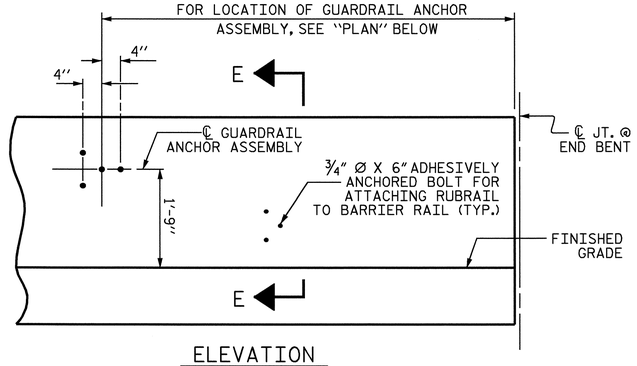


PLAN



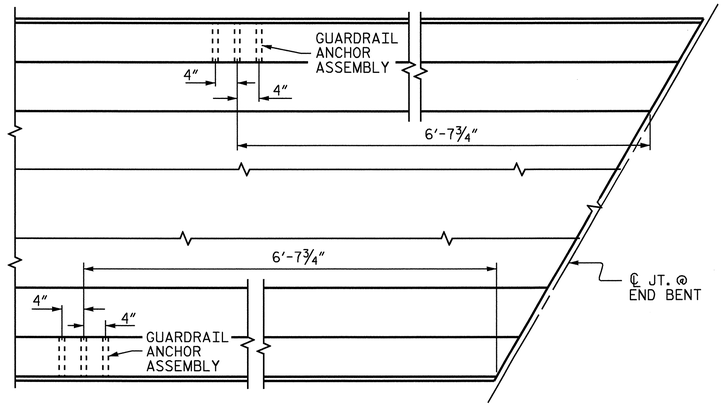
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

NOTES

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

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.)

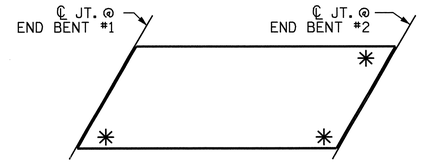
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 CONCRETE BARRIER RAIL.

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4''Ø X 6'' BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4''Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS 8/4/09

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE FOR BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY : PEGGY PARISI	DATE : 4-13-09
CHECKED BY : T.L. AVERETTE	DATE : 6-04-09
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

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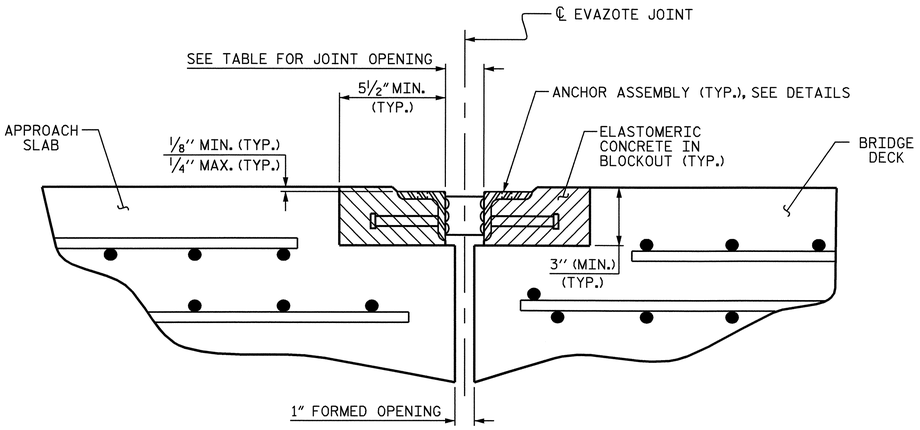
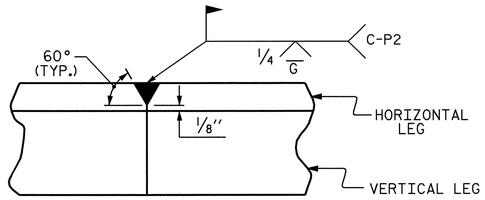
STR. #1

STD. NO. GRA2 (SHT 2)

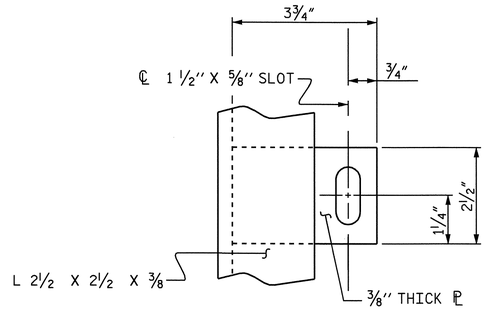


ARMORED JOINT DETAILS

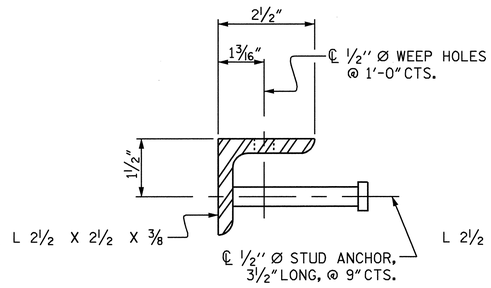
SECTION NORMAL TO JOINT AT END BENT



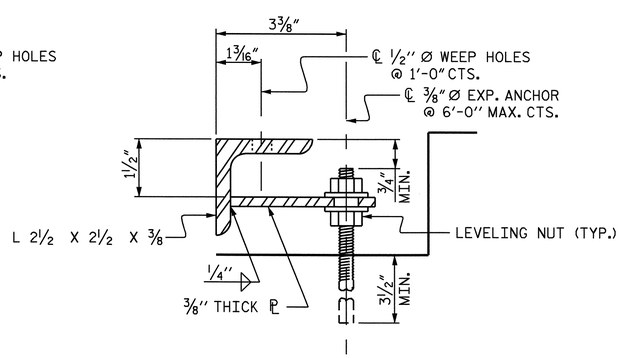
DETAIL- FIELD WELD SPLICE OF ANGLE



PLAN VIEW OF TAB



SECTION VIEW OF STUD



SECTION VIEW OF TAB

ARMORED JOINT ANCHOR ASSEMBLY DETAILS

NOTES

ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169 GRADES 1010 THRU 1020 OR APPROVED EQUAL.

STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON THE PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

UPON COMPLETION OF SHOP FABRICATION, THE ENTIRE ANCHOR ASSEMBLY SHALL BE METALLIZED. THE ½" Ø STUD ANCHORS AND ANCHOR TABS NEED NOT BE METALLIZED. SEE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

ANCHOR ASSEMBLY SHALL BE MADE CONTINUOUS THE LENGTH OF THE JOINT FROM GUTTER TO GUTTER. FOR FIELD SPLICES AT ALL CROWN BREAK POINTS, THE ENDS OF THE STEEL ANGLES SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE. FINISHED FIELD WELDS SHALL BE GROUND SMOOTH AND COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR ASSEMBLY SEGMENTS SHALL NOT BE LESS THAN 12 FEET NOR MORE THAN 20 FEET IN LENGTH. SHORTER SEGMENTS MAY BE USED AT THE EDGE OF ROADWAY OR AT POINTS OF STAGED CONSTRUCTION.

THE ANCHOR ASSEMBLY SHALL BE SECURED AND LEVELED AS SHOWN IN THE "ARMORED JOINT ANCHOR ASSEMBLY DETAILS". NO SUBMITTALS ARE REQUIRED FOR ⅜" Ø EXPANSION ANCHORS, NUTS OR WASHERS. THE CONTRACTOR MAY SUBMIT FOR APPROVAL AN ALTERNATE METHOD OF ALIGNING AND LEVELING THE ANGLES. THE ALTERNATE METHOD SHALL NOT INCLUDE ANY WELDING TO THE OUTSIDE FACE OF THE ANGLES.

AFTER THE ELASTOMERIC CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE ANY EXCESS CONCRETE THAT COMES THROUGH THE WEEP HOLES AND THOROUGHLY CLEAN THE ANGLES. ANY DAMAGED STEEL SHALL BE COATED WITH A MINIMUM OF 4 MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

SEE SPECIAL PROVISIONS FOR EVAZOTE JOINT SEALS.

SEE SPECIAL PROVISIONS FOR ELASTOMERIC CONCRETE.

MOVEMENT AND SETTING AT EVAZOTE JOINT

END BENT NO.	SKEW ANGLE	NOMINAL UNCOMPRESSED SEAL WIDTH	TOTAL MOVEMENT (ALONG ℄ RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	129°-58'-15"	2½"	1"	2"	1⅞"	1⅜6"
2	129°-58'-15"	2½"	1"	2"	1⅞"	1⅜6"

TOTAL MOVEMENT IS CALCULATED ALONG THE CENTERLINE OF ROADWAY.
JOINT OPENINGS ARE MEASURED PERPENDICULAR TO THE JOINT.

BILL OF MATERIAL

END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)	TOTAL LENGTH OF ANGLE (FT)
1	40.7	354.95
2	40.7	354.95

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
ARMORED EVAZOTE JOINT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			50

STR. #1 STD. NO. AEJ1

ASSEMBLED BY : PEGGY PARISI DATE : 4-15-09	
CHECKED BY : T.L. AVERETTE DATE : 6-04-09	
DRAWN BY : EEM 1/96	REV. 7/10/01 LES/RDR
CHECKED BY : RGW 1/96	REV. 5/7/03RR RWW/JTE
	REV. 5/1/06 TLA/GM

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BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	444	#5	STR	57′-3″	26512
A2	446	#5	STR	57-3″	26631
✱ A3	770	#5	STR	45′-8″	36675
A4	387	#5	STR	42′-1″	16987
A5	387	#5	STR	49′-3″	19879
✱ A6	6	#6	STR	19′-2″	173
✱ A101	4	#5	STR	56′-2″	234
✱ A102	4	#5	STR	55′-1″	230
✱ A103	4	#5	STR	54′-0″	225
✱ A104	4	#5	STR	52′-11″	221
✱ A105	4	#5	STR	51′-9″	216
✱ A106	4	#5	STR	50′-8″	211
✱ A107	4	#5	STR	49′-7″	207
✱ A108	4	#5	STR	48′-6″	202
✱ A109	4	#5	STR	47′-5″	198
✱ A110	4	#5	STR	46′-4″	193
✱ A111	4	#5	STR	45′-3″	189
✱ A112	4	#5	STR	44′-2″	184
✱ A113	4	#5	STR	43′-0″	179
✱ A114	4	#5	STR	41′-11″	175
✱ A115	4	#5	STR	40′-10″	170
✱ A116	4	#5	STR	39′-9″	166
✱ A117	4	#5	STR	38′-8″	161
✱ A118	4	#5	STR	37′-7″	157
✱ A119	4	#5	STR	36′-6″	152
✱ A120	4	#5	STR	35′-5″	148
✱ A121	4	#5	STR	34′-4″	143
✱ A122	4	#5	STR	33′-2″	138
✱ A123	4	#5	STR	32′-1″	134
✱ A124	4	#5	STR	31′-0″	129
✱ A125	4	#5	STR	29′-11″	125
✱ A126	4	#5	STR	28′-10″	120
✱ A127	4	#5	STR	27′-9″	116
✱ A128	4	#5	STR	26′-8″	111
✱ A129	4	#5	STR	25′-6″	106
✱ A130	4	#5	STR	24′-5″	102
✱ A131	4	#5	STR	23′-4″	97
✱ A132	4	#5	STR	22′-3″	93
✱ A133	4	#5	STR	21′-2″	88
✱ A134	4	#5	STR	20′-1″	84
✱ A135	4	#5	STR	19′-0″	79
✱ A136	4	#5	STR	17′-11″	75
✱ A137	4	#5	STR	16′-10″	70
✱ A138	4	#5	STR	15′-8″	65
✱ A139	4	#5	STR	14′-7″	61
✱ A140	4	#5	STR	13′-6″	56
✱ A141	4	#5	STR	12′-5″	52
✱ A142	4	#5	STR	11′-4″	47
✱ A143	4	#5	STR	10′-3″	43
✱ A144	4	#5	STR	9′-2″	38
✱ A145	4	#5	STR	8′-1″	34
✱ A146	4	#5	STR	6′-11″	29
✱ A147	4	#5	STR	5′-10″	24
✱ A148	2	#5	STR	4′-9″	10
✱ A149	2	#5	STR	3′-8″	8
✱ A150	2	#5	STR	2′-7″	5
✱ A151	2	#5	STR	1′-6″	3
A201	4	#5	STR	56′-2″	234
A202	4	#5	STR	55′-1″	230
A203	4	#5	STR	54′-0″	225
A204	4	#5	STR	52′-11″	221
A205	4	#5	STR	51′-9″	216
A206	4	#5	STR	50′-8″	211
A207	4	#5	STR	49′-7″	207
A208	4	#5	STR	48′-6″	202
A209	4	#5	STR	47′-5″	198
A210	4	#5	STR	46′-4″	193
A211	4	#5	STR	45′-3″	189
A212	4	#5	STR	44′-2″	184
A213	4	#5	STR	43′-0″	179
A214	4	#5	STR	41′-11″	175
A215	4	#5	STR	40′-10″	170

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A216	4	#5	STR	39′-9″	166
A217	4	#5	STR	38′-8″	161
A218	4	#5	STR	37′-7″	157
A219	4	#5	STR	36′-6″	152
A220	4	#5	STR	35′-5″	148
A221	4	#5	STR	34′-4″	143
A222	4	#5	STR	33′-2″	138
A223	4	#5	STR	32′-1″	134
A224	4	#5	STR	31′-0″	129
A225	4	#5	STR	29′-11″	125
A226	4	#5	STR	28′-10″	120
A227	4	#5	STR	27′-9″	116
A228	4	#5	STR	26′-8″	111
A229	4	#5	STR	25′-6″	106
A230	4	#5	STR	24′-5″	102
A231	4	#5	STR	23′-4″	97
A232	4	#5	STR	22′-3″	93
A233	4	#5	STR	21′-2″	88
A234	4	#5	STR	20′-1″	84
A235	4	#5	STR	19′-0″	79
A236	4	#5	STR	17′-11″	75
A237	4	#5	STR	16′-10″	70
A238	4	#5	STR	15′-8″	65
A239	4	#5	STR	14′-7″	61
A240	4	#5	STR	13′-6″	56
A241	4	#5	STR	12′-5″	52
A242	4	#5	STR	11′-4″	47
A243	4	#5	STR	10′-3″	43
A244	4	#5	STR	9′-2″	38
A245	4	#5	STR	8′-1″	34
A246	4	#5	STR	6′-11″	29
A247	4	#5	STR	5′-10″	24
A248	2	#5	STR	4′-9″	10
A249	2	#5	STR	3′-8″	8
A250	2	#5	STR	2′-7″	5
A251	2	#5	STR	1′-6″	3
✱ A301	6	#5	STR	45′-6″	285
✱ A302	8	#5	STR	44′-11″	375
✱ A303	8	#5	STR	44′-5″	371
✱ A304	8	#5	STR	43′-10″	366
✱ A305	8	#5	STR	43′-4″	362
✱ A306	8	#5	STR	42′-9″	357
✱ A307	8	#5	STR	42′-3″	353
✱ A308	8	#5	STR	41′-8″	348
✱ A309	8	#5	STR	41′-2″	343
✱ A310	8	#5	STR	40′-7″	339
✱ A311	8	#5	STR	40′-0″	334
✱ A312	8	#5	STR	39′-6″	330
✱ A313	8	#5	STR	38′-11″	325
✱ A314	8	#5	STR	38′-5″	321
✱ A315	8	#5	STR	37′-10″	316
✱ A316	8	#5	STR	37′-4″	312
✱ A317	8	#5	STR	36′-9″	307
✱ A318	8	#5	STR	36′-2″	302
✱ A319	8	#5	STR	35′-8″	298
✱ A320	8	#5	STR	35′-1″	293
✱ A321	8	#5	STR	34′-7″	289
✱ A322	8	#5	STR	34′-0″	284
✱ A323	8	#5	STR	33′-6″	280
✱ A324	8	#5	STR	32′-11″	275
✱ A325	8	#5	STR	32′-5″	270
✱ A326	8	#5	STR	31′-10″	266
✱ A327	4	#5	STR	60′-0″	250
✱ A328	4	#5	STR	58′-10″	245
✱ A329	4	#5	STR	57′-9″	241
✱ A330	4	#5	STR	56′-8″	236
✱ A331	4	#5	STR	55′-7″	232
✱ A332	4	#5	STR	54′-6″	227
✱ A333	4	#5	STR	53′-5″	223
✱ A334	4	#5	STR	52′-4″	218
✱ A335	4	#5	STR	51′-2″	213
✱ A336	4	#5	STR	50′-1″	209
✱ A337	4	#5	STR	49′-0″	204

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A338	4	#5	STR	47′-11″	200
✱ A339	4	#5	STR	46′-10″	195
✱ A340	4	#5	STR	45′-9″	191
✱ A341	4	#5	STR	44′-8″	186
✱ A342	4	#5	STR	43′-7″	182
✱ A343	4	#5	STR	42′-5″	177
✱ A344	4	#5	STR	41′-4″	172
✱ A345	4	#5	STR	40′-3″	168
✱ A346	4	#5	STR	39′-2″	163
✱ A347	4	#5	STR	38′-1″	159
✱ A348	4	#5	STR	37′-0″	154
✱ A349	4	#5	STR	35′-11″	150
✱ A350	4	#5	STR	34′-10″	145
✱ A351	4	#5	STR	33′-9″	141
✱ A352	4	#5	STR	32′-7″	136
✱ A353	4	#5	STR	31′-6″	131
✱ A354	4	#5	STR	30′-5″	127
✱ A355	4	#5	STR	29′-4″	122
✱ A356	4	#5	STR	28′-3″	118
✱ A357	4	#5	STR	27′-2″	113
✱ A358	4	#5	STR	26′-1″	109
✱ A359	4	#5	STR	25′-0″	104
✱ A360	4	#5	STR	23′-10″	99
✱ A361	4	#5	STR	22′-9″	95
✱ A362	4	#5	STR	21′-8″	90
✱ A363	4	#5	STR	20′-7″	86
✱ A364	4	#5	STR	19′-6″	81
✱ A365	4	#5	STR	18′-5″	77
✱ A366	4	#5	STR	17′-4″	72
✱ A367	4	#5	STR	16′-3″	68
✱ A368	4	#5	STR	15′-1″	63
✱ A369	4	#5	STR	14′-0″	58
✱ A370	4	#5	STR	12′-11″	54
✱ A371	4	#5	STR	11′-10″	49
✱ A372	4	#5	STR	10′-9″	45
✱ A373	4	#5	STR	9′-8″	40
✱ A374	4	#5	STR	8′-7″	36
✱ A375	4	#5	STR	7′-6″	31
✱ A376	4	#5	STR	6′-4″	26
✱ A377	2	#5	STR	5′-3″	11
✱ A378	2	#5	STR	4′-2″	9
✱ A379	2	#5	STR	3′-1″	6
✱ A380	2	#5	STR	2′-0″	4
A401	6	#5	STR	45′-4″	284
A402	8	#5	STR	44′-9″	373
A403	8	#5	STR	44′-3″	369
A404	8	#5	STR	43′-8″	364
A405	8	#5	STR	43′-2″	360
A406	8	#5	STR	42′-7″	355
A407	8	#5	STR	42′-1″	351
A408	8	#5	STR	41′-6″	346
A409	8	#5	STR	41′-0″	342
A410	8	#5	STR	40′-5″	337

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A411	8	#5	STR	39′-10″	332
A412	8	#5	STR	39′-4″	328
A413	8	#5	STR	38′-9″	323
A414	8	#5	STR	38′-3″	319
A415	8	#5	STR	37′-8″	314
A416	8	#5	STR	37′-2″	310
A417	8	#5	STR	36′-7″	305
A418	8	#5	STR	36′-0″	300
A419	8	#5	STR	35′-6″	296
A420	8	#5	STR	34′-11″	291
A421	8	#5	STR	34′-5″	287
A422	8	#5	STR	33′-10″	282
A423	8	#5	STR	33′-4″	278
A424	8	#5	STR	32′-9″	273
A425	8	#5	STR	32′-3″	269
A426	8	#5	STR	31′-8″	264
A427	4	#5	STR	60′-0″	250
A428	4	#5	STR	58′-10″	245
A429	4	#5	STR	57′-9″	241
A430	4	#5	STR	56′-8″	236
A431	4	#5	STR	55′-7″	232
A432	4	#5	STR	54′-6″	227
A433	4	#5	STR	53′-5″	223
A434	4	#5	STR	52′-4″	218
A435	4	#5	STR	51′-2″	213
A436	4	#5	STR	50′-1″	209
A437	4	#5	STR	49′-0″	204
A438	4	#5	STR	47′-11″	200
A439	4	#5	STR	46′-10″	195
A440	4	#5	STR	45′-9″	191
A441	4	#5	STR	44′-8″	186
A442	4	#5	STR	43′-7″	182
A443	4	#5	STR	42′-5″	177
A444	4	#5	STR	41′-4″	172
A445	4	#5	STR	40′-3″	168
A446	4	#5	STR	39′-2″	163
A447	4	#5	STR	38′-1″	159
A448	4	#5	STR	37′-0″	154
A449	4	#5	STR	35′-11″	150
A450	4	#5	STR	34′-10″	145
A451	4	#5	STR	33′-9″	141
A452	4	#5	STR	32′-7″	136
A453	4	#5	STR	31′-6″	131
A454	4	#5	STR	30′-5″	127
A455	4	#5	STR	29′-4″	122
A456	4	#5	STR	28′-3″	118
A457	4	#5	STR	27′-2″	113
A458	4	#5	STR	26′-1″	109
A459	4	#5	STR	25′-0″	104
A460	4	#5	STR	23′-10″	99
A461	4	#5	STR	22′-9″	95
A462	4	#5	STR	21′-8″	90
A463	4	#5	STR	20′-7″	86
A464	4	#5	STR	19′-6″	81

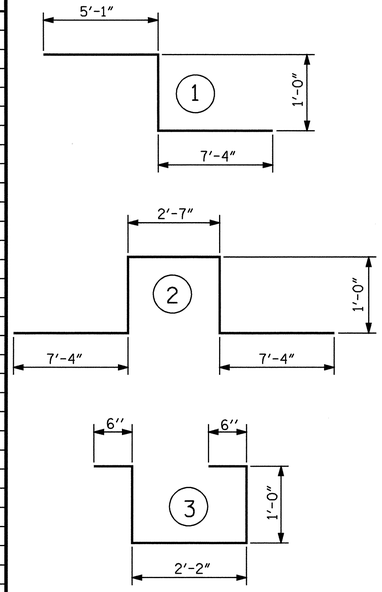
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A465	4	#5	STR	18′-5″	77
A466	4	#5	STR	17′-4″	72
A467	4	#5	STR	16′-3″	68
A468	4	#5	STR	15′-1″	63
A469	4	#5	STR	14′-0″	58
A470	4	#5	STR	12′-11″	54
A471	4	#5	STR	11′-10″	49
A472	4	#5	STR	10′-9″	45
A473	4	#5	STR	9′-8″	40
A474	4	#5	STR	8′-7″	36
A475	4	#5	STR	7′-6″	31
A476	4	#5	STR	6′-4″	26
A477	2	#5	STR	5′-3″	11
A478	2	#5	STR	4′-2″	9
A479	2	#5	STR	3′-1″	6
A480	2	#5	STR	2′-0″	4
✱ B1	288	#4	STR	28′-6″	5483
B2	940	#5	STR	52′-3″	51227
✱ B3	141	#6	STR	55′-9″	11807
✱ B4	141	#6	STR	29′-0″	6142
✱ B5	141	#6	STR	35′-1″	7430
✱ B6	141	#6	STR	59′-8″	12636
✱ B7	384	#4	STR	24′-6″	6285
✱ G1	4	#5	STR	38′-8″	161
✱ G2	4	#5	STR	59′-3″	247
✱ K1	12	#5	1	13′-5″	168
✱ K2	66	#5	2	19′-3″	1325
✱ S1	288	#4	3	5′-2″	994

REINFORCING STEEL = 136,021 LBS

✱EPOXY COATED REINF. STEEL= 137,340 LBS

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.)
POUR 1	137.9	136,020	137,383
POUR 2	219.7		
POUR 3	317.3		
POUR 4	257.0		
POUR 5	247.2		
POUR 6	56.0		
TOTALS✱✱	1235.1	136,020	137,383

✱✱QUANTITIES FOR BARRIER RAIL AND MEDIAN BARRIER RAIL ARE NOT INCLUDED

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″			

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY LEE COGGINS
8/4/09

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

SUPERSTRUCTURE BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY : PEGGY PARISI DATE : 4-29-09
CHECKED BY : T.L. AVERETTE DATE : 6-04-09

DRAWN BY : JMB 5/87
CHECKED BY : SJD 9/87

REV. 6/1/94 EEM/GRP
REV. 8/16/99 RWW/LES
REV. 5/1/06 TLA/GM

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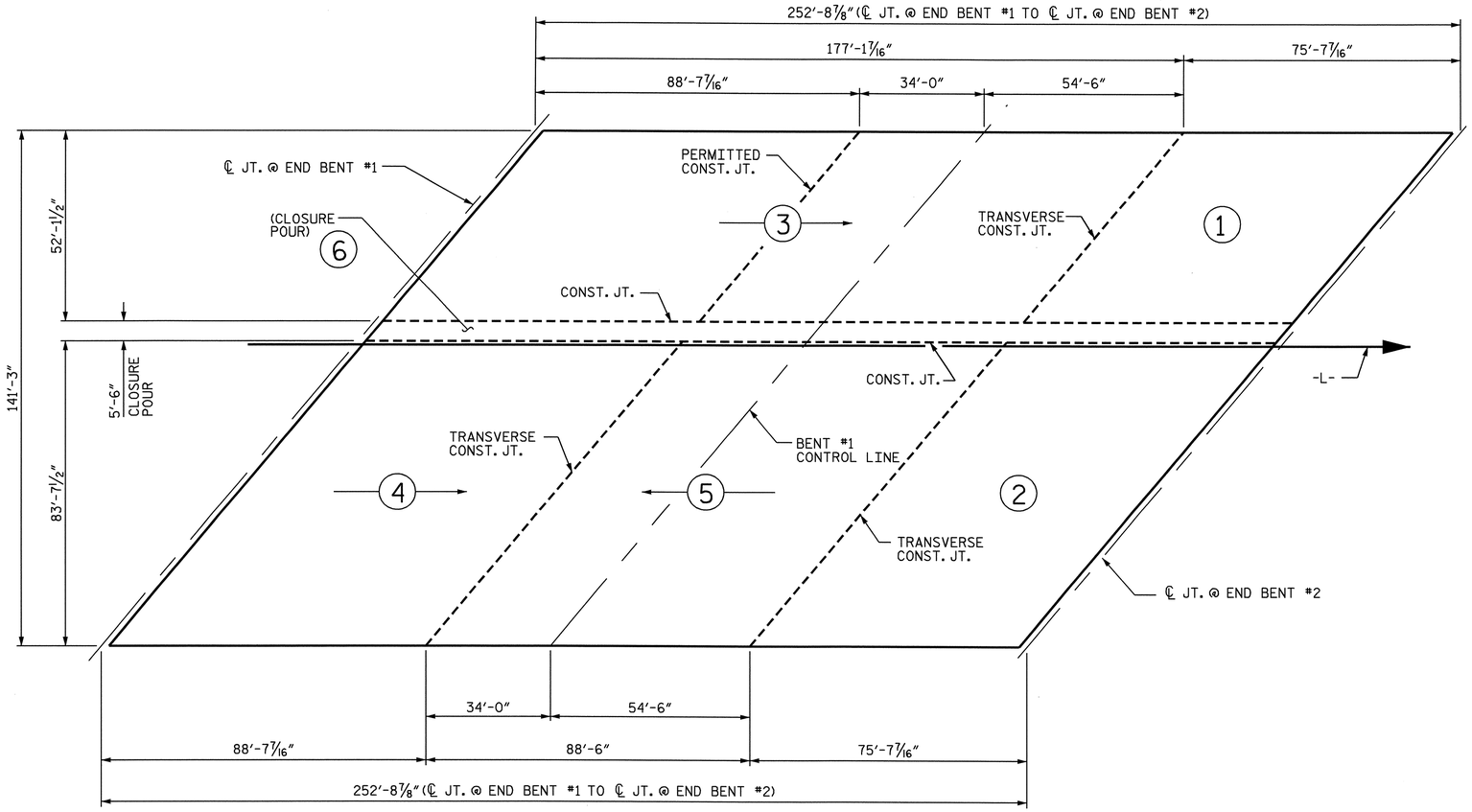
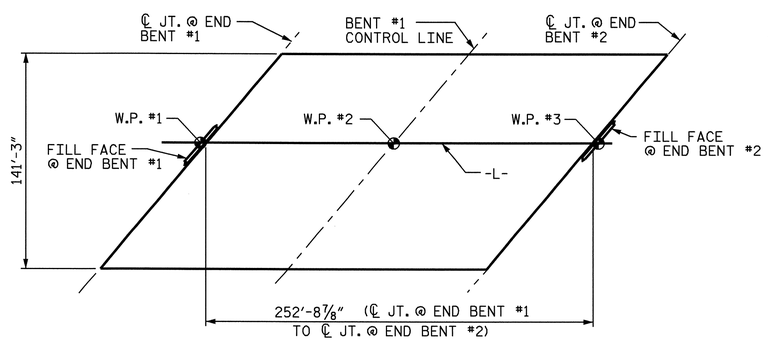
padkins

STR. #1

STD. NO. BOM1

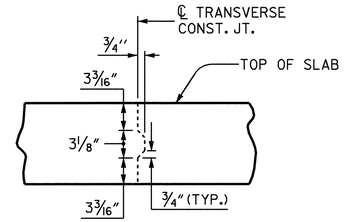


POURING SEQUENCE



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 35,699)

GROOVING BRIDGE FLOORS		
APPROACH SLABS	6288	SQ.FT.
BRIDGE DECK	32630	SQ.FT.
TOTAL	38918	SQ.FT.



TRANSVERSE CONSTRUCTION JOINT DETAIL

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

ASSEMBLED BY : PEGGY PARISI	DATE : 4-29-09		
CHECKED BY : T.L. AVERETTE	DATE : 6-04-09		
DRAWN BY : JMB 5/87	REV. 6/1/94	EEM/GRP	
CHECKED BY : SJD 9/87	REV. 8/16/99	RWW/LES	
	REV. 5/1/06	TLA/GM	

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padkins

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER JIMMY D. COGGINS
8/4/09

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 2 OF 2

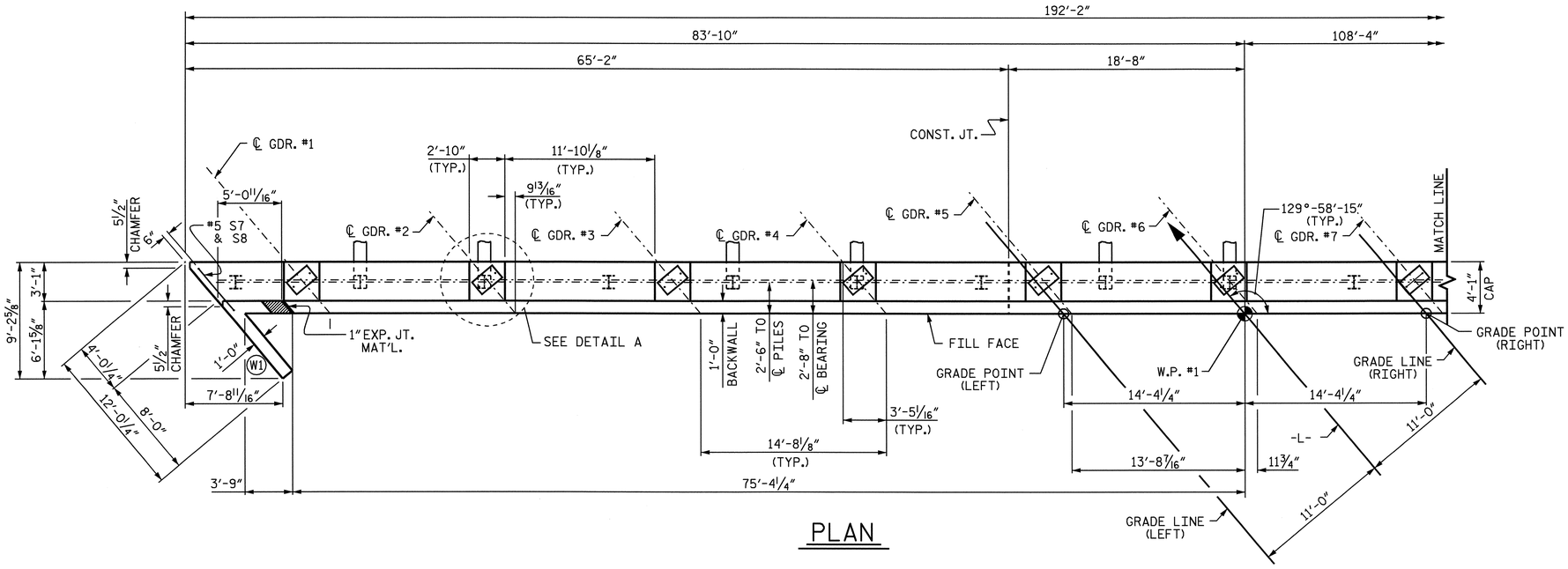
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

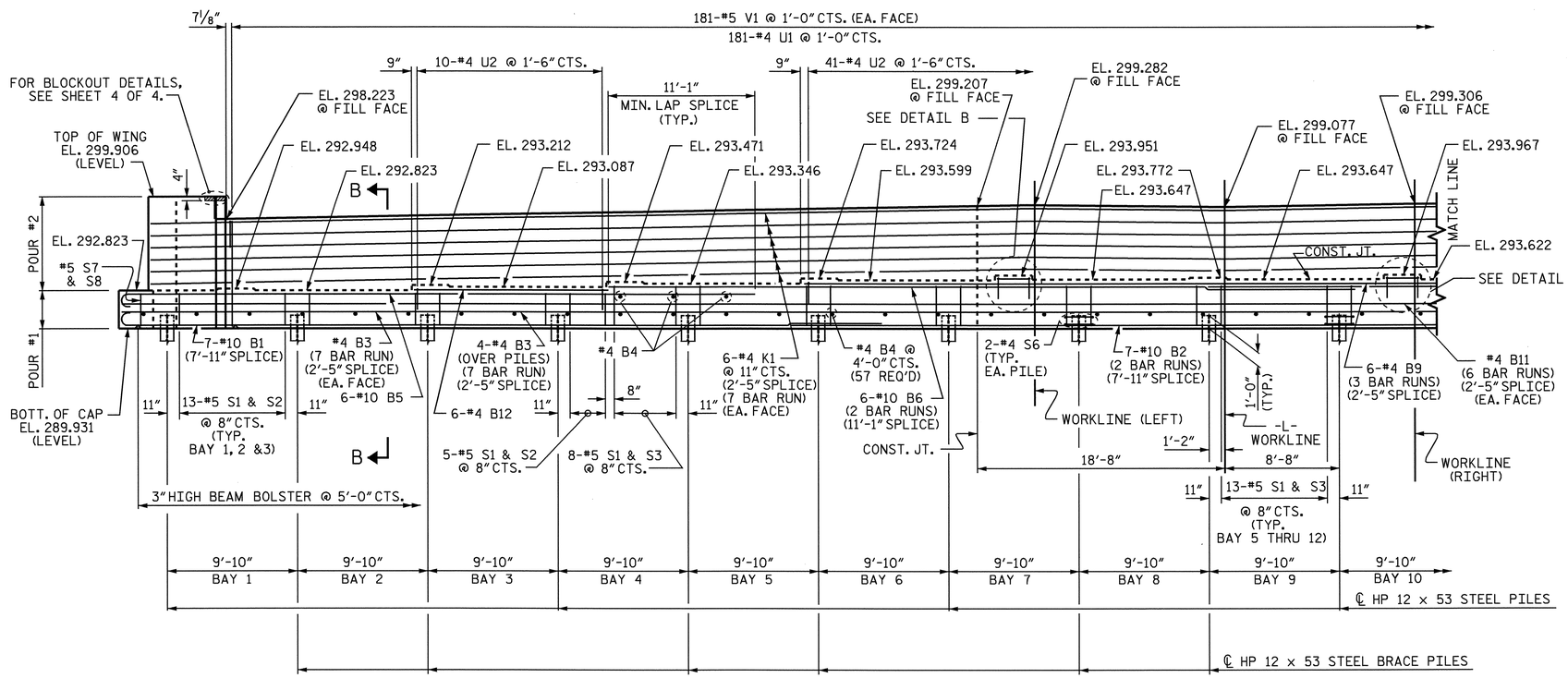
SUPERSTRUCTURE BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			50

STR. #1 STD. NO. BOM1



PLAN



ELEVATION

NOTES:

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

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.

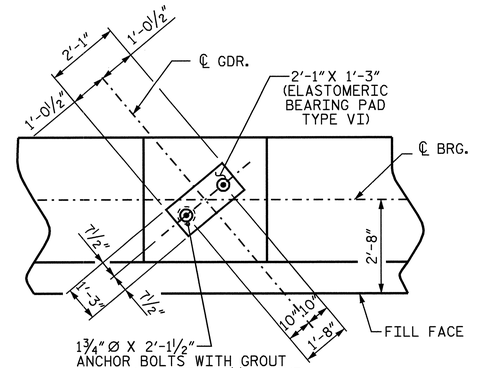
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2 %.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4"DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

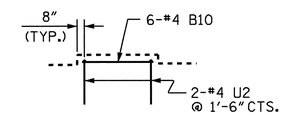
EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS, AND ANCHOR BOLTS ARE GROUTED.

FOR PILE SPLICE DETAIL, SEE END BENT #2, SHEET 2 OF 4.



DETAIL A

(TYP. EACH GIRDER)



DETAIL B

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			50

STR. #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
8/4/09

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
CHECKED BY : D. CRUTCHER DATE : 6/8/09

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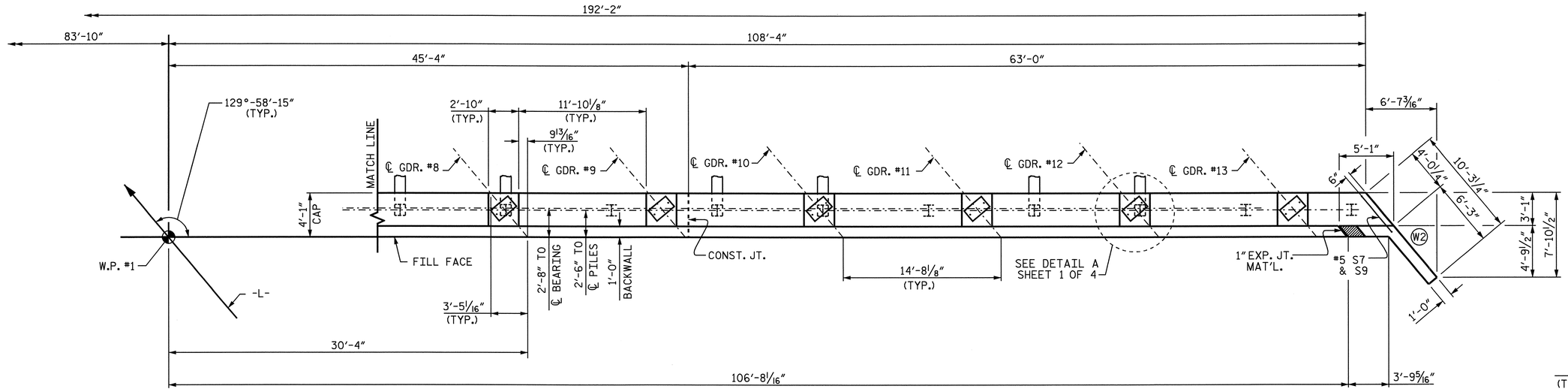
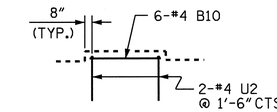
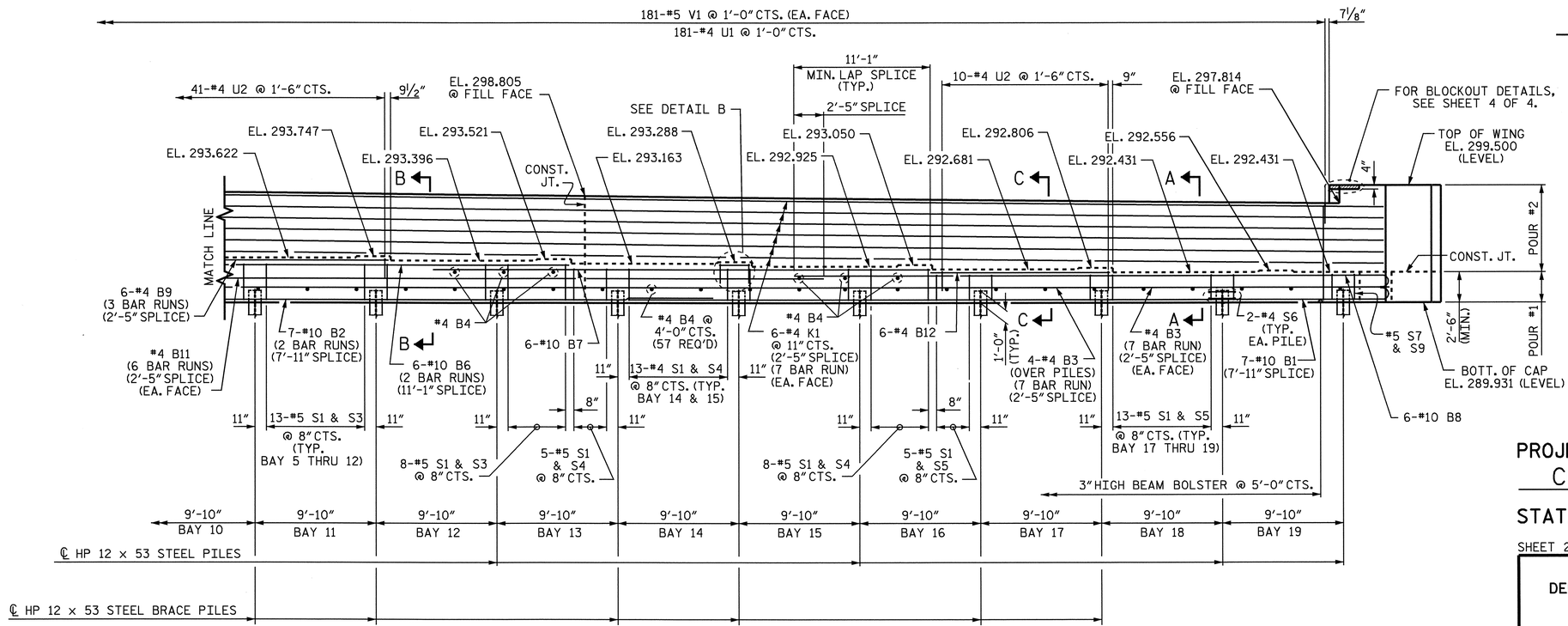


PLAN



DETAIL B



ELEVATION

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			50

STR. #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/6/09

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
CHECKED BY : D. CRUTCHER DATE : 6/8/09

04-AUG-2009 14:54
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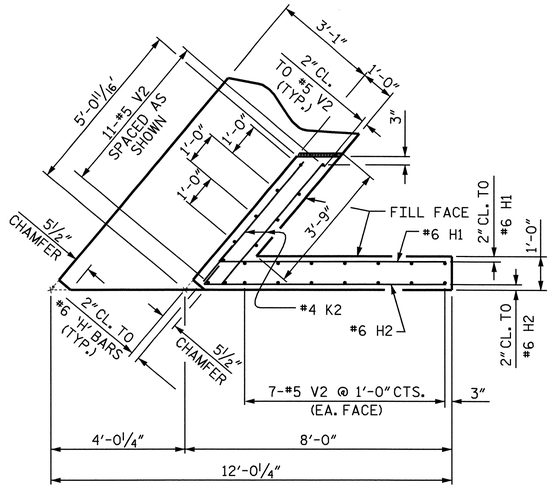
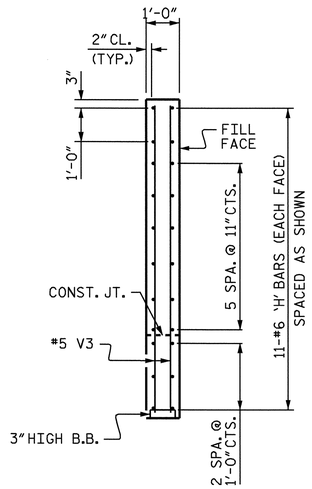
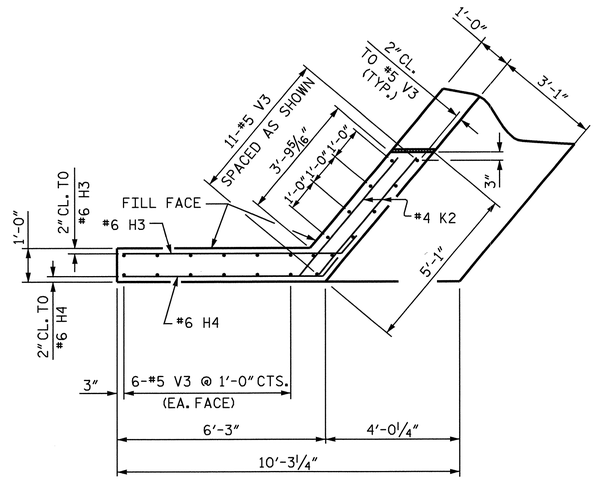
bbarodawala



PLAN OF WING W1



SECTION Y-Y



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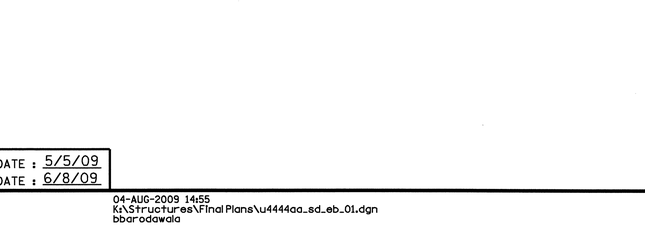
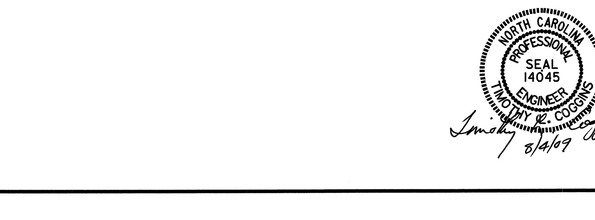


ELEVATION OF WING W1

SECTION X-X



ELEVATION OF WING W2

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-34
1			3			TOTAL SHEETS
2			4			50

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY R. COGGINS
8/4/09

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
CHECKED BY : D. CRUTCHER DATE : 6/8/09

04-AUG-2009 14:55
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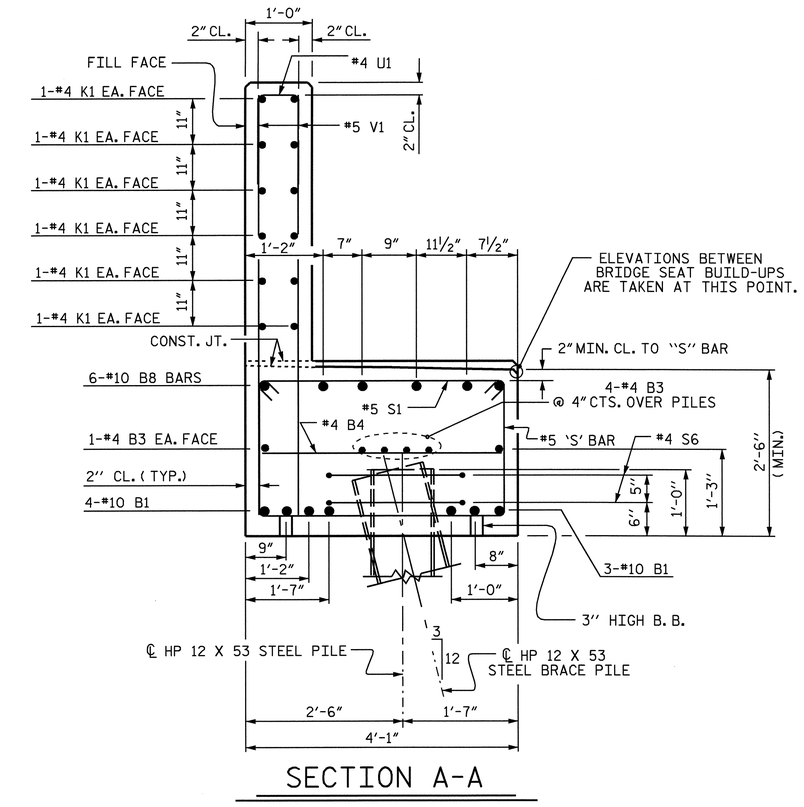
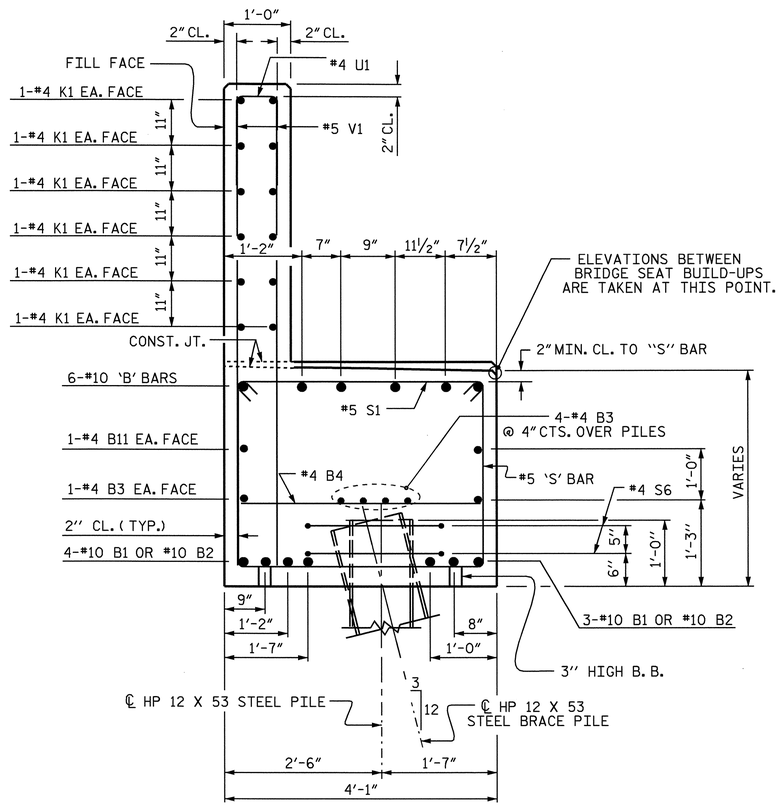
bbarodawala

STR. #1

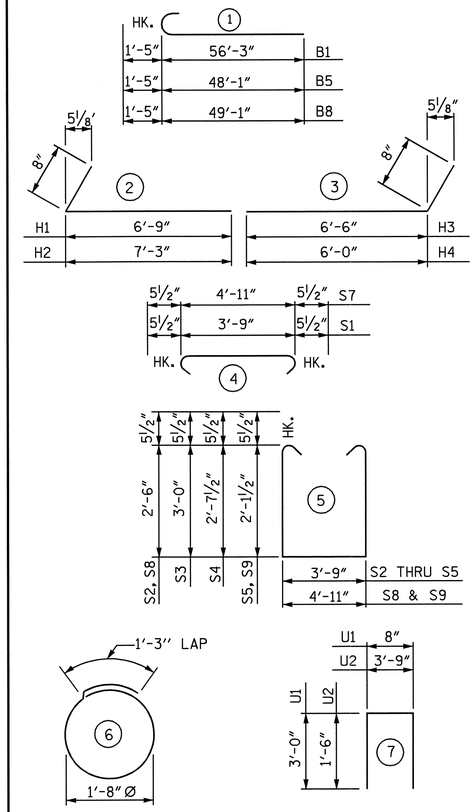


SECTION A-A



SECTION B-B

BAR TYPES



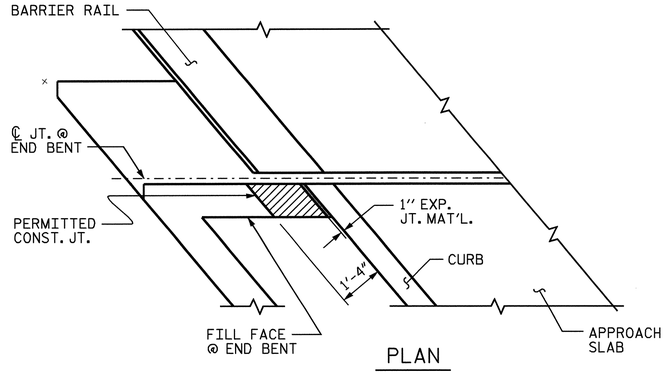
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

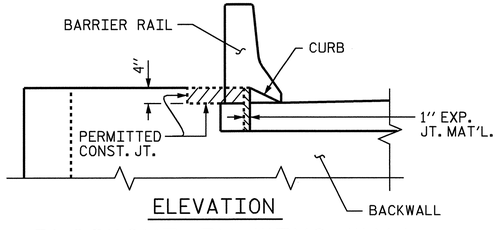
END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	14	#10	1	57′-8″	3474
B2	14	#10	STR	51′-6″	3102
B3	42	#4	STR	29′-6″	828
B4	57	#4	STR	3′-9″	143
B5	6	#10	1	49′-6″	1278
B6	12	#10	STR	50′-10″	2625
B7	6	#10	STR	40′-6″	1046
B8	6	#10	1	50′-6″	1304
B9	18	#4	STR	22′-1″	266
B10	18	#4	STR	2′-6″	30
B11	12	#4	STR	26′-3′	210
B12	12	#4	STR	14′-8″	118
H1	12	#6	2	7′-5″	134
H2	12	#6	2	7′-11″	143
H3	11	#6	3	7′-2″	118
H4	11	#6	3	6′-8″	110
K1	84	#4	STR	29′-6″	1655
K2	8	#4	STR	4′-7″	24
S1	247	#5	4	4′-8″	1202
S2	44	#5	5	9′-8″	444
S3	120	#5	5	10′-8″	1335
S4	39	#5	5	9′-11″	403
S5	44	#5	5	8′-11″	409
S6	40	#4	6	6′-6″	174
S7	2	#5	4	5′-10″	12
S8	1	#5	5	10′-10″	11
S9	1	#5	5	10′-1″	11
U1	181	#4	7	6′-8″	806
U2	67	#4	7	6′-9″	302
V1	362	#5	STR	7′-6″	2832
V2	25	#5	STR	9′-6″	248
V3	23	#5	STR	9′-2″	220

REINFORCING STEEL	LBS.	25017
CLASS 'A' CONCRETE		
POUR #1 CAP & LOWER WINGS	CU. YDS.	96.1
POUR #2 BACKWALL & UPPER WINGS	CU. YDS.	42.8
TOTAL	CU. YDS.	138.9
HP 12 x 53 STEEL PILES NO. 20	1500	LIN. FT.
PILE REDRIVES	10	EA.

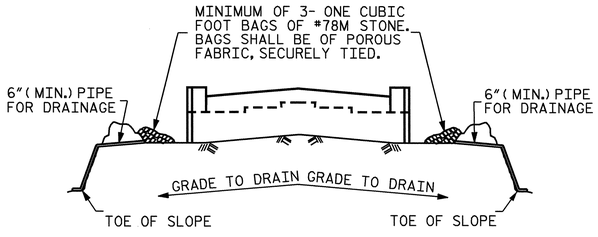


PLAN



ELEVATION

BLOCKOUT IN WING WALL

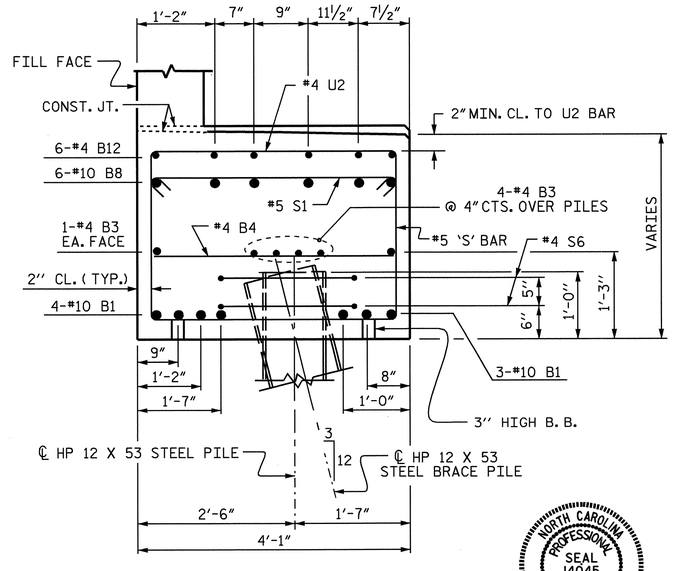


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



SECTION C-C

"V" AND "K" BARS IN BACKWALL NOT SHOWN.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY M. COGGINS 8/4/09

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			50

STR. #1

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
CHECKED BY : D. CRUTCHER DATE : 6/8/09

04-AUG-2009 14:55
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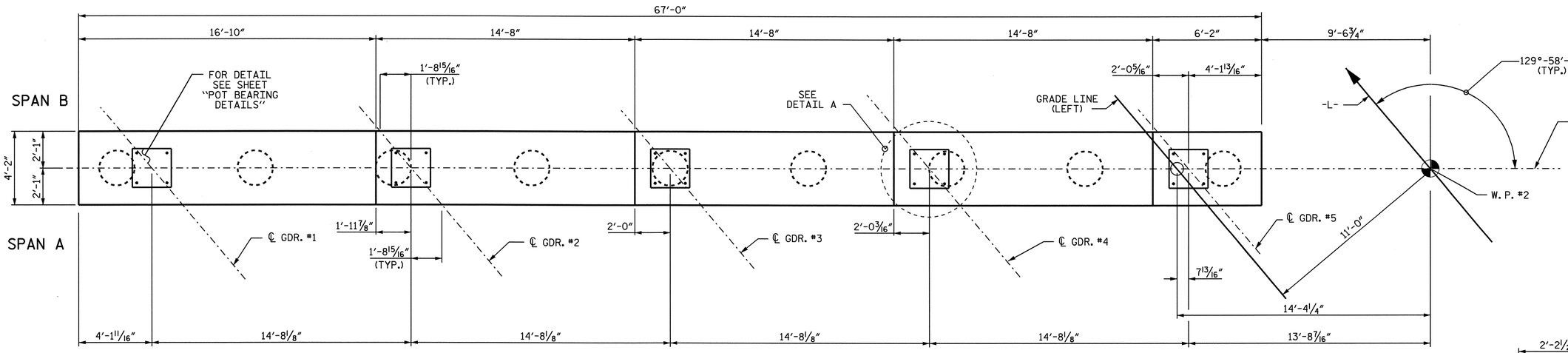
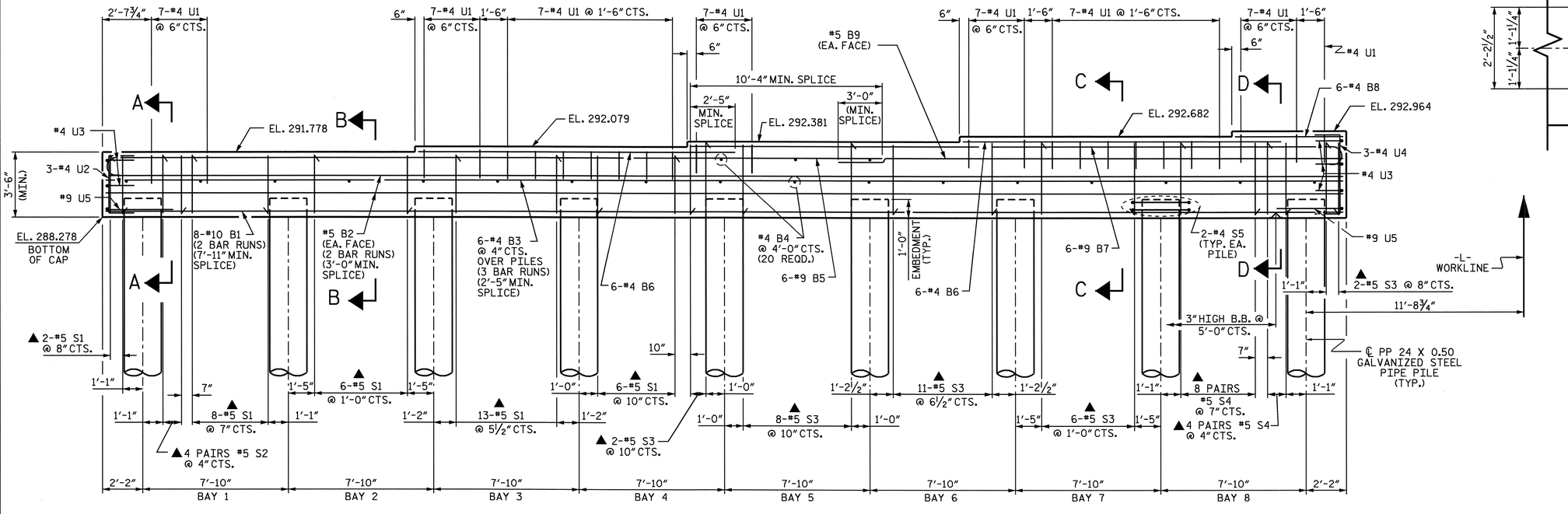
bbarodawala

FOR NOTES SEE SHEET 3 OF 6.

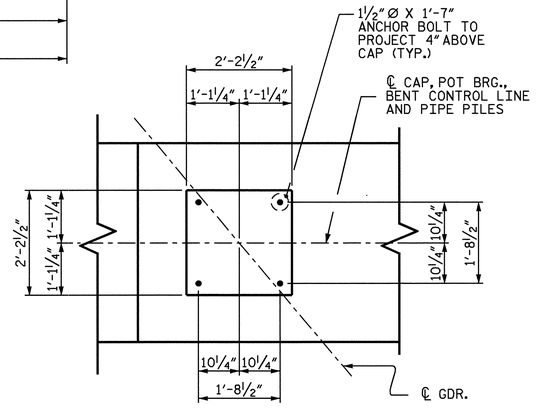


PLAN



ELEVATION

▲ INVERT ALTERNATE STIRRUPS



DETAIL A

(TYP. EACH CONTINUOUS GDR.)

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #1
LEFT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : BNB/MG DATE : 6-4-09
CHECKED BY : Neil Ruffin DATE : 6-9-09

04-AUG-2009 14:25
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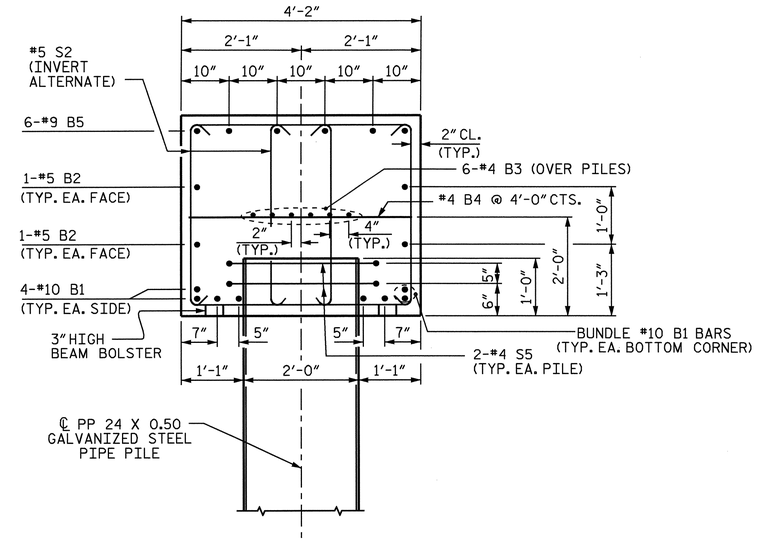
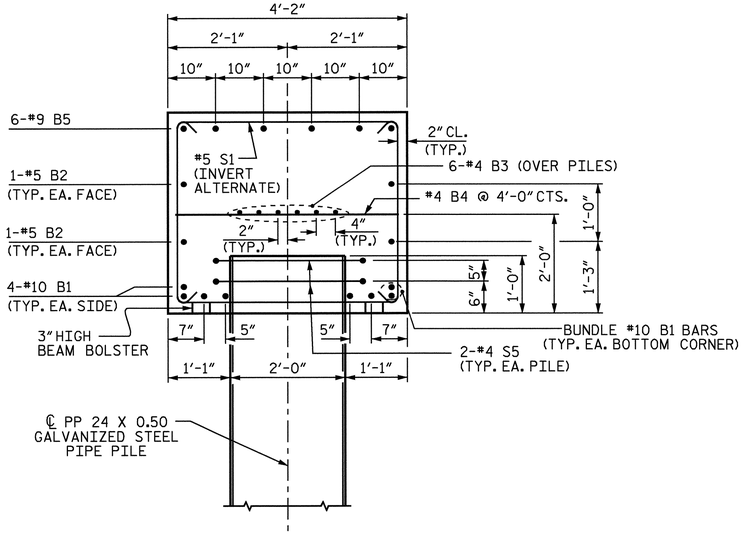
mgudlaugsson

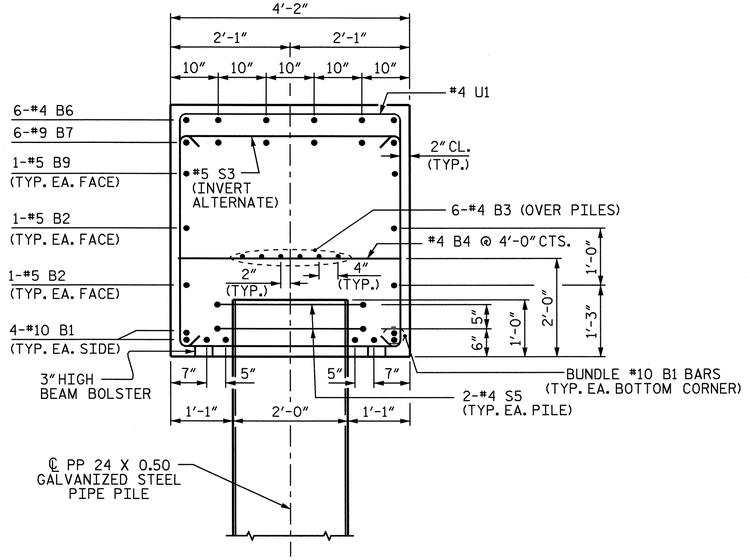
STR. #1



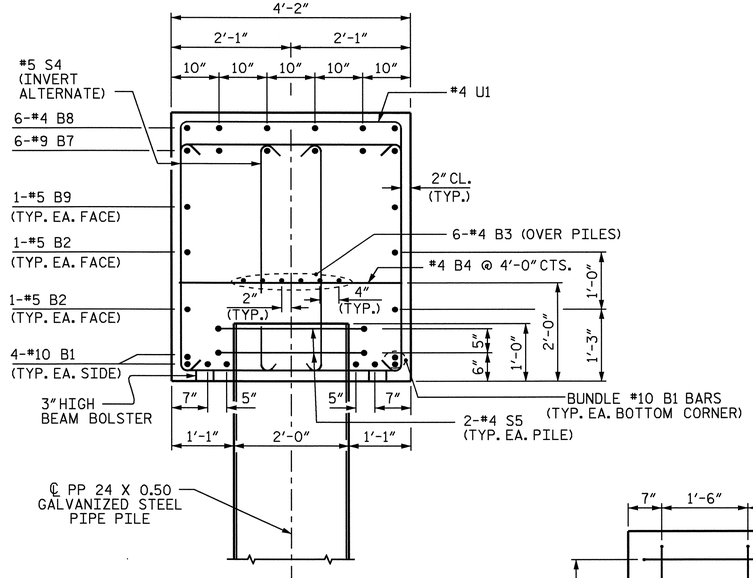
SECTION A-A



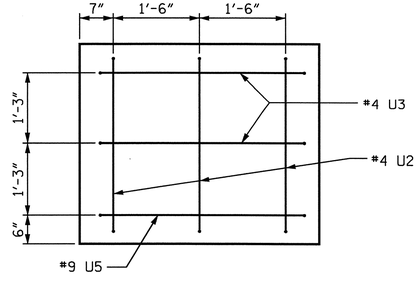
SECTION B-B



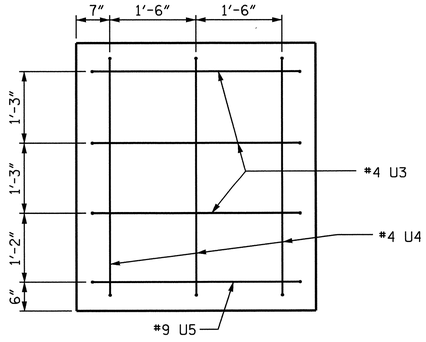
SECTION C-C



SECTION D-D

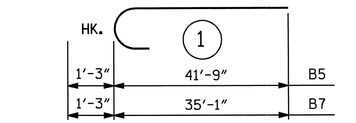


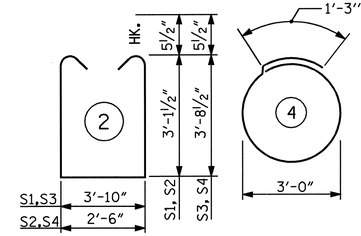
LEFT END VIEW

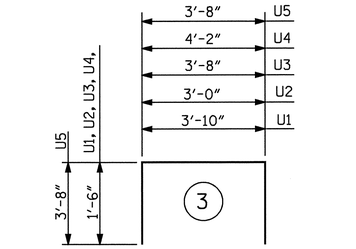


RIGHT END VIEW

BAR TYPES







ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT #1 LEFT SIDE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#10	STR	37'-4"	2,570
B2	8	#5	STR	34'-10"	291
B3	18	#4	STR	23'-10"	287
B4	20	#4	STR	3'-10"	51
B5	6	#9	1	41'-10"	853
B6	12	#4	STR	17'-2"	138
B7	6	#9	1	36'-4"	741
B8	6	#4	STR	5'-10"	23
B9	2	#5	STR	27'-10"	58
S1	35	#5	2	11'-0"	402
S2	8	#5	2	9'-8"	81
S3	29	#5	2	12'-2"	368
S4	24	#5	2	10'-10"	271
S5	18	#4	4	10'-9"	129
U1	50	#4	3	6'-10"	228
U2	3	#4	3	6'-0"	12
U3	5	#4	3	6'-8"	22
U4	3	#4	3	7'-2"	14
U5	2	#9	3	11'-0"	75

REINFORCING STEEL 6,614 LBS

CLASS A CONCRETE BREAKDOWN
POUR #1 CAP 40.4 CU. YD.

TOTAL CLASS A CONCRETE 40.4 CU. YD.

PP 24 X 0.50 GALVANIZED STEEL PILES
NO. 9 1,035 LIN. FT.

PIPE PILE PLATES EA. 9

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #1
LEFT SIDE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			50

STR #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
8/14/09

DRAWN BY : BNB/MG DATE : 6-4-09
CHECKED BY : Neil Ruffin DATE : 6-9-09

04-AUG-2009 14:35
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mgudlaugsson

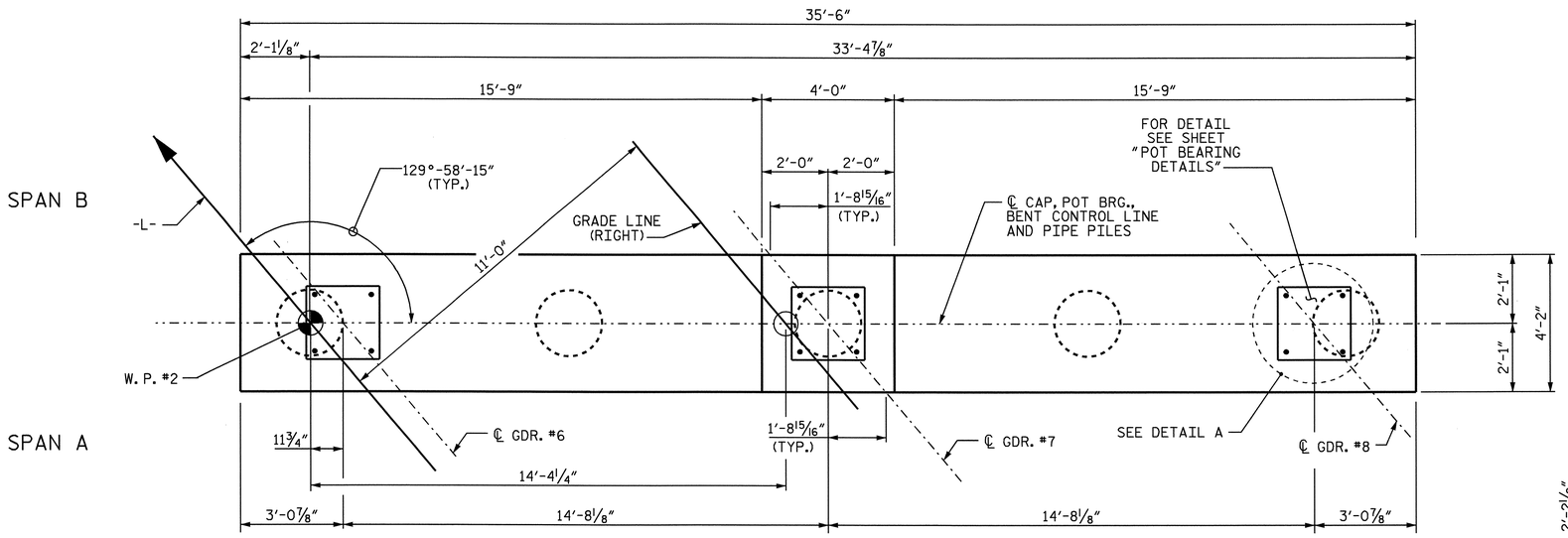
NOTES:

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

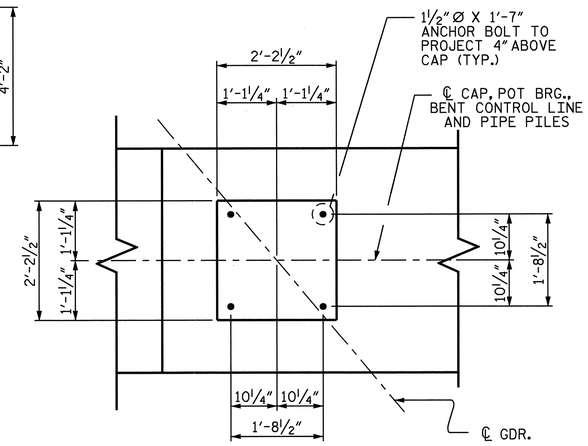
FOR REINFORCING STEEL IN PIPE PILES, SEE "24" STEEL PIPE PILE" SHEET.

FOR GIRDER DESIGNATION SEE "PLAN OF SPAN" SHEETS.

CONCRETE DISPLACED BY THE FILLED 24" STEEL PIPE PILES HAS BEEN DEDUCTED FROM THE QUANTITY OF CLASS "A" CONCRETE FOR THE BENT CAP.

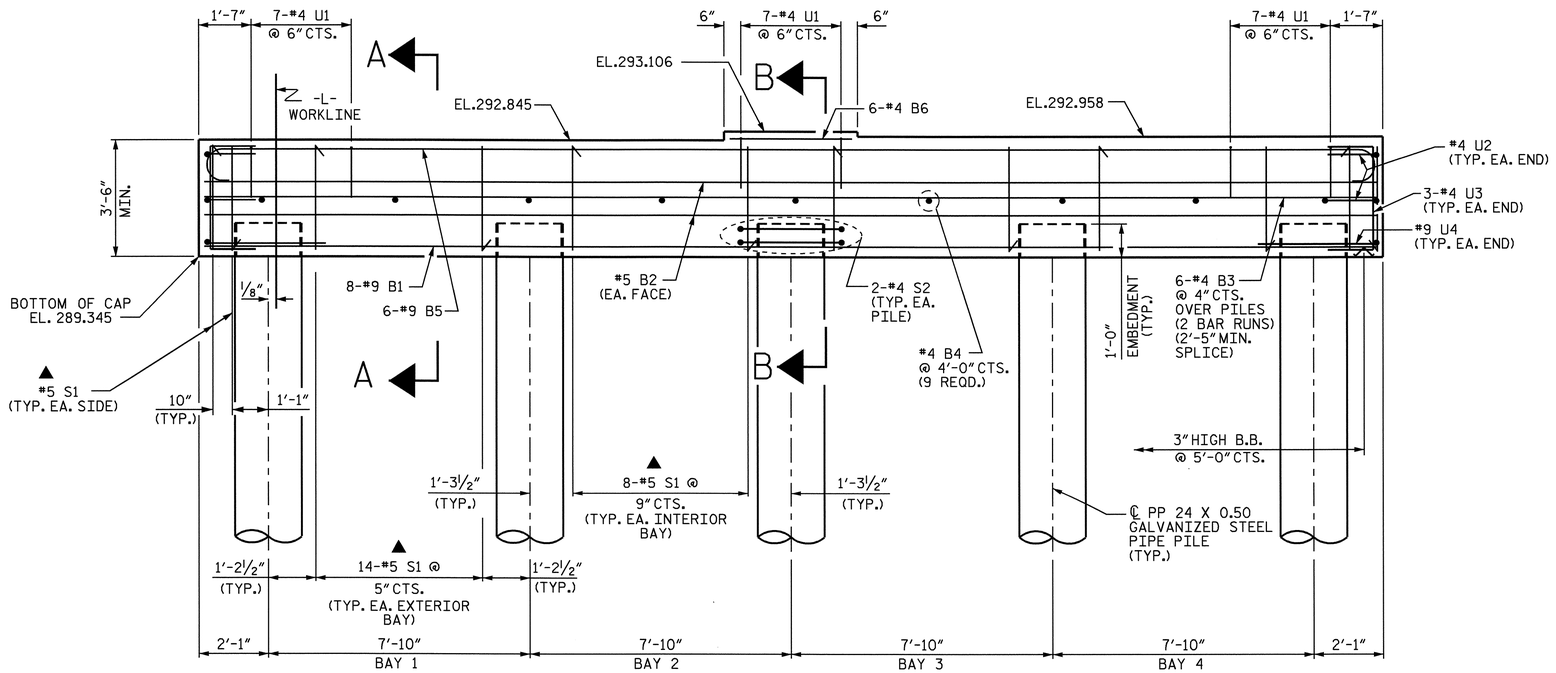


PLAN



DETAIL A

(TYP. EACH CONTINUOUS GDR.)



ELEVATION

▲ INVERT ALTERNATE STIRRUPS

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #1 CENTER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-38
1			3			TOTAL SHEETS
2			4			50

STR. #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/4/09

DRAWN BY : B.N.BARODAWALA DATE : 6-5-09
CHECKED BY : Neil M Kaffin DATE : 6-8-09

04-AUG-2009 14:26
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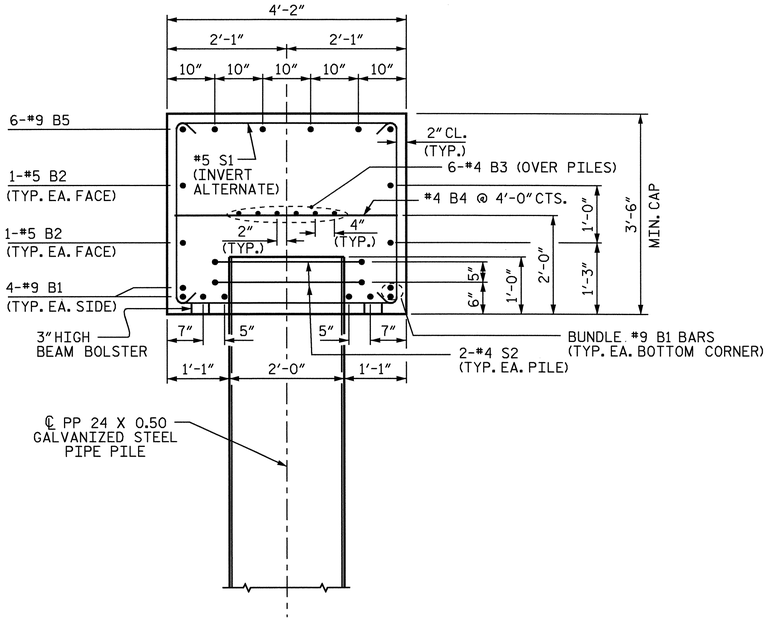
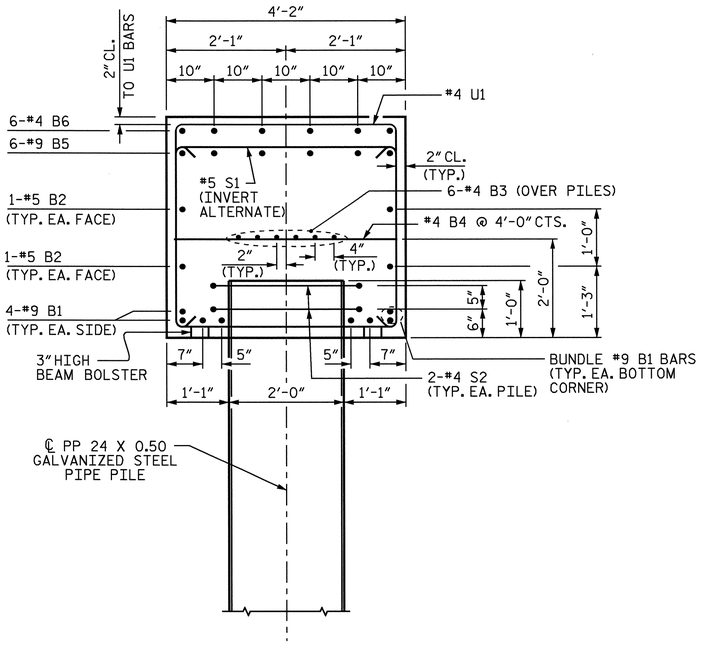
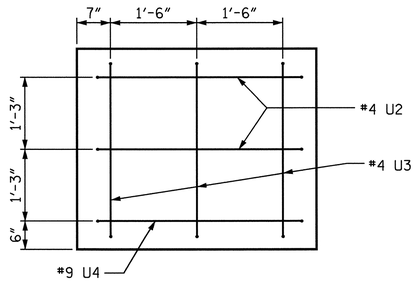
mgudlaugsson



SECTION A-A

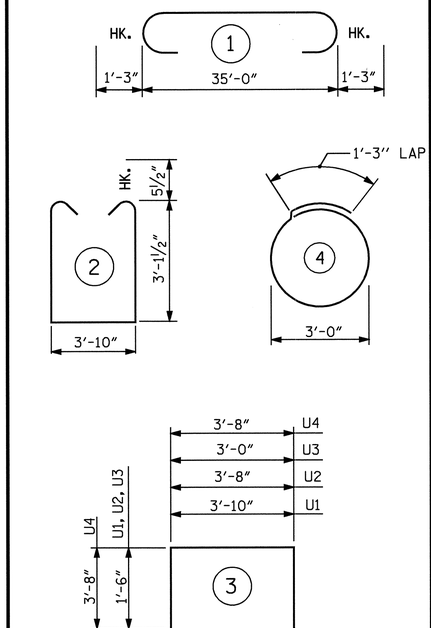


SECTION B-B



END VIEW
(TYP. BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
BENT #1 CENTER

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	STR	35'-2"	957
B2	4	#5	STR	35'-2"	147
B3	12	#4	STR	18'-10"	151
B4	9	#4	STR	3'-10"	23
B5	6	#9	1	37'-6"	765
B6	6	#4	STR	3'-8"	15
S1	48	#5	2	11'-0"	551
S2	10	#4	4	10'-9"	72
U1	21	#4	3	6'-10"	96
U2	4	#4	3	6'-8"	18
U3	6	#4	3	6'-0"	24
U4	2	#9	3	11'-0"	75

REINFORCING STEEL 2,894 LBS

CLASS A CONCRETE BREAKDOWN
POUR #1 CAP 19.0 CU. YD.

TOTAL CLASS A CONCRETE 19.0 CU. YD.

PP 24 X 0.50 GALVANIZED STEEL PILES

NO. 5 575 LIN. FT.

PIPE PILE PLATES EA. 5

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #1
CENTER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			50

STR #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY K. COGGINS
8/4/09

DRAWN BY : B.N.BARODAWALA DATE : 6-4-09
CHECKED BY : Neil M Raffa DATE : 6-8-09

04-AUG-2009 14:26
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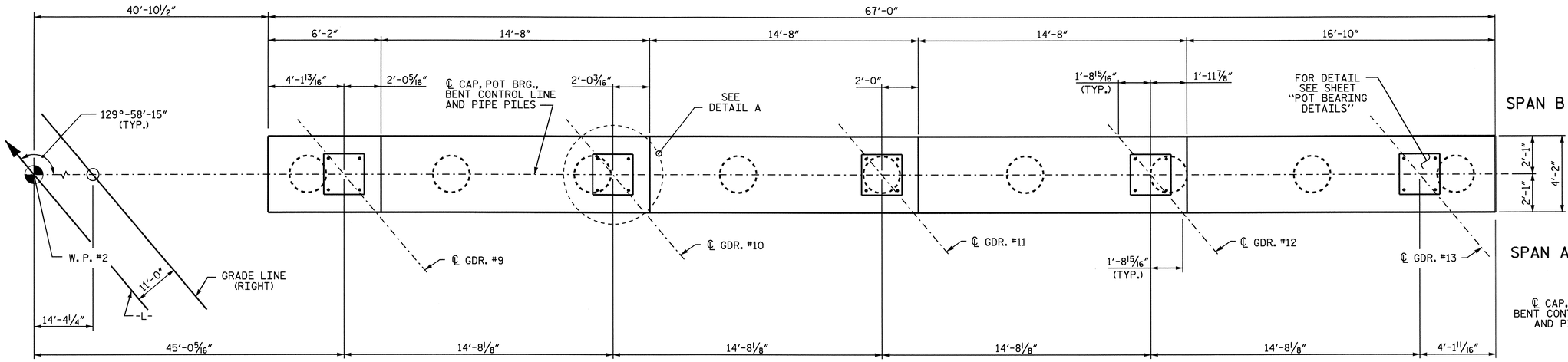
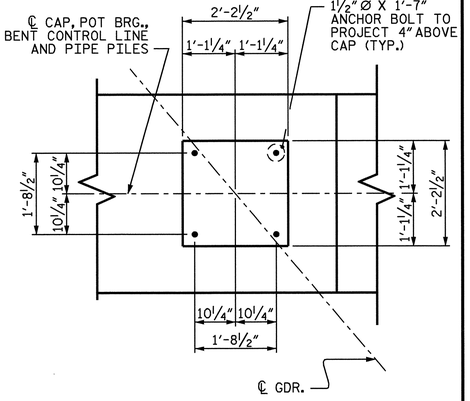
mgudlaugsson

FOR NOTES SEE SHEET 3 OF 6.

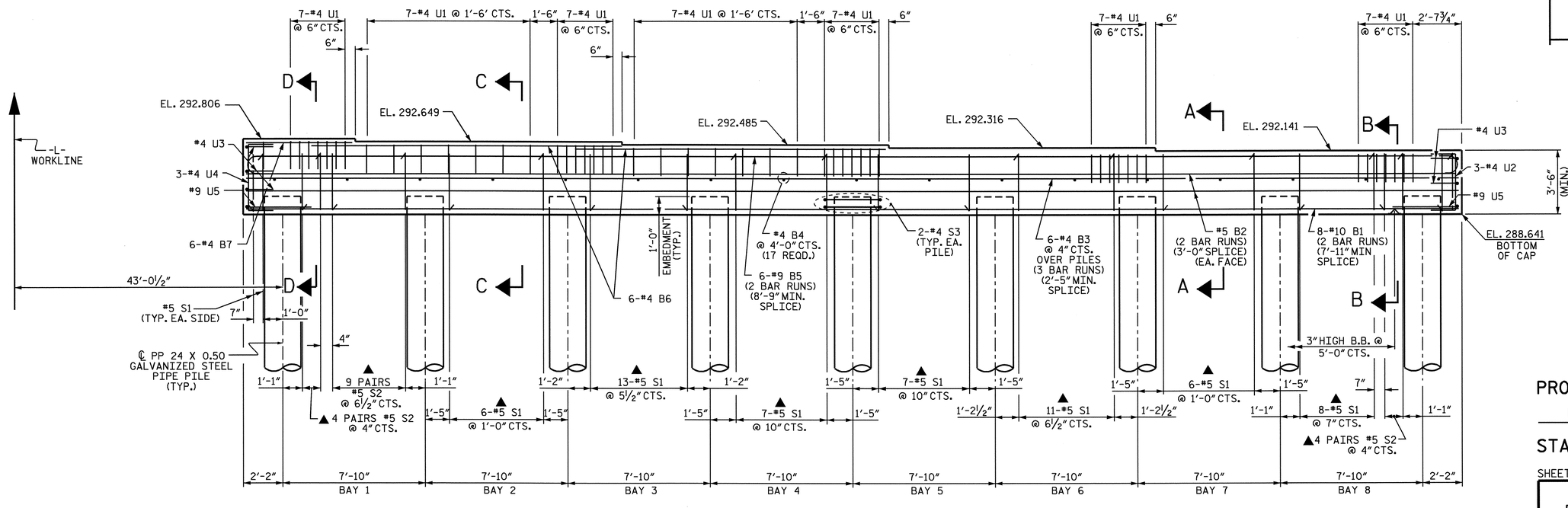


PLAN



DETAIL A

(TYP. EACH CONTINUOUS GDR.)



ELEVATION

▲INVERT ALTERNATE STIRRUPS

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #1
RIGHT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
5/14/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-40
1			3			TOTAL SHEETS
2			4			50

STR. #1

DRAWN BY : B.N.BARODAWALA DATE : 6-4-09
CHECKED BY : Neil M Ruffin DATE : 6-9-09

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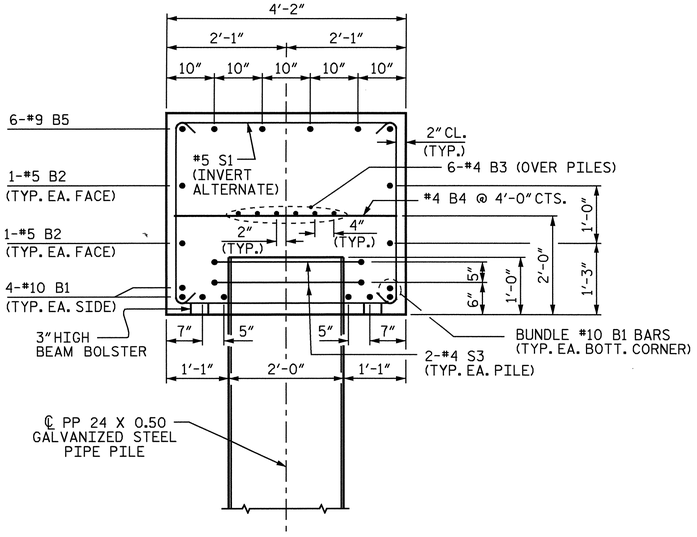
mgudlaugsson



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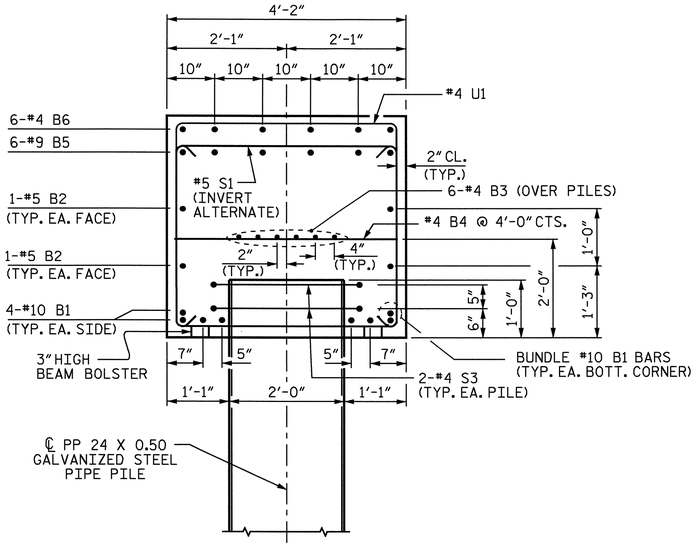

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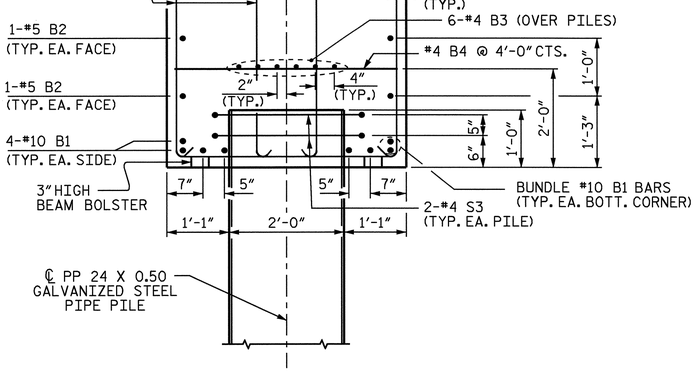

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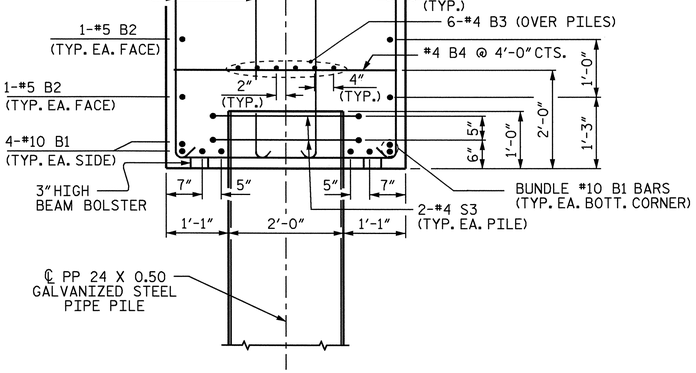

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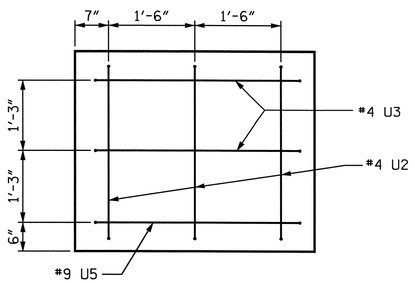
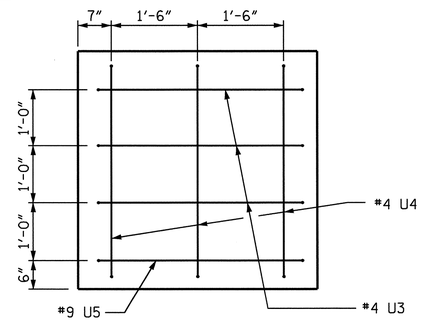
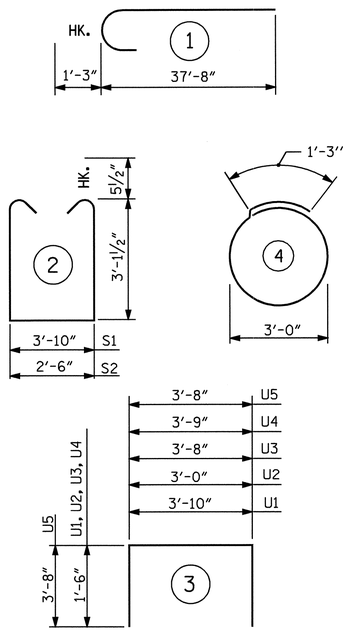


RIGHT END VIEW



LEFT END VIEW

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT #1 RIGHT SIDE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#10	STR	37'-4"	2,570
B2	8	#5	STR	34'-10"	291
B3	18	#4	STR	23'-10"	287
B4	17	#4	STR	3'-10"	44
B5	12	#9	1	38'-11"	1,588
B6	12	#4	STR	17'-2"	138
B7	6	#4	STR	5'-10"	23
S1	62	#5	2	11'-0"	711
S2	34	#5	2	9'-8"	343
S3	18	#4	4	10'-9"	129
U1	49	#4	3	6'-10"	224
U2	3	#4	3	6'-0"	12
U3	5	#4	3	6'-8"	22
U4	3	#4	3	6'-9"	14
U5	2	#9	3	11'-0"	75

REINFORCING STEEL 6,471 LBS

CLASS A CONCRETE BREAKDOWN
POUR #1 CAP 38.1 CU. YD.

TOTAL CLASS A CONCRETE 38.1 CU. YD.

PP 24 X 0.50 GALVANIZED STEEL PILES
NO. 9 1,035 LIN. FT.

PIPE PILE PLATES EA. 9

TOTAL BILL OF MATERIAL - BENT #1

	REINFORCING STEEL	CLASS A CONCRETE	PP 24 X 0.50 GALVANIZED STEEL PILES		PIPE PILE PLATES	PILE REDRIVES	PDA TESTING	PDA ASSISTANCE
	LBS.	CU. YDS.	NO.	LIN. FT.	EACH	EACH	EACH	EACH
LEFT SIDE	6,614	40.4	9	1,035	9			
CENTER	2,894	19.0	5	575	5			
RIGHT SIDE	6,471	38.1	9	1,035	9			
TOTAL	15,979	97.5	23	2,645	23	12	1	1

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #1
RIGHT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY X. COGGINS
8/19/09

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

SHEET NO. S-41
TOTAL SHEETS 50

STR #1

DRAWN BY : B.N.BARODAWALA DATE : 6-4-09
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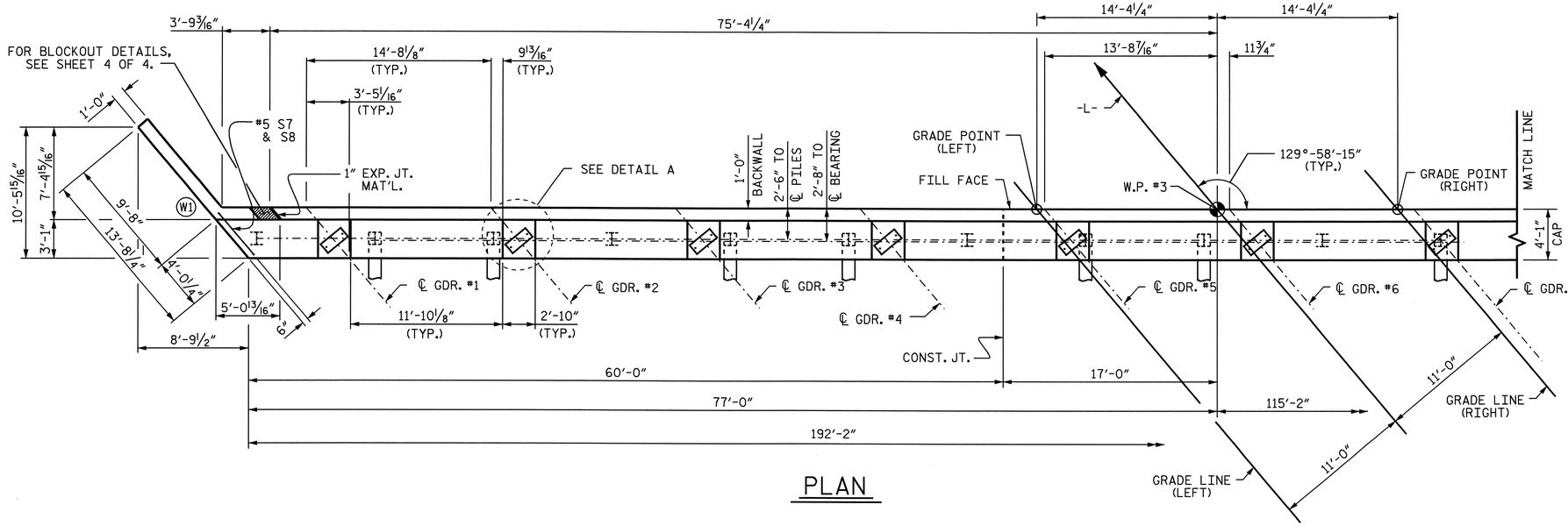
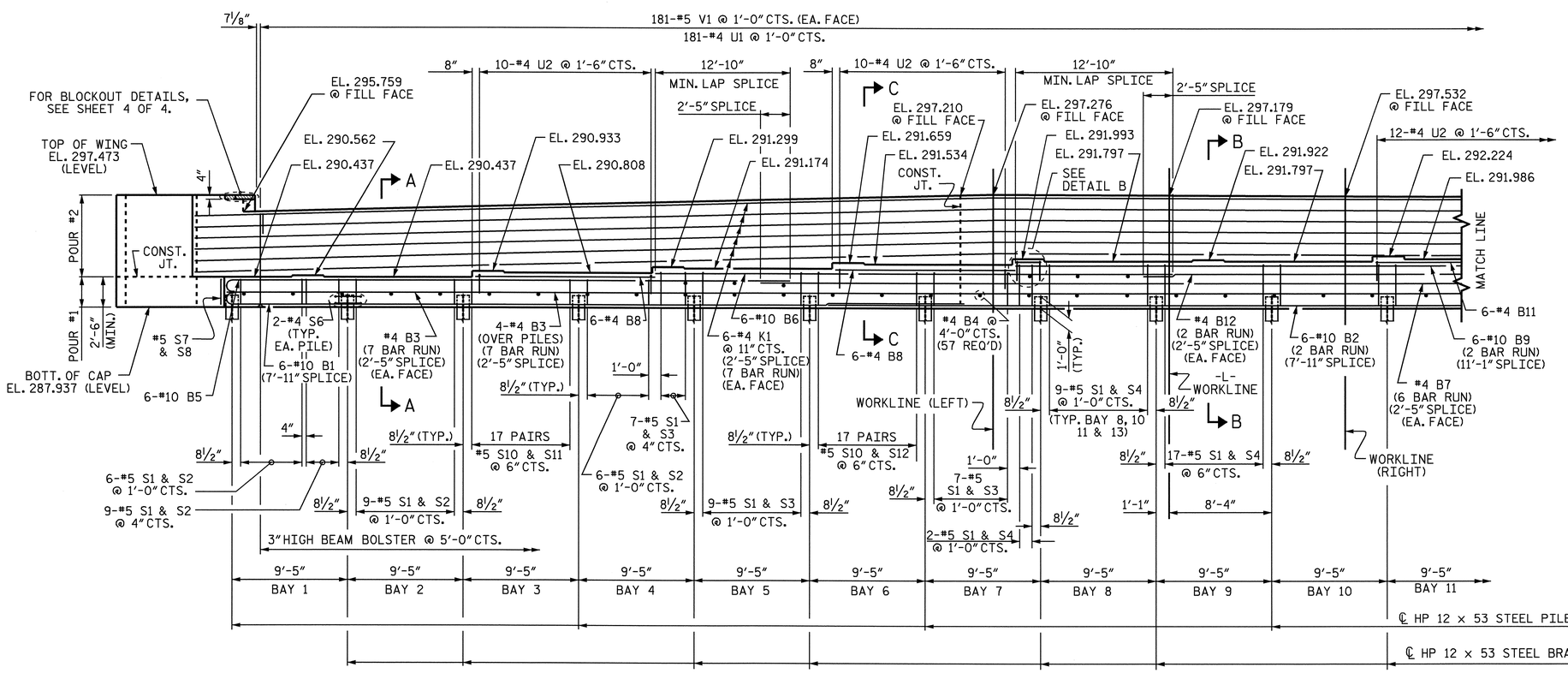
mgudlaugsson



PLAN



ELEVATION

NOTES:

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

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.

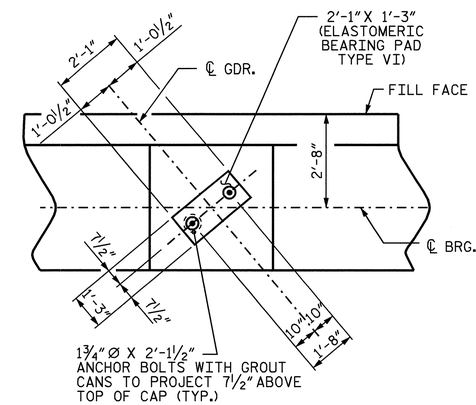
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2 %.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4"DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

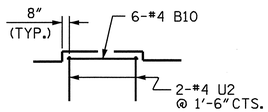
EPOXY COAT THE END BENT CAP AFTER ADJUSTMENTS ARE MADE TO BEARINGS, AND ANCHOR BOLTS ARE GROUTED.

FOR TEMPORARY DRAINAGE, SEE END BENT #1, SHEET 4 OF 4.



DETAIL A

(TYP. EACH GIRDER)



DETAIL B

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			50

STR. #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 8/4/09

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
CHECKED BY : D. CRUTCHER DATE : 6/8/09

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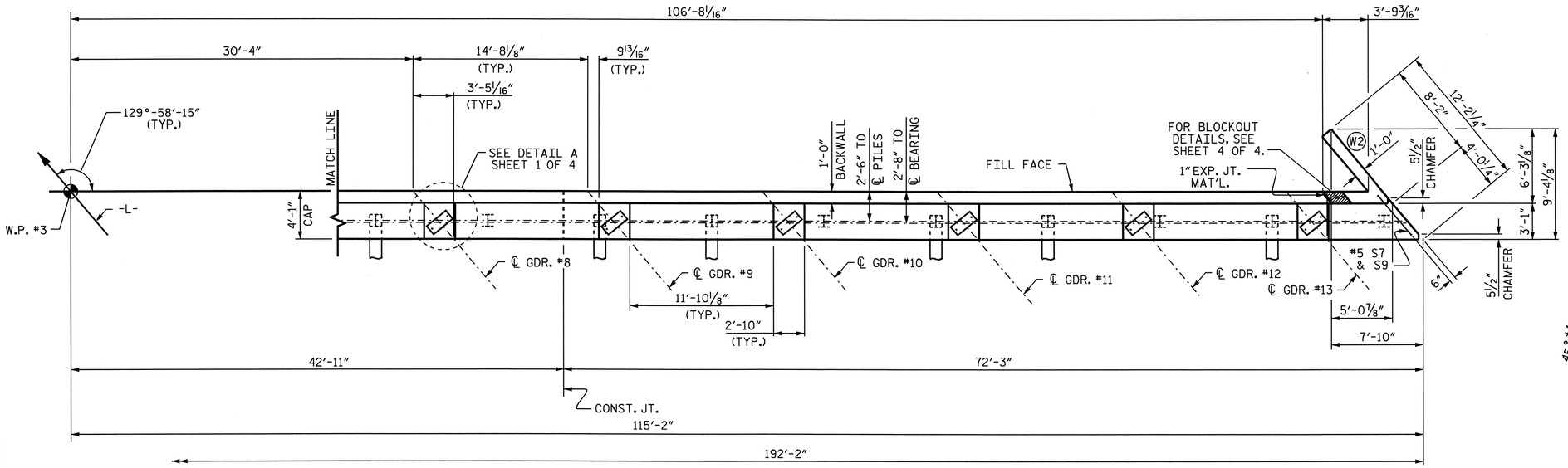
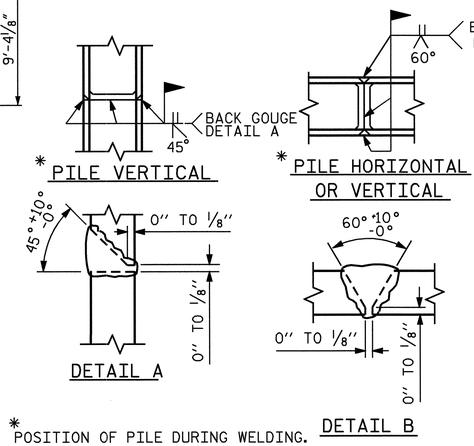
bbarodawala

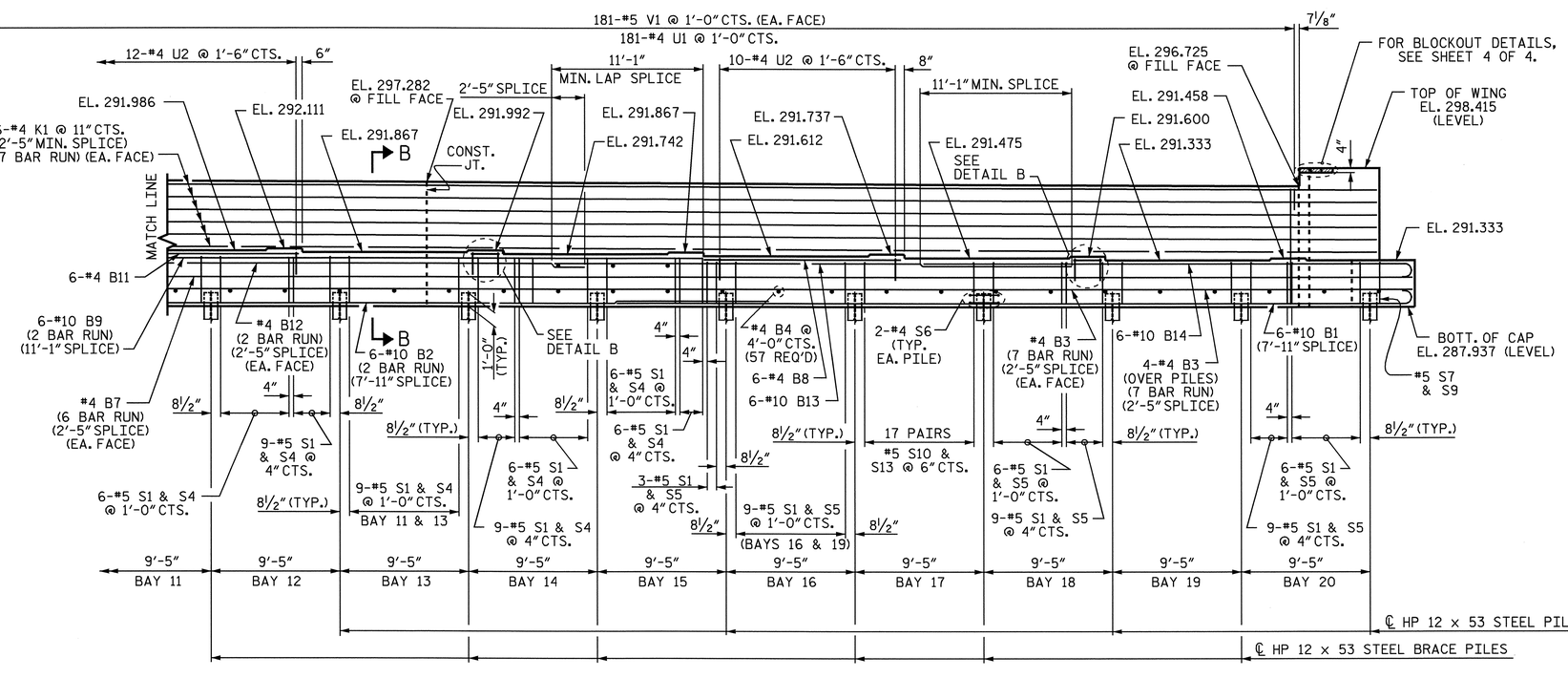


PLAN

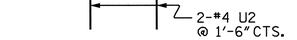


* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ELEVATION



DETAIL B

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			50

STR. #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/5/09

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
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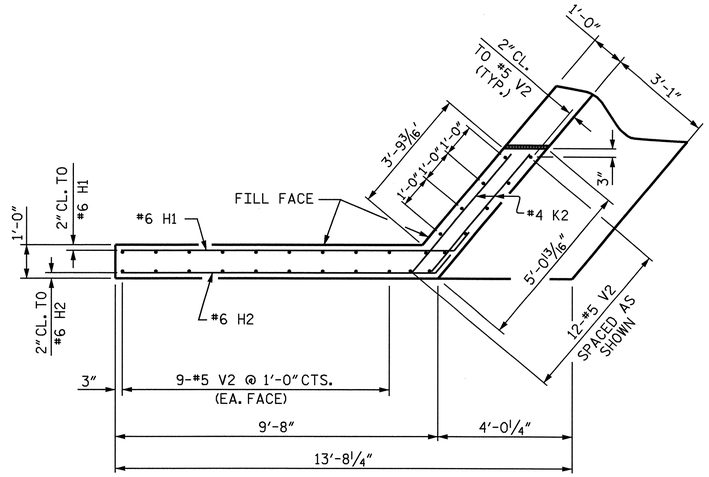
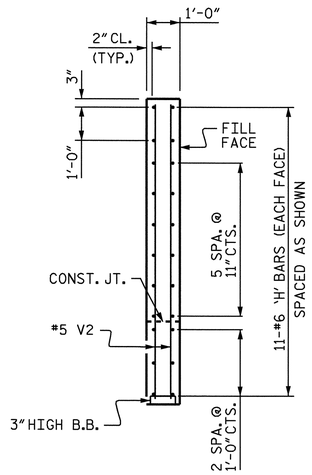
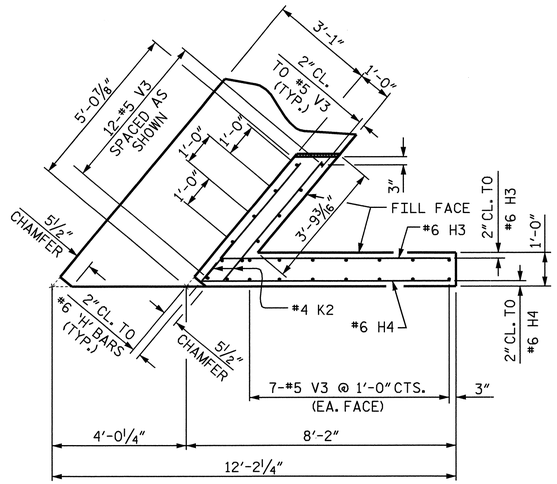


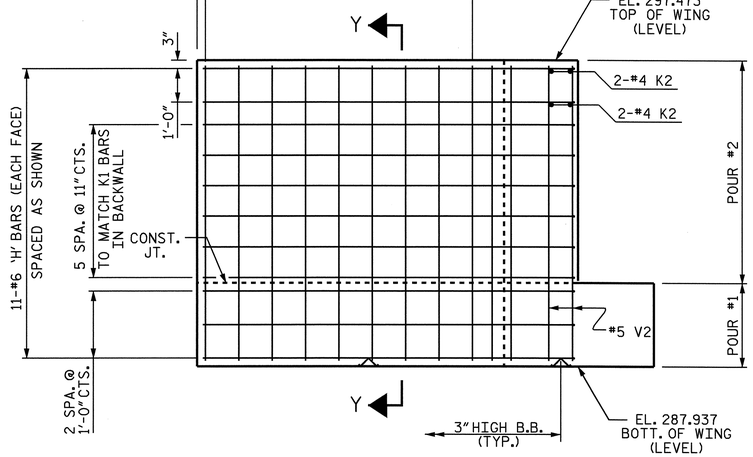
PLAN OF WING W1



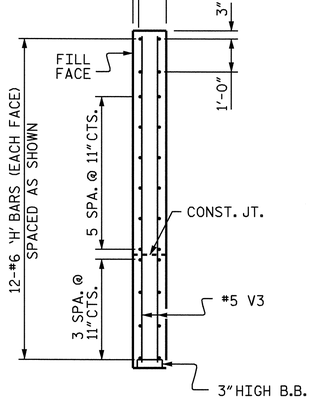
SECTION Y-Y



PLAN OF WING W2



ELEVATION OF WING W1



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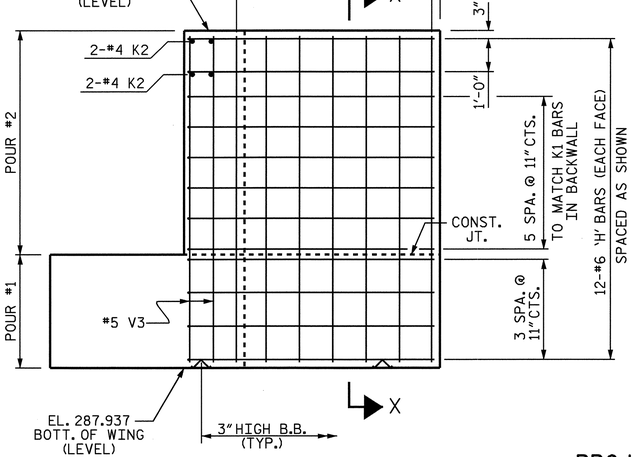

ELEVATION OF WING W2

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/14/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			50

STR. #1

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
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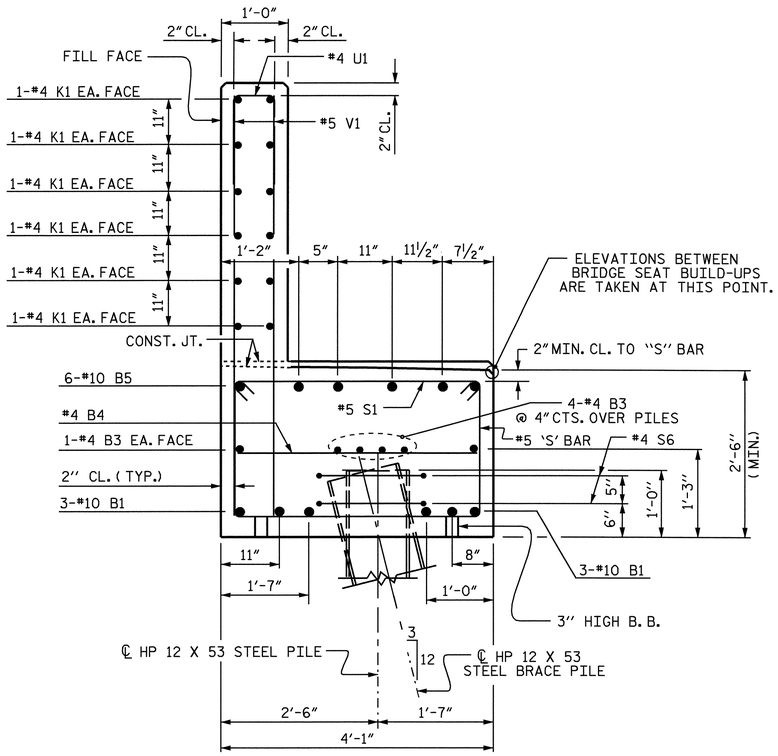
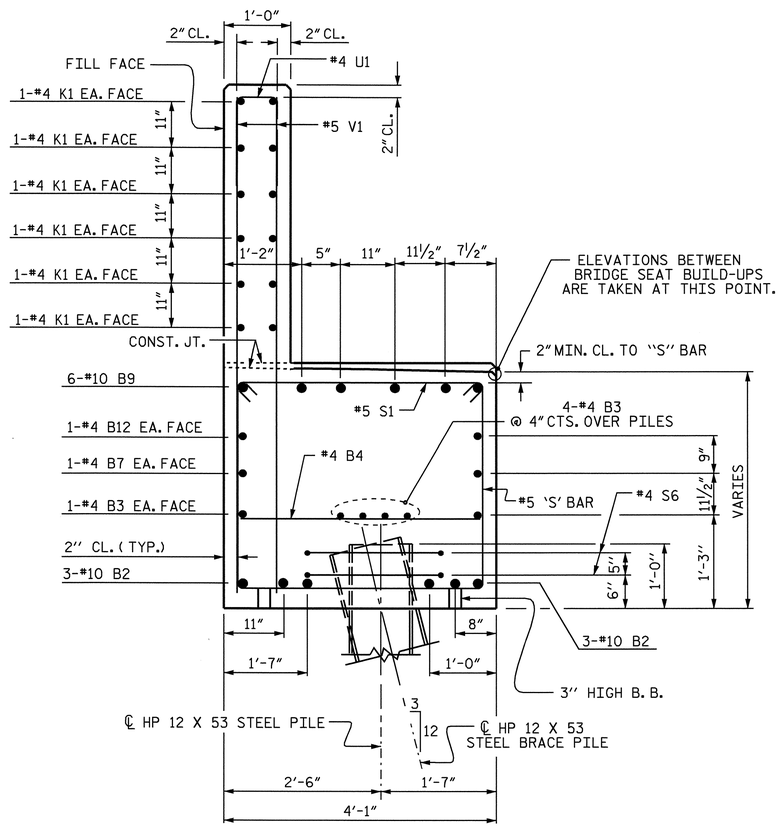
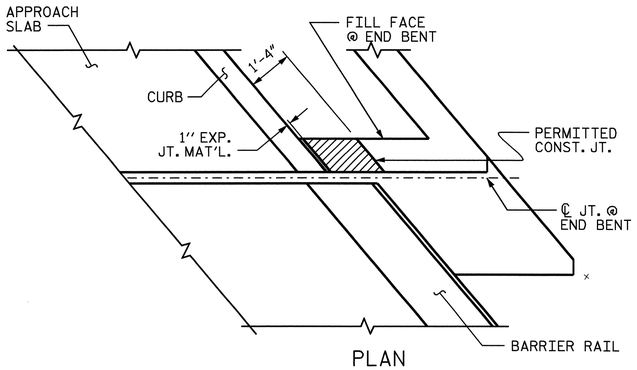
bbarodawala



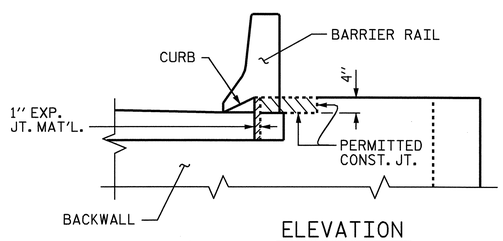
SECTION A-A



SECTION B-B

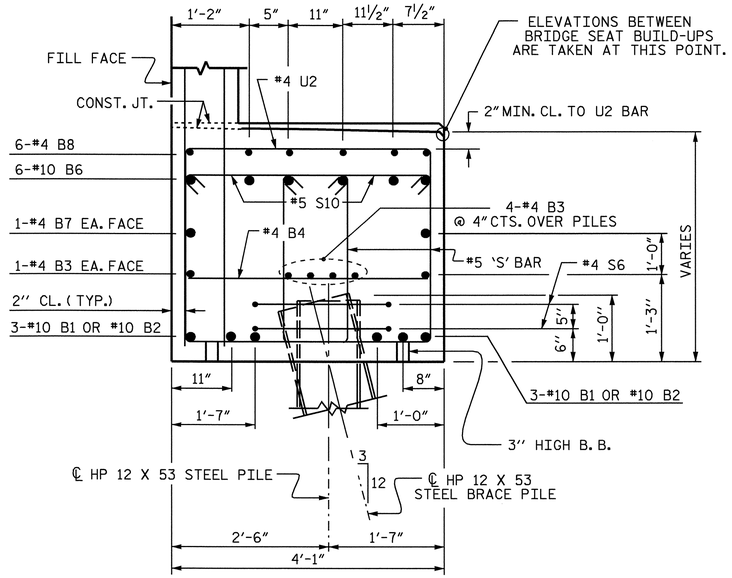


PLAN



ELEVATION

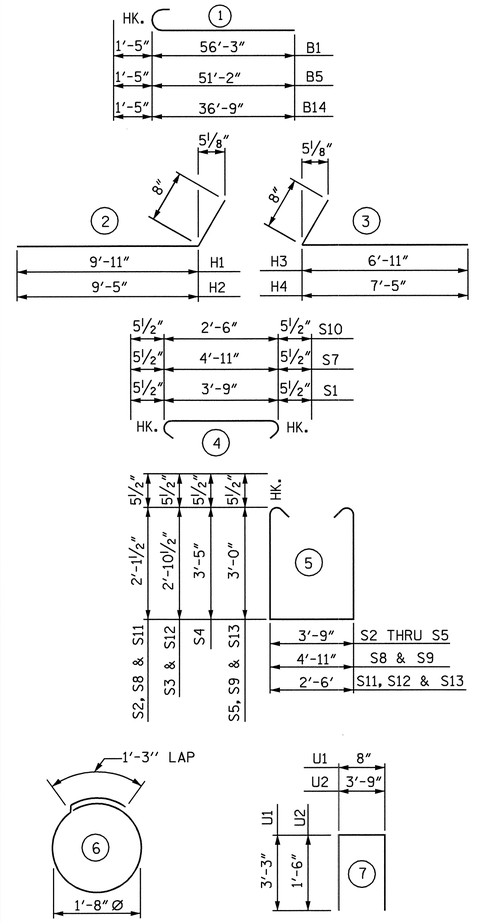
BLOCKOUT IN WING WALL



SECTION C-C

"V" & "K" BARS IN BACKWALL NOT SHOWN

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#10	1	57'-8"	2978
B2	12	#10	STR	51'-6"	2659
B3	42	#4	STR	29'-6"	828
B4	57	#4	STR	3'-9"	143
B5	6	#10	1	52'-7"	1358
B6	6	#10	STR	42'-3"	1091
B7	12	#4	STR	25'-1"	201
B8	18	#4	STR	14'-6"	174
B9	12	#10	STR	43'-8"	2255
B10	18	#4	STR	2'-6"	30
B11	6	#4	STR	17'-2"	69
B12	4	#4	STR	29'-8"	79
B13	6	#10	STR	37'-0"	955
B14	6	#10	1	38'-2"	985
H1	11	#6	2	10'-7"	175
H2	11	#6	2	10'-1"	167
H3	12	#6	3	7'-7"	137
H4	12	#6	3	8'-1"	146
K1	84	#4	STR	29'-6"	1655
K2	8	#4	STR	4'-7"	24
S1	201	#5	4	4'-8"	978
S2	30	#5	5	8'-11"	279
S3	23	#5	5	10'-5"	250
S4	97	#5	5	11'-6"	1163
S5	51	#5	5	10'-8"	567
S6	42	#4	6	6'-6"	182
S7	2	#5	4	5'-10"	12
S8	1	#5	5	10'-1"	11
S9	1	#5	5	11'-10"	12
S10	102	#5	4	3'-5"	363
S11	34	#5	5	7'-8"	272
S12	34	#5	5	9'-2"	325
S13	34	#5	5	9'-5"	334
U1	181	#4	7	7'-2"	867
U2	48	#4	7	6'-9"	216
V1	362	#5	STR	7'-6"	2832
V2	30	#5	STR	9'-2"	287
V3	26	#5	STR	10'-1"	273

REINFORCING STEEL LBS. 25332

CLASS 'A' CONCRETE

POUR #1 CAP & LOWER WINGS CU. YDS. 104.0

POUR #2

BACKWALL & UPPER WINGS CU. YDS. 43.5

TOTAL CU. YDS. 147.5

HP 12 x 53 STEEL PILES

NO. 21 1470 LIN. FT.

PILE REDRIVES 10 EA.

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-45
1			3			TOTAL SHEETS
2			4			50

STR. #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY A. COGGINS 8/4/09

DRAWN BY : B.N.BARODAWALA DATE : 5/5/09
CHECKED BY : D. CRUTCHER DATE : 6/8/09

04-AUG-2009 14:55
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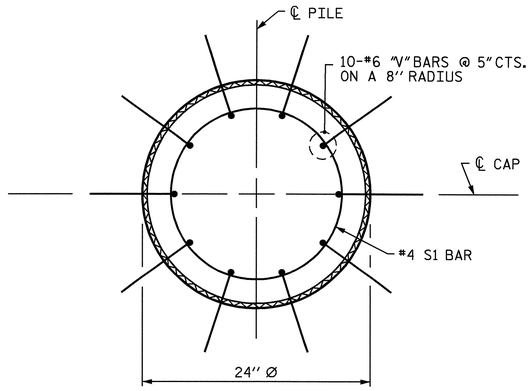
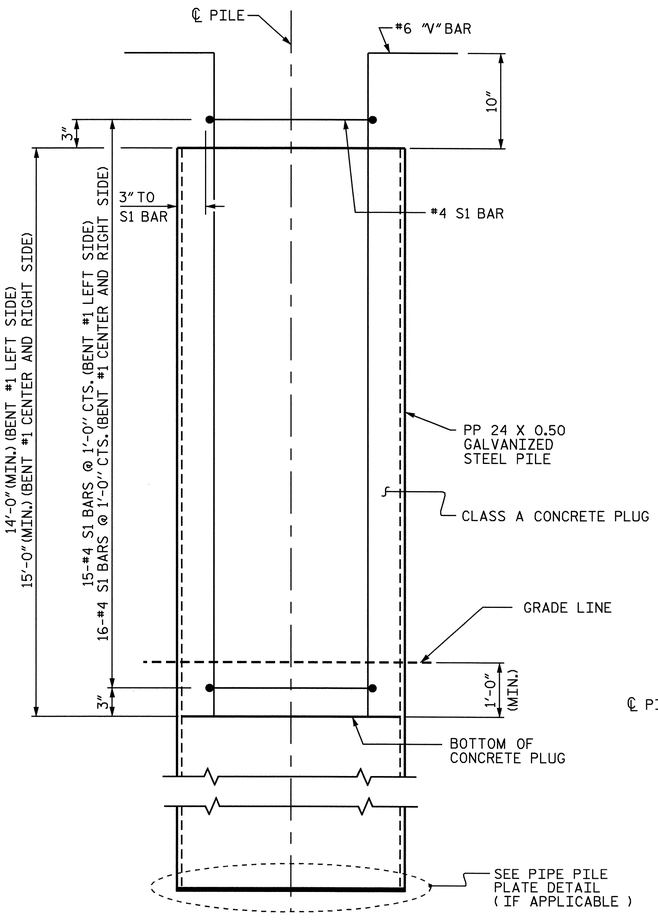
bbarodawala



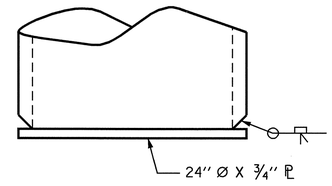
PLAN



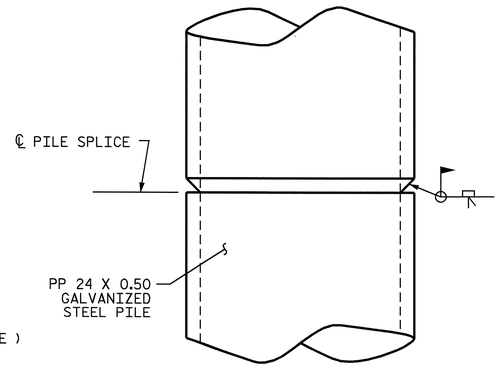
ELEVATION

PP 24 X 0.50 GALVANIZED STEEL PILE

EXTEND PLUG TO 1'-0" MINIMUM BELOW GRADE, AS NECESSARY.



PIPE PILE PLATE DETAIL
(IF APPLICABLE)

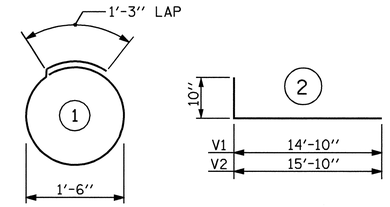


PIPE PILE SPLICE DETAIL

FOR BENT #1 LEFT SIDE					
BILL OF MATERIAL FOR ONE PP 24 X 0.50 GALVANIZED STEEL PILE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	15	#4	1	6'-0"	60
V1	10	#6	2	15'-8"	235
REINFORCING STEEL =					295 lbs
CLASS A CONCRETE					
CONCRETE PLUG					1.5 CY

FOR BENT #1 CENTER AND RIGHT SIDE					
BILL OF MATERIAL FOR ONE PP 24 X 0.50 GALVANIZED STEEL PILE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	16	#4	1	6'-0"	64
V2	10	#6	2	16'-8"	250
REINFORCING STEEL =					314 lbs
CLASS A CONCRETE					
CONCRETE PLUG					1.6 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 24 X 0.50 GALVANIZED STEEL PILES.

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

24" STEEL PIPE PILE

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-46
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY :	P.P./MG	DATE :	6-2-09
CHECKED BY :	Neil Ruffin	DATE :	6-8-09
DRAWN BY : TLA 8/05	ADDED 10/1/05		
CHECKED BY : GM 9/05	REV. 5/1/06R		MAA/KMM

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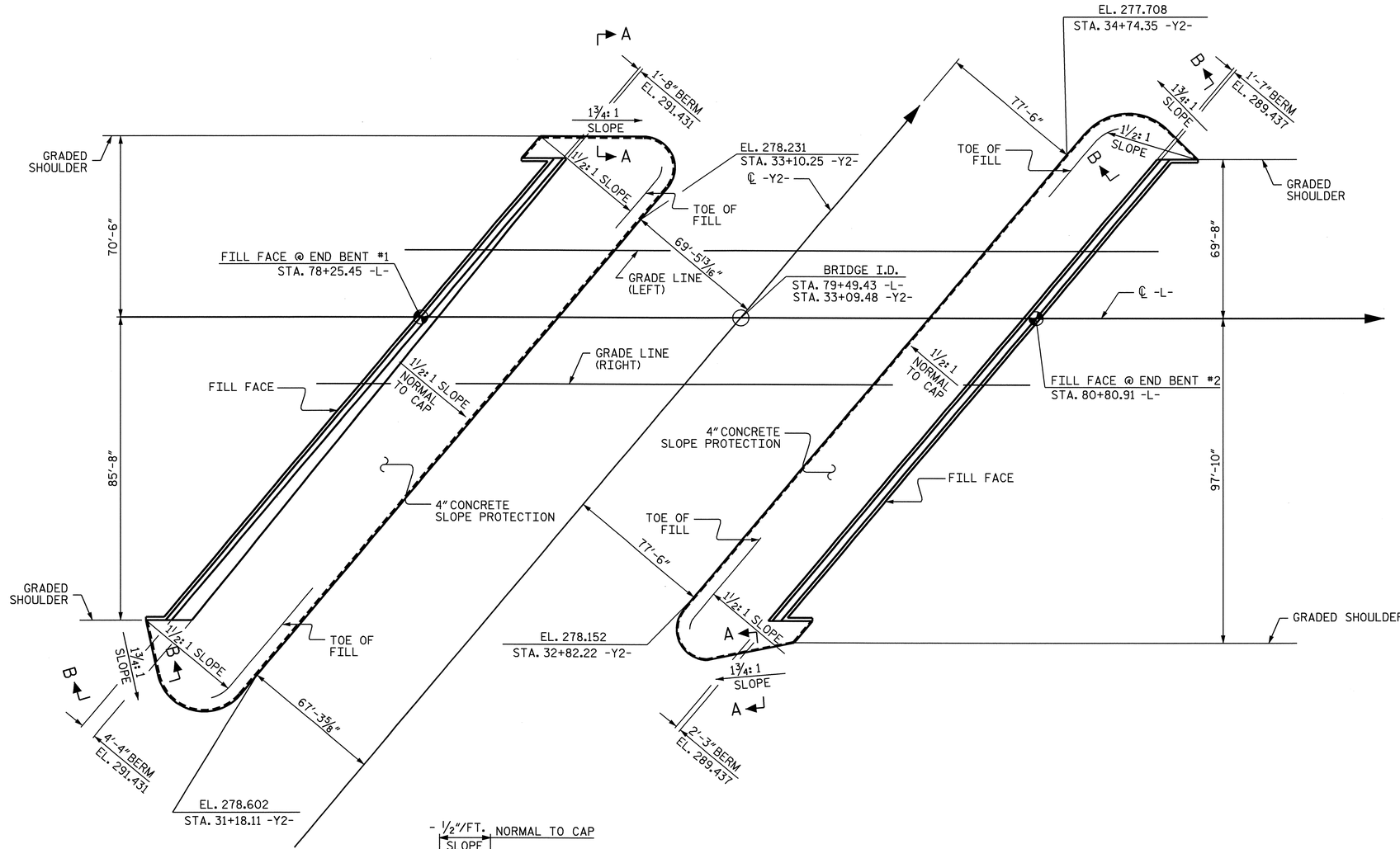
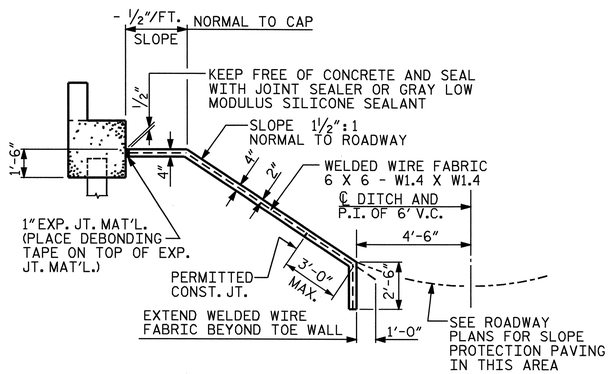
STR. #1 STD. NO. SPP4





SECTION ALONG ℄ ROADWAY WHEN FILL CATCHES IN DITCH

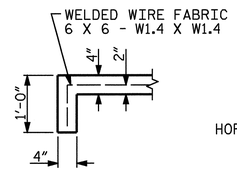
GENERAL NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. MEASUREMENT AND PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

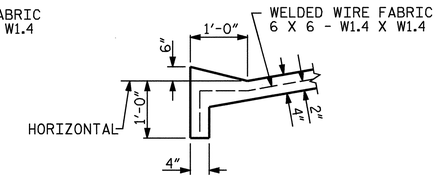
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL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

BRIDGE @ STA. 79+49.43 -L- STA. 33+09.48 -Y2-	4 INCH SLOPE PROTECTION	* WELDED WIRE FABRIC 60 INCHES WIDE
	SQUARE YARDS	APPROX. L.F.
END BENT 1	1019	2202
END BENT 2	976	2109

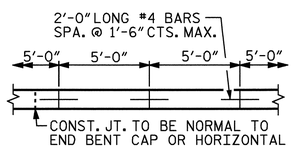
* QUANTITY SHOWN IS BASED ON 5' POURS.



SECTION A-A

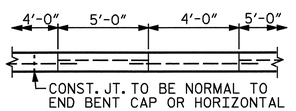


SECTION B-B



STRIP WIDTHS MAY VARY IN CURVED PORTION.

POURING DETAIL



POUR A 4'-0" STRIP FIRST. STRIP WIDTHS MAY VARY IN CURVED PORTION.

OPTIONAL POURING DETAIL

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

SLOPE PROTECTION DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			50

ASSEMBLED BY : J.B. WILSON	DATE : 4/27/09	
CHECKED BY : B.N. BARODAWALA	DATE : 5/20/09	
DRAWN BY : ELR 5/92	REV. 7/10/01	LES/RDR
CHECKED BY : GRP 6/92	REV. 5/7/03	RWW/JTE
	REV. 5/1/06	TLA/GM

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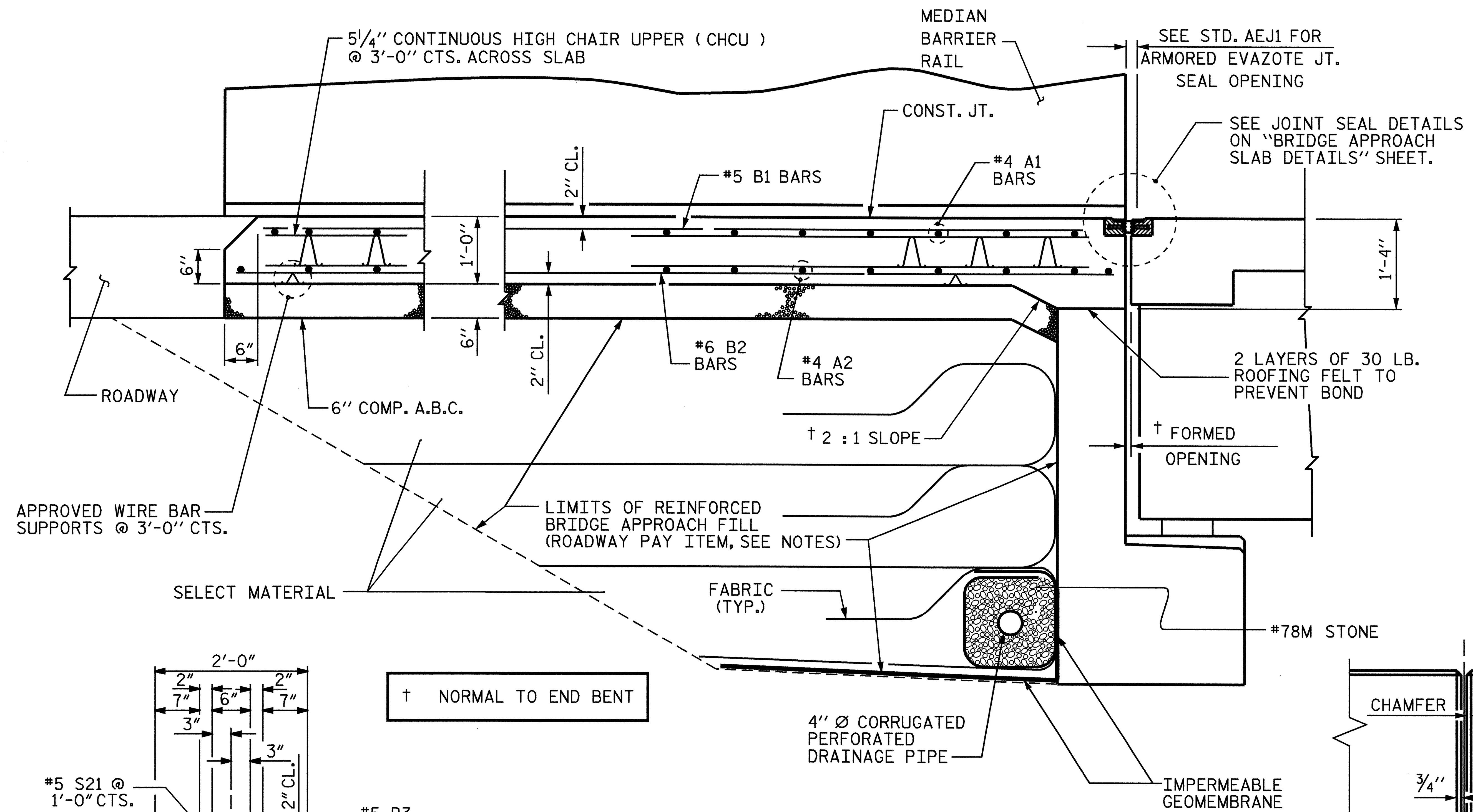
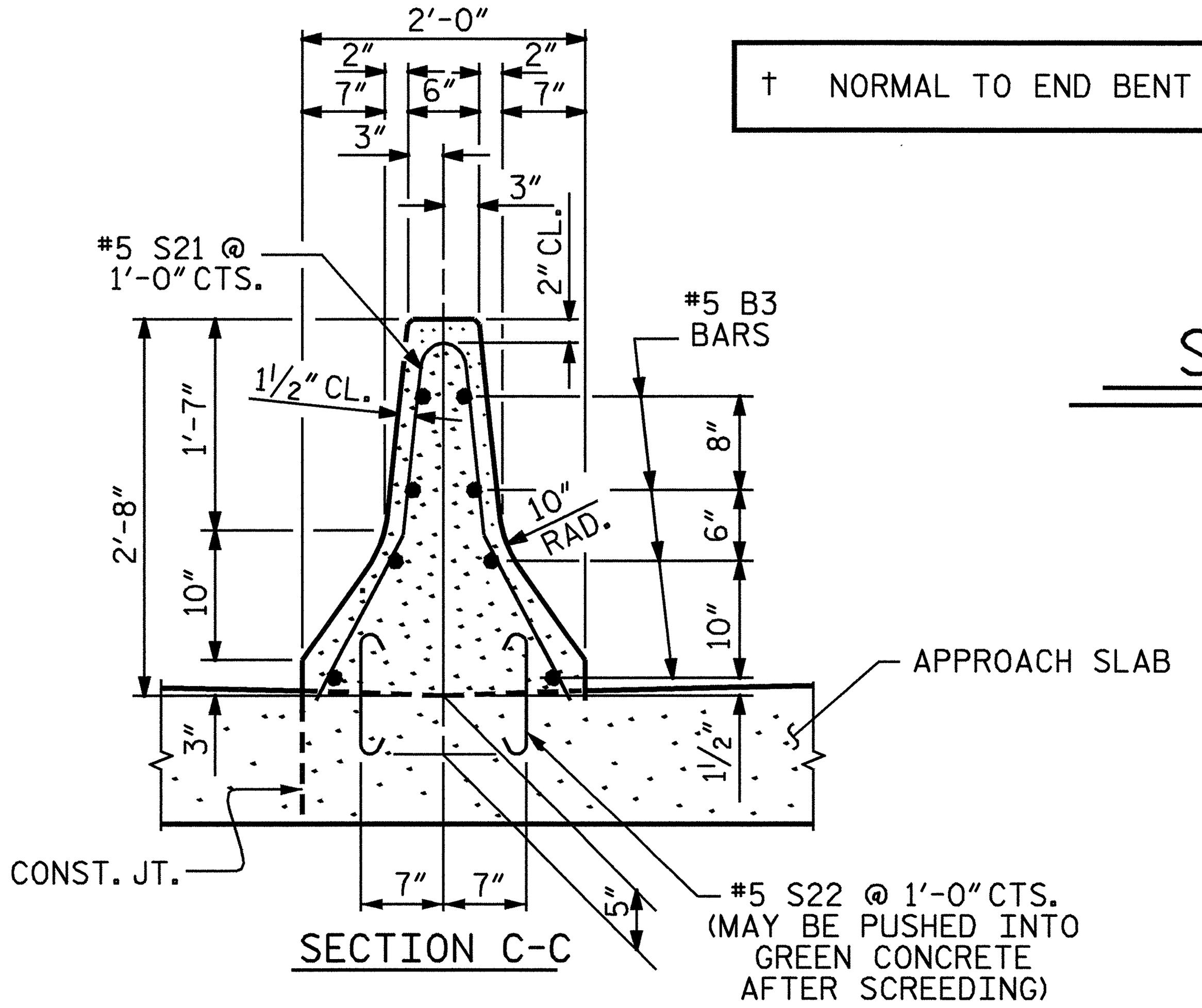
STD. NO. SP1



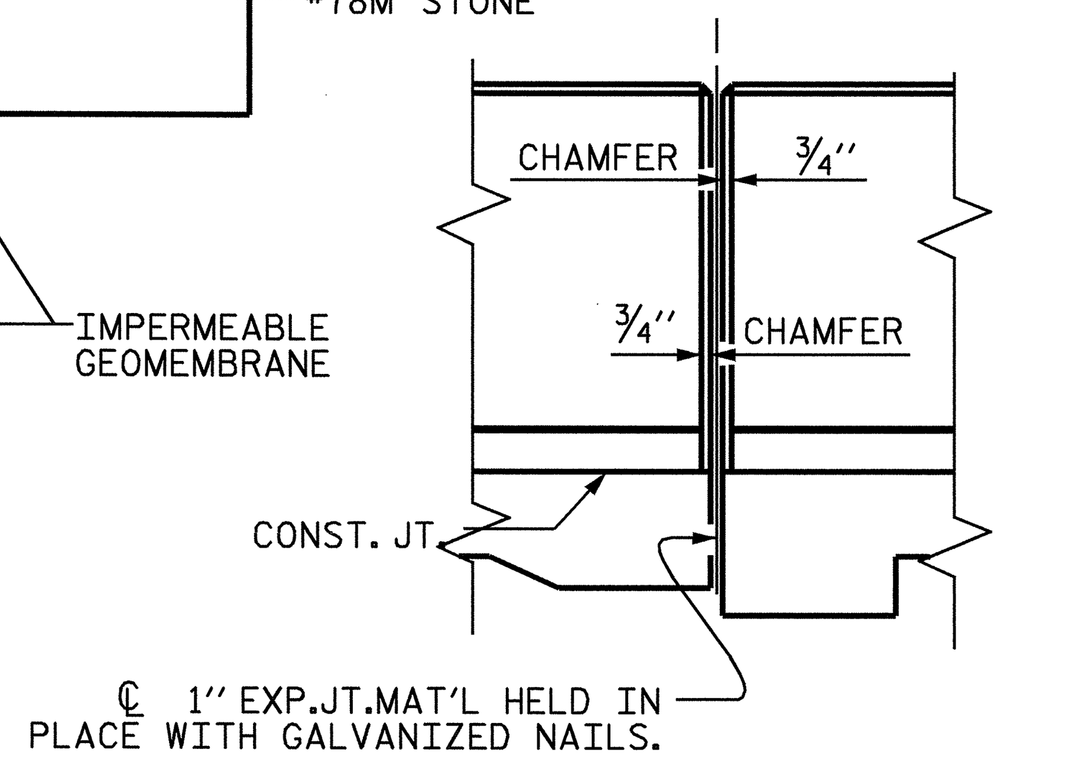
† NORMAL TO END BENT

SECTION THRU SLAB



SECTION C-C

SECTION THRU CONCRETE MEDIAN BARRIER



ELEVATION AT EXPANSION JOINTS

NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, 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 6″ COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1′-0″ OUTSIDE EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4″ TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6″ COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5″ CLASS "A" CONCRETE BASE IN LIEU OF 6″ COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

CONCRETE MEDIAN BARRIER RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE SLAB HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000PSI.

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

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2½″.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

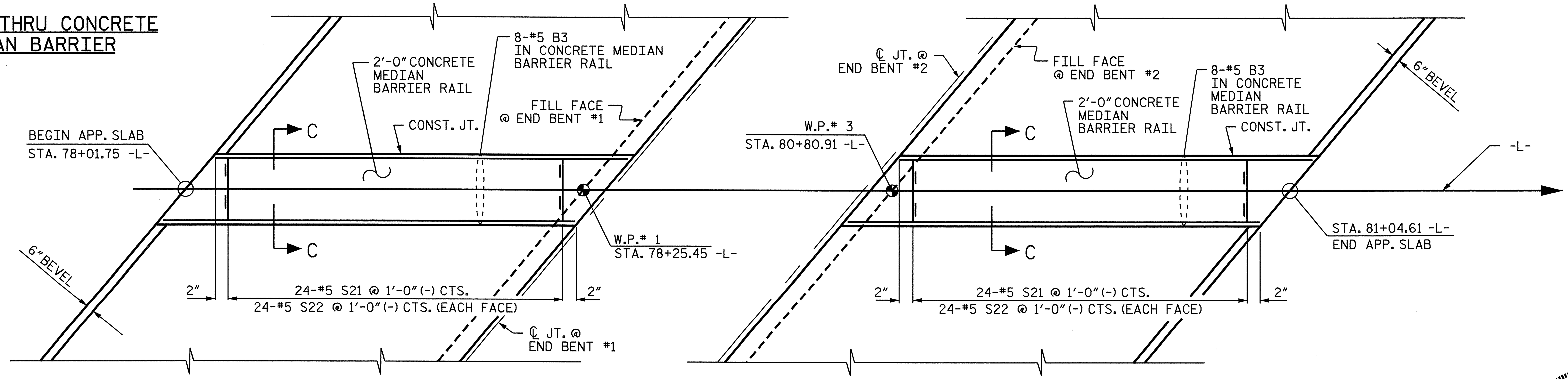
FOR ONE APPROACH SLAB (2 REQUIRED)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	175	#4	STR	27′-8″	3234
A2	182	#4	STR	27′-5″	3333
✱ B1	278	#5	STR	23′-3″	6741
B2	278	#6	STR	24′-6″	10230
REINFORCING STEEL				LBS.	13563
✱ EPOXY COATED REINFORCING STEEL				LBS.	9975
CLASS AA CONCRETE				C. Y.	131.9

SPLICE LENGTH CHART	
BAR	SPLICE LENGTH
#4 A1	2′-0″
#4 A2	1′-9″

FOR REINFORCING STEEL AND CONCRETE QUANTITIES, SEE "CONCRETE MEDIAN BARRIER" SHEET.

THE COST OF THE CONCRETE MEDIAN BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE CONTRACT PRICE BID FOR THE CONCRETE MEDIAN BARRIER, LIN. FT.



PLAN CONCRETE MEDIAN BARRIER

PROJECT NO. U-4444AA
CUMBERLAND COUNTY
STATION: 79+49.43 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
Timothy L. Coggins 8/4/09

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

SHEET NO. S-48
TOTAL SHEETS 50

STD. NO. BAS4 (SHT 5)

ASSEMBLED BY : J.B. WILSON DATE : 4/13/09
CHECKED BY : B.N. BARODAWALA DATE : 4/27/09

DRAWN BY : EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY : VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06R KMM/GM

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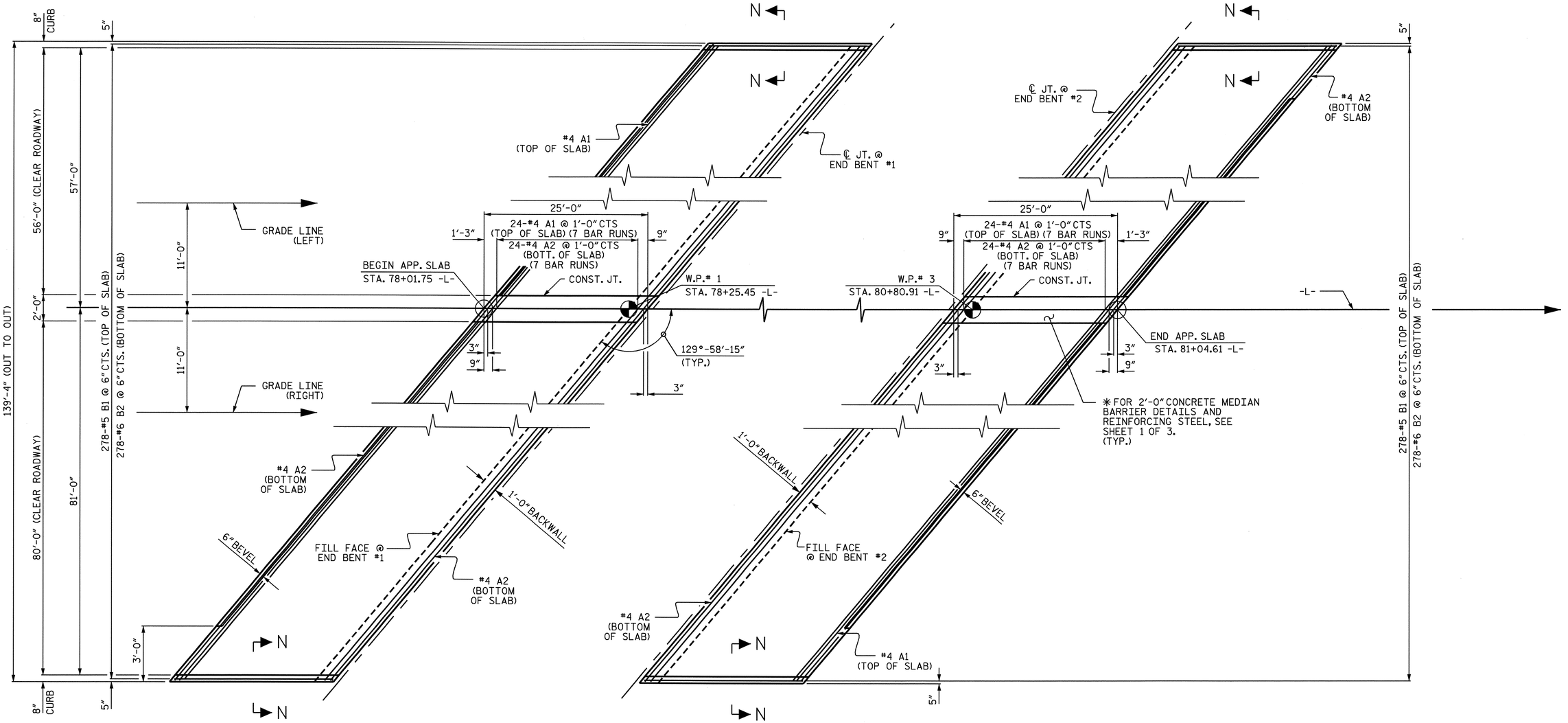
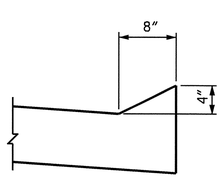


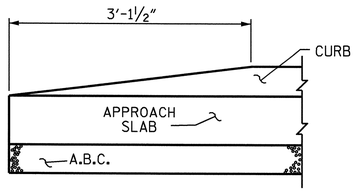
PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLABS FOR FLEXIBLE PAVEMENT

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 8/4/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			50

DRAWN BY : J.B. WILSON DATE : 4/13/09
CHECKED BY : B.N. BARODAWALA DATE : 4/29/09

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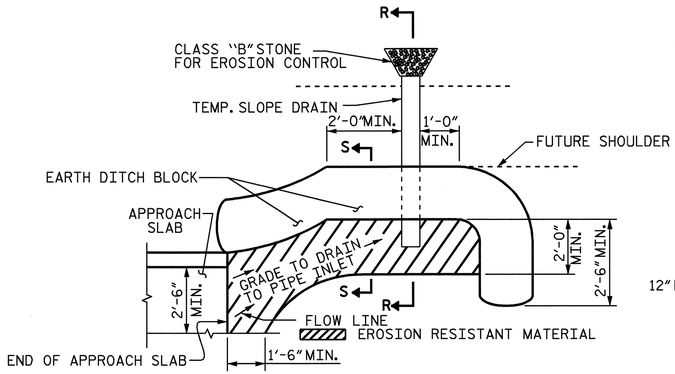
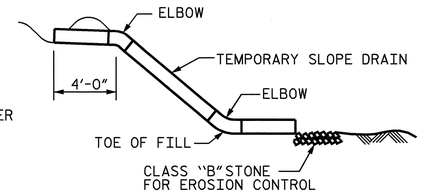
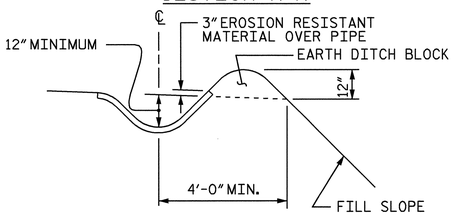


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



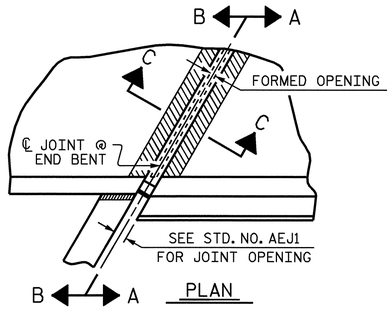
SECTION R-R



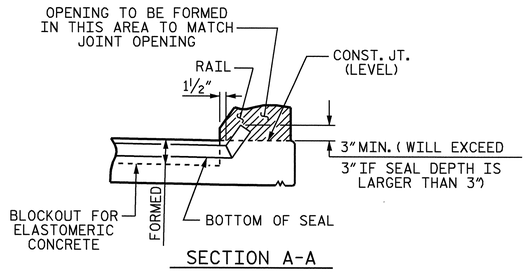
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

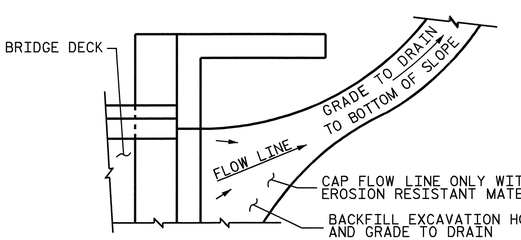
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



PLAN

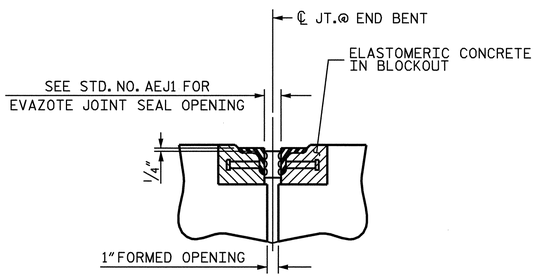


SECTION A-A



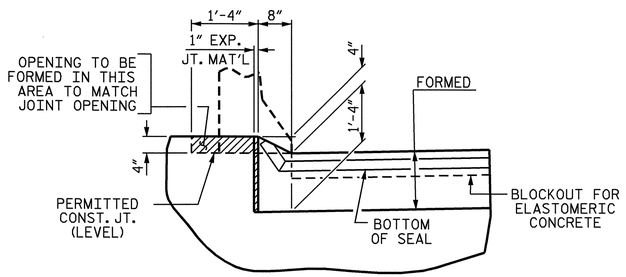
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



SECTION C-C

ARMORED EVAZOTE JOINT SEAL



SECTION B-B

JOINT SEAL DETAILS @ END BENT

EVAZOTE JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE BARRIER RAIL.

THESE DETAILS ARE APPLICABLE AT THE CONCRETE MEDIAN BARRIER.

PROJECT NO. U-4444AA

CUMBERLAND COUNTY

STATION: 79+49.43 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
8/14/09

ASSEMBLED BY : J.B. WILSON	DATE : 4/13/09
CHECKED BY : B.N. BARODAWALA	DATE : 4/24/09

DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-50
1			3			TOTAL SHEETS
2			4			50

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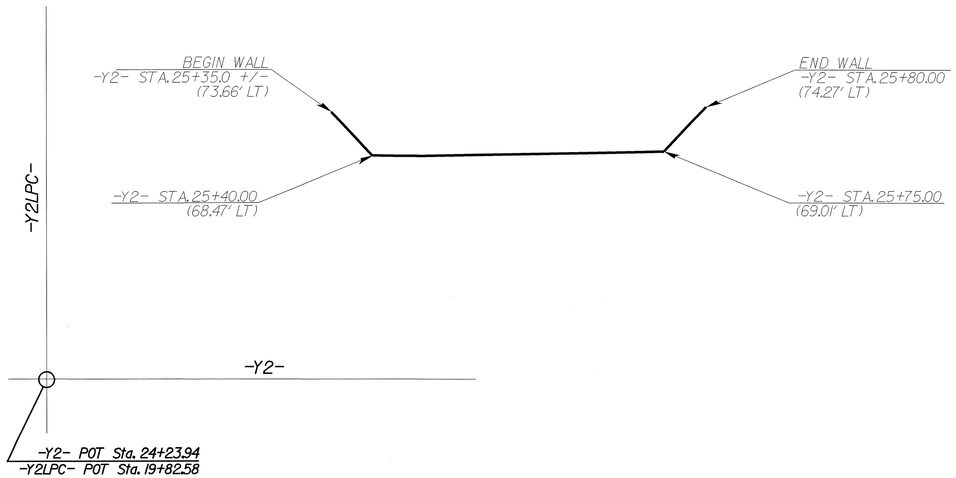
STD. NO. BAS10 (SHT 1)

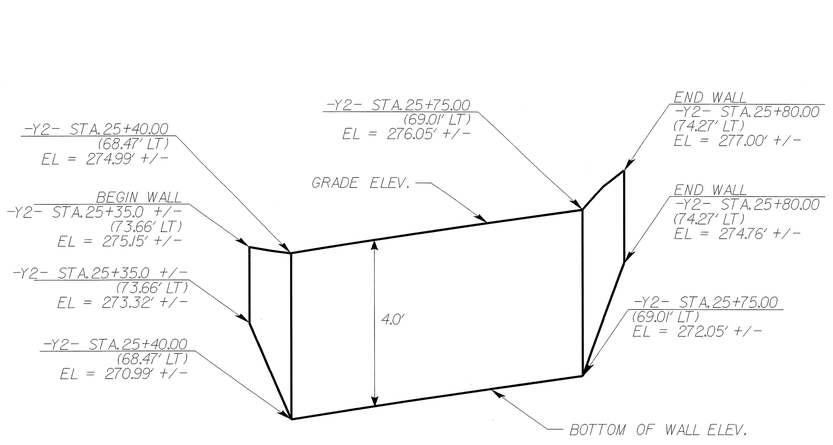
GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30943 ENGINEER THEIN THUN ZAN — SIGNATURE 6/23/09 DATE	SIGNATURE DATE



NAD 83/95

RETAINING WALL NO. 1 PLAN

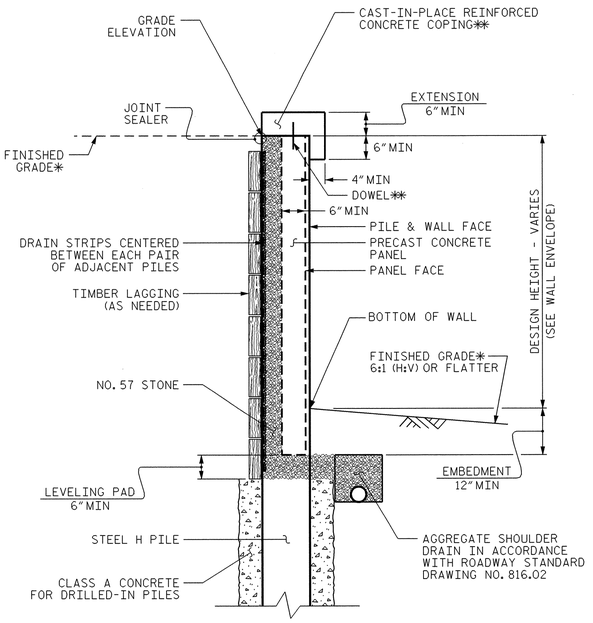
N.T.S.



RETAINING WALL NO. 1 ELEVATION

(WALL ENVELOPE)

N.T.S.



SOLDIER PILE WALL NO. 1 WITH PRECAST PANEL TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
**AT THE CONTRACTOR'S OPTION, EXTEND COPING DOWN BACK OF PANELS A MINIMUM OF 6" IN LIEU OF USING DOWELS.

NOTES

USE A SOLDIER PILE RETAINING WALL WITH PRECAST CONCRETE PANELS FOR RETAINING WALL NO. 1.

FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.

FOR GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, USE DRIVEN OR DRILLED-IN PILES FOR RETAINING WALL NO. 1.

BEFORE BEGINNING SOLDIER PILE WALL DESIGN FOR RETAINING WALL NO. 1, SURVEY EXISTING GROUND ELEVATIONS SHOWN ON THE WALL PROFILE VIEW (WALL ENVELOPE) AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL NO. 1 FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT (DIFFERENCE BETWEEN GRADE ELEVATION AND BOTTOM OF WALL ELEVATION) PLUS EMBEDMENT (DIFFERENCE BETWEEN BOTTOM OF WALL ELEVATION AND TOP OF LEVELING PAD ELEVATION).

DESIGN RETAINING WALL NO. 1 FOR THE FOLLOWING:
1) MINIMUM SERVICE LIFE = 75 YEARS
2) IN-SITU ASSUMED MATERIAL PARAMETERS :
UNIT WEIGHT, gamma = 120 PCF
FRICTION ANGLE, phi = 30 DEGREES
COHESION, c = 0 PSF

WALL NO.	ESTIMATED AREA (SQ. FT.)
1	210

PROJECT NO.: U-4444AA
CUMBERLAND ***COUNTY***
STATION: 25+35.00 -Y2-

PREPARED BY: THEIN T. ZAN, PE	DATE: 06/2009
REVIEWED BY: JAMES R. BATTS, PE	DATE: 06/2009

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SOLDIER PILE WALL NO. 1
PLAN, ELEVATION & NOTES

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

GEJ248329 6/22/2009 u4444aa_geo_rwall tzan RD-Oce860-34

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.

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

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