This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
I-5843	SIGN-1

APPROVED:

DATE: 4/27/16

SEAL

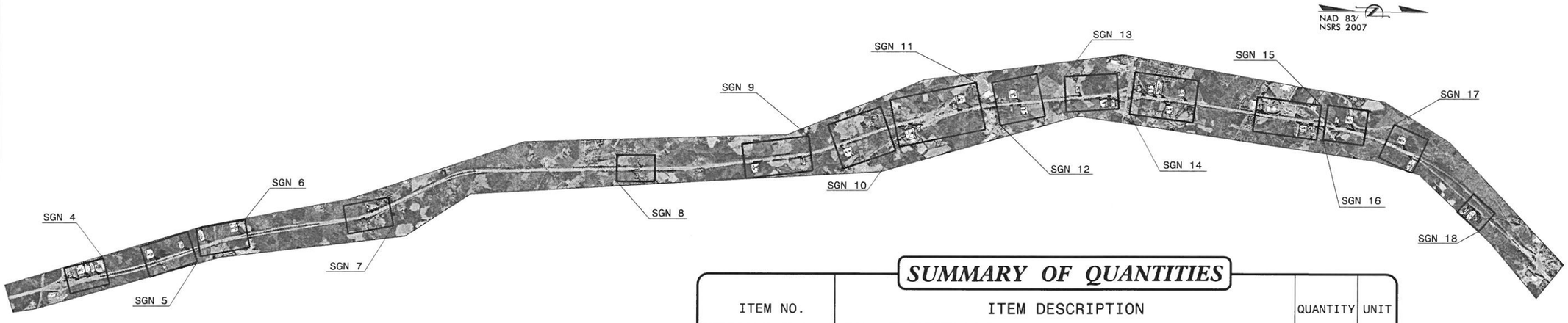
NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGNING PLAN
GRANVILLE / VANCE COUNTIES

LOCATION: I-85 APPROX. 2880 FT NORTH OF EXIT 191 AND ENDS APPROX. 4350 FT SOUTH OF EXIT 209.

NAD 83/ NSRS 2007



SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4110000000	904	SIGN ERECTION, TYPE A (GROUND MOUNTED)	32	EA.
4110000000	904	SIGN ERECTION, TYPE B (GROUND MOUNTED)	23	EA.
4096000000	904	SIGN ERECTION, TYPE D	7	EA.
4060000000	903	SUPPORTS, BREAKAWAY STEEL BEAM	24357	LB.
4054000000	902	PLAIN CONCRETE SIGN FOUNDATION	2	C.Y.
4048000000	902	REINFORCED CONCRETE SIGN FOUNDATION	29	C.Y.
4236000000	907	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)	14	EA.
4238000000	907	DISPOSAL OF SIGN, D	4	EA.
4152000000	907	DISPOSAL OF SIGN SYSTEM, STEEL BEAM	23	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	1	EA.

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
901.10	TYPE 'A' SIGNS
901.20	TYPE 'B' SIGNS
901.50	ARROWS AND SHIELDS
901.70	SIGN STRINGERS AND SUPPORT SPACING
901.80	SIGN MOUNTING DETAILS - FOR TYPE A AND TYPE B SIGNS
903.10	GROUND MOUNTED SIGN SUPPORTS
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.20	SECONDARY SIGN MOUNTING
904.30	SUPPLEMENTAL SIGN MOUNTING
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- DO NOT BEGIN FABRICATION FOR TYPES A & B SIGNS MOUNTED ON OVERHEAD STRUCTURES OR STEEL SUPPORTS UNTIL "S" DIMENSIONS HAVE BEEN FIELD VERIFIED.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

INDEX

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

Renee Roach, PE SIGNING & DELINEATION REGIONAL ENGINEER

Ashley Kidd SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

T.I.P.: I-5843

4/26/2016
4:56:00 PM
C:\Projects\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 Seed File.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-2

APPROVED: DocuSigned by: Ronald W King 13E7AF7B0AA4448...

DATE: 5/31/2016 | 5:24 AM PT

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

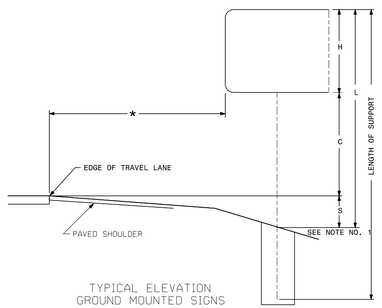
SIGN NO.	SIGN TYPE	SIGN SIZE (in.) w x h	ROADWAY STATION	NO. OF SUP.	BEAM SECTION	SUPPORT TYPE BA or S	ATTACH METHOD	MOUNTING METHOD	HORIZ CLR. (ft.)	LENGTH (ft) SNS HT H	LENGTH (ft) MTG HT C	LENGTH (ft) EMBED-MENT	LEFT SUPPORT (ft) S	LEFT SUPPORT (ft) L	LEFT SUPPORT (ft) TOTAL LENGTH	CENTER SUPPORT (ft) S	CENTER SUPPORT (ft) L	CENTER SUPPORT (ft) TOTAL LENGTH	RIGHT SUPPORT (ft) S	RIGHT SUPPORT (ft) L	RIGHT SUPPORT (ft) TOTAL LENGTH	FOOTING DIAMETER (ft.)	FOOTING DEPTH (ft.)	B/A SUPPORT WEIGHTS (lbs.)	SIMPLE SUPPORT WEIGHTS (lbs.)	REINF. FTGS. (c.y.)	PLAIN FTGS. (c.y.)	FIELD VERIFIED SEE NOTE 2 (mm/dd/yy)
101A	B	132 X30																										
101B	A	174 X138	_____	2	W10x26	BA	1-R	N/A	30.00	11.50	7.00	6	3.70	22.20	28.20	0.00	0.00	0.00	4.50	23.00	29.00	2.5	6.5	1767.20	0.00	2.36	0.00	
102A	B	132 X30																										
102B	A	174 X138	_____	2	W8x21	BA	1-R	N/A	30.00	11.50	7.20	6	2.60	21.30	27.30	0.00	0.00	0.00	-0.20	18.50	24.50	2.00	6.5	1233.80	0.00	1.51	0.00	
101A	B	132 X30																										
103B	A	174 X138	_____	2	W10x26	BA	1-R	N/A	7.00	11.50	7.00	6	1.70	20.20	26.20	0.00	0.00	0.00	4.60	23.10	29.10	2.50	6.5	1717.80	0.00	2.36	0.00	
104A	B	132 X30																										
104B	A	174 X144	_____	2	W8x21	BA	1-R	N/A	33.00	12.00	7.00	6	2.50	21.50	27.50	0.00	0.00	0.00	1.60	20.60	26.60	2.00	6.5	1282.10	0.00	1.51	0.00	
105A	B	132 X30																										
105B	A	174 X144	_____	2	W10x26	BA	1-R	N/A	30.00	12.00	7.00	6	2.80	21.80	27.80	0.00	0.00	0.00	3.60	22.60	28.60	2.50	6.5	1746.40	0.00	2.36	0.00	
* 106A	B	132 X30																										
* 106B	A	138 X138	_____	2	W8x21	BA	1-R	N/A	30.00	11.50	7.70	5.5	2.40	21.60	27.10	0.00	0.00	0.00	-0.70	18.50	24.00	2.00	6	1219.10	0.00	1.40	0.00	
* 107A	B	132 X30																										
* 107B	A	138 X138	_____	2	W8x21	BA	1-R	N/A	7.00	11.50	7.00	6	1.60	20.10	26.10	0.00	0.00	0.00	3.30	21.80	27.80	2.00	6.5	1277.90	0.00	1.51	0.00	
* 108A	B	132 X30																										
* 108B	A	132 X138	_____	2	W8x21	BA	1-R	N/A	32.00	14.00	7.00	5.5	3.30	24.30	29.80	0.00	0.00	0.00	2.30	23.30	28.80	2.00	6	1376.60	0.00	1.40	0.00	
* 109A	B	132 X30																										
* 109B	A	144 X138	_____	2	W8x21	BA	1-R	N/A	7.00	11.50	7.00	6	1.40	19.90	25.90	0.00	0.00	0.00	3.20	21.70	27.70	2.00	6.5	1271.60	0.00	1.51	0.00	
110A	B	132 X30																										
110B	A	138 X108	_____	2	W6x16	BA	1-R	N/A	7.00	9.00	7.00	5.5	1.40	17.40	22.90	0.00	0.00	0.00	3.20	19.20	24.70	1.50	6	855.60	0.00	0.79	0.00	
* 111A	B	132 X30																										
* 111B	A	138 X102	_____	2	W8x18	BA	1-R	N/A	25.00	8.50	7.00	5.5	3.40	18.90	24.40	0.00	0.00	0.00	5.20	20.70	26.20	2.00	6	1050.80	0.00	1.40	0.00	
* 112A	B	132 X30																										
* 112B	A	138 X114	_____	2	W8x21	BA	1-R	N/A	25.00	9.50	7.00	5.5	3.10	19.60	25.10	0.00	0.00	0.00	5.10	21.60	27.10	2.00	6	1242.20	0.00	1.40	0.00	
113A	B	132 X30																										
113B	A	138 X114	_____	2	W6x16	BA	1-R	N/A	30.00	9.50	7.50	6	2.00	19.00	25.00	0.00	0.00	0.00	-0.50	16.50	22.50	1.50	6.5	854.00	0.00	0.85	0.00	
114A	B	132 X30																										
114B	A	168 X138	_____	2	W8x21	BA	1-R	N/A	30.00	11.50	7.00	6	3.50	22.00	28.00	0.00	0.00	0.00	2.40	20.90	26.90	2.00	6.5	1298.90	0.00	1.51	0.00	
115A	B	132 X30																										
115B	A	168 X138	_____	2	W10x22	BA	1-R	N/A	7.00	11.50	7.00	5.5	2.30	20.80	26.30	0.00	0.00	0.00	3.80	22.30	27.80	2.50	6	1428.20	0.00	2.18	0.00	
116A	B	132 X30																										
116B	A	168 X144	_____	2	W10x26	BA	1-R	N/A	32.00	12.00	7.00	5.5	3.40	22.40	27.90	0.00	0.00	0.00	1.60	20.60	26.10	2.50	6	1684.00	0.00	2.18	0.00	
117A	B	132 X30																										
117B	A	216 X66	_____	2	W8x18	BA	1-R	N/A	30.00	5.50	7.00	5.5	4.90	17.40	22.90	0.00	0.00	0.00	6.90	19.40	24.90	2.00	6	1000.40	0.00	1.40	0.00	
118A	B	132 X30																										
118B	A	216 X66	_____	2	W6x16	BA	1-R	N/A	30.00	5.50	7.00	5.5	3.70	16.20	21.70	0.00	0.00	0.00	1.80	14.30	19.80	1.50	6	758.00	0.00	0.79	0.00	
125	A	96 X60	_____	2	S3x5.7	BA	N/A	N/A	△	5.00	7.00	3.5	1.10	13.10	16.60	0.00	0.00	0.00	1.20	13.20	16.70	1.00	4	225.81	0.00	0.00	0.23	
126	A	96 X60	_____	2	S4x7.7	BA	N/A	N/A	△	5.00	7.00	3.5	1.20	13.20	16.70	0.00	0.00	0.00	1.40	13.40	16.90	1.00	4	298.72	0.00	0.00	0.23	
130	A	96 X60	_____	2	S3x5.7	BA	N/A	N/A	△	5.00	7.00	3.5	0.70	12.70	16.20	0.00	0.00	0.00	0.90	12.90	16.40	1.00	4	221.82	0.00	0.00	0.23	
131	A	96 X60	_____	2	S3x5.7	BA	N/A	N/A	△	5.00	7.00	3.5	0.70	12.70	16.20	0.00	0.00	0.00	1.20	13.20	16.70	1.00	4	223.53	0.00	0.00	0.23	
132	B	108 X36	_____	2	S4x7.7	BA	N/A	N/A	30.00	3.00	7.00	3.5	4.20	14.20	17.70	0.00	0.00	0.00	5.40	15.40	18.90	1.00	4	321.82	0.00	0.00	0.23	

* SIGN SUPPORT CENTERS SPACED AT 7′ 7″

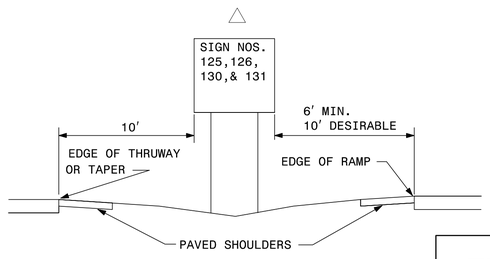
	TOTAL 24356.30	TOTAL 0.00	TOTAL 28.42	TOTAL 1.16
USE:	24357	0	29	2

NOTES

1. DIMENSION "S" REPRESENTS AN INCREASE (+), OR A DECREASE (-) IN POLE LENGTH, RELATIVE TO THE ELEVATION OF THE EDGE OF TRAVEL LANE.
2. FIELD VERIFICATIONS SHALL BE REQUIRED FOR ALL SUPPORTS, SEE (*) ARTICLE 903-3. FABRICATORS SHALL BE AISC CERTIFIED IN CATEGORY 1, SEE (*) ARTICLE 1072-1. (*) = N.C.D.O.T. STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES
3. PLAN LOCATIONS FOR EXISTING UTILITIES ARE BASED ON THE BEST AVAILABLE INFORMATION AND, THEREFORE MAY NOT BE PRECISELY ACCURATE. THEREFORE, IT IS INCUMBENT UPON THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF UTILITIES BEFORE BEGINNING WORK IN A LOCATION.



TYPICAL ELEVATION
GROUND MOUNTED SIGNS



TYPE "A" AND TYPE "B" GROUND MOUNTED SIGNS

5/27/2016
S:\S&DU\Central\Ashley\I-5843\CADD\I-5843 Seed File.dgn
User:skridd1

PROJECT REFERENCE NO.	SHEET NO.
I-5843	SIGN-2A

APPROVED: [signature]
DATE: 4/27/16
SEAL

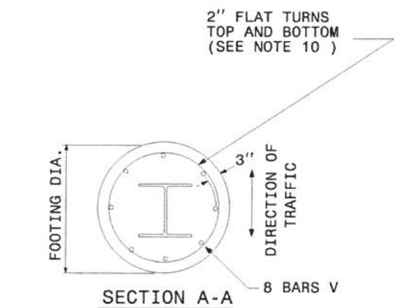
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

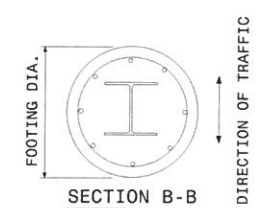
1-12

ENGLISH DETAIL DRAWING FOR GROUND MOUNTED SIGN SUPPORTS

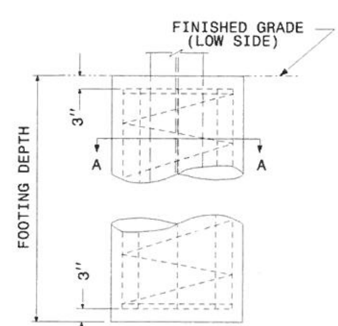
	SLIP BASE PLATE DATA								KEEPER PLATE DATA							HINGE CONNECTION DATA										BREAK AWAY SUPPORT WEIGHT CONSTANT LBS.
BEAM SHAPE	BOLT SIZE	A_1	B_1	C_1	D_1	E_1	T_1	R_1	A_2	B_2	C_2	D_2	E_2	R_2	T_2	BOLT SIZE	F	G	H	I	J	K	L	R_3	T_3	
S3X5.7	½"DIA.X 3¼"	7"	4"	1"	¾"	2½"	1"	9/32"	7"	4"	1"	¾"	2½"	9/32"	28 GAUGE	½"DIA.X1¾"	2¼"	3½"	4"	½"	1"	½"	2"	9/32"	⅜"	18
S4X7.7	½"DIA.X 3¼"	8"	4"	1"	¾"	2½"	1"	9/32"	8"	4"	1"	¾"	2½"	9/32"	28 GAUGE	½"DIA.X1¾"	2⅝"	3½"	4"	½"	1"	½"	2"	9/32"	⅜"	20
W6X9	½"DIA.X 3¼	10"	5"	1"	¾"	3½"	1"	9/32"	10"	5"	1"	¾"	3½"	9/32"	28 GAUGE	½"DIA.X1¾"	4"	3½"	4"	¾"	1"	½"	2"	9/32"	⅜"	32
W6X12	⅝"DIA.X 4"	11"	5"	1¼"	⅞"	3¼"	1¼"	11/32"	11"	5"	1¼"	⅞"	3¼"	11/32"	28 GAUGE	⅝"DIA.X 2"	4"	4"	4½"	¾"	1⅛"	⅝"	2¼"	11/32"	⅜"	39
W6X16	⅝"DIA.X 4½"	12"	6"	1¼"	⅞"	4¼"	1½"	11/32"	12"	6"	1¼"	⅞"	4¼"	11/32"	28 GAUGE	⅝"DIA.X2¼"	4"	4"	4½"	¾"	1⅛"	⅝"	2¼"	11/32"	½"	47
W8X18	⅝"DIA.X 4½"	13½"	6½"	1¼"	⅞"	4¾"	1½"	11/32"	13½"	6½"	1¼"	⅞"	4¾"	11/32"	28 GAUGE	⅝"DIA.X2¼"	5¼"	4"	4½"	1"	1⅛"	⅝"	2¼"	11/32"	½"	70
W8X21	¾"DIA.X 4½"	14"	7"	1½"	1"	5"	1½"	13/32"	14"	7"	1½"	1"	5"	13/32"	28 GAUGE	¾"DIA.X2½"	5¼"	6"	7"	1"	1¾"	¾"	3½"	13/32"	½"	73
W10X22	¾"DIA.X 4½"	16"	8"	1½"	1"	6"	1½"	13/32"	16"	8"	1½"	1"	6"	13/32"	28 GAUGE	¾"DIA.X2½"	5¾"	6"	7"	1"	1¾"	¾"	3½"	13/32"	½"	119
W10X26	¾"DIA.X 5½"	16½"	8"	1½"	1"	6"	1¾"	13/32"	16½"	8"	1½"	1"	6"	13/32"	28 GAUGE	¾"DIA.X2¾"	5¾"	6"	7"	1"	1¾"	¾"	3½"	13/32"	⅝"	140
W12X26	¾"DIA.X 5½"	18½"	9"	1½"	1"	7"	1¾"	13/32"	18½"	9"	1½"	1"	7"	13/32"	28 GAUGE	¾"DIA.X2¾"	6½"	6"	7"	1"	1¾"	¾"	3½"	13/32"	⅝"	176
W14X30	1"DIA.X 6"	22"	9"	2"	1½"	6"	2"	17/32"	22"	9"	2"	1½"	6"	17/32"	28 GAUGE	1"DIA.X 3"	6¾"	7"	8"	1¼"	2"	1"	4"	17/32"	⅝"	205
W16X31	1"DIA.X 6"	24"	9"	2"	1½"	6"	2"	17/32"	24"	9"	2"	1½"	6"	17/32"	28 GAUGE	1"DIA.X 3"	5½"	7"	8"	1¼"	2"	1"	4"	17/32"	¾"	223
W18X35	1"DIA.X 6"	25"	9"	2"	1½"	6"	2"	17/32"	25"	9"	2"	1½"	6"	17/32"	28 GAUGE	1"DIA.X 3"	6"	7"	8"	1¼"	2"	1"	4"	17/32"	¾"	243
W18X40	1"DIA.X 6½"	26"	9"	2"	1½"	6"	2¼"	17/32"	26"	9"	2"	1½"	6"	17/32"	28 GAUGE	1"DIA.X3½"	6"	7"	8"	1¼"	2"	1"	4"	17/32"	⅞"	278
W21X44	1"DIA.X 7"	29"	9"	2"	1½"	6"	2½"	17/32"	29"	9"	2"	1½"	6"	17/32"	28 GAUGE	1"DIA.X3½"	6½"	7"	8"	1¼"	2"	1"	4"	17/32"	⅞"	310



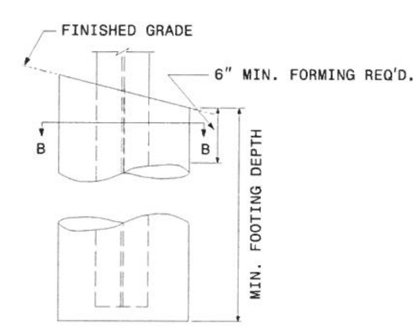
SECTION A-A



SECTION B-B



FOOTING DETAIL



FOOTING DETAIL

FOUNDATION DATA *		
FOOTING DIAMETER	REINFORCEMENT	SPIRAL BAR
1'-6"	8 # 6 BARS	#3 BAR, 6" PITCH
2'	8 # 7 BARS	#3 BAR, 6" PITCH
2'-6"	8 # 9 BARS	#3 BAR, 6" PITCH
3'	8 # 11 BARS	#3 BAR, 6" PITCH
3'-6"	8 # 12 BARS	#3 BAR, 6" PITCH
4'	8 # 14 BARS	#3 BAR, 6" PITCH

* FOUNDATION DIMENSIONS ARE SHOWN IN PLANS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH DETAIL DRAWING FOR GROUND MOUNTED SIGN SUPPORTS

SHEET 2 OF 3

903D10

SHEET 2 OF 3

903D10

REVISED SIGNING
ROADWAY STANDARD DRAWING

4/25/2016
I-5843 Seed File.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5843	SIGN-2B

APPROVED: _____

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W KING

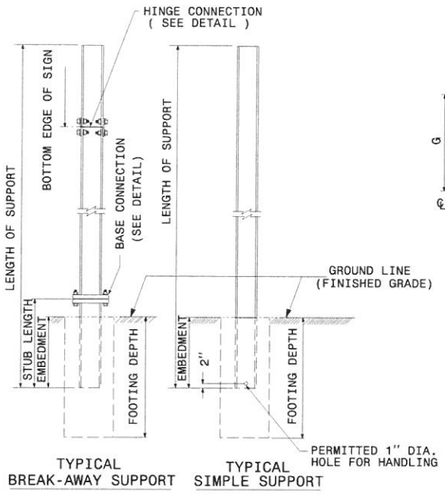
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

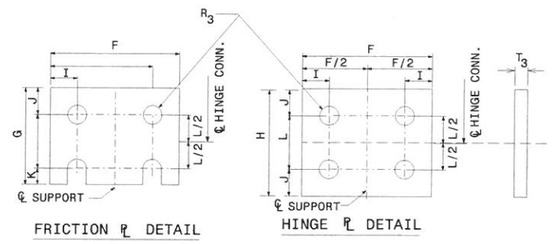
ENGLISH STANDARD DRAWING FOR

GROUND MOUNTED SIGN SUPPORTS



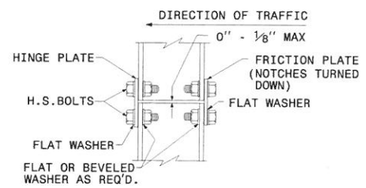
TYPICAL BREAK-AWAY SUPPORT

TYPICAL SIMPLE SUPPORT

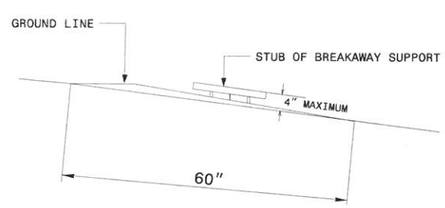


FRICTION ℄ DETAIL

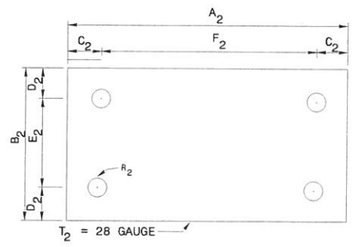
HINGE ℄ DETAIL



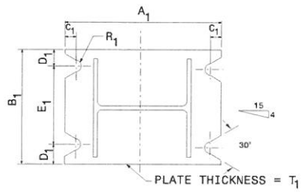
HINGE CONNECTION



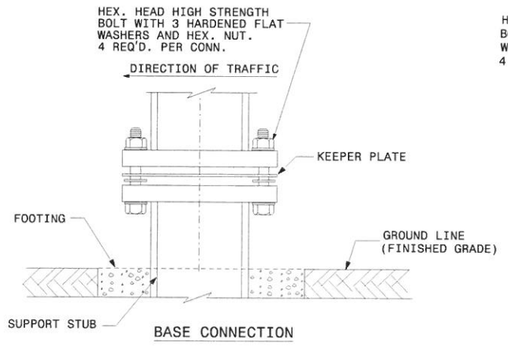
STUB HEIGHT REQUIREMENTS



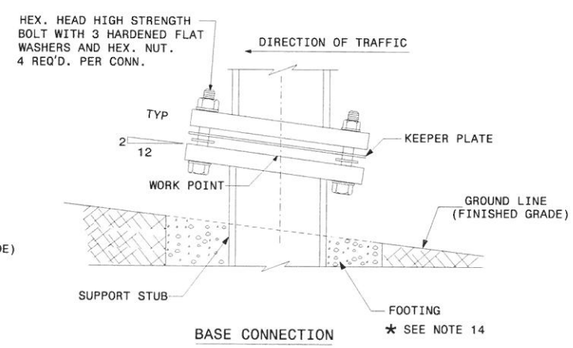
KEEPER PLATE



SLIP BASE PLATE



BASE CONNECTION



BASE CONNECTION

SEE SHEET 2 OF 3 FOR BASE CONNECTION DATA HINGE CONNECTION DATA & FOUNDATION DATA. SEE SHEET 3 OF 3 FOR GENERAL NOTES.

SHEET 1 OF 3

903D10

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
GROUND MOUNTED SIGN SUPPORTS

SHEET 1 OF 3

903D10

REVISED SIGNING ROADWAY STANDARD DRAWING

TIP NO.	SHEET NO.
I-5843	SIGN-3

APPROVED:

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 101B
TYPE: A
QUANTITY: 1
SIGN WIDTH: 14'-6"
HEIGHT: 11'-6"
TOTAL AREA: 166.8 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 166.0

BACKG COLOR: Green
COPY COLOR: White

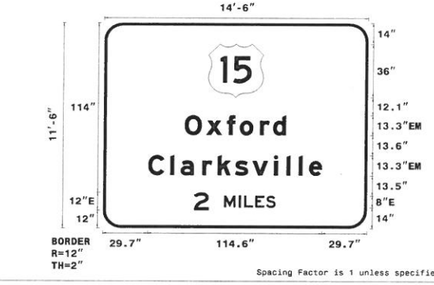
SYMBOL	X	Y	WID	HT
M1_4	69	88	36	36

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 21, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B DIV: 5



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																Series/Size Text Length
		O	x	f	o	r	d									EM 2000
53.7	14	13.5	8.5	13.2	8.7	8.8	53.7									66.7
		C	l	a	r	k	s	v	i	l	l	e				EM 2000
29.7	14.6	6.8	14.2	9.9	11.5	11.5	14.2	8	8	6.8	8.8	29.7				114.6
		M	I	L	E	S										E 2000
79.8	9.6	3.5	7.4	7.1	6.5	60.1										34.1
	2															E 2000
60.1	9.7	104.2														9.7

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 102B
TYPE: A
QUANTITY: 1
SIGN WIDTH: 14'-6"
HEIGHT: 11'-6"
TOTAL AREA: 166.8 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 166.0

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
M1_4	69	88	36	36

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 21, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B DIV: 5

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																Series/Size Text Length
		O	x	f	o	r	d									EM 2000
53.7	14	13.5	8.5	13.2	8.7	8.8	53.7									66.7
		C	l	a	r	k	s	v	i	l	l	e				EM 2000
30	14.5	6.8	14.1	9.9	11.5	11.5	14.1	8	8	6.8	8.8	30				114
		M	I	L	E											E 2000
80.5	9.6	3.5	7.4	6	87											26.5
	1															E 2000
66.9	3.6	103.5														3.6

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 103B
TYPE: A
QUANTITY: 1
SIGN WIDTH: 14'-6"
HEIGHT: 11'-6"
TOTAL AREA: 166.8 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 166.0

BACKG COLOR: Green
COPY COLOR: White

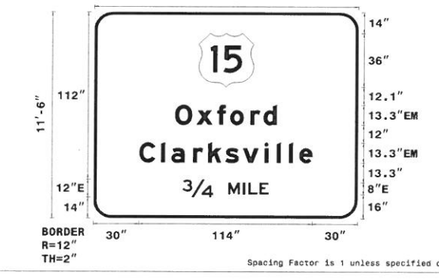
SYMBOL	X	Y	WID	HT
M1_4	69	88	36	36

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Apr 15, 2016
PROJECT ID: I-5843 LOCATION: I-85 S/B DIV: 55



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																Series/Size Text Length
		O	x	f	o	r	d									EM 2000
53.7	14	13.5	8.5	13.2	8.7	8.8	53.7									66.6
		C	l	a	r	k	s	v	i	l	l	e				EM 2000
30	14.5	6.8	14.1	9.9	11.5	11.5	14.1	8	8	6.8	8.8	30				114
		M	I	L	E											E 2000
88.8	9.6	3.5	7.4	6	58.8											26.5
	3/4															E 2000
58.8	20	95.2														20

FILENAME: I-5843 SB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 104B, 105B
TYPE: A
QUANTITY: 2
SIGN WIDTH: 14'-6"
HEIGHT: 12'-0"
TOTAL AREA: 174.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"
NO. Z BARS: 3
LENGTH: 166.0

BACKG COLOR: Green
COPY COLOR: White

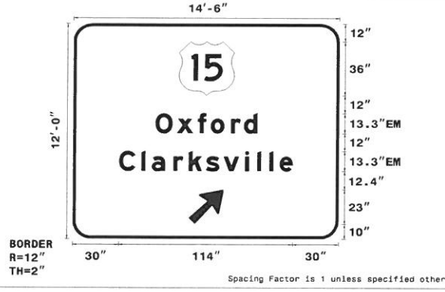
SYMBOL	X	Y	WID	HT
M1_4	69	96	36	36
AR_Type A	75.5	10	18.3	29.3

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 09, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B & S/B DIV: 5



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																Series/Size Text Length
		O	x	f	o	r	d									EM 2000
53.7	14	13.5	8.5	13.2	8.7	8.8	53.7									66.7
		C	l	a	r	k	s	v	i	l	l	e				EM 2000
30	14.5	6.8	14.1	9.9	11.5	11.5	14.1	8	8	6.8	8.8	30				114

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "A" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-3A

APPROVED:
DATE: 4/27/16

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 022959
RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 106B
TYPE: A
QUANTITY: 1

SIGN WIDTH: 11'-6"
HEIGHT: 11'-6"
TOTAL AREA: 132.3 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

NO. Z BARS: 3
LENGTH: 130.0

BACKG COLOR: Green
COPY COLOR: White

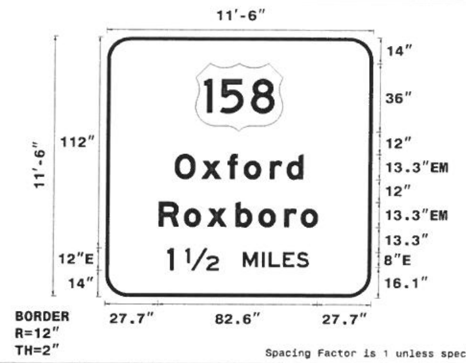
SYMBOL	X	Y	WID	HT
M1_4	46.5	88	45	36

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Apr 20, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

									Series/Size Text Length
	O	x	f	o	r	d			EM 2000
35.7	14	13.5	8.5	13.2	8.7	8.8	35.7		66.7
	R	o	x	b	o	r	o		EM 2000
27.7	13.2	12	14.8	11.7	13.2	8.7	9.1	27.7	82.6
	M	I	L	E	S				E 2000
71.7	9.6	3.5	7.4	7.1	6.5	32.2			34.1
	1		1/2						E 2000
32.2	3.6	6	17.6	78.6					27.2

FILENAME: I-5843 NB Sign Designs
NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 107B
TYPE: A
QUANTITY: 1

SIGN WIDTH: 12'-0"
HEIGHT: 11'-6"
TOTAL AREA: 138.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

NO. Z BARS: 3
LENGTH: 136.0

BACKG COLOR: Green
COPY COLOR: White

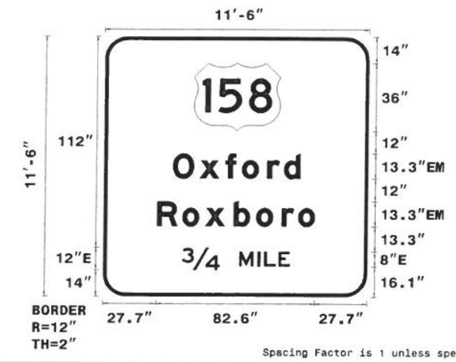
SYMBOL	X	Y	WID	HT
M1_4	49.5	88	45	36

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 09, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

									Series/Size Text Length
	O	x	f	o	r	d			EM 2000
38.7	14	13.5	8.5	13.2	8.7	8.8	38.7		66.7
	R	o	x	b	o	r	o		EM 2000
30.7	13.2	12	14.8	11.7	13.2	8.7	9.1	30.7	82.6
	M	I	L	E					E 2000
73.8	9.6	3.5	7.4	6	43.8				26.5
	3/4								E 2000
43.8	20	80.2							20

FILENAME: I-5843 Sign Designs
NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 108B
TYPE: A
QUANTITY: 1

SIGN WIDTH: 11'-0"
HEIGHT: 11'-6"
TOTAL AREA: 126.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

NO. Z BARS: 3
LENGTH: 124.0

BACKG COLOR: Green
COPY COLOR: White

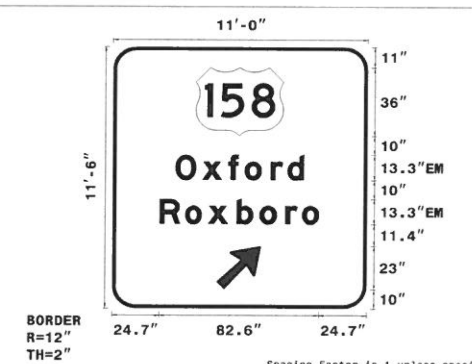
SYMBOL	X	Y	WID	HT
M1_4	43.5	91	45	36
AR_Type A	54.5	10	18.3	29.3

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Apr 20, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

									Series/Size Text Length
	O	x	f	o	r	d			EM 2000
32.7	14	13.5	8.5	13.2	8.7	8.8	32.7		66.7
	R	o	x	b	o	r	o		EM 2000
24.7	13.2	12	14.8	11.7	13.2	8.7	9.1	24.7	82.6

FILENAME: I-5843 NB Sign Designs
NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 109B
TYPE: A
QUANTITY: 1

SIGN WIDTH: 12'-0"
HEIGHT: 11'-6"
TOTAL AREA: 138.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

NO. Z BARS: 3
LENGTH: 136.0

BACKG COLOR: Green
COPY COLOR: White

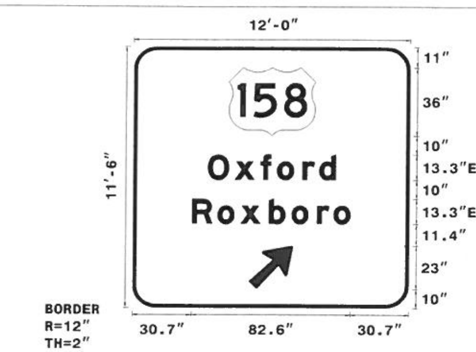
SYMBOL	X	Y	WID	HT
M1_4	49.5	91	45	36
AR_Type A	60.5	10	18.3	29.3

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 09, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

									Series/Size Text Length
	O	x	f	o	r	d			EM 2000
38.7	14	13.5	8.5	13.2	8.7	8.8	38.7		66.7
	R	o	x	b	o	r	o		EM 2000
30.7	13.2	12	14.8	11.7	13.2	8.7	9.1	30.7	82.6

FILENAME: I-5843 Sign Designs
NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "A" SIGNS

4/25/2016
U:\I-5843\I-5843 Sign Designs.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-3B

APPROVED: [signature]

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022959 RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 110B
TYPE: A
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
NC96	51	60	36	36

SIGN WIDTH: 11'-6"
HEIGHT: 9'-0"
TOTAL AREA: 103.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

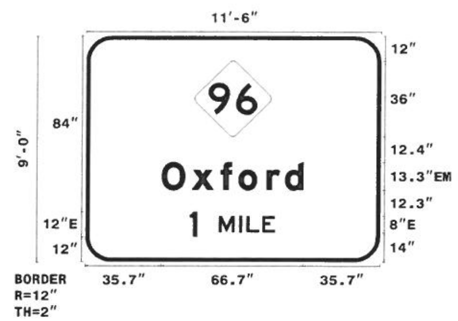
NO. Z BARS: 3
LENGTH: 130.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Apr 01, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

								Series/Size Text Length
	O	x	f	o	r	d		EM 2000
35.7	14	13.5	8.5	13.2	8.7	8.8	35.7	66.7
	M	I	L	E				E 2000
62.6	9.6	3.5	7.4	6	49			26.5
	1							E 2000
49	3.6	85.4						3.6

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 111B
TYPE: A
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
NC96	51.6	55.1	36	36

SIGN WIDTH: 11'-6"
HEIGHT: 8'-6"
TOTAL AREA: 97.8 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

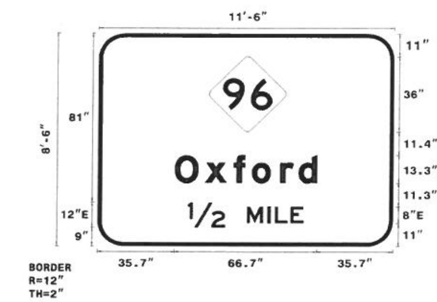
NO. Z BARS: 3
LENGTH: 130.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 21, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

								Series/Size Text Length
	O	x	f	o	r	d		EM 2000
35.7	14	13.5	8.5	13.2	8.7	8.8	35.7	66.7
	M	I	L	E				E 2000
69.6	9.6	3.5	7.4	6	42			26.5
	1/2							E 2000
42	17.6	78.5						17.6

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 112B, 113B
TYPE: A
QUANTITY: 2

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
NC242	51	68.1	36	36
AR_Type A	57.5	10	18.3	29.3

SIGN WIDTH: 11'-6"
HEIGHT: 9'-6"
TOTAL AREA: 109.3 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

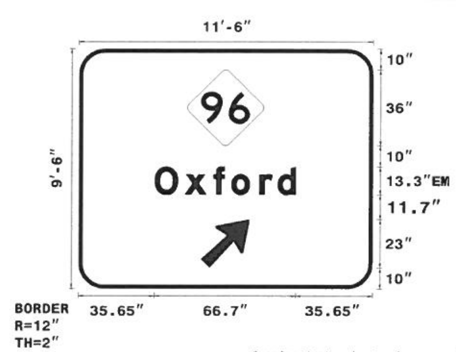
NO. Z BARS: 3
LENGTH: 130.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B & S/B
Apr 15, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

								Series/Size Text Length
	O	x	f	o	r	d		EM 2000
35.7	14	13.5	8.5	13.2	8.7	8.8	35.7	66.7

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 114B
TYPE: A
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
NC56	66	88	36	36

SIGN WIDTH: 14'-0"
HEIGHT: 11'-6"
TOTAL AREA: 161.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

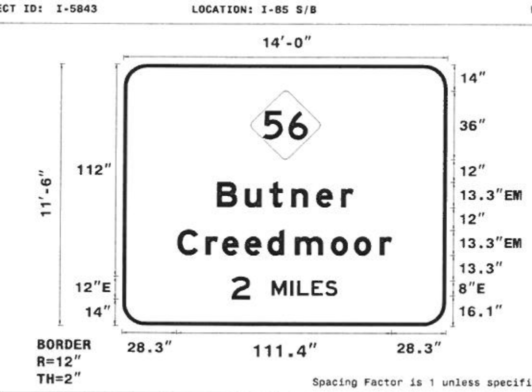
NO. Z BARS: 3
LENGTH: 160.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 09, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

											Series/Size Text Length
	B	u	t	n	e	r					EM 2000
48.5	14.5	12.8	11.2	12.9	12.9	6.7	48.4				71
	C	r	e	e	d	m	o	o	r		EM 2000
28.3	14.5	8.7	11.7	11.7	14.1	18.8	12	13.2	6.7	28.3	111.4
	M	I	L	E	S						E 2000
77.4	9.6	3.5	7.4	7.1	6.5	56.5					34.1
	2										E 2000
56.5	9.7	101.8									9.7

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "A" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-3C

APPROVED: [signature]

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 115B
TYPE: A
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
NC56	66	88	36	36

SIGN WIDTH: 14'-0"
HEIGHT: 11'-6"
TOTAL AREA: 161.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

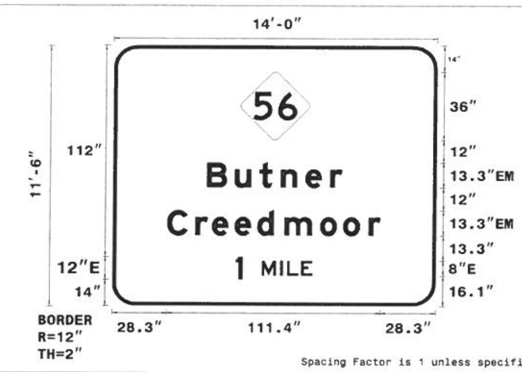
NO. Z BARS: 3
LENGTH: 160.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 09, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

											Series/Size Text Length
	B	u	t	n	e	r					EM 2000
48.5	14.5	12.8	11.2	12.9	12.9	6.7	48.4				71
	C	r	e	e	d	m	o	o	r		EM 2000
28.3	14.5	8.7	11.7	11.7	14.1	18.8	12	13.2	6.7	28.3	111.4
	M	I	L	E							E 2000
77.6	9.6	3.5	7.4	6	63.9						26.5
	1										E 2000
64	3.6	100.4									3.6

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 116B
TYPE: A
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
NC56	66	95.5	36	36
AR_Type A	72.5	12.1	18.3	29.3

SIGN WIDTH: 14'-0"
HEIGHT: 12'-0"
TOTAL AREA: 168.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

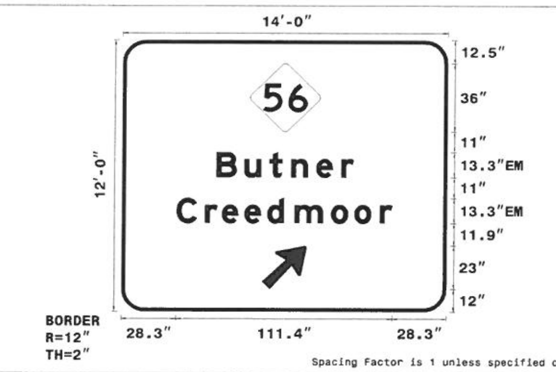
NO. Z BARS: 3
LENGTH: 160.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 09, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

											Series/Size Text Length
	B	u	t	n	e	r					EM 2000
48.6	14.5	12.8	11.2	12.9	12.9	6.7	48.4				71
	C	r	e	e	d	m	o	o	r		EM 2000
28.3	14.5	8.7	11.7	11.7	14.1	18.8	12	13.2	6.7	28.3	111.4

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 117B
TYPE: A
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 18'-0"
HEIGHT: 5'-6"
TOTAL AREA: 99.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 9"

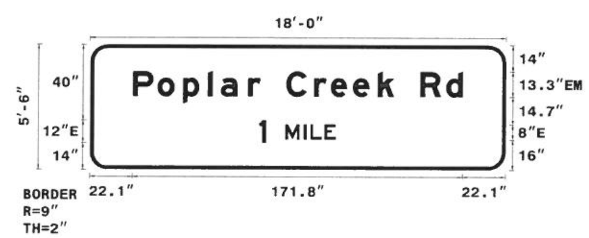
NO. Z BARS: 2
LENGTH: 208.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Apr 15, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																	Series/Size Text Length
	P	o	p	l	a	r		C	r	e	e	k		R	d		EM 2000
22.1	12.8	13.2	12.9	6.8	14.1	6.7	13.3	14.5	8.7	11.7	12.9	8.8	13.3	13.2	8.8	22.1	171.8
	M	I	L	E													E 2000
101.6	9.6	3.5	7.4	6	88												26.5
	1																E 2000
88	3.6	124.4															3.6

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 118B
TYPE: A
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 18'-0"
HEIGHT: 5'-6"
TOTAL AREA: 99.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 9"

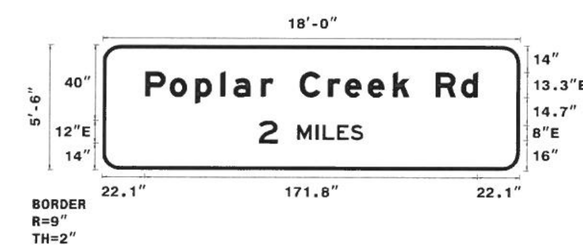
NO. Z BARS: 2
LENGTH: 208.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Apr 15, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																	Series/Size Text Length
	P	o	p	l	a	r		C	r	e	e	k		R	d		EM 2000
22.1	12.8	13.2	12.9	6.8	14.1	6.7	13.3	14.5	8.7	11.7	12.9	8.8	13.3	13.2	8.8	22.1	171.8
	M	I	L	E	S												E 2000
100.8	9.6	3.5	7.4	7.1	6.5	81.1											34.1
	2																E 2000
81.1	9.7	125.2															9.7

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

4/25/2016
U:\I-5843\I-5843 Sign Designs.dgn
User:akidd

TYPE "A" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-3D

APPROVED: [signature]

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 119
TYPE: A
QUANTITY: 1
BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 20'-0"
HEIGHT: 8'-0"
TOTAL AREA: 160.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

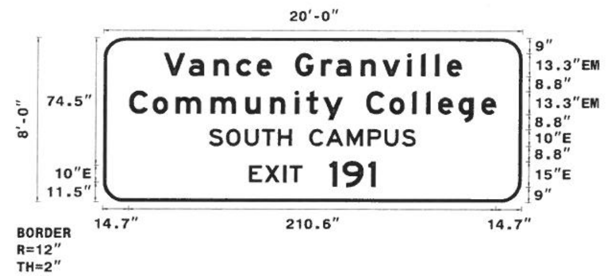
NO. Z BARS: 3
LENGTH: 232.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 18, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter																			Series/Size Text Length
	V	a	n	c	e		G	r	a	n	v	i	l	l	e				EM 2000
34.4	14.3	14.1	12.9	11.7	8.8	13.3	14.8	8.7	14.1	12.7	14.1	8	8	6.8	8.8	34.4			171.2
	C	o	m	m	u	n	i	t	y		C	o	l	l	e	g	e		EM 2000
14.7	13.3	13.2	20	20	14.1	14.1	6.7	9.7	11.3	13.3	13.3	13.2	8	6.8	11.7	12.9	8.8	14.7	210.6
	S	O	U	T	H		C	A	M	P	U	S							E 2000
60.5	9.8	10.7	9.8	9.2	8.1	10	9.5	11.9	12	9.8	10.1	8.1	60.5						119
	E	X	I	T															E 2000
83.6	8.9	10.7	3.5	7.5	125.8														30.6
	1	9	1																E 2000
129.7	7.5	14.7	4.5	83.6															26.7

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 120B
TYPE: A
QUANTITY: 1
BACKG COLOR: Blue
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 24'-0"
HEIGHT: 2'-0"
TOTAL AREA: 48.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 3"

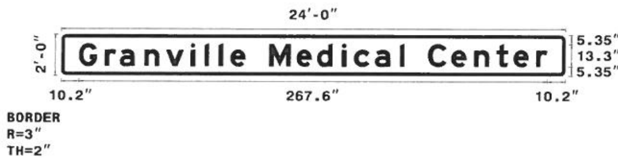
NO. Z BARS: 2
LENGTH: 280.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 18, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter																									Series/Size Text Length
	G	r	a	v	i	l	l	e		M	e	d	i	c	a	l		C	e	n	t	e	r		EM 2000
17.3	14.8	8.6	12.6	14.1	8	8	6.8	8.8	13.3	15.7	11.7	14.1	6.8	11.7	14.1	2.7	13.3	13.3	12.9	12.8	10	12.9	6.7	17.3	253.5

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 120A
TYPE: A
QUANTITY: 1
BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 24'-0"
HEIGHT: 6'-6"
TOTAL AREA: 156.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 9"

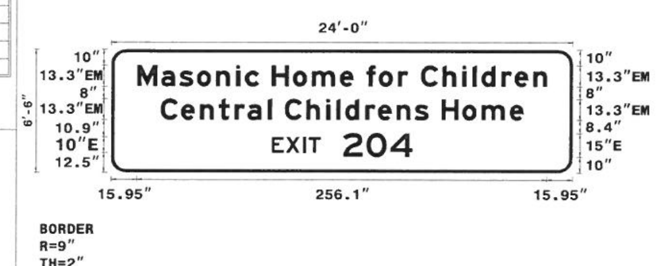
NO. Z BARS: 2
LENGTH: 280.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 11, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 0.7 for top two lines

LETTER POSITIONS

Letter spacings are to start of next letter																											Series/Size Text Length
	M	a	s	o	n	i	c		H	o	m	e		f	o	r		C	h	i	l	d	r	e	n		EM 2000
16	14.7	11.5	10.8	11.9	12.5	5.5	8.8	8	13.1	11.9	17.5	8.8	8	7.6	11.9	6.7	8	13.4	12.5	6.4	5.5	12.5	8	11.7	8.8	15.9	256.1
	C	e	n	t	r	a	l		C	h	i	l	d	r	e	n	s		H	o	m	e					EM 2000
30.5	12.6	11.8	11.7	10	8.1	12.6	2.7	8	13.4	12.5	6.4	5.5	12.5	8	11.7	11.5	8.8	8	13.1	11.9	17.5	8.8	30.5				227
	E	X	I	T																							E 2000
99.9	8.9	10.7	3.5	7.5	157.5																						30.6
	2	0	4																								E 2000
144.6	14.7	14.7	14.1	99.9																							43.5

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 121
TYPE: A
QUANTITY: 1
BACKG COLOR: Brown
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 17'-0"
HEIGHT: 6'-6"
TOTAL AREA: 110.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 9"

NO. Z BARS: 2
LENGTH: 196.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 18, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter																	Series/Size Text Length
	F	a	l	l	s		L	a	k	e							EM 2000
47.3	12.3	14.1	8	6.5	8.8	13.3	11.6	14.1	11.7	8.8	47.3						109.3
	R	e	c	r	e	a	t	i	o	n		A	r	e	a		EM 2000
16.9	13.2	11.7	12.9	8.7	11.7	12.8	11.2	6.8	13.2	8.8	13.3	16.7	8.7	11.7	8.8	16.9	170.2
	E	X	I	T													E 2000
67.1	8.9	10.7	3.5	7.5	106.3												30.6
	1	9	1														E 2000
110.2	7.5	14.7	4.5	67.1													26.7

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "A" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-3E

APPROVED:

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 122, 123
TYPE: A
QUANTITY: 2

SIGN WIDTH: 8'-6"
HEIGHT: 5'-0"
TOTAL AREA: 42.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 9"

NO. Z BARS: 2
LENGTH: 94.0

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B & S/B
Mar 21, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

									Series/Size Text Length
	S	t	o	v	a	l	l		EM 2000
14.5	13.6	10	11.7	12.9	14.1	8	2.7	14.5	73
	E	X	I	T					E 2000
14.5	7.1	8.6	2.8	6	63				24.5
	2	0	2						E 2000
53.9	11.8	12.1	9.7	14.5					33.6

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 124
TYPE: A
QUANTITY: 1

SIGN WIDTH: 12'-6"
HEIGHT: 8'-6"
TOTAL AREA: 106.3 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 12"

NO. Z BARS: 3
LENGTH: 142.0

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 18, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

													Series/Size Text Length
	S	t	e	m									EM 2000
49.4	13.6	10	12.9	14.7	49.4								51.2
	F	r	a	n	k	l	i	n	t	o	n		EM 2000
13	13.5	8.7	14.1	14.1	12.9	8	8	12.8	10	13.2	8.8	12.9	124.1
	L	o	u	i	s	b	u	r	g				EM 2000
23.6	11.6	13.2	14.1	6.5	12.9	12.9	14.1	8.7	8.8	23.5			102.9
	E	X	I	T									E 2000
42.5	7.1	8.6	2.8	6	83								24.5
	1	9	1										E 2000
80.7	6	11.8	3.6	47.9									21.4

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 125
TYPE: A
QUANTITY: 1

SIGN WIDTH: 8'-0"
HEIGHT: 5'-0"
TOTAL AREA: 40.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1.5"
RADII: 6"

NO. Z BARS: 2
LENGTH: 88.0

BACKG COLOR: Green
COPY COLOR: White

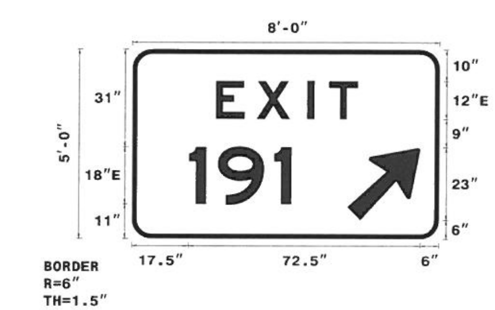
SYMBOL	X	Y	WID	HT
AR_Type A	67	6	18.3	29.3

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 09, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.



Spacing Factor is 2.25 for top line

LETTER POSITIONS

Letter spacings are to start of next letter

						Series/Size Text Length
	E	X	I	T		E 2000
25.8	12.8	15.8	6.8	9	25.8	44.4
	1	9	1			E 2000
17.5	9	17.6	5.4	46.4		32

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 126, 127
TYPE: A
QUANTITY: 2

SIGN WIDTH: 8'-0"
HEIGHT: 5'-0"
TOTAL AREA: 40.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1.5"
RADII: 6"

NO. Z BARS: 2
LENGTH: 88.0

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT
AR_Type A	67	6	18.3	29.3

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B & S/B
Mar 08, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

Spacing Factor is 2.25 for top line

LETTER POSITIONS

Letter spacings are to start of next letter

						Series/Size Text Length
	E	X	I	T		E 2000
25.8	12.8	15.8	6.8	9	25.8	44.4
	2	0	2			E 2000
8.3	17.6	18.2	14.6	37.3		50.4

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

4/25/2016
U:\I-5843\I-5843 Sign Designs.dgn
User:akidd

TYPE "A" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-3F

APPROVED:

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 128, 129 BACKG COLOR: Green
TYPE: A COPY COLOR: White
QUANTITY: 2
SIGN WIDTH: 8'-0"
HEIGHT: 5'-0"
TOTAL AREA: 40.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1.5"
RADII: 6"
NO. Z BARS: 2
LENGTH: 88.0

SYMBOL	X	Y	WID	HT
AR_Type A	67	6	18.3	29.3

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 08, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B & S/B DIV: 5

Spacing Factor is 2.25 for top line

LETTER POSITIONS

Letter spacings are to start of next letter

		E	X	I	T			Series/Size Text Length
	25.8	12.8	15.8	6.8	9	25.8		E 2000
								44.4
		2	0	4				E 2000
	7.4	17.6	17.6	16.9	36.4			52.2

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 130, 131 BACKG COLOR: Green
TYPE: A COPY COLOR: White
QUANTITY: 2
SIGN WIDTH: 8'-0"
HEIGHT: 5'-0"
TOTAL AREA: 40.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1.5"
RADII: 6"
NO. Z BARS: 2
LENGTH: 88.0

SYMBOL	X	Y	WID	HT
AR_Type A	67	6	18.3	29.3

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 08, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B & S/B DIV: 5

Spacing Factor is 2.25 for top line

LETTER POSITIONS

Letter spacings are to start of next letter

		E	X	I	T			Series/Size Text Length
	25.8	12.8	15.8	6.8	9	25.8		E 2000
								44.4
		2	0	6				E 2000
	8.1	17.6	18.7	14.6	37			50.9

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER:114A,115A,116A BACKG COLOR: Green
TYPE: B COPY COLOR: White
QUANTITY: 3
SIGN WIDTH: 11'-0"
HEIGHT: 2'-6"
TOTAL AREA: 27.5 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 3"
NO. Z BARS: 2
LENGTH: 124.0

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 09, 2016
PROJECT ID: I-5843 LOCATION: I-85 S/B DIV: 5

Spacing Factor is 1.2 for "EXIT"

LETTER POSITIONS

Letter spacings are to start of next letter

		E	X	I	T			Series/Size Text Length
	29.4	9.2	11.1	3.8	7.5	71		E 2000
								31.6
		1	9	1				E 2000
	75.9	7.5	14.7	4.5	29.4			26.7

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER:101A,102A,103A,104A,105A BACKG COLOR: Green
TYPE: B COPY COLOR: White
QUANTITY: 5
SIGN WIDTH: 11'-0"
HEIGHT: 2'-6"
TOTAL AREA: 27.5 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 3"
NO. Z BARS: 2
LENGTH: 124.0

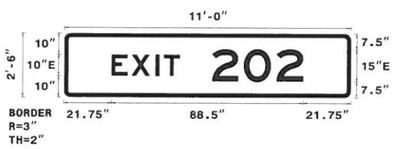
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 09, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B & S/B DIV: 5



Spacing Factor is 1.2 for "EXIT"

LETTER POSITIONS

Letter spacings are to start of next letter

		E	X	I	T			Series/Size Text Length
	21.7	9.2	11.1	3.8	7.5	78.6		E 2000
								31.6
		2	0	2				E 2000
	66.3	14.7	15.1	12.2	21.7			42

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "A" & "B" SIGNS

4/25/2016
W:\5843\I-5843 Sign Designs.dgn
dserraldi

TIP NO.	SHEET NO.
I-5843	SIGN-3G

APPROVED: (signature)

DATE: 4/27/16

SEAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 110A,111A,112A,113A
TYPE: B
QUANTITY: 4
BACKG COLOR: Green
COPY COLOR: White

SIGN WIDTH: 11'-0"
HEIGHT: 2'-6"
TOTAL AREA: 27.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 3"

NO. Z BARS: 2
LENGTH: 124.0

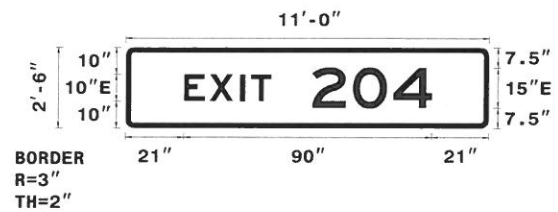
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B & S/B
Mar 21, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1.2 for "EXIT"

LETTER POSITIONS

Letter spacings are to start of next letter

						Series/Size Text Length
	E	X	I	T		E 2000
21	9.2	11.1	3.8	7.5	79.4	31.6
	2	0	4			E 2000
67.5	14.7	14.7	14.1	21		43.5

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 106A,107A,108A,109A
TYPE: B
QUANTITY: 4
BACKG COLOR: Green
COPY COLOR: White

SIGN WIDTH: 11'-0"
HEIGHT: 2'-6"
TOTAL AREA: 27.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 3"

NO. Z BARS: 2
LENGTH: 124.0

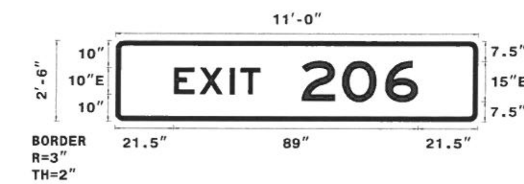
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B & S/B
Mar 09, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1.2 for "EXIT"

LETTER POSITIONS

Letter spacings are to start of next letter

						Series/Size Text Length
	E	X	I	T		E 2000
21.5	9.2	11.1	3.8	7.5	78.9	31.6
	2	0	6			E 2000
68.1	14.7	15.6	12.1	21.5		42.4

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 117A,118A
TYPE: B
QUANTITY: 2
BACKG COLOR: Green
COPY COLOR: White

SIGN WIDTH: 11'-0"
HEIGHT: 2'-6"
TOTAL AREA: 27.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 2"
RADII: 3"

NO. Z BARS: 2
LENGTH: 124.0

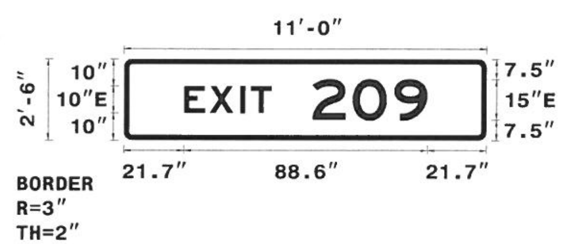
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Mar 21, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

						Series/Size Text Length
	E	X	I	T		E 2000
21.7	9.2	11.1	3.8	7.5	78.7	31.6
	2	0	9			E 2000
68.3	14.7	15.2	12.2	21.7		42

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 132
TYPE: B
QUANTITY: 1
BACKG COLOR: Green
COPY COLOR: White

SIGN WIDTH: 9'-0"
HEIGHT: 3'-0"
TOTAL AREA: 27.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

NO. Z BARS: 2
LENGTH: 100.0

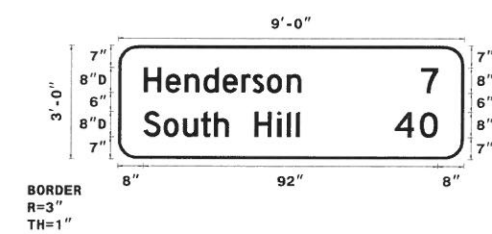
SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Mar 21, 2016
DIV: 5

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

												Series/Size Text Length
	H	e	n	d	e	r	s	o	n			D 2000
8	6.9	5.8	5.9	6.1	5.8	3.5	4.5	6.2	4.7	50.5		49.4
	7											D 2000
94.6	5.4	8										5.4
	S	o	u	t	h		H	i	l	l		D 2000
8	6.3	6.1	5.6	4.1	4.7	8	7.2	2.9	2.9	1.3	51	49
	4	0										D 2000
86.6	7.8	5.7	8									13.4

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "B" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-3H

APPROVED: [signature]

DATE: 4/27/16

SEAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 133
TYPE: B
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 10'-6"
HEIGHT: 3'-0"
TOTAL AREA: 31.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

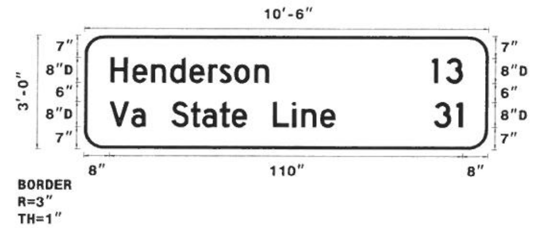
NO. Z BARS: 2
LENGTH: 118.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Mar 21, 2016
DIV: 5



BORDER
R=3"
TH=1"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	H	e	n	d	e	r	s	o	n						D 2000
8	6.9	5.8	5.9	6.1	5.8	3.5	4.5	6.2	4.7	68.5					49.4
	1	3													D 2000
108.2	4.4	5.4	8												9.8
	V	a		S	t	a	t	e		L	i	n	e		D 2000
8	6.7	4.6	8	5.9	3.7	5.4	3.8	4.7	8	6	2.9	5.9	4.7	47.8	70.2
	3	1													D 2000
109	7	2	8												9

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 134
TYPE: B
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 9'-0"
HEIGHT: 3'-0"
TOTAL AREA: 27.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

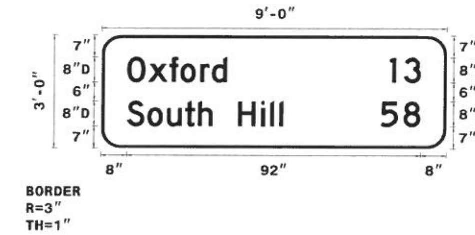
NO. Z BARS: 2
LENGTH: 100.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 N/B
Mar 22, 2016
DIV: 5



BORDER
R=3"
TH=1"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

												Series/Size Text Length
	O	x	f	o	r	d						D 2000
8	6.5	6.6	3.5	6.2	3.7	4.8	68.8					31.2
	1	3										D 2000
90.2	4.4	5.4	8									9.8
	S	o	u	t	h		H	i	l	l		D 2000
8	6.3	6.1	5.6	4.1	4.7	8	7.2	2.9	2.9	1.3	50.9	49
	5	8										D 2000
87.5	7	5.4	8									12.5

FILENAME: I-5843 NB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 135
TYPE: B
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 9'-0"
HEIGHT: 3'-0"
TOTAL AREA: 27.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

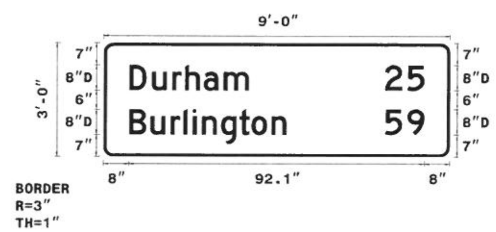
NO. Z BARS: 2
LENGTH: 100.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 10, 2016
DIV: 5



BORDER
R=3"
TH=1"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

												Series/Size Text Length
	D	u	r	h	a	m						D 2000
8	7	6.3	4	5.8	6.1	7.9	62.9					37.1
	2	5										D 2000
87.5	7	5.4	8									12.5
	B	u	r	l	i	n	g	t	o	n		D 2000
8	6.6	6.3	4	2.9	2.9	5.9	5.7	3.8	6.2	4.7	51.1	48.9
	5	9										D 2000
87.6	7	5.4	8									12.5

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 136
TYPE: B
QUANTITY: 1

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 9'-0"
HEIGHT: 3'-0"
TOTAL AREA: 27.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

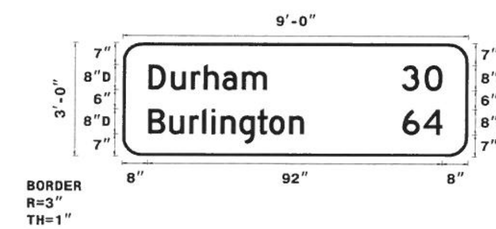
NO. Z BARS: 2
LENGTH: 100.0

MAT'L: 0.125" (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Mar 10, 2016
DIV: 5



BORDER
R=3"
TH=1"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

												Series/Size Text Length
	D	u	r	h	a	m						D 2000
8	7	6.3	4	5.8	6.1	7.9	62.8					37.1
	3	0										D 2000
87.3	7	5.7	8									12.7
	B	u	r	l	i	n	g	t	o	n		D 2000
8	6.6	6.3	4	2.9	2.9	5.9	5.7	3.8	6.2	4.7	51.1	48.9
	6	4										D 2000
87.6	6.4	6	8									12.4

FILENAME: I-5843 Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "B" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-31

APPROVED: [signature]
DATE: 4/27/16
SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 301 BACKG COLOR: Green
TYPE: D COPY COLOR: White
QUANTITY: 1

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 6'-0"
HEIGHT: 3'-6"
TOTAL AREA: 21.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 0.75"
RADII: 3"

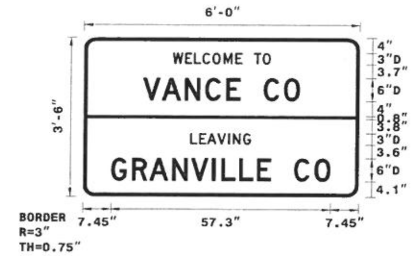
MAT'L: 0.125" (3.2 mm) ALUMINUM

NO. Z BARS:
LENGTH:

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 22, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B DIV: 5



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	W	E	L	C	O	M	E		T	O					D 2000
23.3	3.1	2.4	2.3	2.6	2.8	3.1	1.9	3	2.3	2.1	23.3				25.5
	V	A	N	C	E		C	O							D 2000
15.5	4.9	6	5.4	5.4	3.7	6	5.3	4.3	15.5						41
	L	E	A	V	I	N	G								D 2000
28	2.3	2.1	2.7	2.7	1.2	2.7	2	0.3	28						16.1
	G	R	A	N	V	I	L	L	E		C	O			D 2000
7.4	5.4	4.6	6	5	5.5	2.4	4.6	4.6	3.7	6	5.3	4.3	7.3		57.3

FILENAME: I-5843 NB Sign Designs NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 302 BACKG COLOR: Green
TYPE: D COPY COLOR: White
QUANTITY: 1

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 8'-0"
HEIGHT: 3'-0"
TOTAL AREA: 24.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

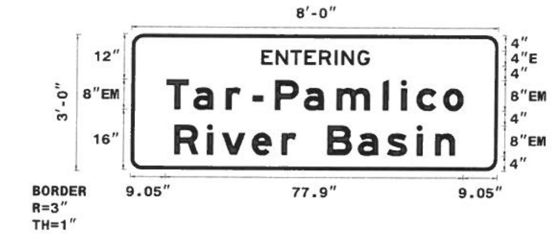
MAT'L: 0.125" (3.2 mm) ALUMINUM

NO. Z BARS:
LENGTH:

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 23, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B DIV: 5



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	E	N	T	E	R	I	N	G							E 2000
33.8	3.8	3.9	3.7	3.8	4	1.8	4.2	3.2	33.8						28.4
	T	a	r		-		P	a	m	l	i	c	o		EM 2000
9	7.1	8.5	4	3	2.8	3	7.7	8.5	12	4.8	4.1	7	5.4	9	77.9
	R	i	v	e	r		B	a	s	i	n				EM 2000
11.2	8.6	3.9	7.8	7.8	4	8	8	7.6	7.8	4.8	5.3	11.2			73.5

FILENAME: I-5843 NB Sign Designs NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 303 BACKG COLOR: Green
TYPE: D COPY COLOR: White
QUANTITY: 2

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 6'-6"
HEIGHT: 3'-0"
TOTAL AREA: 19.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

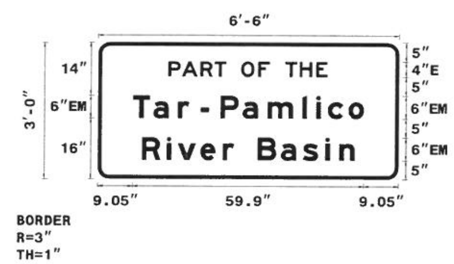
MAT'L: 0.125" (3.2 mm) ALUMINUM

NO. Z BARS:
LENGTH:

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 23, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B & S/B DIV: 5



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

															Series/Size Text Length
	P	A	R	T		O	F		T	H	E				E 2000
18.2	3.6	4.8	3.7	3	4	4.3	3	4	3.7	4.3	3	0.3	18.2		41.6
	T	a	r		-		P	a	m	l	i	c	o		EM 2000
9	5.3	6.4	3	3	2.1	3	5.8	6.4	9	3.6	3.1	5.3	4.1	9	59.9
	R	i	v	e	r		B	a	s	i	n				EM 2000
11.4	6.5	2.9	5.8	5.8	3	6	6	5.7	5.8	3.6	4	11.4			55.1

FILENAME: I-5843 NB Sign Designs NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 304 BACKG COLOR: Green
TYPE: D COPY COLOR: White
QUANTITY: 2

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 6'-6"
HEIGHT: 1'-0"
TOTAL AREA: 6.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 3"

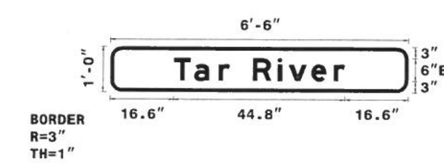
MAT'L: 0.125" (3.2 mm) ALUMINUM

NO. Z BARS:
LENGTH:

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: A. Kidd CHECKED BY: R. Roach Mar 23, 2016
PROJECT ID: I-5843 LOCATION: I-85 N/B & S/B DIV: 5



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

											Series/Size Text Length
	T	a	r		R	i	v	e	r		EM 2000
16.6	5.3	6.4	3	6	6.5	2.9	5.8	5.8	3	16.6	44.8

FILENAME: I-5843 NB Sign Designs NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "D" SIGNS

4/25/2016
U:\I-5843\I-5843 Sign Designs.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-3J

APPROVED: RWK
DATE: 4/27/16
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIGN NUMBER: 305
TYPE: D
QUANTITY: 1
SIGN WIDTH: 8'-0"
HEIGHT: 3'-0"
TOTAL AREA: 24.0 Sq.Ft.
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 6"
NO. Z BARS:
LENGTH:

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: A. Kidd
PROJECT ID: I-5843
CHECKED BY: R. Roach
LOCATION: I-85 S/B
Apr 11, 2016
DIV: 5

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter													Series/Size Text Length
	E	N	T	E	R	I	N	G					E 2000
33.8	3.8	3.9	3.7	3.8	4	1.8	4.2	3.2	33.8				28.4
	N	e	u	s	e								EM 2000
29.9	8.5	7.8	7.6	7	5.3	29.9							36.2
	R	i	v	e	r		B	a	s	i	n		EM 2000
11.2	8.6	3.9	7.8	7.8	4	8	8	7.6	7.8	4.8	5.3	11.2	73.5

FILENAME: I-5843 SB Sign Designs

NORTH CAROLINA D.O.T. SIGN DETAIL

TYPE "D" SIGNS

TIP NO.	SHEET NO.
I-5843	SIGN-4

APPROVED: RLW 4/27/16

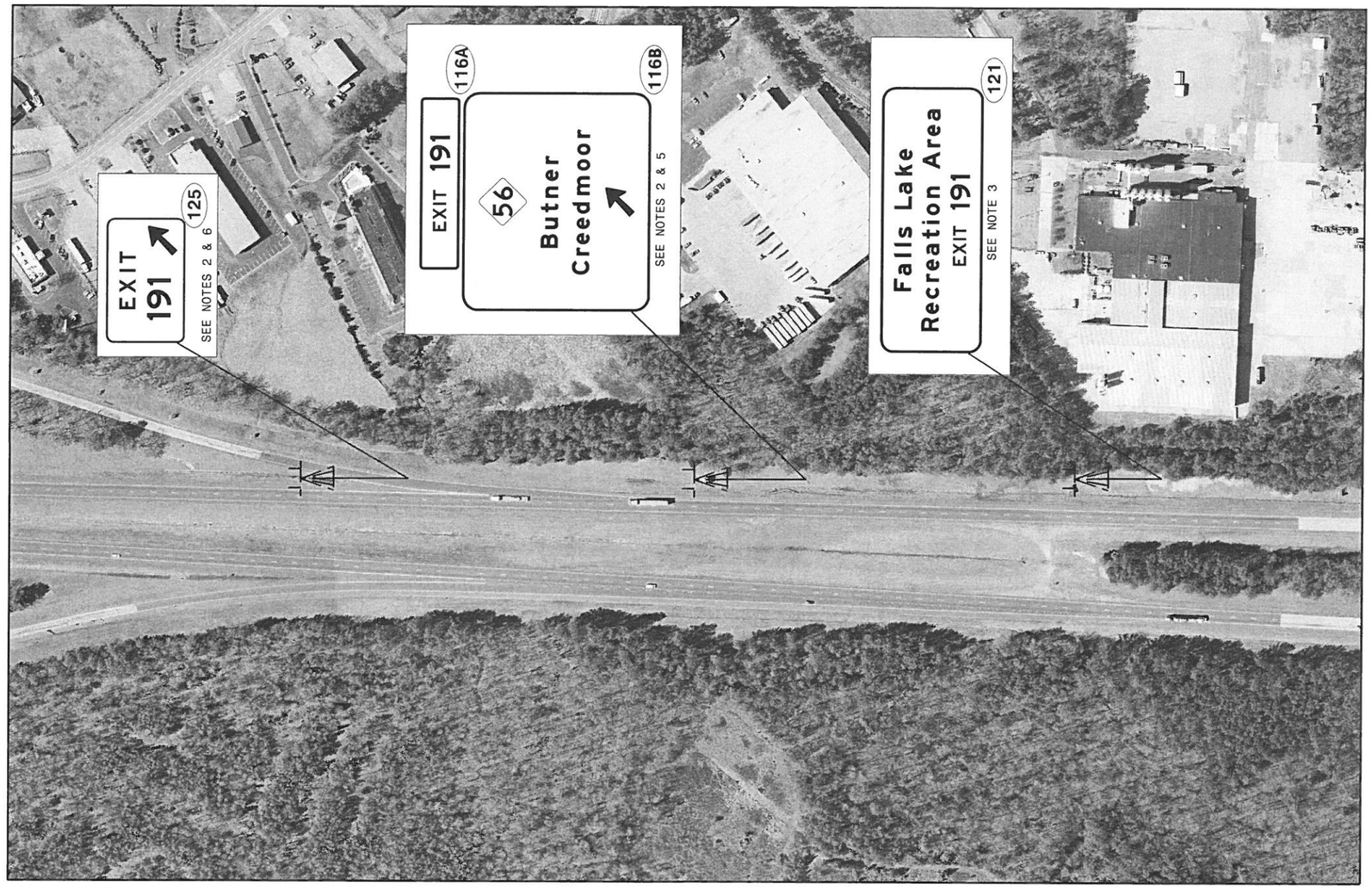
DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&U\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 4 Sign Details.dgn
User:kddl

TIP NO.	SHEET NO.
I-5843	SIGN-5

APPROVED: [signature]

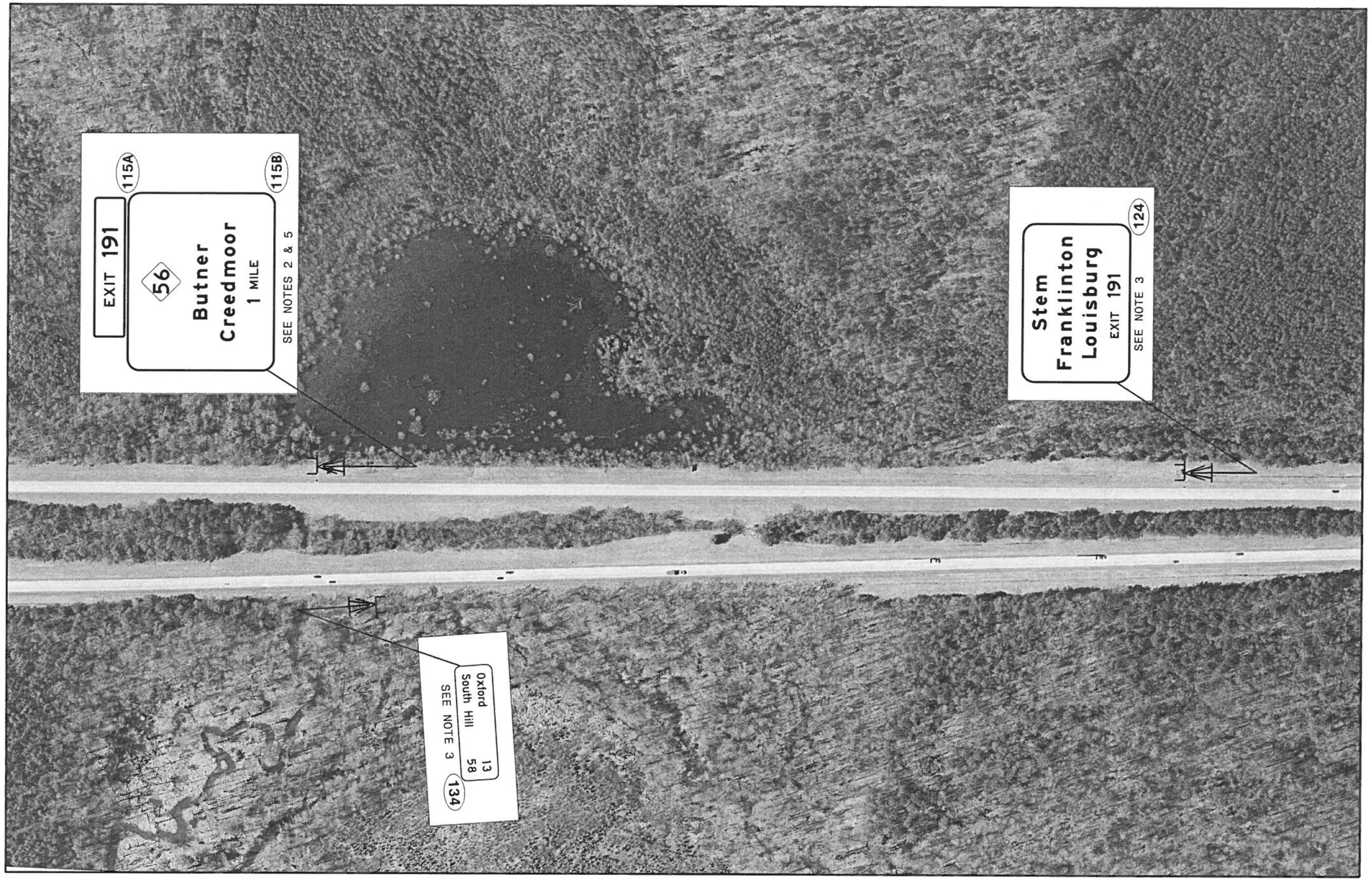
DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007



PROJECT NOTES

1. DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2. DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3. DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4. DISPOSAL OF SIGN, D
5. INSTALL 20 FT BEHIND EXISTING SIGN
6. INSTALL 10 FT BEHIND EXISTING SIGN
7. INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&DU\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 5 Sign Details.dgn
Userid:kidd

TIP NO.	SHEET NO.
I-5843	SIGN-6

APPROVED:

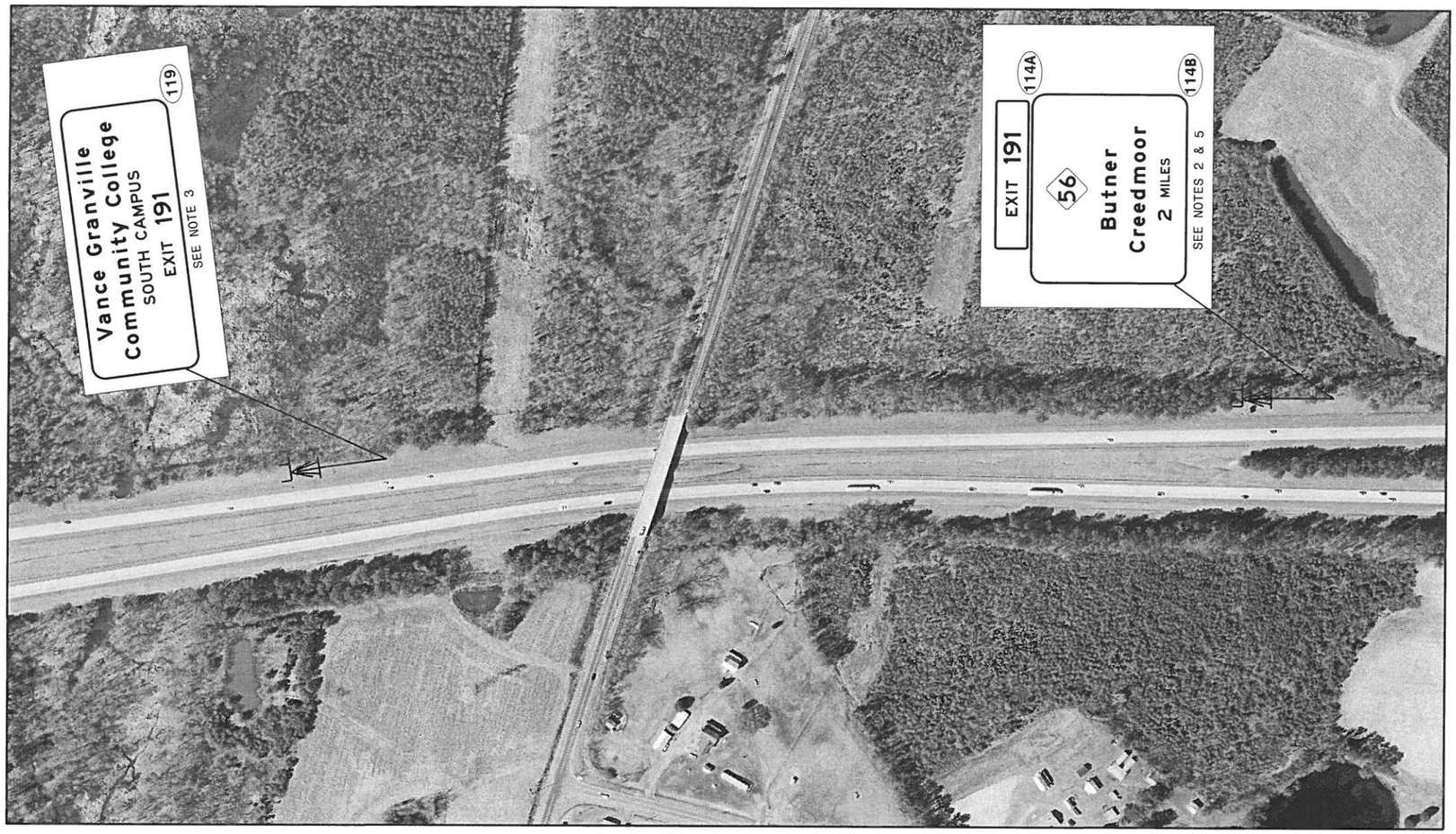
DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&U\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 6 Sign Details.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-7

APPROVED: RWK

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&DU\Central\Div 5 SIGN REQUESTS\I-5843\CADD\I-5843 SGN 7 Sign Details.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-8

APPROVED: _____

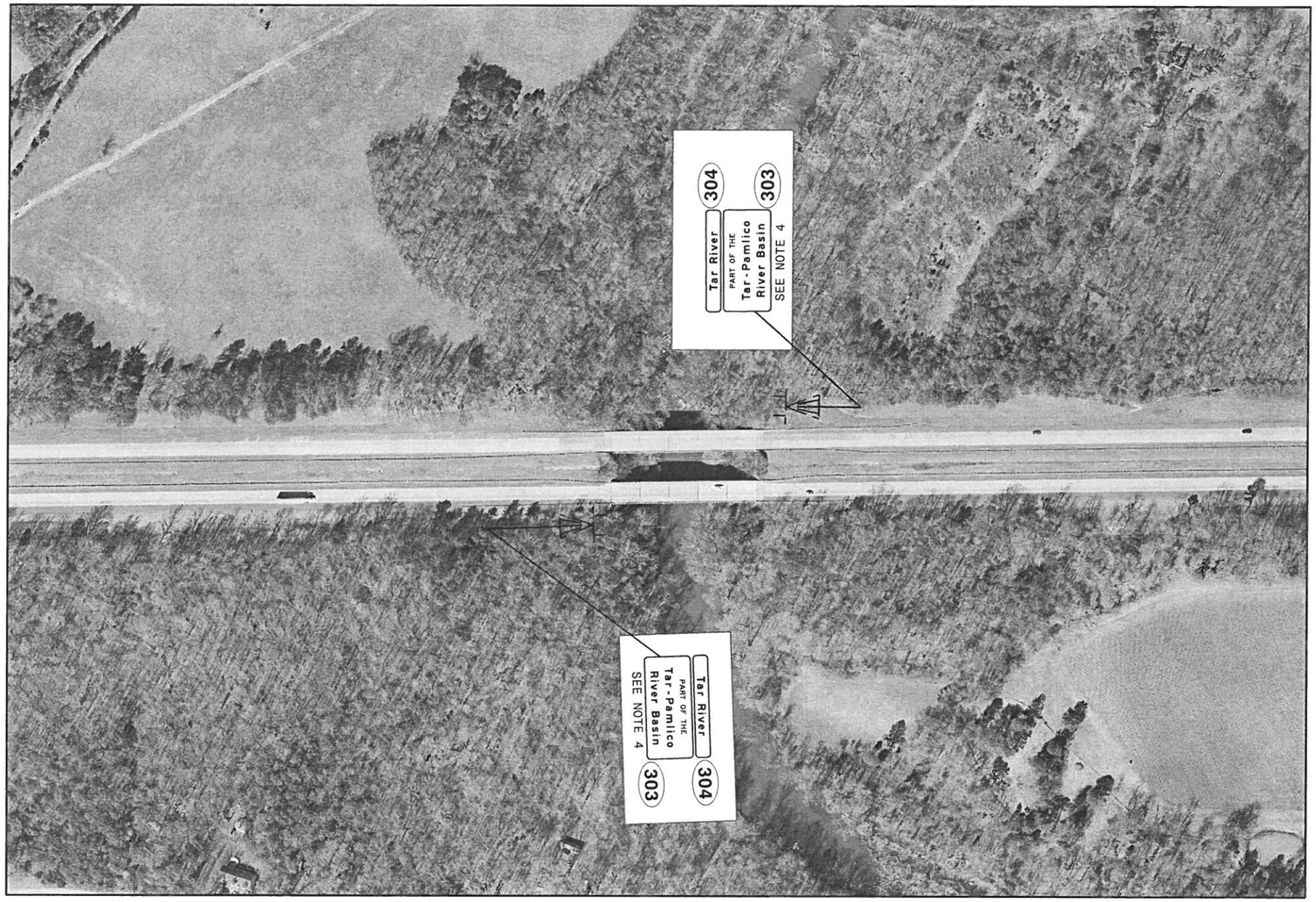
DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&U\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 8 Sign Details.dgn
User:akidd1

TIP NO.	SHEET NO.
I-5843	SIGN-9

APPROVED: RWK

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&U\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 9 Sign Details.dgn
User:kiddl

TIP NO.	SHEET NO.
I-5843	SIGN-10

APPROVED:

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&DU\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 10 Sign Details.dgn
User:okiddl

TIP NO.	SHEET NO.
I-5843	SIGN-11

APPROVED: Ronald W. King

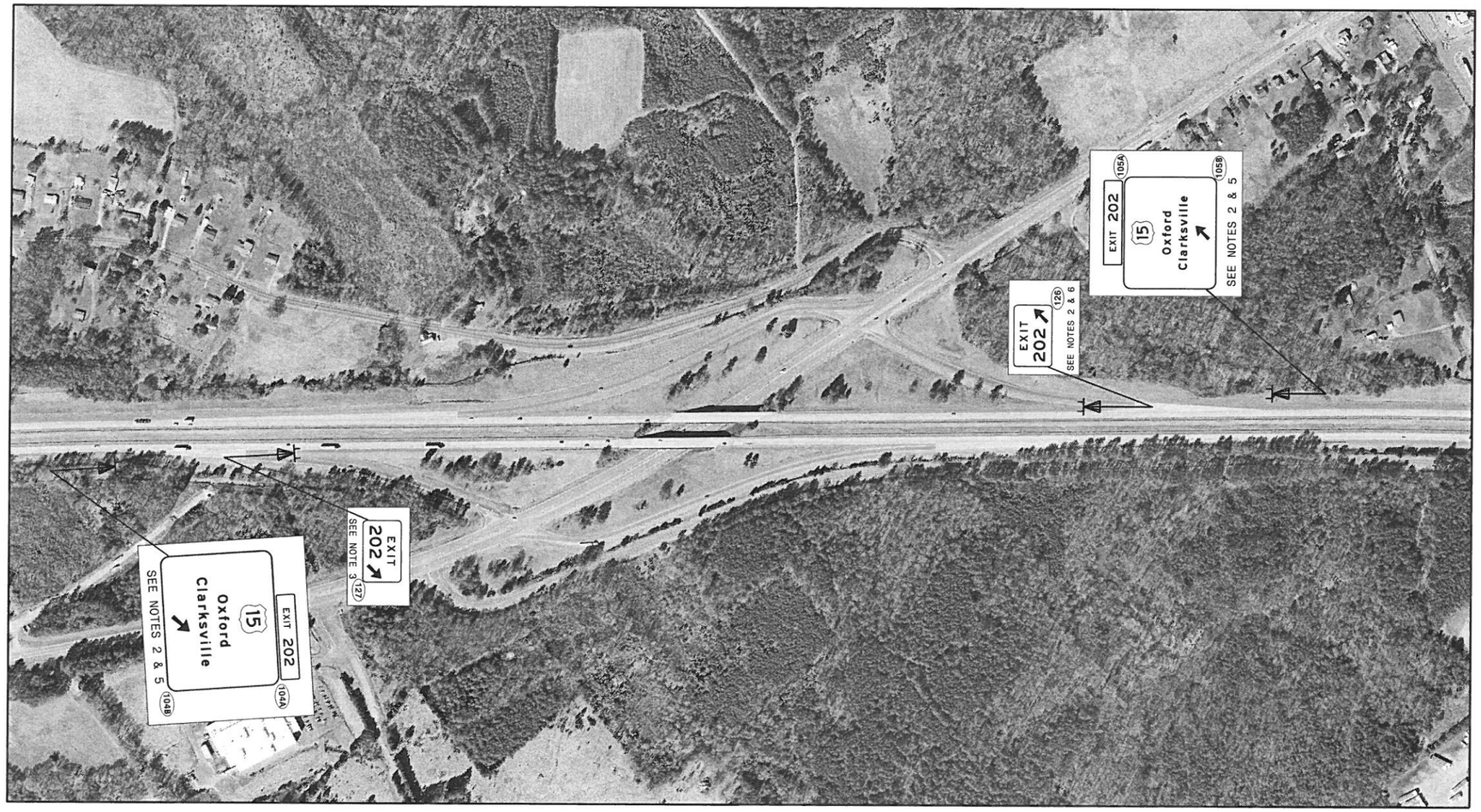
DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&UU\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 11 Sign Details.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-12

APPROVED: [signature]

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2 DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3 DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4 DISPOSAL OF SIGN, D
5 INSTALL 20 FT BEHIND EXISTING SIGN
6 INSTALL 10 FT BEHIND EXISTING SIGN
7 INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&DU\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 12 Sign Details.dgn
User:okidd1

TIP NO.	SHEET NO.
I-5843	SIGN-13

APPROVED: RWK

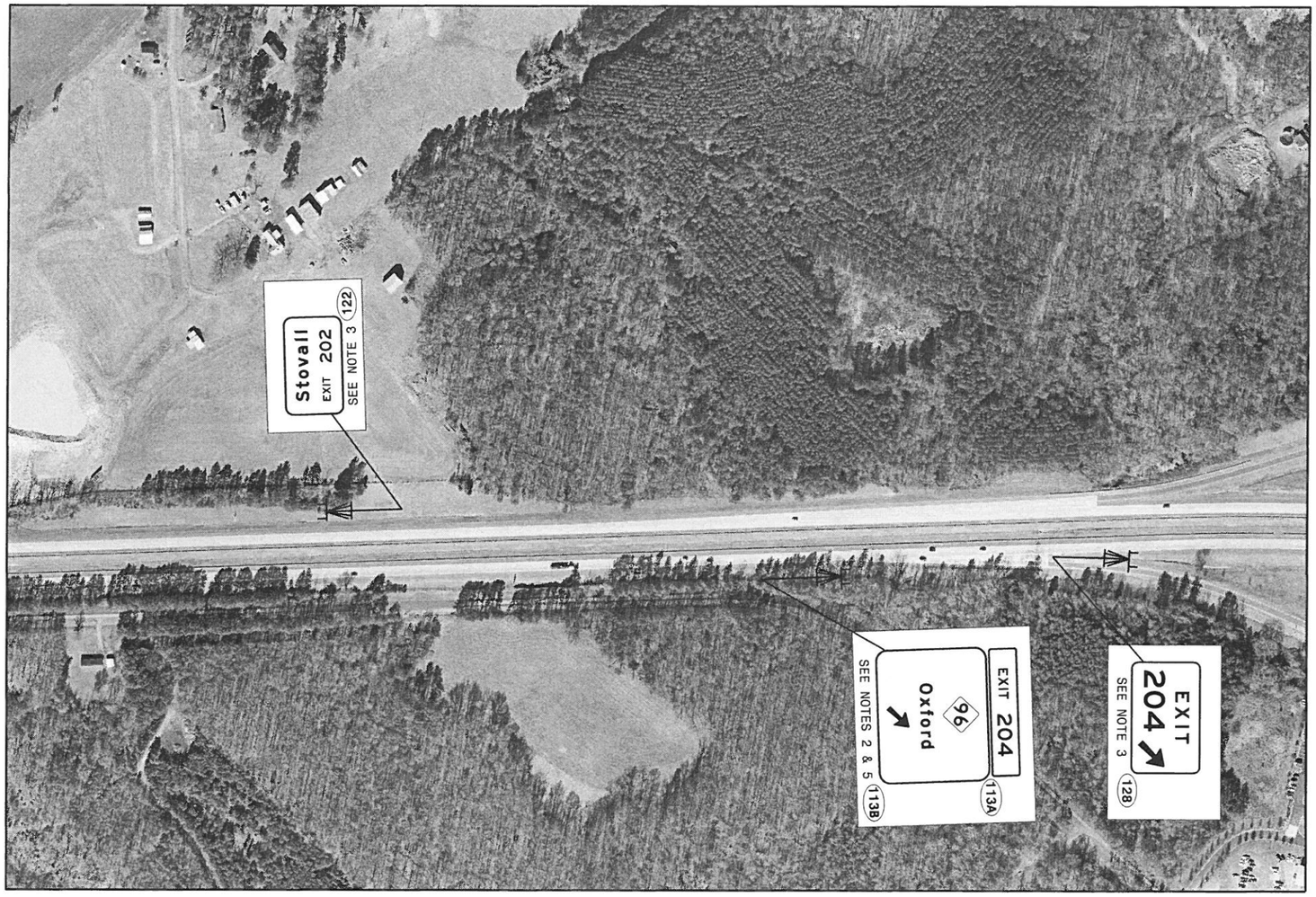
DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&U\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 13 Sign Details.dgn
User:akiddl

TIP NO.	SHEET NO.
I-5843	SIGN-14

APPROVED: RKW 4/27/16

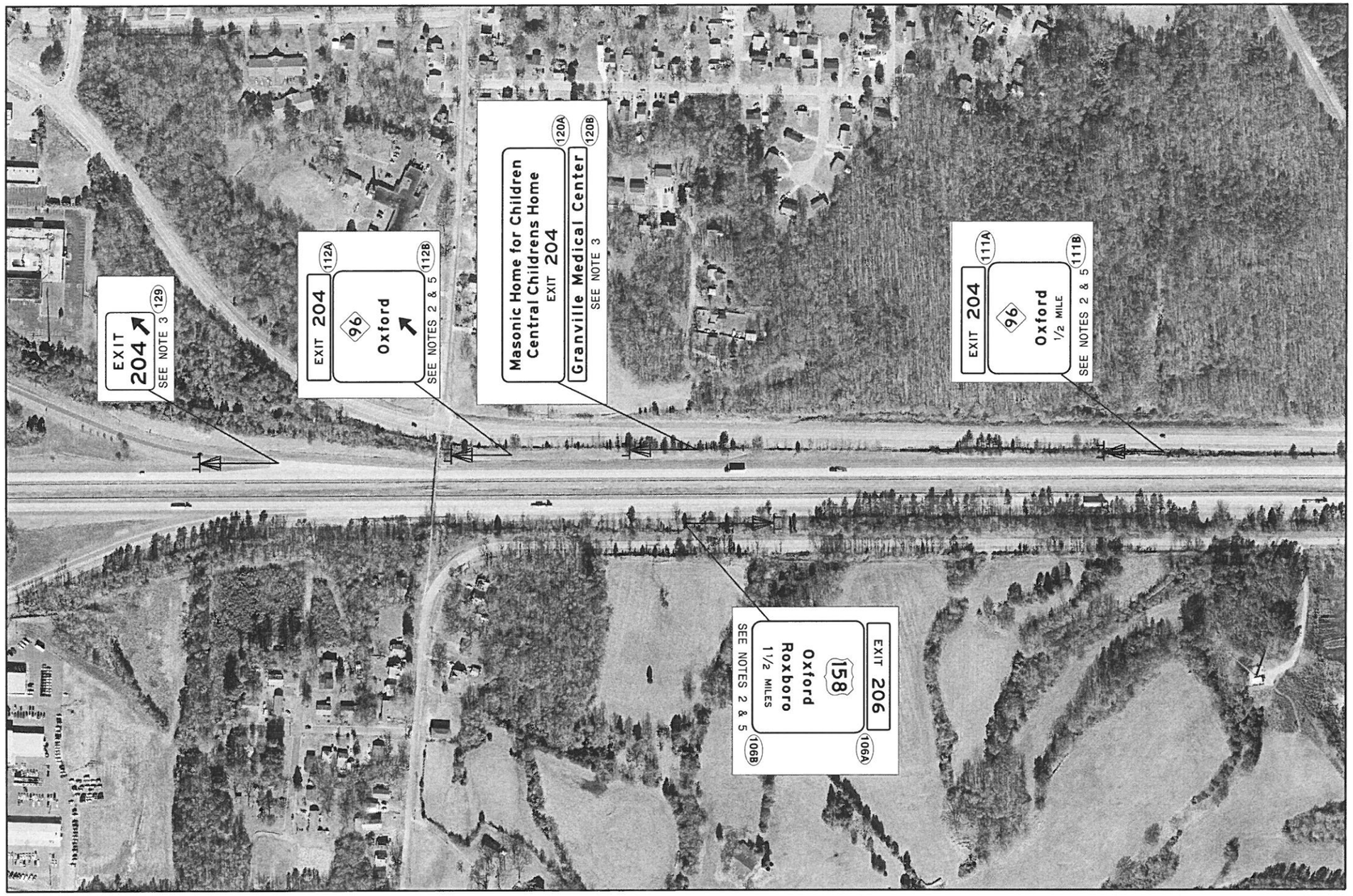
DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
C:\SUP\Central\DIV 5 SIGN REQUESTS\I-5843\CADD\I-5843 SGN 14 Sign Details.dgn
User:kldd

TIP NO.	SHEET NO.
I-5843	SIGN-15

APPROVED: RKW 4/27/16

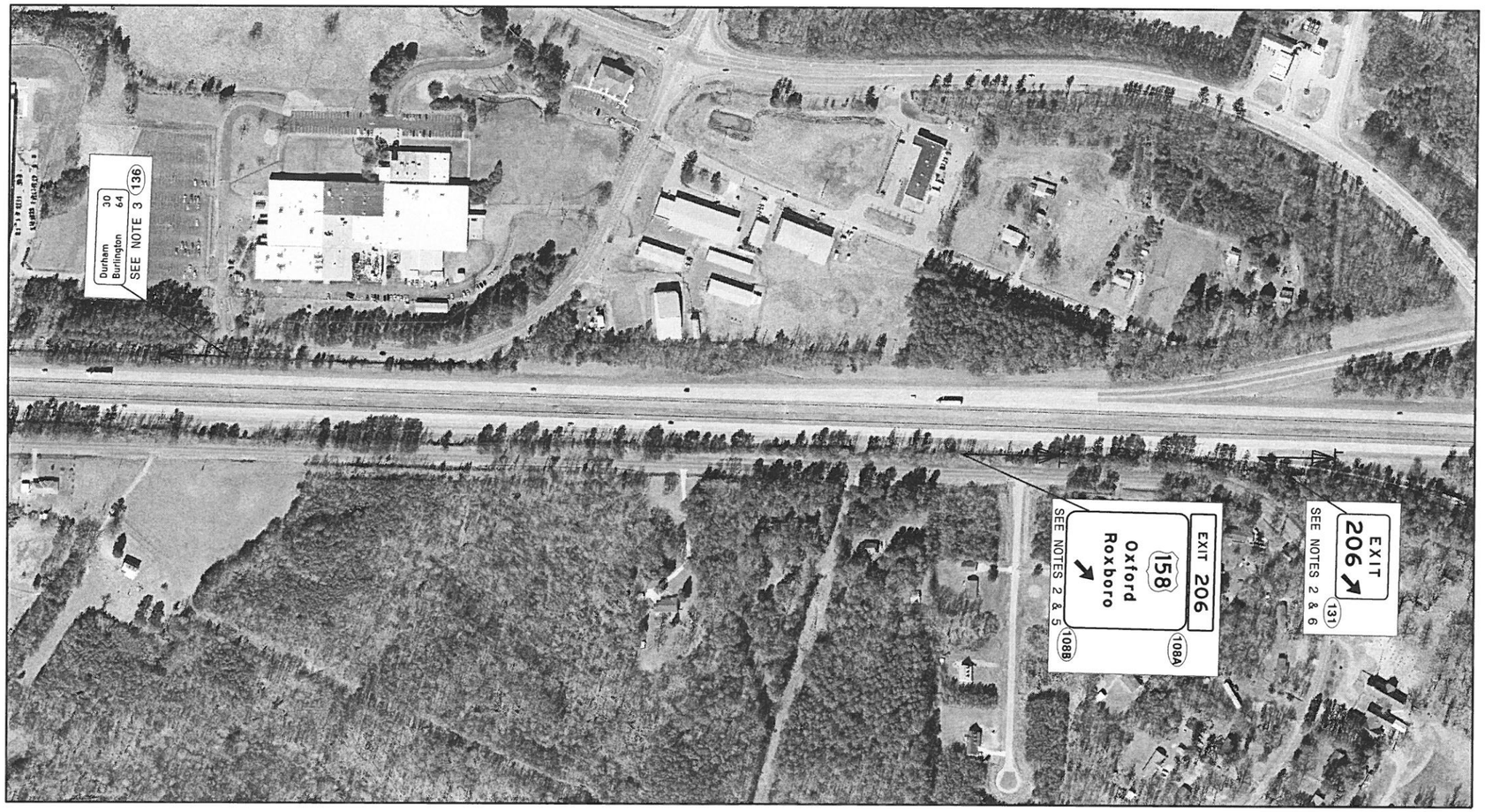
DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&U\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 15 Sign Details.dgn
User:akludd

TIP NO.	SHEET NO.
I-5843	SIGN-16

APPROVED: RWK

DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/25/2016
C:\SSTOOLS\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 16 Sign Details.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-17

APPROVED: RWK 4/27/16

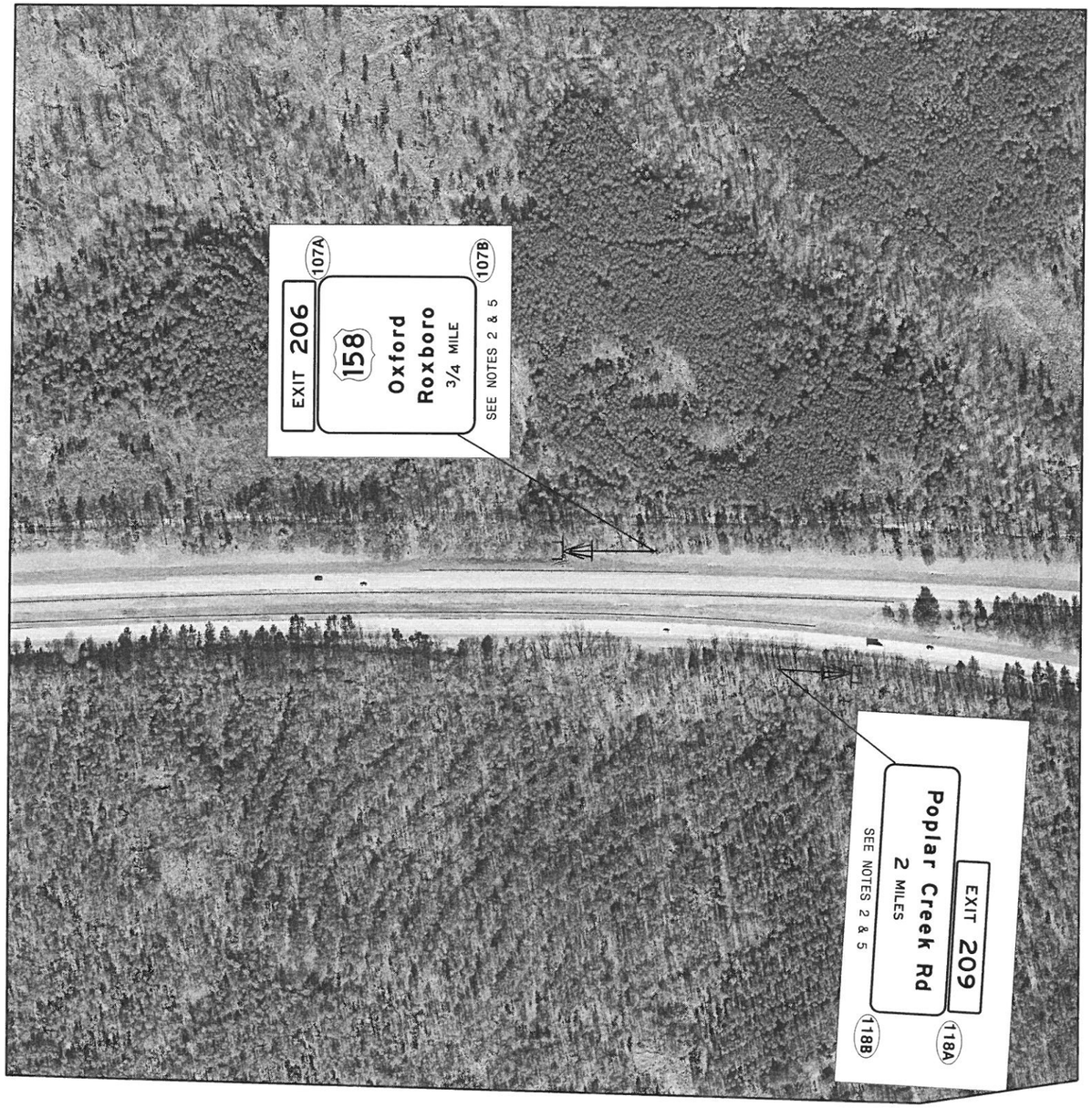
DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/ NSRS 2007



PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/26/2016
S:\S&DU\Central\DIV 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 17 Sign Details.dgn
User:akidd

TIP NO.	SHEET NO.
I-5843	SIGN-18

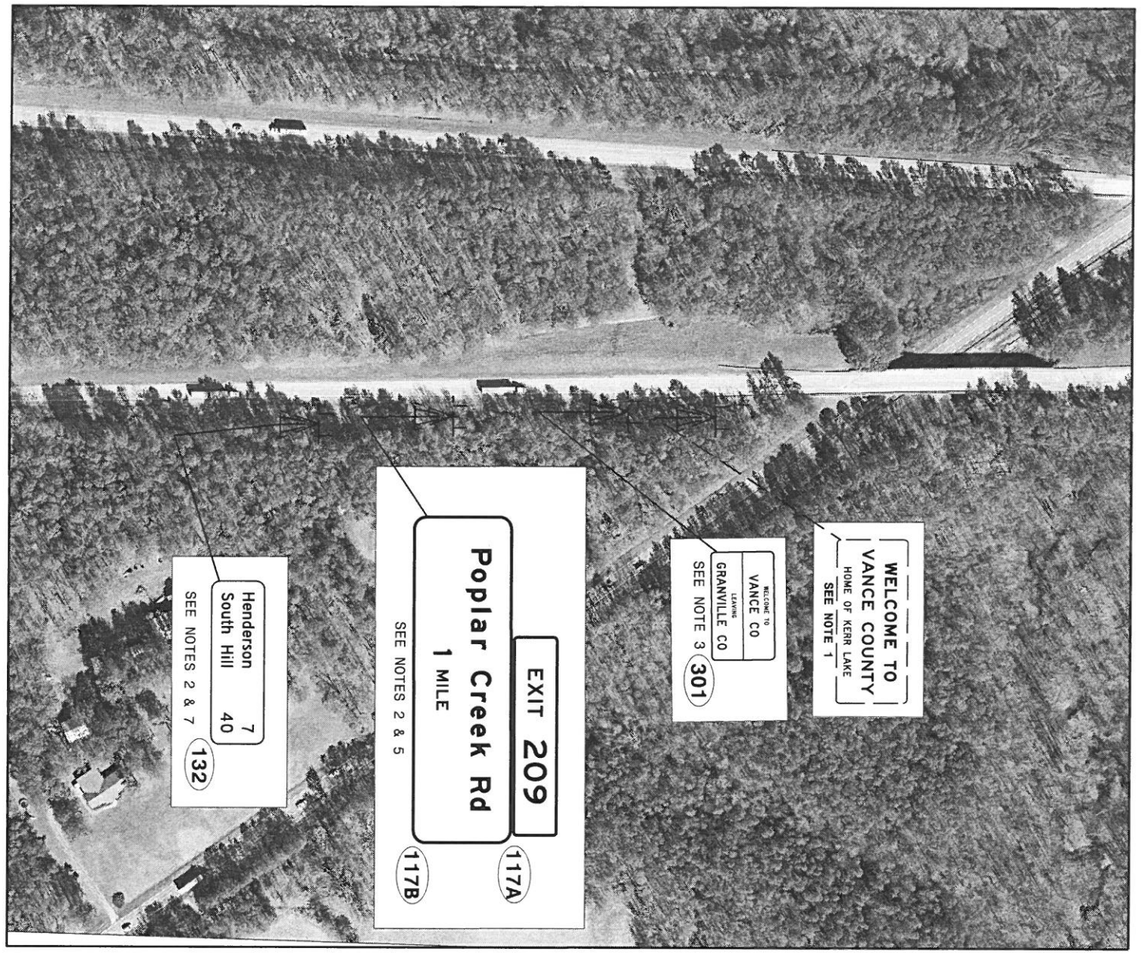
APPROVED: RWK
DATE: 4/27/16

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W KING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/
NSRS 2007



PROJECT NOTES

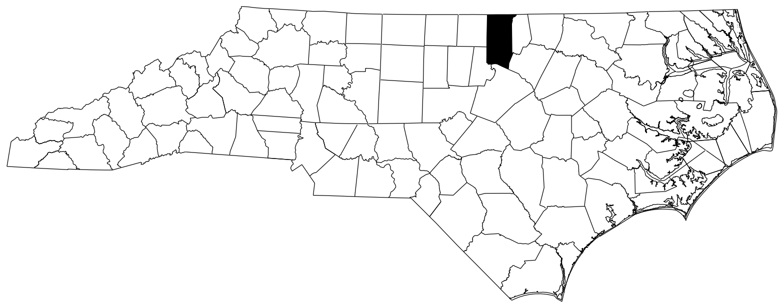
1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
3	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4	DISPOSAL OF SIGN, D
5	INSTALL 20 FT BEHIND EXISTING SIGN
6	INSTALL 10 FT BEHIND EXISTING SIGN
7	INSTALL 100 FT IN FRONT OF EXISTING SIGN

SIGN DETAILS

4/25/2016
S:\SSAUD\Central\Div 5 SIGN REQUEST\I-5843\CADD\I-5843 SGN 18 Sign Details.dgn
User:akidd

PROJECT: I-5843

CONTRACT NO.:



STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

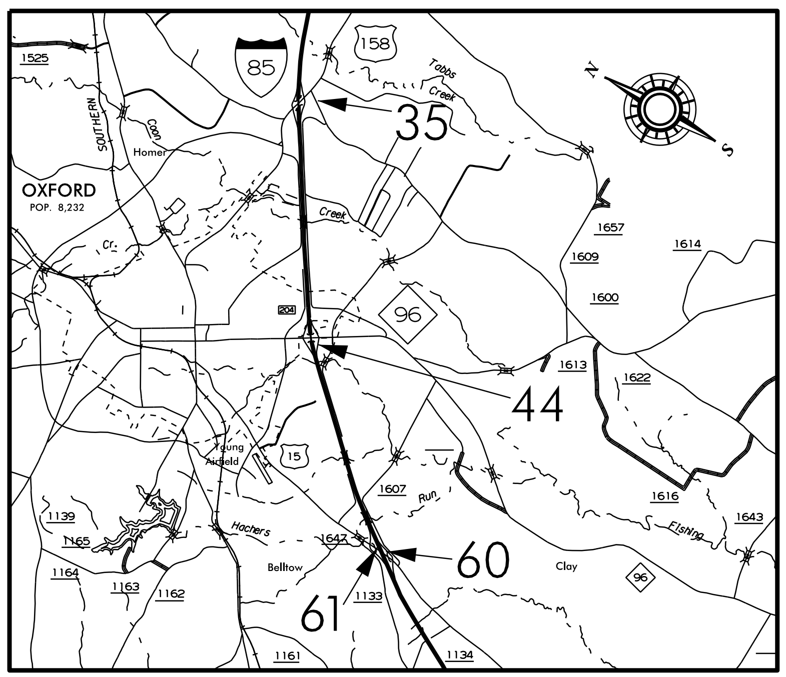
GRANVILLE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5843	1	45

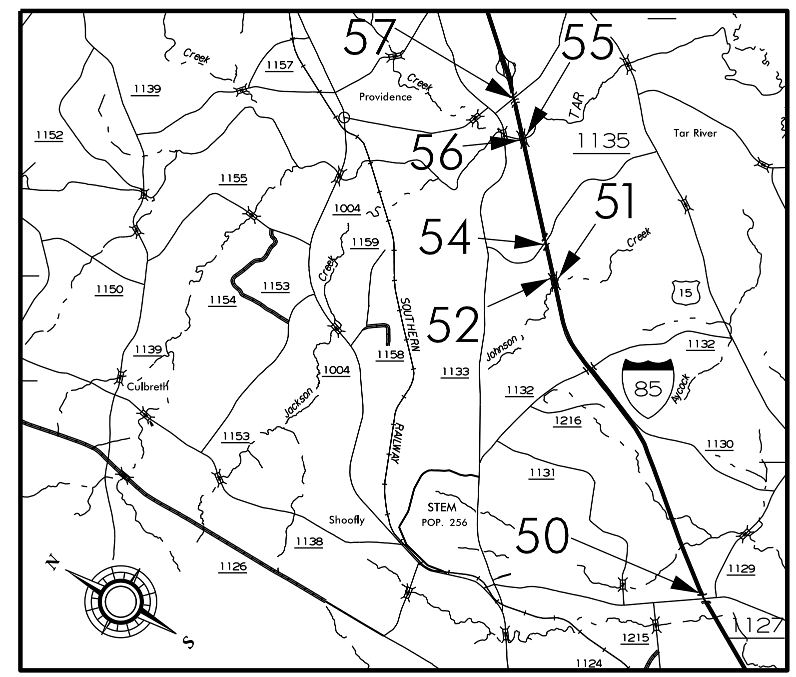
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
53049.1.1	NHPP-0085(16)	PE
53049.3.1		CONST

LOCATION: BRIDGE #35 ON US 158 OVER I-85.
BRIDGE #44 ON NC 96 OVER I-85.
BRIDGE #50 ON SR 1127 OVER I-85.
BRIDGE #51 ON I-85 NBL OVER SR 1132.
BRIDGE #52 ON I-85 SBL OVER SR 1132.
BRIDGE #54 ON SR 1135 OVER I-85.
BRIDGE #55 ON I-85 NBL OVER TAR RIVER.
BRIDGE #56 ON I-85 SBL OVER TAR RIVER.
BRIDGE #57 ON SR 1192 OVER I-85.
BRIDGE #60 ON I-85 NBL OVER US 15.
BRIDGE #61 ON I-85 SBL OVER US 15.

BRIDGE PRESERVATION – SUBSTRUCTURE REPAIR, CLEANING AND PAINTING EXISTING BEARINGS, INSTALLATION OF BEARING KEEPER ANGLES, JOINT HEADER REPAIRS, STRUCTURAL STEEL REPAIRS, PAINTING STRUCTURAL STEEL, AND REPLACEMENT OF JOINT SEALS.



VICINITY MAP – GRANVILLE CO.



VICINITY MAP – GRANVILLE CO.

DESIGN DATA

#35 ADT 2012 = 7,900
#44 ADT 2012 = 9,900
#50 ADT 2012 = 1,100
#51 ADT 2012 = 14,000
#52 ADT 2012 = 14,000
#54 ADT 2012 = 720
#55 ADT 2012 = 14,000
#56 ADT 2012 = 14,000
#57 ADT 2012 = 680
#60 ADT 2012 = 14,000
#61 ADT 2012 = 14,000

PROJECT LENGTH

BRIDGE #35 = 0.071 MILE
BRIDGE #44 = 0.050 MILE
BRIDGE #50 = 0.053 MILE
BRIDGE #51 = 0.026 MILE
BRIDGE #52 = 0.026 MILE
BRIDGE #54 = 0.068 MILE
BRIDGE #55 = 0.052 MILE
BRIDGE #56 = 0.052 MILE
BRIDGE #57 = 0.057 MILE
BRIDGE #60 = 0.069 MILE
BRIDGE #61 = 0.069 MILE

Prepared In the Office of:

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

ERIC B. NELSON, P.E.
PROJECT ENGINEER

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER, 2016

NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

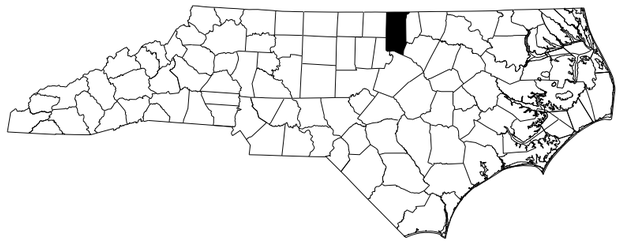
DocuSigned by:
AD5B1D97494CC...

TIMOTHY M. SHERRILL, P.E.
PROJECT DESIGN ENGINEER
9/12/2016

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT: I-5843

CONTRACT NO.:



STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

GRANVILLE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5843	1A	45

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
53049.1.1	NHPP-0085(16)	PE
53049.3.1		CONST

LOCATION: BRIDGE #35 ON US 158 OVER I–85.
BRIDGE #44 ON NC 96 OVER I–85.
BRIDGE #50 ON SR 1127 OVER I–85.
BRIDGE #51 ON I–85 NBL OVER SR 1132.
BRIDGE #52 ON I–85 SBL OVER SR 1132.
BRIDGE #54 ON SR 1135 OVER I–85.
BRIDGE #55 ON I–85 NBL OVER TAR RIVER.
BRIDGE #56 ON I–85 SBL OVER TAR RIVER.
BRIDGE #57 ON SR 1192 OVER I–85.
BRIDGE #60 ON I–85 NBL OVER US 15.
BRIDGE #61 ON I–85 SBL OVER US 15.

BRIDGE PRESERVATION – SUBSTRUCTURE REPAIR, CLEANING AND PAINTING EXISTING BEARINGS, INSTALLATION OF BEARING KEEPER ANGLES, JOINT HEADER REPAIRS, STRUCTURAL STEEL REPAIRS, PAINTING STRUCTURAL STEEL, AND REPLACEMENT OF JOINT SEALS.

INDEX OF SHEETS

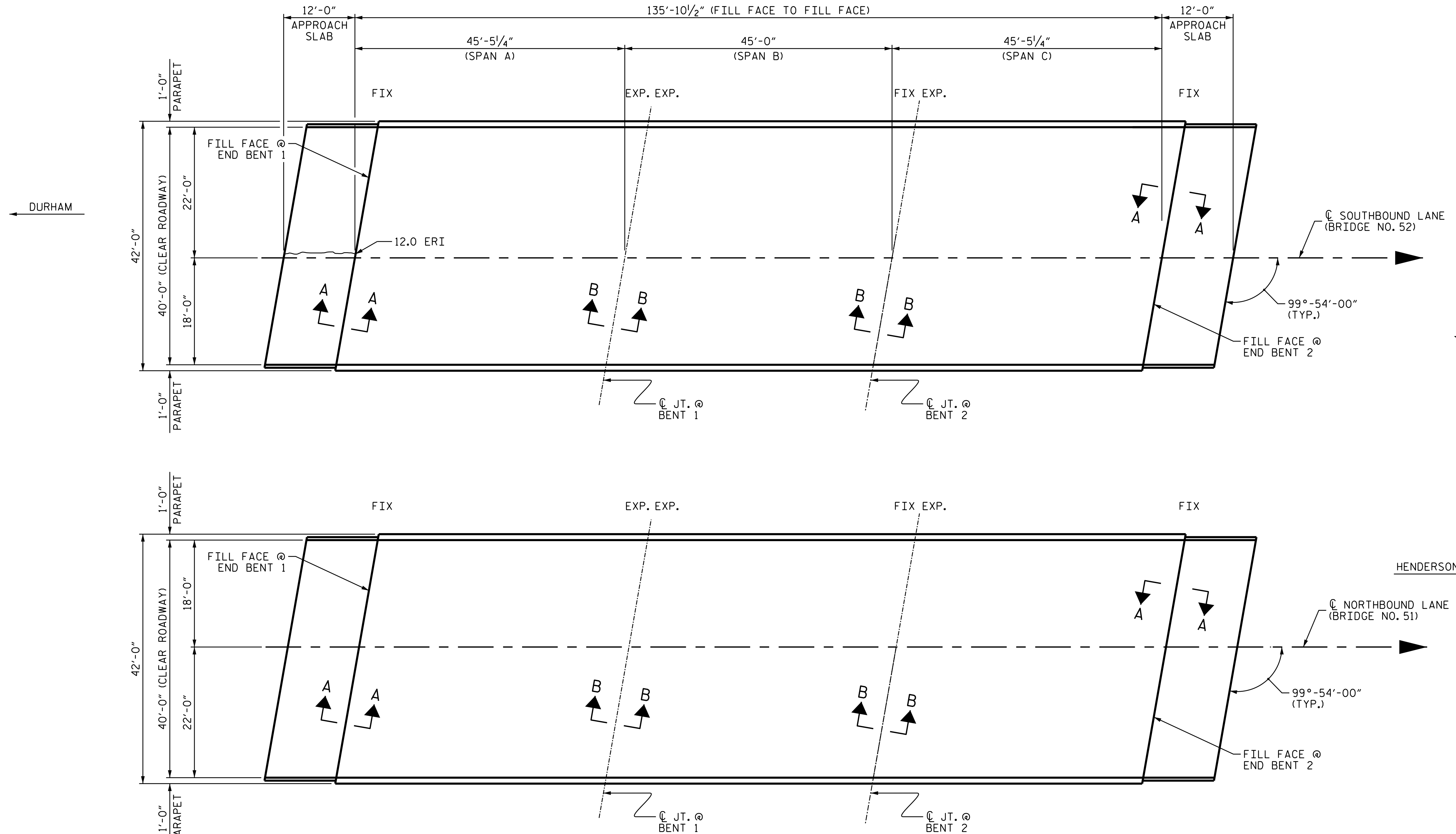
NOTES

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPLACEMENT OF FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.



PLAN OF SPANS

(DIMENSIONS TYPICAL FOR BOTH BRIDGES)

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE **COUNTY**

BRIDGE NO.: 51 & 52

TOTAL BILL OF MATERIAL

	EPOXY RESIN BRIDGE INJECTION	REPLACEMENT OF FOAM JOINT SEALS	EPOXY COATING	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO. _	PAINTING CONTAINMENT FOR BRIDGE NO. _
	LF	LF	SF	EACH	LUMP SUM
380051	12	84	0	36	LUMP SUM
380052	0	84	85	36	LUMP SUM

CONSTRUCTION SEQUENCE:

1) - EPOXY INJECTION - 12' LONG CRACK IN APPROACH SLAB AT END BENT 1
2) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
3) - FOAM JOINT SEAL REPLACEMENT ✱
4) - EPOXY COATING OF END BENT CAPS ✱✱

DocuSigned by: AD50B1D07A5F4C... NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW OF BRIDGE 51 & 52 ON I-85 OVER SR 1132 (SANDERS RD.)

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

✱ QUANTITY INDICATED REPRESENTS ANTICIPATED REPLACEMENT OF TWO FOAM JOINT SEALS. ACTUAL QUANTITY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ENGINEER.
✱✱ QUANTITY INDICATED REPRESENTS ANTICIPATED EPOXY COATING OF BRIDGE 52 END BENT 2 CAP. ACTUAL QUANTITY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ENGINEER.

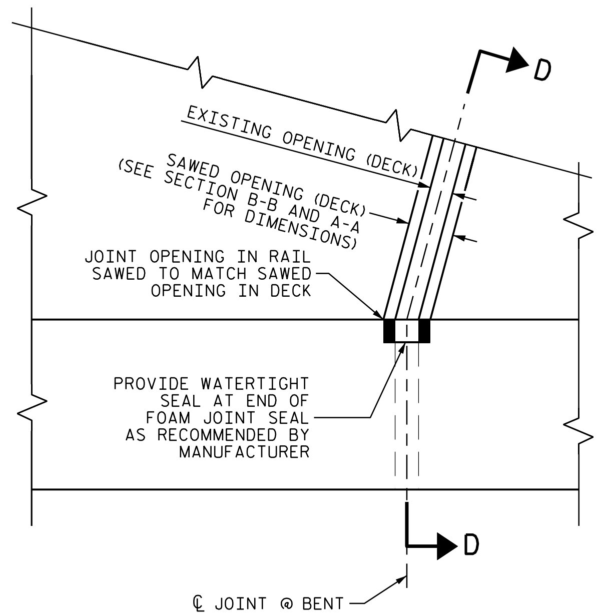
09-SEP-2016 14:29
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES

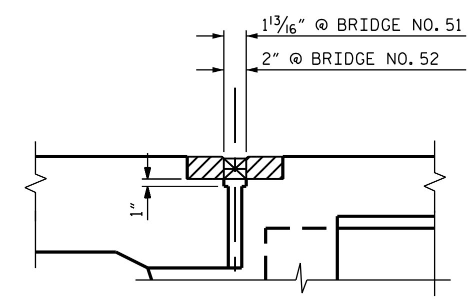
FOR REPLACEMENT OF FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

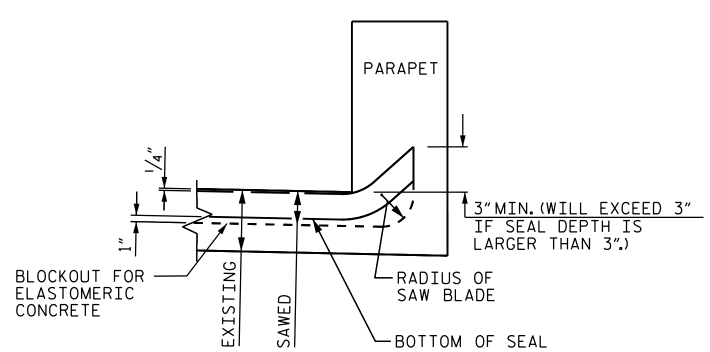
NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE 2" AT BENTS AND 3½" AT END BENTS FOR BRIDGE NO. 51 AND 4" AT END BENTS FOR BRIDGE NO. 52.



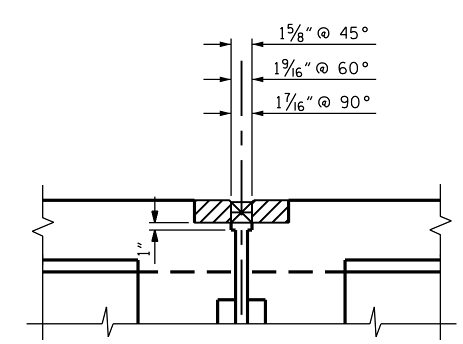
PLAN



SECTION A-A
(FOAM JOINT SEAL FIXED)



SECTION D-D



SECTION B-B
(FOAM JOINT SEAL EXPANSION)

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 51 & 52

DocuSigned by: AD50B1D97... 9/12/2016
NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

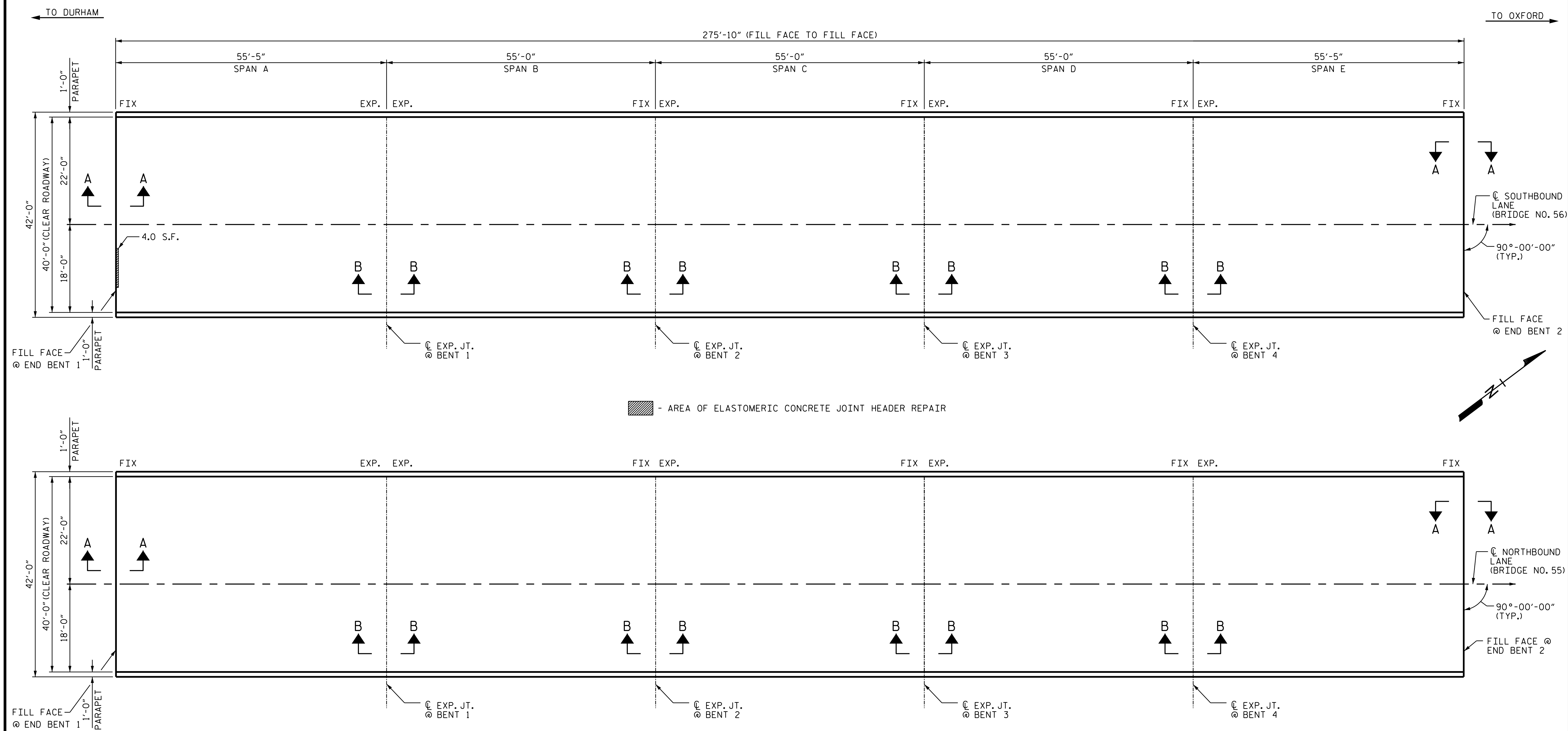
JOINT DETAILS

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:28
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN OF SPANS

(DIMENSIONS TYP. FOR BOTH BRIDGES)

TOTAL BILL OF MATERIAL

BRIDGE	REPLACEMENT OF FOAM JOINT SEALS	EPOXY COATING	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO. _	ELASTOMERIC JOINT HEADER REPAIRS	PAINTING CONTAINMENT FOR BRIDGE NO. _
	LF	SF	EACH	SQ.FT.	LUMP SUM
380055	84	128	60	4	LUMP SUM
380056	84	64	60	0	LUMP SUM

NOTES:

FOR REPLACEMENT OF FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

FOR ELASTOMETIC JOINT HEADER REPAIRS, SEE SPECIAL PROVISIONS.

ACCESS FOR REPAIRS TO ALL BRIDGE ELEMENTS OF BRIDGES 55 & 56 MUST BE STAGED FROM THE BRIDGE SUPERSTRUCTURE AND NOT FROM THE GROUND OR WATERWAY.

JURISDICTIONAL RESOURCES (WETLAND, STREAM AND REGULATED RIPARIAN BUFFER) ARE PRESENT AT BRIDGE 55 & 56. IMPACT TO THESE RESOURCES ARE NOT ALLOWED FROM ANY ACTIVITY ASSOCIATED WITH WORK AT THESE BRIDGES.

NO DISCHARGE OF WATER, CONCRETE DEBRIS, SLURRY, OR ANY REPAIR MATERIAL IS ALLOWED TO ENTER THE WATERCOARSE. THE CONTRACTOR SHALL COLLECT, CONTAIN AND REMOVE ALL DEBRIS RESULTING FROM REPAIR ACTIVITIES. A DETAILED PLAN FOR COLLECTION, CONTAINMENT AND DISPOSAL OF DEBRIS AS WELL AS STAGING THE EQUIPMENT, INCLUDING DRAWINGS, AND NARRATIVES MUST BE PROVIDED TO AND APPROVED BY THE ASSISTANT STATE STRUCTURES MANAGEMENT ENGINEER- OPERATIONS AND THE NCDOT DIVISION 5 ENVIRONMENTAL SUPERVISOR. THE SUBMITTAL SHALL BE MADE AT LEAST 30 DAYS PRIOR TO OCCURRENCE OF ANY ACTIVITY AT BRIDGES 55 & 56.

* QUANTITY INDICATED REPRESENTS ANTICIPATED REPLACEMENT OF FOAM JOINT SEALS. ACTUAL QUANTITY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ENGINEER.
** QUANTITY INDICATED REPRESENTS ANTICIPATED REPAIRS OF JOINT HEADER. ACTUAL QUANTITY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ENGINEER.
*** QUANTITY INDICATED REPRESENTS ANTICIPATED EPOXY COATING OF BRIDGE 55 END BENT 1 AND 2 CAPS AND BRIDGE 56 END BENT 1 CAP. ACTUAL QUANTITY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ENGINEER.

CONSTRUCTION SEQUENCE:

1) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
2) - ELASTOMERIC JOINT HEADER REPAIRS **
3) - FOAM JOINT SEAL REPLACEMENT *
4) - EPOXY COATING OF END BENT CAPS ***

DocuSigned by: AD50B1D97749C...

NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO.: 55 & 56

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW OF BRIDGE 55 & 56 ON I-85 OVER TAR RIVER

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

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:30
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

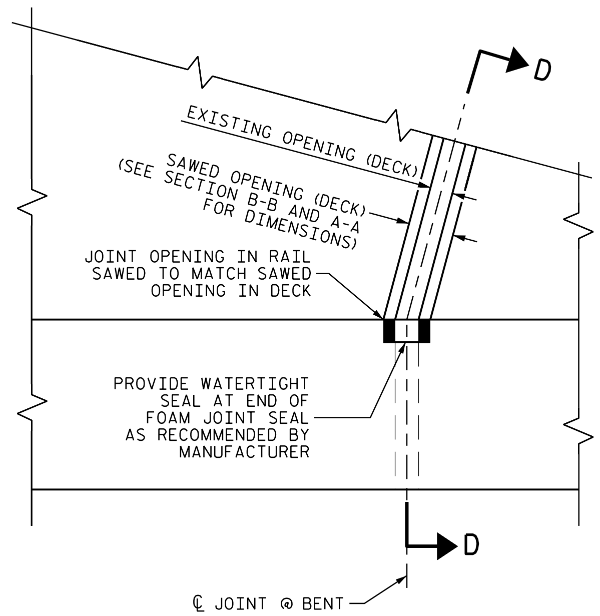
NOTES

FOR REPLACEMENT OF FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

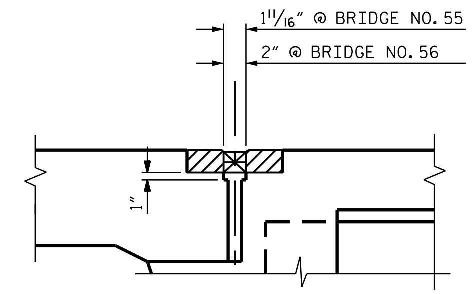
THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

NOMINAL UNCCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE 3" AT BENT 1 AND 2" AT BENT 2, 3, AND 4.

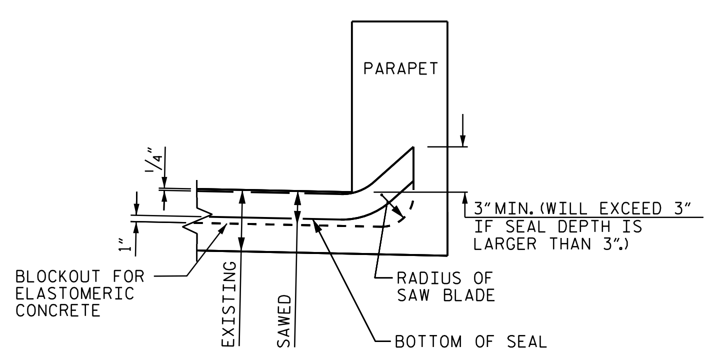
NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE 3½" AT END BENTS FOR BRIDGE NO. 55 AND 4" AT END BENTS FOR BRIDGE NO. 56.



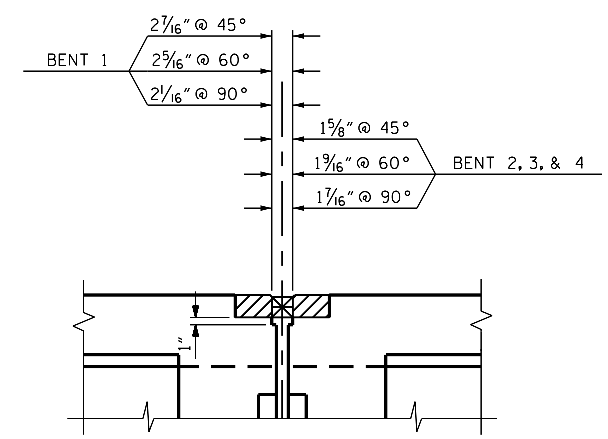
PLAN



SECTION A-A
(FOAM JOINT SEAL FIXED)

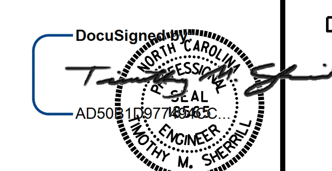


SECTION D-D



SECTION B-B
(FOAM JOINT SEAL EXPANSION)

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 55 & 56



9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

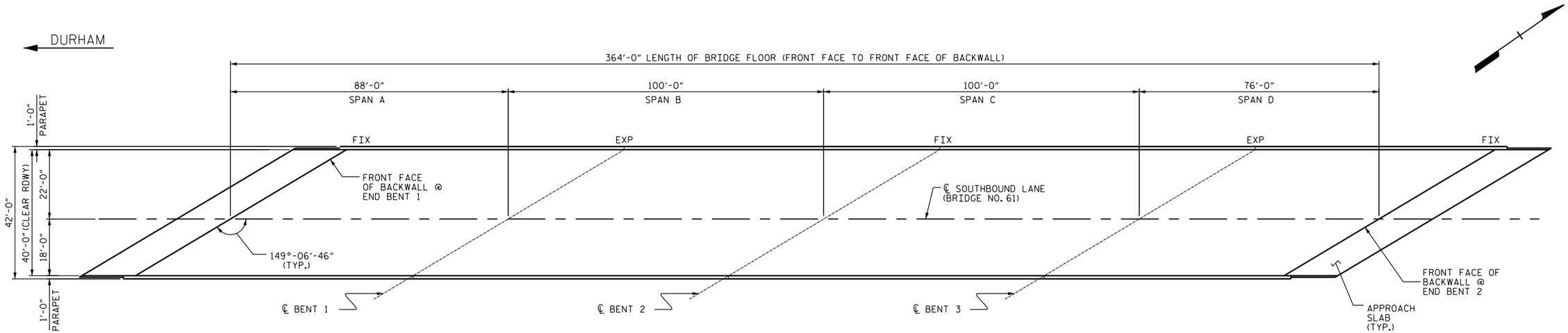
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

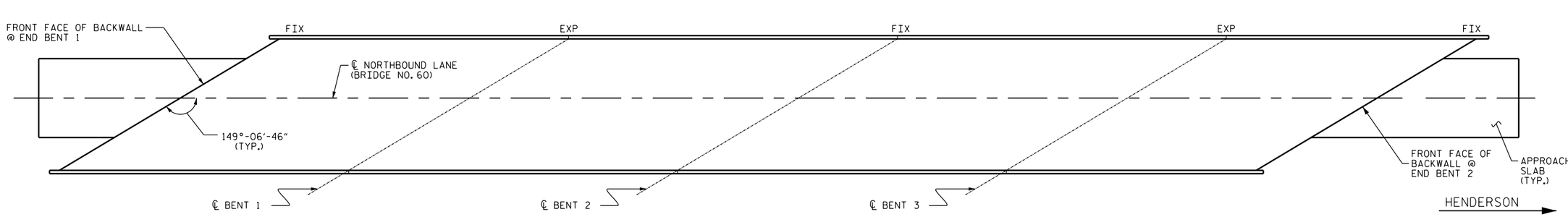
JOINT DETAILS

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

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:31
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7





PLAN OF SPANS

(DIMENSIONS TYPICAL FOR BOTH BRIDGES)

NOTES:

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

BEAM REPAIRS SHALL BE COMPLETED BEFORE FINAL CLEANING AND PAINTING OF STRUCTUAL STEEL.

CONSTRUCTION SEQUENCE:

1) - CLEAN AND PAINT STRUCTURAL STEEL
2) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
3) - REPAIR STEEL BEAM ENDS, STIFFENERS

TOTAL BILL OF MATERIAL

BRIDGE	CLEANING & PAINTING OF BRIDGE NO._	PAINTING CONTAINMENT FOR BRIDGE NO._	POLLUTION CONTROL	BEAM REPAIR	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO._
	LUMP SUM	LUMP SUM	LUMP SUM	LBS	EACH
380060	LUMP SUM	LUMP SUM	LUMP SUM	328	48
380061	LUMP SUM	LUMP SUM	LUMP SUM	5	48

DocuSigned by:
AD50E[illegible]

NORTH CAROLINA PROFESSIONAL SEAL 038565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO.: 60 & 61

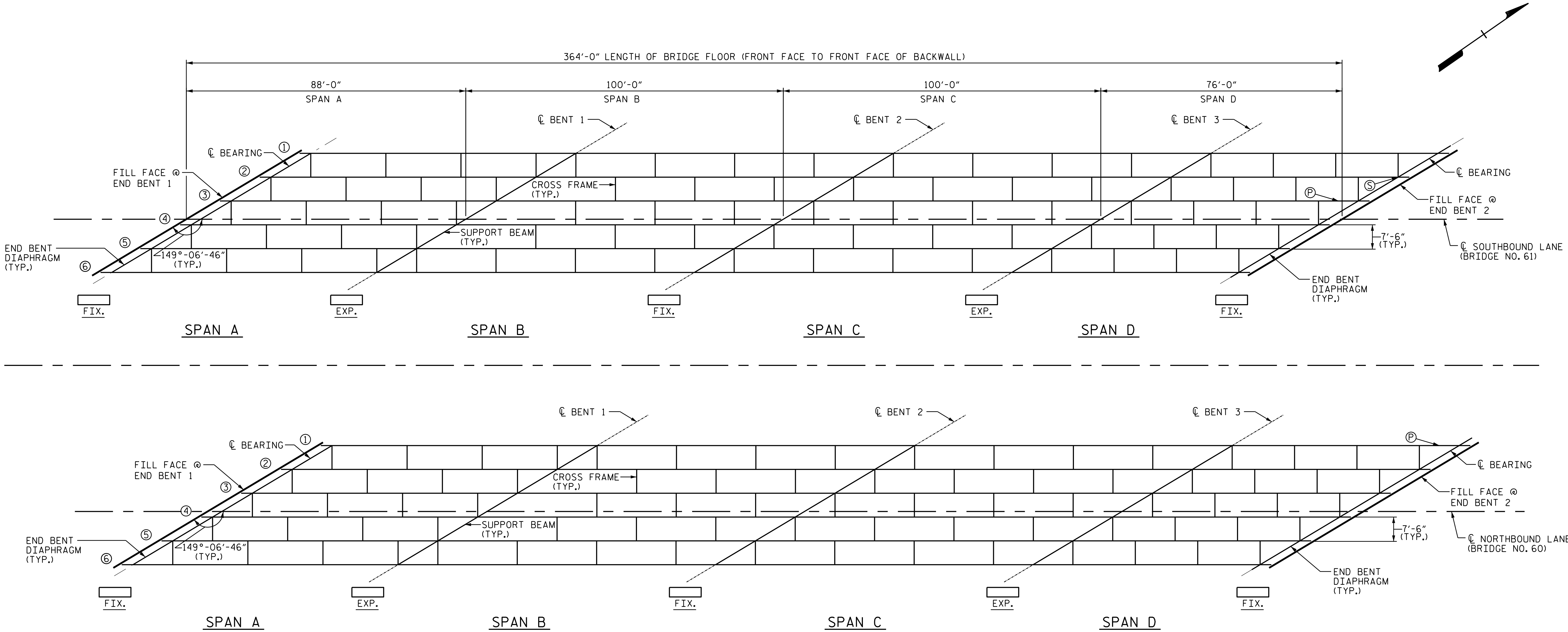
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW OF BRIDGE 60 & 61 ON I-85 OVER US HWY 15

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:32
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



KEY

① BEAM NUMBER
Ⓟ PLATE REPAIR
Ⓢ STIFFENER REPAIR

FRAMING PLANS

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO.: 60 & 61

DocuSigned by: AD50E1D97749565...
SEAL 40565
9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
FRAMING PLAN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : D.V. JOYNER DATE : 8/2016
CHECKED BY : T.M. SHERRILL DATE : 8/2016

09-SEP-2016 14:33
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTE

FOR REPAIR DETAILS, SEE "BEAM PLATING REPAIR DETAILS" SHEET.
FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

ANTICIPATED BEAM REPAIR LOCATIONS

BRIDGE 380060

SPAN	BEAM	LOCATION	DIM. "A"	DIM. "B"	COMMENTS
D	2	END BENT 2	7″	5″	STIFFENER ℙ REPAIR
D	2	END BENT 2	7″	5″	STIFFENER ℙ REPAIR
D	3	5′-6″ FROM END BENT 2	6″	9′-0″	INTERMEDIATE PLATING REPAIR - WEB PLATE = 5/16″; FLANGE PLATE 5/8″

ANTICIPATED BEAM REPAIR LOCATIONS

BRIDGE 380061

SPAN	BEAM	LOCATION	DIM. "A"	DIM. "B"	COMMENTS
D	1	6′ FROM END BENT 2	7″	6″	STIFFENER ℙ REPAIR

BILL OF MATERIAL

BEAM REPAIR
333 LBS.

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 60 & 61

DocuSigned by:
AD50B1D87749466...

NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM END AND INTERMEDIATE REPAIR LOCATIONS

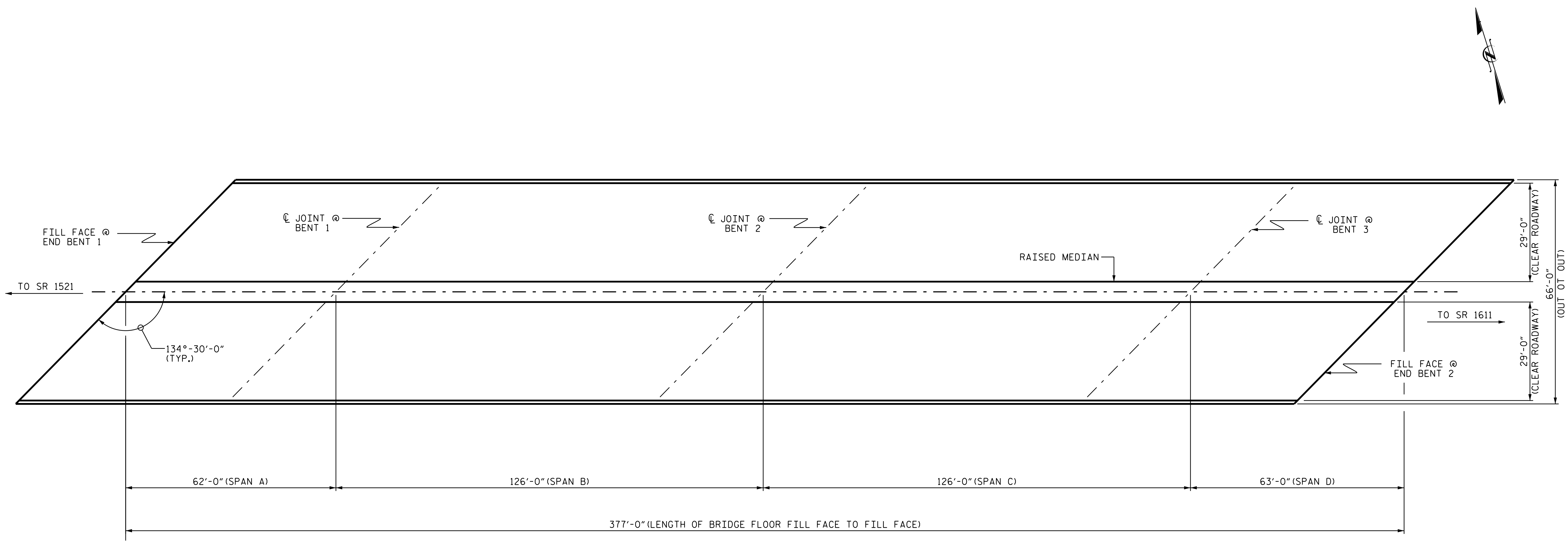
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SHEET NO. S-7
TOTAL SHEETS 42

DRAWN BY : P.C. BREWER DATE : 8-16
CHECKED BY : T.M. SHERRILL DATE : 8-16

09-SEP-2016 14:34
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN

CONSTRUCTION SEQUENCE:

1) - SUBSTRUCTURE REPAIRS & EPOXY RESIN INJECTION
2) - REPAIR STEEL BEAM ENDS, STIFFENERS
3) - CLEAN AND PAINT STRUCTURAL STEEL
4) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
5) - INSTALL STEEL KEEPER ANGLE ASSEMBLY
6) - EPOXY COATING OF BENT CAPS

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 35

NOTES:

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR STEEL KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

BRIDGE	SHOTCRETE REPAIR	EPOXY RESIN INJECTION	CLEANING & REPAINTING OF BRIDGE NO. 35	PAINTING CONTAINMENT FOR BRIDGE NO. 35	POLLUTION CONTROL	BEAM REPAIR	EPOXY COATING	STEEL KEEPER ANGLE ASSEMBLY	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO. 35
	CF	LF	LUMP SUM	LUMP SUM	LUMP SUM	LBS	SF	EACH	EACH
380035	97	173	LUMP SUM	LUMP SUM	LUMP SUM	1,575	1,131	6	72

DocuSigned by: AD50E1D07748565...

SEAL 18565 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

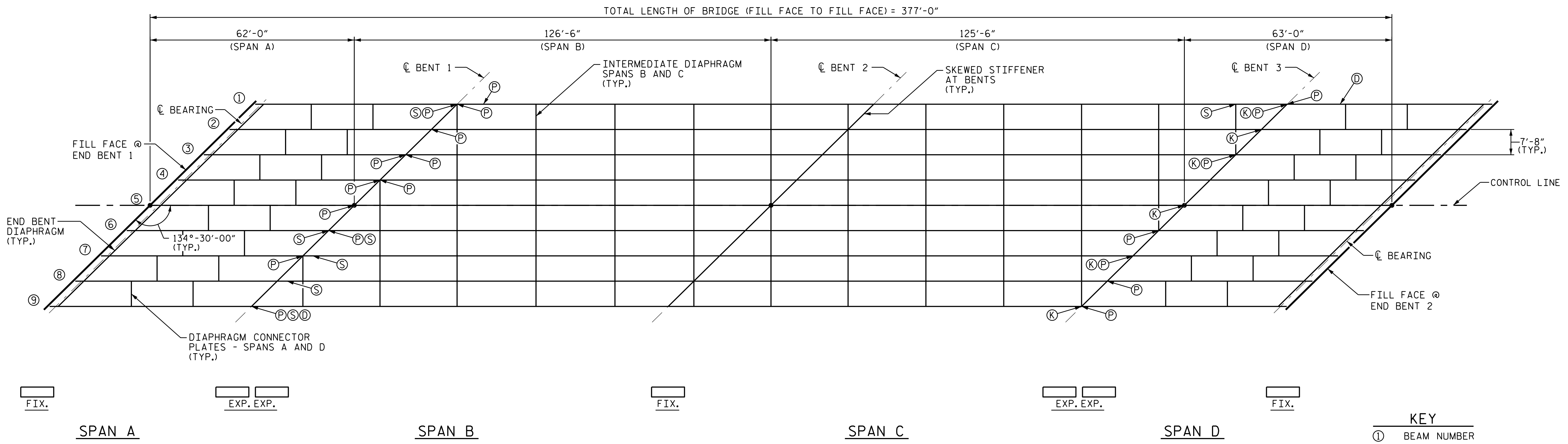
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW OF BRIDGE 35 ON US 158 OVER I-85

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-8
1				3				TOTAL SHEETS
2				4				42

DRAWN BY : S. T. SANDOR/M.WELDON DATE : 08/2016
CHECKED BY : T. SHERRILL DATE : 08/2016

09-SEP-2016 14:35
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



FRAMING PLAN

KEY

- ① BEAM NUMBER
- Ⓟ PLATE REPAIR
- Ⓢ STIFFENER REPAIR
- Ⓚ STEEL KEEP ANGLE ASSEMBLY
- Ⓓ SHOTCRETE REPAIR ON UNDERSIDE OF DECK OVERHANG

NOTES:

SHOTCRETE REPAIRS ARE REQUIRED ON UNDERSIDE OF DECK AT LOCATIONS INDICATED. SEE SUBSTRUCTURE PLAN SHEETS FOR MORE INFORMATION ON LOCATION AND SIZE OF SHOTCRETE AREAS AND DETAILED INFORMATION FOR SHOTCRETE REPAIRS.

BEARINGS SHALL BE CLEANED AND BLASTED AS PART OF CLEANING AND BLASTING FOR STRUCTURAL STEEL, BUT BEARINGS SHALL NOT BE PRIMED AND PAINTED WITH THE STRUCTURAL STEEL PAINT SYSTEM. AFTER BLASTING, BEARINGS SHALL BE PREPARED AND PAINTED AS REQUIRED BY THE HRCSA PAINT SYSTEM.

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO.: 35

DocuSigned by: AD50EBD977494CC...
SEAL 18565 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY M. SHERRILL
9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : D.V. JOYNER DATE : 7/2016
CHECKED BY : W. SMITH DATE : 7/2016

09-SEP-2016 14:36
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
mdlee7

NOTE
FOR REPAIR DETAILS, SEE ''BEAM PLATING REPAIR DETAILS'' SHEET.
FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM. ''A''	DIM. ''B''	COMMENTS
A	1	BENT 1	10″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 5/16″
A	1	BENT 1	5″	6″	STIFFENER ℄ REPAIR
A	3	BENT 1	3″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 5/16″
A	4	BENT 1	4″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 3/8″
A	5	BENT 1	5″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 5/16″
A	6 STIFF.	BENT 1	5″	6″	STIFFENER ℄ REPAIR
A	7	BENT 1	4″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 1/2″
B	1	BENT 1	3″	1′-0″	GRIND SMOOTH ''TEMPORARY'' REPAIR WELD; 1/4″ ℄ EACH SIDE OF ''RAT HOLE'' IN WEB
B	1	8′ FROM BENT 1	4″	12′-0″	INTERMEDIATE PLATING REPAIR - WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
B	2	BENT 1	4″	6′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
B	3	BENT 1	4″	6′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
B	4	BENT 1	5″	4′-0″	WEB ℄ = 7/16″; FLANGE ℄ = 1/4″
B	6	BENT 1	8″	7′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
B	6 STIFF.	BENT 1	5″	6″	STIFFENER ℄ REPAIR
B	7 STIFF.	3′ FROM BENT 1	4″	6″	STIFFENER ℄ REPAIR
B	8 STIFF.	3′ FROM BENT 1	4″	6″	STIFFENER ℄ REPAIR
B	9	BENT 1	5″	11′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
B	9 STIFF.	BENT 1	5″	6″	STIFFENER ℄ REPAIR
C	1	BENT 3	7″	6′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
C	1 STIFF.	4′ FROM BENT 3	5″	6″	STIFFENER ℄ REPAIR
C	3	BENT 3	7″	5′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
C	6	BENT 3	4″	3′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
C	7	BENT 3	3″	3′-0″	WEB ℄ = 1/4″; FLANGE ℄ = 1/4″
D	1	BENT 3	1′-9″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 5/16″
D	8	BENT 3	3″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 5/16″
D	9	BENT 3	9″	2′-0″	HAUNCH - WEB ℄ = 1/4″; FLANGE ℄ = 5/16″

BILL OF MATERIAL

BEAM REPAIR

1,575 LBS.

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 35

DocuSigned by:
AD50EBD677494CC...
NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL
9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM END AND INTERMEDIATE REPAIR LOCATIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : P.C. BREWER DATE : 7-16
CHECKED BY : T.M. SHERRILL DATE : 7-16

09-SEP-2016 14:36
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTE

FOR STEEL KEEPER ANGLE ASSEMBLY DETAILS, SEE "STEEL KEEPER ANGLE ASSEMBLY DETAILS" SHEET.
FOR STEEL KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.

ANTICIPATED STEEL KEEPER ANGLE ASSEMBLY LOCATIONS		
SPAN	BEAM	LOCATION
C	1	BENT 3
C	2	BENT 3
C	3	BENT 3
C	5	BENT 3
C	7	BENT 3
C	9	BENT 3

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 35

DocuSigned by:
AD50E1D877485...

NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

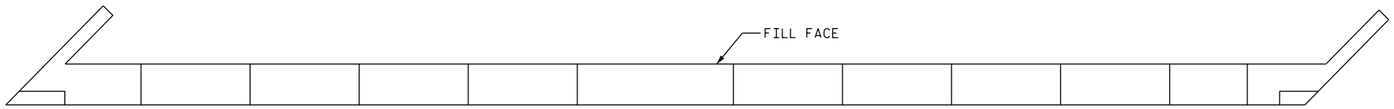
STEEL KEEPER ANGLE ASSEMBLY REPAIR LOCATIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

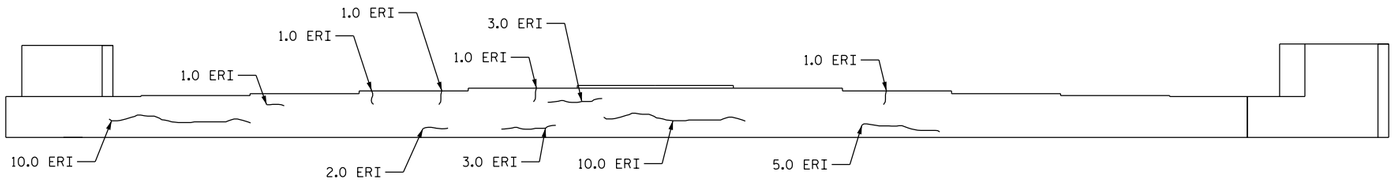
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 9-16
CHECKED BY : T.M. SHERRILL DATE : 9-16

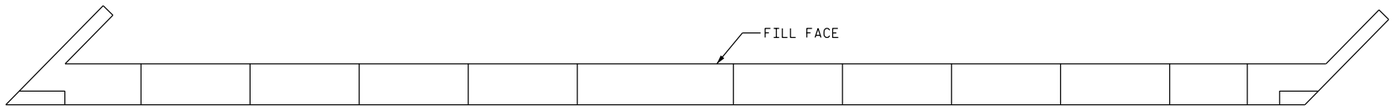
09-SEP-2016 14:37
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



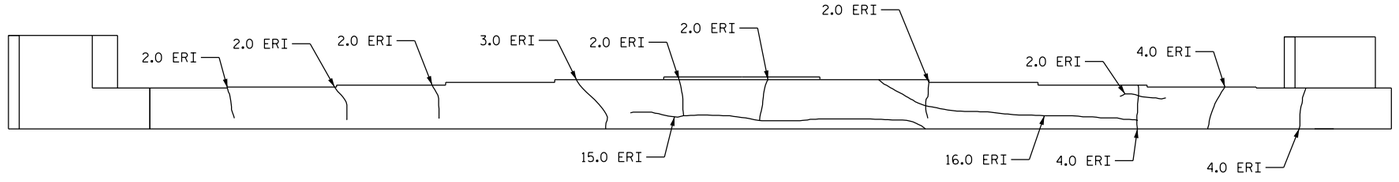
PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		38.0		
EPOXY COATING	AREA SF			
CAP	174.0			

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		60.0		
EPOXY COATING	AREA SF			
CAP	174.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN, AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

▨ SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 35

DocuSigned by:
AD50E1D97748566...

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

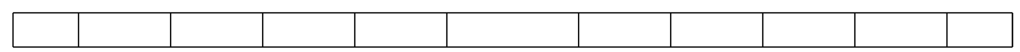
SUBSTRUCTURE
END BENT 1 & 2

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			42

09-SEP-2016 14:38
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN OF CAP
TOP

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

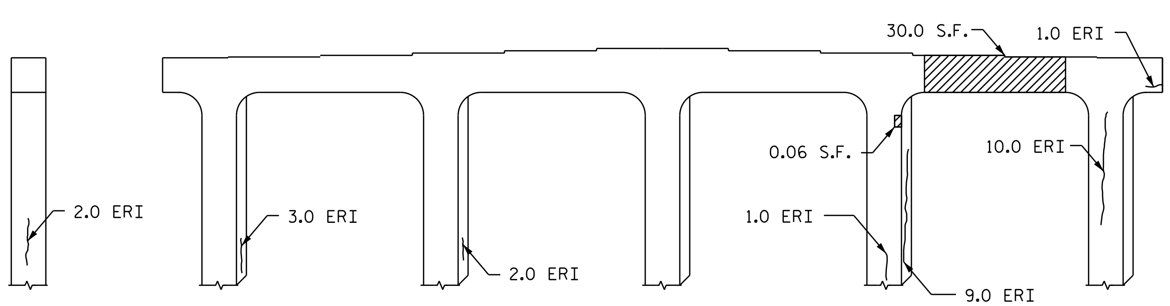
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

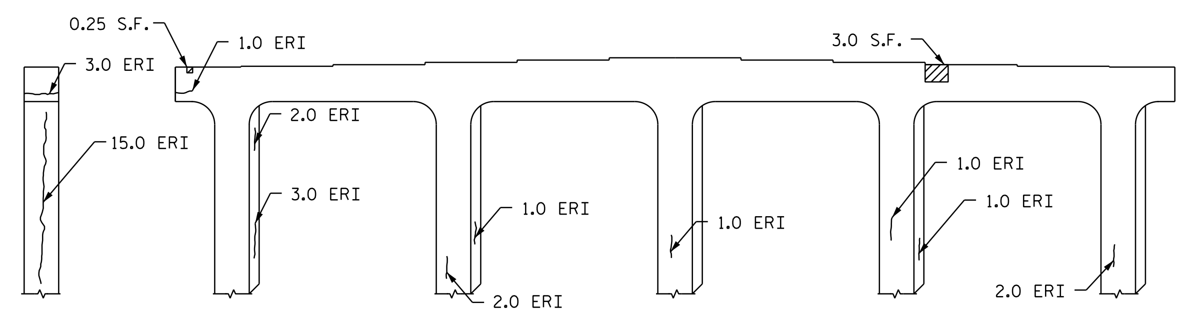
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	33.31	15.27		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	0.0	0.0		
UNDERDECK - SPAN 2, RIGHT OVERHANG, 3 FEET FROM BENT 1	4.0	1.83		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		5.0		
COLUMN		55.0		
EPOXY COATING	AREA SF			
CAP	261.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



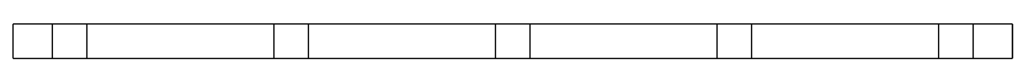
END VIEW
NORTH SIDE

ELEVATION
WEST SIDE



END VIEW
SOUTH SIDE

ELEVATION
EAST SIDE



PLAN OF CAP
BOTTOM

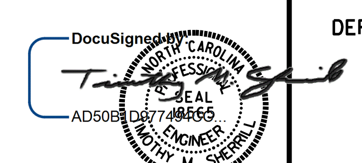
SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE **COUNTY**

BRIDGE NO. 35



9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 08/2016
CHECKED BY : T.M.SHERRILL DATE : 08/2016

09-SEP-2016 14:40
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

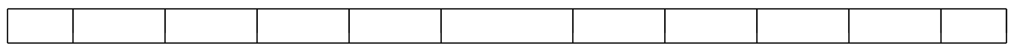
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

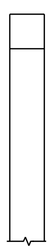
REPAIR QUANTITY TABLE

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	0.5	0.23		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		7.0		
EPOXY COATING	AREA SF			
CAP	261.0			

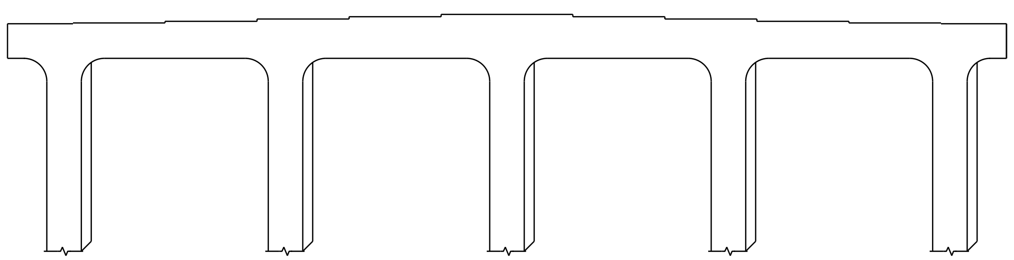
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



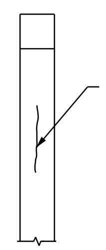
PLAN OF CAP
TOP



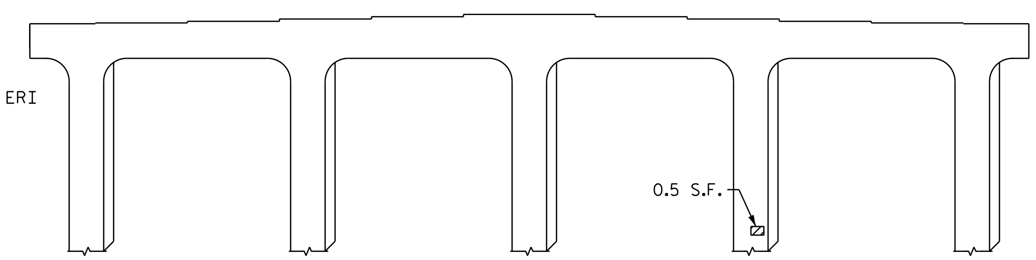
END VIEW
NORTH SIDE



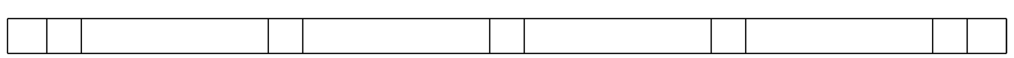
ELEVATION
WEST SIDE



END VIEW
SOUTH SIDE



ELEVATION
EAST SIDE



PLAN OF CAP
BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE **COUNTY**

BRIDGE NO. 35

DocuSigned by:
AD50B D0774F600...
SEAL 18565

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 08/2016
CHECKED BY : T.M.SHERRILL DATE : 08/2016

09-SEP-2016 14:41
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

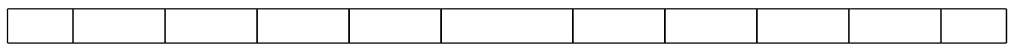
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

NO REPAIR NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

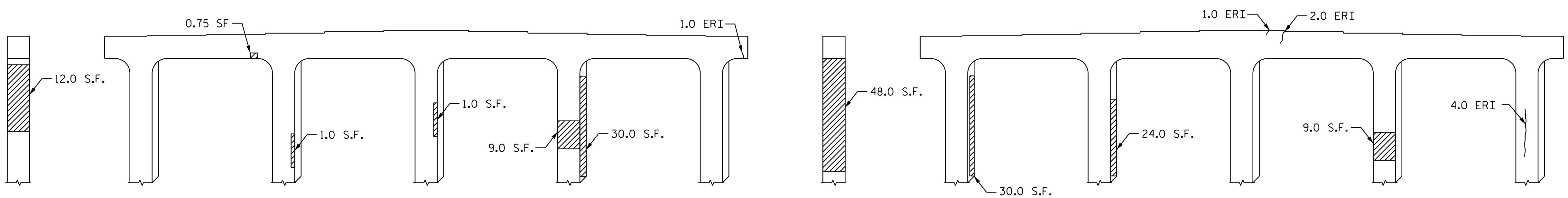
REPAIR QUANTITY TABLE

BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.75	0.34		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	164.0	75.16		
UNDERDECK - SPAN 4, LEFT OVERHANG, 6 FEET FROM BENT 3	8.0	3.67		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		4.0		
COLUMN		4.0		
EPOXY COATING	AREA SF			
CAP	261.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF CAP
TOP

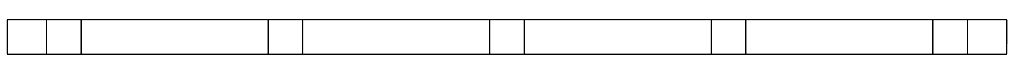


END VIEW
NORTH SIDE

ELEVATION
WEST SIDE

END VIEW
SOUTH SIDE

ELEVATION
EAST SIDE



PLAN OF CAP
BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE **COUNTY**

BRIDGE NO. 35

DocuSigned by:
AD50E1D37746466...
NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

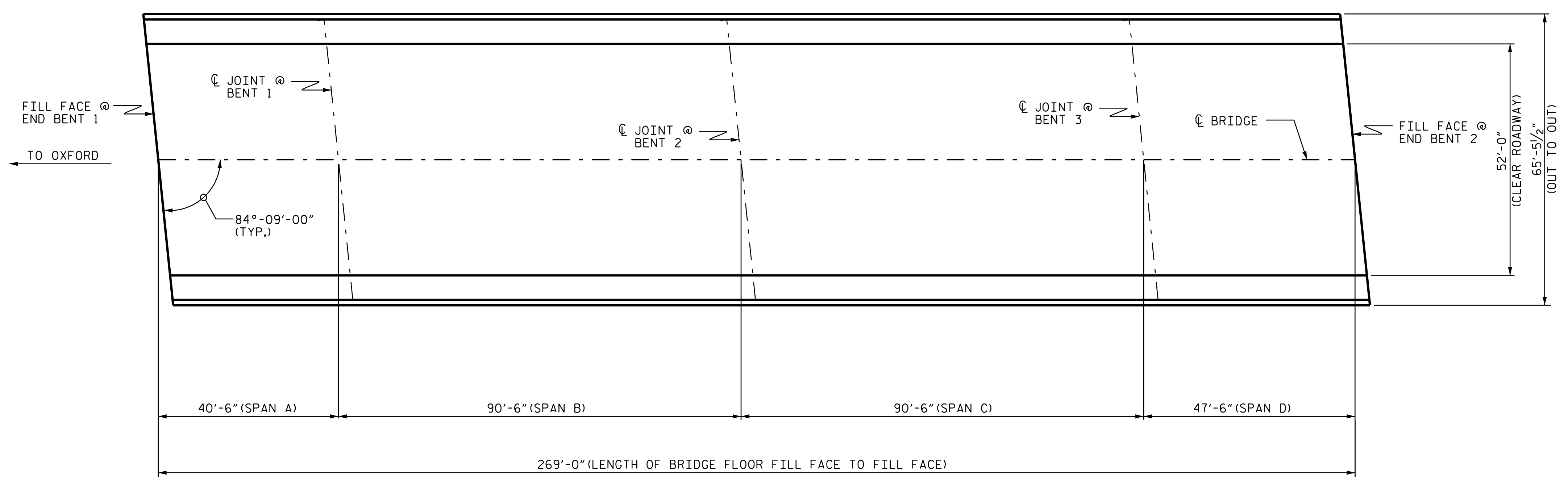
SUBSTRUCTURE

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:42
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN

NOTES

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

CONSTRUCTION SEQUENCE:

1) - SUBSTRUCTURE REPAIRS & EPOXY RESIN INJECTION
2) - REPAIR STEEL BEAM ENDS, STIFFENERS
3) - CLEAN AND PAINT STRUCTURAL STEEL
4) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
5) - EPOXY COATING OF BENT CAPS

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 44

TOTAL BILL OF MATERIAL

BRIDGE	SHOTCRETE REPAIR	EPOXY RESIN INJECTION	CLEANING & REPAINTING OF BRIDGE NO. 44	PAINTING CONTAINMENT FOR BRIDGE NO. 44	POLLUTION CONTROL	BEAM REPAIR	EPOXY COATING	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO. 44
	CF	LF	LUMP SUM	LUMP SUM	LUMP SUM	LBS	SF	EACH
380044	72	69	LUMP SUM	LUMP SUM	LUMP SUM	2,369	831	88

DocuSigned by:
AD50B1D87749466...
NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

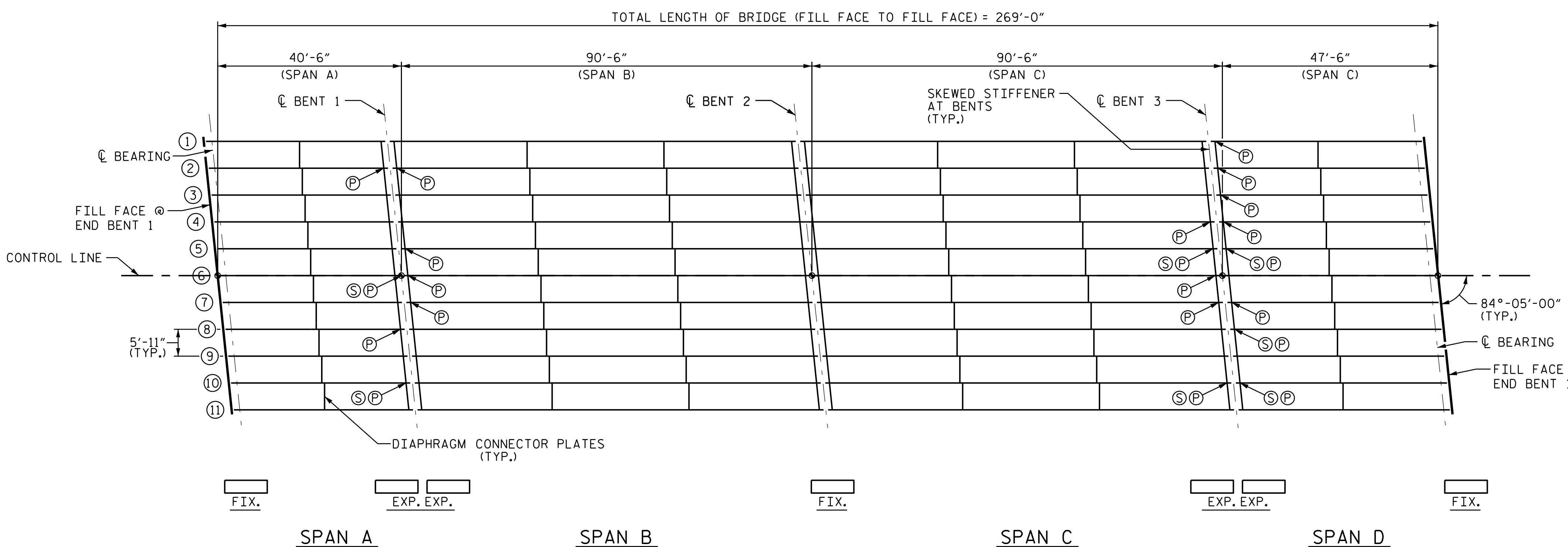
PLAN VIEW OF BRIDGE 44 ON NC 96 OVER I-85

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : S. T. SANDOR/M.WELDON DATE : 08/2016
CHECKED BY : T. SHERRILL DATE : 08/2016

09-SEP-2016 14:43
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



FRAMING PLAN

KEY

① BEAM NUMBER

Ⓟ PLATE REPAIR

Ⓢ STIFFENER REPAIR

NOTE:

BEARINGS SHALL BE CLEANED AND BLASTED AS PART OF CLEANING AND BLASTING FOR STRUCTURAL STEEL, BUT BEARINGS SHALL NOT BE PRIMED AND PAINTED WITH THE STRUCTURAL STEEL PAINT SYSTEM. AFTER BLASTING, BEARINGS SHALL BE PREPARED AND PAINTED AS REQUIRED BY THE HRCSA PAINT SYSTEM.

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO.: 44

DocuSigned by: AD50B...D07749...

NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : D.V. JOYNER DATE : 7/2016

CHECKED BY : W. SMITH DATE : 7/2016

09-SEP-2016 14:44
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTE

FOR REPAIR DETAILS, SEE "BEAM PLATING REPAIR DETAILS" SHEET.
FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM. "A"	DIM. "B"	COMMENTS
A	2	BENT 1	1'-0"	5'-0"	WEB PL = 1/4"; NO FLANGE PL
A	6 STIFF.	BENT 1	5"	6"	STIFFENER PL REPAIR
A	6	BENT 1	8"	3'-0"	WEB PL = 1/4"; FLANGE PL = 1/4"
A	8	BENT 1	6"	3'-0"	WEB PL = 1/4"; FLANGE PL = 1/4"
A	10	BENT 1	7"	3'-0"	WEB PL = 5/16"; FLANGE PL = 1/4"
A	10 STIFF.	BENT 1	5"	6"	STIFFENER PL REPAIR
B	2	BENT 1	6"	8'-0"	WEB PL = 1/4"; FLANGE PL = 1/4"
B	5	BENT 1	3"	3'-0"	NO WEB PL; FLANGE PL = 1/4"
B	6	BENT 1	21"	3'-0"	WEB PL = 1/4"; FLANGE PL = 1/4"
B	7	BENT 1	11"	1'-0"	NO WEB PL; FLANGE PL = 1/4"
C	4	BENT 3	1'-1"	3'-0"	NO WEB PL; FLANGE PL = 1/4"
C	5	BENT 3	5"	4'-0"	WEB PL = 1/4"; FLANGE PL = 1/4"
C	5 STIFF.	BENT 3	4"	6"	STIFFENER PL REPAIR
C	5 STIFF.	BENT 3	4"	6"	STIFFENER PL REPAIR
C	6	BENT 3	1'-1"	3'-0"	WEB PL = 5/16"; FLANGE PL = 5/16"
C	7	BENT 3	8"	5'-0"	WEB PL = 1/4"; FLANGE PL = 3/8"
C	7 STIFF.	BENT 3	5"	6"	STIFFENER PL REPAIR
C	10	BENT 3	4"	5'-0"	WEB PL = 1/4"; FLANGE PL = 3/8"
C	10 STIFF.	BENT 3	5"	6"	STIFFENER PL REPAIR
D	1	BENT 3	5"	3'-0"	WEB PL = 1/4"; NO FLANGE PL
D	2	BENT 3	5"	4'-0"	WEB PL = 5/16"; FLANGE PL = 3/8"
D	3	BENT 3	6"	4'-0"	WEB PL = 1/4"; FLANGE PL = 3/8"
D	4	BENT 3	6"	4'-0"	WEB PL = 1/4"; FLANGE PL = 1/4"
D	5	BENT 3	8"	5'-0"	WEB PL = 1/4"; FLANGE PL = 3/8"
D	5 STIFF.	BENT 3	5"	6"	STIFFENER PL REPAIR
D	7	BENT 3	6"	1'-0"	WEB PL = 1/4"; FLANGE PL = 3/8"
D	8	BENT 3	2'-0"	7'-0"	WEB PL = 1/4"; FLANGE PL = 3/8"
D	8 STIFF.	BENT 3	5"	6"	STIFFENER PL REPAIR
D	10	BENT 3	2'-0"	8'-0"	WEB PL = 1/4"; FLANGE PL = 7/16"
D	10 STIFF.	BENT 3	6"	6"	STIFFENER PL REPAIR

BILL OF MATERIAL

BEAM REPAIR
2,369

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 44

DocuSigned by:

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

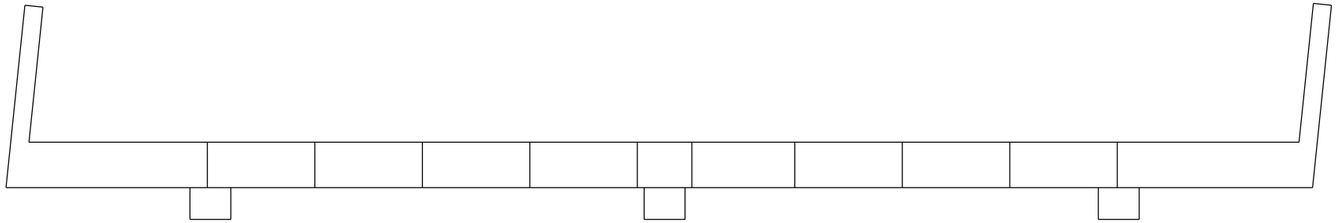
BEAM END AND INTERMEDIATE REPAIR LOCATIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

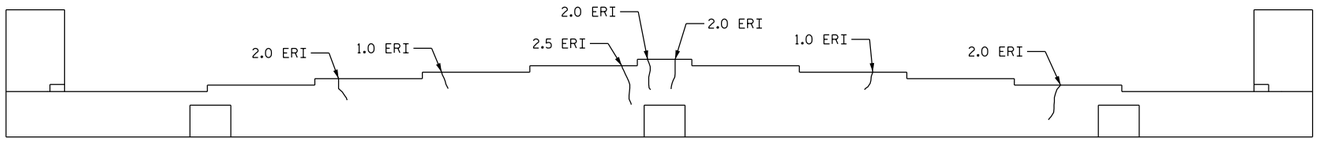
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : P.C. BREWER DATE : 8-16
CHECKED BY : T.M. SHERRILL DATE : 8-16

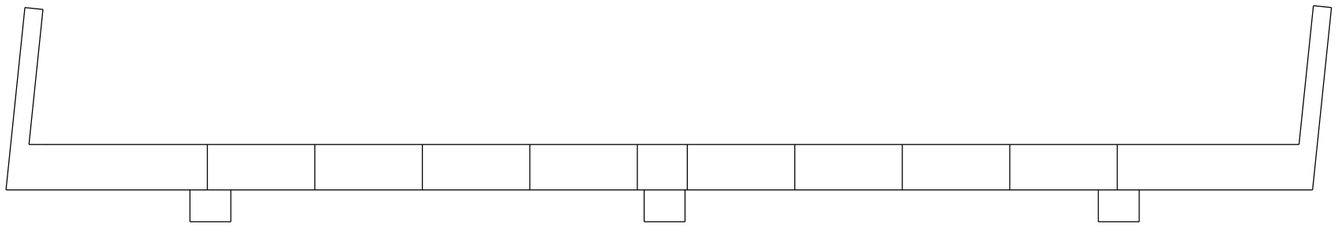
09-SEP-2016 14:44
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



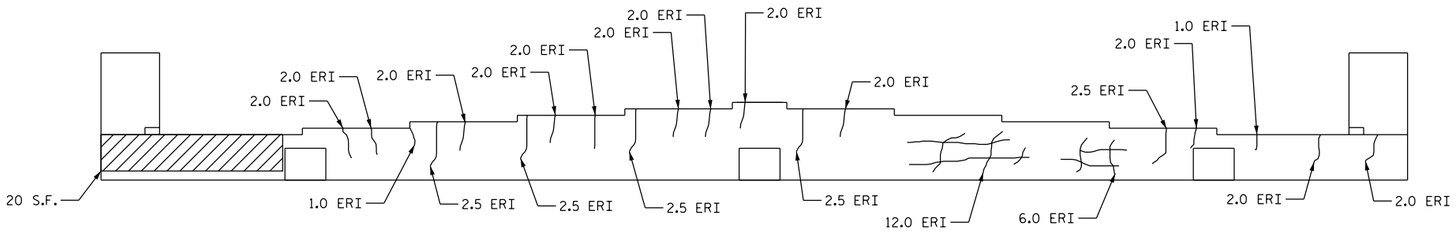
PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		12.5		
EPOXY COATING	AREA SF			
CAP	132.0			

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	20.0	9.17		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		56.5		
EPOXY COATING	AREA SF			
CAP	132.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5483

GRANVILLE COUNTY

BRIDGE NO. 44

DocuSigned by:
AD50EBD87748568...

NORTH CAROLINA PROFESSIONAL SEAL 038568 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1 & 2

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-19
1			3			TOTAL SHEETS	
2			4			42	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:45
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AMD DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

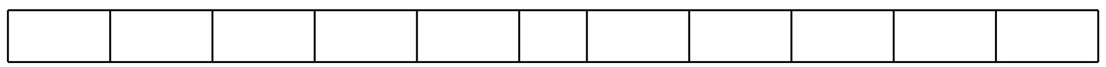
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

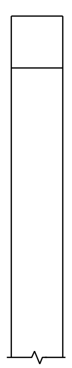
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	21.0	9.63		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	189.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



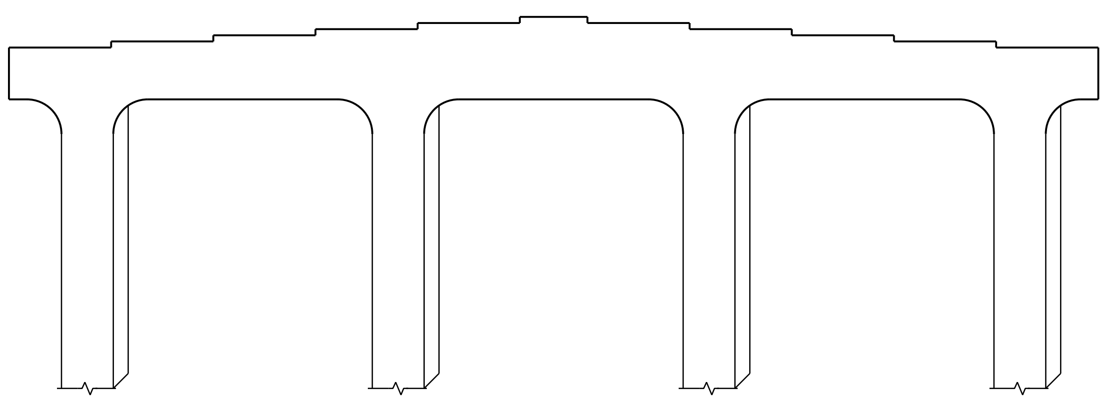
PLAN OF CAP

TOP



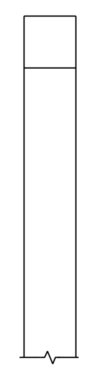
END VIEW

WEST SIDE



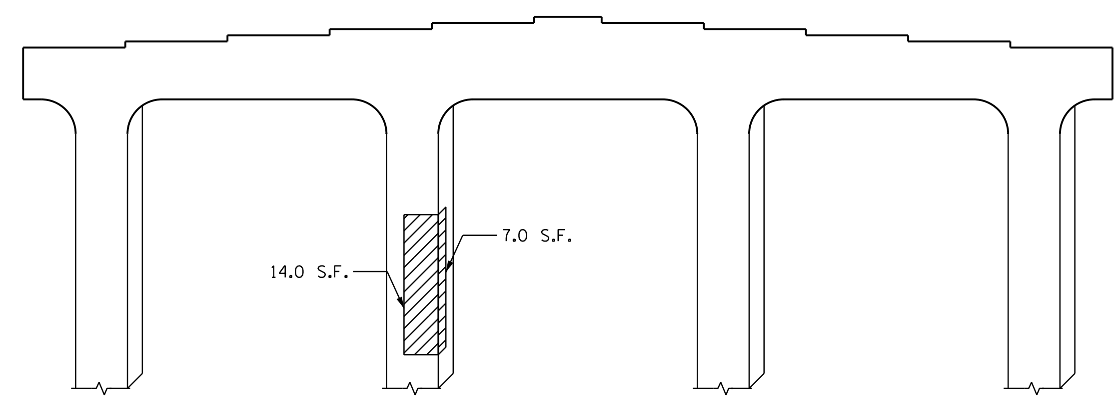
ELEVATION

SOUTH SIDE



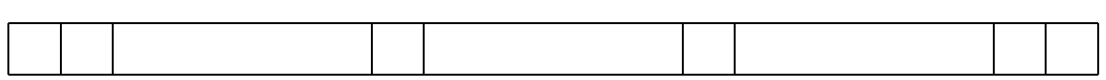
END VIEW

EAST SIDE



ELEVATION

NORTH SIDE



PLAN OF CAP

BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 44

DocuSigned by: AD50B1D8774B455

SEAL 18565 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

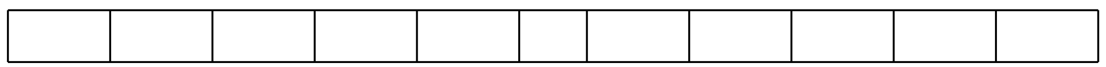
SUBSTRUCTURE

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:46
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN OF CAP

TOP

NO REPAIRS NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AMD DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

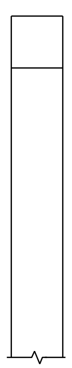
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

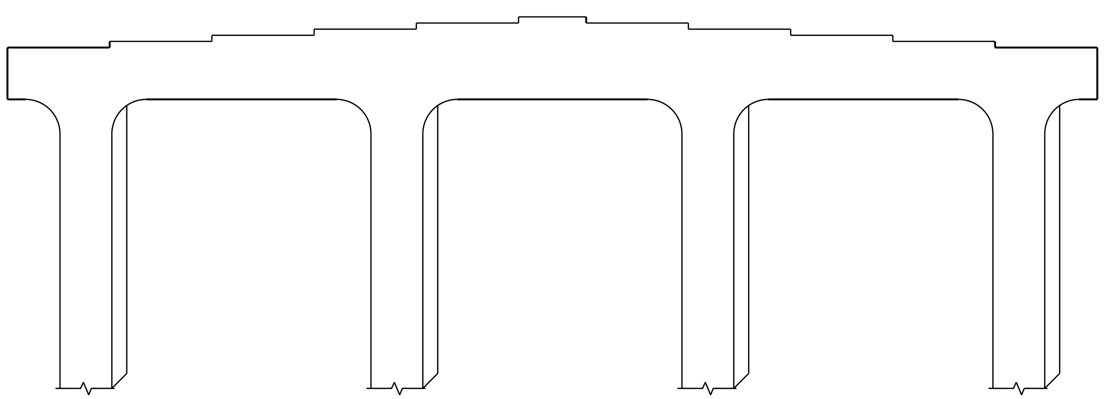
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	189.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



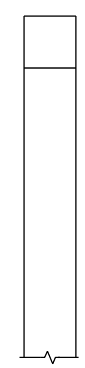
END VIEW

WEST SIDE



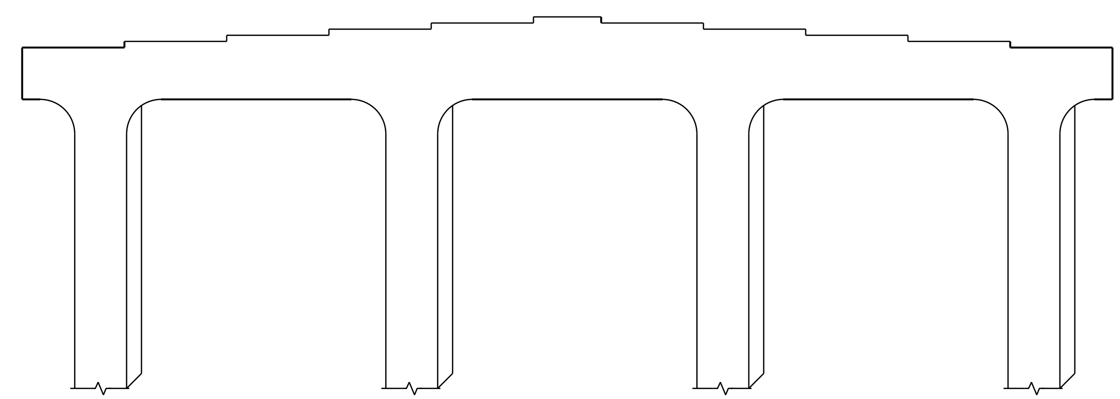
ELEVATION

SOUTH SIDE



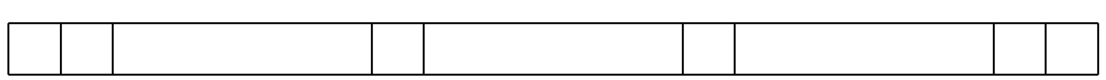
END VIEW

EAST SIDE



ELEVATION

NORTH SIDE



PLAN OF CAP

BOTTOM

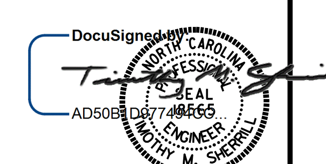
SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 44



9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

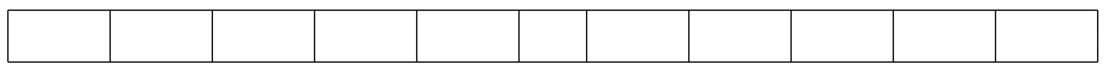
SUBSTRUCTURE

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:47
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN OF CAP

TOP

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AMD DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

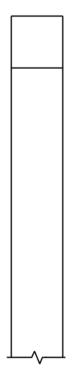
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

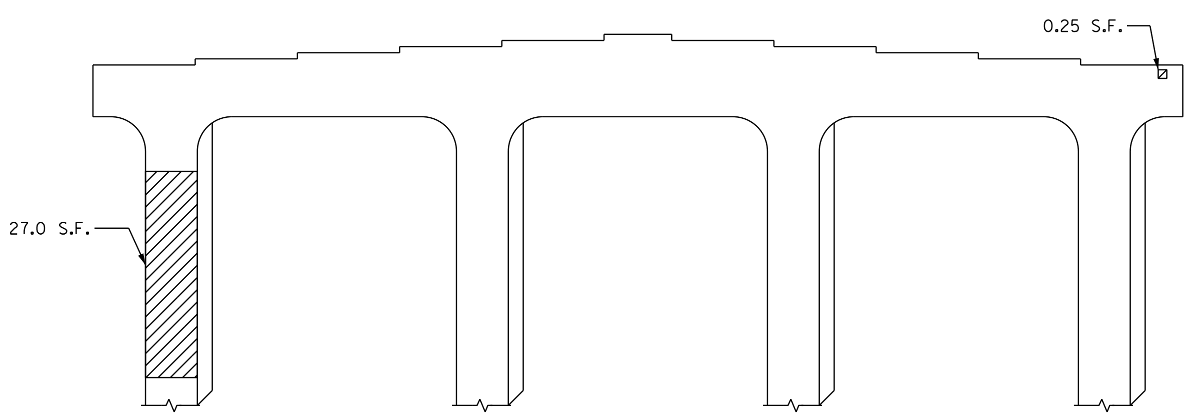
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	24.25	11.11		
CAP (HORIZONTAL FACE)	63.0	28.87		
COLUMN (VERTICAL FACE)	27.0	12.38		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	189.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



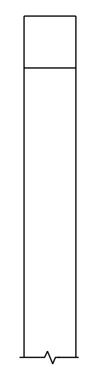
END VIEW

WEST SIDE



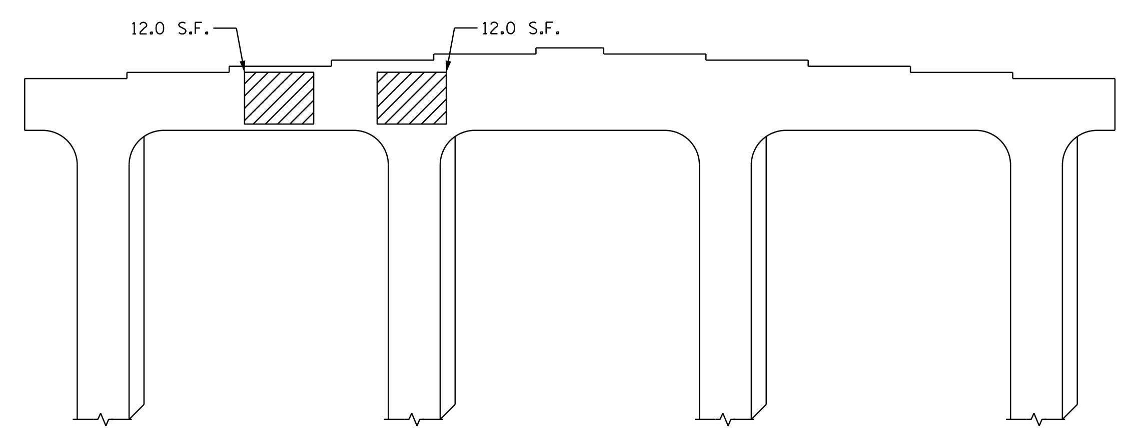
ELEVATION

SOUTH SIDE



END VIEW

EAST SIDE



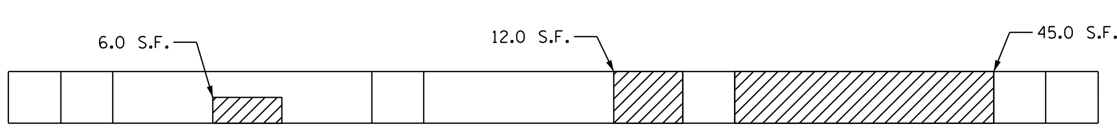
ELEVATION

NORTH SIDE

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 44



PLAN OF CAP

BOTTOM

▨ SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

DocuSigned by:

AD50B...

SEAL 18565 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

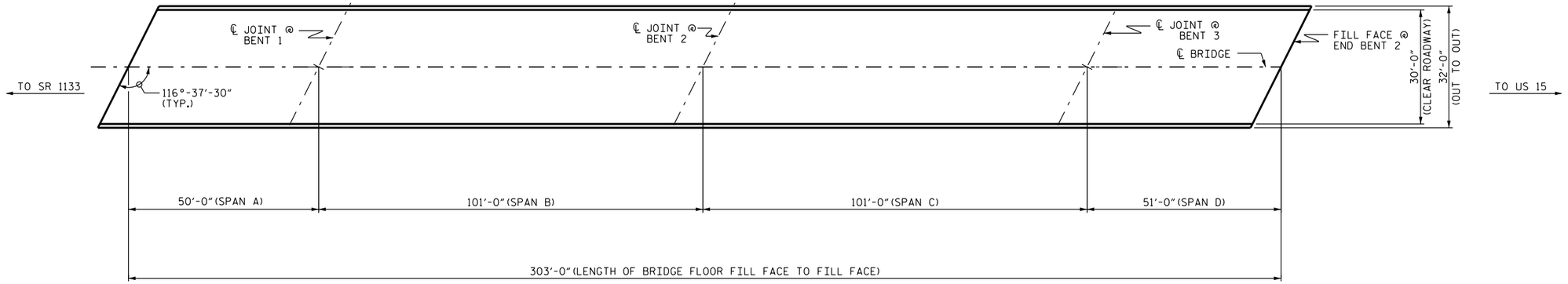
BENT 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:48
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN

NOTES

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR STEEL KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.

CONSTRUCTION SEQUENCE:

1) - SUBSTRUCTURE REPAIRS & EPOXY RESIN INJECTION
2) - CLEAN AND PAINT STRUCTURAL STEEL
3) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
4) - INSTALL STEEL KEEPER ANGLE ASSEMBLY
5) - EPOXY COATING OF BENT CAPS

TOTAL BILL OF MATERIAL

BRIDGE	SHOTCRETE REPAIR	EPOXY RESIN INJECTION	CLEANING & REPAINTING OF BRIDGE NO. 57	PAINTING CONTAINMENT FOR BRIDGE NO. 57	POLLUTION CONTROL	EPOXY COATING	STEEL KEEPER ANGLE ASSEMBLY	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO. 57
	CF	LF	LUMP SUM	LUMP SUM	LUMP SUM	SF	EACH	EACH
380057	41	34	LUMP SUM	LUMP SUM	LUMP SUM	455	5	48

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 57

DocuSigned by: AD50EBD077454C8...

NORTH CAROLINA PROFESSIONAL SEAL 18268 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

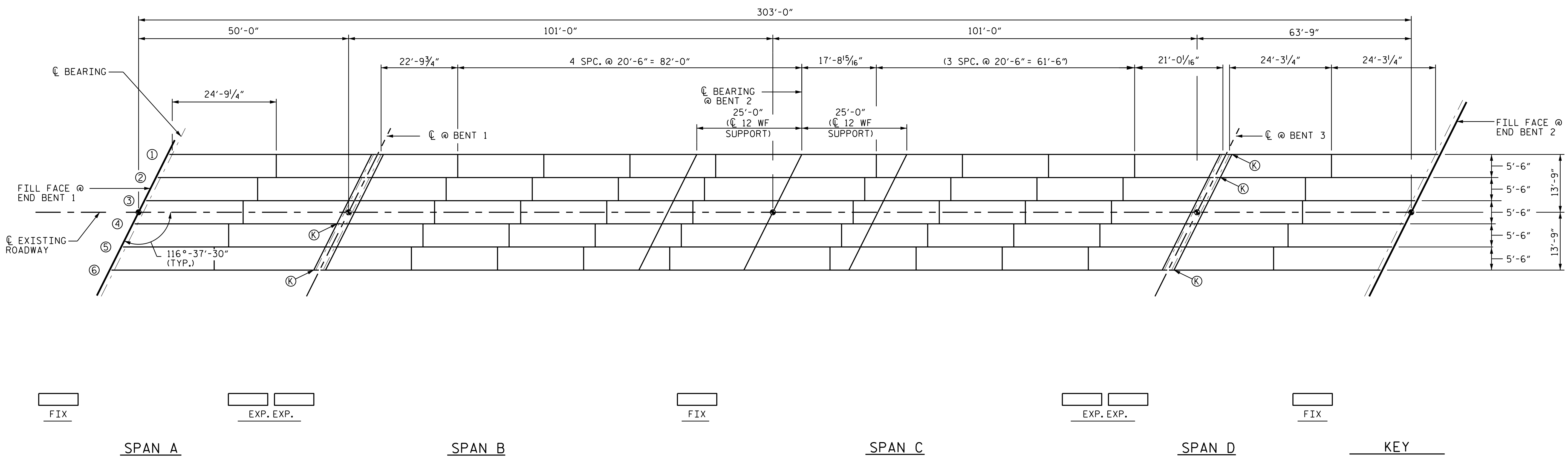
PLAN VIEW OF BRIDGE 57 ON SR 1192 OVER I-85

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			42

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR/M.WELDON DATE : 08/2016
CHECKED BY : T. SHERRILL DATE : 08/2016

09-SEP-2016 14:48
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



KEY

① BEAM NUMBER

Ⓚ STEEL KEEPER ANGLE ASSEMBLY

FRAMING PLAN

NOTE:

BEARINGS SHALL BE CLEANED AND BLASTED AS PART OF CLEANING AND BLASTING FOR STRUCTURAL STEEL, BUT BEARINGS SHALL NOT BE PRIMED AND PAINTED WITH THE STRUCTURAL STEEL PAINT SYSTEM. AFTER BLASTING, BEARINGS SHALL BE PREPARED AND PAINTED AS REQUIRED BY THE HRCSA PAINT SYSTEM.

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO.: 57

DocuSigned by: AD50B...

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M. WELDON DATE : 7/2016
CHECKED BY : W. SMITH DATE : 7/2016

09-SEP-2016 14:49
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTE

FOR STEEL KEEPER ANGLE ASSEMBLY DETAILS, SEE "STEEL KEEPER ANGLE ASSEMBLY DETAILS" SHEET.
FOR STEEL KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.

ANTICIPATED STEEL KEEPER ANGLE ASSEMBLY LOCATIONS

SPAN	BEAM	LOCATION
A	4	BENT 1
A	6	BENT 1
D	1	BENT 3
D	2	BENT 3
D	6	BENT 3

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 57

DocuSigned by:
AD50E1D97749565
NORTH CAROLINA PROFESSIONAL SEAL 48565 ENGINEER TIMOTHY M. SHERRILL
9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

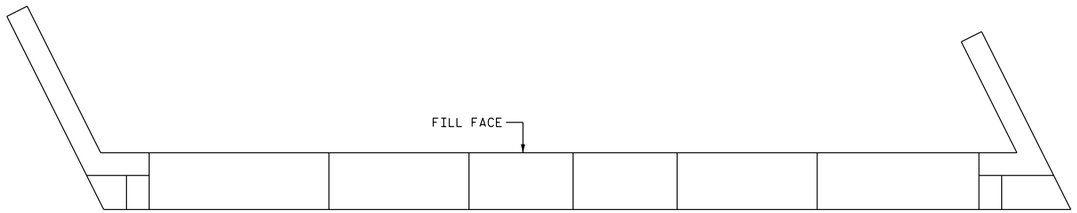
STEEL KEEPER ANGLE ASSEMBLY REPAIR LOCATIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

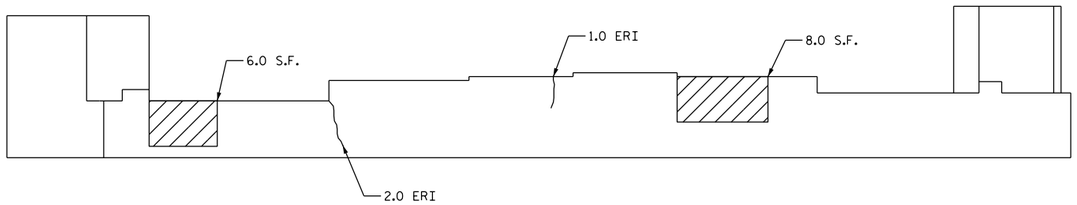
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 9-16
CHECKED BY : T.M. SHERRILL DATE : 9-16

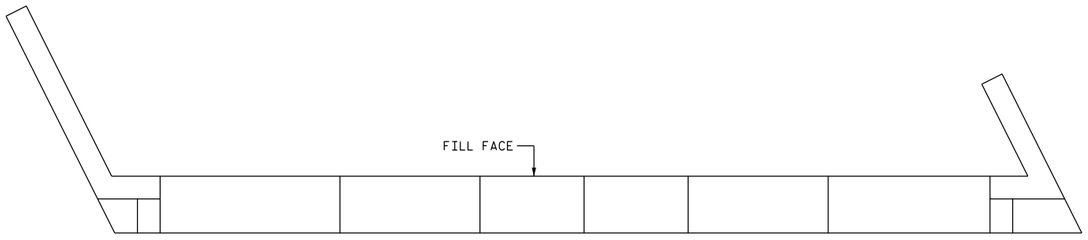
09-SEP-2016 14:50
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



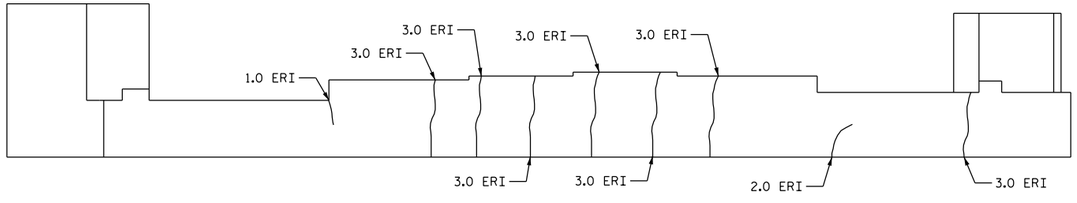
PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	14.0	6.42		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		3.0		
EPOXY COATING	AREA SF			
CAP	73.0			

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		24.0		
EPOXY COATING	AREA SF			
CAP	73.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5483

GRANVILLE **COUNTY**

BRIDGE NO. 57

SHOTCRETE REPARI

ERI EPOXY RESIN INJECTION

DocuSigned by:
AD50E1D977484B6...

NORTH CAROLINA PROFESSIONAL SEAL 18566 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			42

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:51
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

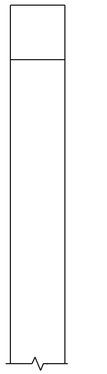
THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

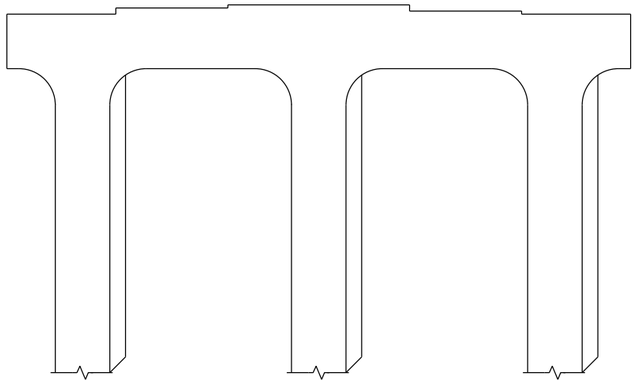
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	4.0	1.83		
CAP (HORIZONTAL FACE)	2.0	0.92		
COLUMN (VERTICAL FACE)	15.0	6.88		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	103.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

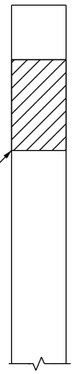
PLAN OF CAP
TOP



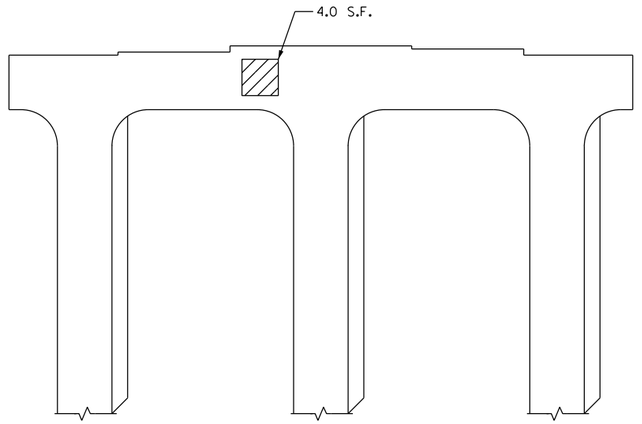
END VIEW
NORTH SIDE



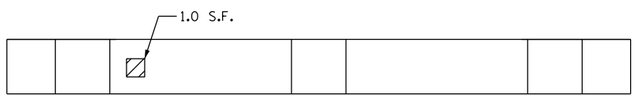
ELEVATION
WEST SIDE



END VIEW
SOUTH SIDE



ELEVATION
EAST SIDE



PLAN OF CAP
BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 57

DocuSigned by:
AD50B...D9774...

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:51
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			42

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

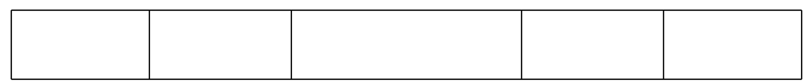
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

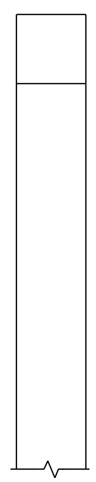
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	2.5	1.15		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	1.25	0.57		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		2.5		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	103.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



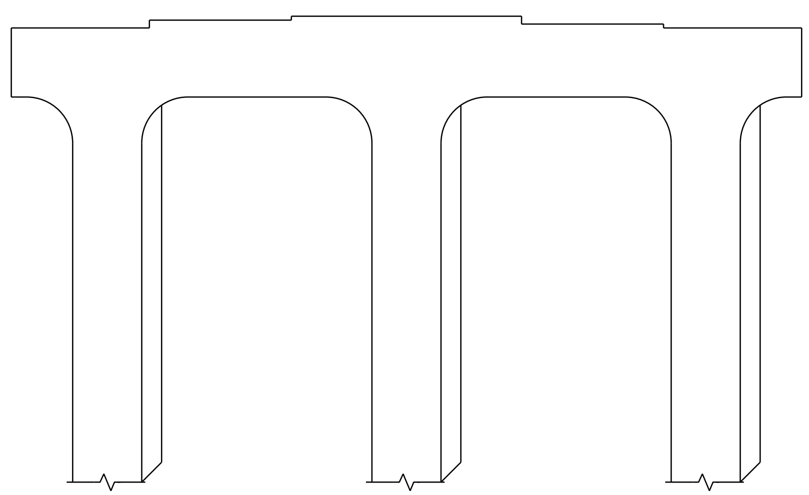
PLAN OF CAP

TOP



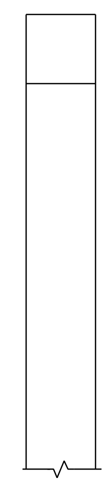
END VIEW

NORTH SIDE



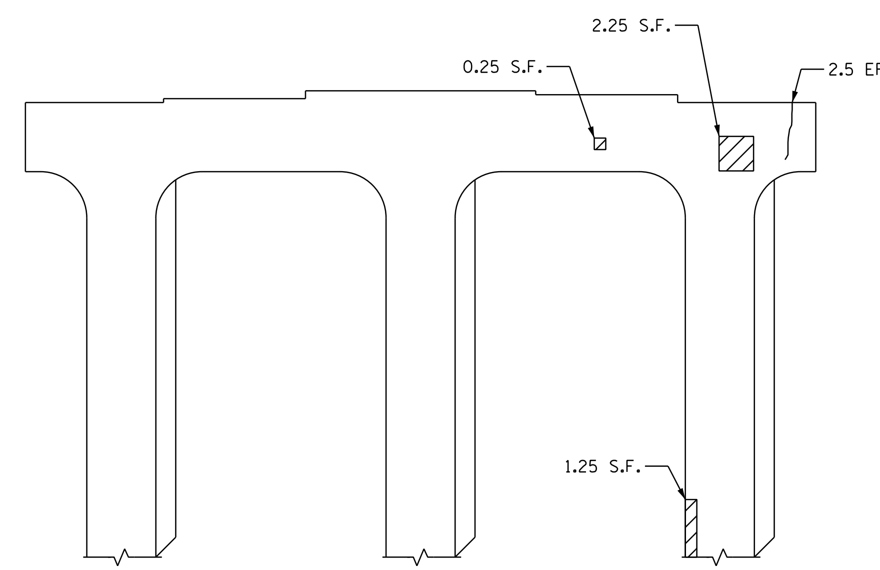
ELEVATION

WEST SIDE



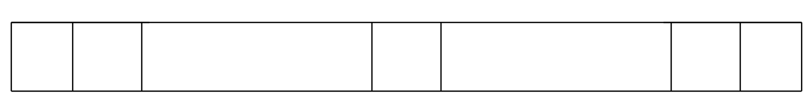
END VIEW

SOUTH SIDE



ELEVATION

EAST SIDE



PLAN OF CAP

BOTTOM

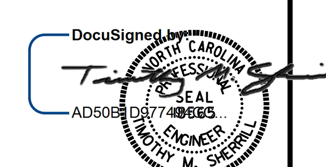
SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 57



9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

BENT 2

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-28
1			3				TOTAL SHEETS
2			4				42

DRAWN BY : M.A.LEE DATE : 8/2016

CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:52
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

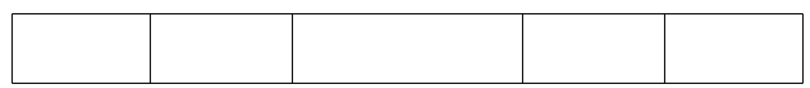
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

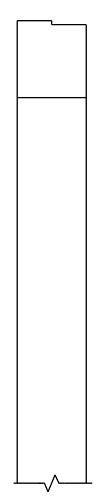
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	49.0	22.46		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		4.0		
EPOXY COATING	AREA SF			
CAP	103.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



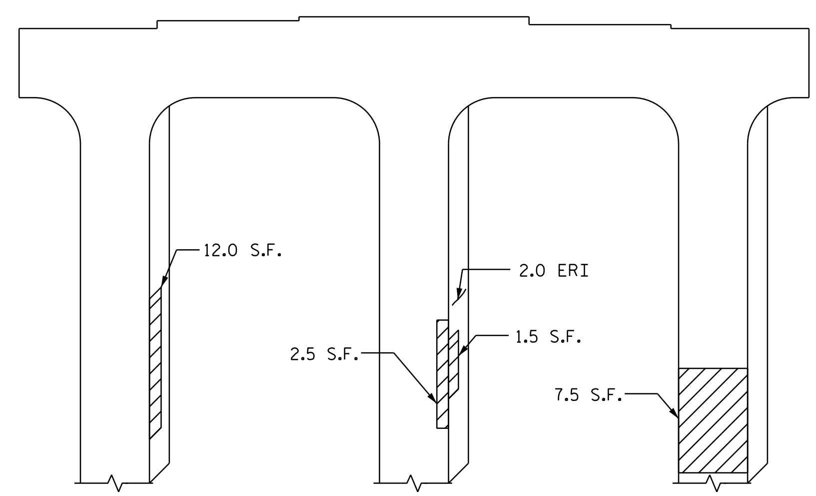
PLAN OF CAP

TOP



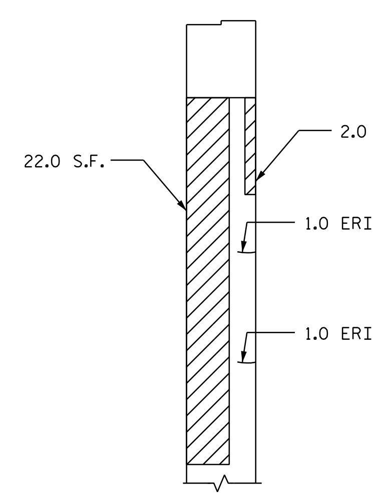
END VIEW

NORTH SIDE



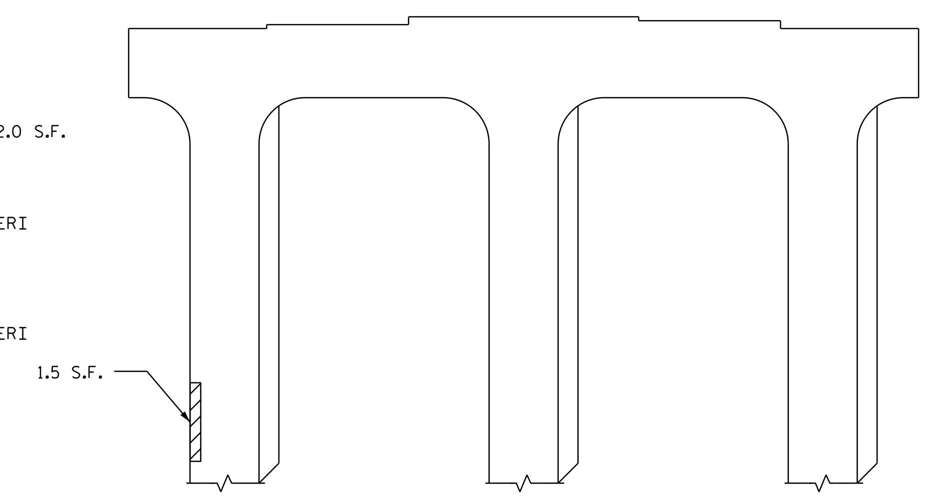
ELEVATION

WEST SIDE



END VIEW

SOUTH SIDE



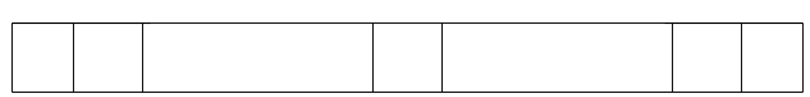
ELEVATION

EAST SIDE

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 57

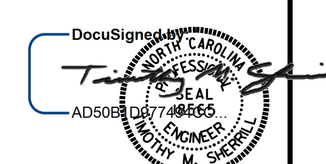


PLAN OF CAP

BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION



9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

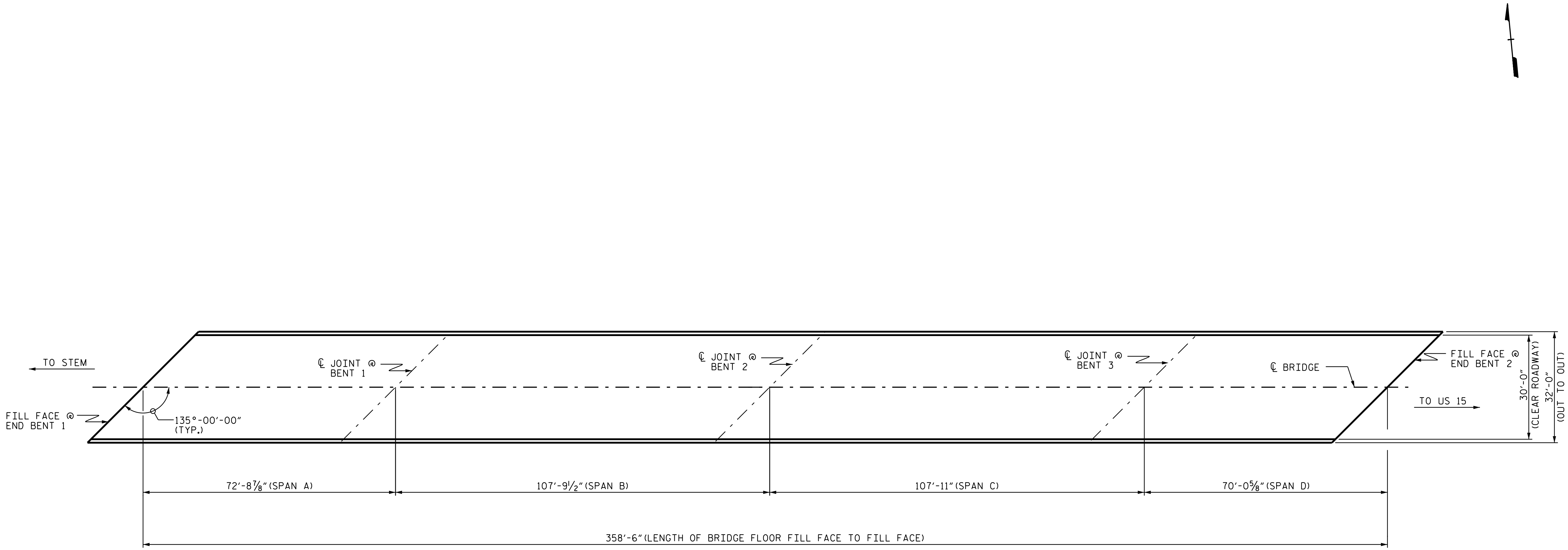
BENT 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-29
1			3				TOTAL SHEETS
2			4				42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:53
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN

NOTES

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

CONSTRUCTION SEQUENCE:

1) - SUBSTRUCTURE REPAIRS & EPOXY RESIN INJECTION
2) - CLEAN AND PAINT STRUCTURAL STEEL
3) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
4) - EPOXY COATING OF BENT CAPS

TOTAL BILL OF MATERIAL

BRIDGE	SHOTCRETE REPAIR	EPOXY RESIN INJECTION	CLEANING & REPAINTING OF BRIDGE NO. 54	PAINTING CONTAINMENT FOR BRIDGE NO. 54	POLLUTION CONTROL	EPOXY COATING	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO. 54
	CF	LF	LUMP SUM	LUMP SUM	LUMP SUM	SF	EACH
380054	23	152	LUMP SUM	LUMP SUM	LUMP SUM	582	40

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 54

DocuSigned by:
AD50B0917484A0E
SEAL 19565 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

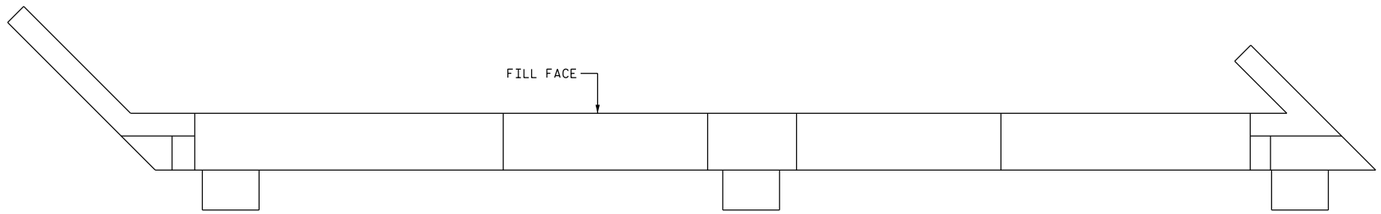
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN VIEW OF BRIDGE 54 ON SR 1135 OVER I-85

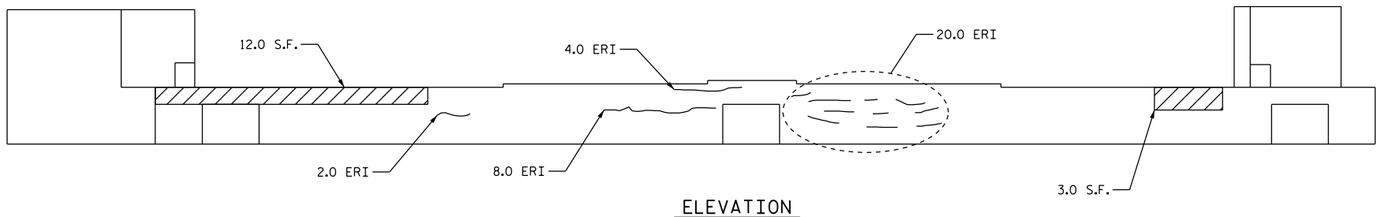
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : S. T. SANDOR/M.WELDON DATE : 08/2016
CHECKED BY : T. SHERRILL DATE : 08/2016

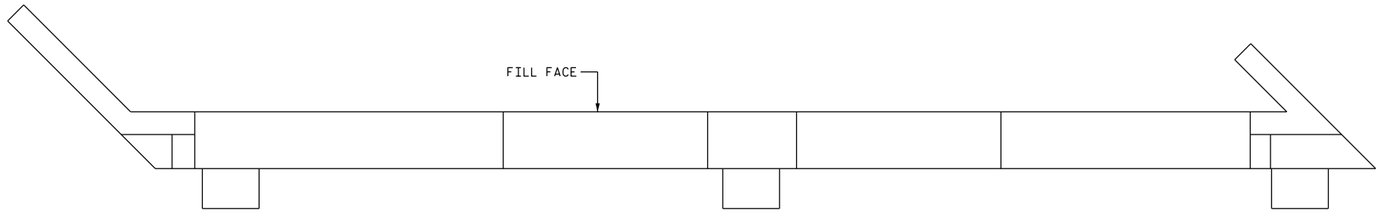
09-SEP-2016 14:53
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



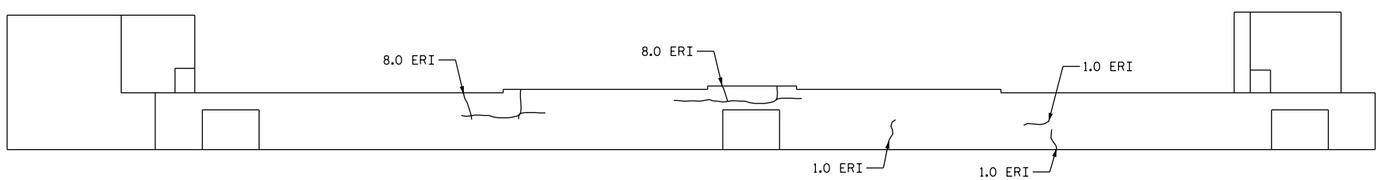
PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	15.0	6.88		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		34.0		
EPOXY COATING	AREA SF			
CAP	70.0			

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		19.0		
EPOXY COATING	AREA SF			
CAP	70.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5483

GRANVILLE COUNTY

BRIDGE NO. 54

DocuSigned by:
AD50E[illegible]

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1 & 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:55
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

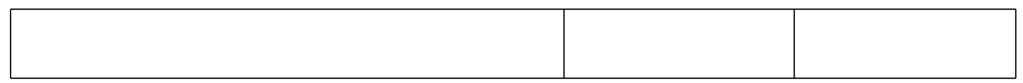
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

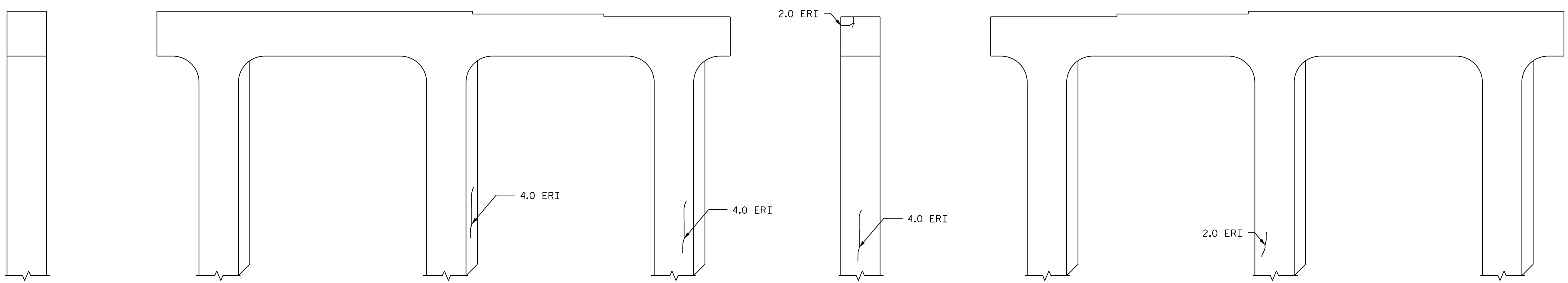
REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		2.0		
COLUMN		14.0		
EPOXY COATING	AREA SF			
CAP	131.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF CAP
TOP

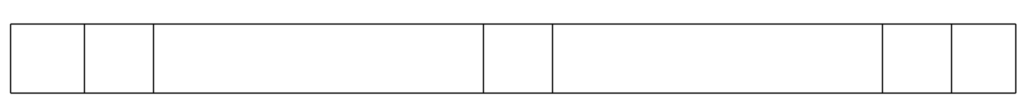


END VIEW
NORTH SIDE

ELEVATION
WEST SIDE

END VIEW
SOUTH SIDE

ELEVATION
EAST SIDE



PLAN OF CAP
BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 54

DocuSigned by:
AD50E1D877484...
NORTH CAROLINA PROFESSIONAL SEAL 18566 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:56
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

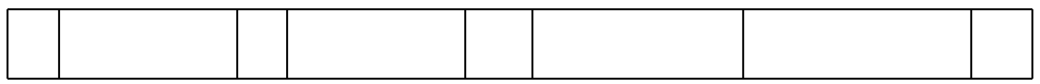
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

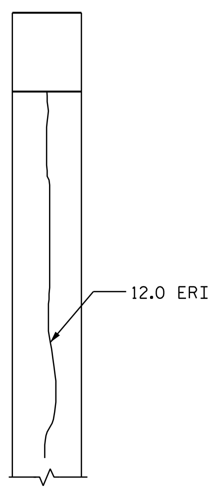
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	9.0	4.13		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	3.5	1.61		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		48		
EPOXY COATING	AREA SF			
CAP	167.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



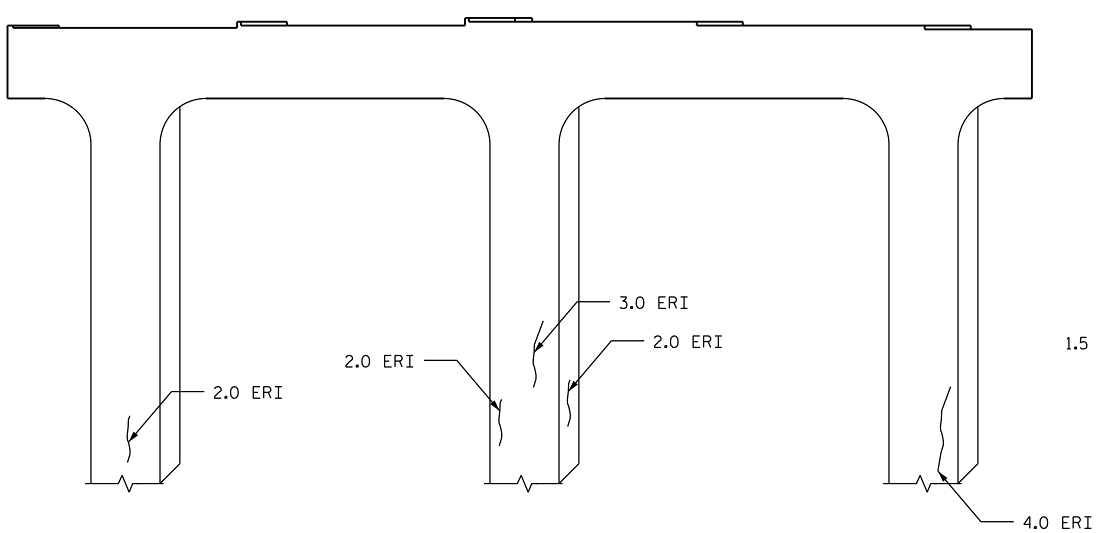
PLAN OF CAP

TOP



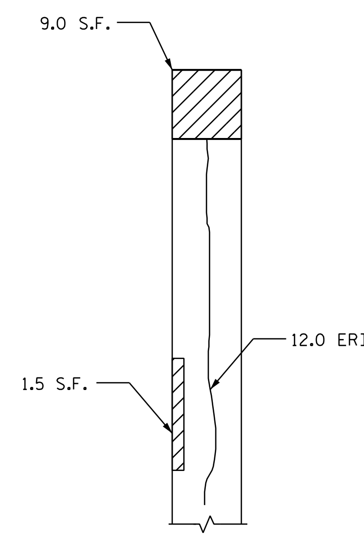
END VIEW

NORTH SIDE



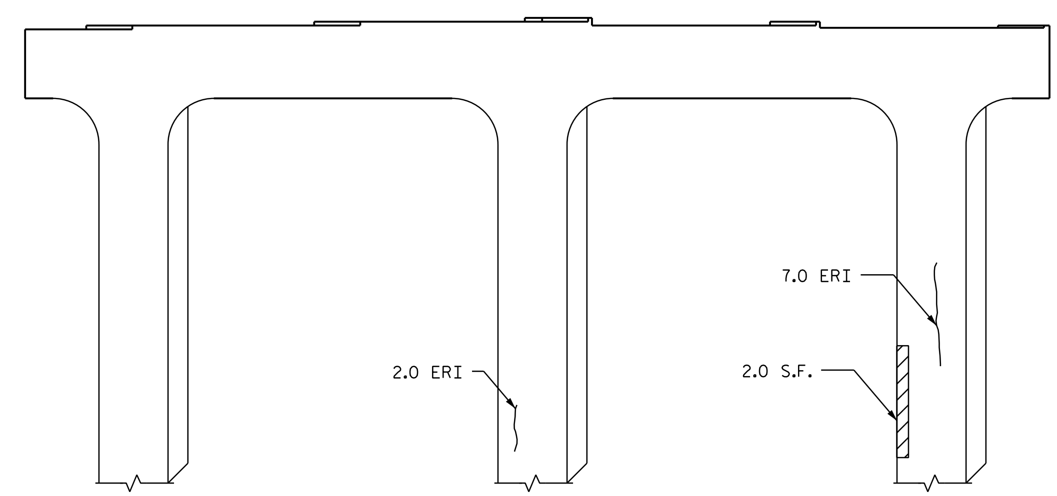
ELEVATION

WEST SIDE



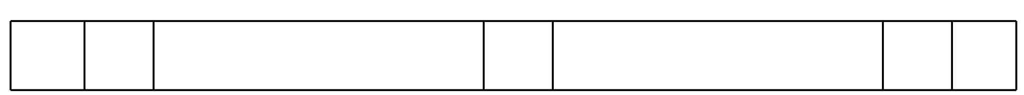
END VIEW

SOUTH SIDE



ELEVATION

EAST SIDE



PLAN OF CAP

BOTTOM

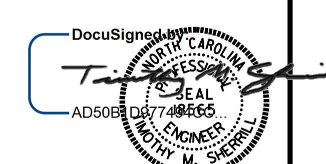
SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 54



9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

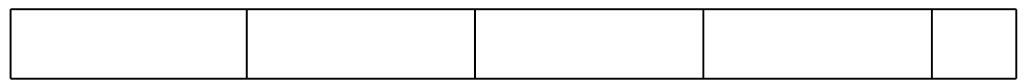
BENT 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:56
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN OF CAP

TOP

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

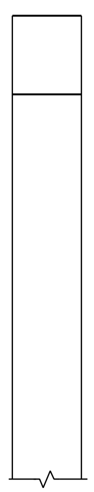
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

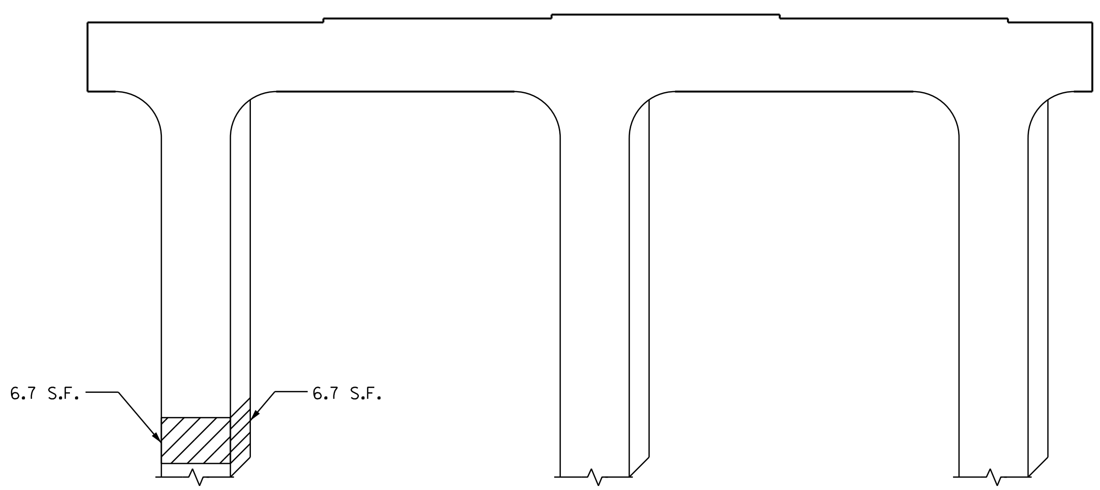
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	22.1	10.13		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		37.0		
EPOXY COATING	AREA SF			
CAP	144.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



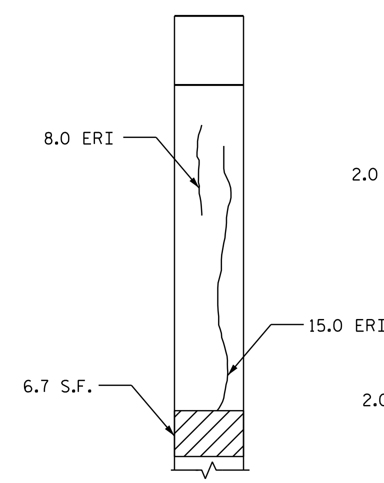
END VIEW

NORTH SIDE



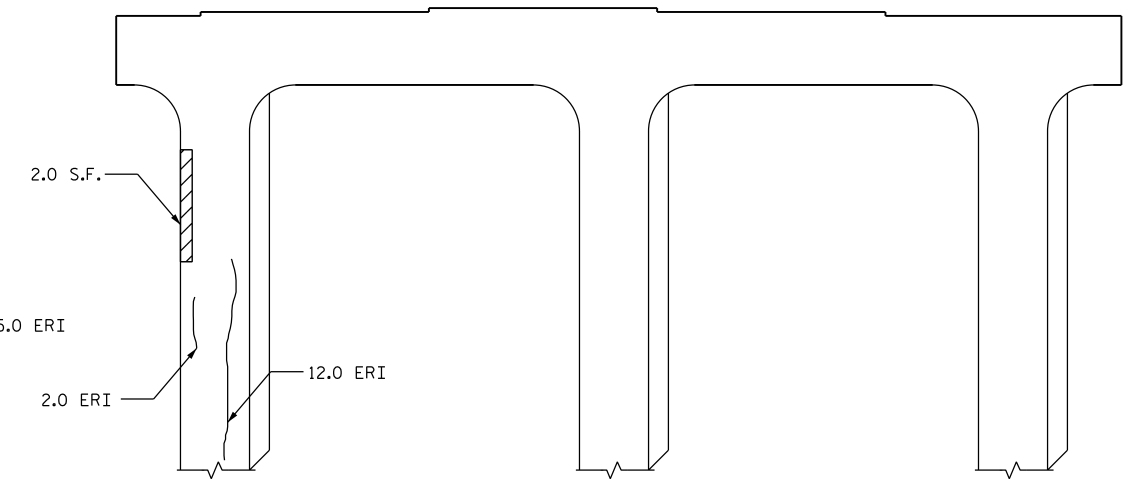
ELEVATION

WEST SIDE



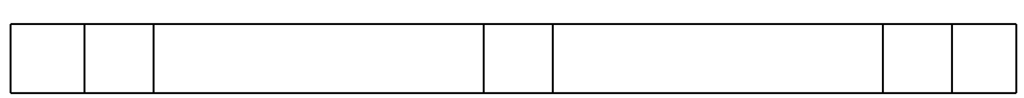
END VIEW

SOUTH SIDE



ELEVATION

EAST SIDE



PLAN OF CAP

BOTTOM

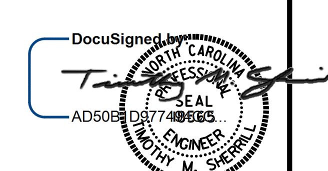
SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 54



9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

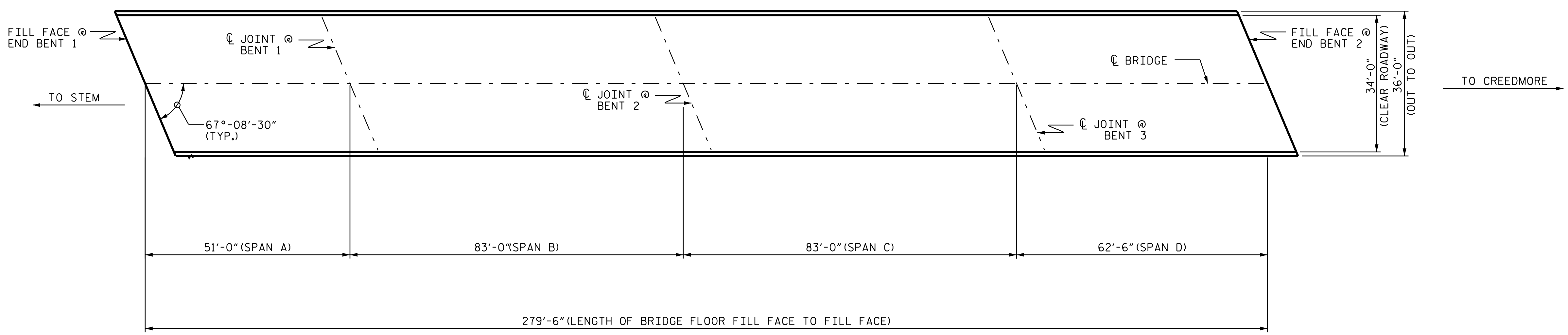
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:58
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN

NOTES

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

BEARINGS SHALL BE CLEANED AND BLASTED AS PART OF CLEANING AND BLASTING FOR STRUCTURAL STEEL, BUT BEARINGS SHALL NOT BE PRIMED AND PAINTED WITH THE STRUCTURAL STEEL PAINT SYSTEM. AFTER BLASTING, BEARINGS SHALL BE PREPARED AND PAINTED AS REQUIRED BY THE HRCSA PAINT SYSTEM.

CONSTRUCTION SEQUENCE:

1) - SUBSTRUCTURE REPAIRS & EPOXY RESIN INJECTION
2) - CLEAN AND PAINT STRUCTURAL STEEL
3) - CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA
4) - EPOXY COATING OF BENT CAPS

TOTAL BILL OF MATERIAL

BRIDGE	SHOTCRETE REPAIR	EPOXY RESIN INJECTION	CLEANING & REPAINTING OF BRIDGE NO. 50	PAINTING CONTAINMENT FOR BRIDGE NO. 50	POLLUTION CONTROL	EPOXY COATING	CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA BRIDGE NO. 50
	CF	LF	LUMP SUM	LUMP SUM	LUMP SUM	SF	EACH
380050	47	80	LUMP SUM	LUMP SUM	LUMP SUM	390	40

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 50

DocuSigned by: AD50B0D774B465...

NORTH CAROLINA PROFESSIONAL SEAL 18565 ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

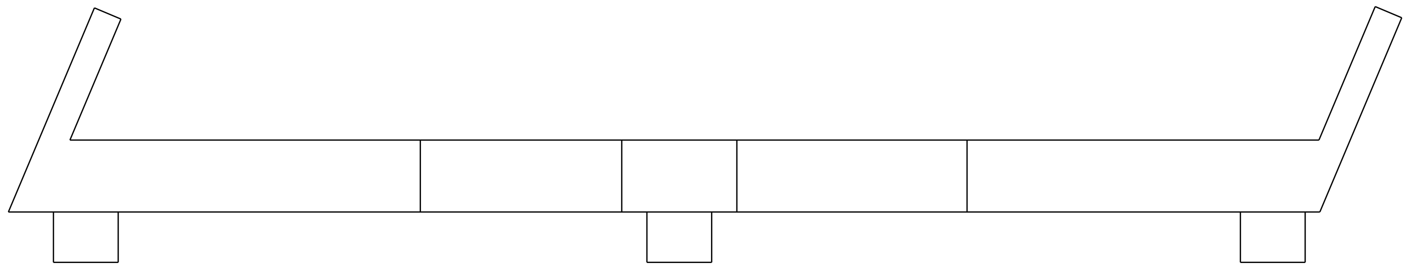
PLAN VIEW OF
BRIDGE 50
ON SR 1127
OVER I-85

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			42

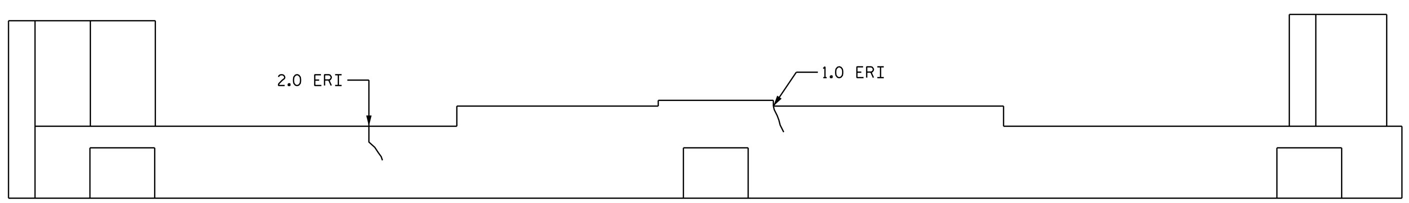
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR/M.WELDON DATE : 08/2016
CHECKED BY : T. SHERRILL DATE : 08/2016

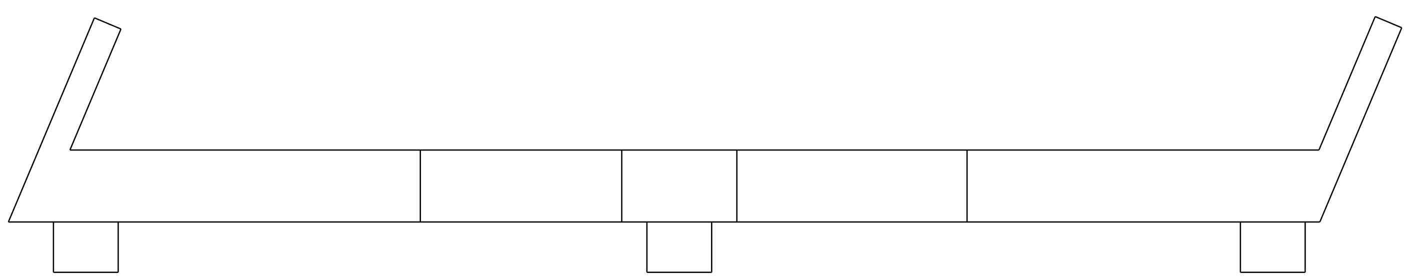
09-SEP-2016 14:59
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



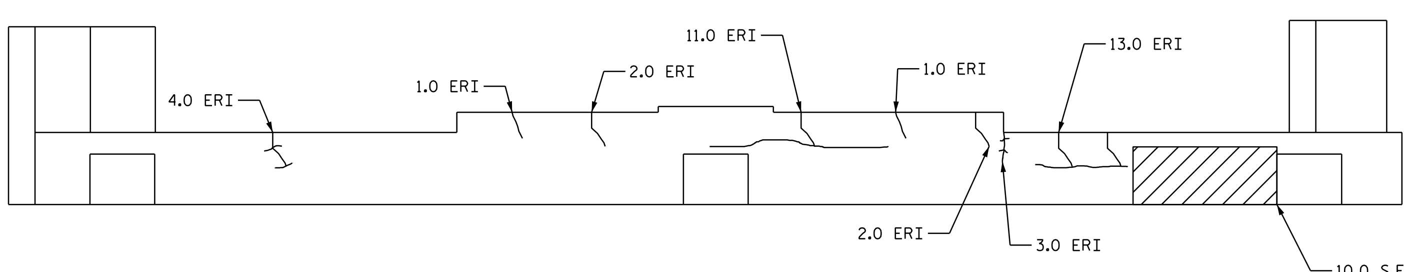
PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		3.0		
EPOXY COATING	AREA SF			
CAP	60.0			

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	10.0	4.58		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		37.0		
EPOXY COATING	AREA SF			
CAP	60.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5483
GRANVILLE COUNTY
BRIDGE NO. 50

DocuSigned by:
AD50E1D077485565...
SEAL 18565
9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1 & 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 14:59
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

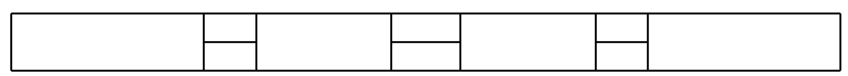
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

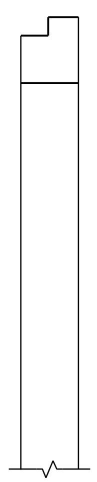
REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	7.5	3.44		
COLUMN (VERTICAL FACE)	28.0	12.83		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		3.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	90.0			

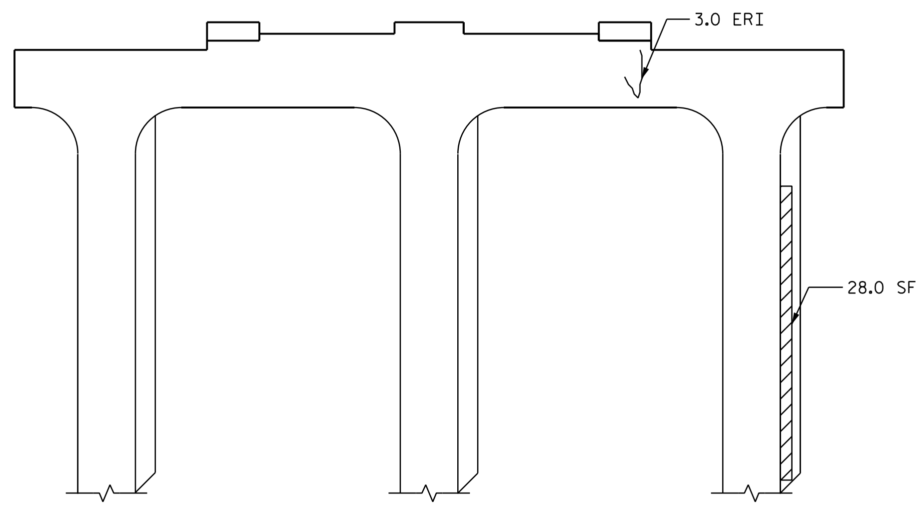
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



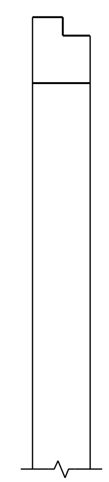
PLAN OF CAP
TOP



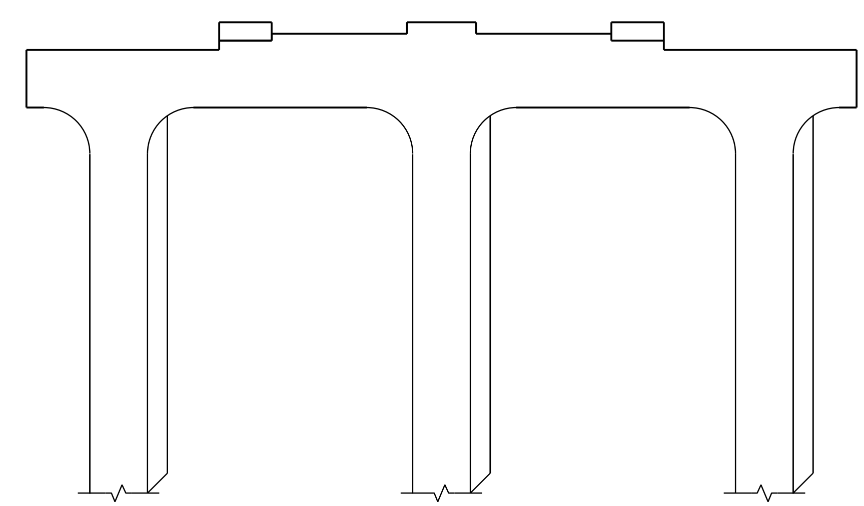
END VIEW
NORTH SIDE



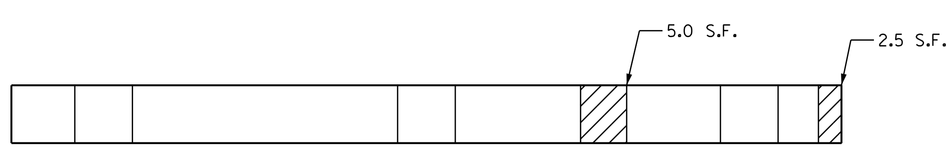
ELEVATION
WEST SIDE



END VIEW
SOUTH SIDE



ELEVATION
EAST SIDE



PLAN OF CAP
BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843
GRANVILLE COUNTY
BRIDGE NO. 50

DocuSigned by: AD50E...B77494CC...
SEAL 18565 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			42

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 15:00
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

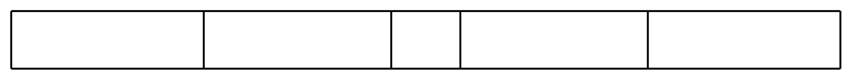
THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

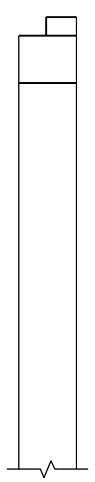
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	2.5	1.15		
CAP (HORIZONTAL FACE)	12.5	5.73		
COLUMN (VERTICAL FACE)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		5.5		

EPOXY COATING	AREA SF
CAP	90.0

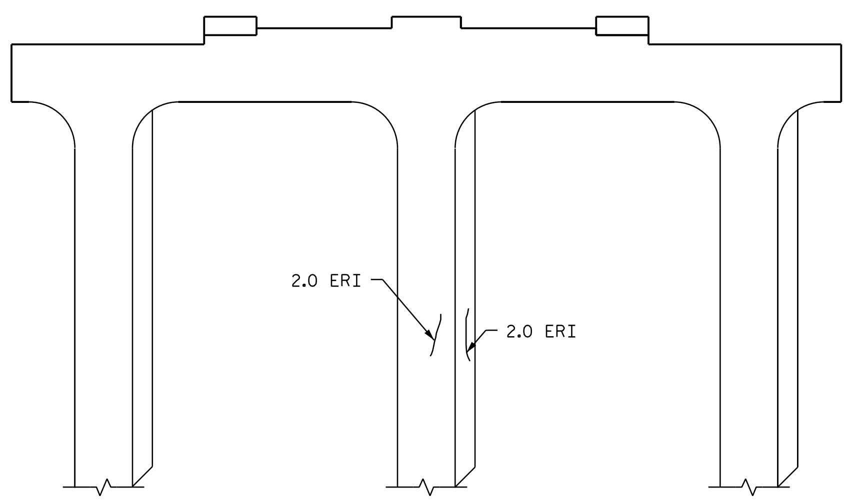
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



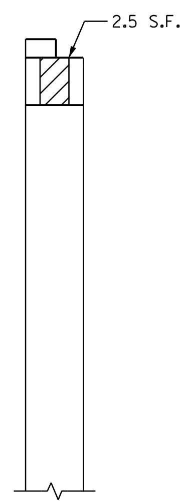
PLAN OF CAP
TOP



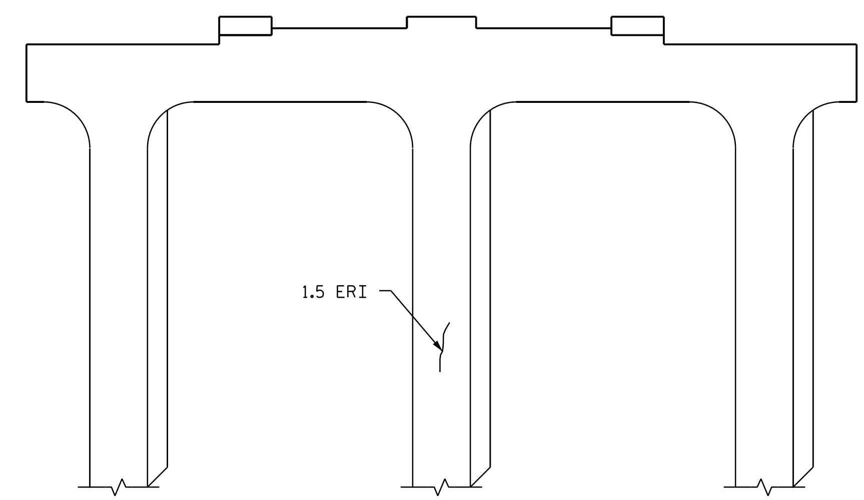
END VIEW
NORTH SIDE



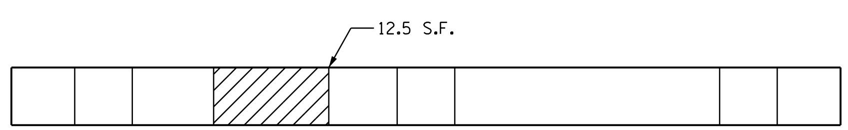
ELEVATION
WEST SIDE



END VIEW
SOUTH SIDE



ELEVATION
EAST SIDE



PLAN OF CAP
BOTTOM

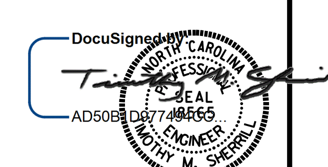
SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

I-5843

GRANVILLE COUNTY

BRIDGE NO. 50



9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

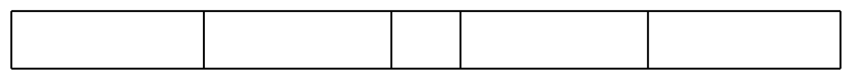
BENT 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			42

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

09-SEP-2016 15:00
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN OF CAP

TOP

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF $1/2$" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

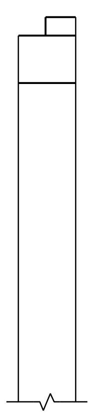
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

REPAIR QUANTITY TABLE

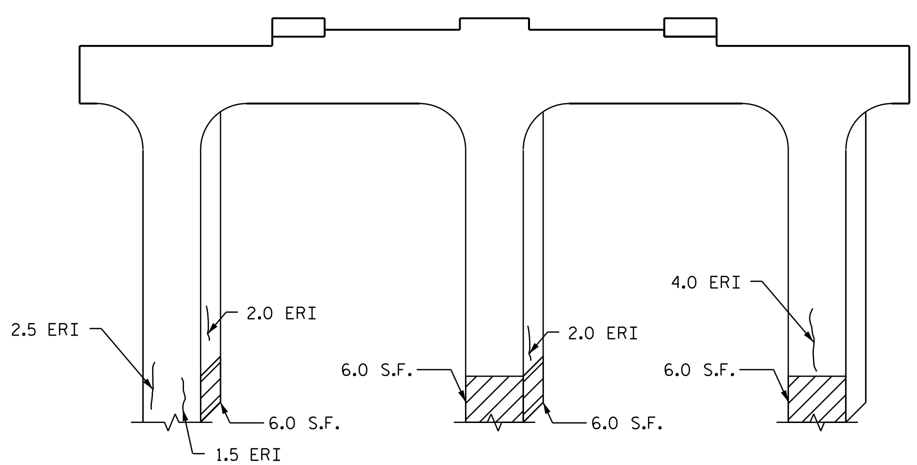
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	42.0	19.25		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		31.5		
EPOXY COATING	AREA SF			
CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



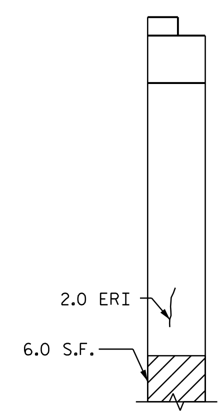
END VIEW

NORTH SIDE



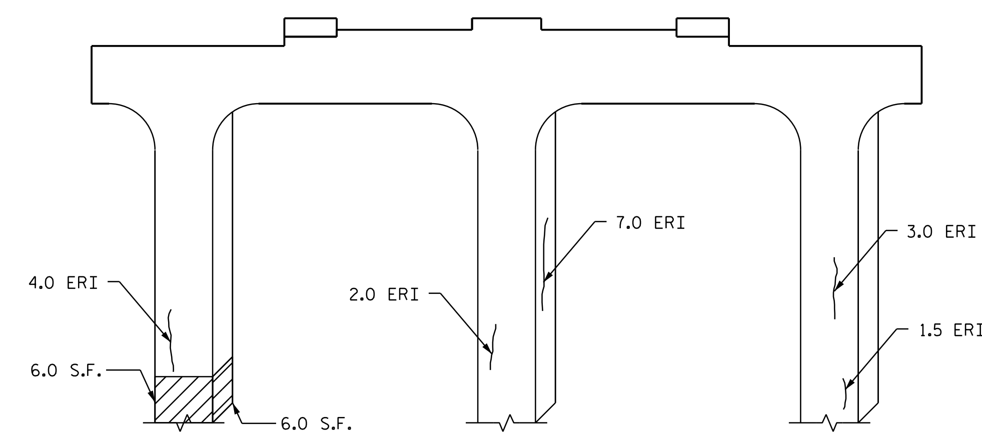
ELEVATION

WEST SIDE



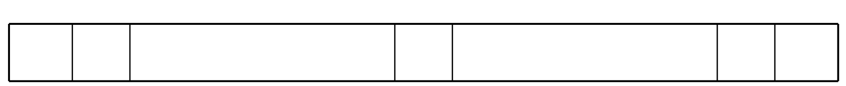
END VIEW

SOUTH SIDE



ELEVATION

EAST SIDE



PLAN OF CAP

BOTTOM

SHOTCRETE REPAIR

ERI EPOXY RESIN INJECTION

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 50

DocuSigned by: AD50B... NORTH CAROLINA PROFESSIONAL SEAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

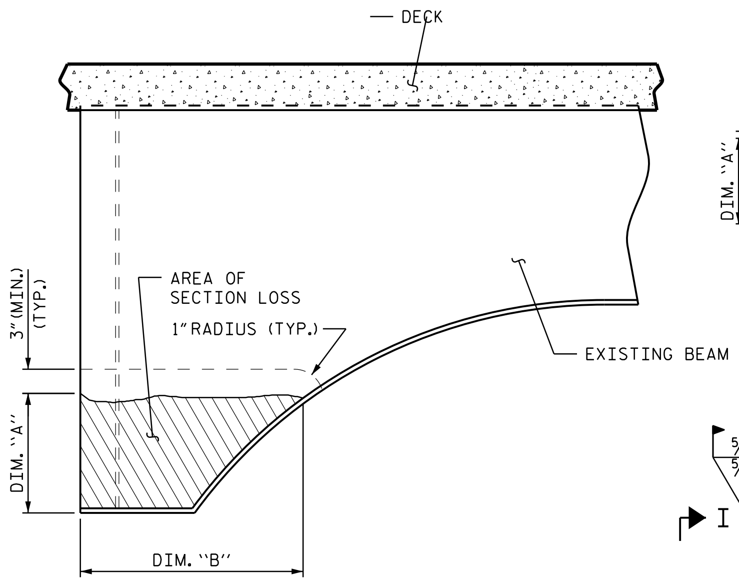
BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			42

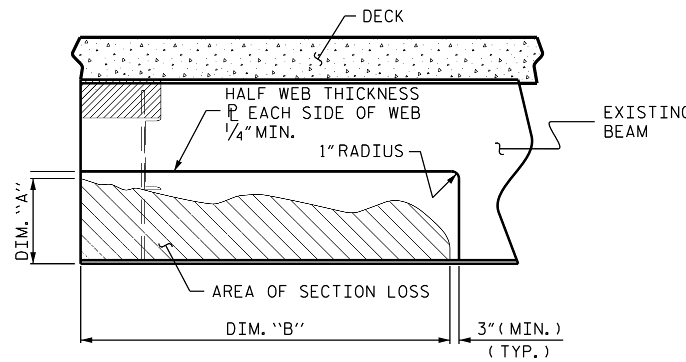
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : M.A.LEE DATE : 8/2016
CHECKED BY : T.M.SHERRILL DATE : 8/2016

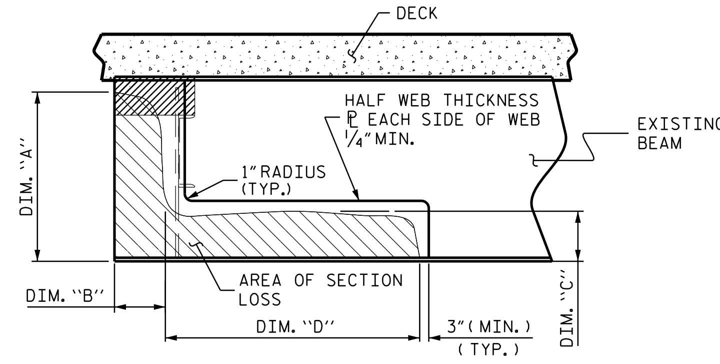
09-SEP-2016 15:01
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



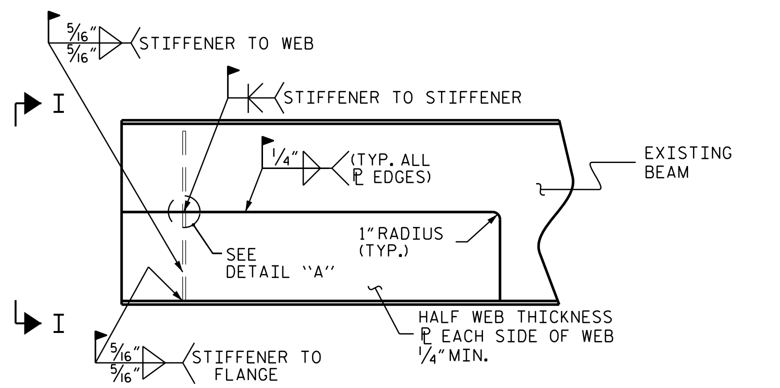
SECTION LOSS BEAM PLATING REPAIR



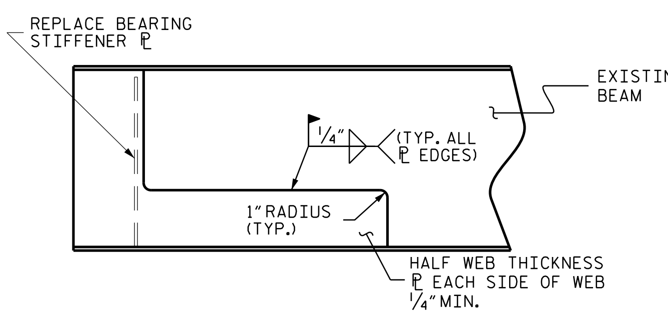
SECTION LOSS BEAM PLATING REPAIR



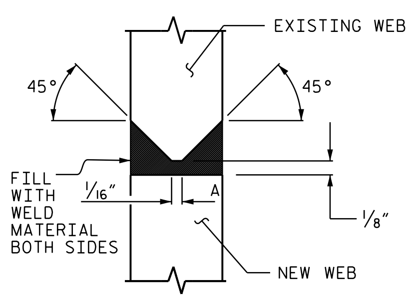
SECTION LOSS BEAM PLATING REPAIR



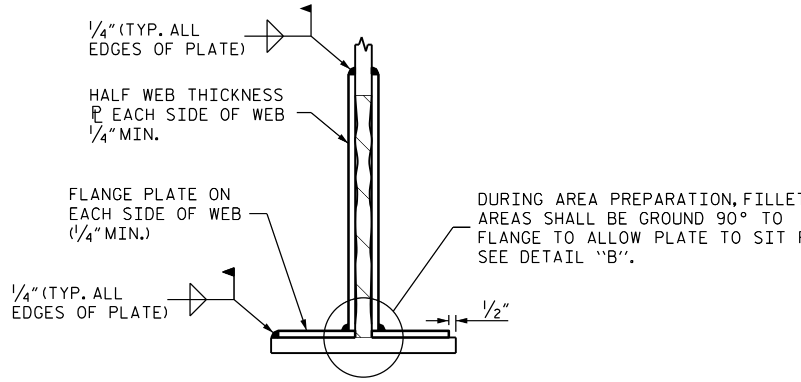
SECTION LOSS BEAM PLATING REPAIR



SECTION LOSS BEAM PLATING REPAIR

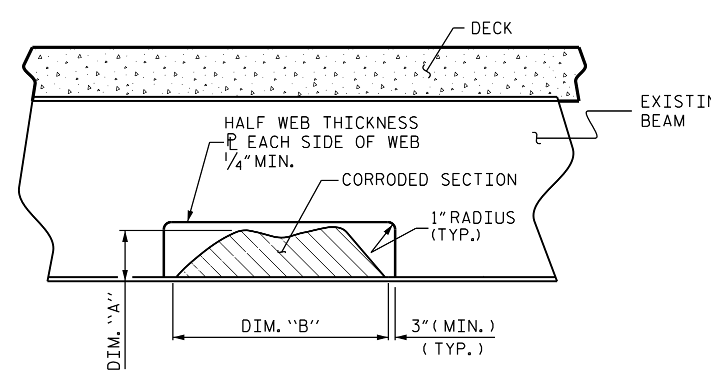


DETAIL "A"

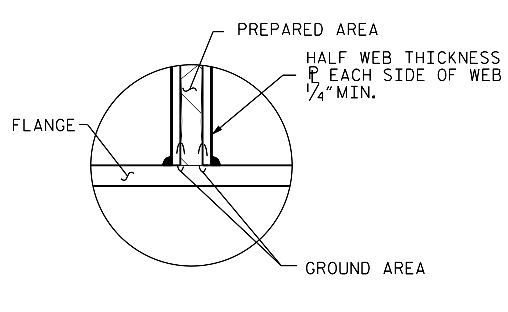


VIEW I-I

NOTE: DETAIL INDICATES WEB AND FLANGE PLATING, BUT APPROPRIATE DETAILS ARE APPLICABLE FOR WEB PLATING OR FLANGE PLATING, ONLY.

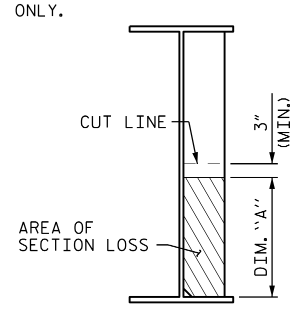


SECTION LOSS INTERMEDIATE BEAM PLATING REPAIR

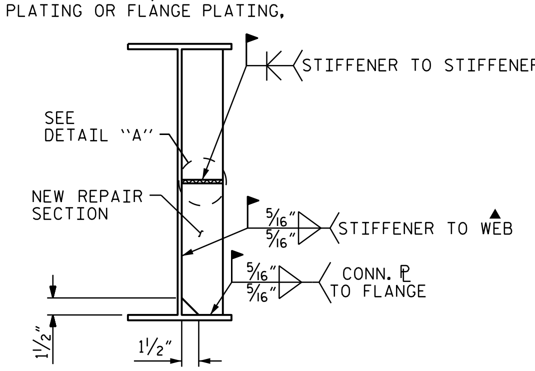


DETAIL "B"

NOTE: DETAIL INDICATES WEB PLATING, BUT GRINDING OF FILLET IS APPLICABLE FOR WEB PLATING, FLANGE PLATING, AND WEB AND FLANGE PLATING TOGETHER.

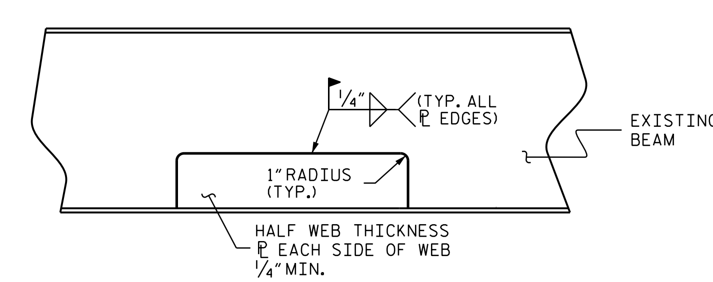


SECTION LOSS STIFFENER/CONN. ℘ REPAIR



SECTION LOSS STIFFENER/CONN. ℘ REPAIR SECTION

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD



SECTION LOSS INTERMEDIATE BEAM PLATING REPAIR

BEAM REPAIR

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

REPAIR PLATES SHALL BE MINIMUM 36 KSI STEEL.

REPAIR SEQUENCE:

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST 4 DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL WELDED PLATE REPAIR. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO WELDING NEW PLATES. REMOVE PRIMER IN WELD AREA.

ONE PLATE SHALL BE PLACED, AS INDICATED ON EACH SIDE OF THE BEAM WEB.

UNLESS NOTED OTHERWISE EACH PLATE SHALL BE APPROXIMATELY ONE- HALF THE ORIGINAL THICKNESS OF THE BEAM WEB, MINIMUM THICKNESS OF 1/4".

FULLY WELD ALONG TOP AND SIDES OF THE PLATES AS SHOWN.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM THE REPAIR PROCESS.

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

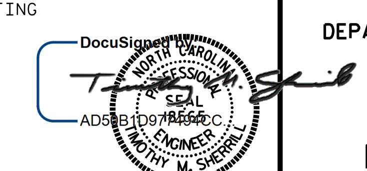
AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 35, 44, 60, 61



9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

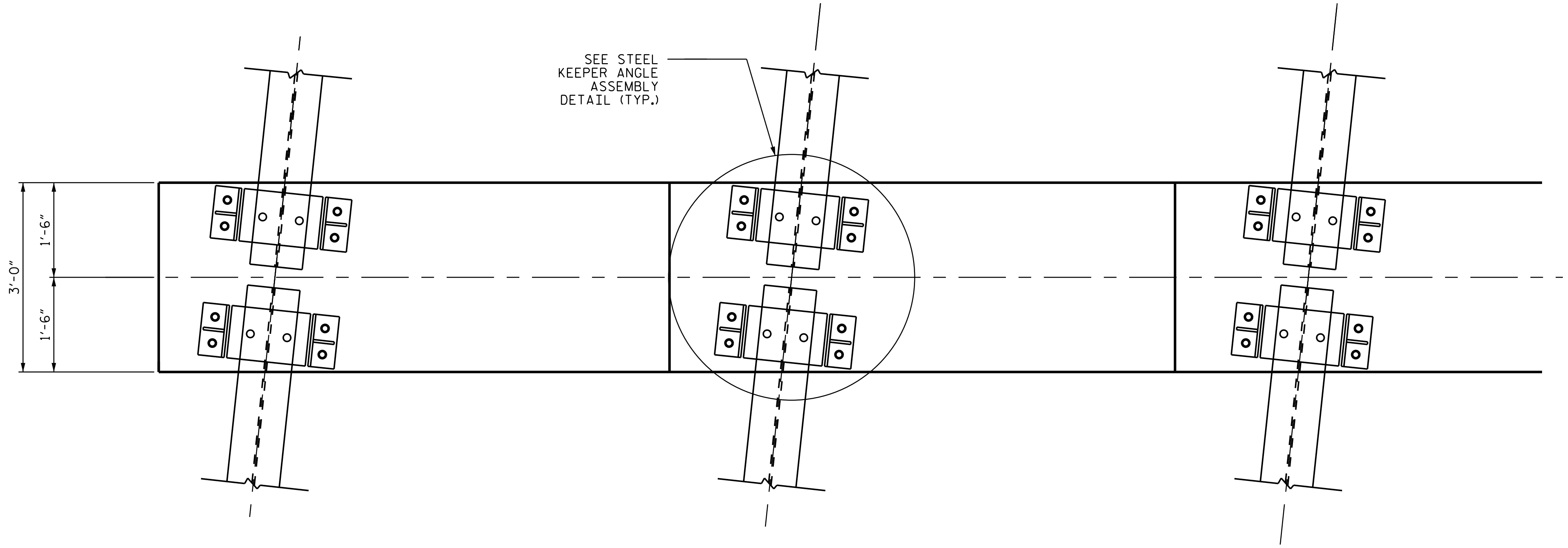
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM PLATING REPAIR DETAILS

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-40
1			3				TOTAL SHEETS
2			4				42

DRAWN BY : M.A.LEE DATE : 9/2016
CHECKED BY : T.M.SHERRILL DATE : 9/2016

09-SEP-2016 15:02
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



PLAN

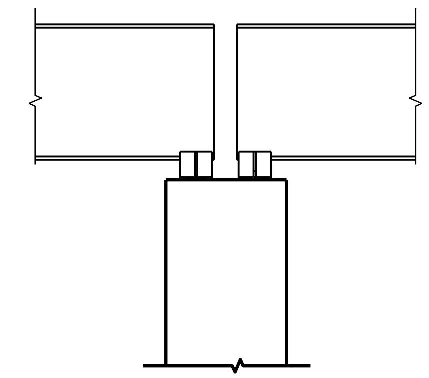
NOTES

STRUCTURAL STEEL SHALL BE AASHTO GRADE 36 OR GREATER.

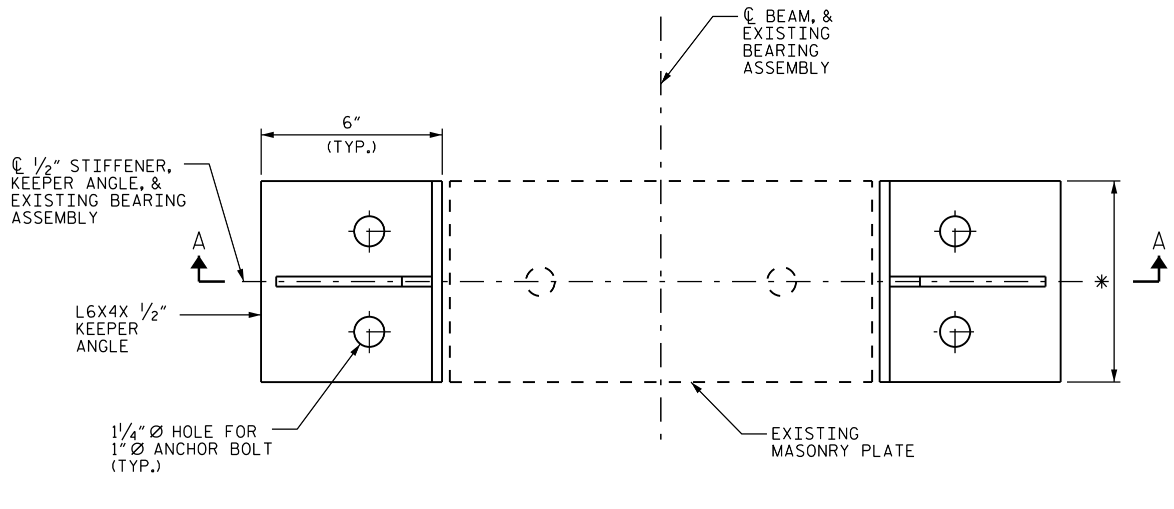
STRUCTURAL STEEL, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

ANCHOR BOLTS MAY BE ADHESIVELY ANCHORED. SEE STANDARD SPECIFICATIONS. NO FIELD TESTING REQUIRED.

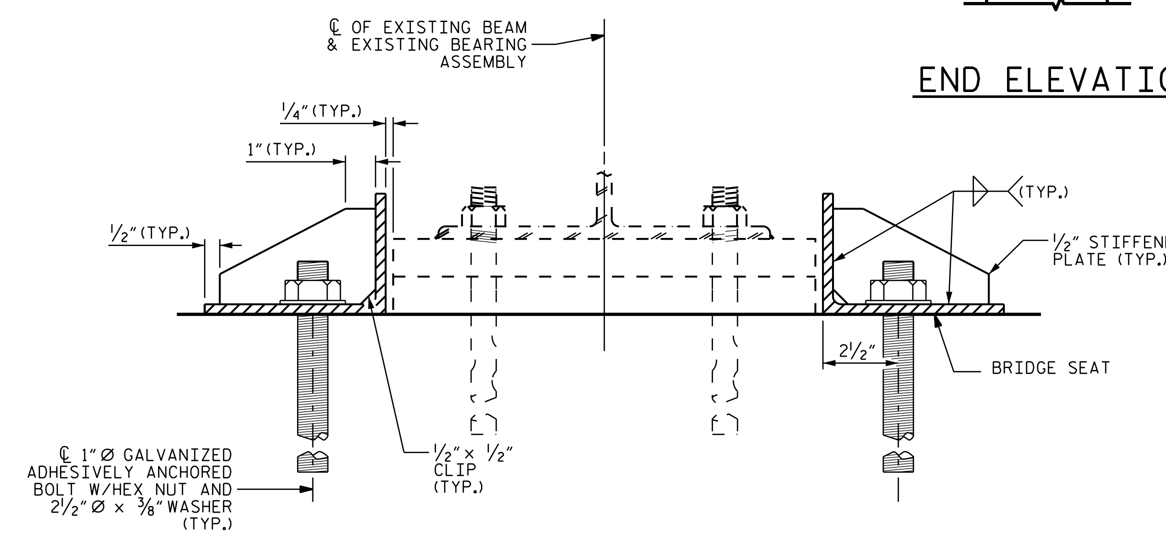


END ELEVATION



✱ LENGTH OF ANGLE SHALL MATCH WIDTH OF EXISTING MASONRY PLATE

PLAN



SECTION A-A

(LOCATION OF EXISTING ANCHOR BOLTS AS SHOWN IS FOR ILLUSTRATION ONLY)

STEEL KEEPER ANGLE ASSEMBLY DETAILS

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 35 & 57

DocuSigned by: AD505D07784C... SEAL 18565 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY M. SHERRILL

9/12/2016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

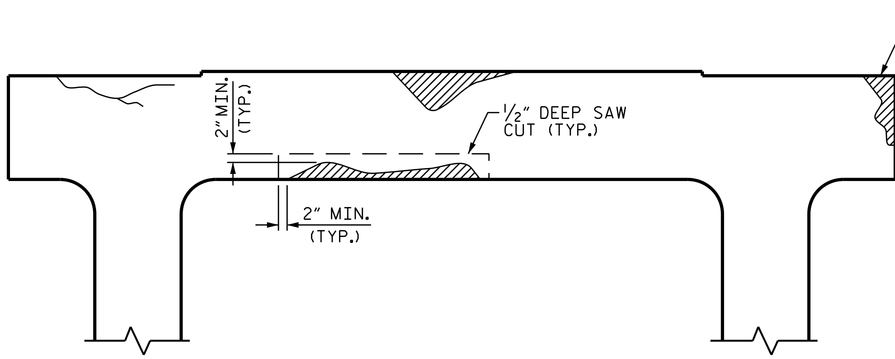
STEEL KEEPER ANGLE ASSEMBLY DETAILS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

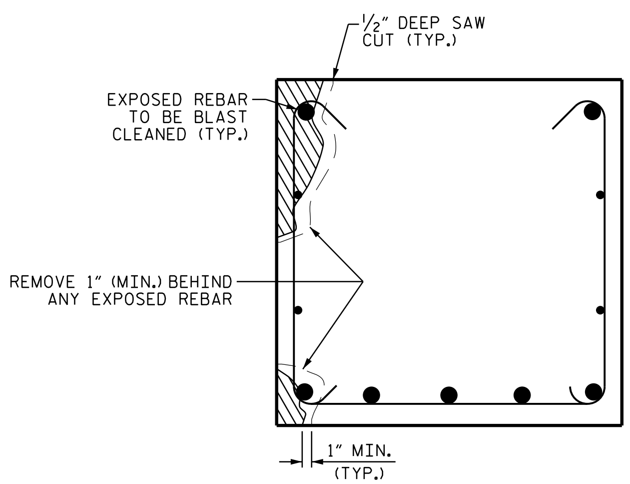
REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-41
1			3				TOTAL SHEETS
2			4				42

DRAWN BY : M. WELDON DATE : 8/2013
CHECKED BY : J. YANNACCONE DATE : 8/2013

09-SEP-2016 15:03
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7



BENT CAP REPAIRS



SECTION THRU CAP

(EXAMPLE ONLY. ACTUAL REBAR SIZES & LOCATIONS MAY VARY)

CAP REPAIR

NOTE

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

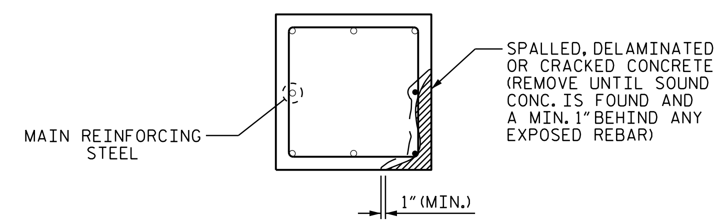
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

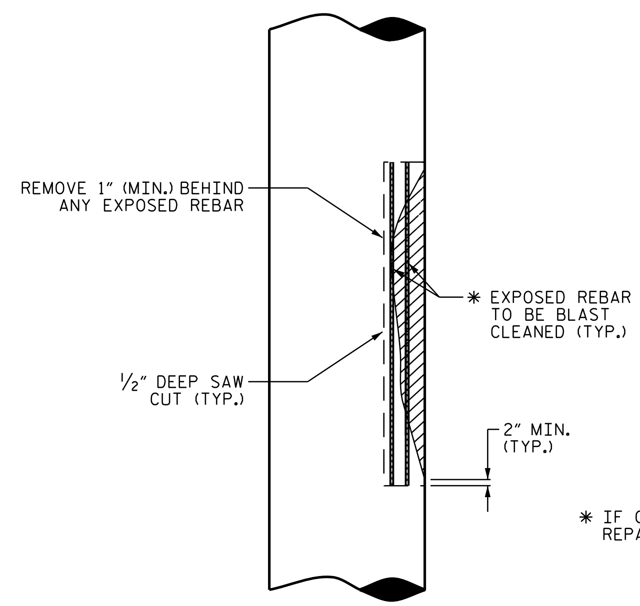
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



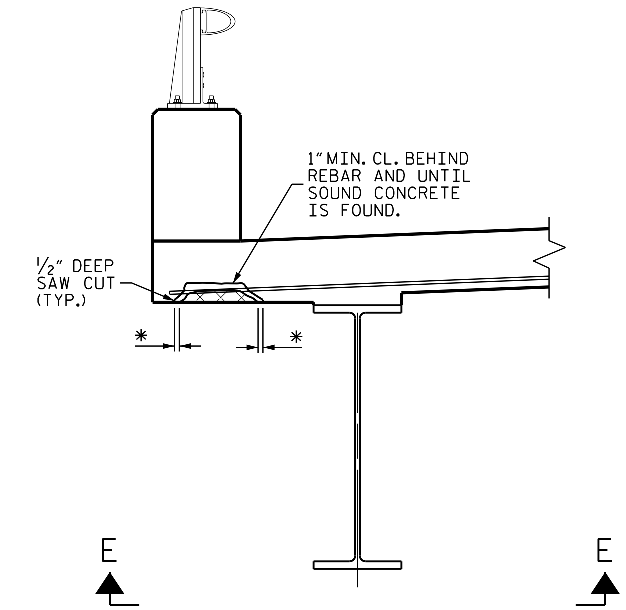
PLAN OF COLUMN



* IF CONFINEMENT STEEL IS NOT PRESENT, THEN REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

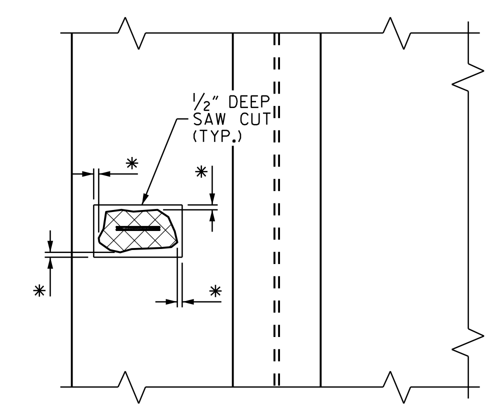
ELEVATION OF CAP

COLUMN REPAIR



TYPICAL SECTION

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (MIN. 2" BEYOND EDGE OF SPALL)



SECTION E-E

OVERHANG DETAILS

PROJECT NO. I-5843

GRANVILLE COUNTY

BRIDGE NO. 35, 44, 50, 57, 54

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
TYPICAL CAP, COLUMN AND DECK OVERHANG REPAIR DETAILS

DocuSigned by: AD5031D9774845C...
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18565 TIMOTHY M. SHERRILL

9/12/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DRAWN BY :	M.A.LEE	DATE :	8/2016
CHECKED BY :	T.M.SHERRILL	DATE :	8/2016

09-SEP-2016 15:04
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN

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

09-SEP-2016 15:05
R:\Structures\I-5843 Final\I-5843 FINAL.dgn
malee7