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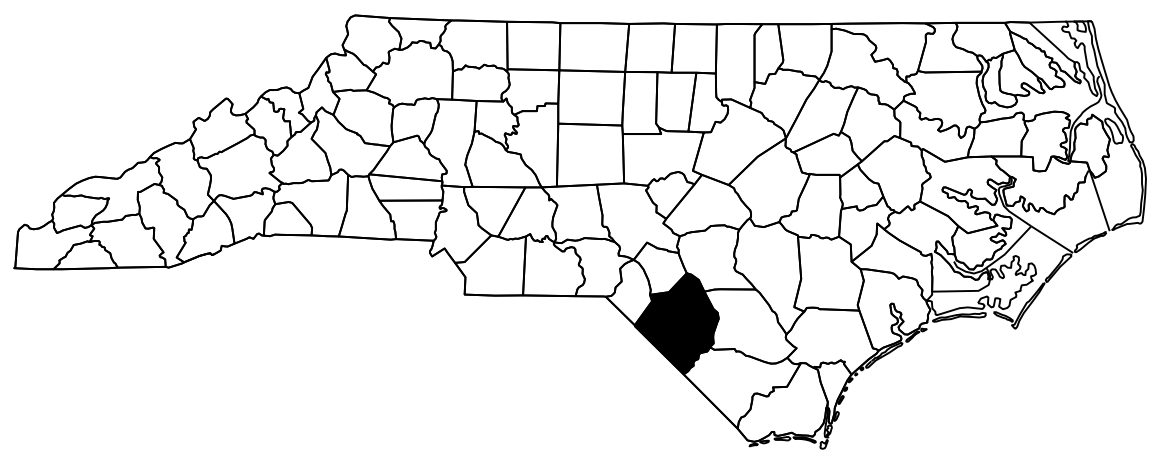
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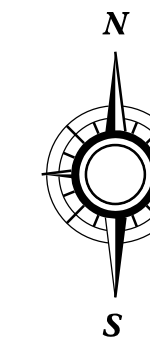
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROBESON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5939	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45882.1.1	NHPIM-0095(059)	P.E.	
45882.3.1	NHPIM-0095(059)	CONST.	

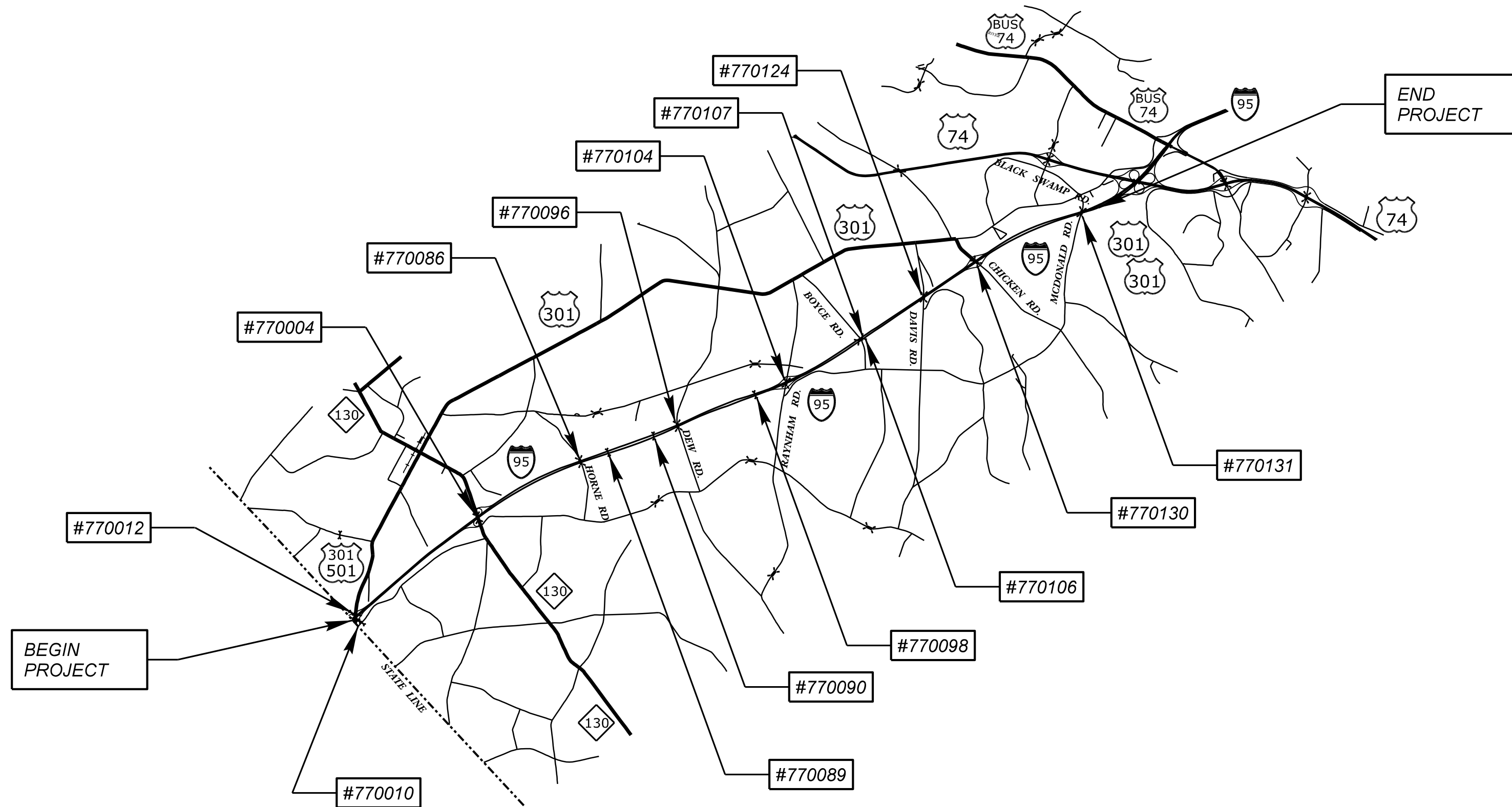


LOCATION: BRIDGES #770010, 770012, 770004, 770086, 770089, 770090, 770096, 770098, 770104, 770106, 770107, 770124, 770130, 770131
ON THE I-95 CORRIDOR BETWEEN THE STATE LINE AND THE JCT. WITH I-74

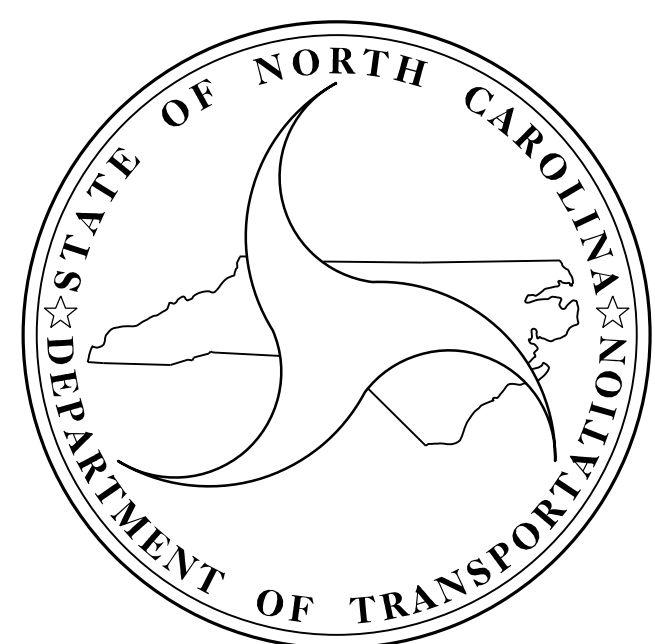


PROJECT: I-5939

CONTRACT NO: C204639



TYPE OF WORK: BRIDGE PRESERVATION :
LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH,
POLYMER CONCRETE OVERLAY,
EPOXY OVERLAY, SILANE DECK AND BARRIER TREATMENT, FOAM JOINT REPLACEMENT,
BRIDGE JACKING, PEDESTAL REPAIRS,
HEAT STRAIGHTEN BEAM, CLEANING AND PAINTING EXISTING BEARINGS,
EPOXY RESIN INJECTION, APPROACH ROADWAY MILLING AND RESURFACING,
CLEANING DEBRIS FROM SHOULDERS AND SLOPES, GUARDRAIL ANCHOR UNITS AND NEW GUARDRAIL, SUBSTRUCTURE REPAIRS, EPOXY COATING CAPS, AND SLOPE PROTECTION REPAIR



DESIGN DATA

BRIDGE #770010	ADT 2019	- 39,000
BRIDGE #770012	ADT 2019	- 39,000
BRIDGE #770004	ADT 2019	- 2,5000
BRIDGE #770086	ADT 2019	- 450
BRIDGE #770089	ADT 2019	- 39,000
BRIDGE #770090	ADT 2019	- 39,000
BRIDGE #770096	ADT 2019	- 300
BRIDGE #770098	ADT 2019	- 39,000
BRIDGE #770104	ADT 2019	- 1,300
BRIDGE #770106	ADT 2019	- 40,000
BRIDGE #770107	ADT 2019	- 40,000
BRIDGE #770124	ADT 2019	- 600
BRIDGE #770130	ADT 2019	- 2,100
BRIDGE #770131	ADT 2019	- 800

PROJECT LENGTH

BRIDGE #770010	LENGTH	- 0.045 MI.
BRIDGE #770012	LENGTH	- 0.045 MI.
BRIDGE #770004	LENGTH	- 0.047 MI.
BRIDGE #770086	LENGTH	- 0.049 MI.
BRIDGE #770089	LENGTH	- 0.053 MI.
BRIDGE #770090	LENGTH	- 0.077 MI.
BRIDGE #770096	LENGTH	- 0.049 MI.
BRIDGE #770098	LENGTH	- 0.044 MI.
BRIDGE #770104	LENGTH	- 0.056 MI.
BRIDGE #770106	LENGTH	- 0.043 MI.
BRIDGE #770107	LENGTH	- 0.040 MI.
BRIDGE #770124	LENGTH	- 0.056 MI.
BRIDGE #770130	LENGTH	- 0.046 MI.
BRIDGE #770131	LENGTH	- 0.052 MI.

Prepared for the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

LETTING DATE :

OCTOBER 19, 2021

Jacob H. Duke, P.E.
PROJECT ENGINEER

Fidel L. Flores, EI
PROJECT DESIGN ENGINEER

INDEX OF SHEETS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5959	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45882.1.1	NHPIM-0095(059)	P.E.	
45882.3.1	NHPIM-0095(059)	CONST.	

1	TITLE SHEET	S4-4	JOINT DETAILS	S11-5	APPROACH ROADWAY
1A	INDEX OF SHEETS	S4-5	APPROACH ROADWAY		770124 (S12)
S2	TOTAL BILL OF MATERIAL	S4-6	APPROACH ROADWAY	S12-1	GENERAL DRAWING 700124
S3	GENERAL DRAWING - LOCATION SKETCHES	S4-7	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2	S12-2	TYPICAL SECTION
S4	GENERAL NOTES	S4-8	SUBSTRUCTURE REPAIRS - BENT 1	S12-3	PLAN OF SPANS
	770010 (S1)	S4-9	SUBSTRUCTURE REPAIRS - BENT 2	S12-4	JOINT DETAILS
S1-1	GENERAL DRAWING 770010	S4-10	SUBSTRUCTURE REPAIRS - BENT 3	S12-5	APPROACH ROADWAY
S1-2	TYPICAL SECTION		770089 (S5)	S12-6	APPROACH ROADWAY
S1-3	PLAN OF SPANS	S5-1	GENERAL DRAWING 700089	S12-7	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2
S1-4	JOINT DETAILS	S5-2	CULVERT CONCRETE REPAIRS	S12-8	SUBSTRUCTURE REPAIRS - BENT 1
S1-5	1 BAR METAL RAIL REPAIRS		770090 (S6)	S12-9	SUBSTRUCTURE REPAIRS - BENT 2
S1-6	1 BAR METAL RAIL REPAIRS	S6-1	GENERAL DRAWING 700090	S12-10	SUBSTRUCTURE REPAIRS - BENT 3
S1-7	APPROACH ROADWAY	S6-2	CULVERT CONCRETE REPAIRS		770130 (S13)
S1-8	APPROACH ROADWAY		770096 (S7)	S13-1	GENERAL DRAWING 700130
S1-9	SLOPE PROTECTION REPAIRS	S7-1	GENERAL DRAWING 700096	S13-2	TYPICAL SECTION
S1-10	SUPERSTRUCTURE REPAIRS	S7-2	PLAN OF SPANS AND TYPICAL SECTION	S13-3	PLAN OF SPANS
S1-11	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2	S7-3	JOINT DETAILS	S13-4	JOINT DETAILS
S1-12	SUBSTRUCTURE REPAIRS - BENT 1	S7-4	APPROACH ROADWAY	S13-5	APPROACH ROADWAY
S1-13	SUBSTRUCTURE REPAIRS - BENT 2	S7-5	APPROACH ROADWAY	S13-6	APPROACH ROADWAY
S1-14	SUBSTRUCTURE REPAIRS - BENT 3	S7-6	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2	S13-7	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2
	770012 (S2)	S7-7	SUBSTRUCTURE REPAIRS - BENT 1	S13-8	SUBSTRUCTURE REPAIRS - BENT 1
S2-1	GENERAL DRAWING 770012	S7-8	SUBSTRUCTURE REPAIRS - BENT 2		770131 (S14)
S2-2	TYPICAL SECTION	S7-9	SUBSTRUCTURE REPAIRS - BENT 3	S14-1	GENERAL DRAWING 700131
S2-3	PLAN OF SPANS		770098 (S8)	S14-2	TYPICAL SECTION
S2-4	JOINT DETAILS	S8-1	GENERAL DRAWING 700098	S14-3	PLAN OF SPANS
S2-5	APPROACH ROADWAY	S8-2	CULVERT CONCRETE REPAIRS	S14-4	JOINT DETAILS
S2-6	APPROACH ROADWAY		770104 (S9)	S14-5	APPROACH ROADWAY
S2-7	SLOPE PROTECTION REPAIRS	S9-1	GENERAL DRAWING 700104	S14-6	APPROACH ROADWAY
S2-8	SUPERSTRUCTURE REPAIRS	S9-2	TYPICAL SECTION	S14-7	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2
S2-9	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2	S9-3	PLAN OF SPANS	S14-8	SUBSTRUCTURE REPAIRS - BENT 1
S2-10	SUBSTRUCTURE REPAIRS - BENT 1	S9-4	JOINT DETAILS	S14-9	SLOPE PROTECTION REPAIRS
S2-11	SUBSTRUCTURE REPAIRS - BENT 2	S9-5	APPROACH ROADWAY		
S2-12	SUBSTRUCTURE REPAIRS - BENT 3	S9-6	APPROACH ROADWAY	S5	DECK REPAIR DETAILS
	770004 (S3)	S9-7	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2	S6	CONCRETE RESTORATION DETAILS
S3-1	GENERAL DRAWING 700004	S9-8	SUBSTRUCTURE REPAIRS - BENT 1	S7	CONCRETE RESTORATION DETAILS
S3-2	TYPICAL SECTION	S9-9	SUBSTRUCTURE REPAIRS - BENT 2	S8	CONCRETE RESTORATION DETAILS
S3-3	PLAN OF SPANS	S9-10	SUBSTRUCTURE REPAIRS - BENT 3	S9	STRUCTURE ANCHOR UNIT TYPE-III
S3-4	JOINT DETAILS		770106 (S10)	S10	GUARDRAIL INSTALLATION
S3-5	APPROACH ROADWAY	S10-1	GENERAL DRAWING 700106	S11	BRIDGE JACKING DETAILS
S3-6	APPROACH ROADWAY	S10-2	TYPICAL SECTION	S12	SLOPE PROTECTION JOINT DETAILS
S3-7	SUBSTRUCTURE REPAIRS - END BENTS 1 AND 2	S10-3	PLAN OF SPANS		Standard Notes
S3-8	SUBSTRUCTURE REPAIRS - BENT 1	S10-4	JOINT DETAILS		
S3-9	SUBSTRUCTURE REPAIRS - BENT 2	S10-5	APPROACH ROADWAY		
S3-10	SUBSTRUCTURE REPAIRS - BENT 3		770107 (S11)		
	770086 (S4)	S11-1	GENERAL DRAWING 700107		
S4-1	GENERAL DRAWING 700086	S11-2	TYPICAL SECTION		
S4-2	TYPICAL SECTION	S11-3	PLAN OF SPANS		
S4-3	PLAN OF SPANS	S11-4	JOINT DETAILS		

STRUCTURES

TOTAL BILL OF MATERIAL

DESCRIPTION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II, SURFACE PREPARATION	CLASS III, SURFACE PREPARATION	PAINTING CONTAINMENT FOR BRIDGE *	VOLUMETRIC MIXER	HEAT STRAIGHTENING STEEL BEAM REPAIR, BRIDGE 770012	FOAM JOINT SEALS FOR PRESERVATION	SILICONE JOINT SEALANT FOR SLOPE PROTECTION
BRIDGE NO:	CU. FT.	CU. FT.	LIN. FT.	SQ. FT.	LUMP SUM	SQ. YD.	SQ. YD.	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.
770010	9.2	31.62	40.7	8733	LUMP SUM	0.8	121	LUMP SUM	LUMP SUM	-	168	100
770012	9.2	76.8	74	8733	LUMP SUM	0.8	180.9	LUMP SUM	LUMP SUM	LUMP SUM	168	100
770004	-	-	175.5	-	-	-	-	-	-	-	145	114
770086	-	-	684.5	-	-	-	-	-	-	-	102	57
770089	-	-	1865	-	-	-	-	-	-	-	-	-
770090	-	-	288	-	-	-	-	-	-	-	-	-
770096	-	3.3	450	-	-	-	-	-	-	-	105	57
770098	-	-	120	-	-	-	-	-	-	-	-	-
770104	-	4.3	110	-	-	-	-	-	-	-	150	114
770106	-	-	-	-	-	-	-	-	-	-	84	-
770107	-	-	-	-	-	-	-	-	-	-	42	-
770124	-	-	45	-	-	-	-	-	-	-	92	85
770130	-	1.3	28	-	-	-	-	-	-	-	79	29
770131	-	-	75	9140	-	-	-	-	-	-	-	87
TOTALS:	18.4	117.32	3955.7	26606	LUMP SUM	1.6	301.9	LUMP SUM	LUMP SUM	LUMP SUM	1135	743

STRUCTURES - CONT.

TOTAL BILL OF MATERIAL

DESCRIPTION	RAIL REPAIRS FOR ONE BAR METAL RAIL	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	ELASTOMERIC CONCRETE FOR PRESERVATION	SLOPE PROTECTION VOID FILLING	CONCRETE DECK REPAIR FOR EPOXY OVERLAY	BRIDGE JOINT DEMOLITION	SURFACE PREPARATION FOR SILANE RAIL TREATMENT	SILANE RAIL TREATMENTS	EPOXY OVERLAY SYSTEM II	EPOXY COATING	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	PLACING AND FINISHING POLYMER CONCRETE OVERLAY	PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH	SILANE DECK TREATMENT	HYDRO-DEMOLITION OF BRIDGE DECK	CLEANING AND PAINTING EXISTING BEARINGS WITH HRSCA	TYPE I BRIDGE JACKING FOR BRIDGE *	CFRP PEDESTAL REPAIR & BEARING RETROFIT
BRIDGE NO:	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	CU. FT.	LBS.	SQ. FT.	SQ. FT.	SQ. FT.	SQ. FT.	SQ. FT.	SQ. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EA	EA	EA
770010	30	-	-	58.4	40.8	500	-	165	-	-	-	734.4	1049	-	-	1049	-	1049	36	8	8
770012	-	-	-	58.4	40.8	500	-	165	-	-	-	734.4	1049	-	-	1049	-	1049	36	8	8
770004	-	-	-	-	35.8	-	-	144	2828	2828	-	1123.3	-	-	-	-	-	-	-	-	-
770086	-	-	-	-	24.3	-	-	99	-	-	8338	525.4	-	-	-	-	-	-	-	-	-
770089	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
770090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
770096	-	-	-	-	24.9	-	-	102	-	-	-	539.8	-	-	-	-	-	-	-	-	-
770098	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
770104	-	-	-	-	36.6	-	-	146	-	-	16488	1292.1	-	-	-	-	-	-	-	-	-
770106	-	-	-	-	20	-	-	80	-	-	-	-	-	1020	-	-	1020	-	-	-	-
770107	-	-	-	-	15	-	-	60	-	-	-	-	-	946	-	-	946	-	-	-	-
770124	-	-	-	-	22	-	-	88	-	-	10728	721.2	-	-	-	-	-	-	-	-	-
770130	-	-	-	-	18.8	-	0.2	75	-	-	8698	355.2	-	-	-	-	-	-	-	-	-
770131	-	30.8	30.8	-	-	500	-	-	-	-	-	380.1	554	554	554	-	-	-	-	-	-
TOTALS:	30	30.8	30.8	116.8	279	1500	0.2	1124	2828	2828	44252	6405.9	2652	2520	554	2098	1966	2098	72	16	16

NOTES:

- THE ROADWAY PAY ITEMS LISTED HEREIN COINCIDE WITH THE BRIDGE PRESERVATION WORK ONLY. FOR COMPLETE LIST OF ROADWAY PAY ITEMS, NOTES AND PROVISIONS, SEE ROADWAY PLANS.
- PAVEMENT MARKINGS FOR I-95 THAT ARE NOT PART OF THIS SET ARE NOT INCLUDED IN THIS BILL OF MATERIAL.
- AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT ITEM(S) LISTED BELOW WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT THE FOLLOWING ITEM(S) LISTED, OR OTHER WORK WILL BE NECESSARY TO PROPERLY COMPLETE THE INTENDED BRIDGE PRESERVATION/REHABILITATION WORK. THE CONTRACTOR SHALL BE PREPARED TO PERFORM SUCH WORK IN A TIMELY MANNER, AS DETERMINED IN THE FIELD. SUCH WORK SHALL BE CONSIDERED EXTRA WORK AND SHALL BE ADDRESSED AS PER ARTICLE 104-7 OF THE STANDARD SPECIFICATIONS. PROJECT SPECIAL PROVISIONS THAT OUTLINE REQUIREMENTS FOR THESE POTENTIAL ADDITIONAL WORK ITEM SHAVE BEEN PROVIDED IN THE PROJECT DOCUMENTS, BUT NO QUANTITIES HAVE BEEN LISTED. ACTUAL PAY ITEMS, QUANTITIES, AND COSTS WILL BE ESTABLISHED, AS REQUIRED, IF EXTRA WORK IS ENCOUNTERED. UNANTICIPATED ITEMS:

CONCRETE DECK REPAIR FOR EPOXY OVERLAY
 CONCRETE DECK REPAIR FOR POLYMER
 CONCRETE OVERLAY
 CONCRETE FOR DECK REPAIR

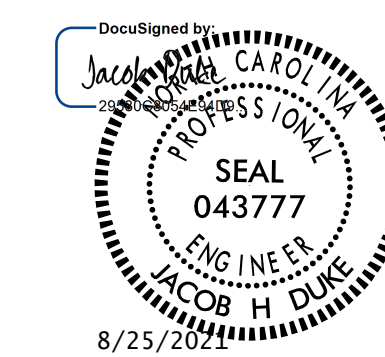
BRIDGES: 770010, 770012, 770004, 770086, 770089, 770090, 770096, 770098, 770104, 770106, 770107, 770124, 770130, 770131

PROJECT NO. I-5939

ROBESON COUNTY

BRIDGE NO. MULTIPLE

F.A. PROJECT NO.: NHPIM-0095(095)



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

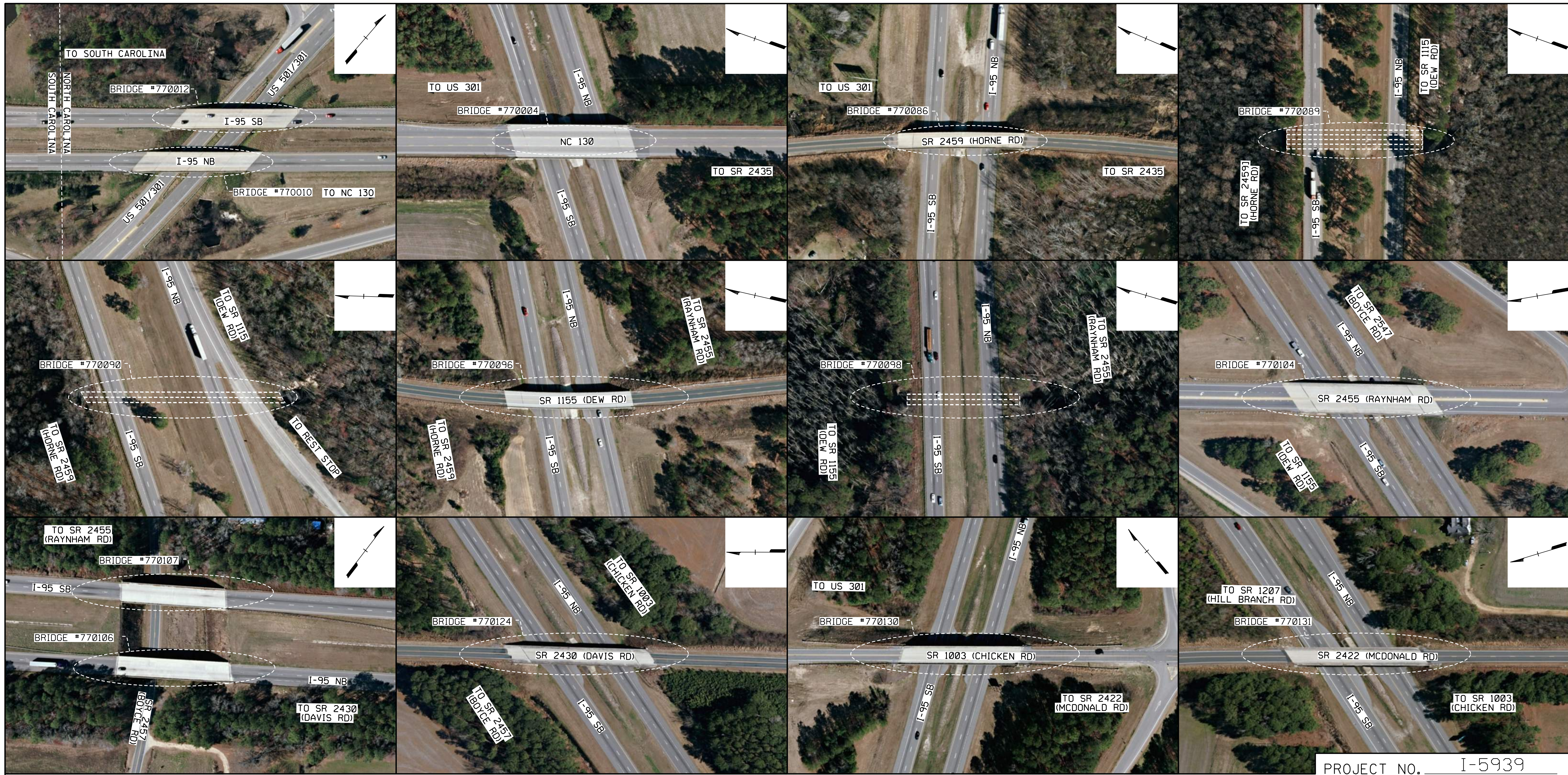
TOTAL BILL OF MATERIAL

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I9399.SMU.BOM.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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

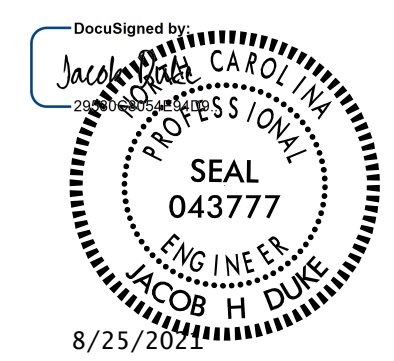


LOCATION SKETCHES

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. MULTIPLE

BRIDGES: 770010, 770012, 770004, 770086, 770089, 770090, 770096, 770098, 770104, 770106, 770107, 770124, 770130, 770131



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
BRIDGE LOCATION SKETCHES					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S3					TOTAL SHEETS 12

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES

ASSUMED LIVE LOAD FOR REPAIRS= HL93.

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORTS.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF THE PRESERVATION PROJECTS, THE EXTENT OF WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

THE EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OF ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

WORK ON THE BRIDGE(S) SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLANS USE PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES TO CATCH THE MATERIAL. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND H 021.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED AND REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

ANY DAMAGE TO EXISTING REINFORCING STEEL DURING CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

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

FOR ASPHALT RESURFACING ON I-95, SEE ROADWAY PLANS. ASPHALT APPROACH WORK FOR Y-LINES ARE INCLUDED IN THESE STRUCTURE PLANS.

REMOVING VEGETATION AND DEBRIS TO IMPROVE DRAINAGE FROM THE BRIDGE CORNERS SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS FOR THIS PROJECT. THE ENGINEER SHALL DIRECT VEGETATION REMOVAL AND NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH THESE PLANS.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATIONS OF THE BRIDGE. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM SKETCHES THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

ANY COST FOR DEWATERING NECESSARY TO COMPLETE CULVERT WORK SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS FOR THE PROJECT.

FOR PAINTING CONTAINMENT AND POLLUTION CONTROL, SEE CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR HEAT STRAIGHTENING STEEL BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR SILICONE JOINT SEALANT FOR SLOPE PROTECTION, SEE SPECIAL PROVISIONS.

FOR RAIL REPAIRS FOR ONE BAR METAL RAIL, SEE SPECIAL PROVISIONS.

FOR POLYESTER POLYMER CONCRETE/EPOXY POLYMER CONCRETE MATERIALS, SEE SPECIAL PROVISIO INS.

FOR LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR SLOPE PROTECTION VOID FILLING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR EPOXY OVERLAY, SEE SPECIAL PROVISIONS

FOR SURFACE PREPARATION FOR SILANE RAIL TREATMENTS AND SILANE RAIL TREATMENTS, SEE SPECIAL PROVISIONS.

FOR SHOTBLASTING BRIDGE DECK AND EPOXY OVERLAY SYSTEM TYPE II, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECKS AND PLACING AND FINISHING POLYMER CONCRETE OVERLAYS, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECKS, HYDRODEMOLITION OF BRIDGE DECKS AND PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAYS - VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR SHOTBLASTING BRIDGE DECKS AND SILANE DECK TREATMENTS, SEE SPECIAL PROVISIONS.

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

FOR TYPE I BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR CFRP PEDESTAL REPAIR AND BEARING RETROFIT, SEE SPECIAL PROVISIONS.

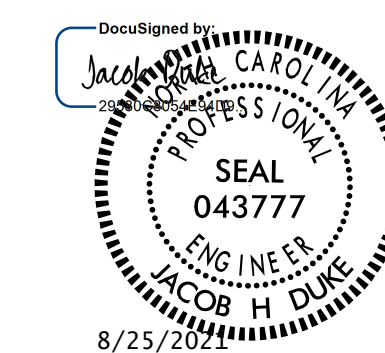
BRIDGE COORDINATES		
	LATITUDE	LONGITUDE
770010	34°30' 8.05" N	79°18' 26.43" W
770012	34°30' 9.19" N	79°18' 26.38" W
770004	34°31' 22.89" N	79°16' 36.17" W
770086	34°32' 4.80" N	79°15' 3.17" W
770089	34°32' 11.70" N	79°14' 38.37" W
770090	34°32' 23.89" N	79°13' 57.08" W
770096	34°32' 32.03" N	79°13' 35.60" W
770098	34°32' 55.27" N	79°12' 25.62" W
770104	34°33' 4.35" N	79°11' 57.77" W
770106	34°33' 36.91" N	79°10' 49.79" W
770107	34°33' 38.12" N	79°10' 50.86" W
770124	34°34' 8.85" N	79°9' 53.30" W
770130	34°34' 35.60" N	79°9' 5.86" W
770131	34°35' 12.35" N	79°7' 30.62" W

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND $f_y = 60\text{ksi}$.

BRIDGES: 770010, 770012, 770004, 770086, 770089, 770090, 770096, 770098, 770104, 770106, 770107, 770124, 770130, 770131

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. MULTIPLE



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

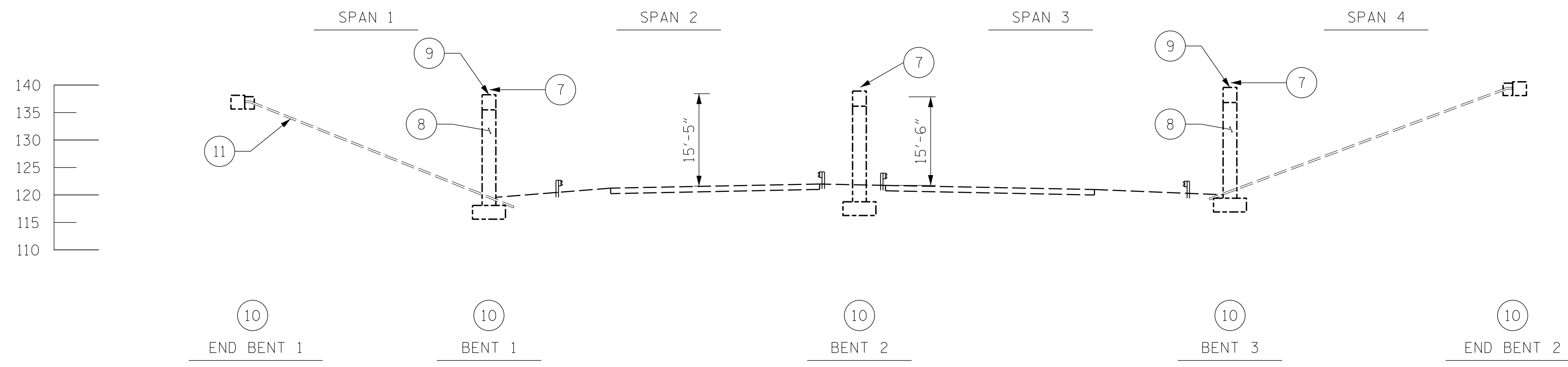
GENERAL NOTES

DRAWN BY :	FIDEL L. FLORES	DATE :	06/2021
CHECKED BY :	DIEGO A. AGUIRRE	DATE :	06/2021
DESIGN ENGINEER OF RECORD:	JACOB H. DUKE	DATE :	06/2021

8/25/2021
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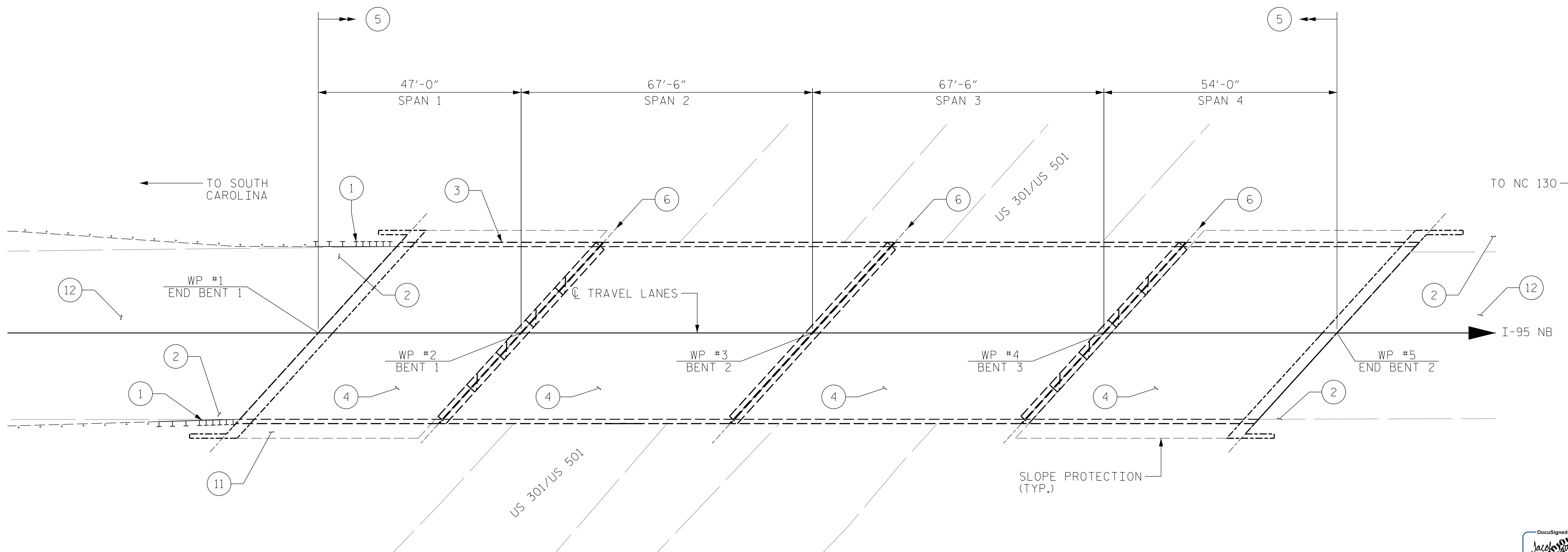
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1			3			4
2			4			12

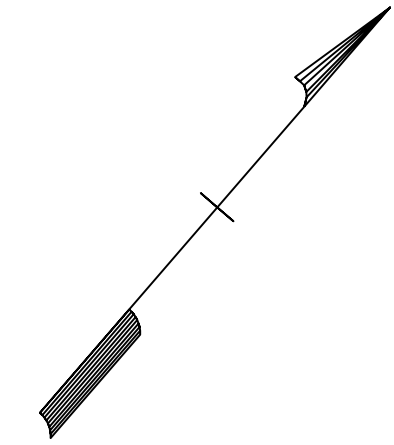


SECTION ALONG ROADWAY

- SCOPE LEGEND:
- 1 PROPOSED STRUCTURE ANCHOR UNITS TYPE III
 - 2 CLEAR SHOULDERS OF DEBRIS AND VEGETATION
 - 3 BRIDGE RAIL REPAIR
 - 4 CONCRETE DECK REPAIRS
 - 5 LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH
 - 6 JOINT REPLACEMENT
 - 7 PAINT EXISTING STEEL BEARINGS
 - 8 SUBSTRUCTURE CONCRETE REPAIRS
 - 9 BRIDGE JACKING, CFRP PEDESTAL REPAIRS & BEARING RETROFIT
 - 10 SUBSTRUCTURE EPOXY RESIN INJECTION
 - 11 SLOPE PROTECTION REPAIRS
 - 12 APPROACH ROADWAY MILLING AND RESURFACING



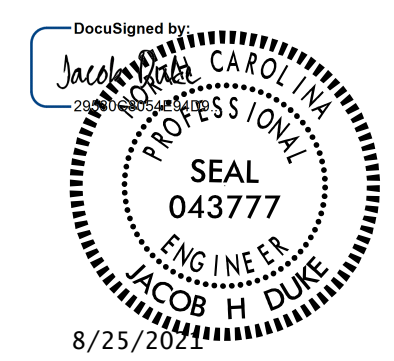
PLAN



I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON I-95 NB
 OVER US 501

NOTES:

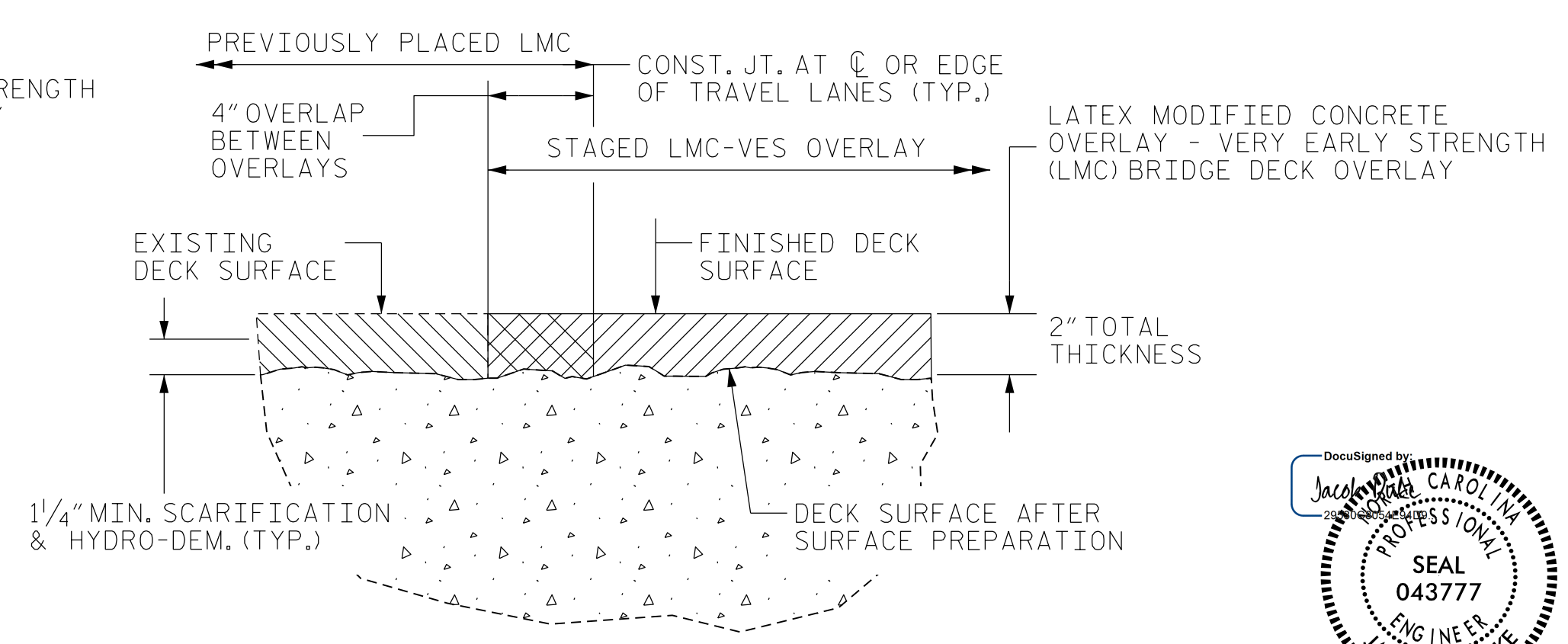
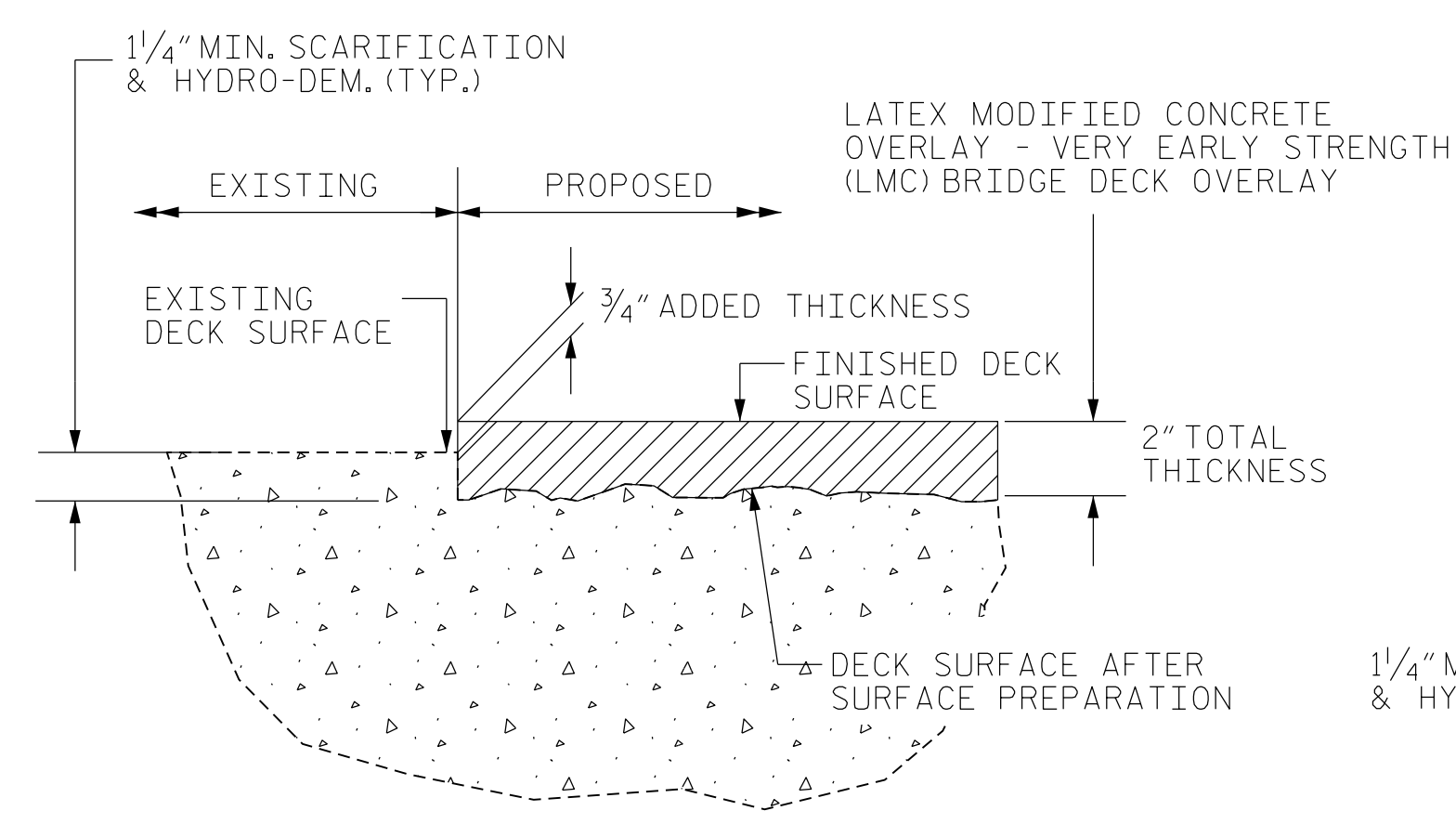
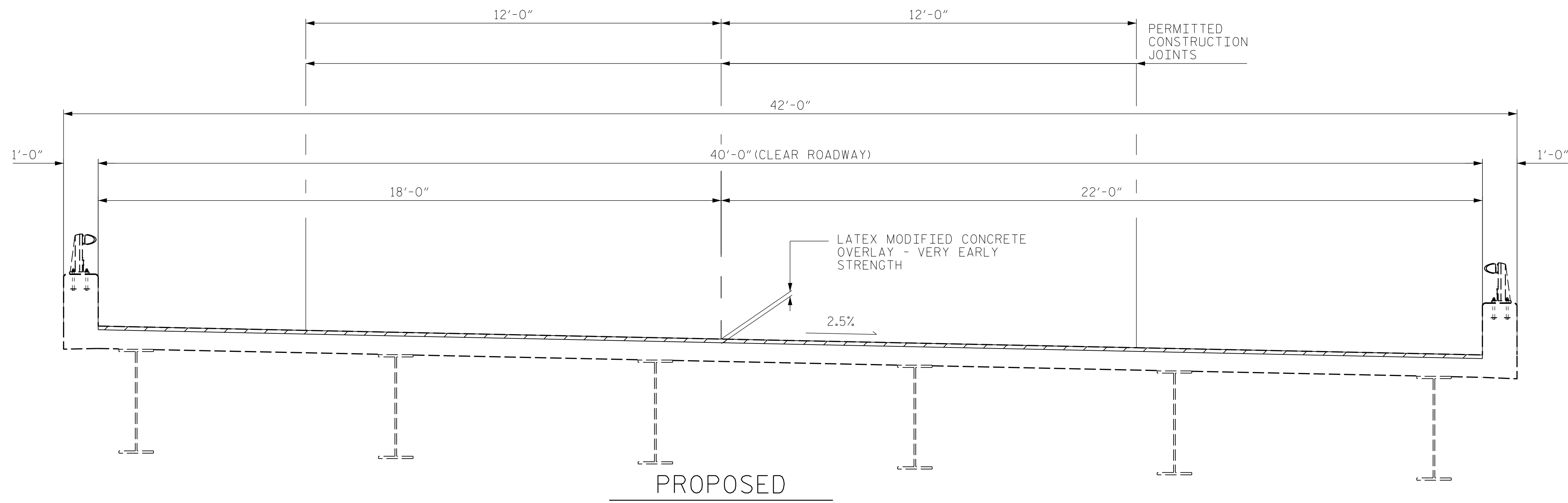
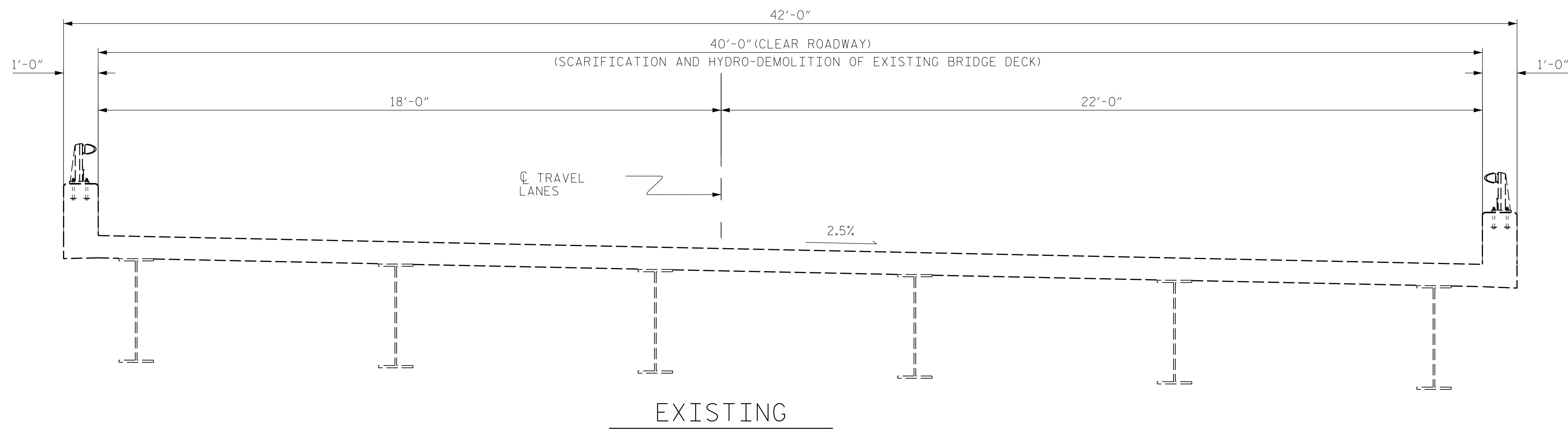
GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/10/2019.
 BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			14

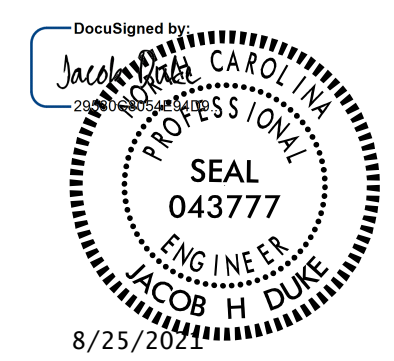


- NOTES:
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
 - SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH (LMC) SYSTEM AND SURFACE PREPARATION.

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
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PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770010

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-2
1			3			TOTAL SHEETS
2			4			14

AS-BUILT REPAIR QUANTITY TABLE

	TOP OF DECK REPAIRS							
	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	209 SY		300 SY		300 SY		240 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	209 SY		300 SY		300 SY		240 SY	
CLASS II SURFACE PREPARATION	0.2 SY		0.2 SY		0.2 SY		0.2 SY	
CLASS III SURFACE PREPARATION	8.3 SY		12.5 SY		32.5 SY		67.0 SY	
LATEX OVERLAY - VERY EARLY STRENGTH	11.6 CY		16.7 CY		16.7 CY		13.4 CY	
PLACING AND FINISHING LMC OVERLAY	209 SY		300 SY		300 SY		240 SY	
GROOVING BRIDGE FLOORS	1739 SF		2498 SF		2498 SF		1998 SF	
SHOTCRETE REPAIR AREA (SCR)	0.5 CF		0.5 CF		0.5 CF		0.0 CF	

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1/2" PER THE EXISTING BRIDGE PLANS. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING SCARIFICATION. CURRENT AVERAGE COVER IS EXPECTED TO BE FROM 0 TO 1/2" TO 2" BASED ON VISUAL INSPECTION.

MINOR QUANTITIES OF CLASS II AREAS ARE ANTICIPATED, PARTICULARLY NEAR JOINTS. HOWEVER, DUE TO THEIR SMALL SIZE, THE CLASS II LOCATIONS HAVE NOT BEEN DELINEATED ON THESE PLANS. THE CLASS II QUANTITIES INDICATED ARE ANTICIPATED TO BE SUFFICIENT FOR THE ACTUAL QUANTITIES ENCOUNTERED.

BRIDGE DECK GROOVING QUANTITY BASED ON LIMITS REQUIRED IN SECTION 420-14(B) OF STANDARD SPECIFICATIONS.

FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION, CLASS II AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

THE LMC CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK DURING HYDRO-DEMOLITION.

DURING CONSTRUCTION, BERMS OR APPROPRIATE COUNTERMEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT MIGRATE INTO ACTIVE TRAVEL LANES.

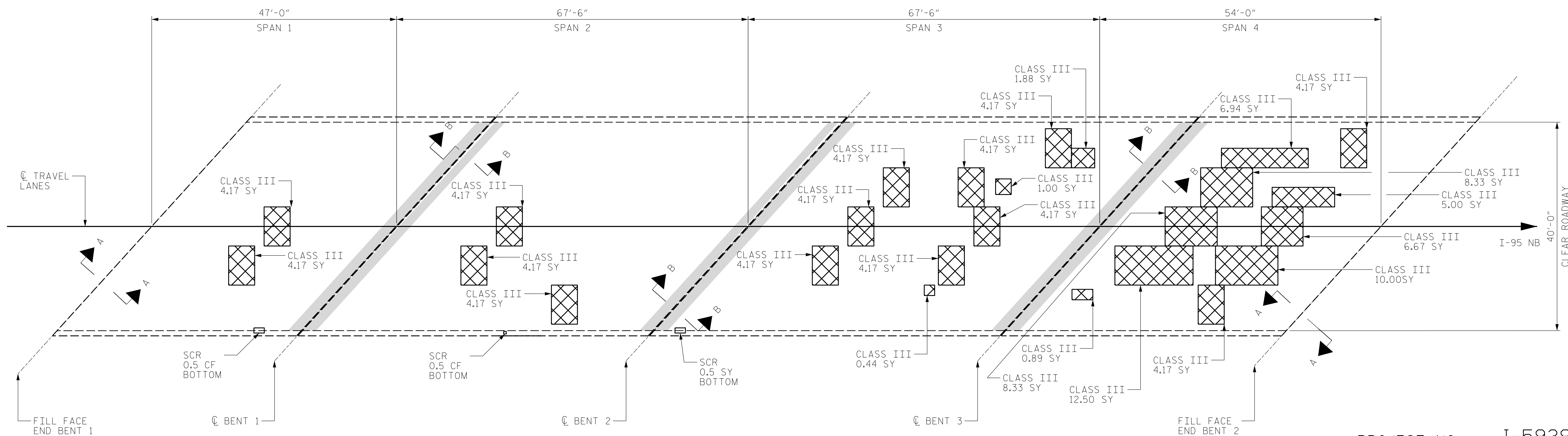
THE CONTRACTOR SHALL COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM HYDRO-DEMOLITION PROCESS, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

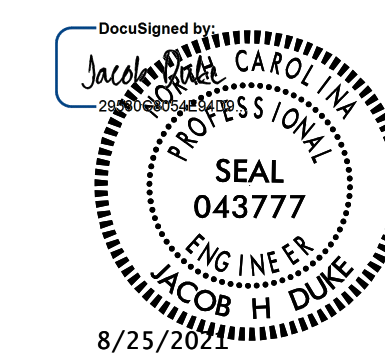
FOR PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH (LMC-VES), SEE LATEX MODIFIED CONCRETE-VERY EARLY CONCRETE SPECIAL PROVISIONS.

LONGITUDINAL CONSTRUCTION JOINTS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

BRIDGE DECK SCARIFICATION, HYDRO-DEMOLITION, AND LMC-VES, LIMITS ARE THE FULL CLEAR ROADWAY WIDTH (INSIDE FACE OF EACH BRIDGE RAIL). CATION. CURRENT AVERAGE COVER IS EXPECTED TO BE FROM 0 TO 1/2" TO 2" BASED ON VISUAL INSPECTION.

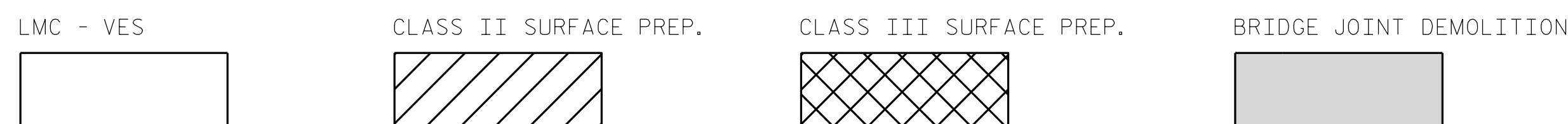


PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS



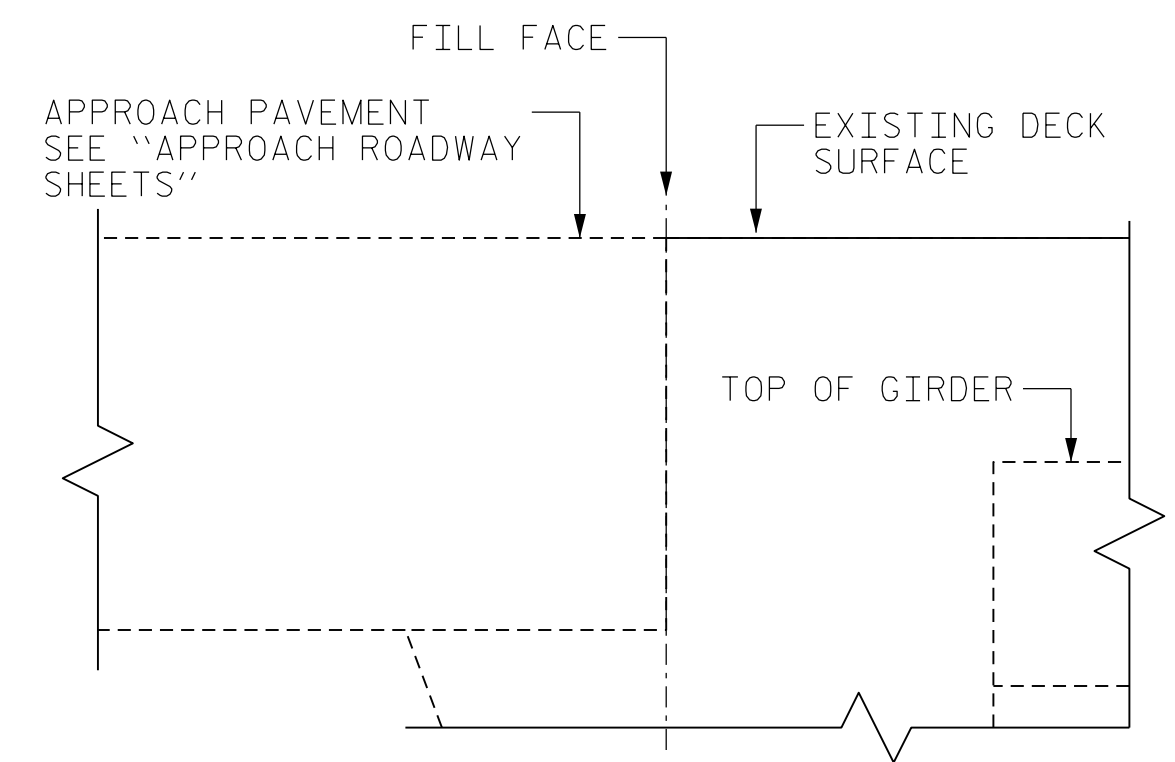
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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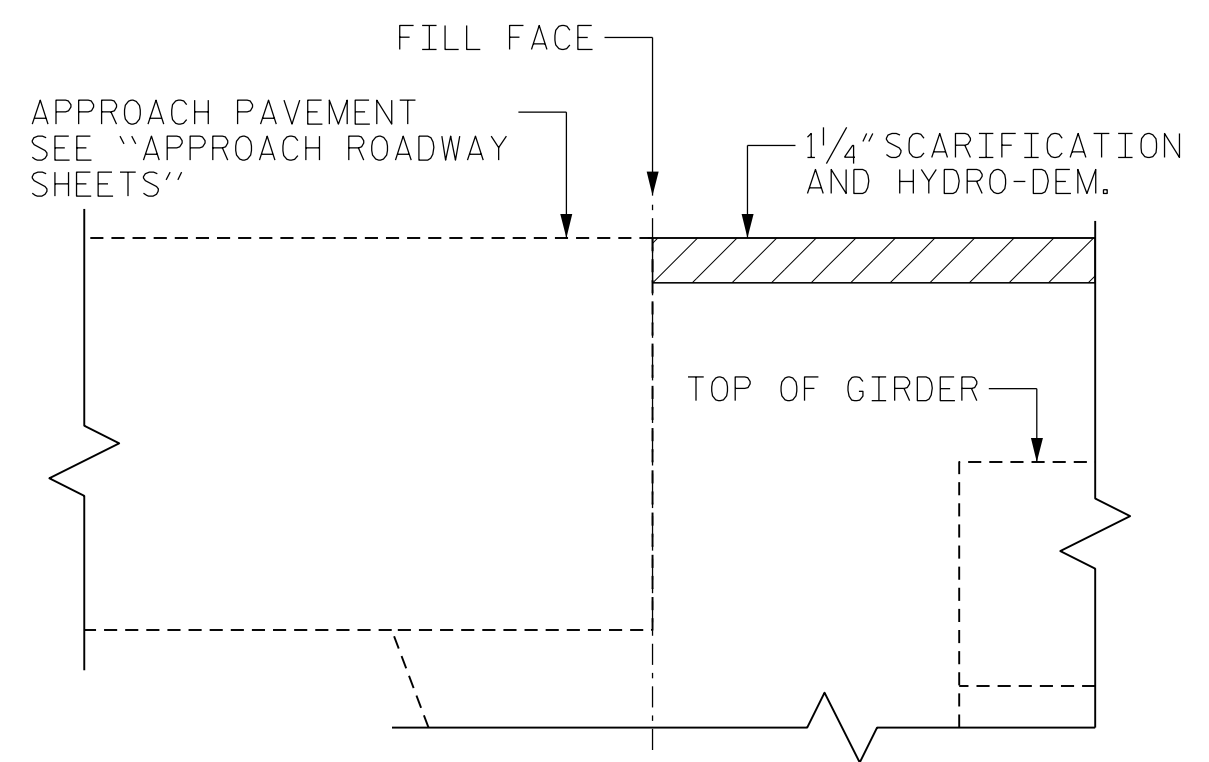
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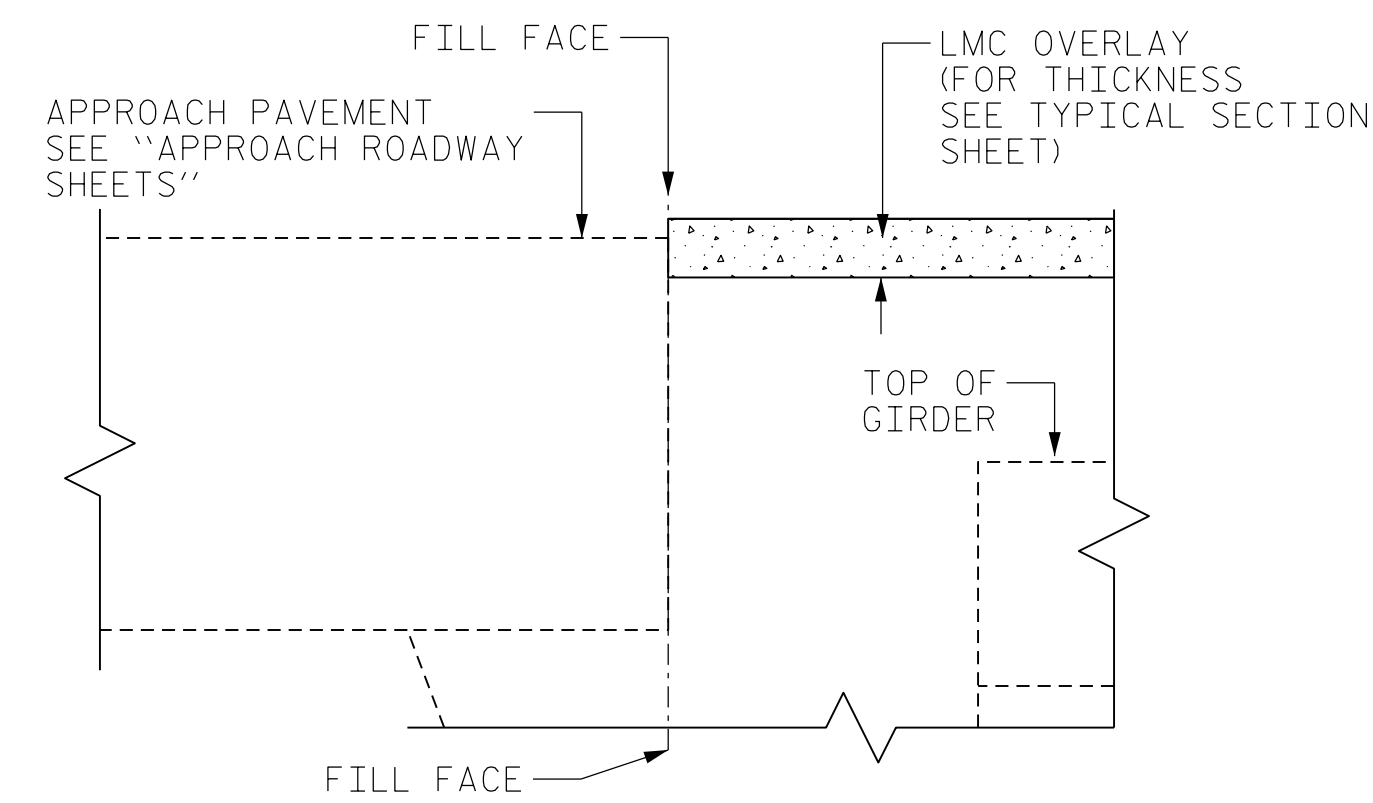
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-3
2			4			TOTAL SHEETS 14



SECTION A-A
(EXISTING DETAIL, NO JOINT)



SECTION A-A
(MIN. EXISTING DECK DEMOLITION)



SECTION A-A
(PROPOSED DETAIL, NO JOINT)

NOTES:

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SHALL BE WATER TIGHT.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

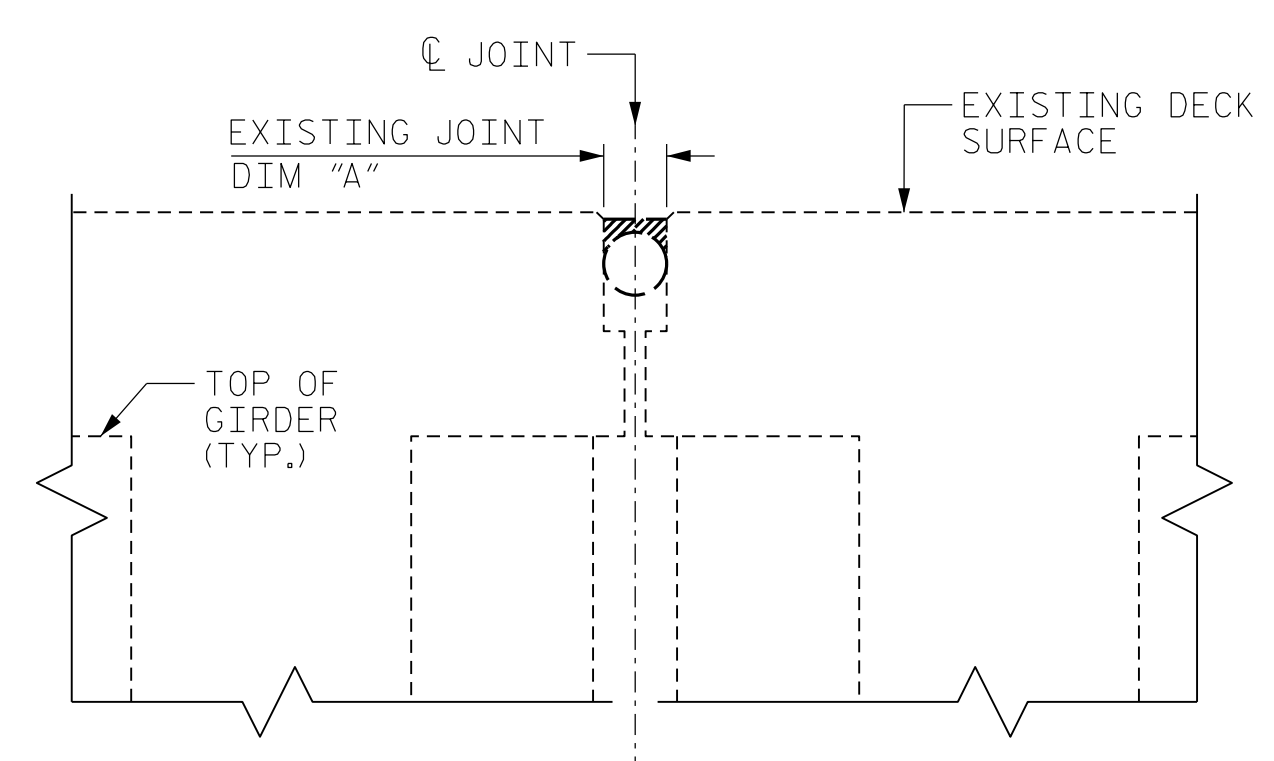
FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

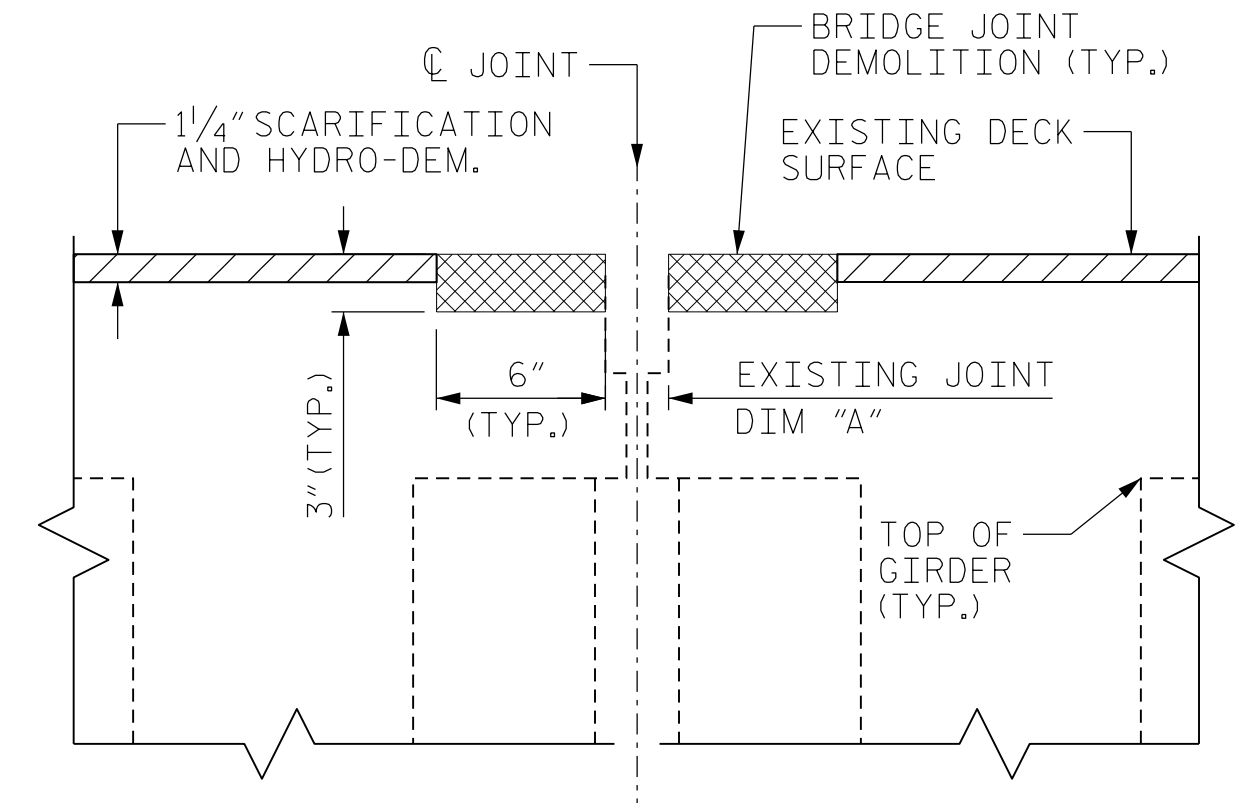
FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOPS SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

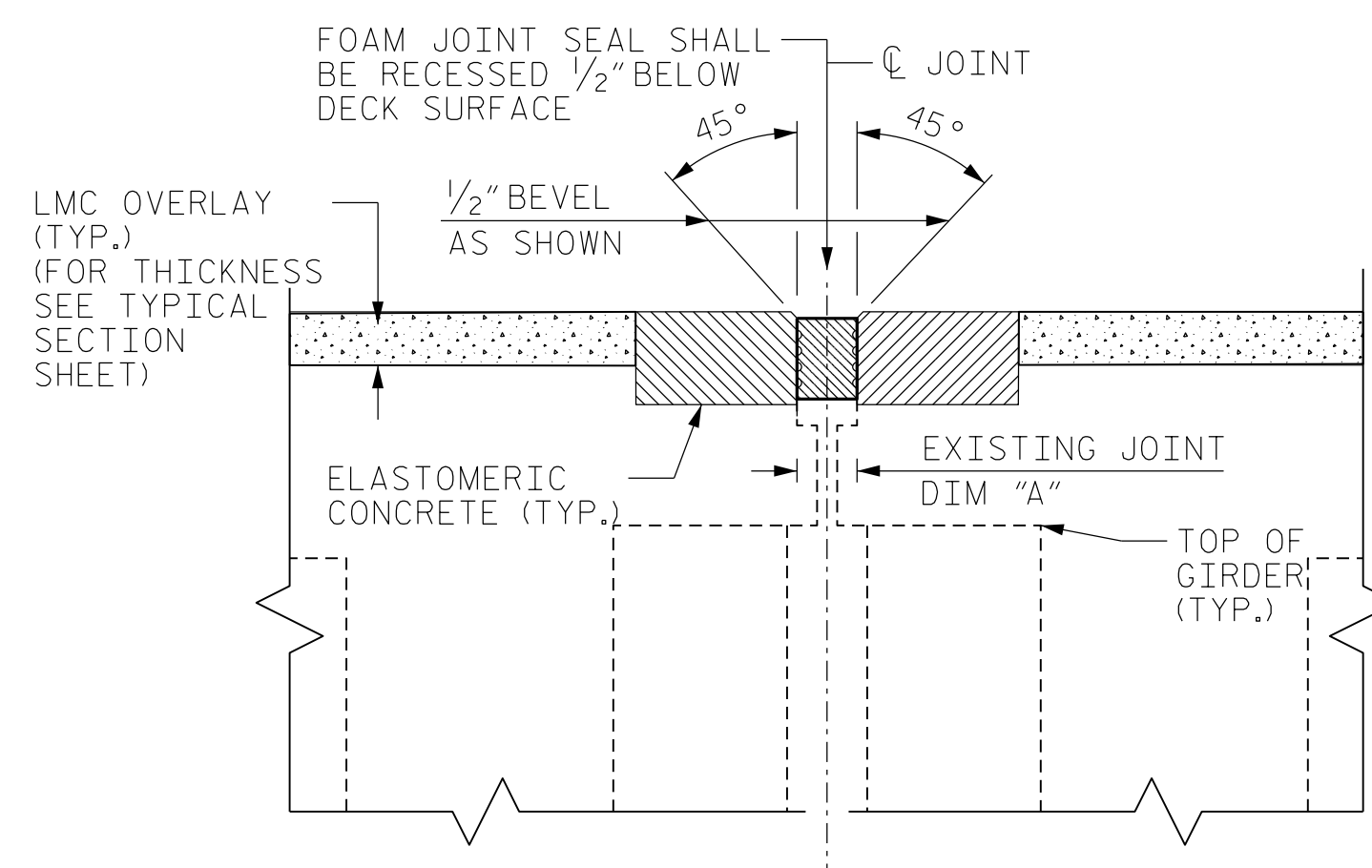
DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.



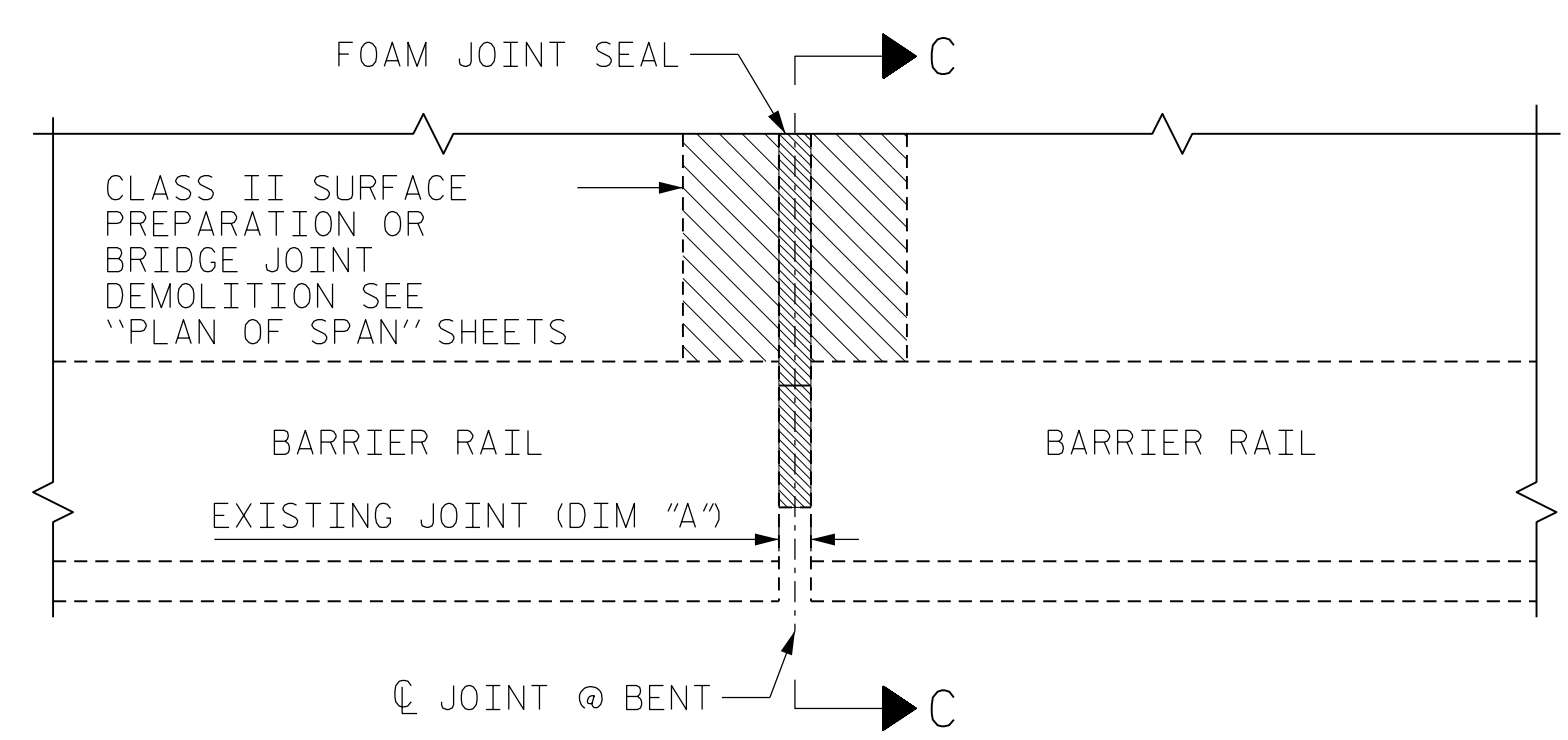
SECTION B-B
(EXISTING JOINT PRIOR TO LMC OVERLAY)



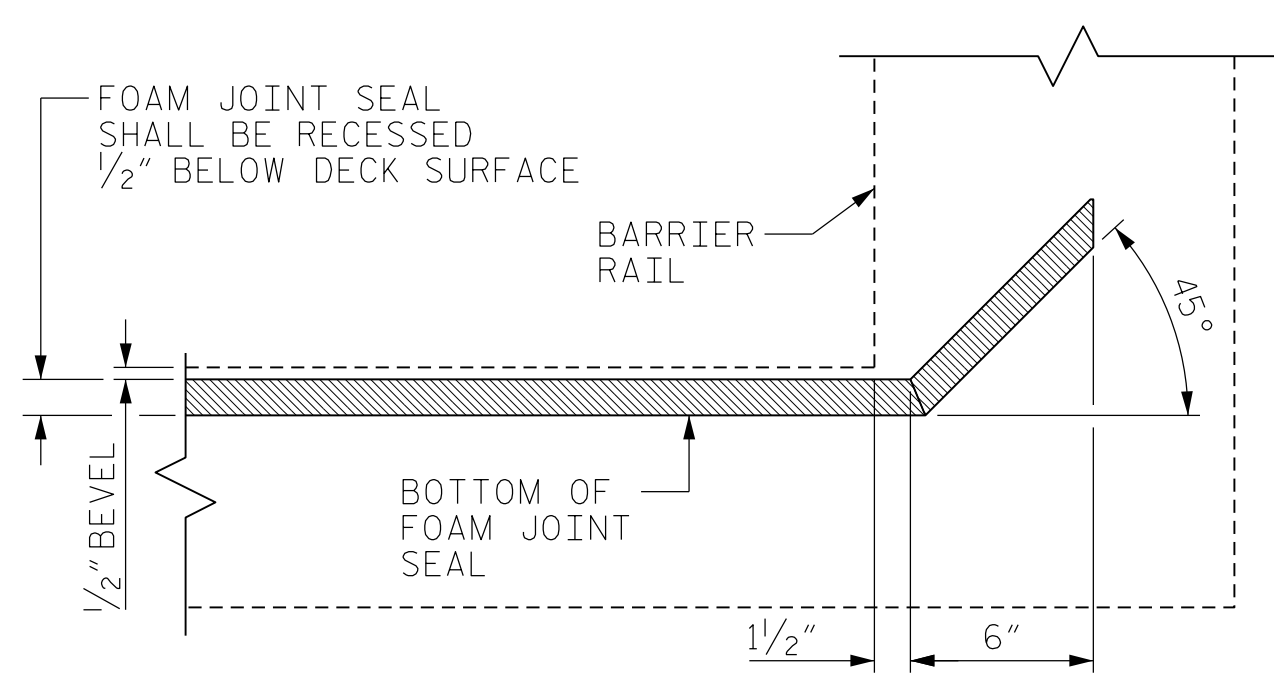
SECTION B-B
(SCARIFICATION AND HYDRO-DEMOLITION)



SECTION B-B
(PROPOSED FOAM JOINT SEAL)



PLAN AT BARRIER
(PROPOSED JOINT SEAL)



SECTION C-C
(PROPOSED JOINT SEAL)

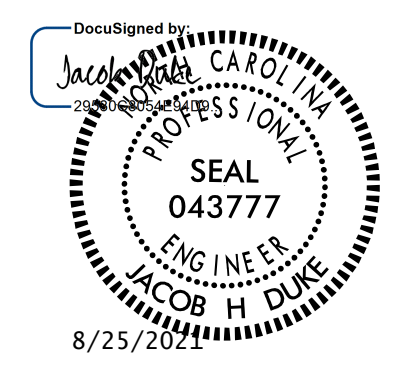
ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	N/A	
BENT 1	13.6	
BENT 2	13.6	
BENT 3	13.6	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	N/A	
BENT 1	55	
BENT 2	55	
BENT 3	55	

TABLE 1	
Table Date 04-2021	
BENT/ JOINTS	DIM "A" @ 71 °F
END BENT 1	N/A
1	3"
2	2.5"
3	2"
END BENT 2	N/A

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	168	

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



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

SHEET NO.	
S1-4	TOTAL SHEETS
14	14

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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NOTES

REPAIR NOTES

FOR REPAIR NOTES, SEE SHEET 2 OF 2.

THE CONTRACTOR SHALL PROVIDE METAL RAIL REPLACEMENT MATERIALS THAT MATCH THE EXISTING ONE BAR METAL RAIL IN THE FIELD. THE RAILS MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

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

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

GALVANIZED STEEL RAILS

MATERIALS AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

CLOSURE PLATES: CLOSURE PLATES SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL.

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

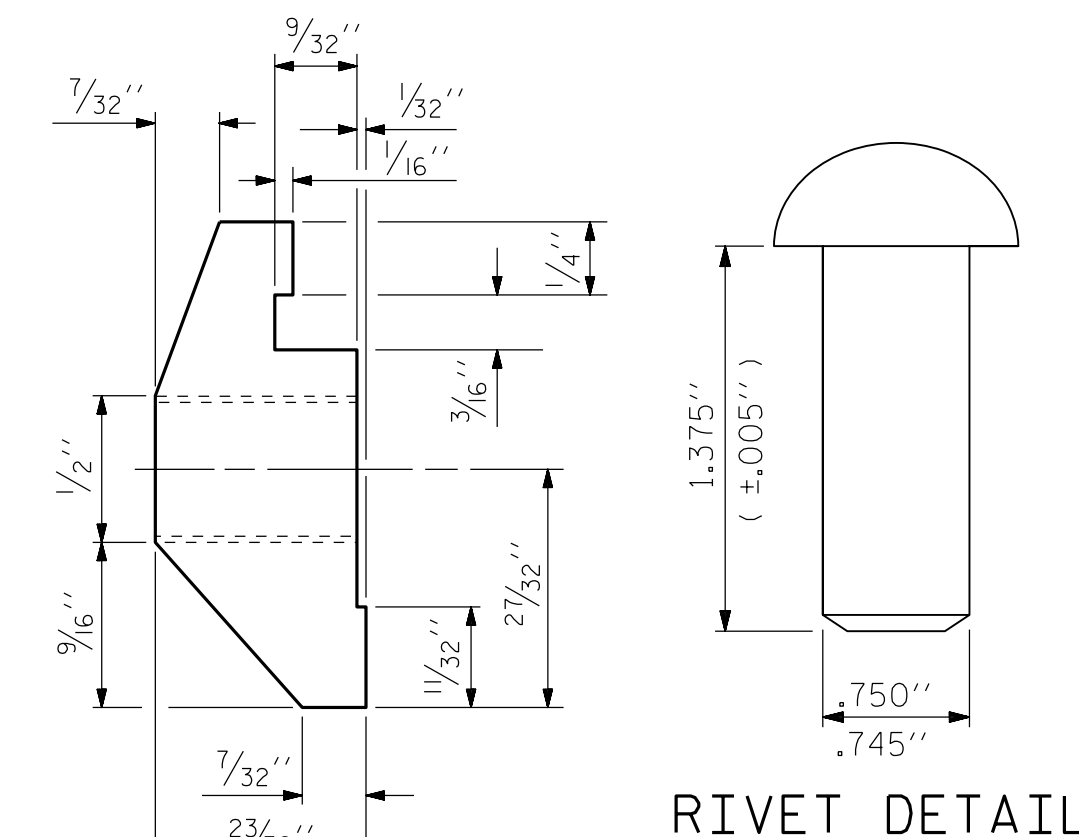
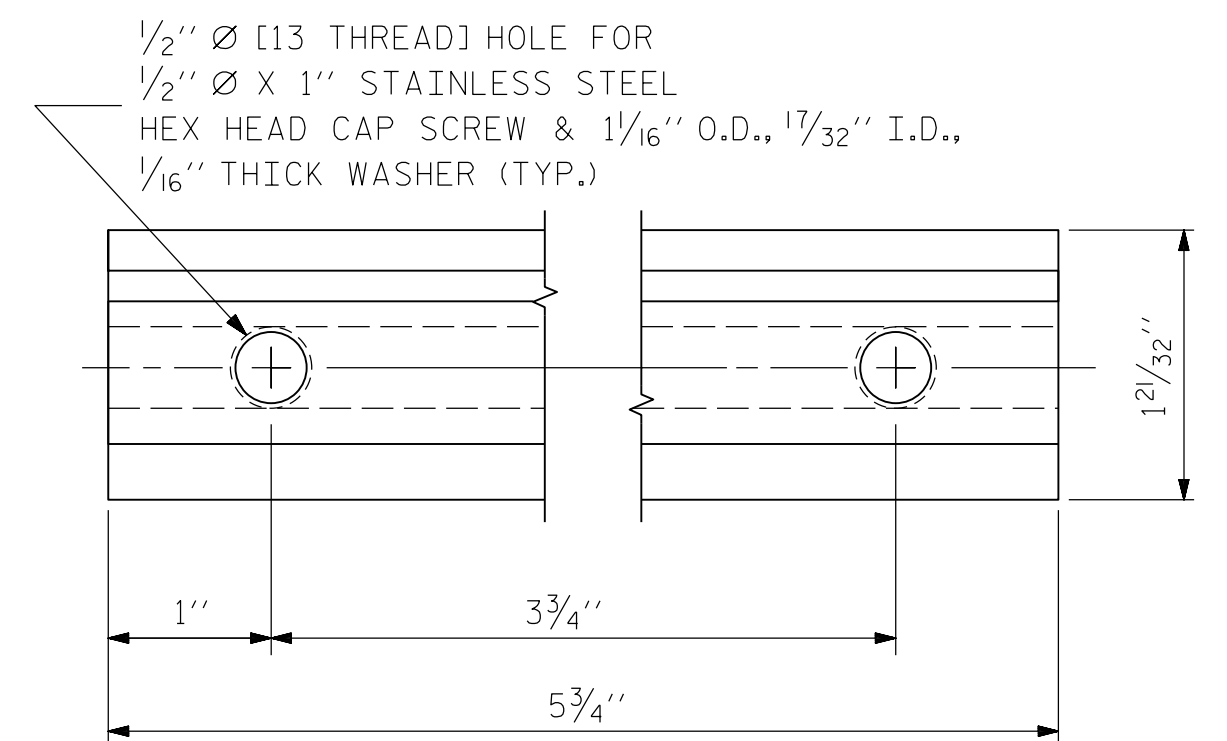
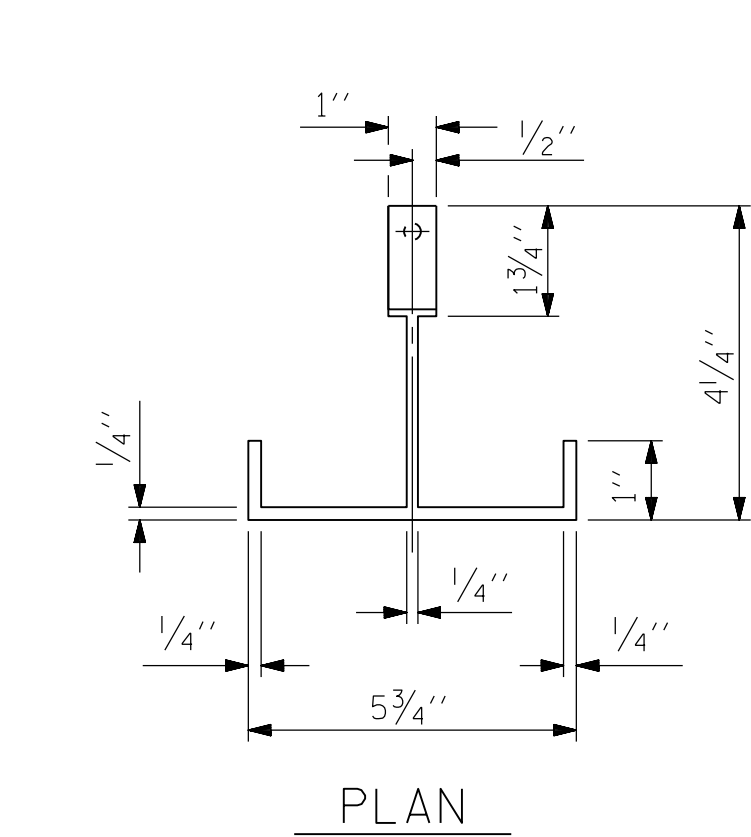
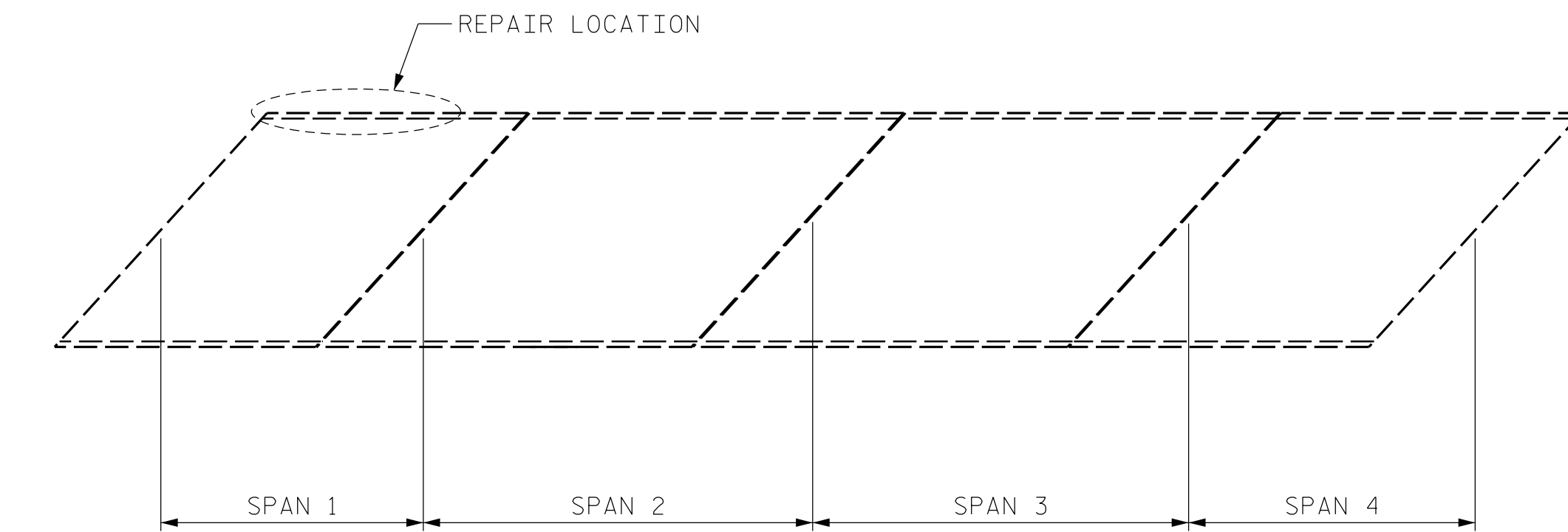
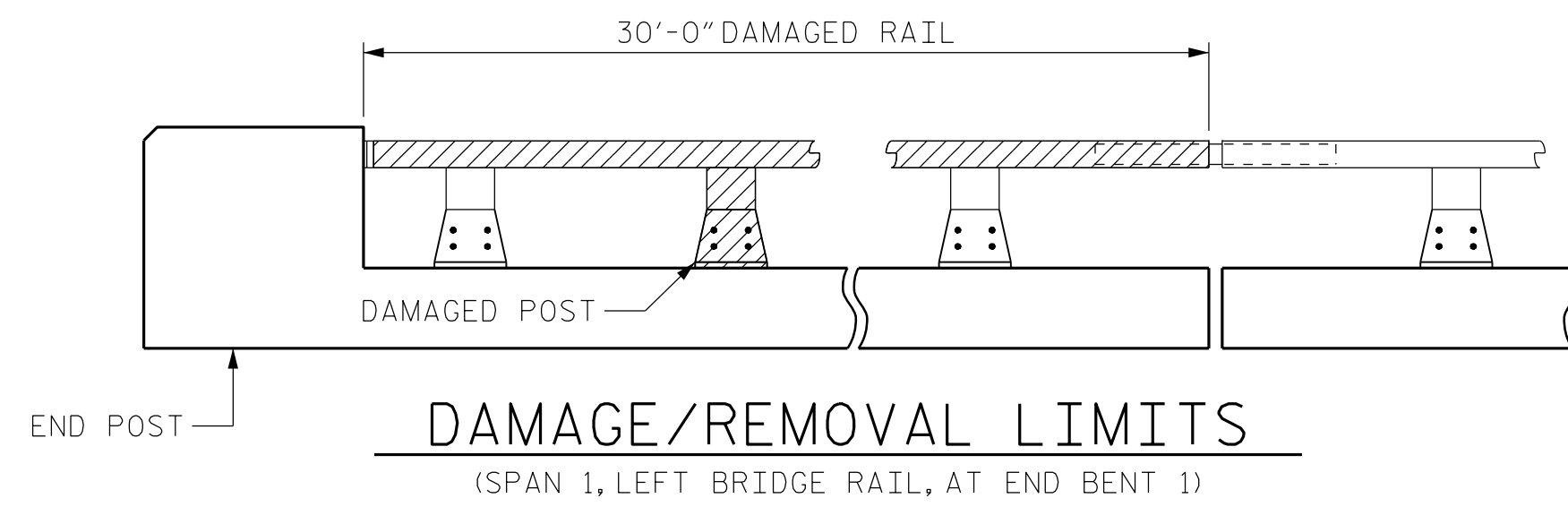
METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

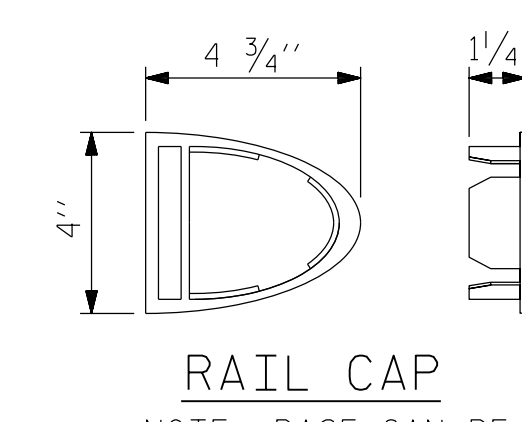
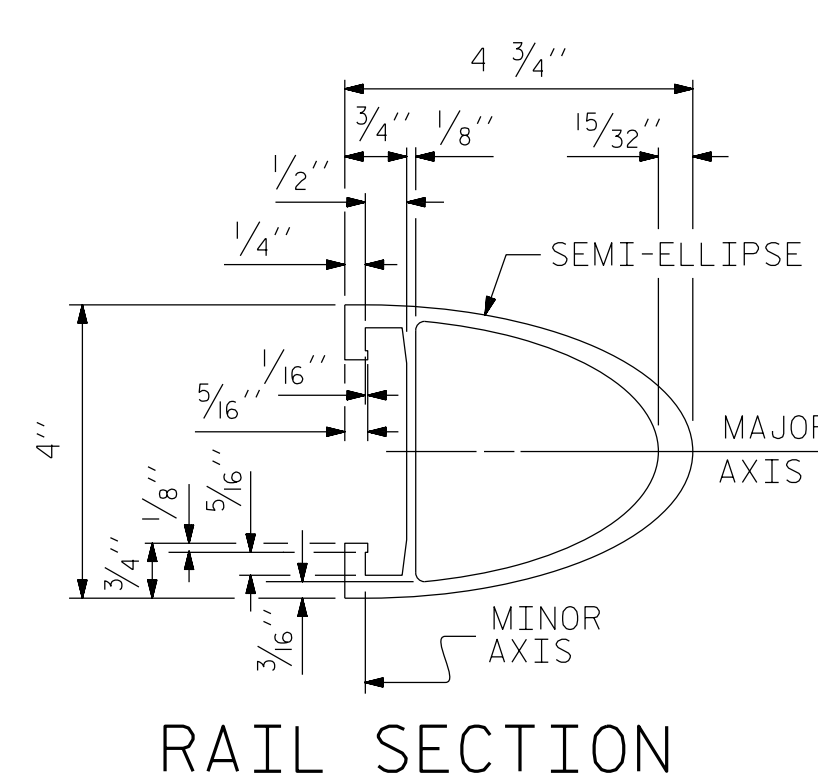
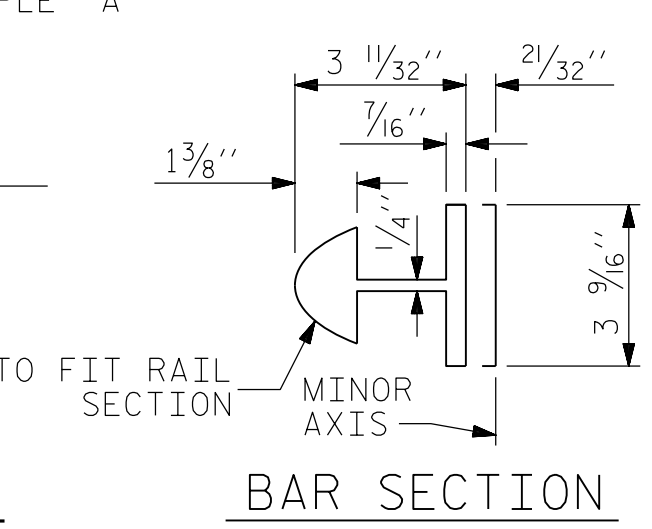
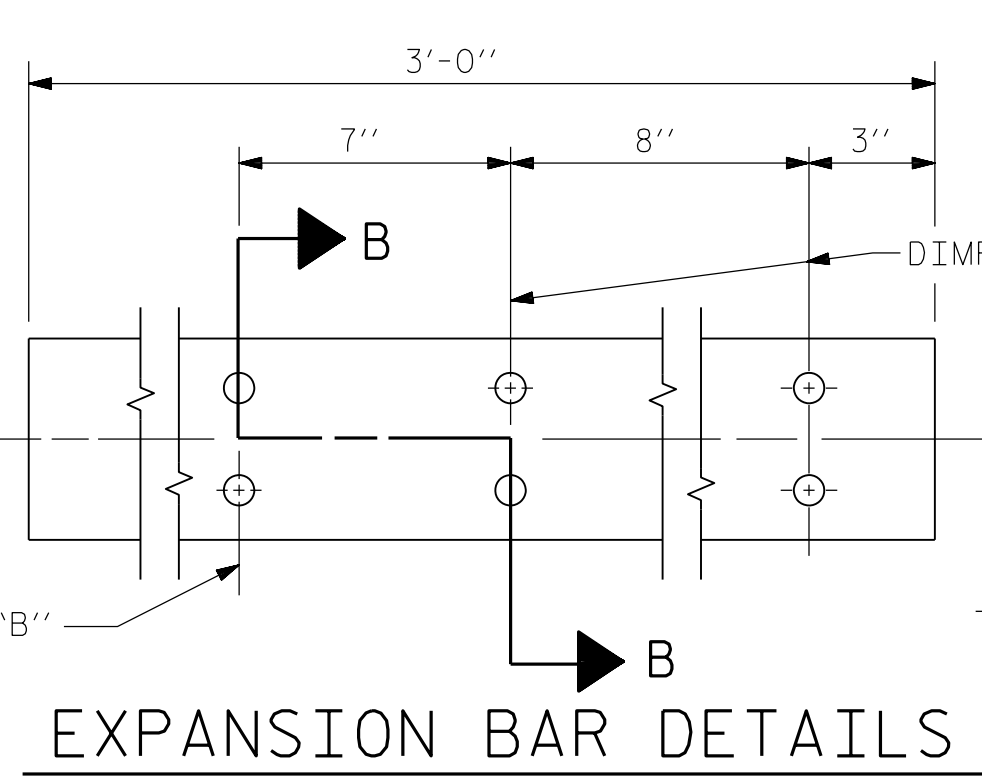
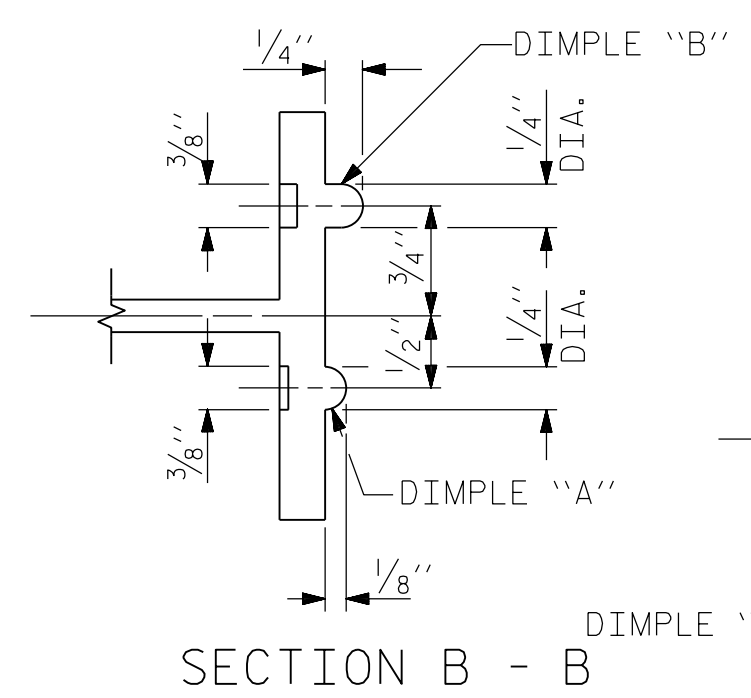
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

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



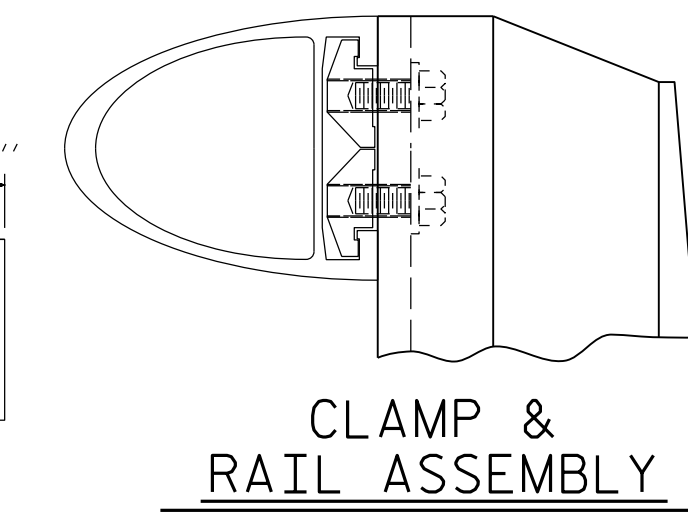
CLAMP BAR DETAIL
(2 REQUIRED PER POST)

RIVET DETAIL



RAIL CAP

NOTE : BASE CAN BE SUPPLIED AS ONE EXTRUSION OR TWO EXTRUSIONS WELDED TOGETHER AS SHOWN.



CLAMP & RAIL ASSEMBLY

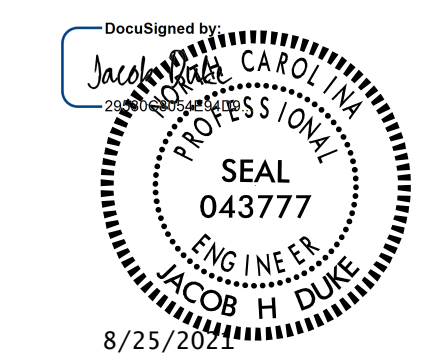
RAIL SECTION

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
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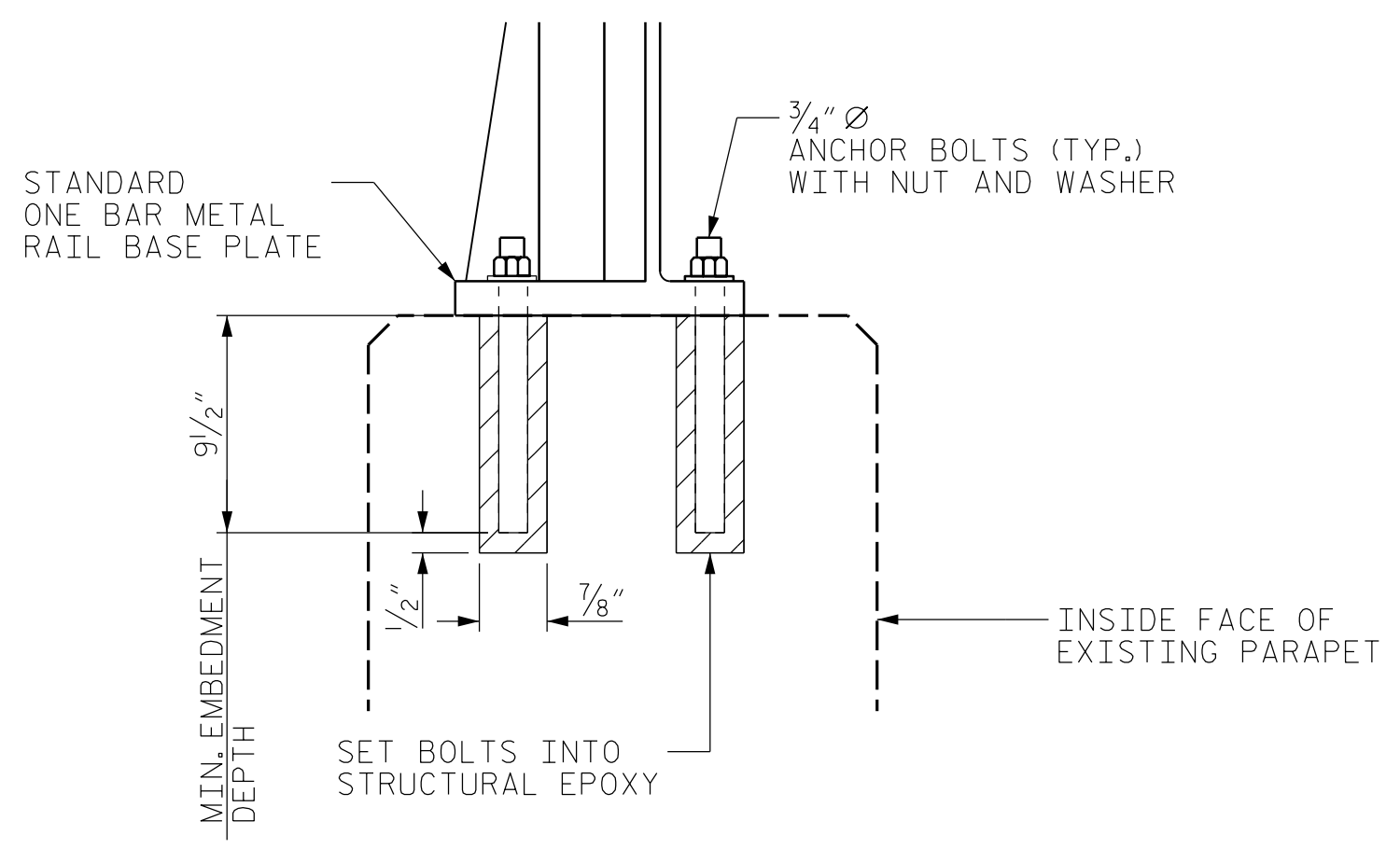
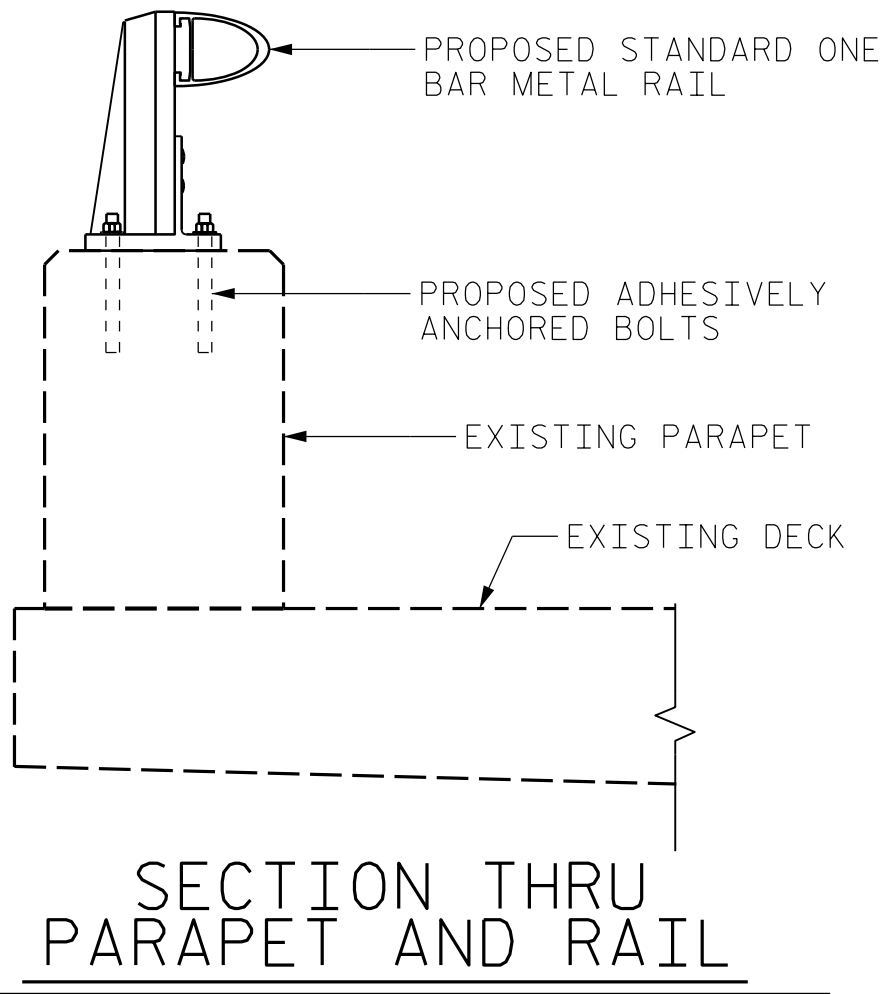
PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770010

SHEET 1 OF 2

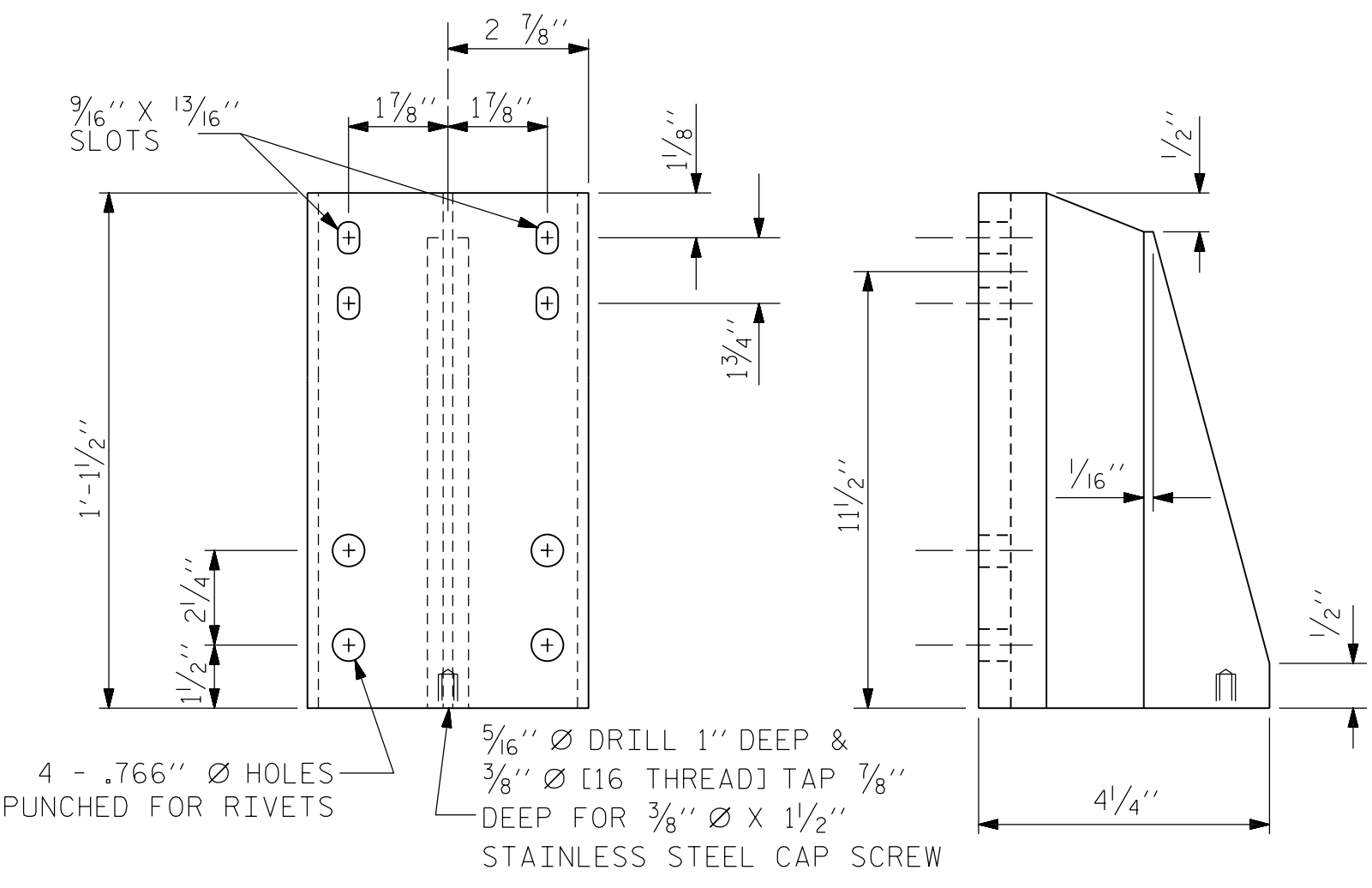


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
MODIFIED STANDARD 1 BAR METAL RAIL REPAIRS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S1-5
TOTAL SHEETS					14

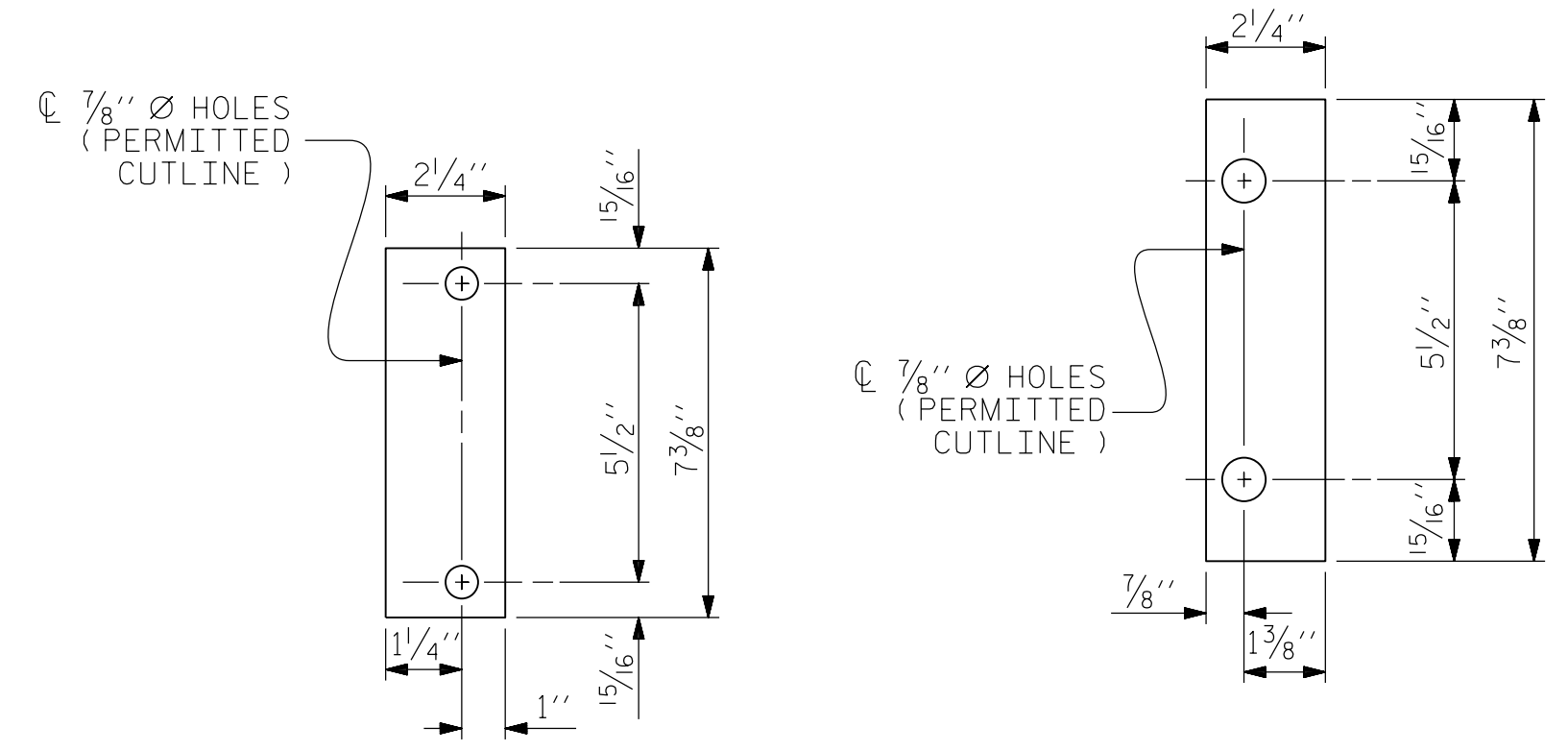
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



ADHESIVELY ANCHORED BOLTS

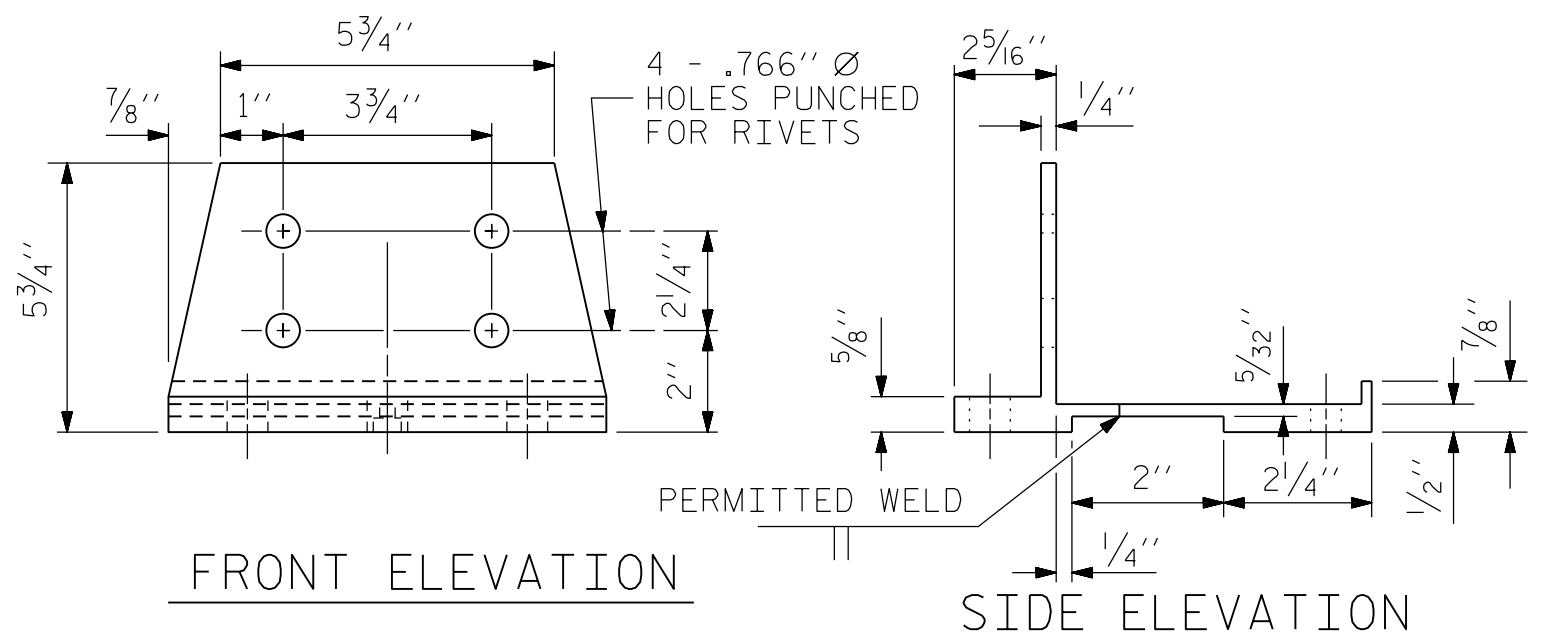
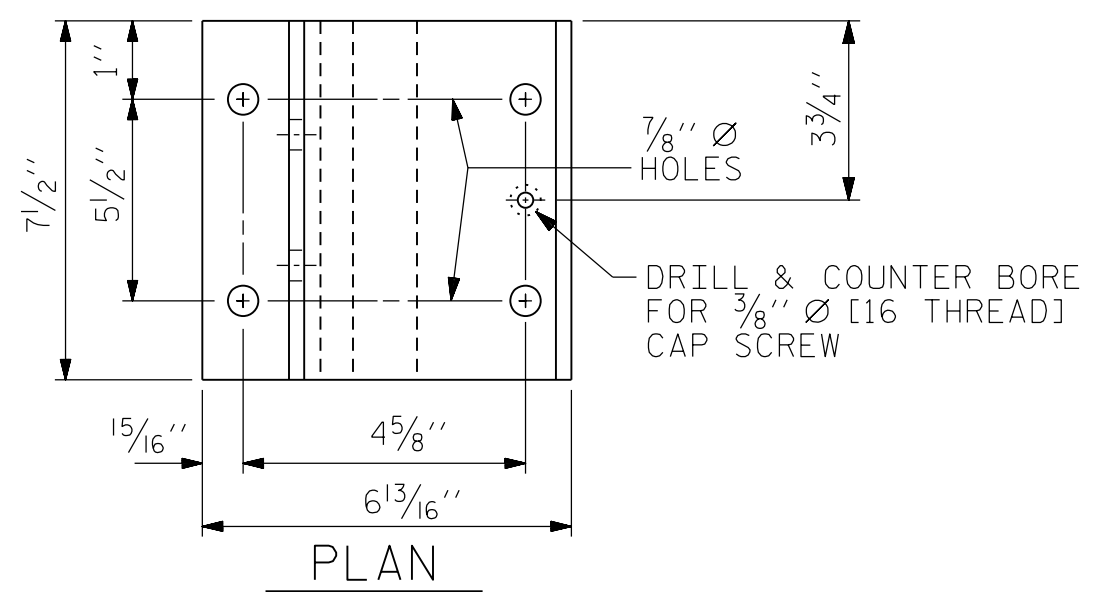


DETAILS OF POST

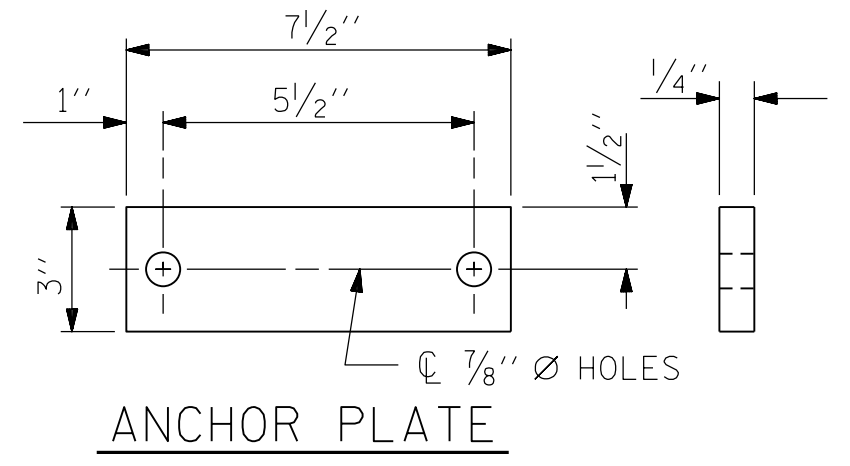


SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED OUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



POST BASE DETAILS



ANCHOR PLATE

NOTES

DAMAGED RAIL REMOVAL

THE DAMAGED BAR RAIL, POST, PLATES AND CONNECTION HARDWARE SHALL BE REMOVED TO THE LIMITS SHOWN IN THE PLANS.

CUT EXISTING ANCHOR BOLTS/DOWELS FLUSH WITH THE TOP OF THE PARAPET AND COAT THE END OF THE EXISTING BOLTS/DOWELS WITH EPOXY.

AT THE TIME OF INSPECTION, ONLY THE PORTIONS OF THE RAIL IDENTIFIED ON SHEET 1 WERE DEEMED DAMAGED. THE CONTRACTOR AND THE ENGINEER SHALL COORDINATE IN THE FIELD TO DETERMINE THE FULL LIMITS OF REPLACEMENT AND WHICH COMPONENTS SHOULD BE REPLACED TO ACHIEVE PROPER FIT-UP.

ALL WORK TO REMOVE, CUT, EPOXY AND THE DISPOSAL OF ALL EXISTING DAMAGED MATERIALS SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM COST FOR "RAIL REPAIR FOR ONE BAR METAL RAIL".

ANCHOR SYSTEM

MATERIAL FOR ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF F593 ALLOY WITH MINIMUM 75,000 PSI TENSILE STRENGTH.

MATERIAL FOR NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY.

MATERIAL FOR WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844.

FOR ADHESIVELY ANCHORED BOLTS AND DOWELS, SEE SECTION 420-13 OF THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M111.

THE COST OF THE METAL RAIL ANCHOR SYSTEM WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE FOR LINEAR FEET OF "ONE BAR METAL RAIL REPAIR".

BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER TIGHT POSITION.

DO NOT PLACE THE NEW POST AT THE SAME LOCATION AS THE REMOVED/DAMAGED POST. PLACE THE NEW POST AND ANCHOR SYSTEM FLUSH ON TOP OF THE EXISTING PARAPET.

CERTIFIED MILL REPORTS ARE REQUIRED FOR ALL MATERIALS OF THE ANCHOR SYSTEM.

LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4\"/>

GENERAL NOTES

ALL DETAILS AND DIMENSIONS ARE FROM THE BEST INFORMATION AVAILABLE. DETAILS AND DIMENSIONS ARE DERIVED FROM THE EXISTING PLANS AND THE CURRENT STANDARDS FOR THE "ONE BAR METAL RAIL".

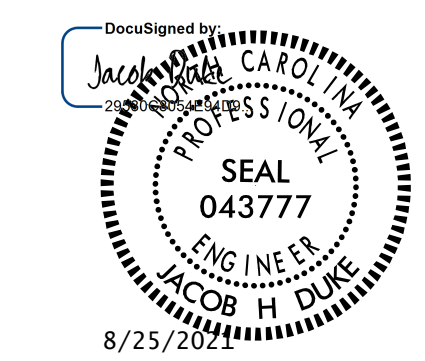
THE CONTRACTOR AND THE ENGINEER SHALL COORDINATE TO CORRECT ANY DISCREPANCY BETWEEN THE PLANS AND FIELD CONDITIONS TO COMPLETE THE WORK.

ALL DETAILS PROVIDED WITHIN THESE 1 BAR METAL RAIL SHEETS ARE INCLUDED FOR INFORMATION PURPOSES AND NOT ALL PARTS MAY BE USED. IT IS THE DUTY OF THE CONTRACTOR AND THE ENGINEER TO DETERMINE WHICH PARTS AND DETAILS WILL BE NEEDED IN ORDER TO COMPLETE THE WORK.

FOR "RAIL REPAIRS FOR ONE BAR METAL RAIL", SEE SPECIAL PROVISIONS.

PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770010

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 MODIFIED STANDARD
 1 BAR METAL RAIL
 REPAIRS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-6
1			3			TOTAL SHEETS
2			4			14

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

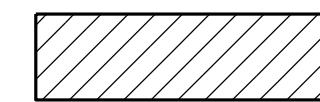
DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	2 EA	
GUARDRAIL REMOVAL	37.5 LF	
PROPOSED GUARDRAIL		
INCIDENTAL MILLING	653 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	50 TONS	
ASPHALT BINDER FOR PLANT MIX	3.0 TON	
POLYUREA PAVEMENT MARKING LINES (6", 30 MILS)	869 LF	

NOTES:

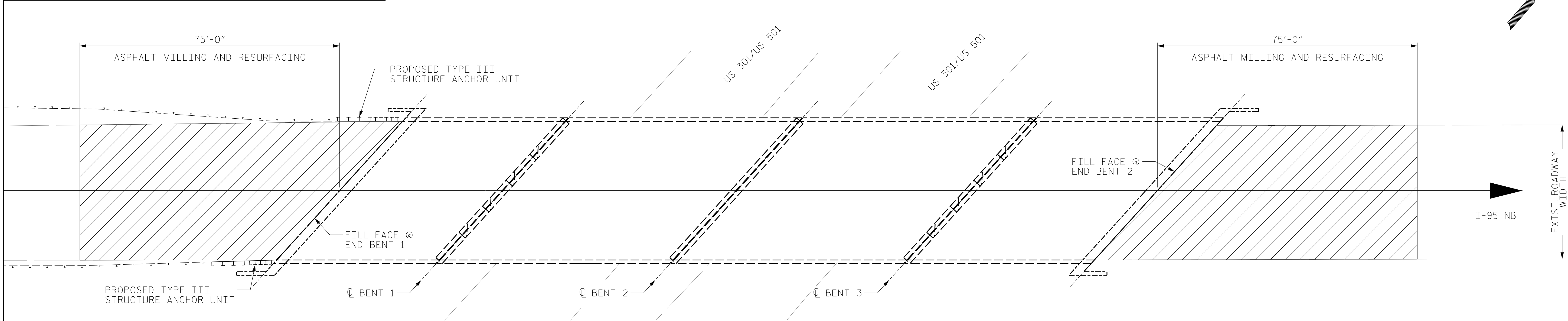
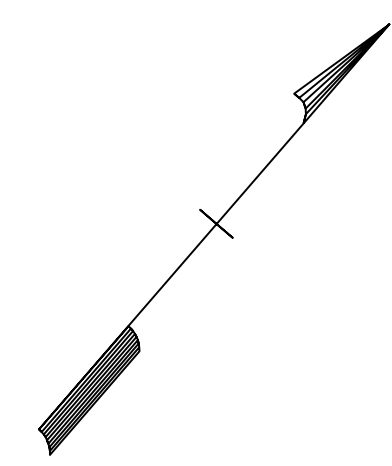
- INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.
- FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
- FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.



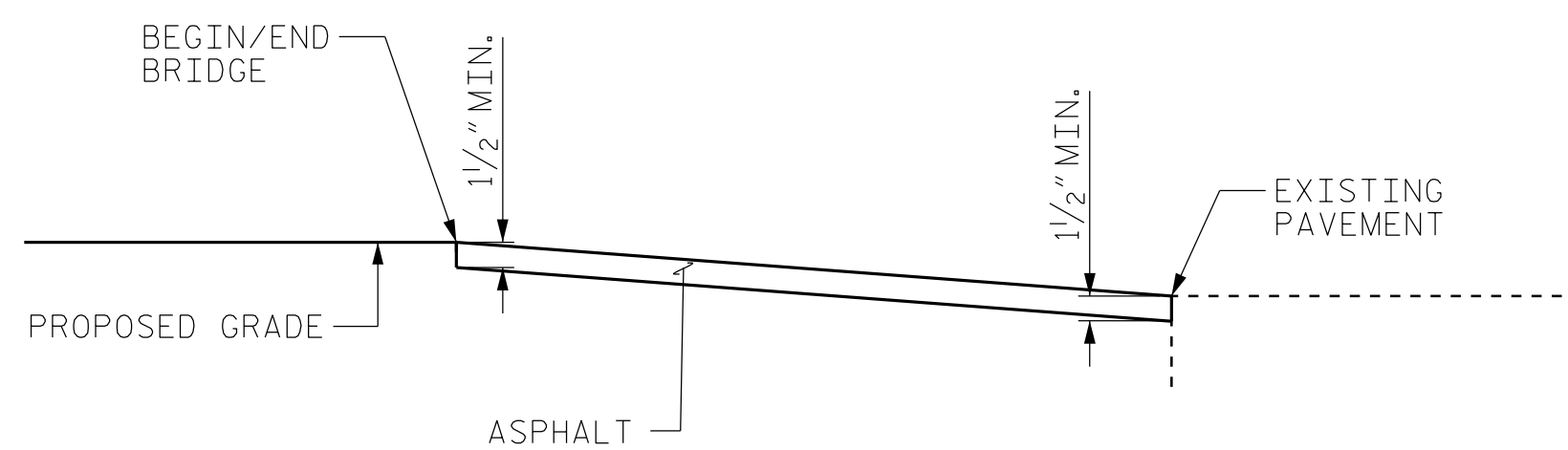
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

C1

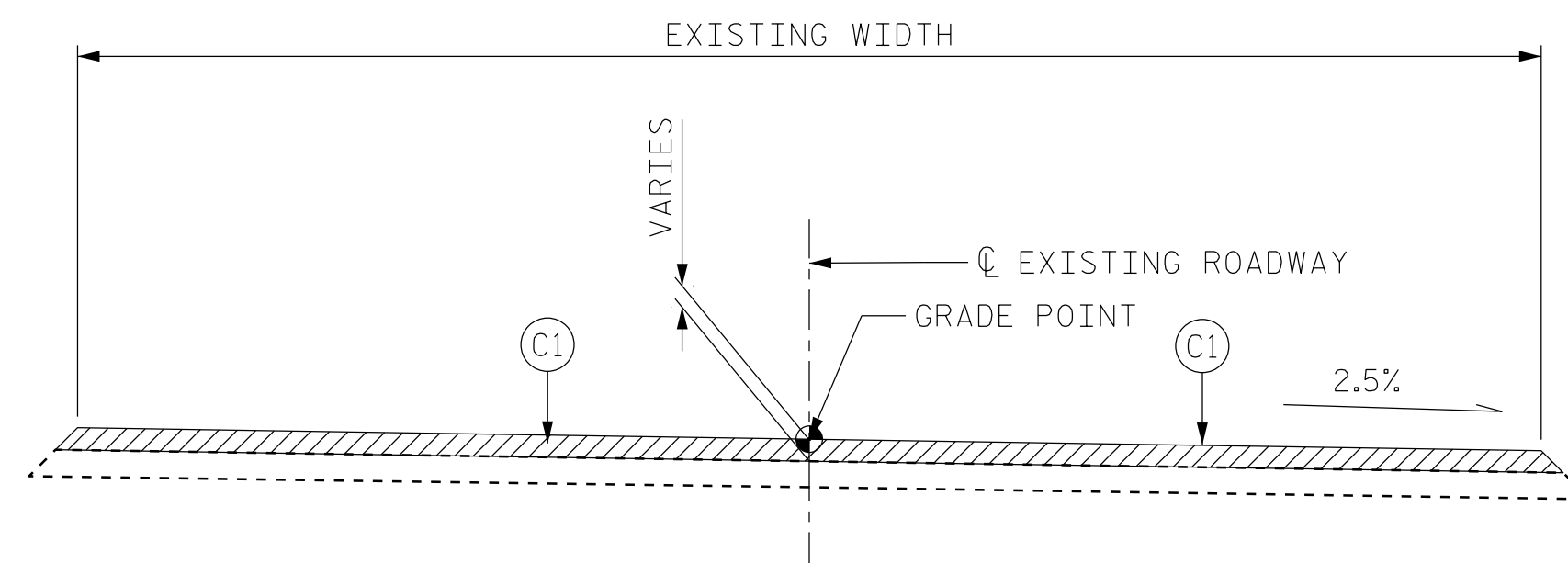
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PLAN



PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



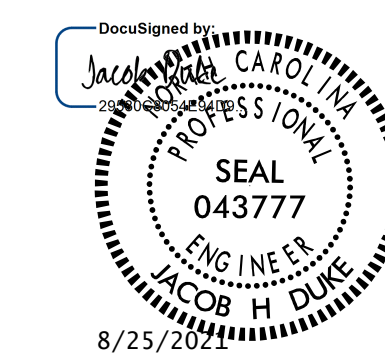
ROADWAY SECTION
BEGIN/END BRIDGE

NOTES:

SEE ROADWAY STANDARD DRAWINGS 1205 FOR PAVEMENT MARKINGS.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010

SHEET 1 OF 2



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 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

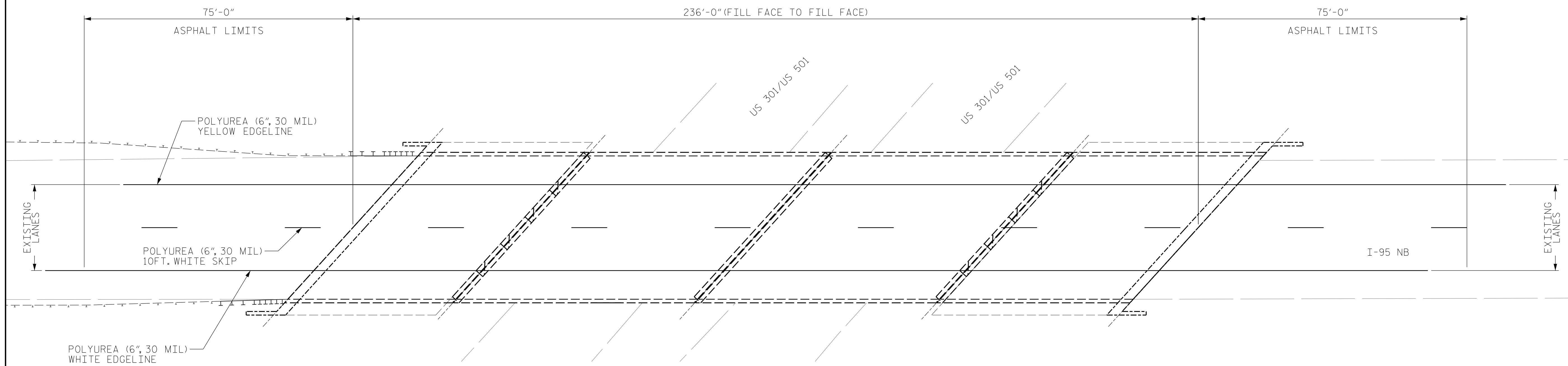
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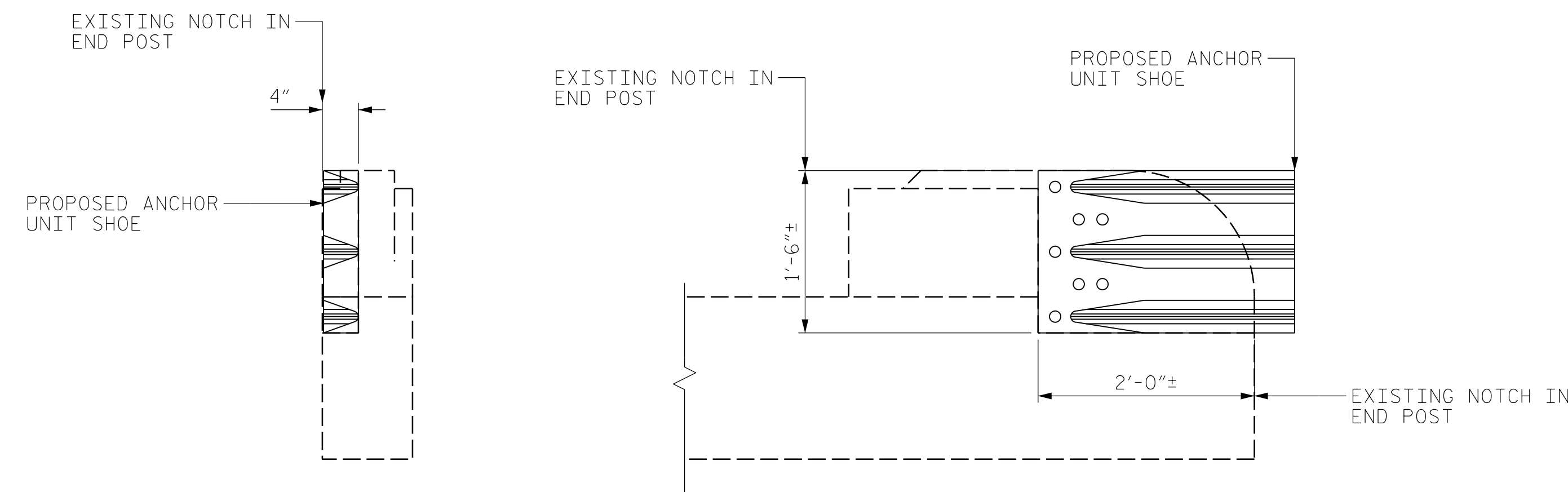
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-7
1			3			TOTAL SHEETS
2			4			14

STRUCTURE ANCHOR UNIT NOTES

REMOVE EXISTING ANCHOR UNITS PRIOR TO INSTALLATION OF PROPOSED UNITS.
 TORCH CUT EXISTING BOLTS AND EPOXY COAT IF PROPOSED UNITS CANNOT OCCUPY THE SAME HOLES.
 THE CONTRACTOR SHALL ATTEMPT TO NOT CUT THE EXISTING END POST TO ACHIEVE PROPER FIT-UP.
 DRILL THRU HOLES FOR PROPOSED ANCHOR UNIT CAREFULLY, AVOIDING INTERNAL REINFORCING WHERE POSSIBLE.



PAVEMENT MARKING DIAGRAM



STRUCTURE UNIT ATTACHMENT DETAILS

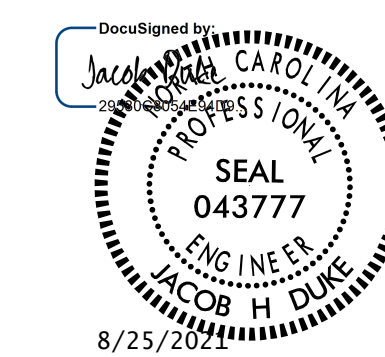
ONLY PROPOSED ANCHOR SHOE IS SHOWN FOR CLARITY
 APPROACH UNIT SHOWN, MIRROR FOR TRAILING

NOTES:

FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010

SHEET 2 OF 2



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 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH ROADWAY
 GUARDRAIL DETAILS AND
 PAVEMENT MARKINGS

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-8
1			3			TOTAL SHEETS
2			4			14

AS-BUILT REPAIR QUANTITY TABLE

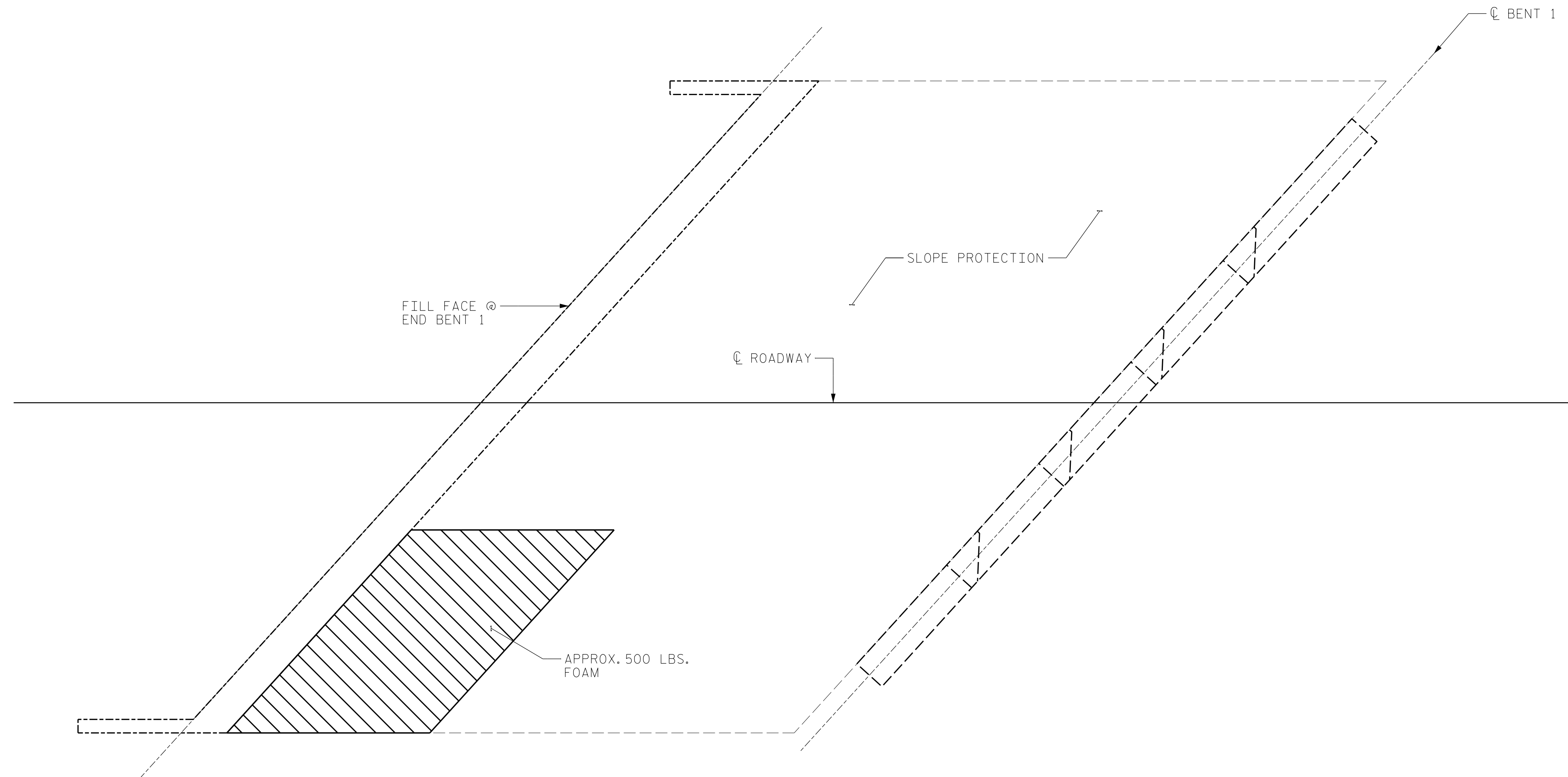
	ESTIMATE	ACTUAL
SLOPE PROTECTION VOID FILLING	500 LBS.	
SILICONE JOINT SEALANT FOR SLOPE REPAIRS	100 LF	

NOTES:

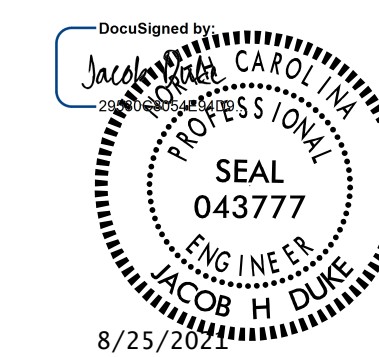
AFTER COMPLETION OF VOID FILLING, SEAL CRACKS IDENTIFIED WITH POURABLE SILICONE JOINT SEALANT AS DESCRIBED IN THE SPECIAL PROVISION FOR SILICONE JOINT SEALANT FOR SLOPE REPAIRS (BACKER RODS MAY BE OMITTED AS APPROVED BY THE ENGINEER).

FOR SLOPE PROTECTION VOID FILLING, SEE SPECIAL PROVISIONS.

FOR SILICONE JOINT SEALANT FOR SLOPE REPAIRS, SEE SPECIAL PROVISIONS.



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ROBESON COUNTY
 BRIDGE NO. 770010



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

 SLOPE PROTECTION
 REPAIRS

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			14
2			4			

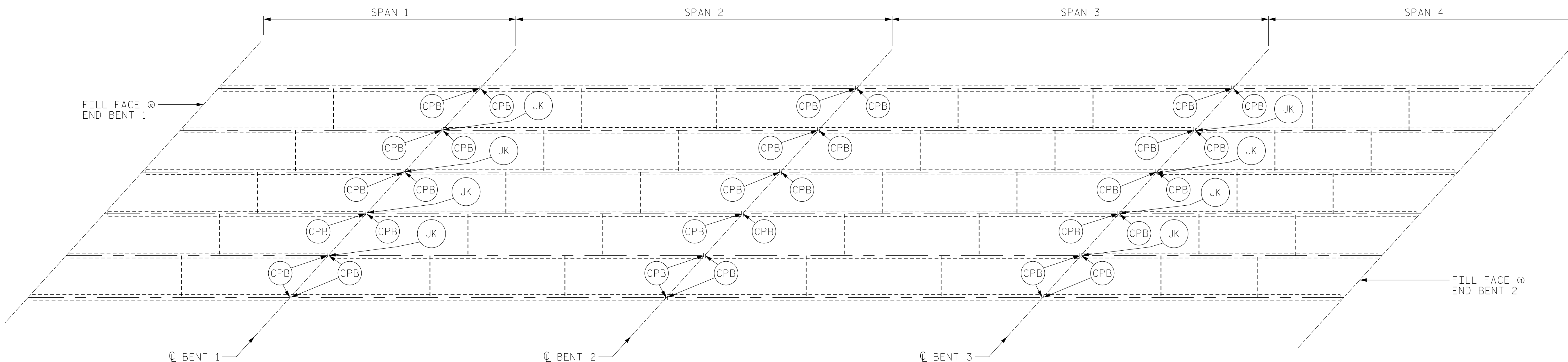
AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
CLEANING & PAINTING EXISTING BEARINGS WITH HRSCA	36 EA	
TYPE I BRIDGE JACKING	8 EA	

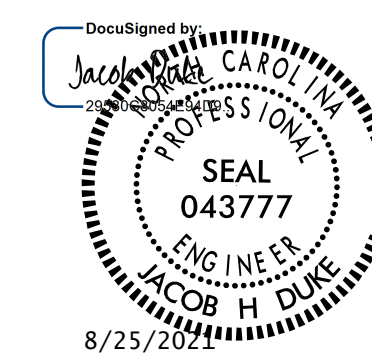
- CPB CLEAN AND PAINT BEARING
- JK JACKING

NOTES

FOR BRIDGE JACKING, SEE "BRIDGE JACKING" SHEET AND SPECIAL PROVISIONS.
 FOR CLEANING & PAINTING EXISTING BEARINGS WITH HRSCA, SEE SPECIAL PROVISIONS.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



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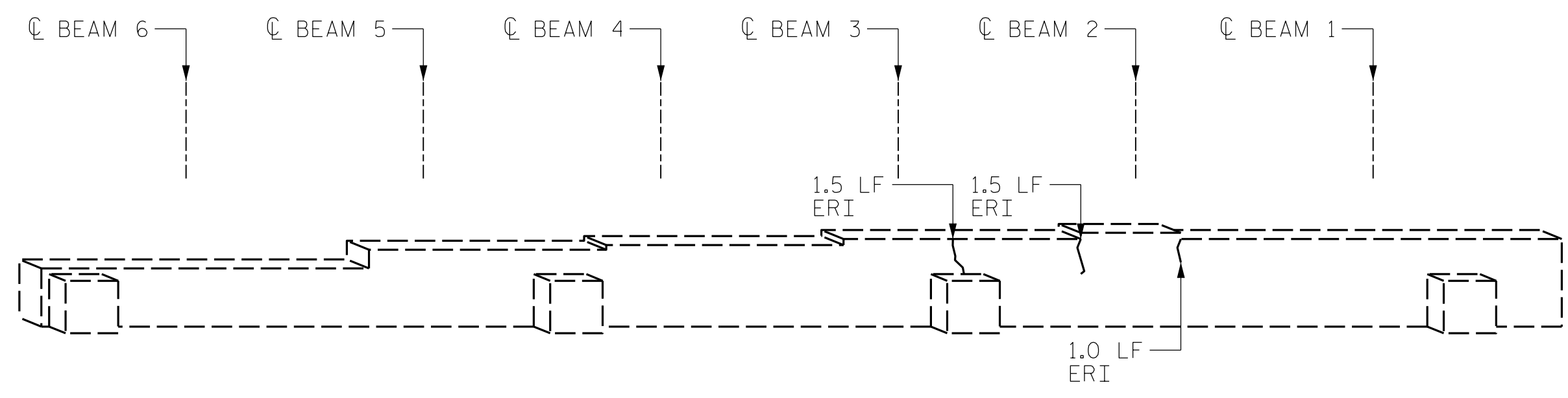
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE REPAIRS

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

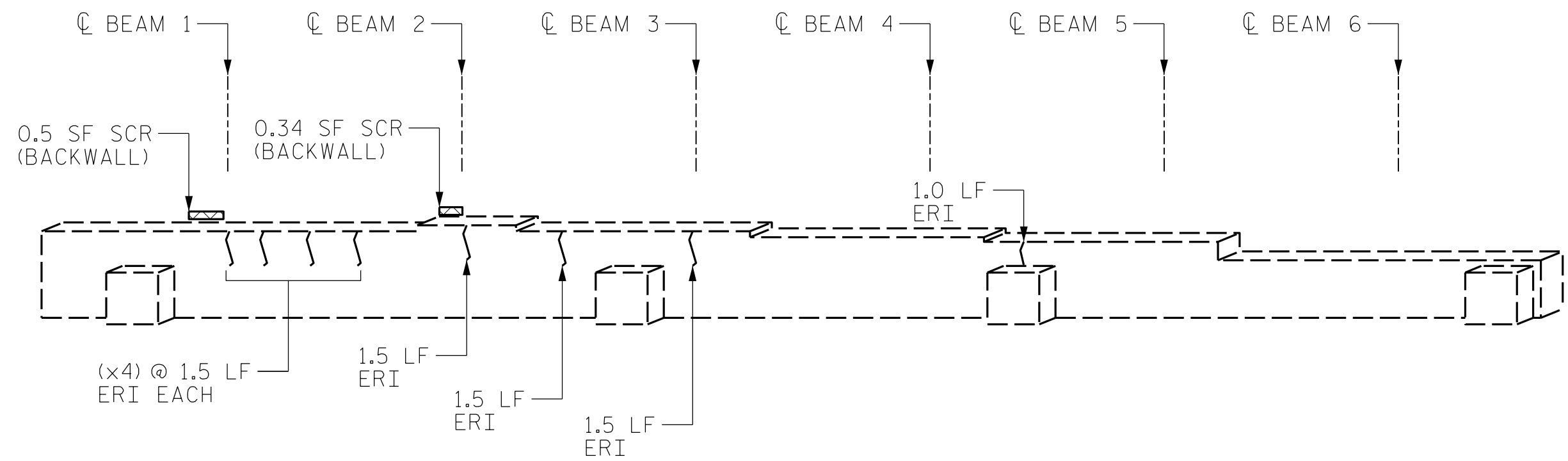
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SI-10
1			3			TOTAL SHEETS
2			4			14



END BENT 1
(NORTH FACE)



END BENT 2
(SOUTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
	CAP/BACKWALL	0.84	0.42	
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
	CAP			
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
	CAP	15.5		
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
	CAP	325.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

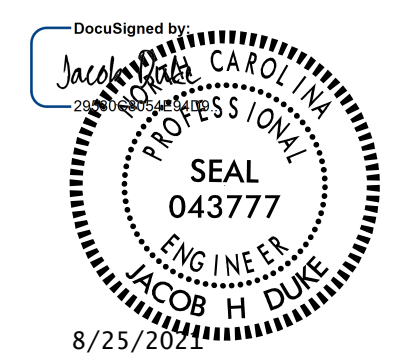
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

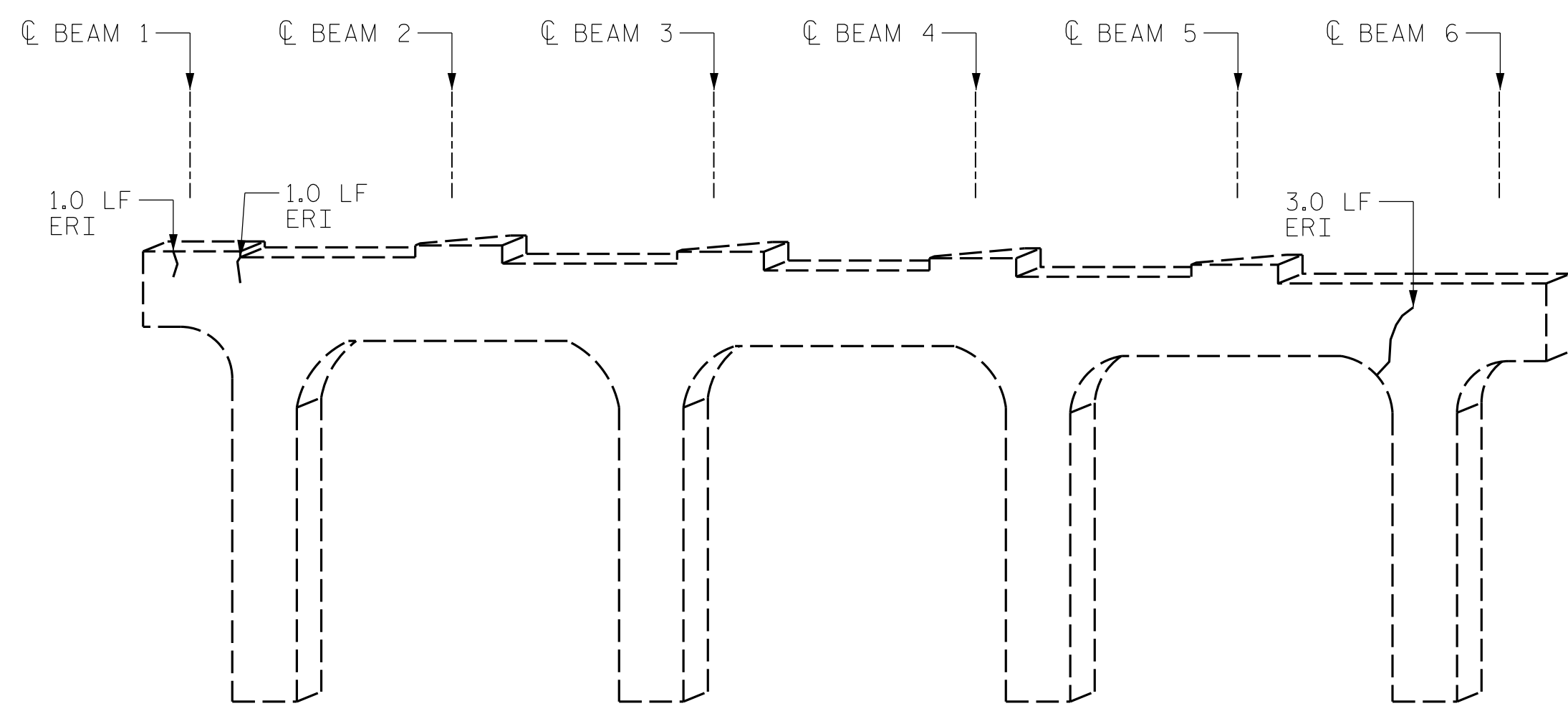
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
END BENTS 1 & 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S1-11					TOTAL SHEETS 14

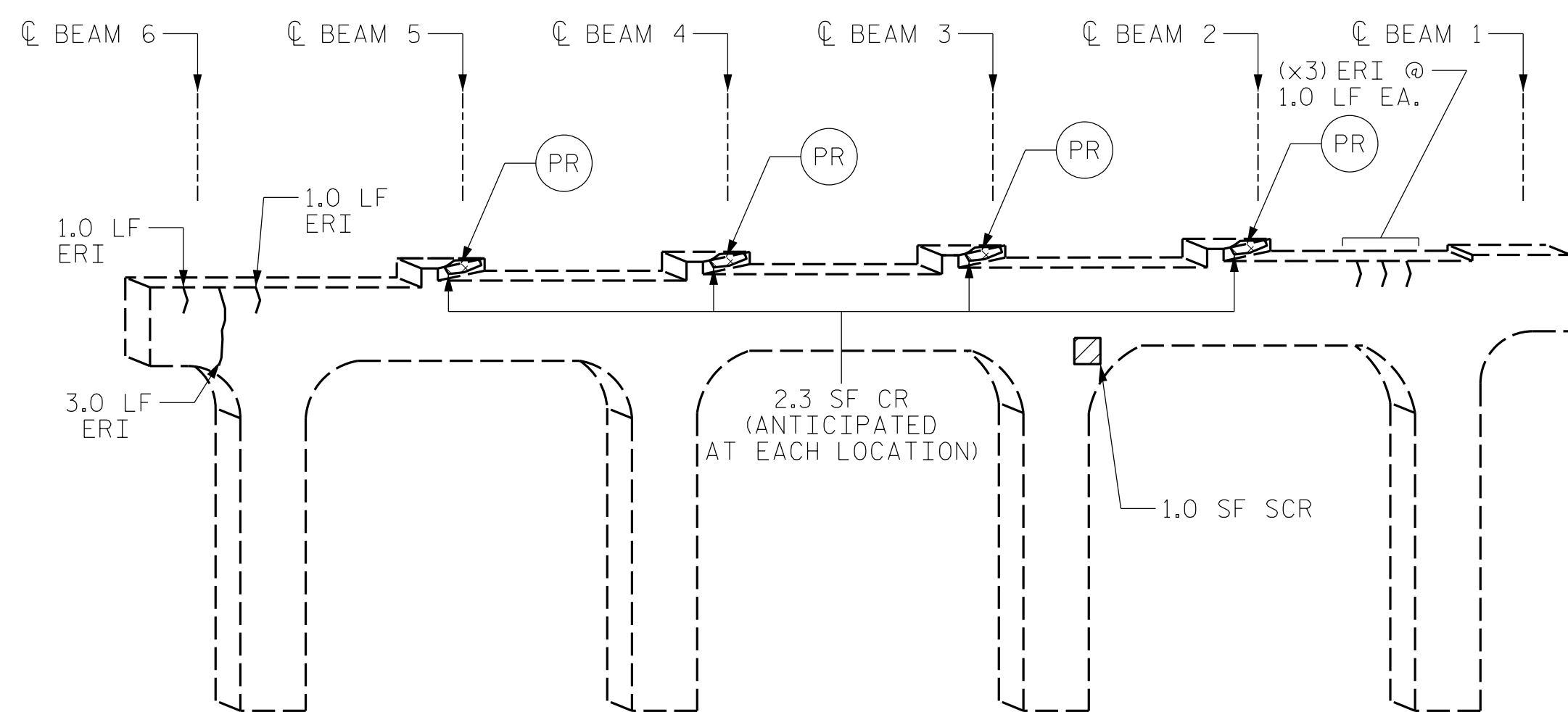
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



BENT 1

(SOUTH FACE)



BENT 1

(NORTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)
	CFRP PEDESTAL REPAIRS & BEARING RETROFIT

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL		1.0	0.5		
COLUMN/PILE					
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP		9.2	4.6		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		13.0			
COLUMN/PILE					
EPOXY COATING		AREA SQ. FT.		AREA SQ. FT.	
CAP		136.3			
CFRP PEDESTAL REPAIRS & BEARING RETROFIT				EA.	
				4	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

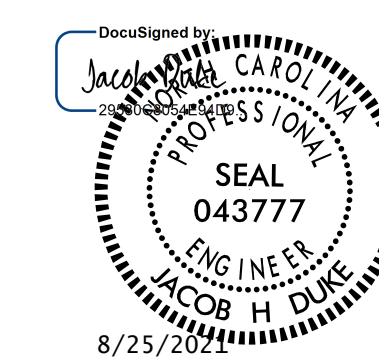
TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

SEE "CONCRETE RESTORATION SHEETS" FOR CFRP PEDESTAL REPAIRS & BEARING RETROFIT DETAILS.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



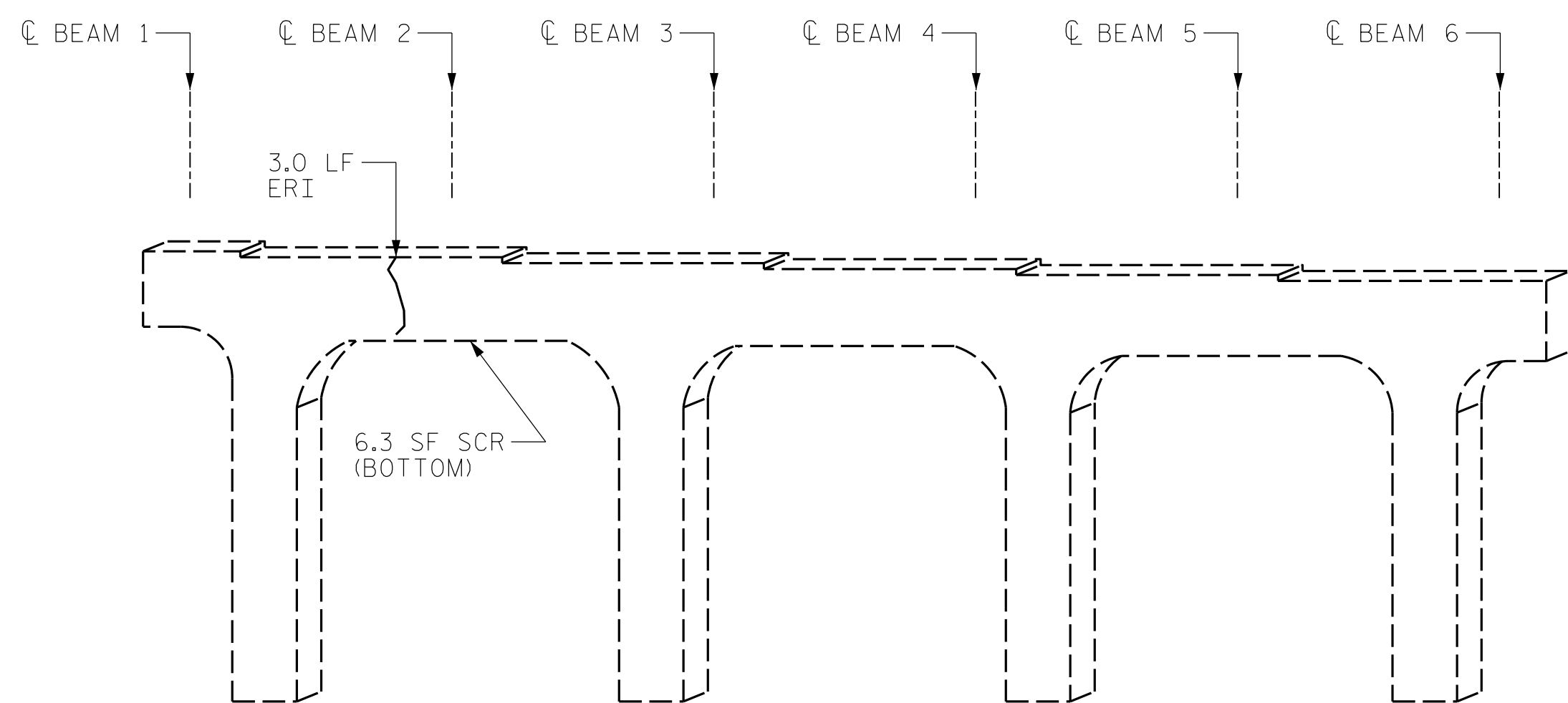
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.SBR01.770010.dgn
 fflores

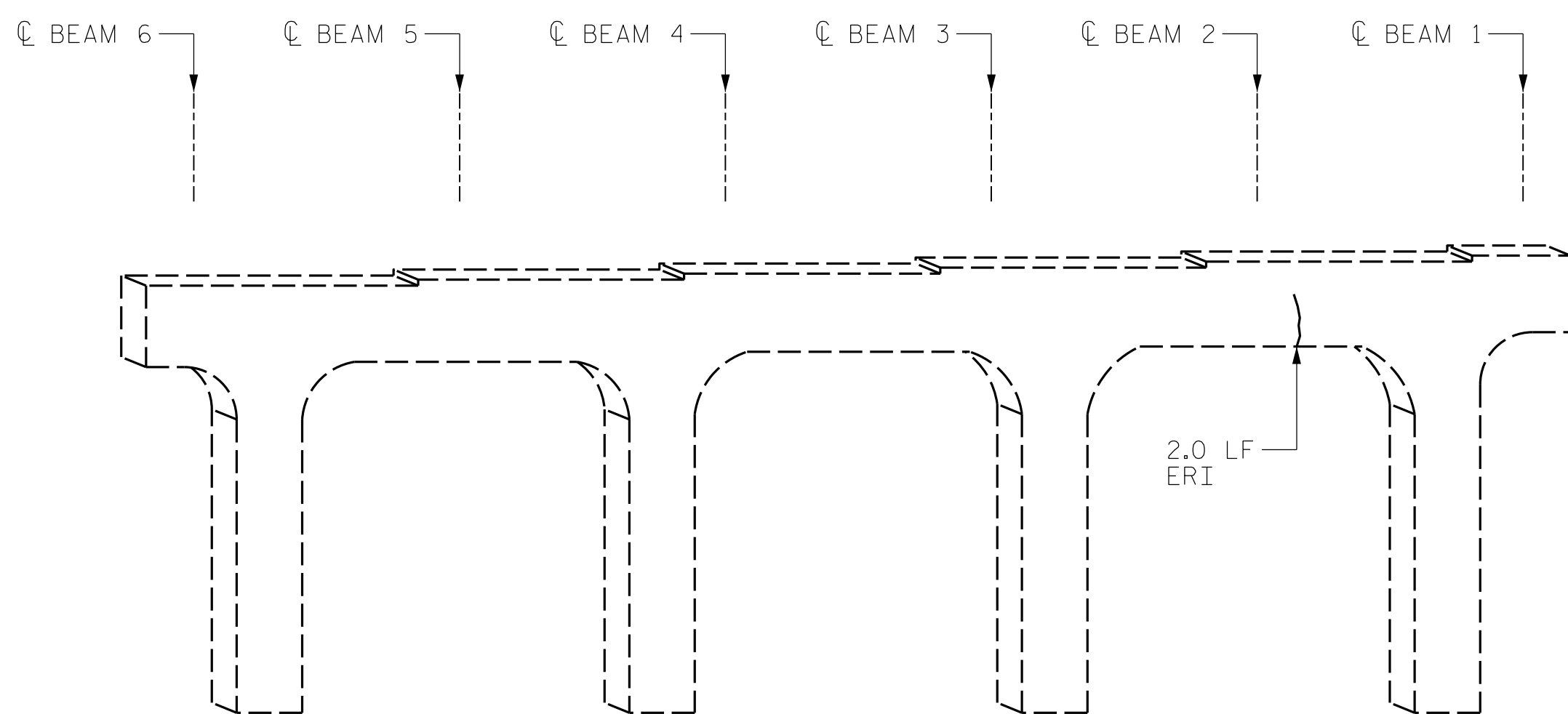
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SI-12
1			3			TOTAL SHEETS
2			4			14



BENT 2

(SOUTH FACE)



BENT 2

(NORTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL		6.3	3.2		
COLUMN/PILE					
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP					
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		5.0			
COLUMN/PILE					
EPOXY COATING		AREA SQ. FT.		AREA SQ. FT.	
CAP		136.3			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

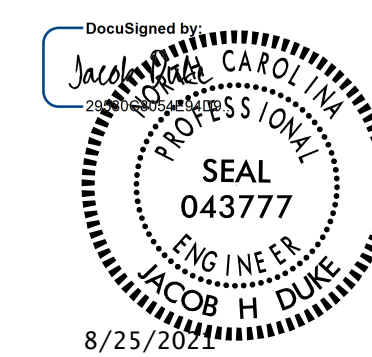
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



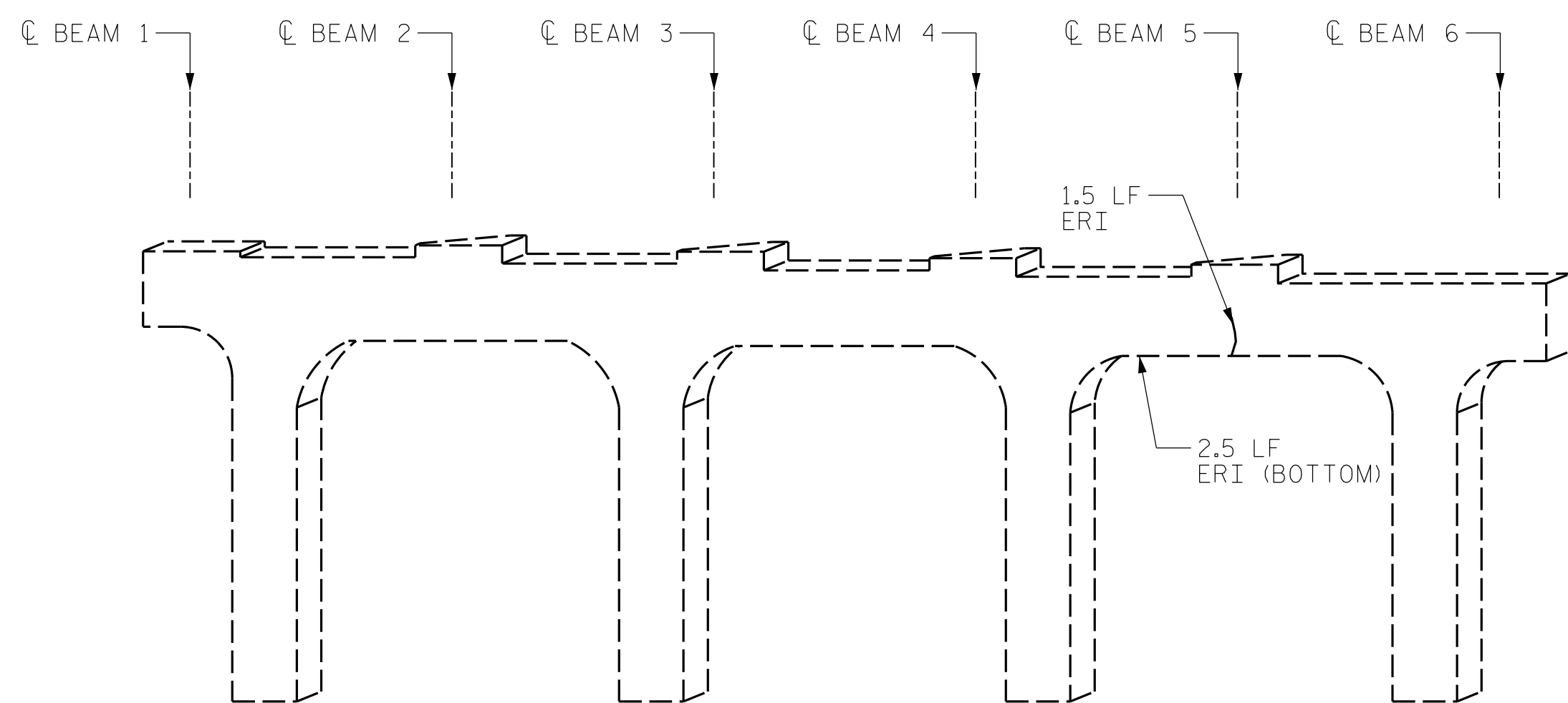
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 2

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.SBR02.770010.dgn
 fflores

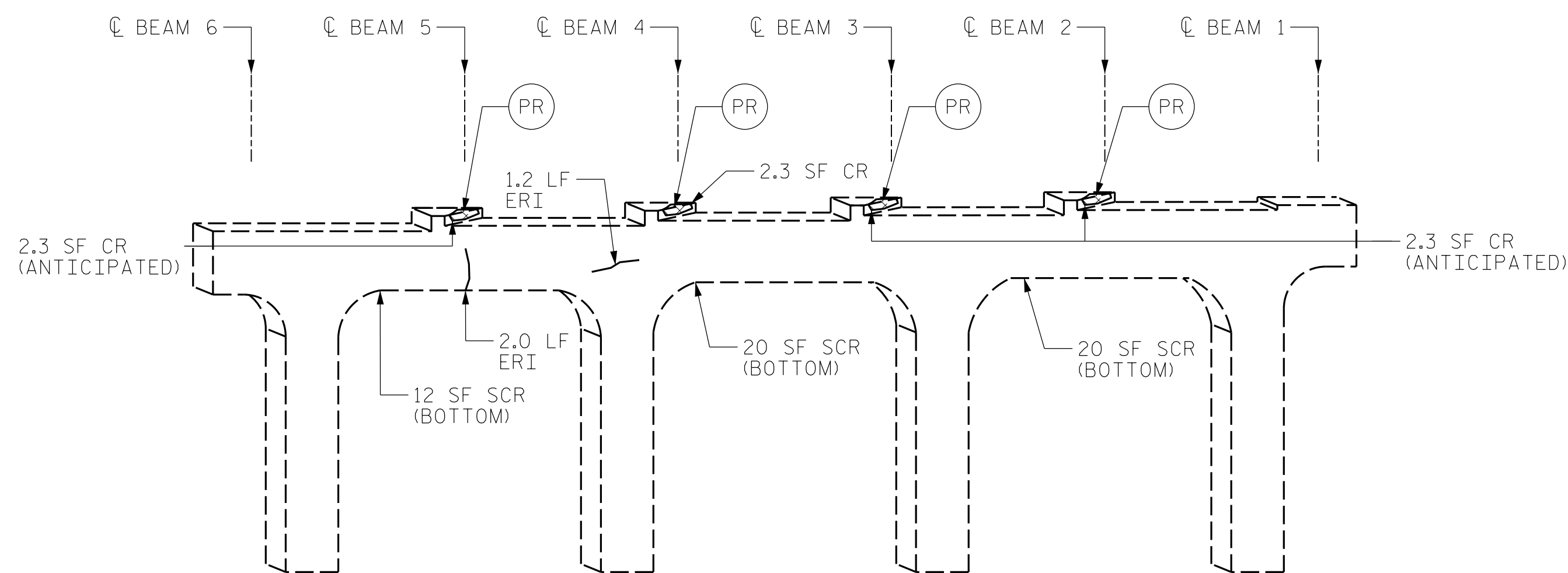
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-13
2			4			TOTAL SHEETS 14



BENT 3

(SOUTH FACE)



BENT 3

(NORTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)
	CFRP PEDESTAL REPAIRS & BEARING RETROFIT

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	52	26		
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	9.2	4.6		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	7.2			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	136.3			
CFRP PEDESTAL REPAIRS & BEARING RETROFIT			EA.	
			4	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

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AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

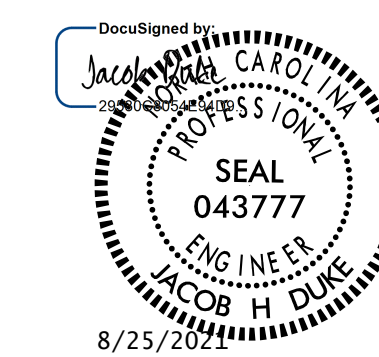
TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

SEE "CONCRETE RESTORATION SHEETS" FOR CFRP PEDESTAL REPAIRS & BEARING RETROFIT DETAILS.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010



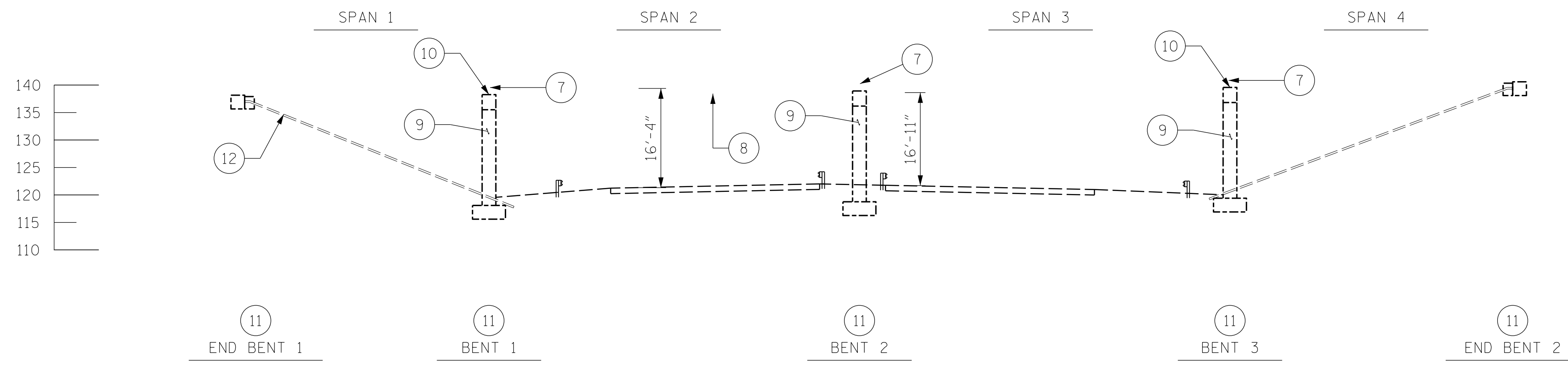
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 3

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I9939.SMU.SBR03.770010.dgn
 fflores

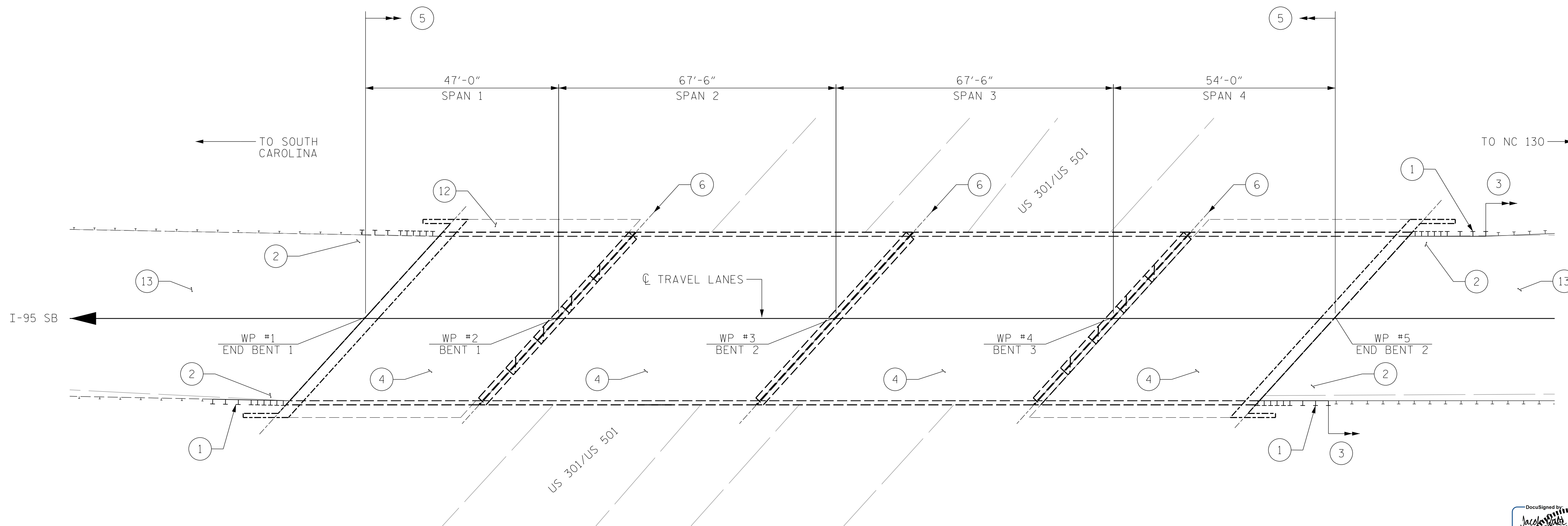
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-14
1			3			TOTAL SHEETS
2			4			14



SECTION ALONG ROADWAY

- SCOPE LEGEND:
- 1 PROPOSED STRUCTURE ANCHOR UNITS TYPE III
 - 2 CLEAR SHOULDERS OF DEBRIS AND VEGETATION
 - 3 PROPOSED STEELBEAM GUARDRAIL
 - 4 CONCRETE DECK REPAIRS
 - 5 LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH
 - 6 JOINT REPLACEMENT
 - 7 PAINT EXISTING STEEL BEARINGS
 - 8 HEAT STRAIGHTEN SPAN 2 BEAM 1
 - 9 SUBSTRUCTURE CONCRETE REPAIRS
 - 10 BRIDGE JACKING, CRFP PEDESTAL REPAIRS & BEARING RETROFIT
 - 11 SUBSTRUCTURE EPOXY RESIN INJECTION
 - 12 SLOPE PROTECTION REPAIRS
 - 13 APPROACH ROADWAY MILLING AND RESURFACING

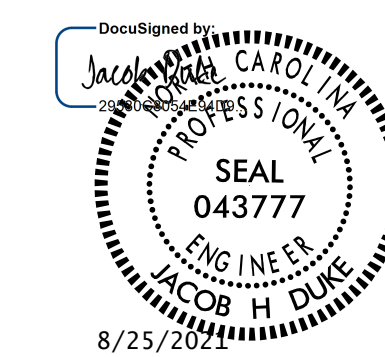


PLAN

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON I-95 SB
 OVER US 501

NOTES:

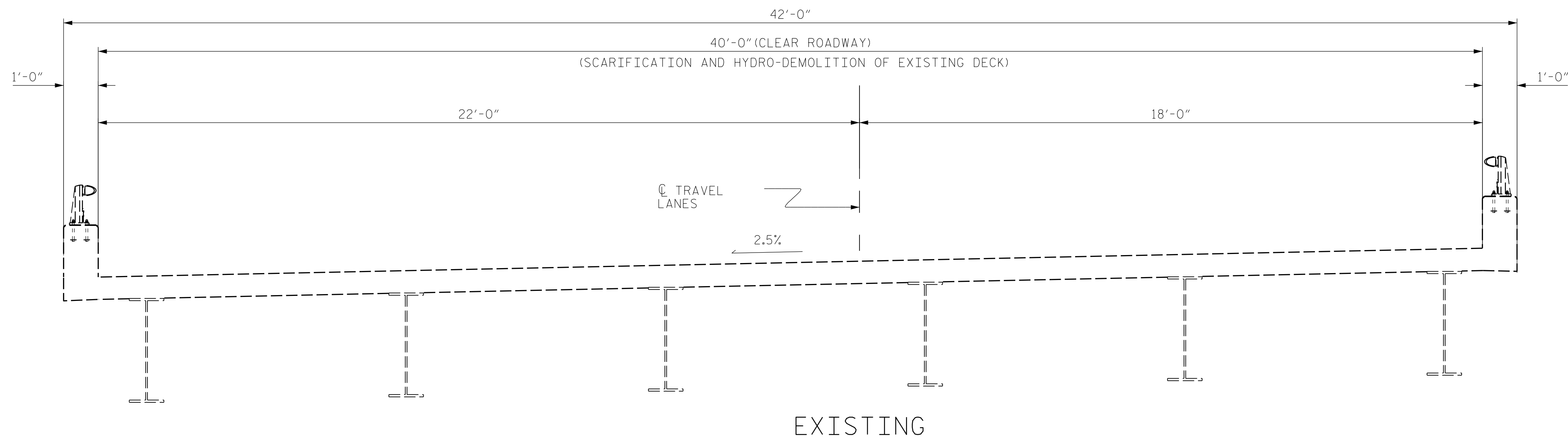
GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/10/2019.
 BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

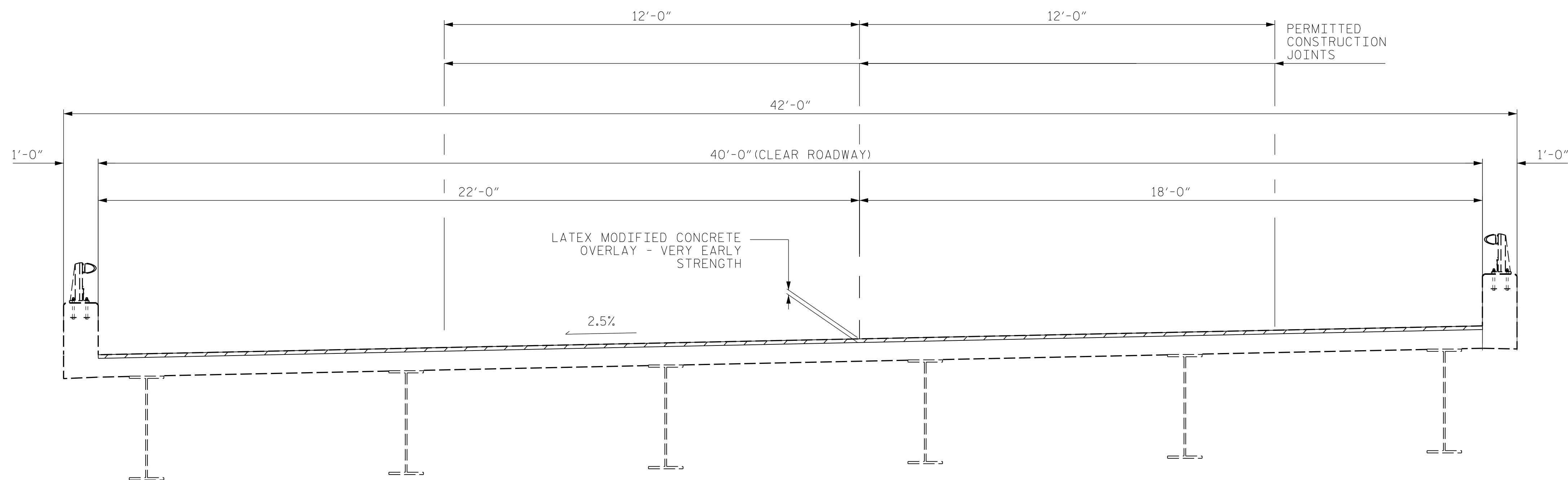
8/25/2021
 I939.SMU.GD01.770012.dgn
 fflores

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

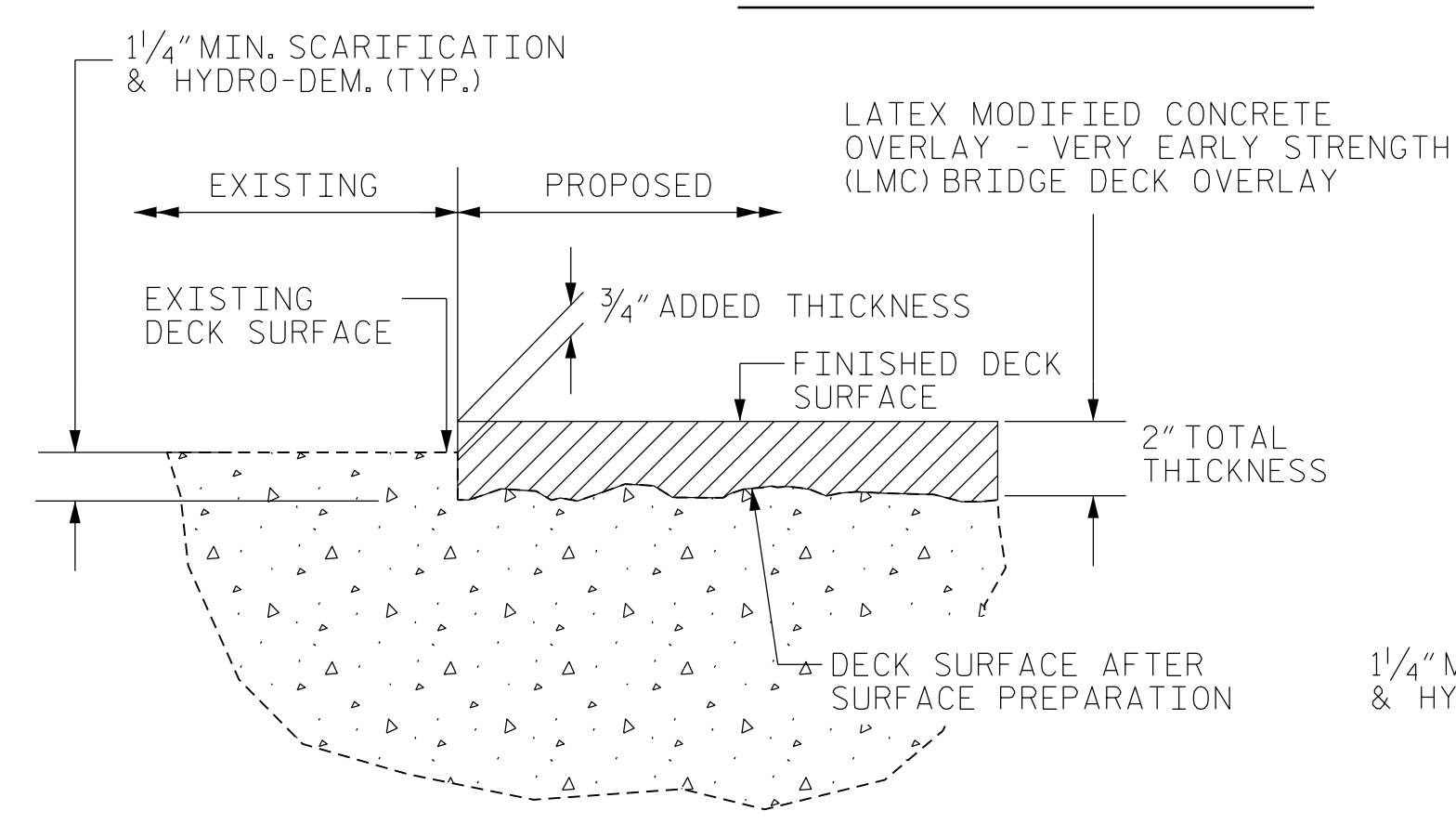
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S2-1
2			4			12



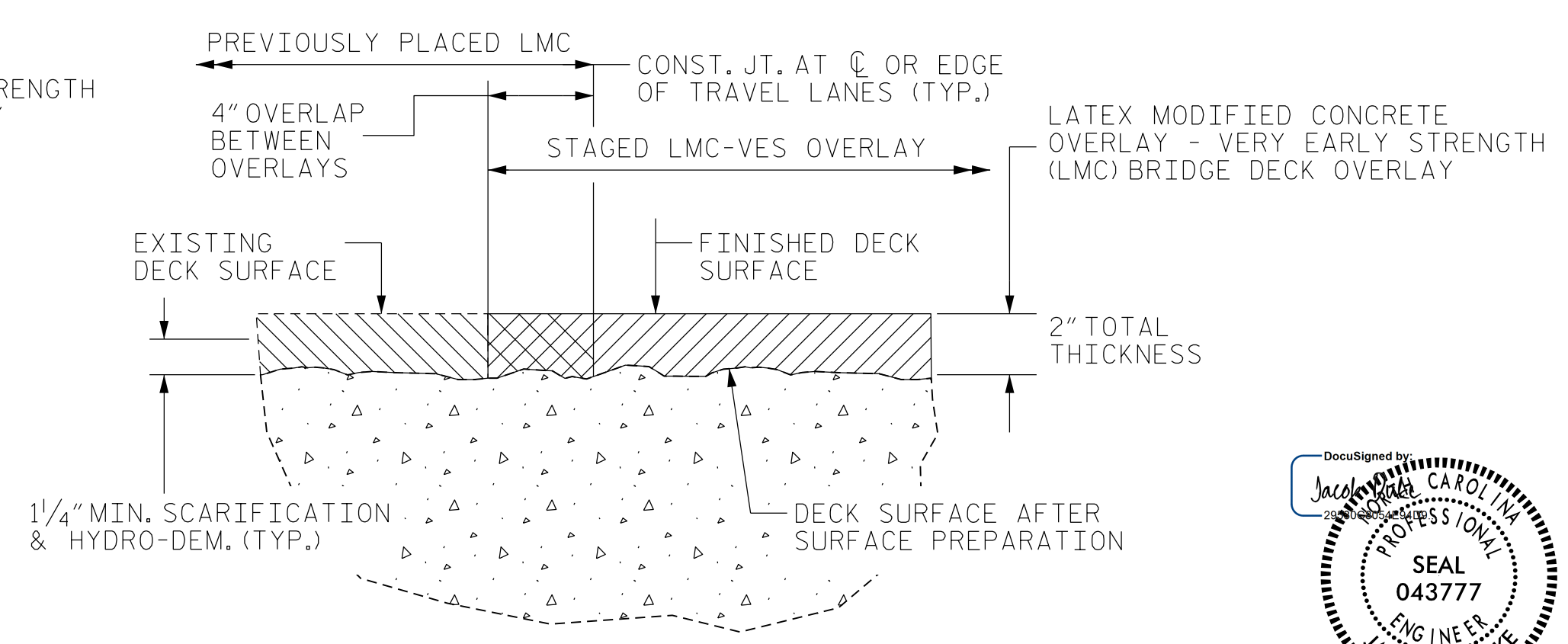
EXISTING



PROPOSED



DETAIL FOR LMC OVERLAY



DETAIL FOR STAGED LMC OVERLAY

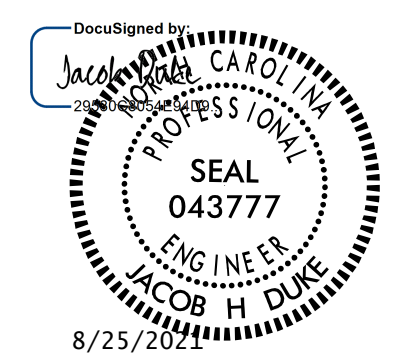
NOTES:

1. LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
2. SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH (LMC) SYSTEM AND SURFACE PREPARATION.

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I939.SMU.TS01.770012.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770012

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-2
1			3			TOTAL SHEETS
2			4			12

AS-BUILT REPAIR QUANTITY TABLE

	TOP OF DECK REPAIRS							
	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	209 SY		300 SY		300 SY		240 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	209 SY		300 SY		300 SY		240 SY	
CLASS II SURFACE PREPARATION	0.2 SY		0.2 SY		0.2 SY		0.2 SY	
CLASS III SURFACE PREPARATION	33.3 SY		60.4 SY		44.7 SY		42.5 SY	
LATEX OVERLAY - VERY EARLY STRENGTH	11.6 CY		16.7 CY		16.7 CY		13.4 CY	
PLACING AND FINISHING LMC OVERLAY	209 SY		300 SY		300 SY		240 SY	
GROOVING BRIDGE FLOORS	1739 SF		2498 SF		2498 SF		1998 SF	

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1/2" PER THE EXISTING BRIDGE PLANS. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING SCARIFICATION. CURRENT AVERAGE COVER IS EXPECTED TO BE FROM 0 TO 1/2" TO 2" BASED ON VISUAL INSPECTION.

MINOR QUANTITIES OF CLASS II AREAS ARE ANTICIPATED, PARTICULARLY NEAR JOINTS. HOWEVER, DUE TO THEIR SMALL SIZE, THE CLASS II LOCATIONS HAVE NOT BEEN DELINEATED ON THESE PLANS. THE CLASS II QUANTITIES INDICATED ARE ANTICIPATED TO BE SUFFICIENT FOR THE ACTUAL QUANTITIES ENCOUNTERED.

BRIDGE DECK GROOVING QUANTITY BASED ON LIMITS REQUIRED IN SECTION 420-14(B) OF STANDARD SPECIFICATIONS.

FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION, CLASS II AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

THE LMC CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK DURING HYDRO-DEMOLITION.

DURING CONSTRUCTION, BERMS OR APPROPRIATE COUNTERMEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT MIGRATE INTO ACTIVE TRAVEL LANES.

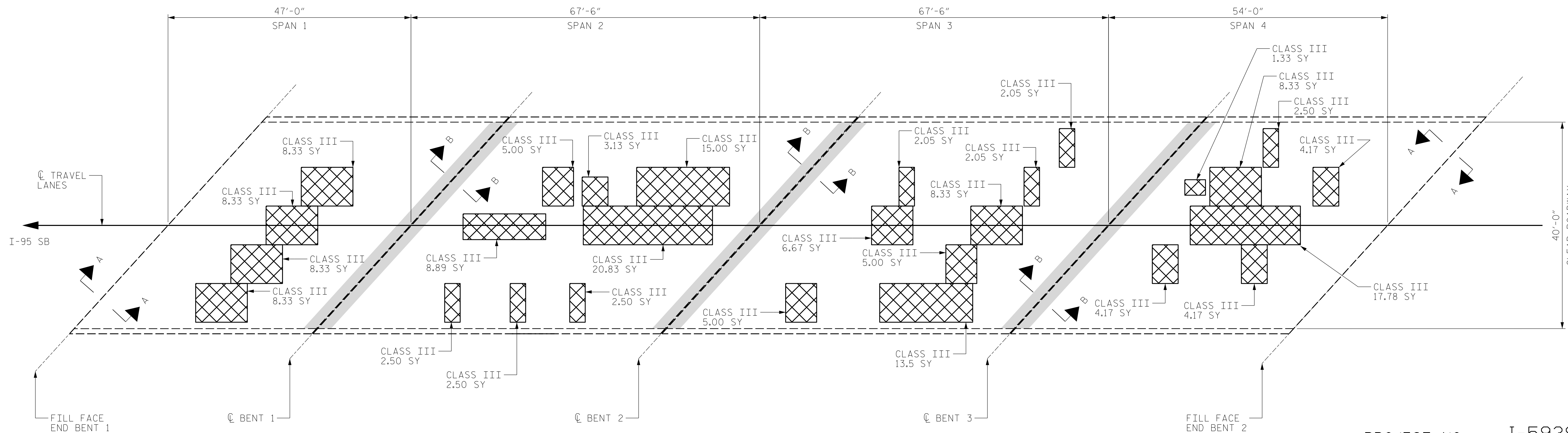
THE CONTRACTOR SHALL COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM HYDRO-DEMOLITION PROCESS, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

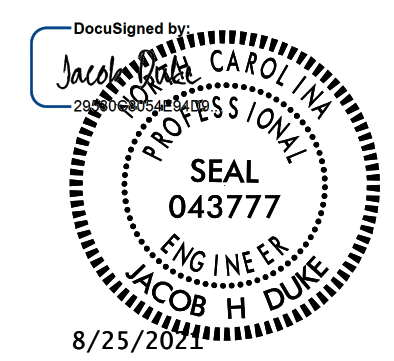
FOR PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH (LMC-VES), SEE LATEX MODIFIED CONCRETE-VERY EARLY CONCRETE SPECIAL PROVISIONS.

LONGITUDINAL CONSTRUCTION JOINTS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

BRIDGE DECK SCARIFICATION, HYDRO-DEMOLITION, AND LMC-VES, LIMITS ARE THE FULL CLEAR ROADWAY WIDTH (INSIDE FACE OF EACH BRIDGE RAIL). CAUTION. CURRENT AVERAGE COVER IS EXPECTED TO BE FROM 0 TO 1/2" TO 2" BASED ON VISUAL INSPECTION.

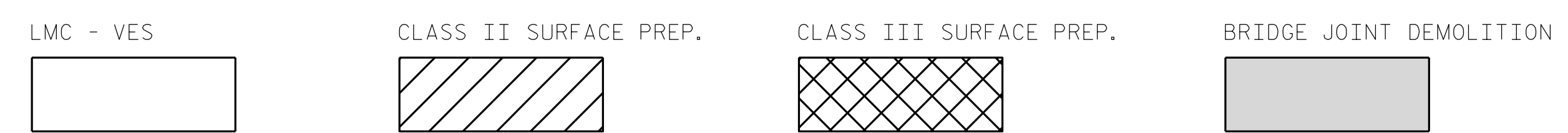


PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS

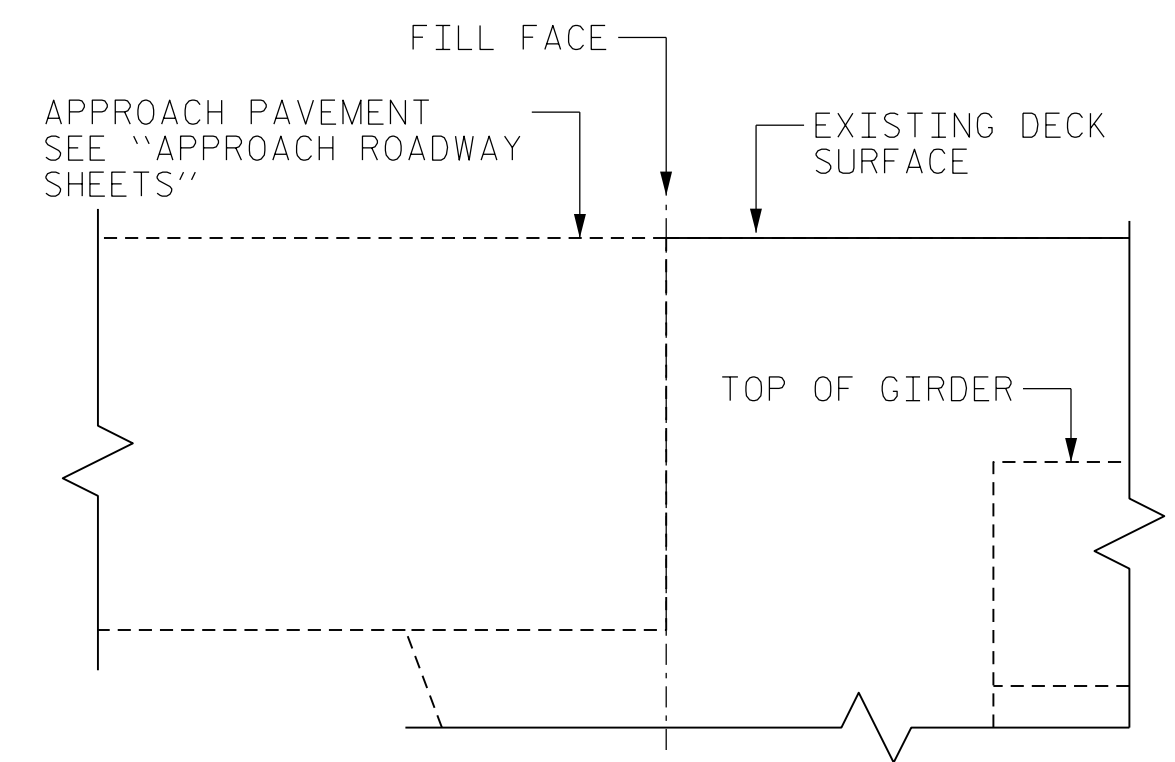


DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

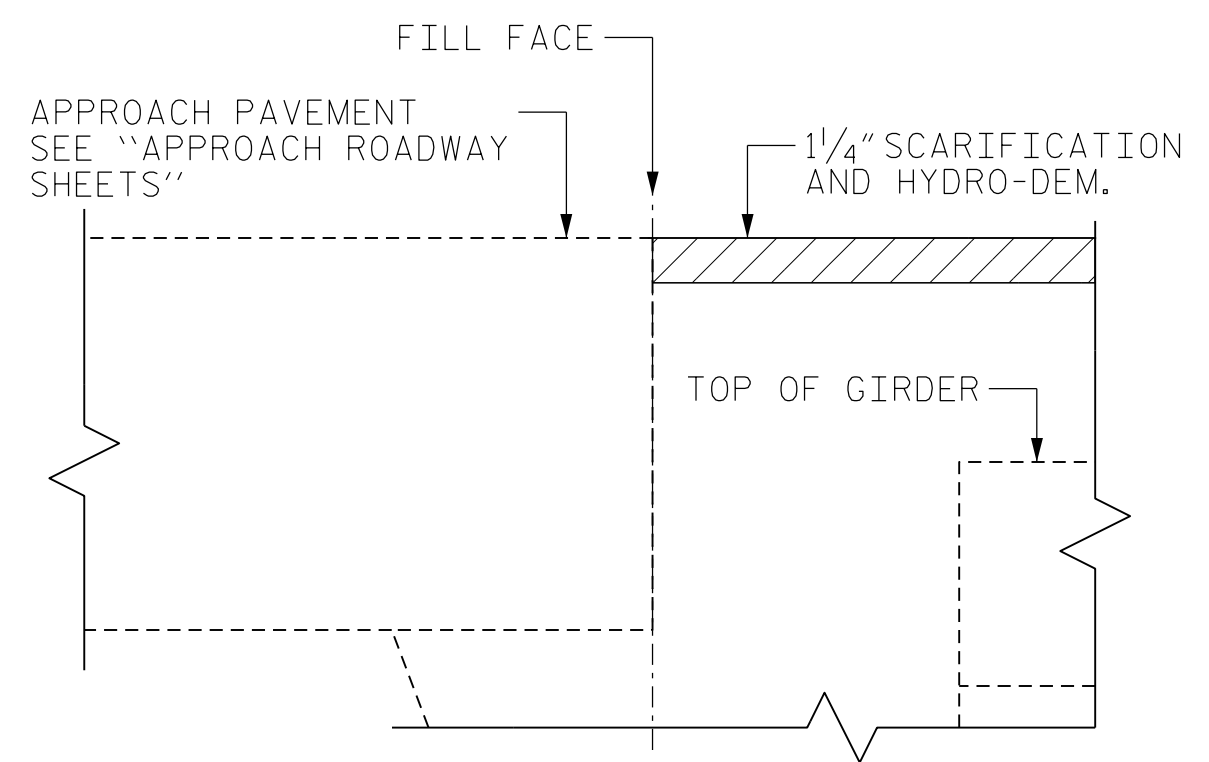
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



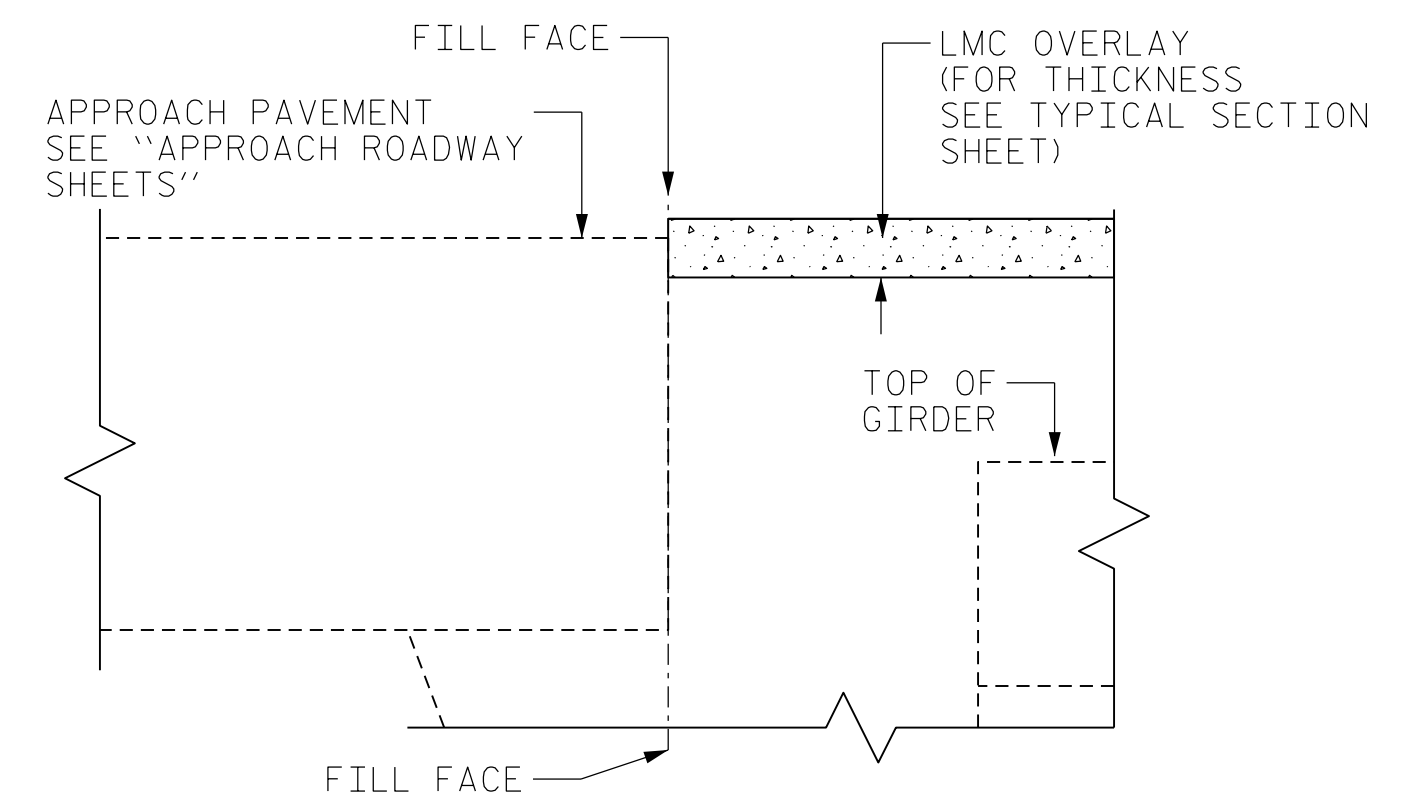
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-3
2			4			TOTAL SHEETS 12



SECTION A-A
(EXISTING DETAIL, NO JOINT)



SECTION A-A
(MIN. EXISTING DECK DEMOLITION)



SECTION A-A
(PROPOSED DETAIL, NO JOINT)

NOTES:

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SHALL BE WATER TIGHT.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

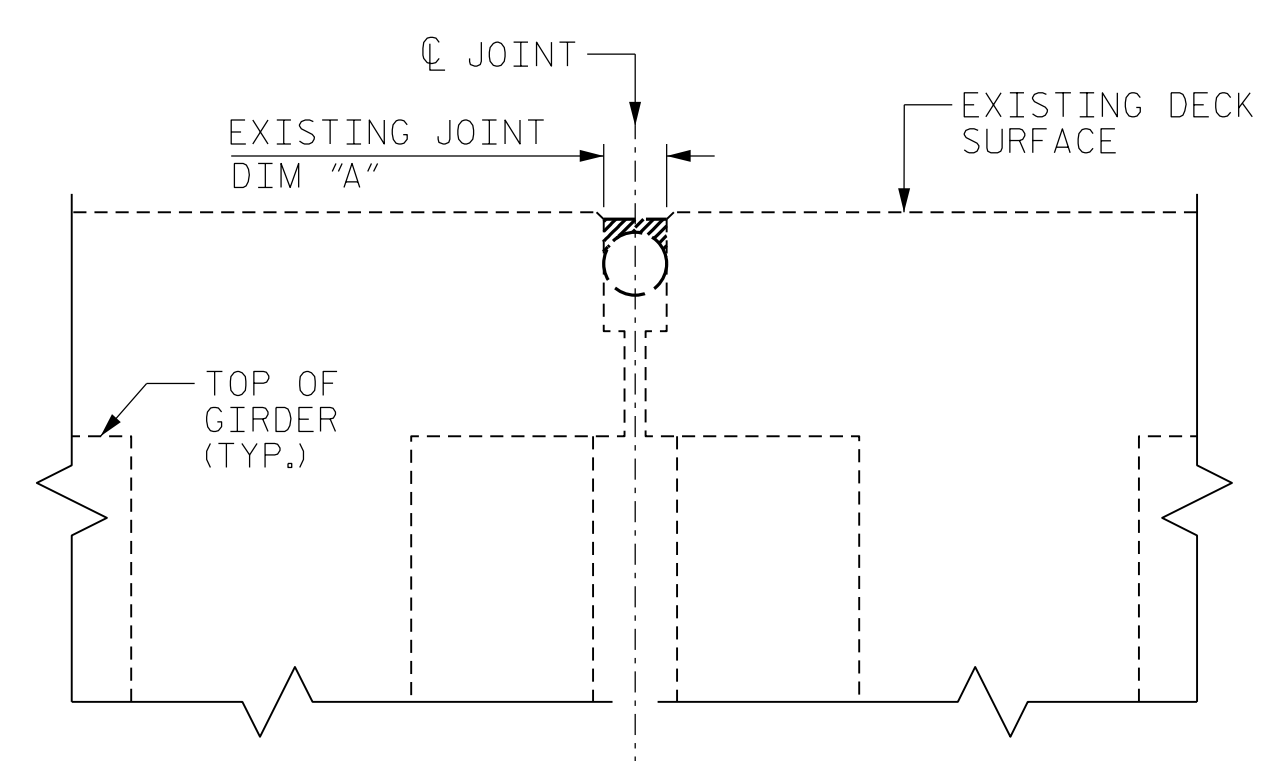
FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

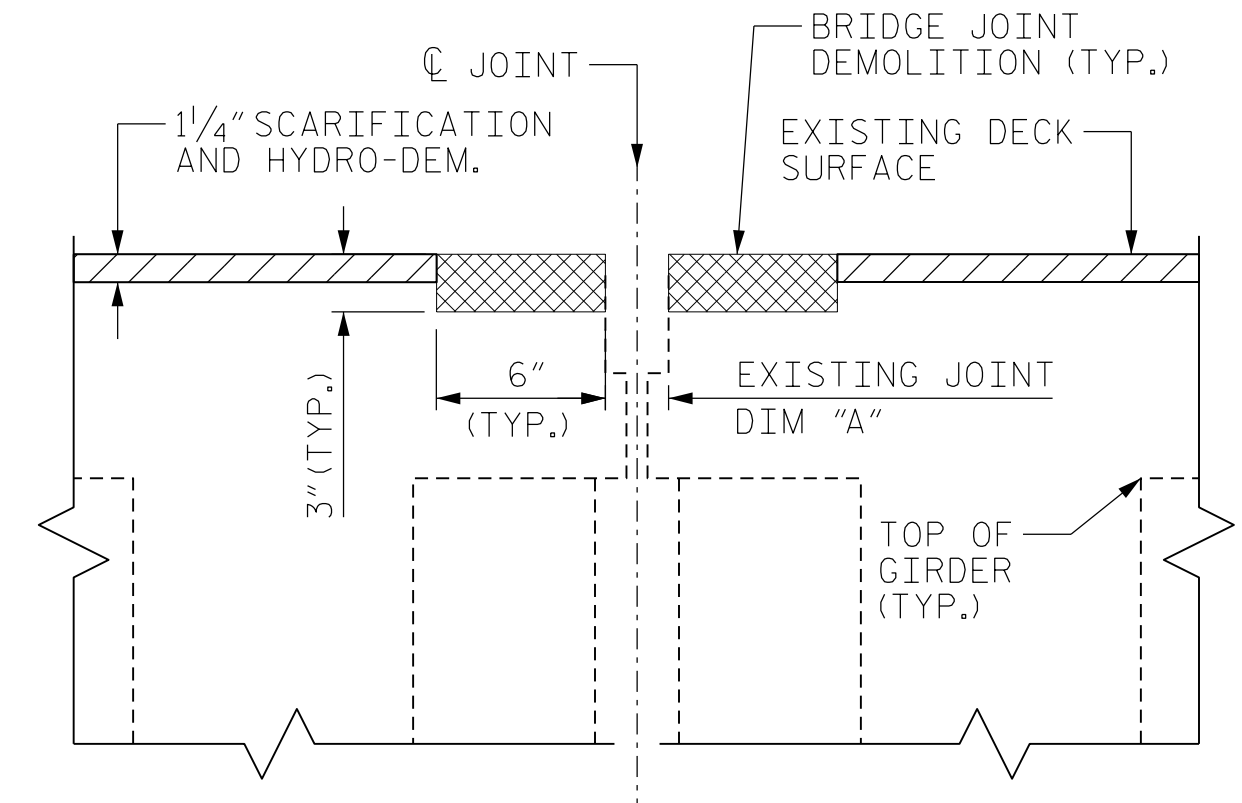
FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOPS SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

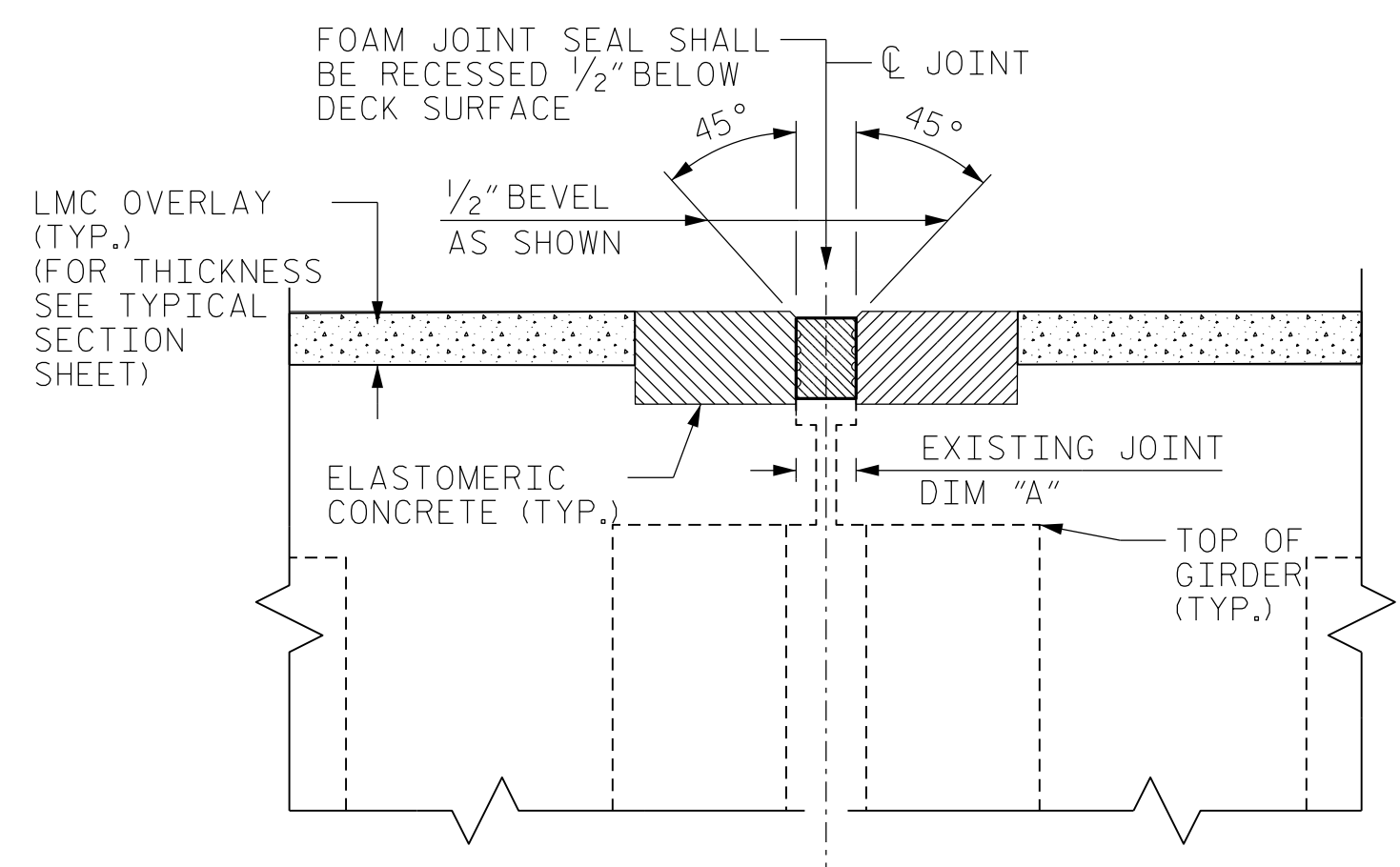
DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.



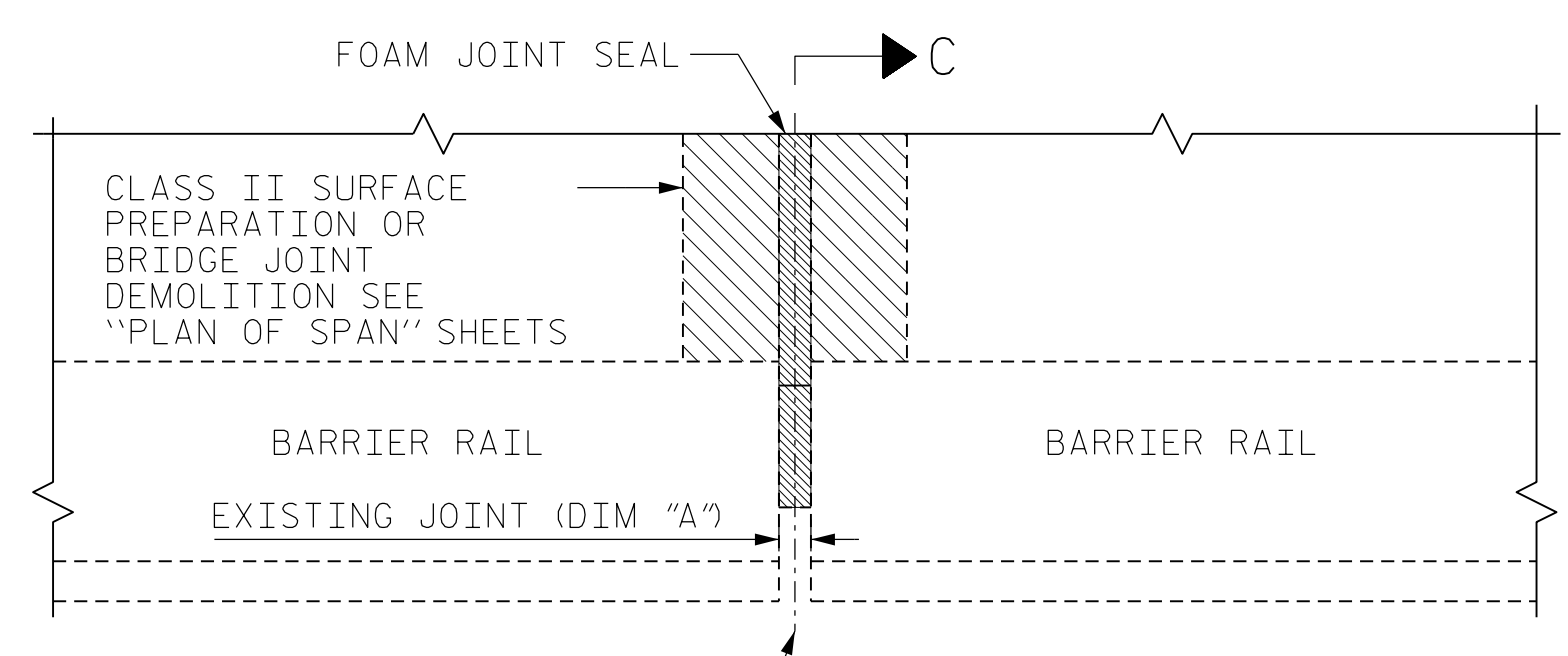
SECTION B-B
(EXISTING JOINT PRIOR TO LMC OVERLAY)



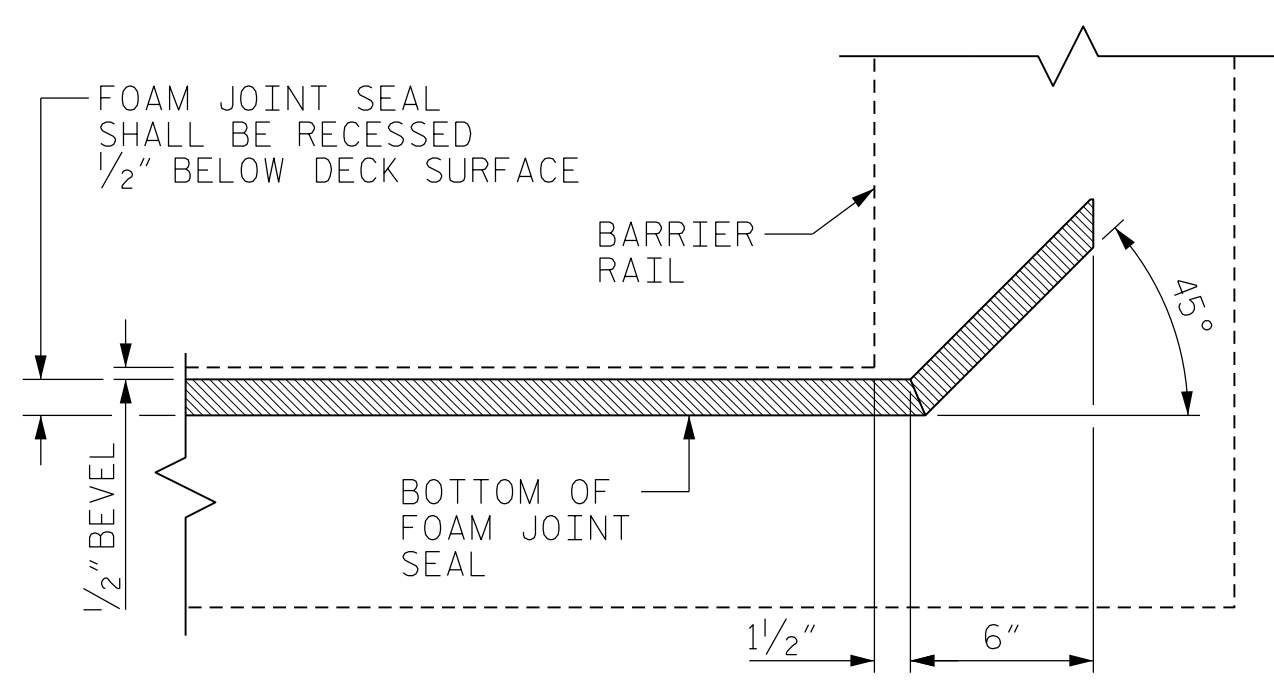
SECTION B-B
(SCARIFICATION AND HYDRO-DEMOLITION)



SECTION B-B
(PROPOSED FOAM JOINT SEAL)



PLAN AT BARRIER
(PROPOSED JOINT SEAL)



SECTION C-C
(PROPOSED JOINT SEAL)

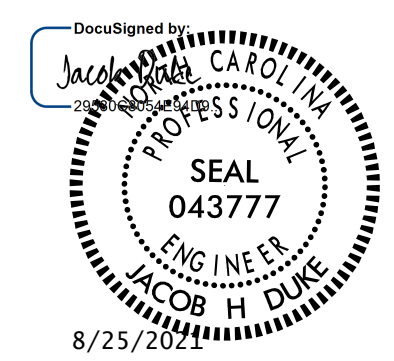
ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	N/A	
BENT 1	13.6	
BENT 2	13.6	
BENT 3	13.6	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	N/A	
BENT 1	55	
BENT 2	55	
BENT 3	55	

TABLE 1	
Table Date 04-2021	
BENT/ JOINTS	DIM "A" @ 71°F
END BENT 1	N/A
1	2.5"
2	2.5"
3	2.5"
END BENT 2	N/A

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	168	

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



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

SHEET NO.	
S2-4	TOTAL SHEETS
	12

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD : JACOB H. DUKE DATE : 06/2021

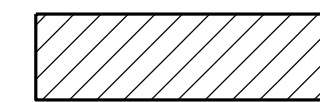
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	3 EA	
GUARDRAIL REMOVAL	256.3 LF	
PROPOSED GUARDRAIL	200 LF	
INCIDENTAL MILLING	652 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	50 TONS	
ASPHALT BINDER FOR PLANT MIX	3.0 TON	
POLYUREA PAVEMENT MARKING LINES (6", 30 MILS)	869 LF	

NOTES:

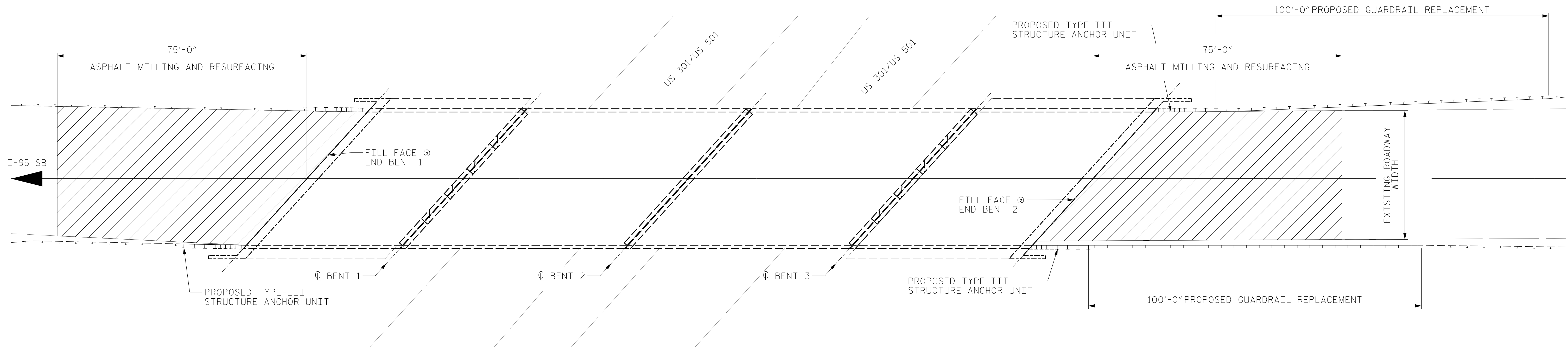
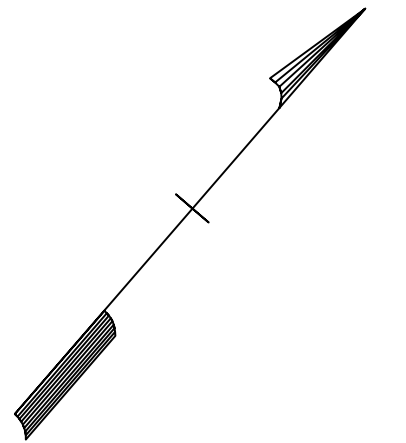
- INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.
- FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
- FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.



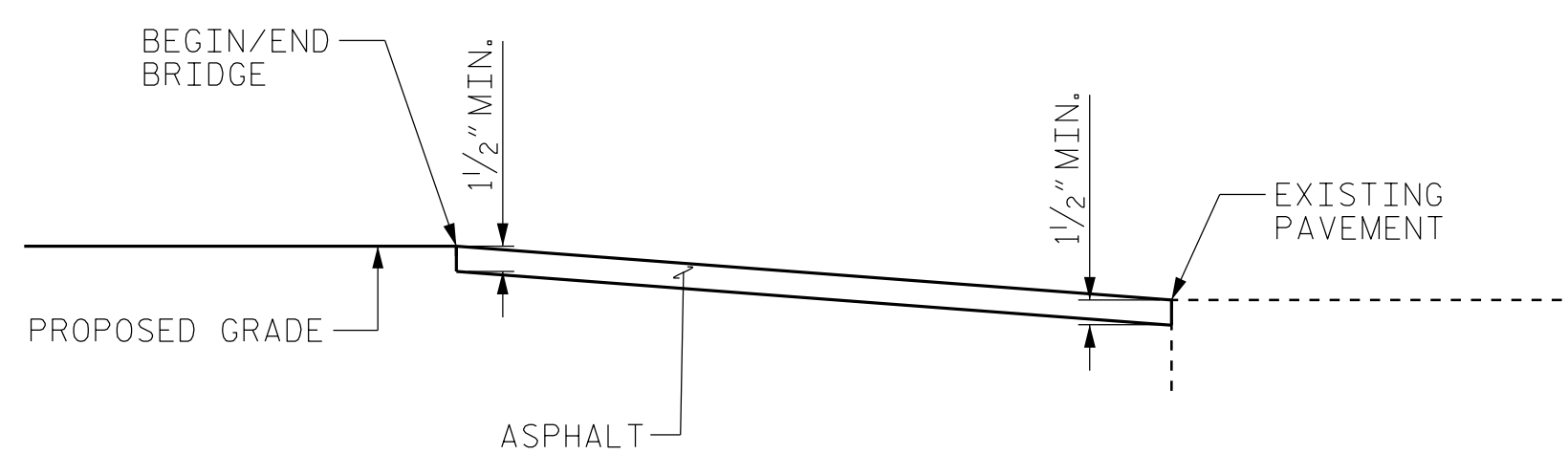
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

C1

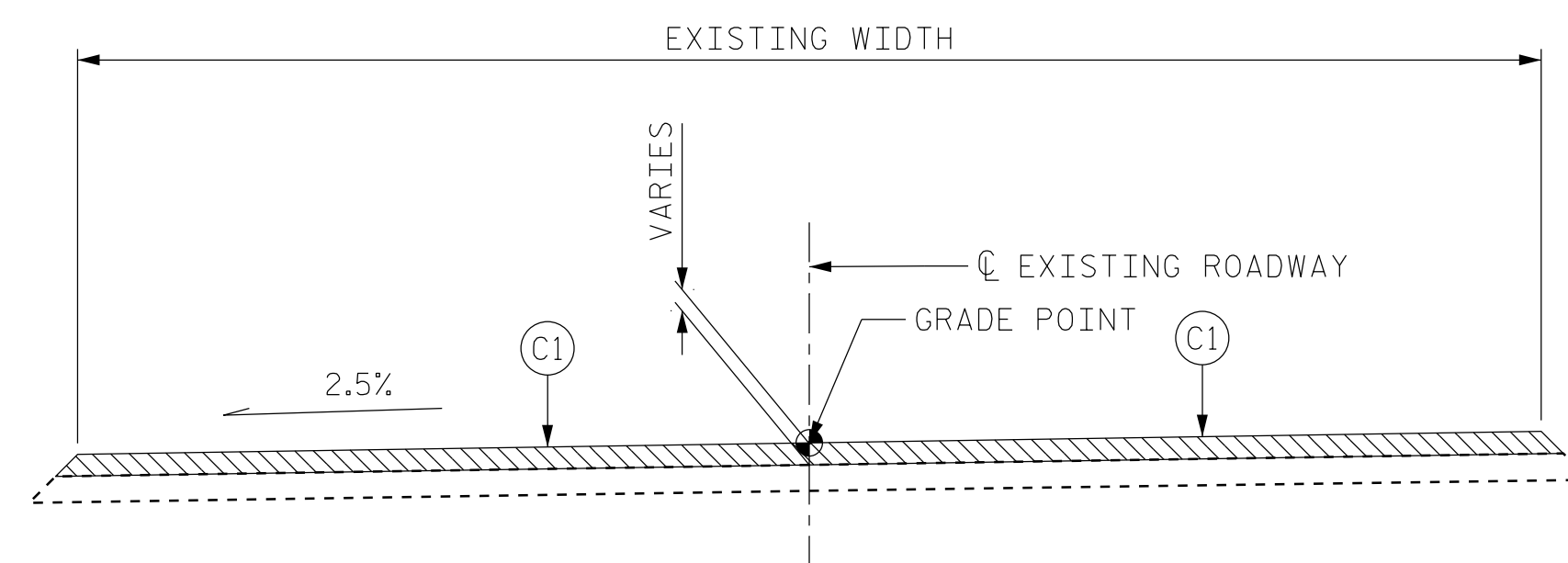
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PLAN



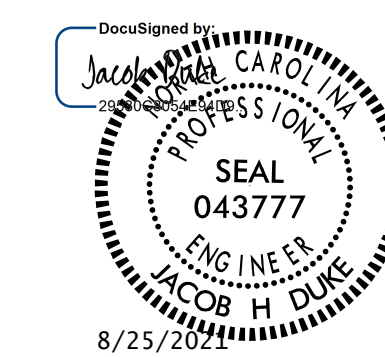
PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION
BEGIN/END BRIDGE

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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 I5939.SMU.AR01.770012.dgn
 fflores

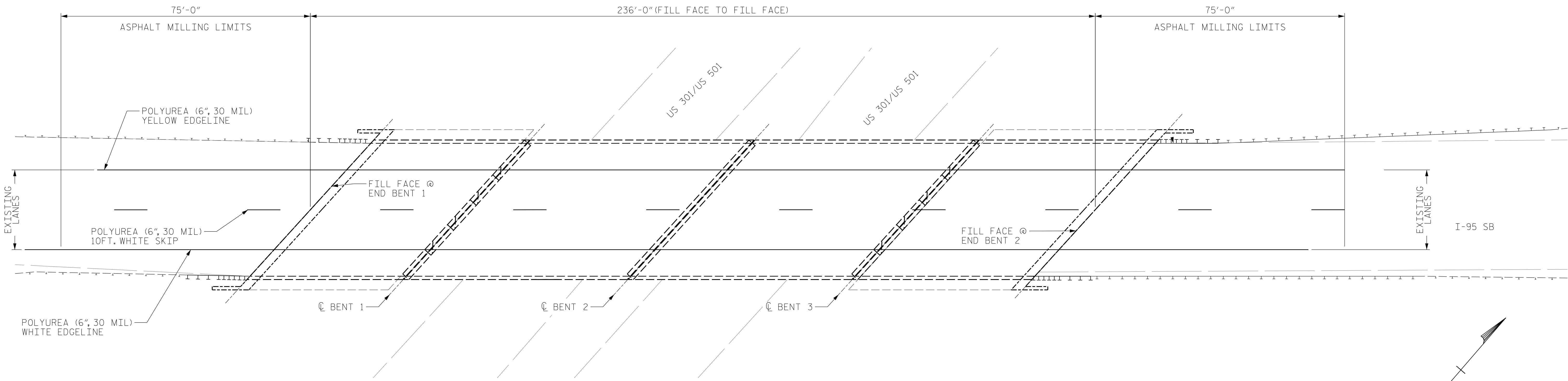
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			12

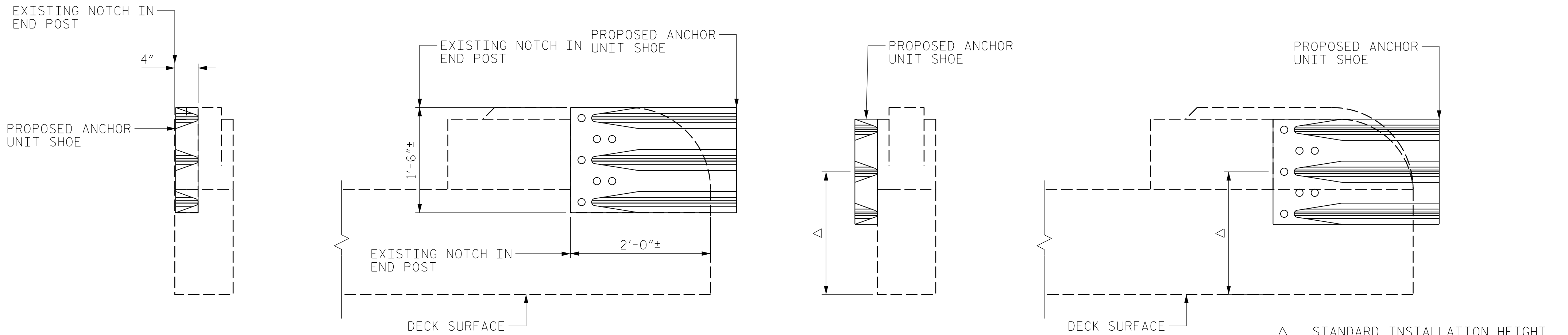
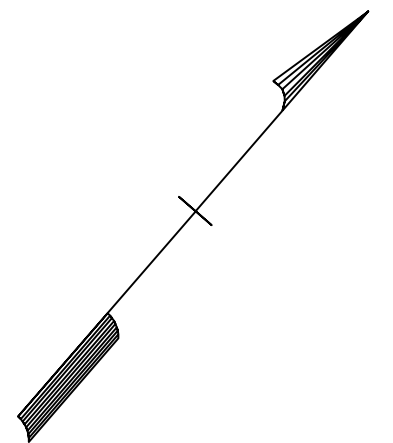
S2-5

STRUCTURE ANCHOR UNIT NOTES

REMOVE EXISTING ANCHOR UNITS PRIOR TO INSTALLATION OF PROPOSED UNITS.
TORCH CUT EXISTING BOLTS AND EPOXY COAT IF PROPOSED UNITS CANNOT OCCUPY THE SAME HOLES.
THE CONTRACTOR SHALL ATTEMPT TO NOT CUT THE EXISTING END POST TO ACHIEVE PROPER FIT-UP.
DRILL THRU HOLES FOR PROPOSED ANCHOR UNIT CAREFULLY, AVOIDING INTERNAL REINFORCING WHERE POSSIBLE.



PLAN



AT END BENT 1

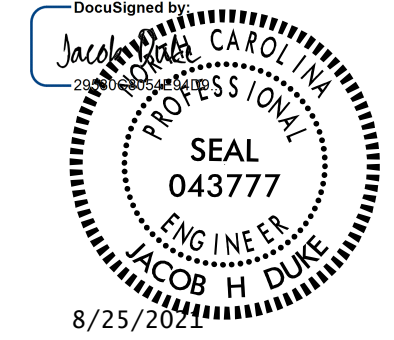
AT END BENT 2

STRUCTURE UNIT ATTACHMENT DETAILS

ONLY PROPOSED ANCHOR SHOE IS SHOWN FOR CLARITY
APPROACH UNIT SHOWN, MIRROR FOR TRAILING

PROJECT NO. I-5939
ROBESON COUNTY
BRIDGE NO. 770012

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
APPROACH ROADWAY
GUARDRAIL DETAILS AND
PAVEMENT MARKINGS

NOTES:
FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

Table with 2 columns: Field (Drawn by, Checked by, Design Engineer of Record) and Value (Fidel L. Flores, Diego A. Aguirre, Jacob H. Duke) and 2 columns: Field (Date) and Value (06/2021).

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FINAL UNLESS ALL
SIGNATURES COMPLETED

Table with 4 columns: NO., BY, DATE, and 4 columns: NO., BY, DATE, SHEET NO. (S2-6) and TOTAL SHEETS (12).

AS-BUILT REPAIR QUANTITY TABLE

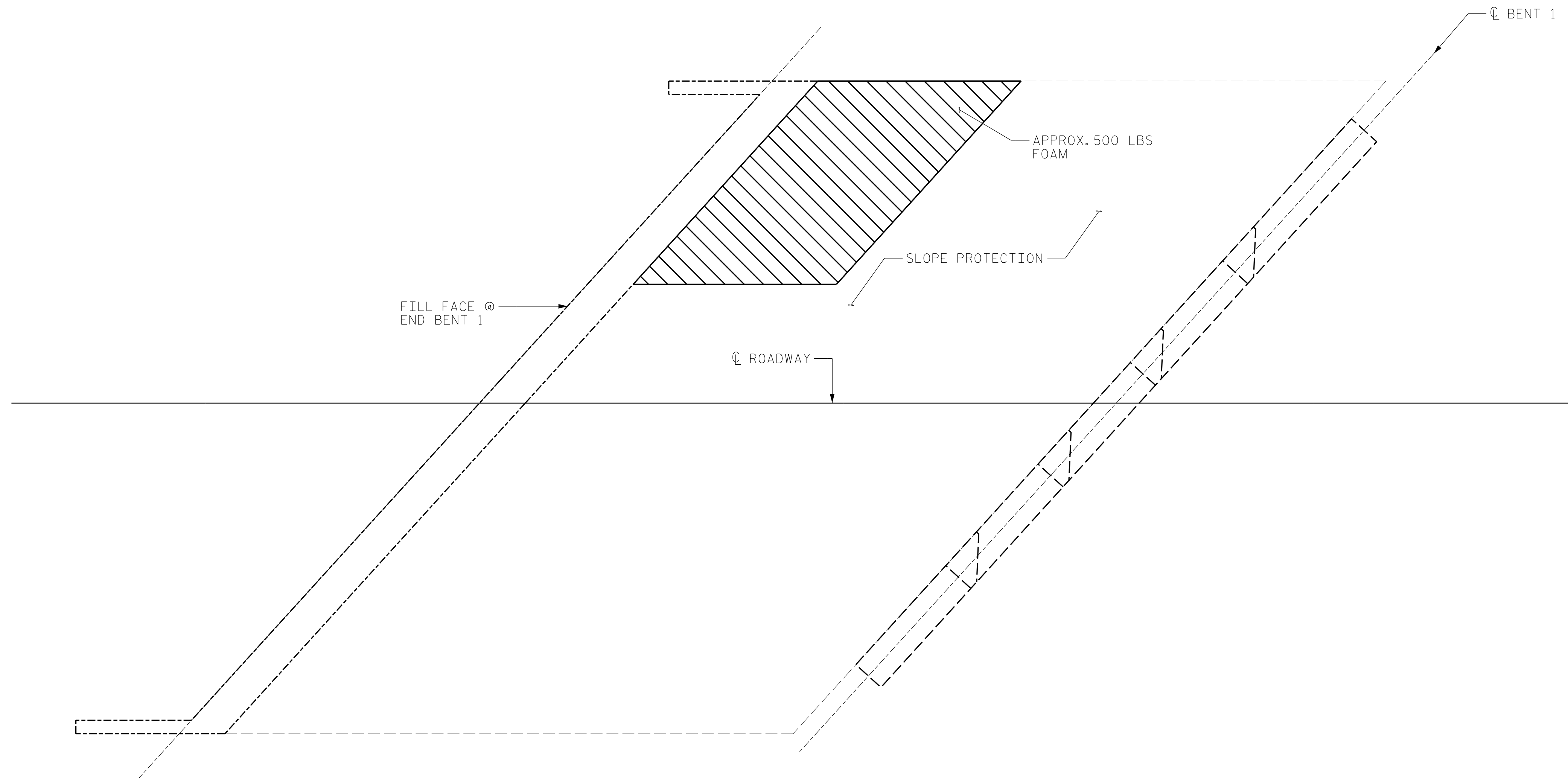
	ESTIMATE	ACTUAL
SLOPE PROTECTION VOID FILLING	500 LBS.	
SILICONE JOINT SEALANT FOR SLOPE REPAIRS	100 LF	

NOTES:

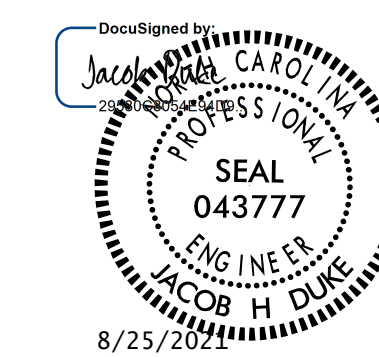
AFTER COMPLETION OF VOID FILLING, SEAL CRACKS IDENTIFIED WITH POURABLE SILICONE JOINT SEALANT AS DESCRIBED IN THE SPECIAL PROVISION FOR SILICONE JOINT SEALANT FOR SLOPE REPAIRS (BACKER RODS MAY BE OMITTED AS APPROVED BY THE ENGINEER).

FOR SLOPE PROTECTION VOID FILLING, SEE SPECIAL PROVISIONS.

FOR SILICONE JOINT SEALANT FOR SLOPE REPAIRS, SEE SPECIAL PROVISIONS.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION REPAIRS

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			12
2			4			

S2-7

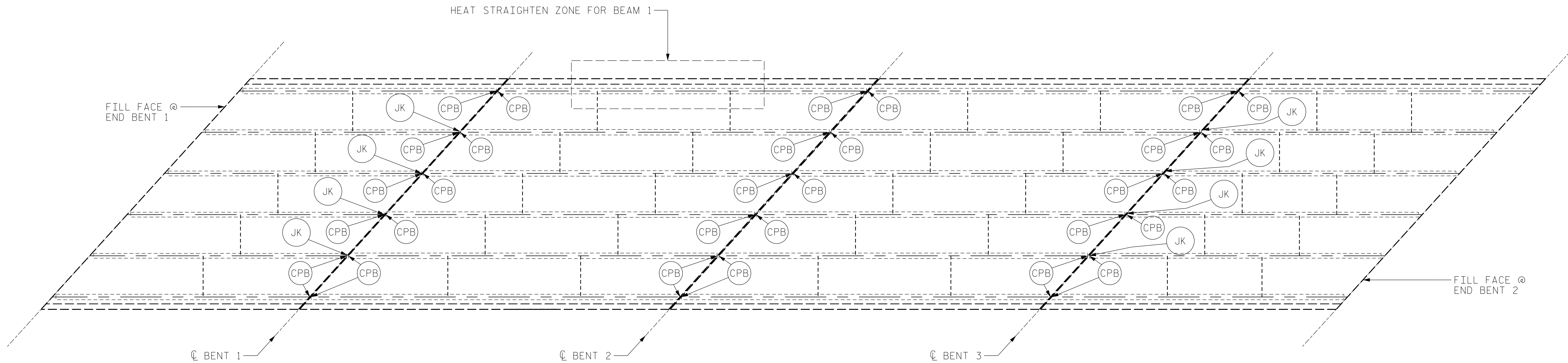
AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
CLEANING & PAINTING EXISTING BEARINGS WITH HRSCA	36 EA	
TYPE I BRIDGE JACKING	8 EA	
HEAT STRAIGHTENING STEEL BEAM REPAIR, BRIDGE 770012	LUMP SUM	

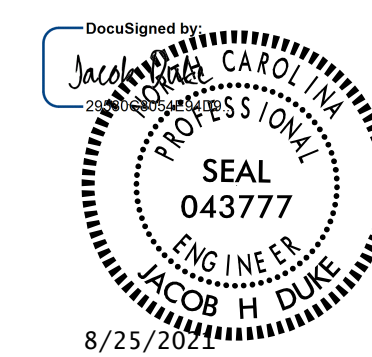
- CPB CLEAN AND PAINT BEARING
- JK JACKING

NOTES

FOR BRIDGE JACKING, SEE "BRIDGE JACKING" SHEET AND SPECIAL PROVISIONS.
 FOR CLEANING & PAINTING EXISTING BEARINGS WITH HRSCA, SEE SPECIAL PROVISIONS.
 FOR HEAT STRAIGHTENING STEEL BEAM REPAIR, SEE SPECIAL PROVISIONS.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

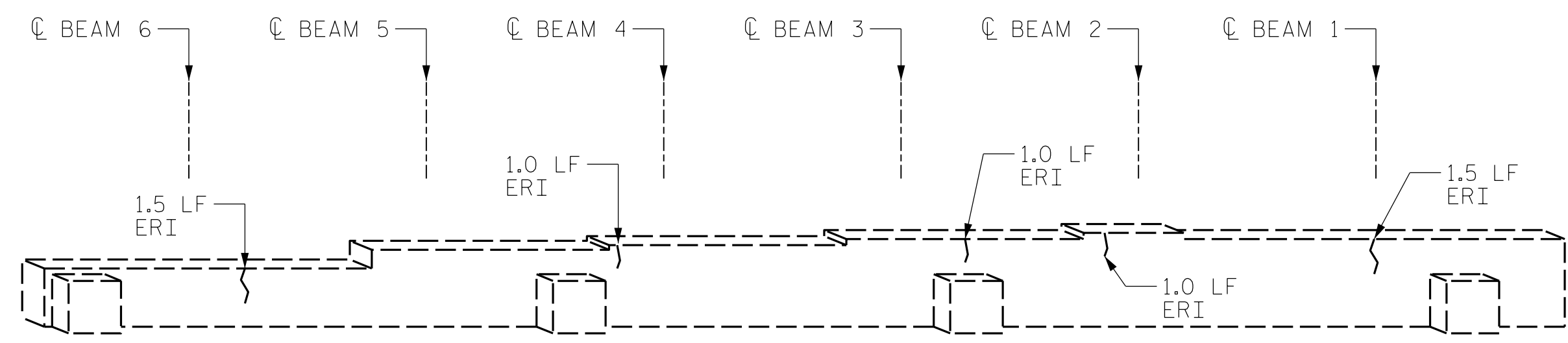
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE REPAIRS

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

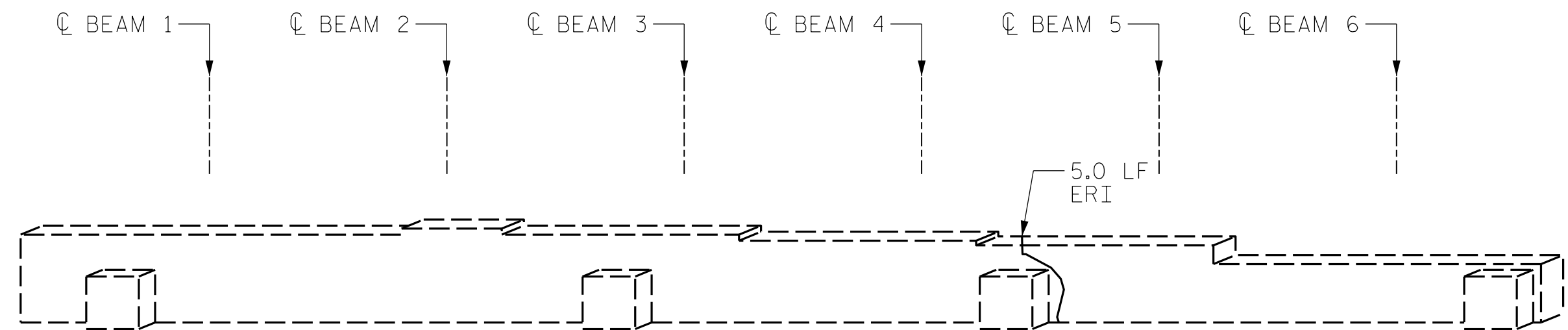
8/25/2021
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-8
1			3			TOTAL SHEETS
2			4			12



END BENT 1
(NORTH FACE)



END BENT 2
(SOUTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	11.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	325.5			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

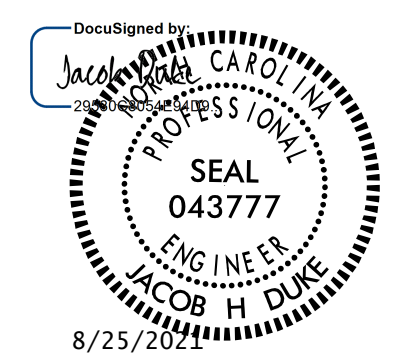
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

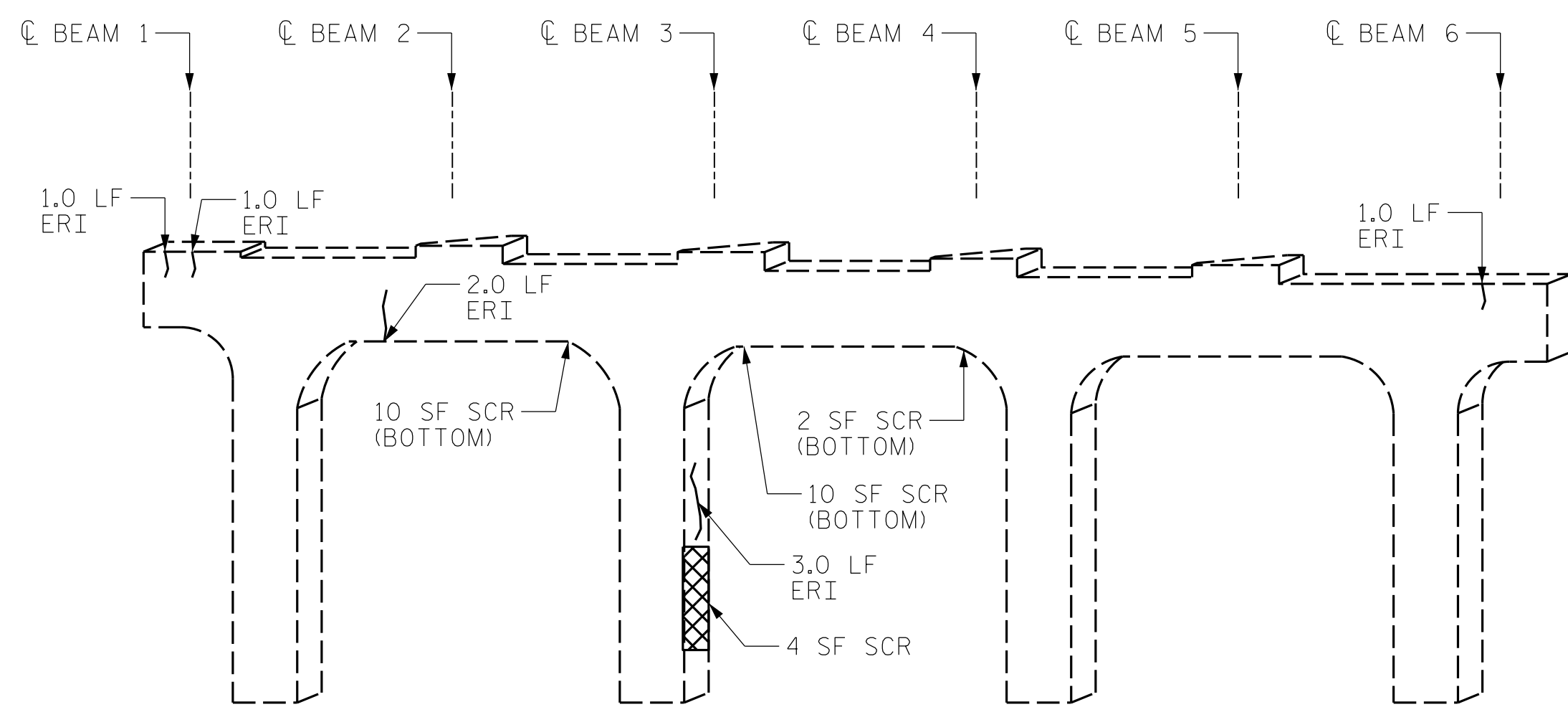
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
END BENTS 1 & 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					12

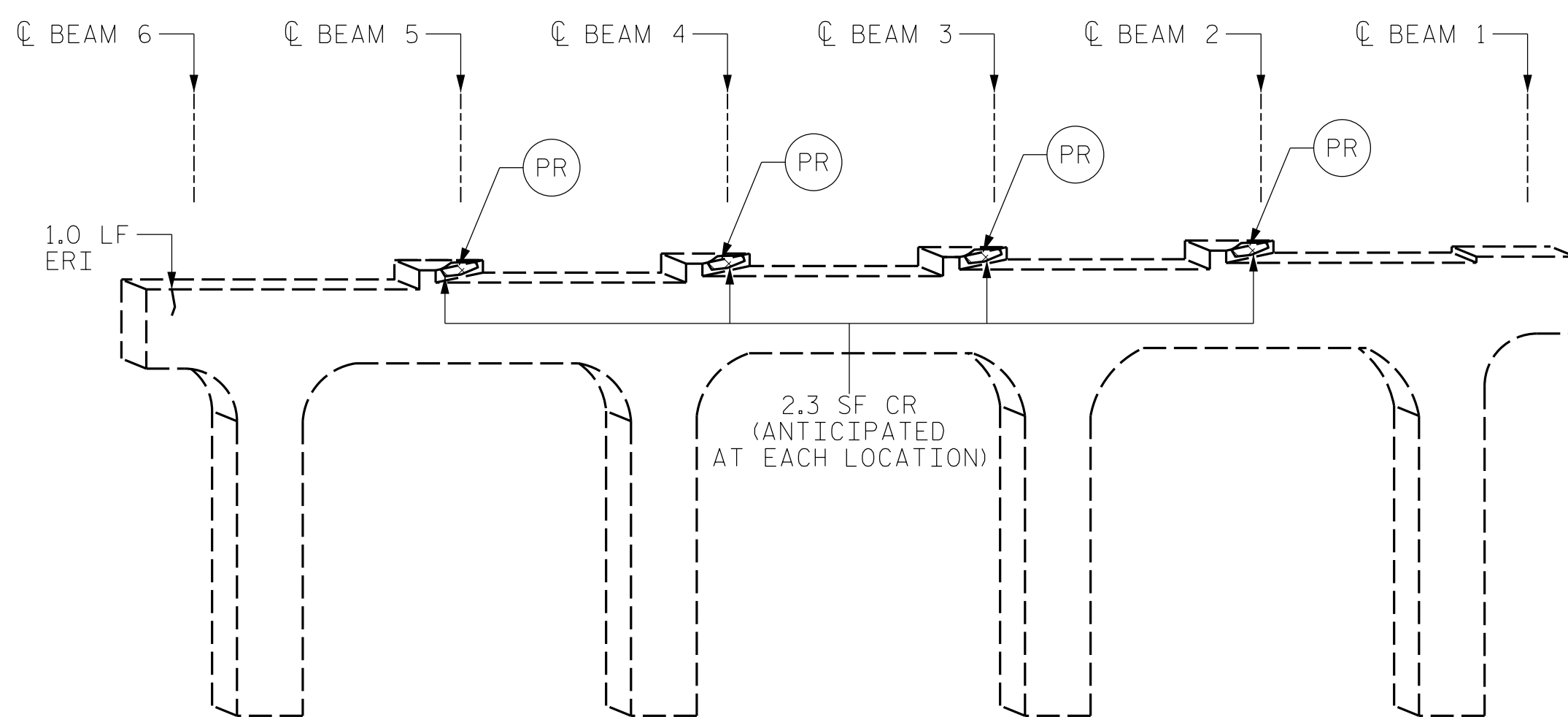
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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BENT 1

(SOUTH FACE)



BENT 1

(NORTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)
	CFRP PEDESTAL REPAIRS & BEARING RETROFIT

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL		25.0	12.5		
COLUMN/PILE		4.0	2.0		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP		9.2	4.6		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		36.0			
COLUMN/PILE		3.0			
EPOXY COATING		AREA SQ. FT.		AREA SQ. FT.	
CAP		136.3			
CFRP PEDESTAL REPAIRS & BEARING RETROFIT		EA.		4	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

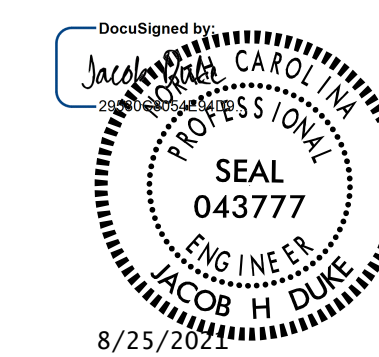
TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

SEE "CONCRETE RESTORATION SHEETS" FOR CFRP PEDESTAL REPAIRS & BEARING RETROFIT DETAILS.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



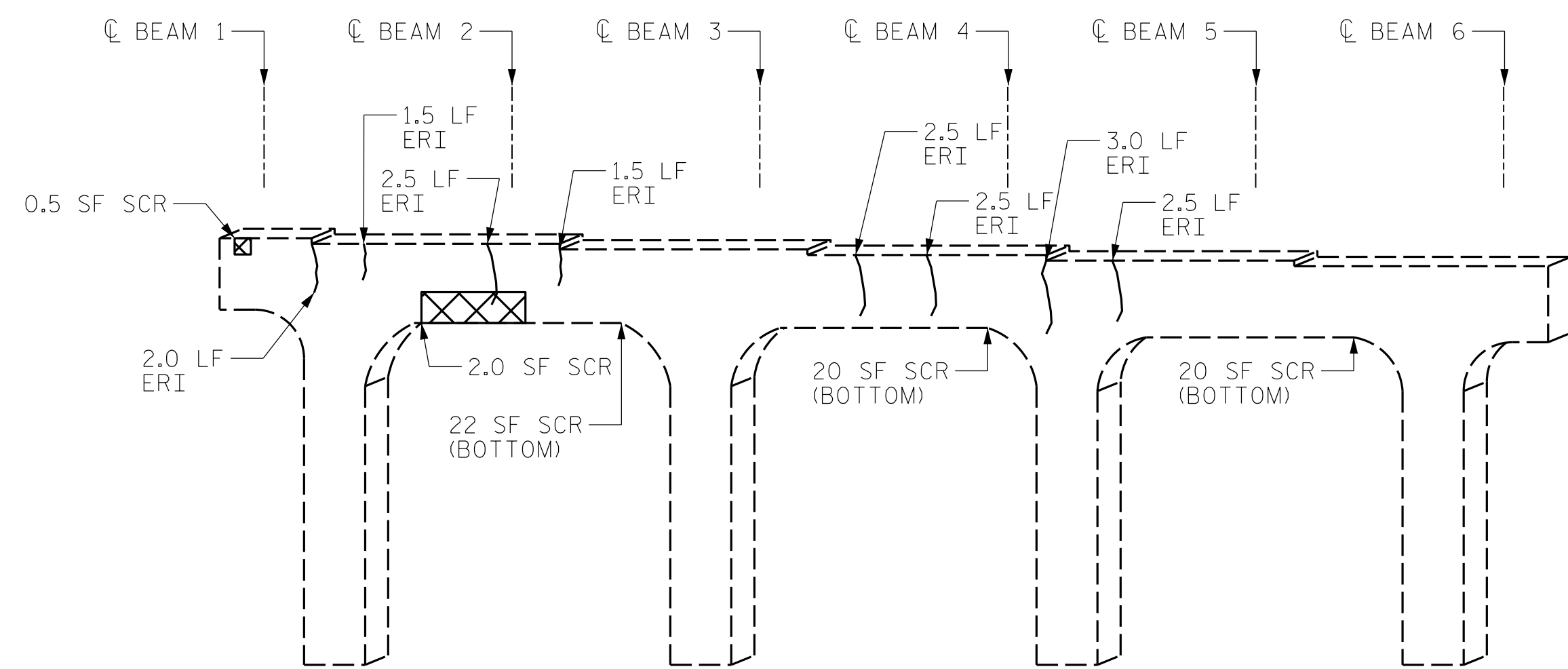
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
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 fflores

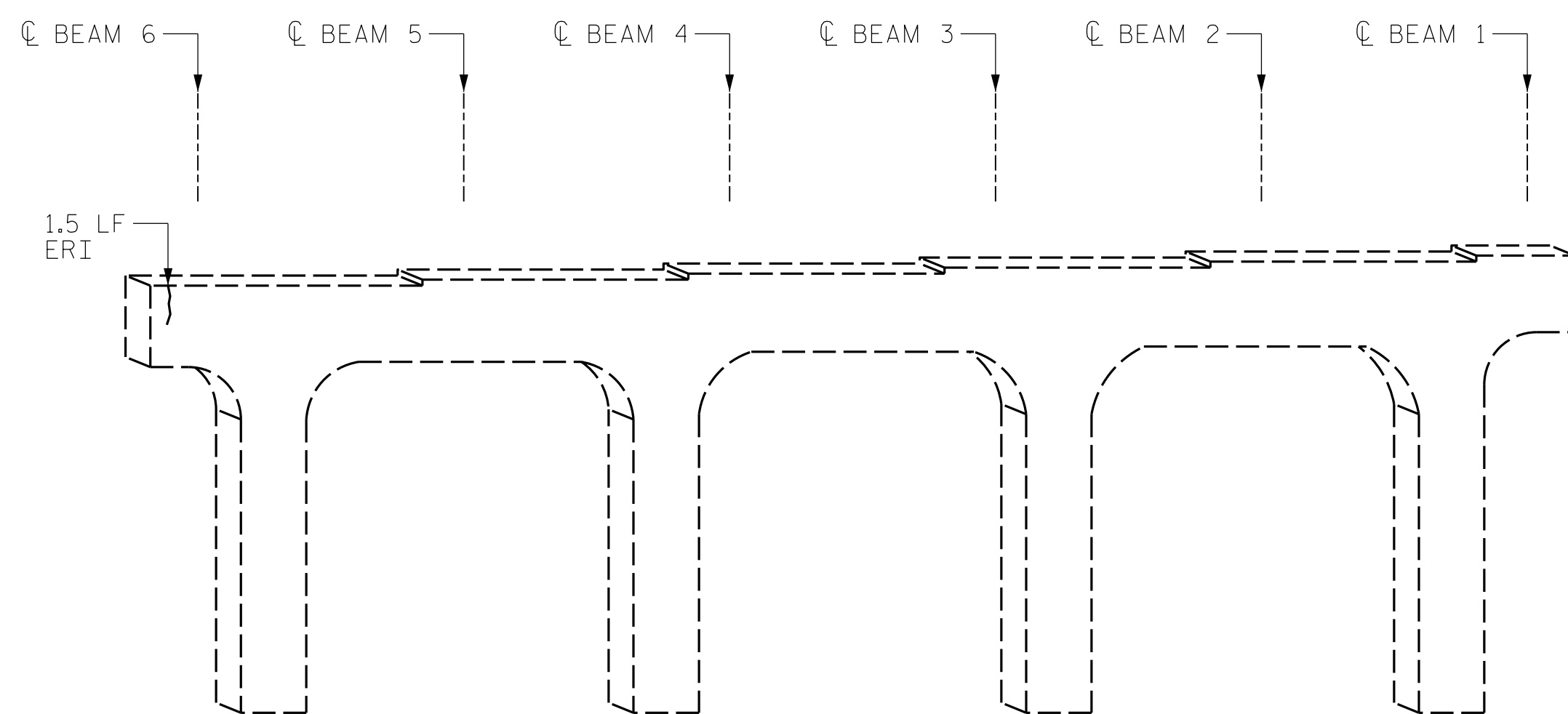
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			12
2			4			



BENT 2

(SOUTH FACE)



BENT 2

(NORTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	64.5	32.3		
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	19.5			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	136.3			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

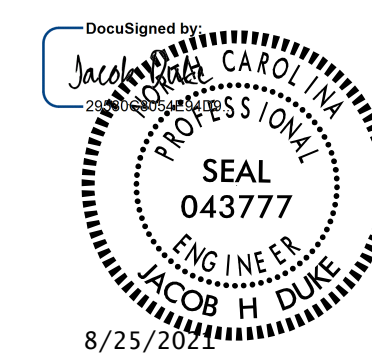
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



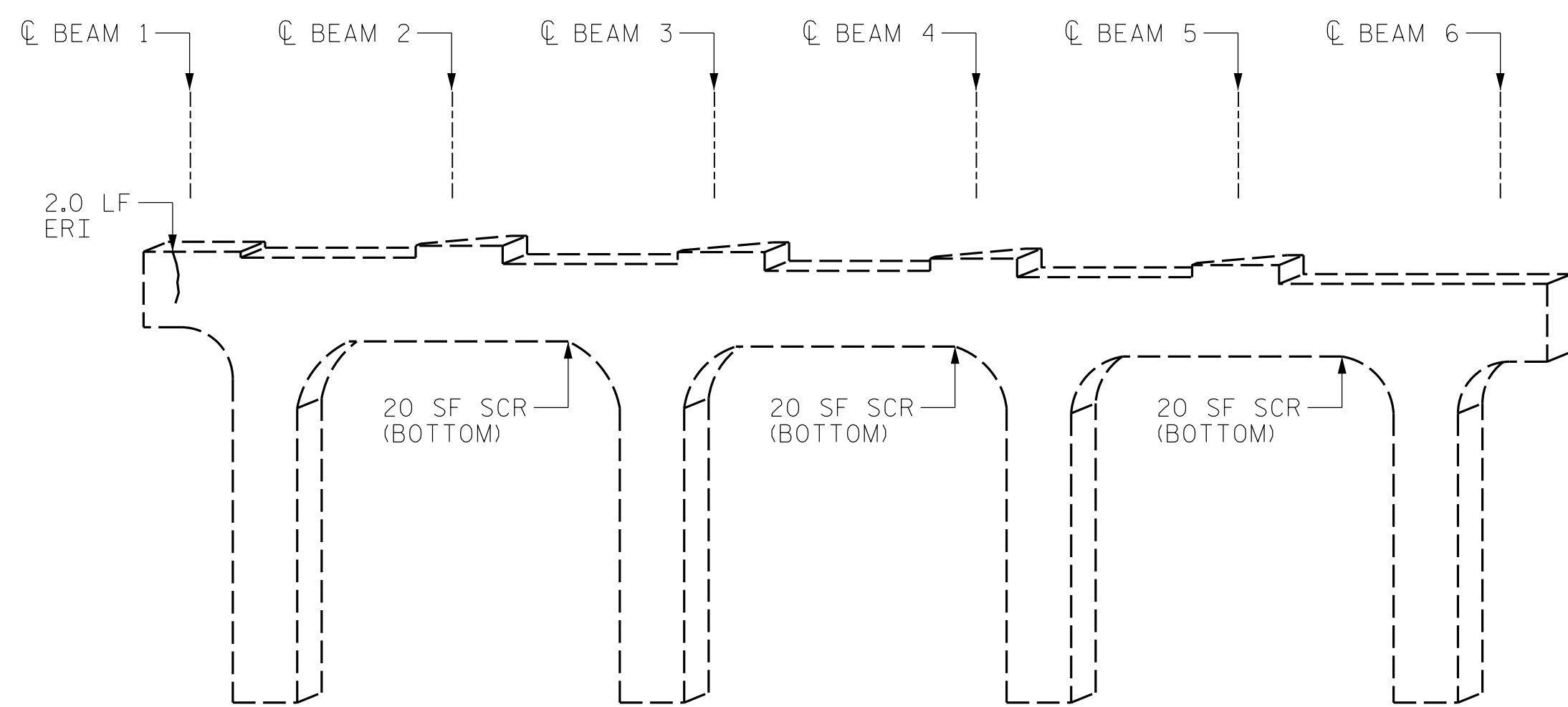
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 2

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.SBR02.770012.dgn
 fflores

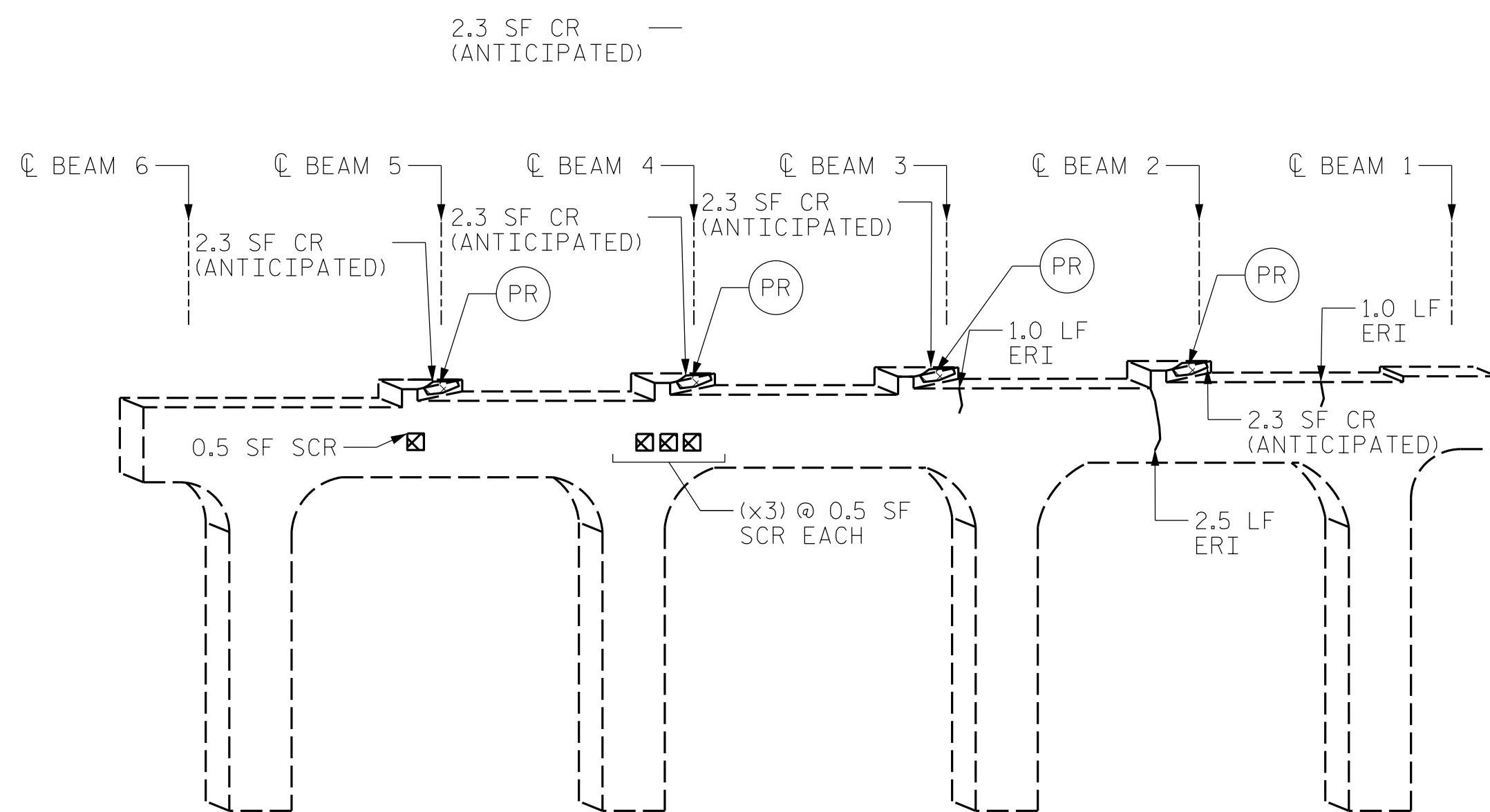
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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



BENT 3

(SOUTH FACE)



BENT 3

(NORTH FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)
	CFRP PEDESTAL REPAIRS & BEARING RETROFIT

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL		62.0	31.0		
COLUMN/PILE					
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP		9.2	4.6		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		6.5			
COLUMN/PILE					
EPOXY COATING		AREA SQ. FT.		AREA SQ. FT.	
CAP		136.3			
CFRP PEDESTAL REPAIRS & BEARING RETROFIT				EA.	
				4	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

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AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

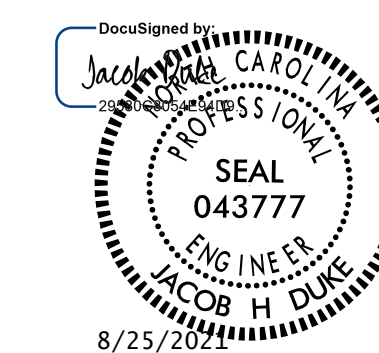
TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

SEE "CONCRETE RESTORATION SHEETS" FOR CFRP PEDESTAL REPAIRS & BEARING RETROFIT DETAILS.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770012



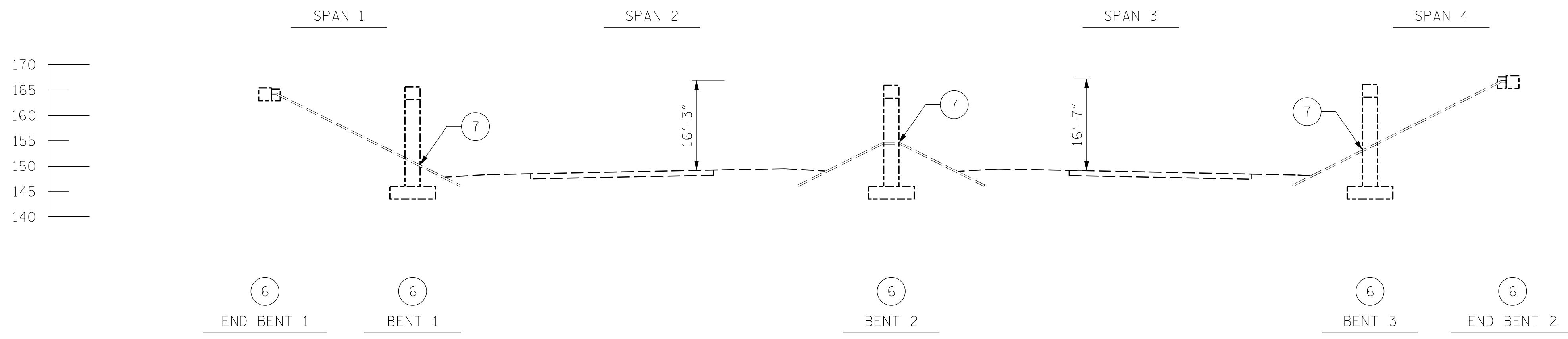
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 3

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.SBR03.770012.dgn
 fflores

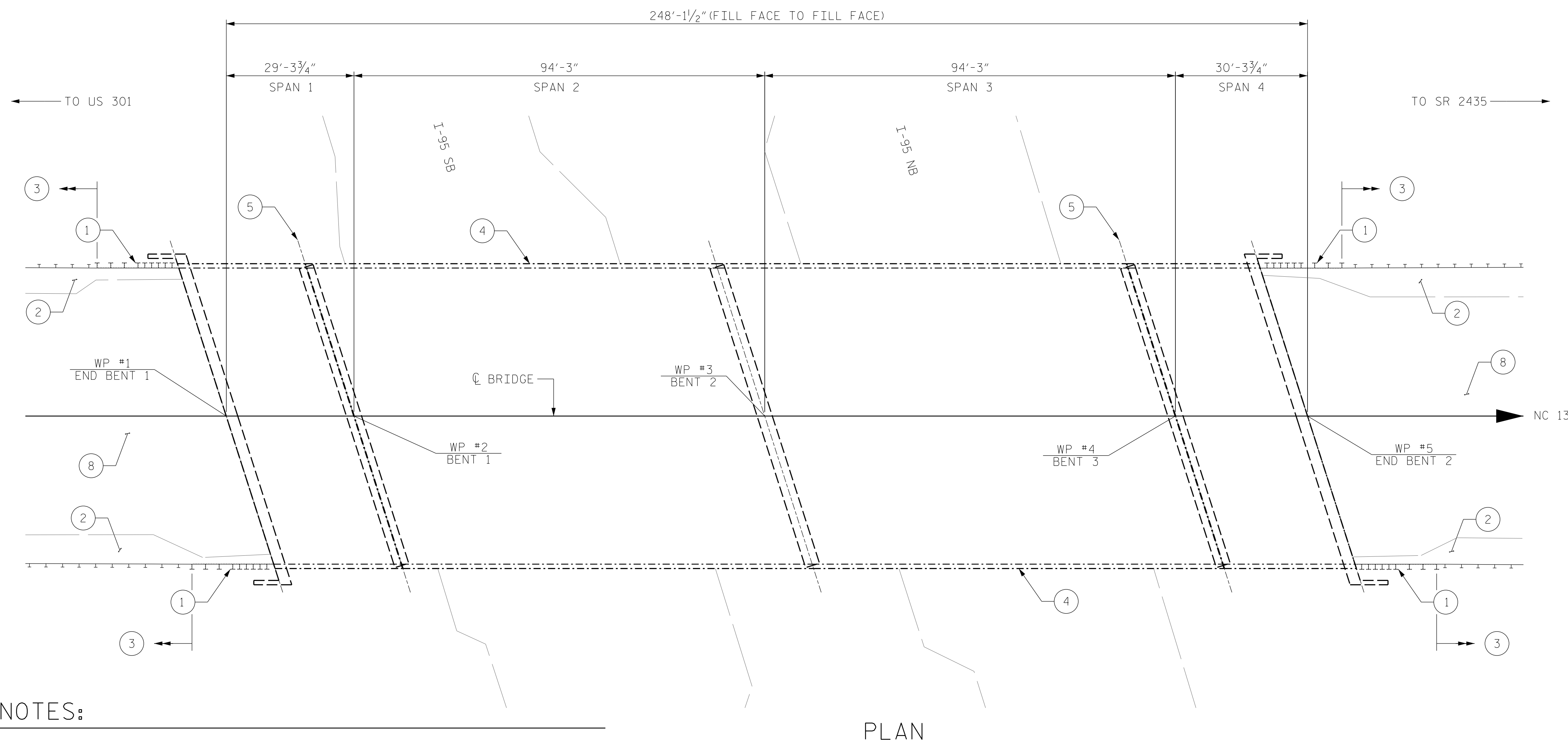
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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



- SCOPE LEGEND:
- 1 PROPOSED TYPE-III STRUCTURE ANCHOR UNITS
 - 2 CLEAR SHOULDERS OF DEBRIS AND VEGETATION
 - 3 PROPOSED STEEL BEAM GUARDRAIL
 - 4 SILANE SEAL BARRIERS
 - 5 JOINT REPLACEMENT
 - 6 SUBSTRUCTURE EPOXY RESIN INJECTION
 - 7 SILICONE JOINT SEAL REPLACEMENT AT COLUMN BASES
 - 8 APPROACH ROADWAY MILLING AND RESURFACING

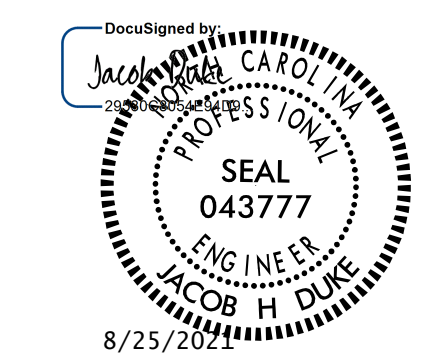
NOTE: SEE SHEET S12 FOR SLOPE PROTECTION JOINT REPAIRS



I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____

PROJECT NO. I-5939
ROBESON COUNTY
BRIDGE NO. 770004



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON NC 130
OVER I-95

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/10/2019.

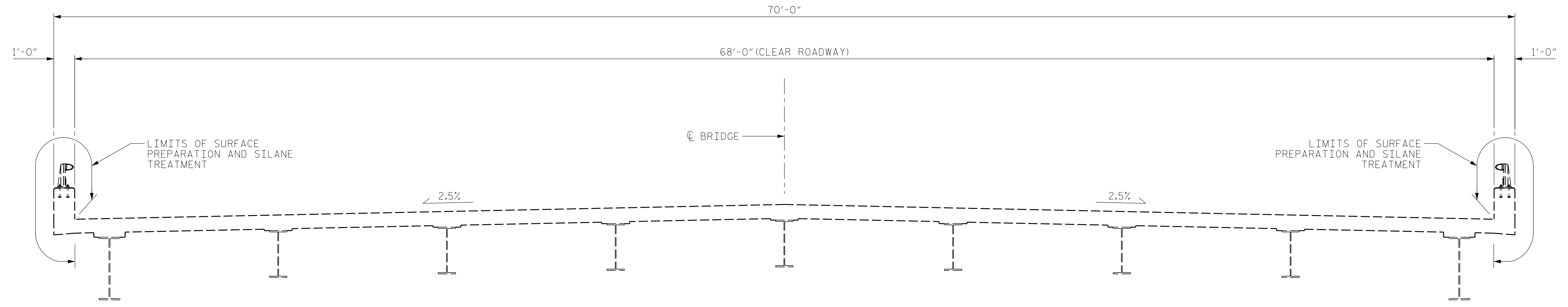
BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S3-1
2			4			10

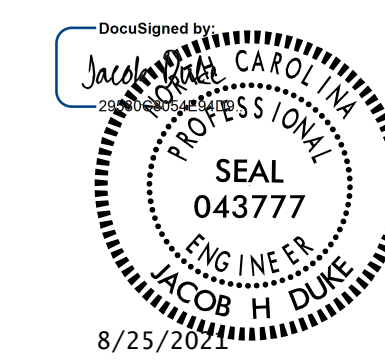


NOTES:

1. FOR SILANE RAIL TREATMENT AND SURFACE PREPARATION FOR SILANE RAIL TREATMENT, SEE SPECIAL PROVISIONS.
2. SILANE TREATMENT SHALL BE APPLIED TO THE BARRIER RAIL TOP, TRAFFIC FACE, BACK OF BARRIER, AND DECK SOFFIT AS SHOWN IN THE PLANS.
3. DO NOT APPLY SILANE TREATMENT TO THE EXISTING ONE-BAR METAL RAIL.

AS-BUILT REPAIR QUANTITY TABLE		
	ESTIMATE	ACTUAL
SURFACE PREPARATION FOR SILANE RAIL TREATMENTS	2828 SF	
SILANE RAIL TREATMENT	2828 SF	

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-2
1			3			TOTAL SHEETS
2			4			10

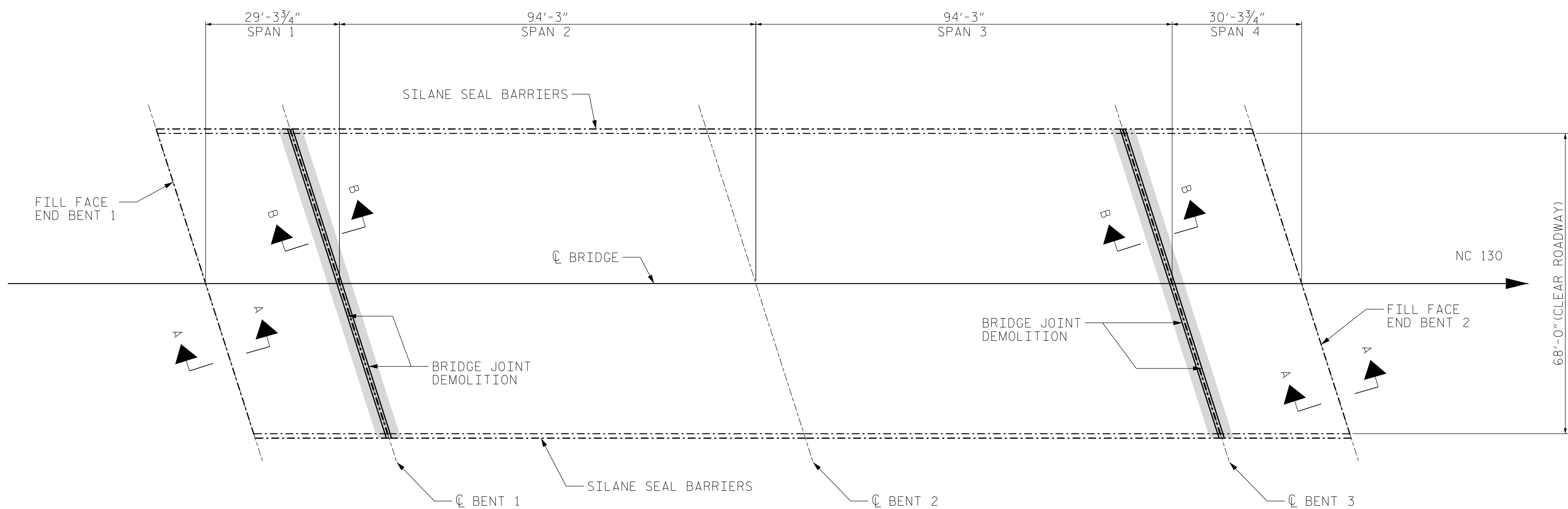
DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	0.0 SF		0.0 SF		0.0 SF		0.0 SF	
CLASS III SURFACE PREPARATION	0.0 SF		0.0 SF		0.0 SF		0.0 SF	



NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

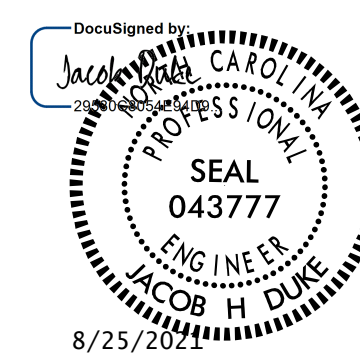
BRIDGE JOINT DEMOLITION



DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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 I5939.SMU.DSR01.770004.dgn
 fflores

PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770004



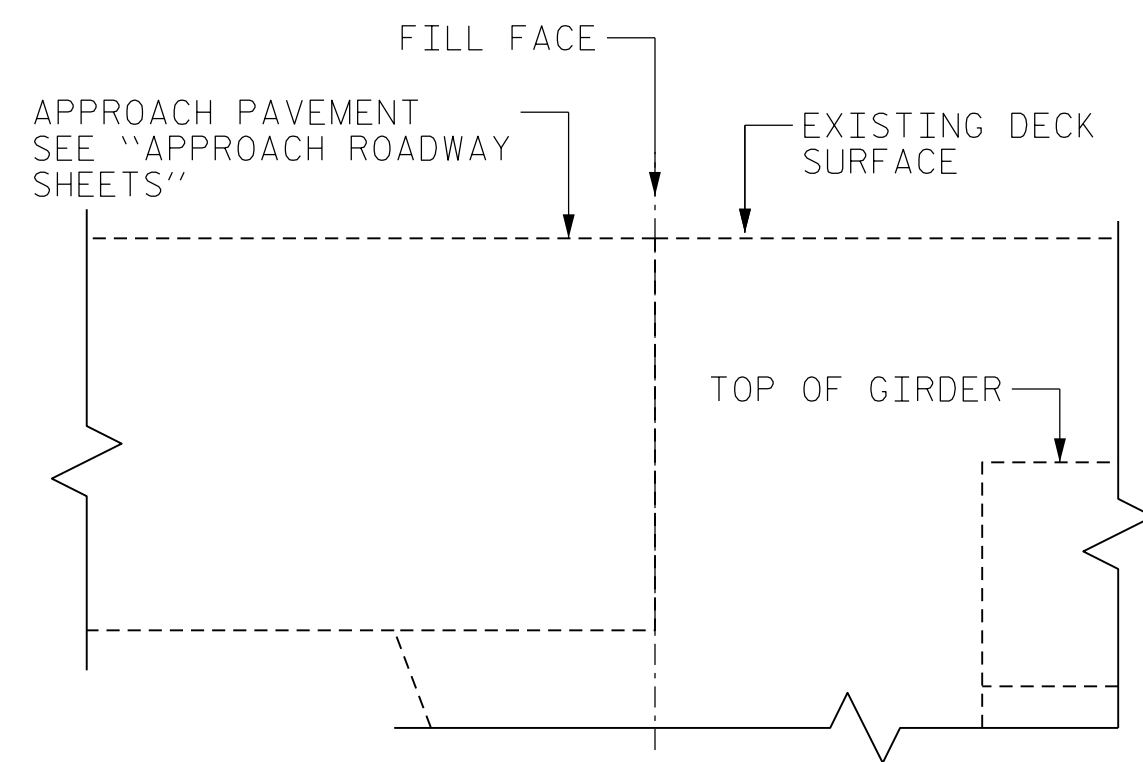
KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

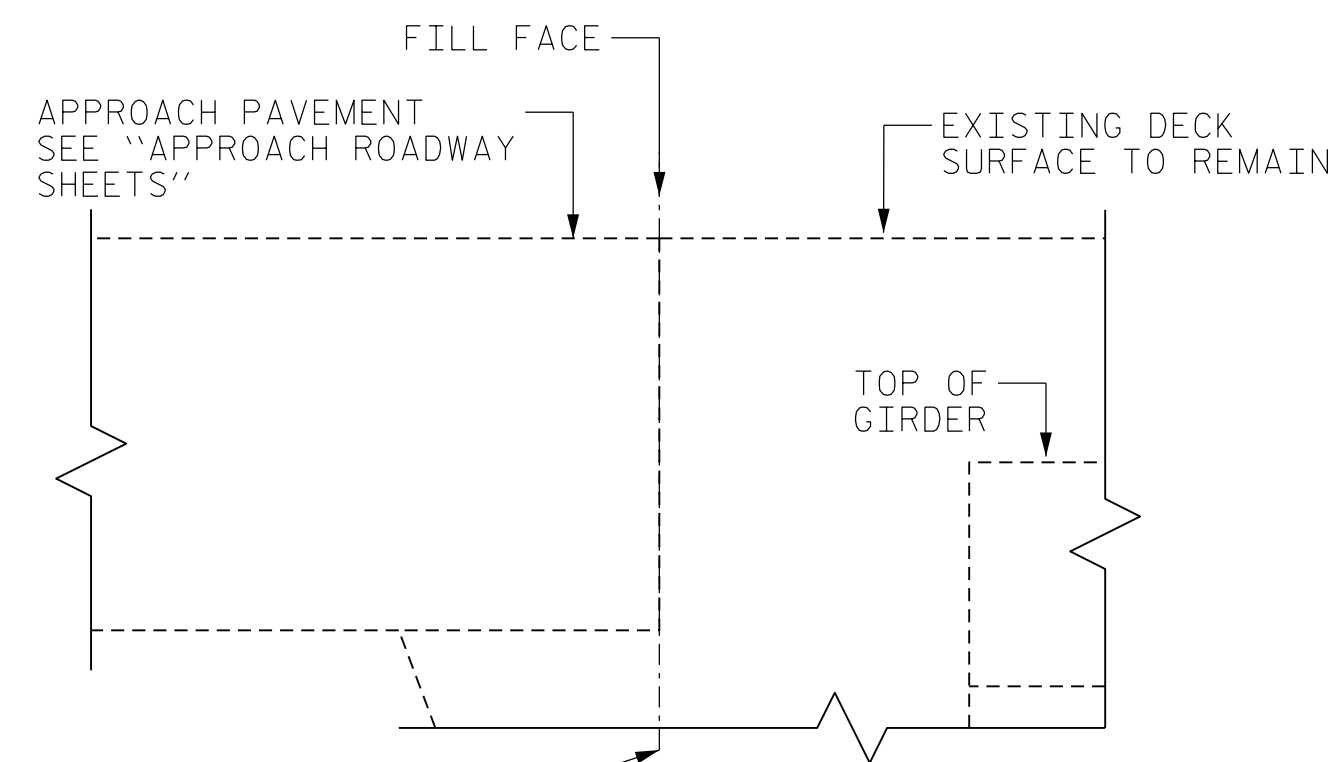
PLAN OF SPANS

DOCUMENT NOT CONSIDERED
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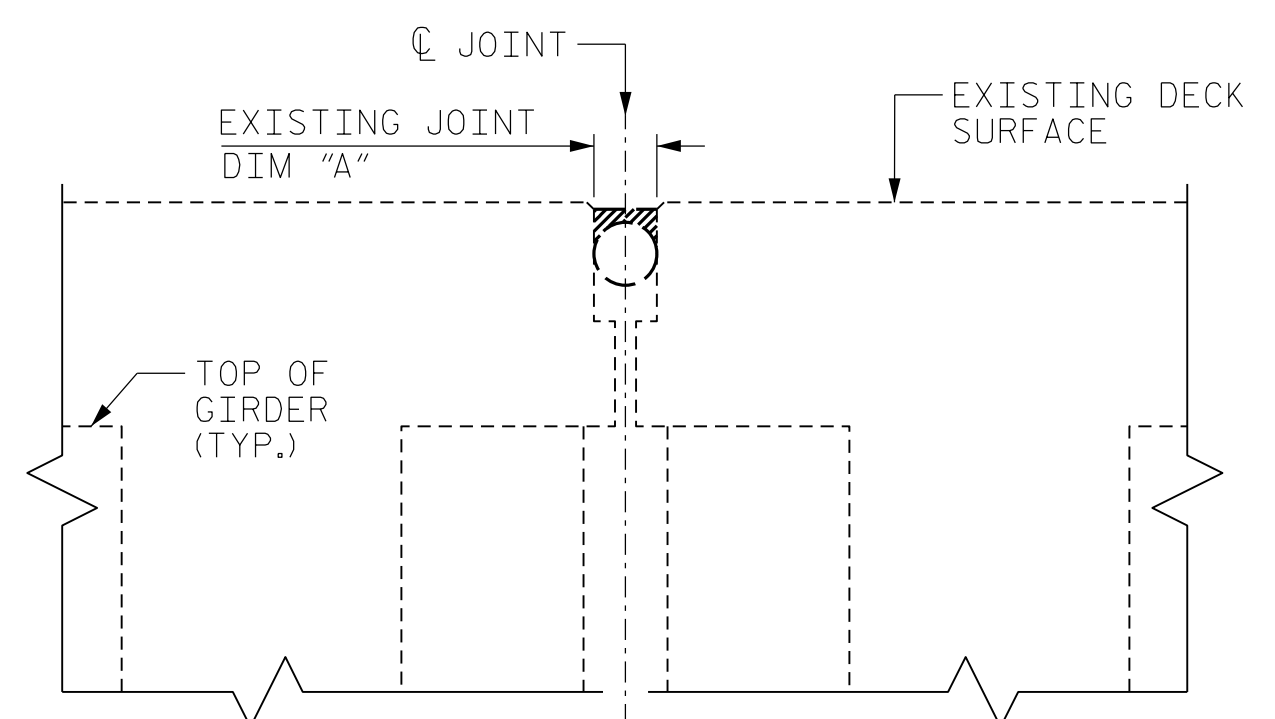
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-3
2			4			TOTAL SHEETS 10



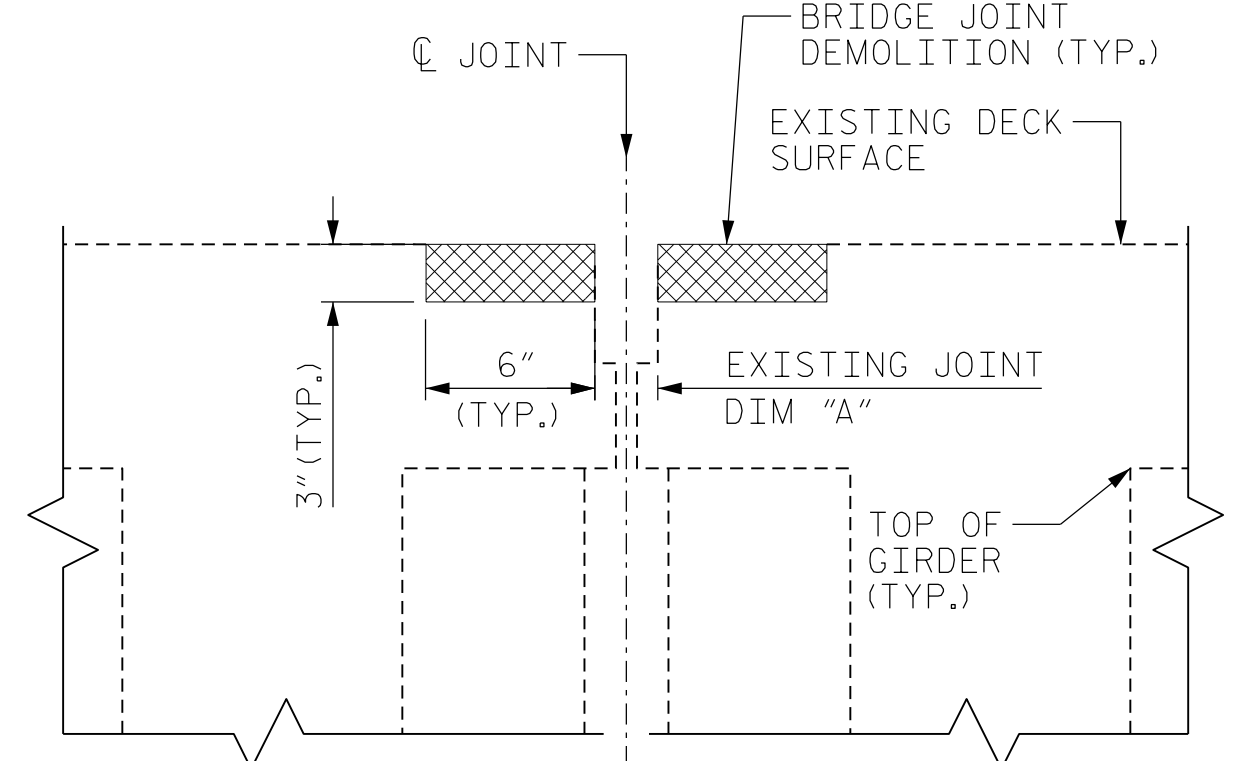
SECTION A-A
(EXISTING DETAIL, NO JOINT)



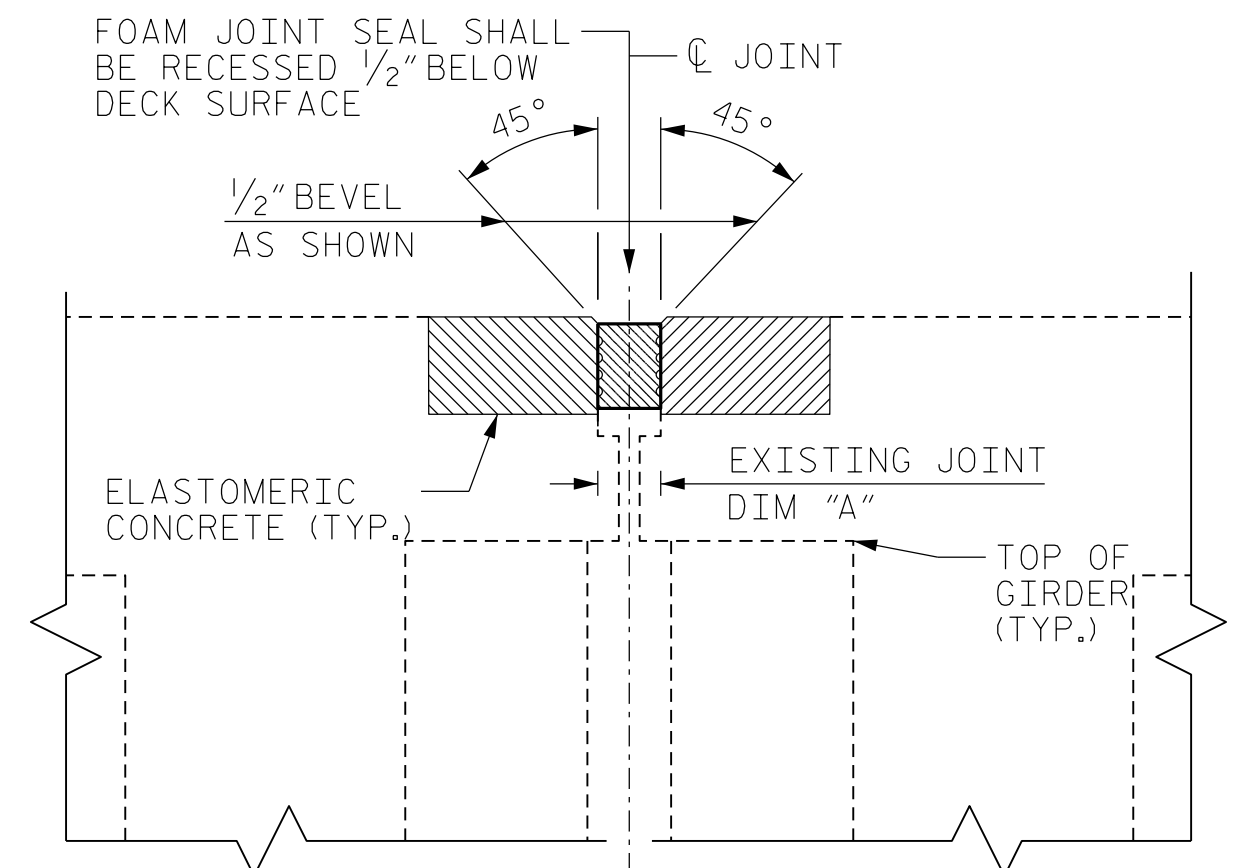
SECTION A-A
(PROPOSED DETAIL, NO JOINT)



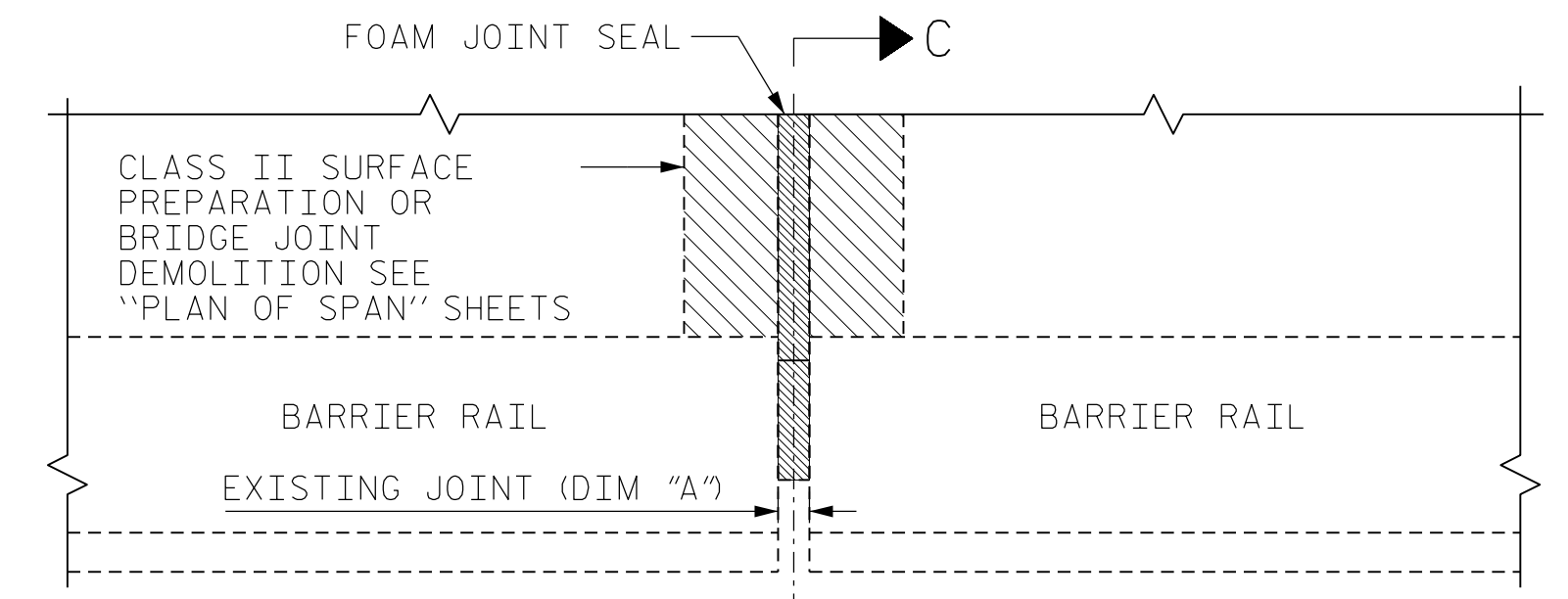
SECTION B-B
(EXISTING JOINT PRIOR TO LMC OVERLAY)



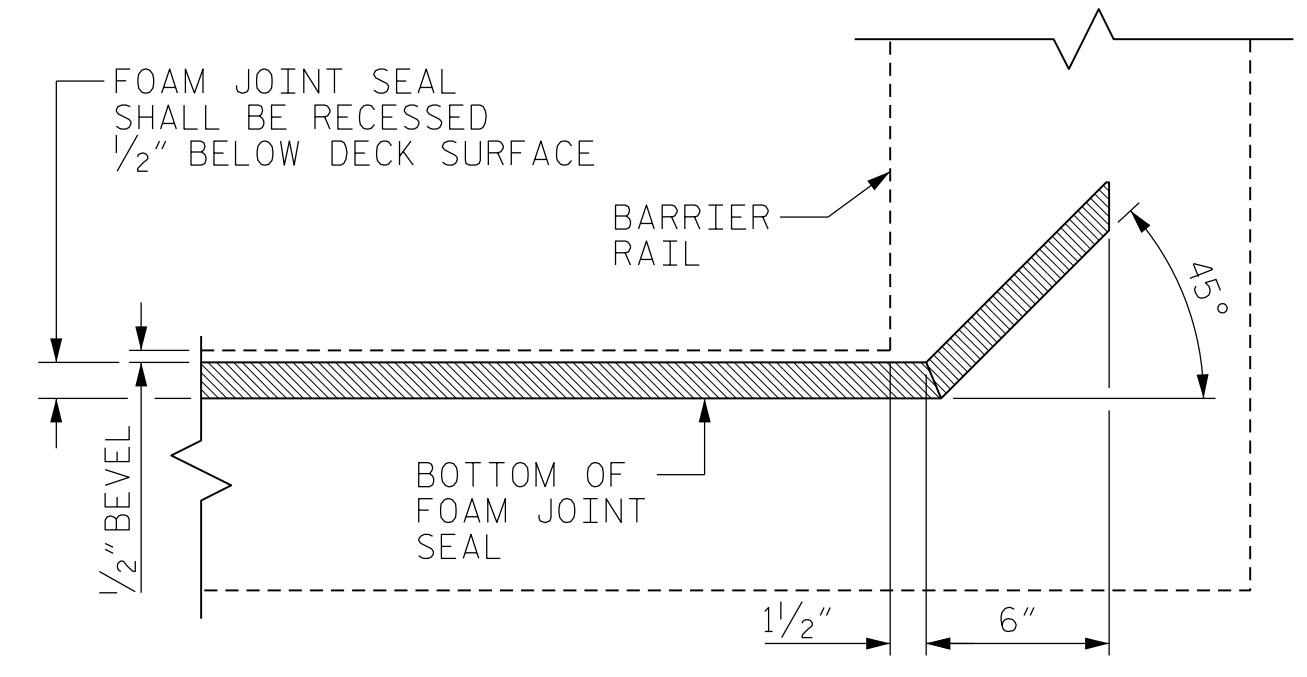
SECTION B-B
(SCARIFICATION AND HYDRO-DEMOLITION)



SECTION B-B
(PROPOSED FOAM JOINT SEAL)



PLAN AT BARRIER
(PROPOSED JOINT SEAL)



SECTION C-C
(PROPOSED JOINT SEAL)

TABLE 1	
Table Date 04-2021	
BENT/ JOINTS	DIM "A" @ 71°F
END BENT 1	N/A
1	3"
2	N/A
3	3"
END BENT 2	N/A

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	145	

ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	N/A	
BENT 1	17.9	
BENT 2	N/A	
BENT 3	17.9	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	N/A	
BENT 1	72	
BENT 2	N/A	
BENT 3	72	

NOTES:

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SHALL BE WATER TIGHT.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

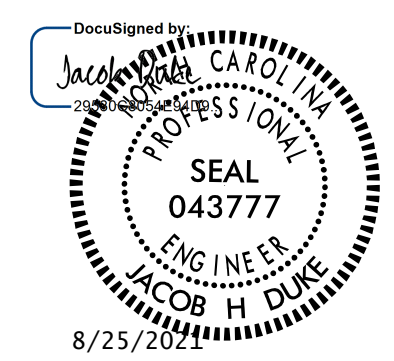
FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOPS SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004



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

SHEET NO.	
S3-4	TOTAL SHEETS
10	

DRAWN BY : DIEGO A. AGUIRRE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

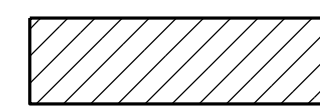
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	4 EA	
GUARDRAIL REMOVAL	475 LF	
PROPOSED GUARDRAIL	400 LF	
INCIDENTAL MILLING	651 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	55 TON	
ASPHALT BINDER FOR PLANT MIX	3.3 TON	
POLYUREA PAVEMENT MARKING LINES (4", 30MILS)	1567 LF	

NOTES:

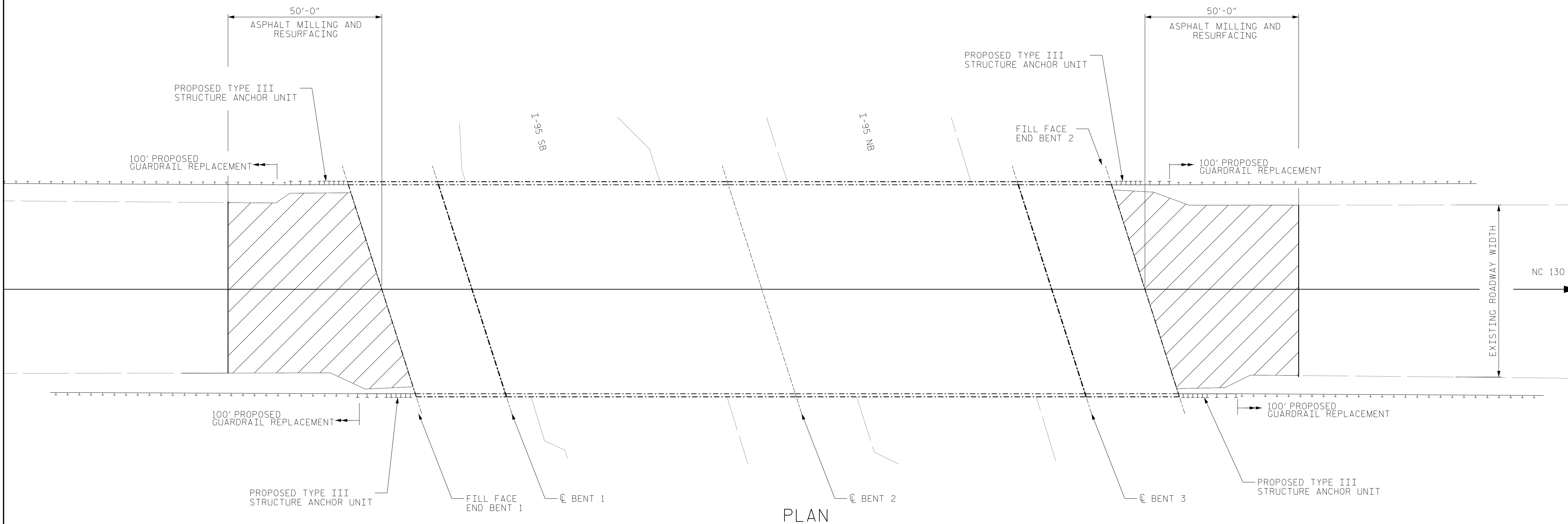
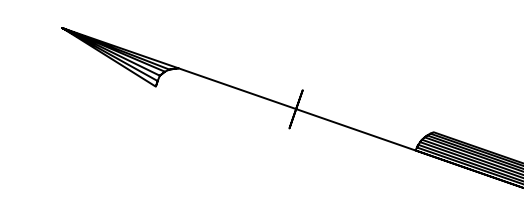
- INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.
- FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
- FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.



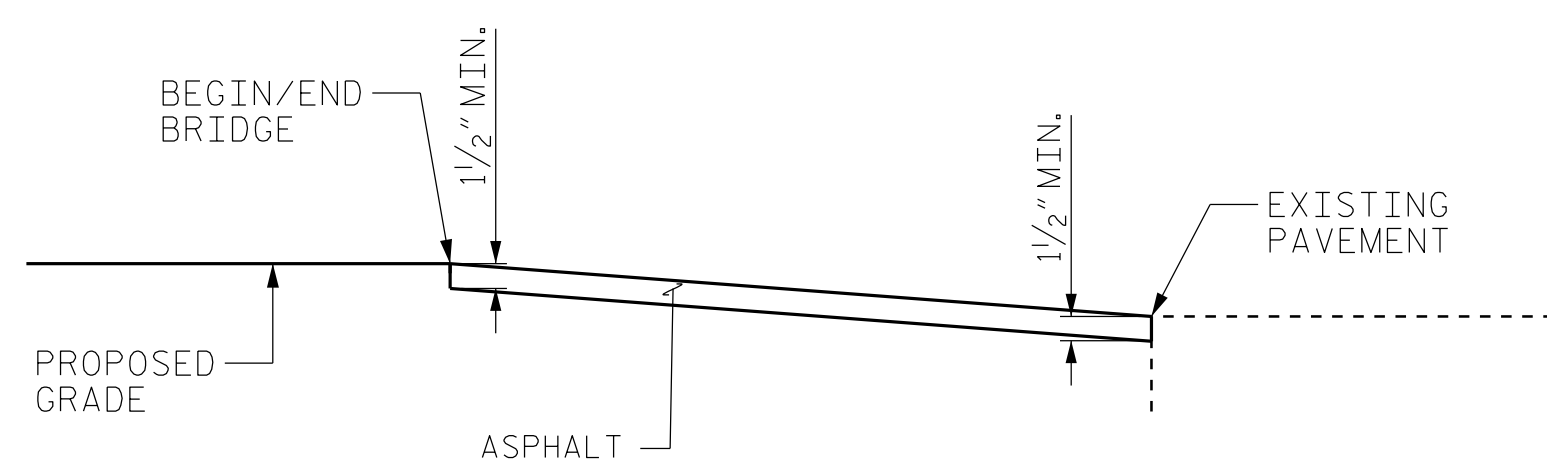
INCIDENTAL MILLING & ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

C1

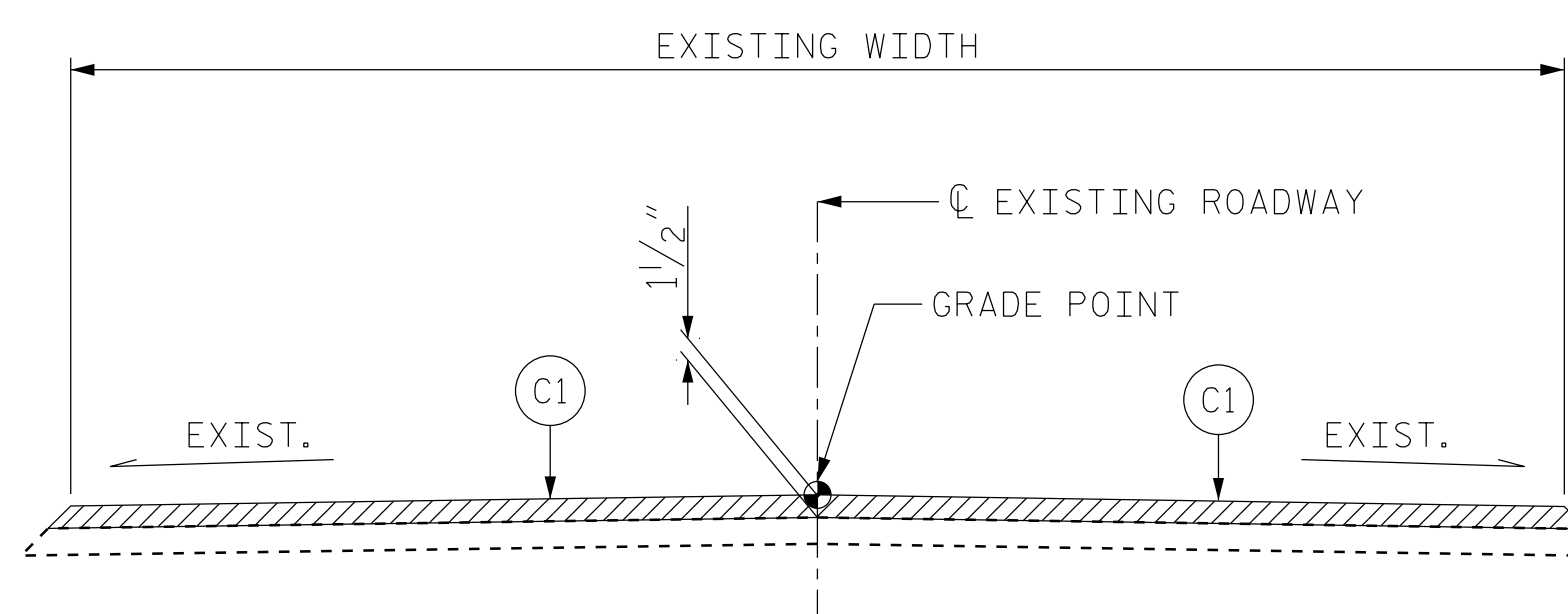
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PLAN



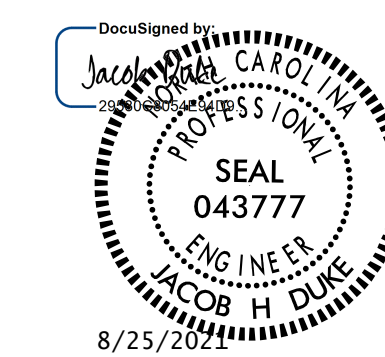
PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION
BEGIN/END BRIDGE

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004

SHEET 1 OF 2



KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

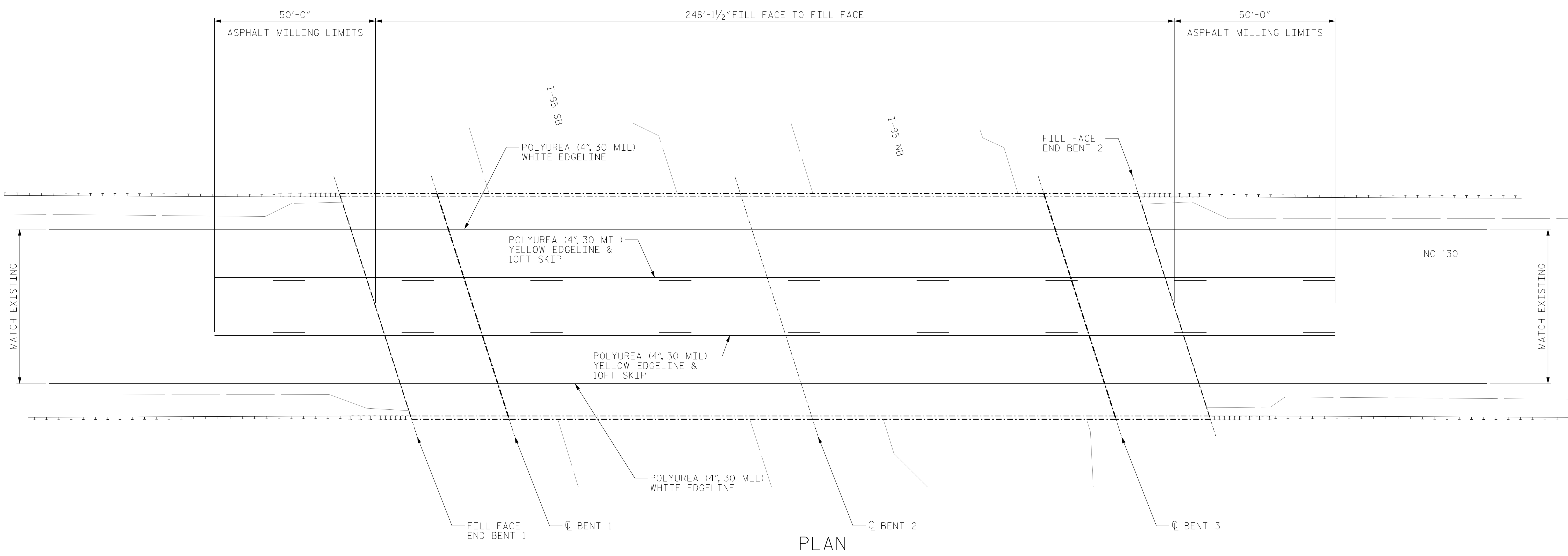
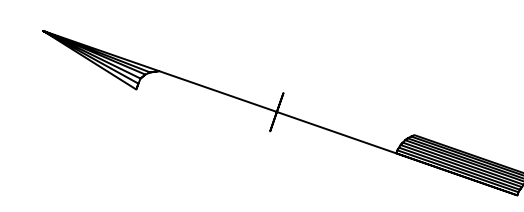
APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.AR01.770004.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

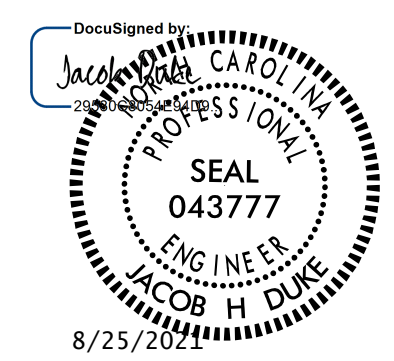
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-5
2			4			TOTAL SHEETS 10



PLAN

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 APPROACH ROADWAY
 PAVEMENT MARKINGS

NOTES:
 FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.



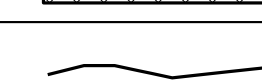
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.AR02.770004.dgn
 fflores

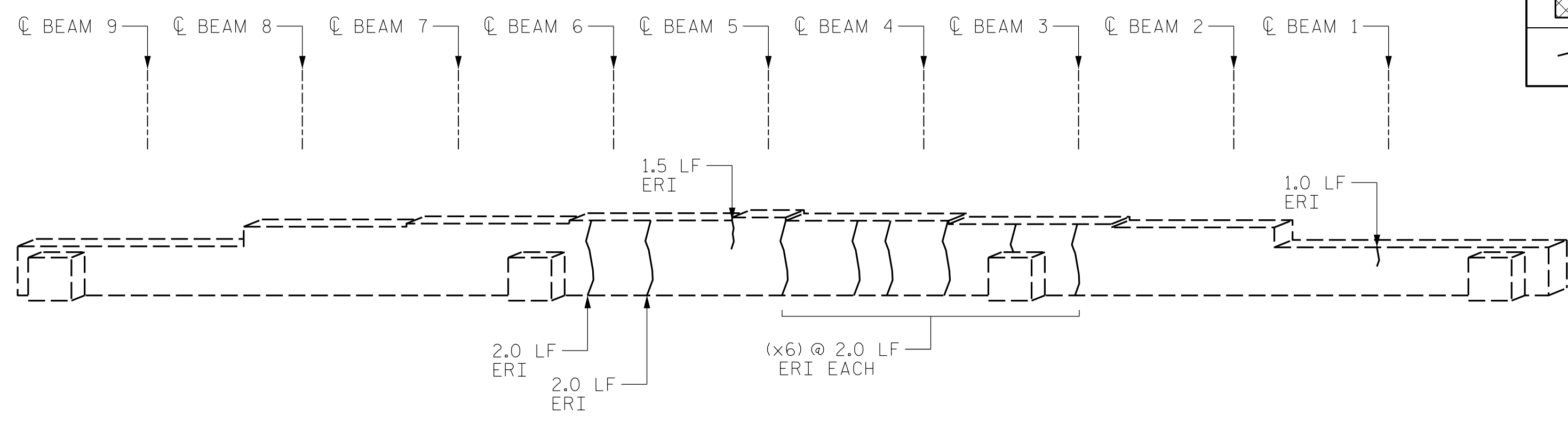
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

KCA
 KISINGER CAMPO
 & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

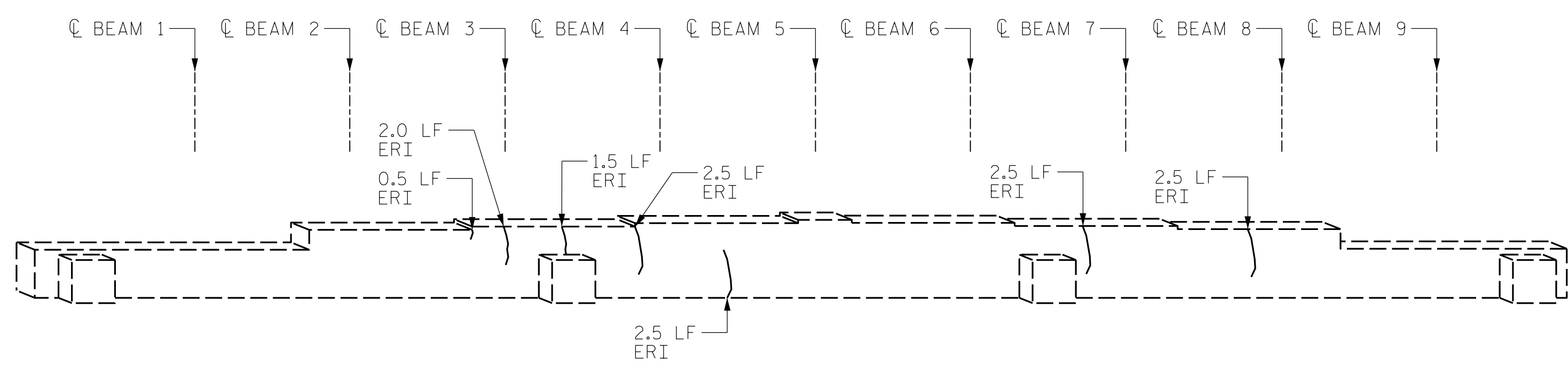
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-6
2			4			TOTAL SHEETS 10

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	32.5			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	398.8			



END BENT 1
(EAST FACE)



END BENT 2
(WEST FACE)

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

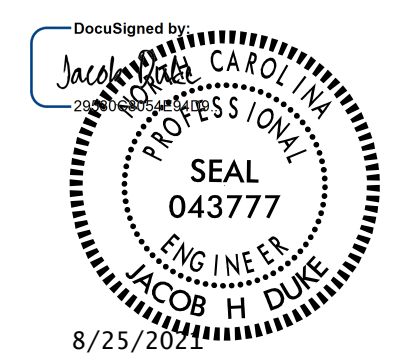
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

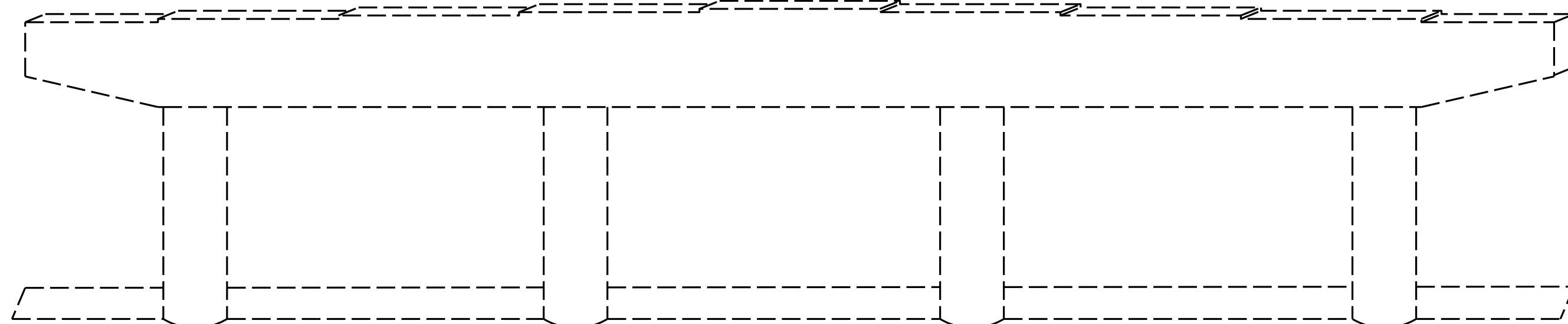
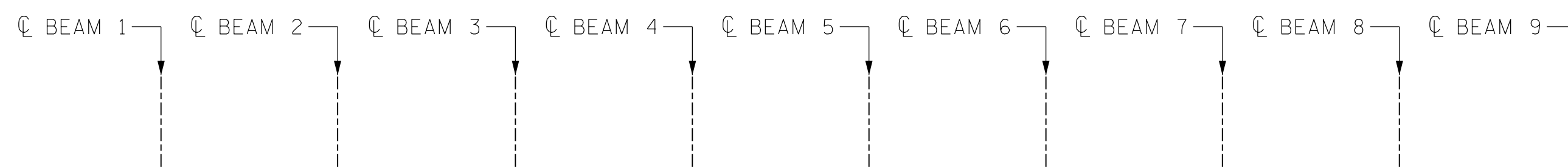
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
END BENTS 1 & 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S3-7
					TOTAL SHEETS 10

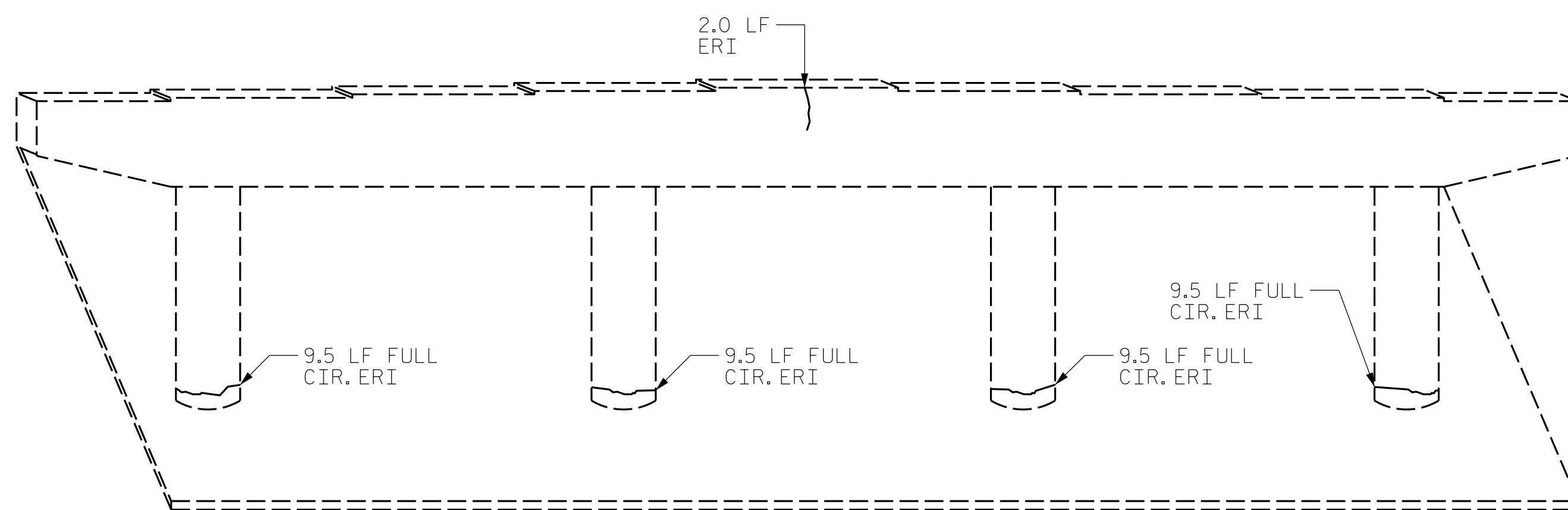
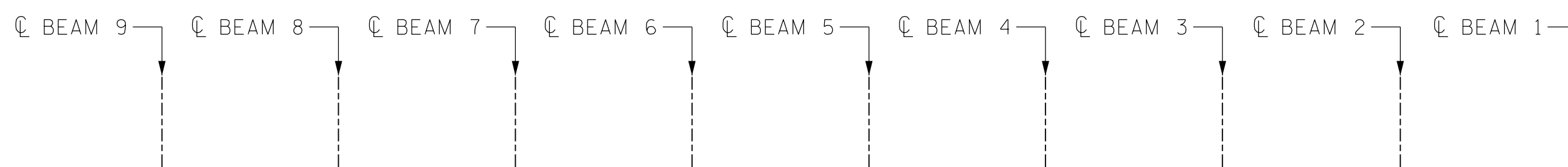
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



BENT 1

(WEST FACE)



BENT 1

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
	CAP/BACKWALL			
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
	CAP			
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
	CAP	2.0		
COLUMN/PILE	38.0			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
	CAP	241.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

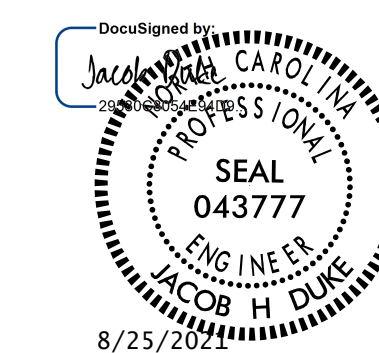
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004



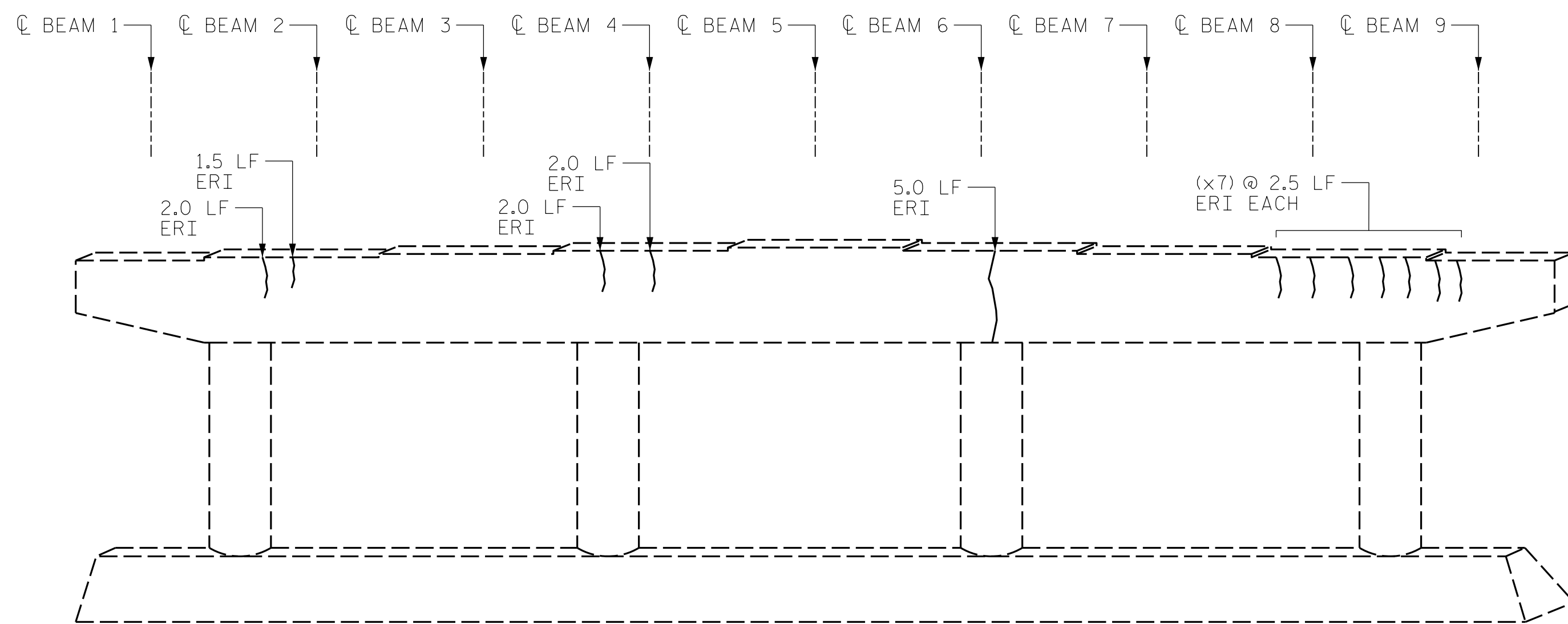
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I939.SMU.SBR01.770004.dgn
 fflores

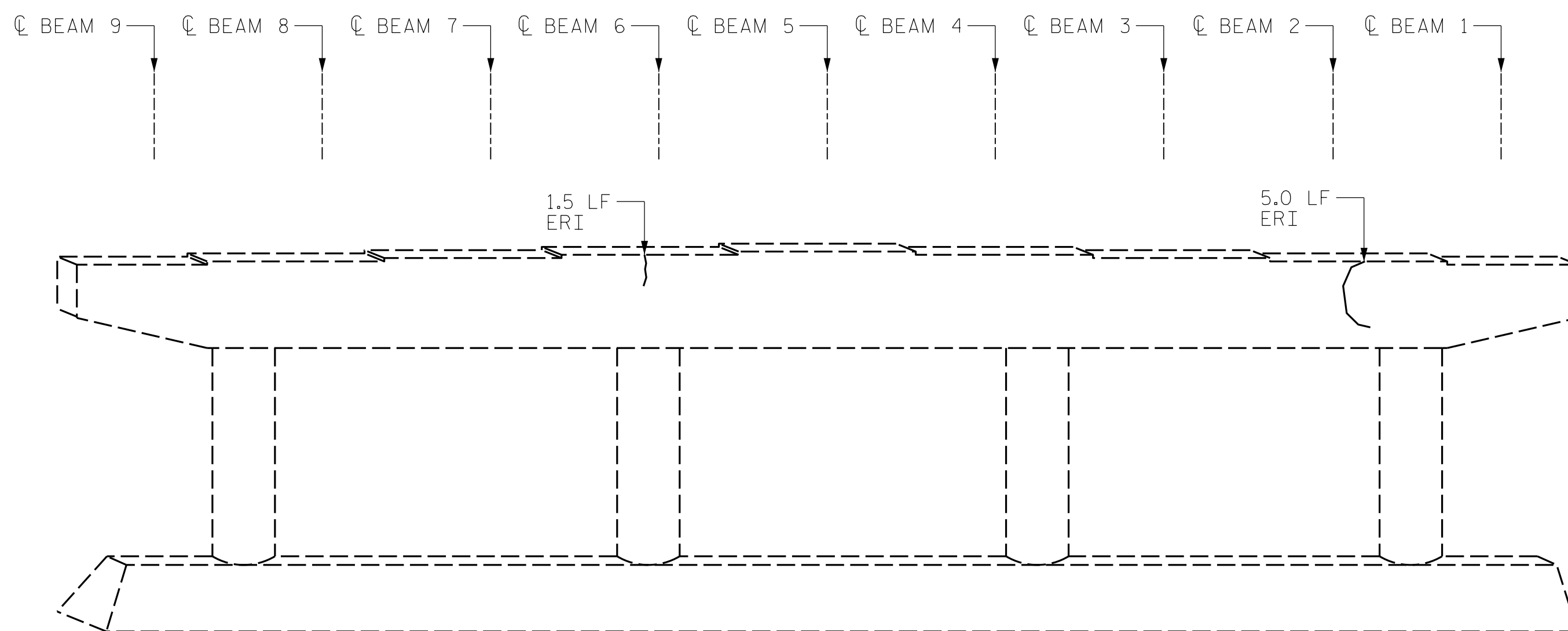
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S3-8
2			4			10



BENT 2

(WEST FACE)



BENT 2

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	36.5			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	241.5			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

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FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

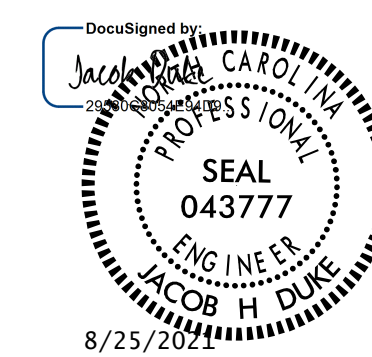
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004



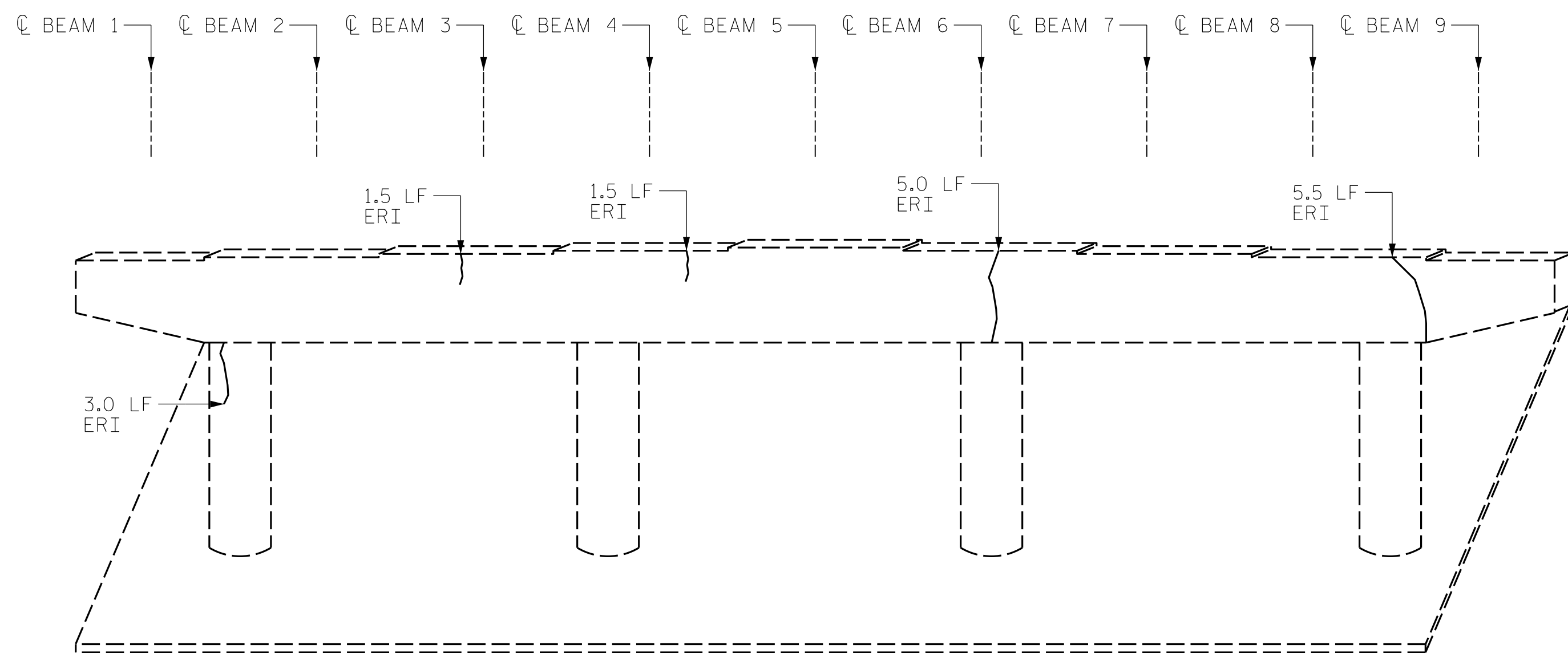
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 2

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.SBR02.770004.dgn
 fflores

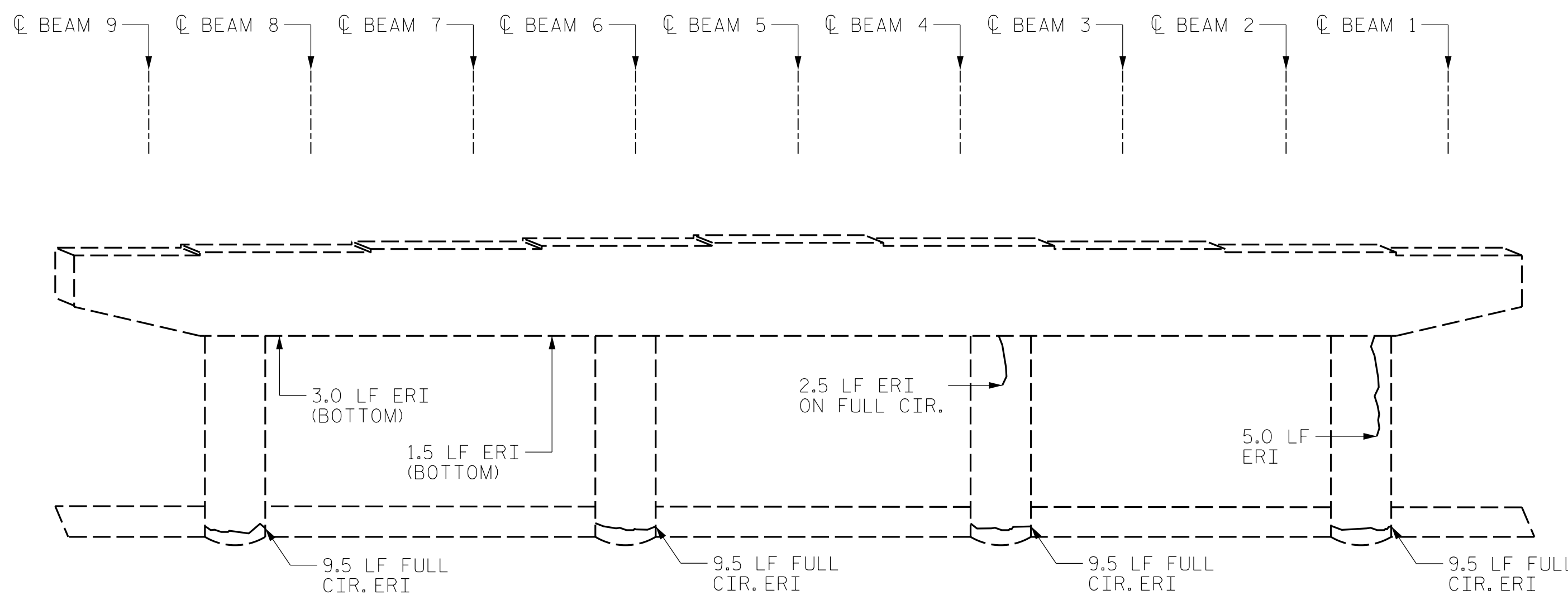
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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



BENT 3

(WEST FACE)



BENT 3

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
	CAP/BACKWALL			
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
	CAP			
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
	CAP	18.0		
COLUMN/PILE	48.5			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
	CAP	241.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

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FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

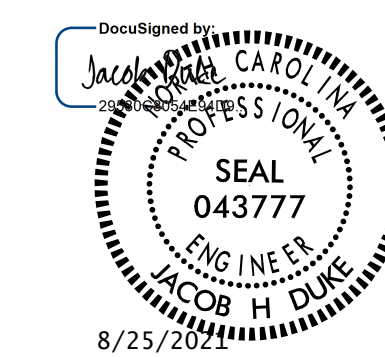
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770004



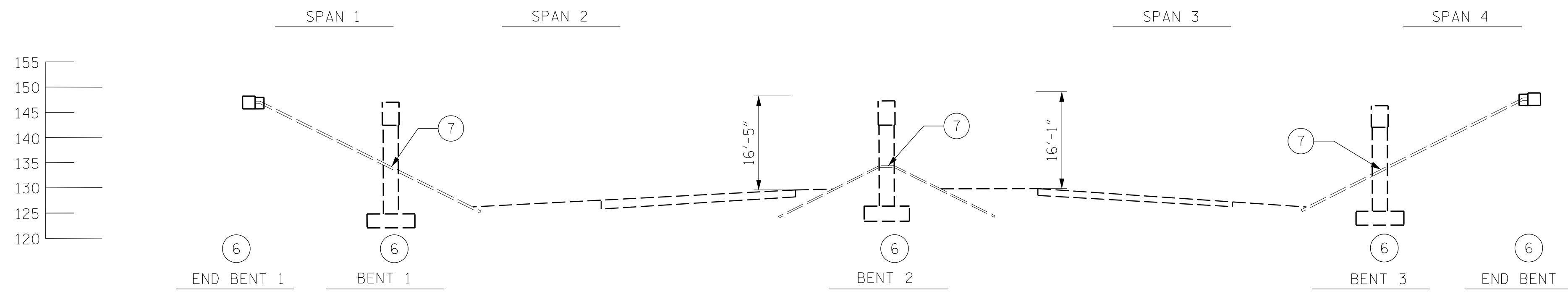
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 3

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I939.SMU.SBR03.770004.dgn
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 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 10

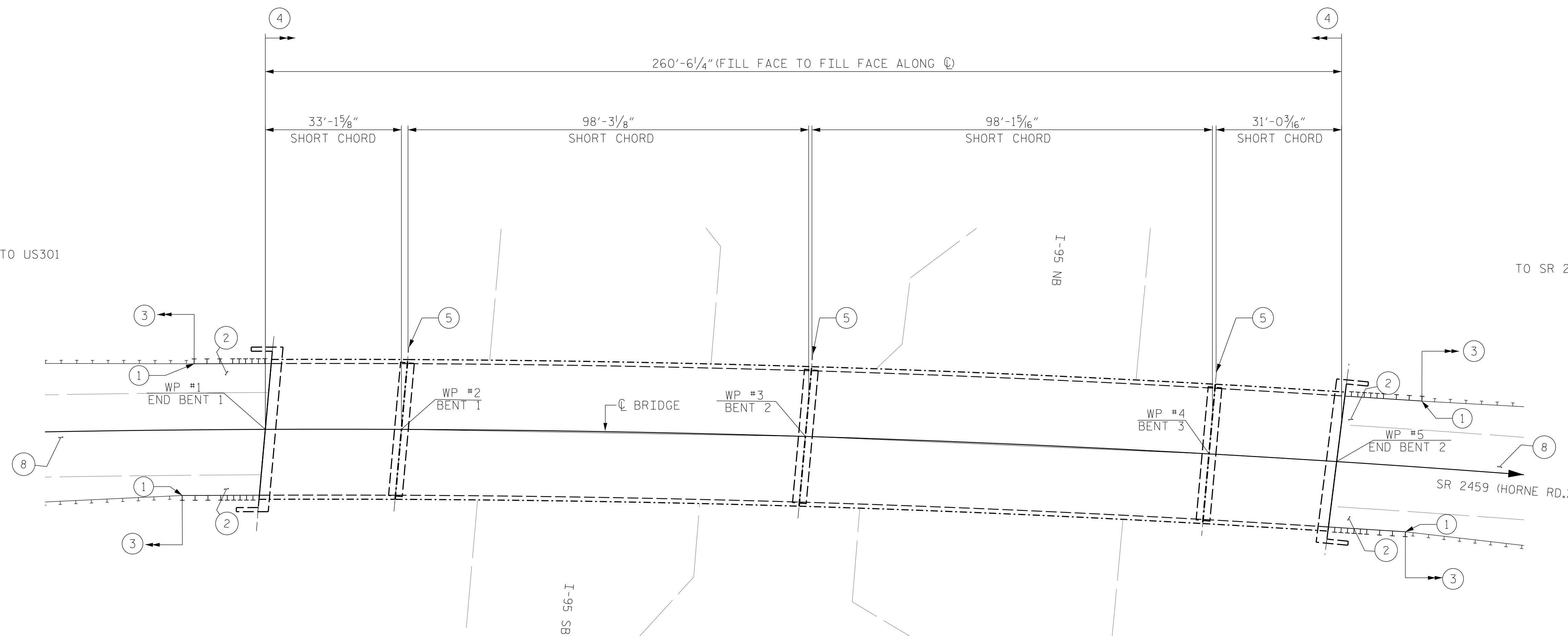


SECTION ALONG ROADWAY

SCOPE LEGEND:

- 1 PROPOSED TYPE-III STRUCTURE ANCHOR UNITS
- 2 CLEAR SHOULDERS OF DEBRIS AND VEGETATION
- 3 PROPOSED STEEL BEAM GUARDRAIL
- 4 EPOXY OVERLAY
- 5 JOINT REPLACEMENT
- 6 SUBSTRUCTURE EPOXY RESIN INJECTION
- 7 SILICONE JOINT SEAL REPLACEMENT AT COLUMN BASES
- 8 APPROACH ROADWAY MILLING AND RESURFACING

NOTE: SEE SHEET S12 FOR SLOPE PROTECTION JOINT REPAIRS



PLAN

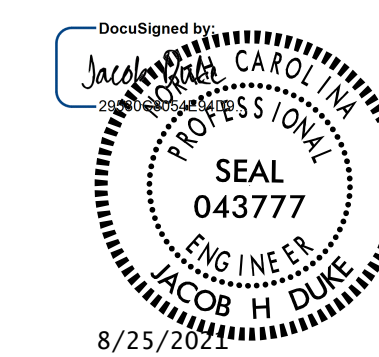
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/11/2019.
 BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

 RESIDENT ENGINEER DATE



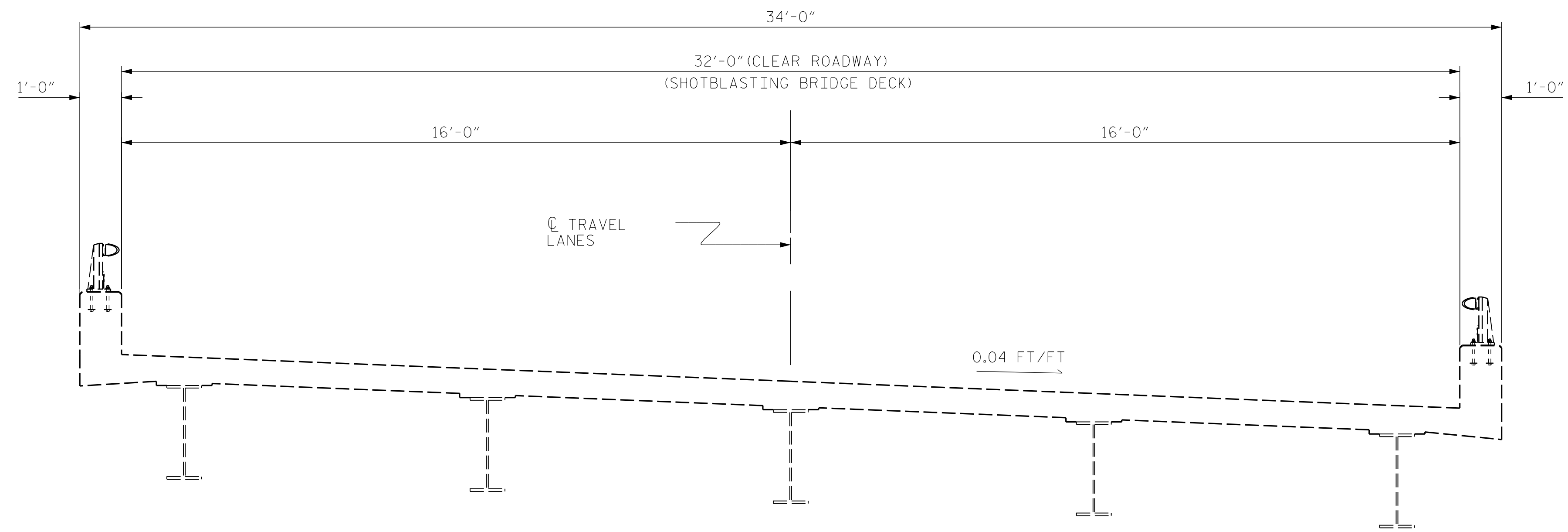
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 2459
 OVER I-95

DRAWN BY : STEPHEN L. CHAMBERS DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

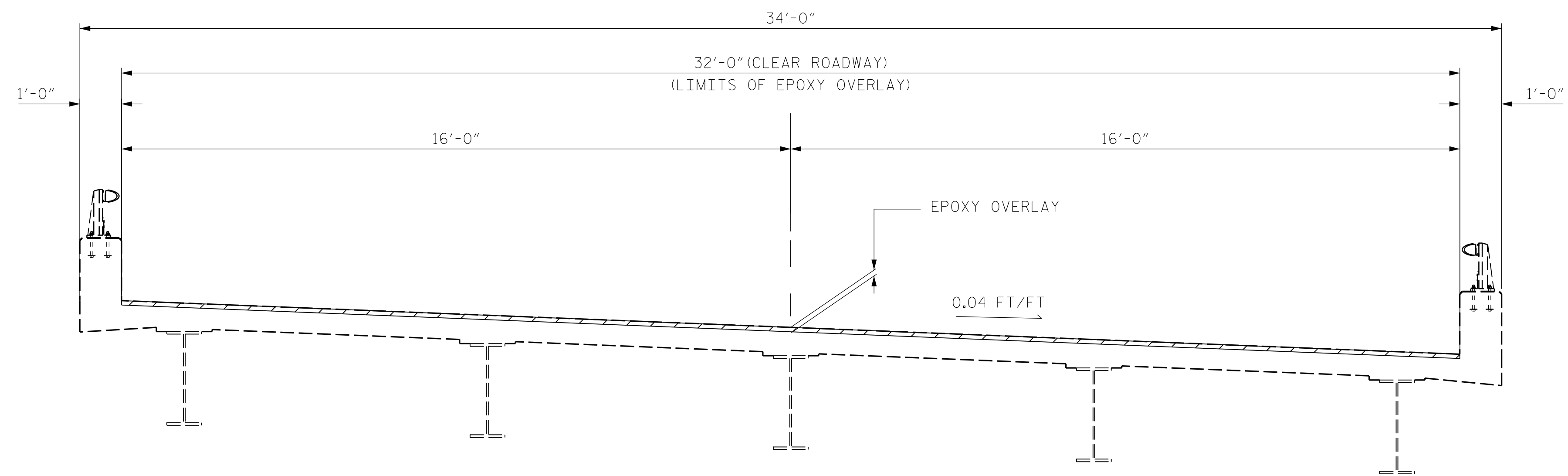
8/25/2021
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 fflores

DOCUMENT NOT CONSIDERED
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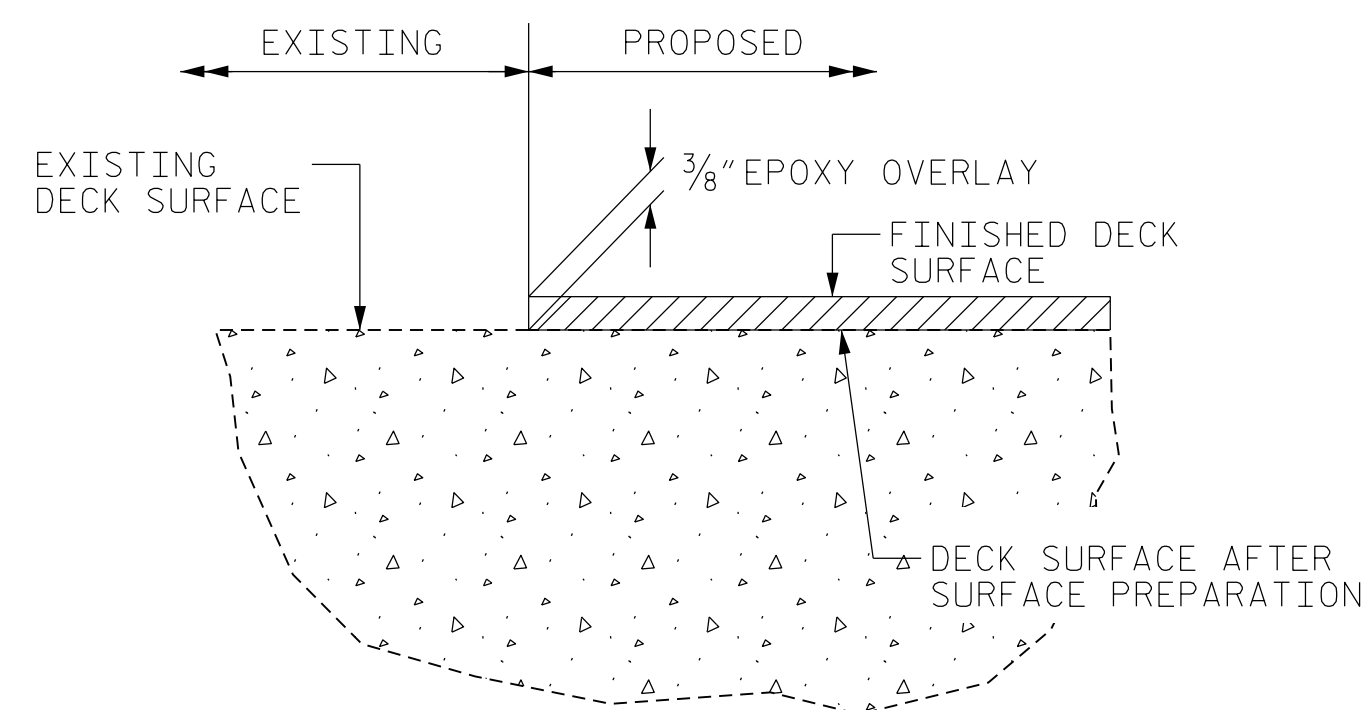
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S4-1
2			4			TOTAL SHEETS 10



EXISTING



PROPOSED

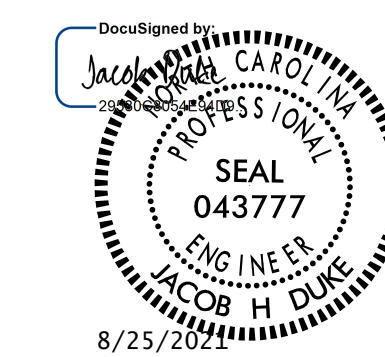


DETAIL FOR EPOXY OVERLAY

NOTES:

1. LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
2. SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY AND SURFACE PREPARATION.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086



KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

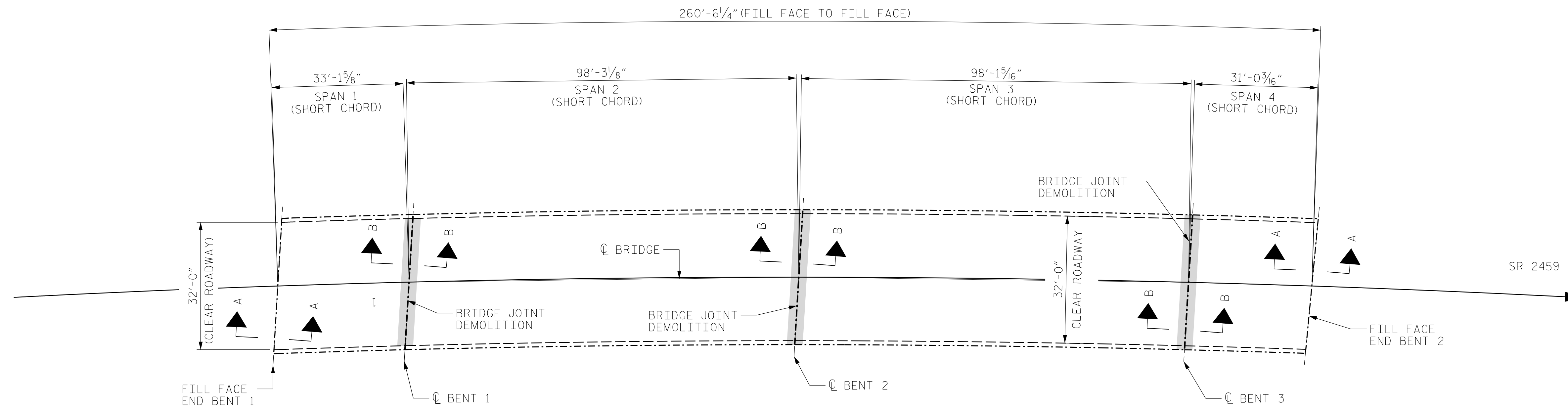
DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

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

AS-BUILT REPAIR QUANTITY TABLE

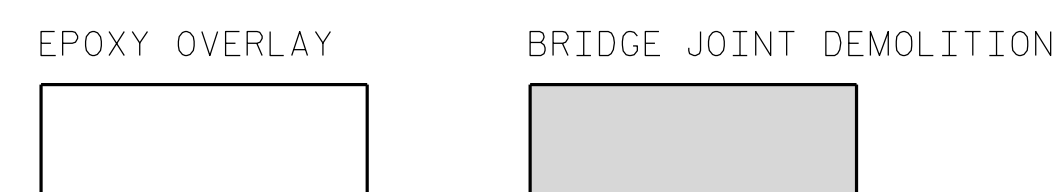
TOP OF DECK REPAIRS

	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	0.0 SF		0.0 SF		0.0 SF		0.0 SF	
EPOXY OVERLAY SYSTEM II	1060 SF		3145 SF		3140 SF		993 SF	



NOTES:

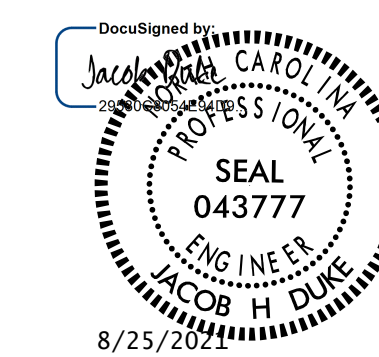
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.



DRAWN BY : _____ DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.DSR01.770086.dgn
 ffloras

PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770086



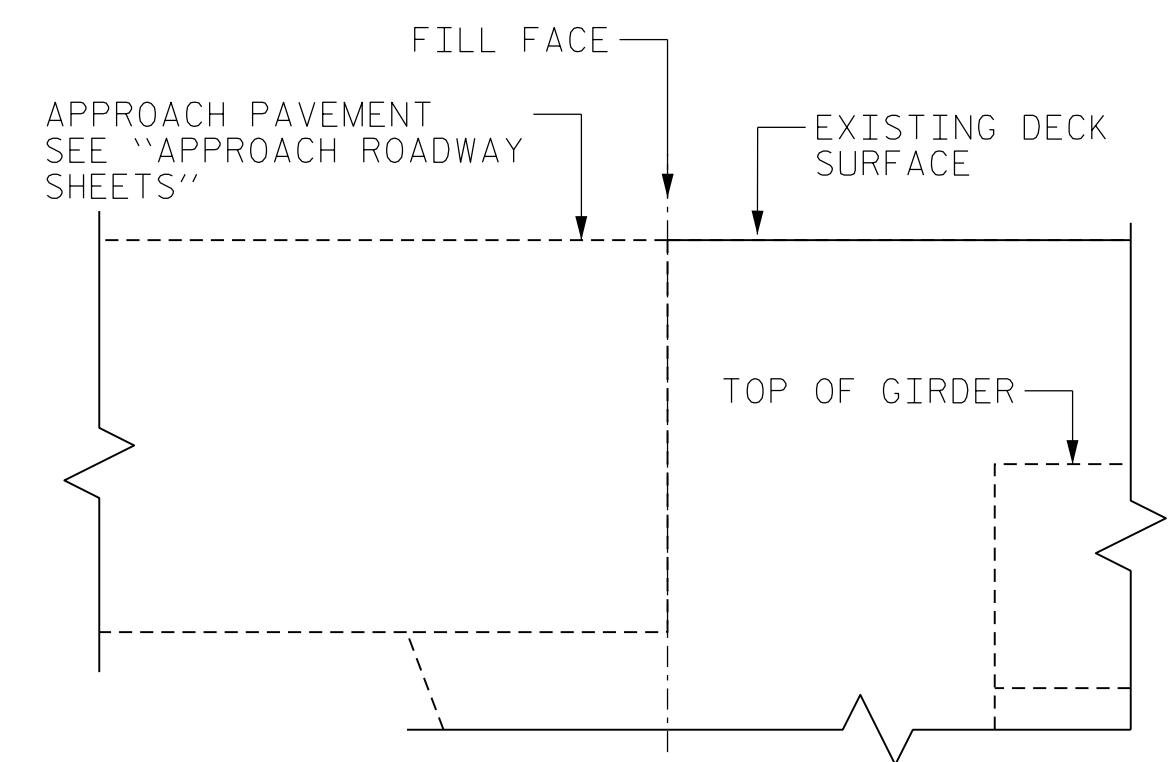
KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

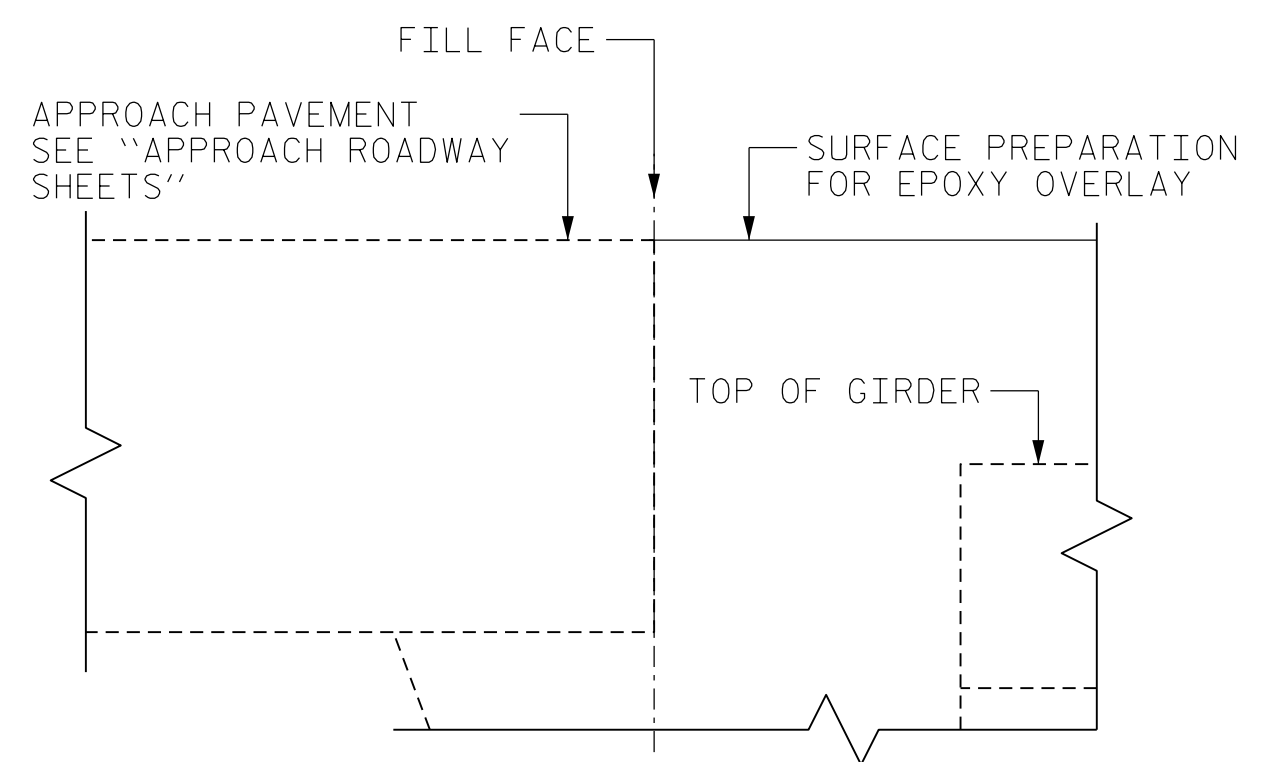
PLAN OF SPANS

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

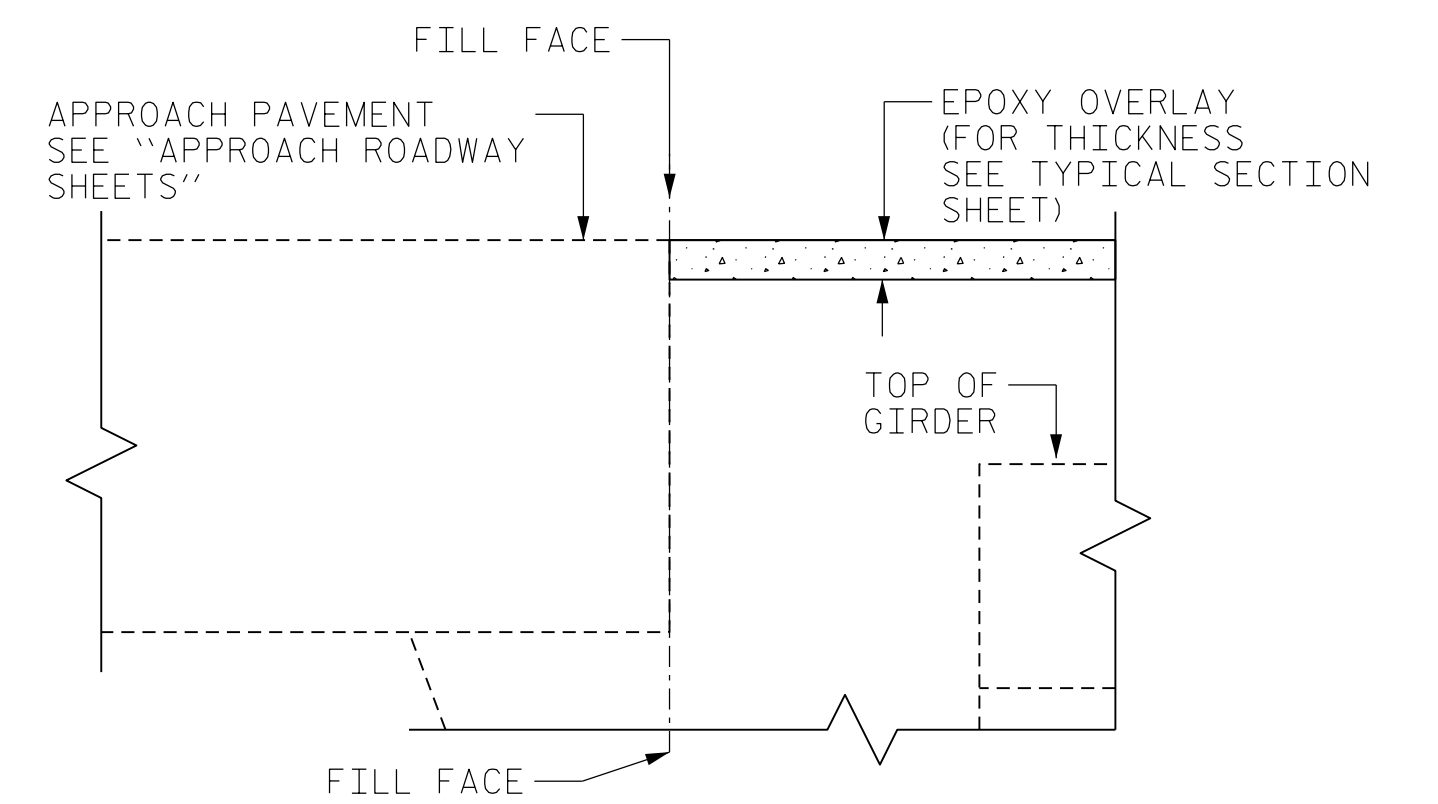
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-3
1			3			TOTAL SHEETS
2			4			10



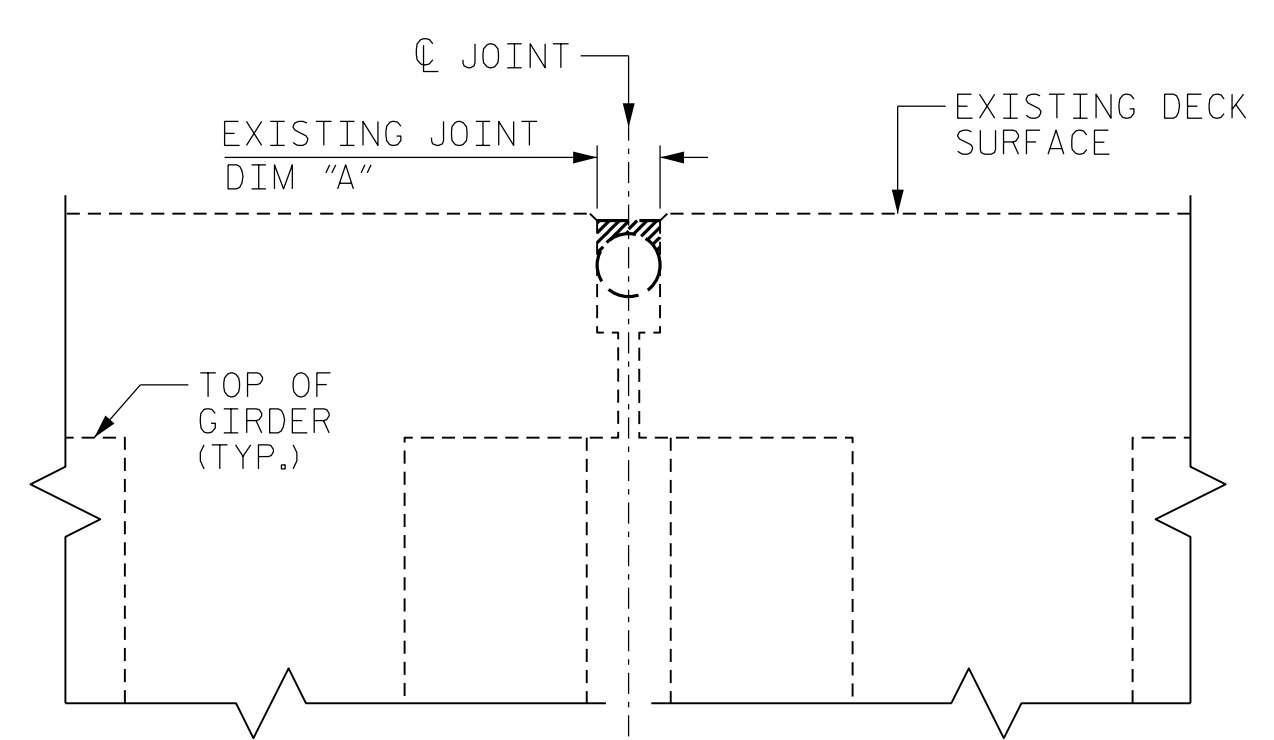
SECTION A-A
(EXISTING DETAIL, NO JOINT)



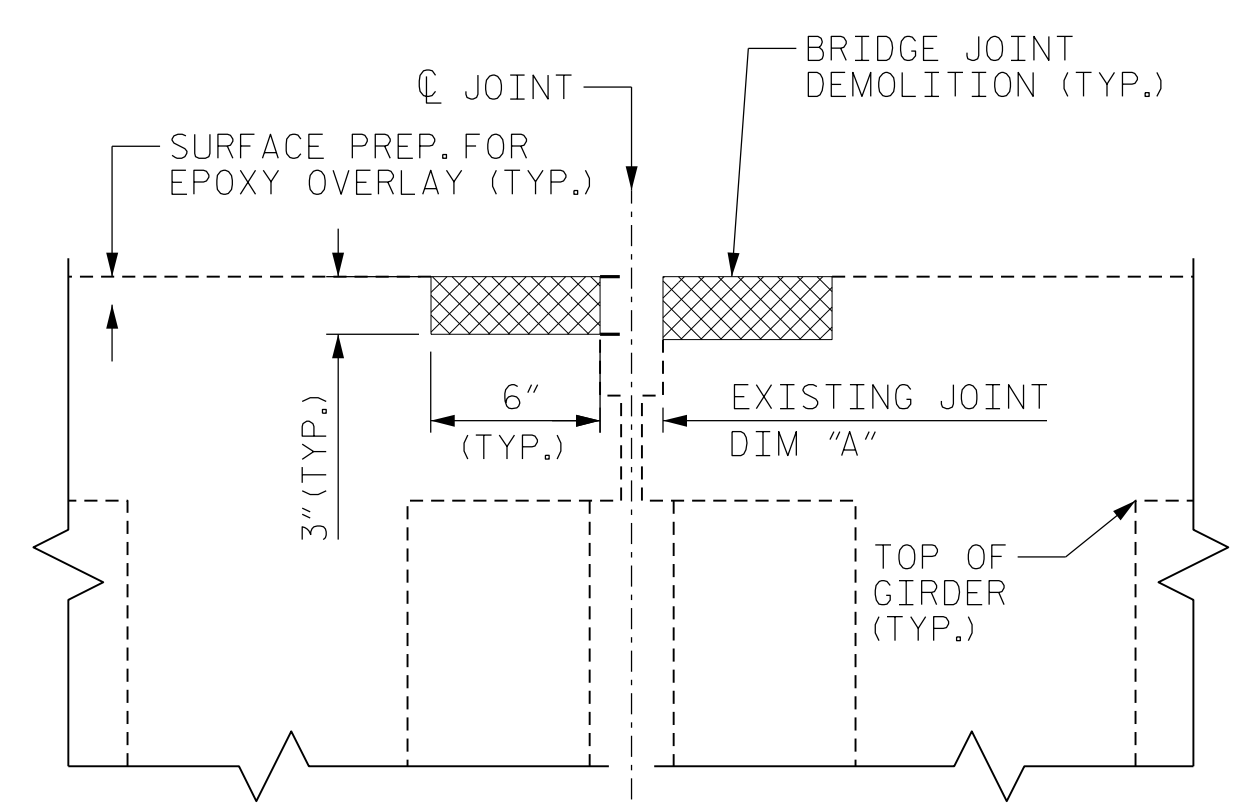
SECTION A-A
(MIN. EXISTING DECK DEMOLITION)



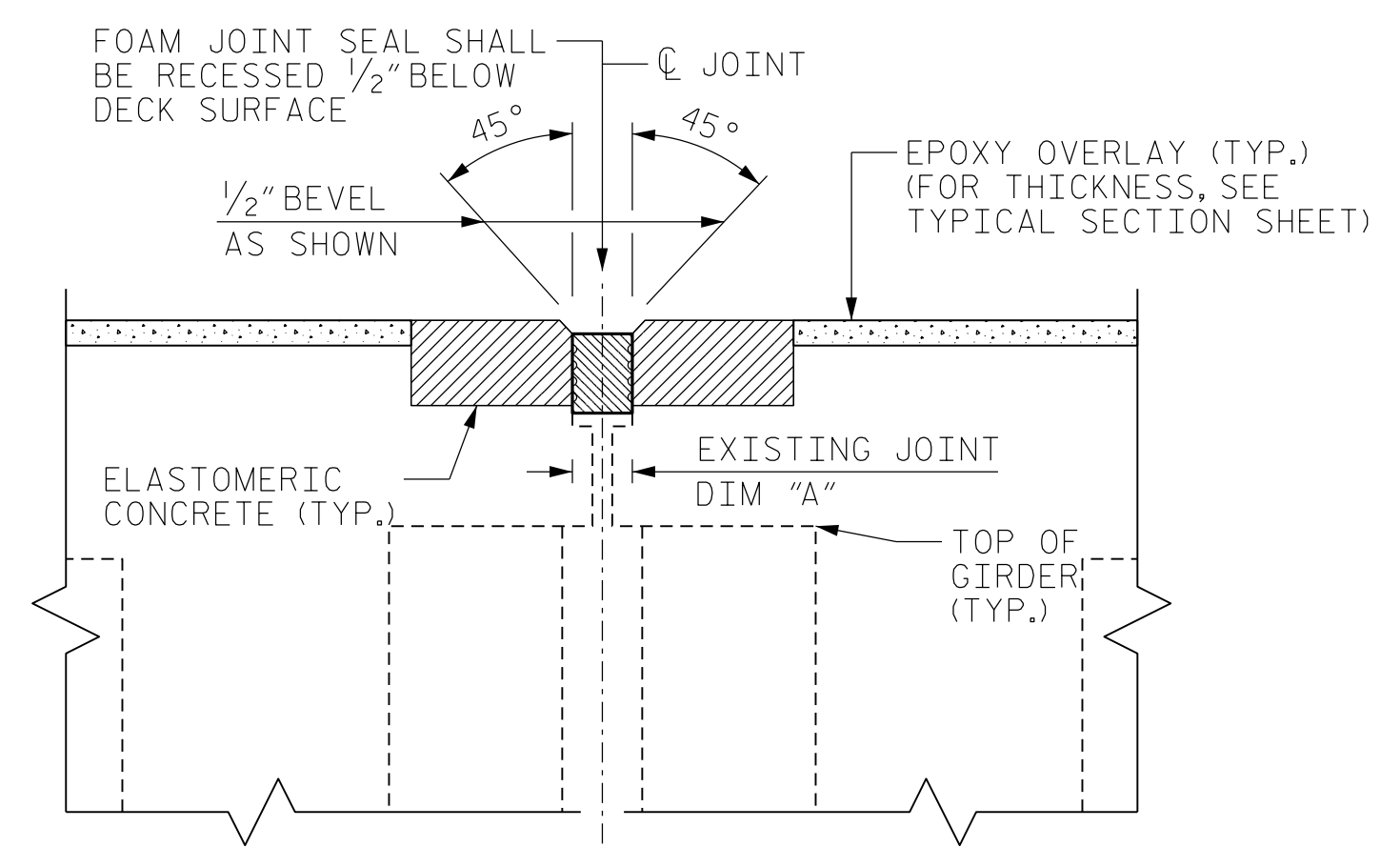
SECTION A-A
(PROPOSED DETAIL, NO JOINT)



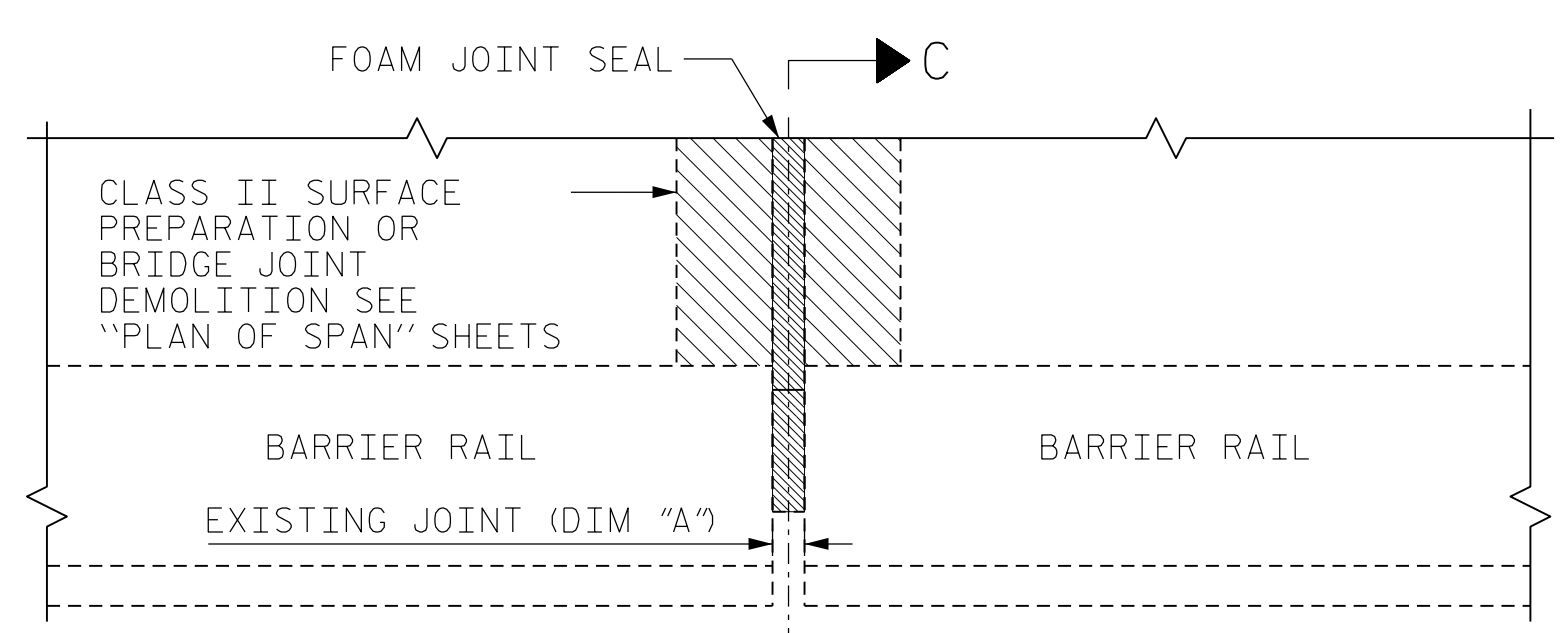
SECTION B-B
(EXISTING JOINT)



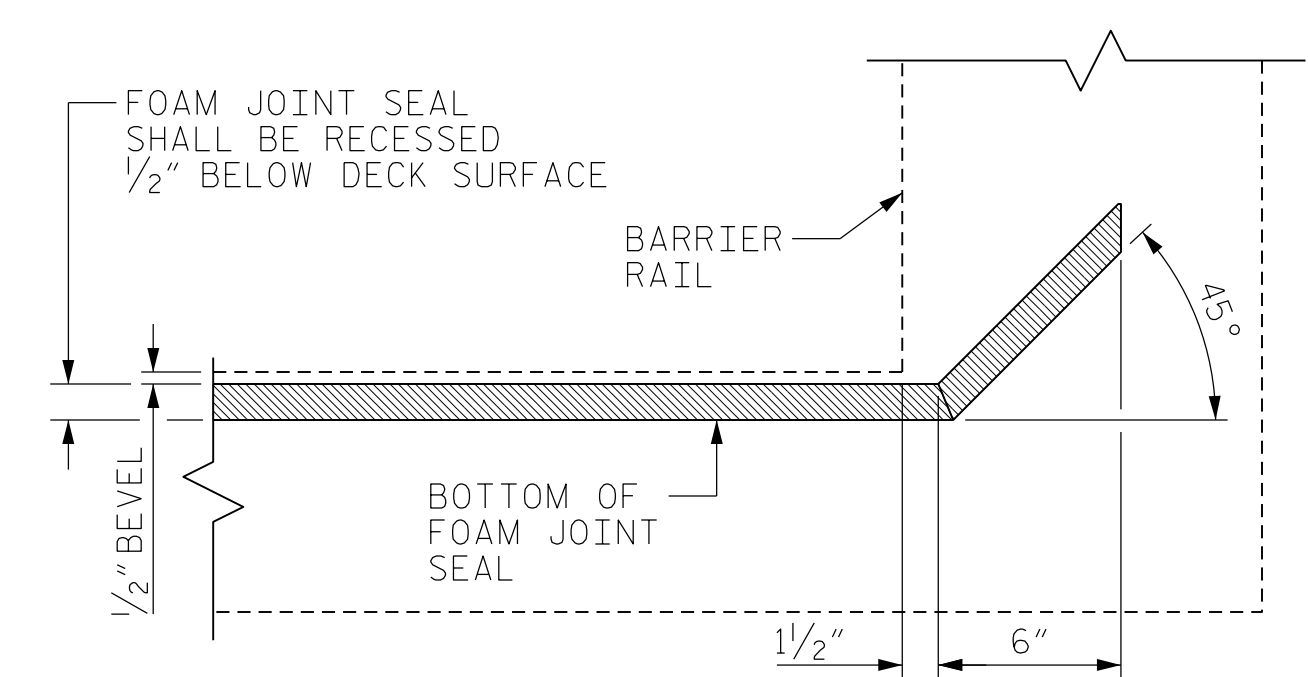
SECTION B-B
(DEMOLITION PREPARATION)



SECTION B-B
(PROPOSED FOAM JOINT SEAL)



PLAN AT BARRIER
(PROPOSED JOINT SEAL)



SECTION C-C
(PROPOSED JOINT SEAL)

Table Date 04-2021	
BENT/ JOINTS	DIM "A" @ 71°F
END BENT 1	N/A
1	1 3/8"
2	1 3/8"
3	1 3/8"
END BENT 2	N/A

	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	102	

LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	N/A	
BENT 1	8.1	
BENT 2	8.1	
BENT 3	8.1	

LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	N/A	
BENT 1	33	
BENT 2	33	
BENT 3	33	

NOTES:

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SHALL BE WATER TIGHT.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

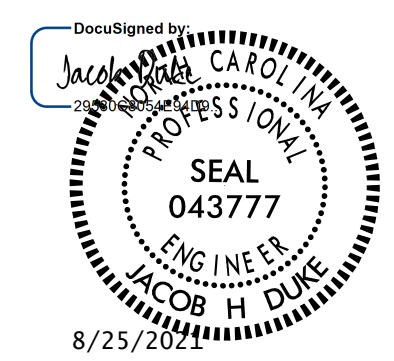
FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR FOR EPOXY OVERLAY, SEE SPECIAL PROVISIONS.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOPS SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S4-4
					TOTAL SHEETS 10

DRAWN BY : DIEGO A. AGUIRRE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

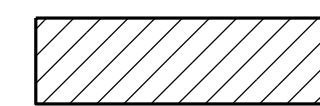
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	4 EA	
GUARDRAIL REMOVAL	475 LF	
PROPOSED GUARDRAIL	400 LF	
INCIDENTAL MILLING	223 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	20 TON	
ASPHALT BINDER FOR PLANT MIX	1.2 TON	
POLYUREA PAVEMENT MARKING LINES (4", 30 MILS)	1442 LF	

NOTES:

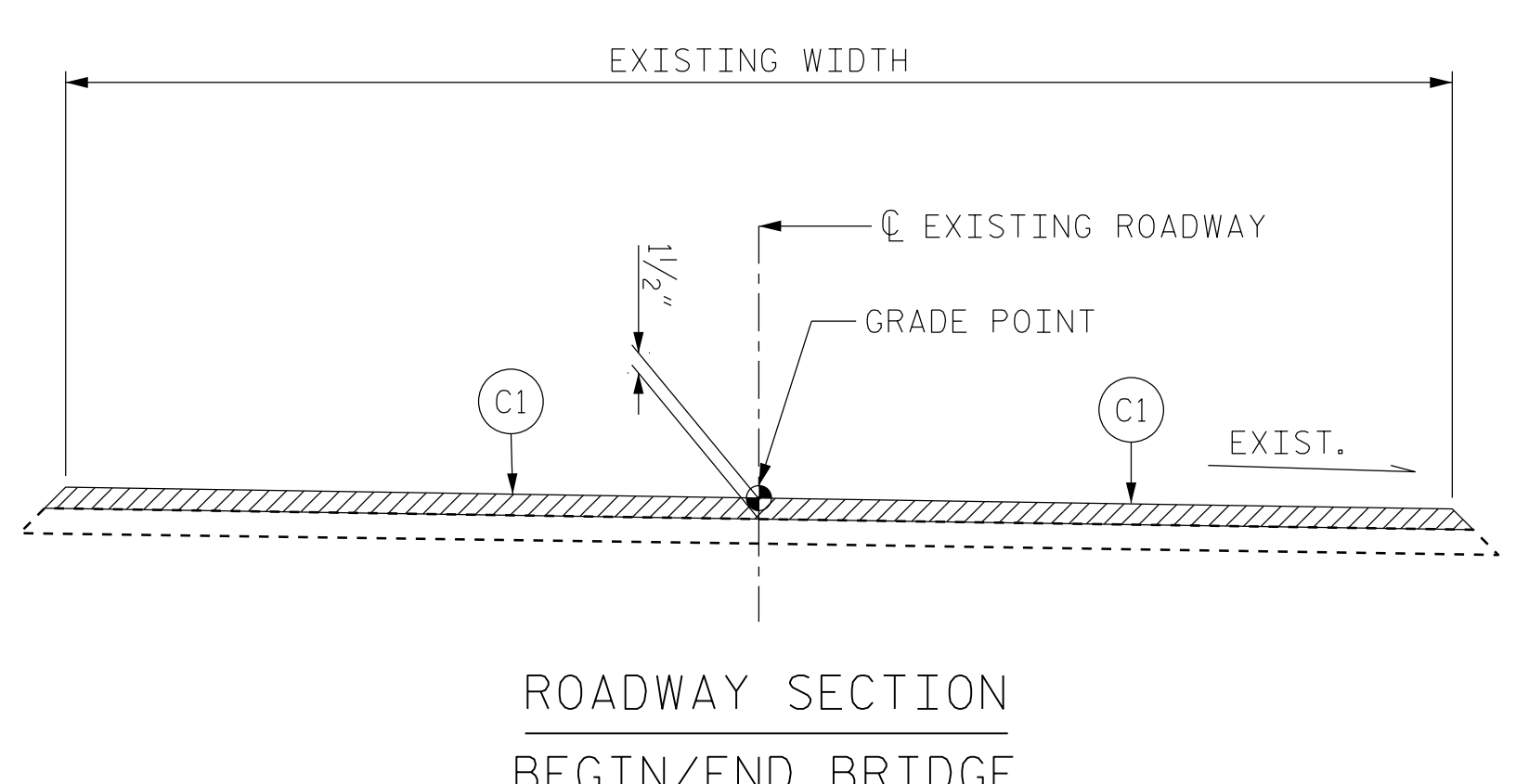
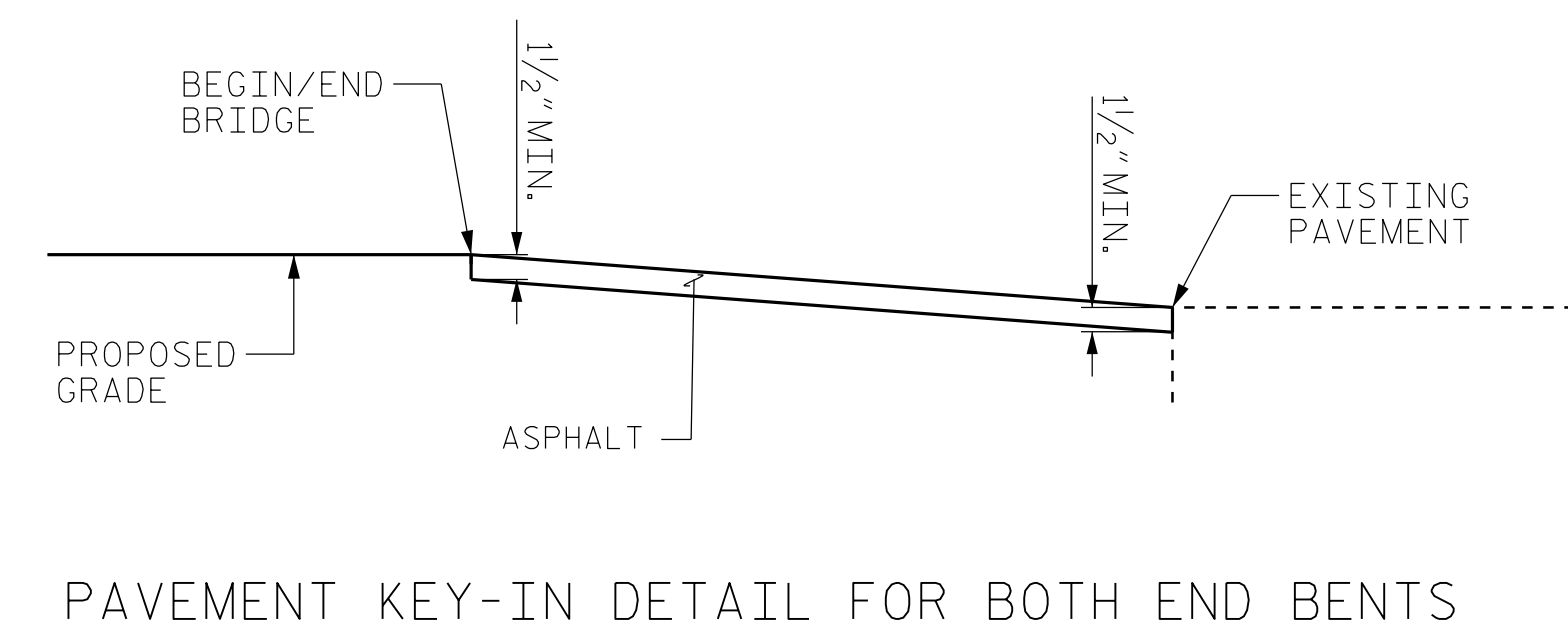
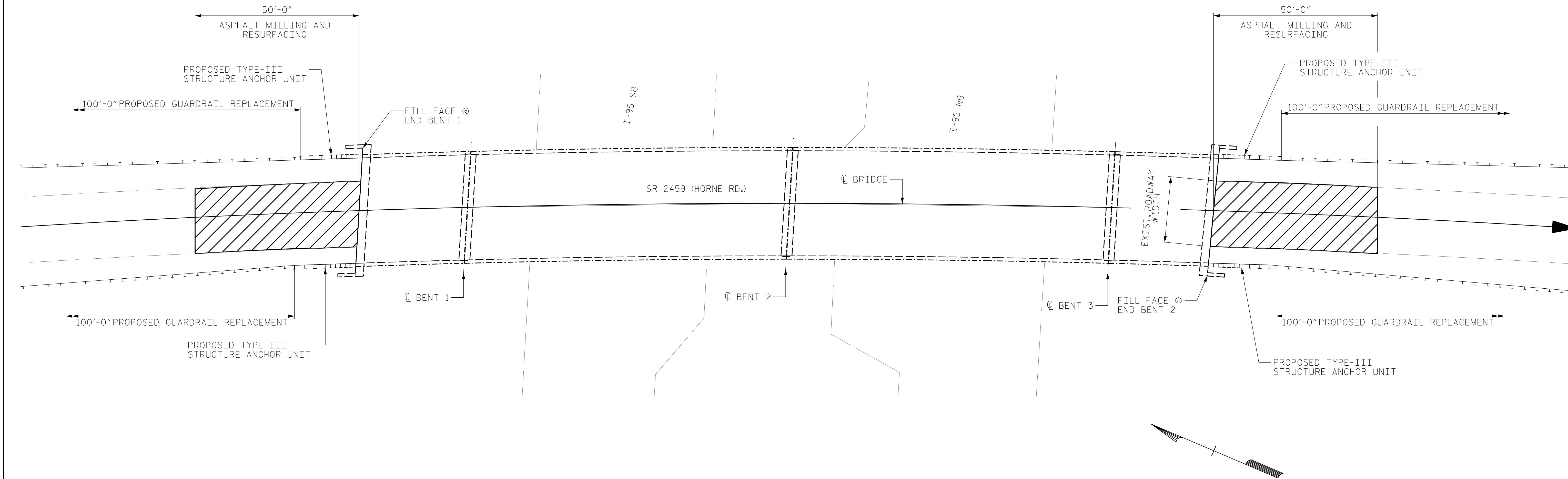
- INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.
- FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.



INCIDENTAL MILLING AND ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

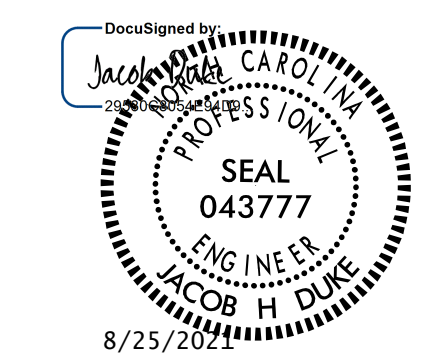
C1

PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086

SHEET 1 OF 2



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 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

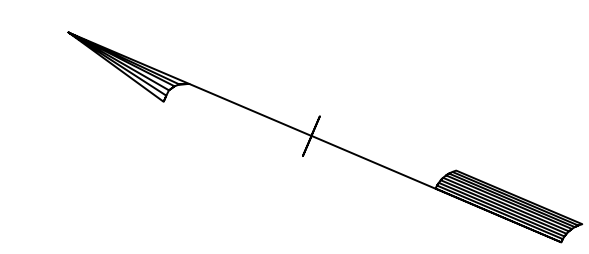
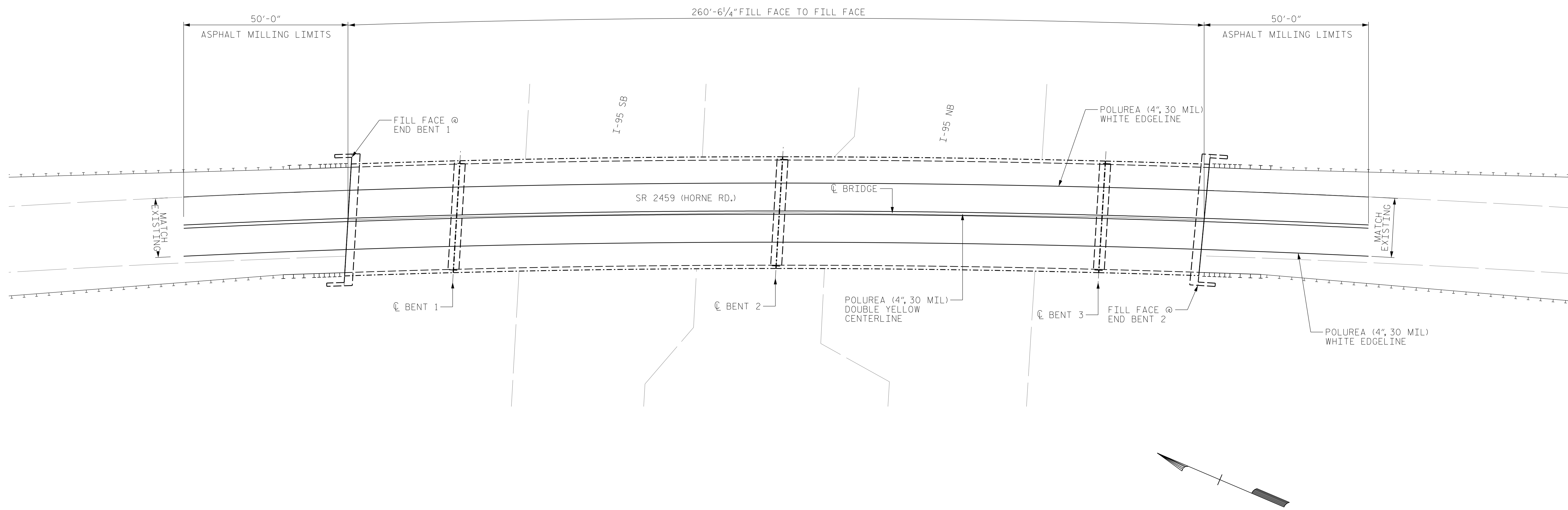
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL**

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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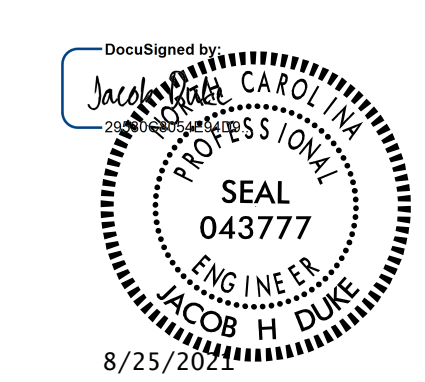
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-5
1			3			TOTAL SHEETS
2			4			10



NOTES:
 FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086

SHEET 2 OF 2



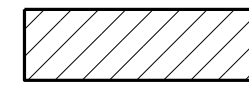
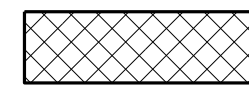

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 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 APPROACH ROADWAY
 PAVEMENT MARKINGS

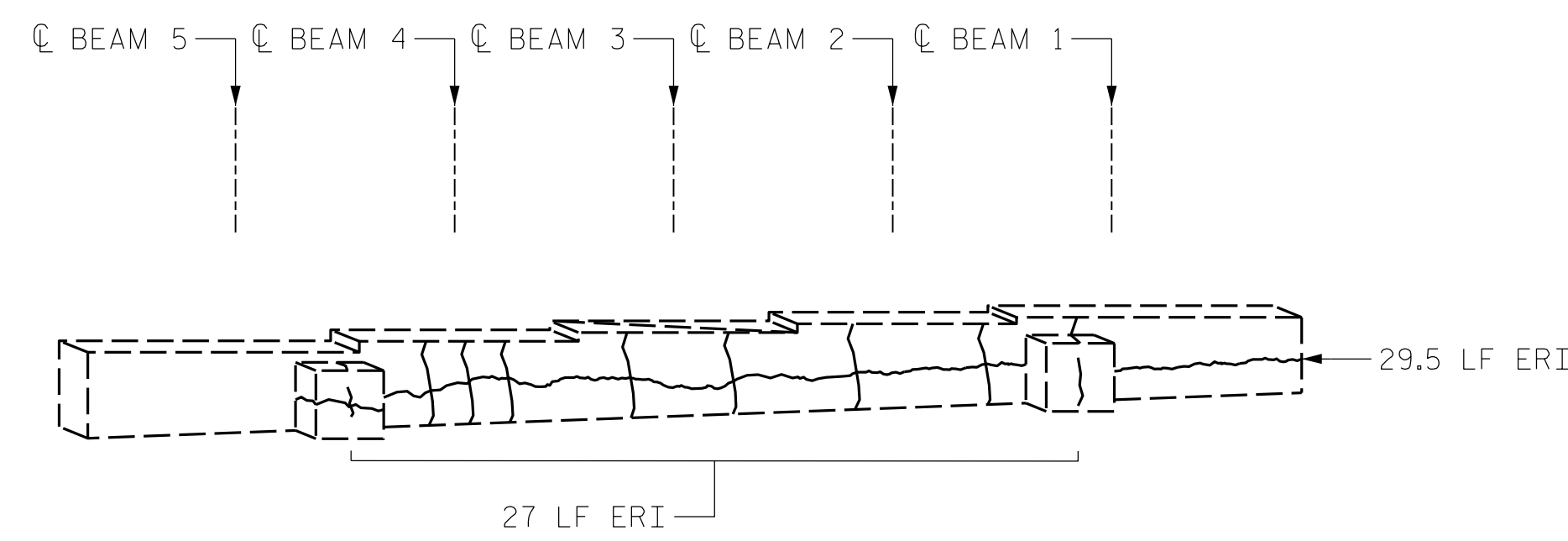
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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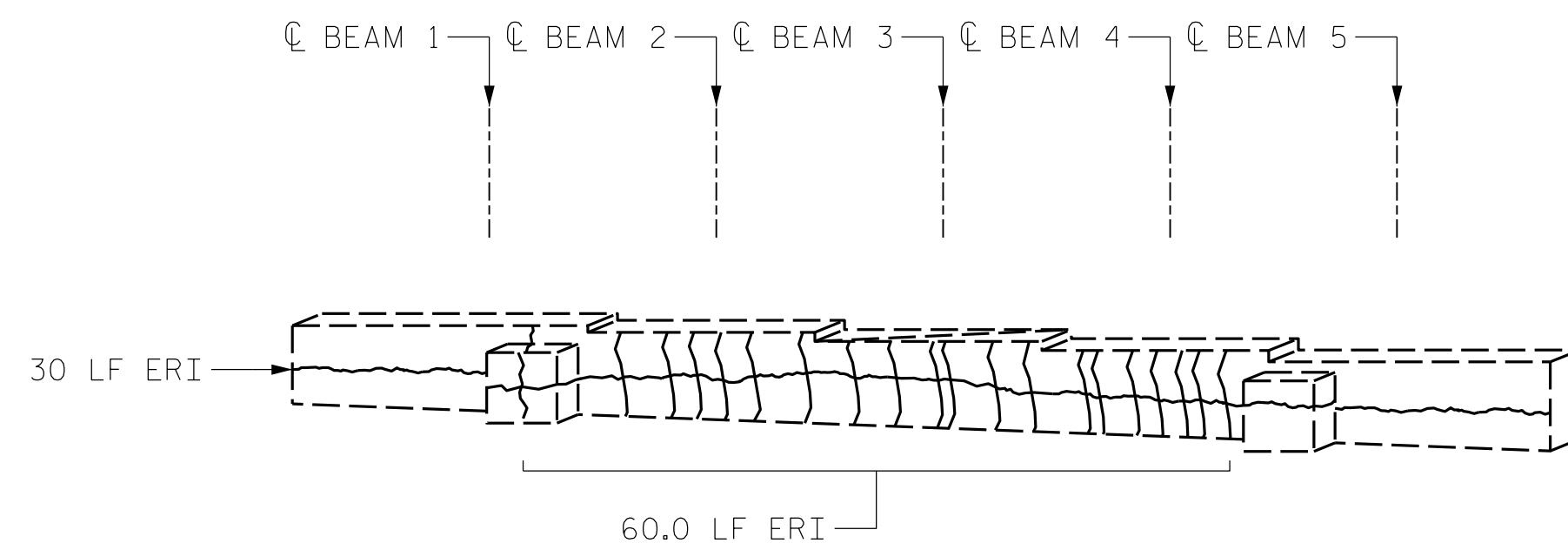
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-6
1			3			TOTAL SHEETS
2			4			10

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	146.5			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	200.5			



END BENT 1
(EAST FACE)



END BENT 2
(WEST FACE)

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

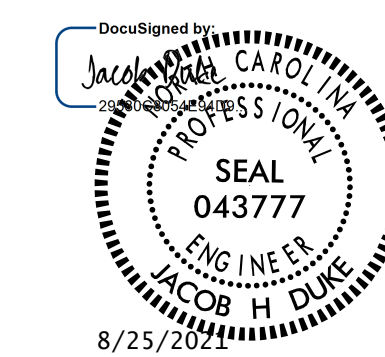
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086



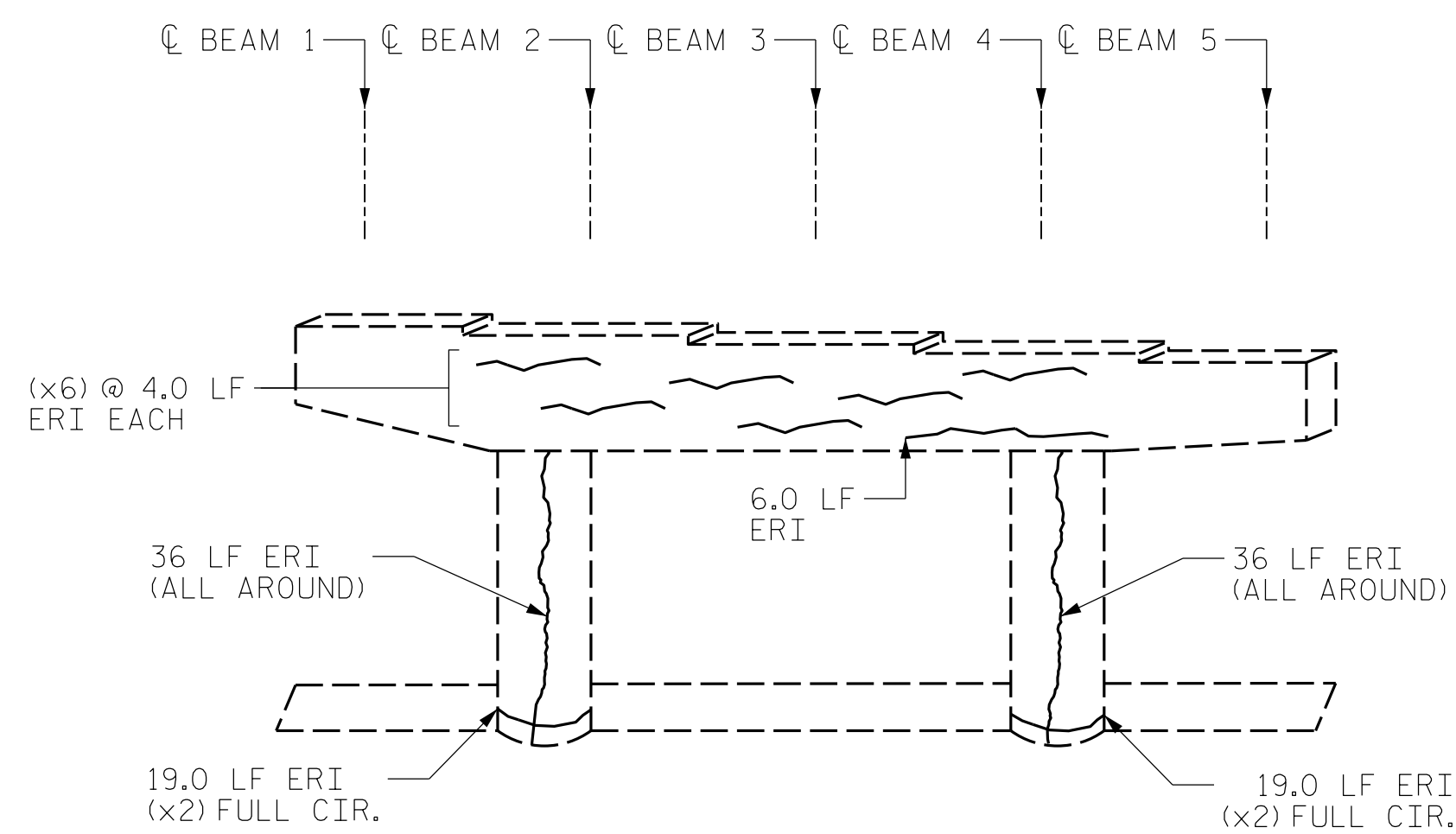
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 END BENTS 1 & 2

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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 fflores

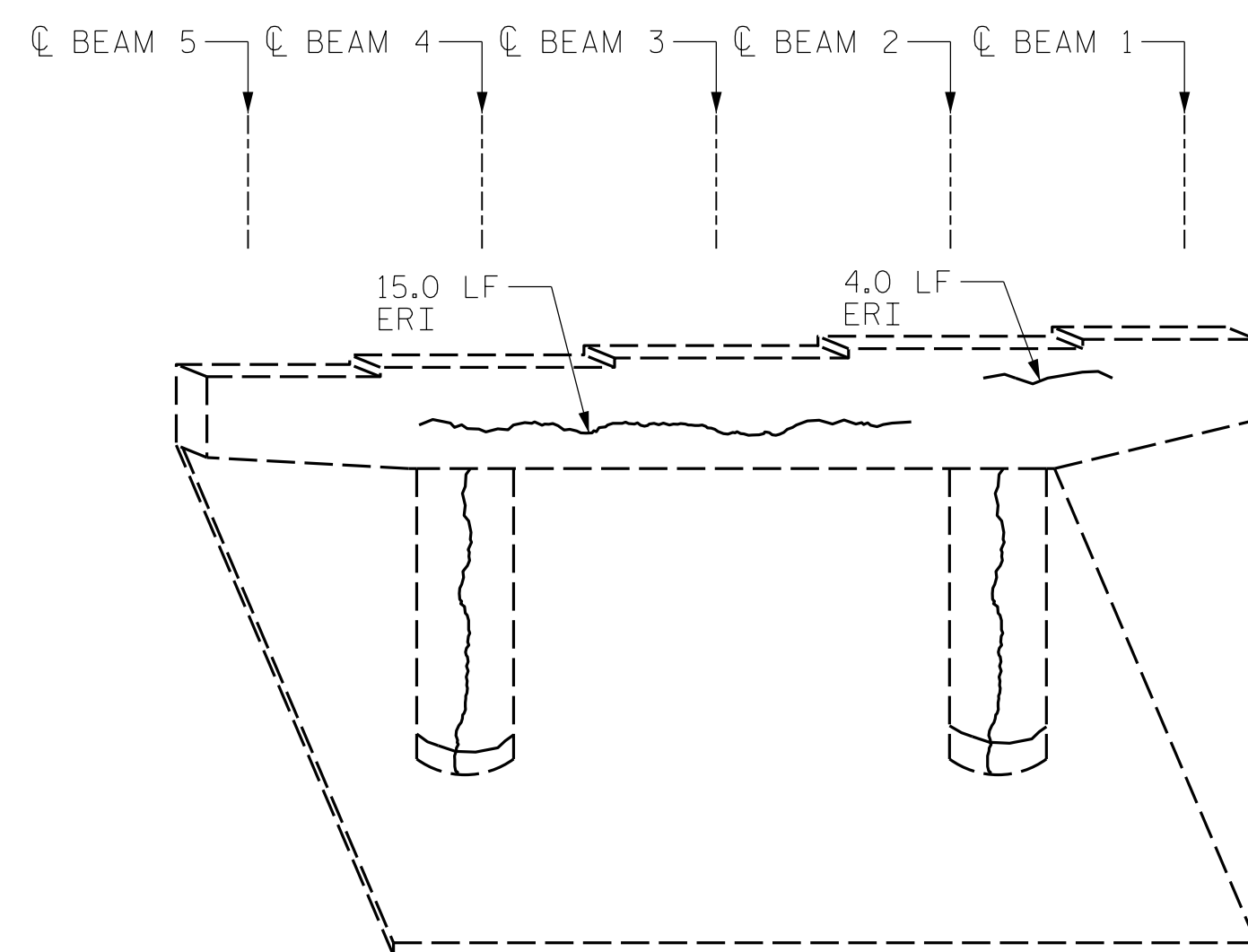
DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

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



BENT 1

(WEST FACE)



BENT 1

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	49.0			
COLUMN/PILE	110.0			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	108.3			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

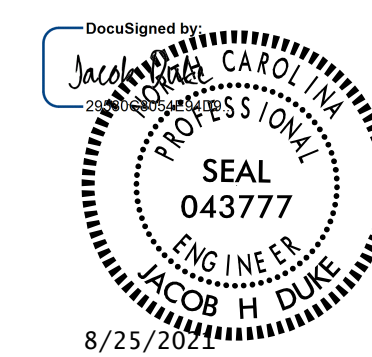
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086



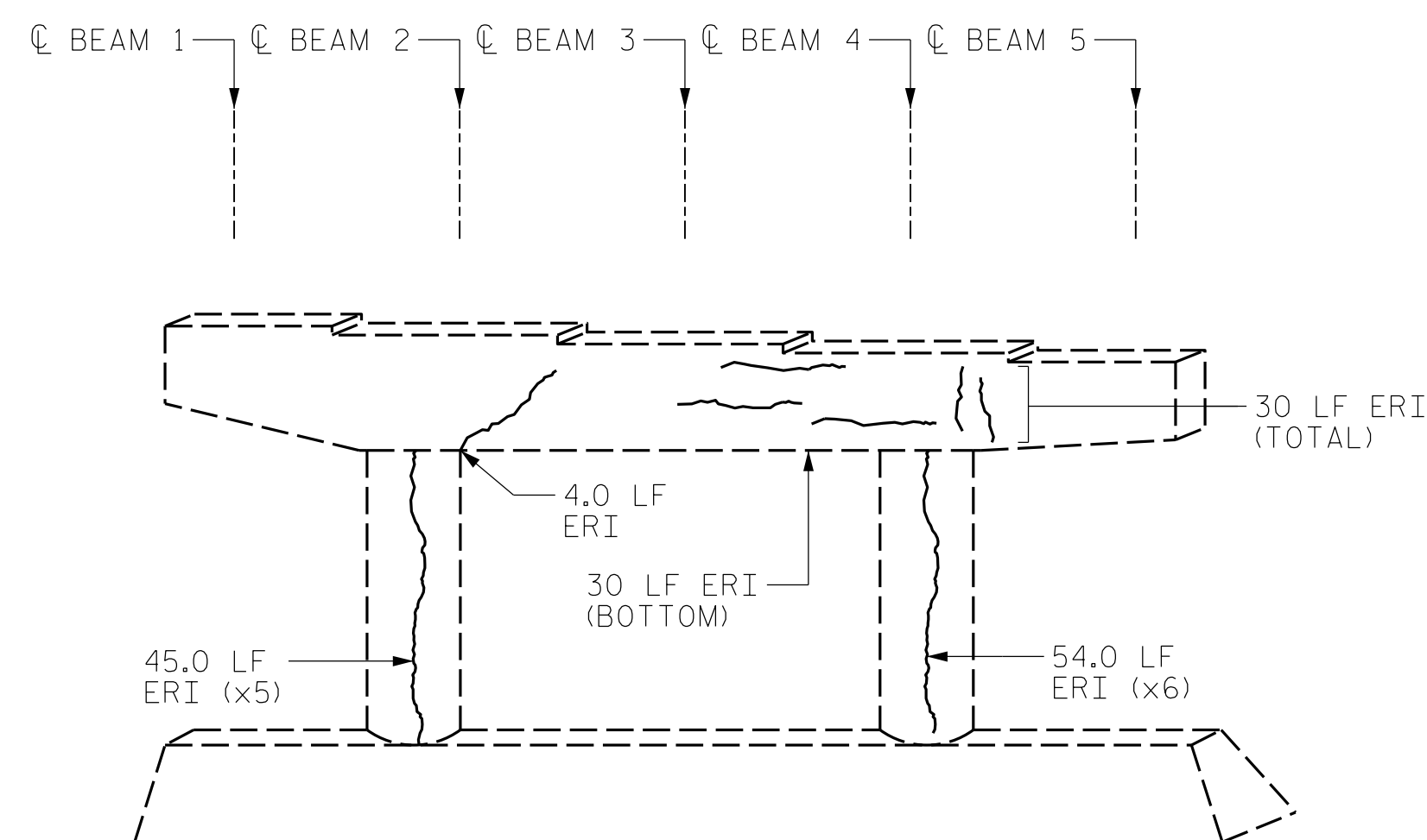
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I9399.SMU.SBR01.770086.dgn
 fflores

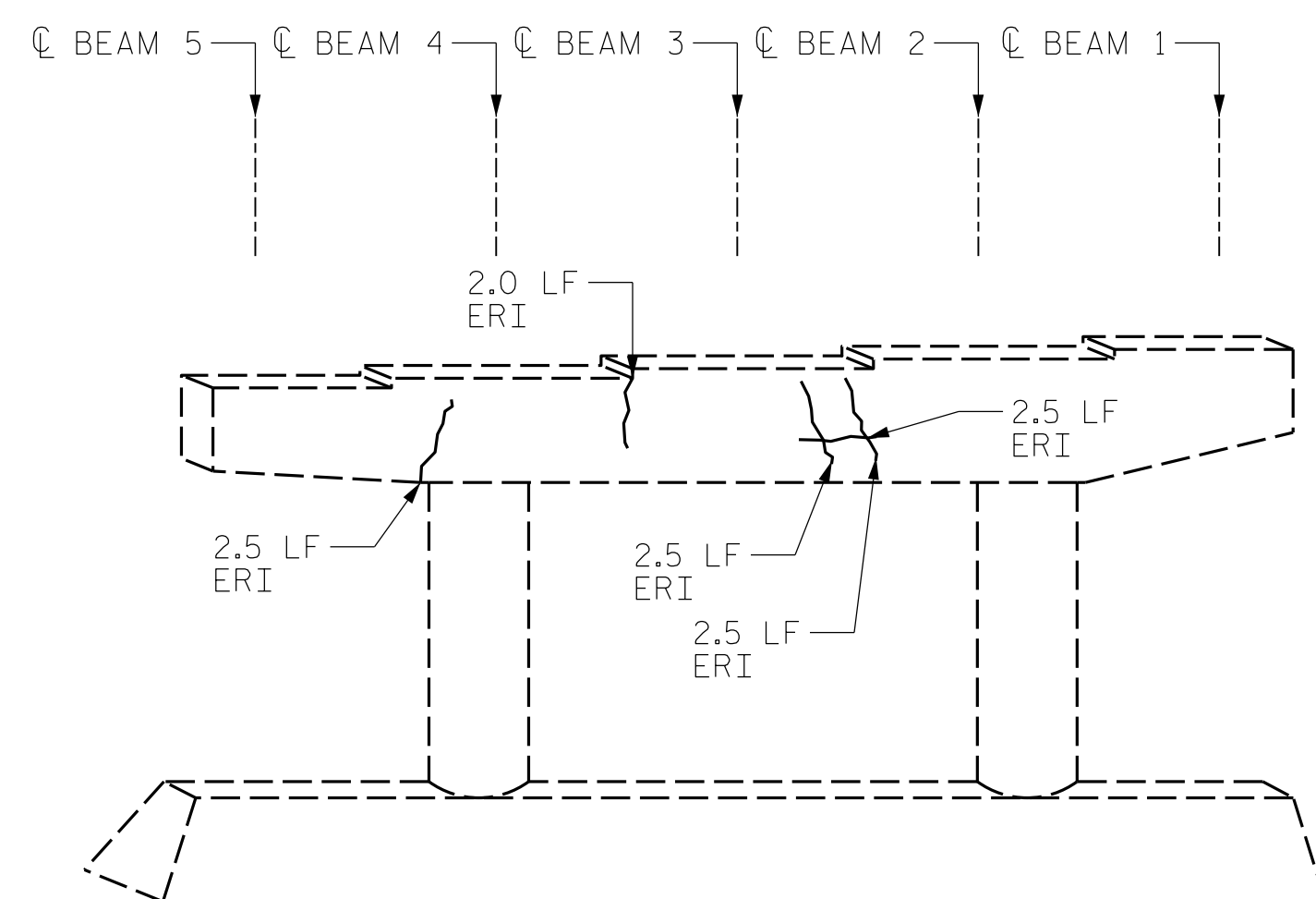
DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S4-8
2			4			10



BENT 2

(WEST FACE)



BENT 2

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	76.0			
COLUMN/PILE	99.0			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	108.3			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

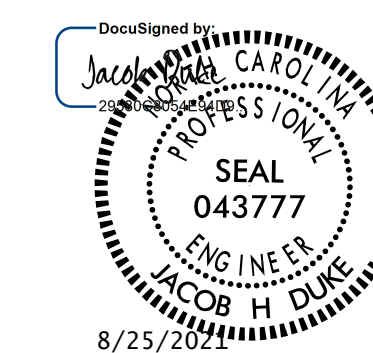
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086



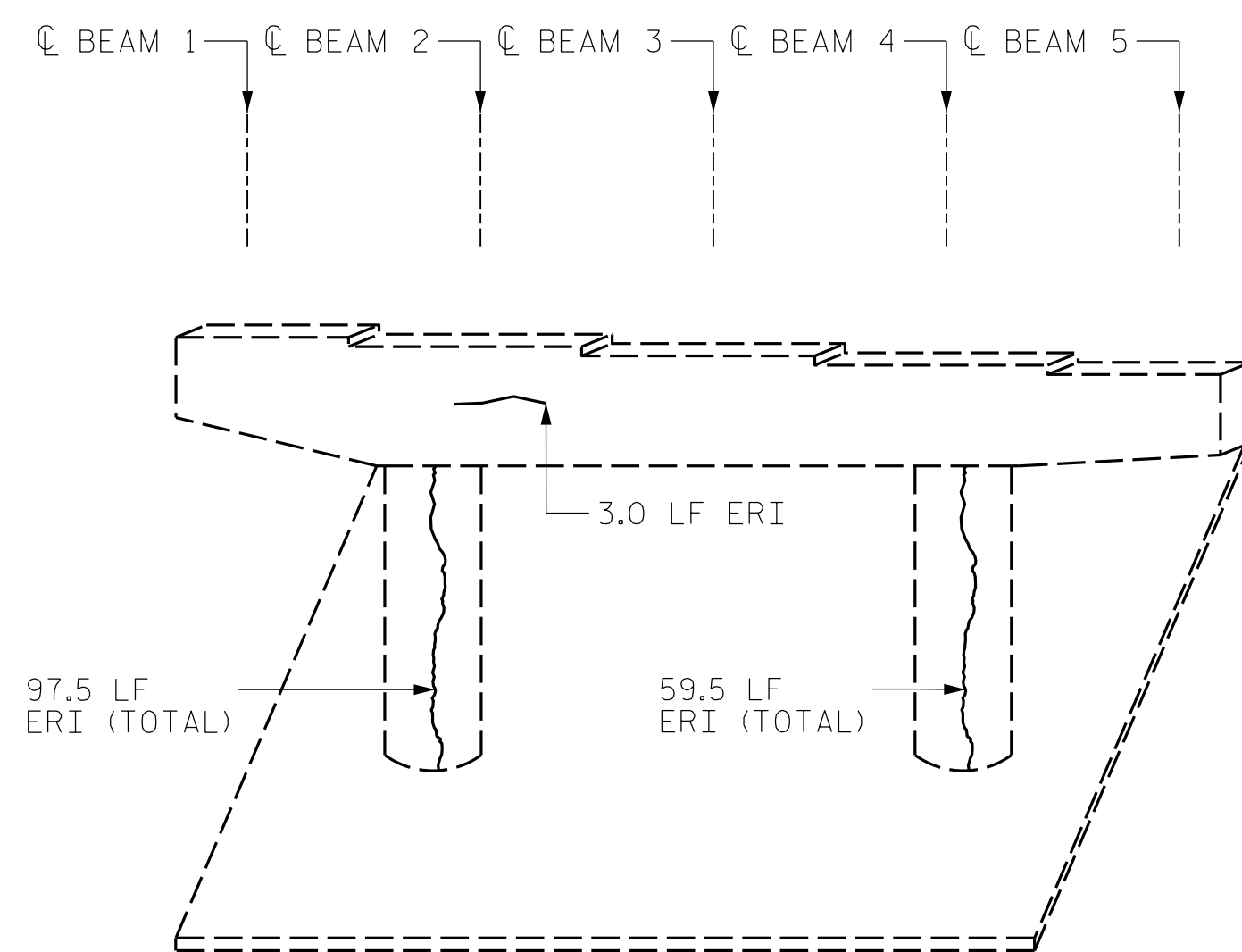
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 2

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I9399.SMU.SBR02.770086.dgn
 fflores

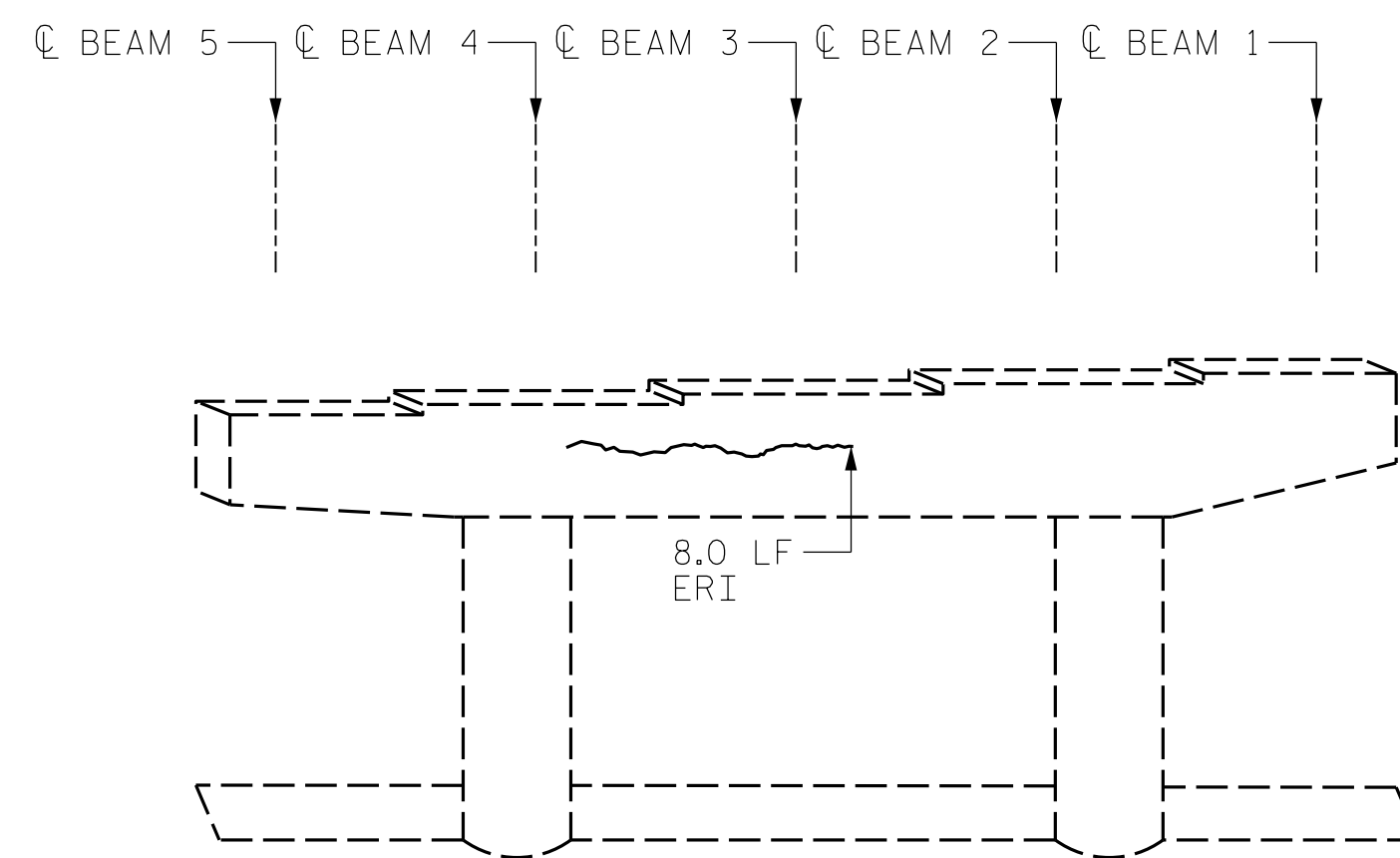
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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



BENT 3

(WEST FACE)



BENT 3

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	11.0			
COLUMN/PILE	157.0			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	108.3			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

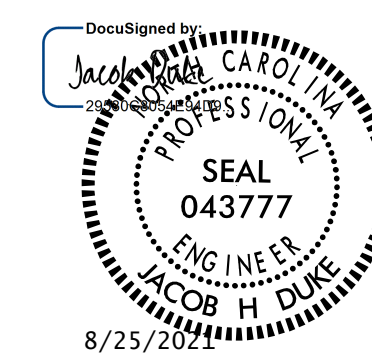
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770086



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 3

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I939.SMU.SBR03.770086.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

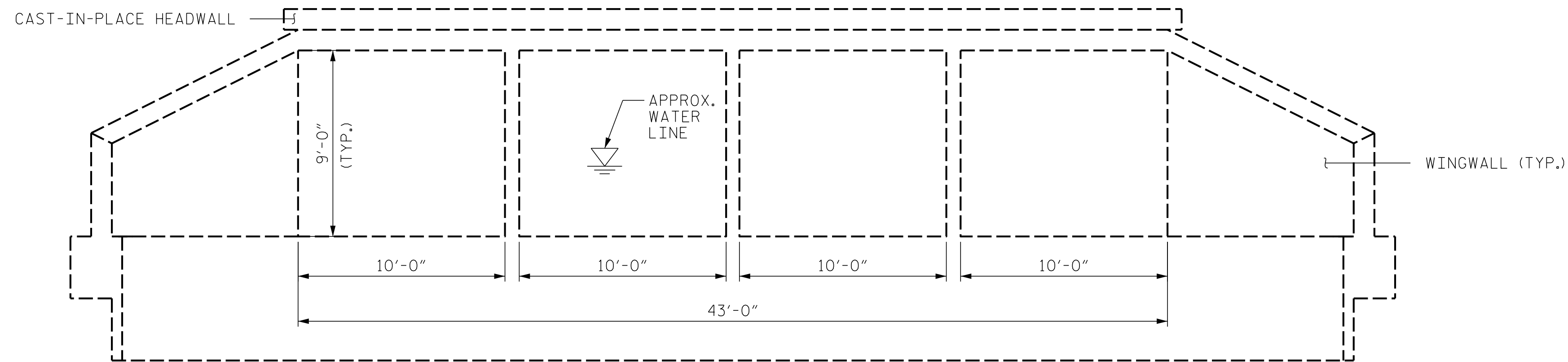
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			10
2			4			

SCOPE LEGEND:

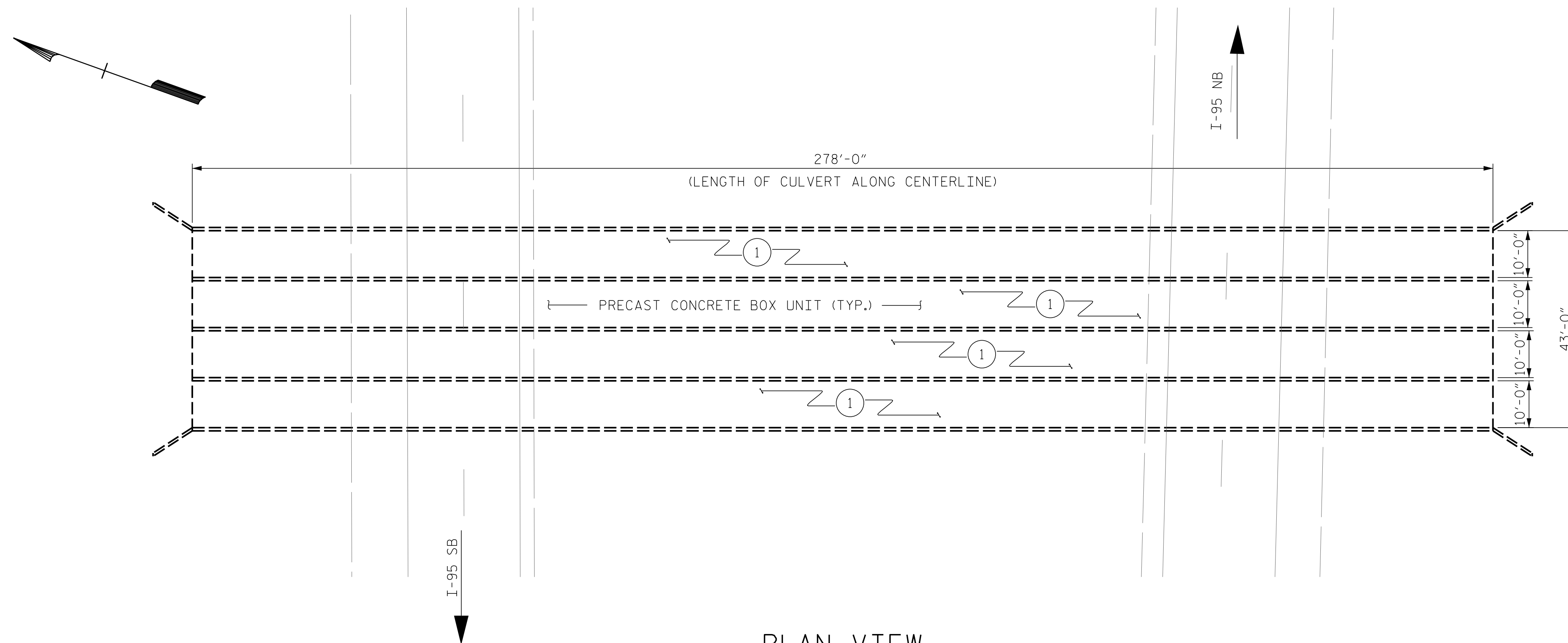
- ① CULVERT BARREL EPOXY RESIN INJECTION

NOTES:

1. KEEP A MINIMUM OF THREE (3) BARRELS OPEN AT ALL TIMES.
2. WATERTIGHT BARRIER TO BE PROVIDED BY THE CONTRACTOR TO ALLOW EMPTYING OF THE WATER FROM THE BARRELS DURING CONSTRUCTION WORK (TYPICAL AT BOTH END OF THE CULVERT). FURNISH, INSTALL, AND MAINTAIN THE BARRELS THROUGHOUT EACH PHASE OF CONSTRUCTION.
3. IN THE EVENT OF AN IMPENDING STORM, CLEAR ALL BARRELS THAT HAVE BEEN BLOCKED FOR THE WORK TO PROVIDE FULL OPENING FOR THE WATERWAY AS DIRECTED BY THE ENGINEER.



ELEVATION NORMAL TO SKEW



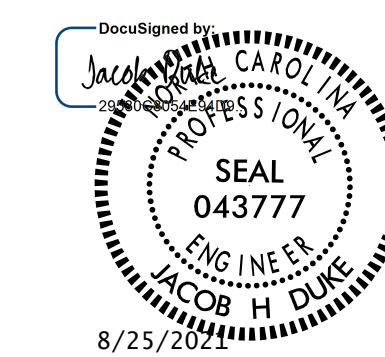
PLAN VIEW

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____

FOR INFORMATION PURPOSES ONLY:
SHEET PILE WALL
ADDED AT TOE WALL
TO MITIGATE SCOUR

PROJECT NO. I-5939
ROBESON COUNTY
BRIDGE NO. 770089



KCA
KISINGER CAMPO
& ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR QUAD BARREL CULVERT
CARRYING I95 OVER
ASHPOLE SWAMP

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 02/25/2019.
BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

DRAWN BY : JACOB H. DUKE DATE : 06/2021
CHECKED BY : FIDEL L. FLORES DATE : 06/2021
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
I5939.SMU.CU01.770089.dgn
fflores

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-1
1			3			TOTAL SHEETS
2			4			2

NOTES:

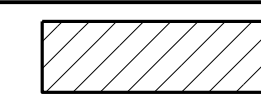
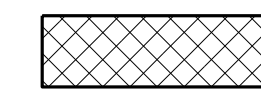

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $> \frac{1}{16}$ " AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BARREL.

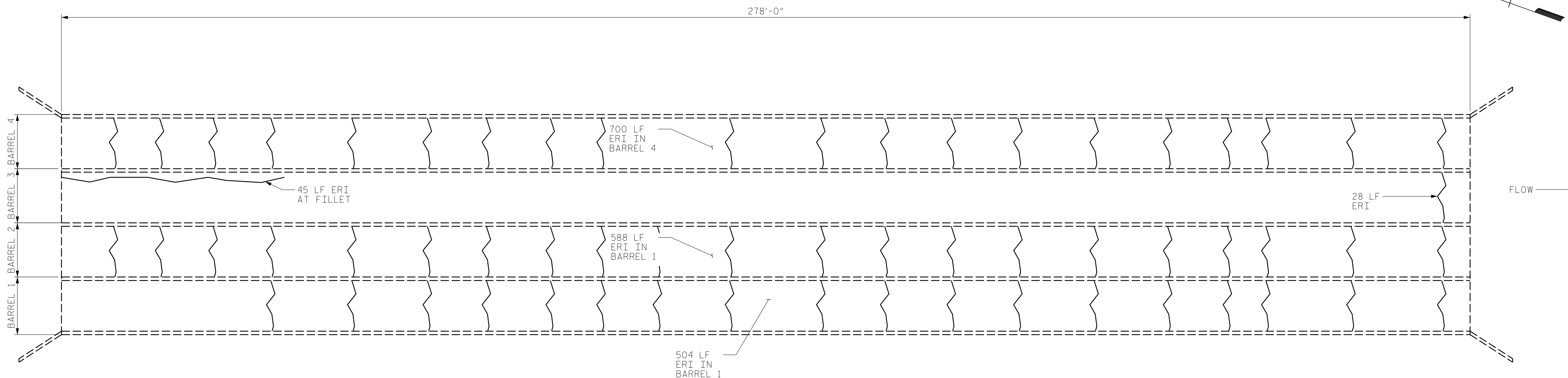
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

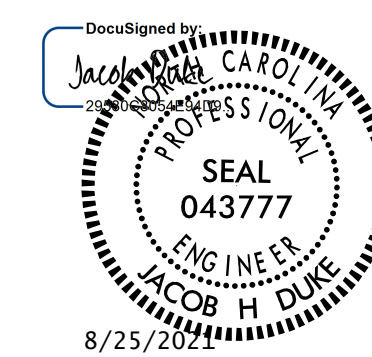
CRACKING DEFICIENCIES WERE NOTED ON THE TOP SLAB AND WALLS THROUGHOUT THE CULVERT.

LEGEND		AS-BUILT REPAIR QUANTITY TABLE				
		QUANTITIES				
		ESTIMATE		ACTUAL		
	CONCRETE REPAIR AREA (CR)					
	SHOTCRETE REPAIR AREA (SCR)					
	EPOXY RESIN INJECTION (ERI)					
		SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
		SHOTCRETE REPAIRS				
		CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
		CONCRETE REPAIRS				
		EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
		EPOXY RESIN INJECTION	1865			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770089



KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

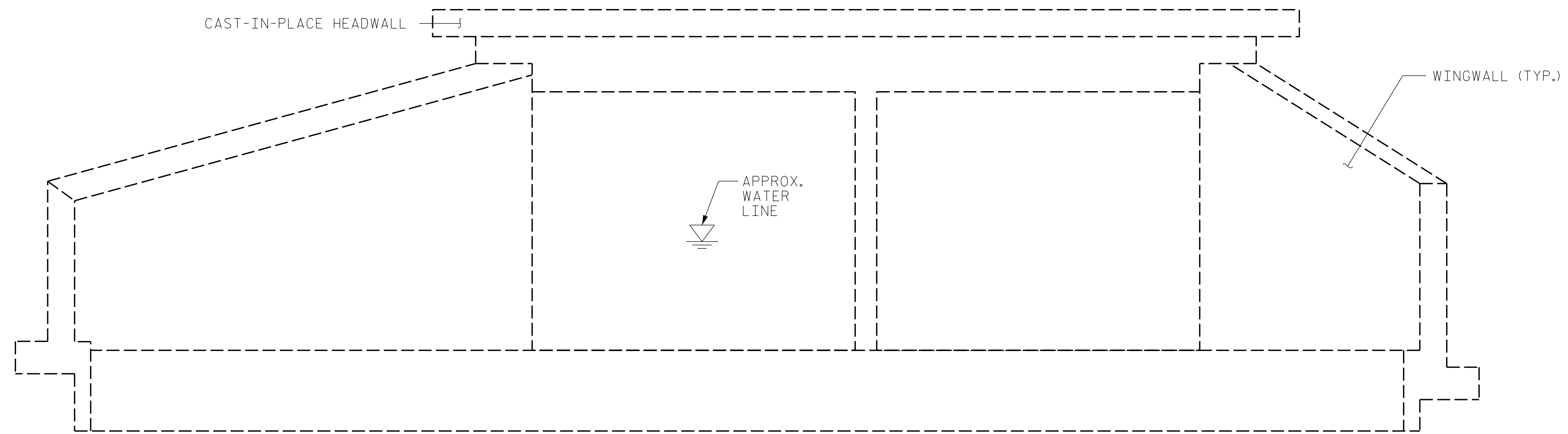
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
CULVERT CONCRETE REPAIRS

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.CUR01.770089.dgn
 fflores

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

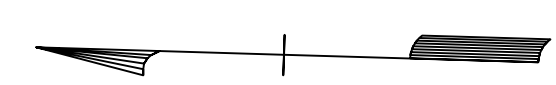
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			2
2			4			



- SCOPE LEGEND:
- ① CULVERT BARREL EPOXY RESIN INJECTION
 - ② CHAIN LINK FENCE RESET
 - ③ WOVEN WIRE FENCE RESET

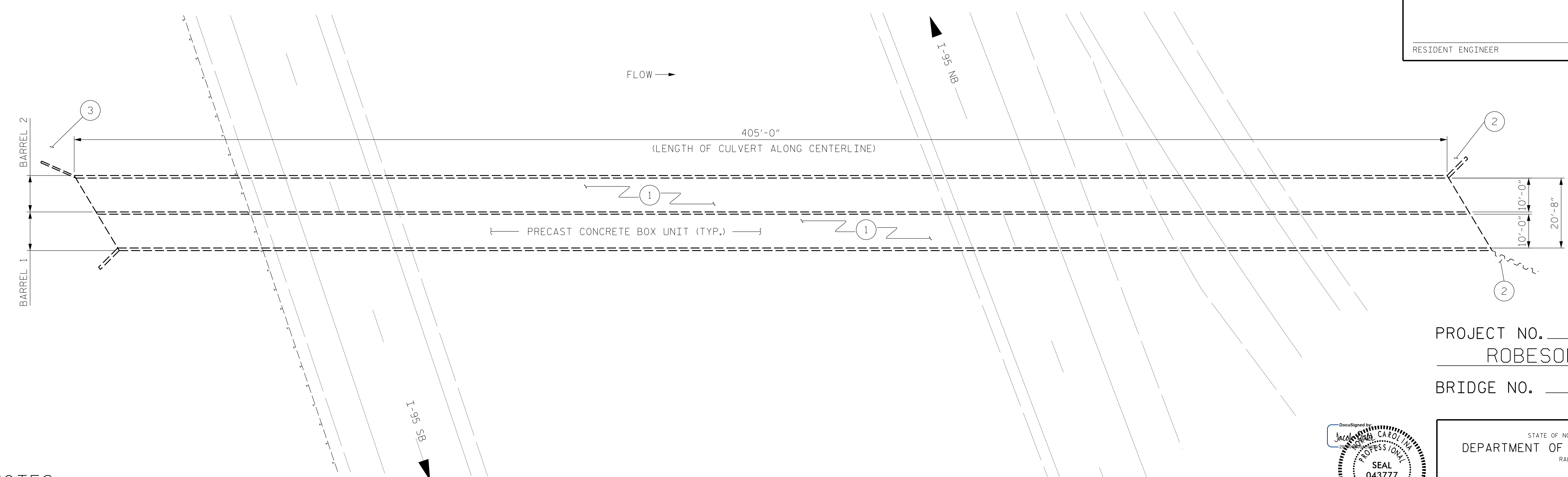
- NOTES:
1. KEEP A MINIMUM OF ONE (1) BARREL OPEN AT ALL TIMES.
 2. WATERTIGHT BARRIER TO BE PROVIDED BY THE CONTRACTOR TO ALLOW EMPTYING OF THE WATER FROM THE BARRELS DURING CONSTRUCTION WORK (TYPICAL AT BOTH END OF THE CULVERT). FURNISH, INSTALL, AND MAINTAIN THE BARRELS THROUGHOUT EACH PHASE OF CONSTRUCTION.
 3. IN THE EVENT OF AN IMPENDING STORM, CLEAR ALL BARRELS THAT HAVE BEEN BLOCKED FOR THE WORK TO PROVIDE FULL OPENING FOR THE WATERWAY AS DIRECTED BY THE ENGINEER.
 4. RESET DAMAGED FENCES WHERE SHOWN ON THE PLANS.
 5. SEE STANDARD DRAWING SERIES 866 FOR CHAIN LINK AND WOVEN WIRE FENCE DETAILS.

END ELEVATION NORMAL TO SKEW



I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____



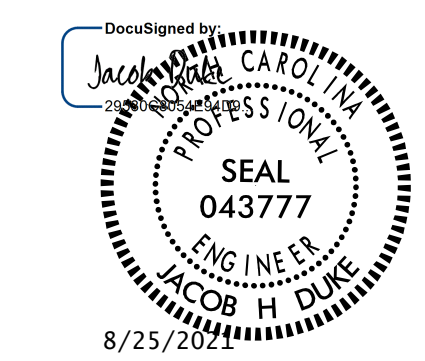
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770090

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 07/06/2020.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

PLAN VIEW



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR DOUBLE BARREL CULVERT CARRYING I95 OVER ASHPOLE SWAMP

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6-1
1			3			TOTAL SHEETS
2			4			2

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $>= \frac{1}{16}$ " AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BARREL.

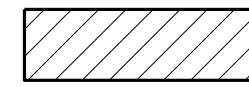
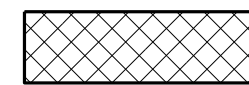


FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

FOR CHAIN LINK FENCE REPAIR, SEE "STANDARDS FOR CHAIN LINK FENCE"

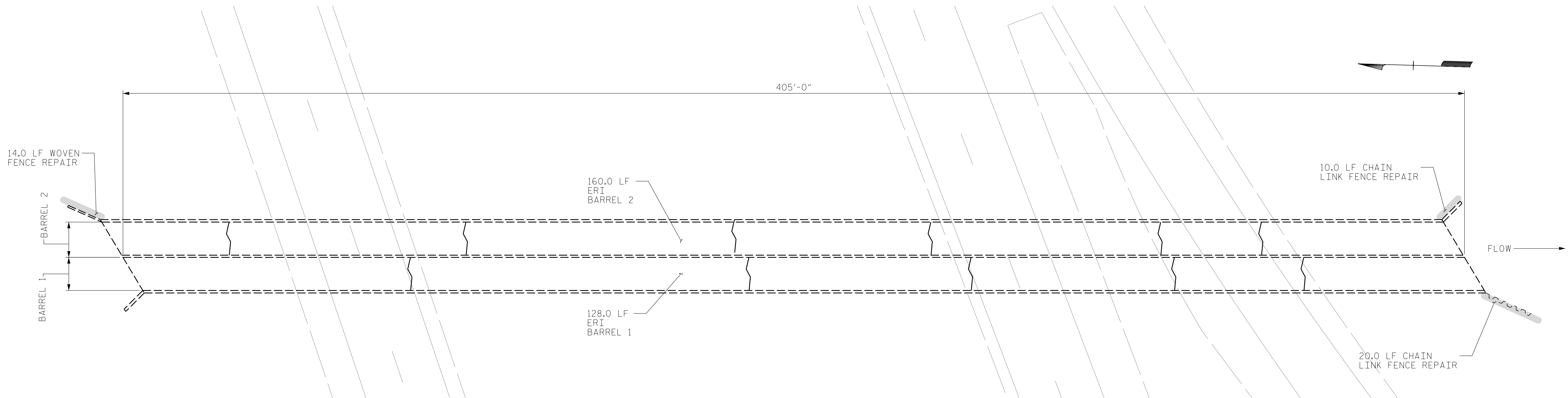
FOR WOVEN WIRE FENCE REPAIR, SEE "STANDARDS FOR WOVEN WIRE FENCE WITH WOOD POST"

CRACKING DEFICIENCIES WERE NOTED ON THE TOP SLAB AND WALLS THROUGHOUT THE CULVERT.

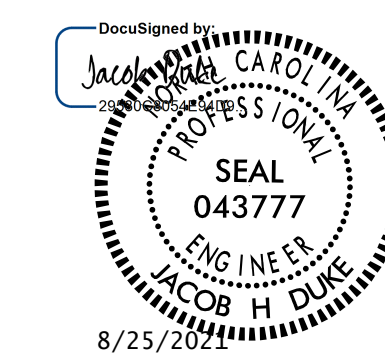
LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)
	FENCE REMOVAL & REINSTALL

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CONCRETE REPAIRS				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
EPOXY RESIN INJECTION	288.0			
CHAIN FENCE REPAIR	LIN. FT.		LIN. FT.	
CHAIN FENCE REPAIR	30.0			
WOVEN WIRE FENCE REPAIR	LIN. FT.		LIN. FT.	
WOVEN WIRE FENCE REPAIR	14.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770090

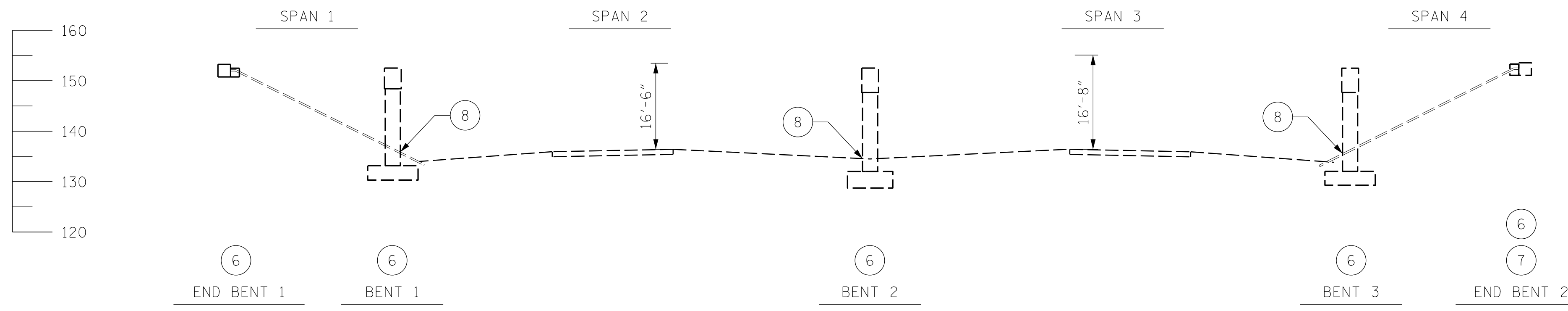


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
CULVERT CONCRETE REPAIRS

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

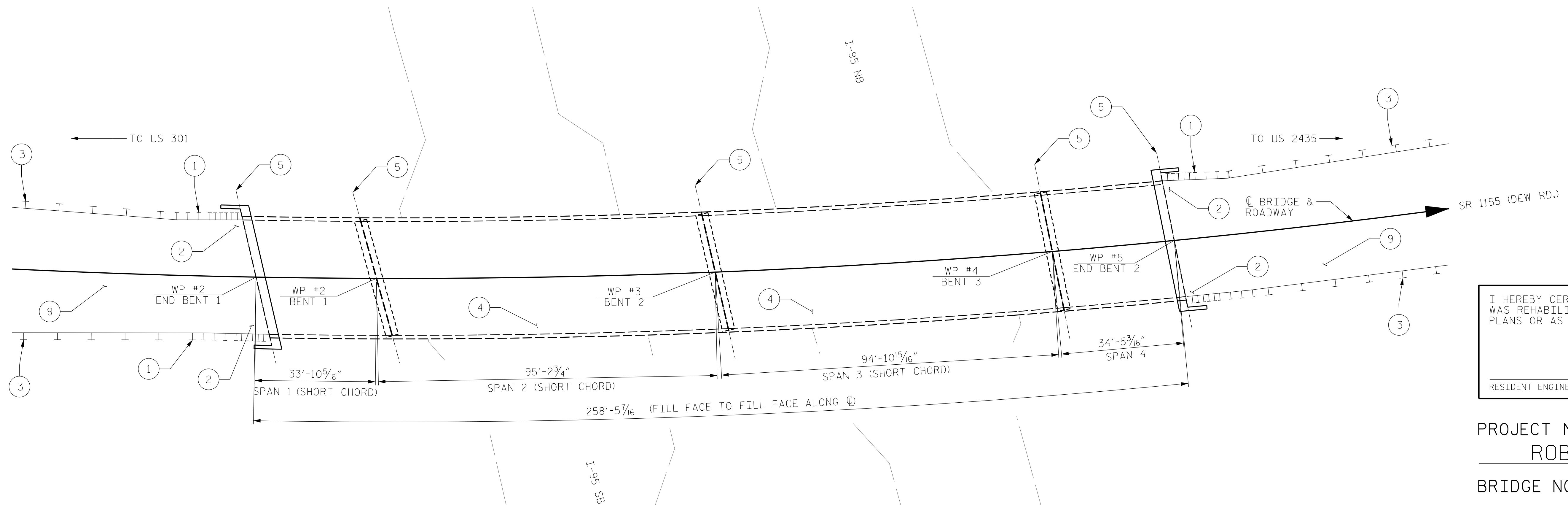
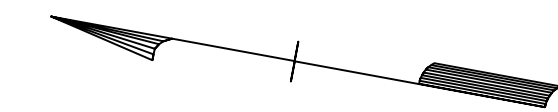


SECTION ALONG ROADWAY

SCOPE LEGEND:

- 1 PROPOSED TYPE III STRUCTURE ANCHOR UNITS
- 2 CLEAR SHOULDERS OF DEBRIS AND VEGETATION
- 3 PROPOSED STEEL BEAM GUARDRAIL
- 4 CONCRETE DECK REPAIRS
- 5 JOINT REPLACEMENT
- 6 SUBSTRUCTURE EPOXY RESIN INJECTION
- 7 SUBSTRUCTURE CONCRETE REPAIRS
- 8 SILICONE JOINT SEAL REPLACEMENT AT COLUMN BASES
- 9 APPROACH ROADWAY MILLING AND RESURFACING

NOTE: SEE SHEET S12 FOR SLOPE PROTECTION JOINT REPAIRS.

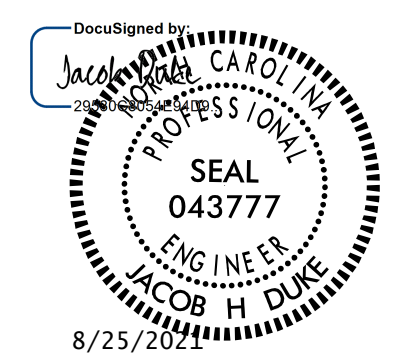


PLAN

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770096



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE CARRYING
 SR 1155 OVER I-95
 NBL AND SBL

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/16/2019.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.CD01.770096.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

KCA
 KISINGER CAMPO
 & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S7-1
2			4			TOTAL SHEETS 9

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS								
	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
SHOTCRETE REPAIR AREA (SCR)	-- CF		0.8 CF		1.3 CF		-- CF	

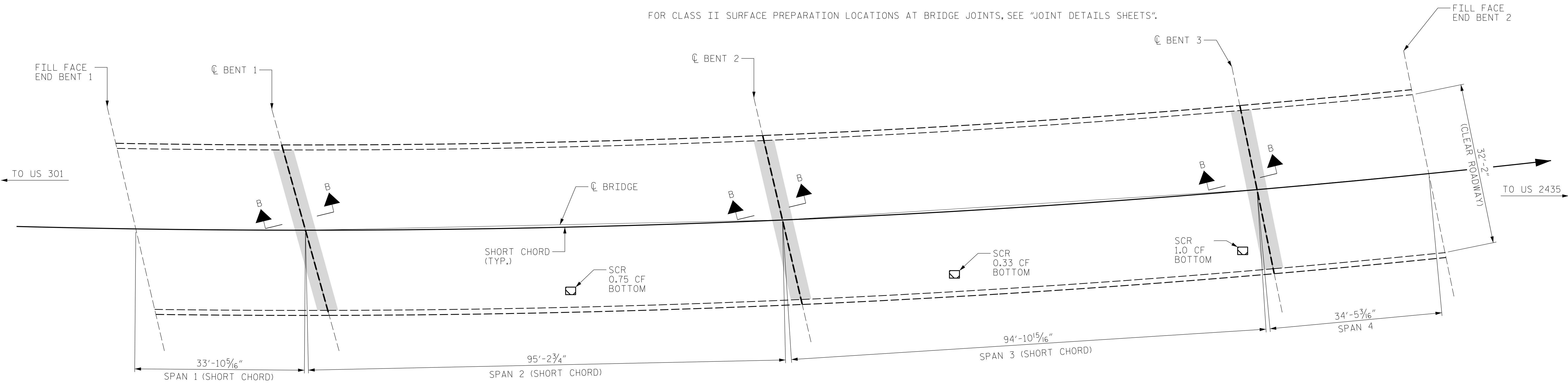
NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

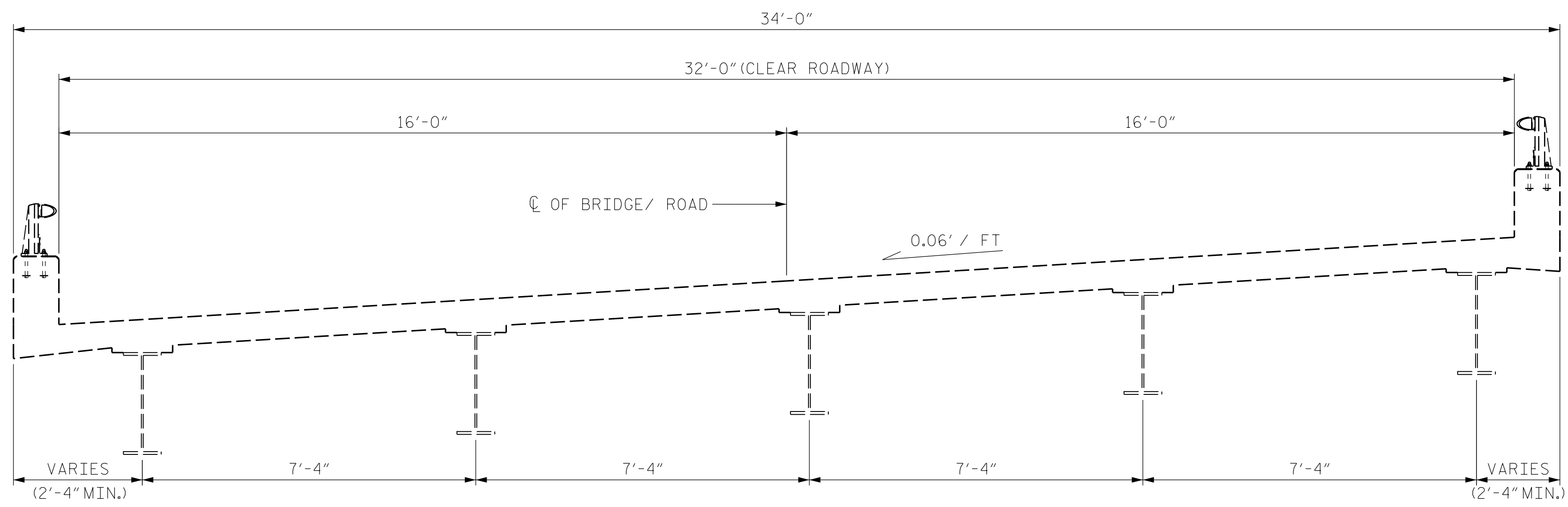
CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1/2" PER THE EXISTING BRIDGE PLANS. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING SCARIFICATION. CURRENT AVERAGE COVER IS EXPECTED TO BE FROM 0 TO 1/2" TO 2" BASED ON VISUAL INSPECTION.

MINOR QUANTITIES OF CLASS II AREAS ARE ANTICIPATED, PARTICULARLY NEAR JOINTS. HOWEVER, DUE TO THEIR SMALL SIZE, THE CLASS II LOCATIONS HAVE NOT BEEN DELINEATED ON THESE PLANS. THE CLASS II QUANTITIES INDICATED ARE ANTICIPATED TO BE SUFFICIENT FOR THE ACTUAL QUANTITIES ENCOUNTERED.

FOR CLASS II SURFACE PREPARATION LOCATIONS AT BRIDGE JOINTS, SEE "JOINT DETAILS SHEETS".



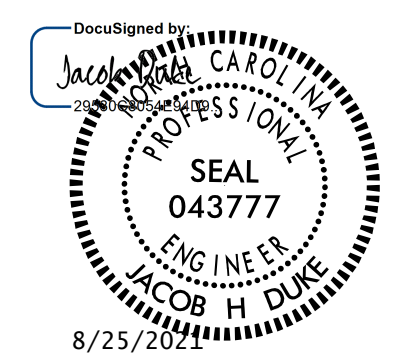
PLAN OF SPAN



TYPICAL SECTION

SHOTCRETE REPAIR AREA (SCR) BRIDGE JOINT DEMOLITION

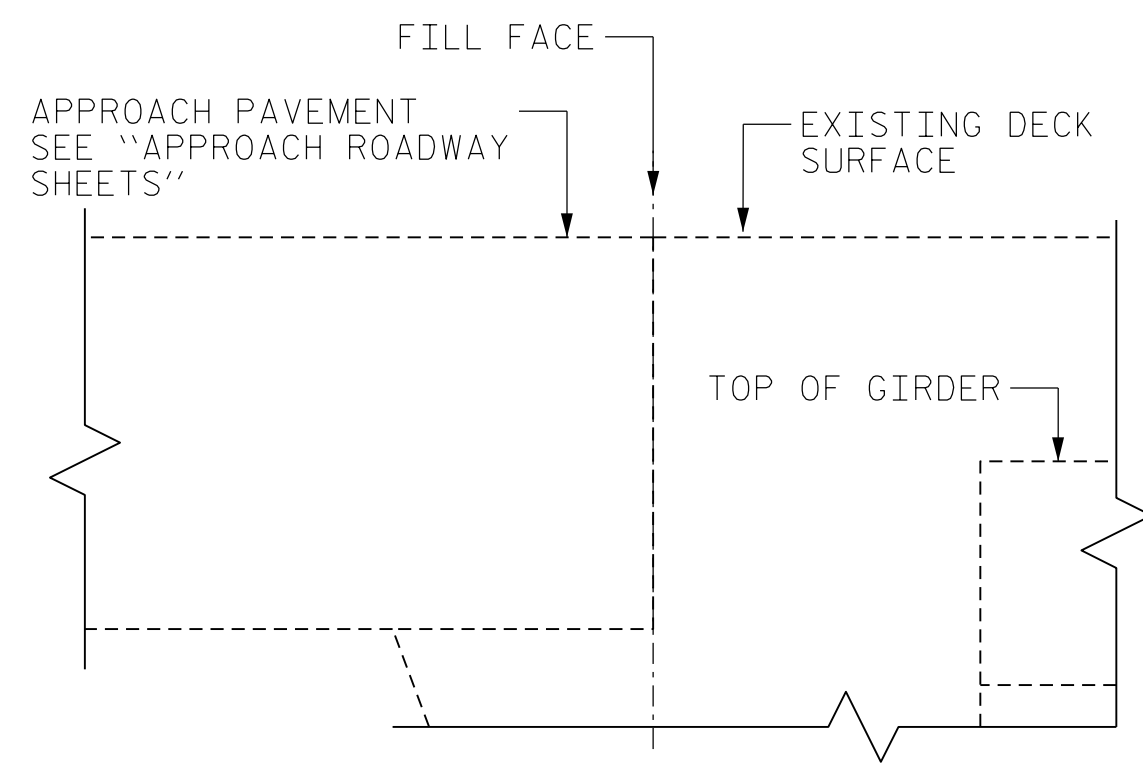
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770096



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PLAN OF SPANS AND TYPICAL SECTION					
SHEET NO. S7-2					
TOTAL SHEETS 9					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

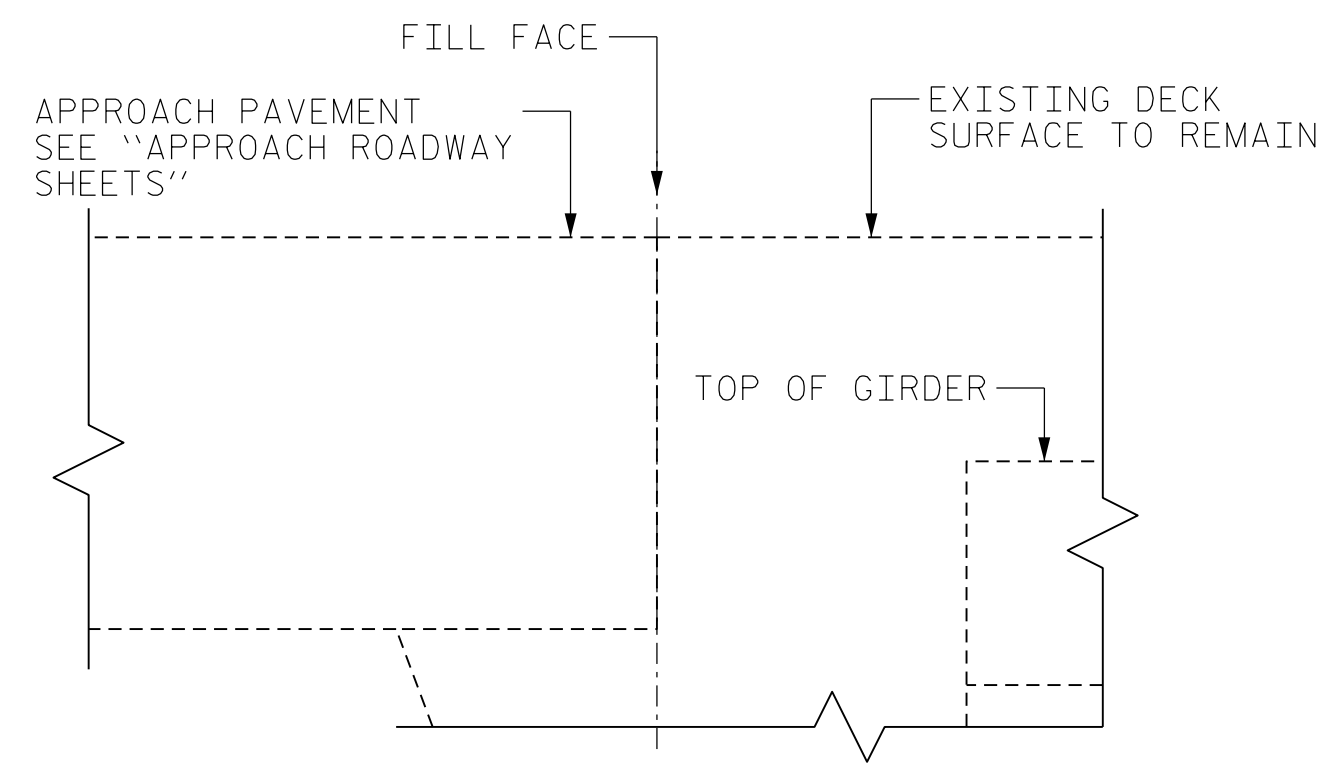
DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED



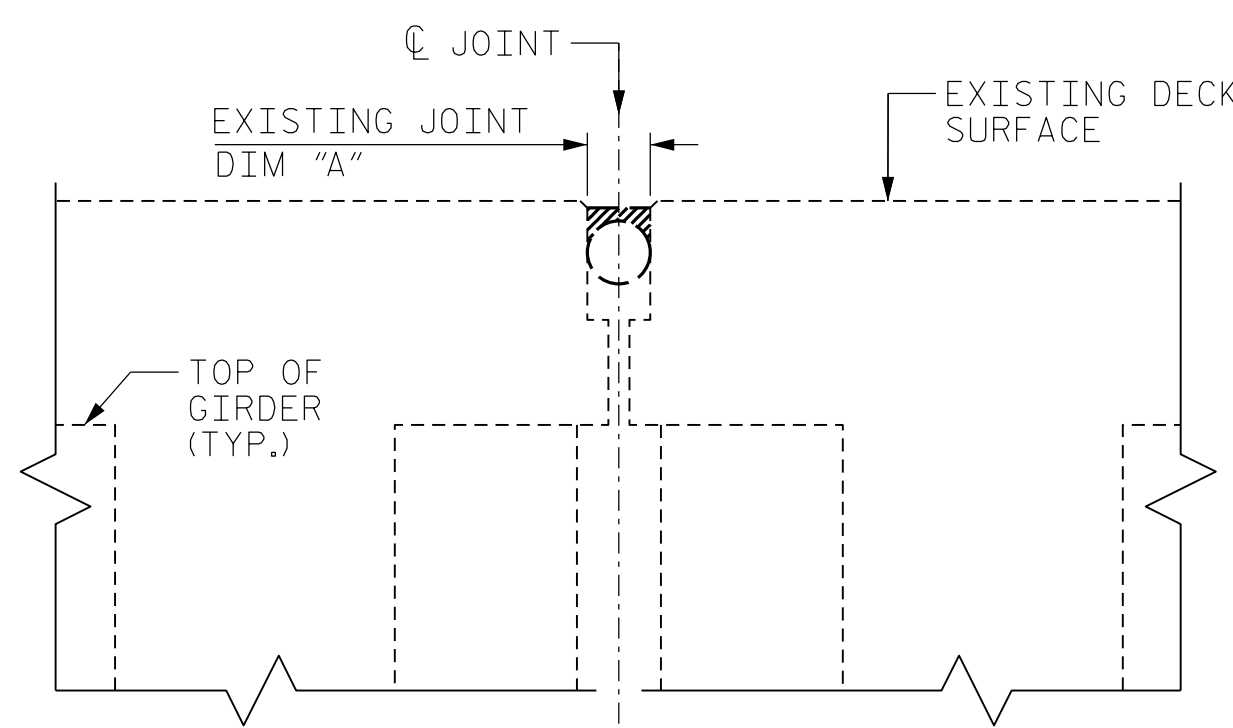
SECTION A-A

(EXISTING DETAIL, NO JOINT)



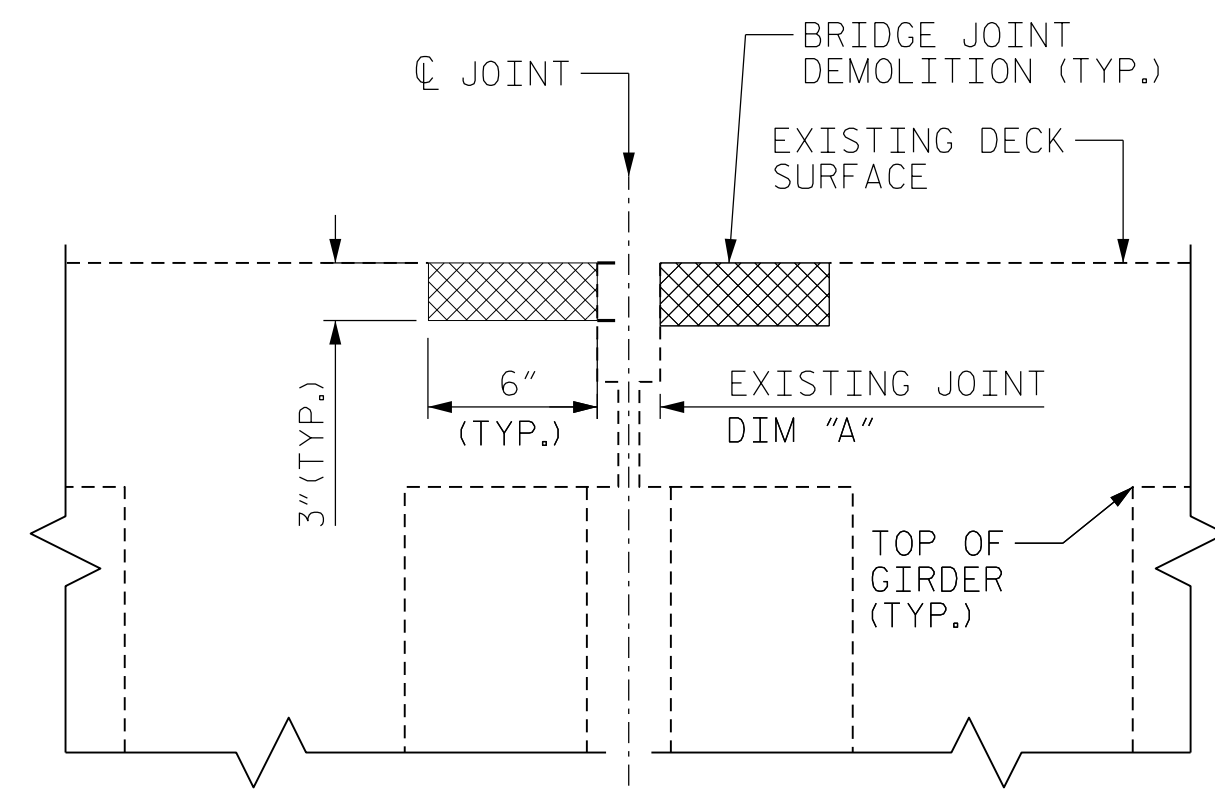
SECTION A-A

(PROPOSED DETAIL, NO JOINT)



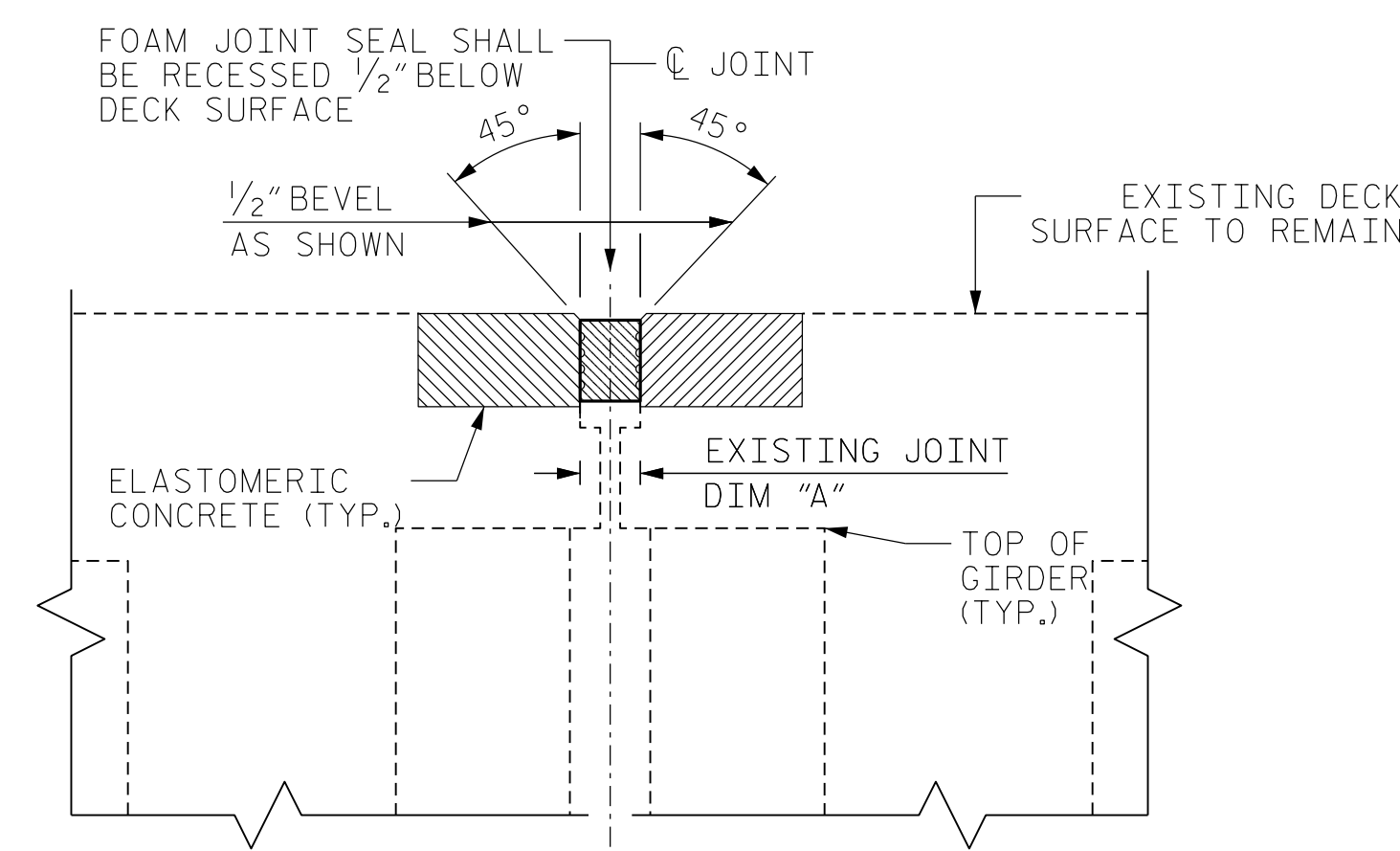
SECTION B-B

(EXISTING JOINT)



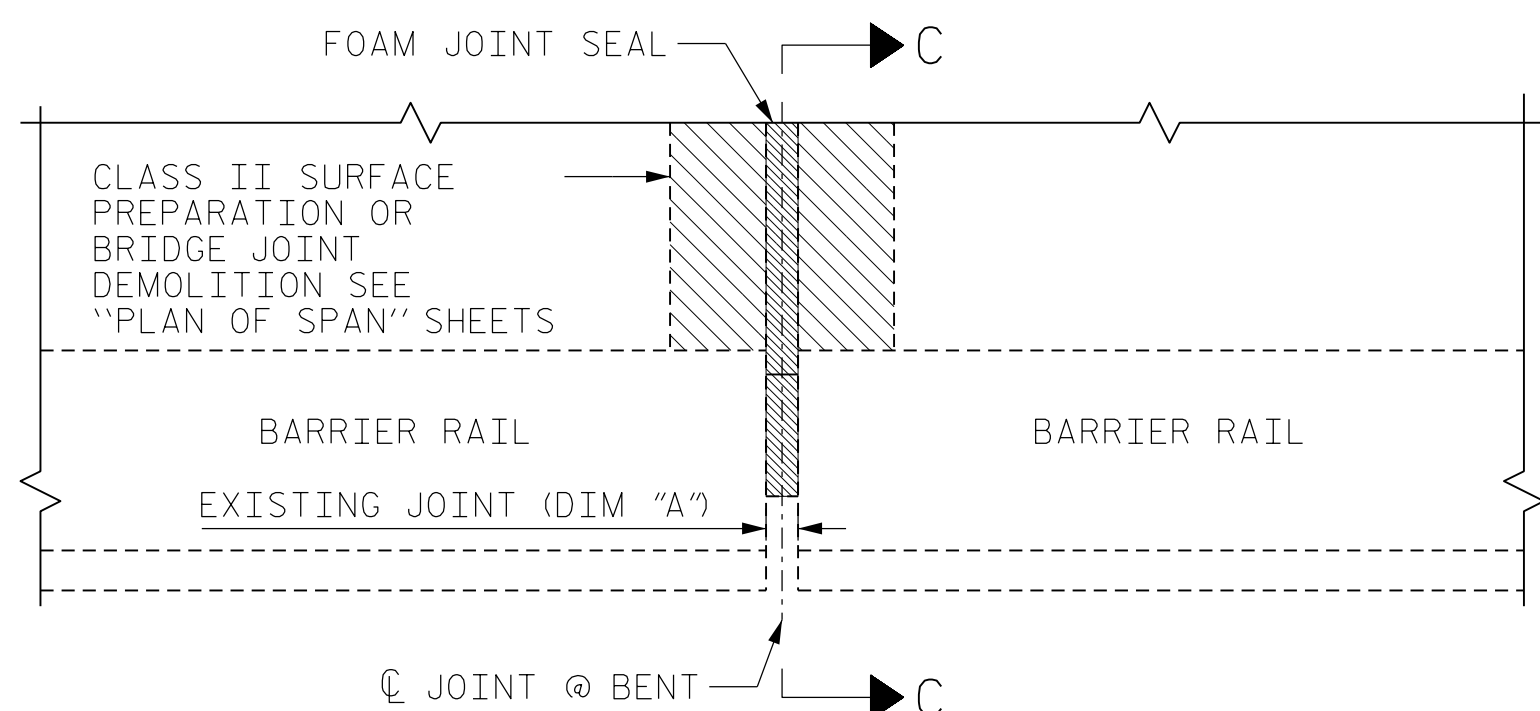
SECTION B-B

(JOINT DEMOLITION)

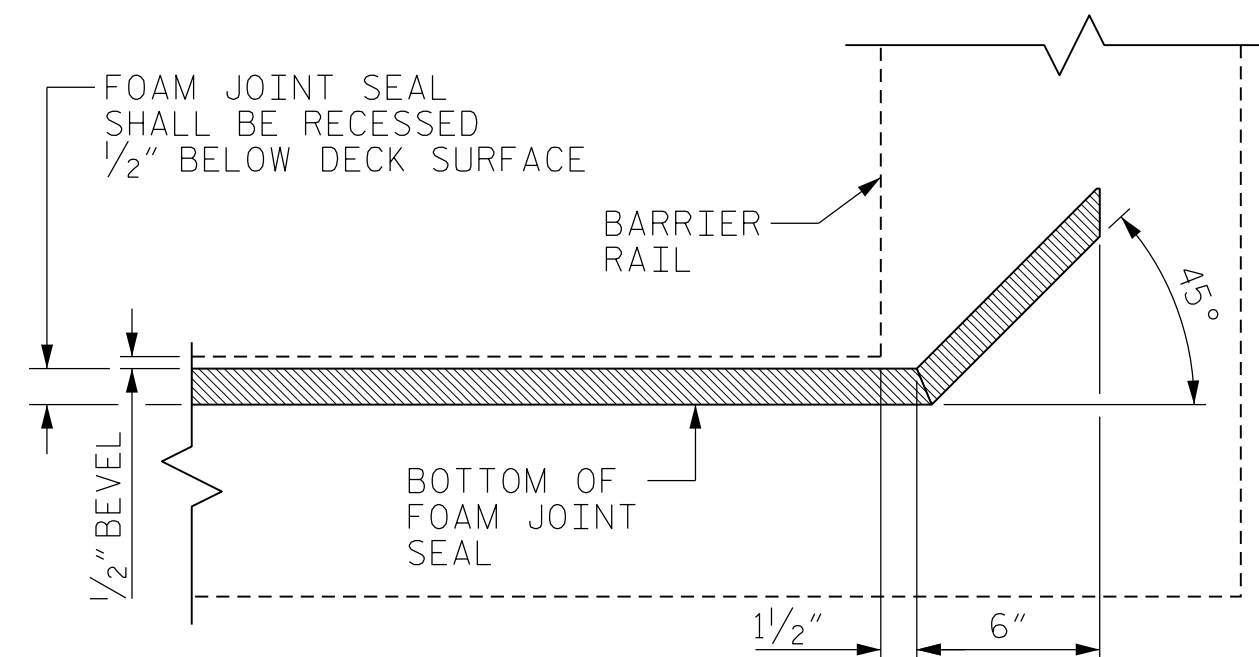


SECTION B-B

(PROPOSED FOAM JOINT SEAL)



PLAN AT BARRIER
(PROPOSED JOINT SEAL)



SECTION C-C
(PROPOSED JOINT SEAL)

TABLE 1	
Table Date 04-2021	
BENT/ JOINTS	DIM "A" @ 71 °F
END BENT 1	N/A
1	2 5/8"
2	3"
3	3 1/8"
END BENT 2	N/A

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	105	

ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	N/A	
BENT 1	8.3	
BENT 2	8.3	
BENT 3	8.3	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	N/A	
BENT 1	34	
BENT 2	34	
BENT 3	34	

NOTES:

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SHALL BE WATER TIGHT.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

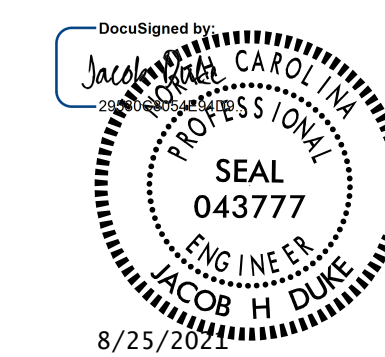
FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOPS SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.

PROJECT NO. I-5939
ROBESON COUNTY
BRIDGE NO. 770096



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S7-3
					TOTAL SHEETS 9



DRAWN BY : DIEGO A. AGUIRRE DATE : 06/2021
CHECKED BY : FIDEL L. FLORES DATE : 06/2021
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

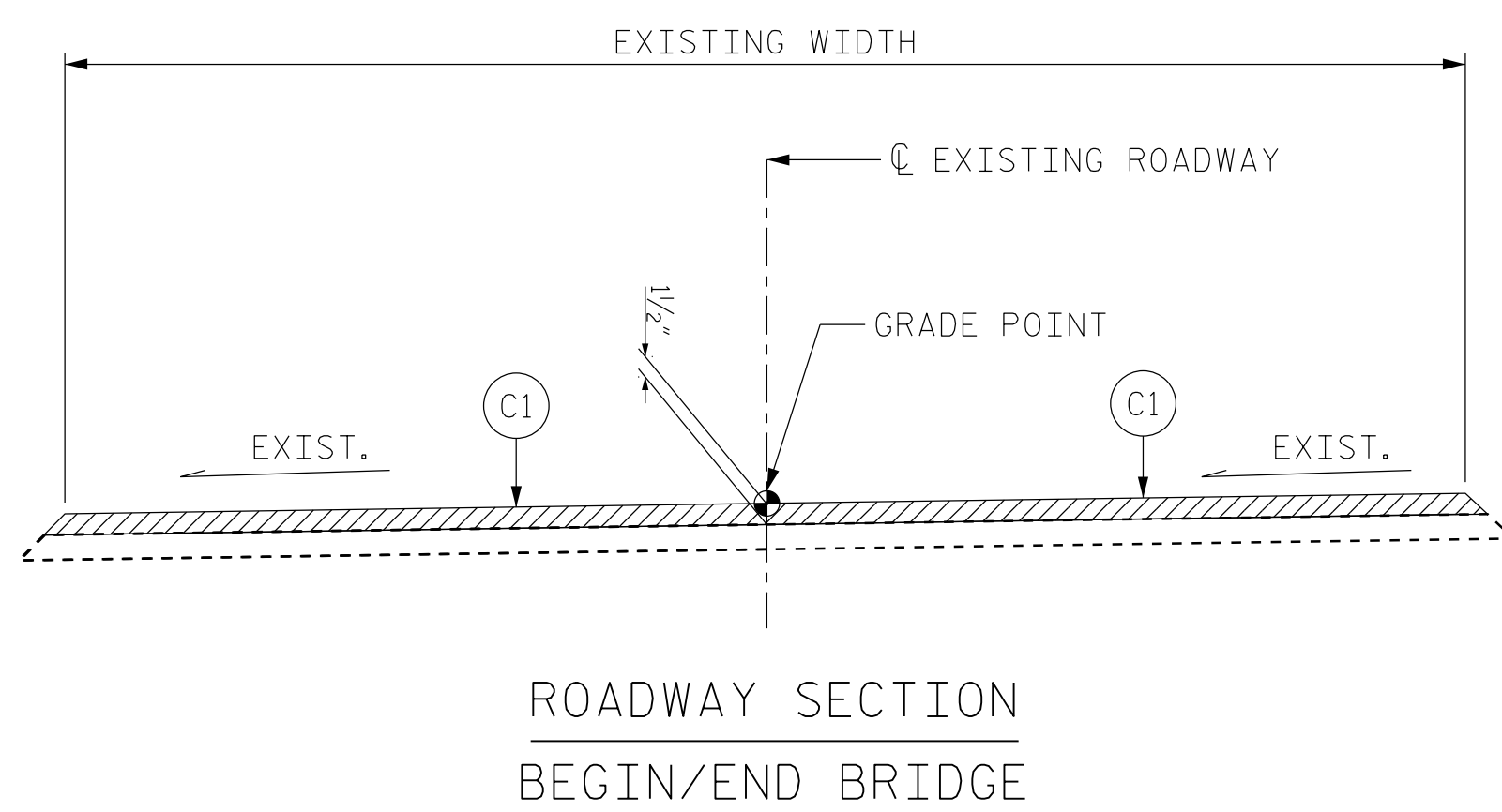
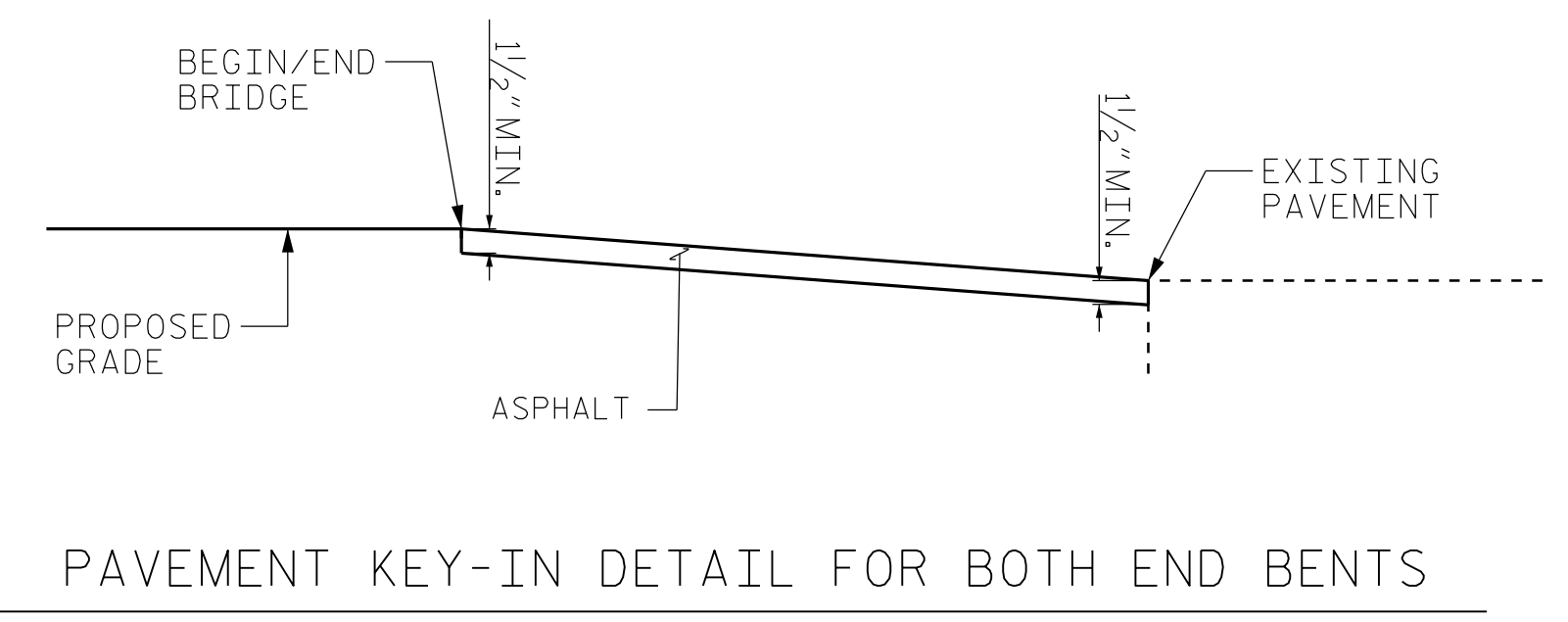
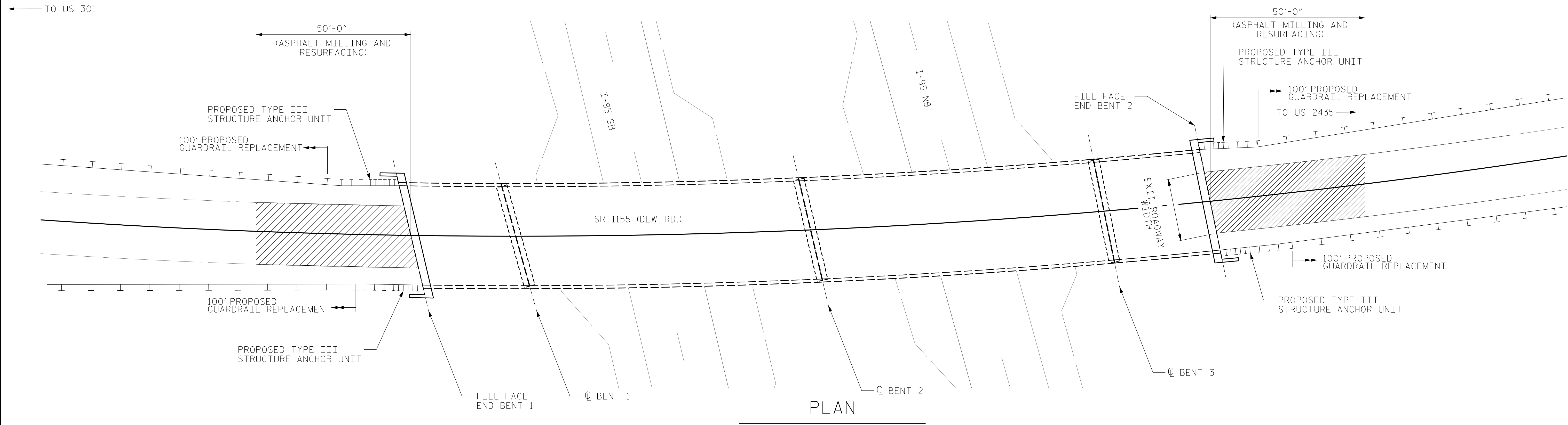
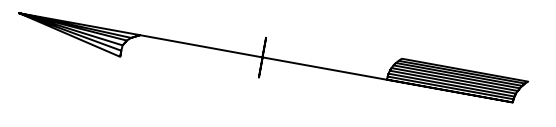
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AS-BUILT REPAIR QUANTITY TABLE		
	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	4 EA	
GUARDRAIL REMOVAL	475 LF	
PROPOSED GUARDRAIL	400 LF	
INCIDENTAL MILLING	223 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	20 TON	
ASPHALT BINDER FOR PLANT MIX	1.2 TON	
POLYUREA PAVEMENT MARKING LINES (4", 30MILS)	1434 LF	

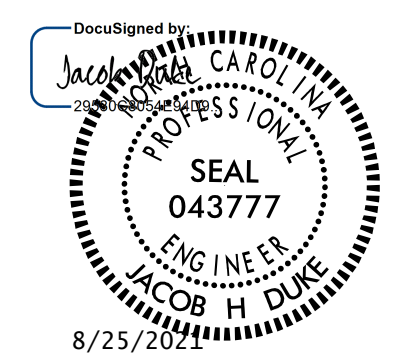
NOTES:

1. INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.
2. FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
3. GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
4. FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
5. FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.

 INCIDENTAL MILLING
 ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C
C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770096

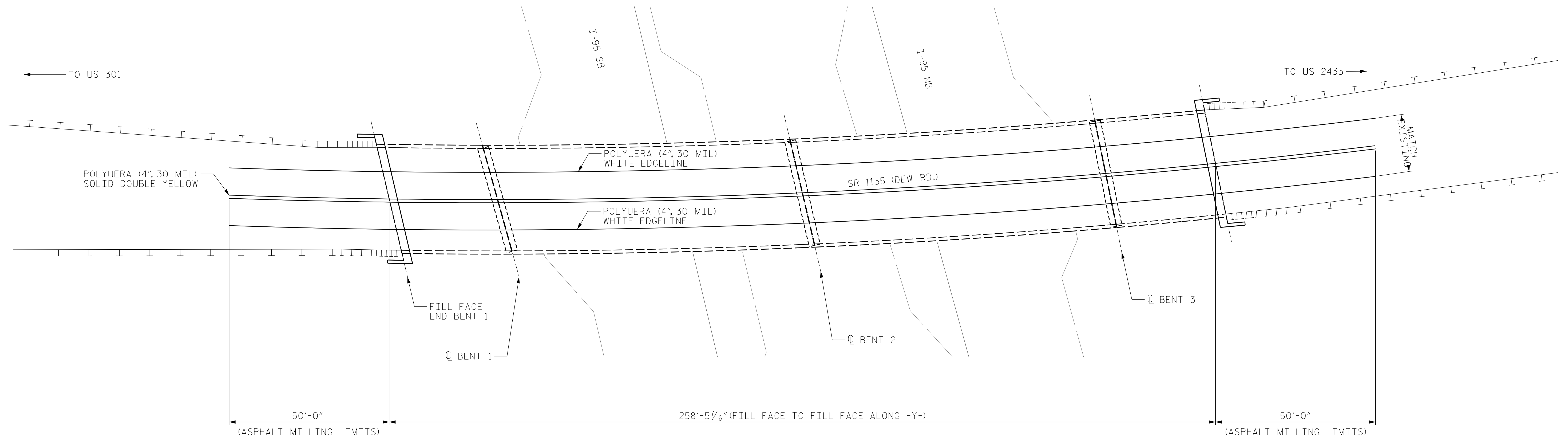
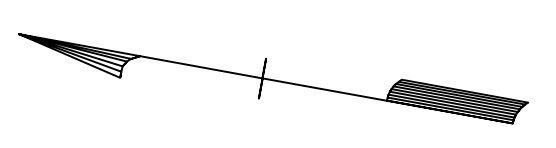


KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
APPROACH ROADWAY ASPHALT AND MILLING					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S7-4					TOTAL SHEETS 9

DRAWN BY : _____ DATE : 06/2021
 CHECKED BY : _____ DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

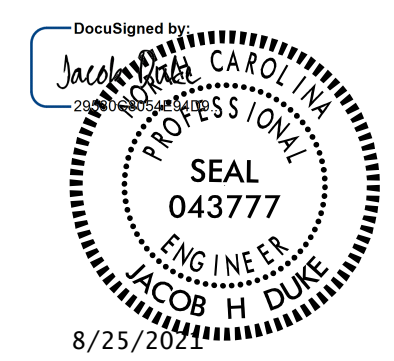
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PLAN

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770096

NOTES:
 FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

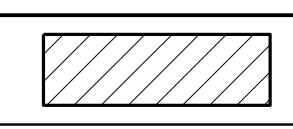
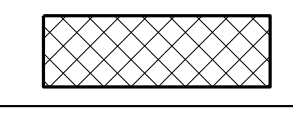



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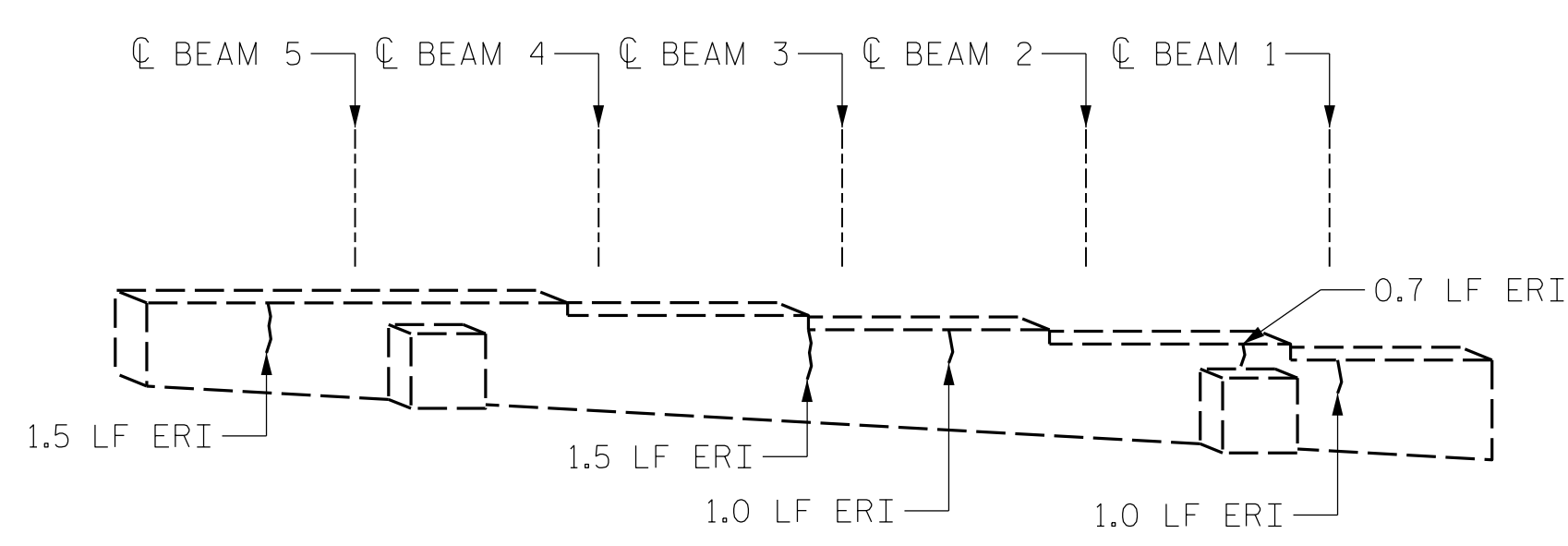
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
APPROACH ROADWAY ASPHALT MILLING AND GUARDRAIL						S7-5
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			
2			4			

DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

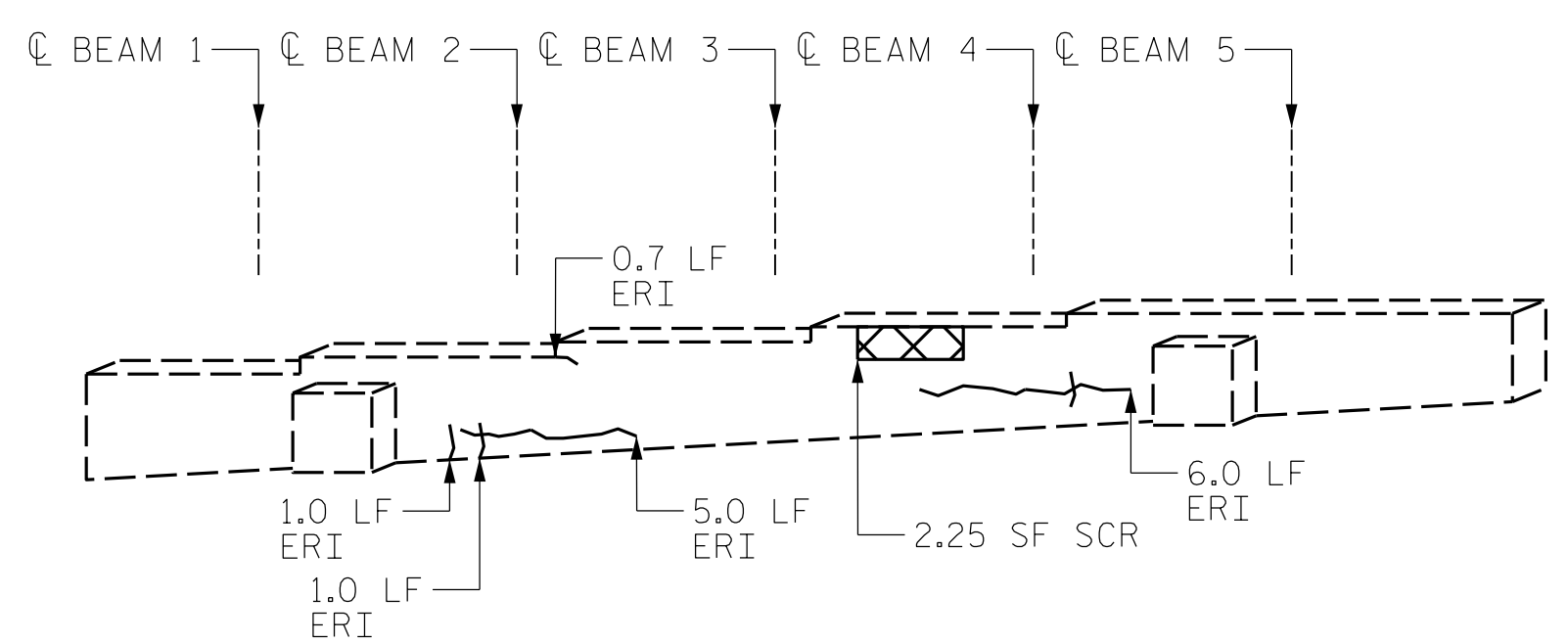
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 FINAL UNLESS ALL
 SIGNATURES COMPLETED

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	2.3	1.2		
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	19.4			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	205.0			



END BENT 1
(EAST FACE)



END BENT 2
(WEST FACE)

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

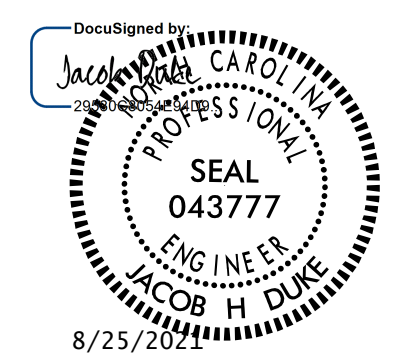
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

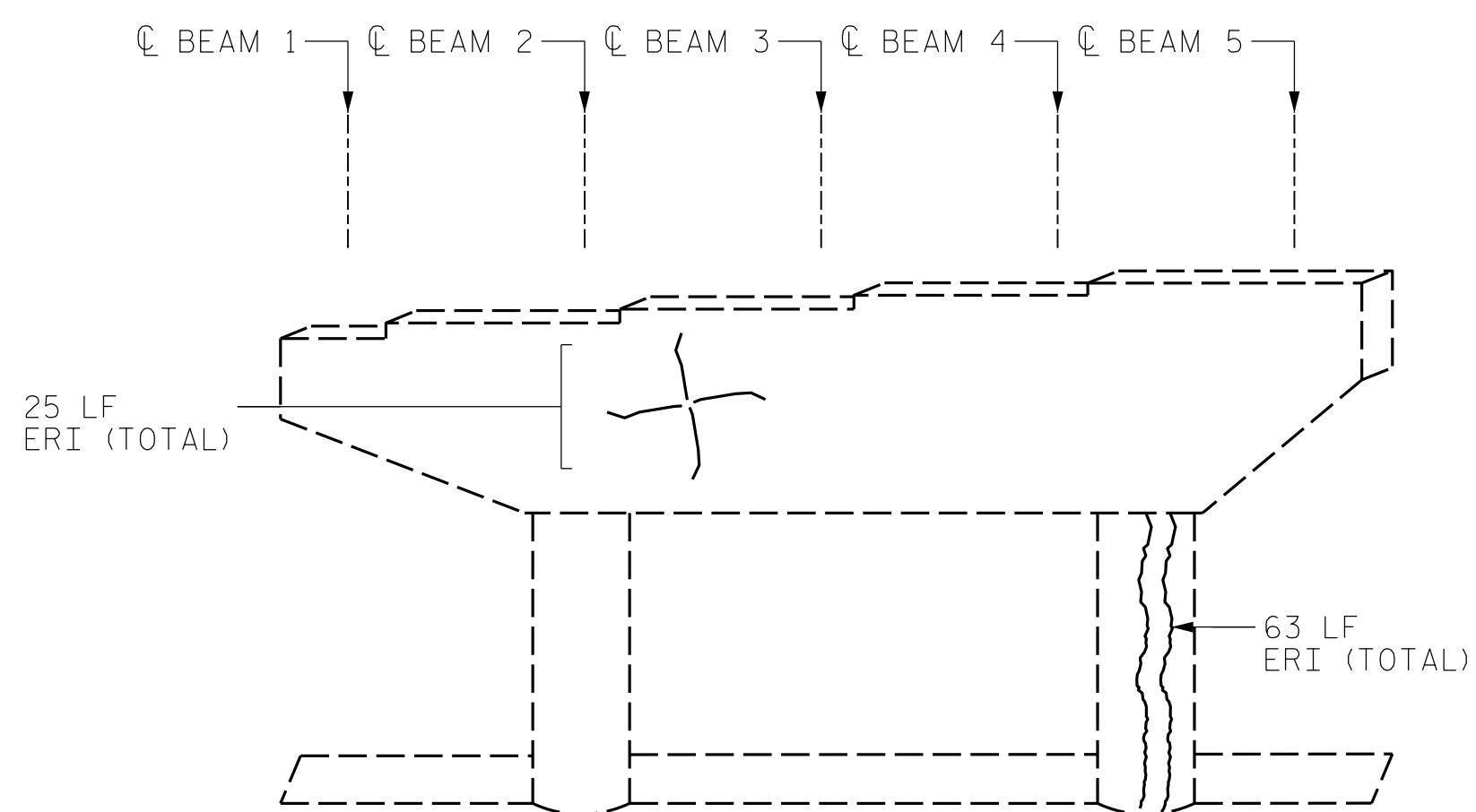
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770096



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
END BENTS 1 & 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S7-6
TOTAL SHEETS					9

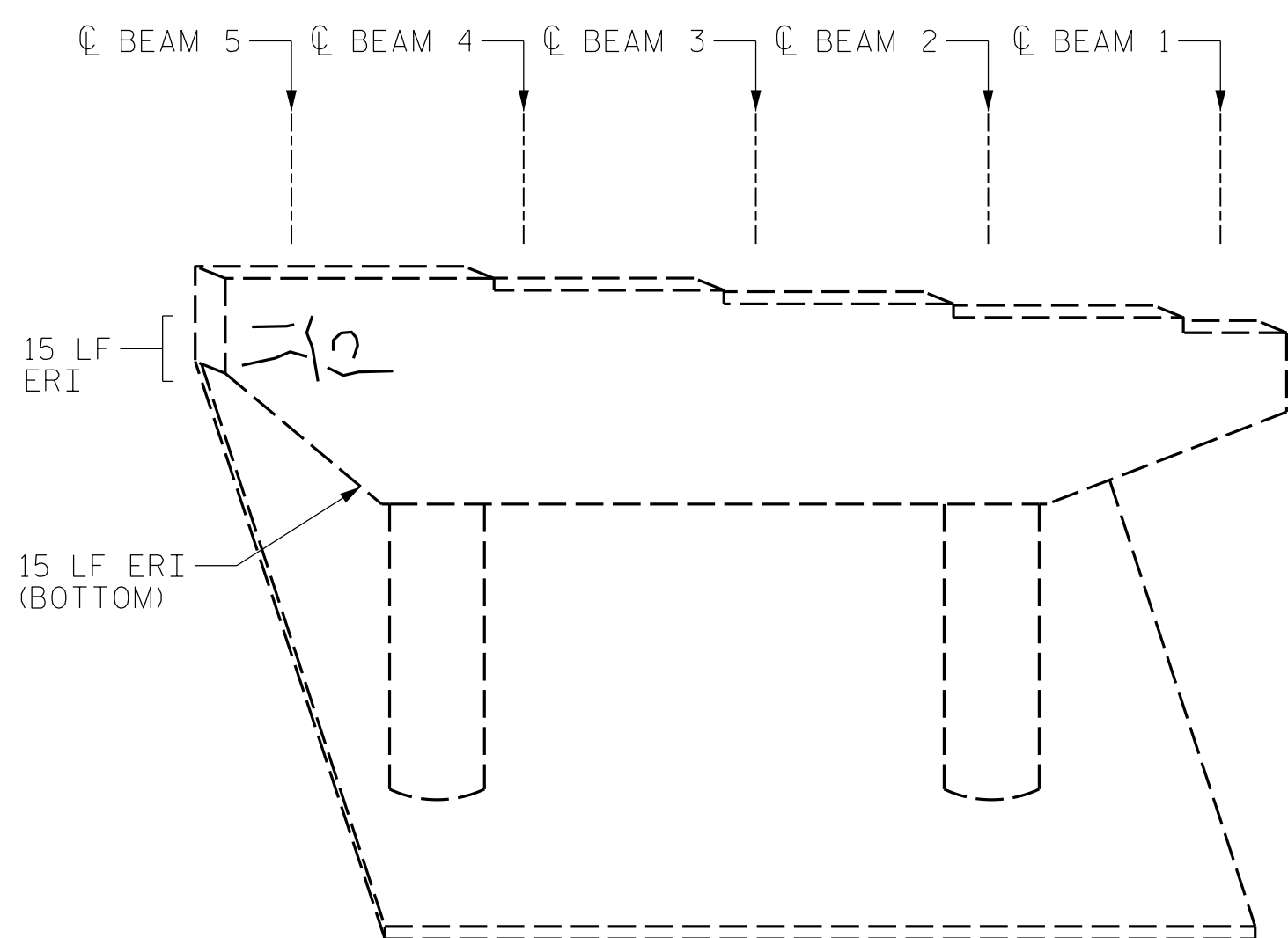
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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BENT 1

(WEST FACE)



BENT 1

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	55.0			
COLUMN/PILE	63.0			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	111.6			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

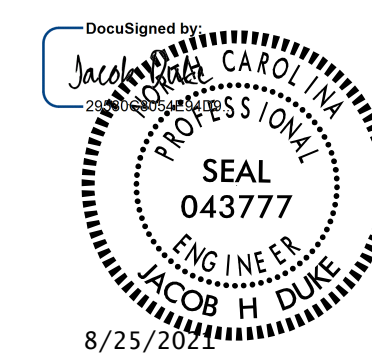
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770096



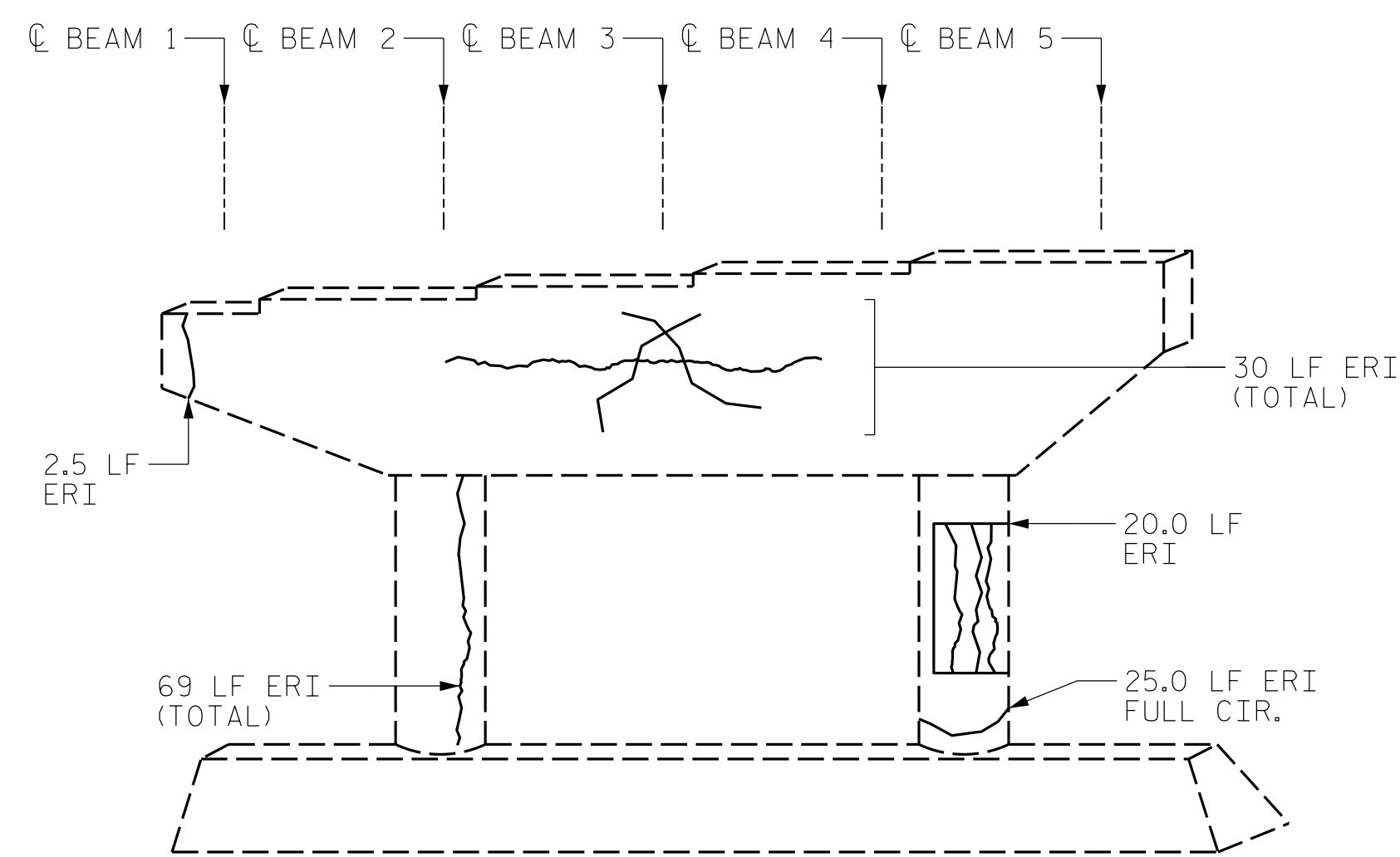
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
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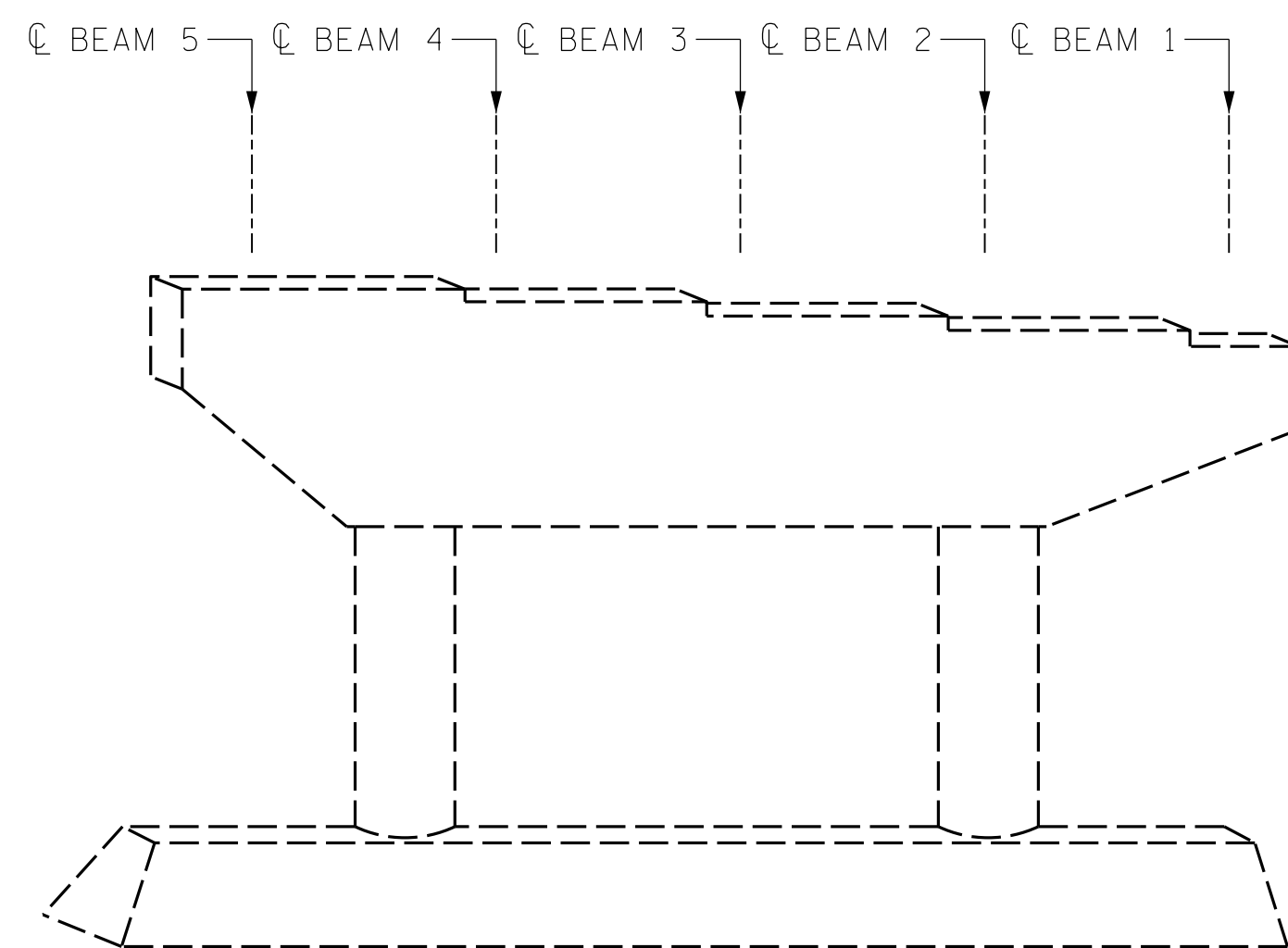
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 SIGNATURES COMPLETED

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



BENT 2

(WEST FACE)



BENT 2

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	32.5			
COLUMN/PILE	114.0			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	111.6			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

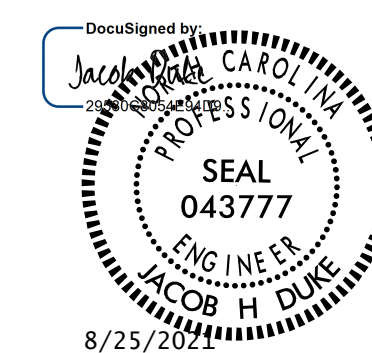
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770096



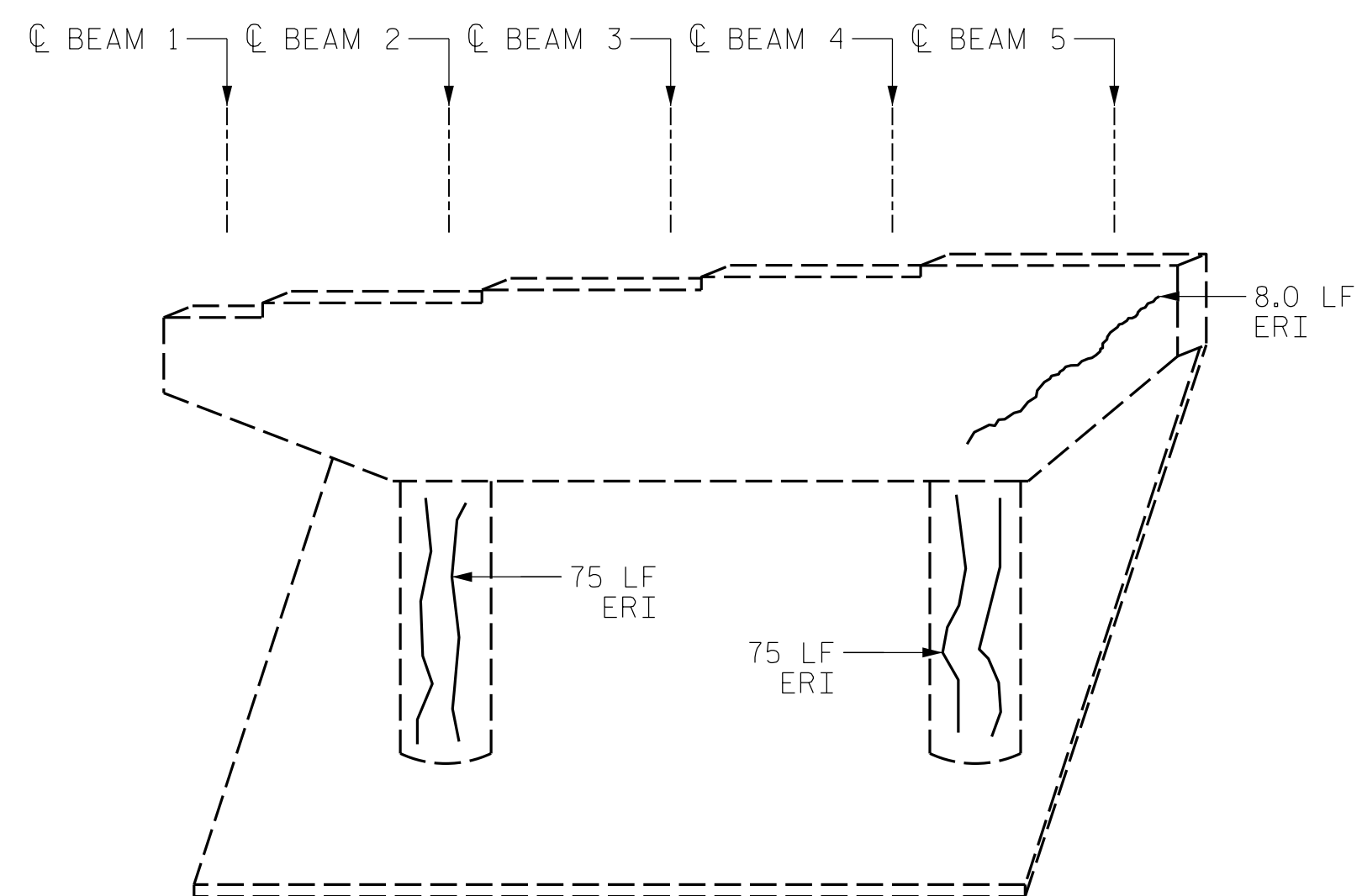
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 2

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I9399.SMU.SBR02.770096.dgn
 fflores

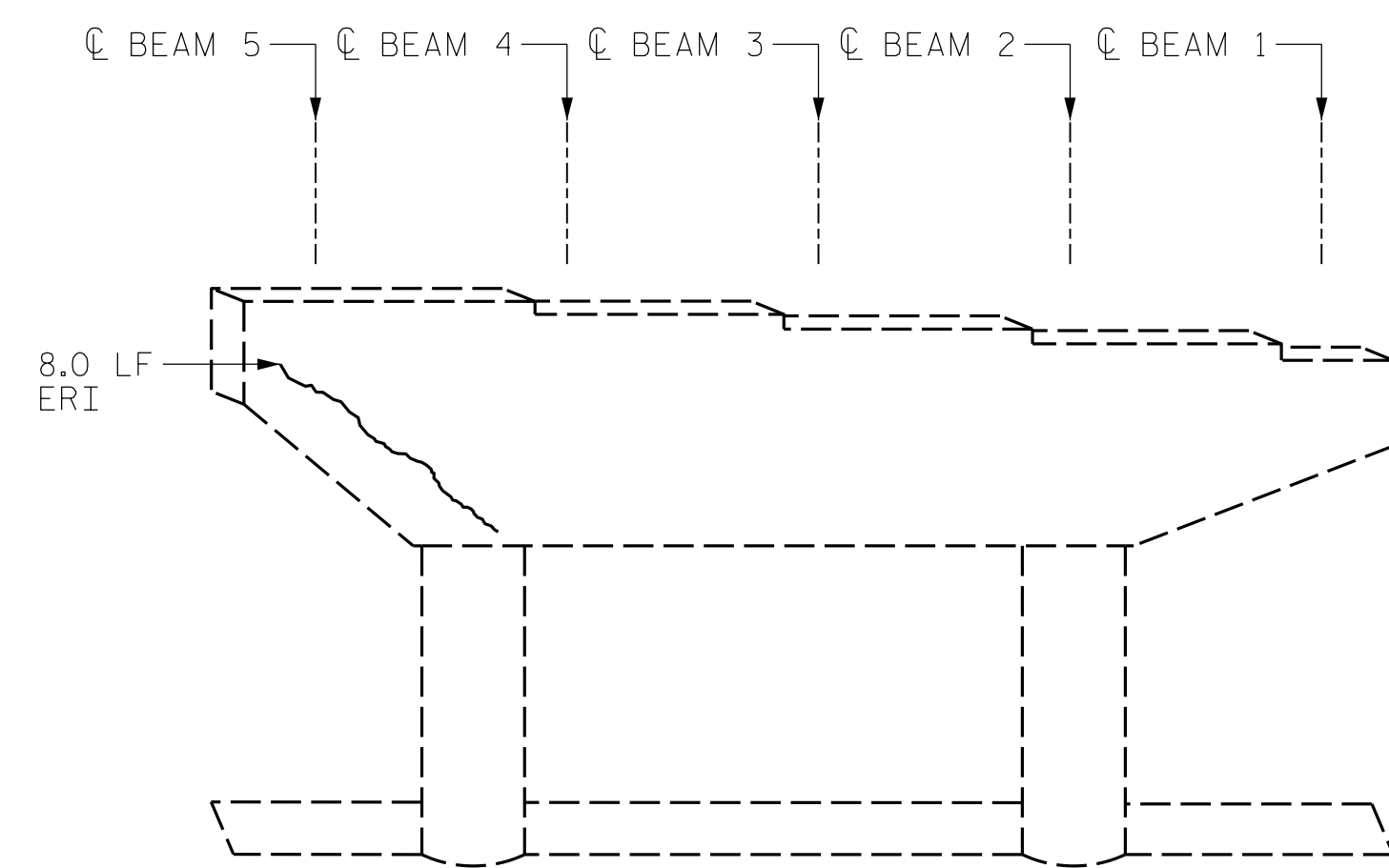
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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



BENT 3

(WEST FACE)



BENT 3

(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	16.0			
COLUMN/PILE	150.0			
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	111.6			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

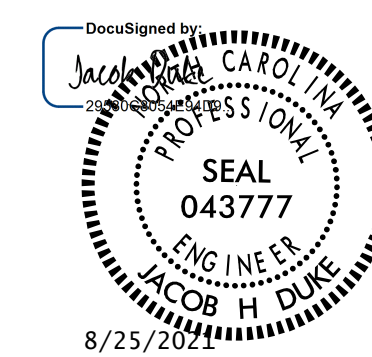
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770096



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 3

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I9399.SMU.SBR03.770096.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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

SCOPE LEGEND:

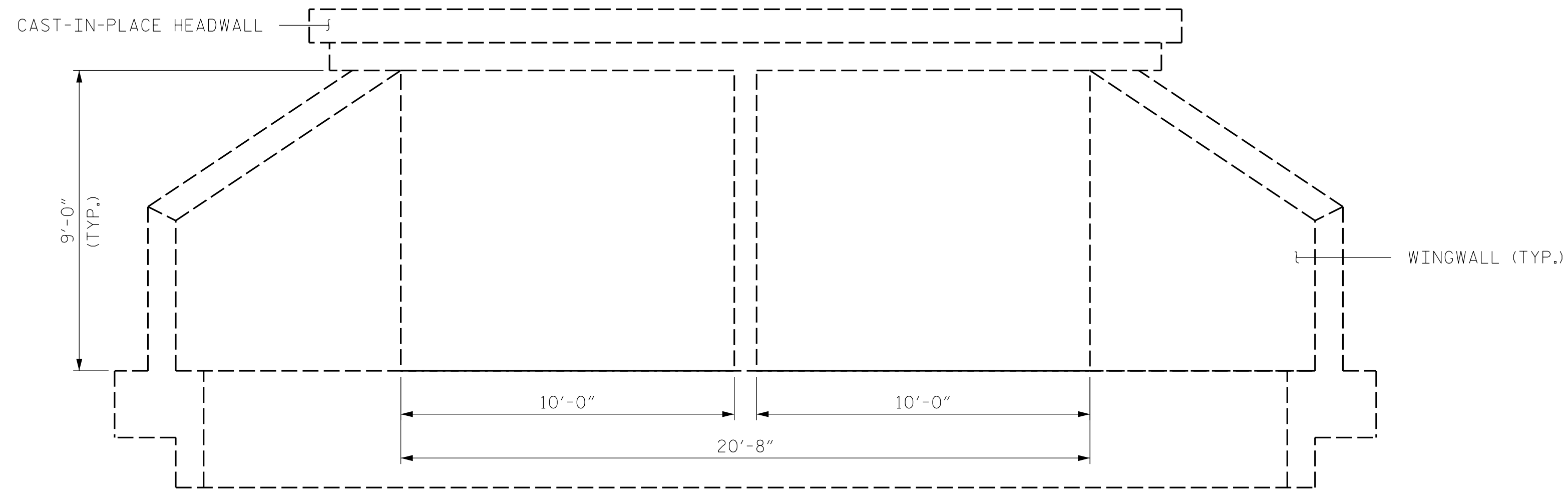
- ① CULVERT BARREL EPOXY RESIN INJECTION

NOTES:

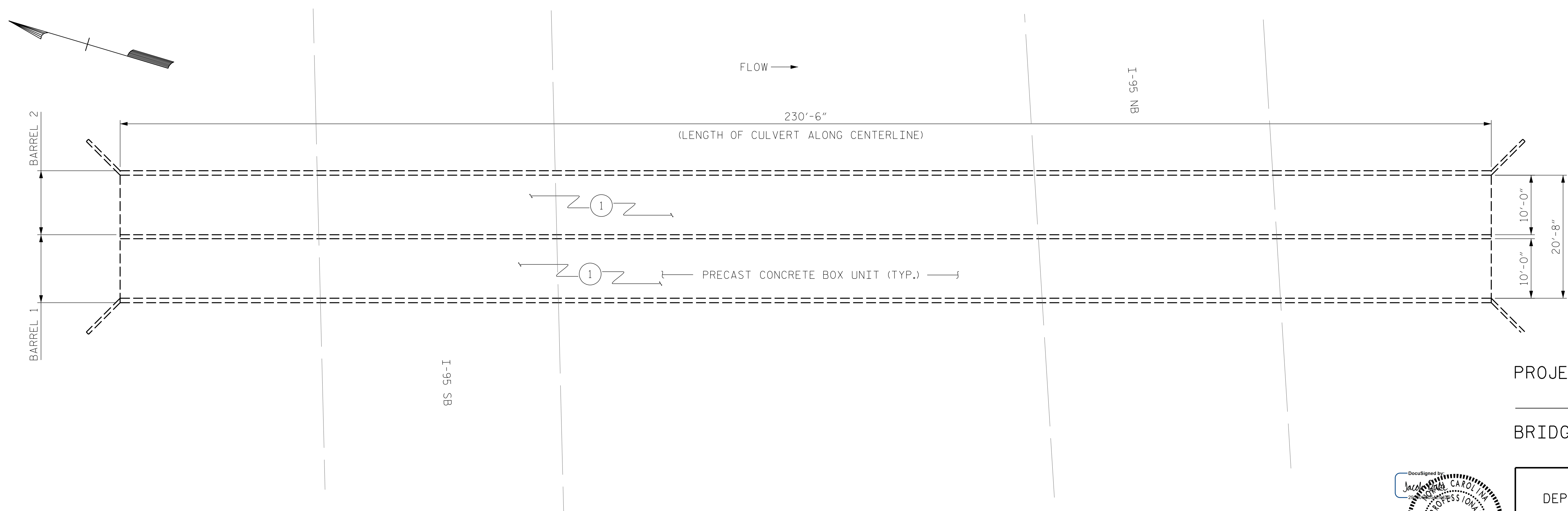
- KEEP A MINIMUM OF ONE (1) BARREL OPEN AT ALL TIMES.
- WATERTIGHT BARRIER TO BE PROVIDED BY THE CONTRACTOR TO ALLOW EMPTYING OF THE WATER FROM THE BARRELS DURING CONSTRUCTION WORK (TYPICAL AT BOTH END OF THE CULVERT). FURNISH, INSTALL, AND MAINTAIN THE BARRELS THROUGHOUT EACH PHASE OF CONSTRUCTION.
- IN THE EVENT OF AN IMPENDING STORM, CLEAR ALL BARRELS THAT HAVE BEEN BLOCKED FOR THE WORK TO PROVIDE FULL OPENING FOR THE WATERWAY AS DIRECTED BY THE ENGINEER.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____



END ELEVATION NORMAL TO SKEW

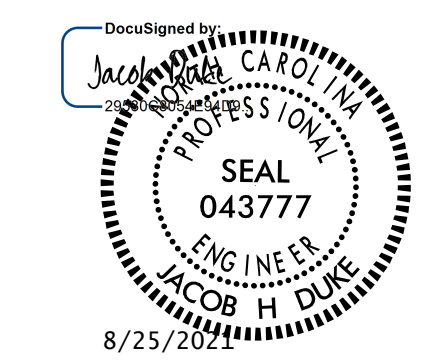


PLAN VIEW

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770098

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 11/04/2020.
 BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR DOUBLE BARREL CULVERT
 CARRYING I95 OVER
 AARON SWAMP

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8-1
1			3			TOTAL SHEETS
2			4			2

NOTES:



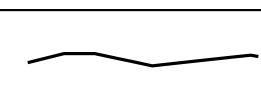
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $>= \frac{1}{16}$ " AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BARREL.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

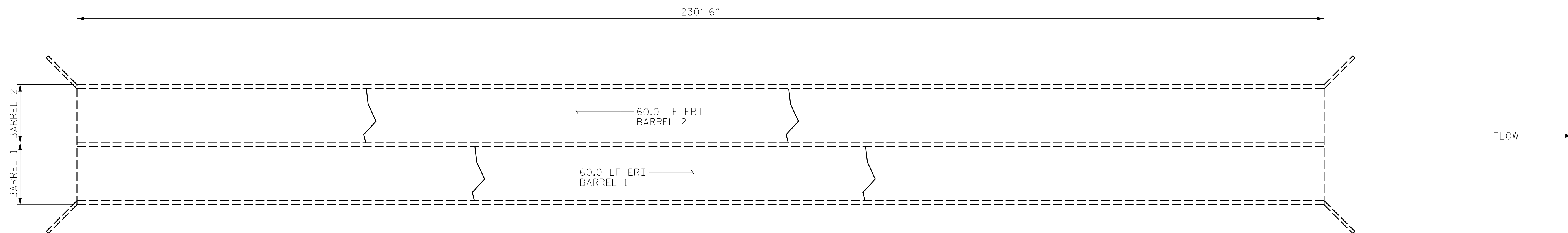
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

CRACKING DEFICIENCIES WERE NOTED ON THE TOP SLAB AND WALLS THROUGHOUT THE CULVERT.

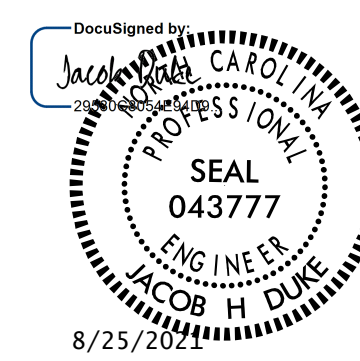
LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.	
SHOTCRETE REPAIRS					
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.	
CONCRETE REPAIRS					
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.		
EPOXY RESIN INJECTION	120.0				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770098



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CULVERT CONCRETE REPAIRS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					2

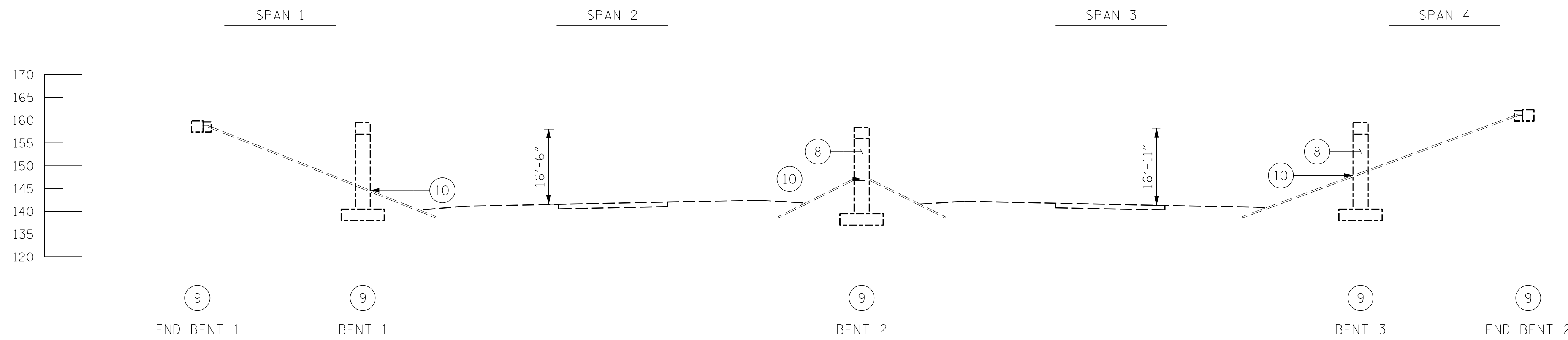
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

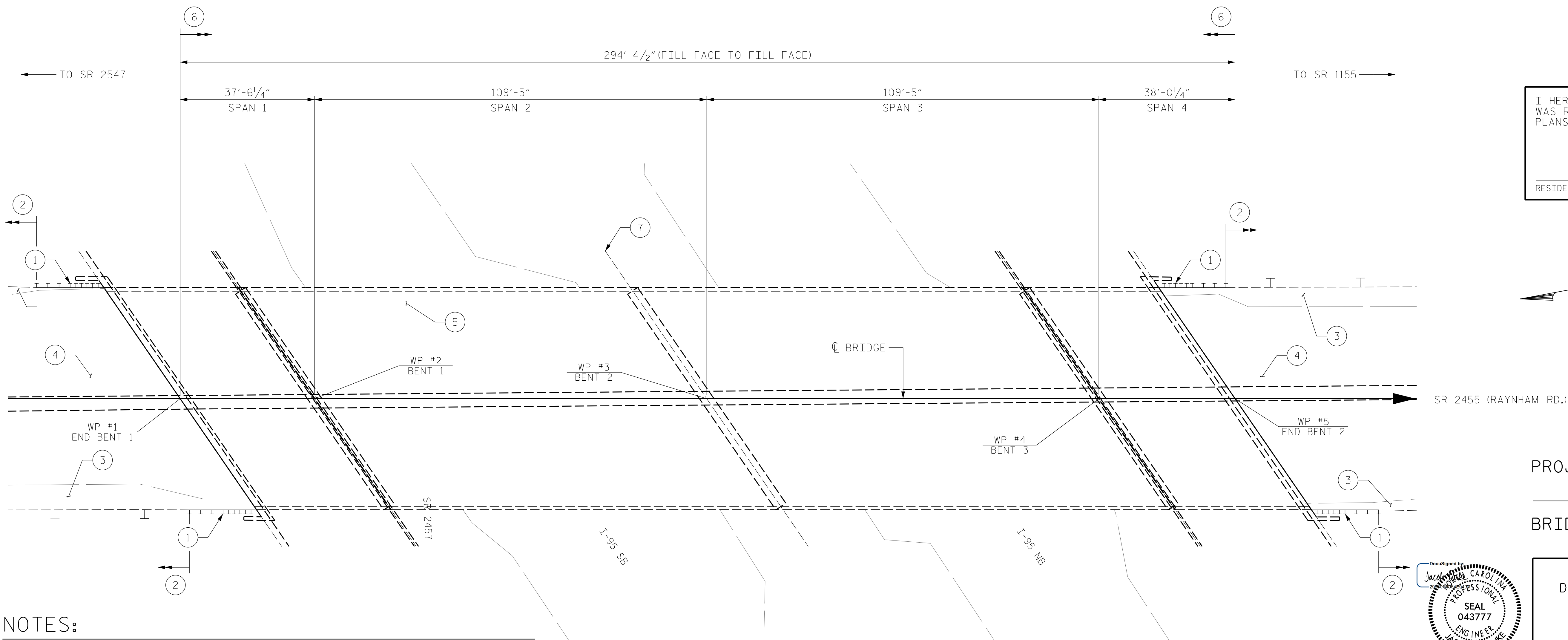
SCOPE LEGEND:

- 1 PROPOSED TYPE-III STRUCTURE ANCHOR UNITS
- 2 PROPOSED STEEL BEAM GUARDRAIL
- 3 CLEAR SHOULDERS OF DEBRIS AND VEGETATION
- 4 APPROACH ROADWAY MILLING AND RESURFACING
- 5 CONCRETE DECK REPAIRS
- 6 EPOXY OVERLAY
- 7 JOINT REPLACEMENT
- 8 SUBSTRUCTURE CONCRETE REPAIRS
- 9 SUBSTRUCTURE EPOXY RESIN INJECTION
- 10 SILICONE JOINT SEAL REPLACEMENT AT COLUMN BASES

NOTE: SEE SHEET S12 FOR SLOPE PROTECTION JOINT REPAIRS.



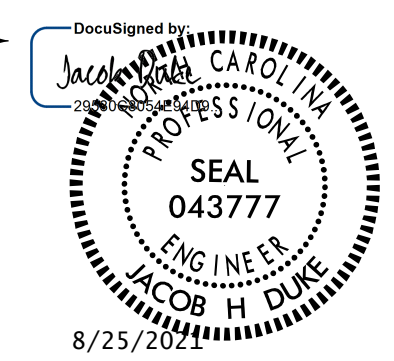
SECTION ALONG ROADWAY



I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____

PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770104



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 2455
 OVER I-95

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 11/04/2019.
 BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

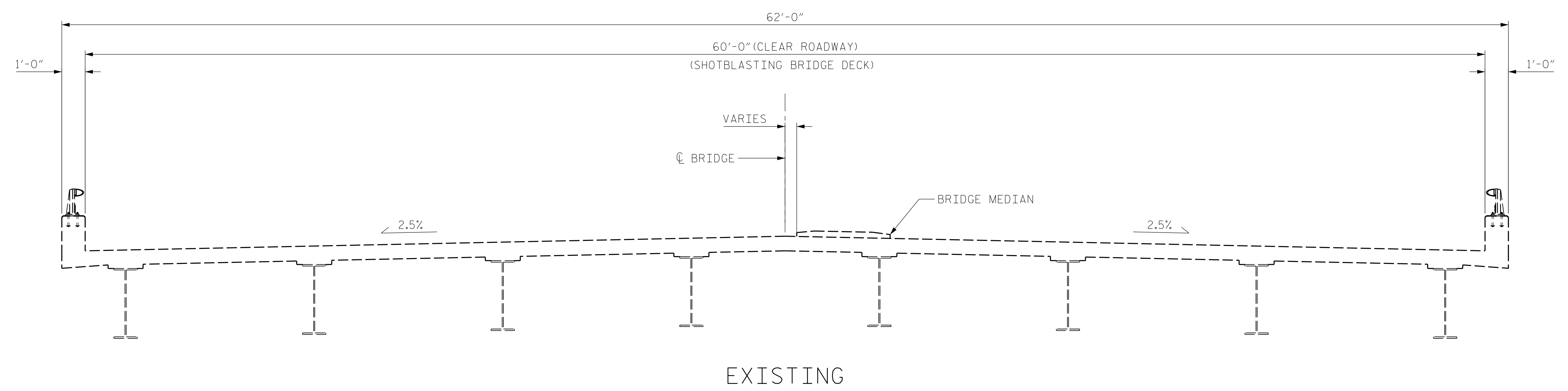
PLAN

DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

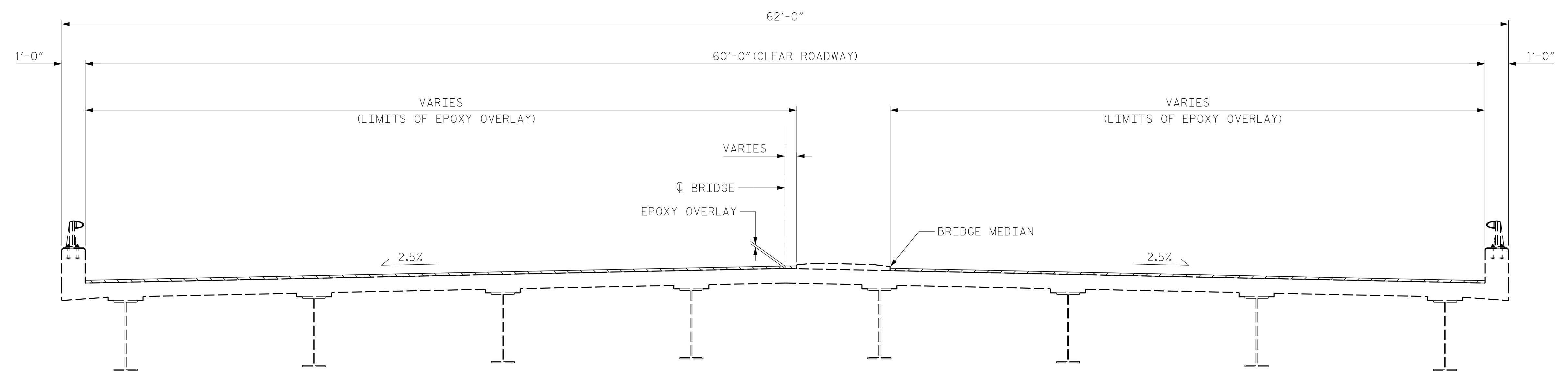
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

KCA
 KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

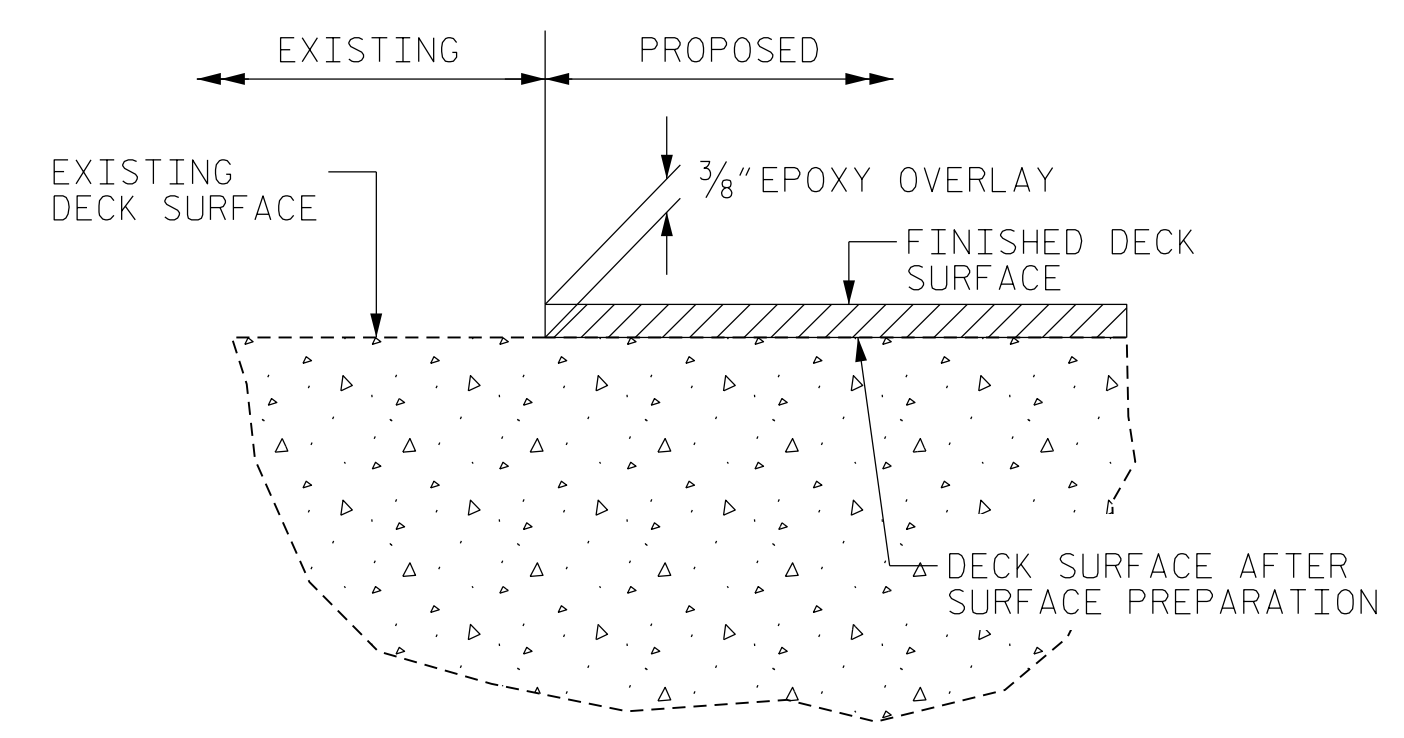
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			9
2			4			10



EXISTING



PROPOSED

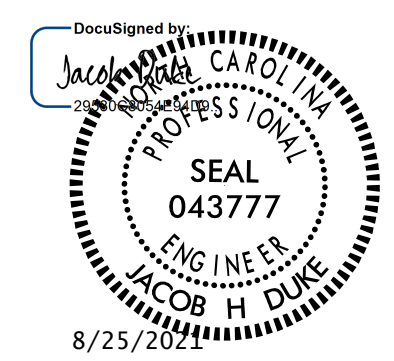


DETAIL FOR EPOXY OVERLAY

NOTES:

1. LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
2. SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY AND SURFACE PREPARATION.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770104



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION

DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.TS01.770104.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

KCA
 KISINGER CAMPO
 & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

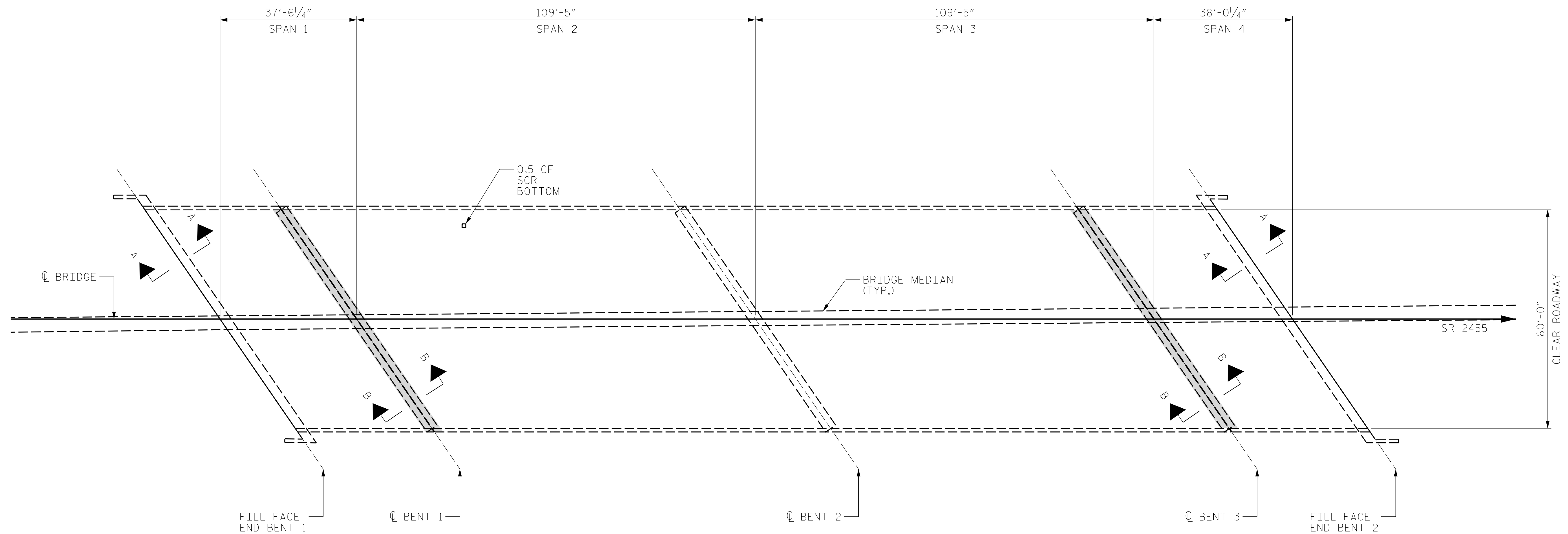
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			10
2			4			

S9-2

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	0.0 SF		0.0 SF		0.0 SF		0.0 SF	
EPOXY OVERLAY SYSTEM II	2102 SF		6128 SF		6128 SF		2130 SF	
SHOTCRETE REPAIR AREA (SCR)	-- CF		0.5 CF		-- CF		-- CF	



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770104

NOTES:

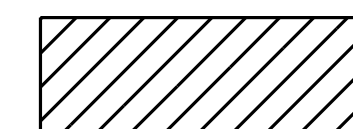
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

EPOXY OVERLAY LIMITS EXCLUDE THE BRIDGE MEDIAN, FOR LIMITS, SEE TYPICAL SECTION SHEET

EPOXY OVERLAY

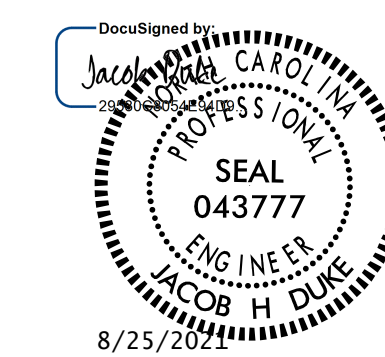
BRIDGE JOINT DEMOLITION

SHOTCRETE REPAIR AREA (SCR)



DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I939.SMU.DSR01.770104.dgn
 fflores



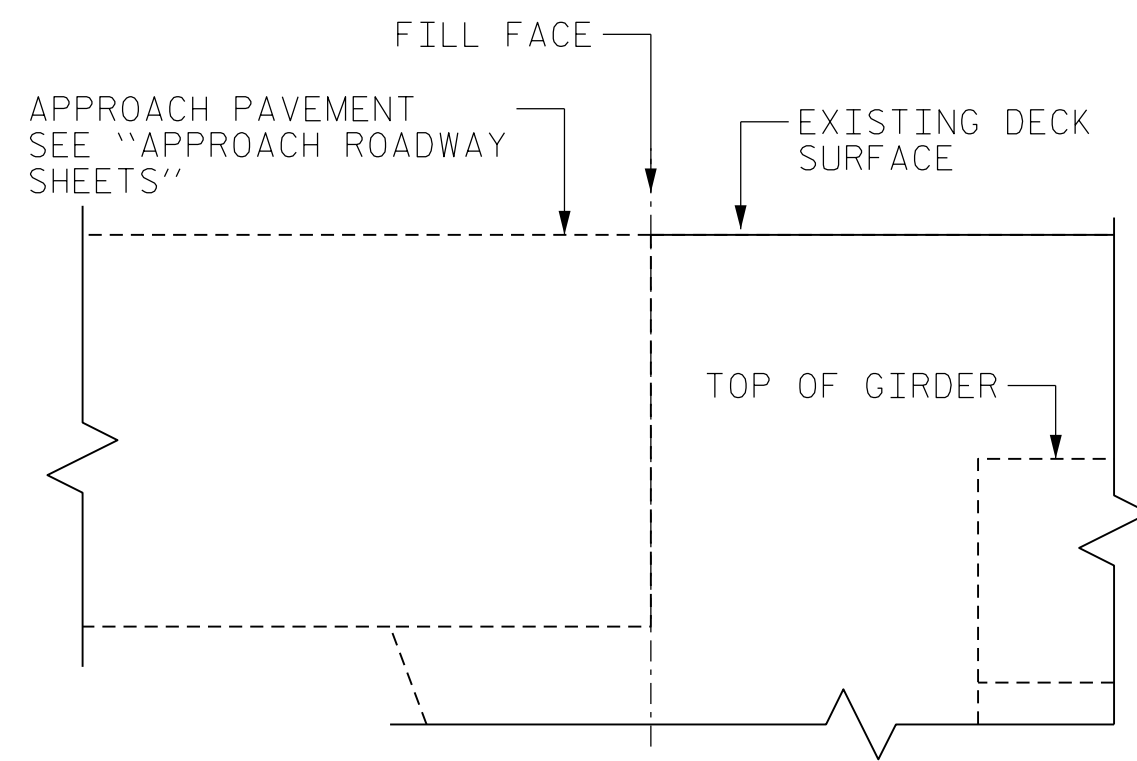
KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

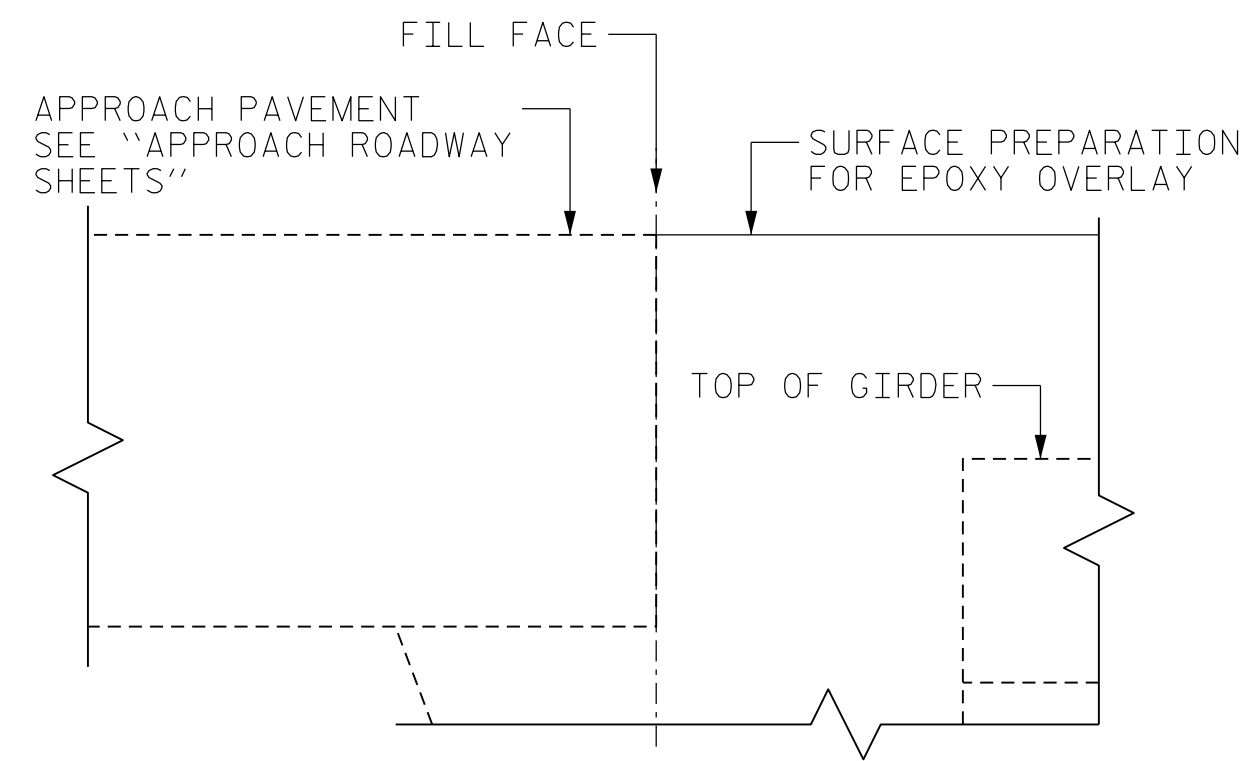
PLAN OF SPANS

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

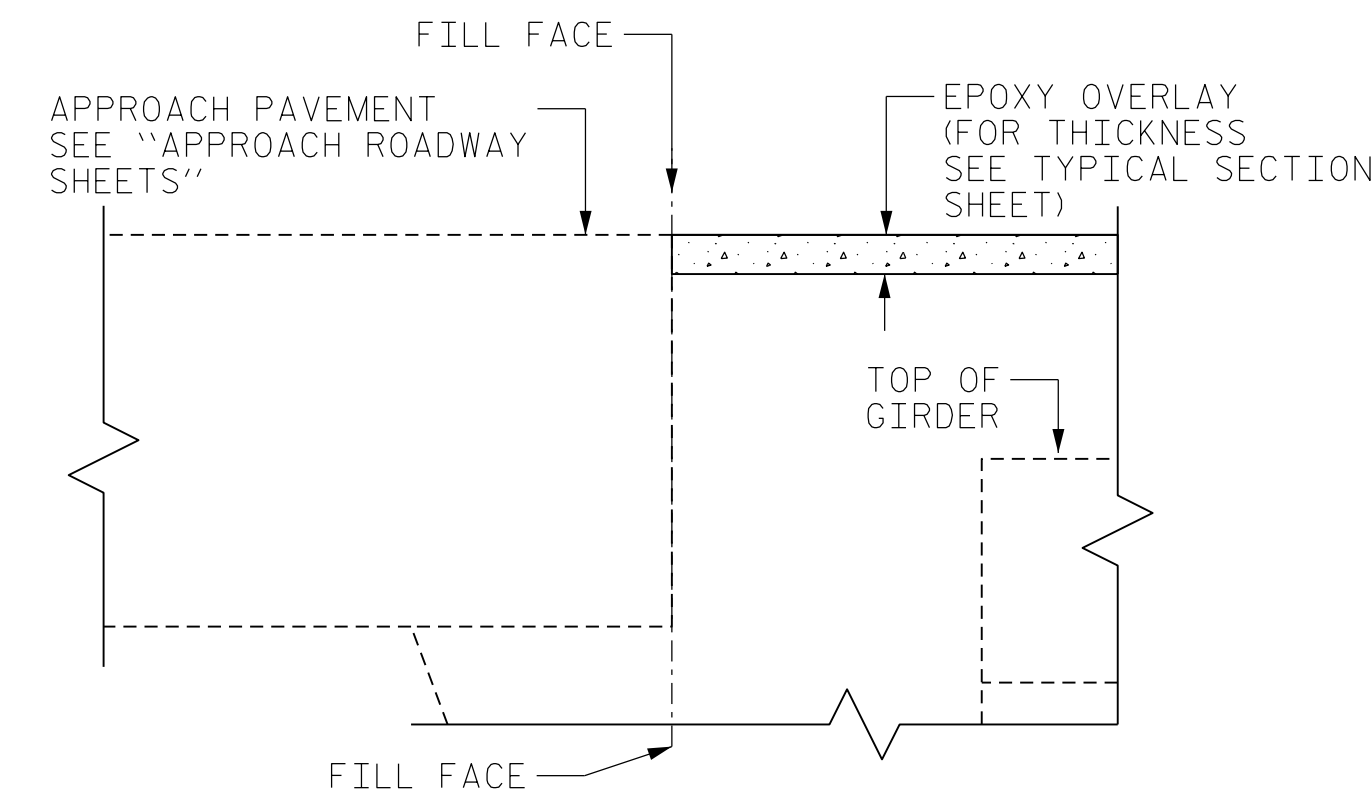
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-3
2			4			TOTAL SHEETS 10



SECTION A-A
(EXISTING DETAIL, NO JOINT)



SECTION A-A
(MIN. EXISTING DECK DEMOLITION)



SECTION A-A
(PROPOSED DETAIL, NO JOINT)

NOTES:

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SHALL BE WATER TIGHT.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

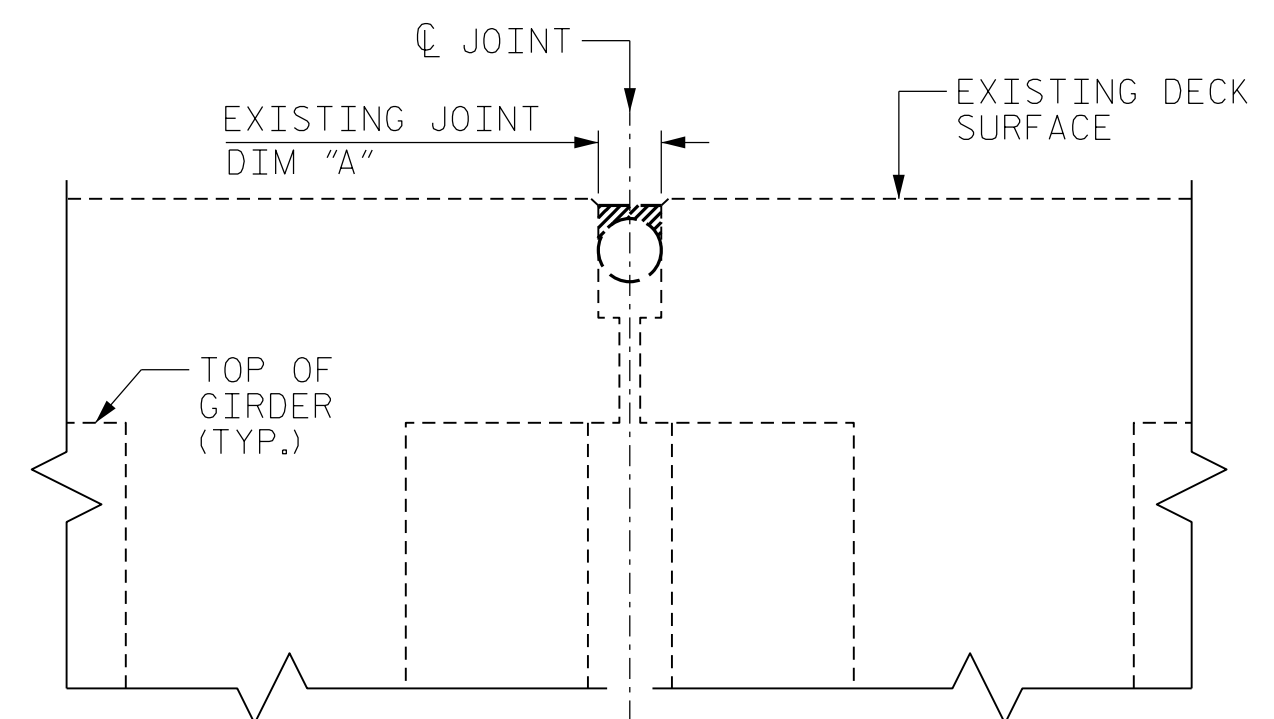
FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

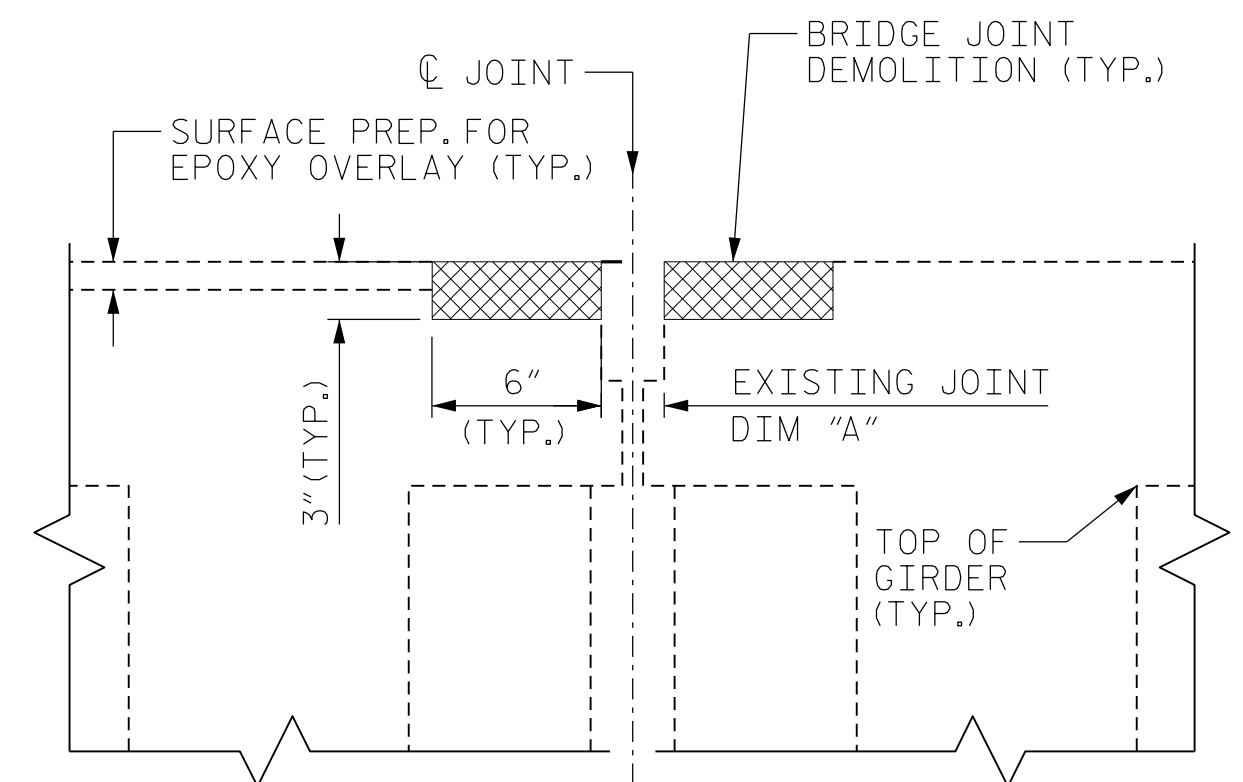
FOR CONCRETE DECK REPAIR FOR EPOXY OVERLAY, SEE SPECIAL PROVISIONS.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOPS SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

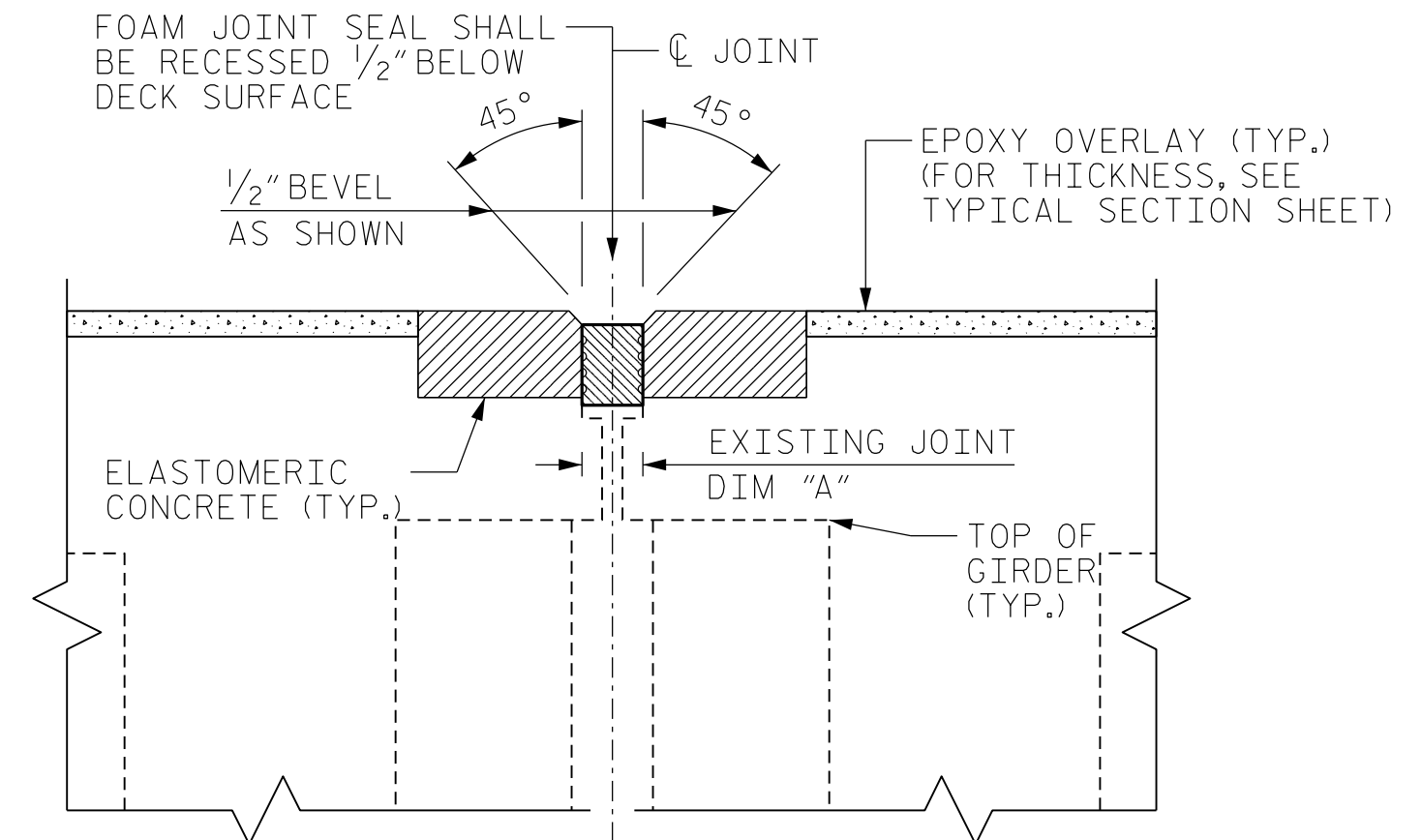
DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.



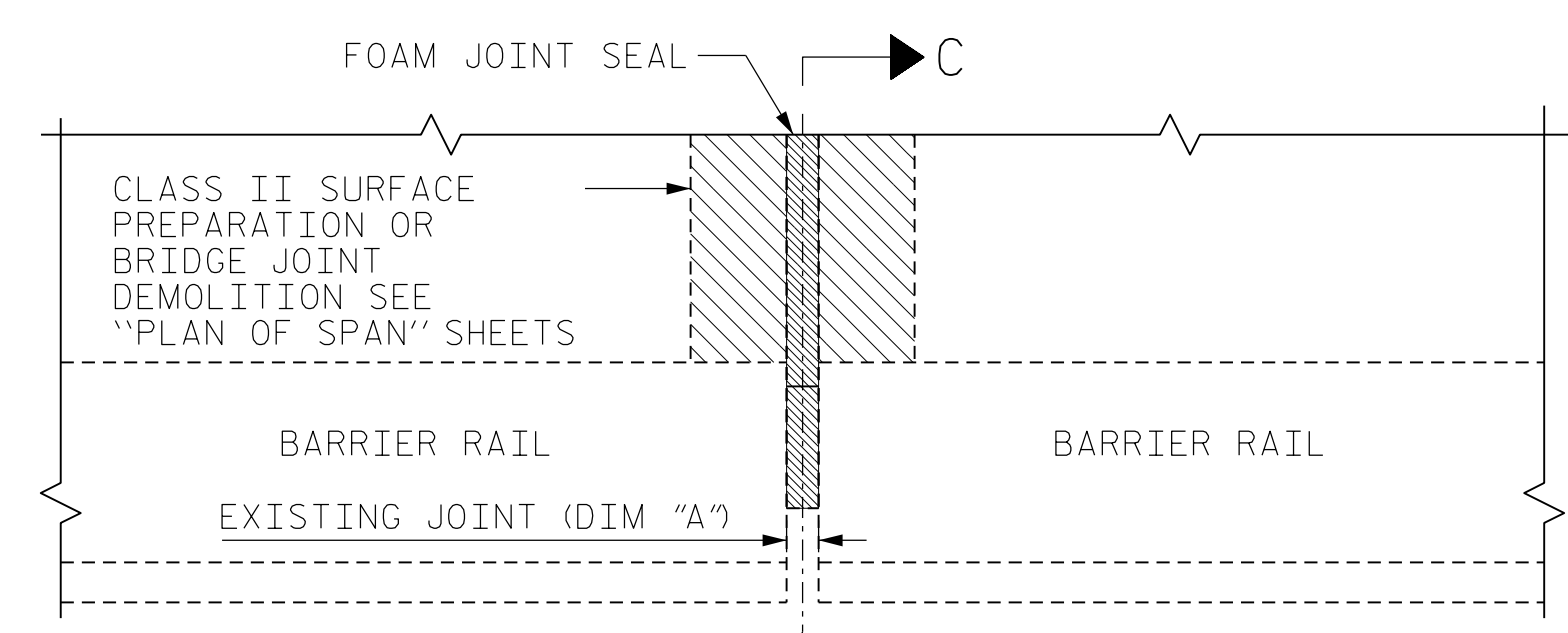
SECTION B-B
(EXISTING JOINT)



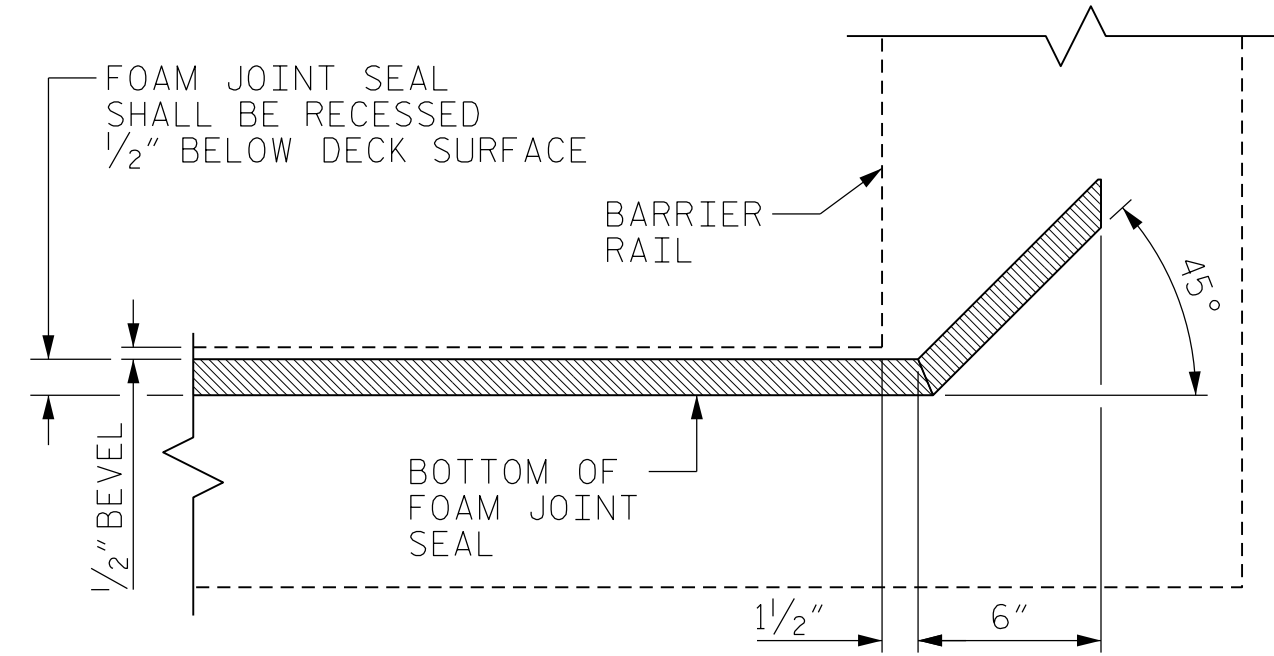
SECTION B-B
(SURFACE PREPERATION AND JOINT DEMOLITION)



SECTION B-B
(PROPOSED FOAM JOINT SEAL)



PLAN AT BARRIER
(PROPOSED JOINT SEAL)



SECTION C-C
(PROPOSED JOINT SEAL)

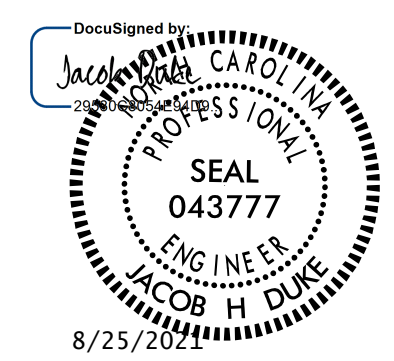
ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	N/A	
BENT 1	18.3	
BENT 2	N/A	
BENT 3	18.3	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	N/A	
BENT 1	73	
BENT 2	N/A	
BENT 3	73	

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	150	

TABLE 1	
Table Date 04-2021	
BENT/ JOINTS	DIM "A" @ 71°F
END BENT 1	N/A
1	1 3/4"
2	N/A
3	1 1/2"
END BENT 2	N/A

PROJECT NO. I-5939
ROBESON COUNTY
BRIDGE NO. 770104



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

SHEET NO.	
S9-4	TOTAL SHEETS
	10

DRAWN BY : DIEGO A. AGUIRRE DATE : 06/2021
CHECKED BY : FIDEL L. FLORES DATE : 06/2021
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

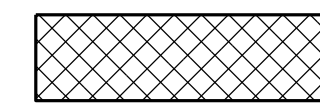
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE

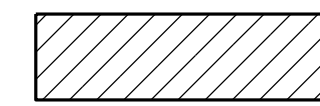
	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	4 EA	
GUARDRAIL REMOVAL	475 LF	
PROPOSED GUARDRAIL	400 LF	
INCIDENTAL MILLING	556 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	50 TON	
ASPHALT BINDER FOR PLANT MIX	3 TON	
POLYUREA PAVEMENT MARKING LINES (4", 30MILS)	1775 LF	

NOTES:

- INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.
- FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
- FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.



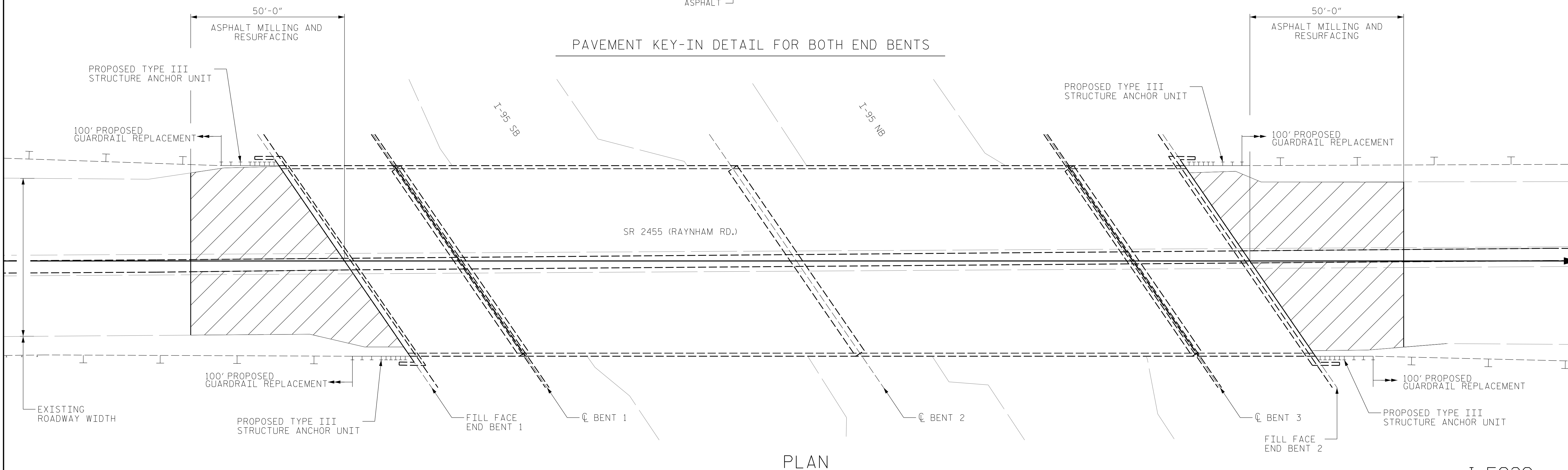
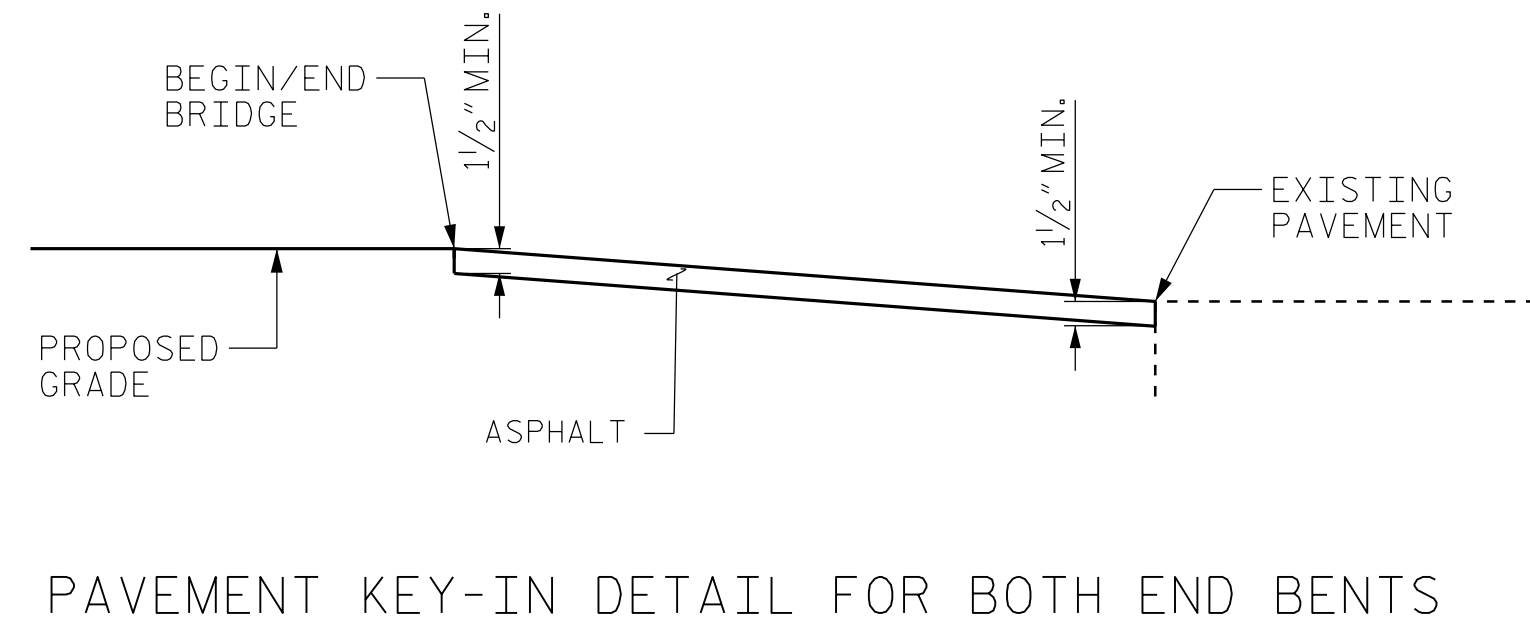
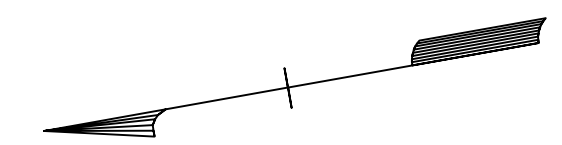
INCIDENTAL MILLING



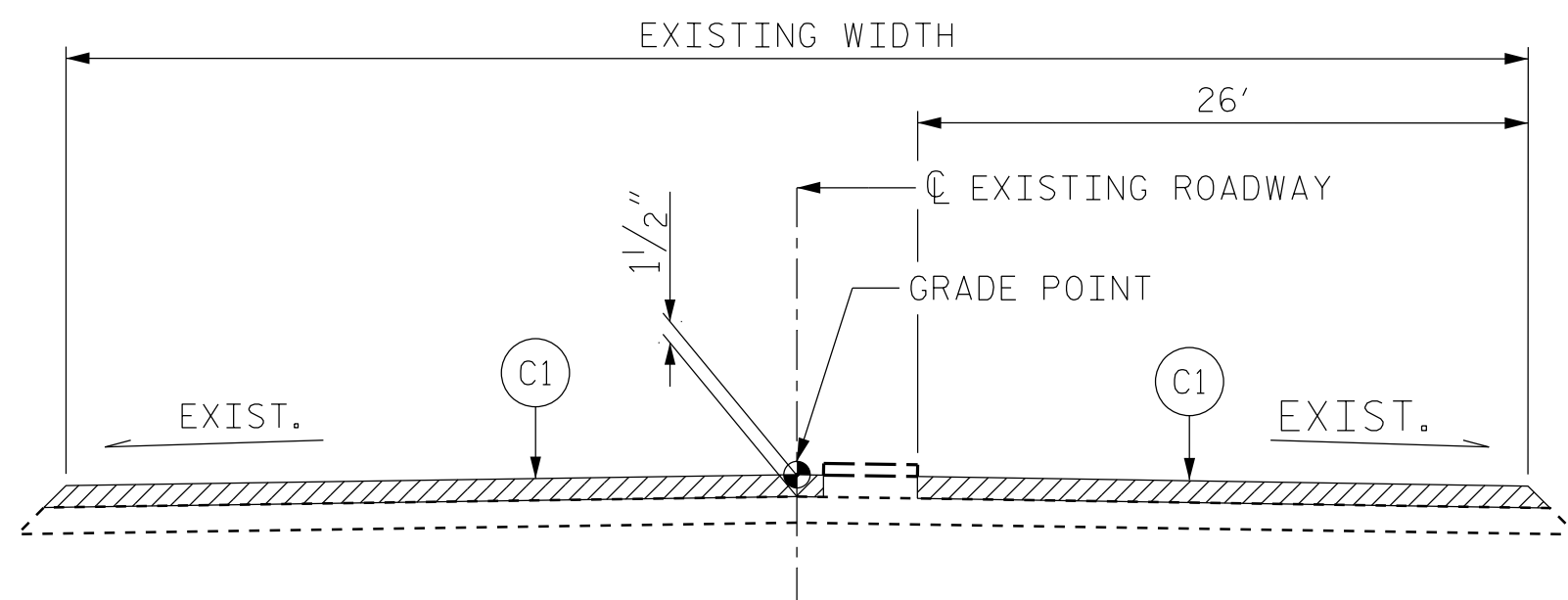
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

C1

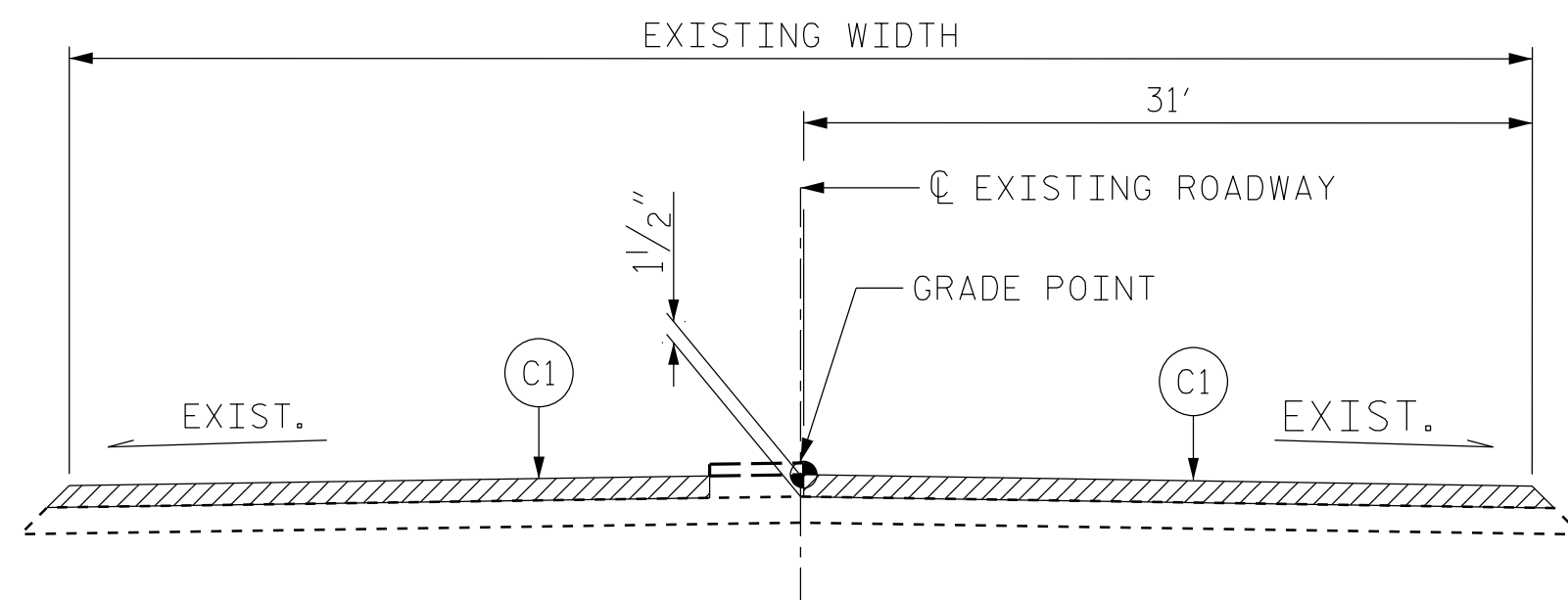
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PLAN



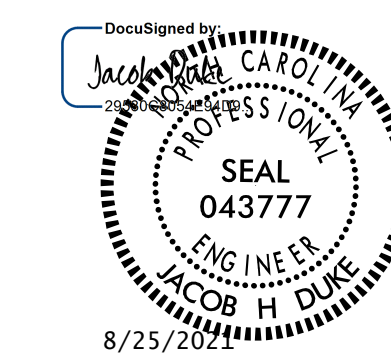
ROADWAY SECTION
BEGIN BRIDGE



ROADWAY SECTION
END BRIDGE

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770104

SHEET 1 OF 2



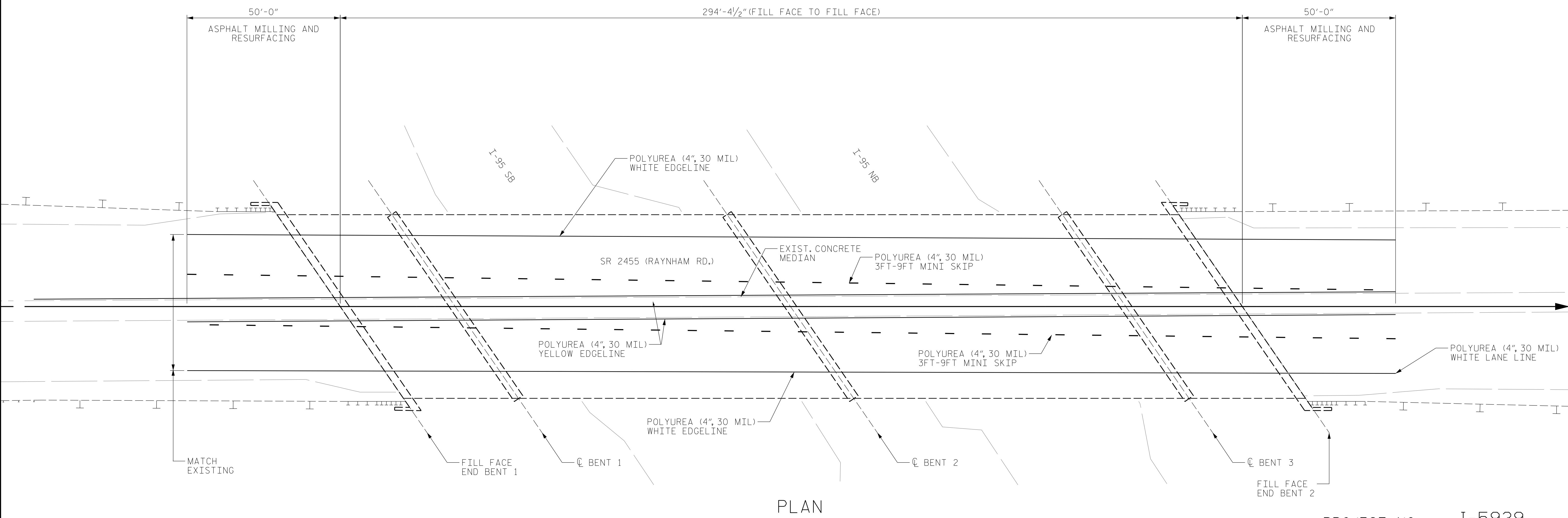
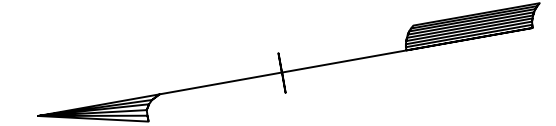
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL

DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I5939.SMU.AR01.770104.dgn
 ffloras

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 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S9-5
2			4			TOTAL SHEETS 10



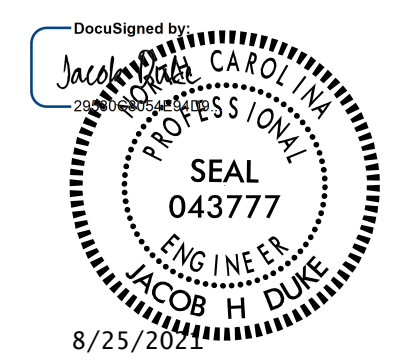
PLAN

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770104

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH ROADWAY
 PAVEMENT MARKINGS



NOTES:
 FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

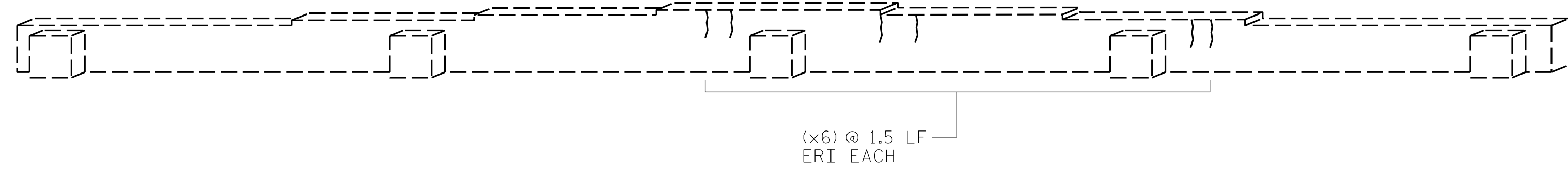
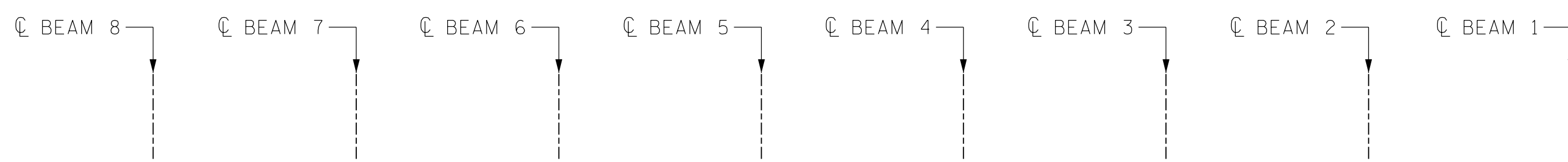
DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I939.SMU.AR02.770104.dgn
 fflores

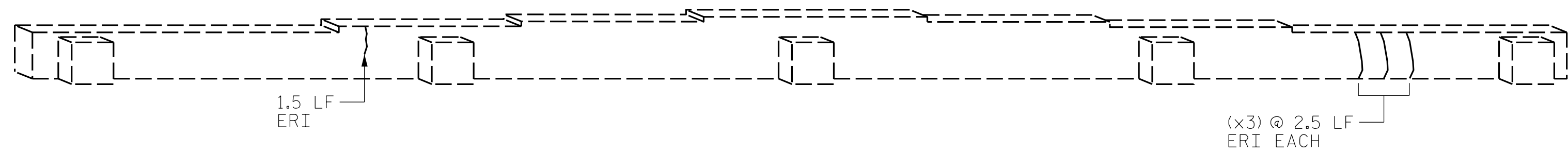
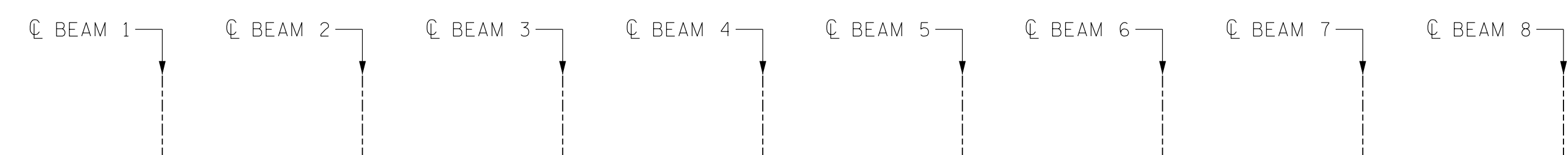
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			10
2			4			

S9-6



END BENT 1
(EAST FACE)



END BENT 2
(WEST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	18.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	412.5			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

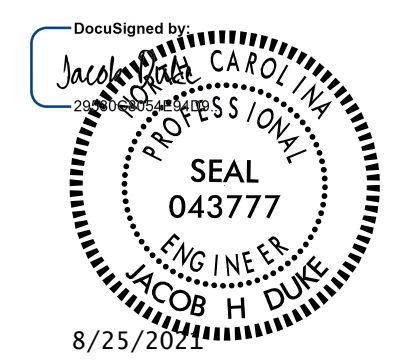
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY COATINGS. DO NOT COAT UNDER BEARING AREAS.

FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

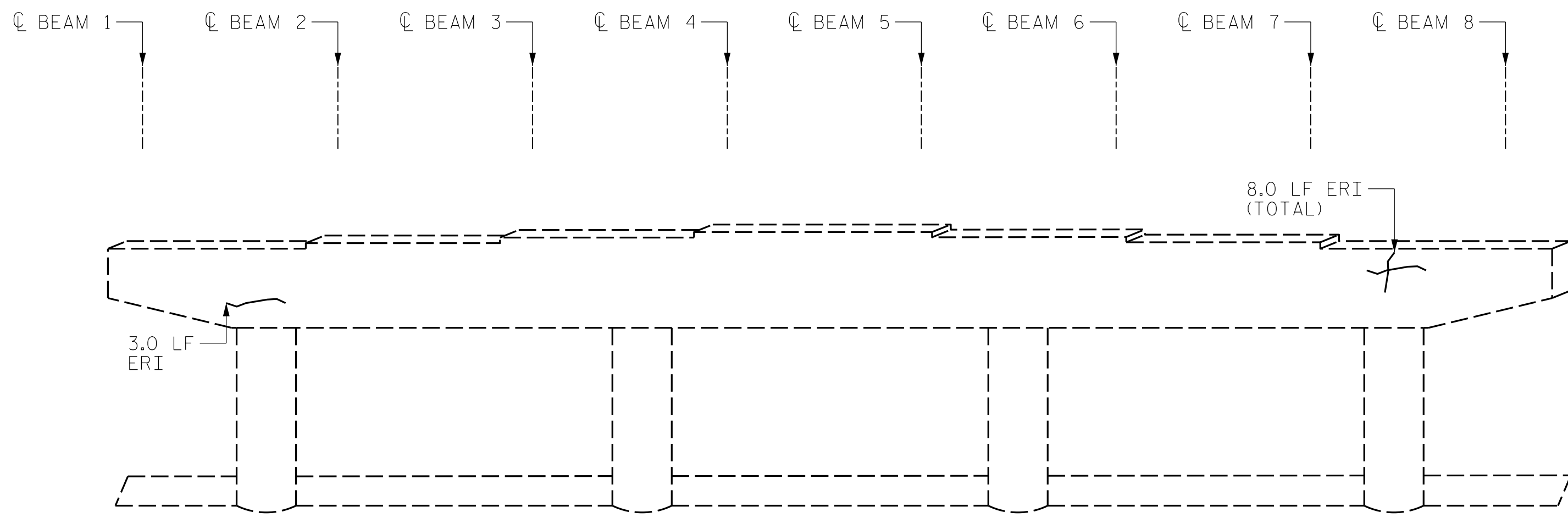
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770104



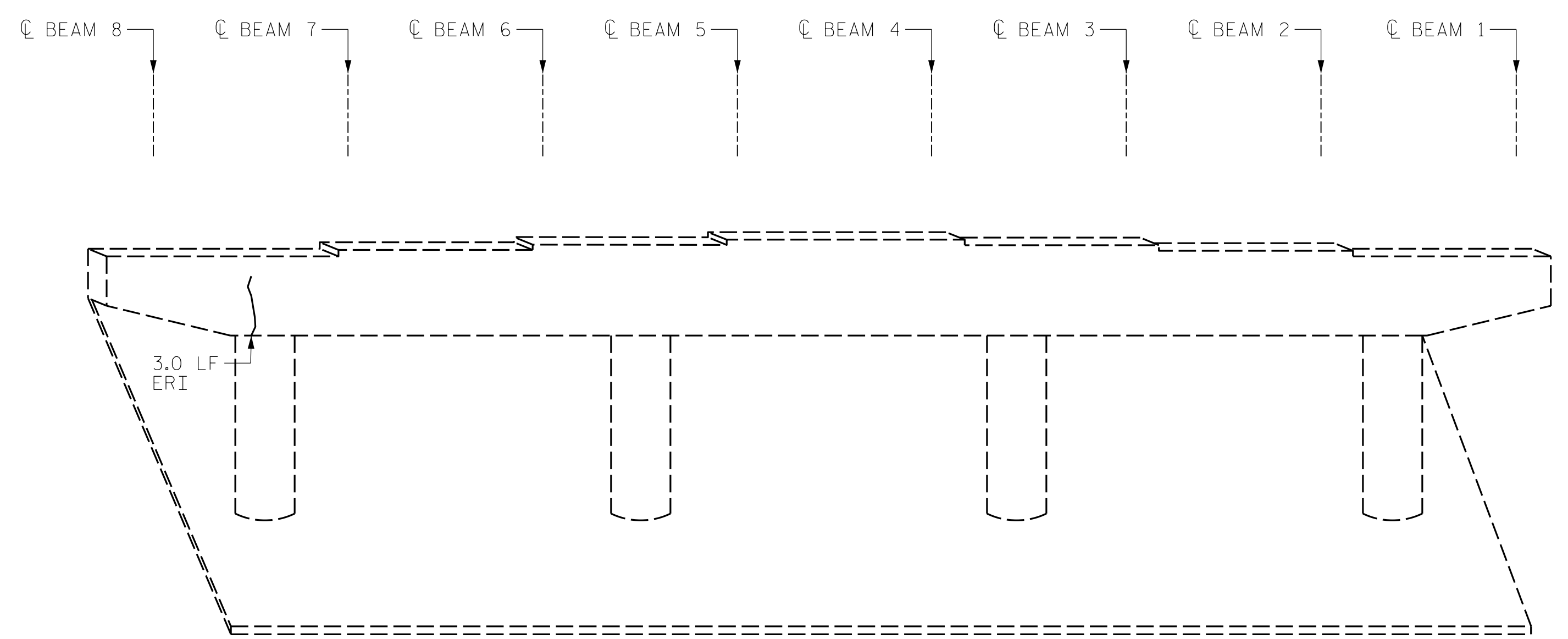
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
END BENTS 1 & 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S9-7
					TOTAL SHEETS 10

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



BENT 1
(WEST FACE)



BENT 1
(EAST FACE)

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL				
COLUMN/PILE				
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP				
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	14.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	293.2			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS $\geq 1/16"$ AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

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FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

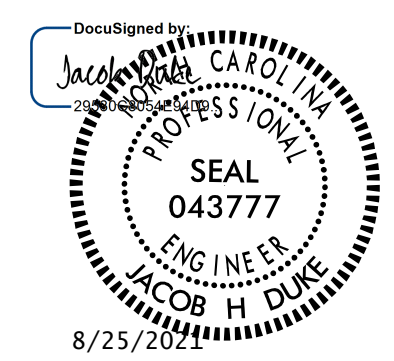
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FOR EPOXY COATING, SEE SPECIAL PROVISION AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770104



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

8/25/2021
 I939.SMU.SBR01.770104.dgn
 fflores

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 SIGNATURES COMPLETED

KCA
 KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			9-8
2			4			10