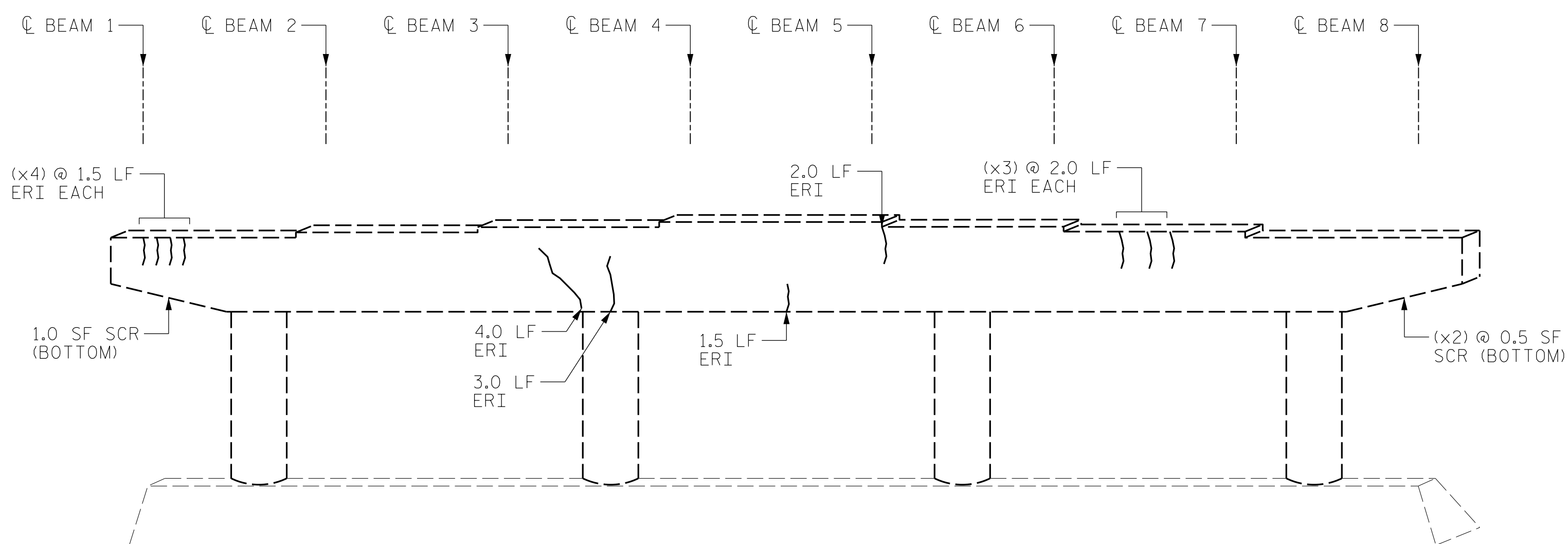


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for the convenience of the user
and is Not a Certified Document –**

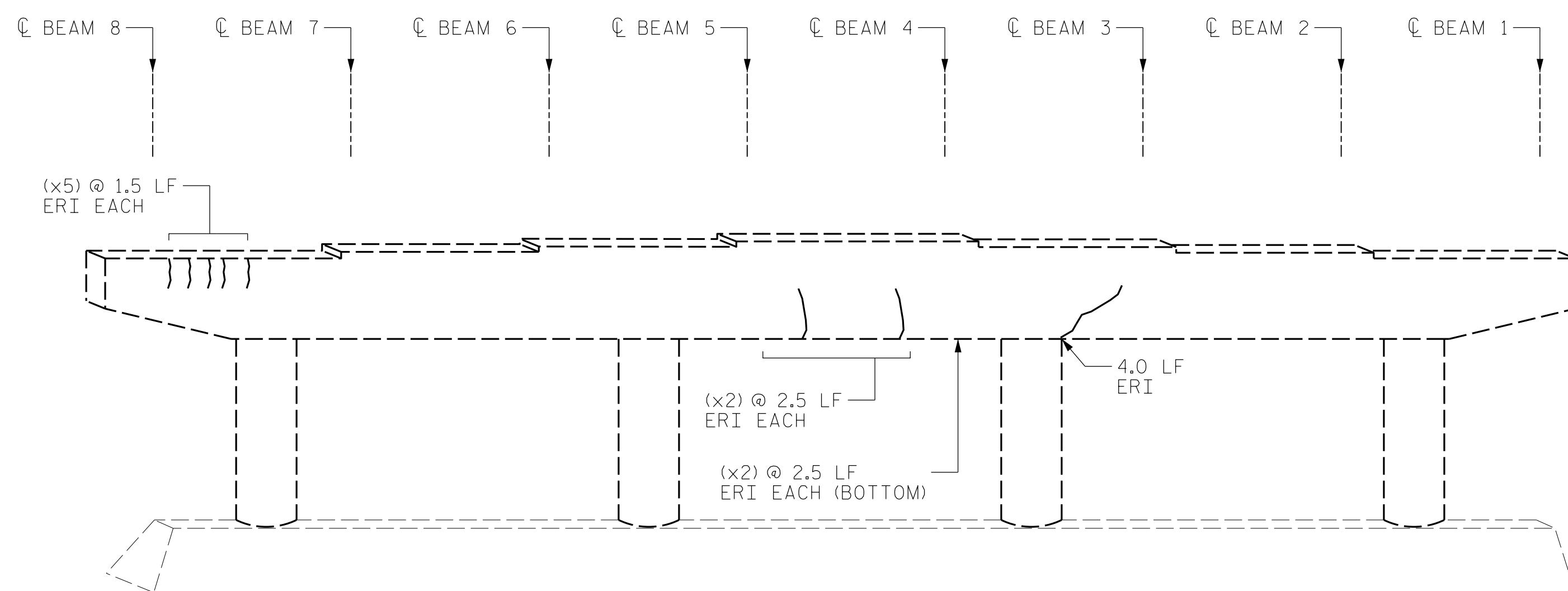
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and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**



BENT 2

(WEST FACE)



BENT 2

(EAST FACE)

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		2.0	1.0		
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		41.5			
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.

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.

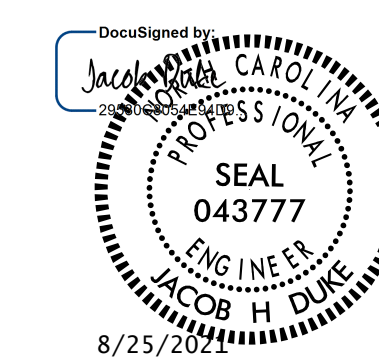
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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



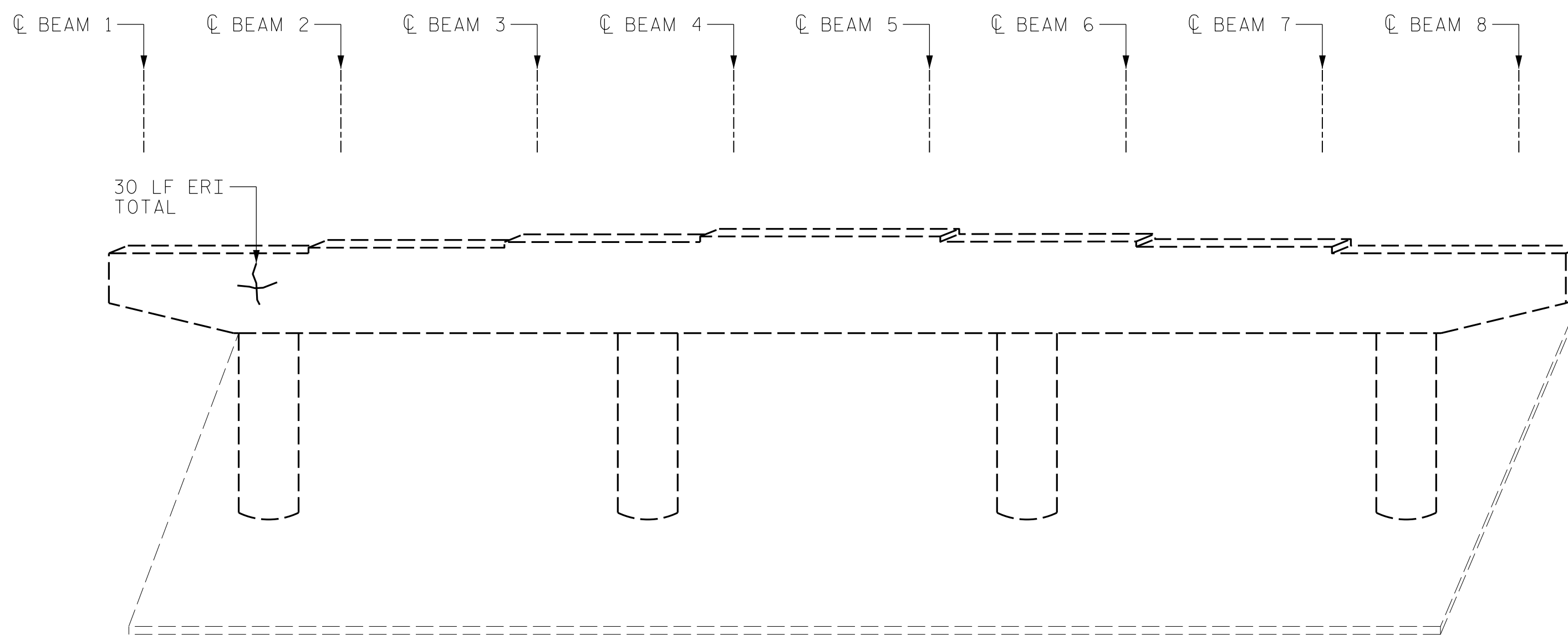
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 2

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.SBR02.770104.dgn
 fflores

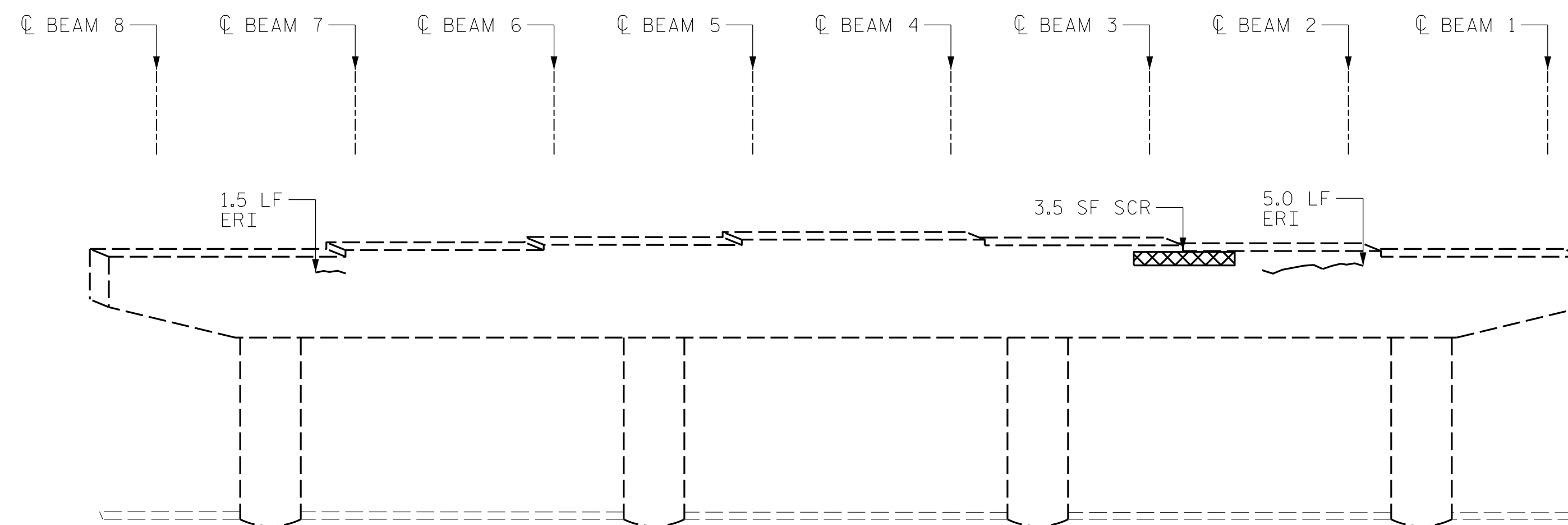
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 SIGNATURES COMPLETED

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



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	3.5	2.8		
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	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.

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.

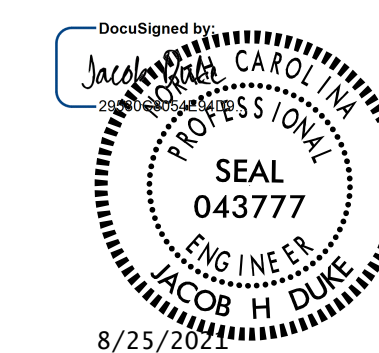
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TOP OF THE CAPS SHOULD BE CLEAN AND CLEAR OF ALL DEBRIS PRIOR TO THE APPLICATION OF THE EPOXY COATING.

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



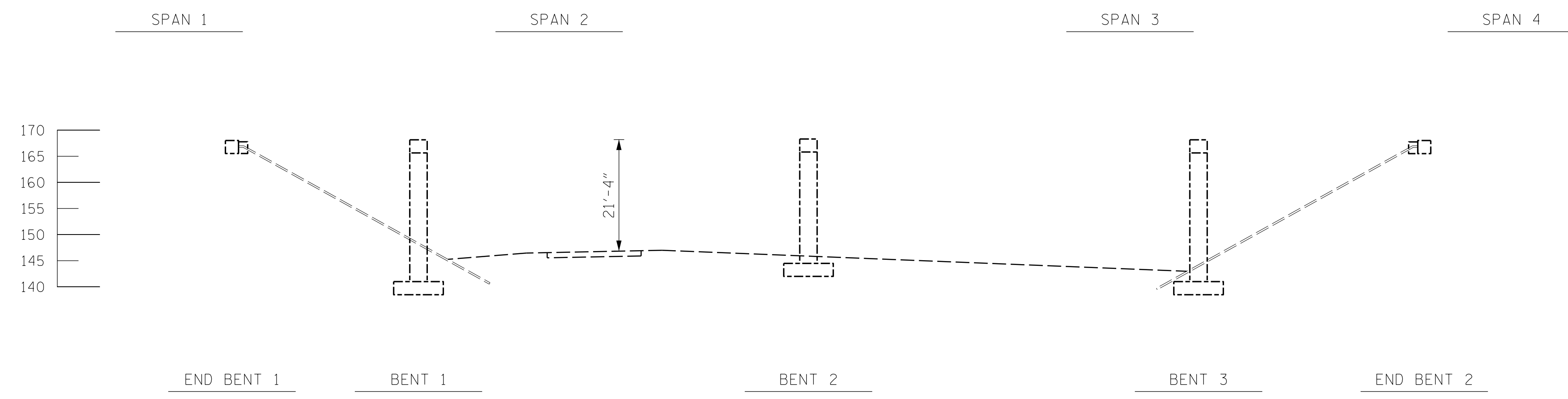
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 3

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.SBR03.770104.dgn
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2			4			10

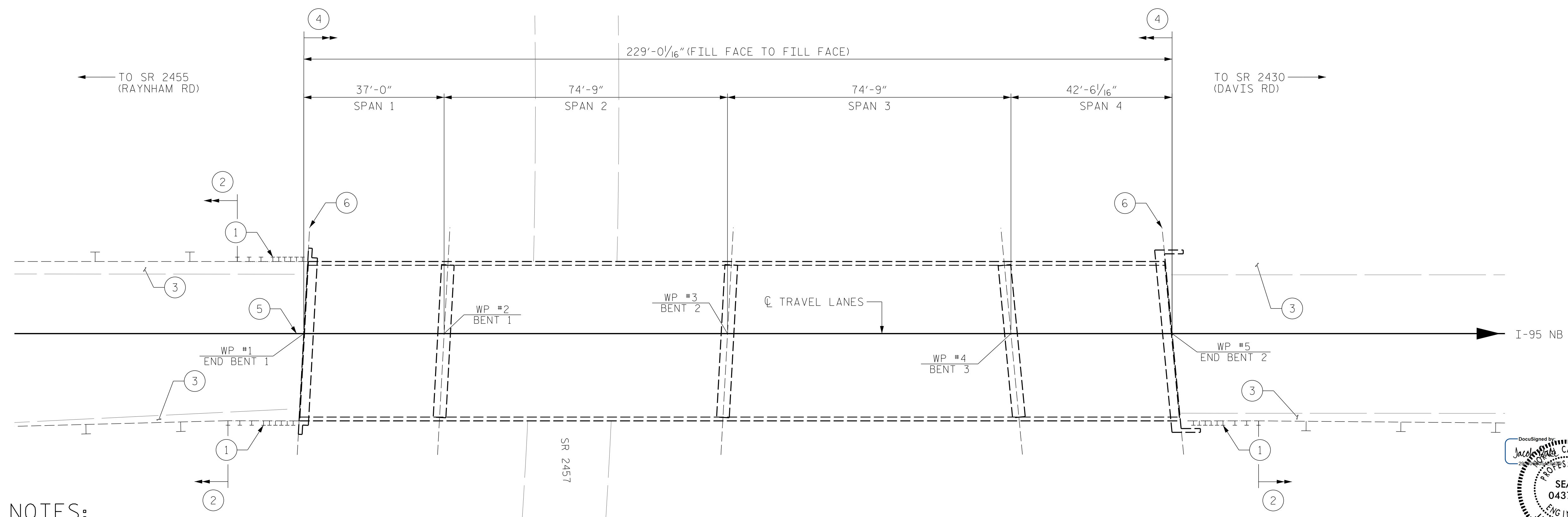


SECTION ALONG ROADWAY

- SCOPE LEGEND:
- 1 PROPOSED TYPE-III STRUCTURE ANCHOR UNITS
 - 2 PROPOSED STEEL BEAM GUARDRAIL
 - 3 CLEAR SHOULDERS OF DEBRIS AND VEGETATION
 - 4 SILANE DECK TREATMENT
 - 5 CONCRETE DECK REPAIRS
 - 6 JOINT REPLACEMENT

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

RESIDENT ENGINEER _____ DATE _____



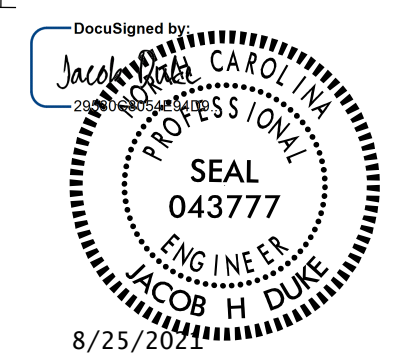
PLAN

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.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770106



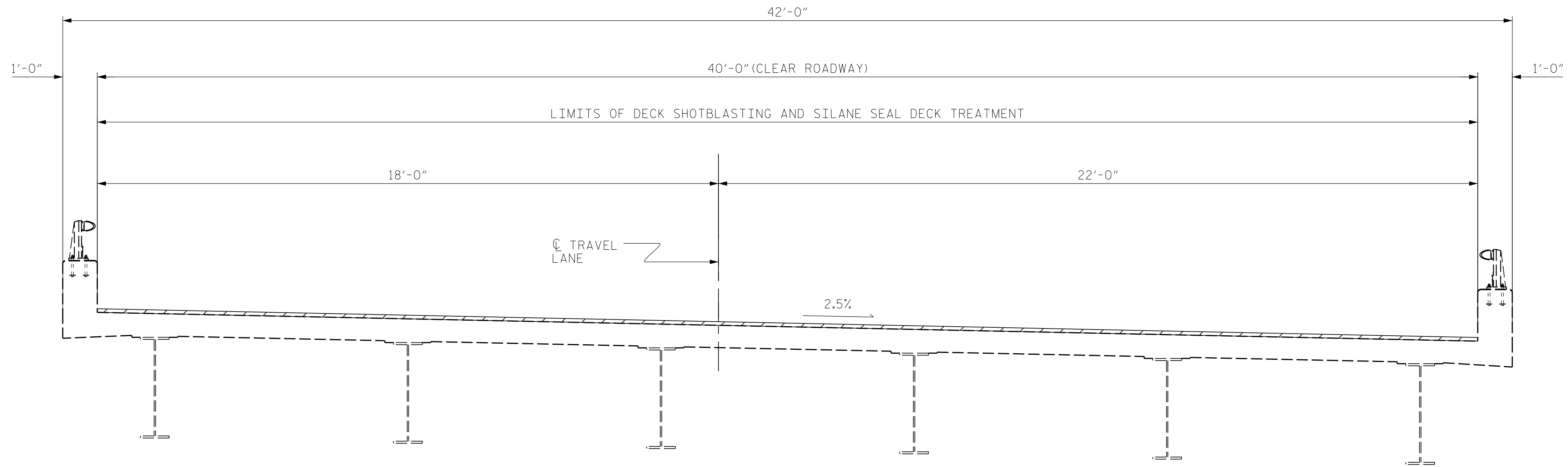
KCA
KISINGER CAMPO & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

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

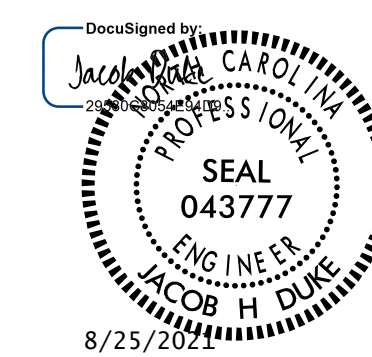
DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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NO.	BY:	DATE:	NO.	BY:	DATE:	S10-1	
1			3			TOTAL SHEETS	5
2			4				



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770106



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.TS01.770106.dgn
 fflores

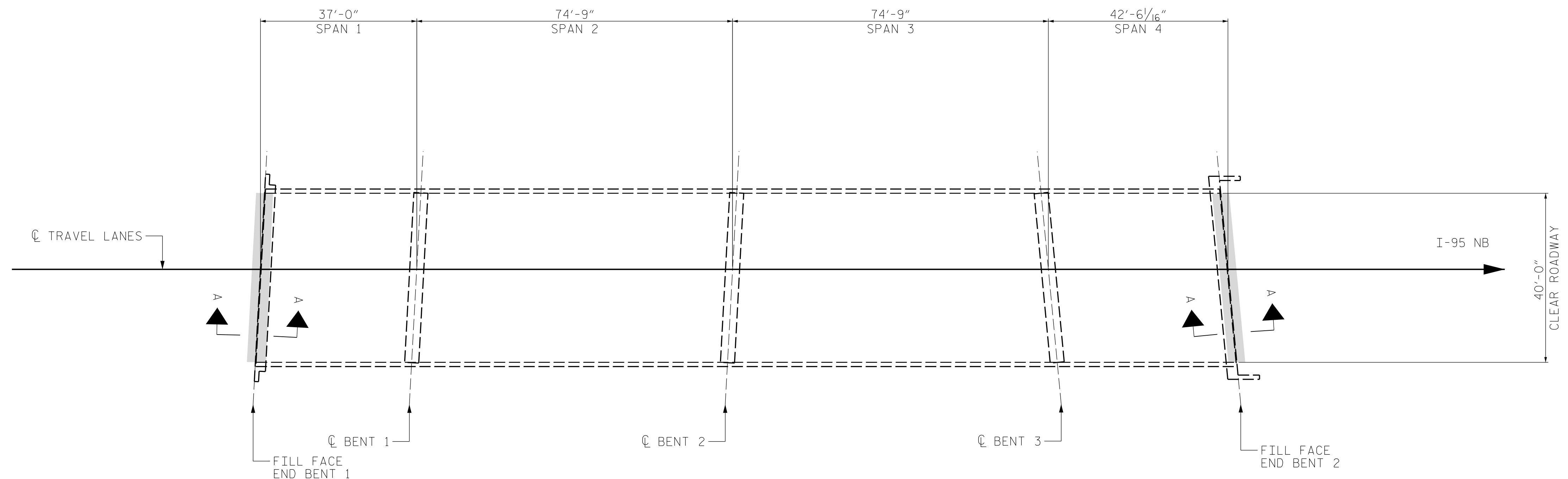
DOCUMENT NOT CONSIDERED
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KCA
 KISINGER CAMPO
 & ASSOCIATES
 301 FAYETTEVILLE ST., SUITE 1500
 RALEIGH, NC 27601 (919) 882-7839
 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5
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
SHOTBLASTING BRIDGE DECK	165 SY		333 SY		333 SY		189 SY	
SILANE DECK TREATMENT	165 SY		333 SY		333 SY		189 SY	



NOTES:

WHERE MULTIPLE SPANS ARE LISTED, ESTIMATED QUANTITIES ARE BASED ON THE ANTICIPATED VALUES FOR A SINGLE SPAN OF THAT CONFIGURATION.

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 1/2" PER THE EXISTING BRIDGE PLANS. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING SURFACE PREPARATION.

CURRENT AVERAGE COVER IS EXPECTED TO BE FROM 1" TO 2" BASED ON VISUAL INSPECTION.

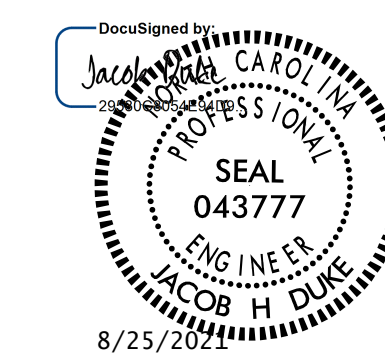
BRIDGE DECK SHOTBLASTING AND SILANE TREATMENT LIMITS ARE THE FULL CLEAR ROADWAY WIDTH (INSIDE FACE OF EACH BRIDGE RAIL).

FOR SILANE DECK TREATMENT AND SHOTBLASTING BRIDGE DECK, SEE SPECIAL PROVISIONS.

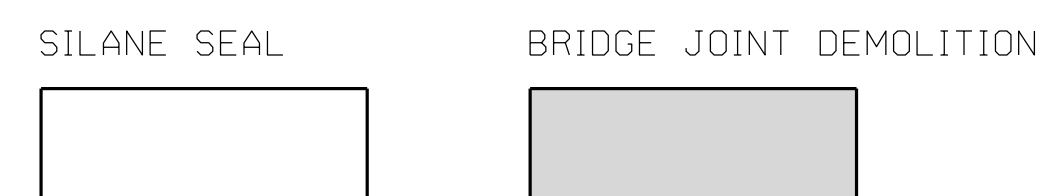
I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED THEREIN.

RESIDENT ENGINEER _____ DATE _____

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770106

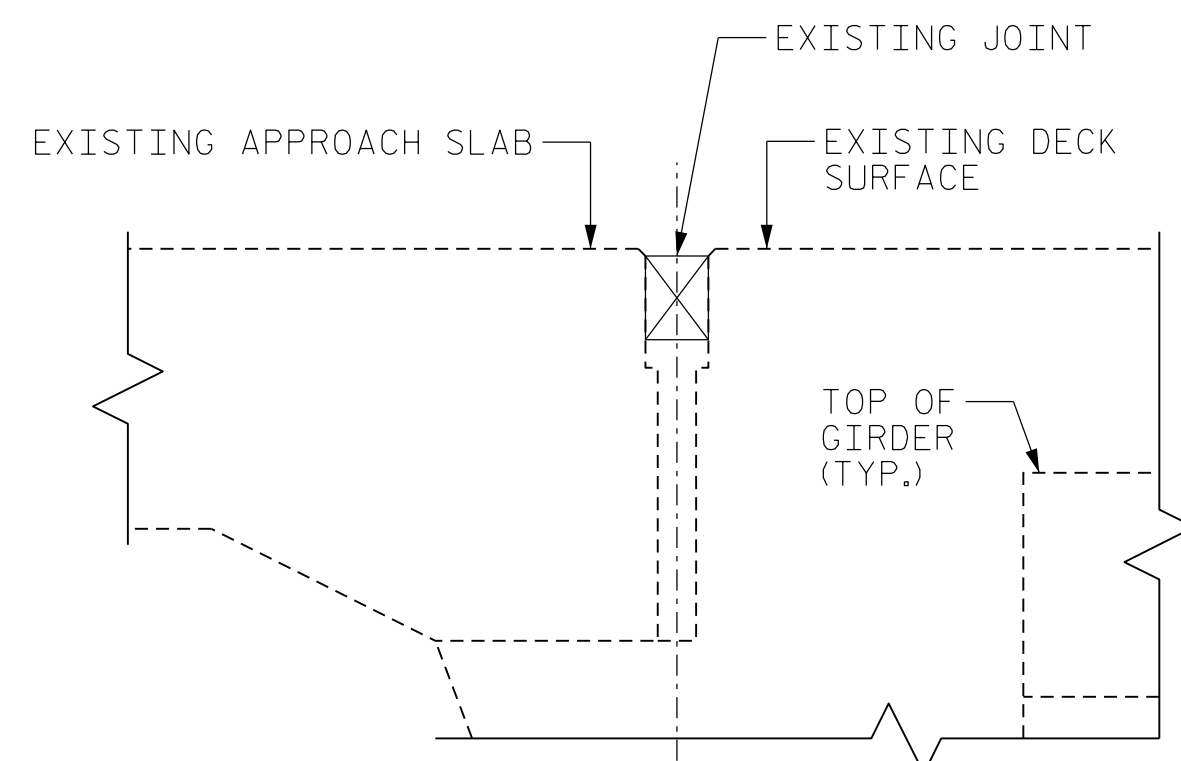


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
PLAN OF SPANS						S10-3
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	5
1			3			
2			4			

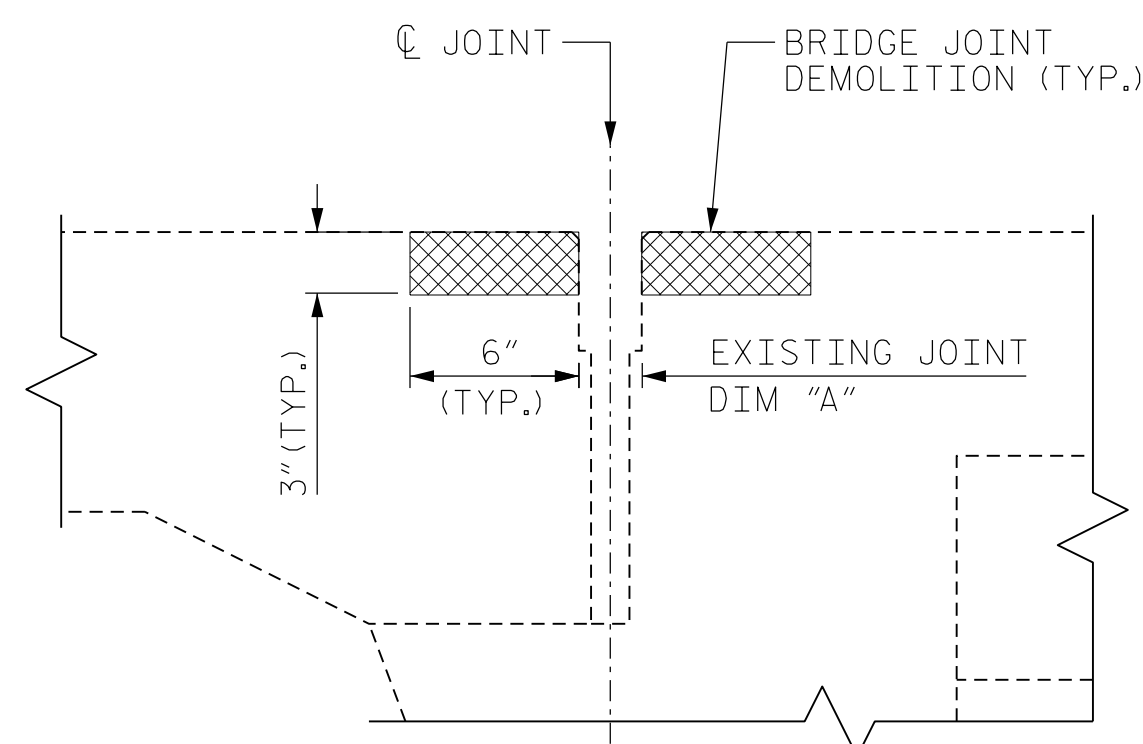


DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

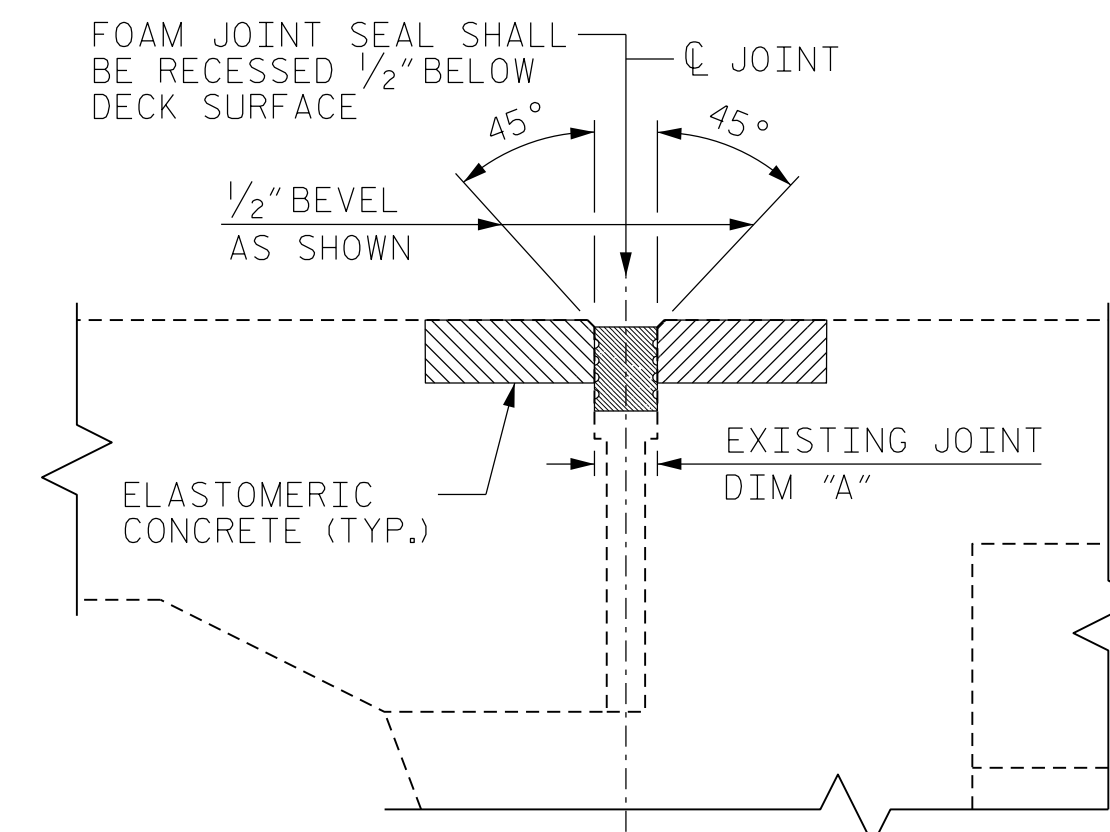
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SECTION A-A
(EXISTING JOINT)



SECTION A-A
(MIN. DEMOLITION)



SECTION A-A
(PROPOSED 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.

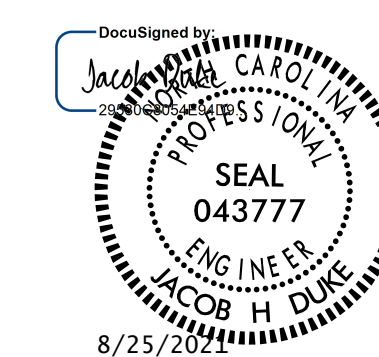
TABLE 1	
Table Date 04-2021	
BENT/ JOINTS	DIM "A" @ 71°F
END BENT 1	2"
1	N/A
2	N/A
3	N/A
END BENT 2	2"

ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	20.0	
BENT 1	N/A	
BENT 2	N/A	
BENT 3	N/A	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	80	
BENT 1	N/A	
BENT 2	N/A	
BENT 3	N/A	

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	84	

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770106



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

JOINT DETAILS

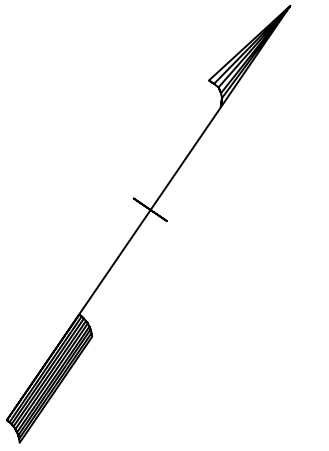
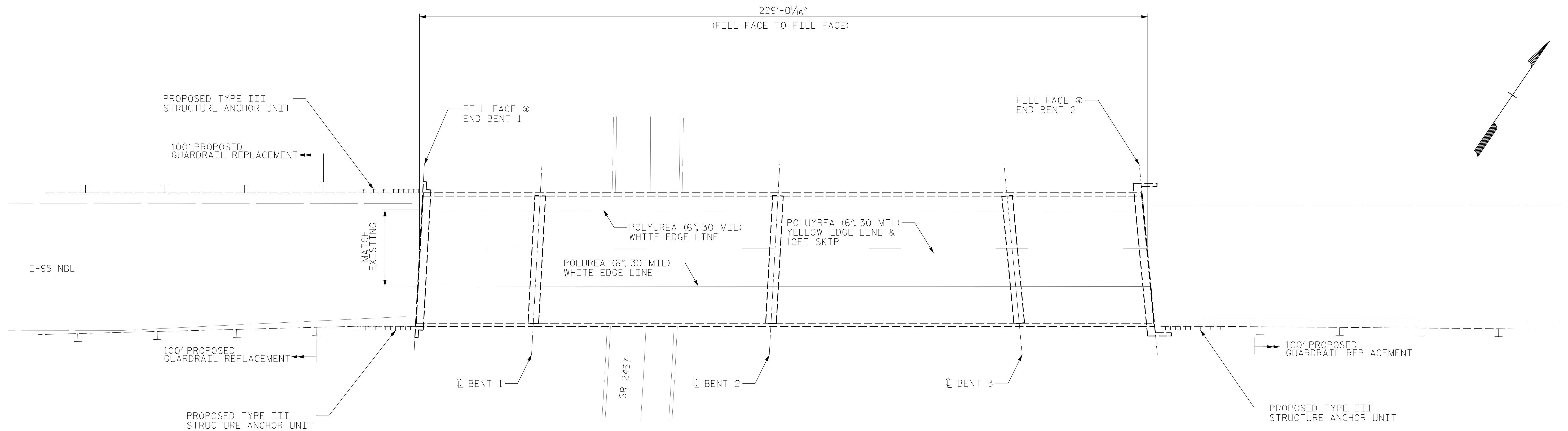
DRAWN BY : DIEGO A. AGUIRRE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S10-4
2			4			TOTAL SHEETS 5

AS-BUILT REPAIR QUANTITY TABLE

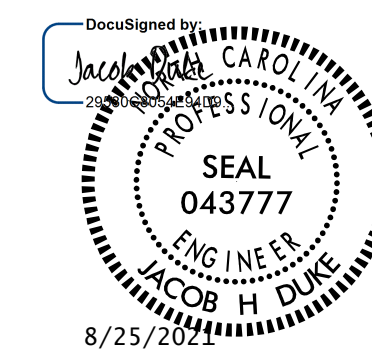
	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	3 EA	
GUARDRAIL REMOVAL	300 LF	
PROPOSED GUARDRAIL	365.25 LF	
POLYUREA PAVEMENT MARKING LINES (6", 30MILS)	516 LF	



NOTES:

FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770106



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

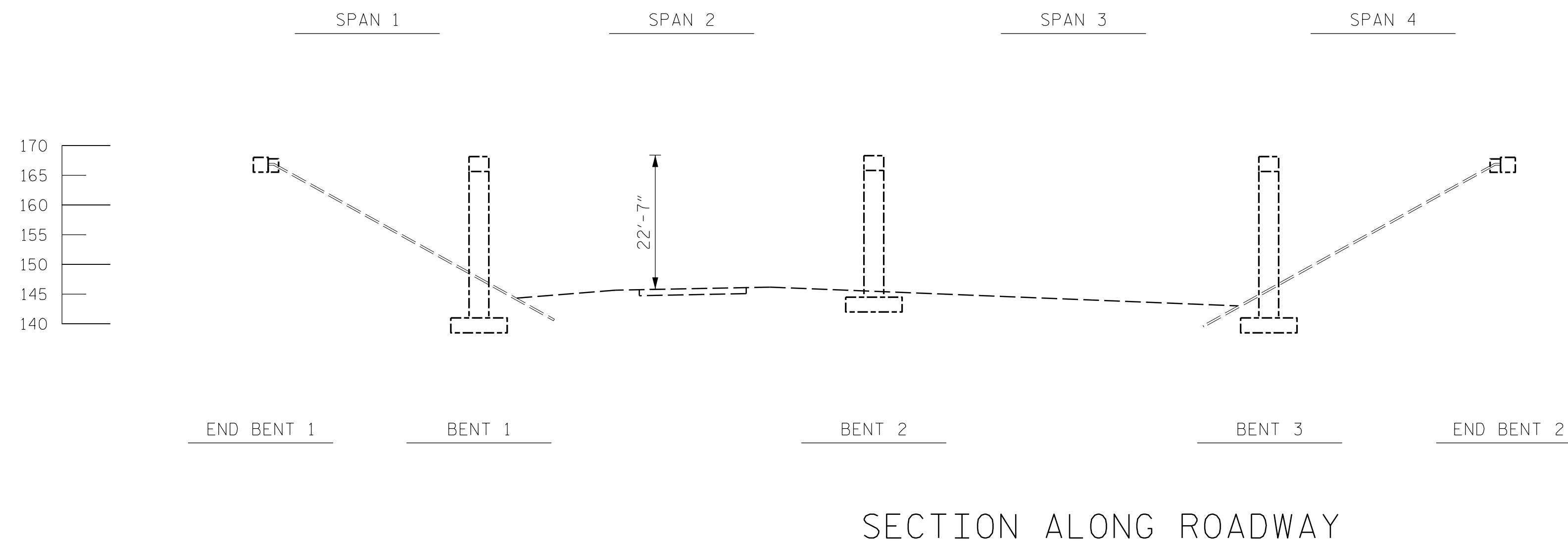
APPROACH ROADWAY GUARDRAIL AND PAVEMENT MARKINGS

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

8/25/2021
 I5939.SMU.AR01.770106.dgn
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S10-5
2			4			TOTAL SHEETS 5



SCOPE LEGEND:

- ① PROPOSED TYPE-III STRUCTURE ANCHOR UNITS
- ② PROPOSED STEEL BEAM GUARDRAIL
- ③ CLEAR SHOULDERS OF DEBRIS AND VEGETATION
- ④ SILANE DECK TREATMENT
- ⑤ REGRADE SLOPES
- ⑥ JOINT REPLACEMENT

NOTE: FOR SCOPE ITEM 5, REGRADE AROUND END BENT WING WALL AS NECESSARY AND AS DIRECTED BY THE ENGINEER, REGRADE SUCH TO DIRECT WATER AWAY FROM AND AROUND THE END BENT WING WALL. MATCH EXISTING SIDE SLOPES WHERE FEASIBLE.

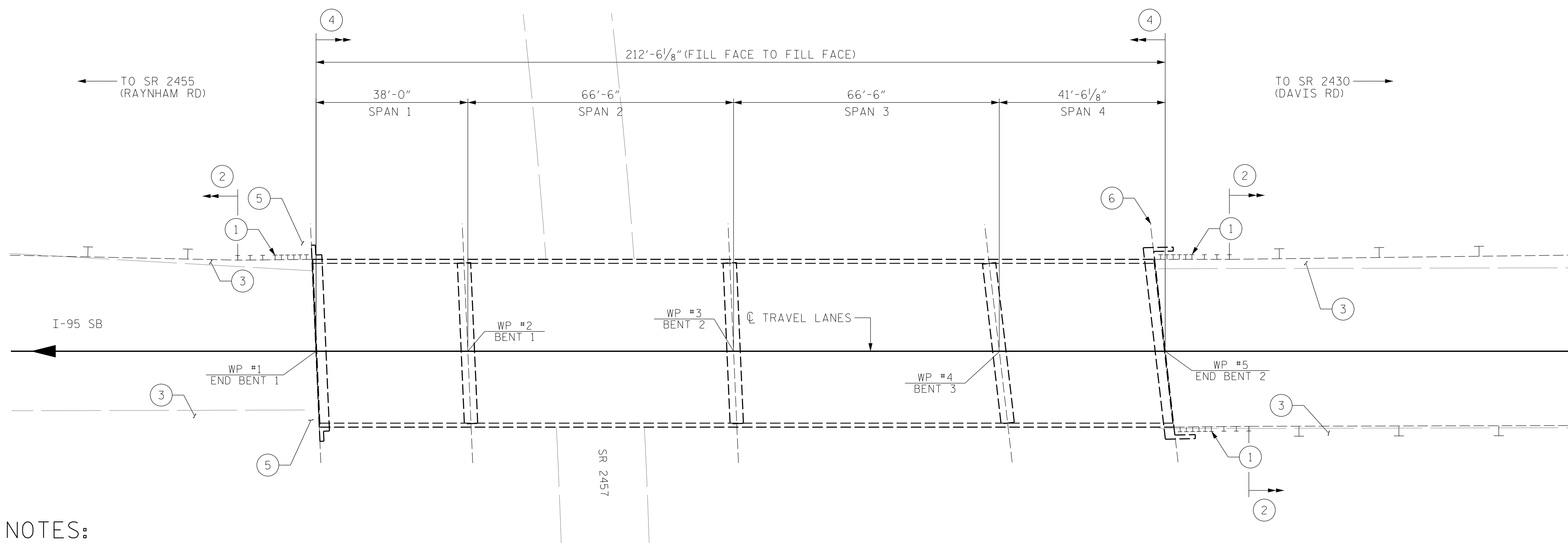
REGRADE SLOPES SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS OF THE PROJECT.

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
SEEDING AND MULCHING	0.5 ACR	

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

RESIDENT ENGINEER _____ DATE _____



NOTES:

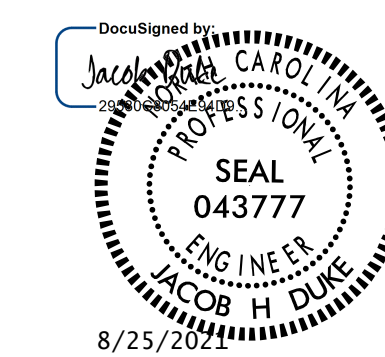
GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/16/2019. BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

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

8/25/2021
 I939.SMU.CD01.770107.dgn
 fflores

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 301 FAYETTEVILLE ST., SUITE 1500
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 NC FIRM LICENSE: C-1506

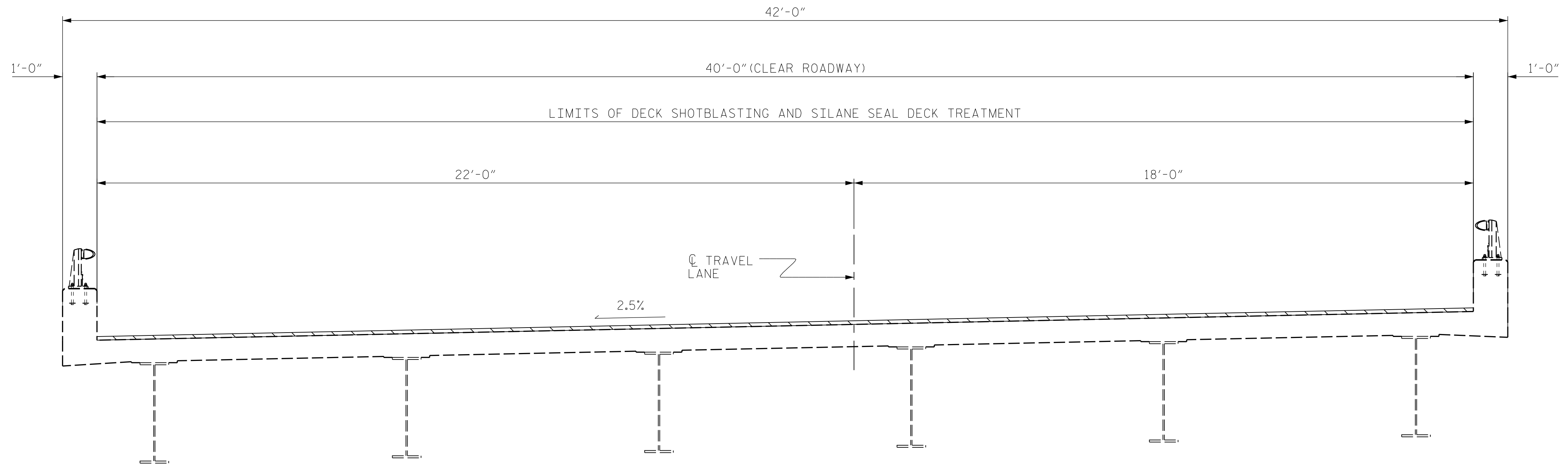
PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770107

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

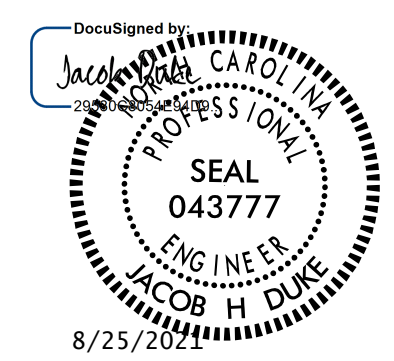
GENERAL DRAWING

FOR BRIDGE ON I-95 SB OVER SR 2457

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S11-1
1			3			TOTAL SHEETS
2			4			5



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770107



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

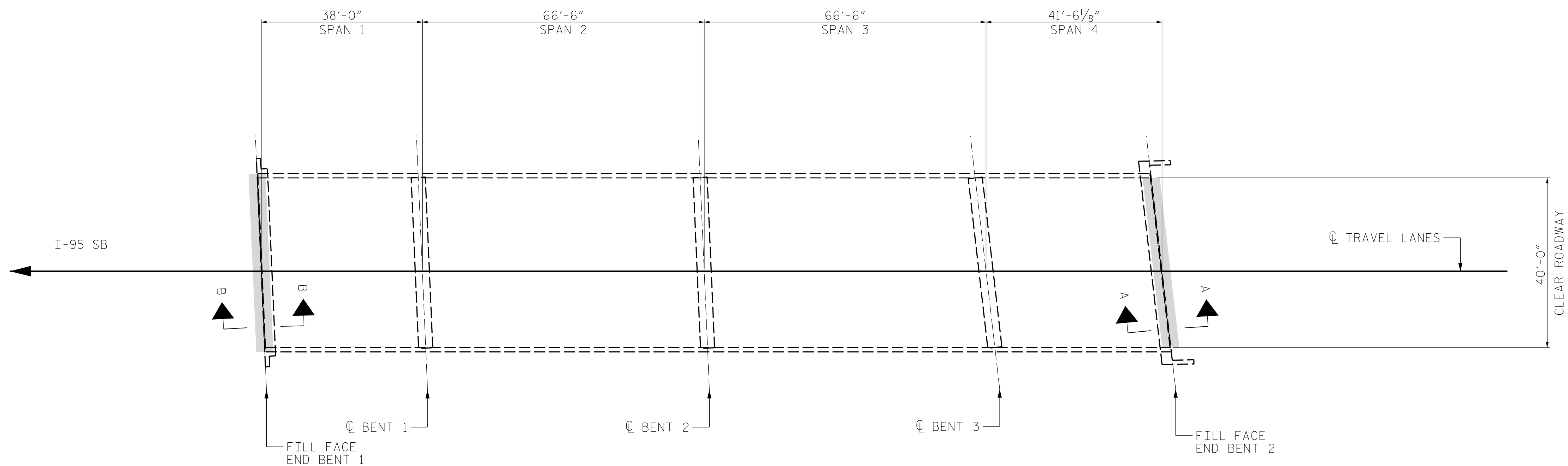
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 NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5
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
SHOTBLASTING BRIDGE DECK	169 SY		296 SY		296 SY		185 SY	
SILANE DECK TREATMENT	169 SY		296 SY		296 SY		185 SY	



NOTES:

WHERE MULTIPLE SPANS ARE LISTED, ESTIMATED QUANTITIES ARE BASED ON THE ANTICIPATED VALUES FOR A SINGLE SPAN OF THAT CONFIGURATION.

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.

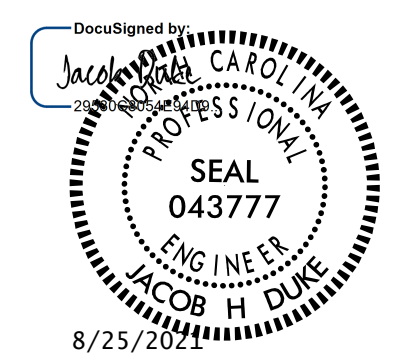
CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/2" PER THE EXISTING BRIDGE PLANS. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING SURFACE PREPARATION.

CURRENT AVERAGE COVER IS EXPECTED TO BE FROM 1" TO 2" BASED ON VISUAL INSPECTION.

BRIDGE DECK SHOTBLASTING AND SILANE TREATMENTS LIMITS ARE THE FULL CLEAR ROADWAY WIDTH (INSIDE FACE OF EACH BRIDGE RAIL).

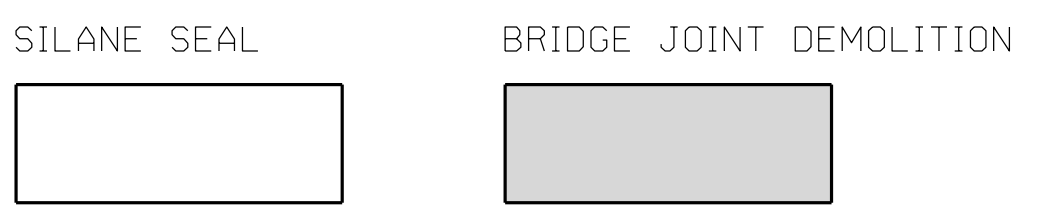
FOR SILANE DECK TREATMENT AND SHOTBLASTING BRIDGE DECK, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS

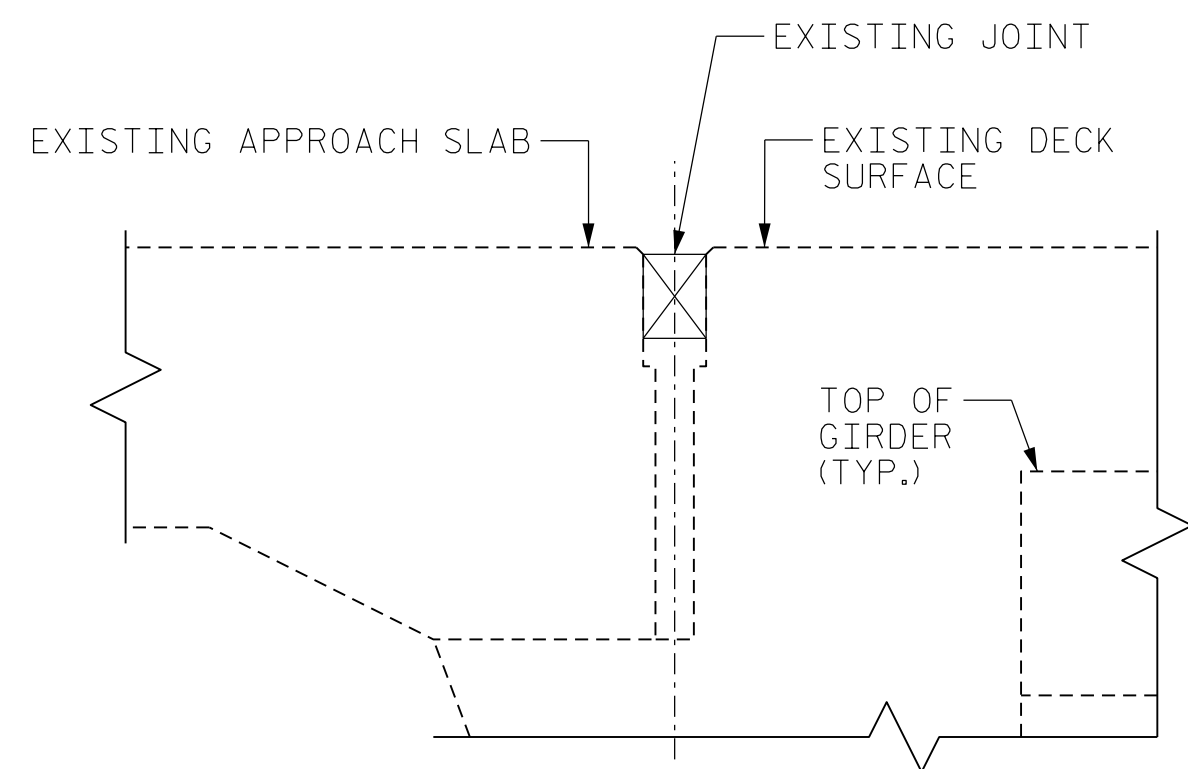


DRAWN BY : ALLEN J. MCSWAIN	DATE : 06/2021
CHECKED BY : DIEGO A. AGUIRRE	DATE : 06/2021
DESIGN ENGINEER OF RECORD: JACOB H. DUKE	DATE : 06/2021

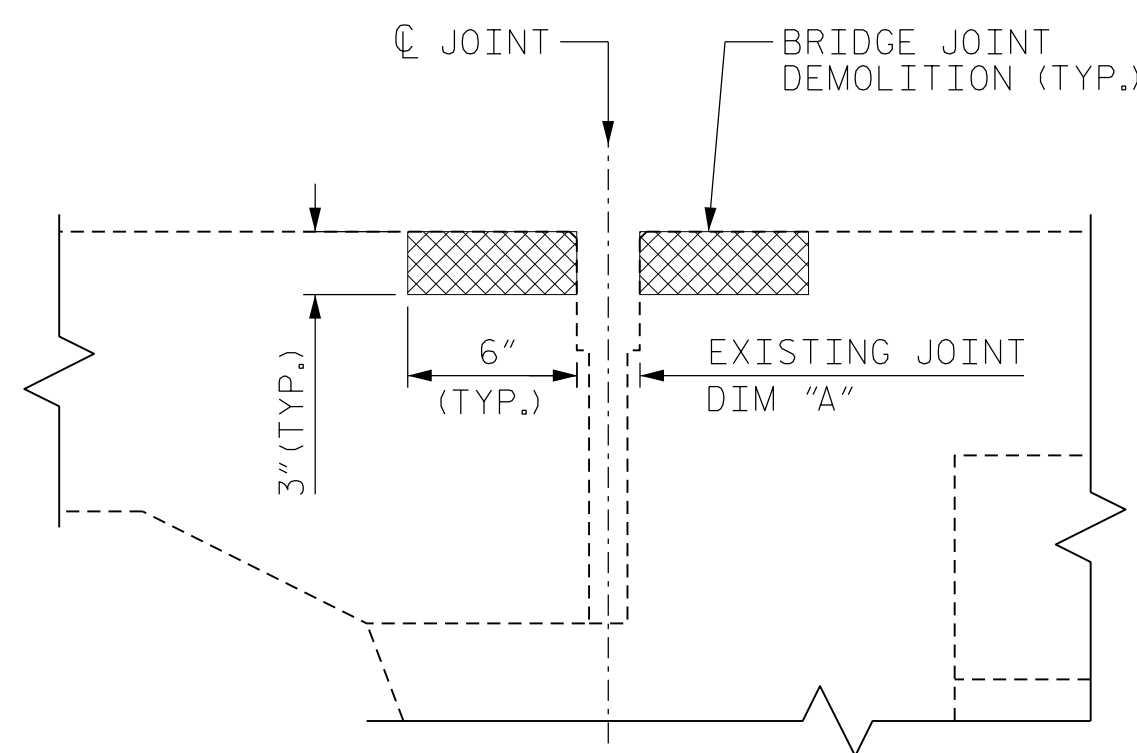
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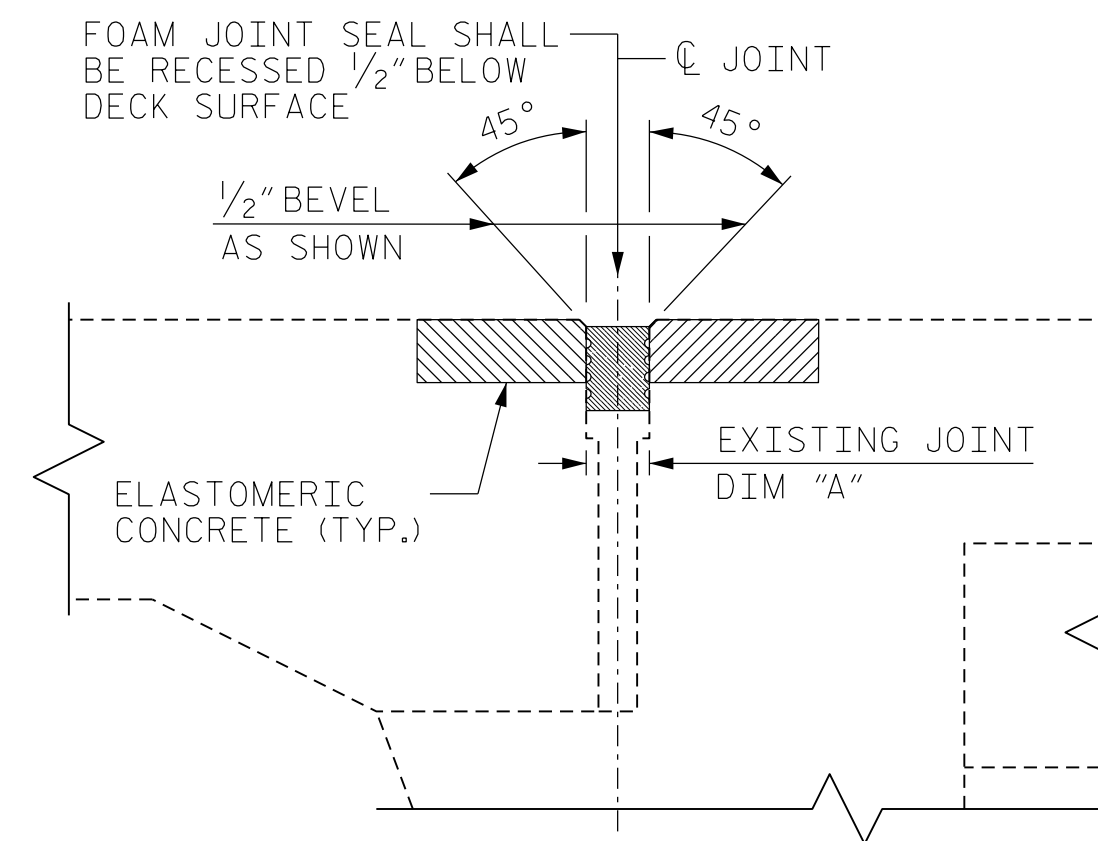
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S11-3
2			4			TOTAL SHEETS 5



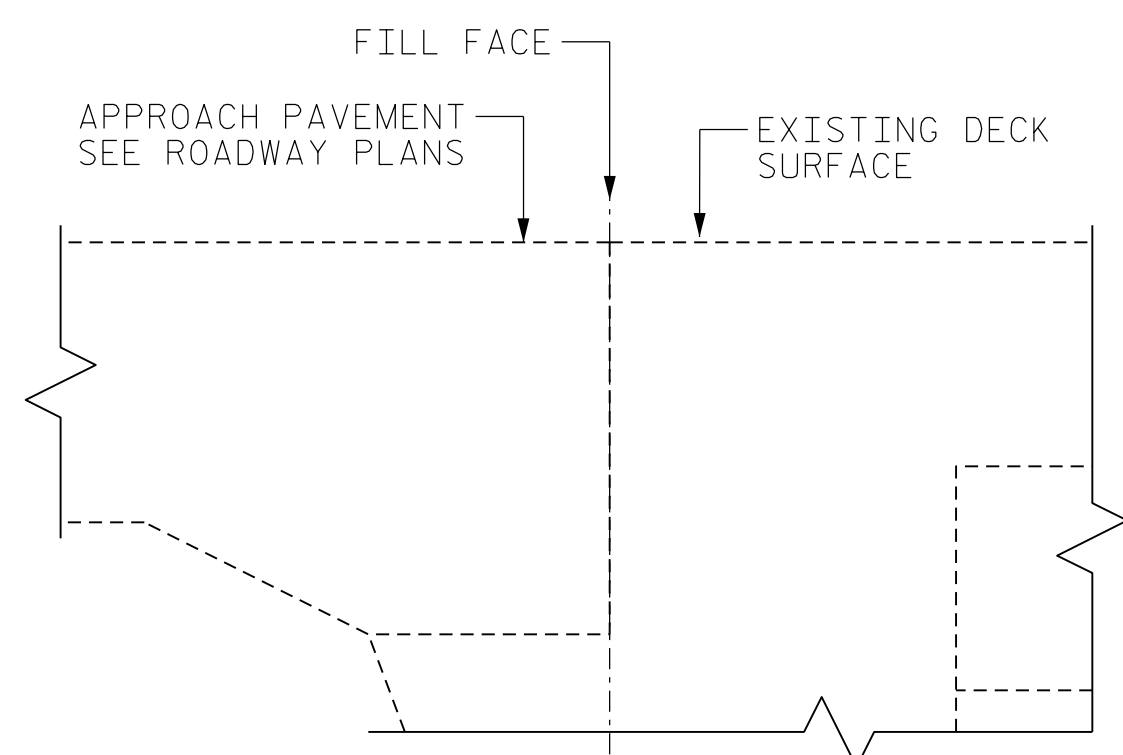
SECTION A-A
(EXISTING JOINT)



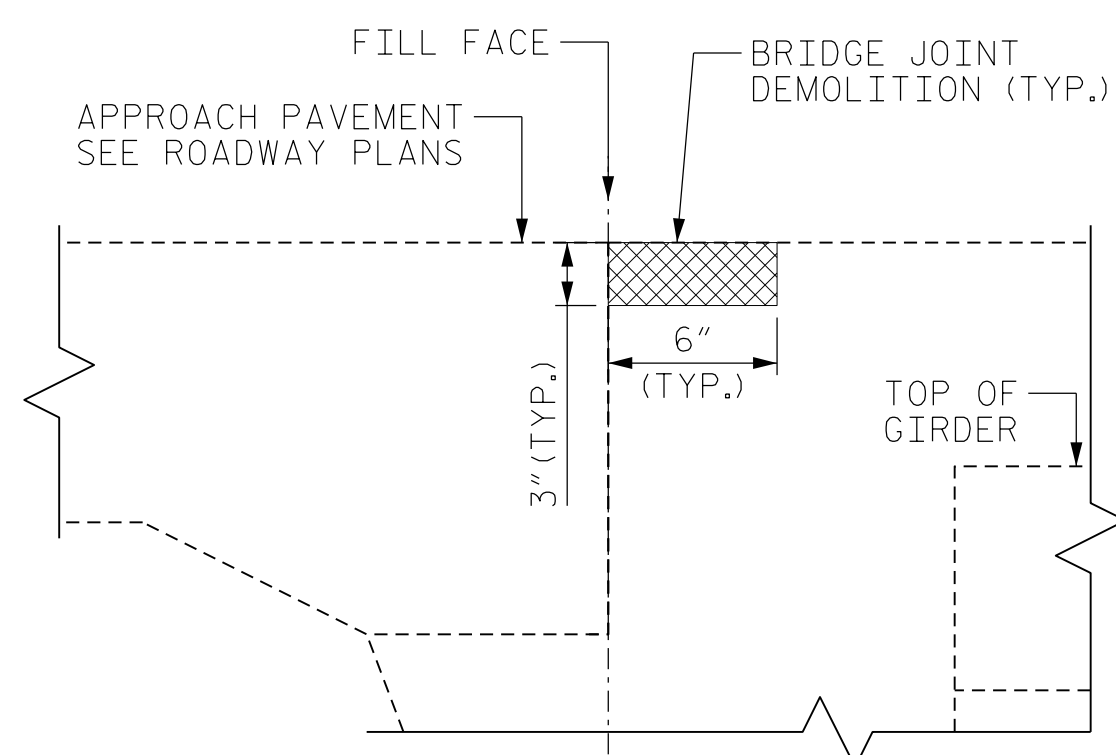
SECTION A-A
(MIN. DEMOLITION)



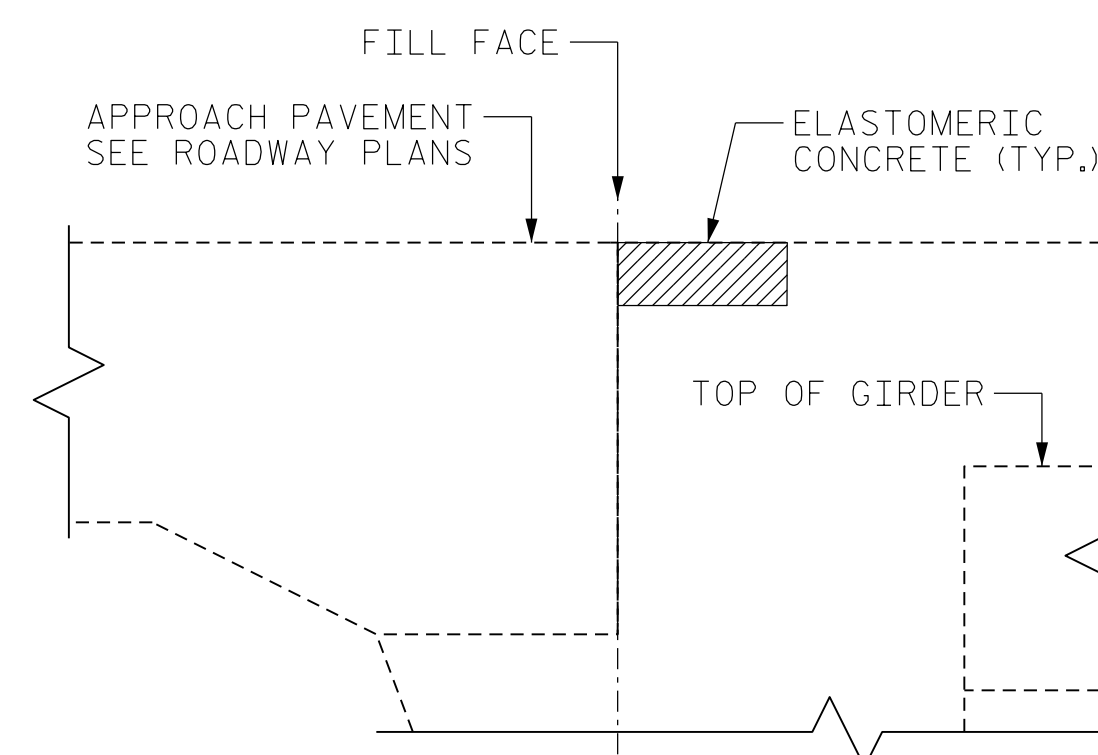
SECTION A-A
(PROPOSED JOINT)



SECTION B-B
(EXISTING DETAIL, NO JOINT)



SECTION B-B
(MIN. DEMOLITION)



SECTION B-B
(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.

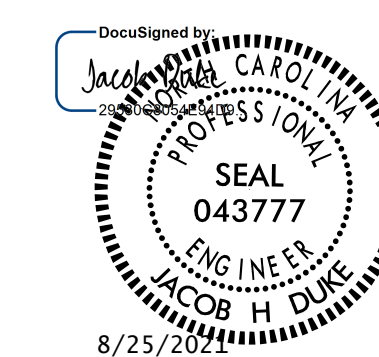
ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	15.0	
BENT 1	N/A	
BENT 2	N/A	
BENT 3	N/A	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	60.0	
BENT 1	N/A	
BENT 2	N/A	
BENT 3	N/A	

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

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	42	

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770107



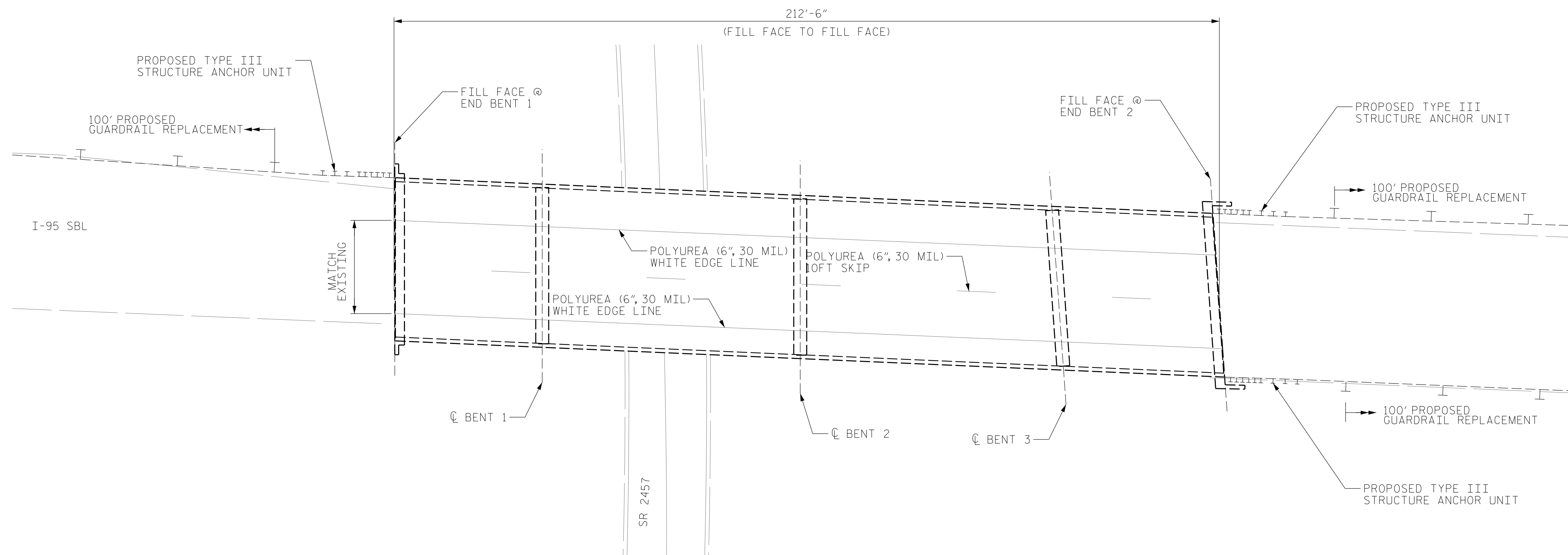
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S11-4
					TOTAL SHEETS 5

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

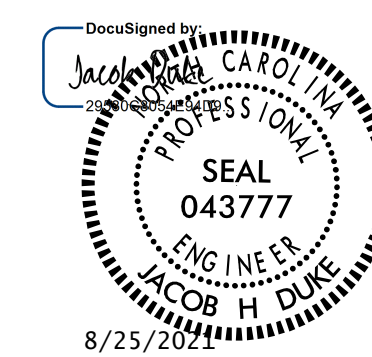
	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	3 EA	
GUARDRAIL REMOVAL	300 LF	
PROPOSED GUARDRAIL	365.25 LF	
POLYUREA PAVEMENT MARKING LINES (6", 30MILS)	479 LF	



NOTES:

FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

PROJECT NO. I-5939
ROBESON COUNTY
BRIDGE NO. 770107



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH ROADWAY GUARDRAIL 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

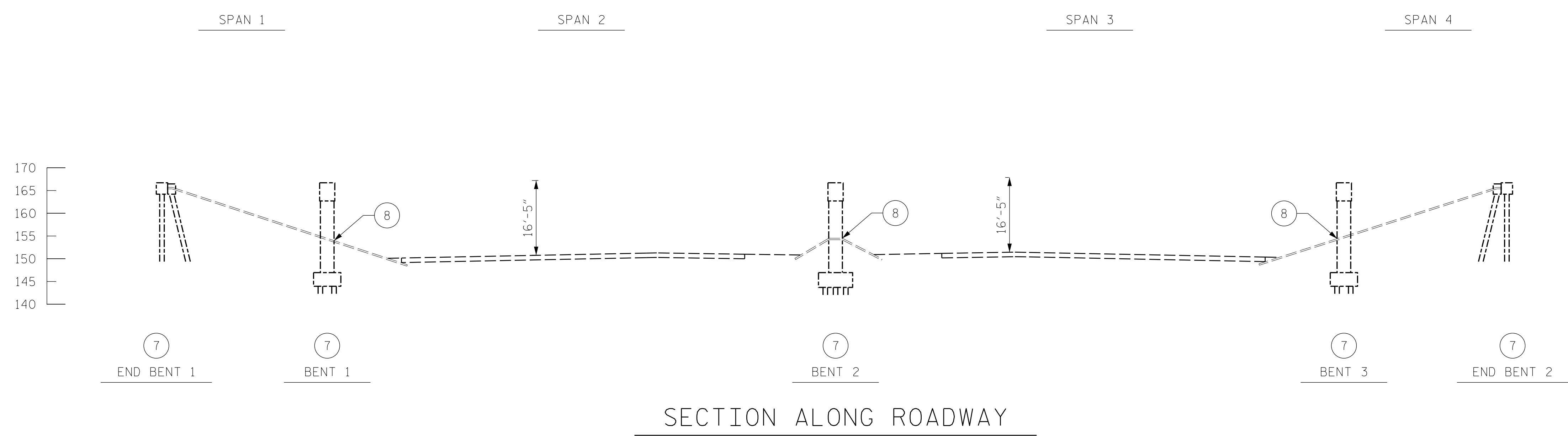
8/25/2021
I5939.SMU.AR01.770107.dgn
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FINAL UNLESS ALL
SIGNATURES COMPLETED

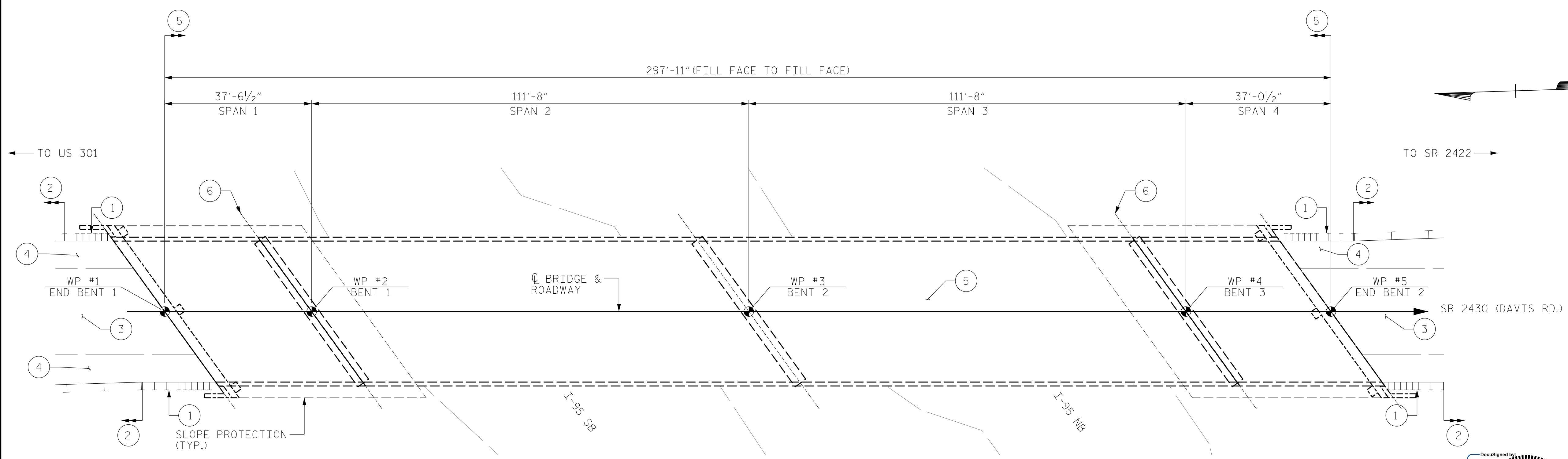
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S11-5
1			3			TOTAL SHEETS
2			4			5

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

NOTE: SEE SHEET S12 FOR SLOPE PROTECTION JOINT REPAIRS.



SECTION ALONG ROADWAY

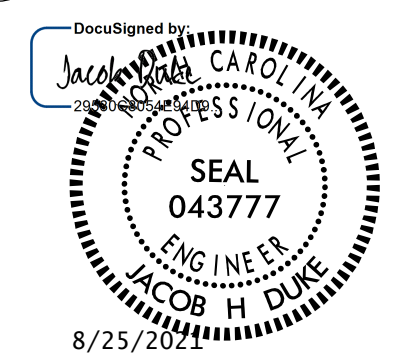


PLAN

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. 770124



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 2430
 OVER I-95

NOTES:

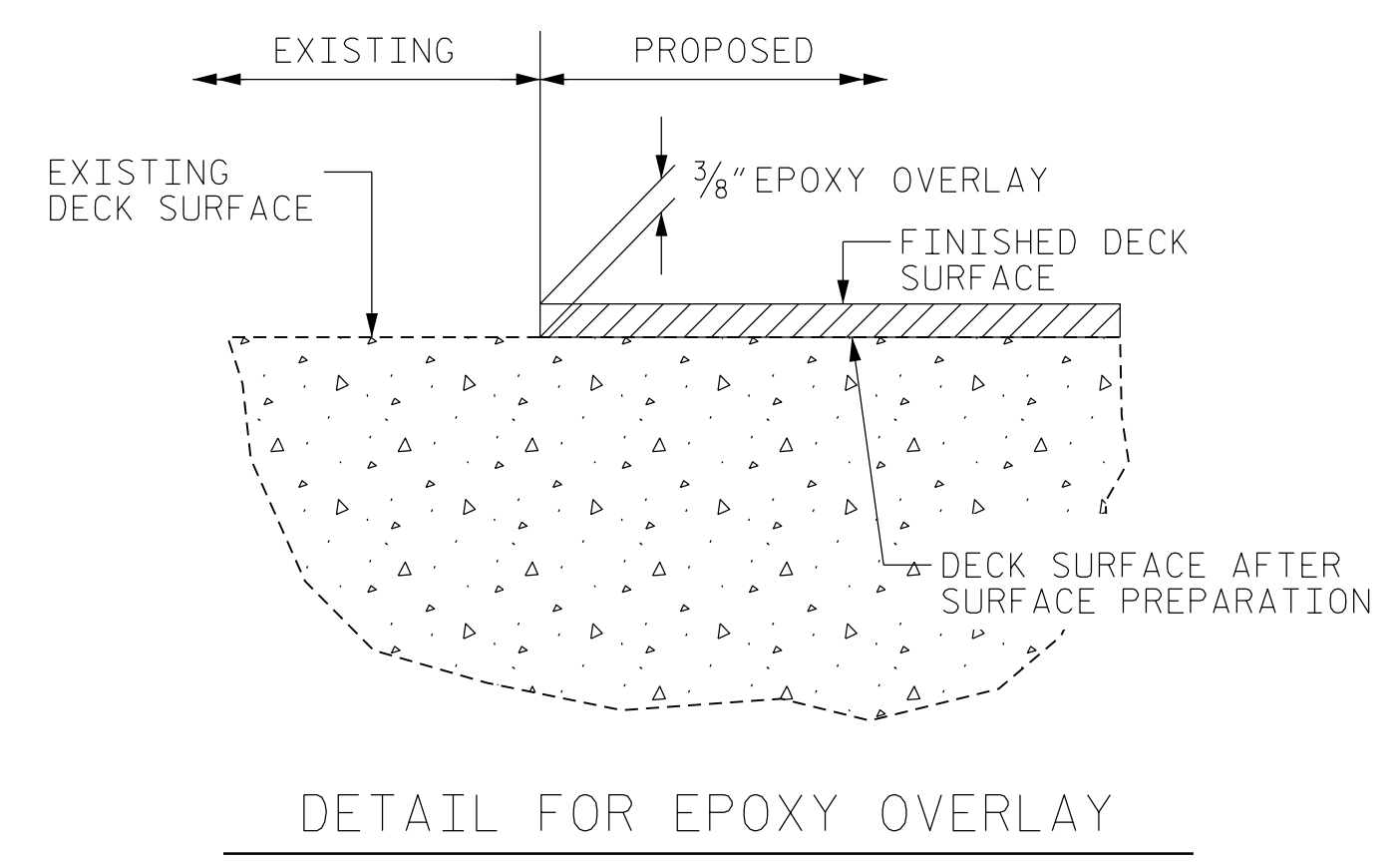
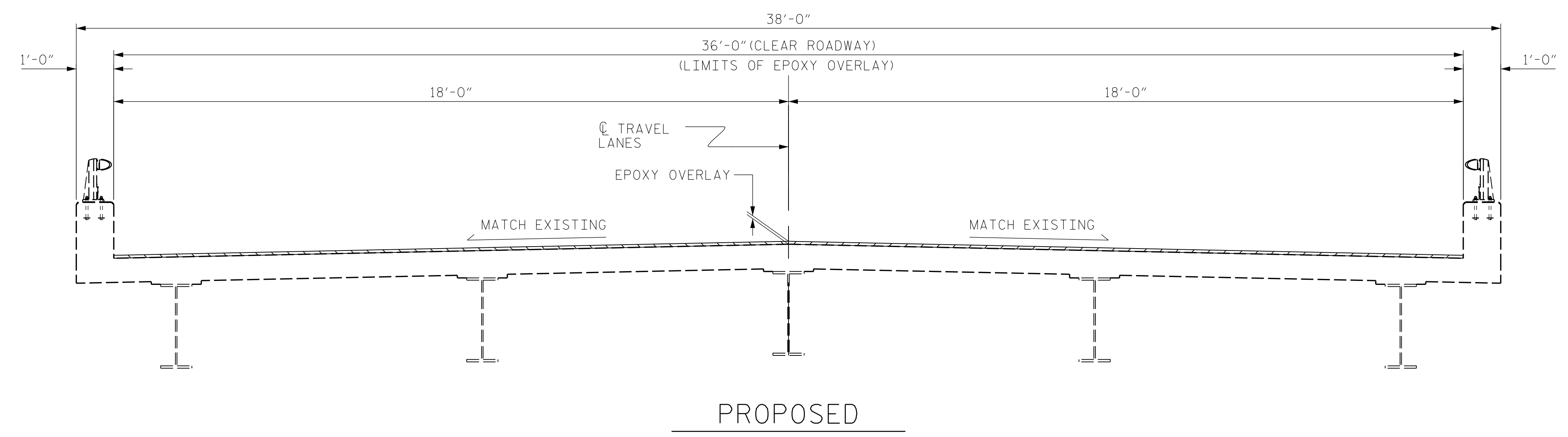
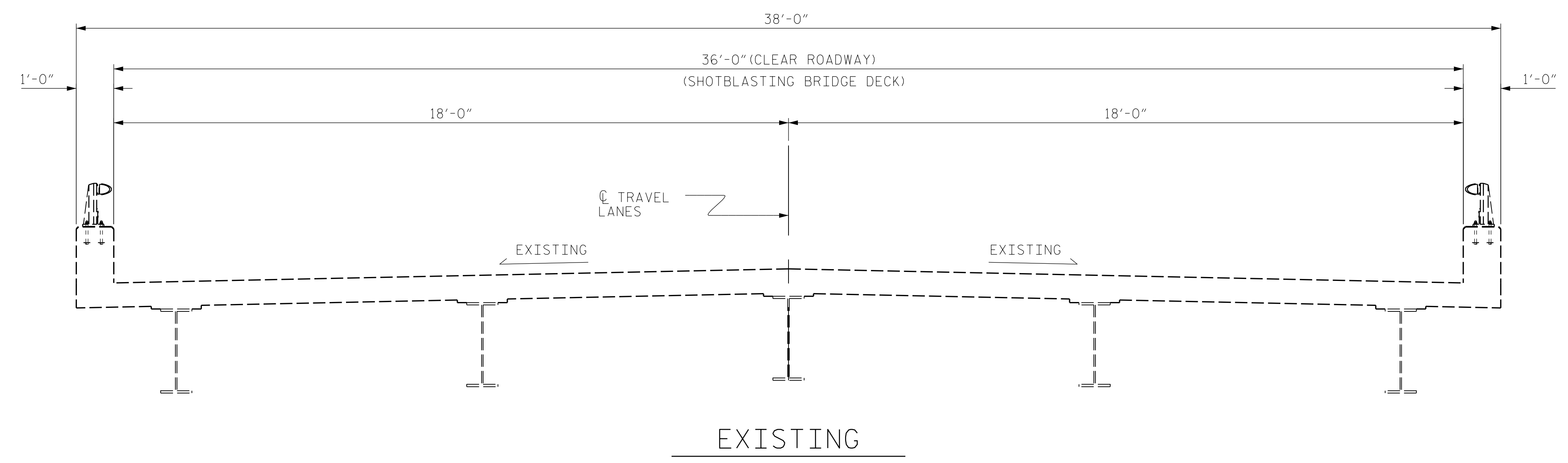
GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 11/04/2019.

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

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S12-1
2			4			TOTAL SHEETS 10

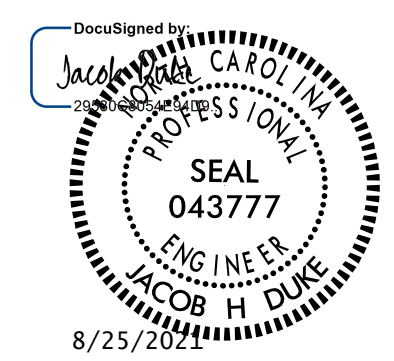


- NOTES:**
1. LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
 2. SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY AND SURFACE PREPARATION.

DRAWN BY : ALLEN J. MCSWAIN 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.TS01.770124.dgn
 fflores

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

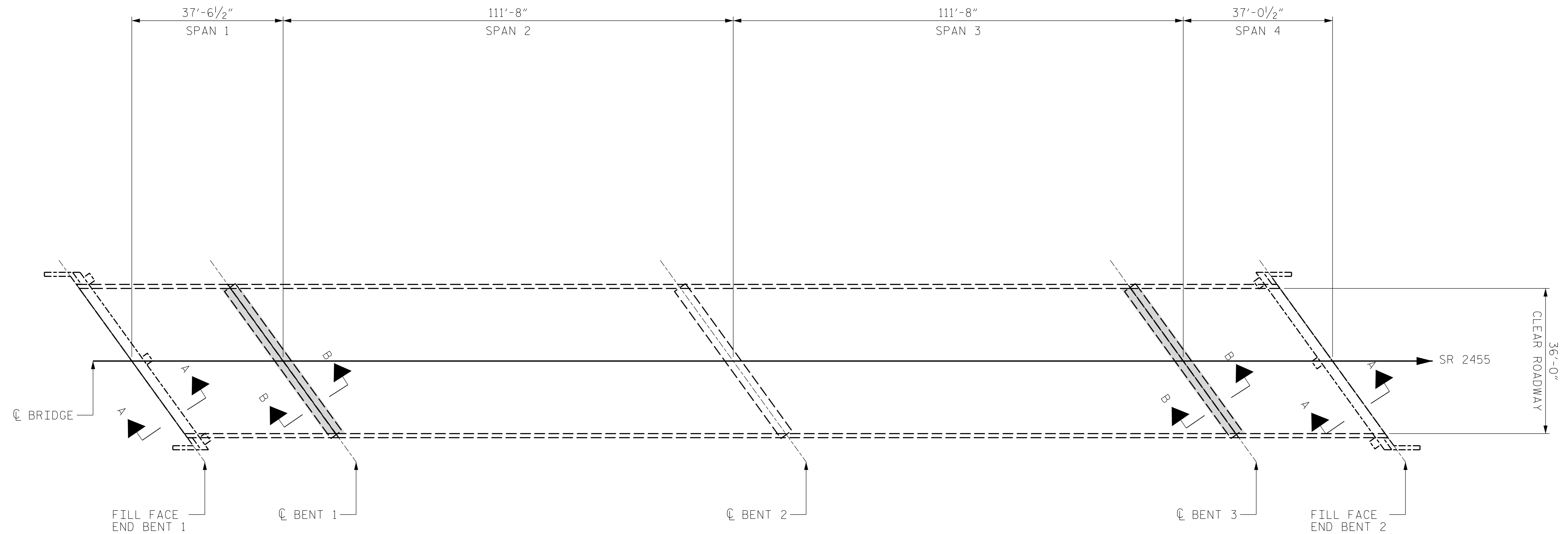
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770124

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S12-2
TYPICAL SECTION						TOTAL SHEETS 10
REVISIONS						NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

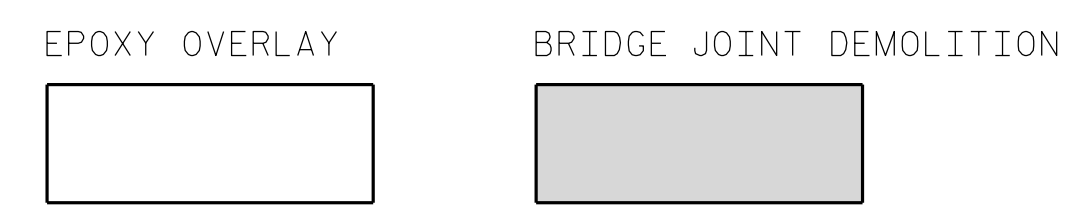
	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	0.0 SF		0.0 SF		0.0 SF		0.0 SF	
EPOXY OVERLAY SYSTEM II	1352 SF		4021 SF		4021 SF		1334 SF	



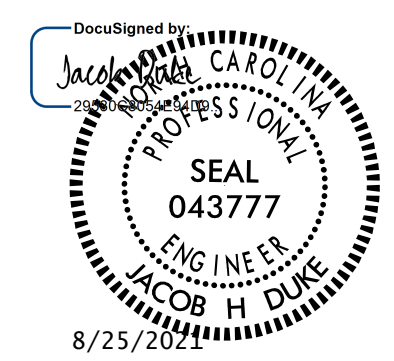
PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770124

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

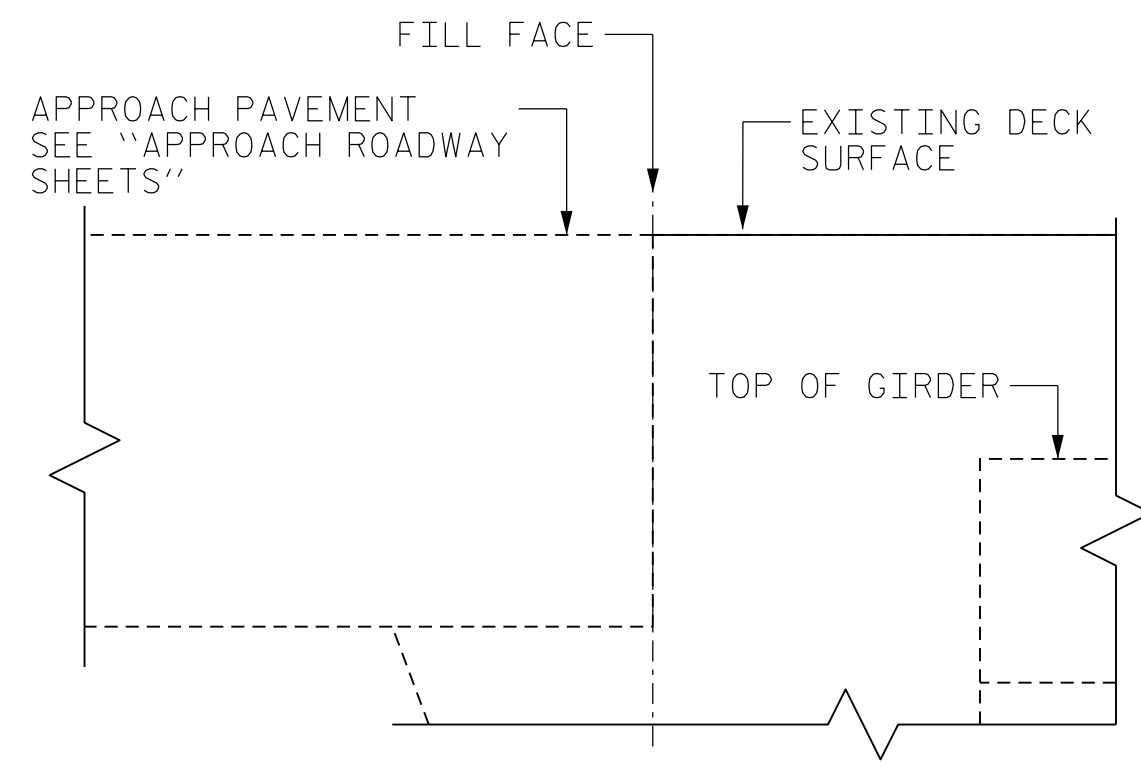


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

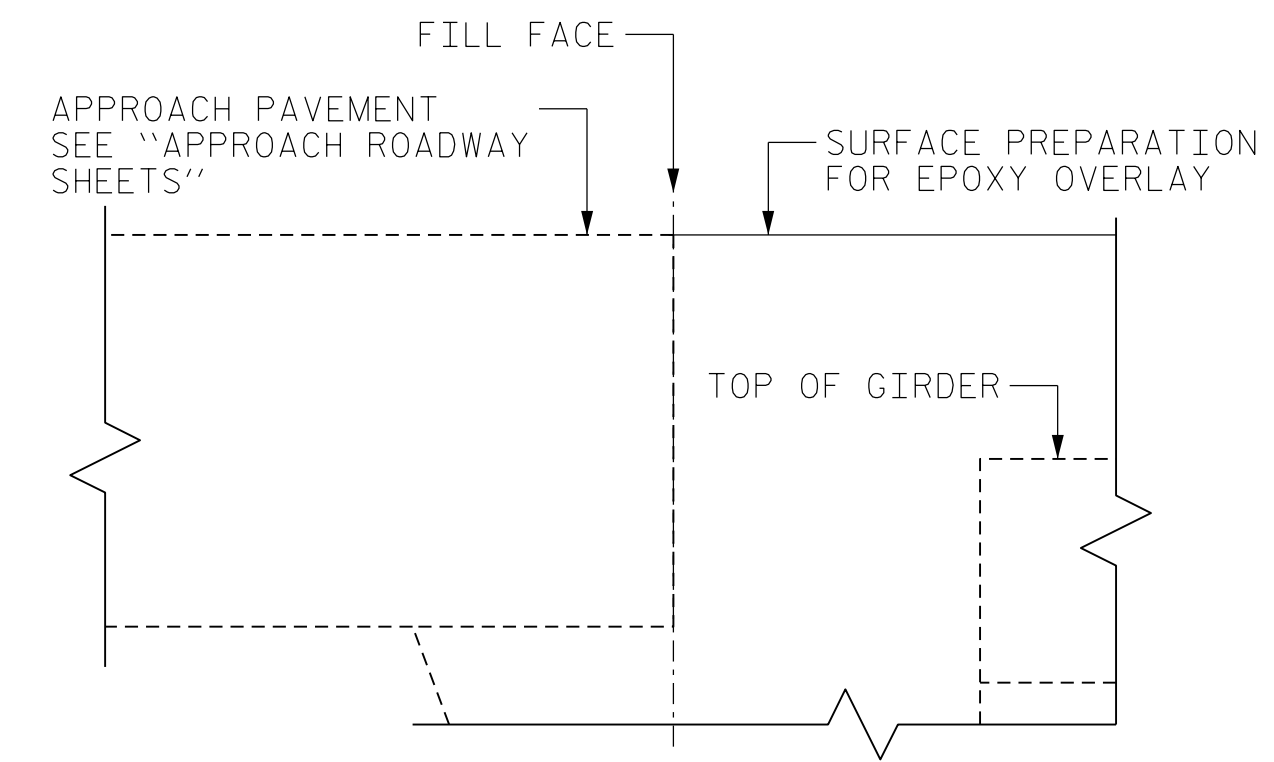
PLAN OF SPANS

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

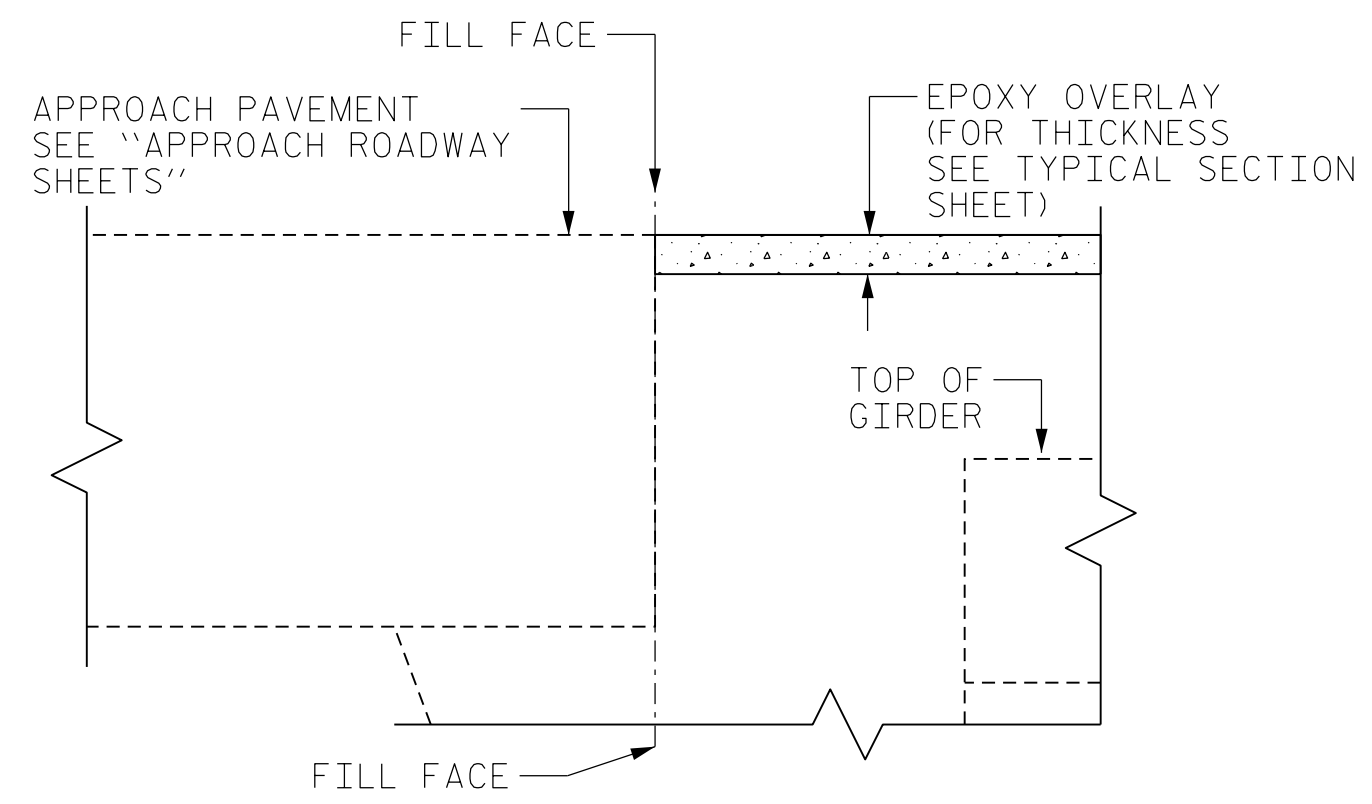
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S12-3
2			4			TOTAL SHEETS 10



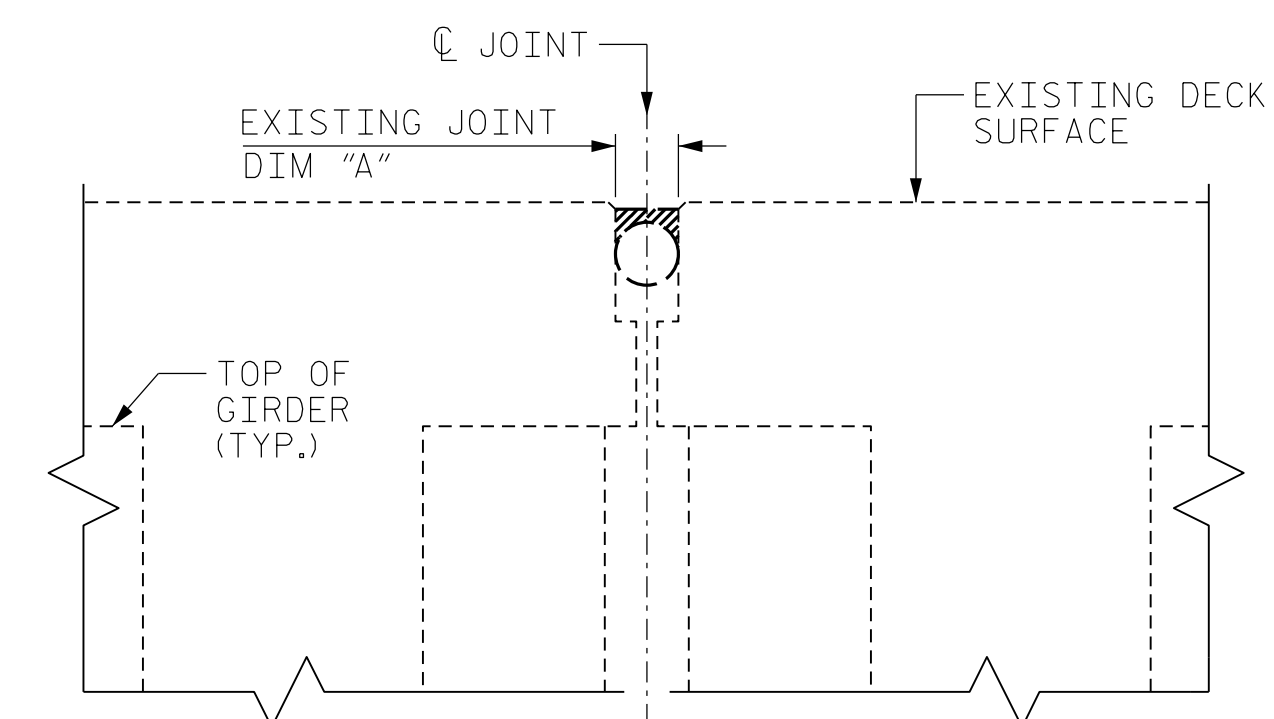
SECTION A-A
(EXISTING DETAIL, NO JOINT)



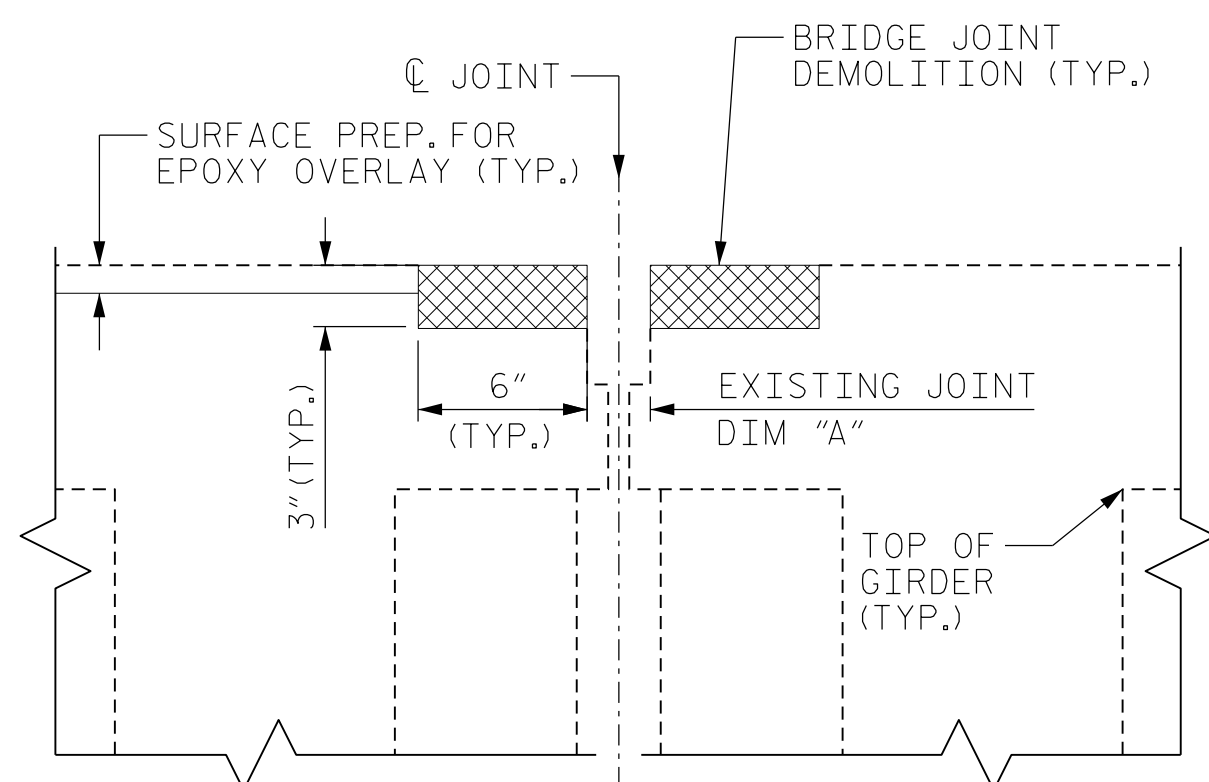
SECTION A-A
(MIN. EXISTING DECK DEMOLITION)



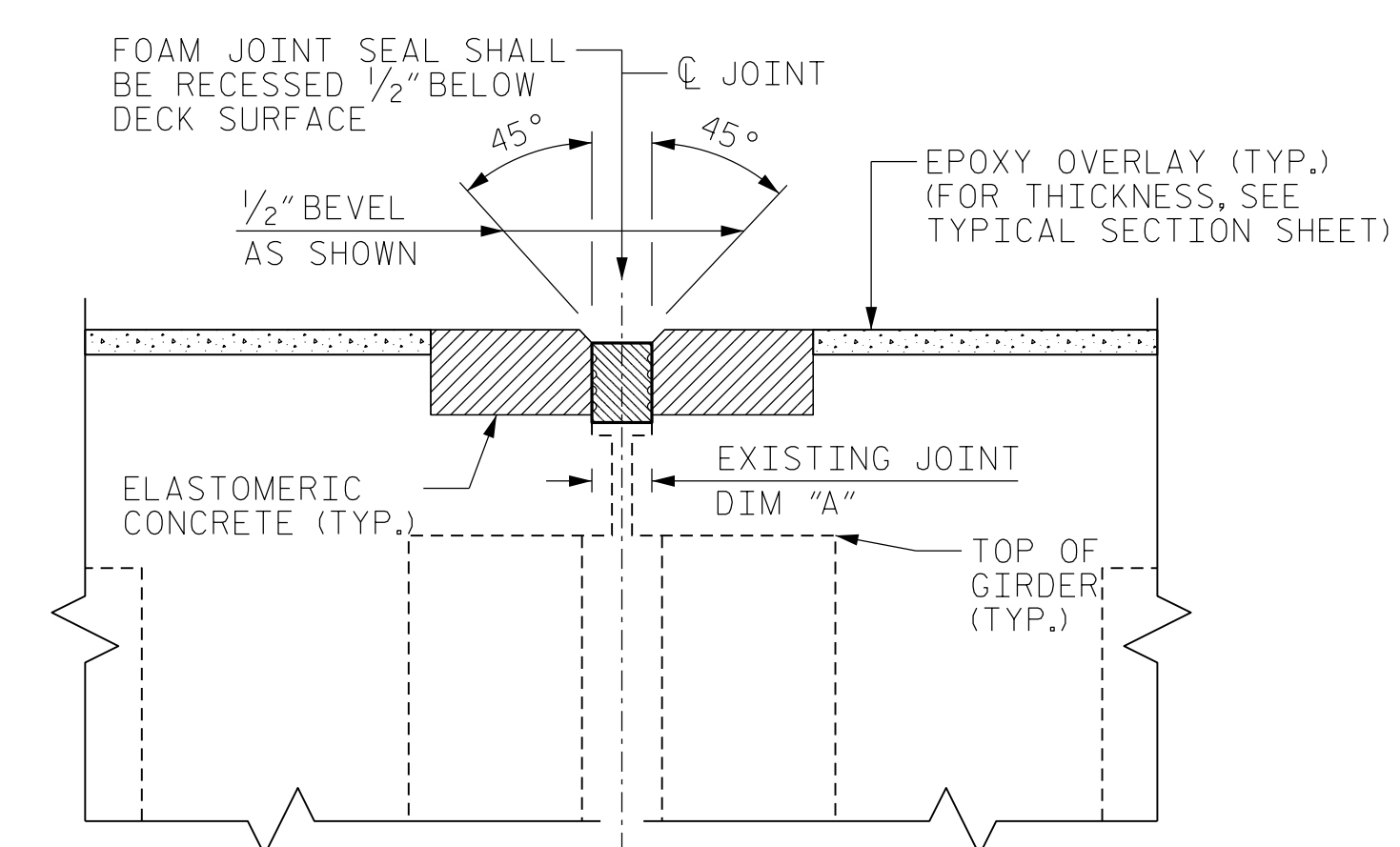
SECTION A-A
(PROPOSED DETAIL, NO JOINT)



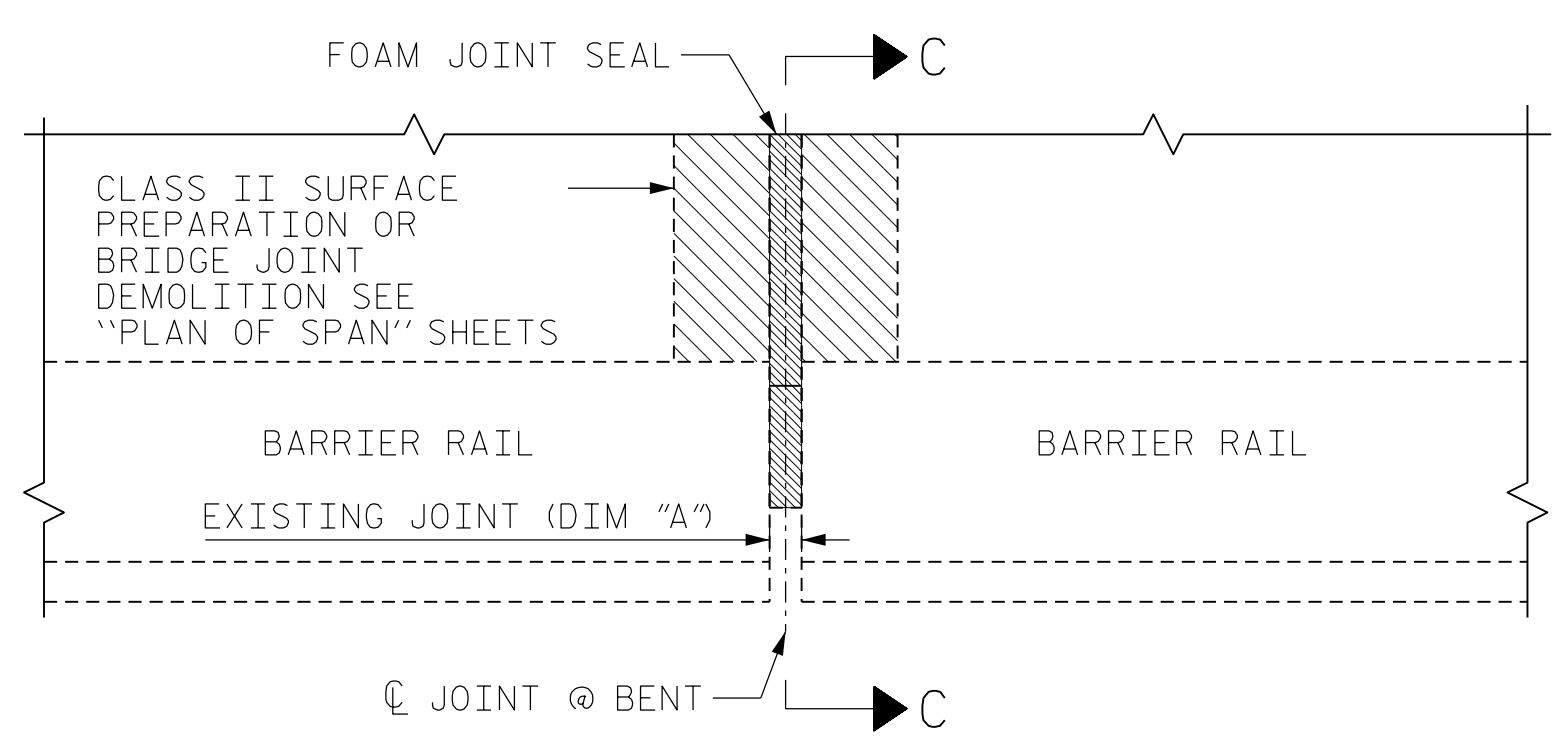
SECTION B-B
(EXISTING JOINT PRIOR TO EPOXY OVERLAY)



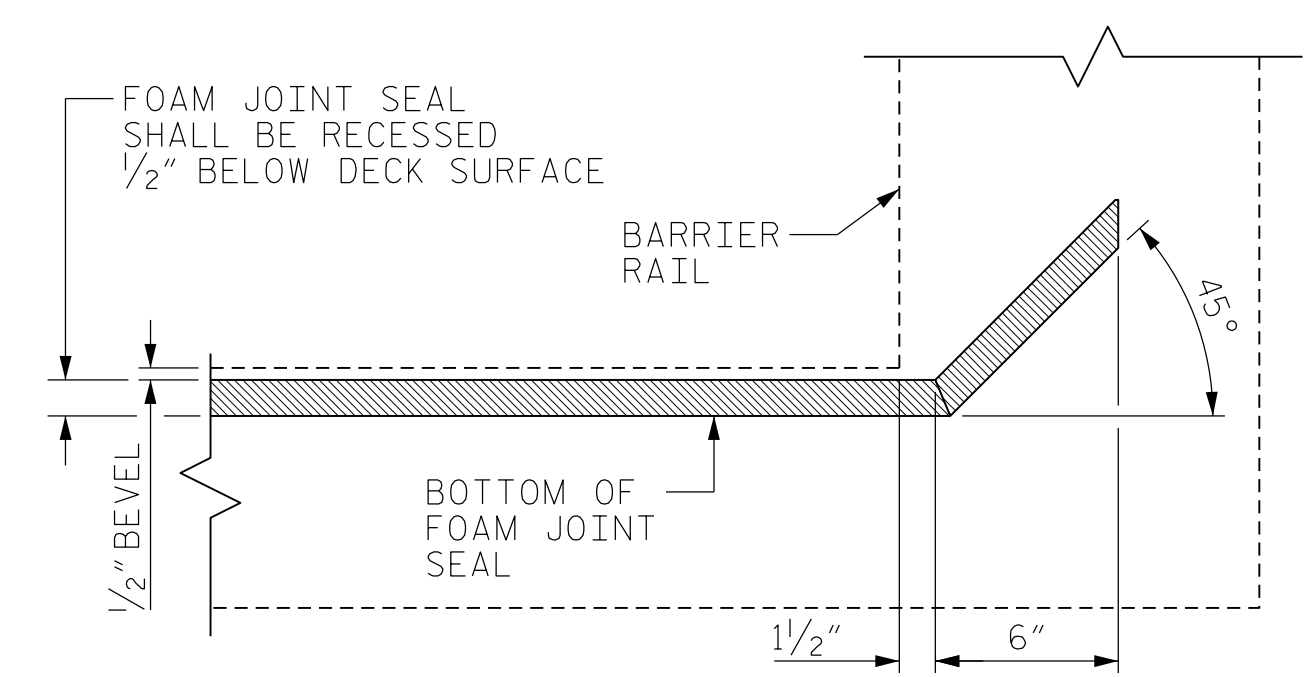
SECTION B-B
(SCARIFICATION AND HYDRO-DEMOLITION)



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	11.0	
BENT 2	N/A	
BENT 3	11.0	

BRIDGE JOINT DEMOLITION		
LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	N/A	
BENT 1	44.0	
BENT 2	N/A	
BENT 3	44.0	

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	2"
END BENT 2	N/A

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	92	

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.

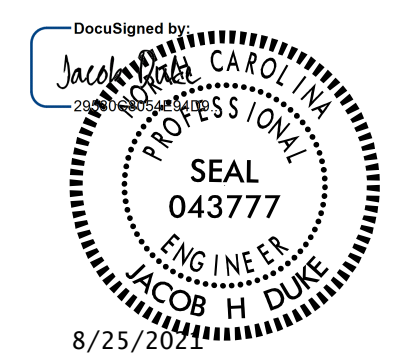
FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

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. 770124



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S12-4
					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

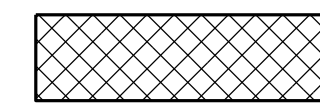
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE

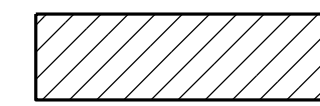
	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	4 EA	
GUARDRAIL REMOVAL	475 LF	
PROPOSED GUARDRAIL	400 LF	
INCIDENTAL MILLING	245 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	25 TON	
ASPHALT BINDER FOR PLANT MIX	1.5 TON	
POLYUREA PAVEMENT MARKING LINES (4", 30MILS)	1595 LF	

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.



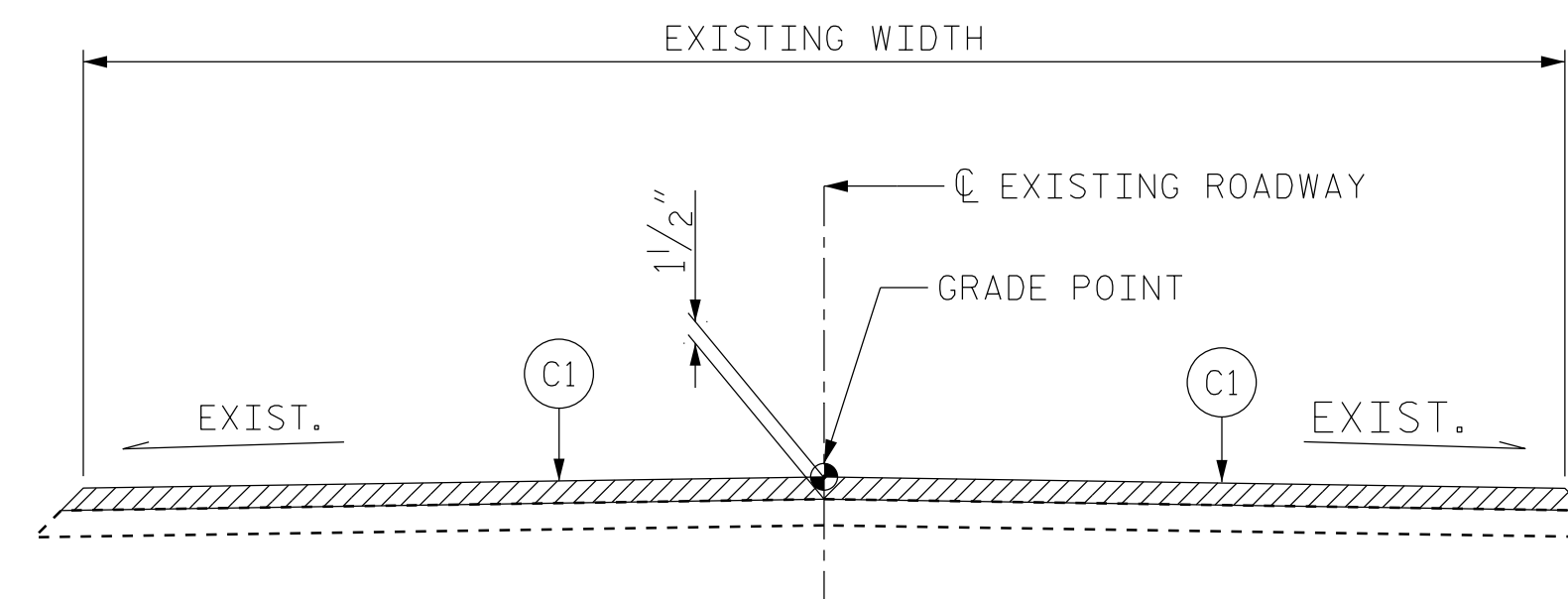
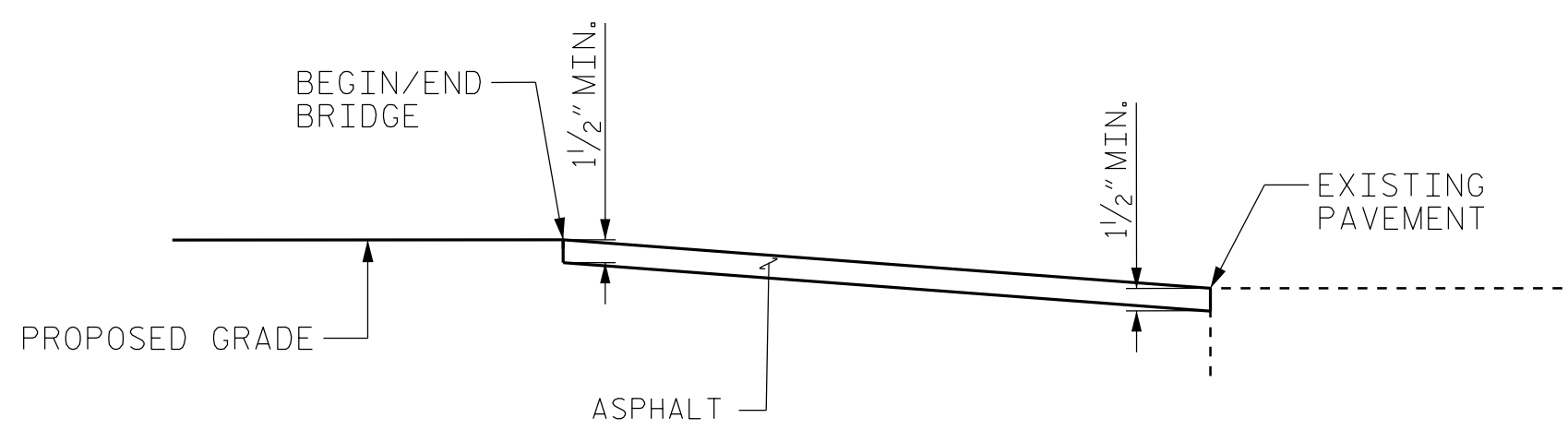
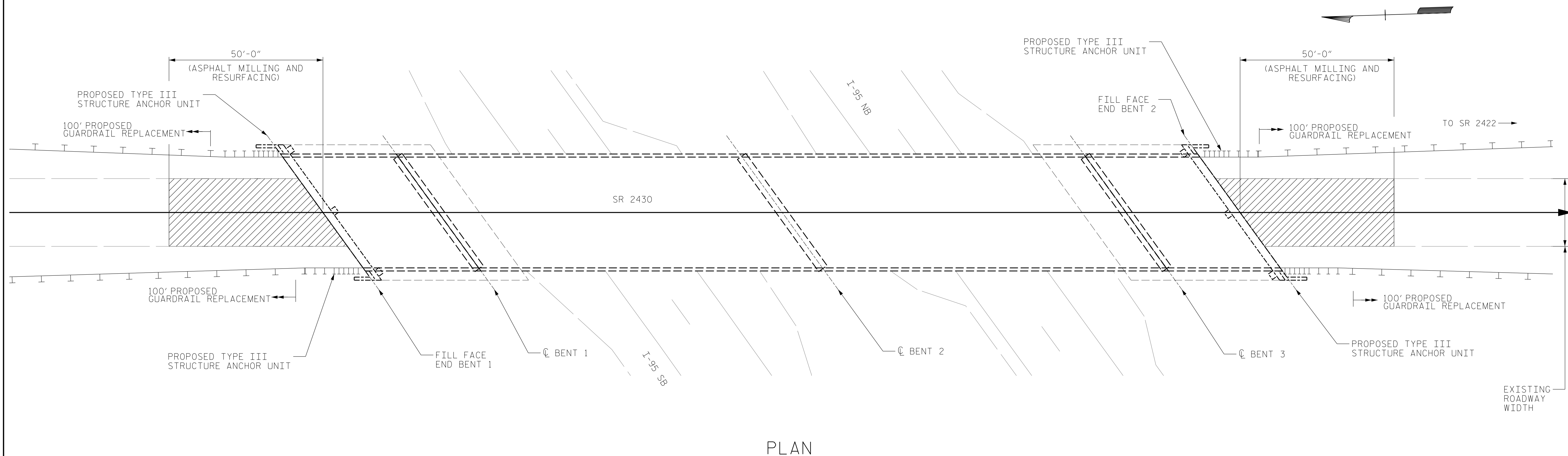
INCIDENTAL MILLING



ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

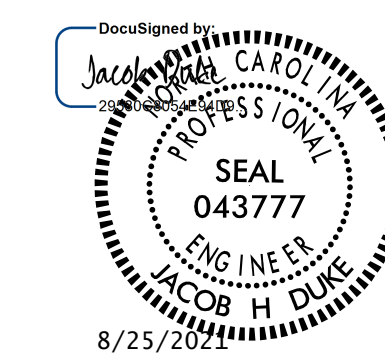
C1

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.



PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770124

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

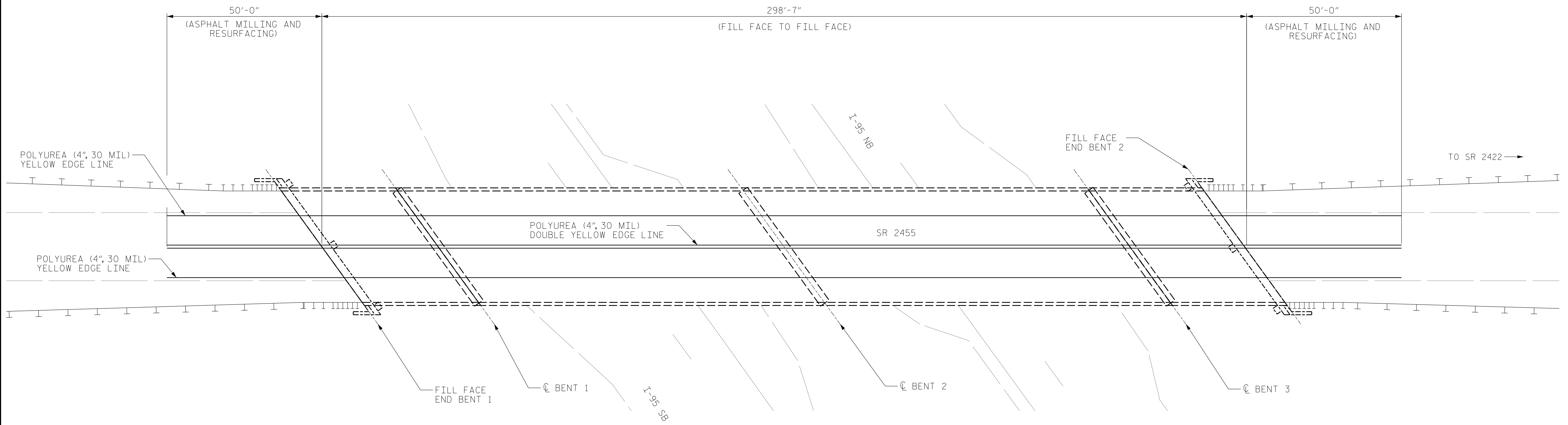
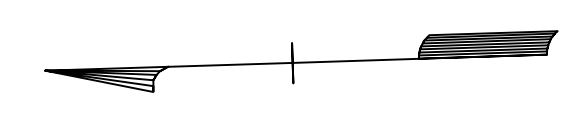
APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL

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

8/25/2021
 I5939.SMU.AR01.770124.dgn
 fflores

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S12-5
1			3			TOTAL SHEETS
2			4			10



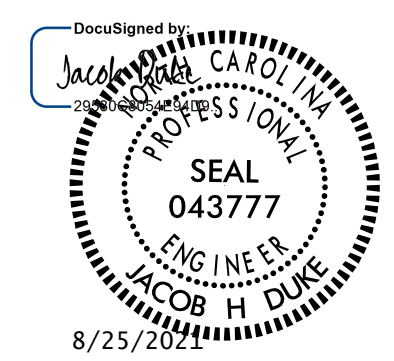
PLAN

NOTES:

FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770124

SHEET 2 OF 2



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
 PAVEMENT MARKING

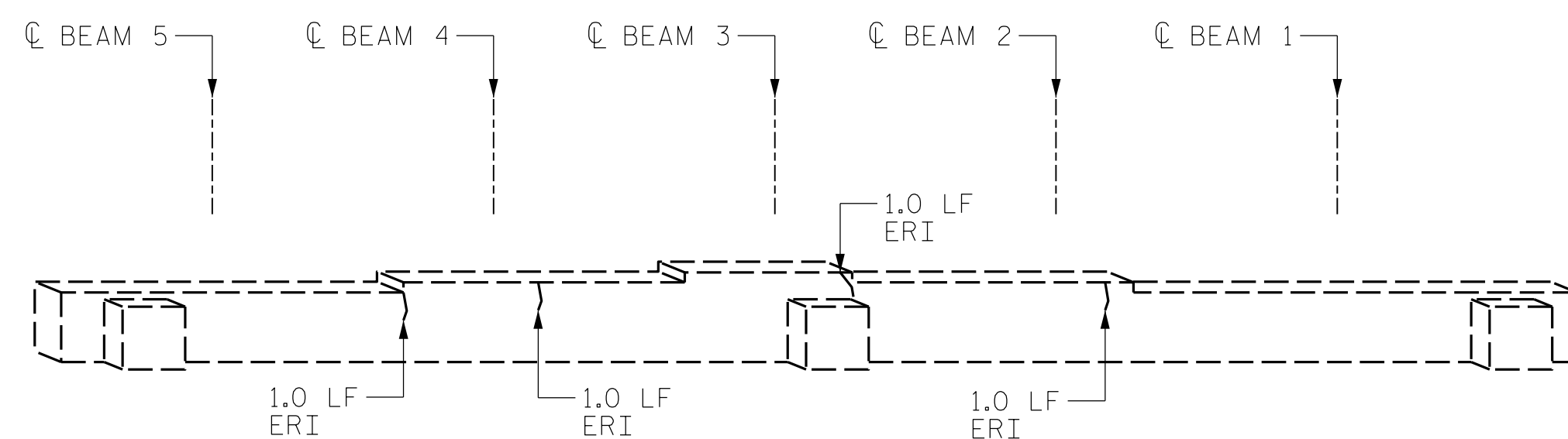
DRAWN BY :	FIDEL L. FLORES	DATE :	06/2021
CHECKED BY :	DIEGO A. AGUIRRE	DATE :	06/2021
DESIGN ENGINEER OF RECORD:	JACOB H. DUKE	DATE :	06/2021

8/25/2021
 I5939.SMU.AR02.770124.dgn
 fflores

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

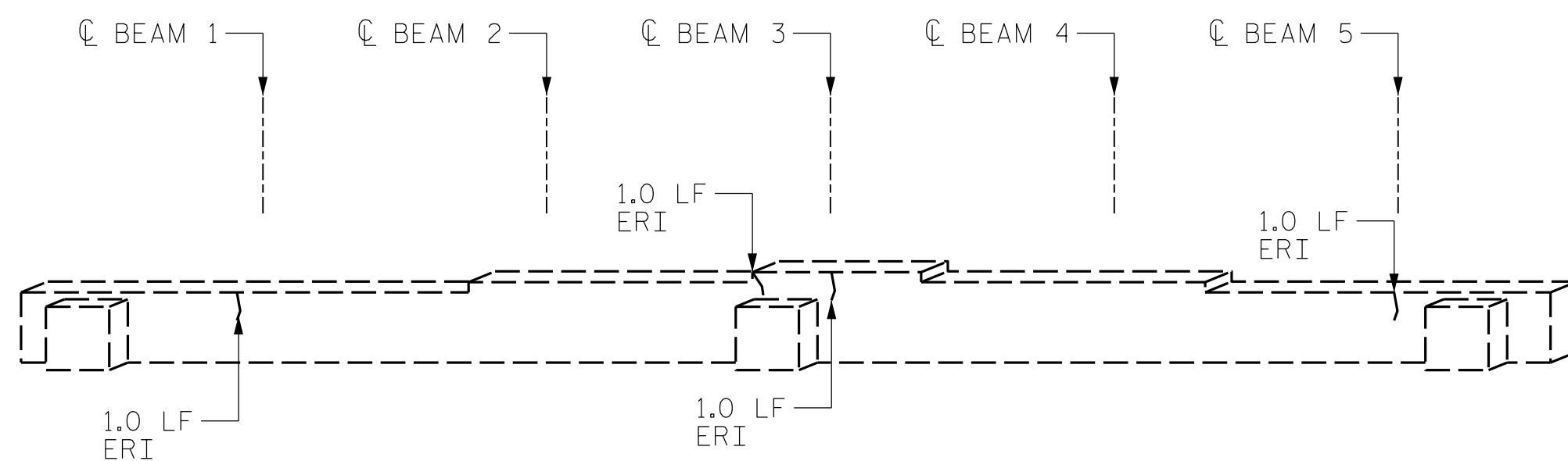
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			10
2			4			

SHEET NO.
S12-6



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	8.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	271.7			

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.

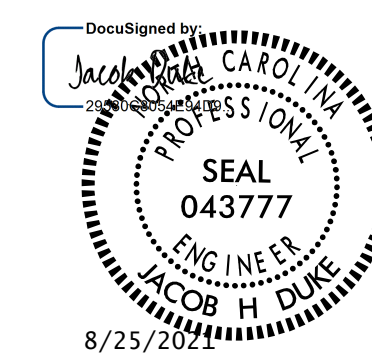
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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. 770124



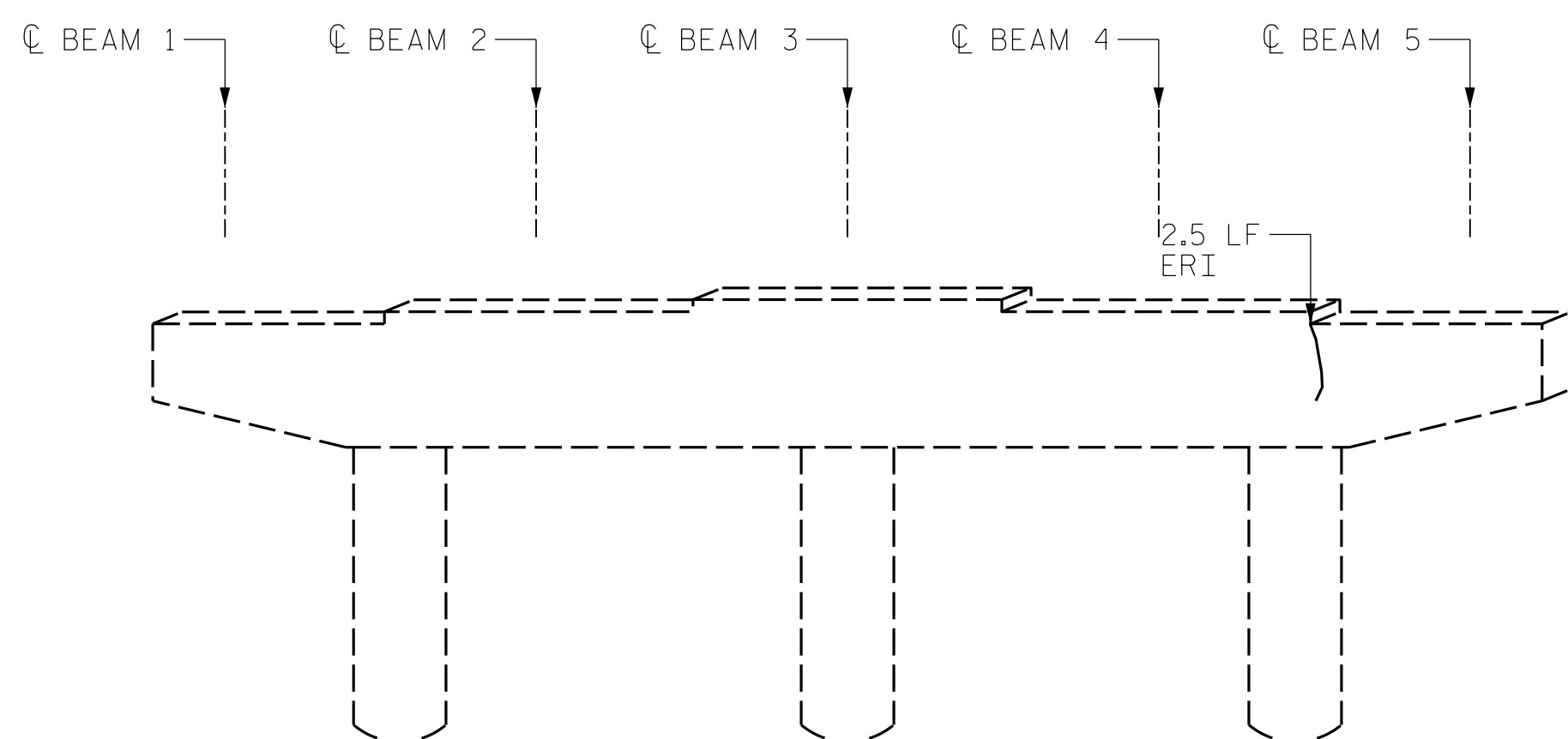
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 END BENTS 1 & 2

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

8/25/2021
 I9939.SMU.SBR00.770124.dgn
 fflores

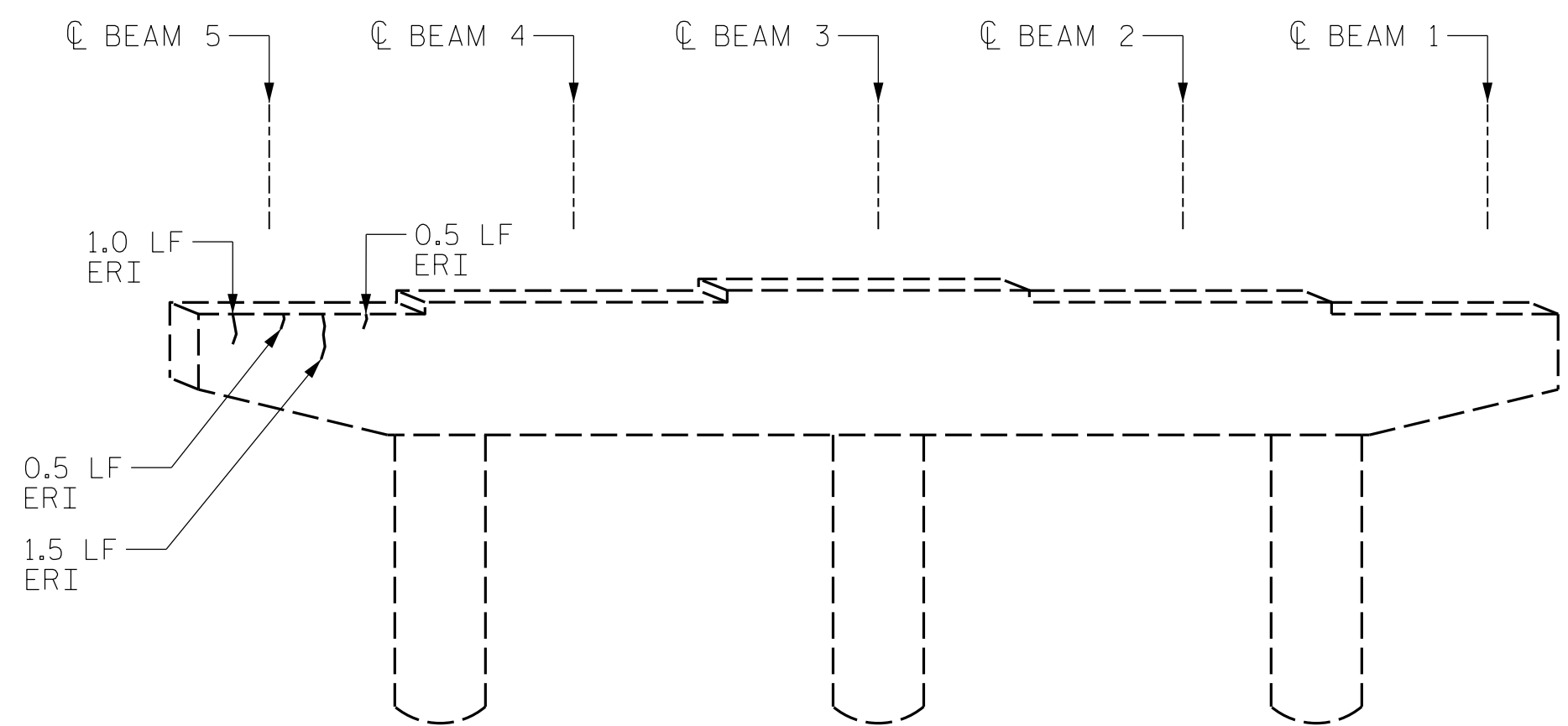
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S12-7
2			4			TOTAL SHEETS 10



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		6.0			
COLUMN/PILE					
EPOXY COATING		AREA SQ. FT.		AREA SQ. FT.	
CAP		149.9			

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.

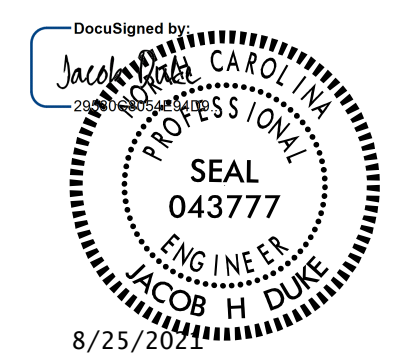
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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. 770124

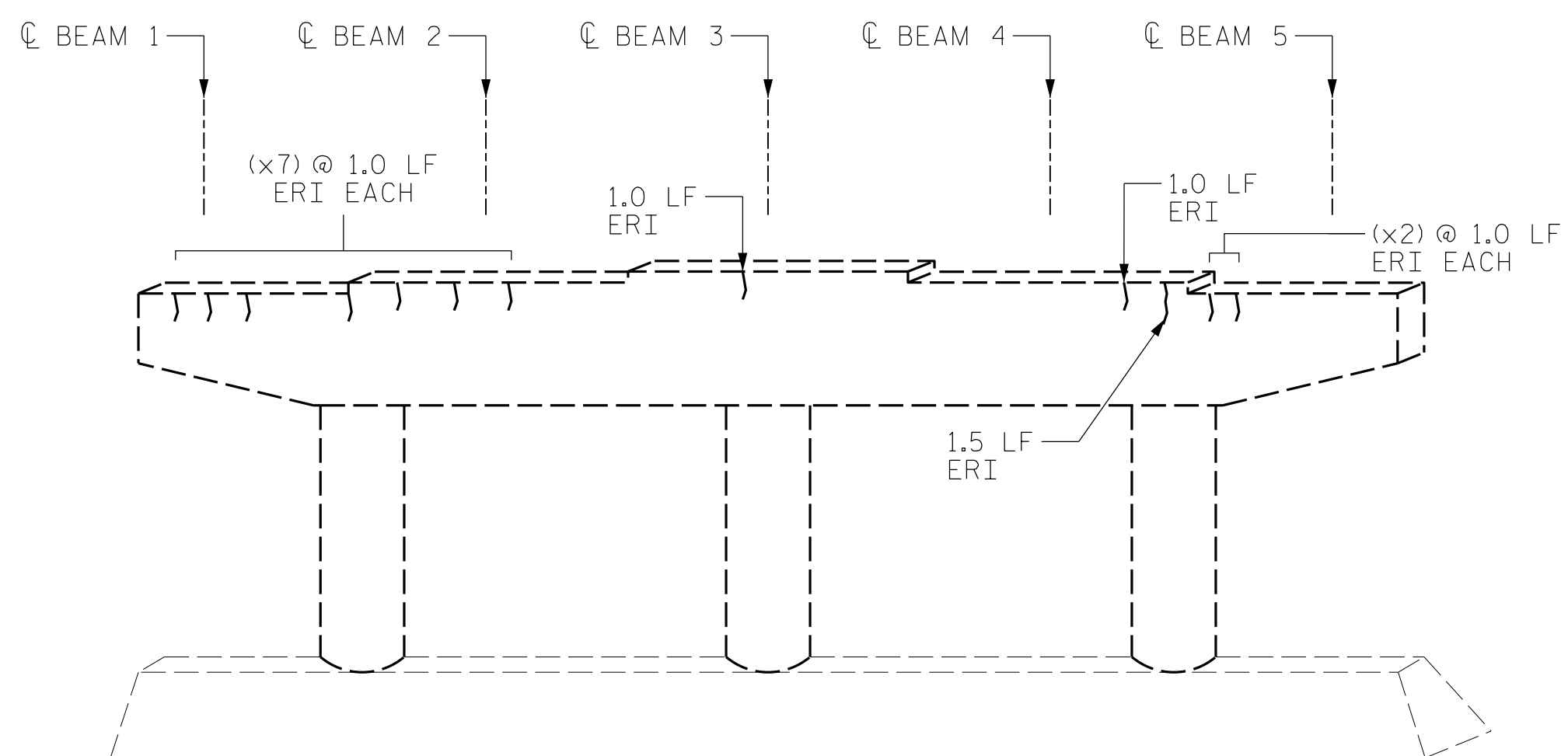


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

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

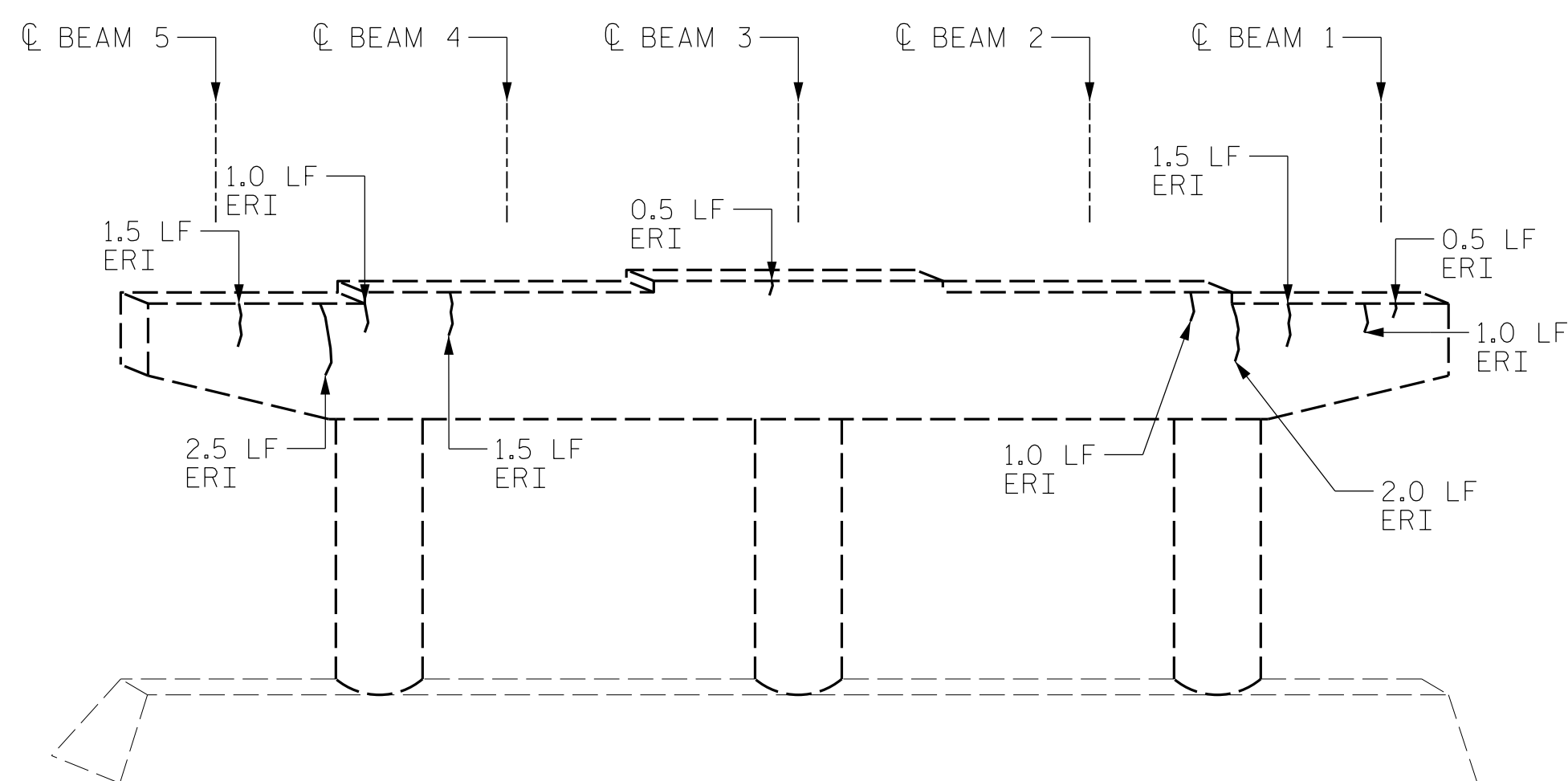
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



BENT 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	25.5			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	149.9			

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.

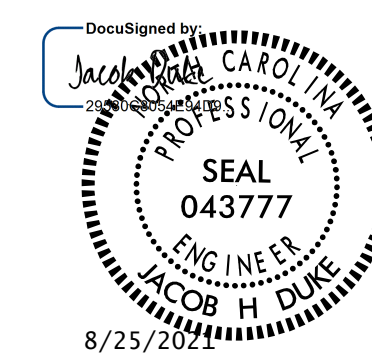
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770124



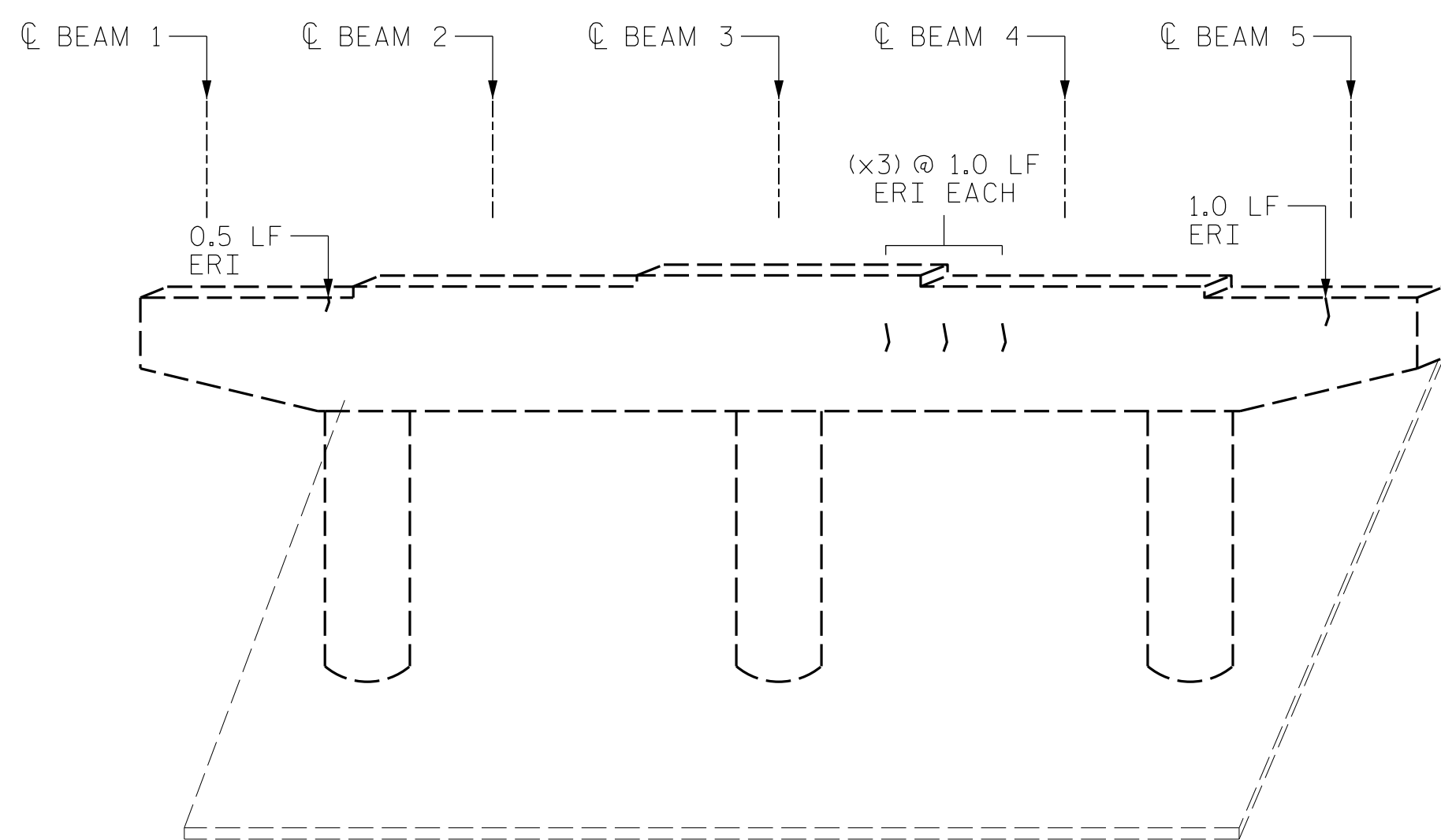
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 2

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
 I939.SMU.SBR02.770124.dgn
 fflores

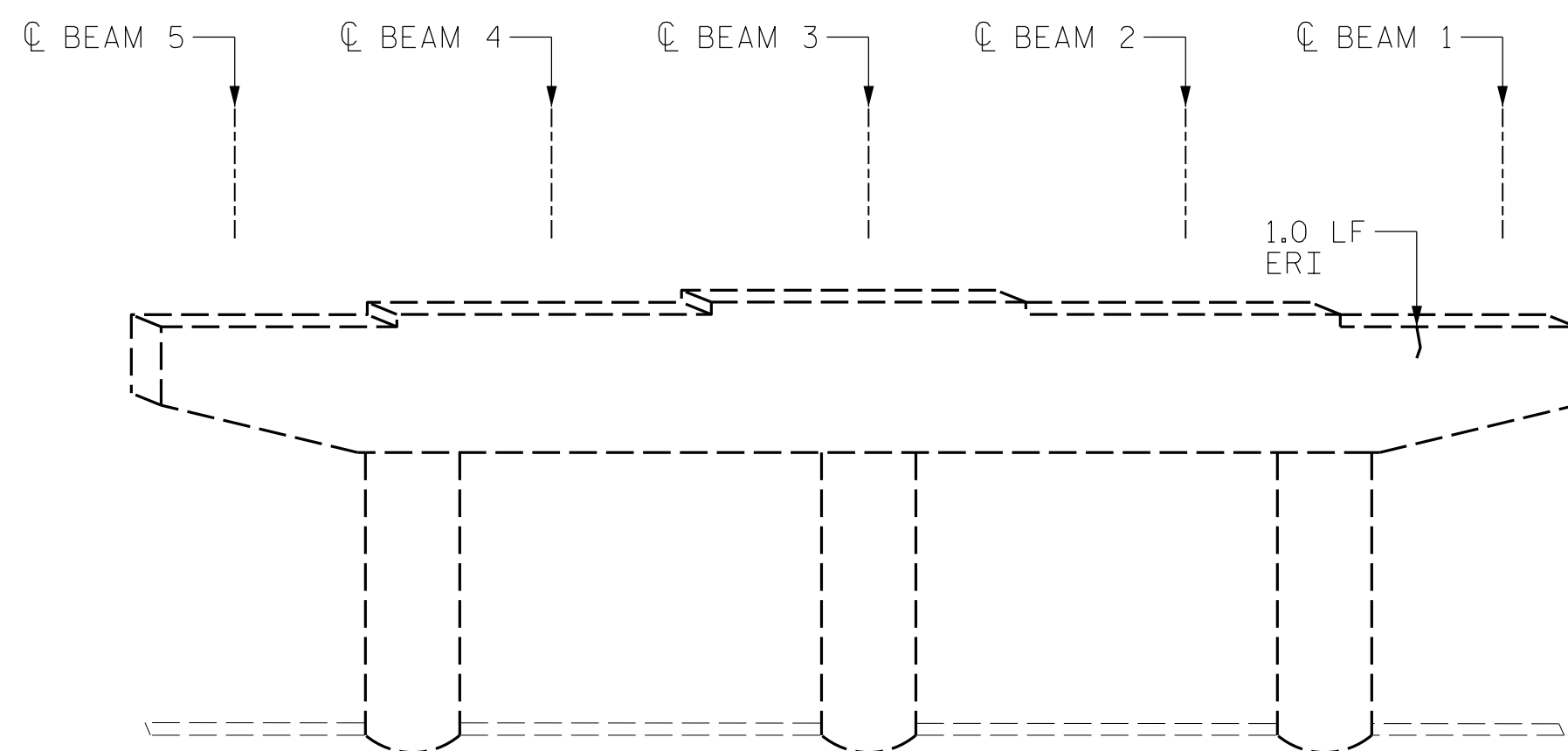
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S12-9
2			4			TOTAL SHEETS 10



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	5.5			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	149.9			

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.

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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.

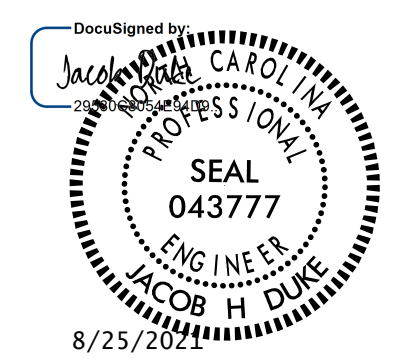
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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. 770124



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

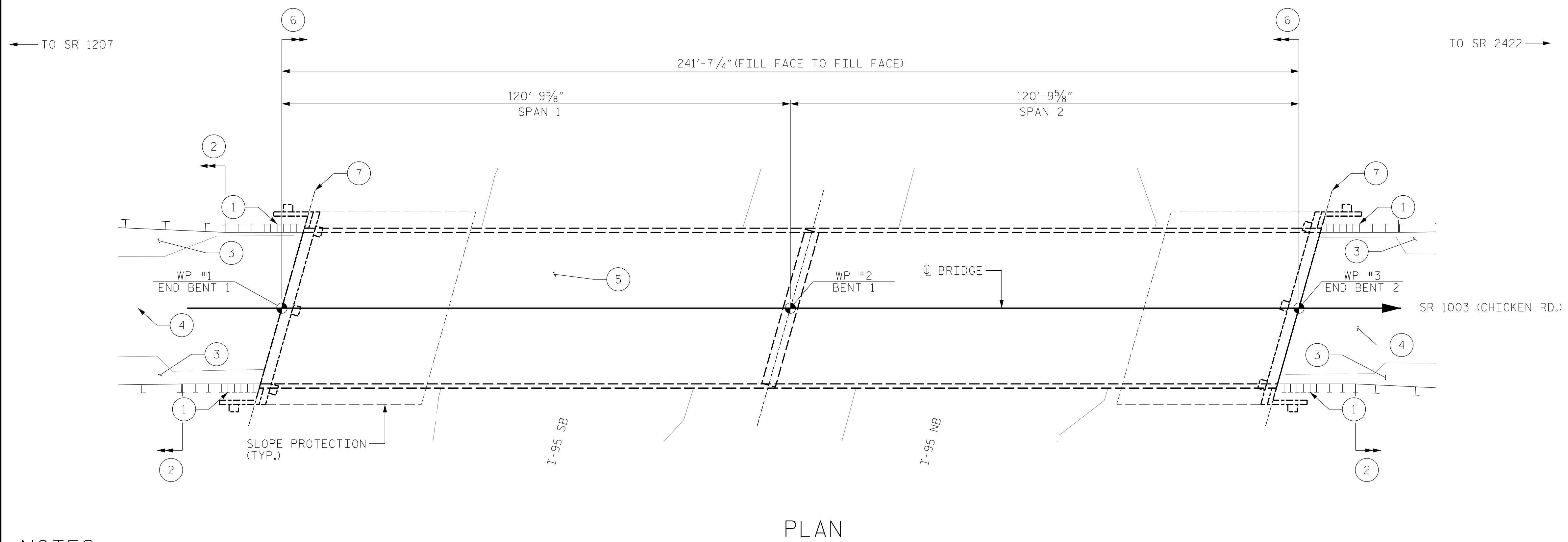
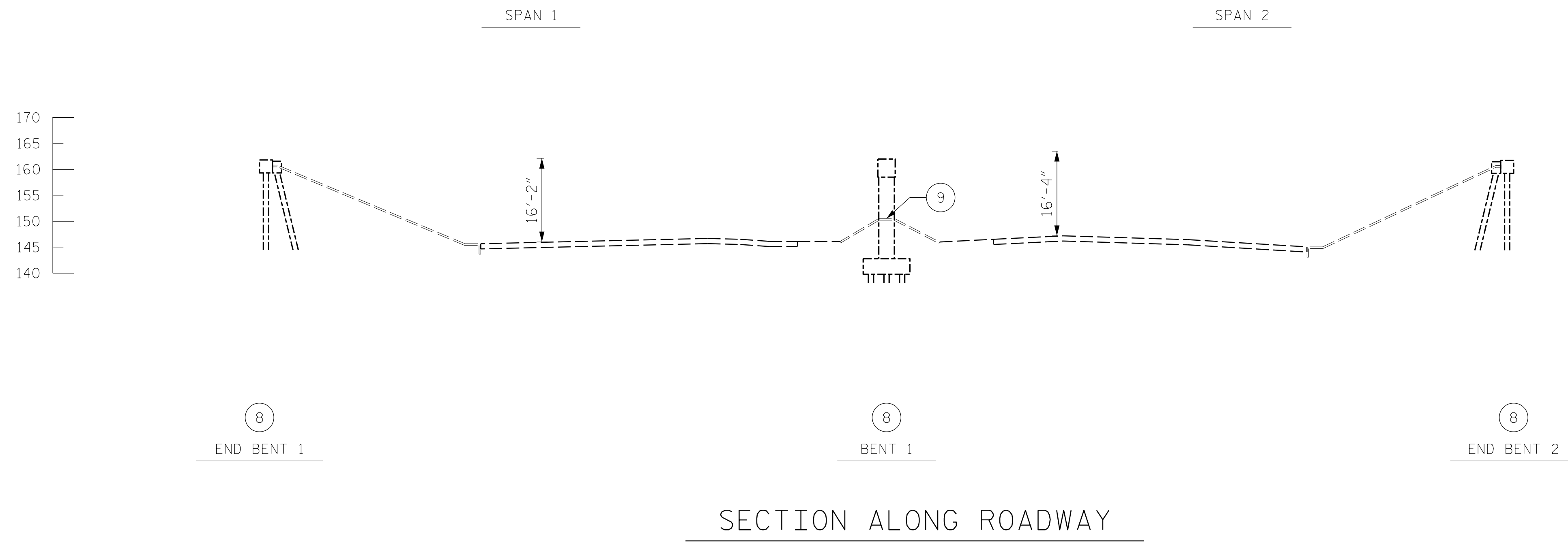
DRAWN BY : JACOB H. DUKE DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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

- 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 EPOXY RESIN INJECTION
 - ⑨ SILICONE JOINT SEAL REPLACEMENT AT COLUMN BASES

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. 770130



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1003
 OVER I-95

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 05/01/2019.

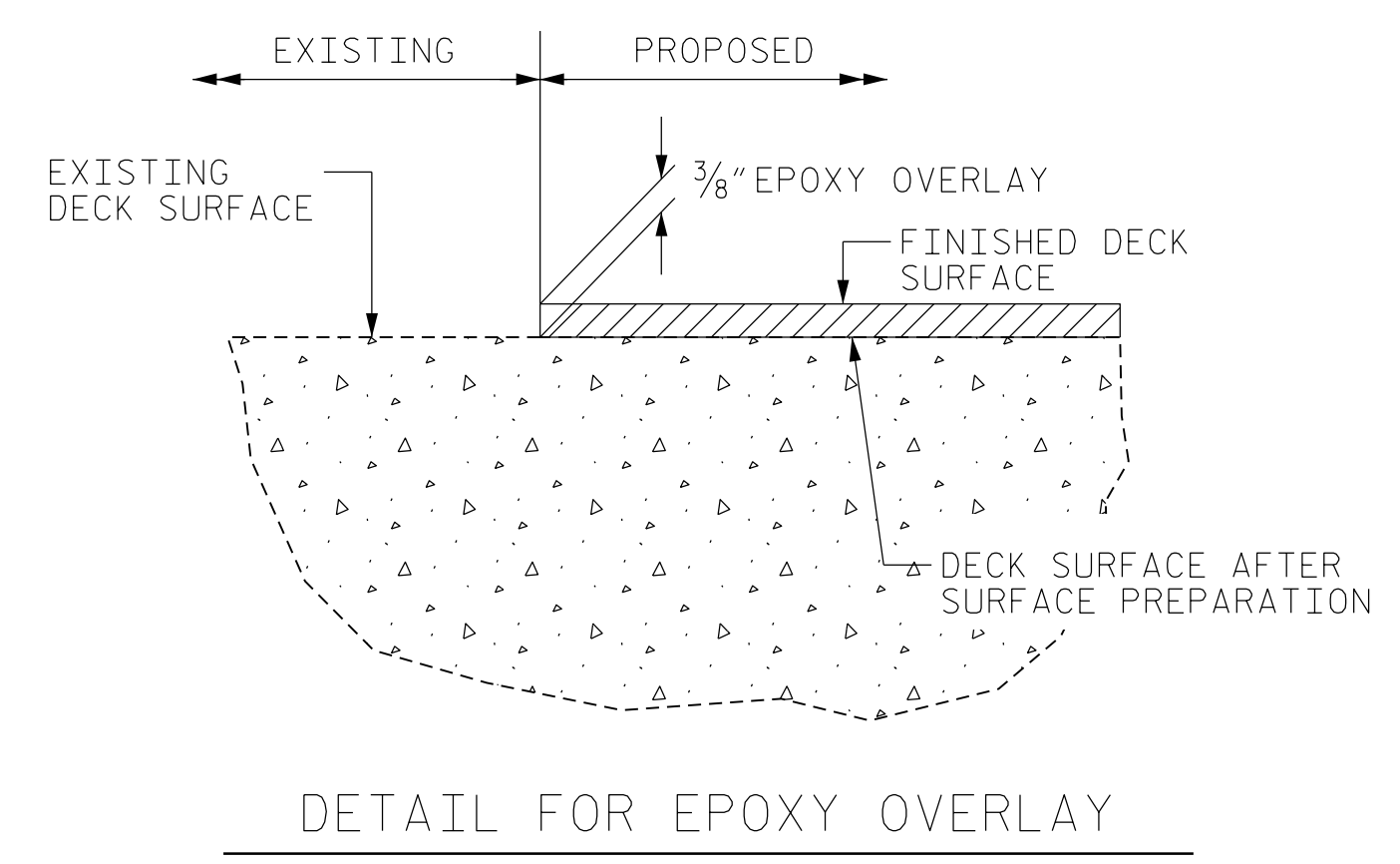
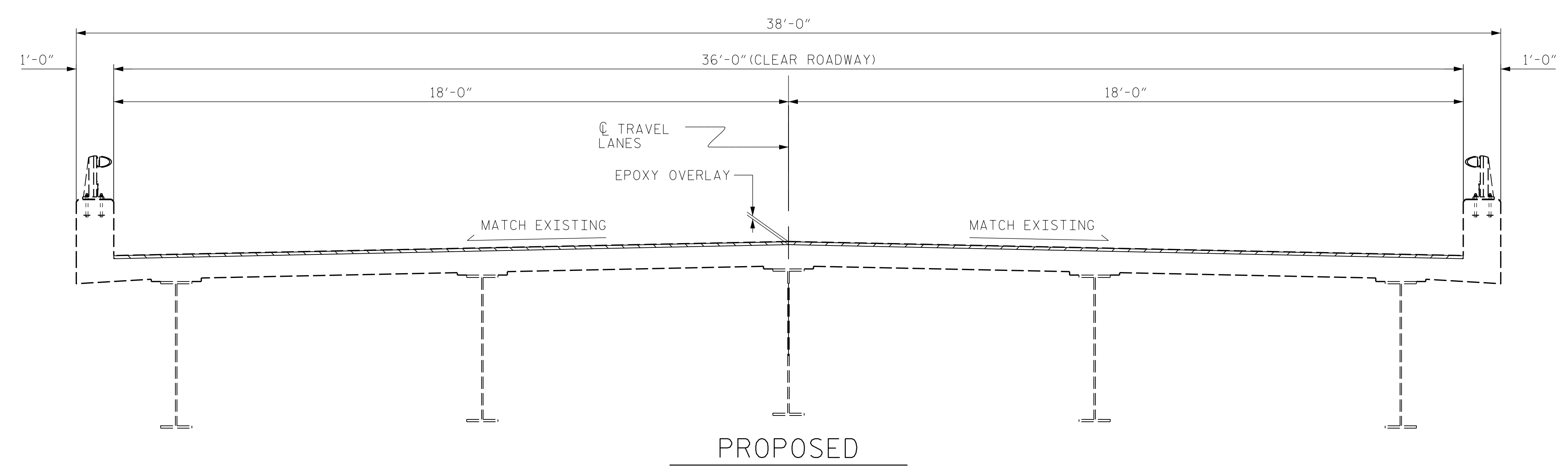
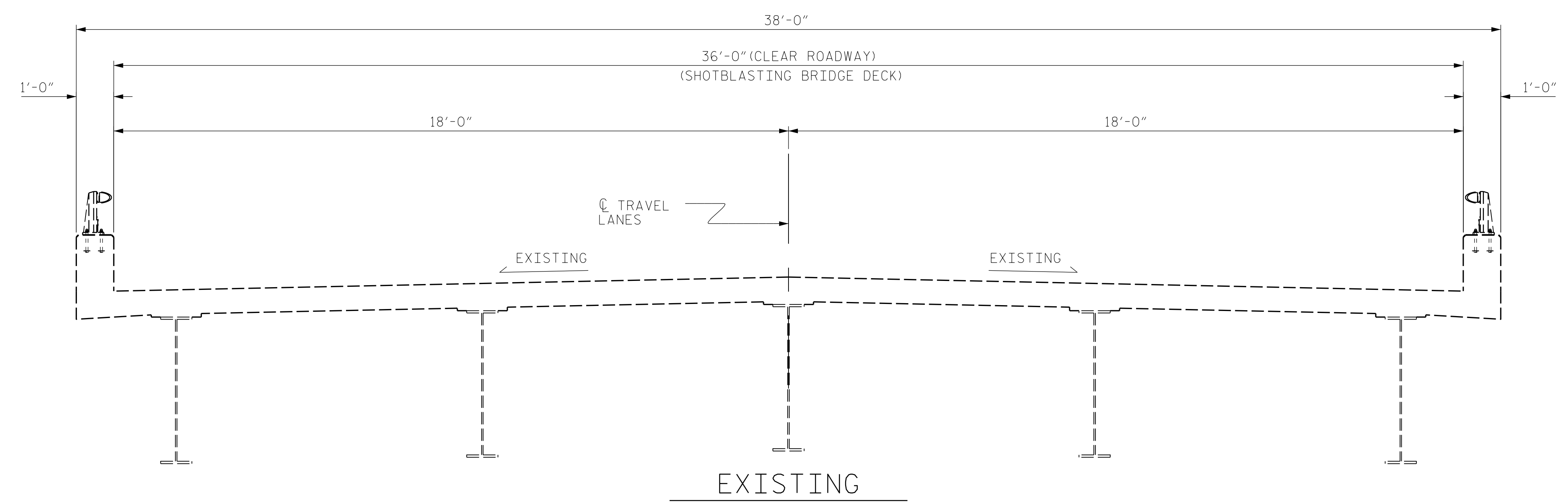
BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

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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KCSA
 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			8
2			4			

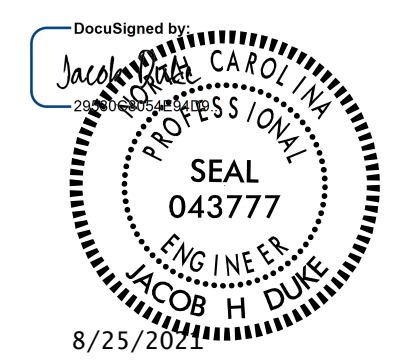


- NOTES:**
1. LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
 2. SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY AND SURFACE PREPARATION.

DRAWN BY : ALLEN J. MCSWAIN 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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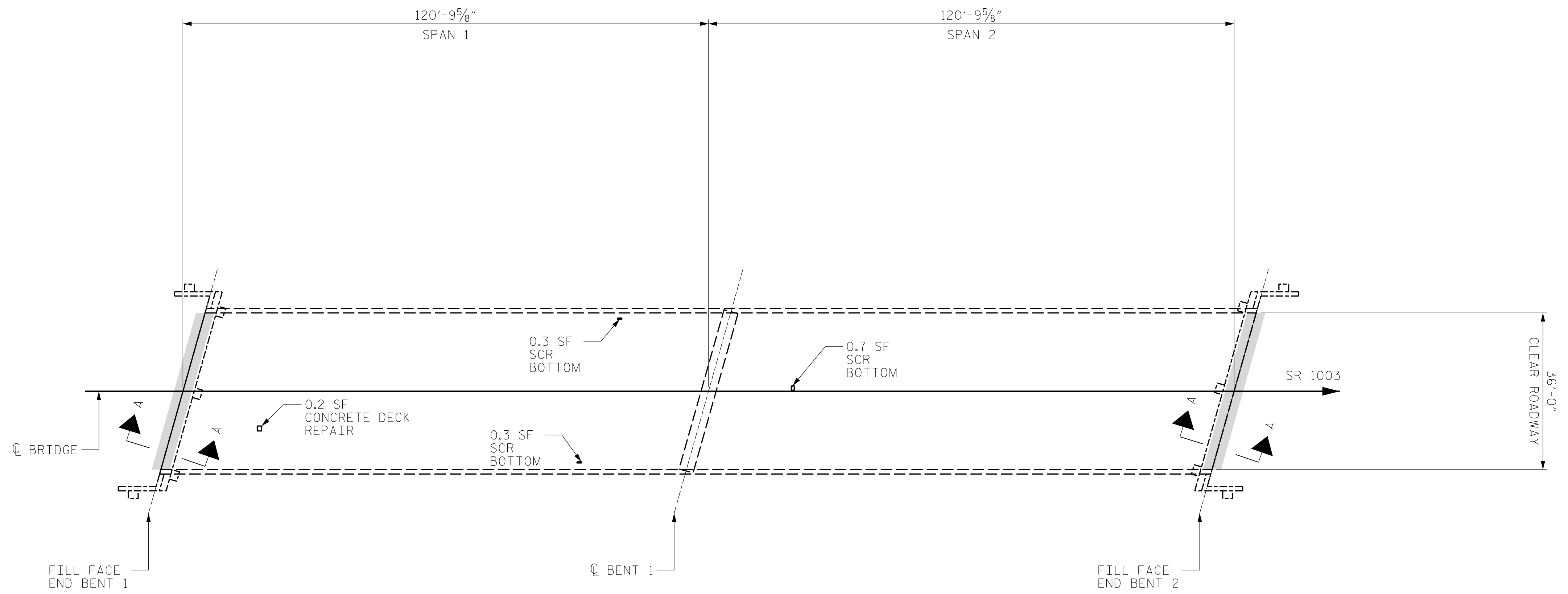


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PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770130

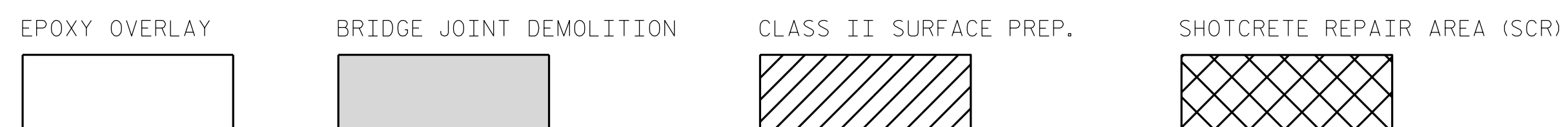
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
TYPICAL SECTION						S13-2
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	8
1			3			
2			4			

AS-BUILT REPAIR QUANTITY TABLE				
TOP OF DECK REPAIRS				
	SPAN 1		SPAN 2	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	0.2 SF		0.0 SF	
EPOXY OVERLAY SYSTEM II	4349 SF		4349 SF	
SHOTCRETE REPAIR AREA (SCR)	0.6 SF		0.7 SF	



NOTES:

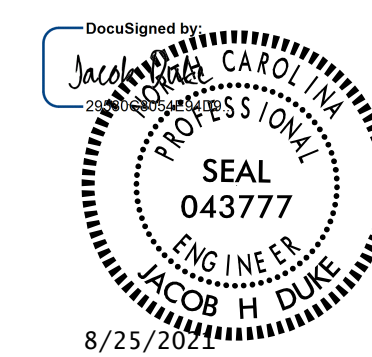
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES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



DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : 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. 770130



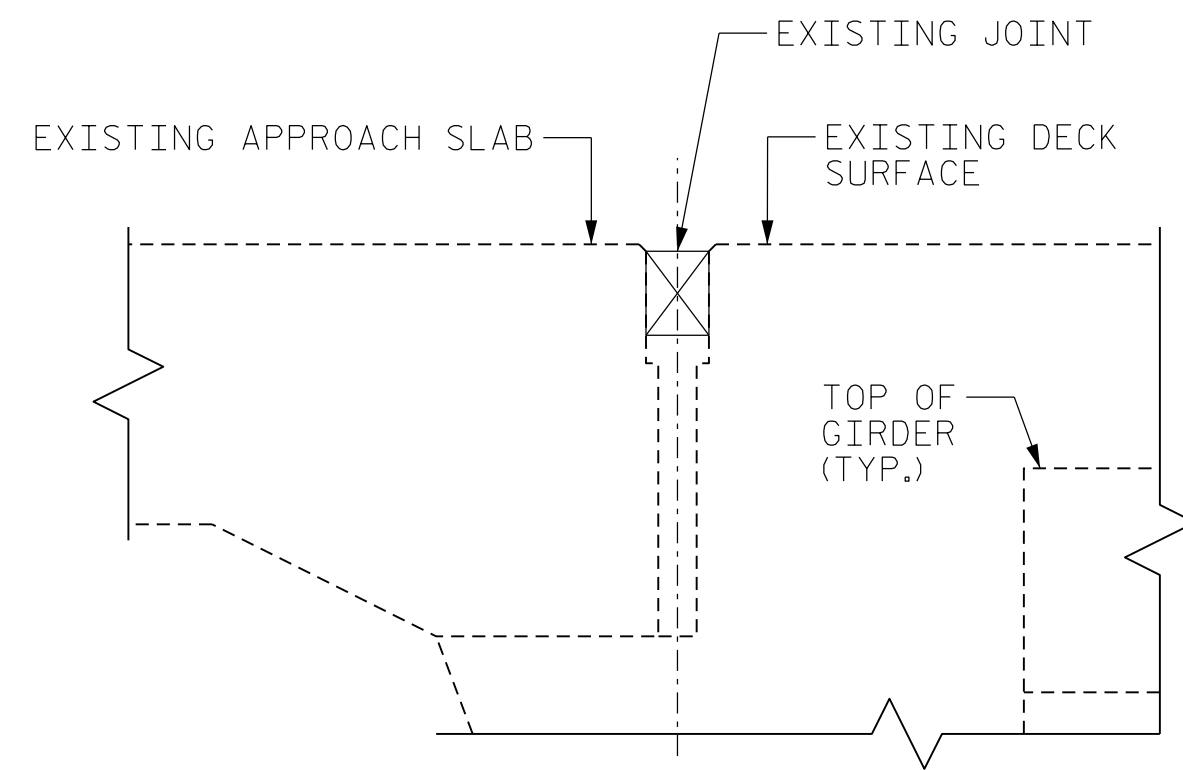
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 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

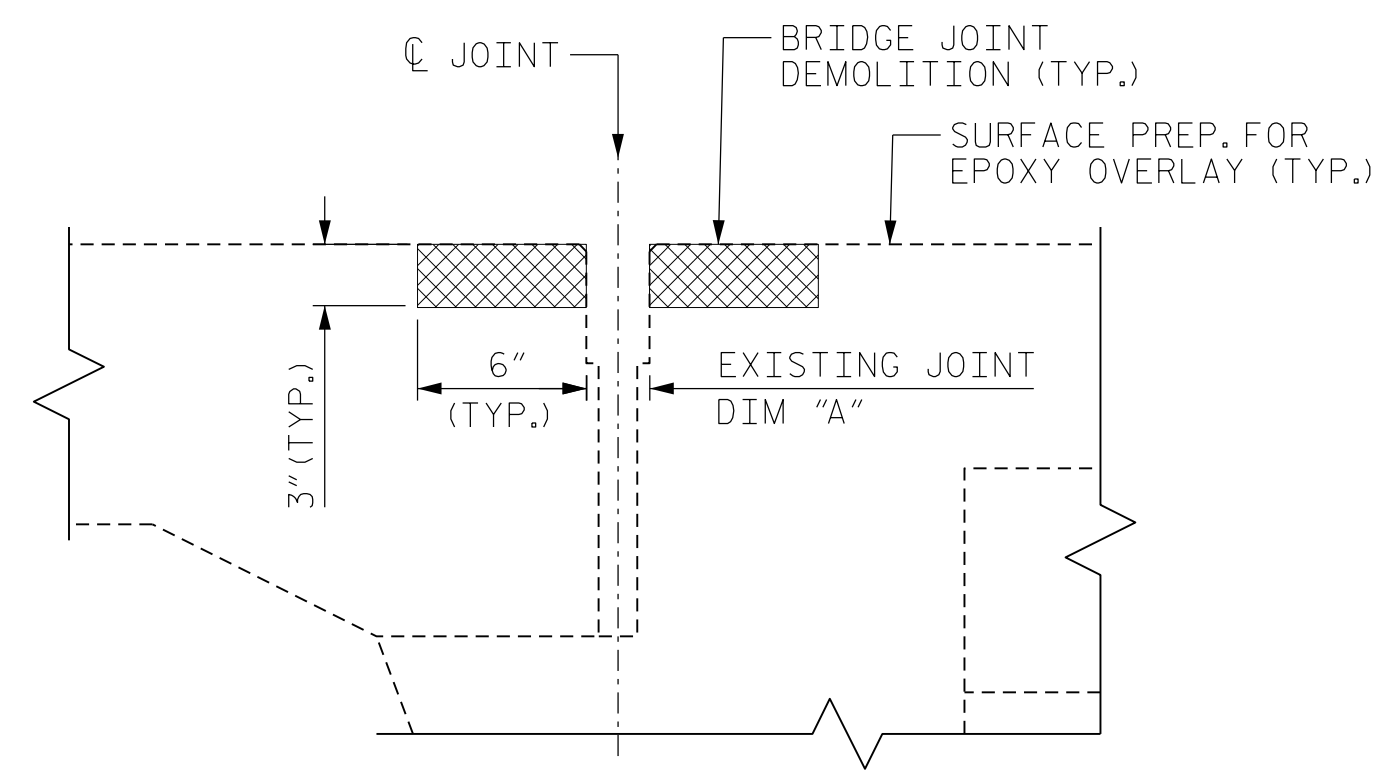
PLAN OF SPANS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S13-3
1			3			TOTAL SHEETS
2			4			8

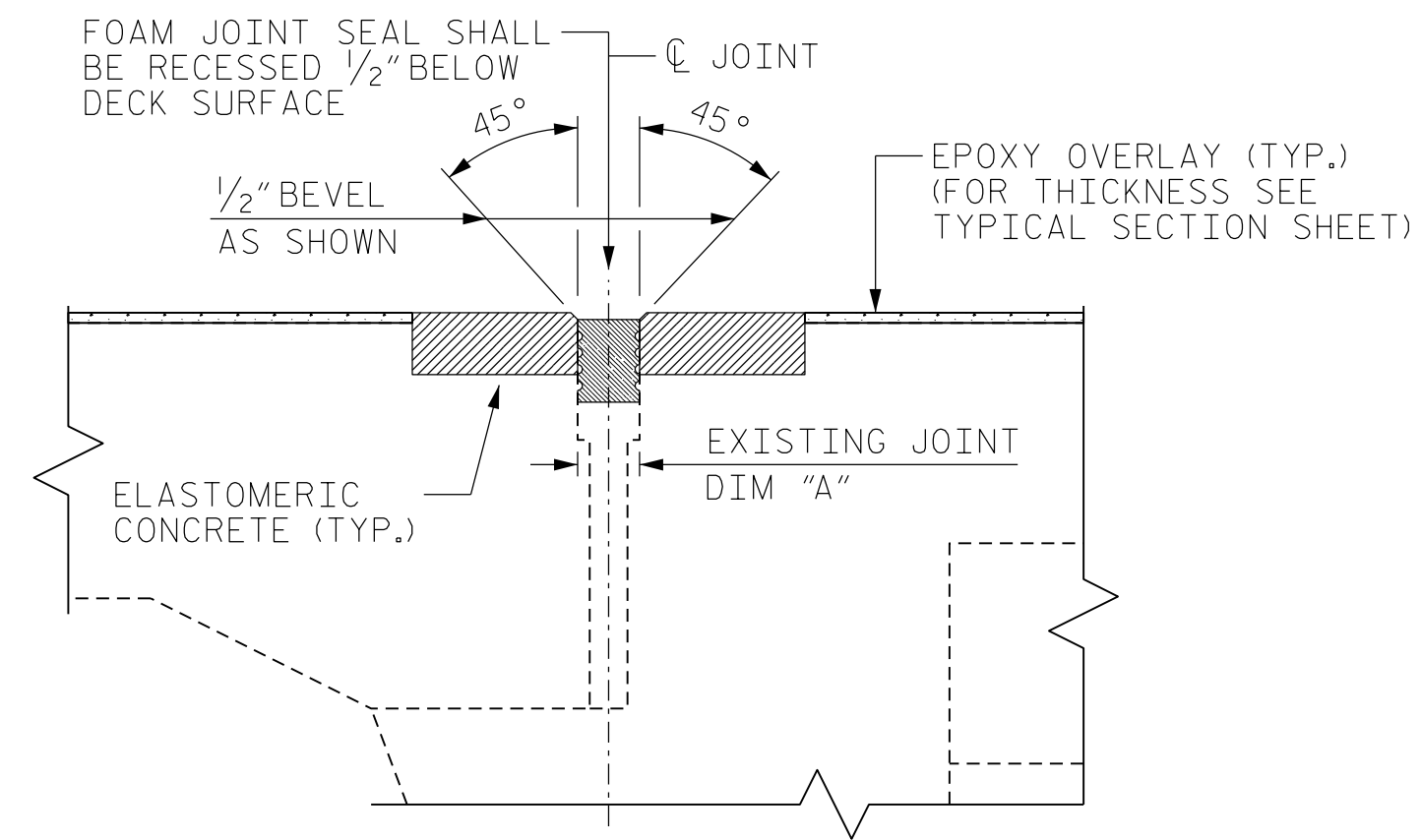
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SECTION A-A
(EXISTING JOINT)



SECTION A-A
(MIN. DEMOLITION)



SECTION A-A
(PROPOSED JOINT)

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 REVISION.

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 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.

ELASTOMERIC CONCRETE FOR PRESERVATION

LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	18.8	
BENT 1	N/A	
BENT 2	N/A	
BENT 3	N/A	

BRIDGE JOINT DEMOLITION

LOCATION	ESTIMATED (SQ.FT.)	ACTUAL (SQ.FT.)
END BENTS	75.0	
BENT 1	N/A	
BENT 2	N/A	
BENT 3	N/A	

PROPOSED JOINT QUANTITY

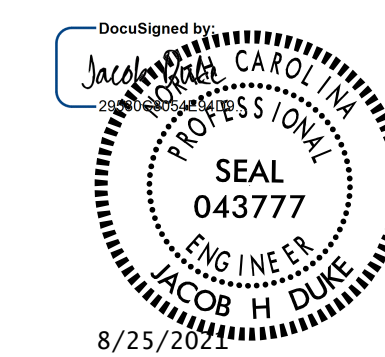
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	79	

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 5/8"
END BENT 2	N/A

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770130



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

JOINT DETAILS

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

8/25/2021
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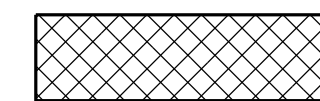
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S13-4
1			3			TOTAL SHEETS
2			4			8

AS-BUILT REPAIR QUANTITY TABLE

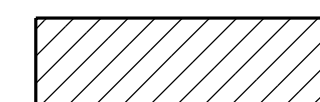
	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	4 EA	
GUARDRAIL REMOVAL	475 LF	
PROPOSED GUARDRAIL	400 LF	
INCIDENTAL MILLING	316 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	30 TON	
ASPHALT BINDER FOR PLANT MIX	1.8 TON	
POLYUREA PAVEMENT MARKING LINES (4", 30MILS)	1367 LF	

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.



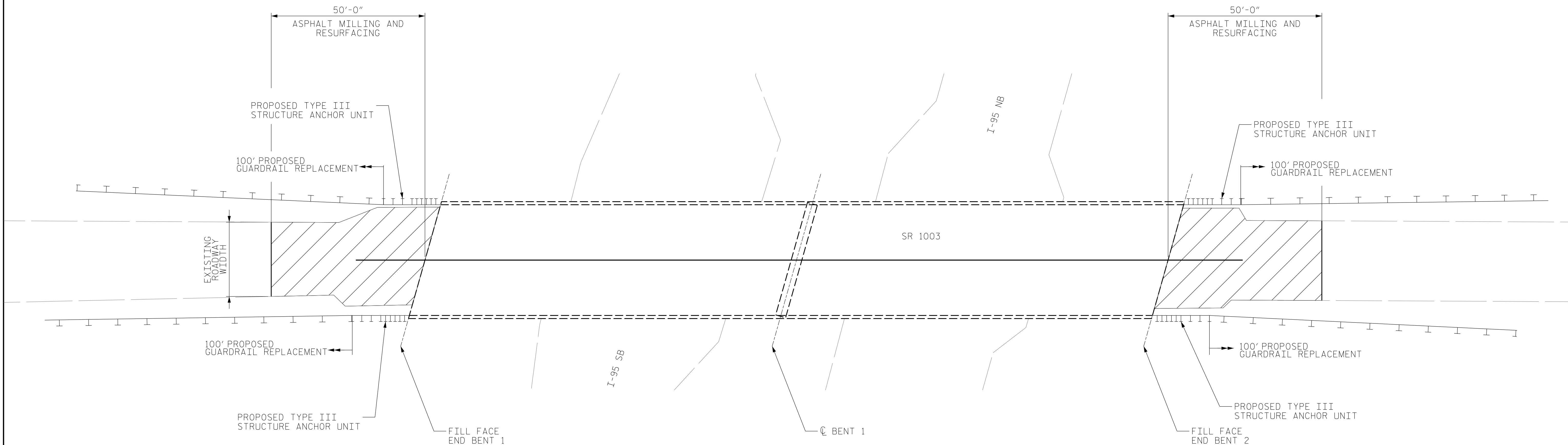
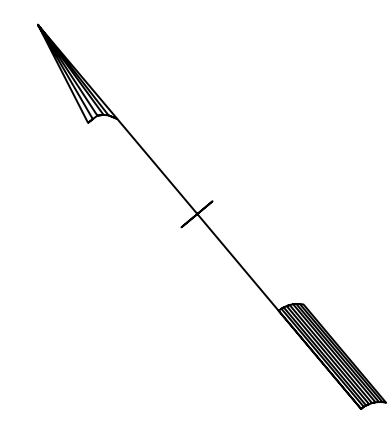
INCIDENTAL MILLING



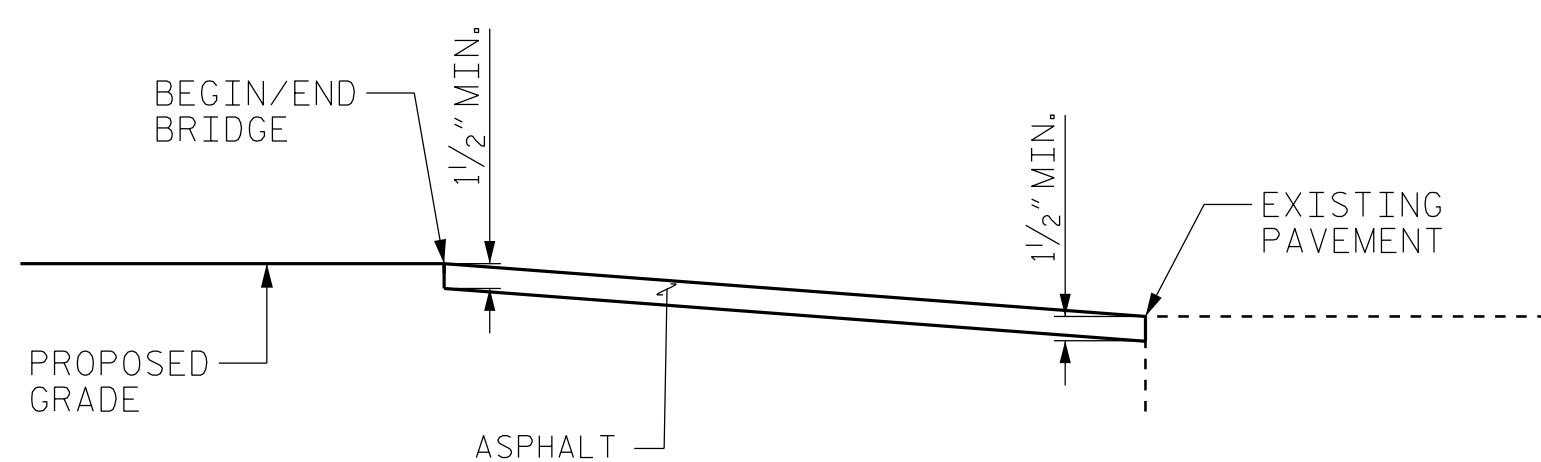
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

C1

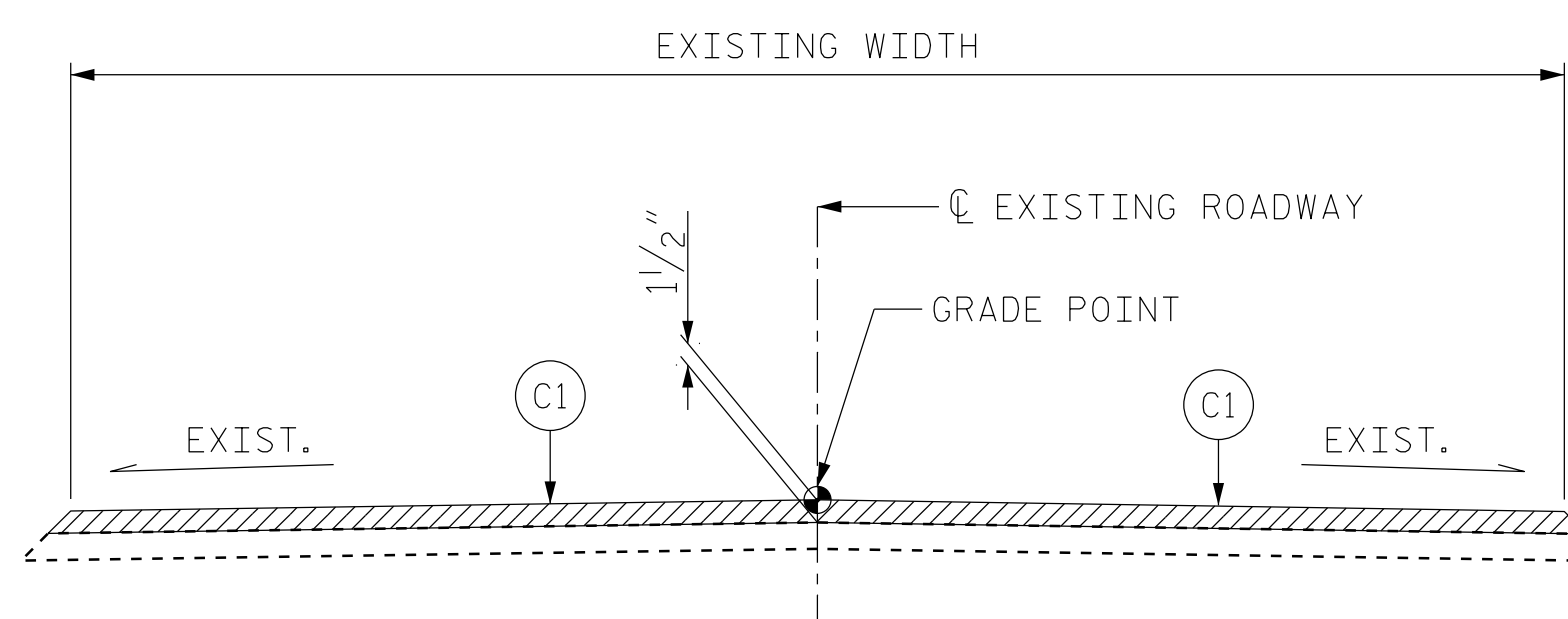
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PLAN



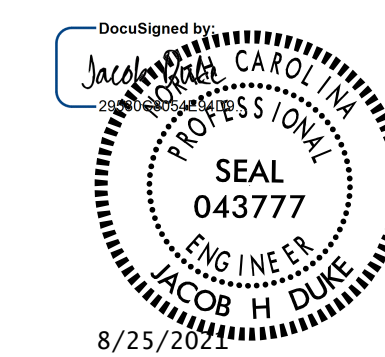
PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION
BEGIN/END BRIDGE

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770130

SHEET 1 OF 2



301 FAYETTEVILLE ST., SUITE 1500
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 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
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 RALEIGH

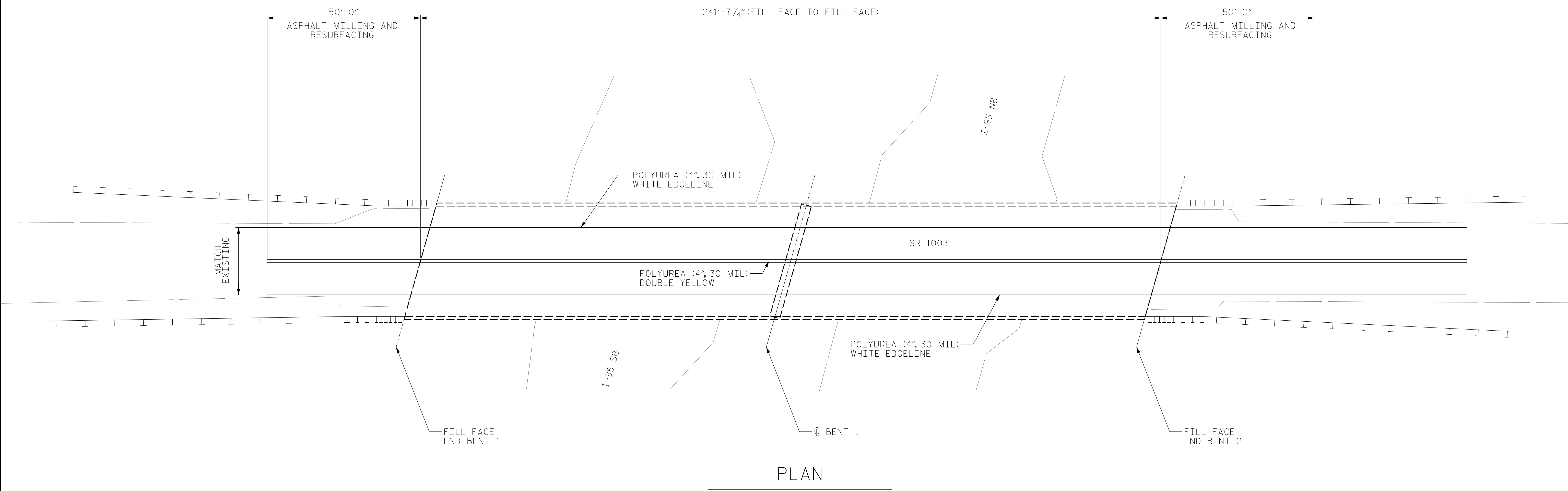
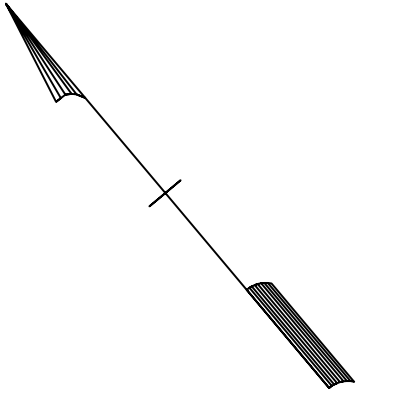
APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL

DRAWN BY : ALLEN J. MCSWAIN 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:	S13-5
1			3			TOTAL SHEETS
2			4			8



PLAN

NOTES:

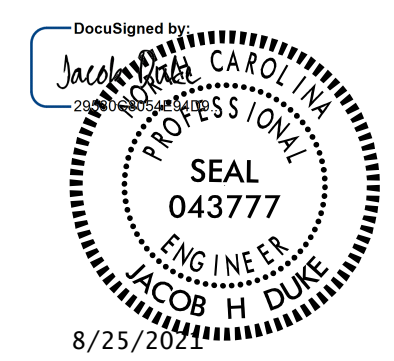
FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770130

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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APPROACH ROADWAY
 PAVEMENT MARKINGS

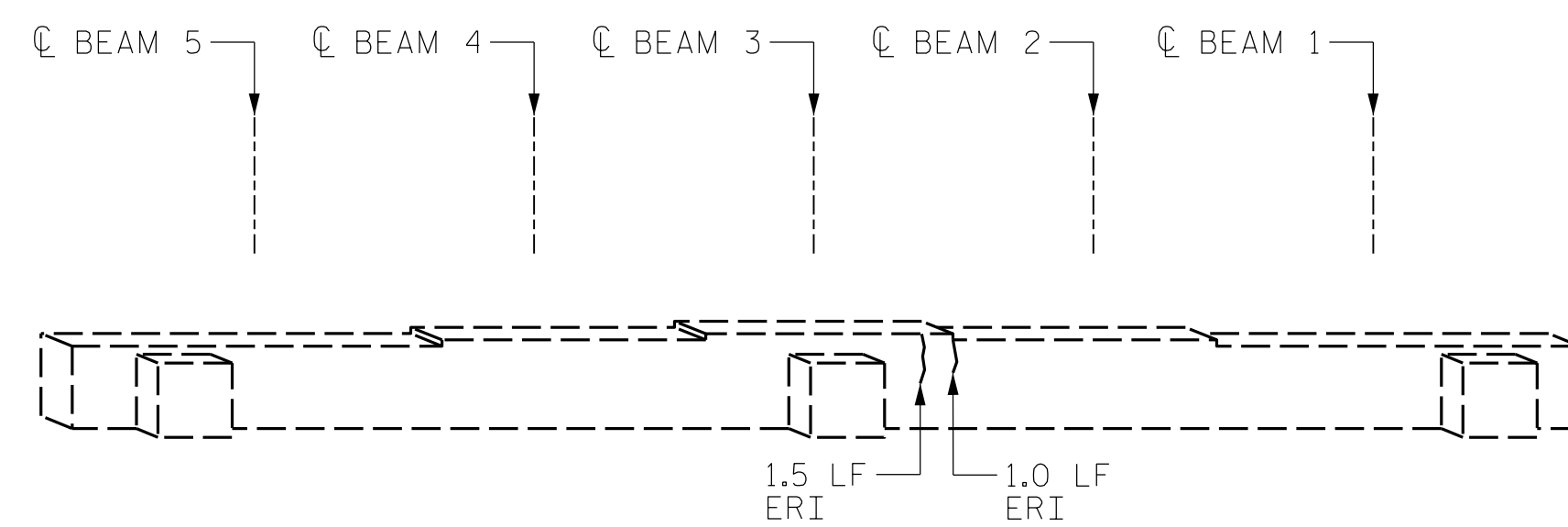


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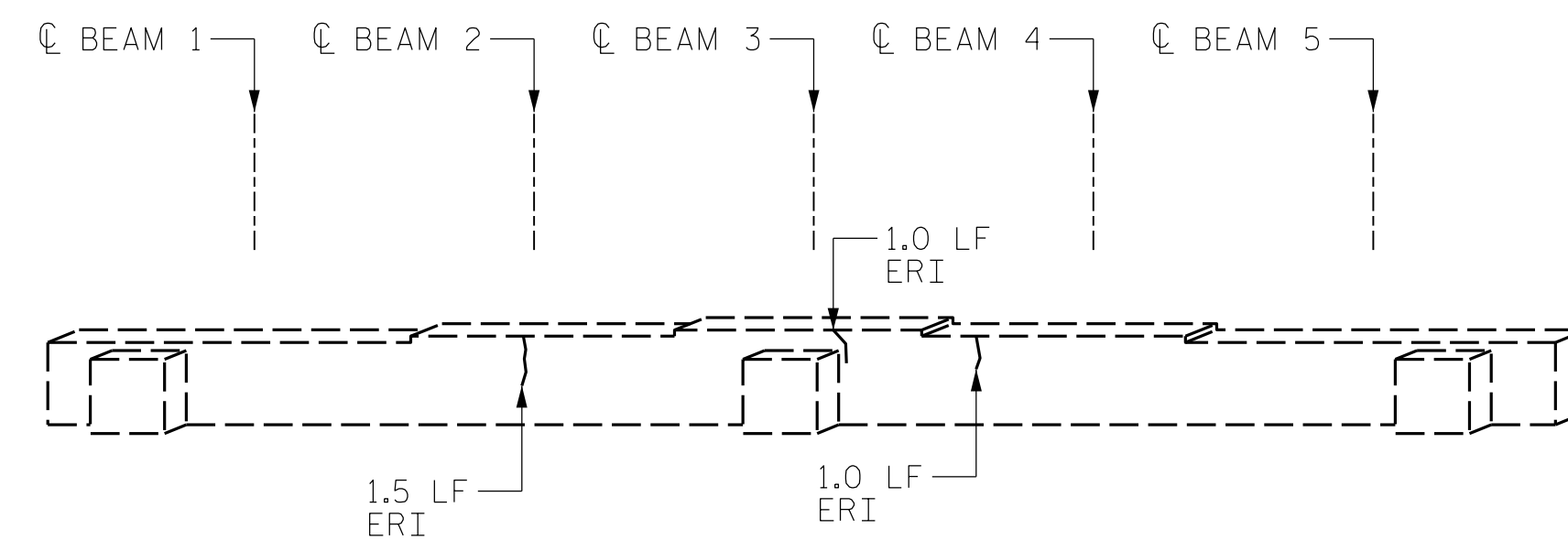
DRAWN BY : ALLEN J. MCSWAIN DATE : 06/2021
 CHECKED BY : FIDEL L. FLORES DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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1			3			8
2			4			



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			
	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	6.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	228.7			

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.

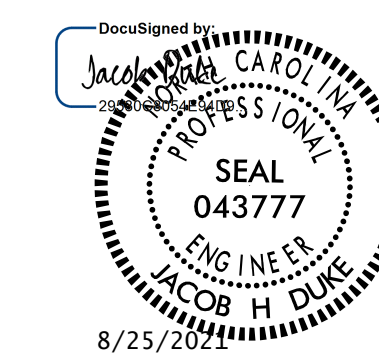
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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. 770130



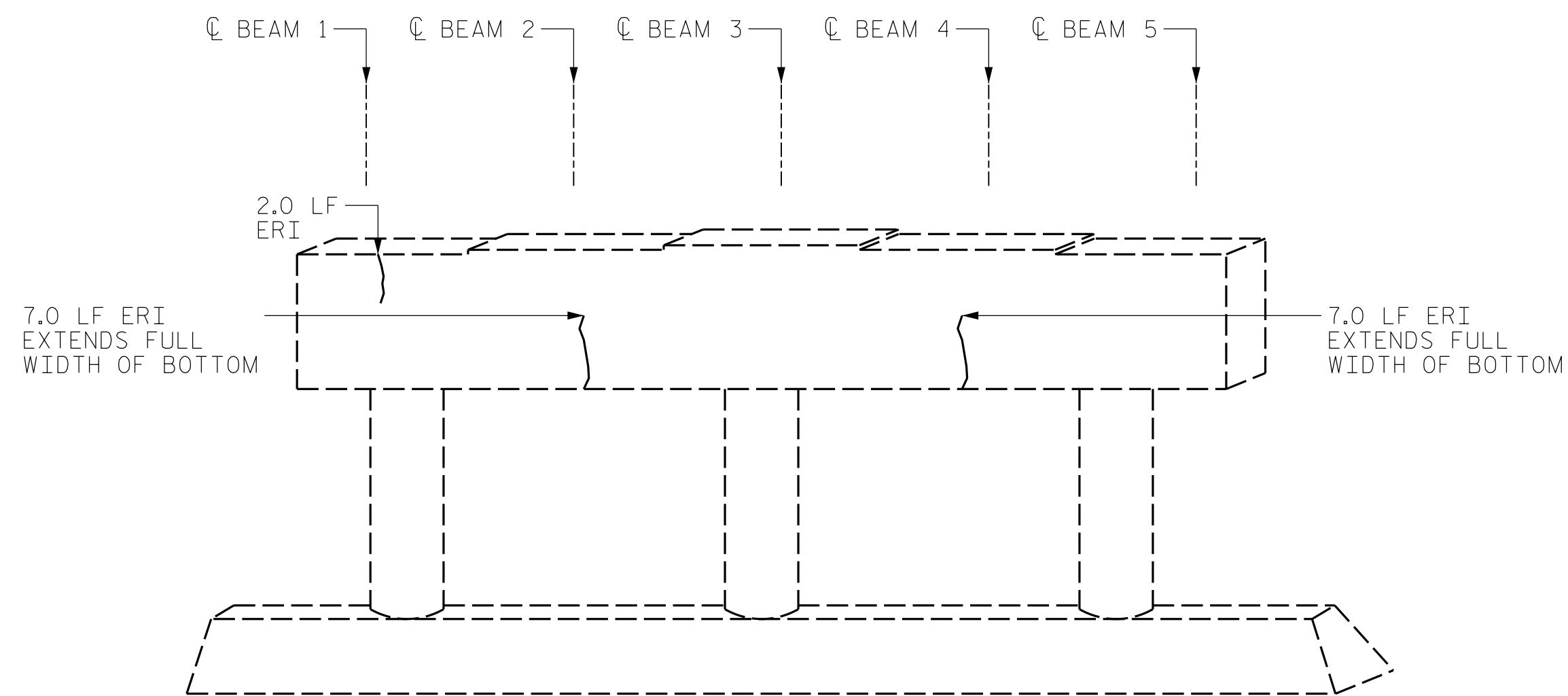
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 END BENTS 1 & 2

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

8/25/2021
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 fflores

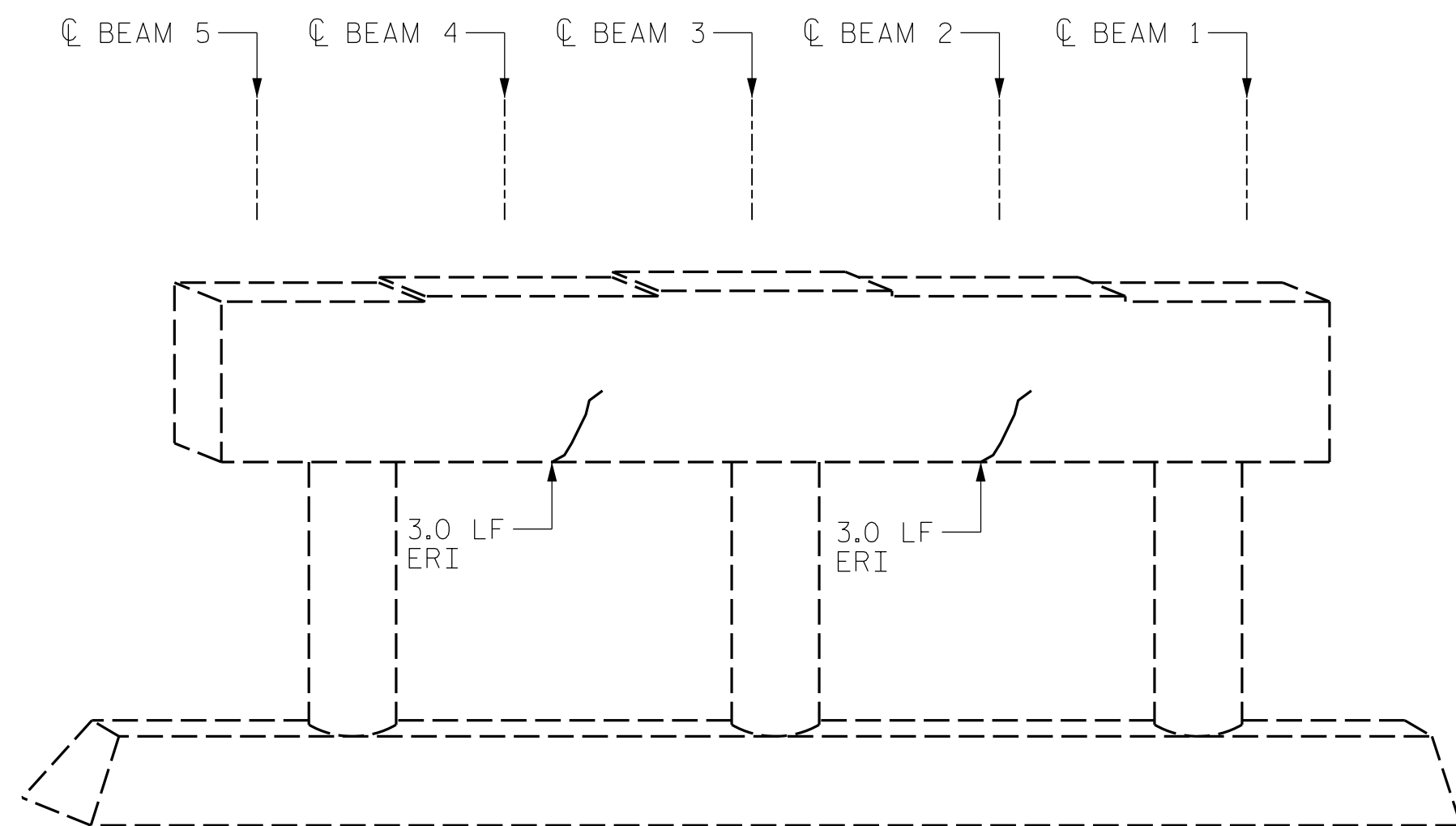
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			8
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	22.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	126.6			

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.

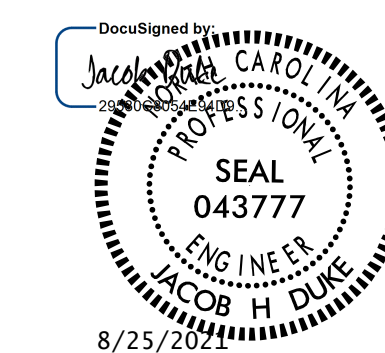
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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. 770130



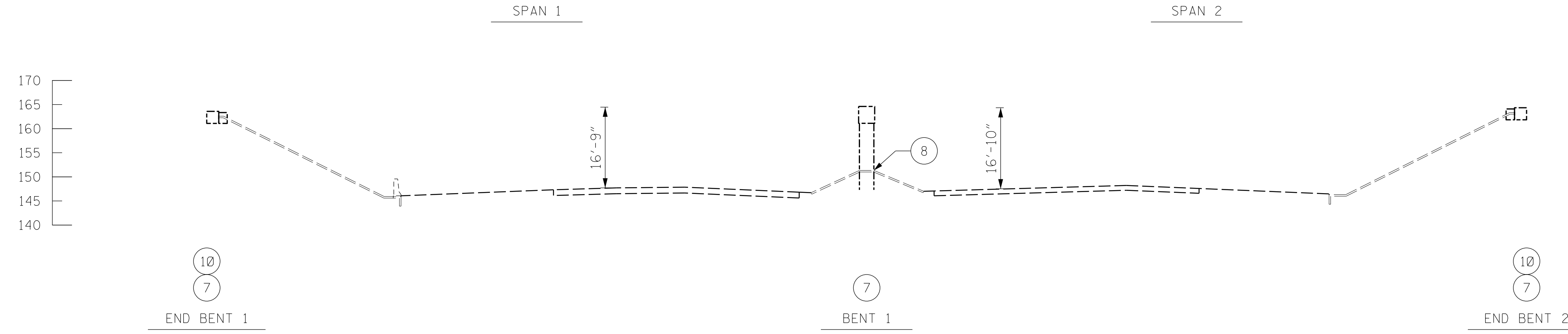
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 BENT 1

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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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S13-8
2			4			TOTAL SHEETS 8



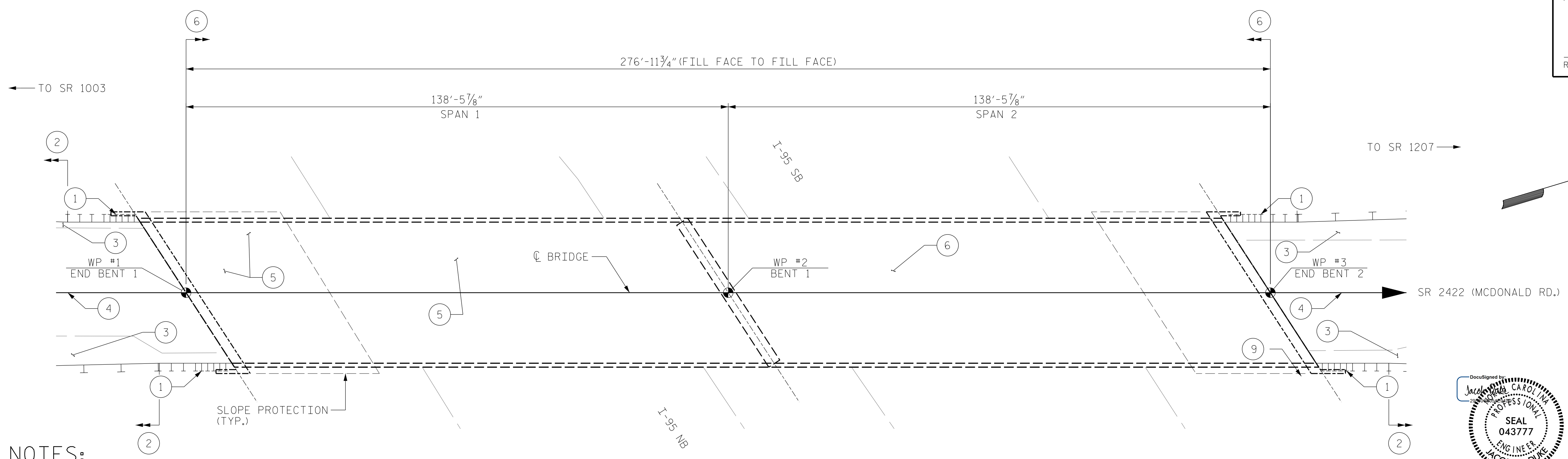
SECTION ALONG ROADWAY

- 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 POLYMER CONCRETE OVERLAY
 - ⑦ SUBSTRUCTURE EPOXY RESIN INJECTION
 - ⑧ SILICONE JOINT SEAL REPLACEMENT AT COLUMN BASES
 - ⑨ SELECTIVE UNDERGROWTH REMOVAL AT END BENT 1 BEARING
 - ⑩ SLOPE PROTECTION VOID FILLING & SILICONE JOINT SEAL REPLACEMENT AT TOP OF SLOPE PROTECTION
- NOTE: SEE SHEET S12 FOR SLOPE PROTECTION JOINT REPAIRS.
FOR SCOPE ITEM 9, IT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS OF THE PROJECT.

AS-BUILT REPAIR QUANTITY TABLE		
	ESTIMATE	ACTUAL
SELECTIVE UNDERGROWTH REMOVAL	0.1 ACR	

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

RESIDENT ENGINEER _____ DATE _____



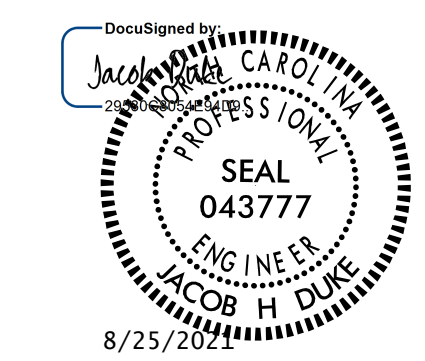
PLAN

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 05/07/2021

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

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770131



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

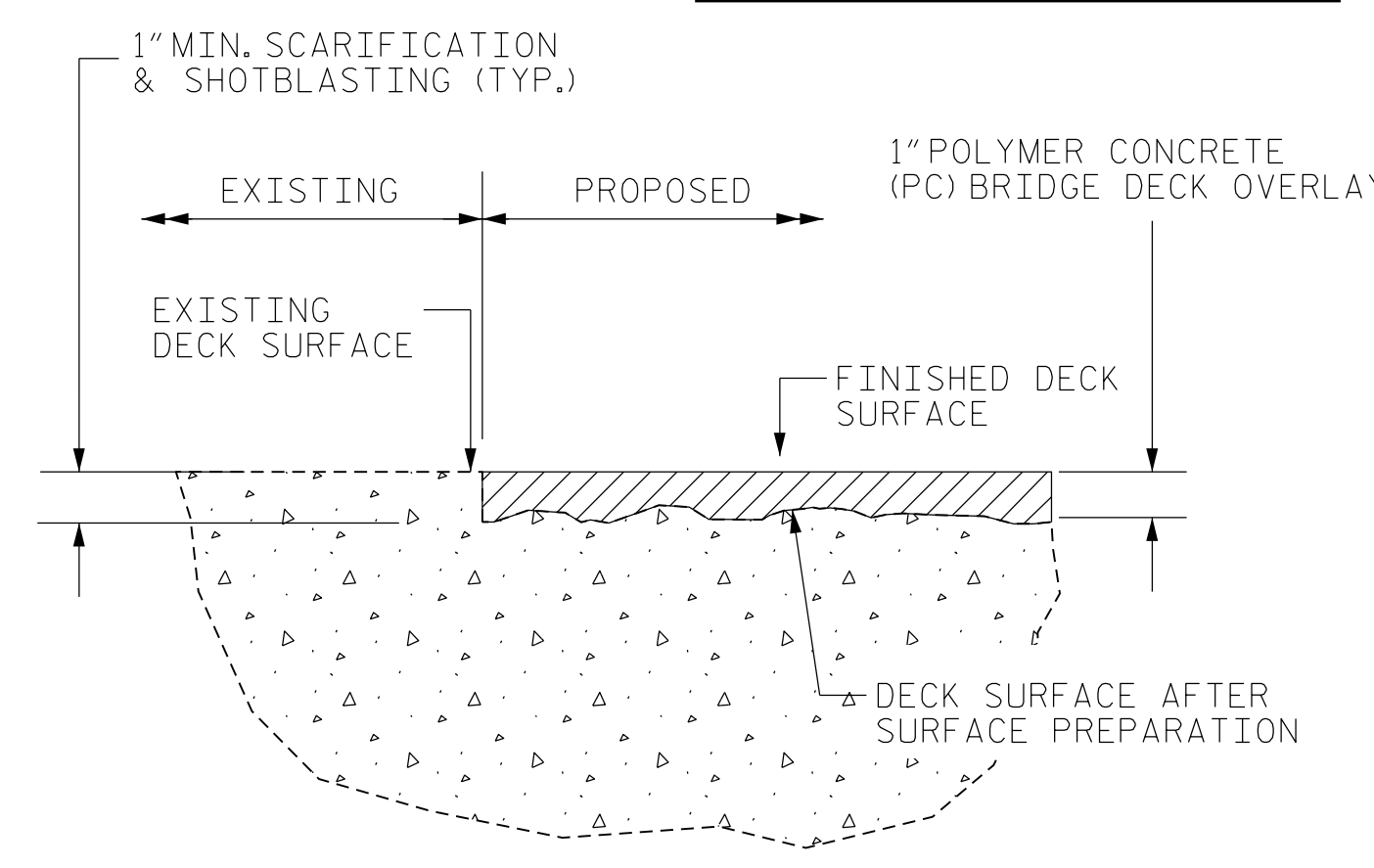
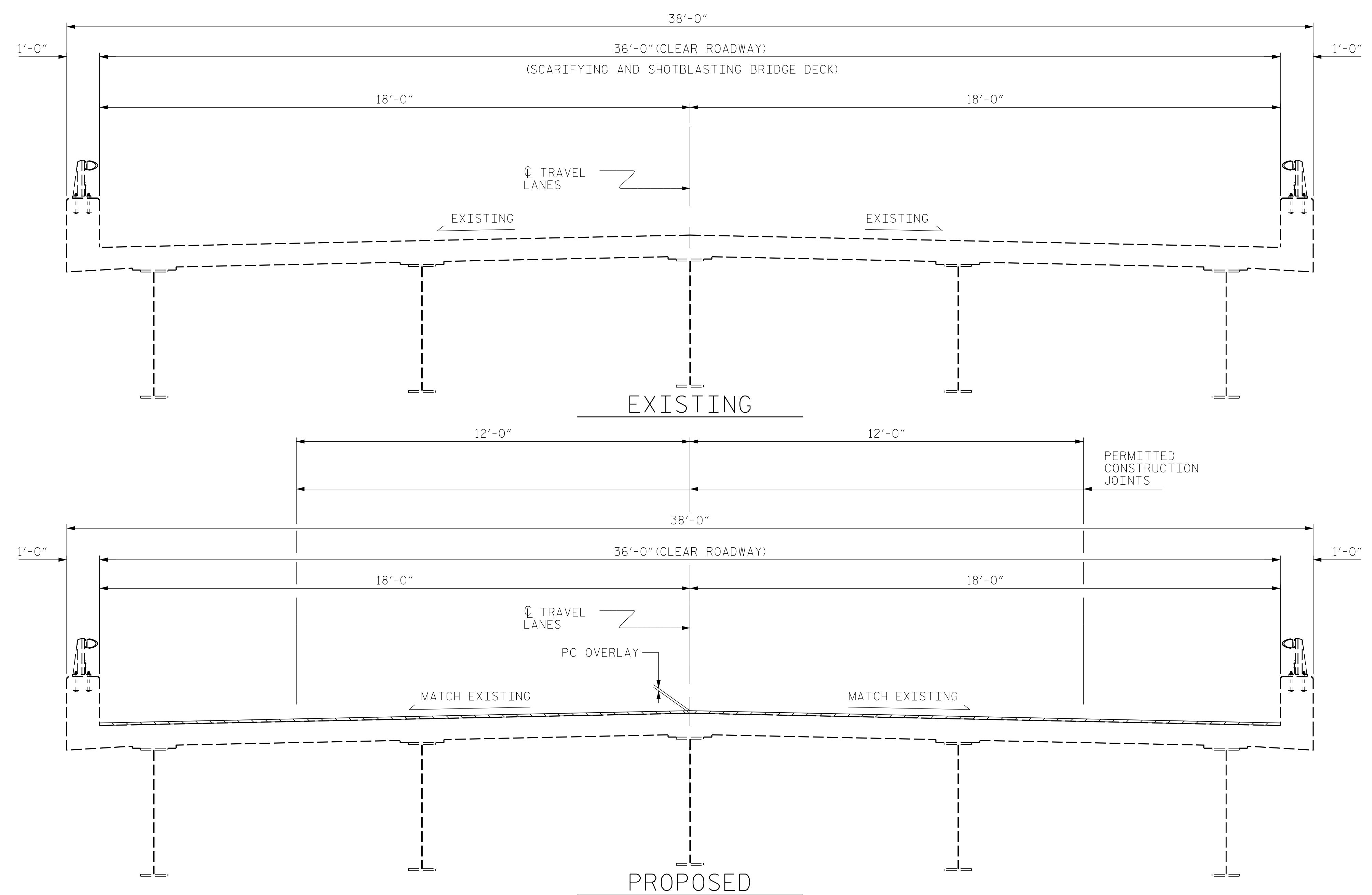
FOR BRIDGE ON SR 2422
 OVER I-95

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

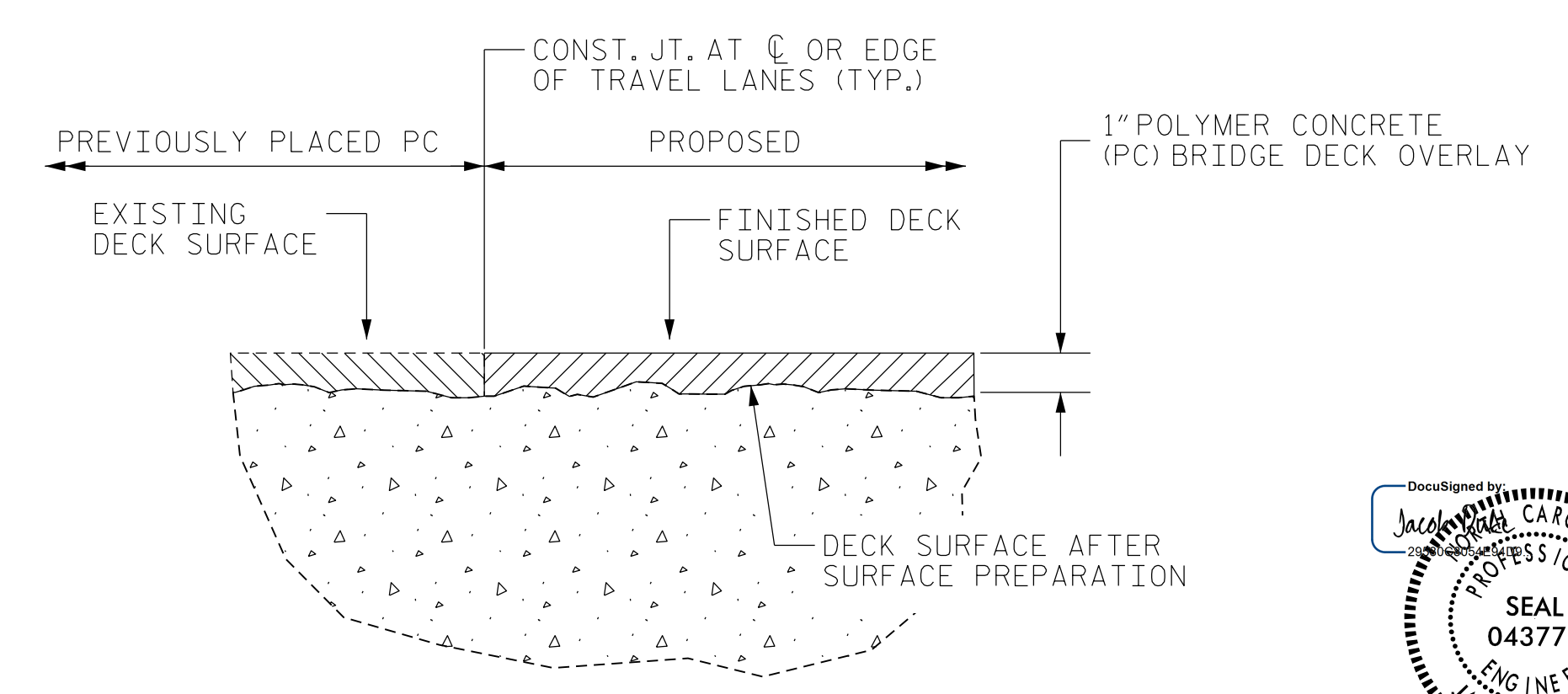
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 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			S14-1
2			4			TOTAL SHEETS 9



DETAIL FOR PC OVERLAY



DETAIL FOR STAGED PC OVERLAY

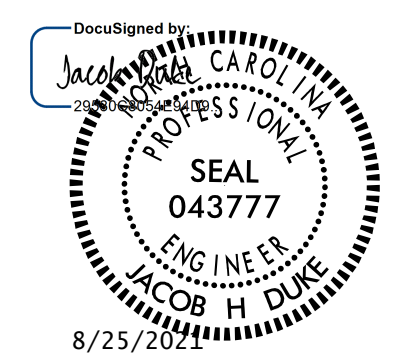
NOTES:

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 PPC OVERLAY AND SURFACE PREPARATION.

DRAWN BY : ALLEN J. MCSWAIN 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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 NC FIRM LICENSE: C-1506

PROJECT NO. I-5939
 ROBESON COUNTY
 BRIDGE NO. 770131

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

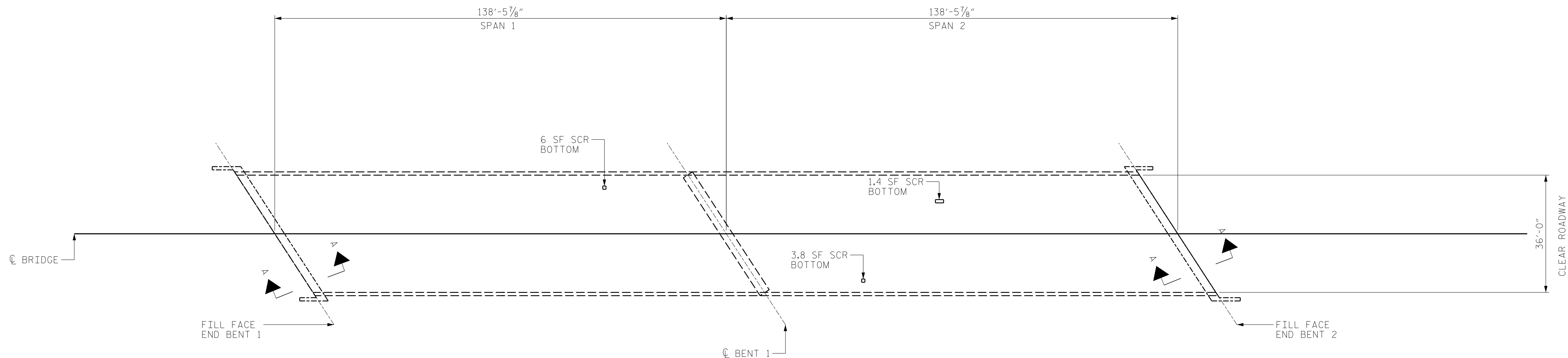
TYPICAL SECTION

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

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	SPAN 1		SPAN 2	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
SHOTCRETE REPAIR (SCR)	5.2 SF		6 SF	
SCARIFYING BRIDGE DECK	554 SY		554 SY	
CLASS II SURFACE PREPARATION	0.0 SY		0.0 SY	
CLASS III SURFACE PREPARATION	0.0 SY		0.0 SY	
SHOTBLASTING BRIDGE DECK	554 SY		554 SY	
PC MATERIALS	15.4 CY		15.4 CY	
PLACING & FINISHING PC OVERLAY	554 SF		554 SF	
GROOVING BRIDGE FLOORS	4570 SF		4570 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 2 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 1 1/2" TO 2" BASED ON VISUAL INSPECTION.

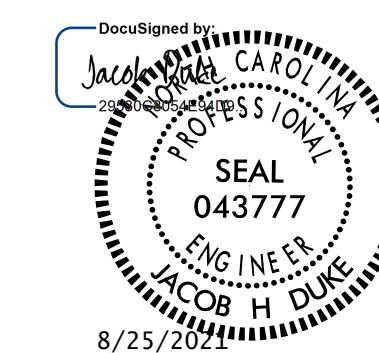
FOR CLASS II SURFACE PREPARATION LOCATIONS AT BRIDGE JOINTS, SEE "JOINT DETAILS SHEETS".

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

BRIDGE DECK SCARIFICATION, SHOTBLASTING BRIDGE DECK, AND PC OVERLAY LIMITS ARE THE FULL CLEAR ROADWAY WIDTH (INSIDE FACE OF EACH BRIDGE RAIL).

FOR BRIDGE DECK RIDEABILITY AND GROOVING, SEE SPECIAL PROVISIONS. COORDINATE THIS SHEET WITH THE SHEETS FOR JOINT DETAILS.

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770131



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS

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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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S14-3
2			4			TOTAL SHEETS 9

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.

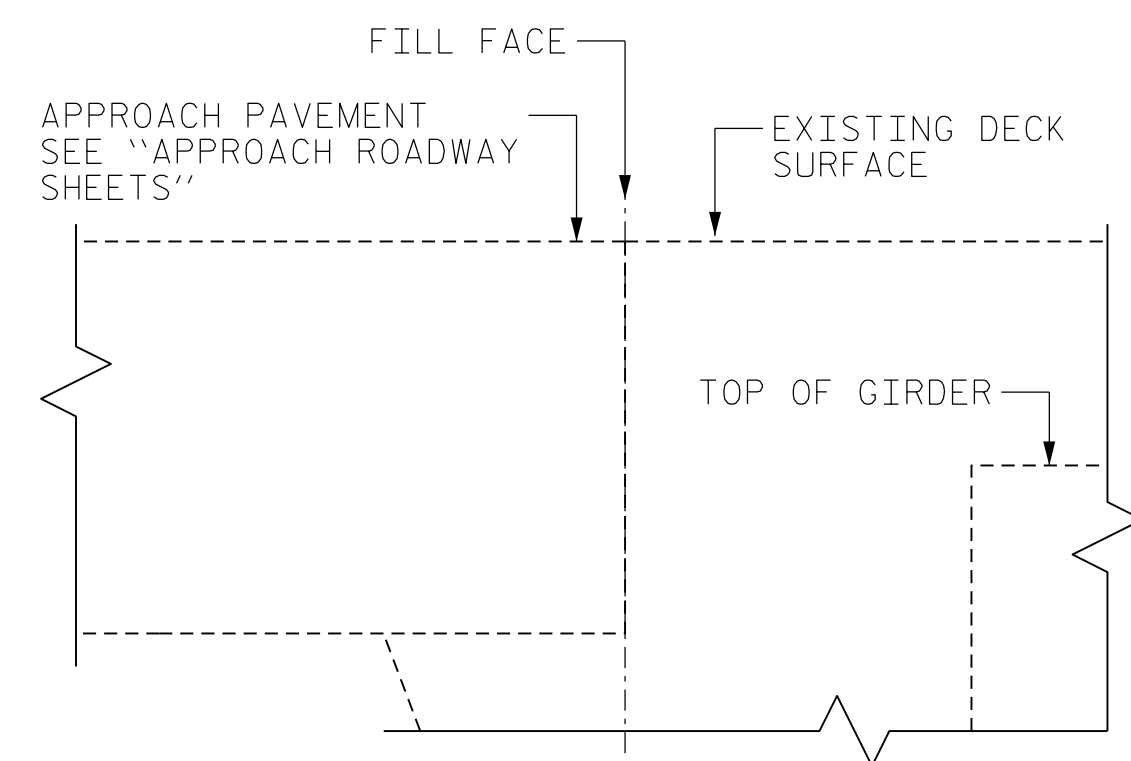
THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. 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.

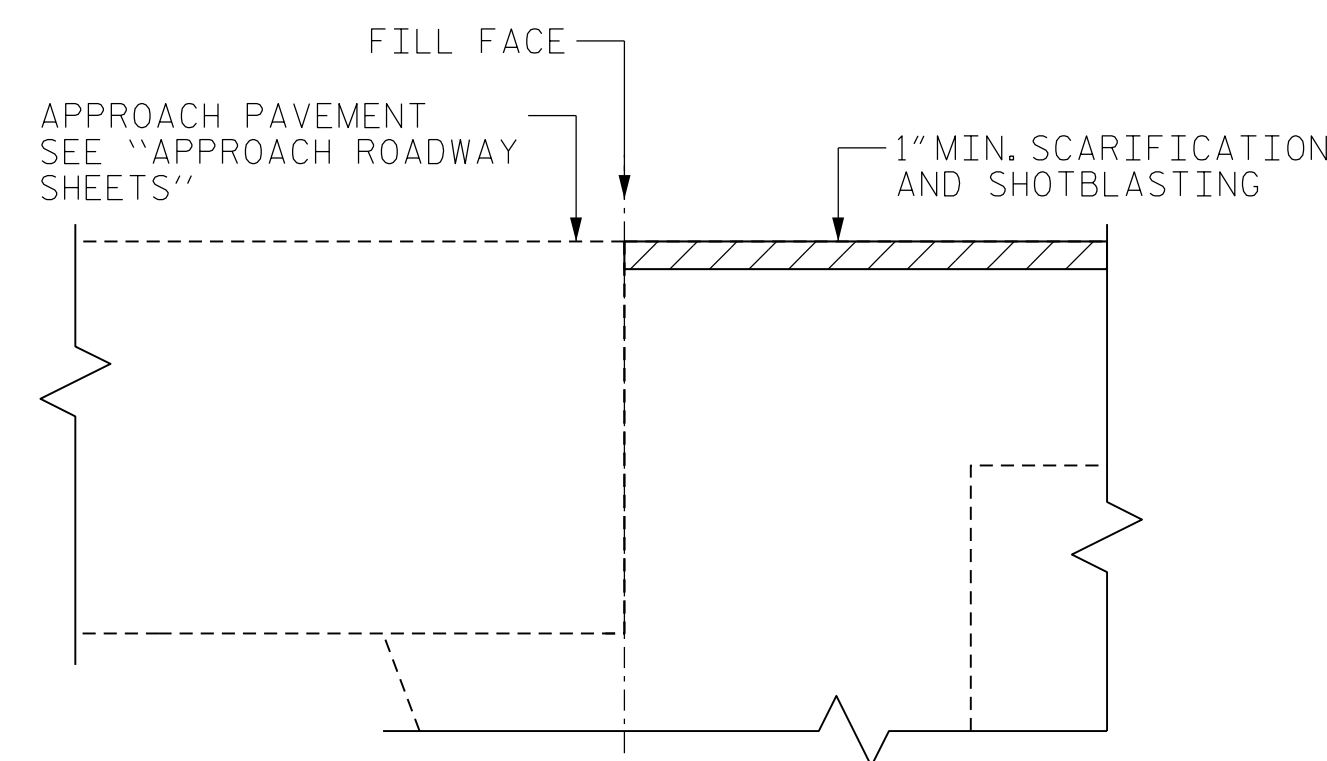
THE INSTALLED FOAM JOINT SHALL BE WATER TIGHT.

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.

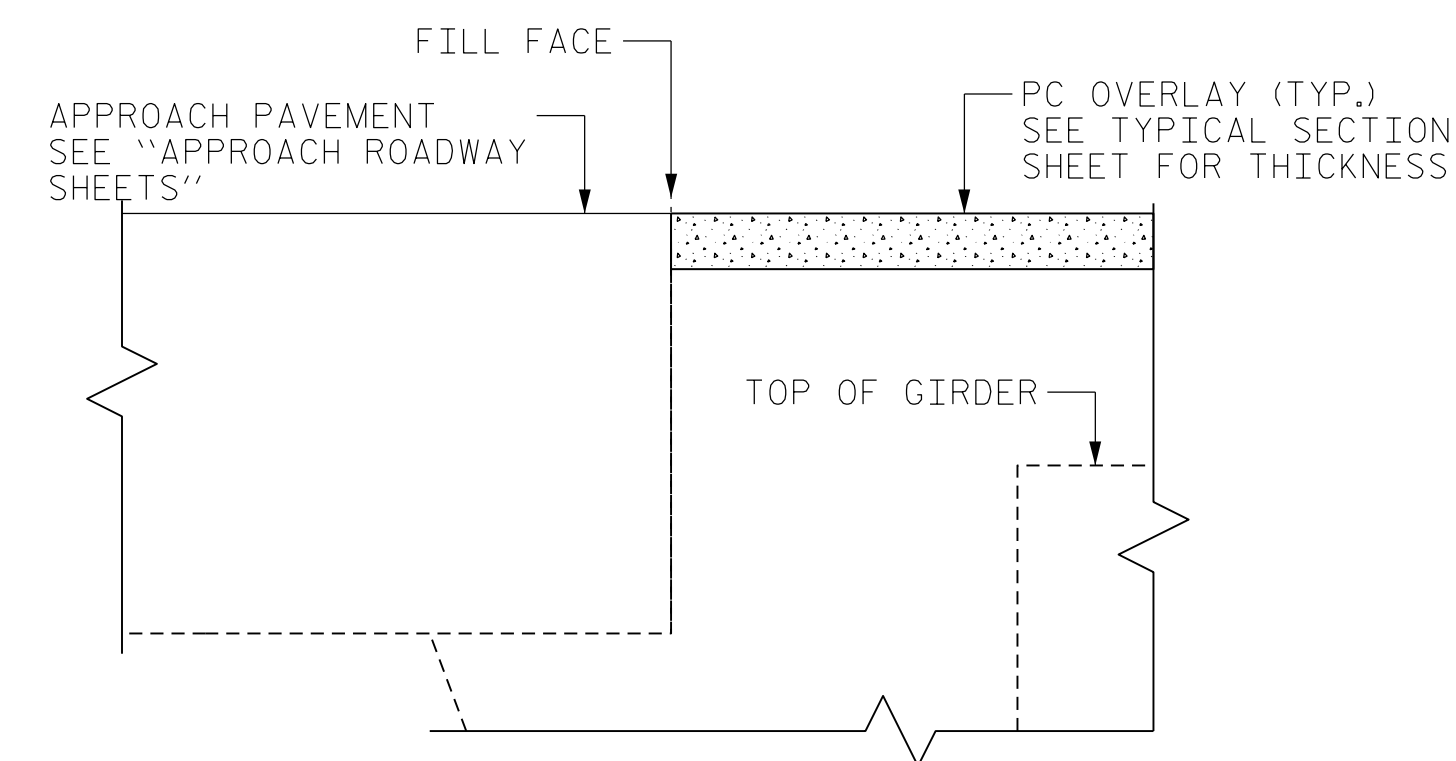
DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.



SECTION A-A
(EXISTING DETAIL, NO JOINT)



SECTION A-A
(MIN. DEMOLITION)



SECTION A-A
(PROPOSED DETAIL, NO JOINT)

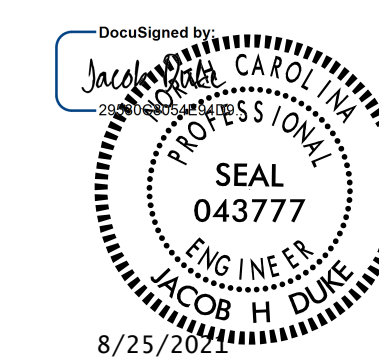
ELASTOMERIC CONCRETE FOR PRESERVATION		
LOCATION	ESTIMATED (CU.FT.)	ACTUAL (CU.FT.)
END BENTS	N/A	
BENT 1	N/A	
BENT 2	N/A	
BENT 3	N/A	

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

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

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	N/A	

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770131



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 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

JOINT DETAILS

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

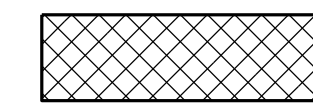
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S14-4
2			4			TOTAL SHEETS 9

AS-BUILT REPAIR QUANTITY TABLE

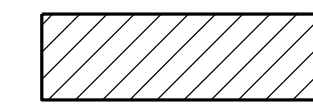
	ESTIMATE	ACTUAL
TYPE-III STRUCTURE ANCHOR UNITS	4 EA	
GUARDRAIL REMOVAL	475 LF	
PROPOSED GUARDRAIL	400 LF	
INCIDENTAL MILLING	303 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5C	30.0	
ASPHALT BINDER FOR PLANT MIX	1.8 TON	
POLYUREA PAVEMENT MARKING LINES (4", 30MILS)	1508 LF	

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.



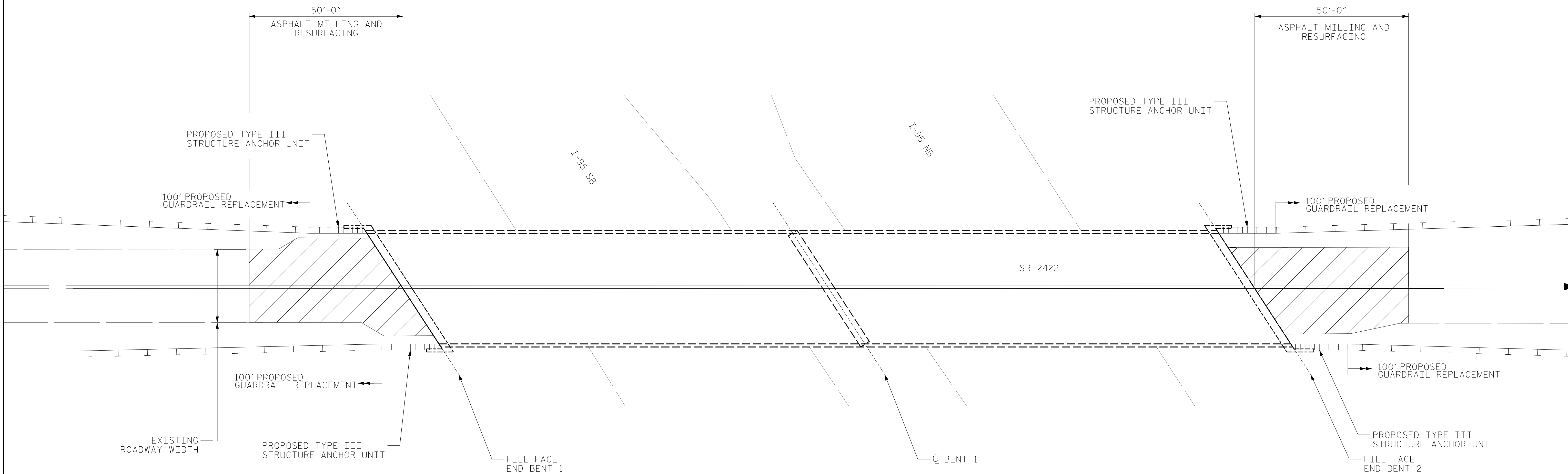
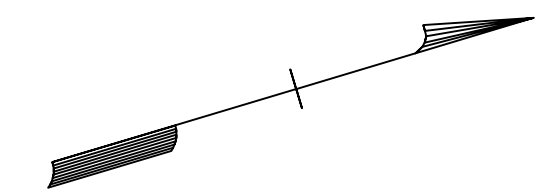
INCIDENTAL MILLING



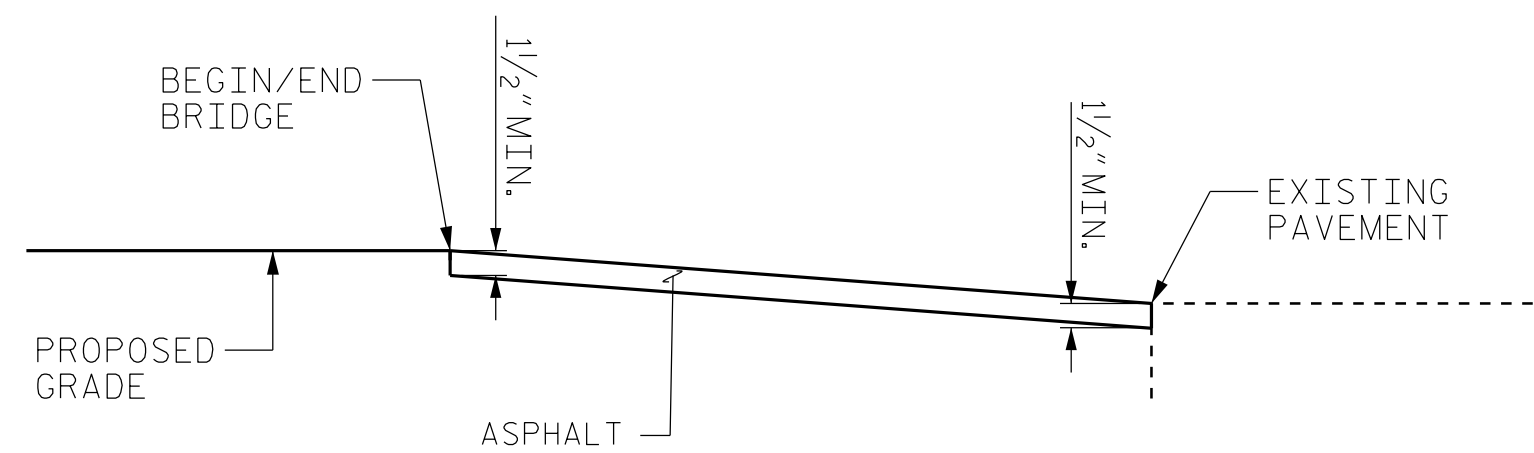
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

C1

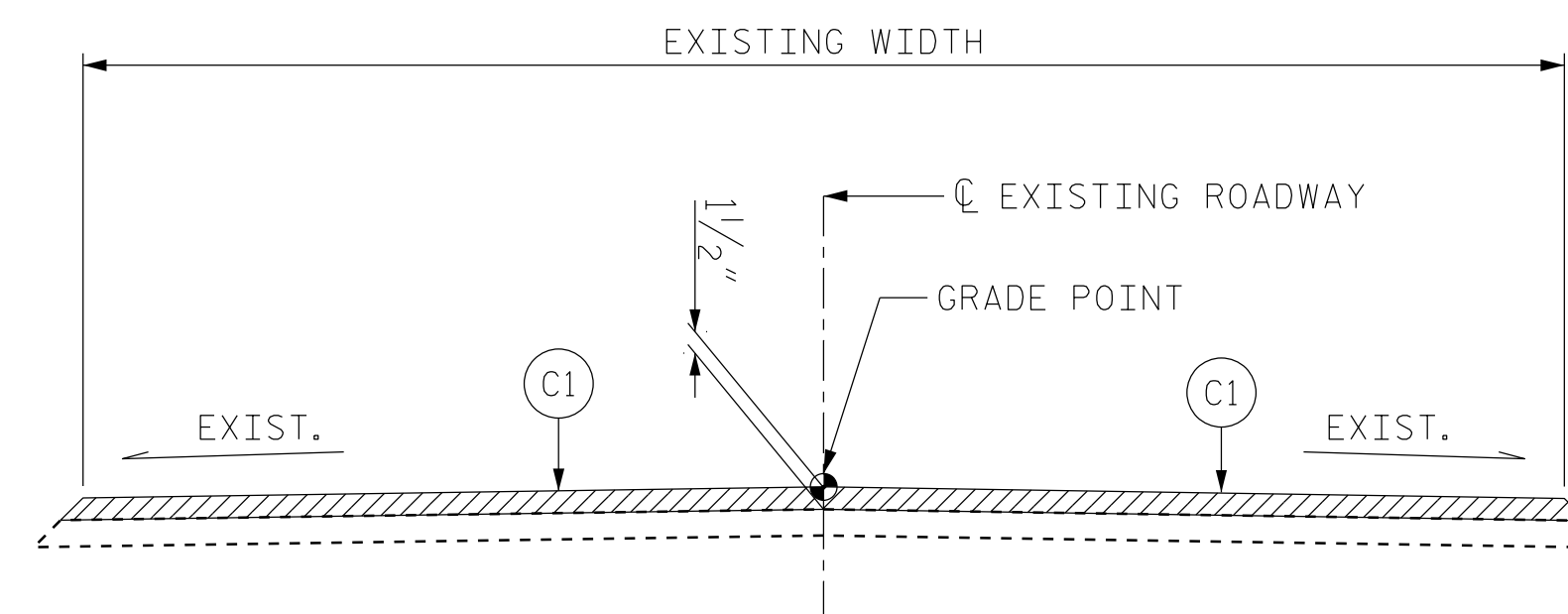
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.



PLAN



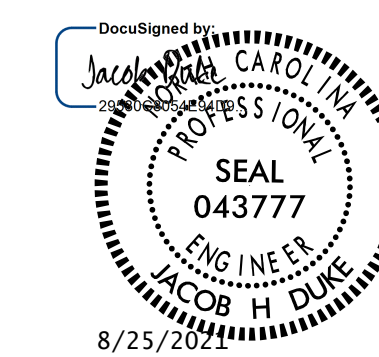
PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION
BEGIN/END BRIDGE

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770131

SHEET 1 OF 2



301 FAYETTEVILLE ST., SUITE 1500
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 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

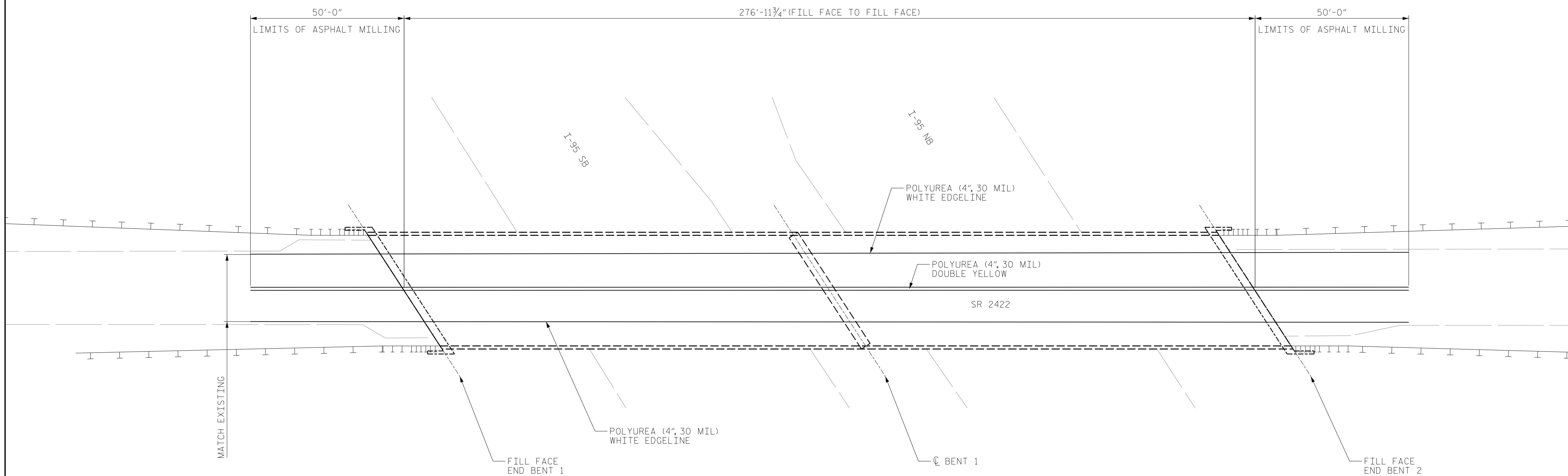
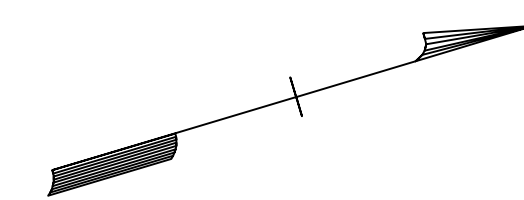
APPROACH ROADWAY
 ASPHALT MILLING AND
 GUARDRAIL

DRAWN BY : ALLEN J. MCSWAIN 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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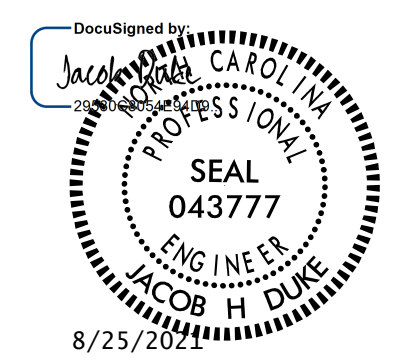
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1			3			TOTAL SHEETS
2			4			9



PLAN

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770131

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

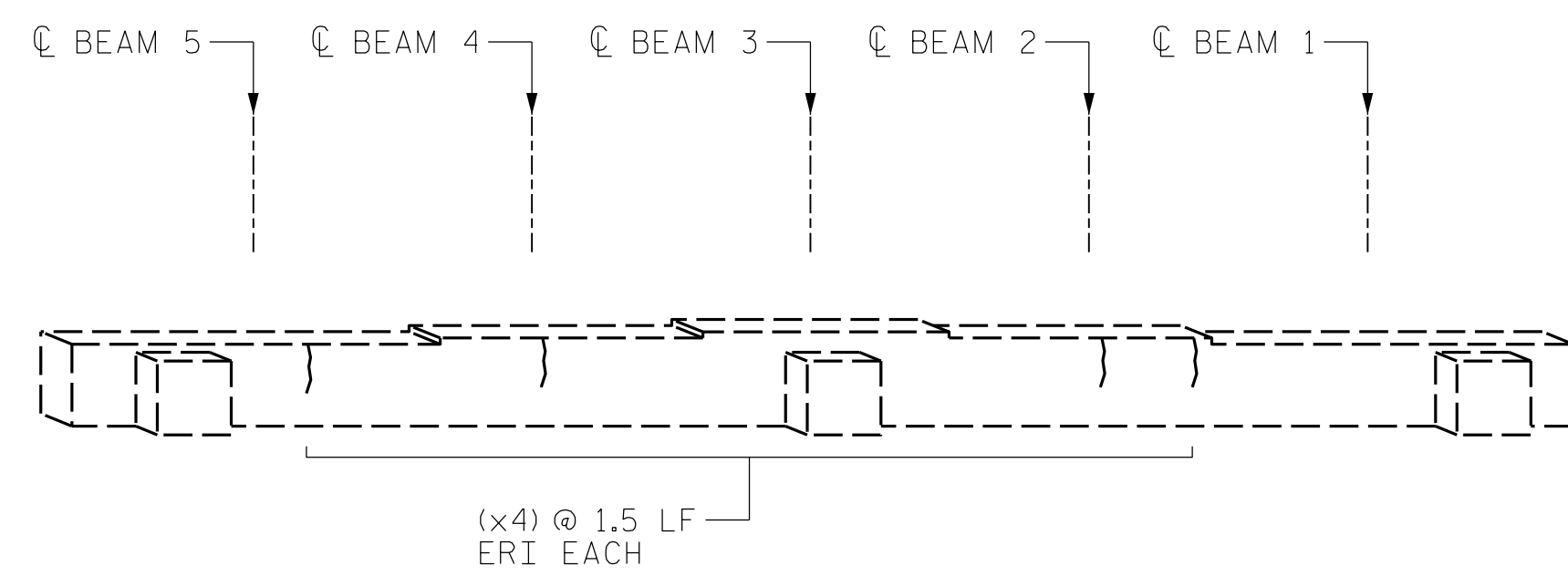
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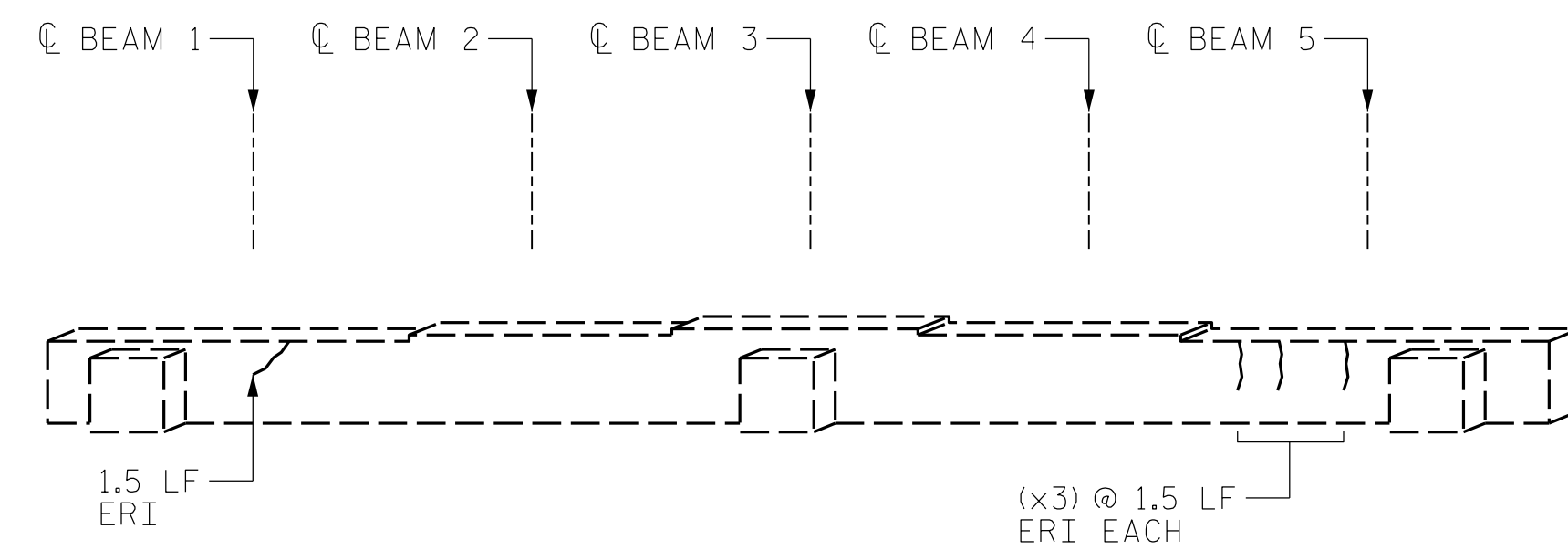
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 NC FIRM LICENSE: C-1506

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

SHEET NO.
S14-6



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	12.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.			AREA SQ. FT.
CAP	236.3			

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.

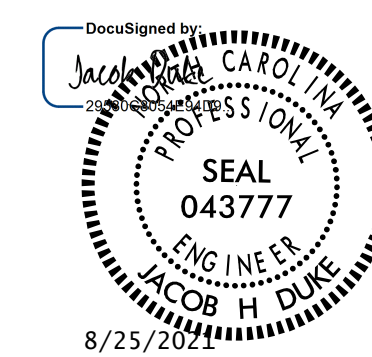
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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. 770131



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 NC FIRM LICENSE: C-1506

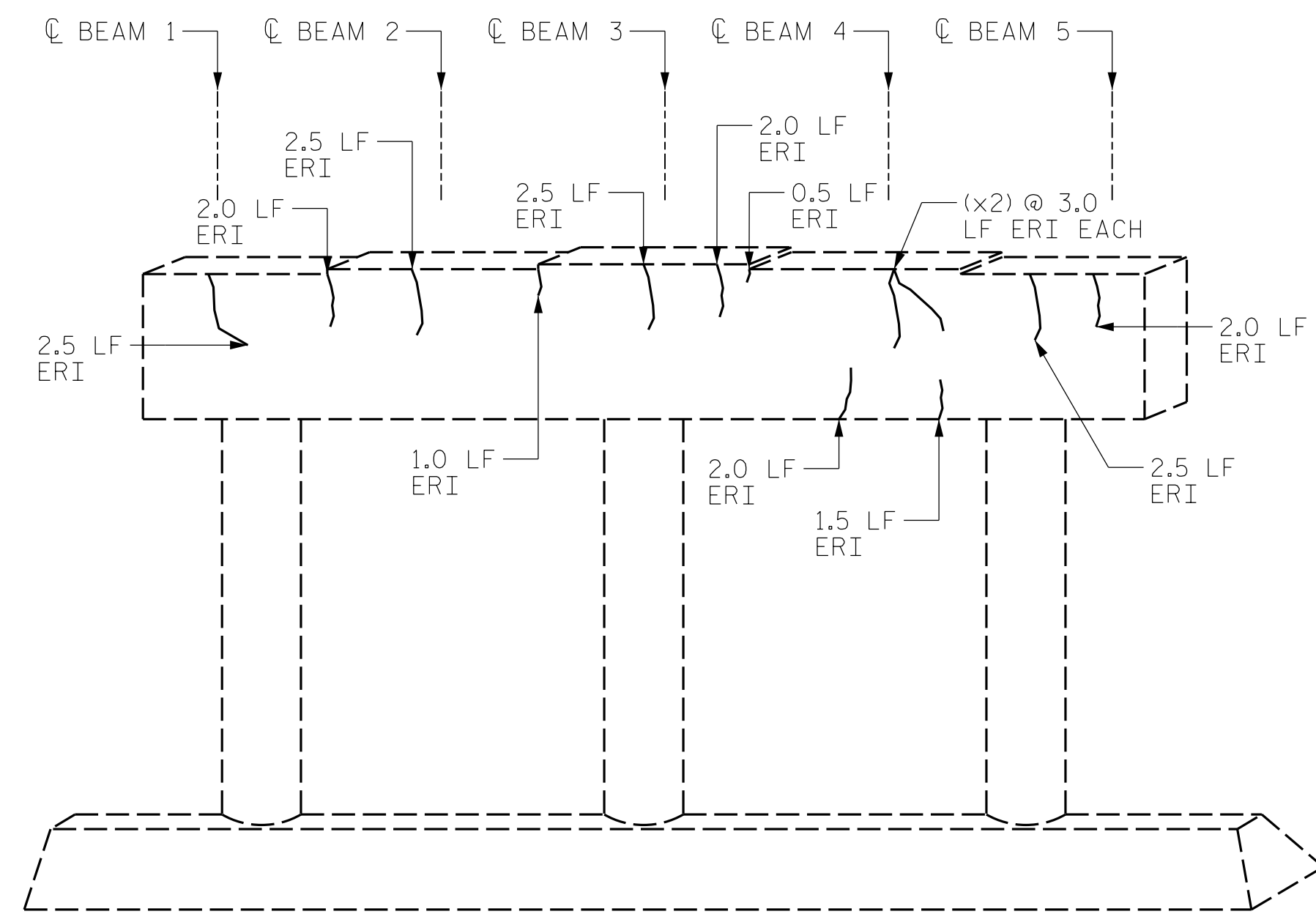
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIRS
 END BENTS 1 & 2

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

8/25/2021
 I5939.SMU.SBR00.770131.dgn
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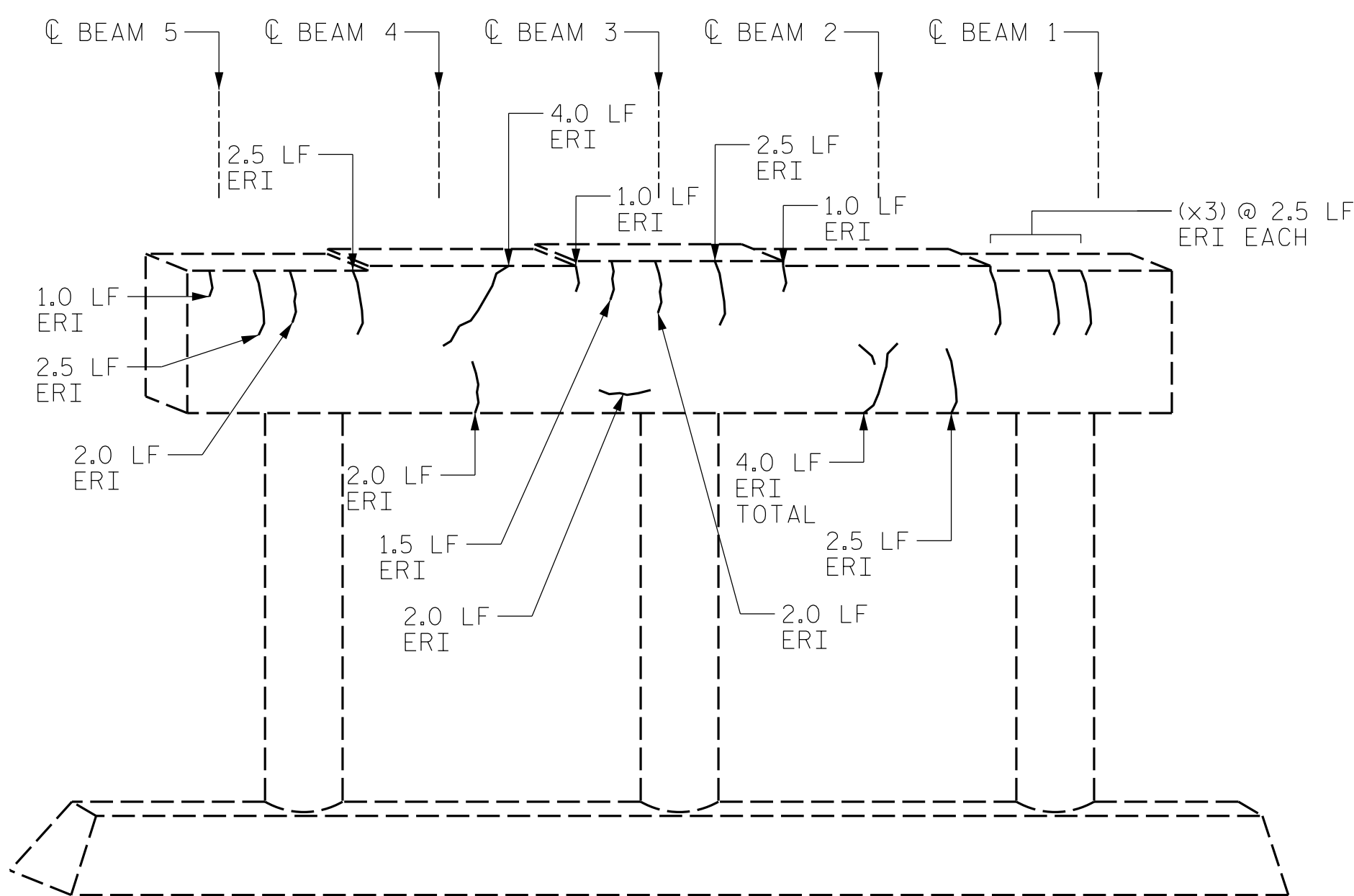
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			9
2			4			



BENT 1

(WEST FACE)



BENT 1

(EAST FACE)

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	63.0			
COLUMN/PILE				
EPOXY COATING	AREA SQ. FT.		AREA SQ. FT.	
CAP	143.8			

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.

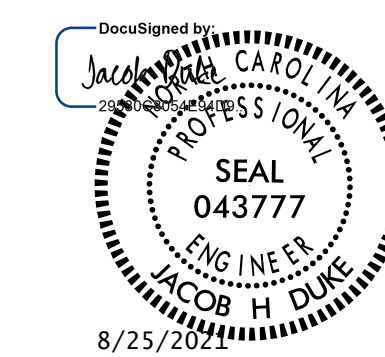
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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. 770131



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

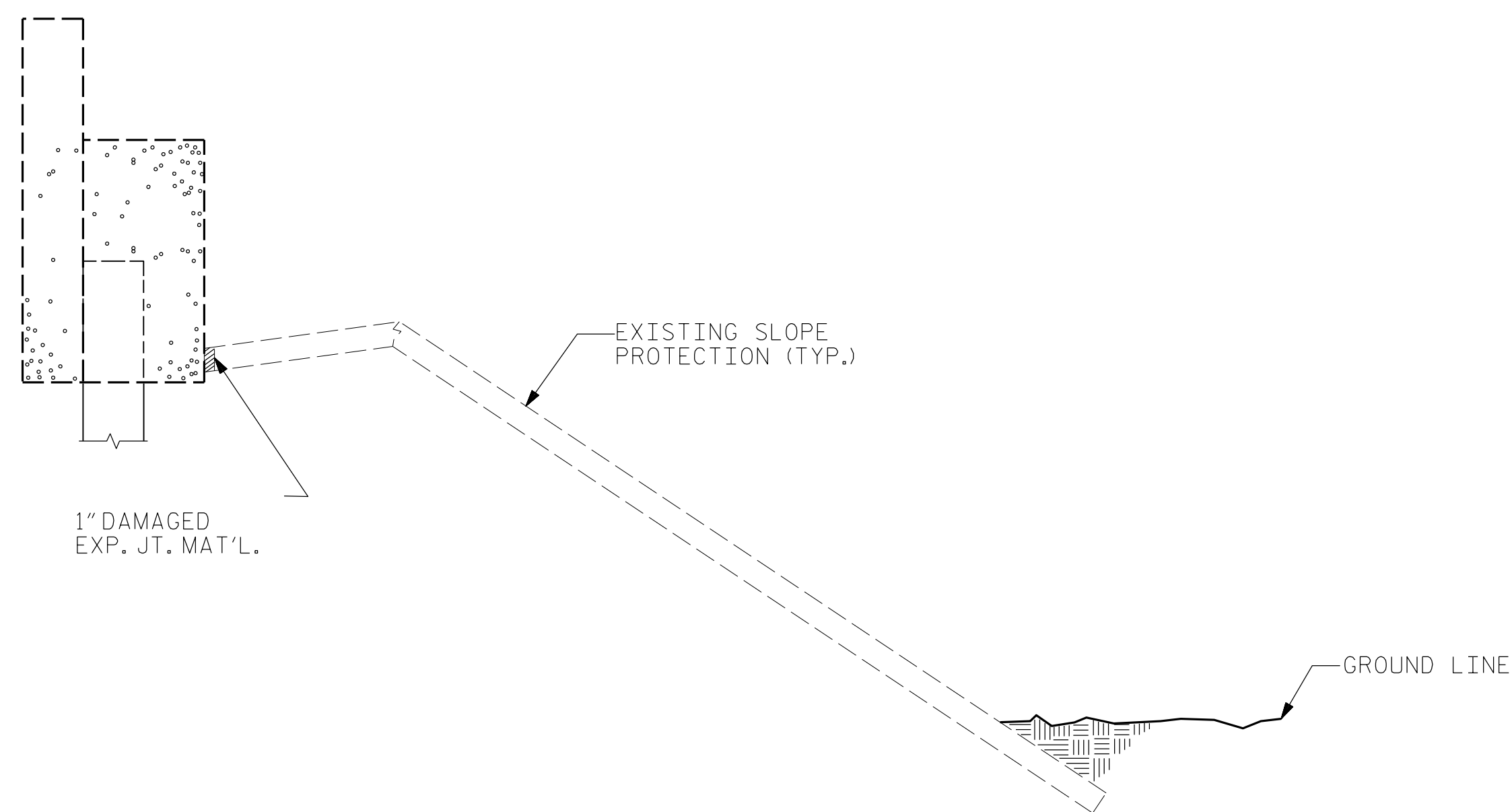
8/25/2021
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DOCUMENT NOT CONSIDERED
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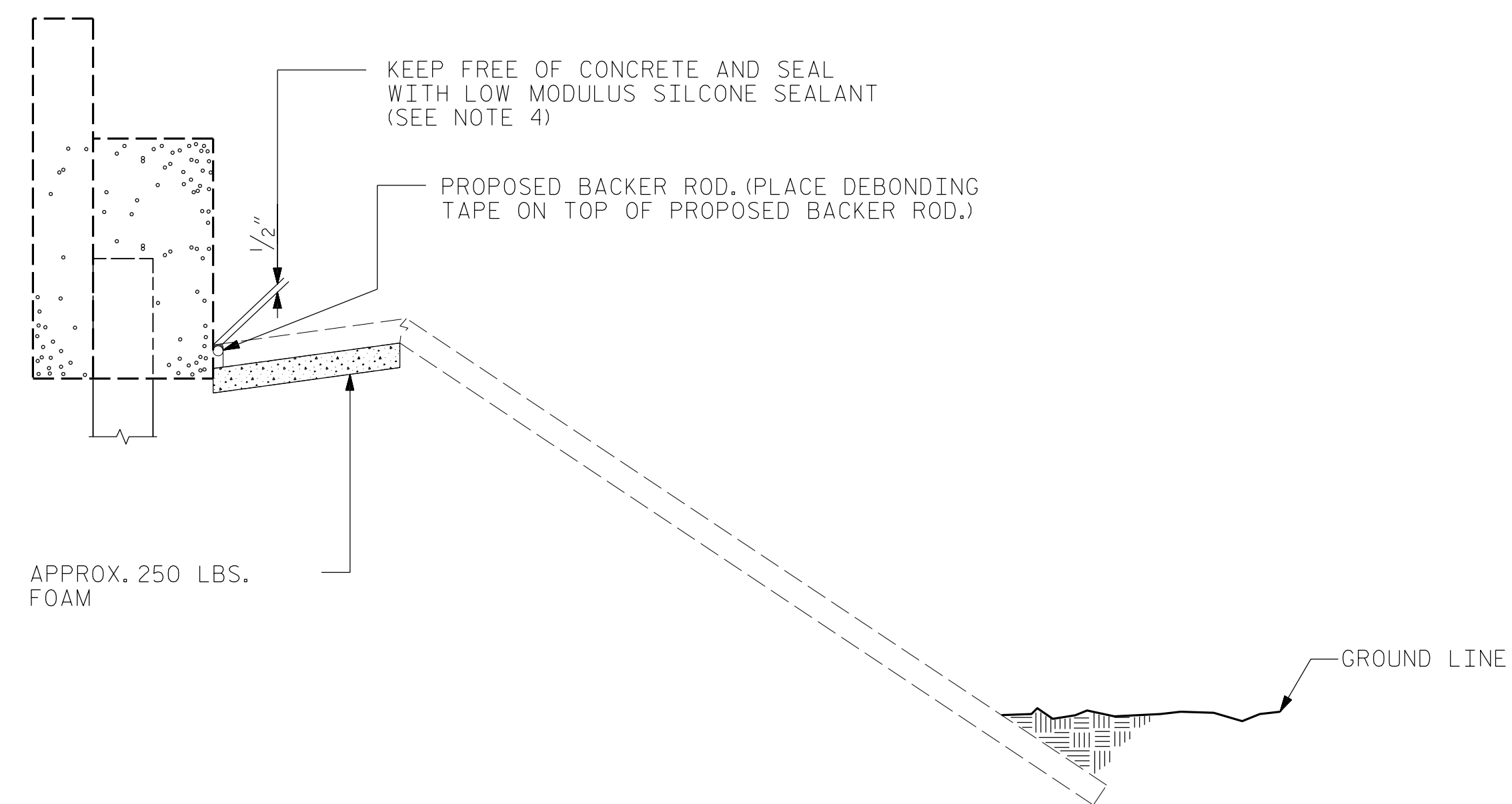
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			9
2			4			

AS-BUILT REPAIR QUANTITY TABLE

SLOPE PROTECTION REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SLOPE PROTECTION VOID FILLING	500	LBS.		
SILICONE JOINT SEALANT FOR SLOPE REPAIRS	87	LF		



SECTION ALONG END BENT
(EXISTING SLOPE)

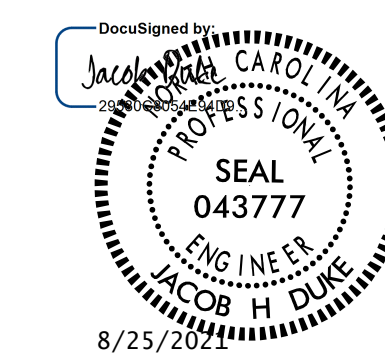


SECTION ALONG END BENT
(PROPOSED SLOPE REPAIR)

NOTES:

1. AFTER COMPLETION OF VOID FILLING, SEAL CRACKS IDENTIFIED WITH POURABLE SILICONE JOINT SEALANT AS DESCRIBED IN THE SPECIAL PROVISIONS FOR SILICONE JOINT SEALANT FOR SLOPE REPAIRS (BACKER RODS MAY BE OMITTED AS APPROVED BY THE ENGINEER)
2. FOR SLOPE PROTECTION VOID FILLING/ SILICONE JOINT SEAL LOCATIONS SEE, "GENERAL DRAWING" SHEET
3. FOR SLOPE PROTECTION VOID FILLING, SEE SPECIAL PROVISIONS
4. FOR SILICONE JOINT SEALANT FOR SLOPE PROTECTION REPAIR, SEE SPECIAL PROVISIONS
5. FOR SILICONE JOINT SEALANT FOR SLOPE PROTECTION REPAIR, SEE "JOINT SEAL REPAIR ELEVATION VIEW" DETAIL

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770131



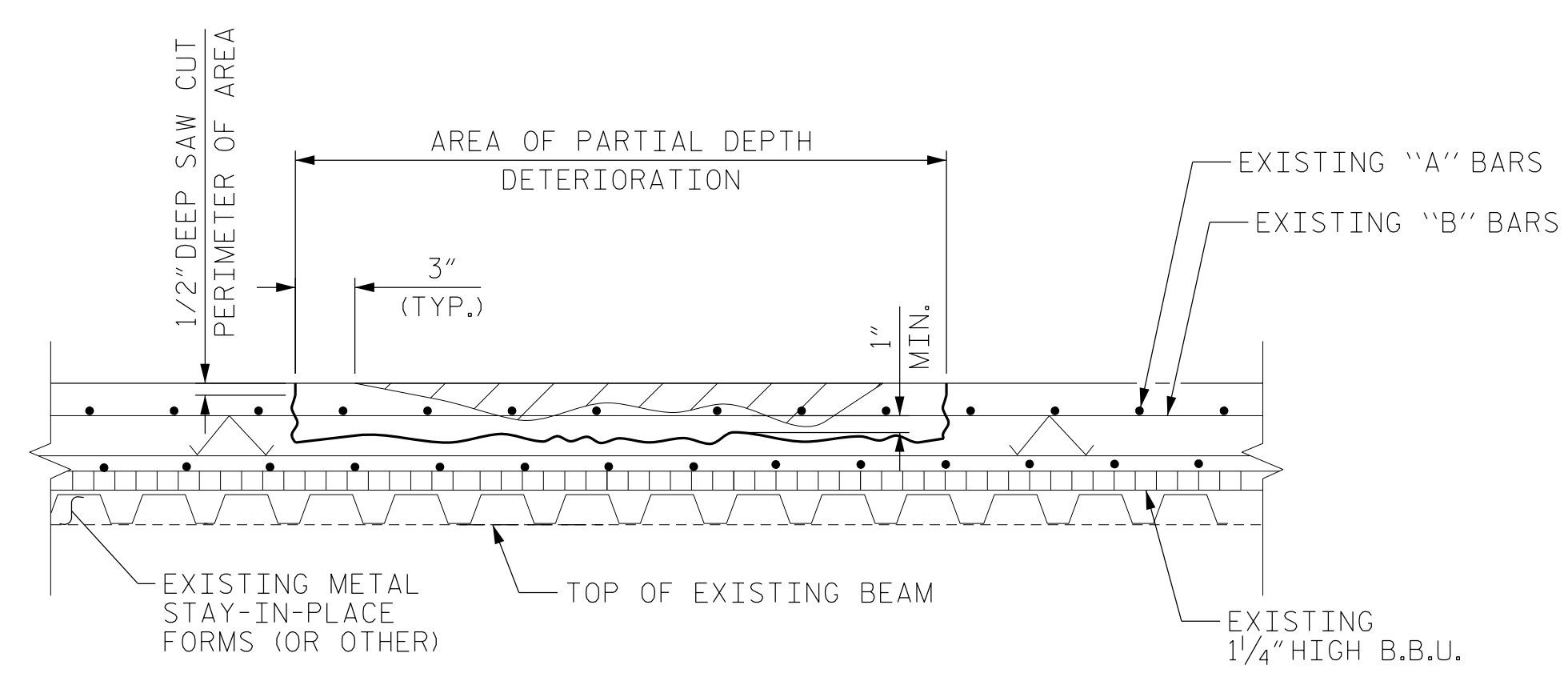
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SLOPE PROTECTION REPAIRS

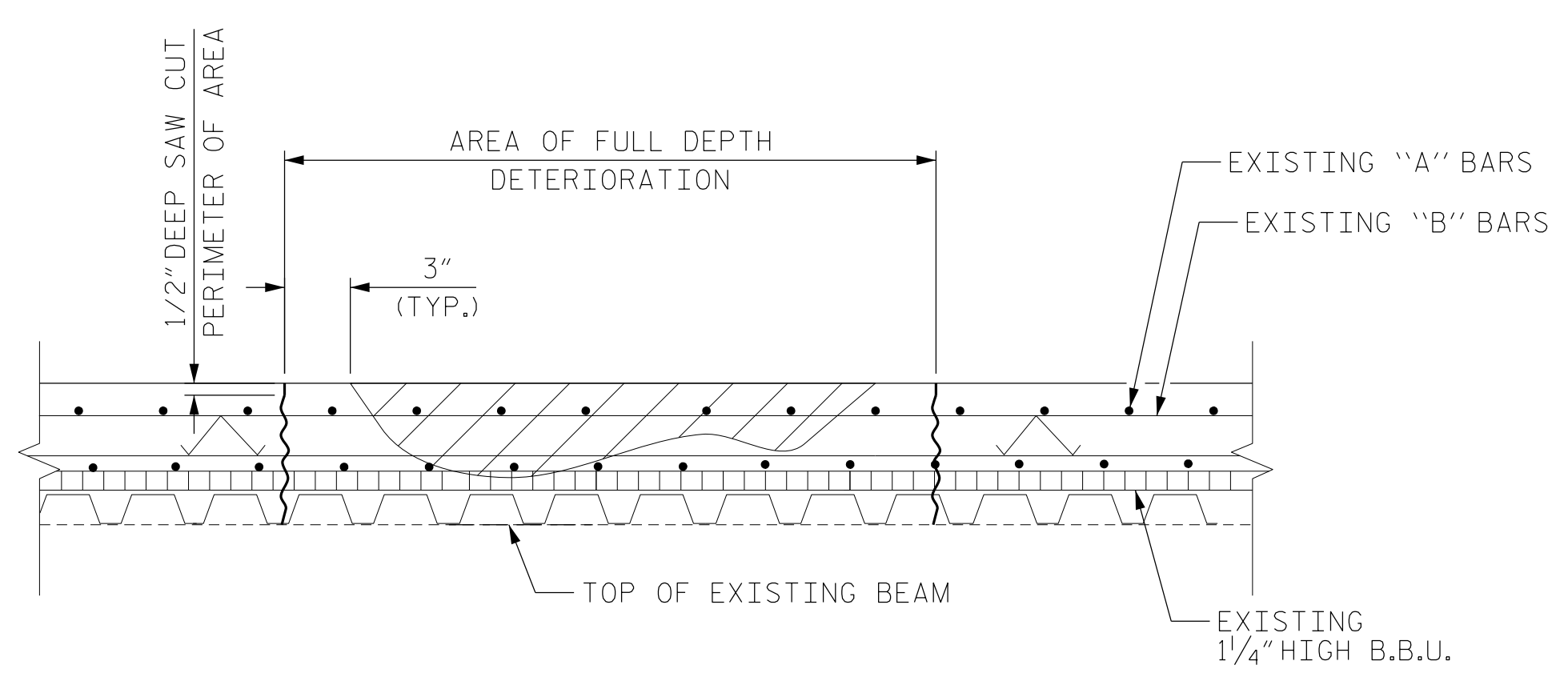
DRAWN BY : FIDEL L. FLORES DATE : 06/2021
 CHECKED BY : DIEGO A. AGUIRRE DATE : 06/2021
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 06/2021

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REVISIONS						SHEET NO.
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1			3			9
2			4			



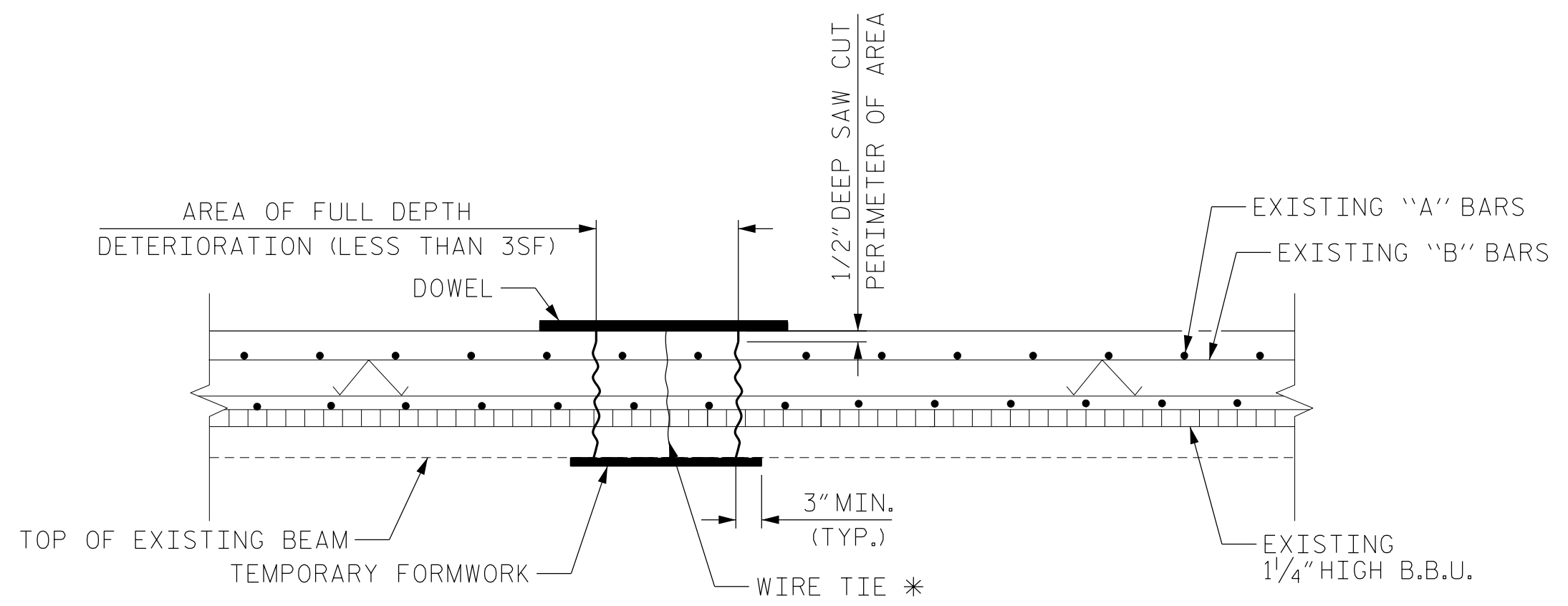
CLASS II (PARTIAL DEPTH) REPAIR



CLASS III (FULL DEPTH) REPAIR

NOTES

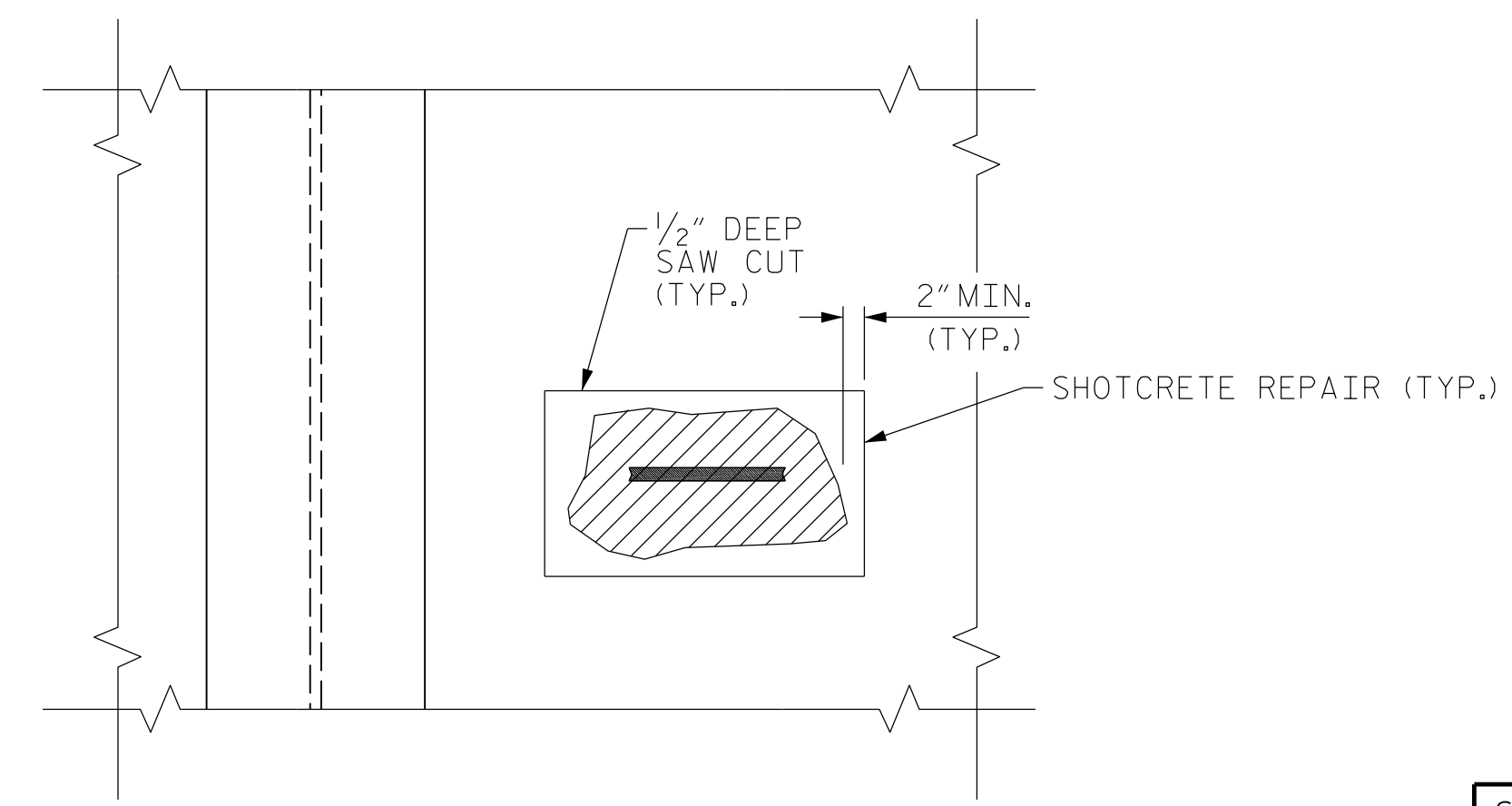
FOR AREAS TO BE REPAIRED, SEE "PLAN OF SPANS" SHEETS.
 ALL DECK REPAIRS SHALL BE COMPLETED PRIOR TO PLACEMENT OF OVERLAY.
 FOR CLASS II AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATIONS SPECIAL PROVISION.
 FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
 FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.
 NO FORMWORK SHALL BE LEFT IN PLACE.



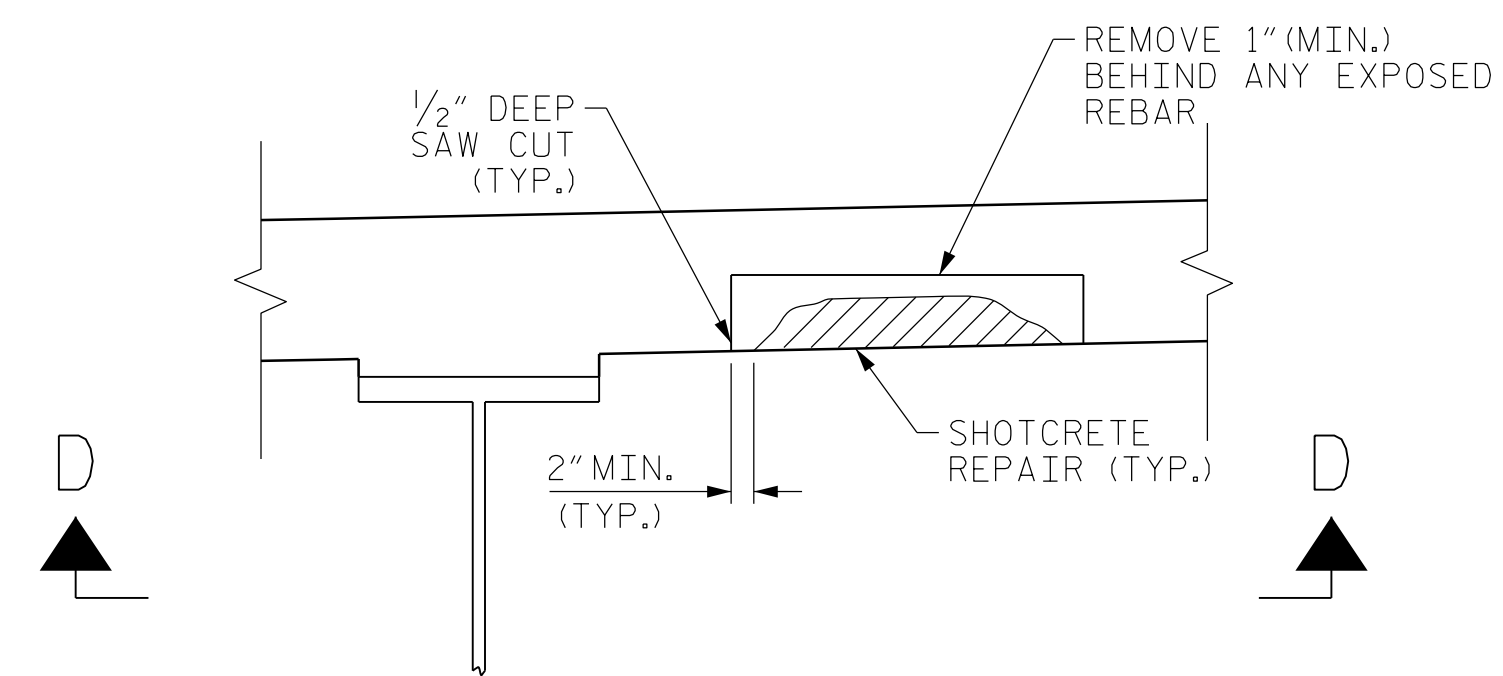
FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

(FOR AREAS OF DETERIORATION EQUAL TO OR LESS THAN 3SF)

* WIRE TIE TO BE KNOTTED BELOW TEMPORARY FORMWORK AND ATTACHED TO DOWEL THAT IS WIDER THAN FORMED FULL DEPTH HOLE. ROTATE DOWEL TO TIGHTEN FORMWORK AGAINST BOTTOM OF DECK.



SECTION D-D



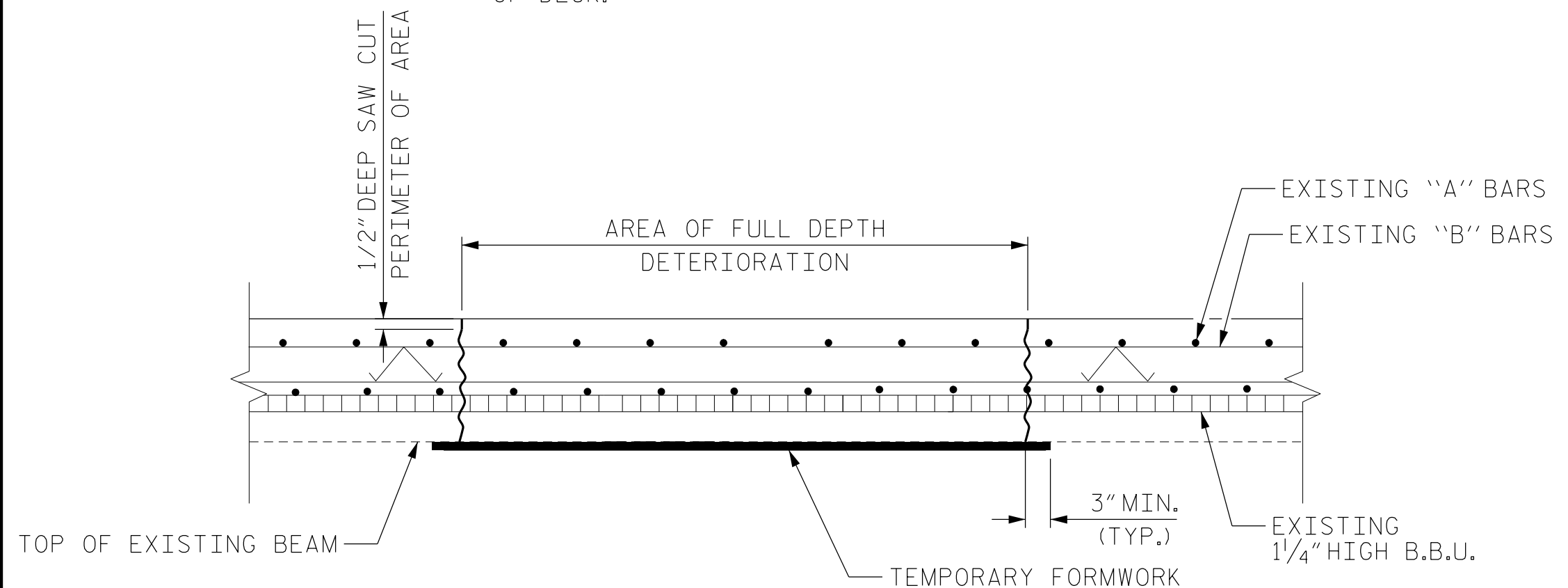
TYPICAL SECTION

UNDERSIDE OF DECK REPAIR

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

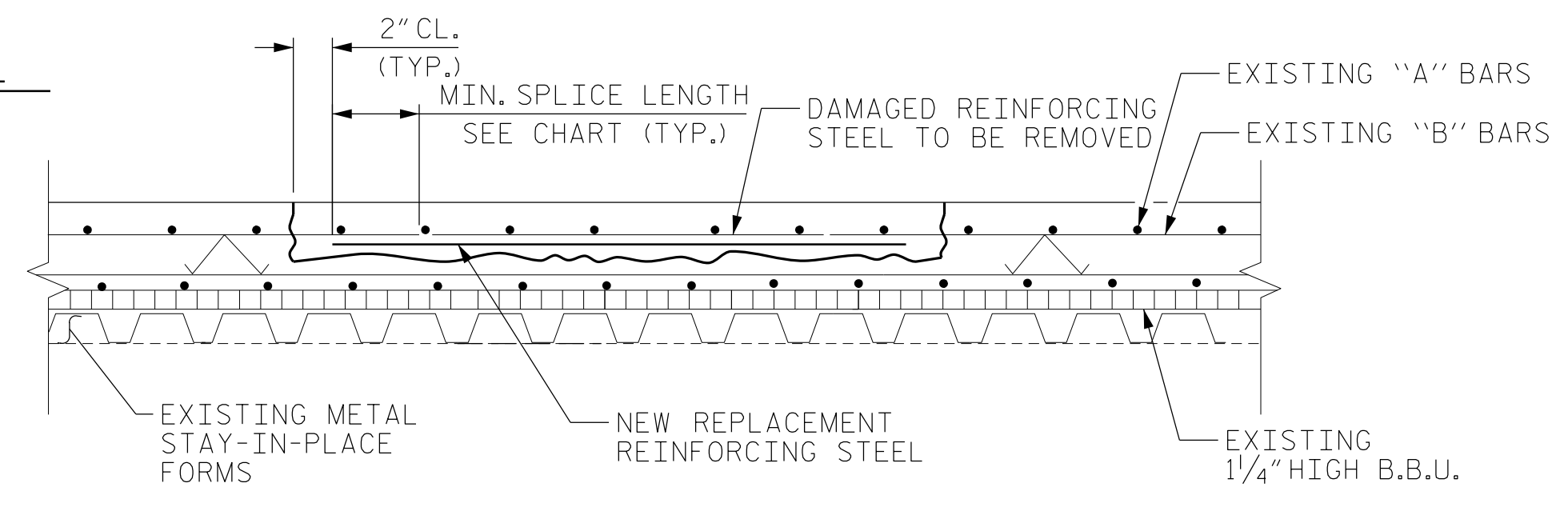
BRIDGES: 770010, 770012, 770004, 770086, 770089, 770090, 770096, 770098, 770104, 770106, 770107, 770124, 770130, 770131

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

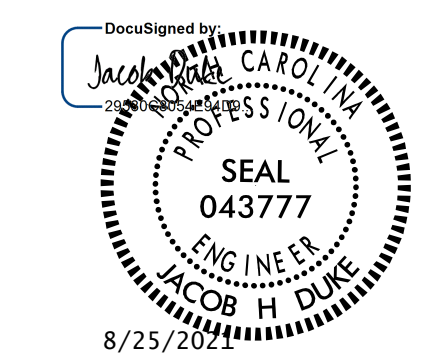


FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

(FOR AREAS OF DETERIORATION GREATER THAN 3SF)



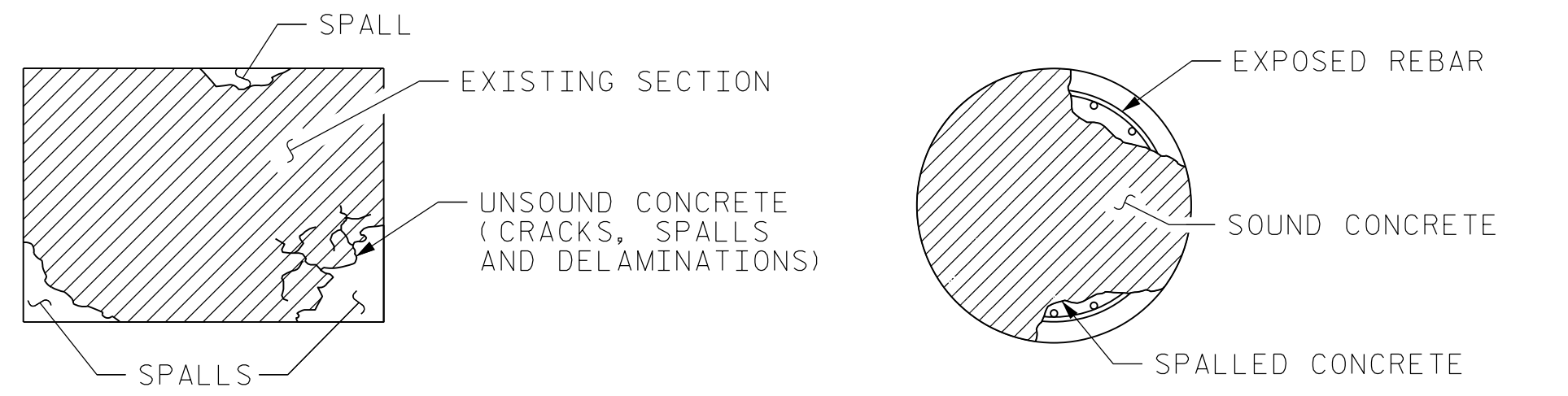
REINFORCING STEEL REPAIR



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DRAWN BY : NAP 9/18	
CHECKED BY :	
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

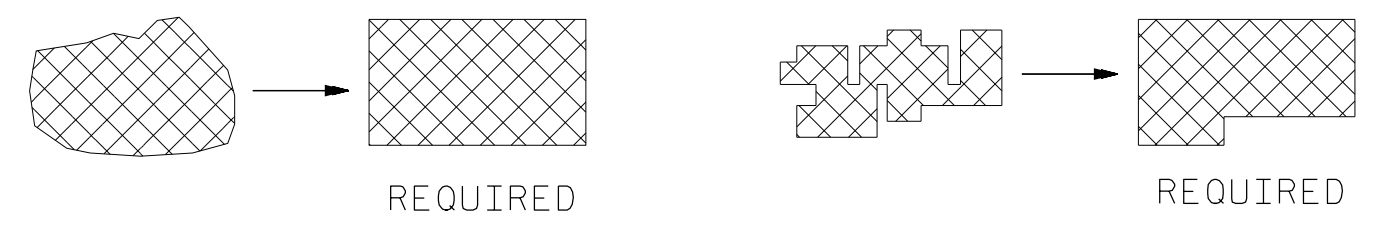
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD					
DECK REPAIR DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S5
					TOTAL SHEETS 12



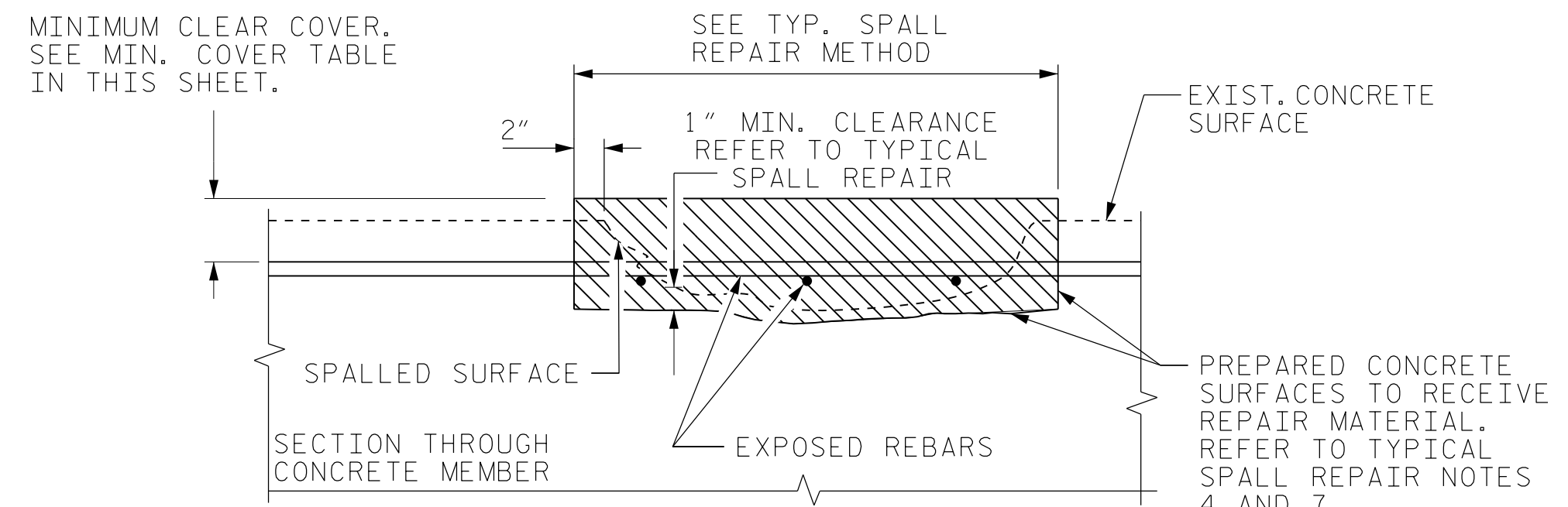
TYPICAL DELAMINATIONS AND SPALLS

TYPICAL SPALL WITH EXPOSED REBAR



SIMPLE PATCH CONFIGURATION

AT CORNER LOCATIONS PROVIDE RIGHT ANGLE CUTS. PATCH CONFIGURATION SHALL BE KEPT AS SIMPLE AS POSSIBLE. INDIVIDUAL REPAIR AREAS WITHIN 2 FEET SHALL BE JOINED AT THE DIRECTION OF THE ENGINEER.



EXPOSING AND UNDERCUTTING REINFORCING STEEL

APPLICABLE TO HORIZONTAL, VERTICAL, AND OVERHEAD LOCATIONS

MIN. CONCRETE COVER TABLE		
STRUCTURE ELEMENT	COVER	
	ALL OTHER SITES	CORROSIVE SITES
Bridge Deck to top of slab to bottom of slab	2 1/2" (65mm)	2 1/2" (65mm)
	1 1/4" (32mm)	1 1/4" (32mm)*
Footings and Pile Caps to top face to all other faces	2" (50mm)	4" (100mm)
	3" (75mm)	4" (100mm)
Bent Caps to bottom of cap to ends of cap to top of cap to sides of cap	3" (75mm)	4" (100mm)
	2" (50mm)	3" (75mm)
	2" (50mm)	3" (75mm)
	2" (50mm)	3" (75mm)
Columns (spiral)	2" (50mm)	3" (75mm)
Drilled Piers (spiral)	5" (125mm)**	6" (150mm)**
Culverts to bottom of bottom slabs and footings to all other faces	3" (75mm)	3" (75mm)
	2" (50mm)	2" (50mm)
Approach Slabs	2" (50mm)	2" (50mm)

* WHEN USING REMOVEABLE FORMS, COVER SHALL BE INCREASED TO 2 1/2"
 ** IN THE EVENT THE DRILLED PIER EXTENDS INTO A BENT CAP OR PILE CAP, THE COVER MAY BE REDUCED TO 4"

TYPICAL SPALL REPAIR

- FOR CONCRETE RESTORATION, REMOVE AND REPAIR UNSOUND CONCRETE FROM AREAS TO BE REPAIRED IN ACCORDANCE WITH THIS SHEET AND THE PROJECT SPECIAL PROVISIONS. AREAS WELL ADHERED TO EXISTING STRAND OR REINFORCEMENT SHALL REMAIN.
- ALL UNSOUND CONCRETE MUST BE REMOVED, HOWEVER, PRESTRESSED STRANDS SHOULD NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY. USE EXTREME CARE TO NOT DAMAGE STRANDS.
- ALL REPAIRS SHALL BE MARKED FOR APPROVAL OF APPROXIMATE PERIMETER PRIOR TO INITIATION OF WORK.
- THE CONTRACTOR SHALL SUBMIT A PLAN FOR CONTROL AND DISPOSAL OF DEBRIS TO THE ENGINEER FOR APPROVAL.
- ANY REINFORCEMENT WHICH IS LOOSE SHALL BE SECURED IN PLACE BY TYING TO OTHER SECURED BARS OR BY OTHER APPROVED METHODS. LAP SPLICES SHALL BE INSTALLED IN ACCORDANCE WITH THE TABLE BELOW. REFER TO GENERAL NOTES FOR DOWEL DETAIL (IF NECESSARY).
- CLEAN EXPOSED REBARS AND ANY LOOSE CONCRETE OR ABRASIVES BY SANDBLASTING OR APPROVED ALTERNATE. CLEANED STEEL SHALL NOT BE LEFT EXPOSED FOR MORE THAN 72 HOURS PRIOR TO ENCAPSULATION OF CONCRETE.
- AN APPROVED CEMENTITIOUS BASED BONDING AGENT SHALL BE USED ON ALL EXPOSED CONCRETE SURFACES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS BEFORE THE REPAIR MATERIAL IS APPLIED.
- FILL VOIDS WITH REPAIR MATERIAL IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS AND NCDOT SPECIFICATIONS. NOTE THAT ANY REPAIR MATERIAL APPLIED TO OVERHEAD LOCATIONS SHALL BE SPECIFICALLY DESIGNATED FOR OVERHEAD USE BY THE MANUFACTURER'S SPECIFICATIONS.

TYPICAL CRACK REPAIR

- OBTAIN ENGINEER'S APPROVAL TO CARRY OUT CRACK REPAIR (IN LIEU OF SPALL REPAIR) FOR CASES WHERE ADJACENT CONCRETE IS OTHERWISE SOUND AND CRACKING IS NOT A RESULT OF CORRODING REINFORCEMENT.
- ADDRESS CRACKS IN NEW CONSTRUCTION IN ACCORDANCE WITH PROJECT SPECIAL PROVISIONS. ADDRESS EXISTING CRACKS IN ACCORDANCE WITH THIS SHEET AND PROJECT SPECIAL PROVISIONS.
- REMOVE UNSOUND CONCRETE FROM CRACK AREA.
- THE CONTRACTOR SHALL SUBMIT A PLAN FOR CONTROL AND DISPOSAL OF DEBRIS TO THE ENGINEER FOR APPROVAL.
- FOR CRACKS UP TO 1/8" USE AN EPOXY RESIN WITH MINIMUMS OF VISCOSITY OF 325 CPS, 28 DAY COMPRESSIVE STRENGTH OF 13000 PSI. FOR CRACKS 1/8" TO 1/4", USE AN INJECTION GEL OR EQUAL NON-SAG PASTE WITH 28 DAY COMPRESSIVE STRENGTH OF 10000 PSI.
- TO SEAL CRACK SURFACES PRIOR TO CRACK INJECTION, USE INJECTION GEL WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 12000 PSI.
- ENGINEER TO APPROVE CRACK AND CAP SEAL MATERIAL PRIOR TO BEGINNING OF CONSTRUCTION.
- APPLY CLASS II FINISH AT COMPLETION OF CRACK REPAIR TO REMOVE FINS OR KNOBS.

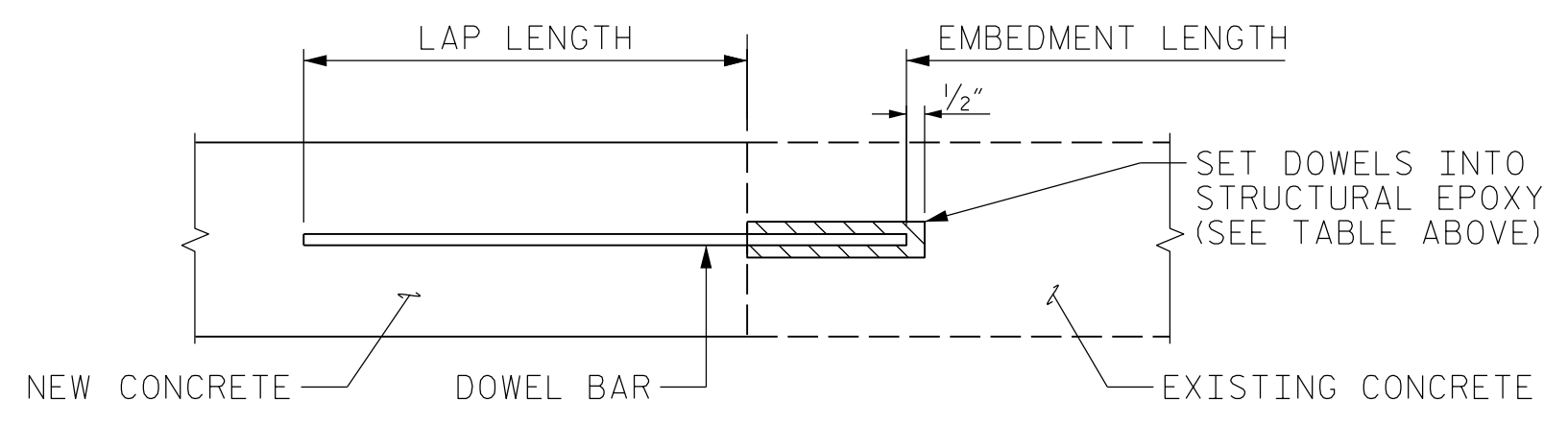
DOWEL DETAILS & NOTES

DOWEL DIMENSIONS (UNLESS OTHERWISE NOTED)			
DOWEL SIZE	HOLE DIAMETER	EMBEDMENT LENGTH	MIN LAP LENGTH
4	5/8"	8"	1'-9"
5	3/4"	9"	2'-2"
6	7/8"	11"	2'-7"
8	1 1/8"	1'-4"	4'-6"

NOTES: ANY REQUIRED DOWEL HOLES SHALL BE DRILLED INTO EXISTING CONCRETE ACCORDING TO THE DETAIL AND NCDOT SPECIFICATIONS.

NOTIFY THE ENGINEER OF ANY BROKEN BARS OR BARS WHICH ARE DETERMINED TO HAVE A SECTION LOSS OF 25% OR GREATER.

INSTALL DOWELS IN ACCORDANCE WITH NCDOT SPECIFICATIONS.



CONCRETE REPAIR NOTES

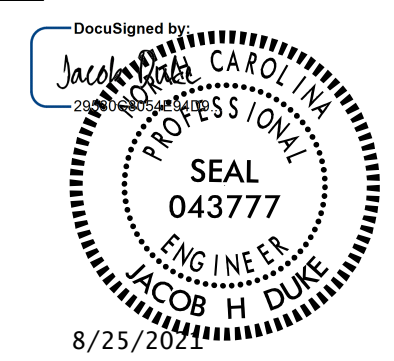
- PERFORM A SOUNDING SURVEY IN THE PRESENCE OF THE ENGINEER TO IDENTIFY ALL LOCATIONS IN NEED OF CONCRETE REPAIR.
- GAIN CONCURRENCE ON ALL REPAIR AREAS AT EACH LOCATION PRIOR TO COMMENCING WORK AT THE BENT.
- THE DETERIORATED AREAS SHOWN ON OTHER SHEETS ARE BASED ON THE BRIDGE INSPECTION REPORT, AND PARTIAL FIELD REVIEWS OF THE STRUCTURE. AS SUCH, THEY ARE FOR INFORMATIONAL PURPOSES, SUBJECT TO CHANGE BASED ON CONTINUING DETERIORATION.
- GENERALLY EXTEND REPAIR AREAS 2"-3" INTO SOUND CONCRETE BEYOND EDGE OF SPALLS AND SQUARE OFF AREAS IN ACCORDANCE WITH DETAILS ON THIS SHEET.
- THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL, OR REQUIRE HARSH CHEMICALS TO REMOVE.
- THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE PROJECT SPECIAL PROVISIONS, AND THE STANDARD SPECIFICATIONS.
- REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY. MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.
- REINFORCING STEEL, WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.
- FOR REPAIRS OVER TRAFFIC AND SHALLOW REPAIRS THAT DO NOT ENGAGE REINFORCEMENT, ANCHOR PATCH MATERIAL USING 1/4" GALVANIZED BOLTS, EPOXY ANCHORED WITH 2" EMBEDMENT. PLACE BOLTS IN A 6" GRID. USE A LATEX OR EPOXY PATCH MATERIAL FOR IMPROVED BOND.
- CONCRETE COVER SHOWN IN THE PLANS DOES NOT INCLUDE PLACEMENT OR FABRICATION TOLERANCES UNLESS SHOWN AS "MINIMUM COVER". SEE NCDOT SPECIFICATIONS FOR ALLOWABLE REINFORCEMENT PLACEMENT TOLERANCES.
- WHEN PROPOSED CONCRETE REPAIRS (OR DETERMINED LOCATIONS) ARE ADJACENT TO A CORNER, REPAIR ON THE ADJACENT EDGE SHOULD BE ANTICIPATED IN ADDITION TO THE AREA SHOWN ON SUBSTRUCTURE CONCRETE REPAIR SHEETS. THE CONTRACTOR IS RESPONSIBLE FOR THIS REPAIR AT ALL LOCATIONS REGARDLESS OF CALL-OUT(S) ON RESPECTIVE SHEET(S).
- FINISH CONCRETE SURFACES IN ACCORDANCE WITH THE LATEST NCDOT SPECIFICATIONS. MATCH EXISTING FINISH ON ALL EXPOSED EDGES UNLESS OTHERWISE NOTED. A CLASS 5 FINISH COATING SHALL BE APPLIED TO THE BEAM ENDS WHERE CONCRETE REPAIRS HAVE BEEN PERFORMED, MATCHING THE COLOR OF SURROUNDING CONCRETE.
- ALL REINFORCING STEEL SHALL BE ASTM A615-96, GRADE 60. REINFORCEMENT DETAIL DIMENSIONS ARE OUT-TO-OUT OF BARS. ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCEMENT ARE TO CENTERLINE OF BARS EXCEPT WHERE THE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE. 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 ADHESIVELY ANCHORED DOWELS OR ANCHOR BOLTS, SEE STANDARD SPECIFICATIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION (ERT), SEE SPECIAL PROVISIONS.

LAP SPLICE TABLE	
BAR SIZE	LAP SPLICE LENGTH
4	1'-9"
5	2'-2"
6	2'-7"
7	3'-6"
8	4'-6"
9	5'-10"
10	7'-4"

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

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

SHEET 1 OF 3



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

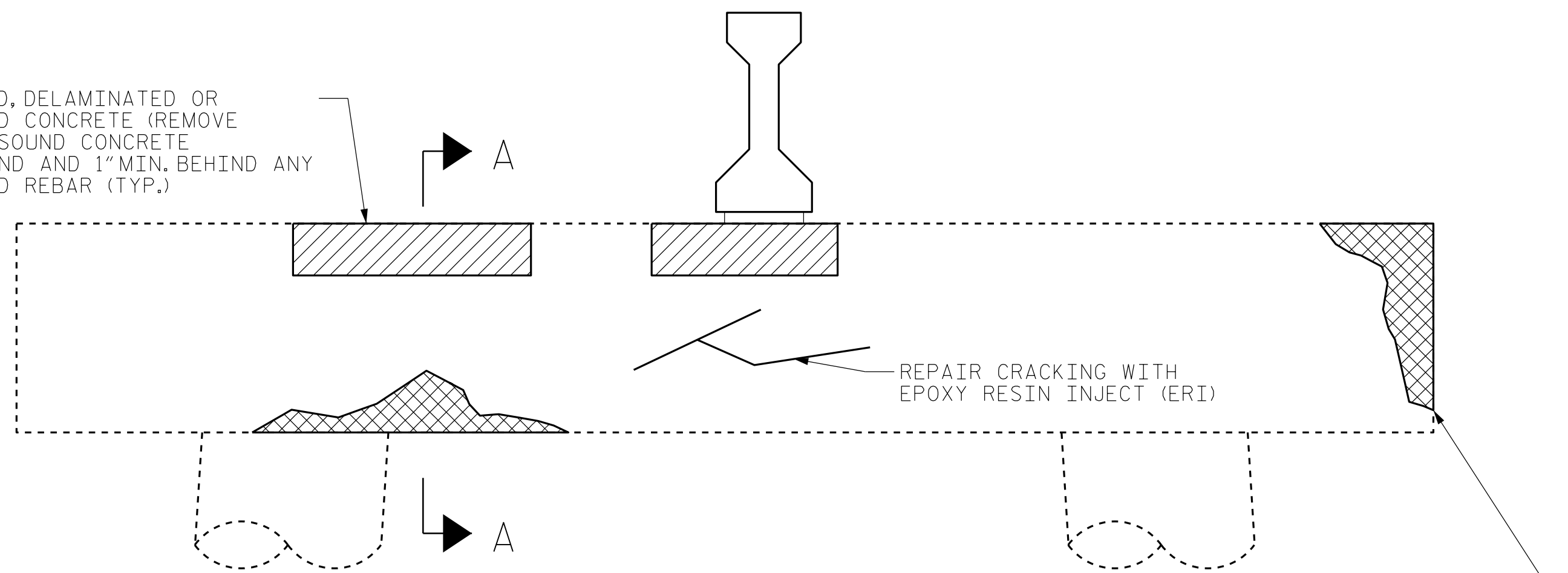
CONCRETE RESTORATION DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6
1			3			TOTAL SHEETS
2			4			12

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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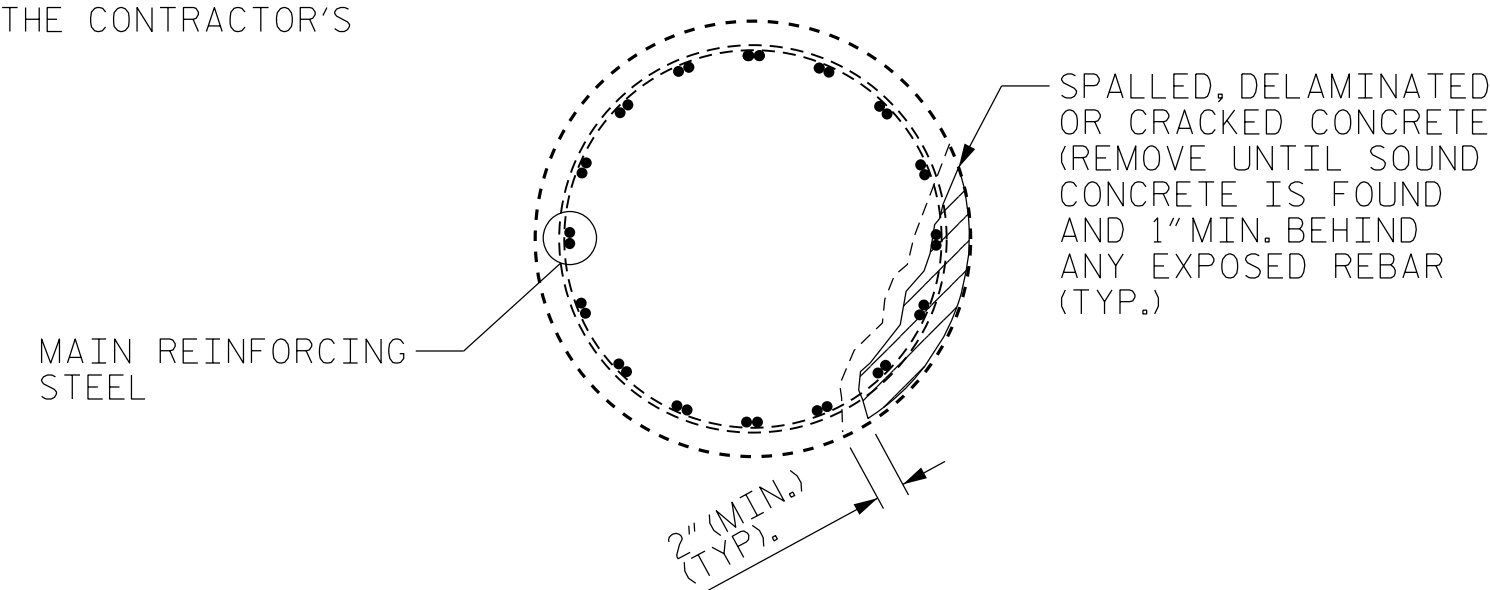
SPALLED, DELAMINATED OR CRACKED CONCRETE (REMOVE UNTIL SOUND CONCRETE IS FOUND AND 1" MIN. BEHIND ANY EXPOSED REBAR (TYP.))



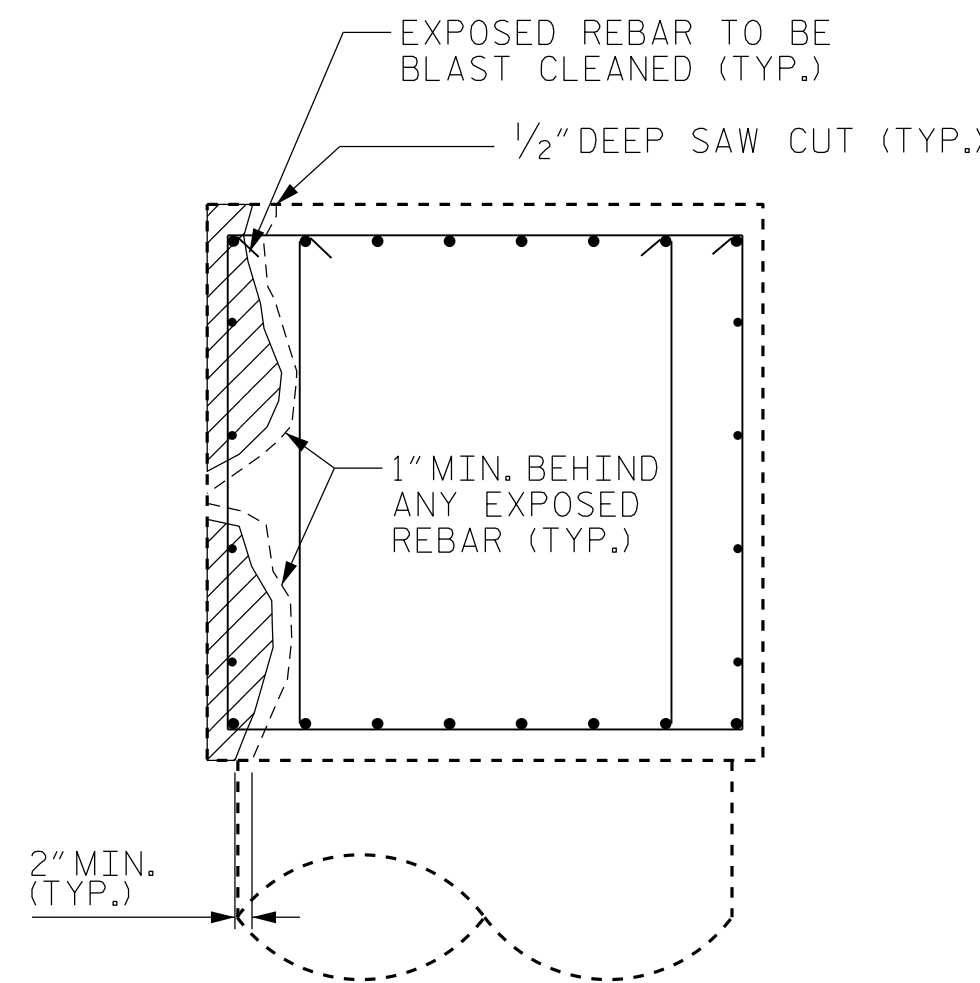
CAP REPAIRS

(COLUMN BENT SHOWN
PILE BENTS SIMILAR)

REPAIR ALL SPALLED, DELAMINATED OR CRACKED CONCRETE AREAS NOT OCCURRING AT BEAM BEARING AREAS PER PLANS AND PER THE ENGINEER USING SHOTCRETE OR "FORM AND POUR" AT THE CONTRACTOR'S OPTION (SEE NOTES)

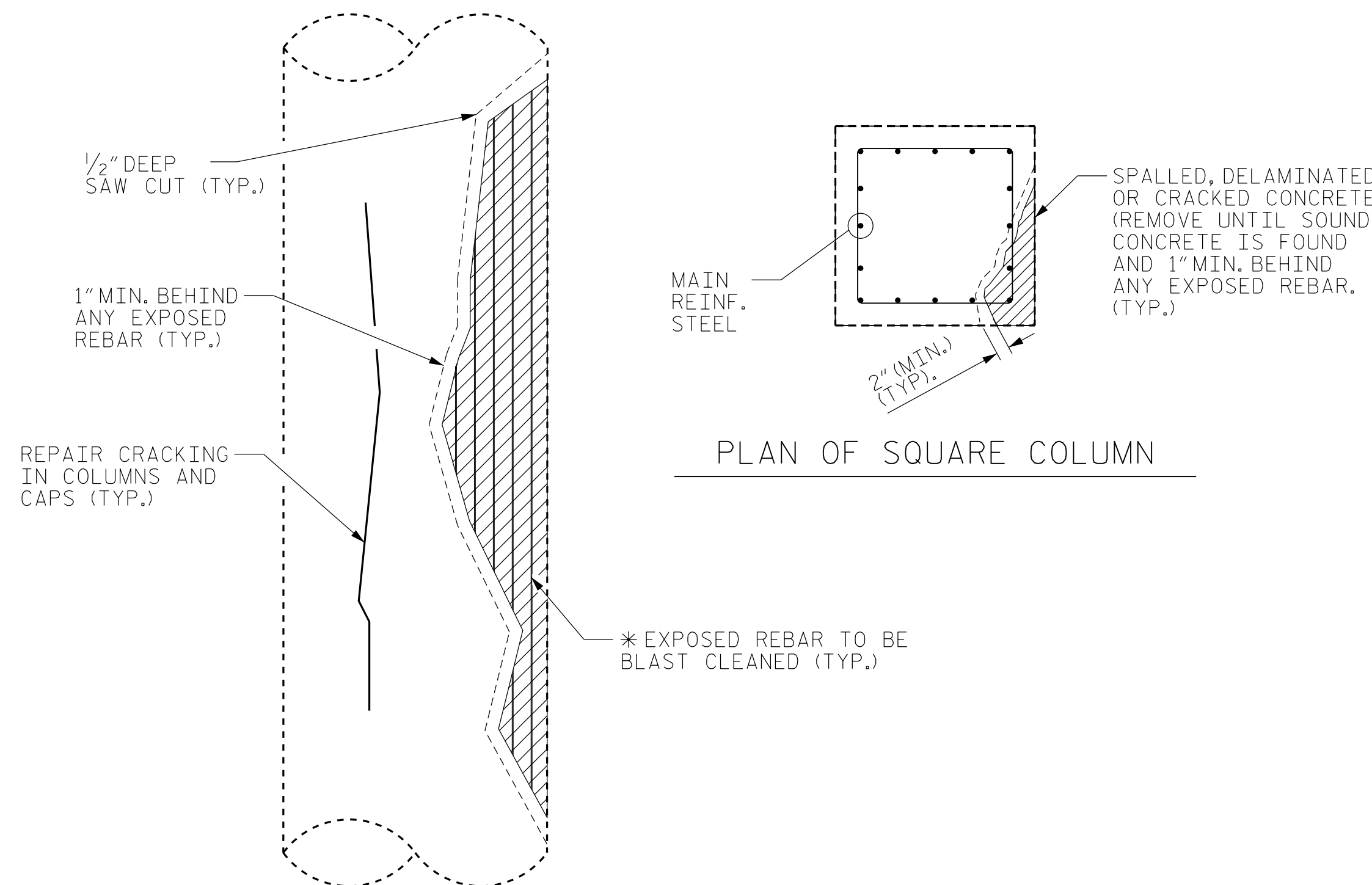


PLAN OF CIRCULAR COLUMN



SECTION A-A

BENT CAP REPAIRS



ELEVATION OF COLUMN (SQUARE COLUMNS SIMILAR)

* REPAIR LENGTH SHALL NOT EXCEED 10 VERTICAL FEET AT ONCE OR 1/2 COLUMN DIAMETER.

COLUMN REPAIRS

SUBSTRUCTURE REPAIR NOTES:

1. WORK THIS SHEET WITH REPAIR METHODS AND CONCRETE REPAIR NOTES IN "CONCRETE RESTORATION DETAILS" SHEET 1.
2. TYPICAL BENT CAP REPAIRS ARE SHOWN IN THIS SHEET. REPAIR DETAILS SIMILAR FOR END BENT CAPS.
3. THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL, OR REQUIRE HARSH CHEMICALS TO REMOVE.
4. THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS, AND THE STANDARD SPECIFICATIONS.
5. REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, A MINIMUM OF 1" BEHIND REBAR AND MINIMUM CLEARANCE OF 2" TO SAWCUT.
6. REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.
7. IF ANY AREA IS DETERMINED TO BE UNSTABLE DURING THE REPAIR PROCESS AS DETERMINED BY THE ENGINEER, STOP THE CURRENT REPAIR PROCEDURE, SHORE THE AREA AND PERFORM A "FORM AND POUR" CONCRETE REPAIR.
8. NO MORE THAN 1/3 OF THE CAP OR PILE CROSS SECTIONAL AREA SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF THE CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.
9. SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR PILE, BUT NO MORE THAN 1/3 OF THE CIRCUMFERENCE SHALL BE REMOVED AT A TIME. IF REMOVAL EXTENDS MORE THAN 1-1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.
10. COAT ALL THE FREE SURFACE AREA ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. DO NOT COAT AREA UNDER BEARINGS.
11. REPAIRS TO THE BENT CAPS MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
12. FOR SUBSTRUCTURE REPAIRS, SEE "SUBSTRUCTURE REPAIRS" SHEETS.

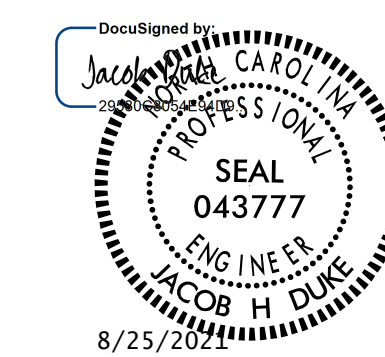
LEGEND	
	CONCRETE REPAIR AREA
	SHOTCRETE REPAIR AREA
	EPOXY RESIN INJECTION (ERI)

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

PROJECT NO. I-5939
ROBESON COUNTY

BRIDGE NO. MULTIPLE
BRIDGES: 10, 12, 04, 24, 86, 89, 90, 96, 98, 104, 106, 107, 124, 130, 131

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**CONCRETE RESTORATION
DETAILS**
SUBSTRUCTURE

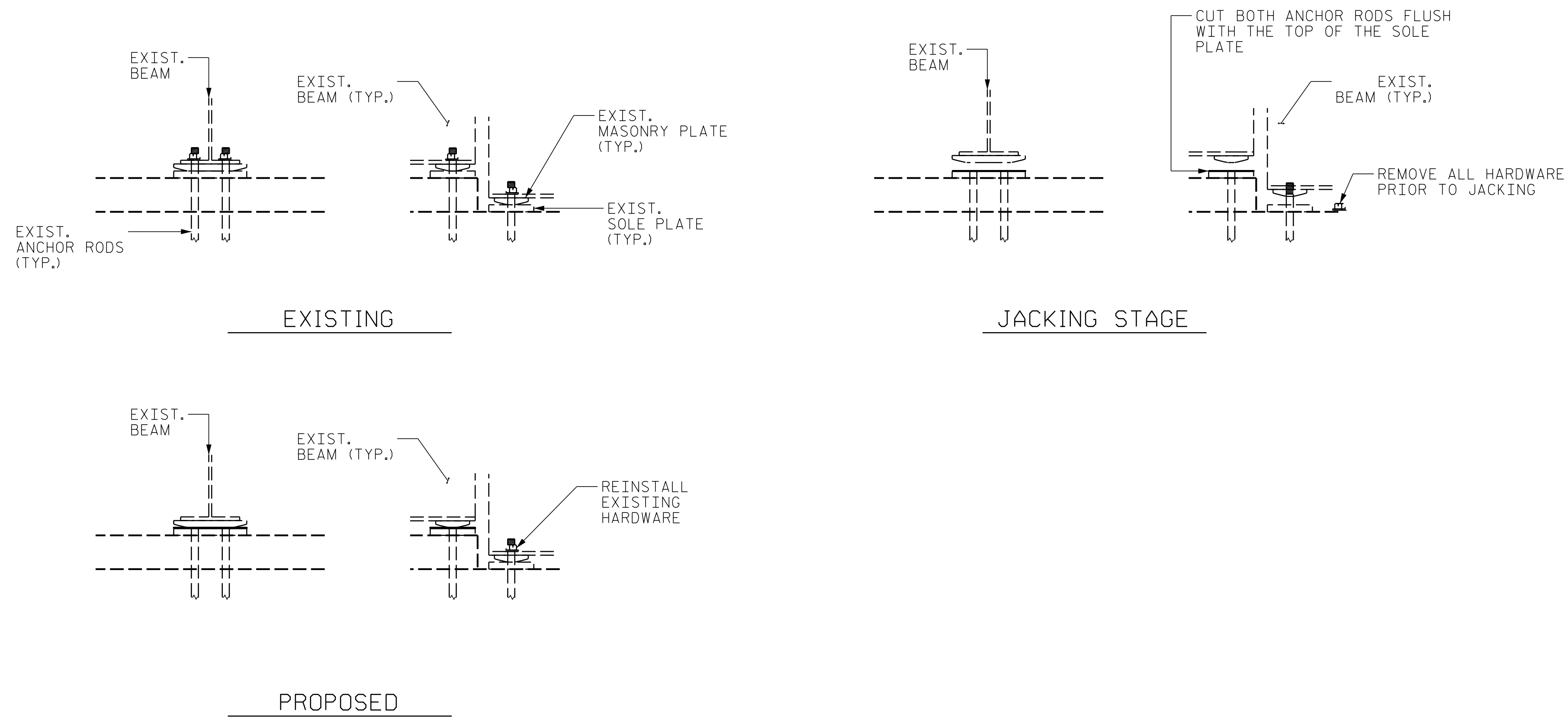


KCA
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301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			7
2			4			12

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



NOTES

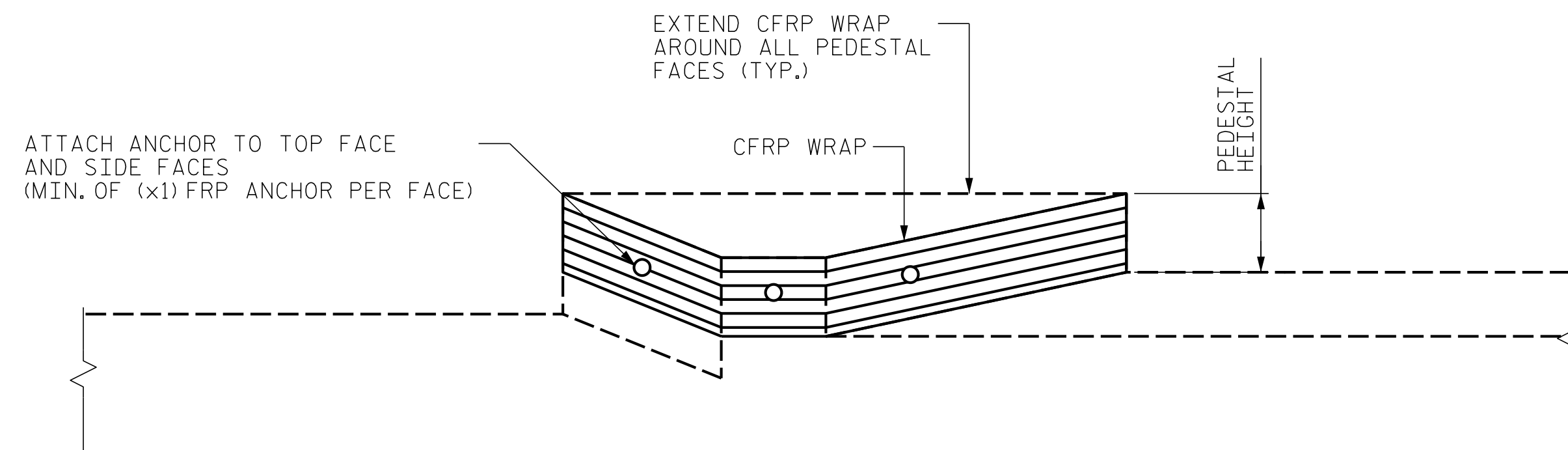
FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEETS AND SPECIAL PROVISIONS.
 CLEAN AND PAINT BEARING ASSEMBLY STEEL PRIOR TO RELEASING JACKS.
 ONLY CUT ANCHOR RODS IN SPANS 1 AND 4, ON INTERIOR BEAMS ONLY.
 FOR CFRP PEDESTAL REPAIRS AND BEARING RETROFIT, SEE SPECIAL PROVISIONS.
 FOR PEDESTAL REPAIR LOCATIONS, SEE "SUBSTRUCTURE REPAIR" SHEETS.
 PERFORM ALL SUBSTRUCTURE CONCRETE REPAIRS PRIOR TO JACKING AND PRIOR TO PERFORMING PEDESTAL REPAIRS.



TYPICAL PEDESTAL CONDITION

BEARING RETROFIT

JACKS AND LOWER BEARING ASSEMBLIES NOT SHOWN IN SOME DETAILS FOR CLARITY

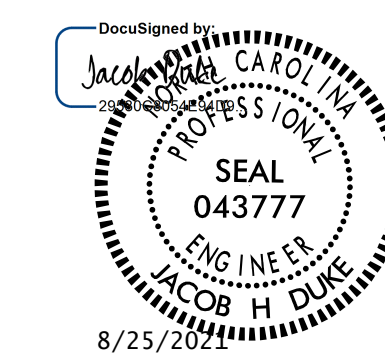


CFRP PEDESTAL REPAIRS

ISOMETRIC VIEW

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010, 770012

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE RESTORATION DETAILS

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_CR03.dgn
 fflores

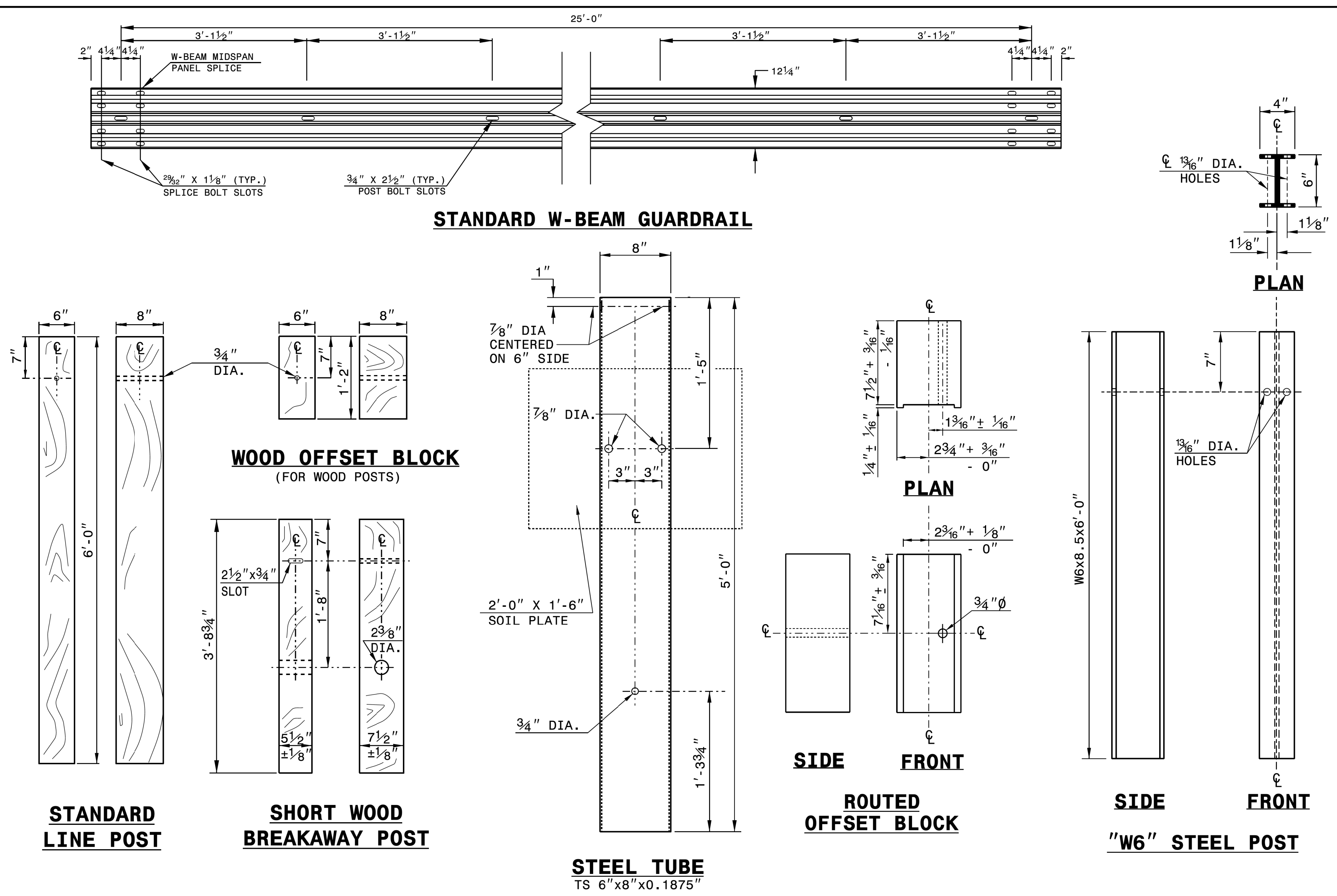
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8
1			3			TOTAL SHEETS
2			4			12

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

BRIDGES: 700010, 770012, 770004, 770086, 770089, 770090, 770096, 770098, 770104, 770106, 770107, 770124, 770130, 770131

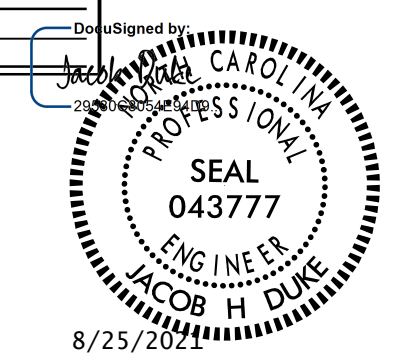
PROJECT NO. I-5939
ROBESON COUNTY
BRIDGE NO. MULTIPLE



**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL
INSTALLATION

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_CR02.dgn
fflores

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SIGNATURES COMPLETED



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S10	
1			3			TOTAL SHEETS	12
2			4				

BRIDGE JACKING NOTES:

THIS DETAIL IS A GENERIC EXAMPLE OF A JACKING SCHEME AND DOES NOT NECESSARILY REPRESENT SPECIFIC CONDITIONS AT A PARTICULAR BRIDGE. ACTUAL BRIDGE GEOMETRIES, DIMENSIONS, AND CONDITIONS MAY DIFFER FROM THIS DETAIL. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL INVESTIGATE THE BRIDGES ON THE PROJECT AND DEVELOP A JACKING PLAN TO BE SUBMITTED FOR REVIEW AND APPROVAL. SEE BRIDGE JACKING SPECIAL PROVISION.

PRIOR TO BRIDGE JACKING OPERATIONS, THE ENGINEER AND CONTRACTOR SHALL INSPECT THE STRUCTURE FOR ANY NOTABLE DEFECTS TO THE PRIMARY AND SECONDARY STRUCTURAL MEMBERS. ALL NOTABLE DEFECTS SHALL BE DOCUMENTED AND REPORTED TO THE AREA BRIDGE MAINTENANCE ENGINEER PRIOR TO COMMENCEMENT OF ANY BRIDGE JACKING. THE CONTRACTOR SHALL PROVIDE SAFE AND SUFFICIENT ACCESS TO ALL STRUCTURAL MEMBERS FOR THE ENGINEER TO ESTABLISH PROPER DOCUMENTATION.

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE BEAM FROM BEING LIFTED.

THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE FOR A METHOD TO REMOVE THE JACKS AND SUPPORT THE BEAM FOR DEAD AND LIVE LOAD DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THEY SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF, DURING THE JACKING PROCESS, OR WHILE THE BEAM IS BEING SUPPORTED, THE BEAM SHIFTS FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

BEARINGS ADJACENT TO THE BEAM BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS 1/8".

LOADS PROVIDED IN THE "BRIDGE JACKING TABLE" ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR'S ENGINEER SHALL DETERMINE THE EXPECTED LOADS TO BE LIFTED DURING THE BRIDGE JACKING OPERATIONS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS AND CALCULATIONS OF THE JACKING PROCEDURE(S) SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA TO THE ENGINEER FOR APPROVAL PRIOR TO BRIDGE JACKING OPERATIONS.

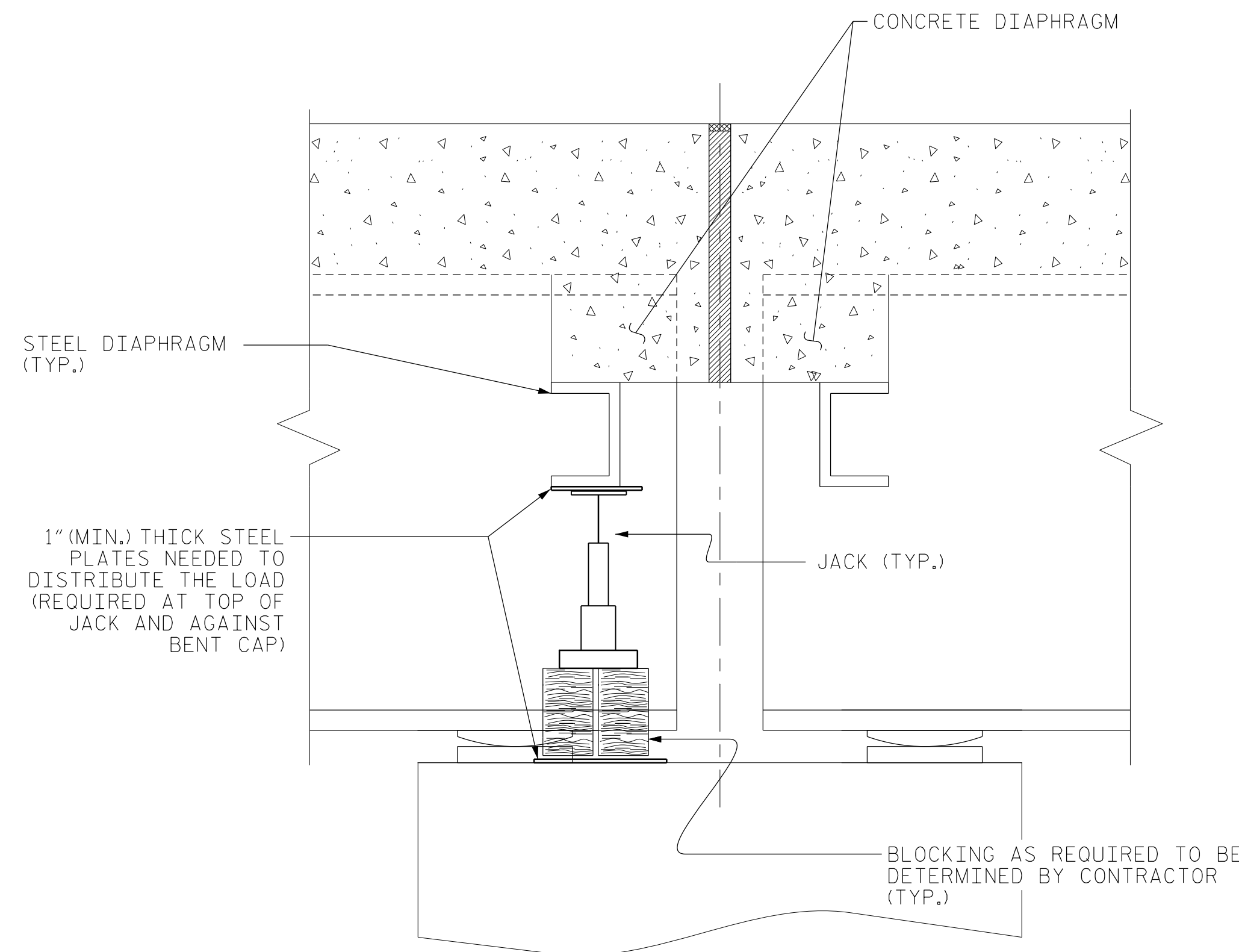
FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRUALIC JACKING SYSTEM THAT LIFTS EACH BEAM ALONG ENTIRE SPAN END WITH EQUAL FORCE AND AT AN EQUAL RATE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.

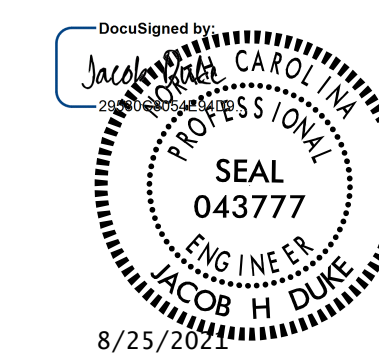


SECTION THRU DIAPHRAGM

BRIDGE NO: 770010					
BRIDGE JACKING TABLE					
SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (NO IMPACT) (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1	INTERIOR	TYPE I	84	105	80
2	INTERIOR	TYPE I	99	122	95
3	INTERIOR	TYPE I	99	122	95
4	INTERIOR	TYPE I	89	111	85

BRIDGE NO: 770012					
BRIDGE JACKING TABLE					
SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (NO IMPACT) (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1	INTERIOR	TYPE I	84	105	80
2	INTERIOR	TYPE I	99	122	95
3	INTERIOR	TYPE I	99	122	95
4	INTERIOR	TYPE I	89	111	85

PROJECT NO. I-5939
ROBESON COUNTY
 BRIDGE NO. 770010, 770012



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
BRIDGE JACKING DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S11
					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

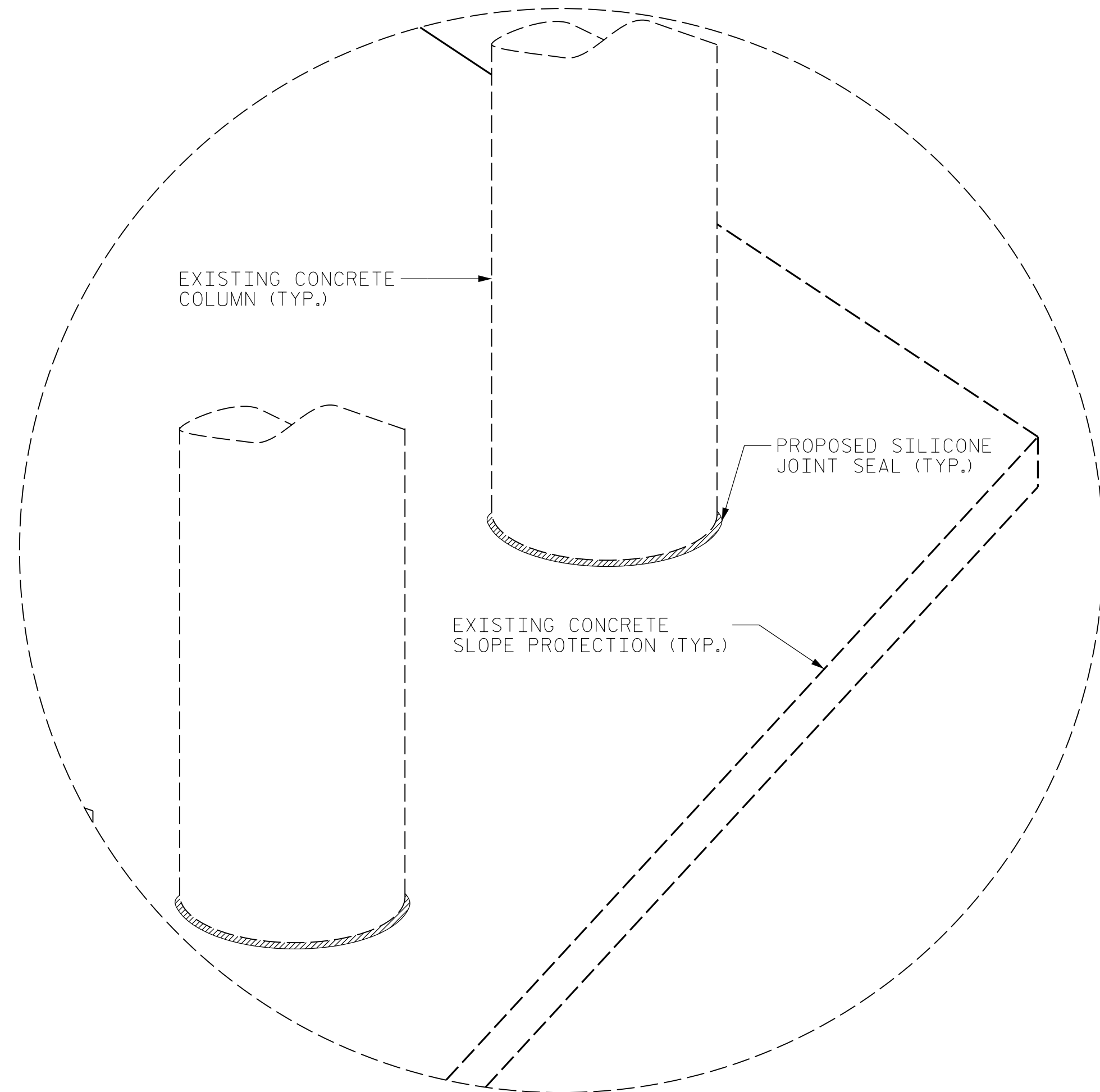
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NOTE:
FOR SILICONE JOINT SEALANT FOR SLOPE PROTECTION,
SEE SPECIAL PROVISIONS

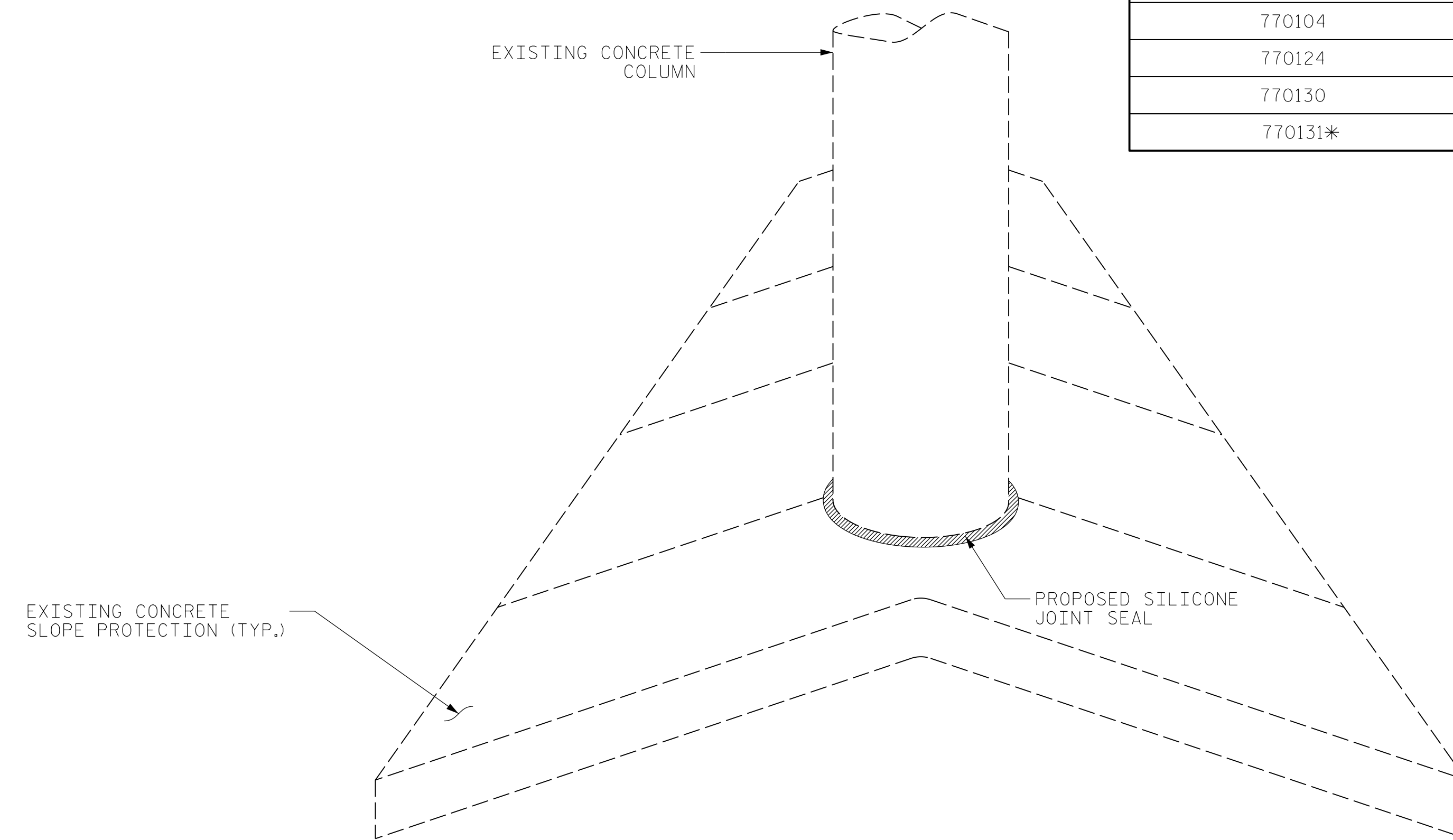
* - INCLUDES QUANTITY FOR SILICONE JOINT SEALANT
AT EBI IN CONJUNCTION WITH SLOPE PROTECTION REPAIRS.

SLOPE PROTECTION JOINT SEAL
REPAIR QUANTITY TABLE

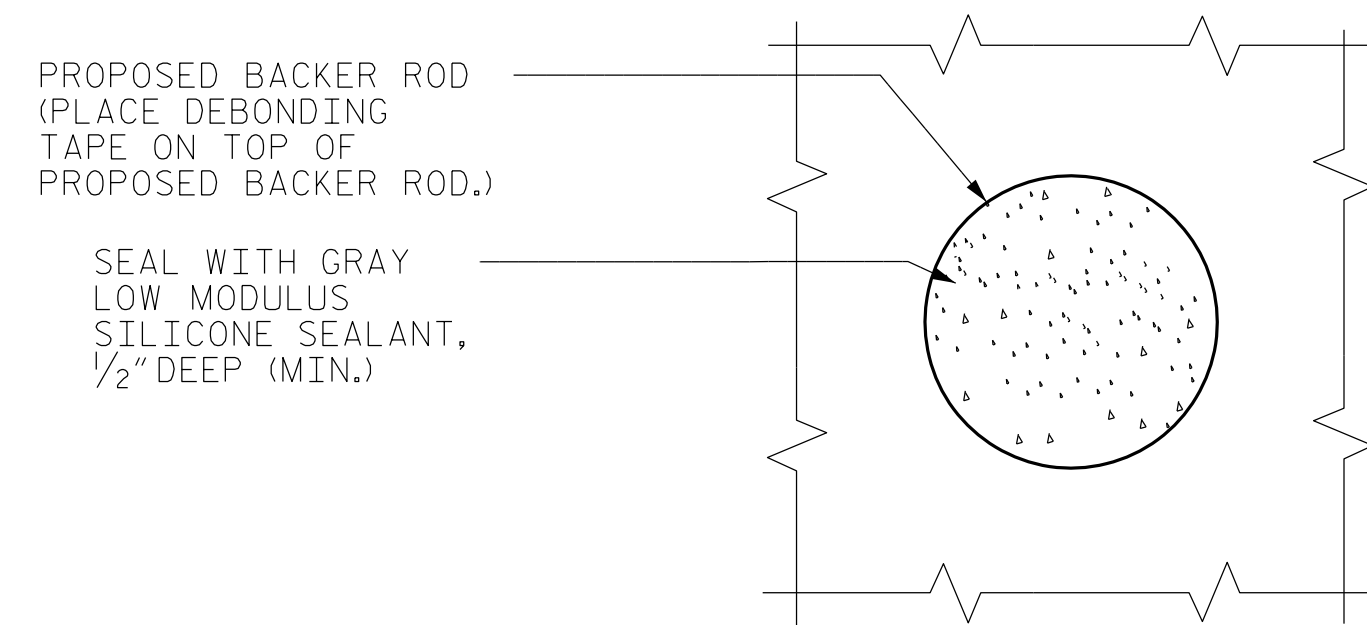
STRUCTURE	ESTIMATE	ACTUAL
770004	114 LIN. FT.	
770086	57 LIN. FT.	
770096	57 LIN. FT.	
770104	114 LIN. FT.	
770124	85 LIN. FT.	
770130	29 LIN. FT.	
770131*	87 LIN. FT.	



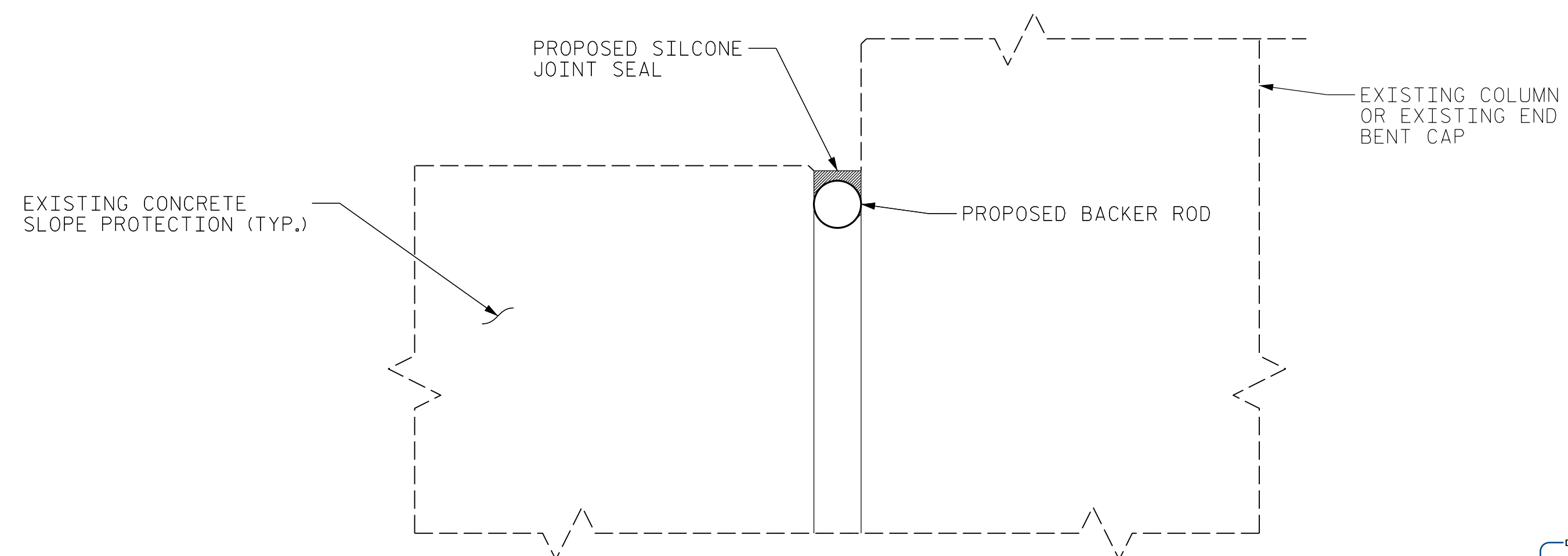
JOINT SEAL AT END BENTS



JOINT SEAL AT INTERIOR BENTS ELEVATION



JOINT SEAL REPAIR PLAN VIEW



JOINT SEAL REPAIR ELEVATION VIEW

BRIDGES: 770004, 770086, 770096, 770104,
770124, 770130, 770131

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

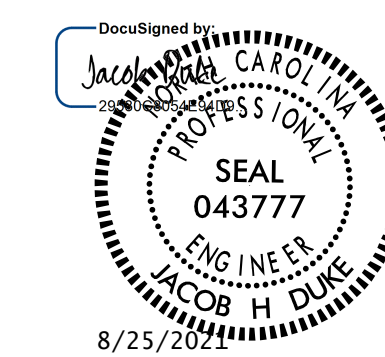
NOTES:

FOR PROPOSED JOINT SEAL REPAIR, SEE SPECIAL PROVISIONS

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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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD					
SLOPE PROTECTION JOINT SEAL DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S12
					TOTAL SHEETS 12

