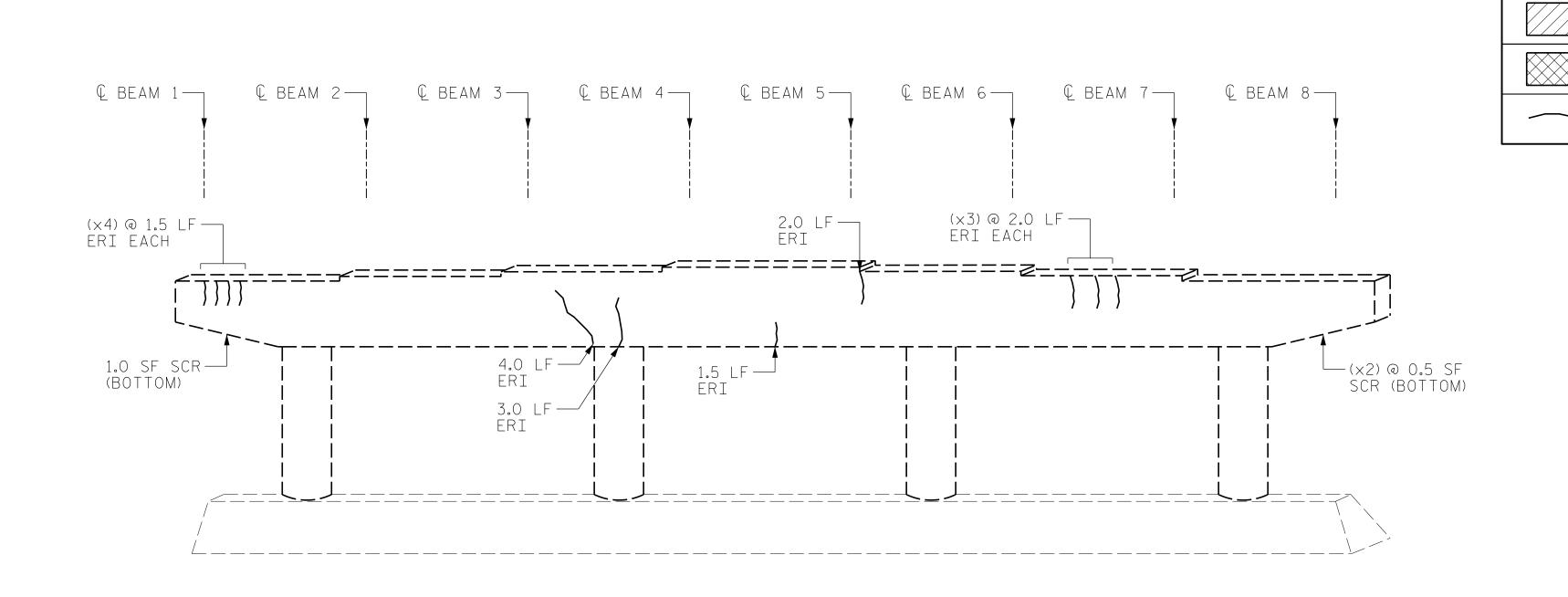
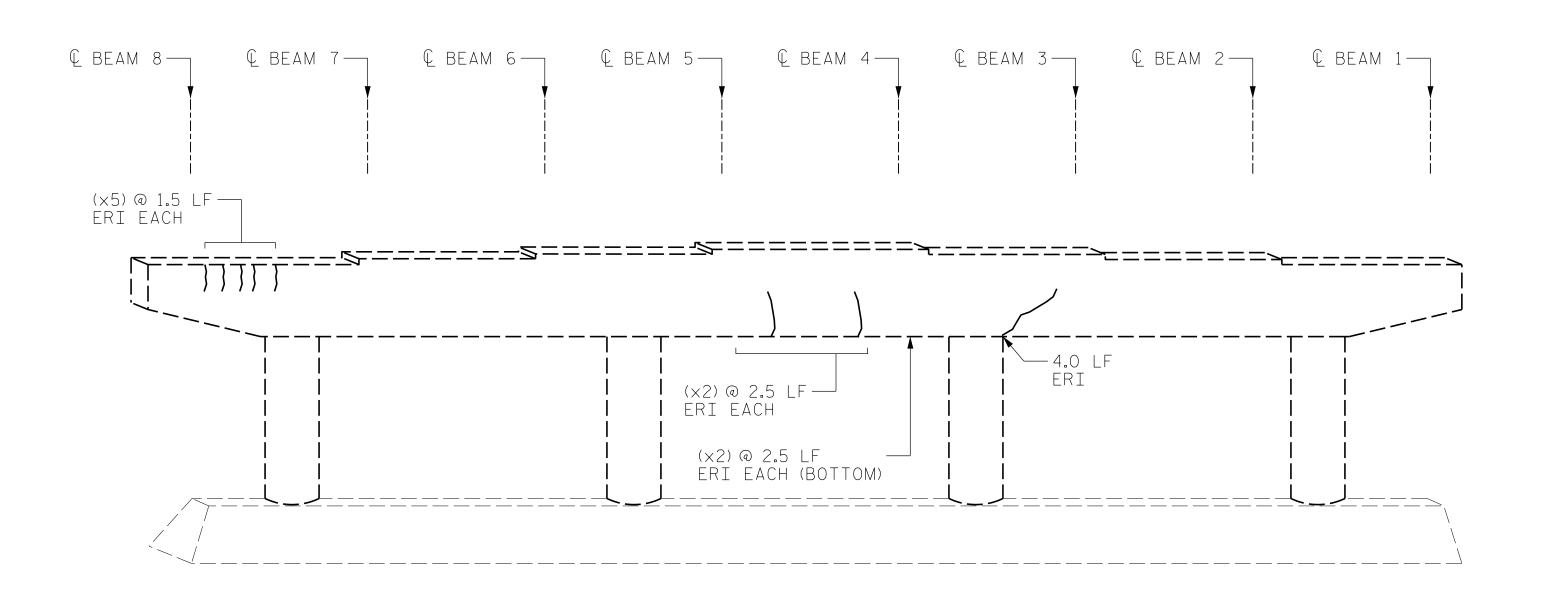
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The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.

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BENT 2 (WEST FACE)



BENT 2

(EAST FACE)

JACOB H.DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : __ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021

AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL 2.0 1.0 COLUMN/PILE CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. CAP 41.5 COLUMN/PILE AREA SQ. FT. EPOXY COATING 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:

LEGEND

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

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

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2"TO 3"ON THE CAP AND FROM 11/2" 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.

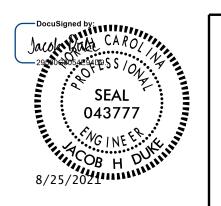
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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.__ ROBESON COUNTY 77Ø1Ø4 BRIDGE NO. __



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

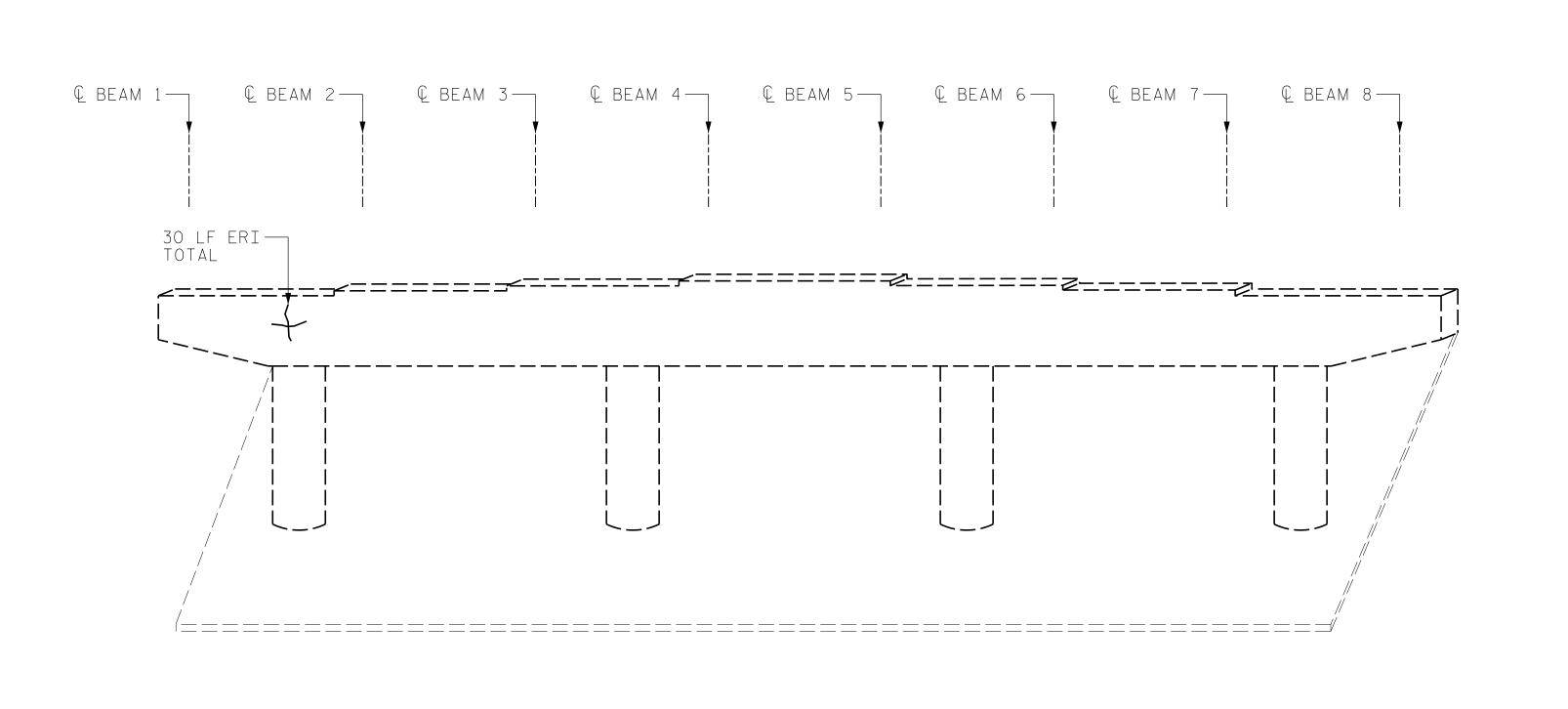
> SUBSTRUCTURE REPAIRS

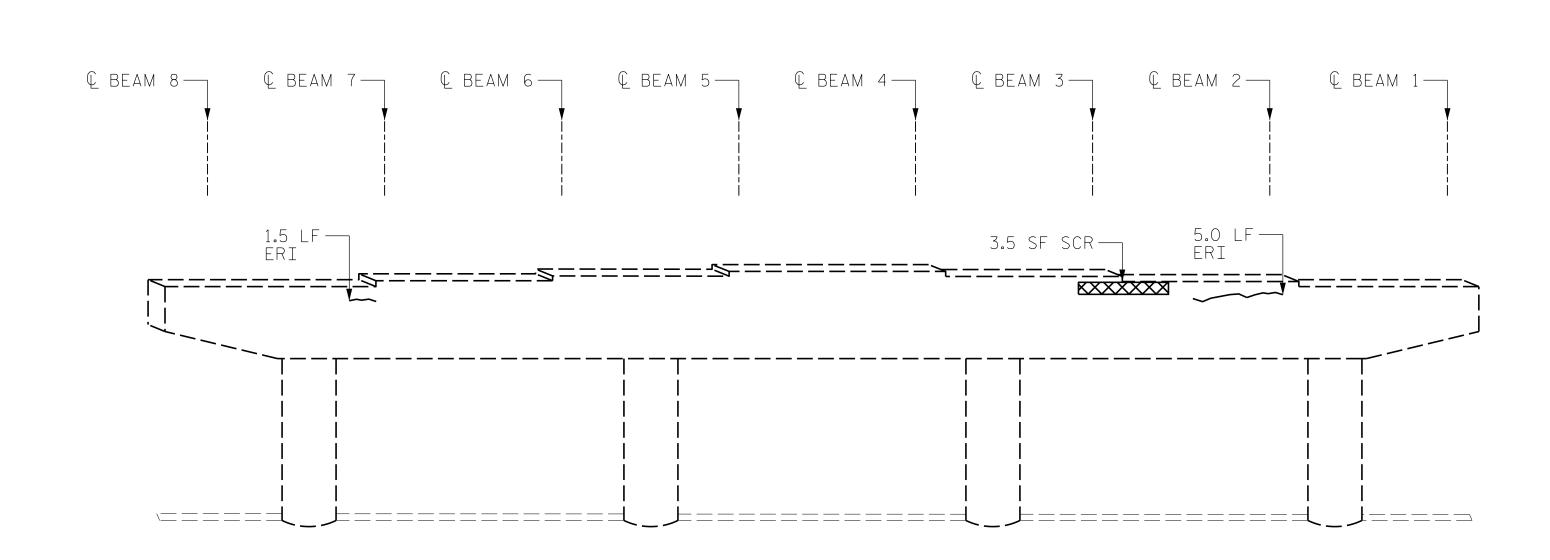
> > BENT 2

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST RALEIGH, NC 27601 SIGNATURES COMPLETED NC FIRM LICENSE: C-

FINAL UNLESS ALL

CAMPO	AMPO REVISIONS						
CIATES	NO.	BY:	DATE:	NO.	BY:	DATE:	S9-9
ST., SUITE 1500 (919) 882-7839	1			3			TOTAL SHEETS
C-1506	2			4			10





BENT 3

(WEST FACE)

BENT 3 (EAST FACE)

JACOB H.DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : ___

AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) 3.5 CAP/BACKWALL 2.8 COLUMN/PILE CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 36.5 CAP COLUMN/PILE AREA SQ. FT. EPOXY COATING

> 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.

293.2

NOTES:

CAP

LEGEND

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

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

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2"TO 3"ON THE CAP AND FROM 11/2" 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.

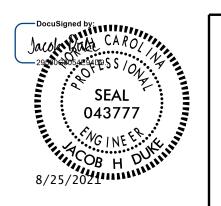
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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._ ROBESON COUNTY 770104 BRIDGE NO. __



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

> SUBSTRUCTURE REPAIRS

> > BENT 3

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., RALEIGH, NC 27601 (919) SIGNATURES COMPLETED NC FIRM LICENSE: C-1506

FINAL UNLESS ALL

AMPO	REVISIONS						SHEET NO
ATES	NO.	BY:	DATE:	NO.	BY:	DATE:	S9-1Ø
, SUITE 1500 19) 882-7839	1			33			TOTAL SHEETS
06	2			4			10

F.A. PROJECT No. NHPIM-0095(059)

SCOPE LEGEND:

- PROPOSED TYPE-III STRUCTURE ANCHOR UNITS
- (2) PROPOSED STEEL BEAM GUARDRAIL
- CLEAR SHOULDERS OF DEBRIS AND VEGETATION
- SILANE DECK TREATMENT
-) CONCRETE DECK REPAIRS
- JOINT REPLACEMENT

SPAN 2

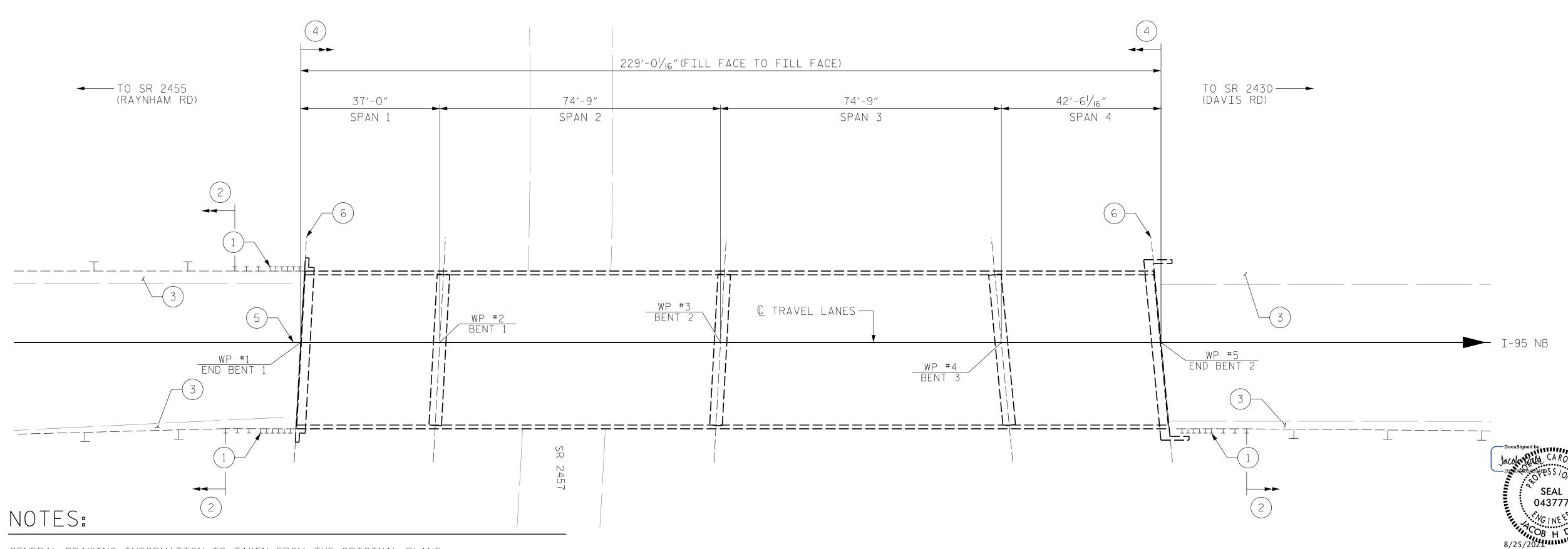
SECTION ALONG ROADWAY

SPAN 3

SPAN 4

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

RESIDENT ENGINEER DATE



PLAN

PROJECT NO. <u>I-5939</u>
ROBESON county

BRIDGE NO. _____770106

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-95 NB OVER BOYCE RD

REVISIONS

NO. BY: DATE: NO. BY: DATE: S10-1

1 3 TOTAL SHEETS

5

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

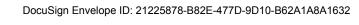
BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS/ ROUTINE INSPECTION.

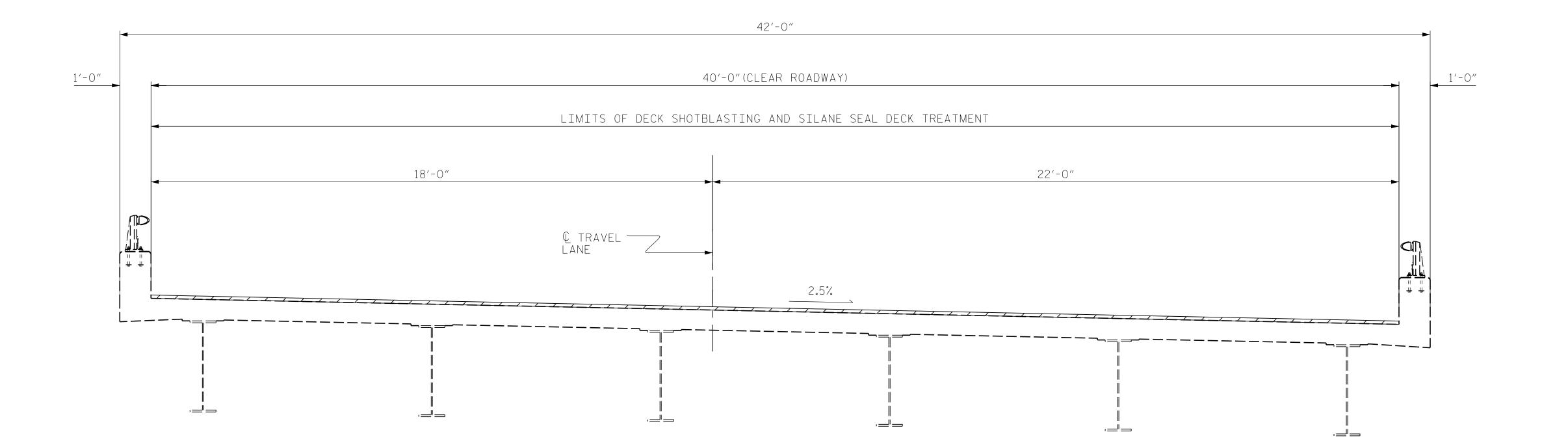
SPAN 1

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

CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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





PROJECT NO. I-5939 ROBESON COUNTY BRIDGE NO. ____77Ø1Ø6



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RALEIGH



KC14	
KISINGER CAMPO	
& ASSOCIATES	NO.
301 FAYETTEVILLE ST., SUITE 1500	ব
RALEIGH, NC 27601 (919) 882-7839	
NC FIRM LICENSE: C-1506	න

TYPICAL	SECITON

KISINGER CAMPO	RE [*]	SHEET NO.	
DOCUMENT NOT CONSIDERED & ASSOCIATES 301 FAYETTEVILLE ST., SUITE 1500	NO. BY: DATE:	NO. BY:	DATE: \$10-2
FINAL UNLESS ALL RALEIGH, NC 27601 (919) 882-7839	1 5 1 1	3	TOTAL SHEETS
SIGNATURES COMPLETED NC FIRM LICENSE: C-1506	2	4	5

DRAWN BY: _____ALLEN J. MCSWAIN
CHECKED BY: ____DIEGO A. AGUIRRE DRAWN BY: ALLEN J.MCSWAIN

CHECKED BY: DIEGO A. AGUIRRE

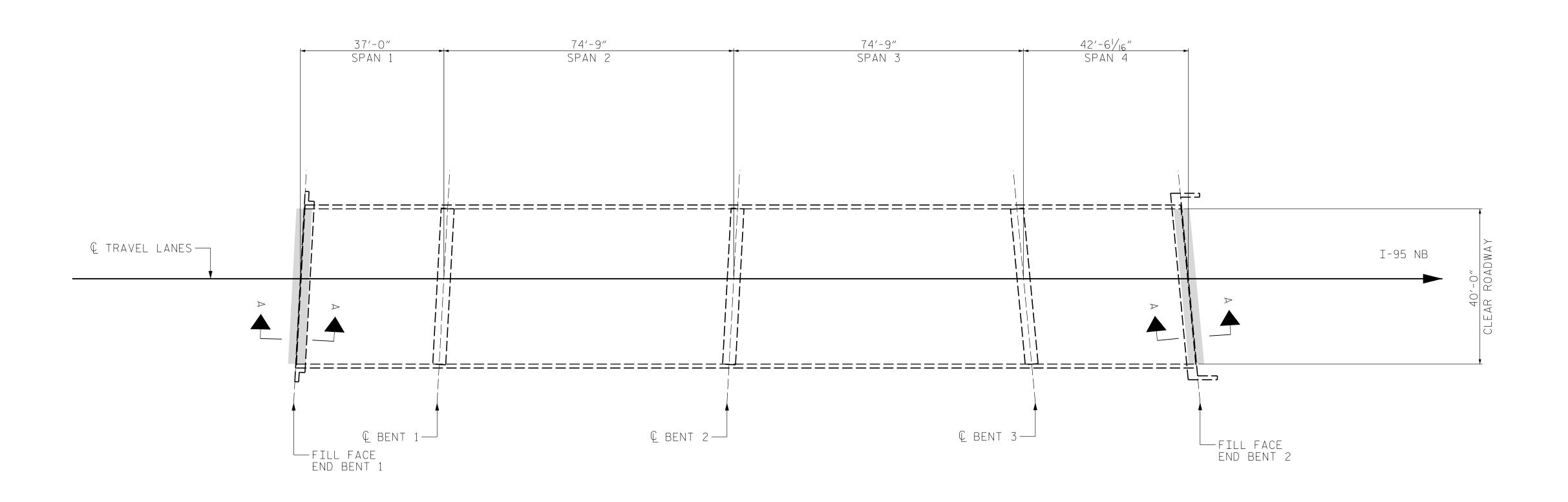
DATE: 06/2021

DESIGN ENGINEER OF RECORD: JACOB H. DUKE

DATE: 06/2021

8/25/2021 I5939_SMU_TS01_770106.dgn fflores

AS-BUILT REPAIR QUANTITY TABLE TOP OF DECK REPAIRS SPAN 3 SPAN 4 SPAN 1 SPAN 2 ESTIMATE ACTUAL ESTIMATE ACTUAL ESTIMATE ACTUAL ACTUAL ESTIMATE SHOTBLASTING BRIDGE DECK 165 SY 333 SY 333 SY 189 SY 165 SY 333 SY 333 SY 189 SY SILANE DECK TREATMENT



NOTES:

WHERE MULTIPLE SPANS ARE LISTED, ESTIMATED QUANITITES 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 $1\frac{1}{2}$ " 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.

SEAL 043777

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

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

DATE

77Ø1Ø6

COUNTY

RESIDENT ENGINEER

PROJECT NO.____

BRIDGE NO. ___

ROBESON

PLAN OF SPANS

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500

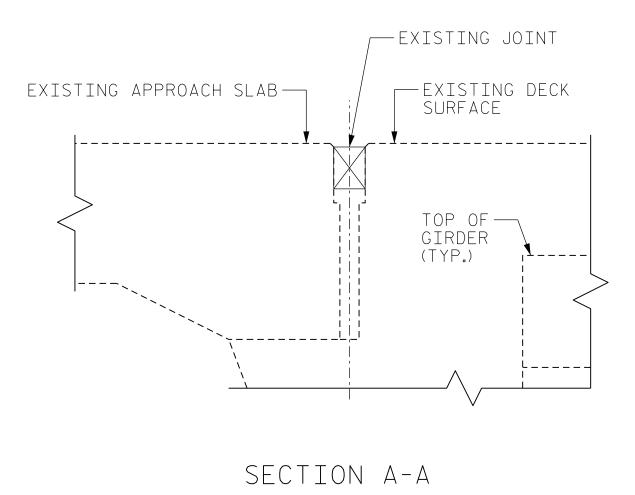
NC FIRM LICENSE: C-1506

FINAL UNLESS ALL

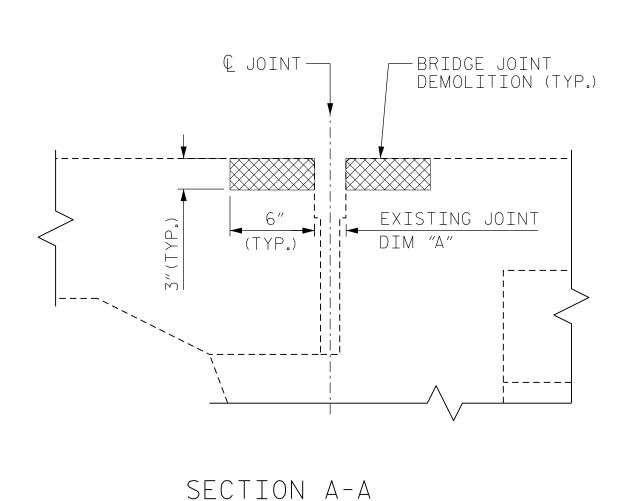
SIGNATURES COMPLETED

SHEET NO REVISIONS S1Ø-3 DATE: DATE: BY: NO. BY: TOTAL SHEETS RALEIGH, NC 27601 (919) 882-7839

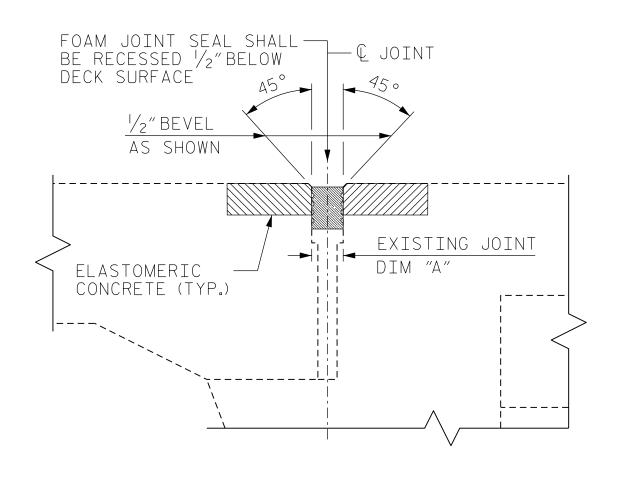
ALLEN J. MCSWAIN __ DATE : <u>06/2021</u> DRAWN BY : ____ CHECKED BY: _____FIDEL L.FLORES _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: <u>JACOB H.DUKE</u> DATE : <u>06/2021</u> SILANE SEAL BRIDGE JOINT DEMOLITION



(EXISTING JOINT)



(MIN. DEMOLITION)



SECTION	√ A – A
(PROPOSED	JOINT)

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 QUA	NTITY
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	84	

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			

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 $\frac{1}{4}$, NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

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

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

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRDIGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRATCTOR 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 ELASTOMETIC 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.___ ROBESON _ COUNTY 77Ø1Ø6 BRIDGE NO. ___



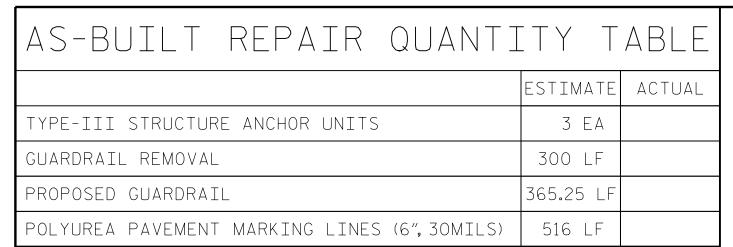
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

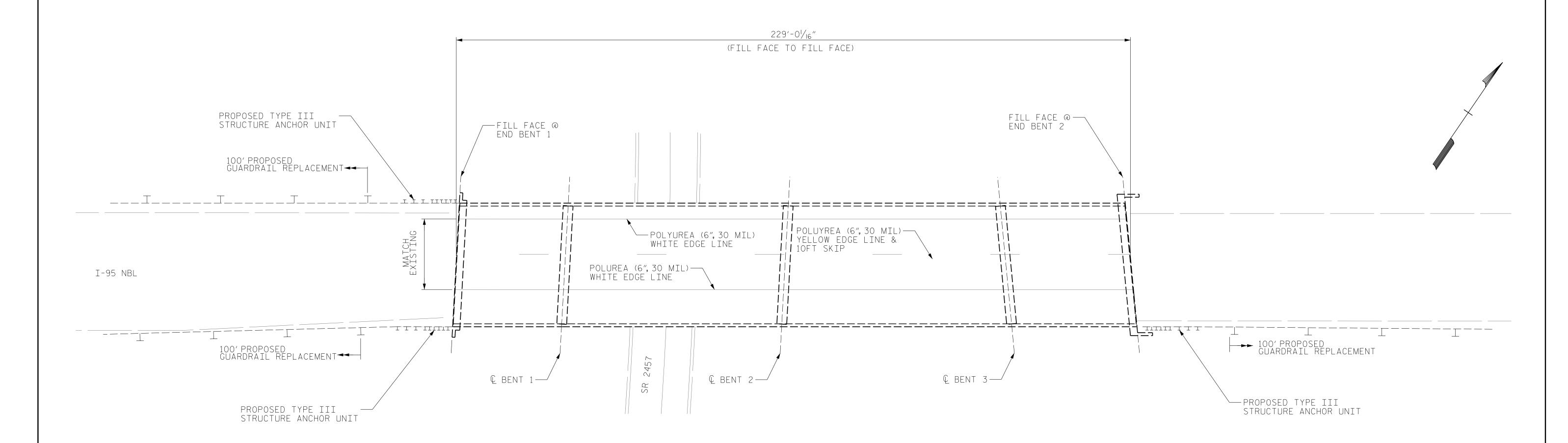
JOINT DETAILS

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

SHEET NO REVISIONS S1Ø-4 DATE: BY: DATE: NO. BY: TOTAL SHEETS

DIEGO A. AGUIRRE __ DATE : <u>06/2021</u> DRAWN BY : ____ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : _____ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021





PROJECT NO. I-5939 ROBESON ____ COUNTY

BRIDGE NO. _____770106

DOCUMENT NOT CONSIDERED S01 FAYETTEVILLE ST., SUITE 1500 FINAL UNLESS ALL SIGNATURES COMPLETED NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROACH ROADWAY

GUARDRAIL AND PAVEMENT MARKINGS

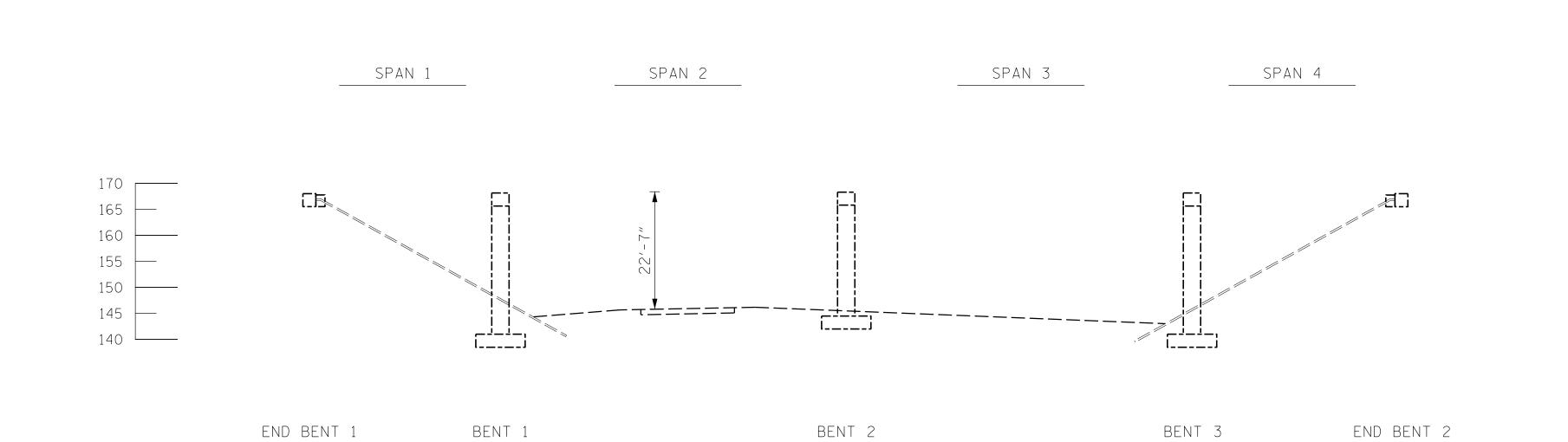
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NOTES:

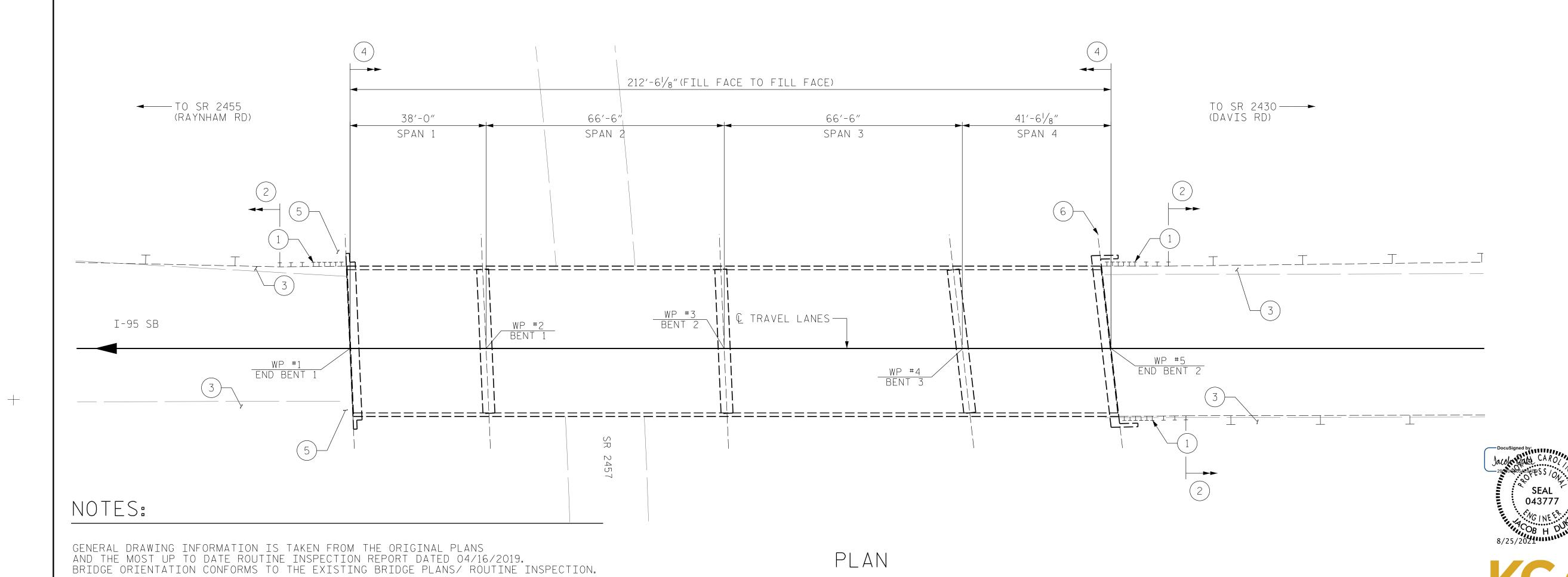
FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

DRAWN BY: _____FIDEL L.FLORES ____ DATE : <u>06/2021</u> _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: <u>JACOB H.DUKE</u> DATE : <u>06/2021</u>

8/25/2021 I5939_SMU_AR01_770106.dgn fflores



SECTION ALONG ROADWAY



F.A. PROJECT No. NHPIM-0095(059)

SCOPE LEGEND:

PROPOSED TYPE-III STRUCTURE ANCHOR UNITS

PROPOSED STEEL BEAM GUARDRAIL

CLEAR SHOULDERS OF DEBRIS AND VEGETATION

SILANE DECK TREATMENT

REGRADE SLOPES

JOINT REPLACEMENT

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.

REGRADING 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.

DATE

RESIDENT ENGINEER

PROJECT NO.__ ROBESON _ COUNTY

77Ø1Ø7 BRIDGE NO. ___

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-95 SB OVER SR 2457

SHEET NO REVISIONS S11-1 DATE: DATE: BY: TOTAL SHEETS

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

8/25/2021 I5939_SMU_GD01_770107.dgn fflores

___ DATE : <u>06/2021</u>

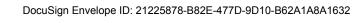
_ DATE : <u>06/2021</u>

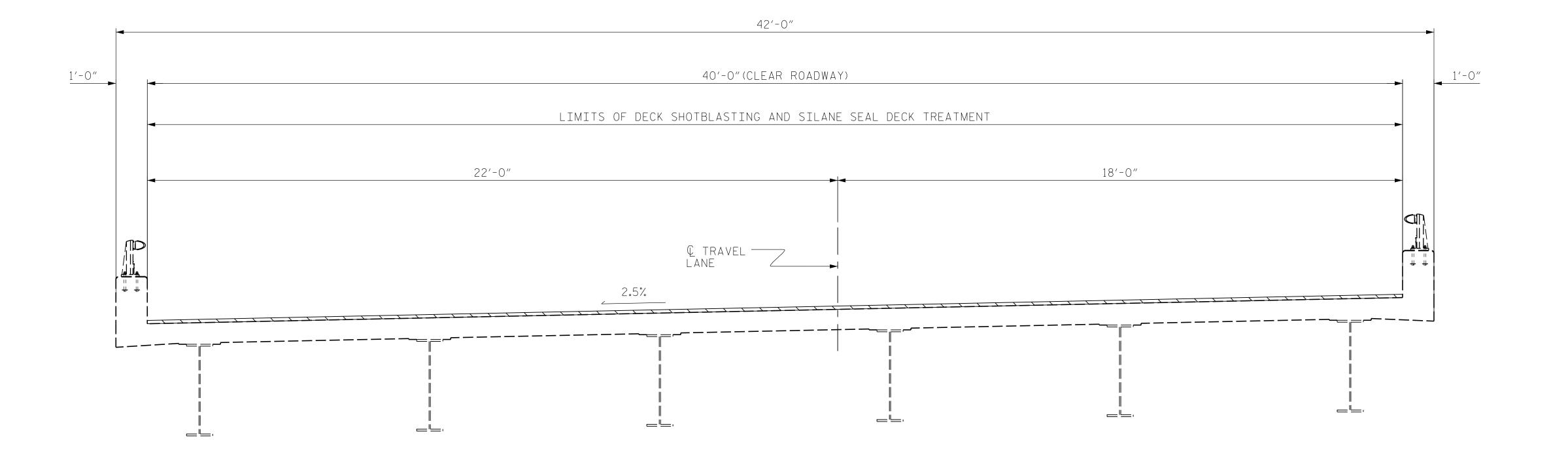
ALLEN J.MCSWAIN

DESIGN ENGINEER OF RECORD: <u>JACOB H. DUKE</u> DATE : <u>06/2021</u>

CHECKED BY : _______DIEGO A.AGUIRRE

DRAWN BY : ___





PROJECT NO. I-5939 ROBESON ___ COUNTY BRIDGE NO. ____770107



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RALEIGH

	1/677	
	KISINGER CAMPO	
DOCUMENT NOT CONSIDERED	& ASSOCIATES 301 FAYETTEVILLE ST., SUITE 1500	NO.
FINAL UNLESS ALL	RALEIGH, NC 27601 (919) 882-7839	1
SIGNATURES COMPLETED	NC FIRM LICENSE: C-1506	2

TYPICAL	SECTION

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500 339	1			3			TOTAL SHEETS	
	2			4			5	

DRAWN BY: ALLEN J. MCSWAIN

CHECKED BY: DIEGO A. AGUIRRE

DATE: 06/2021

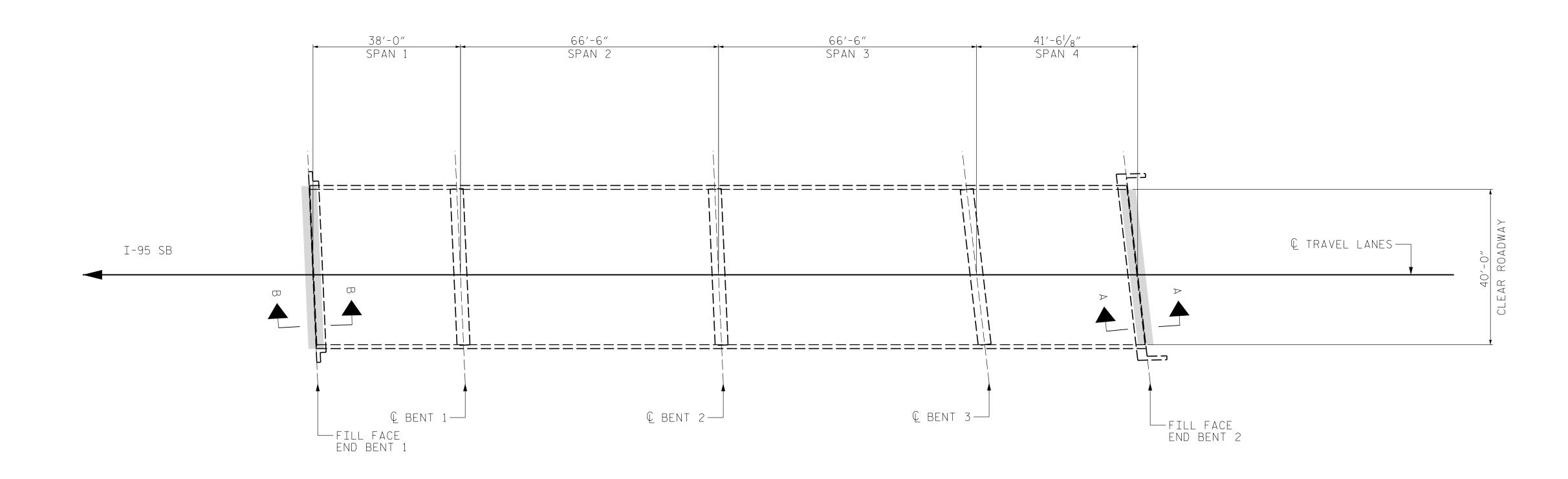
DESIGN ENGINEER OF RECORD: JACOB H. DUKE

DATE: 06/2021 DRAWN BY: _____ALLEN J.MCSWAIN
CHECKED BY: ____DIEGO A.AGUIRRE

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

TOP OF DECK REPAIRS								
	SPAN 1		PAN 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 QUANITITES 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 $1\frac{1}{2}$ " 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

DOCUMENT NOT CONSIDERED

WISINGER CAMPO

A S S O C I A T E S

301 FAYETTEVILLE ST., SUITE 1500

FINAL UNLESS ALL

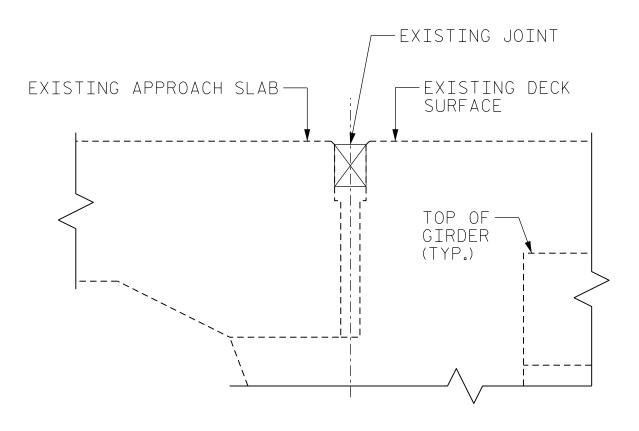
SIGNATURES COMPLETED

SHEET NO. REVISIONS S11-3 BY: DATE: DATE: NO. BY: TOTAL SHEETS RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506

SILANE SEAL

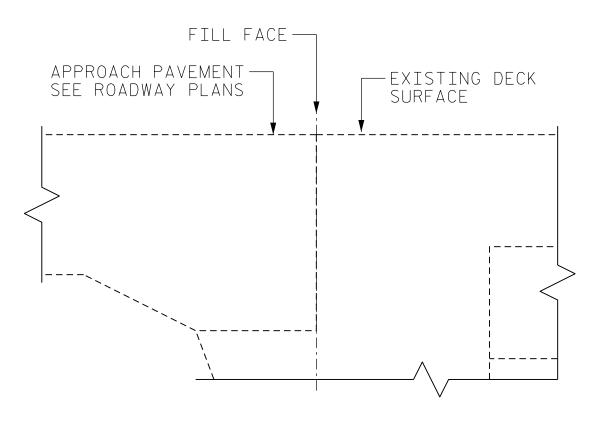
BRIDGE JOINT DEMOLITION

ALLEN J.MCSWAIN ___ DATE : <u>06/2021</u> DRAWN BY : ____ CHECKED BY : ______DIEGO A.AGUIRRE _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: <u>JACOB H.DUKE</u> DATE : <u>0</u>6/2021



SECTION A-A

(EXISTING JOINT)



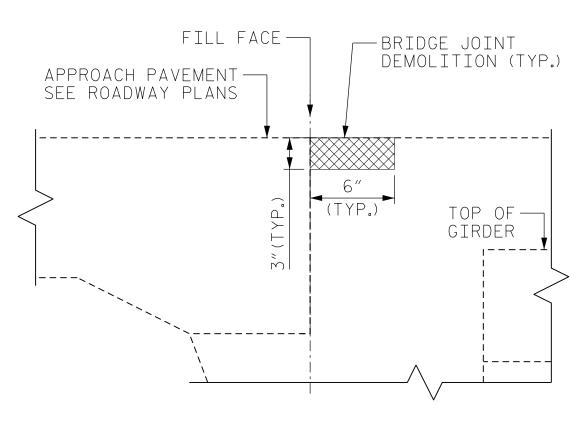
SECTION B-B

(EXISTING DETAIL, NO JOINT)

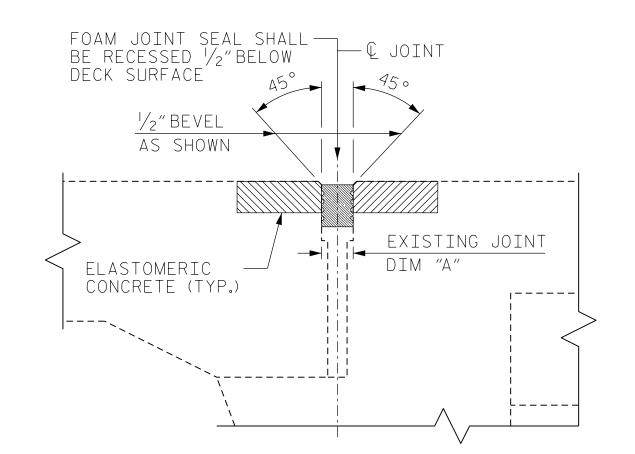
DEMOLITION (TYP.) ···· EXISTING JOINT DIM "A" (TYP.) 1----

€ JOINT —

SECTION A-A (MIN. DEMOLITION)

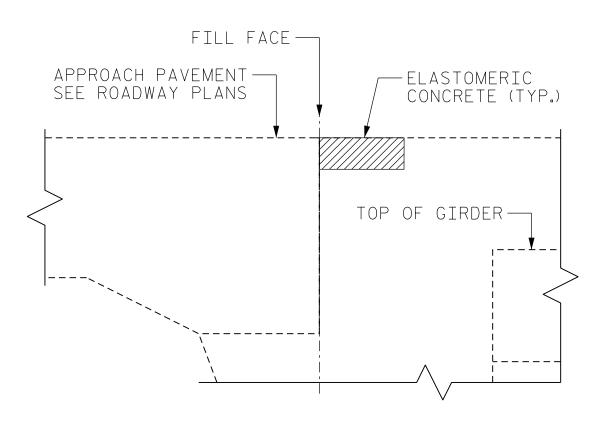


SECTION B-B (MIN. DEMOLITION)



SECTION A-A

(PROPOSED JOINT)



SECTION B-B

(PROPOSED DETAIL, NO JOINT)

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	

TABLE 1				
Table Dat	e 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 QUA	NTITY
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
FOAM JOINT SEALS FOR PRESERVATION	42	

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				

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 $\frac{1}{4}$, NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

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

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

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRDIGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRATCTOR 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 ELASTOMETIC 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.___ ROBESON COUNTY BRIDGE NO. _____770107



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

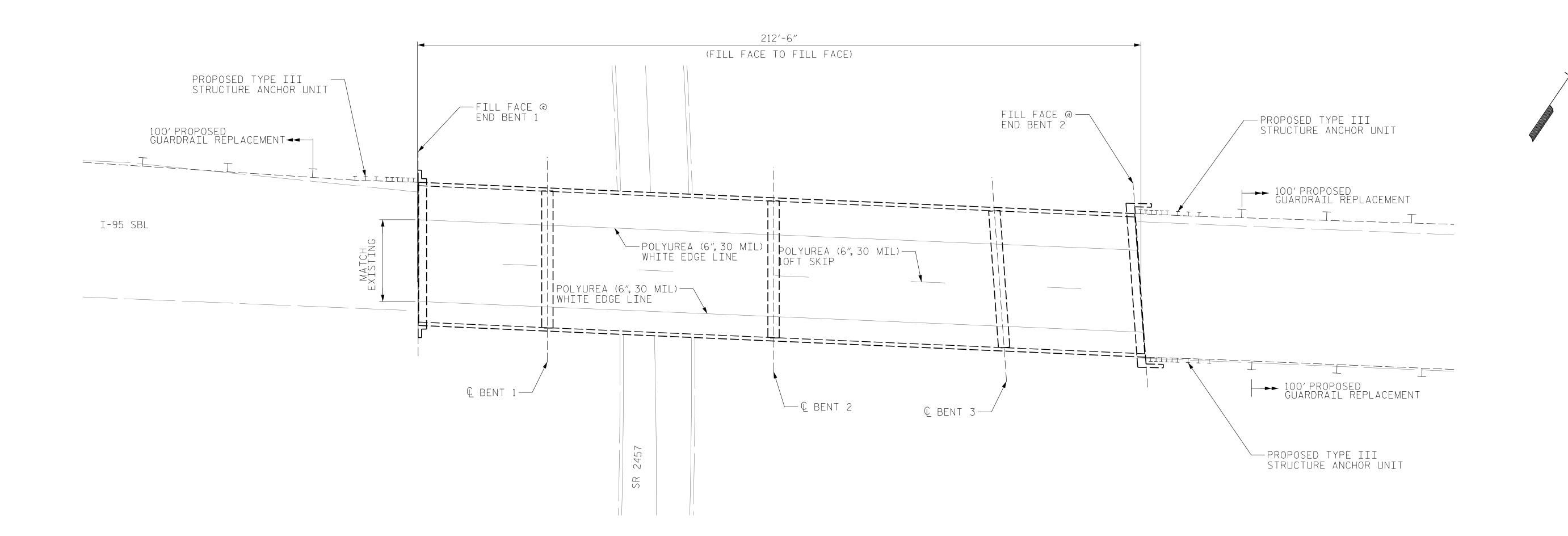
JOINT DETAILS

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

SHEET NO REVISIONS S11-4 DATE: DATE: BY: NO. BY: TOTAL SHEETS

DIEGO A. AGUIRRE __ DATE : <u>06/2021</u> DRAWN BY : ____ FIDEL L.FLORES DATE : <u>06/2021</u> CHECKED BY : _____







FOR PAVEMENT MARKINGS, SEE ROADWAY STANDARD DRAWINGS SERIES 1205.

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



STATE OF NORTH CAROLINA

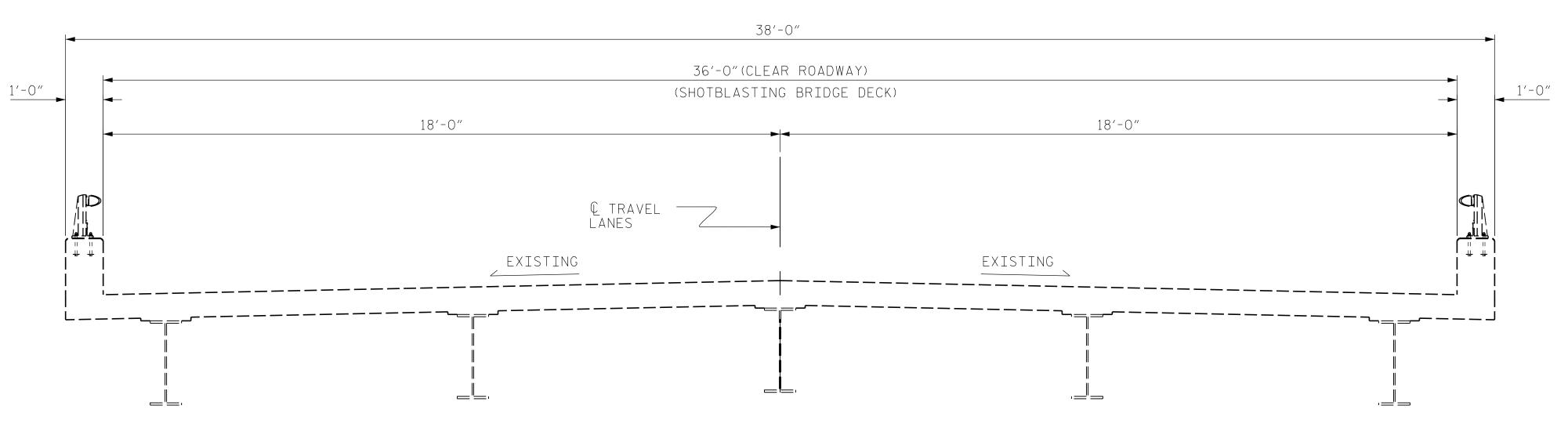
DEPARTMENT OF TRANSPORTATION

APPROACH ROADWAY

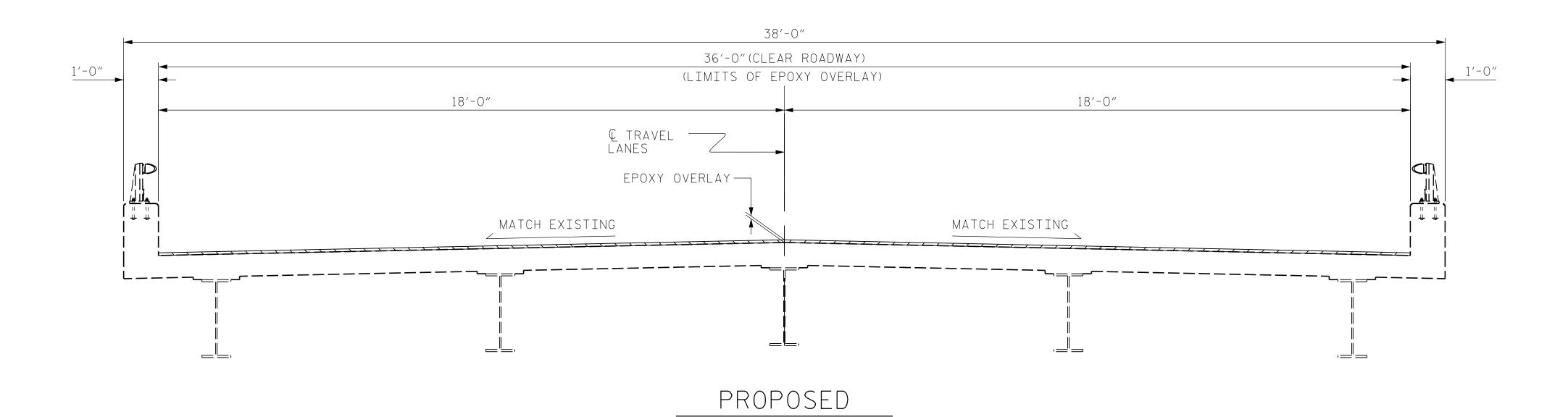
GUARDRAIL AND
PAVEMENT MARKINGS

KISINGER CAMPO	
& ASSOCIATES	DOCUMENT NOT CONSIDERED
301.171121.1212.311, 30112.1300	FINAL UNLESS ALL
RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506	
THE FIRM EIGENSE. C 1500	SIGNATURES COMILECTED

			SHEET NO.				
6	NO.	BY:	DATE:	NO.	BY:	DATE:	S11-5
0 19	1			3			TOTAL SHEETS
	2			4			5



EXISTING



EXISTING PROPOSED EXISTING — DECK SURFACE 3/8" EPOXY OVERLAY FINISHED DECK SURFACE DECK SURFACE AFTER
SURFACE PREPARATION DETAIL FOR EPOXY OVERLAY

I-5939 PROJECT NO._ ROBESON _ COUNTY 77Ø124

BRIDGE NO. ___



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

TYPICAL SECTION

	KC ₁		
	KISINGER CAMPO		
DOCUMENT NOT CONCIDEDED	& ASSOCIATES	NO.	
DOCUMENT NOT CONSIDERED	301 FAYETTEVILLE ST., SUITE 1500	ব	
FINAL UNLESS ALL	RALEIGH, NC 27601 (919) 882-7839	U	
SIGNATURES COMPLETED	NC FIRM LICENSE: C-1506	2	

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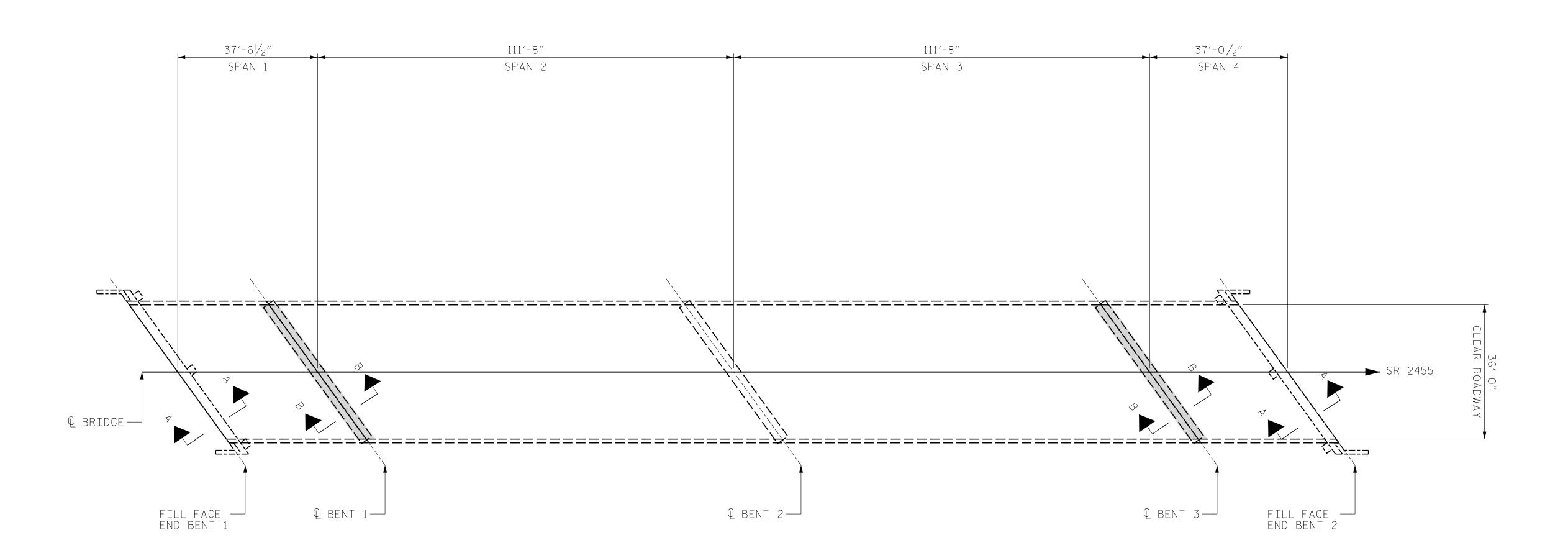
SHEET NO REVISIONS S12-2 DATE: DATE: BY: NO. BY: TOTAL SHEETS 10

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.

ALLEN J.MCSWAIN ___ DATE : <u>06/2021</u> DRAWN BY : ____ CHECKED BY: FIDEL L.FLORES _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: <u>JACOB H.DUKE</u> DATE : <u>06/2021</u>

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	



I-5939 PROJECT NO.____ ROBESON _ COUNTY BRIDGE NO. _____770124

NOTES:

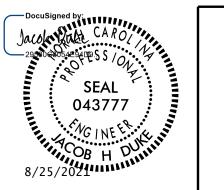
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES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

ALLEN J.MCSWAIN ___ DATE : <u>06/2021</u> DRAWN BY : ____

DESIGN ENGINEER OF RECORD: <u>JACOB H.DUKE</u> DATE : <u>06/2021</u>

CHECKED BY: DIEGO A. AGUIRRE

EPOXY OVERLAY BRIDGE JOINT DEMOLITION



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

PLAN OF SPANS

SHEET NO.

S12-3

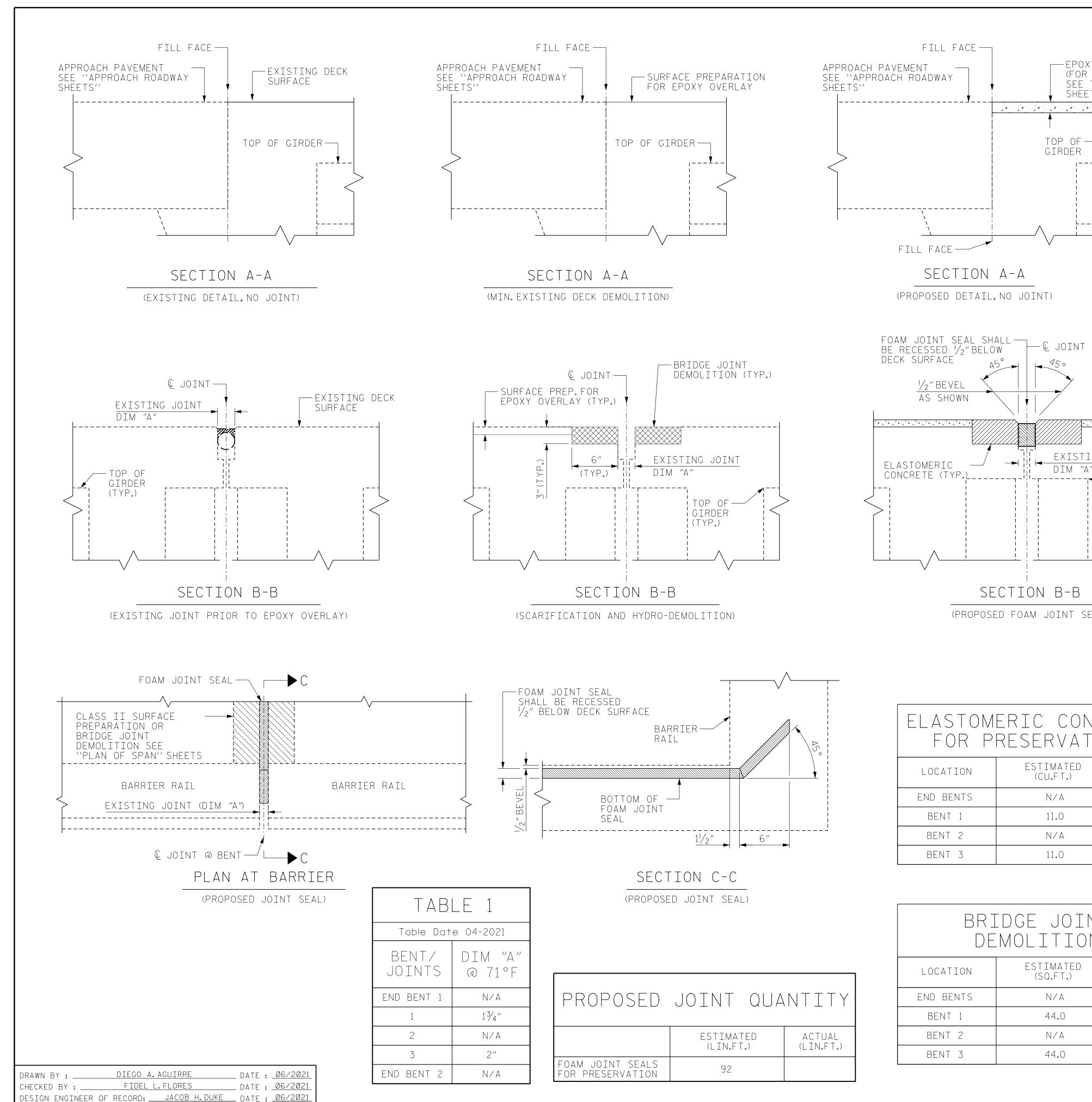
TOTAL SHEETS 1Ø

DATE:



	KISINGER CAMPO			REVIS	10I	VS.
DOCUMENT NOT CONSIDERED		NO.	BY:	DATE:	NO.	BY:
FINAL UNLESS ALL	301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839	1			3	
SIGNATURES COMPLETED	NC FIRM LICENSE: C-1506	2			4	

__ DATE : <u>06/2021</u>



NOTES:

FILL FACE —

FILL FACE —

1/2" BEVEL

AS SHOWN

LOCATION

END BENTS

BENT 1

BENT 2

BENT 3

LOCATION

END BENTS

BENT 1

BENT 2

BENT 3

SECTION A-A

(PROPOSED DETAIL, NO JOINT)

— EPOXY OVERLAY

EXISTING JOINT

DIM "A"

SECTION B-B

(PROPOSED FOAM JOINT SEAL)

ELASTOMERIC CONCRETE

FOR PRESERVATION

ESTIMATED (CU.FT.)

N/A

11.0

N/A

11.0

BRIDGE JOINT

DEMOLITION

ESTIMATED

(SQ.FT.)

N/A

44.0

N/A

44.0

SHEET)

TOP OF -

GIRDER

Δ · . . Δ · . . Δ · . . Δ · . . Δ · . . Δ · . . Δ

(FOR THICKNESS

SEE TYPICAL SECTION

-EPOXY OVERLAY (TYP.)

TYPICAL SECTION SHEET)

(FOR THICKNESS, SEE

-TOP OF

(TYP.)

ACTUAL (CU.FT.)

ACTUAL (SQ.FT.)

GIRDER

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 $\frac{1}{4}$, NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

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

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

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRDIGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRATCTOR 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 ELASTOMETIC 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._ ROBESON COUNTY 77Ø124 BRIDGE NO. _



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

JOINT DETAILS

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

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

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 FINAL UNLESS ALL SIGNATURES COMPLETED

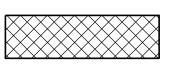
8/25/2021 I5939_SMU_JT01_770124.dgn

AS-BUILT REPAIR QUANTITY TABLE ESTIMATE ACTUAL TYPE-III STRUCTURE ANCHOR UNITS 4 EA GUARDRAIL REMOVAL 475 LF PROPOSED GUARDRAIL 400 LF 245 SY INCIDENTAL MILLING 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 50'-0" (ASPHALT MILLING AND RESURFACING) PROPOSED TYPE III -STRUCTURE ANCHOR UNIT 100′PROPOSED GUARDRAIL REPLACEMENT<mark>→→</mark>

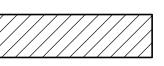
NOTES:

- 1. INCIDENTAL MILLING EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 11/2" 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
- 2. FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- 3. GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- 4. FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
- 5. FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.

MAY EXCEED $1\frac{1}{2}$ "DUE TO SETTLEMENT OF THE EXISTING APPROACH.

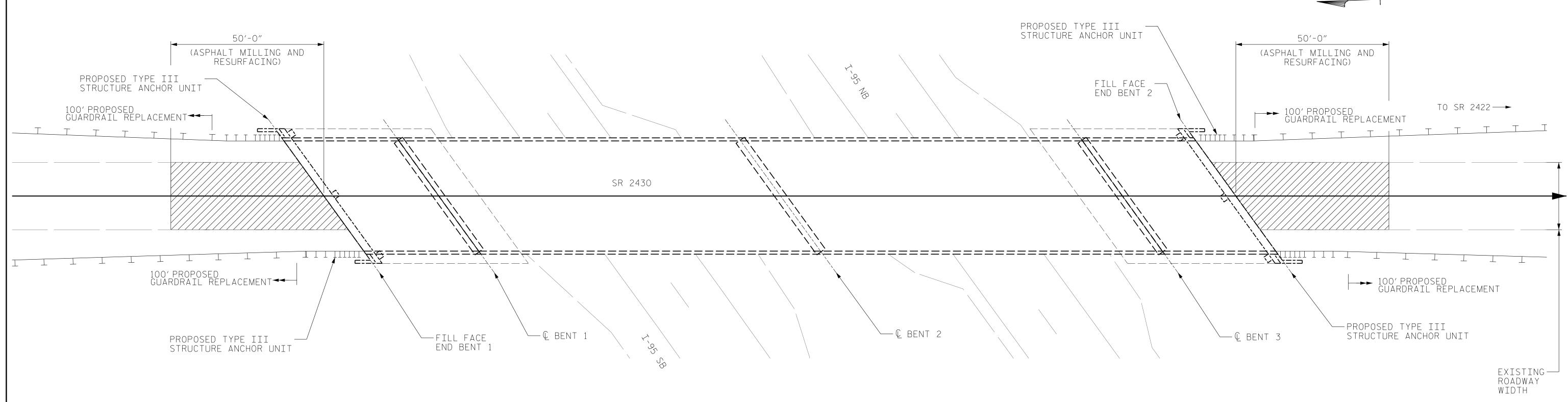


INCIDENTAL MILLING

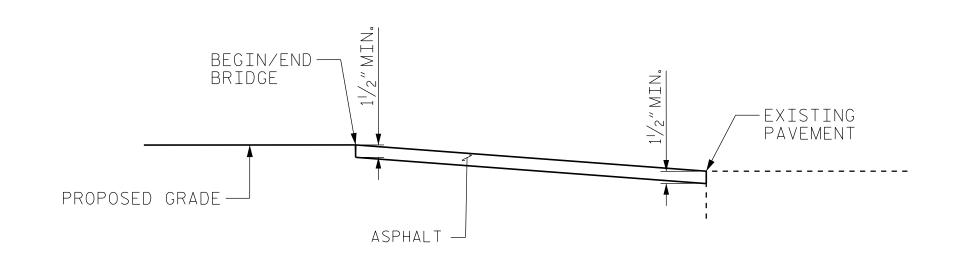


ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

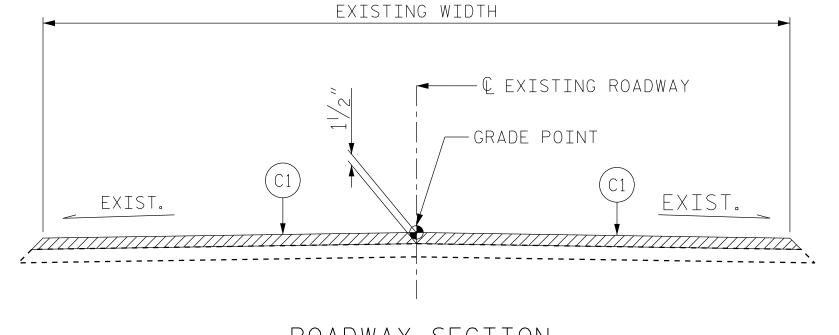
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1"DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1"OR GREATER THAN 2"IN DEPTH.



PLAN



PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION BEGIN/END BRIDGE

PROJECT NO. I-5939 ROBESON _ COUNTY

77Ø124 BRIDGE NO. ___

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROACH ROADWAY ASPHALT MTLLING AND

> SHEET NO S12-5

TOTAL SHEETS

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506

FINAL UNLESS ALL

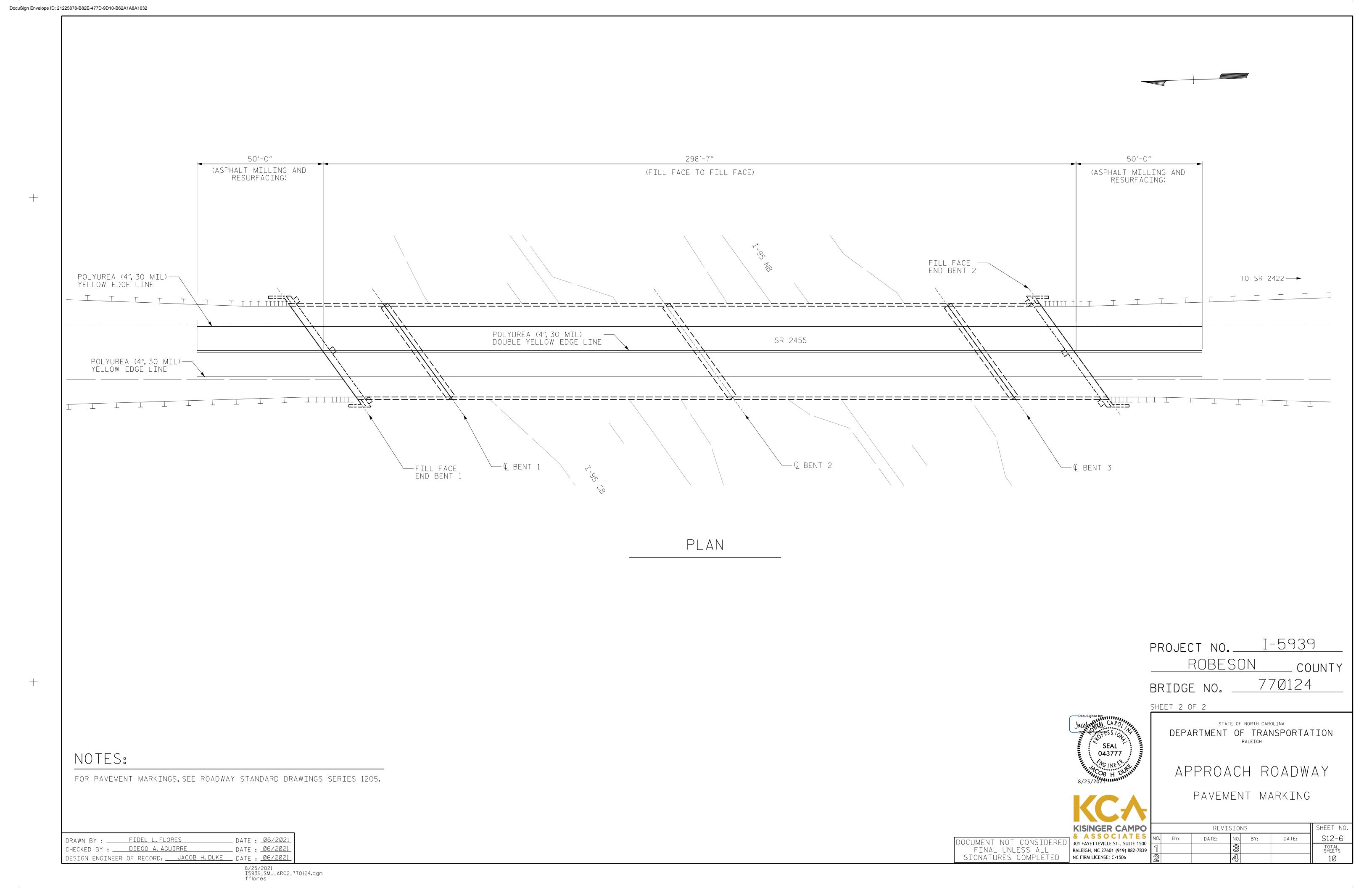
SIGNATURES COMPLETED

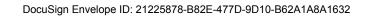
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SINGER CAMPO			REVIS	SIO	NS	
ASSOCIATES	NO.	BY:	DATE:	NO.	BY:	DATE:

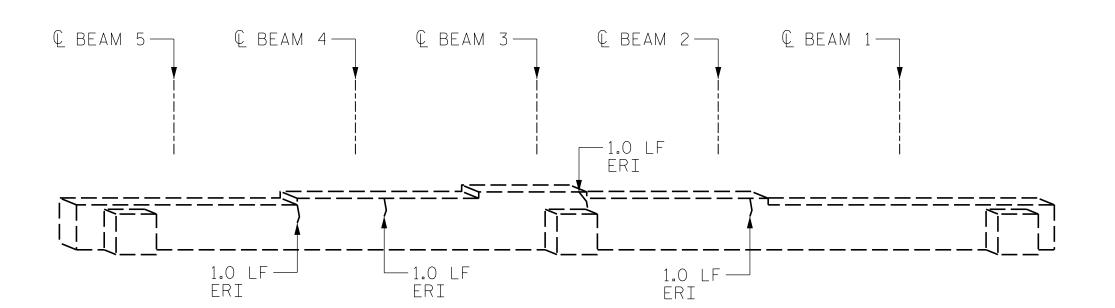
SHEET 1 OF 2

DRAWN BY: _____FIDEL L.FLORES _ DATE : <u>06/2021</u> CHECKED BY : _____DIEGO A.AGUIRRE _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: _____JACOB H. DUKE ___ DATE : ____06/2021

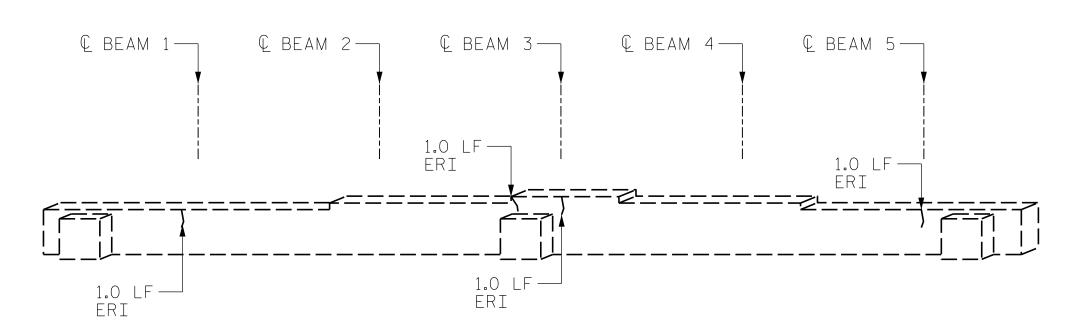
8/25/2021 I5939_SMU_AR01_770124.dgn fflores



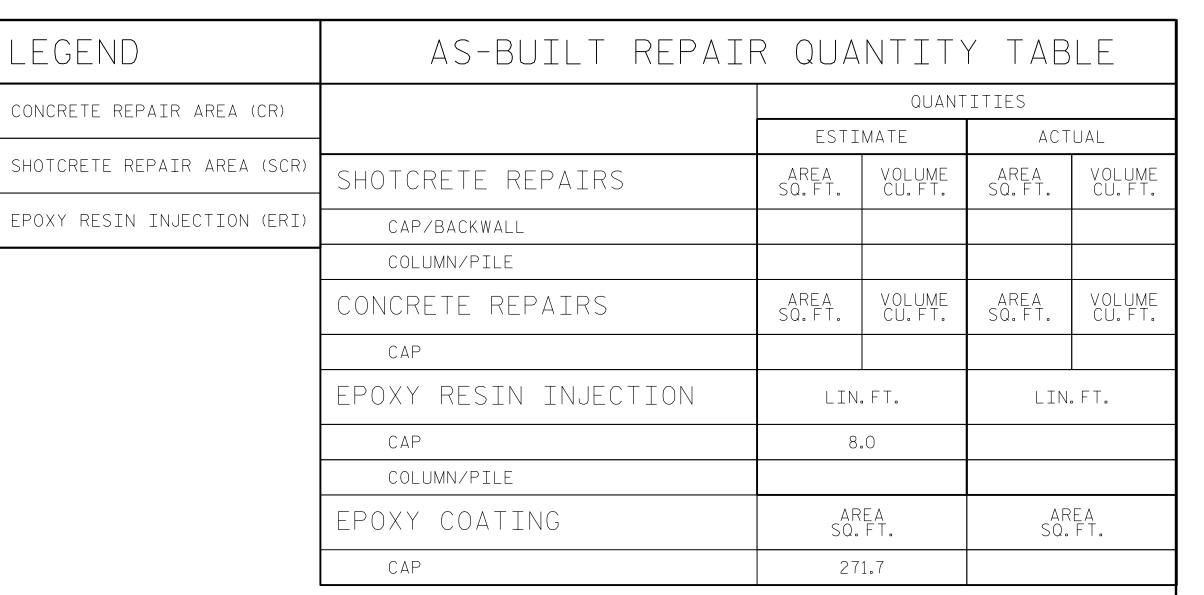




END BENT 1 (EAST FACE)



END BENT 2 (WEST FACE)



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

NOTES:

LEGEND

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

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

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2"TO 3"ON THE CAP AND FROM $1\frac{1}{2}$ " 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.

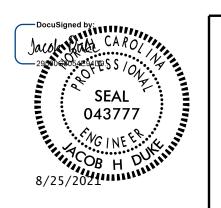
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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._ ROBESON COUNTY 77Ø124 BRIDGE NO. _



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

> SUBSTRUCTURE REPAIRS

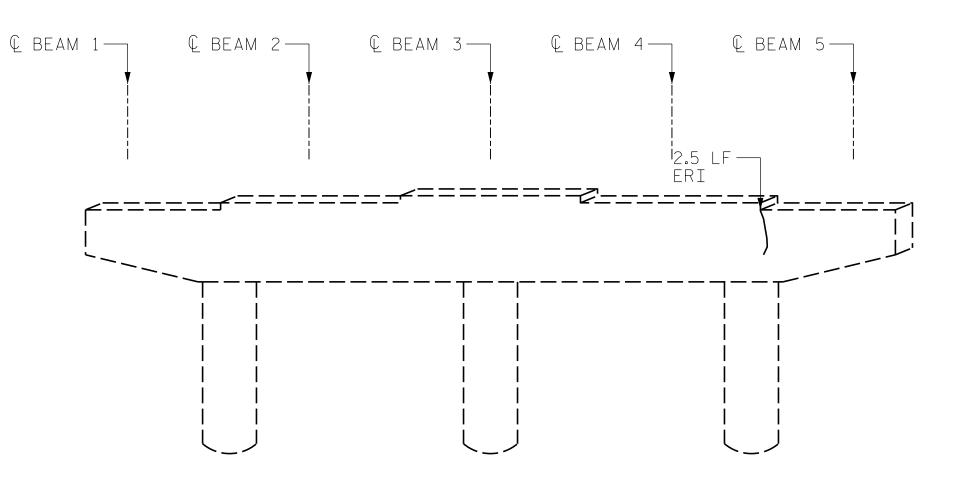
END BENTS 1 & 2

	I/C14	
	KISINGER CAMPO	
٦	& ASSOCIATES 301 FAYETTEVILLE ST., SUITE 1500	NO.
	RALEIGH, NC 27601 (919) 882-7839	1
	NC FIRM LICENSE: C-1506	2

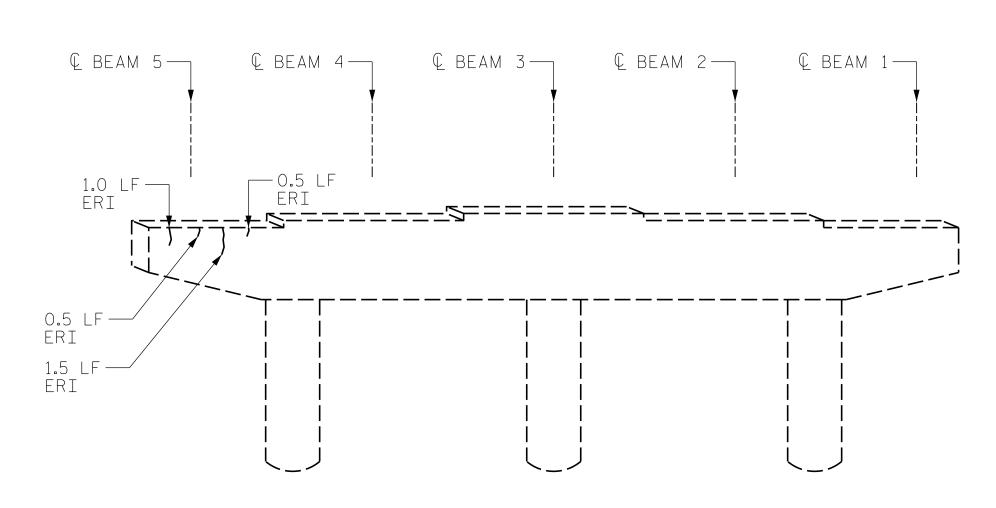
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SHEET NO REVISIONS S12-7 DATE: DATE: BY: NO. BY: TOTAL SHEETS 1Ø

JACOB H. DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ _ DATE : <u>06/2021</u> FIDEL L.FLORES CHECKED BY : __ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021



BENT 1 (WEST FACE)



BENT 1

(EAST FACE)

JACOB H.DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES DATE : <u>06/2021</u> CHECKED BY : ___ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 FINAL UNLESS ALL SIGNATURES COMPLETED NC FIRM LICENSE: C-1506

AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL COLUMN/PILE CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 6.0 CAP COLUMN/PILE AREA SQ.FT. EPOXY COATING

> 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.

149.9

NOTES:

CAP

LEGEND

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

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

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2"TO 3"ON THE CAP AND FROM $1\frac{1}{2}$ " 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.

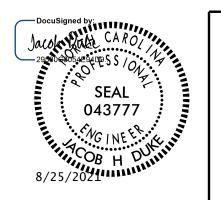
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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._ ROBESON _ COUNTY 77Ø124 BRIDGE NO. ___



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

> SUBSTRUCTURE REPAIRS

> > BENT 1

SHEET NO

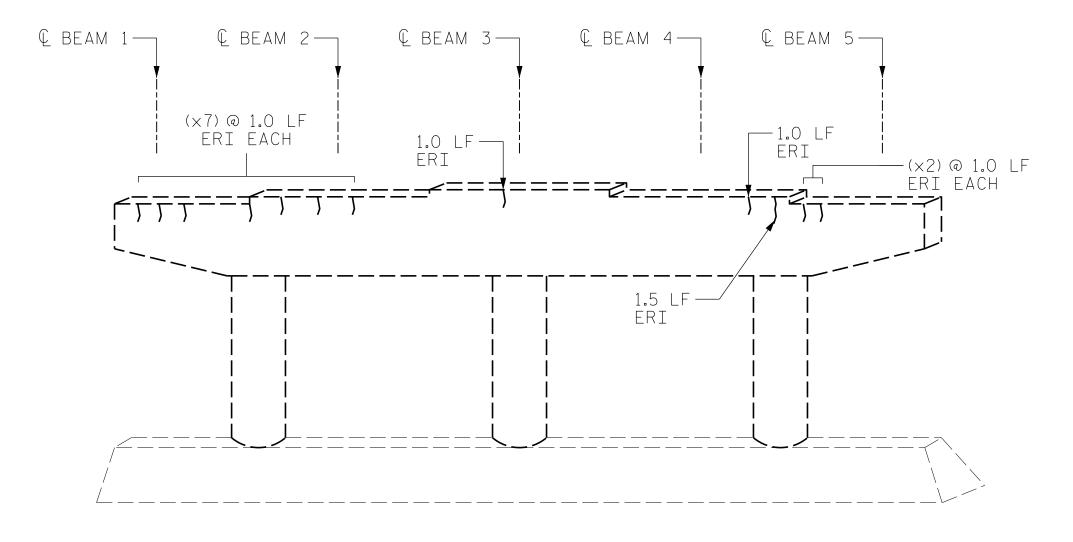
S12-8

TOTAL SHEETS

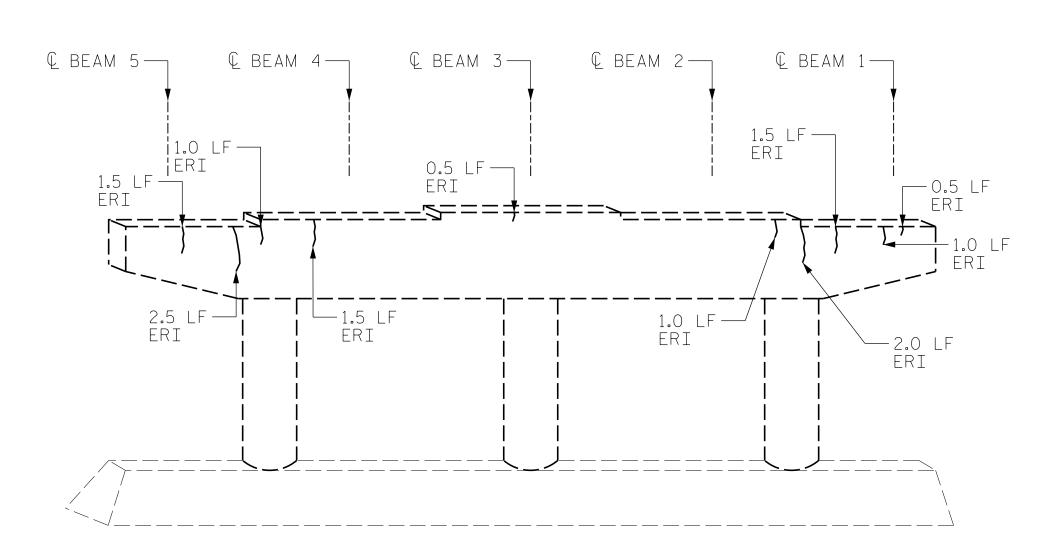
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REVISIONS DATE: DATE: BY: NO. BY: RALEIGH, NC 27601 (919) 882-7839

8/25/2021 I5939_SMU_SBR01_770124.dgn



BENT 2 (WEST FACE)



BENT 2

(EAST FACE)

JACOB H. DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : __ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL COLUMN/PILE CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 25.5 CAP COLUMN/PILE AREA SQ.FT. EPOXY COATING CAP

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149.9

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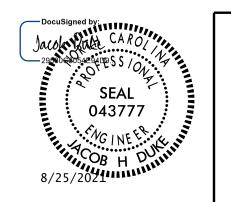
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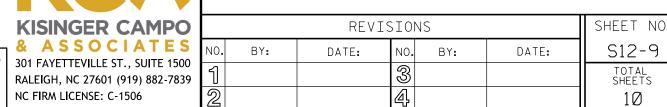
> PROJECT NO._ ROBESON COUNTY 77Ø124 BRIDGE NO. _

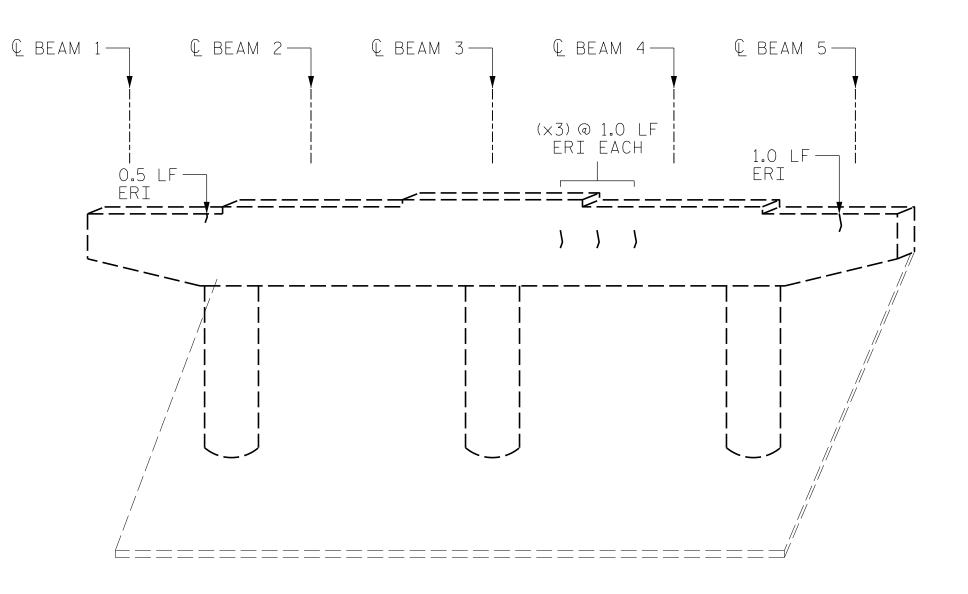


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

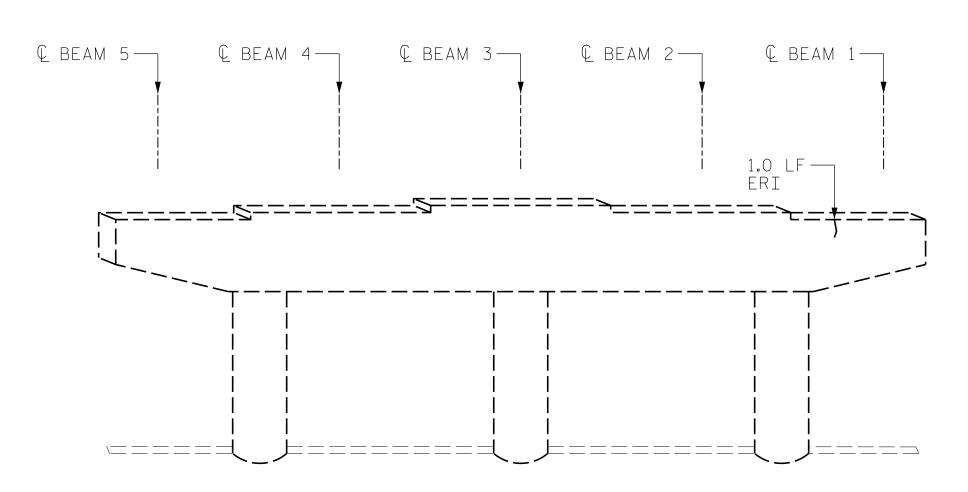
> SUBSTRUCTURE REPAIRS

> > BENT 2





BENT 3 (WEST FACE)



BENT 3 (EAST FACE)

JACOB H.DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES CHECKED BY : ___ _DATE : <u>06/2021</u>

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 FINAL UNLESS ALL

AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL COLUMN/PILE VOLUME CU.FT. CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 5.5 CAP COLUMN/PILE AREA SQ.FT. EPOXY COATING 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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> PROJECT NO._ ROBESON _ COUNTY 77Ø124 BRIDGE NO. ___



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

> SUBSTRUCTURE REPAIRS

> > BENT 3

SHEET NO REVISIONS S12-10 DATE: DATE: BY: NO. BY: TOTAL SHEETS RALEIGH, NC 27601 (919) 882-7839 10

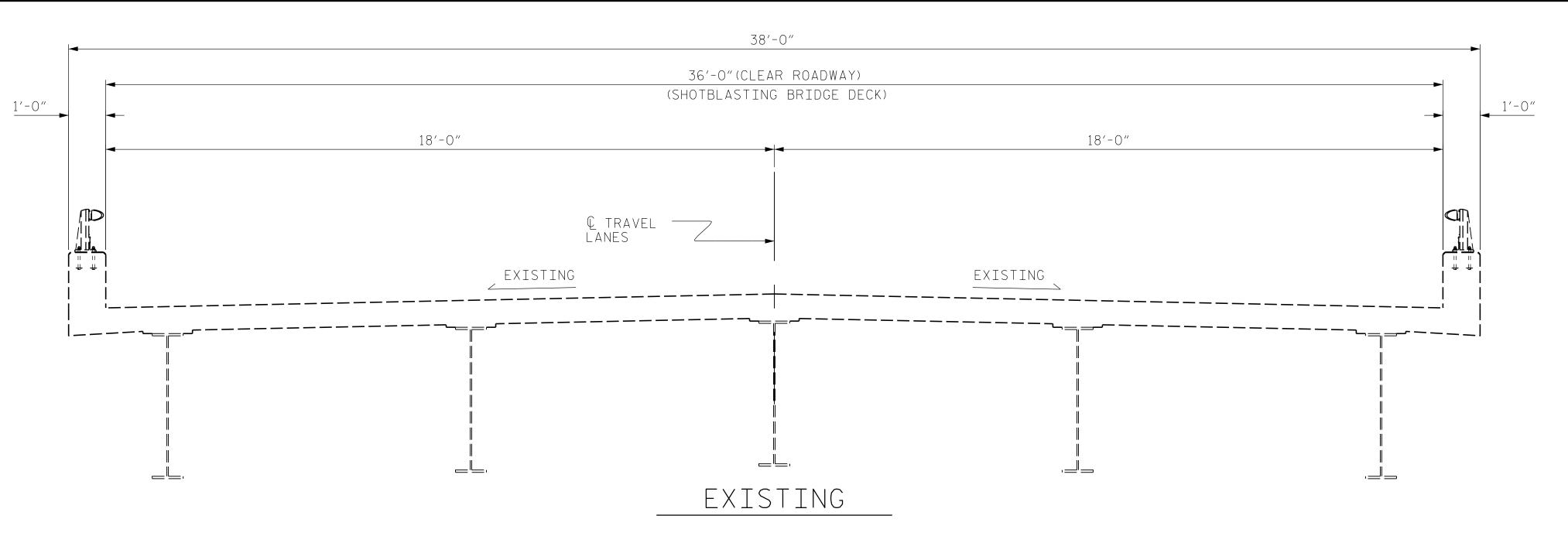
SIGNATURES COMPLETED NC FIRM LICENSE: C-1506

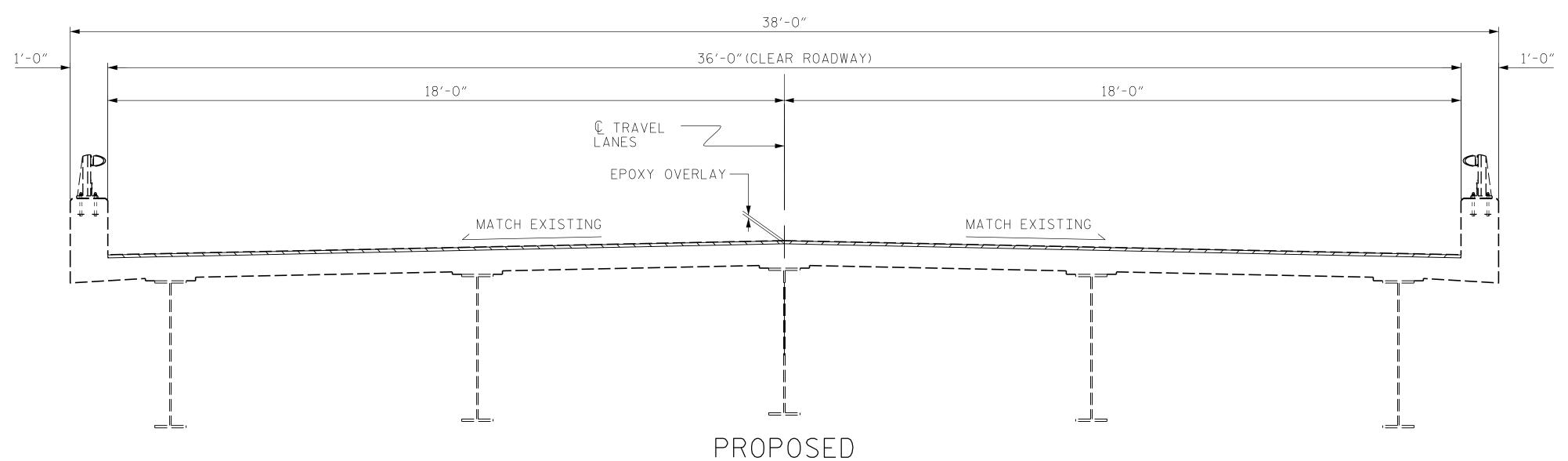
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NOTES:

DRAWN BY : ____

CHECKED BY: FIDEL L.FLORES

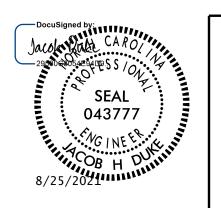




EXISTING EXISTING — DECK SURFACE 3/8" EPOXY OVERLAY FINISHED DECK SURFACE DECK SURFACE AFTER
SURFACE PREPARATION DETAIL FOR EPOXY OVERLAY

PROJECT NO.__ ROBESON COUNTY 77Ø13Ø

BRIDGE NO. ___



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

TYPICAL SECTION

KC14					
	KISINGER CAMPO				
FRFD	& ASSOCIATES 301 FAYETTEVILLE ST., SUITE 1500	NO			
	RALEIGH, NC 27601 (919) 882-7839	1			
ED	NC FIRM LICENSE: C-1506	2			

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SHEET NO REVISIONS S13-2 DATE: DATE: BY: NO. BY: TOTAL SHEETS

DESIGN ENGINEER OF RECORD: <u>JACOB H.DUKE</u> DATE : <u>0</u>6/2021 8/25/2021 I5939_SMU_TS01_770130.dgn fflores

___ DATE : <u>0</u>6/2021

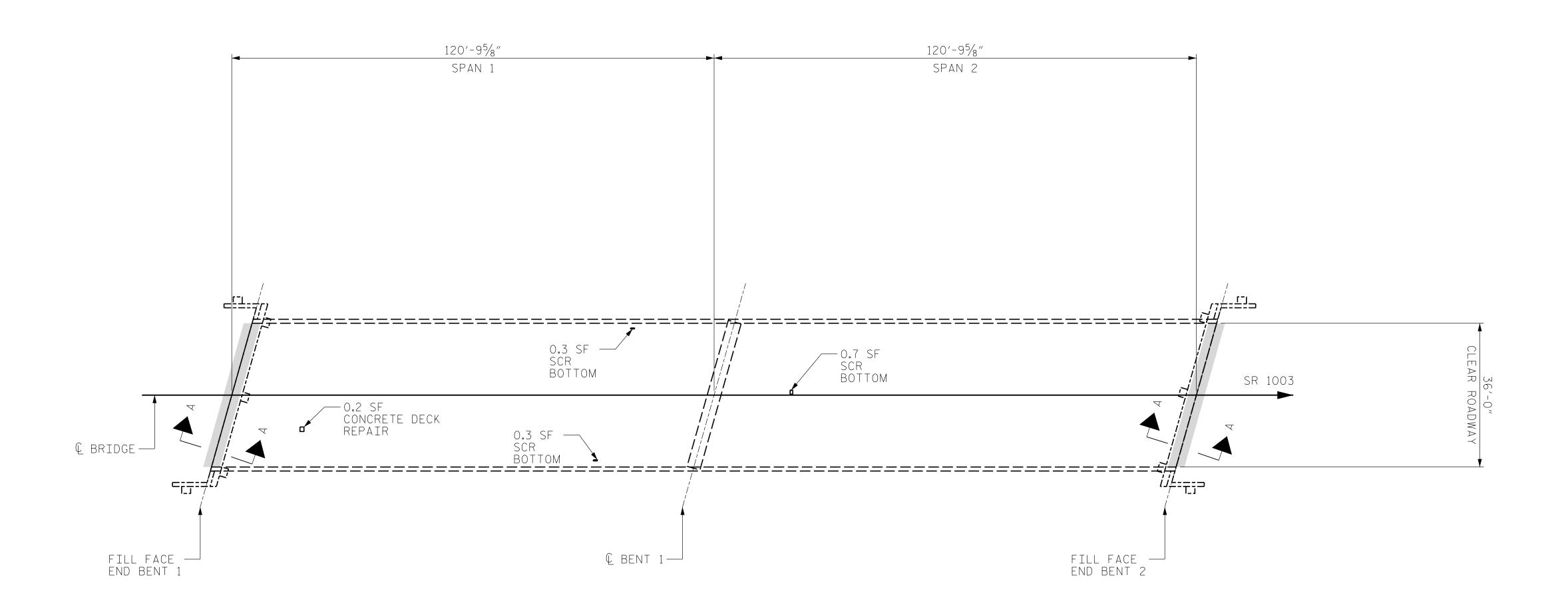
_ DATE : <u>06/2021</u>

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.

ALLEN J. MCSWAIN

AS-BUILT REPAIR QUANTITY TABLE							
TOP OF DECK REPAIRS							
	SPA	N 1	SPAI	V 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				



PROJECT NO. I-5939

ROBESON COUNTY

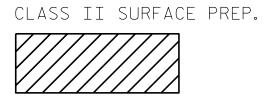
BRIDGE NO. 770130



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

EPOXY OVERLAY BRIDGE JOINT DEMOLITION



SHOTCRETE REPAIR AREA (SCR)



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

PLAN OF SPANS

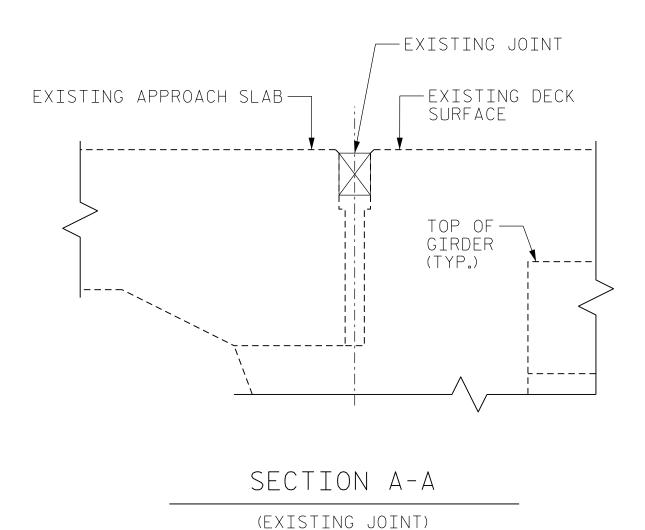
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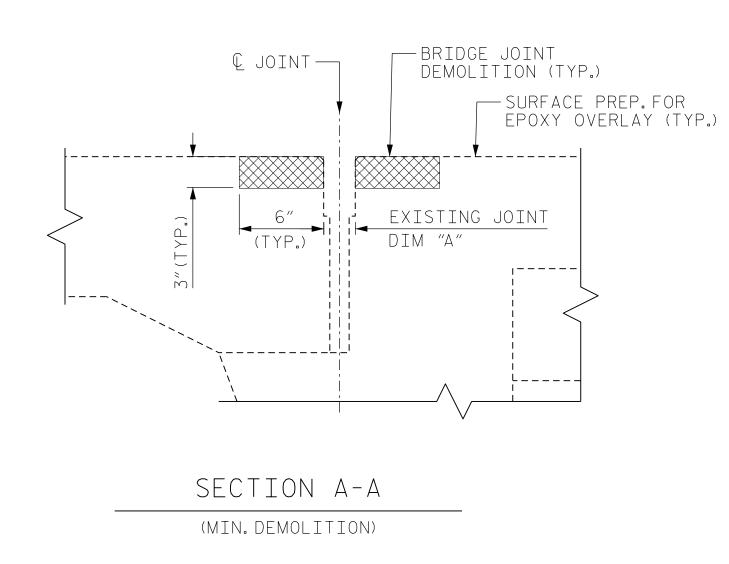
TOTAL SHEETS

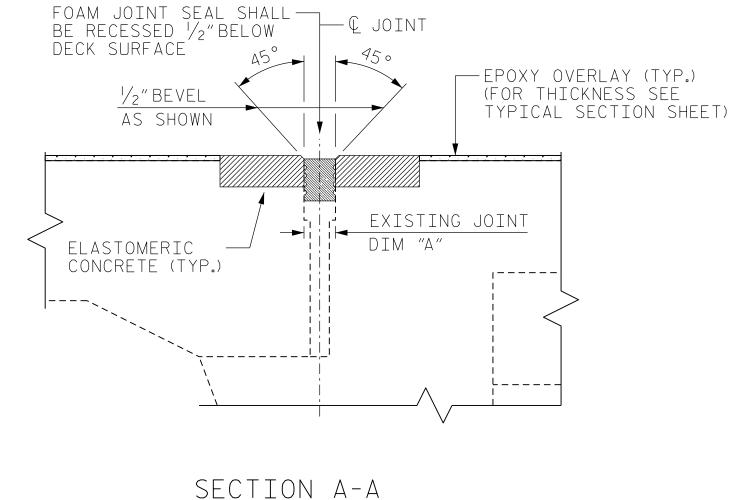
DATE:



KISINGER CAMPO				REVIS	10I&	٧S
& ASSOCIATES	NO.	BY:	DAT	E:	NO.	
301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839	1				3	
NC FIRM LICENSE: C-1506	2				4	







(PROPOSED JOINT)

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

TABLE 1					
Table Dat	e 04-2021				
BENT/ JOINTS	DIM "A" @ 71°F				
END BENT 1	N/A				
1	13/4"				
2	N/A				
3	1 ⁵ / ₈ "				
END BENT 2	N/A				

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

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			

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 $\frac{1}{4}$, NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

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

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

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRDIGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRATCTOR 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 UNDSOUND 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 ELASTOMETIC 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.__ ROBESON COUNTY 77Ø13Ø BRIDGE NO. __



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

JOINT DETAILS

J	I/C14	
	KISINGER CAMPO & ASSOCIATES	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL	301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839	N(
SIGNATURES COMPLETED	NC FIRM LICENSE: C-1506	2

SHEET NO REVISIONS S13-4 DATE: DATE: BY: NO. BY: TOTAL SHEETS

DIEGO A. AGUIRRE __ DATE : <u>06/2021</u> DRAWN BY : ____ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : _____

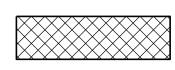
8/25/2021 I5939_SMU_JT01_770130.dgn

AS-BUILT REPAIR QUANTITY TABLE ESTIMATE ACTUAL TYPE-III STRUCTURE ANCHOR UNITS 4 EA GUARDRAIL REMOVAL 475 LF PROPOSED GUARDRAIL 400 LF 316 SY INCIDENTAL MILLING 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

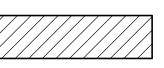
NOTES:

- 1. INCIDENTAL MILLING EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 11/2" 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
- 2. FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- 3. GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- 4. FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
- 5. FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.

MAY EXCEED $1\frac{1}{2}$ "DUE TO SETTLEMENT OF THE EXISTING APPROACH.

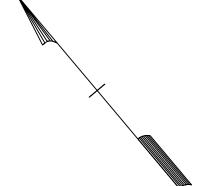


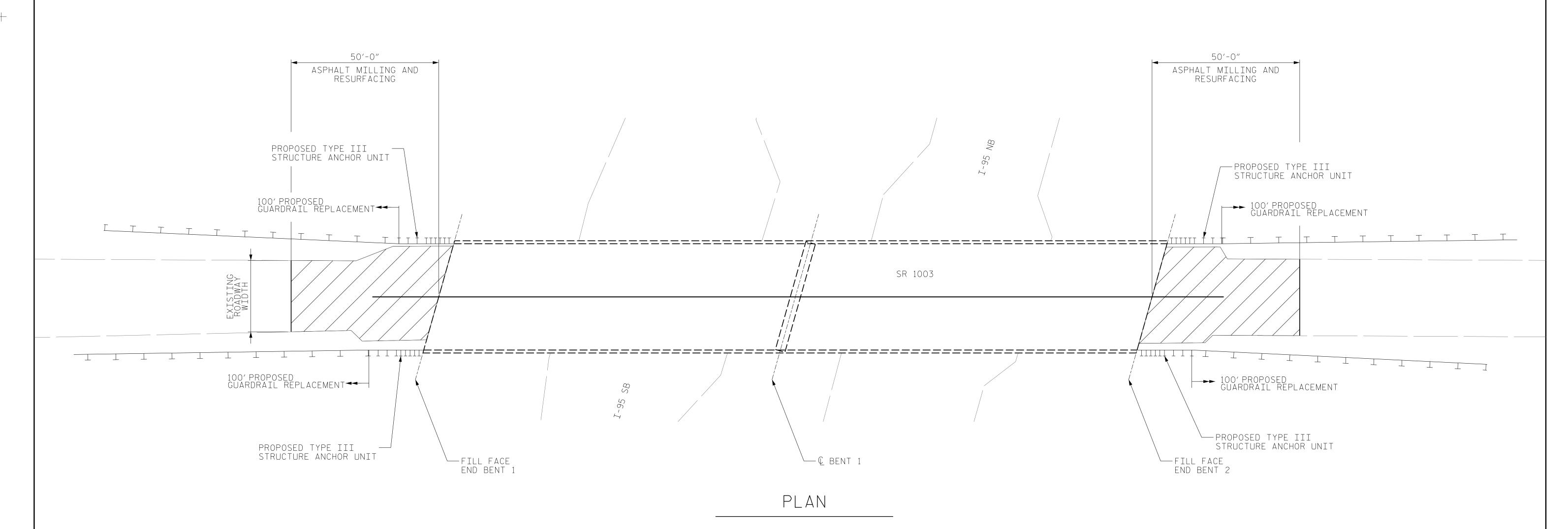
INCIDENTAL MILLING

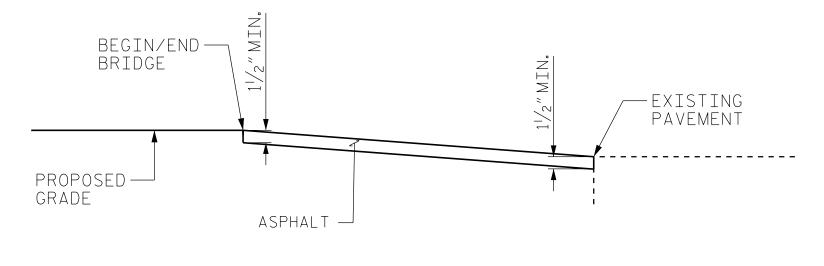


ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

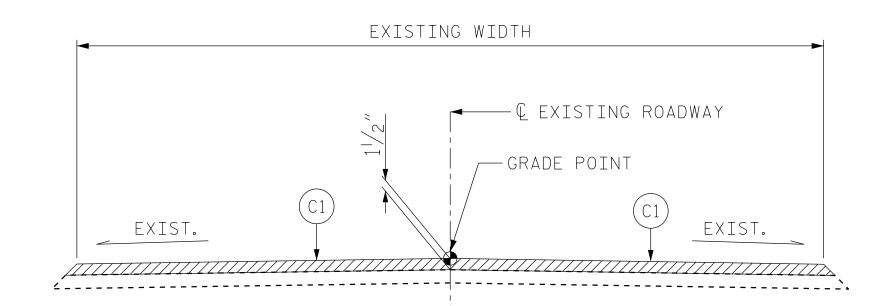
PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1"DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1"OR GREATER THAN 2"IN DEPTH.







PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION BEGIN/END BRIDGE

I-5939 PROJECT NO.__ ROBESON __ COUNTY 77Ø13Ø BRIDGE NO. __

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROACH ROADWAY ASPHALT MILLING AND

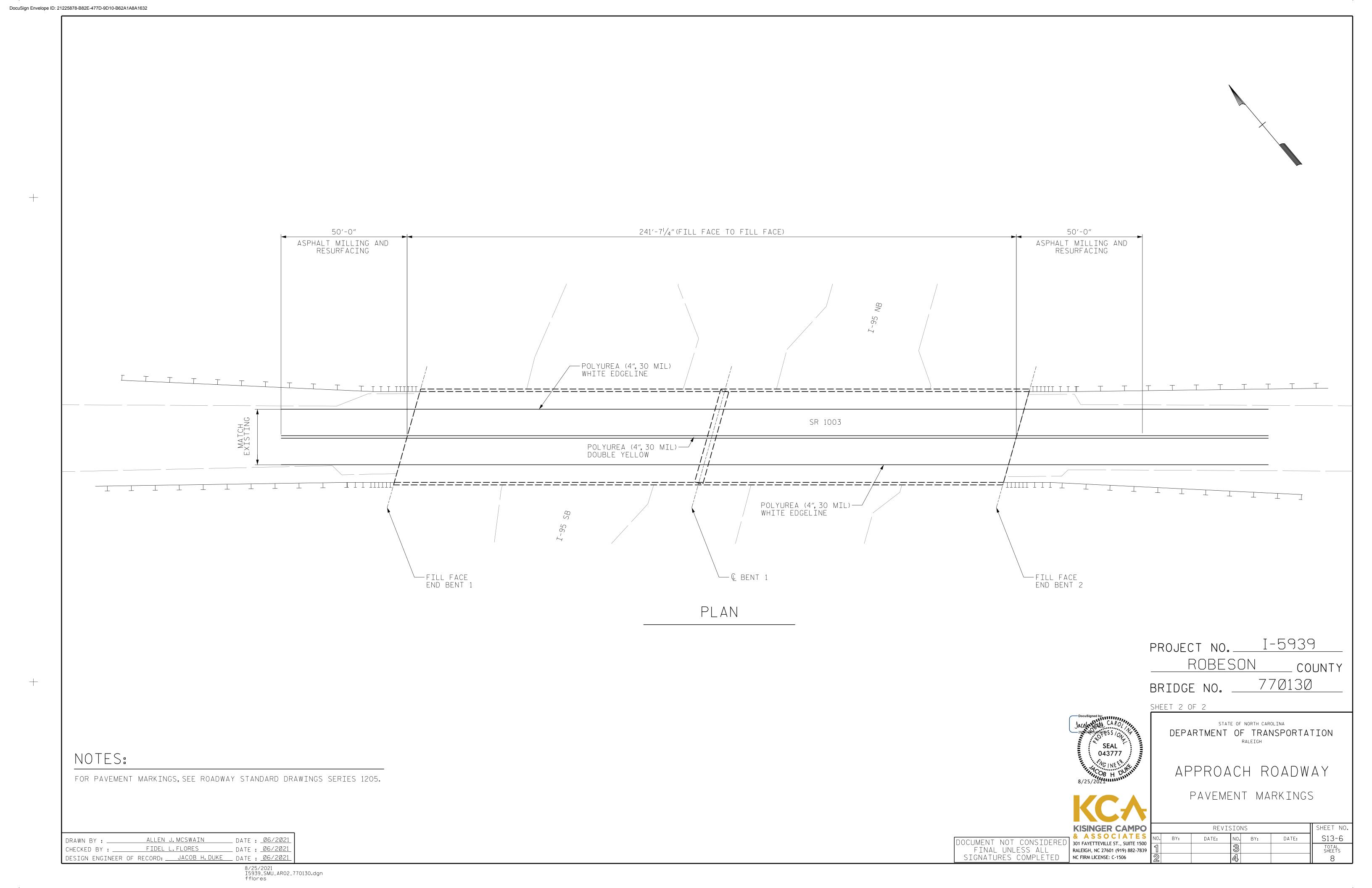
OCUMENT NOT CONSIDERED 301 FAYETTEVILL FINAL UNLESS ALL RALEIGH, NC 276 RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506

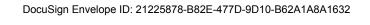
SIGNATURES COMPLETED

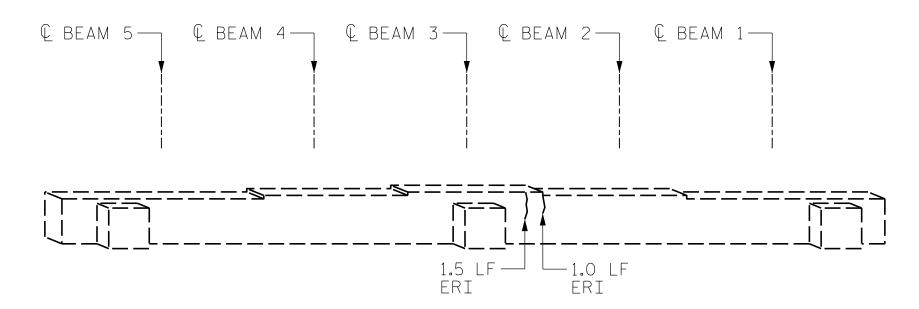
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ILLE ST SUITE TOUCH	_							

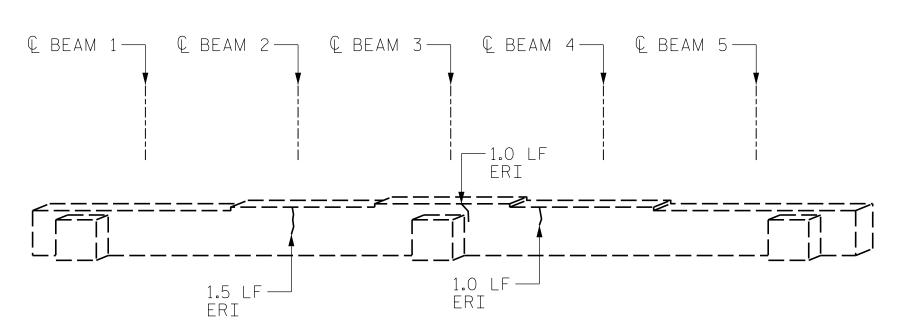
ALLEN J.MCSWAIN ___ DATE : <u>0</u>6/2021 DRAWN BY : ___ FIDEL L.FLORES _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: <u>JACOB H. DUKE</u> DATE : <u>06/2021</u>







END BENT 1 (EAST FACE)



END BENT 2 (WEST FACE)

LEGEND AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL COLUMN/PILE VOLUME CU.FT. CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 6.0 CAP COLUMN/PILE AREA SQ.FT. EPOXY COATING

> 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.

228.7

NOTES:

CAP

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

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

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2"TO 3"ON THE CAP AND FROM 11/2" 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.

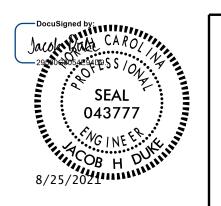
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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._ ROBESON COUNTY 77Ø13Ø BRIDGE NO. _



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

> SUBSTRUCTURE REPAIRS

END BENTS 1 & 2

OCUMENT NOT CONSIDERED

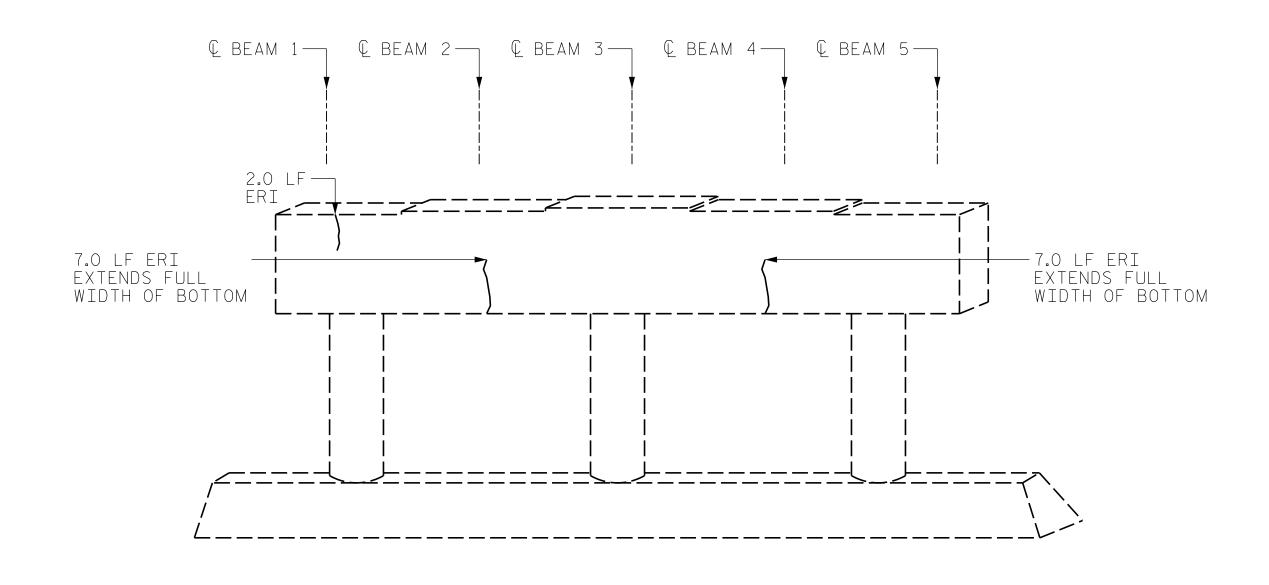
FINAL UNLESS ALL

SIGNATURES COMPLETED

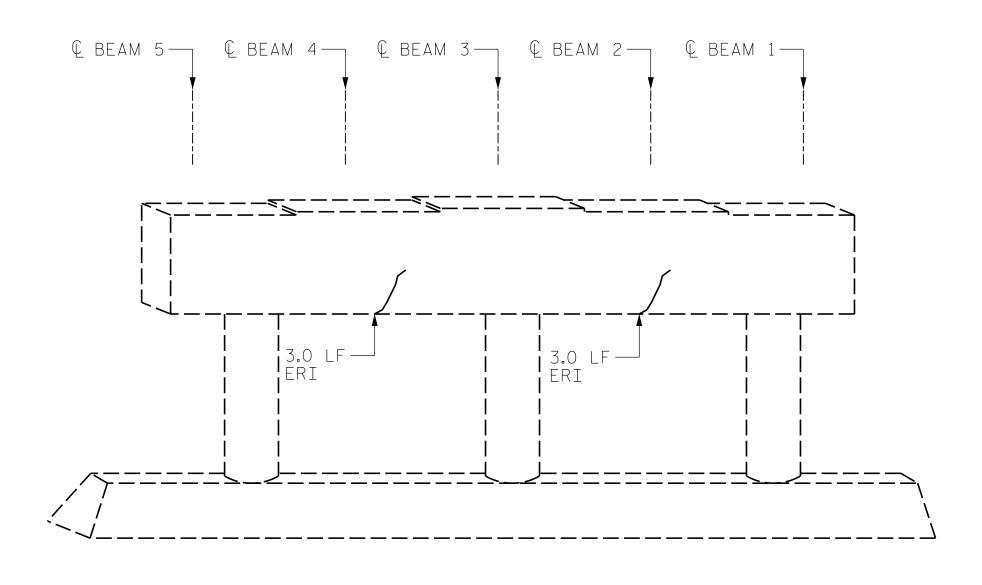
KCA	
KISINGER CAMPO	
& ASSOCIATES	NO.
301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839	1
NC FIRM LICENSE: C-1506	2

SHEET NO REVISIONS S13-7 DATE: DATE: BY: NO. BY: TOTAL SHEETS

JACOB H. DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : ___ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021



BENT 1 (WEST FACE)



BENT 1

(EAST FACE)

JACOB H.DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : __ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL COLUMN/PILE CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 22.0 CAP COLUMN/PILE AREA SQ. FT. EPOXY COATING 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:

LEGEND

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

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

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2"TO 3"ON THE CAP AND FROM 11/2" 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._ ROBESON COUNTY 77Ø13Ø BRIDGE NO. __

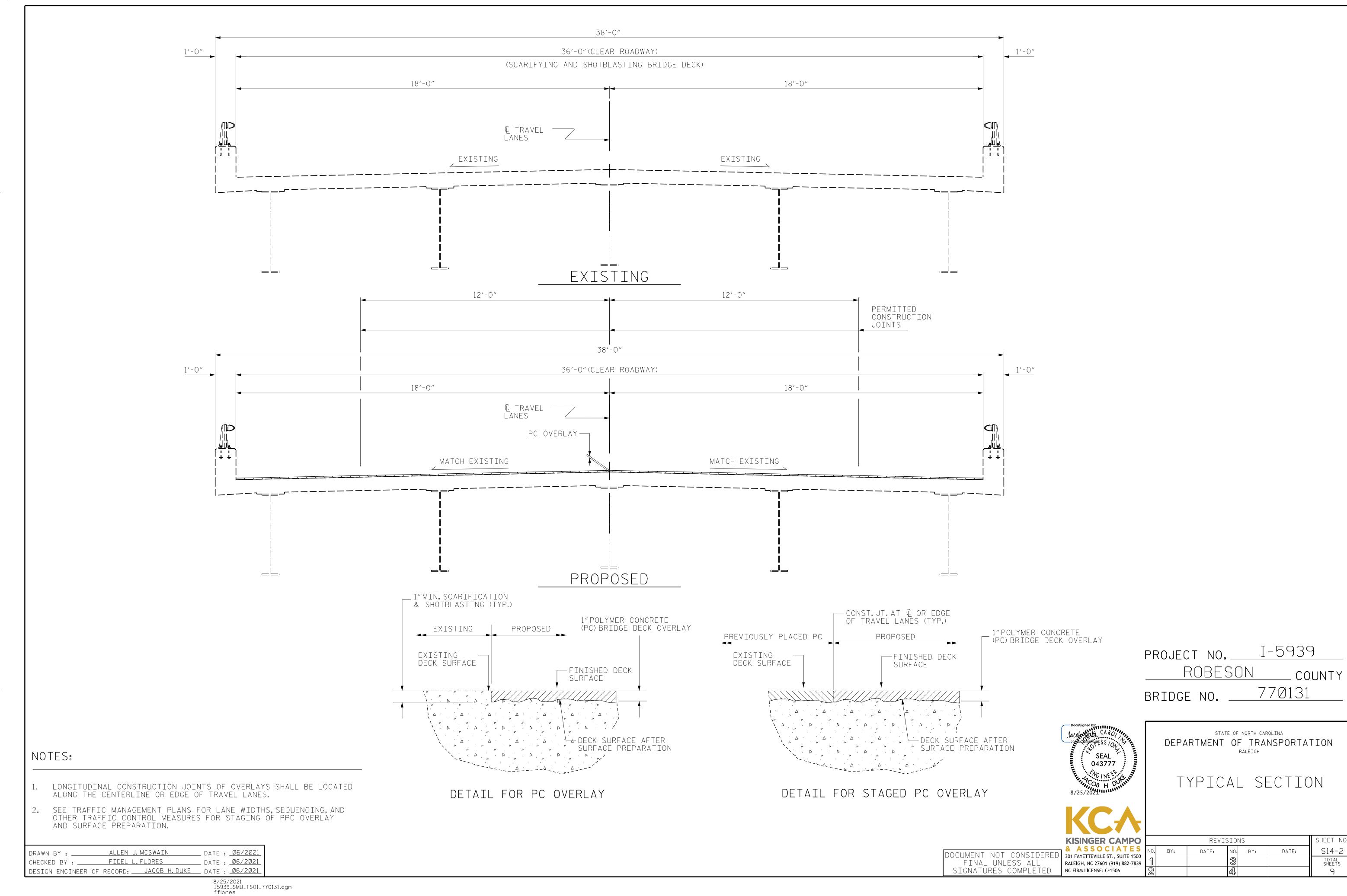


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

> SUBSTRUCTURE REPAIRS

> > BENT 1

SHEET NO REVISIONS DATE: S13-8 BY: DATE: NO. BY: TOTAL SHEETS RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506



PLACING & FINISHING PC OVERLAY

GROOVING BRIDGE FLOORS

NOTES:

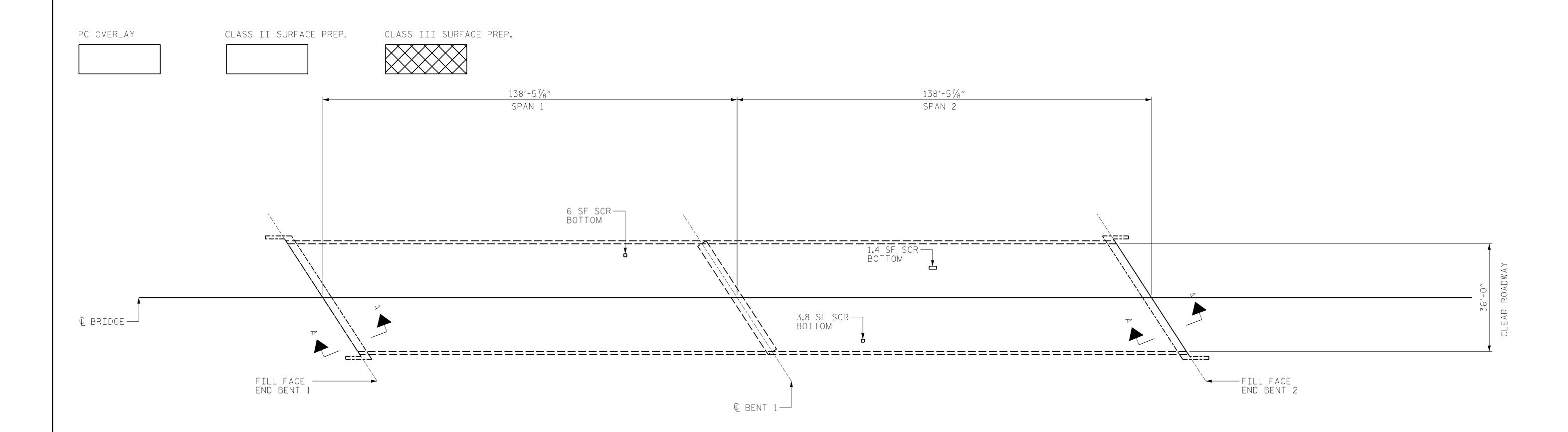
AS-BUILT REPAIR	QUAN	TITY	TABL	_E
TOP OF DEC	k repa	IRS		
	SPA	N 1	SPA	N 2
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
SHOTCRETE REPAIR (SCR)	5.2 SF		6 SF	
SCARIFYING BRIDGE DECK	554 SY		554 SY	
CLASS II SURFACE PREPARATION	0.0 SY		0.0 SY	
CLASS III SURFACE PREPARATION	0.0 SY		0.0 SY	
SHOTBLASTING BRIDGE DECK	554 SY		554 SY	
PC MATERIALS	15.4 CY		15.4 CY	

554 SF

4570 SF

554 SF

4570 SF



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 $2\frac{1}{2}$ " 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 $1\frac{1}{2}$ "TO 2"BASED ON VISUAL INSPECTION.

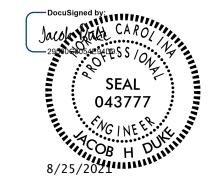
FOR CLASS II SURFACE PREPARATION LOCATIONS AT BRIDGE JOINTS, SEE "JOINT DETAILS SHEETS".

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.____ ROBESON _ COUNTY 77Ø131 BRIDGE NO. __



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

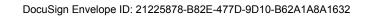
PLAN OF SPANS

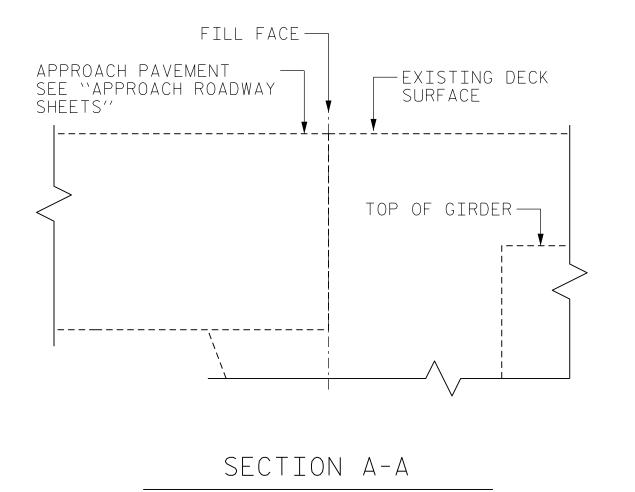
	1/6/1	
	KISINGER CAMPO & ASSOCIATES	
DOCUMENT NOT CONSIDERED	301 FAYETTEVILLE ST., SUITE 1500	_ _
FINAL UNLESS ALL SIGNATURES COMPLETED	RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506	6

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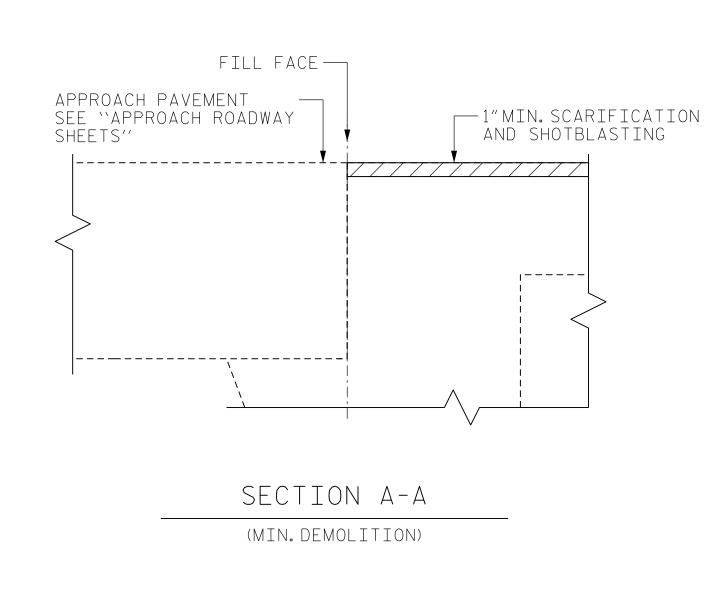
SHEET NO. REVISIONS S14-3 DATE: DATE: BY: NO. BY: TOTAL SHEETS

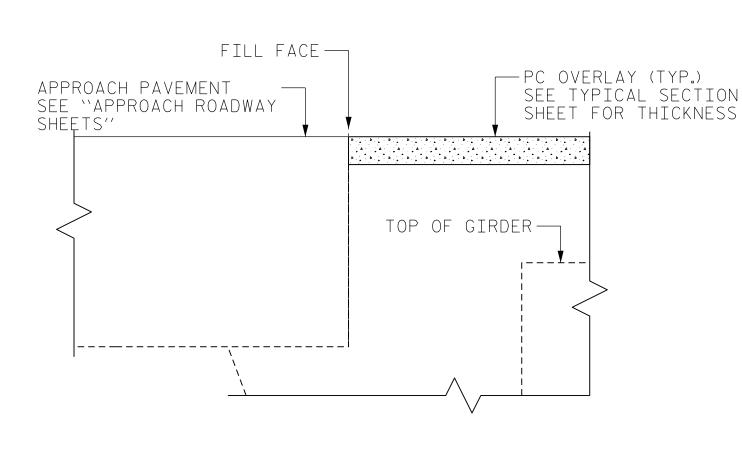
FIDEL L.FLORES __ DATE : <u>06/2021</u> DRAWN BY : ___ CHECKED BY : ______DIEGO A.AGUIRRE _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: <u>JACOB H.DUKE</u> DATE : <u>06/2021</u>





(EXISTING DETAIL, NO JOINT)





SECTION A-A

(PROPOSED DETAIL, NO JOINT)

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

TABLE 1				
Table Dat	e 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 QUA	NTITY
FOAM JOINT SEALS			
FOR PRESERVATION 17/4		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				

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 $\frac{1}{4}$, NOTIFY THE ENGINEER. REVISION OF THE JOINT SEAL SIZE MIGHT BE NECESSARY.

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

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

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRDIGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRATCTOR 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 ELASTOMETIC 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 77Ø131 BRIDGE NO. ___



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

JOINT DETAILS



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

FINAL UNLESS ALL

SIGNATURES COMPLETED

SHEET NO REVISIONS S14-4 DATE: DATE: BY: NO. BY: TOTAL SHEETS

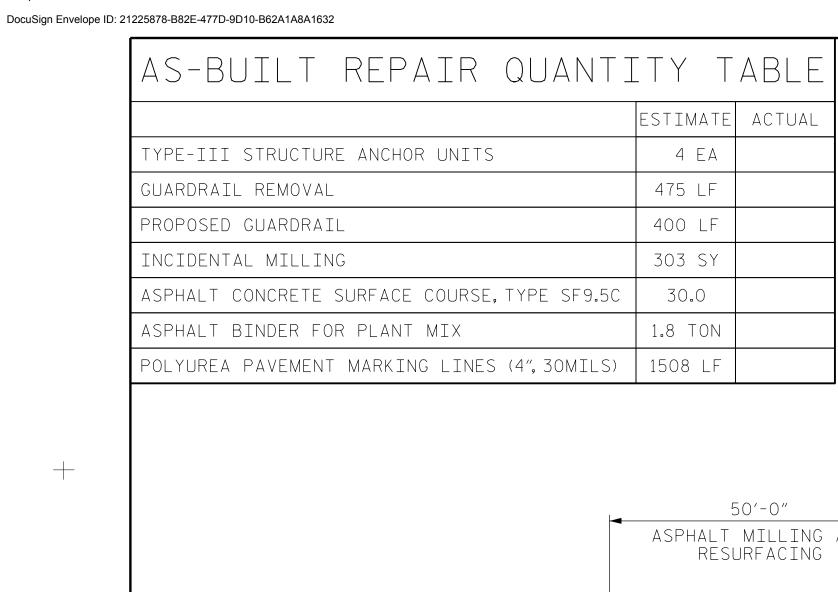
___ DATE : <u>06/2021</u> _ DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021

8/25/2021 I5939_SMU_JT01_770131.dgn

DIEGO A. AGUIRRE

CHECKED BY: _____FIDEL L.FLORES

DRAWN BY : _____



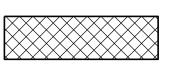
NOTES:

---EXISTING

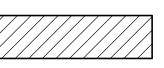
PAVEMENT

- 1. INCIDENTAL MILLING EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM $1\frac{1}{2}$ " 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
- 2. FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.
- 3. GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.
- 4. FOR GUARDRAIL ANCHOR UNITS, SEE "GUARDRAIL SHEETS" AND SPECIAL PROVISIONS.
- 5. FOR END POST DETAILS AND PAVEMENT MARKINGS, SEE SHEET 2 OF 2.

MAY EXCEED $1\frac{1}{2}$ "DUE TO SETTLEMENT OF THE EXISTING APPROACH.

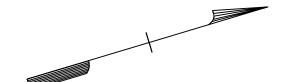


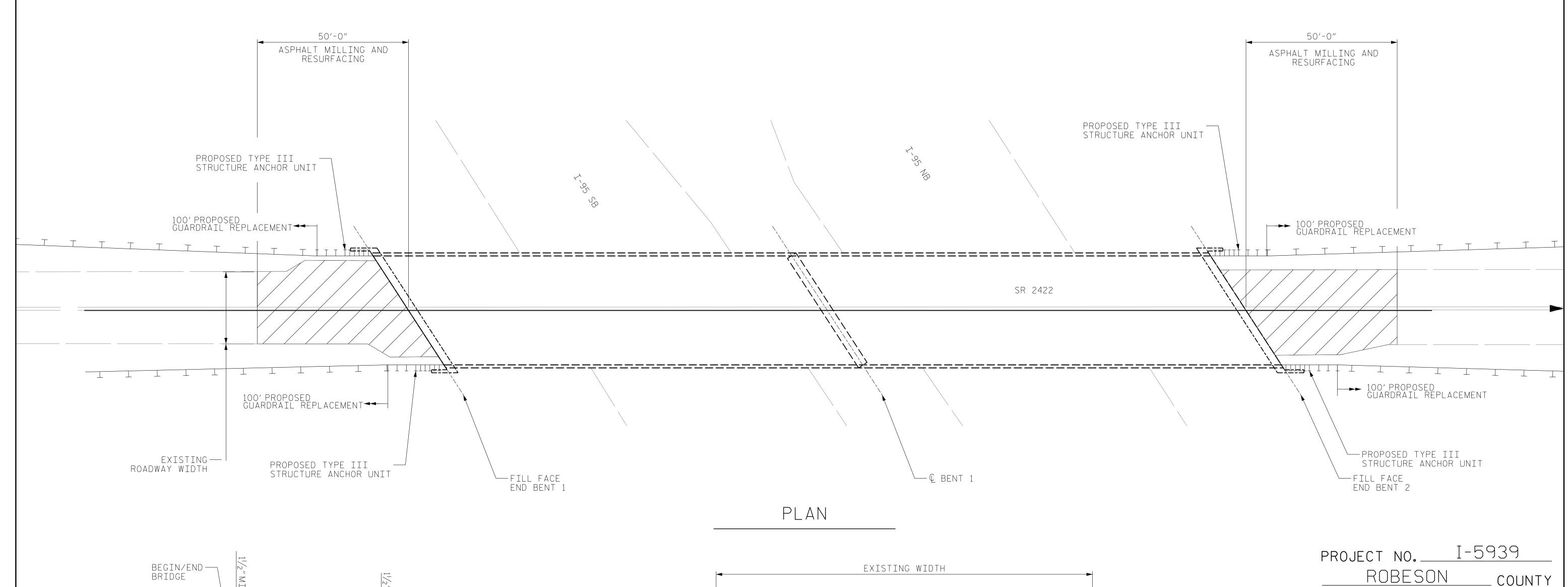
INCIDENTAL MILLING



ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

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.





EXIST.

ROADWAY SECTION BEGIN/END BRIDGE

EXIST.

FINAL UNLESS ALL

SIGNATURES COMPLETED

RALEIGH, NC 27601 (919) 882-7839

NC FIRM LICENSE: C-1506

SEAL 043777

APPROACH ROADWAY

ASPHALT MILLING AND GUARDRAIL CONSIDERED SOURCEST., SUITE 1500 REVISIONS DATE: DATE: BY: NO. BY:

BRIDGE NO. _

SHEET 1 OF 2

77Ø131

SHEET NO

S14-5

TOTAL SHEETS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

ALLEN J.MCSWAIN ___ DATE : <u>0</u>6/2021 DRAWN BY : ___ FIDEL L.FLORES _ DATE : <u>06/2021</u>

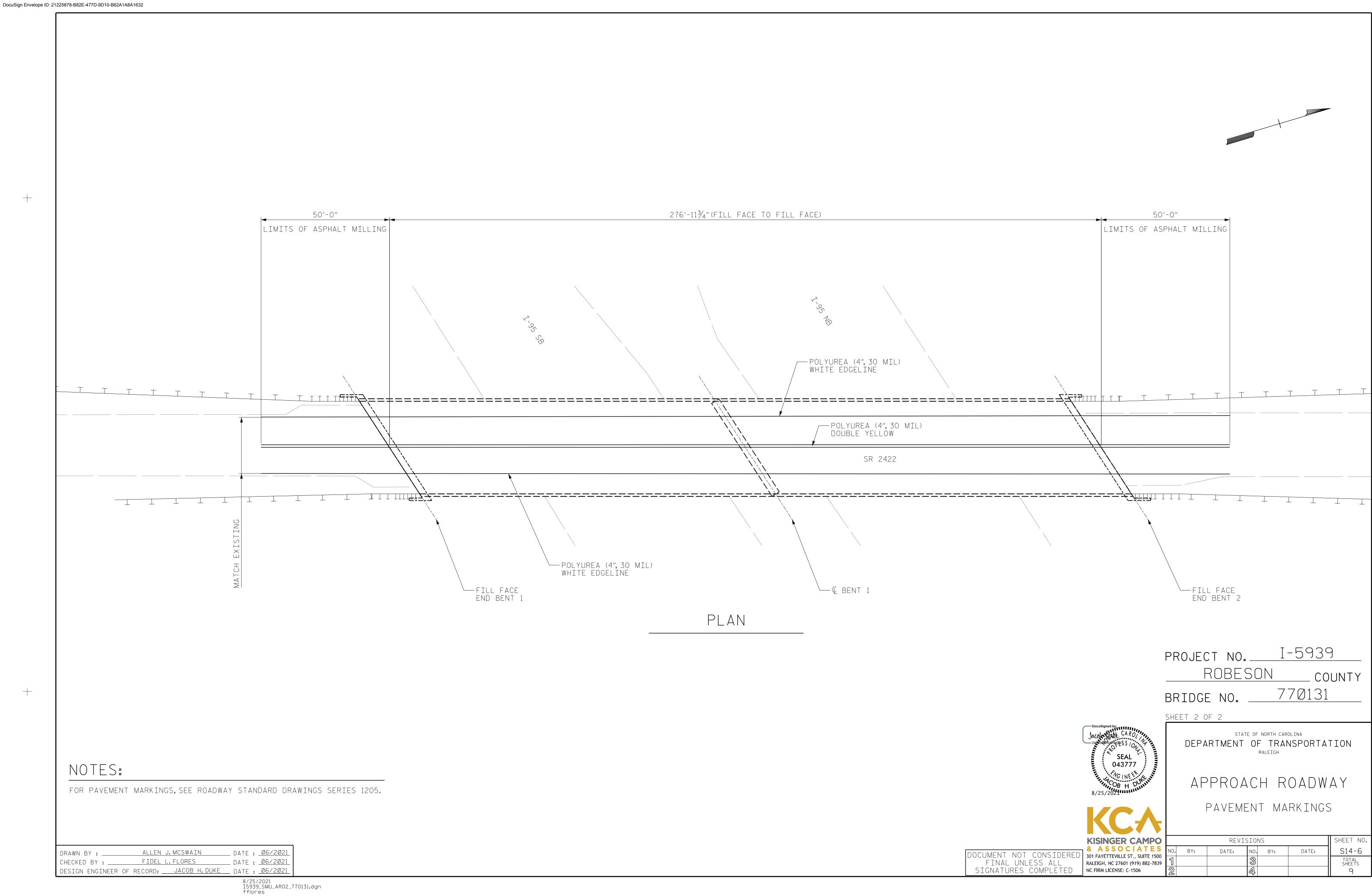
PROPOSED —

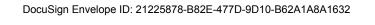
GRADE

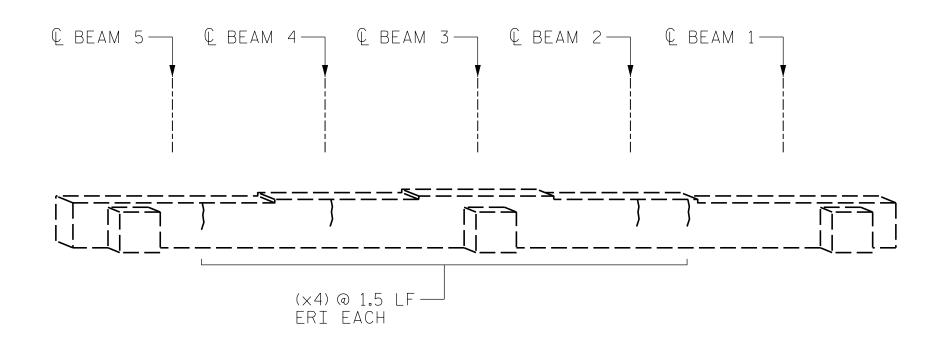
8/25/2021 I5939_SMU_AR01_770131.dgn fflores

PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS

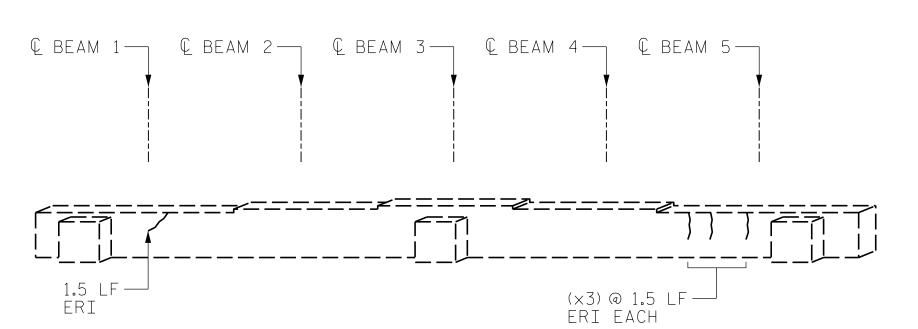
ASPHALT —







END BENT 1 (EAST FACE)



END BENT 2 (WEST FACE)

LEGEND AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL COLUMN/PILE VOLUME CU.FT. CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 12.0 CAP COLUMN/PILE AREA SQ.FT. EPOXY COATING

> 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.

236.3

NOTES:

CAP

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 11/2" 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.

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

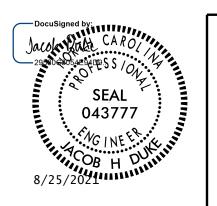
PERFORM ALL CONCRETE REPAIRS PRIOR TO APPLYING THE EPOXY COATINGS.

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._ ROBESON COUNTY 77Ø131 BRIDGE NO. _



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

> SUBSTRUCTURE REPAIRS

END BENTS 1 & 2

SHEET NO

S14-7

TOTAL SHEETS

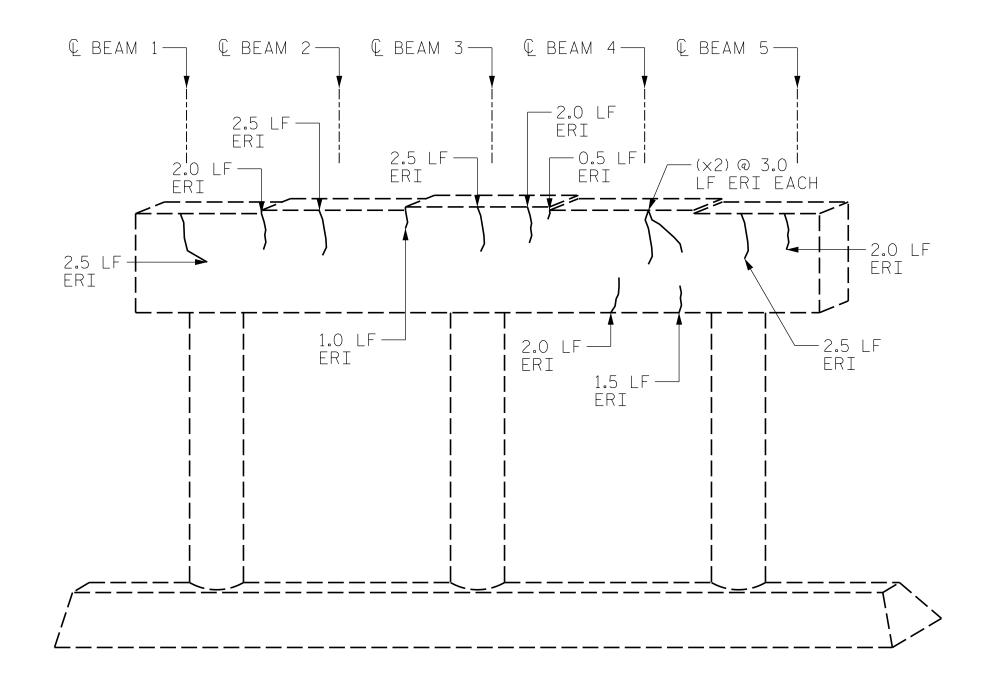
DATE:

	I/C14
	KISINGER CAMPO
_	& ASSOCIATES
	& ASSOCIATES 301 FAYETTEVILLE ST., SUITE 1500
	RALEIGH, NC 27601 (919) 882-7839
	NC FIRM LICENSE: C-1506

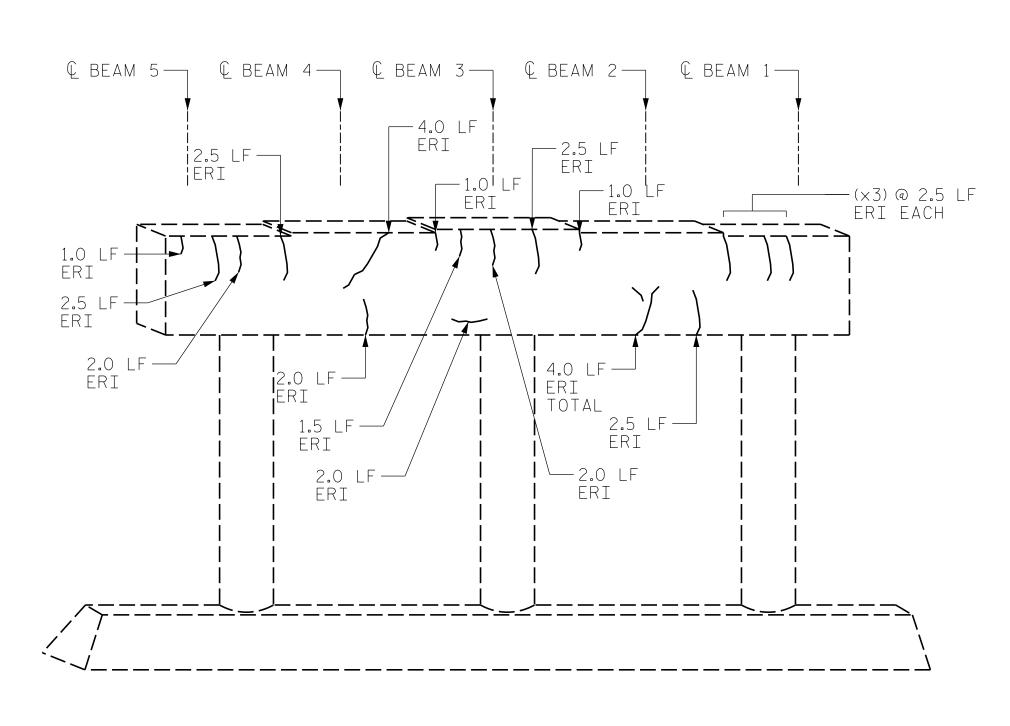
REVISIONS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL

JACOB H.DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES CHECKED BY : ___ _DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021



BENT 1 (WEST FACE)



BENT 1

(EAST FACE)

JACOB H.DUKE _ DATE : <u>06/2021</u> DRAWN BY : ___ FIDEL L.FLORES _DATE : <u>06/2021</u> CHECKED BY : __ DESIGN ENGINEER OF RECORD: ______JACOB H. DUKE ___ DATE : ______06/2021

OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 FINAL UNLESS ALL

AS-BUILT REPAIR QUANTITY TABLE QUANTITIES CONCRETE REPAIR AREA (CR) ACTUAL ESTIMATE SHOTCRETE REPAIR AREA (SCR) SHOTCRETE REPAIRS EPOXY RESIN INJECTION (ERI) CAP/BACKWALL COLUMN/PILE CONCRETE REPAIRS CAP EPOXY RESIN INJECTION LIN.FT. LIN.FT. 63.0 CAP COLUMN/PILE AREA SQ. FT. EPOXY COATING 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.

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LEGEND

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

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

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2"TO 3"ON THE CAP AND FROM $1\frac{1}{2}$ " 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._ ROBESON COUNTY 77Ø131 BRIDGE NO. _



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

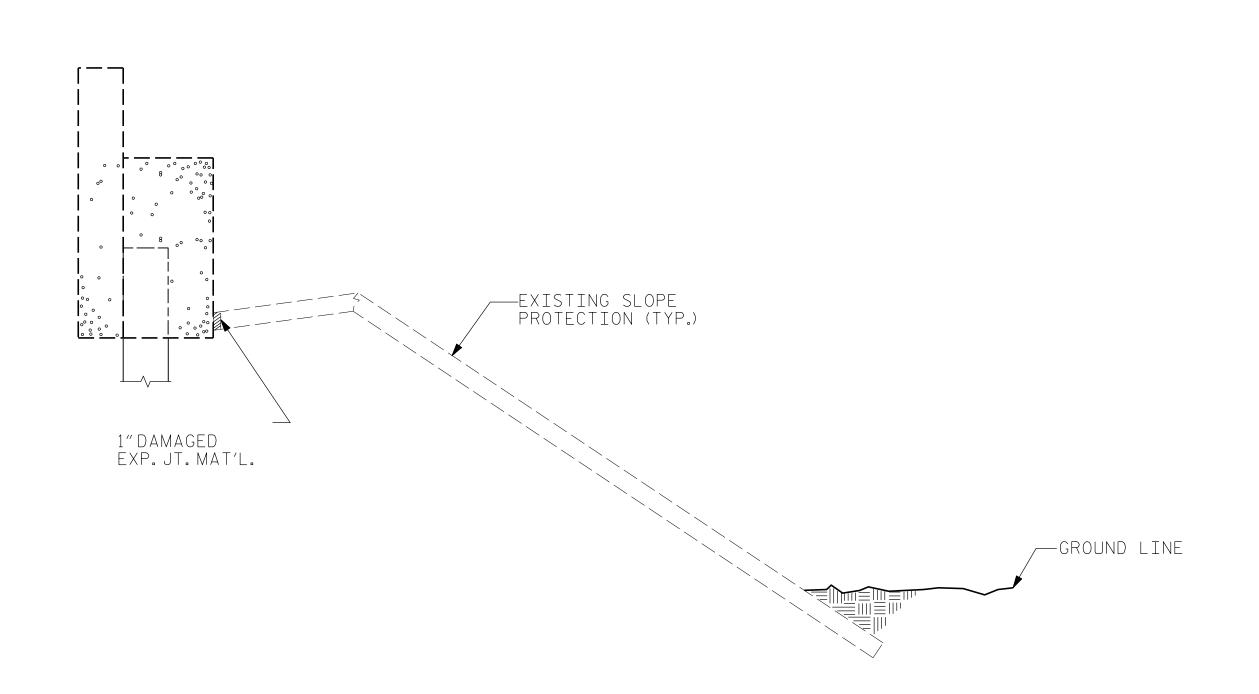
> SUBSTRUCTURE REPAIRS

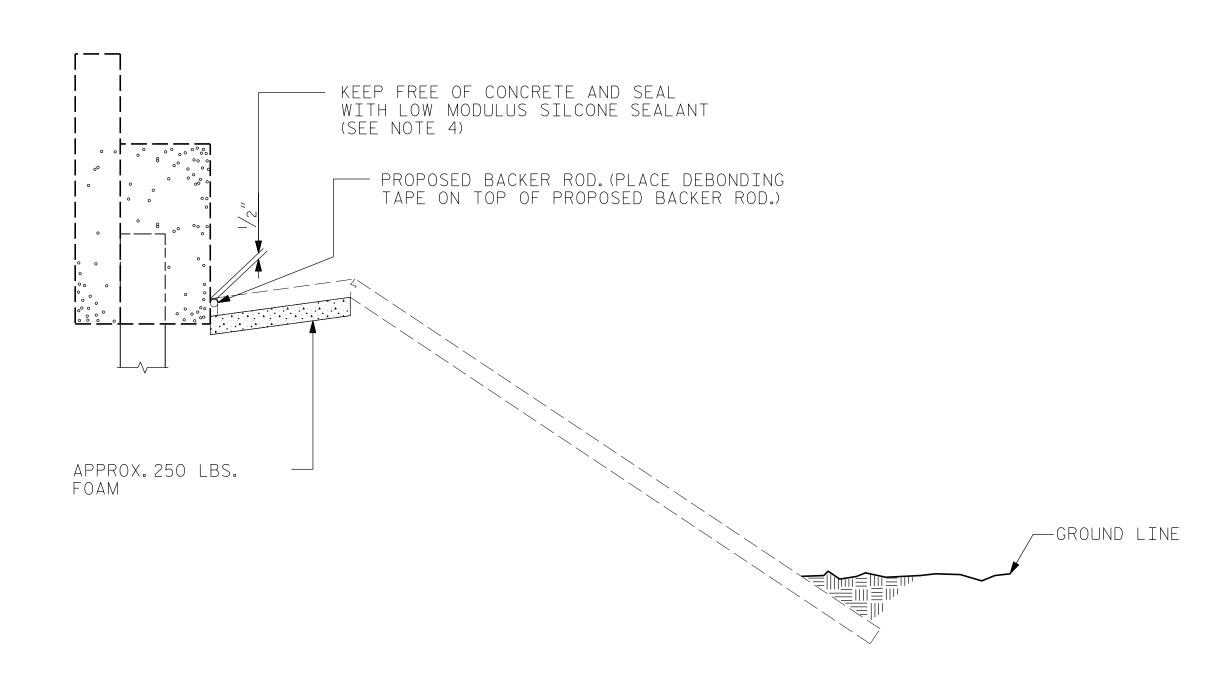
> > BENT 1

SHEET NO REVISIONS DATE: S14-8 BY: DATE: NO. BY: TOTAL SHEETS RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506

SIGNATURES COMPLETED

AS-BUILT REPAIR	R QUA	NTIT'	Y TAB	LE
SLOPE PROTECTION REPAIRS		QUANT	ITIES	
SLUPE PRUTECTION REPAIRS	ESTI	MATE	ACT	UAL
SLOPE PROTECTION VOID FILLING	500	LBS.		
SILICONE JOINT SEALAND 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 SILCONE JOINT SEALANT FOR SLOPE PROTECTION REPAIR, SEE SPECIAL PROVISIONS

5. FOR SILCONE JOINT SEALANT FOR SLOPE PROTECTION REPAIR, SEE "JOINT SEAL REPAIR ELEVATION VIEW" DETAIL

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

PROJECT NO. _____ I-5939 _____ ROBESON ____ county BRIDGE NO. ____ 77Ø131



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SLOPE PROTECTION REPAIRS

COUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

ER CAMPO			REVIS	1013	VS		SHEET N
OCIATES	NO.	BY:	DATE:	NO.	BY:	DATE:	S14-9
'ILLE ST., SUITE 1500 27601 (919) 882-7839	1			3			TOTAL SHEETS
ISE: C-1506	2		_	4			9

ASSEMBLED BY :

DRAWN BY: NAP 9/18

CHECKED BY :

CHECKED BY :

DRAWN BY : _

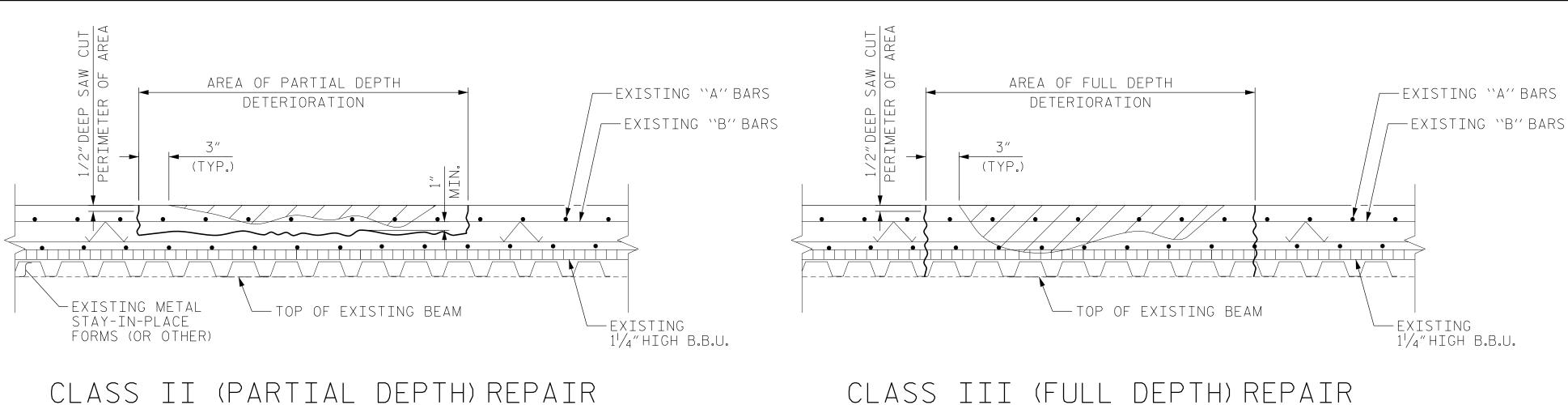
DATE :

DATE:

FIDEL L.FLORES

DIEGO A. AGUIRRE

DESIGN ENGINEER OF RECORD: _____JACOB H.DUKE ___ DATE : ____06/2021



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.

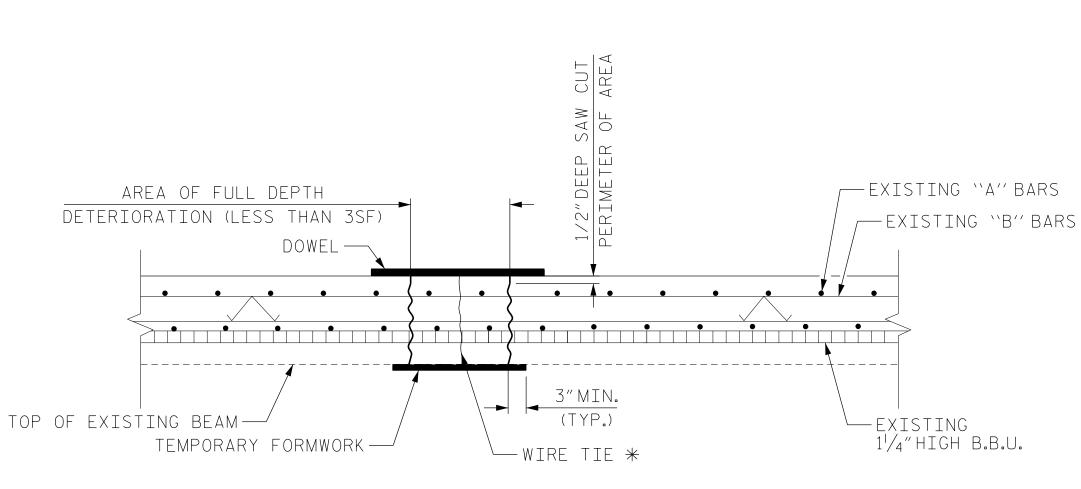
FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

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.

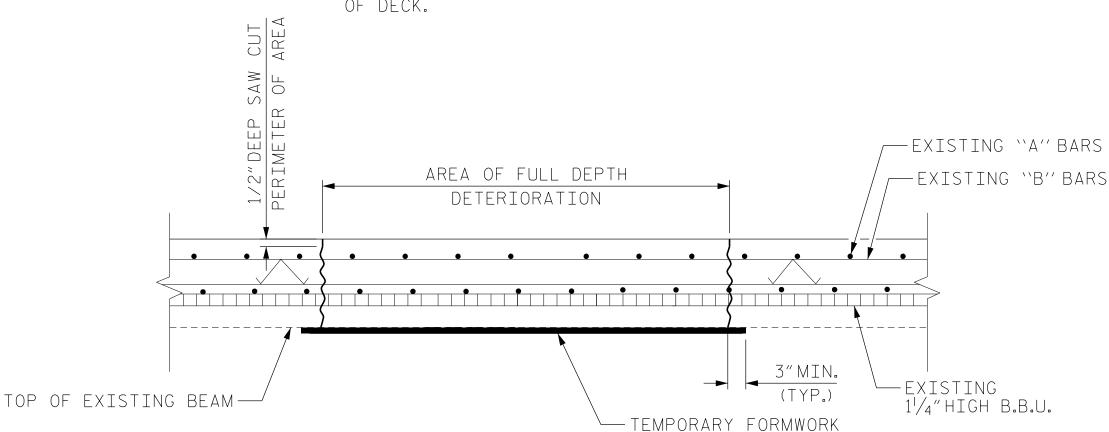
CLASS II (PARTIAL DEPTH) REPAIR



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.



FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

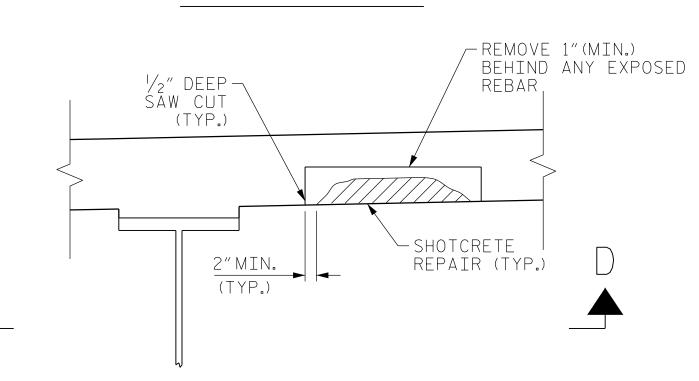
(FOR AREAS OF DETERIORATION GREATER THAN 3SF)

-EXISTING "A" BARS MIN. SPLICE LENGTH --- DAMAGED REINFORCING SEE CHART (TYP.) ---EXISTING "BARS STEEL TO BE REMOVED, -EXISTING METAL - NEW REPLACEMENT STAY-IN-PLACE — EXISTING REINFORCING STEEL 1¹/₄" HIGH B.B.U.

REINFORCING STEEL REPAIR

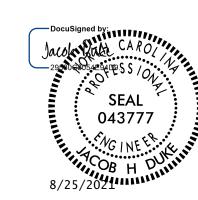
- 1/2" DEEP SAW CUT (TYP.) (TYP.) SHOTCRETE REPAIR (TYP.)

SECTION D-D



TYPICAL SECTION

UNDERSIDE OF DECK REPAIR



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD

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

_ COUNTY

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE

FOLLOWING MINIMUM SPLICE LENGTHS

COATED UNCOATED COATED UNCOATED

#5 2'-6" 2'-2" 2'-6" 2'-2"

#4 2'-0" 1'-9" 2'-0" 1'-9" 2'-9"

#6 3'-0" 2'-7" 3'-10" 2'-7" 4'-4"

APPROACH SLABS

SUPERSTRUCTURE
EXCEPT APPROACH
SLABS, PARAPET,
SIZE AND BARRIER RAIL

#7 5'-3" 3'<u>-</u>6" #8 6'-10" 4'-7"

PROJECT NO._

ROBESON

BRIDGE NO. <u>MULTIPLE</u>

DECK REPAIR DETAILS

KISINGER CAMPO OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839 SIGNATURES COMPLETED NC FIRM LICENSE: C-1506

FINAL UNLESS ALL

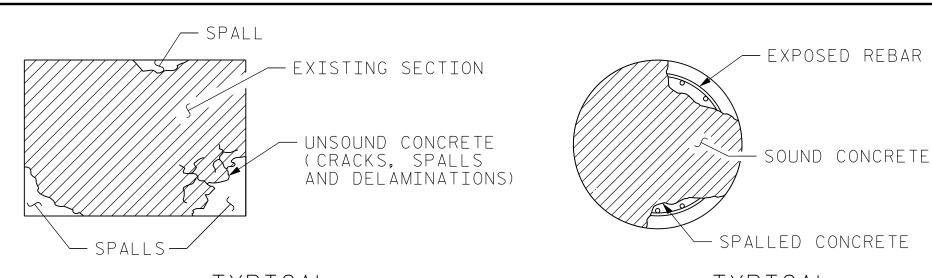
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SHEET NO REVISIONS S5 DATE: DATE: NO. BY: TOTAL SHEETS

AREA OF DETERIORATION

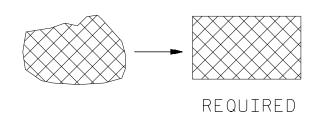
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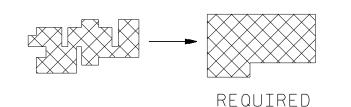
DATE : <u>06/2021</u>



TYPICAL DELAMINATIONS AND SPALLS

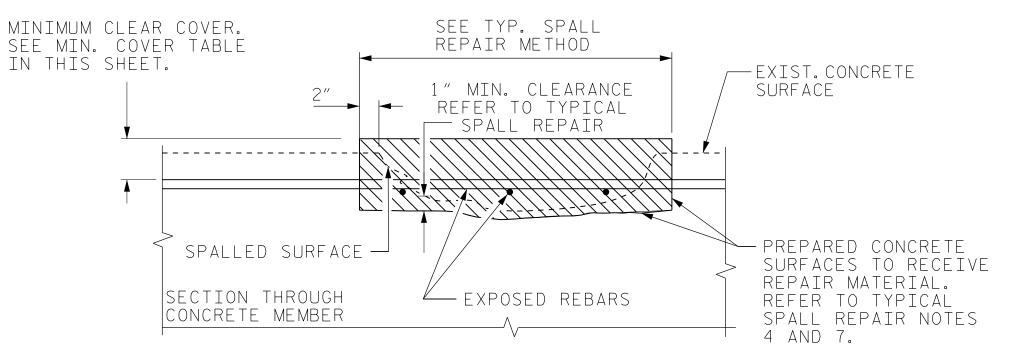
TYPICAL SPALL WITH EXPOSED REBAR





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

- \star 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.
- 2. ALL UNSOUND CONCRETE MUST BE REMOVED. HOWEVER, PRESTRESSED STRANDS SHOULD NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY. USE EXTREME CARE TO NOT DAMAGE STRANDS.
- 3. 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.
- 7. 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

- 1. 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.
- 2. ADDRESS CRACKS IN NEW CONSTRUCTION IN ACCORDANCE WITH PROJECT SPECIAL PROVISIONS. ADDRESS EXISTING CRACKS IN ACCORDANCE WITH THIS SHEET AND PROJECT SPECIAL PROVISIONS.
- 3. 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 $\frac{1}{8}$ USE AN EPOXY RESIN WITH MINIMUMS OF VISCOSITY OF 325 CPS, 28 DAY COMPRESSIVE STRENGTH OF 13000 PSI. FOR CRACKS $\frac{1}{8}$ " TO $\frac{1}{4}$ ", USE AN INJECTION GEL OR EQUAL NON-SAG PASTE WITH 28 DAY COMPRESSIVE STRENGTH OF 10000 PSI.
- 6. TO SEAL CRACK SURFACES PRIOR TO CRACK INJECTION, USE INJECTION GEL WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 12000 PSI.
- 7. ENGINEER TO APPROVE CRACK AND CAP SEAL MATERIAL PRIOR TO BEGINNING OF CONSTRUCTION.
- 8. 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	11/8"	1'-4"	4'-6"				

DOWEL BAR —

NEW CONCRETE —

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.

-EXISTING CONCRETE

LAP LENGTH EMBEDMENT LENGTH SET DOWELS INTO STRUCTURAL EPOXY >(SEE TABLE ABOVE)

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
- 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.
- 5. 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.
- 6. 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. MINIMMUM 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.
- 9. 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.
- 10. 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.
- 11. 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).
- 12. 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.
- 13. 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.
- 14. FOR ADHESIVELY ANCHORED DOWELS OR ANCHOR BOLTS. SE STANDARD SPECIFICATIONS.
- 15. FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- 16. FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- 17. FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

LAP S	PLICE 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"

FINAL UNLESS ALL

SIGNATURES COMPLETED

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

PROJECT NO._ ROBESON COUNTY

BRIDGE NO. <u>MUL</u>TIPLE

SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

> CONCRETE RESTORATION DETAILS



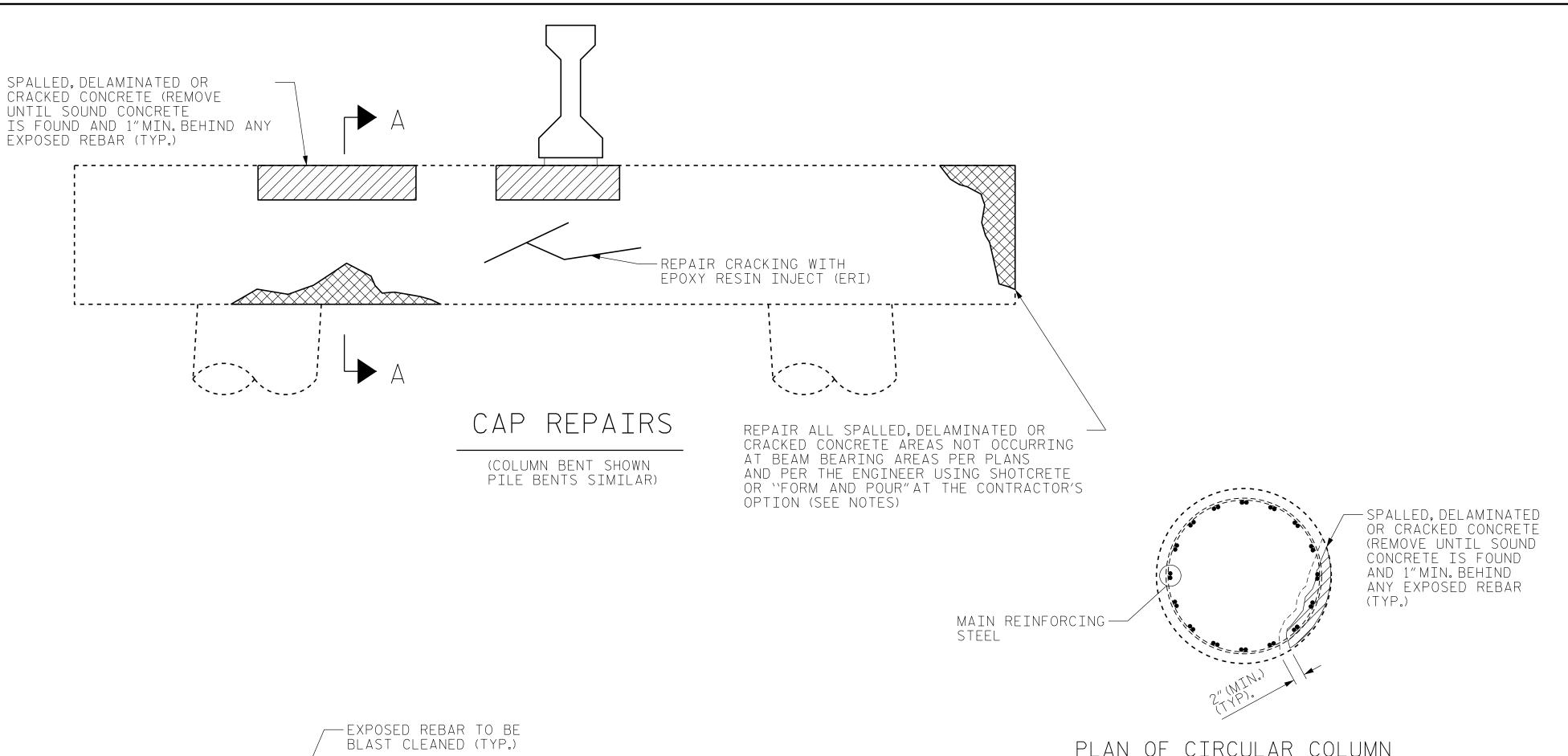
OCUMENT NOT CONSIDERED 301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506

043777

REVISIONS DATE: BY: NO. BY:

SHEET NO S6 DATE: TOTAL SHEETS

JACOB H. DUKE _DATE : <u>06/2021</u> DRAWN BY : ___ DIEGO A. AGUIRRE DATE : <u>06/2021</u> CHECKED BY : ___ DESIGN ENGINEER OF RECORD: <u>JACOB H. DUKE</u> DATE : <u>06/2021</u>



PLAN OF CIRCULAR COLUMN

__ __ __ __ __ __ __ __ __ __ __ 1/2" DEEP SAW CUT (TYP.); -SPALLED, DELAMINATED OR CRACKED CONCRETE (REMOVE UNTIL SOUND CONCRETE IS FOUND AND 1"MIN. BEHIND ANY EXPOSED REBAR. MAIN 1" MIN. BEHIND — REINF. (TYP.) ANY EXPOSED REBAR (TYP.) STEEL PLAN OF SQUARE COLUMN REPAIR CRACKING — IN COLUMNS AND CAPS (TYP.) - * EXPOSED REBAR TO BE BLAST CLEANED (TYP.)

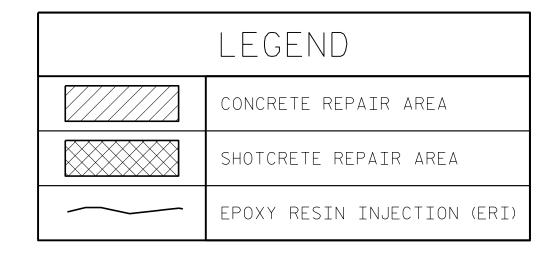
ELEVATION OF COLUMN (SQUARE COLUMNS SIMILAR)

* 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 BEREMOVED 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 $1-\frac{1}{2}$ 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.



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

PROJECT NO.____ ROBESON

COUNTY BRIDGE NO. <u>MULTIPLE</u>

BRIDGES:10,12,04,24,86,89,90,96,98,104,106,1 SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

CONCRETE RESTORATION DETAILS

SUBSTRUCTURE

NO. BY:

SHEET NO

S7

TOTAL SHEETS

12

DATE:

OCUMENT NOT CONSIDERED 301 SIGNATURES COMPLETED

FINAL UNLESS ALL

SEAL 043777

(ISINGER CAMPO			REVI:	SIO	NS
A S S O C I A T E S 11 FAYETTEVILLE ST., SUITE 1500	NO.	BY:	DATE:	NO.	Е
ALEIGH, NC 27601 (919) 882-7839	1			3	
C FIRM LICENSE: C-1506	2			4	

JACOB H. DUKE _DATE : <u>06/2021</u> DRAWN BY : ___ DIEGO A. AGUIRRE DATE : <u>06/2021</u> DESIGN ENGINEER OF RECORD: _____JACOB H.DUKE ___ DATE : ___06/2021

2"MIN. (TYP.)

8/25/2021 I5939_SMU_CR02.dgn fflores

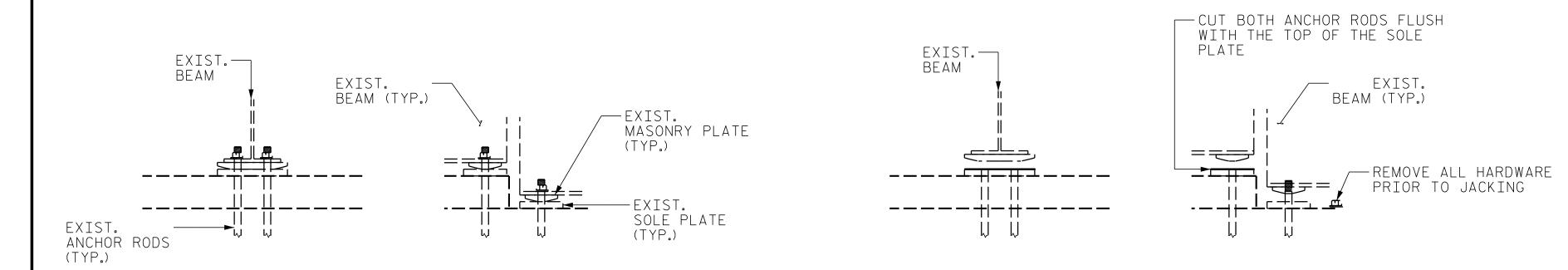
 $-\frac{1}{2}$ " deep saw cut (typ.)

-1" MIN. BEHIND ANY EXPOSED

REBAR (TYP.)

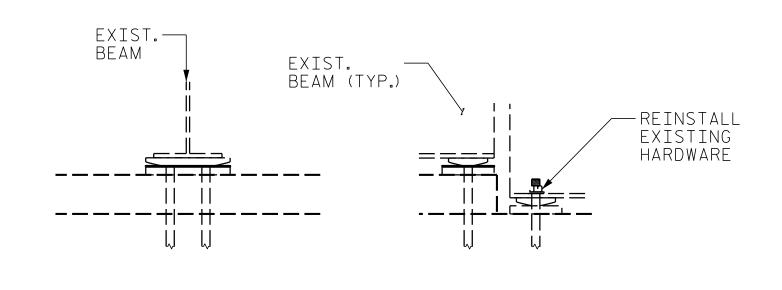
SECTION A-A

BENT CAP REPAIRS



EXISTING

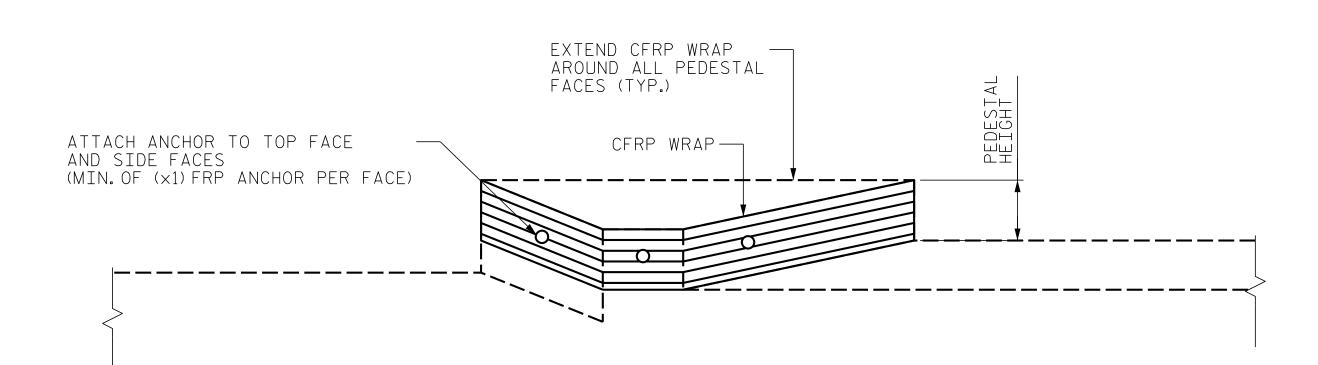
JACKING STAGE



PROPOSED

BEARING RETROFIT

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



CFRP PEDESTAL REPAIRS

ISOMETRIC VIEW

DRAWN BY :	JACOB	H. DUKE	DATE :	06/2021
CHECKED BY :	FIDEL	FLORES	DATE :	06/2021
DESTON ENGINEER	OF RECORD.	.IACOB H DIIKE	DATE .	Ø6/2Ø21

FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES

FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEETS AND SPECIAL PROVIONS. 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

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

SHEET 3 OF 3

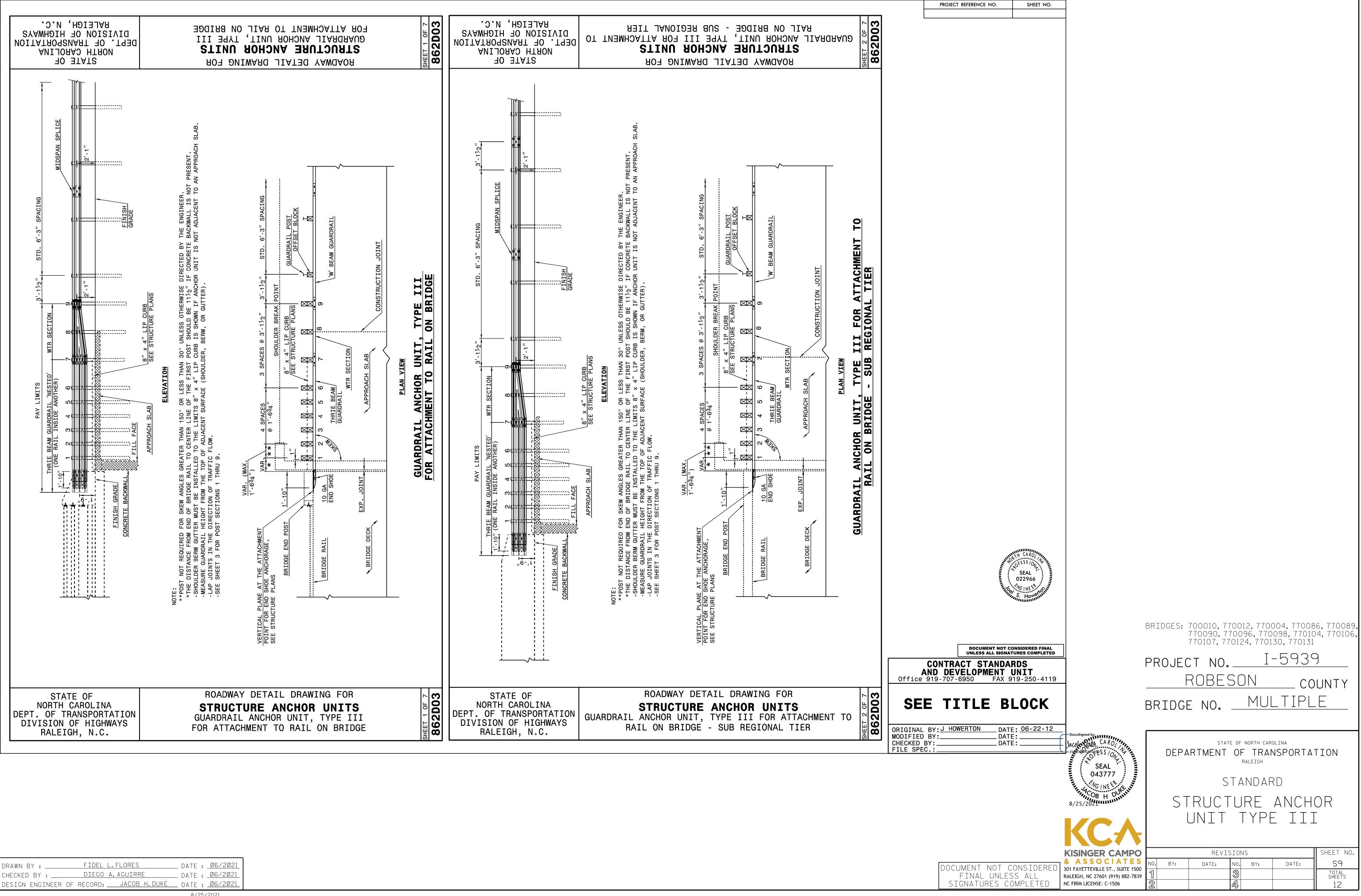


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

> CONCRETE RESTORATION DETAILS



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



BRIDGE NO. <u>MULTIPLE</u>

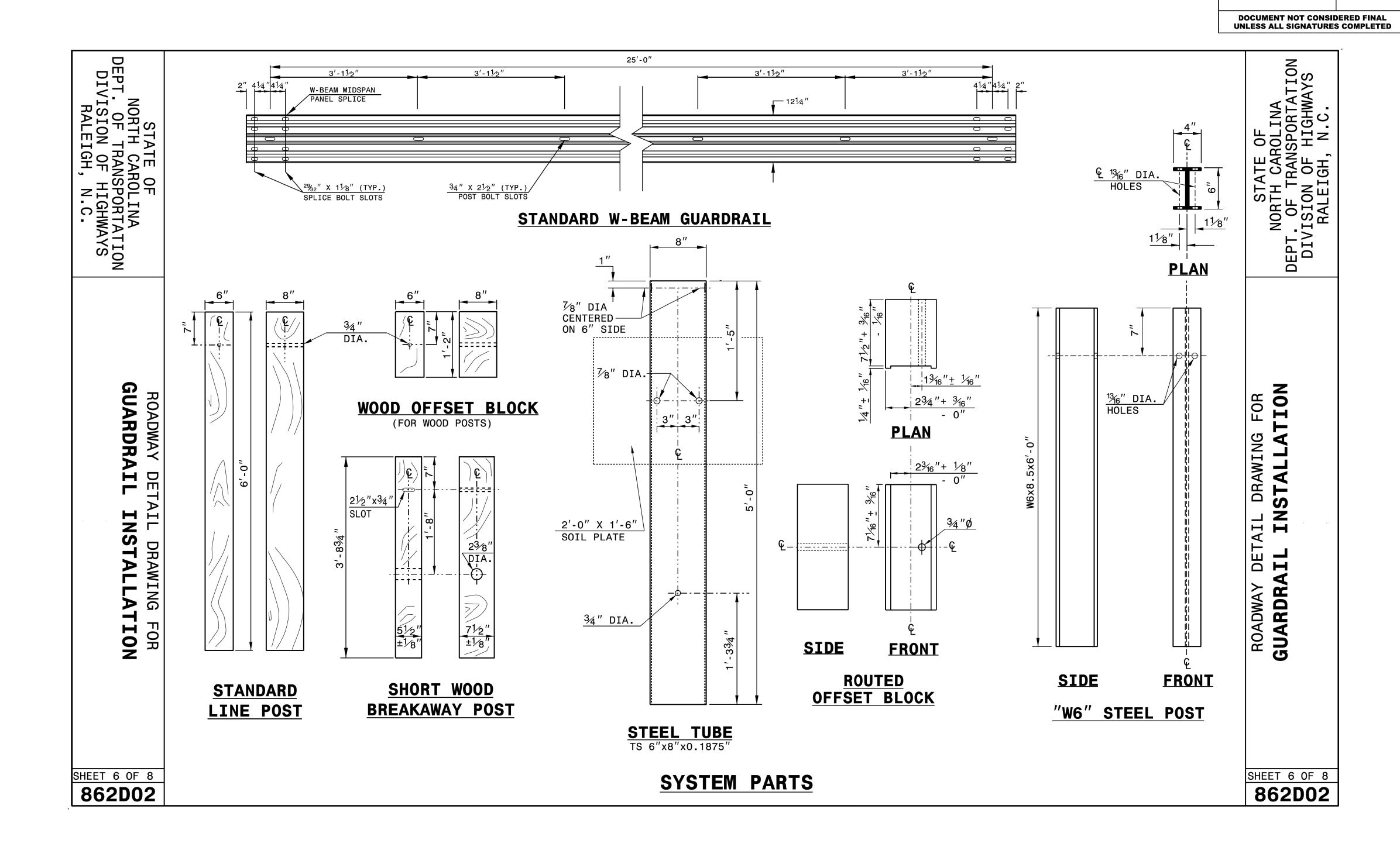
ROBESON

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

COUNTY

STANDARD STRUCTURE ANCHOR UNIT TYPE III

SHEET NO REVISIONS S9 DATE: BY: DATE: NO. BY: TOTAL SHEETS 12



SEAL 6 022966

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

PROJECT REFERENCE NO.

SHEET NO.

SEE TITLE BLOCK

SIGNATURES COMPLETED

ORIGINAL BY: J.HOWERTON
MODIFIED BY:
CHECKED BY:
FILE SPEC.: DATE: 3-7-2018
DATE:
DATE: BRIDGES: 700010, 770012, 770004, 770086, 770089, 770090, 770096, 770098, 770104, 770106, 770107, 770124, 770130, 770131

PROJECT NO. I-5939

ROBESON __ COUNTY

BRIDGE NO. <u>MULTIPLE</u>

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

> STANDARD GUARDRAIL INSTALLATION

> > SHEET NO

S1Ø

TOTAL SHEETS

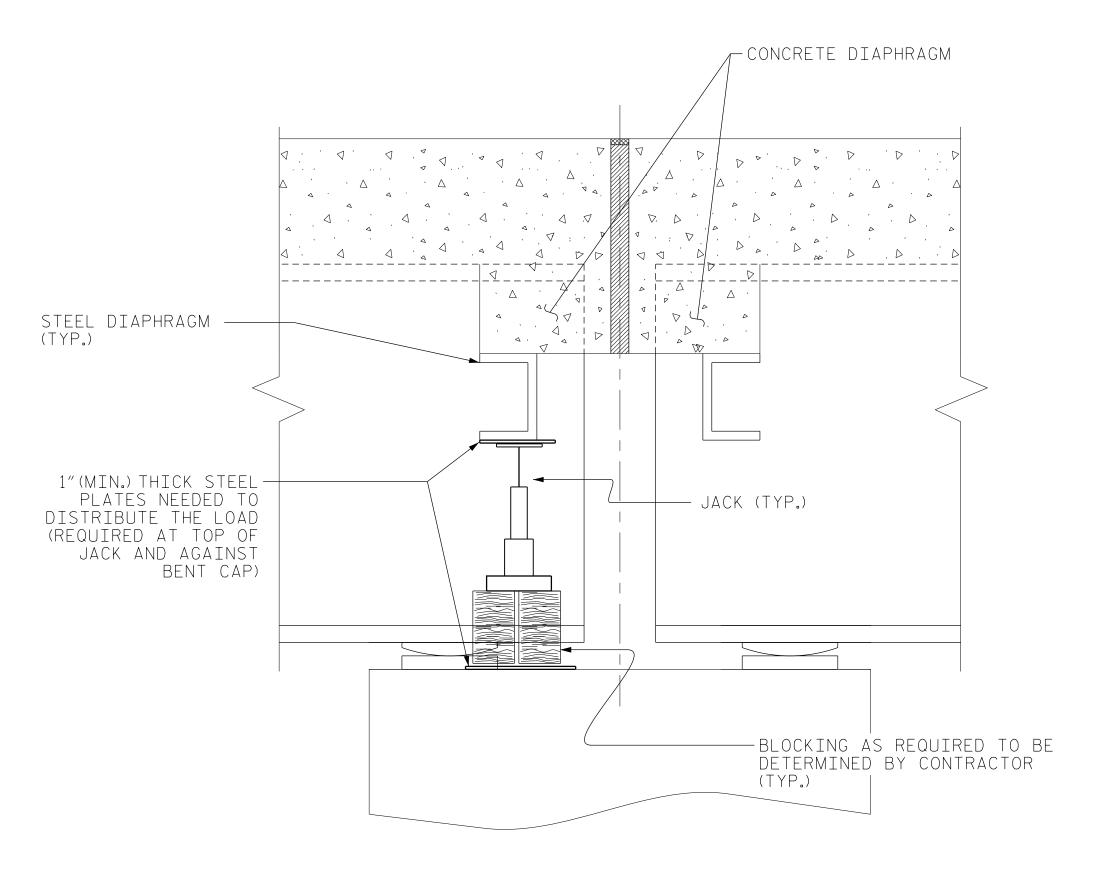
12

DATE:

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED
RALEIGH, NC 27601 (919) 893 7032 REVISIONS BY: DATE: NO. BY:

043777

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



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							

DOCUMENT NOT CONSIDERED 301 FAYETT FINAL UNLESS ALL RALEIGH, N SIGNATURES COMPLETED NC FIRM LICE

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

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.

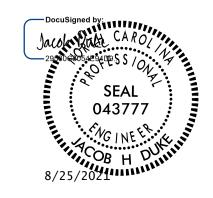
TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRUALIC JACKING SYSTEM THAT LIFTS EACH BEAM ALONG ENTIRE SPAN END WITH EQUAL FORCE AND AT AN EQUAL RATE.

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.

PROJECT NO. 1-5939

ROBESON COUNTY

BRIDGE NO. 770010,770012



STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

STANDARD

BRIDGE JACKING DETAILS

> SHEET NO S11

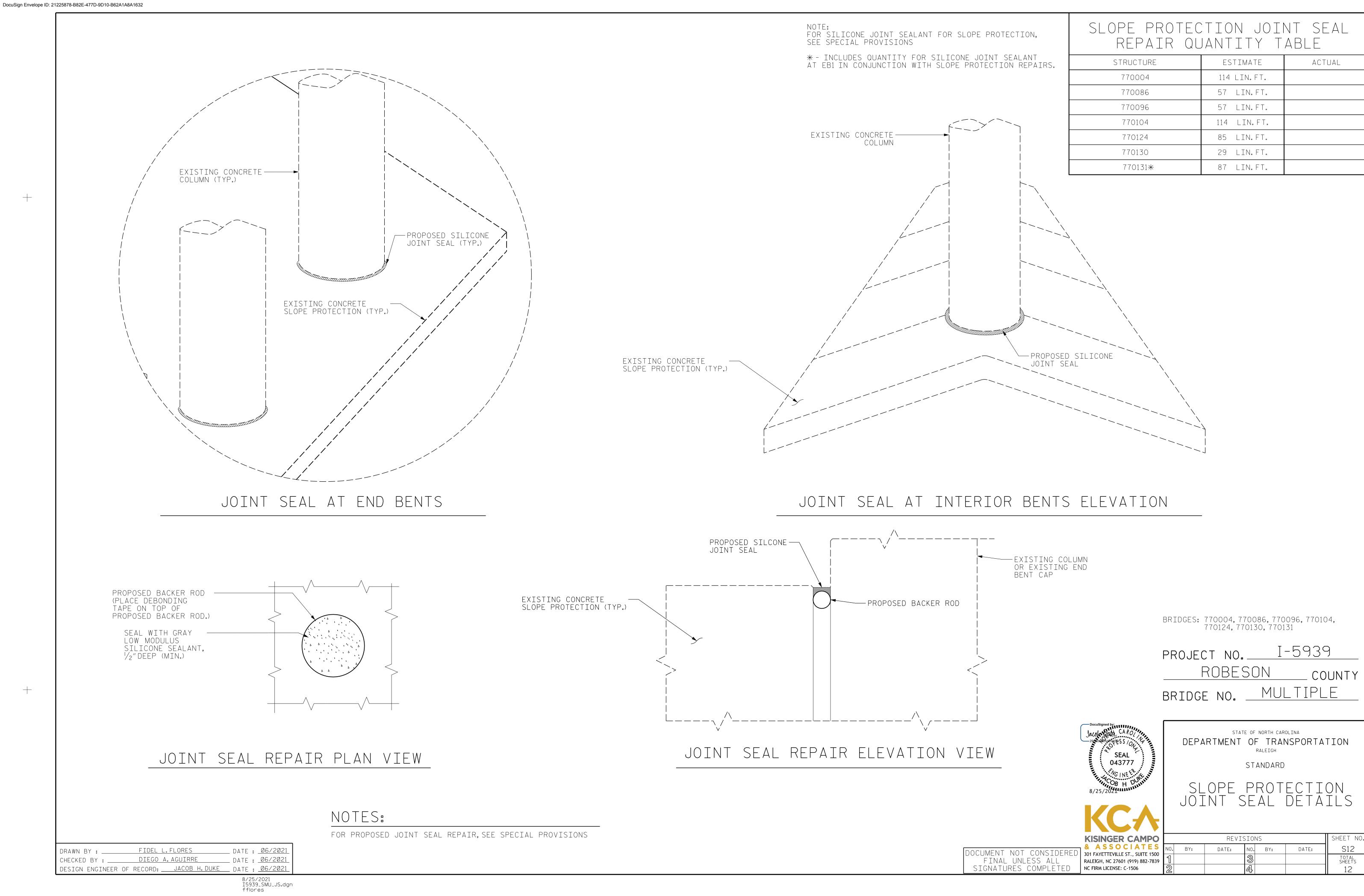
> > TOTAL SHEETS

12

DATE:

	KISINGER CAMPO		REVISIONS						
	& ASSOCIATES	NO.	BY:	DATE:	NO.	В			
	301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839	1			3				
	NC FIRM LICENSE: C-1506	2			4				

8/25/2021 I5939_SMU_JK01.dgn fflores



STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS - - - - - - - - - - - A.A.S.H.T.O. (CURRENT) ITVF LOAD ----- SEE PLANS STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36 - - 20,000 LBS. PER SQ. IN. - AASHTO M270 GRADE 50W - - 27,000 LBS.PER SQ.IN. - AASHTO M270 GRADE 50 - - 27,000 LBS. PER SQ. IN. REINFORCING STEEL IN TENSION - GRADE 60 - - - 24.000 LBS. PER SQ. IN. CONCRETE IN COMPRESSION - - - - - - - - 1.200 LBS. PER SQ. IN. CONCRETE IN SHEAR -------- SEE A.A.S.H.T.O. STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS - - - 1,800 LBS. PER SQ. IN. COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER ---- 375 LBS. PER SQ. IN. EQUIVALENT FLUID PRESSURE OF EARTH - - - - 30 LBS.PER CU.FT.

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $rac{3}{4}$ " with the following exceptions: TOP CORNERS OF CURBS MAY BE ROUNDED TO 11/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ "FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \varnothing SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \alpha STUDS FOR 4 - $\frac{3}{4}$ " \alpha STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \varnothing STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \alpha studs based on the ratio of 3 - $\frac{7}{8}$ " \alpha^1 STUDS FOR 4 - $\frac{1}{4}$ " \varnothing STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-O".

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

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/6 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH