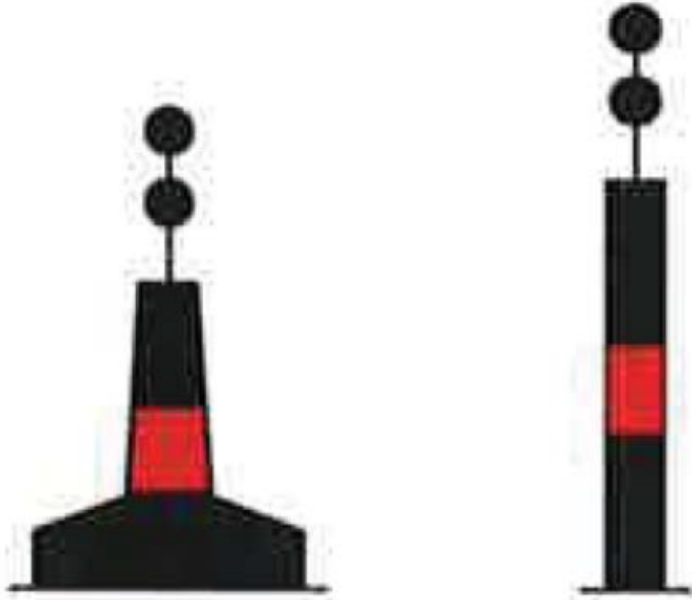



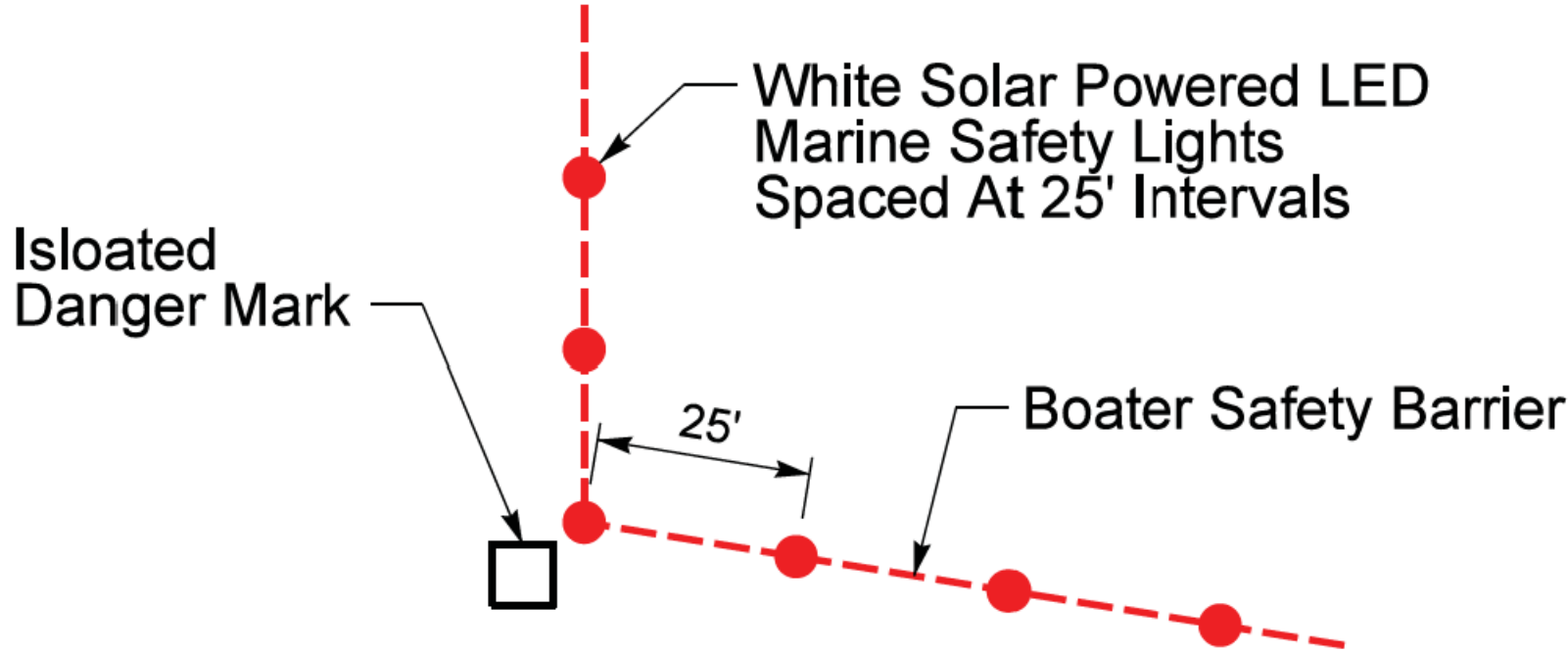
DETAIL 3  
ISOLATED DANGER MARKS



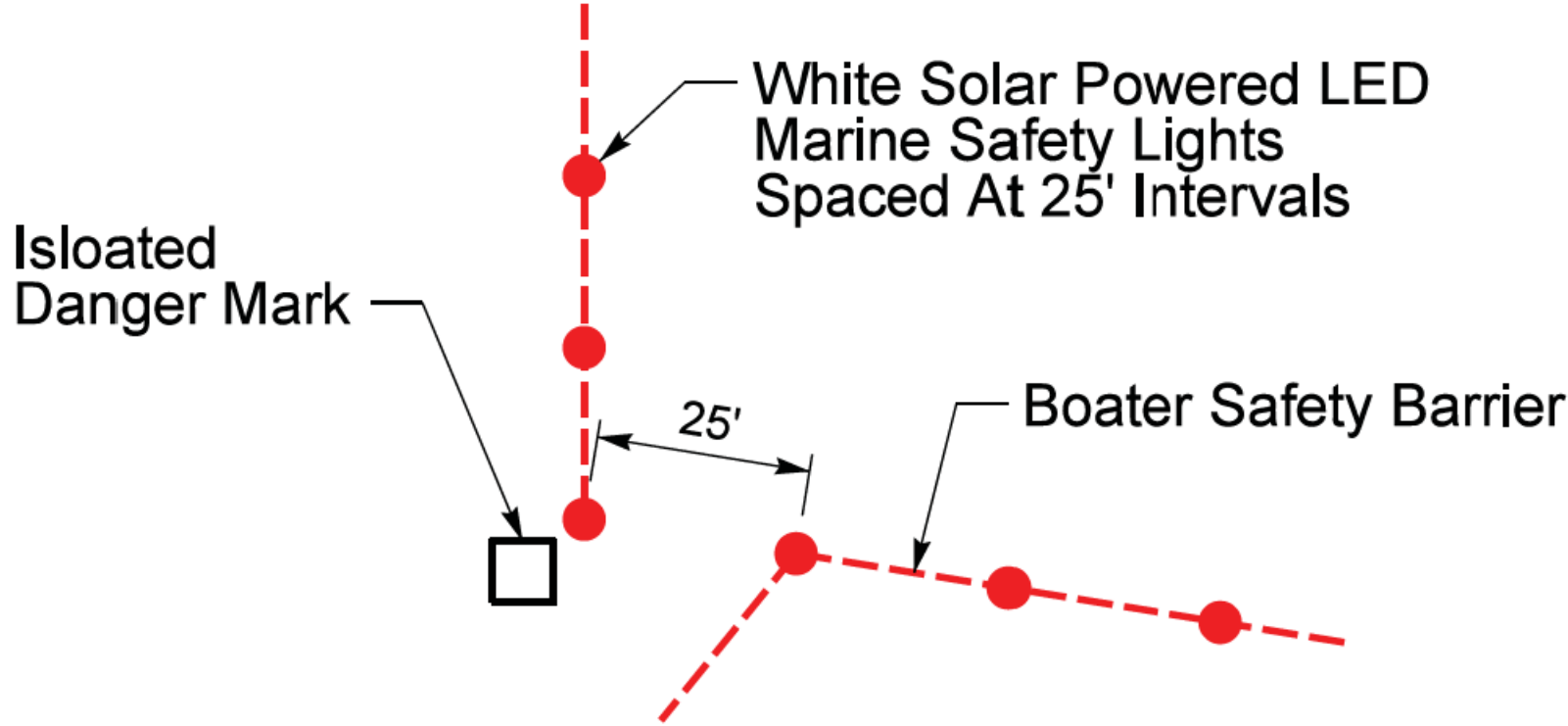
Color	black with one or more red horizontal band(s)
Buoy	optional, but not conflicting with lateral marks; pillar or spar preferred
Topmark (if any)	always fitted with double spheres

Lights	
Color	white
Rhythm	group flashing  (2 times every 5 seconds)

DETAIL 4  
TYPICAL WORK BOAT ACCESS



Non-Active Work Zone Barrier Position  
WORK AREA COMPLETELY CLOSED



Active Work Zone Barrier Position  
GAP FOR WORK BOAT MOVEMENTS ALLOWED

TYPICAL WORK BOAT ACCESS

SEE PLANS FOR LOCATIONS

NOTE:  
A 25 FOOT SECTION OF THE BOATER SAFETY BARRIER WILL BE LEFT OPEN DURING THE HOURS THAT MAINTENANCE ACTIVITY OCCURS. THIS OPENING WILL BE CLOSED OFF WHEN WORK CREWS ARE NOT ACTIVE.

PROJECT NO. 15BPR.119.3

CATAWBA COUNTY

BRIDGE NO. 170091

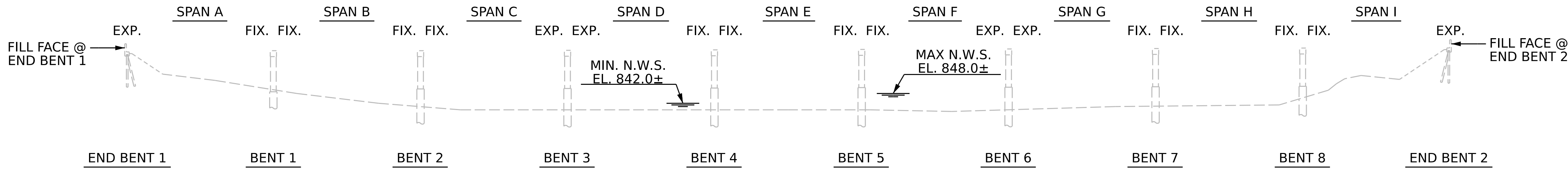
SHEET 5 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

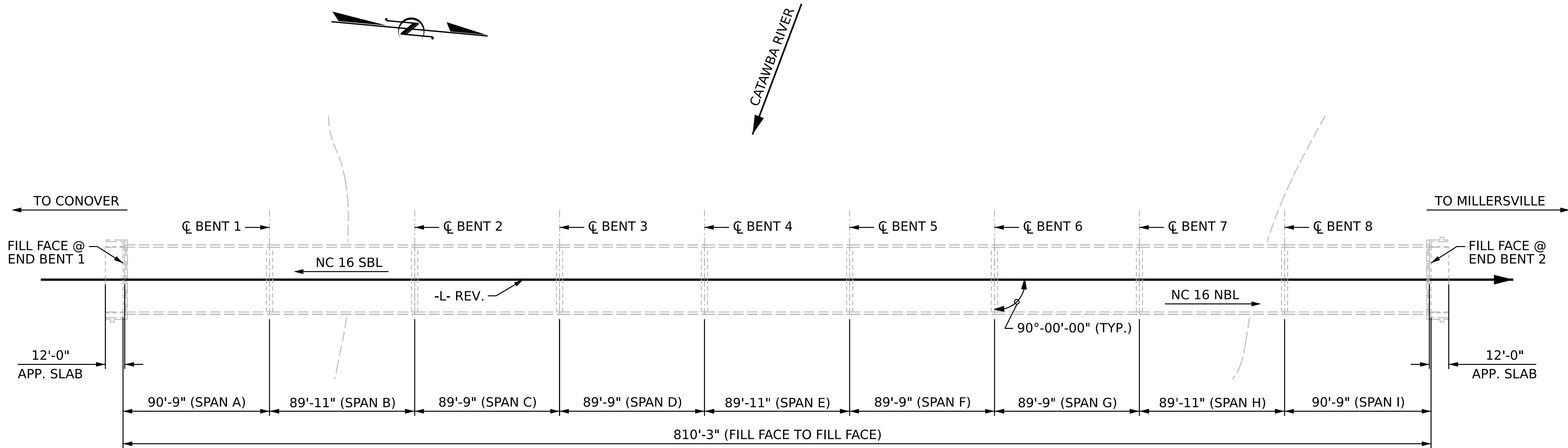
ISOLATED DANGER MARKS  
&  
TYPICAL WORK  
BOAT ACCESS

DRAWN BY : HRS DATE : 8/24  
CHECKED BY : T. SHERRIL DATE : 1/25  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 1/25

REVISIONS						SHEET NO. BSP-05
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 78
2			4			



SECTION ALONG CL BRIDGE



PLAN

NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 02/14/2023.

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

SCOPE OF WORK

PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.

OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PC).

REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.

GROOVE PC BRIDGE DECK.

REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.

PROPERLY PREPARE SPALLED AREAS IN EXISTING END BENT AND BENTS AND PERFORM SHOTCRETE AND CONCRETE REPAIRS.

APPLY BARRIER RAIL AND SUBSTRUCTURE SILANE TREATMENT.

REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

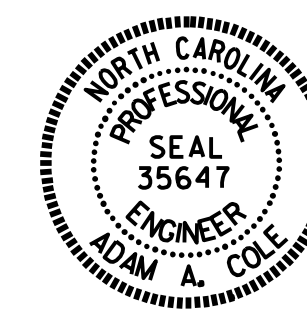
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**  
FOR BRIDGE ON NC-16  
OVER CATAWBA RIVER

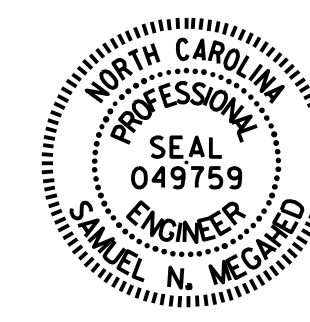
I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED  
ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER

DATE



DocuSigned by:  
02EE838FA8074C5...  
06/30/2025



DocuSigned by:  
Samuel Megahed  
02EE556A4B74ED...  
06/30/2025

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 78
2			4			





BRIDGE 170139 LOCATION SKETCH

BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35° 49' 21.2"	-81° 11' 25.48"

170139 BILL OF MATERIAL								
GROOVING BRIDGE FLOORS	CLASS II SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	FOAM JOINT SEALS FOR PRESERVATION	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATIVE)	POLYMER CONCRETE MATERIALS	EPOXY COATING	EPOXY COATING CONCRETE GIRDER ENDS
SQ.FT.	SQ.YDS.	CU.FT.	CU.FT.	LN.FT.	CU.YDS.	CU.YDS.	SQ.FT.	SQ.FT.
30571.5	17.6	0.0	4.6	160.0	129.2	129.2	1875.4	897.0
SILANE BARRIER RAIL TREATMENT	SILANE SUBSTRUCTURE TREATMENT	SURFACE PREPARATION FOR CONCRETE BARRIER RAIL	SURFACE PREPARATION FOR CONCRETE SUBSTRUCTURES	CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	PLACING & FINISHING POLYMER CONCRETE OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	
SQ.FT.	SQ.FT.	SQ.FT.	SQ.FT.	SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	
6413.6	3745.0	6413.6	3745.0	17.6	3694.7	3694.7	3694.7	

NOTES

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

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

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

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

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

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE CONTRACT DOCUMENTS.

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

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

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

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION. SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE BARRIER RAIL TREATMENT, SEE SPECIAL PROVISIONS

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

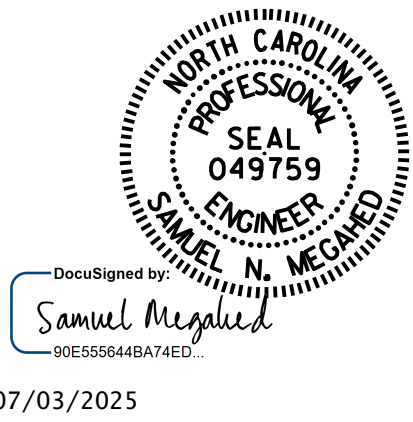
ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

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

CLASS III SURFACE PREPARATION (SQUARE YARDS)

EPOXY RESIN INJECTION (LINEAR FEET)

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**



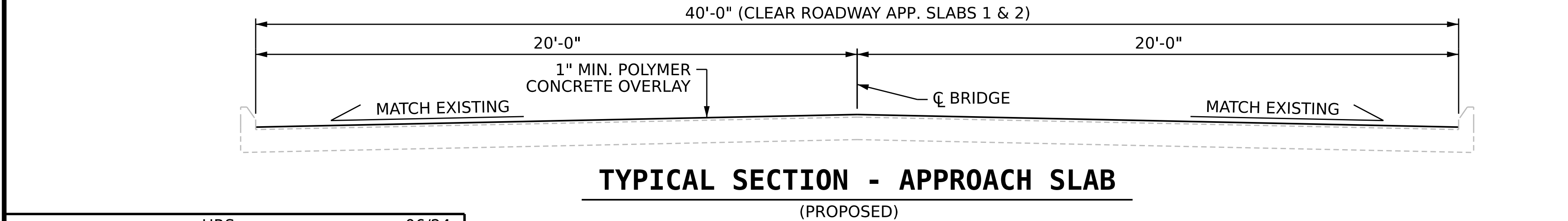
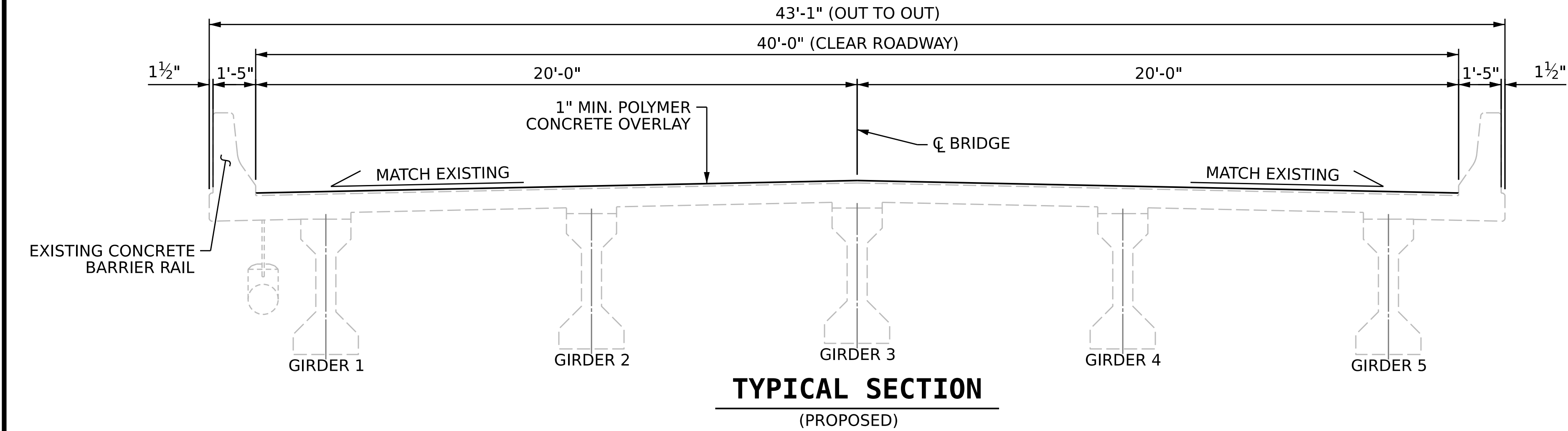
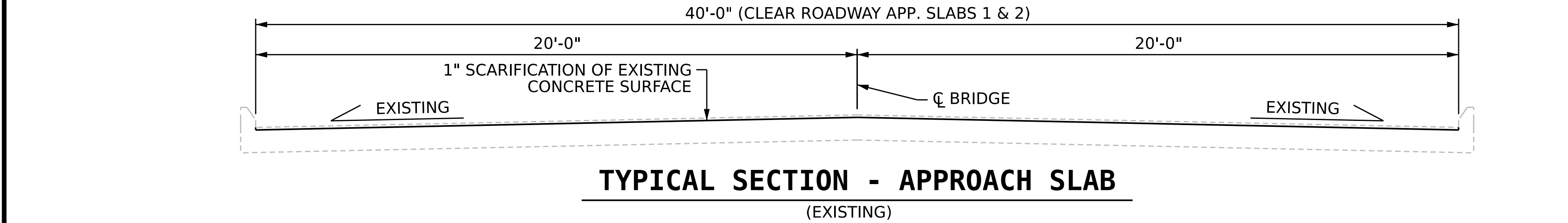
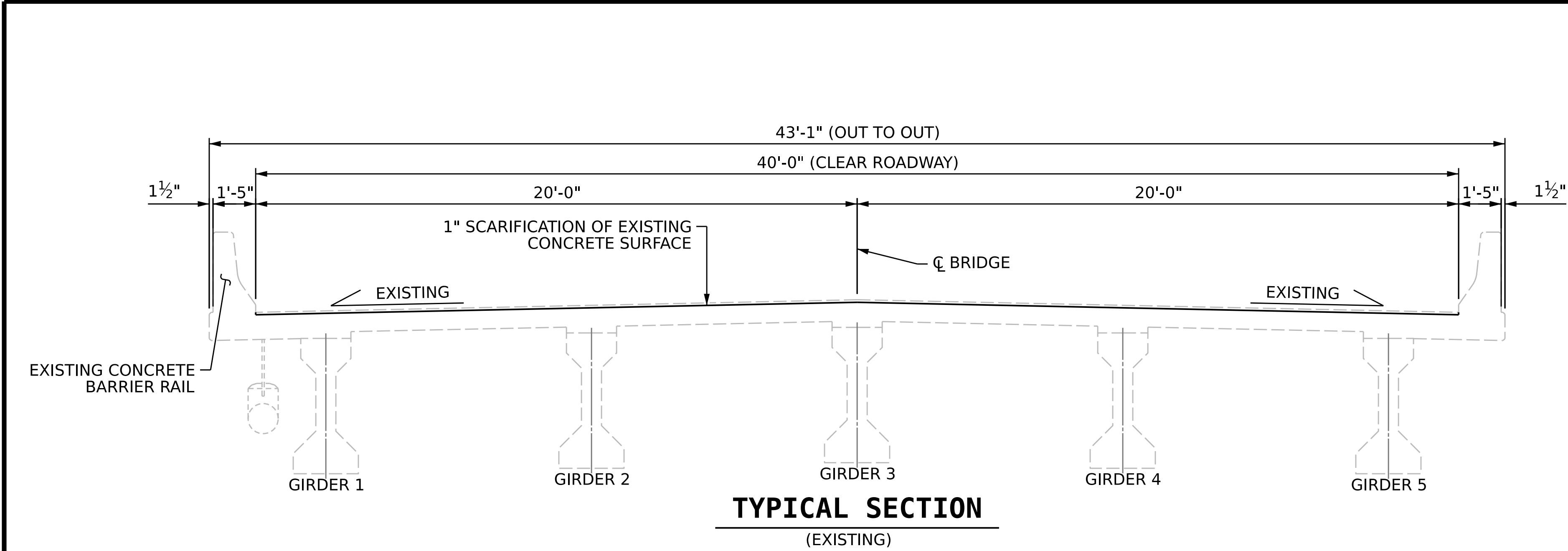
07/03/2025

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-02	
LOCATION SKETCH						TOTAL SHEETS 78	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

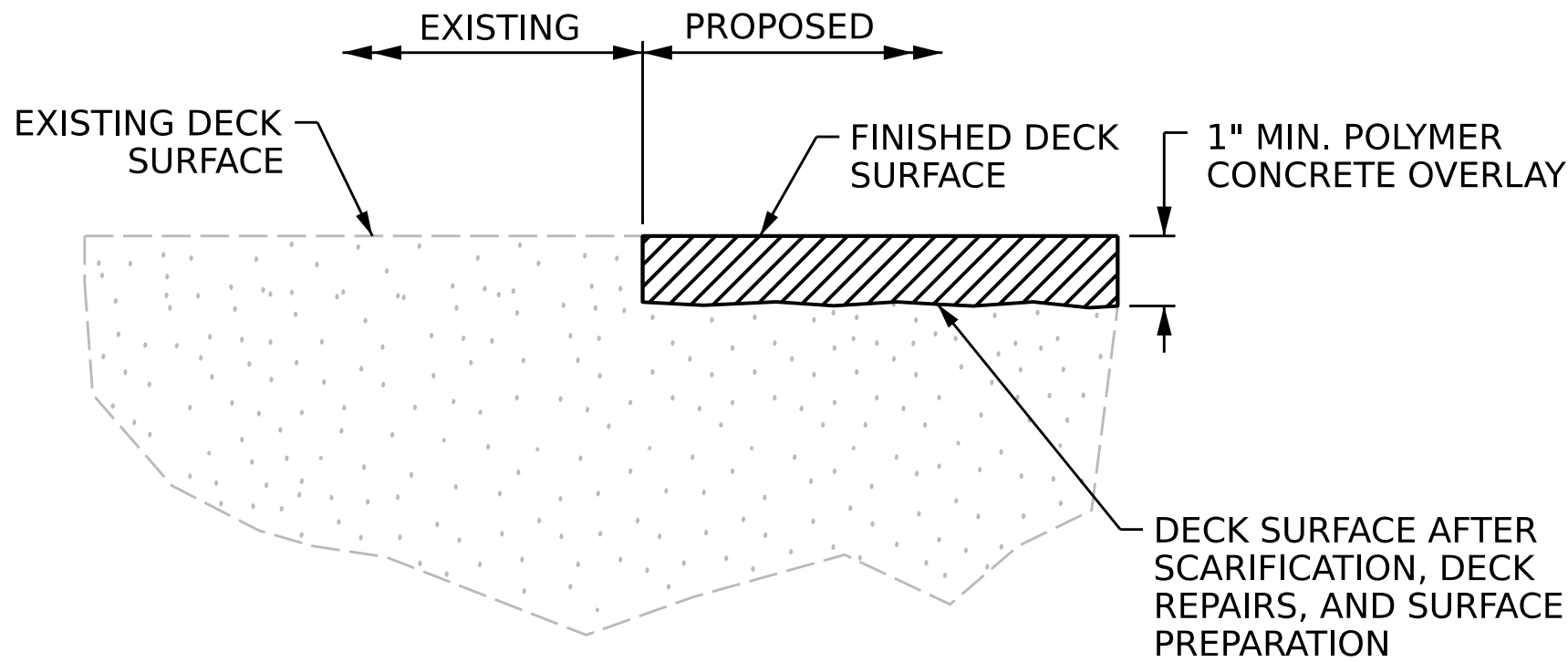
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

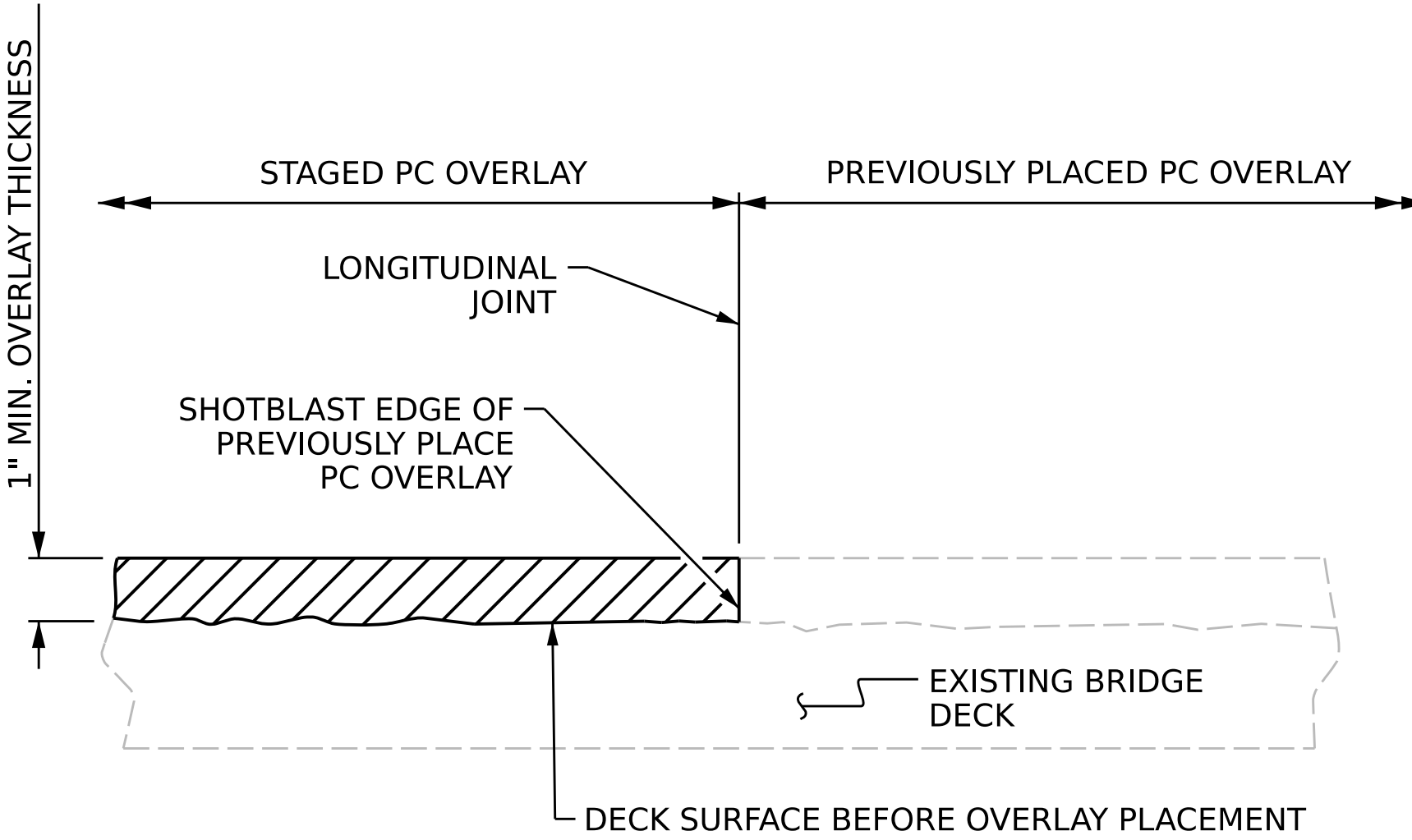




NOTES  
SEE CONTRACT DOCUMENTS FOR LANE WIDTHS,  
SEQUENCING AND OTHER TRAFFIC CONTROL  
MEASURES FOR STAGING OF OVERLAY SURFACE  
PREPARATION AND POLYESTER POLYMER  
CONCRETE PLACEMENT.



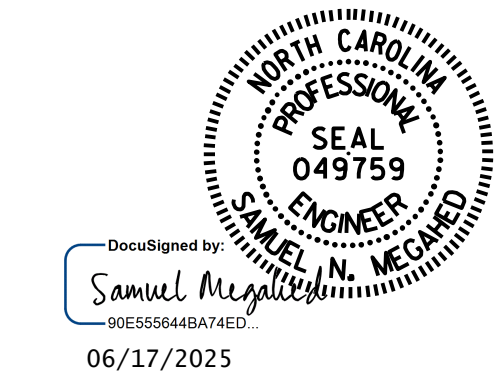
**DETAIL FOR  
POLYMER CONCRETE (PC) OVERLAY**  
FINISHED SURFACE ELEVATION SHALL MATCH EXISTING  
CONCRETE SURFACE ELEVATION. ACTUAL THICKNESS OF  
PC OVERLAY MAY VARY.



**STAGED PC OVERLAY JOINT**  
(AS NEEDED)

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

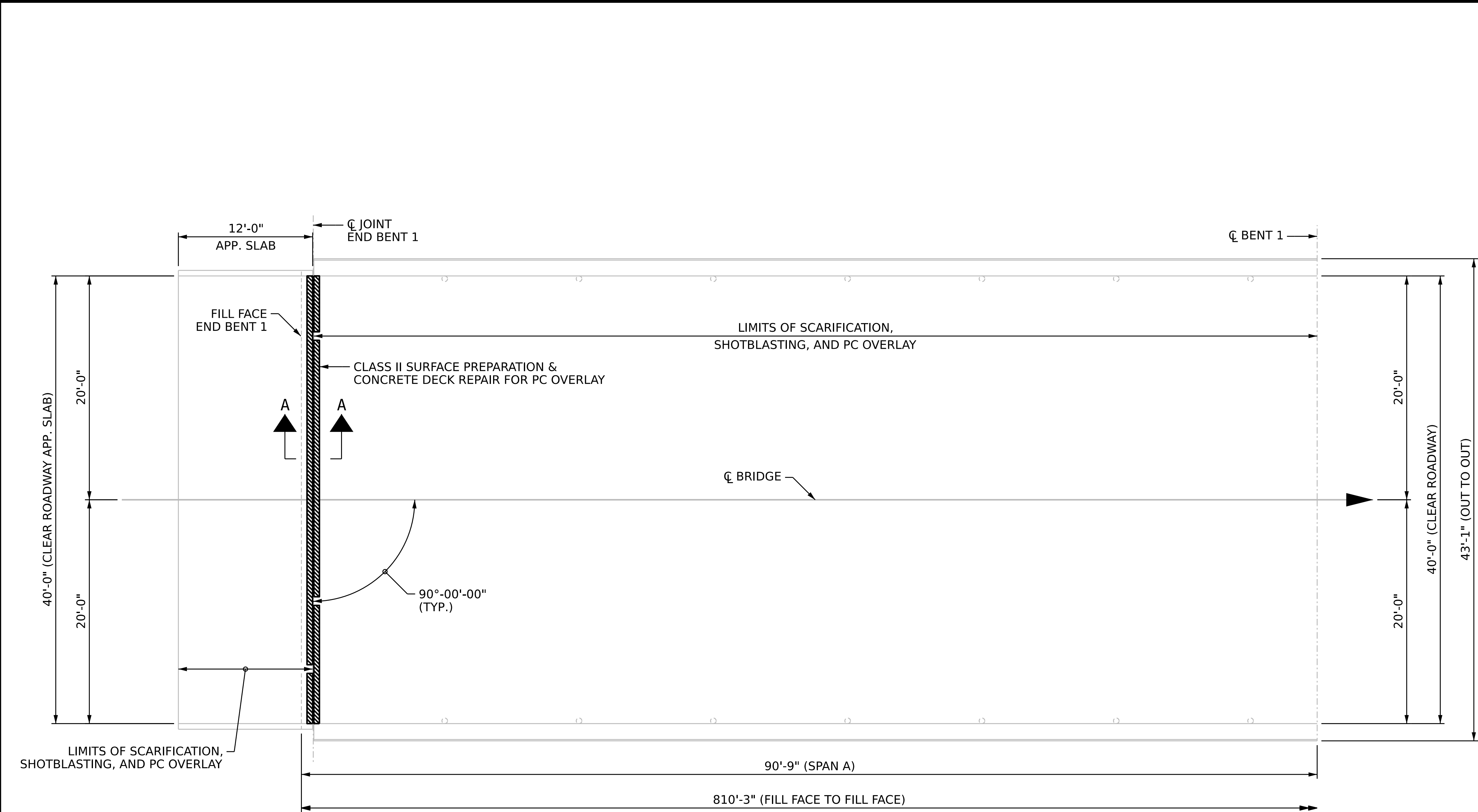
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-03	
TYPICAL SECTION & PC OVERLAY						TOTAL SHEETS 78	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				



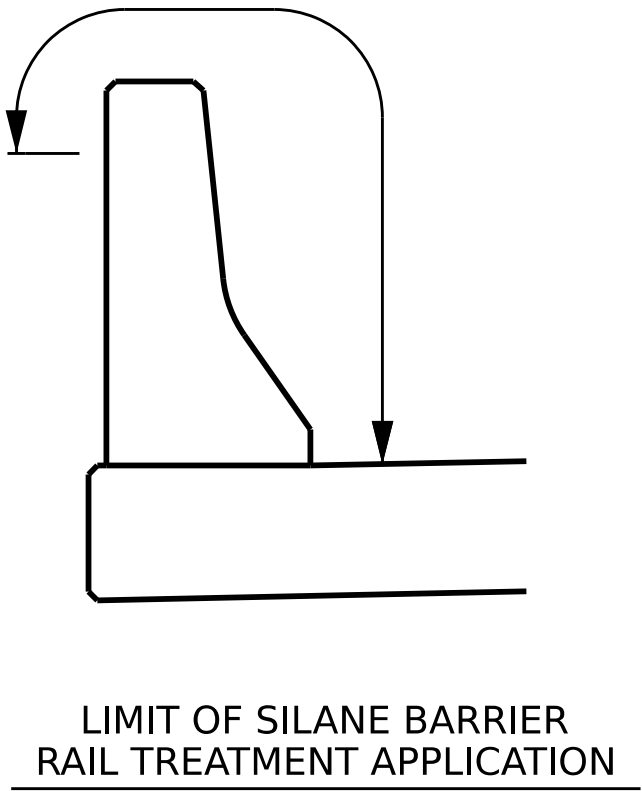
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHEID DATE : 10/24





APPROACH SLAB & SPAN A



- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- CLASS II SURFACE PREP

AS-BUILT REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN A		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	398.1 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	398.1 SQ.YDS.	
CLASS II SURFACE PREPARATION	2.2 SQ.YDS.	
CONCRETE DECK REPAIR FOR PC OVERLAY	2.2 SQ.YDS.	
POLYMER CONCRETE MATERIALS	13.9 CU.YDS.	
PLACING & FINISHING PC OVERLAY	398.1 SQ.YDS.	
GROOVING BRIDGE FLOOR	3297.2 SQ.FT.	
SURFACE PREPARATION FOR CONCRETE BARRIER	713.2 SQ.FT.	
SILANE BARRIER RAIL TREATMENT	713.2 SQ.FT.	
APPROACH SLAB		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	53.3 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	53.3 SQ.YDS.	
POLYMER CONCRETE MATERIALS	1.9 CU.YDS.	
PLACING & FINISHING PC OVERLAY	53.3 SQ.YDS.	
GROOVING BRIDGE FLOOR	399.8 SQ.FT.	
CLASS II SURFACE PREPARATION	2.2 SQ.YDS.	
CONCRETE DECK REPAIR FOR PC OVERLAY	2.2 SQ.YDS.	

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

FOR SECTION A-A SEE JOINT DETAIL SHEET.

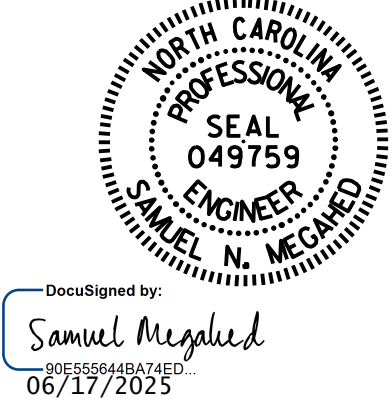
TOP OF DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO THE SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SURFACE PREPARATION FOR CONCRETE BARRIER AND SILANE BARRIER RAIL TREATMENT, SEE SILANE BARRIER RAIL TREATMENT SPECIAL PROVISION.

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

SHEET 1 OF 9



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
DECK SURFACE REPAIR SPAN A & APPROACH SLAB						
REVISIONS						SHEET NO. S2-04
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS  78
1			3			
2			4			

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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FINAL UNLESS ALL  
SIGNATURES COMPLETED



AS-BUILT REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN B		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	399.3 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	399.3 SQ.YDS.	
POLYMER CONCRETE MATERIALS	14.0 CU.YDS.	
PLACING & FINISHING PC OVERLAY	399.3 SQ.YDS.	
GROOVING BRIDGE FLOOR	3326.9 SQ.FT.	
SURFACE PREPARATION FOR CONCRETE BARRIER	710.4 SQ.FT	
SILANE BARRIER RAIL TREATMENT	710.4 SQ.FT.	

NOTES

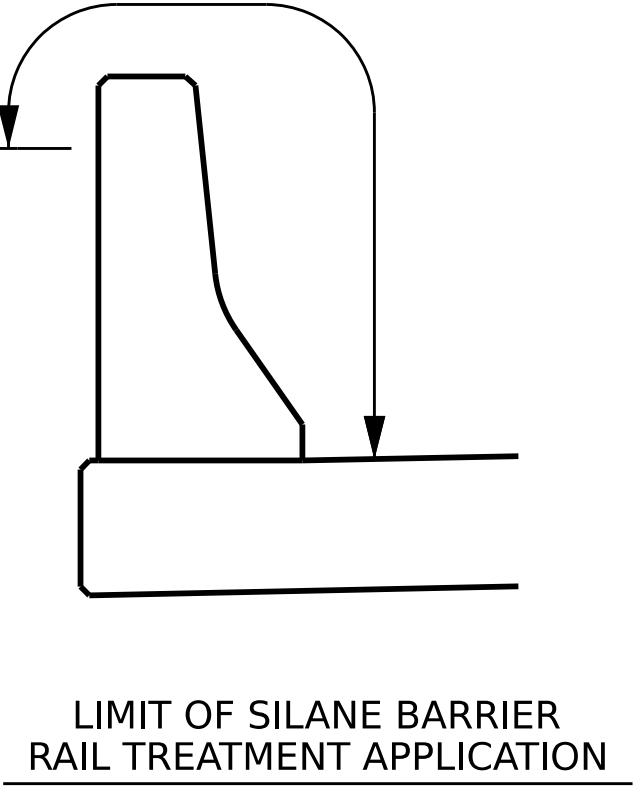
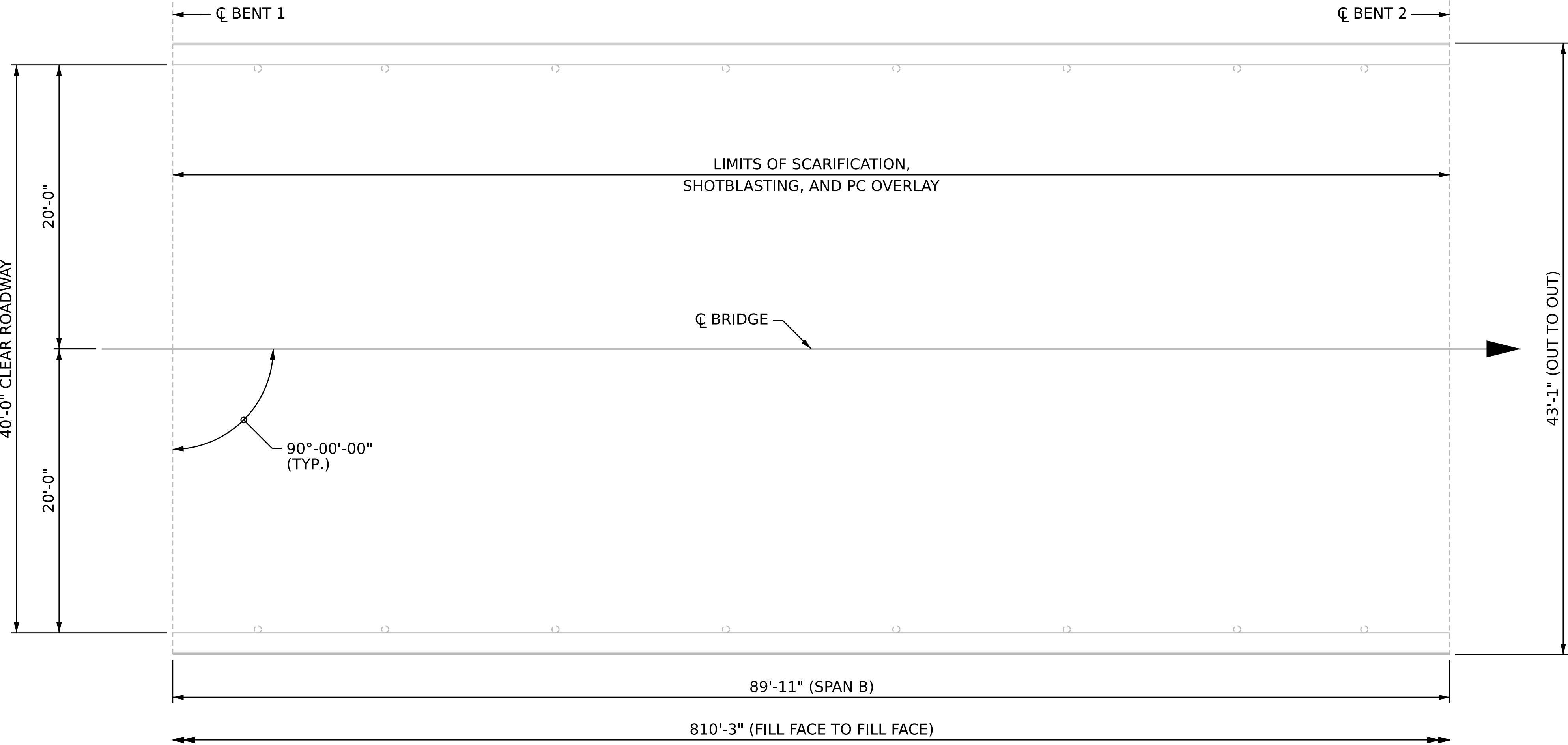
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

TOP OF DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO THE SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SURFACE PREPARATION FOR CONCRETE BARRIER AND SILANE BARRIER RAIL TREATMENT, SEE SILANE BARRIER RAIL TREATMENT SPECIAL PROVISION.



- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- CLASS II SURFACE PREP

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

SHEET 2 OF 9



DocuSigned by:  
Samuel Megahed  
90E556644BA74ED  
06/17/2025

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-05
DECK SURFACE REPAIR SPAN B						TOTAL SHEETS 78
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24



AS-BUILT REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN C		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	398.5 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	398.5 SQ.YDS.	
CLASS II SURFACE PREPARATION	2.2 SQ.YDS.	
CONCRETE DECK REPAIR FOR PC OVERLAY	2.2 SQ.YDS.	
POLYMER CONCRETE MATERIALS	13.9 CU.YDS.	
PLACING & FINISHING PC OVERLAY	398.5 SQ.YDS.	
GROOVING BRIDGE FLOOR	3299.2 SQ.FT.	
SURFACE PREPARATION FOR CONCRETE BARRIER	714.0 SQ.FT.	
SILANE BARRIER RAIL TREATMENT	714.0 SQ.FT.	

**NOTES**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

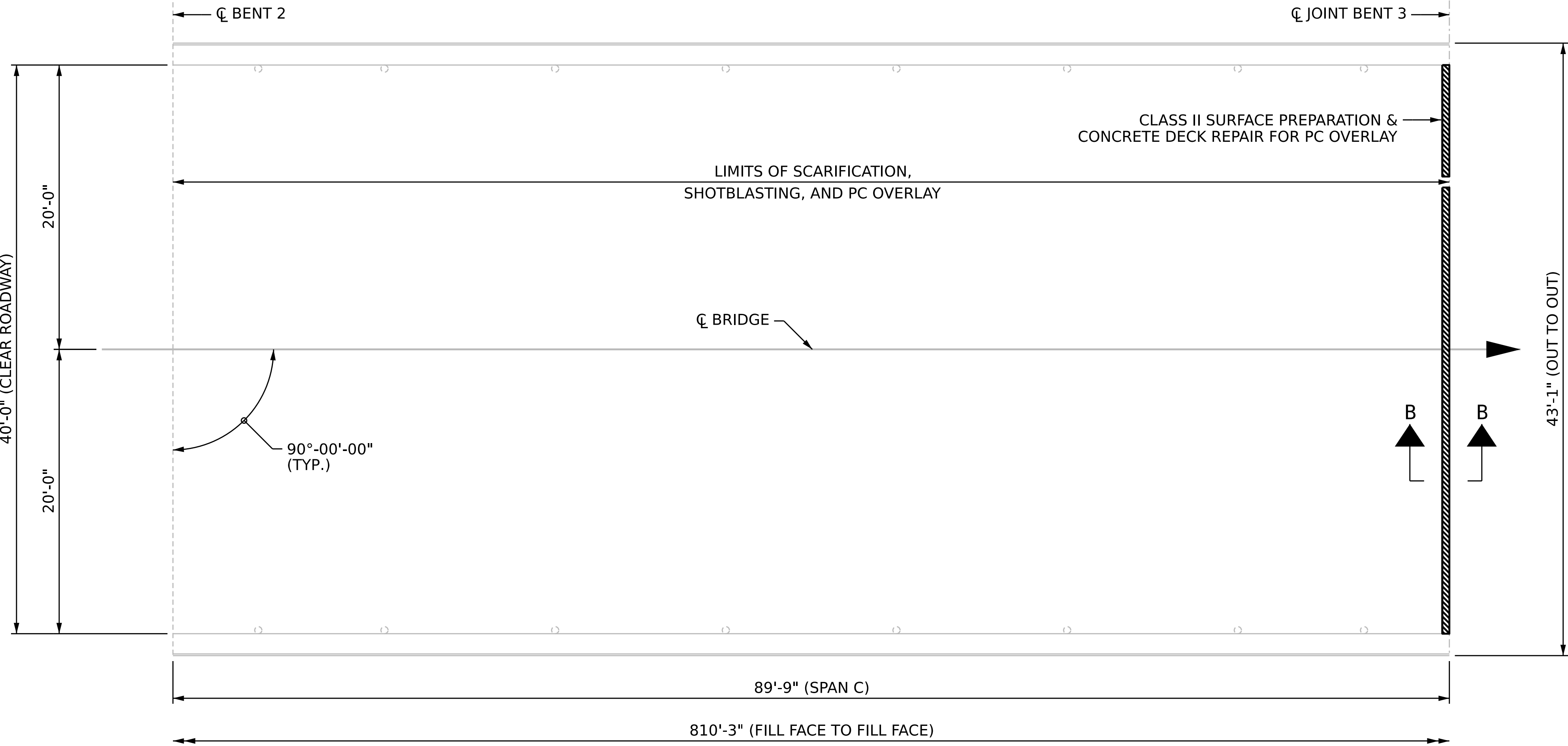
FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

FOR SECTION B-B SEE JOINT DETAIL SHEET.

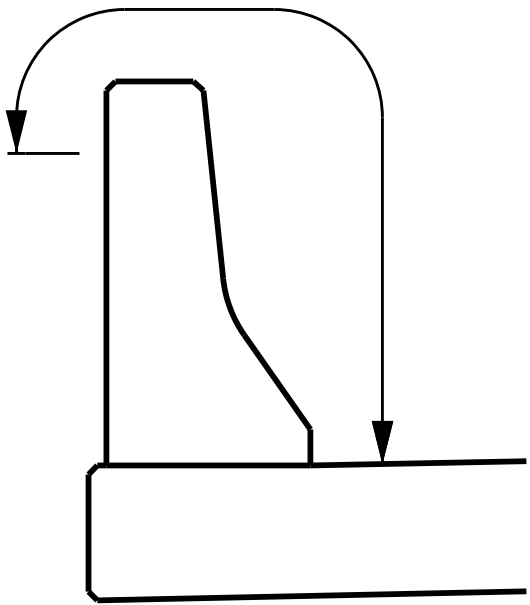
TOP OF DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO THE SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SURFACE PREPARATION FOR CONCRETE BARRIER AND SILANE BARRIER RAIL TREATMENT, SEE SILANE BARRIER RAIL TREATMENT SPECIAL PROVISION.



**SPAN C**



**LIMIT OF SILANE BARRIER RAIL TREATMENT APPLICATION**

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- CLASS II SURFACE PREP

PROJECT NO. **15BPR.119**

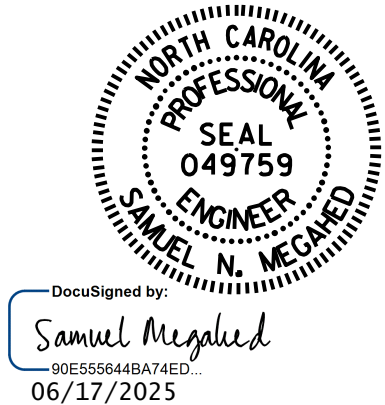
**CATAWBA** COUNTY

BRIDGE NO. **170139**

SHEET 3 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**DECK SURFACE REPAIR  
SPAN C**



DRAWN BY : **HRS** DATE : **06/24**  
CHECKED BY : **A. SORSENGINH** DATE : **06/24**  
DESIGN ENGINEER OF RECORD: **S. MEGAHED** DATE : **10/24**

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FINAL UNLESS ALL  
SIGNATURES COMPLETED

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

SHEET NO.  
**S2-06**  
TOTAL SHEETS  
**78**







AS-BUILT REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN E		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	399.3 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	399.3 SQ.YDS.	
POLYMER CONCRETE MATERIALS	14.0 CU.YDS.	
PLACING & FINISHING PC OVERLAY	399.3 SQ.YDS.	
GROOVING BRIDGE FLOOR	3326.9 SQ.FT.	
SURFACE PREPARATION FOR CONCRETE BARRIER	710.4 SQ.FT.	
SILANE BARRIER RAIL TREATMENT	710.4 SQ.FT.	

NOTES

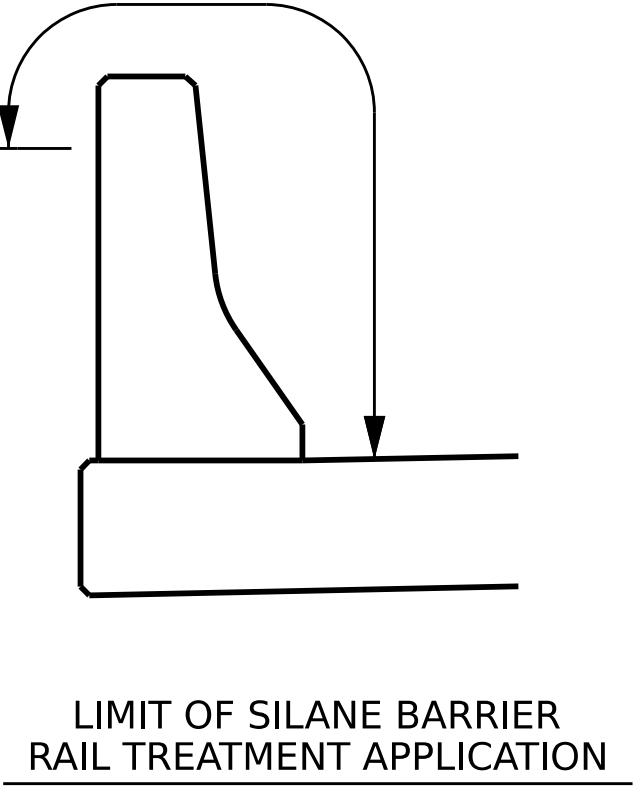
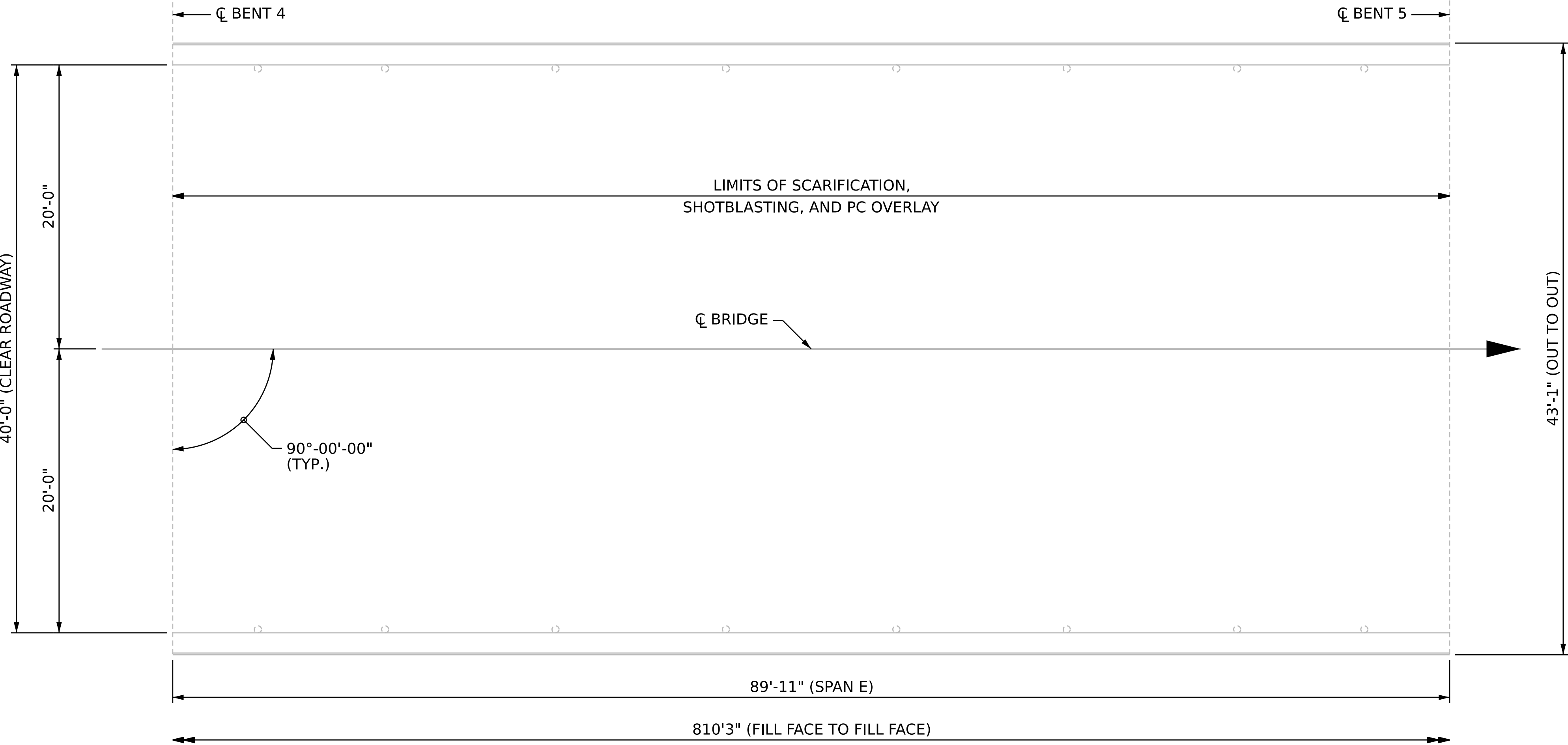
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

TOP OF DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO THE SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

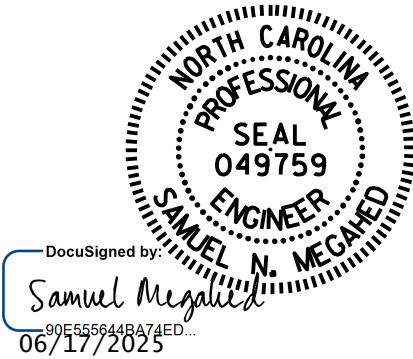
FOR SURFACE PREPARATION FOR CONCRETE BARRIER AND SILANE BARRIER RAIL TREATMENT, SEE SILANE BARRIER RAIL TREATMENT SPECIAL PROVISION.



- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- CLASS II SURFACE PREP

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

SHEET 5 OF 9



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-08
DECK SURFACE REPAIR SPAN E						TOTAL SHEETS 78
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : **HRS** DATE : **06/24**  
CHECKED BY : **A. SORSENGINH** DATE : **06/24**  
DESIGN ENGINEER OF RECORD: **S. MEGAHED** DATE : **10/24**

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



AS-BUILT REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN F		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	398.5 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	398.5 SQ.YDS.	
CLASS II SURFACE PREPARATION	2.2 SQ.YDS.	
CONCRETE DECK REPAIR FOR PC OVERLAY	2.2 SQ.YDS.	
POLYMER CONCRETE MATERIALS	13.9 CU.YDS.	
PLACING & FINISHING PC OVERLAY	398.5 SQ.YDS.	
GROOVING BRIDGE FLOOR	3299.2 SQ.FT.	
SURFACE PREPARATION FOR CONCRETE BARRIER	714.0 SQ.FT.	
SILANE BARRIER RAIL TREATMENT	714.0 SQ.FT.	

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

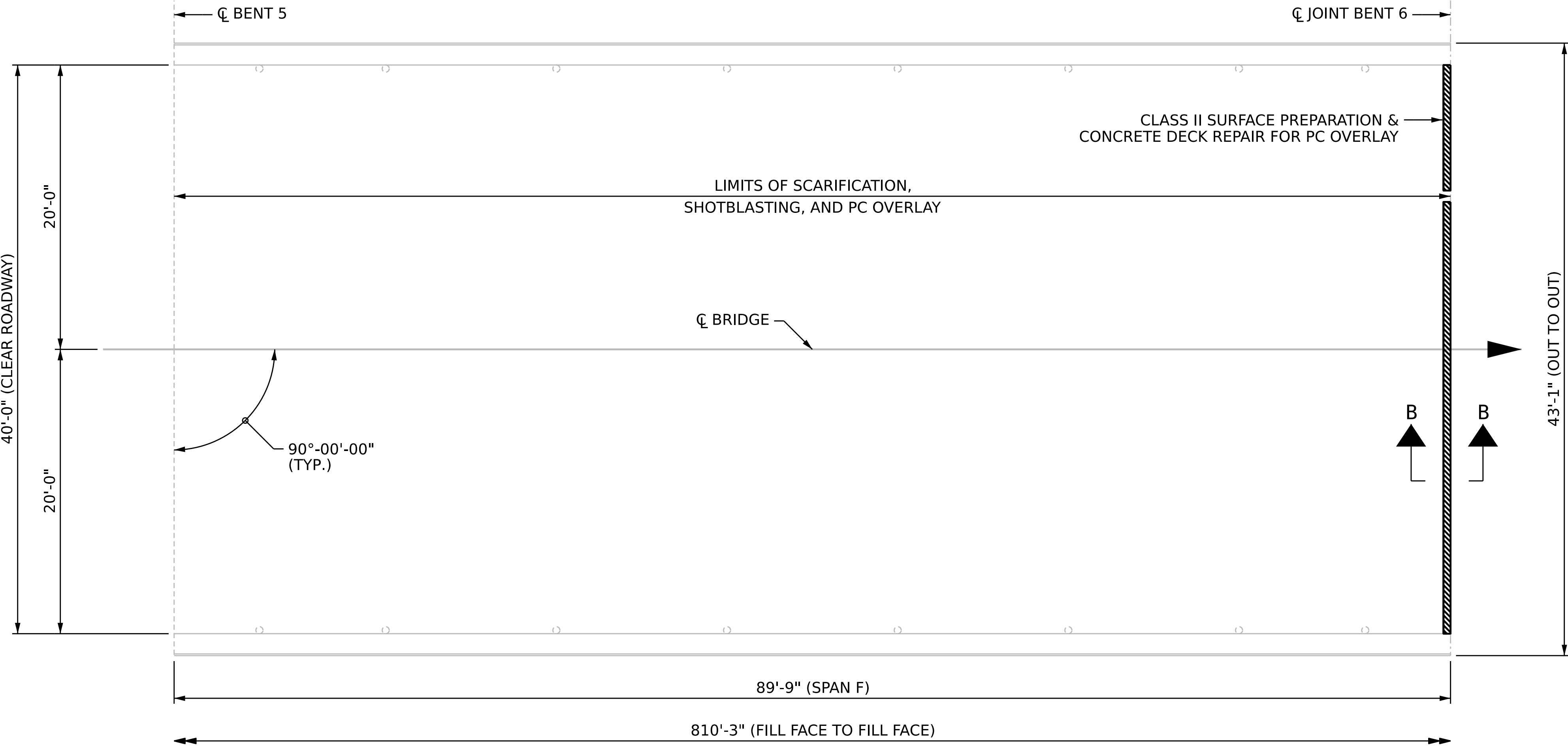
FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

FOR SECTION B-B SEE JOINT DETAIL SHEET.

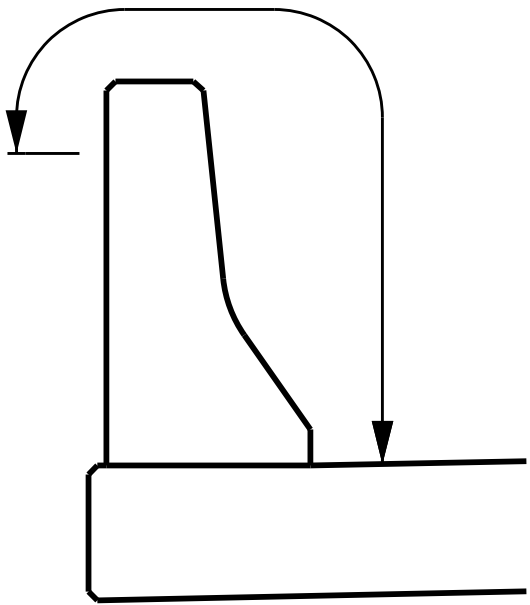
TOP OF DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO THE SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SURFACE PREPARATION FOR CONCRETE BARRIER AND SILANE BARRIER RAIL TREATMENT, SEE SILANE BARRIER RAIL TREATMENT SPECIAL PROVISION.



SPAN F



- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- CLASS II SURFACE PREP

PROJECT NO. 15BPR.119

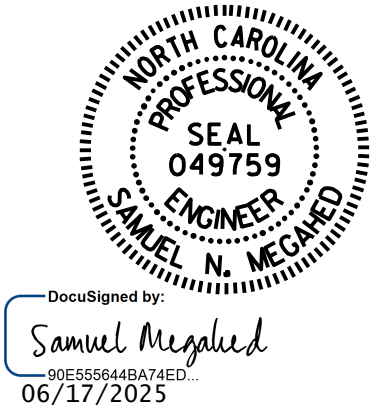
CATAWBA COUNTY

BRIDGE NO. 170139

SHEET 6 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DECK SURFACE REPAIR  
SPAN F



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FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-09
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 78
2			4			

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24



AS-BUILT REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN G		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	398.5 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	398.5 SQ.YDS.	
CLASS II SURFACE PREPARATION	2.2 SQ.YDS.	
CONCRETE DECK REPAIR FOR PC OVERLAY	2.2 SQ.YDS.	
POLYMER CONCRETE MATERIALS	13.9 CU.YDS.	
PLACING & FINISHING PC OVERLAY	398.5 SQ.YDS.	
GROOVING BRIDGE FLOOR	3299.2 SQ.FT.	
SURFACE PREPARATION FOR CONCRETE BARRIER	714.0 SQ.FT.	
SILANE BARRIER RAIL TREATMENT	714.0 SQ.FT.	

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

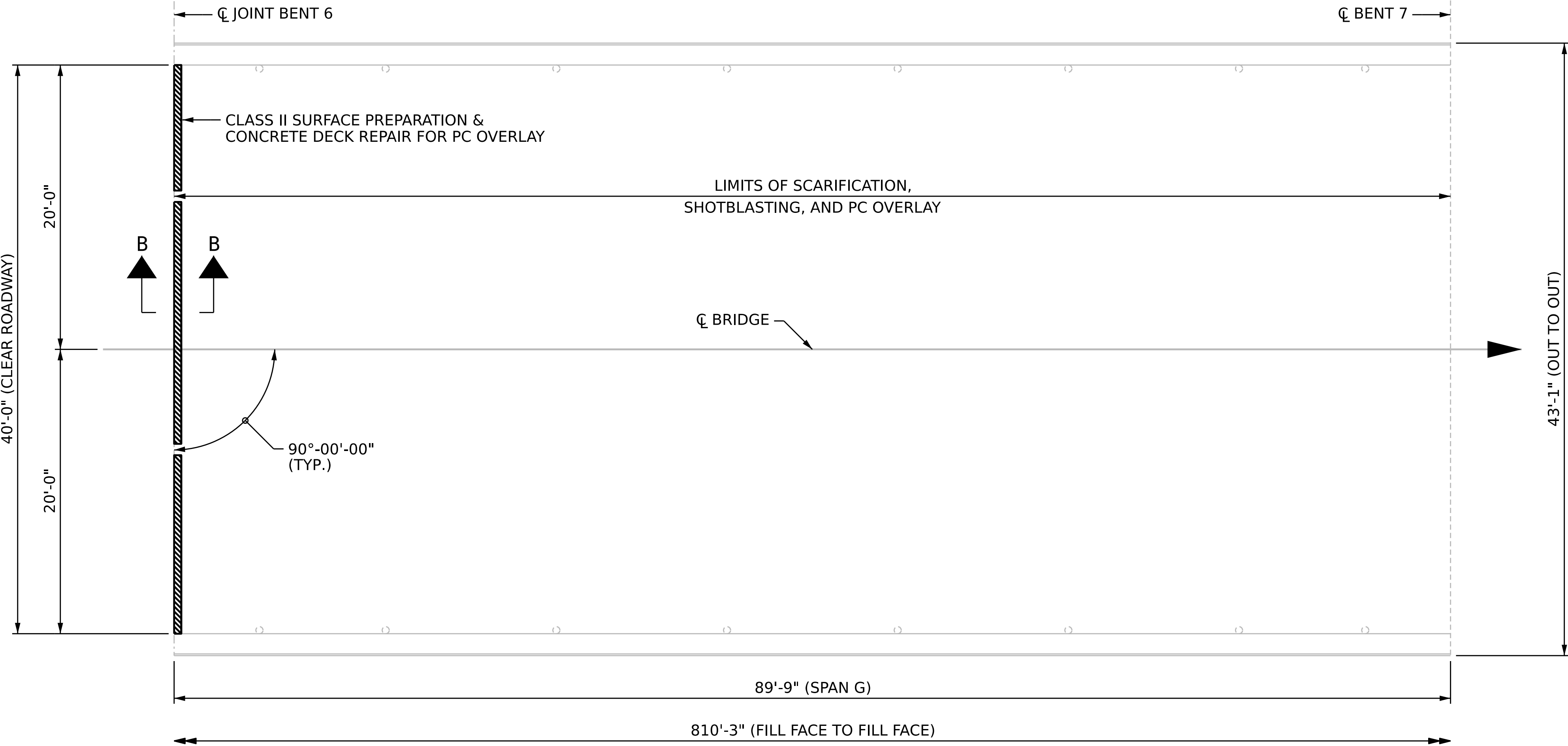
FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

FOR SECTION B-B SEE JOINT DETAIL SHEET.

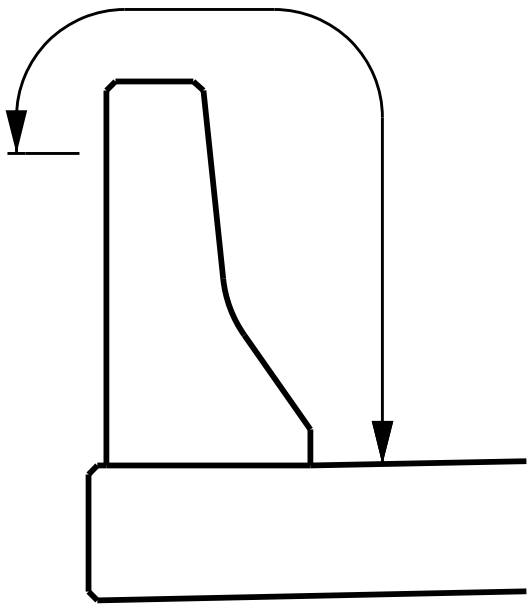
TOP OF DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO THE SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

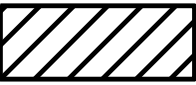
FOR SURFACE PREPARATION FOR CONCRETE BARRIER AND SILANE BARRIER RAIL TREATMENT, SEE SILANE BARRIER RAIL TREATMENT SPECIAL PROVISION.



SPAN G



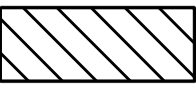
LIMIT OF SILANE BARRIER RAIL TREATMENT APPLICATION



SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA



CLASS II SURFACE PREP

PROJECT NO. **15BPR.119**

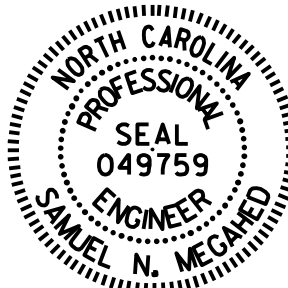
**CATAWBA** COUNTY

BRIDGE NO. **170139**

SHEET 7 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DECK SURFACE REPAIR  
SPAN G



DocuSigned by:  
Samuel Megahed  
06/17/2025

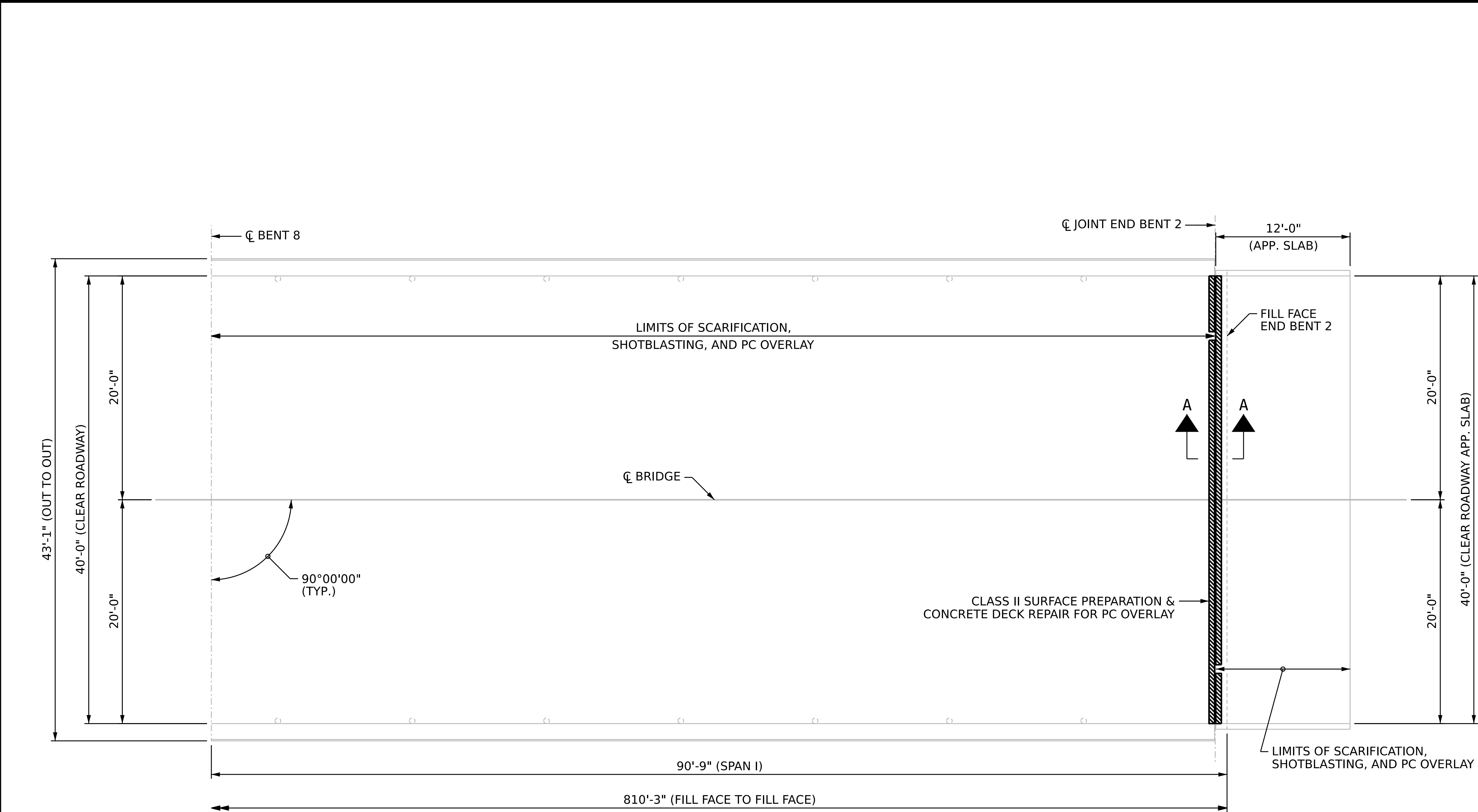
DRAWN BY : **HRS** DATE : **06/24**  
CHECKED BY : **A. SORSENGINH** DATE : **06/24**  
DESIGN ENGINEER OF RECORD: **S. MEGAHED** DATE : **10/24**

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

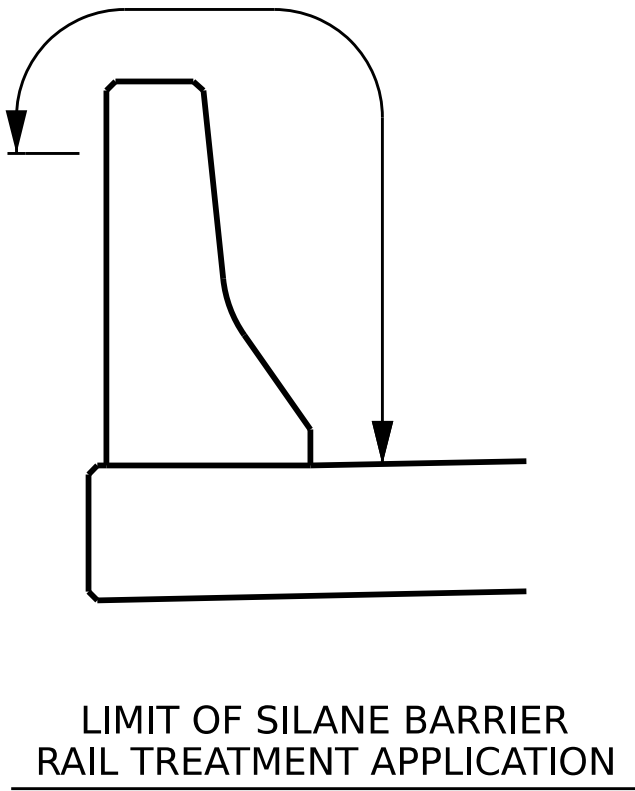
REVISIONS						SHEET NO. <b>S2-10</b>
NO.	BY	DATE	NO.	BY	DATE	
<b>1</b>			<b>3</b>			TOTAL SHEETS <b>78</b>
<b>2</b>			<b>4</b>			







SPAN I & APPROACH SLAB



- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- CLASS II SURFACE PREP

AS-BUILT REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN I		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	398.1 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	398.1 SQ.YDS.	
CLASS II SURFACE PREPARATION	2.2 SQ.YDS.	
CONCRETE DECK REPAIR FOR PC OVERLAY	2.2 SQ.YDS.	
POLYMER CONCRETE MATERIALS	13.9 CU.YDS.	
PLACING & FINISHING PC OVERLAY	398.1 SQ.YDS.	
GROOVING BRIDGE FLOOR	3297.2 SQ.FT.	
SURFACE PREPARATION FOR CONCRETE BARRIER	713.2 SQ.FT.	
SILANE BARRIER RAIL TREATMENT	713.2 SQ.FT.	
APPROACH SLAB		
	ESTIMATE	ACTUAL
SCARIFY TOP OF DECK	53.3 SQ.YDS.	
SHOTBLASTING BRIDGE DECK	53.3 SQ.YDS.	
POLYMER CONCRETE MATERIALS	1.9 CU.YDS.	
PLACING & FINISHING PC OVERLAY	53.3 SQ.YDS.	
GROOVING BRIDGE FLOOR	399.8 SQ.FT.	
CLASS II SURFACE PREPARATION	2.2 SQ.YDS.	
CONCRETE DECK REPAIR FOR PC OVERLAY	2.2 SQ.YDS.	

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

FOR SECTION A-A SEE JOINT DETAIL SHEET.

TOP OF DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO THE SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

FOR SURFACE PREPARATION FOR CONCRETE BARRIER AND SILANE BARRIER RAIL TREATMENT, SEE SILANE BARRIER RAIL TREATMENT SPECIAL PROVISION.

PROJECT NO. 15BPR.119

CATAWBA COUNTY

BRIDGE NO. 170139

SHEET 9 OF 9



DocuSigned by:  
Samuel Megahed  
06/17/2025 17:42:02

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
DECK SURFACE REPAIR SPAN I & APPROACH SLAB						
REVISIONS						SHEET NO. S2-12
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS  78
1			3			
2			4			

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : HRS DATE : 06/24

CHECKED BY : A. SORSENGINH DATE : 06/24

DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24



NOTES

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY OR SEALANT WORK IS COMPLETE.

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN ¼", NOTIFY THE ENGINEER.

DURING THE JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

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

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

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

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

THE INSTALLED FOAM JOINTS SHALL BE WATERTIGHT.

THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

FOR CLASS II SURFACE PREPARATION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

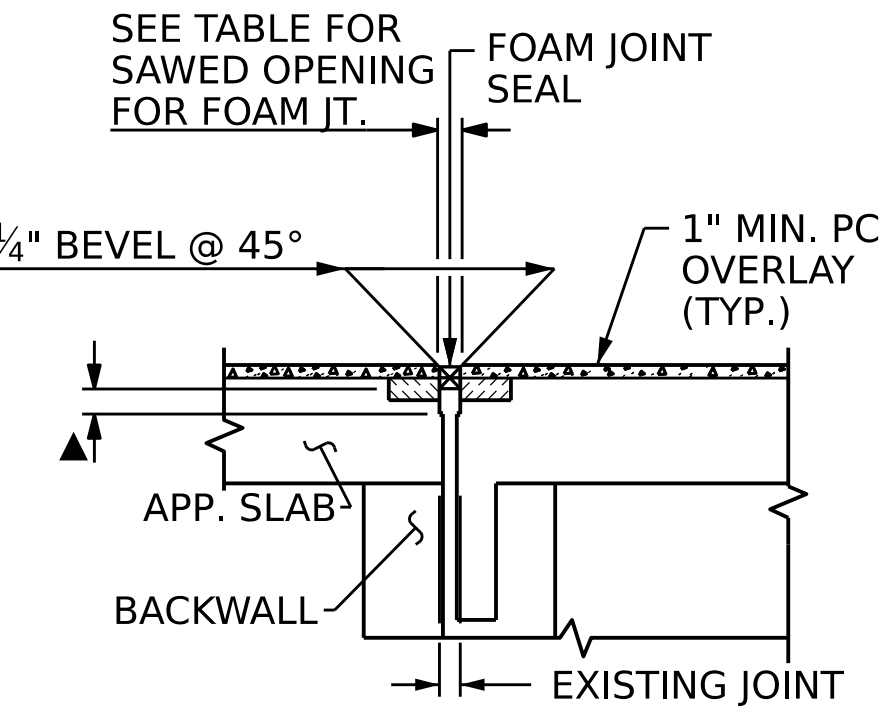
JOINT DETAILS

REVISIONS						SHEET NO. S2-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 78
2			4			

DOCUMENT NOT CONSIDERED  
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SIGNATURES COMPLETED



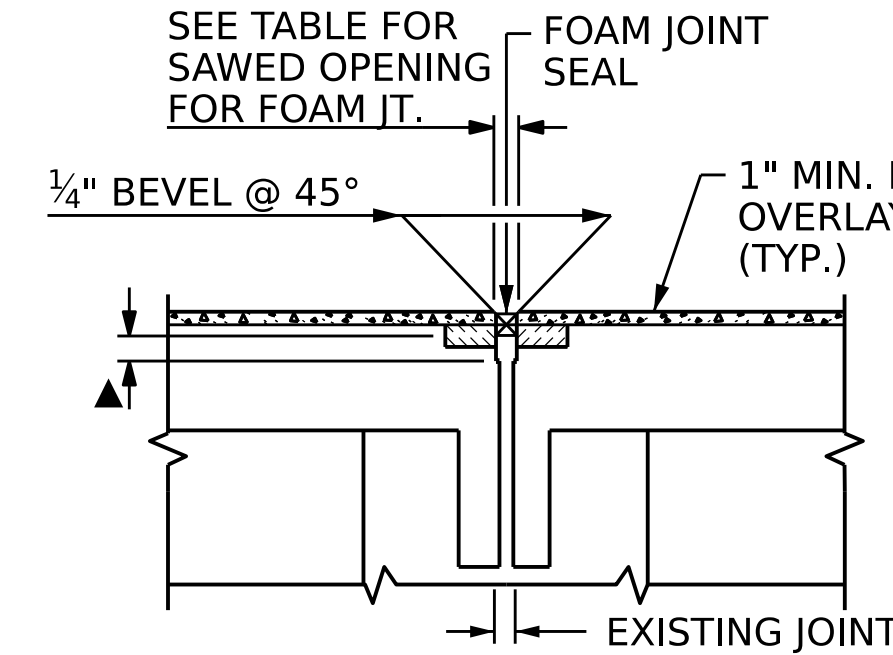
DocuSigned by:  
Samuel Megahed  
06/17/2025



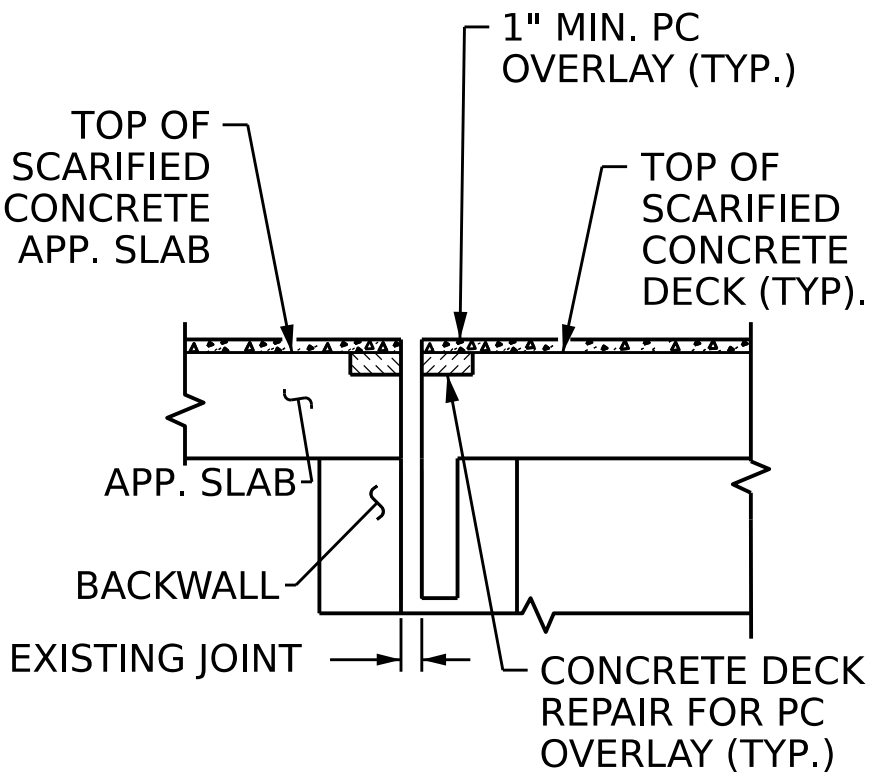
PROPOSED FOAM JOINT SEAL

PROPOSED FOAM JOINT SEAL

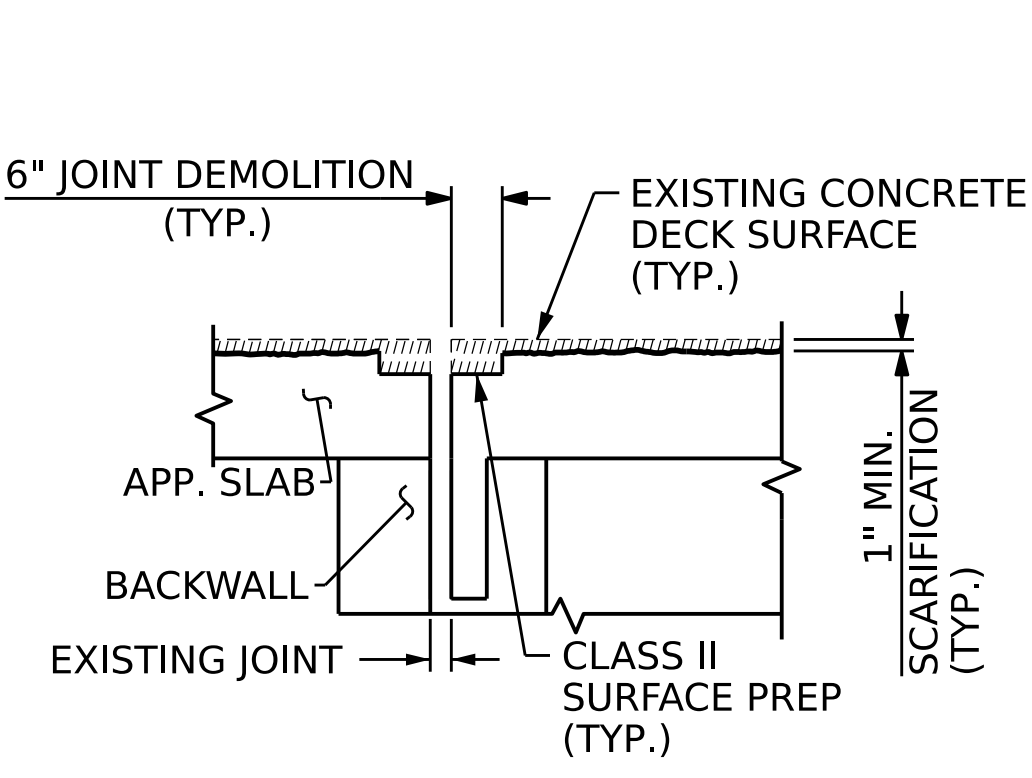
▲ SAW CUT SHALL BE 1" BELOW THE BOTTOM OF FOAM JOINT SEAL. SEE MANUFACTURER RECOMMENDATIONS.



PROPOSED FOAM JOINT SEAL



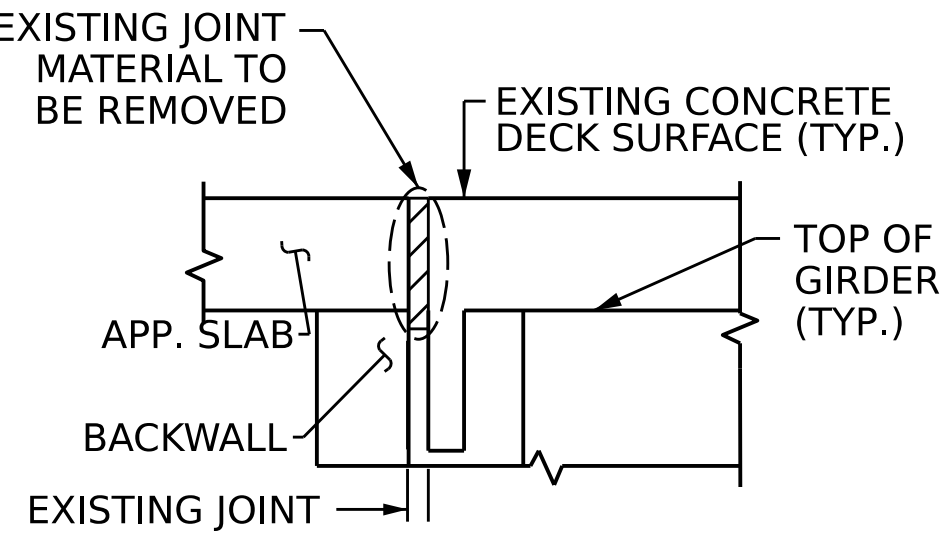
PROPOSED JOINT  
PRE-SAWED & PC OVERLAY



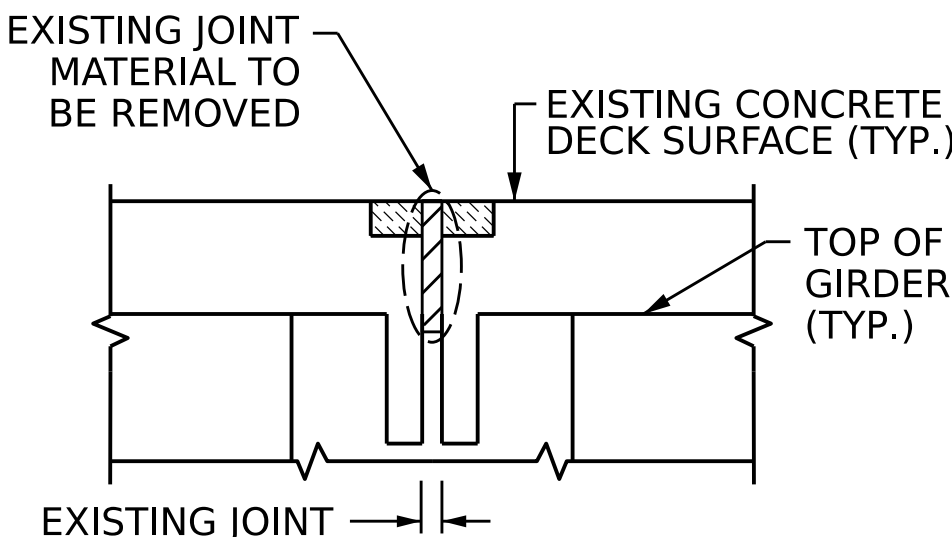
MINIMUM EXISTING JOINT  
DEMOLITION & SCARIFICATION

JOINT INSTALLATION SEQUENCE AT END BENTS

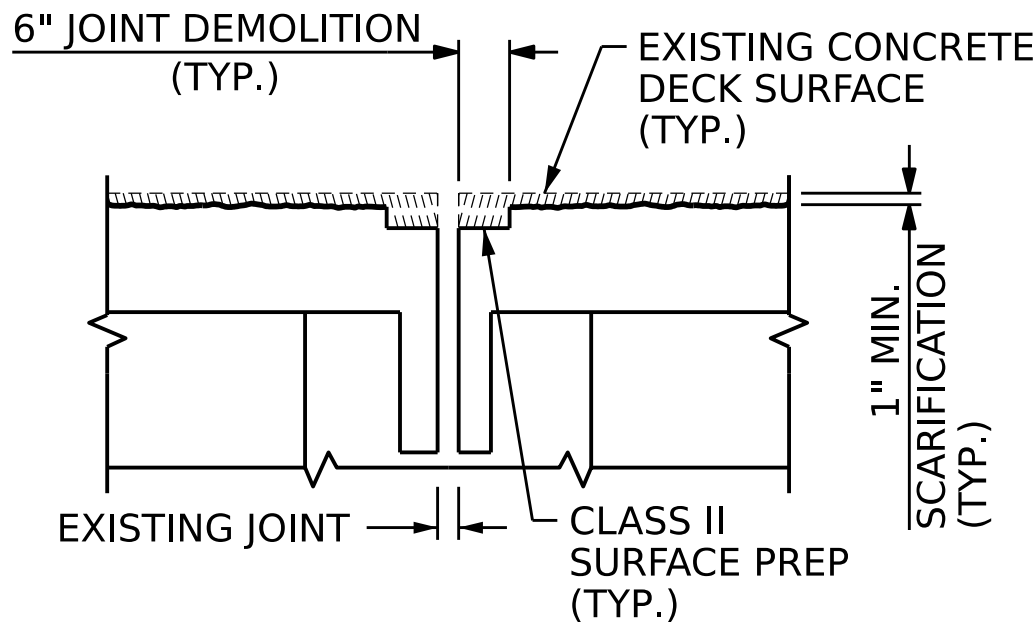
SECTION A-A



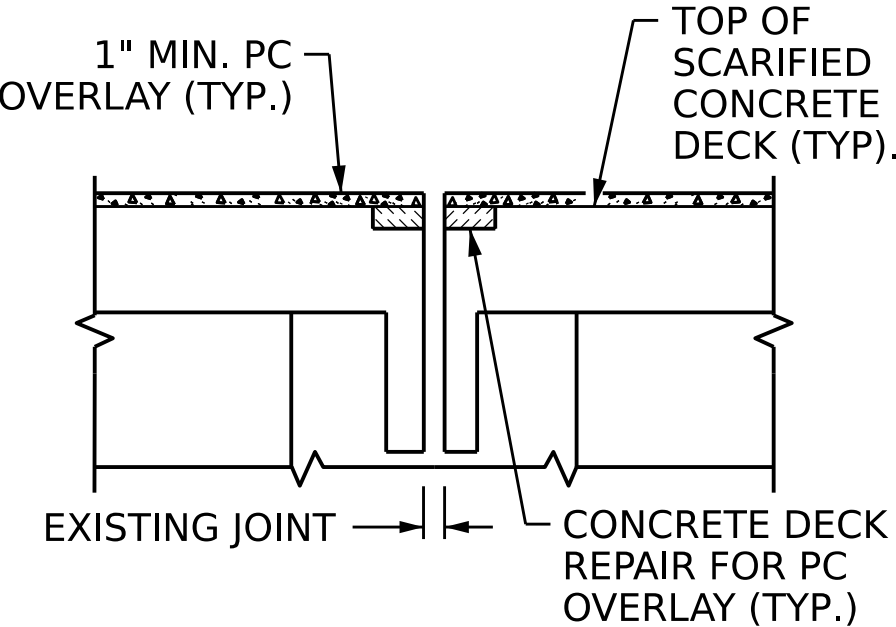
EXISTING JOINT



EXISTING JOINT



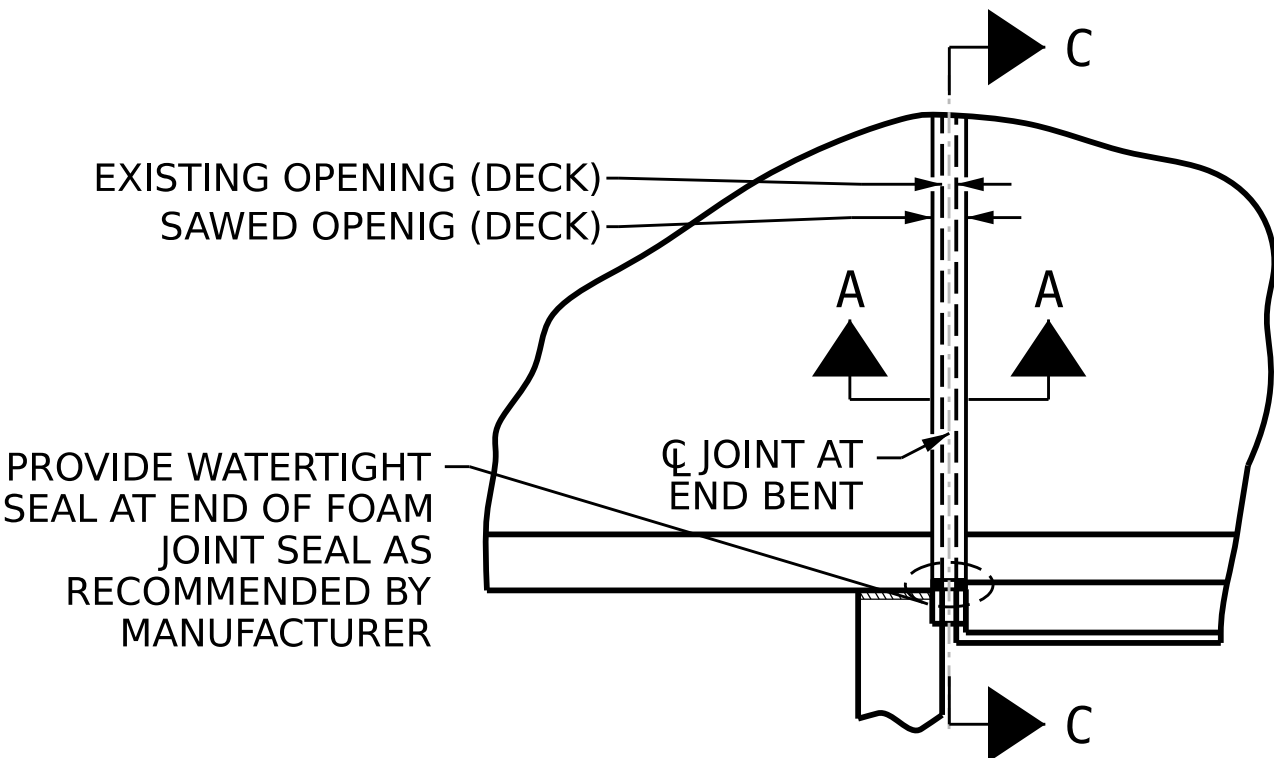
MINIMUM EXISTING JOINT  
DEMOLITION & SCARIFICATION



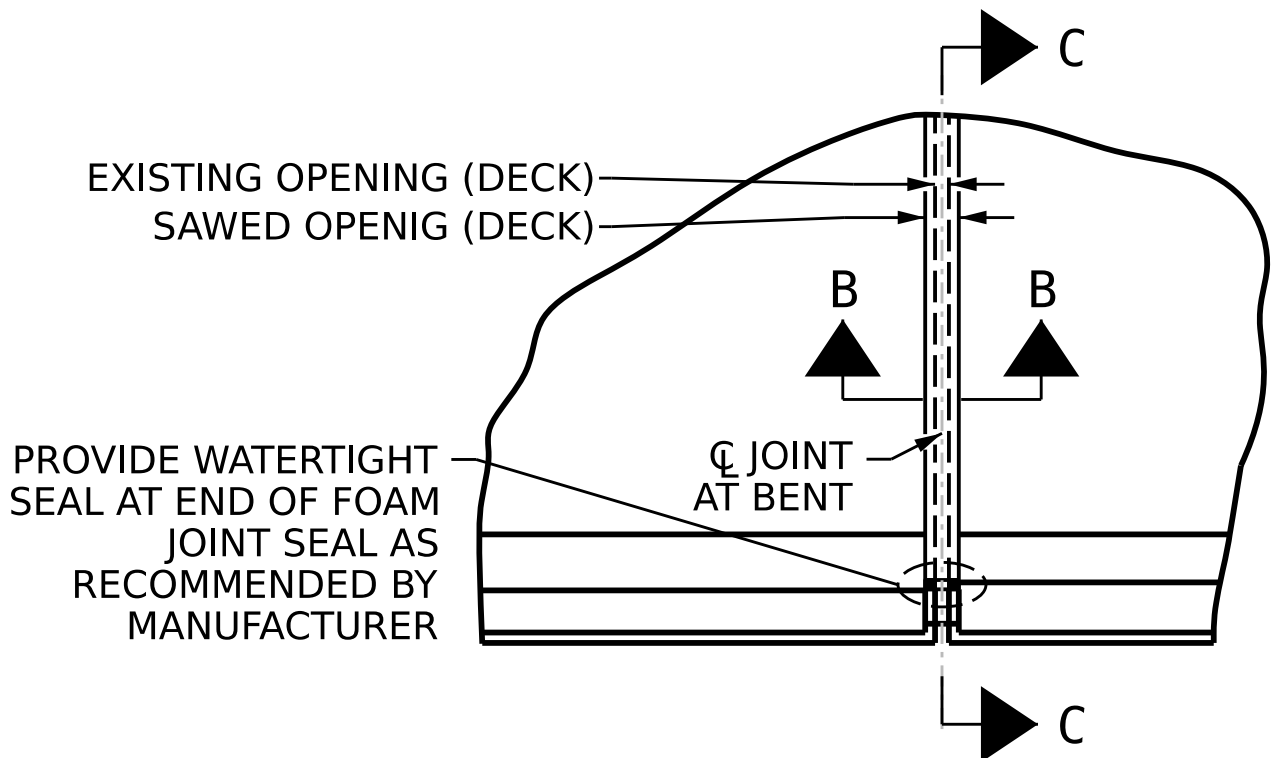
PROPOSED JOINT  
PRE-SAWED & PC OVERLAY

JOINT INSTALLATION SEQUENCE AT BENTS

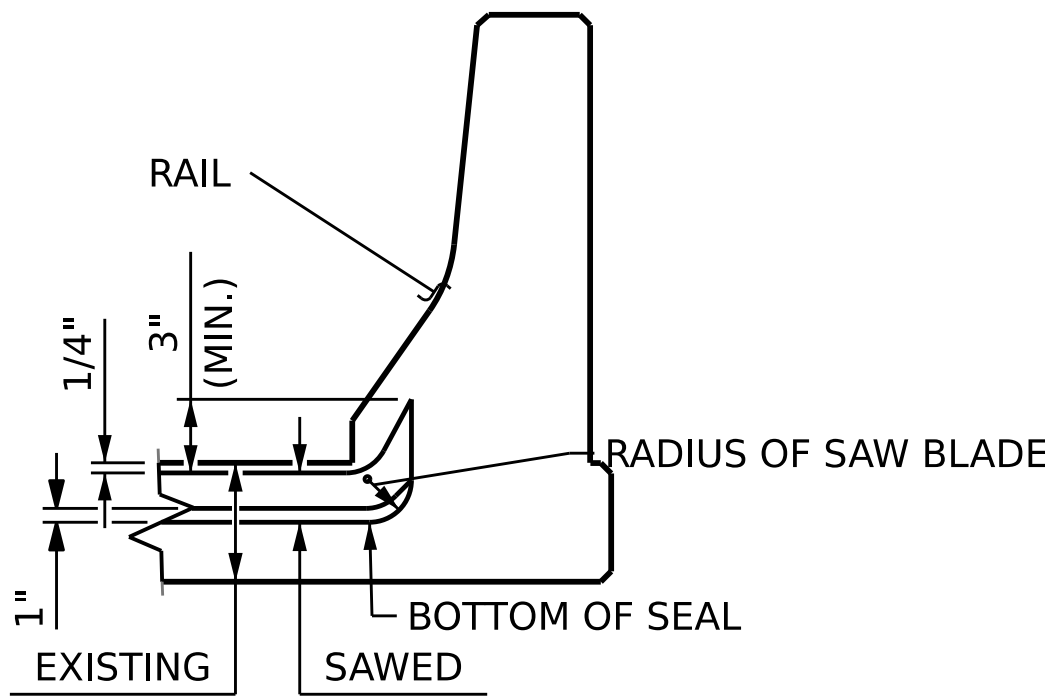
SECTION B-B



PLAN @ END BENTS



PLAN @ BENTS



SETCTION C-C

SAWED JOINT OPENING TABLE			
LOCATION	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
	AT 45°	AT 60°	AT 90°
END BENT 1 & 2	1 1/16"	1 9/16"	1 3/8"
BENT 3 & 6	2 1/8"	1 15/16"	1 9/16"

JOINT REPAIR QUANTITY TABLE		
FOAM JOINT SEAL FOR PRESERVATION	ESTIMATE	ACTUAL
END BENT 1	40.0 LF	
END BENT 2	40.0 LF	
BENT 3	40.0 LF	
BENT 6	40.0 LF	
TOTAL	160.0 LF	

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.



PROJECT NO. 15BPR.119

**CATAWBA** COUNTY

BRIDGE NO. 170139

SHEET 1 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

## DECK UNDERSIDE REPAIR SPAN A

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 78
2			4			



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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.



CATAWBA COUNTY

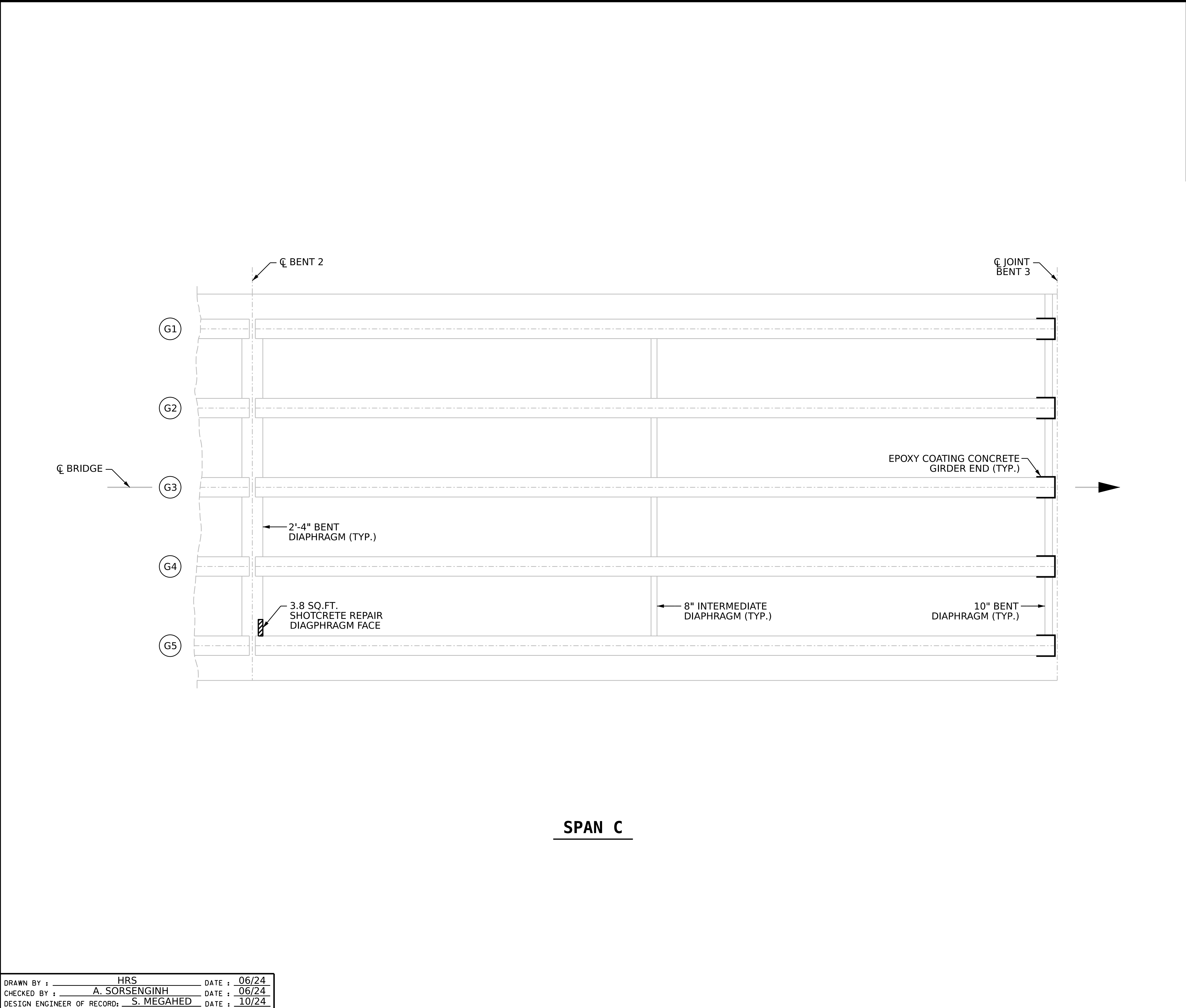
SHEET 2 OF 9

## DECK UNDERSIDE REPAIR SPAN B

DocuSigned by:  
Samuel Megahed  
90E5556448A74ED...  
06/17/2025

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

DRAWN BY : HRS DATE : 06/24  
 CHECKED BY : A. SORSENGINH DATE : 06/24  
 DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24



AS-BUILT REPAIR QUANTITY TABLE				
DECK UNDERSIDE REPAIR- SPAN C				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
UNDERSIDE OF DECK	0.0	0.0		
DIAPHRAGMS	3.8	1.9		
OVERHANG	0.0	0.0		
EPOXY COATING CONCRETE GIRDER ENDS	AREA (SQ.FT.)		AREA (SQ.FT.)	
GIRDERS	149.5			

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

**NOTES**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONTRACTOR SHALL SAWCUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIR AREA

DRAWN BY : HRS

CHECKED BY : A. SORSENGINH

DESIGN ENGINEER OF RECORD: S. MEGAHEID

DATE : 06/24

DATE : 06/24

DATE : 10/24

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

REVISIONS

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

SHEET NO. S2-16

TOTAL SHEETS 78

PROJECT NO. 15BPR.119

CATAWBA COUNTY

BRIDGE NO. 170139

SHEET 3 OF 9

DocuSigned by:  
Samuel Megahed

06/17/2025

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DECK UNDERSIDE REPAIR  
SPAN C



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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.



PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
 BRIDGE NO. **170139**

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH



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DRAWN BY : HRS DATE : 06/24  
 CHECKED BY : A. SORSENGINH DATE : 06/24  
 DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

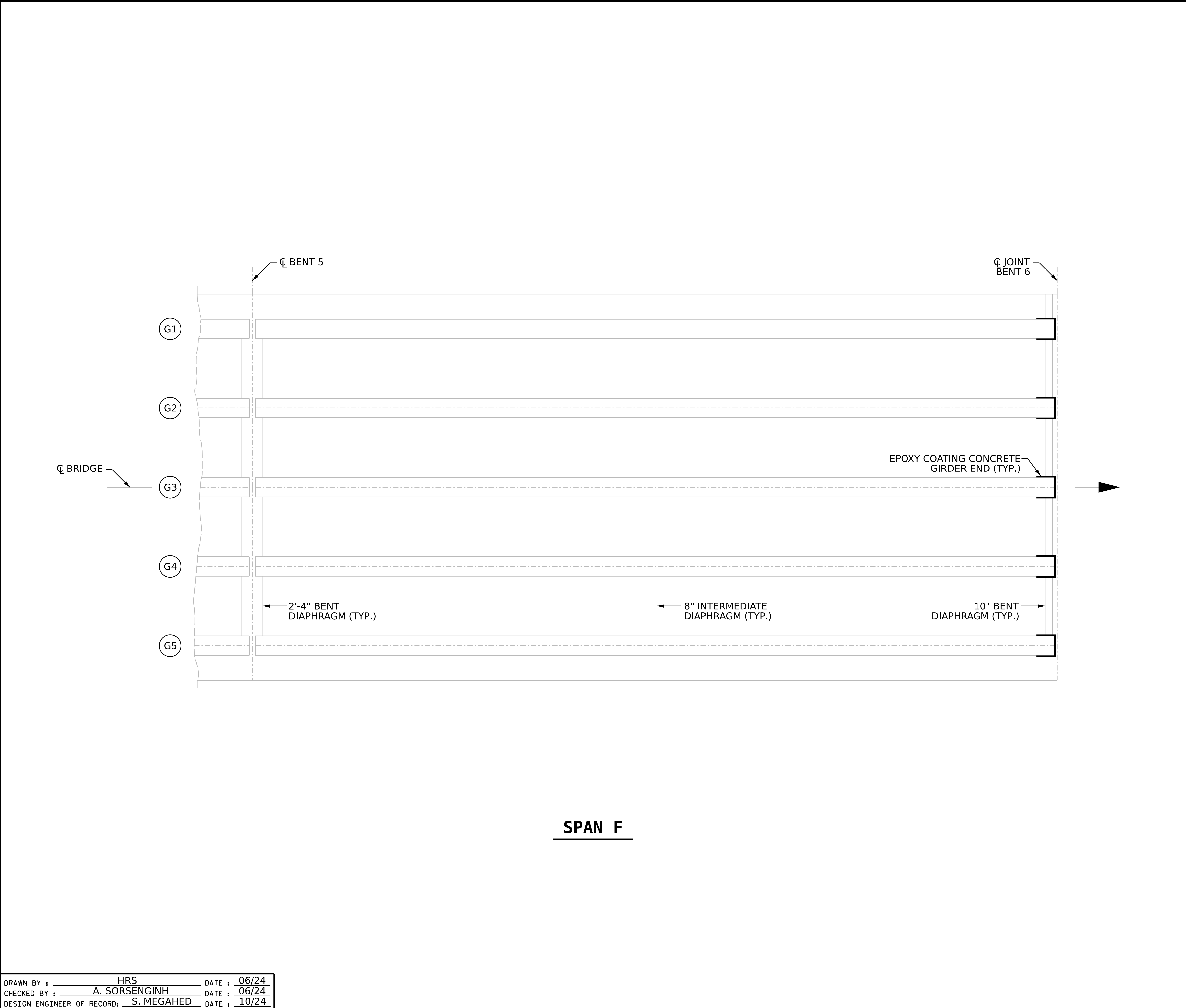


SHEET 5 OF 9

## DECK UNDERSIDE REPAIR

DRAWN BY : HRS DATE : 06/24  
 CHECKED BY : A. SORSENGINH DATE : 06/24  
 DESIGN ENGINEER OF RECORD: S. MEGAHD DATE : 10/24





AS-BUILT REPAIR QUANTITY TABLE				
DECK UNDERSIDE REPAIR- SPAN F				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
UNDERSIDE OF DECK	0.0	0.0		
DIAPHRAGMS	0.0	0.0		
OVERHANG	0.0	0.0		
EPOXY COATING CONCRETE GIRDER ENDS	AREA (SQ.FT.)		AREA (SQ.FT.)	
GIRDERS	149.5			

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

**NOTES**

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FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIR AREA

DRAWN BY : HRS

CHECKED BY : A. SORSENGINH

DESIGN ENGINEER OF RECORD: S. MEGAHEID

DATE : 06/24

DATE : 06/24

DATE : 10/24

DocuSigned by:  
*Samuel Megahed*  
06/17/2023

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PROJECT NO. 15BPR.119

CATAWBA COUNTY

BRIDGE NO. 170139

SHEET 6 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DECK UNDERSIDE REPAIR  
SPAN F

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-19
1			3			TOTAL SHEETS
2			4			78

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

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.



PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
 BRIDGE NO. **170139**

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

DocuSigned by:  
  
 Samuel Megard  
 06/17/2025

DRAWN BY : HRS DATE : 06/24  
 CHECKED BY : A. SORSENGINH DATE : 06/24  
 DESIGN ENGINEER OF RECORD: S. MEGAHD DATE : 10/24



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FOR EPOXY COATING CONCRETE GIRDER ENDS, SEE SPECIAL PROVISIONS.



CATAWBA COUNTY

SHEET 8 OF 9

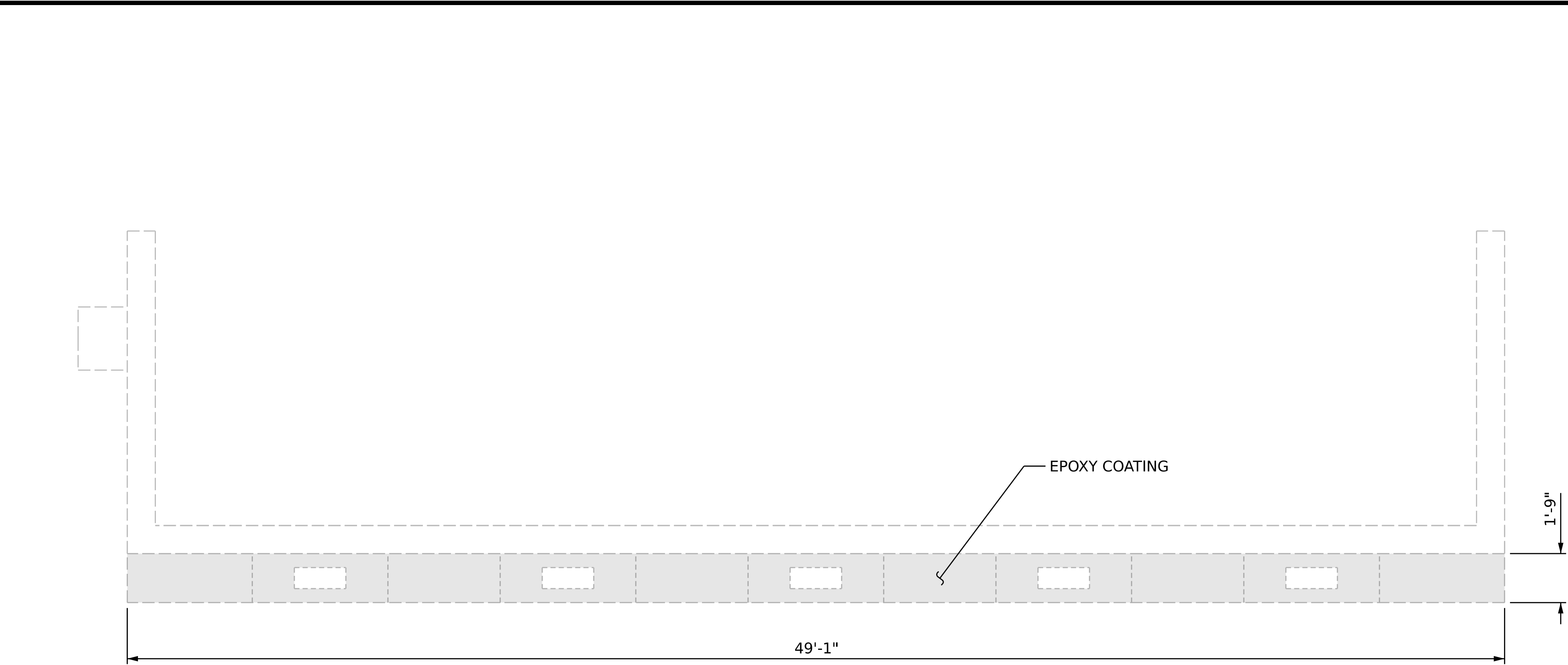
## DECK UNDERSIDE REPAIR

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

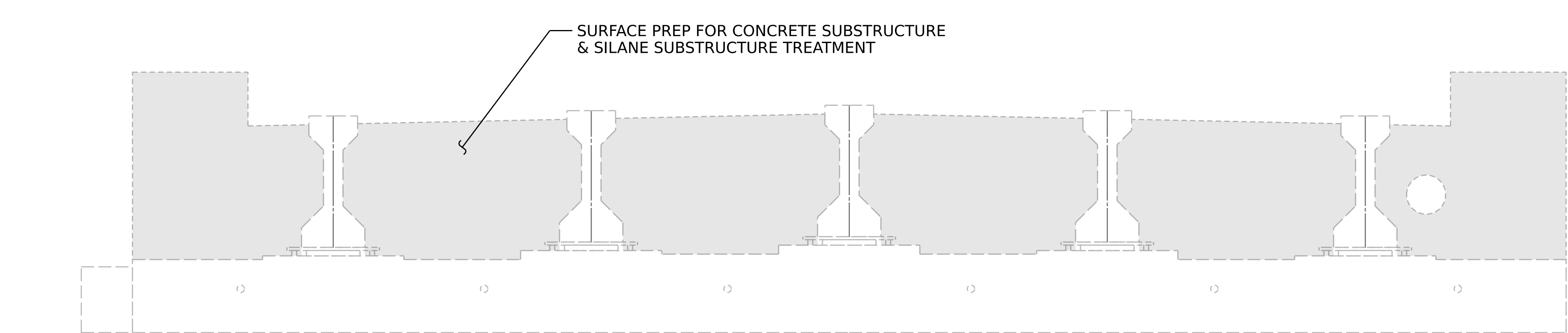
DRAWN BY : HRS DATE : 06/24  
 CHECKED BY : A. SORSENGINH DATE : 06/24  
 DESIGN ENGINEER OF RECORD: S. MEGAHD DATE : 10/24







PLAN



ELEVATION

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
BACKWALL	0.0	0.0		
CONCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
BACKWALL	0.0	0.0		
EPOXY COATING	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP	79.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
BACKWALL	210.3			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
BACKWALL	210.3			

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

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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

APPLY EPOXY COATING TO HORIZONTAL SUBSTRUCTURE SURFACES AND SILANE SUBSTRUCTURE TREATMENT TO VERTICAL SUBSTRUCTURE SURFACES. ONLY APPLY TO AREAS AS INDICATED ON PLANS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

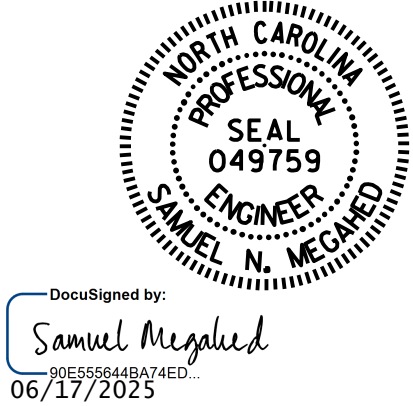
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

SHEET 2 OF 18



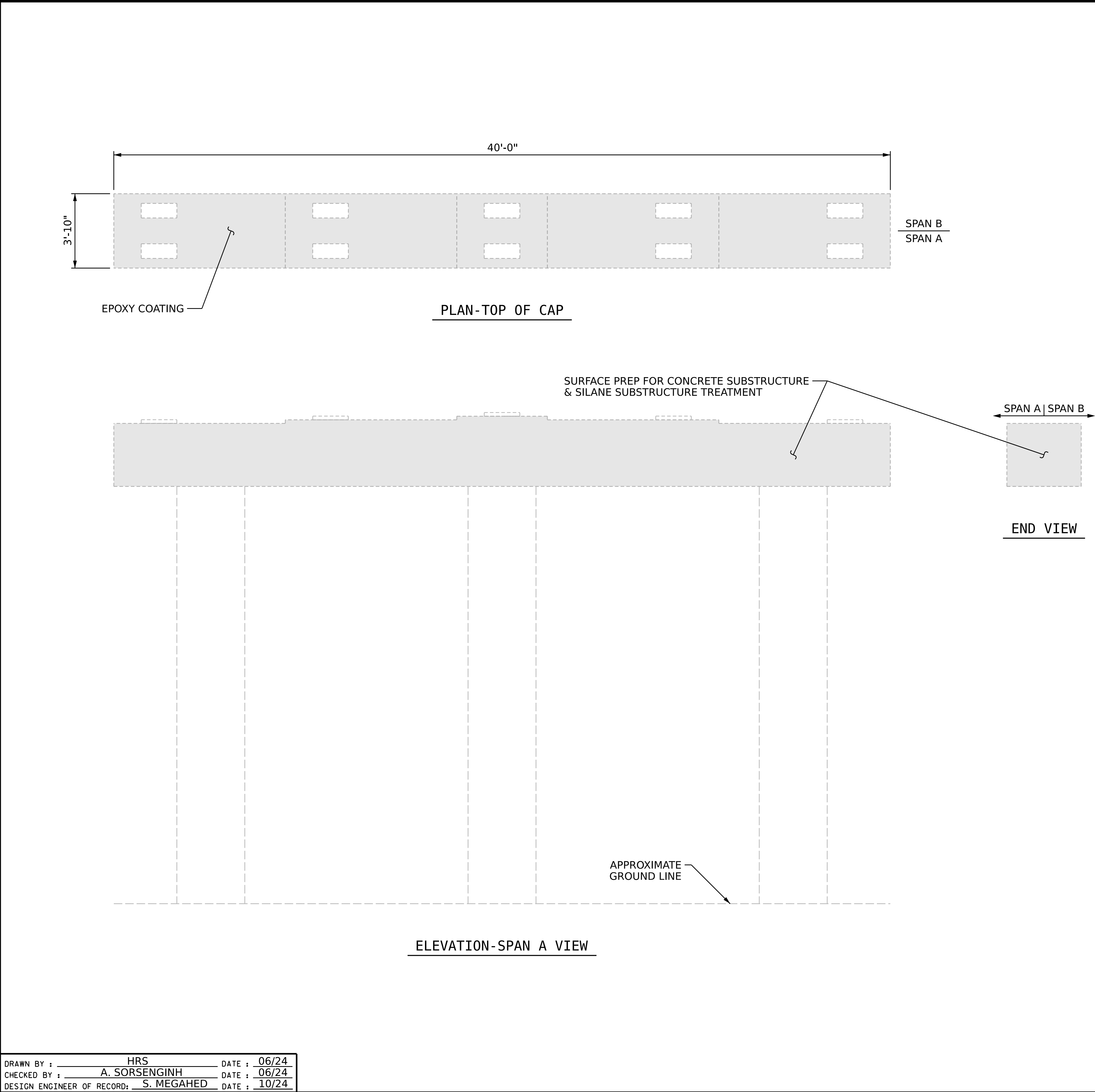
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE REPAIRS  
END BENT 1

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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REVISIONS						SHEET NO. S2-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 78
2			4			



AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN A FACE				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
EPOXY COATING				
TOP OF BENT CAP	139.6			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE				
CAP FACES	147.4			
SILANE SUBSTRUCTURE TREATMENT				
CAP FACES	147.4			

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

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. **15BPR.119**

CATAWBA COUNTY

BRIDGE NO. **170139**

SHEET 2 OF 18

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE REPAIRS  
BENT 1  
SPAN A FACE

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

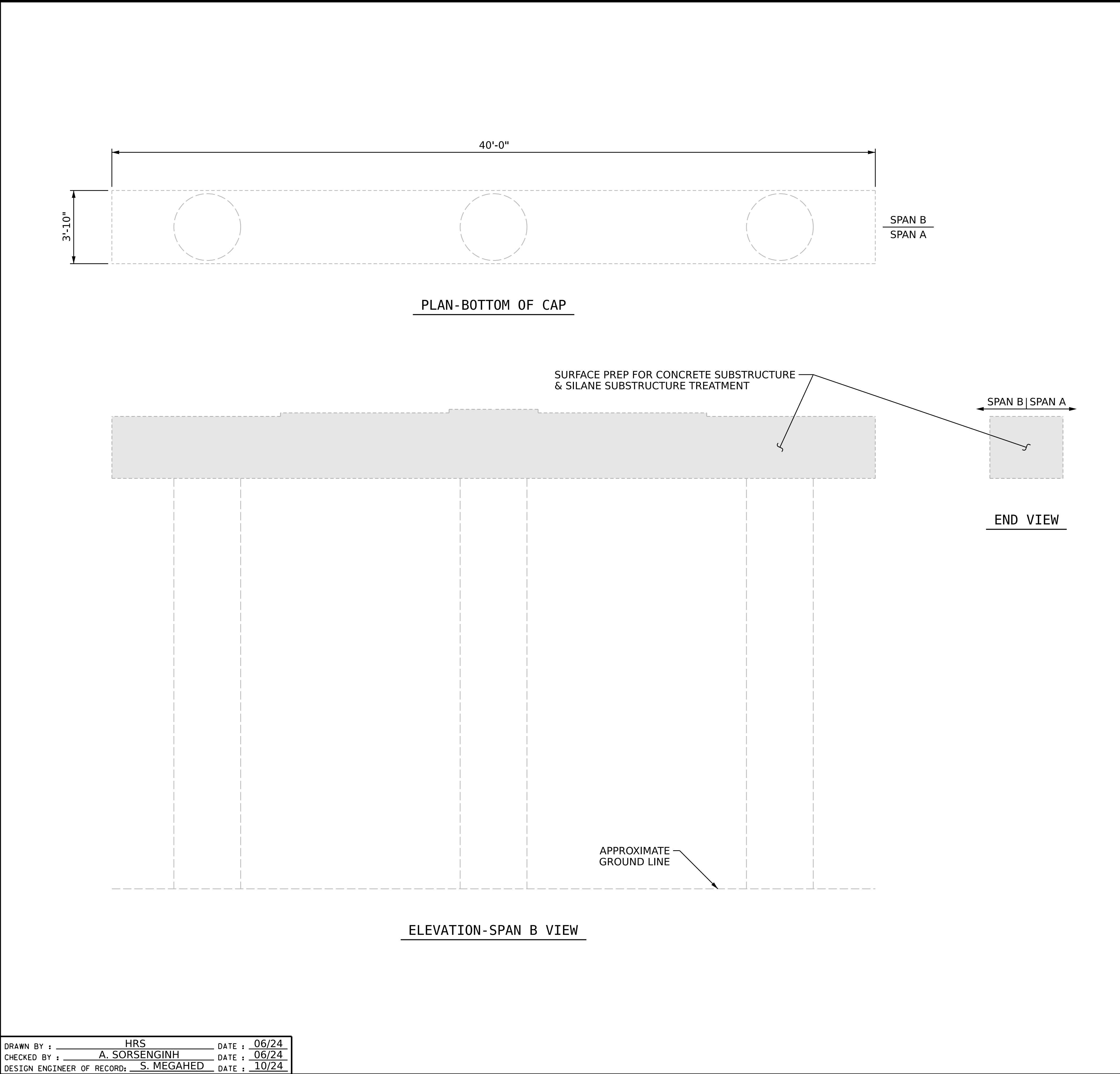
DocuSigned by:  
Samuel Megahed  
06/17/2025

SEAL  
049759  
ENGINEER  
SAMUEL N. MEGAHED

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FINAL UNLESS ALL  
SIGNATURES COMPLETED

SHEET NO.  
S2-24  
TOTAL SHEETS  
78





AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN B FACE				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			

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

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

PROJECT NO. **15BPR.119**

CATAWBA COUNTY

BRIDGE NO. **170139**

SHEET 3 OF 18

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE REPAIRS  
BENT 1  
SPAN B FACE

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

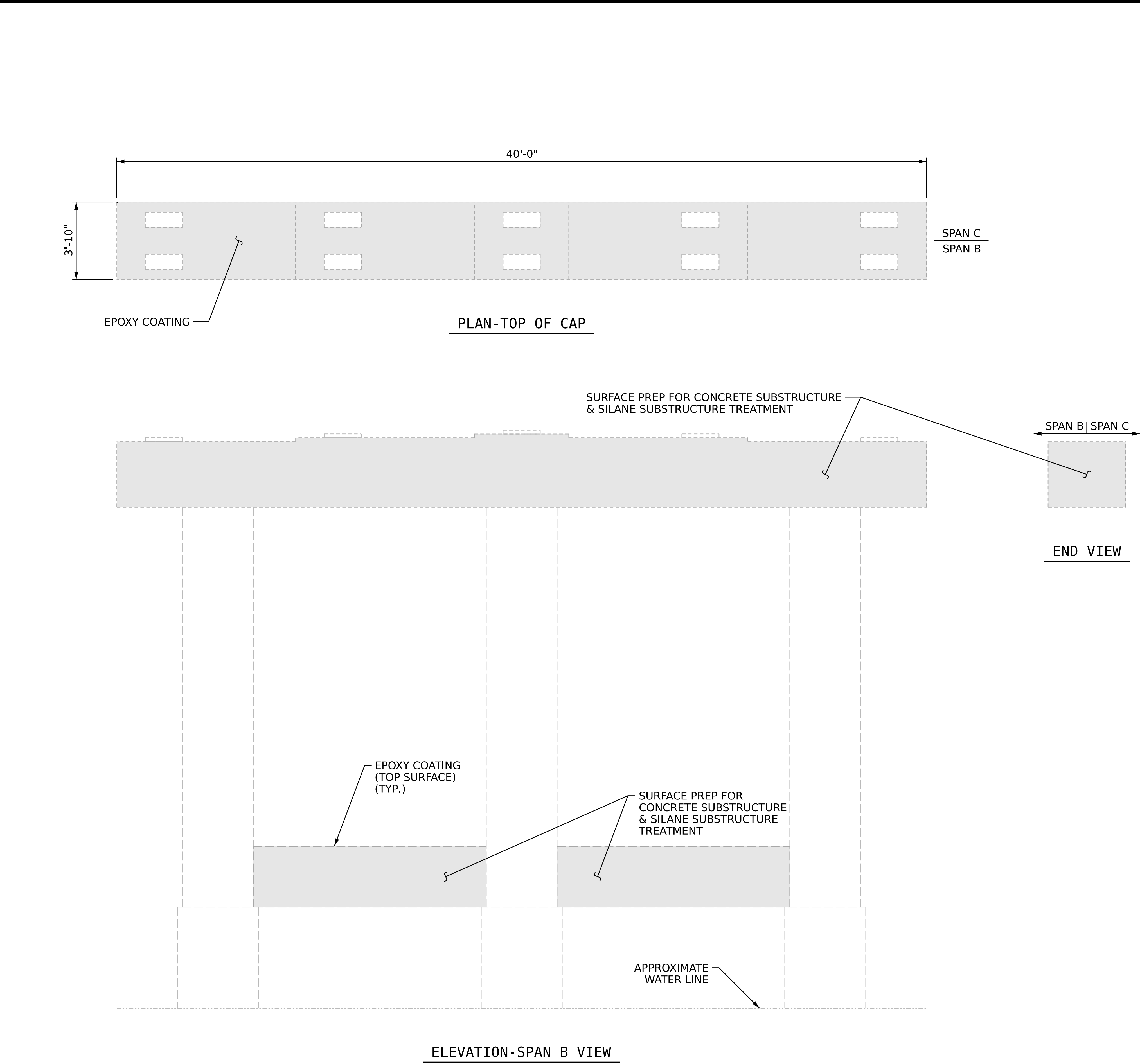
SHEET NO.  
S2-25  
TOTAL SHEETS  
78

DocuSigned by:  
Samuel Megahed  
06/17/2023

SEAL  
049759  
ENGINEER  
SAMUEL N. MEGAHED

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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FINAL UNLESS ALL  
SIGNATURES COMPLETED



AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 SPAN B FACE				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA (SQ.FT.)		AREA (SQ.FT.)	
TOP OF BENT CAP	139.6			
TOP OF STRUT	85.8			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			

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

**NOTES**

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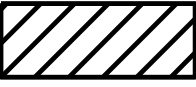


CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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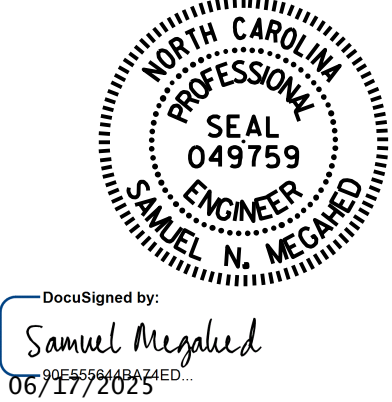
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. 15BPR.119  
CATAWBA COUNTY  
BRIDGE NO. 170139  
SHEET 4 OF 18



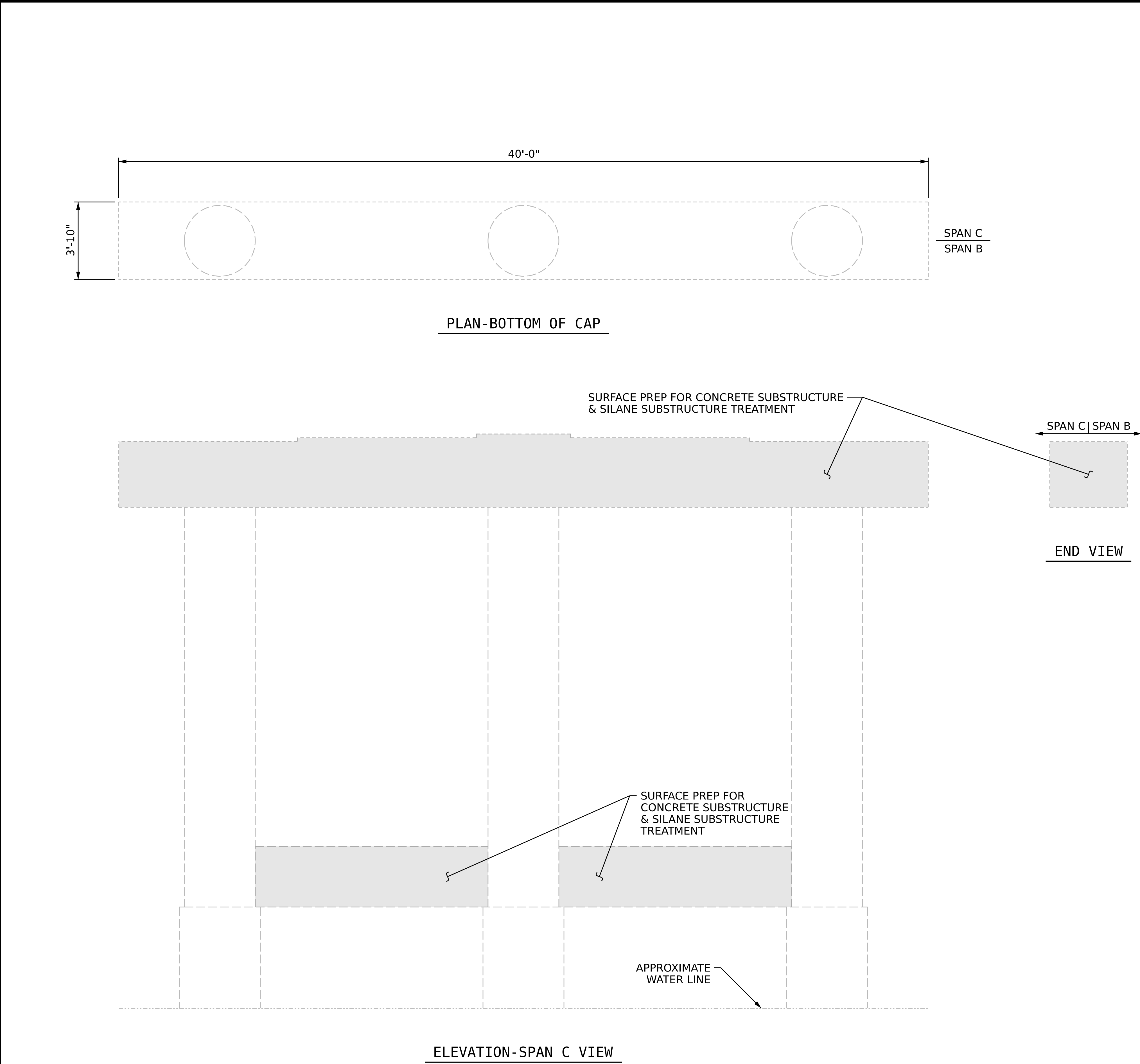
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE REPAIRS  
BENT 2  
SPAN B FACE

REVISIONS						SHEET NO. S2-26
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS  78
1			3			
2			4			

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24





AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 SPAN C FACE				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			

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

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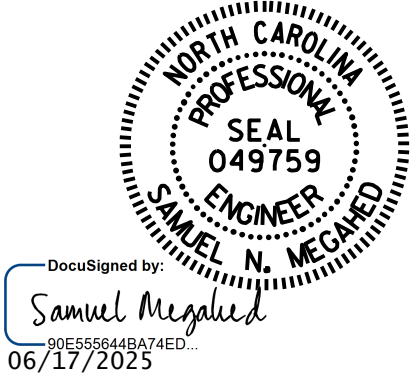
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- PREVIOUSLY ACCOUNTED FOR AREA

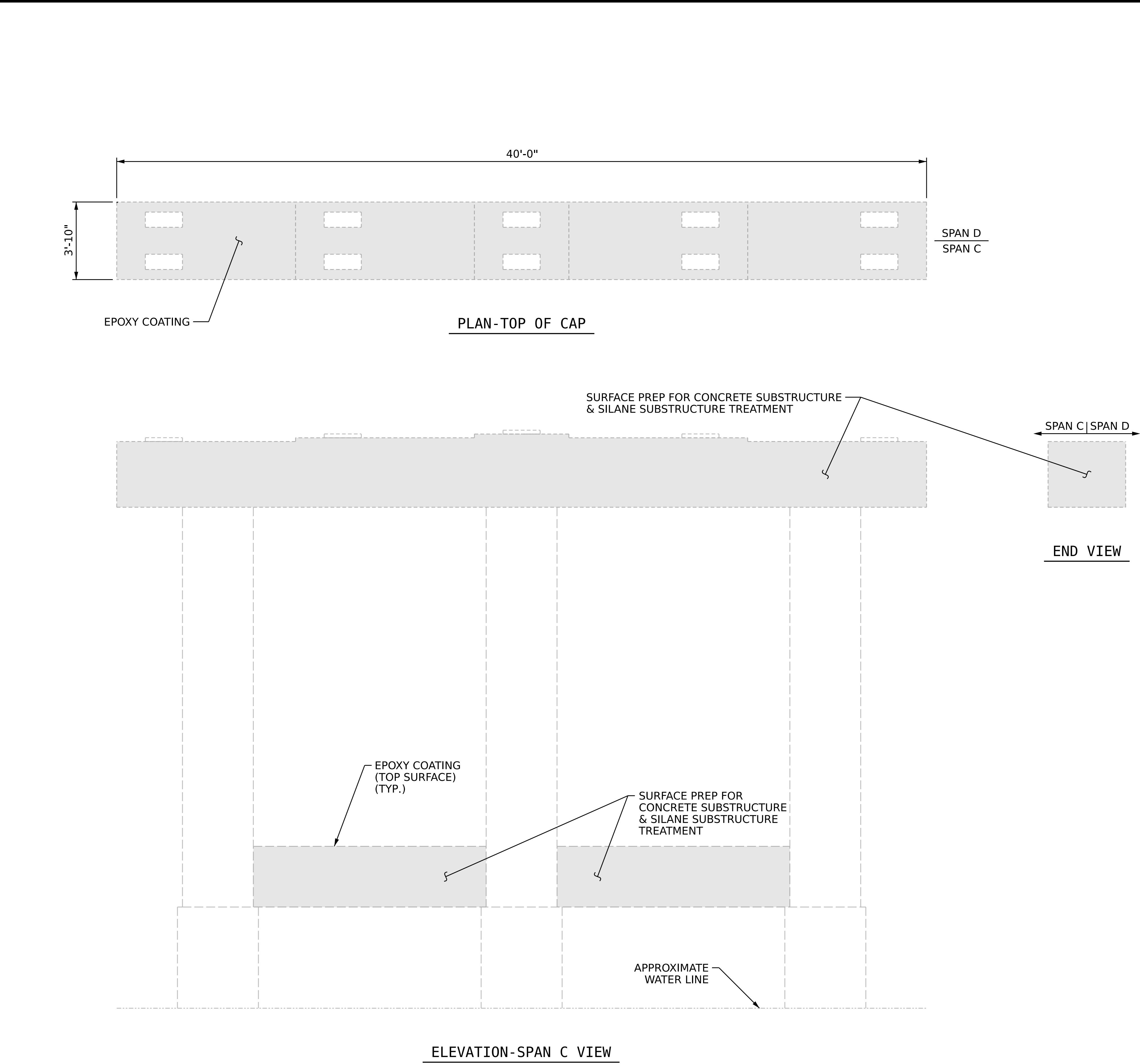
PROJECT NO. 15BPR.119  
CATAWBA COUNTY  
BRIDGE NO. 170139  
SHEET 5 OF 18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-27	
BENT 2 SPAN C FACE						TOTAL SHEETS 78	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
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AS-BUILT REPAIR QUANTITY TABLE				
BENT 3 SPAN C FACE				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA (SQ.FT.)		AREA (SQ.FT.)	
TOP OF BENT CAP	139.6			
TOP OF STRUT	85.8			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			

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

**NOTES**  
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

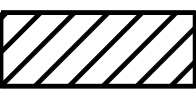
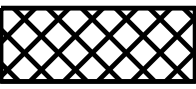
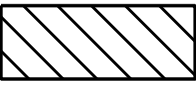
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

APPLY EPOXY COATING TO HORIZONTAL SUBSTRUCTURE SURFACES AND SILANE SUBSTRUCTURE TREATMENT TO VERTICAL SUBSTRUCTURE SURFACES. ONLY APPLY TO AREAS AS INDICATED ON PLANS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

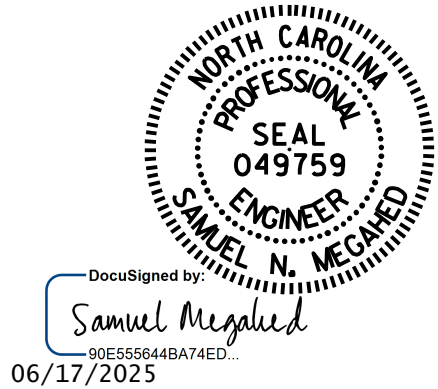
-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

SHEET 6 OF 18

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE REPAIRS**  
**BENT 3**  
**SPAN C FACE**

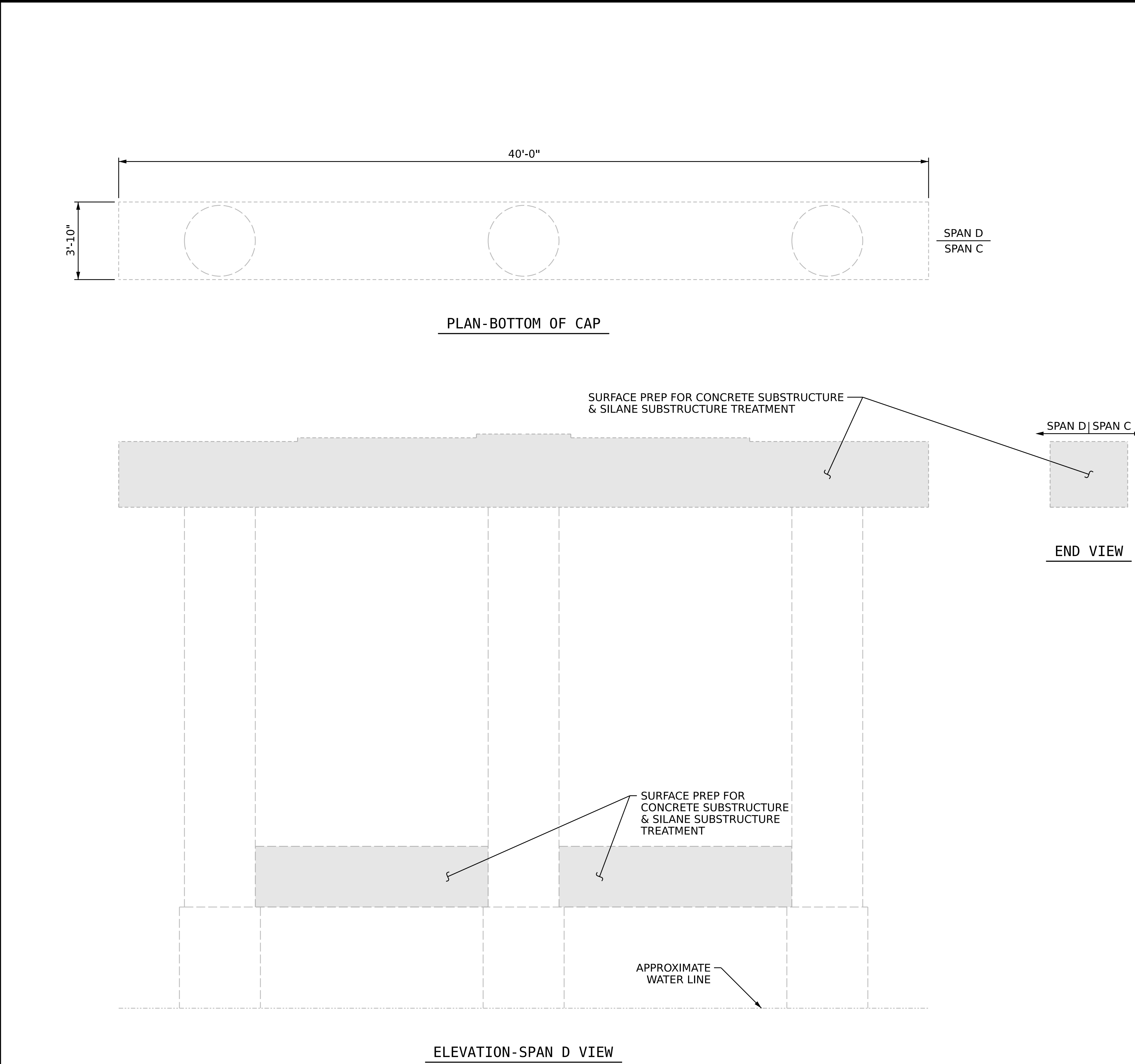


DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-28
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 78
2			4			





AS-BUILT REPAIR QUANTITY TABLE				
BENT 3 SPAN D FACE				
	ESTIMATE		ACTUAL	
	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
SHOTCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			

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

**NOTES**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.




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

APPLY EPOXY COATING TO HORIZONTAL SUBSTRUCTURE SURFACES AND SILANE SUBSTRUCTURE TREATMENT TO VERTICAL SUBSTRUCTURE SURFACES. ONLY APPLY TO AREAS AS INDICATED ON PLANS.

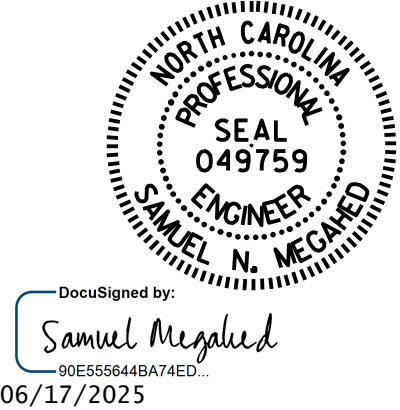
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. 15BPR.119  
CATAWBA COUNTY  
BRIDGE NO. 170139  
SHEET 7 OF 18



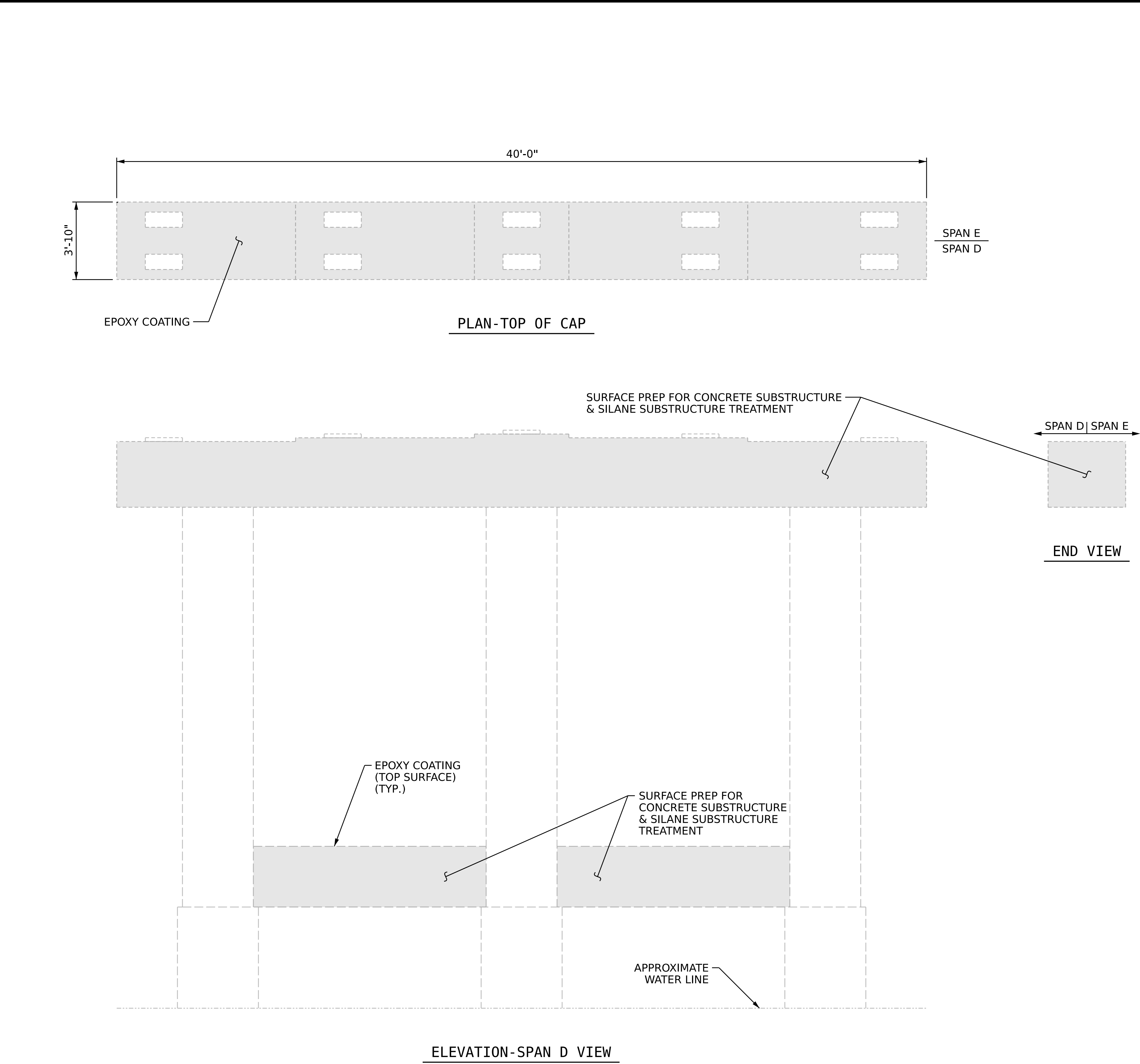
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE REPAIRS  
BENT 3  
SPAN D FACE

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-29
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 78
2			4			



AS-BUILT REPAIR QUANTITY TABLE				
BENT 4 SPAN D FACE				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA (SQ.FT.)		AREA (SQ.FT.)	
TOP OF BENT CAP	139.6			
TOP OF STRUT	85.8			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			

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

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

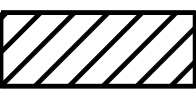
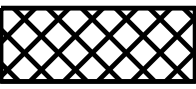
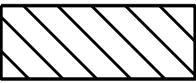
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FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**

SHEET 8 OF 18

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE REPAIRS  
BENT 4  
SPAN D FACE**

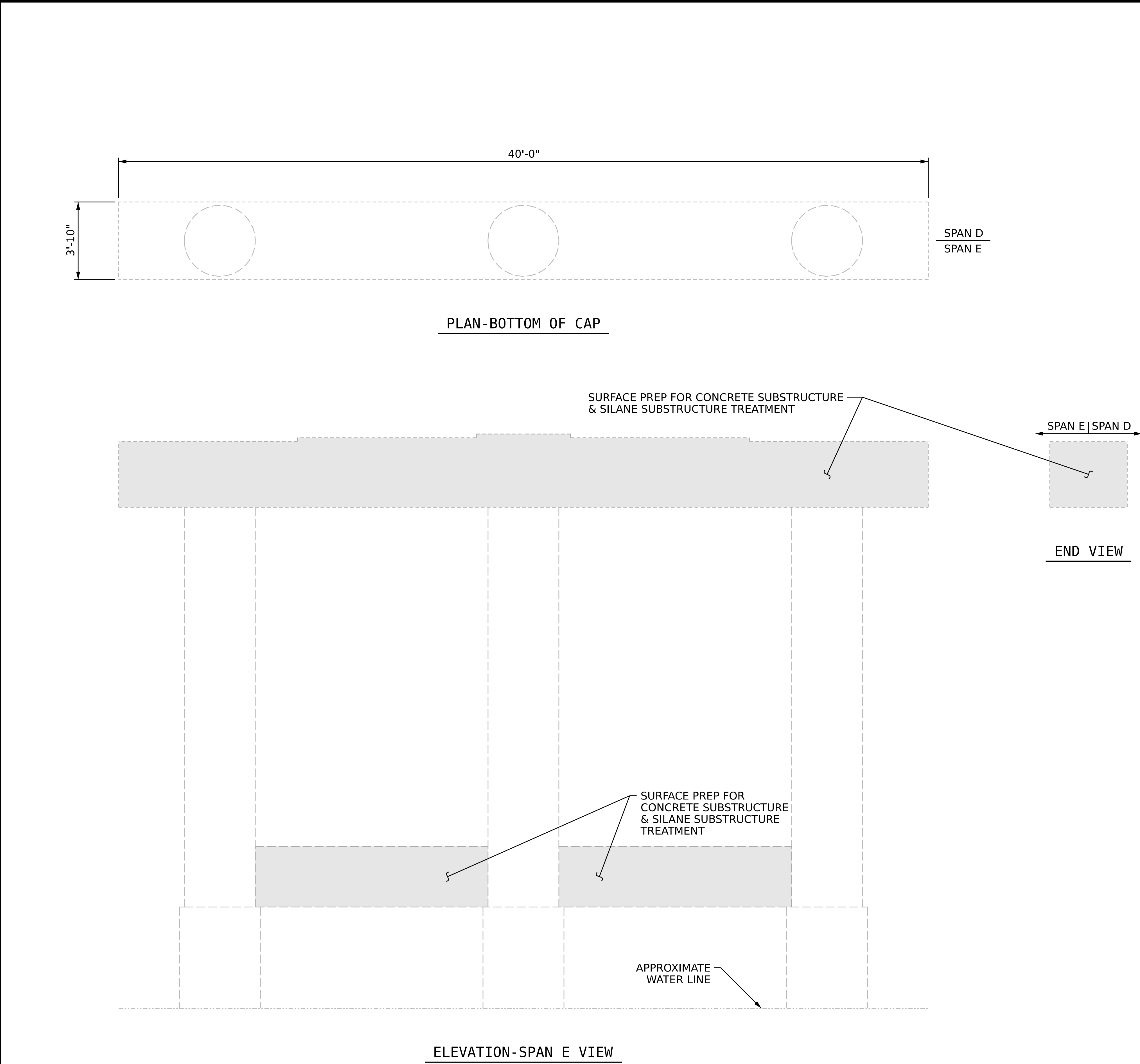


DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			78
2			4			

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED





AS-BUILT REPAIR QUANTITY TABLE				
BENT 4 SPAN E FACE				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			

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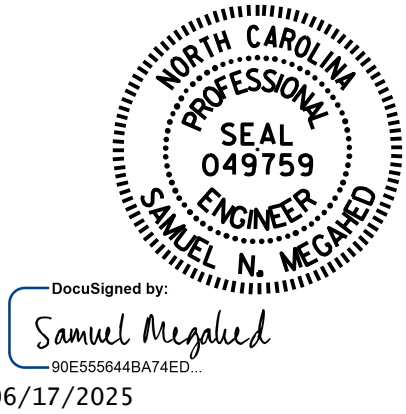
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA

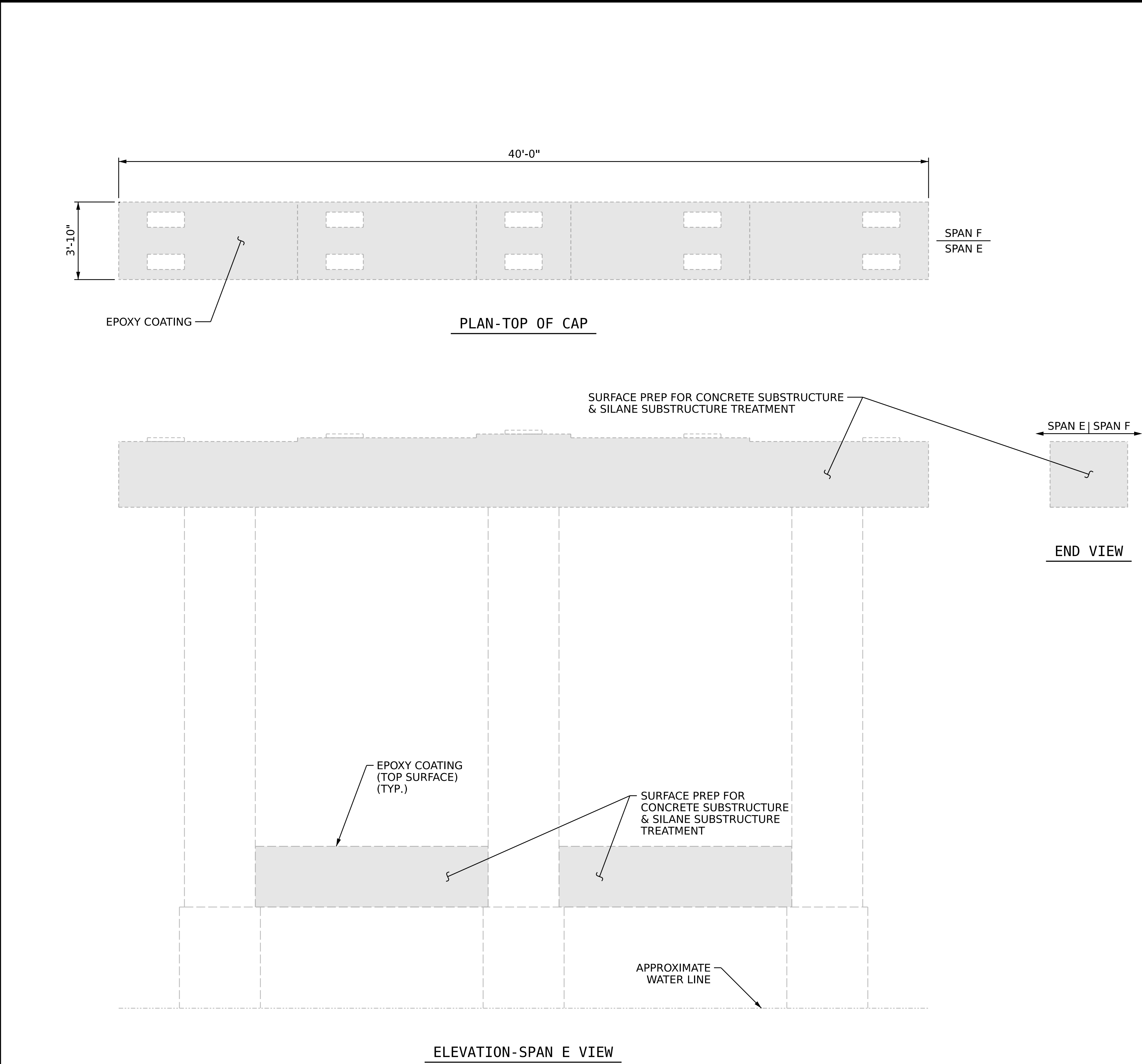
PROJECT NO. 15BPR.119  
CATAWBA COUNTY  
BRIDGE NO. 170139  
SHEET 9 OF 18



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-31
1			3			TOTAL SHEETS
2			4			78

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED



AS-BUILT REPAIR QUANTITY TABLE				
BENT 5 SPAN E FACE				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA (SQ.FT.)		AREA (SQ.FT.)	
TOP OF BENT CAP	139.6			
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SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
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VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. OF 2" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

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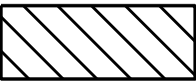
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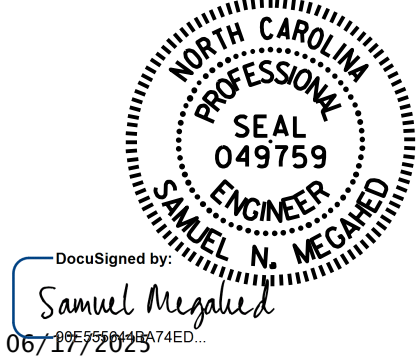
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FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. **15BPR.119**  
**CATAWBA** COUNTY  
BRIDGE NO. **170139**  
SHEET 10 OF 18



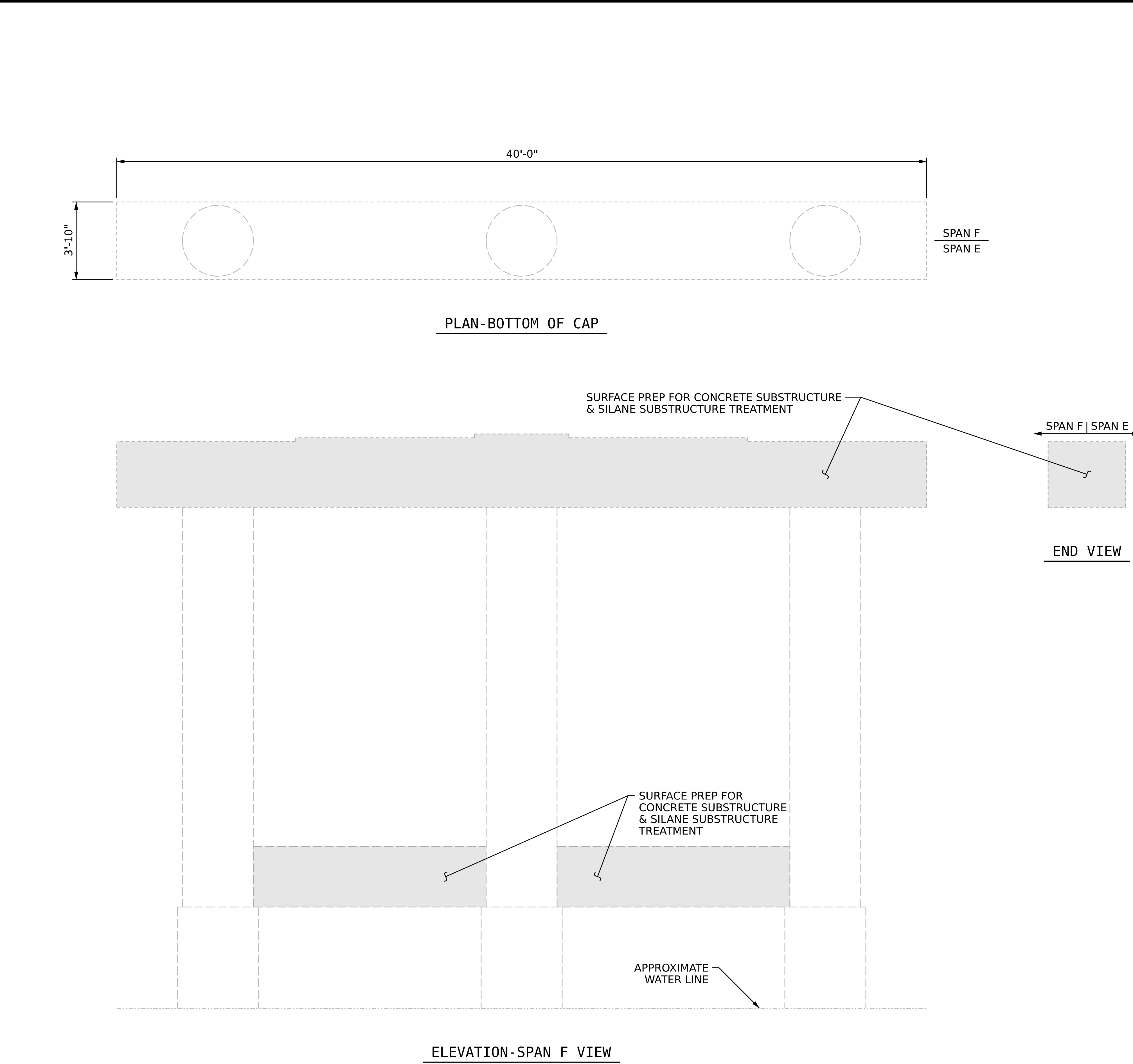
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE REPAIRS  
BENT 5  
SPAN E FACE**

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO. S2-32 TOTAL SHEETS 78
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			





AS-BUILT REPAIR QUANTITY TABLE				
BENT 5 SPAN F FACE				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA (SQ.FT.)	VOLUME (CU.FT.)	AREA (SQ.FT.)	VOLUME (CU.FT.)
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0			
COLUMN	0.0			
SURFACE PREP FOR CONCRETE SUBSTRUCTURE	AREA (SQ.FT.)		AREA (SQ.FT.)	
CAP FACES	147.4			
STRUT FACES	69.0			
SILANE SUBSTRUCTURE TREATMENT	AREA (SQ.FT.)		AREA (SQ.FT.)	
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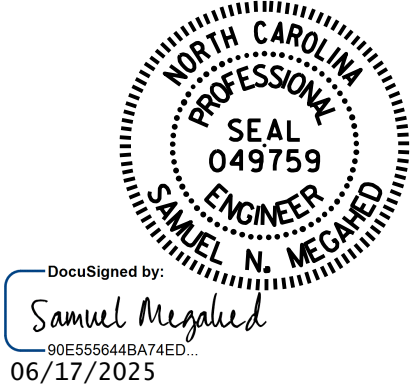
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE SUBSTRUCTURE TREATMENT, SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  PREVIOUSLY ACCOUNTED FOR AREA

PROJECT NO. 15BPR.119  
CATAWBA COUNTY  
BRIDGE NO. 170139  
SHEET 11 OF 18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S2-33	
SUBSTRUCTURE REPAIRS BENT 5 SPAN F FACE						TOTAL SHEETS 78	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

DRAWN BY : HRS DATE : 06/24  
CHECKED BY : A. SORSENGINH DATE : 06/24  
DESIGN ENGINEER OF RECORD: S. MEGAHED DATE : 10/24

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SIGNATURES COMPLETED