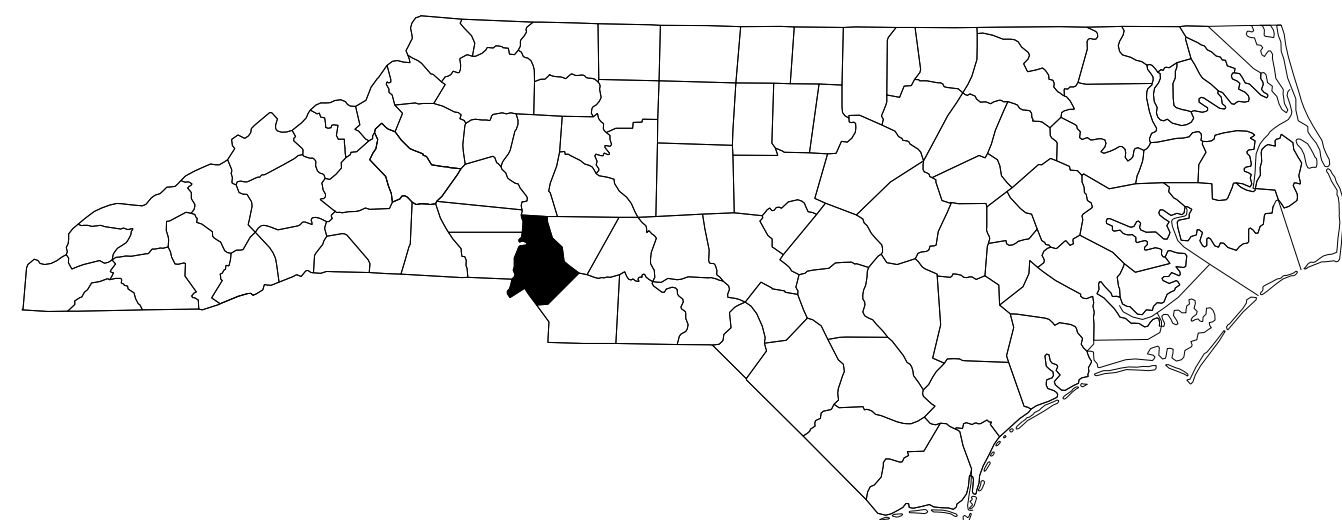


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

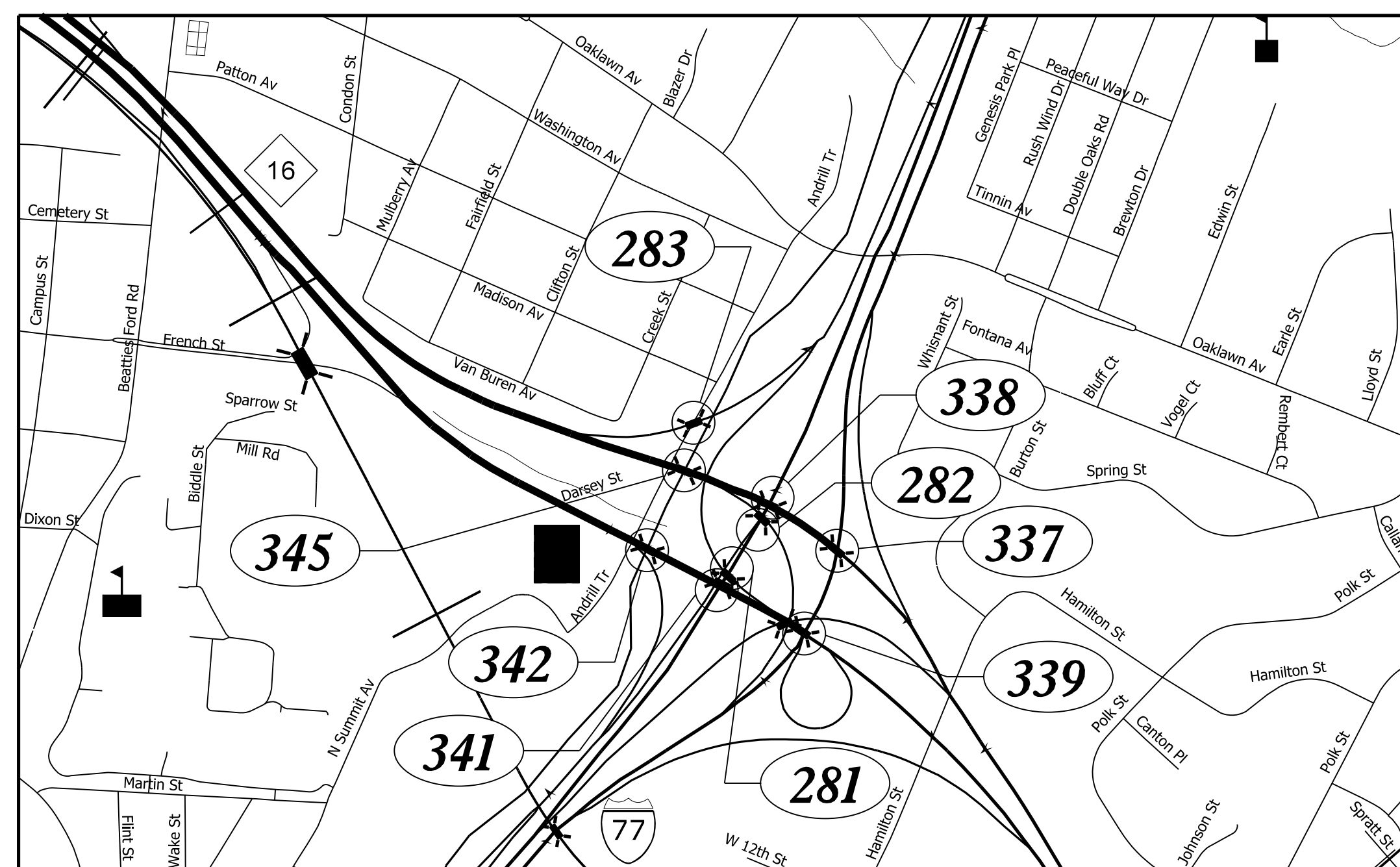


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-6052 / 15BPR.35	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48234.1.1	0277022	P.E.	
48234.3.1	0277022	CONST.	
15BPR.35	-	P.E.	
15BPR.35	-	CONST.	

**LOCATION: I-6052:** BRIDGE #590281 ON I-77 SOUTHBOUND RAMP OVER I-77/US 21 SBL  
 BRIDGE #590282 ON I-77 NORTHBOUND RAMP OVER I-77/US 21 SBL  
 BRIDGE #590283 ON I-77 SBL RAMP OVER ANDRILL TERRACE AND IRWIN CREEK  
 BRIDGE #590337 ON I-277/NC 16 NBL OVER I-77/US 21 NBL  
 BRIDGE #590338 ON I-277/NC 16 NBL OVER I-77/US 21 SBL  
 BRIDGE #590339 ON I-277/NC 16 SBL OVER I-77/US 21 NBL  
 BRIDGE #590341 ON I-277/NC 16 SBL OVER I-77/US 21 SBL  
 BRIDGE #590342 ON I-277/NC 16 SBL OVER ANDRILL TERRACE AND IRWIN CREEK

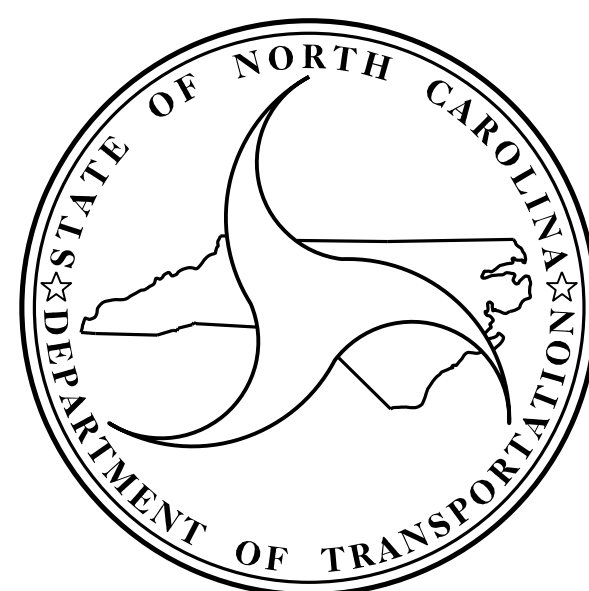
**15BPR.35:** BRIDGE #590345 ON I-277/NC 16 NBL OVER I-77 SB RAMP, ANDRILL TERRACE AND IRWIN CREEK

**TYPE OF WORK: BRIDGE PRESERVATION - DECK REPAIR, LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, JOINT REHABILITATION, STRUCTURAL STEEL REPAIRS, INSTALLATION OF BEARING KEEPER ANGLES, CLEANING AND PAINTING STRUCTURAL STEEL, CLEANING AND PAINTING BEARINGS AND SUBSTRUCTURE REPAIRS.**



VICINITY MAP

**PROJECT: I-6052 / 15BPR.35**  
**CONTRACT: C204237**



DESIGN DATA	
I-6052	15BPR.35
#281 ADT 2019 = 39,500	#345 ADT 2012 = 14,000
#282 ADT 2019 = 19,950	
#283 ADT 2015 = 22,750	
#337 ADT 2014 = 58,000	
#338 ADT 2012 = 14,000	
#339 ADT 2019 = 62,500	
#341 ADT 2012 = 14,000	
#342 ADT 2012 = 28,000	

PROJECT LENGTH	
I-6052	15BPR.35
#281 = 0.035 MILE	#345 = 0.060 MILE
#282 = 0.033 MILE	
#283 = 0.055 MILE	
#337 = 0.036 MILE	
#338 = 0.035 MILE	
#339 = 0.041 MILE	
#341 = 0.036 MILE	
#342 = 0.044 MILE	

Prepared In the Office of:



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

for the North Carolina Department of Transportation

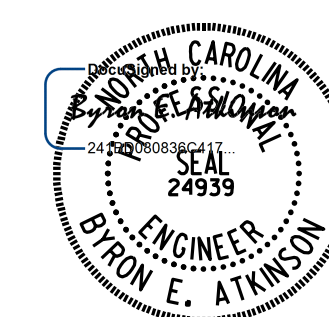
2018 STANDARD SPECIFICATIONS MI ENGINEERING CONTACT

LETTING DATE:  
MAY 16, 2023

MORRIS ISRAELNAIM, P.E.  
PROJECT ENGINEER

NCDOT CONTACT

TIMOTHY M. SHERRILL, P.E.  
PROJECT ENGINEER



1/12/2023

**BYRON E. ATKINSON, P.E.**  
PROJECT DESIGN ENGINEER



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-6052 / 15BPR.35	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48234.1.1	0277022	P.E.	
48234.3.1	0277022	CONST.	
15BPR.35	-	P.E.	
15BPR.35	-	CONST.	

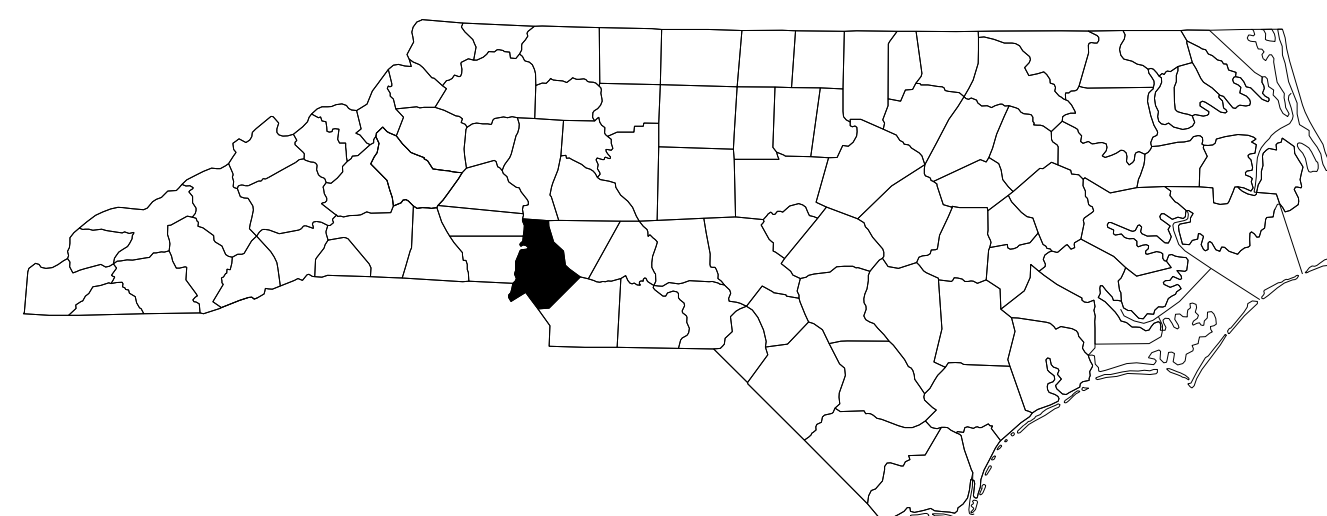
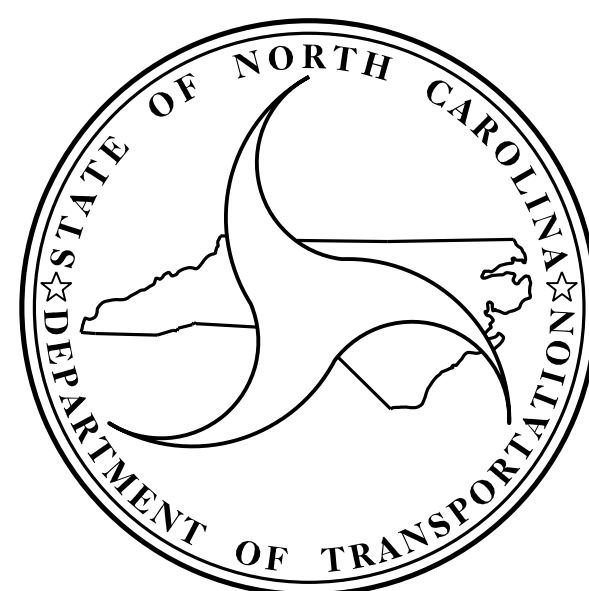
**INDEX OF STRUCTURES SHEETS**

<u>SHEET No.</u>	<u>DESCRIPTION</u>	<u>SHEET No.</u>	<u>DESCRIPTION</u>	<u>SHEET No.</u>	<u>DESCRIPTION</u>	<u>SHEET No.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET	STRUCTURE No. 590283		STRUCTURE No. 590339		STRUCTURE No. 590345	
1A	INDEX OF SHEETS	S3-1 TO S3-2	GENERAL DRAWING	S6-1 TO S6-2	GENERAL DRAWING	S9-1 TO S9-2	GENERAL DRAWING
S-1	TOTAL BILL OF MATERIAL	S3-3	TYPICAL SECTION	S6-3	TYPICAL SECTION	S9-3	TYPICAL SECTION
		S3-4 TO S3-5	SURFACE PREPARATION	S6-4	JOINT DETAILS	S9-4 TO S9-5	SURFACE PREPARATION
		S3-6	JOINT DETAILS	S6-5 TO S6-6	BEAM REPAIR LOCATIONS	S9-6	JOINT DETAILS
		S3-7 TO S3-11	SUBSTRUCTURE REPAIRS	S6-7 TO S6-11	SUBSTRUCTURE REPAIRS	S9-7	BEAM REPAIR LOCATIONS
						S9-8 TO S9-13	SUBSTRUCTURE REPAIRS
		STRUCTURE No. 590281		STRUCTURE No. 590341			
SI-1 TO SI-2	GENERAL DRAWING	S4-1 TO S4-2	GENERAL DRAWING	S7-1 TO S7-2	GENERAL DRAWING	<b>BRIDGE DETAILS</b>	
SI-3	TYPICAL SECTION	S4-3	TYPICAL SECTION	S7-3	TYPICAL SECTION	SD-1 TO SD-3	BEAM REPAIR DETAILS
SI-4	SURFACE PREPARATION	S4-4	SURFACE PREPARATION	S7-4	SURFACE PREPARATION	SD-4	BEARING KEEPER ANGLE ASSEMBLY DETAILS
SI-5	JOINT DETAILS	S4-5	JOINT DETAILS	S7-5	JOINT DETAILS	SD-5	SUBSTRUCTURE DETAILS
SI-6	BEAM REPAIR LOCATIONS	S4-6	BEAM REPAIR LOCATIONS	S7-6	BEAM REPAIR LOCATIONS	SD-6	JACKING DETAILS
SI-7 TO SI-10	SUBSTRUCTURE REPAIRS	S4-7 TO S4-10	SUBSTRUCTURE REPAIRS	S7-7 TO S7-10	SUBSTRUCTURE REPAIRS	SN	STANDARD NOTES
		STRUCTURE No. 590282		STRUCTURE No. 590338			
S2-1 TO S2-2	GENERAL DRAWING	S5-1 TO S5-2	GENERAL DRAWING	S8-1 TO S8-2	GENERAL DRAWING		
S2-3	TYPICAL SECTION	S5-3	TYPICAL SECTION	S8-3	TYPICAL SECTION		
S2-4	SURFACE PREPARATION	S5-4	SURFACE PREPARATION	S8-4 TO S8-5	SURFACE PREPARATION		
S2-5	JOINT DETAILS	S5-5	JOINT DETAILS	S8-6	JOINT DETAILS		
S2-6	BEAM REPAIR LOCATIONS	S5-6	BEAM REPAIR LOCATIONS	S8-7 TO S8-8	BEAM REPAIR LOCATIONS		
S2-7 TO S2-10	SUBSTRUCTURE REPAIRS	S5-7 TO S5-10	SUBSTRUCTURE REPAIRS	S8-9 TO S8-14	SUBSTRUCTURE REPAIRS		

PROJECT: I-6052 / 15BPR.35

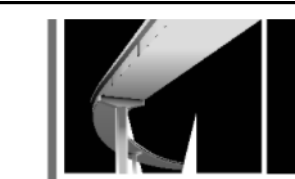
CONTRACT: C204237

1/12/2023 9:03:08 AM User: Planning Filename: N:\NC Bridges\21001.39-I-6052-10-Meck Co.Br. Preservation\Structures\400\_003-I-6052-SMU\_ID1.dgn



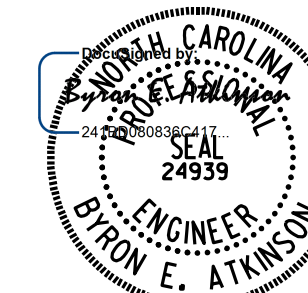
**TYPE OF WORK:**  
BRIDGE PRESERVATION - DECK REPAIR, LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, JOINT REHABILITATION, STRUCTURAL STEEL REPAIRS, INSTALLATION OF BEARING KEEPER ANGLES, CLEANING AND PAINTING STRUCTURAL STEEL, CLEANING AND PAINTING BEARINGS AND SUBSTRUCTURE REPAIRS.

Prepared in the Office of:



MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER : P-0671

for the North Carolina Department of Transportation



1/12/2023

BYRON E. ATKINSON, P.E.  
PROJECT DESIGN ENGINEER

— TOTAL BILL OF MATERIAL —

BRIDGE NO.	GROOVING BRIDGE FLOORS	CLASS II SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	PLACING AND FINISHING OF LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	VOLUMETRIC MIXER	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS FOR PRESERVATION	POURABLE SILICONE JOINT SEALANT
	SQ. FT.	SQ. YDS.	CU. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	LUMP SUM	CU. FT.	CU. FT.	LIN. FT.	LIN. FT.	LIN. FT.
590281	3,726	1.4	23.5	478.3	478.3	478.3	LUMP SUM	7.0	33.0	8.0	54.5	75.8
590282	3,706	-	23.2	474.5	474.5	474.5	LUMP SUM	5.4	33.7	7.0	55.4	64.6
590283	5,794	7.0	36.4	747.0	747.0	747.0	LUMP SUM	12.3	24.0	18.5	111.4	74.3
590337	7,848	5.6	46.1	945.7	945.7	945.7	LUMP SUM	10.1	29.3	27.0	104.1	98.2
590338	6,008	3.7	35.8	735.1	735.1	735.1	LUMP SUM	9.5	76.6	13.0	77.6	77.6
590339	-	-	-	-	-	-	-	4.5	39.0	81.3	219.0	148.6
590341	6,830	11.8	40.5	829.3	829.3	829.3	LUMP SUM	4.7	9.8	19.5	84.5	66.3
590342	14,983	22.6	85.8	1,759.4	1,759.4	1,759.4	LUMP SUM	7.8	70.0	18.0	193.3	87.3
15BPR.35	590345	14,237	94.0	82.6	1,693.0	1,693.0	LUMP SUM	-	164.0	61.5	104.0	73.0
TOTAL		63,132	146.1	373.9	7,662.3	7,662.3	LUMP SUM	61.3	479.4	253.8	1003.8	765.7

NOTE:

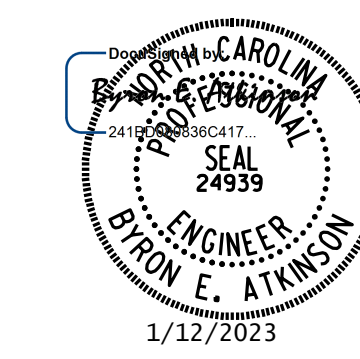
AT THE TIME OF THE PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT THE FOLLOWING ITEM(S) LISTED WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT THE FOLLOWING ITEM(S) LISTED, OR OTHER WORK WILL BE NECESSARY TO PROPERLY COMPLETE THE INTENDED BRIDGE PRESERVATION/REHABILITATION WORK. THE CONTRACTOR SHALL BE PREPARED TO PERFORM SUCH WORK IN A TIMELY MANNER, AS DETERMINED IN THE FIELD. SUCH WORK SHALL BE CONSIDERED EXTRA WORK AND SHALL BE ADDRESSED AS PER ARTICLE 104-7 OF THE STANDARD SPECIFICATIONS. PROJECT SPECIAL PROVISIONS THAT OUTLINE REQUIREMENTS FOR THESE POTENTIAL ADDITIONAL WORK 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:

ITEM	DESCRIPTION	UNIT
1	CLASS III SURFACE PREPARATION	SY
2	CONCRETE FOR DECK REPAIR	

— TOTAL BILL OF MATERIAL —

BRIDGE NO.	ELASTOMERIC CONCRETE FOR PRESERVATION	BRIDGE JOINT DEMOLITION	POLLUTION CONTROL	EPOXY COATING	BEAM REPAIR PLATING	BEAM REPAIR CUT-OUT	BOLTED BEAM REPAIR	STEEL BEARING KEEPER ANGLE ASSEMBLY	CLEANING AND REPAINTING OF BRIDGE NO. ---	PAINTING CONTAINMENT FOR BRIDGE NO. ---	CLEANING AND PAINTING OF EXISTING BEARINGS WITH HIGH RATIO CALCIUM SULFONATE	TYPE I BRIDGE JACKING FOR BRIDGE NO. ---	REMOVE AND REPLACE CURB AND GUTTER	
	CU. FT.	SQ. FT.	LUMP SUM	SQ. FT.	LBS.	LBS.	LBS.	EACH	LUMP SUM	LUMP SUM	EACH	EACH	LIN. FT.	
590281	12.7	50.6	LUMP SUM	306.6	190	-	-	1	LUMP SUM	LUMP SUM	30	1	15	
590282	12.9	51.5	LUMP SUM	289.2	130	-	-	2	LUMP SUM	LUMP SUM	24	1	-	
590283	26.4	105.4	-	500.2	-	-	-	-	-	-	-	-	30	
590337	25.1	100.1	LUMP SUM	490.2	20	-	-	6	LUMP SUM	LUMP SUM	36	-	10	
590338	18.4	73.6	LUMP SUM	386.6	845	-	80	1	LUMP SUM	LUMP SUM	30	-	-	
590339	89.5	357.6	LUMP SUM	915.2	-	-	-	-	LUMP SUM	LUMP SUM	80	4	-	
590341	20.2	80.6	LUMP SUM	403.3	145	-	-	-	LUMP SUM	LUMP SUM	36	3	-	
590342	46.9	187.4	LUMP SUM	843.6	920	150	-	1	LUMP SUM	LUMP SUM	113	7	-	
15BPR.35	590345	25.0	100.0	LUMP SUM	505.2	780	-	-	LUMP SUM	LUMP SUM	56	6	-	
TOTAL		277.1	1,106.8	LUMP SUM	4,640.1	3,030	150	80	15	LUMP SUM	LUMP SUM	405	22	55

I-6052  
PROJECT NO. & 15BPR.35  
  
MECKLENBURG COUNTY  
BRIDGE NO. 590281, 590282  
590283, 590337  
590338, 590339  
590341, 590342  
590345



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
  
**TOTAL BILL OF MATERIAL**

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-1 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
CHECKED BY : B.E. ATKINSON DATE : 10/2022  
DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:17:48 AM User: blanning Filename: N:\NC Bridges\21001.39-I-6052-101 Meck. Co. Br. Preservation\Structures\400\_005-I-6052-SMU-TBOMI.dgn



**NOTES:**

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/06/2022.

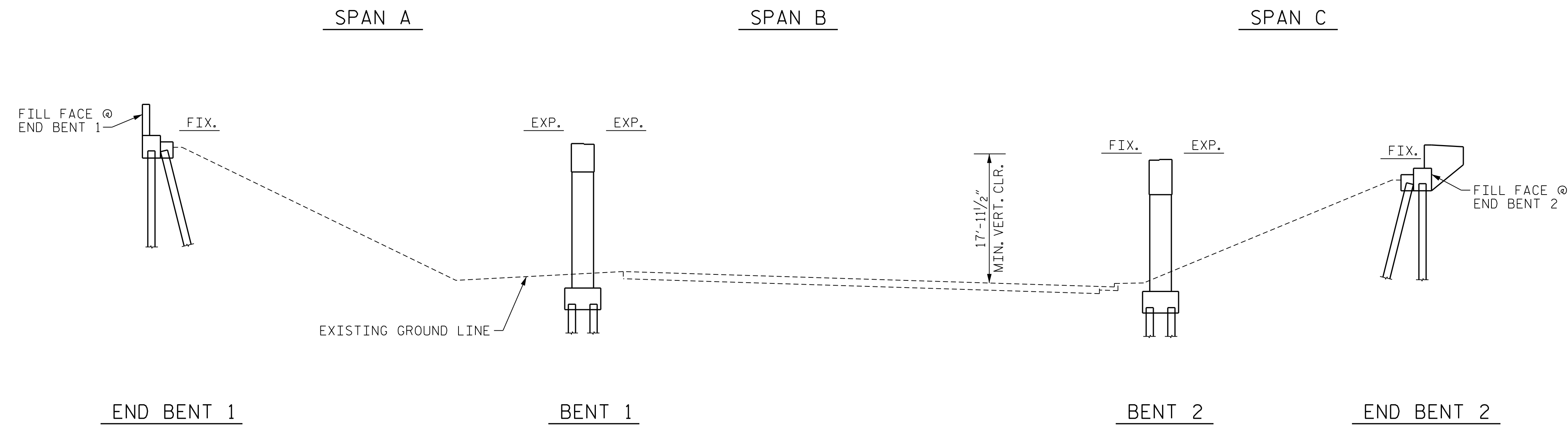
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

**SCOPE OF WORK:**

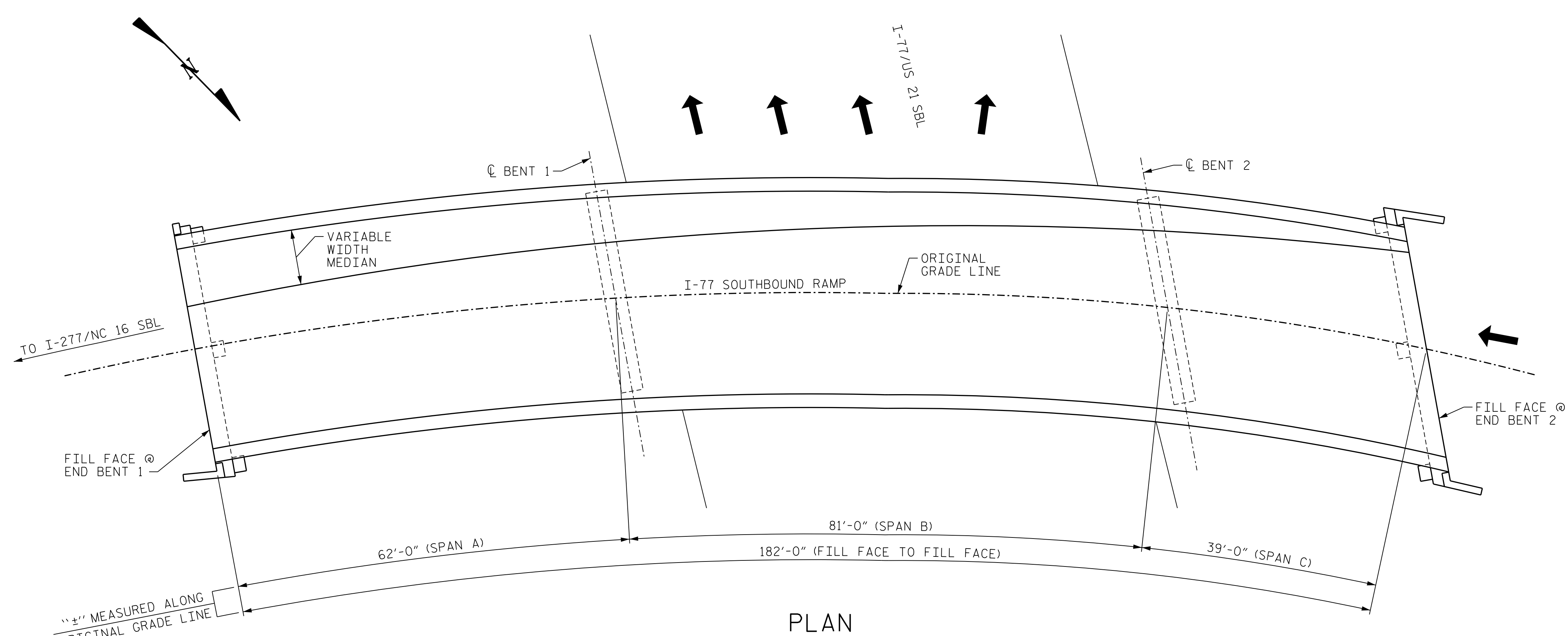
- PARTIALLY REMOVE BRIDGE DECK CONCRETE USING SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- PERFORM CLASS II SURFACE PREPARATION AND REPAIR ON DECK SURFACES.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES).
- RECONSTRUCT BRIDGE DECK JOINT AND INSTALL JOINT SEALS.
- GROOVE LMC-VES BRIDGE DECK.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.
- STRUCTURAL STEEL REPAIRS.
- INSTALL STEEL BEARING KEEPER ANGLE ASSEMBLY.
- CLEANING AND PAINTING STEEL BEAMS.
- CLEANING AND PAINTING BEARINGS WITH HRCSA.

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

RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

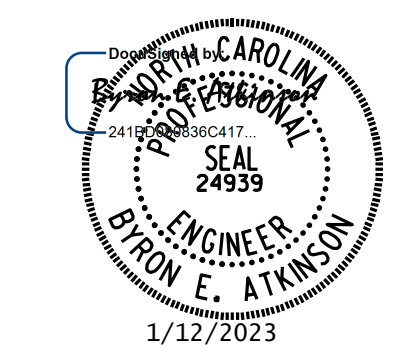


SECTION ALONG ORIGINAL GRADE LINE



PLAN

1/12/2023 9:17:49 AM User: blanning  
 Filenamer: N:\NC Bridges\M2100139-I-6052-101\Meck. Co. Br. Preservation\Structures\401.001.I-6052.SML.GD1.590281.dgn



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590281

SHEET 1 OF 2  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON  
 I-77 SOUTHBOUND RAMP  
 OVER I-77/US 21 SBL

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-1 TOTAL SHEETS 108
2			4			





**LOCATION SKETCH**

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

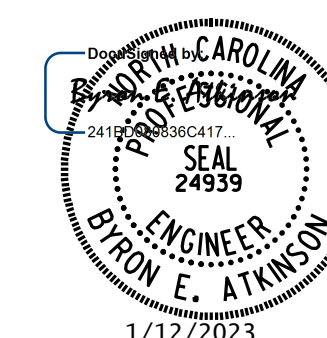
BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°-14'-39.08"	80°-50'-53.05"

**NOTES:**

- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- FOR CLASS II SURFACE PREPARATION, SCARIFYING BRIDGE DECK AND HYDRO-DEMOLITION OF BRIDGE DECK, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.
- WORK ON BRIDGE SHALL BE PREFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE TO THE PROJECT SPECIAL PROVISION.
- PRIOR TO BEGINNING WORK, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST.
- FOR POLLUTION CONTROL, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.
- FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.
- FOR STEEL BEARING KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND REPAINTING OF BRIDGE, AND PAINTING CONTAINMENT FOR BRIDGE, SEE "PAINTING EXISTING STRUCTURE" SPECIAL PROVISION.
- FOR TYPE I BRIDGE JACKING, SEE SPECIAL PROVISIONS.
- FOR REMOVE AND REPLACE CURB AND GUTTER, SEE SPECIAL PROVISIONS.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590281

SHEET 2 OF 2



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>GENERAL DRAWING</b>					
FOR BRIDGE ON I-77 SOUTHBOUND RAMP OVER I-77/US 21 SBL					
SHEET NO. <b>S1-2</b>					
TOTAL SHEETS <b>108</b>					

DRAWN BY : <u>B.E. LANNING</u>	DATE : <u>10/2022</u>
CHECKED BY : <u>B.E. ATKINSON</u>	DATE : <u>10/2022</u>
DESIGN ENGINEER OF RECORD : <u>B.E. ATKINSON</u>	DATE : <u>10/2022</u>

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

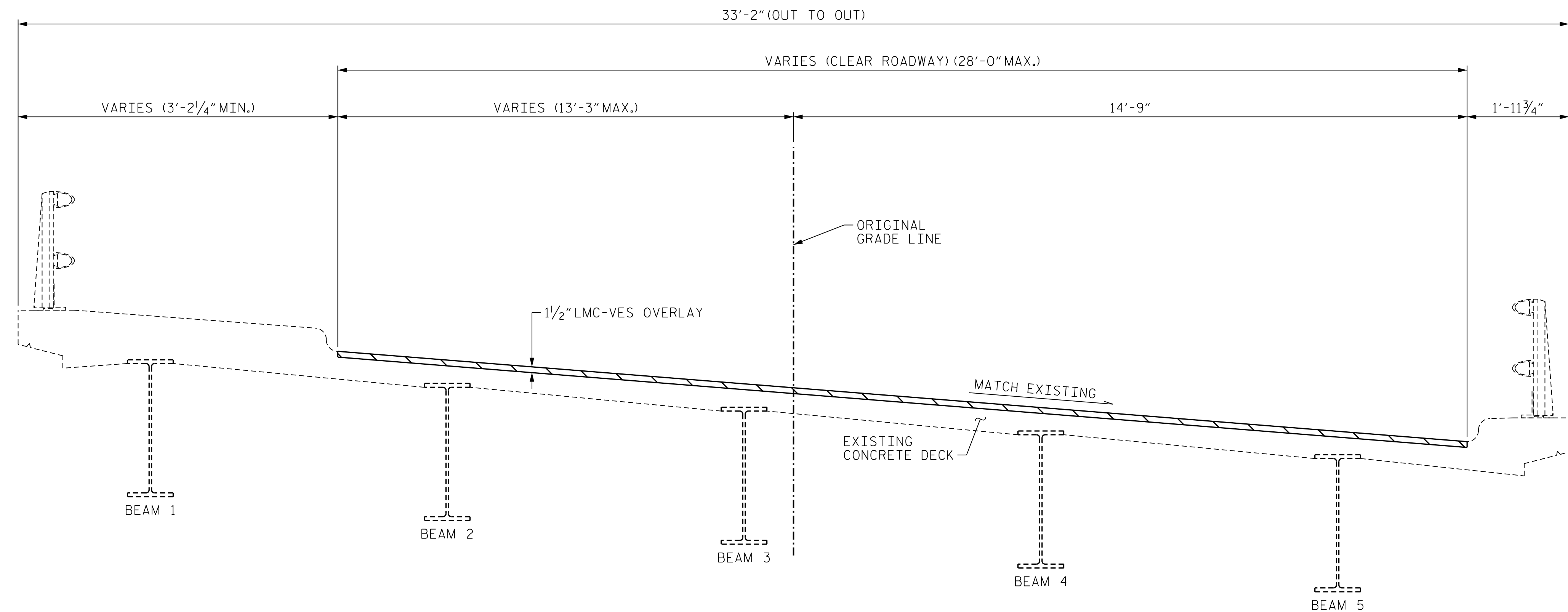
1/12/2023 9:17:50 AM User: blanning  
 Filenamer: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br.Preservation\Structures\401.003-I-6052-SMU.G02.590281.dgn



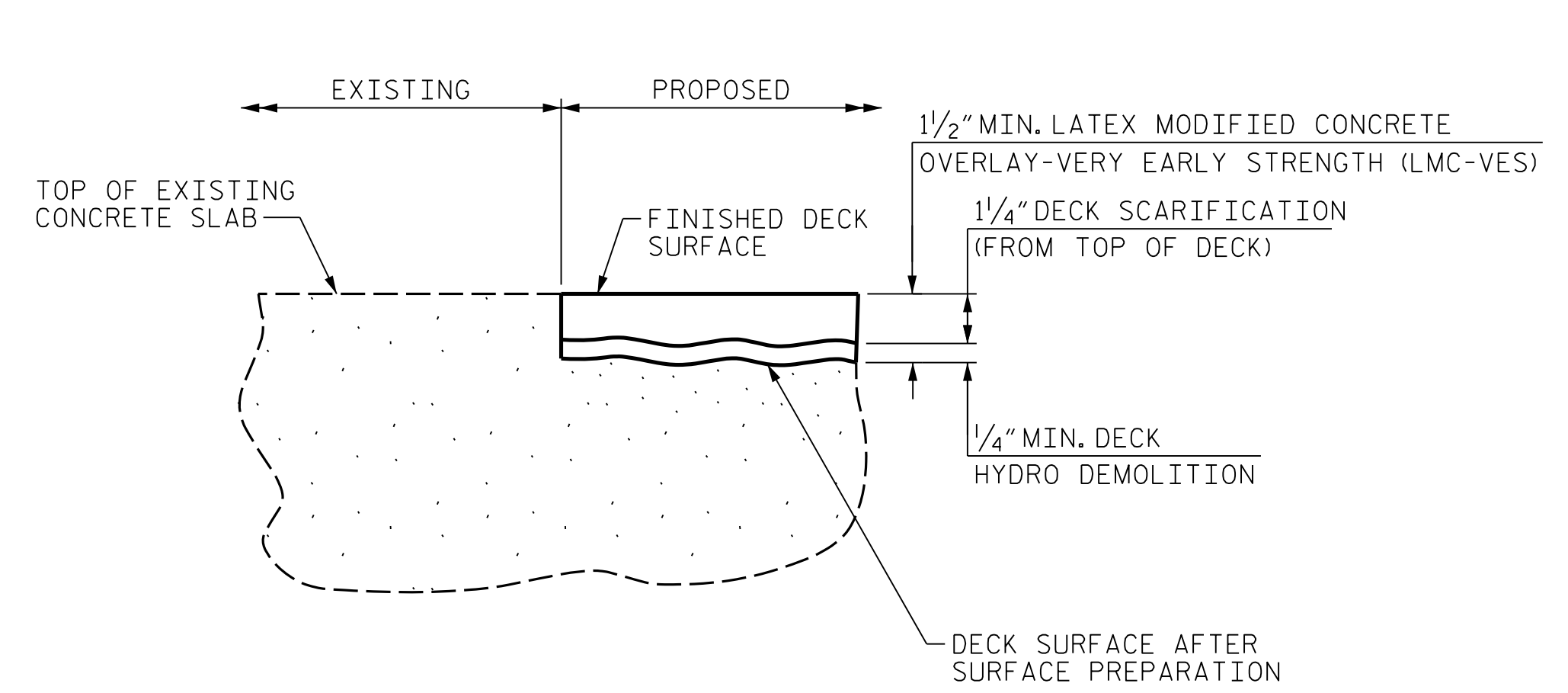
**NOTES:**

WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.

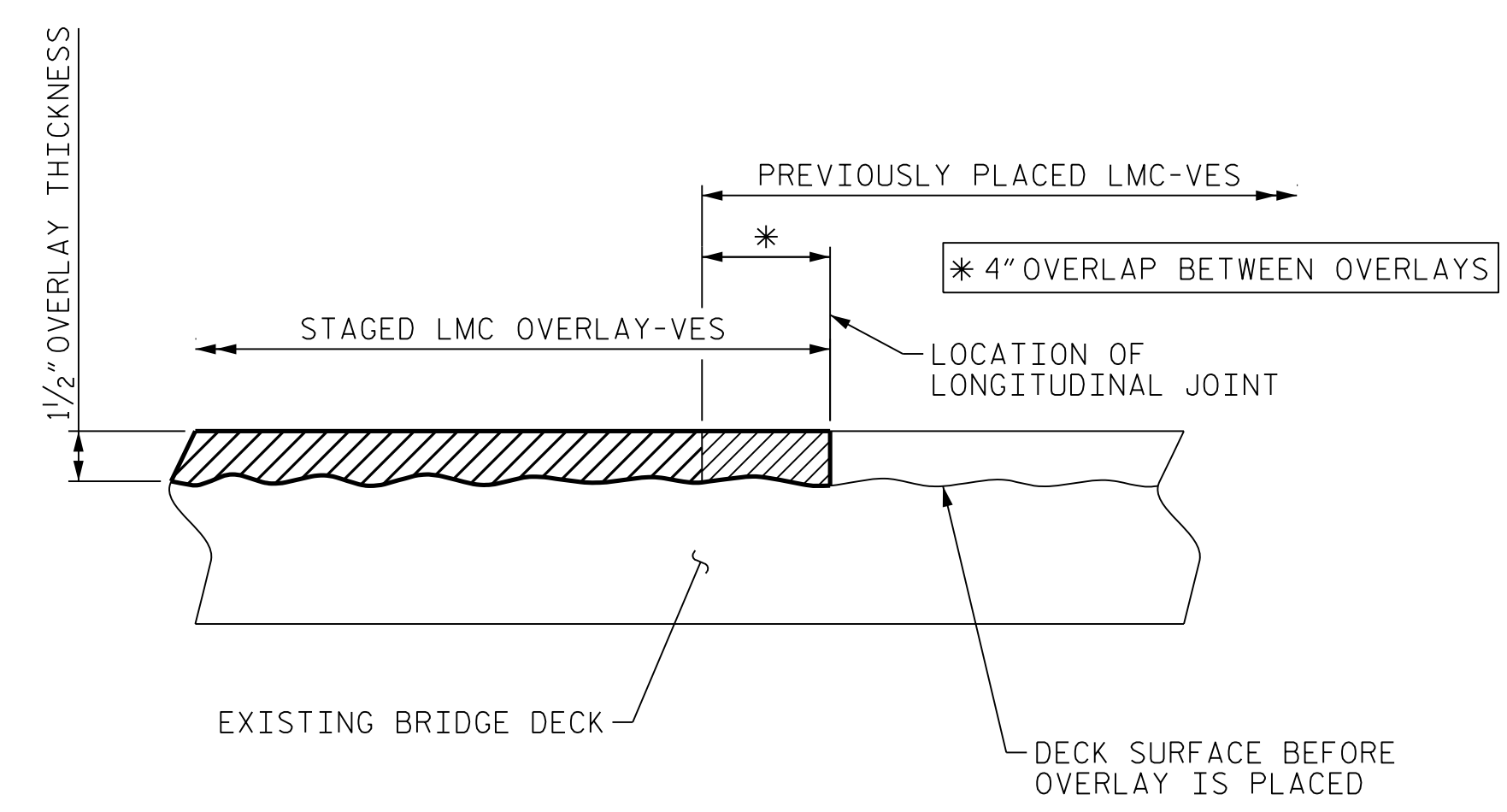
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.



**TYPICAL SECTION**  
(ALL DIMENSIONS ARE RADIAL)

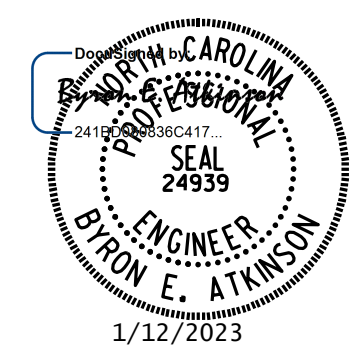


**DETAIL FOR LMC-VES OVERLAY**



**SECTION THRU DECK**  
**STAGED LMC-VES OVERLAY JOINT**

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590281



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION  
&  
OVERLAY DETAILS

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

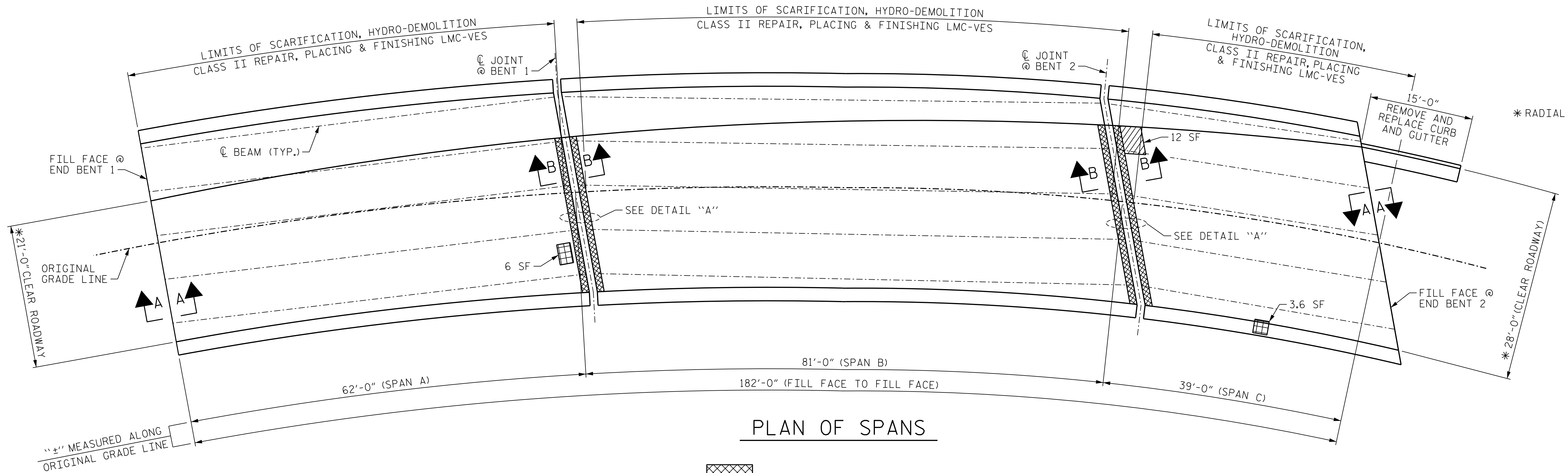
**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-3
2			4			TOTAL SHEETS 108

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:17:53 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052.101 Meck Co. Br. Preservation\Structures\401.005-I-6052.SMU.TS1.590281.dgn





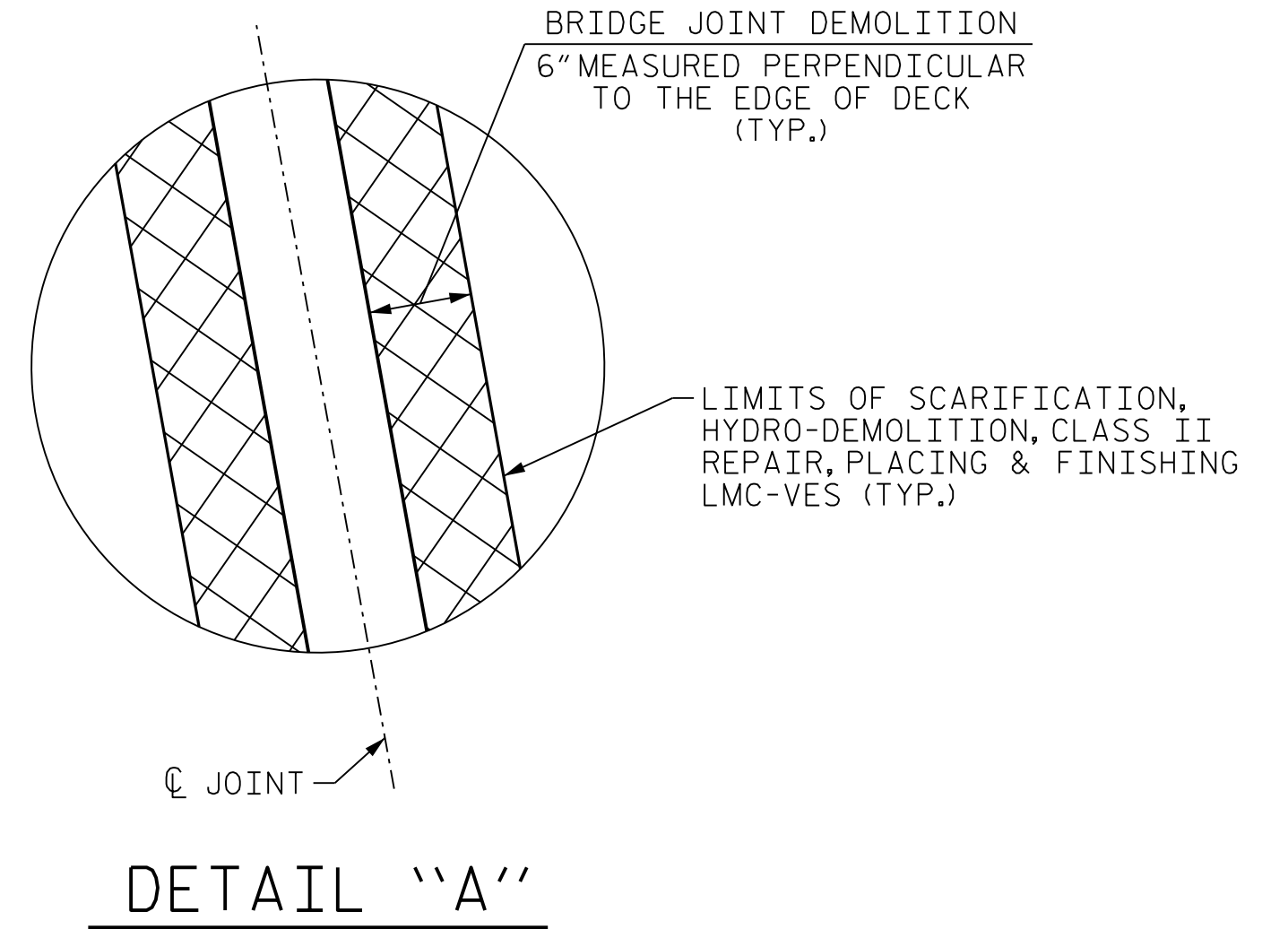
PLAN OF SPANS

- BRIDGE JOINT DEMOLITION
- CLASS II SURFACE PREPARATION
- DECK SCARIFICATION, HYDRO-DEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY-VES
- UNDERSIDE OF DECK REPAIR

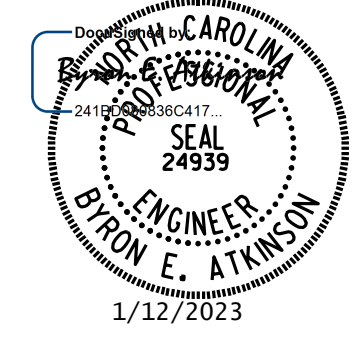
AS-BUILT REPAIR QUANTITY TABLE SPANS A, B AND C				
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	478.3 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	478.3 SY			
CLASS II SURFACE PREPARATION	1.4 SY			
LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	23.5 CY			
PLACING & FINISHING LMC-VES OVERLAY	478.3 SY			
BRIDGE JOINT DEMOLITION	50.6 SF			
GROOVING BRIDGE FLOORS	3726 SF			
REMOVE AND REPLACE CURB AND GUTTER	15 LF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	3.6	1.8		
INTERIOR DIAPHRAGMS	6.0	3.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. 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.  
 PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.  
 FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.  
 QUANTITIES SHOWN IN THE BILL OF MATERIAL ARE BASED ON ESTIMATED CURB AND GUTTER REMOVAL AND REPLACEMENT. REMOVE AND REPLACE DIMENSIONS SHOWN ON PLANS. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS WITH THE ENGINEER AND SHALL ADJUST QUANTITIES AS NECESSARY.  
 EXISTING DAMAGED CURB AND GUTTER SHALL BE REMOVED AND REPLACED WITH CURB AND GUTTER IN ACCORDANCE WITH SECTION 846 OF THE STANDARD SPECIFICATIONS AND 2018 ROADWAY STANDARD DRAWING 846.01.



PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590281



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 SURFACE PREPARATION  
 SPANS A, B AND C

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

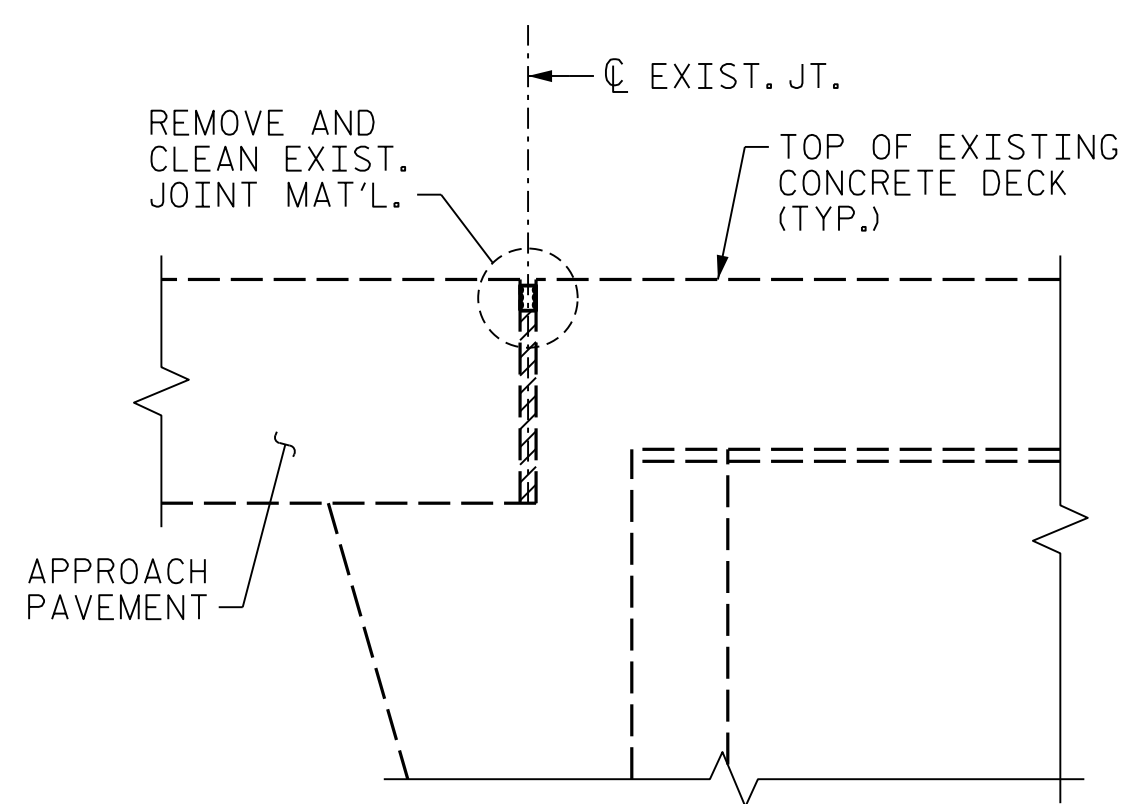
MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-4
2			4			TOTAL SHEETS 108

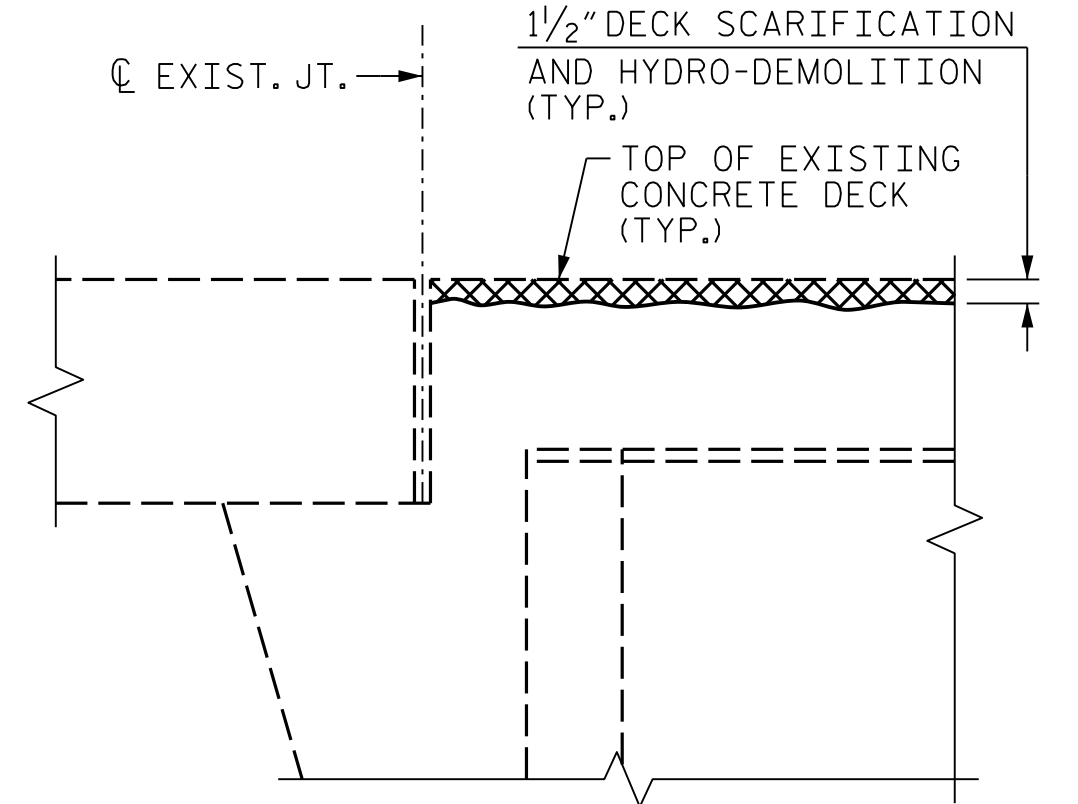
DRAWN BY: B.E. LANNING DATE: 10/2022  
 CHECKED BY: B.E. ATKINSON DATE: 10/2022  
 DESIGN ENGINEER OF RECORD: B.E. ATKINSON DATE: 10/2022

1/12/2023 9:17:54 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101\Meck Co.Br.Preservation\Structures\401.007-I-6052-SMU.DRI.590281.dgn

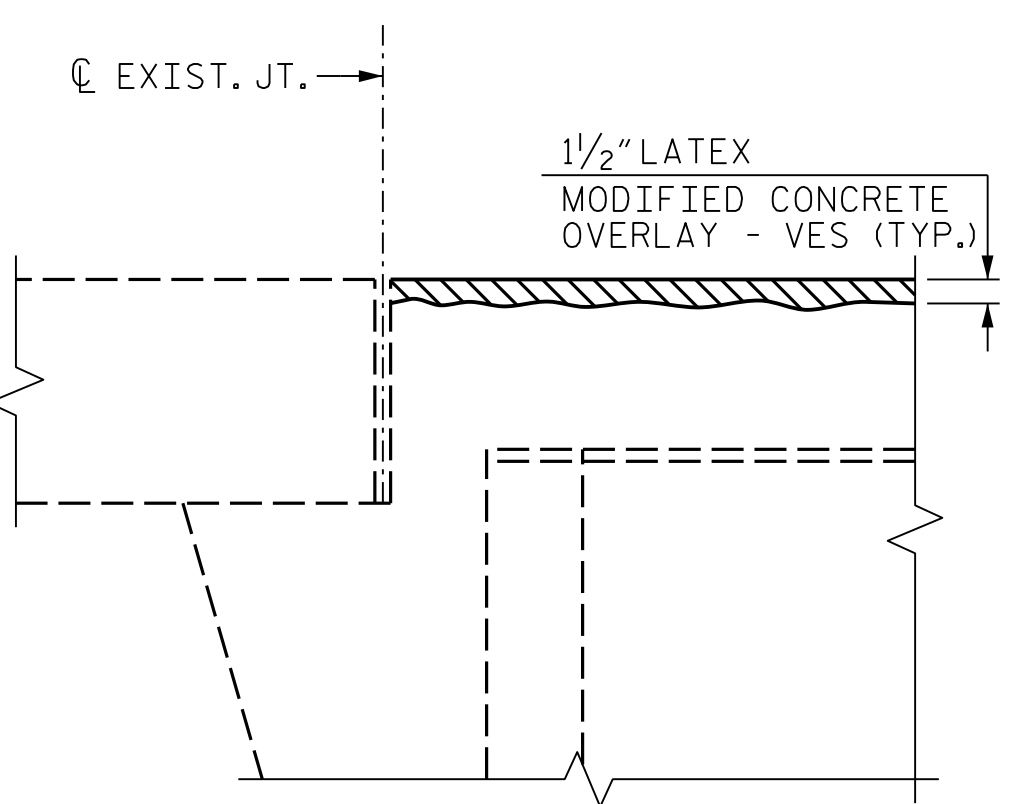




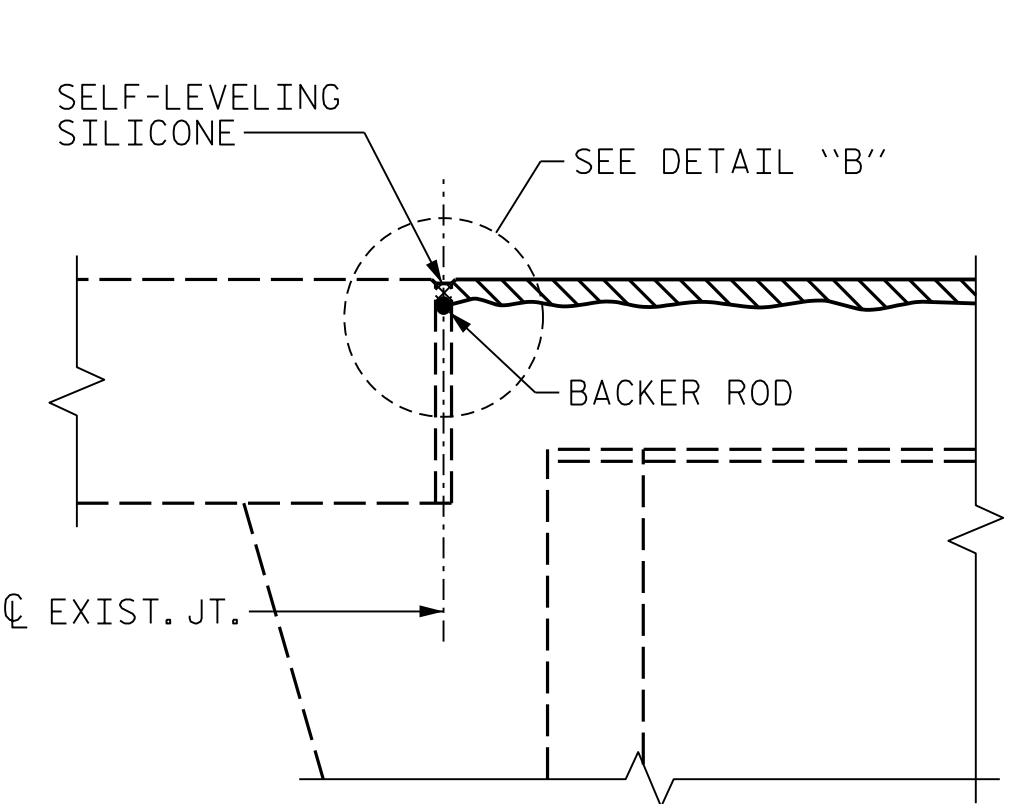
EXISTING JOINT AT END BENT



MINIMUM EXISTING JOINT DEMOLITION AT END BENT



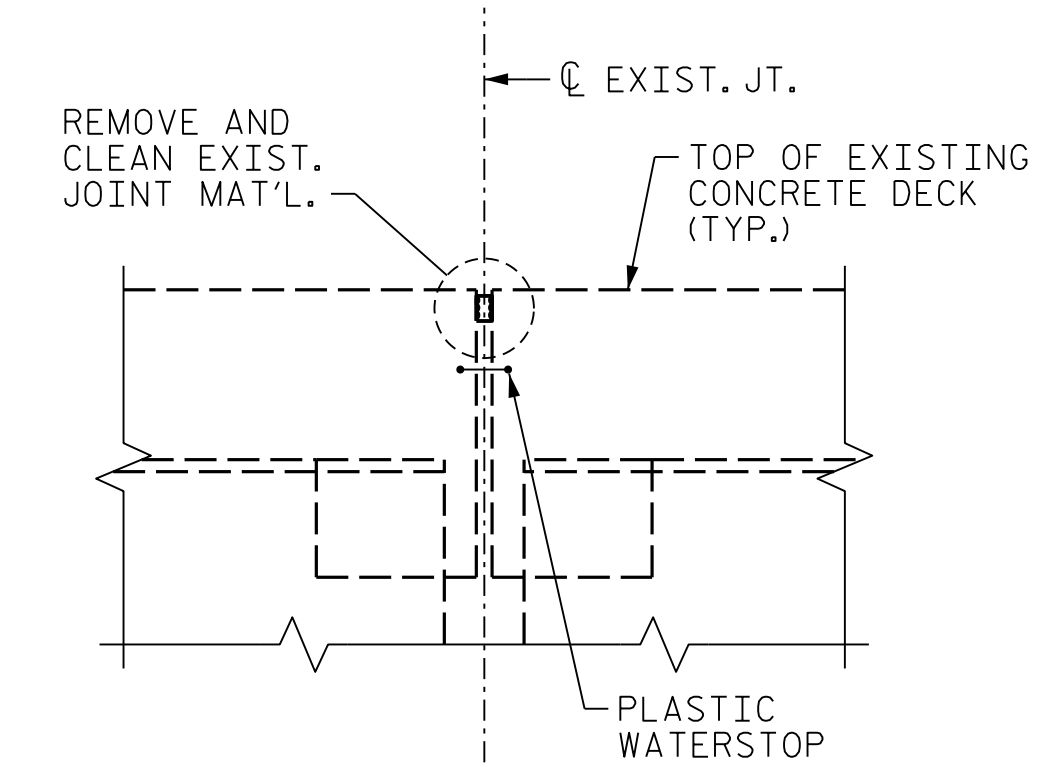
PROPOSED JOINT PRE-INSTALL DIMENSIONS



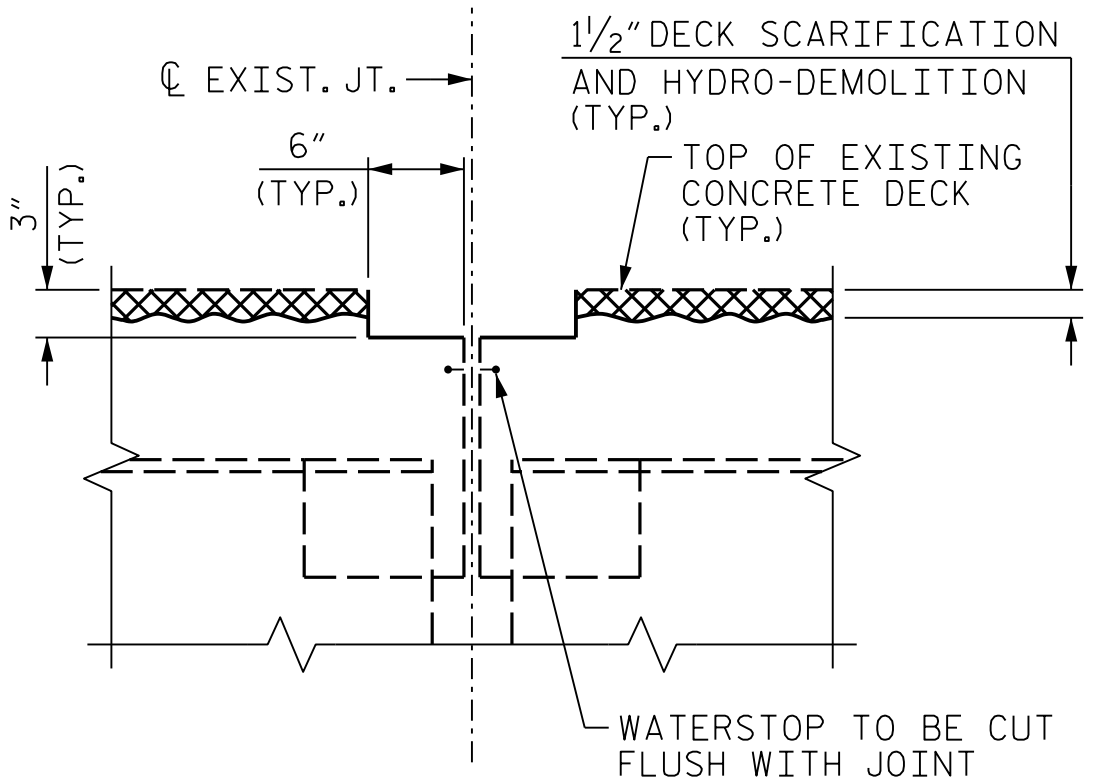
PROPOSED JOINT

**NOTES:**  
 HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.  
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
 FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE LMC OVERLAY 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 1/4", NOTIFY THE ENGINEER.  
 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 JOINTS IN LIEU OF SAWING THE JOINT.  
 THE INSTALLED FOAM JOINT SEALS SHALL BE WATER TIGHT.  
 QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE ARE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.  
 FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL OR ELASTOMERIC CONCRETE SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE OR ELASTOMERIC CONCRETE.  
 FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR 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.  
 FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

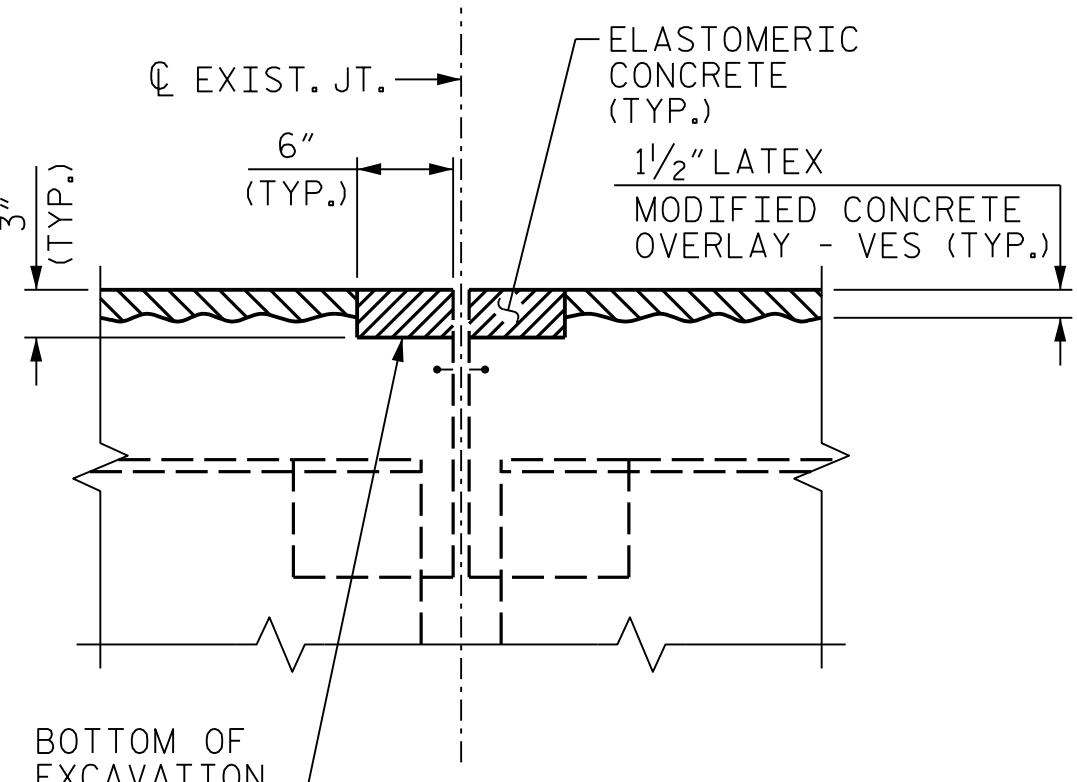
SECTION A-A



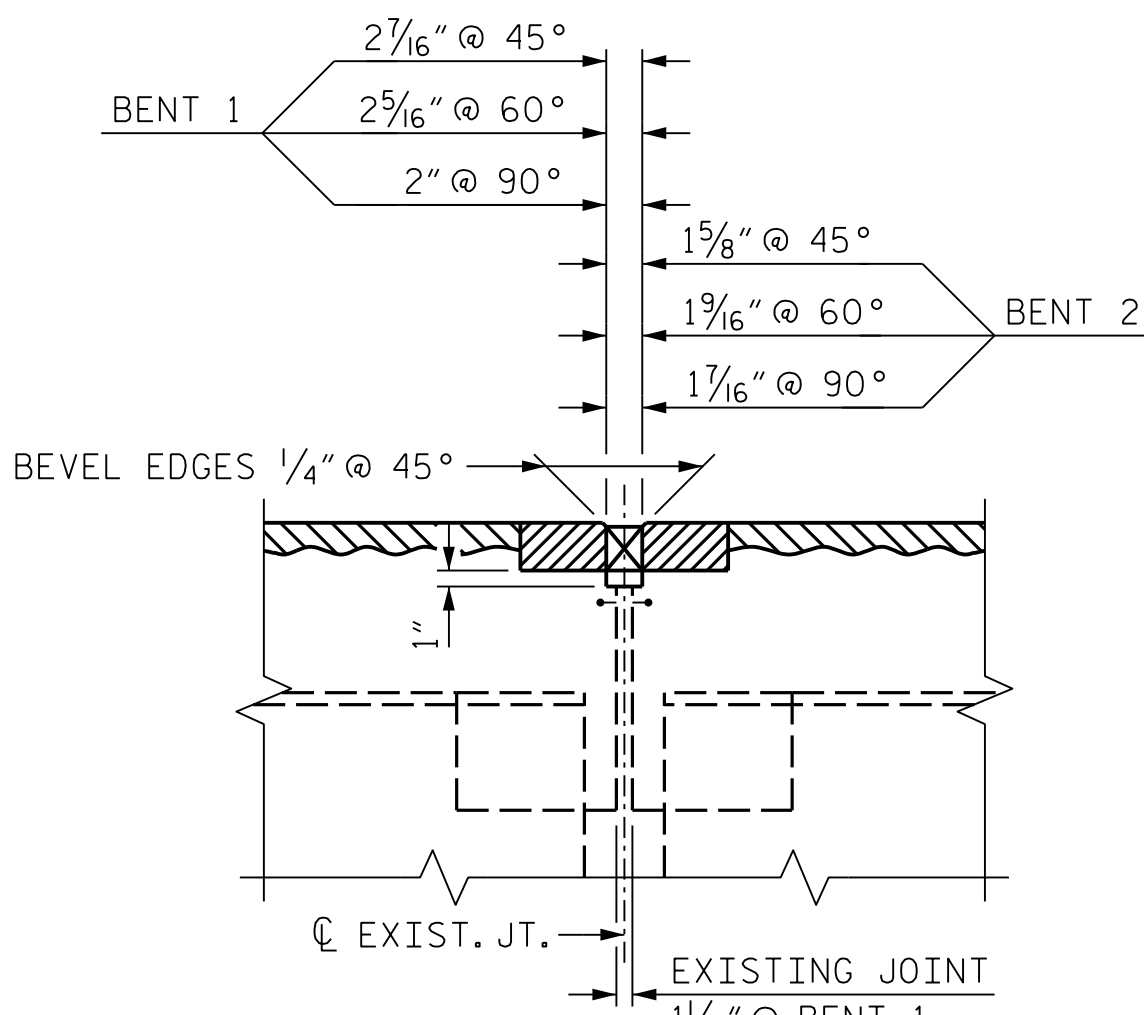
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION AT BENT

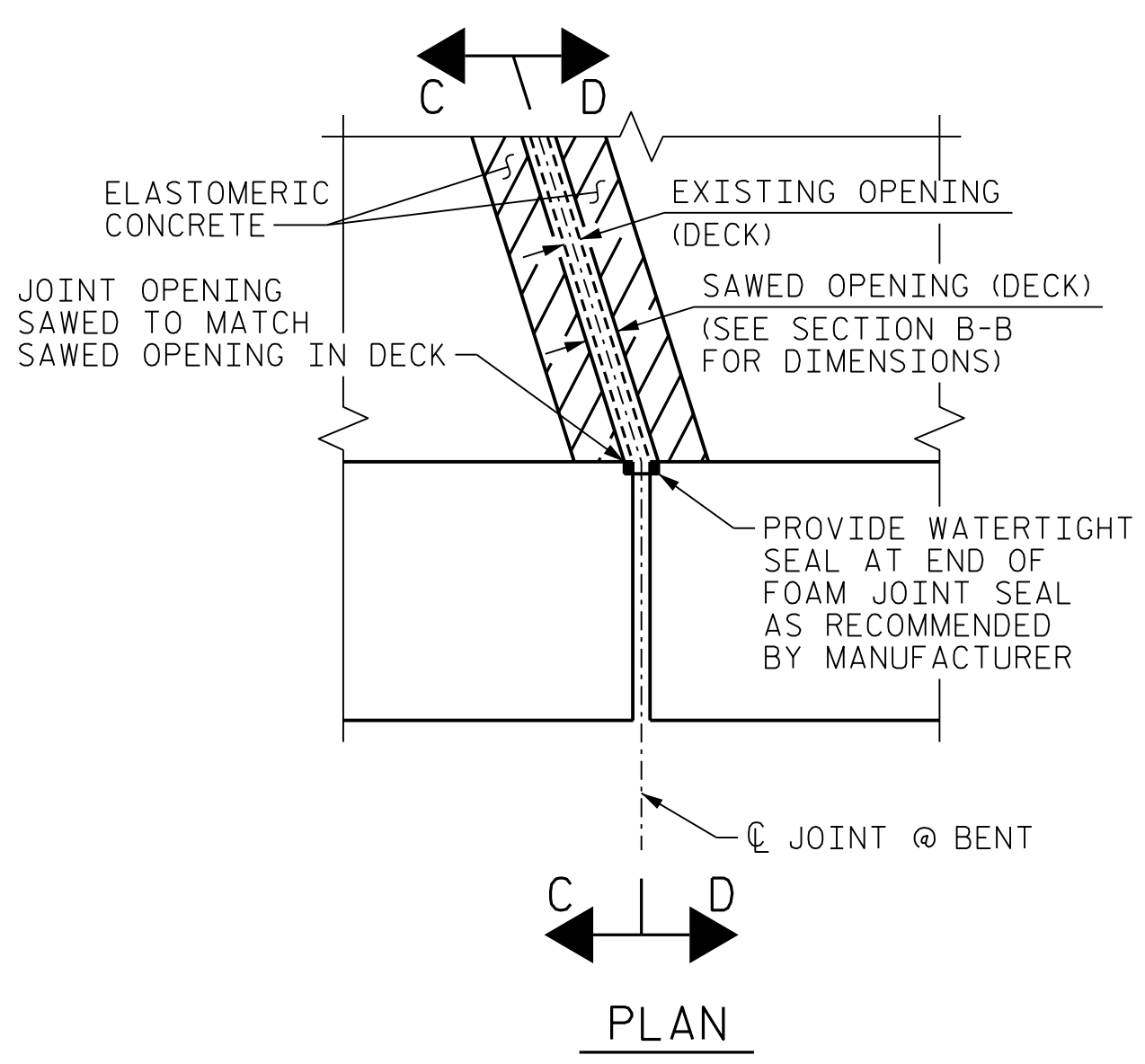


PROPOSED JOINT PRE-SAWED DIMENSIONS

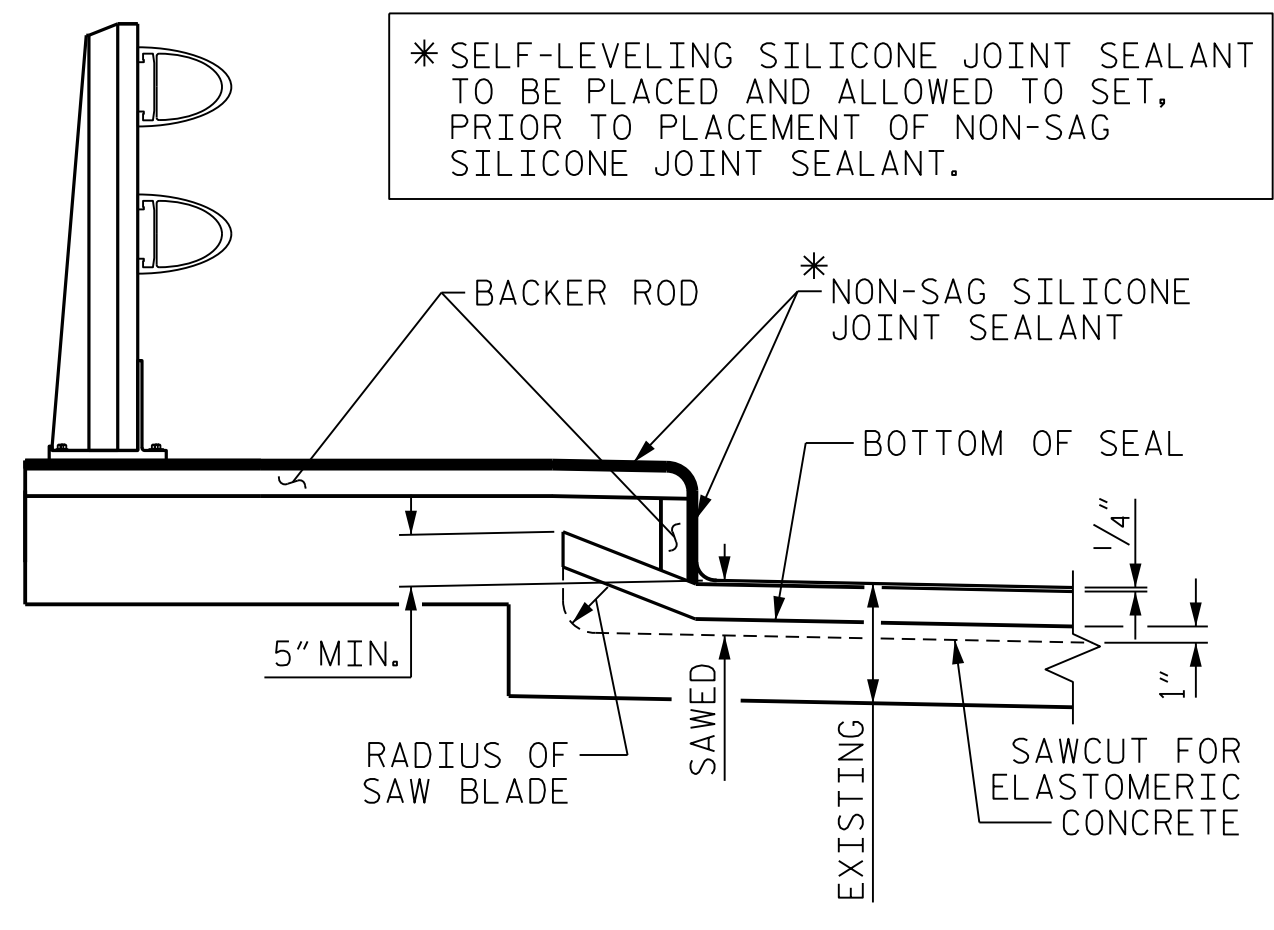


PROPOSED FOAM JOINT SEAL EXPANSION

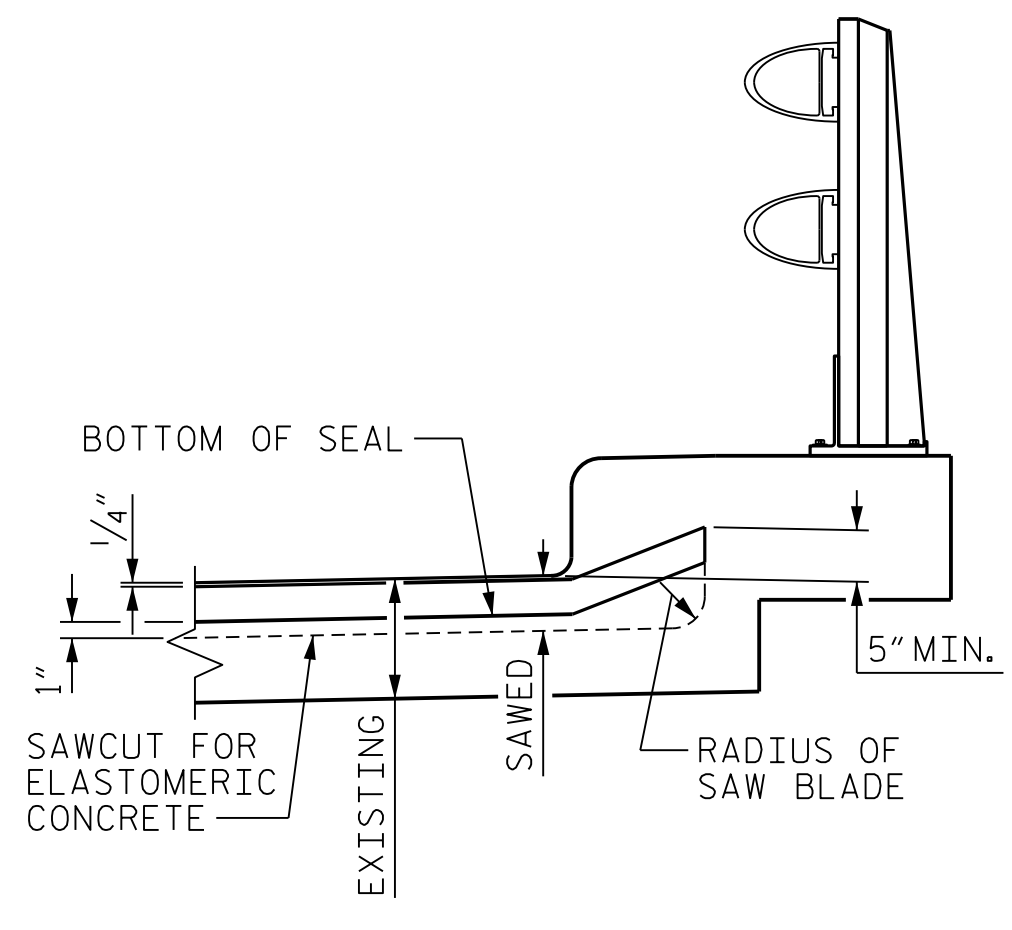
SECTION B-B



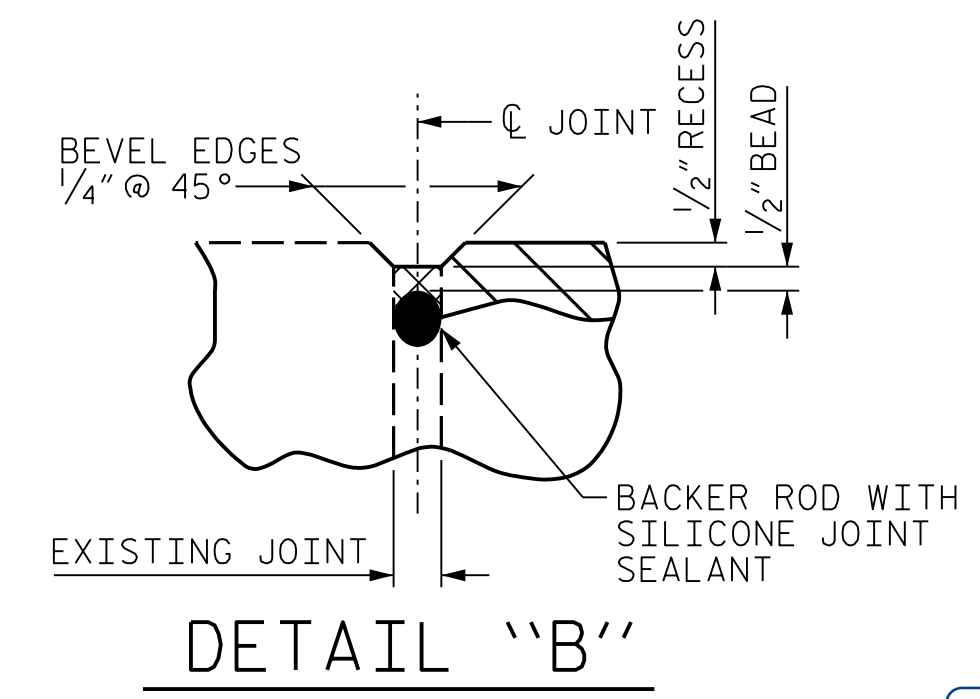
PLAN



SECTION C-C (LEFT SIDE)



SECTION D-D (RIGHT SIDE)



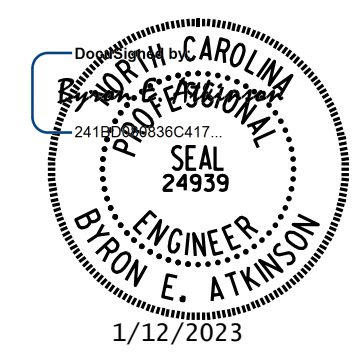
DETAIL "B"

JOINT REPAIR QUANTITY TABLE		
	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	54.5 LF	
POURABLE SILICONE JOINT SEALANT	75.8 LF	

ELASTOMERIC CONCRETE FOR PRESERVATION		
BENT	ESTIMATED	ACTUAL
BENT 1	5.8	CF
BENT 2	6.9	CF
* TOTAL	12.7	CF

\* BASED ON MINIMUM BLOCKOUT SHOWN.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590281



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

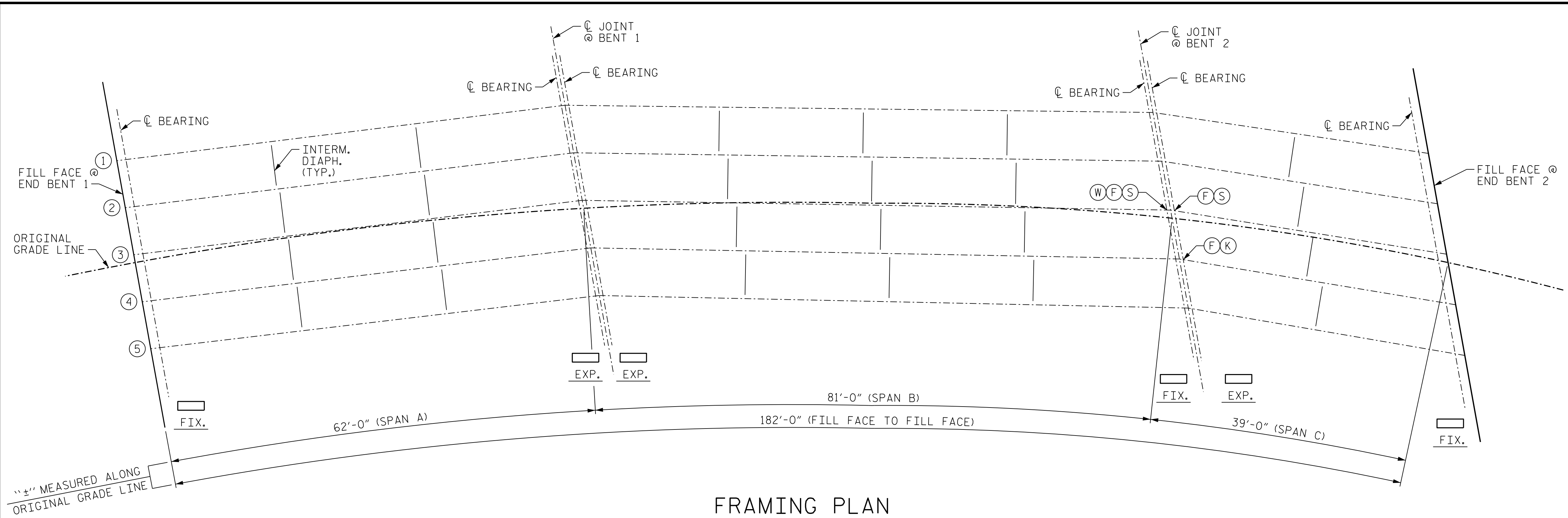
MI ENGINEERING  
 1011 SCHAUH DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO. S1-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 108
2			4			

1/12/2023 9:17:55 AM User: blanning  
 File: N:\NC Bridges\M21001.39\_I-6052.101 Meck Co. Br. Preservation\Structures\401.009\_I-6052.SMU.JT1.590281.dgn

DRAWN BY: B.E. LANNING DATE: 10/2022  
 CHECKED BY: B.E. ATKINSON DATE: 10/2022  
 DESIGN ENGINEER OF RECORD: B.E. ATKINSON DATE: 10/2022





KEY	
Ⓚ	BEAM NUMBER
Ⓜ	WEB PLATING REPAIR
Ⓢ	STIFFENER REPAIR
ⓕ	BOTTOM FLANGE PLATING REPAIR
Ⓢ	INTERMEDIATE BEAM PLATING REPAIR
Ⓟ	BEAM END REPAIR
Ⓟ	BOLTED WEB PLATE REPAIR
Ⓚ	STEEL BEARING KEEPER ANGLE ASSEMBLY

**FRAMING PLAN**

**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER AFTER THE STRUCTURAL STEEL HAS BEEN CLEANED, BLASTED, AND PRIMED, THE CONTRACTOR AND ENGINEER SHALL REVIEW THE STEEL TO VERIFY NOTED REPAIR LOCATIONS AND TO IDENTIFY ANY ADDITIONAL REPAIR LOCATIONS. THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR REPAIR DETAILS, SEE "BEAM REPAIR DETAILS" AND "STEEL KEEPER ANGLE ASSEMBLY DETAILS" SHEETS.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR STEEL BEAM REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

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

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

FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.

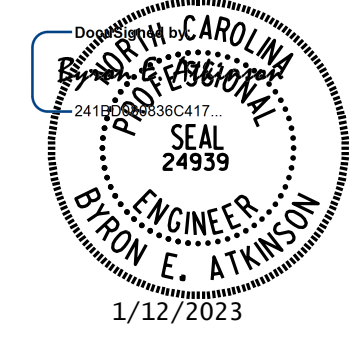
FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.

ANTICIPATED BEAM REPAIR LOCATIONS								
SPAN	BEAM	LOCATION	DETAIL TYPE	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"
B	3	BENT 2	C	26 3/4"	10"	3"	12"	-
C	3	BENT 2	D	5 1/2"	-	-	12"	-
C	4	BENT 2	D	5 1/2"	10"	-	6"	-

BEAM REPAIR QUANTITY TABLE SPANS A THRU C					
STEEL PLATES		STIFFENER		STEEL BEARING KEEPER ANGLE ASSEMBLY	
LBS.		LBS.		EA.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
145		45		1	
BEAM REPAIR CUT-OUT		BOLTED BEAM REPAIR			
LBS.		LBS.			
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL		
-		-			

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590281



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-6
2			4			TOTAL SHEETS 108

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:17:57 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101-1-6052-SML-FPI-590281.dgn

### AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	55.8			

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

#### NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

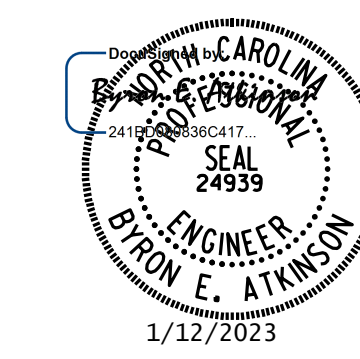
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590281

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

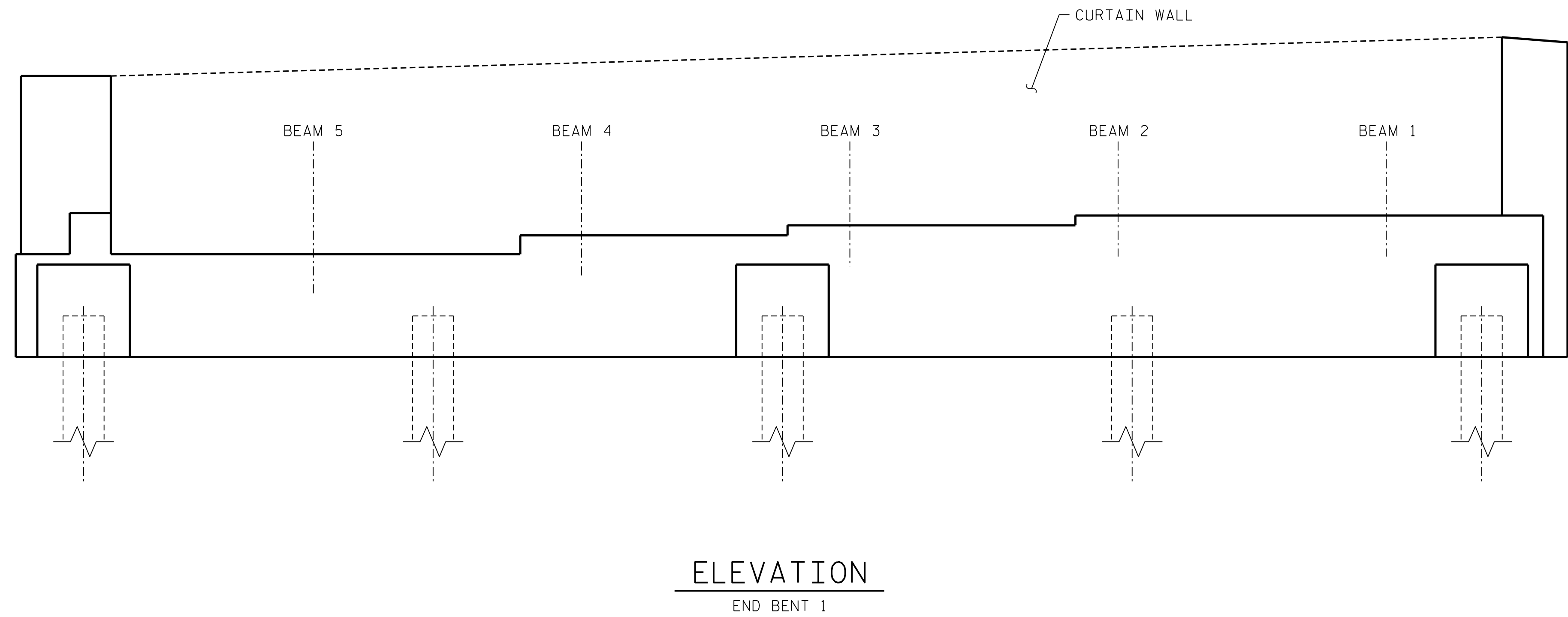
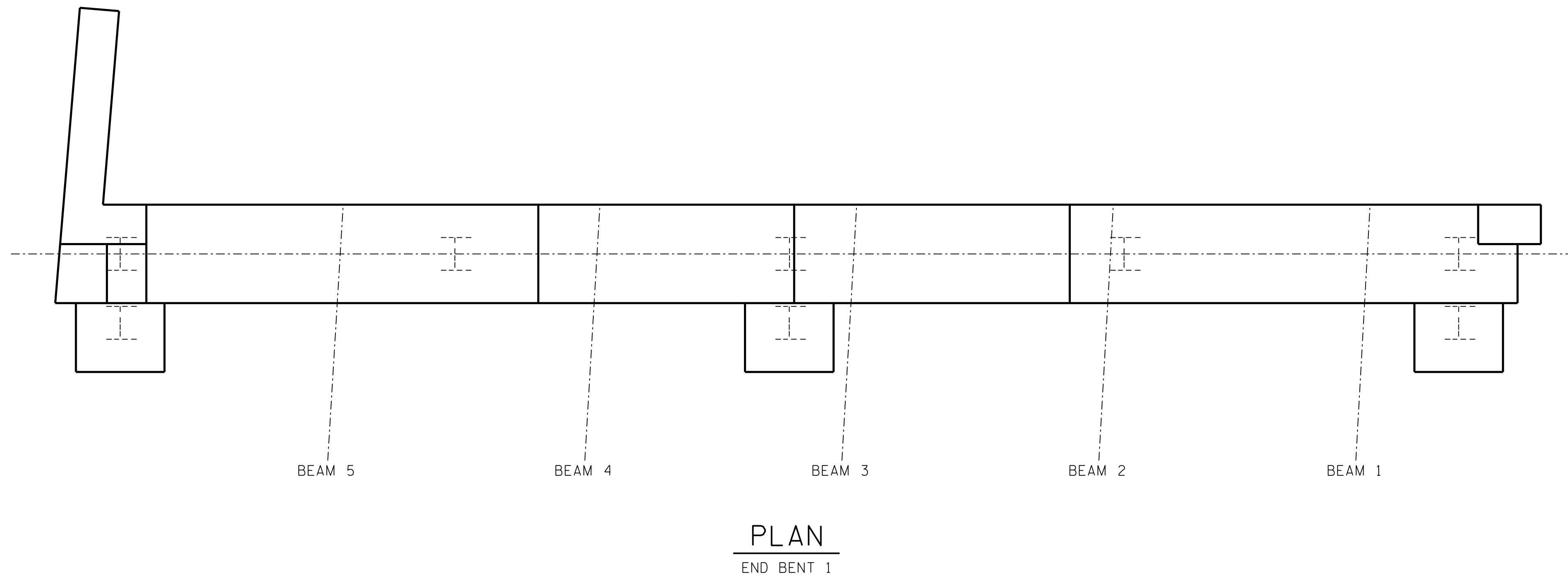
**SUBSTRUCTURE  
 END BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			108
2			4			



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671



- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:17:58 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052.101\Meck. Co. Br. Preservation\Structures\401.013-I-6052.SML.EBI.590281.dgn



1/12/2023 9:17:59 AM User: blanning  
 Filename: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br. Preservation\Structures\401-015-I-6052.SML\BT1\_590281.dgn

**NOTES:**

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

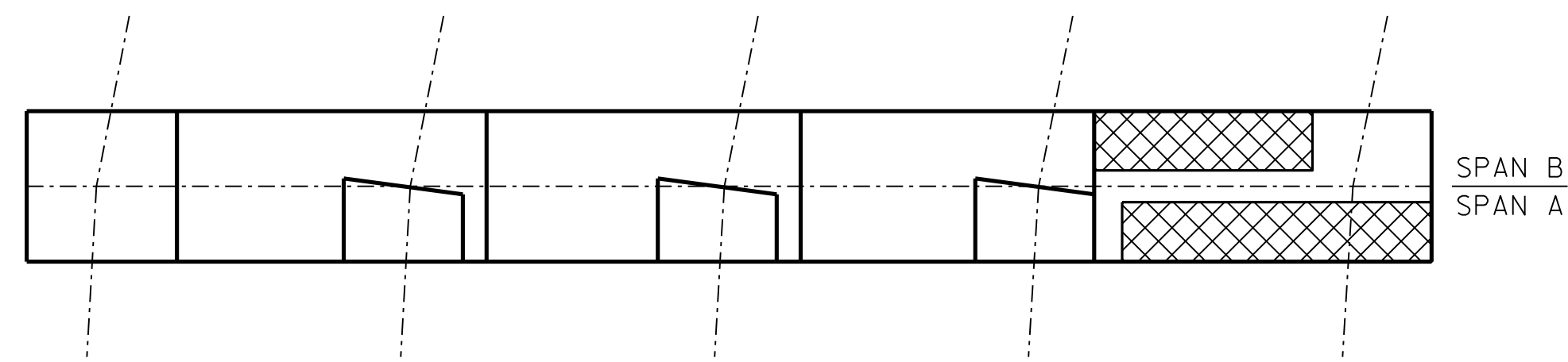
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.

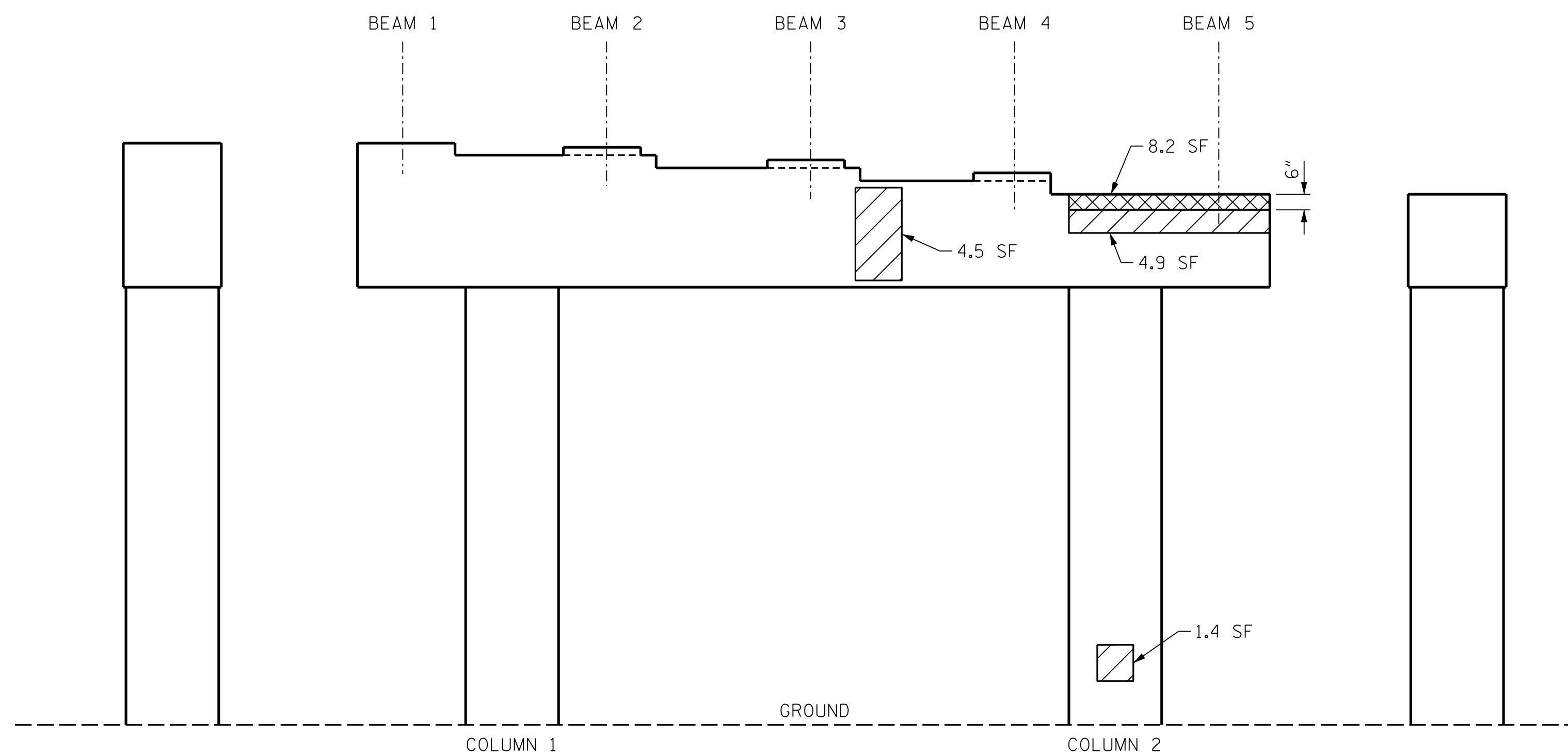
**AS-BUILT REPAIR QUANTITY TABLE**

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	9.4	4.7		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	1.4	0.7		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	14.0	7.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	3.0			
COLUMN	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	93.5			

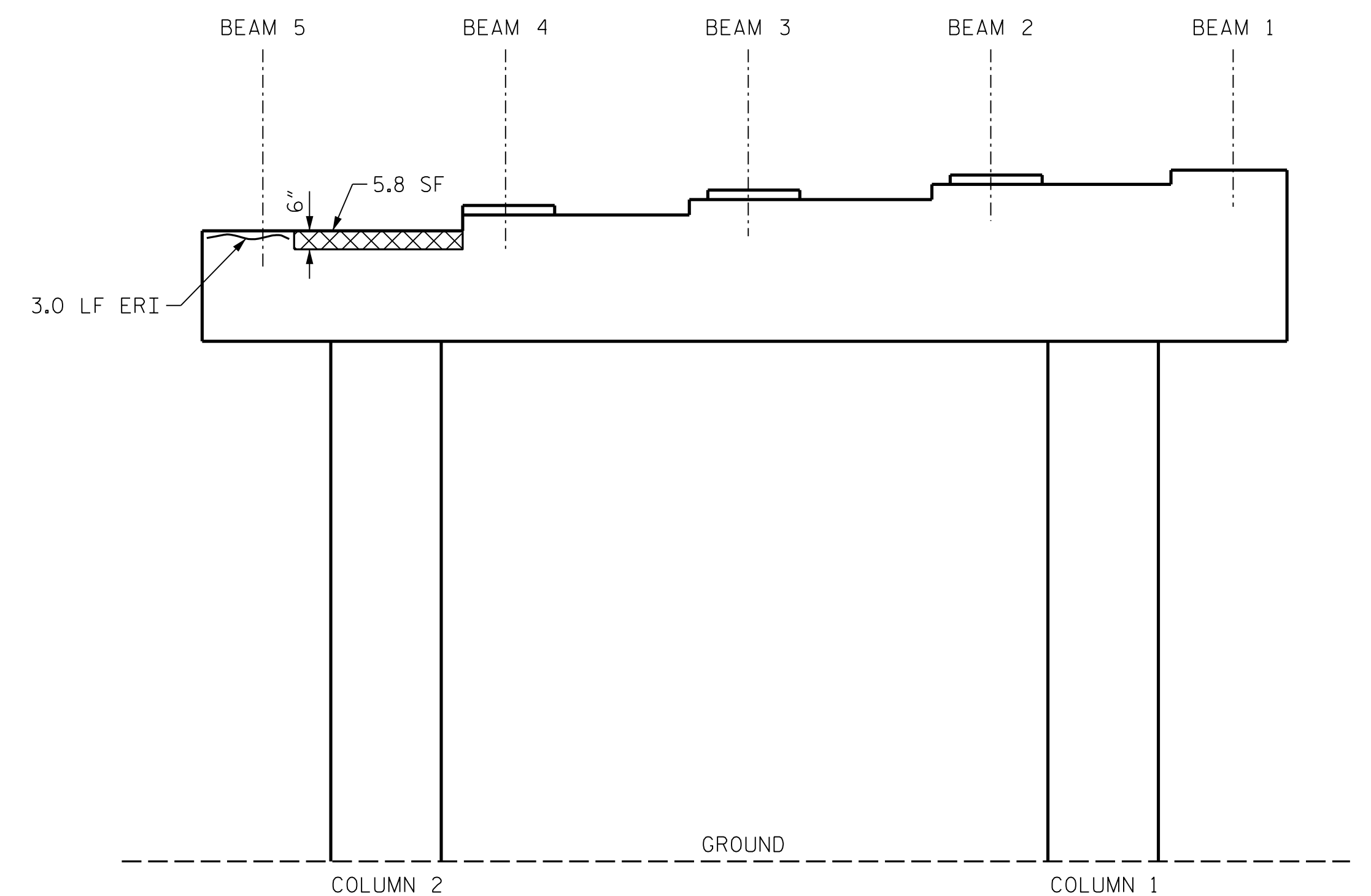
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MIN. OF 1" BEHIND REBAR AND MIN. 2" CL. TO SAWCUT. SEE REPAIR DETAILS.



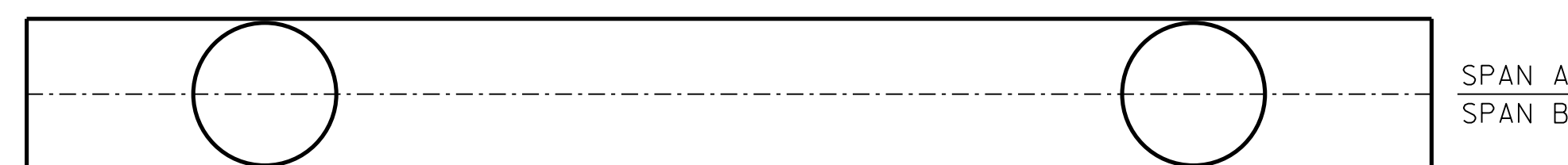
**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN A



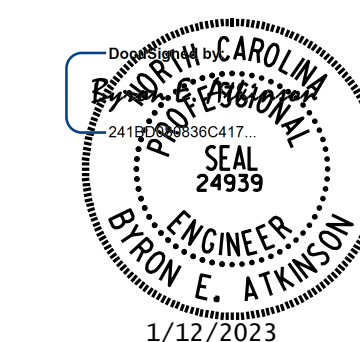
**ELEVATION**  
SPAN B



**PLAN**  
BOTTOM OF CAP  
(LOOKING UP)

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590281

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

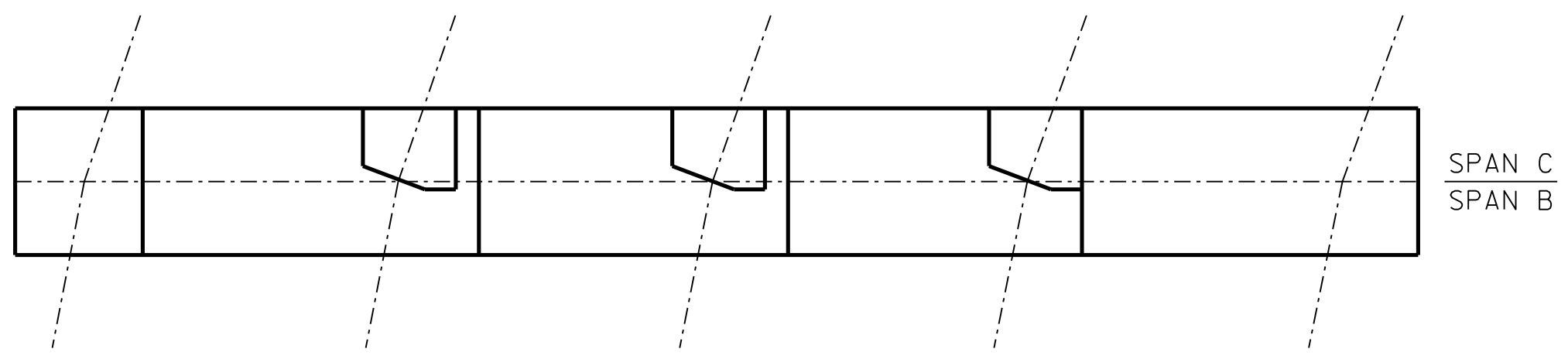
**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. <b>S1-8</b>					TOTAL SHEETS <b>108</b>

DRAWN BY : <u>B.E. LANNING</u>	DATE : <u>10/2022</u>
CHECKED BY : <u>B.E. ATKINSON</u>	DATE : <u>10/2022</u>
DESIGN ENGINEER OF RECORD : <u>B.E. ATKINSON</u>	DATE : <u>10/2022</u>



1/12/2023 9:18:00 AM User: blanning  
 File: N:\NC Bridges\W2100139-I-6052-101 Meck Co Br. Preservation\Structures\401-017-I-6052-SMU.BT2.590281.dgn



**PLAN**  
TOP OF CAP

**NOTES:**

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

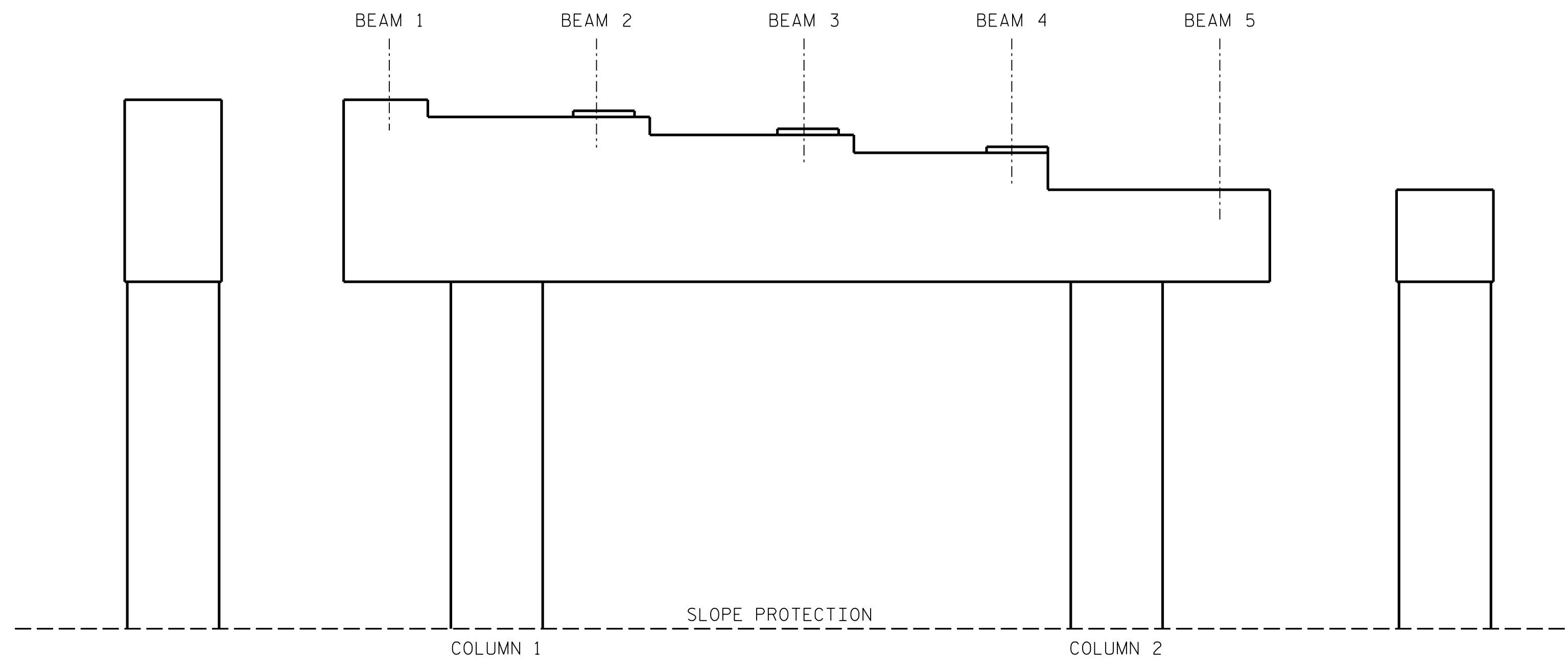
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

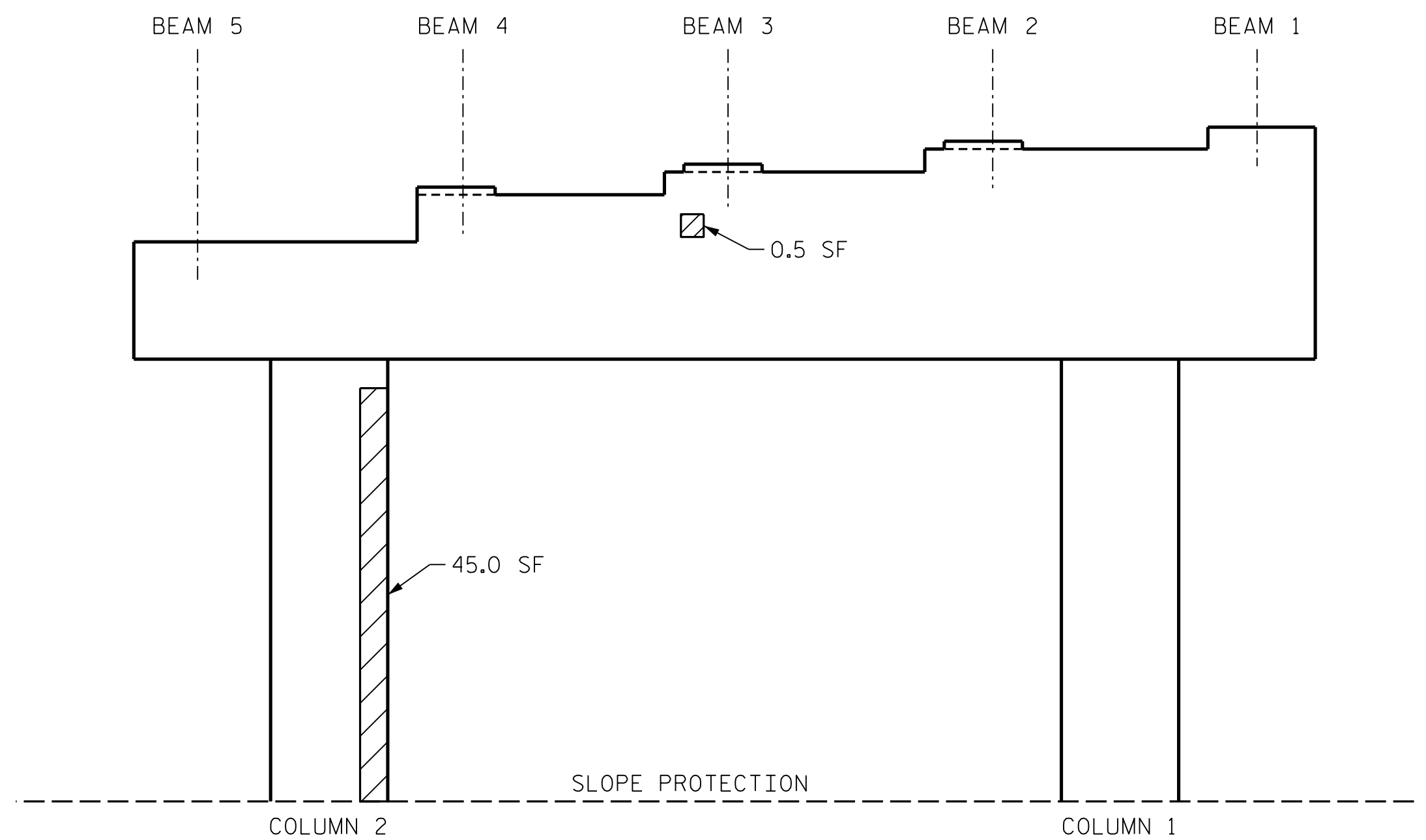
**AS-BUILT REPAIR QUANTITY TABLE**

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.5	0.3		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	45.0	22.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	95.9			

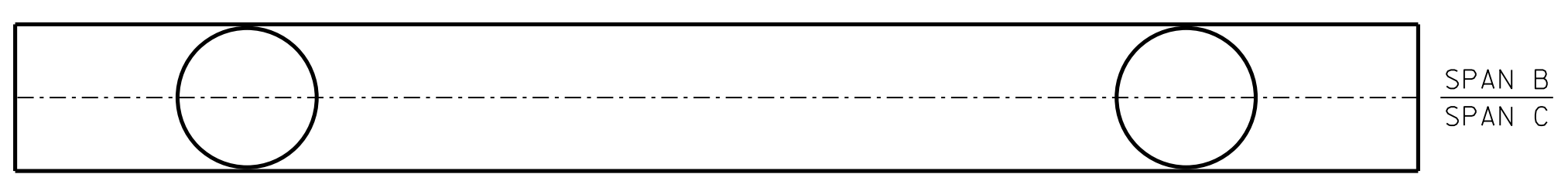
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MIN. OF 1" BEHIND REBAR AND MIN. 2" CL. TO SAWCUT. SEE REPAIR DETAILS.



**ELEVATION**  
SPAN B

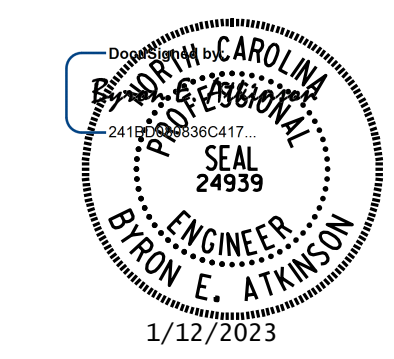


**ELEVATION**  
SPAN C



**PLAN**  
BOTTOM OF CAP  
(LOOKING UP)

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590281

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 BENT 2**

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

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

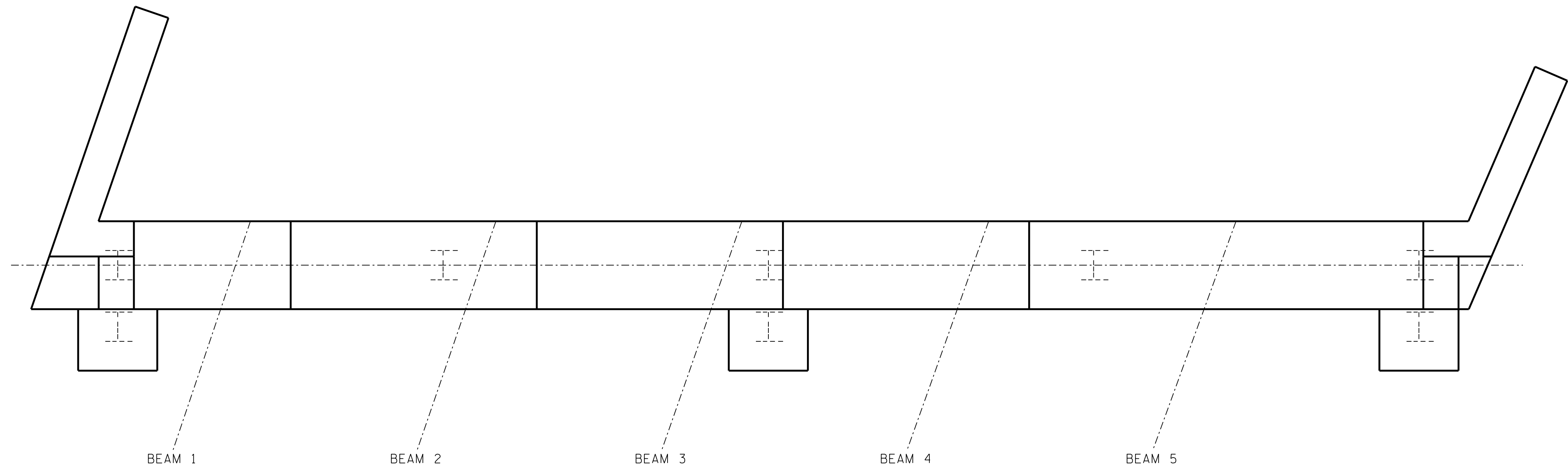
**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671



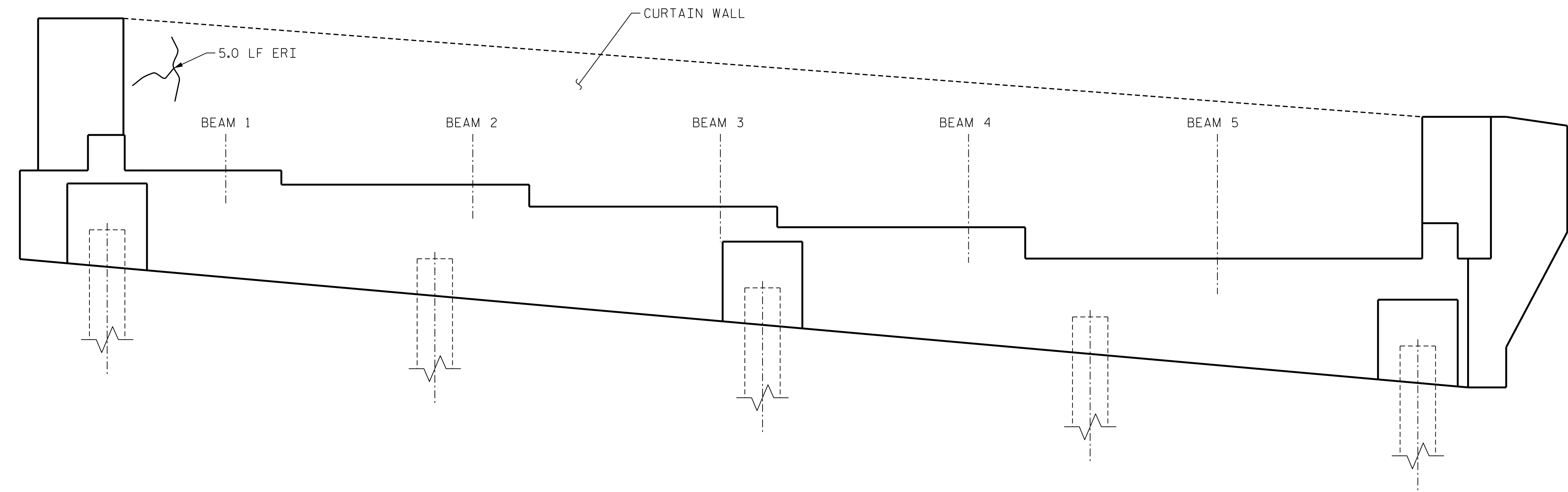
AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	5.0			
EPOXY COATING	AREA SF	AREA SF		
TOP OF CAP	61.4			

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


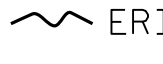

**NOTES:**  
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
 FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.  
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.  
 CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

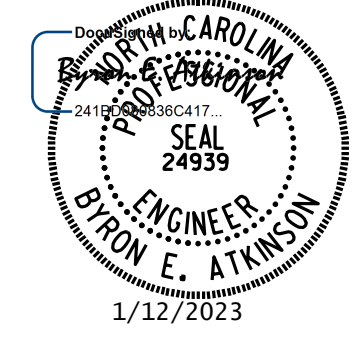


PLAN  
END BENT 2



ELEVATION  
END BENT 2

- KEY**
-  SHOTCRETE REPAIR
  -  ERI EPOXY RESIN INJECTION
  -  CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590281

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:02 AM User: b.lanning  
 Filename: N:\NC Bridges\W21001.139-I-6052-101-Meck. Co. Br. Preservation\Structures\401\_019\_I-6052\_SML\EB2\_590281.dgn

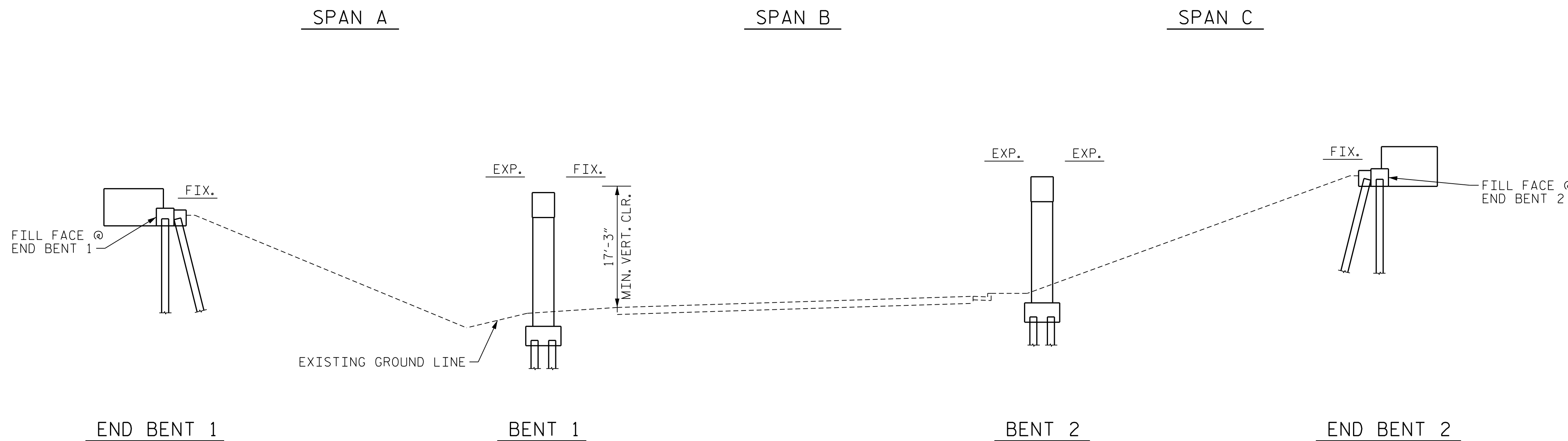


**NOTES:**

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/06/2022.  
 BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

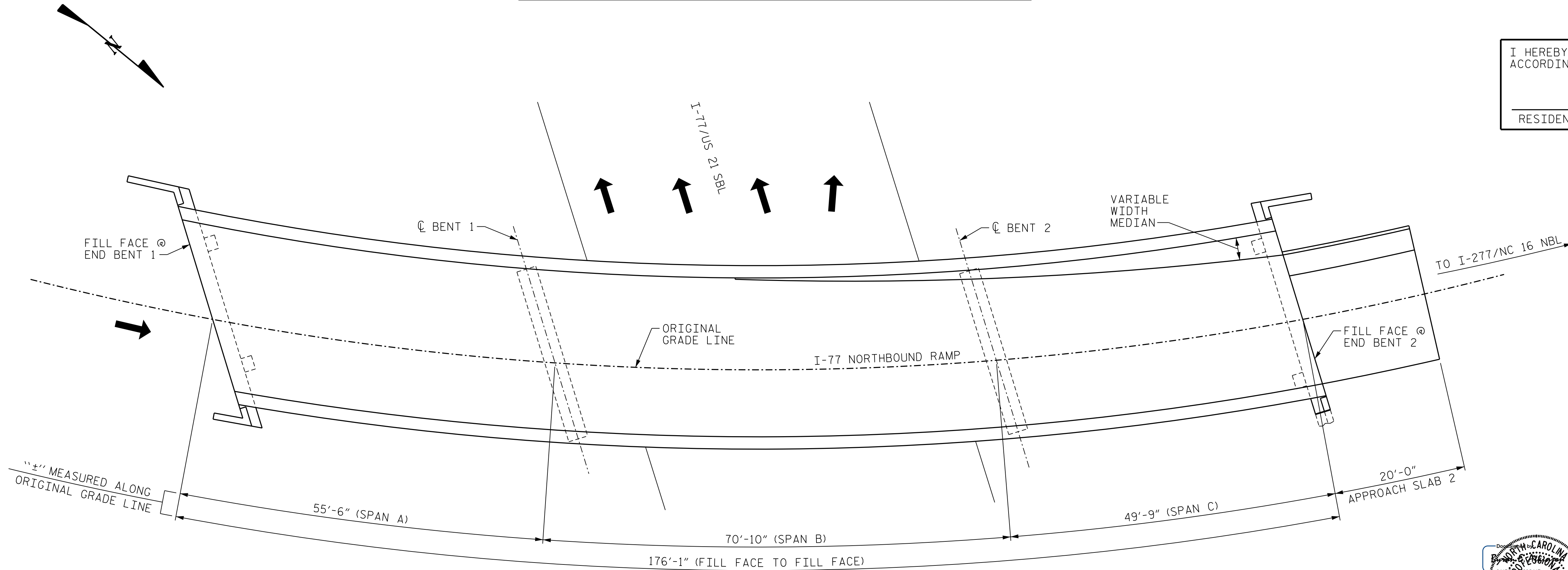
**SCOPE OF WORK:**

- PARTIALLY REMOVE BRIDGE DECK CONCRETE USING SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- PERFORM CLASS II SURFACE PREPARATION AND REPAIR ON DECK SURFACES.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES).
- RECONSTRUCT BRIDGE DECK JOINT AND INSTALL JOINT SEALS.
- GROOVE LMC-VES BRIDGE DECK.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.
- STRUCTURAL STEEL REPAIRS.
- INSTALL STEEL BEARING KEEPER ANGLE ASSEMBLY.
- CLEANING AND PAINTING STEEL BEAMS.
- CLEANING AND PAINTING BEARINGS WITH HRCSA.



SECTION ALONG ORIGINAL GRADE LINE

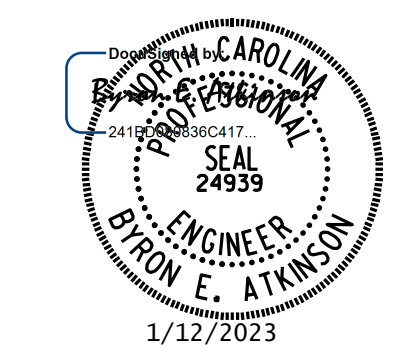
I HEREBY CERTIFY THAT THIS STRUCTURE HAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.  
 \_\_\_\_\_  
 RESIDENT ENGINEER DATE



PLAN

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590282

SHEET 1 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON  
 I-77 NORTHBOUND RAMP  
 OVER I-77/US 21 SBL



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**  
 MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-1 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:03 AM User: blanning  
 Filename: N:\NC Bridges\21001.39-I-6052.dwg  
 User: blanning  
 File: N:\NC Bridges\21001.39-I-6052.dwg  
 User: blanning  
 File: N:\NC Bridges\21001.39-I-6052.dwg





**LOCATION SKETCH**

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

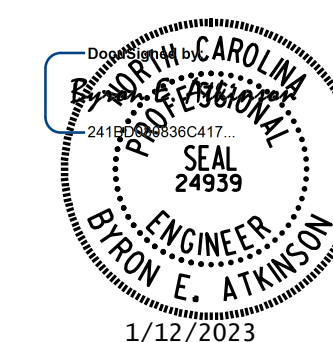
BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°-14'-41.6"	80°-50'-51.2"

**NOTES:**

- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- FOR CLASS II SURFACE PREPARATION, SCARIFYING BRIDGE DECK AND HYDRO-DEMOLITION OF BRIDGE DECK, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.
- WORK ON BRIDGE SHALL BE PREFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE TO THE PROJECT SPECIAL PROVISION.
- PRIOR TO BEGINNING WORK, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST.
- FOR POLLUTION CONTROL, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.
- FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.
- FOR STEEL BEARING KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND REPAINTING OF BRIDGE, AND PAINTING CONTAINMENT FOR BRIDGE, SEE "PAINTING EXISTING STRUCTURE" SPECIAL PROVISION.
- FOR TYPE I BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590282

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON  
 I-77 NORTHBOUND RAMP  
 OVER I-77/US 21 SBL

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

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

SHEET NO.  
**S2-2**  
 TOTAL SHEETS  
**108**

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

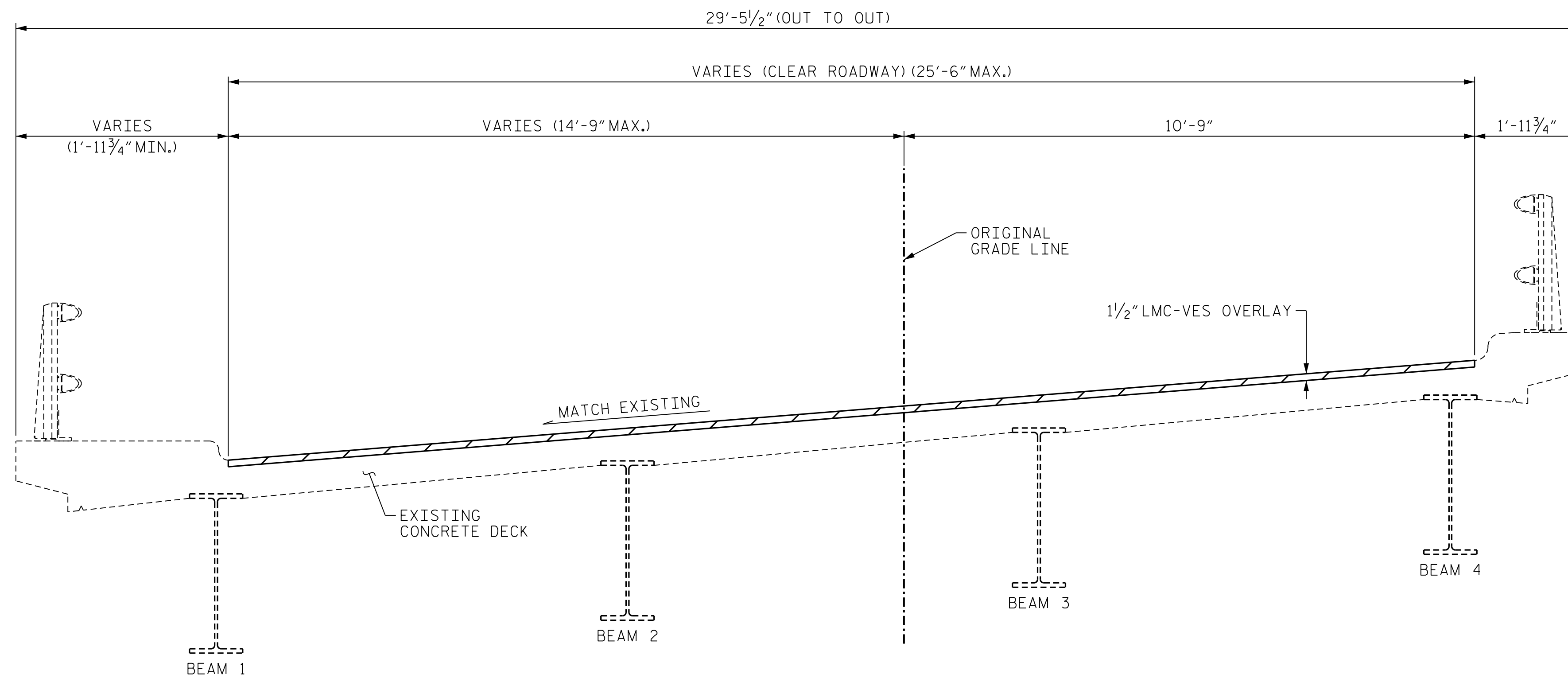
1/12/2023 9:18:04 AM User: blanning  
 Filename: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br.Preservation\Structures\402.003-I-6052.SMU.G02.590282.dgn



**NOTES:**

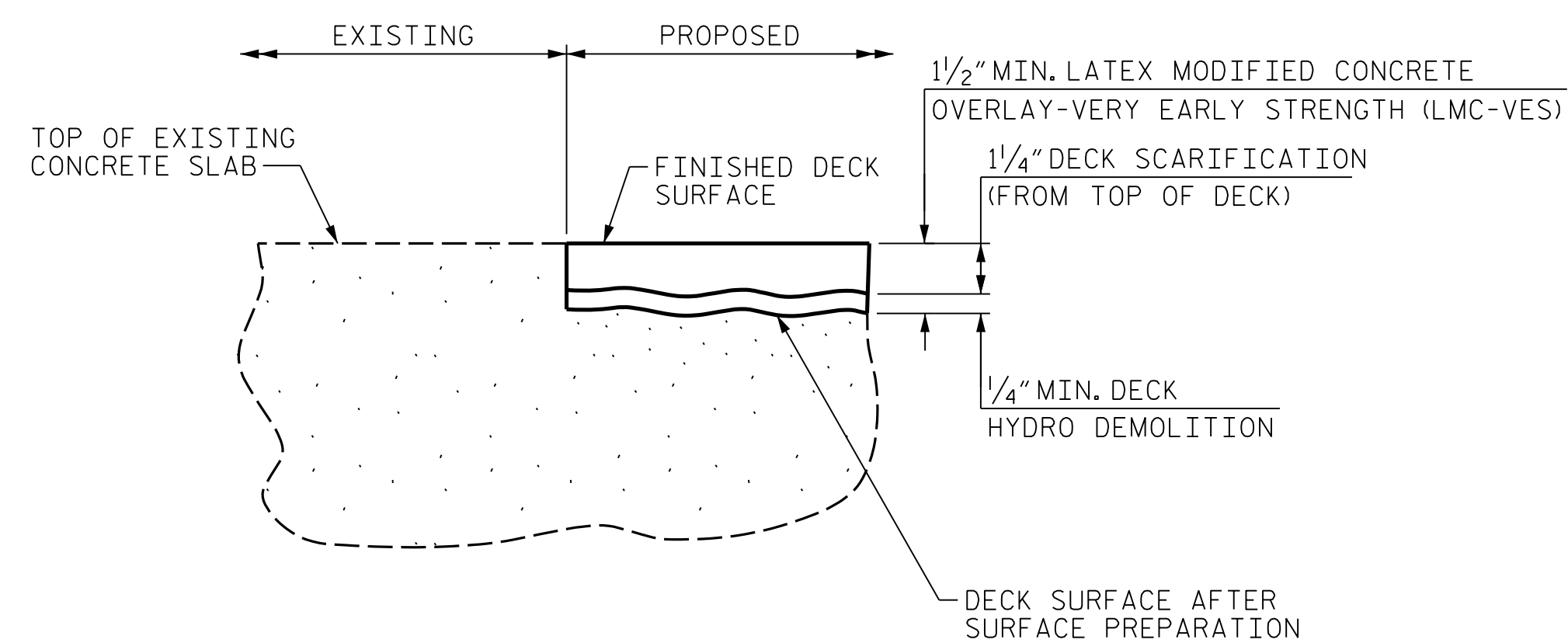
WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.

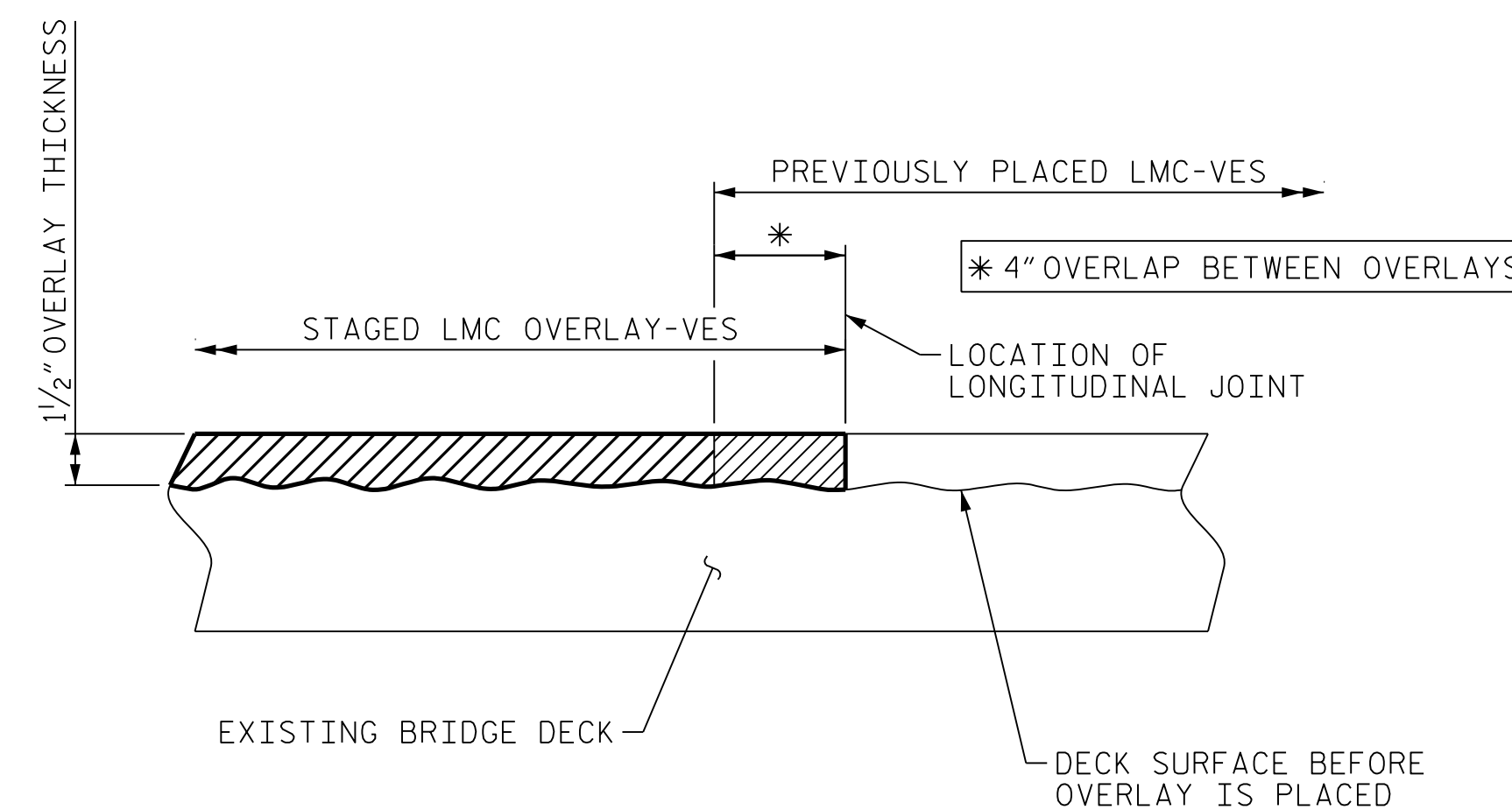


**TYPICAL SECTION**

(ALL DIMENSIONS ARE RADIAL)



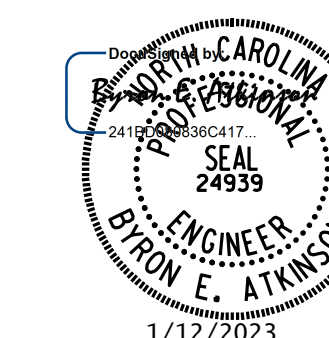
**DETAIL FOR LMC-VES OVERLAY**



**SECTION THRU DECK**

**STAGED LMC-VES OVERLAY JOINT**

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590282



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION  
 &  
 OVERLAY DETAILS

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

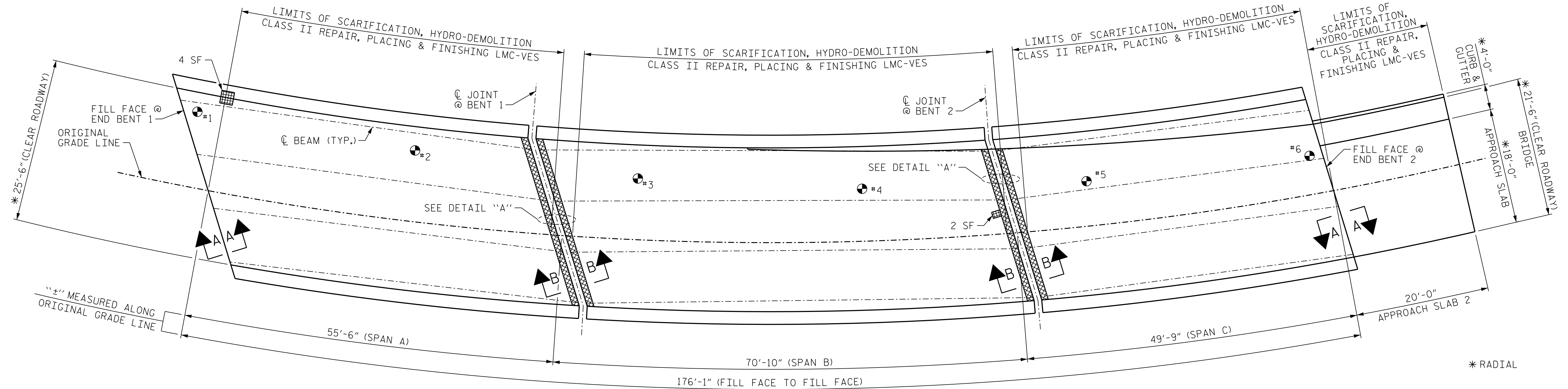
MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-3 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:07 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052.101 Meck Co.Br. Preservation\Structures\402.005-I-6052.SMU.TS1.590282.dgn



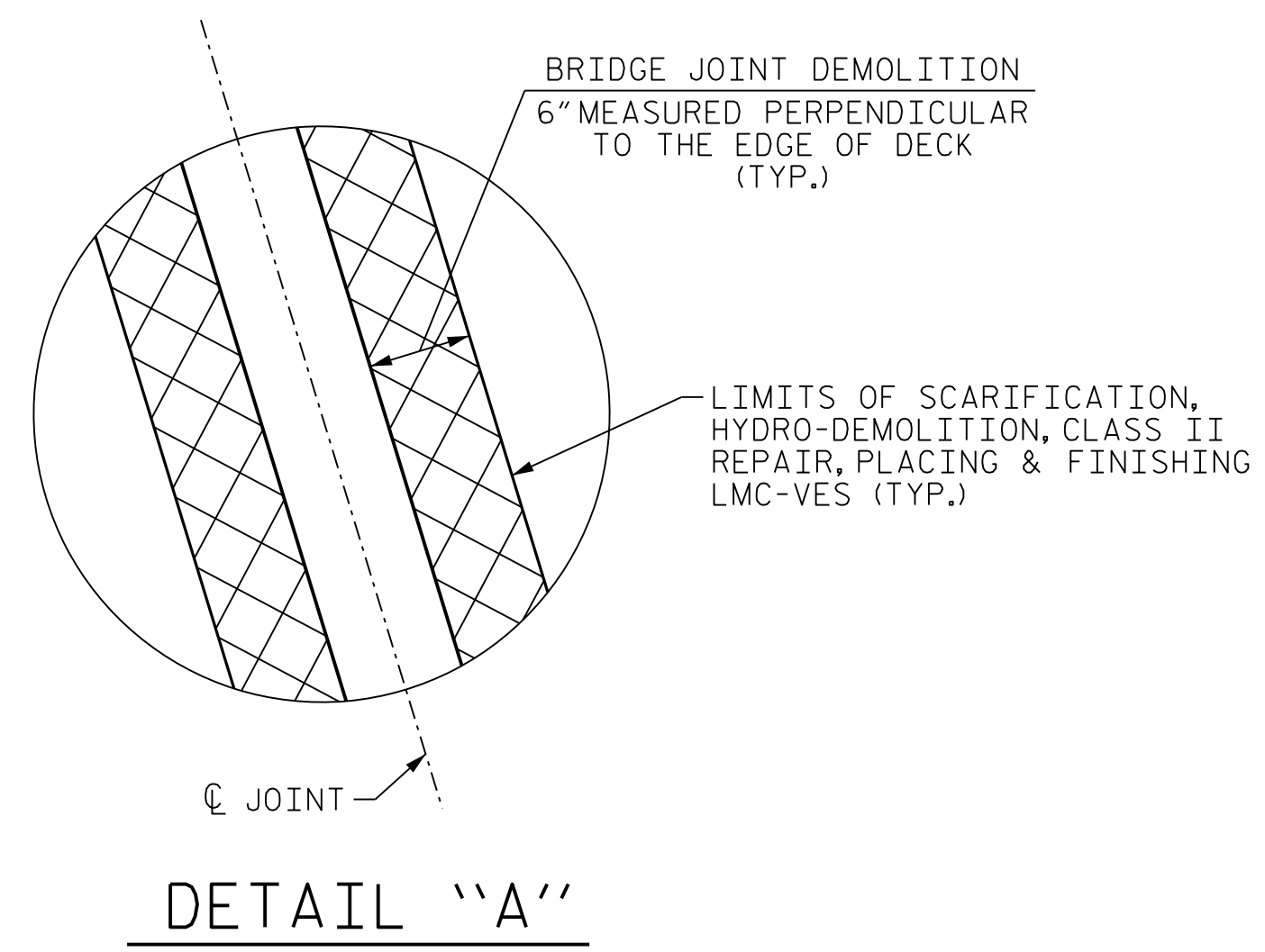


PLAN OF SPANS

AS-BUILT REPAIR QUANTITY TABLE SPANS A, B, C AND APPROACH SLAB 2				
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	474.5 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	474.5 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	23.2 CY			
PLACING & FINISHING LMC-VES OVERLAY	474.5 SY			
BRIDGE JOINT DEMOLITION	51.5 SF			
GROOVING BRIDGE FLOORS	3706 SF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	4.0	2.0		
INTERIOR DIAPHRAGMS	2.0	1.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

- BRIDGE JOINT DEMOLITION
- CLASS II SURFACE PREPARATION
- DECK SCARIFICATION, HYDRO-DEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY-VES
- UNDERSIDE OF DECK REPAIR
- \*X TEST HOLE LOCATION



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.

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.

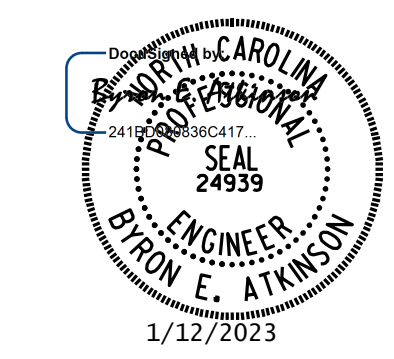
FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

TEST LOCATION	*CONCRETE COVER	ESTIMATED CONCRETE STRENGTH
	(INCH)	(PSI)
#1	2 1/8"	4500
#2	1 7/8"	4500
#3	2 3/4"	4300
#4	2 1/4"	4300
#5	2 5/8"	4500
#6	2"	4300

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 08/31/22.

\* CONCRETE COVER FOR TOP BARS IN THE DECK ARE BASED ON DECK EVALUATION DATED 08/31/22. EXISTING BRIDGE PLANS INDICATE 1/2" CONCRETE COVER.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590282



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

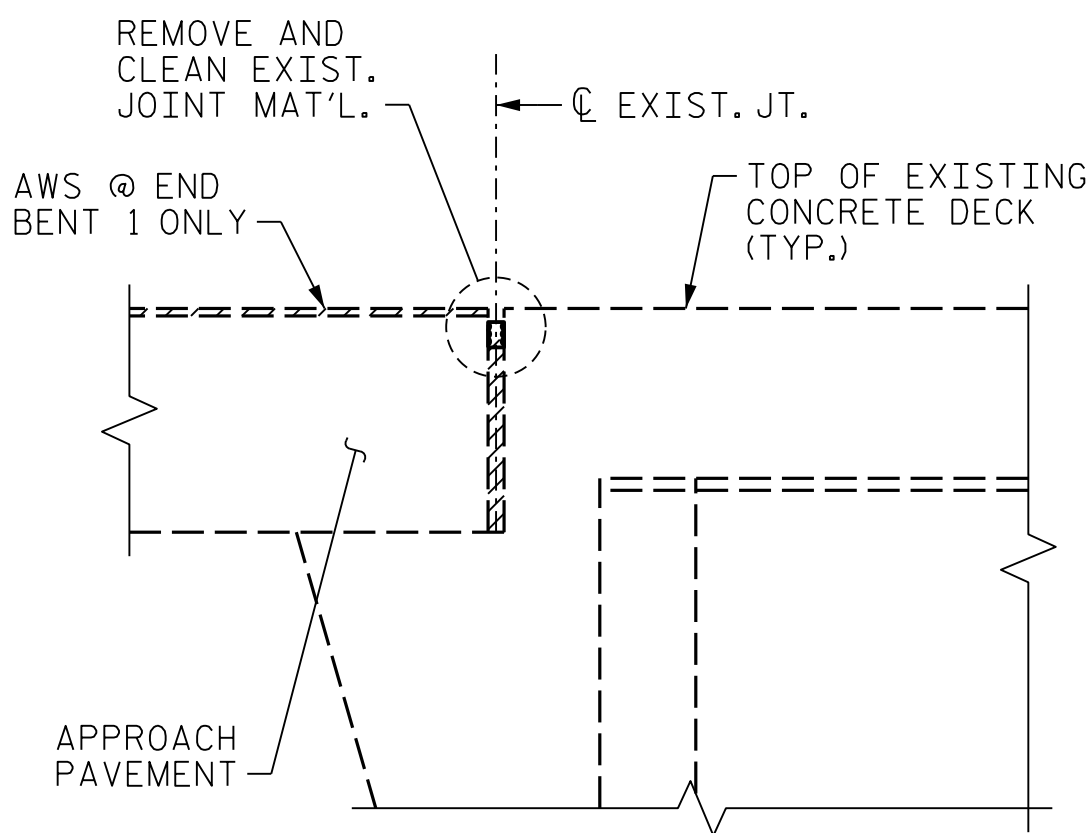
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 SURFACE PREPARATION  
 SPANS A, B, C AND  
 APPROACH SLAB 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-4 TOTAL SHEETS 108
2			4			

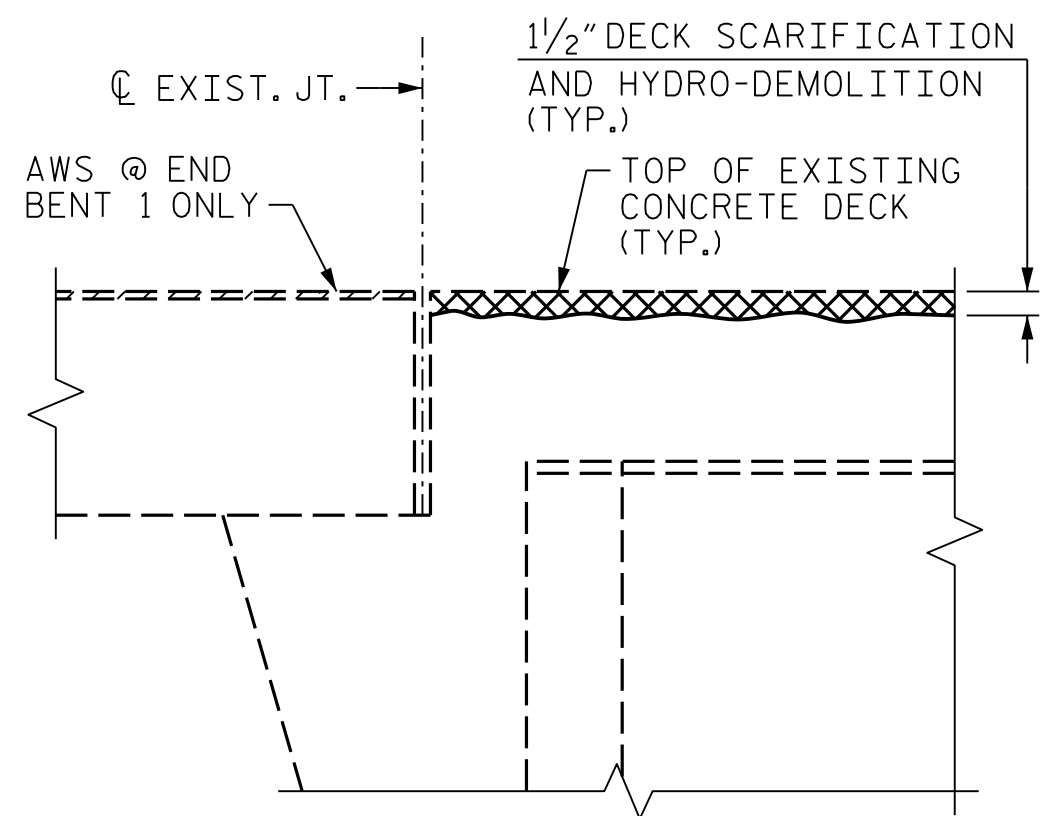
1/12/2023 9:18:08 AM User: blanning Filename: N:\NC Bridges\W21001.39-I-6052-101\Meck Co.Br.Preservation\Structures\402-007-I-6052-SMU-DPI-590282.dgn

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

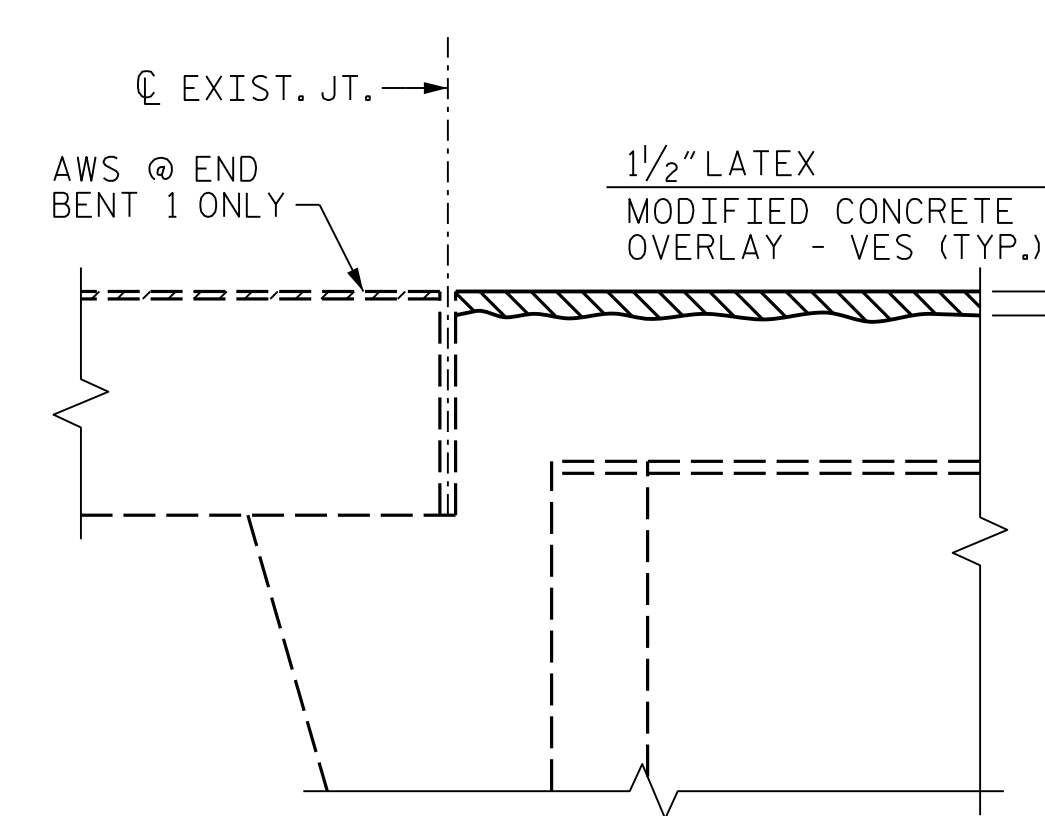




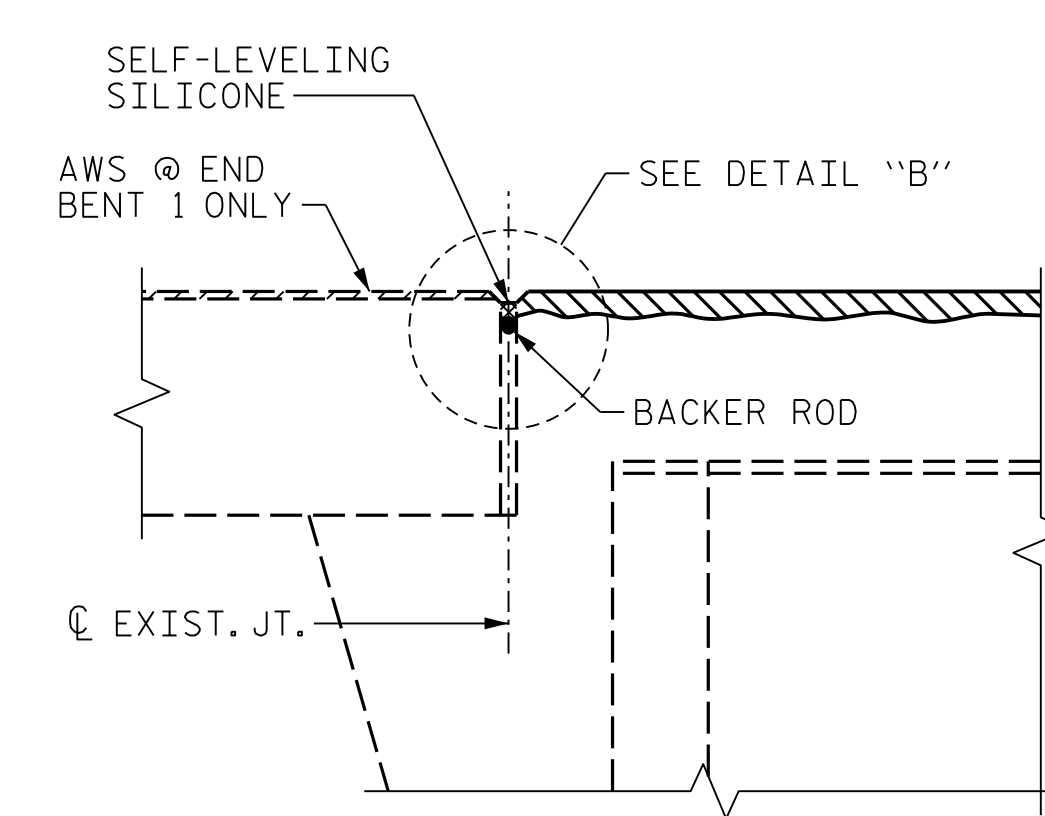
EXISTING JOINT AT END BENT



MINIMUM EXISTING JOINT DEMOLITION AT END BENT



PROPOSED JOINT PRE-INSTALL DIMENSIONS



PROPOSED JOINT

NOTES:

HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.

RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE LMC OVERLAY 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 1/4", NOTIFY THE ENGINEER.

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 JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SEALS SHALL BE WATER TIGHT.

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

FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL OR ELASTOMERIC CONCRETE SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE OR ELASTOMERIC CONCRETE.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR 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.

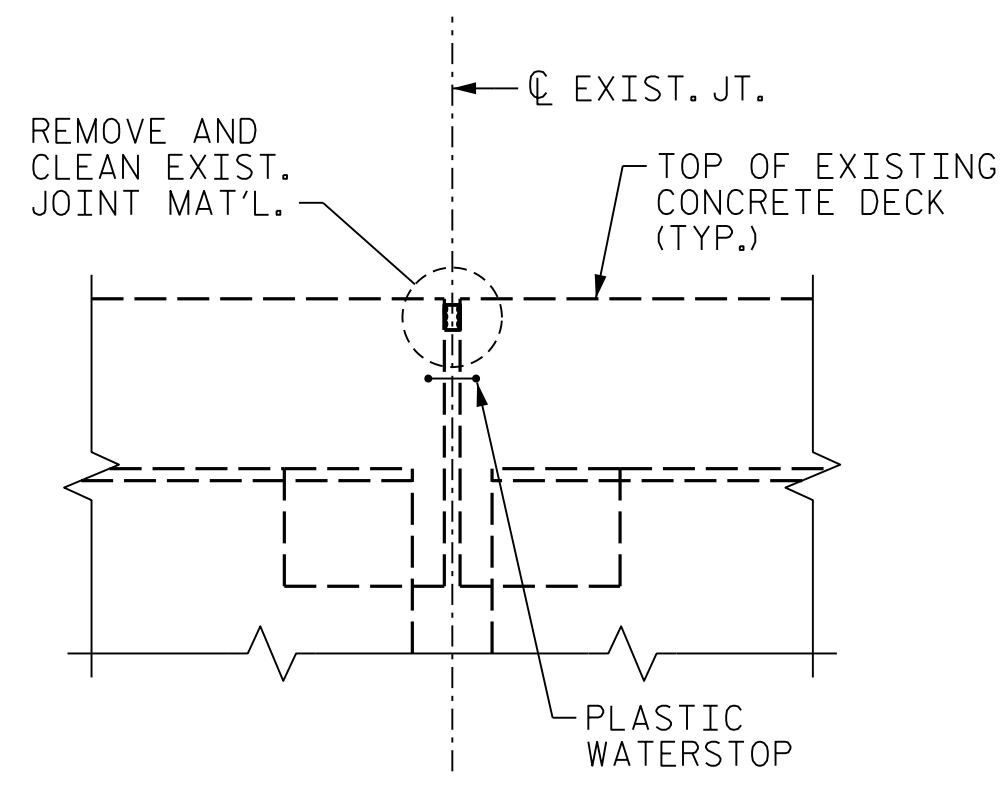
FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

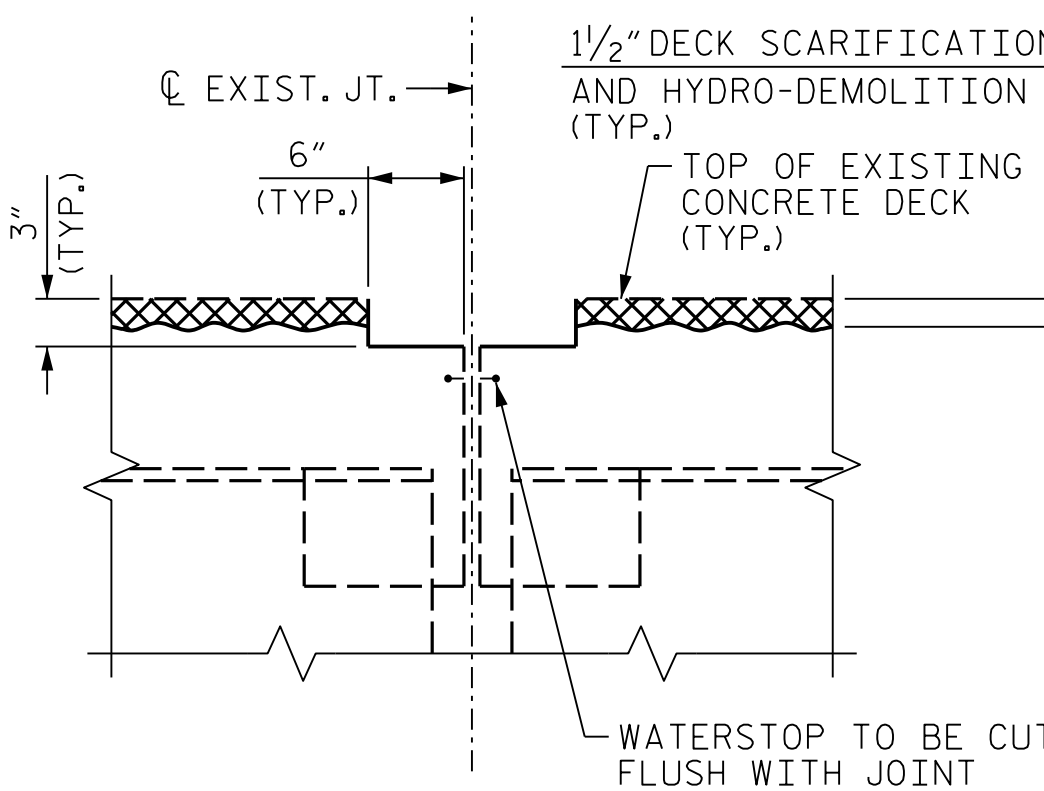
FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

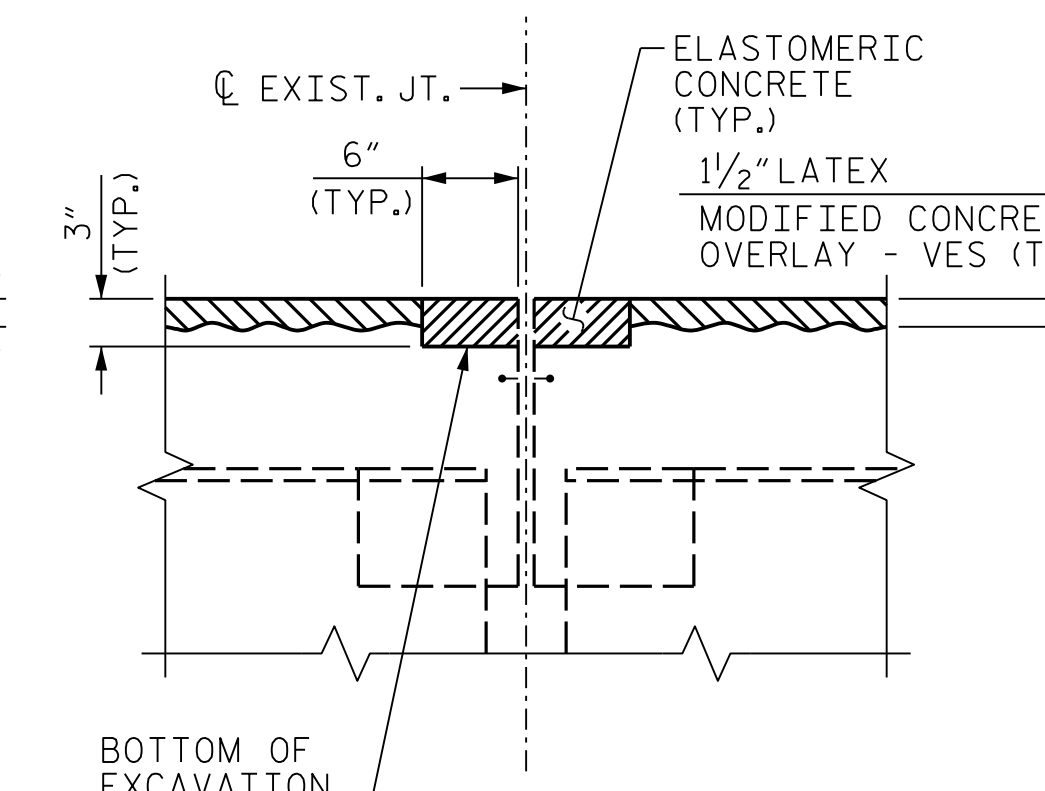
SECTION A-A



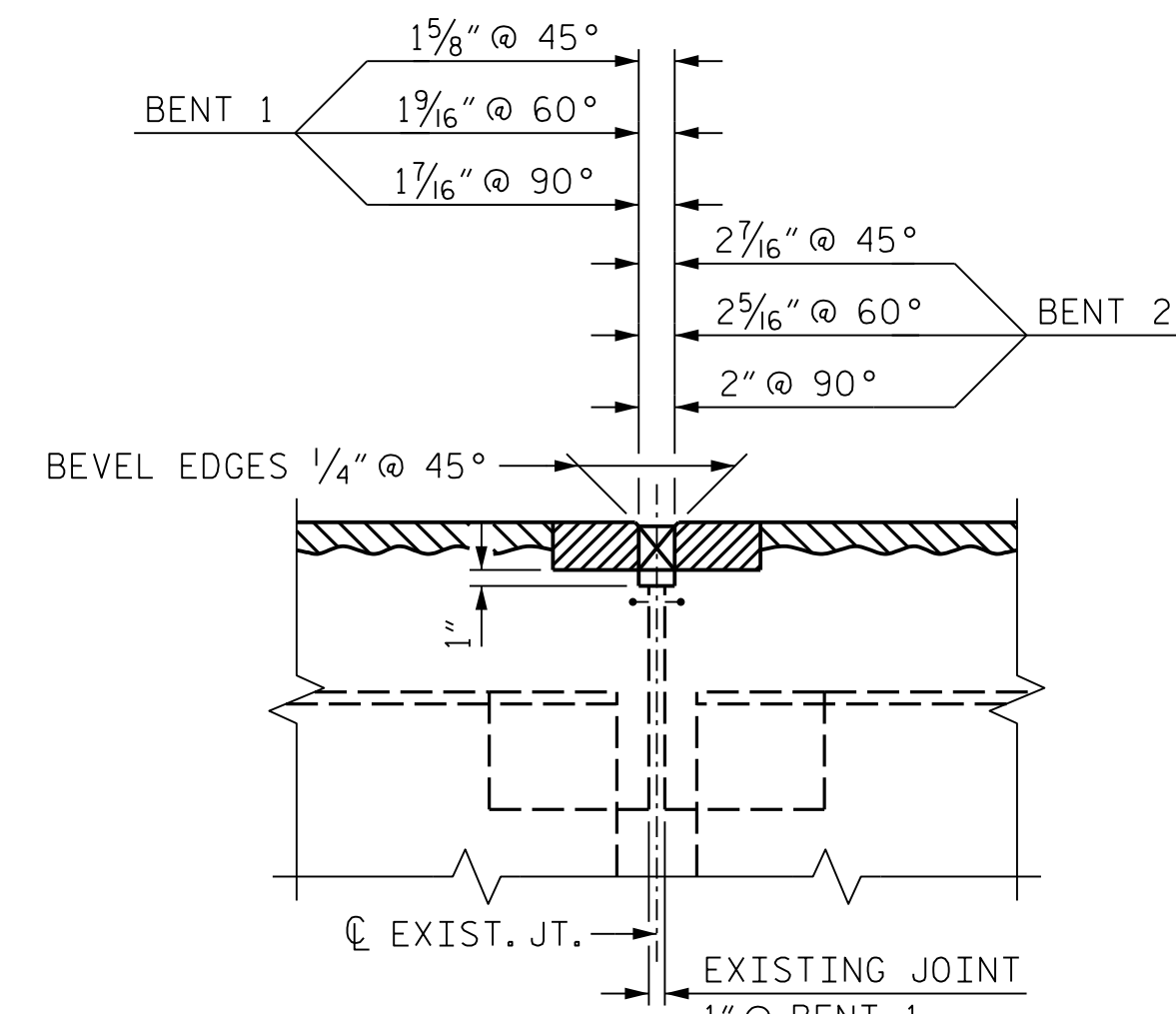
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION AT BENT

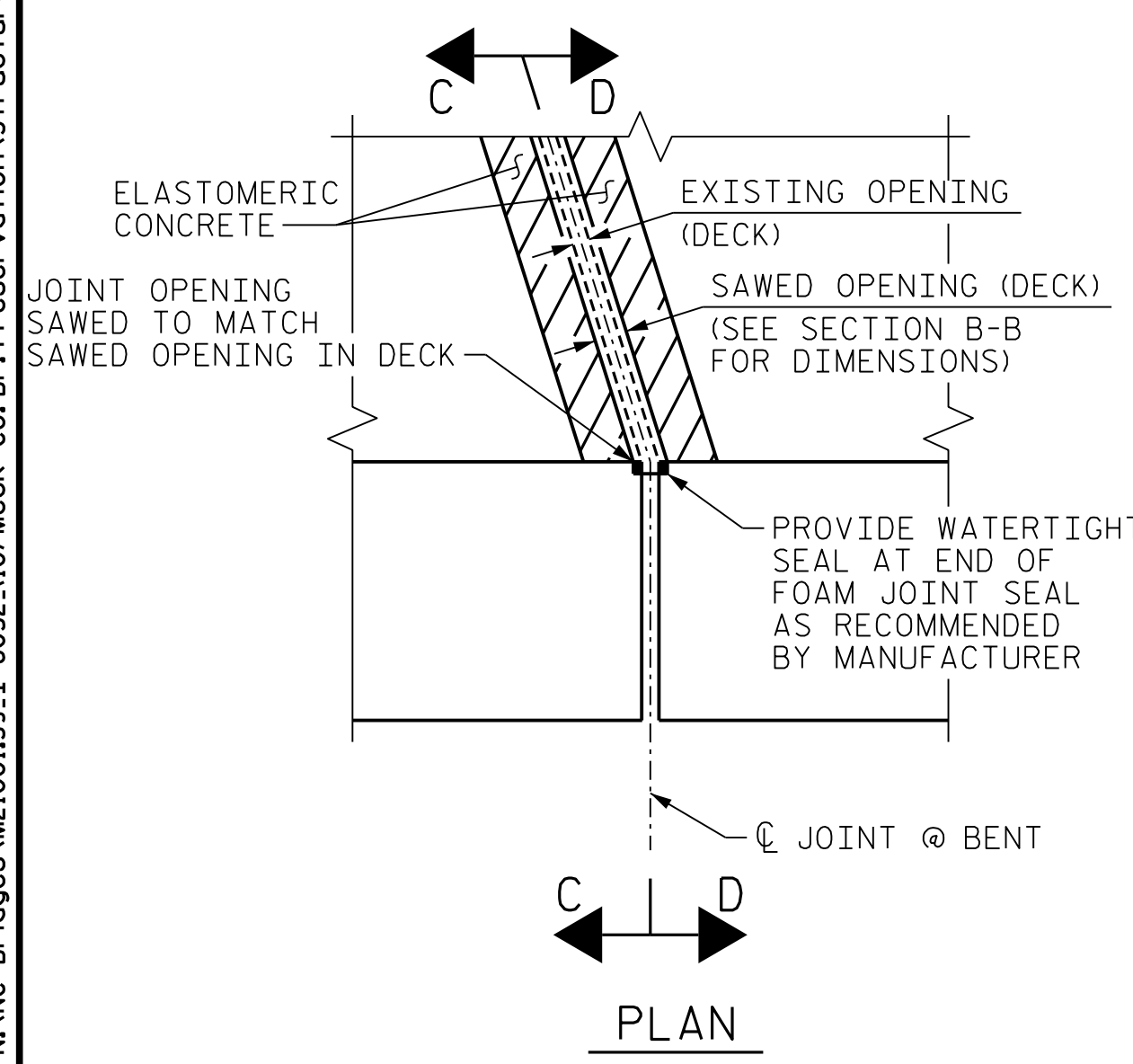


PROPOSED JOINT PRE-SAWED DIMENSIONS

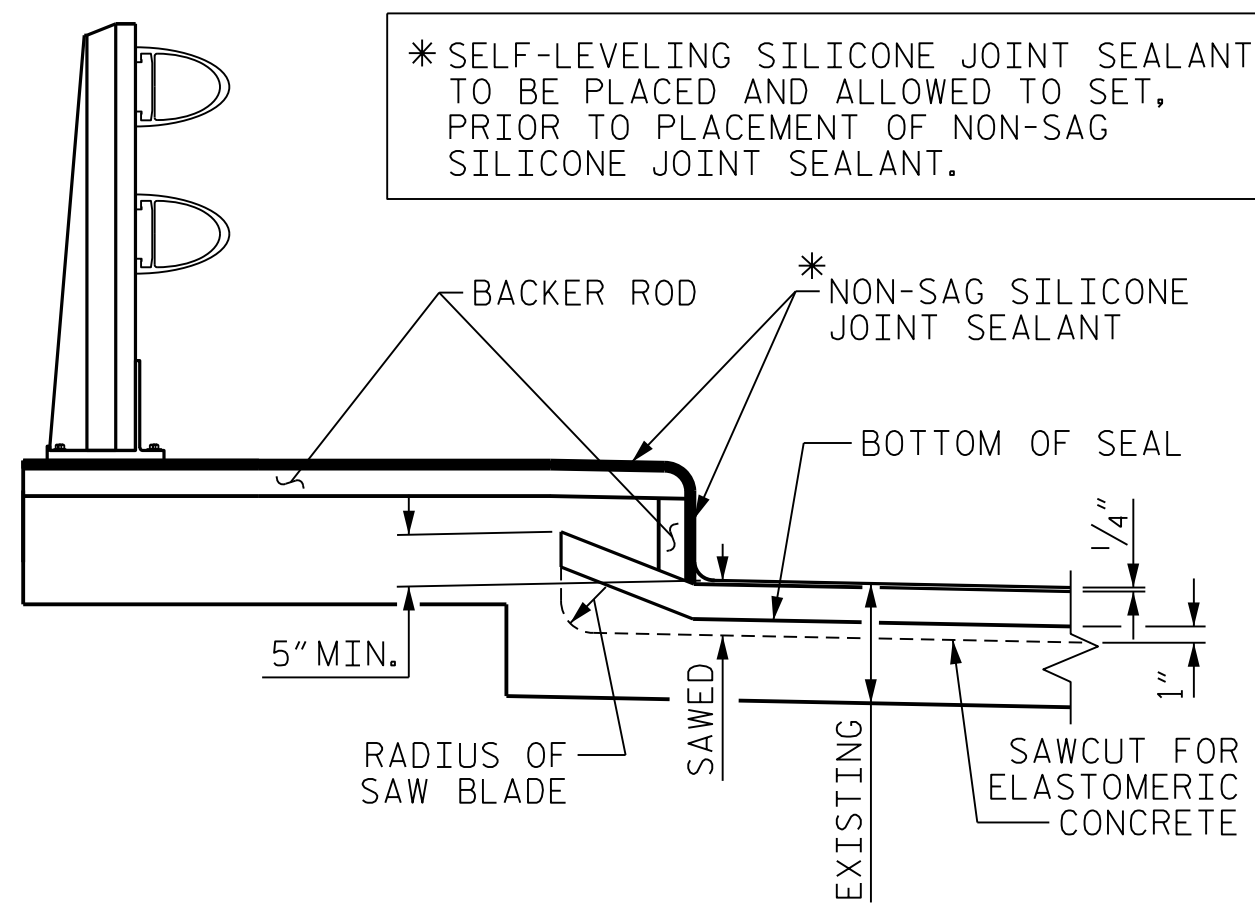


PROPOSED FOAM JOINT SEAL EXPANSION

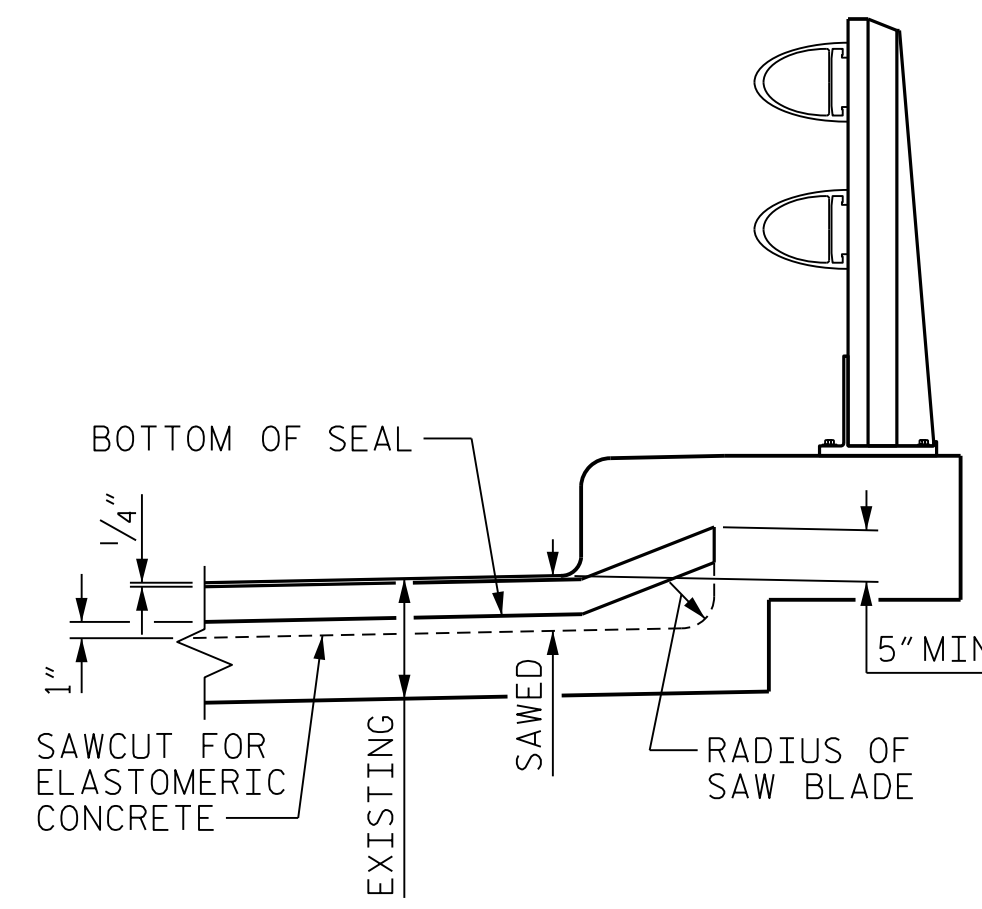
SECTION B-B



PLAN



SECTION C-C (LEFT SIDE)



SECTION D-D (RIGHT SIDE)

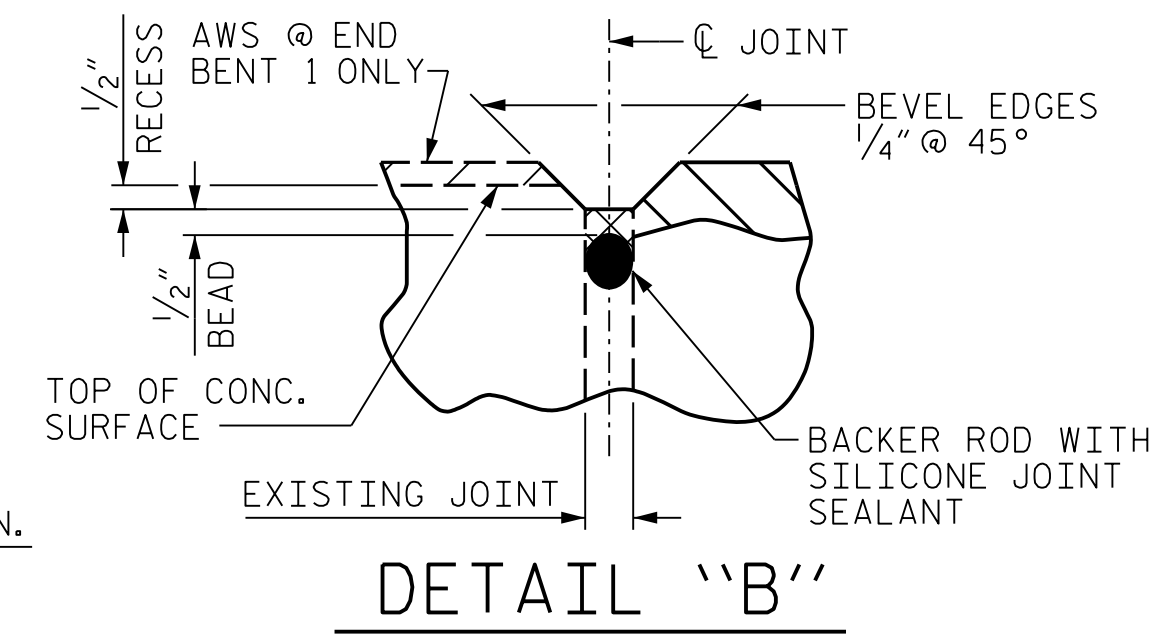
JOINT REPAIR QUANTITY TABLE

	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	55.4 LF	
POURABLE SILICONE JOINT SEALANT	64.6 LF	

ELASTOMERIC CONCRETE FOR PRESERVATION

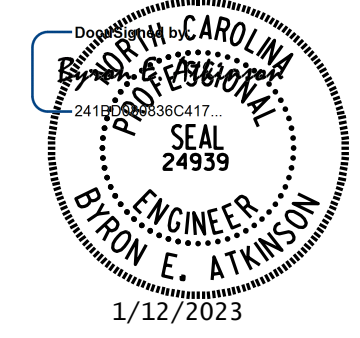
BENT 1	6.7	CF
BENT 2	6.2	CF
* TOTAL	12.9	CF

\* BASED ON MINIMUM BLOCKOUT SHOWN.



DETAIL "B"

BACKER ROD WITH SILICONE JOINT SEALANT SHALL BE PLACED BELOW TOP OF CONCRETE SURFACE OF APPROACH PAVEMENT.



PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590282

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

JOINT DETAILS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

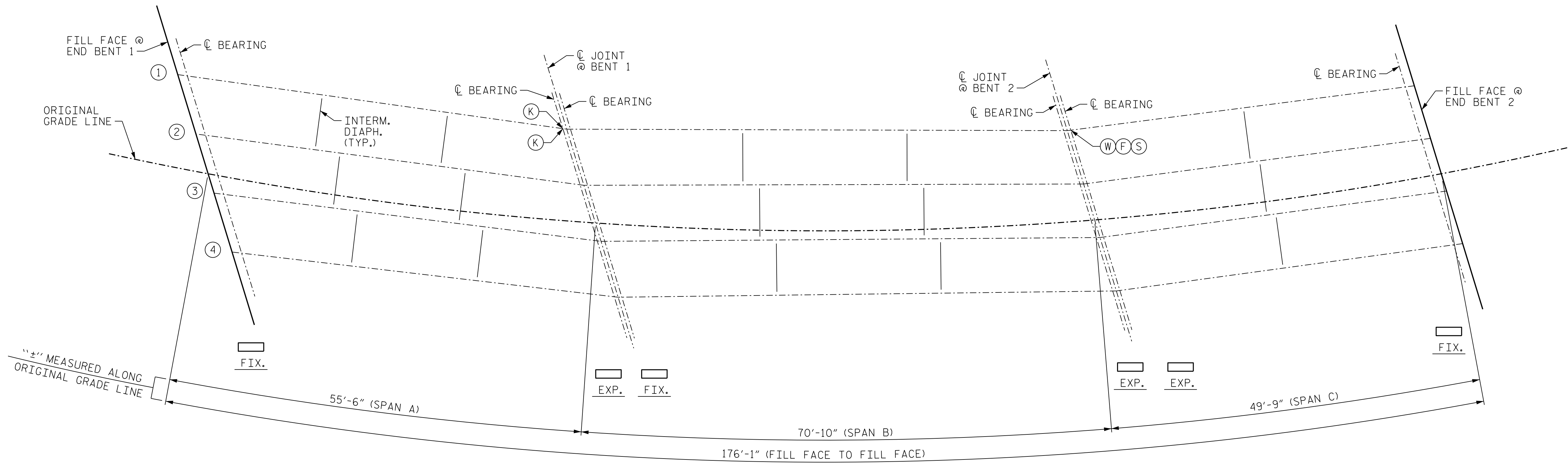
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **S2-5**  
 TOTAL SHEETS 108

1/12/2023 9:18:09 AM User: blanning  
 File: BrIdges\M21001.39\_I-6052.101 Meck Co.Br. Preservation\Structures\402.009\_I-6052.SMU-JT1.590282.dgn

DRAWN BY: B.E. LANNING DATE: 10/2022  
 CHECKED BY: B.E. ATKINSON DATE: 10/2022  
 DESIGN ENGINEER OF RECORD: B.E. ATKINSON DATE: 10/2022





**FRAMING PLAN**

KEY	
#	BEAM NUMBER
W	WEB PLATING REPAIR
S	STIFFENER REPAIR
F	BOTTOM FLANGE PLATING REPAIR
I	INTERMEDIATE BEAM PLATING REPAIR
BE	BEAM END REPAIR
BW	BOLTED WEB PLATE REPAIR
K	STEEL BEARING KEEPER ANGLE ASSEMBLY

ANTICIPATED BEAM REPAIR LOCATIONS								
SPAN	BEAM	LOCATION	DETAIL TYPE	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"
C	1	BENT 2	C	24 7/8"	10"	4"	12"	-

**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER AFTER THE STRUCTURAL STEEL HAS BEEN CLEANED, BLASTED, AND PRIMED, THE CONTRACTOR AND ENGINEER SHALL REVIEW THE STEEL TO VERIFY NOTED REPAIR LOCATIONS AND TO IDENTIFY ANY ADDITIONAL REPAIR LOCATIONS. THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR REPAIR DETAILS, SEE "BEAM REPAIR DETAILS" AND "STEEL KEEPER ANGLE ASSEMBLY DETAILS" SHEETS.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR STEEL BEAM REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

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

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

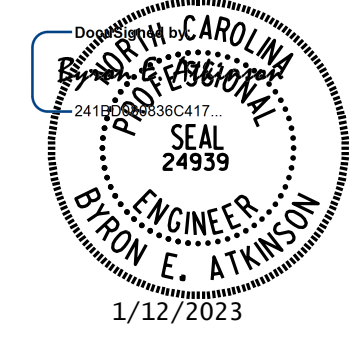
FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.

BEAM REPAIR QUANTITY TABLE SPANS A THRU C					
STEEL PLATES		STIFFENER		STEEL BEARING KEEPER ANGLE ASSEMBLY	
LBS.		LBS.		EA.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
110		20		2	
BEAM REPAIR CUT-OUT		BOLTED BEAM REPAIR			
LBS.		LBS.			
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL		
-		-			

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590282



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE  
 BEAM REPAIR  
 LOCATIONS**

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-6 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:11 AM User: blanning Filename: N:\NC Bridges\21010139\_I-6052\_101\_Meck Co.Br. Preservation\Structures\402-011\_I-6052\_SML\FPI\_590282.dgn

### AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF	AREA SF		
TOP OF CAP	60.2			

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

#### NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

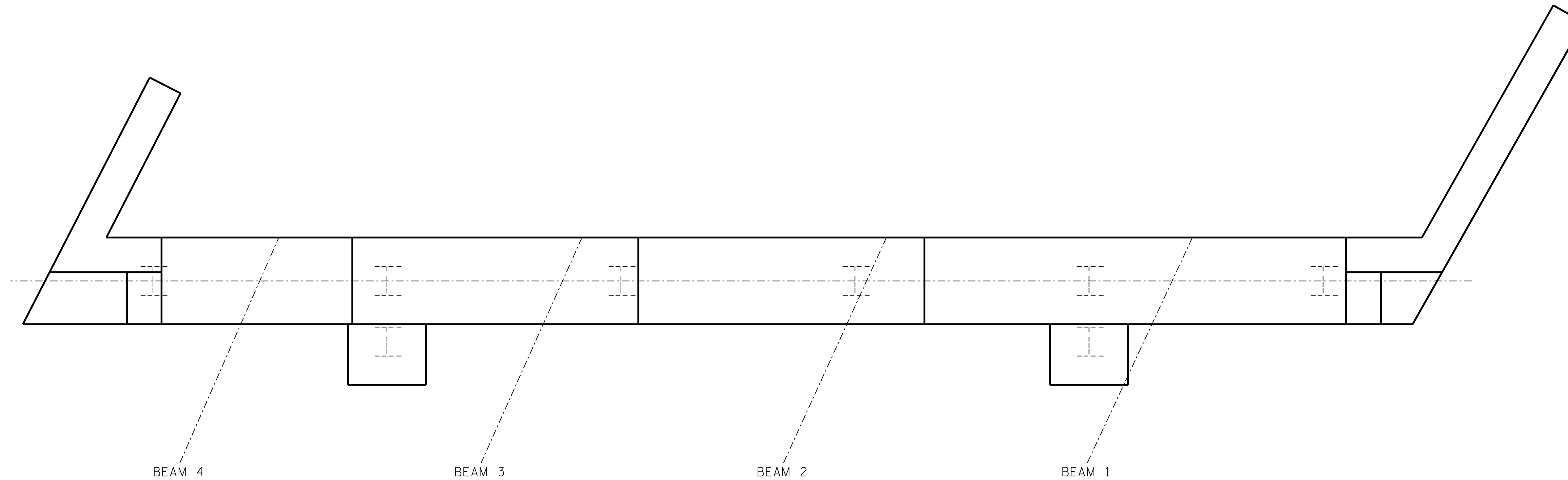
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

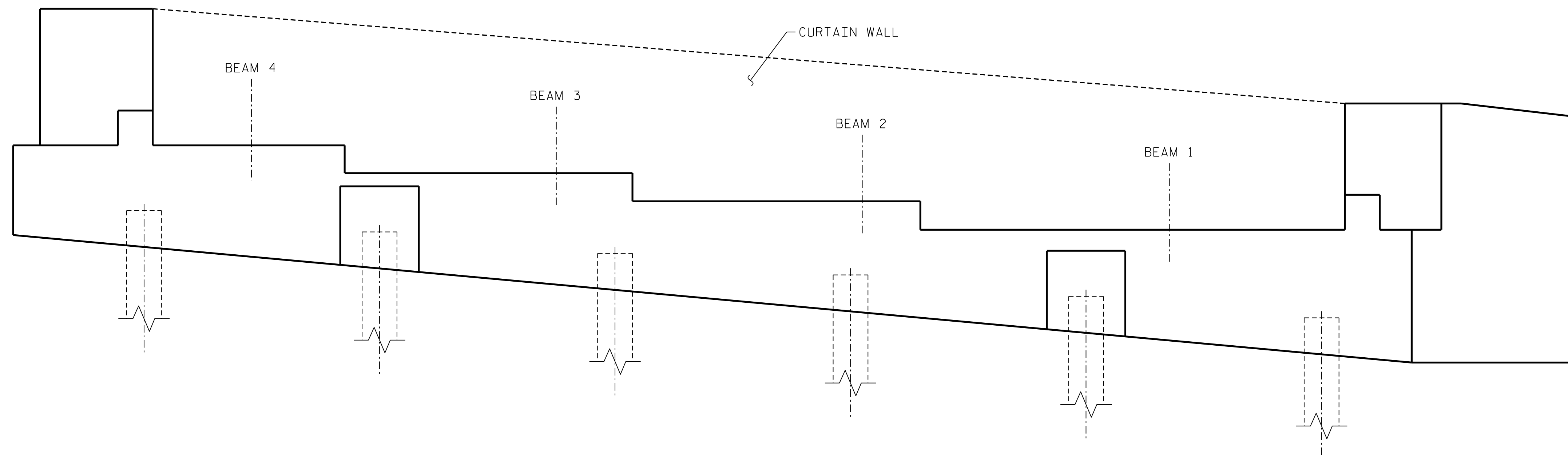
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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



### PLAN

END BENT 1



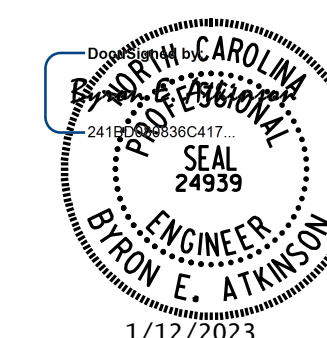
### ELEVATION

END BENT 1

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590282

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**



MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

#### REVISIONS

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

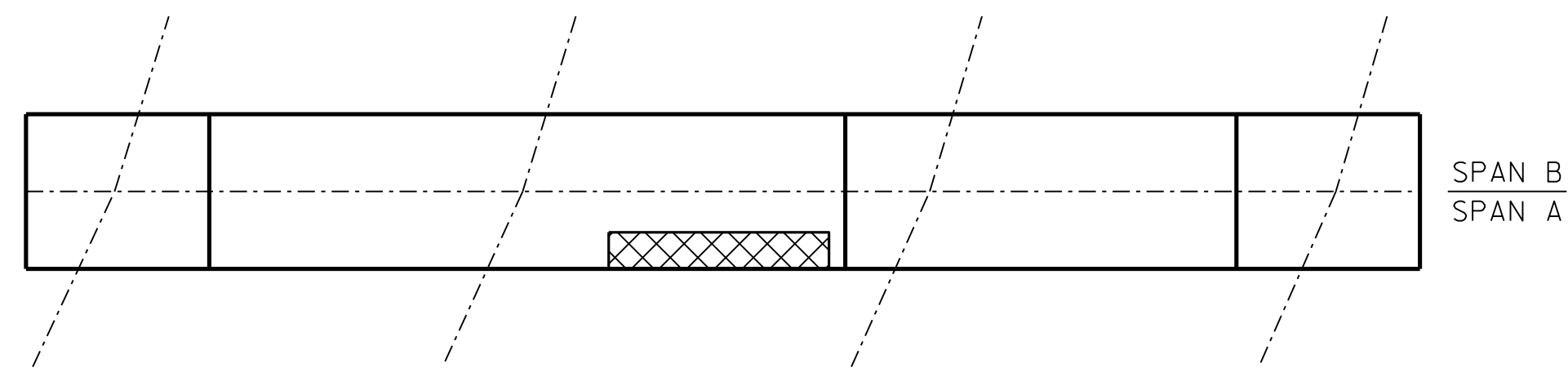
SHEET NO.  
**S2-7**  
 TOTAL SHEETS  
**108**

KEY	
	SHOTCRETE REPAIR
	ERI EPOXY RESIN INJECTION
	CONCRETE REPAIR

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:12 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101\Meck Co.Br. Preservation\Structures\402.013-I-6052-SMU.EBI.590282.dgn





PLAN  
TOP OF CAP

**NOTES:**

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

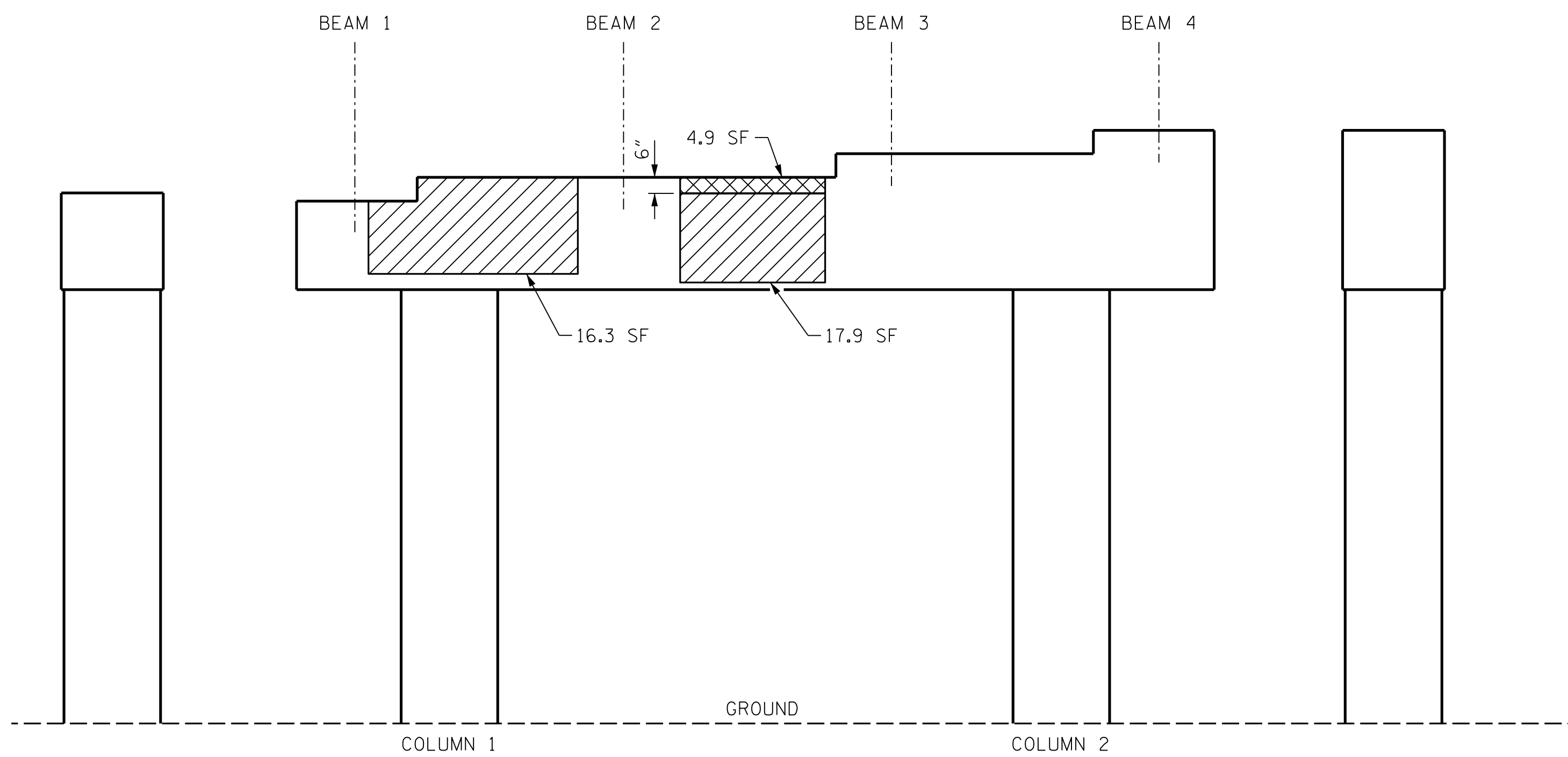
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

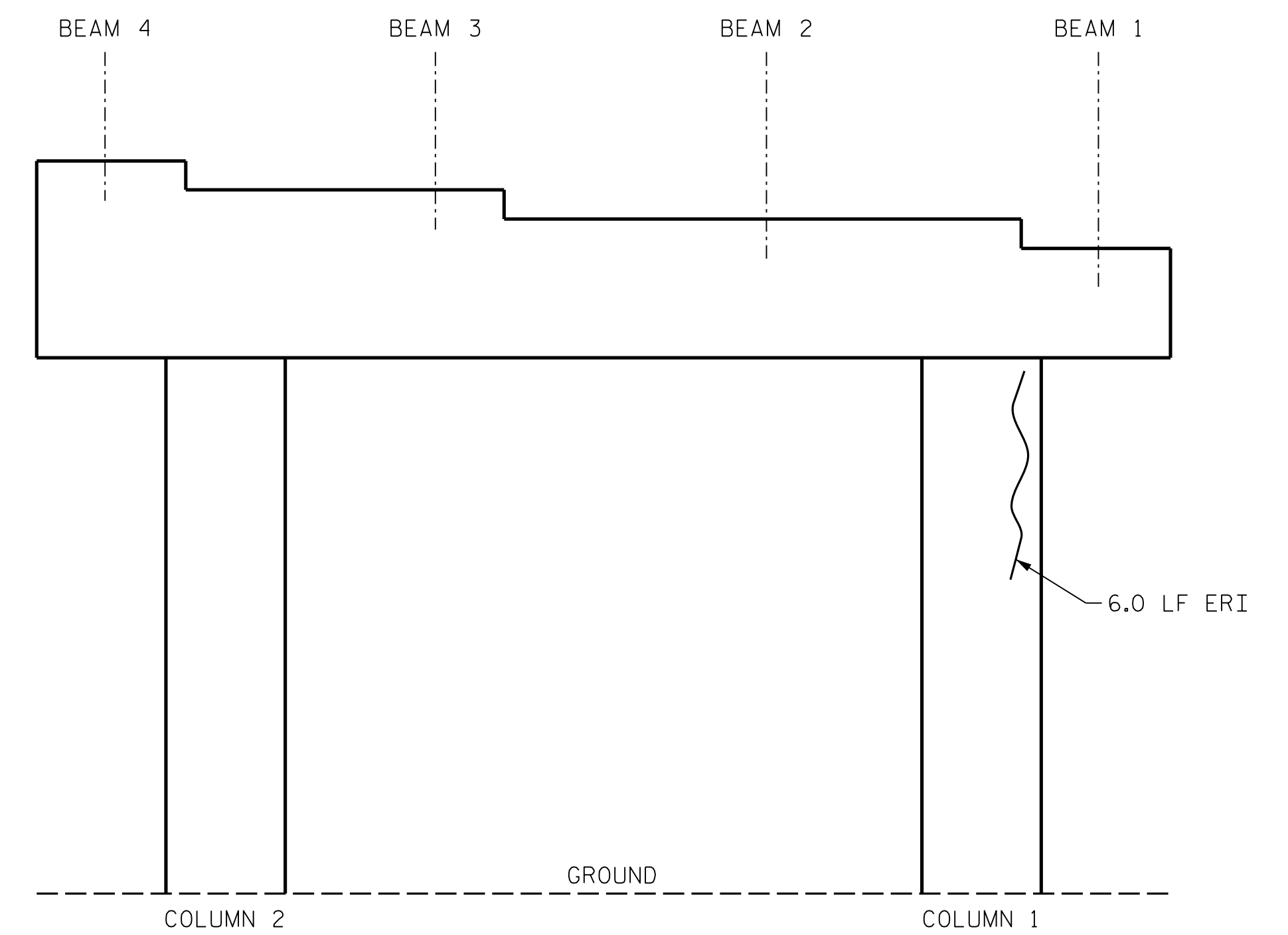
**AS-BUILT REPAIR QUANTITY TABLE**

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	34.2	17.1		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	4.9	2.5		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	1.0			
COLUMN	6.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	90.3			

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

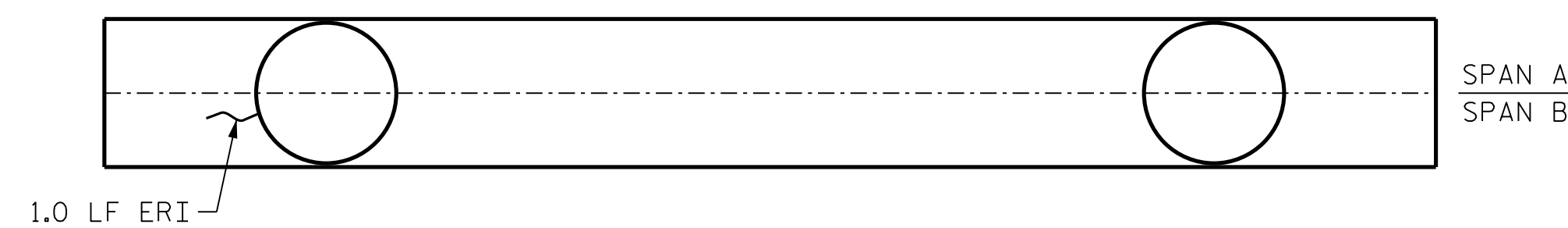


ELEVATION  
SPAN A



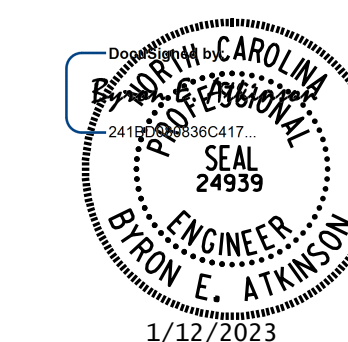
ELEVATION  
SPAN B

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590282



PLAN  
BOTTOM OF CAP  
(LOOKING UP)

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

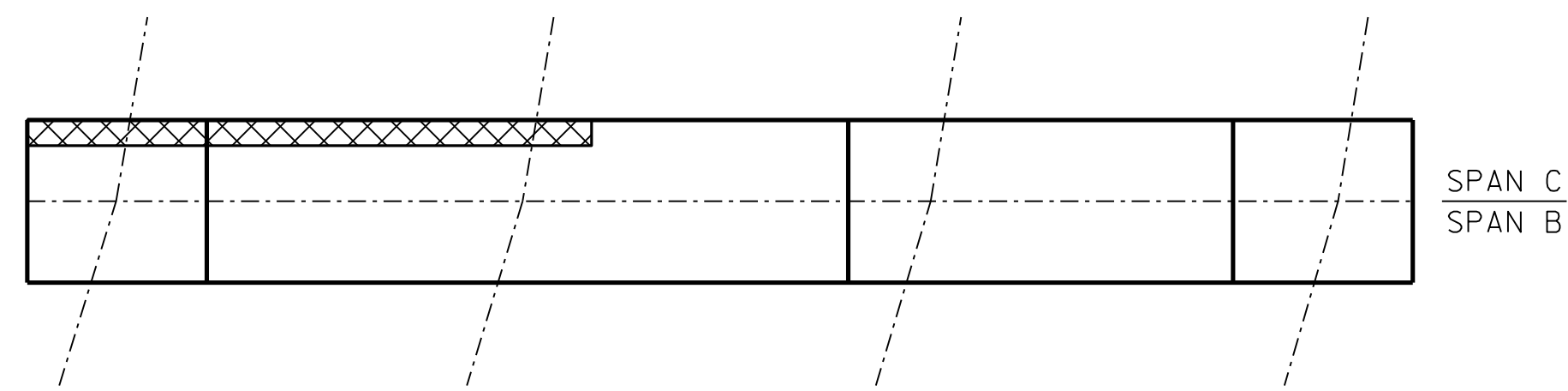
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-8 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:13 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052.101 Meck. Co. Br. Preservation\Structures\402.015-I-6052.SMU.BT1.590282.dgn



PLAN  
TOP OF CAP

**NOTES:**

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

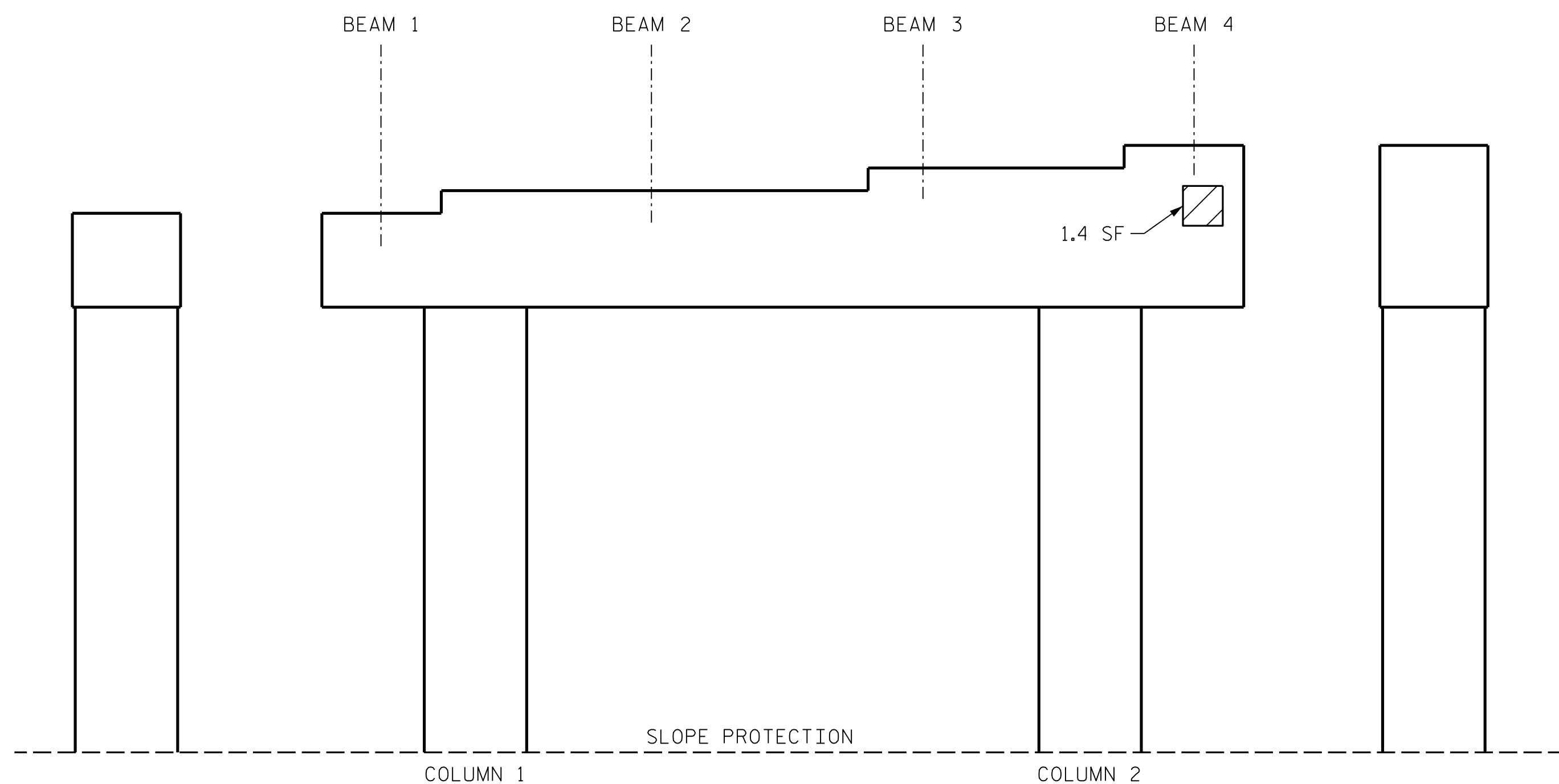
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.

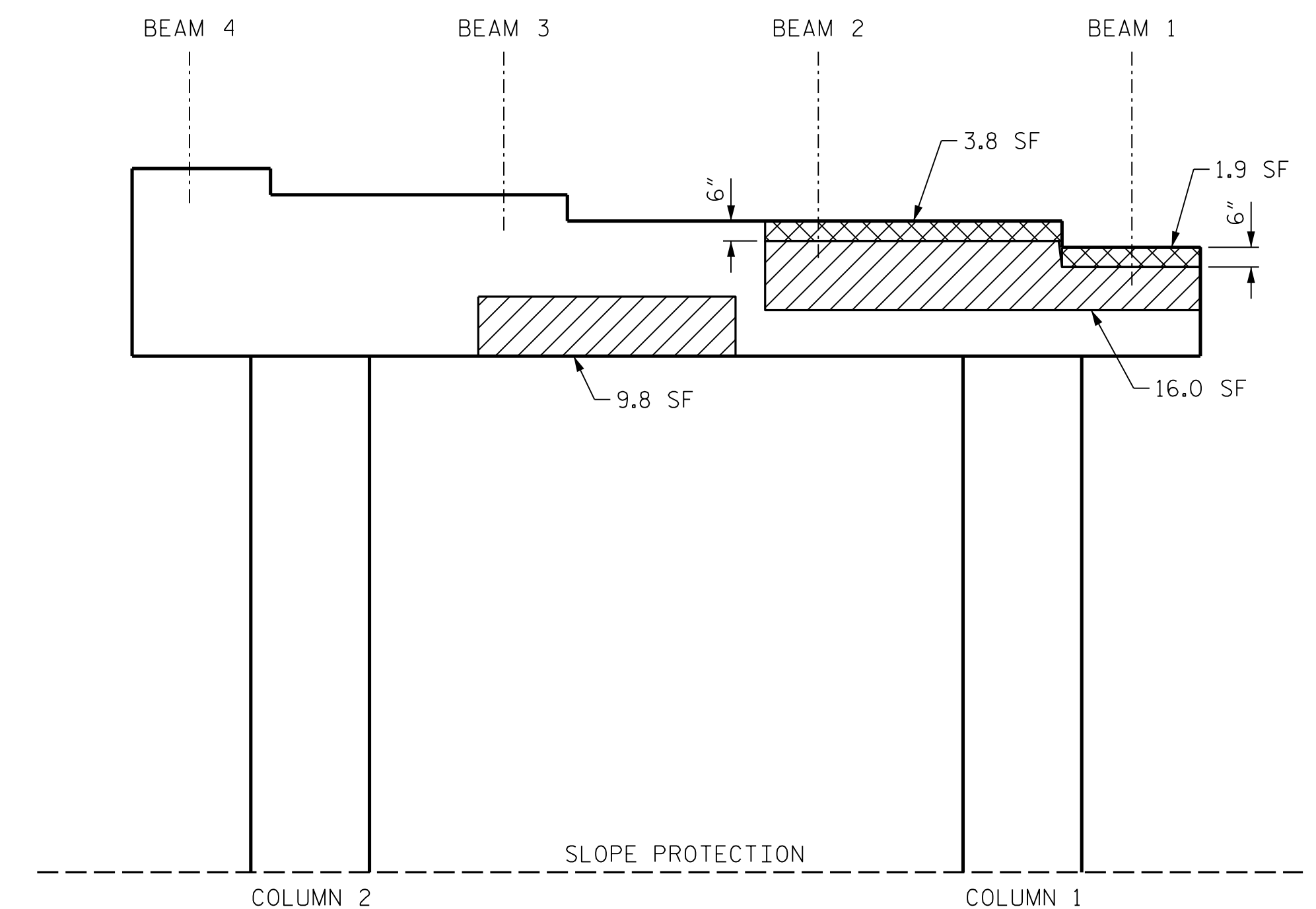
**AS-BUILT REPAIR QUANTITY TABLE**

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	27.2	13.6		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	5.7	2.9		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	85.6			

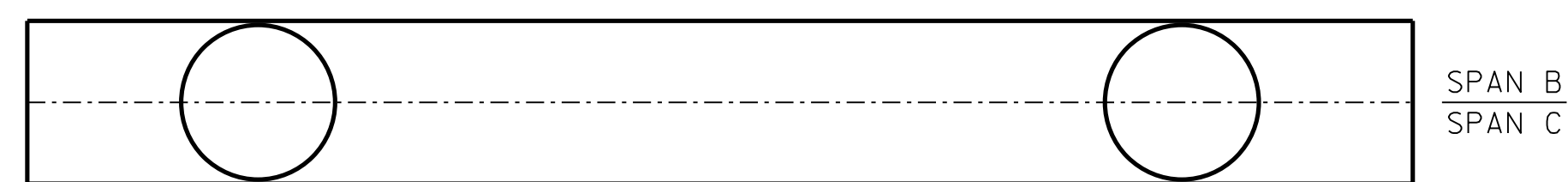
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MIN. OF 1" BEHIND REBAR AND MIN. 2" CL. TO SAWCUT. SEE REPAIR DETAILS.



ELEVATION  
SPAN B

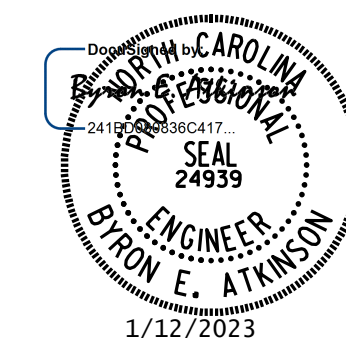


ELEVATION  
SPAN C



PLAN  
BOTTOM OF CAP  
(LOOKING UP)

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590282

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. <b>S2-9</b> TOTAL SHEETS <b>108</b>

DRAWN BY : B.E. LANNING DATE : 10/2022  
CHECKED BY : B.E. ATKINSON DATE : 10/2022  
DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:14 AM User: blanning  
 Filenamer: N:\NC Bridges\M21001.39-I-6052-101 Meck Co. Br. Preservation\Structures\402.017-I-6052-SMU.BT2.590282.dgn



AS-BUILT REPAIR QUANTITY TABLE

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	53.1			

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

NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

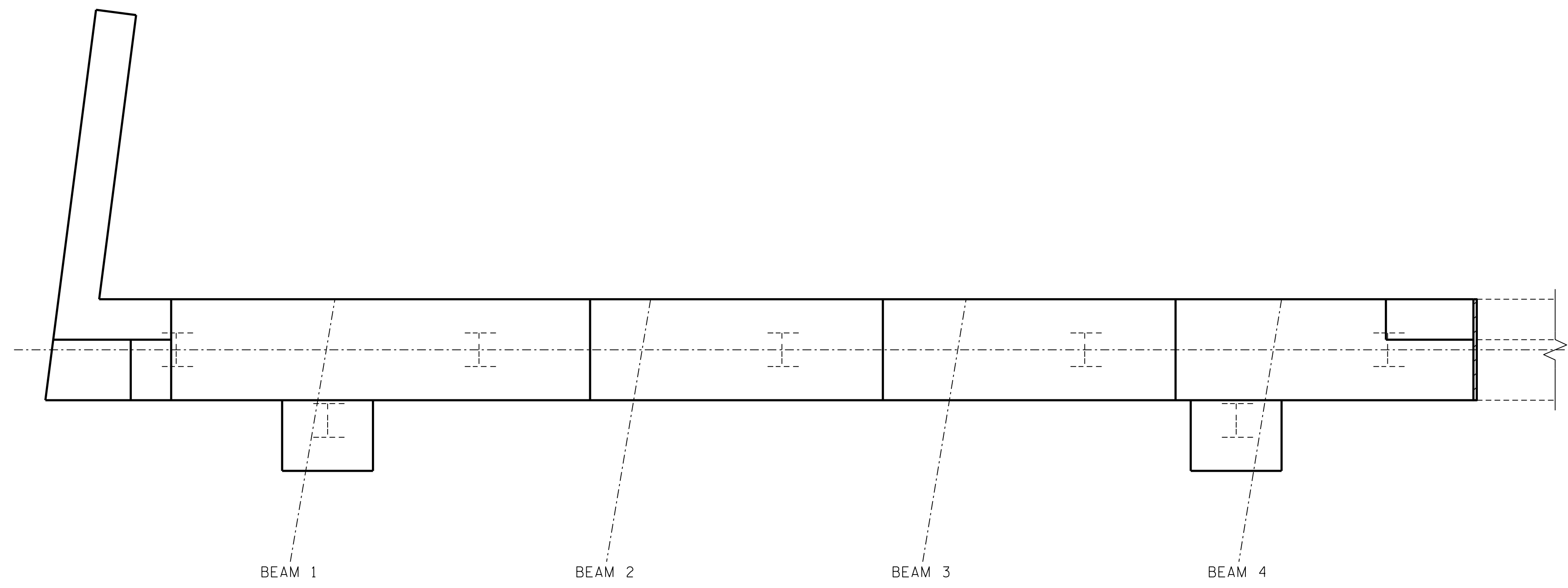
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

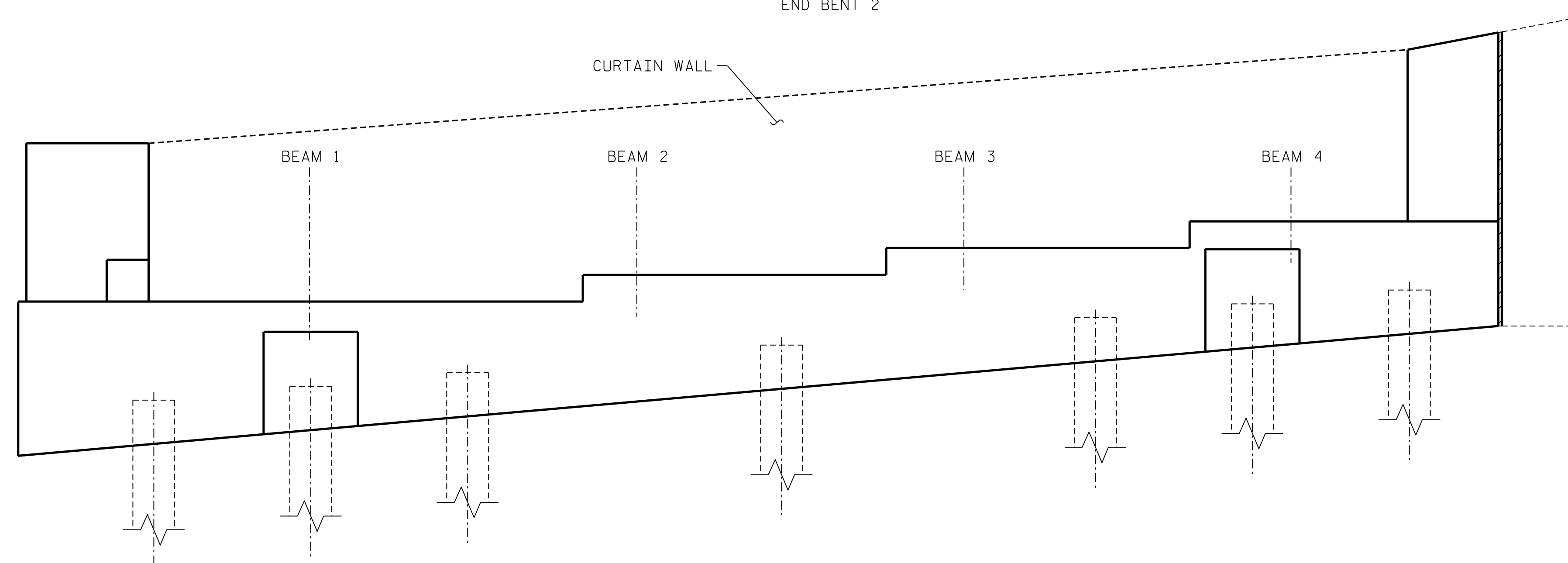
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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



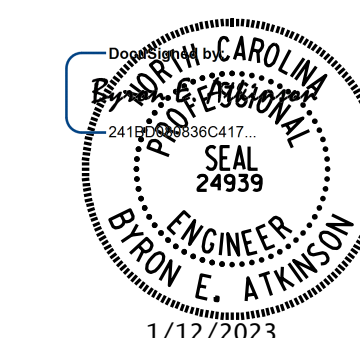
PLAN  
END BENT 2



ELEVATION  
END BENT 2

KEY

	SHOTCRETE REPAIR
	ERI EPOXY RESIN INJECTION
	CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590282

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. <b>S2-10</b>					TOTAL SHEETS <b>108</b>

DRAWN BY : B.E. LANNING DATE : 10/2022  
CHECKED BY : B.E. ATKINSON DATE : 10/2022  
DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

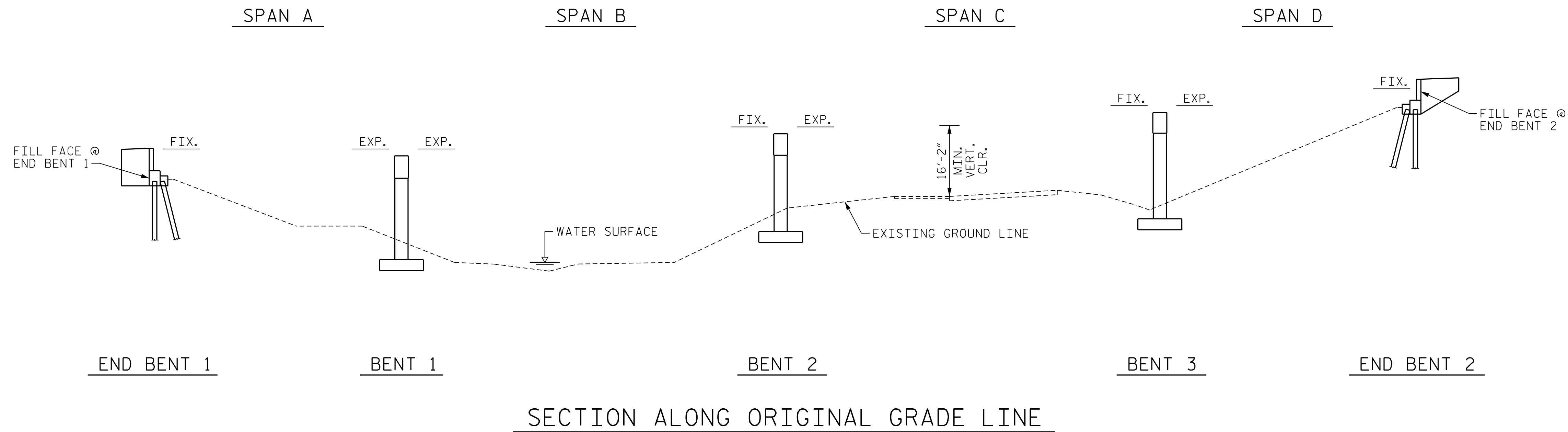
1/12/2023 9:18:16 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052.101\Meck Co.Br. Preservation\Structures\402.019-I-6052.SMU.EB2.590282.dgn

**NOTES:**

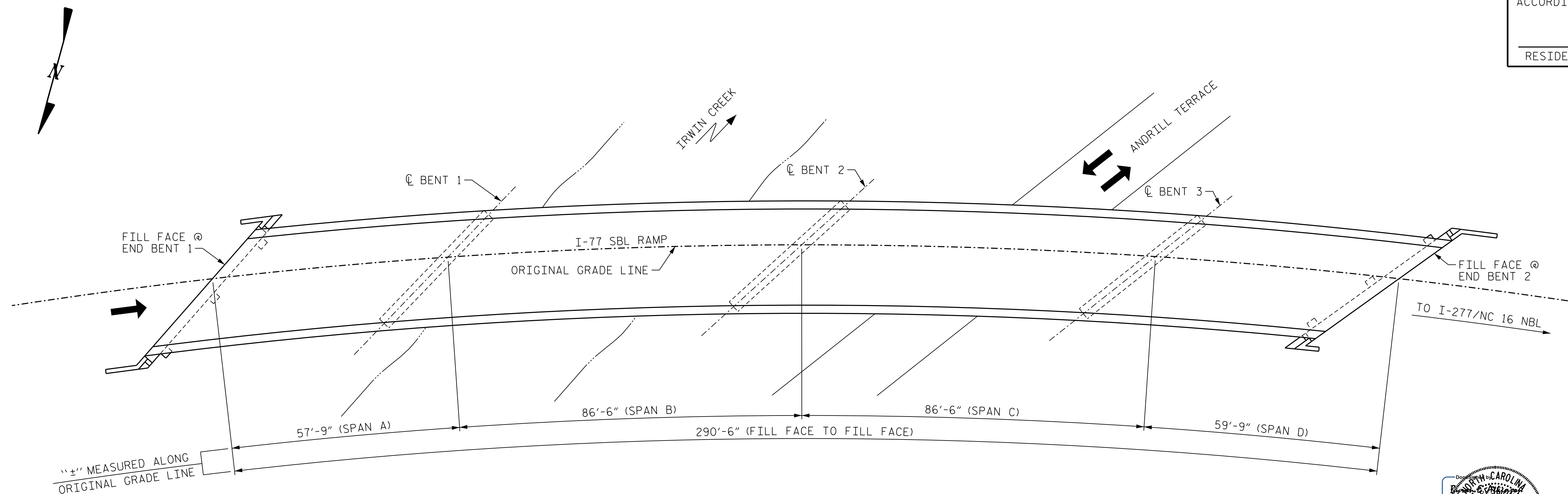
PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/13/2022.  
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

**SCOPE OF WORK:**

- PARTIALLY REMOVE BRIDGE DECK CONCRETE USING SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- PERFORM CLASS II SURFACE PREPARATION AND REPAIR ON DECK SURFACES.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES).
- RECONSTRUCT BRIDGE DECK JOINT AND INSTALL JOINT SEALS.
- GROOVE LMC-VES BRIDGE DECK.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.



I HEREBY CERTIFY THAT THIS STRUCTURE HAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.  
RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_



**PLAN**

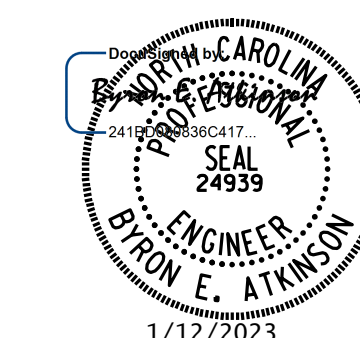
PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590283

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON I-77 SBL RAMP  
OVER ANDRILL TERRACE  
AND IRWIN CREEK



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

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

SHEET NO.  
**S3-1**  
TOTAL SHEETS  
**108**

DRAWN BY : B.E. LANNING DATE : 10/2022  
CHECKED BY : B.E. ATKINSON DATE : 10/2022  
DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:17 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052.101 Meck Co.Br. Preservation\Structures\403.001.I-6052.SMU.GDI.590283.dgn





**LOCATION SKETCH**

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

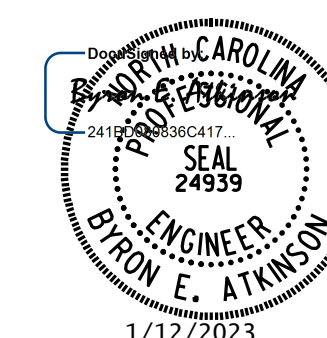
BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°-14'-45.76"	80°-50'-54.43"

**NOTES:**

- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE IS UNDER BRIDGE LIGHTING ATTACHED TO THE STRUCTURE.
- FOR CLASS II SURFACE PREPARATION, SCARIFYING BRIDGE DECK AND HYDRO-DEMOLITION OF BRIDGE DECK, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.
- WORK ON BRIDGE SHALL BE PREFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE TO THE PROJECT SPECIAL PROVISION.
- PRIOR TO BEGINNING WORK, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST.
- FOR POLLUTION CONTROL, SEE SPECIAL PROVISIONS.
- FOR REMOVE AND REPLACE CURB AND GUTTER, SEE SPECIAL PROVISIONS.

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590283

SHEET 2 OF 2



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

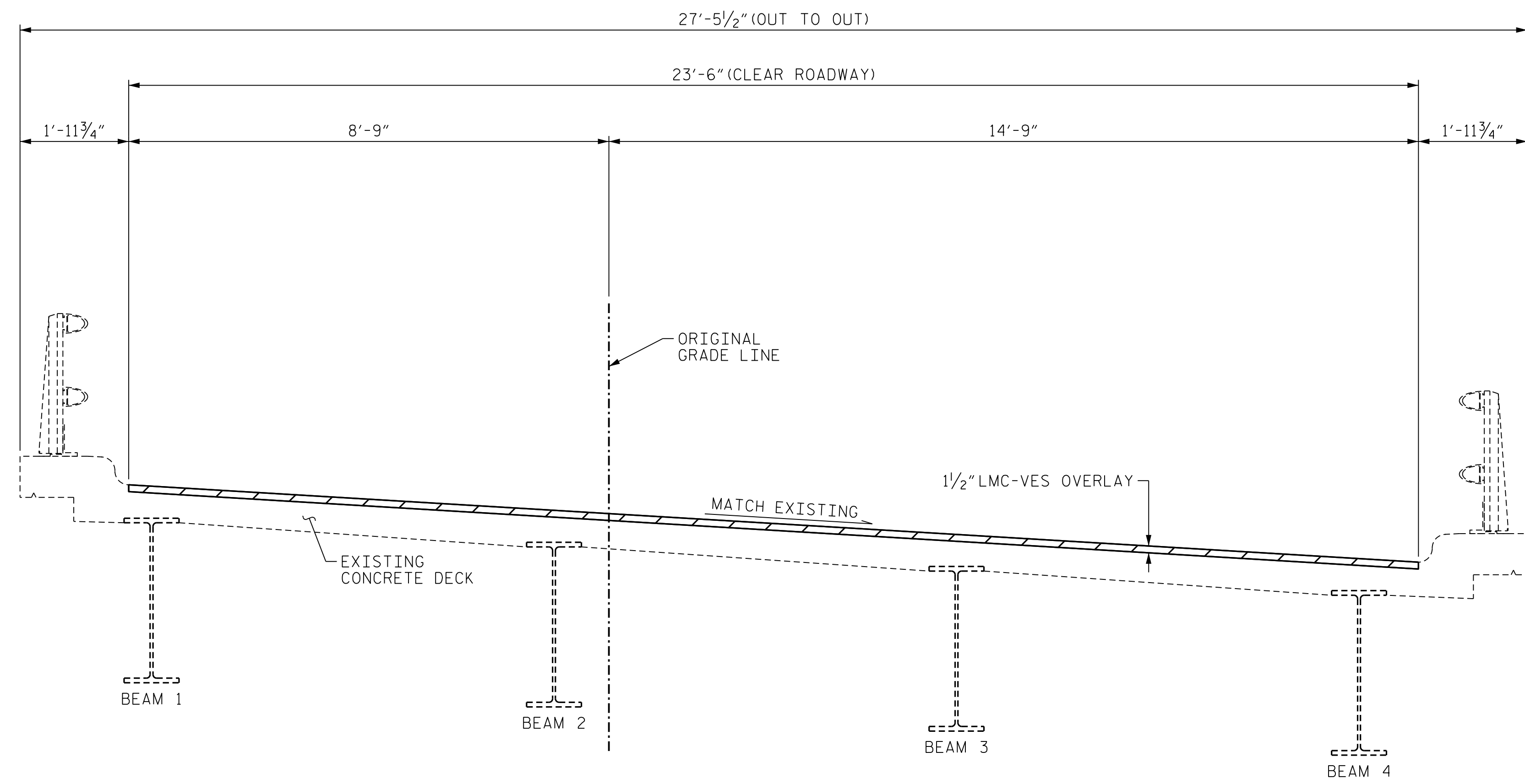
FOR BRIDGE ON I-77 SBL RAMP  
 OVER ANDRILL TERRACE  
 AND IRWIN CREEK

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 108
1			3			
2			4			

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:18 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101 Meck Co. Br. Preservation\Structures\403.003-I-6052-SMU-G02-590283.dgn



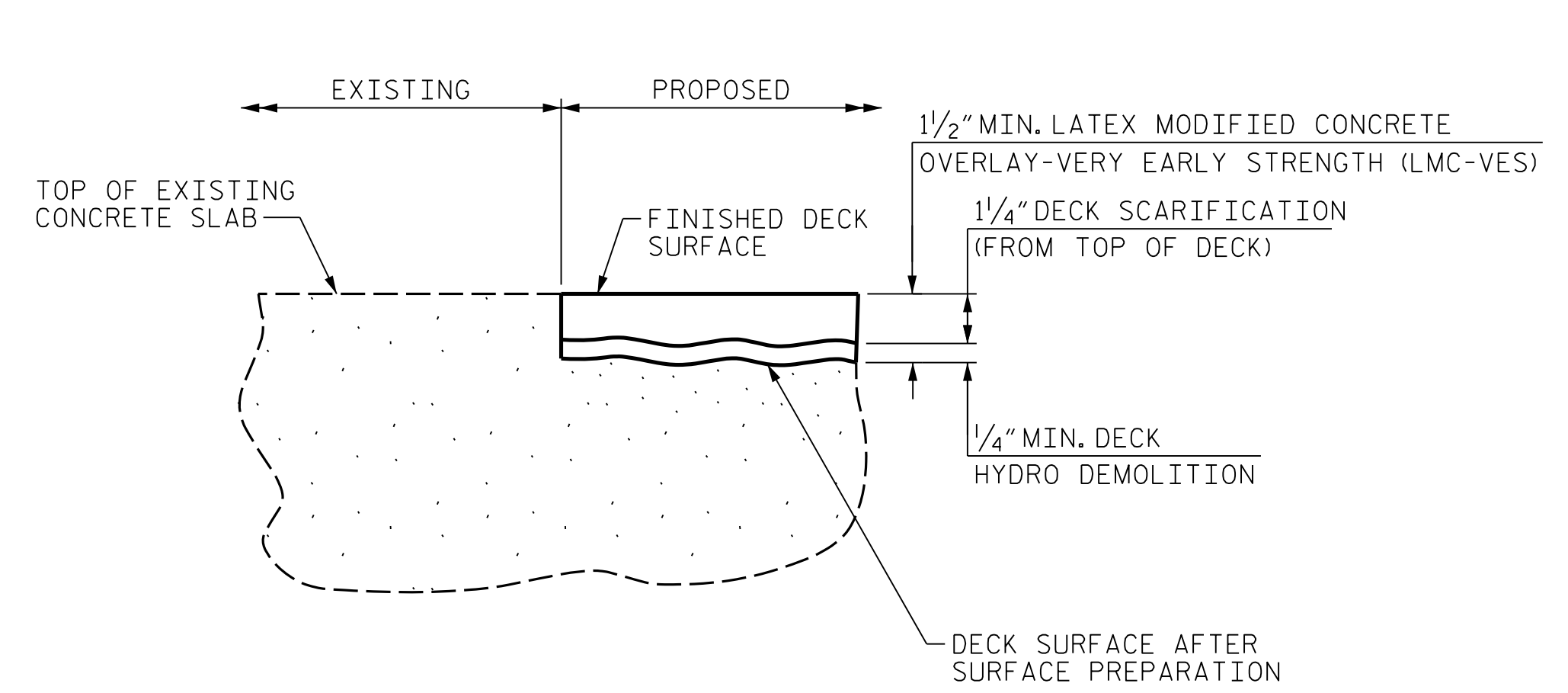


TYPICAL SECTION  
(ALL DIMENSIONS ARE RADIAL)

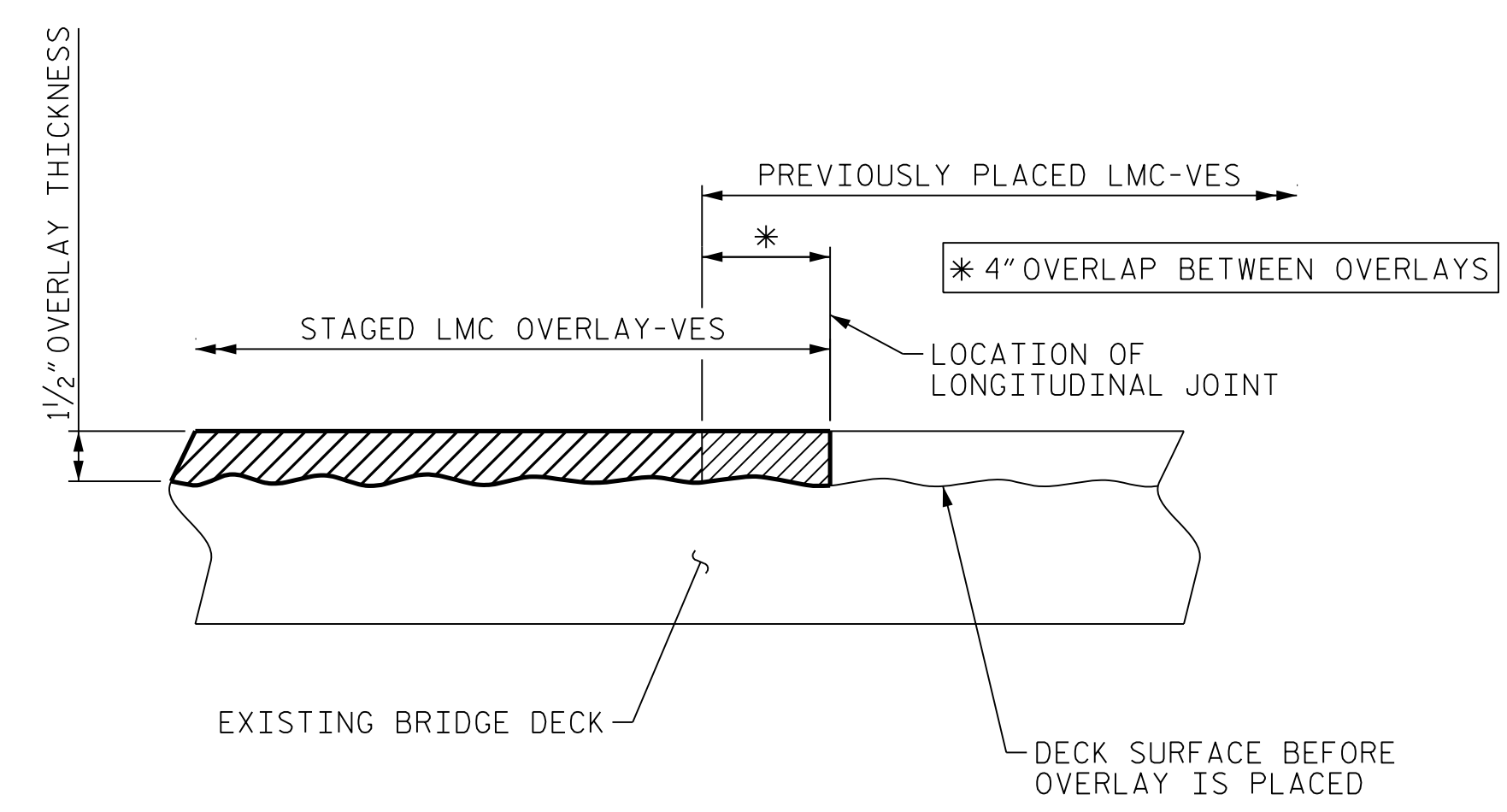
NOTES:

WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.

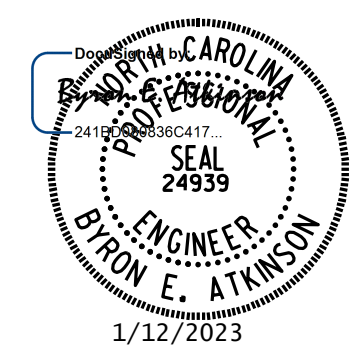


DETAIL FOR LMC-VES OVERLAY



SECTION THRU DECK  
STAGED LMC-VES OVERLAY JOINT

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590283



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION  
&  
OVERLAY DETAILS

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

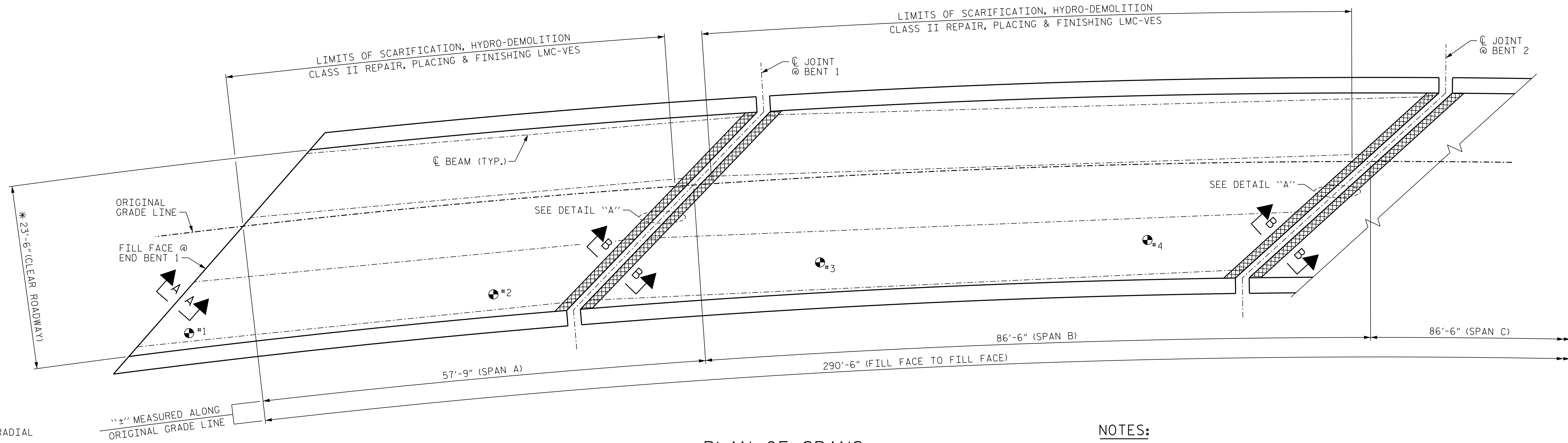
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-3
1			3			TOTAL SHEETS
2			4			108

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:21 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052-101 Meck Co.Br. Preservation\Structures\403\_005-I-6052.SMU.TS1.590283.dgn





**PLAN OF SPANS**

- BRIDGE JOINT DEMOLITION
- CLASS II SURFACE PREPARATION
- DECK SCARIFICATION, HYDRO-DEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY-VES
- #X TEST HOLE LOCATION

**NOTES:**

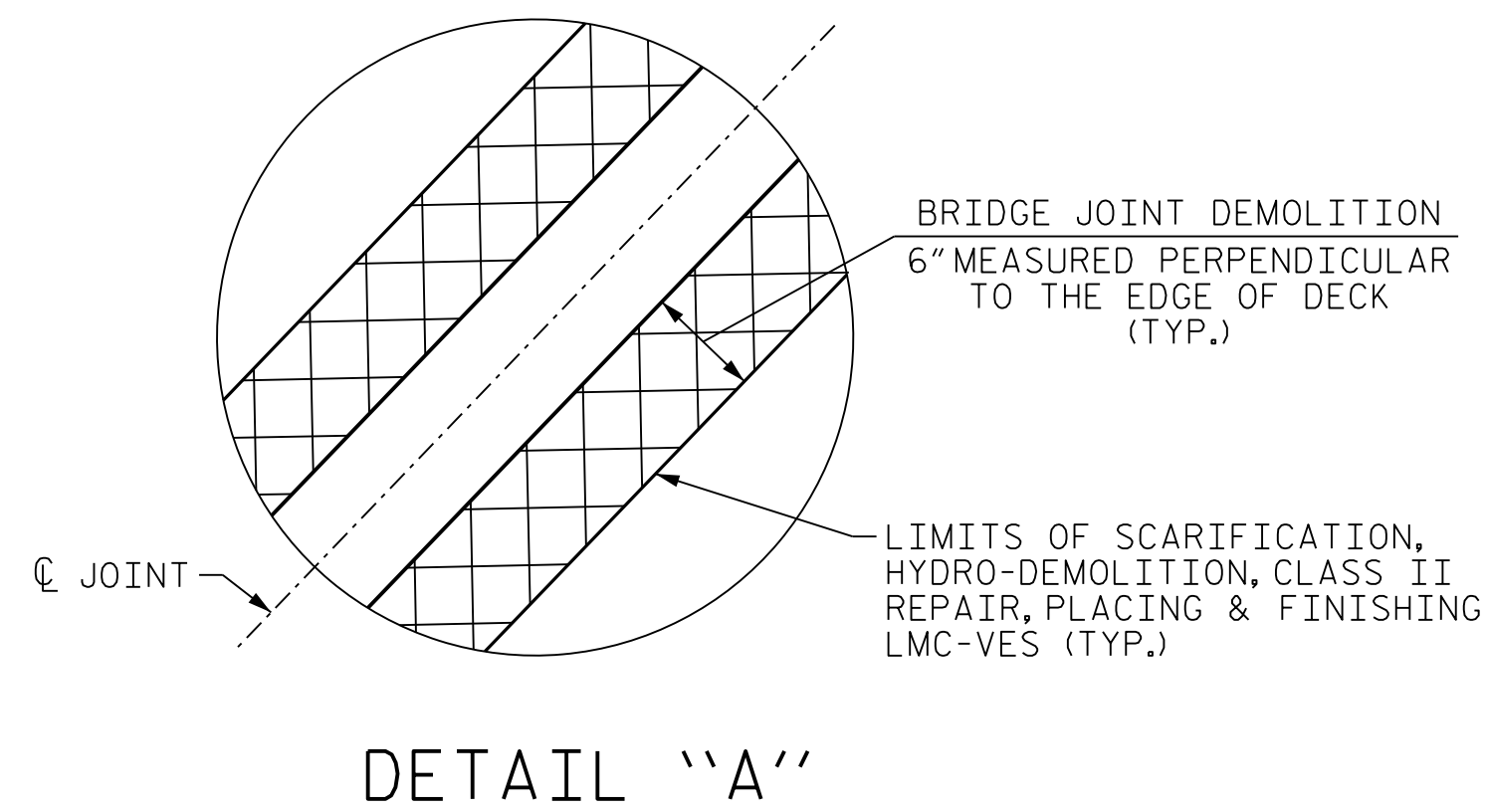
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.

FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

AS-BUILT REPAIR QUANTITY TABLE SPANS A AND B				
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	370.9 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	370.9 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	18.1 CY			
PLACING & FINISHING LMC-VES OVERLAY	370.9 SY			
BRIDGE JOINT DEMOLITION	52.3 SF			
GROOVING BRIDGE FLOORS	2877 SF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	QUANTITIES			
	ESTIMATE	ACTUAL		
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.



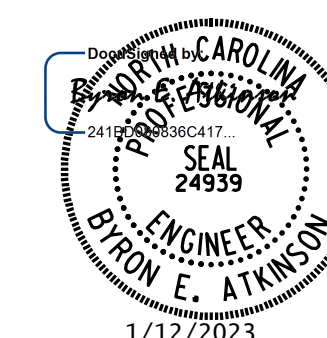
TEST LOCATION	*CONCRETE COVER	ESTIMATED CONCRETE STRENGTH
	(INCH)	(PSI)
#1	2 3/8"	4300
#2	2 1/8"	4300
#3	2 1/4"	4500
#4	2 3/8"	4500

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 08/29/22.

\* CONCRETE COVER FOR TOP BARS IN THE DECK ARE BASED ON DECK EVALUATION DATED 08/29/22. EXISTING BRIDGE PLANS INDICATE 1/2" CONCRETE COVER.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590283

SHEET 1 OF 2



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

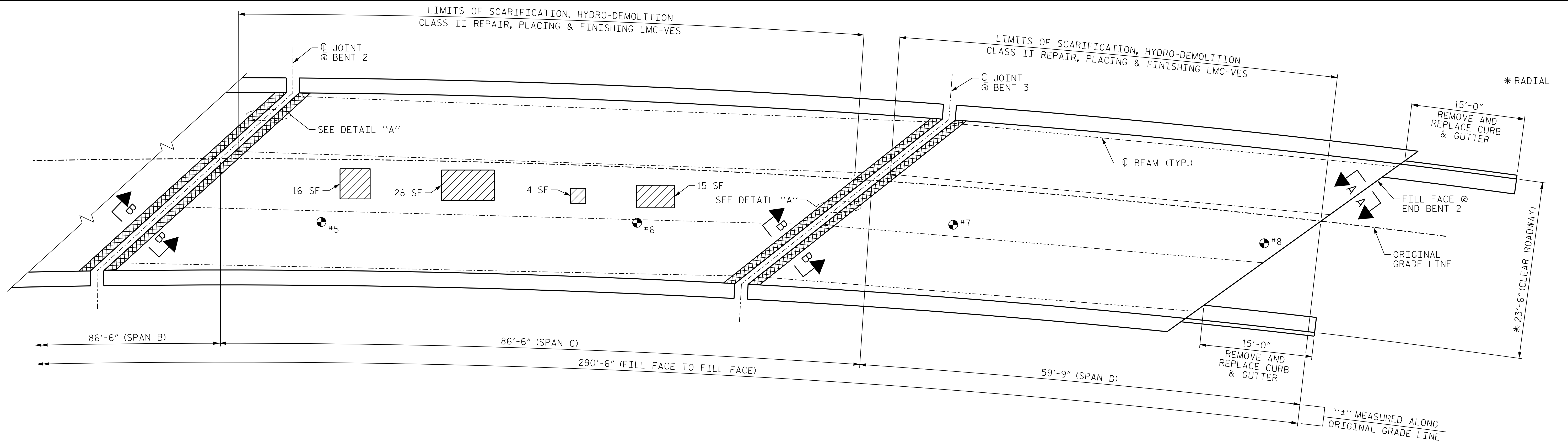
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 SURFACE PREPARATION  
 SPANS A AND B**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			108
2			4			

DRAWN BY : <u>B.E. LANNING</u>	DATE : <u>10/2022</u>
CHECKED BY : <u>B.E. ATKINSON</u>	DATE : <u>10/2022</u>
DESIGN ENGINEER OF RECORD : <u>B.E. ATKINSON</u>	DATE : <u>10/2022</u>

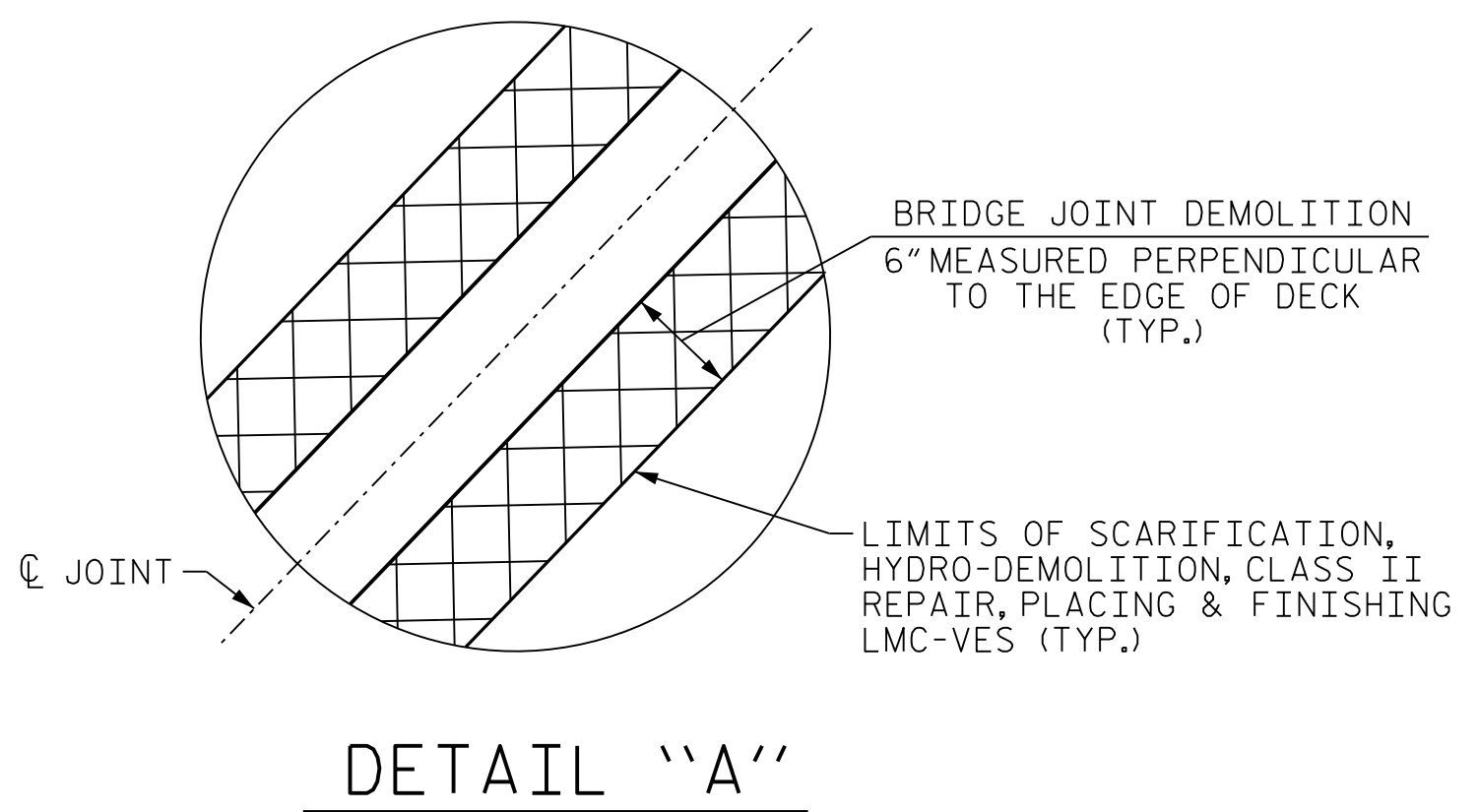
1/12/2023 9:18:22 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052.101 Meck Co.Br. Preservation\Structures\403.007-I-6052.SMU.DRI.590283.dgn



PLAN OF SPANS

AS-BUILT REPAIR QUANTITY TABLE SPANS C AND D				
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	376.1 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	376.1 SY			
CLASS II SURFACE PREPARATION	7.0 SY			
LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	18.3 CY			
PLACING & FINISHING LMC-VES OVERLAY	376.1 SY			
BRIDGE JOINT DEMOLITION	53.1 SF			
GROOVING BRIDGE FLOORS	2917 SF			
REMOVE AND REPLACE CURB AND GUTTER	30 LF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

- BRIDGE JOINT DEMOLITION
- CLASS II SURFACE PREPARATION
- DECK SCARIFICATION, HYDRO-DEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY-VES
- #X TEST HOLE LOCATION



DETAIL "A"

TEST LOCATION	*CONCRETE COVER (INCH)	ESTIMATED CONCRETE STRENGTH (PSI)
#5	1 3/4"	4300
#6	1 5/8"	4700
#7	2"	4300
#8	2"	4500

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 08/29/22.  
 \* CONCRETE COVER FOR TOP BARS IN THE DECK ARE BASED ON DECK EVALUATION DATED 08/29/22. EXISTING BRIDGE PLANS INDICATE 1/2" CONCRETE COVER.

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.

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.

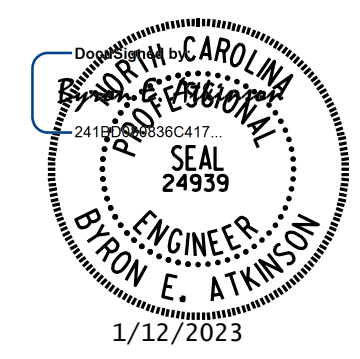
FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

QUANTITIES SHOWN IN THE BILL OF MATERIAL ARE BASED ON ESTIMATED CURB AND GUTTER REMOVAL AND REPLACEMENT. REMOVE AND REPLACE DIMENSIONS SHOWN ON PLANS. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS WITH THE ENGINEER AND SHALL ADJUST QUANTITIES AS NECESSARY.

EXISTING DAMAGED CURB AND GUTTER SHALL BE REMOVED AND REPLACED WITH CURB AND GUTTER IN ACCORDANCE WITH SECTION 846 OF THE STANDARD SPECIFICATIONS AND 2018 ROADWAY STANDARD DRAWING 846.01.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590283

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 SURFACE PREPARATION  
 SPANS C AND D

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

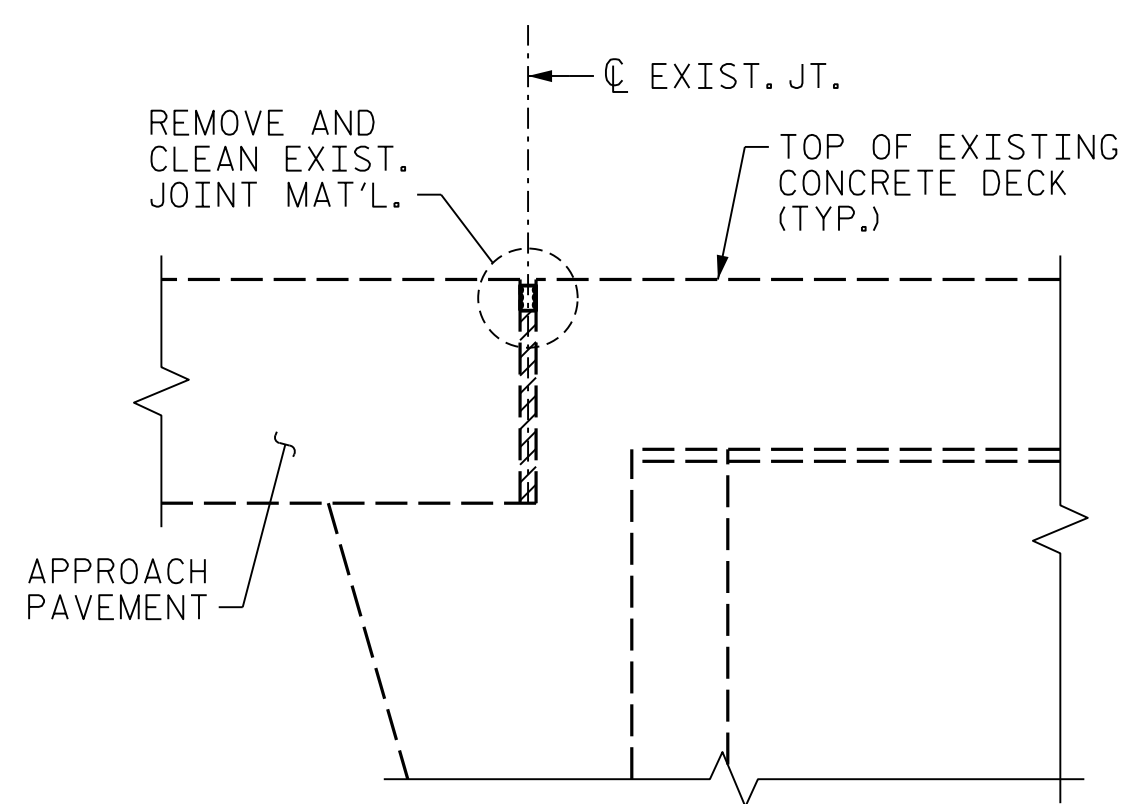
MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-5 TOTAL SHEETS 108
2			4			

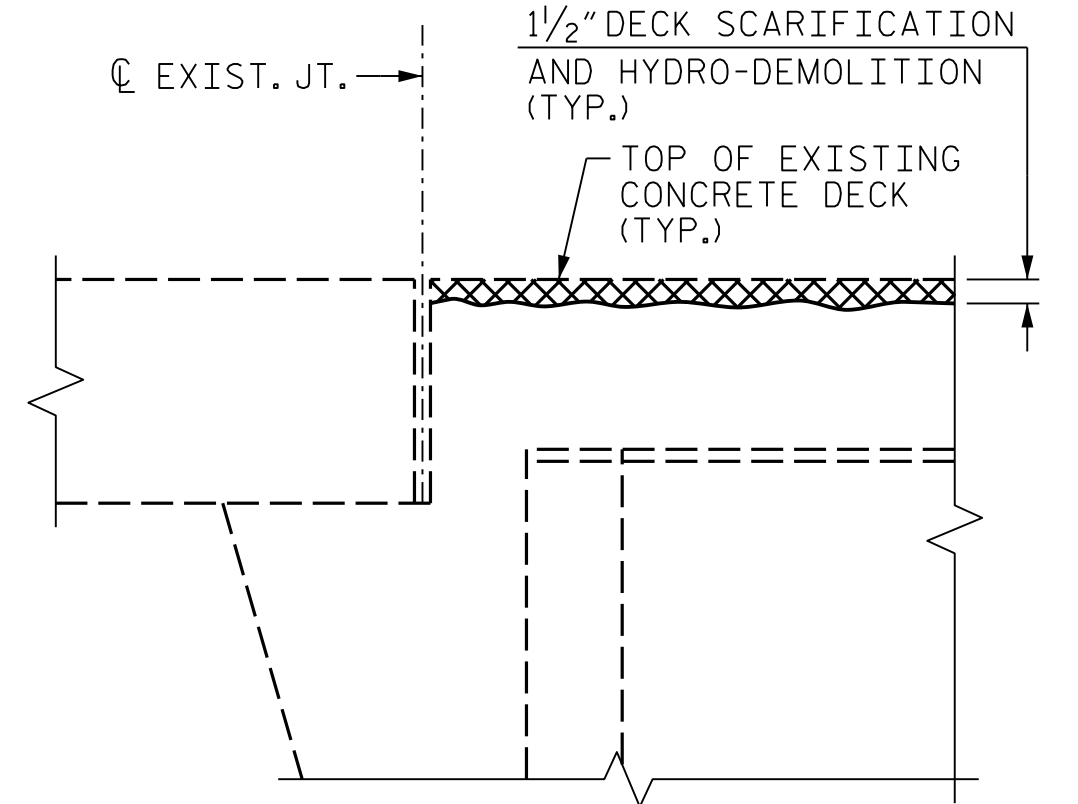
1/12/2023 9:18:23 AM User: blanning  
 Filename: N:\NC Bridges\21010139-I-6052-101 Meck Co. Br. Preservation\Structures\403-009-I-6052-SMU-DR2-590283.dgn

DRAWN BY: B.E. LANNING DATE: 10/2022  
 CHECKED BY: B.E. ATKINSON DATE: 10/2022  
 DESIGN ENGINEER OF RECORD: B.E. ATKINSON DATE: 10/2022

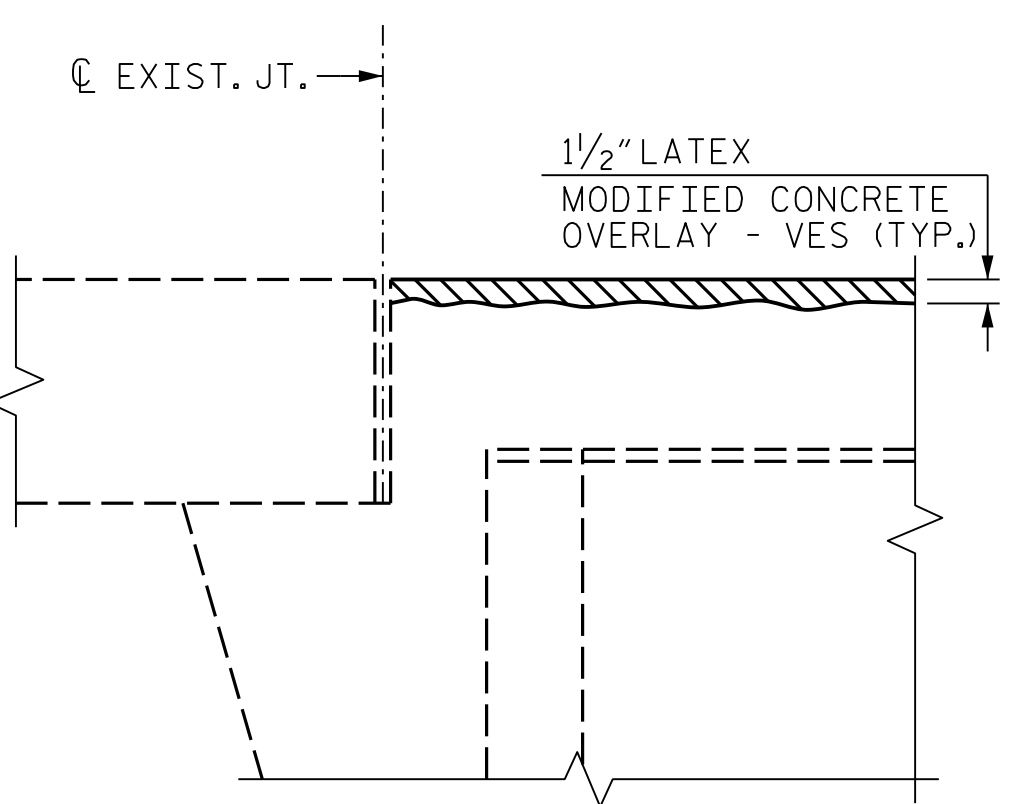




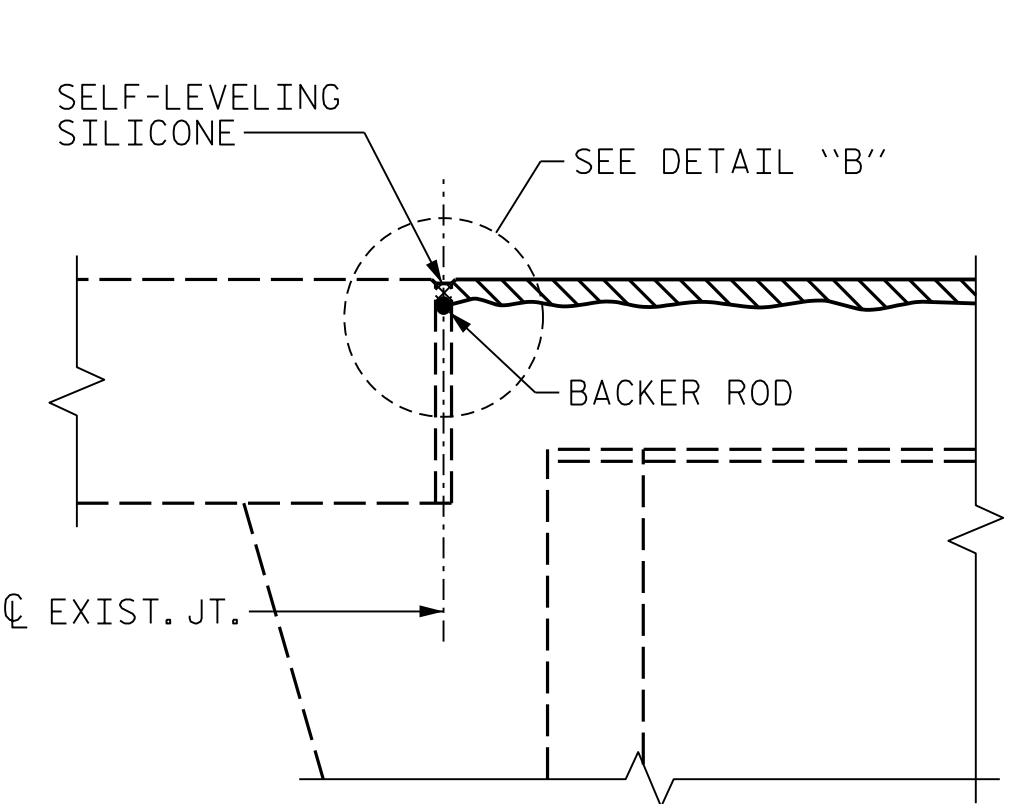
EXISTING JOINT AT END BENT



MINIMUM EXISTING JOINT DEMOLITION AT END BENT

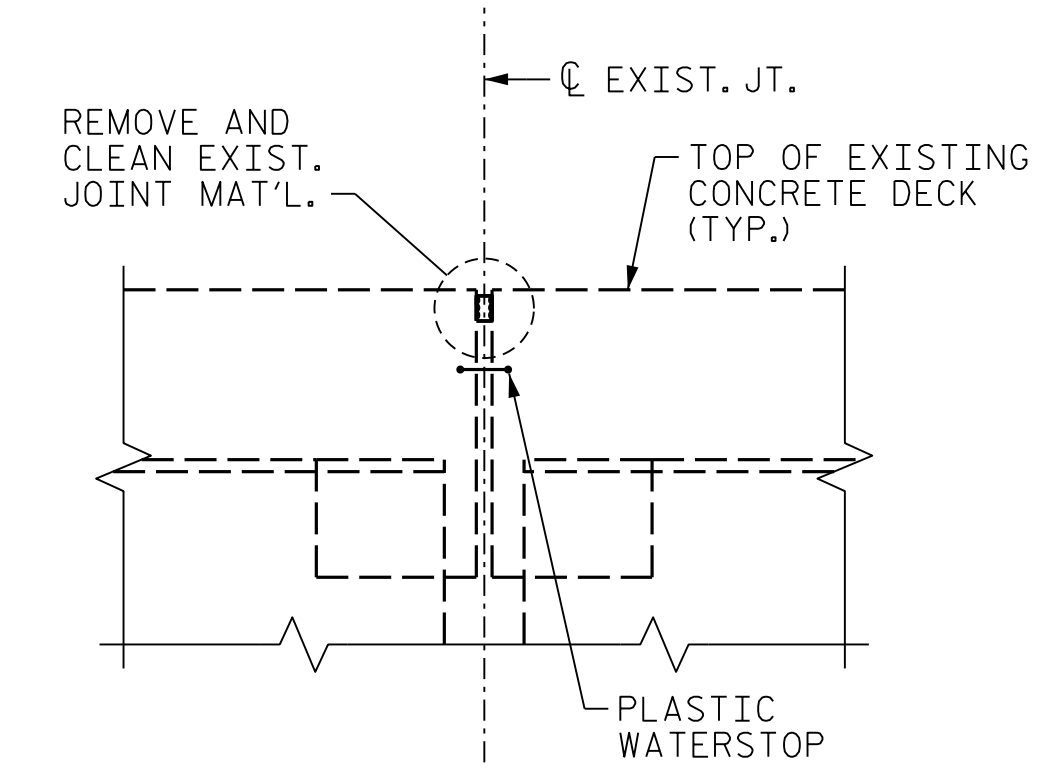


PROPOSED JOINT PRE-INSTALL DIMENSIONS

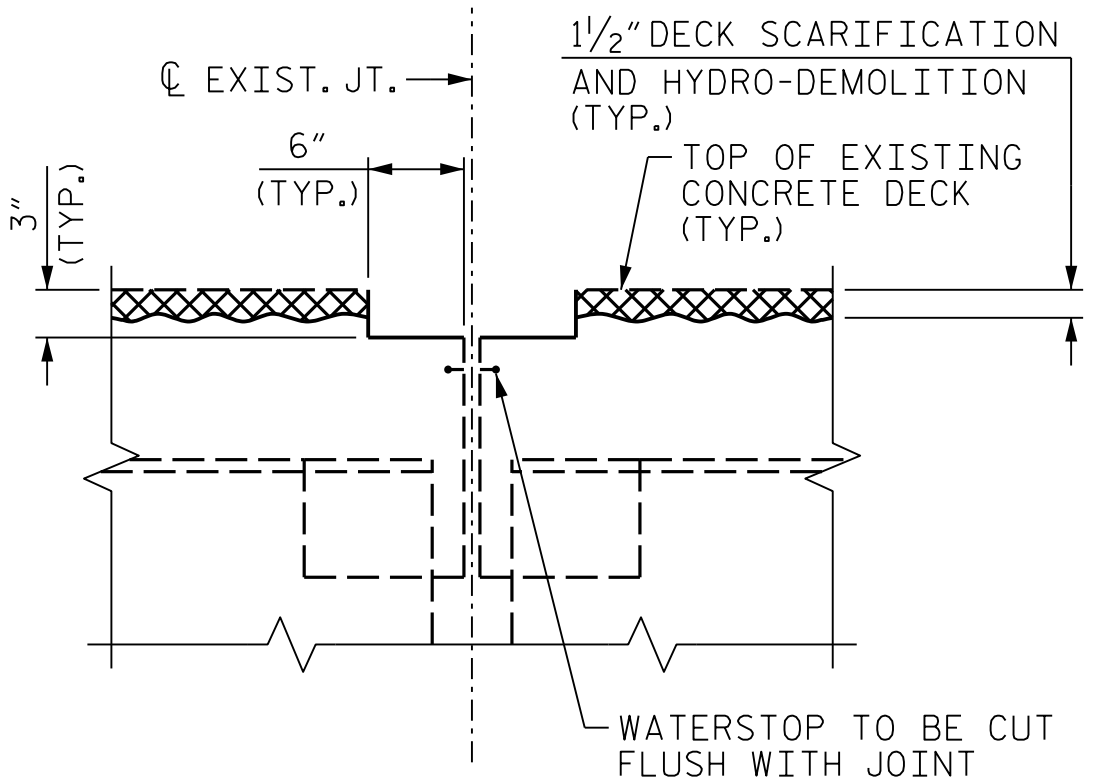


PROPOSED JOINT

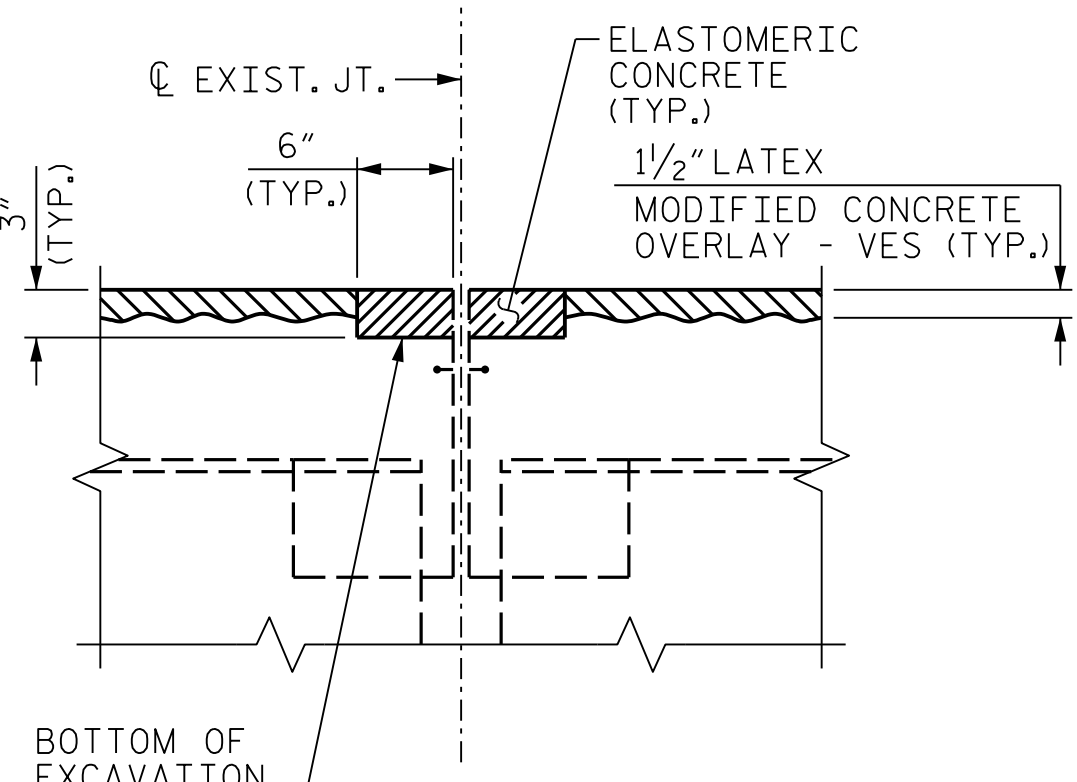
SECTION A-A



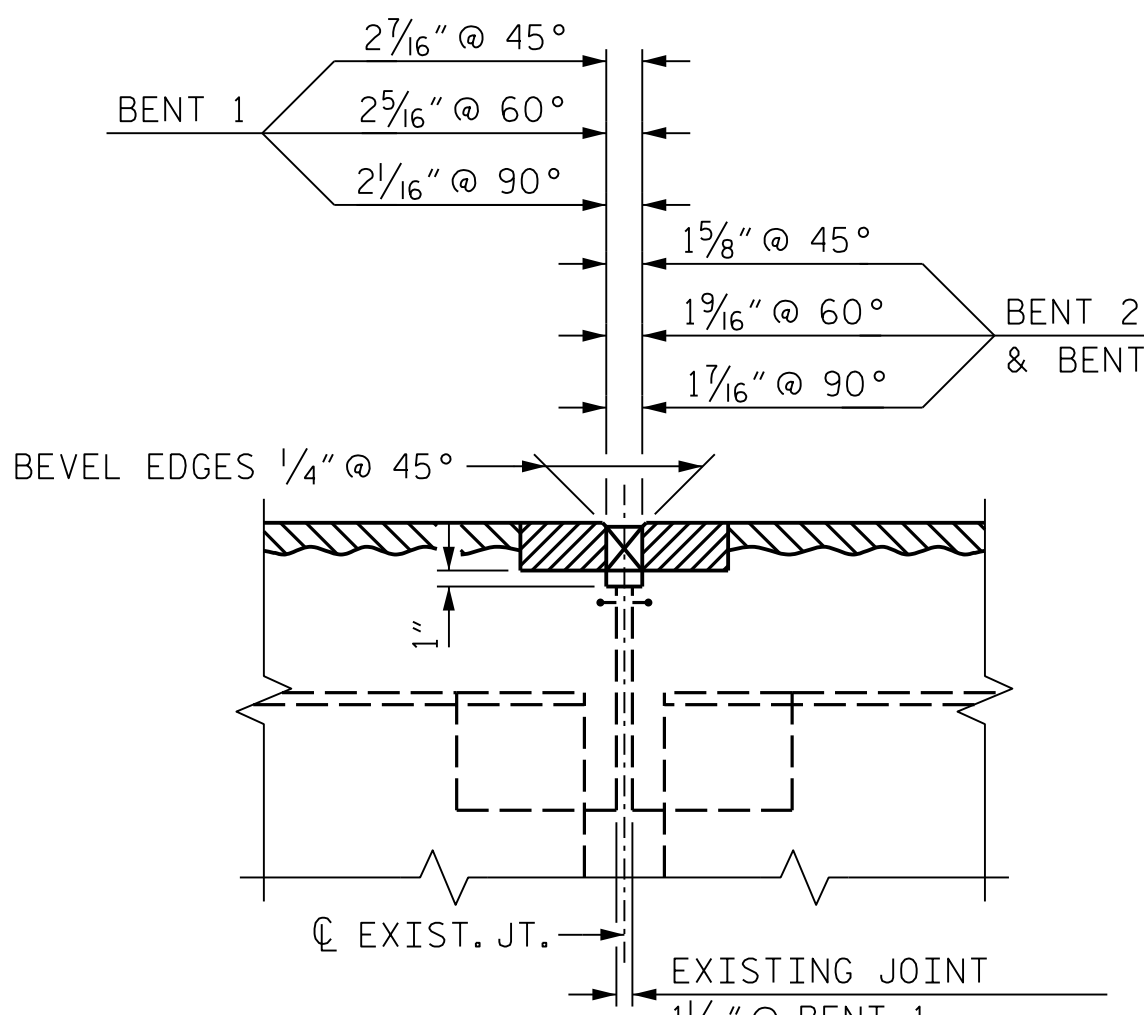
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION AT BENT

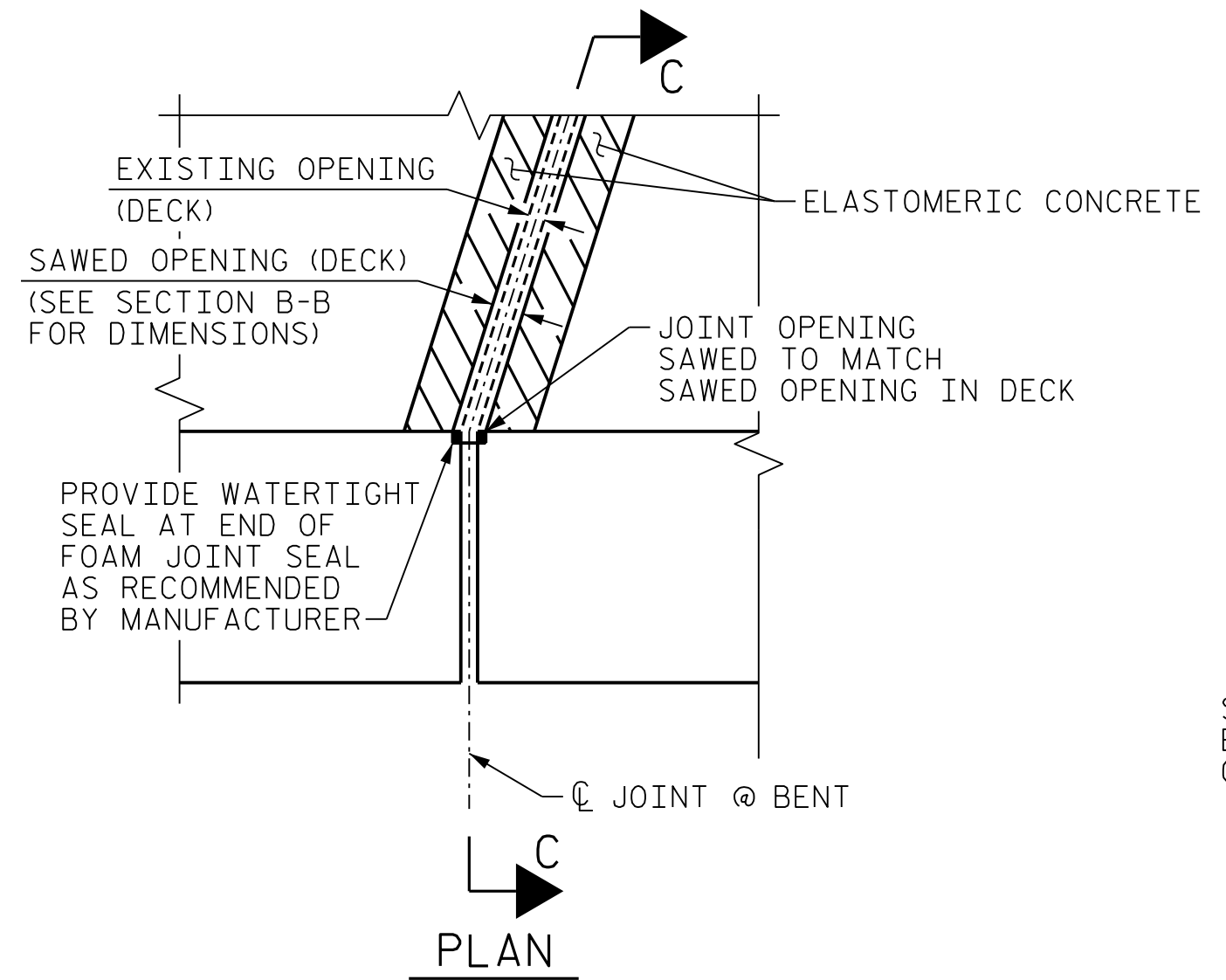


PROPOSED JOINT PRE-SAWED DIMENSIONS

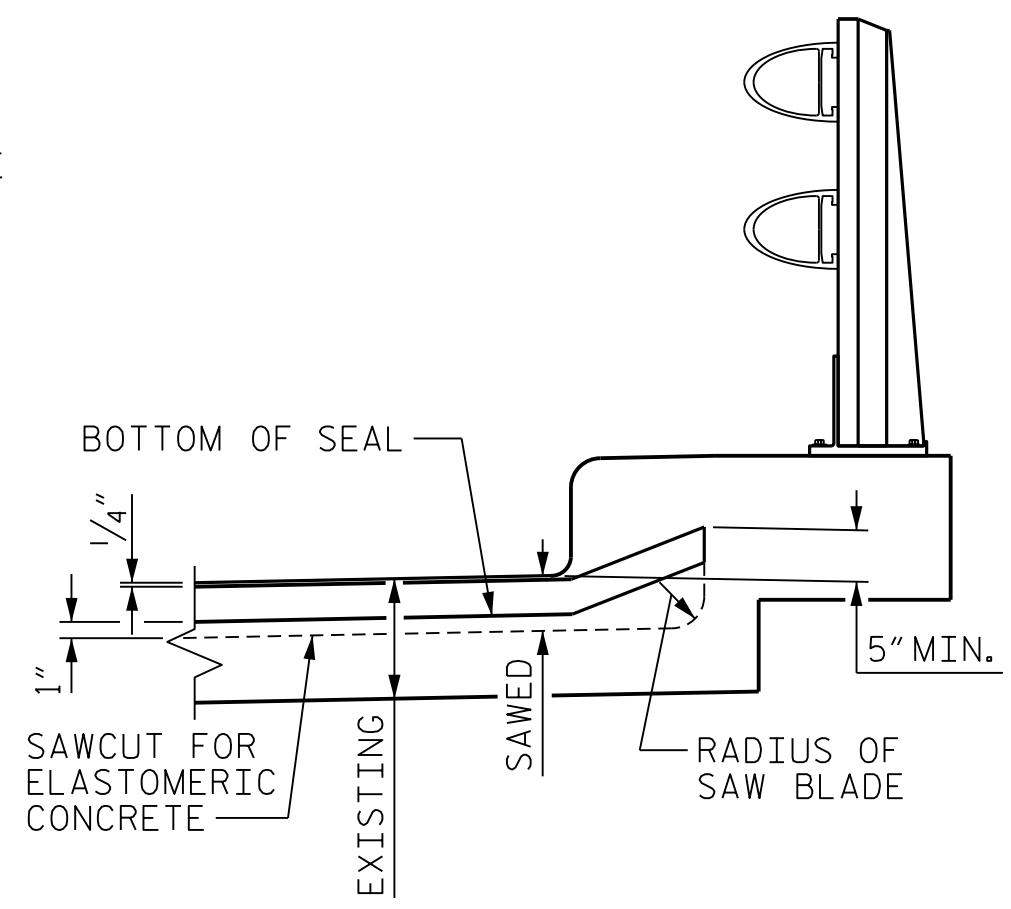


PROPOSED FOAM JOINT SEAL EXPANSION

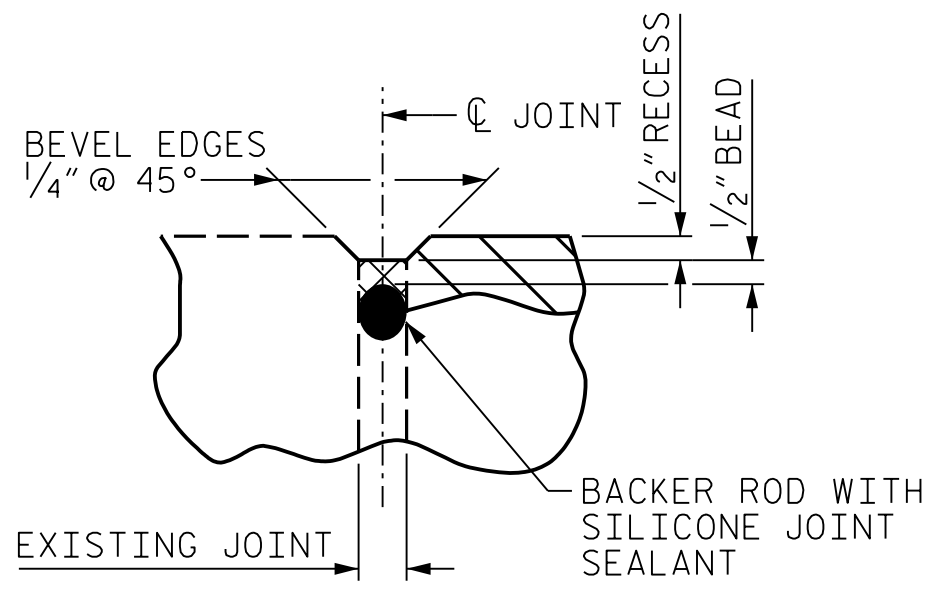
SECTION B-B



JOINT DETAILS AT CURB



SECTION C-C



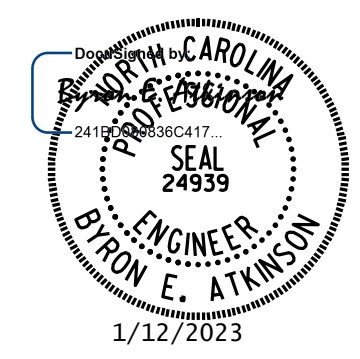
DETAIL "B"

ELASTOMERIC CONCRETE FOR PRESERVATION		
BENT 1	8.7	CF
BENT 2	8.8	CF
BENT 3	8.9	CF
* TOTAL	26.4	CF

\* BASED ON MINIMUM BLOCKOUT SHOWN.

JOINT REPAIR QUANTITY TABLE		
	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	111.4 LF	
POURABLE SILICONE JOINT SEALANT	74.3 LF	

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590283



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

JOINT DETAILS

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

SHEET NO. **S3-6**  
 TOTAL SHEETS 108

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:25 AM User: blanning  
 File: N:\NC Bridges\W21001.39-I-6052-101 Meck Co. Br. Preservation\Structures\403.011-I-6052-SMJ-JTI-590283.dgn

### AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF	AREA SF		
TOP OF CAP	74.8			

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

#### NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

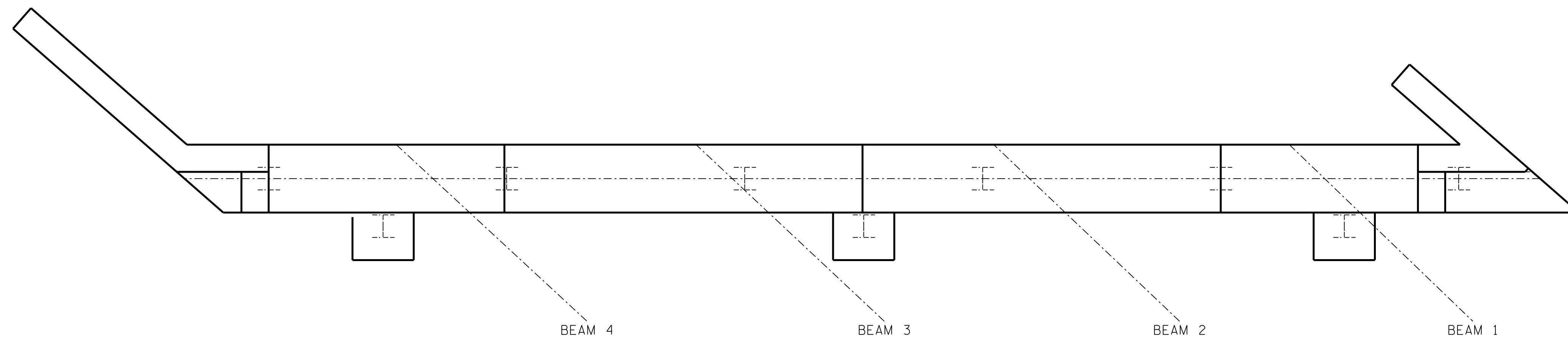
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

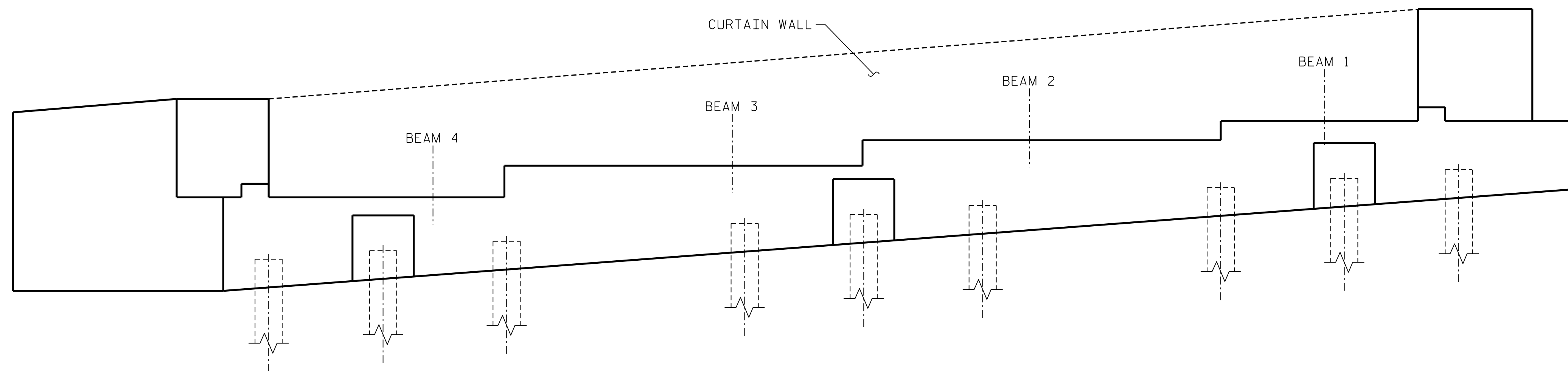
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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



### PLAN


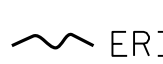
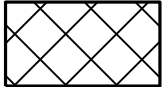
END BENT 1

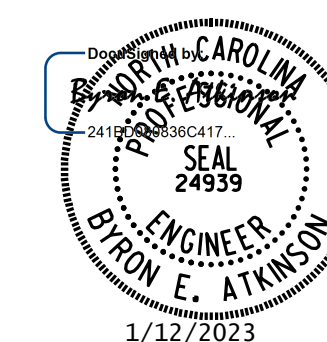


### ELEVATION

END BENT 1

#### KEY

-  SHOTCRETE REPAIR
-  ERI EPOXY RESIN INJECTION
-  CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590283

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

#### REVISIONS

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

SHEET NO.  
**S3-7**  
TOTAL SHEETS  
**108**

DRAWN BY : B.E. LANNING DATE : 10/2022  
CHECKED BY : B.E. ATKINSON DATE : 10/2022  
DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:26 AM User: blanning  
 Filename: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br. Preservation\Structures\403-013-I-6052-SMU.EBI.590283.dgn



### AS-BUILT REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.8	3.9		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	11.4	5.7		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.8	4.4		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA SF	AREA SF		
TOP OF CAP	116.7			

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

### NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

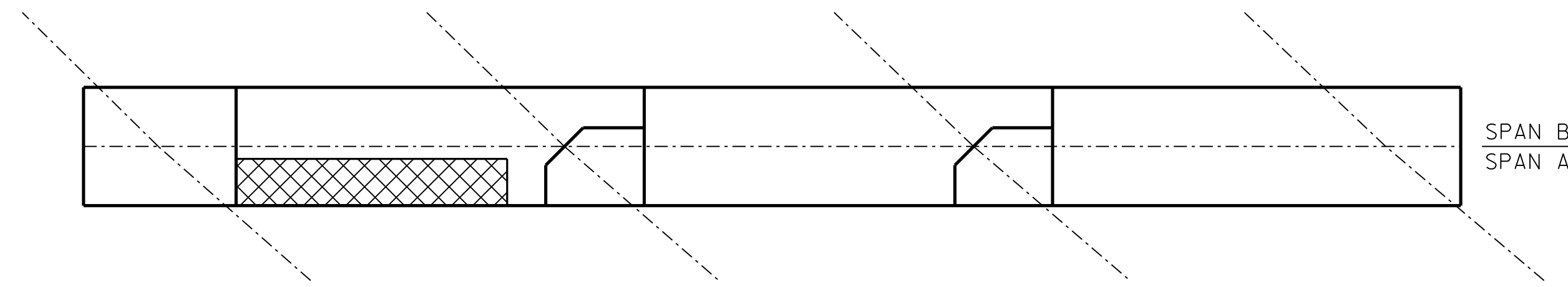
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

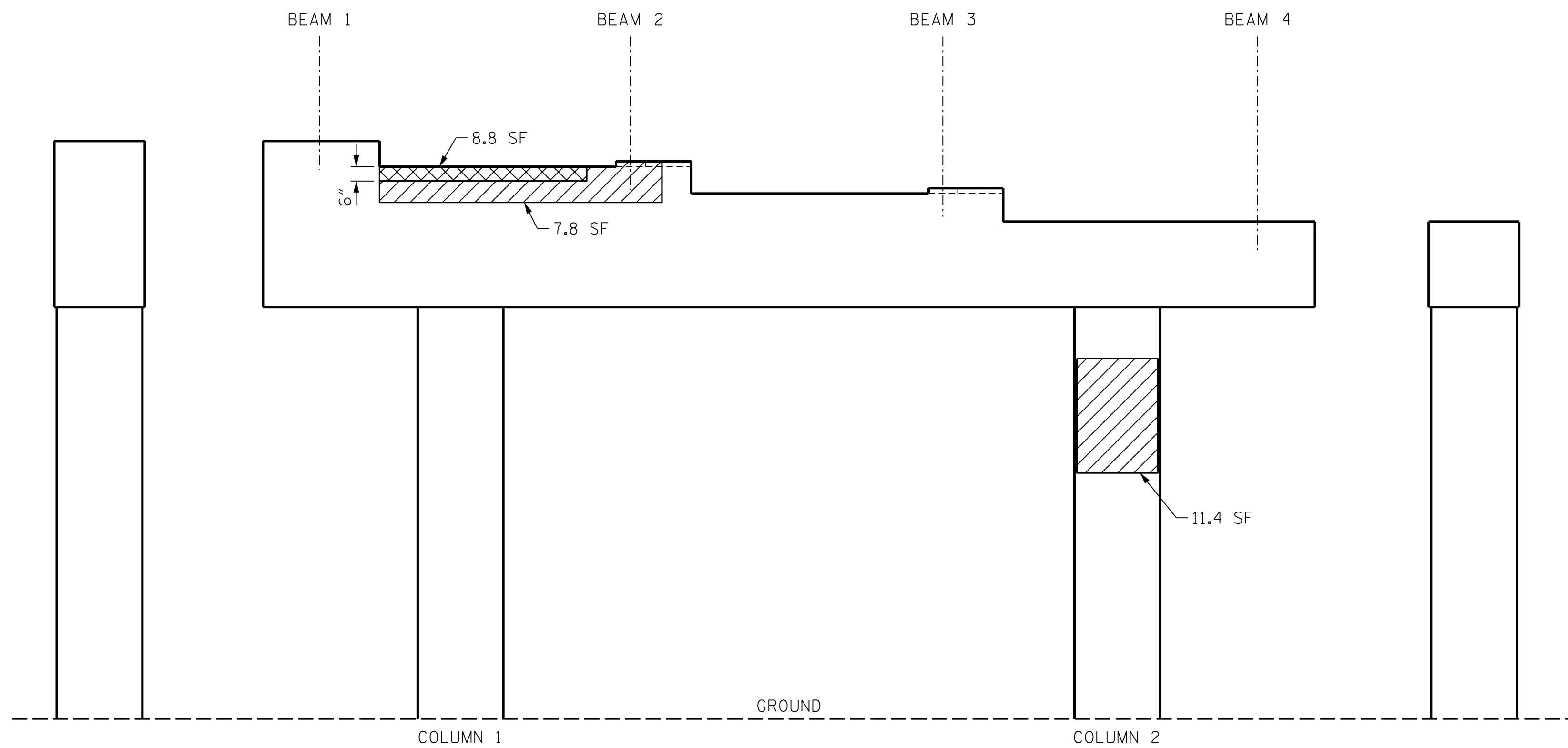
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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



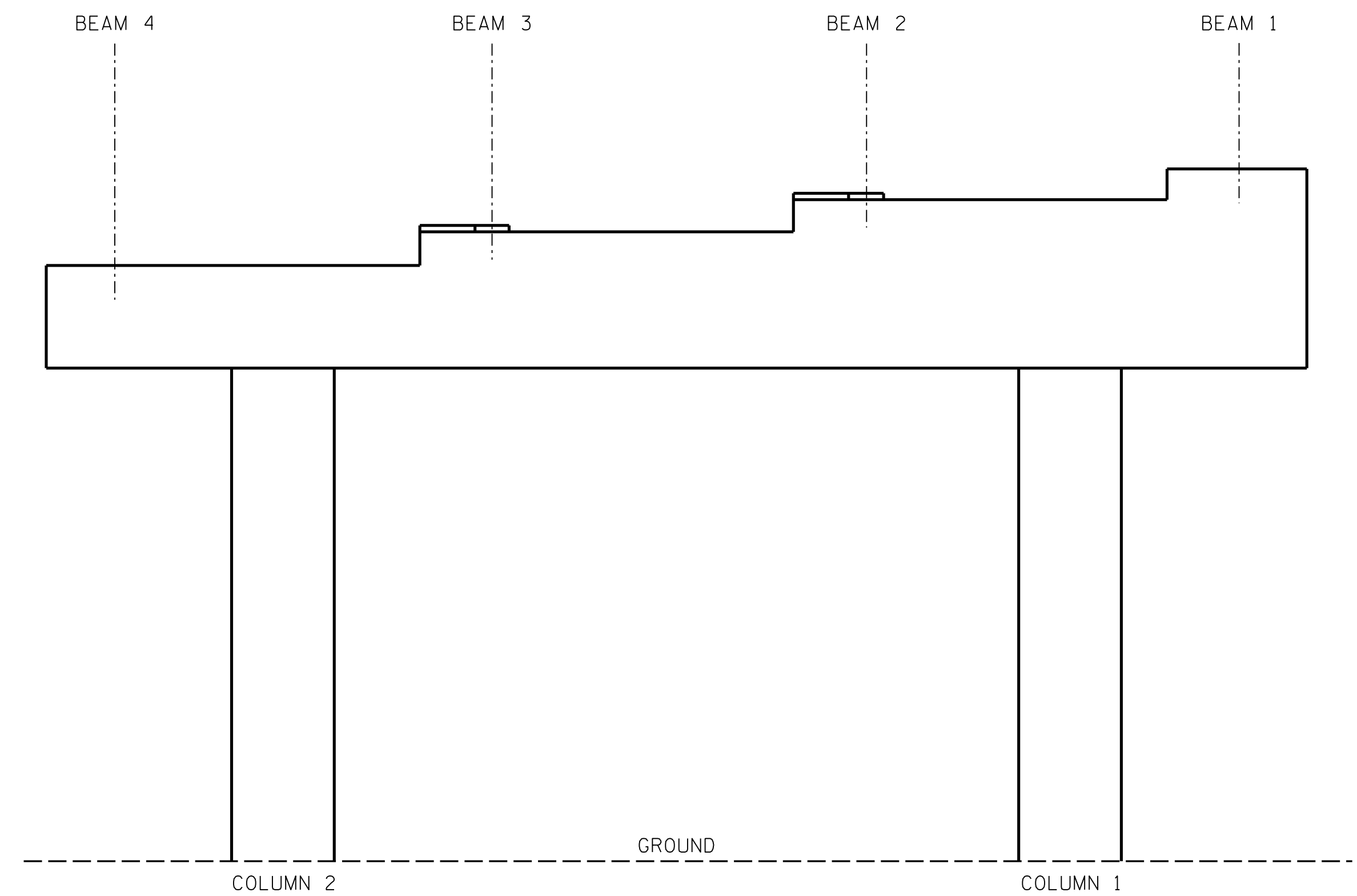
### PLAN

TOP OF CAP



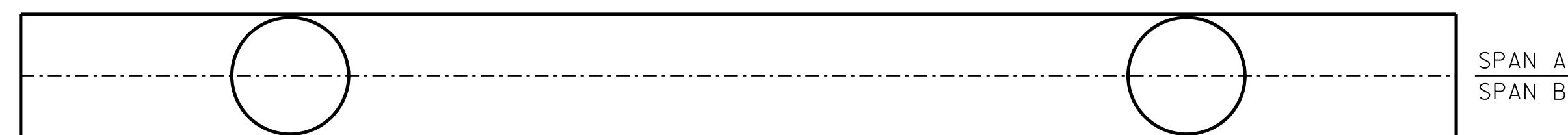
### ELEVATION

SPAN A



### ELEVATION


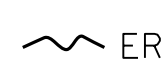

SPAN B

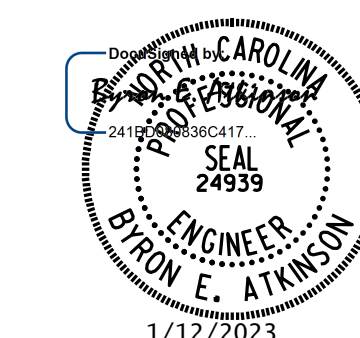


### PLAN

BOTTOM OF CAP (LOOKING UP)

### KEY

-  SHOTCRETE REPAIR
-  ERI EPOXY RESIN INJECTION
-  CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590283

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

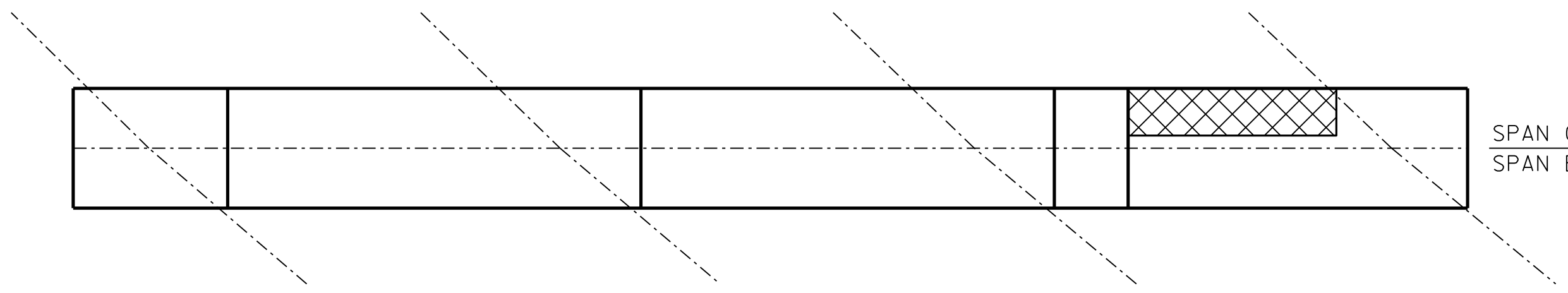
**SUBSTRUCTURE BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-8 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
CHECKED BY : B.E. ATKINSON DATE : 10/2022  
DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:27 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052.101\Meck Co.Br.Preservation\Structures\403.015-I-6052.SMU.BT1.590283.dgn



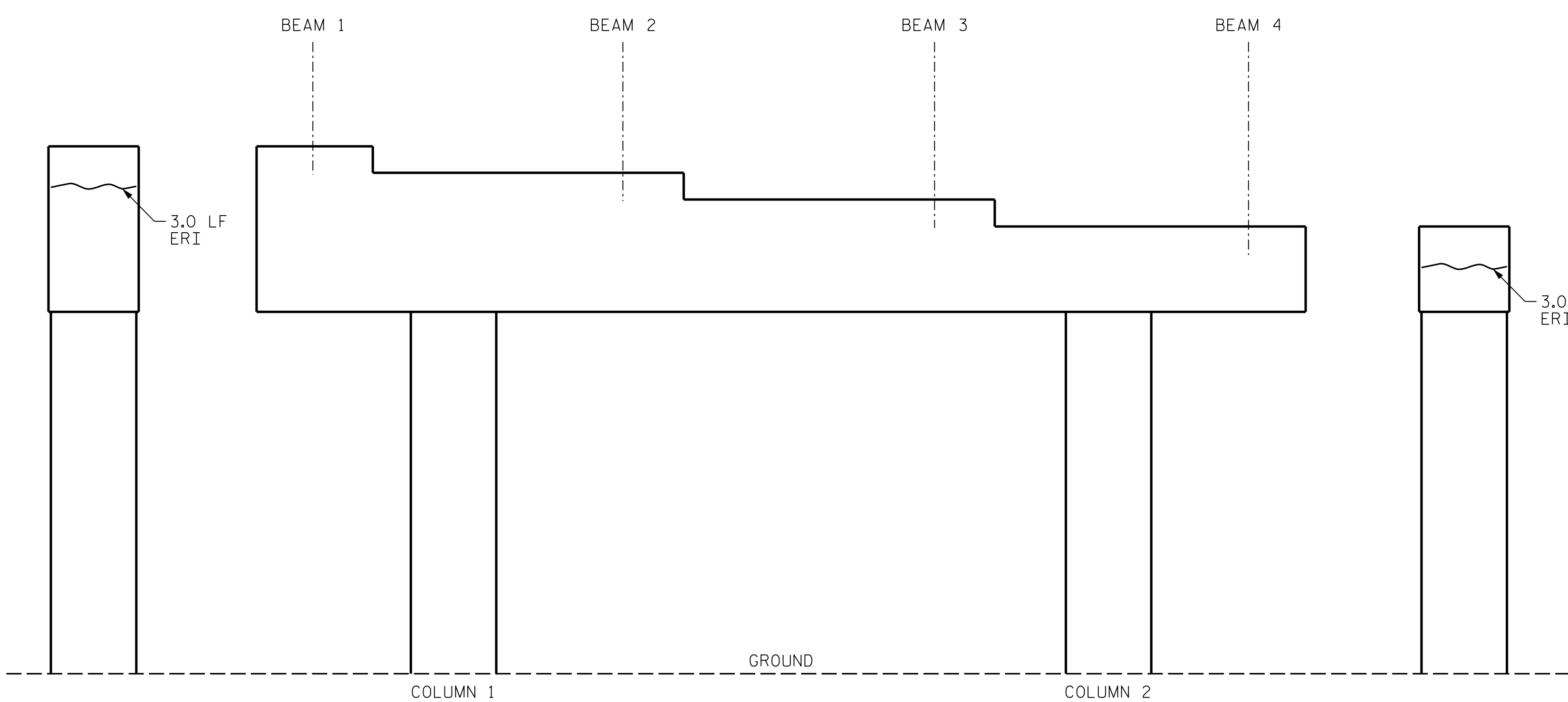


PLAN  
TOP OF CAP

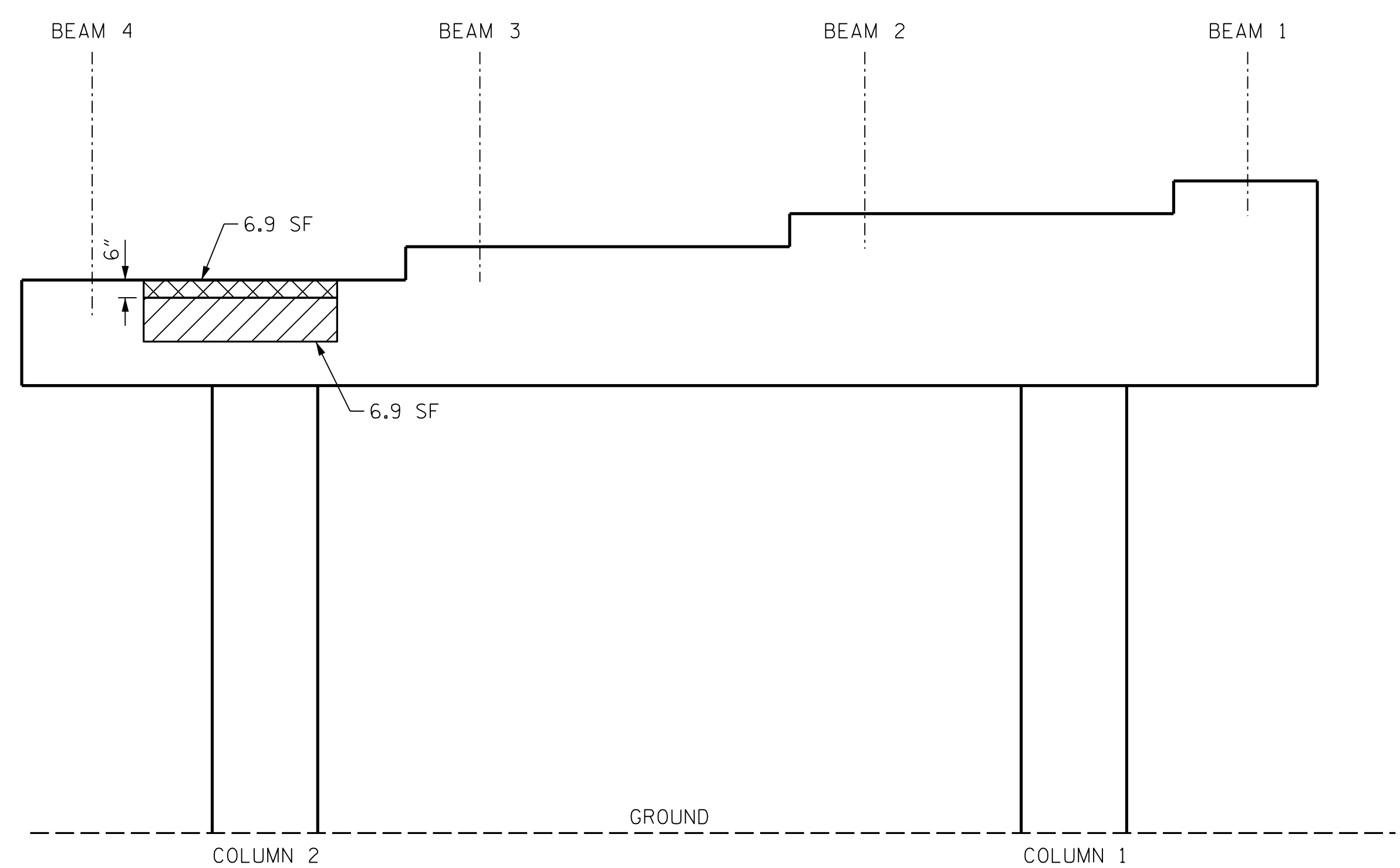
**NOTES:**  
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
 FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.  
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.  
 CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

AS-BUILT REPAIR QUANTITY TABLE				
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	6.9	3.5		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	6.9	3.5		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	6.0			
COLUMN	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	116.7			

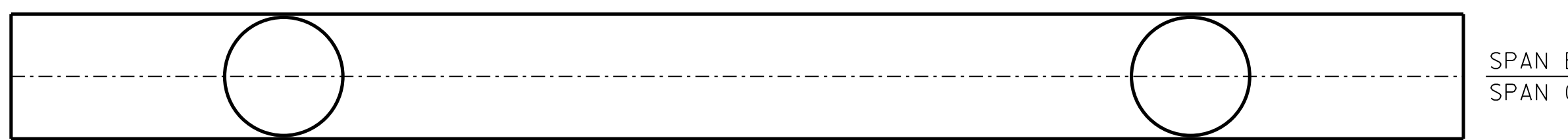
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MIN. OF 1" BEHIND REBAR AND MIN. 2" CL. TO SAWCUT. SEE REPAIR DETAILS.



ELEVATION  
SPAN B



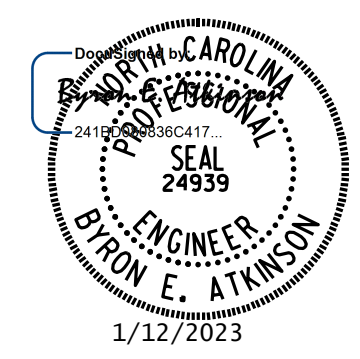
ELEVATION  
SPAN C



PLAN  
BOTTOM OF CAP  
(LOOKING UP)

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590283



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2

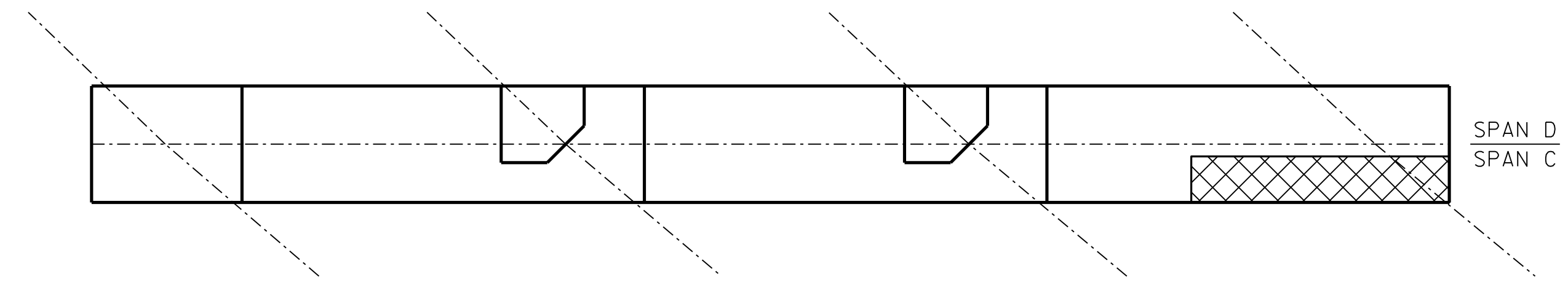
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-9 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:28 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101 Meck. Co. Br. Preservation\Structures\403.017-I-6052-SMU.BT2.590283.dgn



PLAN  
TOP OF CAP

NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

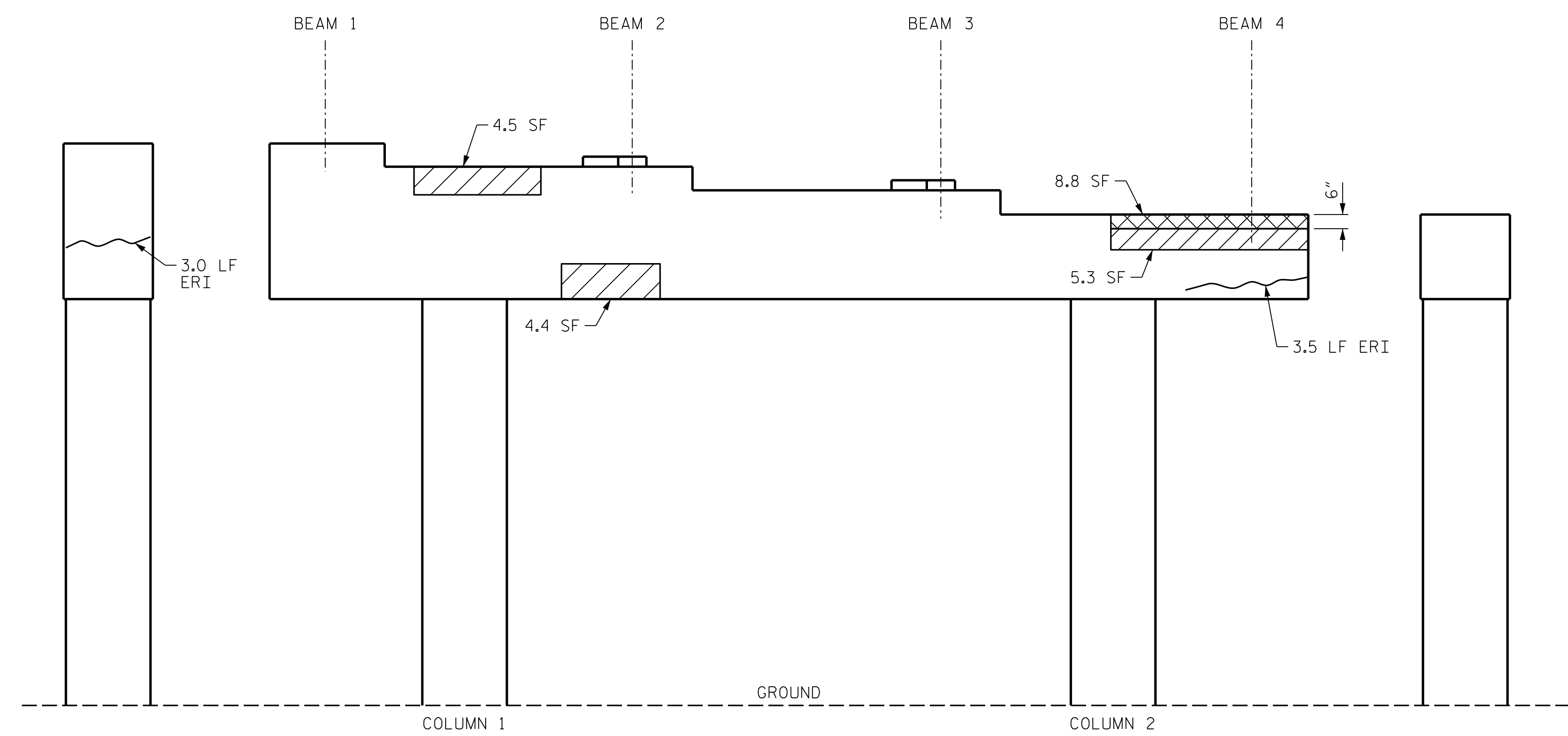
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

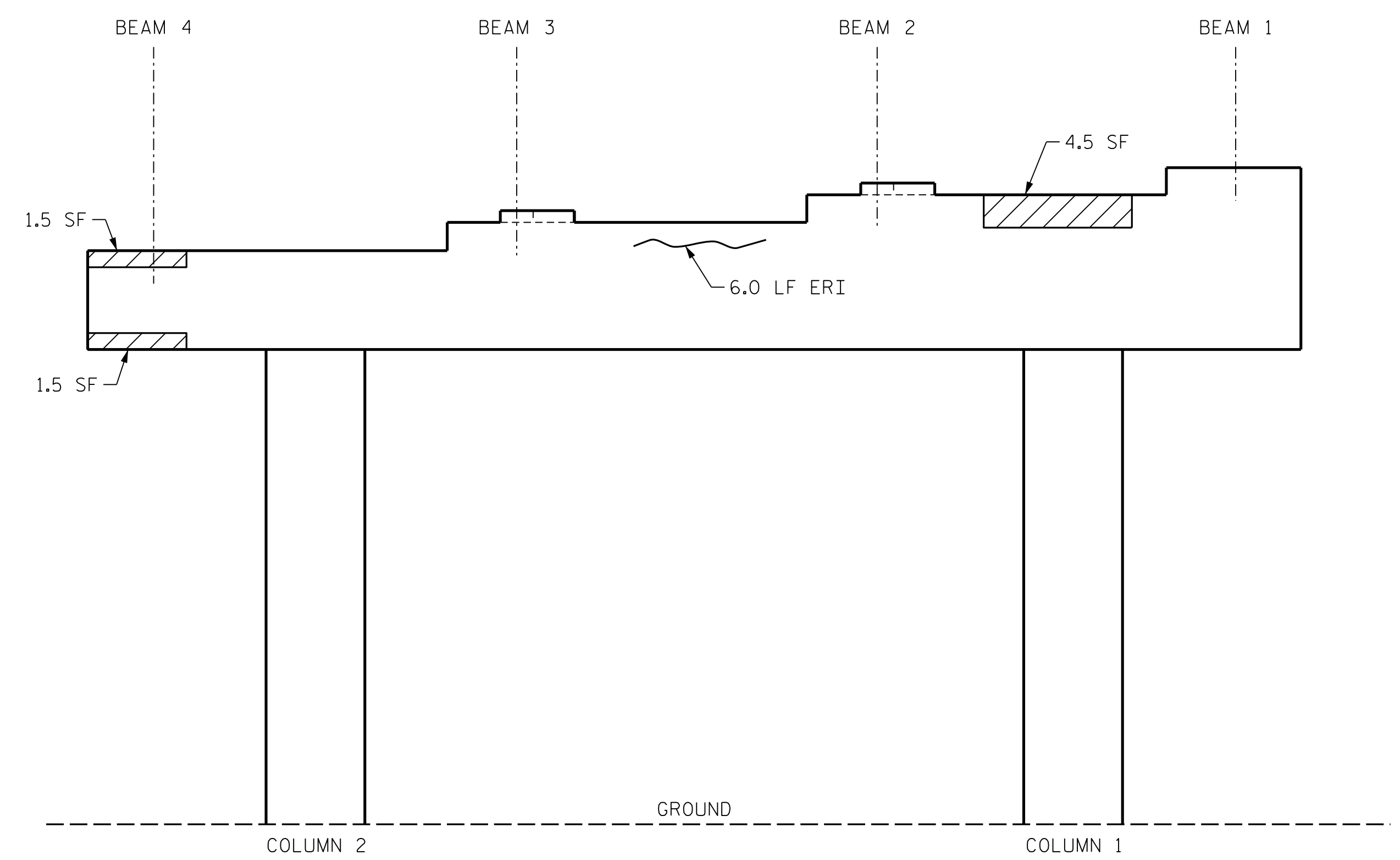
AS-BUILT REPAIR QUANTITY TABLE

BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	21.7	10.9		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.8	4.4		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	12.5			
COLUMN	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	116.7			

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

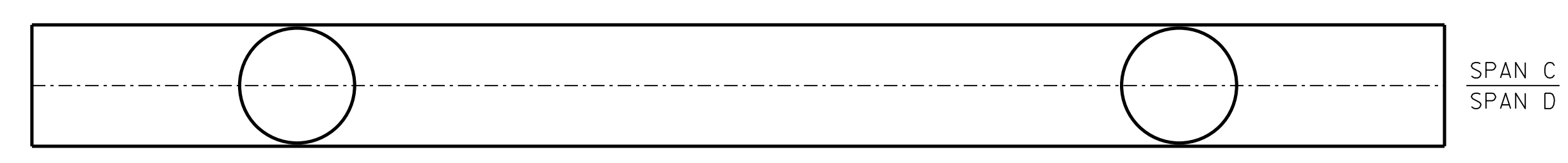


ELEVATION  
SPAN C



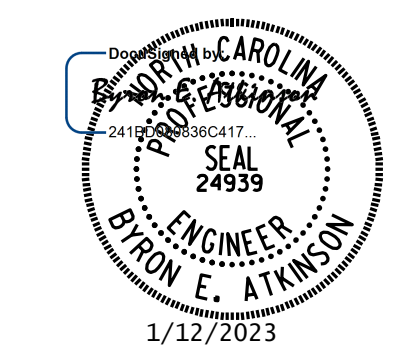
ELEVATION  
SPAN D

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590283



PLAN  
BOTTOM OF CAP  
(LOOKING UP)

- KEY
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-10 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:30 AM User: blanning  
 Filename: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br. Preservation\Structures\403-019-I-6052-SMU.BT3.590283.dgn

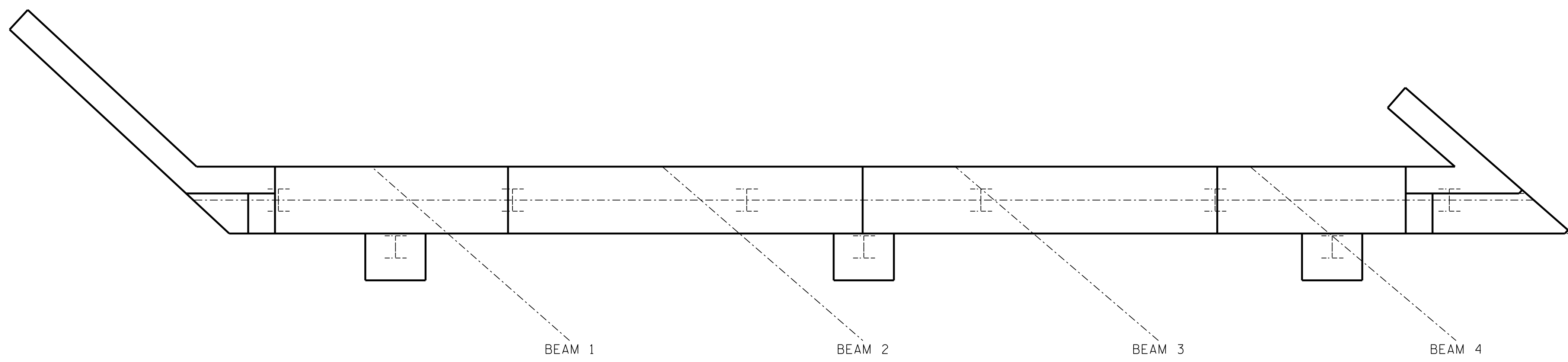


### AS-BUILT REPAIR QUANTITY TABLE

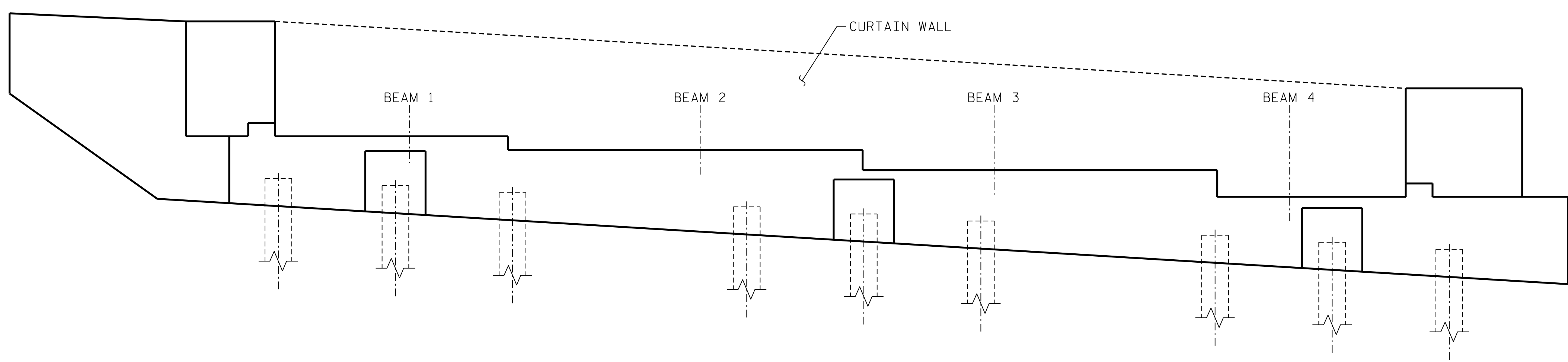
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF	AREA SF		
TOP OF CAP	75.3			

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

**NOTES:**  
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
 FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.  
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.  
 CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.



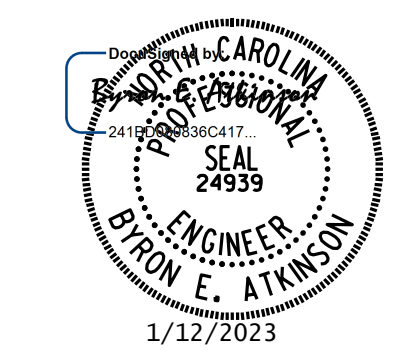
**PLAN**  
END BENT 2



**ELEVATION**  
END BENT 2

**KEY**

	SHOTCRETE REPAIR
	ERI EPOXY RESIN INJECTION
	CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590283

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S3-11
TOTAL SHEETS					108

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:31 AM User: blanning  
 Filename: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br. Preservation\Structures\403\_021-I-6052-SMU.EB2.590283.dgn

**NOTES:**

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/23/2022.

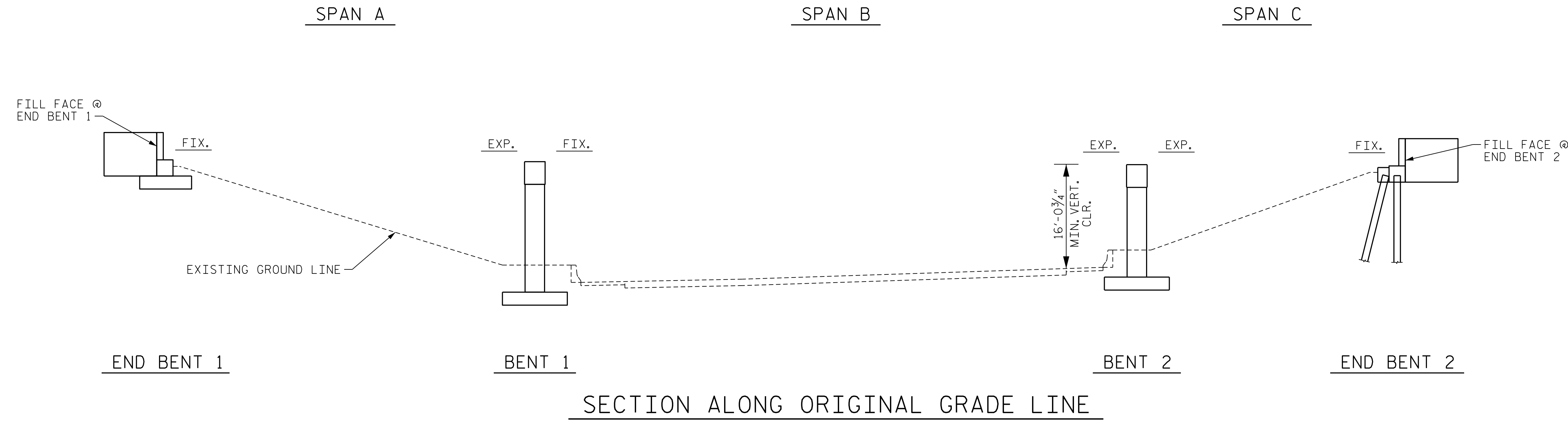
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

**SCOPE OF WORK:**

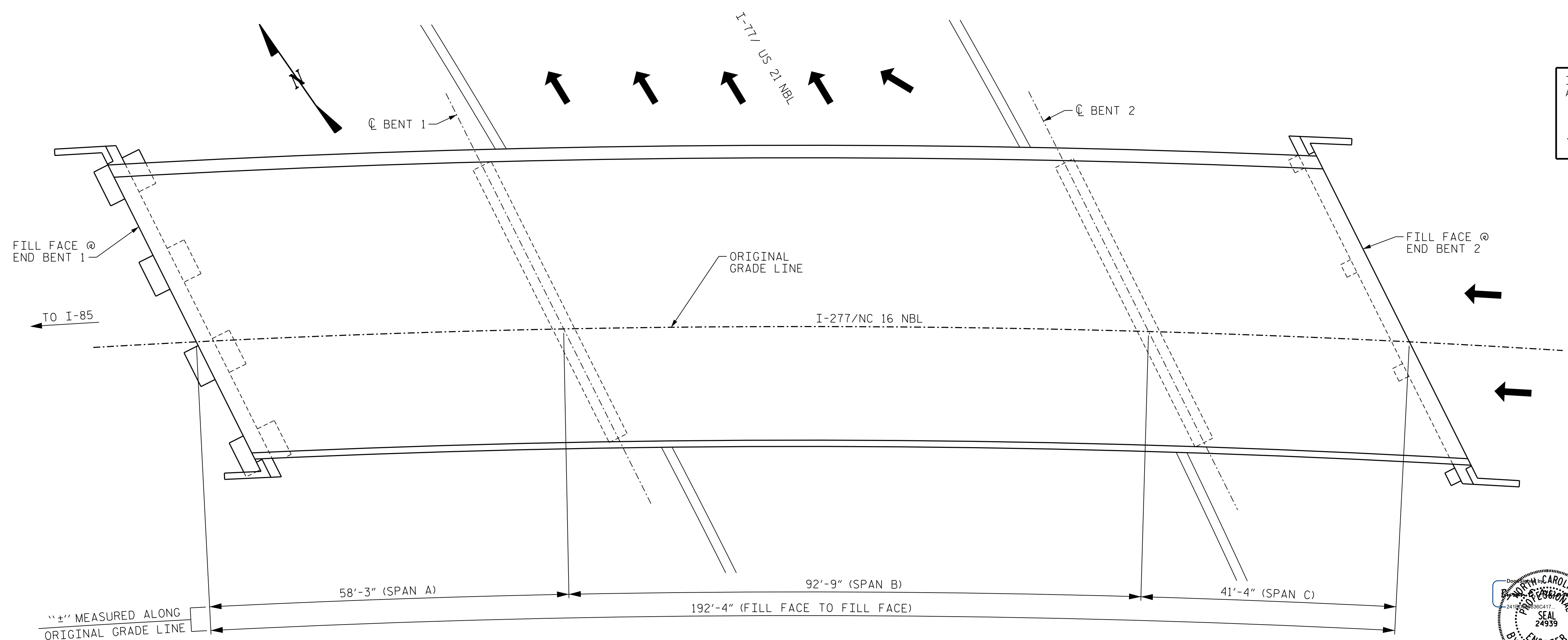
- PARTIALLY REMOVE BRIDGE DECK CONCRETE USING SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- PERFORM CLASS II SURFACE PREPARATION AND REPAIR ON DECK SURFACES.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES).
- RECONSTRUCT BRIDGE DECK JOINT AND INSTALL JOINT SEALS.
- GROOVE LMC-VES BRIDGE DECK.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.
- STRUCTURAL STEEL REPAIRS.
- INSTALL STEEL BEARING KEEPER ANGLE ASSEMBLY.
- CLEANING AND PAINTING STEEL BEAMS.
- CLEANING AND PAINTING BEARINGS WITH HRCSA.

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

RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_



**SECTION ALONG ORIGINAL GRADE LINE**



**PLAN**

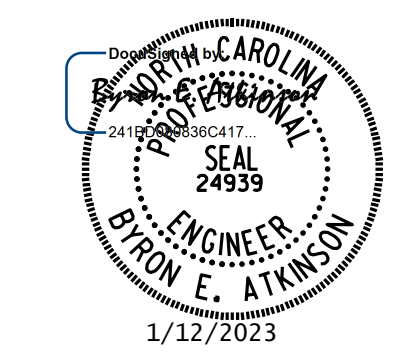
PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590337

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON  
 I-277/NC 16 NBL  
 OVER I-77/US 21 NBL



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-1
1			3			TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:32 AM User: blanning  
 Filename: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br.Preservation\Structures\404\_001-I-6052-SMU.GD1.590337.dgn





**LOCATION SKETCH**

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

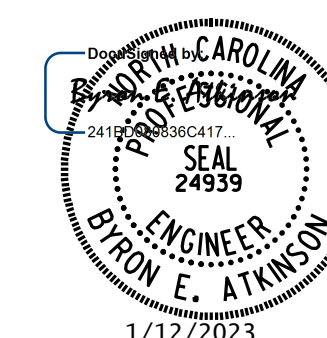
BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°-14'-40.18"	80°-50'-47.2"

**NOTES:**

- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE IS UNDER BRIDGE LIGHTING ATTACHED TO THE STRUCTURE.
- FOR CLASS II SURFACE PREPARATION, SCARIFYING BRIDGE DECK AND HYDRO-DEMOLITION OF BRIDGE DECK, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.
- WORK ON BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE TO THE PROJECT SPECIAL PROVISION.
- PRIOR TO BEGINNING WORK, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST.
- FOR POLLUTION CONTROL, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.
- FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.
- FOR STEEL BEARING KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND REPAINTING OF BRIDGE, AND PAINTING CONTAINMENT FOR BRIDGE, SEE "PAINTING EXISTING STRUCTURE" SPECIAL PROVISION.
- FOR REMOVE AND REPLACE CURB AND GUTTER, SEE SPECIAL PROVISIONS.

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590337

SHEET 2 OF 2



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON  
 I-277/NC 16 NBL  
 OVER I-77/US 21 NBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-2
1			3			TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

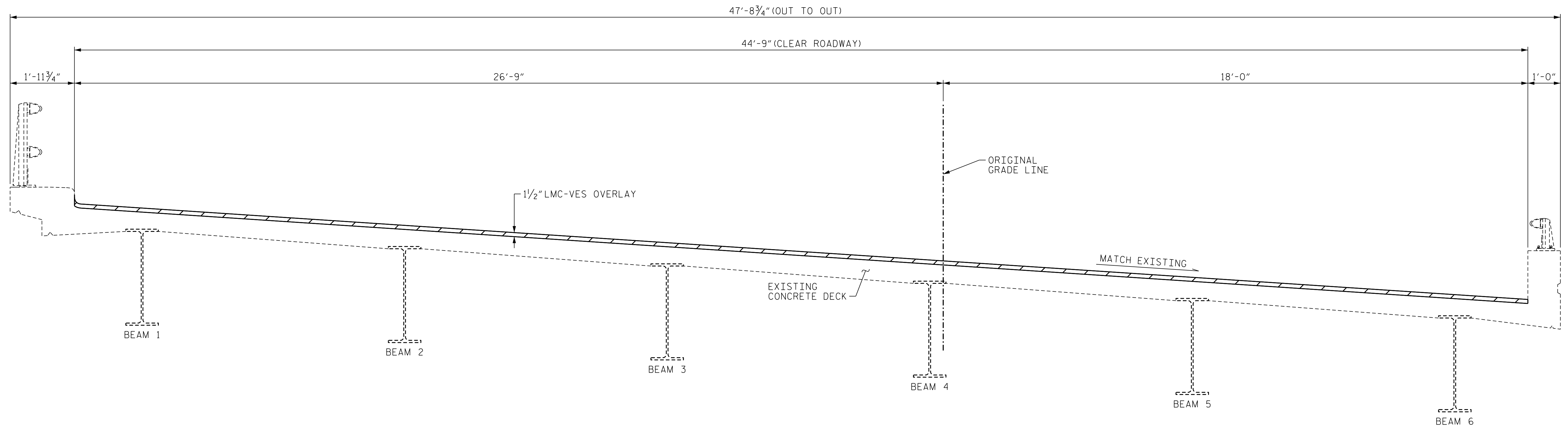
1/12/2023 9:18:33 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101\Meck Co.Br.Preservation\Structures\404\_003-I-6052-SMU-G02-590337.dgn



**NOTES:**

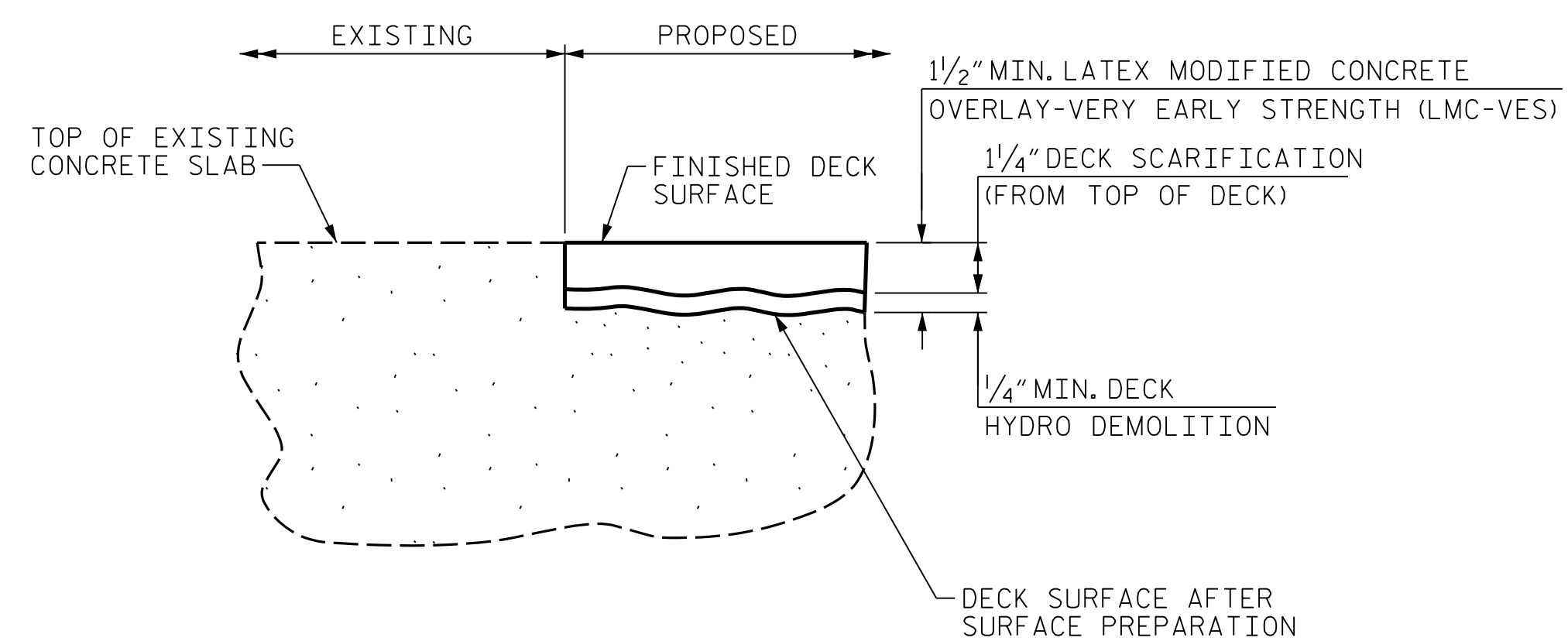
WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.

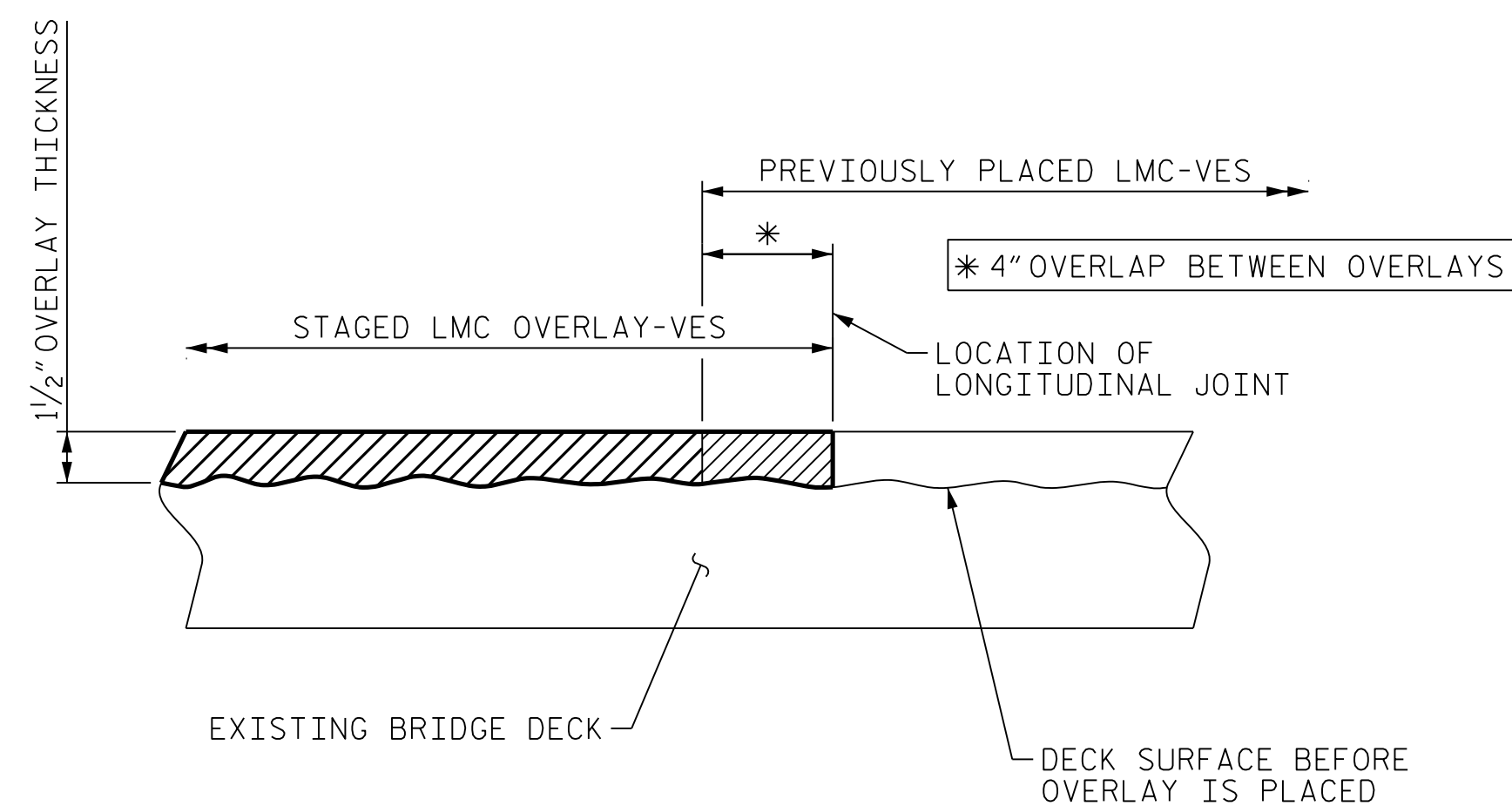


**TYPICAL SECTION**

(ALL DIMENSIONS ARE RADIAL)



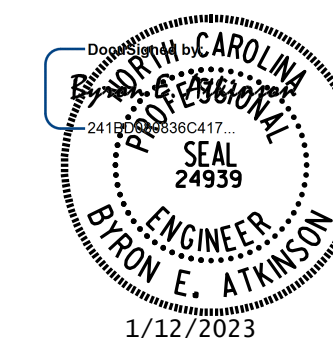
**DETAIL FOR LMC-VES OVERLAY**



**SECTION THRU DECK STAGED LMC-VES OVERLAY JOINT**

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590337

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION  
 &  
 OVERLAY DETAILS



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

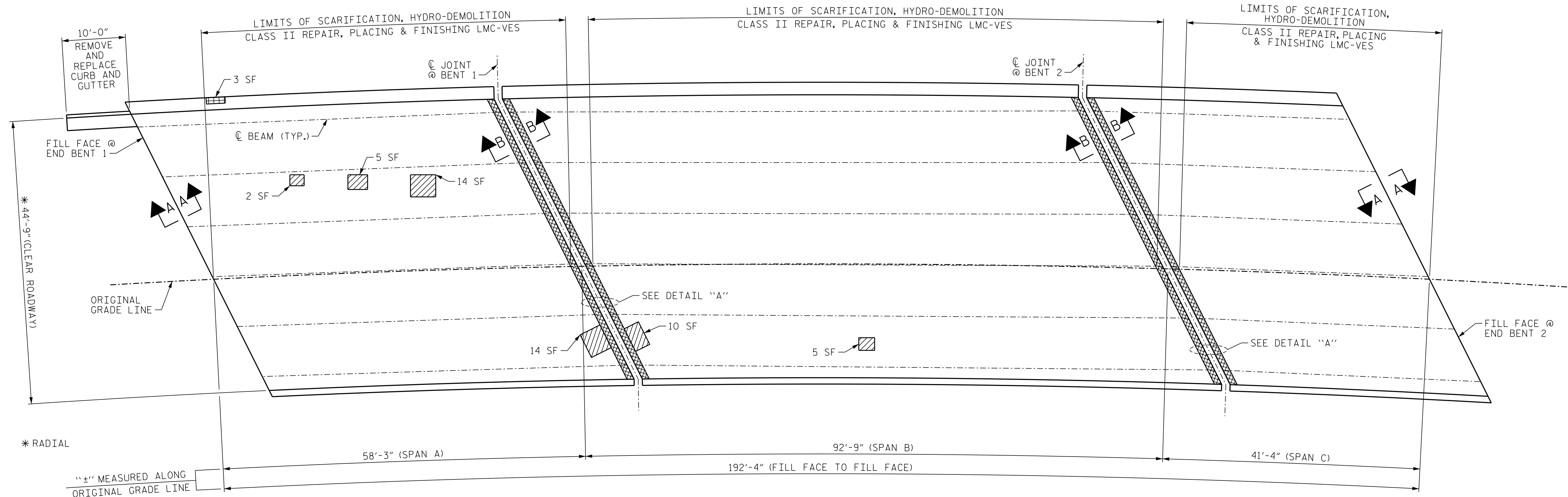
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
**S4-3**  
 TOTAL SHEETS  
**108**

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:36 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052.101 Meck Co.Br. Preservation\Structures\404\_005-I-6052.SMU.TS1.590337.dgn



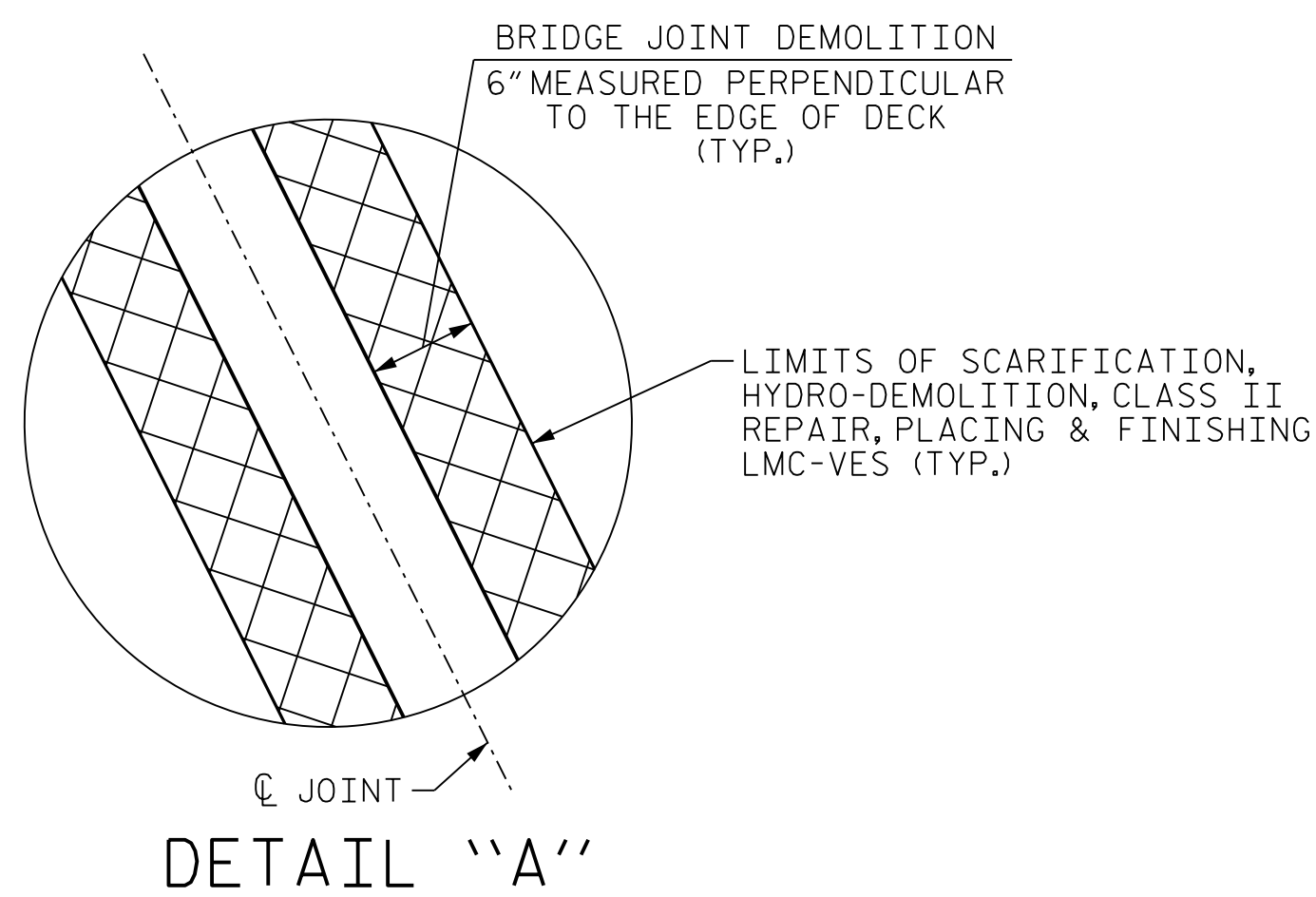


**PLAN OF SPANS**

AS-BUILT REPAIR QUANTITY TABLE SPANS A, B AND C				
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	945.7 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	945.7 SY			
CLASS II SURFACE PREPARATION	5.6 SY			
LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	46.1 CY			
PLACING & FINISHING LMC-VES OVERLAY	945.7 SY			
BRIDGE JOINT DEMOLITION	100.1 SF			
GROOVING BRIDGE FLOORS	7848 SF			
REMOVE AND REPLACE CURB AND GUTTER	10 LF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	QUANTITIES			
	ESTIMATE	ACTUAL		
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	3.0	1.5		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE	ACTUAL		
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

- BRIDGE JOINT DEMOLITION
- CLASS II SURFACE PREPARATION
- DECK SCARIFICATION, HYDRO-DEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY-VES
- UNDERSIDE OF DECK REPAIR



**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.

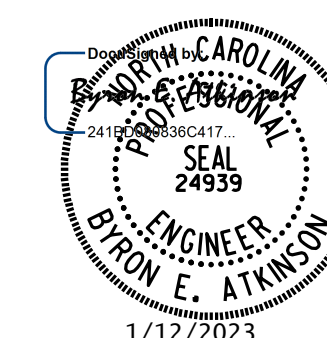
PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.

FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

QUANTITIES SHOWN IN THE BILL OF MATERIAL ARE BASED ON ESTIMATED CURB AND GUTTER REMOVAL AND REPLACEMENT. REMOVE AND REPLACE DIMENSIONS SHOWN ON PLANS. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS WITH THE ENGINEER AND SHALL ADJUST QUANTITIES AS NECESSARY.

EXISTING DAMAGED CURB AND GUTTER SHALL BE REMOVED AND REPLACED WITH CURB AND GUTTER IN ACCORDANCE WITH SECTION 846 OF THE STANDARD SPECIFICATIONS AND 2018 ROADWAY STANDARD DRAWING 846.01.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590337



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 SURFACE PREPARATION  
 SPANS A, B AND C

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

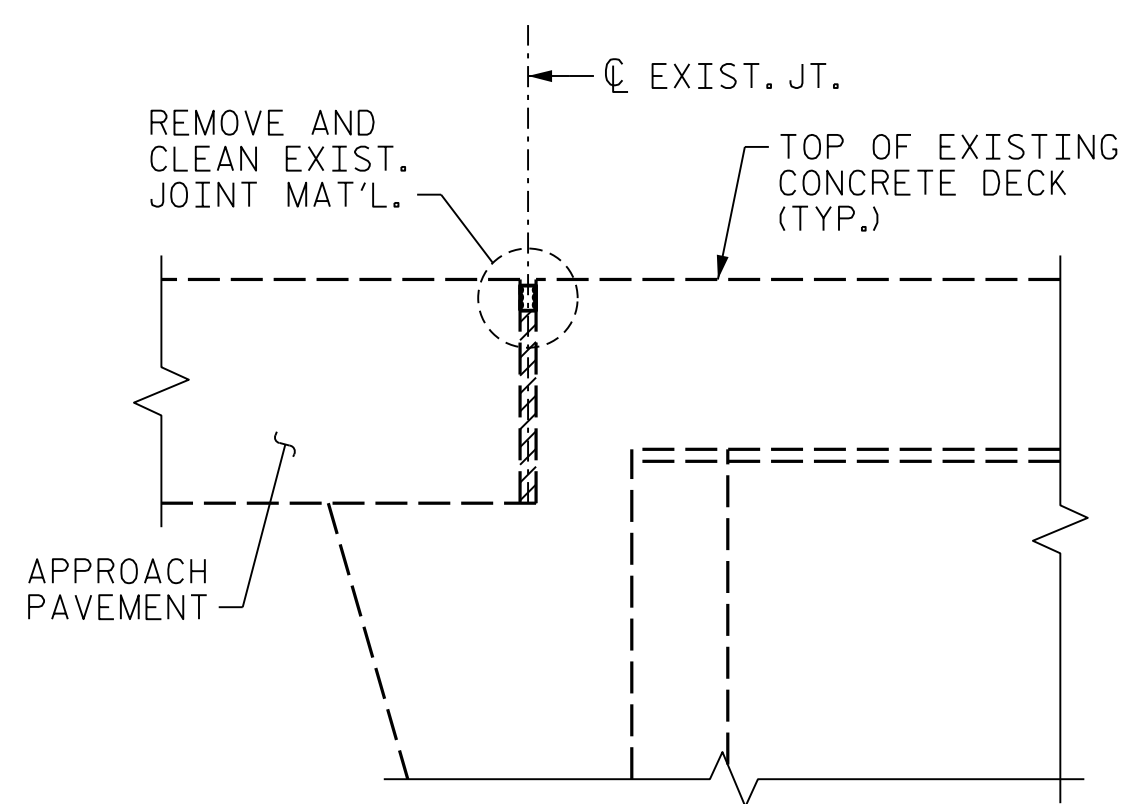
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.  
**S4-4**  
 TOTAL SHEETS  
**108**

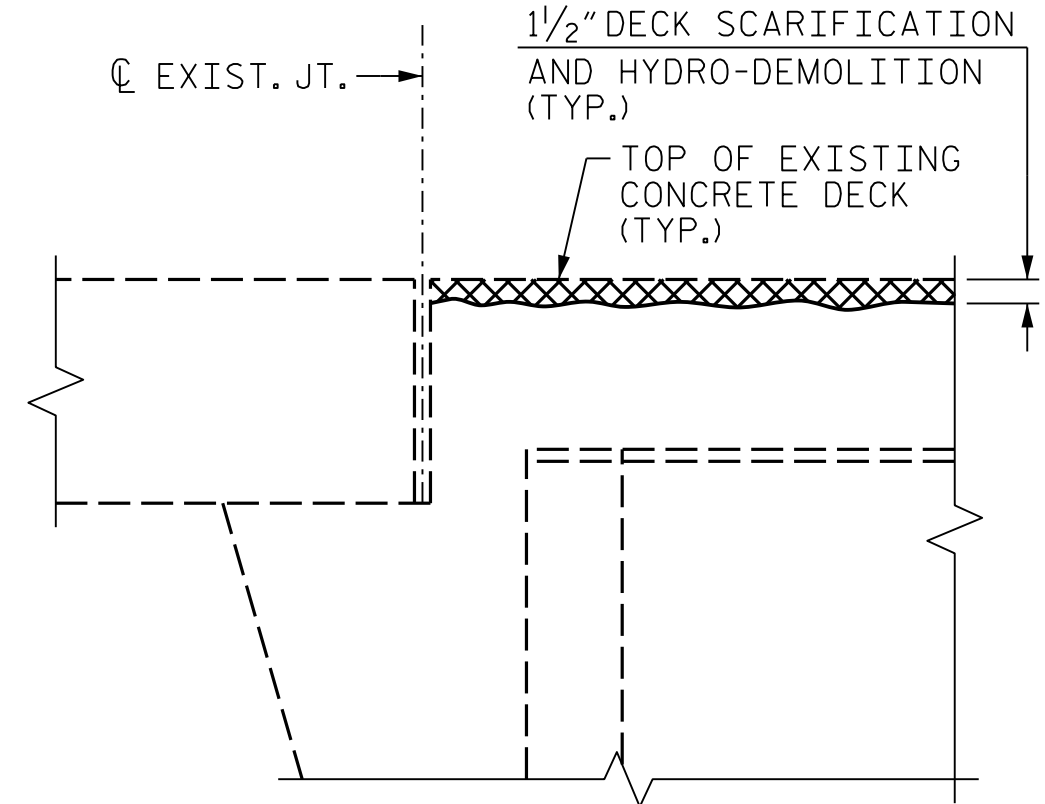
DRAWN BY: B.E. LANNING DATE: 10/2022  
 CHECKED BY: B.E. ATKINSON DATE: 10/2022  
 DESIGN ENGINEER OF RECORD: B.E. ATKINSON DATE: 10/2022

1/12/2023 9:18:37 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052-101 Meck Co. Br. Preservation\Structures\404\_007-I-6052-SMU-DRI-590337.dgn

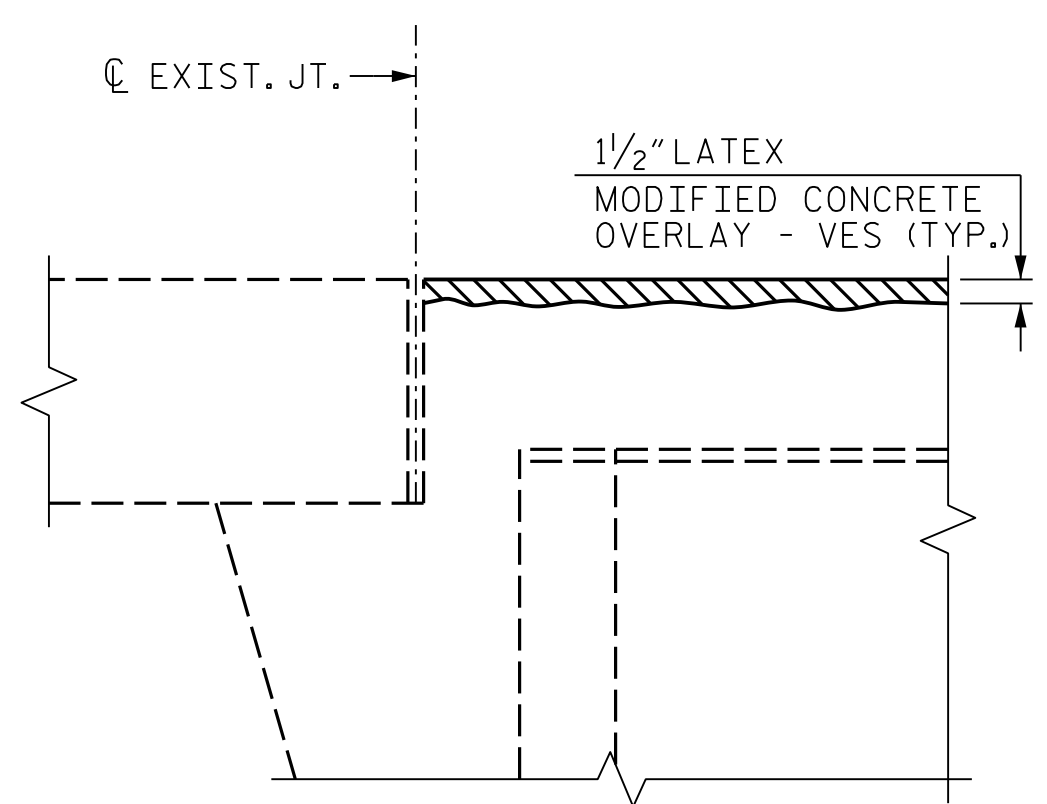




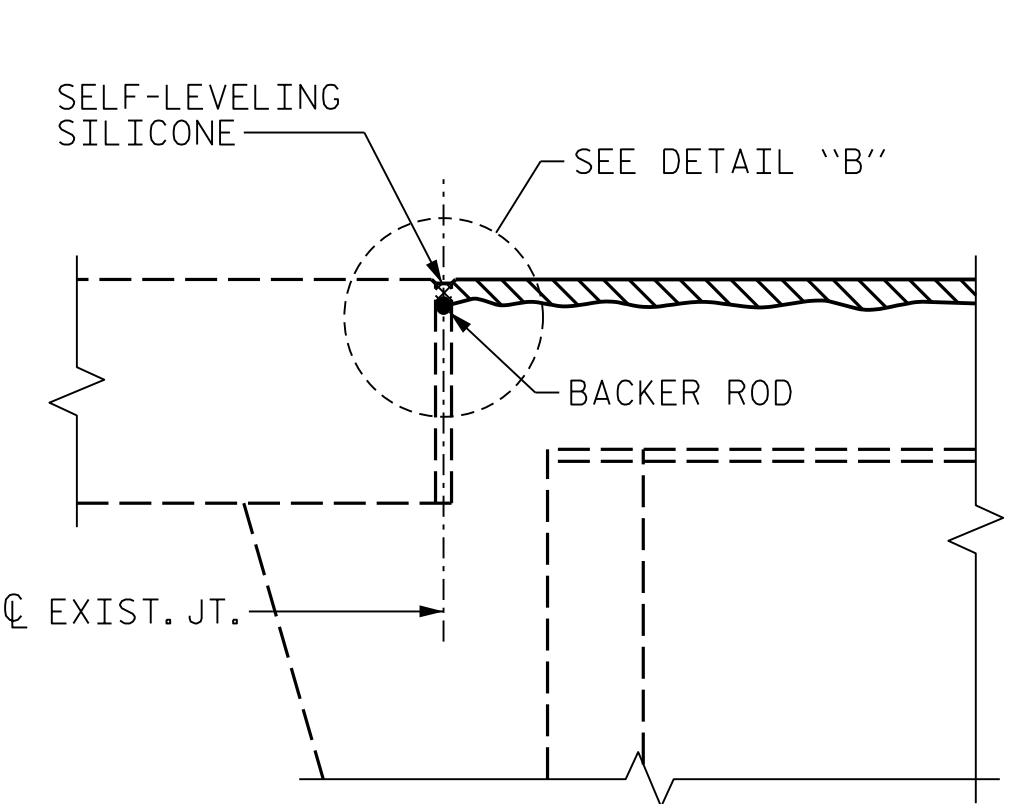
EXISTING JOINT AT END BENT



MINIMUM EXISTING JOINT DEMOLITION AT END BENT

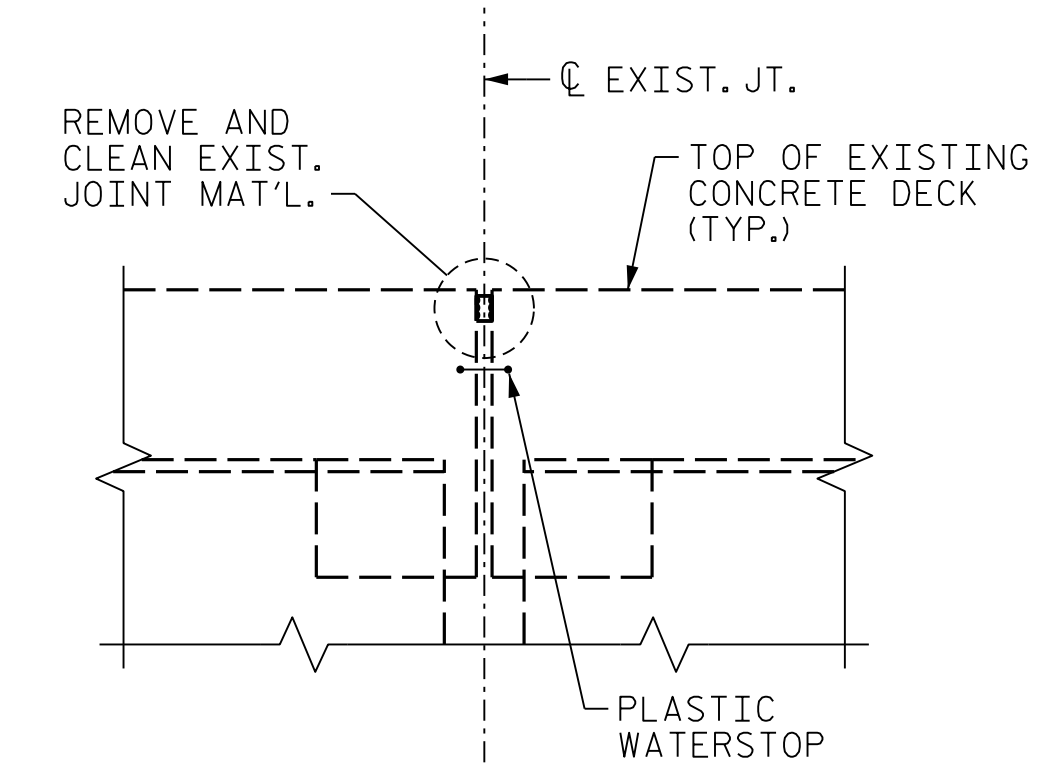


PROPOSED JOINT PRE-INSTALL DIMENSIONS

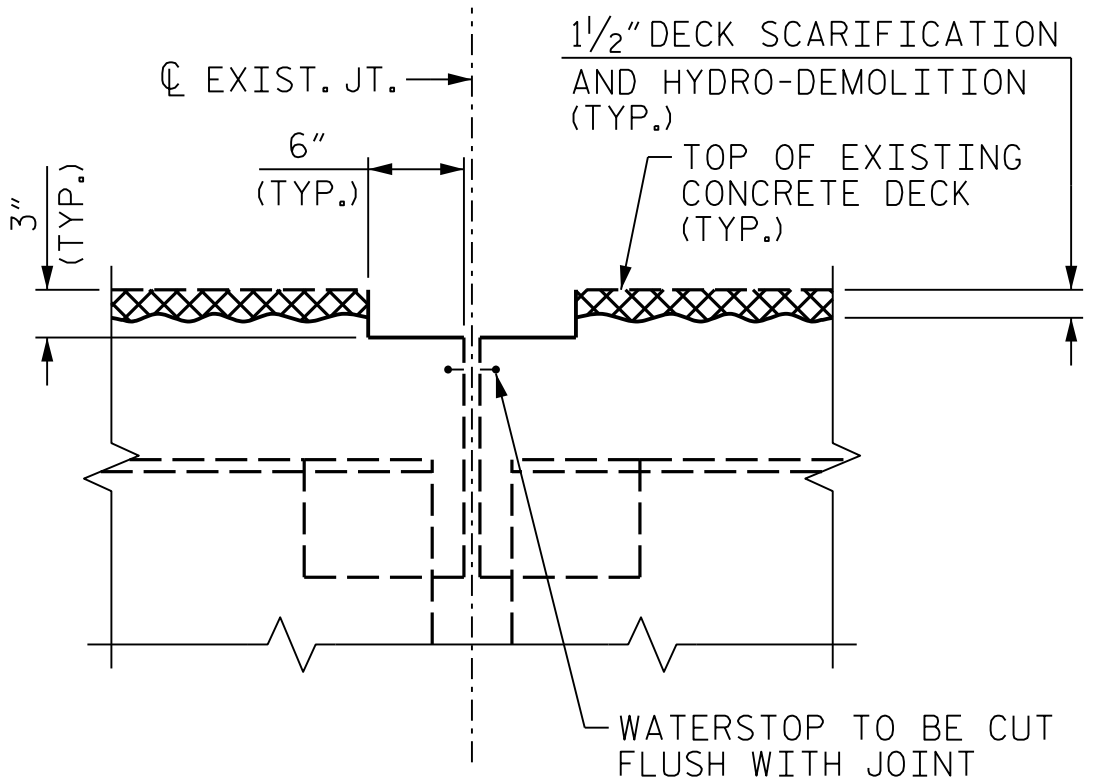


PROPOSED JOINT

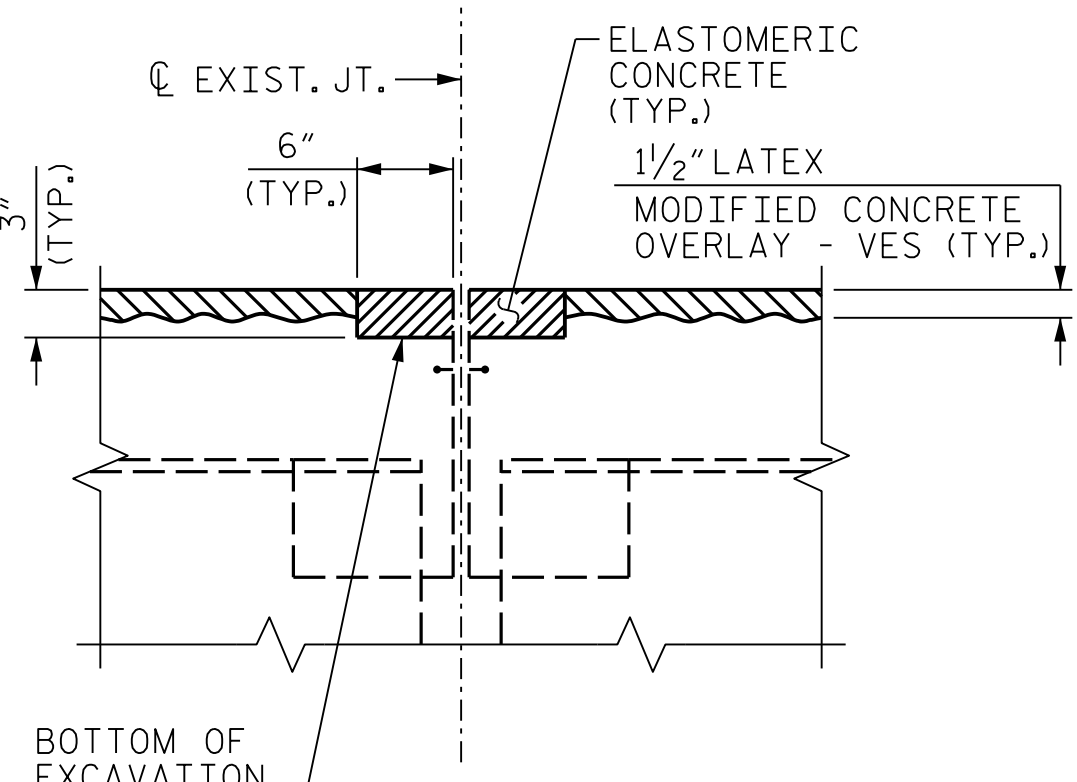
SECTION A-A



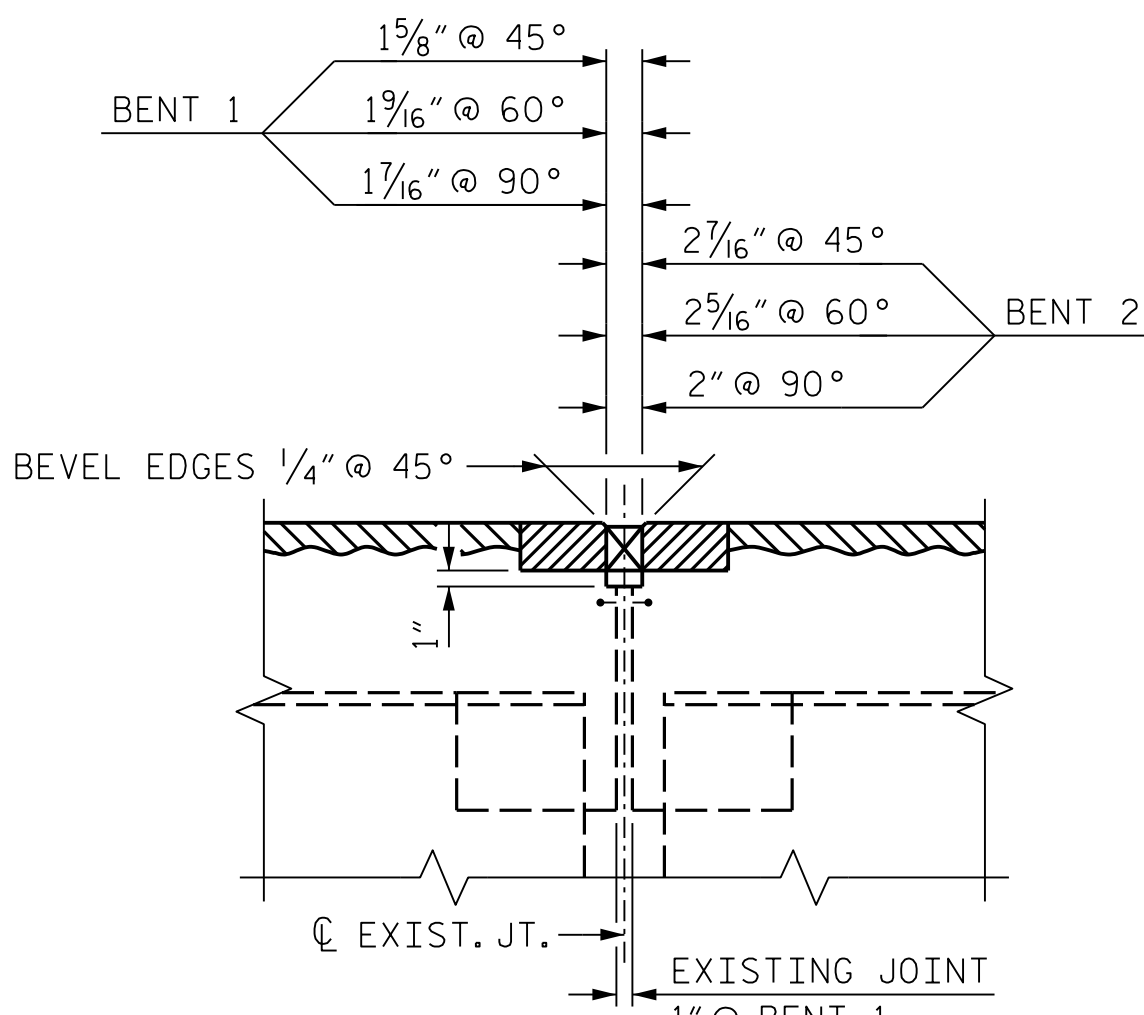
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION AT BENT

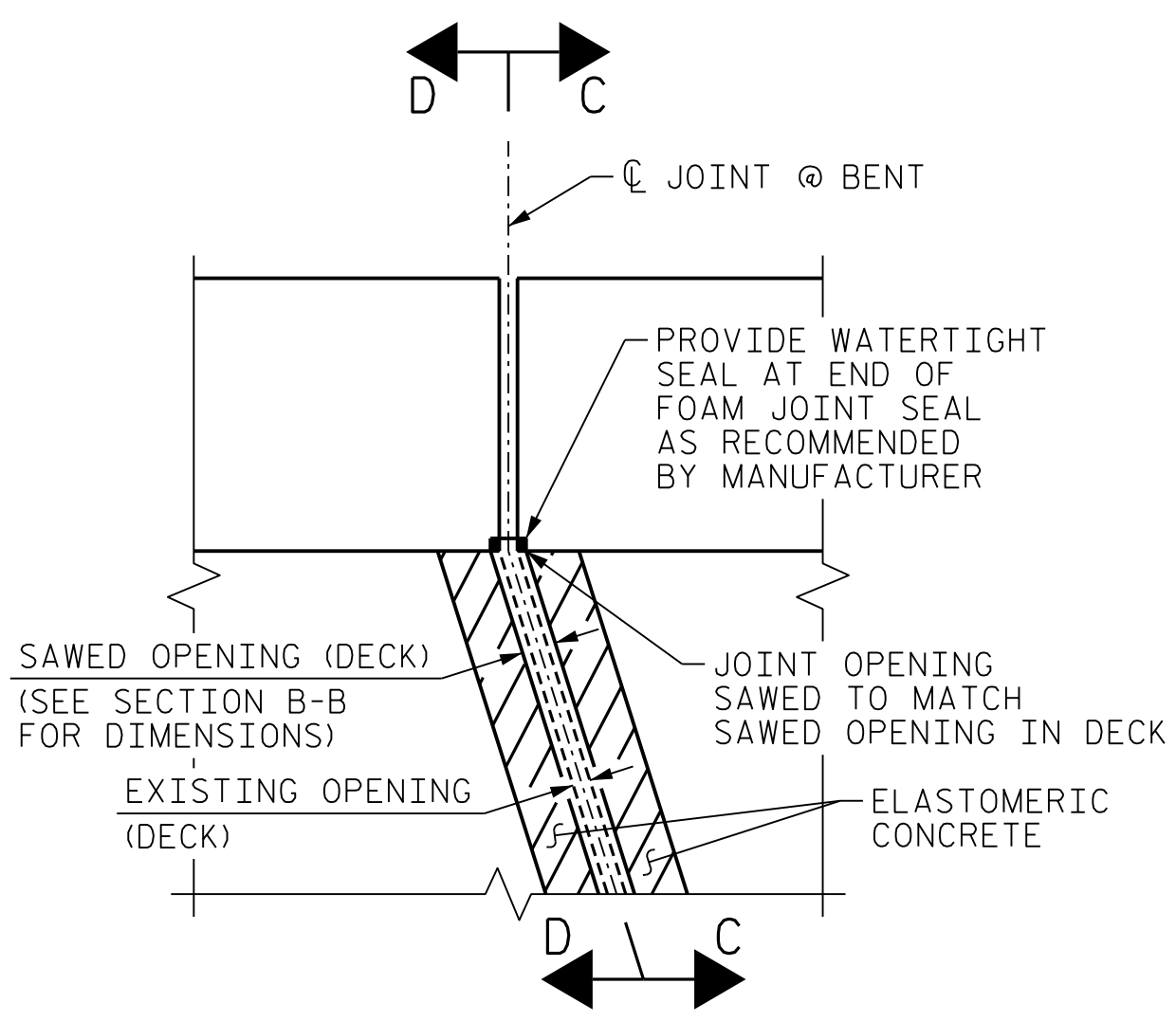


PROPOSED JOINT PRE-SAWED DIMENSIONS

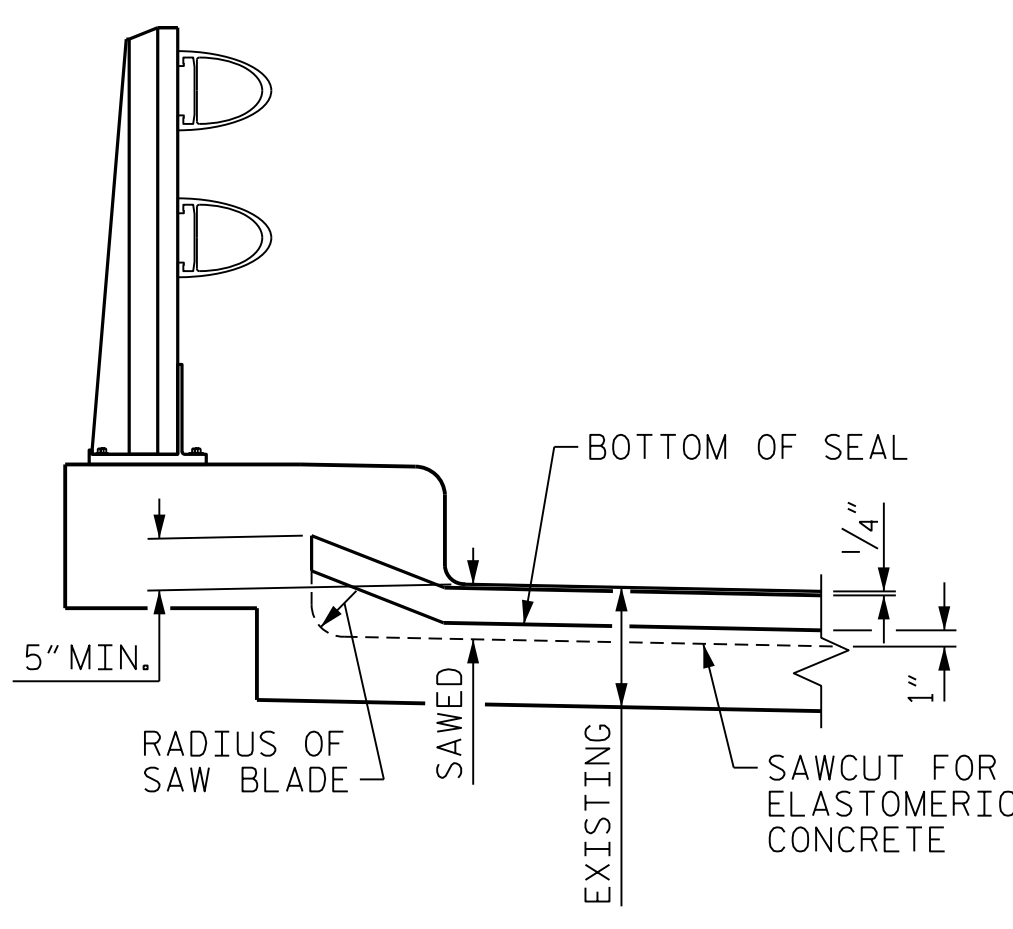


PROPOSED FOAM JOINT SEAL EXPANSION

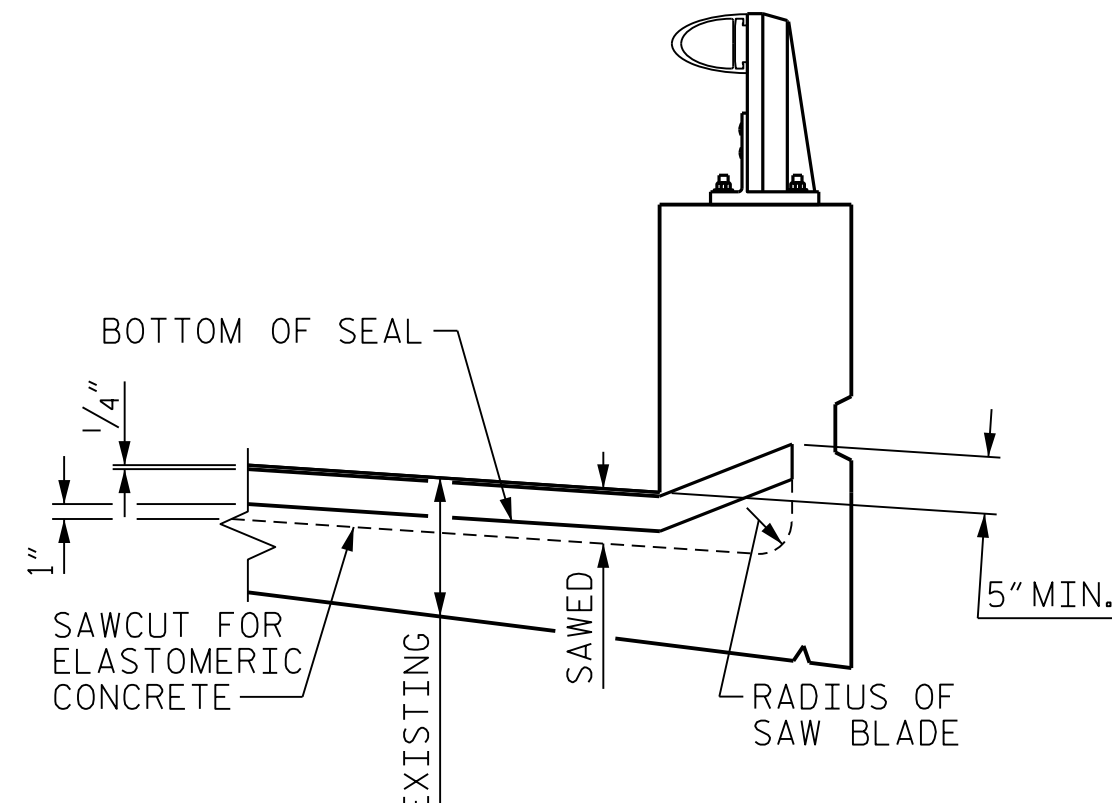
SECTION B-B



PLAN

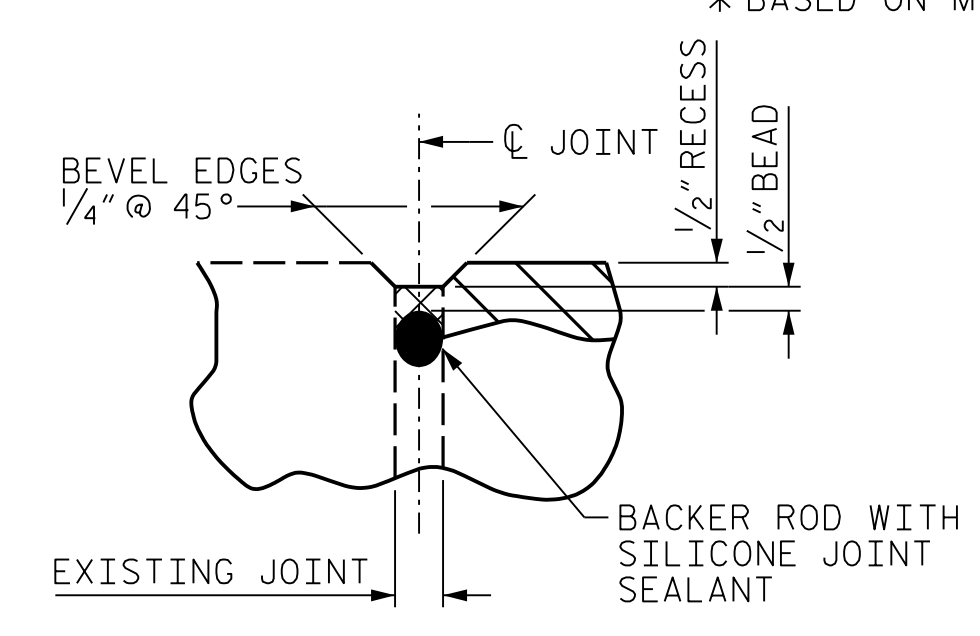


SECTION C-C (LEFT SIDE)



SECTION D-D (RIGHT SIDE)

JOINT DETAILS AT CURB



DETAIL "B"

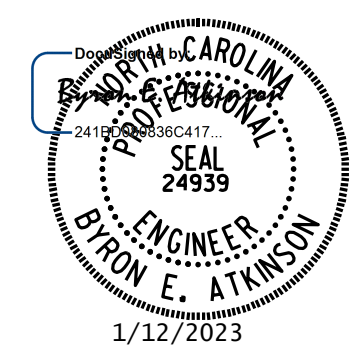
ELASTOMERIC CONCRETE FOR PRESERVATION		
BENT 1	12.4	CF
BENT 2	12.7	CF
* TOTAL	25.1	CF

\* BASED ON MINIMUM BLOCKOUT SHOWN.

JOINT REPAIR QUANTITY TABLE		
	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	104.1 LF	
POURABLE SILICONE JOINT SEALANT	98.2 LF	

NOTES:

- HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.
- RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.
- FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE LMC OVERLAY 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 1/4", NOTIFY THE ENGINEER.
- 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 JOINTS IN LIEU OF SAWING THE JOINT.
- THE INSTALLED FOAM JOINT SEALS SHALL BE WATER TIGHT.
- QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE ARE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.
- FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL OR ELASTOMERIC CONCRETE SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE OR ELASTOMERIC CONCRETE.
- FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR 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.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590337

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

JOINT DETAILS

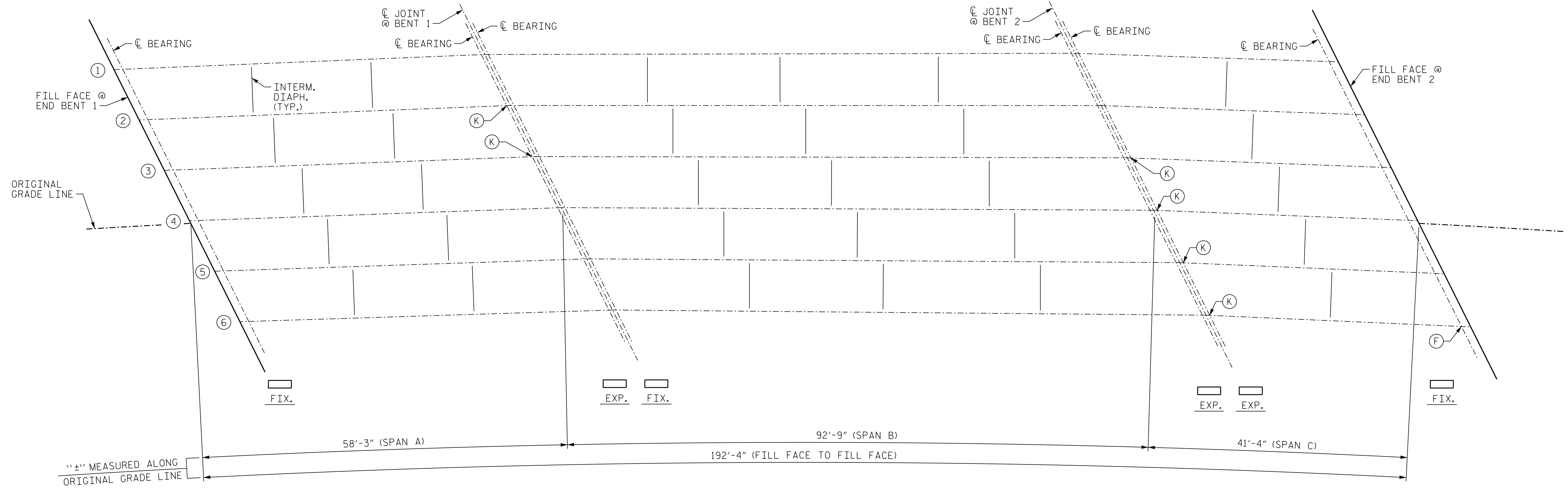
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S4-5
2			4			TOTAL SHEETS 108

1/12/2023 9:18:39 AM User: blanning  
 File: N:\NC Bridges\21001.39-I-6052-101 Meck Co. Br. Preservation\Structures\404\_009-I-6052-SMU-JT1-590337.dgn

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022



1/12/2023 9:18:40 AM User: blanning  
 Filename: N:\NC Bridges\21010139-I-6052-101 Meck Co. Br. Preservation\Structures\404-011-I-6052-SML.FPI.590337.dgn



### FRAMING PLAN

ANTICIPATED BEAM REPAIR LOCATIONS								
SPAN	BEAM	LOCATION	DETAIL TYPE	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"
C	6	END BENT 2	D	5 3/4"	12"	-	10"	-

BEAM REPAIR QUANTITY TABLE SPANS A THRU C					
STEEL PLATE		STIFFENER		STEEL BEARING KEEPER ANGLE ASSEMBLY	
LBS.		LBS.		EA.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
20		-		6	
BEAM REPAIR CUT-OUT		BOLTED BEAM REPAIR			
LBS.		LBS.			
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL		
-		-			

**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER AFTER THE STRUCTURAL STEEL HAS BEEN CLEANED, BLASTED, AND PRIMED, THE CONTRACTOR AND ENGINEER SHALL REVIEW THE STEEL TO VERIFY NOTED REPAIR LOCATIONS AND TO IDENTIFY ANY ADDITIONAL REPAIR LOCATIONS. THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR REPAIR DETAILS, SEE "BEAM REPAIR DETAILS" AND "STEEL KEEPER ANGLE ASSEMBLY DETAILS" SHEETS.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR STEEL BEAM REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

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

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

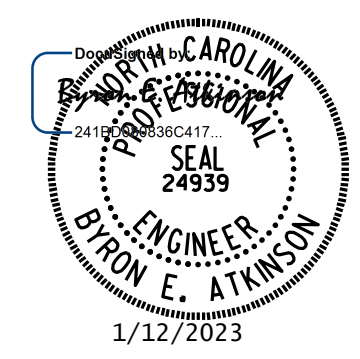
FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.

KEY	
#	BEAM NUMBER
W	WEB PLATING REPAIR
S	STIFFENER REPAIR
F	BOTTOM FLANGE PLATING REPAIR
I	INTERMEDIATE BEAM PLATING REPAIR
BE	BEAM END REPAIR
BW	BOLTED WEB PLATE REPAIR
K	STEEL BEARING KEEPER ANGLE ASSEMBLY

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590337



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 BEAM REPAIR  
 LOCATIONS

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S4-6
2			4			TOTAL SHEETS 108

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	1.8	0.9		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	3.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	88.1			

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

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

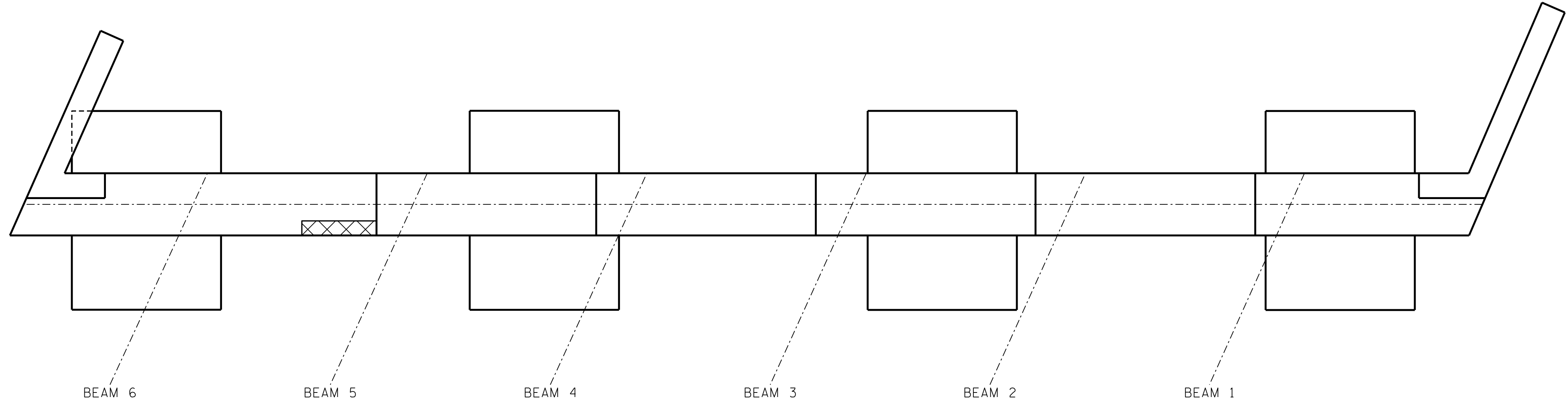
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

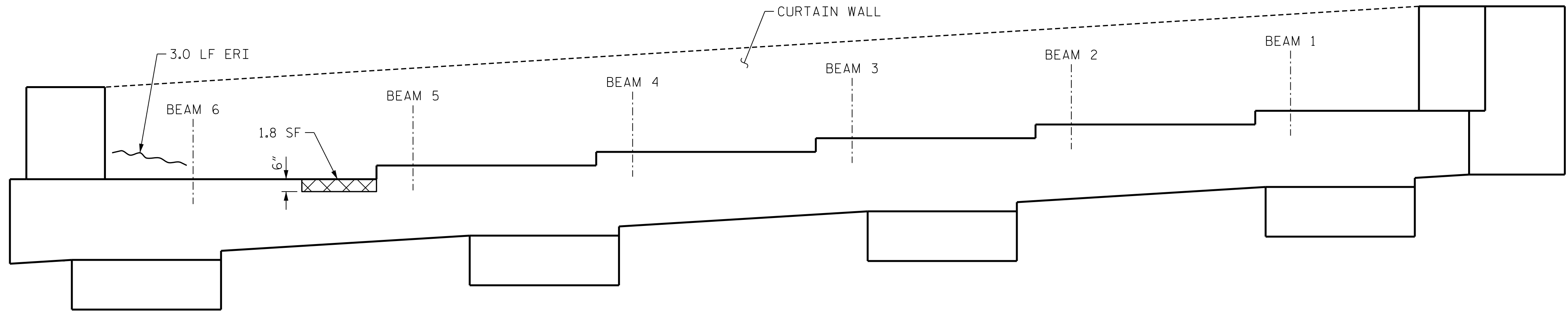
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

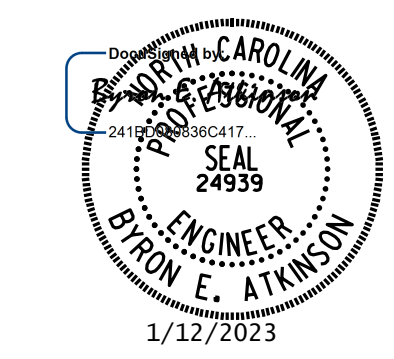


PLAN  
END BENT 1



ELEVATION  
END BENT 1

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

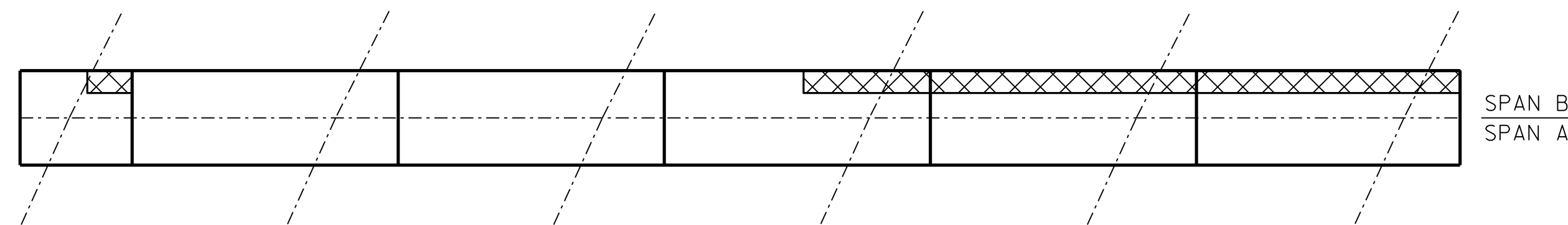
PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590337

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1					
SHEET NO. S4-7					
TOTAL SHEETS 108					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:41 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101 Meck. Co. Br. Preservation\Structures\404-013-I-6052-SMU.EBI.590337.dgn





PLAN  
TOP OF CAP

NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

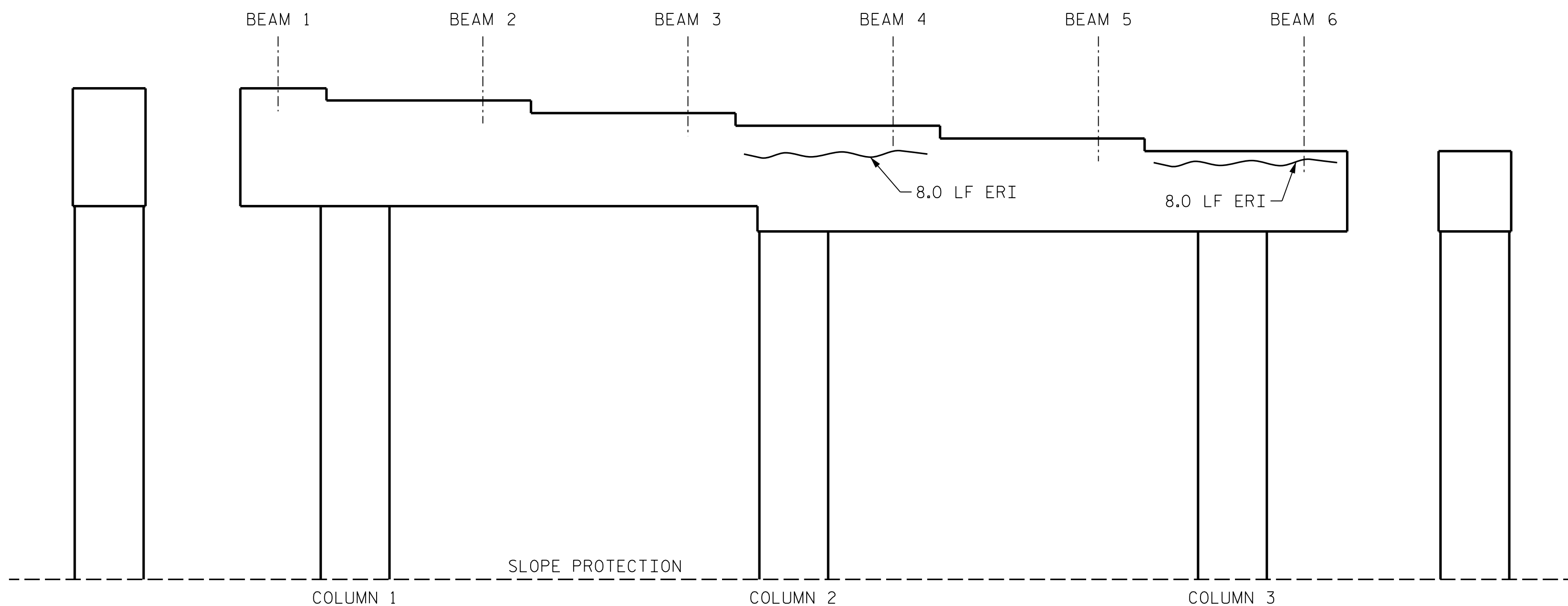
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

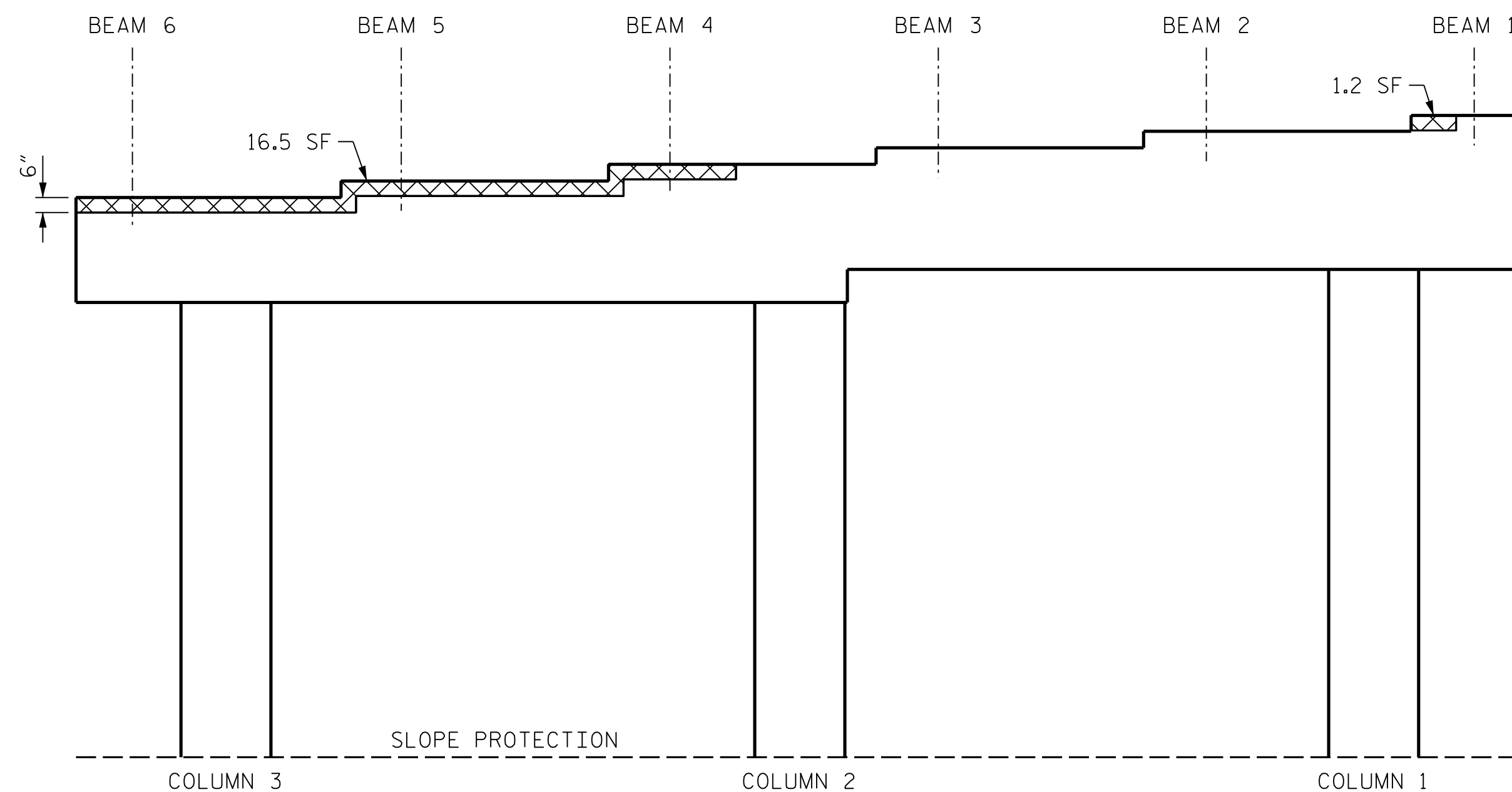
AS-BUILT REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	17.7	8.9		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	16.0			
COLUMN	0.0			
EPOXY COATING	AREA SF	AREA SF		
TOP OF CAP	152.9			

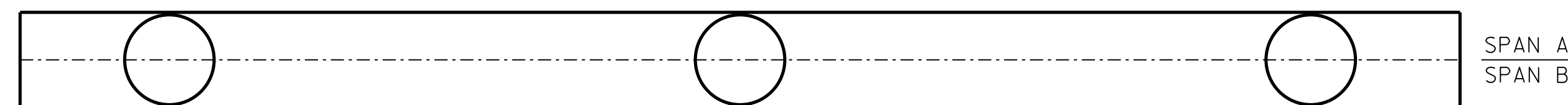
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL. TO SAWCUT. SEE REPAIR DETAILS.



ELEVATION  
SPAN A

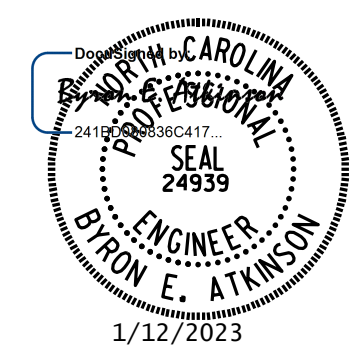


ELEVATION  
SPAN B



PLAN  
BOTTOM OF CAP  
(LOOKING UP)

- KEY
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590337

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1

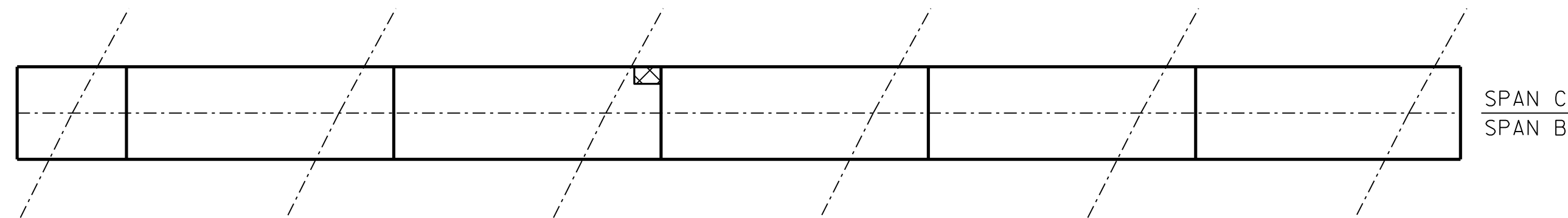
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S4-8 TOTAL SHEETS 108
2			4			

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

1/12/2023 9:18:42 AM User: blanning  
 Filename: N:\NC Bridges\21001.39-I-6052-101 Meck. Co. Br. Preservation\Structures\404-015-I-6052-SMU.BT1.590337.dgn



PLAN  
TOP OF CAP

NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

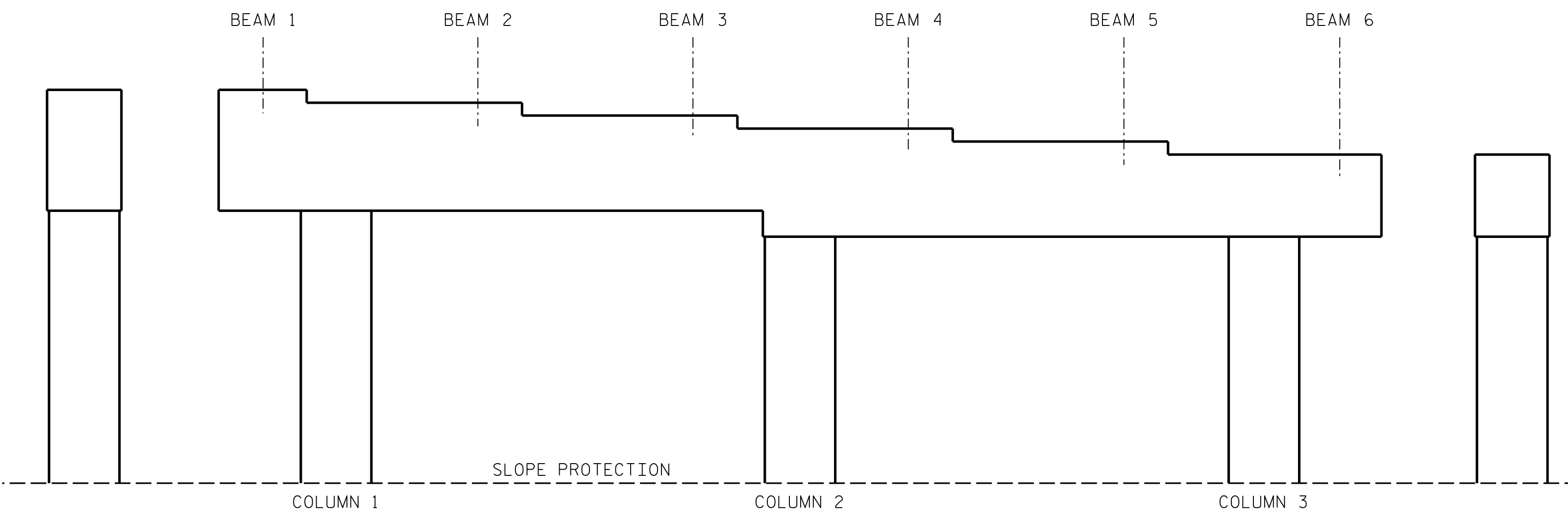
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

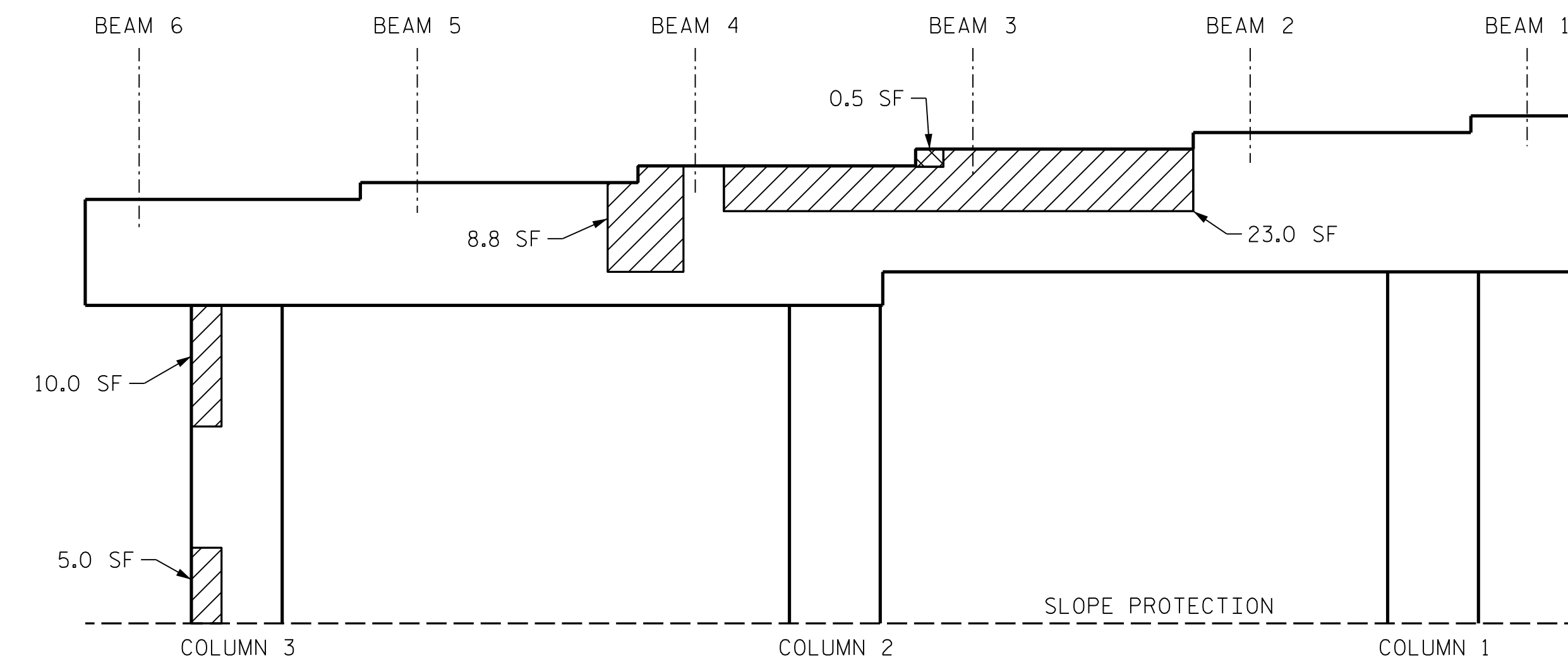
AS-BUILT REPAIR QUANTITY TABLE

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	31.8	15.9		
CAP (HORIZONTAL FACE)	8.8	4.4		
COLUMN	15.0	7.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.5	0.3		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	156.8			

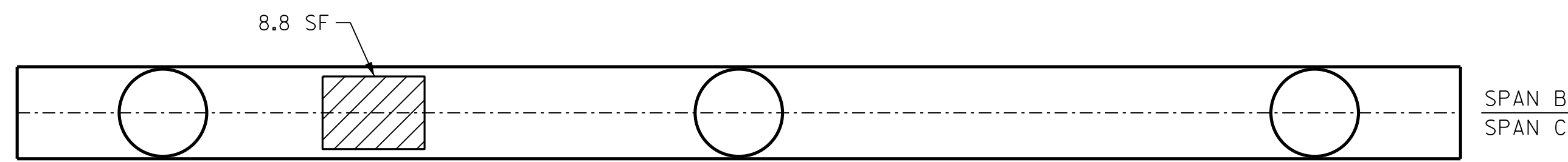
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL. TO SAWCUT. SEE REPAIR DETAILS.



ELEVATION  
SPAN B

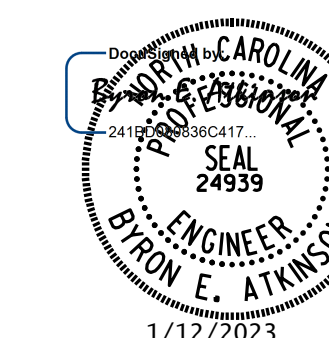


ELEVATION  
SPAN C



PLAN  
BOTTOM OF CAP  
(LOOKING UP)

- KEY
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590337

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 BENT 2**

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

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:44 AM User: blanning  
 Filename: N:\NC Bridges\21010139-I-6052-101 Meck. Co. Br. Preservation\Structures\404\_017-I-6052-SMU.BT2.590337.dgn



AS-BUILT REPAIR QUANTITY TABLE

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	8.0			
EPOXY COATING	AREA SF	AREA SF		
TOP OF CAP	92.4			

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

NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

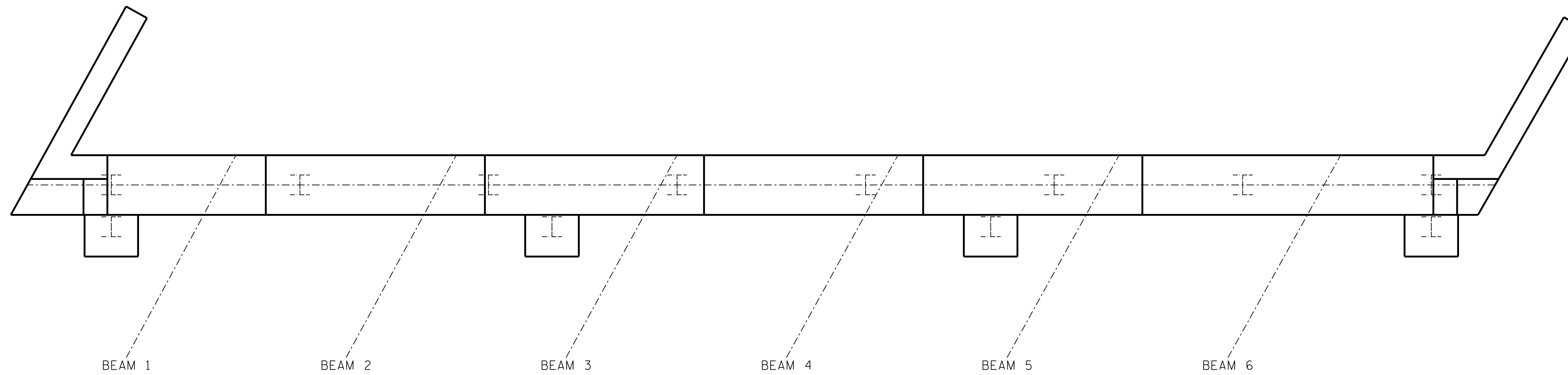
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

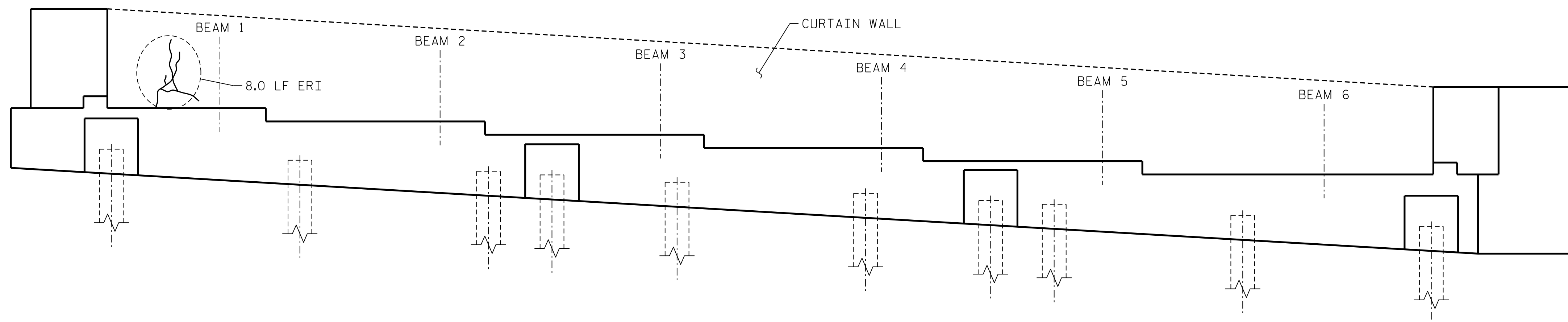
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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



PLAN  
END BENT 2

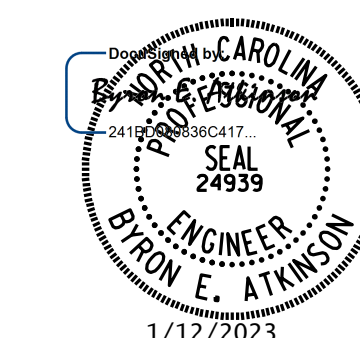


ELEVATION  
END BENT 2

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590337

KEY

	SHOTCRETE REPAIR
	ERI EPOXY RESIN INJECTION
	CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
SHEET NO. <b>S4-10</b>					
TOTAL SHEETS <b>108</b>					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

1/12/2023 9:18:45 AM User: blanning Filename: N:\NC Bridges\W21001.39-I-6052-101\Meck. Co. Br. Preservation\Structures\404-019-I-6052-SMU.EB2.590337.dgn

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. LANNING	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

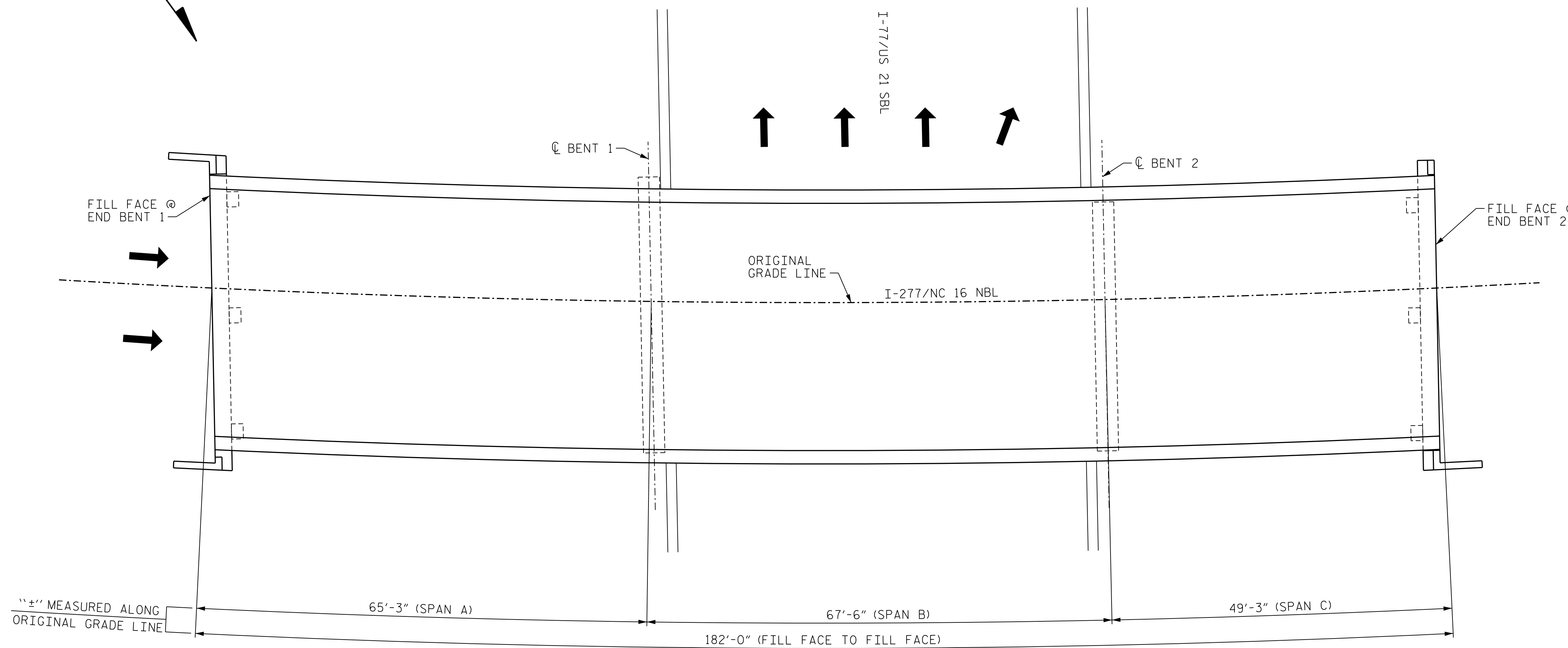
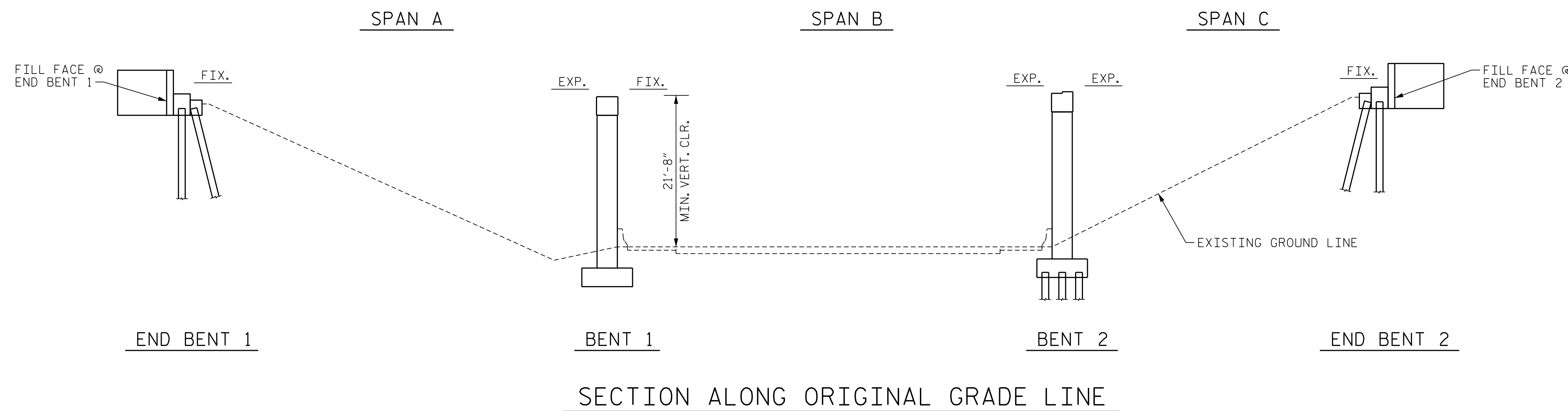
**NOTES:**

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/13/2022.  
BRIDGE ORIENTATION CONFORMS TO ROUTINE INSPECTION REPORT.

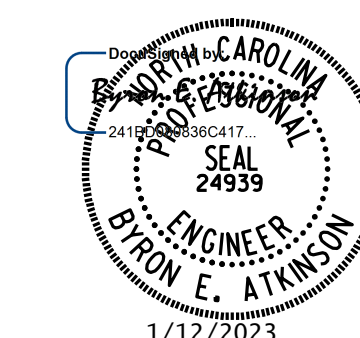
**SCOPE OF WORK:**

- PARTIALLY REMOVE BRIDGE DECK CONCRETE USING SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- PERFORM CLASS II SURFACE PREPARATION AND REPAIR ON DECK SURFACES.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES).
- RECONSTRUCT BRIDGE DECK JOINT AND INSTALL JOINT SEALS.
- GROOVE LMC-VES BRIDGE DECK.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.
- STRUCTURAL STEEL REPAIRS.
- INSTALL STEEL BEARING KEEPER ANGLE ASSEMBLY.
- CLEANING AND PAINTING STEEL BEAMS.
- CLEANING AND PAINTING BEARINGS WITH HRCSA.

I HEREBY CERTIFY THAT THIS STRUCTURE HAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.  
RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_



**PLAN**



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**  
MI ENGINEERING  
1011 SCHAUB DRIVE, SUITE 100  
RALEIGH, NC 27606  
(919) 851-6606  
FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
BRIDGE NO. 590338

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON  
I-277/NC 16 NBL  
OVER I-77/US 21 SBL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-1
1			3			TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
CHECKED BY : B.E. ATKINSON DATE : 10/2022  
DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:46 AM User: blanning  
 Filename: N:\NC Bridges\21010139-I-6052-101 Meck Co. Br. Preservation\Structures\405\_001-I-6052-SMU.GDI.590338.dgn





**LOCATION SKETCH**

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

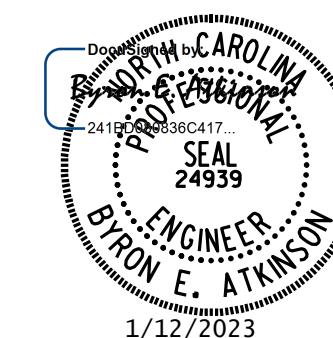
BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°-14'-42.1"	80°-50'-50.85"

**NOTES:**

- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- FOR CLASS II SURFACE PREPARATION, SCARIFYING BRIDGE DECK AND HYDRO-DEMOLITION OF BRIDGE DECK, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.
- WORK ON BRIDGE SHALL BE PREFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE TO THE PROJECT SPECIAL PROVISION.
- PRIOR TO BEGINNING WORK, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST.
- FOR POLLUTION CONTROL, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.
- FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.
- FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.
- FOR STEEL BEARING KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND REPAINTING OF BRIDGE, AND PAINTING CONTAINMENT FOR BRIDGE, SEE "PAINTING EXISTING STRUCTURE" SPECIAL PROVISION.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590338

SHEET 2 OF 2



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON  
 I-277/NC 16 NBL  
 OVER I-77/US 21 SBL

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

TOTAL SHEETS: 108

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

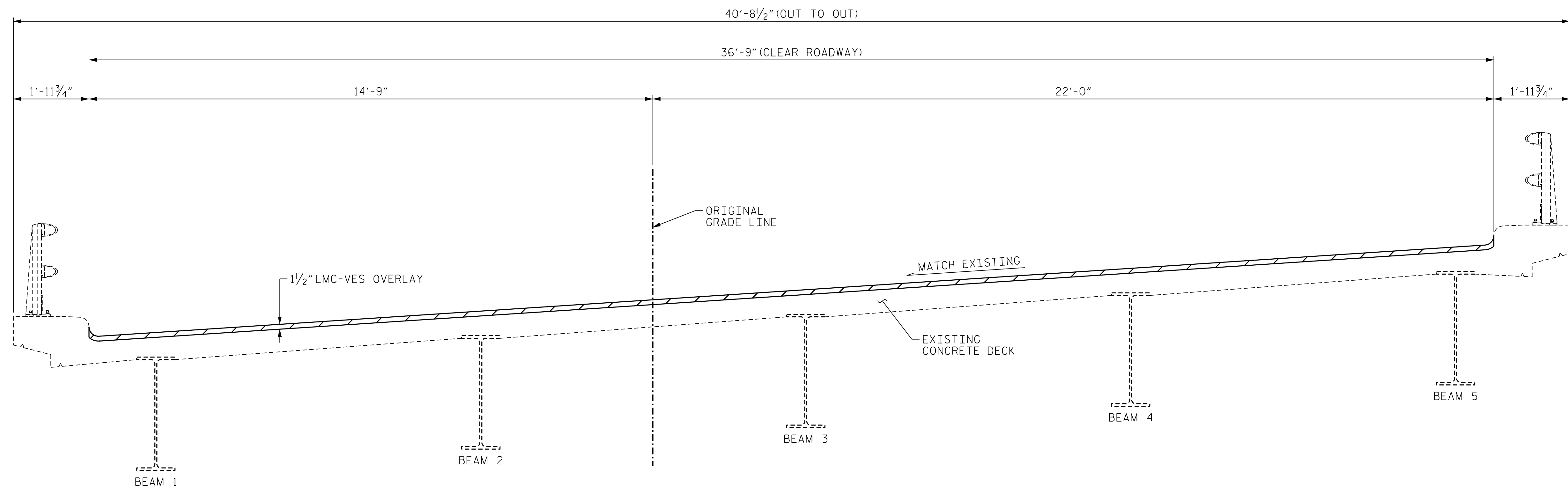
1/12/2023 9:18:47 AM User: blanning  
 Filenamer: N:\NC Bridges\W21001.39-I-6052-101\Meck Co.Br.Preservation\Structures\405.003-I-6052-SMU.G02-590338.dgn



**NOTES:**

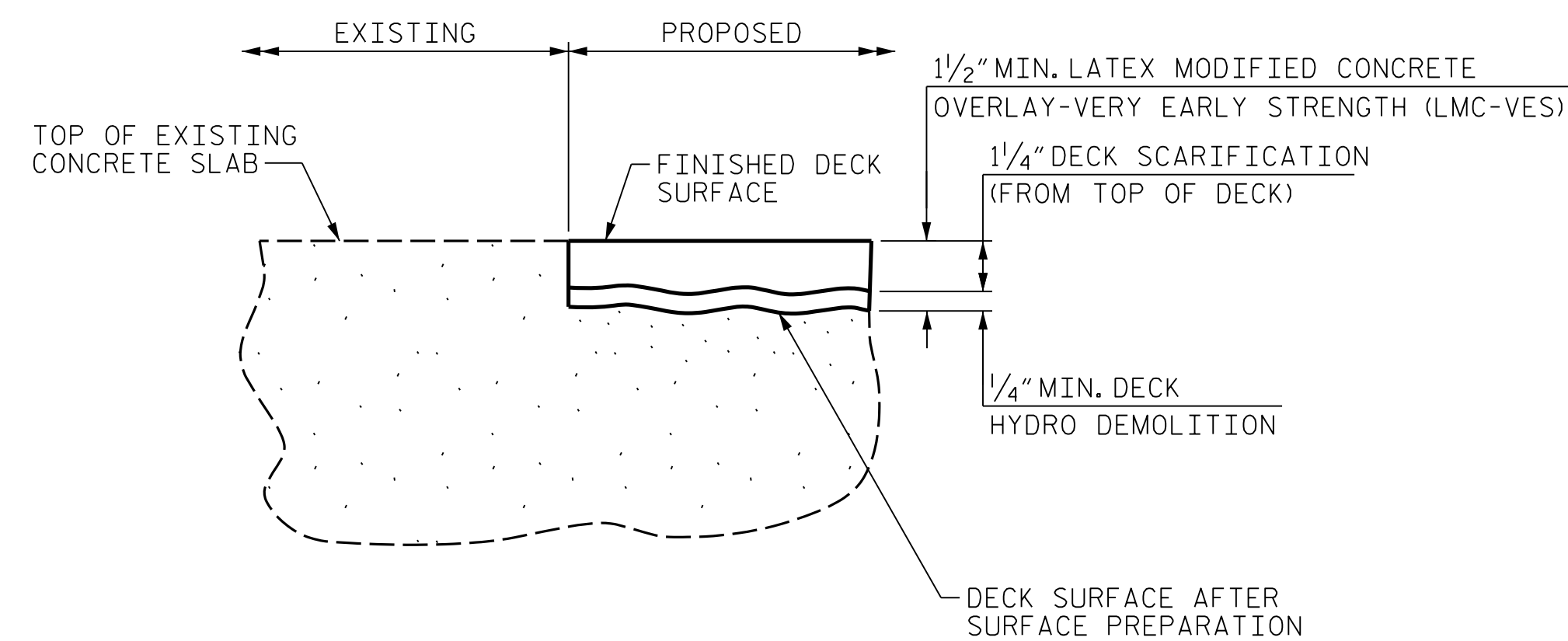
WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.

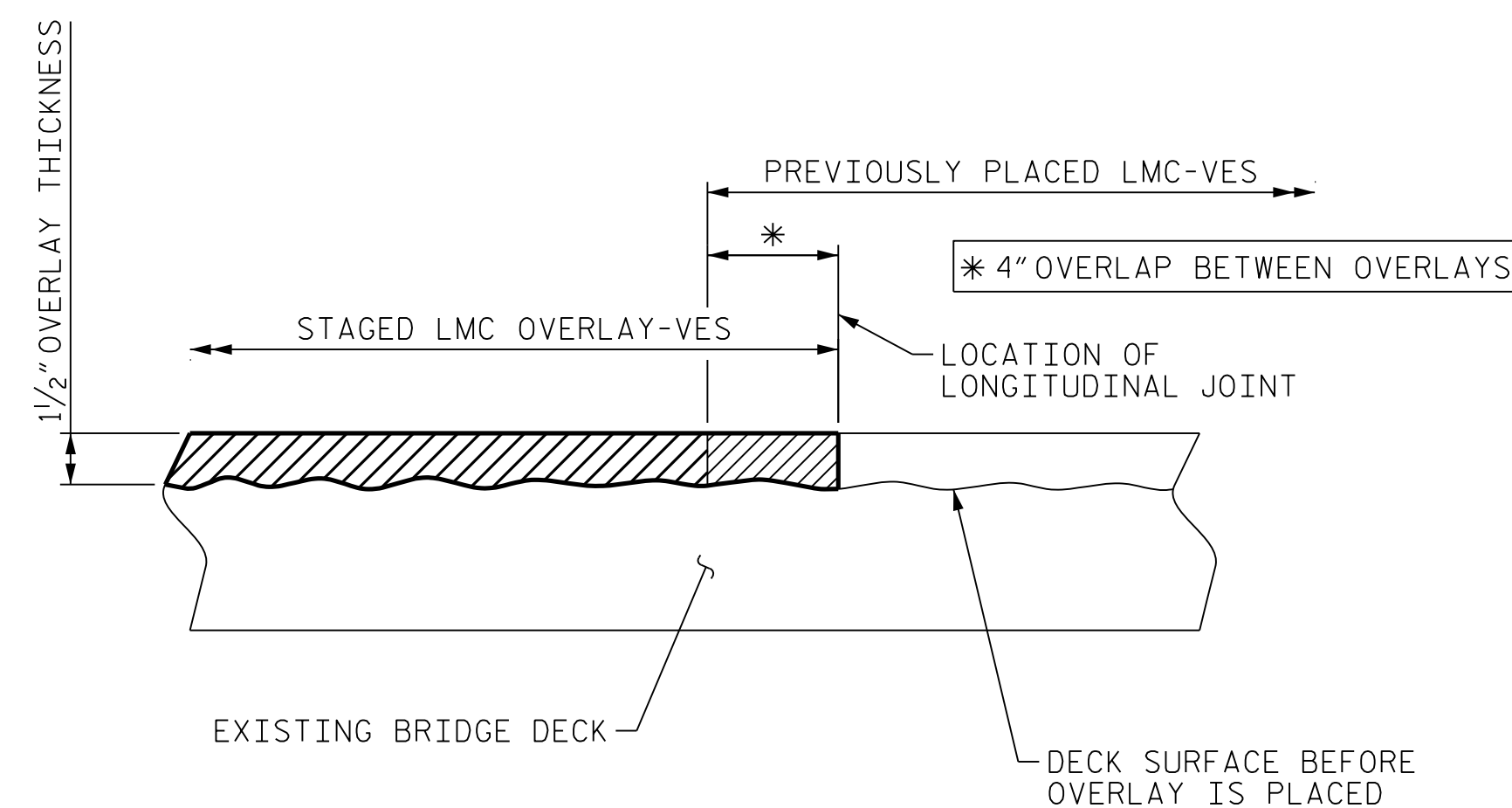


**TYPICAL SECTION**

(ALL DIMENSIONS ARE RADIAL)



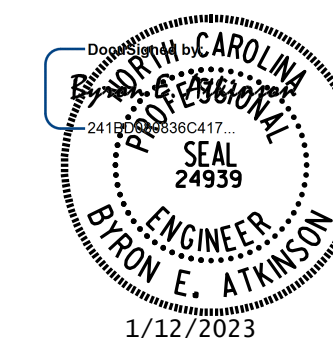
**DETAIL FOR LMC-VES OVERLAY**



**SECTION THRU DECK**

**STAGED LMC-VES OVERLAY JOINT**

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590338



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION  
 &  
 OVERLAY DETAILS

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

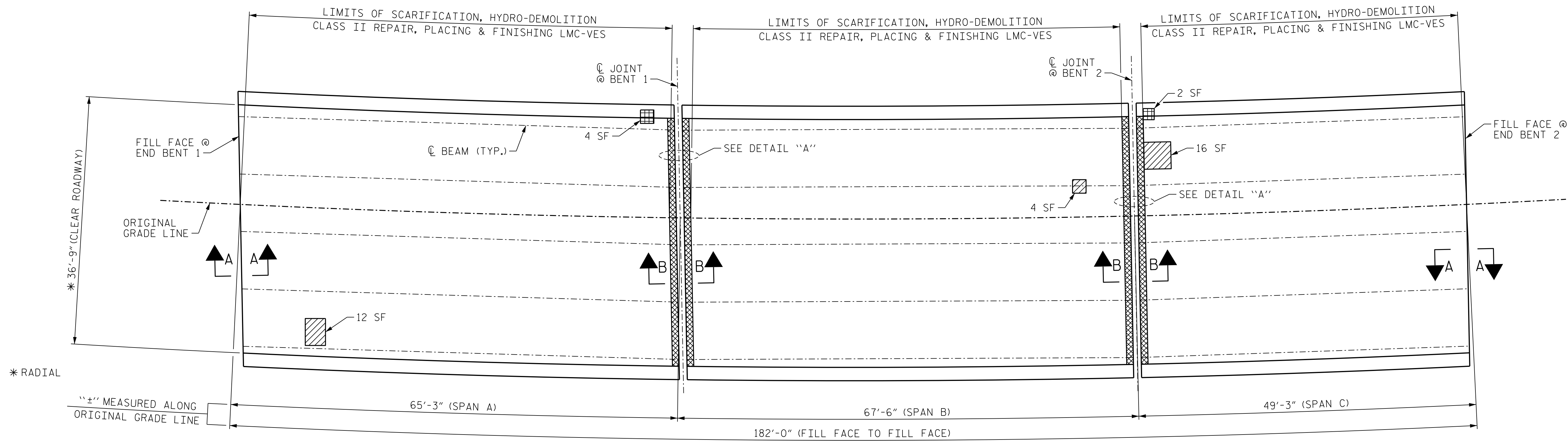
**MI ENGINEERING**  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S5-3 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:50 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101 Meck Co.Br. Preservation\Structures\405.005-I-6052.SMU.TS1.590338.dgn





PLAN OF SPANS

- BRIDGE JOINT DEMOLITION
- CLASS II SURFACE PREPARATION
- DECK SCARIFICATION, HYDRO-DEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY-VES
- UNDERSIDE OF DECK REPAIR

NOTES:

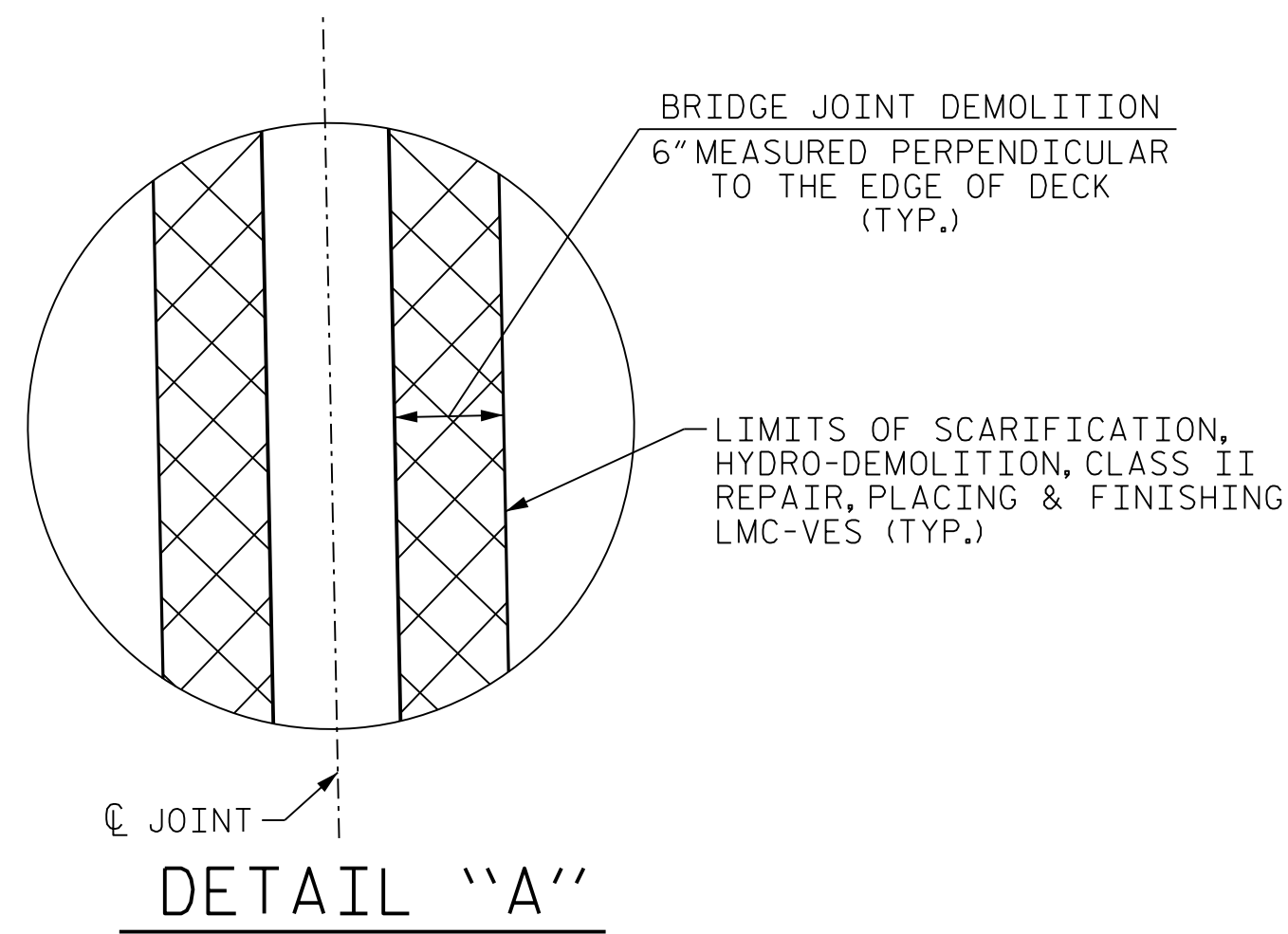
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.

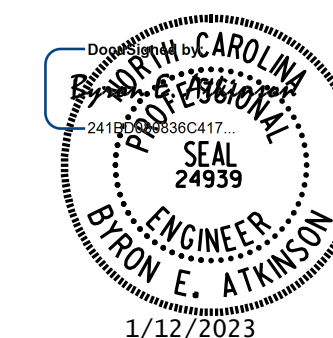
FOR SECTIONS A-A AND B-B, SEE "JOINT DETAILS" SHEET.

AS-BUILT REPAIR QUANTITY TABLE SPANS A, B AND C				
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	735.1 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	735.1 SY			
CLASS II SURFACE PREPARATION	3.7 SY			
LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH	35.8 CY			
PLACING & FINISHING LMC-VES OVERLAY	735.1 SY			
BRIDGE JOINT DEMOLITION	73.6 SF			
GROOVING BRIDGE FLOORS	6008 SF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	QUANTITIES			
	ESTIMATE	ACTUAL		
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	6.0	3.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE	ACTUAL		
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.



PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590338



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 SURFACE PREPARATION  
 SPANS A, B AND C

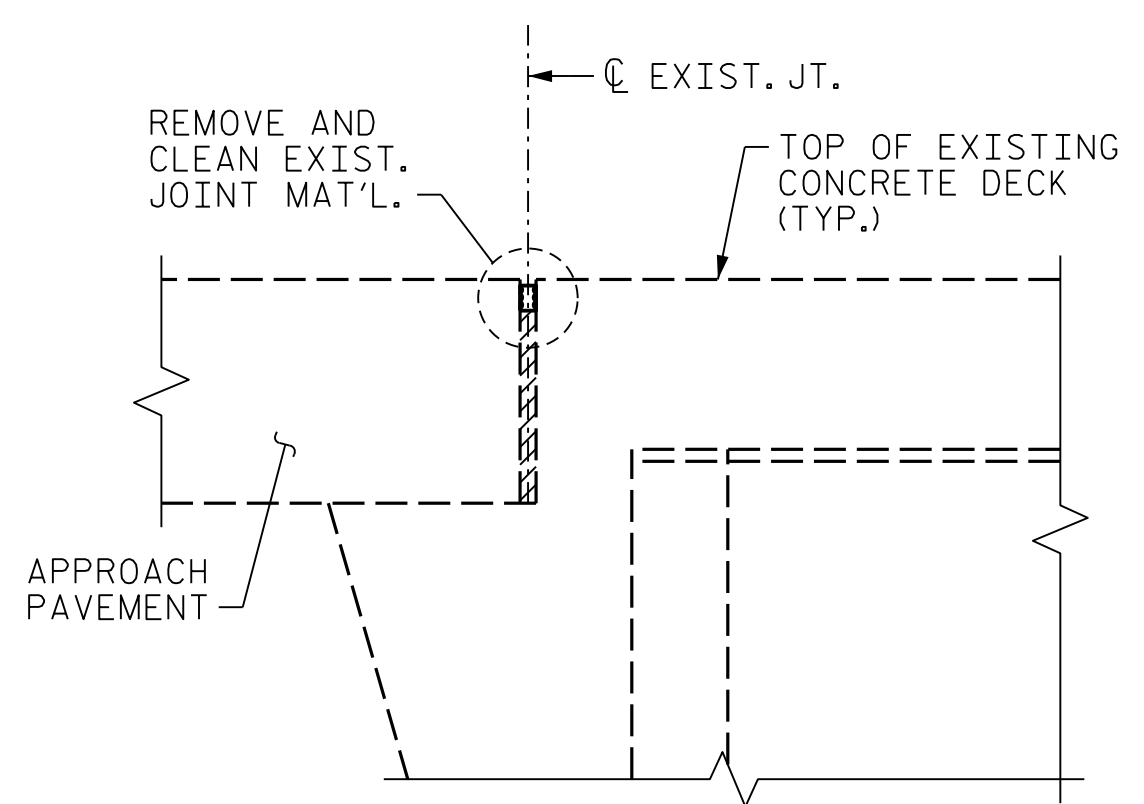
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

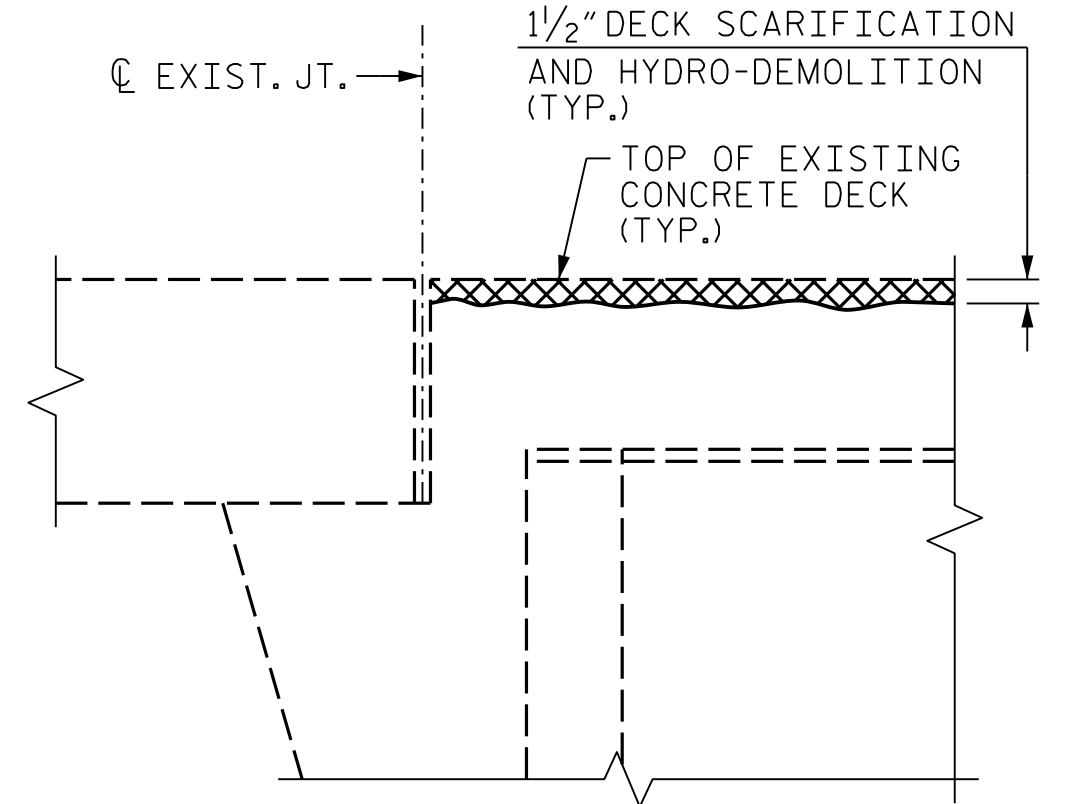
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S5-4 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING	DATE : 10/2022
CHECKED BY : B.E. ATKINSON	DATE : 10/2022
DESIGN ENGINEER OF RECORD : B.E. ATKINSON	DATE : 10/2022

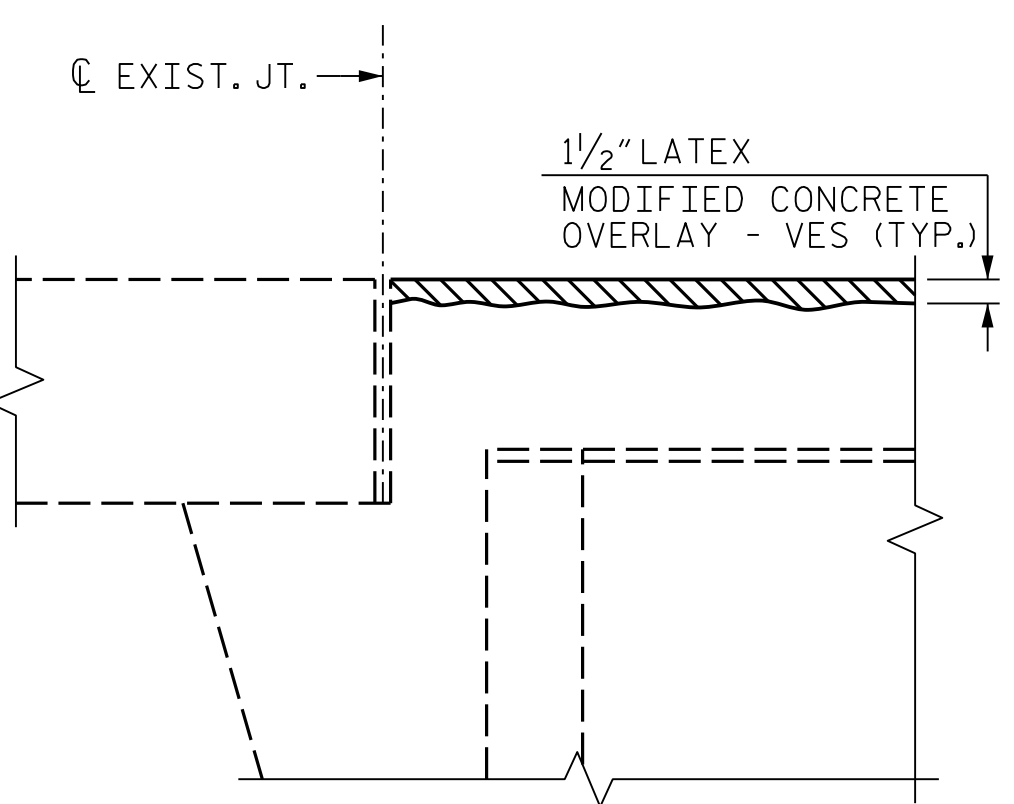
1/12/2023 9:18:51 AM User: blanning  
 Filename: N:\NC Bridges\M21001.139-I-6052-101 Meck Co. Br. Preservation\Structures\405-007-I-6052-SMU.DRI-590338.dgn



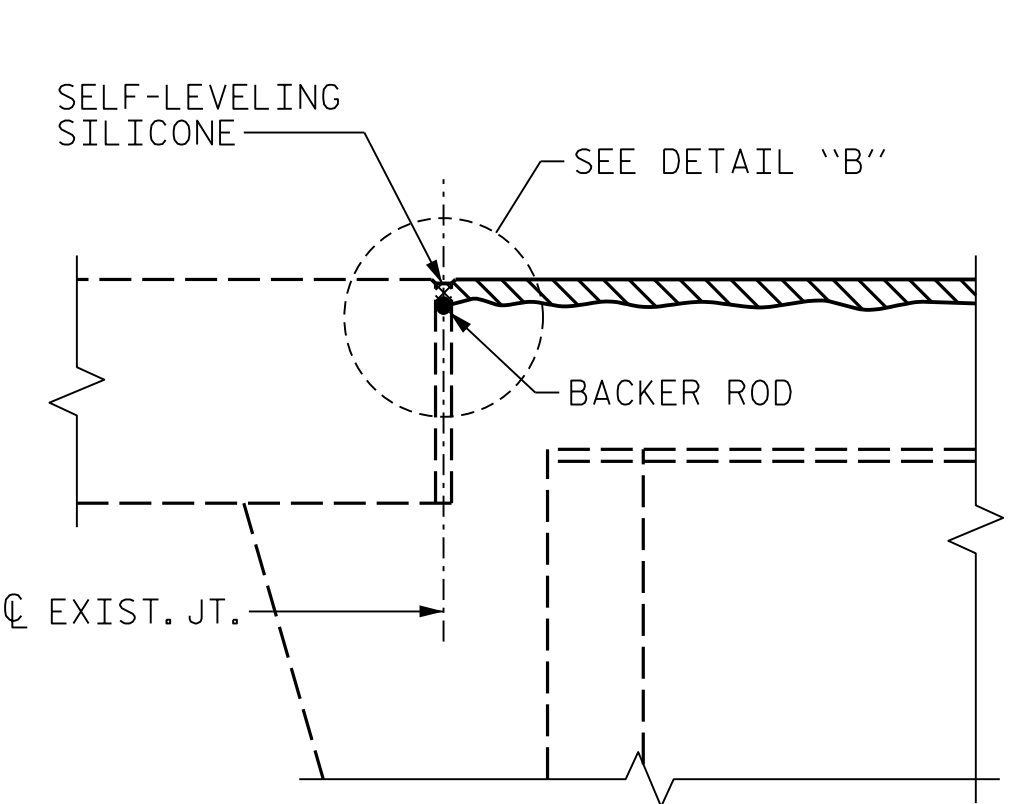
EXISTING JOINT AT END BENT



MINIMUM EXISTING JOINT DEMOLITION AT END BENT

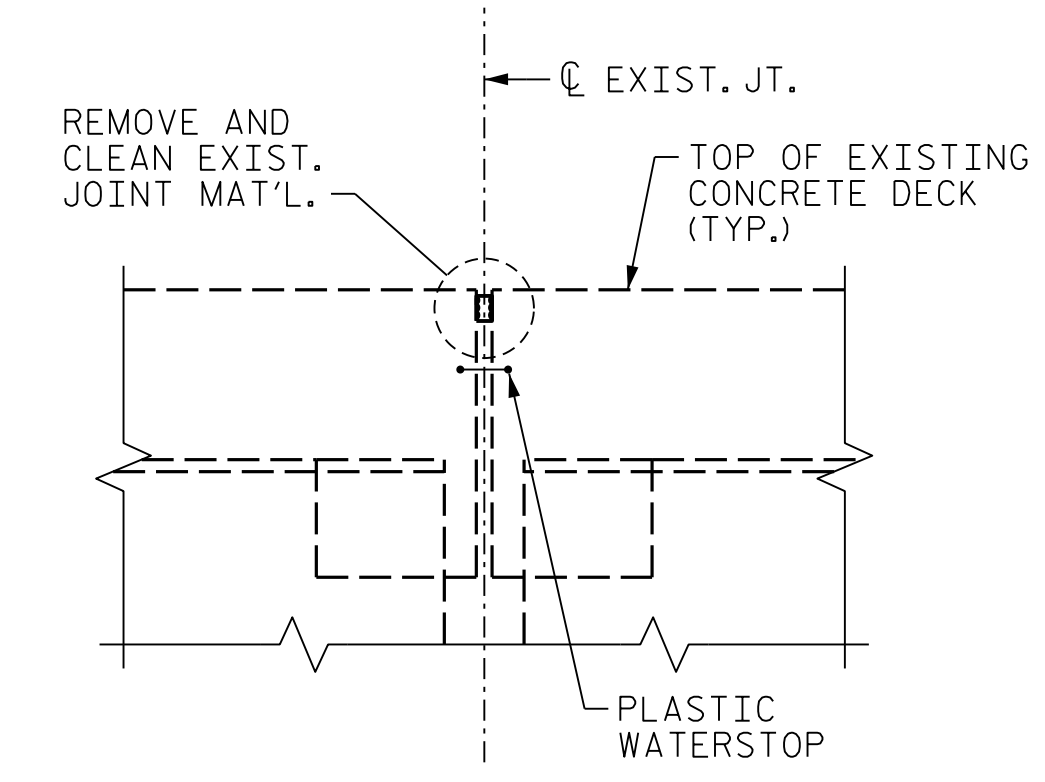


PROPOSED JOINT PRE-INSTALL DIMENSIONS

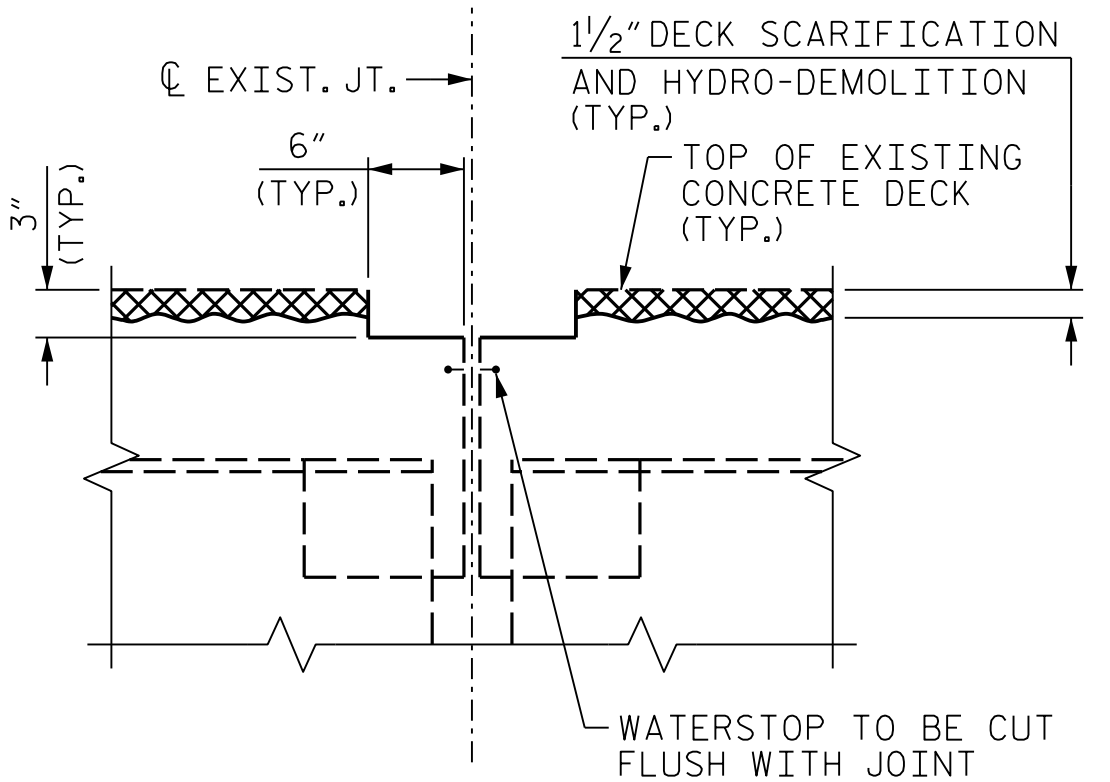


PROPOSED JOINT

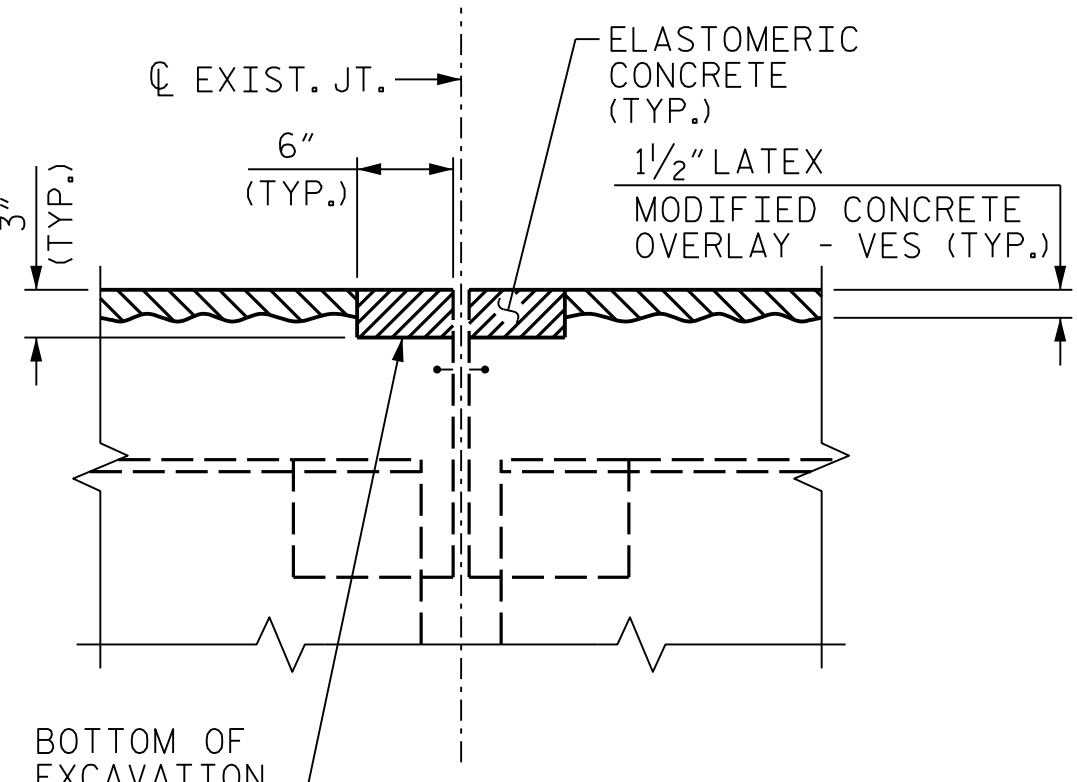
SECTION A-A



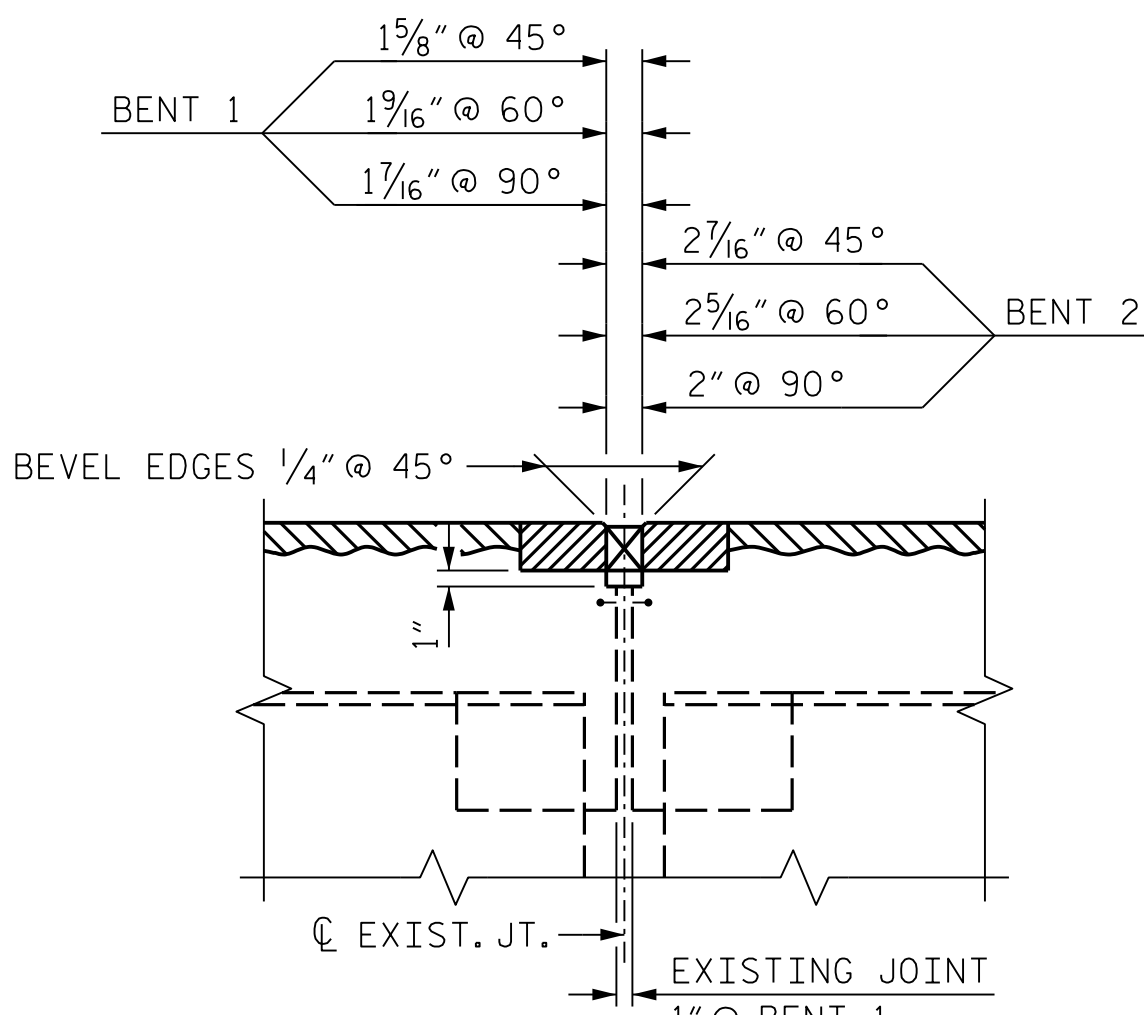
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION AT BENT

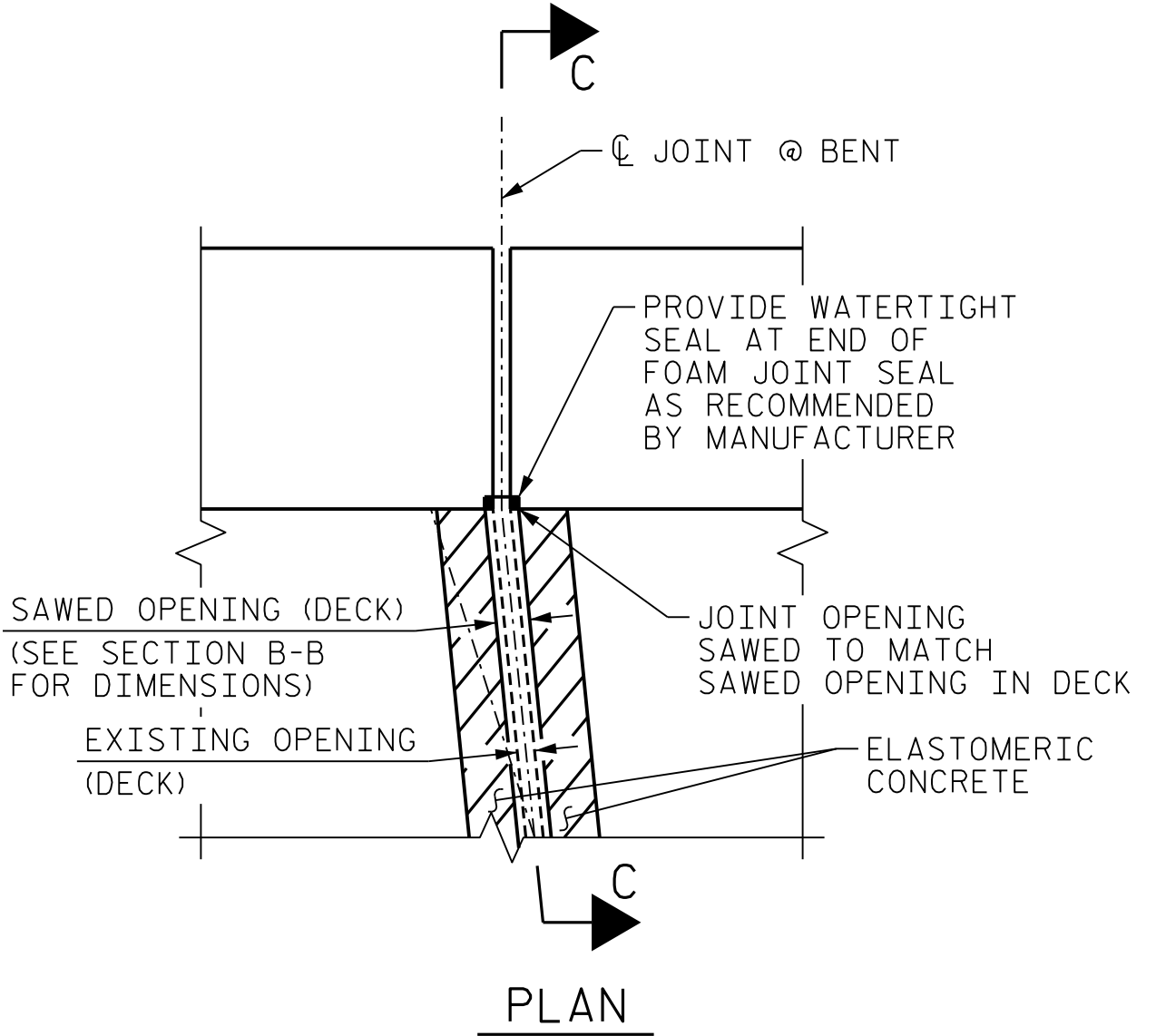


PROPOSED JOINT PRE-SAWED DIMENSIONS

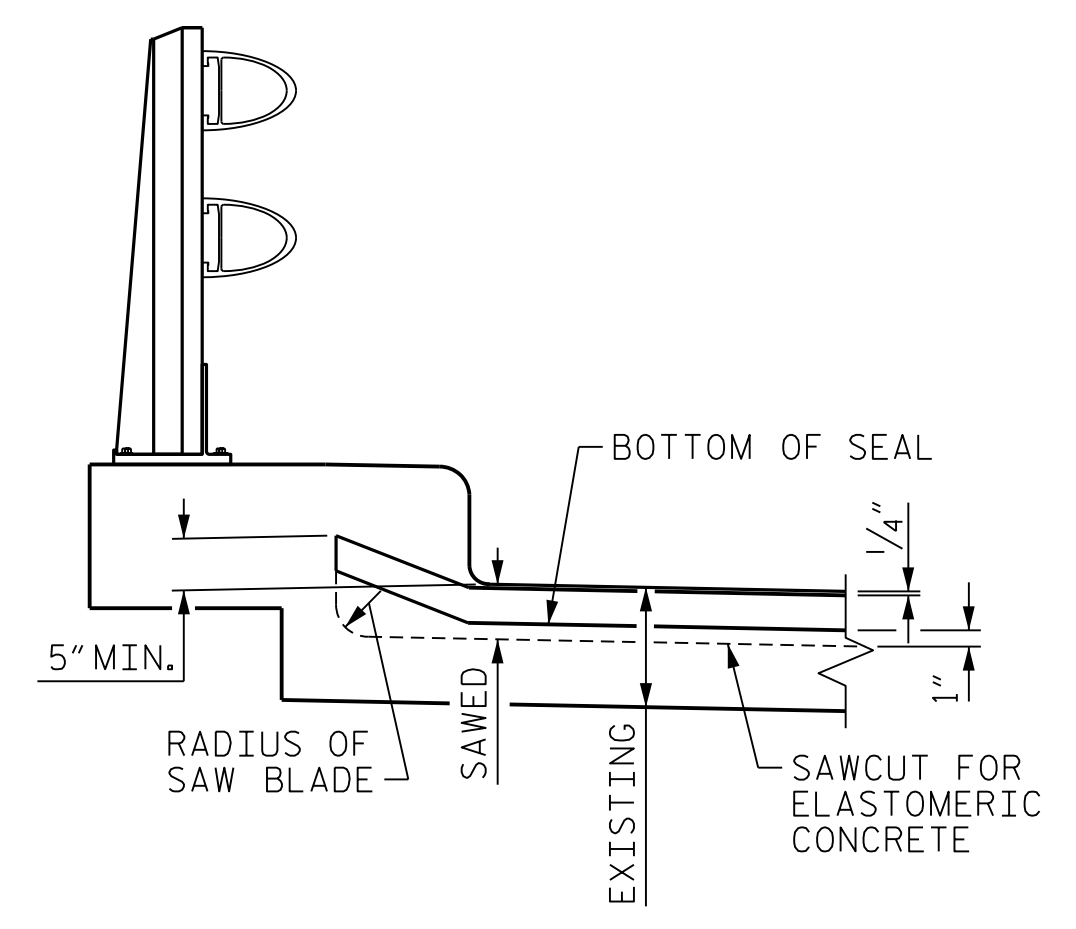


PROPOSED FOAM JOINT SEAL EXPANSION

SECTION B-B



JOINT DETAILS AT CURB

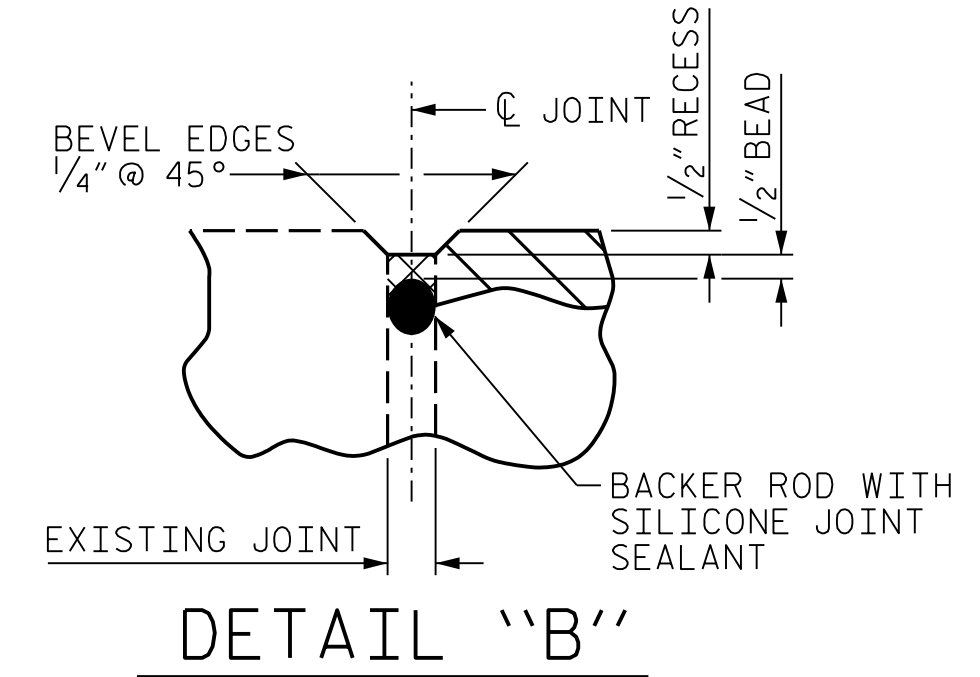


SECTION C-C

ELASTOMERIC CONCRETE FOR PRESERVATION		
BENT 1	9.2	CF
BENT 2	9.2	CF
* TOTAL	18.4	CF

\* BASED ON MINIMUM BLOCKOUT SHOWN.

JOINT REPAIR QUANTITY TABLE		
	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	77.6 LF	
POURABLE SILICONE JOINT SEALANT	77.6 LF	



DETAIL "B"

NOTES:

HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.

RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE LMC OVERLAY 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 1/4", NOTIFY THE ENGINEER.

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 JOINTS IN LIEU OF SAWING THE JOINT.

THE INSTALLED FOAM JOINT SEALS SHALL BE WATER TIGHT.

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

FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL OR ELASTOMERIC CONCRETE SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE OR ELASTOMERIC CONCRETE.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR 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.

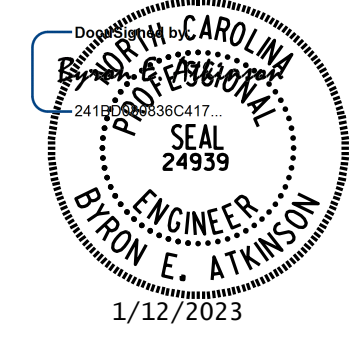
FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590338



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

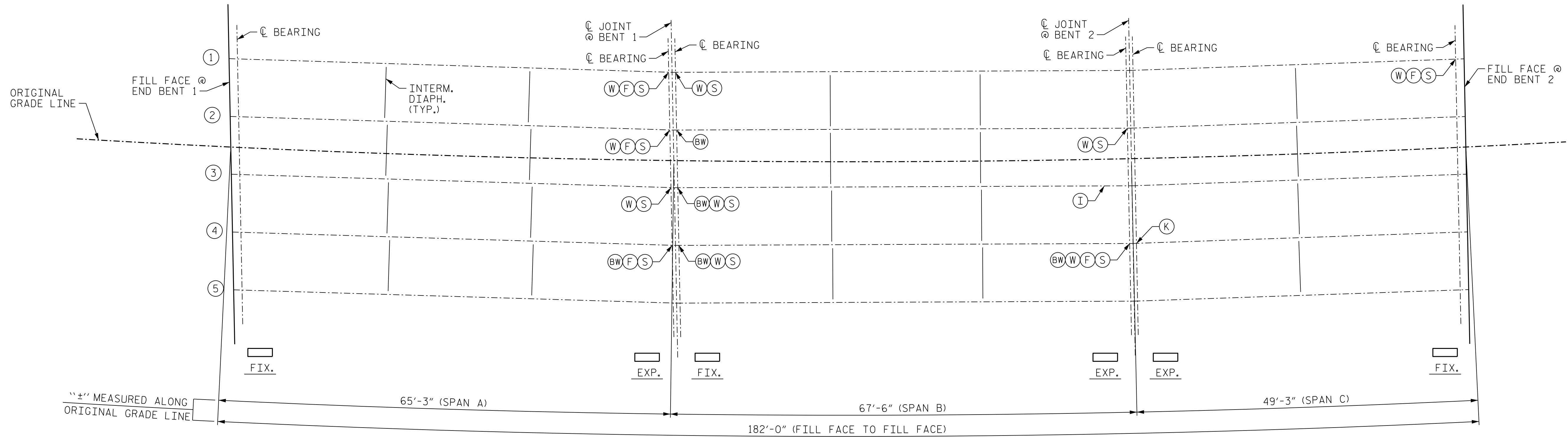
MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

REVISIONS						SHEET NO. <b>S5-5</b>
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS <b>108</b>
2			4			

DRAWN BY: <u>B.E. LANNING</u>	DATE: <u>10/2022</u>
CHECKED BY: <u>B.E. ATKINSON</u>	DATE: <u>10/2022</u>
DESIGN ENGINEER OF RECORD: <u>B.E. ATKINSON</u>	DATE: <u>10/2022</u>

1/12/2023 9:18:53 AM User: blanning  
 Filename: N:\NC Bridges\M21001.39-I-6052-101 Meck Co.Br. Preservation\Structures\405-009-I-6052-SMU-JT1-590338.dgn





**FRAMING PLAN**

**NOTES:**

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER AFTER THE STRUCTURAL STEEL HAS BEEN CLEANED, BLASTED, AND PRIMED, THE CONTRACTOR AND ENGINEER SHALL REVIEW THE STEEL TO VERIFY NOTED REPAIR LOCATIONS AND TO IDENTIFY ANY ADDITIONAL REPAIR LOCATIONS. THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR REPAIR DETAILS, SEE "BEAM REPAIR DETAILS" AND "STEEL KEEPER ANGLE ASSEMBLY DETAILS" SHEETS.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR STEEL BEAM REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

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

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

FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

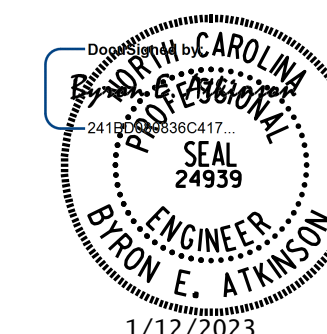
FOR BOLTED BEAM REPAIR, SEE SPECIAL PROVISIONS.

KEY	
⊕	BEAM NUMBER
W	WEB PLATING REPAIR
S	STIFFENER REPAIR
F	BOTTOM FLANGE PLATING REPAIR
I	INTERMEDIATE BEAM PLATING REPAIR
BE	BEAM END REPAIR
BW	BOLTED WEB PLATE REPAIR
K	STEEL BEARING KEEPER ANGLE ASSEMBLY

ANTICIPATED BEAM REPAIR LOCATIONS									
SPAN	BEAM	LOCATION	DETAIL TYPE	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"	
A	1	BENT 1	C	27 7/8"	10"	5"	26"	-	
A	2	BENT 1	C	27 5/8"	10"	5"	26"	-	
A	3	BENT 1	B	11 1/2"	10"	-	-	-	
A	3	BENT 1	A	2"	16"	-	-	-	
A	4	BENT 1	H	-	10"	-	-	2"	
A	4	BENT 1	A	4"	20"	-	-	-	
B	1	BENT 1	A	5"	12"	-	-	-	
B	2	BENT 1	I	-	10"	-	-	20"	
B	2	BENT 2	B	13 1/2"	10"	-	-	-	
B	2	BENT 2	A	6"	24"	-	-	-	
B	3	BENT 1	H	-	10"	-	-	5"	
B	3	BENT 1	A	7"	24"	-	-	-	
B	3	BENT 2	G	6"	42"	-	-	-	
B	4	BENT 1	H	-	10"	-	-	3"	
B	4	BENT 1	A	3"	16"	-	-	-	
B	4	BENT 2	H	-	10"	-	-	3"	
B	4	BENT 2	A	3"	20"	-	-	-	
C	1	END BENT 2	A	4"	4"	-	-	-	

BEAM REPAIR QUANTITY TABLE SPANS A THRU C					
STEEL PLATES		STIFFENER		STEEL BEARING KEEPER ANGLE ASSEMBLY	
LBS.		LBS.		EA.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
690		155		1	
BEAM REPAIR CUT-OUT		BOLTED BEAM REPAIR			
LBS.		LBS.			
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL		
-		80			

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590338



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 BEAM REPAIR  
 LOCATIONS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S5-6 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:54 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052-101\Meck Co.Br.Preservation\Structures\405-011-I-6052-SMU.FPI.590338.dgn

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	5.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	70.3			

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

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

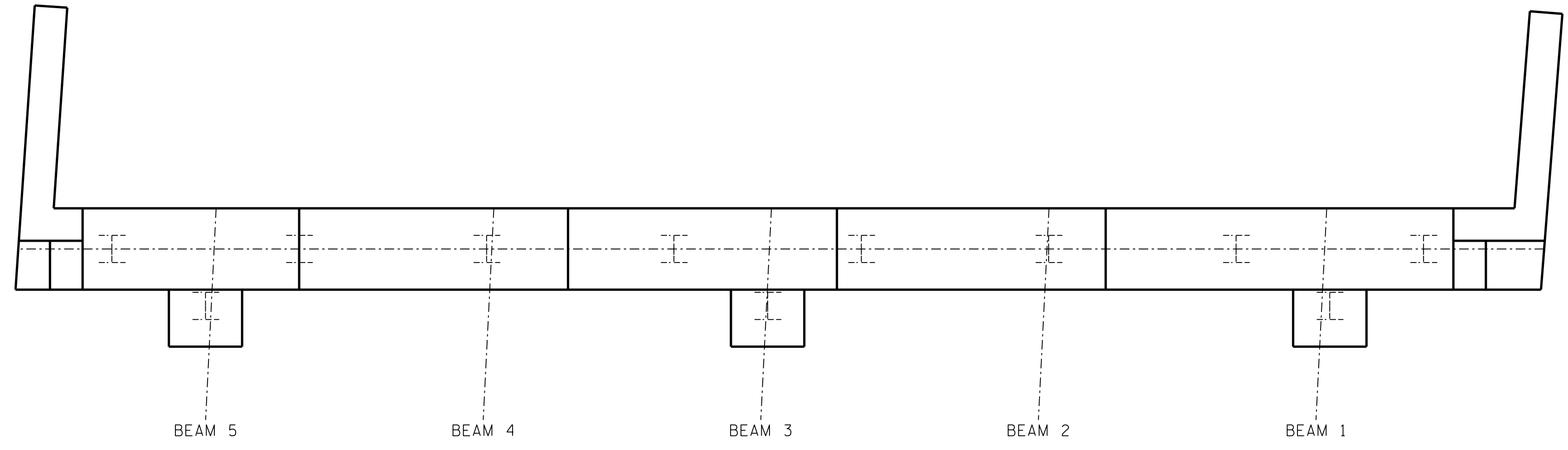
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

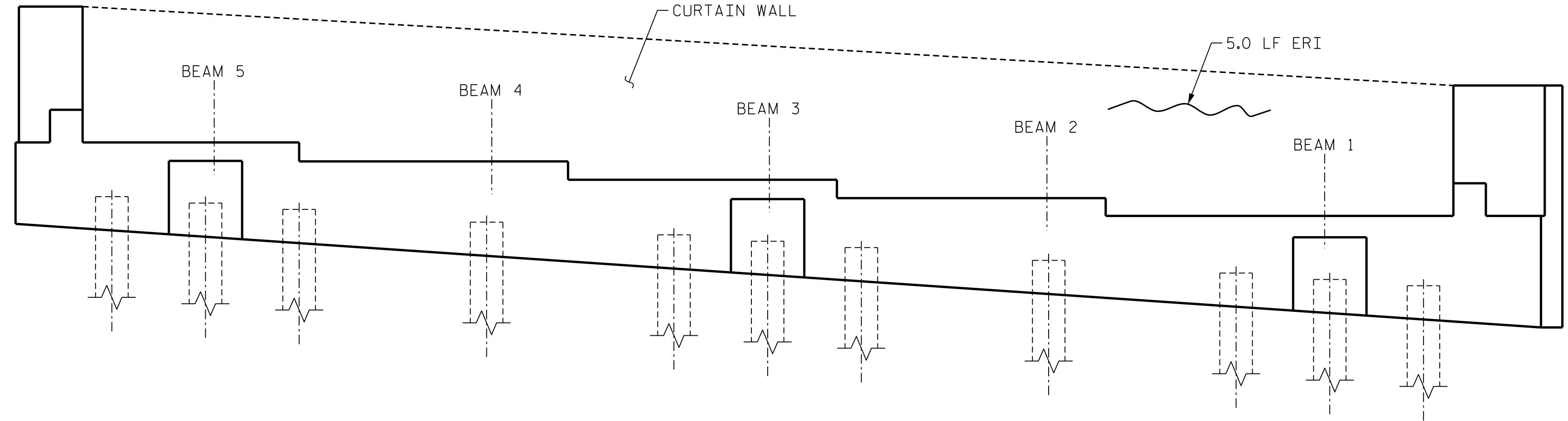
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



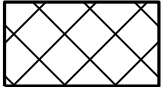
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

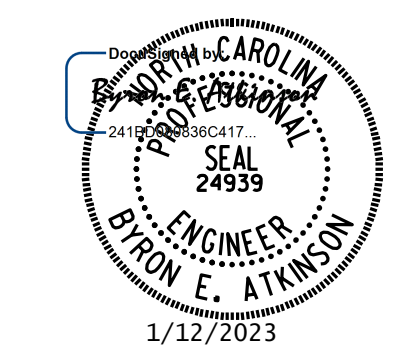


**PLAN**  
END BENT 1



**ELEVATION**  
END BENT 1

- KEY**
-  SHOTCRETE REPAIR
  -  ERI EPOXY RESIN INJECTION
  -  CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590338

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
END BENT 1**

REVISIONS						SHEET NO. <b>S5-7</b> TOTAL SHEETS <b>108</b>
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:55 AM User: blanning  
 Filename: N:\NC Bridges\W2100139-I-6052-101\Meck Co.Br. Preservation\Structures\405-013-I-6052-SMU.EBI.590338.dgn



### AS-BUILT REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	95.6	47.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.5	4.3		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	6.0			
COLUMN	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	129.9			

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

### NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

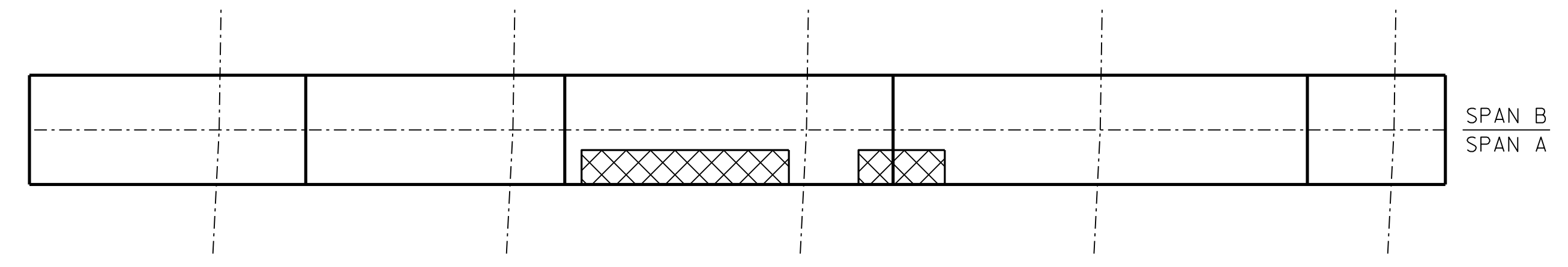
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

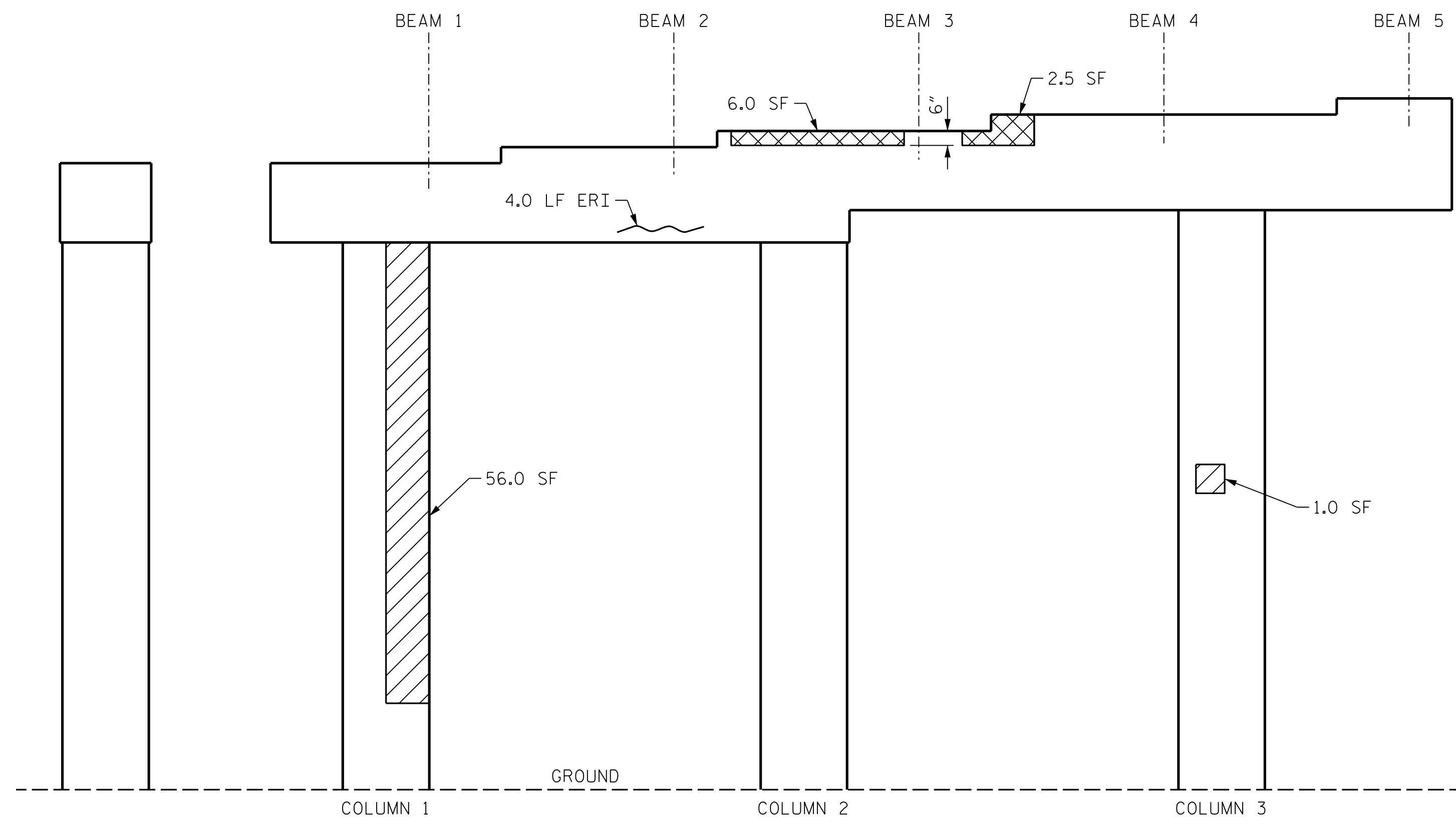
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

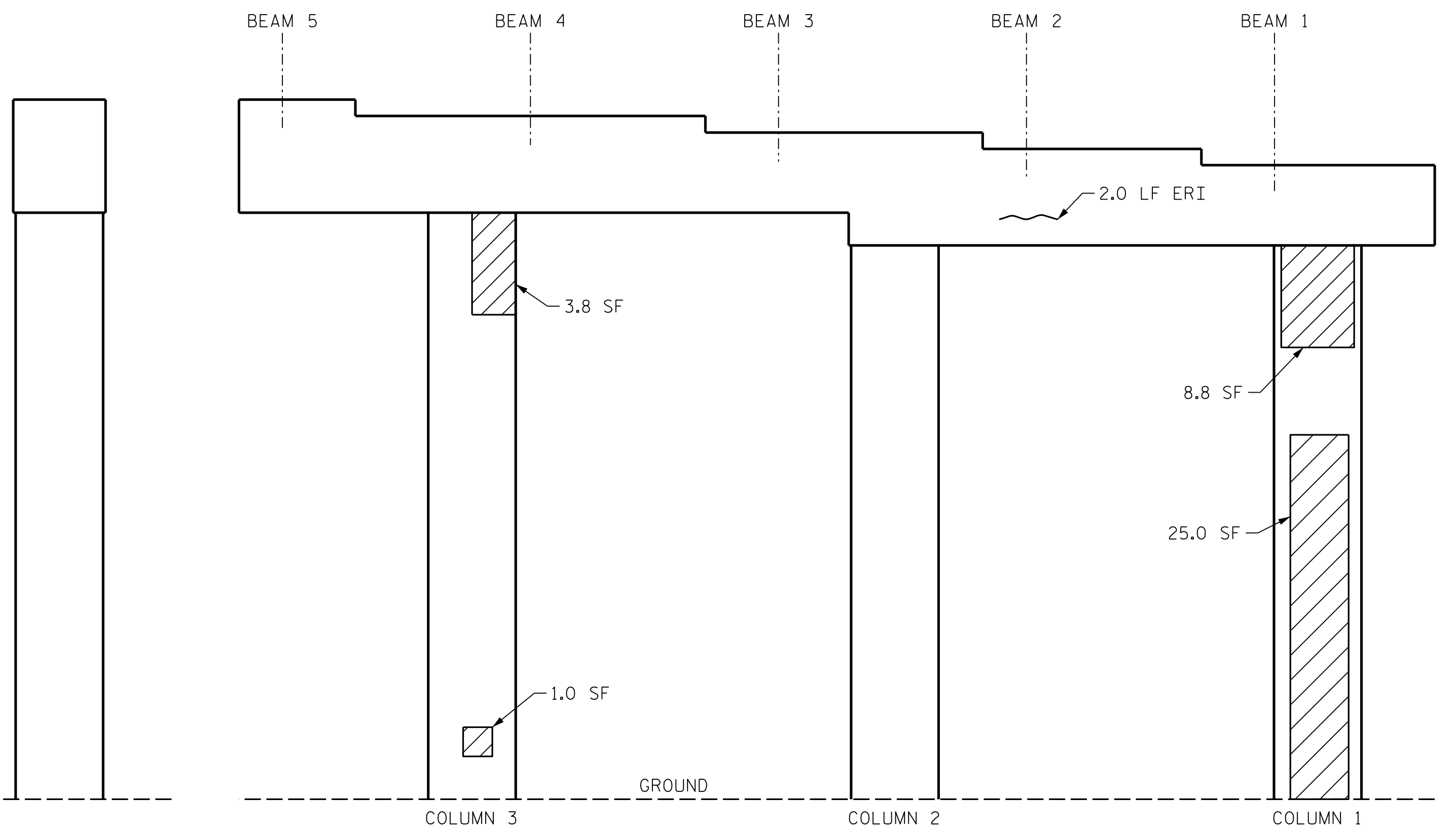
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.



PLAN  
TOP OF CAP

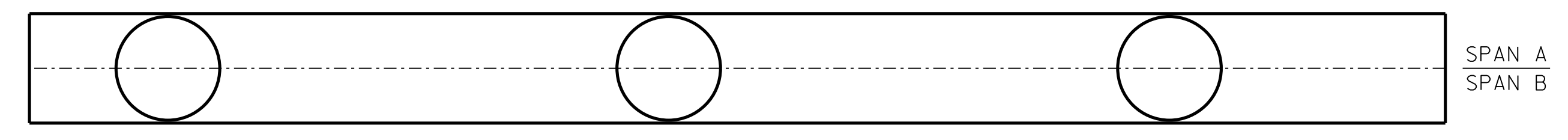


ELEVATION  
SPAN A



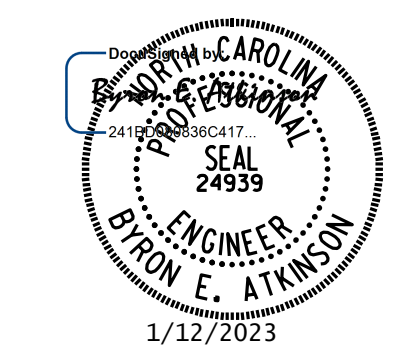
ELEVATION  
SPAN B

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590338



PLAN  
BOTTOM OF CAP  
(LOOKING UP)

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

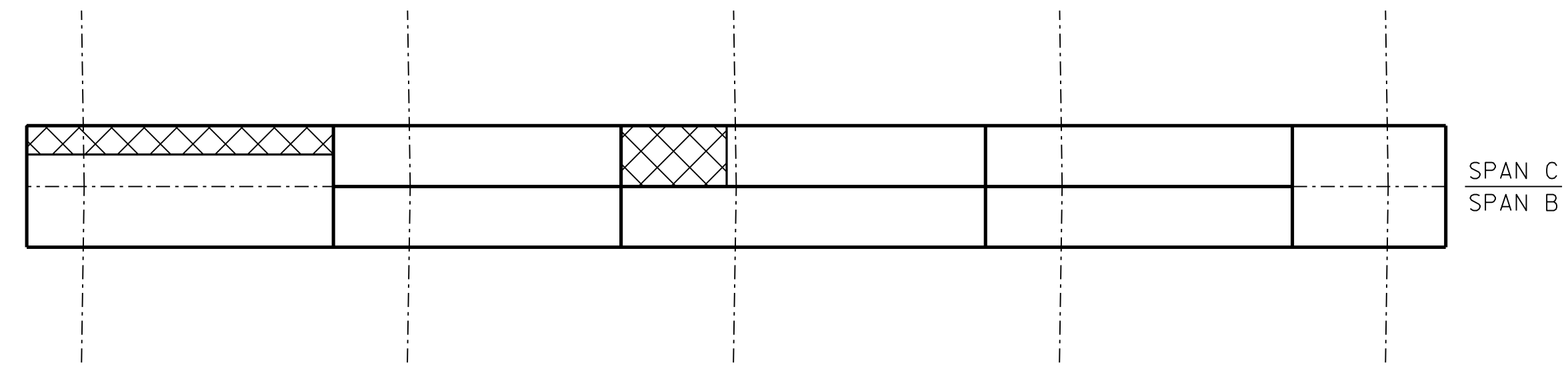
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **S5-8**  
 TOTAL SHEETS **108**

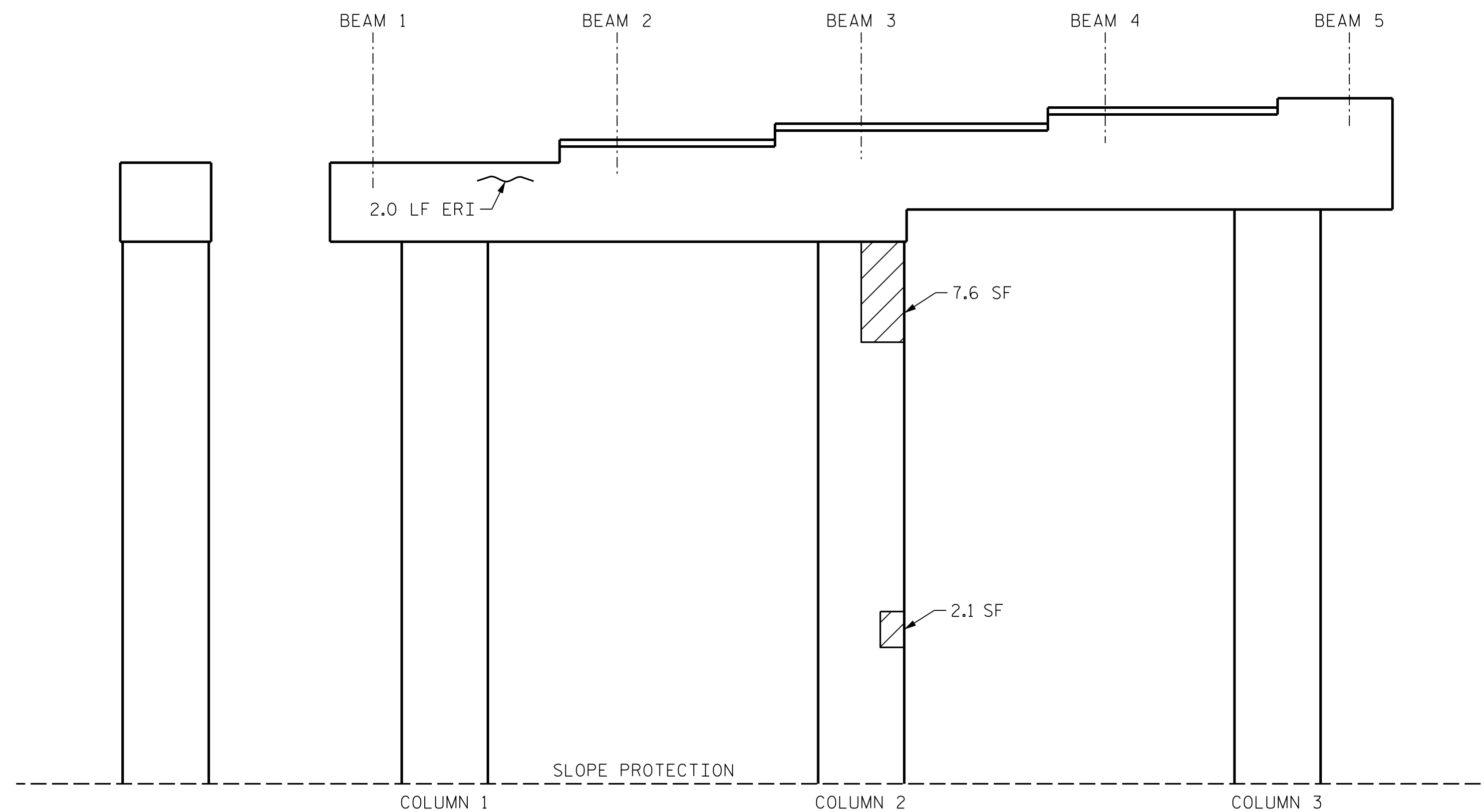
DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:56 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052.101\Meck Co.Br.Preservation\Structures\405.015-I-6052.SMU.BT1.590338.dgn

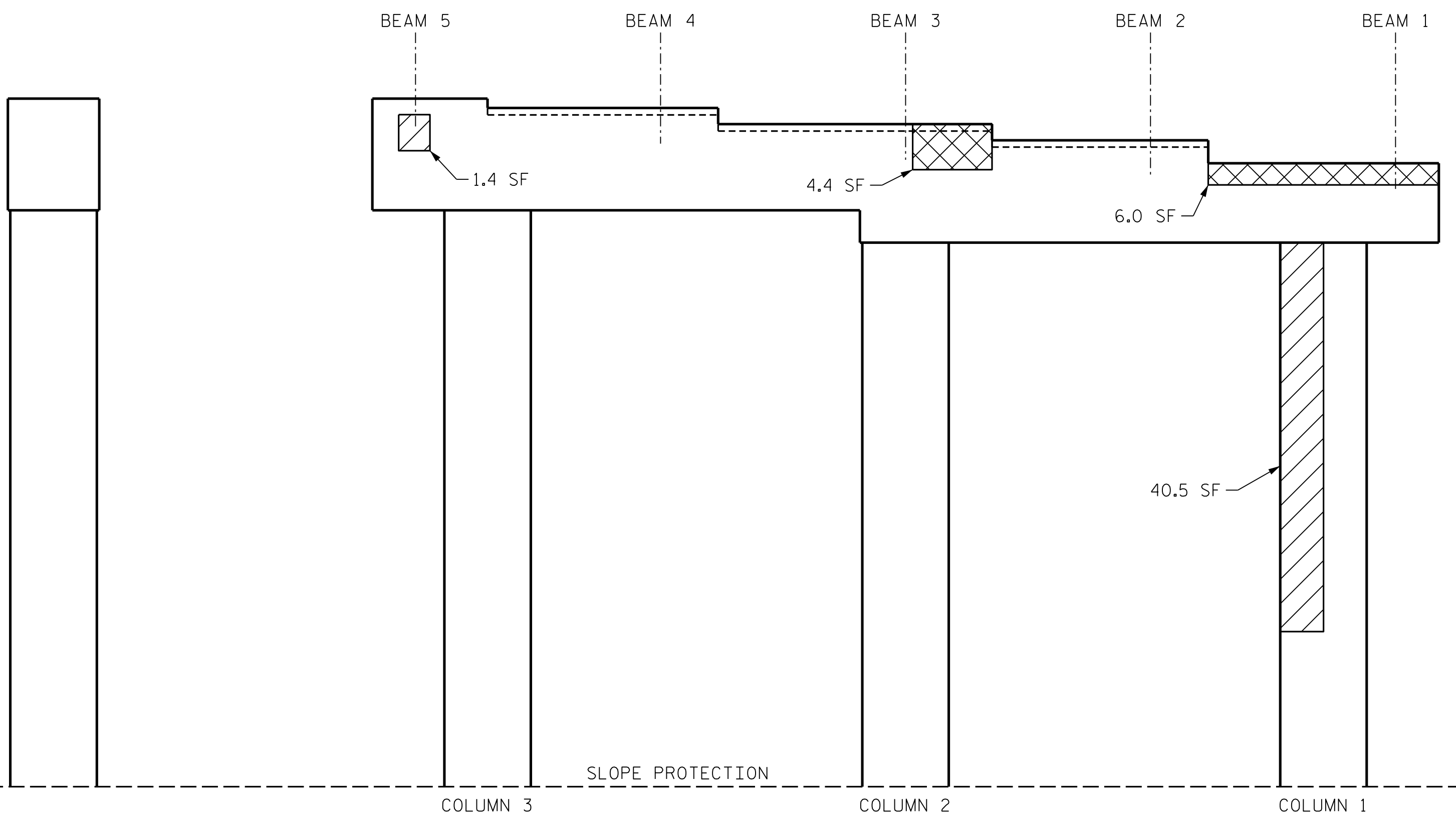
1/12/2023 9:18:58 AM User: blanning  
 Filename: N:\NC Bridges\W21001.39-I-6052.101\Meck Co.Br.Preservation\Structures\405.017-I-6052.SMU.BT2.590338.dgn



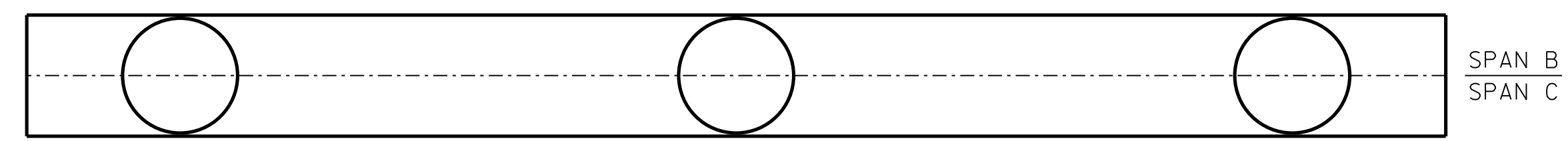
**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN B



**ELEVATION**  
SPAN C



**PLAN**  
BOTTOM OF CAP  
(LOOKING UP)

**NOTES:**

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

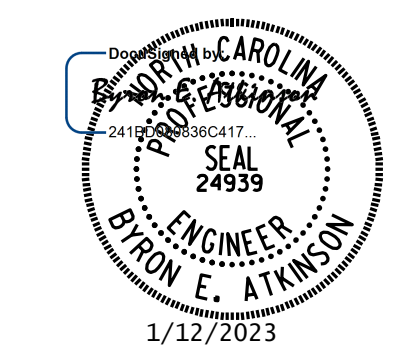
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACES OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

**AS-BUILT REPAIR QUANTITY TABLE**

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.4	0.7		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	50.2	25.1		
<b>CONCRETE REPAIRS</b>	<b>AREA SF</b>	<b>VOLUME CF</b>	<b>AREA SF</b>	<b>VOLUME CF</b>
CAP	10.4	5.2		
<b>EPOXY RESIN INJECTION</b>	LIN. FT.		LIN. FT.	
CAP	2.0			
COLUMN	0.0			
<b>EPOXY COATING</b>	<b>AREA SF</b>			<b>AREA SF</b>
TOP OF CAP	117.2			

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

- KEY**
- SHOTCRETE REPAIR
  - ERI EPOXY RESIN INJECTION
  - CONCRETE REPAIR



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

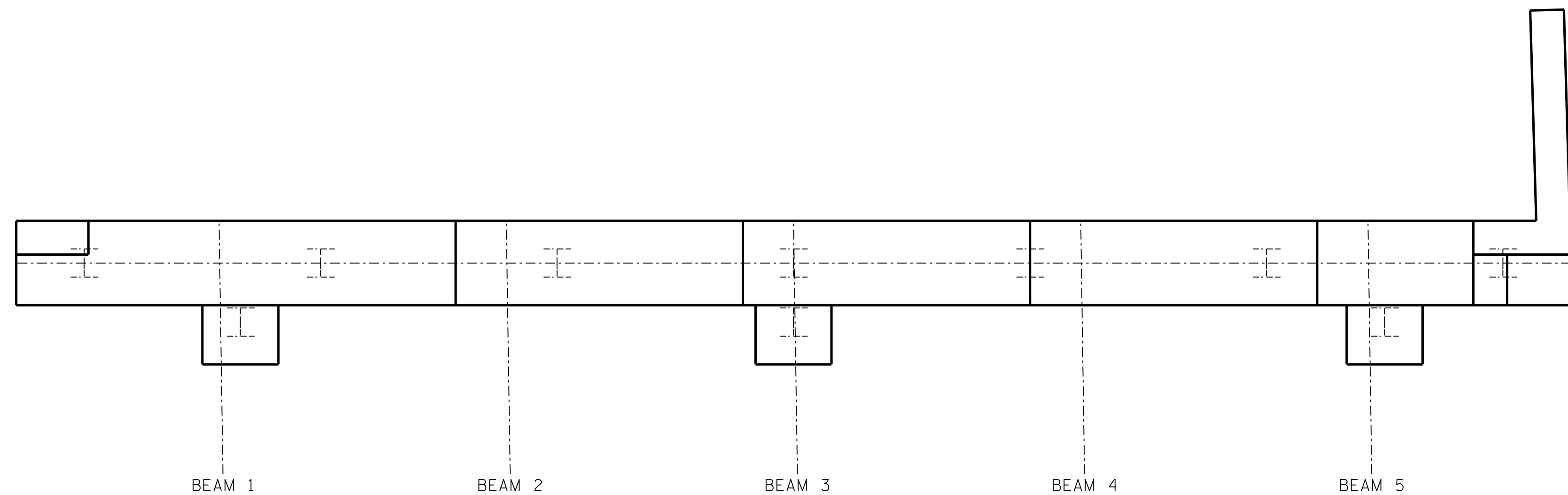
PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590338

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2

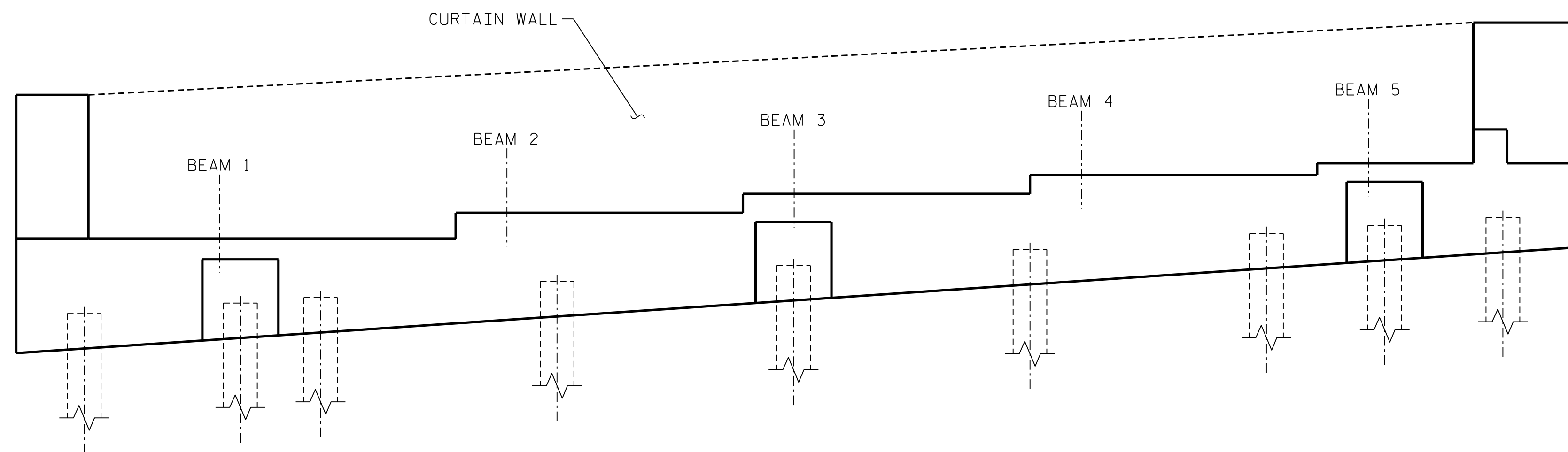
DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S5-9 TOTAL SHEETS 108
2			4			





PLAN  
END BENT 2



ELEVATION  
END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP	69.2			

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

NOTES:

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

FOR REPAIRS, SEE "TYPICAL CAP, COLUMN AND UNDERDECK REPAIR DETAILS" SHEET.

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

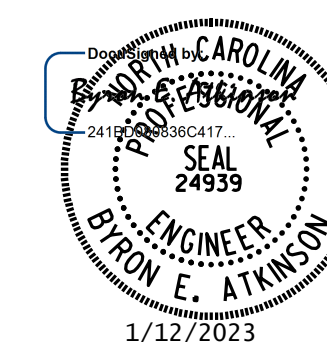
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.


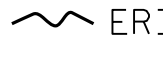

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-6052  
MECKLENBURG COUNTY  
 BRIDGE NO. 590338



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

- KEY
-  SHOTCRETE REPAIR
  -  ERI EPOXY RESIN INJECTION
  -  CONCRETE REPAIR

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER : P-0671

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S5-10 TOTAL SHEETS 108
2			4			

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:18:59 AM User: blanning  
 Filename: N:\NC Bridges\W21001.139-I-6052-101\Meck Co.Br. Preservation\Structures\405-019-I-6052-SMU.EB2.590338.dgn

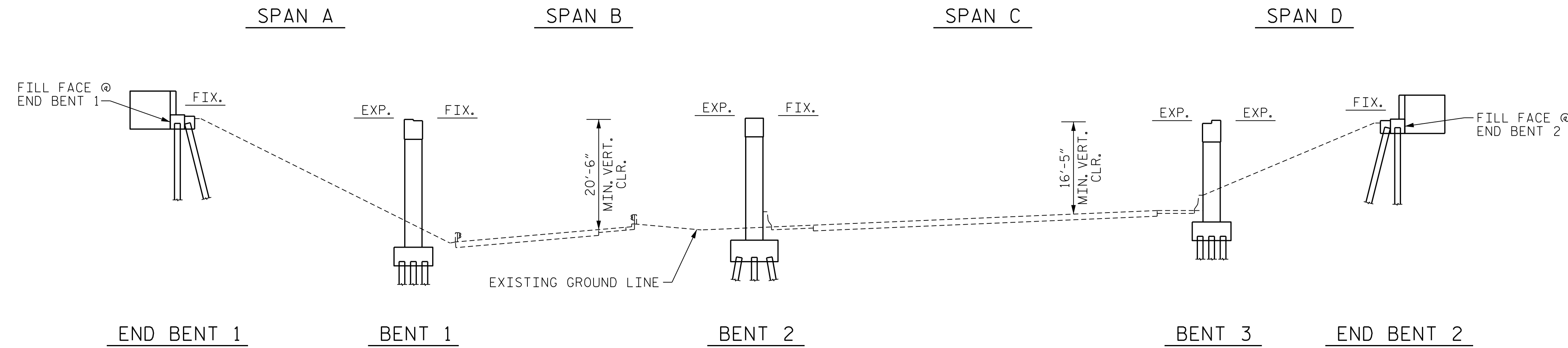
**NOTES:**

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/06/2022.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS AND ROUTINE INSPECTION REPORT.

**SCOPE OF WORK:**

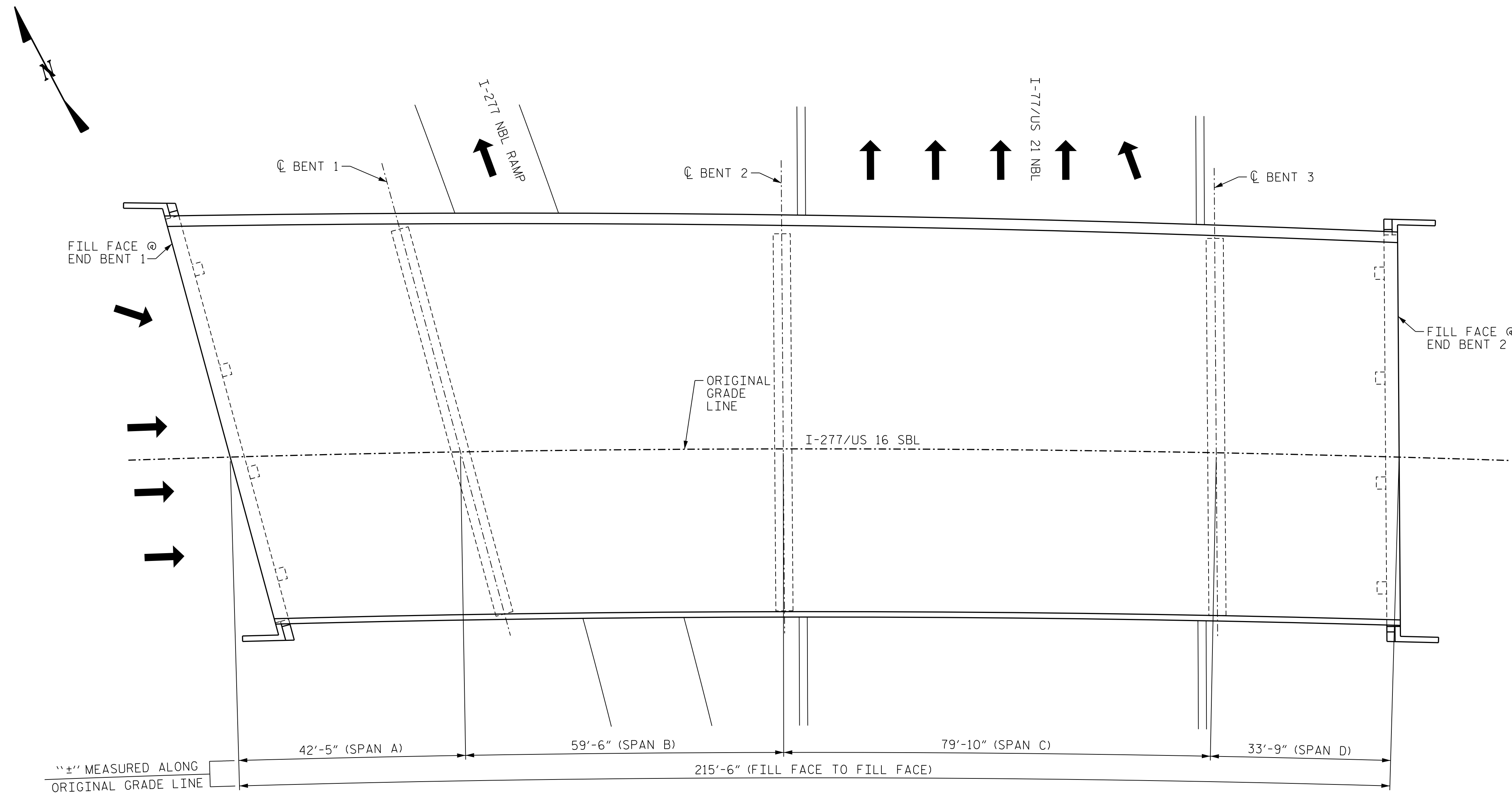
- RECONSTRUCT BRIDGE DECK JOINT AND INSTALL JOINT SEALS.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.
- STRUCTURAL STEEL REPAIRS.
- CLEANING AND PAINTING STEEL BEAMS.
- CLEANING AND PAINTING BEARINGS WITH HRCSA.



SECTION ALONG ORIGINAL GRADE LINE

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

RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_



PLAN

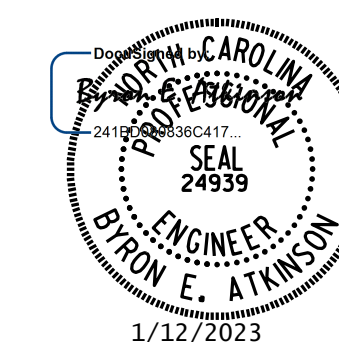
PROJECT NO. I-6052  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590339

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON  
 I-277/NC 16 SBL  
 OVER I-77/US 21 NBL



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**



MI ENGINEERING  
 1011 SCHAUB DRIVE, SUITE 100  
 RALEIGH, NC 27606  
 (919) 851-6606  
 FIRM PE NUMBER: P-0671

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

SHEET NO.  
**S6-1**  
 TOTAL SHEETS  
**108**

DRAWN BY : B.E. LANNING DATE : 10/2022  
 CHECKED BY : B.E. ATKINSON DATE : 10/2022  
 DESIGN ENGINEER OF RECORD : B.E. ATKINSON DATE : 10/2022

1/12/2023 9:19:00 AM User: blanning  
 Filename: N:\NC Bridges\21001.39-I-6052-101 Meck Co.Br. Preservation\Structures\406\_001-I-6052.SMU.GDI.590339.dgn