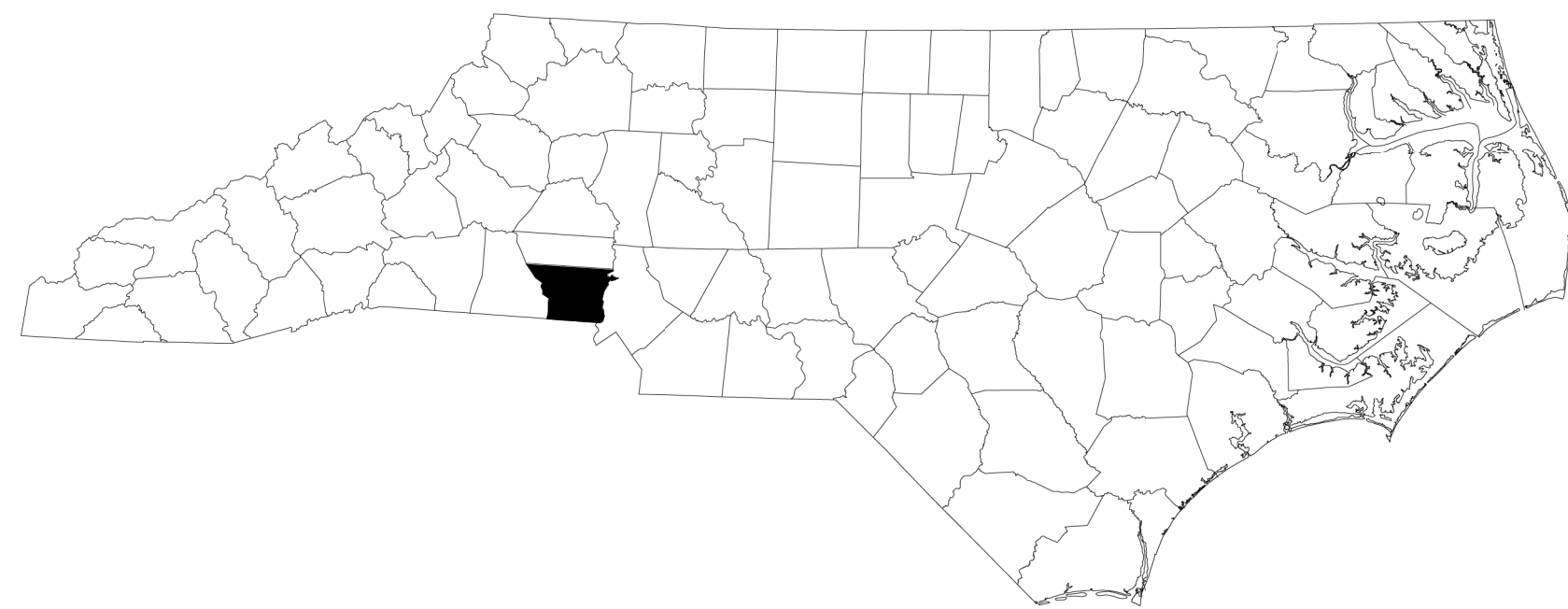


CONTRACT: C204234 PROJECT: 15BPR.30

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

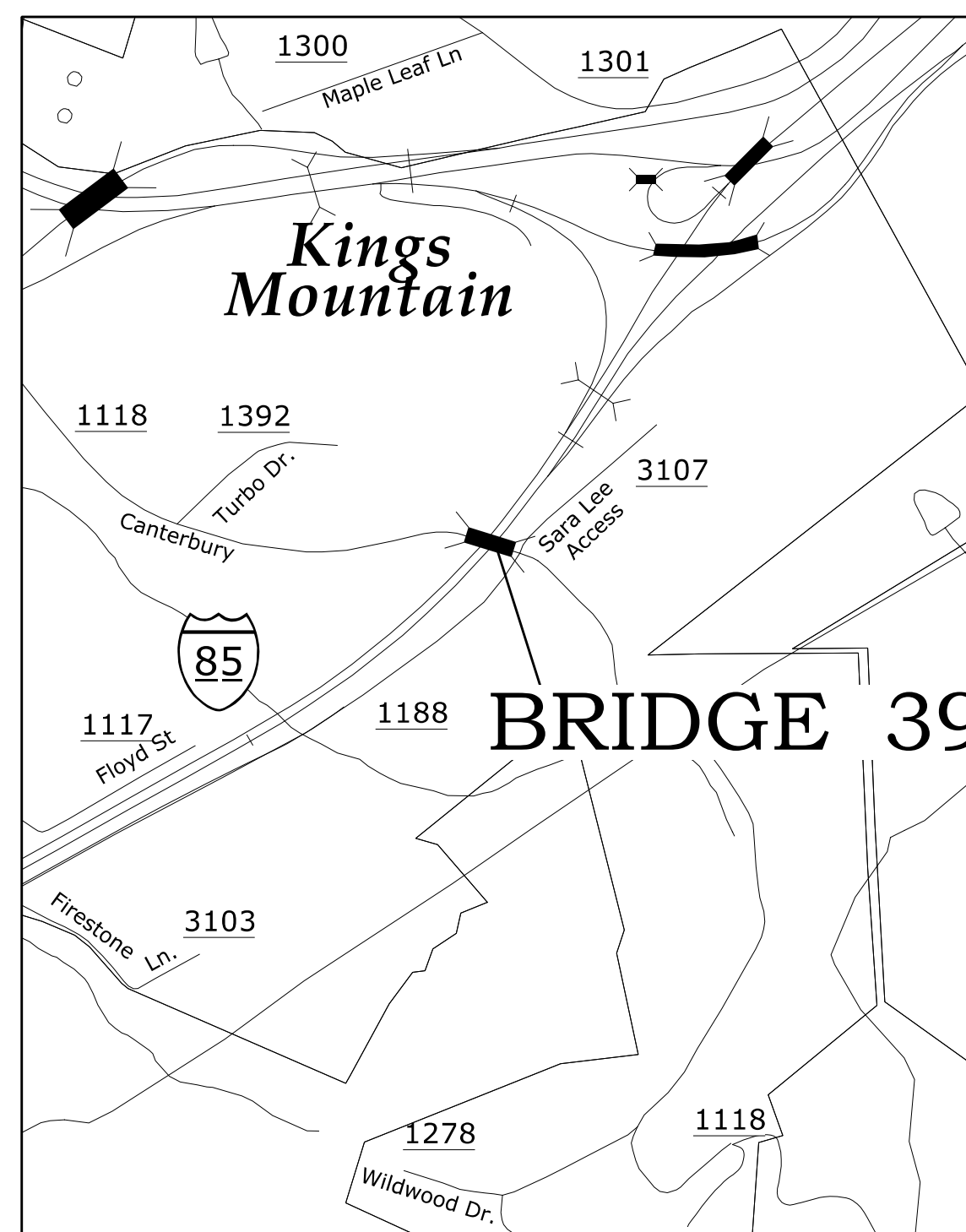
GASTON COUNTY



LOCATION: BRIDGE 39 ON SR 1118 (CANTERBURY ROAD) OVER I-85

TYPE OF WORK: BRIDGE PRESERVATION - DECK OVERLAY WITH LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, DECK REPAIR, CLEANING AND PAINTING EXISTING BEARINGS, PRESTRESSED GIRDER REPAIR, AND SUBSTRUCTURE REPAIR

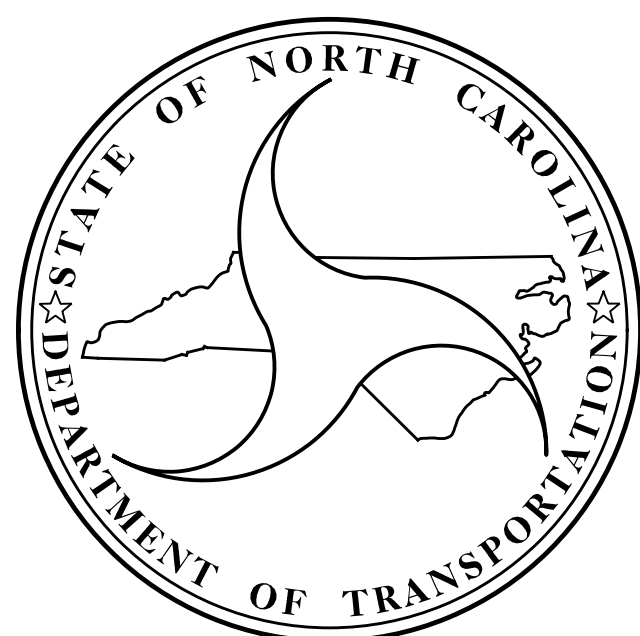
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.30	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.30		P.E.	
15BPR.30		CONST.	



VICINITY MAP - GASTON CO.



STRUCTURES



DESIGN DATA

GASTON COUNTY
#39 ADT 2012 = 2,300

PROJECT LENGTH

GASTON COUNTY
#39 = 0.044 MILE



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1130 SITUS COURT, SUITE 200, RALEIGH, NC 27606

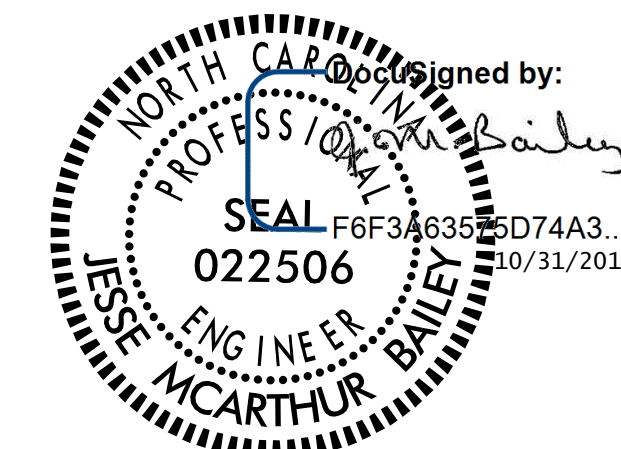
2018 STANDARD SPECIFICATIONS

LETTING DATE:
DECEMBER 18, 2018

JESSE M. BAILEY, P.E.
PROJECT ENGINEER

STEPHEN T. CHAMPION, P.E.
PROJECT DESIGN ENGINEER

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SIGNATURES COMPLETED

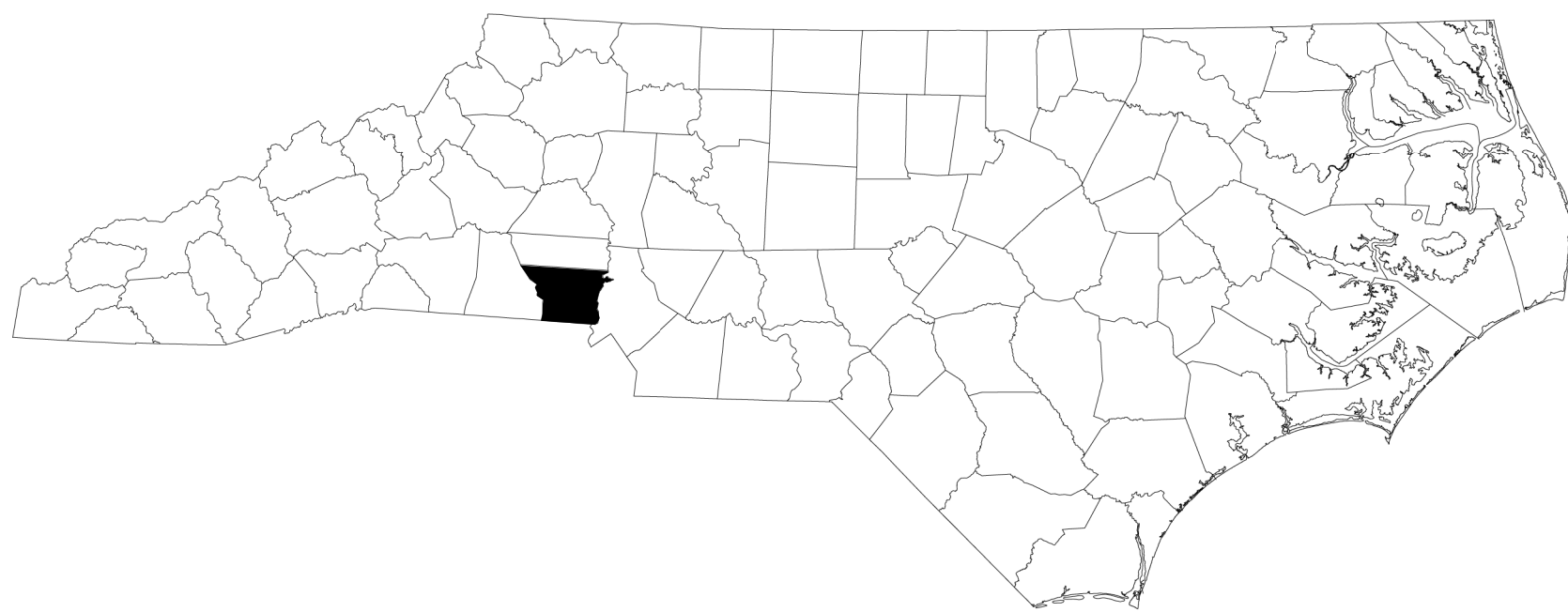


CONTRACT: C204234 PROJECT: 15BPR.30

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

GASTON COUNTY



LOCATION: BRIDGE 39 ON SR 1118 (CANTERBURY ROAD) OVER I-85

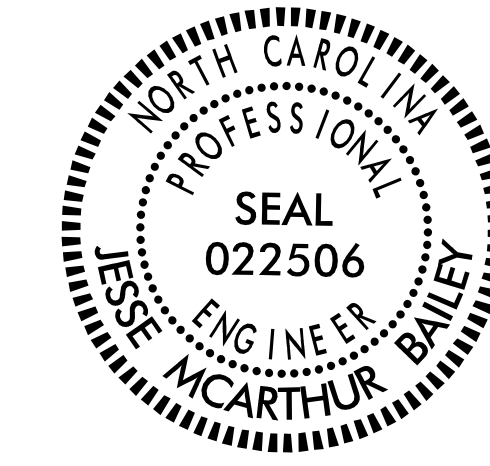
TYPE OF WORK: BRIDGE PRESERVATION - DECK OVERLAY WITH LATEX MODIFIED CONCRETE-
VERY EARLY STRENGTH, DECK REPAIR, CLEANING AND
PAINTING EXISTING BEARINGS, PRESTRESSED GIRDER REPAIR,
AND SUBSTRUCTURE REPAIR

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.30	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.30		P.E.	
15BPR.30		CONST.	

INDEX OF SHEETS

<i>I</i>	<i>TITLE SHEET</i>
<i>1A</i>	<i>INDEX OF SHEETS</i>
<i>S-1</i>	<i>TOTAL BILL OF MATERIAL</i>
<i>S-2 THRU S-18</i>	<i>STRUCTURAL PLANS - BRIDGE 39</i>
<i>SN</i>	<i>STANDARD NOTES</i>
<i>TMP-1 THRU TMP-3</i>	<i>TRAFFIC MANAGEMENT PLANS</i>

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J.M. Bailey
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11/5/2018



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TOTAL BILL OF MATERIAL

BRIDGE	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION (1)	LATEX MODIFIED CONC OVERLAY - VERY EARLY STRENGTH	PLACING & FINISHING OF LATEX MODIFIED CONC OVERLAY - VERY EARLY STRENGTH	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	PAINTING CONTAINMENT FOR BRIDGE NO. --
	SQ. FT.	LUMP SUM	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM
39	4807	LUMP SUM	8.0	2.0	21.3	614.4	7.64	158.50	21.36	LUMP SUM
TOTAL	4807	LUMP SUM	8.0	2.0	21.3	614.4	7.64	158.50	21.36	LUMP SUM

BRIDGE	VOLUMETRIC MIXER	CLEANING & PAINTING EXISTING BEARINGS WITH HRSCA BRIDGE NO. --	TYPE 1 BRIDGE JACKING FOR BRIDGE NO. --	FOAM JOINT SEALS FOR PRESERVATION	BRIDGE JOINT DEMOLITION	EPOXY COATING	HYDRO- DEMOLITION OF BRIDGE DECK	SCARIFYING BRIDGE DECK	CONCRETE FOR DECK REPAIR	ELASTOMERIC CONCRETE FOR PRESERVATION
	LUMP SUM	EA	EA	LIN. FT.	SQ. FT.	SQ. FT.	SQ. YDS.	SQ. YDS.	CU. FT.	CU. FT.
39	LUMP SUM	32	7	80.4	80.4	450.4	624	624	208.3	20.1
TOTAL	LUMP SUM	32	7	80.4	80.4	450.4	624	624	208.3	20.1

(1) CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

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DRAWN BY : P. MATTHEWS DATE : 07/24/18
 CHECKED BY : G. SANSONI DATE : 08/16/18

DocuSigned by:
J. M. Bailey
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 10/31/2018



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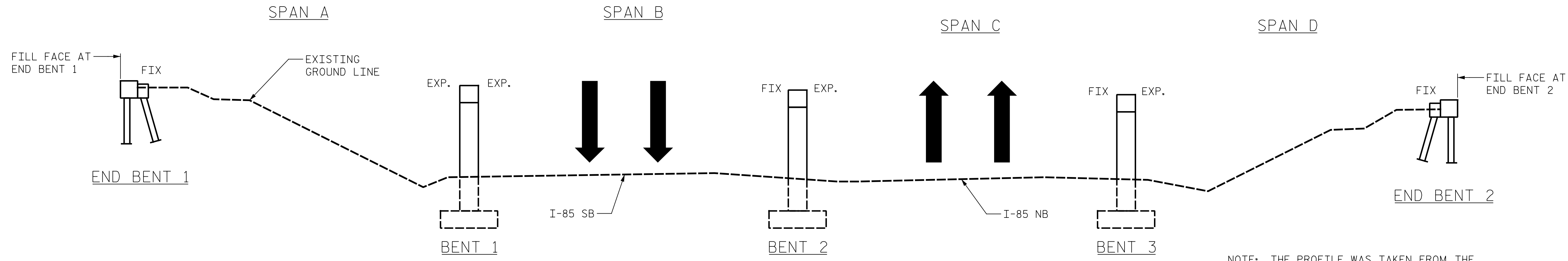
PROJECT NO. 15BPR.30
GASTON COUNTY
 BR. NO. 39

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



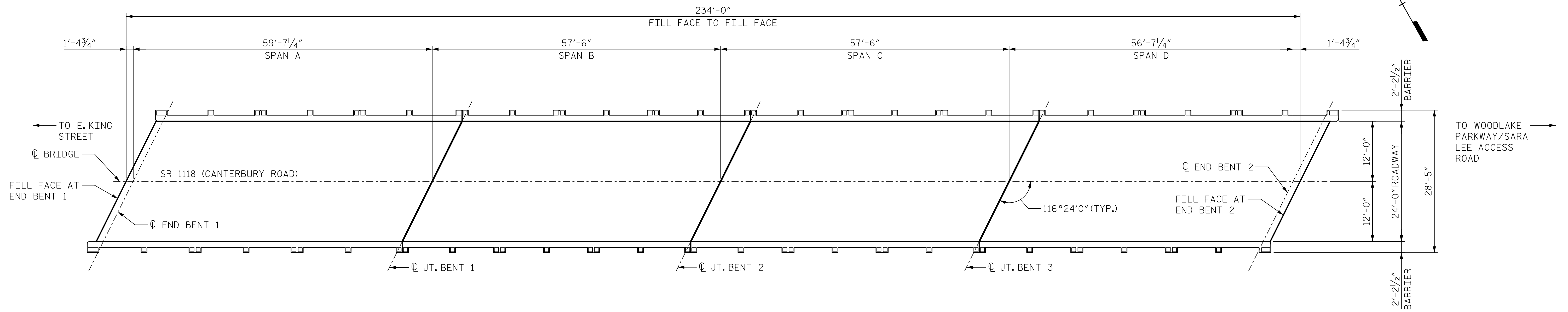
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			21



SECTION ALONG C ROADWAY

NOTE: THE PROFILE WAS TAKEN FROM THE ORIGINAL PLANS AUGUST, 1958. BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.



PLAN

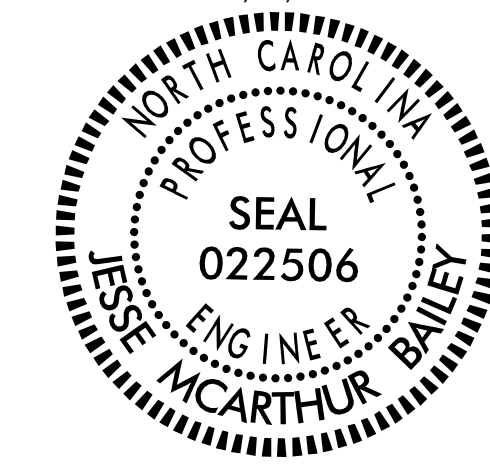
I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN

RESIDENT ENGINEER
DATE: _____

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 JOINTS AND INSTALL JOINT SEALS.
- GROOVE LMC-VES BRIDGE DECK.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING BEAM AREAS FOR SHOTCRETE REPAIRS.
- EPOXY INJECTION OF CONCRETE GIRDER CRACKS.
- CLEAN AND PAINT BEARINGS WITH HRSCA.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.
- PROPERLY PREPARE SPALLED AND DELAMINATED AREAS AND PERFORM SHOTCRETE AND CONCRETE REPAIRS.
- EPOXY INJECTION OF SUBSTRUCTURE CRACKS.
- REMOVE DEBRIS AND APPLY EPOXY COATING TO THE TOP OF SUBSTRUCTURE CAPS.

DocuSigned by:
Jon Bailey
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10/31/2018



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PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

SHEET 1 OF 2
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING OF
BRIDGE 39
ON SR 1118 OVER I-85

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

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DRAWN BY : P. MATTHEWS DATE : 07/24/18
CHECKED BY : G. SANSONI DATE : 08/16/18



LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. THE 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	
LAT.	35° 14' 13.85"
LONG.	81° 18' 43.00"

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 LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH (LMC-VES), SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK DURING HYDRO-DEMOLITION OPERATIONS.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, AND CLASS II & CLASS III SURFACE PREPARATION, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS OR DEMOLITION.
- FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING OF EXISTING BEARINGS WITH HRSCA, SEE SPECIAL PROVISIONS.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC MANAGEMENT PLANS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR TYPE 1 BRIDGE JACKING, SEE SPECIAL PROVISIONS.

DocuSigned by:
Jesse M. Bailey
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 10/31/2018



PROJECT NO. 15BPR.30
GASTON COUNTY
 BR. NO. 39

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING OF
 BRIDGE 39
 ON SR 1118 OVER I-85

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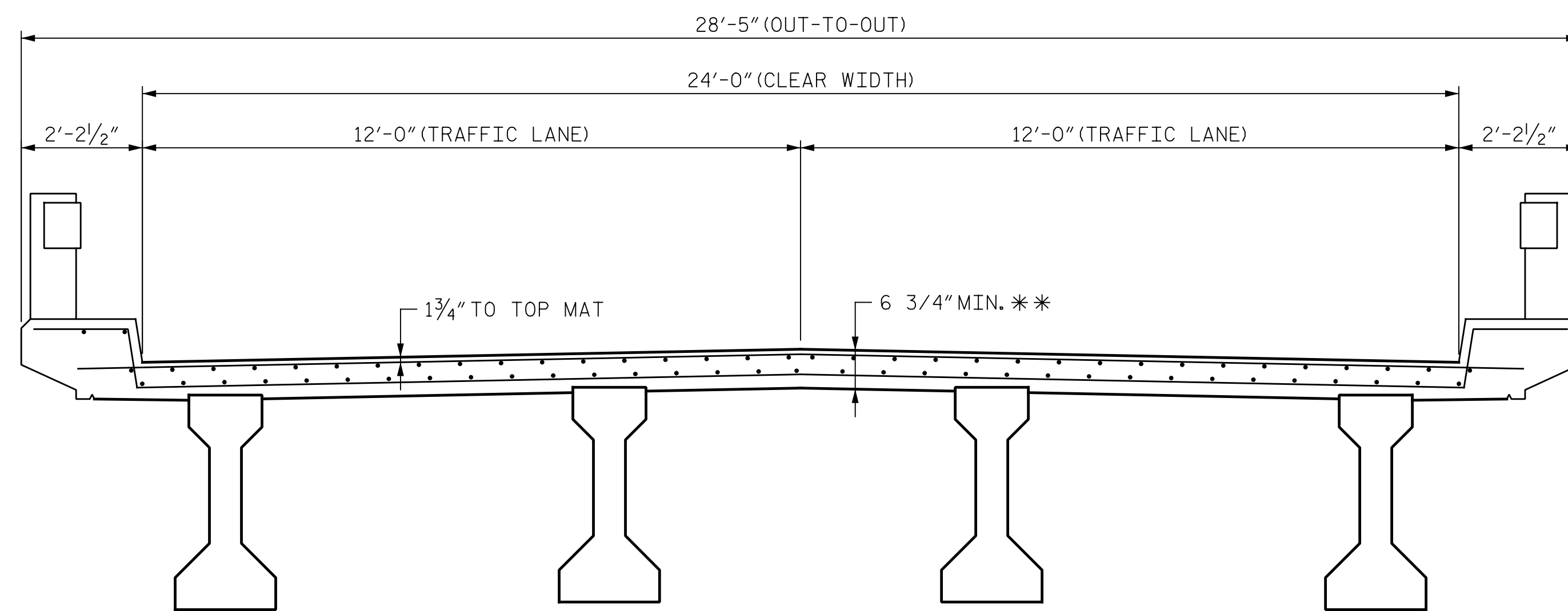
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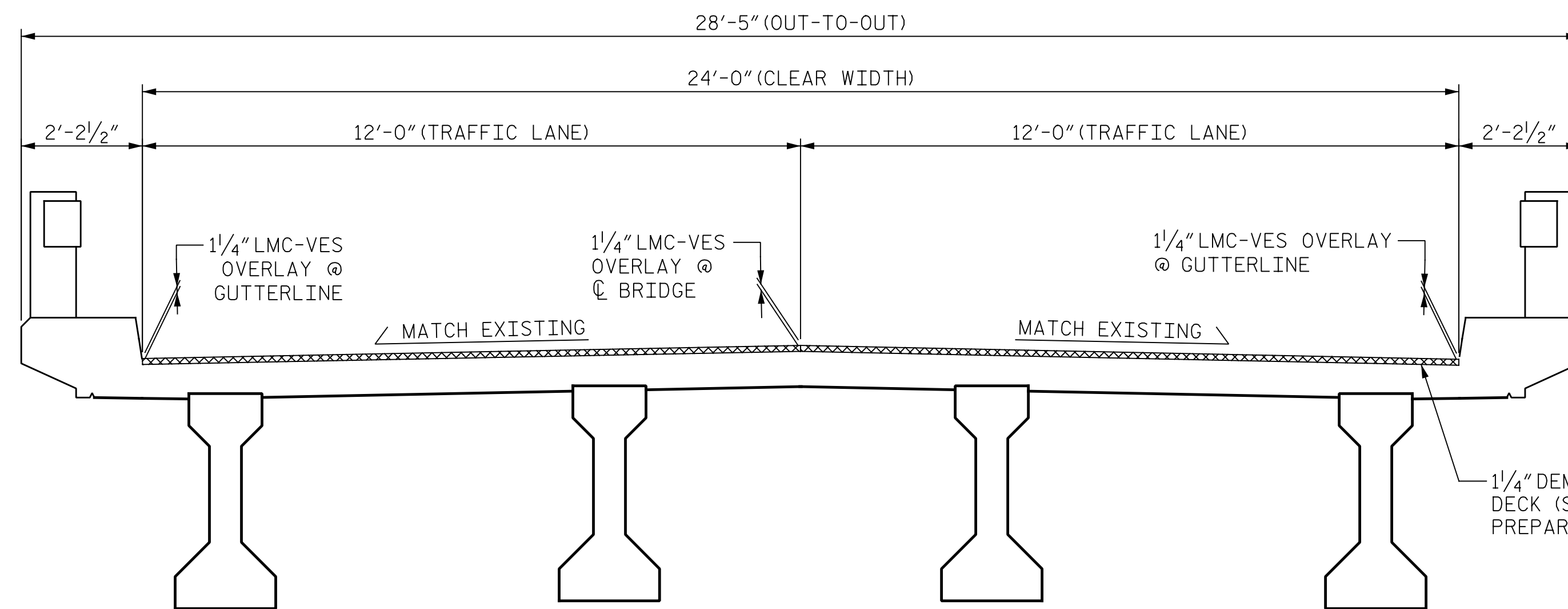
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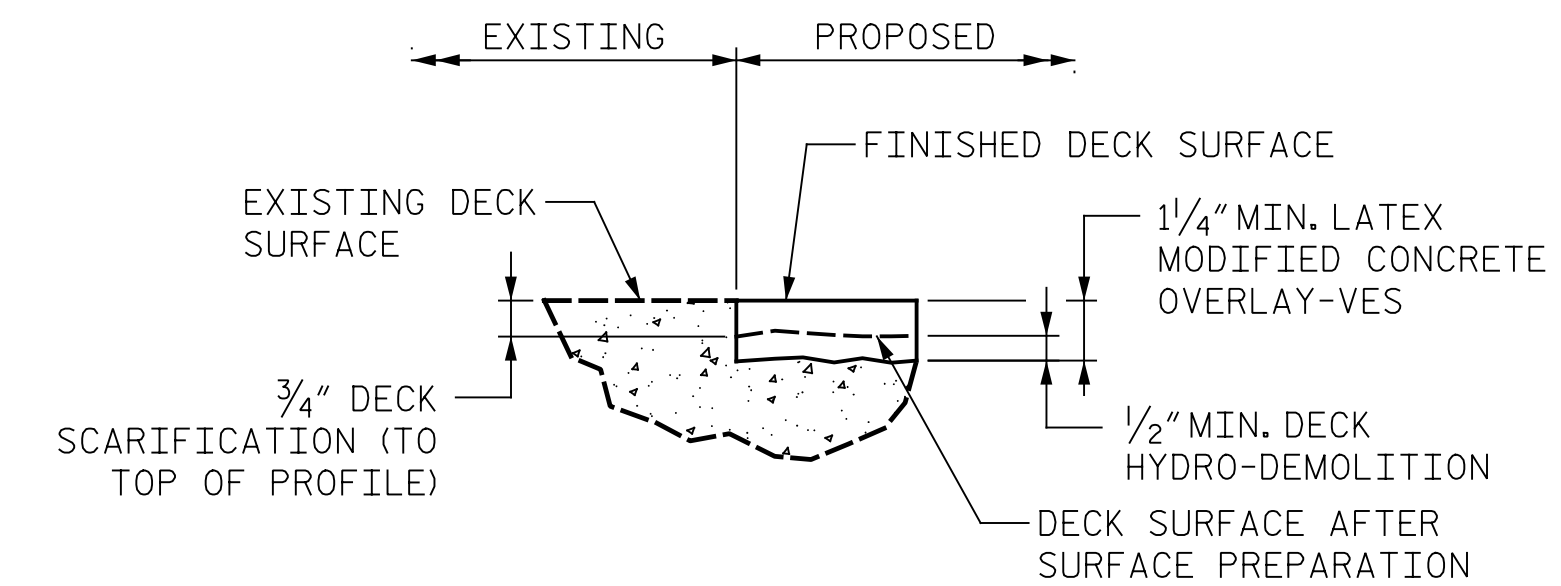


EXISTING TYPICAL SECTION

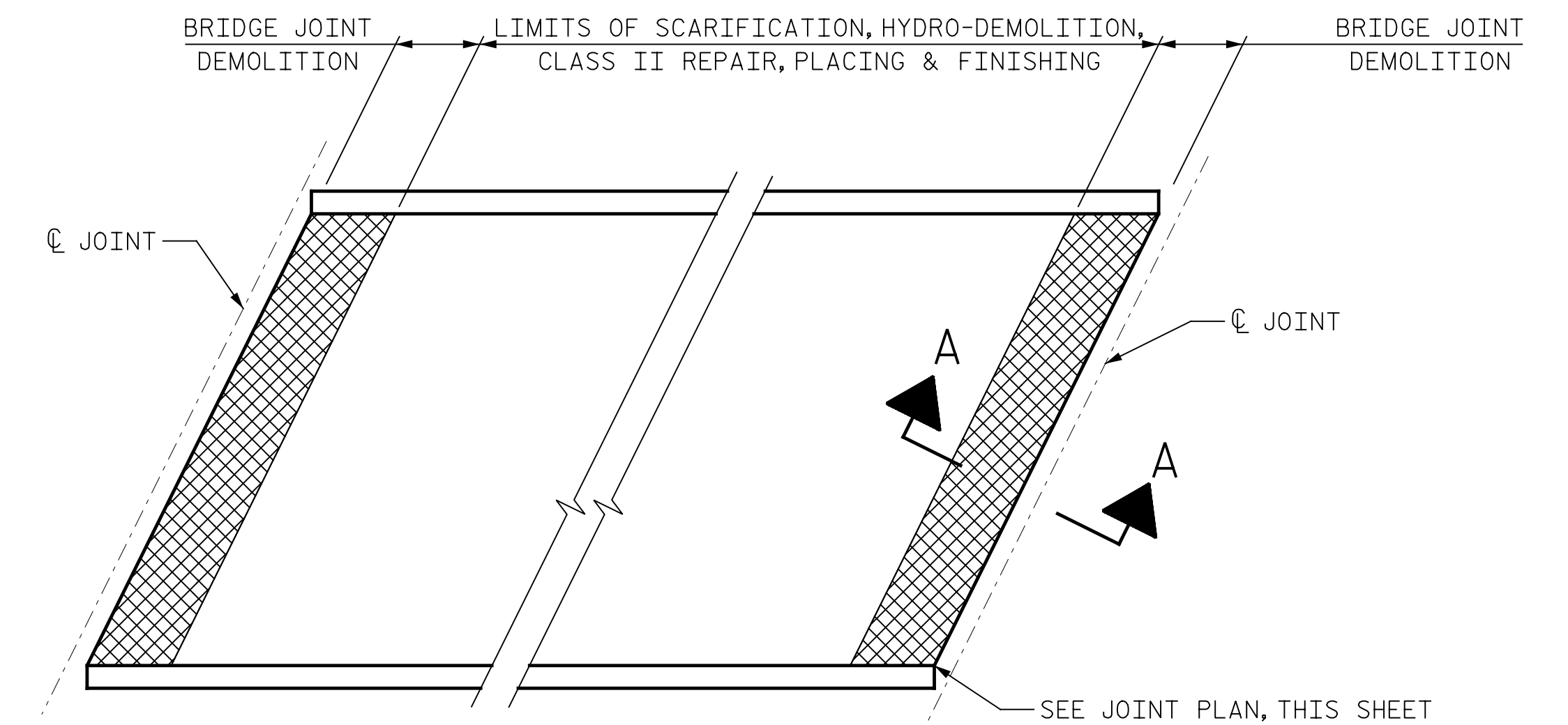
** CONTRACTOR SHALL VERIFY UNIFORM DECK THICKNESS



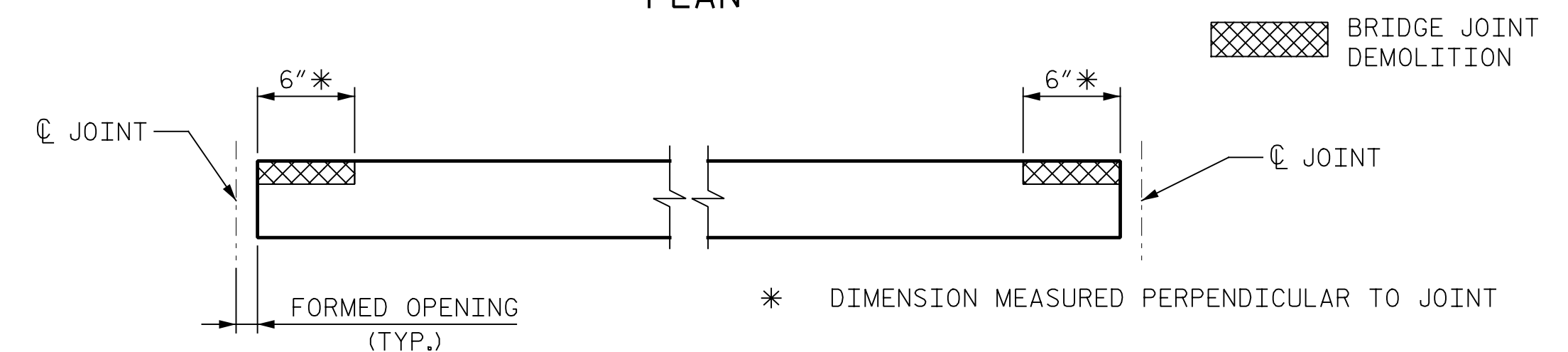
PROPOSED TYPICAL SECTION



DETAIL FOR LMC-VES OVERLAY



PLAN

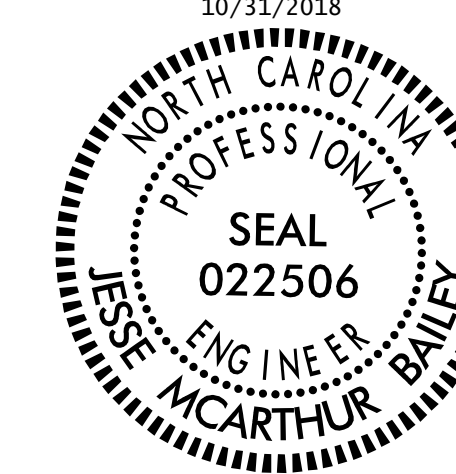


ELEVATION

PAY LIMITS FOR OVERLAY BID ITEMS

FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

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PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION AND JOINT DETAILS

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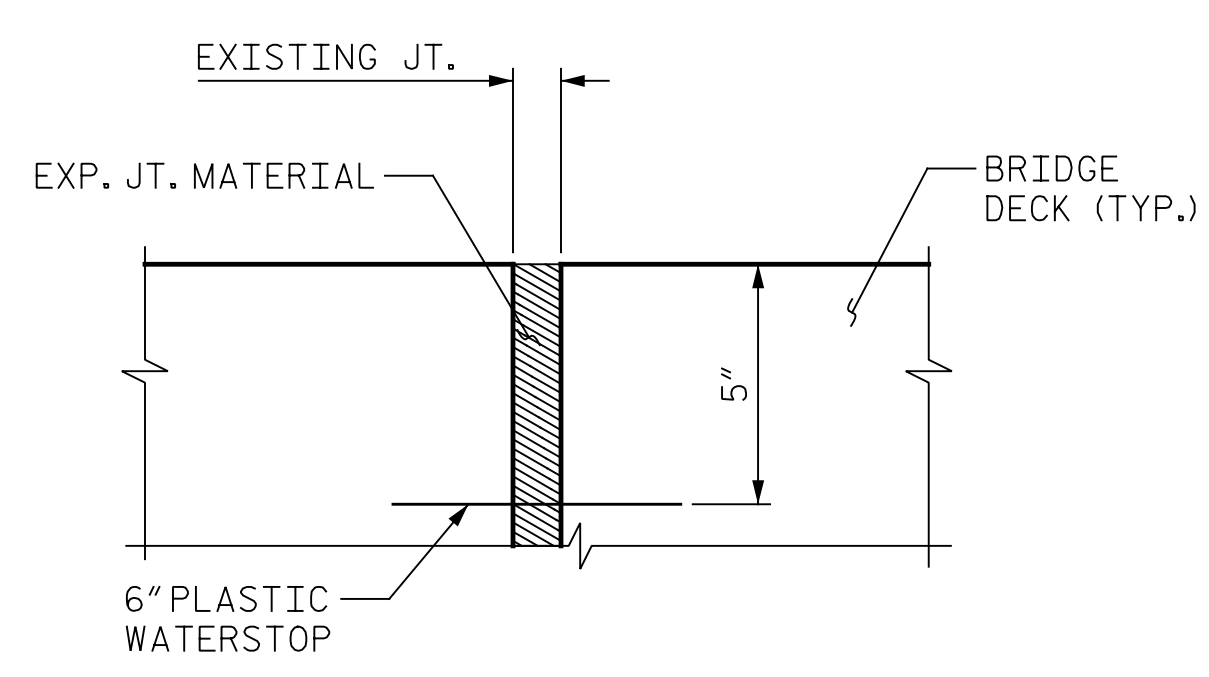


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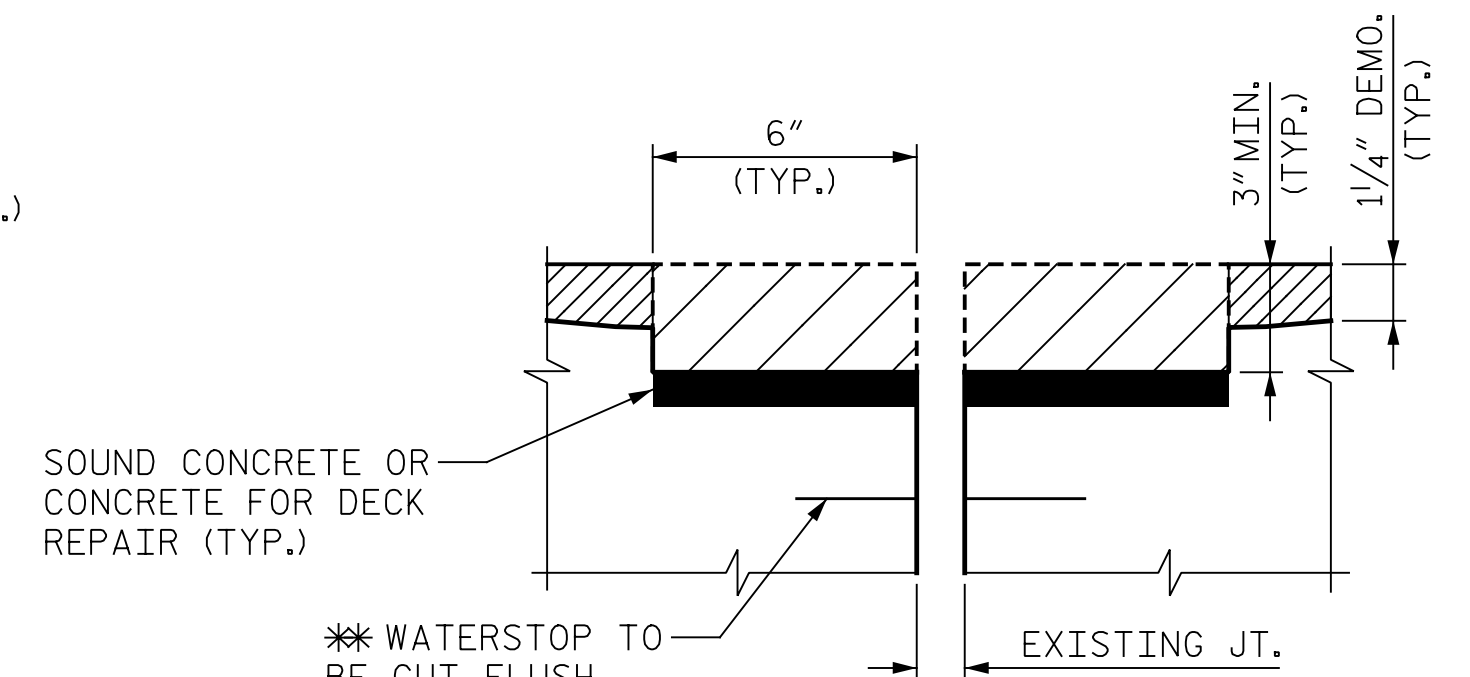
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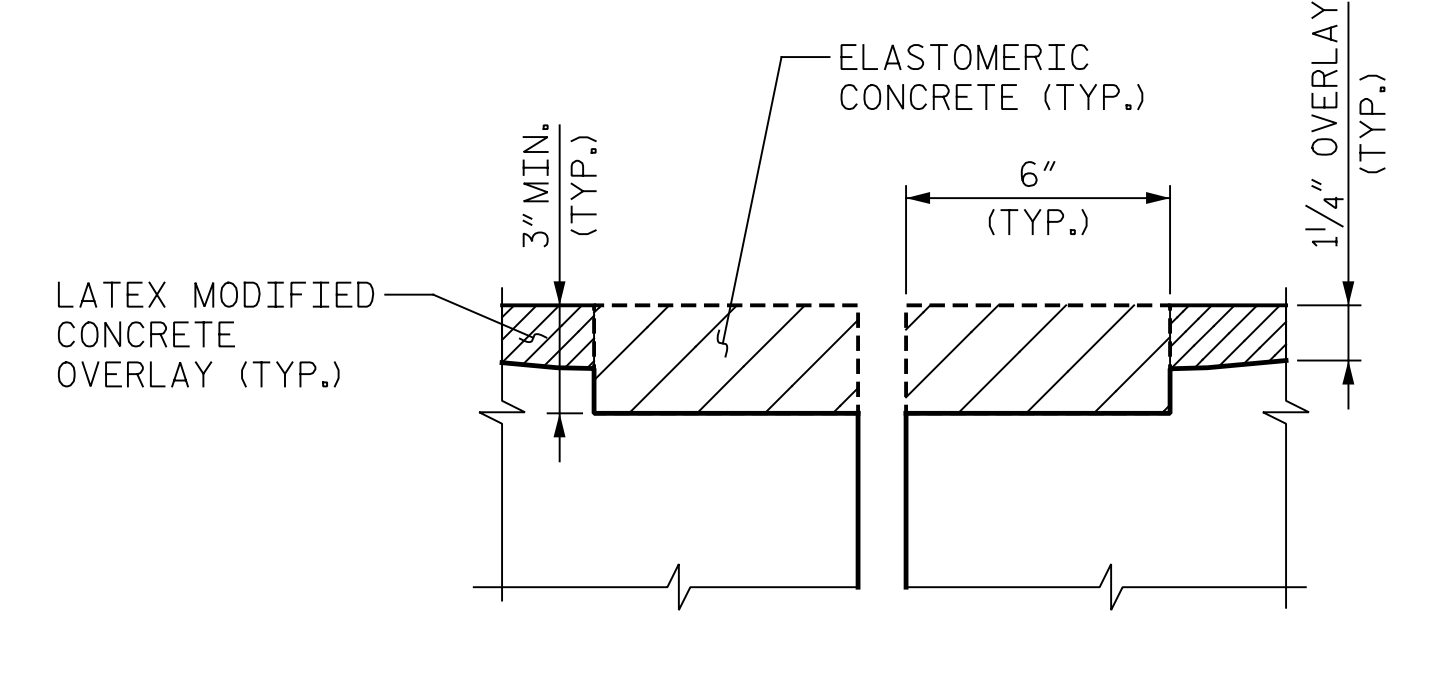
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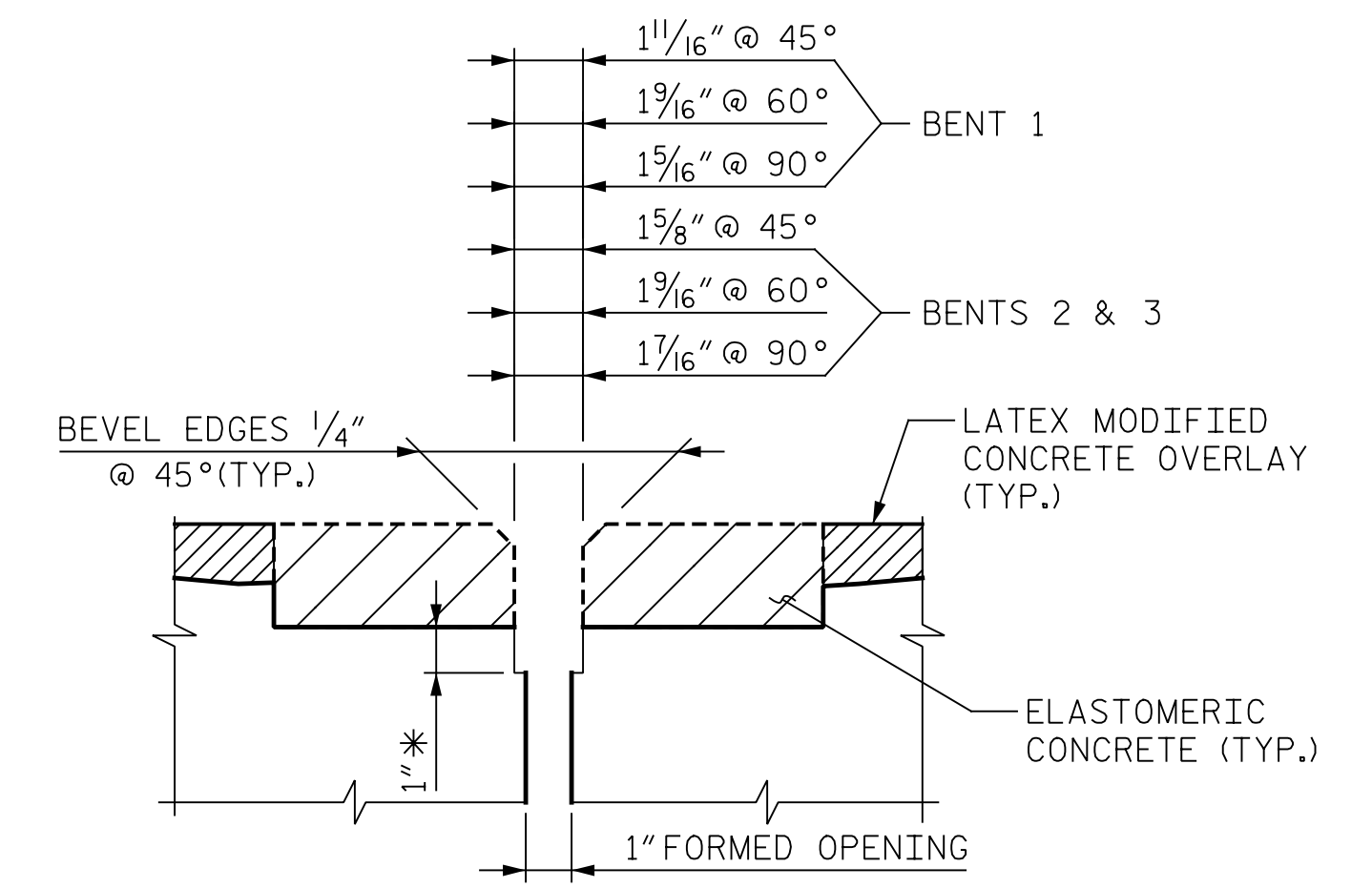
SECTION A-A
(EXISTING JOINT)



SECTION A-A
(MINIMUM EXISTING JOINT DEMOLITION)



SECTION A-A
(PROPOSED FOAM JOINT SEAL PRE-SAWED DIMENSIONS)



SECTION A-A
(PROPOSED FOAM JOINT SEAL DIMENSIONS)

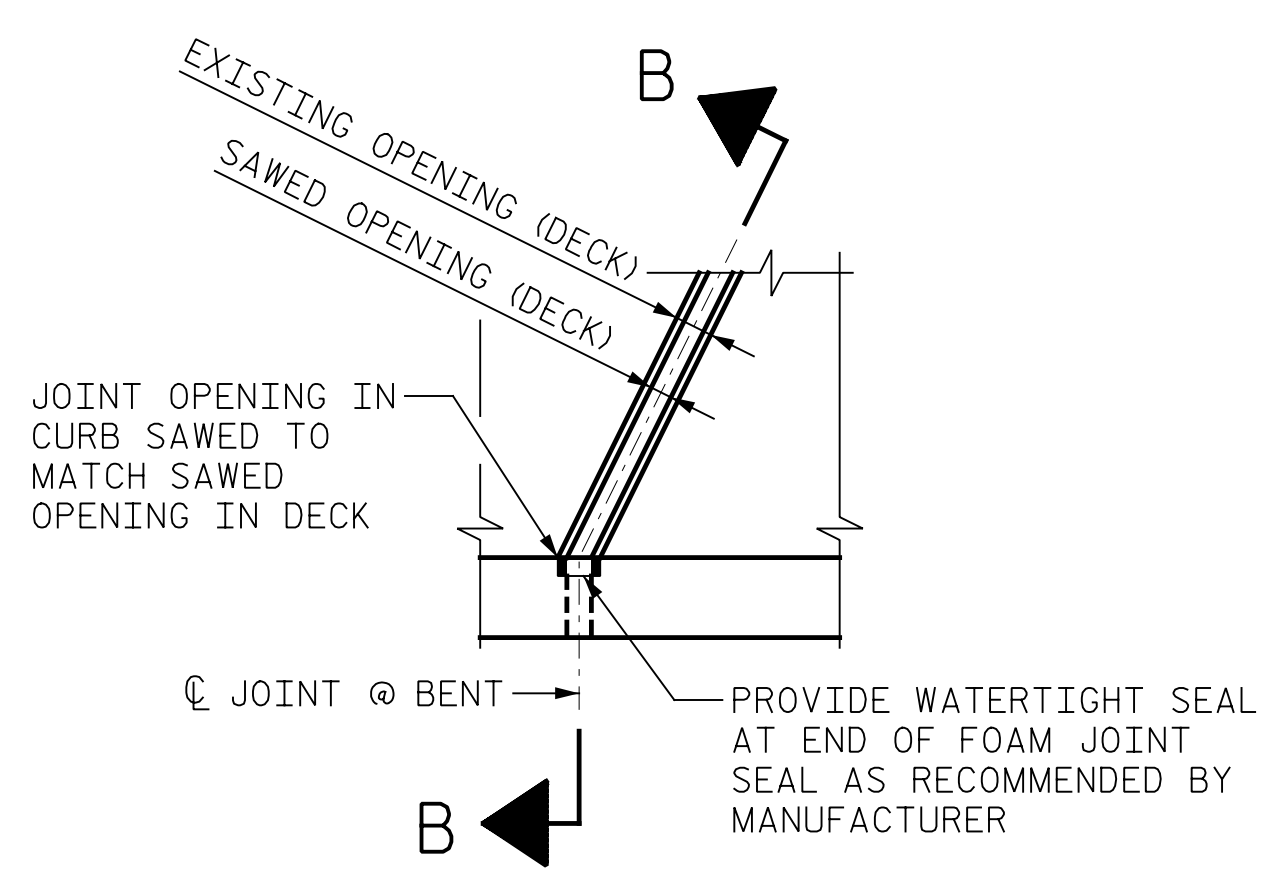
** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL, THE ENTIRE WATERSTOP SHALL BE REMOVED.

ELASTOMERIC CONCRETE FOR PRESERVATION	
BENT 1	6.7 CU. FT.
BENT 2	6.7 CU. FT.
BENT 3	6.7 CU. FT.
* TOTAL	20.1 CU. FT.

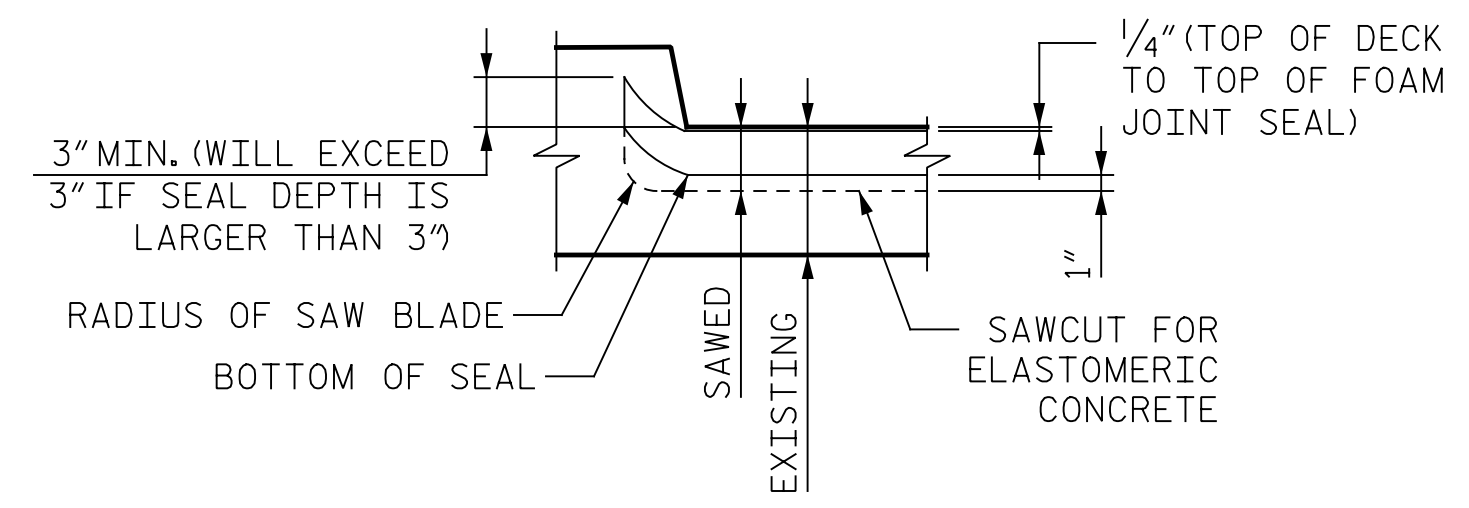
* BASED ON THE MINIMUM BLOCKOUT SHOWN QUANTITIES ARE SHOWN IN THE ELASTOMERIC CONCRETE TABLE FOR INFORMATIONAL PURPOSES ONLY.

DEMOLISH BRIDGE JOINT TO THE NECESSARY DEPTH SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR CONCRETE FOR DECK REPAIR, NOT LATEX MODIFIED CONCRETE. EXCAVATION OF CONCRETE AT EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OR REPAIR CONCRETE OR ELASTOMERIC CONCRETE.

- NOTES:**
- FOR FOAM JOINT SEAL FOR PRESERVATION, SEE SPECIAL PROVISIONS.
 - THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.
 - THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL BASED ON JOINT OPENINGS.
 - THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.
 - 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 DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION TO THE JOINT SEAL SIZE MIGHT BE NECESSARY.



JOINT PLAN



SECTION B-B

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G.M. Bailey
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10/31/2018



PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
JOINT DETAILS

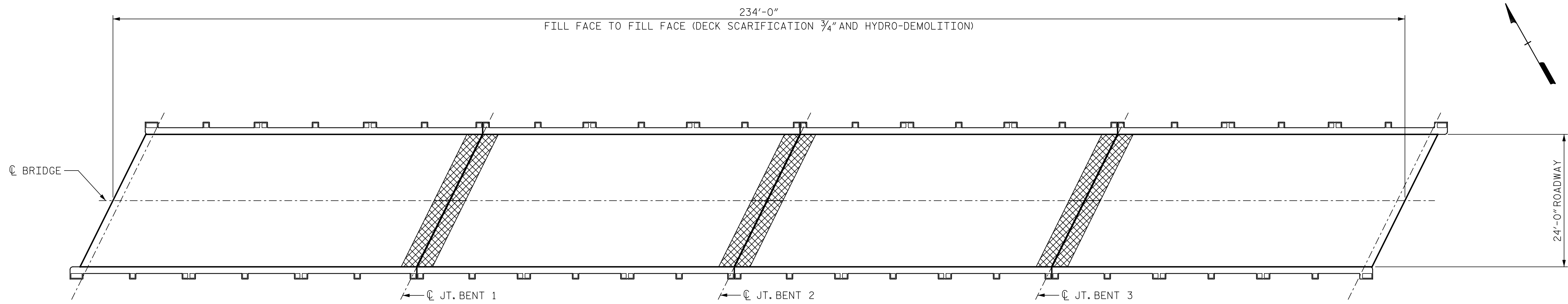
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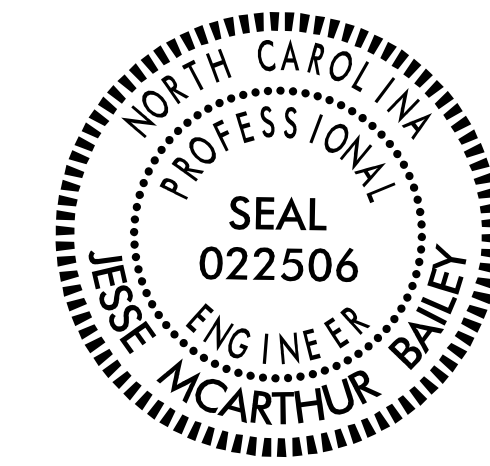
PLAN

 BRIDGE JOINT DEMOLITION

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PROJECT NO. 15BPR.30
GASTON COUNTY
 BR. NO. 39

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SURFACE PREPARATION PLAN

JMT
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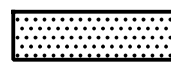
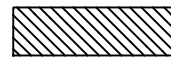



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SUMMARY OF QUANTITIES SPAN A

TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	163.0 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	163.0 SY			
CLASS II SURFACE PREPARATION	2.2 SY			
CLASS III SURFACE PREPARATION	0.5 SY			
BRIDGE JOINT DEMOLITION	12.3 SF			
EPOXY RESIN INJECTION	0.0 LF			
CONCRETE FOR DECK REPAIR	57.0 CF			
SHOTCRETE REPAIRS - RAIL	0.04 CF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE	ACTUAL		
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.79	0.20		
OVERHANG OF DIAPHRAGMS	0.42	0.14		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	1.40	0.45		
	ESTIMATE	ACTUAL		
EPOXY RESIN INJECTION	0.0 LF			

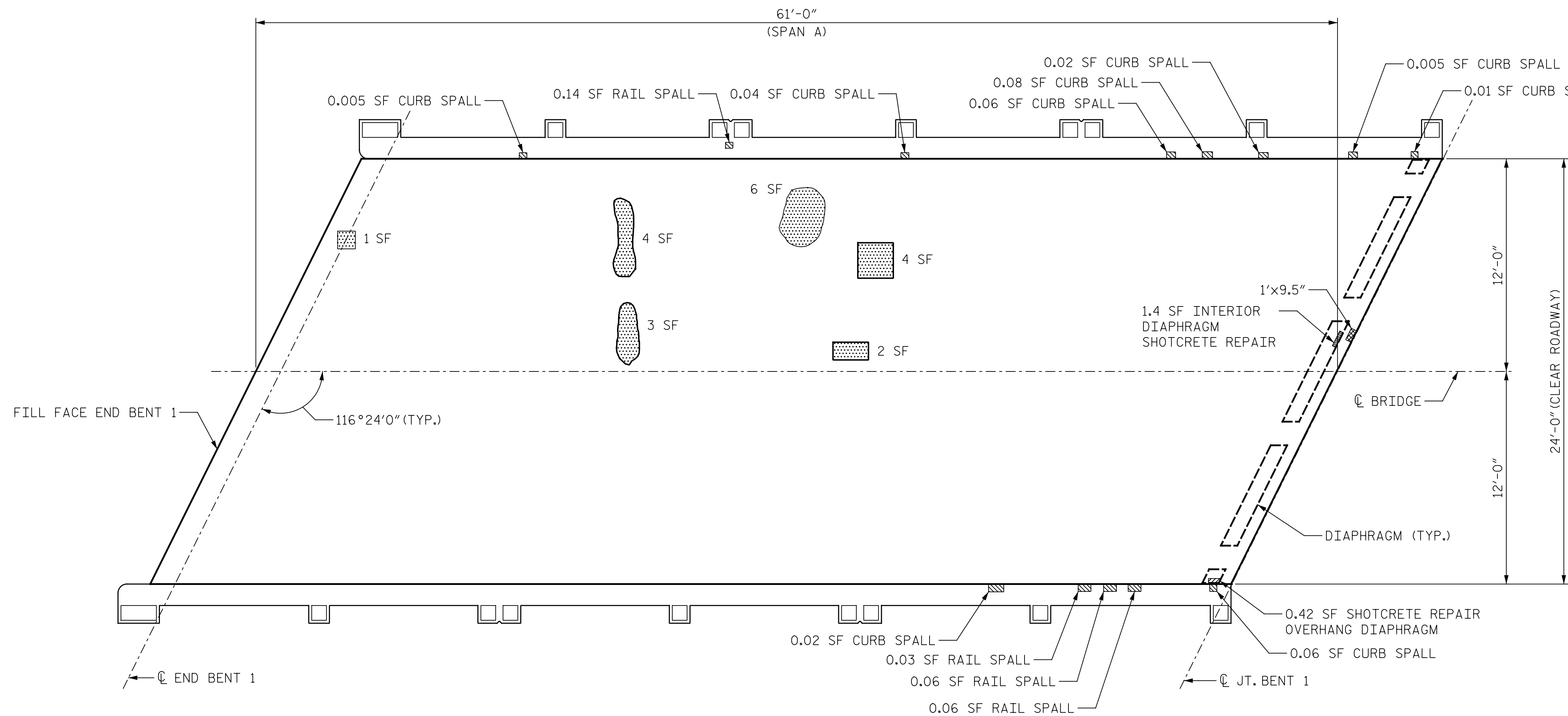
VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

-  APPROXIMATE CLASS II SURFACE PREPARATION (ASPHALT PATCHES)
-  RAIL REPAIR
-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION REPAIR

NOTES:

FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.



PLAN

DocuSigned by:
Jan. Bailey
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 10/31/2018

PROJECT NO. 15BPR.30
GASTON COUNTY
 BR. NO. 39



SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS
 SPAN A

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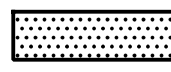
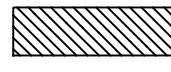



DRAWN BY : P. MATTHEWS DATE : 07/24/18
 CHECKED BY : G. SANSONI DATE : 08/16/18

SUMMARY OF QUANTITIES SPAN B

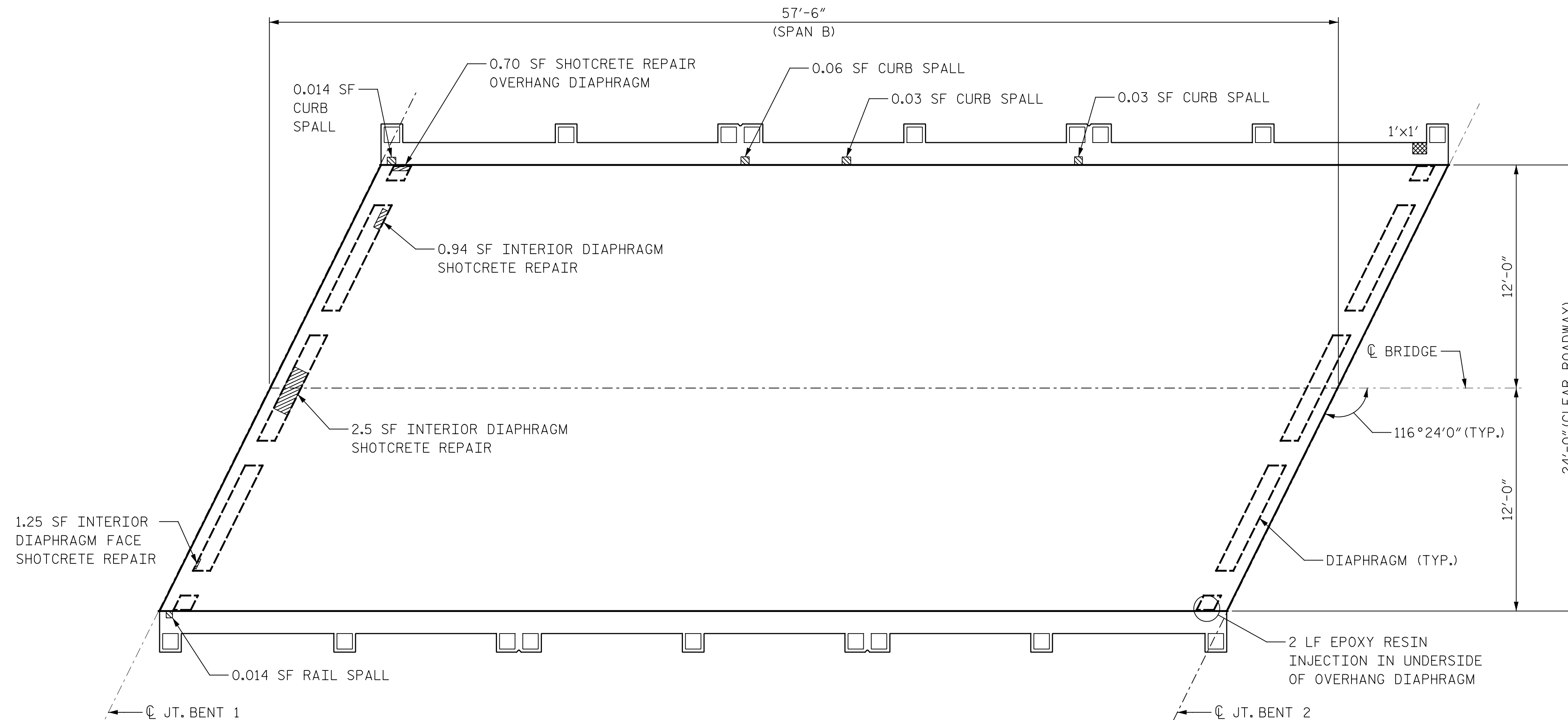
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	153.0 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	153.0 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CLASS III SURFACE PREPARATION	0.5 SY			
BRIDGE JOINT DEMOLITION	24.6 SF			
EPOXY RESIN INJECTION	0.0 LF			
CONCRETE FOR DECK REPAIR	7.0 CF			
SHOTCRETE REPAIRS - RAIL	0.01 CF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE	ACTUAL		
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG OF DIAPHRAGMS	0.7	0.52		
UNDERSIDE OF OVERHANG	1.0	0.47		
INTERIOR DIAPHRAGMS	4.7	1.38		
	ESTIMATE	ACTUAL		
EPOXY RESIN INJECTION	2.0 LF			

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

CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

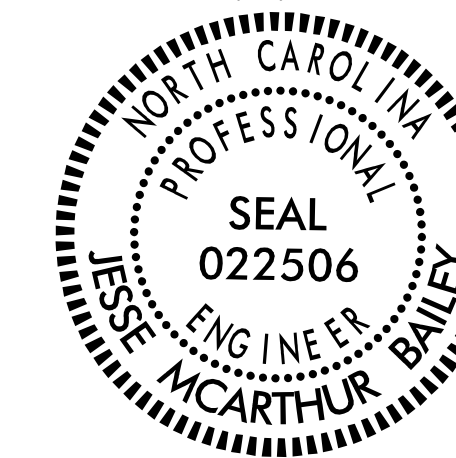
-  APPROXIMATE CLASS II SURFACE PREPARATION (ASPHALT PATCHES)
-  RAIL REPAIR
-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION REPAIR

NOTES:
FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.



PLAN

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Jane Bailey
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PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN B

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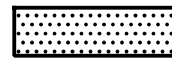
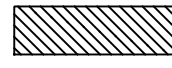





SUMMARY OF QUANTITIES SPAN C

TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	153.0 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	153.0 SY			
CLASS II SURFACE PREPARATION	1.6 SY			
CLASS III SURFACE PREPARATION	0.5 SY			
BRIDGE JOINT DEMOLITION	24.6 SF			
EPOXY RESIN INJECTION	0.0 LF			
CONCRETE FOR DECK REPAIR	40.5 CF			
SHOTCRETE REPAIRS - RAIL	0.24 CF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE	ACTUAL		
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG OF DIAPHRAGMS	1.4	1.0		
UNDERSIDE OF OVERHANG	1.5	0.63		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE	ACTUAL		
EPOXY RESIN INJECTION	0.0 LF			

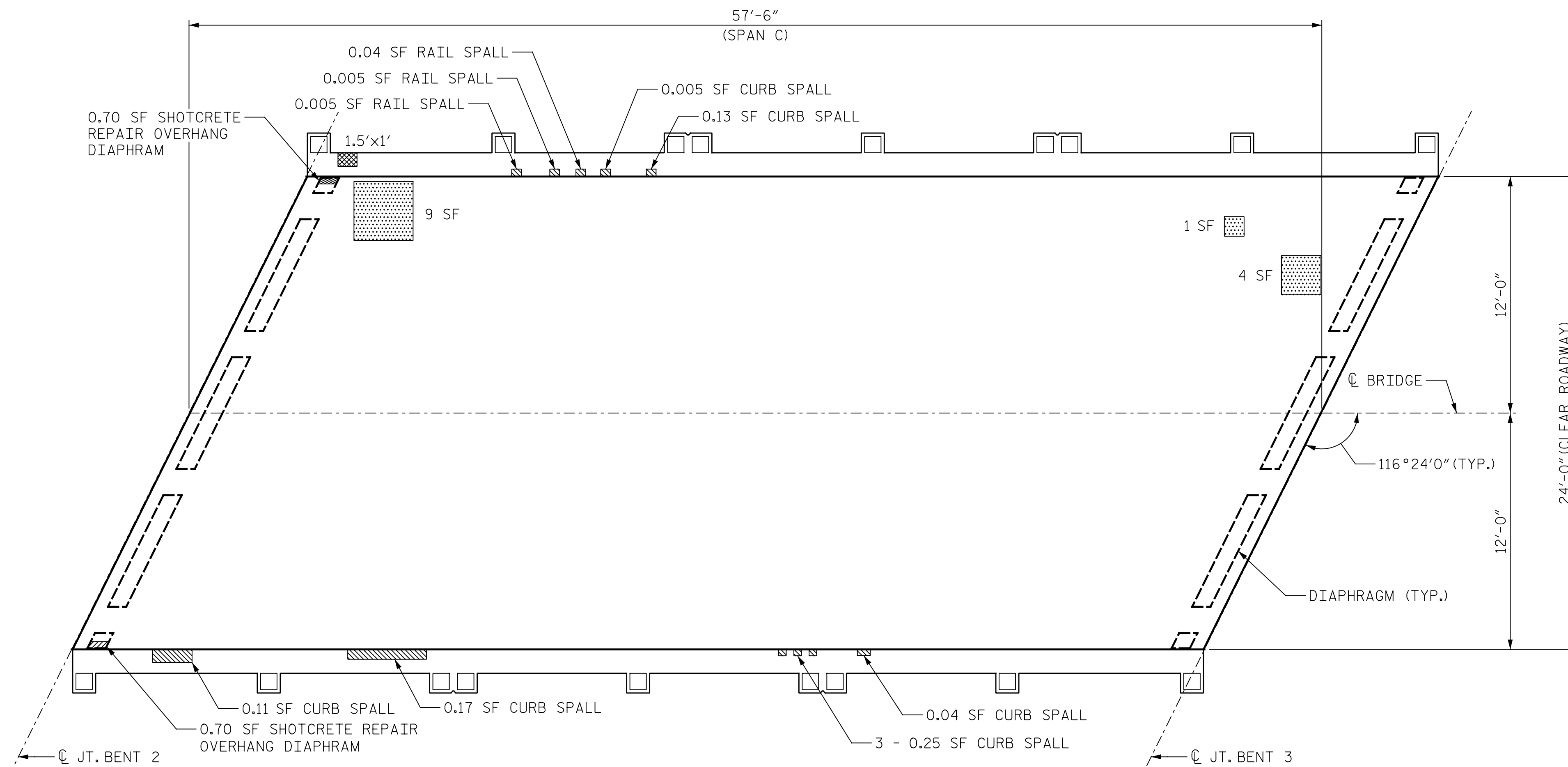
VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

-  APPROXIMATE CLASS II SURFACE PREPARATION (ASPHALT PATCHES)
-  RAIL REPAIR
-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION REPAIR

NOTES:

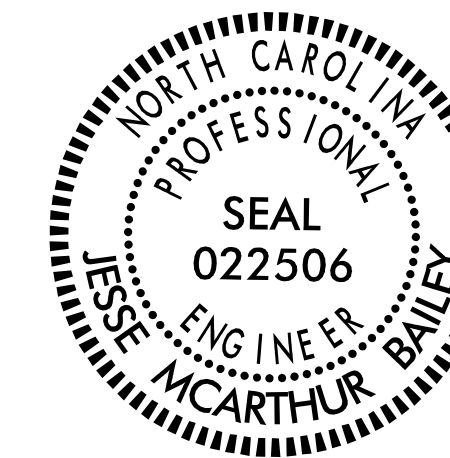
FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.



PLAN

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PROJECT NO. 15BPR.30
GASTON COUNTY
 BR. NO. 39



SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF SPANS
 SPAN C

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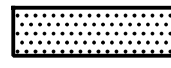
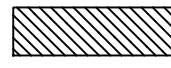



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SUMMARY OF QUANTITIES SPAN D

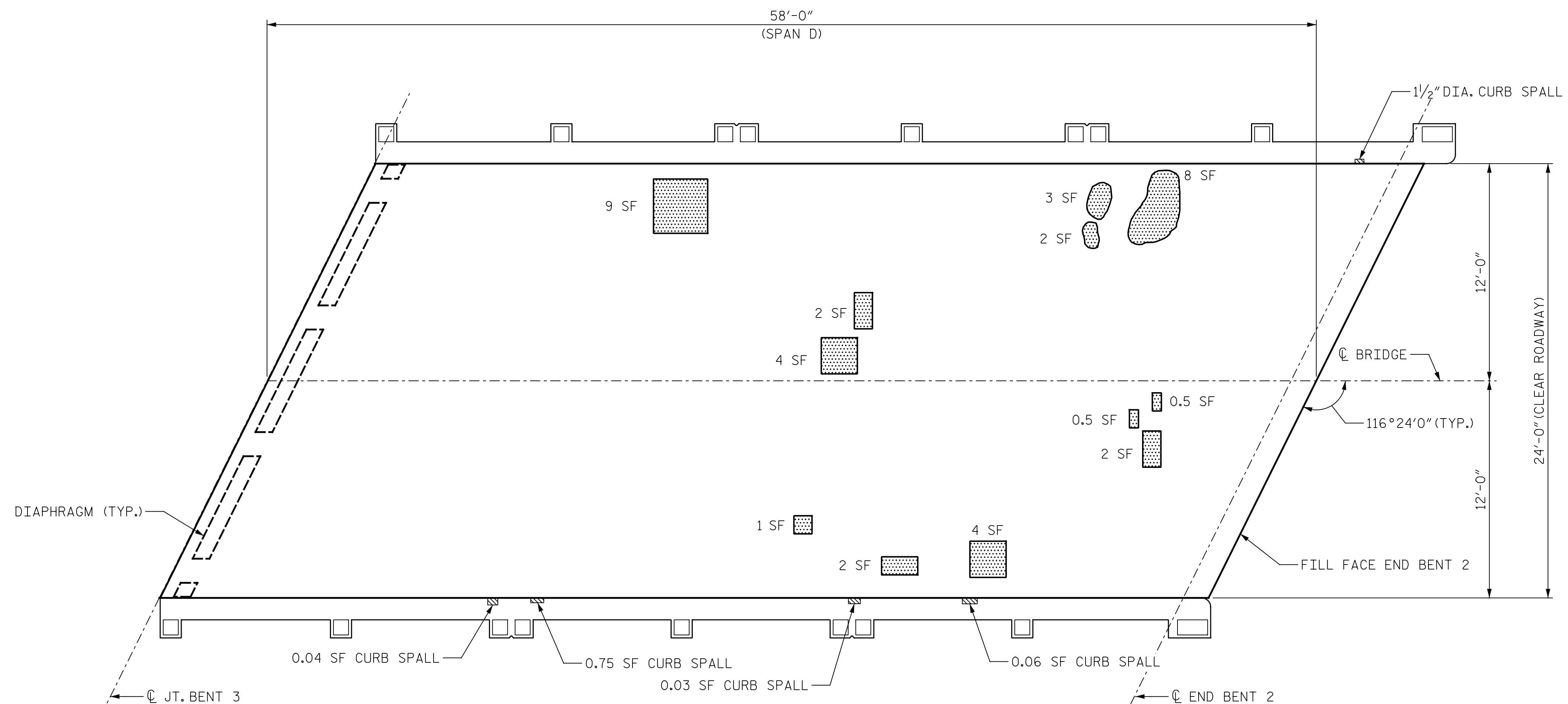
TOP OF DECK REPAIRS				
	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	155.0 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	155.0 SY			
CLASS II SURFACE PREPARATION	4.2 SY			
CLASS III SURFACE PREPARATION	0.5 SY			
BRIDGE JOINT DEMOLITION	12.3 SF			
EPOXY RESIN INJECTION	0.0 LF			
CONCRETE FOR DECK REPAIR	103.8 CF			
SHOTCRETE REPAIRS - RAIL	0.14 CF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG OF DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
			ESTIMATE	ACTUAL
EPOXY RESIN INJECTION			0.0 LF	

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

CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

-  APPROXIMATE CLASS II SURFACE PREPARATION (ASPHALT PATCHES)
-  RAIL REPAIR
-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION REPAIR

NOTES:
FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.



PLAN

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10/31/2018

PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39



SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN D

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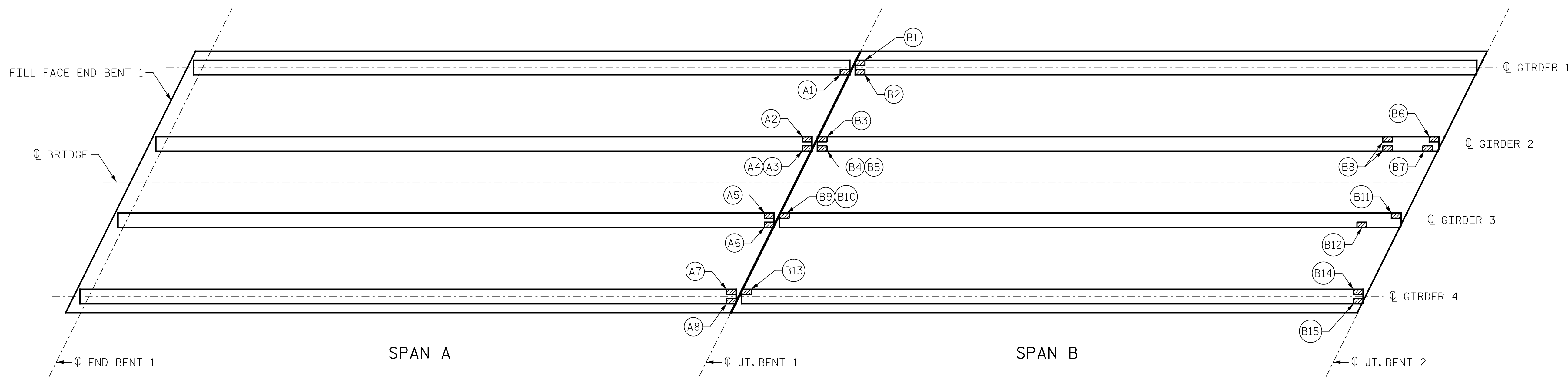
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PLAN
ALL BEARINGS SHALL BE
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SHOTCRETE REPAIRS

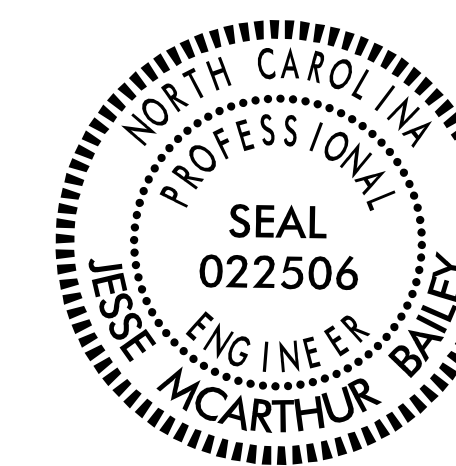
BILL OF MATERIAL				
REPAIRS SPANS A & B	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
DIAPHRAGMS	0.0	0.0		
GIRDERS	14.0	5.11		
UNDERSIDE OF DECK & OVERHANGS	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION	ESTIMATE		ACTUAL	
DIAPHRAGMS	0.0 LF			
GIRDERS	0.33 LF			
UNDERSIDE OF DECK & OVERHANGS	0.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF LOOSE CONCRETE, MINIMUM OF 1" BEHIND REBARS. SEE "MISCELLANEOUS REPAIR DETAILS" SHEET.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

GIRDER REPAIR		
REPAIR NO.	VOLUME	LOCATION
A1	0.21 CF	BOTTOM FLANGE OF GIRDER
A2	0.07 CF	BOTTOM FLANGE OF GIRDER
A3	0.12 CF	BOTTOM FLANGE OF GIRDER
A4	0.08 CF	GIRDER WEB
A5	0.18 CF	BOTTOM FLANGE OF GIRDER
A6	0.43 CF	GIRDER WEB
A7	0.40 CF	BOTTOM FLANGE OF GIRDER
A8	0.13 CF	BOTTOM FLANGE OF GIRDER
B1	0.08 CF	BOTTOM FLANGE OF GIRDER
B2	0.07 CF	BOTTOM FLANGE OF GIRDER
B3	0.10 CF	BOTTOM FLANGE OF GIRDER
B4	0.13 CF	BOTTOM FLANGE OF GIRDER
B5	1.52 CF	GIRDER WEB
B6	0.17 CF	BOTTOM FLANGE OF GIRDER
B7	0.10 CF	BOTTOM FLANGE OF GIRDER
B8	0.15 CF	BOTTOM FACE OF GIRDER
B9	0.13 CF	BOTTOM FLANGE OF GIRDER
B10	0.53 CF	GIRDER WEB
B11	0.10 CF	BOTTOM FLANGE OF GIRDER
B12	0.05 CF	BOTTOM FACE OF GIRDER
B13	0.24 CF	BOTTOM FLANGE OF GIRDER
B14	0.12 CF	BOTTOM FLANGE OF GIRDER
B15	0.33 LF	ERI BOTTOM FLANGE

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PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE AND
PRESTRESSED CONCRETE
GIRDER REPAIRS
SPANS A & B**

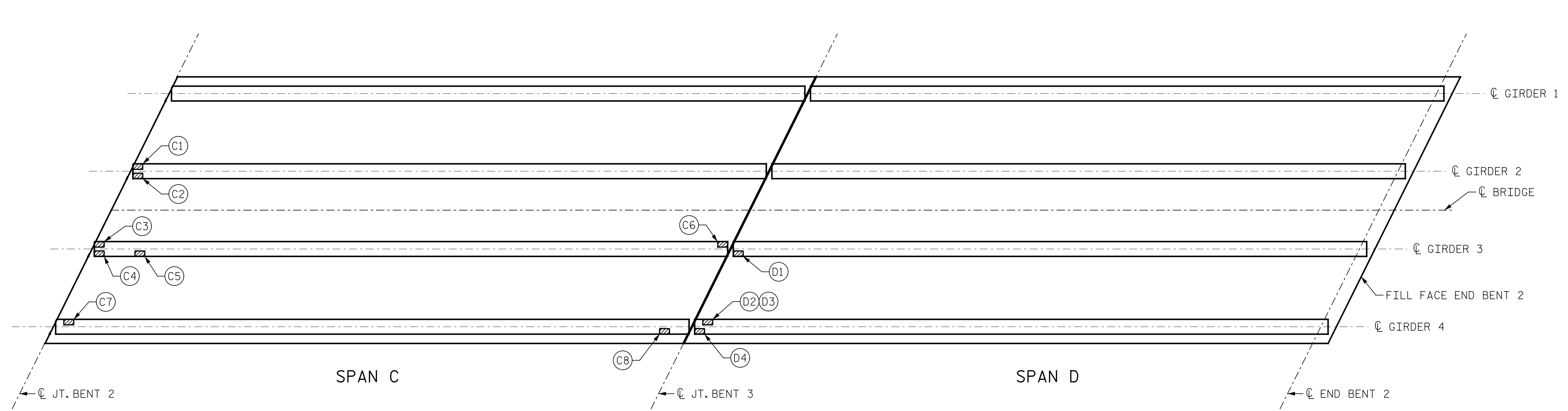
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PLAN

ALL BEARINGS SHALL BE
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SHOTCRETE REPAIRS

BILL OF MATERIAL				
REPAIRS SPANS C & D	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
DIAPHRAGMS	0.0	0.0		
GIRDERS	5.55	2.94		
UNDERSIDE OF DECK & OVERHANGS	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION	ESTIMATE		ACTUAL	
DIAPHRAGMS	0.0 LF			
GIRDERS	0.0 LF			
UNDERSIDE OF DECK & OVERHANGS	0.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF LOOSE CONCRETE, MINIMUM OF 1" BEHIND REBARS. SEE "MISCELLANEOUS REPAIR DETAILS" SHEET.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

GIRDER REPAIR		
REPAIR NO.	VOLUME	LOCATION
C1	0.07 CF	BOTTOM FLANGE OF GIRDER
C2	0.16 CF	BOTTOM FLANGE OF GIRDER
C3	0.20 CF	BOTTOM FLANGE OF GIRDER
C4	0.42 CF	BOTTOM FLANGE OF GIRDER
C5	0.29 CF	BOTTOM FACE OF GIRDER
C6	0.21 CF	BOTTOM FLANGE OF GIRDER
C7	0.02 CF	BOTTOM FLANGE OF GIRDER
C8	0.20 CF	BOTTOM FLANGE OF GIRDER
D1	0.32 CF	BOTTOM FLANGE OF GIRDER
D2	0.18 CF	BOTTOM FLANGE OF GIRDER
D3	0.67 CF	GIRDER WEB
D4	0.20 CF	BOTTOM FLANGE OF GIRDER

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J.M. Bailey
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10/31/2018



PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SUPERSTRUCTURE AND
PRESTRESSED CONCRETE
GIRDER REPAIRS
SPANS C & D**

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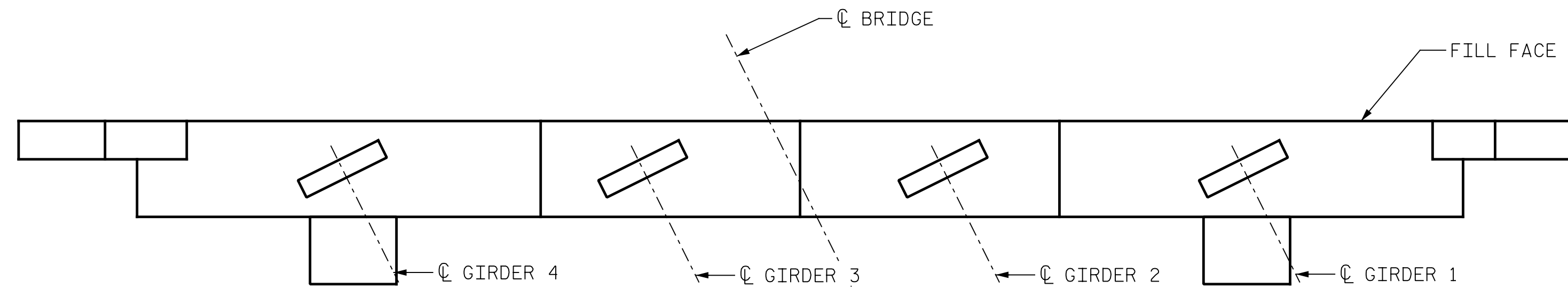
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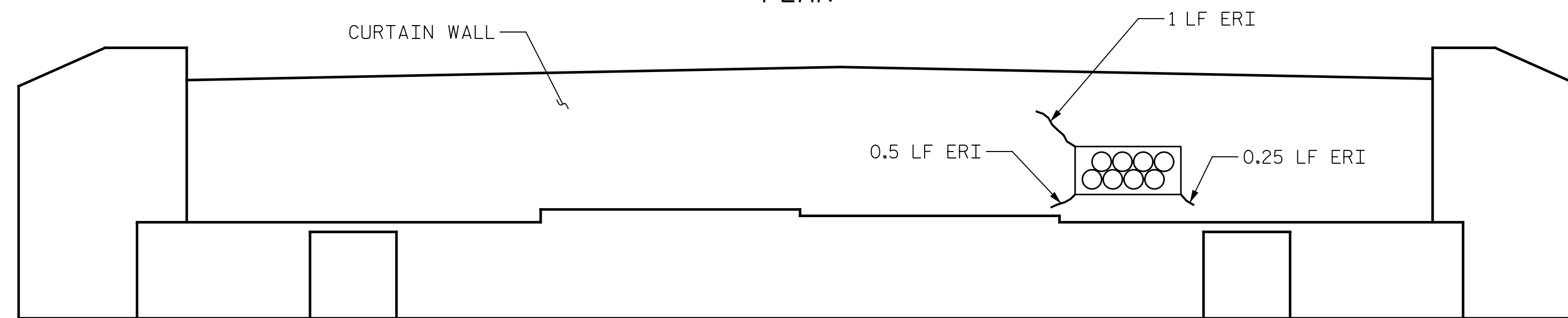
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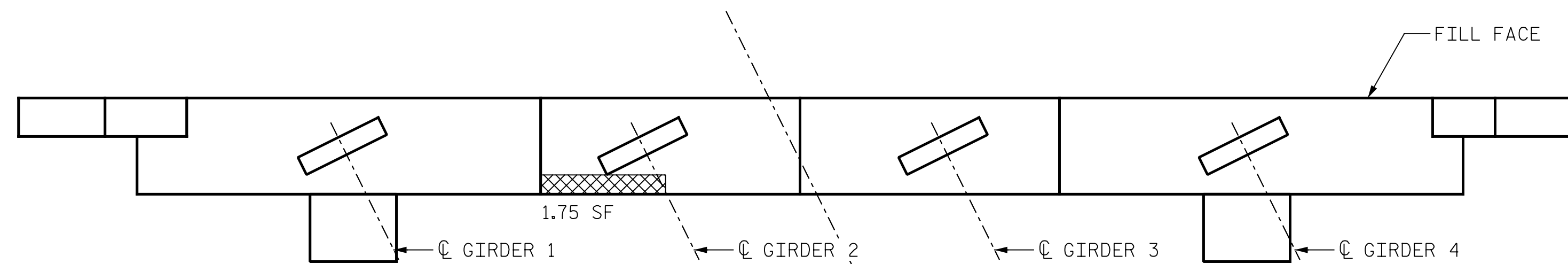


PLAN

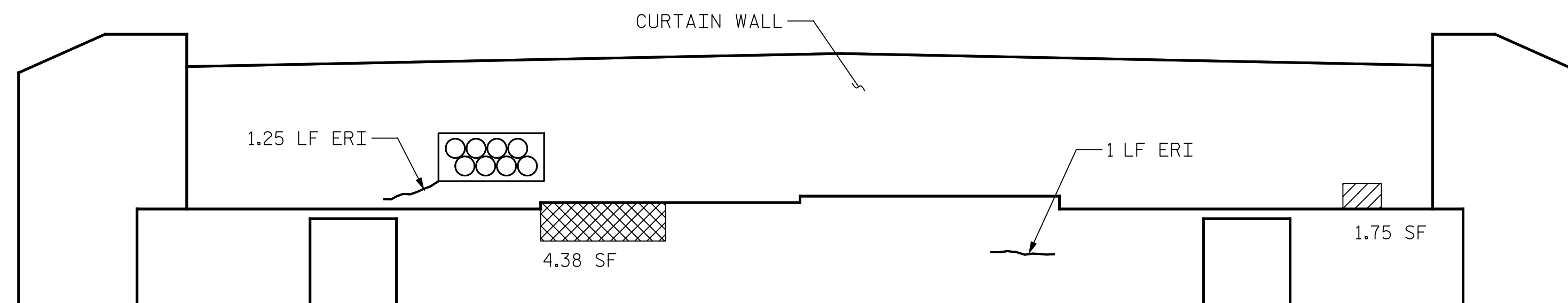


ELEVATION

END BENT 1
LOOKING AT FRONT FACE



PLAN



ELEVATION

END BENT 2
LOOKING AT FRONT FACE

BILL OF MATERIAL

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
AREA	VOLUME	AREA	VOLUME	
SF	CF	SF	CF	
SHOTCRETE REPAIRS				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CURTAIN WALL & WINGS	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION	ESTIMATE	ACTUAL		
CAP	0.0 LF			
CURTAIN WALL & WINGS	1.75 LF			
EPOXY COATING	86.3 SF			
REPAIRS END BENT 2	QUANTITIES			
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	
AREA	VOLUME	AREA	VOLUME	
SF	CF	SF	CF	
SHOTCRETE REPAIRS				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CURTAIN WALL & WINGS	1.75	0.88		
CONCRETE REPAIRS	4.38	2.2		
EPOXY RESIN INJECTION	ESTIMATE	ACTUAL		
CAP	1.0 LF			
CURTAIN WALL & WINGS	1.25 LF			
EPOXY COATING	86.3 SF			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, SEE "MISCELLANEOUS REPAIR DETAILS" SHEET.

- SHOTCRETE REPAIR
- CONCRETE REPAIR
- EPOXY RESIN INJECTION (ERI)

NOTES:

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

EPOXY PROTECTIVE COATING SHALL ONLY BE APPLIED TO THE TOP SURFACE AREAS OF THE BENT CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE BEARINGS. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR REPAIR DETAILS, SEE "MISCELLANEOUS REPAIR DETAILS" SHEET.

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10/31/2018

PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39



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

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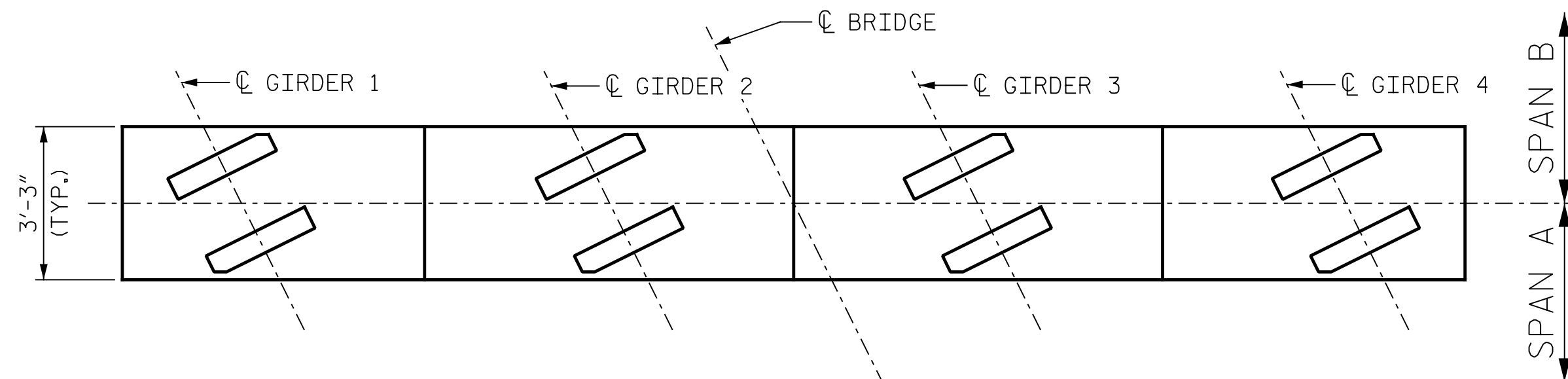


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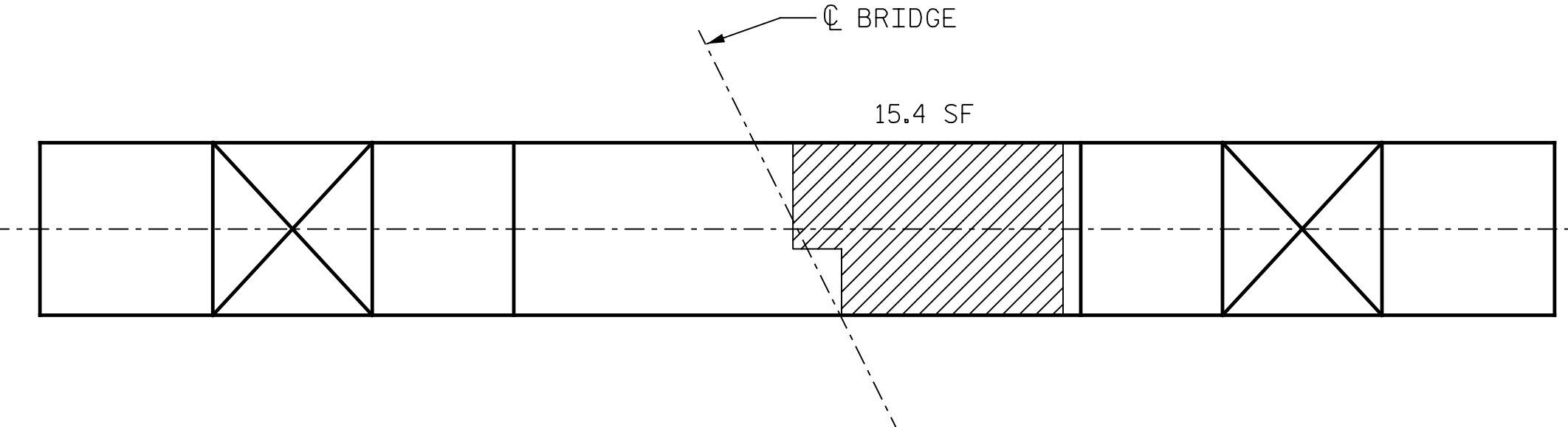
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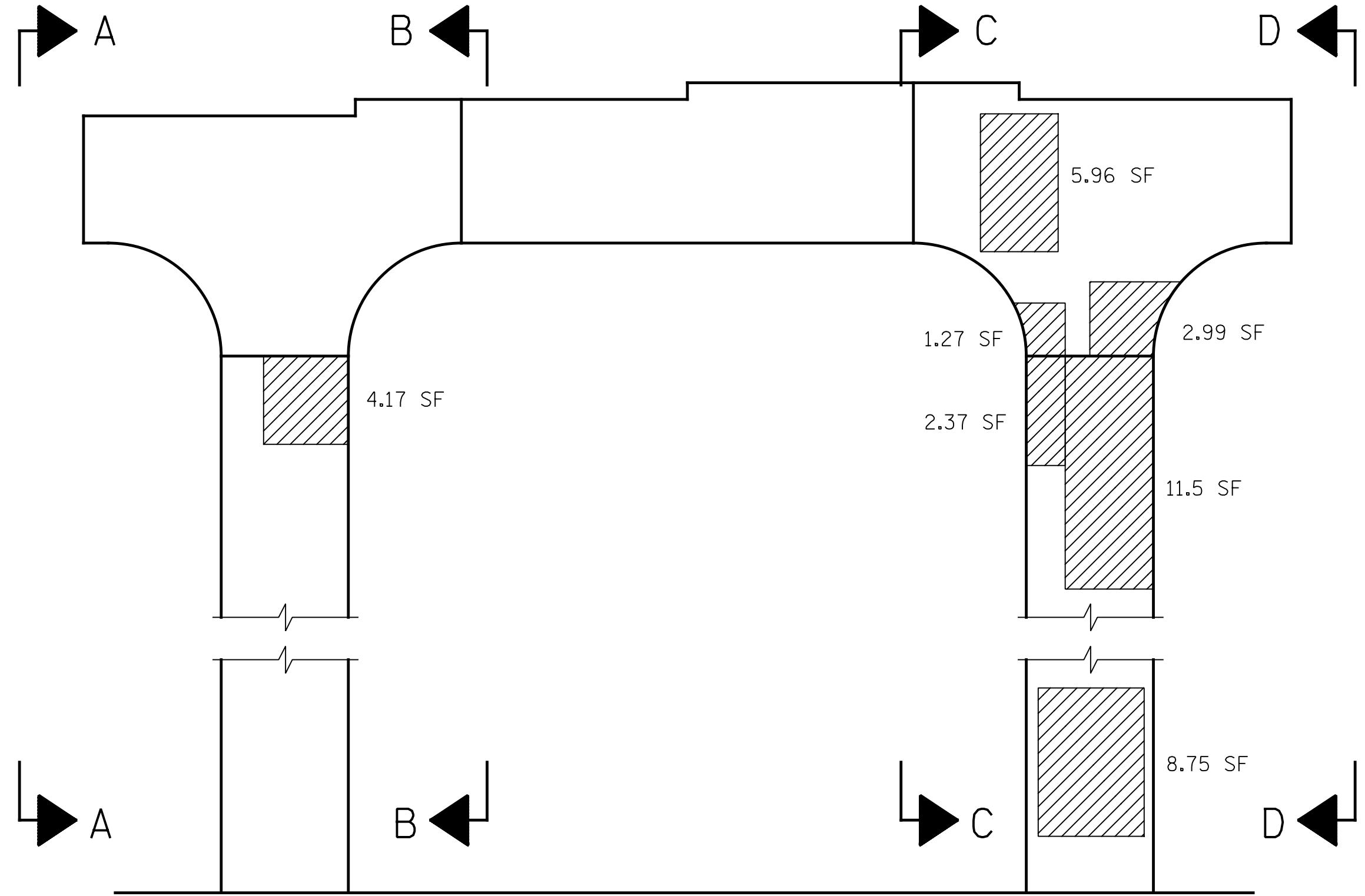
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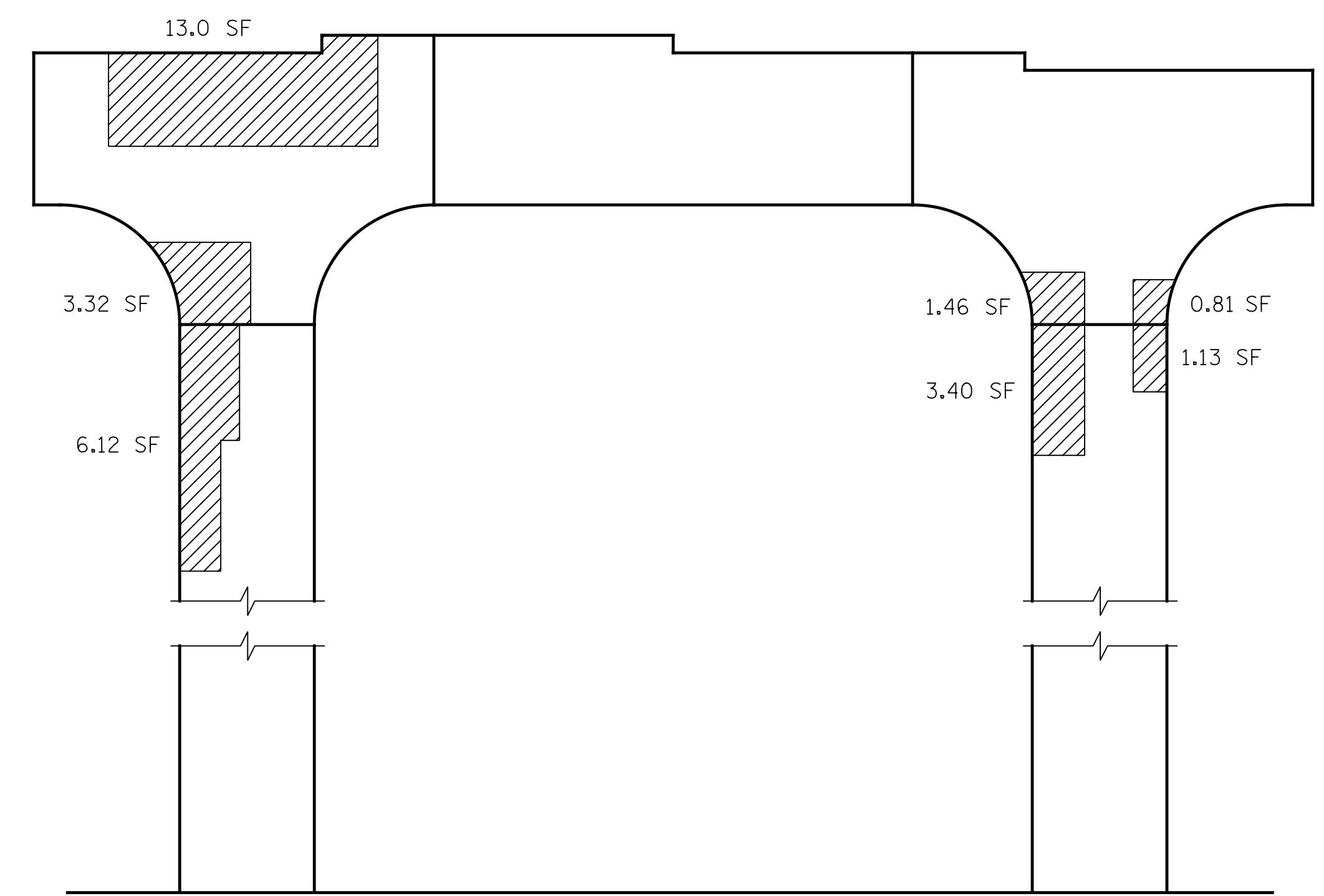
PLAN



UNDERSIDE PLAN



ELEVATION
(SPAN A SIDE)



ELEVATION
(SPAN B SIDE)

BILL OF MATERIAL				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
SHOTCRETE REPAIRS				
CAP (VERTICAL FACE)	36.7	15.8		
CAP (HORIZONTAL FACE)	15.4	7.8		
COLUMN (VERTICAL FACE)	54.3	23.2		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION	ESTIMATE		ACTUAL	
CAP	0.0 LF			
COLUMN	0.0 LF			
EPOXY COATING	92.6 SF			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 3" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

- SHOTCRETE REPAIR
- CONCRETE REPAIR
- EPOXY RESIN INJECTION (ERI)

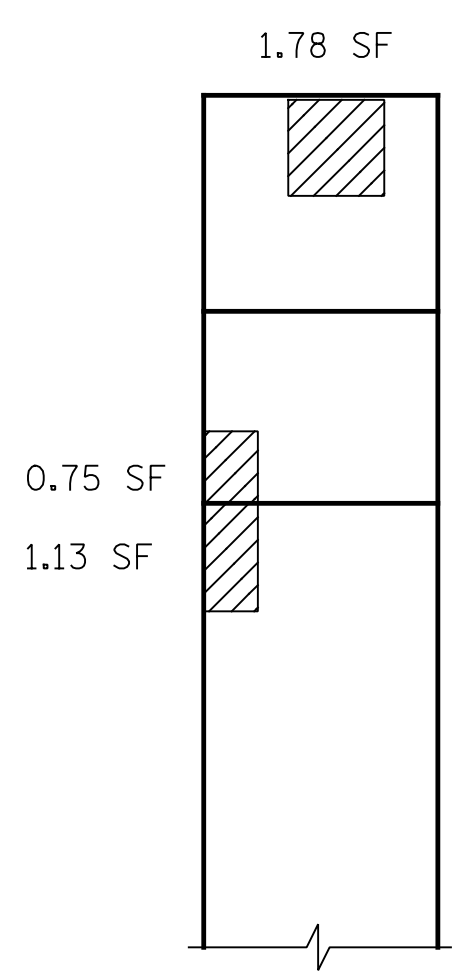
NOTES:
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

EPOXY PROTECTIVE COATING SHALL ONLY BE APPLIED TO THE TOP SURFACE AREAS OF THE BENT CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE BEARINGS. FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

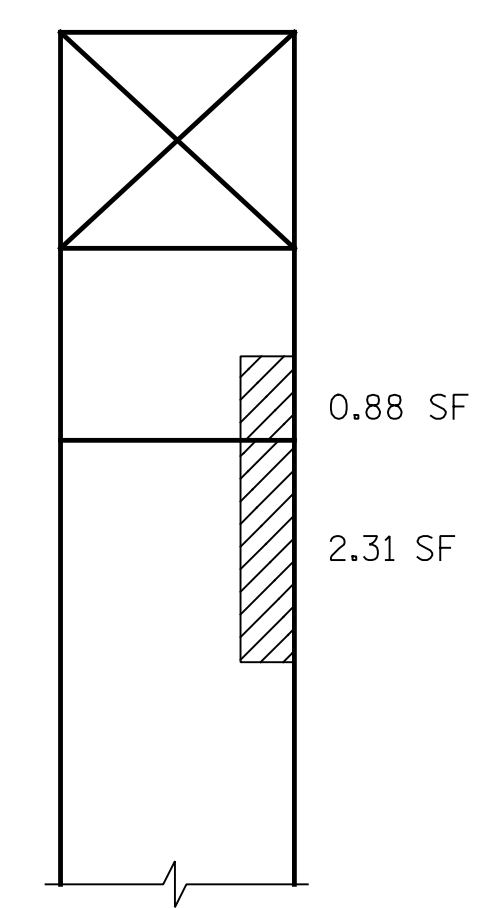
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR REPAIR DETAILS, SEE "MISCELLANEOUS REPAIR DETAILS" SHEET.

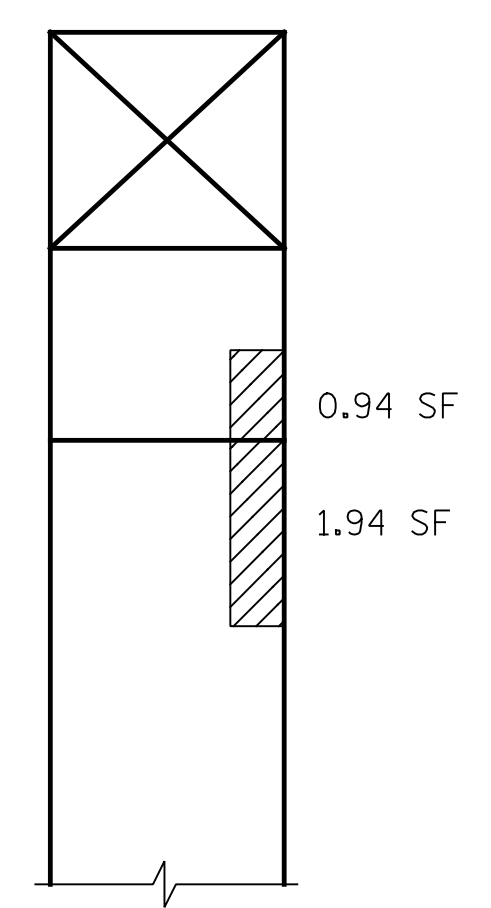
SHOTCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.



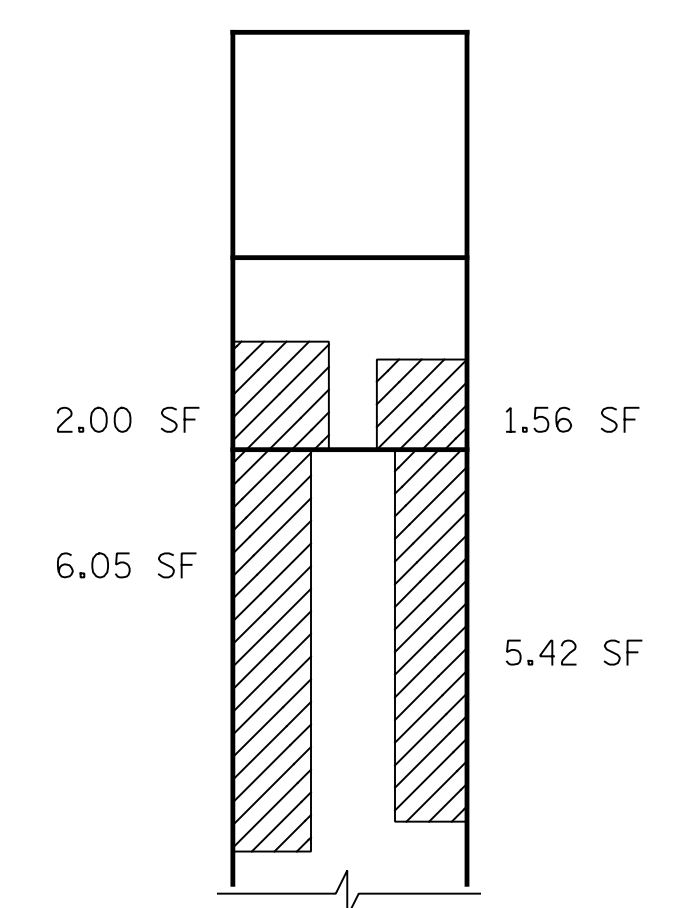
SECTION A-A



SECTION B-B

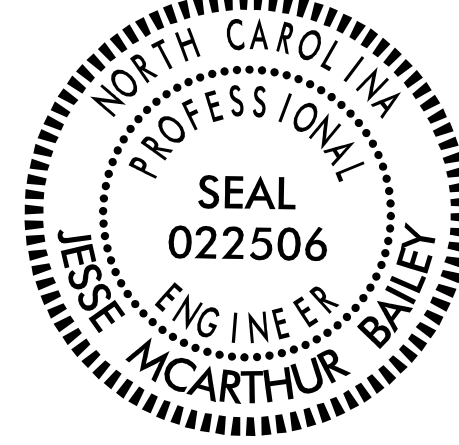


SECTION C-C



SECTION D-D

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G.M. Bailey
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10/31/2018



PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUBSTRUCTURE REPAIR
BENT 1**

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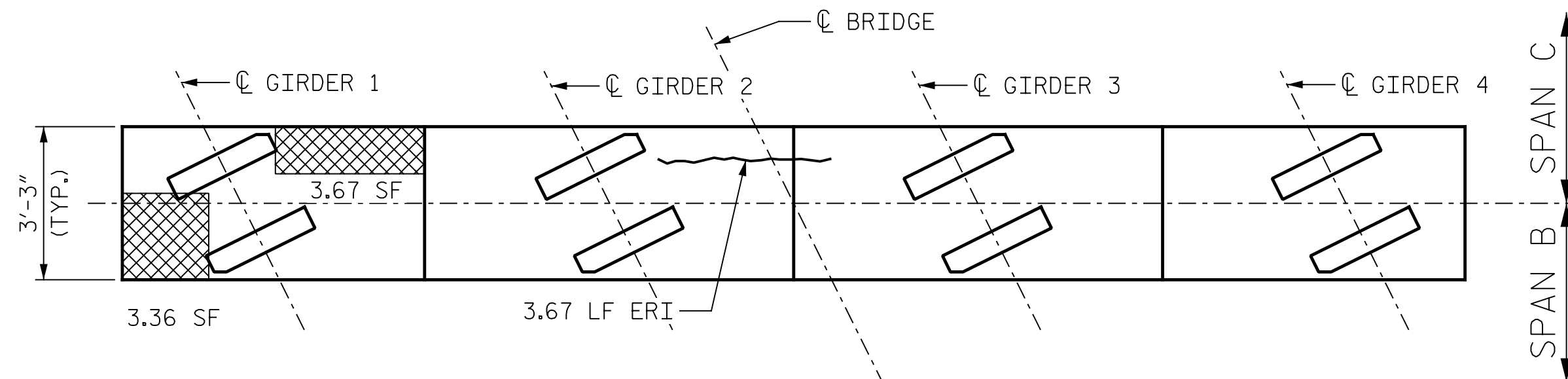
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TOTAL SHEETS: 21

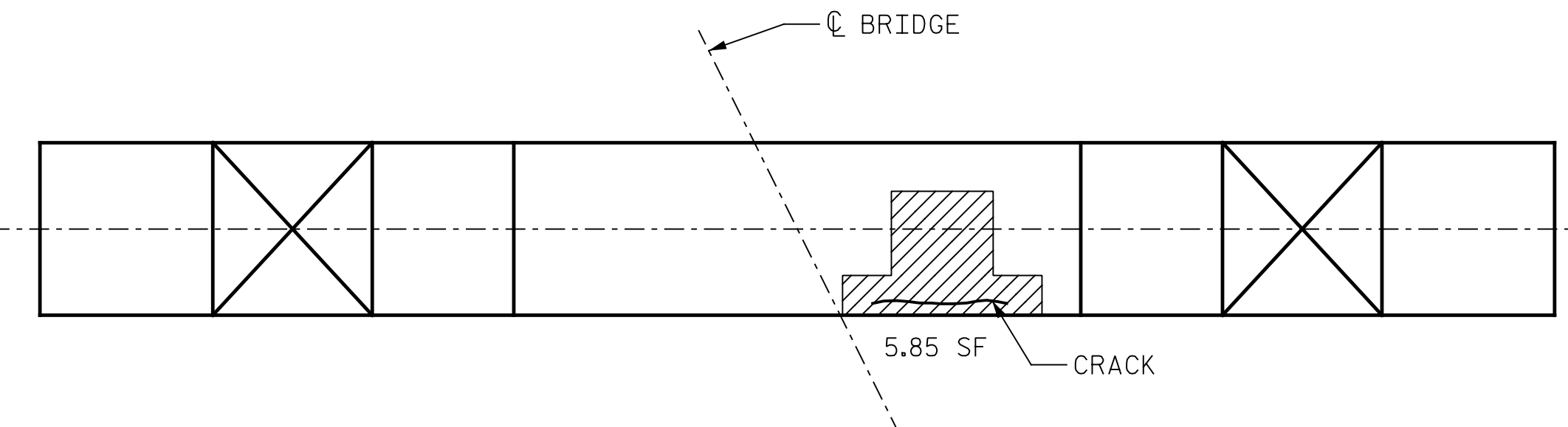
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DRAWN BY : P. MATTHEWS DATE : 07/24/18
CHECKED BY : G. SANSONI DATE : 08/16/18

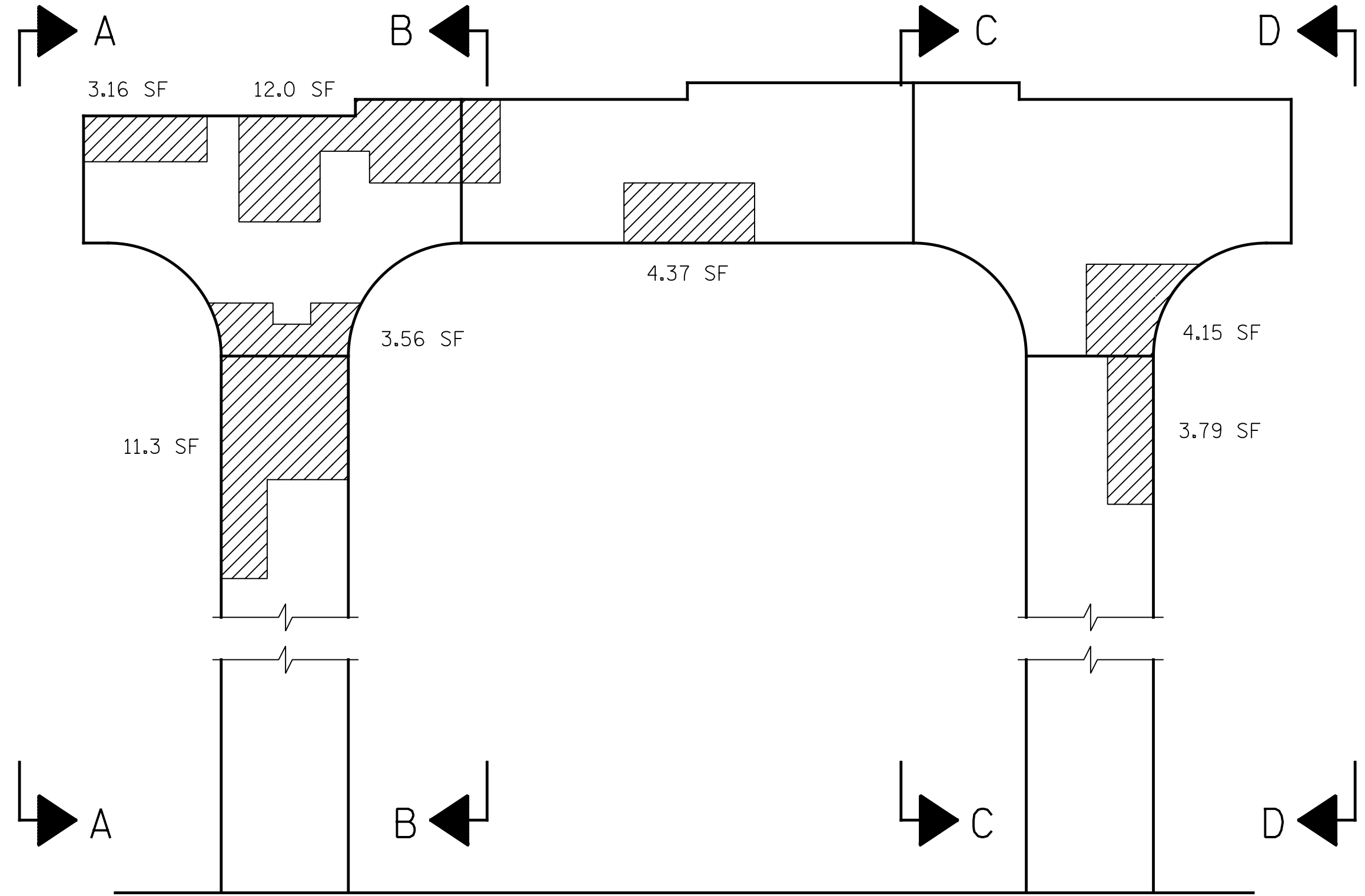
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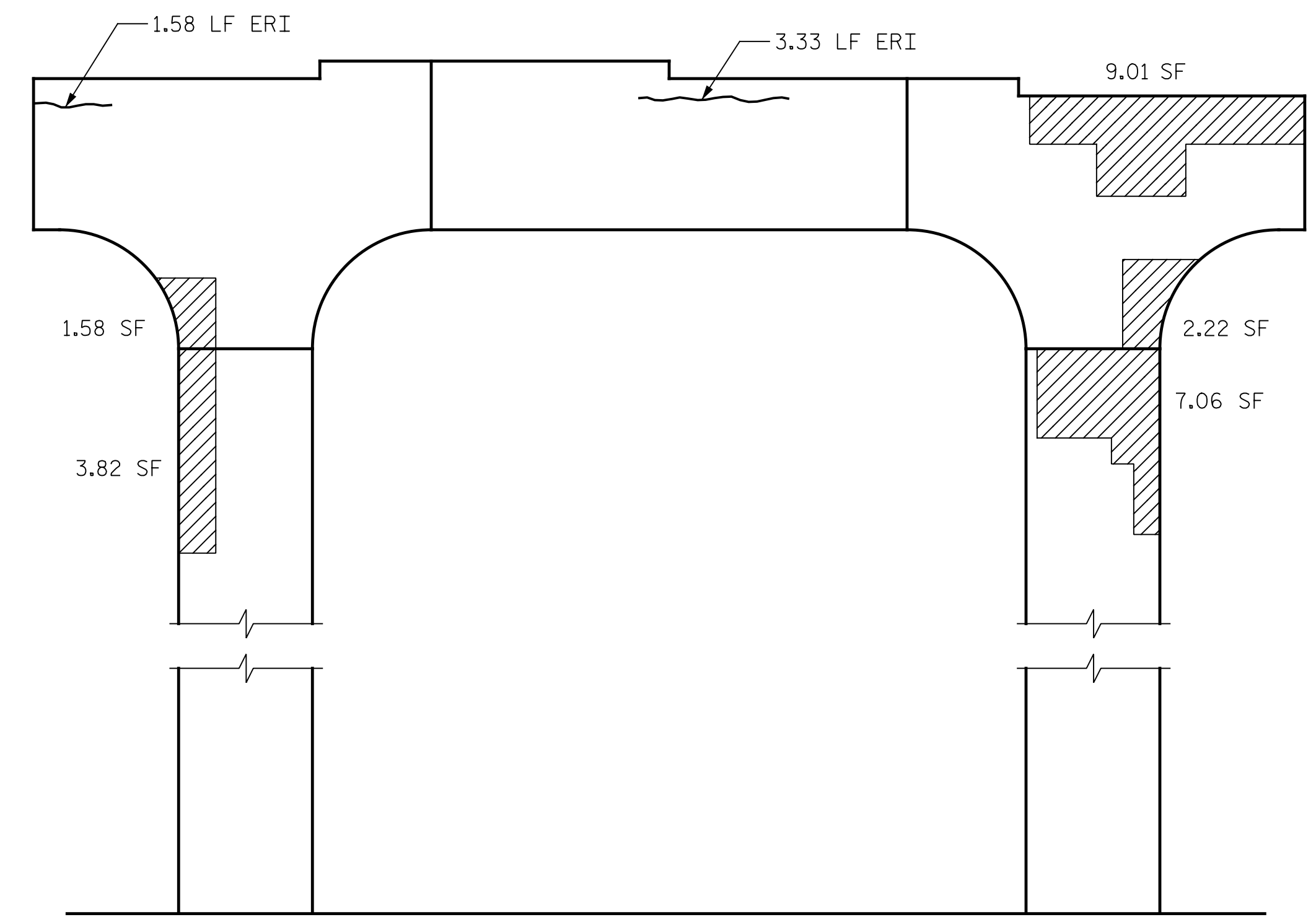
PLAN



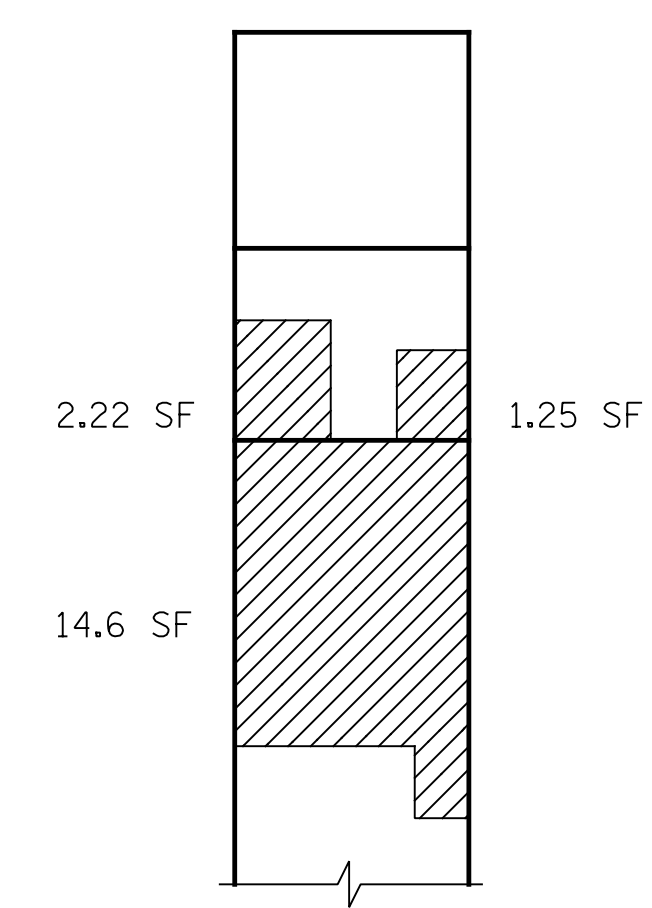
UNDERSIDE PLAN



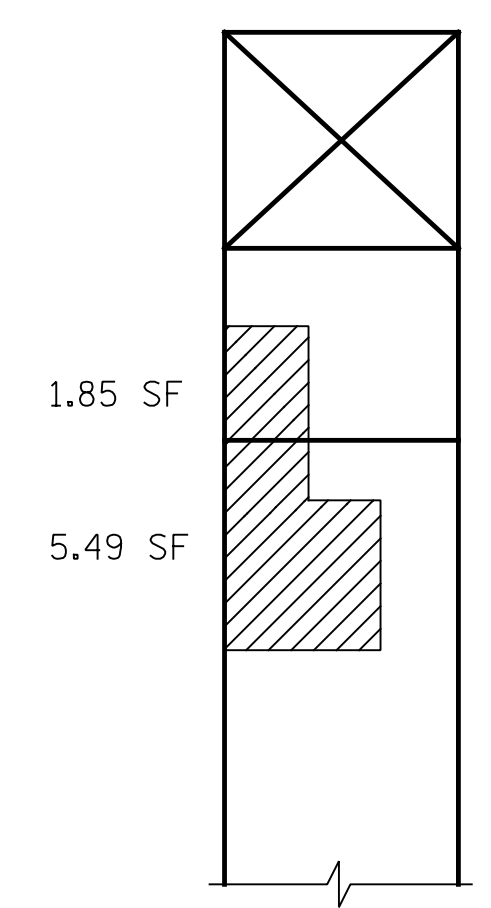
ELEVATION
(SPAN B SIDE)



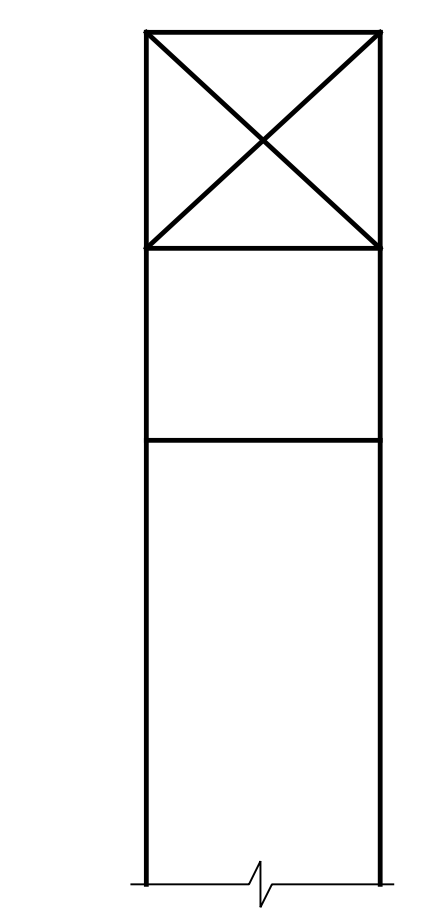
ELEVATION
(SPAN C SIDE)



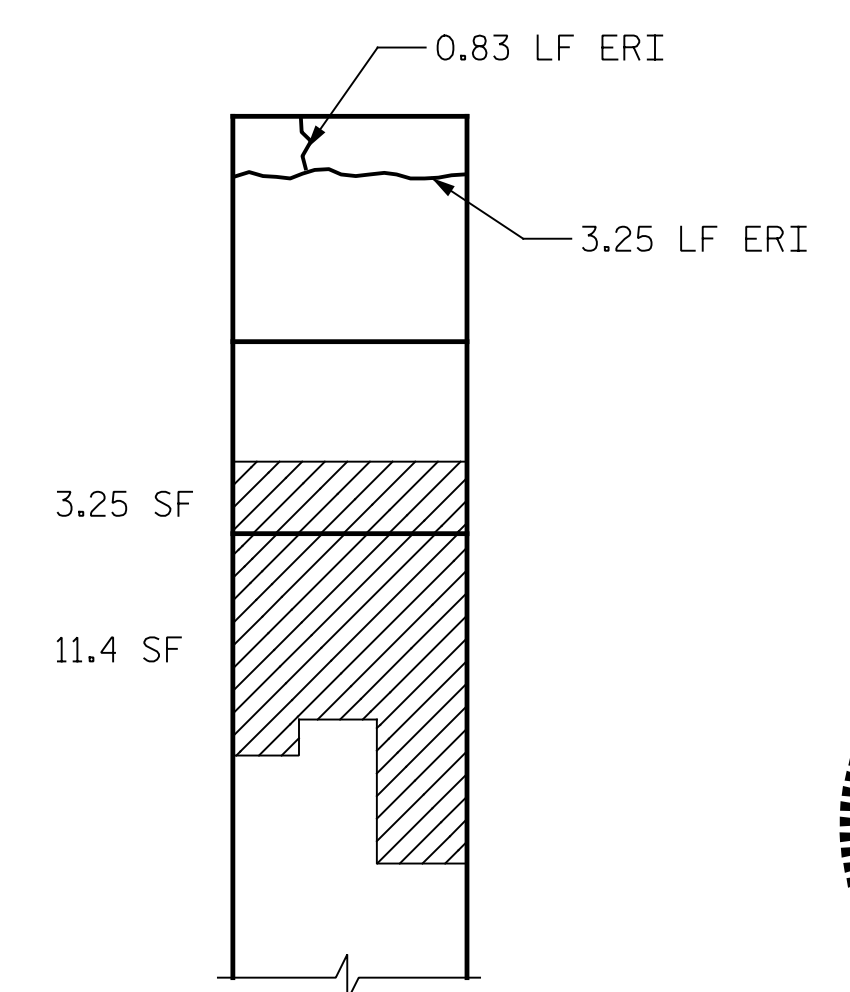
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

BILL OF MATERIAL				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	42.8	23.2		
CAP (HORIZONTAL FACE)	5.85	2.9		
COLUMN (VERTICAL FACE)	57.5	25.0		
CONCRETE REPAIRS	7.03	3.51		
EPOXY RESIN INJECTION	ESTIMATE		ACTUAL	
CAP	12.7 LF			
COLUMN	0.0 LF			
EPOXY COATING	92.6 SF			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 3" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

- SHOTCRETE REPAIR
- CONCRETE REPAIR
- EPOXY RESIN INJECTION (ERI)

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

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CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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

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J.M. Bailey
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PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39
SHEET 2 OF 3

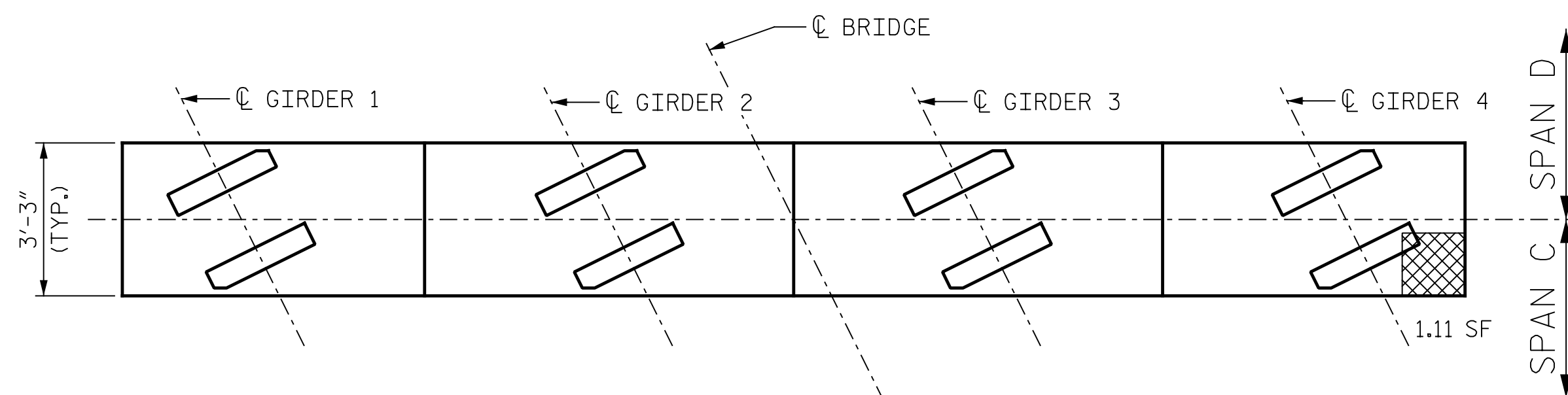
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUBSTRUCTURE REPAIR
BENT 2**

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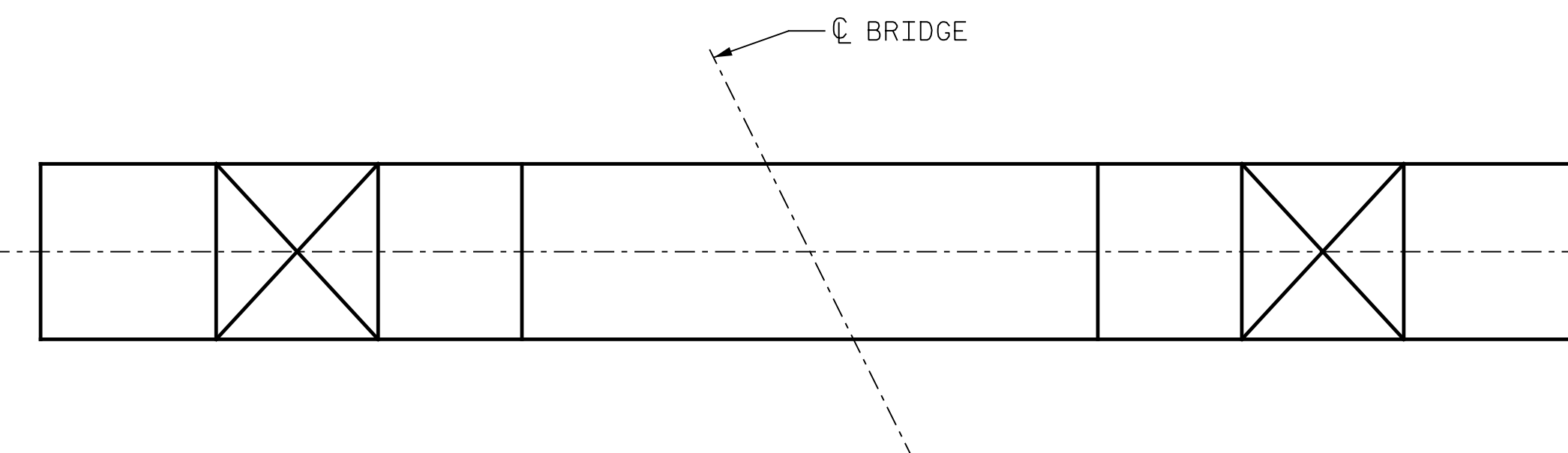
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
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DRAWN BY : P. MATTHEWS DATE : 07/24/18
CHECKED BY : G. SANSONI DATE : 08/16/18

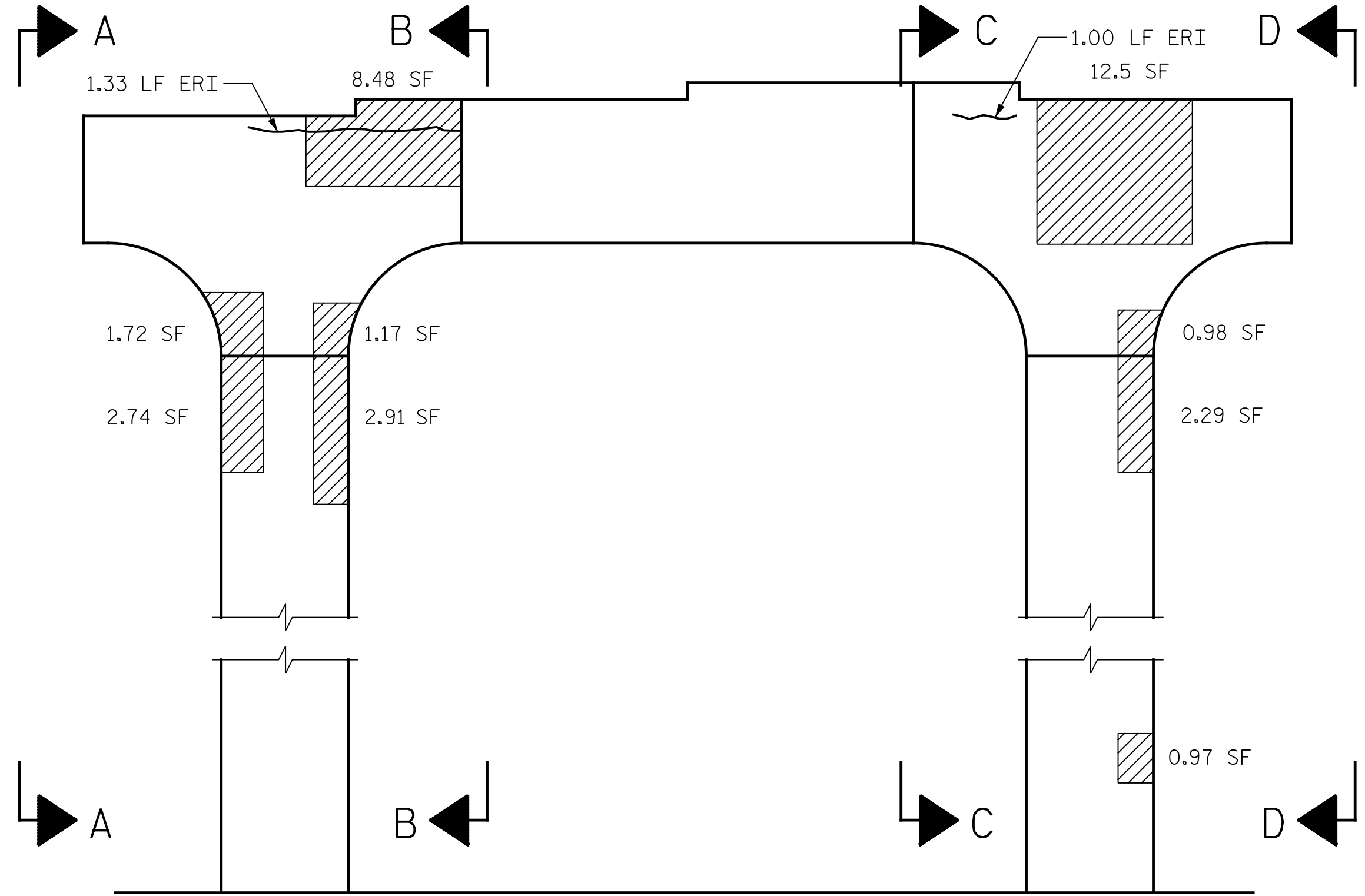
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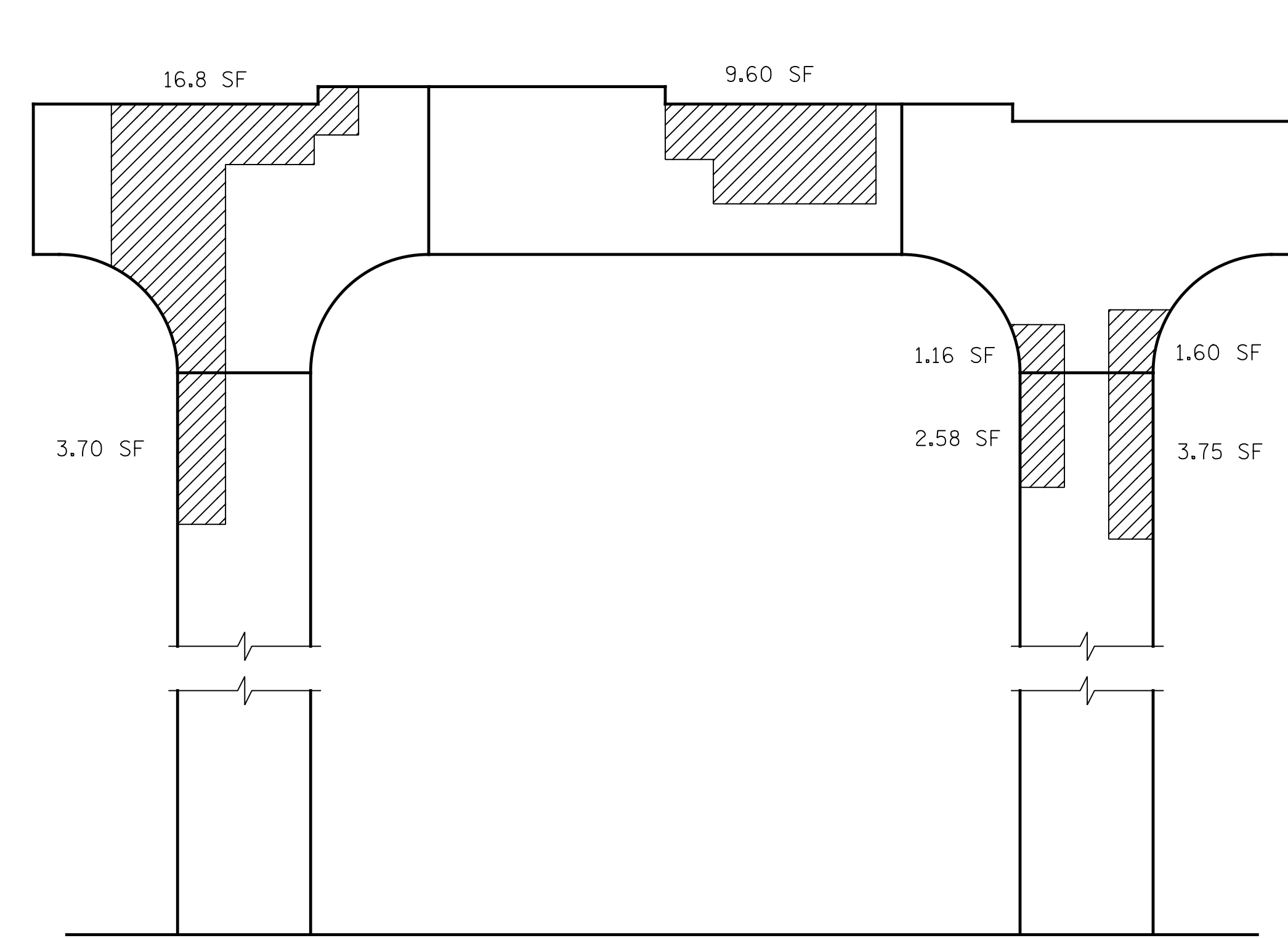
PLAN



UNDERSIDE PLAN



ELEVATION
(SPAN C SIDE)



ELEVATION
(SPAN D SIDE)

BILL OF MATERIAL				
REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	63.0	28.5		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (VERTICAL FACE)	45.3	17.6		
CONCRETE REPAIRS	3.86	1.93		
EPOXY RESIN INJECTION	ESTIMATE		ACTUAL	
CAP	2.33 LF			
COLUMN	0.0 LF			
EPOXY COATING	92.6 SF			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 3" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

- SHOTCRETE REPAIR
- CONCRETE REPAIR
- EPOXY RESIN INJECTION (ERI)

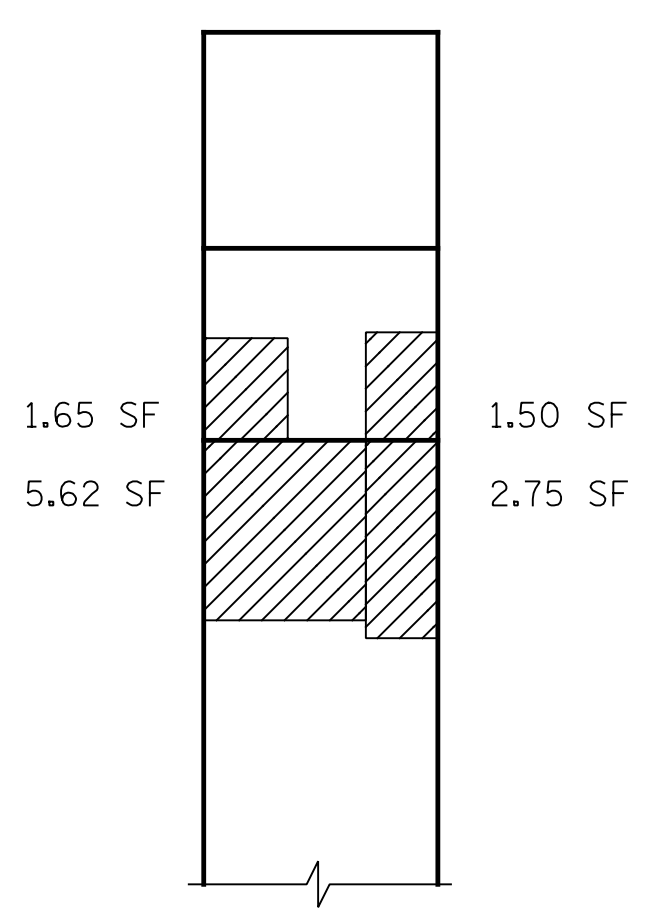
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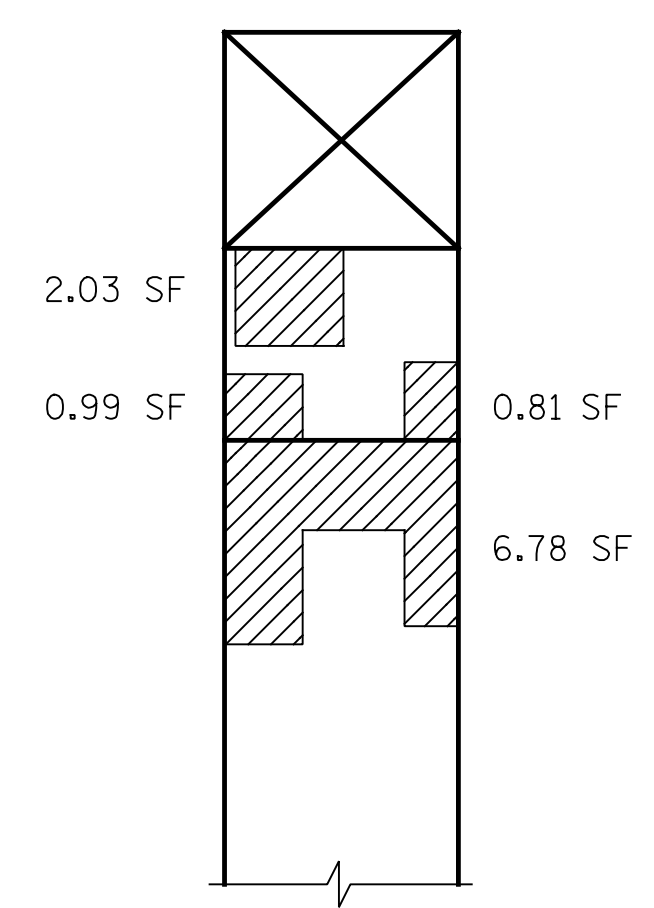
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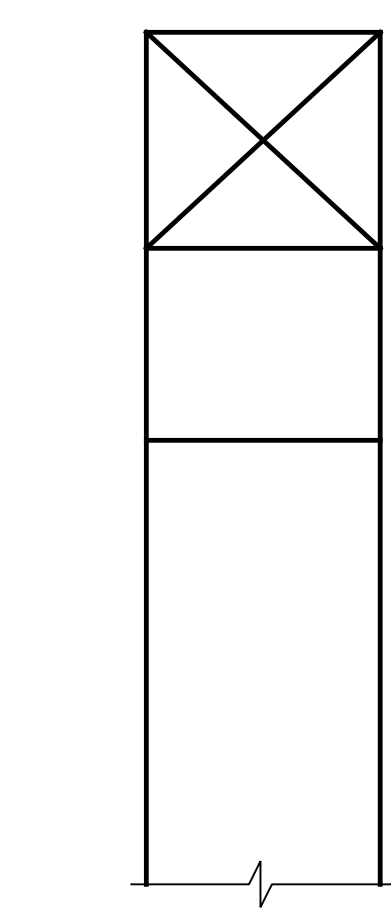
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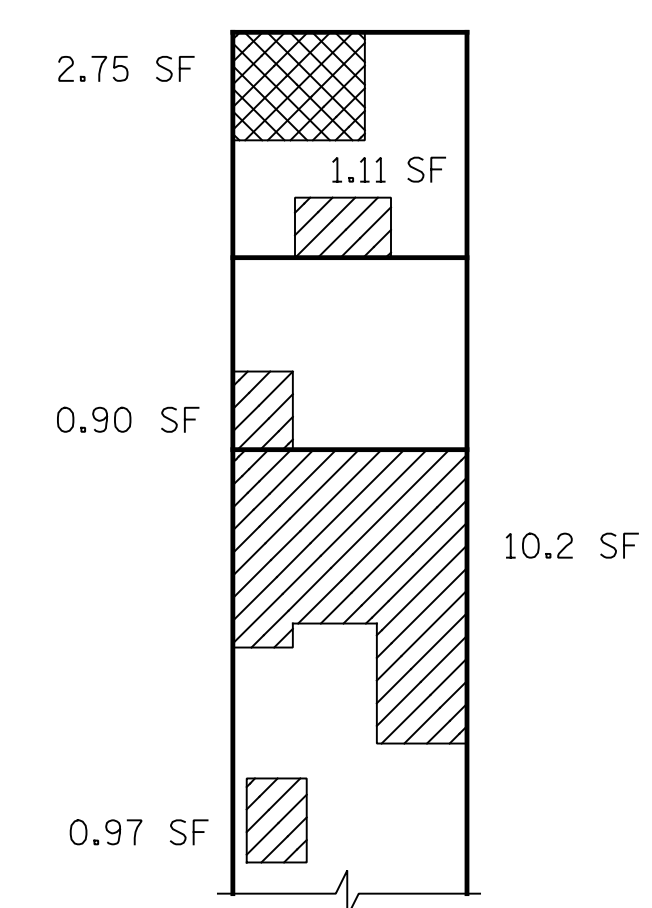
SECTION A-A



SECTION B-B

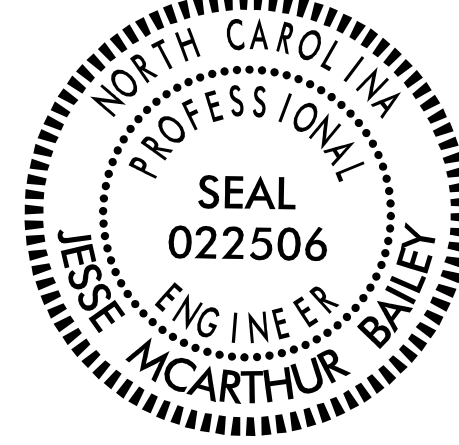


SECTION C-C



SECTION D-D

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J.M. Bailey
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10/31/2018



PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

SHEET 3 OF 3

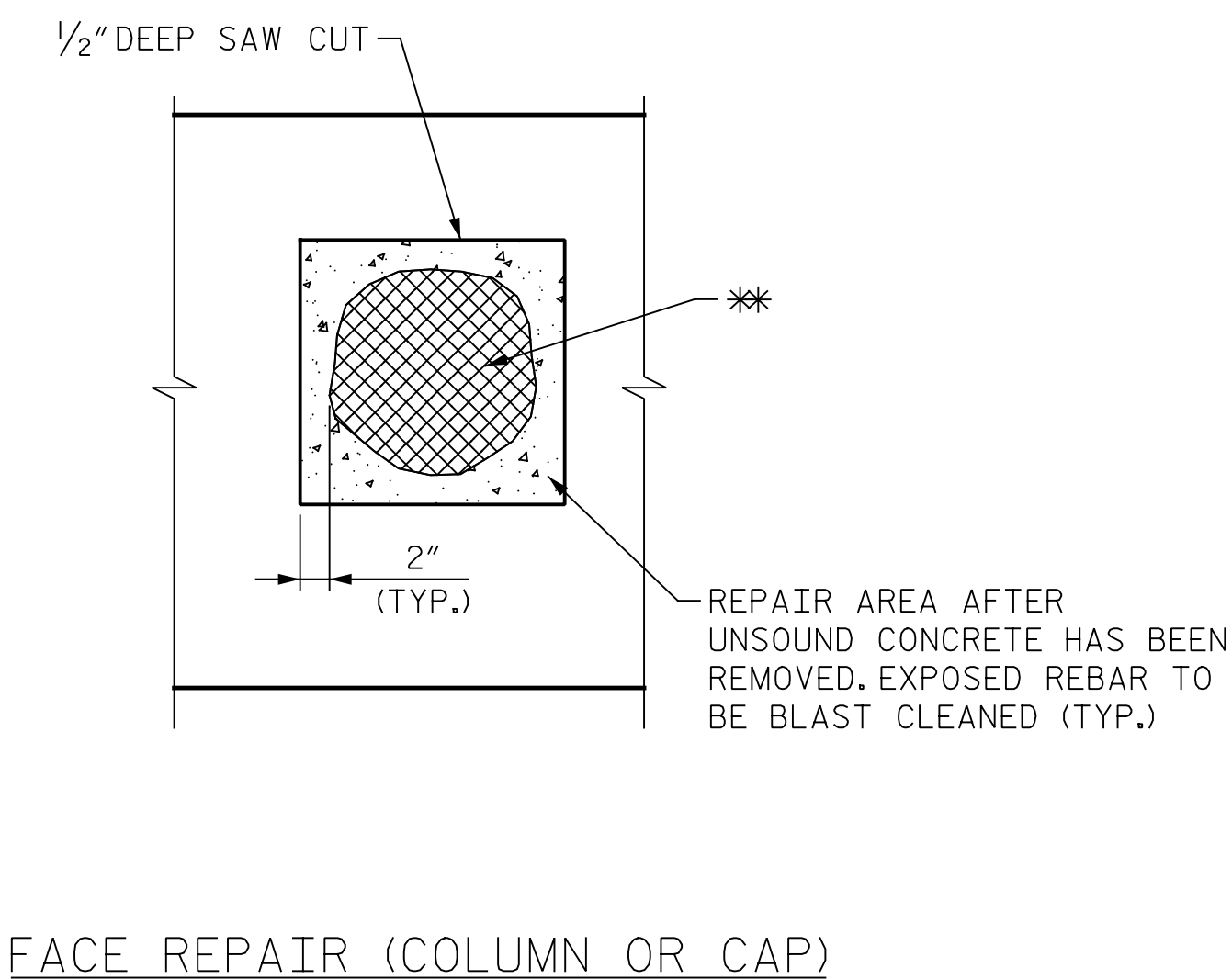
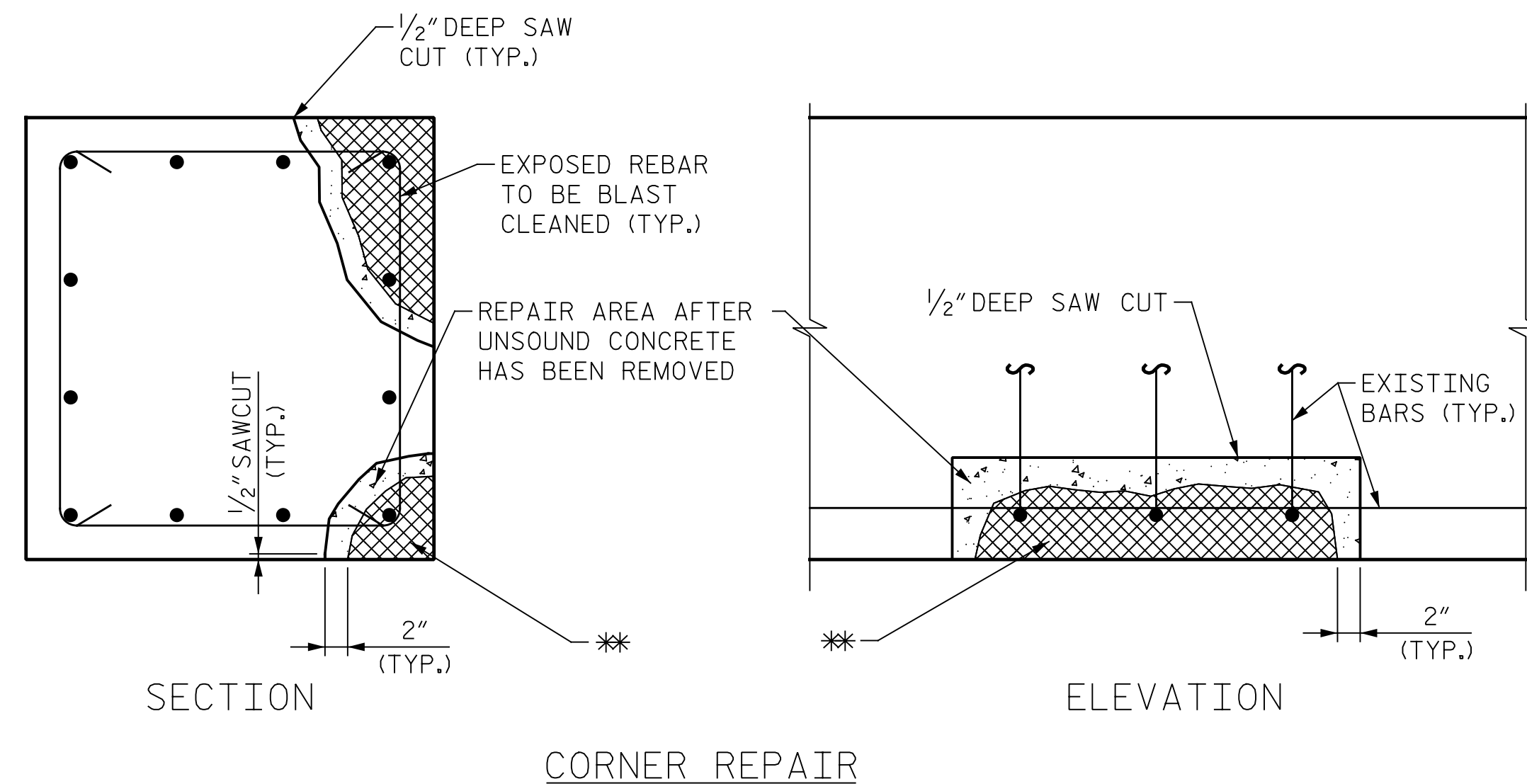
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUBSTRUCTURE REPAIR
BENT 3**

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DRAWN BY : P. MATTHEWS DATE : 07/24/18
CHECKED BY : G. SANSONI DATE : 08/16/18

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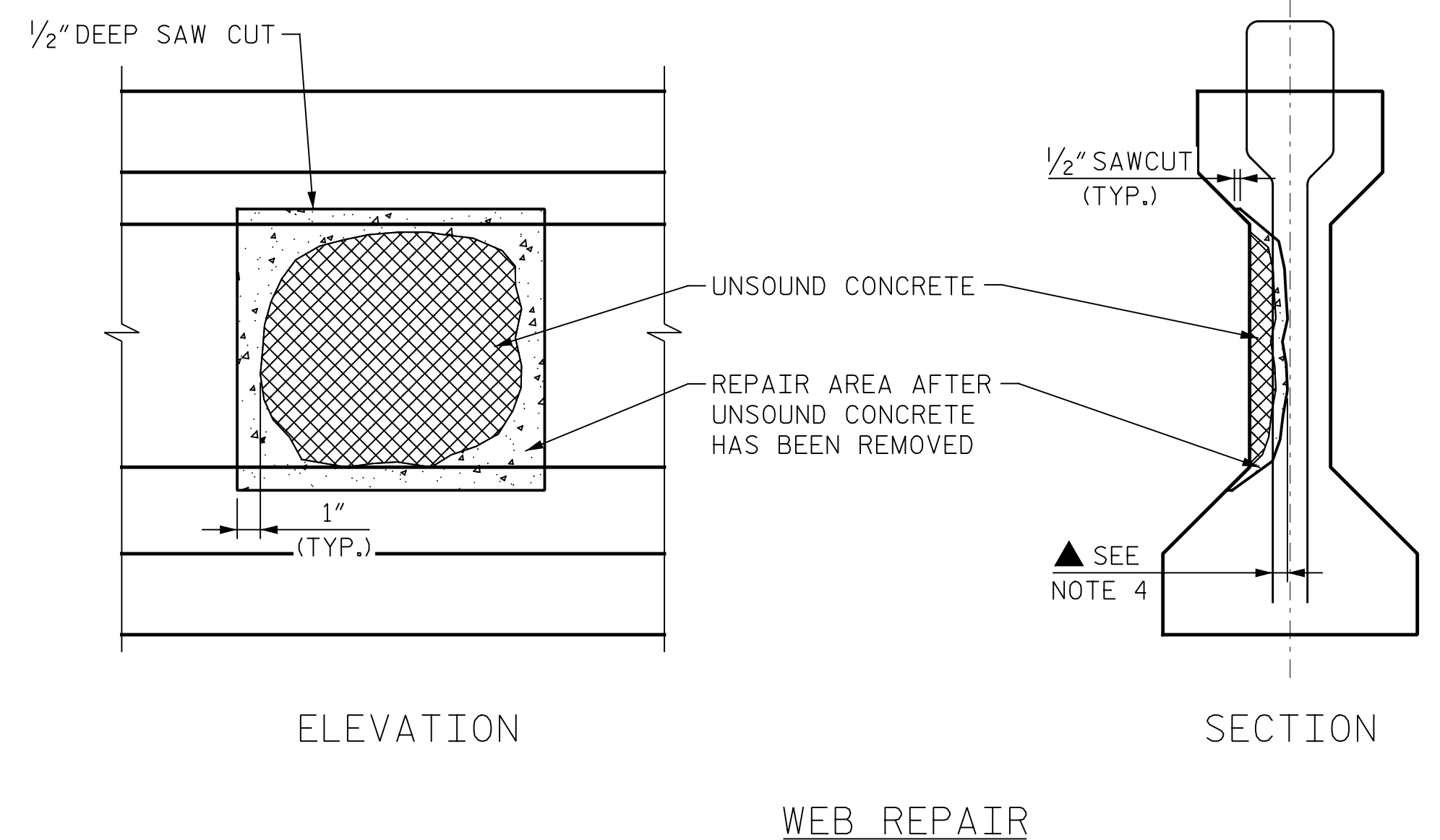


CAP AND COLUMN REPAIR

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

CAP AND COLUMN REPAIR SEQUENCE:

1. SOUND CONCRETE TO DETERMINE EXTENT OF REPAIR LOCATION.
2. REMOVE SURFACE CONCRETE TO VERIFY SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL. SAW CUT AROUND REPAIR AREA TO A NOMINAL DEPTH OF 1/2".
3. REMOVE CONCRETE WITHIN SAW CUT AREA TO MINIMUM 1/2" DEPTH.
4. CLEAN ALL EXPOSED REINFORCING STEEL AS PER SPECIAL PROVISIONS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED.
5. REMOVE ALL LOOSE OR WEAKENED MATERIAL THEN CLEAN THE REPAIR AREA OF DIRT, GREASE, OIL, AND FOREIGN MATTER.
6. PREPARE SURFACE AND PLACE APPROVED REPAIR MATERIAL ACCORDING TO SPECIAL PROVISIONS OR MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL REPAIR THE COLUMNS ONE FACE AT A TIME UNLESS APPROVED BY THE ENGINEER. THE VERTICAL LENGTH OF A COLUMN REPAIR AREA SHALL NOT EXCEED 10 FEET.



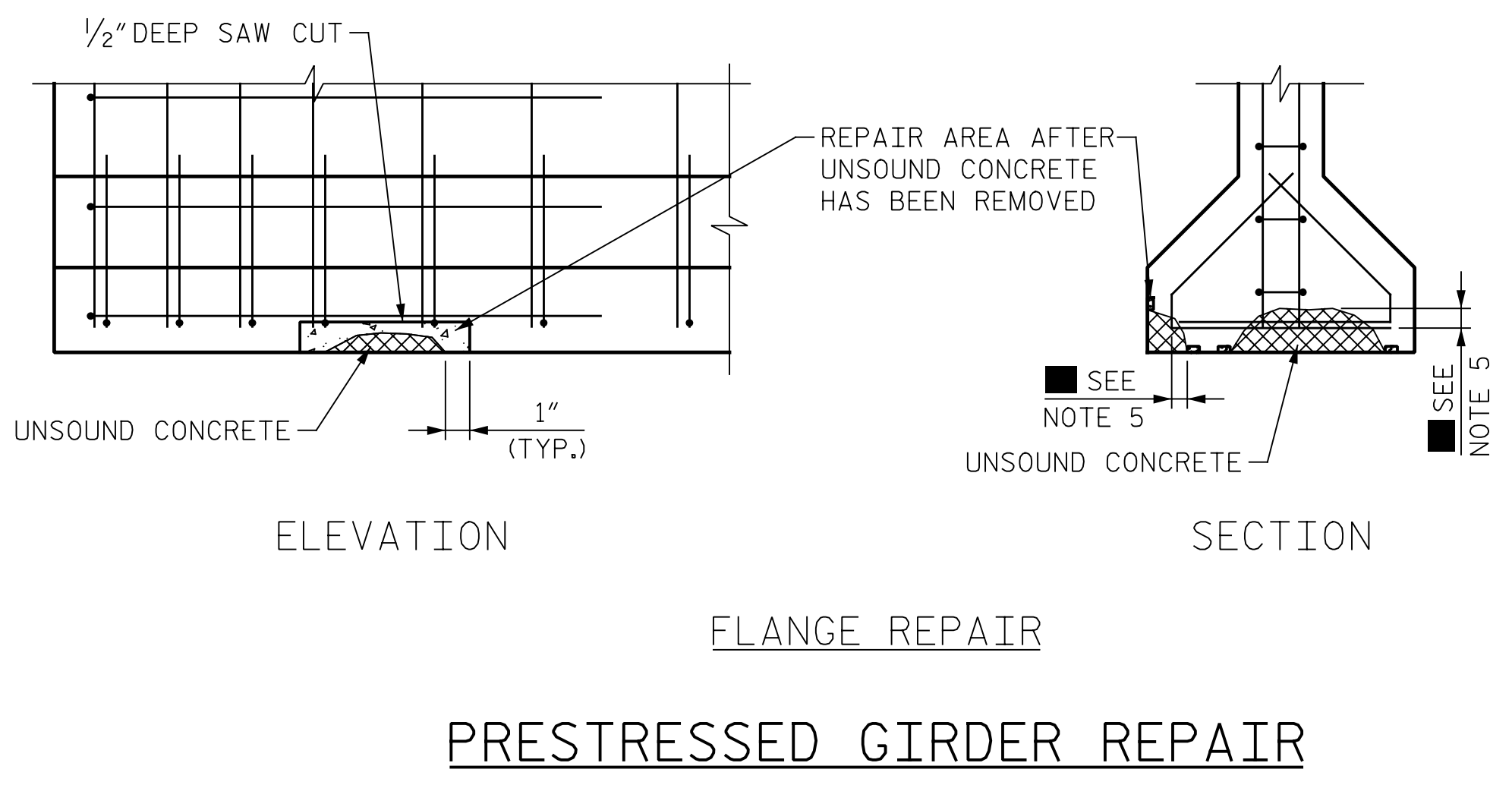
WEB REPAIR

PRESTRESSED GIRDER REPAIR SEQUENCE:

1. SOUND CONCRETE TO DETERMINE EXTENTS OF REPAIR LOCATION.
2. REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL. SAW CUT AROUND REPAIR AREA TO A NOMINAL DEPTH OF 1/2".
3. REMOVE CONCRETE WITHIN SAW CUT AREA TO MINIMUM 1/2" DEPTH. IF CONCRETE IS DAMAGED BEYOND THE ORIGINAL SAW CUT, A NEW SAW CUT IS REQUIRED.
- ▲ 4. IF MORE THAN HALF THE CIRCUMFERENCE OF A REINFORCING BAR IS EXPOSED DURING THIS PROCESS, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR. THIS DOES NOT APPLY TO PRESTRESSED STRANDS.
- 5. ALL UNSOUND CONCRETE MUST BE REMOVED. HOWEVER, PRESTRESSED STRANDS SHOULD NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY. USE EXTREME CARE TO NOT DAMAGE STRANDS.
6. USE A WIRE BRUSH TO CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED. NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEEDS 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.
7. REMOVE ALL LOOSE OR WEAKENED MATERIAL THEN CLEAN THE REPAIR AREA OF DIRT, GREASE, OIL, AND FOREIGN MATTER.
8. AT BEAM ENDS WHERE THE END OF PRESTRESSING STRAND MIGHT BE FREE AND NOT ANCHORED IN CONCRETE, CUT AND REMOVE PRESTRESSING STRAND BACK TO EVEN WITH THE PREPARED CONCRETE SUBSTRATE. IF THE LENGTH OF FREE, UNANCHORED PRESTRESSING STRAND EXCEEDS 12", OR IF MORE THAN ONE COLUMN OF PRESTRESSING STRAND IS EXPOSED, NOTIFY THE ENGINEER IMMEDIATELY.
9. PREPARE SURFACE AND PLACE APPROVED REPAIR MATERIAL ACCORDING TO SPECIAL PROVISIONS OR MANUFACTURER'S RECOMMENDATIONS. MAXIMUM AGGREGATE SIZE FOR REPAIR MATERIAL SHALL NOT EXCEED 2/3 THE MINIMUM REPAIR DEPTH.

NOTES:

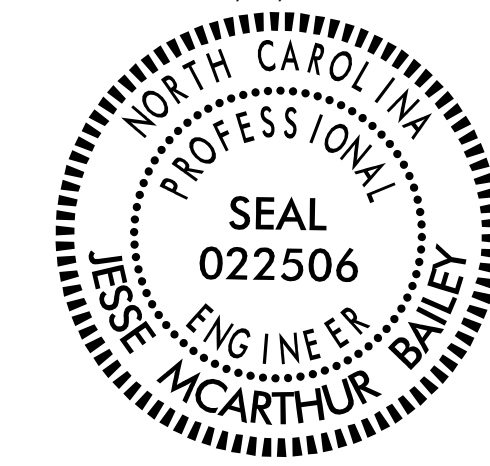
1. PREPACKAGED MATERIAL IS REQUIRED.
2. CONSULT WITH THE ENGINEER TO DETERMINE THE PRELOADING REQUIREMENTS WHEN REPAIR IS WITHIN THE CENTER REGION OF THE BEAM (0.25L TO 0.75L)
3. FOR REPAIRS OVER TRAFFIC AND SHALLOW REPAIRS THAT DO NOT ENGAGE REINFORCEMENT, ANCHOR PATCH MATERIAL USING 1/4" GALVANIZED BOLTS, EPOXY ANCHORED WITH 2" EMBEDMENT. PLACE BOLTS IN A 6" GRID. USE A LATEX OR EPOXY PATCH MATERIAL FOR IMPROVED BOND. USE EXTREME CARE TO NOT DAMAGE STRANDS.



FLANGE REPAIR

PRESTRESSED GIRDER REPAIR

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J.M. Bailey
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10/31/2018



PROJECT NO. 15BPR.30
GASTON COUNTY
BR. NO. 39

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**MISCELLANEOUS REPAIR
DETAILS**

DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

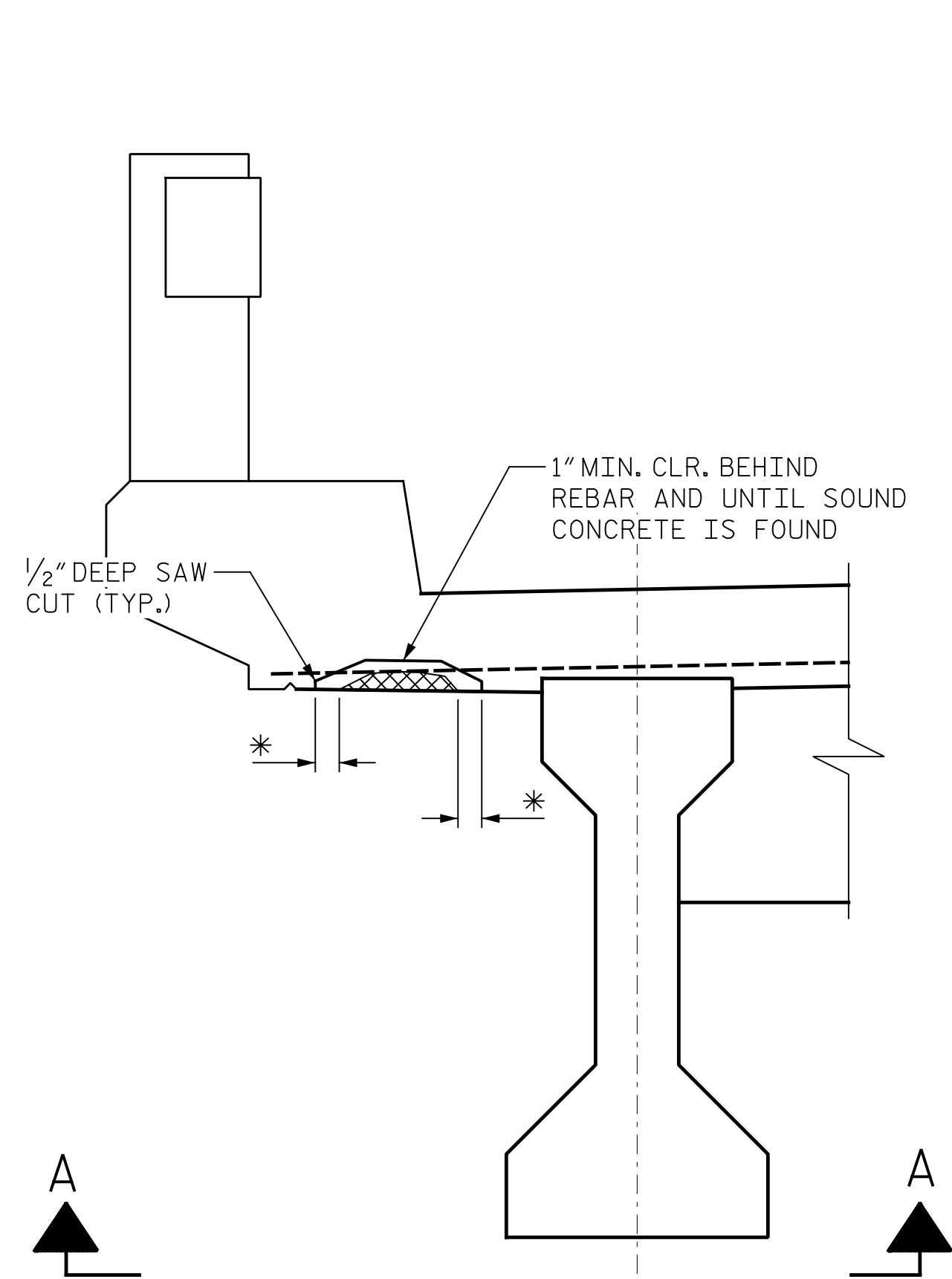
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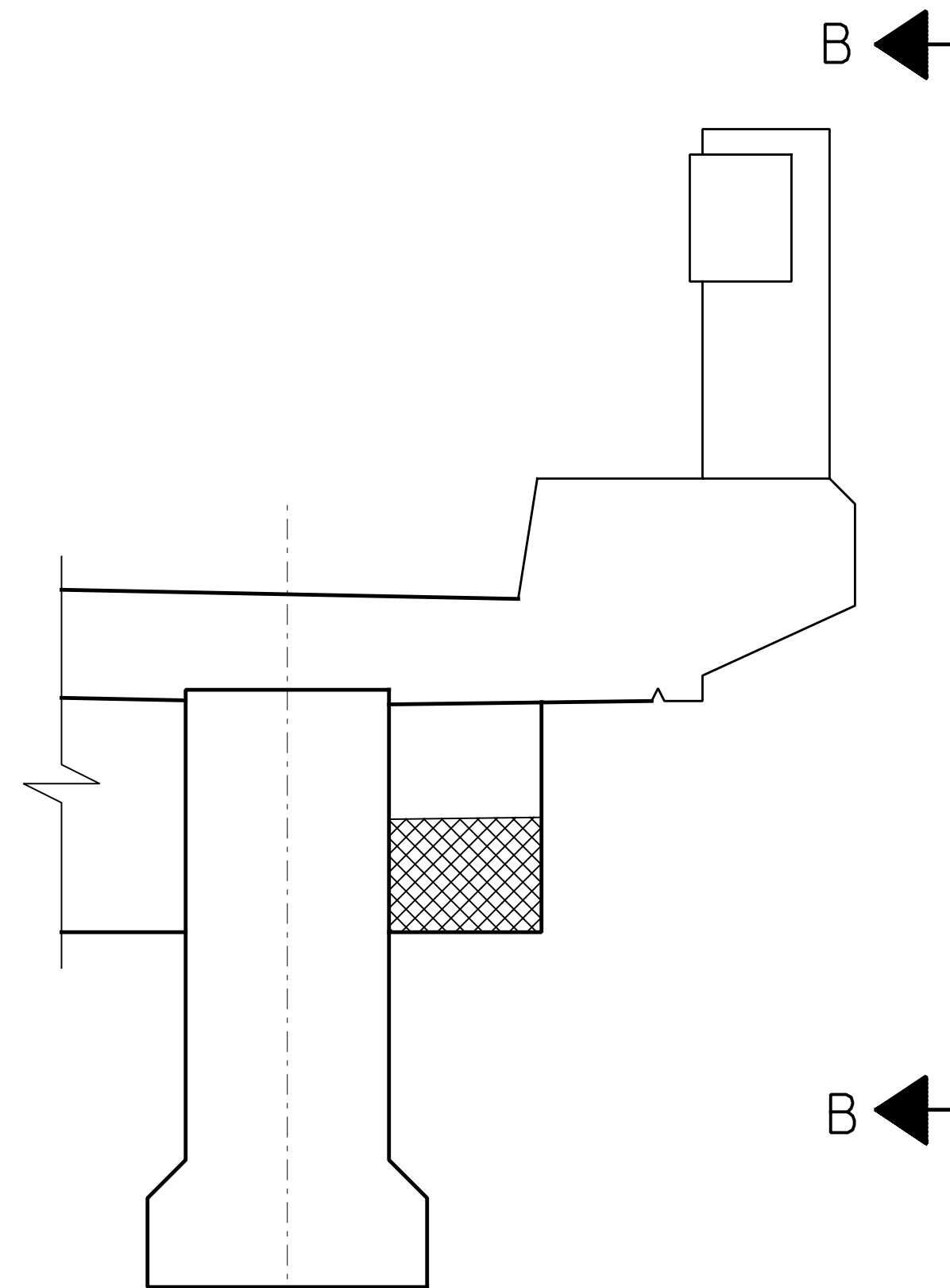
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TYPICAL SECTION

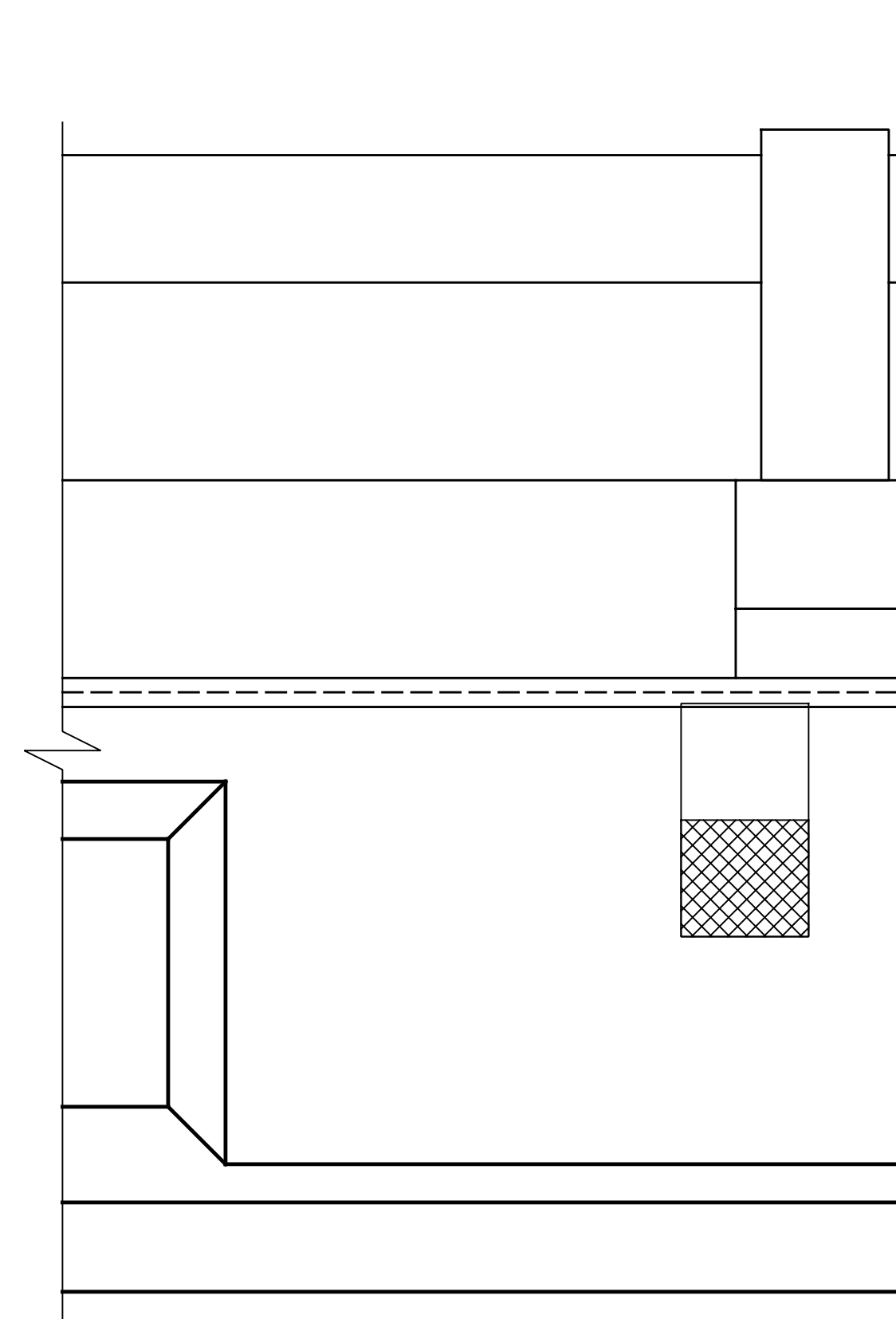
DAMAGED AREA * REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN.)



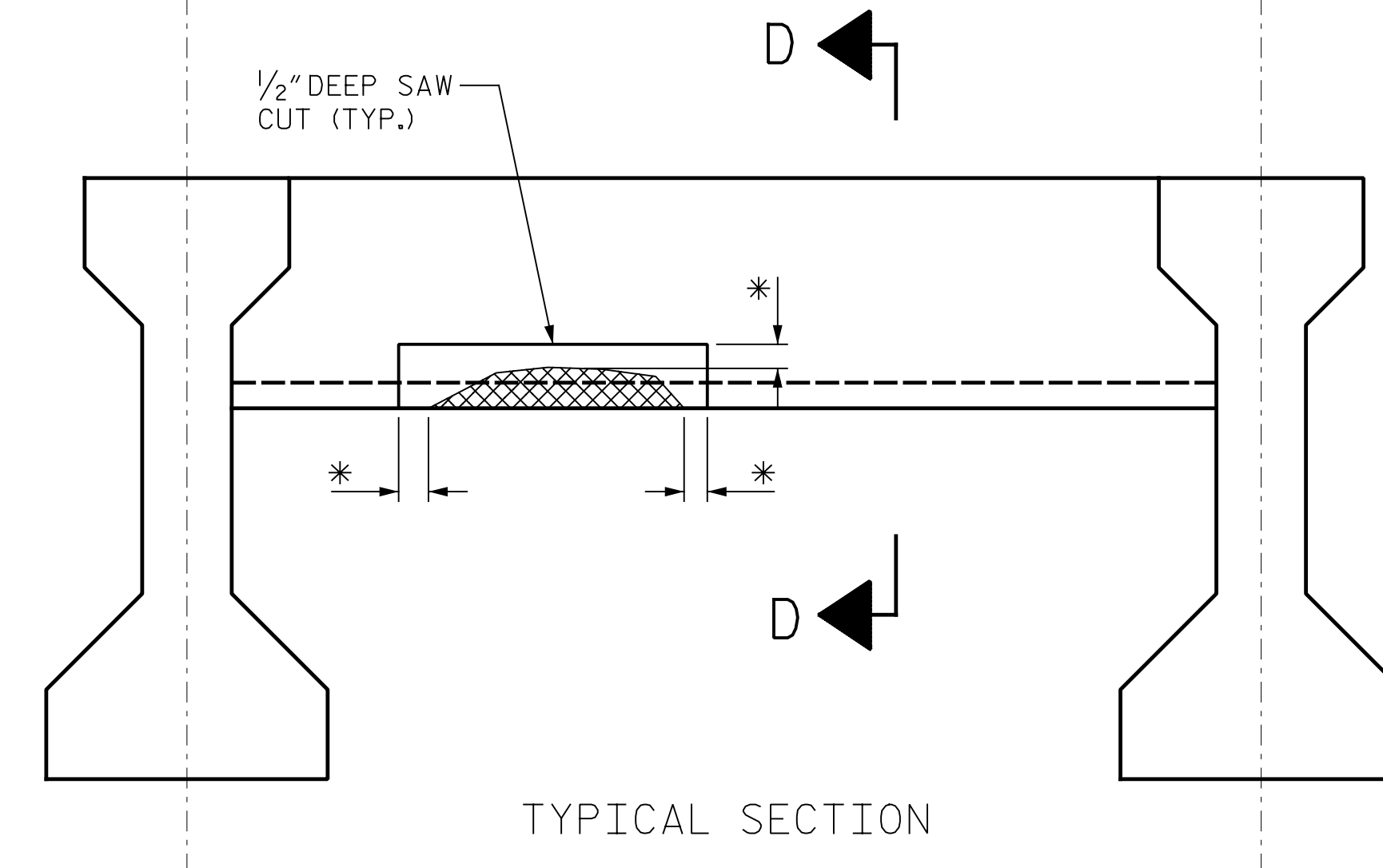
TYPICAL SECTION

DIAPHRAGM REPLACEMENT NOTES:
 EXISTING REBAR TO REMAIN IN PLACE. CLEAN AND REPAIR AS NECESSARY.

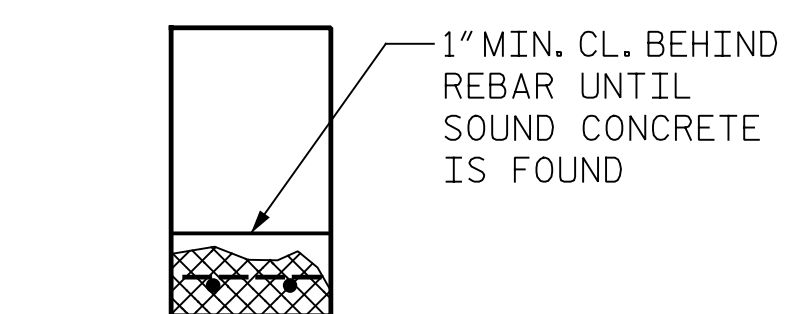
DAMAGED AREA



SECTION B-B



TYPICAL SECTION



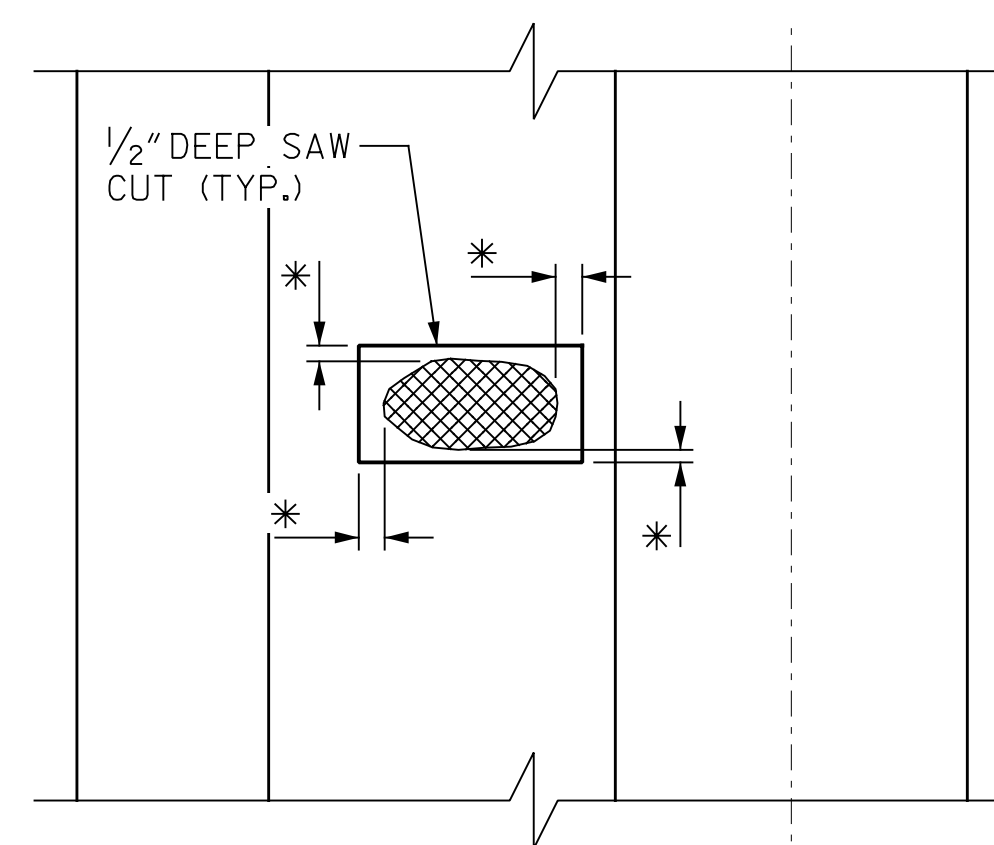
SECTION D-D

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN.)

DAMAGED AREA

NOTE:
 EXISTING REBAR TO REMAIN IN PLACE. CLEAN AND REPAIR AS NECESSARY.

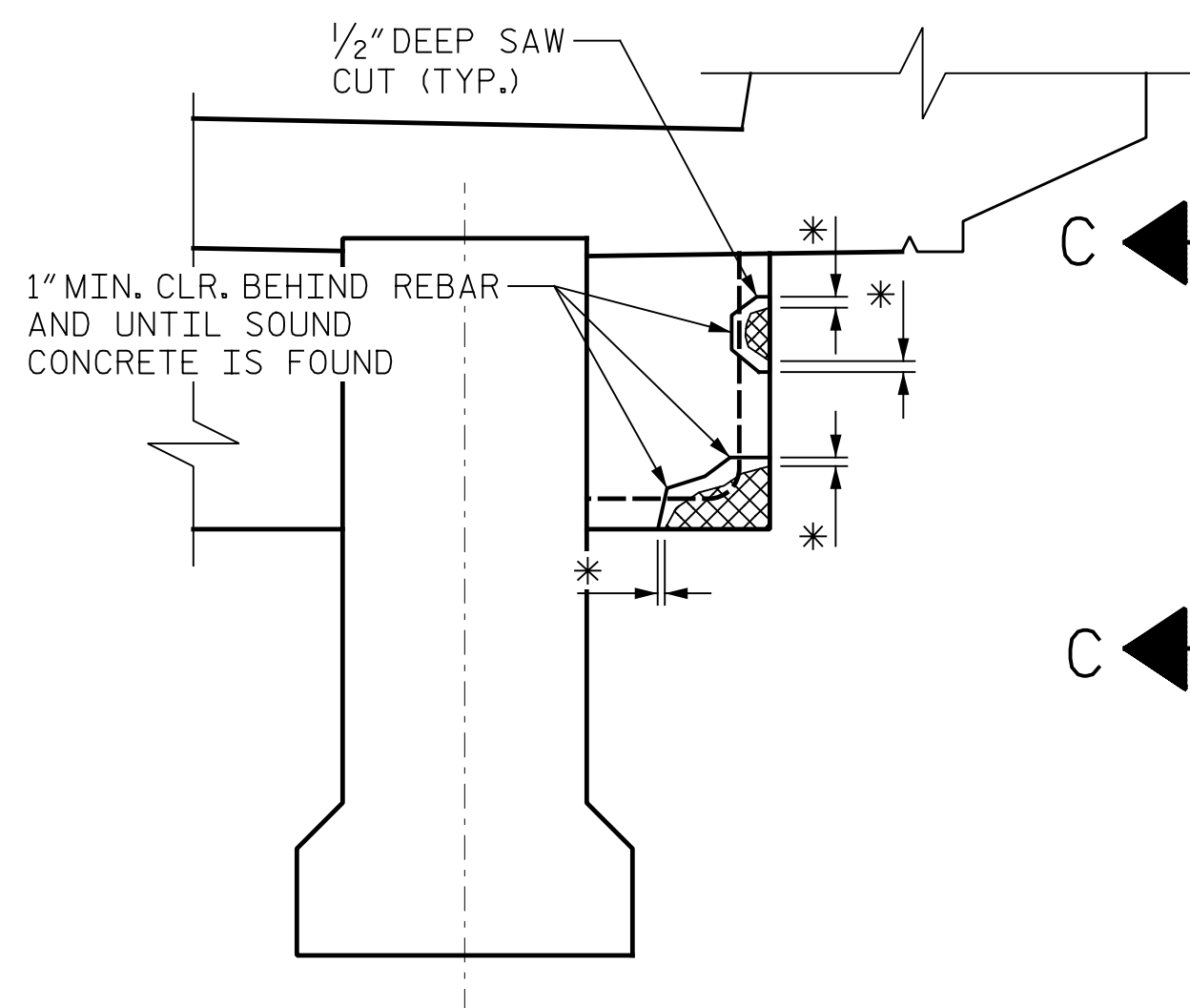
INTERIOR DIAPHRAGM REPAIR DETAILS



SECTION A-A

OVERHANG DETAILS

OVERHANG DIAPHRAGM REPLACEMENT DETAILS

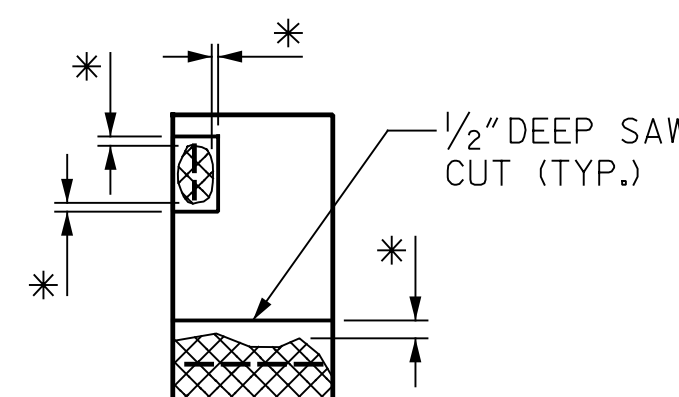


TYPICAL SECTION

OVERHANG DIAPHRAGM REPAIR DETAILS

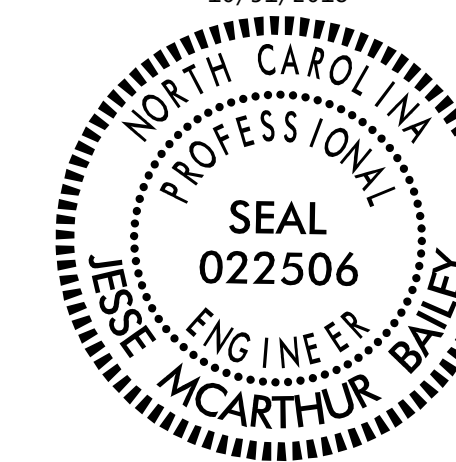
* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN.)

DAMAGED AREA



SECTION C-C

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 10/31/2018



PROJECT NO. 15BPR.30
GASTON COUNTY
 BR. NO. 39

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

OVERHANG & DIAPHRAGM REPAIR DETAILS

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TOTAL SHEETS 21

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DRAWN BY : P. MATTHEWS DATE : 07/24/18
 CHECKED BY : G. SANSONI DATE : 08/16/18

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	--	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	--	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	--	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	---	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	---	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

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

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$ INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

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