

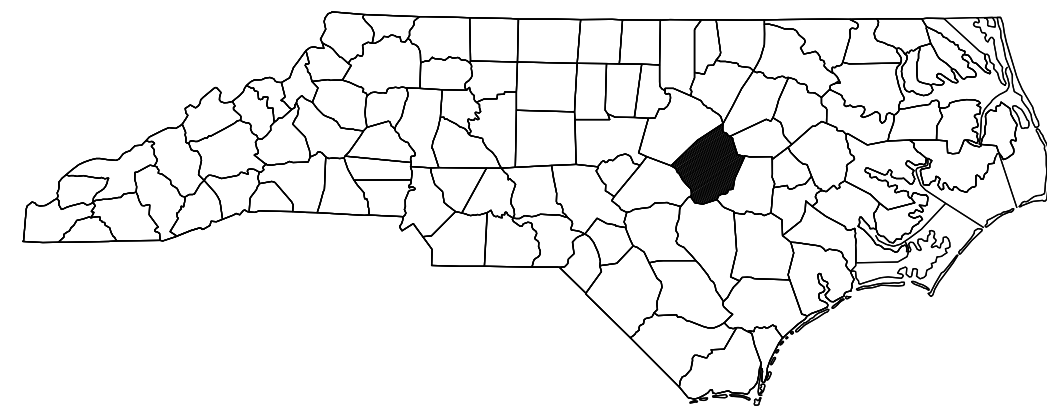
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with their signature on that page.**

**This file or an individual page
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PROJECT: HI-0008

CONTRACT: C204650



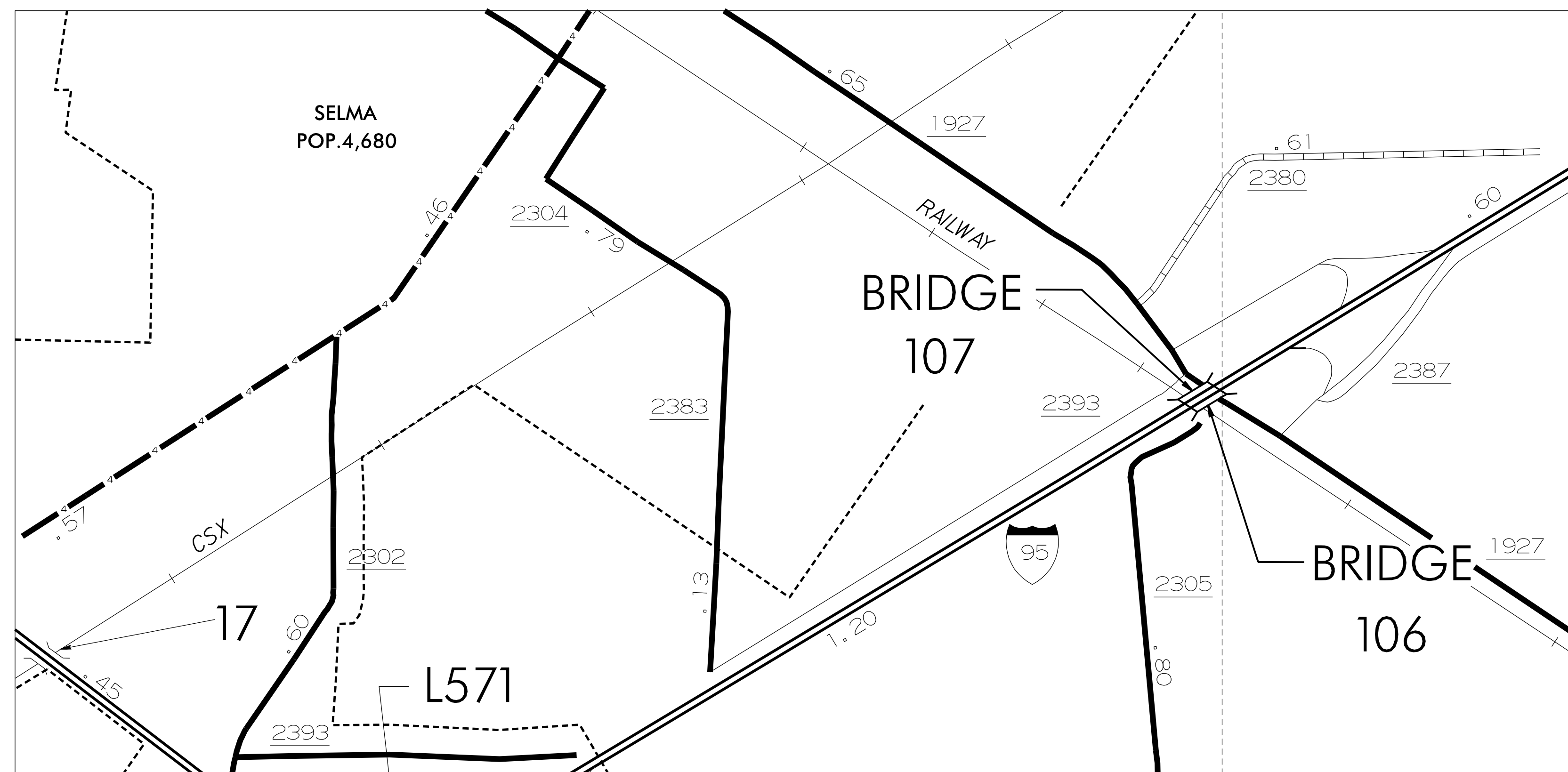
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

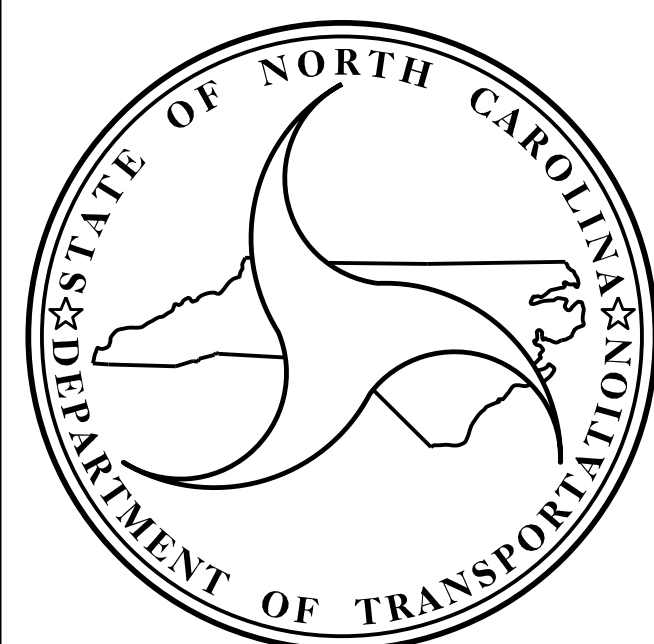
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HI-0008	1	49
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49633.1.1	0095077	P.E.	
49633.1.1	0095077	CONST.	

LOCATION: BRIDGE #500106 ON I-95 NBL OVER SR1927, SR2305, NSRR.
BRIDGE #500107 ON I-95 SBL OVER SR1927, SR2305, NSRR.

TYPE OF WORK: CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, SHOTBLASTING AND PLACEMENT OF POLYMER CONCRETE, RECONSTRUCTION OF BRIDGE DECK JOINTS AND SEALS, CLEANING AND PAINTING EXISTING STEEL BEAMS AND BEARINGS, SUBSTRUCTURE CONCRETE REPAIRS WITH SHOTCRETE, CONCRETE, AND EPOXY RESIN INJECTION, BRIDGE JACKING, AND SLOPE PROTECTION REPAIR.



VICINITY MAP : JOHNSTON COUNTY



**DESIGN DATA
JOHNSTON COUNTY**

BRIDGE #500106 ADT 2018	=	20,250
BRIDGE #500107 ADT 2018	=	20,250

PROJECT LENGTH

BRIDGE #500106	=	0.077 MILES
BRIDGE #500107	=	0.077 MILES
<hr/>		
LENGTH OF STRUCTURES TIP PROJECT HI-0008	=	0.077 MILES
LENGTH OF ROADWAY TIP PROJECT HI-0008	=	2.363 MILES
TOTAL LENGTH OF TIP PROJECT HI-0008	=	2.440 MILES

Prepared in the Office of:
**DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

KRISTY W. ALFORD, P.E., CPM
PROJECT ENGINEER

2018 STANDARD SPECIFICATIONS

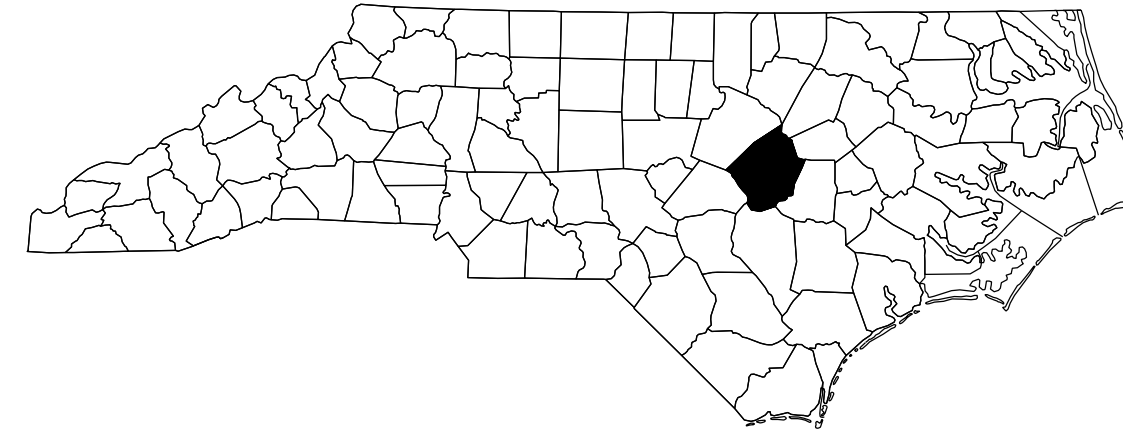
LETTING DATE:
SEPTEMBER 20, 2022



ASTER G. ABRAHA, P.E.
PROJECT DESIGN ENGINEER

PROJECT: HI-0008

CONTRACT NO: C204650



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HI-0008	1A	49
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49633.1.1	0095077	P.E.	
49633.2.1	0095077	CONST.	

LOCATION: BRIDGE #500106 ON I-95 NBL OVER SR1927, SR2305, NSRR.
BRIDGE #500107 ON I-95 SBL OVER SR1927, SR2305, NSRR.

TYPE OF WORK: CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, SHOTBLASTING AND PLACEMENT OF POLYMER CONCRETE, RECONSTRUCTION OF BRIDGE DECK JOINTS AND SEALS, CLEANING AND PAINTING EXISTING STEEL BEAMS AND BEARINGS, SUBSTRUCTURE CONCRETE REPAIRS WITH SHOTCRETE, CONCRETE, AND EPOXY RESIN INJECTION, BRIDGE JACKING, AND SLOPE PROTECTION REPAIR.

INDEX OF STRUCTURES SHEETS

<u>SHEET No.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
1A	INDEX OF SHEETS
S-1	LOCATION SKETCHES
S-2	TOTAL BILL OF MATERIAL
STRUCTURE No. 500106	
SI-1	GENERAL DRAWING
SI-2	TYPICAL SECTION
SI-3 THRU SI-8	SURFACE PREPARATION
SI-9 THRU SI-10	DECK UNDERSIDE REPAIRS
SI-11 THRU SI-13	JOINT REPAIR
SI-14	END BENTS
SI-15 THRU SI-19	BENTS
SI-20	TYPICAL CAP AND COLUMN REPAIR DETAILS
SI-21	BRIDGE JACKING DETAILS
STRUCTURE No. 500107	
S2-1	GENERAL DRAWING
S2-2	TYPICAL SECTION
S2-3 THRU S2-8	SURFACE PREPARATION
S2-9 THRU S2-10	DECK UNDERSIDE REPAIRS
S2-11 THRU S2-13	JOINT REPAIR
S2-14	END BENTS
S2-15 THRU S2-19	BENTS
S2-20	TYPICAL CAP AND COLUMN REPAIR DETAILS
S2-21	BRIDGE JACKING DETAILS
STRUCTURE No. 500106 & No. 500107	
S2-22	SLOPE PROTECTION REPAIR
STANDARD SHEETS	
SN	STANDARD NOTES



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.

NOTES:

REPAIR LOCATION AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN IN THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE IN THE DRAWING THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED IN TO REPAIR QUANTITIES TABLE.

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM 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.

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

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

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

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

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

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

FOR STRIP SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

FOR OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

FOR POLYMER CONCRETE DECK OVERLAY, SEE SPECIAL PROVISIONS. FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT AND POLLUTION CONTROL, SEE PAINTING EXISTING STEEL STRUCTURE SPECIAL PROVISION.

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISION.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

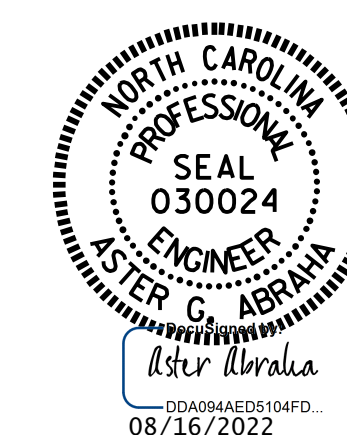
FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

THE RAILROAD TRACK TOP OF RAIL TO BOTTOM OF BEAM VERTICAL CLEARANCES ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL TO BOTTOM OF BEAM CLEARANCES AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

AT THE TIME OF 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 NO.	DESCRIPTION	UNIT
1	CLASS III SURFACE PREPARATION	SO. YD.

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO.: 500106
 & 500107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
LOCATION SKETCH
 FOR BRIDGE 106 & 107 ON
 I-95 NBL & SBL OVER
 NORFOLK SOUTHERN RAILWAY,
 SR 2305 AND SR 1927

DRAWN BY : SWAN DATE : 06/2021
 CHECKED BY : A. G. ABRAHA DATE : 05/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			48

TOTAL BILL OF MATERIAL

BRIDGE NO.	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	STRIP SEALS FOR PRESERVATION	PAINTING CONTAINMENT FOR BRIDGE #--	CLEANING AND REPAINTING OF BRIDGE #--	VOLUMETRIC MIXER	POURABLE SILICONE JOINT SEALANT	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	SLOPE PROTECTION VOID FILLING	CONCRETE WORK FOR JOINT REPLACEMENT	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	PLACING & FINISHING POLYMER CONCRETE OVERLAY	TYPE I BRIDGE JACKING BRIDGE NO. --
	SO. FT.	LUMP SUM	SO. YD.	CU. FT.	CU. FT.	LN. FT.	LN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LN. FT.	CU. YD.	CU. YD.	LBS	SO. FT.	SO. YD.	SO. YD.	SO. YD.	EA
500106	15,785	LUMP SUM	27.6	16.0	26.9	19.0	46.4	LUMP SUM	LUMP SUM	LUMP SUM	272.1	105.7	105.7	13,918.5	100.6	1,898	1,898	1,898	6
500107	15,785	LUMP SUM	26.7	4.6	22.2	28.7	46.4	LUMP SUM	LUMP SUM	LUMP SUM	266.1	105.7	105.7	13,918.5	100.6	1,898	1,898	1,898	1
TOTAL	31,570	LUMP SUM	54.3	20.6	49.1	47.7	92.8	LUMP SUM	LUMP SUM	LUMP SUM	538.2	211.4	211.4	27,837	201.2	3,796	3,796	3,796	7

AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT CLASS III DECK SURFACE PREPARATION WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT CLASS III DECK SURFACE PREPARATION, 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 PROJECT DOCUMENTS, BUT NO QUANTITIES HAVE BEEN LISTED. ACTUAL PAY ITEMS, QUANTITIES, AND COSTS WILL BE ESTABLISHED, AS REQUIRED, IF EXTRA WORK IS ENCOUNTERED.

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. : 500106
 & 500107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BILL OF MATERIAL
 FOR BRIDGES 106 & 107 ON
 I-95 SBL AND NBL OVER
 NORFOLK SOUTHERN RAILWAY,
 SR 2305 AND SR 1927

DRAWN BY : G. AYES DATE : 05/2021
 CHECKED BY : A. G. ABRAHA/S. WANCE DATE : 05/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

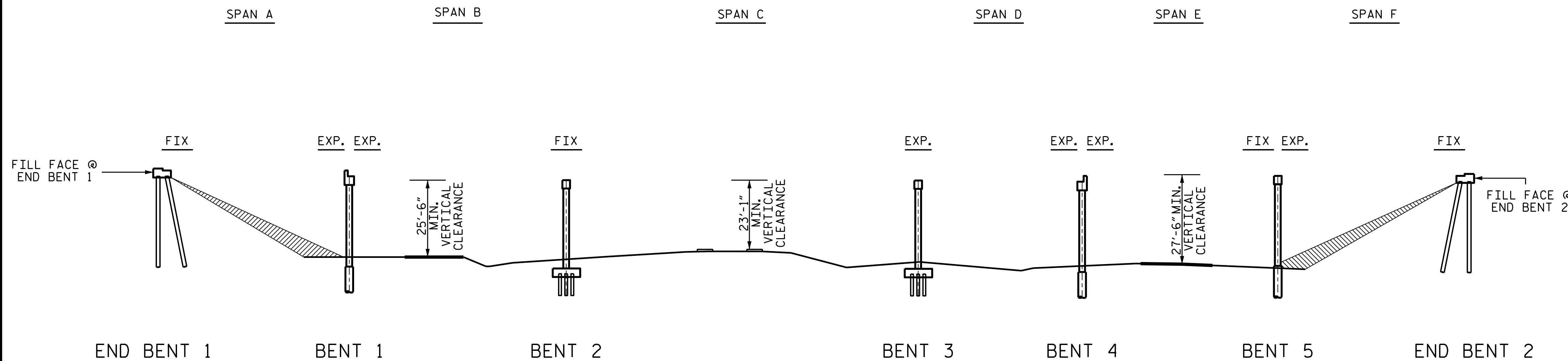
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-2
2			4			TOTAL SHEETS 48

SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOT-BLASTING METHODS.
- DEMOLISH AND REMOVE EXISTING BRIDGE DECK JOINTS.
- PERFORM CONCRETE DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYMER CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL STRIP SEAL EXPANSION JOINTS AND POURABLE SILICONE JOINT SEALS.
- GROOVE CONCRETE BRIDGE DECK.
- REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, CONCRETE AND SHOTCRETE.
- CLEAN AND PAINT EXISTING STRUCTURAL STEEL BEAMS.

NOTES

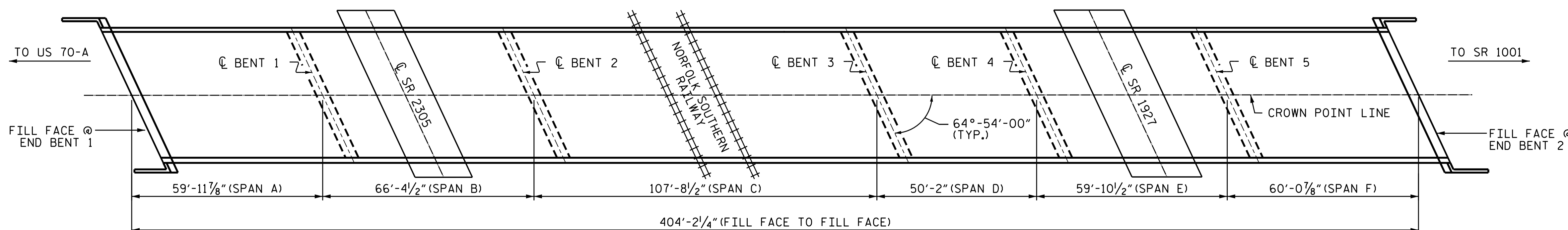
- PROFILE INFORMATION IS TAKEN FROM ORIGINAL PLANS, WIDENING PLANS, AND INSPECTION REPORT DATED 04/16/2020.
- BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.
- FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.



SECTION ALONG C ROADWAY

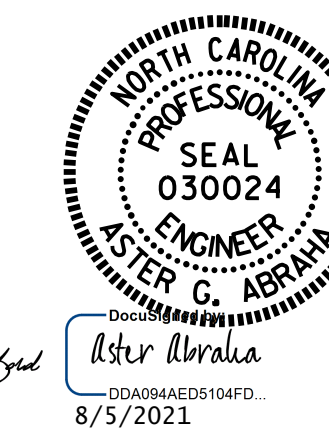
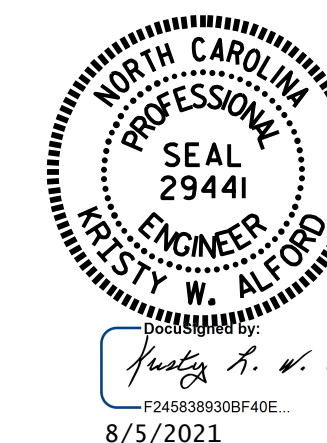
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer _____ Date _____



PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

PLAN
 (COLUMN & PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)



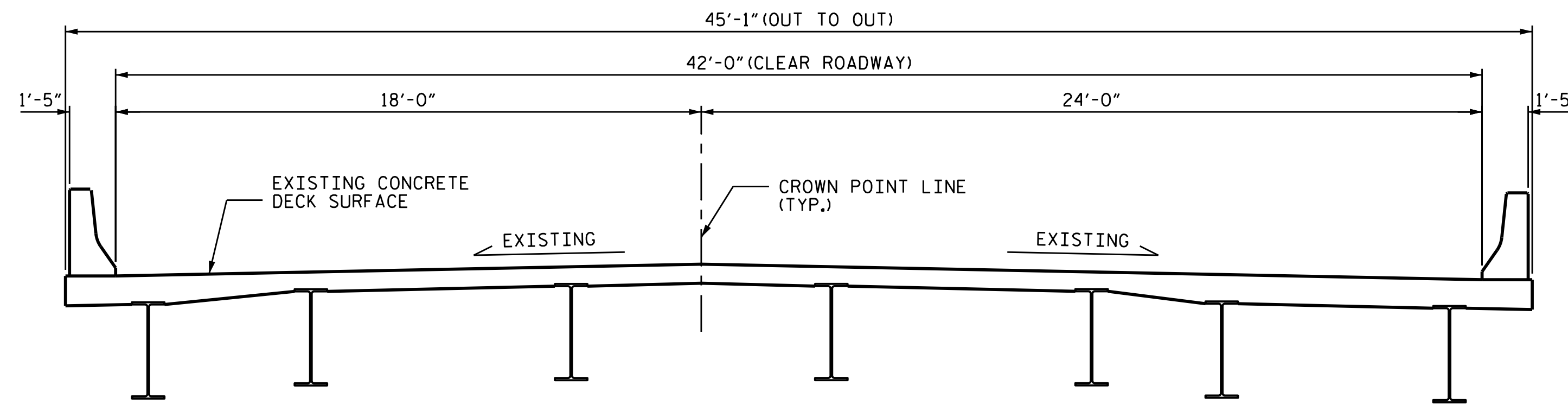
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE 106 ON
 I-95 NORTHBOUND OVER
 NORFOLK SOUTHERN RAILWAY,
 SR 2305 AND SR 1927

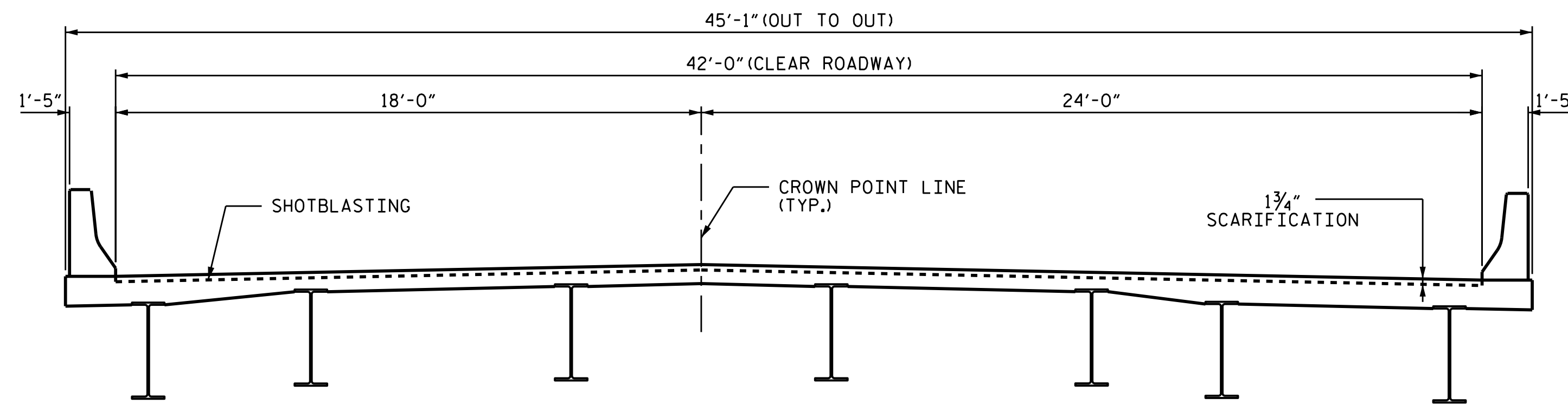
DRAWN BY : G. AYES DATE : .04/2021
 CHECKED BY : S. WANCE DATE : .07/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

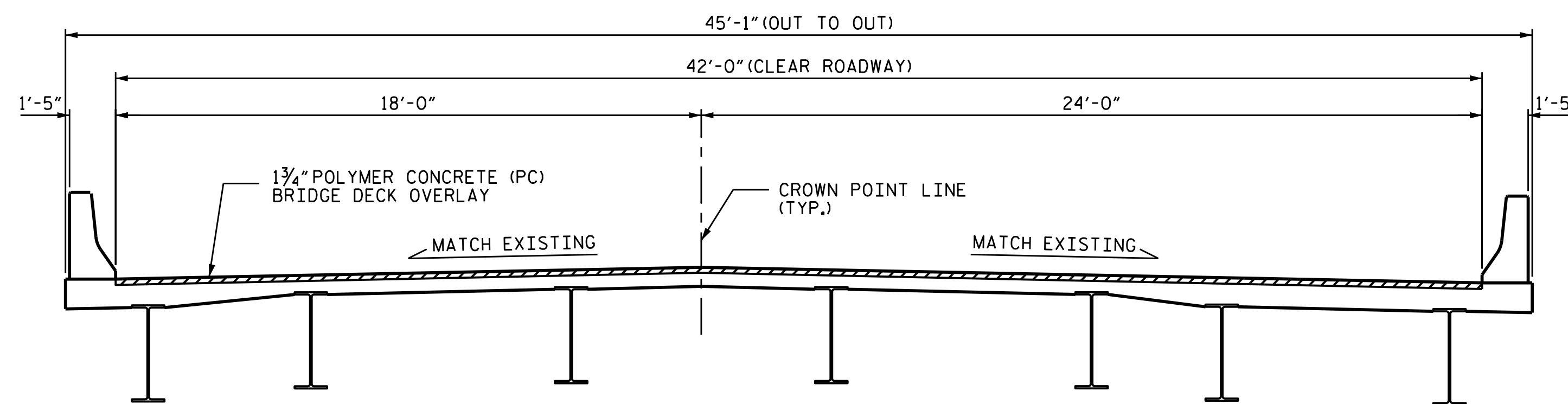
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-1
1			3			TOTAL SHEETS
2			4			48



TYPICAL SECTION
(EXISTING - NORTHBOUND LANE)



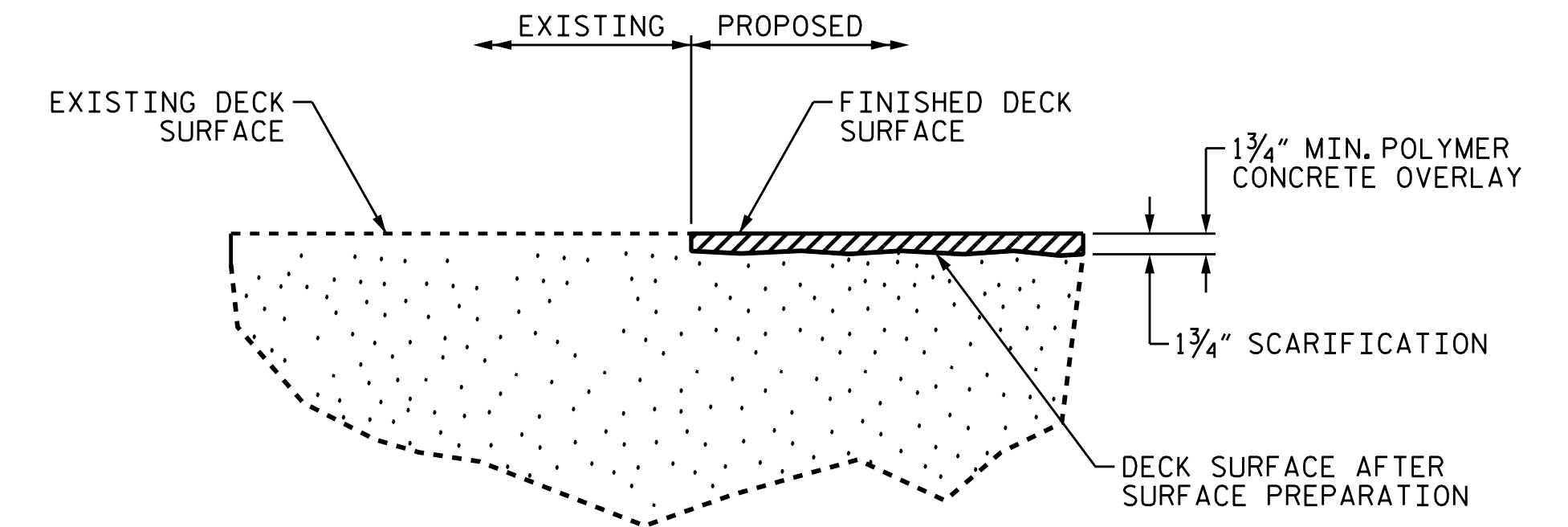
TYPICAL SECTION
(DECK PREPARATION)



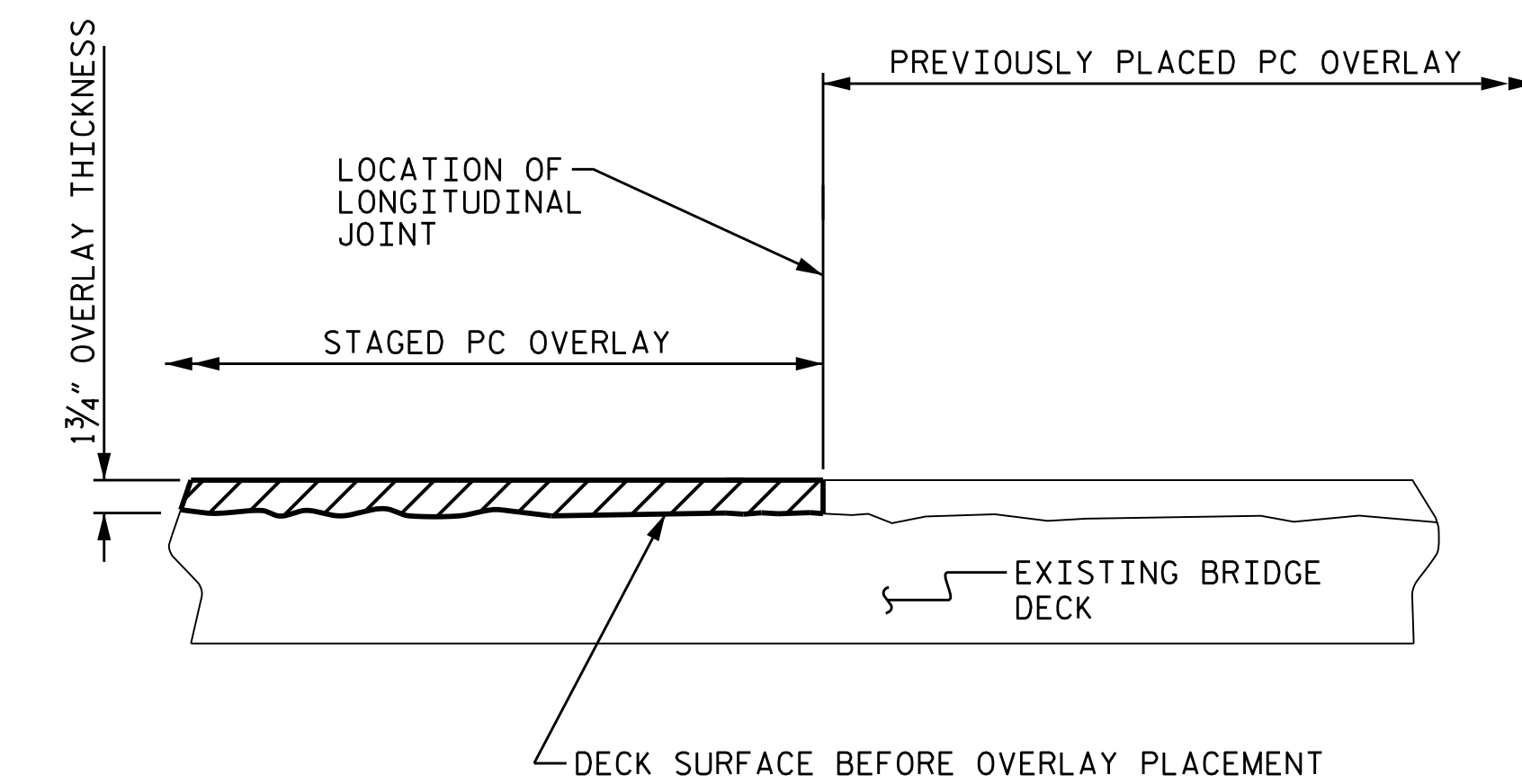
TYPICAL SECTION
(PROPOSED)

NOTES

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

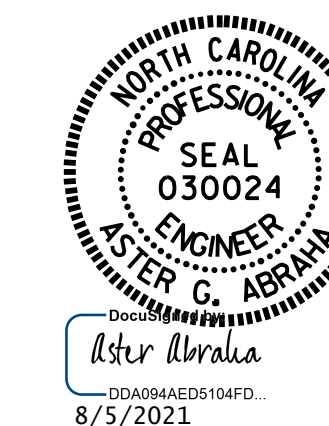


POLYMER CONCRETE OVERLAY DETAIL



STAGED POLYMER CONCRETE OVERLAY JOINT
(AS NEEDED)

PROJECT NO. HI-0008
JOHNSTON COUNTY
BRIDGE NO. 500106



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION & POLYMER CONCRETE OVERLAY DETAILS

DRAWN BY : G. AYES DATE : .05/2021
CHECKED BY : S. WANCE DATE : .07/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-2
1			3			TOTAL SHEETS
2			4			48

SUMMARY OF QUANTITIES FOR SPAN A AND APPROACH SLAB 1

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	13.9 SY	
GROOVING BRIDGE DECK	2379 SF	

NOTES:

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



FOR POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

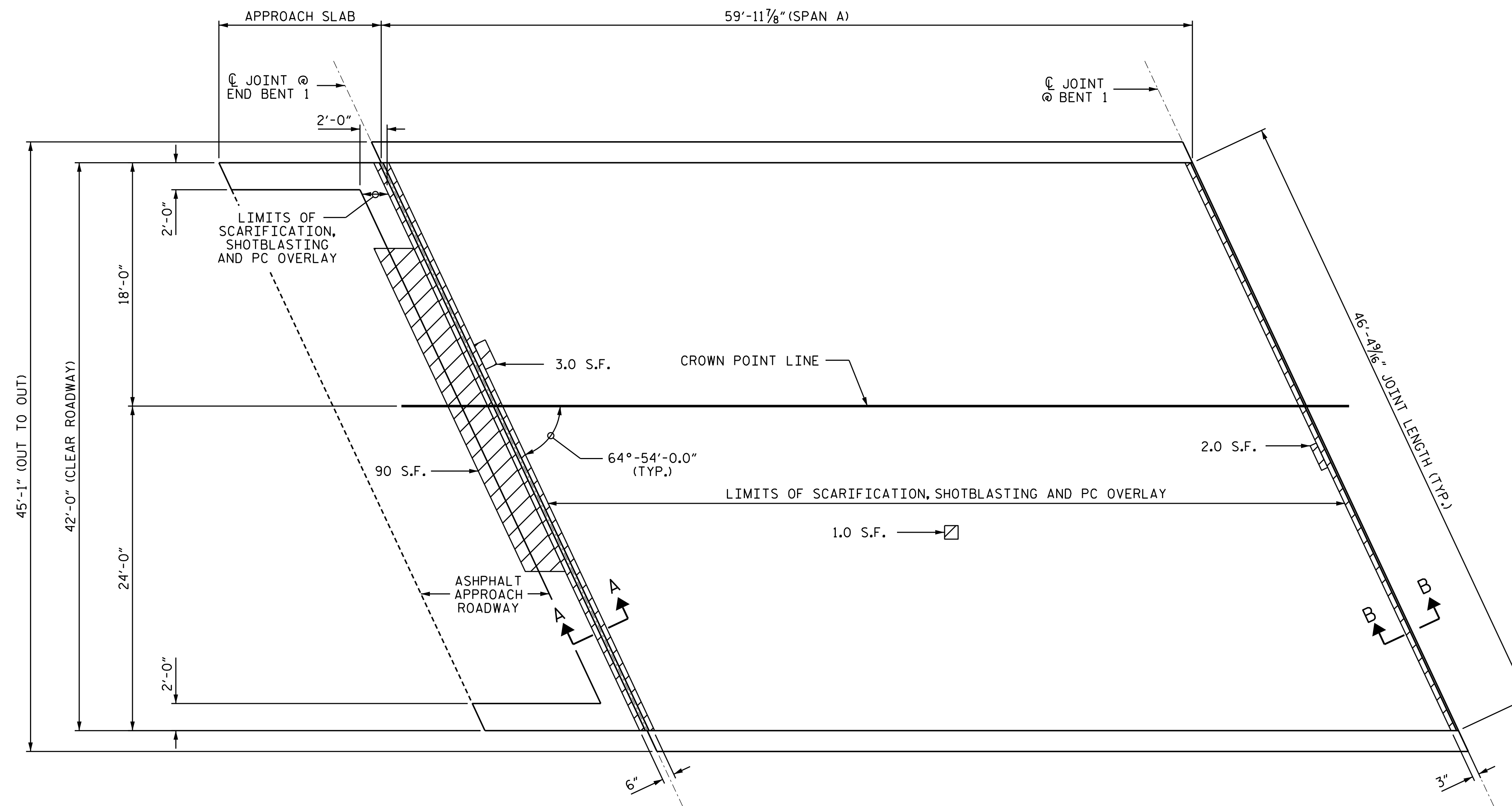
FOR OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

POURABLE SILICONE JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROXIMATE AREA CLASS II SURFACE PREPARATION

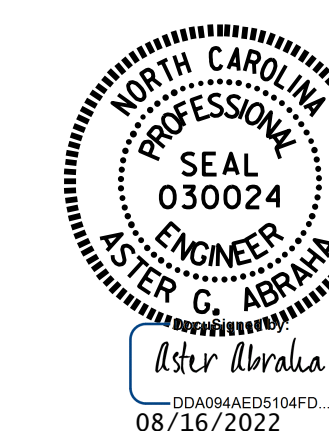


PLAN OF SPAN A AND APPROACH SLAB 1

(SEE SHEET NO. S1-11 FOR SECTIONS A-A AND B-B)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 1 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SURFACE PREPARATION
 SPAN A AND
 APPROACH SLAB 1

DRAWN BY : G. AYES DATE : 05/2021
 CHECKED BY : S. WANCE DATE : 07/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-3
2			4			TOTAL SHEETS 48



SUMMARY OF QUANTITIES FOR SPAN B

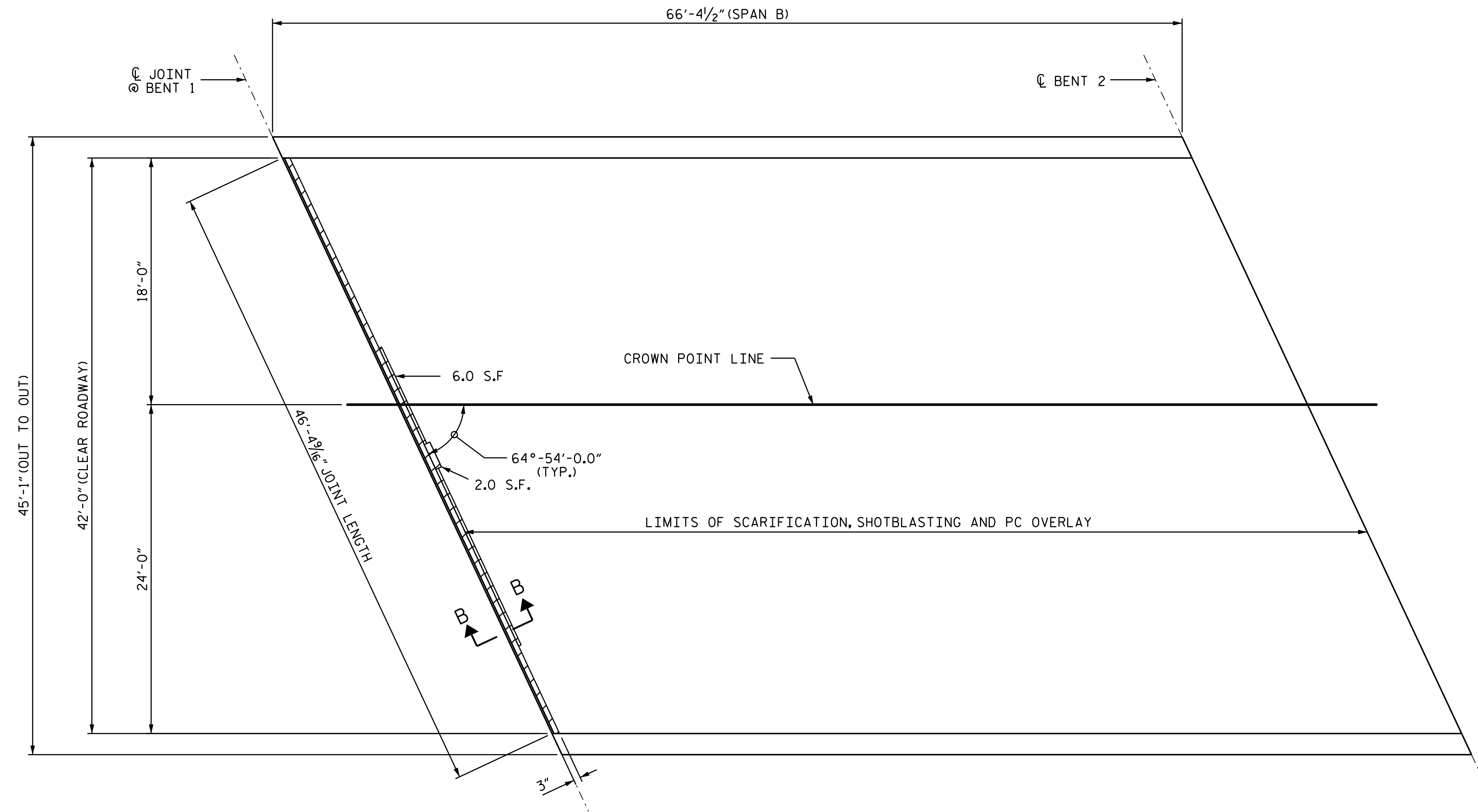
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	310 SY	
POLYESTER POLYMER CONCRETE MATERIALS	17.3 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	17.3 CY	
SHOTBLASTING BRIDGE DECK	310 SY	
PLACING & FINISHING PC OVERLAY	310 SY	
CLASS II SURFACE PREPARATION	2.0 SY	
GROOVING BRIDGE DECK	2578 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROXIMATE AREA CLASS II SURFACE PREPARATION

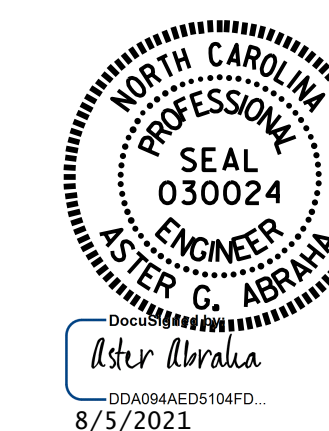


PLAN OF SPAN B

(SEE SHEET S1-11 FOR SECTIONS B-B)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 2 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SURFACE PREPARATION
 SPAN B

DRAWN BY : G. AYES DATE : 05/2021
 CHECKED BY : S. WANCE DATE : 07/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-4
2			4			TOTAL SHEETS 48



SUMMARY OF QUANTITIES FOR SPAN C

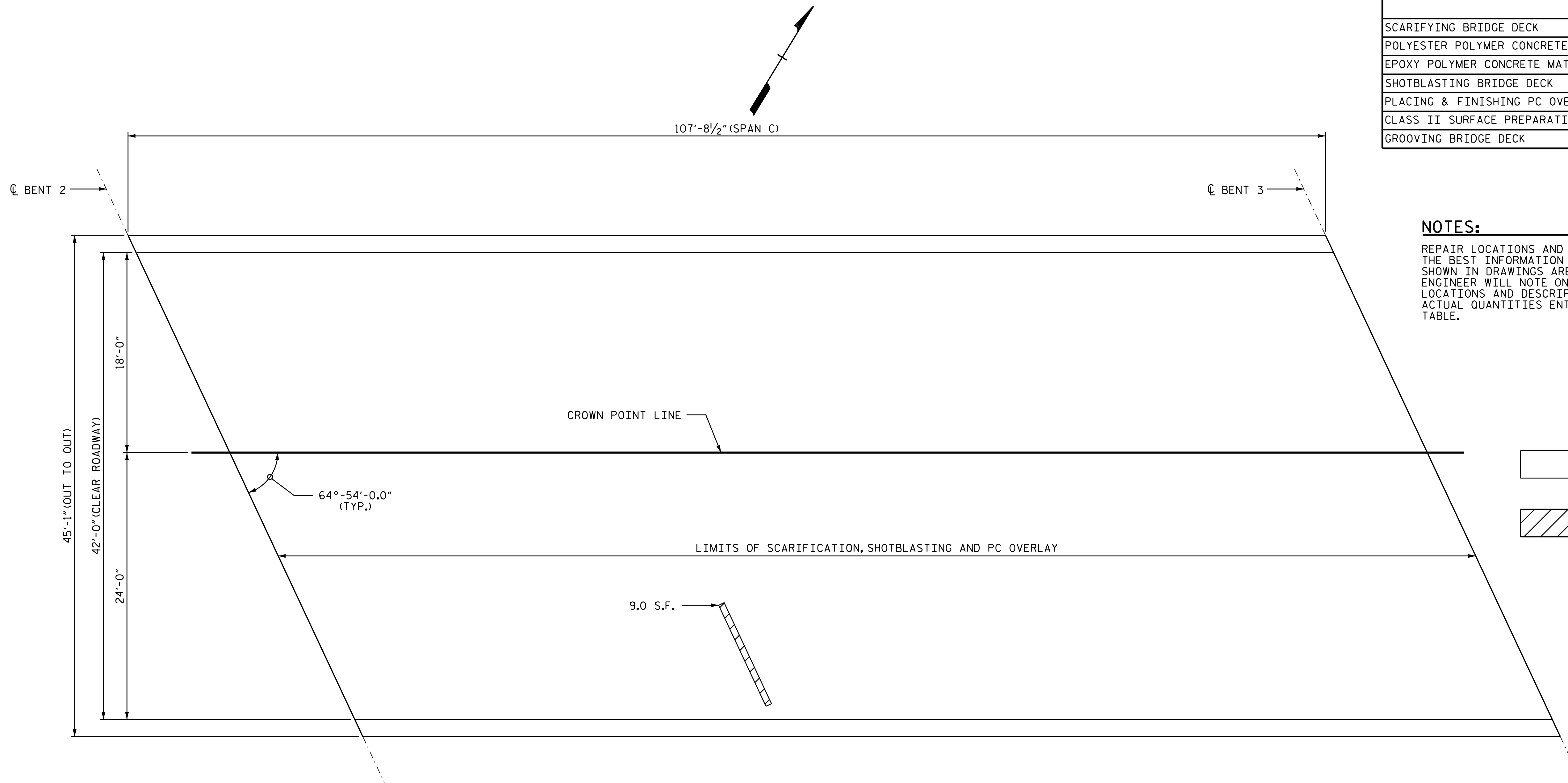
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	503 SY	
POLYESTER POLYMER CONCRETE MATERIALS	28.0 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	28.0 CY	
SHOTBLASTING BRIDGE DECK	503 SY	
PLACING & FINISHING PC OVERLAY	503 SY	
CLASS II SURFACE PREPARATION	1.0 SY	
GROOVING BRIDGE DECK	4201 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROXIMATE AREA CLASS II SURFACE PREPARATION



PLAN OF SPAN C

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 3 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN C

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-5
1			3			TOTAL SHEETS
2			4			48




SUMMARY OF QUANTITIES FOR SPAN D

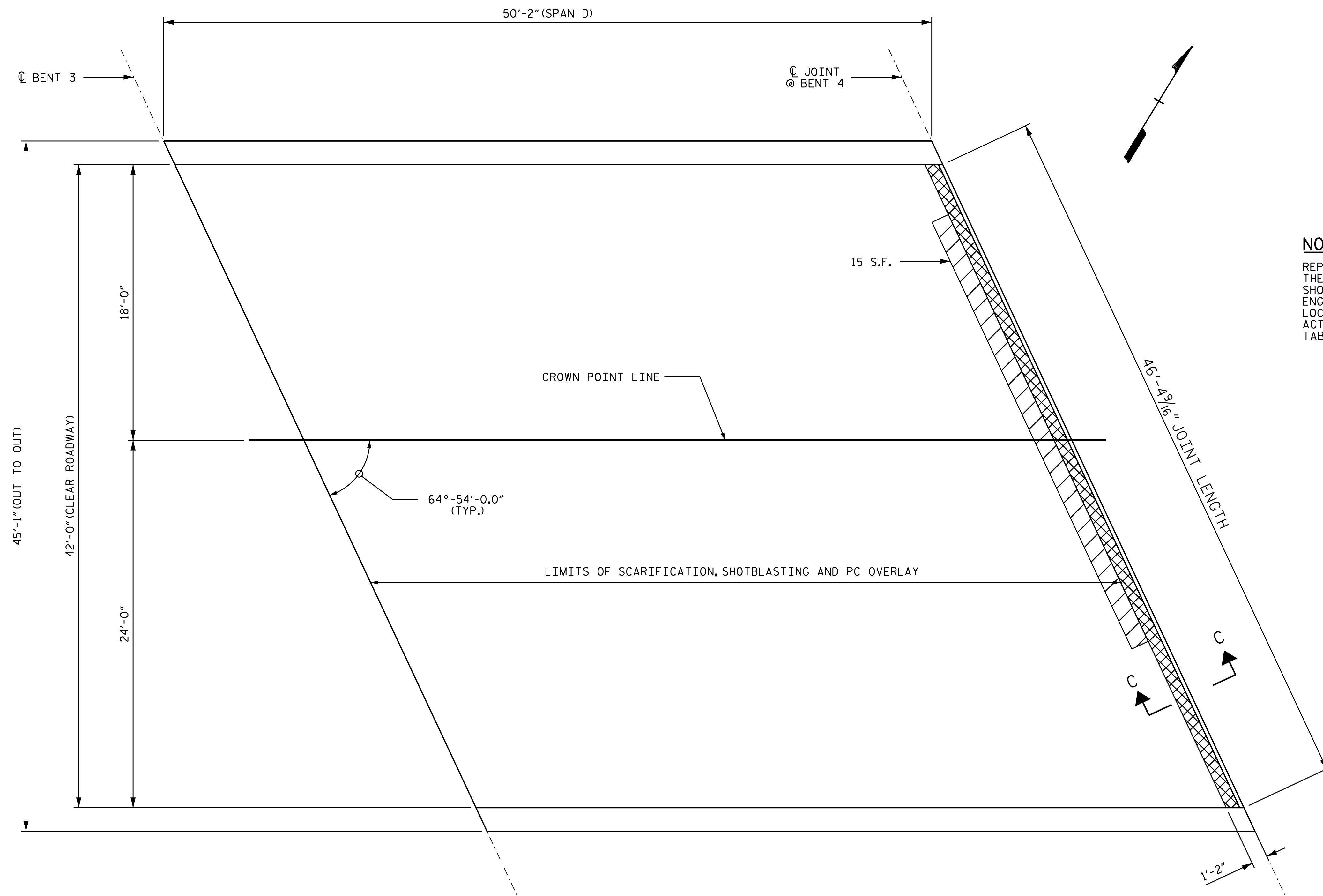
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	232 SY	
POLYESTER POLYMER CONCRETE MATERIALS	12.7 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	12.7 CY	
SHOTBLASTING BRIDGE DECK	232 SY	
PLACING & FINISHING PC OVERLAY	232 SY	
CLASS II SURFACE PREPARATION	1.7 SY	
GROOVING BRIDGE DECK	1939 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROXIMATE AREA CLASS II SURFACE PREPARATION
-  - CONCRETE WORK FOR JOINT REPLACEMENT

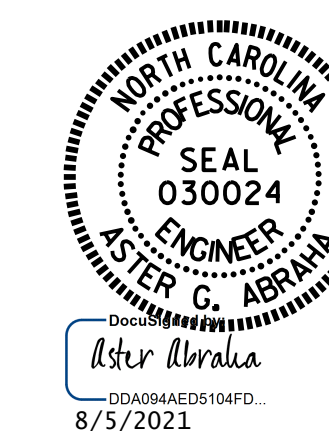


PLAN OF SPAN D

(SEE SHEET S1-12 FOR SECTION C-C)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 4 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN D

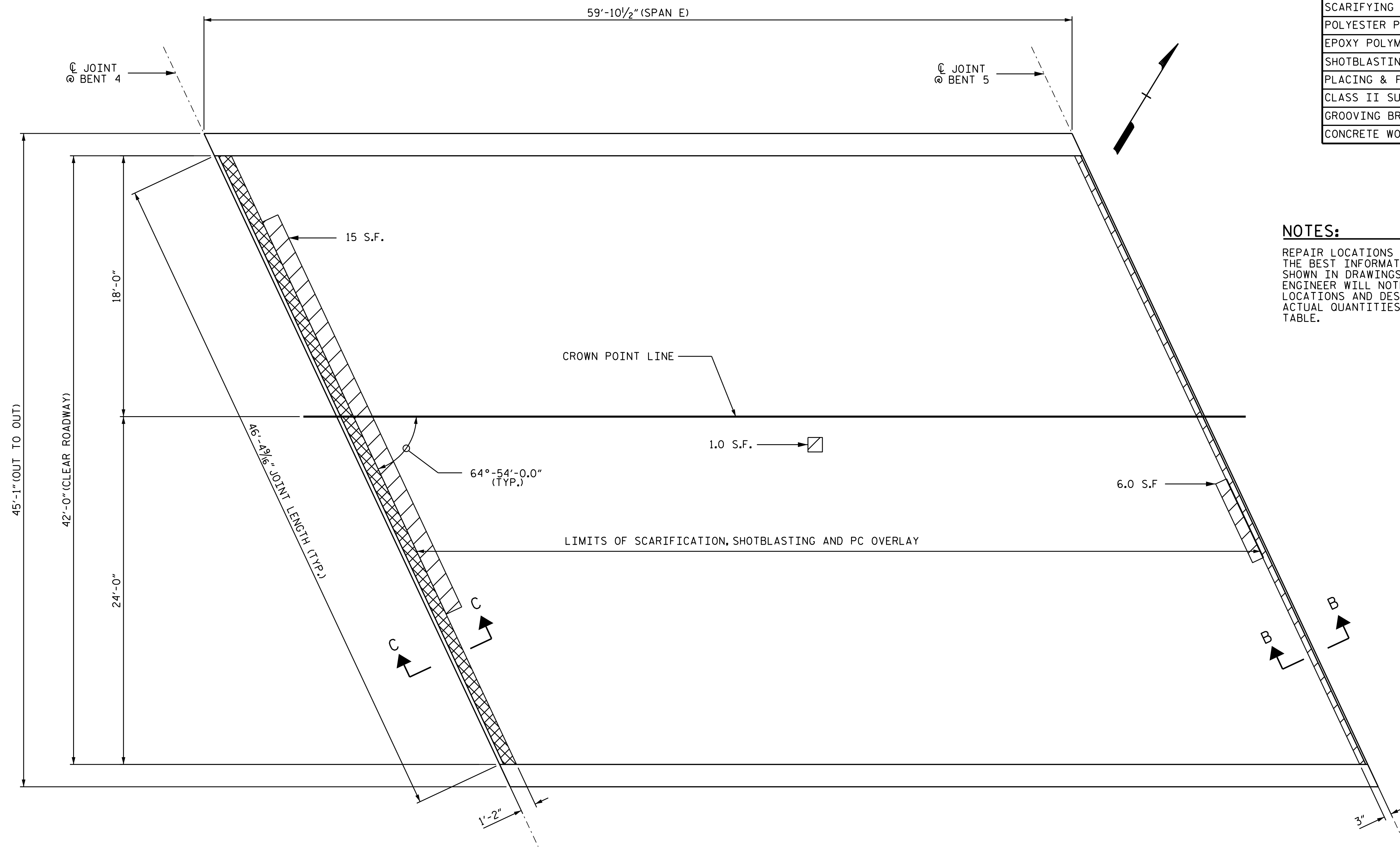
DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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SUMMARY OF QUANTITIES FOR SPAN E




	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	277 SY	
POLYESTER POLYMER CONCRETE MATERIALS	15.5 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	15.5 CY	
SHOTBLASTING BRIDGE DECK	277 SY	
PLACING & FINISHING PC OVERLAY	277 SY	
CLASS II SURFACE PREPARATION	3.6 SY	
GROOVING BRIDGE DECK	2307 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	



NOTES:

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

REPAIR KEY

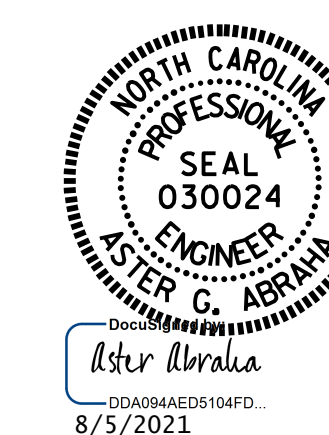
-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROXIMATE AREA CLASS II SURFACE PREPARATION
-  - CONCRETE WORK FOR JOINT REPLACEMENT

PLAN OF SPAN E

(SEE SHEET S1-11 FOR SECTION B-B AND SHEET S1-12 FOR SECTION C-C)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 5 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN E

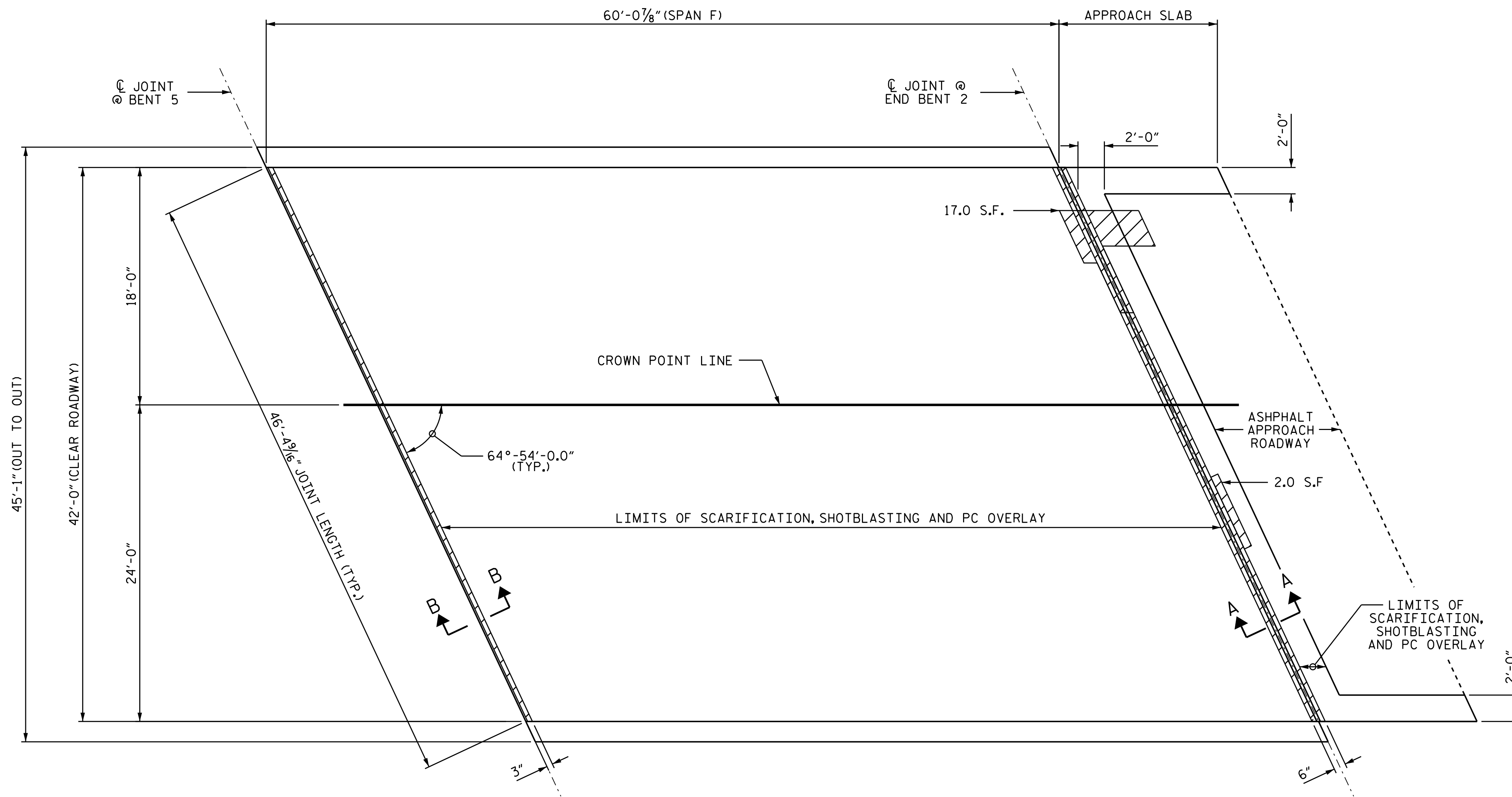
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 CHECKED BY : S. WANCE DATE : .07/2021

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SUMMARY OF QUANTITIES FOR SPAN F AND APPROACH SLAB 2


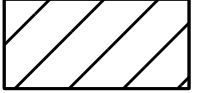
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	5.4 SY	
GROOVING BRIDGE DECK	2381 SF	



NOTES:

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

REPAIR KEY

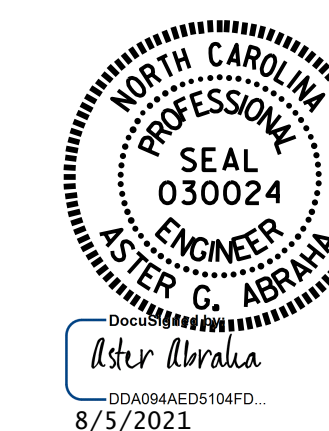
-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROXIMATE AREA CLASS II SURFACE PREPARATION

PLAN OF SPAN F AND APPROACH SLAB 2

(SEE SHEET S1-11 FOR SECTIONS A-A AND B-B)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 6 OF 6



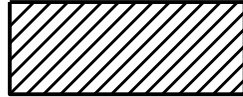
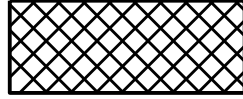

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SURFACE PREPARATION
 SPAN F AND
 APPROACH SLAB 2

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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REPAIR KEY

-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION (ERI)

NOTES:

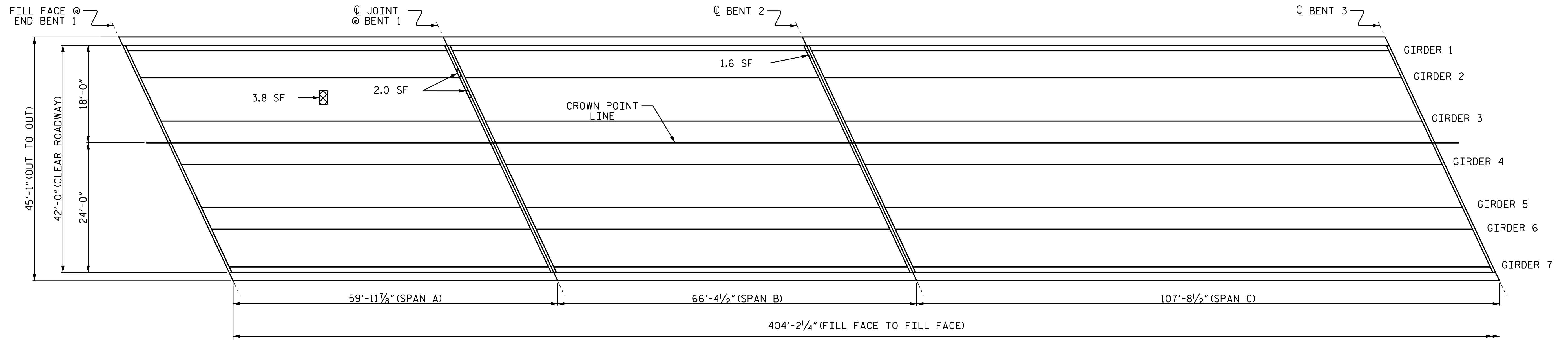
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE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

FOR OVERHANG AND DIAPHRAGM SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITIES TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	3.8	1.3		
BENT DIAPHRAGMS	3.6	1.2		
EPOXY RESIN INJECTION		LF	LF	LF
UNDERSIDE OF DECK		0.0		
BENT DIAPHRAGMS		0.0		

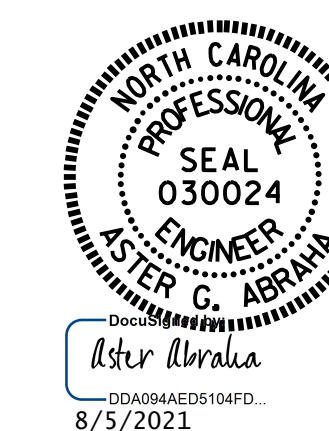
VALUES IN CHART REPRESENT ESTIMATED REPAIR QUANTITIES AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.



UNDERSIDE
(SPANS A-C)

PROJECT NO. HI-0008
JOHNSTON COUNTY
BRIDGE NO. 500106

SHEET 1 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**DECK UNDERSIDE
& BENT DIAPHRAGM
REPAIR**

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CHECKED BY : S. WANCE DATE : 07/2021

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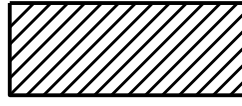
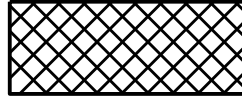

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2			4			48

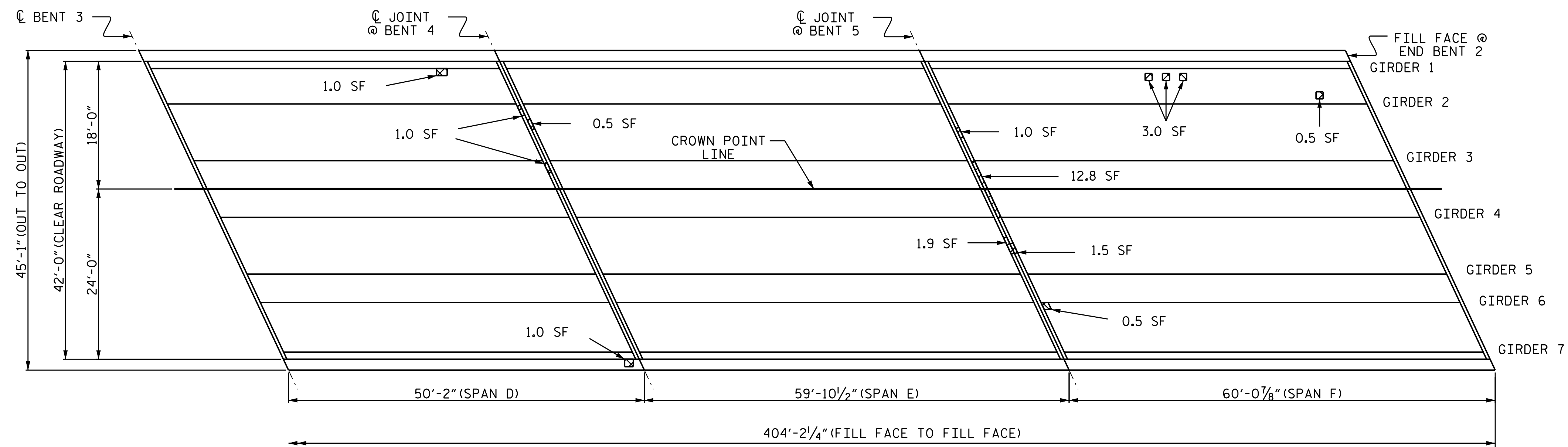
REPAIR QUANTITIES TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	6.0	2.1		
BENT DIAPHRAGMS	18.7	6.3		
EPOXY RESIN INJECTION		LF	LF	LF
UNDERSIDE OF DECK		0.0		
BENT DIAPHRAGMS		0.0		

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

REPAIR KEY

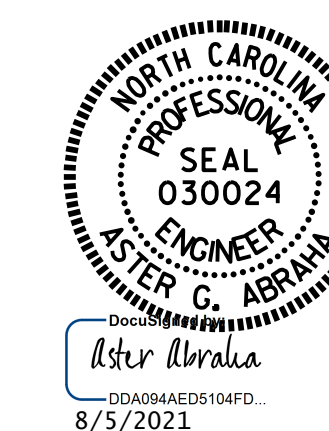
-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION (ERI)



UNDERSIDE (SPANS D-F)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 2 OF 3



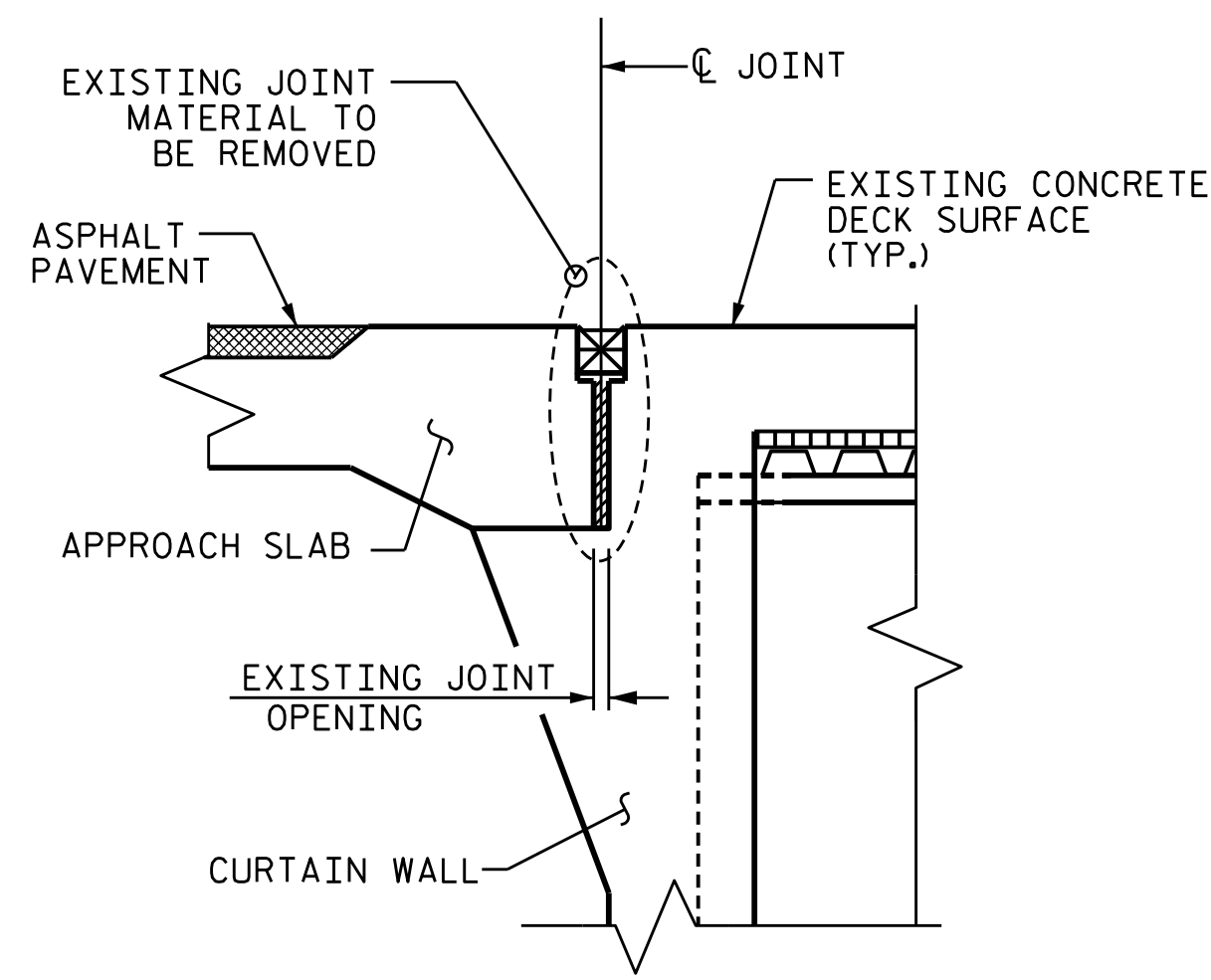
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK UNDERSIDE & BENT DIAPHRAGM REPAIR

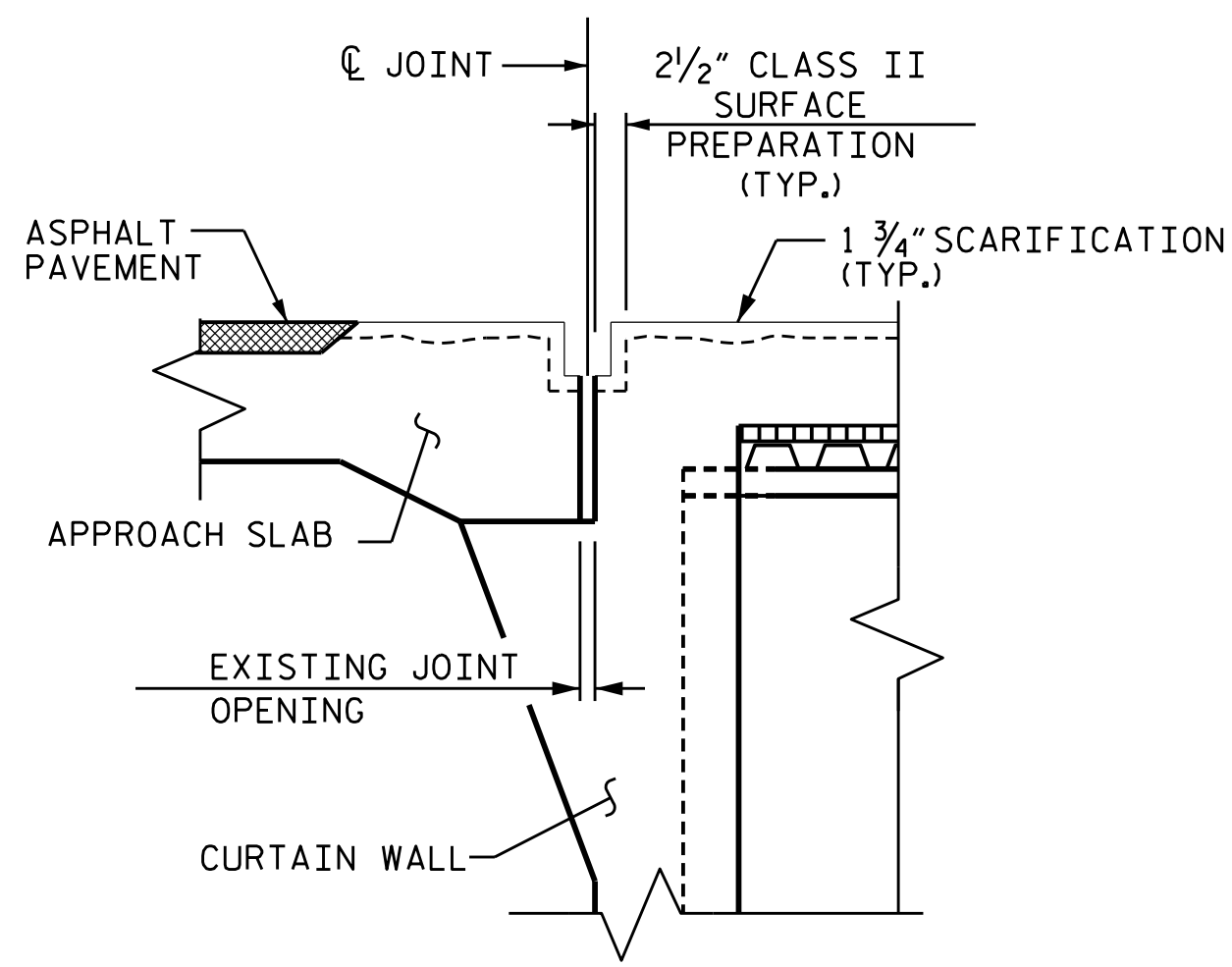
DRAWN BY : G. AYES DATE : 07/2021
 CHECKED BY : S. WANCE DATE : 07/2021

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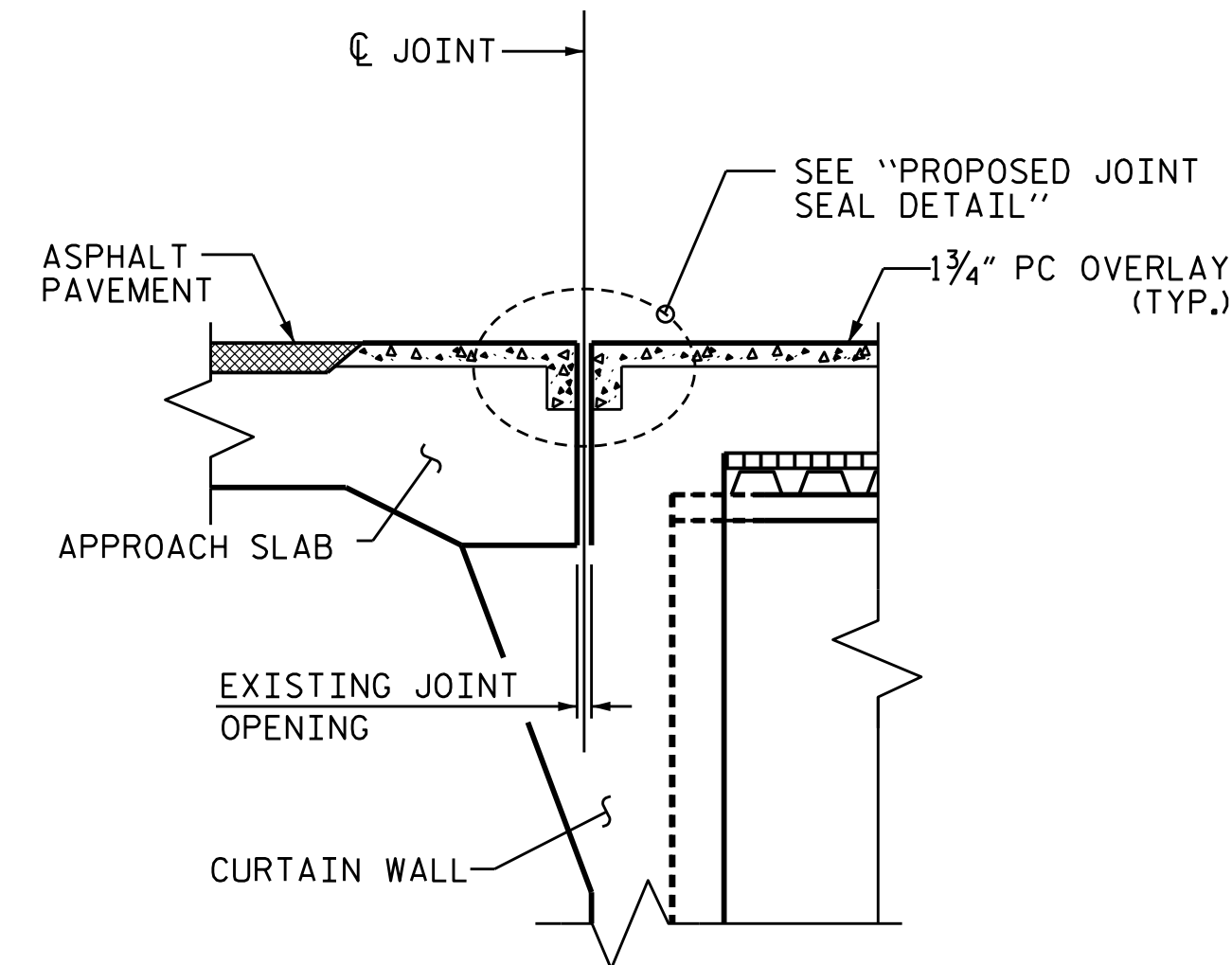
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-10
1			3			TOTAL SHEETS
2			4			48



EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



PROPOSED PRE-SAWED JOINT

JOINT INSTALLATION SEQUENCE AT END BENTS

(SECTION A-A)

NOTES:

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

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.

UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

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

FOR POURABLE SILICONE EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

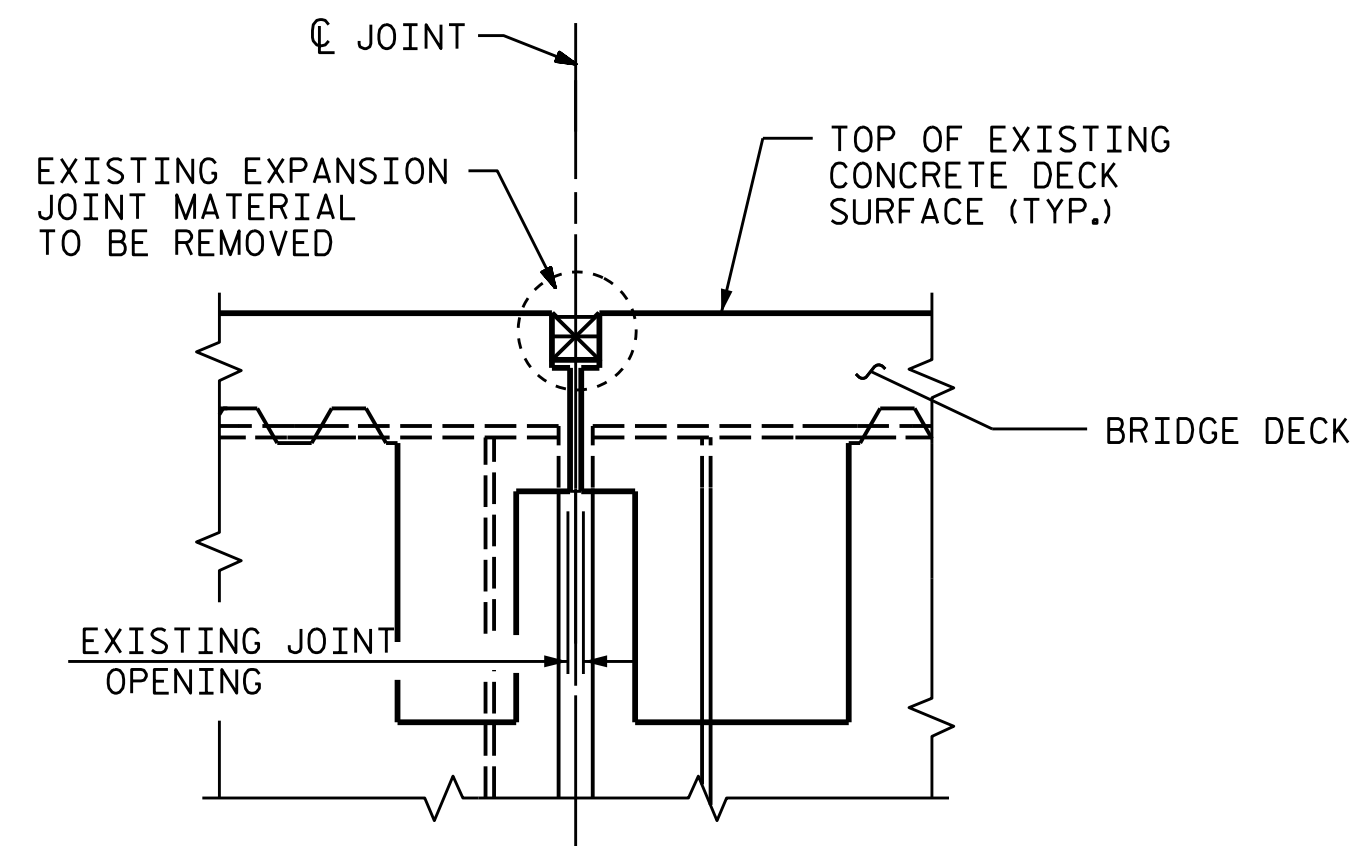
SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.

THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

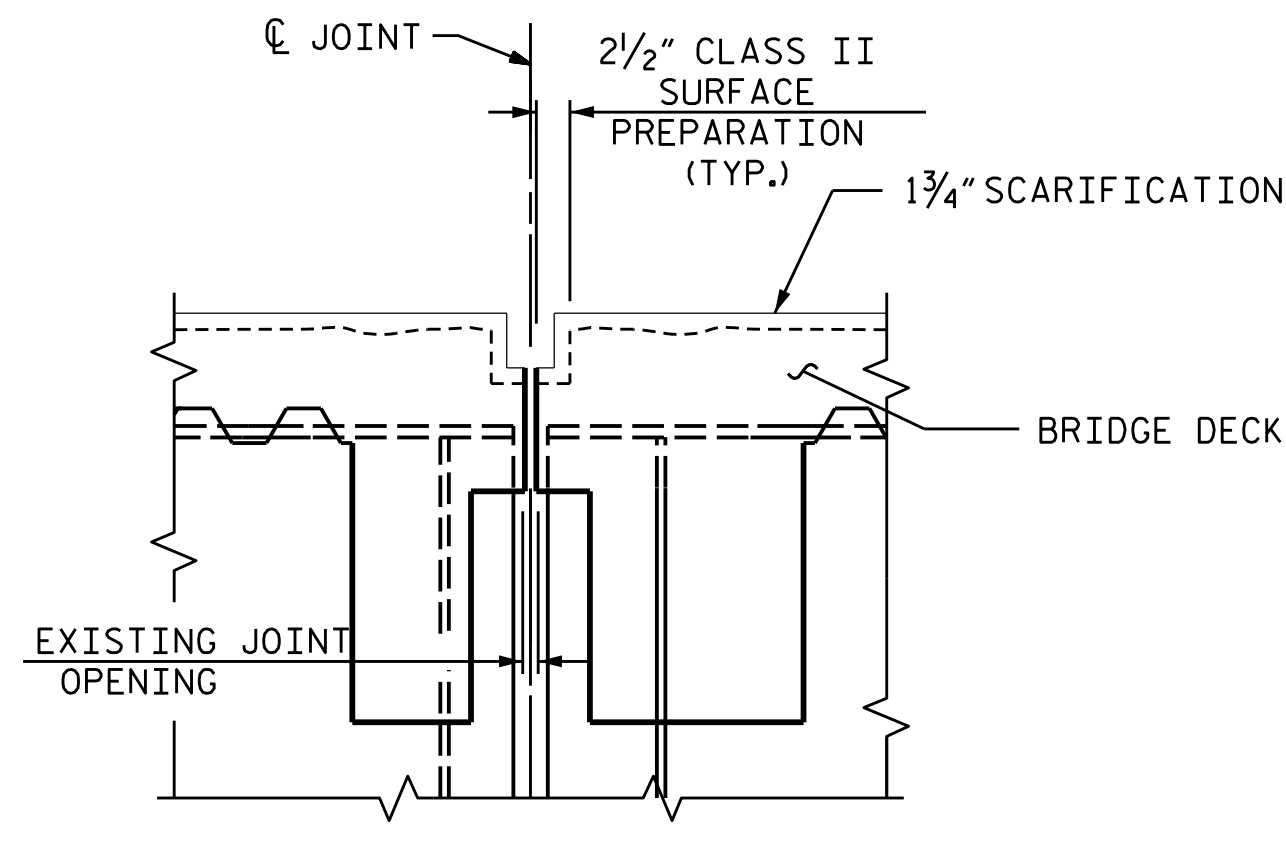
FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

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

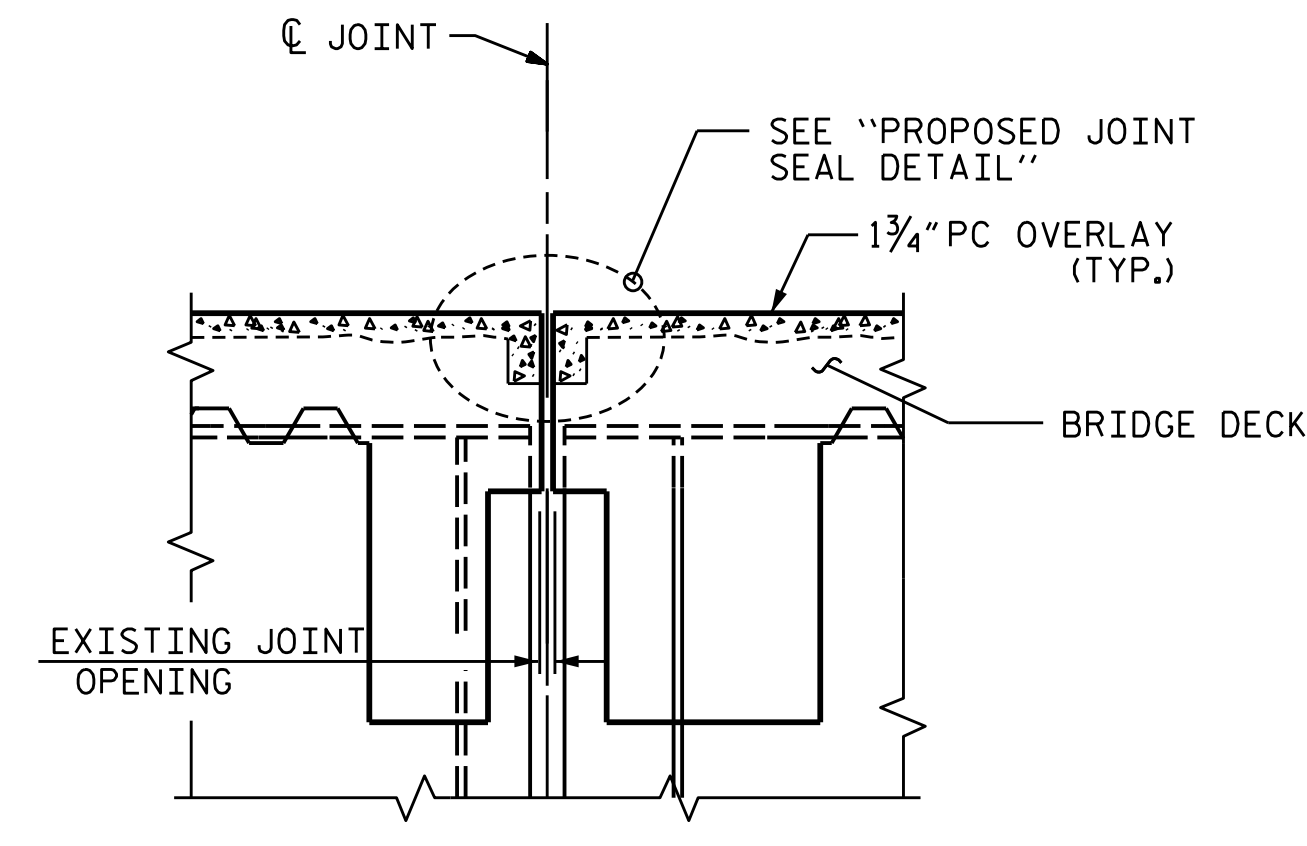
FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.



EXISTING JOINT



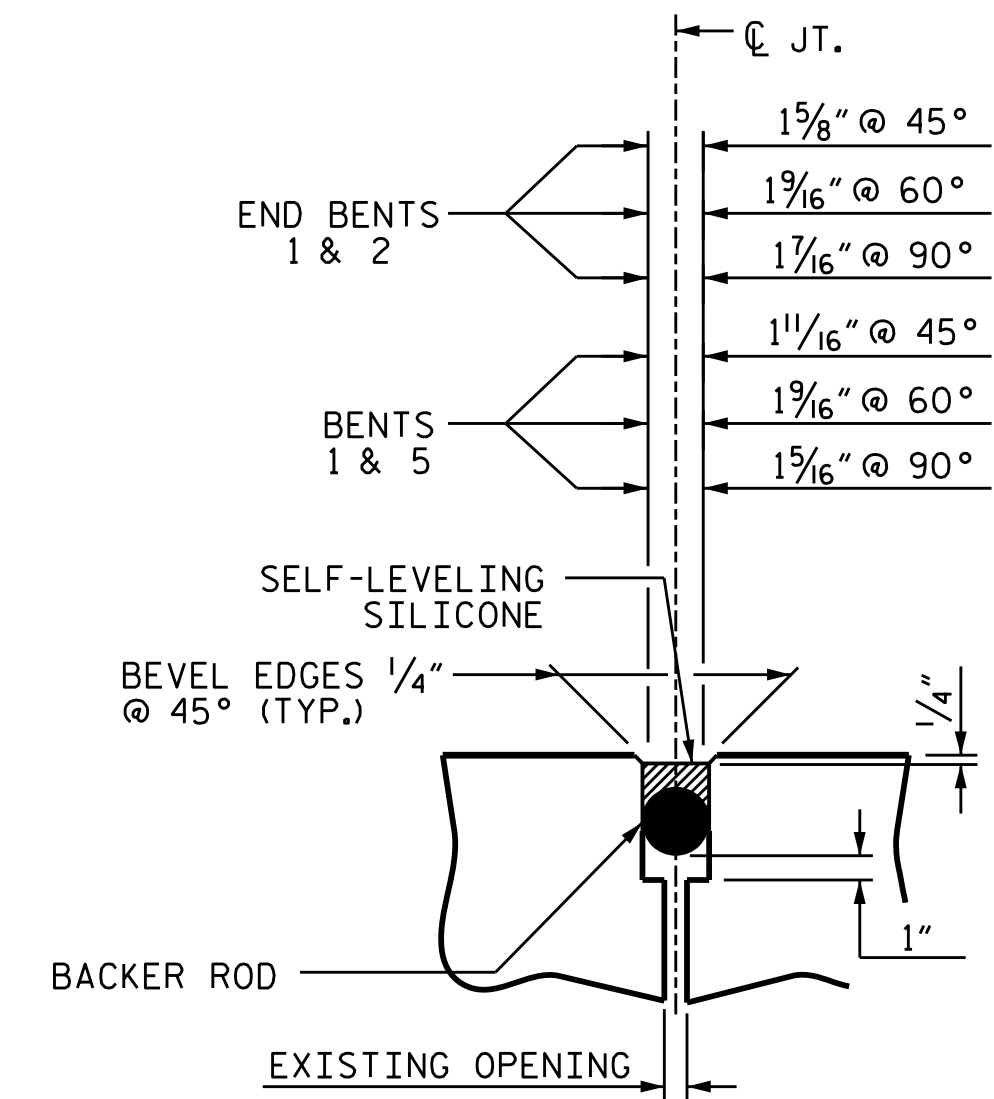
MINIMUM EXISTING JOINT DEMOLITION



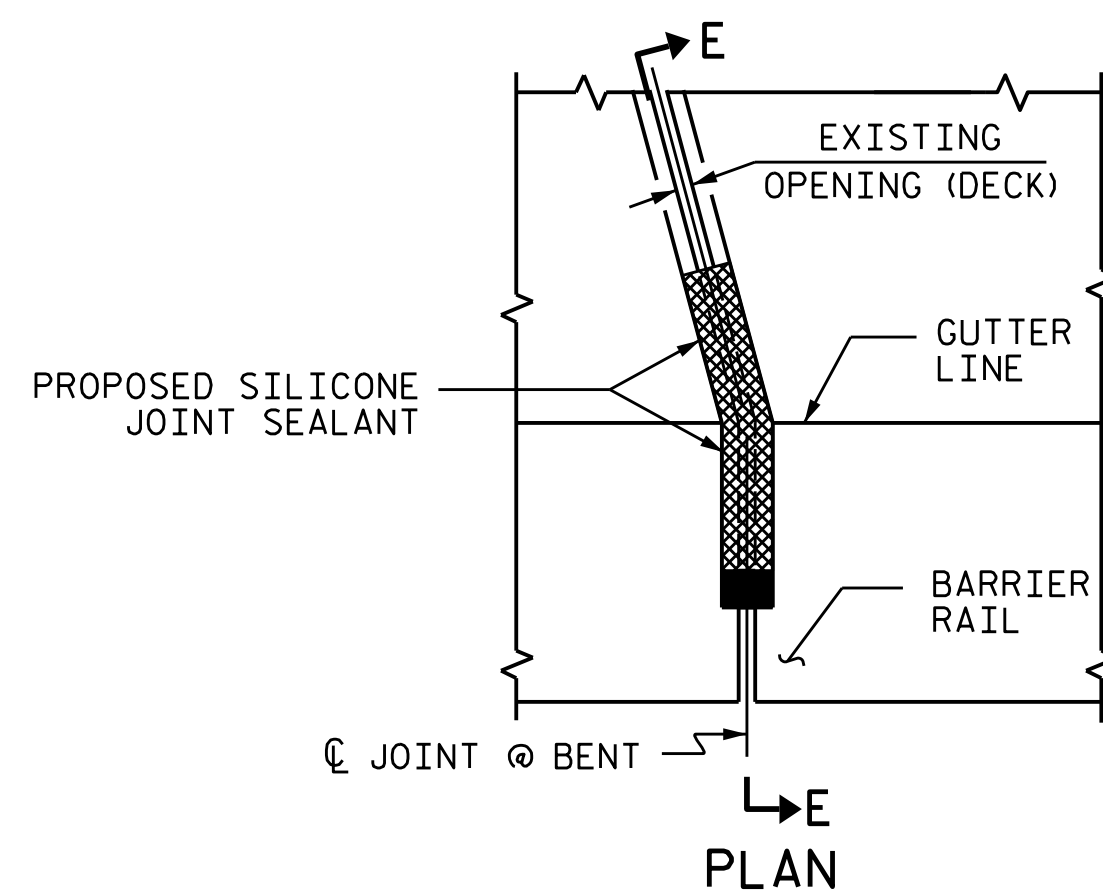
PROPOSED PRE-SAWED JOINT

JOINT INSTALLATION SEQUENCE AT BENTS 1 & 5

(SECTION B-B)



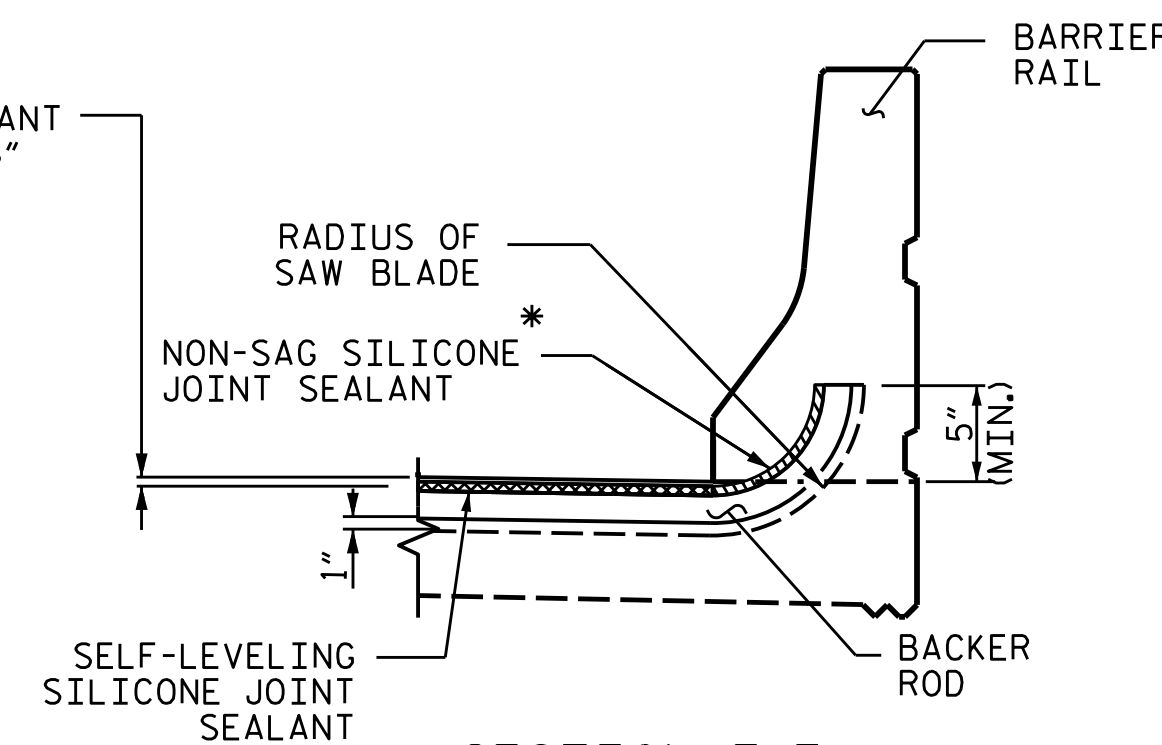
PROPOSED JOINT SEAL DETAIL
(WITH SAWED DIMENSIONS)



PLAN

* NON-SAG SILICONE JOINT SEALANT TO BE PLACED AND ALLOWED TO SET, PRIOR TO PLACEMENT OF SELF-LEVELING SILICONE JOINT SEALANT.

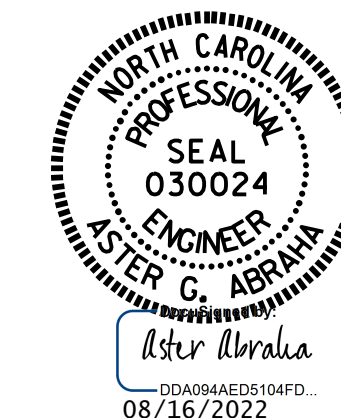
SILICONE JOINT SEALANT SHALL BE RECESSED 1/2" BELOW DECK SURFACE



SECTION E-E

SUMMARY OF QUANTITIES		
(TYP.)	ESTIMATE	ACTUAL
POURABLE SILICONE JOINT SEALANT	185.6 L.F.	

PROJECT NO. HI-0008
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

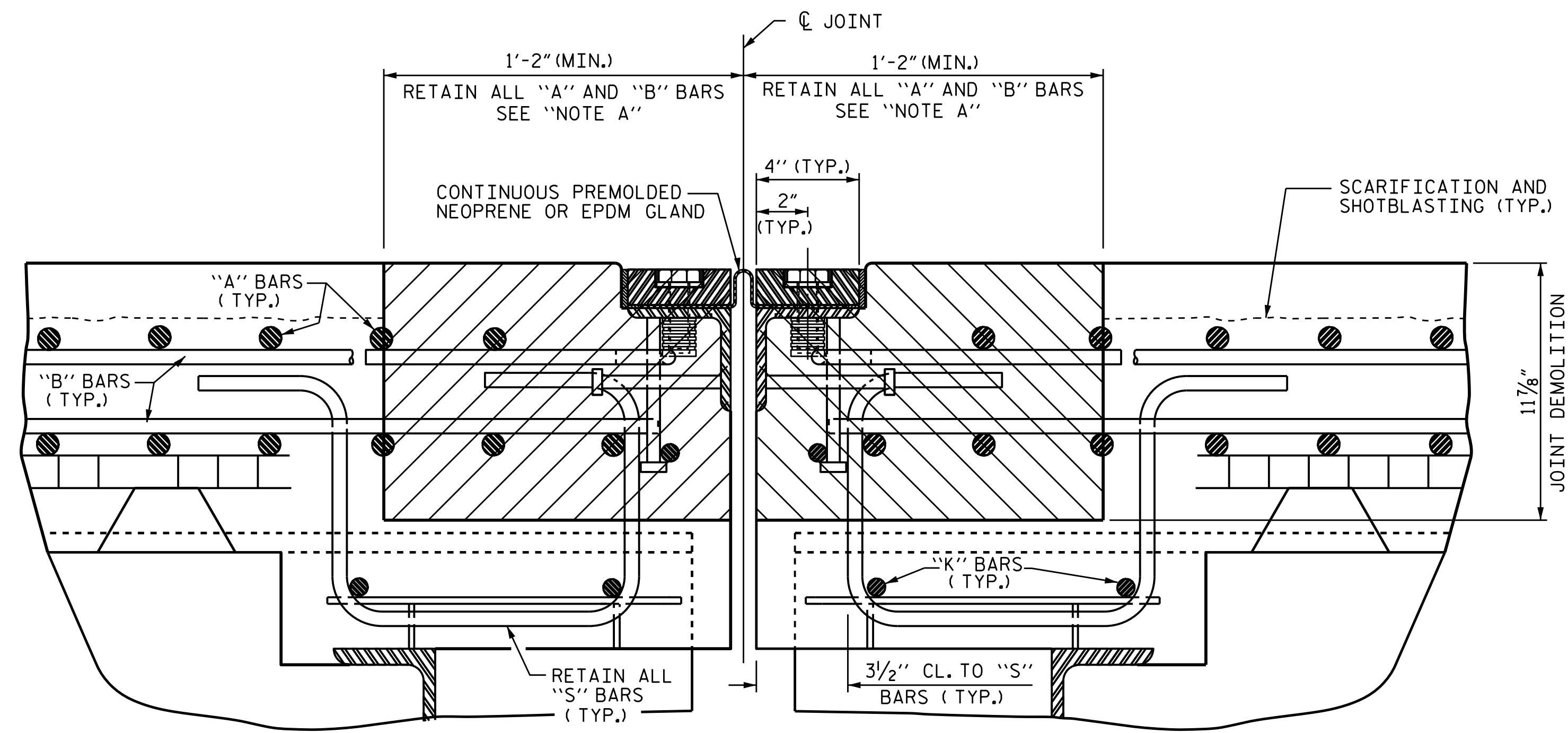
JOINT REPAIR DETAILS

DRAWN BY : A. ABRAHA DATE : 04/2021
 CHECKED BY : S. WANCE DATE : 07/2021

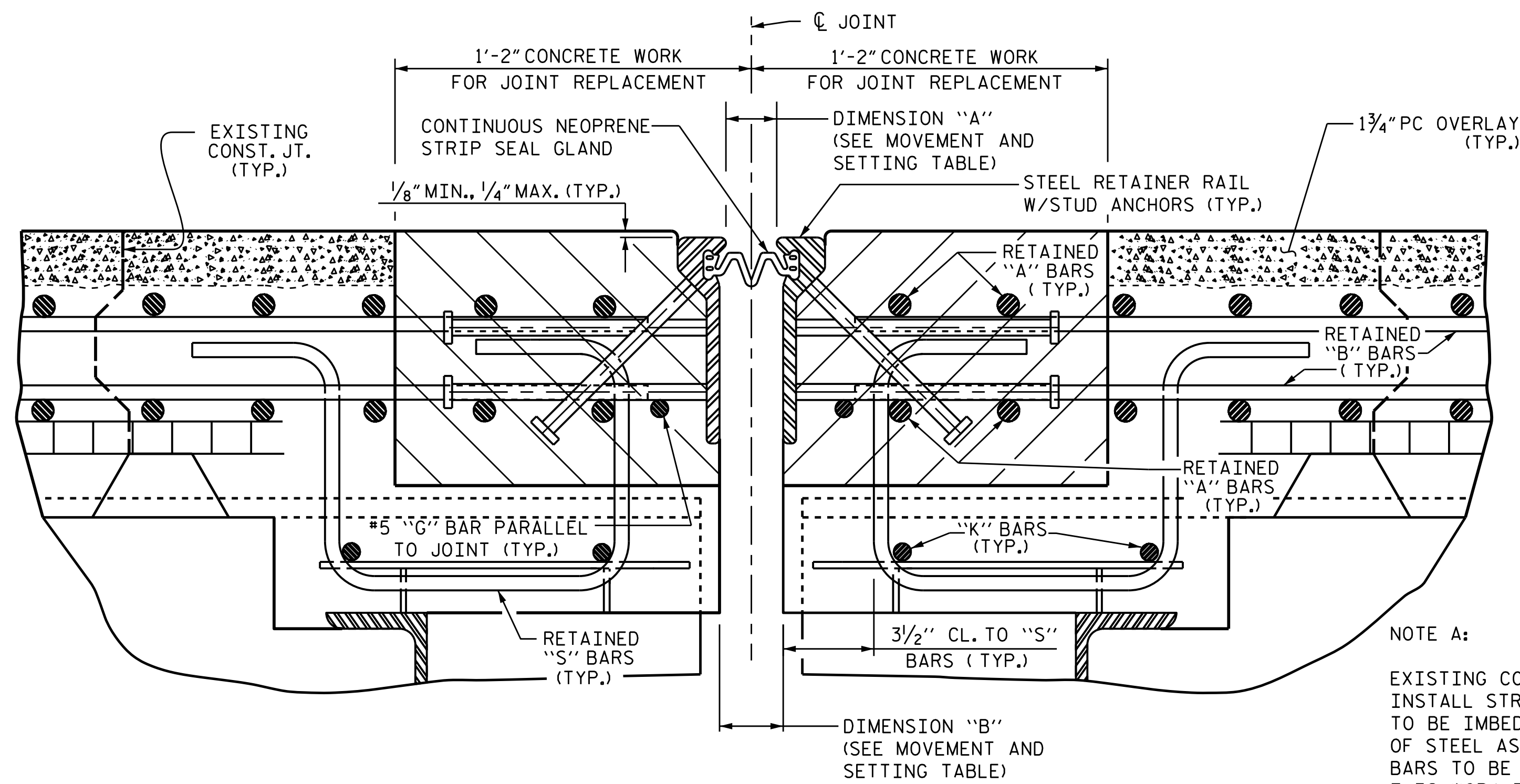
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EXISTING JOINT @ BENT 4
(WITH MINIMUM EXISTING JOINT DEMOLITION)



PROPOSED STRIP SEAL EXPANSION JOINT DETAILS
SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG C _L RDWY)	MOVEMENT AND SETTING AT JOINT					
			DIMENSION "A"			DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
BENT 4	64.9°	2 1/4"	2 3/8"	2 1/8"	1 1/16"	2 7/8"	2 5/8"	1 15/16"

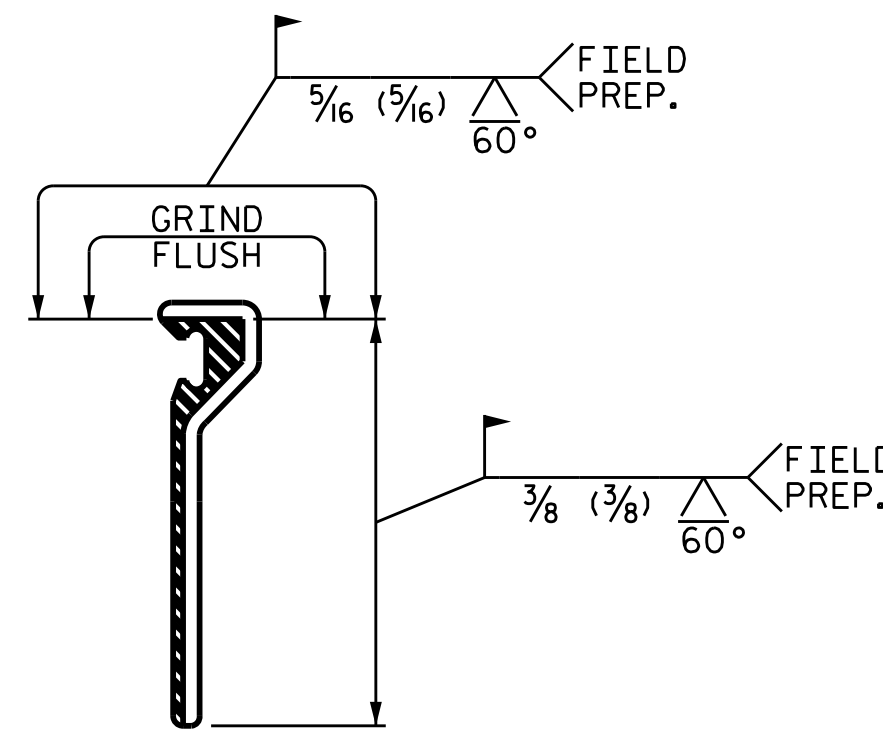
NOTE A:
EXISTING CONCRETE TO BE REMOVED AS NECESSARY TO INSTALL STRIP SEAL EXPANSION JOINT SEAL. ANCHORS TO BE IMBEDDED IN SOUND CONCRETE BELOW TOP LAYER OF STEEL AS SHOWN. EXTRA REINFORCING STEEL #5 "G" BARS TO BE ADDED AS INDICATED ABOVE. THE COST OF THIS WORK, THE NEW CLASS AA CONCRETE, REINFORCING STEEL, AND EPOXY COATING OF ALL REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "CONCRETE WORK FOR JOINT REPLACEMENT."

JOINT INSTALLATION PROCEDURE:

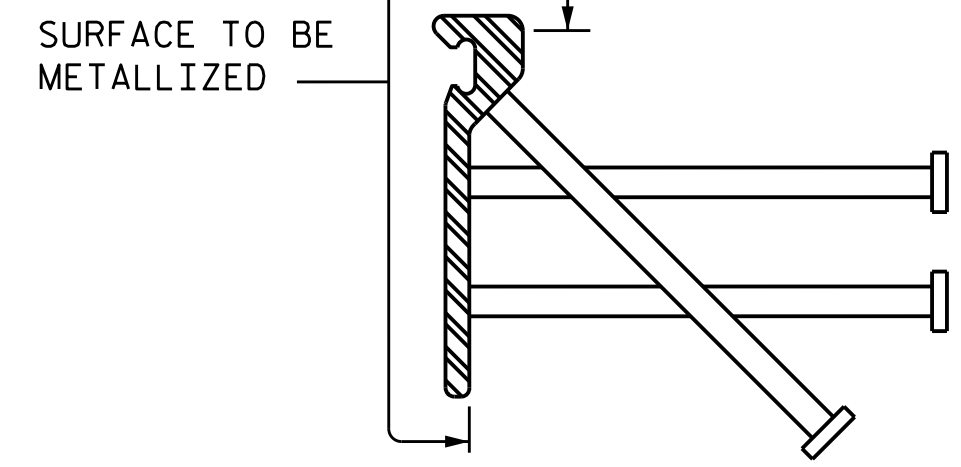
1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
9. PLACE DECK SLAB CONCRETE.
10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT, STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.

GENERAL NOTES

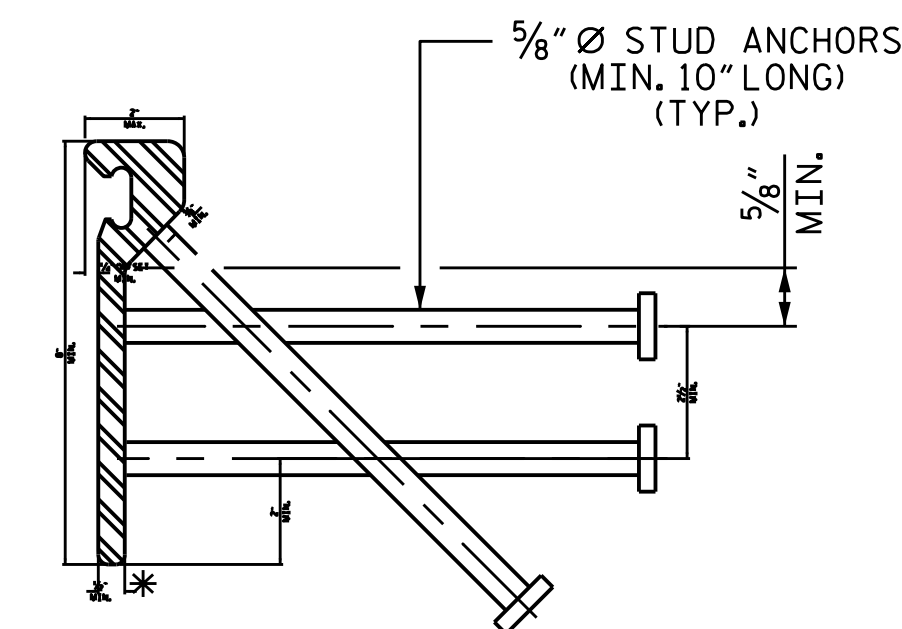
FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.
FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.
STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.
ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.
STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
UPON COMPLETION OF SHOP FABRICATION, THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).
INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.
FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPLICING THE GLAND IS NOT PERMITTED.
NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



STEEL RETAINER RAIL (FIELD SPLICE DETAIL)

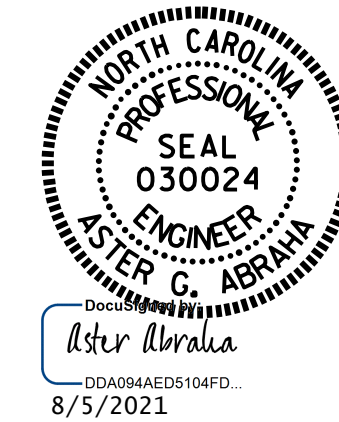


METALLIZING DETAIL



TYPICAL SECTION STEEL RETAINER RAIL

DIMENSION "B" BASED ON STEEL RETAINER RAIL TOP OFFSET TO FACE OF RAIL OF 1/4" MINIMUM. IF ACTUAL OFFSET IS GREATER ADJUST DIMENSION "B" AS REQUIRED.



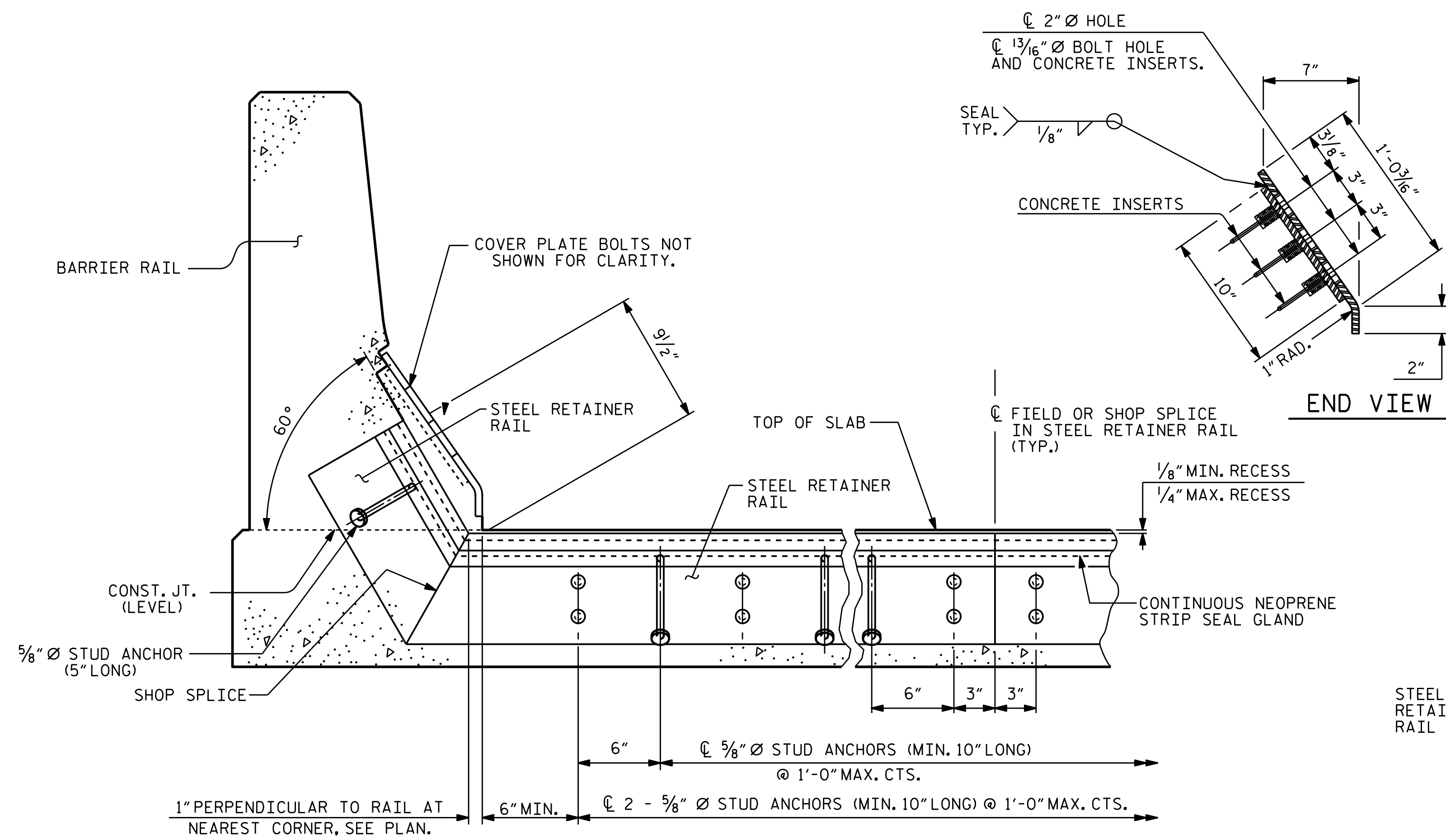
PROJECT NO. HI-0008
JOHNSTON COUNTY
BRIDGE NO.: 500106
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STRIP SEAL EXPANSION JOINT REPAIR DETAILS BENT 4

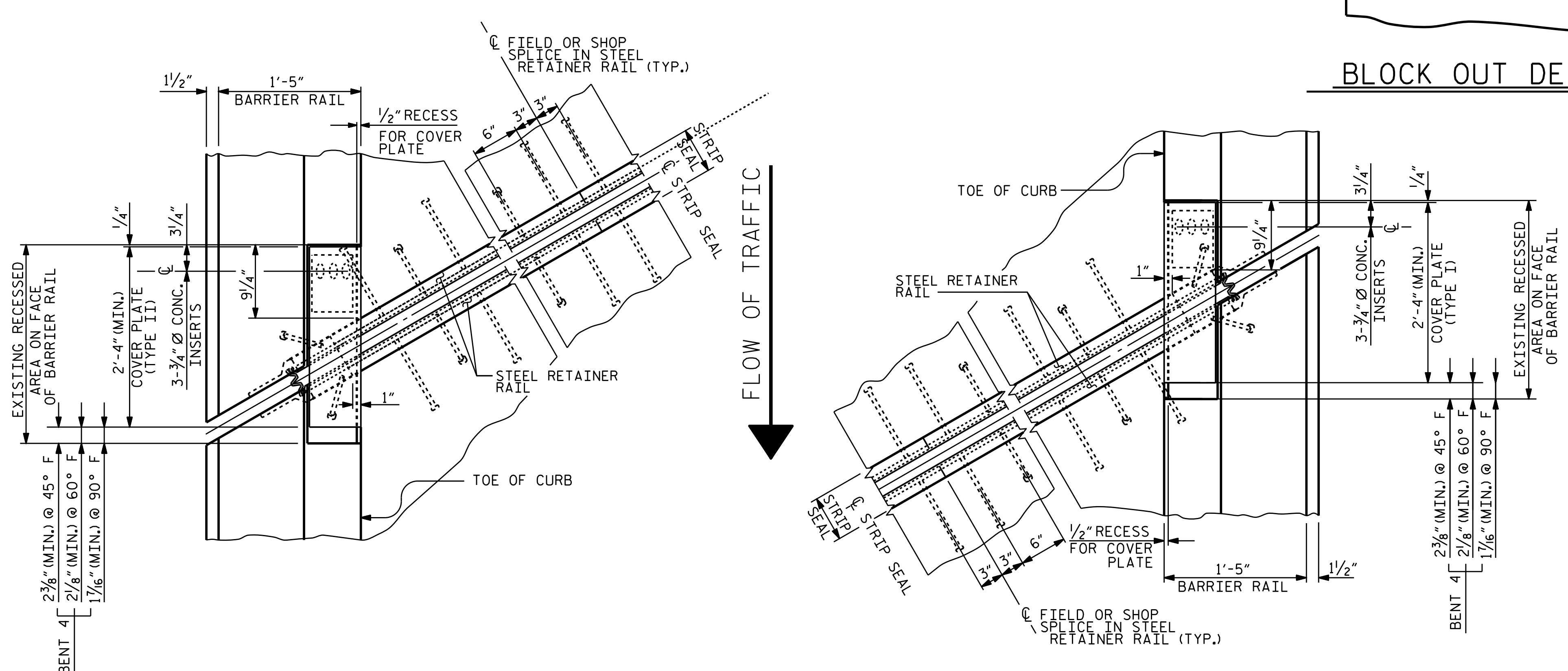
ASSEMBLED BY : S. WAN@PE DATE : 07/2021
CHECKED BY : A. ABRAHA DATE : 07/2021
DRAWN BY : MAA 6/20
CHECKED BY : BNB 6/20

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

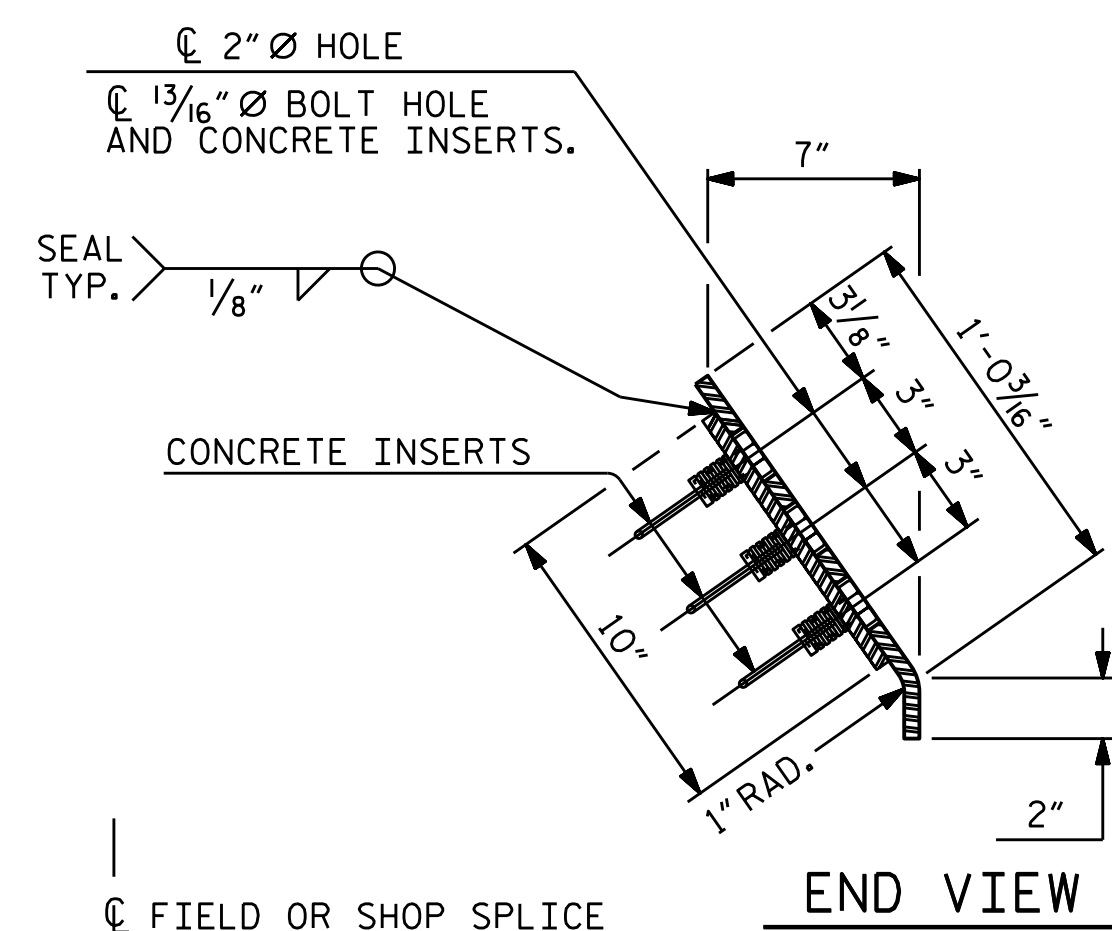
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-12
1			3			TOTAL SHEETS 48
2			4			



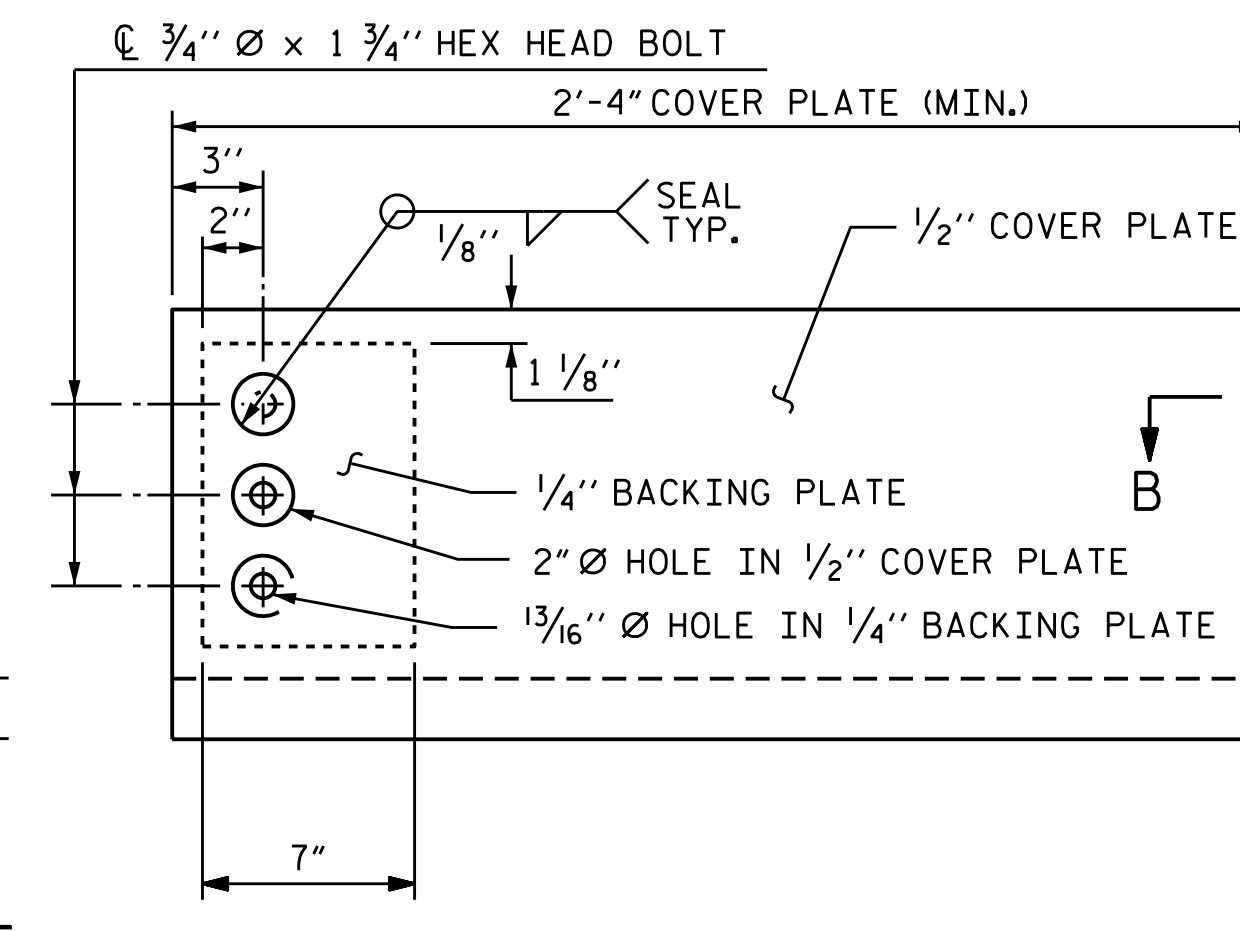
SECTION THRU RAIL NORMAL TO JOINT



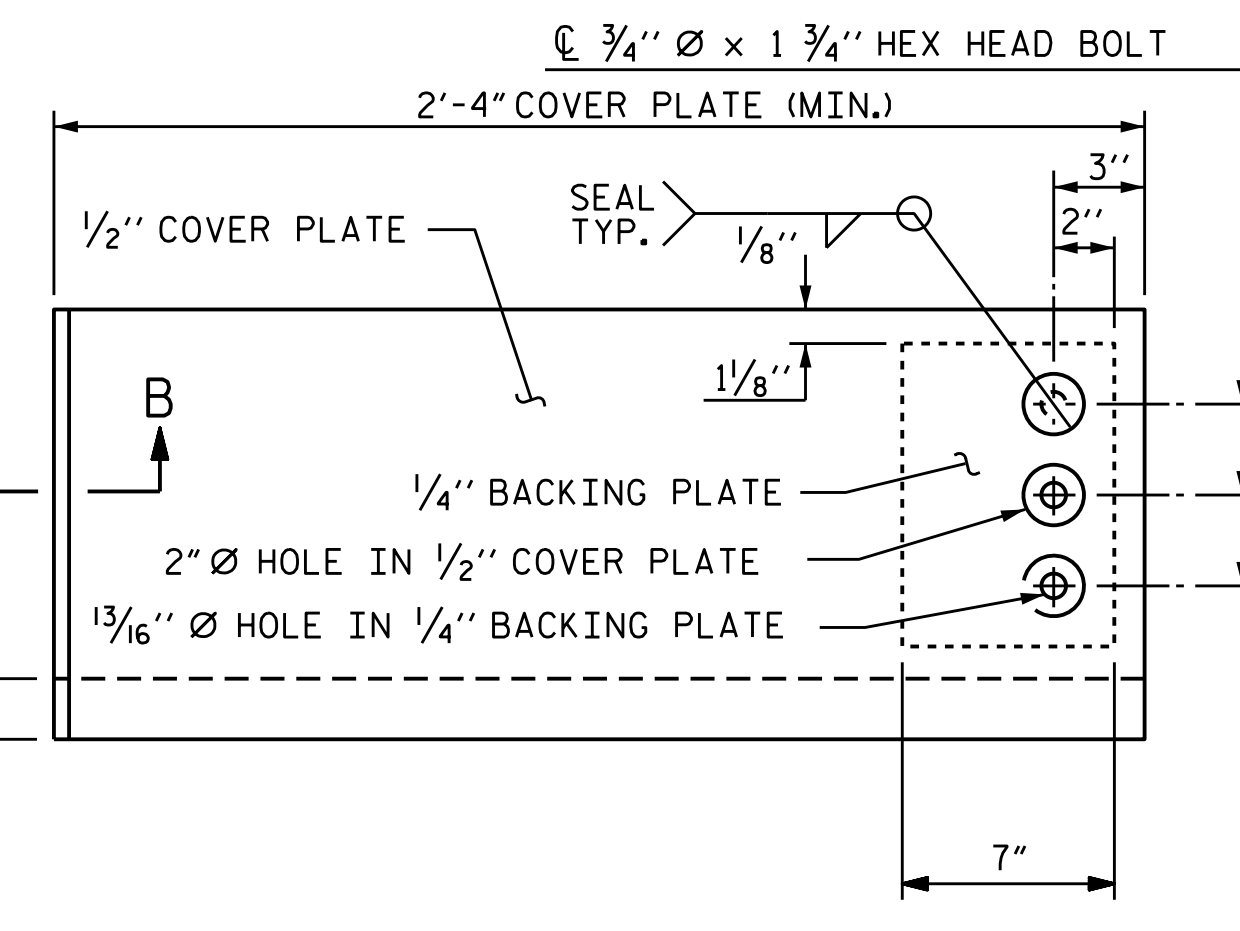
PLAN OF STRIP SEAL EXPANSION JOINT



END VIEW

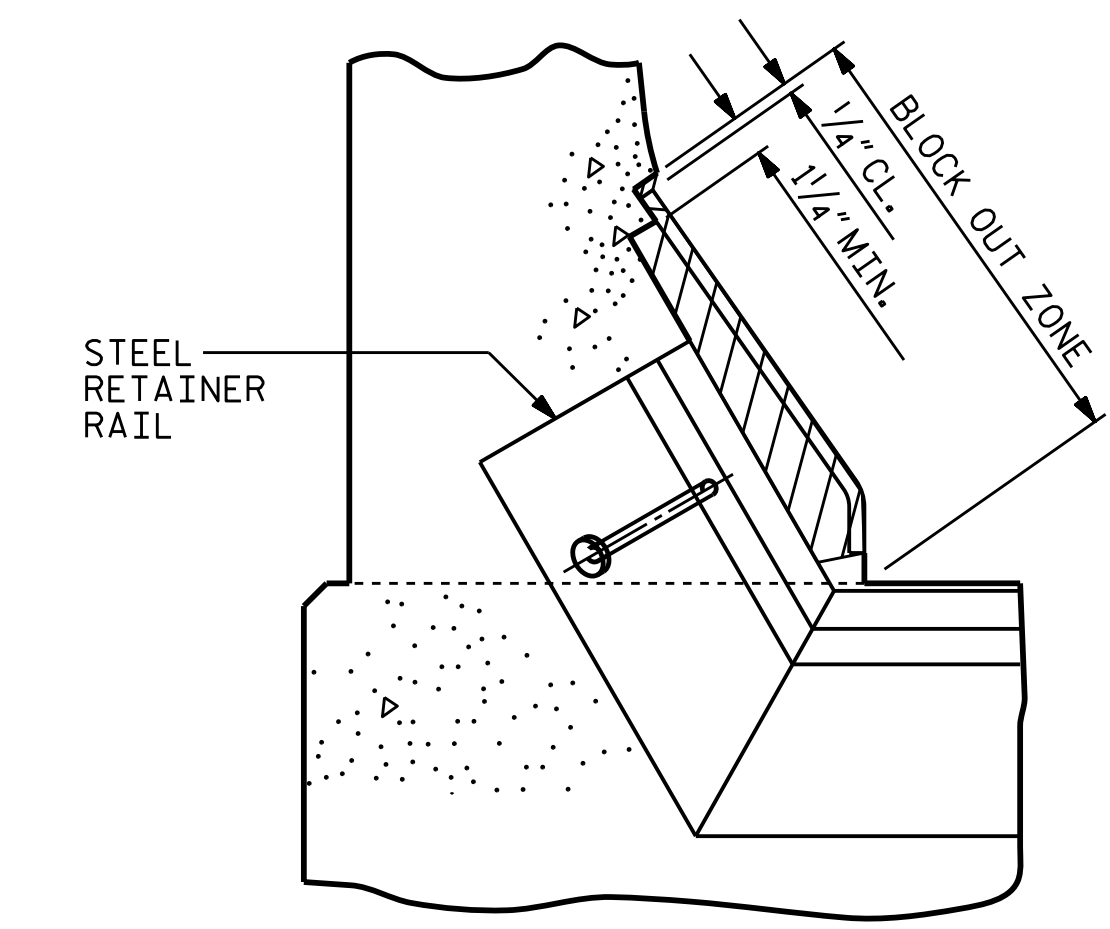


TYPE I - ELEVATION VIEW

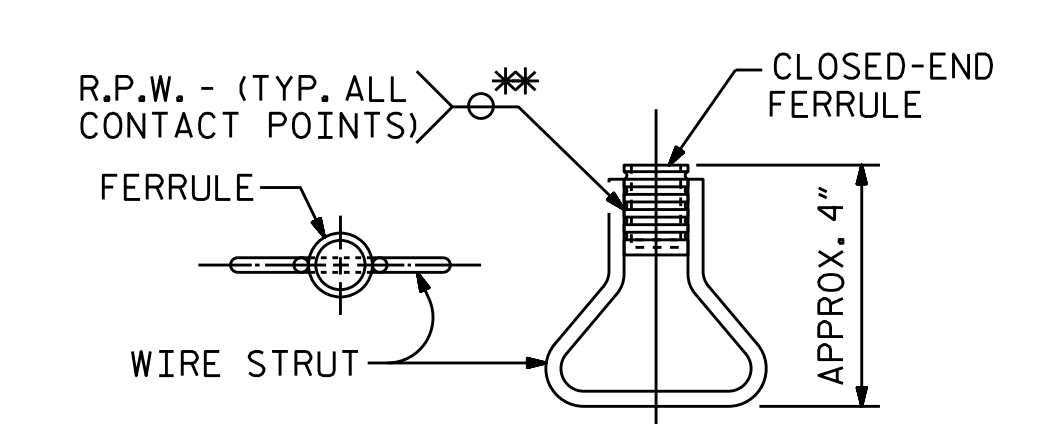


TYPE II - ELEVATION VIEW

COVER PLATE DETAILS

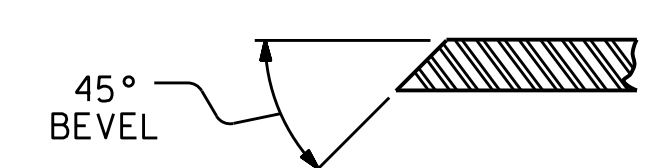


BLOCK OUT DETAIL



CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

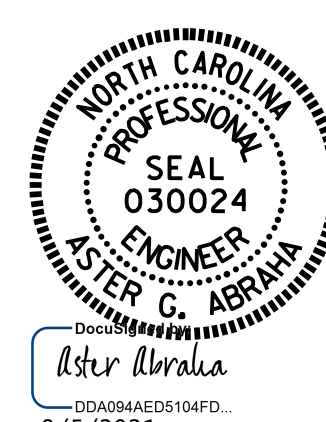


SECTION B - B

ASSEMBLED BY :	S. WANcPE	DATE :	07/2021
CHECKED BY :	A. ABRAHA	DATE :	07/2021
DRAWN BY :	MAA 6/20		
CHECKED BY :	BNB 6/20		

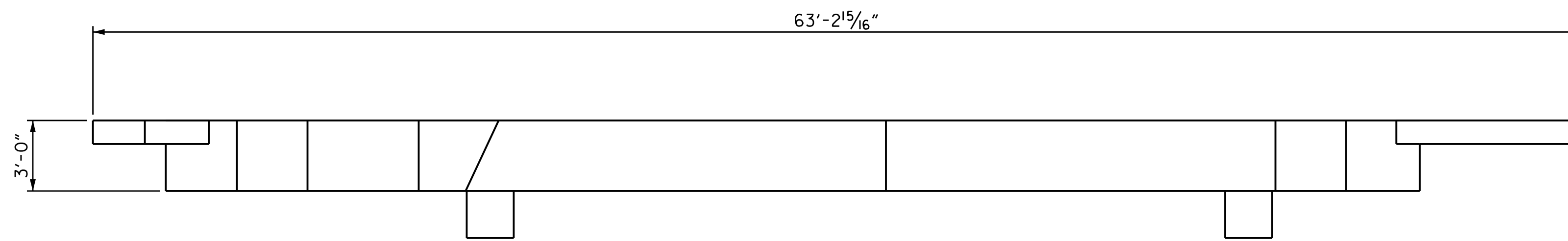
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S:\DPC\Division4\HI-0008\401.HI-0008.SMU.JT.500106.dgn
oabr oha

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	2			4			

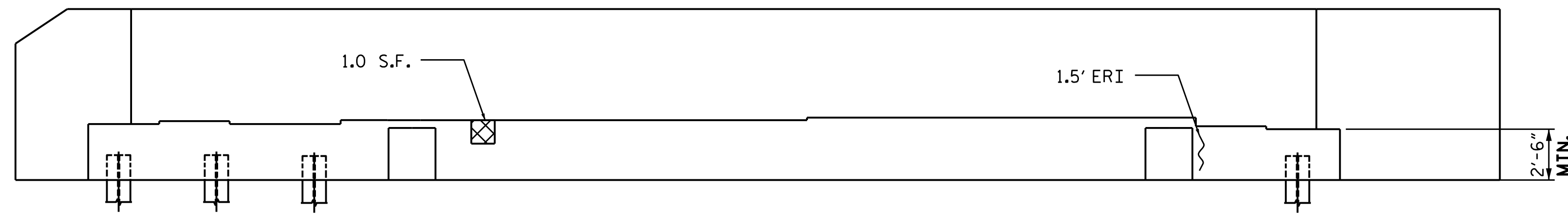


PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO.: 500106

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STRIP SEAL EXPANSION JOINT DETAILS FOR BARRIER RAIL BENT 4

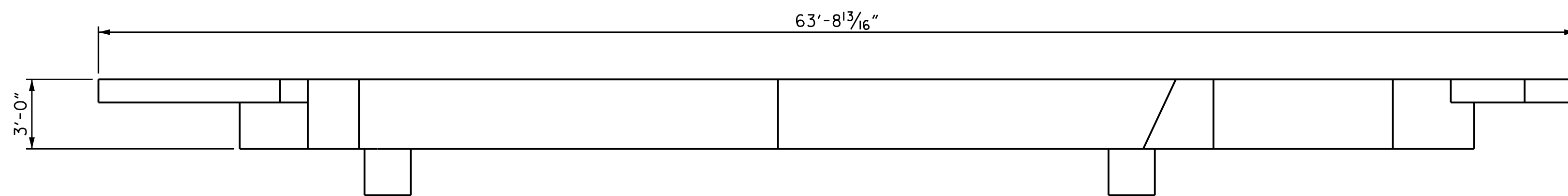


PLAN
(TOP OF CAP)

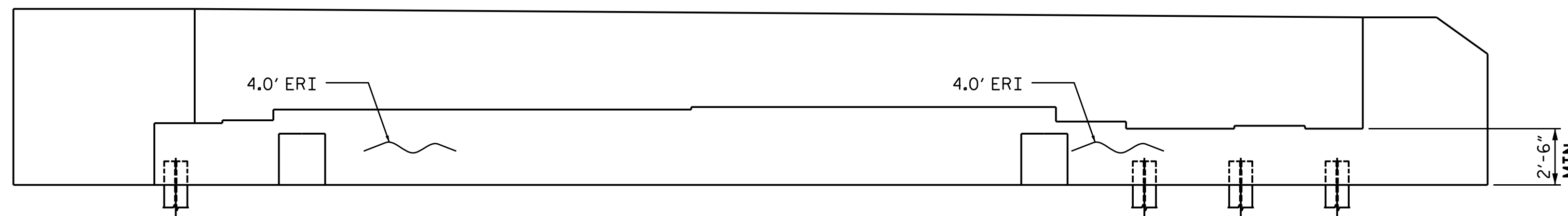


ELEVATION

END BENT 1



PLAN
(TOP OF CAP)



ELEVATION

END BENT 2

REPAIR QUANTITIES TABLE

REPAIRS END BENT 1 & 2	QUANTITIES			
	ESTIMATE		ACTUAL	
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.5		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT		LN. FT	
CAP	9.5			
COLUMN	0.0			

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

NOTES:

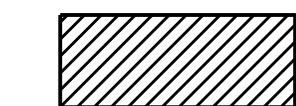


REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

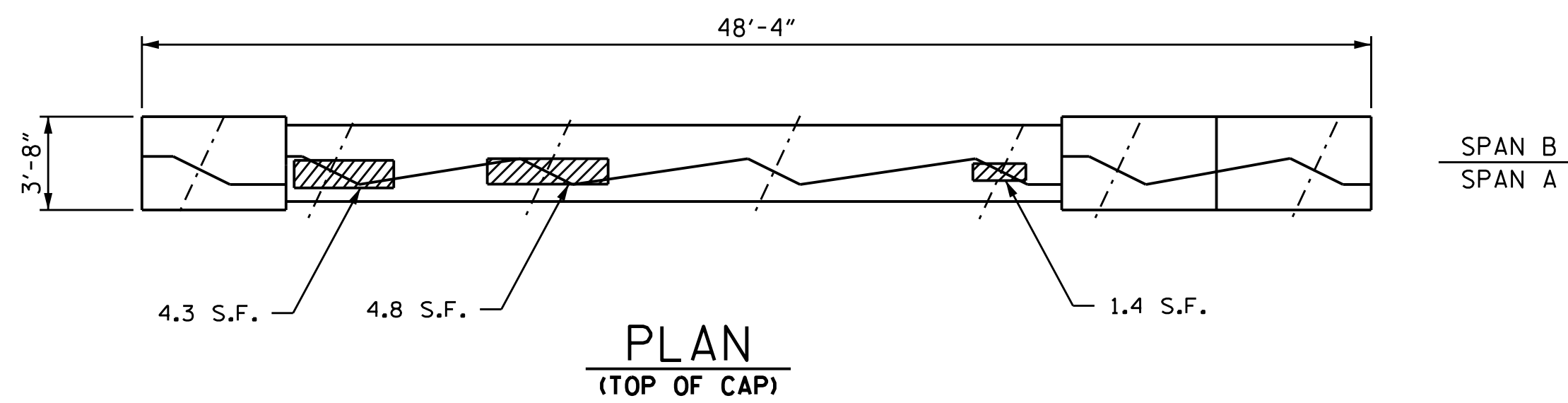


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIR
 END BENT 1 &
 END BENT 2

DRAWN BY : A. Y. GODFREY / G. AYES DATE : .04/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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1			3			TOTAL SHEETS
2			4			48



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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

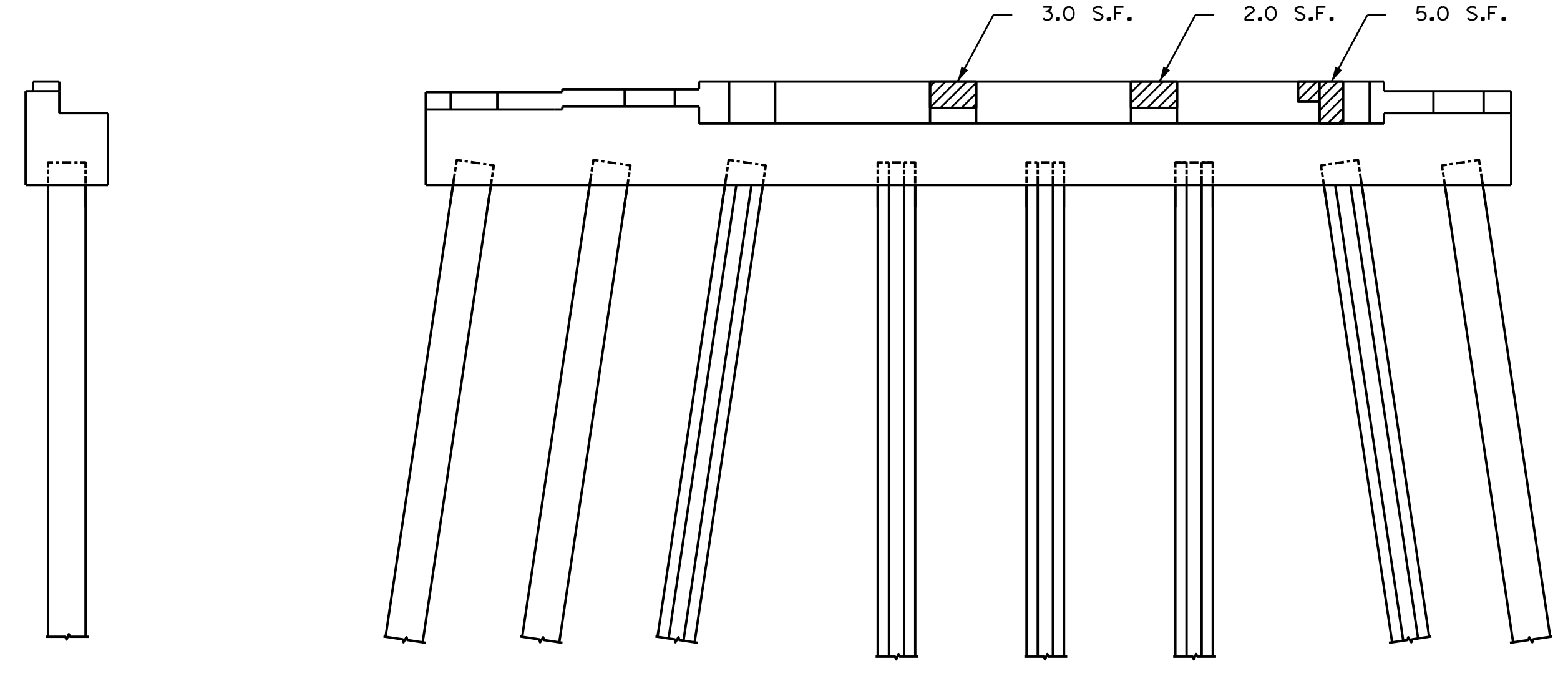
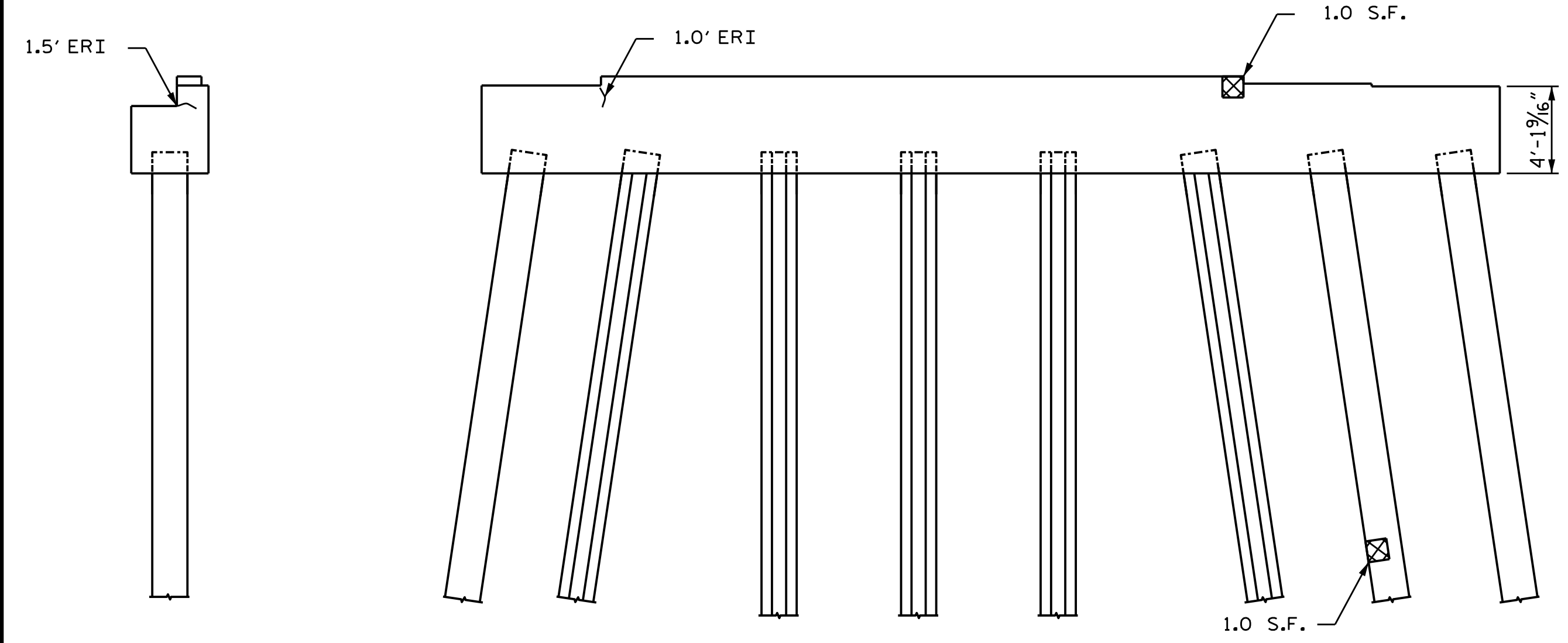
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR BRIDGE JACKING, SEE BRIDGE JACKING DETAILS SHEET.

REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.5		
CAP (HORIZONTAL FACE)	8.0	4.0		
COLUMN	1.0	0.5		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	10.0	5.0		
CAP (HORIZONTAL FACE)	10.5	5.3		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		2.5		
COLUMN		0.0		

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

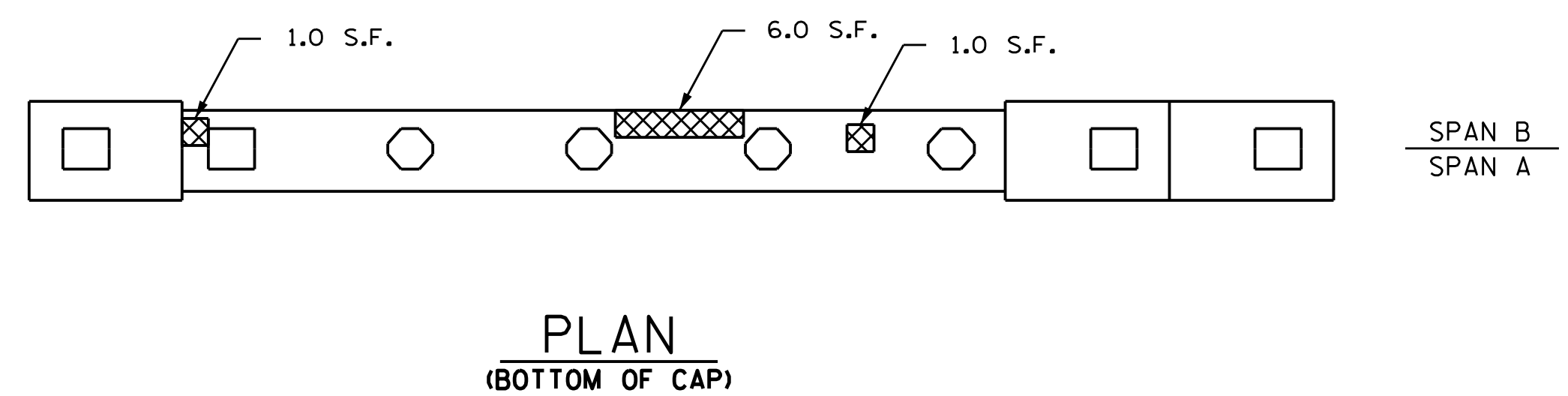


END VIEW
(WEST FACE)

ELEVATION
(SOUTH FACE)

END VIEW
(EAST FACE)

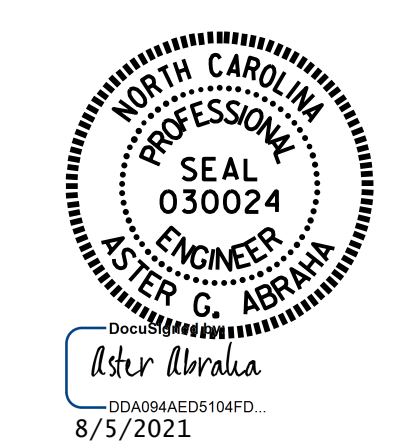
ELEVATION
(NORTH FACE)



REPAIR KEY

- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106
 SHEET 1 OF 5

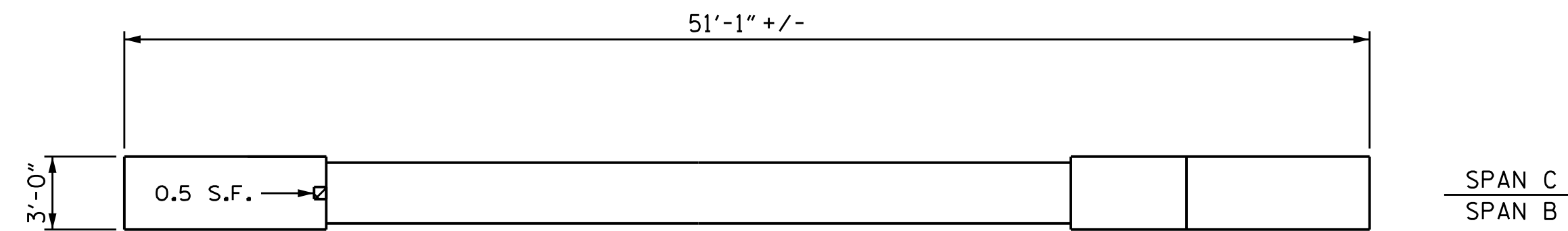


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
BENT 1

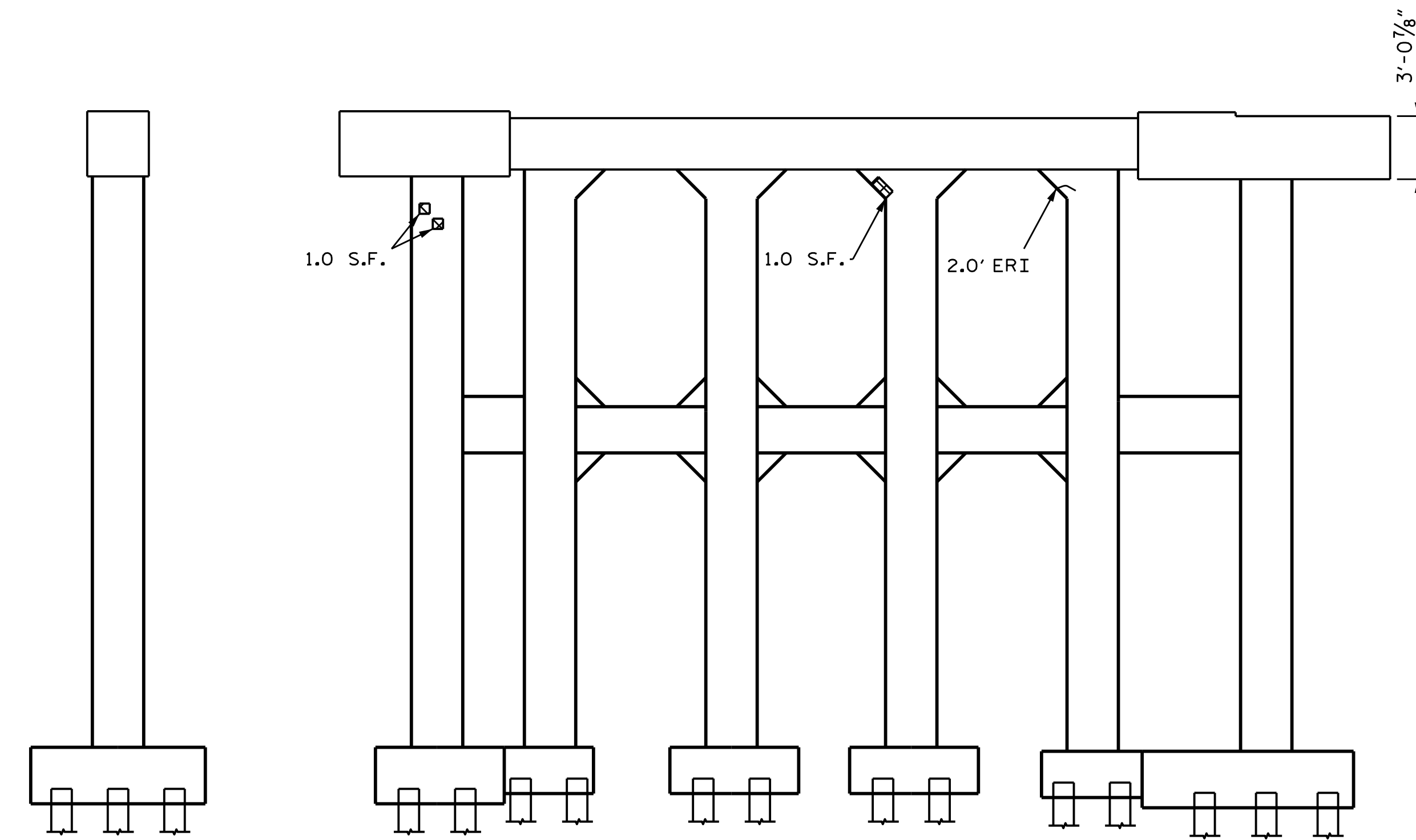
DRAWN BY : A. Y. GODFREY / G. AYES DATE : .04/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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PLAN
(TOP OF CAP)

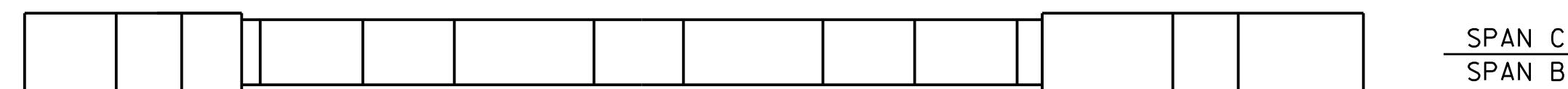


END VIEW
(WEST FACE)

ELEVATION
(SOUTH FACE)

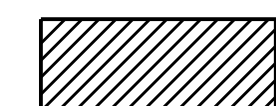


END VIEW
(EAST FACE)

ELEVATION
(NORTH FACE)



PLAN
(BOTTOM OF CAP)

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

REPAIR QUANTITY TABLE				
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.5	0.3		
COLUMN	3.0	1.5		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		0.0		
COLUMN		2.0		

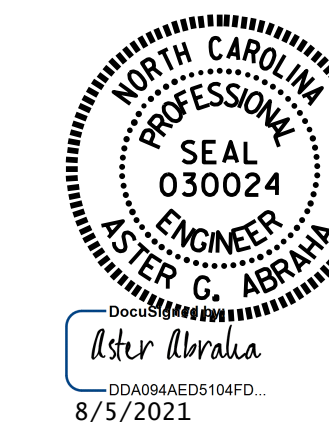
VALUES IN CHART REPRESENT ESTIMATED REPAIR QUANTITIES AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

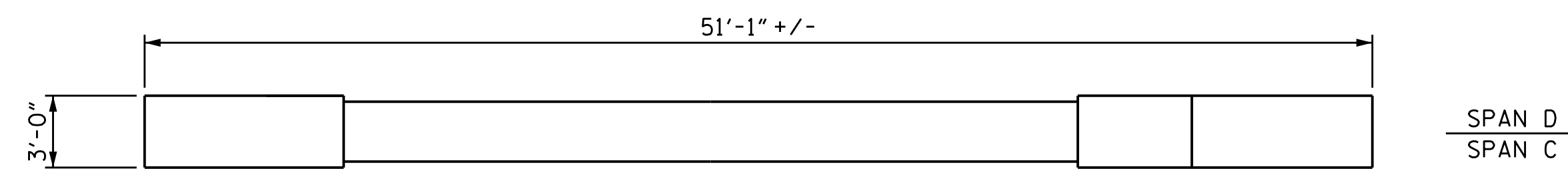
SUBSTRUCTURE
 BENT 2



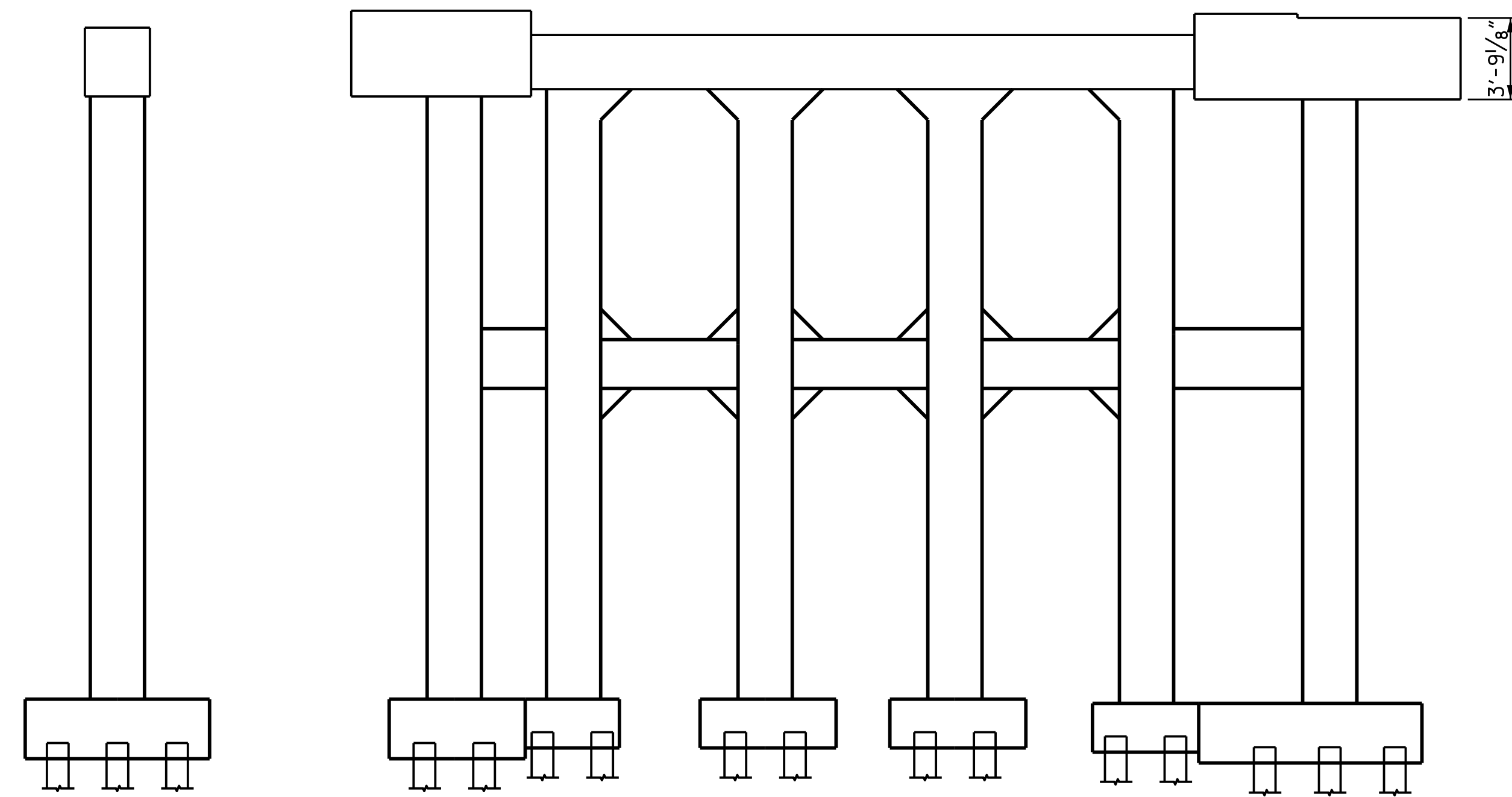
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1			3			S1-16
2			4			TOTAL SHEETS 48

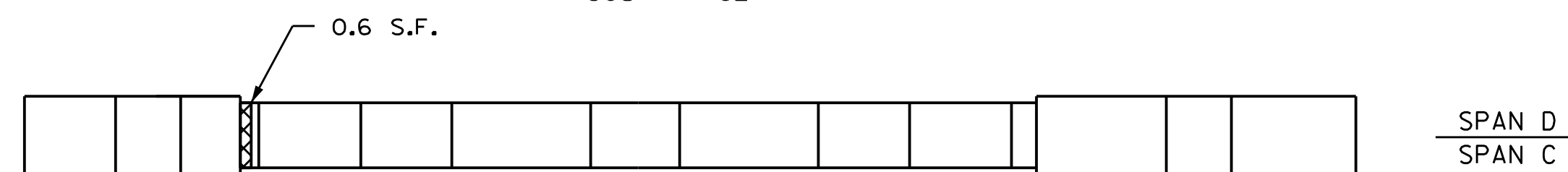


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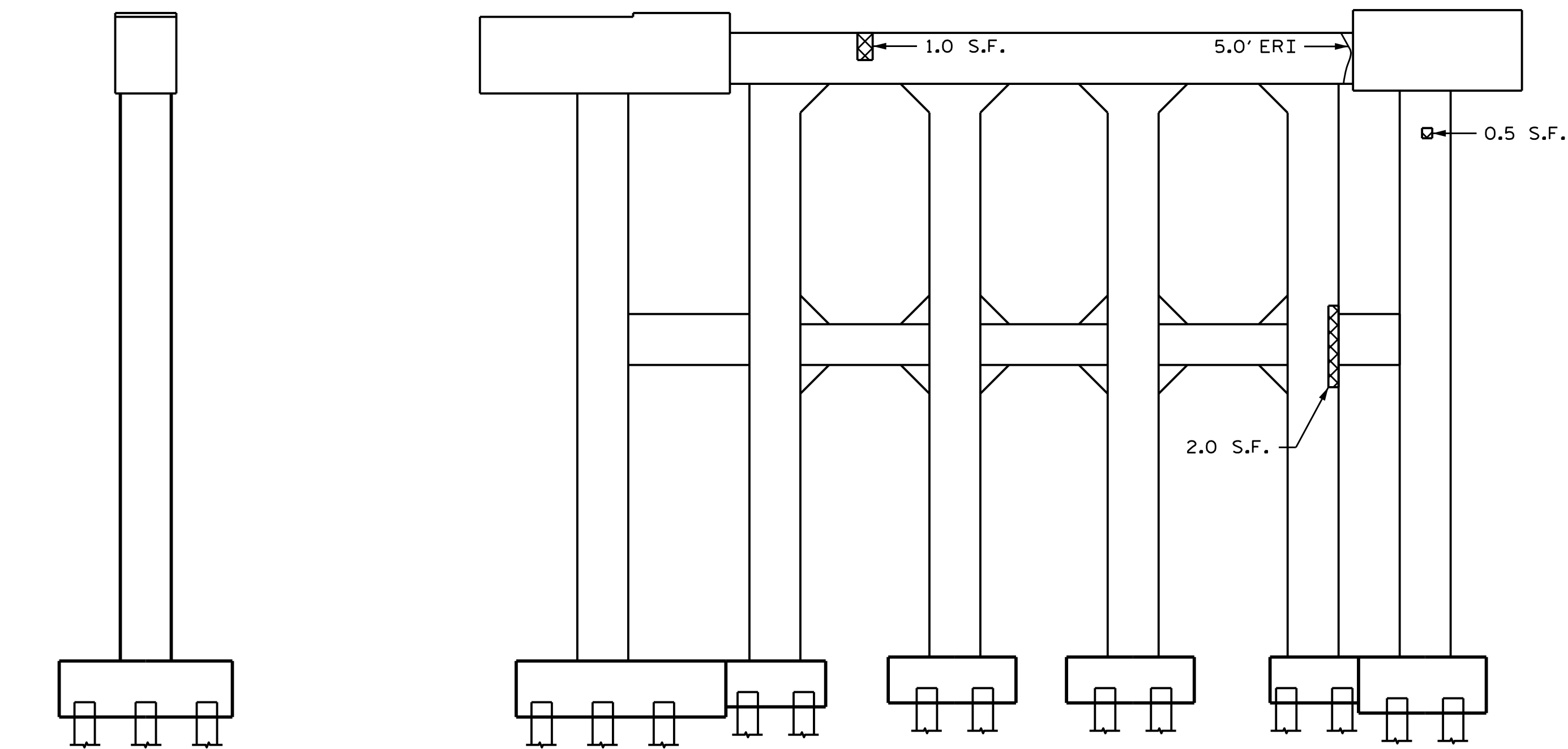


END VIEW
(WEST FACE)

ELEVATION
(SOUTH FACE)



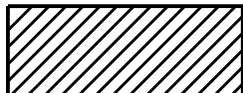
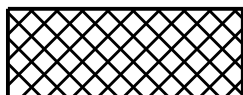

PLAN
(BOTTOM OF CAP)



END VIEW
(EAST FACE)

ELEVATION
(NORTH FACE)

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

REPAIR QUANTITY TABLE				
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.5		
CAP (HORIZONTAL FACE)	0.6	0.3		
COLUMN	2.5	1.3		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		5.0		
COLUMN		0.0		

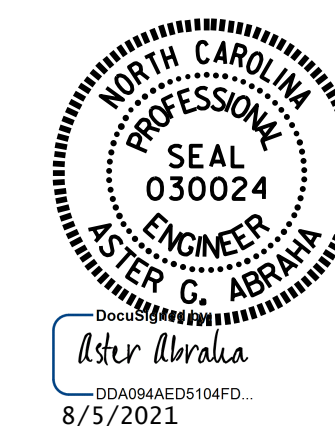
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

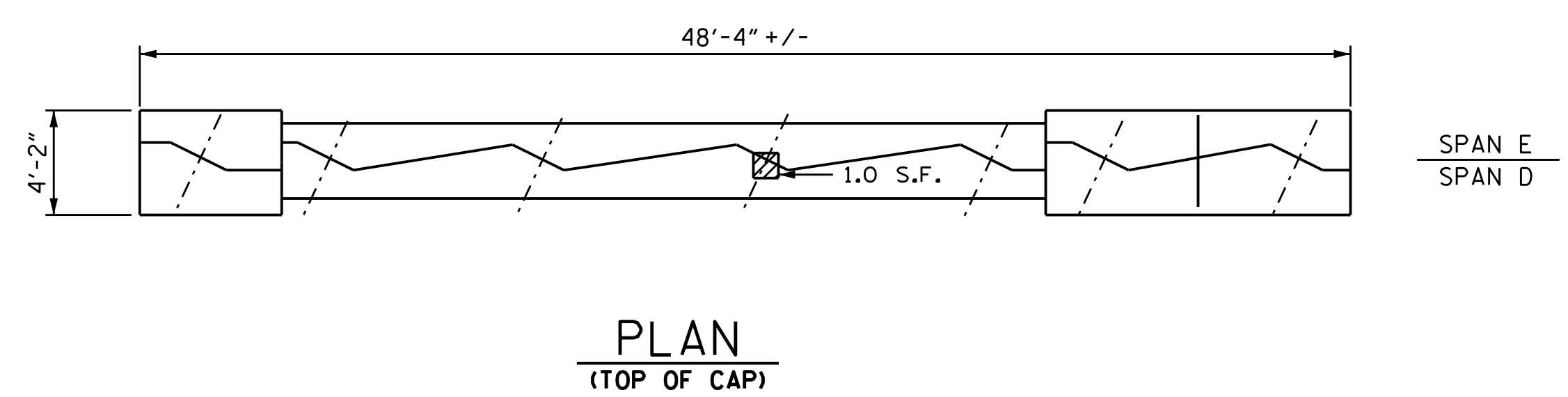
SUBSTRUCTURE
 BENT 3



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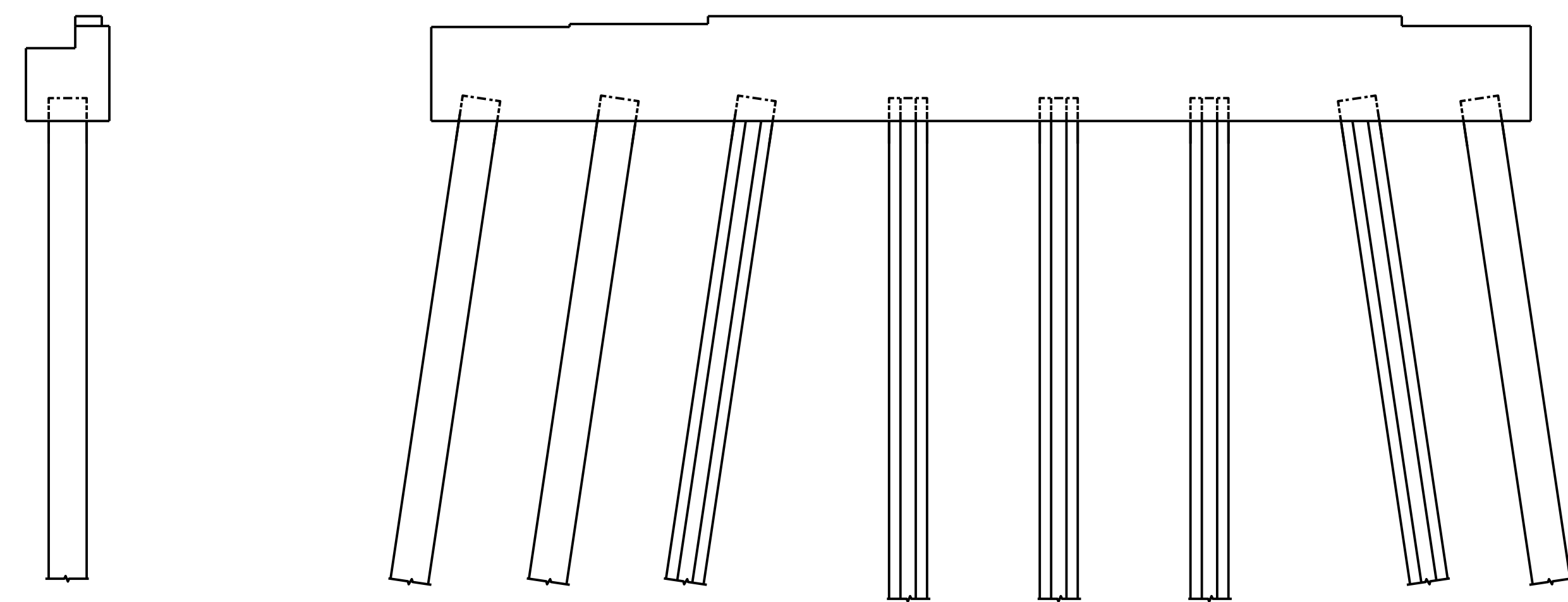
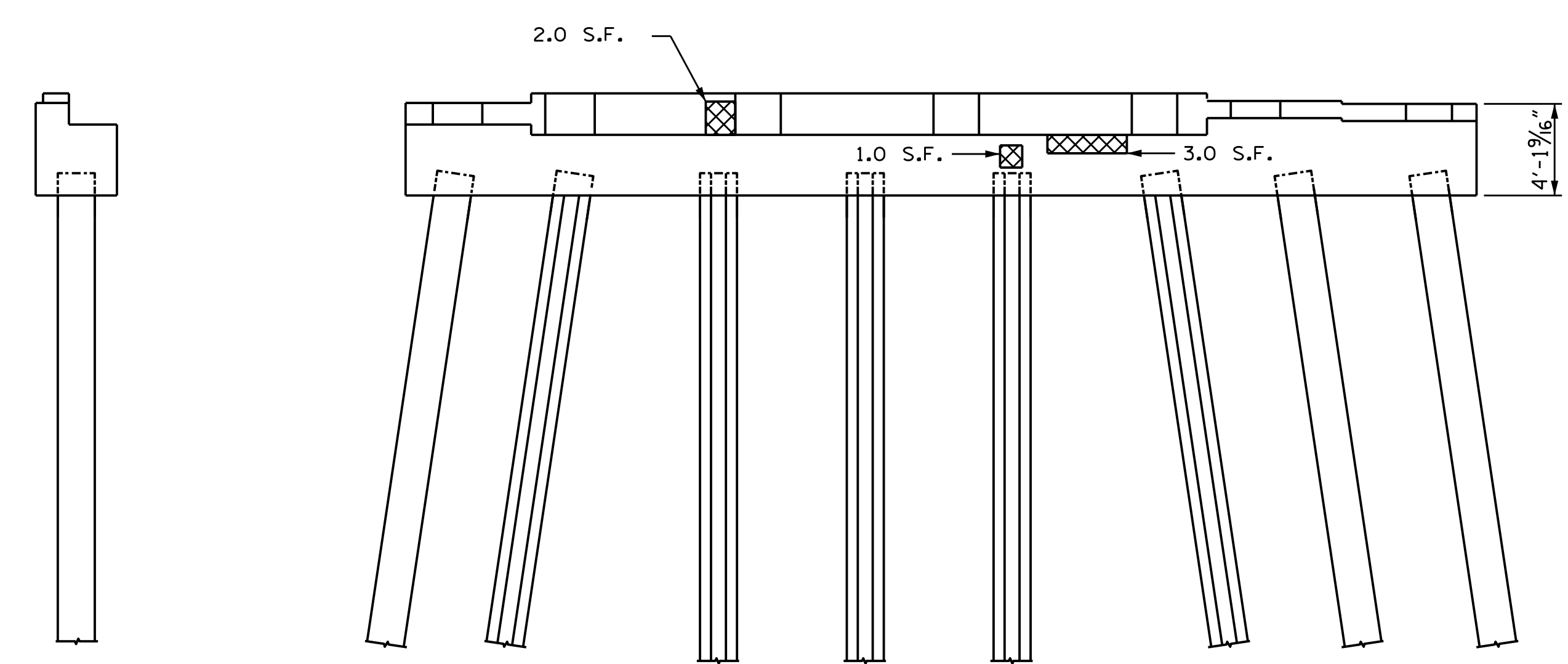
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1			3			TOTAL SHEETS
2			4			48



REPAIR QUANTITY TABLE				
BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	6.0	3.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	1.0	0.5		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		0.0		
COLUMN		0.0		

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

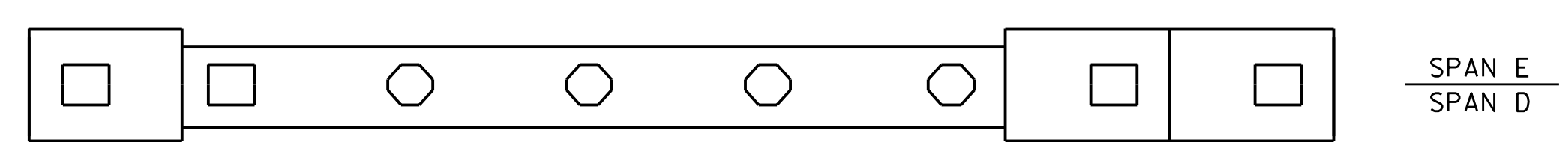


END VIEW
(WEST FACE)

ELEVATION
(SOUTH FACE)

END VIEW
(EAST FACE)

ELEVATION
(NORTH FACE)



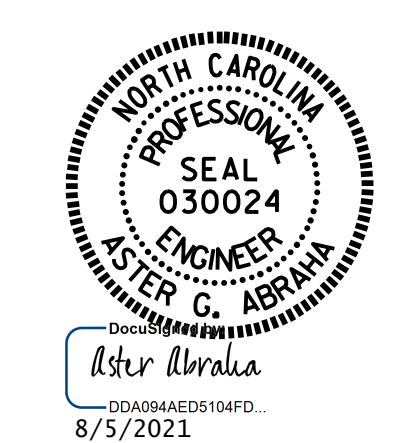
PLAN
(BOTTOM OF CAP)

REPAIR KEY

- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 4 OF 5



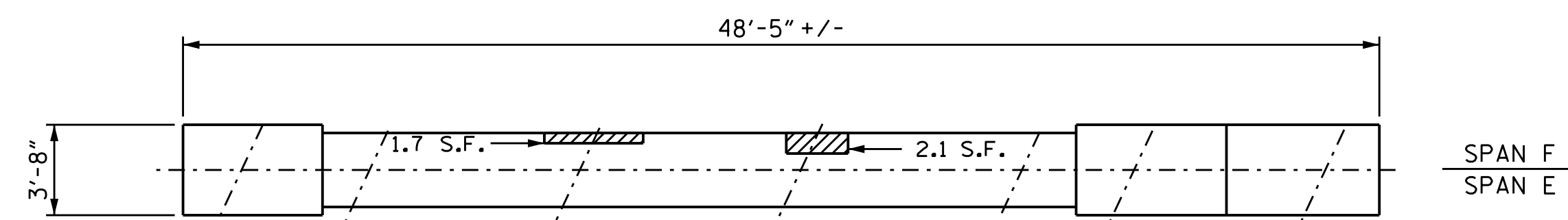
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 4

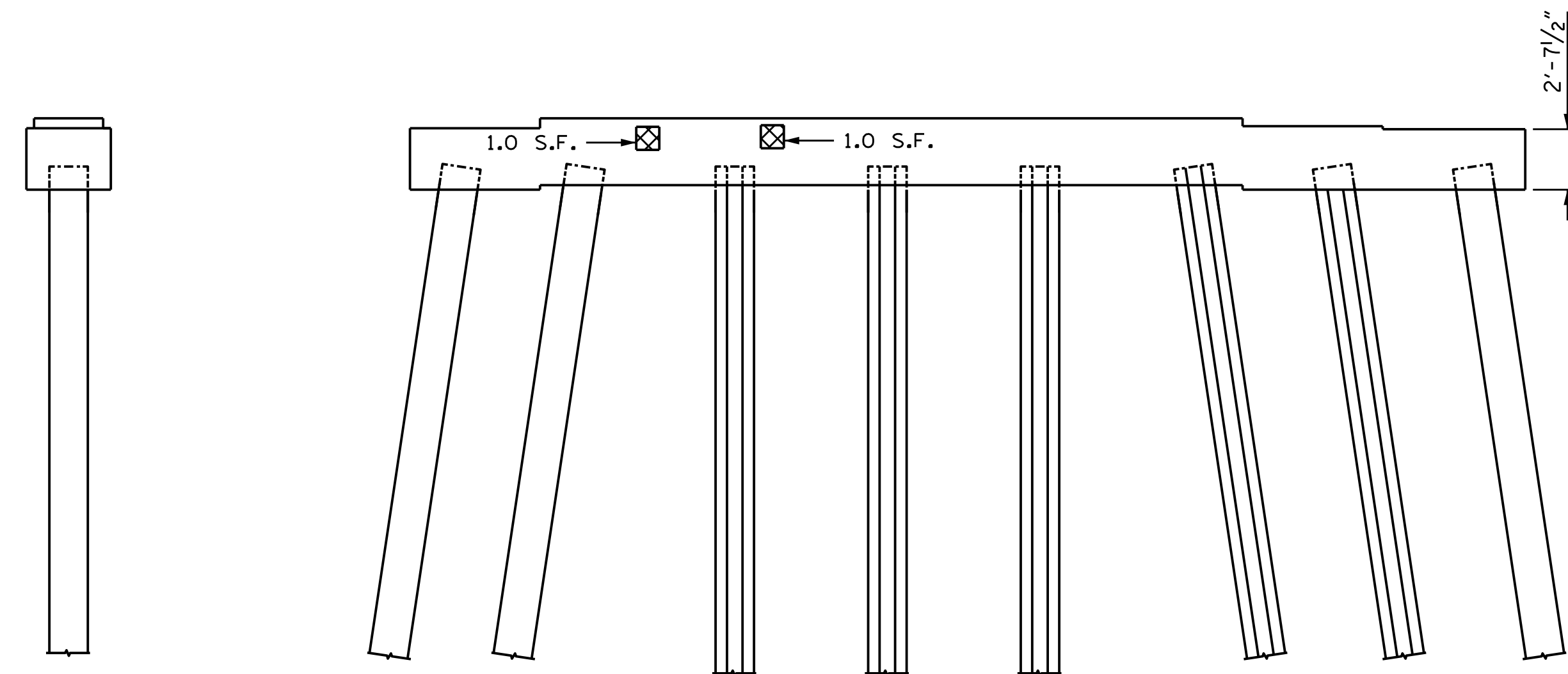
DRAWN BY : A. Y. GODFREY / G. AYES DATE : .05/2021
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1			3			TOTAL SHEETS 48
2			4			

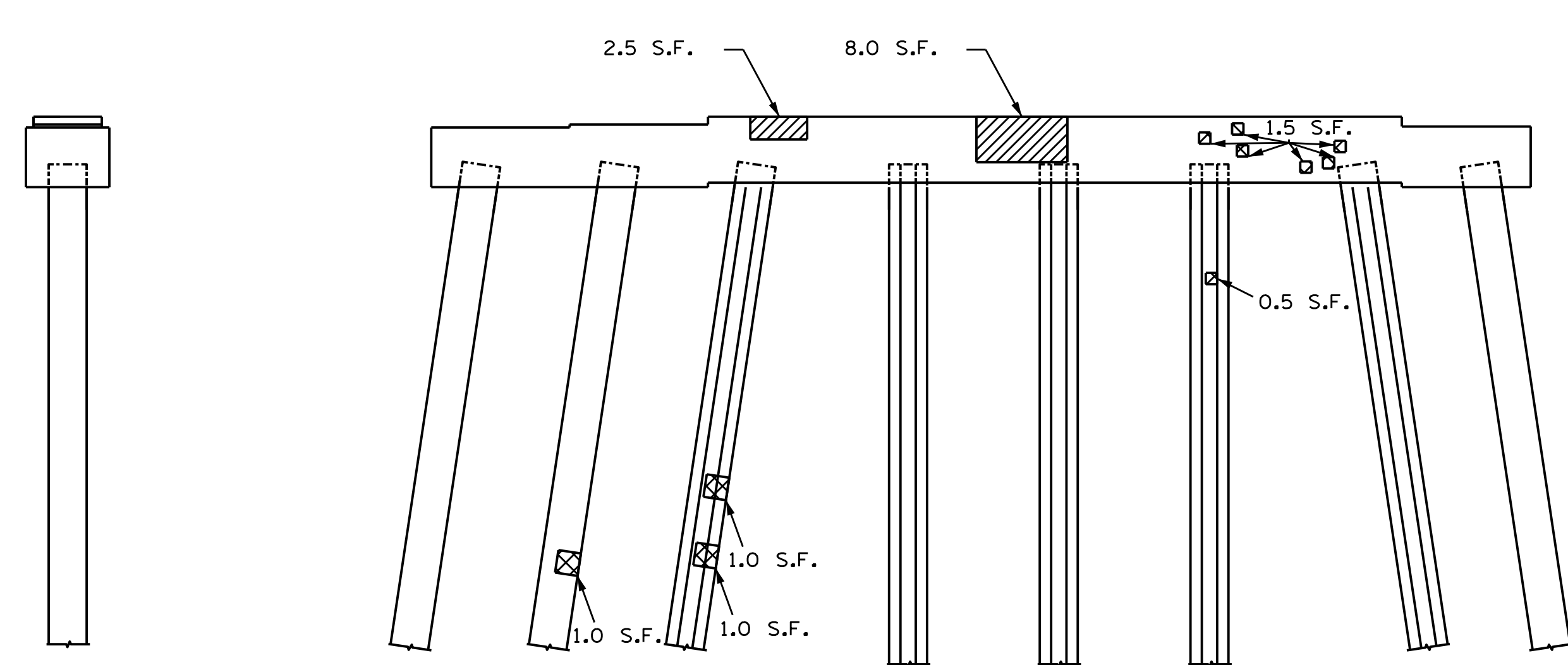


PLAN
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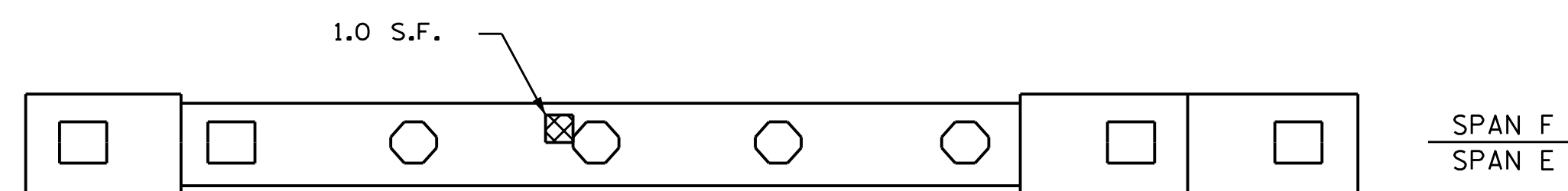
END VIEW
(WEST FACE)

ELEVATION
(SOUTH FACE)



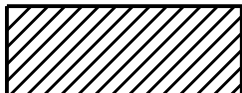
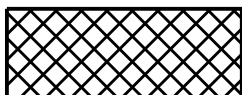

END VIEW
(EAST FACE)

ELEVATION
(NORTH FACE)



PLAN
(BOTTOM OF CAP)

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

REPAIR QUANTITY TABLE				
BENT 5	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	3.5	1.8		
CAP (HORIZONTAL FACE)	1.0	0.5		
COLUMN	3.5	1.8		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	10.5	5.3		
CAP (HORIZONTAL FACE)	3.8	1.9		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		0.0		
COLUMN		0.0		

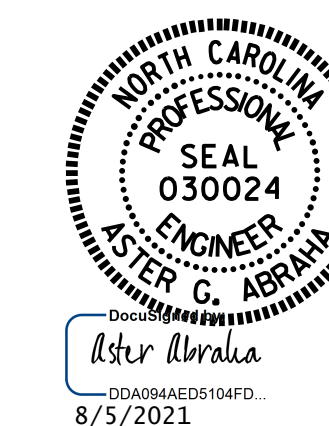
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

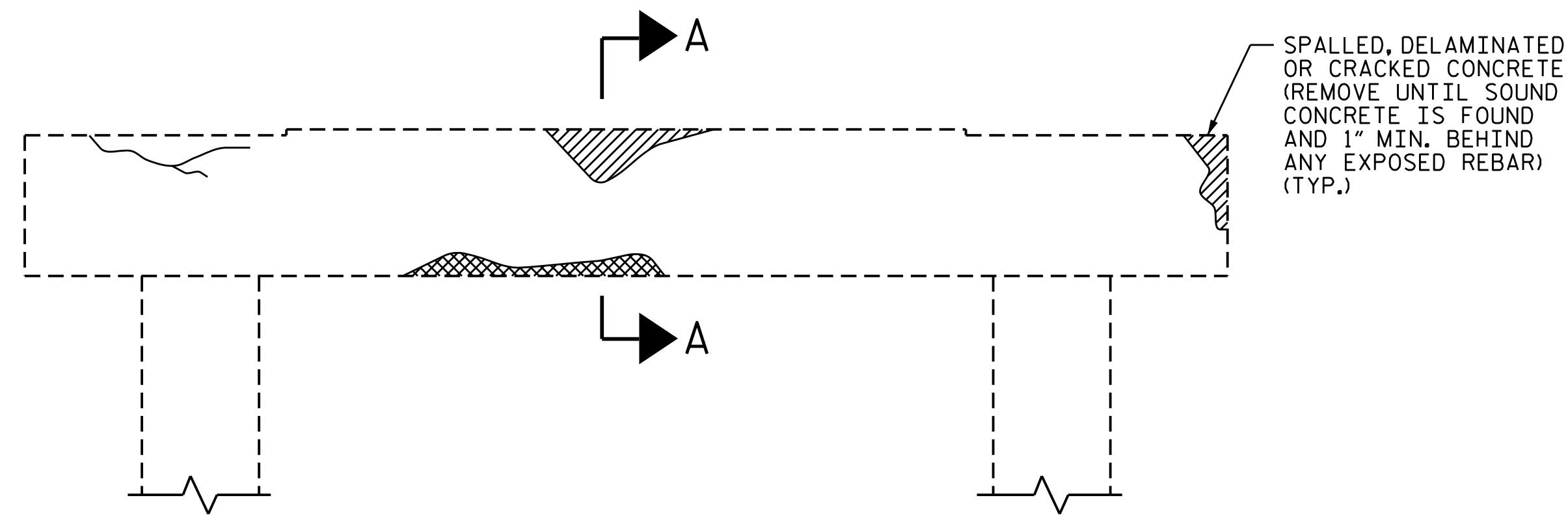
SUBSTRUCTURE
 BENT 5



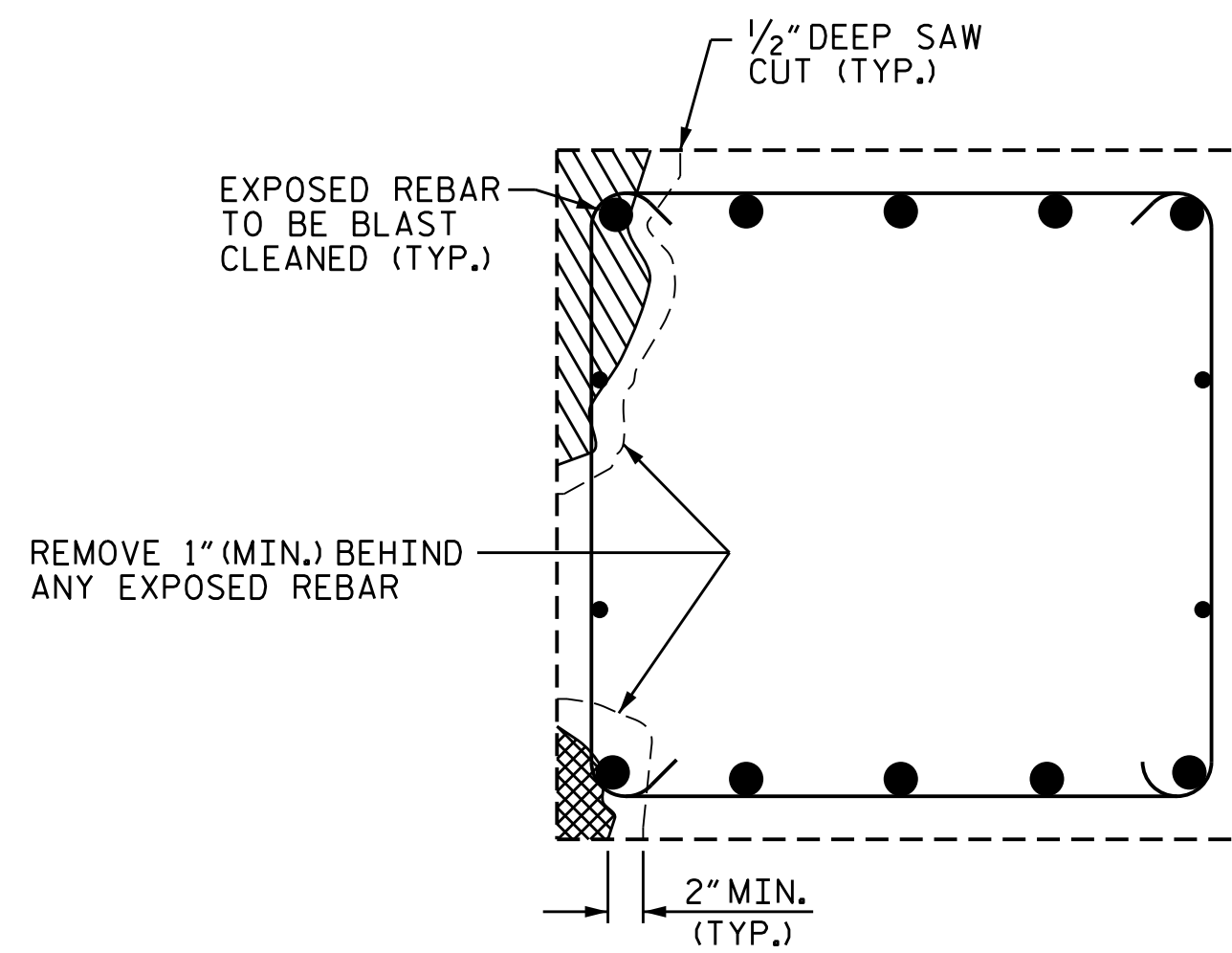
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-19
1			3			TOTAL SHEETS
2			4			48

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 FINAL UNLESS ALL
 SIGNATURES COMPLETED

DRAWN BY : A. Y. GODFREY / G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

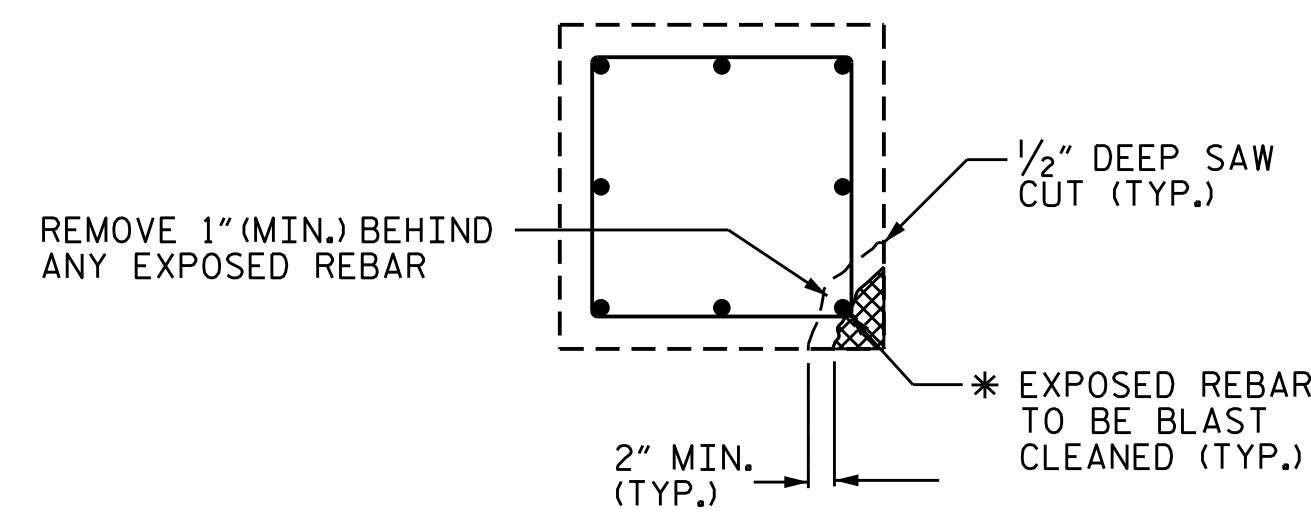


BENT CAP REPAIRS



SECTION A-A

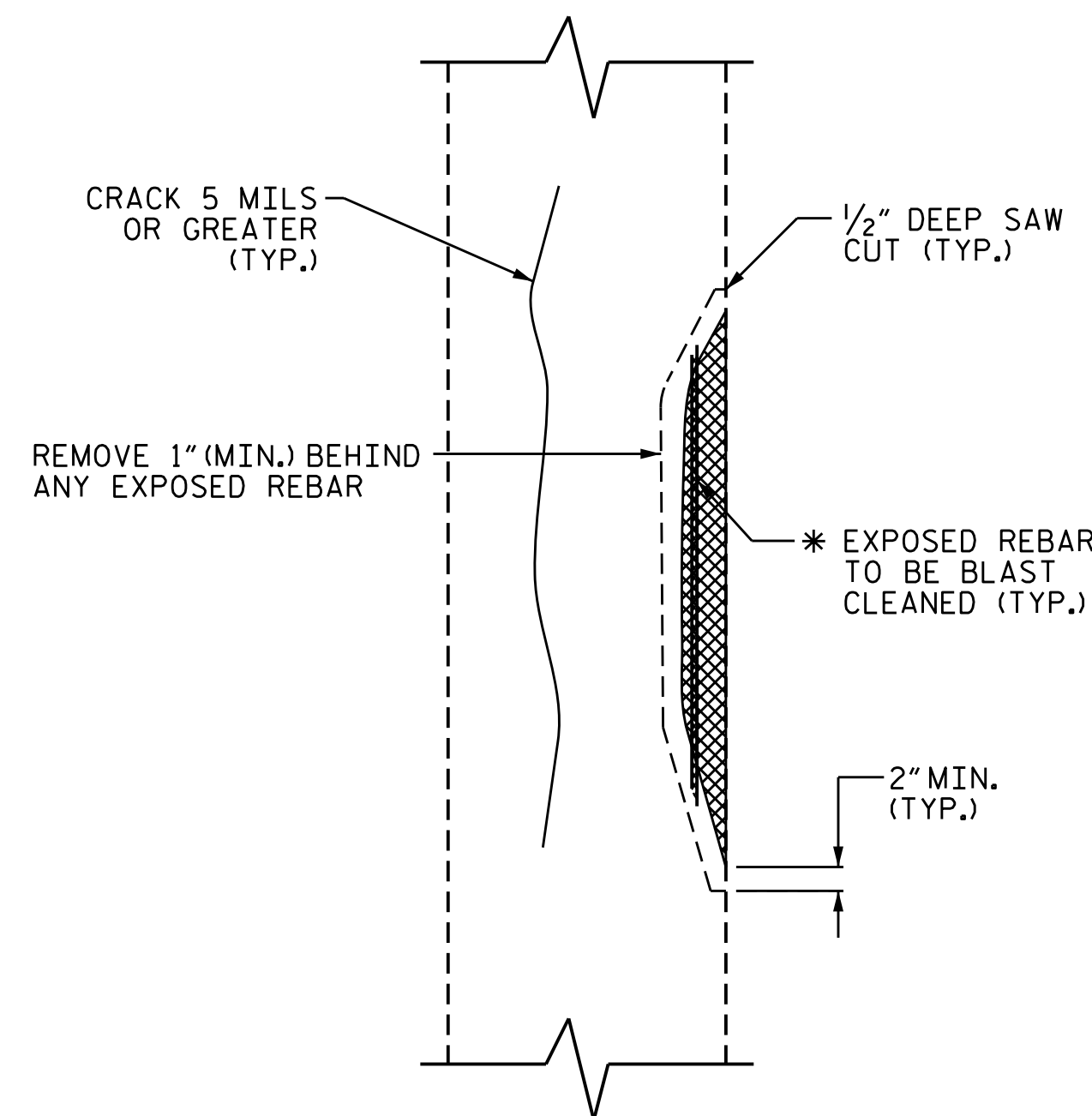
CAP REPAIR



PLAN OF COLUMN

REPAIR KEY

- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

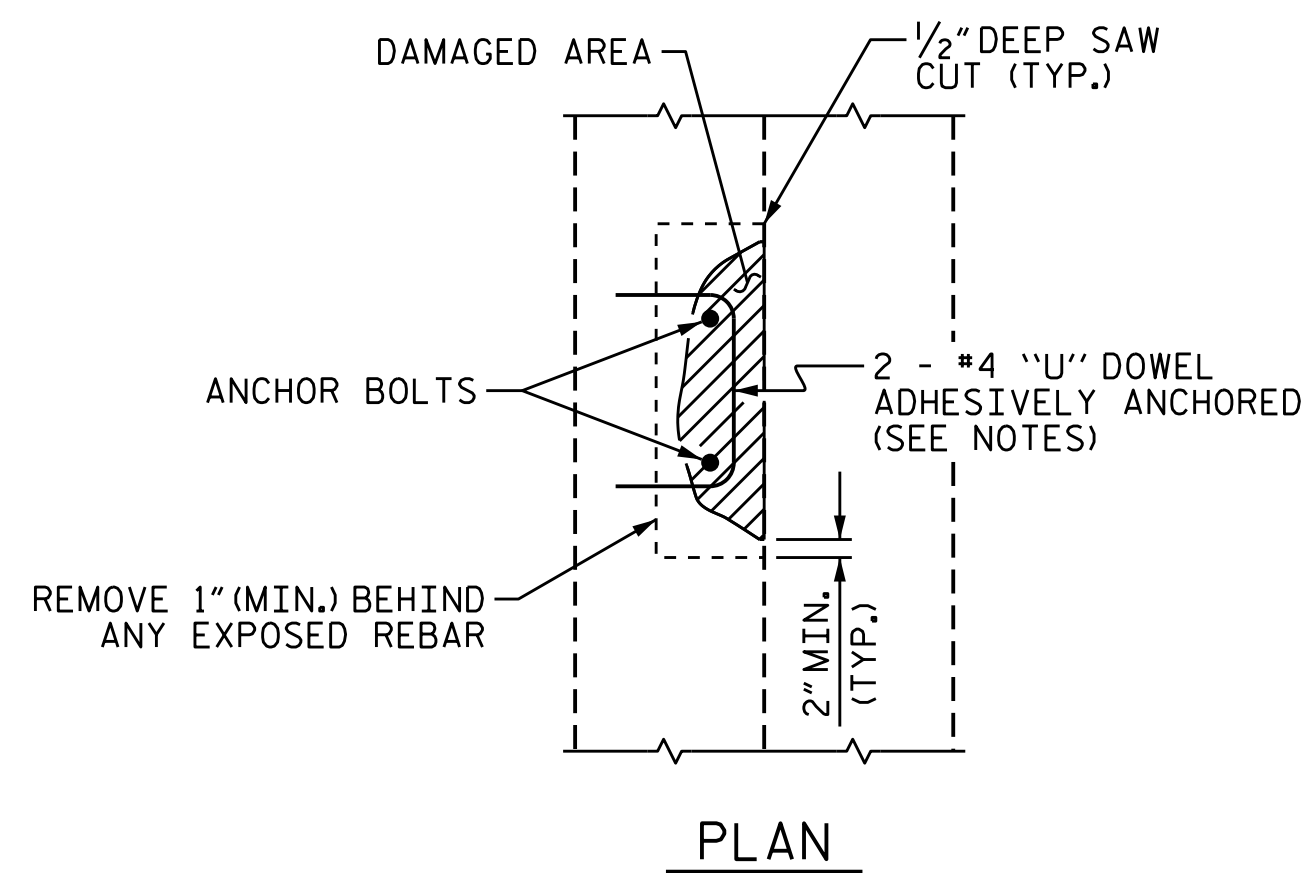


ELEVATION OF COLUMN

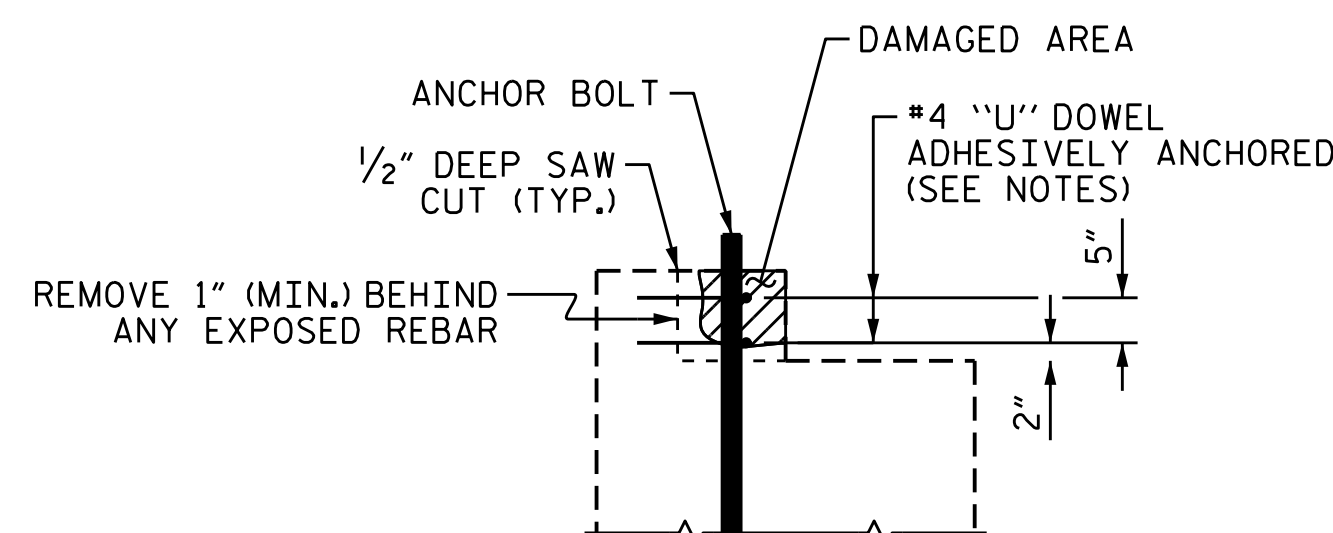
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

SPLICE LENGTH TABLE	
BAR SIZE	MIN. SPLICE LENGTH
#4	2'-4"
#5	2'-9"
#6	4'-0"
#7	5'-3"
#8	6'-9"
#9	8'-6"
#10	10'-11"
#11	13'-4"



PLAN



ELEVATION

PEDESTAL WALL REPAIR

NOTES

TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND STRUTS.

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, BUT NO MORE THAN 1/2 OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING. ON COLUMNS AND PILES, NO MORE THAN 10 VERTICAL FEET MAY BE EXPOSED AT ONE TIME BEFORE PLACEMENT OF REPAIR CONCRETE.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

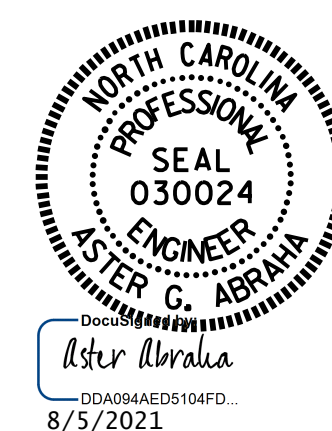
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS. 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.

PROJ. NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS

ASSEMBLED BY : S. T. SANDOR DATE : 10/2019
 CHECKED BY : A. G. ABRAHA DATE : 11/2019
 DRAWN BY : NAP 8/18
 CHECKED BY :

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-20
2			4			TOTAL SHEETS 48

BRIDGE JACKING NOTES:

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

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

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

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

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

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

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS $\frac{1}{8}$ ".

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

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

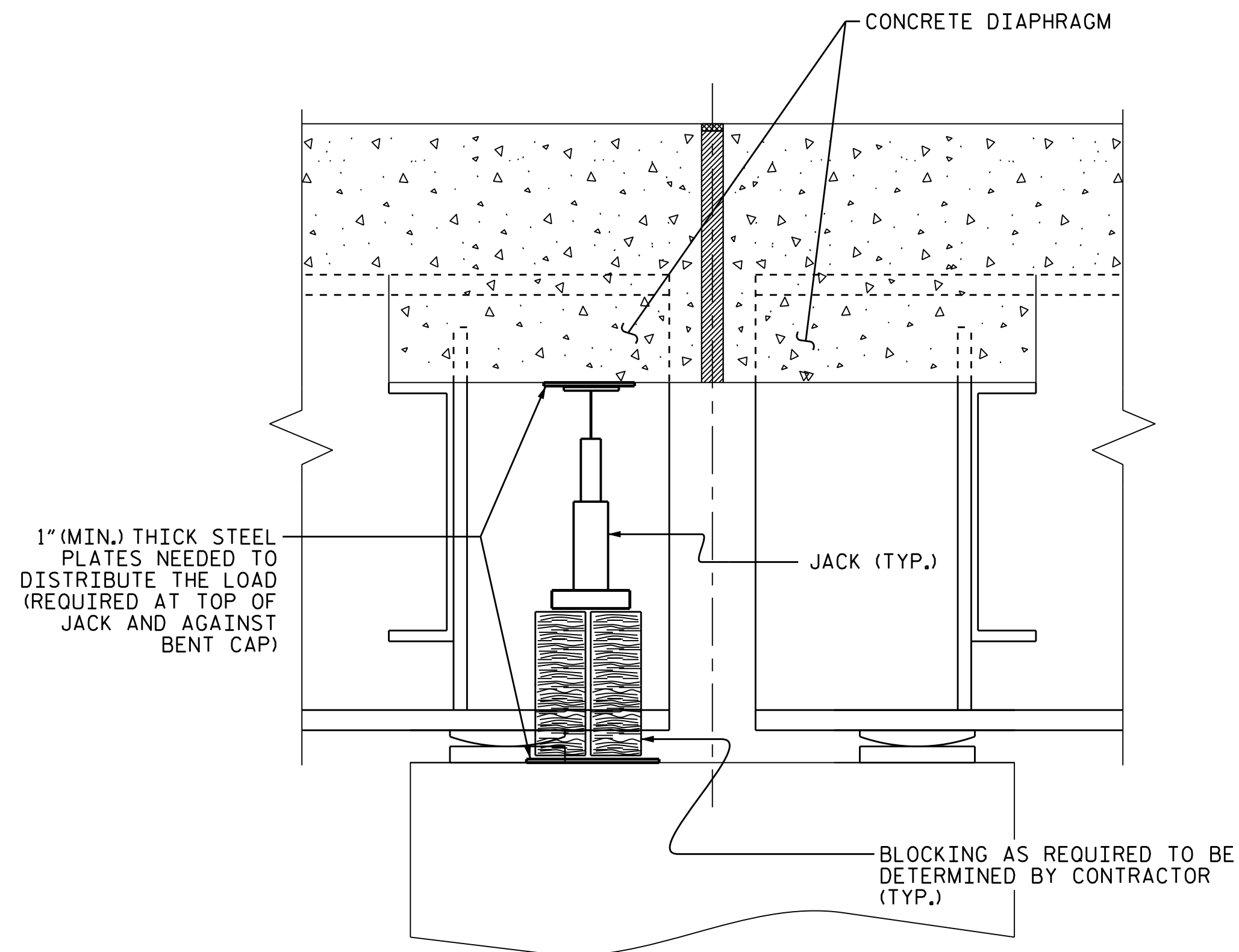
FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

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

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

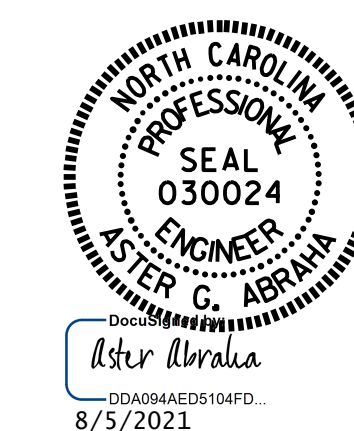
THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.



SECTION THRU DIAPHRAGM

BRIDGE JACKING TABLE				
LOCATION	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
BENT 1	A	2, 3, 5	TYPE I	--
BENT 4	E	4	TYPE I	--
BENT 5	F	4, 5	TYPE I	--

PROJ. NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500106



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**BRIDGE JACKING
 DETAILS**

ASSEMBLED BY : GAYES DATE : 06/21
 CHECKED BY : SWANCE DATE : 07/21
 DRAWN BY :
 CHECKED BY :

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

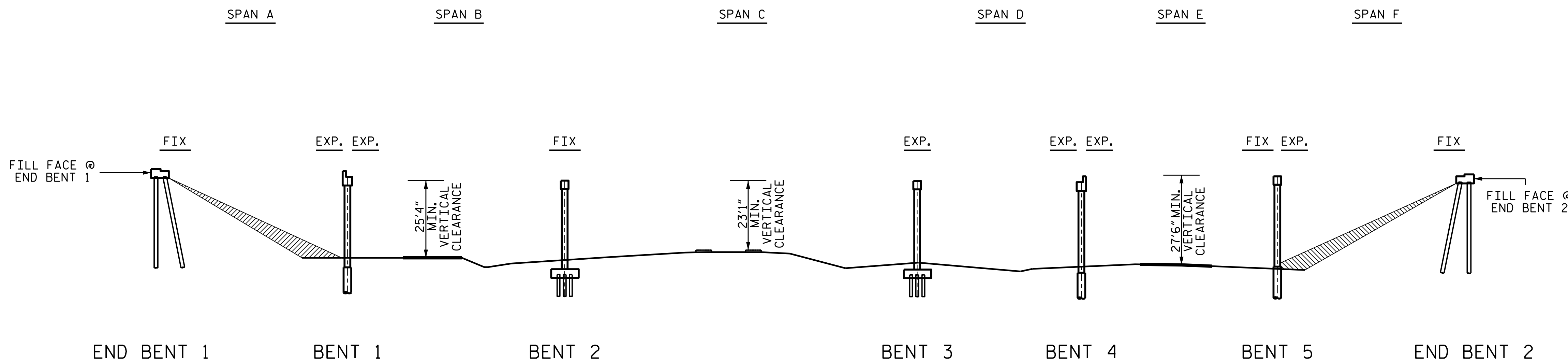
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-21
1			3			TOTAL SHEETS
2			4			48

SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION SHOT-BLASTING METHODS.
- DEMOLISH AND REMOVE EXISTING BRIDGE DECK JOINTS.
- PERFORM CONCRETE DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYMER CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL STRIP SEAL EXPANSION JOINTS AND POURABLE SILICONE JOINT SEALS.
- GROOVE CONCRETE BRIDGE DECK.
- REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, CONCRETE AND SHOTCRETE.
- CLEAN AND PAINT EXISTING STRUCTURAL STEEL BEAMS.

NOTES

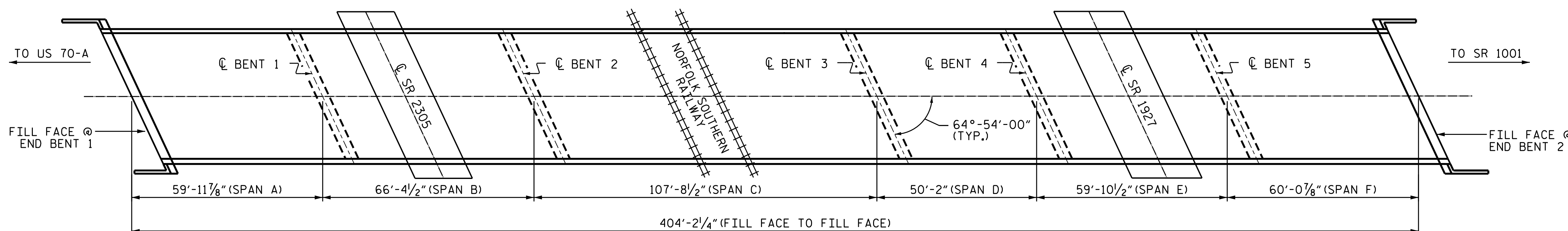
- PROFILE INFORMATION IS TAKEN FROM ORIGINAL PLANS, WIDENING PLANS, AND INSPECTION REPORT DATED 04/16/2020.
- BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.
- FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.



SECTION ALONG \bar{C} ROADWAY

I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer _____ Date _____

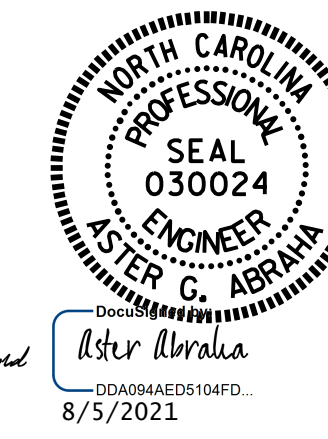
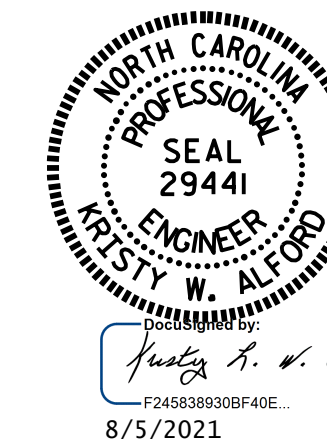


PLAN
(COLUMN & PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE 107 ON
 I-95 SOUTHBOUND OVER
 NORFOLK SOUTHERN RAILWAY,
 SR 2305 AND SR 1927



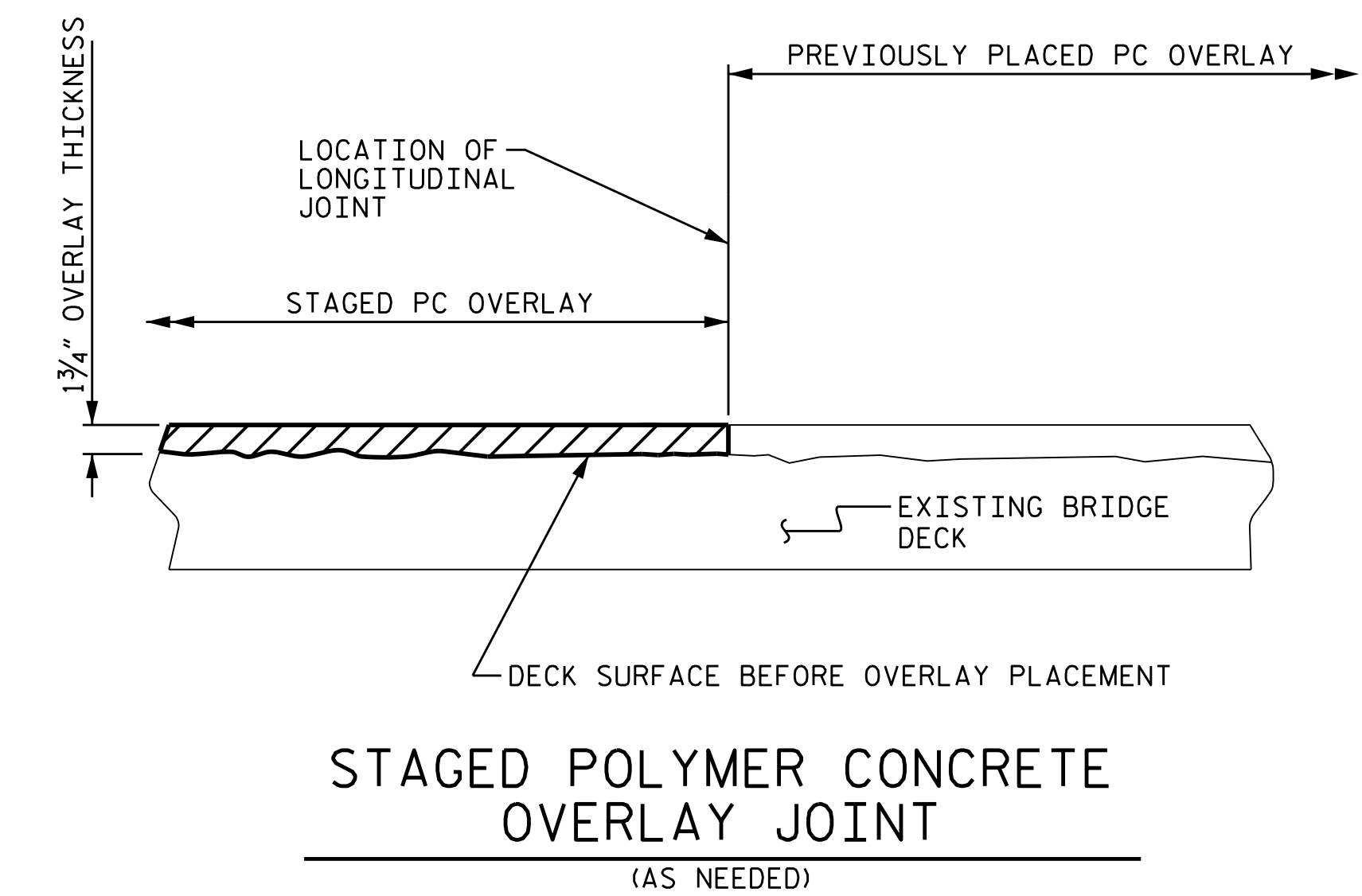
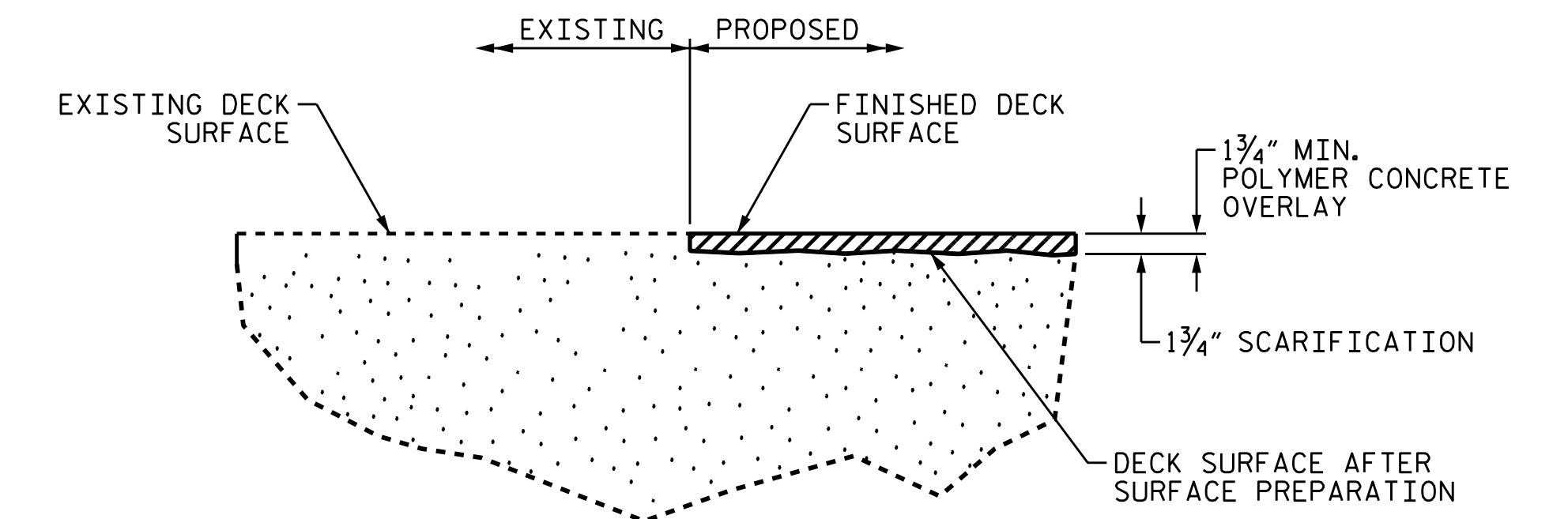
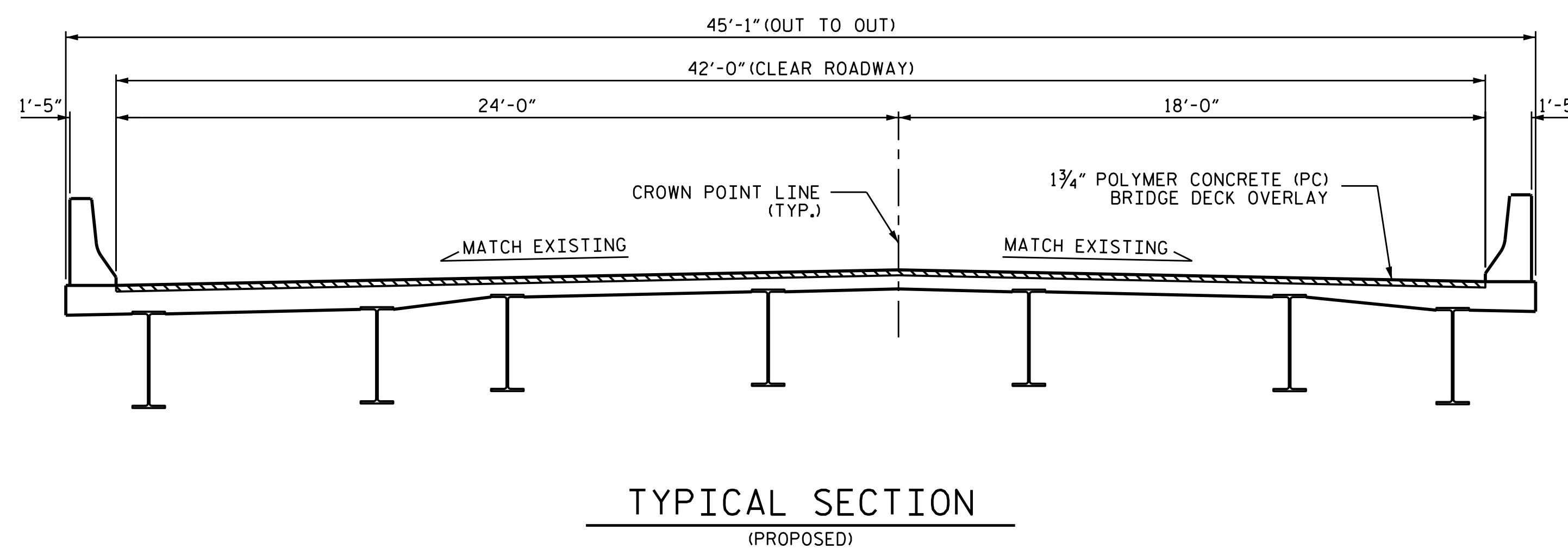
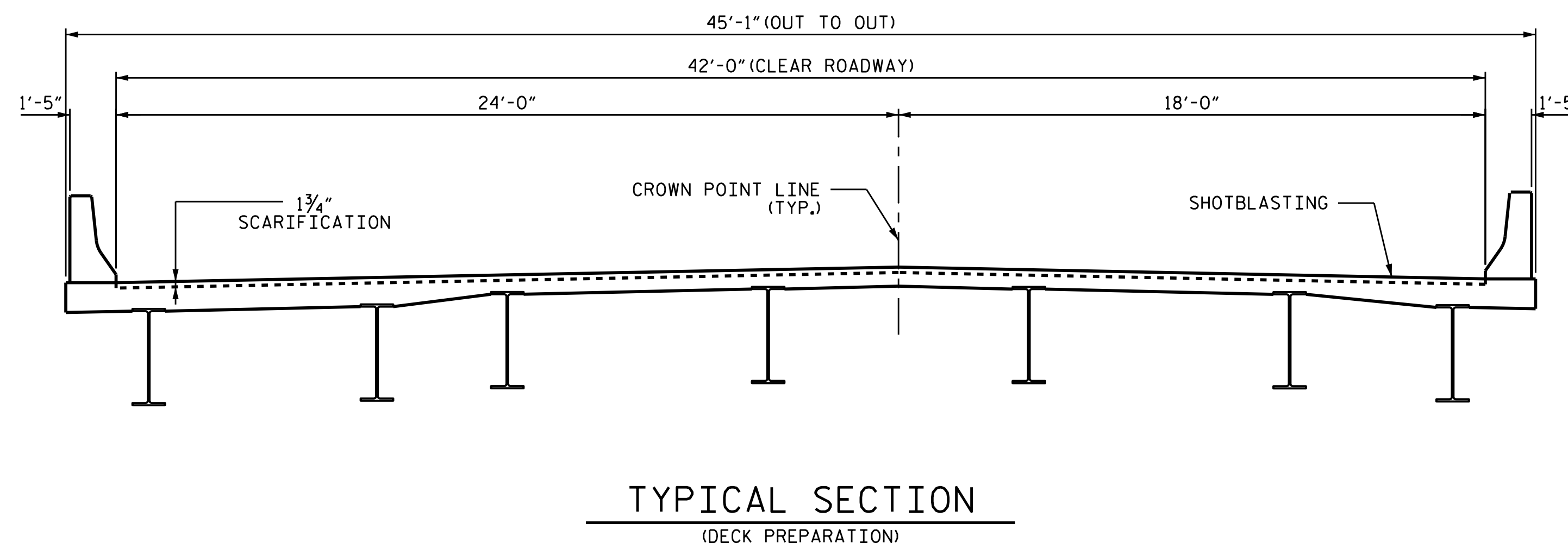
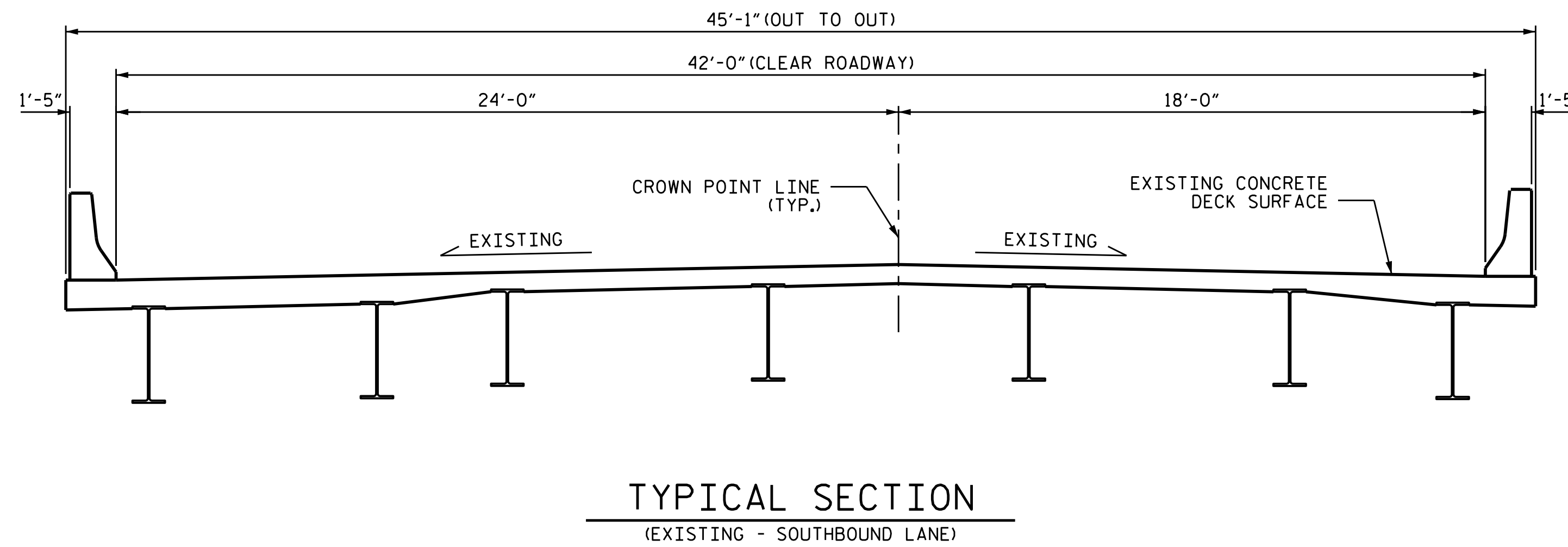
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-1
1			3			TOTAL SHEETS
2			4			48

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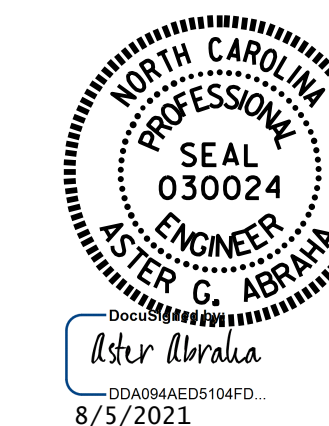
DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

NOTES

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



PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**TYPICAL SECTION
 & POLYMER CONCRETE
 (PC) OVERLAY DETAILS**

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-2
1			3			TOTAL SHEETS
2			4			48

SUMMARY OF QUANTITIES FOR SPAN A AND APPROACH SLAB 1

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	10.0 SY	
GROOVING BRIDGE DECK	2379 SF	

NOTES:

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



FOR POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

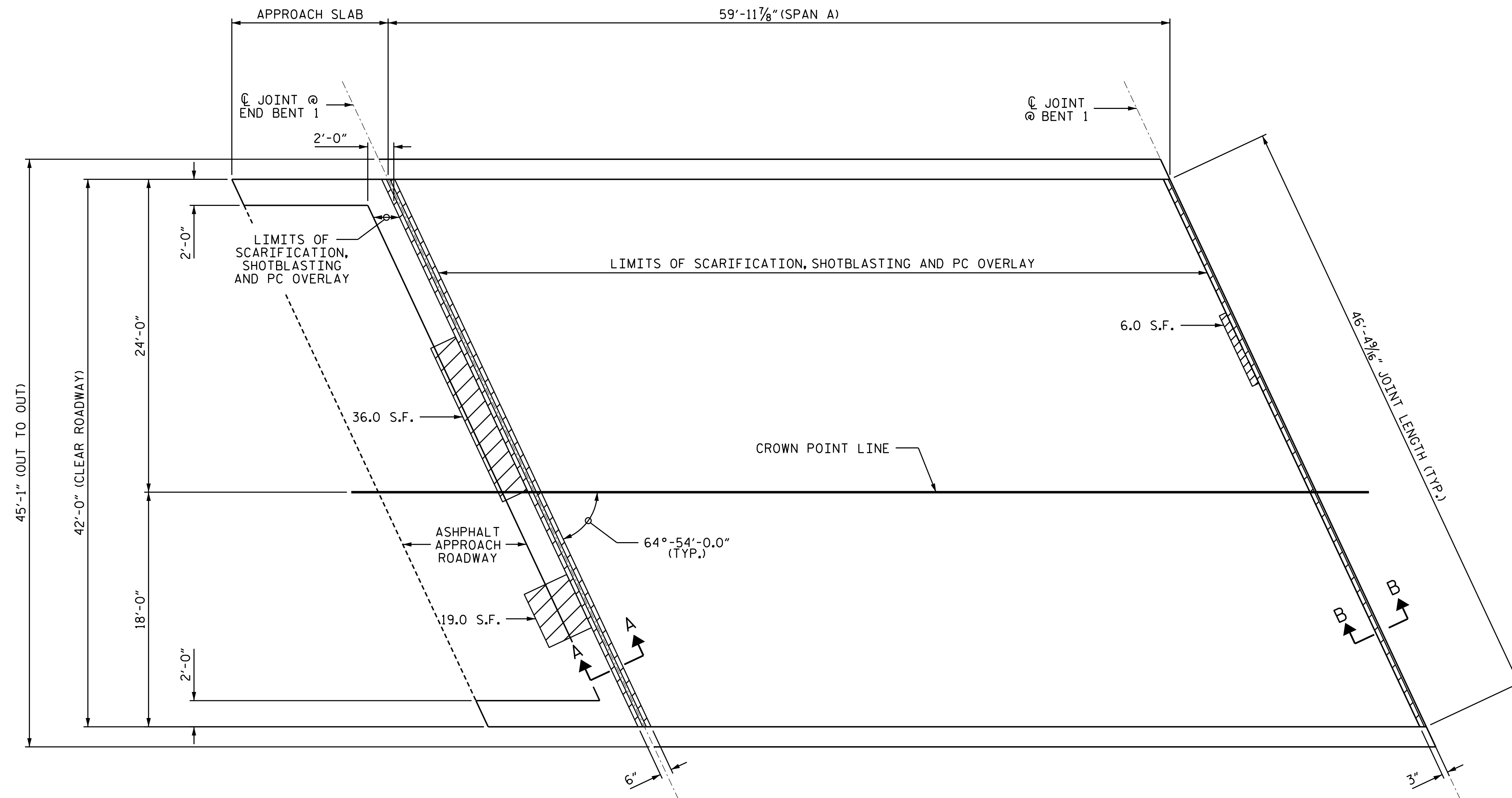
FOR OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

POURABLE SILICONE JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION

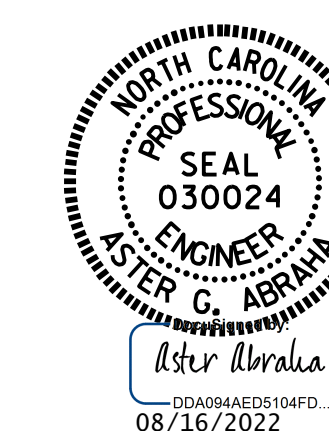


PLAN OF SPAN A AND APPROACH SLAB 1

(SEE SHEET S2-11 FOR SECTIONS A-A AND B-B)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 1 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SURFACE PREPARATION
 SPAN A AND
 APPROACH SLAB 1

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-3
1			3			TOTAL SHEETS
2			4			48



SUMMARY OF QUANTITIES FOR SPAN B

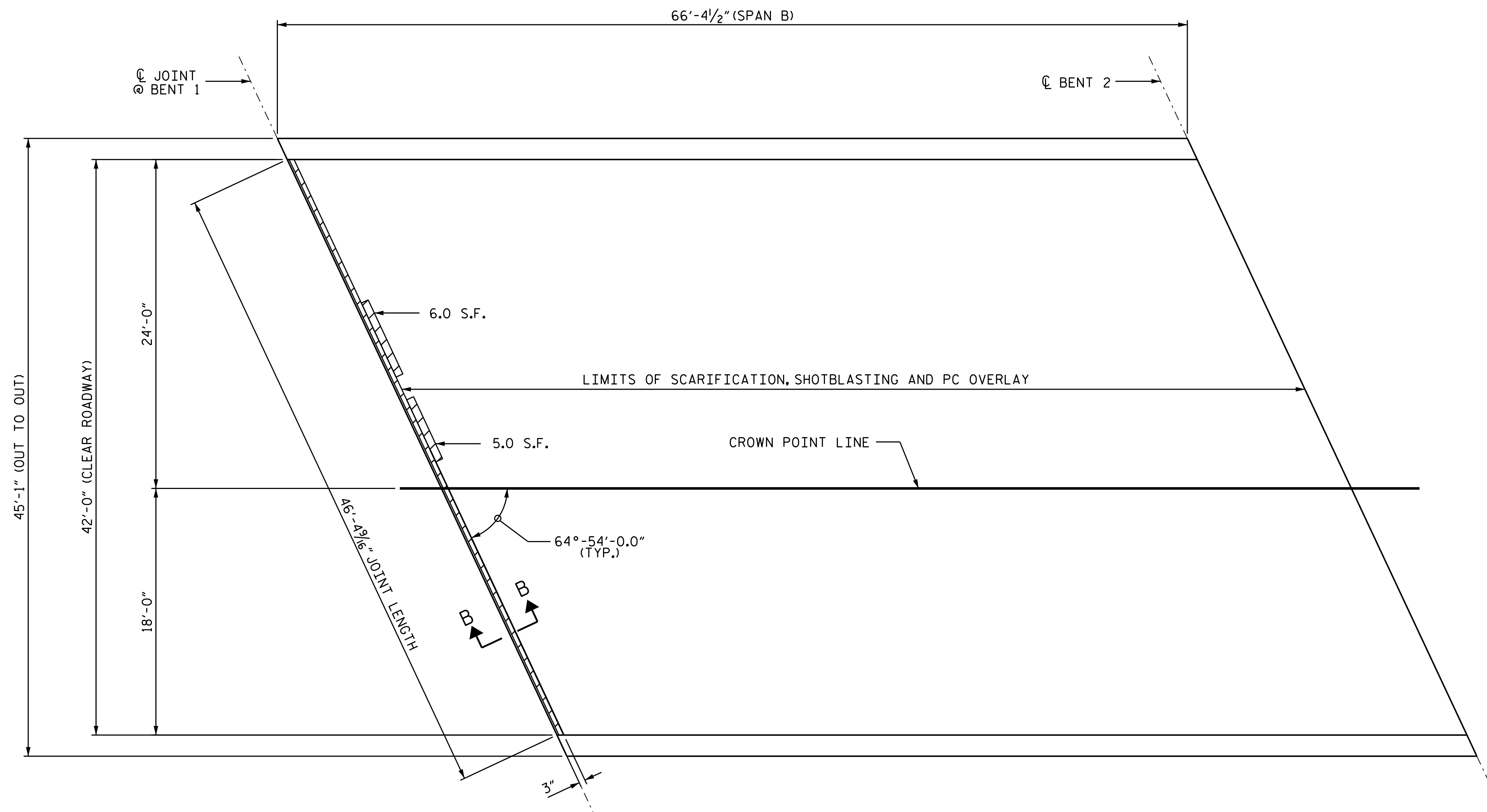
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	310 SY	
POLYESTER POLYMER CONCRETE MATERIALS	17.3 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	17.3 CY	
SHOTBLASTING BRIDGE DECK	310 SY	
PLACING & FINISHING PC OVERLAY	310 SY	
CLASS II SURFACE PREPARATION	2.3 SY	
GROOVING BRIDGE DECK	2578 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION

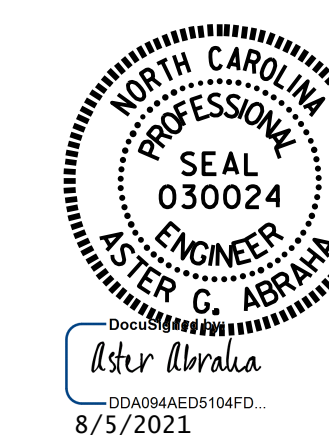


PLAN OF SPAN B

(SEE SHEET S2-11 FOR SECTIONS B-B)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 2 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN B

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			48
2			4			



SUMMARY OF QUANTITIES FOR SPAN C

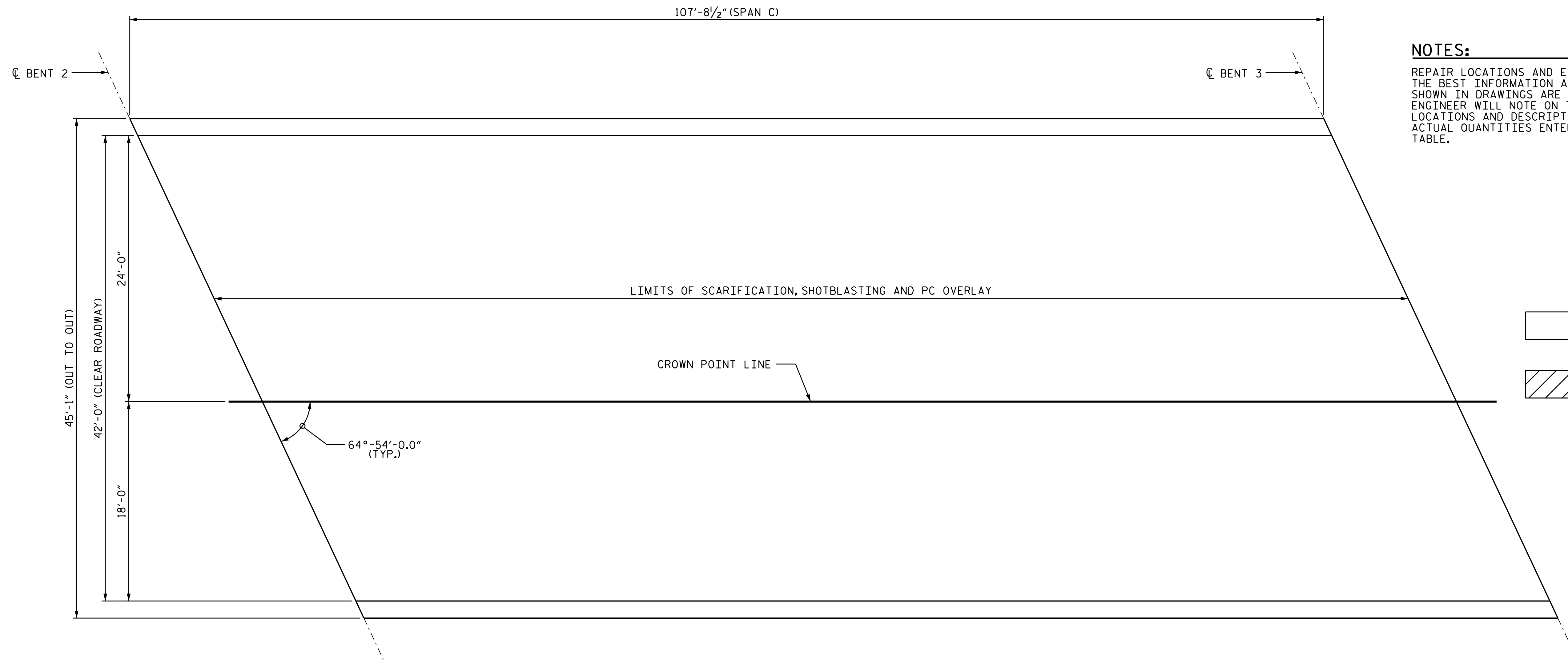
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	503 SY	
POLYESTER POLYMER CONCRETE MATERIALS	28.0 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	28.0 CY	
SHOTBLASTING BRIDGE DECK	503 SY	
PLACING & FINISHING PC OVERLAY	503 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	4201 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION



PLAN OF SPAN C

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 3 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN C

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

DOCUMENT NOT CONSIDERED
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-5
1			3			TOTAL SHEETS
2			4			48

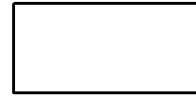
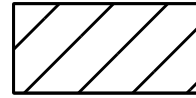
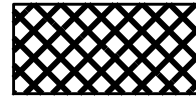
SUMMARY OF QUANTITIES FOR SPAN D

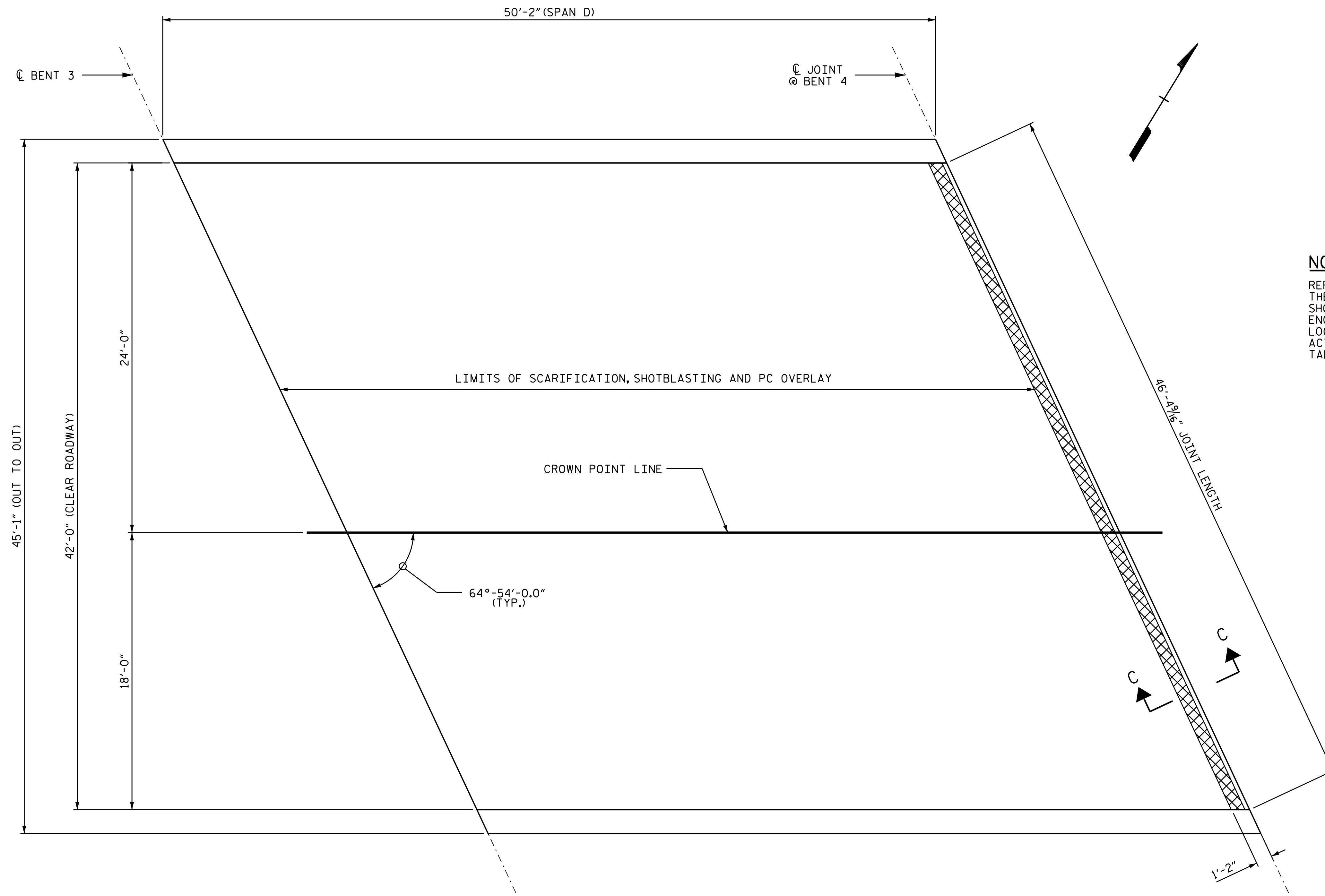
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	232 SY	
POLYESTER POLYMER CONCRETE MATERIALS	12.7 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	12.7 CY	
SHOTBLASTING BRIDGE DECK	232 SY	
PLACING & FINISHING PC OVERLAY	232 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	1939 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - CONCRETE WORK FOR JOINT REPLACEMENT

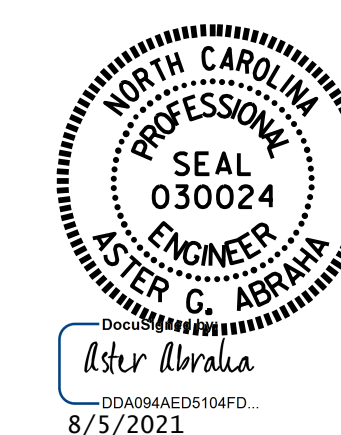


PLAN OF SPAN D

(SEE SHEET S2-12 FOR SECTION C-C)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 4 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN D

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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REVISIONS						SHEET NO.
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1			3			S2-6
2			4			TOTAL SHEETS 48




SUMMARY OF QUANTITIES FOR SPAN E

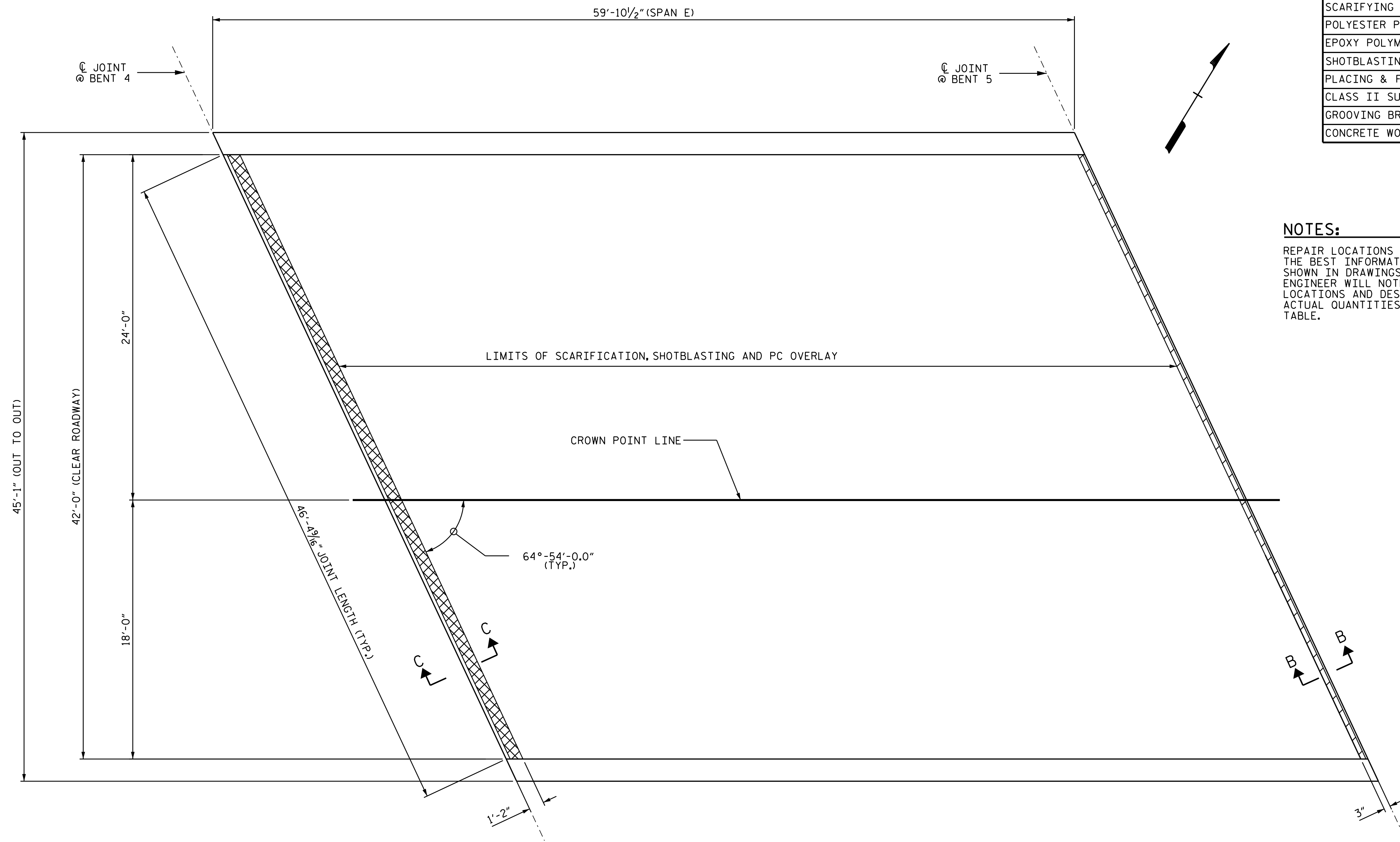
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	277 SY	
POLYESTER POLYMER CONCRETE MATERIALS	15.5 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	15.5 CY	
SHOTBLASTING BRIDGE DECK	277 SY	
PLACING & FINISHING PC OVERLAY	277 SY	
CLASS II SURFACE PREPARATION	1.1 SY	
GROOVING BRIDGE DECK	2307 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - CONCRETE WORK FOR JOINT REPLACEMENT

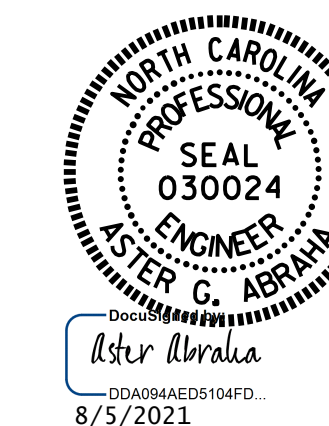


PLAN OF SPAN E

(SEE SHEET S2-11 FOR SECTION B-B AND SHEET S2-12 FOR SECTION C-C)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 5 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN E

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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2			4			TOTAL SHEETS 48


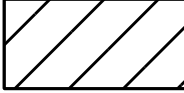
SUMMARY OF QUANTITIES FOR SPAN F AND APPROACH SLAB 2

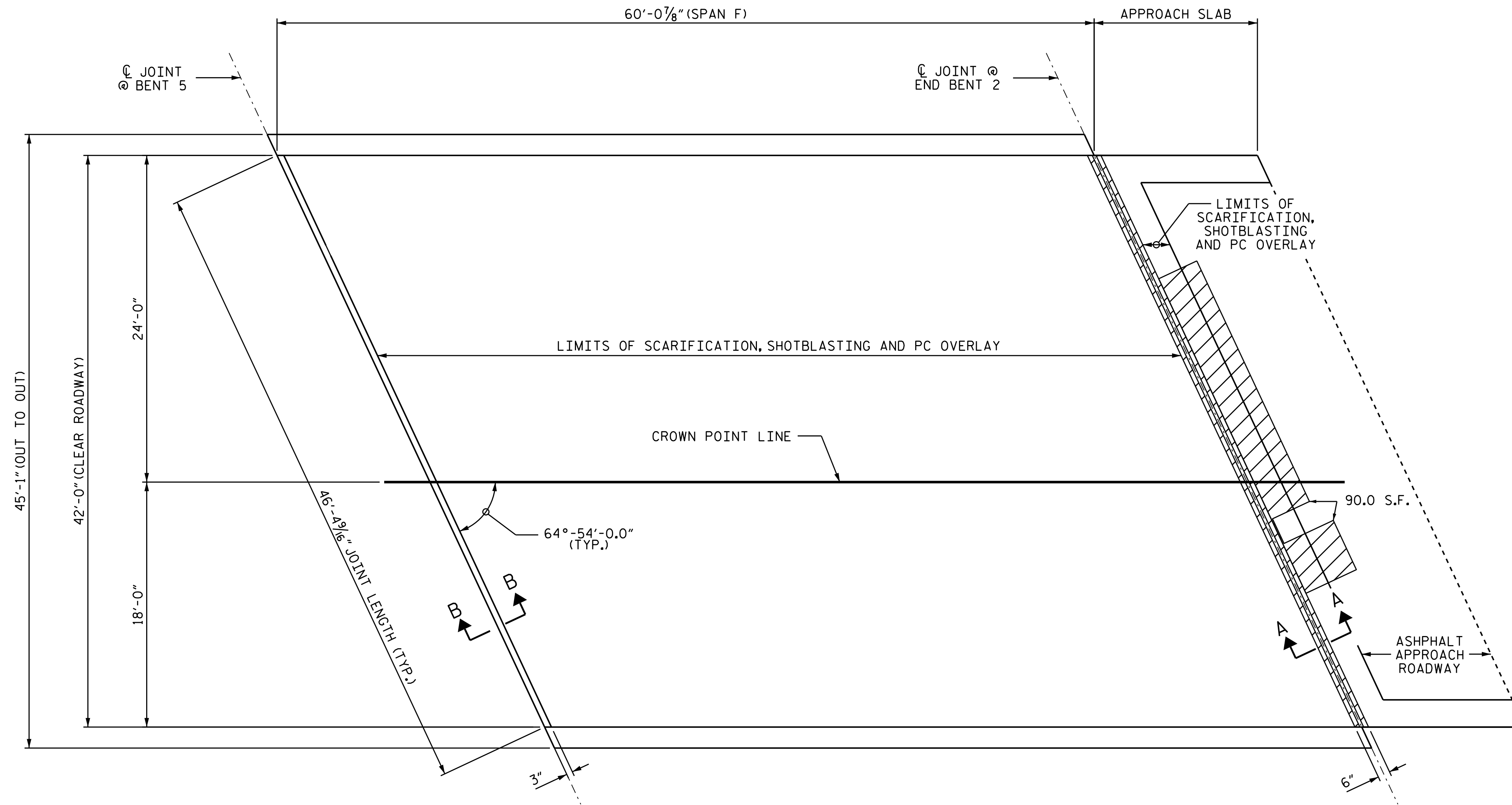
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	13.3 SY	
GROOVING BRIDGE DECK	2381 SF	

NOTES:

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

REPAIR KEY

-  - SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY
-  - APPROX. AREA CLASS II SURFACE PREPARATION

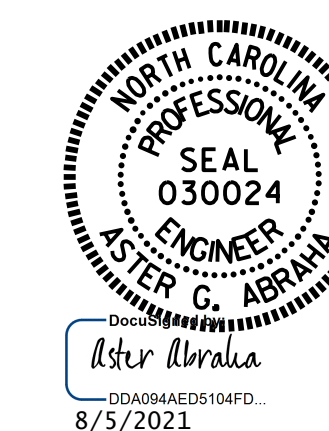


PLAN OF SPAN F AND APPROACH SLAB 2

(SEE SHEET S2-11 FOR SECTIONS A-A AND B-B)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 6 OF 6



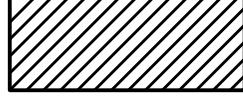
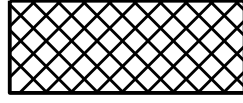

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SURFACE PREPARATION
 SPAN F AND
 APPROACH SLAB 2

DRAWN BY : G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			48
2			4			

REPAIR KEY

-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION (ERI)

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.

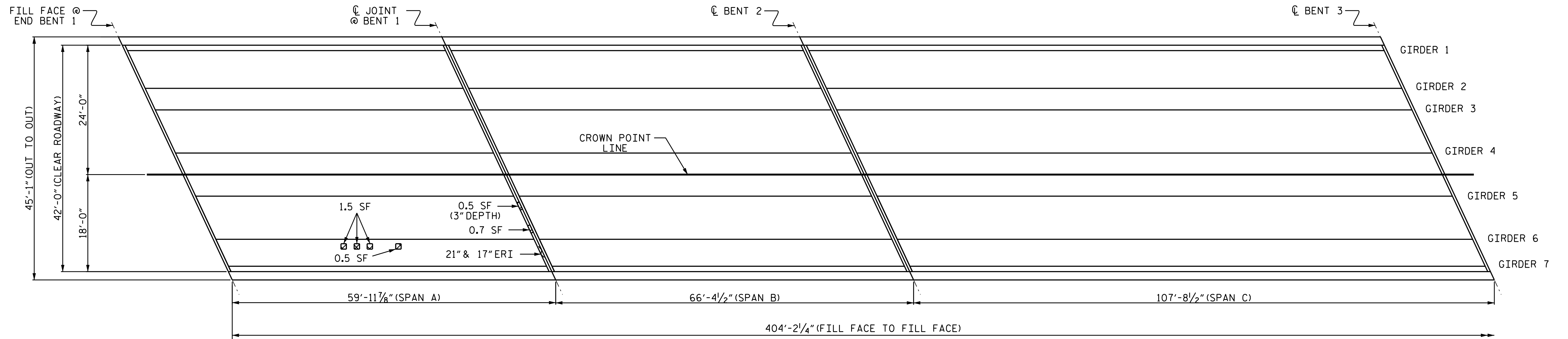
FOR OVERHANG AND DIAPHRAGM SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITIES TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	2.0	0.7		
BENT DIAPHRAGMS	1.2	0.4		
EPOXY RESIN INJECTION		LF	LF	
UNDERSIDE OF DECK	0.0			
BENT DIAPHRAGMS	3.2			

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



UNDERSIDE

(SPANS A-C)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 1 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK UNDERSIDE & BENT DIAPHRAGM REPAIR

DRAWN BY : G. AYES DATE : .07/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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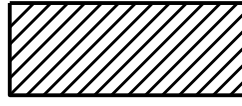
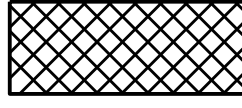

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-9
2			4			TOTAL SHEETS 48

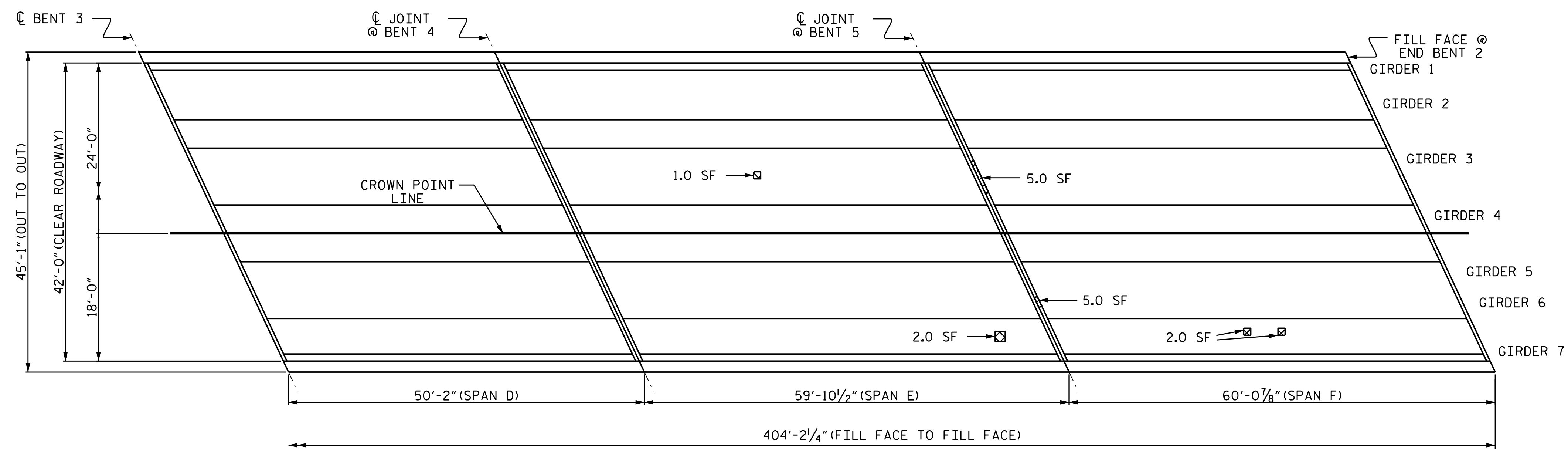
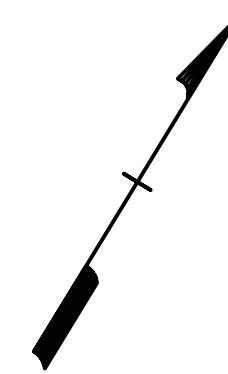
REPAIR QUANTITIES TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	5.0	1.7		
BENT DIAPHRAGMS	10.0	3.4		
EPOXY RESIN INJECTION		LF	LF	
UNDERSIDE OF DECK		0.0		
BENT DIAPHRAGMS		0.0		

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

REPAIR KEY

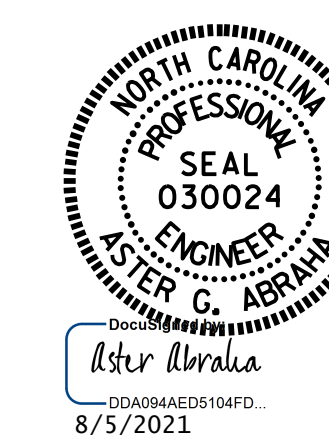
-  DIAPHRAGM REPAIR
-  UNDERSIDE OF DECK REPAIR
-  EPOXY RESIN INJECTION (ERI)



UNDERSIDE (SPANS D-F)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 2 OF 3

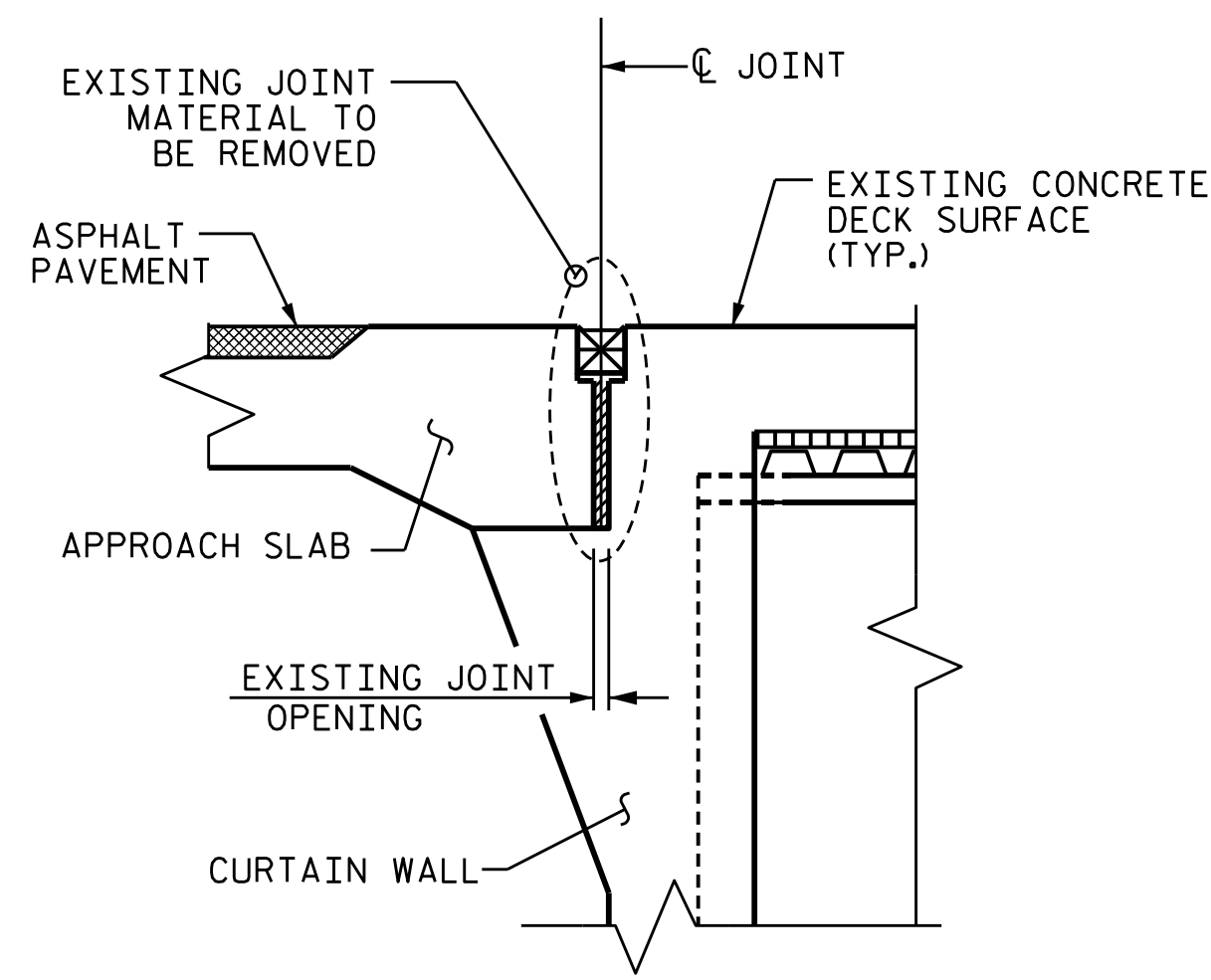


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**DECK UNDERSIDE
 & BENT DIAPHRAGM
 REPAIR**

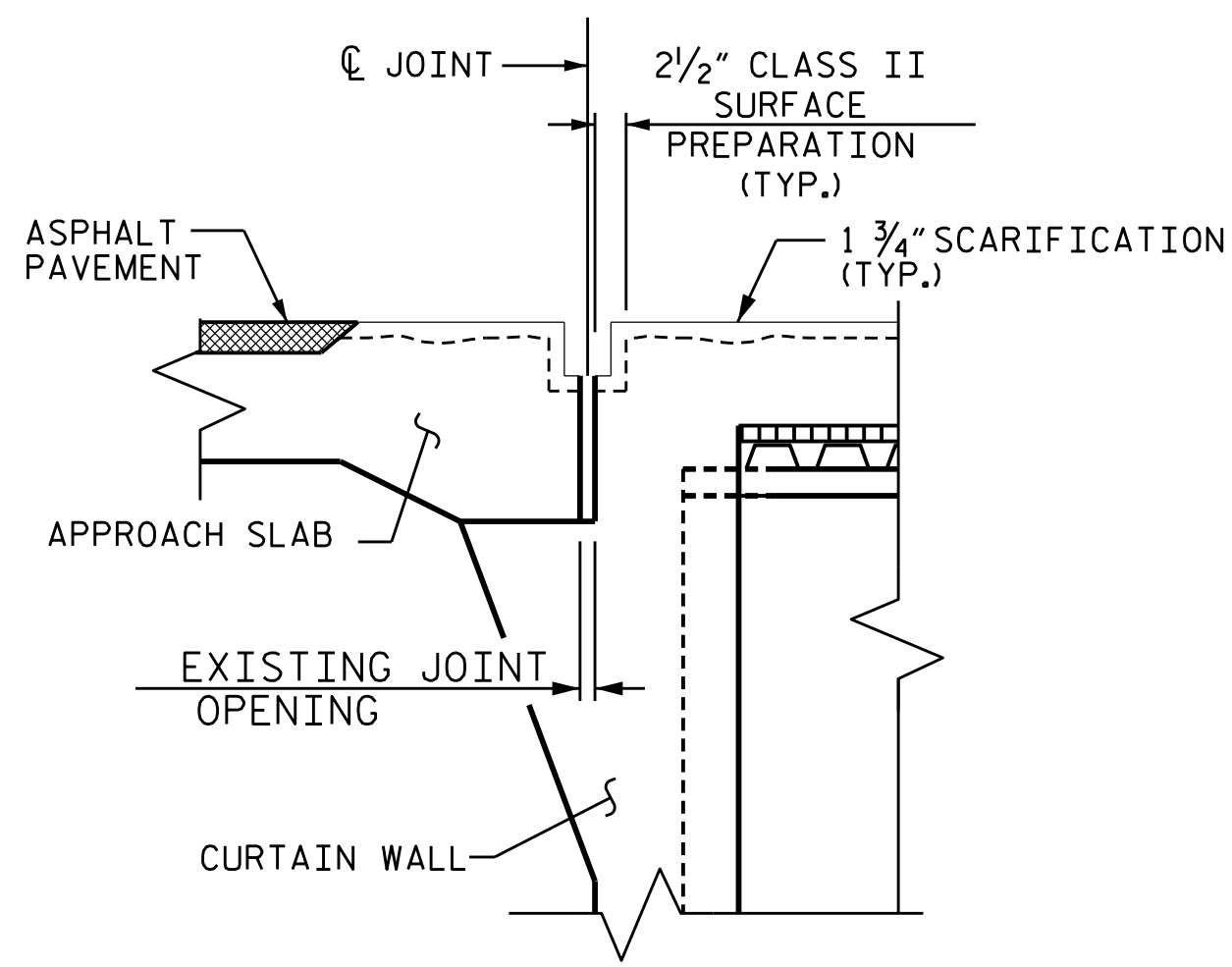
DRAWN BY : G. AYES DATE : 07/2021
 CHECKED BY : S. WANCE DATE : 07/2021

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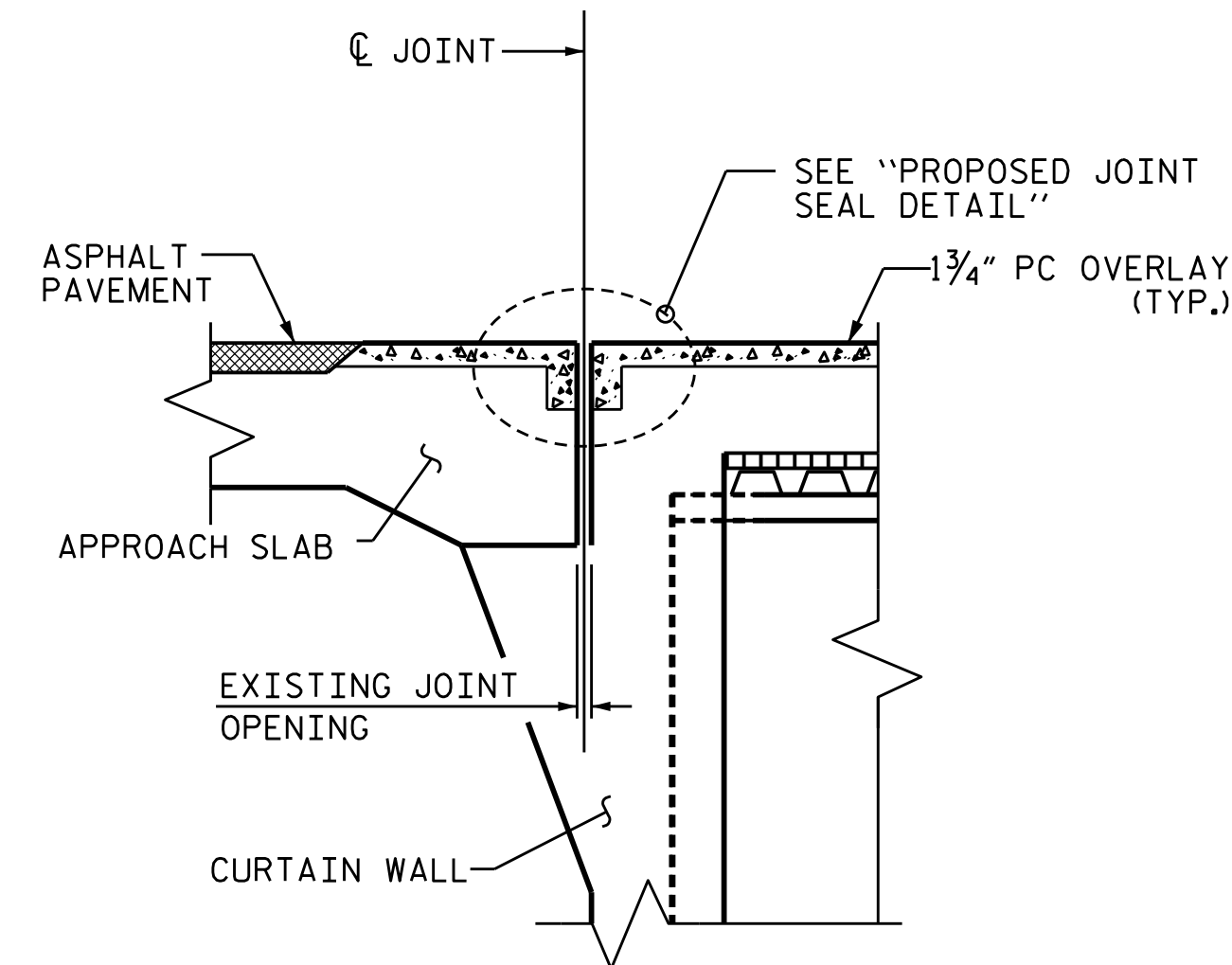
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-10
1			3			TOTAL SHEETS
2			4			48



EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



PROPOSED PRE-SAWED JOINT

JOINT INSTALLATION SEQUENCE AT END BENTS

(SECTION A-A)

NOTES:

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

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.

UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

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

FOR POURABLE SILICONE EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

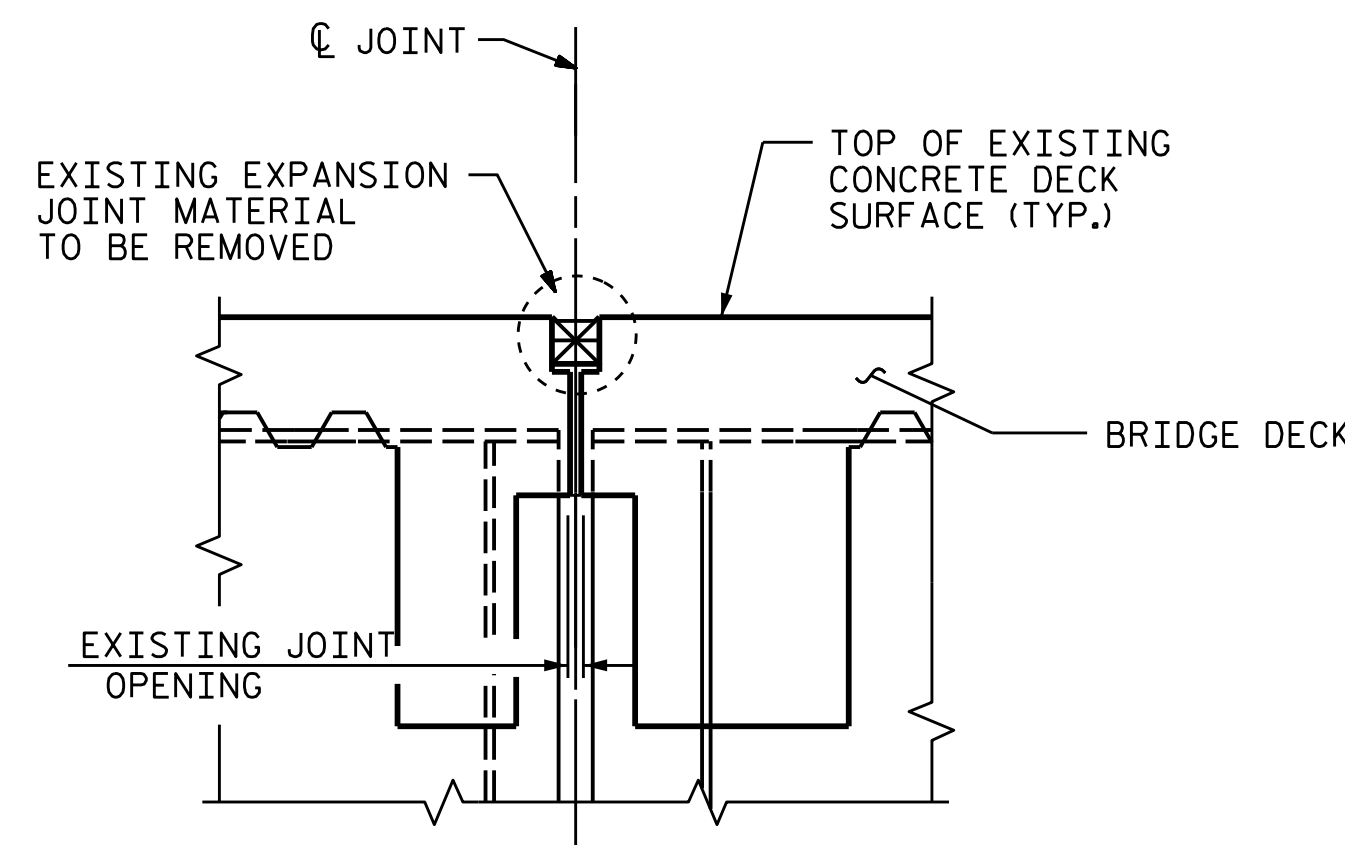
SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.

THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

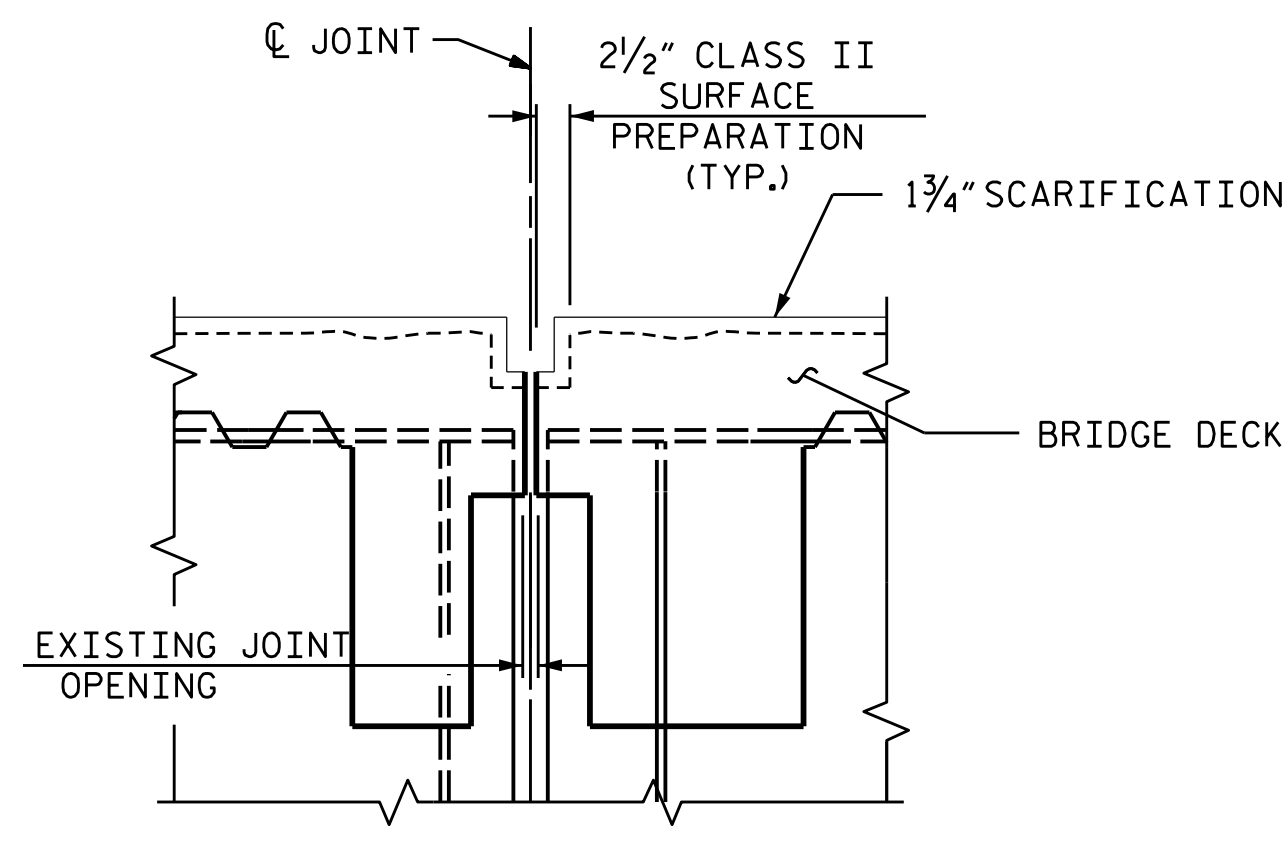
FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

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

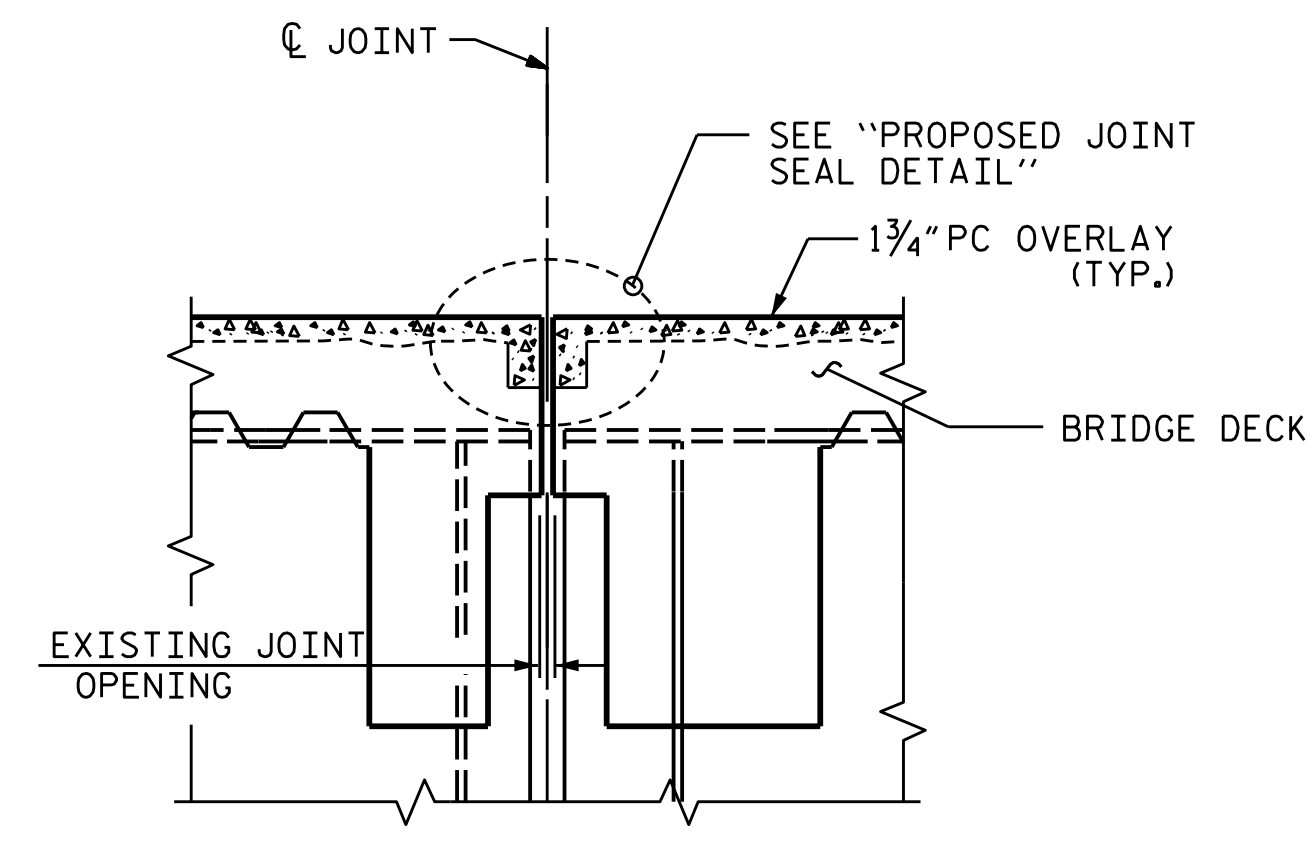
FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.



EXISTING JOINT



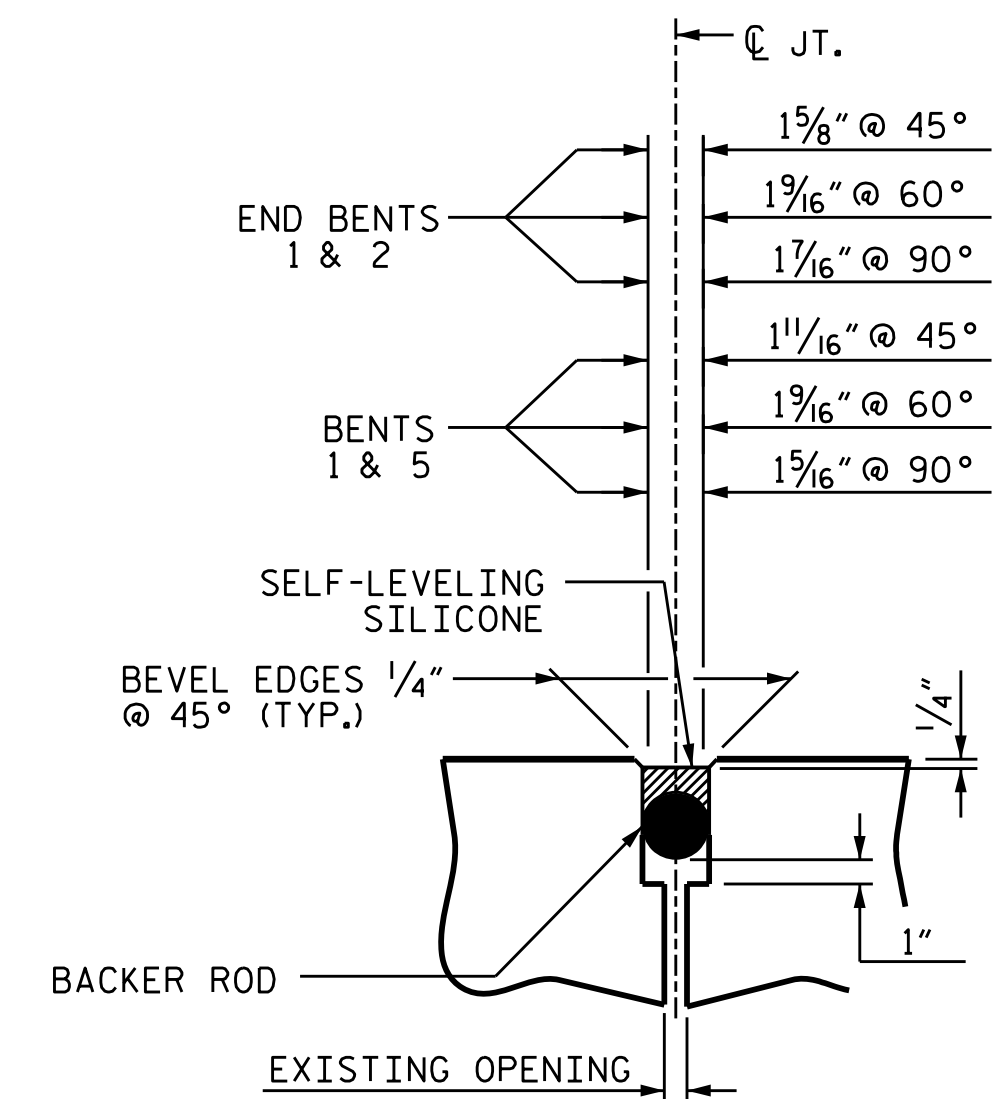
MINIMUM EXISTING JOINT DEMOLITION



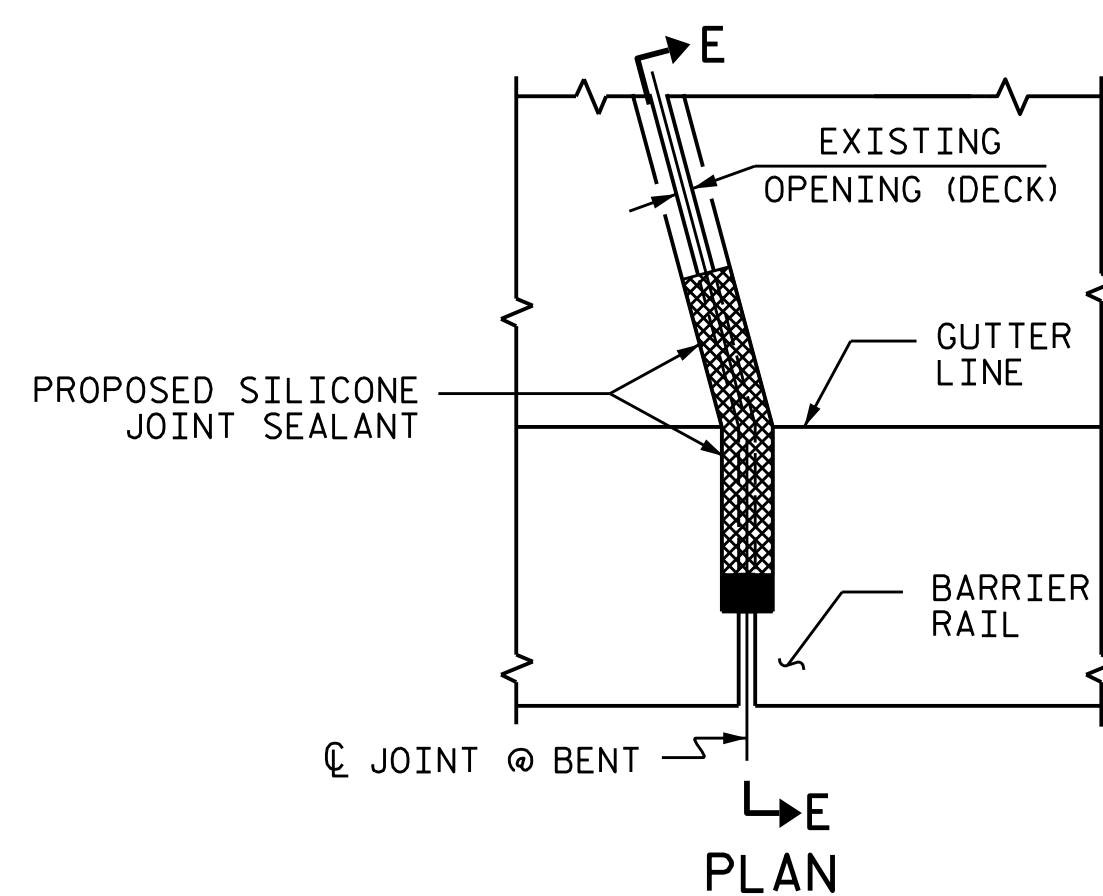
PROPOSED PRE-SAWED JOINT

JOINT INSTALLATION SEQUENCE AT BENTS 1 & 5

(SECTION B-B)



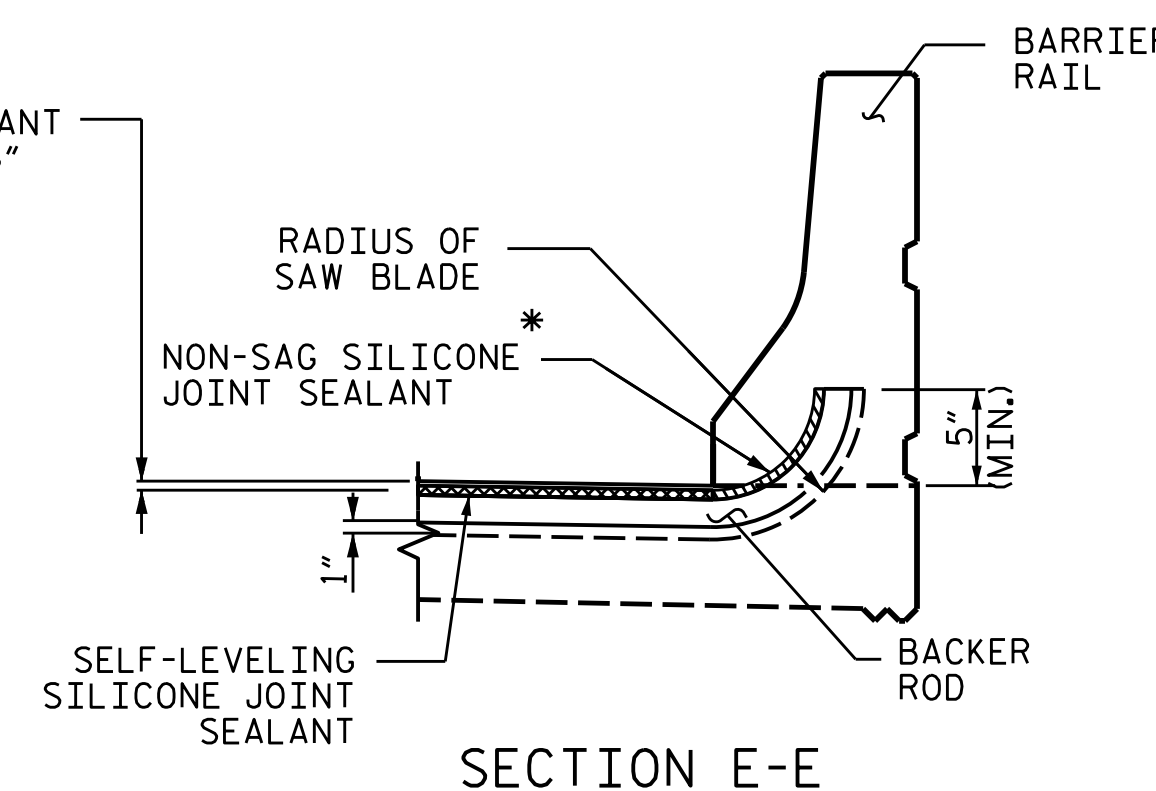
PROPOSED JOINT SEAL DETAIL
(WITH SAWED DIMENSIONS)



JOINT DETAIL AT BARRIER RAIL

* NON-SAG SILICONE JOINT SEALANT TO BE PLACED AND ALLOWED TO SET, PRIOR TO PLACEMENT OF SELF-LEVELING SILICONE JOINT SEALANT.

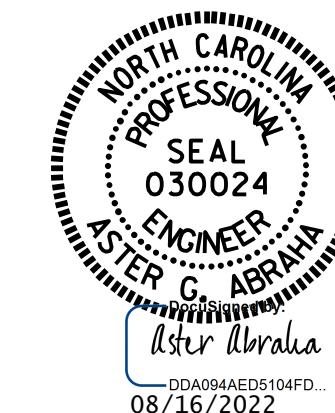
SILICONE JOINT SEALANT SHALL BE RECESSED 1/2" BELOW DECK SURFACE



SECTION E-E

SUMMARY OF QUANTITIES		
(TYP.)	ESTIMATE	ACTUAL
POURABLE SILICONE JOINT SEALANT	185.6 L.F.	

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

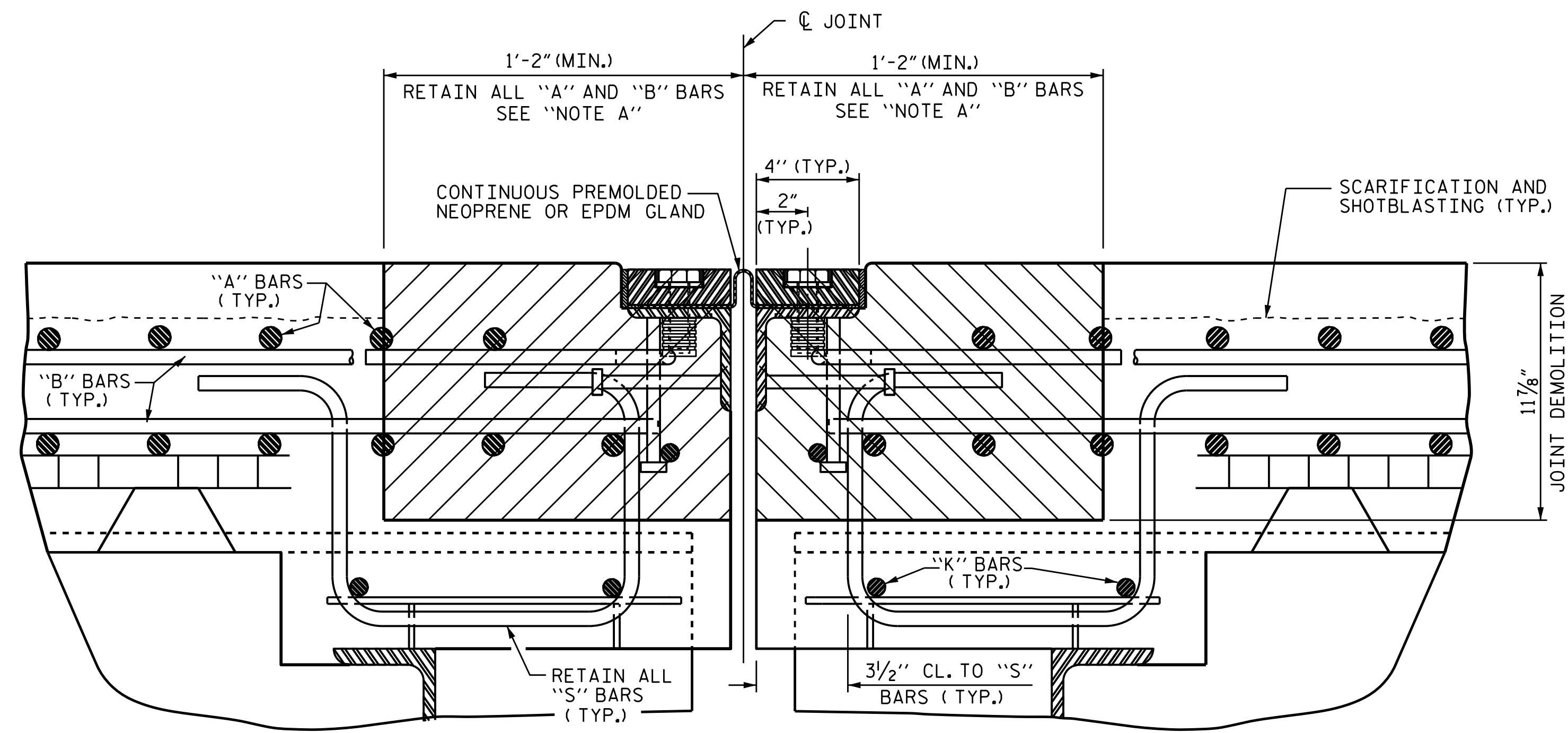
JOINT REPAIR DETAILS

DRAWN BY : A. ABRAHA DATE : 04/2021
 CHECKED BY : S. WANCE DATE : 07/2021

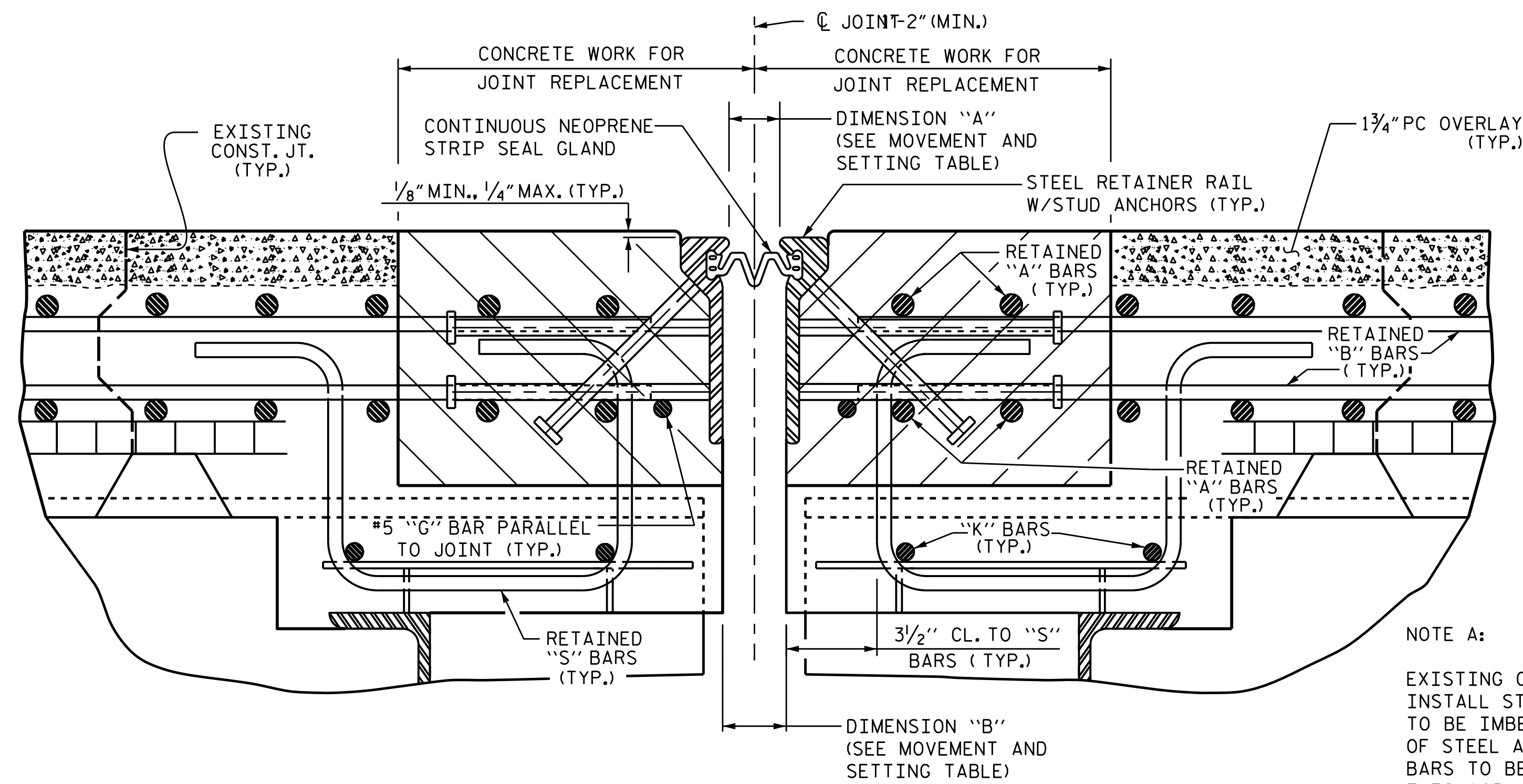
8/16/2022
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1			3			TOTAL SHEETS
2			4			48



EXISTING JOINT @ BENT 4
(WITH MINIMUM EXISTING JOINT DEMOLITION)



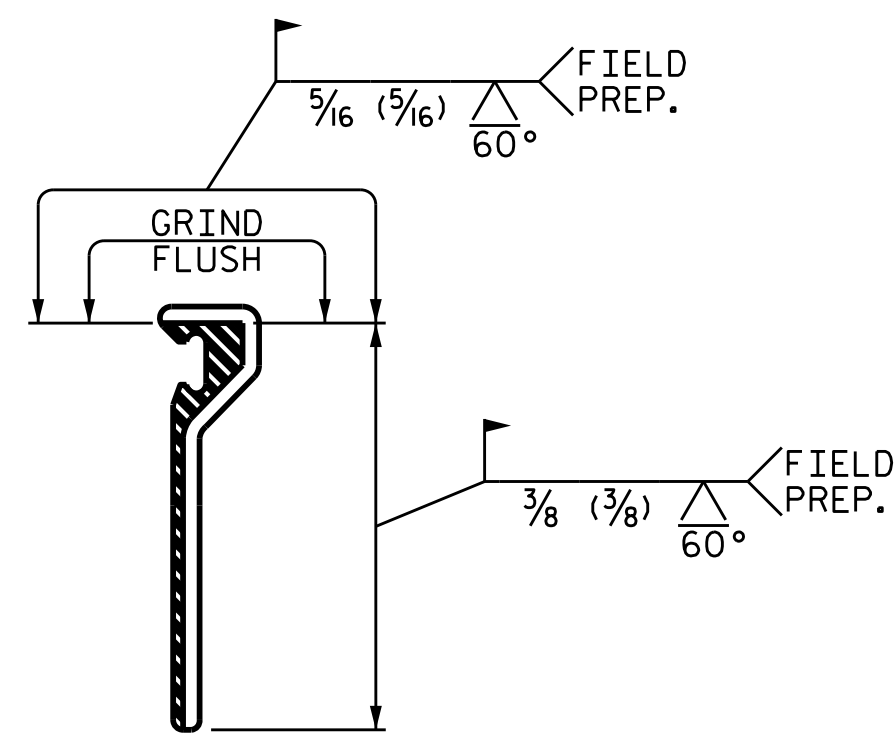
PROPOSED STRIP SEAL EXPANSION JOINT DETAILS
SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG CL RDWY)	MOVEMENT AND SETTING AT JOINT					
			DIMENSION "A"			DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
BENT 4	64.9°	2 1/4"	2 3/8"	2 1/8"	1 1/16"	2 7/8"	2 5/8"	1 15/16"

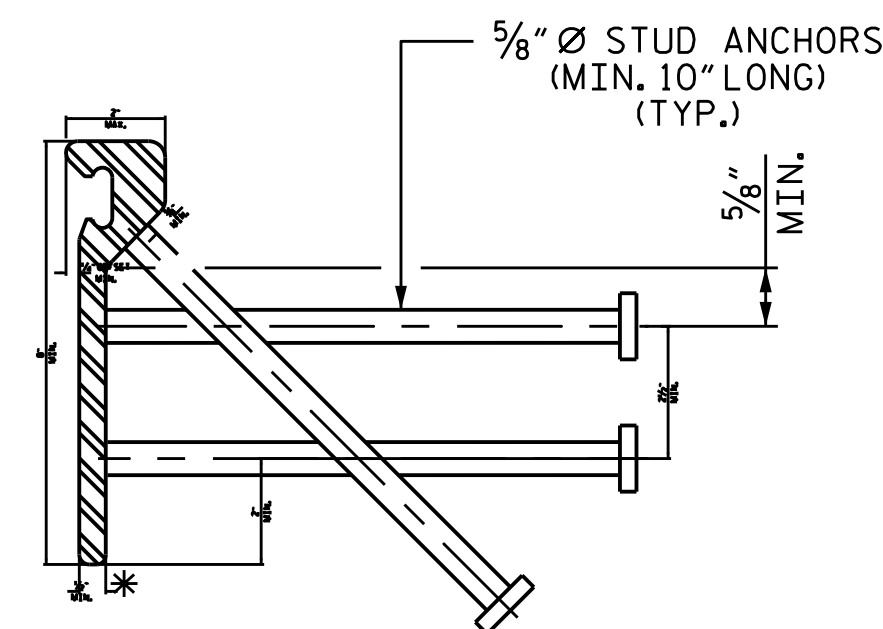
NOTE A:
EXISTING CONCRETE TO BE REMOVED AS NECESSARY TO INSTALL STRIP SEAL EXPANSION JOINT SEAL. ANCHORS TO BE IMBEDDED IN SOUND CONCRETE BELOW TOP LAYER OF STEEL AS SHOWN. EXTRA REINFORCING STEEL #5 "G" BARS TO BE ADDED AS INDICATED ABOVE. THE COST OF THIS WORK, THE NEW CLASS AA CONCRETE, REINFORCING STEEL, AND EPOXY COATING OF ALL REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "CONCRETE WORK FOR JOINT REPLACEMENT."

JOINT INSTALLATION PROCEDURE:

1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
9. PLACE DECK SLAB CONCRETE.
10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT, STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.



STEEL RETAINER RAIL (FIELD SPLICE DETAIL)



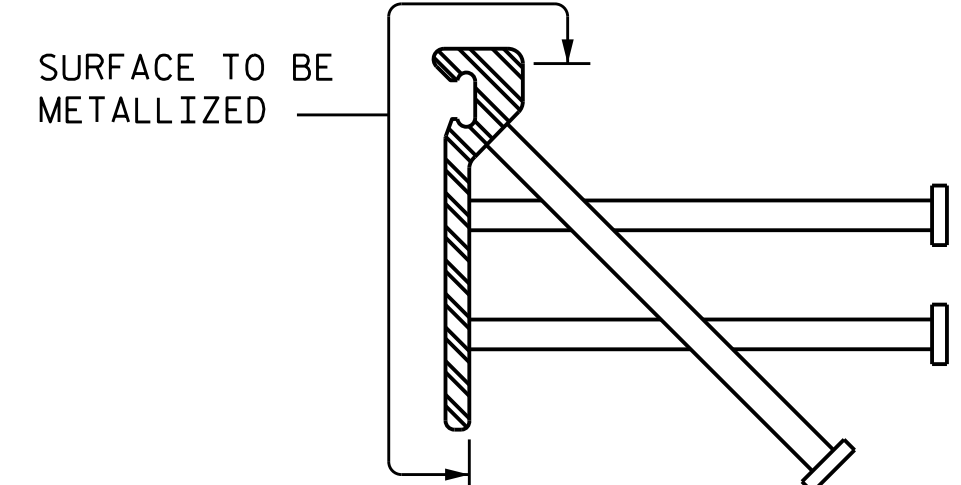
TYPICAL SECTION STEEL RETAINER RAIL

DIMENSION "B" BASED ON STEEL RETAINER RAIL TOP OFFSET TO FACE OF RAIL OF 1/4" MINIMUM. IF ACTUAL OFFSET IS GREATER ADJUST DIMENSION "B" AS REQUIRED.

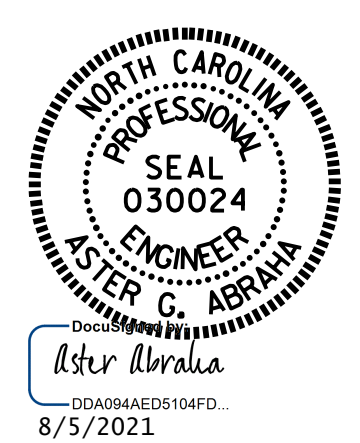
GENERAL NOTES

- FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.
- STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.
- ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.
- STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.
- SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.
- UPON COMPLETION OF SHOP FABRICATION, THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).
- INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.
- FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL. FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).
- NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPLICING THE GLAND IS NOT PERMITTED.
- NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.
- THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

METALLIZING DETAIL



PROJECT NO. HI-0008
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SHEET 1 OF 2



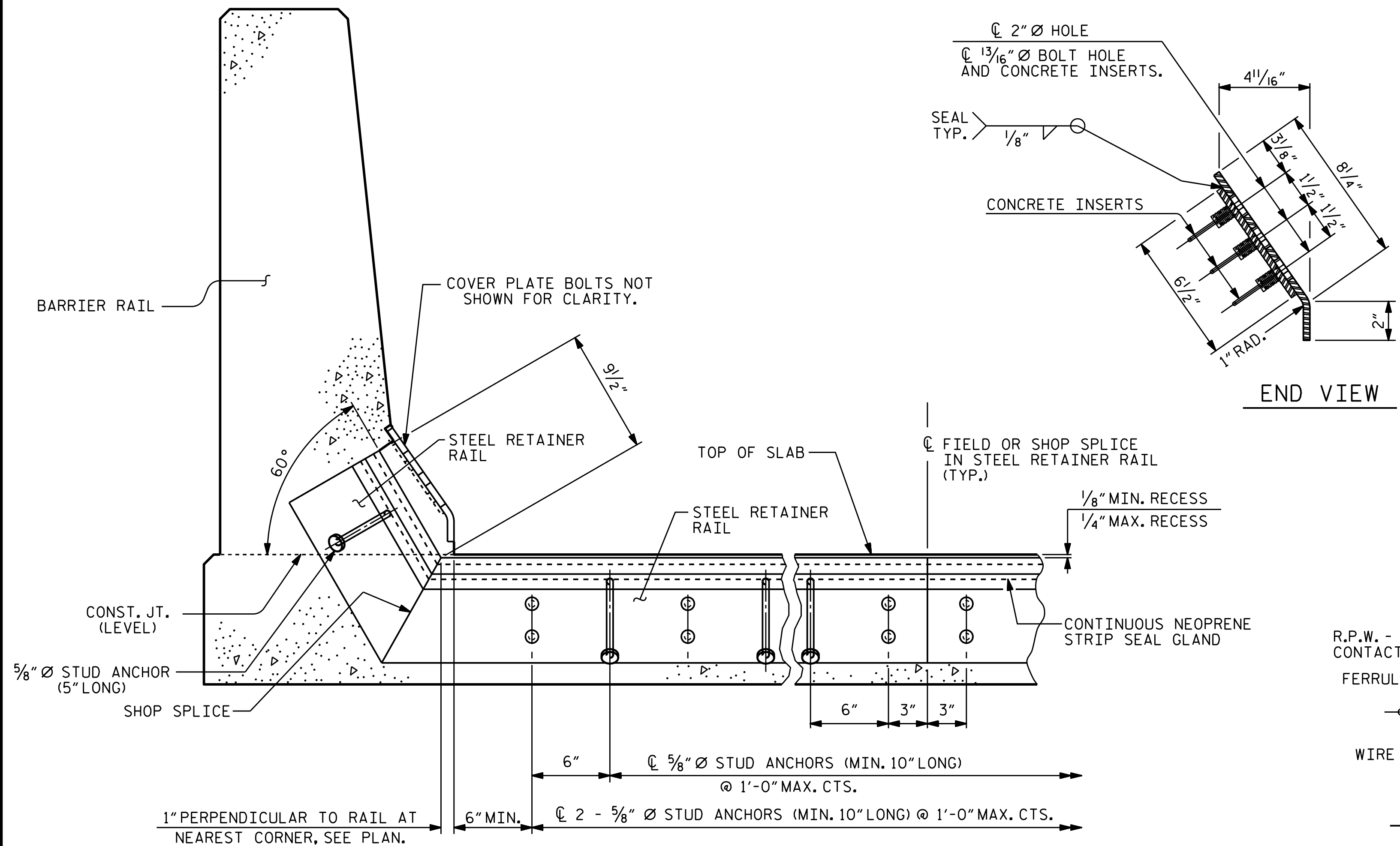
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STRIP SEAL EXPANSION JOINT REPAIR DETAILS BENT 4

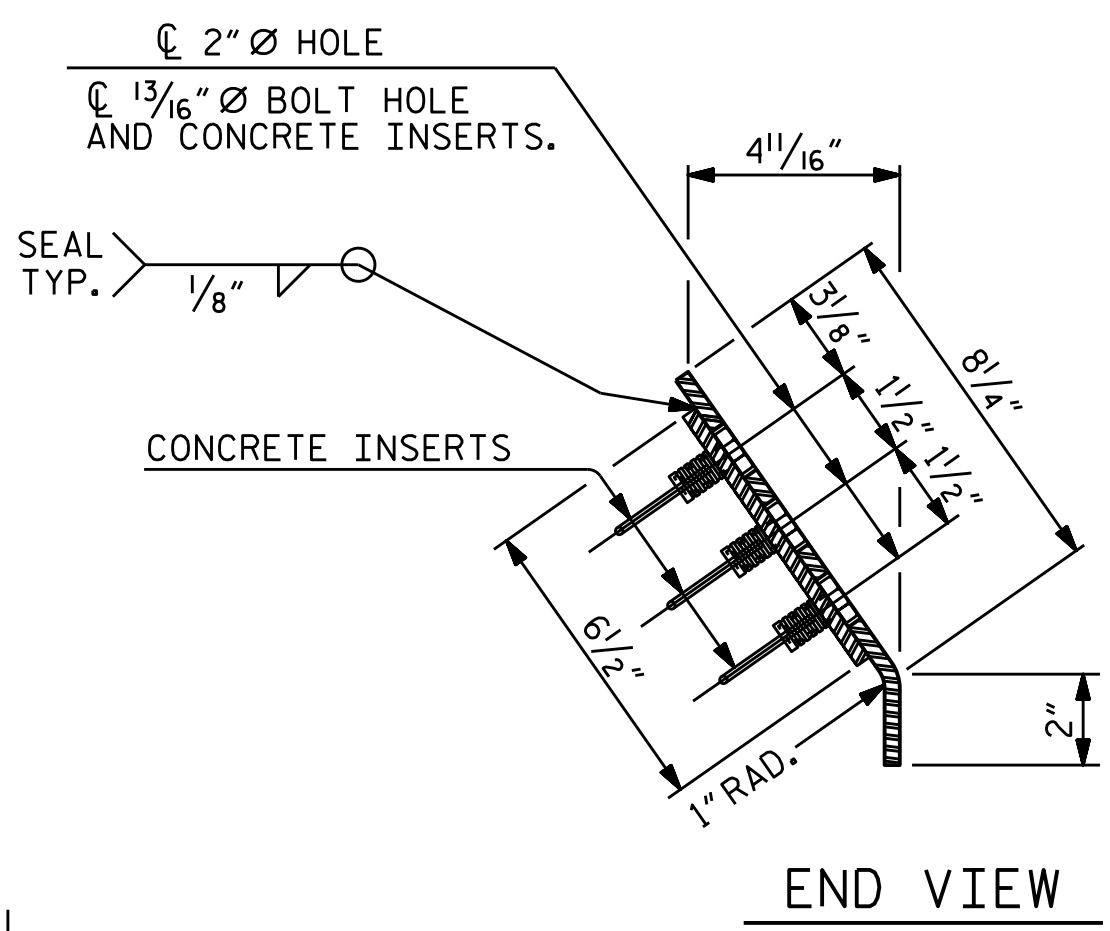
ASSEMBLED BY : SWANcPE DATE : 07/2021
CHECKED BY : DATE :
DRAWN BY : MAA 6/20
CHECKED BY : BNB 6/20

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-12
2			4			TOTAL SHEETS 48

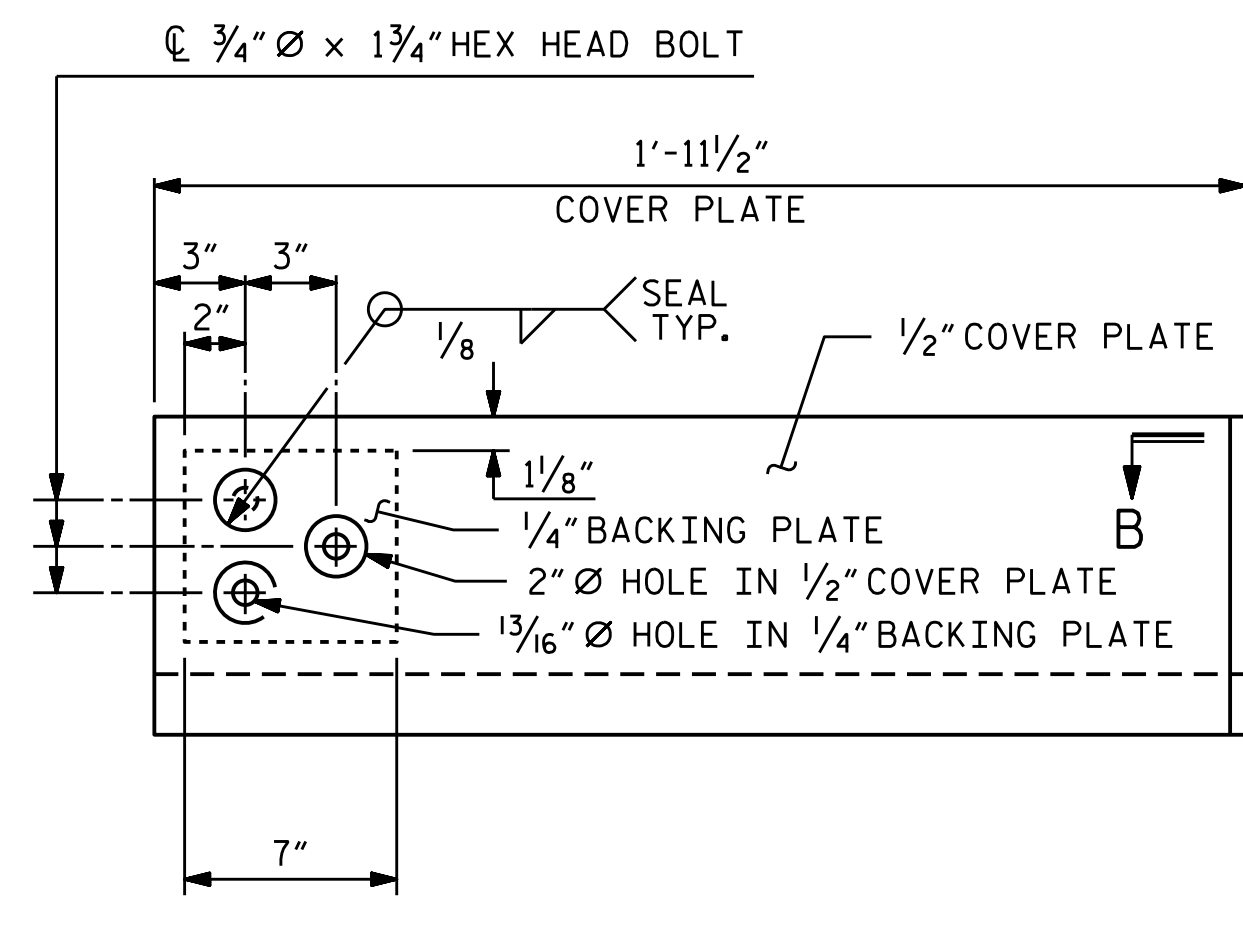
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



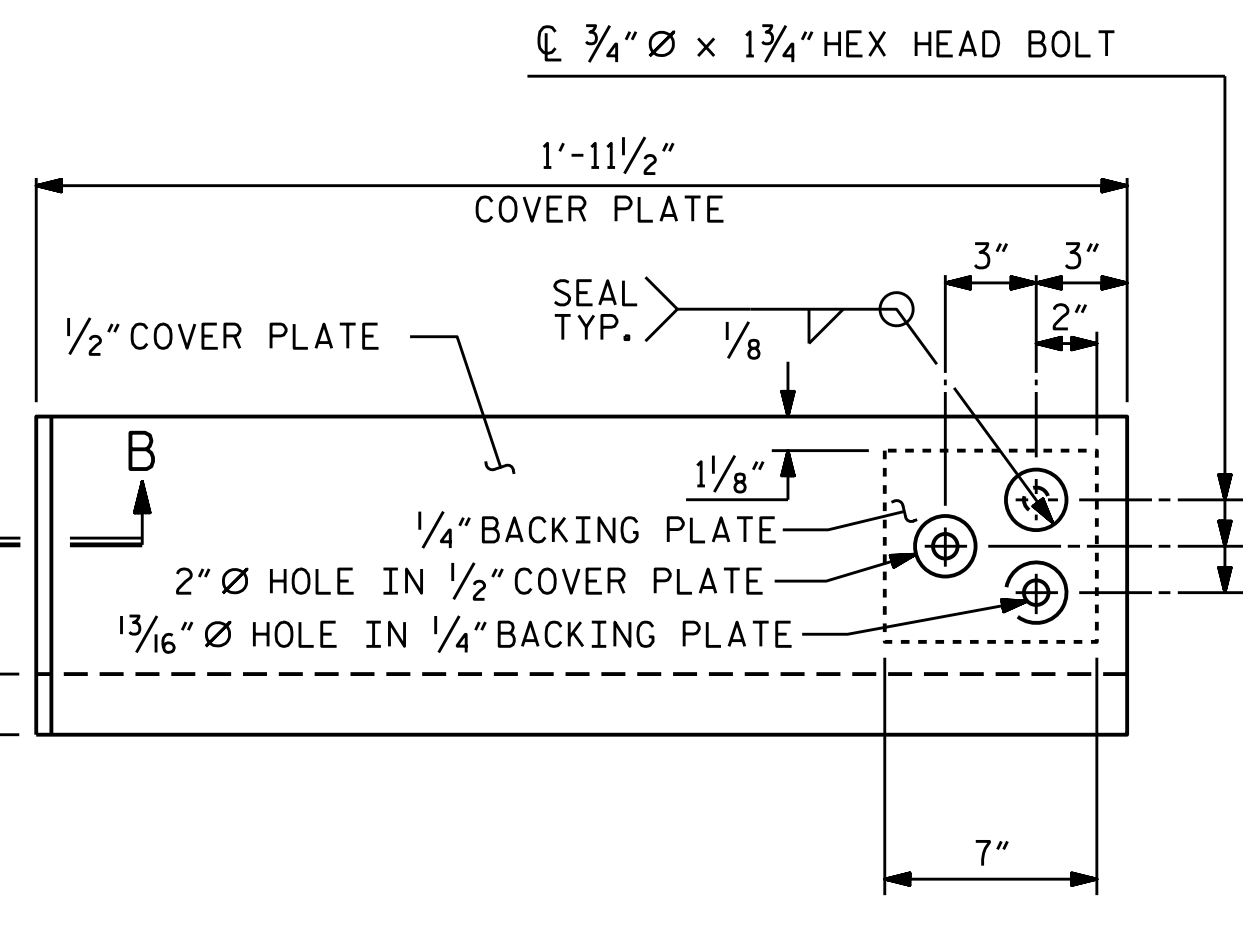
SECTION THRU RAIL NORMAL TO JOINT



END VIEW

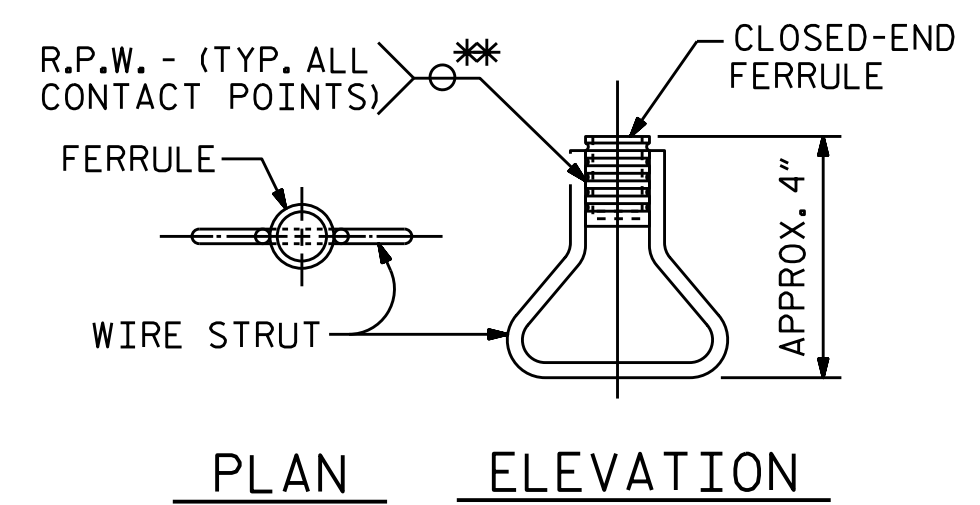


TYPE I - ELEVATION VIEW



TYPE II - ELEVATION VIEW

COVER PLATE DETAILS

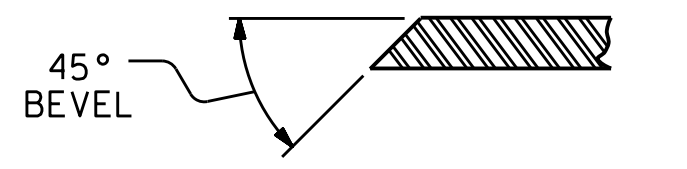


PLAN ELEVATION

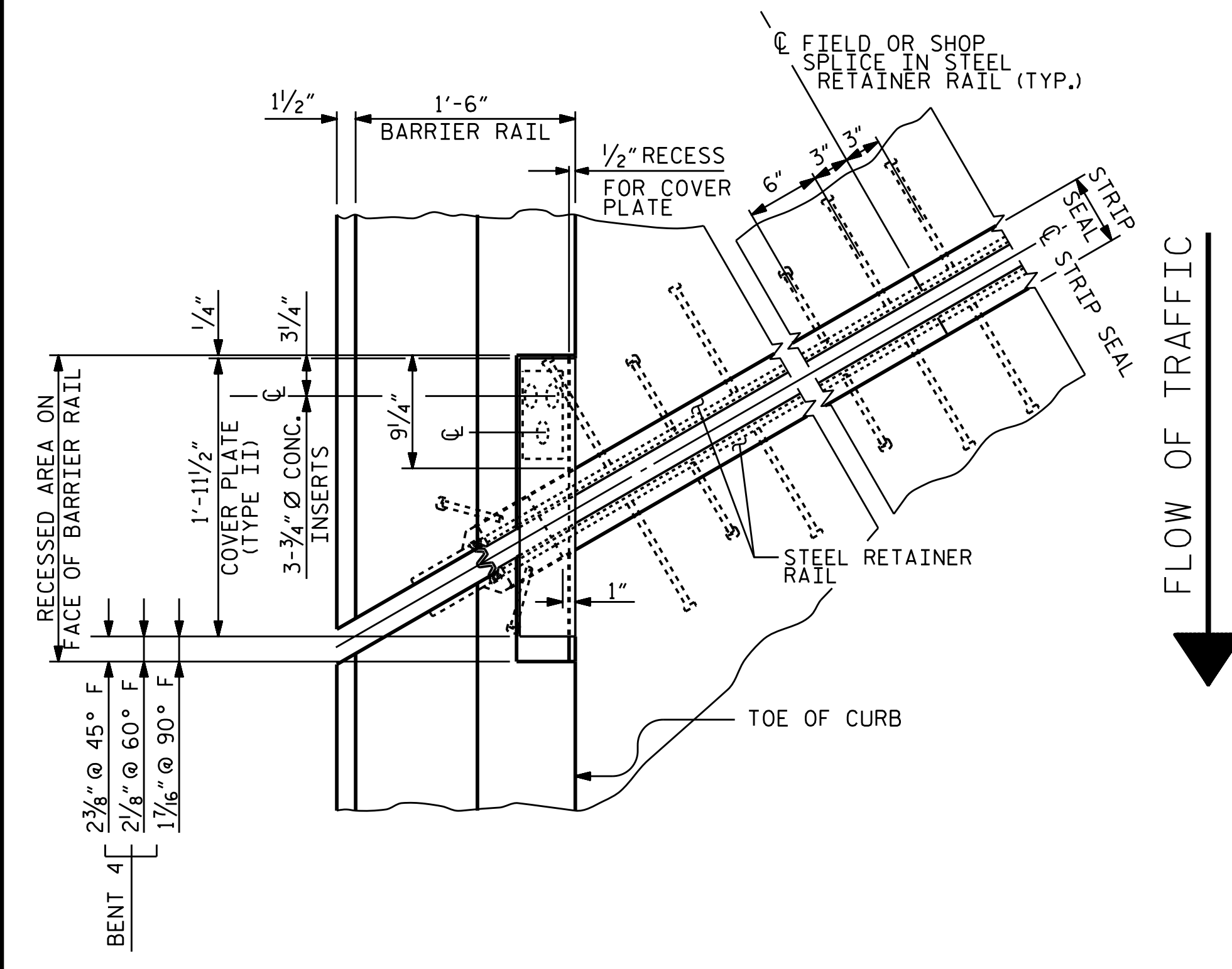
CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

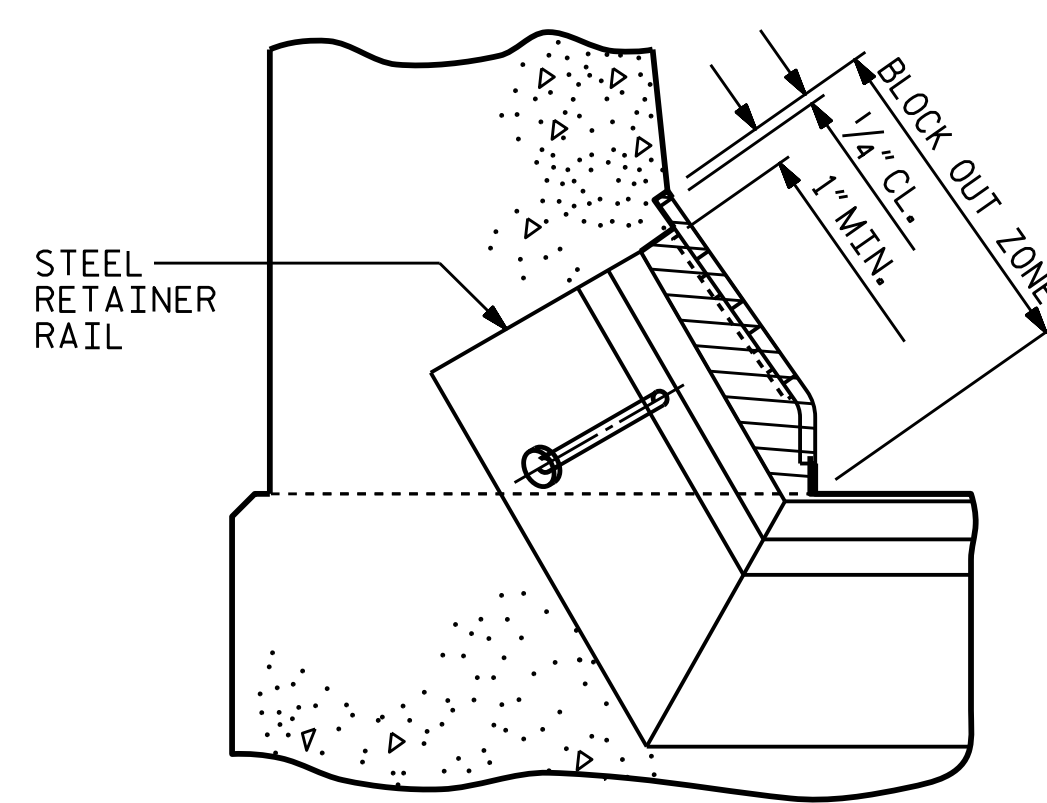
PAVEMENT MARKING ALIGNMENT



SECTION B - B



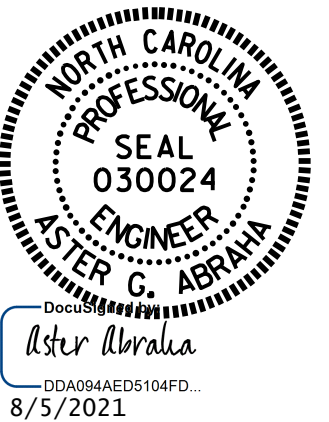
PLAN OF STRIP SEAL EXPANSION JOINT



BLOCK OUT DETAIL

PROJECT NO. HI-0008
 JOHNSTON COUNTY
 BRIDGE NO.: 500107

SHEET 2 OF 2

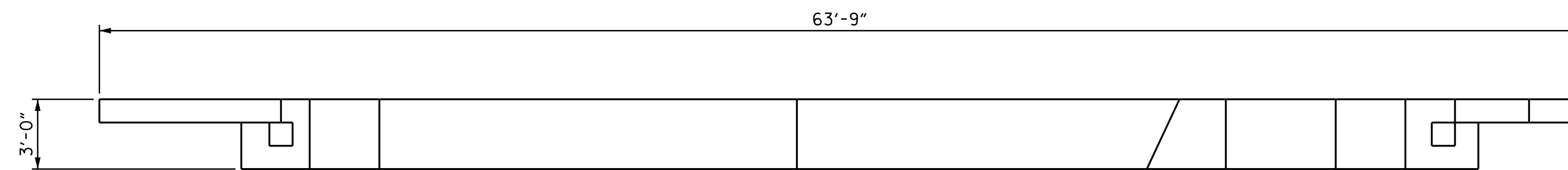


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STRIP SEAL EXPANSION
 JOINT DETAILS
 FOR BARRIER RAIL
 BENT 4

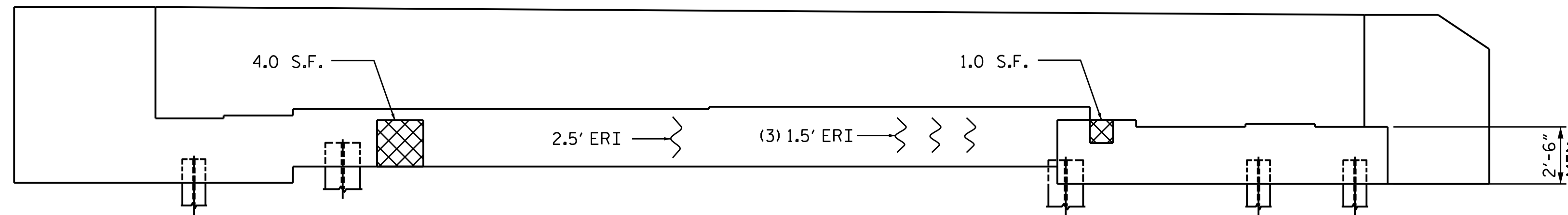
ASSEMBLED BY :	SWANcPE	DATE :	07/2021
CHECKED BY :	-	DATE :	-
DRAWN BY :	MAA 6/20		
CHECKED BY :	BNB 6/20		

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-13
1			3			TOTAL SHEETS
2			4			48

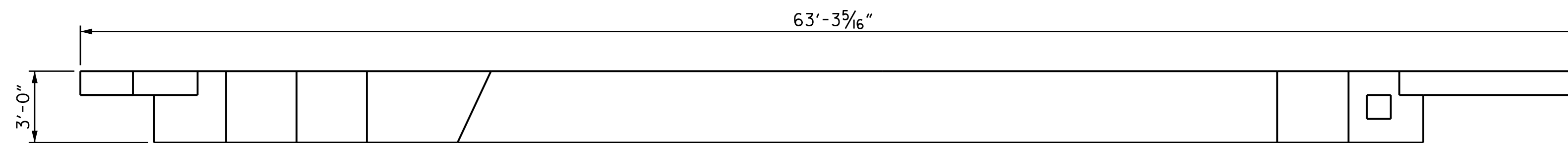
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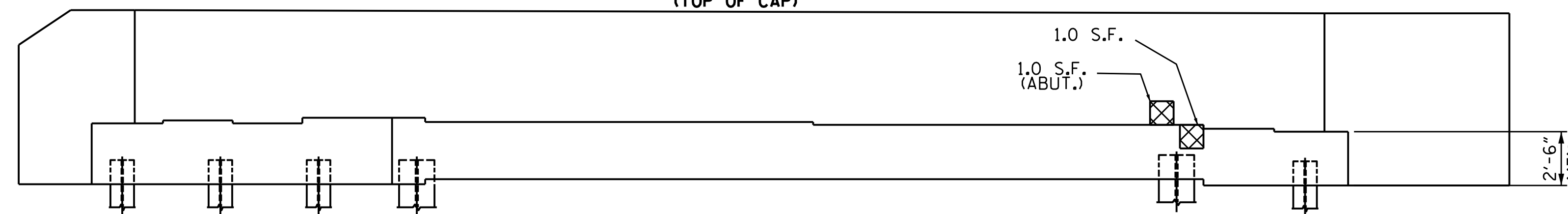
PLAN
(TOP OF CAP)



ELEVATION
END BENT 1



PLAN
(TOP OF CAP)



ELEVATION
END BENT 2

REPAIR QUANTITY TABLE

REPAIRS END BENT 1 & 2	QUANTITIES			
	ESTIMATE		ACTUAL	
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.0	3.5		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		7.0		
COLUMN		0.0		

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

NOTES:

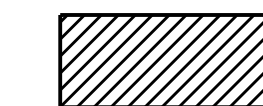


REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

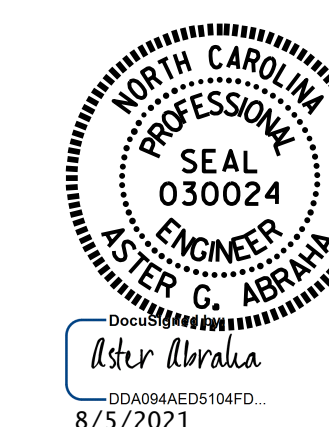
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107



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

DRAWN BY : A. Y. GODFREY / G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-14
1			3			TOTAL SHEETS
2			4			48

REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.3	0.7		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	7.0	3.5		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	3.9	2.0		
CAP (HORIZONTAL FACE)	5.1	2.6		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		4.0		
COLUMN		0.0		

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

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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

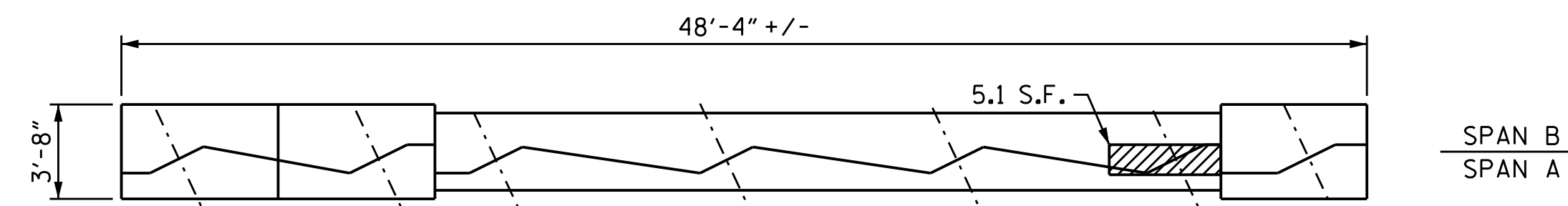
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

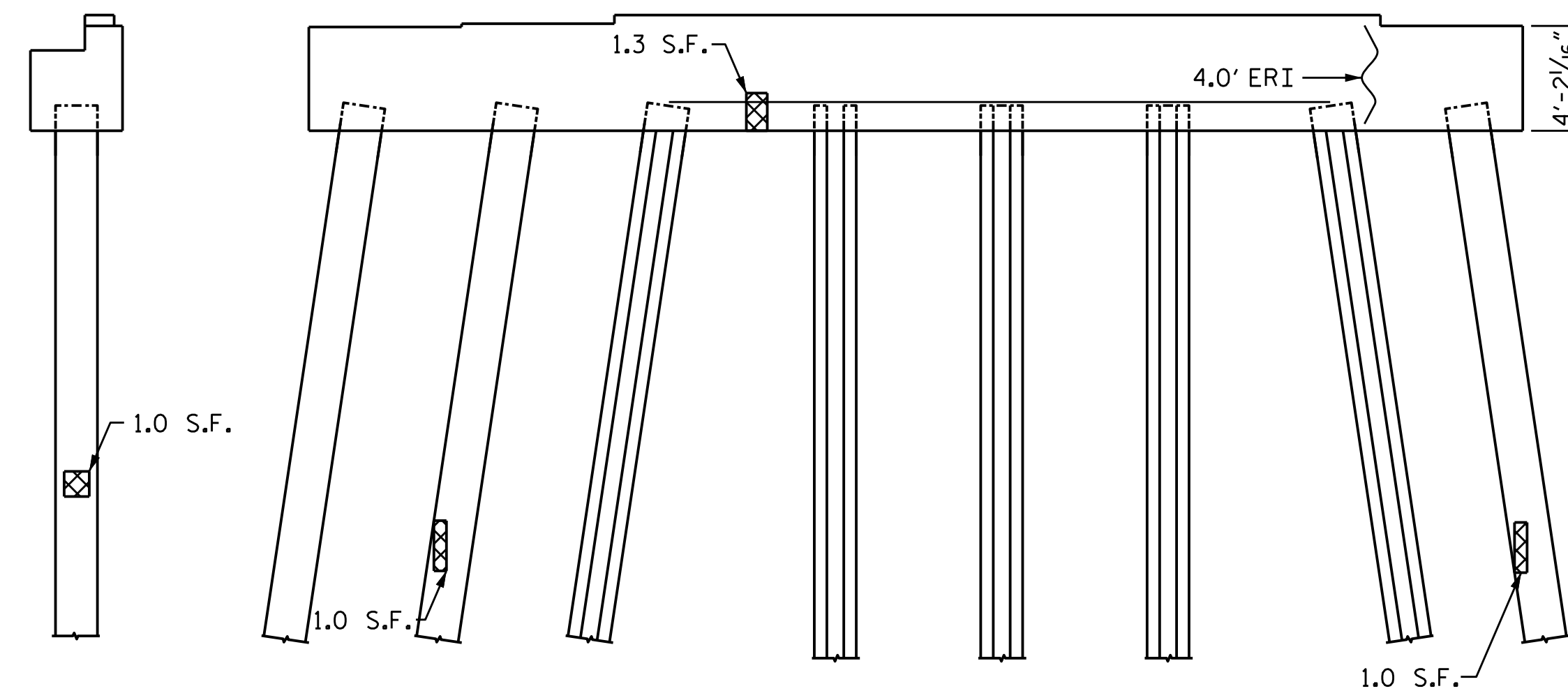
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR BRIDGE JACKING, SEE BRIDGE JACKING DETAILS SHEET.



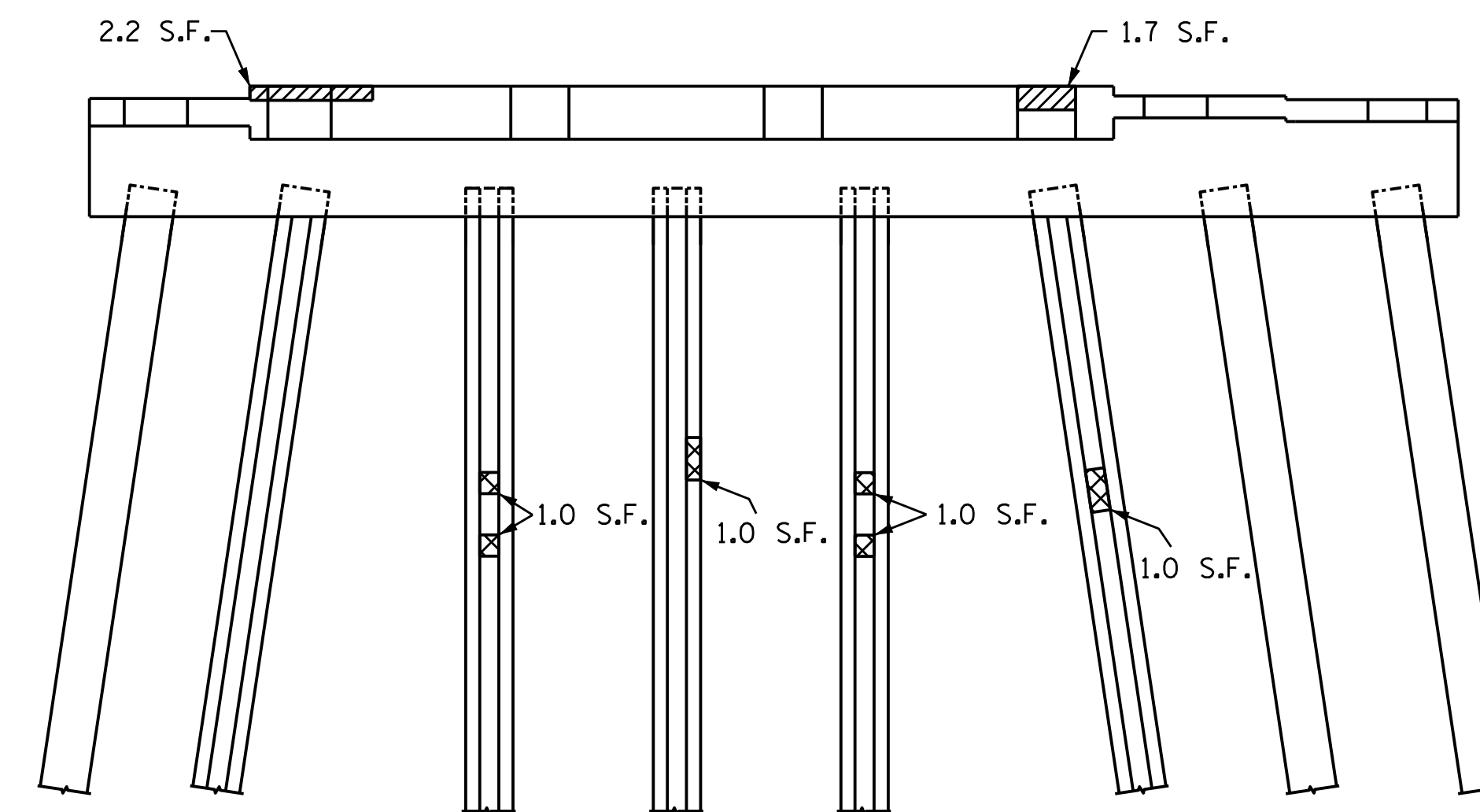
PLAN
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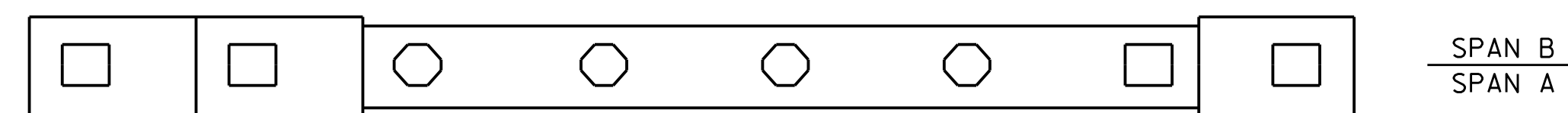
END VIEW
(WEST FACE)

ELEVATION
(NORTH FACE)

END VIEW
(EAST FACE)



ELEVATION
(SOUTH FACE)



PLAN
(BOTTOM OF CAP)

REPAIR KEY

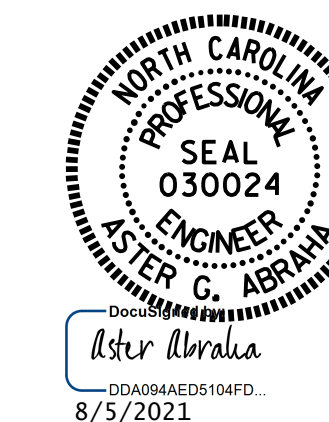
- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

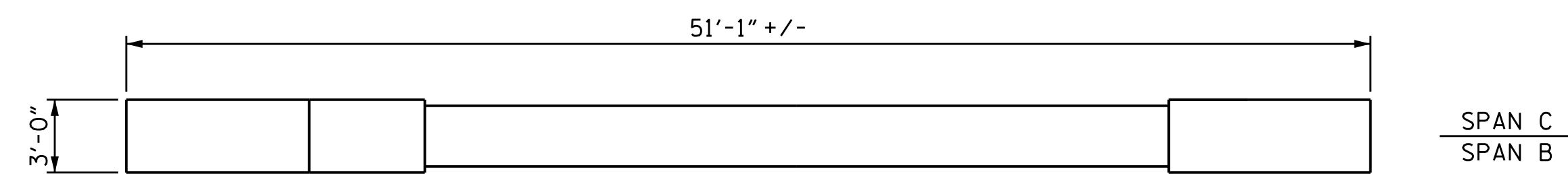
SUBSTRUCTURE
BENT 1



REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			48

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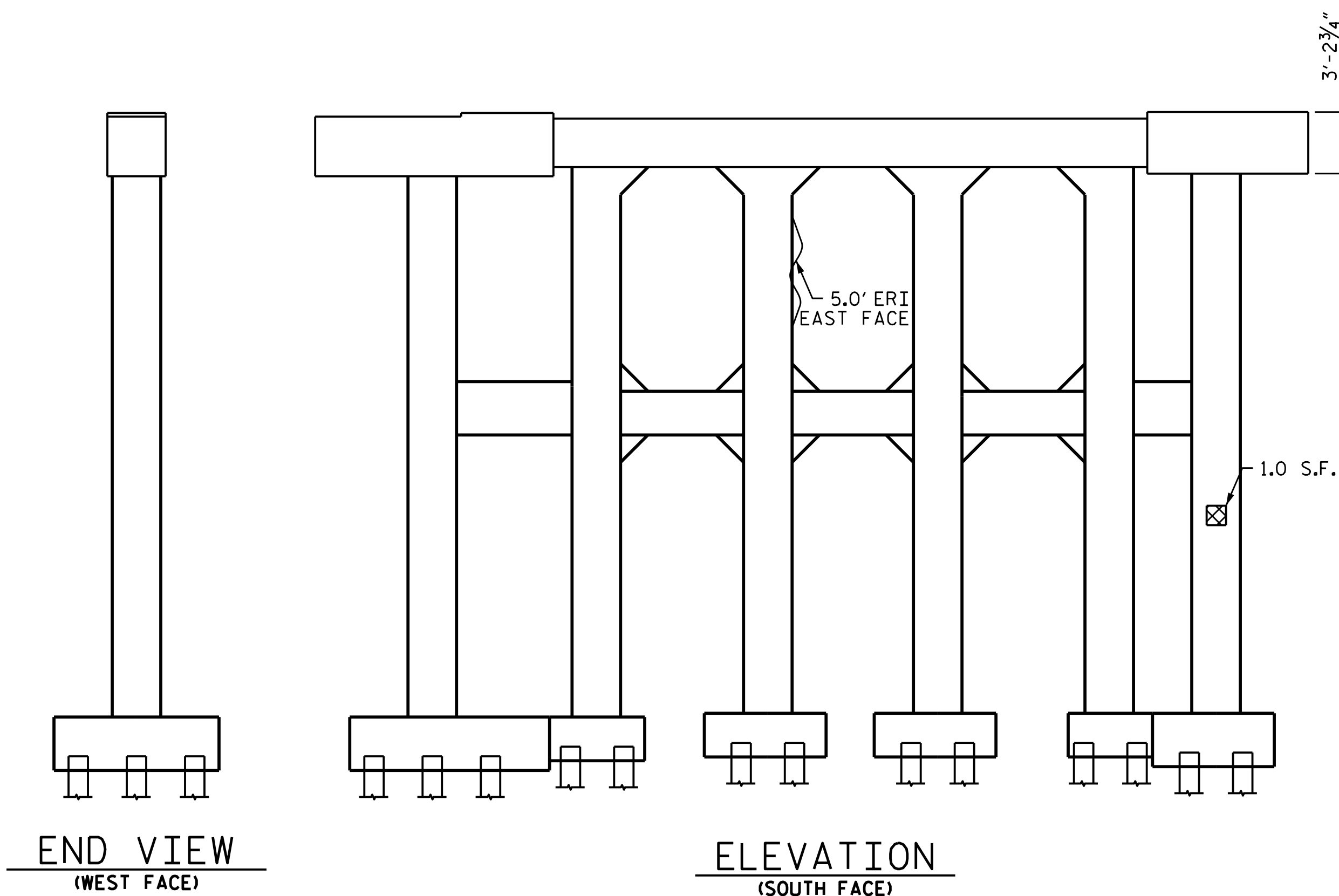
DRAWN BY : A. Y. GODFREY / G. AYES DATE : 04/2021
 CHECKED BY : S. WANCE DATE : 07/2021



PLAN
(TOP OF CAP)

REPAIR QUANTITY TABLE				
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	3.0	1.5		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		0.0		
COLUMN		5.0		

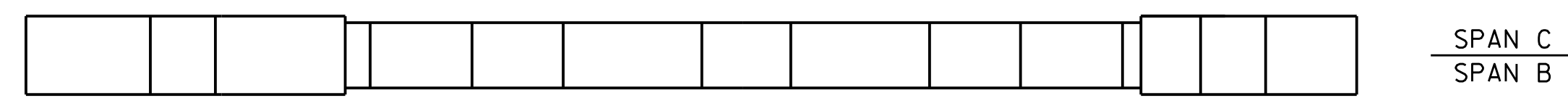
VALUES IN CHART REPRESENT ESTIMATED REPAIR QUANTITIES AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.



ELEVATION
(SOUTH FACE)

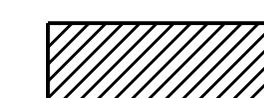
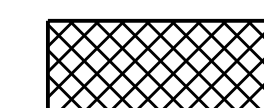

END VIEW
(EAST FACE)

ELEVATION
(NORTH FACE)



PLAN
(BOTTOM OF CAP)

REPAIR KEY

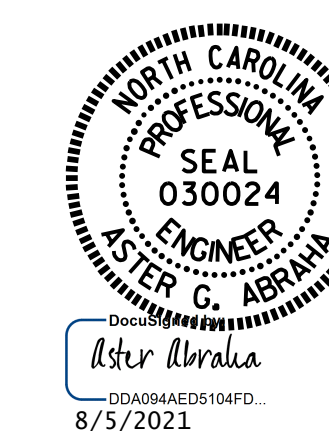
-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

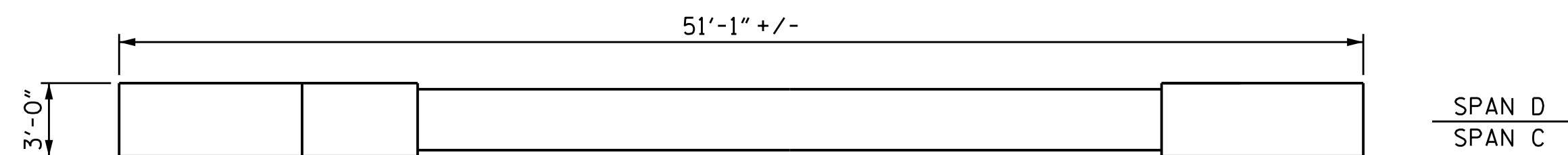
SUBSTRUCTURE
 BENT 2



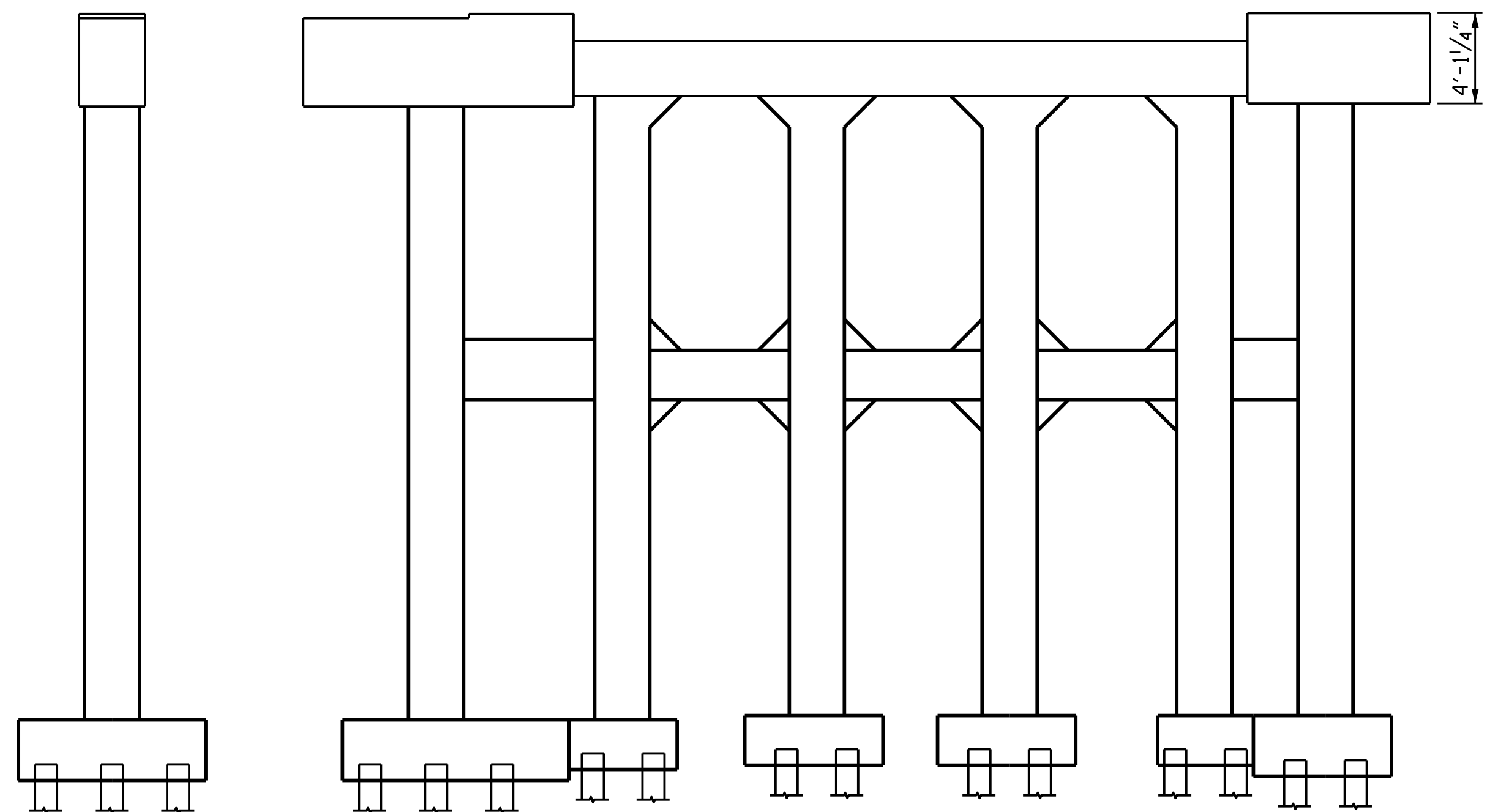
DRAWN BY : A. Y. GODFREY / G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-16
1			3			TOTAL SHEETS
2			4			48



PLAN
(TOP OF CAP)

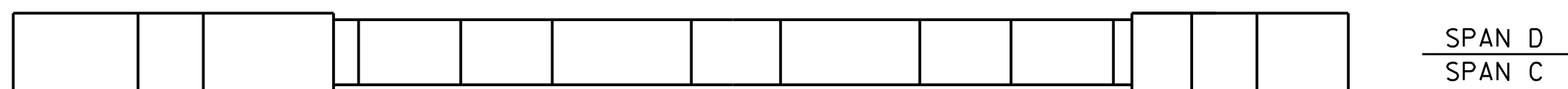


END VIEW
(WEST FACE)

ELEVATION
(SOUTH FACE)

END VIEW
(EAST FACE)

ELEVATION
(NORTH FACE)

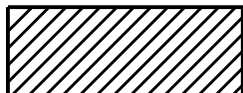
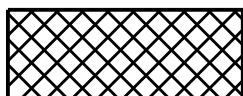



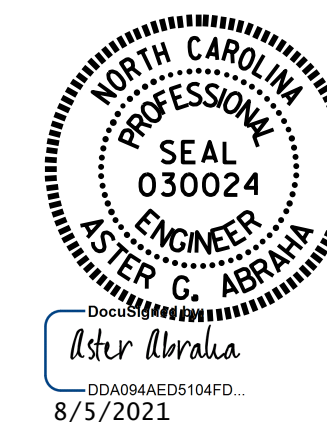
PLAN
(BOTTOM OF CAP)

REPAIR QUANTITY TABLE				
BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	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 REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		0.0		
COLUMN		0.0		

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

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)



PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 3 OF 5

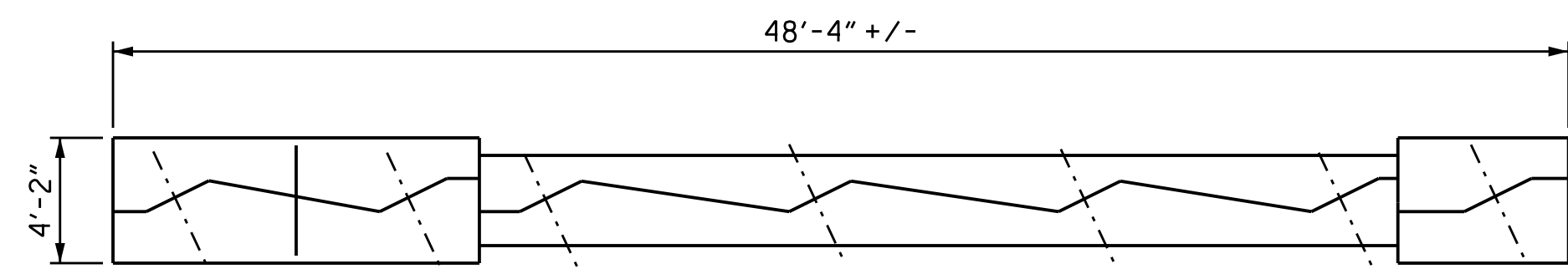
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 3

DRAWN BY : A. Y. GODFREY / G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

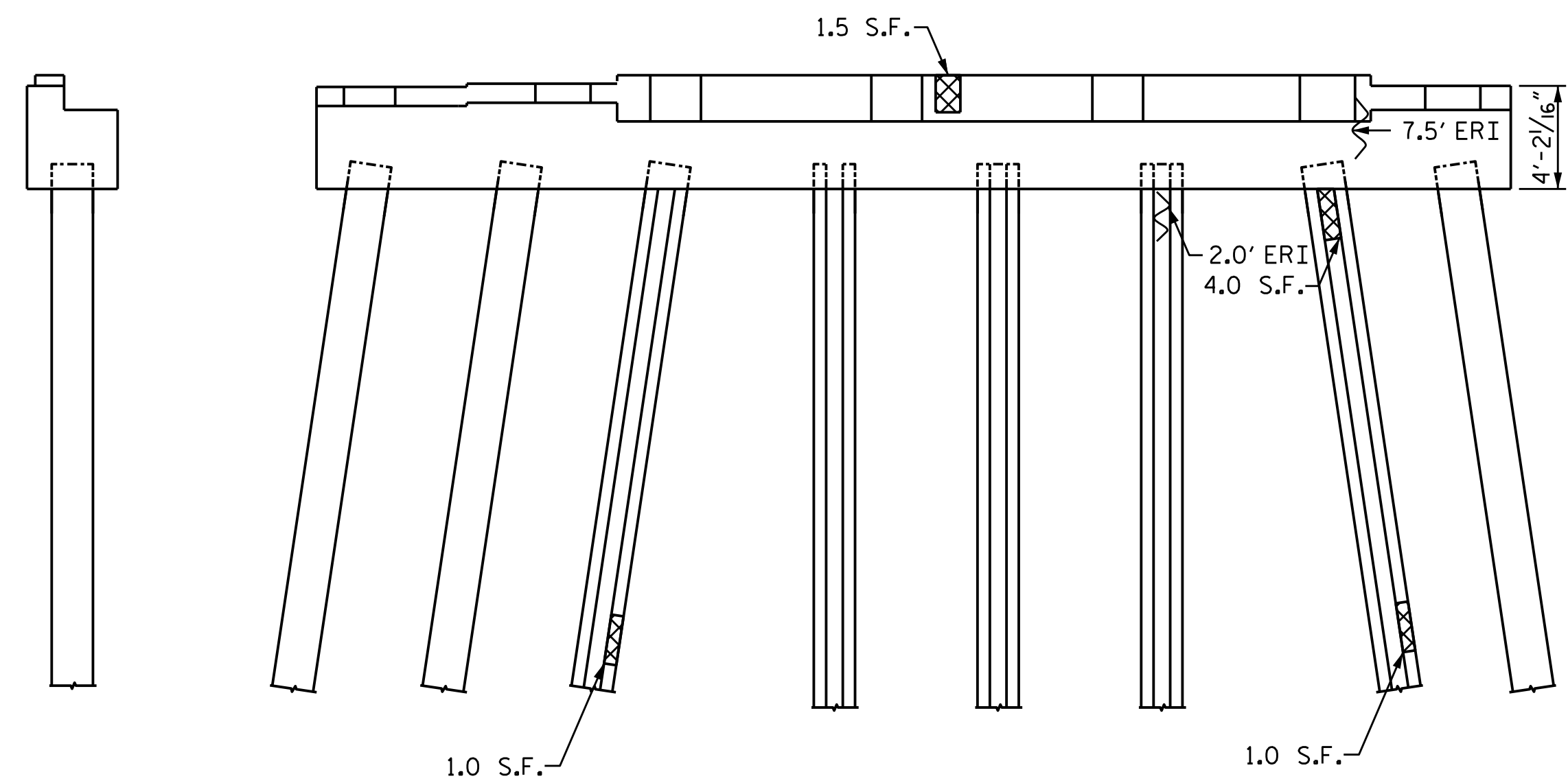
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-17
1			3			TOTAL SHEETS
2			4			48



PLAN
(TOP OF CAP)

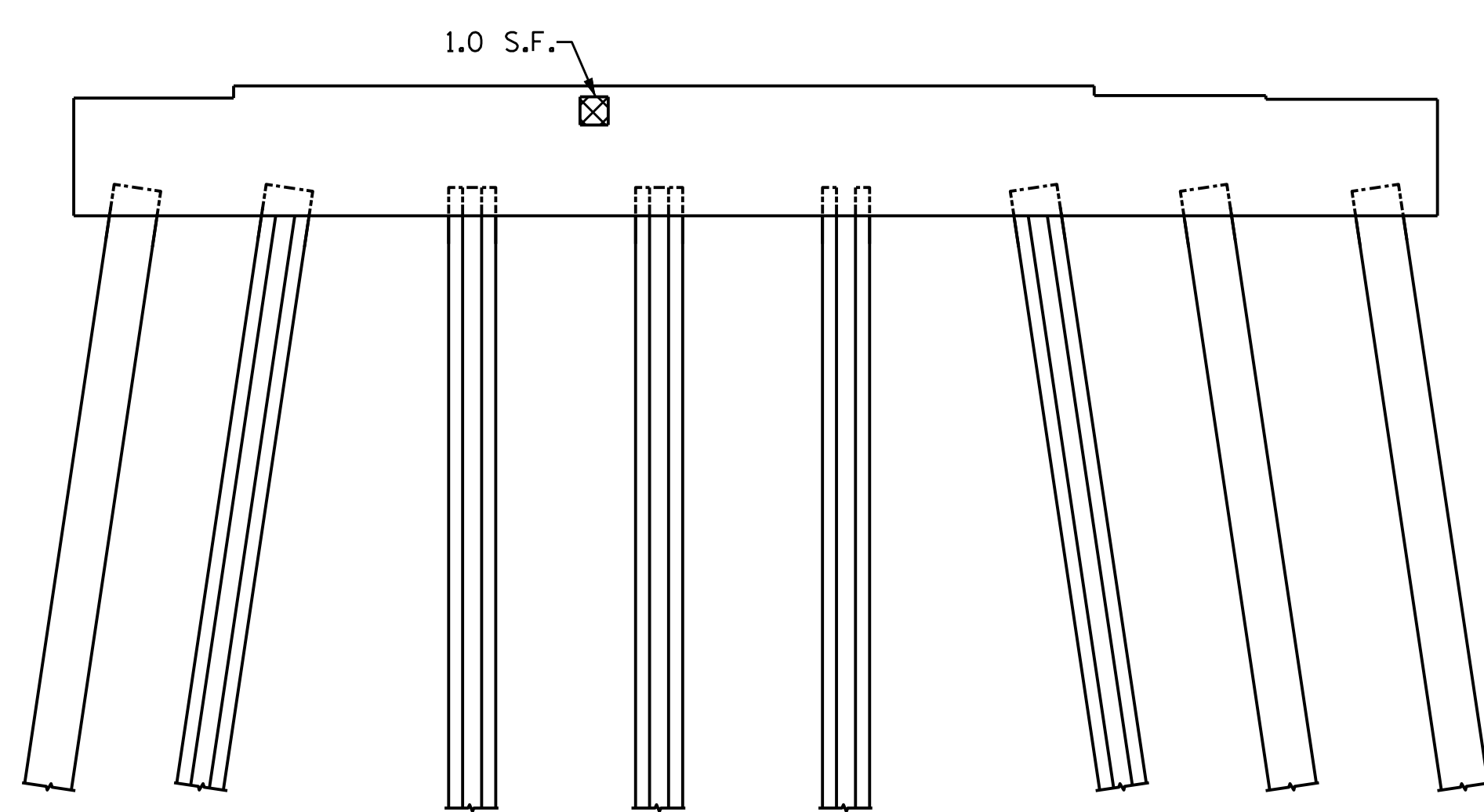
SPAN E
SPAN D



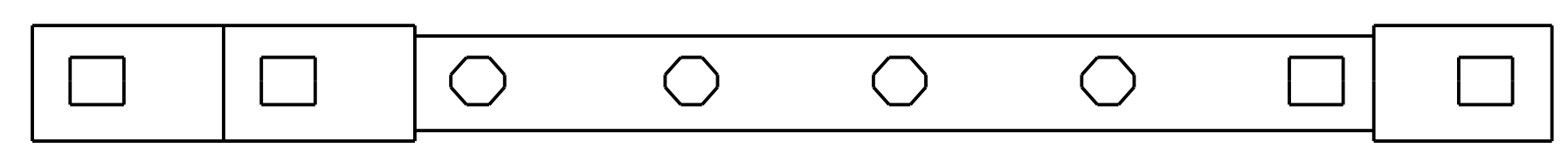
END VIEW
(WEST FACE)

ELEVATION
(SOUTH FACE)

END VIEW
(EAST FACE)



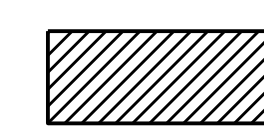
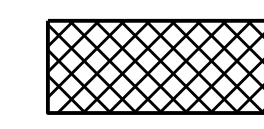

ELEVATION
(NORTH FACE)

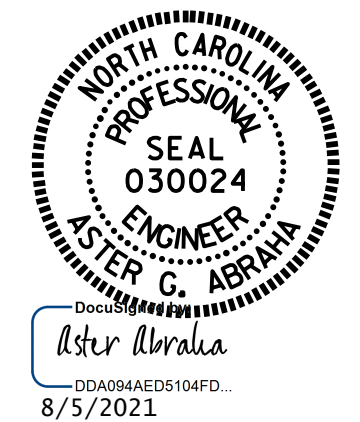


PLAN
(BOTTOM OF CAP)

SPAN E
SPAN D

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)



Aster Abriani
030024
8/5/2021

REPAIR QUANTITY TABLE				
BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	2.5	1.3		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	6.0	3.0		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		7.5		
COLUMN		2.0		

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

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 4 OF 5

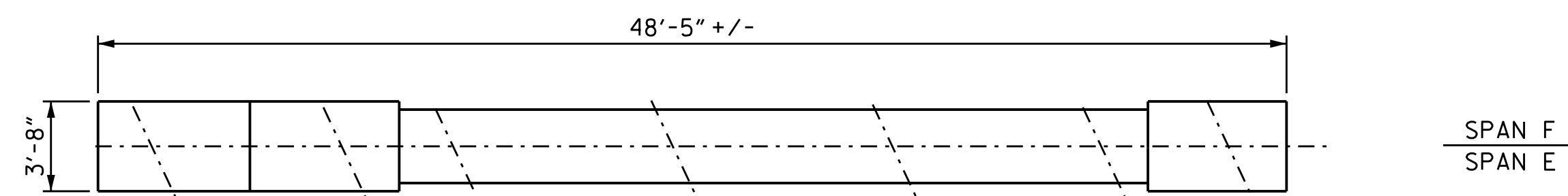
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
BENT 4

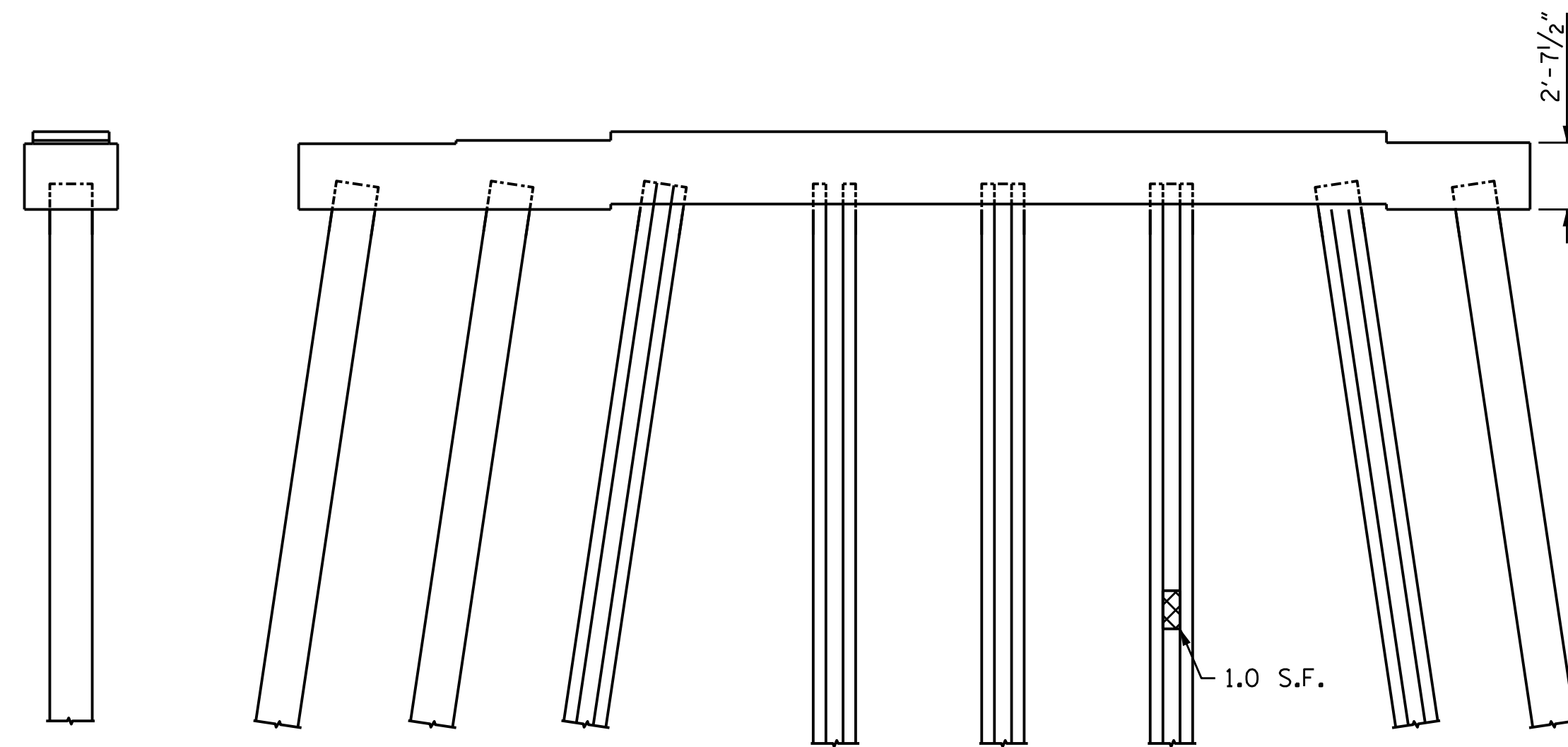
DRAWN BY : A. Y. GODFREY / G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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 SIGNATURES COMPLETED

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NO.	BY:	DATE:	NO.	BY:	DATE:	S2-18
1			3			TOTAL SHEETS
2			4			48



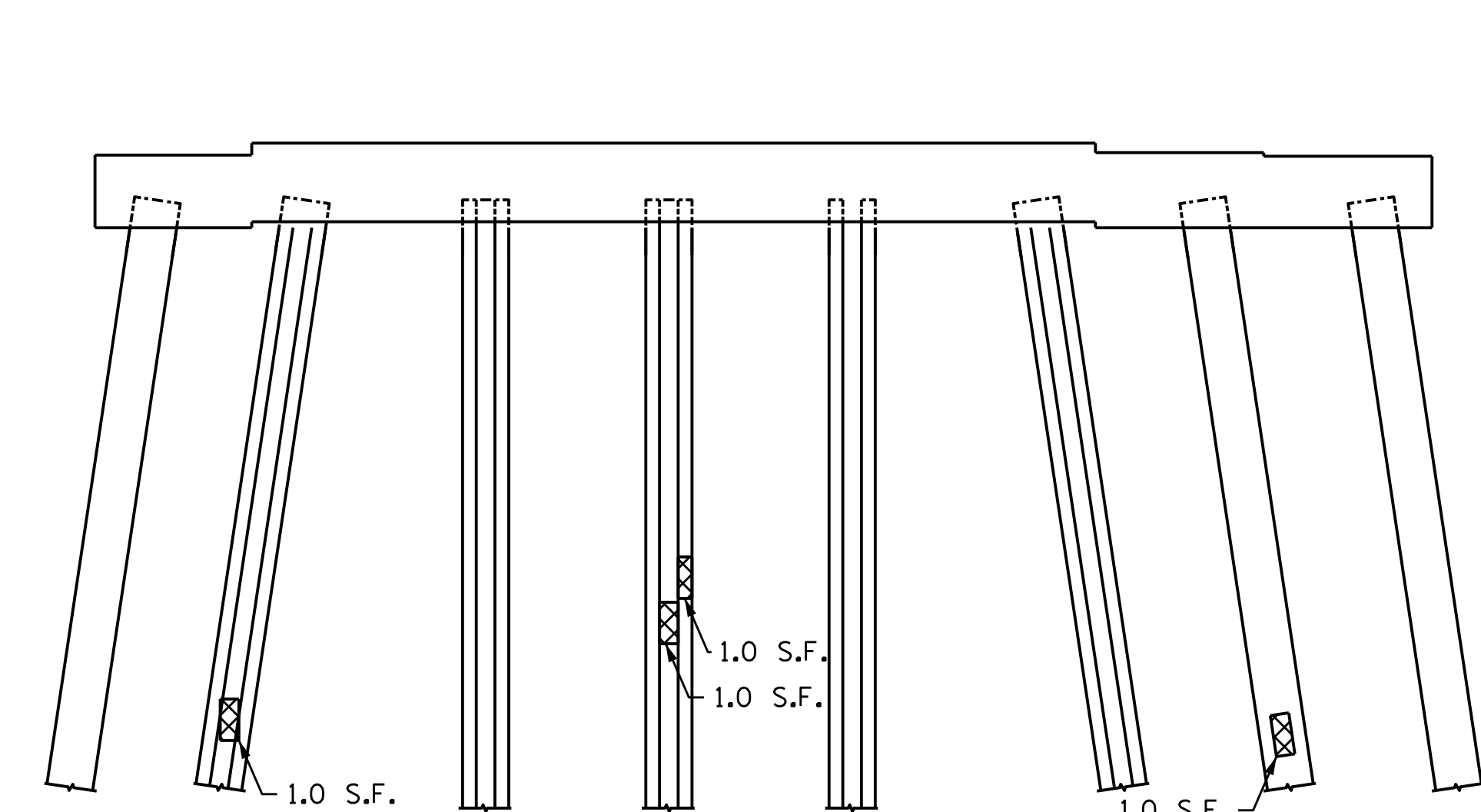
PLAN
(TOP OF CAP)



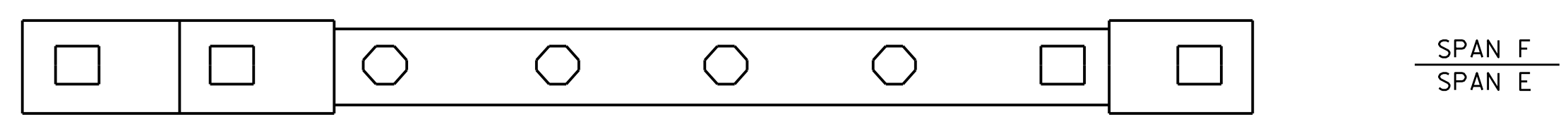
END VIEW
(EAST FACE)

ELEVATION
(SOUTH FACE)

END VIEW
(WEST FACE)

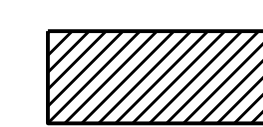
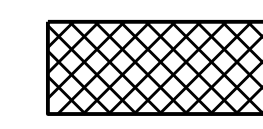



ELEVATION
(NORTH FACE)



PLAN
(BOTTOM OF CAP)

REPAIR KEY

-  CONCRETE REPAIR AREA (FORM AND POUR)
-  SHOTCRETE REPAIR AREA
-  EPOXY RESIN INJECTION (ERI)

REPAIR QUANTITY TABLE				
BENT 5	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	5.0	2.5		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LF	LF	LF
CAP		0.0		
COLUMN		0.0		

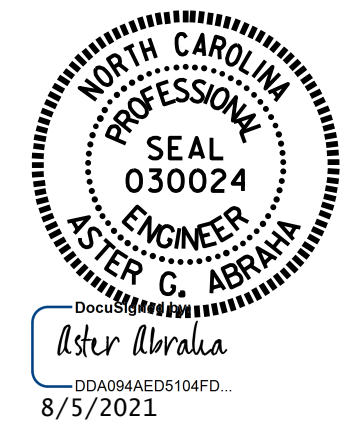
VALUES IN CHART REPRESENT ESTIMATED REPAIR QUANTITIES AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107

SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

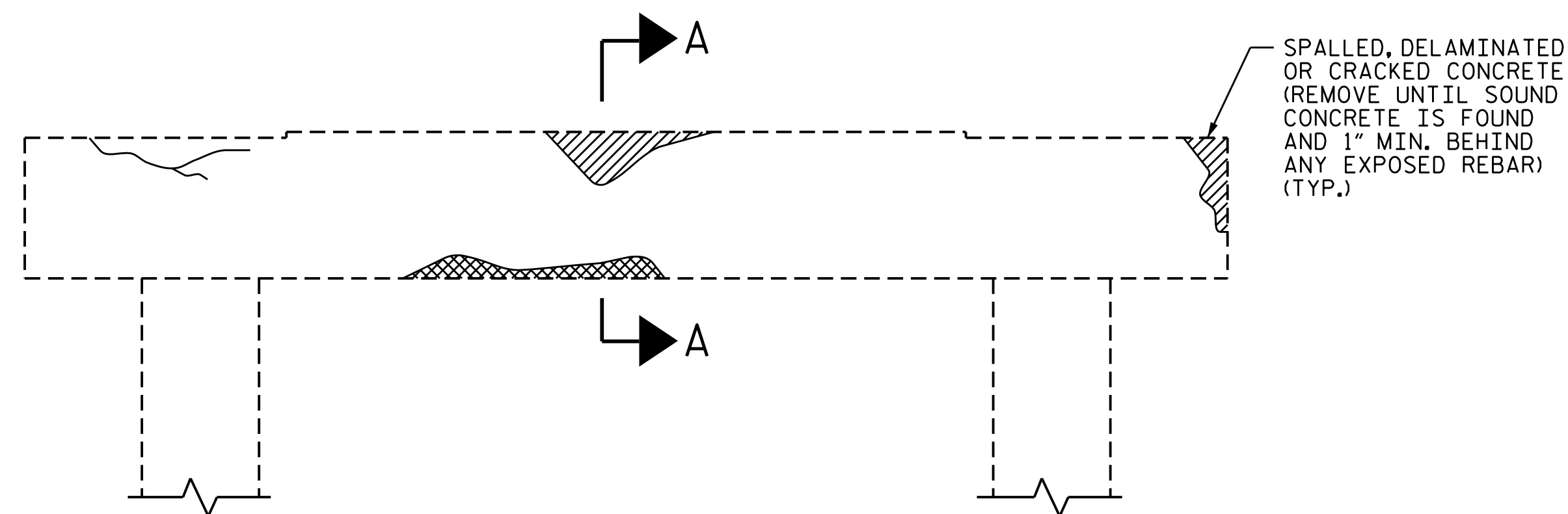
**SUBSTRUCTURE
 BENT 5**



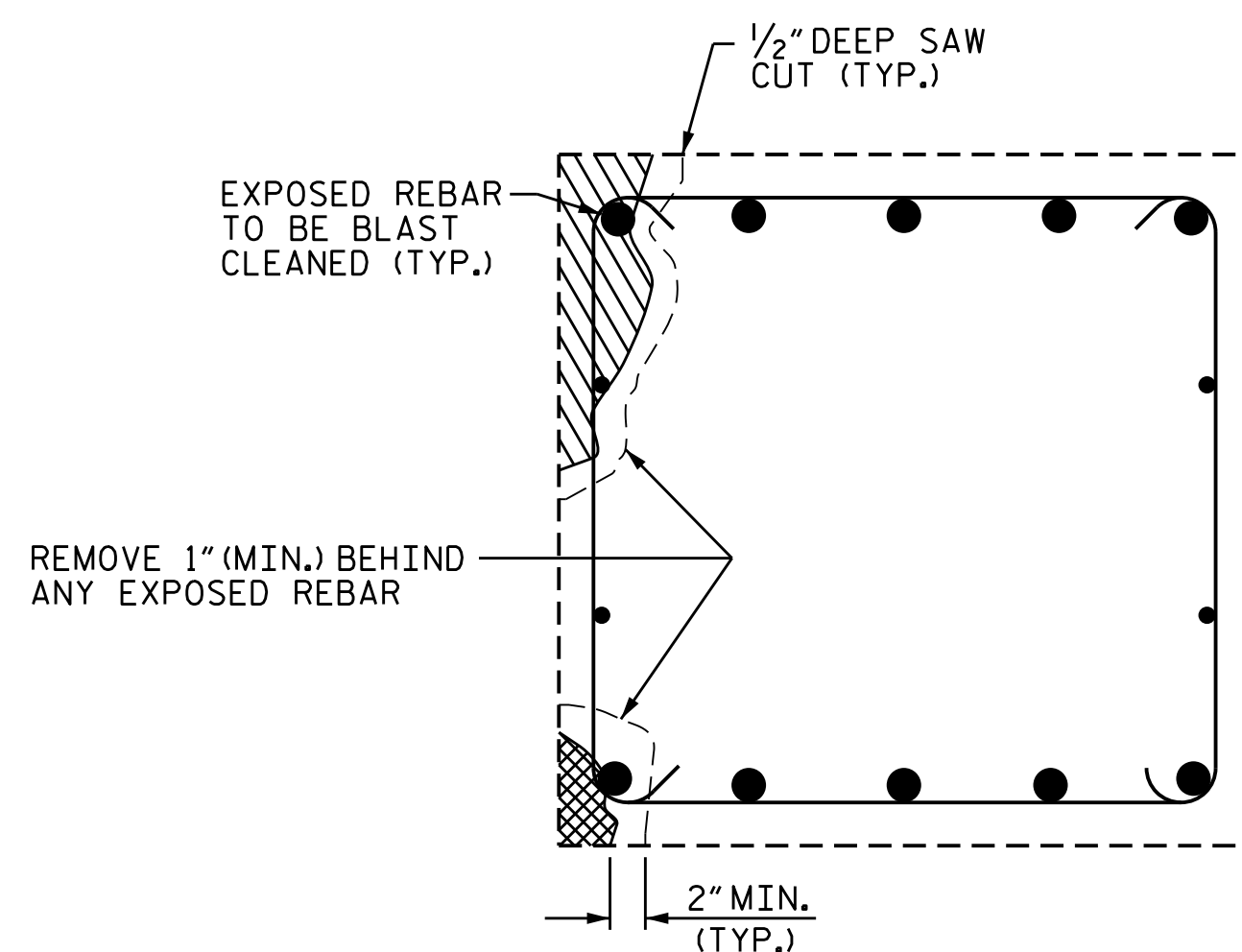
DRAWN BY : A. Y. GODFREY / G. AYES DATE : .05/2021
 CHECKED BY : S. WANCE DATE : .07/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-19
1			3			TOTAL SHEETS
2			4			48

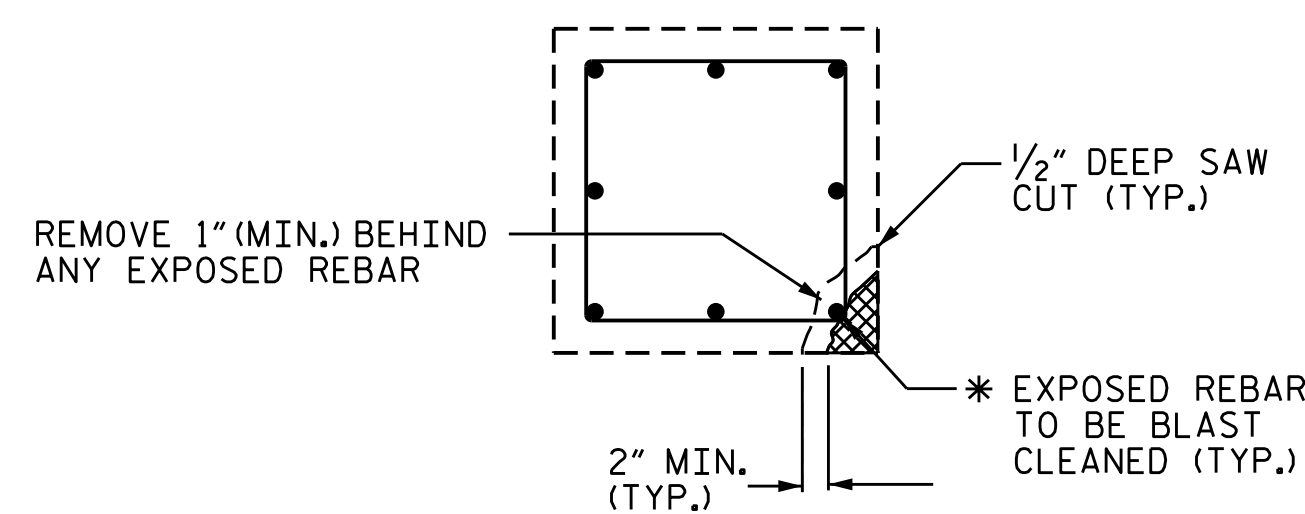


BENT CAP REPAIRS



SECTION A-A

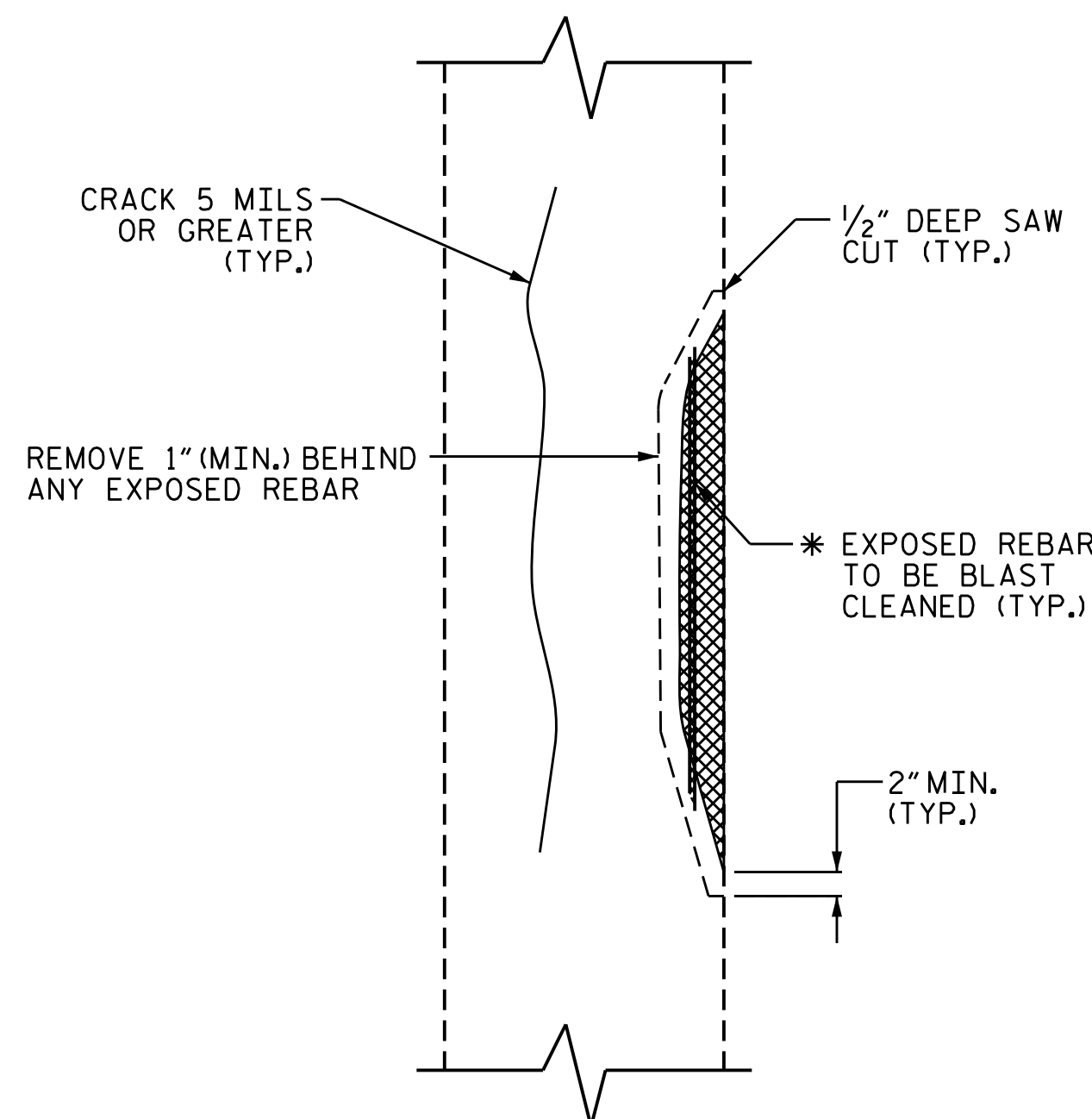
CAP REPAIR



PLAN OF COLUMN

REPAIR KEY

- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

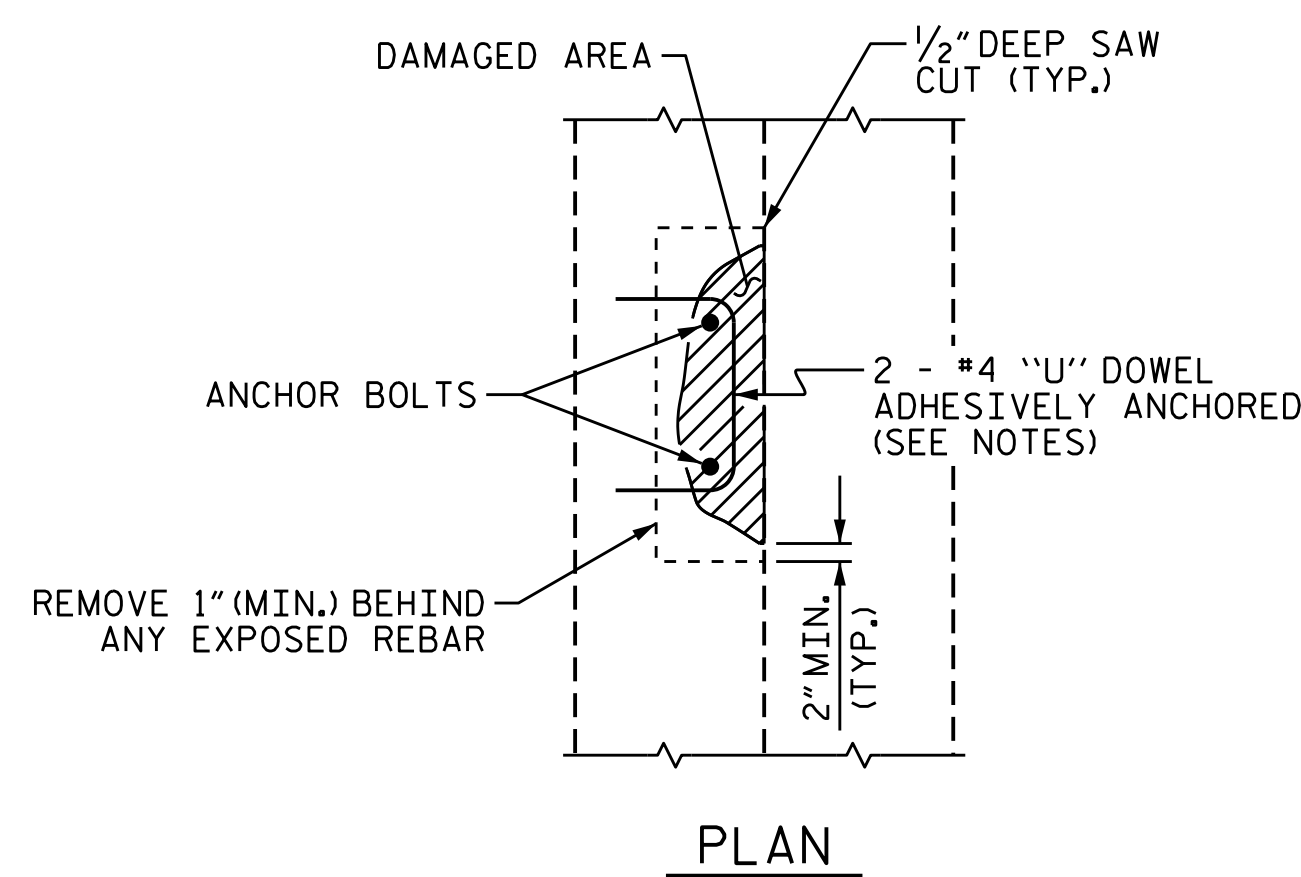


ELEVATION OF COLUMN

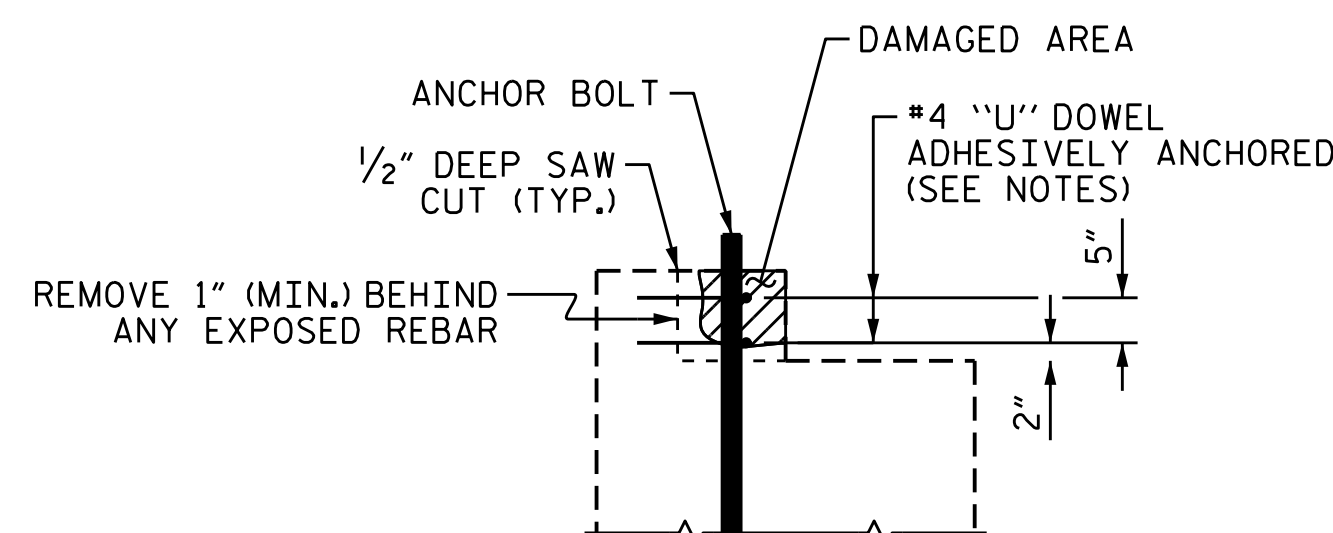
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

SPLICE LENGTH TABLE	
BAR SIZE	MIN. SPLICE LENGTH
#4	2'-4"
#5	2'-9"
#6	4'-0"
#7	5'-3"
#8	6'-9"
#9	8'-6"
#10	10'-11"
#11	13'-4"



PLAN



ELEVATION

PEDESTAL WALL REPAIR

NOTES

TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND STRUTS.

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, BUT NO MORE THAN 1/2 OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING. ON COLUMNS AND PILES, NO MORE THAN 10 VERTICAL FEET MAY BE EXPOSED AT ONE TIME BEFORE PLACEMENT OF REPAIR CONCRETE.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

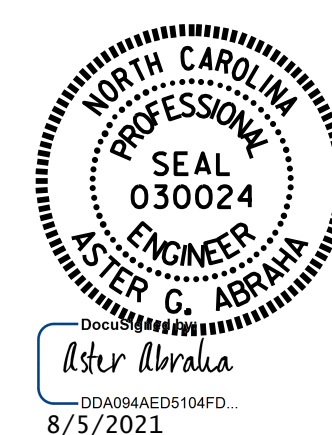
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS. 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.

PROJ. NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS

ASSEMBLED BY : S. T. SANDOR DATE : 10/2019
 CHECKED BY : A. G. ABRAHA DATE : 11/2019
 DRAWN BY : NAP 8/18
 CHECKED BY :

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REVISIONS						SHEET NO.
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2			4			TOTAL SHEETS 48

BRIDGE JACKING NOTES:

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

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

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

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

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

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

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS $\frac{1}{8}$ ".

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

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

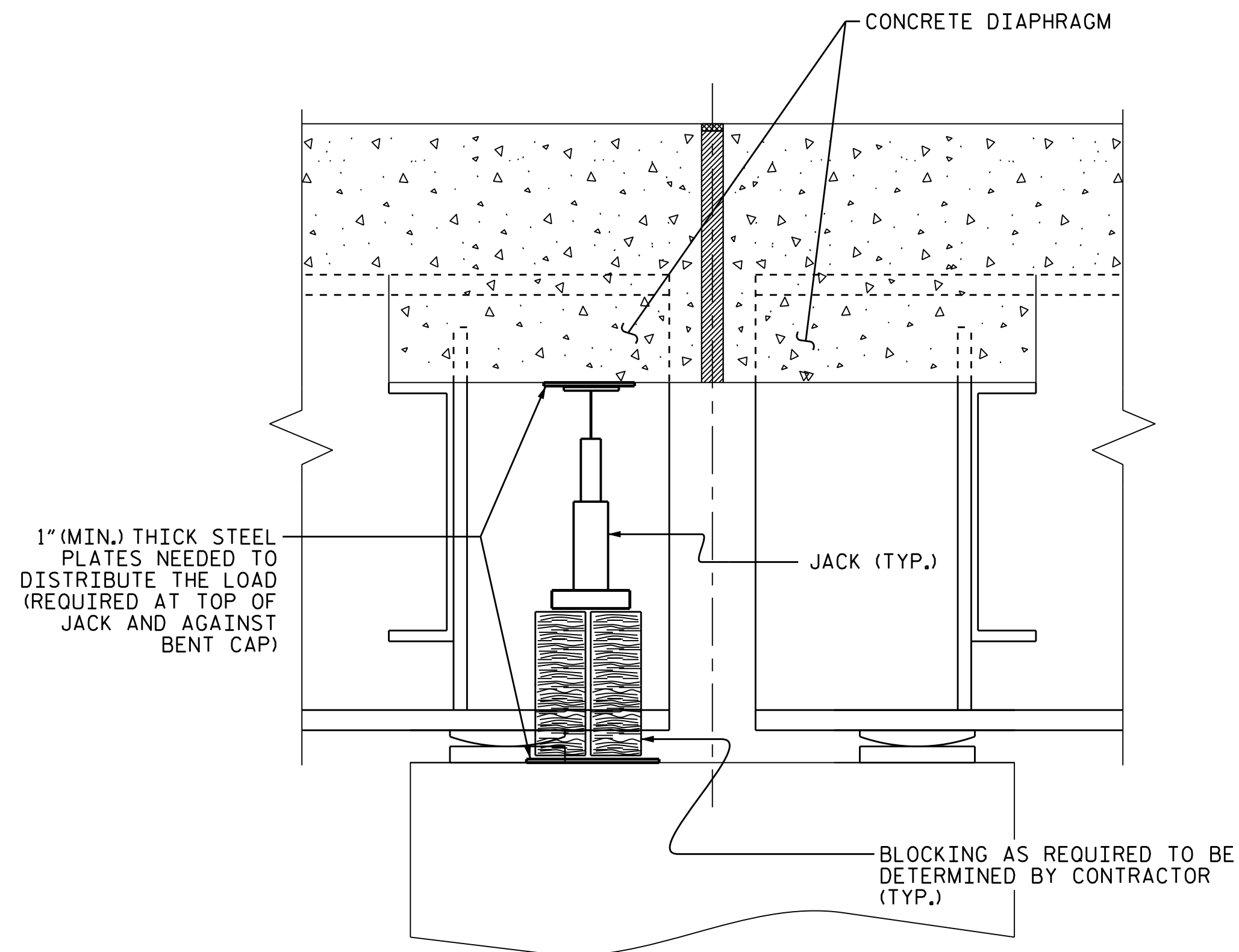
FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

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

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

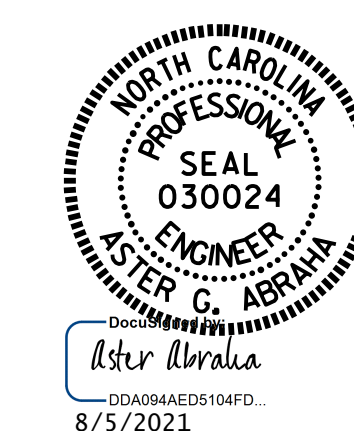
THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.



SECTION THRU DIAPHRAGM

BRIDGE JACKING TABLE				
LOCATION	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
BENT 1	A	6	TYPE I	--

PROJ. NO. HI-0008
JOHNSTON COUNTY
 BRIDGE NO. 500107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

**BRIDGE JACKING
 DETAILS**

ASSEMBLED BY : G. AYES DATE : 06/2021
 CHECKED BY : S. WANCE DATE : 07/2021
 DRAWN BY :
 CHECKED BY :

DOCUMENT NOT CONSIDERED
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-21
1			3			TOTAL SHEETS
2			4			48

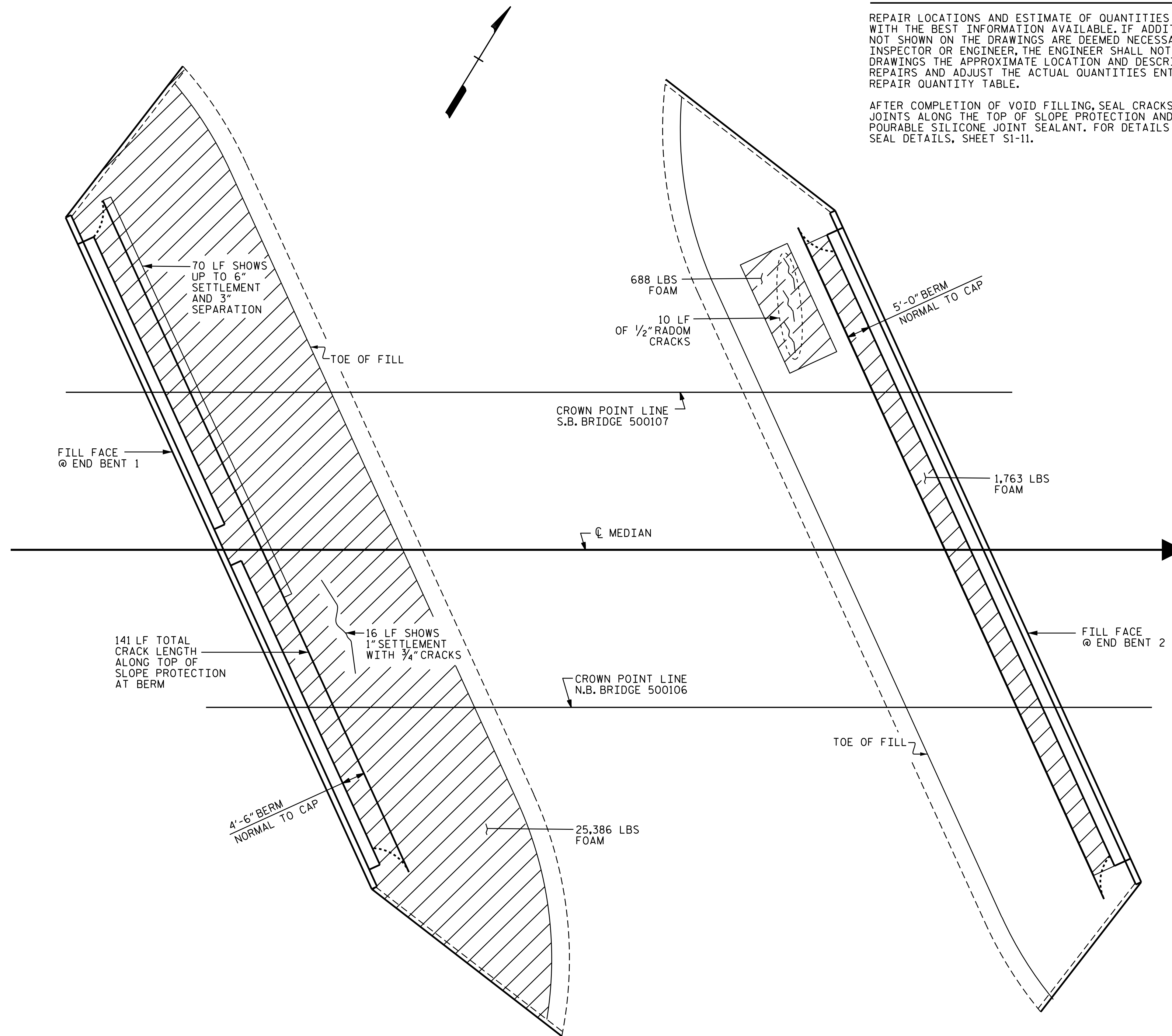
NOTES:

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 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.

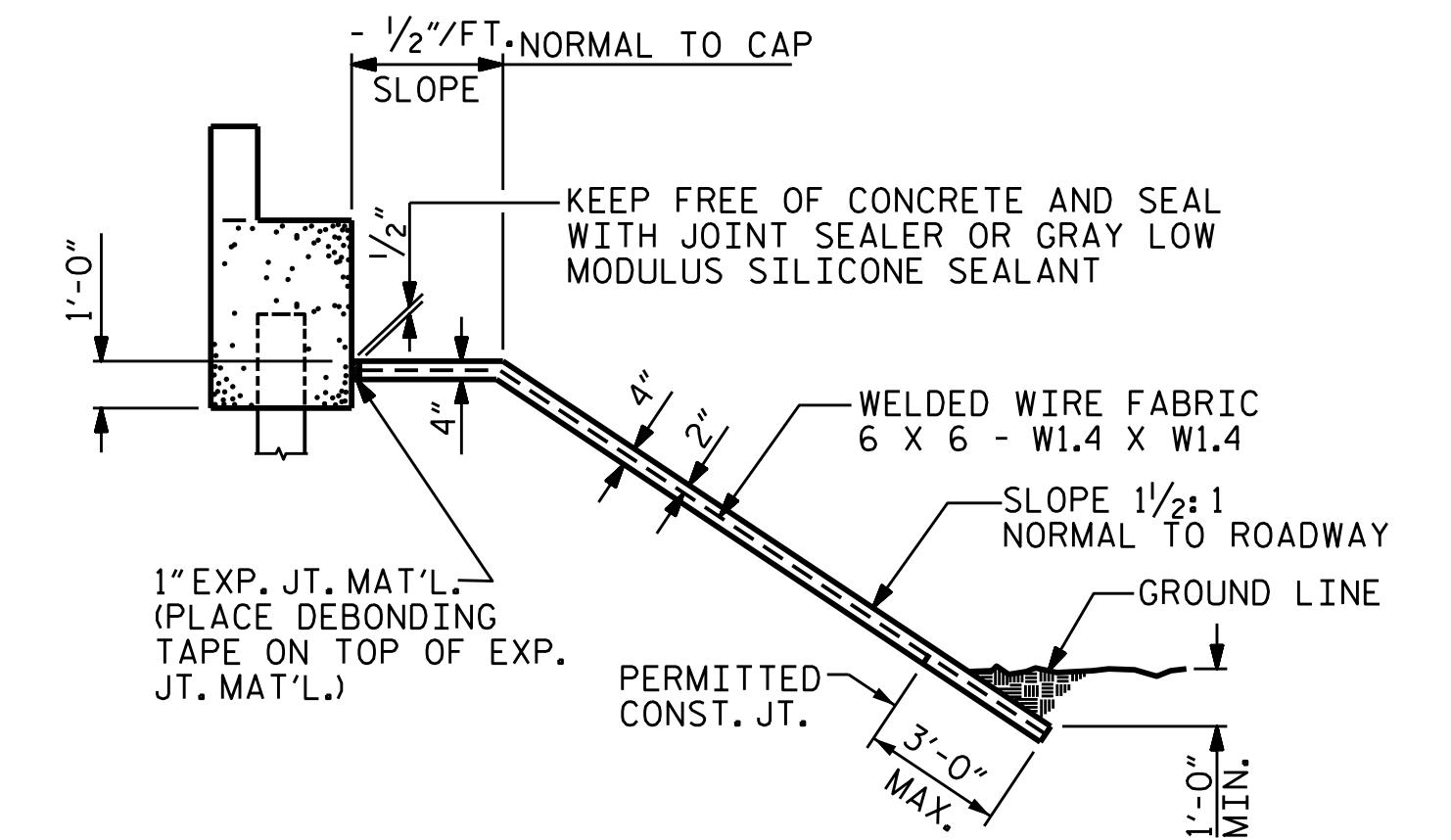
AFTER COMPLETION OF VOID FILLING, SEAL CRACKS IDENTIFIED AND JOINTS ALONG THE TOP OF SLOPE PROTECTION AND BERM WITH POURABLE SILICONE JOINT SEALANT. FOR DETAILS SEE PROPOSED JOINT SEAL DETAILS, SHEET S1-11.

REPAIR QUANTITY TABLE

SLOPE PROTECTION @ BRIDGES 500106 & 500107	SLOPE PROTECTION VOID FILLING		POURABLE SILICONE JOINT SEALANT	
	LBS		LN. FT.	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
END BENT 1	25,386		157	
END BENT 2	2,451		10	

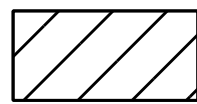



SLOPE PROTECTION REPAIR LOCATIONS

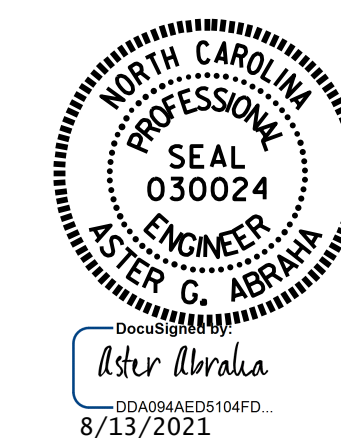


SLOPE PROTECTION TYPICAL SECTION ALONG C MEDIAN

REPAIR KEY

-  SLOPE PROTECTION VOID FILLING
-  SLOPE PROTECTION CRACKS

PROJECT NO. HI-0008
JOHNSTON COUNTY
 STATION: 500106, 500107



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

4" SLOPE PROTECTION REPAIR DETAILS

ASSEMBLED BY : S. WANCE	DATE : 07/21
CHECKED BY : T. SHERRILL	DATE : 08/21
DRAWN BY : ELR 5/92	REV. 12/21/11 MAA/GM
CHECKED BY : GRP 6/92	REV. 1/16 MAA/TMG
	REV. 12/17 MAA/THC

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2			4			

