PROJECT: 15BPR.10

CONTRACT: C204184

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.10	1	

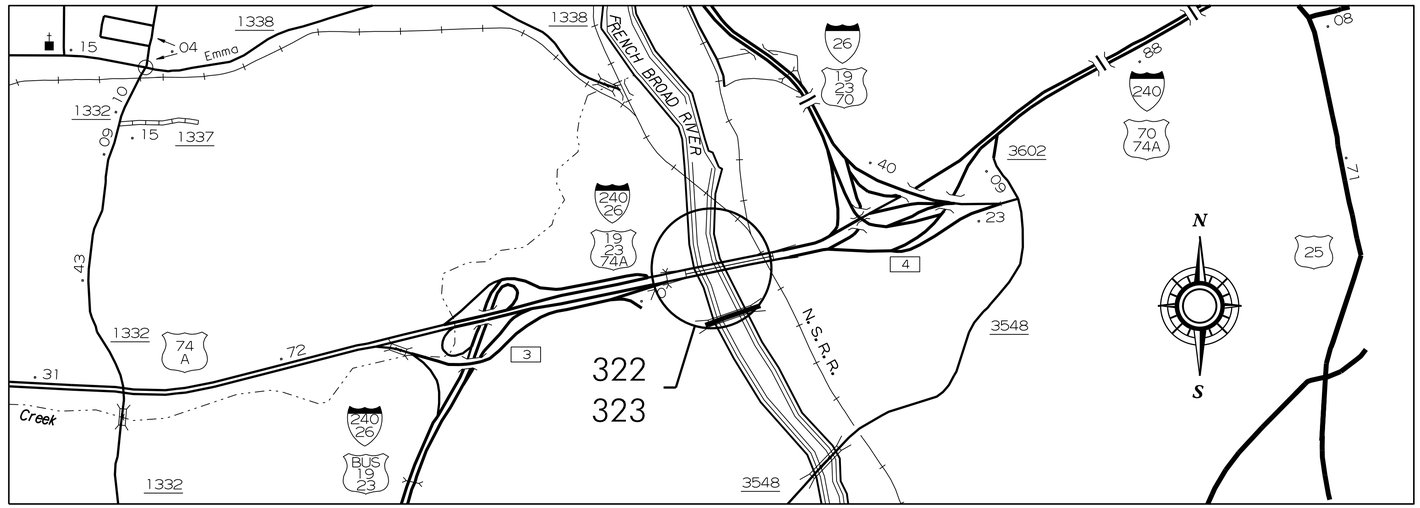
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
15BPR.10	–	P.E.
15BPR.10	–	CONST.

LOCATION: ***BUNCOMBE COUNTY***

BRIDGE #322 ON I–240/I–26 EB, US 23 & US 19 OVER THE FRENCH BROAD RIVER, AND NORFOLK SOUTHERN RAILROAD

BRIDGE #323 ON I–240/I–26 WB, US 23 & US 19 OVER THE FRENCH BROAD RIVER, AND NORFOLK SOUTHERN RAILROAD

TYPE OF WORK: ***BRIDGE PRESERVATION – POLYESTER POLYMER CONCRETE (PPC) OVERLAY, JOINT REPAIR, STEEL GIRDER REPAIR, AND SUBSTRUCTURE REPAIR.***



VICINITY MAP – BUNCOMBE CO.

DESIGN DATA

BUNCOMBE COUNTY
#322 ADT 2015 = 51,500
#323 ADT 2015 = 51,500

PROJECT LENGTH

BUNCOMBE COUNTY
– #322 = 0.249 MILE
– #323 = 0.232 MILE

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

2018 STANDARD SPECIFICATIONS

LETTING DATE :

JUNE 19, 2018

A. KEITH PASCHAL, P.E.
PROJECT ENGINEER

AMBER M. LEE, P.E.
PROJECT DESIGN ENGINEER

PROJECT: 15BPR.10

CONTRACT: C204184

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.10	1A	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
15BPR.10		P.E.
15BPR.10		CONST.

LOCATION: ***BUNCOMBE COUNTY:***

BRIDGE #322 ON I–240/I–26 EB, US 23 & US 19 OVER THE FRENCH BROAD RIVER, AND NORFOLK SOUTHERN RAILROAD
BRIDGE #323 ON I–240/I–26 WB, US 23 & US 19 OVER THE FRENCH BROAD RIVER, AND NORFOLK SOUTHERN RAILROAD

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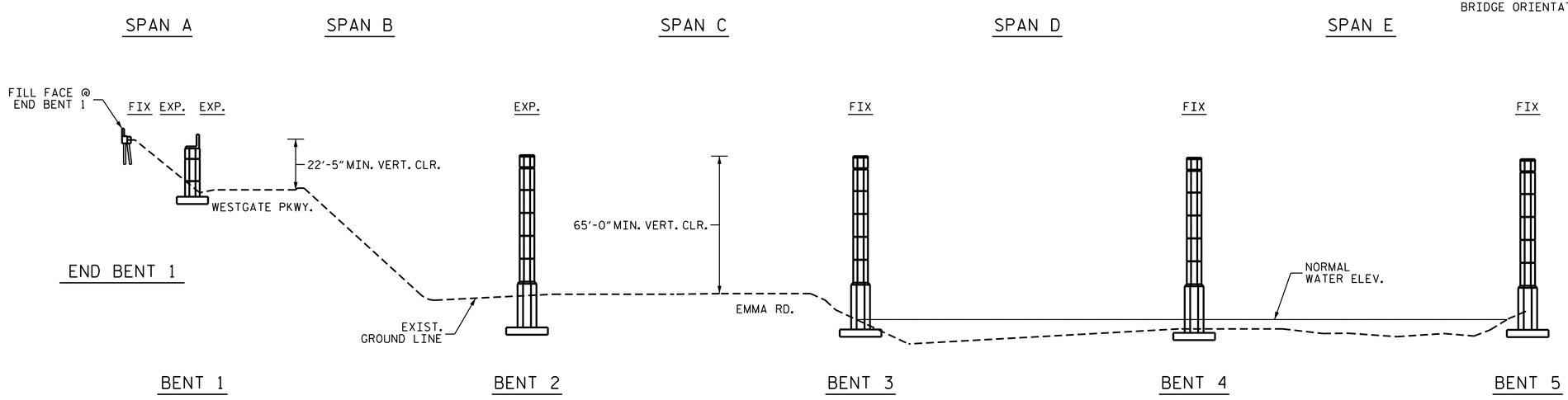
INDEX OF SHEETS

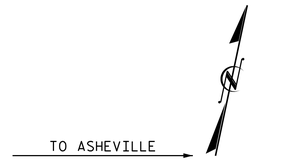
NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 11/12/2016.

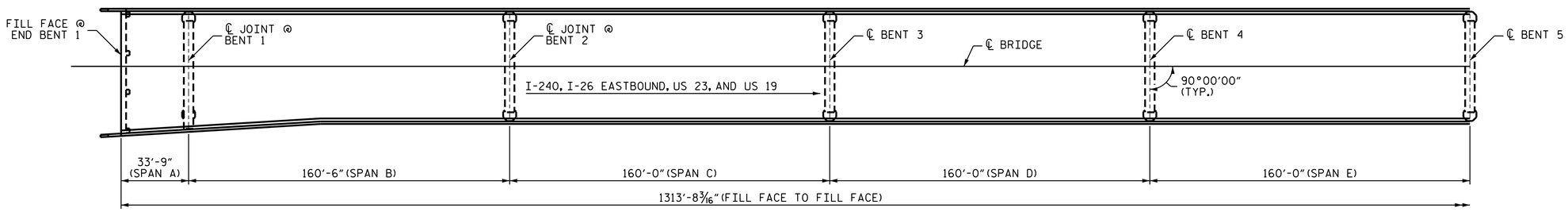
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.



SECTION ALONG ℄ ROADWAY



TO WEST ASHEVILLE



PLAN

SCOPE OF WORK

- CLEAN AND REPAIR STEEL I-BEAMS, AND SPOT PAINTING OF STEEL STRUCTURE REPAIR AREAS.
- REPLACE EXISTING BEARINGS.
- EPOXY INJECTION OF CONCRETE CRACKS.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.
- PERFORM SHOTCRETE AND CONCRETE REPAIRS IN PREPARED AREAS.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- GROOVE POLYESTER POLYMER CONCRETE (PPC) BRIDGE DECK.
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- REPLACE EXISTING RUBBER PLATE TYPE EXPANSION JOINT WITH KIND.

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

RESIDENT ENGINEER DATE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5AAF2FAD484...

4/30/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-240, I-26 EASTBOUND, US 23, AND US 19 OVER THE FRENCH BROAD RIVER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : R.L.PUTEK DATE : 02/18

CHECKED BY : A.M.LEE DATE : 04/18

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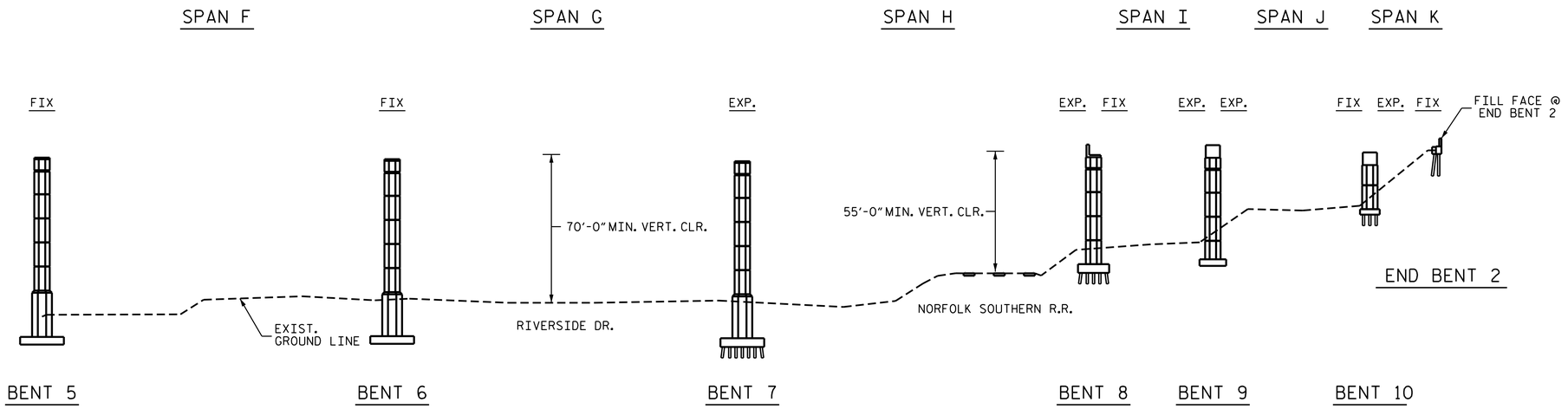
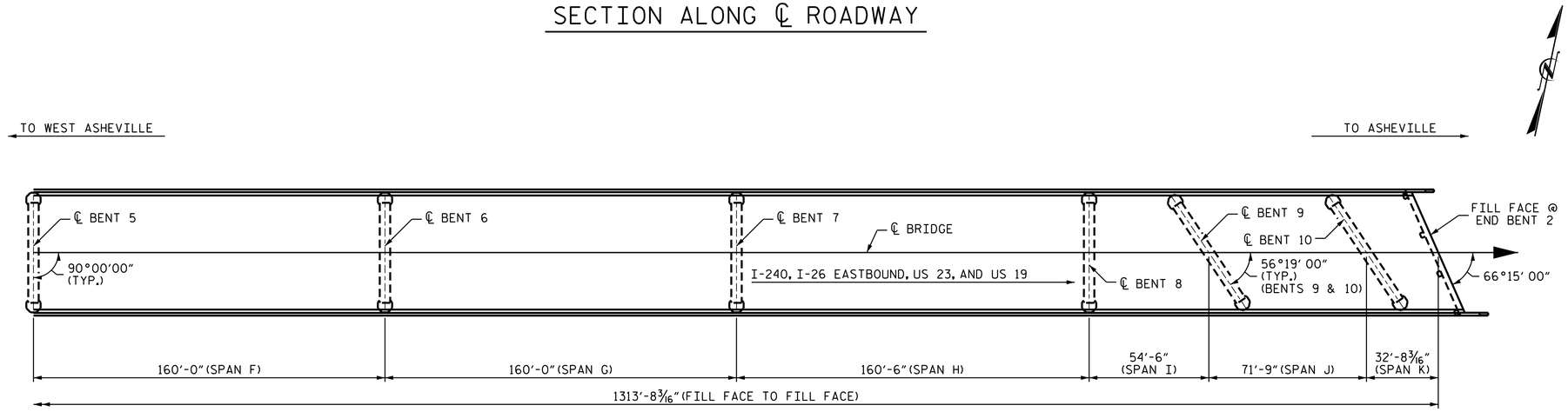


SECTION ALONG ℄ ROADWAY



PLAN

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-240, I-26 EASTBOUND, US 23, AND US 19 OVER THE FRENCH BROAD RIVER

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
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4/30/2018

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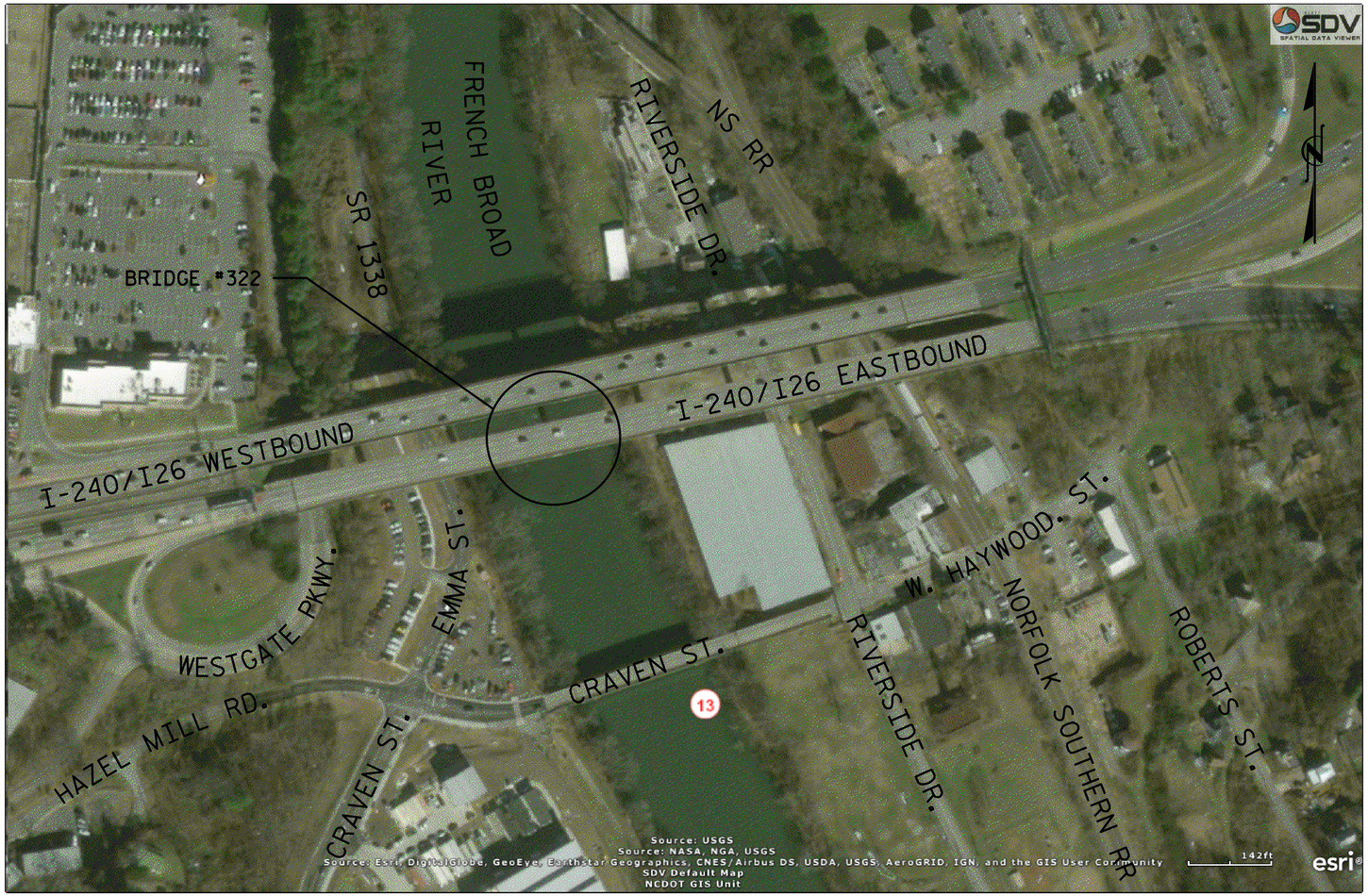

LOCATION SKETCH

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

NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE.

THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

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

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

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

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.

FOR POLLUTION CONTROL AND SPOT PAINTING OF STEEL STRUCTURE REPAIR AREAS, SEE SPOT PAINTING OF STRUCTURAL STEEL REPAIR AREAS SPECIAL PROVISIONS.

FOR POLYESTER POLYMER CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PPC, SEE SPECIAL PROVISIONS.

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

THE EXISTING BRIDGE DECK SHALL BE REPAIRED AS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER AFTER SCARIFICATION AND PRIOR TO BRIDGE DECK SHOTBLAST AND APPLICATION OF THE PPC OVERLAY, UNLESS OTHERWISE APPROVED, SUCH LOCATIONS SHALL BE REPAIRED WITH PPC.

FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS AND PLACING & FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR BEARING REPLACEMENT, SEE SPECIAL PROVISIONS.

FOR SPECIAL PROVISIONS FOR PROTECTION OF RAILROAD INTEREST, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.

FOR JOINT REPAIR, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

BRIDGE NO. 322	GROOVING BRIDGE FLOOR	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	MOLDED RUBBER SEGMENTAL EXPANSION JOINT	SPOT PAINTING OF STEEL STRUCTURE REPAIR AREAS	PPC MATERIALS	BEAM REPAIR	BEAM PLATING REPAIR	EPOXY COATING	CONCRETE DECK REPAIR FOR PPC OVERLAY	PLACING AND FINISHING PPC OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	TYPE I BRIDGE JACKING	OVERHANG DIAPHRAGM REMOVAL
	SQ. FT.	LUMP SUM	SQ. YDS.	SQ. YDS.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	LBS.	LBS.	SQ. FT.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	EA.	EA.
TOTALS	65,324.0	LUMP SUM	54.8	9.0	10.7	557.3	3,127.5	LUMP SUM	LUMP SUM	LUMP SUM	377.8	1,283.0	169.0	4,459.4	54.8	7,763.0	7,763.0	7,763.0	6.0	20.0

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-240, I-26 EASTBOUND, US 23, & US 19 OVER THE FRENCH BROAD RIVER

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
4/30/2018

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DRAWN BY : R.L.PUTEK DATE : 02/18
CHECKED BY : A.M.LEE DATE : 04/18

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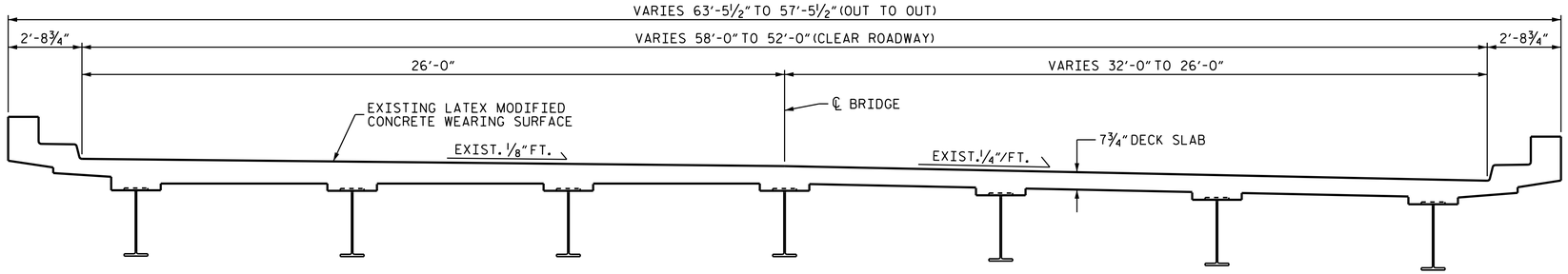
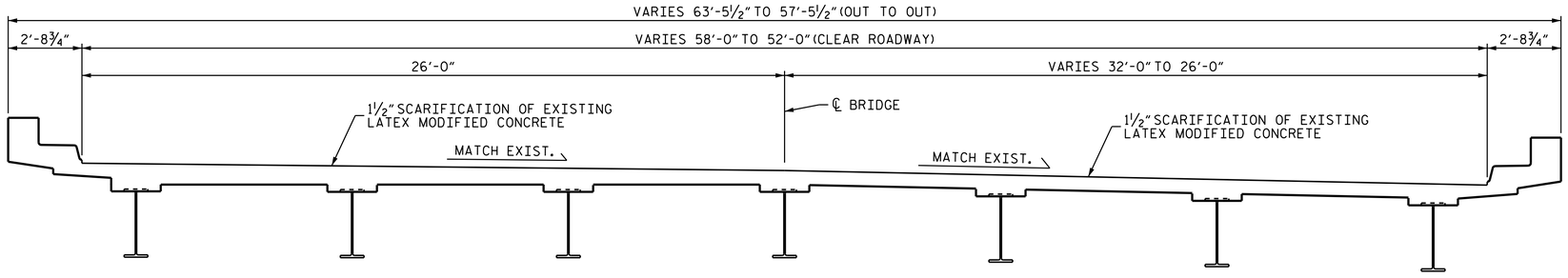
NOTE:

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY SYSTEM AND SURFACE PREPARATION.



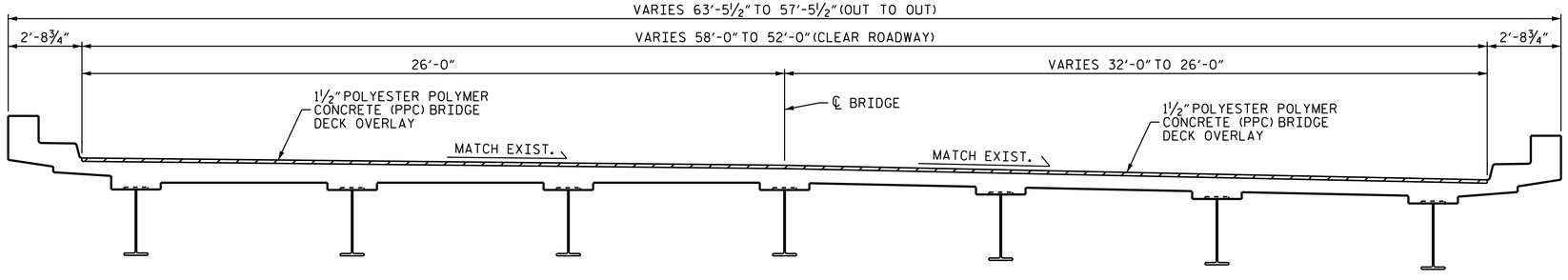
TYPICAL SECTION

(EXISTING WEARING SURFACE)



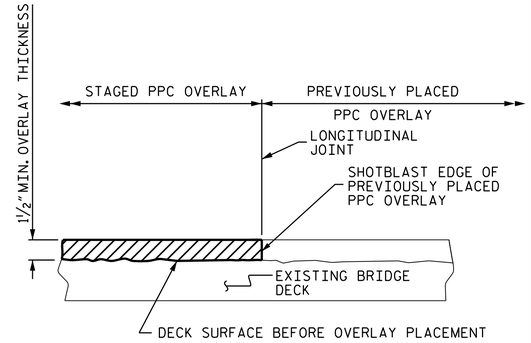
TYPICAL SECTION

(PROPOSED SCARIFICATION)



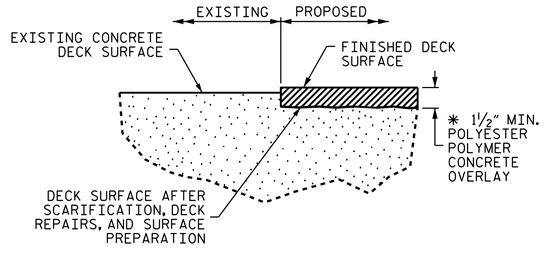
TYPICAL SECTION

(PROPOSED WEARING SURFACE)



STAGED PPC OVERLAY JOINT

(AS NEEDED)



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE No.: 322

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee 924B5A4F2FAD484...

4/30/2018

DRAWN BY : R.L.PUTEK DATE : 04/18

CHECKED BY : A.M.LEE DATE : 04/18

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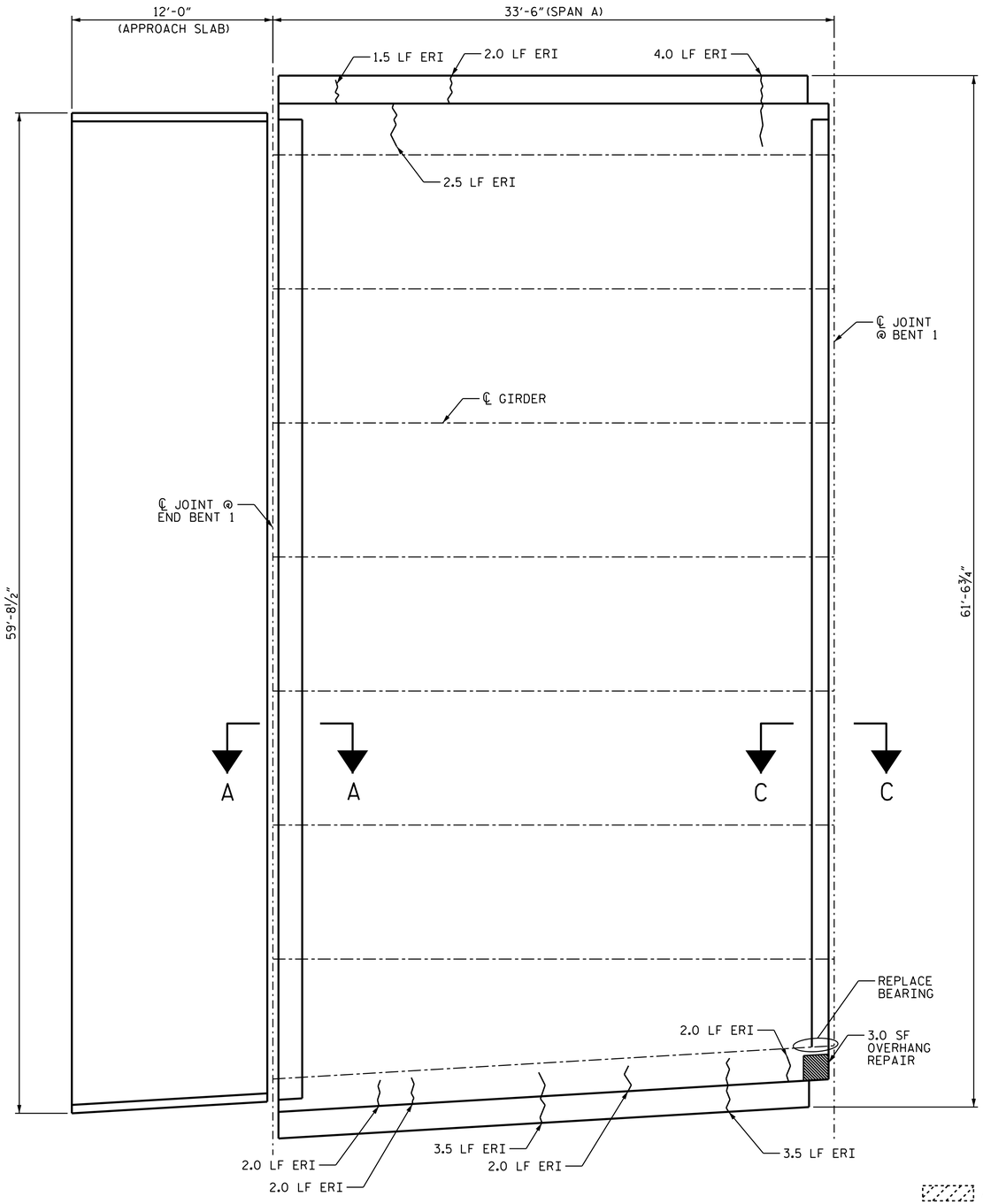

PLAN

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	290 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	290 SQ. YDS.	
PPC MATERIALS	14.1 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	290 SQ. YDS.	
GROOVING BRIDGE FLOORS	2344 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	3.0	1.5		
INTERIOR DIAPHRAGMS	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	25.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	0.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	0 EA.	

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

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

NOTES:

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

FOR SECTION A-A AND C-C, SEE "JOINT DETAILS" SHEETS.

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

FOR BEARING REPLACEMENT, SEE SHEET "BEARING DETAILS."

BEARING REPLACEMENT IS INCIDENTAL TO BRIDGE JACKING.

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

SHEET 1 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS SPAN A AND APPROACH SLAB

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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2			4			90

DRAWN BY : E. K. POPE DATE : 2/18
CHECKED BY : H. A. LOCKLEAR DATE : 4/18

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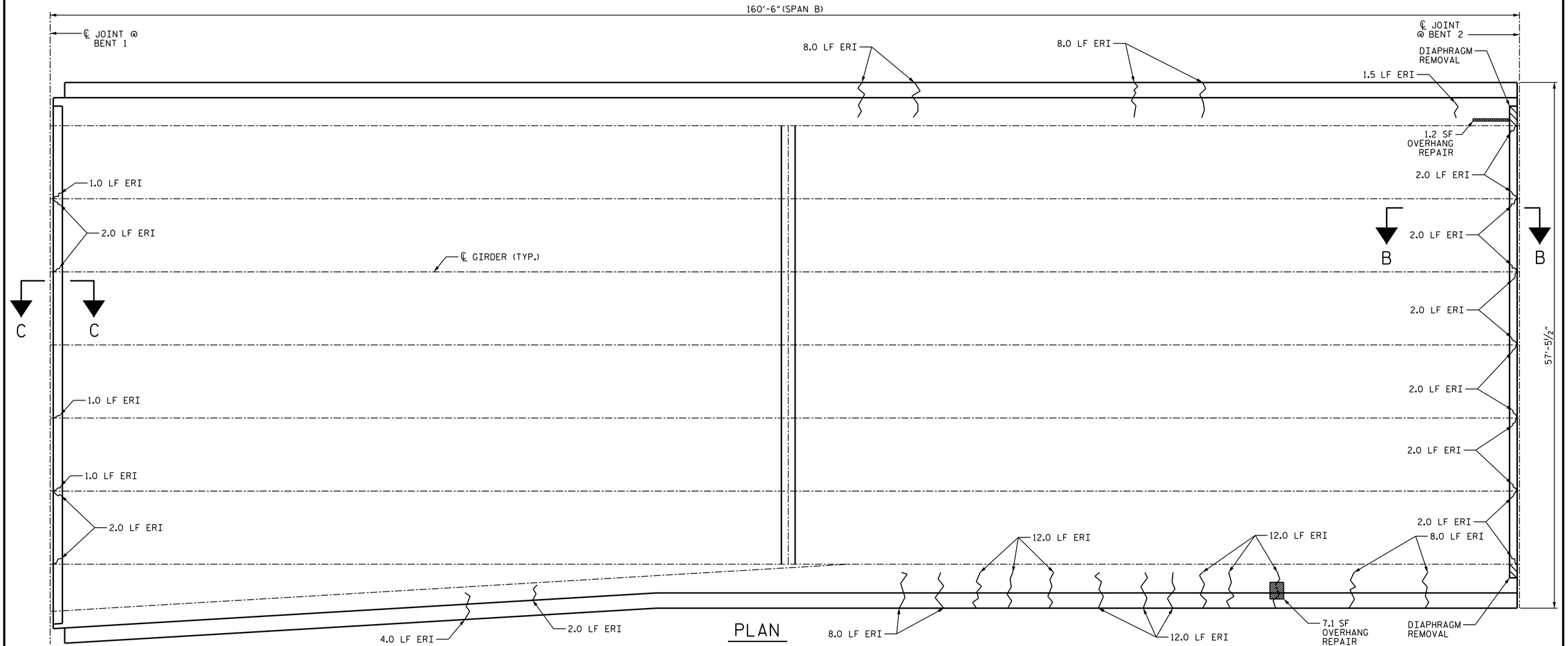

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	935 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	935 SQ. YDS.	
PPC MATERIALS	45.5 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	935 SQ. YDS.	
GROOVING BRIDGE FLOORS	7908 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	8.3	4.2		
INTERIOR DIAPHRAGMS	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	75.5 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	19.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	2 EA.	

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

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

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

FOR SECTIONS B-B AND C-C, SEE "JOINT DETAILS" SHEETS.

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
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4/30/2018

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

SHEET 2 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
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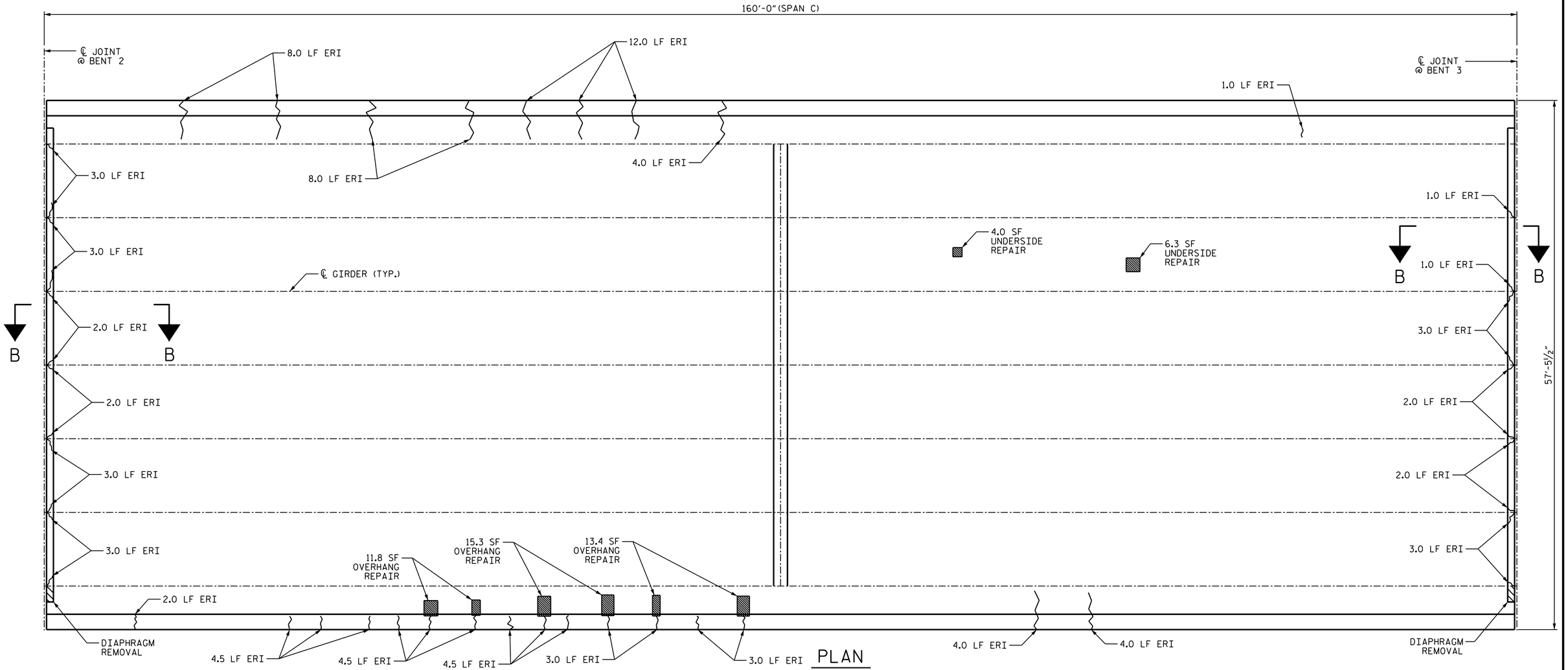

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7816 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	10.3	5.2		
UNDERSIDE OF OVERHANG	40.5	20.3		
INTERIOR DIAPHRAGMS	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	62.5 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	28.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	2 EA.	

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

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

NOTES:

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

FOR SECTION B-B, SEE "JOINT DETAILS" SHEETS.

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...
4/30/2018

DRAWN BY : E. K. POPE DATE : 2/18
CHECKED BY : H. A. LOCKLEAR DATE : 4/18

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PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

SHEET 3 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN C

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2			4			90

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PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7816 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	2.0	1.0		
UNDERSIDE OF OVERHANG	20.0	10.0		
INTERIOR DIAPHRAGMS	10.0	5.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	95.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	19.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	2 EA.	

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

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

NOTES:

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

FOR SECTION B-B, SEE "JOINT DETAILS" SHEETS.

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

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APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee BD4B5A4F2FAD484...
4/30/2018

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

SHEET 4 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN D

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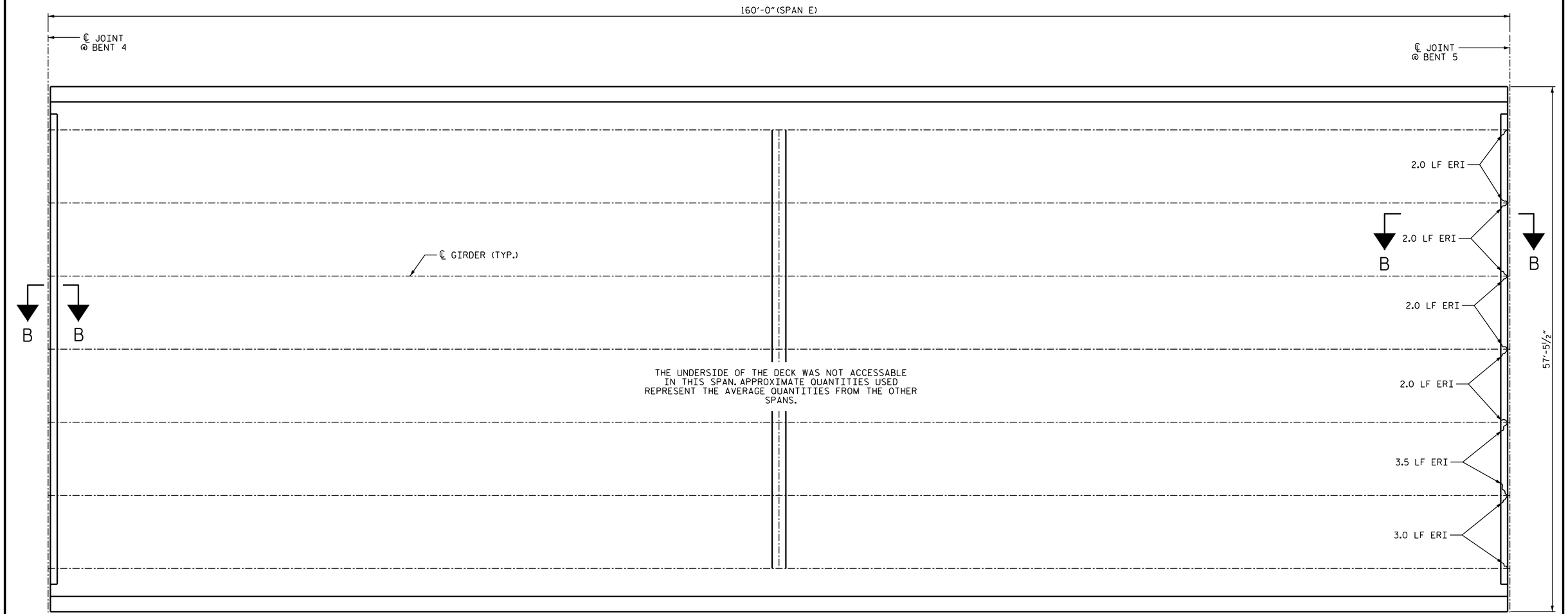

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7816 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	2.0	1.0		
UNDERSIDE OF OVERHANG	20.0	10.0		
INTERIOR DIAPHRAGMS	10.0	5.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	95.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	19.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	2 EA.	

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

NOTES:

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

FOR SECTION B-B, SEE "JOINT DETAILS" SHEETS.

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...
4/30/2018

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PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

SHEET 5 OF 11

STATE OF NORTH CAROLINA
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RALEIGH

PLAN OF SPANS
SPAN E

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2			4			90

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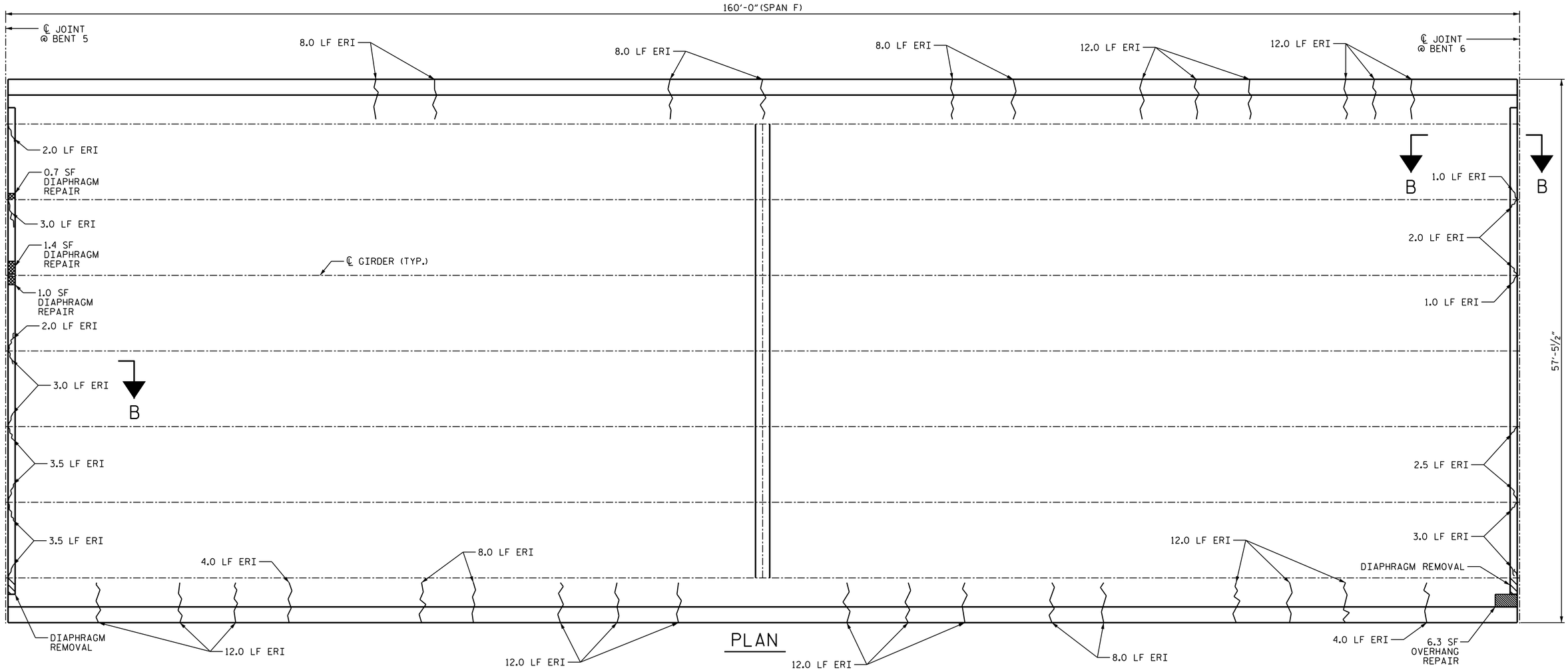

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7816 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	6.3	3.2		
INTERIOR DIAPHRAGMS	3.1	1.6		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	120.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	26.5 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	2 EA.	

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

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

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FOR SECTION B-B, SEE "JOINT DETAILS" SHEETS.

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

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APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee BD4B5A4F2FAD484...
4/30/2018

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322
SHEET 6 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN F

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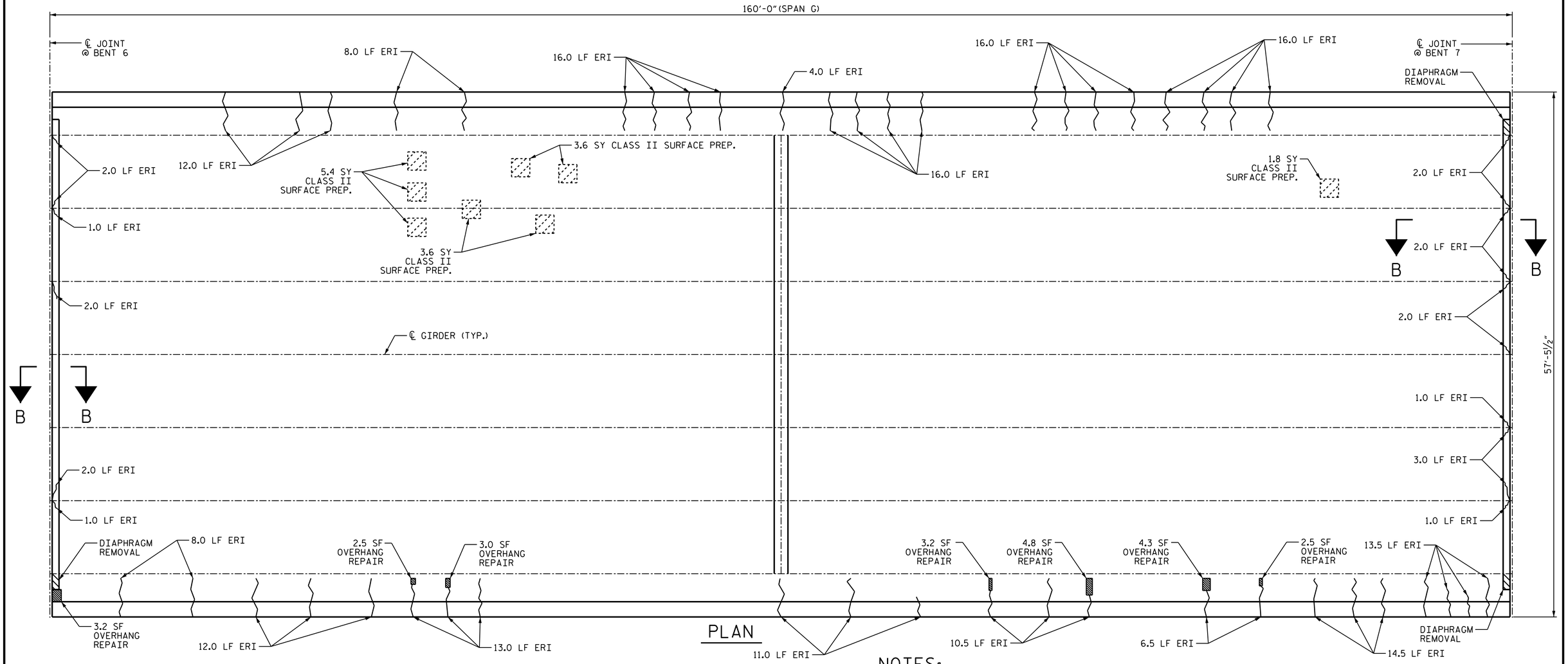

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	14.4 SQ. YDS.	
CLASS III SURFACE PREPARATION	1.0 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	14.4 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7816 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	23.5	11.8		
INTERIOR DIAPHRAGMS	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	177.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	19.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	3 EA.	

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

NOTES:

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

FOR SECTION B-B, SEE "JOINT DETAILS" SHEETS.

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322
SHEET 7 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN G

REVISIONS						SHEET NO.
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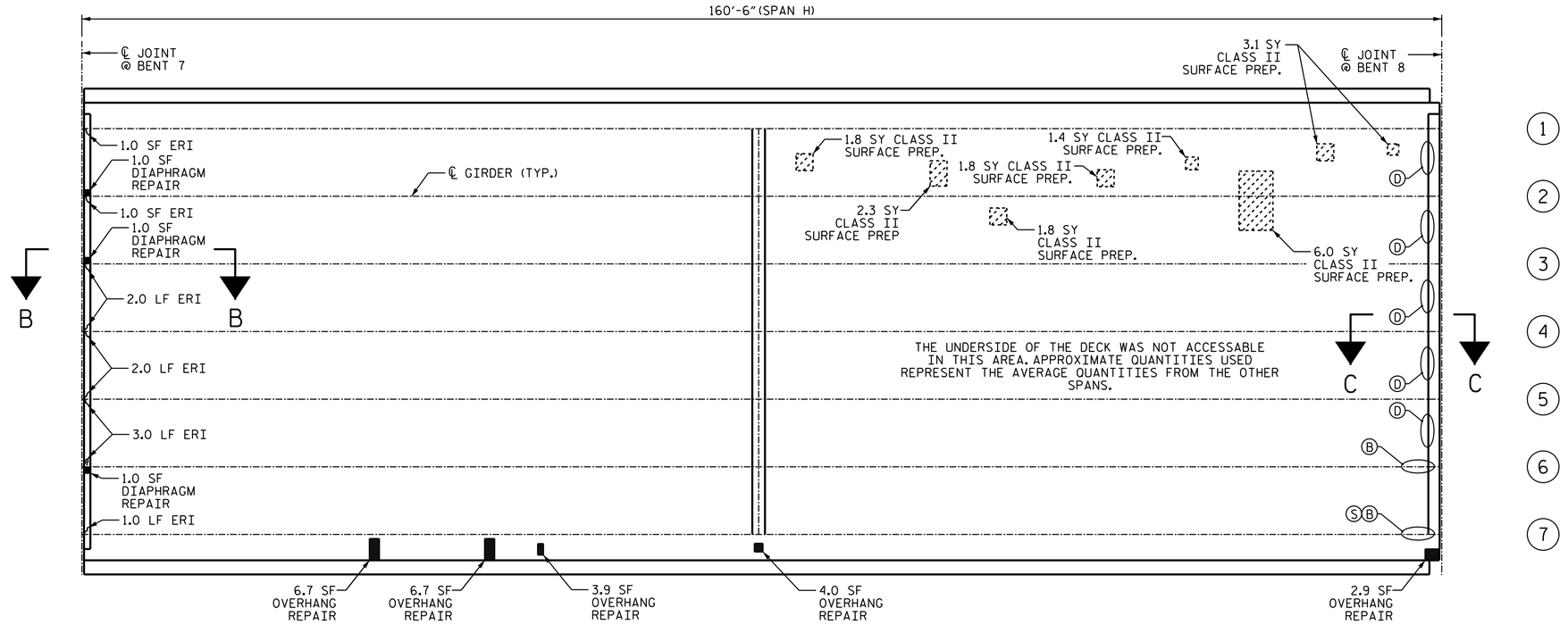

PLAN

ANTICIPATED STEEL REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM "A"	DIM "B"	DIM "C"	DIM "D"
H	6	BENT 8	10"	1'-0"	-	-
H	7	BENT 8	10"	1'-8"	-	-
H	7	BENT 8 (S)	1'-6"	-	-	-

FOR BEAM REPAIR DIMENSIONS, SEE SHEET "BEAM SECTION REPAIR DETAILS."

BEAM REPAIR QUANTITY TABLE

BEAM END		STIFFENER		STEEL DIAPHRAGM	
LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
221		4		1040	

(1) BEAM NUMBER
(B) BEAM END REPAIR
(S) STIFFENER REPAIR
(D) STEEL DIAPHRAGM REPLACEMENT

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	927 SQ. YDS.	
CLASS II SURFACE PREPARATION	18.2 SQ. YDS.	
CLASS III SURFACE PREPARATION	2.0 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	18.2 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	927 SQ. YDS.	
PPC MATERIALS	45.1 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	927 SQ. YDS.	
GROOVING BRIDGE FLOORS	7767 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	2.0	1.0		
UNDERSIDE OF OVERHANG	62.4	31.2		
INTERIOR DIAPHRAGMS	14.0	7.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	62.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	24.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	2 EA.	

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

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

NOTES:

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

FOR SECTIONS B-B AND C-C, SEE "JOINT DETAILS" SHEETS.

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

REPOSITION BEARINGS BEFORE COMPLETING THE BEAM END REPAIR. REPOSITIONING THE BEARING IS INCIDENTAL TO THE BRIDGE JACKING.

FOR STEEL DIAPHRAGM REPLACEMENT, SEE "INTERIOR DIAPHRAGM REPAIR DETAILS" ON SHEET "OVERHANG AND DIAPHRAGM REPAIR DETAILS."

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322
SHEET 8 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS SPAN H

REVISIONS						SHEET NO.
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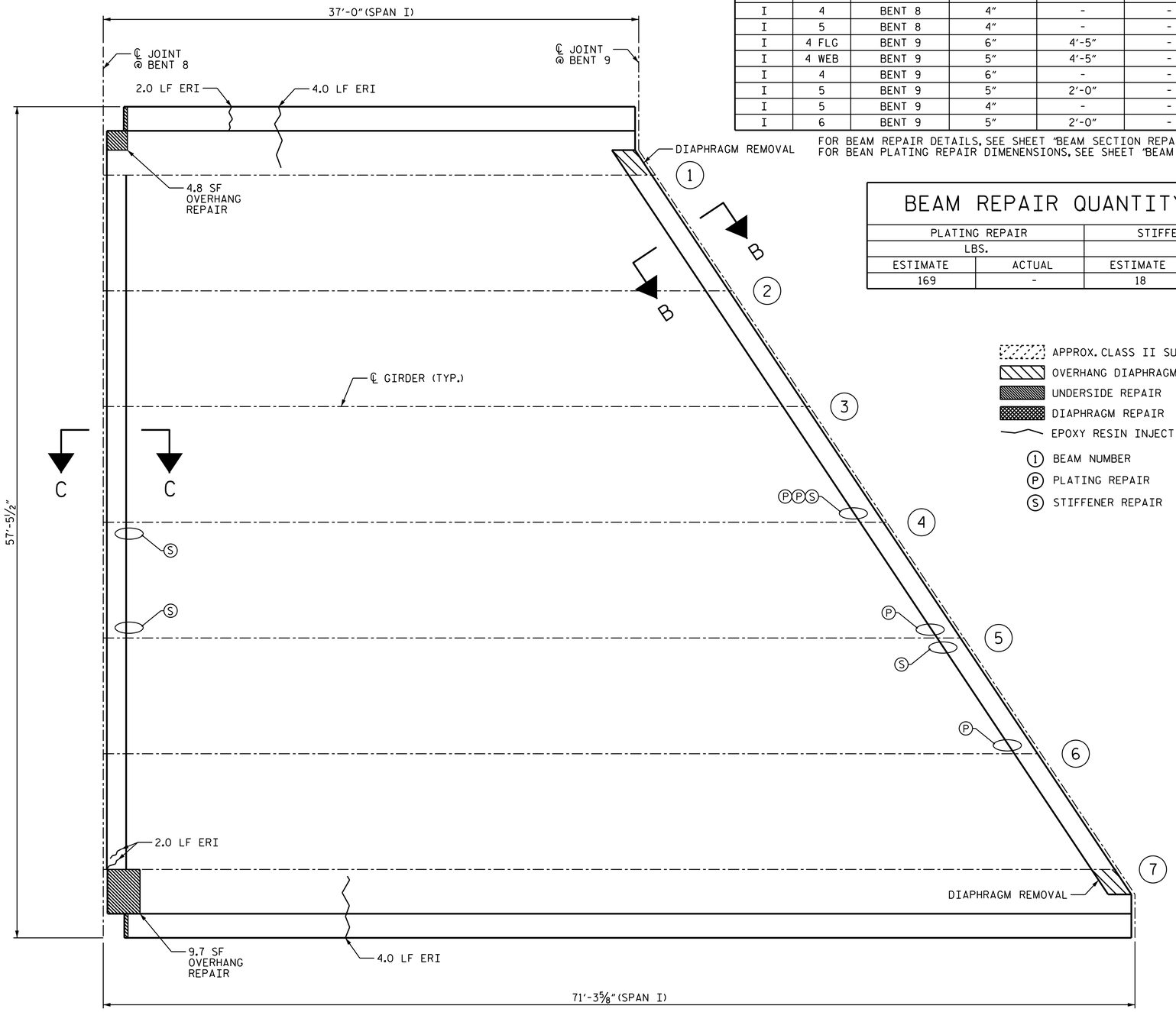
2			4			90



PLAN

ANTICIPATED STEEL REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM "A"	DIM "B"	DIM "C"	DIM "D"
I	4	BENT 8	4"	-	-	-
I	5	BENT 8	4"	-	-	-
I	4 FLG	BENT 9	6"	4'-5"	-	-
I	4 WEB	BENT 9	5"	4'-5"	-	-
I	4	BENT 9	6"	-	-	-
I	5	BENT 9	5"	2'-0"	-	-
I	5	BENT 9	4"	-	-	-
I	6	BENT 9	5"	2'-0"	-	-

FOR BEAM REPAIR DETAILS, SEE SHEET "BEAM SECTION REPAIR DETAILS."
FOR BEAN PLATING REPAIR DIMENENSIONS, SEE SHEET "BEAM PLATING REPAIR DETAILS."

BEAM REPAIR QUANTITY TABLE

PLATING REPAIR		STIFFENER REPAIR	
LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
169	-	18	-

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)
(1) BEAM NUMBER
(P) PLATING REPAIR
(S) STIFFENER REPAIR

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	315 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	315 SQ. YDS.	
PPC MATERIALS	15.3 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	315 SQ. YDS.	
GROOVING BRIDGE FLOORS	2553 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	14.5	7.3		
INTERIOR DIAPHRAGMS	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	10.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	2.0 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	2 EA.	

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

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

NOTES:

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

FOR SECTIONS B-B AND C-C, SEE "JOINT DETAILS" SHEETS.

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

SHEET 9 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN I

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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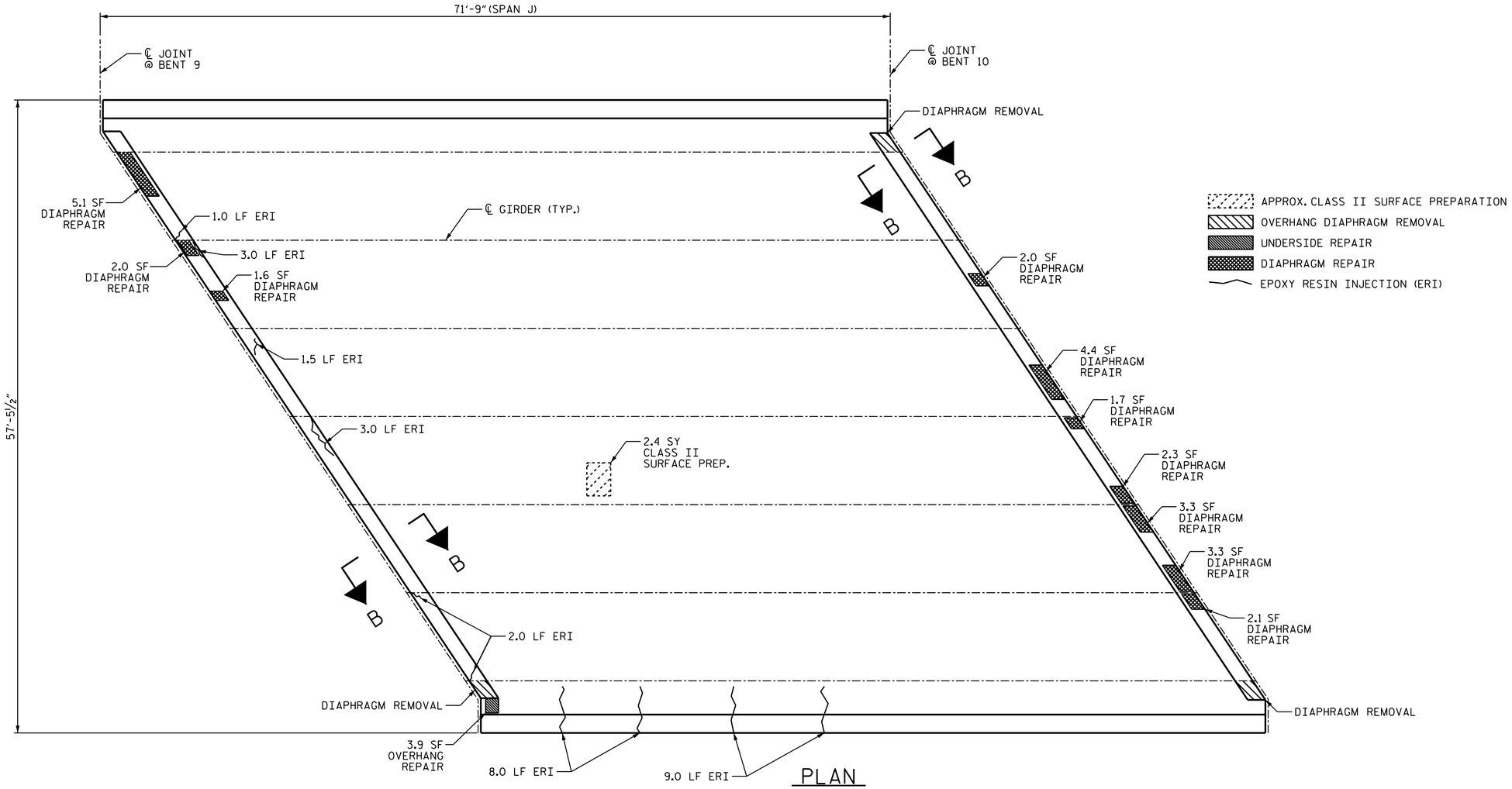

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	414 SQ. YDS.	
CLASS II SURFACE PREPARATION	2.4 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	2.4 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	414 SQ. YDS.	
PPC MATERIALS	20.1 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	414 SQ. YDS.	
GROOVING BRIDGE FLOORS	3487 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	3.9	2.0		
INTERIOR DIAPHRAGMS	27.8	13.9		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	17.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	10.5 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	3 EA.	

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

NOTES:

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

FOR SECTION B-B, SEE "JOINT DETAILS" SHEETS.

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

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PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET 10 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN J

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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Amber Lee
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4/30/2018

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DRAWN BY : E. K. POPE DATE : 2/18
CHECKED BY : H. A. LOCKLEAR DATE : 4/18

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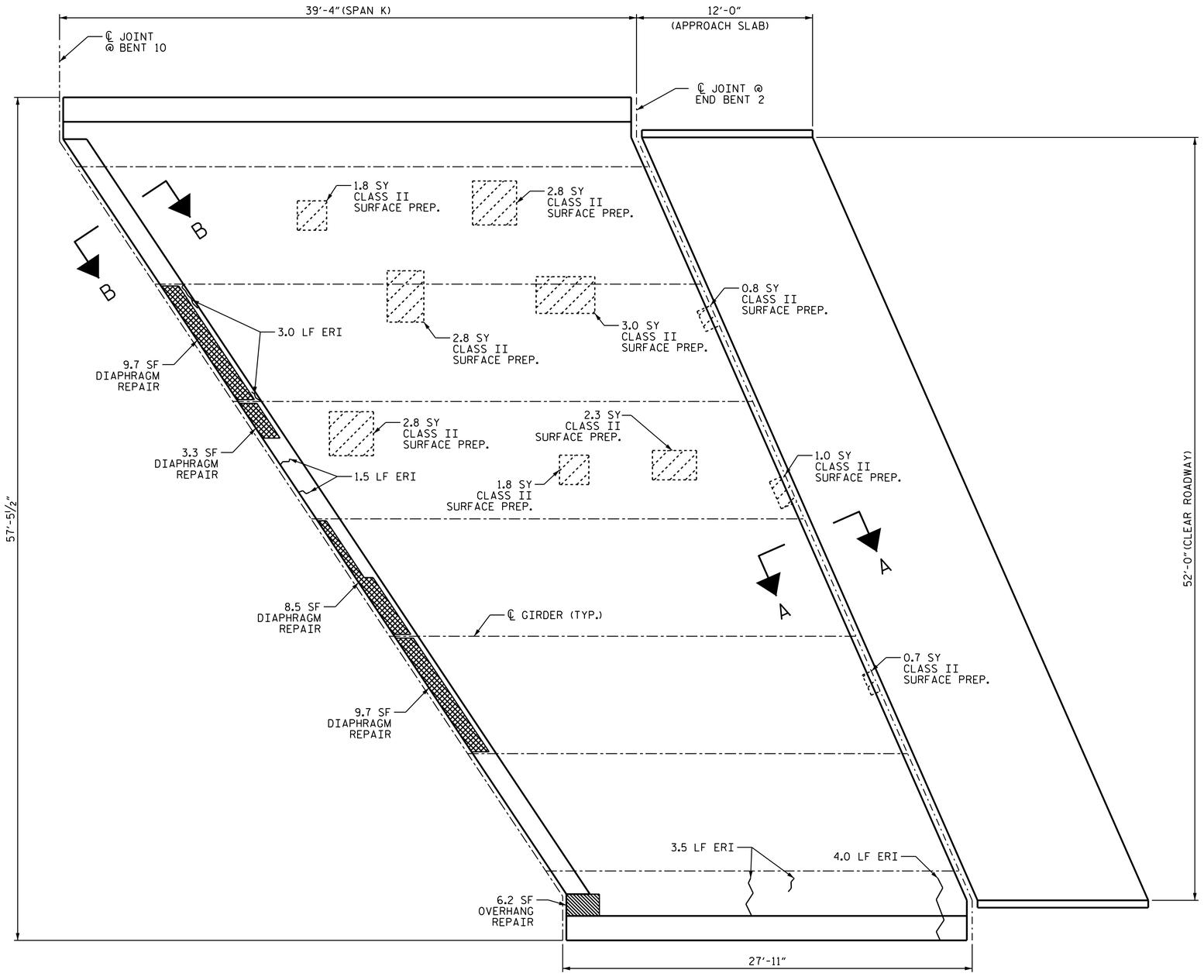

PLAN

APPROX. CLASS II SURFACE PREPARATION
OVERHANG DIAPHRAGM REMOVAL
UNDERSIDE REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	262 SQ. YDS.	
CLASS II SURFACE PREPARATION	19.8 SQ. YDS.	
CLASS III SURFACE PREPARATION	2.0 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	19.8 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	262 SQ. YDS.	
PPC MATERIALS	12.7 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	262 SQ. YDS.	
GROOVING BRIDGE FLOORS	2185 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	6.2	3.1		
INTERIOR DIAPHRAGMS	31.2	15.6		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	7.5 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	4.5 LIN. FT.	
OVERHANG DIAPHRAGM REMOVAL	0 EA.	

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

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

NOTES:

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

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

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

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

SHEET 11 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS SPAN K AND APPROACH SLAB

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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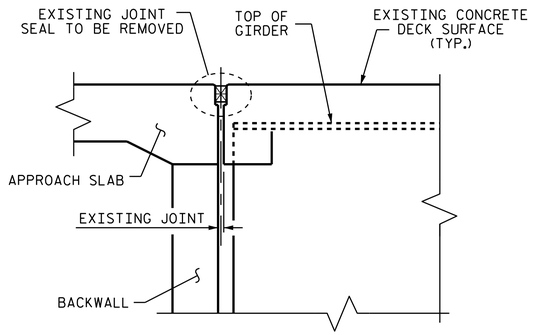
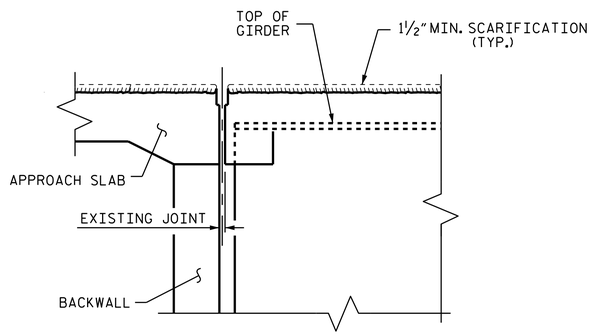


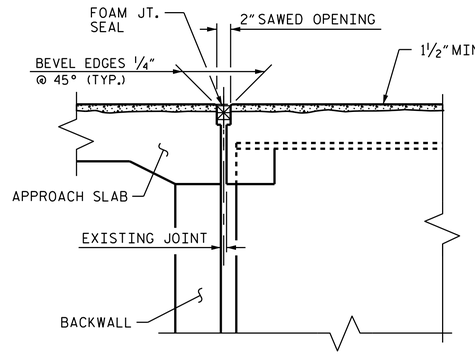
EXISTING JOINT



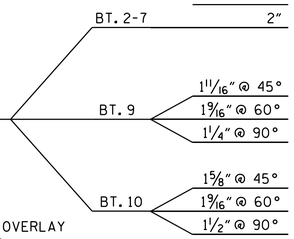
EXISTING JOINT AFTER DECK SCARIFICATION

SECTION A-A

END BENTS



PROPOSED FOAM JOINT SEAL



NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING SAWED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

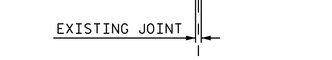
THE NOMINAL WIDTH OF THE UNCOMPRESSED SEAL SHALL SHALL BE 2".

THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

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

EXISTING JOINT

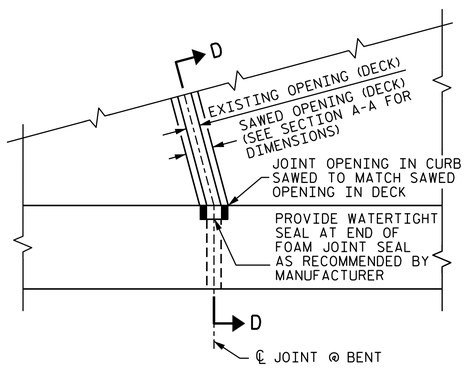
EXISTING JOINT AFTER DECK SCARIFICATION



PROPOSED FOAM JOINT SEAL

SECTION B-B

BENTS 2-7, 9 AND 10



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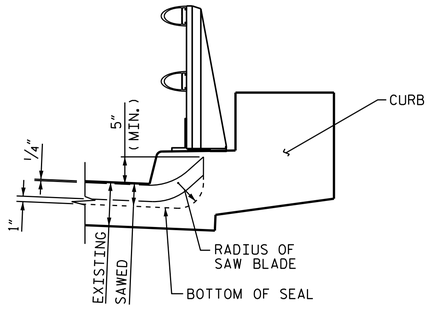

SECTION D-D

FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF CURB.

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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DRAWN BY : E. K. POPE DATE : 3/18

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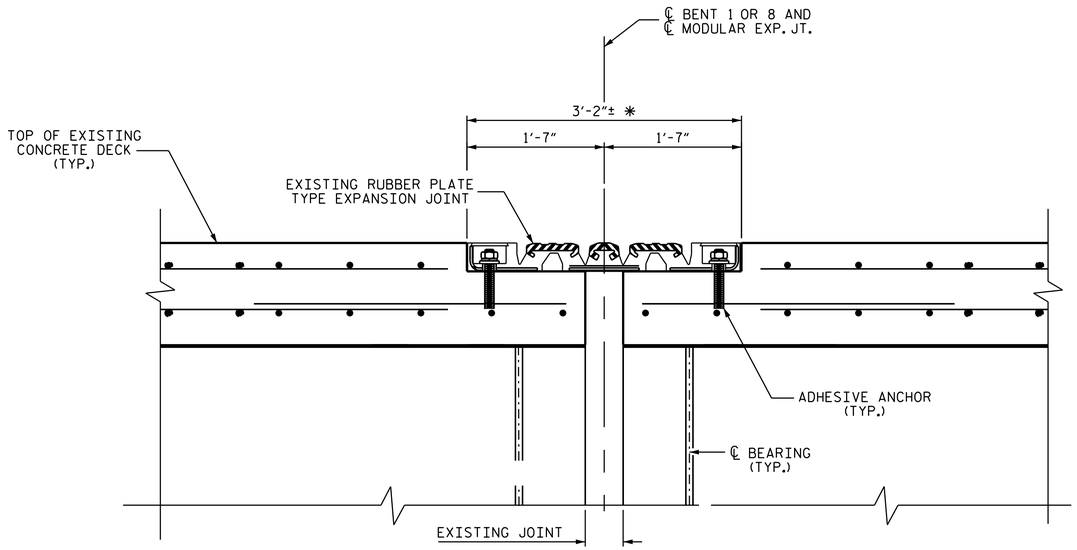
NOTES:

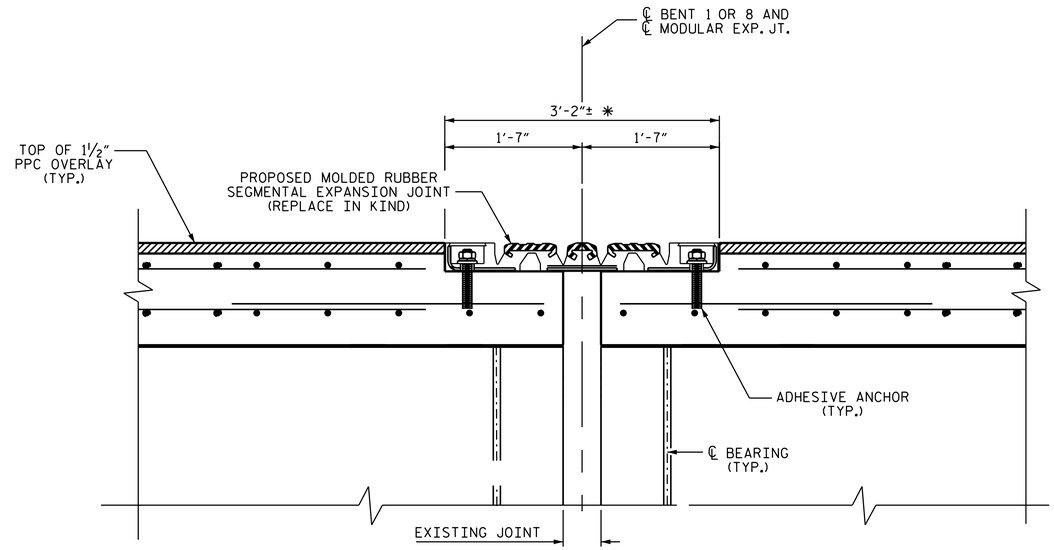
EXISTING MODULAR EXPANSION JOINT DETAIL ARE SHOWN FOR INFORMATION ONLY. ACTUAL FIELD CONDITIONS MAY VARY. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT IF ACTUAL CONDITIONS VARY FROM WHAT IS SHOWN IN THESE PLANS.

THE CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF PROPOSED EXPANSION JOINT.

THE CONTRACTOR SHALL PREPARE THE BOTTOM SURFACE OF BLOCKOUT TO BE PARALLEL WITH THE PLANE OF THE ROADWAY AND PROVIDE A UNIFORM SURFACE.



EXISTING MODULAR EXPANSION JOINT



PROPOSED EXPANSION JOINT

SECTION C-C

BENT 1 AND BENT 8

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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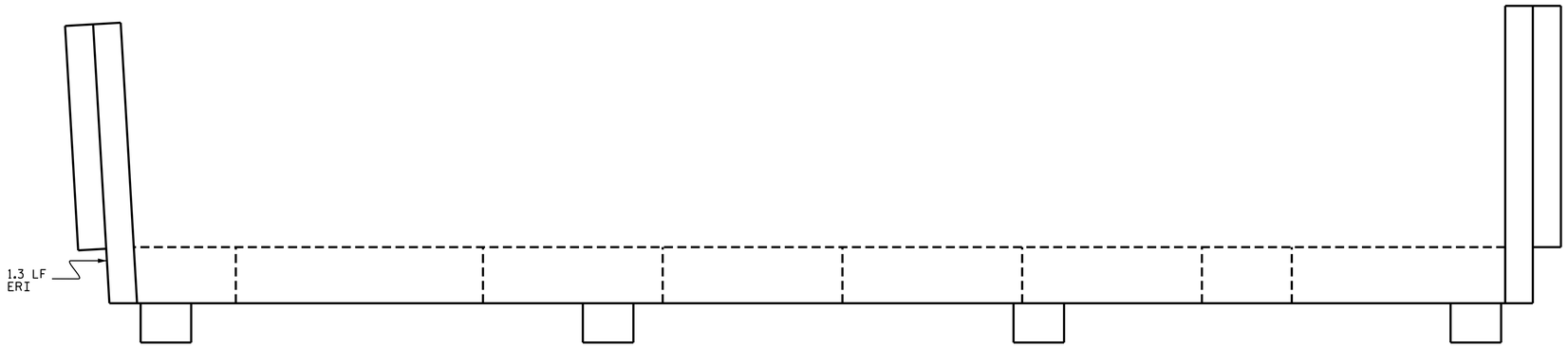

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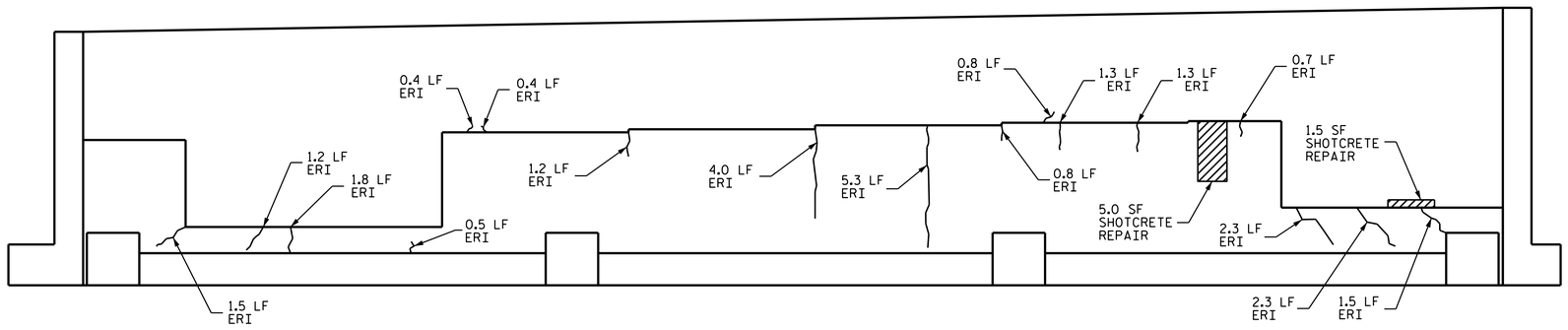

ELEVATION

AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
CURTAIN WALL	6.5	3.3		
WING WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		

EPOXY RESIN INJECTION	LIN. FT.	LIN. FT.
CAP	25.7	
CURTAIN WALL	1.6	
WING WALL	1.3	
EPOXY COATING	SQ. FT.	SQ. FT.
TOP OF END BENT CAP	92.0	

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

EPOXY RESIN INJECTION (ERI)

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1

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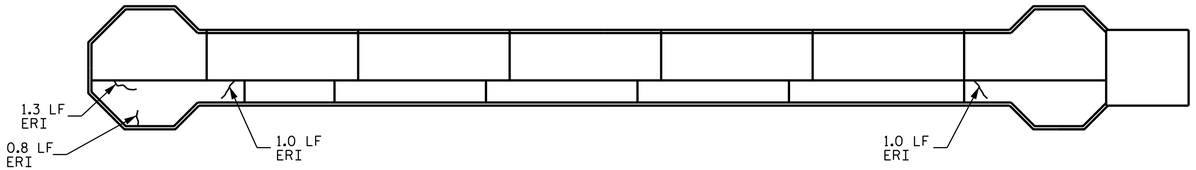
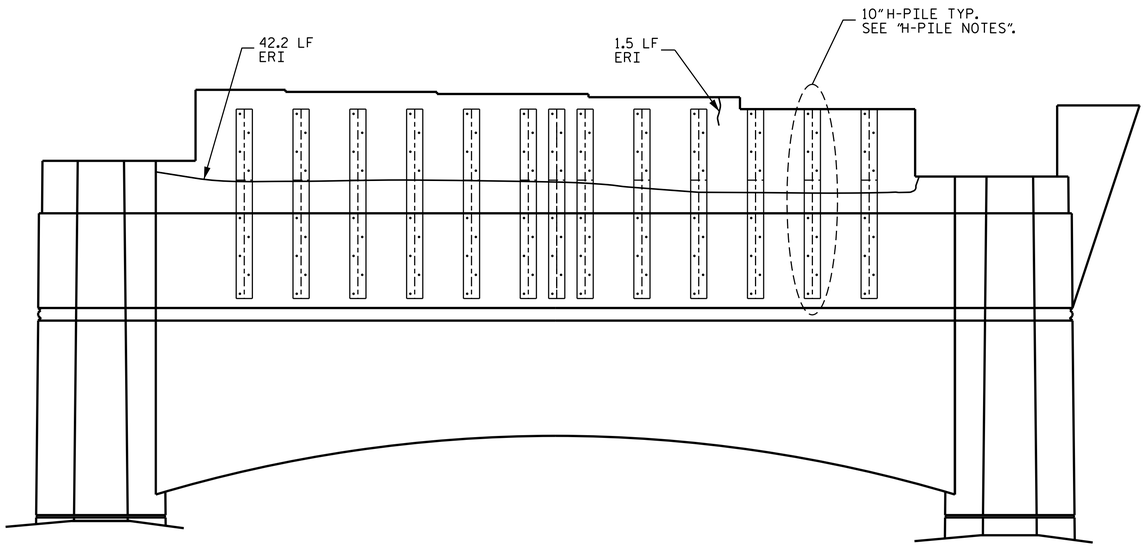


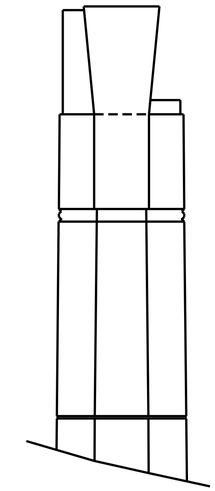
TOP OF CAP

SPAN B
SPAN A



ELEVATION

SPAN A | SPAN B



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 SPAN A FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		47.8		
COLUMN		0.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		234.4		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

H-PILE NOTES:

ALL EXISTING NUTS SHALL BE CHECKED TO WITHSTAND A MINIMUM TORQUE OF 50 FT-LBS.

ANY BOLTS THAT MOVE OR DO NOT REMAIN TIGHT DURING CHECKING, SHALL BE REMOVED AND ADHESIVELY ANCHORED. DO NOT PROCEED TO ANOTHER H-PILE UNTIL ALL BOLTS AND NUTS ON AN H-PILE ARE TESTED AND ACCEPTED.

FOR ADHESIVELY ANCHORED BOLTS, SEE SECTION 420-13 OF THE STD. SPECS. EXCEPT TESTING SHALL BE AS INDICATED IN THESE PLANS. SEE H-PILE NOTES "BENT 8 SPAN I" SHEET.

AFTER TESTING OF THE BOLTS AND REPLACING OF THE FAILED BOLTS, THE H-PILE AND STRUCTURAL TUBE SHALL BE REPLACED USING NEW A563 NUTS AND NEW F436 CIRCULAR WASHERS.

NUTS #1 THRU #5 ON THE H-PILES SHALL BE TIGHTENED TO A MINIMUM TORQUE OF 50 FT-LBS. THEN BOLTS #6 THRU #9 SHALL BE TIGHTENED TO A MINIMUM TORQUE OF 50 FT-LBS IN THE FOLLOWING SEQUENCE. 6-7-8-9. TIGHTENING OF BOLTS SHALL BE REPEATED TWICE.

SHOULD ANY BOLTS MOVE OR FAIL DURING THE TIGHTENING SEQUENCE, THE SEQUENCE SHALL BE STOPPED AND THE FAILED BOLT SHALL BE REMOVED AND ADHESIVELY ANCHORED. THEN THE TIGHTENING SEQUENCE RESUMED.

AFTER THE TIGHTENING SEQUENCE IS COMPLETE A SECOND NUT SHALL BE PLACED AND TIGHTENED TO MINIMUM TORQUE OF 50 FT-LBS. NUTS SHALL BE TYPE ASTM A563.

PROJECT NO. 15.BPR.10

BUNCOMBE COUNTY

STATION: 322

SHEET OF

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1 SPAN A FACE

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			90

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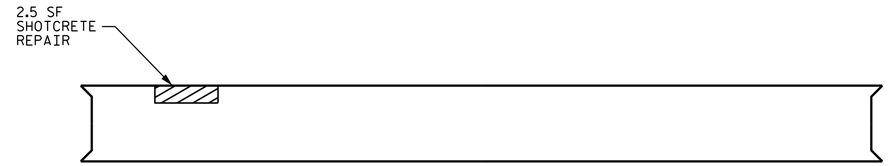
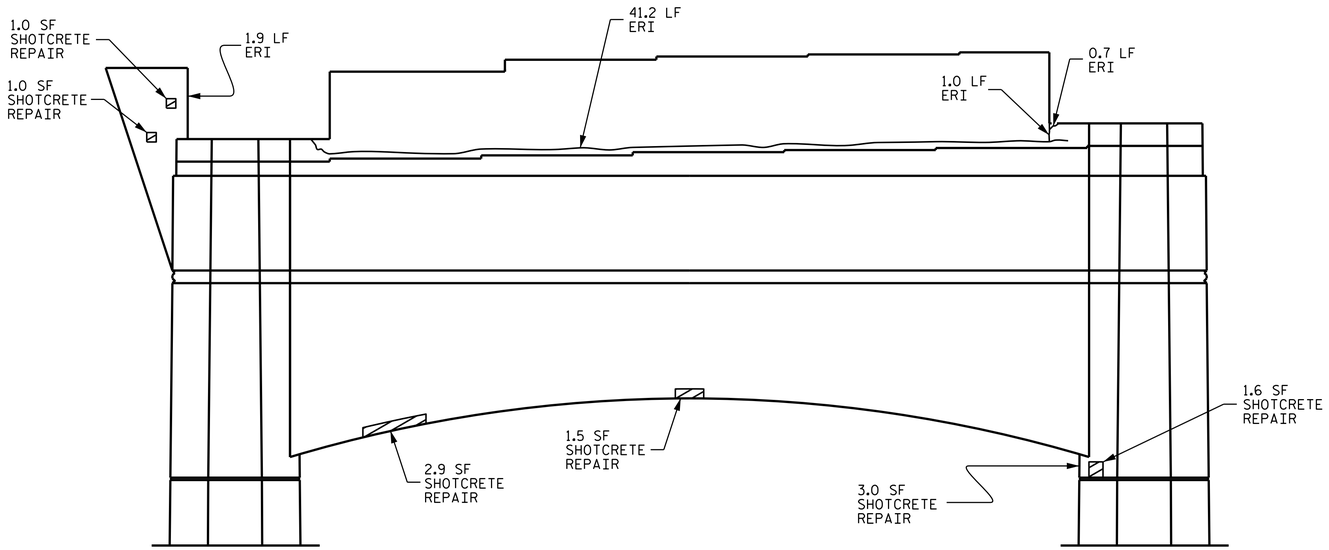


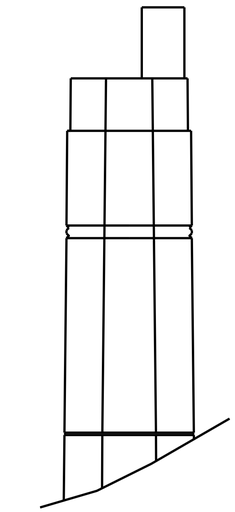
SPAN B
SPAN A

BOTTOM OF CAP



ELEVATION

SPAN B | SPAN A



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	8.9	4.5		
COLUMN	4.6	2.3		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		44.8		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15.BPR.10

BUNCOMBE COUNTY

STATION: 322

SHEET OF

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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BENT 1
SPAN B FACE

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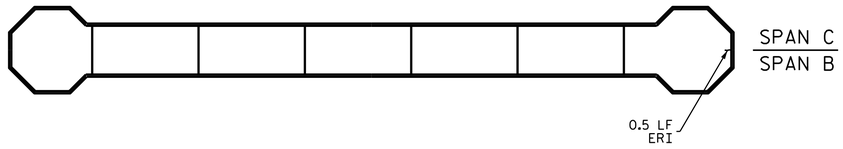

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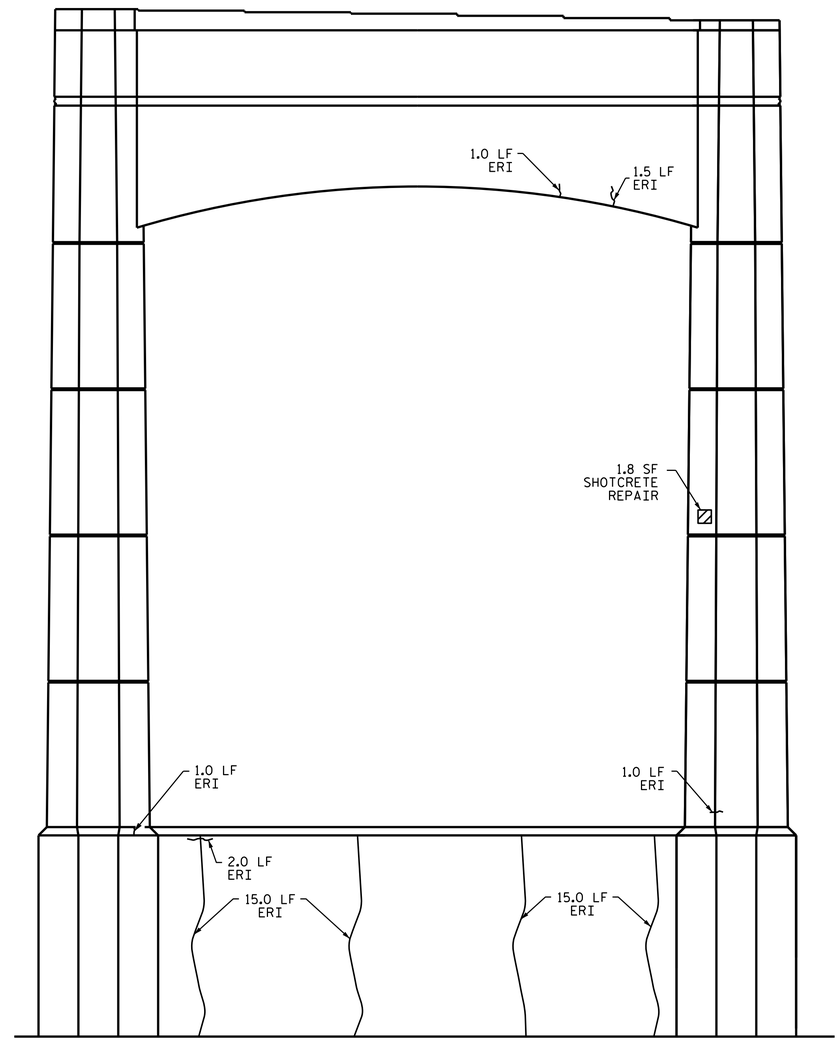

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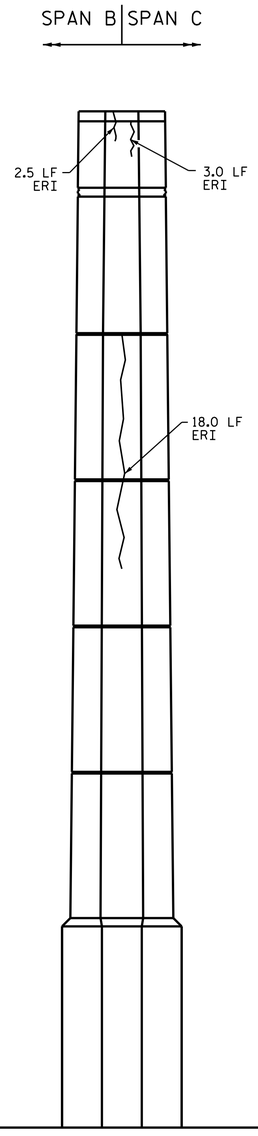

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	1.8	0.9		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		8.5		
COLUMN		20.0		
PEDESTAL		32.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1"BEHIND REBAR AND MINIMUM 2"CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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BENT 2
SPAN B FACE

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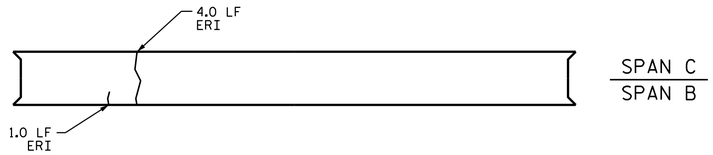

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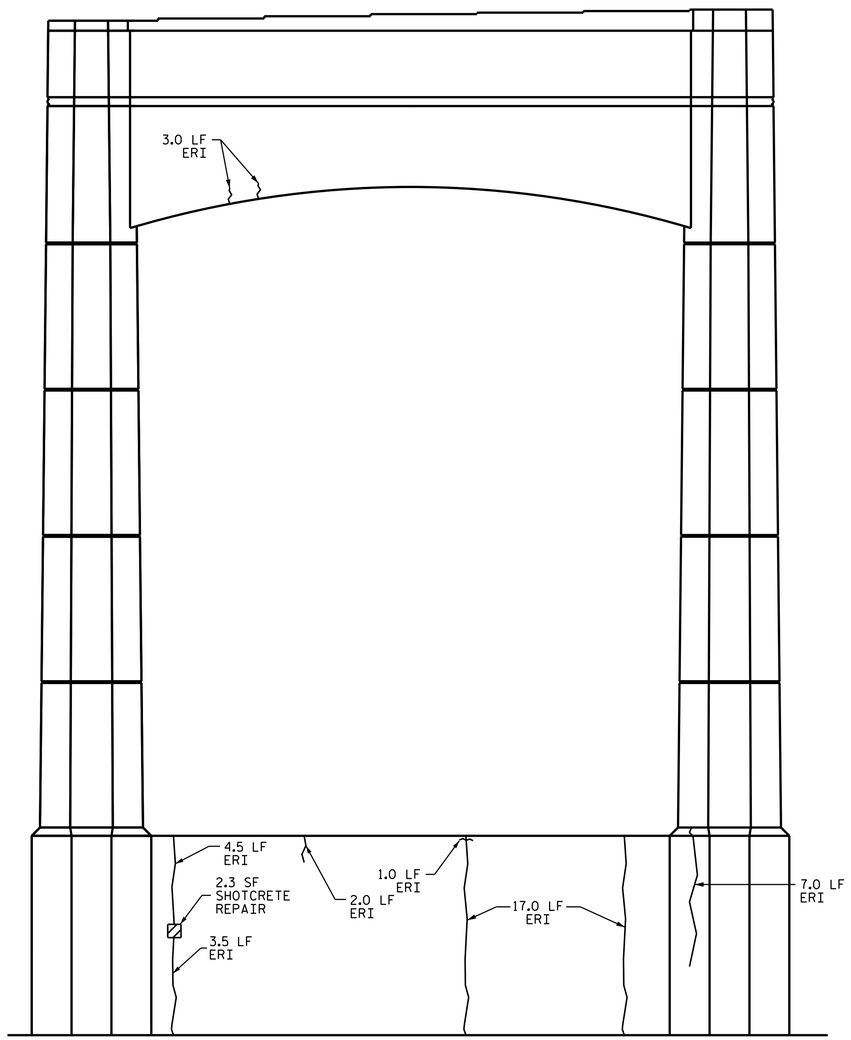

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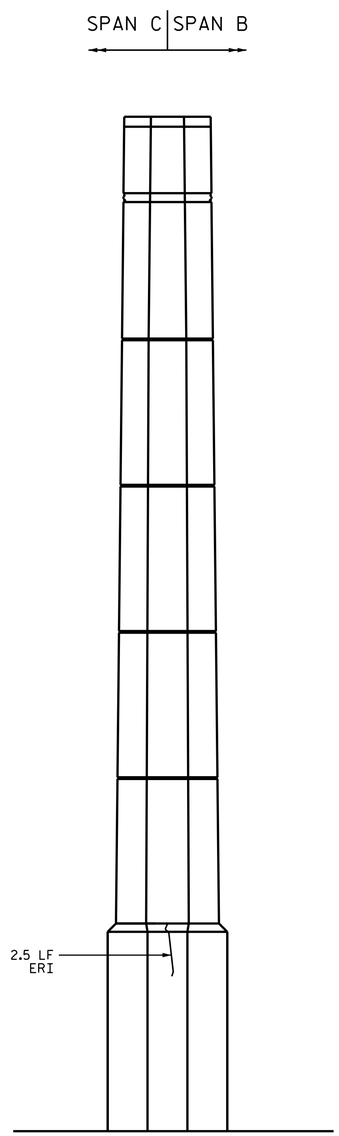

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 SPAN C FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
PEDESTAL	2.3	1.2		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		8.0		
COLUMN		0.0		
PEDESTAL		37.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1"BEHIND REBAR AND MINIMUM 2"CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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BENT 2
SPAN C FACE

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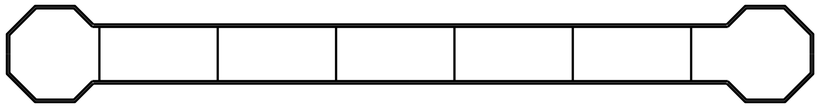
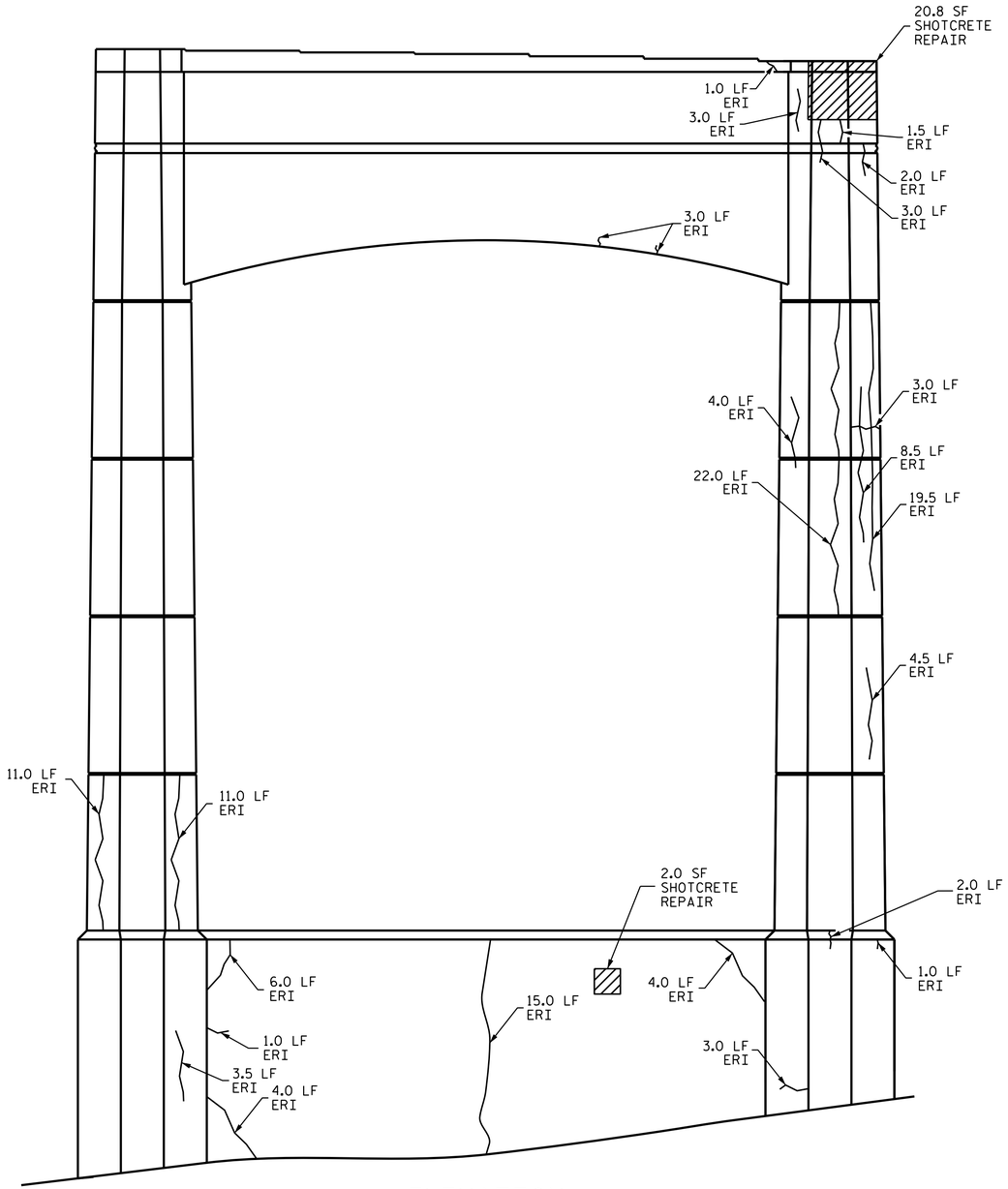


SPAN D
SPAN C

TOP OF CAP



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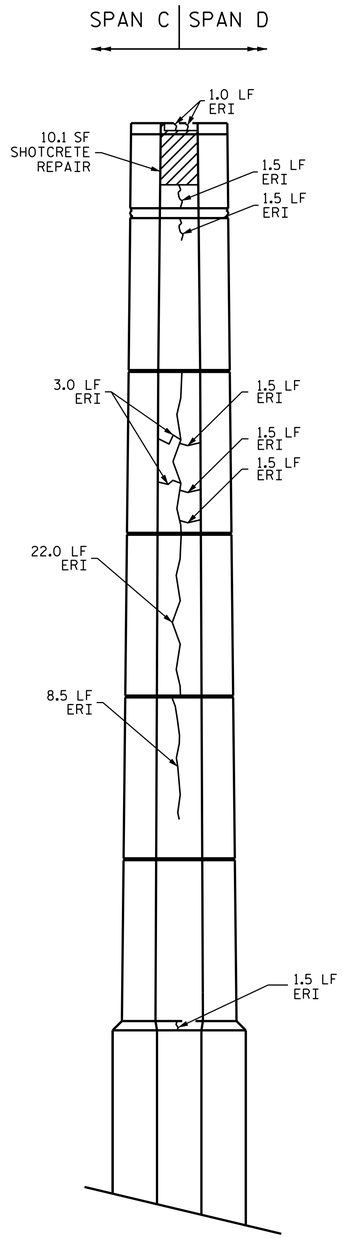

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 SPAN C FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	30.9	15.5		
COLUMN	0.0	0.0		
PEDESTAL	2.0	1.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		17.5		
COLUMN		121.5		
PEDESTAL		41.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3
SPAN C FACE

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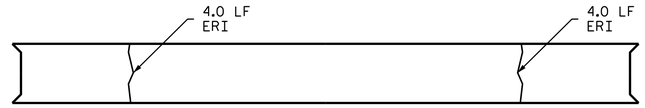
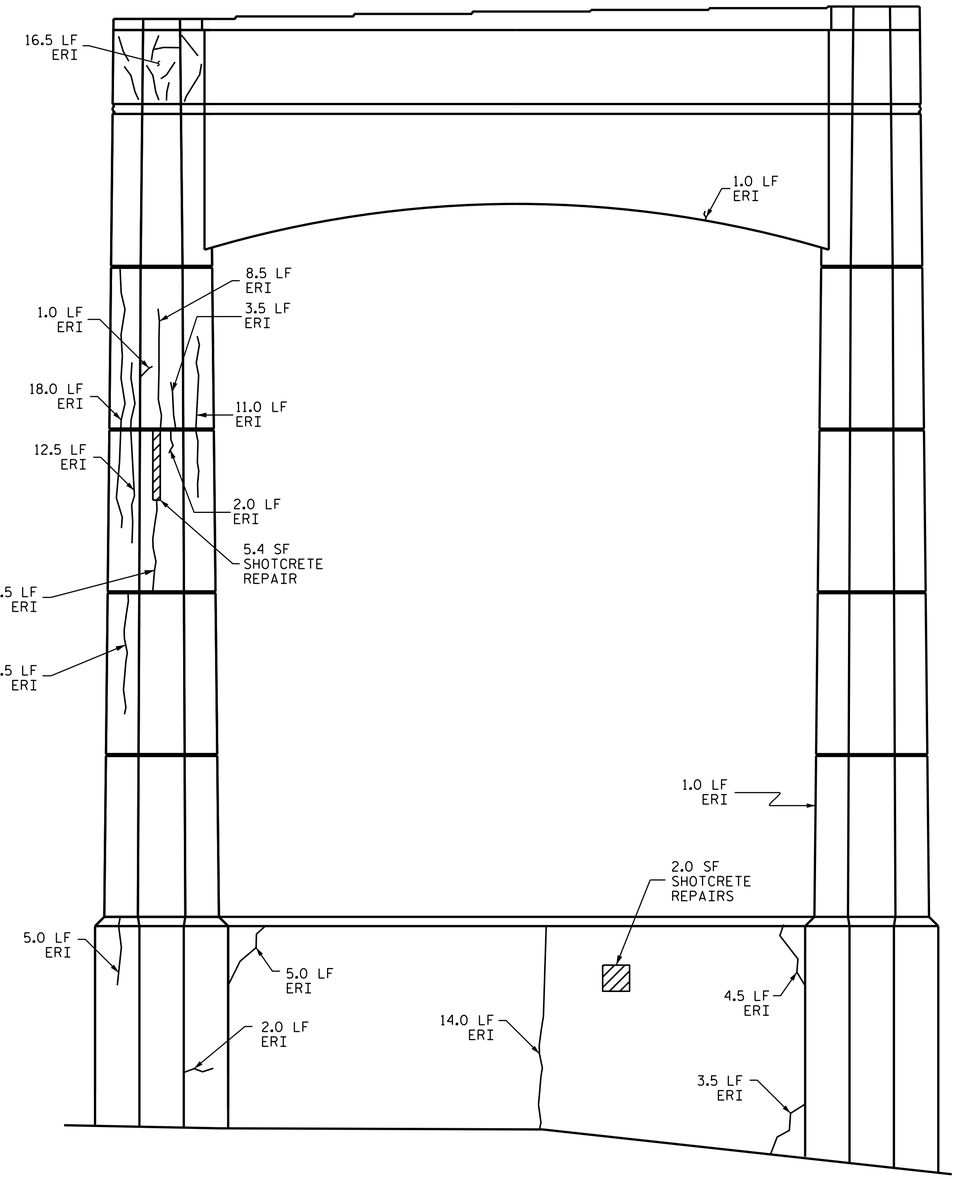


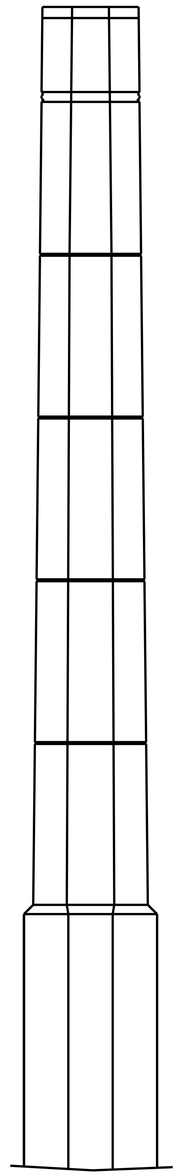
SPAN D
SPAN C

BOTTOM OF CAP



ELEVATION

SPAN D | SPAN C



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 SPAN D FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	5.4	2.7		
PEDESTAL	2.0	1.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		17.5		
COLUMN		72.5		
PEDESTAL		34.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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BENT 3
SPAN D FACE

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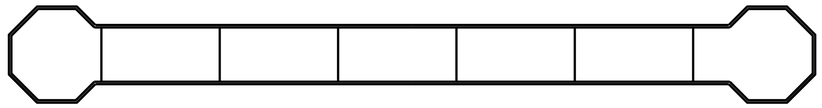
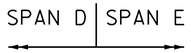
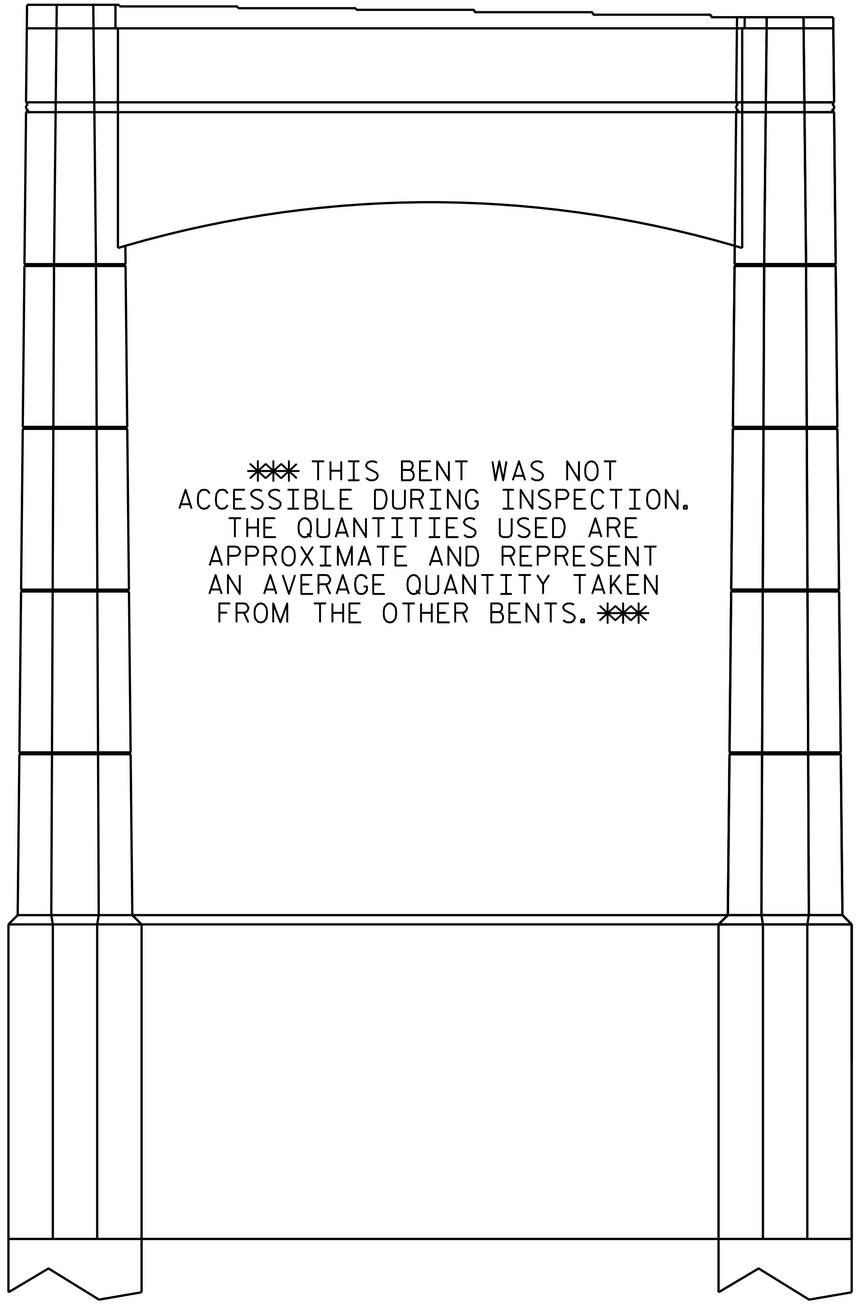


TOP OF CAP

SPAN E
SPAN D





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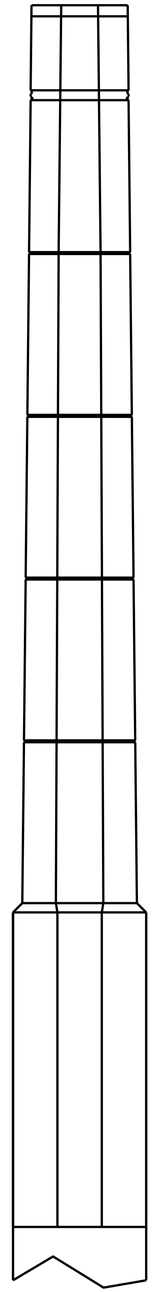
ELEVATION



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 4 SPAN D FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	12.0	6.0		
COLUMN	16.0	8.0		
PEDESTAL	2.0	1.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		25.0		
COLUMN		51.0		
PEDESTAL		63.5		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
B04B5A4F2FAD484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 4
SPAN D FACE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			90

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CHECKED BY : E.K.POPE DATE : 04/17

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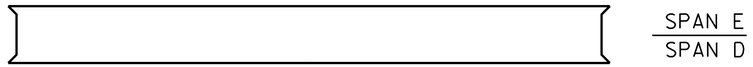
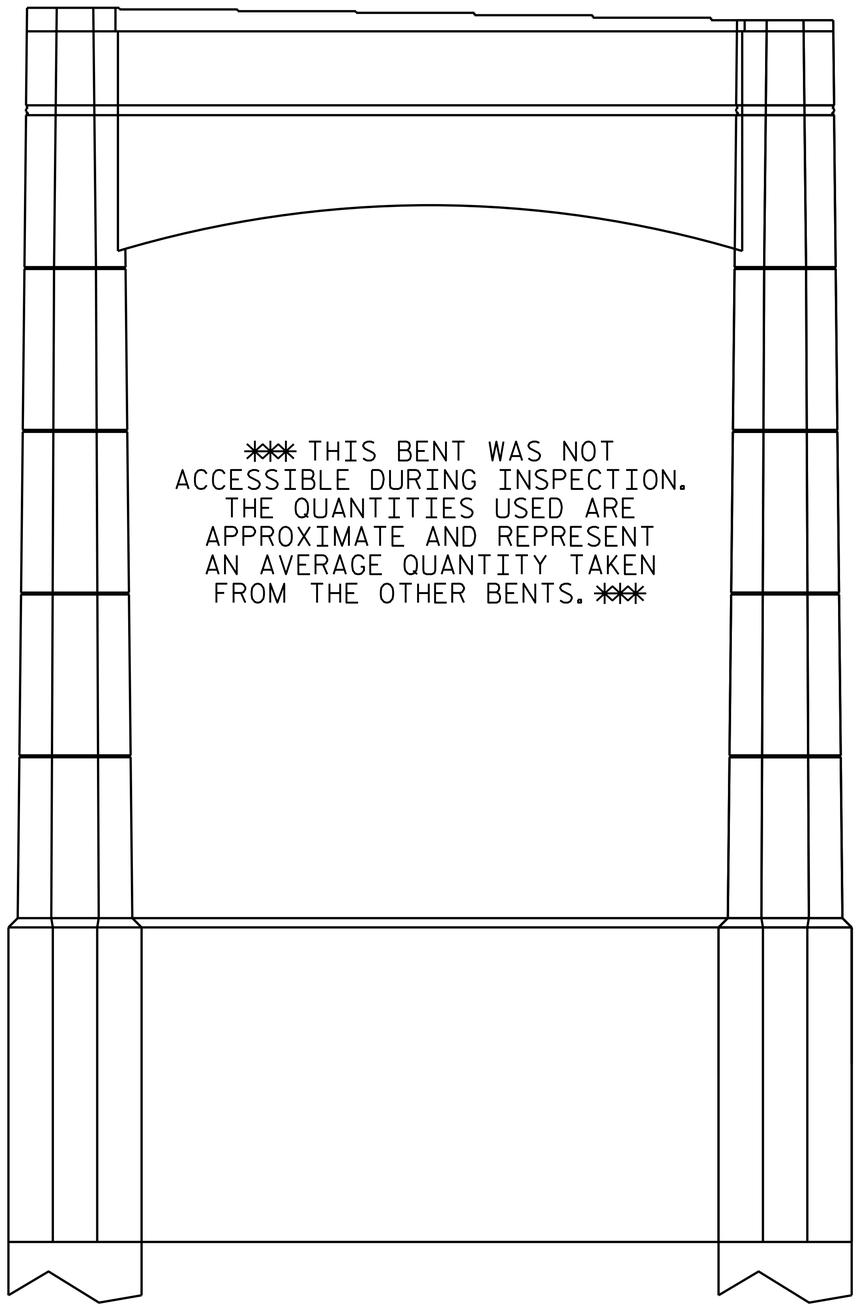


SPAN E
SPAN D

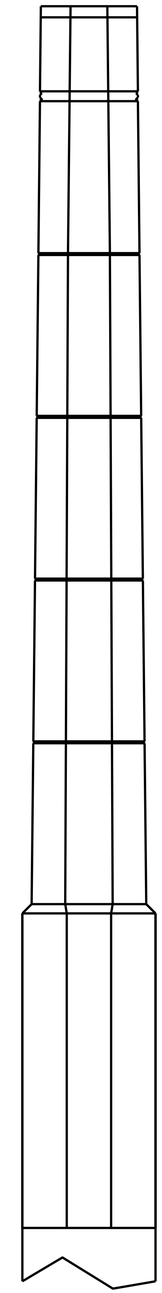
BOTTOM OF CAP



✱✱✱ THIS BENT WAS NOT ACCESSIBLE DURING INSPECTION. THE QUANTITIES USED ARE APPROXIMATE AND REPRESENT AN AVERAGE QUANTITY TAKEN FROM THE OTHER BENTS. ✱✱✱

ELEVATION

SPAN E | SPAN D



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 4 SPAN E FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	12.0	6.0		
COLUMN	16.0	8.0		
PEDESTAL	2.0	1.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		25.0		
COLUMN		51.0		
PEDESTAL		63.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

4/30/2018

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 4
SPAN E FACE

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			90

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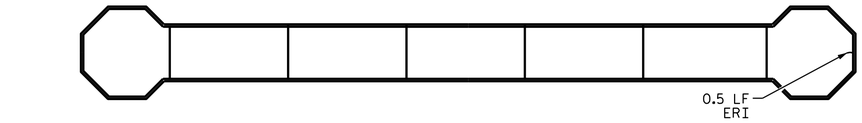
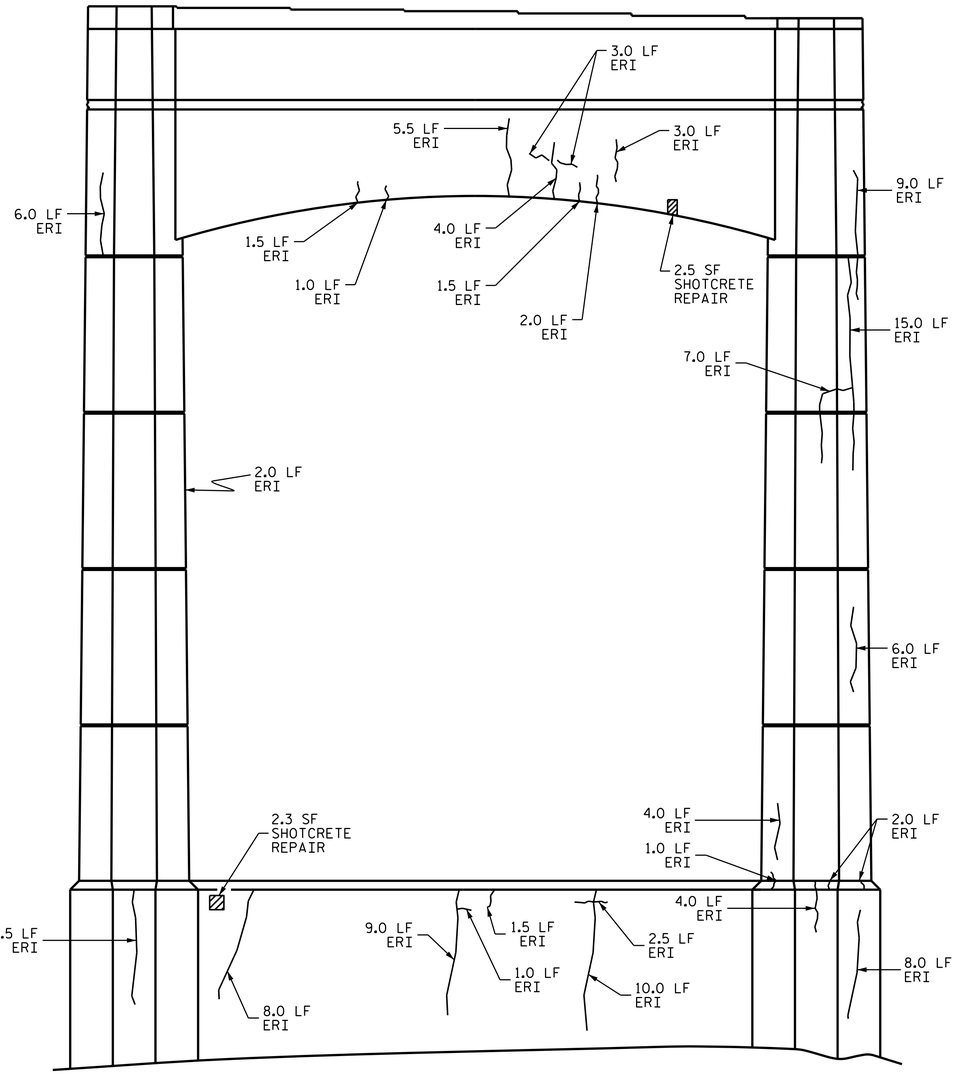


TOP OF CAP

SPAN F
SPAN E

SPAN E | SPAN F



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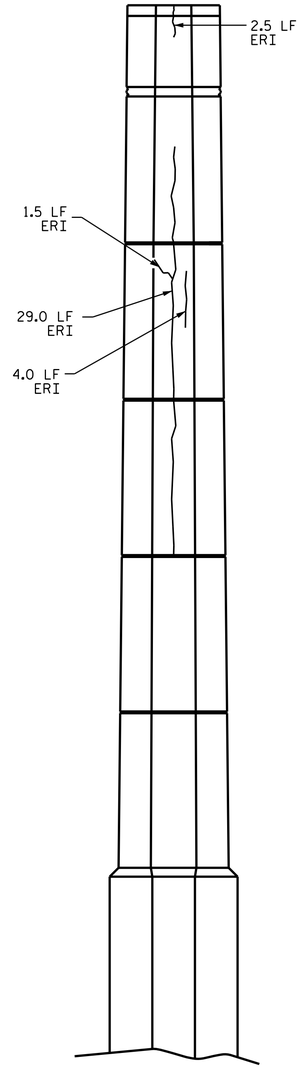

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 5 SPAN E FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	2.5	1.3		
COLUMN	0.0	0.0		
PEDESTAL	2.3	1.2		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		39.5		
COLUMN		68.5		
PEDESTAL		55.5		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
B04B5A4F2FAD484...
4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 5
SPAN E FACE

DRAWN BY : M.WELDON DATE : 03/18
CHECKED BY : E.K.POPE DATE : 04/18

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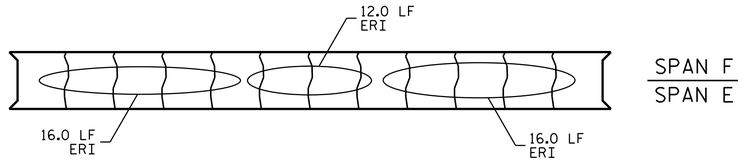
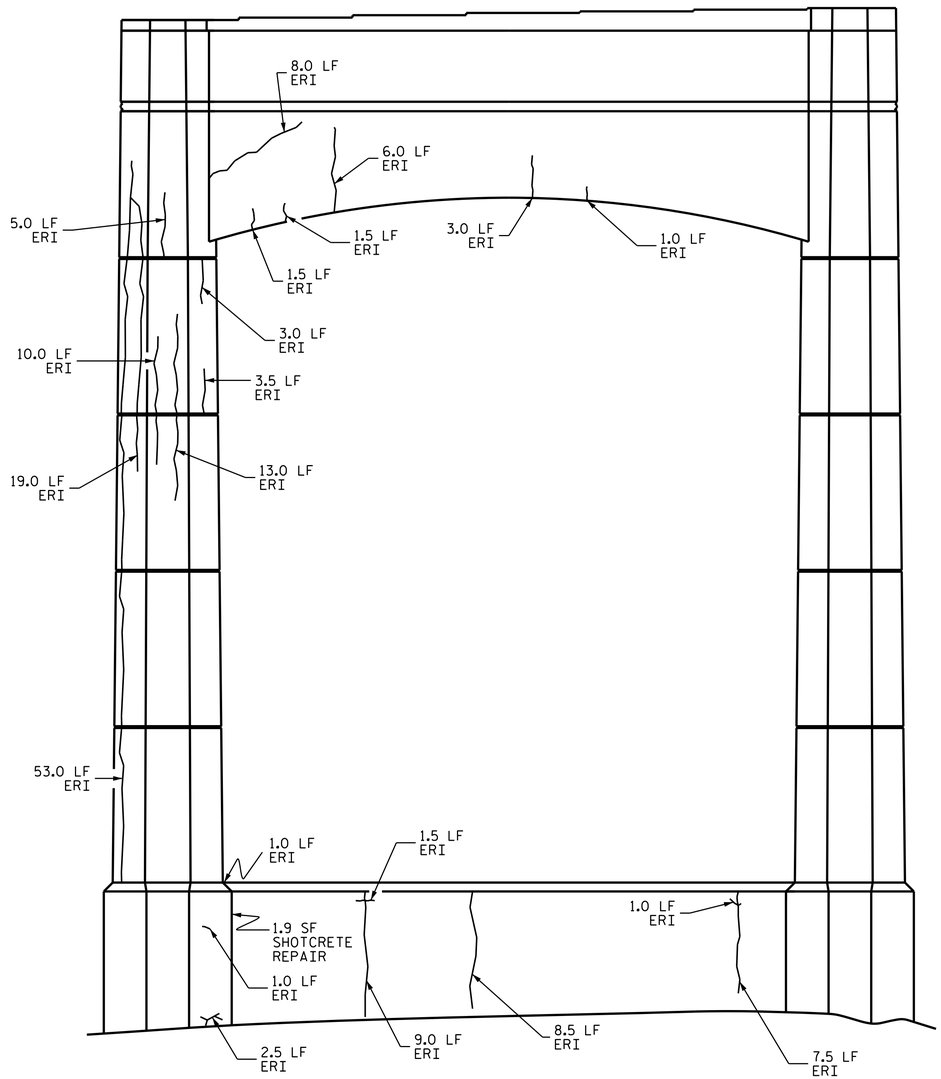


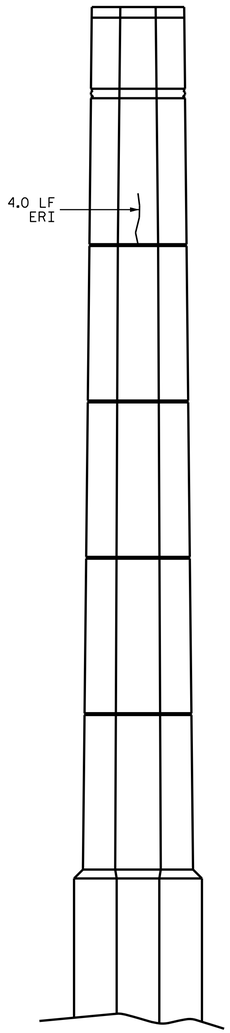
SPAN F
SPAN E

BOTTOM OF CAP



ELEVATION

SPAN F | SPAN E



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 5 SPAN 5 FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
PEDESTAL	1.9	1.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		74.0		
COLUMN		101.5		
PEDESTAL		32.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
Amber Lee
B04B5A4F2FAD484...
4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 5
SPAN F FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			90

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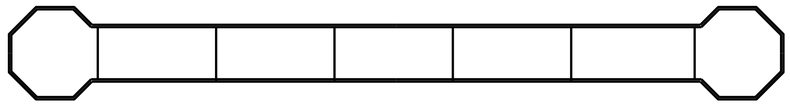
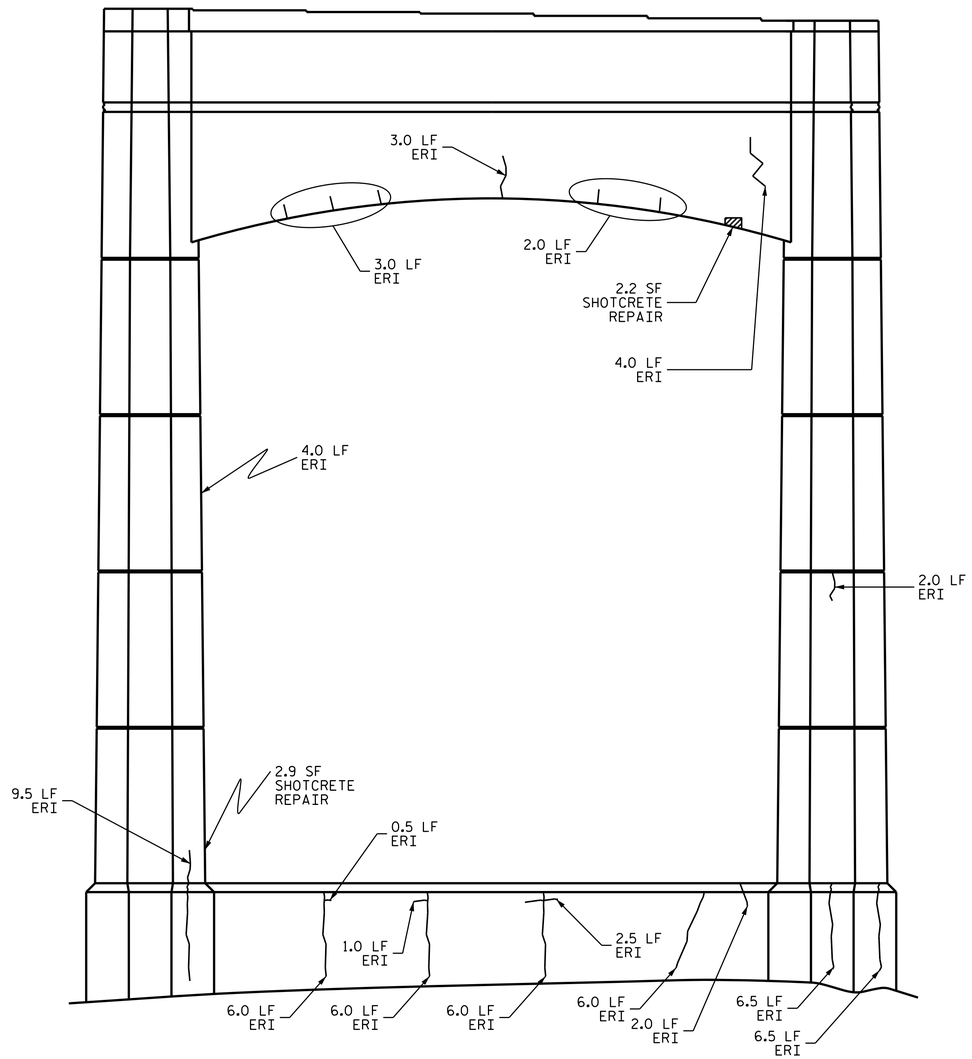


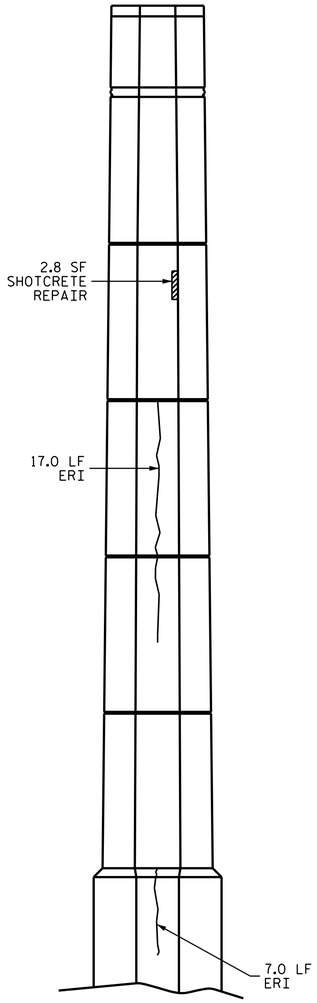
SPAN G
SPAN F

TOP OF CAP



ELEVATION

SPAN F | SPAN G



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 6 SPAN F FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	2.2	1.1		
COLUMN	5.7	2.9		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		12.0		
COLUMN		23.0		
PEDESTAL		59.5		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 6
SPAN F FACE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
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4/30/2018

DRAWN BY : M.WELDON DATE : 03/18
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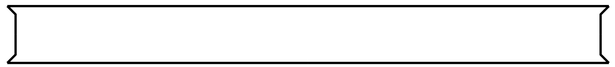

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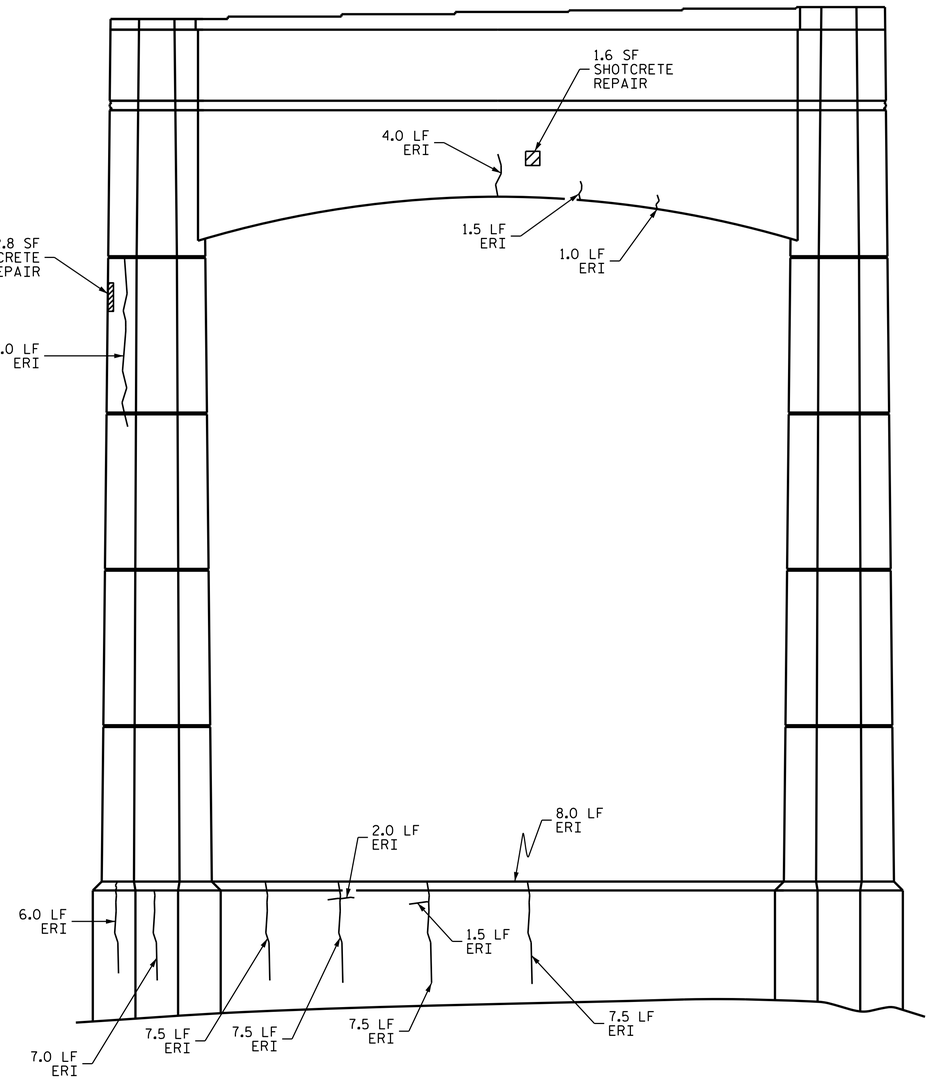

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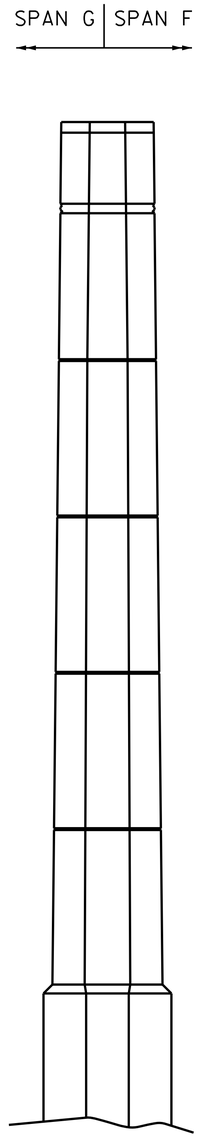

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 6 SPAN G FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	1.6	0.8		
COLUMN	2.8	1.4		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		6.5		
COLUMN		12.0		
PEDESTAL		54.5		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1"BEHIND REBAR AND MINIMUM 2"CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 6
SPAN G FACE

DRAWN BY : M.WELDON DATE : 03/18
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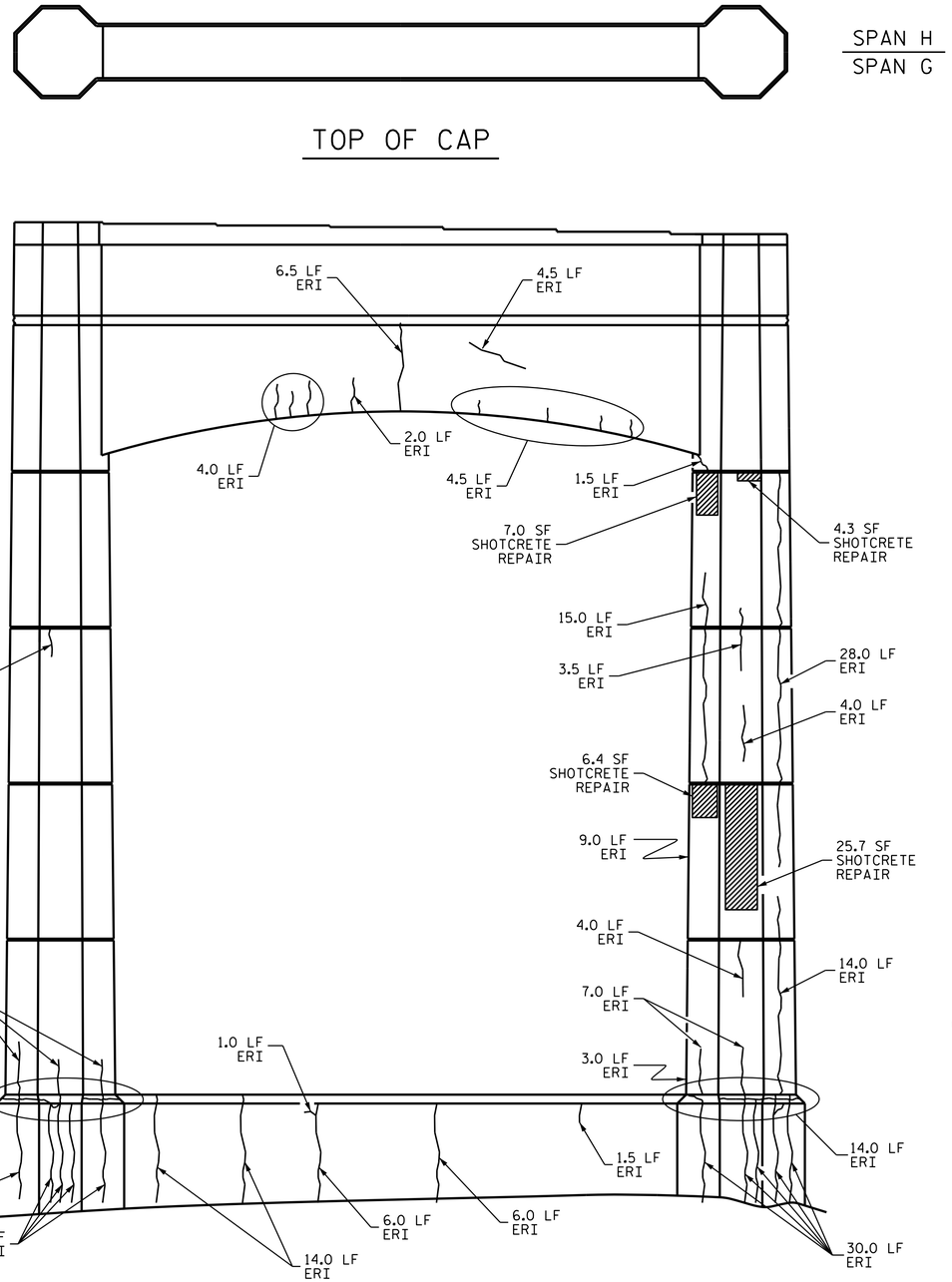

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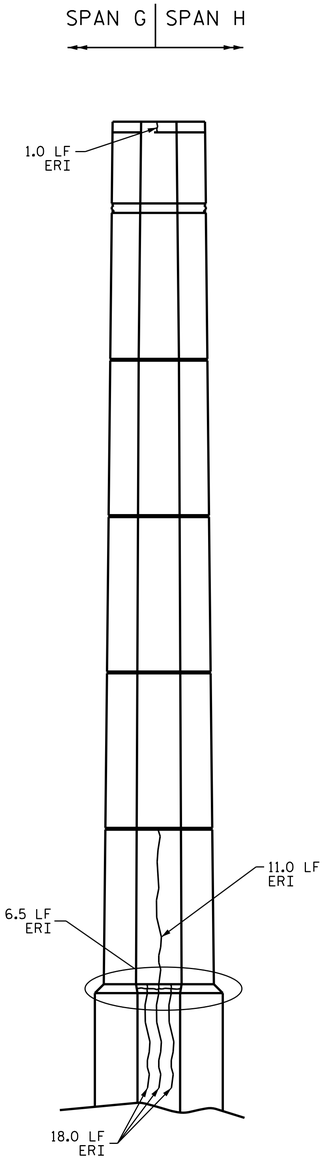

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 7 SPAN G FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	43.4	21.7		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		24.0		
COLUMN		106.0		
PEDESTAL		141.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 7
SPAN G FACE

DRAWN BY : M.WELDON DATE : 03/18
CHECKED BY : E.K.POPE DATE : 04/18

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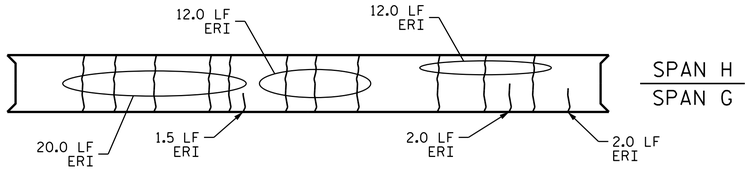

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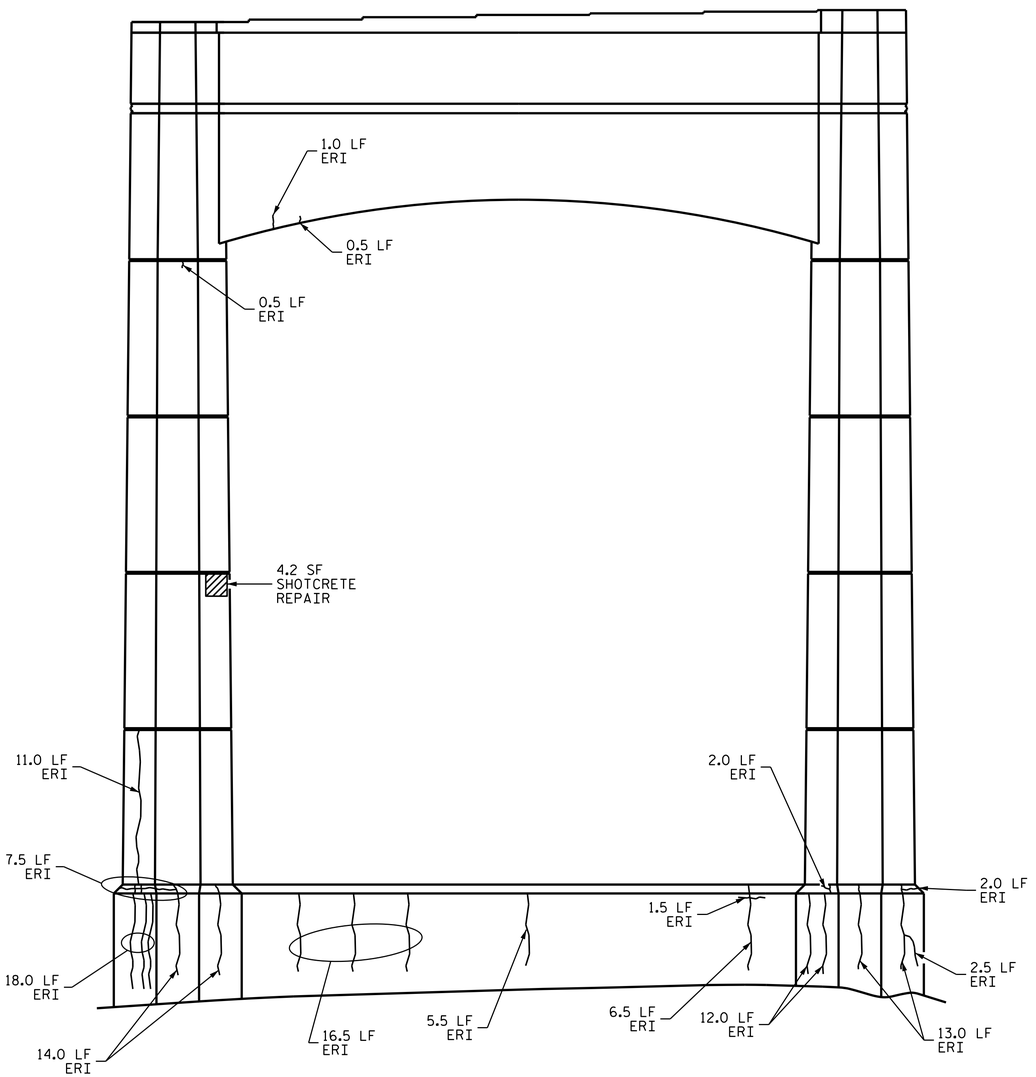

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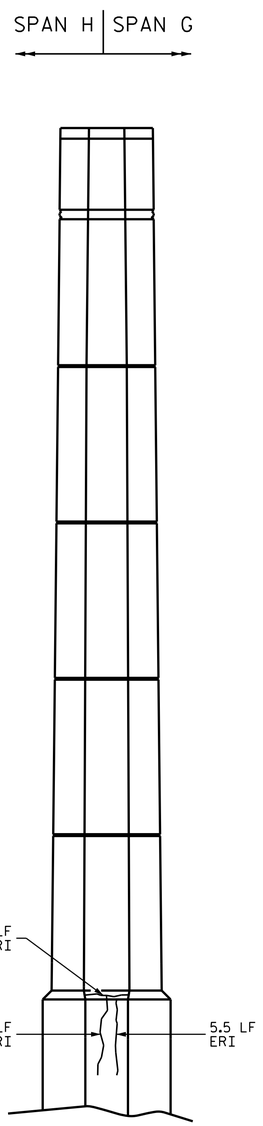

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 7 SPAN H FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	4.2	2.1		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		51.0		
COLUMN		11.5		
PEDESTAL		116.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
Amber Lee
B04B5A4F2FAD484...
4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 7
SPAN H FACE

DRAWN BY : M.WELDON DATE : 03/18

CHECKED BY : E.K.POPE DATE : 04/18

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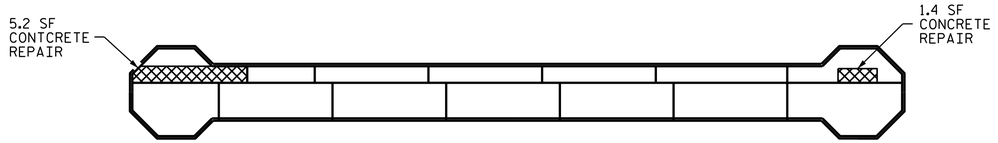
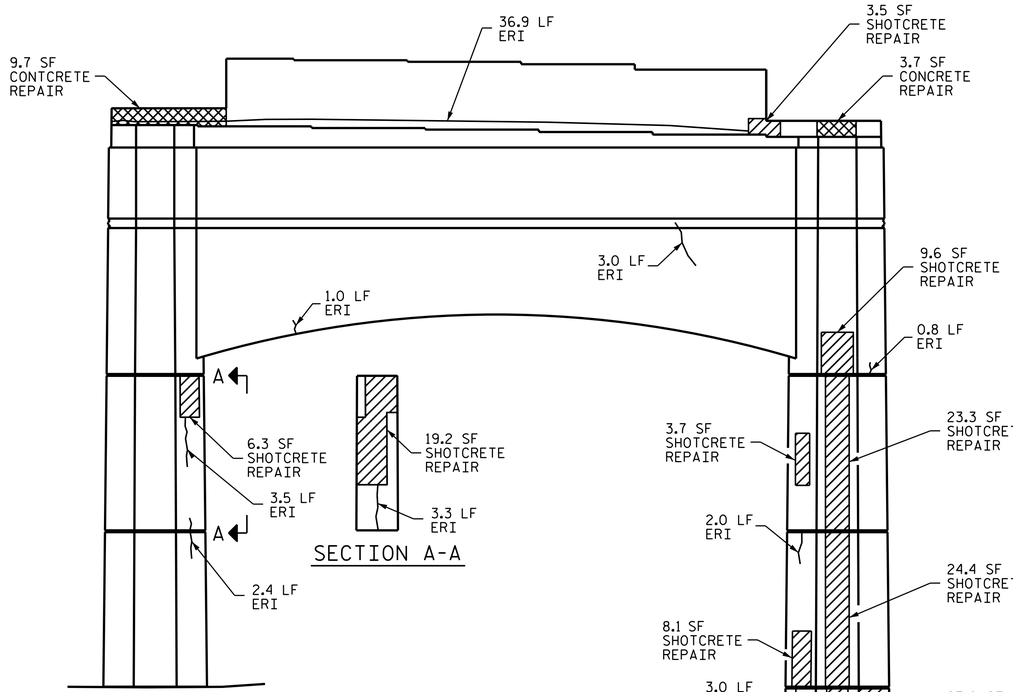


TOP OF CAP

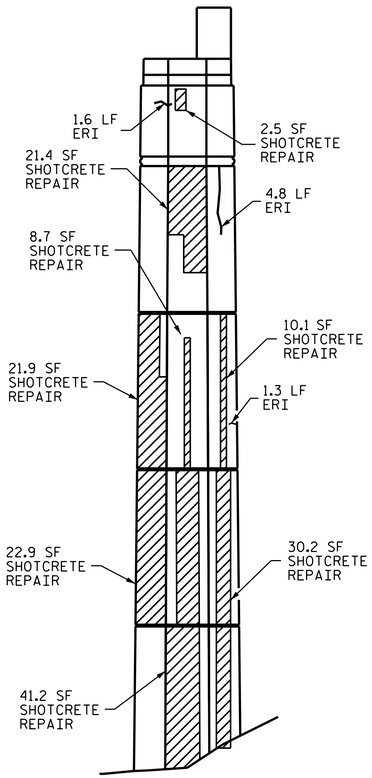
SPAN I
SPAN H



SECTION A-A

ELEVATION

SPAN H | SPAN I



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 8, H FACE REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	3.5	1.8		
COLUMN	305.5	152.8		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	20.0	10.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		40.9		
COLUMN		28.5		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		217.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15.BPR.10

BUNCOMBE COUNTY

STATION: 322

SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 8
SPAN H FACE-

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
Amber Lee
B04B5A6F2FAD484...
4/30/2018

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DRAWN BY : C. BRIGHT DATE : 03/18
CHECKED BY : A. COLE DATE : 04/18

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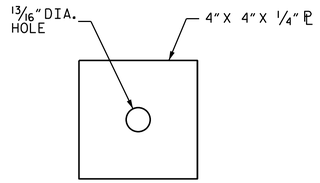
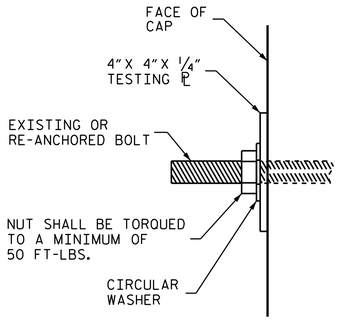
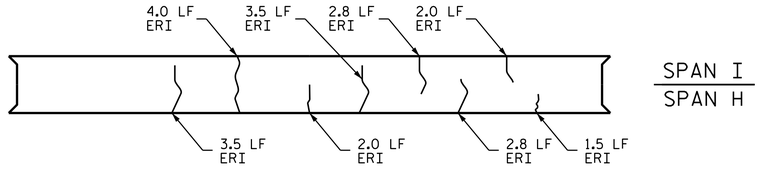


BOLT TESTING PL

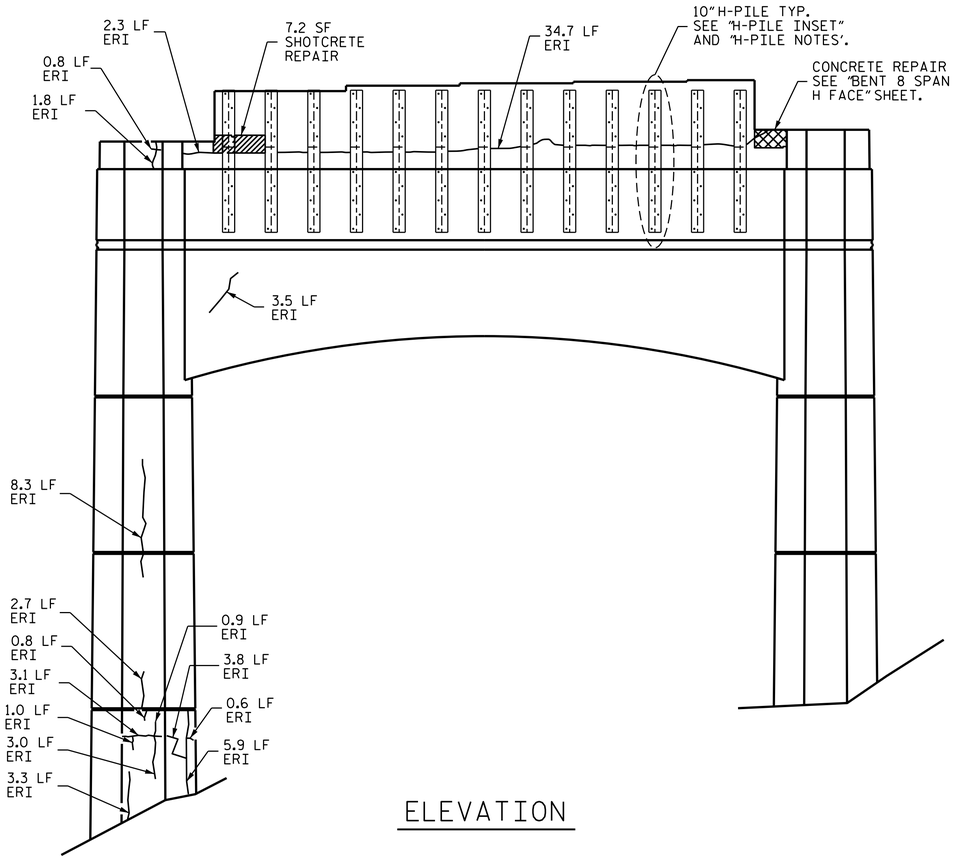


BOLT TESTING
(SECTION VIEW)



SPAN I
SPAN H

BOTTOM OF CAP



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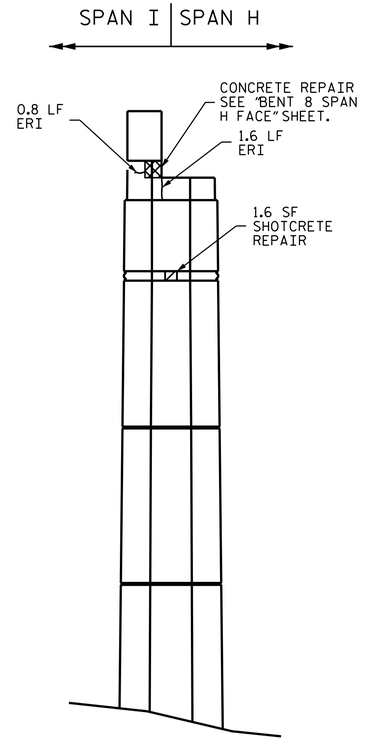

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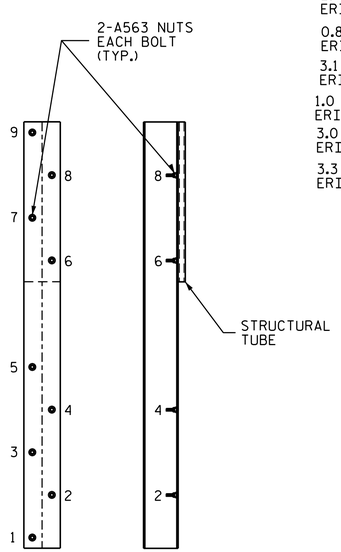

H-PILE INSET

H-PILE NOTES:

A SINGLE H-PILE AND STRUCTURAL TUBE SHALL BE REMOVED AND ALL THE EXISTING BOLTS TESTED FOR THAT H-PILE. DO NOT PROCEED TO ANOTHER H-PILE UNTIL ALL BOLTS ON AN H-PILE ARE TESTED AND ACCEPTED.

EXISTING NUTS AND WASHERS MAYBE USED FOR TESTING OF BOLTS.

THE BOLTS SHALL WITHSTAND A MINIMUM TORQUE OF 50 FTLBS.

ANY BOLTS THAT MOVE OR DO NOT REMAIN TIGHT SHALL BE REMOVED AND ADHESIVELY ANCHORED.

FOR ADHESIVELY ANCHORED BOLTS, SEE SECTION 420-13 OF THE STD. SPECS. EXCEPT TESTING SHALL BE AS INDICATED IN THESE PLAN NOTES.

AFTER TESTING OF THE BOLTS AND REPLACING OF THE FAILED BOLTS, THE H-PILE AND STRUCTURAL TUBE SHALL BE REPLACED USING NEW A563 NUTS AND NEW F436 CIRCULAR WASHERS.

NUTS #1 THRU #5 ON THE H-PILES SHALL BE TIGHTENED TO A MINIMUM TORQUE OF 50 FT-LBS. THEN BOLTS #6 THRU #9 SHALL BE TIGHTENED TO A MINIMUM TORQUE OF 10 FT-LBS IN THE FOLLOWING SEQUENCE. 6-7-8-9. TIGHTENING OF BOLTS #1 THRU #5 SHALL BE REPEATED TWICE.

AFTER ALL BOLTS HAVE BEEN TESTED, AND ALL H-PILES AND STRUCTURAL TUBES HAVE BEEN REPLACED AND TIGHTENED AS DESCRIBED IN THESE NOTES. THEN, NUTS 6 TO 9 SHALL BE TIGHTENED, USING THE FOLLOWING SEQUENCE:

ALL #6 NUTS TIGHTENED TO MINIMUM TORQUE OF 50.
ALL #7 NUTS TIGHTENED TO MINIMUM TORQUE OF 50.
ALL #8 NUTS TIGHTENED TO MINIMUM TORQUE OF 50.
ALL #9 NUTS TIGHTENED TO MINIMUM TORQUE OF 50.

THE TIGHTENING SHALL SEQUENCE BE REPEATED TWICE.

SHOULD ANY BOLTS MOVE OR FAIL DURING THE TIGHTENING SEQUENCE, THE SEQUENCE SHALL BE STOPPED AND THE FAILED BOLT SHALL BE REMOVED AND ADHESIVELY ANCHORED. THEN THE TIGHTENING SEQUENCE RESUMED.

AFTER THE TIGHTENING SEQUENCE IS COMPLETE A SECOND NUT SHALL BE PLACED AND TIGHTENED TO MINIMUM TORQUE OF 50 FT-LBS. NUTS SHALL BE TYPE ASTM A563.

AS-BUILT REPAIR QUANTITY TABLE

BENT 8 SPAN I FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	7.2	3.6		
COLUMN	1.6	0.8		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		65.2		
COLUMN		35.8		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15.BPR.10
-BUNCOMBE COUNTY
BRIDGE NO. 322
SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 8
SPAN I FACE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Miller B04B5A4F2FAD484...
4/30/2018

DRAWN BY : C. BRIGHT DATE : 03/18
CHECKED BY : A. COLE/ T. SHERRILL DATE : 04/18

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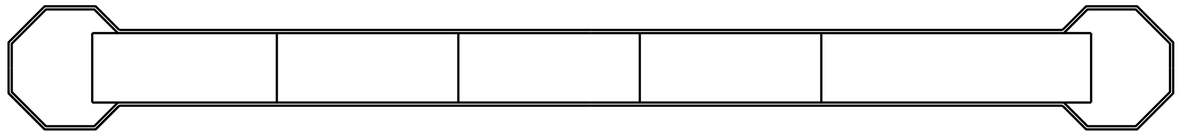
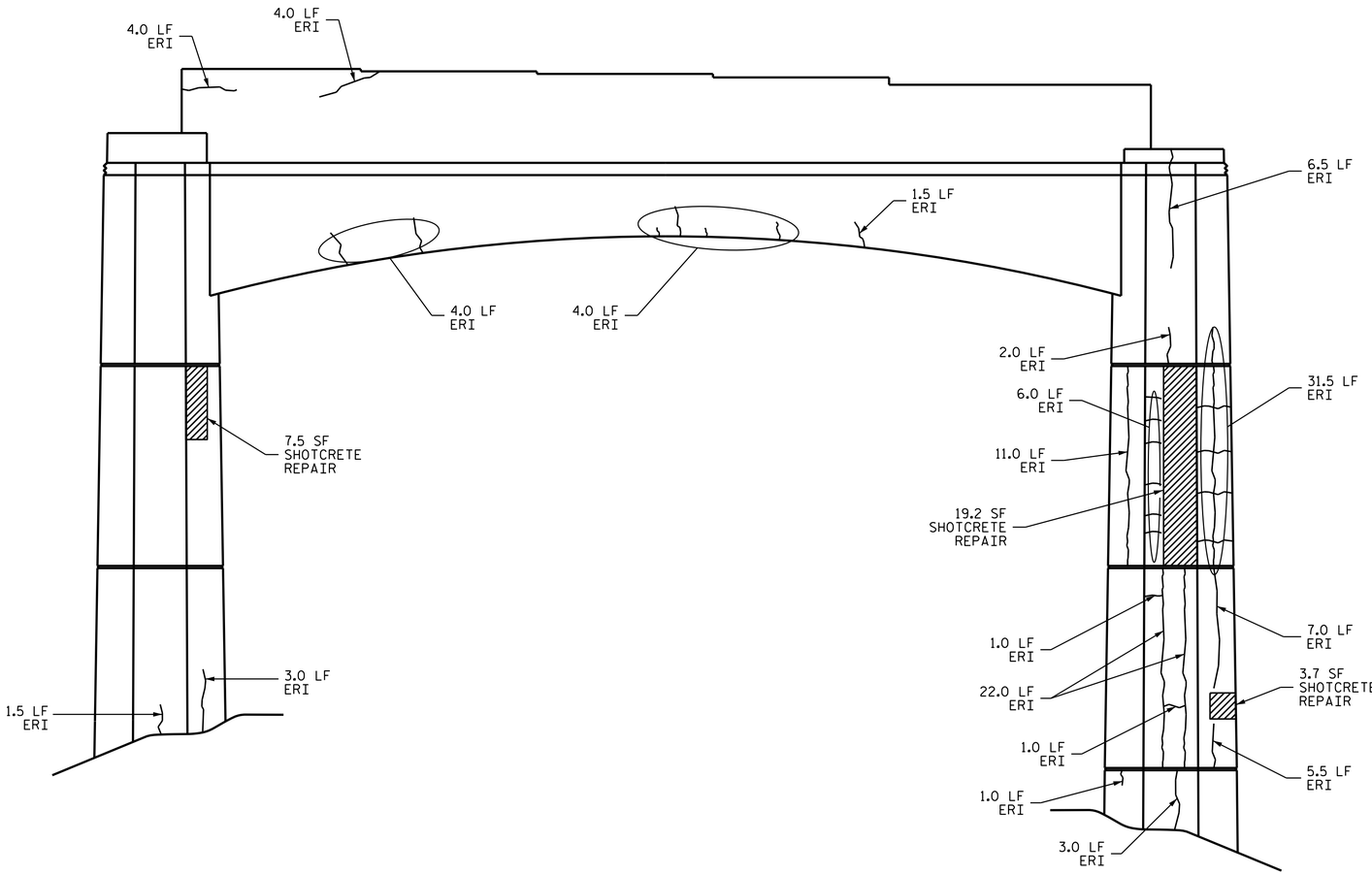


SPAN J
SPAN I

TOP OF CAP



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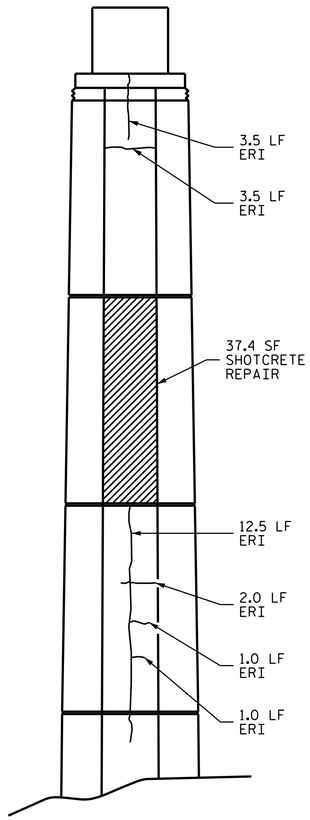
SPAN I | SPAN J



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 9 SPAN I FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	67.8	33.9		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		33.0		
COLUMN		110.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		265.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 9
SPAN I FACE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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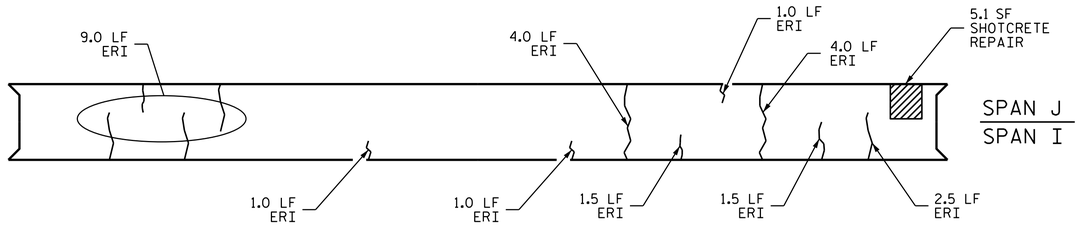

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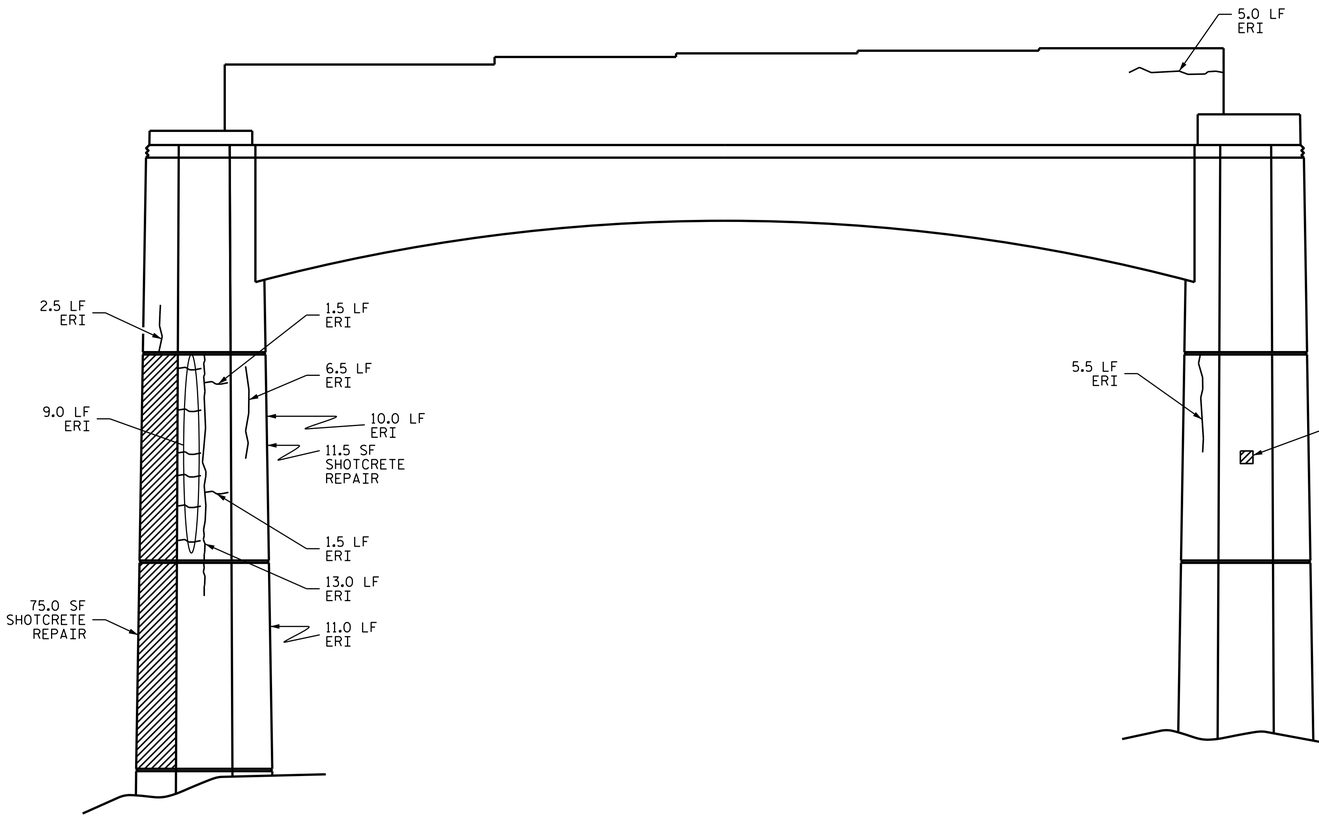

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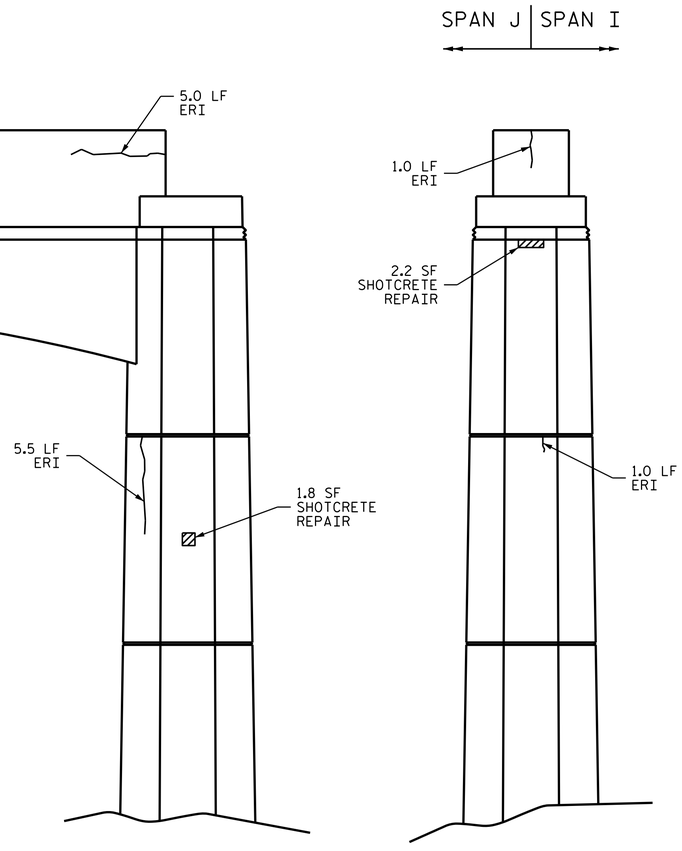

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 9 SPAN J FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	7.3	3.7		
COLUMN	88.3	44.2		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		34.0		
COLUMN		59.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 9 SPAN J FACE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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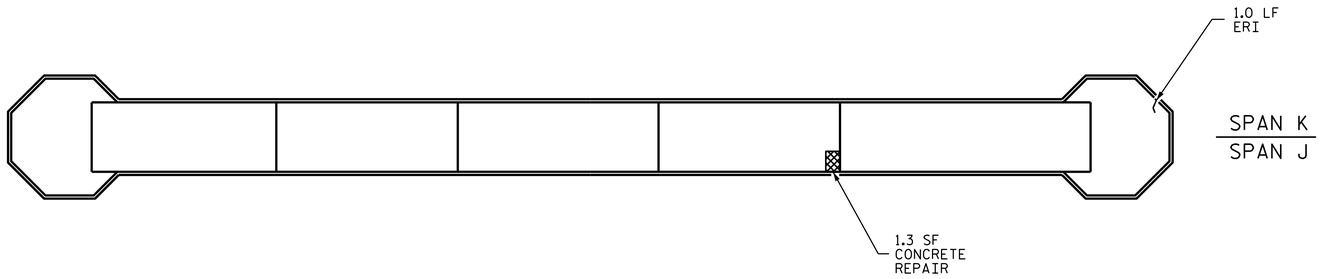
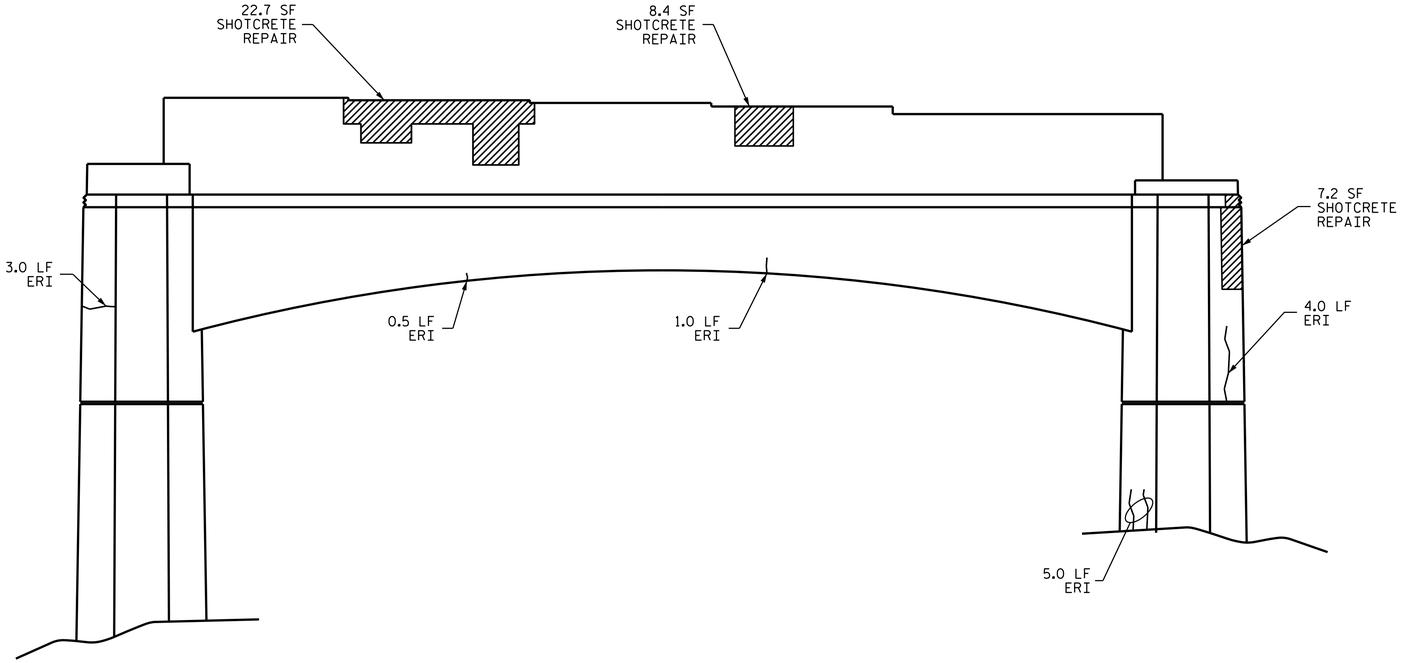


TOP OF CAP



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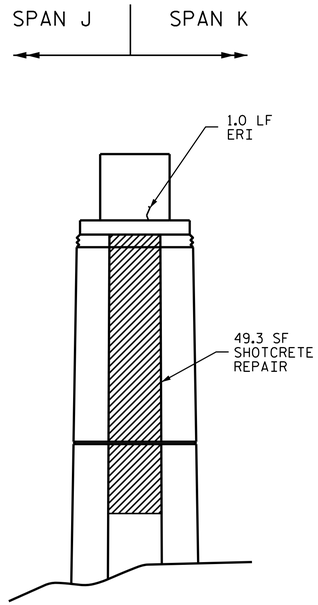

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 10 SPAN J FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	87.6	43.8		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	1.3	0.7		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		10.5		
COLUMN		5.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		265.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 10
SPAN J FACE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
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4/30/2018

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REVISIONS					
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SHEET NO. S-37

TOTAL SHEETS 90

DRAWN BY : M. WELDON DATE : 02/18

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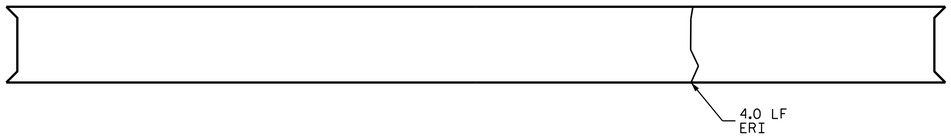
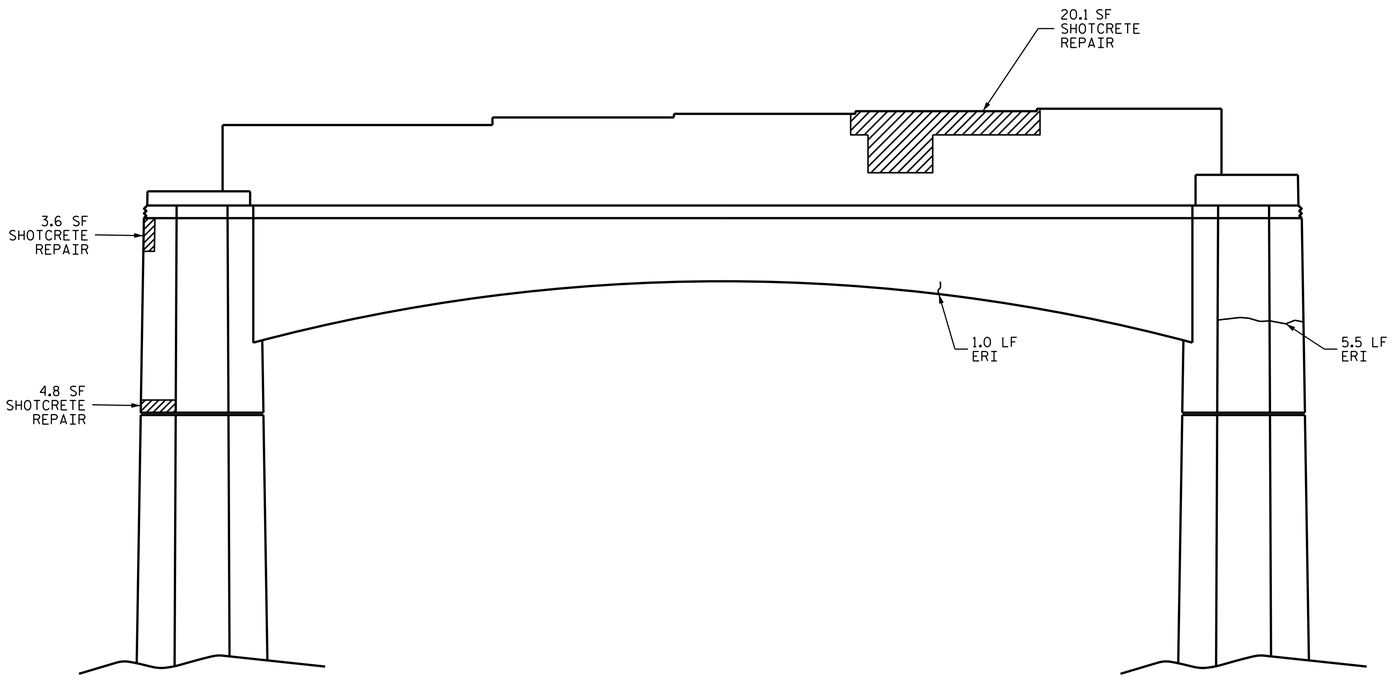


BOTTOM OF CAP



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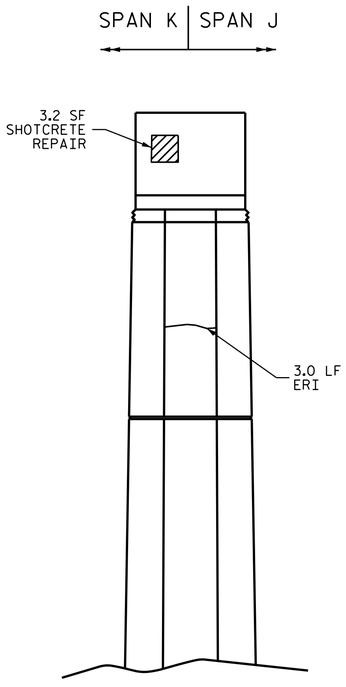

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 10 SPAN K FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	31.7	15.9		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		13.5		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 10
SPAN K FACE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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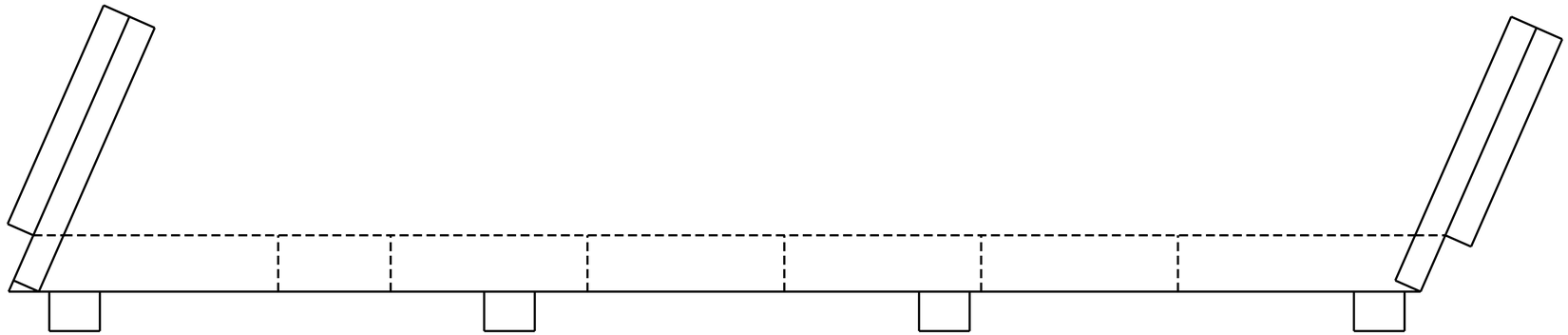
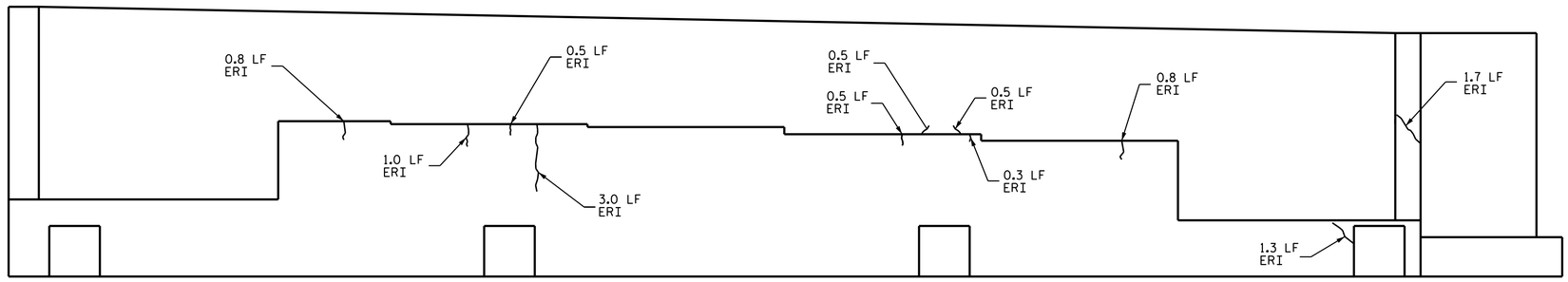


PLAN



ELEVATION

AS-BUILT REPAIR QUANTITY TABLE

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
CURTAIN WALL	0.0	0.0		
WING WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		8.2		
CURTAIN WALL		1.0		
WING WALL		1.7		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF END BENT CAP		92.0		

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

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SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

EPOXY RESIN INJECTION (ERI)

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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RALEIGH

END BENT 2

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1			3			TOTAL SHEETS
2			4			90

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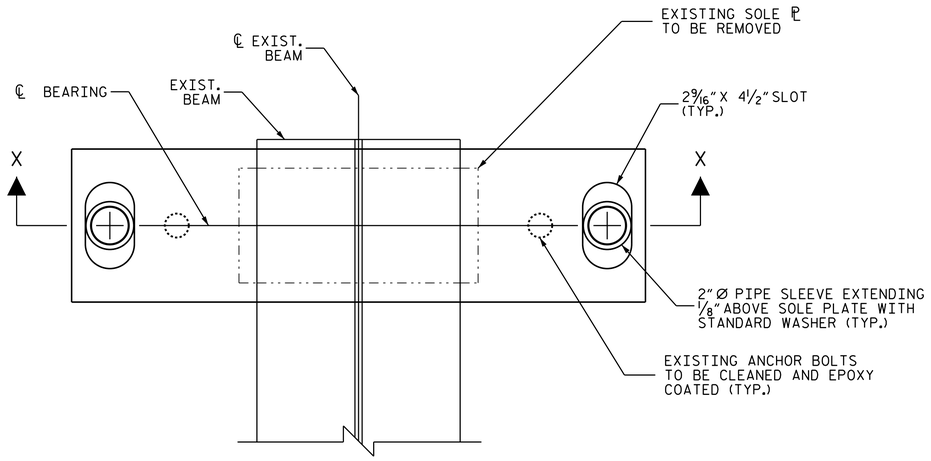
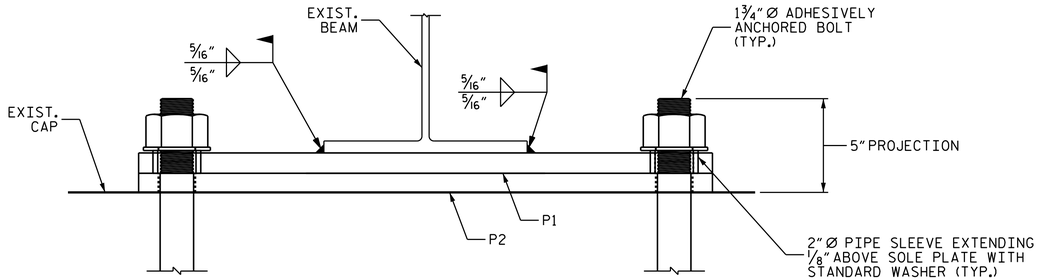
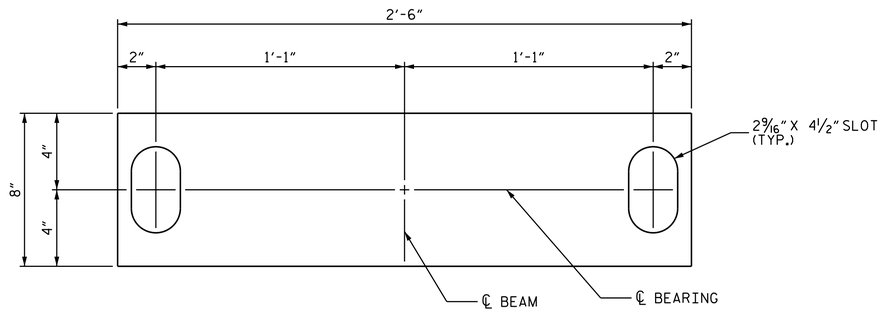


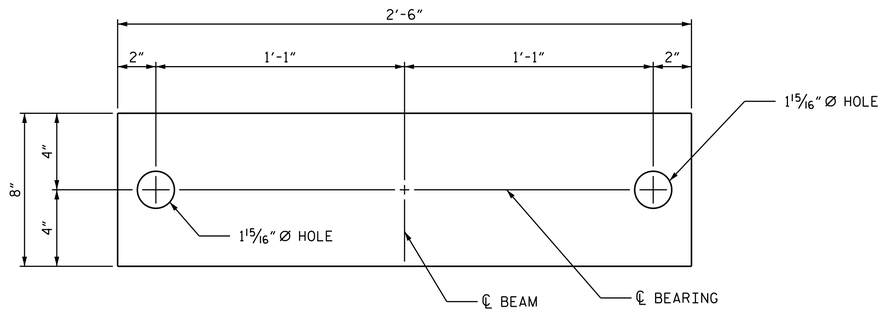
SOLE PLATE PLAN



SECTION X-X



SOLE PLATE
(P1 - 1 1/16" X 8" X 30")



BEARING PLATE
(P2 - 1" X 8" X 30")

PLATE DETAILS

NOTES:

CONTRACTOR SHALL FIELD VERIFY PLATE THICKNESSES REQUIRED.

CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1¾" Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS.

CONTRACTOR SHALL SUBMIT PROPOSED ADHESIVE FOR APPROVAL. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE ON THE NCDOT APPROVED PRODUCT LIST, FOR THE PROPOSED USE.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 9", OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER.

NEW ADHESIVELY ANCHORED BOLTS SHALL BE SUBJECT TO LEVEL 1 FIELD TESTING, IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 420-13 (C), EXCEPT THAT THE TEST LOAD SHALL BE 18,000 LBS. TENSION.

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2'' Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

SOLE PLATES, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

REMOVE GALVANIZING OR ANY OTHER COATING AT THE LOCATION OF FIELD WELDS AND PREPARE THE WELD AREAS AS PER ARTICLE 440-7 OF THE STANDARD SPECIFICATION.

AFTER COMPLETION OF FIELD WELDING, THE WELDS AND AREAS WHERE GALVANIZING HAS BEEN REMOVED OR DAMAGED SHALL BE REPAIRED AS PER ARTICLE 442-11 OF THE STANDARD SPECIFICATION.

THE CONTRACTOR SHALL VERIFY THE BOLT SPACING PRIOR TO FABRICATION.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
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RALEIGH

BEARING DETAILS

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1			3			TOTAL SHEETS
2			4			90

DRAWN BY : R.L.PUTEK DATE : 03/18
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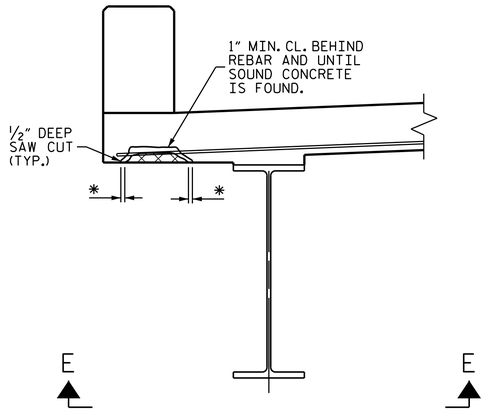
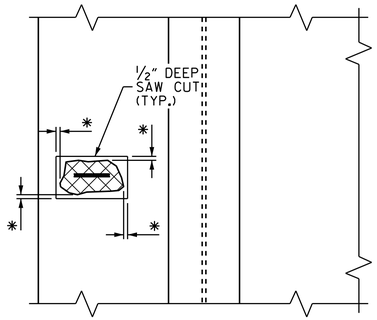
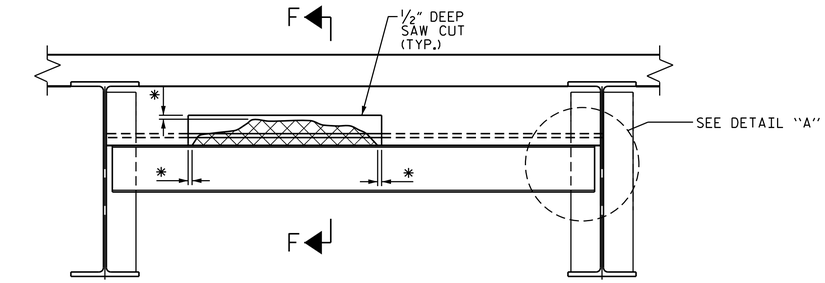


TYPICAL SECTION

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



SECTION E-E

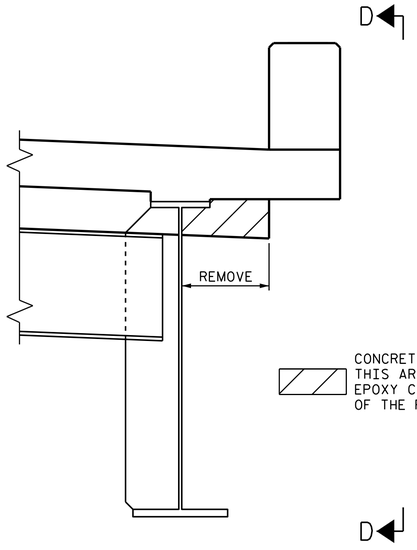


TYPICAL SECTION

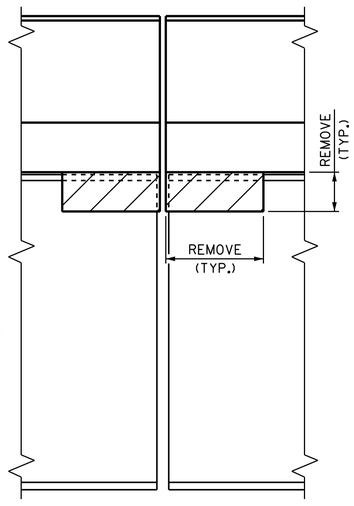
* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. CL.)

OVERHANG DETAILS

NOTE: OVERHANG DIAPHRAGMS TO BE REMOVED ARE SHOWN ON "PLAN OF SPAN" SHEETS.



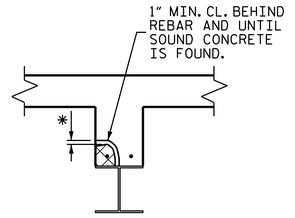
TYPICAL SECTION



SECTION D-D

CONCRETE AND REINFORCING STEEL IN THIS AREA SHALL BE REMOVED. EPOXY COAT THE EXPOSED ENDS OF THE REINFORCING STEEL.

OVERHANG DIAPHRAGM REMOVAL DETAILS

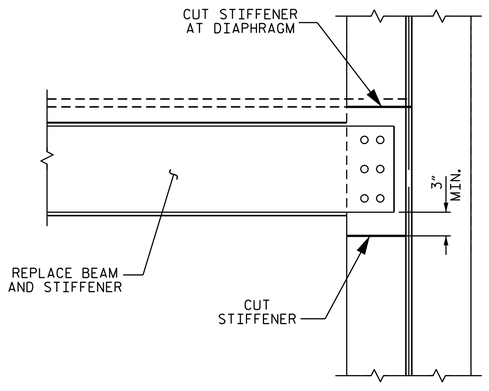


SECTION F-F

DAMAGED AREA

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

INTERIOR DIAPHRAGM REPAIR DETAILS



DETAIL "A"

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 322

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OVERHANG AND DIAPHRAGM REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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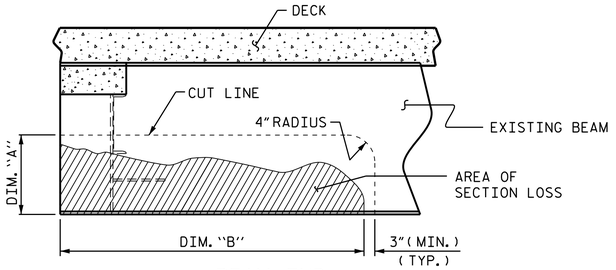
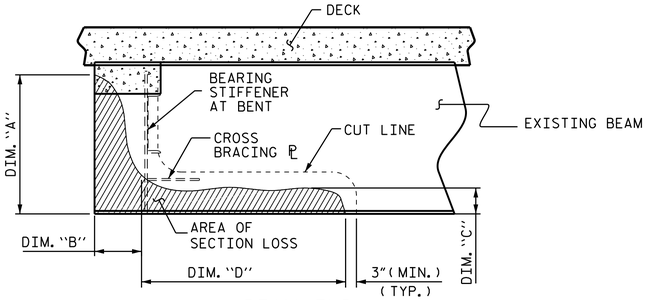
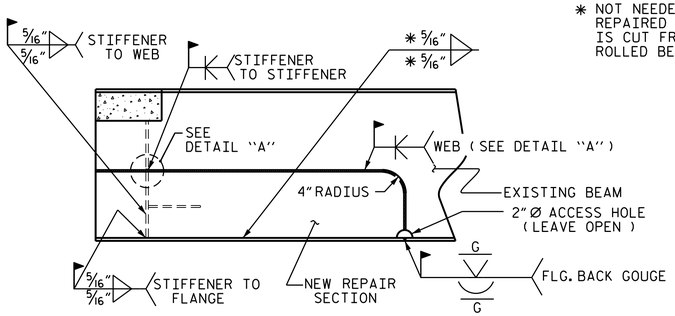


BEAM END SECTION LOSS

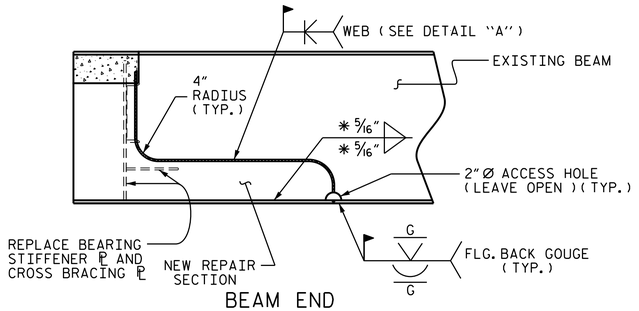


BEAM END SECTION LOSS

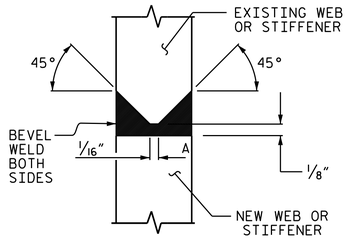


* NOT NEEDED IF REPAIRED SECTION IS CUT FROM A ROLLED BEAM

BEAM END SECTION REPAIR

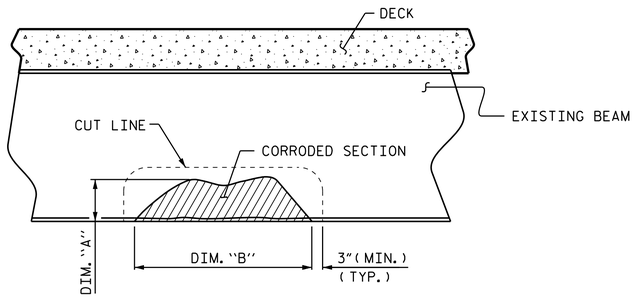


BEAM END SECTION REPAIR

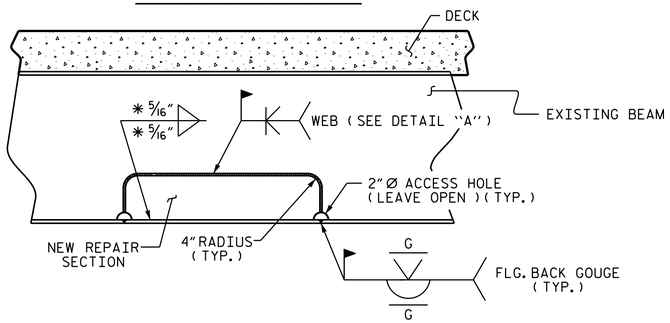


DETAIL "A"

BEAM END SECTION REPAIR



INTERMEDIATE BEAM SECTION LOSS



INTERMEDIATE BEAM SECTION REPAIR

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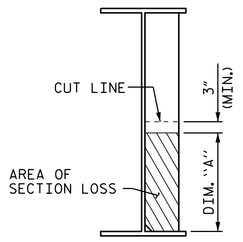
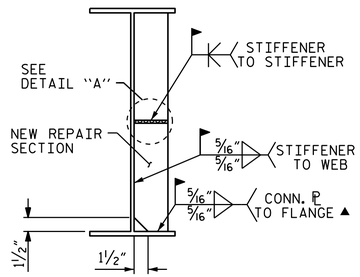


STIFFENER/CONN. ℄ SECTION LOSS



STIFFENER/CONN. ℄ SECTION REPAIR

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD

STIFFENER/CONNECTOR PLATE REPAIR

BEAM SECTION REPAIR NOTES

AFTER THE STRUCTURAL STEEL HAS BEEN BLASTED AND PRIMED, THE STRUCTURAL STEEL AND BEARING SHALL BE INSPECTED FOR EXCESSIVE SECTION LOSS. AREAS THAT EXHIBIT AN EXCESS OF 35% SECTION LOSS SHALL BE REVIEWED BY THE ENGINEER TO DETERMINE IF AREA OF SECTION LOSS SHOULD BE REPAIRED.

AS DETERMINED BY THE ENGINEER, AREAS WITH EXCESSIVE SECTION LOSS OR AREAS WITH TEMPORARY REPAIRS SHALL BE REMOVED AND THE BEAMS SHALL BE REPAIRED AS INDICATED ON THIS PLAN SHEET. CONTRACTOR AND ENGINEER TO DETERMINE ACTUAL DIMENSIONS OF AREA TO BE REMOVED AND REPLACED. REMOVE CONCRETE BENT DIAPHRAGMS AS NEEDED TO EVALUATE LIMITS OF REPAIR.

PAYMENT FOR THE SECTION REPAIR SHALL BE BASED ON THAT AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

GOUGES AND INDENTIONS FROM IMPACT ON GIRDERS SHALL BE GROUND SMOOTH PRIOR TO BLASTING AND PAINTING OPERATION.

REPAIR SEQUENCE:

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND RESET AFTER BEAM REPAIR.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE. CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEAM AREA AND/OR BEARING STIFFENER.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER.

INSTALL THE CUT-TO-FIT SECTION, FULLY WELD ALONG TOP AND SIDES OF PLATE USING FULL PENETRATION WELDS.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, AND THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS,

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMLAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

LOWER SPAN TO BEAR; CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM SECTION REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B0485A4F2FAD484...

4/30/2018

DRAWN BY : E.K.POPE DATE : 03/18

CHECKED BY : H.A.LOCKLEAR DATE : 04/18

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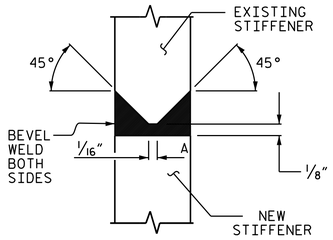

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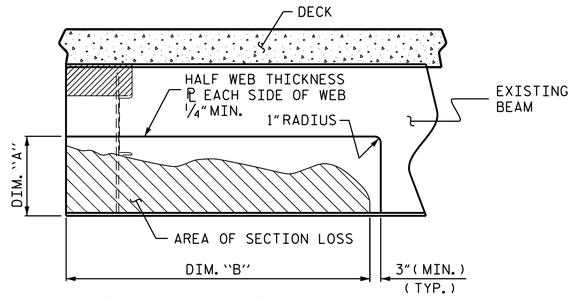
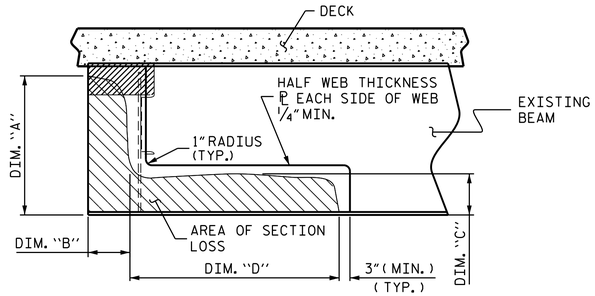


BEAM END SECTION LOSS AND PLATING REPAIR



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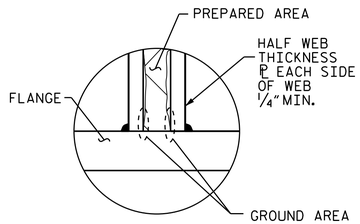
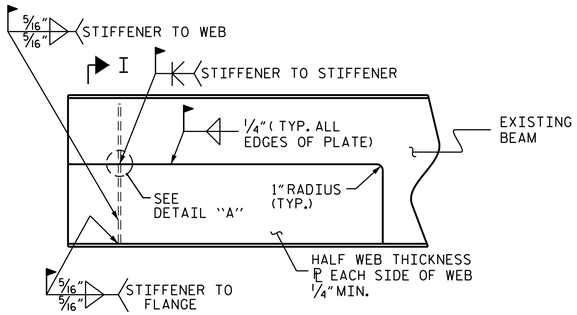


DETAIL 'B'



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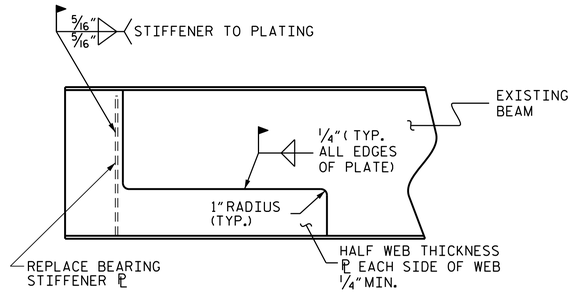
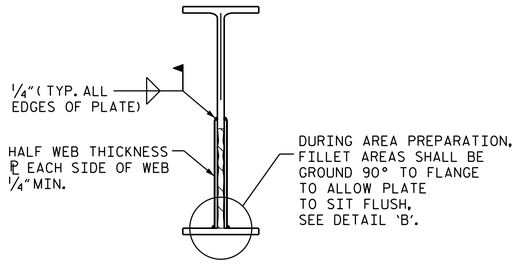
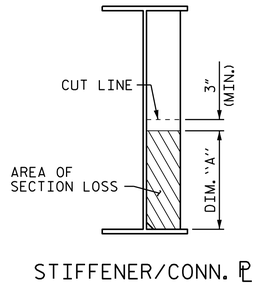


BEAM END PLATING REPAIR

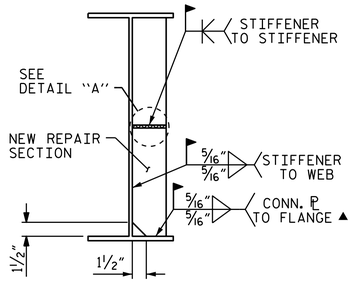
BEAM END PLATING REPAIR



SECTION I-I



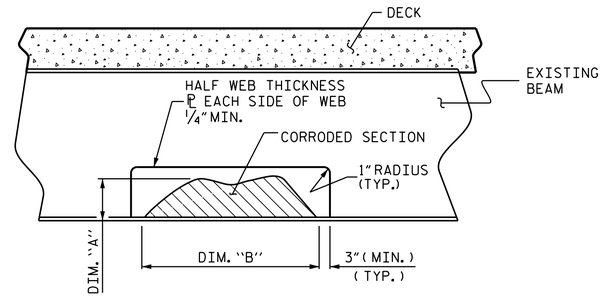
STIFFENER/CONN. ℄ SECTION LOSS



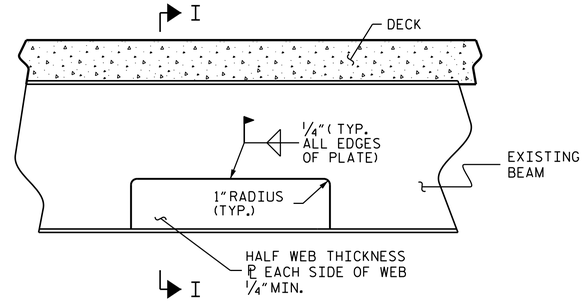
STIFFENER/CONN. ℄ SECTION REPAIR

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD

STIFFENER/CONNECTOR PLATE REPAIR



INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR



INTERMEDIATE SECTION LOSS BEAM PLATING REPAIR

INTERMEDIATE BEAM PLATING REPAIR

BEAM PLATING REPAIR NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

REPAIR PLATES SHALL BE MINIMUM 36 KSI STEEL.

REPAIR SEQUENCE:

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST 4 DAYS PRIOR TO ANTICIPATED WORK.

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL WELDED PLATE REPAIR. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO WELDING NEW PLATES. REMOVE PRIMER IN WELD AREA.

ONE PLATE SHALL BE PLACED, AS INDICATED ON EACH SIDE OF THE BEAM WEB.

EACH PLATE SHALL BE APPROXIMATELY ONE-HALF THE ORIGINAL THICKNESS OF THE BEAM WEB.

FULLY WELD ALONG TOP AND SIDES OF THE PLATES AS SHOWN.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, AND THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM THE REPAIR PROCESS.

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM ''BEAM REPAIR''. FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

SHEET OF

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM PLATING REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
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4/30/2018

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REVISIONS						SHEET NO.
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JACKING NOTES:

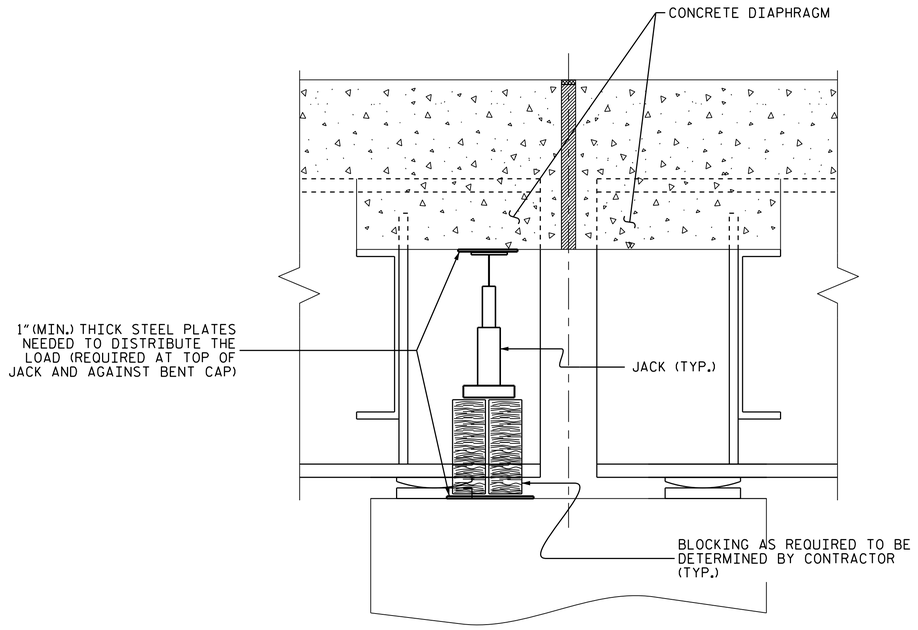
THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE FOR A METHOD TO REMOVE THE JACKS AND SUPPORT THE BEAM FOR DEAD AND LIVE LOAD DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING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

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

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 $\frac{1}{8}$".



SECTION THRU DIAPHRAGM

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.

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JACKING DETAILS

REVISIONS						SHEET NO.
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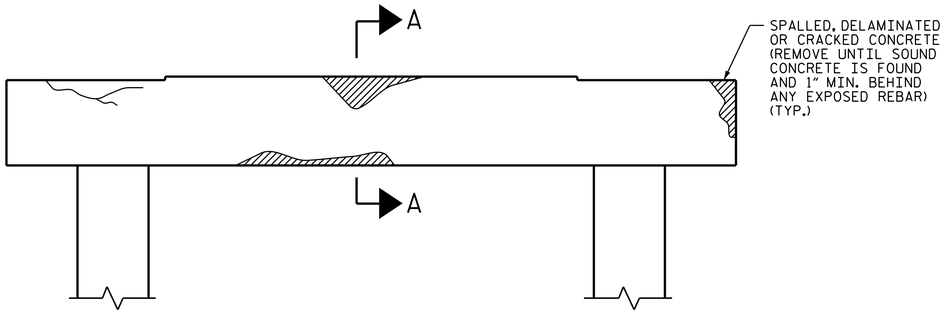
NOTES

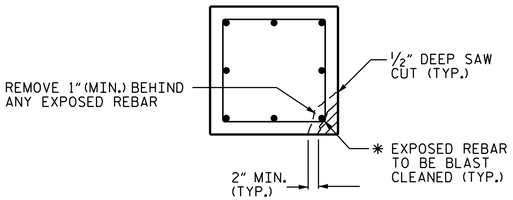
TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND PEDESTALS.

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.

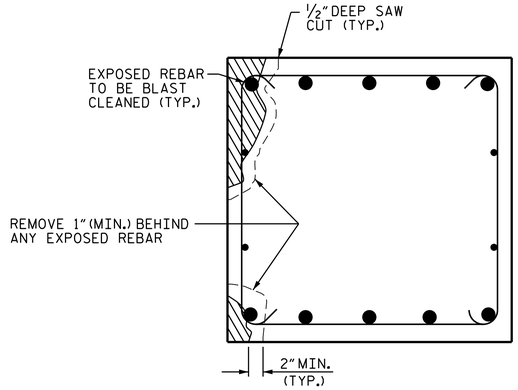
FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.



BENT CAP REPAIRS

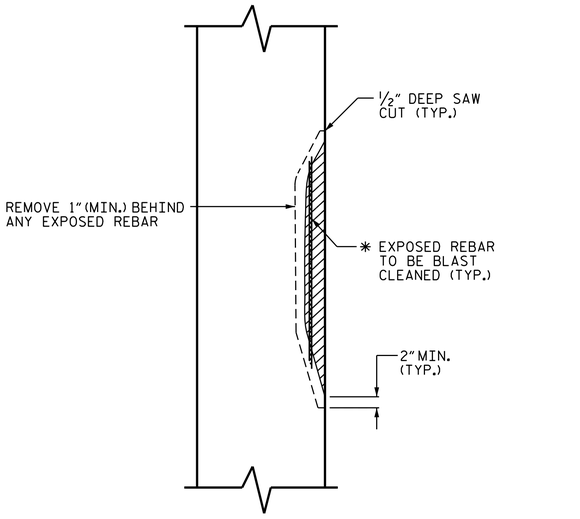


PLAN OF COLUMN



SECTION A-A

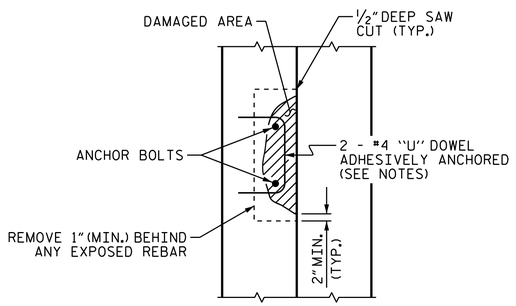
CAP REPAIR



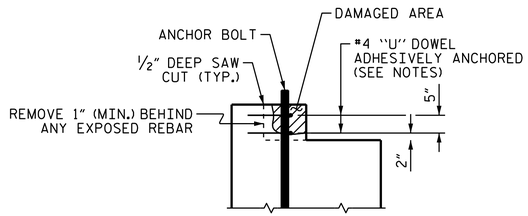
* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

ELEVATION OF COLUMN

COLUMN REPAIR



PLAN



ELEVATION

PEDESTAL WALL REPAIR

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 322

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL CAP AND COLUMN REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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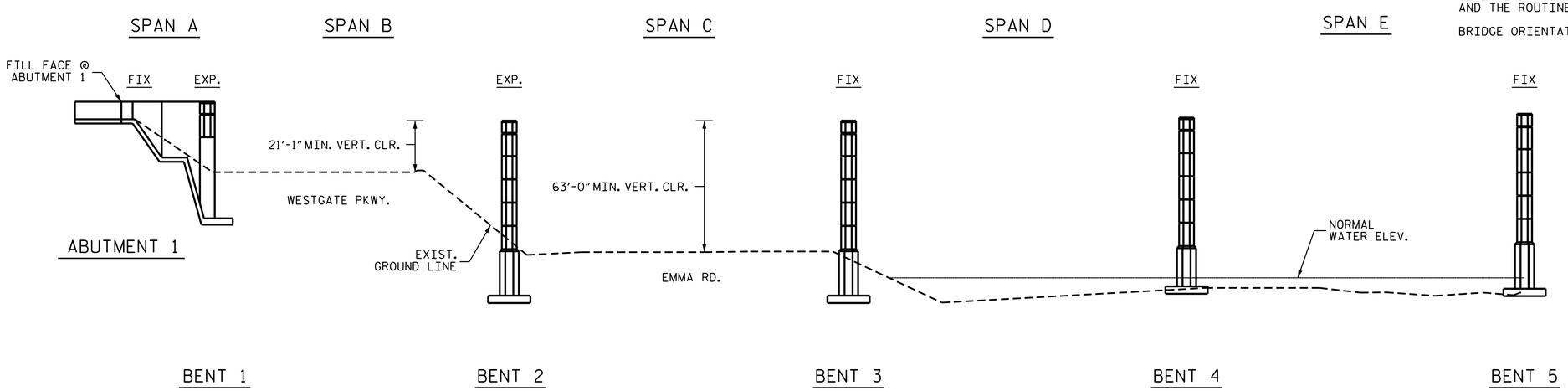
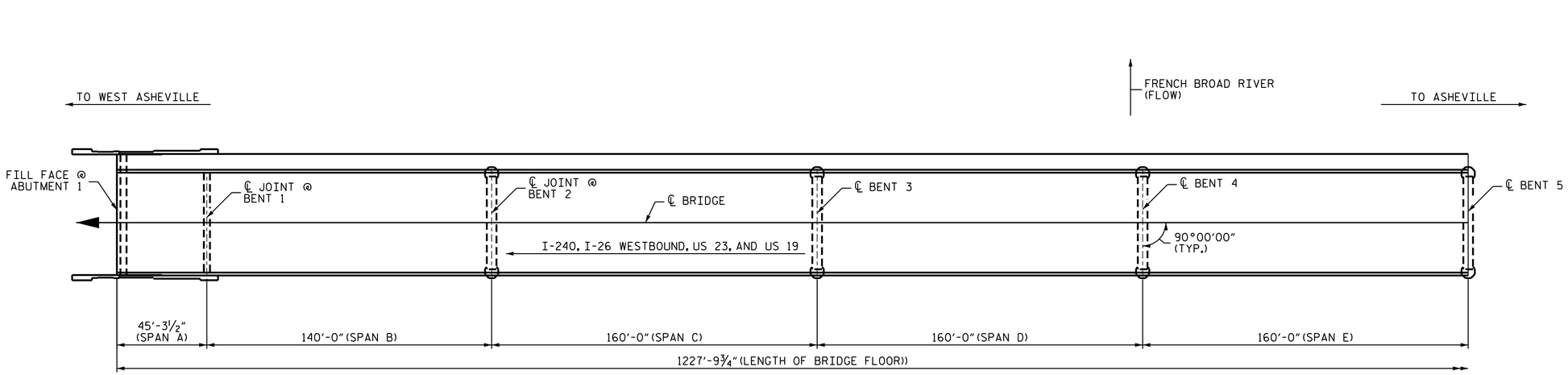
NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 02/21/2018.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.



SECTION ALONG ℄ ROADWAY



PLAN

SCOPE OF WORK

- PREPARE AND REPAIR REINFORCED CONCRETE DECK GIRDER REPAIR AREAS.
- EPOXY INJECTION OF CONCRETE CRACKS.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE SHOTCRETE AND CONCRETE REPAIR AREAS.
- PERFORM SHOTCRETE AND CONCRETE REPAIRS IN PREPARED AREAS.
- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- GROOVE PPC BRIDGE DECK.
- REMOVE DEBRIS FROM TOP OF BENT CAPS AND STRUTS, AND APPLY EPOXY COATING.
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- REPLACE EXISTING RUBBER PLATE TYPE EXPANSION JOINT WITH KIND.

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

RESIDENT ENGINEER DATE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
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4/30/2018

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PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-240, I-26 WESTBOUND, US 23, AND US 19 OVER THE FRENCH BROAD RIVER

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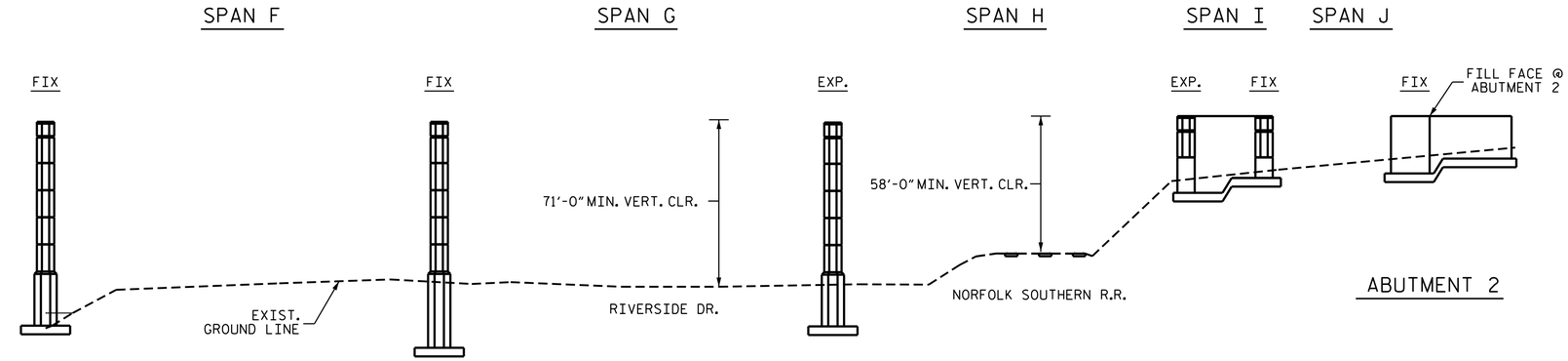

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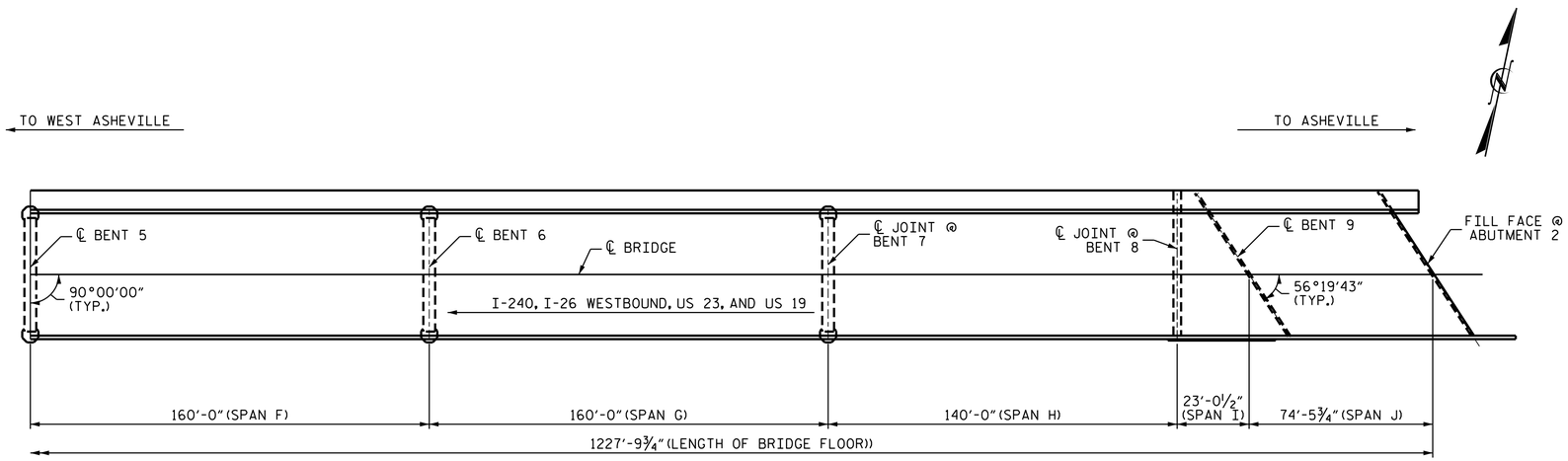

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-240, I-26 WESTBOUND, US 23, AND US 19 OVER THE FRENCH BROAD RIVER

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee 8D4B5A4F2FAD484...

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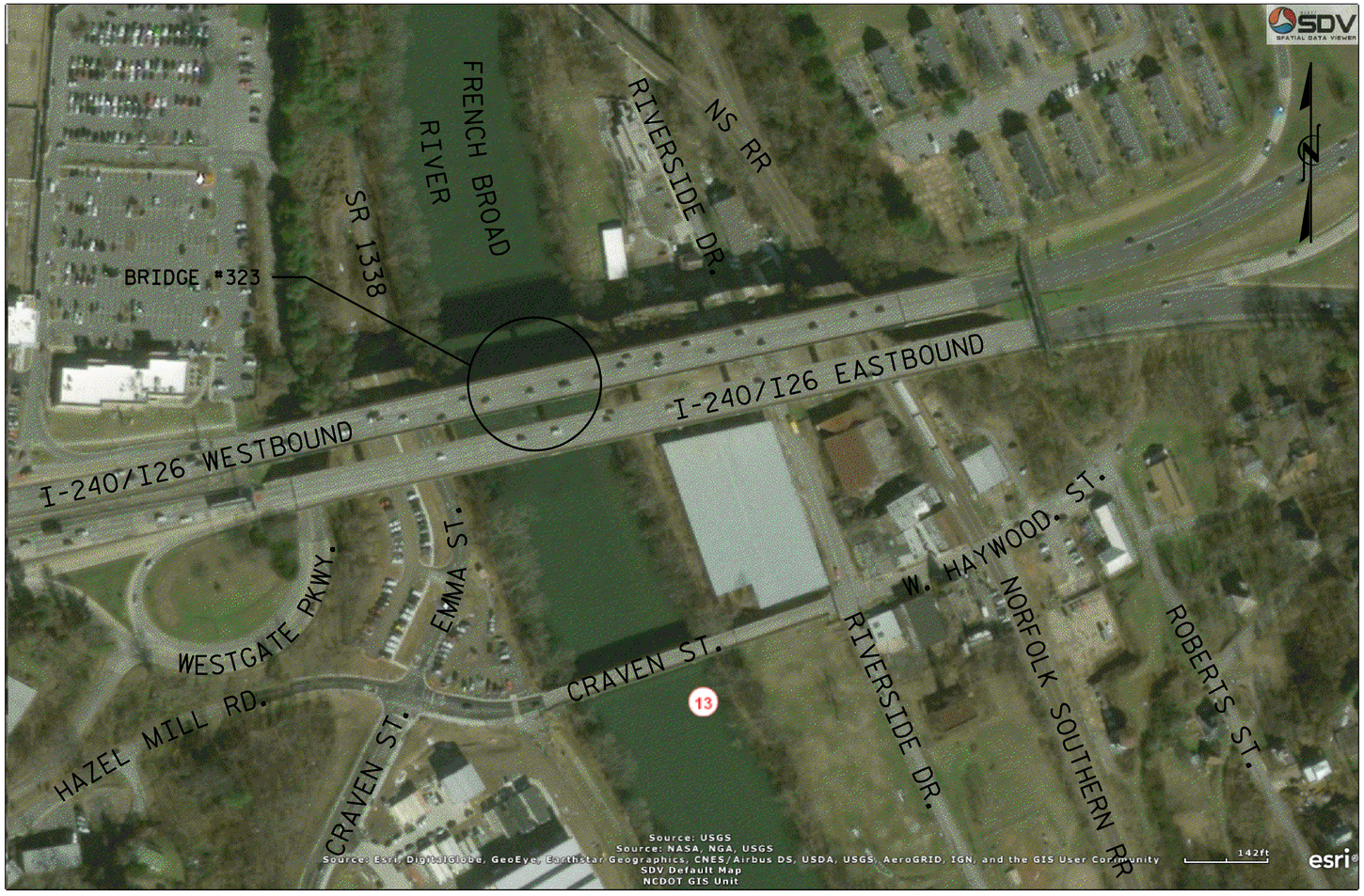

LOCATION SKETCH

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

NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THAT SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

IT IS THE CONTRACTOR$^{5}/_{32}$S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

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

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR PLATING, SEE SPECIAL PROVISIONS.

FOR POLLUTION CONTROL AND SPOT PAINTING OF STEEL STRUCTURE REPAIR AREAS, SEE SPOT PAINTING OF STRUCTURAL STEEL REPAIR AREAS SPECIAL PROVISIONS.

FOR POLYESTER POLYMER CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PPC, SEE SPECIAL PROVISIONS.

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

THE EXISTING BRIDGE DECK SHALL BE REPAIRED AS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER AFTER SCARIFICATION AND PRIOR TO BRIDGE DECK SHOTBLAST AND APPLICATION OF THE PPC OVERLAY, UNLESS OTHERWISE APPROVED, SUCH LOCATIONS SHALL BE REPAIRED WITH PPC.

FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS AND PLACING & FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR STEEL KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.

FOR JOINT REPAIR, SEE SPECIAL PROVISIONS.

FOR SPECIAL PROVISIONS FOR PROTECTION OF RAILROAD INTEREST, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

BRIDGE NO. 323	GROOVING BRIDGE FLOOR	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	MOLDED RUBBER SEGMENTAL EXPANSION JOINT	PPC MATERIALS	REPAIRS TO REINFORCED CONCRETE DECK GIRDERS	EPOXY COATING	CONCRETE DECK REPAIR FOR PPC OVERLAY	PLACING & FINISHING PPC OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	STEEL KEEPER ANGLE ASSEMBLY
	60,959.0	SQ. YDS.	SQ. YDS.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	CU. YDS.	CU. FT.	SQ. FT.	SQ. FT.	SQ. YDS.	SQ. YDS.	SQ. YDS.	EA.
TOTALS	60,959.0	7.6	5.0	20.4	1,346.8	3,382.4	LUMP SUM	LUMP SUM	347.3	29.5	3,595.5	7.6	7,225.0	7,225.0	7,225.0	3

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-240, I-26 WESTBOUND, US 23, & US 19 OVER THE FRENCH BROAD RIVER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			90

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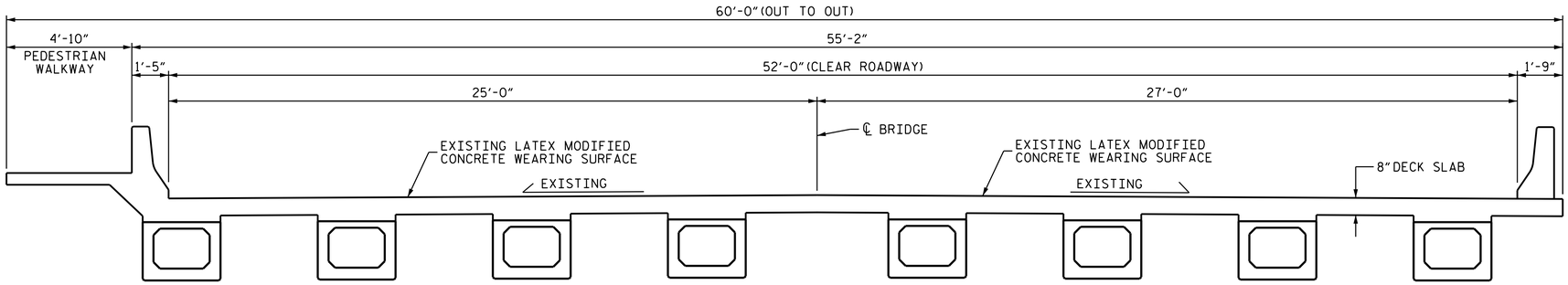
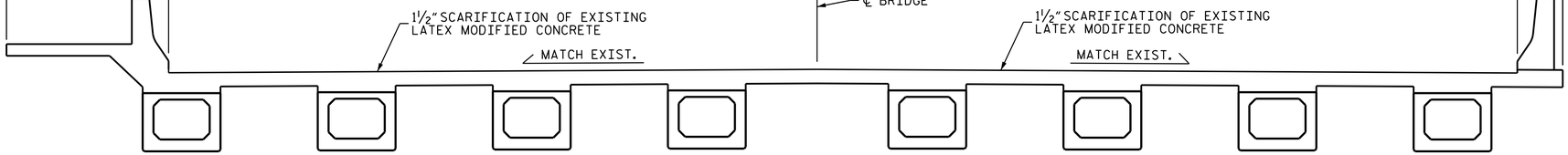
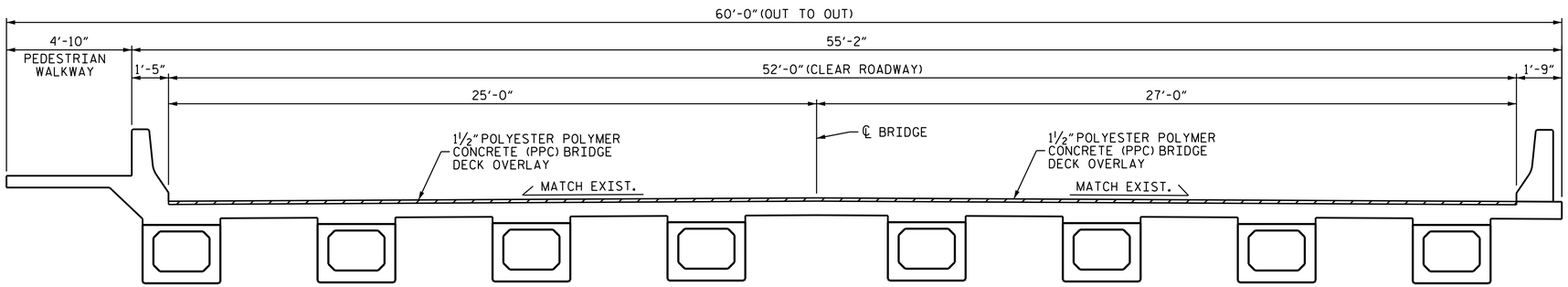


TYPICAL SECTION
(EXISTING WEARING SURFACE)



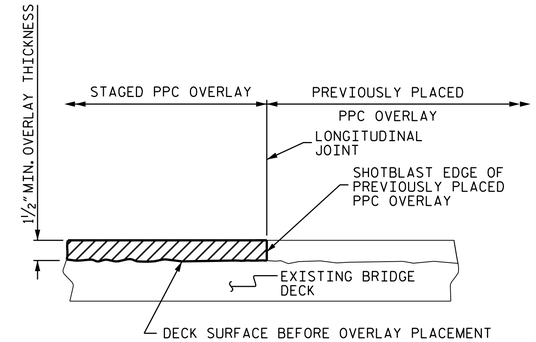
TYPICAL SECTION
(PROPOSED SCARIFICATION)



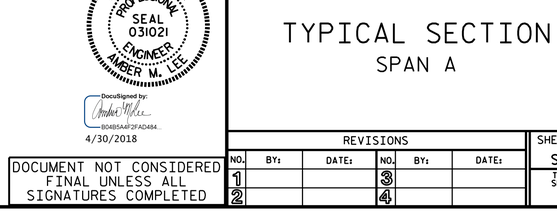
TYPICAL SECTION
(PROPOSED WEARING SURFACE)

NOTE:

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY SYSTEM AND SURFACE PREPARATION.



STAGED PPC OVERLAY JOINT
(AS NEEDED)



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
SPAN A

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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1			3			TOTAL SHEETS
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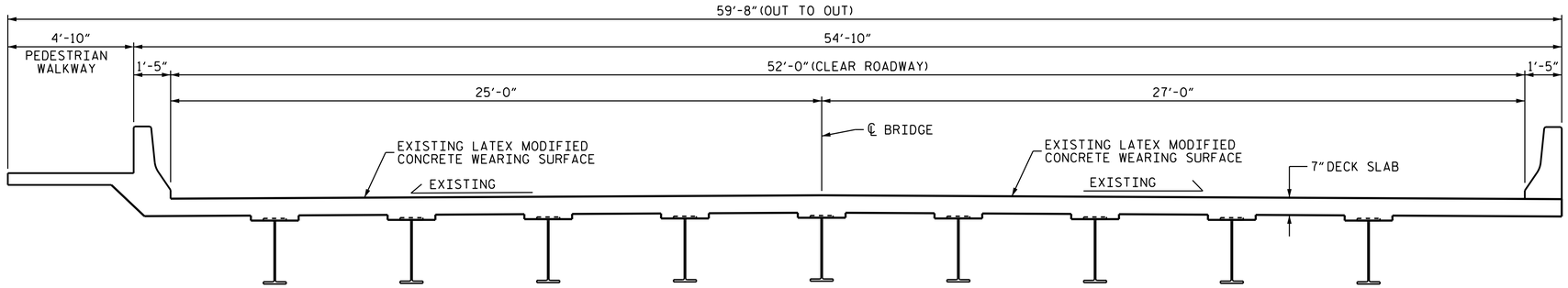
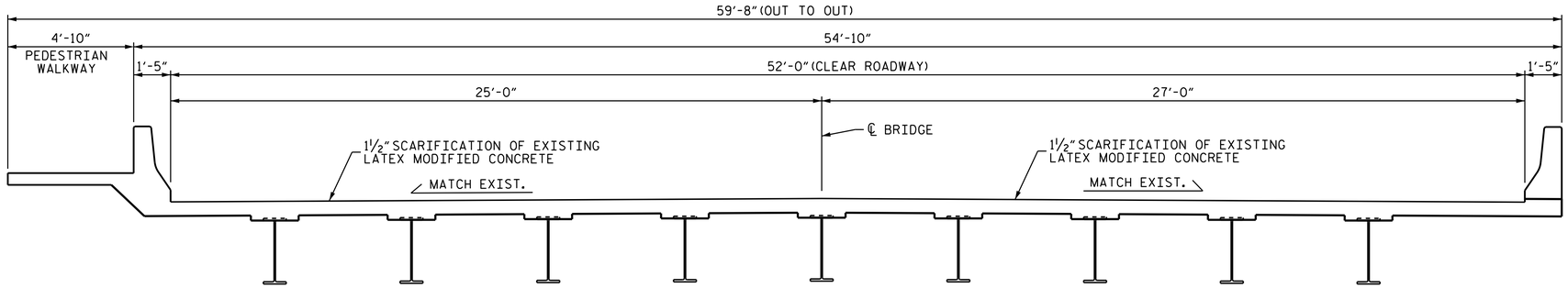


TYPICAL SECTION
(EXISTING WEARING SURFACE)



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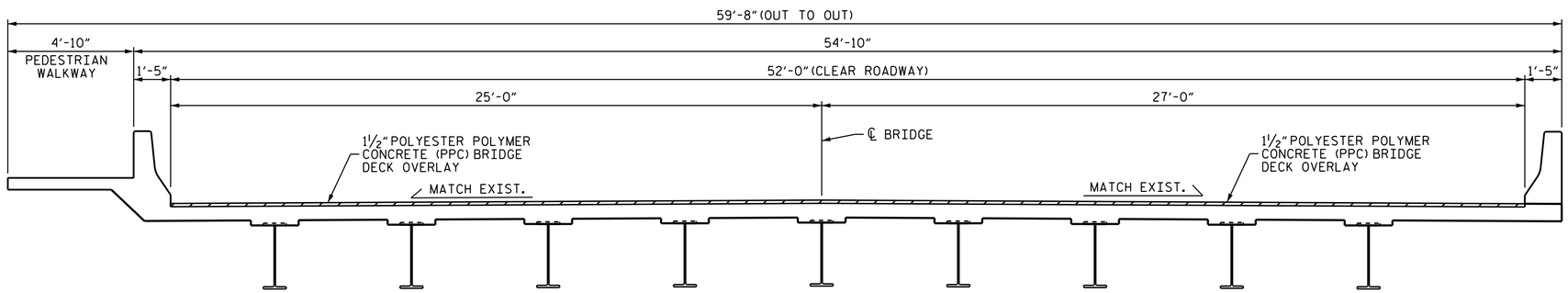
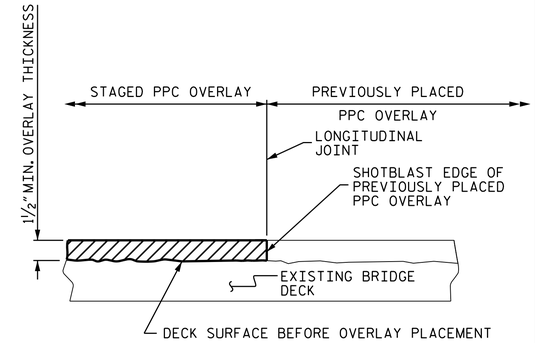
(PROPOSED SCARIFICATION)



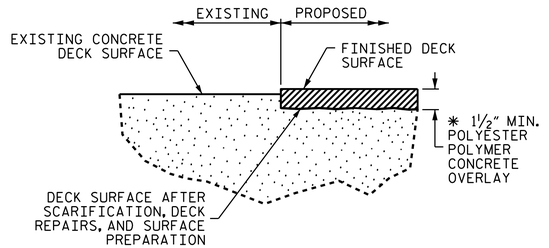
TYPICAL SECTION
(PROPOSED WEARING SURFACE)

NOTE:

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY SYSTEM AND SURFACE PREPARATION.



STAGED PPC OVERLAY JOINT
(AS NEEDED)



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
SPAN B THRU SPAN H

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1			3			TOTAL SHEETS
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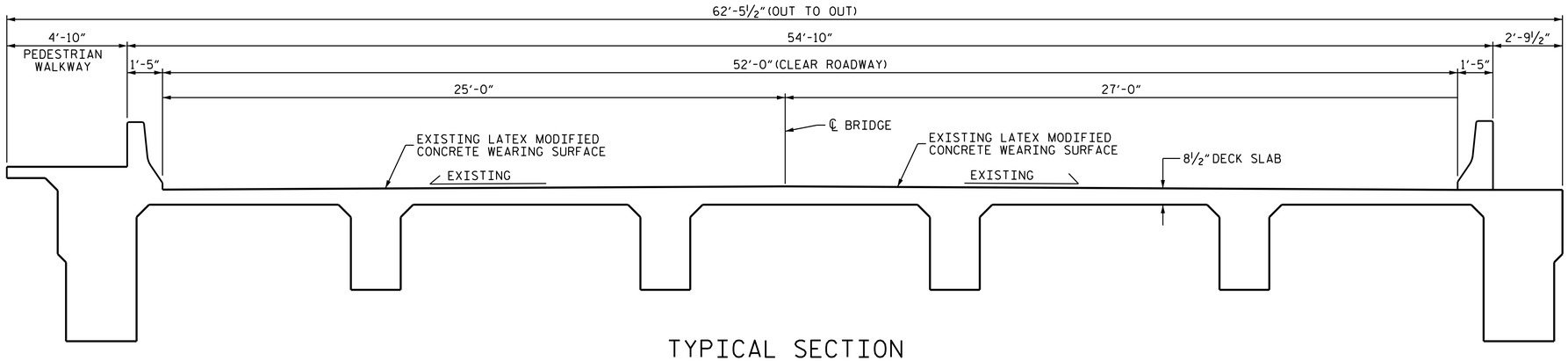
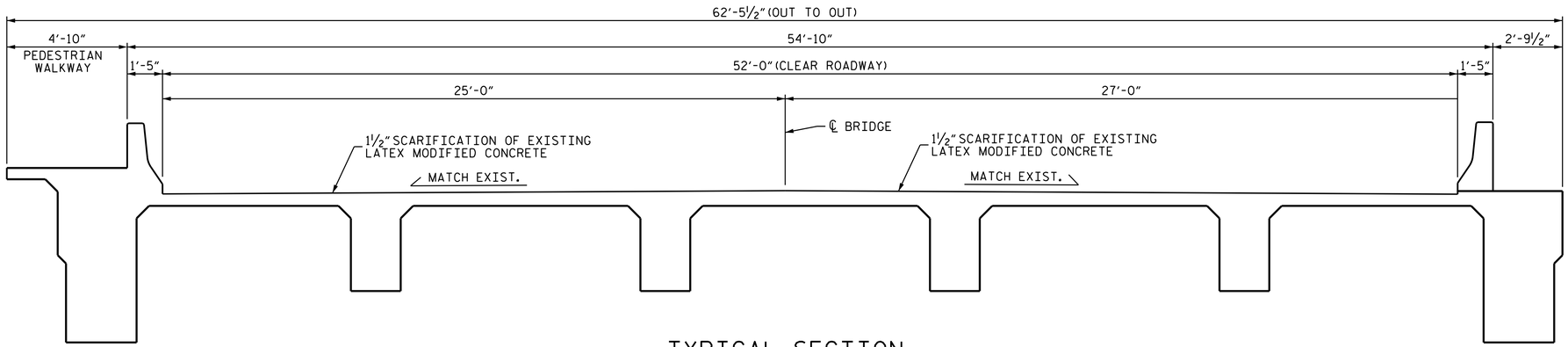


TYPICAL SECTION
(EXISTING WEARING SURFACE)



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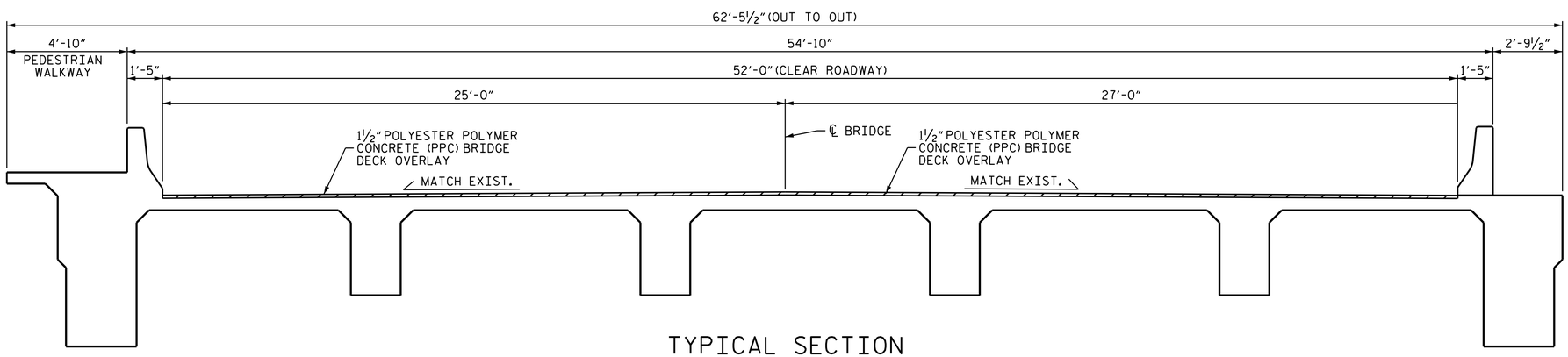

TYPICAL SECTION
(PROPOSED WEARING SURFACE)

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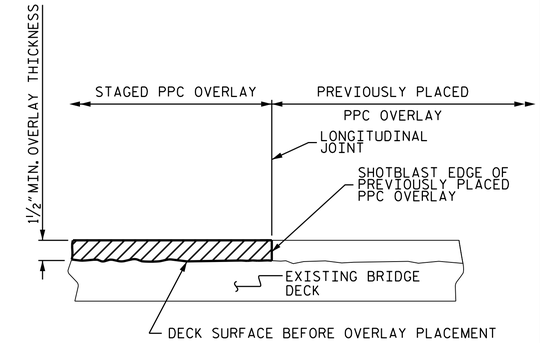
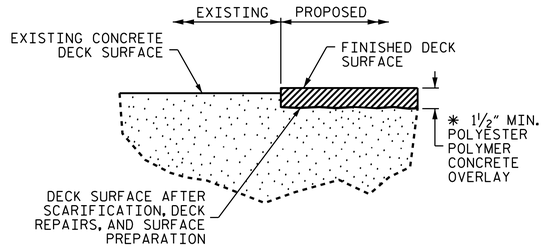
NOTE:

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) OVERLAY SYSTEM AND SURFACE PREPARATION.



STAGED PPC OVERLAY JOINT
(AS NEEDED)



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
SPAN I & SPAN J

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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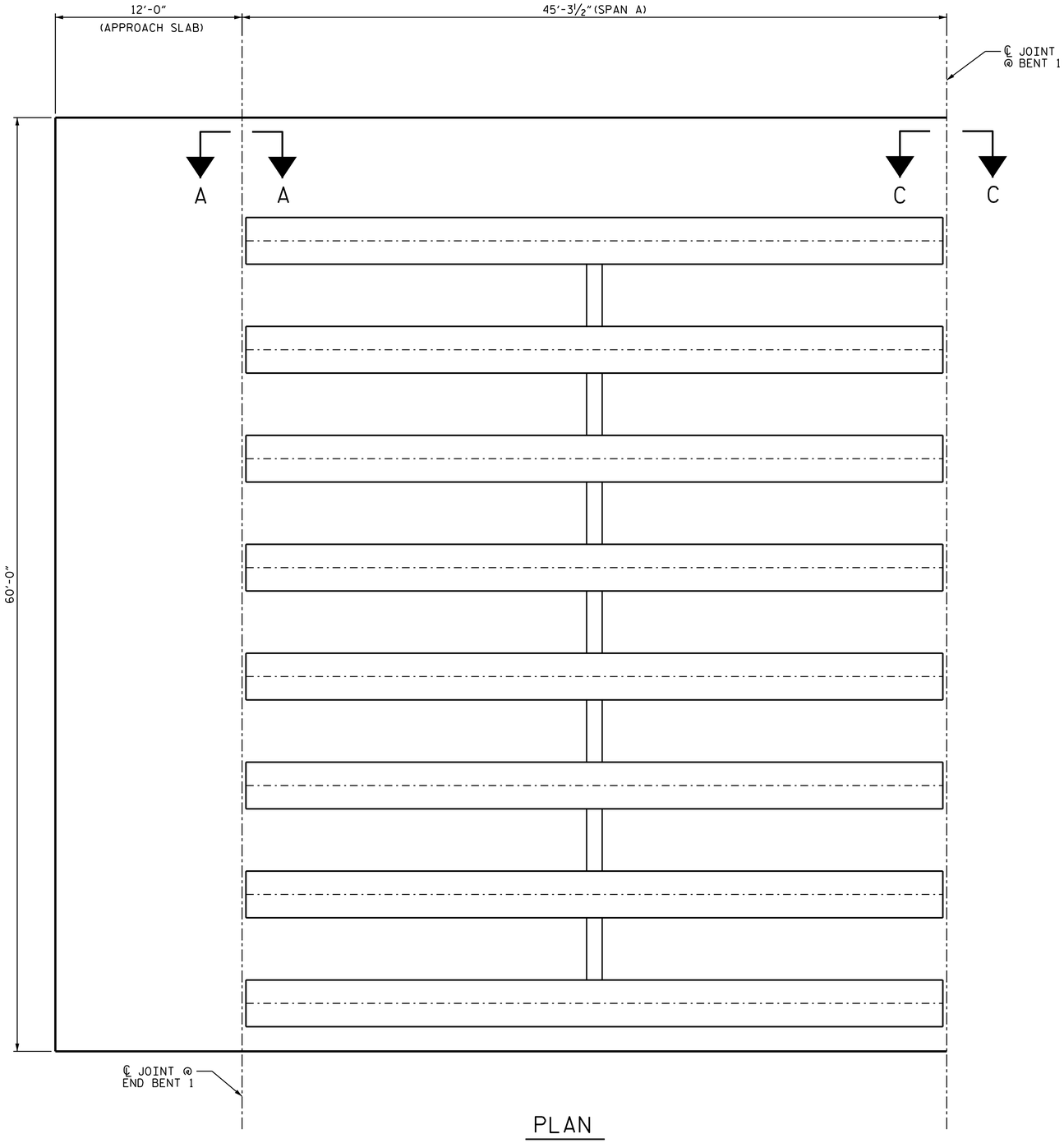

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	322 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	322 SQ. YDS.	
PPC MATERIALS	15.7 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	322 SQ. YDS.	
GROOVING BRIDGE FLOORS	2689 SQ. FT.	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	0.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	0.0 LIN. FT.	

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

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

NOTES:

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

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

FOR SECTIONS A-A AND C-C, SEE "JOINT DETAILS" SHEETS.

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION
UNDERSIDE REPAIR
GIRDER REPAIR
DIAPHRAGM REPAIR
EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

SHEET 1 OF 10

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DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS SPAN A AND APPROACH SLAB

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1			3			TOTAL SHEETS
2			4			90

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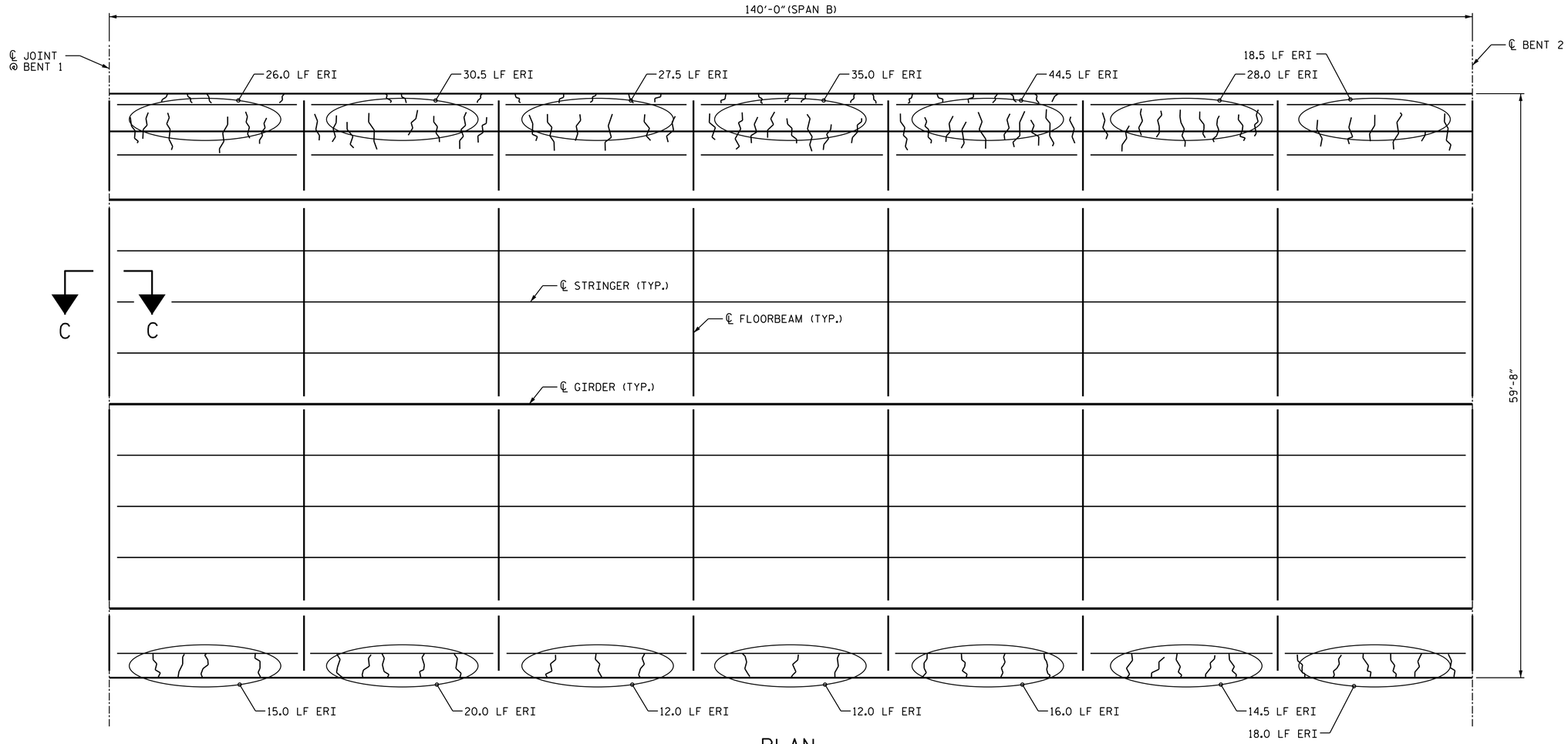

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	809 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	809 SQ. YDS.	
PPC MATERIALS	39.3 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	809 SQ. YDS.	
GROOVING BRIDGE FLOORS	6775 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	317.5 LIN. FT.	

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

NOTES:

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

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

FOR SECTION C-C, SEE "JOINT DETAILS" SHEETS.

*CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION

UNDERSIDE REPAIR

EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

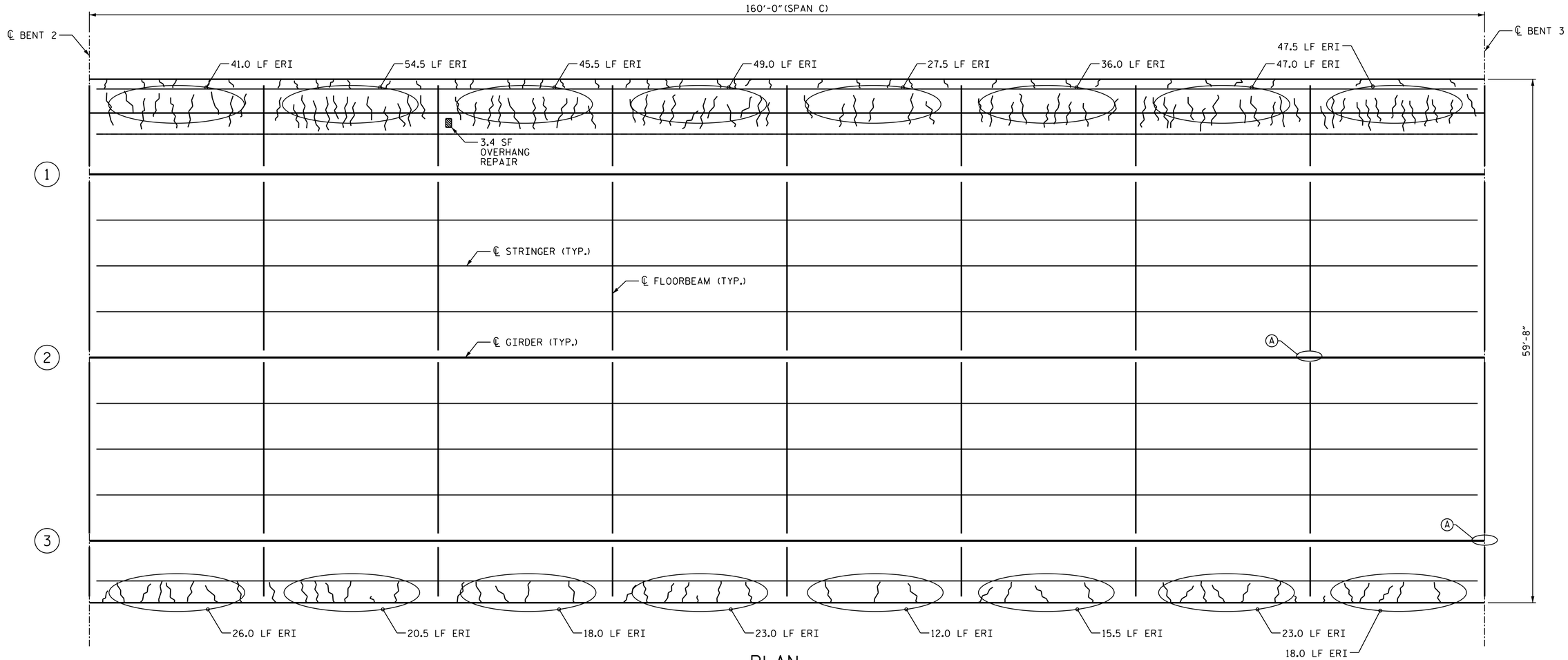
BRIDGE NO. 323

SHEET 2 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1			3			TOTAL SHEETS
2			4			90



PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7840 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	3.4	1.7		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	504.0 LIN. FT.	

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

BEAM REPAIR QUANTITY TABLE

PLATING LBS.		STIFFENER LBS.		ANCHOR BOLT AND NUT EA.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
0		0		2	

NOTES:

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

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

REPLACE BOLT AND NUT IN KIND. REMOVE AND REPLACE ONLY ONE ANCHOR BOLT AT A TIME.

*CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION
UNDERSIDE REPAIR
EPOXY RESIN INJECTION (ERI)
(1) BEAM NUMBER
(A) REPLACE ANCHOR BOLT AND NUT

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

SHEET 3 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN C

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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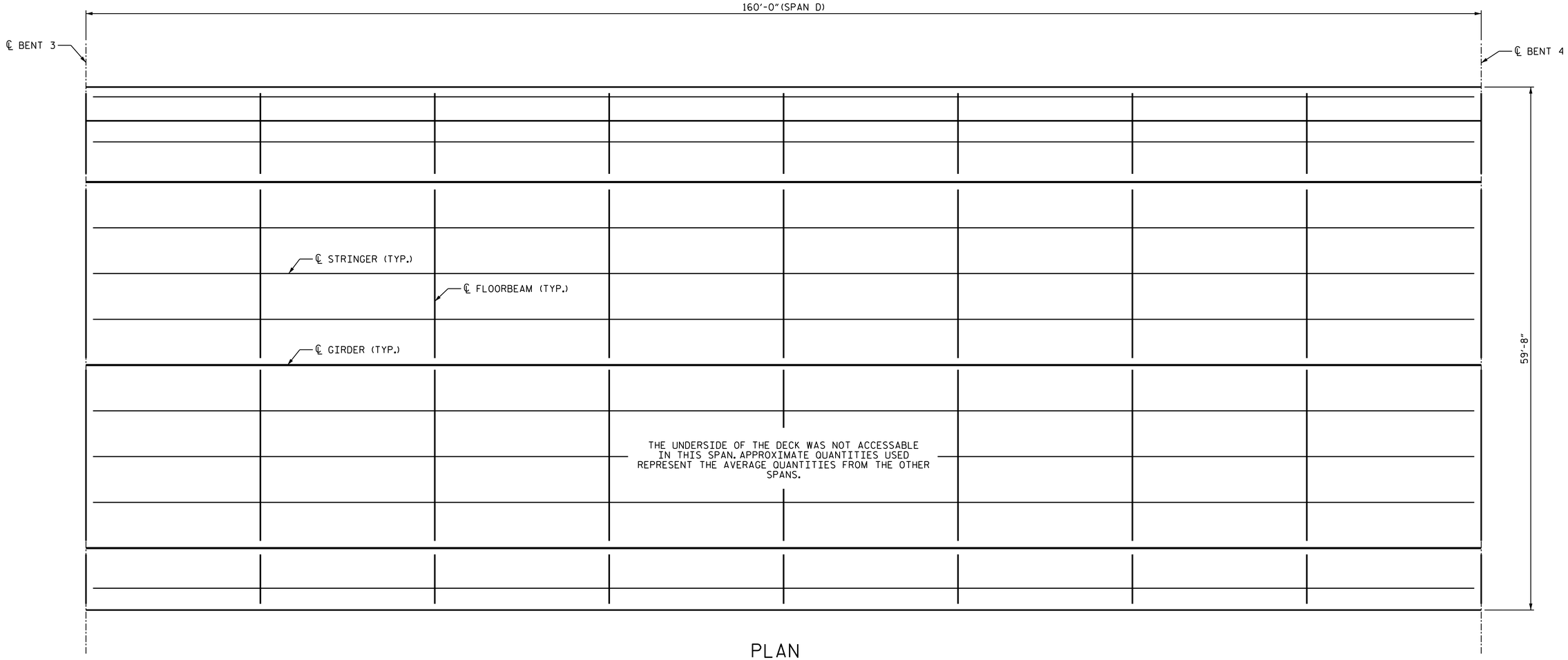

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. ✱	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7840 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	2.8	1.4		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	432.0 LIN. FT.	

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

NOTES:

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

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

✱CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION

UNDERSIDE REPAIR

EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 4 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS SPAN D

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS
2			4			90

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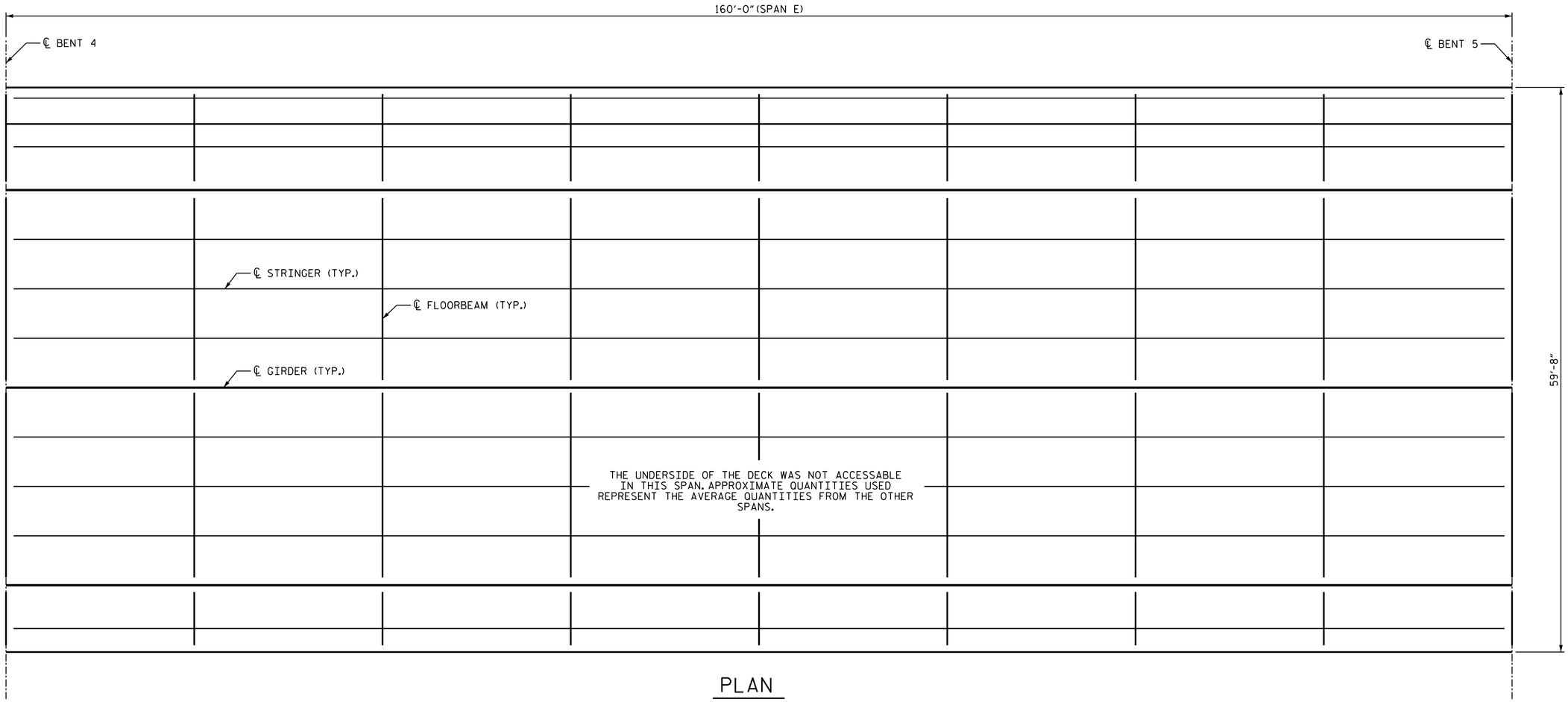

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7840 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	2.8	1.4		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	432.0 LIN. FT.	

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

NOTES:

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

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

*CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION

UNDERSIDE REPAIR

EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 5 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS SPAN E

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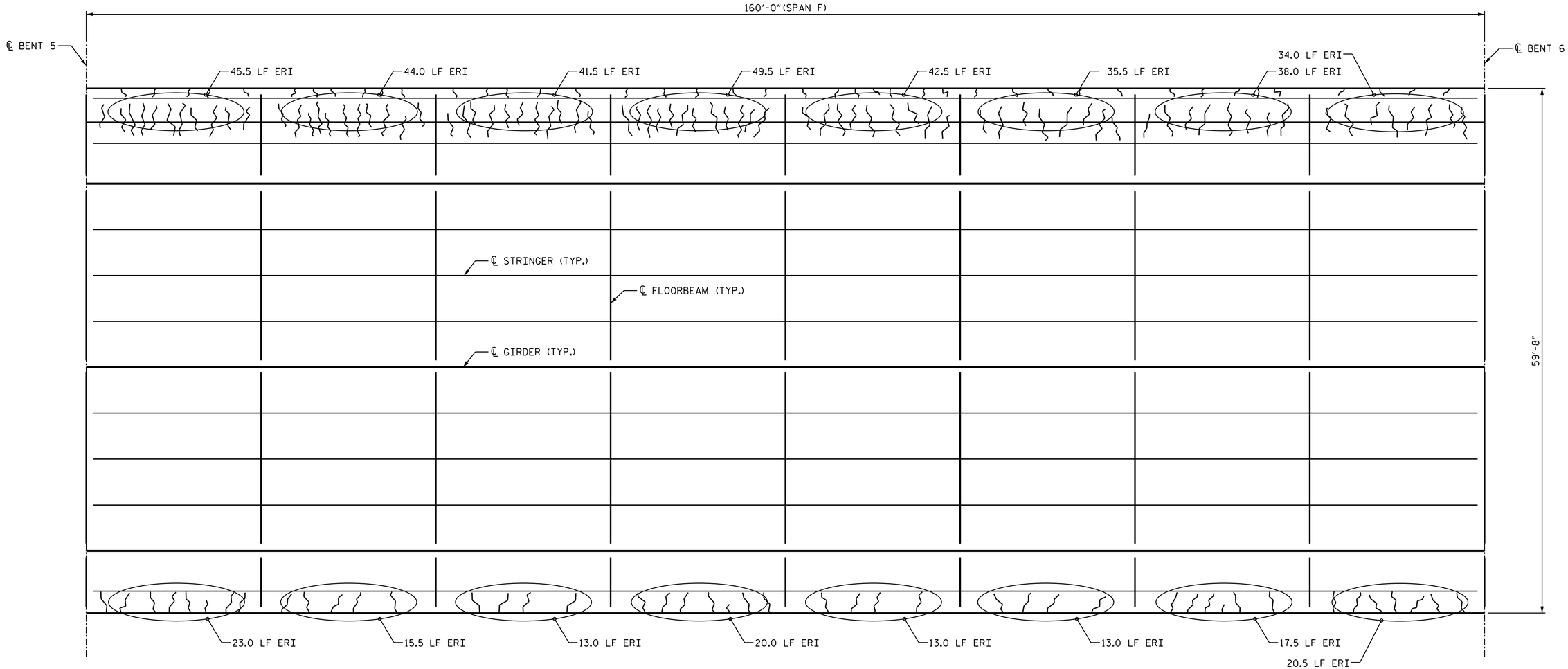

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7840 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	466.0 LIN. FT.	

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

NOTES:

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

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

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APPROX. CLASS II SURFACE PREPARATION
UNDERSIDE REPAIR
EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

SHEET 6 OF 10

STATE OF NORTH CAROLINA
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RALEIGH

PLAN OF SPANS
SPAN F

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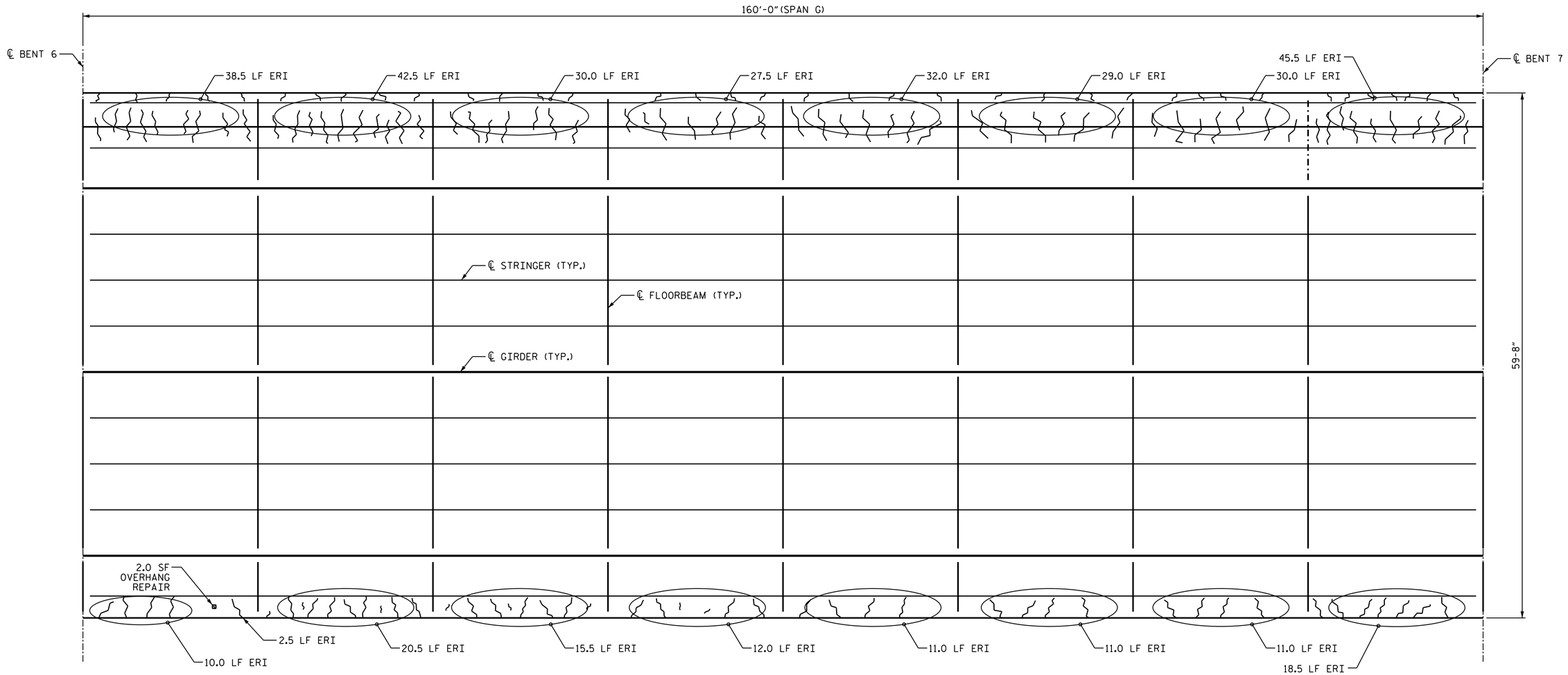

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	924 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	924 SQ. YDS.	
PPC MATERIALS	45.0 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	924 SQ. YDS.	
GROOVING BRIDGE FLOORS	7840 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	2.0	1.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	387.0 LIN. FT.	

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

NOTES:

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

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

*CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION

UNDERSIDE REPAIR

EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 7 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN G

REVISIONS						SHEET NO.
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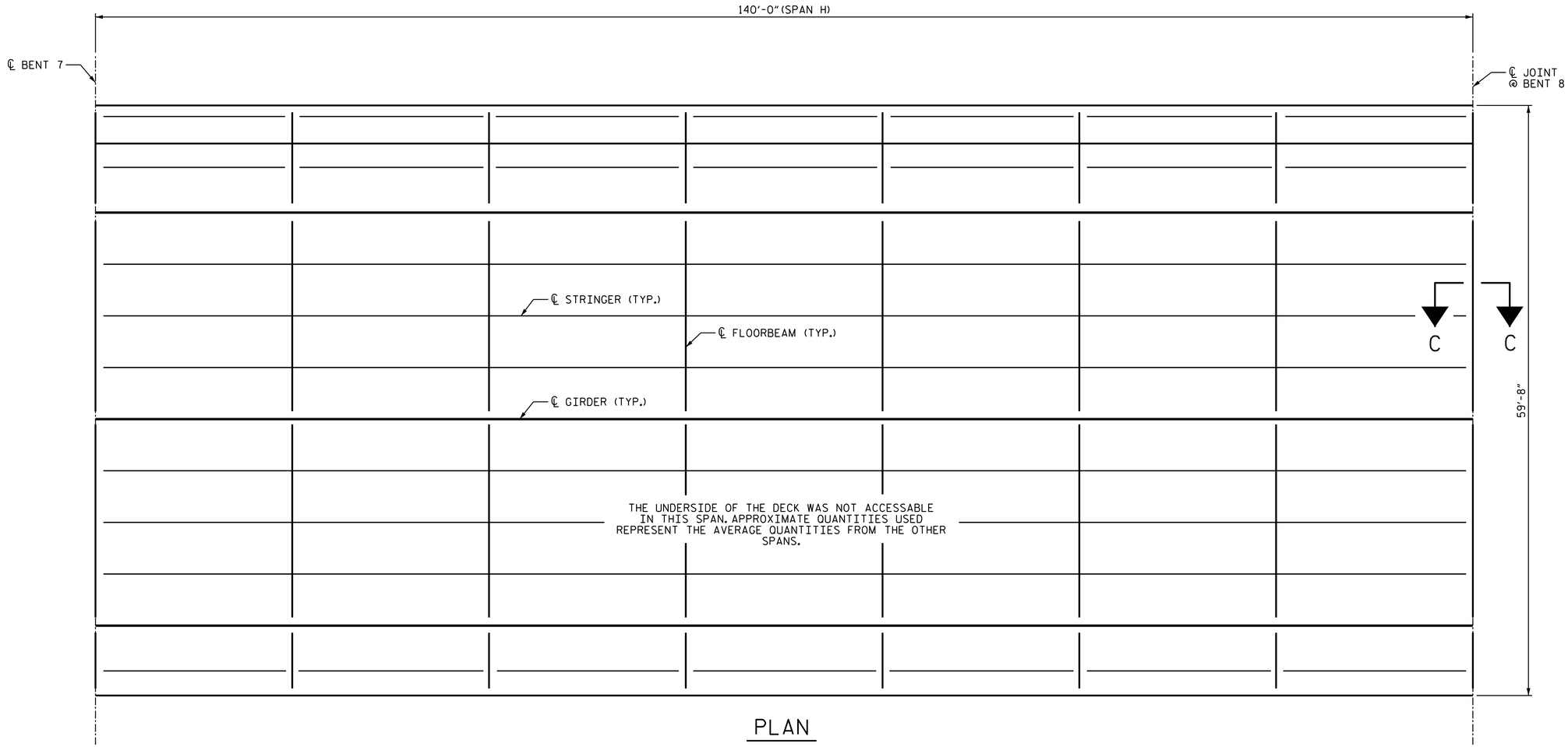

PLAN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	809 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	809 SQ. YDS.	
PPC MATERIALS	39.3 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	809 SQ. YDS.	
GROOVING BRIDGE FLOORS	6775 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	0.0	0.0		
UNDERSIDE OF OVERHANG	2.8	1.4		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	378.0 LIN. FT.	

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

NOTES:

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

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

FOR SECTION C-C, SEE "JOINT DETAILS" SHEETS.

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APPROX. CLASS II SURFACE PREPARATION

UNDERSIDE REPAIR

EPOXY RESIN INJECTION (ERI)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 8 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN H

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-59
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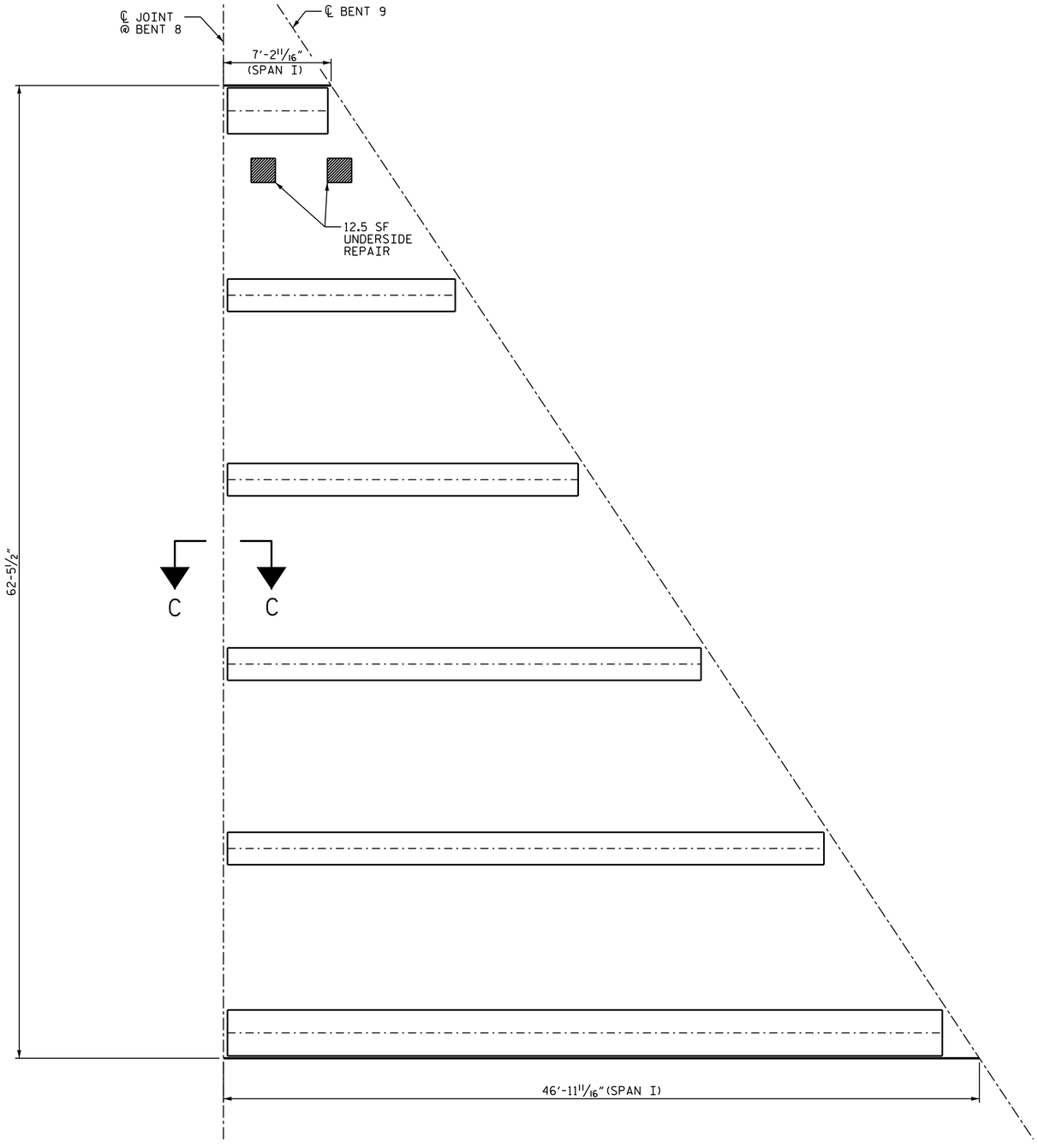

PLAN

APPROX. CLASS II SURFACE PREPARATION
UNDERSIDE REPAIR
GIRDER REPAIR
EPOXY RESIN INJECTION (ERI)

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	162 SQ. YDS.	
CLASS II SURFACE PREPARATION	0.0 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. ✳	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	162 SQ. YDS.	
PPC MATERIALS	7.9 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	162 SQ. YDS.	
GROOVING BRIDGE FLOORS	1296 SQ. FT	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
UNDERSIDE OF DECK	12.5	6.3		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	0.0 LIN. FT.	
DIAPHRAGM EPOXY RESIN INJECTION	0.0 LIN. FT.	

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

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

NOTES:

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

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

FOR SECTION C-C, SEE "JOINT DETAILS" SHEETS.

✳ CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

SHEET 9 OF 10

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN I

REVISIONS						SHEET NO.
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2			4			90

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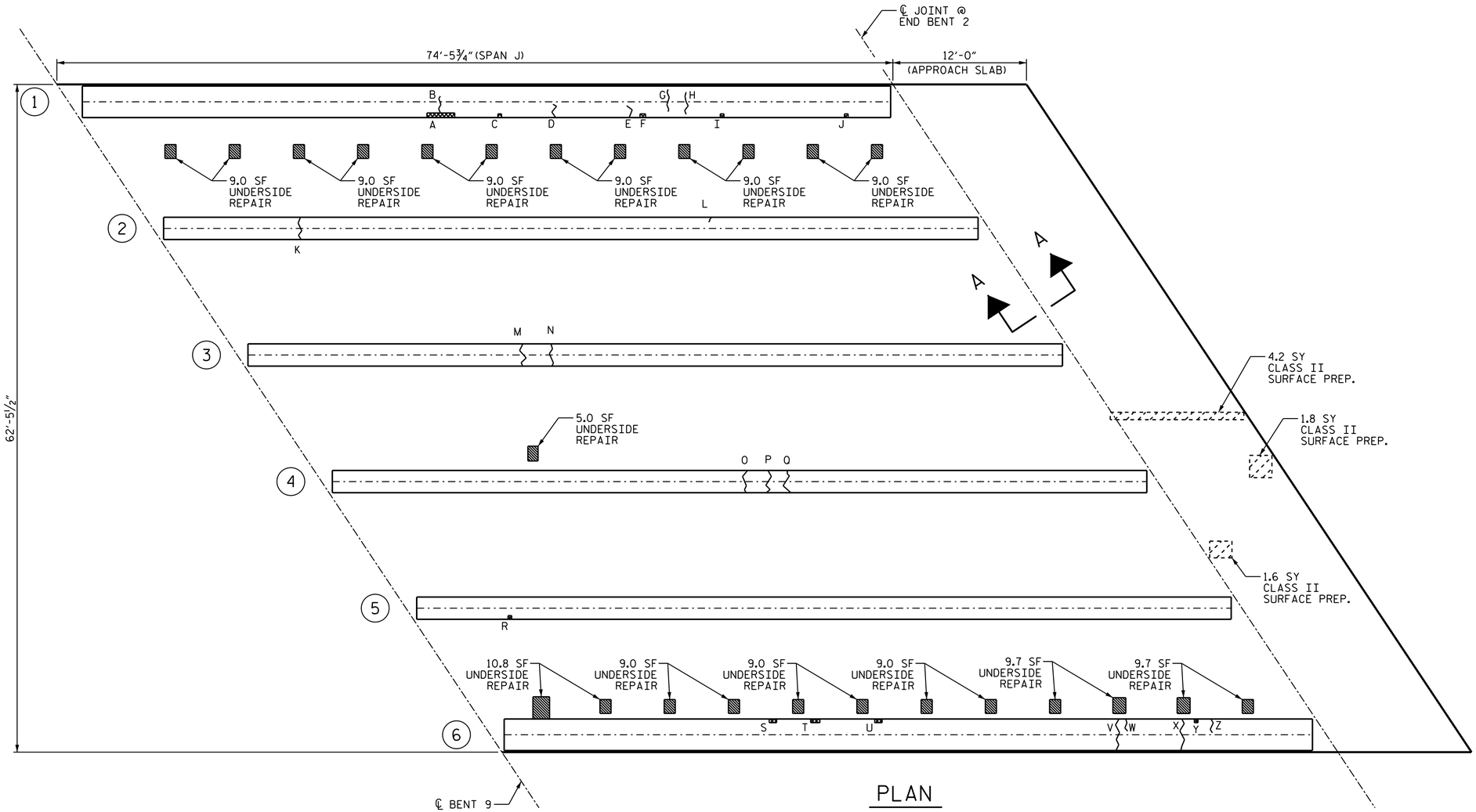

PLAN

REINFORCED CONCRETE DECK GIRDER REPAIR LOCATIONS

GIRDER	LOCATION	REPAIR SIZE (L x W)	LABEL
1	BOTTOM	5″ x 2′-6″	A
1	BOTTOM	1.5 LF ERI	B
1	RIGHT SIDE	4″ x 2′-7″	C
1	RIGHT SIDE	2.5 LF ERI	D
1	RIGHT SIDE	6.0 LF ERI	E
1	RIGHT SIDE	6″ x 3′-7″	F
1	BOTTOM	2.0 LF ERI	G
1	BOTTOM	2.0 LF ERI	H
1	RIGHT SIDE	4″ x 3′-3″	I
1	RIGHT SIDE	4″ x 6′-1″	J
2	BOTTOM	2.0 LF ERI	K
2	LEFT SIDE	0.5 LF ERI	L
3	BOTTOM	2.0 LF ERI	M
3	BOTTOM	2.0 LF ERI	N
4	BOTTOM	2.0 LF ERI	O
4	BOTTOM	2.0 LF ERI	P
4	BOTTOM	2.0 LF ERI	Q
5	RIGHT SIDE	4″ x 2′-8″	R
6	LEFT SIDE	8″ x 10″	S
6	LEFT SIDE	10″ x 2′-4″	T
6	LEFT SIDE	8″ x 1′-10″	U
6	BOTTOM	3.0 LF ERI	V
6	LEFT SIDE	5.0 LF ERI	W
6	BOTTOM	3.0 LF ERI	X
6	LEFT SIDE	4″ x 6′-5″	Y
6	LEFT SIDE	2.0 LF ERI	Z

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	503 SQ. YDS.	
CLASS II SURFACE PREPARATION	7.6 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS. *	
CONCRETE DECK REPAIR FOR PPC OVERLAY	7.6 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	503 SQ. YDS.	
PPC MATERIALS	24.5 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY	503 SQ. YDS.	
GROOVING BRIDGE FLOORS	4224 SQ. FT.	

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

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SQ. FT.	ESTIMATE VOLUME CU. FT.	ACTUAL AREA SQ. FT.	ACTUAL VOLUME CU. FT.
UNDERSIDE OF DECK	116.2	58.1		
UNDERSIDE OF OVERHANG	0.0	0.0		

OTHER REPAIRS	ESTIMATE	ACTUAL
OVERHANG EPOXY RESIN INJECTION	0.0 LIN. FT.	

VALUES REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1″ BEHIND REBAR AND MINIMUM OF 2″ CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

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

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

FOR REINFORCED CONCRETE DECK GIRDER REPAIR DETAILS AND QUANTITIES, SEE "REINFORCED CONCRETE DECK GIRDER REPAIR DETAILS AND SUMMARY" SHEET.

FOR SECTION A-A, SEE "JOINT DETAILS" SHEETS.

* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN PAY ITEM IS INDICATED FOR PRICING PURPOSES IN THE EVENT UNANTICIPATED CLASS III AREAS ARE ENCOUNTERED.

APPROX. CLASS II SURFACE PREPARATION
UNDERSIDE REPAIR
GIRDER REPAIR
EPOXY RESIN INJECTION (ERI)
(1) GIRDER NUMBER

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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CHECKED BY : H. A. LOCKLEAR DATE : 4/18

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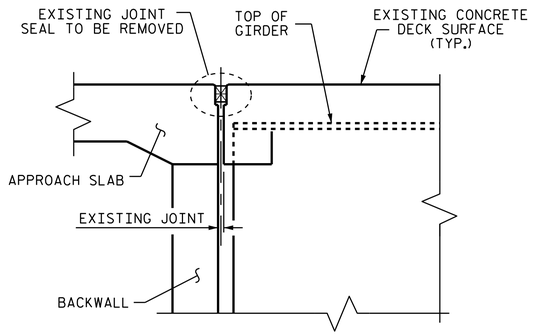
PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

SHEET 10 OF 10

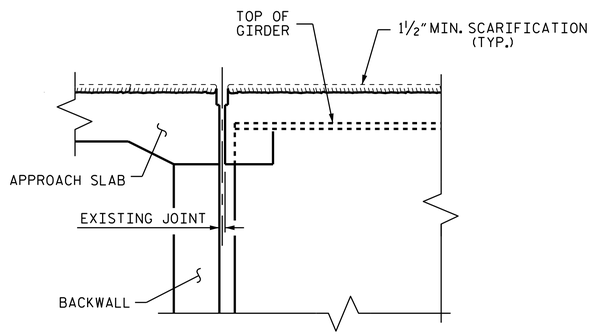
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
SPAN J AND
APPROACH SLAB

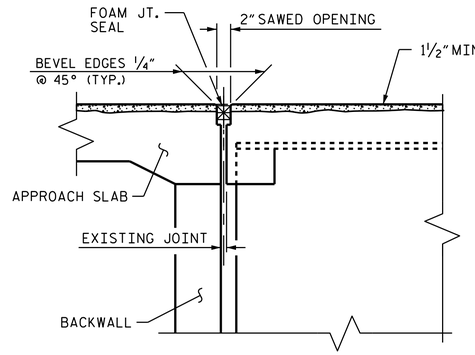
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-61
1			3			TOTAL SHEETS
2			4			90



EXISTING JOINT



EXISTING JOINT AFTER DECK SCARIFICATION



PROPOSED FOAM JOINT SEAL

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING SAWED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

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

THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2".

THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

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

SECTION A-A

END BENTS

EXISTING JOINT

EXISTING JOINT AFTER DECK SCARIFICATION

PROPOSED FOAM JOINT SEAL

PLAN

SECTION D-D

FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF CURB.

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
4/30/2018

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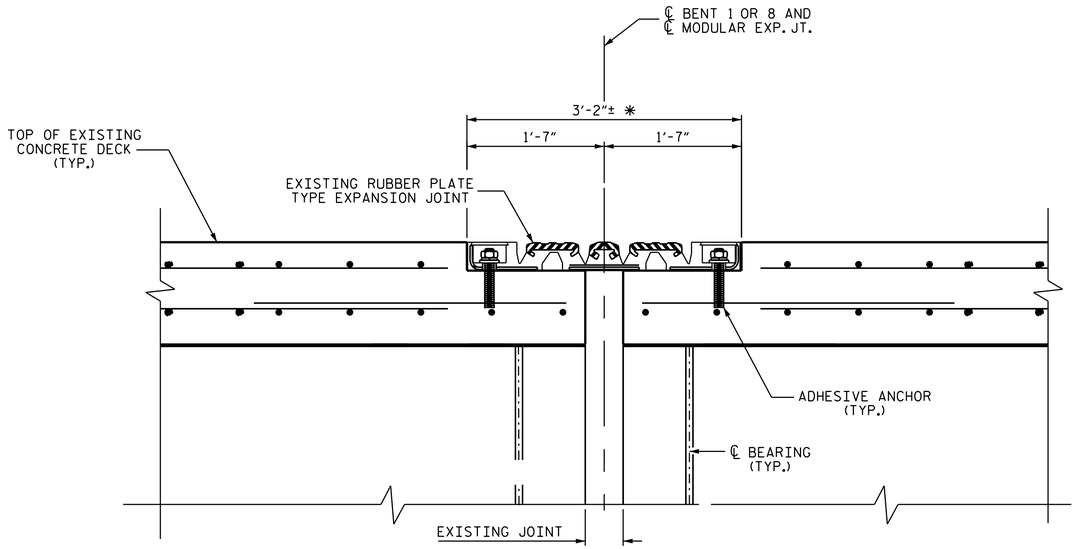
NOTES:

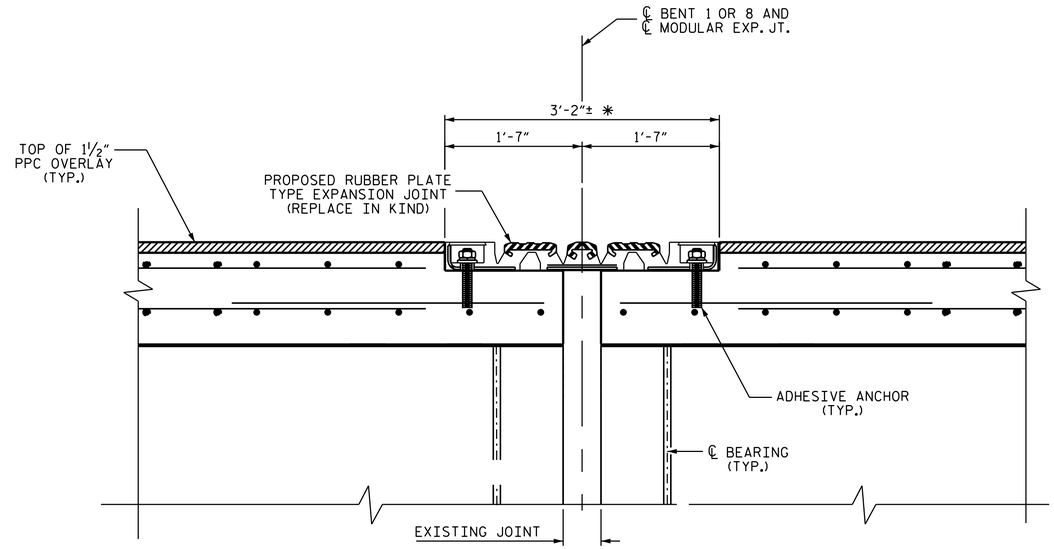
EXISTING MODULAR EXPANSION JOINT DETAIL ARE SHOWN FOR INFORMATION ONLY. ACTUAL FIELD CONDITIONS MAY VARY. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT IF ACTUAL CONDITIONS VARY FROM WHAT IS SHOWN IN THESE PLANS.

THE CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF PROPOSED EXPANSION JOINT SEAL.

THE CONTRACTOR SHALL PREPARE THE BOTTOM SURFACE OF BLOCKOUT TO BE PARALLEL WITH THE PLANE OF THE ROADWAY AND PROVIDE A UNIFORM SURFACE.



EXISTING MODULAR EXPANSION JOINT



PROPOSED MODULAR EXPANSION JOINT

SECTION C-C

BENT 1 AND BENT 8

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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DRAWN BY : E.K.POPE DATE : 02/18
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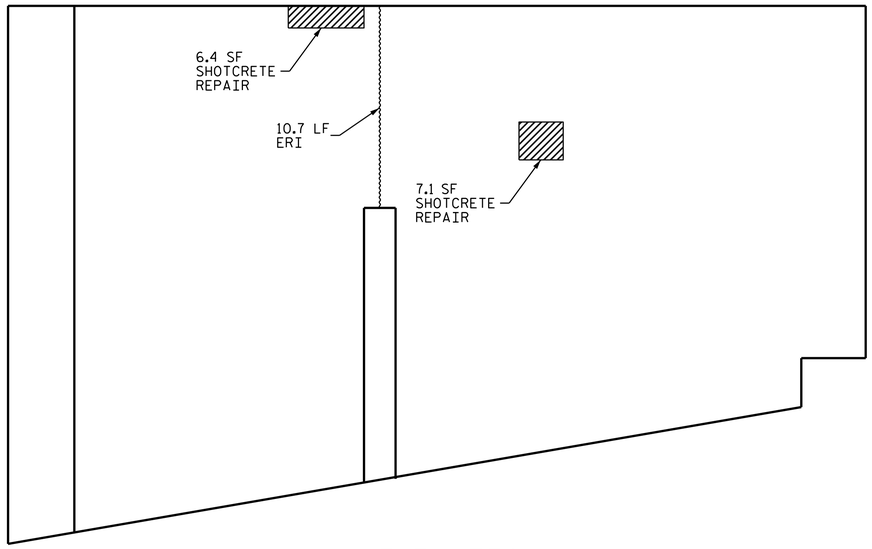
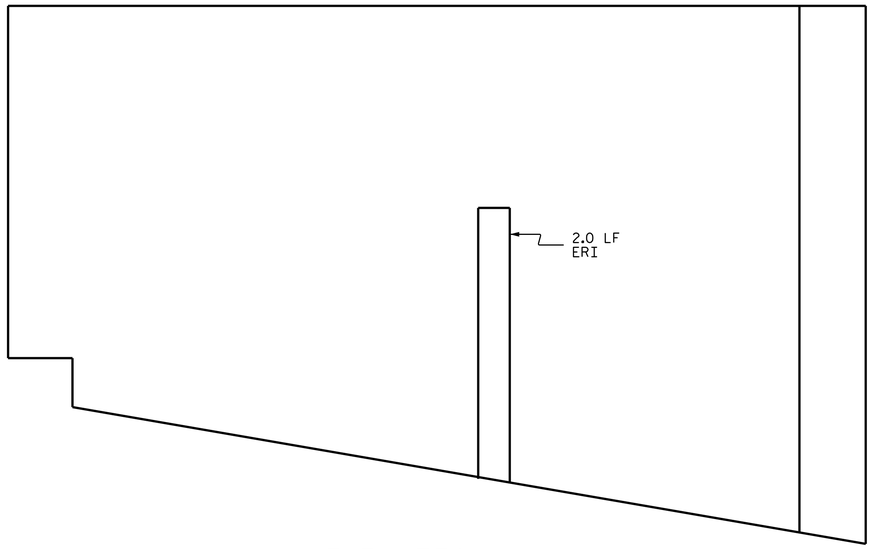
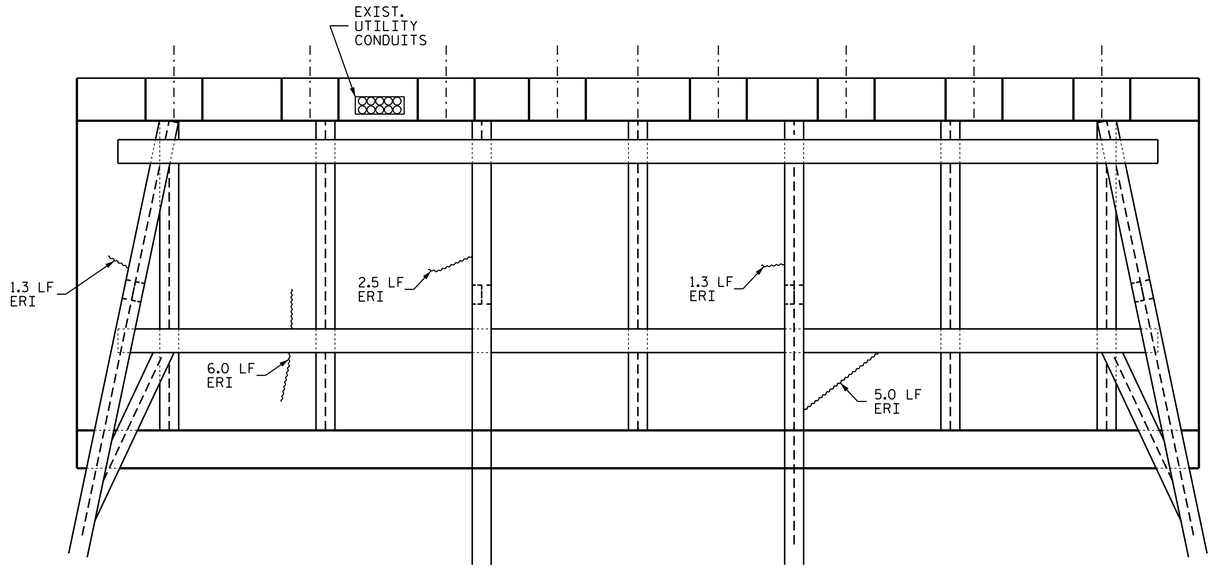


ELEVATION
NORTH INTERIOR WALL



ELEVATION
SOUTH INTERIOR WALL



ELEVATION

AS-BUILT REPAIR QUANTITY TABLE

ABUTMENT 1 SPAN A FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
BACKWALL	0.0	0.0		
INTERIOR WALLS	13.5	6.8		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
BACKWALL	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
BACKWALL		16.1		
INTERIOR WALLS		12.7		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ABUTMENT 1 SPAN A FACE

(INTEGRAL END BENT & INTERIOR WALLS PORTION OF 3 SIDED BOX)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-64
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : D.V. JOYNER DATE : 1/2018
CHECKED BY : C.L. BRIGHT DATE : 4/2018

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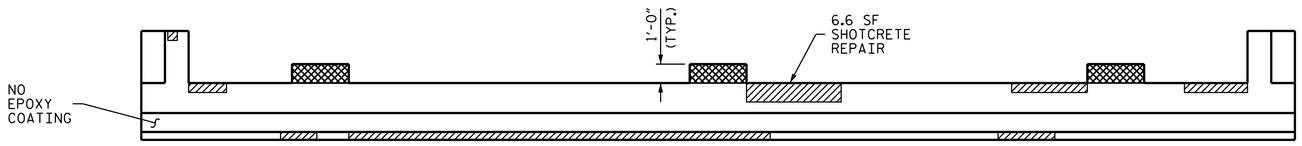
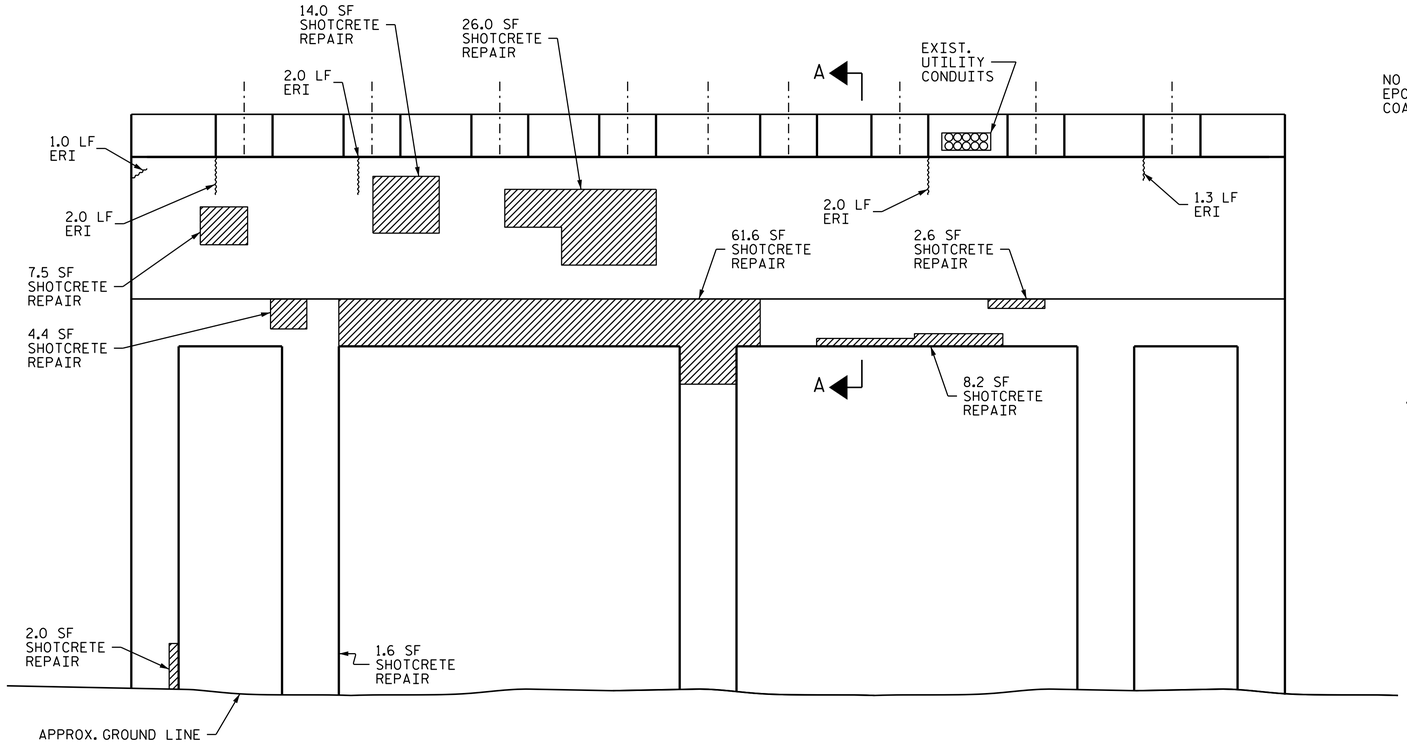


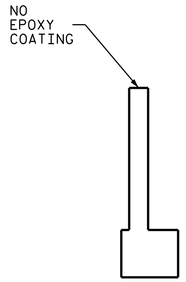
SPAN B
SPAN A

TOP OF CAP



ELEVATION

SPAN A | SPAN B



SECTION A-A

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 SPAN A FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	130.9	65.5		
COLUMN	3.6	1.8		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		8.3		
COLUMN		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		137.7		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
SPAN A FACE
(INTEGRAL BENT PORTION OF 3 SIDED BOX)

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1			3			TOTAL SHEETS
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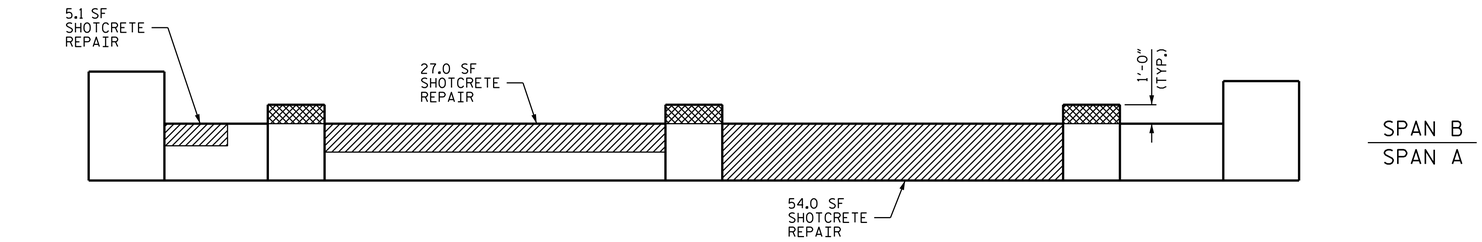
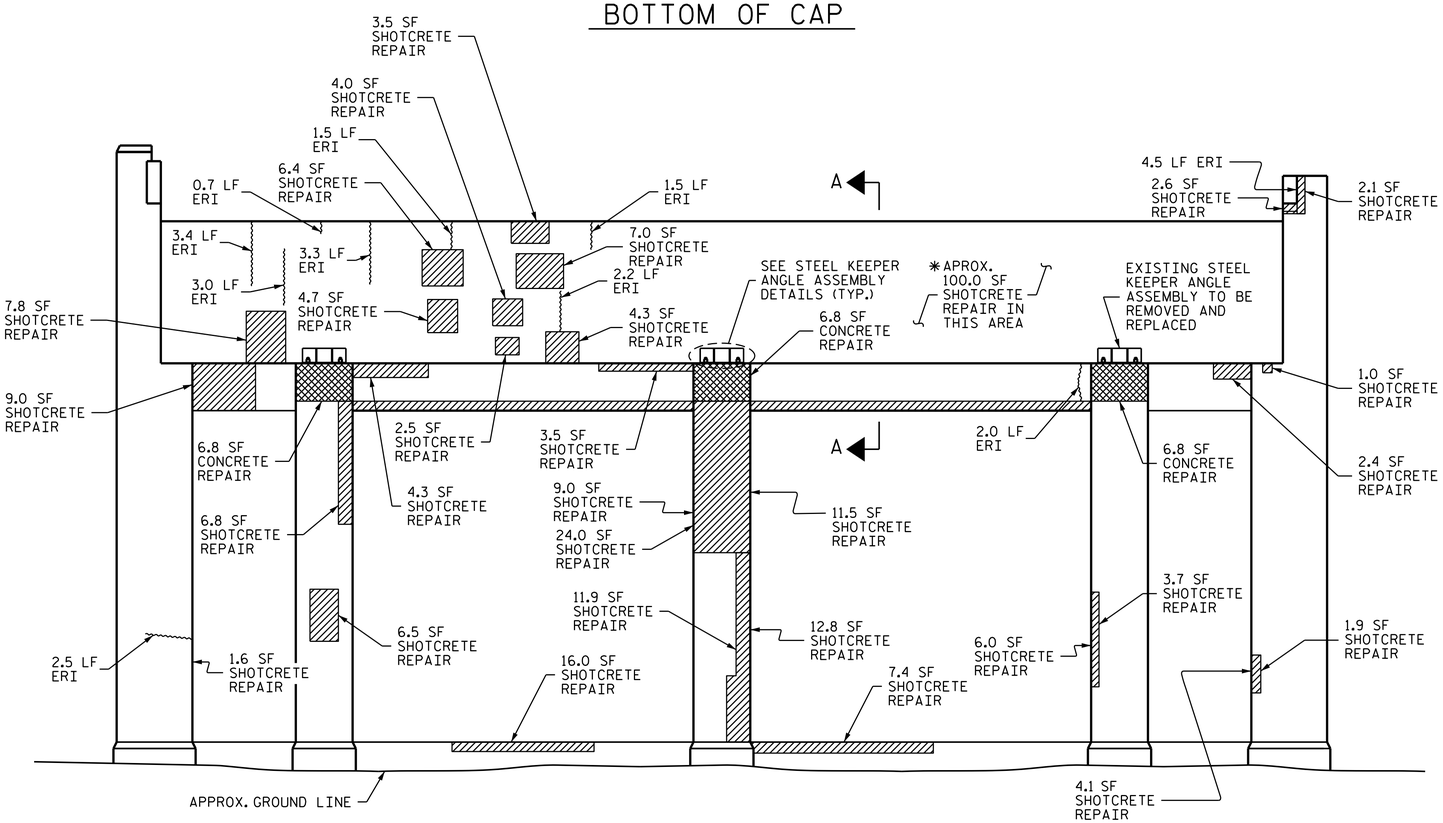


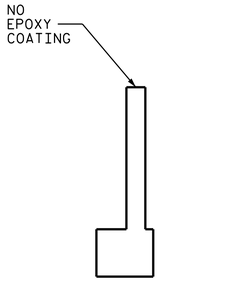
SPAN B
SPAN A

BOTTOM OF CAP



ELEVATION

SPAN B | SPAN A



SECTION A-A

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	245.5	122.8		
COLUMN	105.5	52.8		
FOOTING	23.4	11.7		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	20.4	20.4		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		17.6		
COLUMN		7.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

* THE ENGINEER SHALL DETERMINE THE EXACT REPAIR AREAS IN THIS LOCATION.

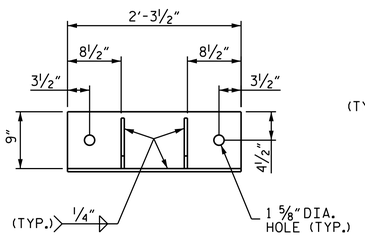
NOTES:

STRUCTURAL STEEL SHALL BE AASHTO GRADE 36 OR GREATER.

STRUCTURAL STEEL, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

FOR STEEL KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.



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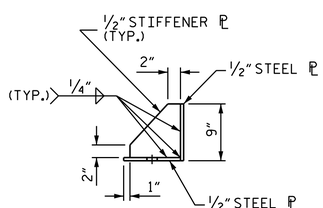

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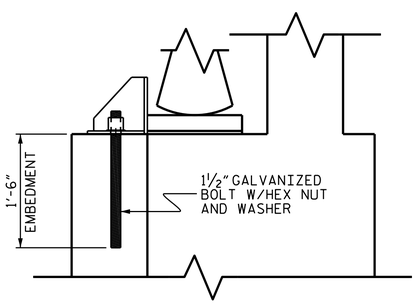

SECTION THUR CAP

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
SPAN B FACE
(INTEGRAL BENT PORTION OF 3 SIDED BOX)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

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DRAWN BY : D.V. JOYNER DATE : 01/2018
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STEEL KEEPER ANGLE ASSEMBLY DETAILS

(ASSEMBLY TO BE PLACED AS SHOWN) (3 REQUIRED)

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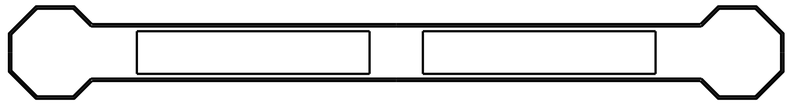
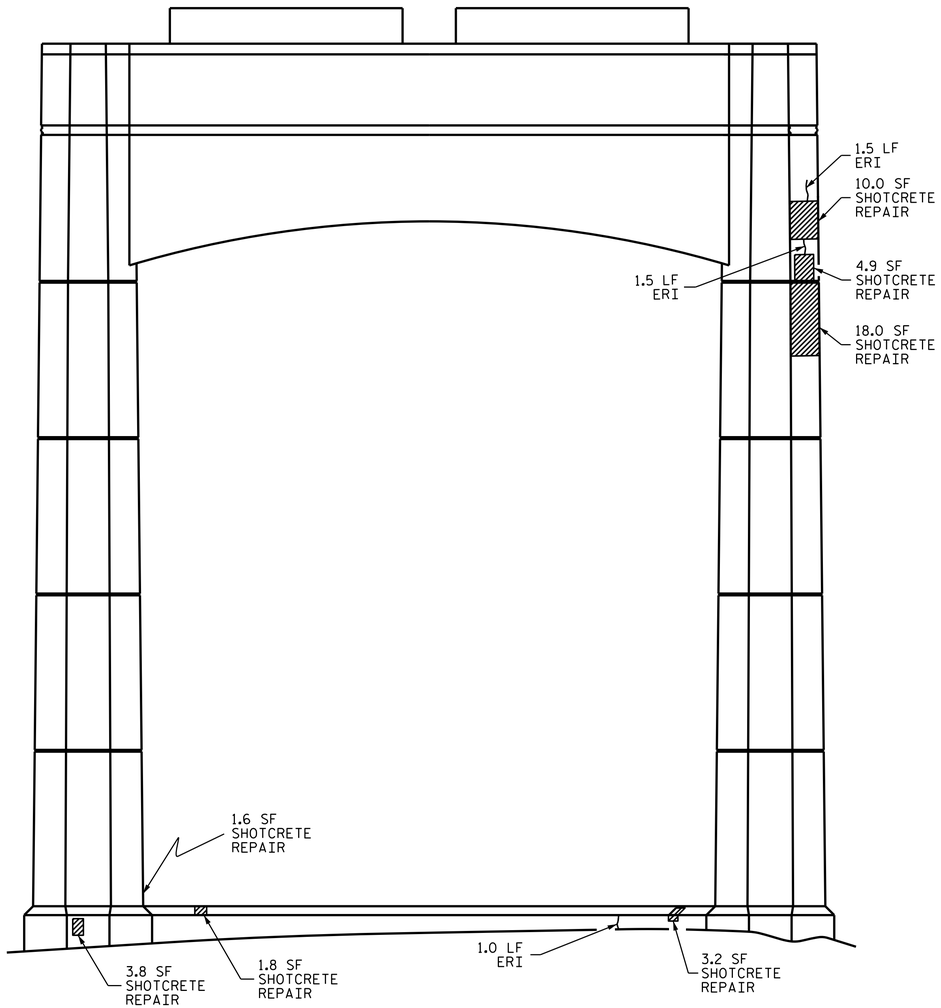


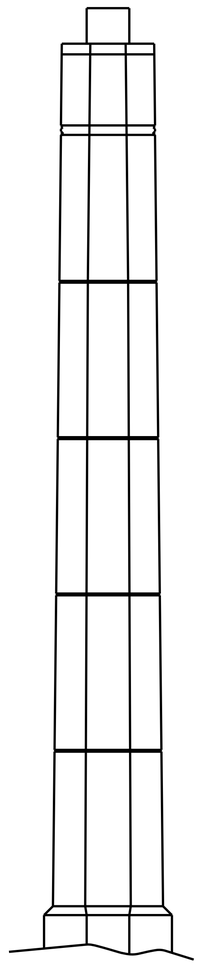
SPAN C
SPAN B

TOP OF CAP



ELEVATION

SPAN B | SPAN C



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	14.9	7.5		
COLUMN	18.0	9.0		
PEDESTAL	10.4	5.2		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		3.0		
COLUMN		0.0		
PEDESTAL		1.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2
SPAN B FACE

DRAWN BY : M.WELDON DATE : 02/18
CHECKED BY : E.K.POPE DATE : 04/18

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-67
1			3			TOTAL SHEETS
2			4			90

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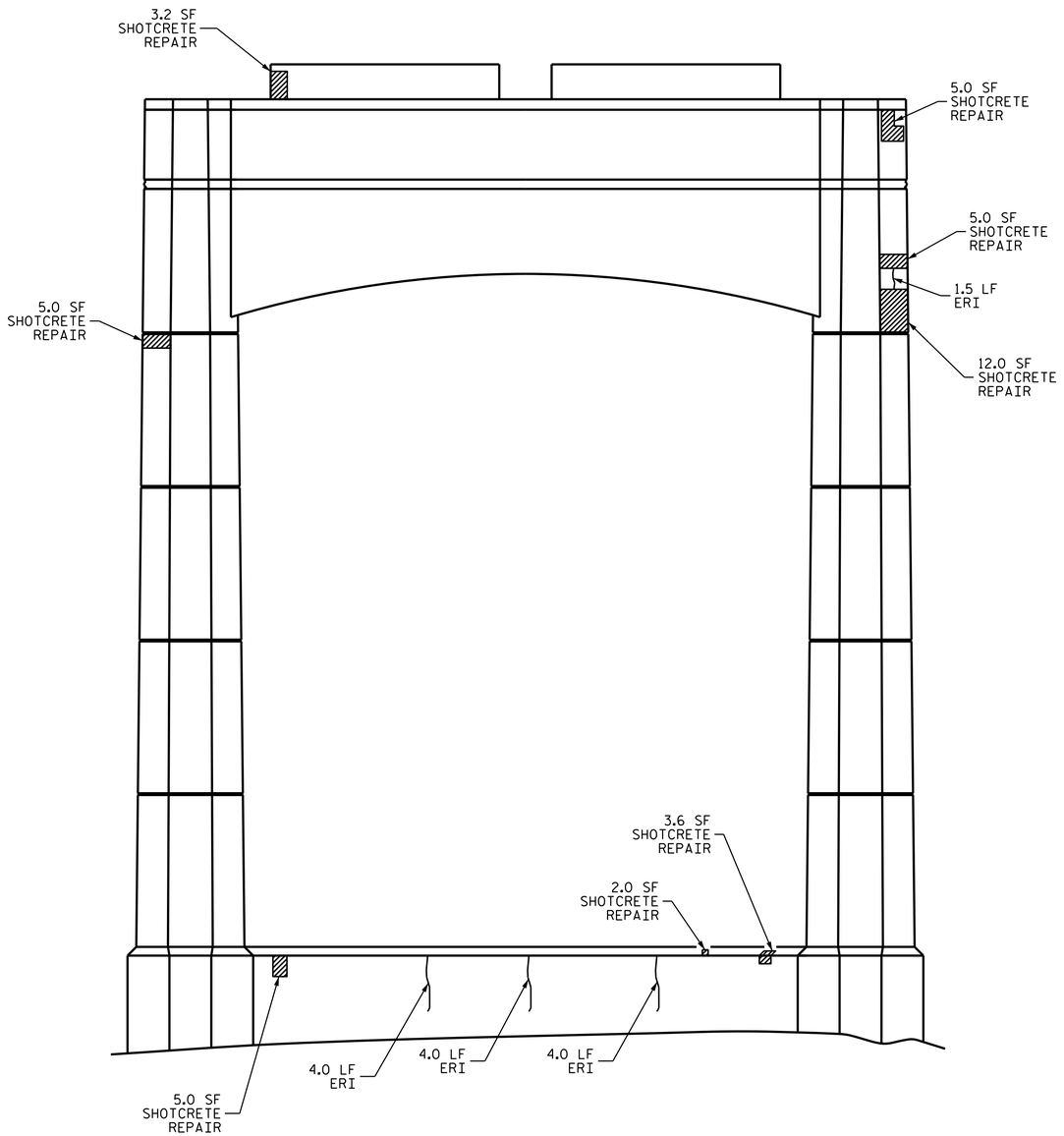
BOTTOM OF CAP



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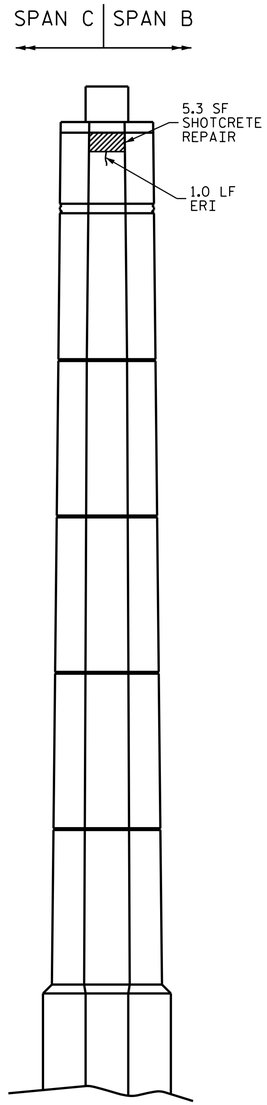

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 SPAN C FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	30.5	15.3		
COLUMN	5.0	2.5		
PEDESTAL	10.6	5.3		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		2.5		
COLUMN		0.0		
PEDESTAL		12.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee BD4B5A4F2FAD484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2 SPAN C FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-68
1			3			TOTAL SHEETS
2			4			90

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DRAWN BY : M.WELDON DATE : 02/18
CHECKED BY : E.K.POPE DATE : 04/18

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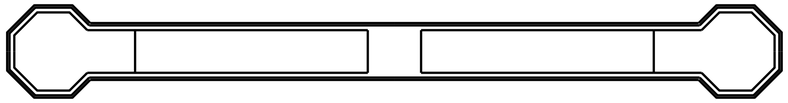
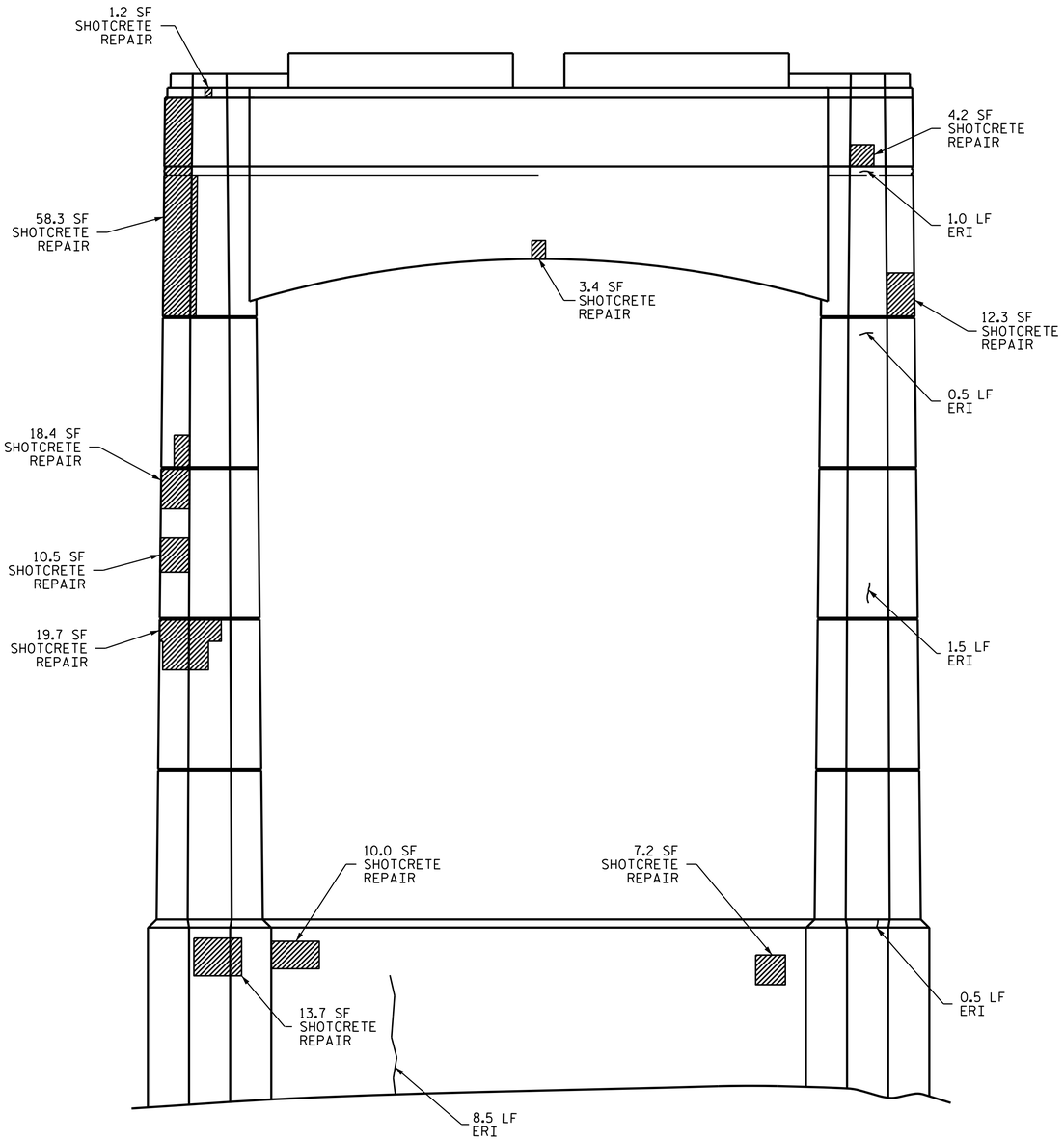
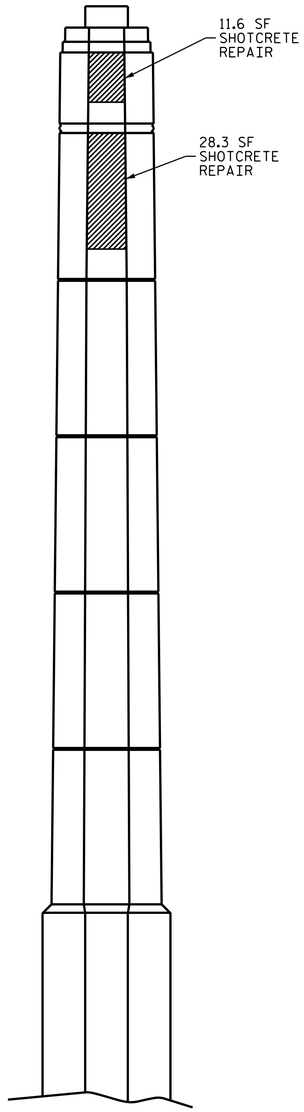


TOP OF CAP



ELEVATION

SPAN C | SPAN D



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 SPAN C FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	119.3	59.7		
COLUMN	48.6	24.3		
PEDESTAL	30.9	15.5		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		1.0		
COLUMN		2.0		
PEDESTAL		9.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3 SPAN C FACE

DRAWN BY : M.WELDON DATE : 02/18

CHECKED BY : E.K.POPE DATE : 04/18

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-69
1			3			TOTAL SHEETS
2			4			90

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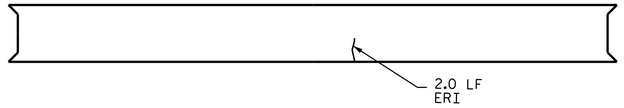
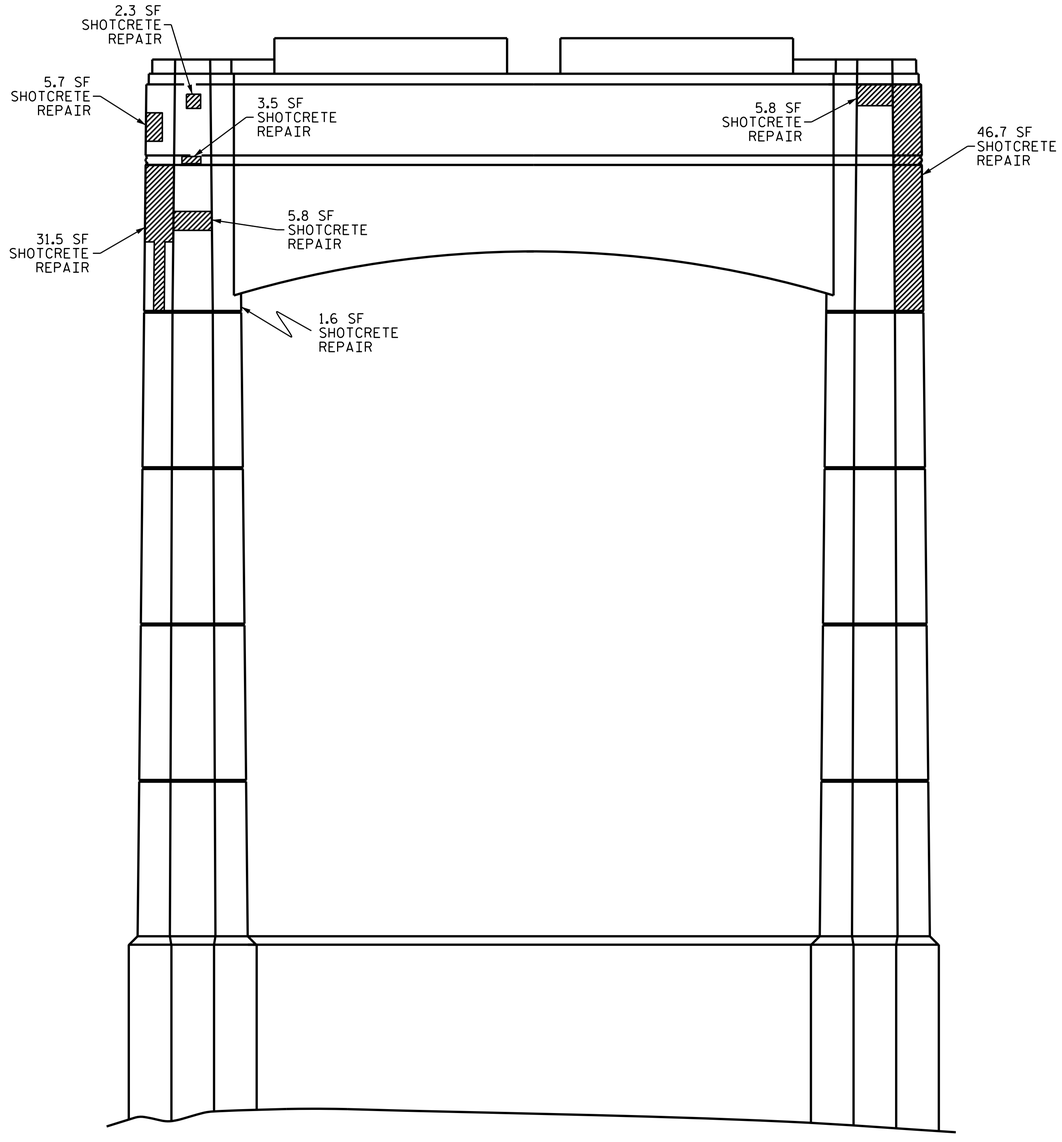


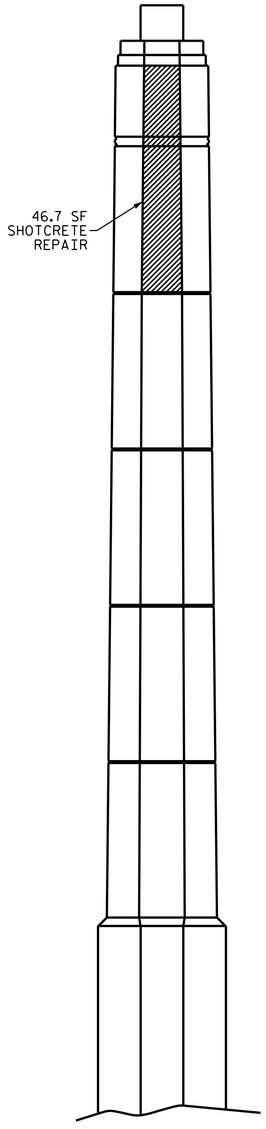
SPAN D
SPAN C

BOTTOM OF CAP



ELEVATION

SPAN D | SPAN C



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 SPAN D FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	149.6	74.8		
COLUMN	0.0	0.0		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		2.0		
COLUMN		0.0		
PEDESTAL		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
80485AAF2FAD484...
4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3
SPAN D FACE

DRAWN BY : M.WELDON DATE : 02/18
CHECKED BY : E.K.POPE DATE : 04/18

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-70
1			3			TOTAL SHEETS
2			4			90

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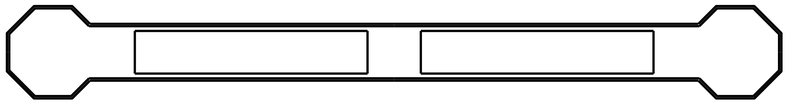
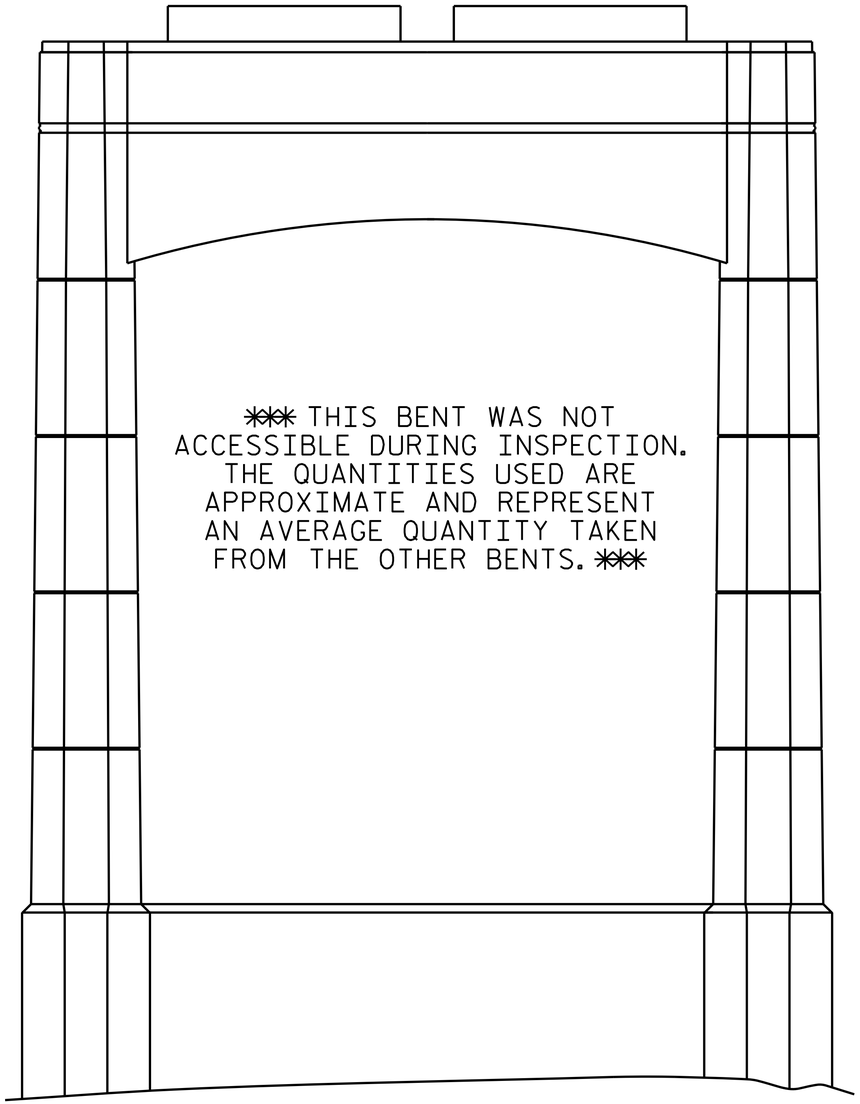


SPAN E
SPAN D

TOP OF CAP

SPAN D | SPAN E



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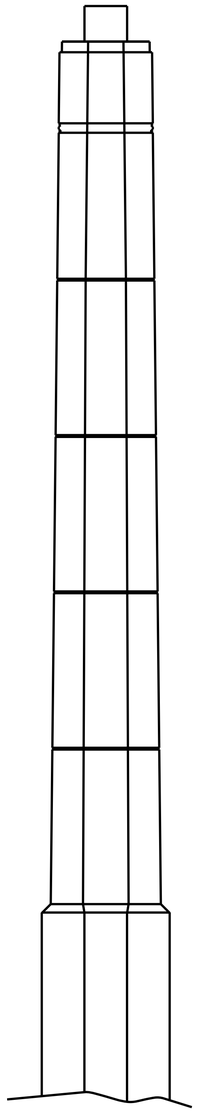

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 4 SPAN D FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	56.4	28.2		
COLUMN	52.6	26.3		
PEDESTAL	6.6	3.3		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		4.5		
COLUMN		3.0		
PEDESTAL		6.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
Amber Lee
B04B5A4F2FAD484...
4/30/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 4
SPAN D FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-71
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : M.WELDON DATE : 02/18
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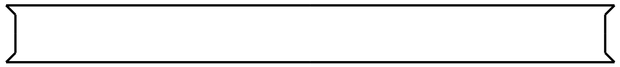
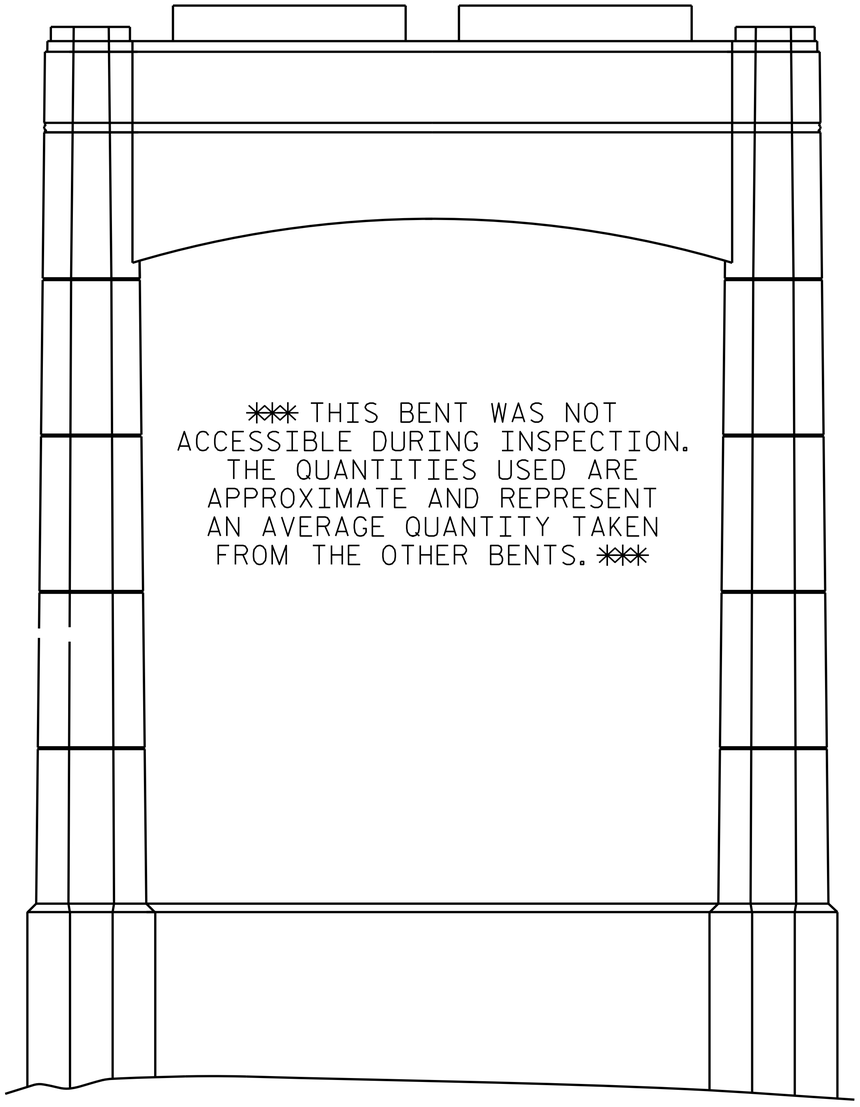


SPAN E
SPAN D

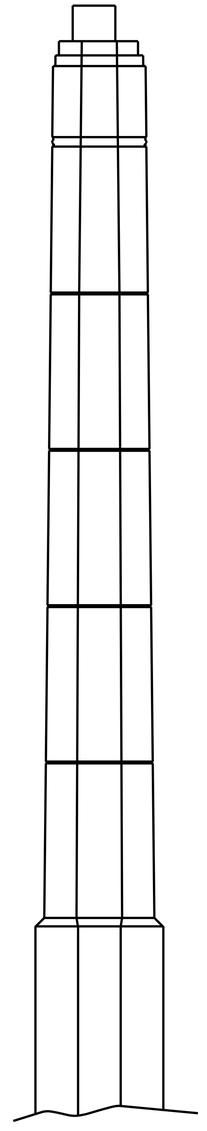
BOTTOM OF CAP



✳✳✳ THIS BENT WAS NOT ACCESSIBLE DURING INSPECTION. THE QUANTITIES USED ARE APPROXIMATE AND REPRESENT AN AVERAGE QUANTITY TAKEN FROM THE OTHER BENTS. ✳✳✳

ELEVATION

SPAN E | SPAN D



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 4 SPAN E FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	56.4	28.2		
COLUMN	52.6	26.3		
PEDESTAL	6.6	3.3		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		4.5		
COLUMN		3.0		
PEDESTAL		6.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee BDABSA6F2FAD484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 4
SPAN E FACE

DRAWN BY : M.WELDON DATE : 02/18
CHECKED BY : E.K.POPE DATE : 04/18

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-72
1			3			TOTAL SHEETS
2			4			90

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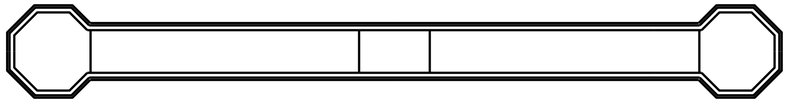
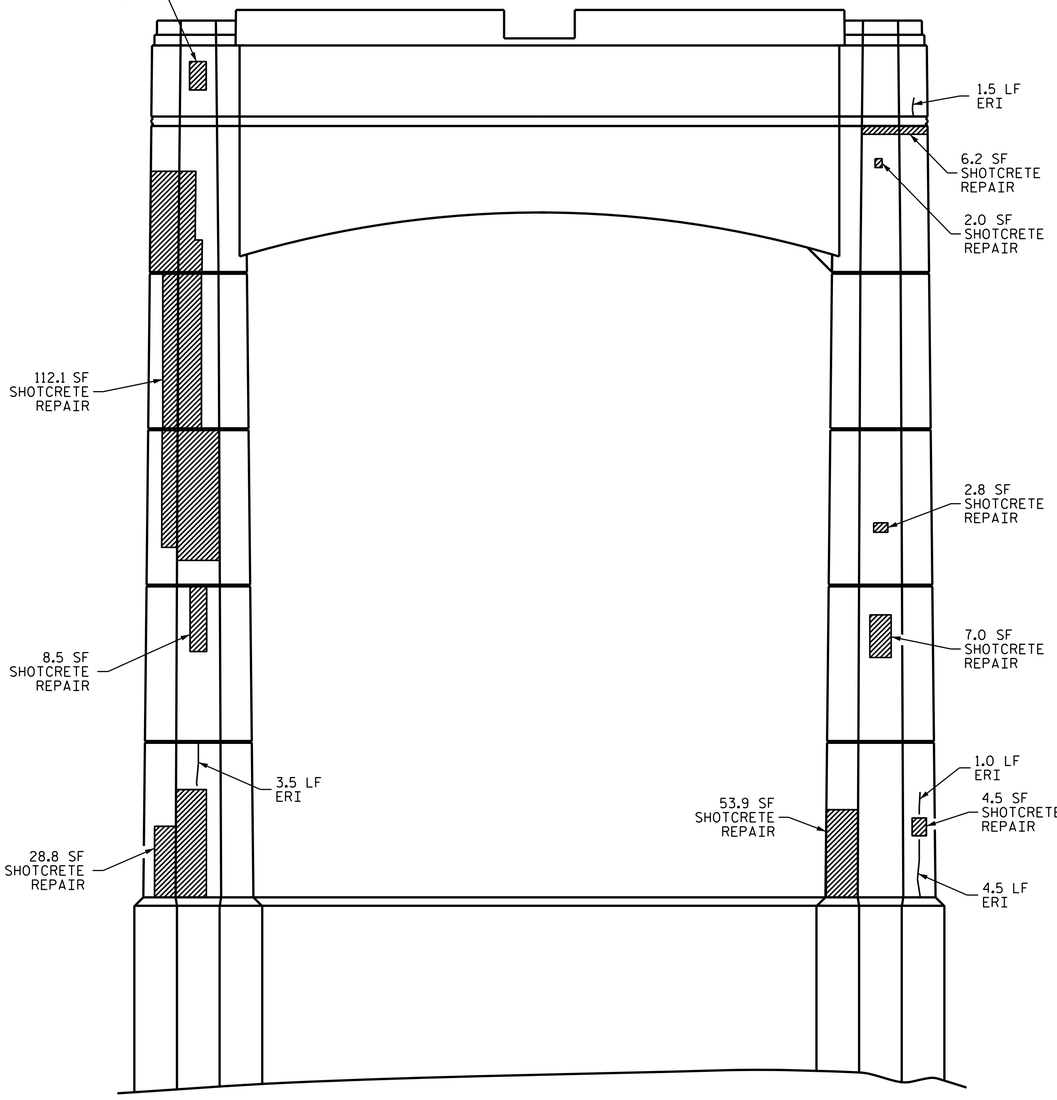
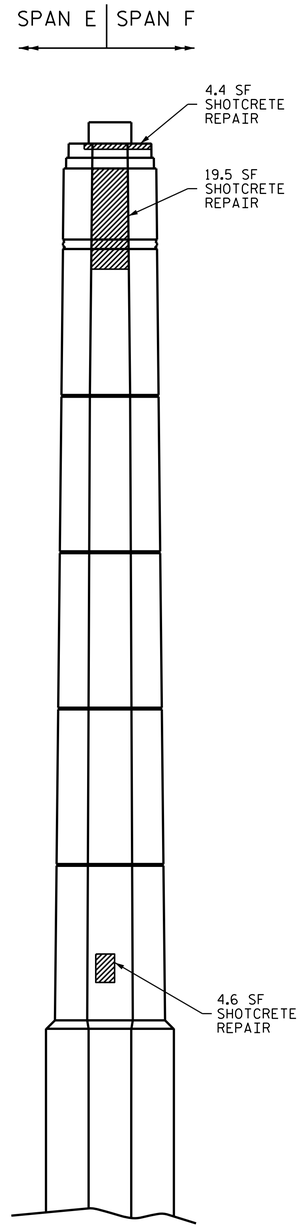


TOP OF CAP



ELEVATION



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 5 SPAN E FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	36.3	18.2		
COLUMN	222.2	111.1		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		1.5		
COLUMN		9.0		
PEDESTAL		0.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

4/30/2018

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 5 SPAN E FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-73
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : M.WELDON DATE : 03/18
CHECKED BY : E.K.POPE DATE : 04/18

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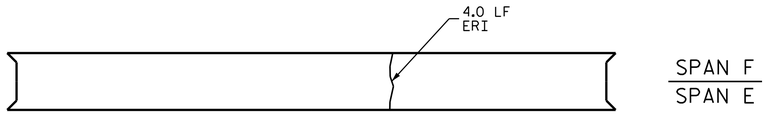
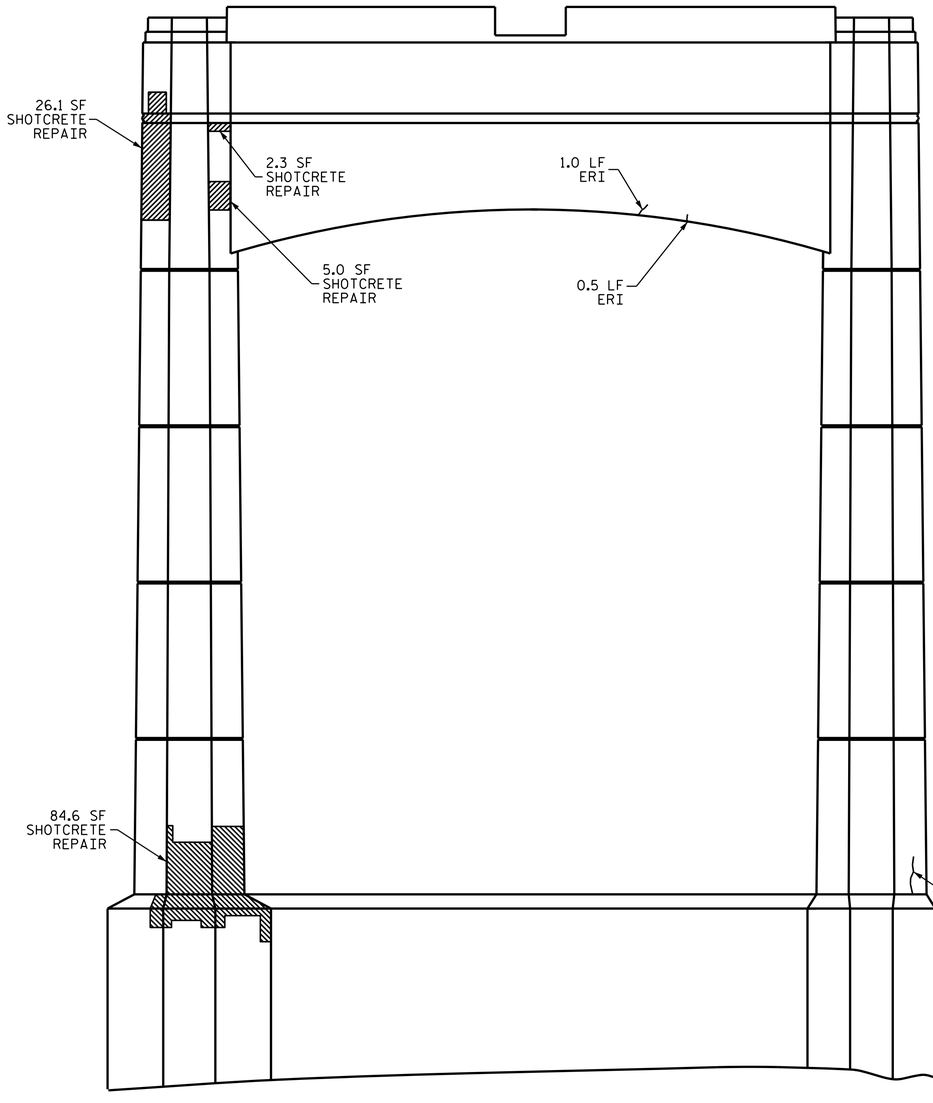


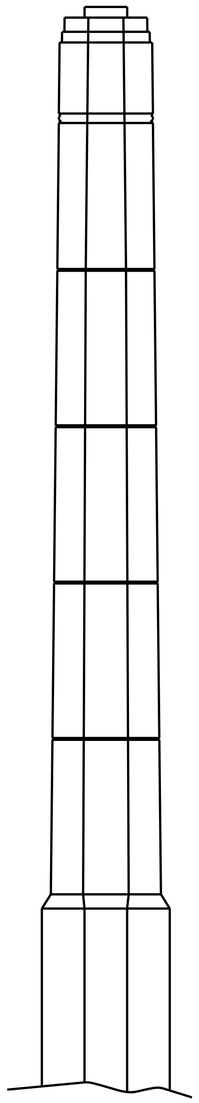
SPAN F
SPAN E

BOTTOM OF CAP



ELEVATION

SPAN F | SPAN E



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 5 SPAN F FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	33.4	16.7		
COLUMN	84.6	42.3		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		5.5		
COLUMN		3.0		
PEDESTAL		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee 80485AAF2F4D484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 5
SPAN F FACE

DRAWN BY : M.WELDON DATE : 03/18

CHECKED BY : E.K.POPE DATE : 04/18

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REVISIONS						SHEET NO.
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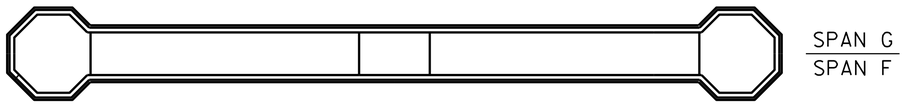
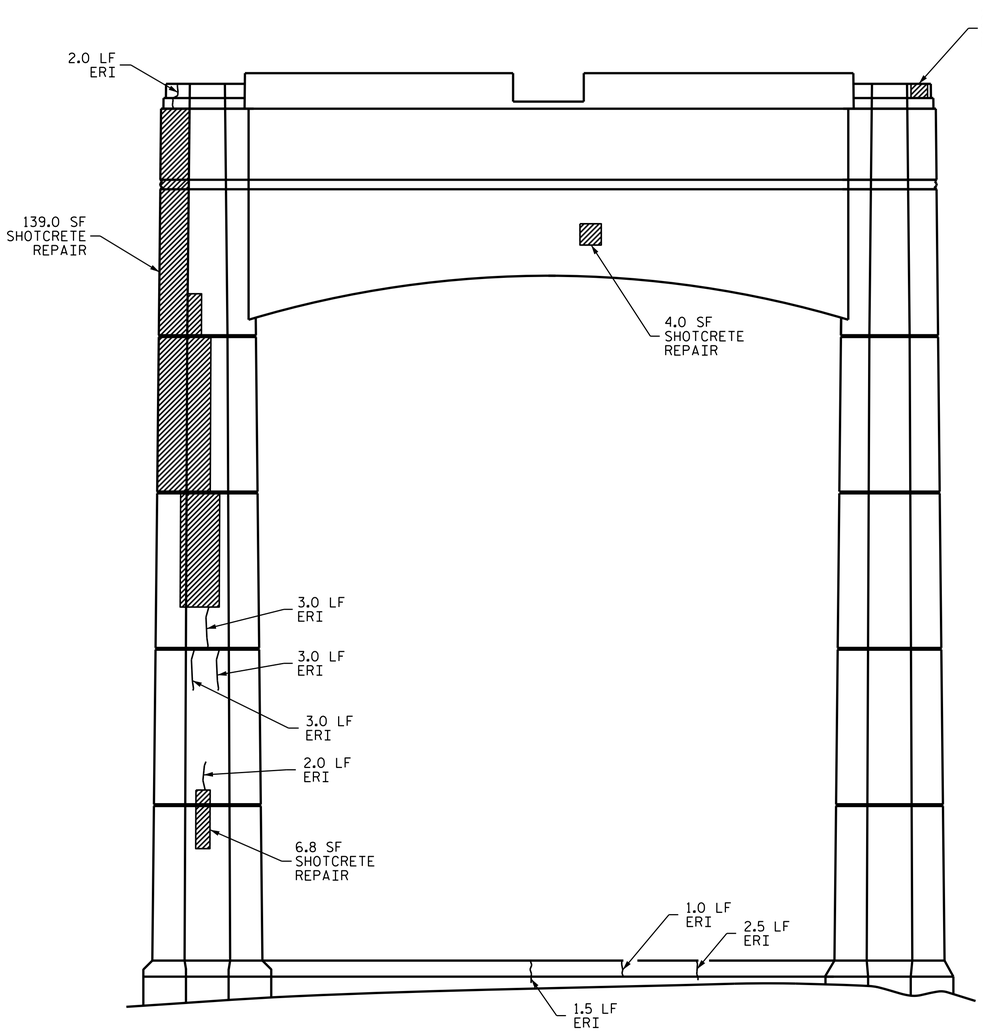


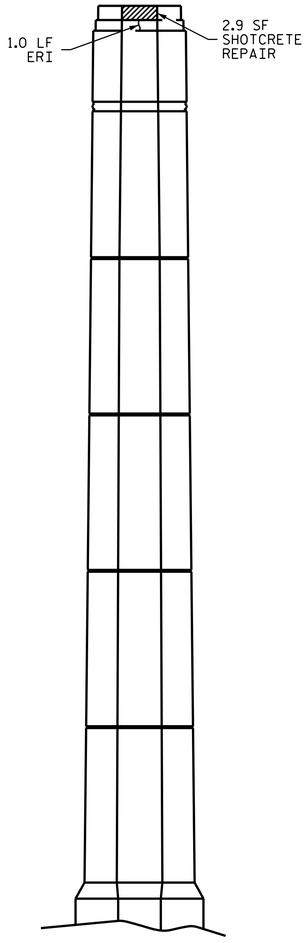
SPAN G
SPAN F

TOP OF CAP



ELEVATION

SPAN F | SPAN G



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 6 SPAN F FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	9.7	4.9		
COLUMN	145.8	72.9		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		3.0		
COLUMN		11.0		
PEDESTAL		5.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 6
SPAN F FACE

DRAWN BY : M.WELDON DATE : 03/18
CHECKED BY : E.K.POPE DATE : 04/18

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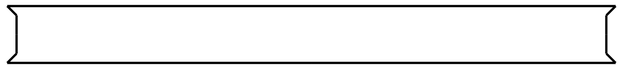
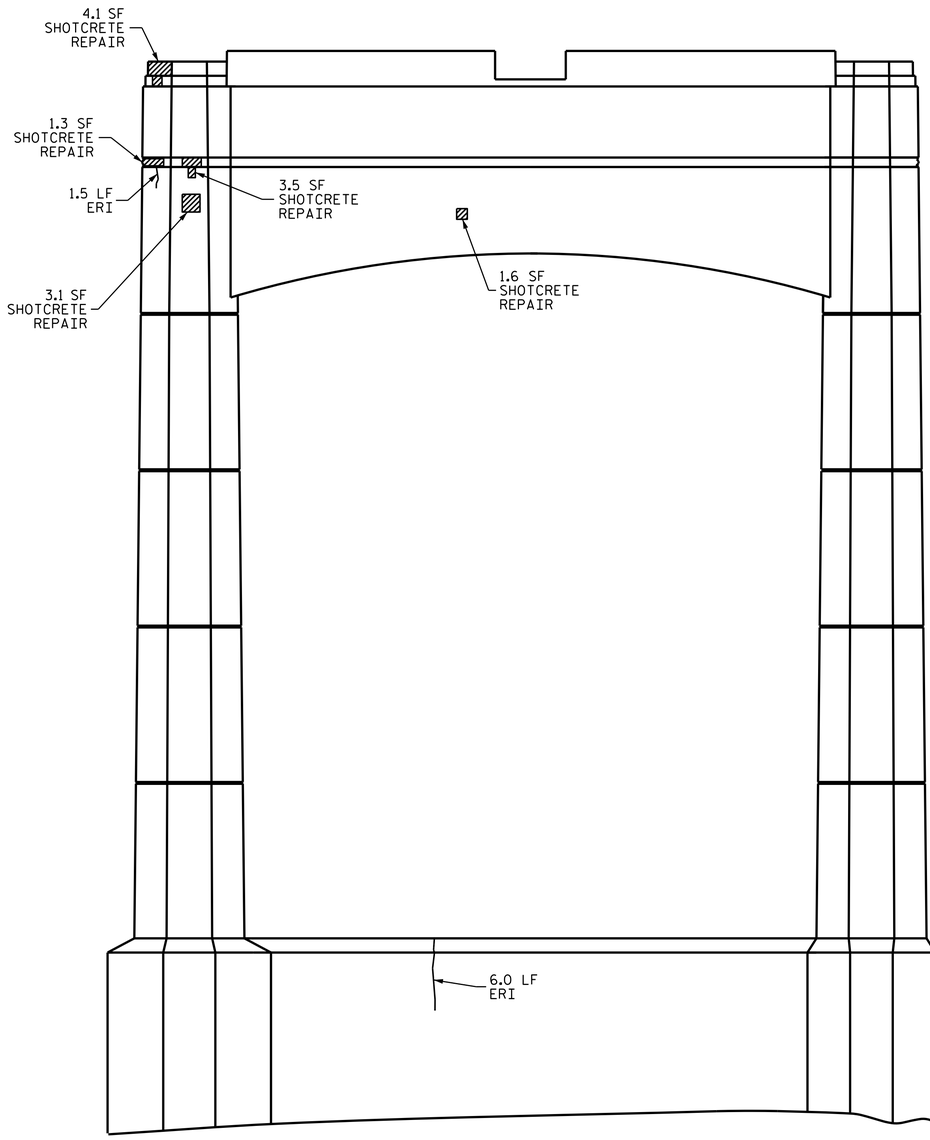


SPAN G
SPAN F

BOTTOM OF CAP



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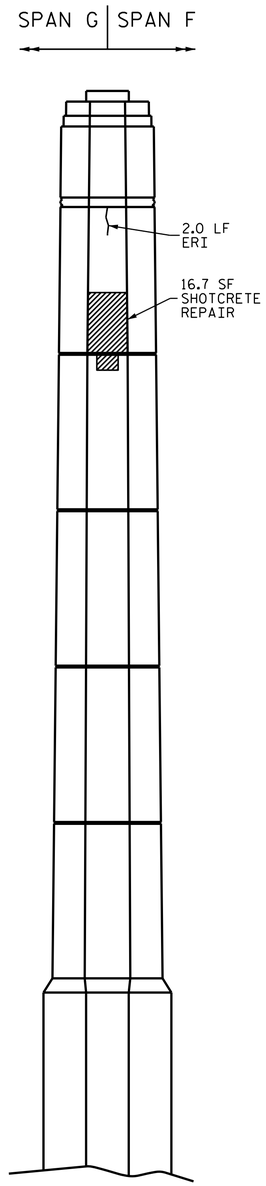

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 6 SPAN G FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	30.3	15.2		
COLUMN	0.0	0.0		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		3.5		
COLUMN		0.0		
PEDESTAL		6.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 6
SPAN G FACE

DRAWN BY : M.WELDON DATE : 03/18
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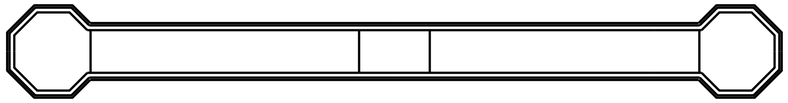
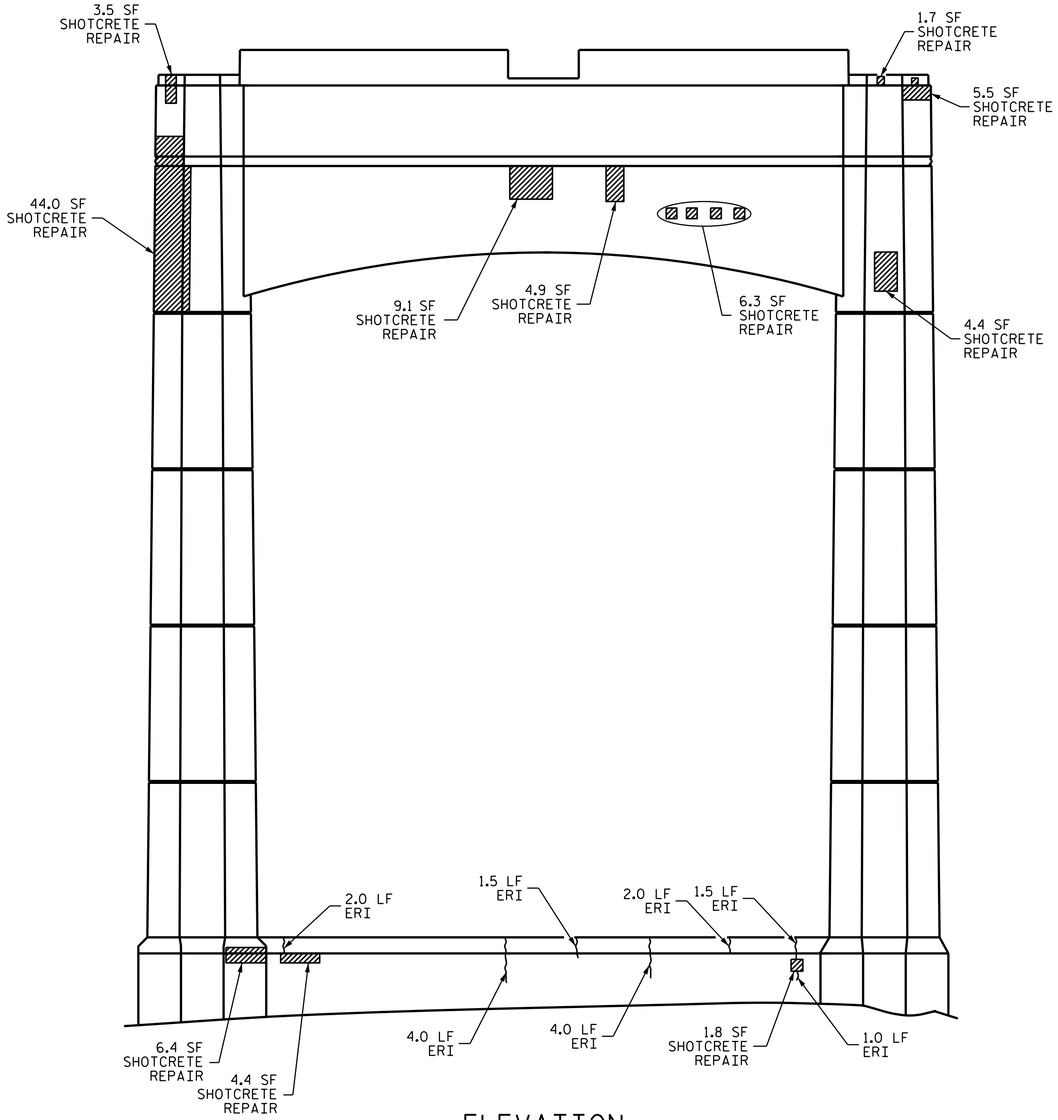
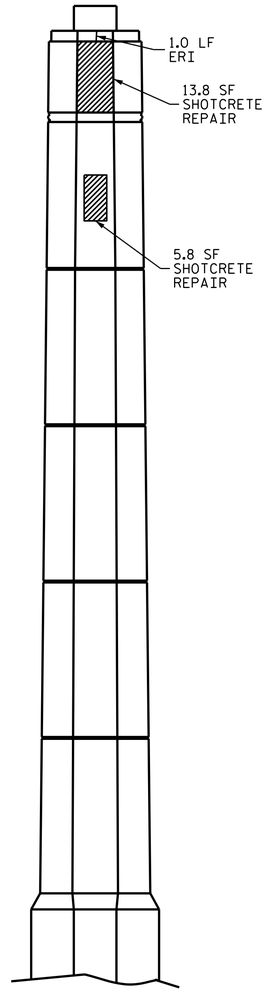


TOP OF CAP



ELEVATION

SPAN G | SPAN H



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 7 SPAN G FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	99.0	49.5		
COLUMN	0.0	0.0		
PEDESTAL	12.6	6.3		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		1.0		
COLUMN		0.0		
PEDESTAL		16.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		237.0		
TOP OF PEDESTAL		312.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B04B5A4F2FAD484...

4/30/2018

DRAWN BY : M.WELDON DATE : 03/18

CHECKED BY : E.K.POPE DATE : 04/18

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 7
SPAN G FACE

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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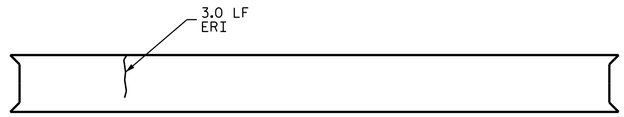
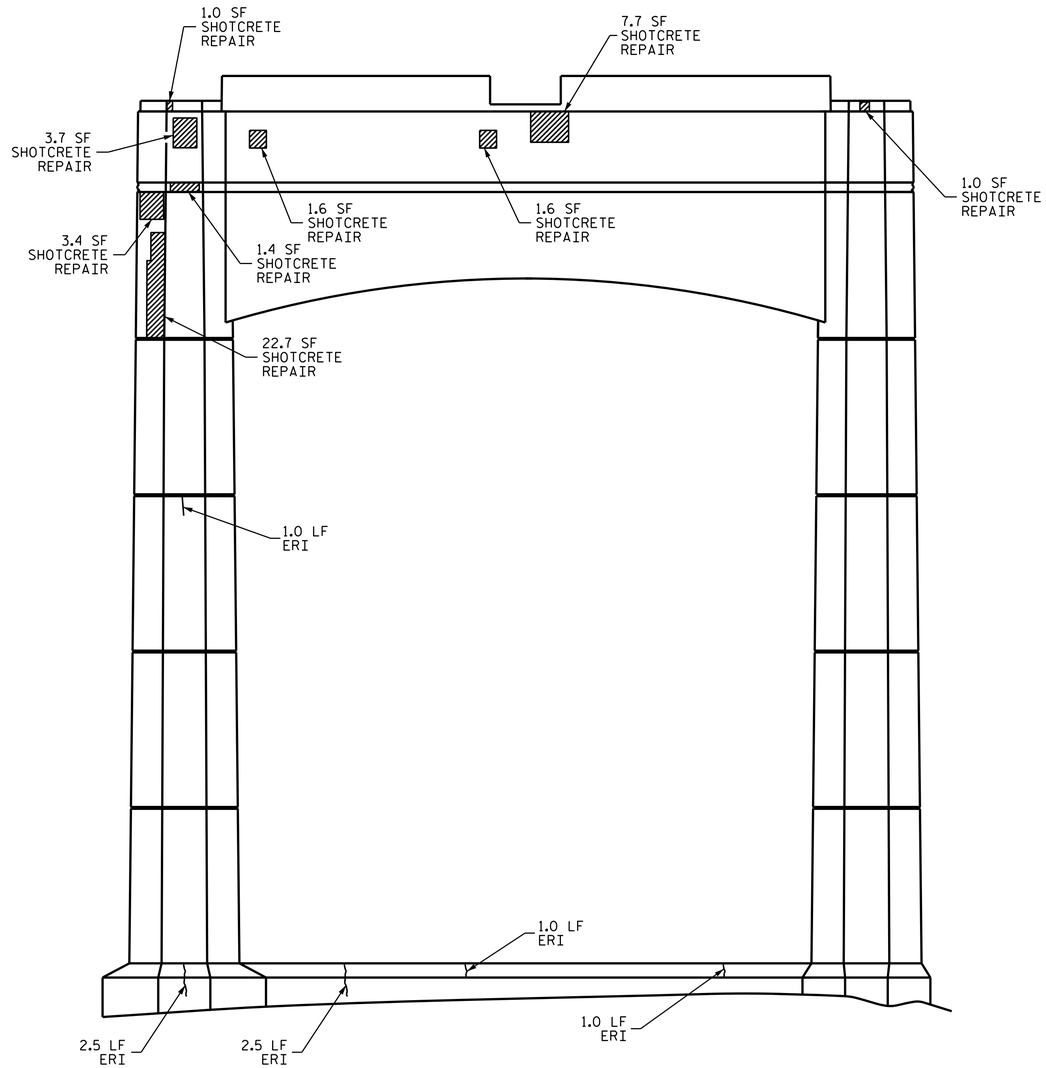


SPAN G
SPAN H

BOTTOM OF CAP



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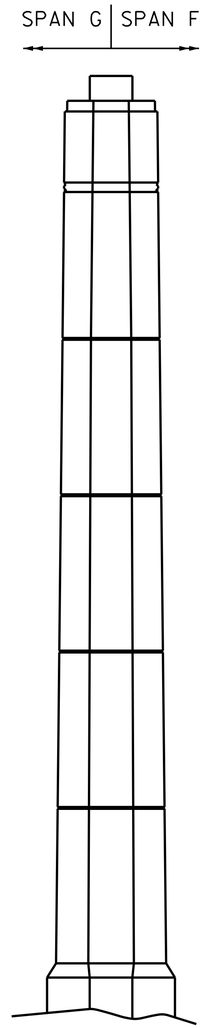

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 7 SPAN H FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	44.1	22.1		
COLUMN	0.0	0.0		
PEDESTAL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		3.0		
COLUMN		1.0		
PEDESTAL		7.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 7
SPAN H FACE

DRAWN BY : M.WELDON DATE : 03/18
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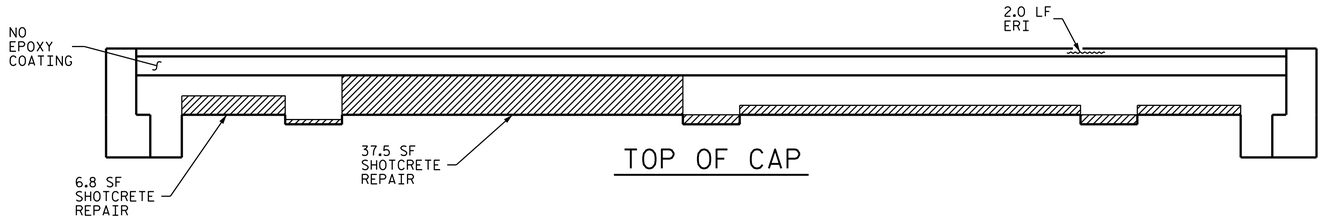
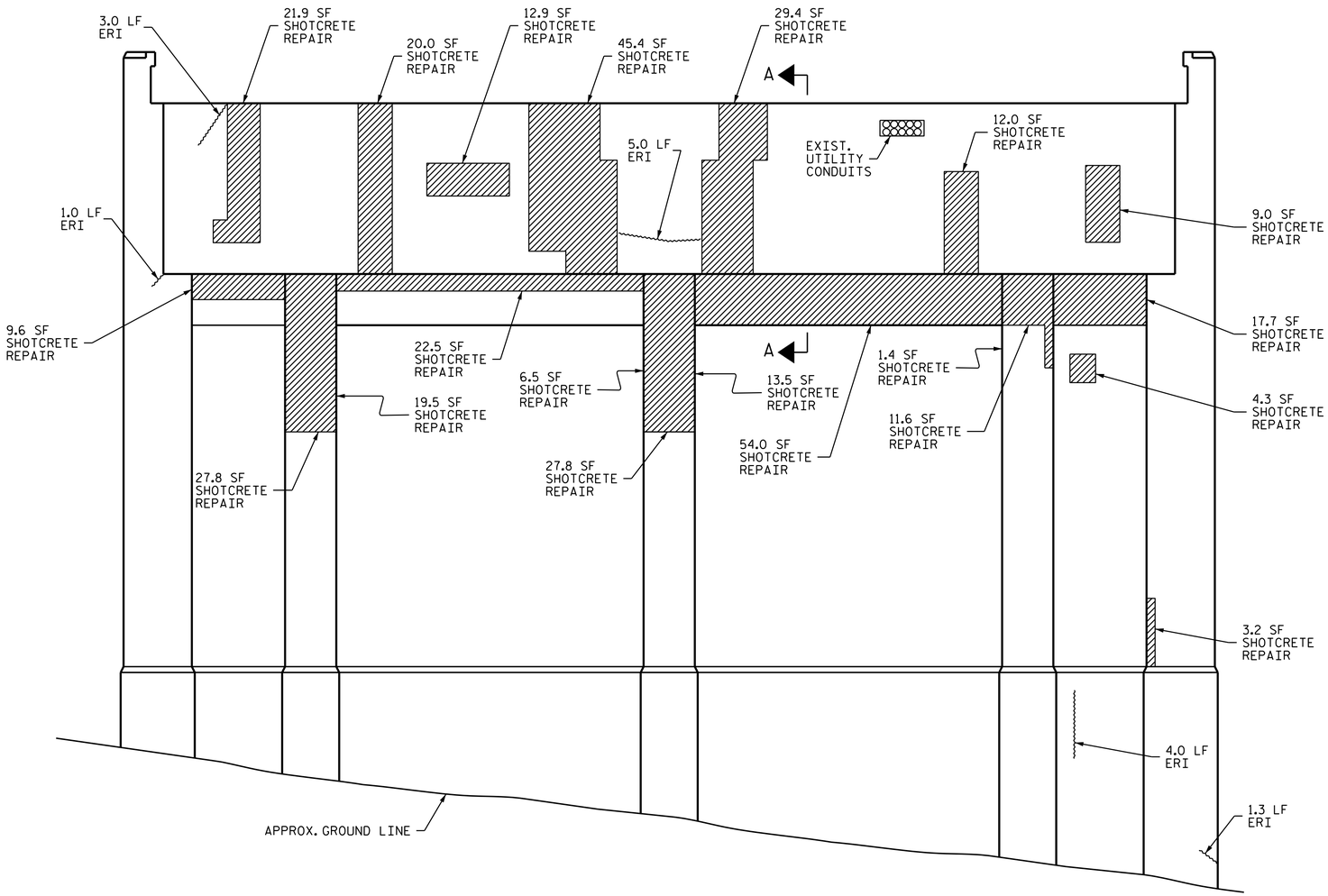


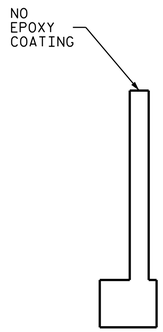
TOP OF CAP

SPAN I
SPAN H



ELEVATION

SPAN H | SPAN I



SECTION A-A

AS-BUILT REPAIR QUANTITY TABLE

BENT 8 SPAN H FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	298.7	149.4		
COLUMN	115.6	57.8		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		10.0		
COLUMN		2.3		
FOOTING		4.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		163.8		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 8
SPAN H FACE

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1			3			TOTAL SHEETS
2			4			90

DRAWN BY : D.V. JOYNER DATE : 01/2018
CHECKED BY : C.L. BRIGHT DATE : 04/2018

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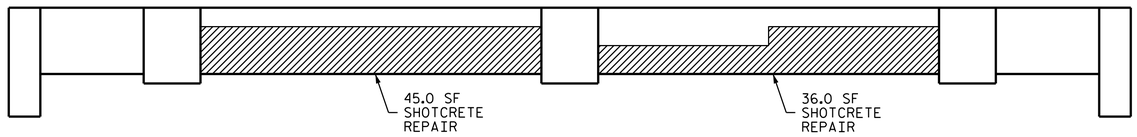
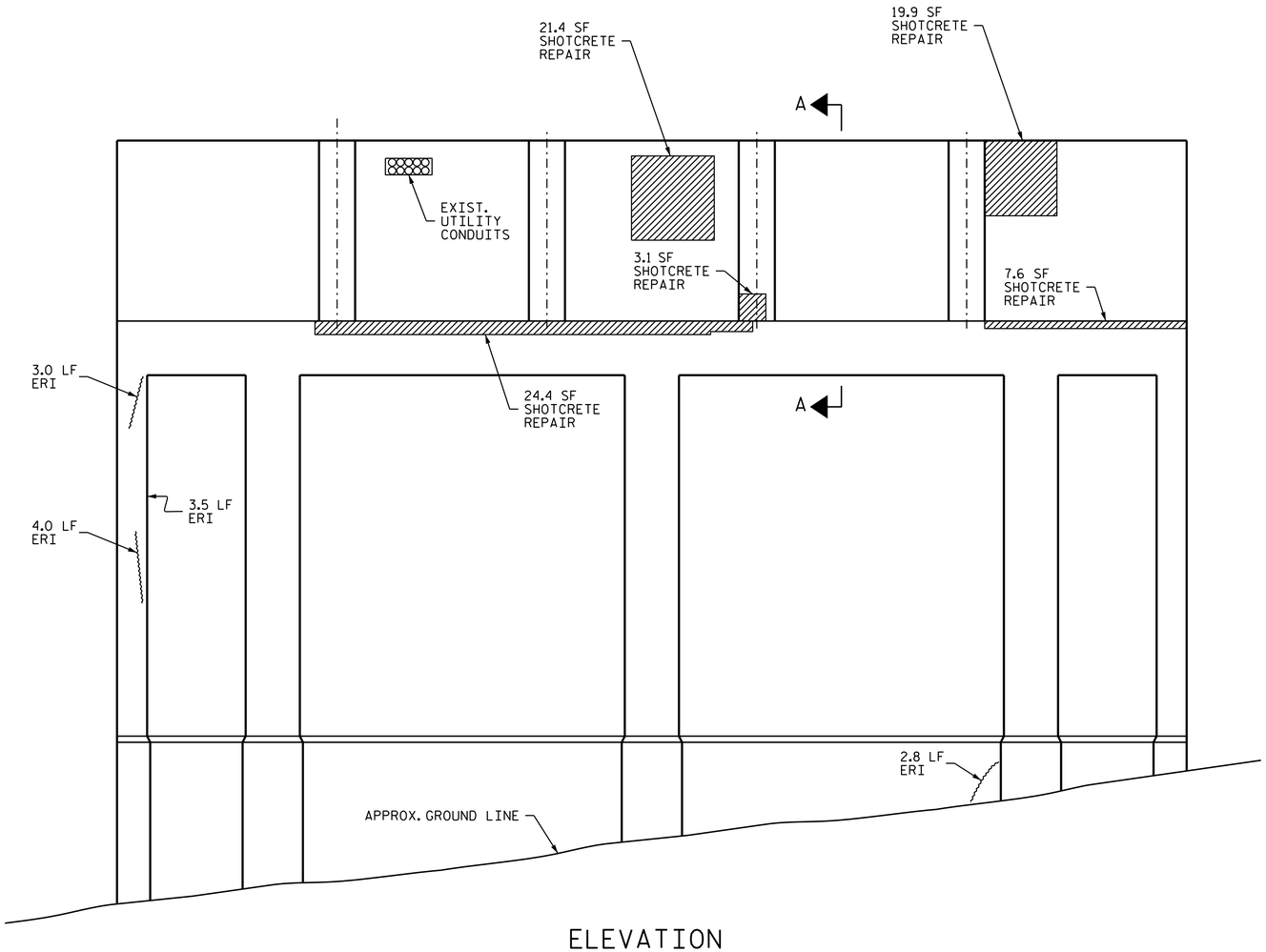


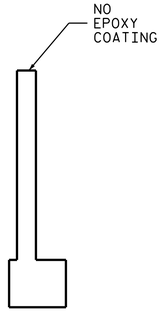
BOTTOM OF CAP

SPAN I
SPAN H



ELEVATION

SPAN I | SPAN H



SECTION A-A

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

AS-BUILT REPAIR QUANTITY TABLE

BENT 8 SPAN I FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	157.4	78.7		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		10.5		
FOOTING		2.8		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

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

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
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RALEIGH

BENT 8
SPAN I FACE

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1			3			TOTAL SHEETS
2			4			90

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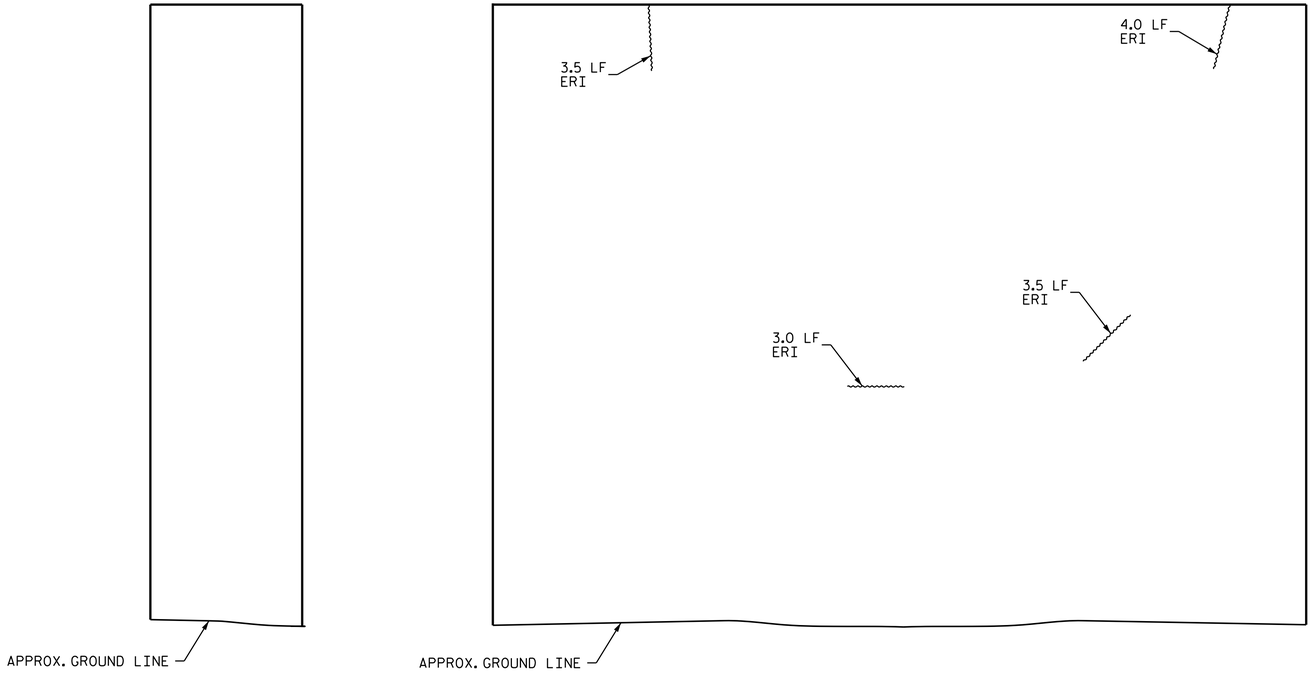
AS-BUILT REPAIR QUANTITY TABLE				
SPAN I INTERIOR WALL	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
INTERIOR WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
INTERIOR WALL	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
INTERIOR WALL		14.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1"BEHIND REBAR AND MINIMUM 2"CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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



ELEVATION
NORTH INTERIOR WALL

ELEVATION
SOUTH INTERIOR WALL

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
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4/30/2018

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPAN I INTERIOR WALLS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-81
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : D.V. JOYNER DATE : 01/2018
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AS-BUILT REPAIR QUANTITY TABLE

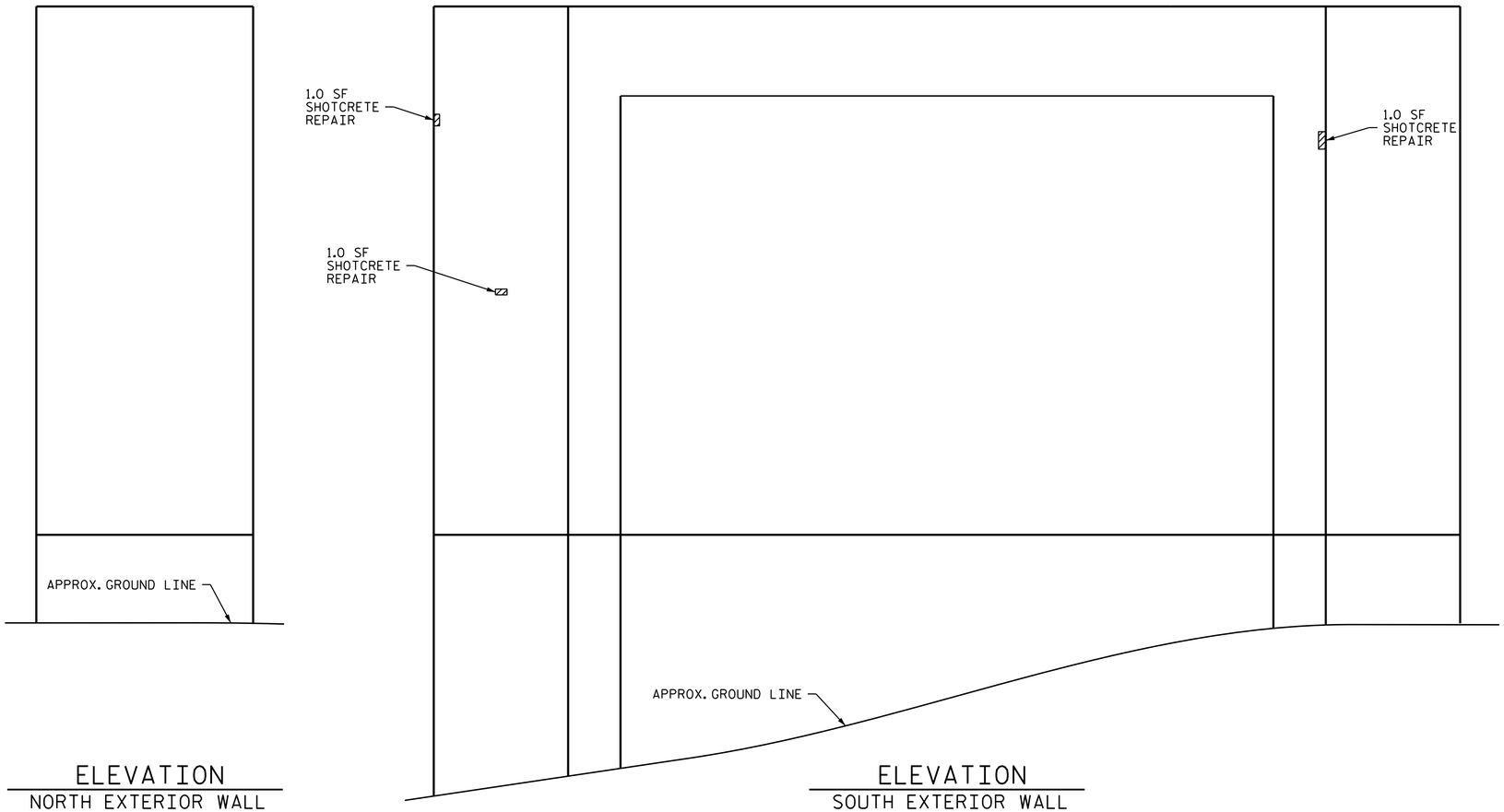
SPAN I EXTERIOR WALL	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
EXTERIOR WALL	3.0	1.5		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
EXTERIOR WALL	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
EXTERIOR WALL		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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



ELEVATION
NORTH EXTERIOR WALL

ELEVATION
SOUTH EXTERIOR WALL

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPAN I EXTERIOR WALLS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-82
1			3			TOTAL SHEETS
2			4			90

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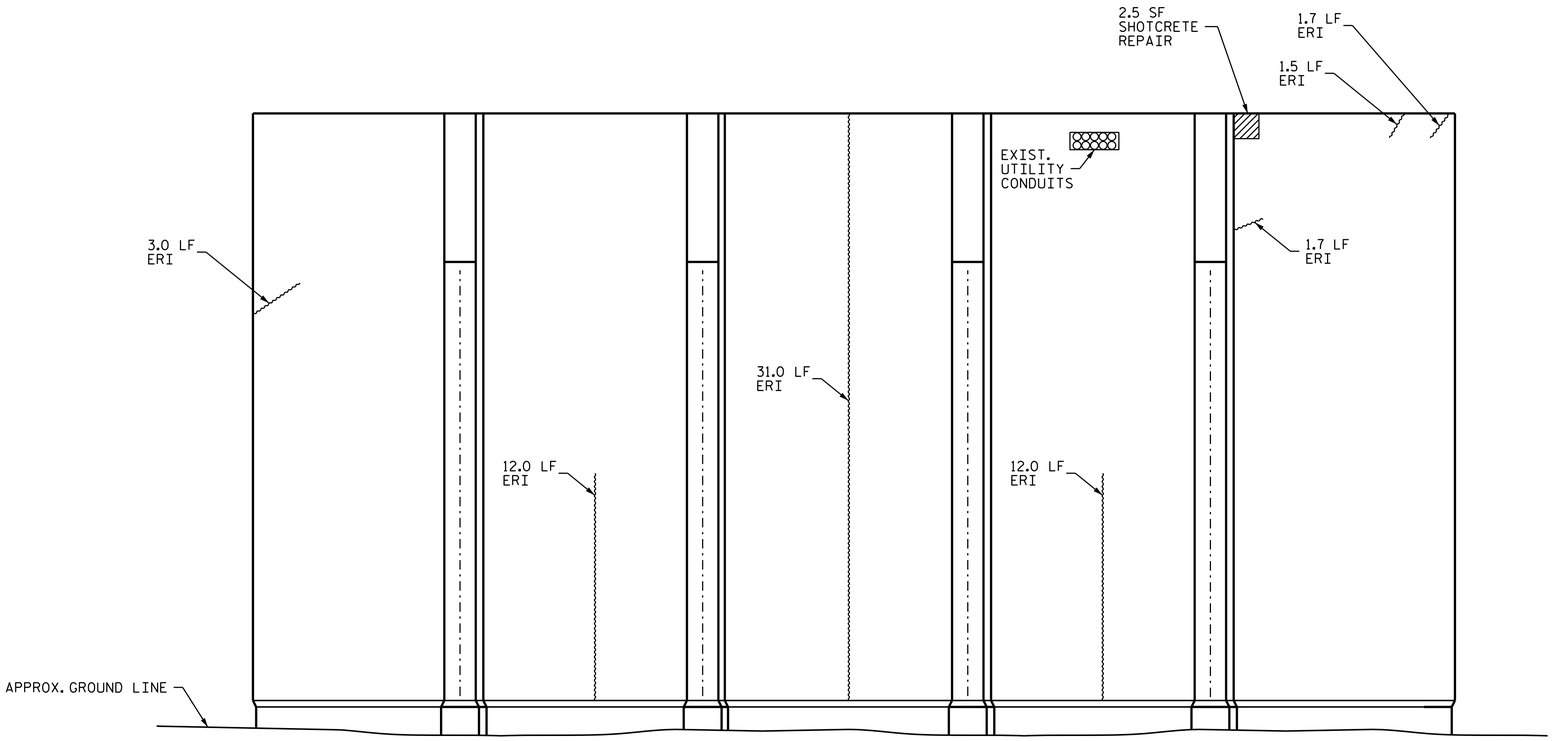

ELEVATION

AS-BUILT REPAIR QUANTITY TABLE

BENT 9 SPAN I FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
BENT WALL	2.5	1.3		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
BENT WALL	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
BENT WALL		62.9		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 9
SPAN I FACE

DRAWN BY : D.V. JOYNER DATE : 01/2018

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REVISIONS						SHEET NO.
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2			4			90

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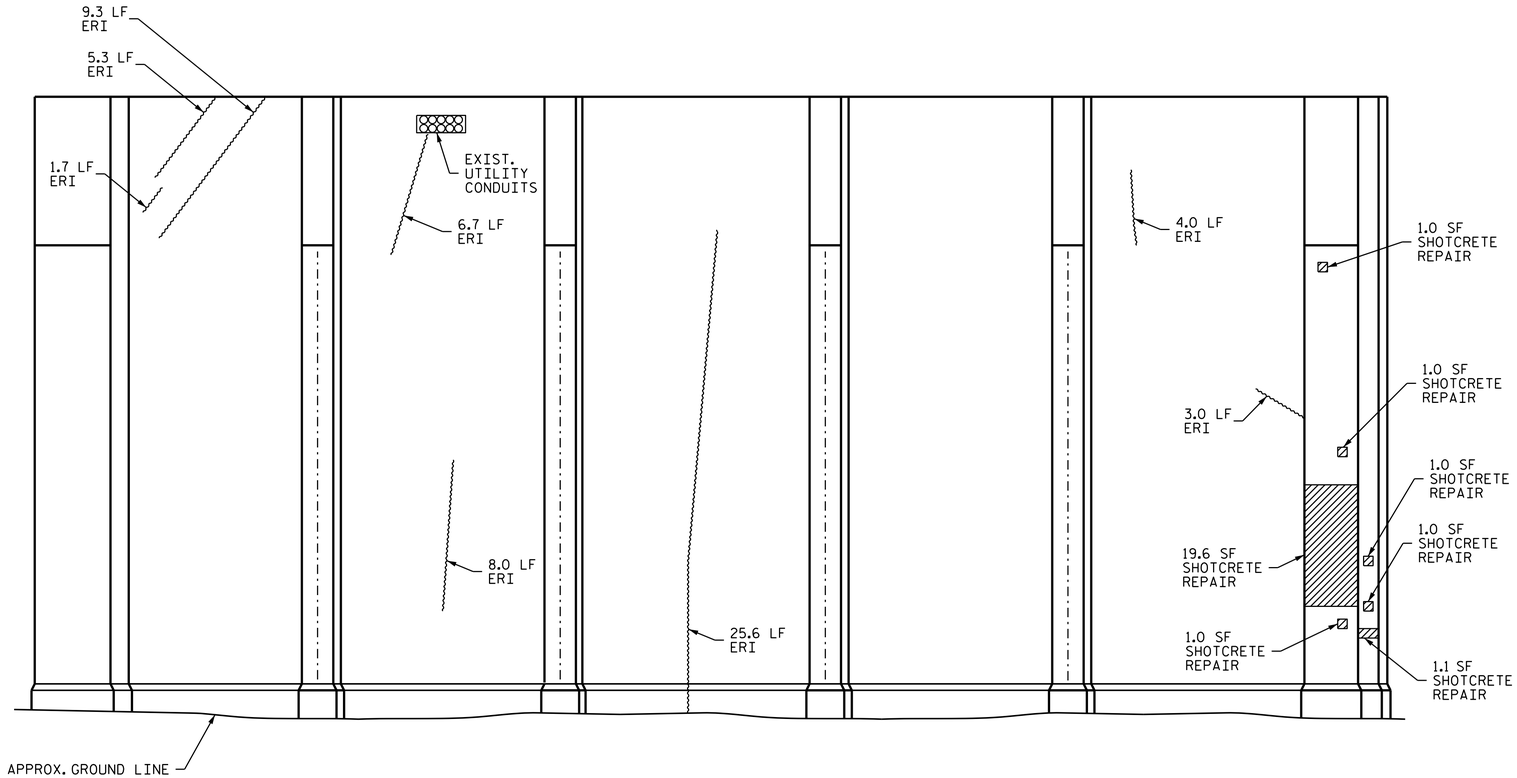

ELEVATION

AS-BUILT REPAIR QUANTITY TABLE

BENT 9 SPAN J	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
BENT WALL	0.0	0.0		
COLUMN	25.7	12.9		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
BENT WALL	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
BENT WALL		63.6		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 9
SPAN J FACE

DRAWN BY : D.V. JOYNER DATE : 01/2018
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2			4			90

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AS-BUILT REPAIR QUANTITY TABLE

SPAN J NORTH END VIEW	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
NORTH EXTERIOR WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
NORTH EXTERIOR WALL	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
NORTH EXTERIOR WALL		21.2		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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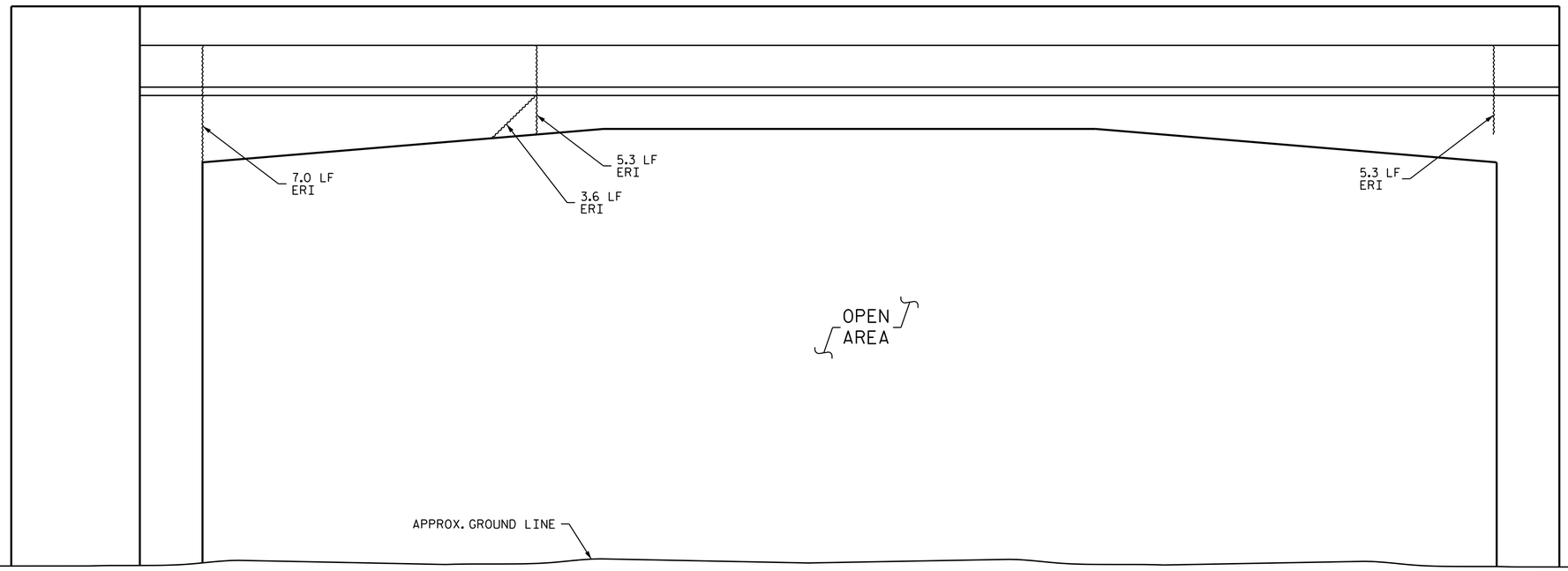
CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.



ELEVATION
NORTH END VIEW

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPAN J
NORTH END VIEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-85
1			3			TOTAL SHEETS
2			4			90

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AS-BUILT REPAIR QUANTITY TABLE

SPAN J SOUTH END VIEW	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SOUTH EXTERIOR WALL	3.7	1.9		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SOUTH EXTERIOR WALL	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
SOUTH EXTERIOR WALL		18.8		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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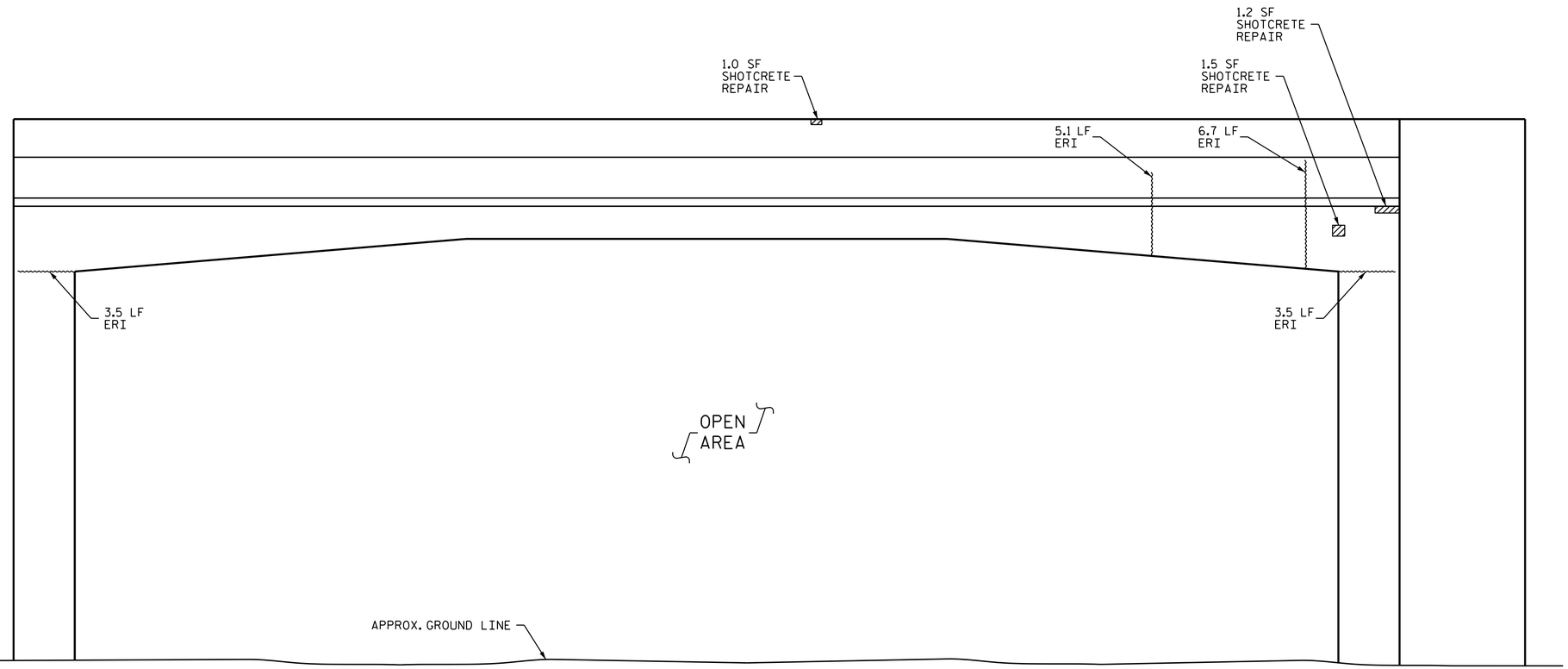
CONCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.



ELEVATION
SOUTH END VIEW

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SPAN J
SOUTH END VIEW

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-86
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : D.V. JOYNER DATE : 01/2018
CHECKED BY : C.L. BRIGHT DATE : 04/2018

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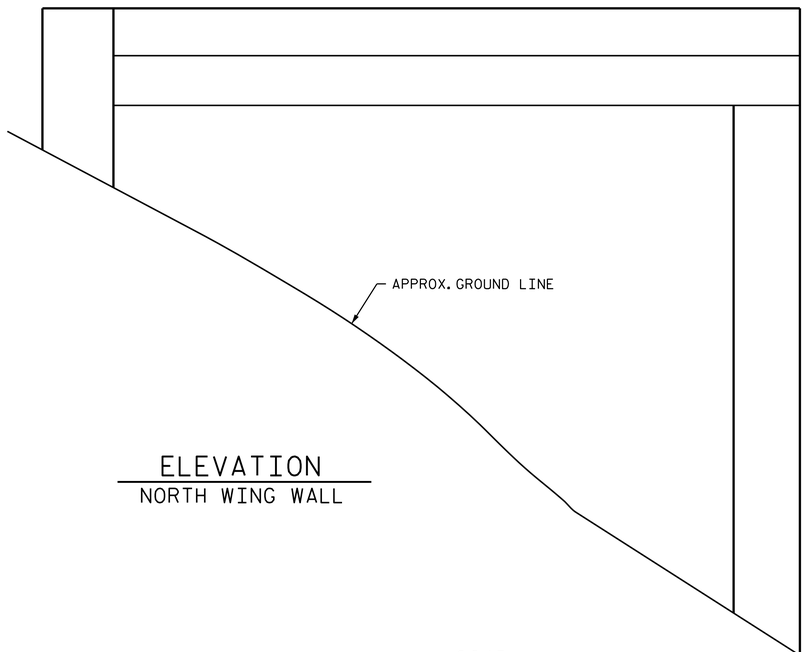
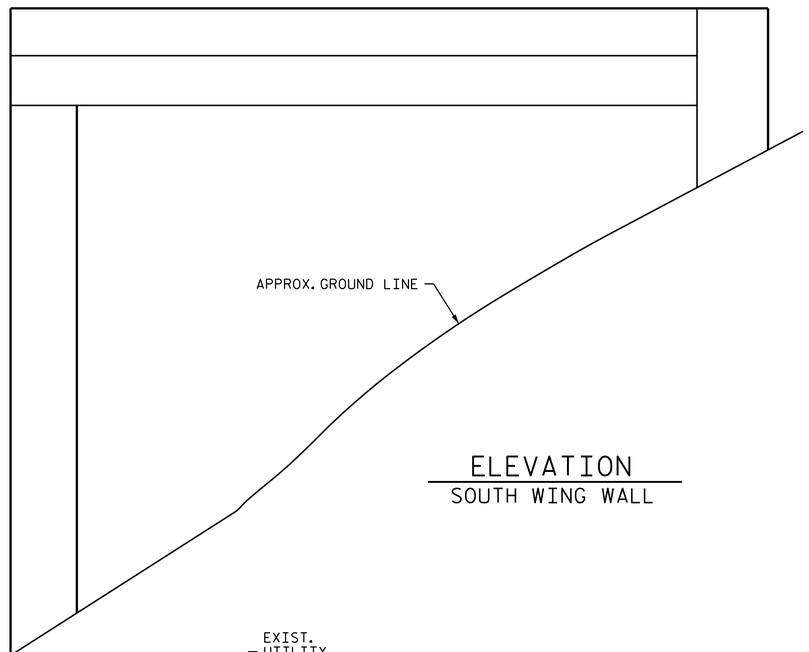
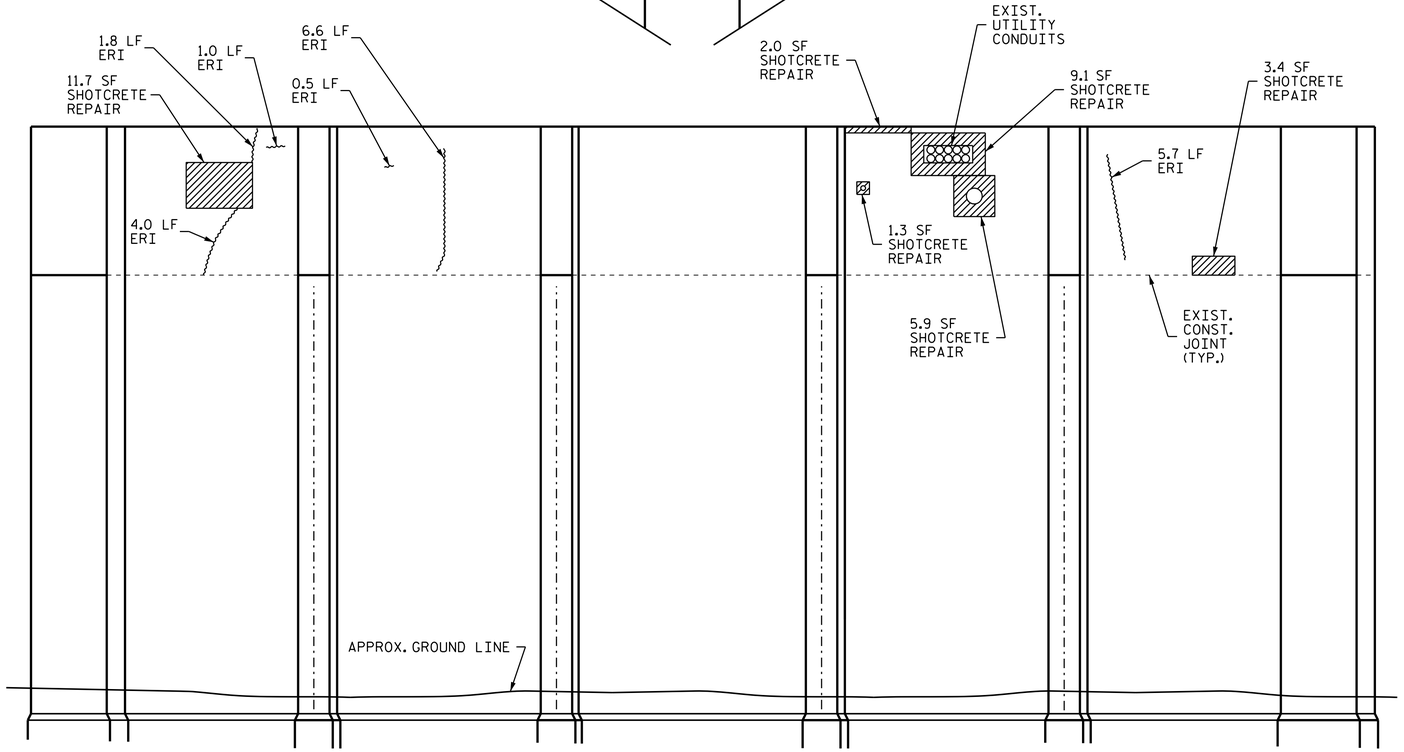


ELEVATION
NORTH WING WALL



ELEVATION
SOUTH WING WALL



ELEVATION

AS-BUILT REPAIR QUANTITY TABLE

ABUTMENT 2 SPAN J FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
BACK WALL	33.4	16.7		
WING WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
BACK WALL	0.0	0.0		
WING WALL	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
BACK WALL		19.6		
WING WALL		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.10
BUNCOMBE COUNTY
BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
Amber Miller
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4/30/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ABUTMENT 2 SPAN J FACE & WING WALLS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-87
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : D.V. JOYNER DATE : 01/2018
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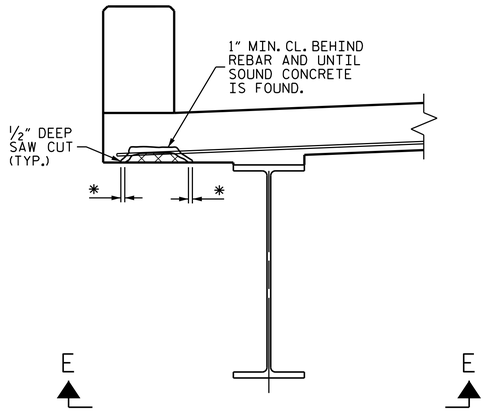
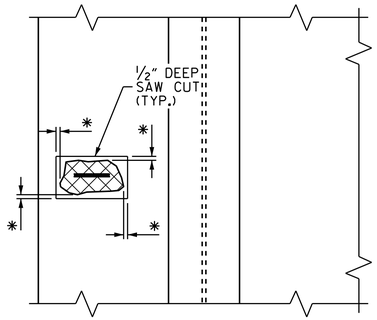
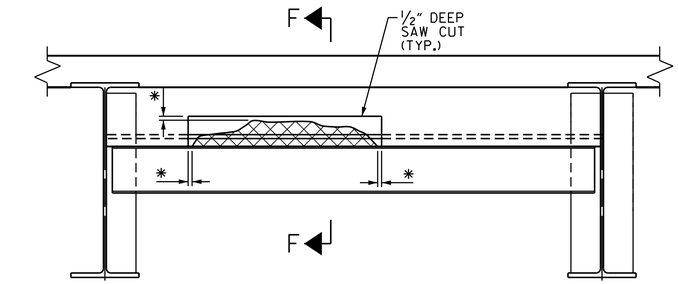


TYPICAL SECTION

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



SECTION E-E

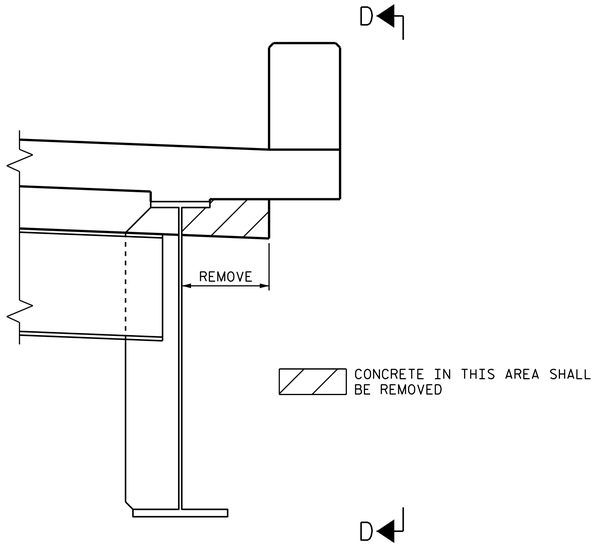


TYPICAL SECTION

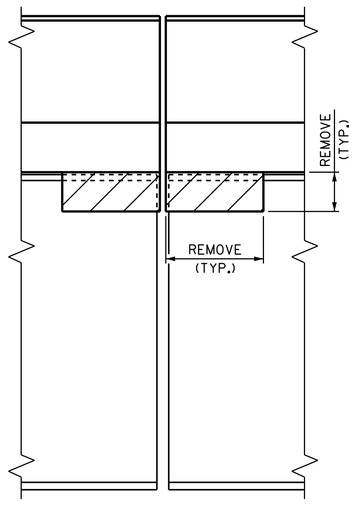
* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. CL.)

OVERHANG DETAILS

NOTE: OVERHANG DIAPHRAGMS TO BE REMOVED ARE SHOWN ON "PLAN OF SPAN" SHEETS.

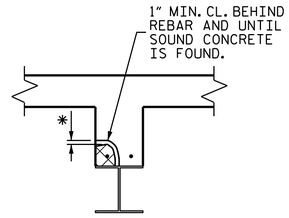


TYPICAL SECTION



SECTION D-D

OVERHANG DIAPHRAGM REMOVAL DETAILS



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

SECTION F-F

INTERIOR DIAPHRAGM REPAIR DETAILS

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

4/30/2018

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OVERHANG AND DIAPHRAGM REPAIR DETAILS

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-88
1			3				TOTAL SHEETS
2			4				90

DRAWN BY : E.K. POPE DATE : 02/18
CHECKED BY : H.A.LOCKLEAR DATE : 04/18

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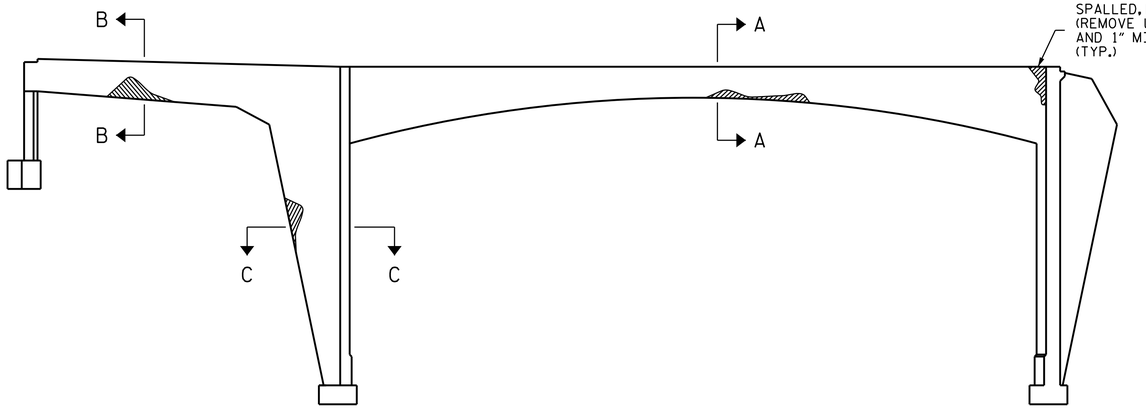
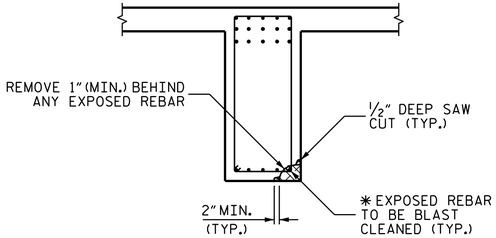


TYPICAL REINFORCED CONCRETE FRAME SECTION

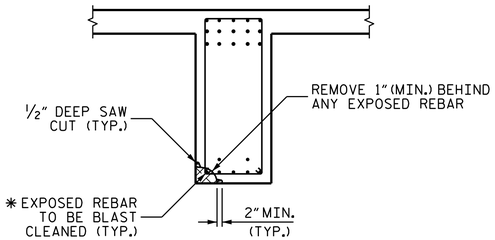
GIRDER REPAIR QUANTITIES

	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SPAN J	59.0	29.5			
EPOXY RESIN	LIN. FT.		LIN. FT.		
SPAN J	39.5				

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



SECTION A-A



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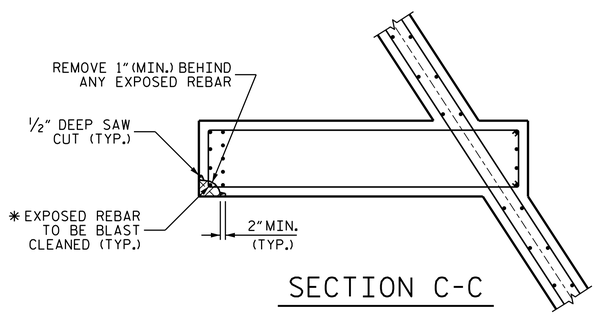

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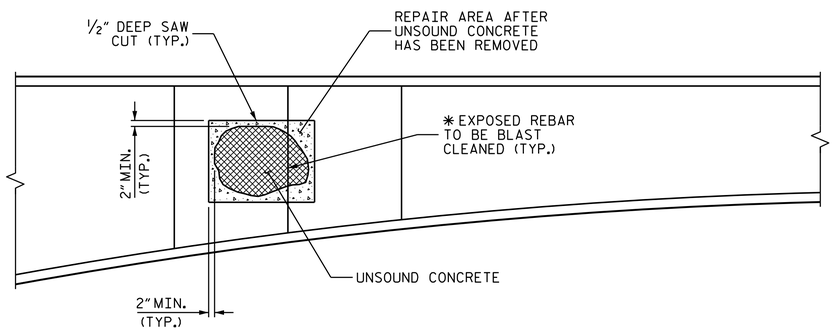

GIRDER WEB REPAIR

PROJECT NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REINFORCED CONCRETE DECK GIRDER REPAIR DETAILS AND SUMMARY

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
B04B5A6F2FAD484...
4/30/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-89
1			3			TOTAL SHEETS
2			4			90

DRAWN BY : R.L.PUTEK DATE : 04/18
CHECKED BY : A.M.LEE DATE : 04/18

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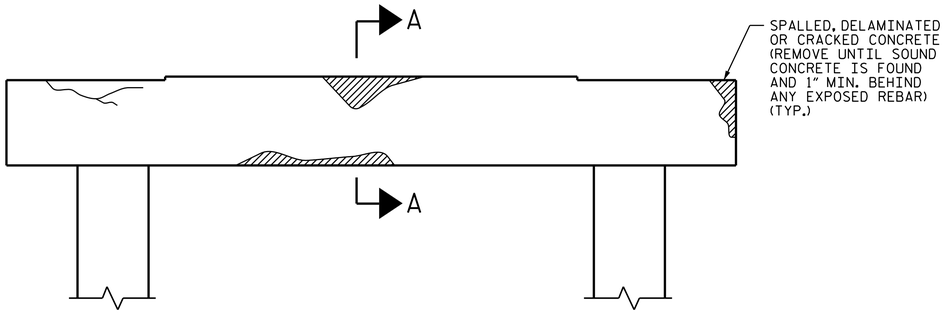
amlee

NOTES

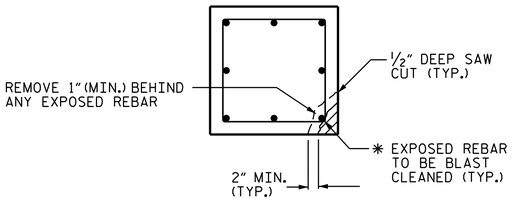
TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND PEDESTALS.

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.

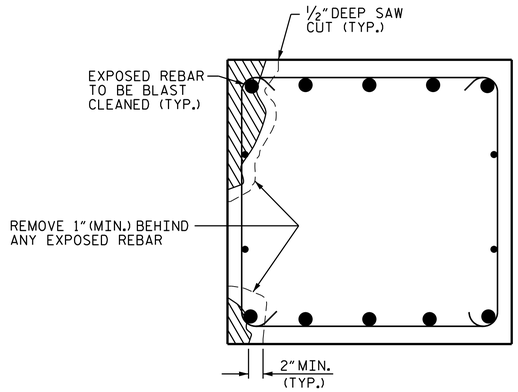
FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.



BENT CAP REPAIRS



PLAN OF COLUMN



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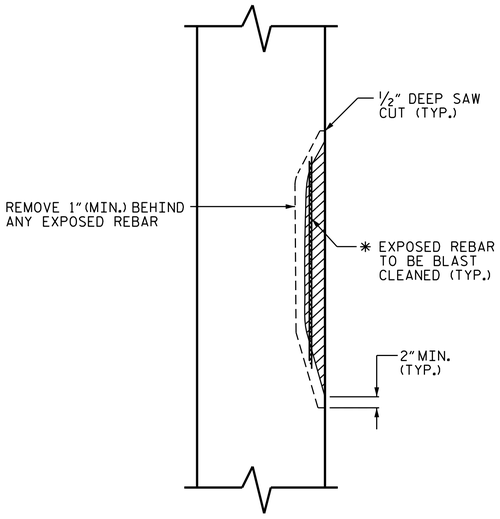
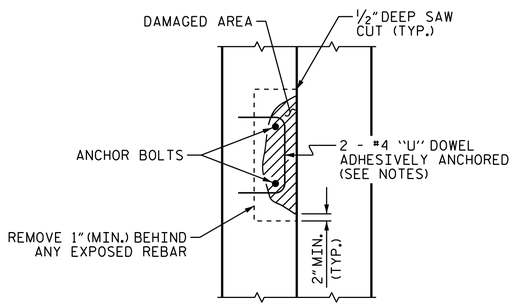


* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

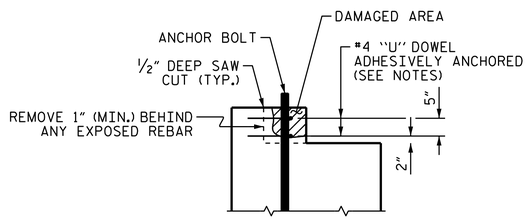
ELEVATION OF COLUMN

CAP REPAIR

COLUMN REPAIR



PLAN



ELEVATION

PEDESTAL WALL REPAIR

PROJ. NO. 15BPR.10

BUNCOMBE COUNTY

BRIDGE NO. 323

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL CAP AND COLUMN REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B0485A4F2FAD484...

4/30/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-90
1			3			TOTAL SHEETS
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DRAWN BY : R.L.PUTEK DATE : 04/18
CHECKED BY : A.M.LEE DATE : 04/18

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

REV. 6-16-95 EEM (/) RGW
REV. 8-16-99 RWW (/) LES
REV. 5-7-03 RWW (/) JTE
REV. 5-1-06 TLA (/) GM
REV. 10-1-11 MAA (/) GM
REV. 12-17 MAA (/) THC

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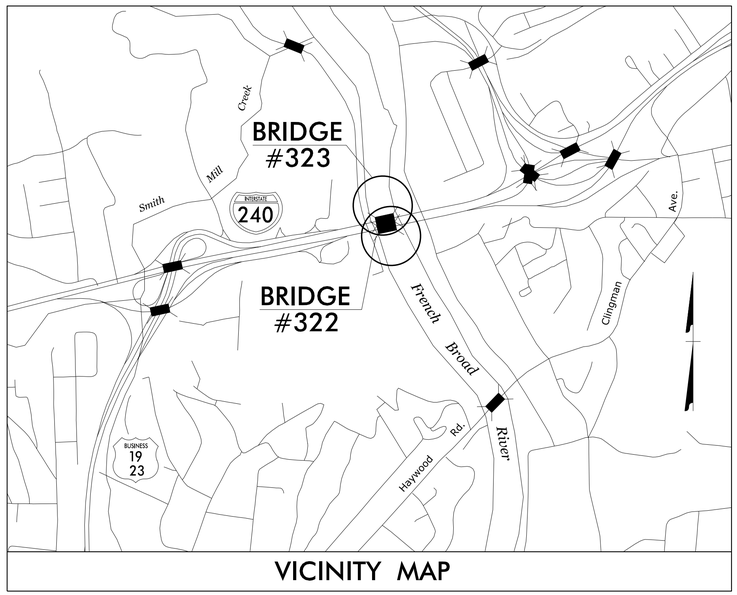
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BUNCOMBE COUNTY

DIVISION 13

BRIDGE #322 – I–240 EBL OVER RAILROAD AND FRENCH BROAD RIVER
BRIDGE #323 – I–240 WBL OVER RAILROAD AND FRENCH BROAD RIVER



VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. DIVISION 13

CHRISTOPHER MEDLIN, P.E. NCDOT DIVISION 13 CONTACT

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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License No. F-0672

DocuSigned by: J.W. Woolard Jr. BBC02F49E8E34EC...

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J.W. WOOLARD JR.

4/4/2018

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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1145.01	BARRICADES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- PROPOSED PVMT.
- NORTH ARROW
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- PREVIOUSLY STARTED / CONCURRENT CONSTRUCTION
- PAVEMENT REMOVAL
- TEMPORARY PAVEMENT
- TEMPORARY PAVEMENT ASPHALT PAD
- TEMPORARY PAVEMENT BREAKDOWN LANE

PAVEMENT MARKINGS

- EXISTING LINES

TEMPORARY MARKINGS	PREVIOUSLY PLACED	
		WHITE EDGE LINE
		YELLOW EDGE LINE
		BROKEN LANE LINES
		MINISKIP LANE LINES
		DOUBLE YELLOW LINES
		GORELINE
		STOP BAR

PAVEMENT MARKING SYMBOLS

- EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)

TEMPORARY SYMBOLS	PREVIOUSLY PLACED	
		PAVEMENT MARKING SYMBOLS
ONLY	ONLY	PAVEMENT MARKING ALPHANUMERIC CHARACTERS

TRAFFIC CONTROL DEVICES

TEMPORARY DEVICES	PREVIOUSLY PLACED	
		BARRICADE (TYPE III)
		CONE
		DRUM
		FLASHING ARROW BOARD
		FLAGGER
		LAW ENFORCEMENT
		TRUCK MOUNTED ATTENUATOR (TMA)
		CHANGEABLE MESSAGE SIGN
		TEMPORARY CRASH CUSHION
		TEMPORARY CRASH CUSHION RESET
		PORTABLE CONCRETE BARRIER
		PORTABLE CONCRETE BARRIER (RESET)
		ANCHORED CONCRETE BARRIER
		ANCHORED CONCRETE BARRIER (RESET)

SIGNALS

EXISTING | PROPOSED | TEMPORARY (TEMP)

TEMPORARY SIGNING

TEMPORARY SIGNS	PREVIOUSLY PLACED	
		PORTABLE SIGN
		STATIONARY SIGN
		STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

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NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD JR.

4/4/2018

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS, AND LEGEND

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-1C

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	6:00 A.M.- 7:00 P.M. MONDAY THRU SUNDAY (EVERYDAY)

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
ALL ROADS

HOLIDAY

1) FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2) FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31ST TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.

3) FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.

4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.

5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.

7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.

8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

J) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION MANAGEMENT PLANS.

AND

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLANS.

K) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

AND

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

M) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

N) PLACE TYPE III BARRICADES WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

O) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS, CONES OR SKINNY DRUMS) PERPENDICULAR TO THE EDGE OF TRAVELWAY ON (XXX FT) CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

MISCELLANEOUS

P) ALL DIMENSIONS AND STATIONS IN THE TRANSPORTATION MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.

Q) USE LAW ENFORCEMENT TO DIRECT TRAFFIC AND ENFORCE ROAD CLOSURES. LOCATIONS SHOWN IN THE PLANS ARE APPROXIMATE AND MAY BE REVISED AS THE OFFICER OR THE ENGINEER DEEM NECESSARY.

R) CHANGEABLE MESSAGE SIGN MESSAGES SHOWN ARE EXAMPLES. OTHER MESSAGES MAY BE USED AS CONDITIONS WARRANT. ALL MESSAGES AND LOCATIONS MUST BE APPROVED BY THE ENGINEER PRIOR TO INCORPORATING.

S) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 814-3700 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

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GENERAL NOTES

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-3

PHASING

STEP 1:

USING RSD 1101.01, SHEETS 2 AND 3 OF 3, INSTALL WORK ZONE ADVANCE WARNING SIGNS.

NOTE: STEPS 2 THROUGH 5 MAY BE COMPLETED IN ANY ORDER.

NOTE: FOR STEPS 2 THROUGH 5, THE CONTRACTOR SHALL REPLACE ANY PAVEMENT MARKINGS OBLITERATED OR DAMAGED DURING EACH DAY'S OPERATIONS WITH TEMPORARY/FINAL MARKINGS IN THE FINAL PATTERN PRIOR TO OPENING THE LANE TO TRAFFIC. (SEE FINAL PAVEMENT MARKING PLAN)

STEP 2: (TMP-4 - TMP-4B)

USING SHEETS TMP-4 THROUGH TMP-4B, CLOSE LANE 1 OF EB OR WB I-240 AND PERFORM THE FOLLOWING:

- SCARIFICATION OF LANE 1 ON THE BRIDGE
- DECK REPAIR AS SHOWN IN THE CONSTRUCTION PLANS
- SHOTBLAST THE DECK AND REPAIR AREAS OF LANE 1
- PLACE PRIMER AND PPC OVERLAY AS SHOWN IN THE CONSTRUCTION PLANS
- JOINT REPAIR OR REPLACEMENT AS SHOWN IN THE CONSTRUCTION PLANS

REPEAT STEP 2 NIGHTLY UNTIL ALL REQUIRED WORK IS COMPLETED IN LANE 1 OF EB AND WB I-240.

STEP 3: (TMP-5 - TMP-5C)

USING SHEETS TMP-5 THROUGH TMP-5C, CLOSE LANE 1 AND 2 OF EB OR WB I-240 AND PERFORM THE FOLLOWING:

- SCARIFICATION OF LANE 2 ON THE BRIDGE
- DECK REPAIR AS SHOWN IN THE CONSTRUCTION PLANS
- SHOTBLAST THE DECK AND REPAIR AREAS OF LANE 2
- PLACE PRIMER AND PPC OVERLAY AS SHOWN IN THE CONSTRUCTION PLANS
- JOINT REPAIR OR REPLACEMENT AS SHOWN IN THE CONSTRUCTION PLANS

REPEAT STEP 3 NIGHTLY UNTIL ALL REQUIRED WORK IS COMPLETED IN LANE 2 OF EB AND WB I-240.

STEP 4: (TMP-6 - TMP-6B)

WHEN WORKING IN LANE 4 OF EB I-240, CLOSE THE LOOP FROM WESTGATE SHOPPING CENTER TO EB I-240 AND PLACE TRAFFIC ON OFF-SITE DETOUR AS SHOWN ON SHEET TMP-8.

WHEN WORKING IN LANE 4 OF WB I-240, CLOSE EXIT 3B AND PLACE TRAFFIC ON OFF-SITE DETOUR AS SHOWN ON SHEETS TMP-8A AND TMP-9.

USING SHEETS TMP-7 THROUGH TMP-7C, CLOSE LANE 4 OF EB OR WB I-240 AND PERFORM THE FOLLOWING:

- SCARIFICATION OF LANE 4 ON THE BRIDGE
- DECK REPAIR AS SHOWN IN THE CONSTRUCTION PLANS
- SHOTBLAST THE DECK AND REPAIR AREAS OF LANE 4
- PLACE PRIMER AND PPC OVERLAY AS SHOWN IN THE CONSTRUCTION PLANS
- JOINT REPAIR OR REPLACEMENT AS SHOWN IN THE CONSTRUCTION PLANS

REPEAT STEP 4 NIGHTLY UNTIL ALL REQUIRED WORK IS COMPLETED IN LANE 4 OF EB AND WB I-240.

STEP 5: (TMP-7 - TMP-7C)

WHEN WORKING IN LANE 3 OF EB I-240, CLOSE THE LOOP FROM WESTGATE SHOPPING CENTER TO EB I-240 AND PLACE TRAFFIC ON OFF-SITE DETOUR AS SHOWN ON SHEET TMP-8.

WHEN WORKING IN LANE 3 OF WB I-240, CLOSE EXIT 3B AND PLACE TRAFFIC ON OFF-SITE DETOUR AS SHOWN ON SHEETS TMP-8A AND TMP-9.

USING SHEETS TMP-6 THROUGH TMP-6B, CLOSE LANE 3 AND 4 OF EB OR WB I-240 AND PERFORM THE FOLLOWING:

- SCARIFICATION OF LANE 3 ON THE BRIDGE
- DECK REPAIR AS SHOWN IN THE CONSTRUCTION PLANS
- SHOTBLAST THE DECK AND REPAIR AREAS OF LANE 3
- PLACE PRIMER AND PPC OVERLAY AS SHOWN IN THE CONSTRUCTION PLANS
- JOINT REPAIR OR REPLACEMENT AS SHOWN IN THE CONSTRUCTION PLANS

REPEAT STEP 5 NIGHTLY UNTIL ALL REQUIRED WORK IS COMPLETED IN LANE 3 OF EB AND WB I-240.

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PHASING

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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-4

WESTGATE PKWY

CLIFF ST

PATTON AVE

WESTGATE PKWY

EMMA RD

FRENCH BROAD RIVER

75'

I-240 WEST

BRIDGE #323

LANE 4
LANE 3
LANE 2
LANE 1

MATCH LINE SEE SHEET TMP-4A

LANE 1
LANE 2
LANE 3
LANE 4

I-240 EAST

BRIDGE #322

EMMA RD

600' MERGE TAPER

150'

SEE RSD 1101.02 SHEET 3 OF 14
FOR ADVANCE WARNING SIGNS
AND MESSAGE BOARD PLACEMENT

WESTGATE PKWY

CRAVEN CONNECTOR

HAZEL MILL RD

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I-240
BRIDGE 322 & 323
LANE 1 CLOSURE

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-4A

RIVERSIDE DR

BRIDGE #323

I-240 WEST

600' MERGE TAPER

150'

LANE 4
LANE 3
LANE 2
LANE 1

MATCH LINE SEE SHEET TMP-4

LANE 1
LANE 2
LANE 3
LANE 4

BRIDGE #322

I-240 EAST

75'

I-240 EAST

MATCH LINE SEE SHEET TMP-4B

RIVERSIDE DR

FRENCH BROAD RIVER

W. HAYWOOD DR

CRAVEN ST

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I-240
BRIDGE 322 & 323
LANE 1 CLOSURE

4/4/2018
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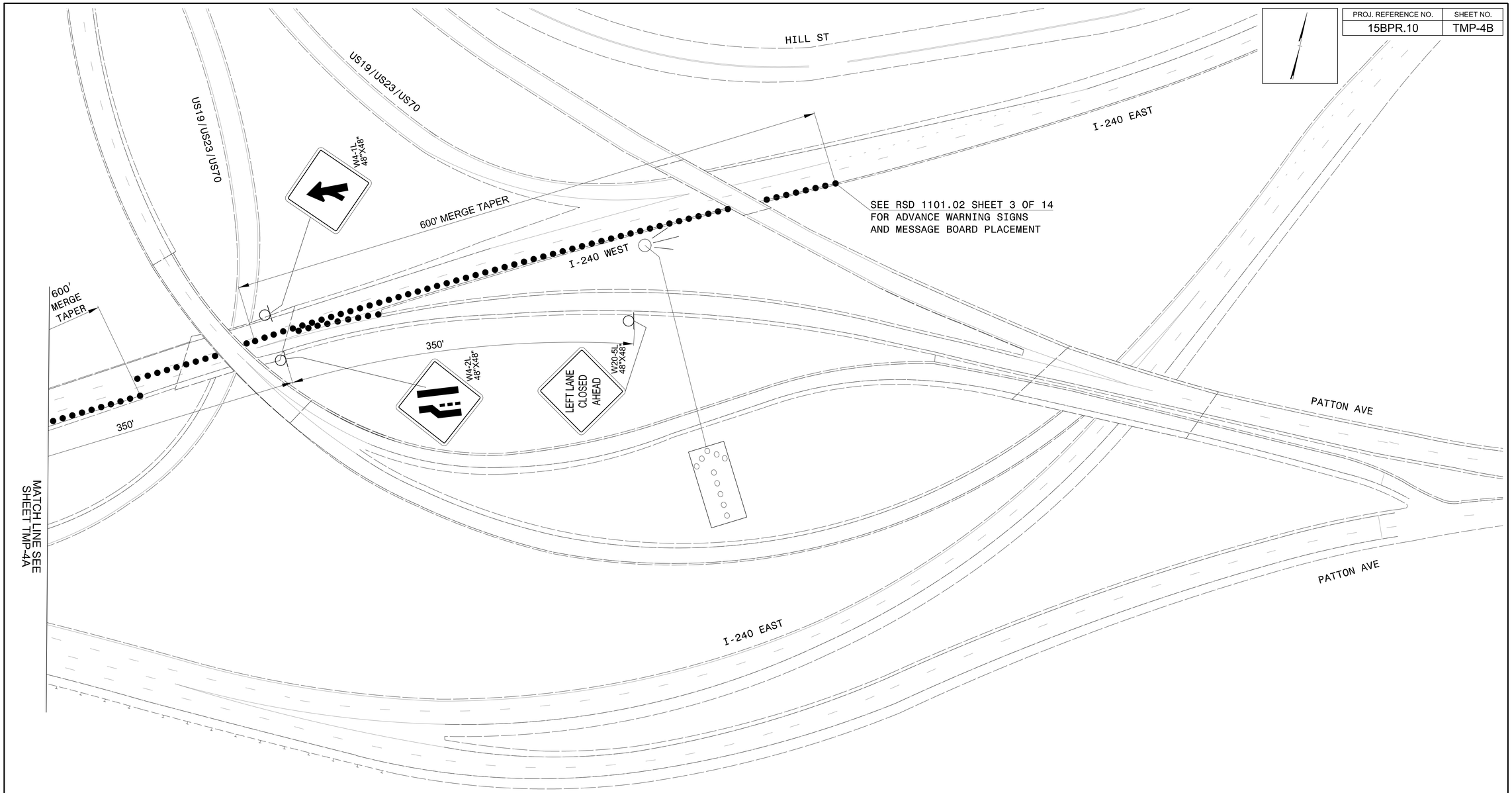
PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-4B



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I-240
BRIDGE 322 & 323
LANE 1 CLOSURE

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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-5

RESORT DR

PATTON AVE

MATCH LINE SEE SHEET TMP-5A

SEE RSD 1101.02 SHEET 8 OF 14
FOR ADVANCE WARNING SIGNS
AND MESSAGE BOARD PLACEMENT

600' MERGE TAPER

300'

300'

W4-2L
48"X48"

I-240 WEST

I-240 EAST

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I-240
BRIDGE 322 & 323
LANE 2 CLOSURE

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-5A

WESTGATE PKWY

CLIFF ST

WESTGATE PKWY

EMMA RD

FRENCH BROAD RIVER

PATTON AVE

75'

I-240 WEST

BRIDGE #323

LANE 4
LANE 3
LANE 2
LANE 1

MATCH LINE SEE SHEET TMP-5

MATCH LINE SEE SHEET TMP-5B

LANE 1
LANE 2
LANE 3
LANE 4

I-240 EAST

BRIDGE #322

EMMA RD

600' MERGE TAPER

150'

WESTGATE PKWY

CRAVEN CONNECTOR

HAZEL MILL RD

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I-240
BRIDGE 322 & 323
LANE 2 CLOSURE

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-5B

RIVERSIDE DR

BRIDGE #323

I-240 WEST

150'

730' MERGE TAPER

I-240 WEST

LANE 4
LANE 3
LANE 2
LANE 1

MATCH LINE SEE SHEET TMP-5A

MATCH LINE SEE SHEET TMP-5C

LANE 1
LANE 2
LANE 3
LANE 4

I-240 EAST

BRIDGE #322

I-240 EAST

75'

RIVERSIDE DR

FRENCH BROAD RIVER

W. HAYWOOD DR

CRAVEN ST

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I-240
BRIDGE 322 & 323
LANE 2 CLOSURE

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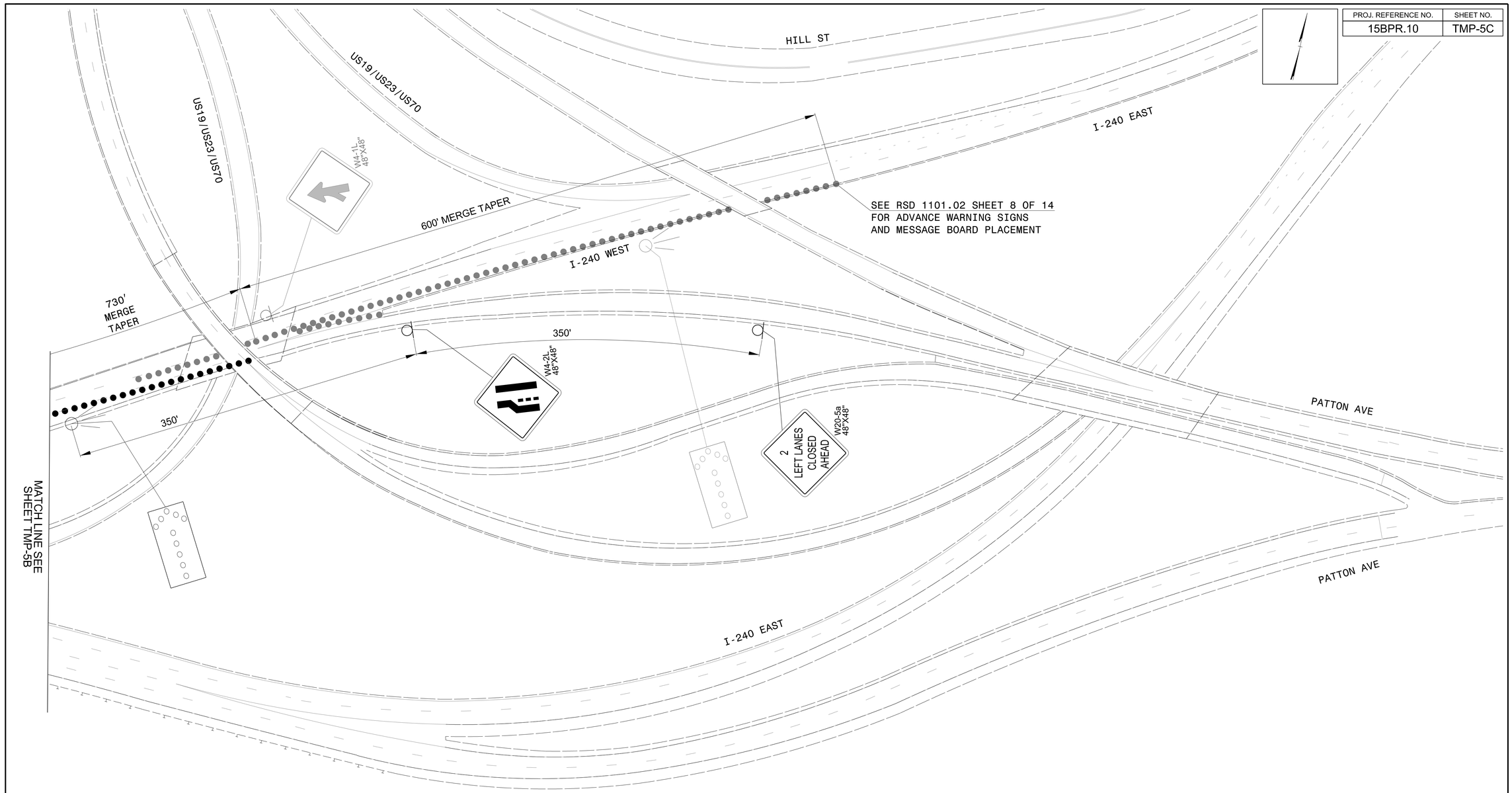
PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-5C



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I-240
BRIDGE 322 & 323
LANE 2 CLOSURE

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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-6

WESTGATE PKWY

CLIFF ST

WESTGATE PKWY

EMMA RD

FRENCH BROAD RIVER

R11-2 (48" x 30")
ROAD CLOSED
W1-6L (48" x 24")
TYPE III BARRICADE

EXIT CLOSED
E5-2A 48"x30"

PATTON AVE

75'

I-240 WEST

BRIDGE #323

LANE 4
LANE 3
LANE 2
LANE 1

MATCH LINE SEE SHEET TMP-6A

LANE 1
LANE 2
LANE 3
LANE 4

I-240 EAST

BRIDGE #322

EMMA RD

150'

SEE RSD 1101.03 SHEET 2 OF 9
FOR ADVANCE WARNING SIGNS

WESTGATE PKWY

R11-2 (48" x 30")
ROAD CLOSED
W1-6R (48" x 24")
TYPE III BARRICADE

R11-2 (48" x 30")
ROAD CLOSED
W1-6L (48" x 24")
TYPE III BARRICADE

STOP
R1-1
36"X36"

R3-2
24"X24"

CRAVEN CONNECTOR

HAZEL MILL RD

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I-240
BRIDGE 322 & 323
LANE 4 CLOSURE

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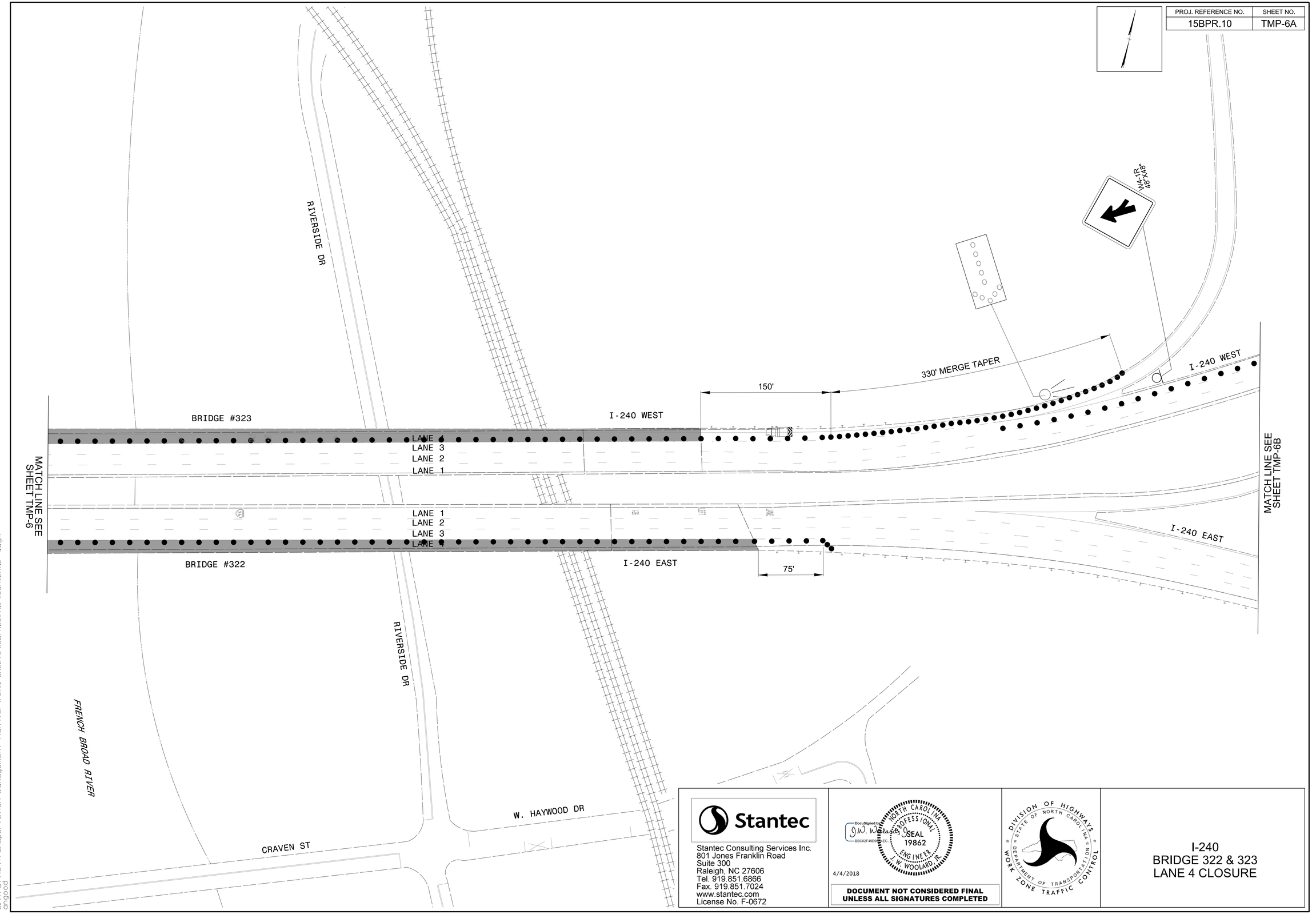
PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-6A



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I-240
BRIDGE 322 & 323
LANE 4 CLOSURE

4/4/2018
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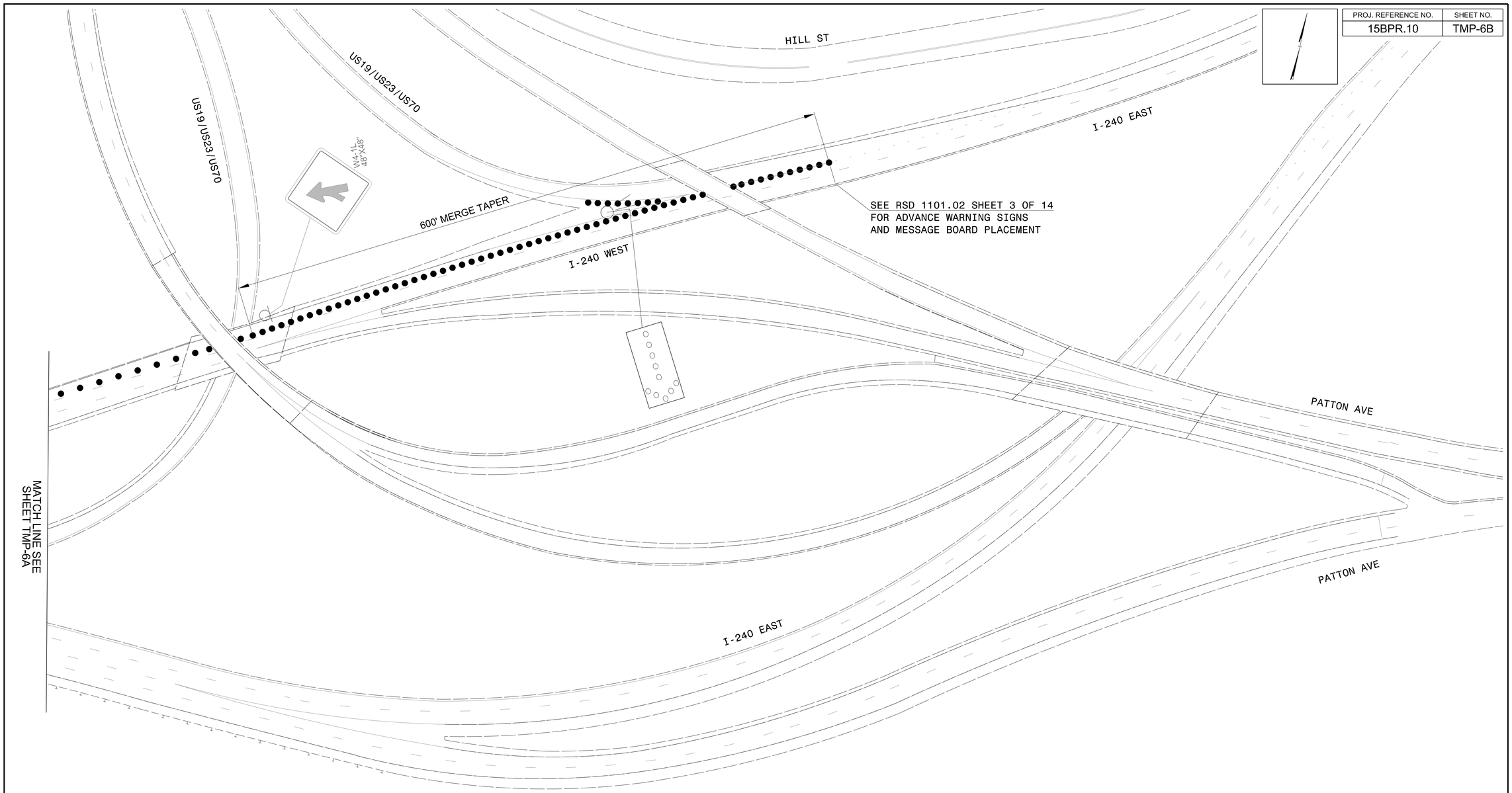

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I-240
BRIDGE 322 & 323
LANE 4 CLOSURE

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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-7

RESORT DR

PATTON AVE

MATCH LINE SEE SHEET TMP-7A

275'

275'

600' MERGE TAPER

W4-2L
48"X48"

SEE RSD 1101.02 SHEET 8 OF 14
FOR ADVANCE WARNING SIGNS
AND MESSAGE BOARD PLACEMENT

I-240 WEST

I-240 EAST

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I-240
BRIDGE 322 & 323
LANE 3 CLOSURE

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-7A

WESTGATE PKWY

CLIFF ST

WESTGATE PKWY

EMMA RD

FRENCH BROAD RIVER

PATTON AVE

R11-2 (48" x 30")
ROAD CLOSED
W1-6L (48" x 24")
TYPE III BARRICADE

EXIT CLOSED
E5-2A 48"x30"

75'

I-240 WEST

BRIDGE #323

LANE 4
LANE 3
LANE 2
LANE 1

MATCH LINE SEE SHEET TMP-7

MATCH LINE SEE SHEET TMP-7B

LANE 1
LANE 2
LANE 3
LANE 4

I-240 EAST

BRIDGE #322

EMMA RD

600' MERGE TAPER

150'

R11-2 (48" x 30")
ROAD CLOSED
W1-6L (48" x 24")
TYPE III BARRICADE

WESTGATE PKWY

R11-2 (48" x 30")
ROAD CLOSED
W1-6L (48" x 24")
TYPE III BARRICADE

CRAVEN CONNECTOR

R3-2
24"X24"

STOP
R1-1
36"X36"

HAZEL MILL RD

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

I-240
BRIDGE 322 & 323
LANE 3 CLOSURE

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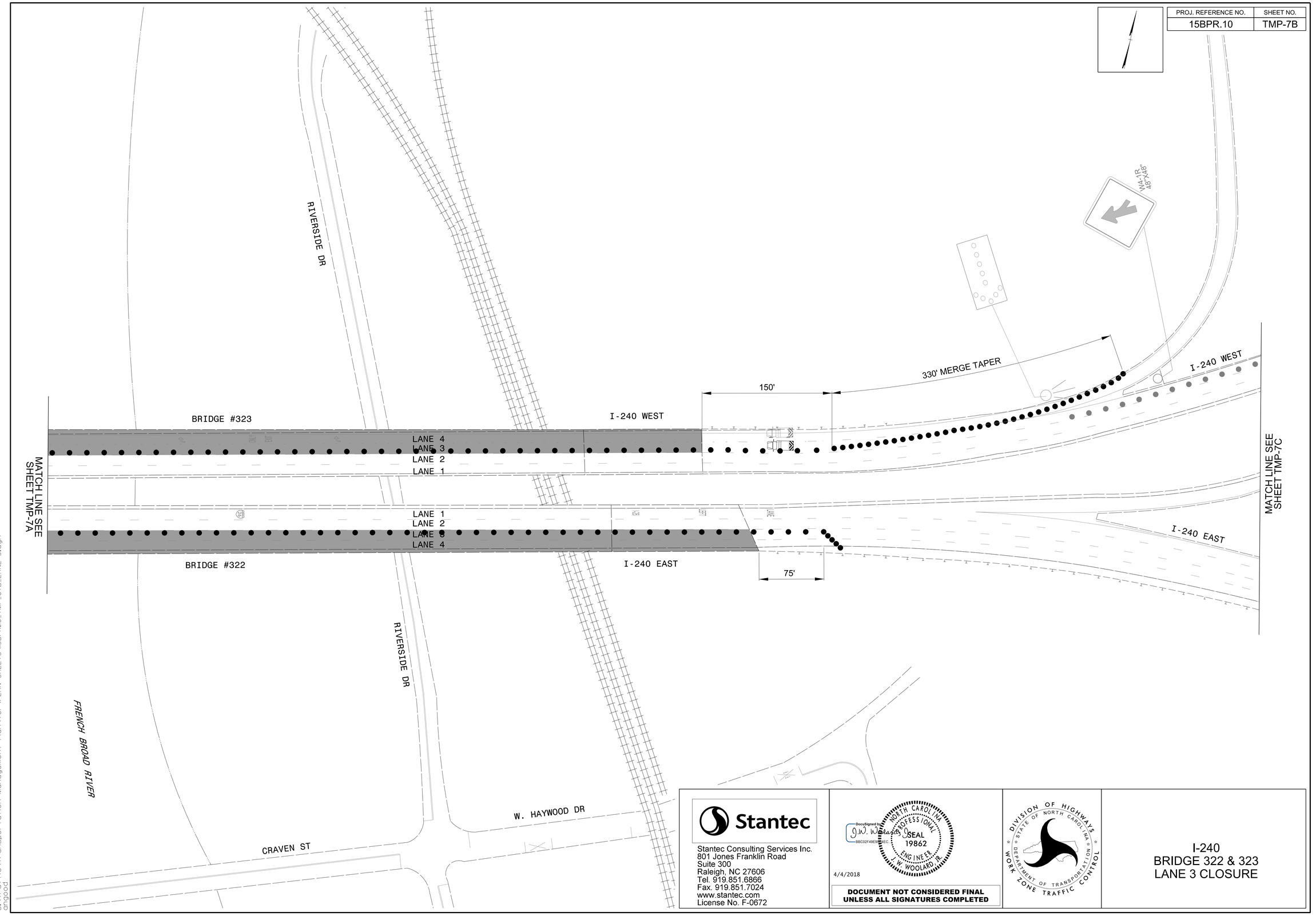
PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-7B



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I-240
BRIDGE 322 & 323
LANE 3 CLOSURE

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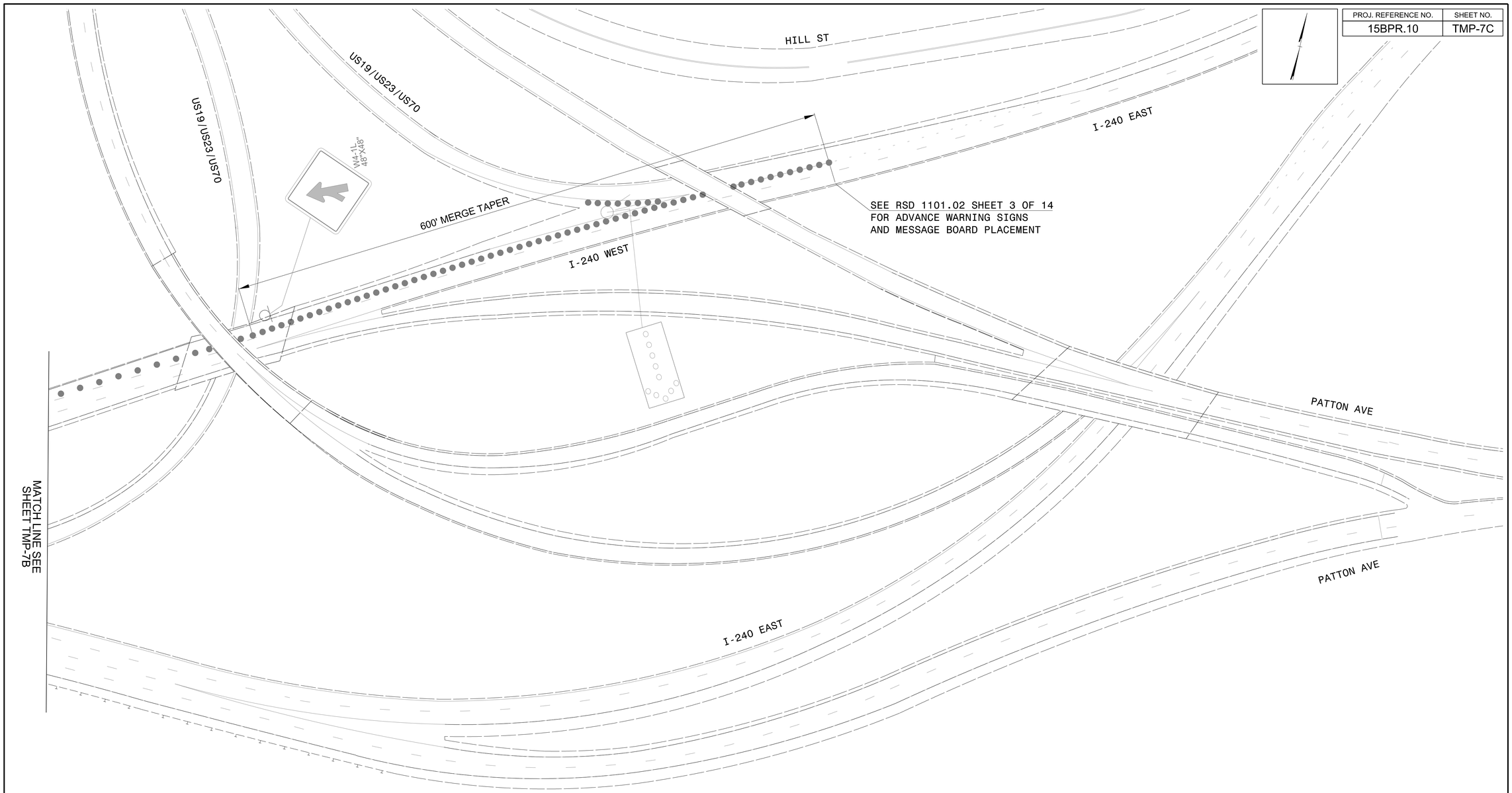
PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-7C



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4/4/2018

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

I-240
BRIDGE 322 & 323
LANE 3 CLOSURE

4/4/2018
U:\Traffic\Transportation Management Plan\TCP\PLAN SHEETS\15BPR.10_TMP_07C_LANE 3.dgn
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-8

Ⓐ DETOUR (INTERSTATE 240) M4-8 24"X12"
EAST M3-2 24"X12"
M6-3 21"x15"

Ⓑ DETOUR (INTERSTATE 240) M4-8 24"X12"
EAST M3-2 24"X12"
M6-1L 21"x15"

Ⓒ DETOUR (INTERSTATE 240) M4-8 24"X12"
EAST M3-2 24"X12"
M6-1 21"x15"

Ⓓ DETOUR (INTERSTATE 240) M4-8 24"X12"
EAST M3-2 24"X12"
M5-2 21"x15"

Ⓔ DETOUR (INTERSTATE 240) M4-8 24"X12"
EAST M3-2 24"X12"
M6-2 21"x15"

Ⓕ DETOUR (INTERSTATE 240) M4-8 24"X12"
EAST M3-2 24"X12"
M5-2 21"x15"

Ⓖ DETOUR (INTERSTATE 240) M4-8 24"X12"
EAST M3-2 24"X12"
M6-2L 21"x15"

Ⓗ END DETOUR M4-8a 24"X18"

CMS 1 — CHANGEABLE MESSAGE SIGN

I-240 EB RAMP CLOSED	USE PATTON AVE

FLORIDA AVE
HAZEL MILL RD
PATTON AVE
RESORT DR
CLIFF ST
PATTON AVE
WESTGATE PKWY
EMMA RD
FRENCH BROAD RIVER
RIVERSIDE DR
BRIDGE #323
I-240 WEST
I-240 EAST
BRIDGE #322
WESTGATE PKWY
CRAVEN CONNECTOR
CRAVEN ST
HAZEL MILL RD
FLORIDA AVE
I-240 WEST
I-240 EAST
FRENCH BROAD RIVER
RIVERSIDE DR

CLOSURE AT DETOUR POINT RSD 1101.03 SHEET 2 OF 9

CLOSURE AT DETOUR POINT RSD 1101.03 SHEET 2 OF 9

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I-240 EAST RAMP DETOUR ROUTE

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-8A

Ⓐ DETOUR M4-8 24"X12" M6-3 21"x15"

Ⓑ DETOUR M4-8 24"X12" M6-1L 21"x15"

Ⓒ DETOUR M4-8 24"X12" SSD-1 21"x21"

Ⓓ DETOUR M4-8 24"X12" M5-2 21"x15"

Ⓔ DETOUR M4-8 24"X12" M6-2 21"x15"

Ⓕ DETOUR M4-8 24"X12" M5-2 21"x15"

Ⓖ DETOUR M4-8 24"X12" M6-2L 21"x15"

Ⓗ END DETOUR M4-8a 24"X18"

CMS 1 CHANGEABLE MESSAGE SIGN

EXIT 3B CLOSED AHEAD	FOLLOW DETOUR

CMS 2 CHANGEABLE MESSAGE SIGN

DETOUR U-TURN AHEAD	DETOUR U-TURN AHEAD

CLOSURE AT DETOUR POINT RSD 1101.03 SHEET 2 OF 9

FLORIDA AVE
HAZEL MILL RD
PATTON AVE
RESORT DR
CLIFF ST
WESTGATE PKWY
EMMA RD
FRENCH BROAD RIVER
RIVERSIDE DR
BRIDGE #323
I-240 WEST
BRIDGE #322
I-240 EAST
CRAVEN CONNECTOR
CRAVEN ST
WESTGATE PKWY

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PATTON AVE DETOUR ROUTE

4/4/2018
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PROJ. REFERENCE NO.	SHEET NO.
15BPR.10	TMP-9

SIGN NUMBER: **SSD-1**
TYPE: F
QUANTITY: 1

SIGN WIDTH: 1′-9″
HEIGHT: 1′-9″
TOTAL AREA: 3.1 Sq.Ft.

BORDER TYPE: RECESSED
RECESS: 0.375″
WIDTH: 0.625″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: White
COPY COLOR: Black

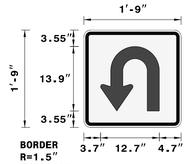
SYMBOL	X	Y	WID	HT
uturn	3.6	3.5	12.7	13.9

MAT'L: 0.125″ (3.2 mm) ALUMINUM

NOTES:

1. Legend and border shall be direct applied, non-reflective sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: J. Hambright CHECKED BY: Dean Harris DATE: FEB 02, 2018
PROJECT ID: 15BPR.10 DIV: 5
DESCRIPTION: U-Turn Arrow sign for Type "F" assembly



BORDER
R=1.5″
TH=0.625″
IN=0.375″

Panel Style: regulatory.ssi
M.U.T.C.D.: 2009 Edition

Spacing Factor is 1 unless specified otherwise

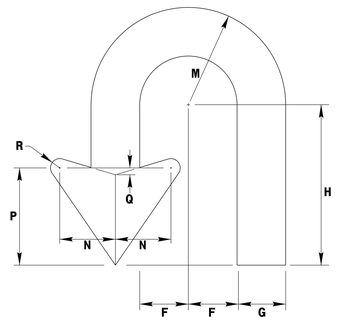
LETTER POSITIONS

Letter locations are panel edge to lower left corner

Series/Size
Text Length

FILENAME: GuidSign_English_8-2-13

NORTH CAROLINA D.O.T. SIGN DETAIL



ARROW DIMENSIONS (INCHES)	F	G	H	M	N	P	Q	R
	2.625	2.625	8.659	5.25	3	5.25	0.375	0.5

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SPECIAL SIGN DESIGN

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15BPR.10

CONTRACT NO.:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
BUNCOMBE COUNTY

BRIDGE #322 – I–240 EBL OVER RAILROAD AND FRENCH BROAD RIVER
BRIDGE #323 – I–240 WBL OVER RAILROAD AND FRENCH BROAD RIVER

TIP NO.	SHEET NO.
15BPR.10	PMP-1

APPROVED: _____

DATE: _____

SEAL

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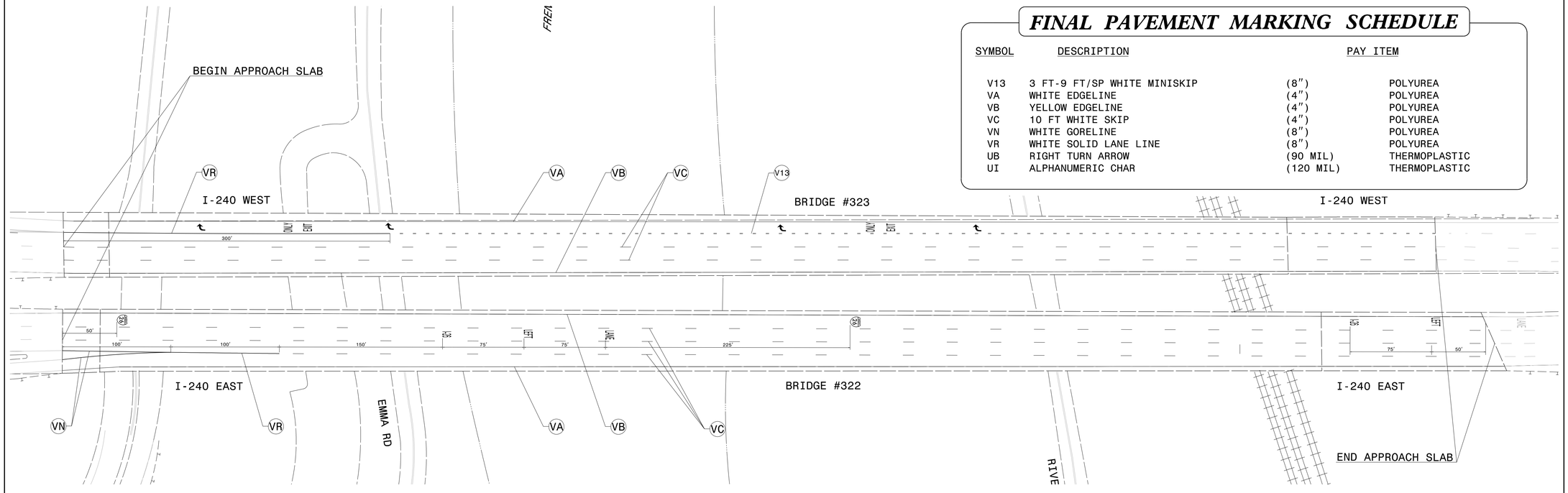

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	
V13	3 FT-9 FT/SP WHITE MINISKIP	(8″)	POLYUREA
VA	WHITE EDGELINE	(4″)	POLYUREA
VB	YELLOW EDGELINE	(4″)	POLYUREA
VC	10 FT WHITE SKIP	(4″)	POLYUREA
VN	WHITE GORELINE	(8″)	POLYUREA
VR	WHITE SOLID LANE LINE	(8″)	POLYUREA
UB	RIGHT TURN ARROW	(90 MIL)	THERMOPLASTIC
UI	ALPHANUMERIC CHAR	(120 MIL)	THERMOPLASTIC

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
BRIDGE DECK	POLYUREA	PERMANENT RAISED

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT & TEMPORARY

N.C.D.O.T. DIVISION 13

CHRISTOPHER MEDLIN, P.E. NCDOT DIVISION 13 CONTACT

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SIGNING AND DELINEATION UNIT

PLAN PREPARED BY:

JAY WOOLARD, P.E. SENIOR TRANSPORTATION ENGINEER

ANDREW N. GOOD TRANSPORTATION DESIGNER

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