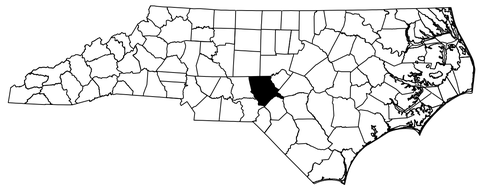
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	8BPR.401	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
8BPR.401.1	–	PE
8BPR.401.3	–	CONST.



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MOORE COUNTY

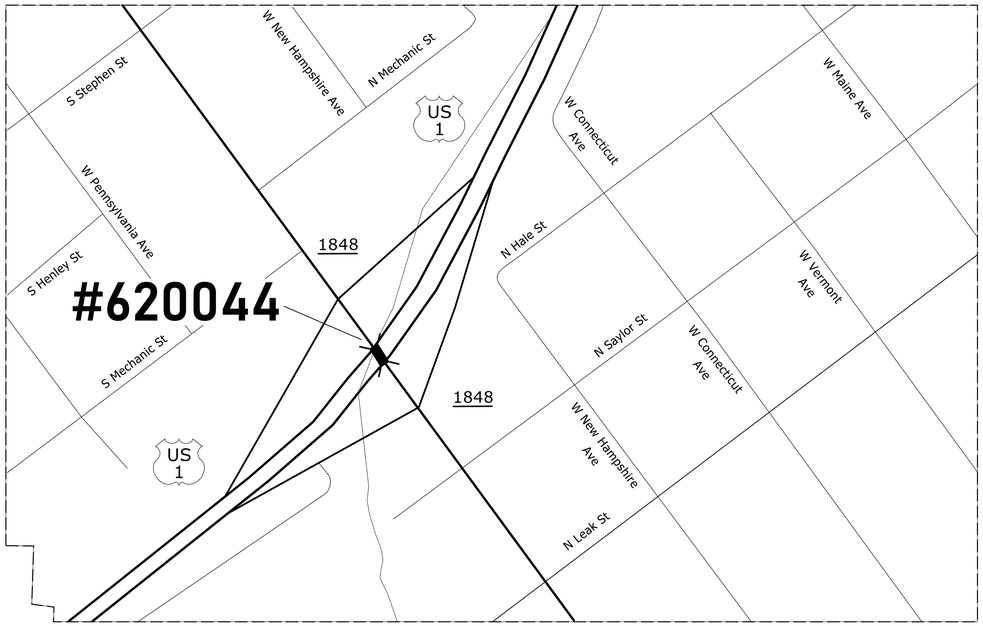
PROJECT: 8BPR.401

CONTRACT NO:

N

LOCATION: BRIDGE #620044 ON SR 1848 (W. PENNSYLVANIA AVE.) OVER US–1 IN SOUTHERN PINES

TYPE OF WORK: BRIDGE PRESERVATION – DECK REPAIR, HYDRODEMOLITION, LATEX MODIFIED CONCRETE OVERLAY – VERY EARLY STRENGTH, MILLING, PAVING, JOINT DEMOLITION, PAINTING OF STRUCTURAL STEEL, STRUCTURAL STEEL BEAM END REPAIR AND SUBSTRUCTURE REPAIR.



DESIGN DATA

BRIDGE #620044 ADT 2018 = 3,700

PROJECT LENGTH

BRIDGE #620044 = 0.03 MI

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

RAJIT RAMKUMAR, P.E.
PROJECT ENGINEER

2024 STANDARD SPECIFICATIONS

LETTING DATE:

Signed by:
FARZIN ASEFNIA
108D8B12AE928467...

NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA
10/16/2024

FARZIN ASEFNIA, P.E.
PROJECT DESIGN ENGINEER

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	8BPR.401	1A	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
8BPR.401.1	–	PE
8BPR.401.3	–	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MOORE COUNTY

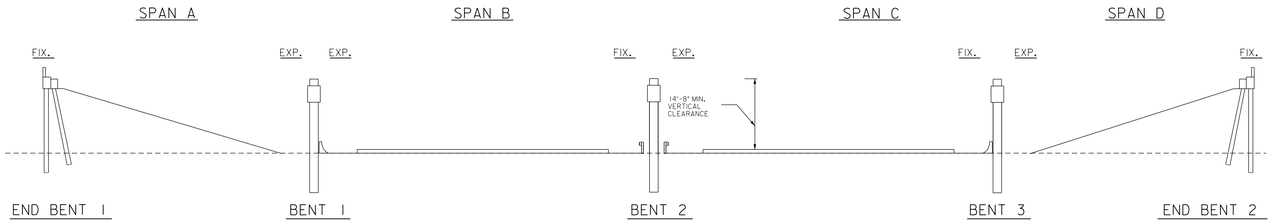
LOCATION: BRIDGE #620044 ON SR 1848 (W. PENNSYLVANIA AVE.) OVER US–1 IN SOUTHERN PINES

TYPE OF WORK: ***BRIDGE PRESERVATION – DECK REPAIR, HYDRODEMOLITION, LATEX MODIFIED CONCRETE OVERLAY – VERY EARLY STRENGTH, MILLING, PAVING, JOINT DEMOLITION, PAINTING OF STRUCTURAL STEEL, STRUCTURAL STEEL BEAM END REPAIR AND SUBSTRUCTURE REPAIR.***

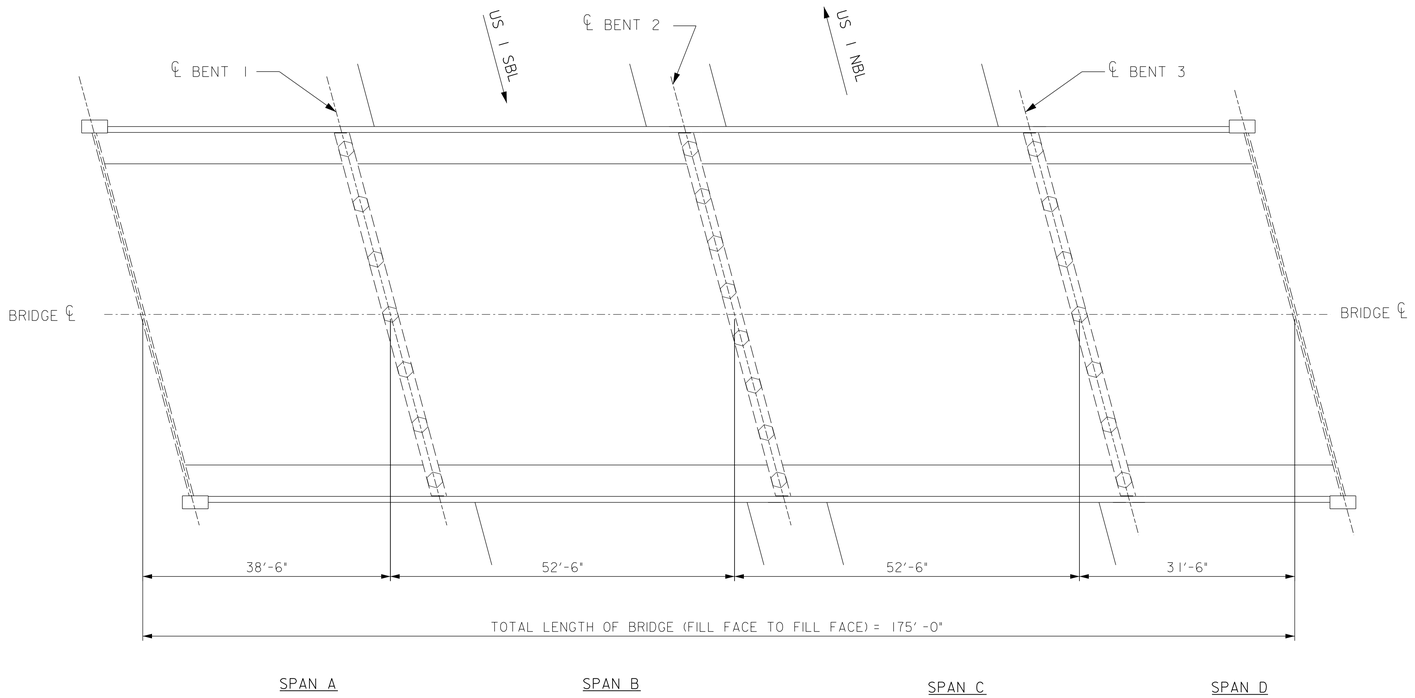
PROJECT: 8BPR.401

CONTRACT NO:

INDEX OF SHEETS



SECTION ALONG > BRIDGE



PLAN

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 04/18/2023

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

SCOPE OF WORK

REMOVE TOP OF BRIDGE DECK ASPHALT BY SCARIFICATION AND HYDRODEMOLITION METHODS.

PREPARE AND REPAIR CLASS II OR CLASS III AREAS OF BRIDGE DECK.

OVERLAY PREPARED TOP OF BRIDGE DECK WITH LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES).

REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINT SEALS FOR PRESERVATION.

GROOVE LMC-VES BRIDGE DECK.

SCOPE OF WORK CONT.

PREPARE THE CONCRETE BARRIER RAIL FRONT AND TOP SURFACES AND THE SIDEWALK FOR SILANE TREATMENT.

APPLY SILANE SEALER TO THE FRONT AND TOP SURFACES OF THE CONCRETE BARRIER SECTIONS AND THE SIDEWALKS.

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

EPOXY RESIN INJECTION OF CONCRETE CRACKS.

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

CLEAN AND REPAIR THE BEAM ENDS AND PAINT THE STRUCTURAL STEEL.

PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

SHEET 1 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by: Farzin Asefnia
Notary Statement
NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA
10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1848(W.PENNSYLVANIA AVE.) OVER US-1

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S1
1			3				TOTAL SHEETS
2			4				14

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

DRAWN BY : N. DIAZ MORILLO DATE : 7/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024

LOCATION SKETCH

BRIDGE COORDINATES

LATITUDE: 35^ 10' 45.2"
LONGITUDE: 79^ 23' 48.87"

NOTES

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

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

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

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

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

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

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

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

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

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

CLASS II SURFACE PREPARATION

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR BRIDGE DECK HYDRODEMOLITION, CLASS II AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR LATEX MODIFIED CONCRETE- VERY EARLY STRENGTH SPECIAL PROVISION.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR LATEX MODIFIED CONCRETE OVERLAY, PLACING AND FINISHING OF LATEX MODIFIED CONCRETE OVERLAY AND GROOVING BRIDGE FLOORS, SEE "LATEX MODIFIED CONCRETE OVERLAY" SPECIAL PROVISIONS.

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

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

FOR SILANE BARRIER RAIL AND SIDEWALK TREATMENT, SEE SPECIAL PROVISIONS.

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

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL REPAIR ALL BEAM ENDS PRIOR TO PLACEMENT OF THE MILLING, PAVING, HYDRODEMOLITION OR ANY OTHER CONSTRUCTION EQUIPMENT ON THE DECK

REPAIR AREAS INACCESSIBLE BY POWER TOOLS SHALL BE CLEANED WITH HAND TOOLS.

BILL OF MATERIAL

BRIDGE NO. 620044	CLEANING & PAINTING OF BRIDGE No. 620044	PAINTING CONTAINMENT FOR BRIDGE No. 620044	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH	PLACING & FINISHING LMC-VES OVERLAY	HYDRO-DEMOLITION OF BRIDGE DECK	GROOVING BRIDGE FLOORS	CONCRETE DECK REPAIR	SHOTCRETE REPAIRS	CONCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS FOR PRESERVATION	BRIDGE JOINT DEMOLITION	VOLUMETRIC MIXER
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	SQ. YDS.	SQ. FT.	SQ. YDS.	CU. FT.	CU. FT.	LN. FT.	LN. FT.	SQ. FT.	LUMP SUM
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	-	1.4	36.5	876.3	876.3	7,321.0	1.4	93	15	18	177	137	LUMP SUM

BILL OF MATERIAL CONT.

BRIDGE NO. 620044	EPOXY COATING	ELASTOMERIC CONCRETE FOR PRESERVATION	POURABLE SILICONE JOINT SEAL	FLOWABLE FILL	BEAM REPAIR PLATING	INCIDENTAL MILLING	SCARIFYING BRIDGE DECK	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	ASPHALT BINDER FOR PLANT MIX	SURFACE PREPARATION FOR CONCRETE BARRIER RAIL AND SIDEWALK	SILANE BARRIER RAIL AND SIDEWALK TREATMENT
	SQ. FT.	CU. FT.	LN. FT.	CU. YDS.	LBS.	SQ. YDS.	SQ. YDS.	TONS	TONS	SQ. FT.	SQ. FT.
TOTAL	605	34	118	9.6	697.0	462.2	902.1	38.1	5	3,354.1	3,354.1

PROJECT NO. 8BPR.401
MOORE COUNTY
BRIDGE NO. 620044
SHEET 2 OF 2

DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by:
NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA
10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1848(W. PENNSYLVANIA AVE.) OVER US-1

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

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
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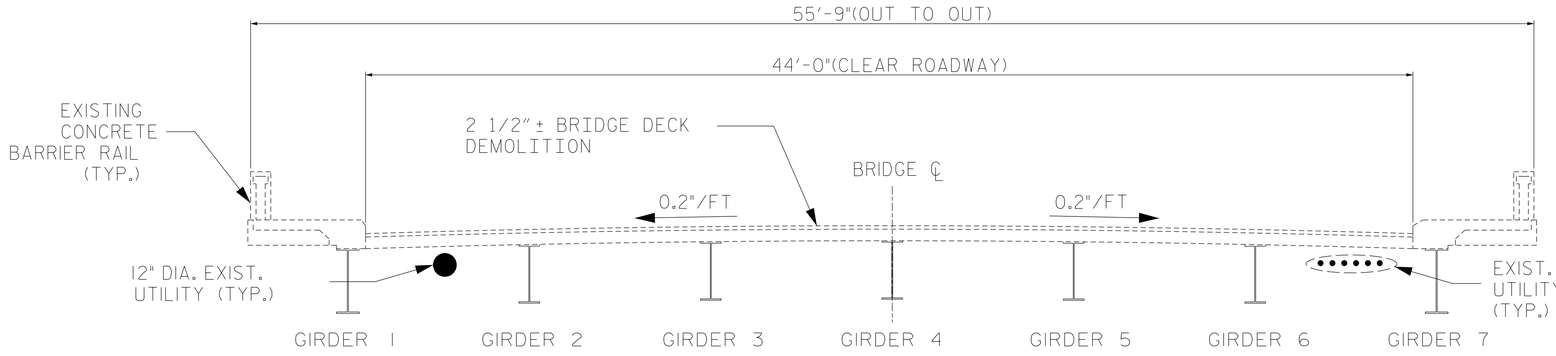
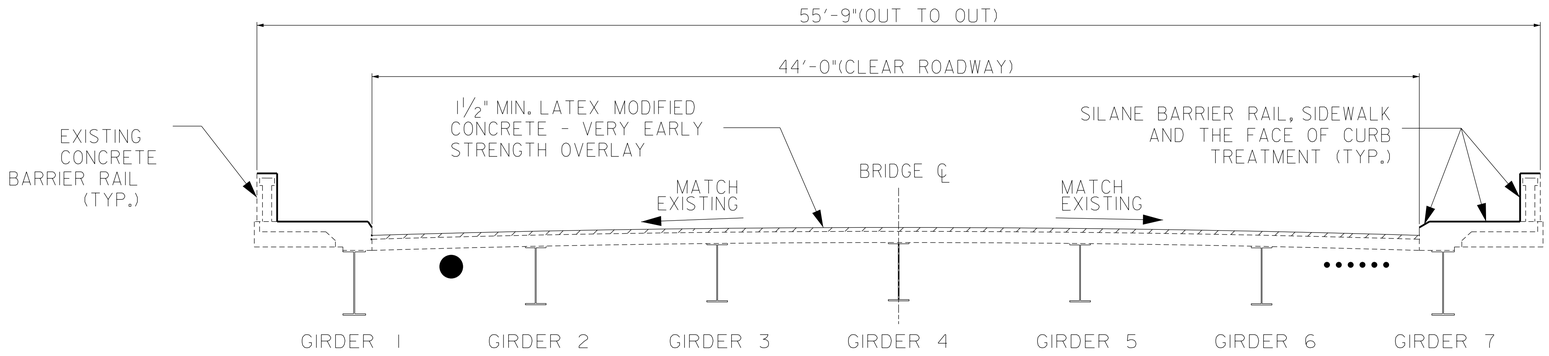
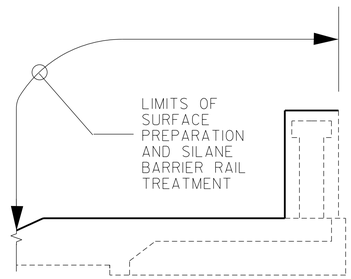


TYPICAL SECTION
EXISTING

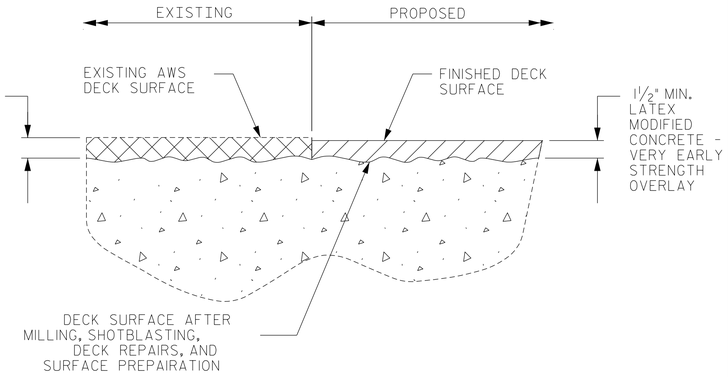


TYPICAL SECTION
PROPOSED

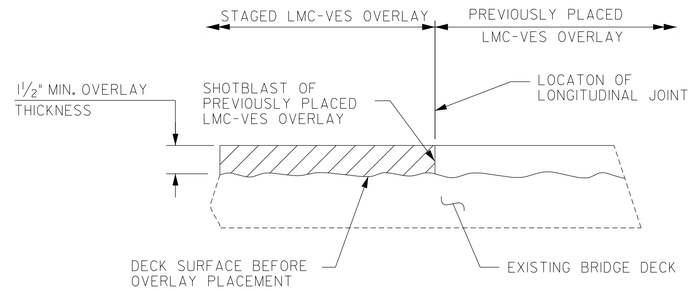


DETAIL FOR SILANE BARRIER RAIL TREATMENT

NOTES:
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES) OVERLAY SYSTEM AND SURFACE PREPARATION.



DETAILS FOR LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH OVERLAY
ACTUAL THICKNESS OF LMC-VES OVERLAY MAY VARY.



STAGED LMC-VES OVERLAY JOINT

PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

SHEET 1 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by:
NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA
10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION & LMC-VES OVERLAY DETAILS

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

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024

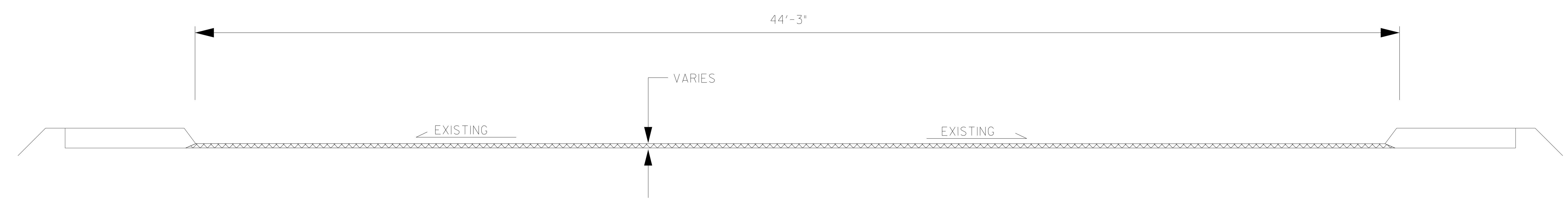
PLAN

MILL AND REPAVE TO MATCH DECK CONCRETE

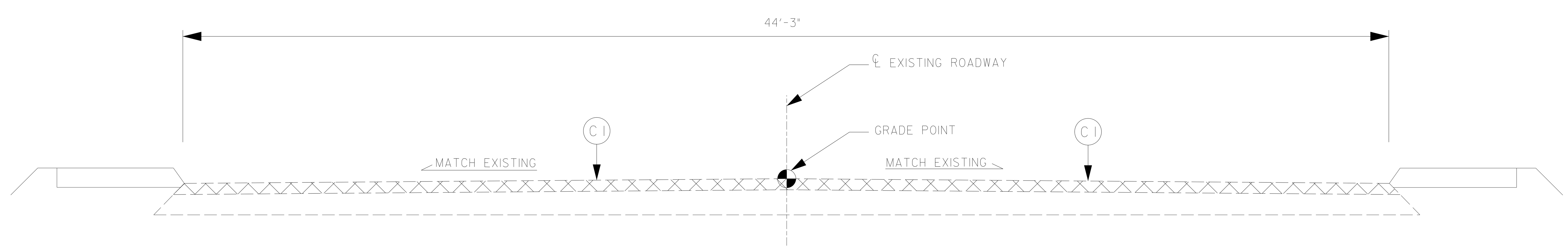
NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH.

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1½" IN DEPTH.



TYPICAL ROADWAY MILLING SECTION



TYPICAL ROADWAY SECTION

PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

SHEET 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by:
Farzin Asefnia
08D8B124E9B0967...

NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA

10/16/2024

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL ROADWAY SECTION AND MILLING DETAILS

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

DRAWN BY :	N. DIAZ MORILLO	DATE :	8/2024
CHECKED BY :	D. COMANICIU	DATE :	8/2024
DESIGN ENGINEER OF RECORD:	F. ASEFNIA	DATE :	8/2024

NOTES:

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

FOR SECTION A-A AND B-B, SEE 'JOINT DETAILS' SHEETS.

FOR BRIDGE DECK HYDRODEMOLITION AND CLASS II AND CLASS III SURFACE PREPARATION, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.

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

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR, LMC-VES MATERIALS AND PLACING AND FINISHING LMC-VES OVERLAY, SEE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

CLASS II APPROX. SURFACE PREPARATION AREA

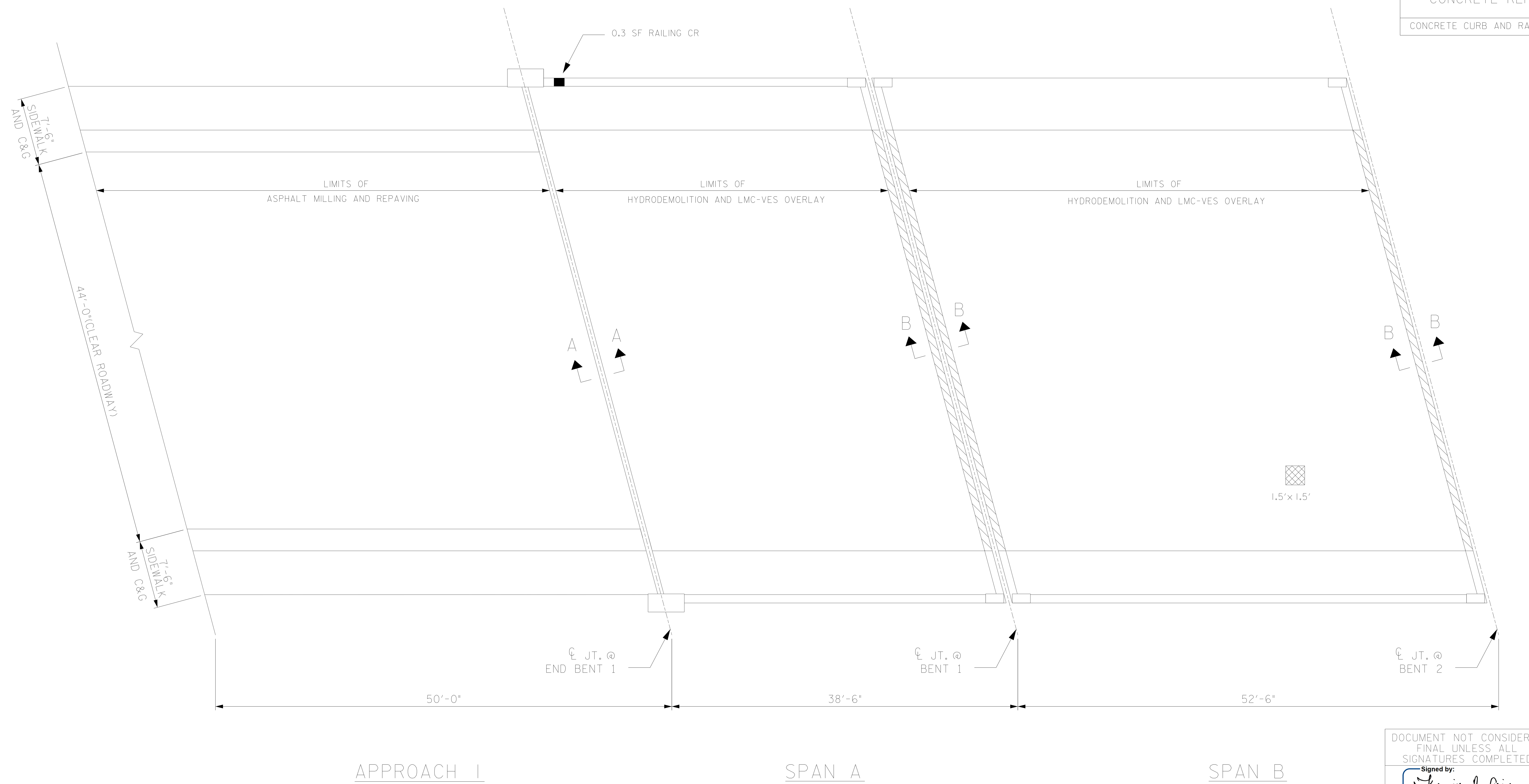
CLASS III APPROX. SURFACE PREPARATION AREA

CONCRETE REPAIR (CR)

BRIDGE JOINT DEMOLITION

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS	ESTIMATE		ACTUAL	
BRIDGE JOINT DEMOLITION	68.5 SF			
CLASS II SURFACE PREPARATION	0.0 SY			
CLASS III SURFACE PREPARATION	0.25 SY			
CONCRETE DECK REPAIR	0.25 SY			
SHOTBLASTING BRIDGE DECK	464.0 SY			
LMC-VES MATERIALS	19.0 CY			
PLACING AND FINISHING LMC-VES OVERLAY	451.0 SY			
GROOVING BRIDGE FLOORS	3,766.0 SF			
SILANE PREP. FOR CONCRETE BARRIER	1,744.0 SF			
SILANE BARRIER RAIL TREATMENT	1,744.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.3	0.15		



PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

SHEET 1 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by: Farzin Asefnia 08D8B12AE924452

SEAL 20103 NORTH CAROLINA PROFESSIONAL ENGINEER FARZIN ASEFNIA

10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK SURFACE REPAIR

SPAN A & B

TRANSYSTEMS 1 Glenwood Avenue Raleigh, NC 27603 Tel 919.789.9977 Fax 919.789.9591 License F-0453

REVISIONS								SHEET NO.
NO.	BY:	DATE:		NO.	BY:	DATE:		S-5
1				3				TOTAL SHEETS
2				4				14

DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024

NOTES:

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

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

FOR BRIDGE DECK HYDRODEMOLITION AND CLASS II AND CLASS III SURFACE PREPARATION, SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II AND CLASS III SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR LMC-VES OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE LMC OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR, LMC-VES MATERIALS AND PLACING AND FINISHING LMC-VES OVERLAY, SEE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

CLASS II APPROX. SURFACE PREPARATION AREA

CLASS III APPROX. SURFACE PREPARATION AREA

CONCRETE REPAIR (CR)

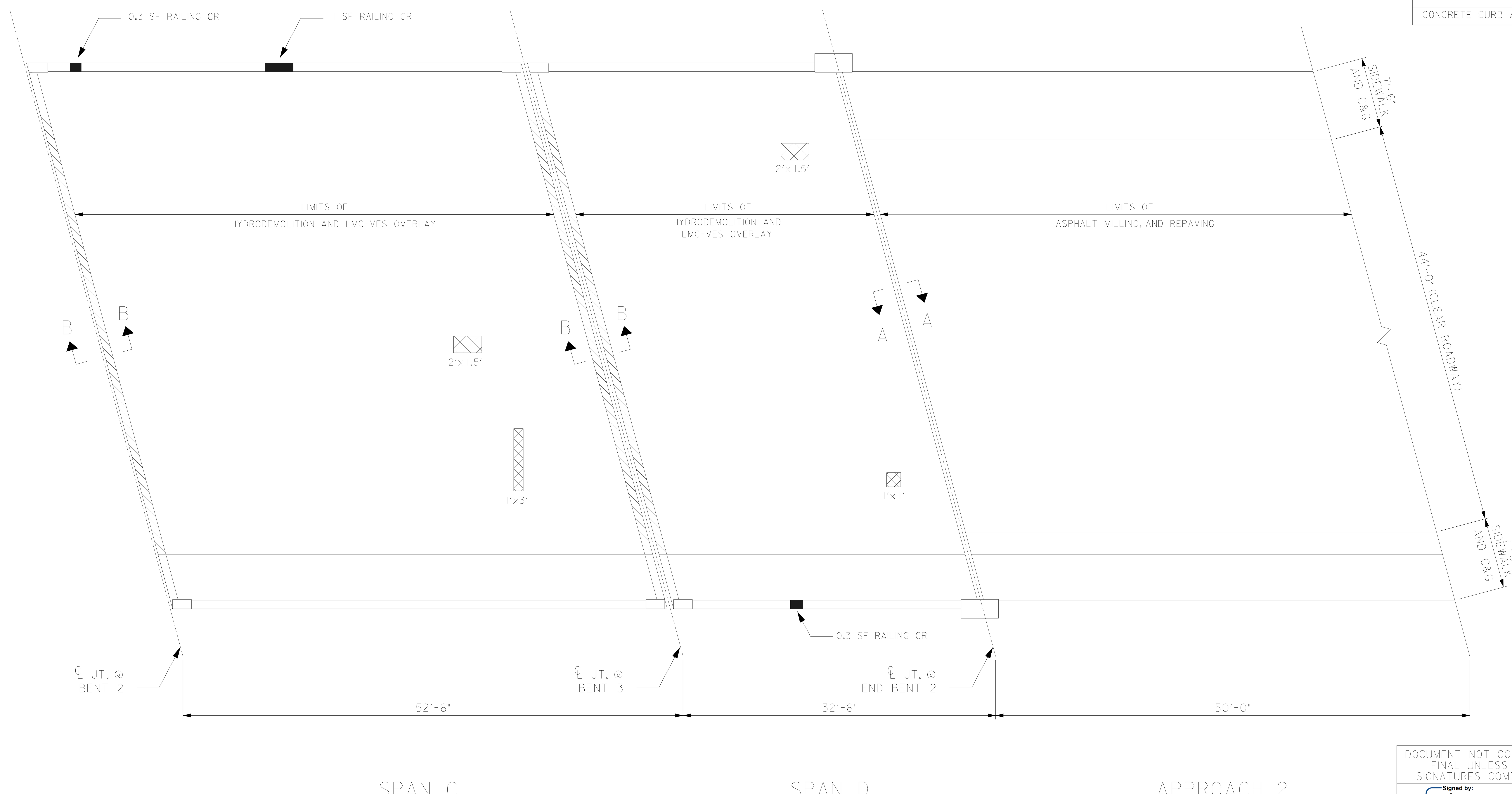
BRIDGE JOINT DEMOLITION

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
BRIDGE JOINT DEMOLITION	68.5 SF	
CLASS II SURFACE PREPARATION	0.0 SY	
CLASS III SURFACE PREPARATION	1.1 SY	
CONCRETE DECK REPAIR	1.1 SY	
SHOTBLASTING BRIDGE DECK	438.5 SY	
LMC-VES MATERIALS	18.0 CY	
PLACING AND FINISHING LMC-VES OVERLAY	426.0 SY	
GROOVING BRIDGE FLOORS	3,554.0 SF	
SILANE PREP. FOR CONCRETE BARRIER	1,610.0 SF	
SILANE BARRIER RAIL TREATMENT	1,610.0 SF	

CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	1.6	0.8		



PROJECT NO. 8BPR.401
MOORE COUNTY
BRIDGE NO. 620044
SHEET 2 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by:
SEAL 20103 PROFESSIONAL ENGINEER FARZIN ASEFNIA
10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

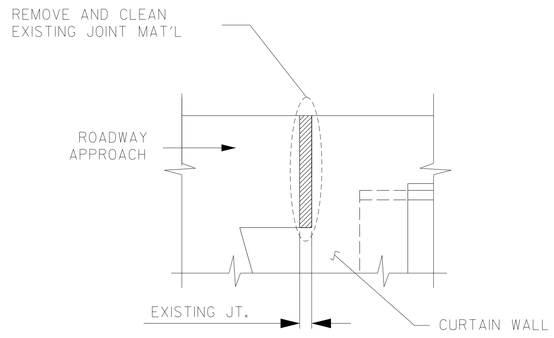
DECK SURFACE REPAIR

SPAN C & D

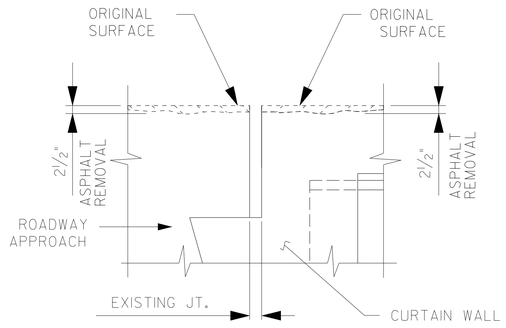
TRANSYSTEMS 1 Glenwood Avenue Raleigh, NC 27603 Tel:919.789.9977 Fax:919.789.9591 License: F-0453

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14

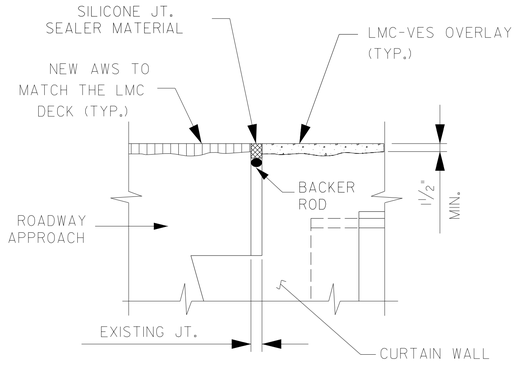
DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024



EXISTING JOINT

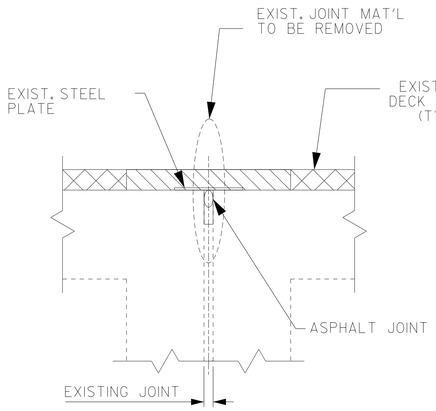


MINIMUM EXISTING
JOINT DEMOLITION



PROPOSED JOINT

SECTION A-A
(TYP. AT END BENTS)



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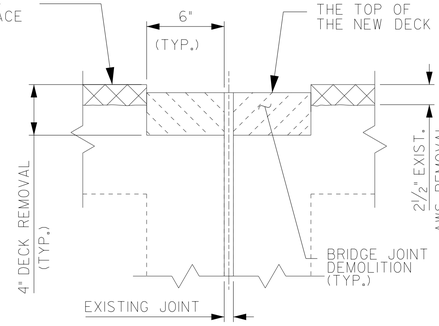
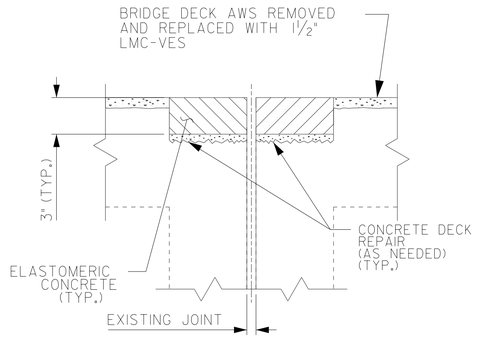
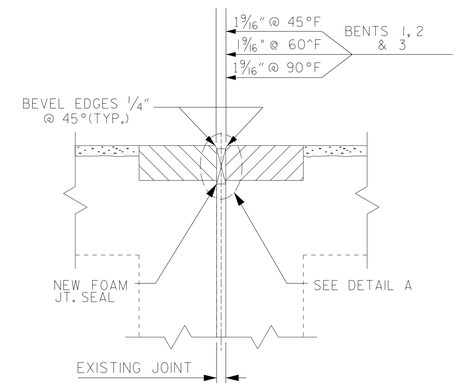


MINIMUM EXISTING
JOINT DEMOLITION

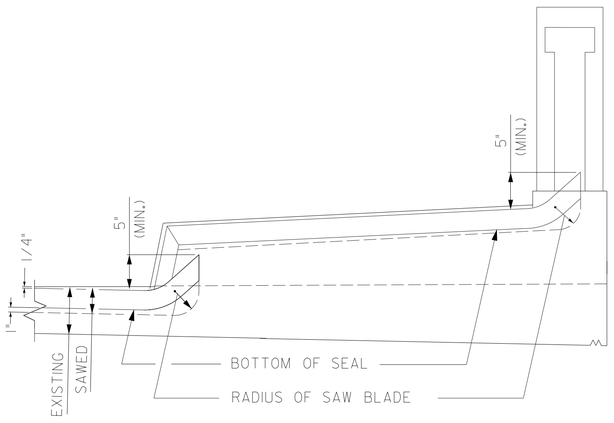


PROPOSED JOINT
PRIOR TO SAWING

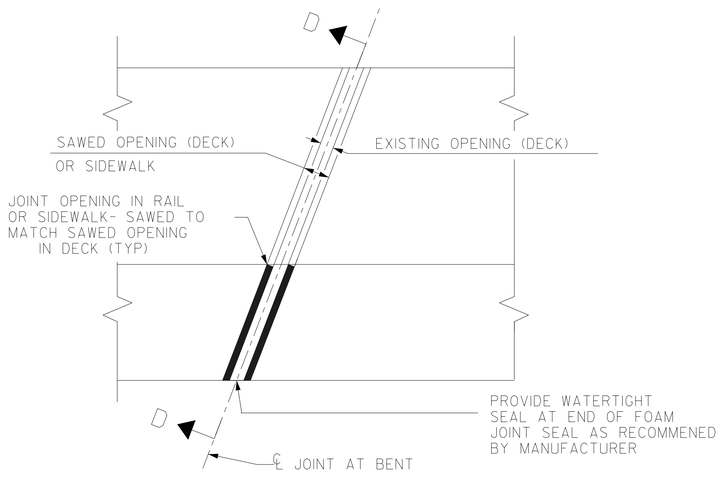


PROPOSED FOAM JOINT SEAL

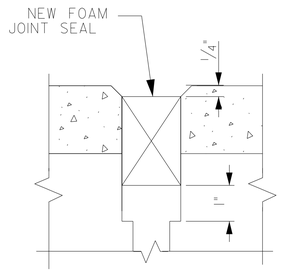
SECTION B-B
(TYP. AT BENTS)



SECTION D-D



PLAN



DETAIL 'A'

NOTES:

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

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

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

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

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

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

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

THE INSTALLATION OF THE JOINT SEAL SHALL BE WATERTIGHT.

A MANUFACTURER'S CERTIFIED TRAINED REPRESENTATIVE SHALL BE PRESENT DURING THE INSTALLATION OF THE FIRST JOINT OF THE PROJECT, OR UNTIL THE ENGINEER IS SATISFIED WITH THE INSTALLATION PROCESS.

POURABLE SILICONE JOINT SEALANT

FOAM JOINT SEALS FOR PRESERVATION	ESTIMATED LIN. FT.	ACTUAL LIN. FT.
END BENT 1	59	
END BENT 2	59	
TOTAL	118	

JOINT REPAIR QUANTITY TABLE

FOAM JOINT SEALS FOR PRESERVATION	ESTIMATED LIN. FT.	ACTUAL LIN. FT.
BENT 1	59	
BENT 2	59	
BENT 3	59	
TOTAL	177	

PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by: Arzin Asefnia
08D8B12AE9224E2...

NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER ARZIN ASEFNIA

10/16/2024

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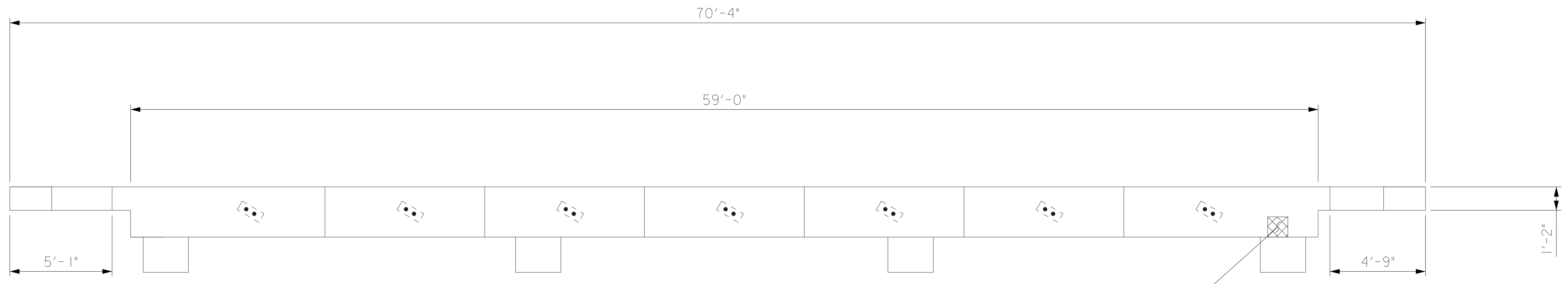
Fax:919.789.9591
License: F-0453

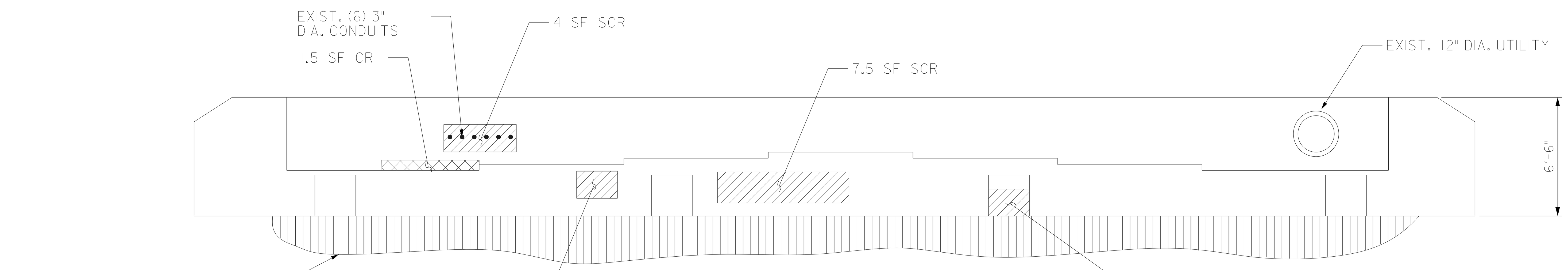
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT DETAILS

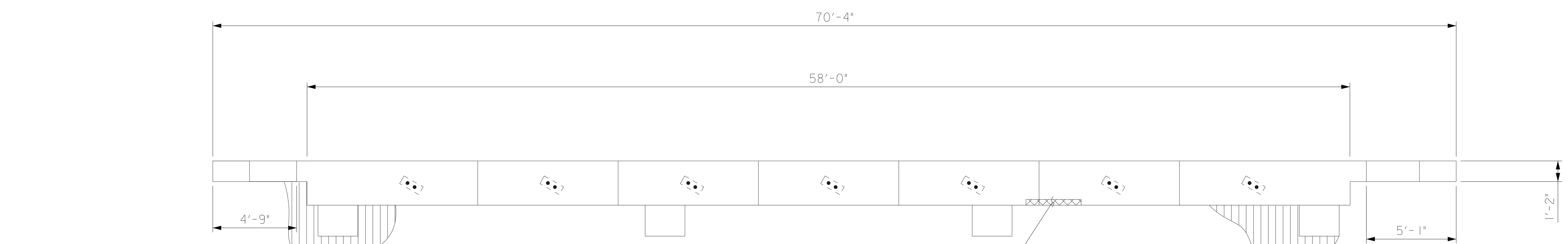
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			14



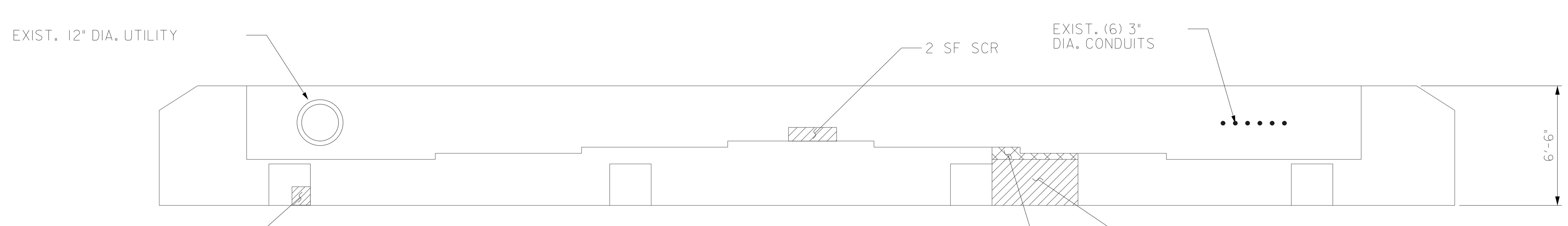
PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

END BENTS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	27.5	13.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	6.0	3.0		
FLOWABLE FILL		VOLUME CY		VOLUME CY
END BENT 1		6.8		
END BENT 2		2.8		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		0.0		
EPOXY COATING		SQ. FT.		LN. FT.
TOP OF END BENT CAP		310.0		

NOTES:

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

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 MASONARY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIR (SCR)

CONCRETE REPAIR (CR)

EPOXY RESIN INJECTION (ERI)

FLOWABLE FILL

PROJECT NO. 8BPR.401
MOORE COUNTY
BRIDGE NO. 620044
SHEET 1 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by:
08D8B12AE92B452...
NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA
10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

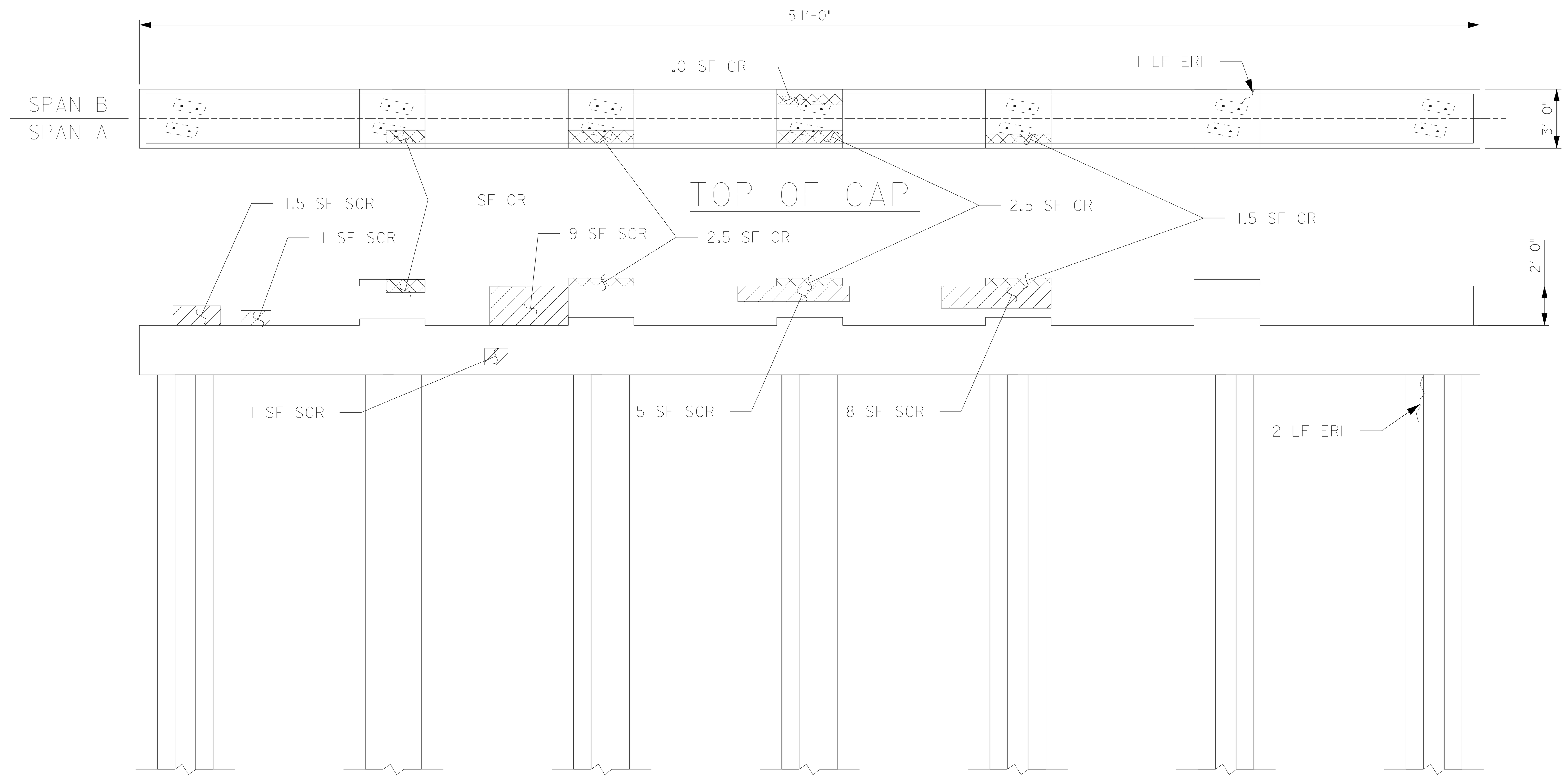
SUBSTRUCTURE REPAIR

END BENT 1 & 2

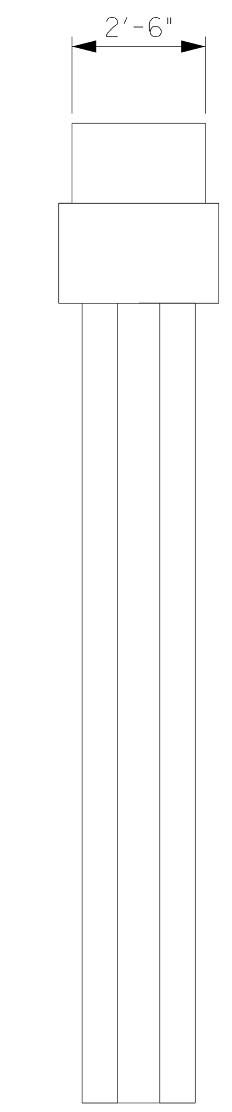
TRANSYSTEMS
1 Glenwood Avenue Raleigh, NC 27603 Tel 919.789.9977 Fax 919.789.9591 License: F-0453

REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	S-8
1			3			TOTAL SHEETS	14
2			4				

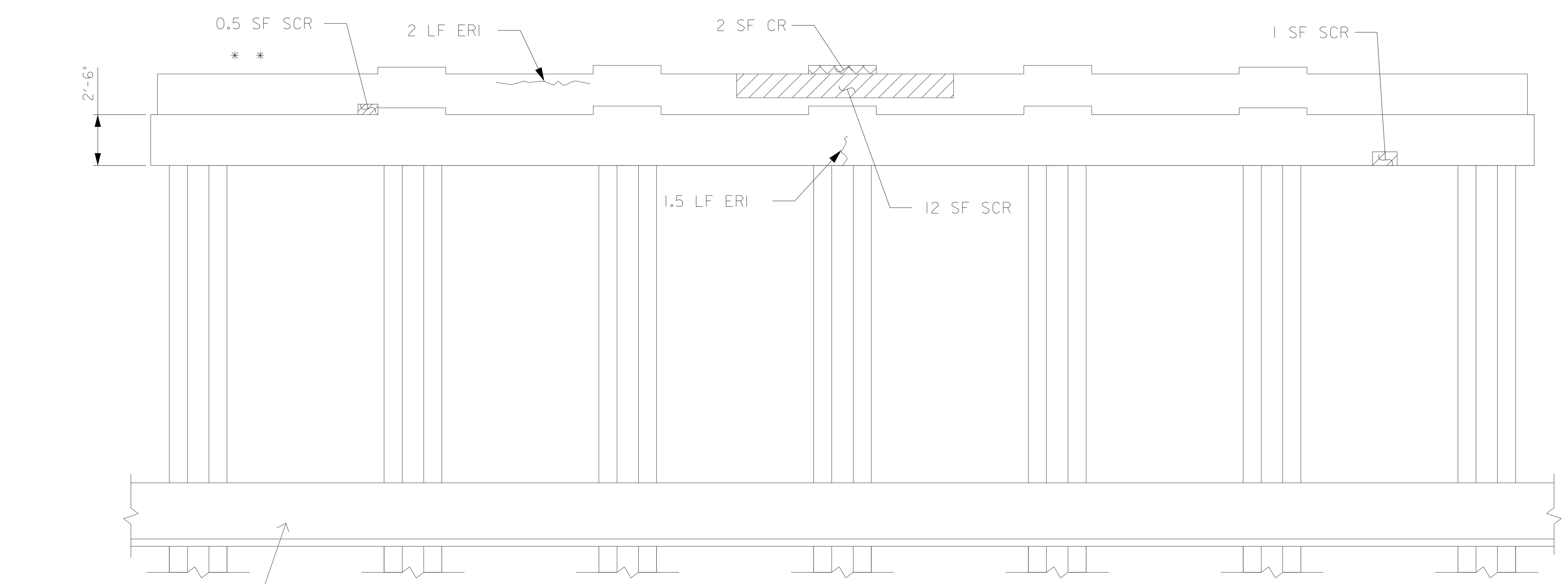
DRAWN BY :	N. DIAZ MORILLO	DATE :	6/2024
CHECKED BY :	D. COMANICIU	DATE :	8/2024
DESIGN ENGINEER OF RECORD:	F. ASEFNIA	DATE :	8/2024



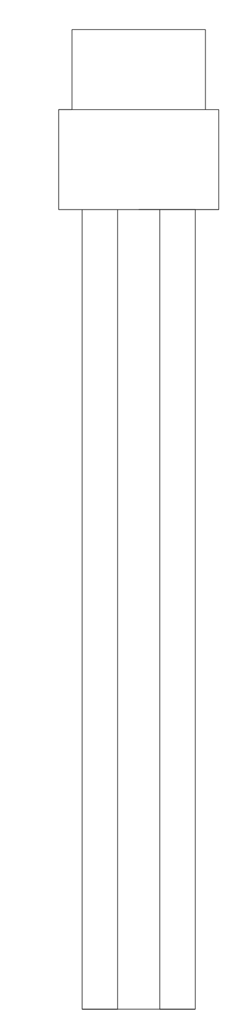
ELEVATION
SPAN A SIDE



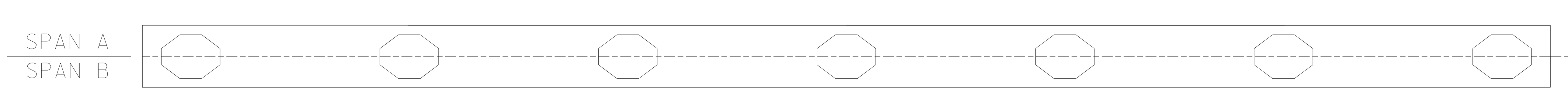
SOUTH SIDE VIEW



ELEVATION
SPAN B SIDE



NORTH SIDE VIEW



BOTTOM OF CAP

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	39.0	19.5		
COLUMN	0.0	0.0		
END & BENT DIAPH.	5.0	2.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	10.5	5.3		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		4.5		
COLUMN		2.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		98.3		

NOTES:

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

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 MASONARY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR CAP, COLUMN, DIAPHRAGM AND END DIAPHRAGM REPAIRS, SEE SHEET S-14.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

* * LOCATION OF DAMAGED BENT DIAPHRAGMS

SHOTCRETE REPAIR (SCR)

CONCRETE REPAIR (CR)

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 8BPR.401
MOORE COUNTY
BRIDGE NO. 620044
SHEET 2 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by:
Farzin Asefnia
08D8B12AE92B452...
NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA
10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

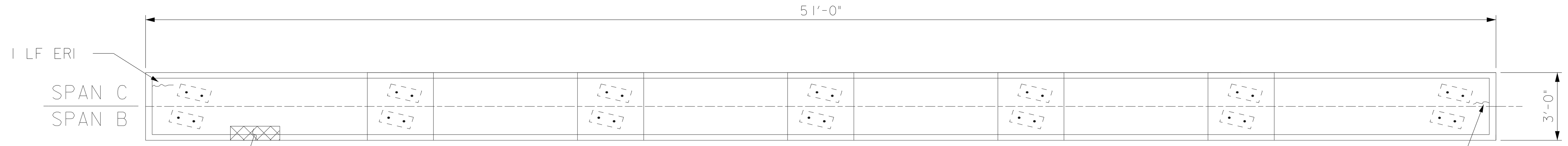
SUBSTRUCTURE REPAIR

BENT 1

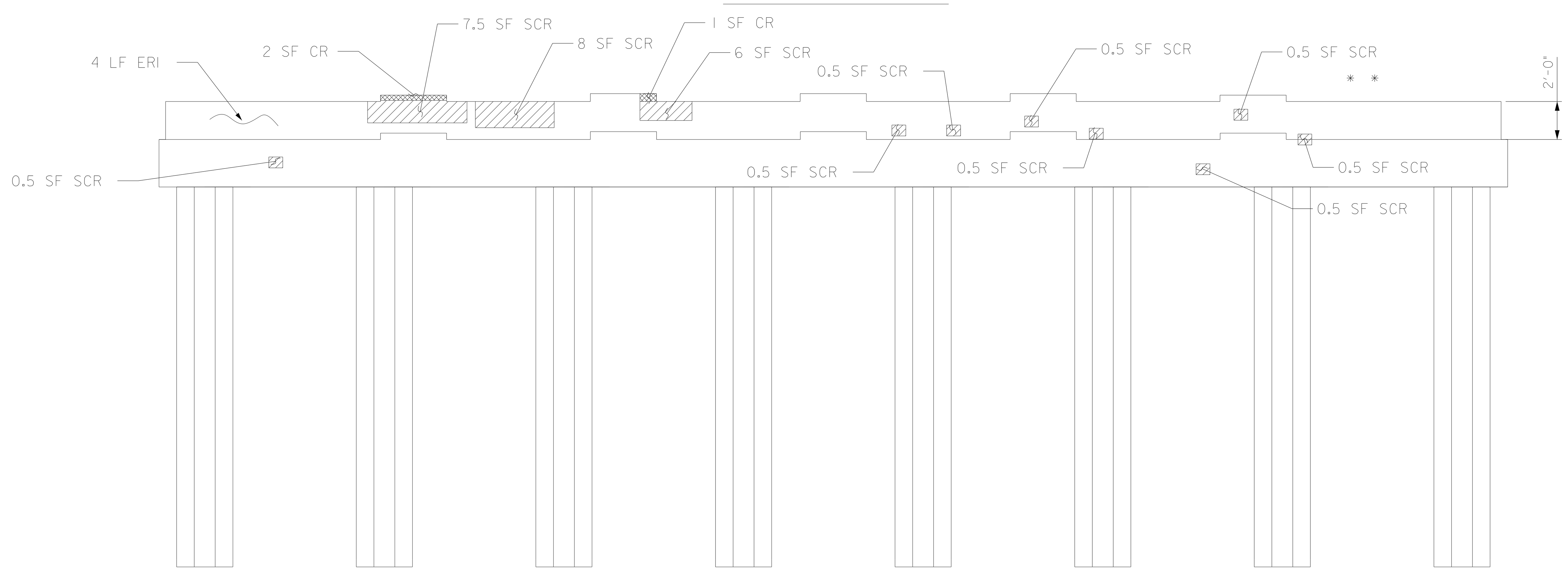
TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-9
1			3					TOTAL SHEETS
2			4					14

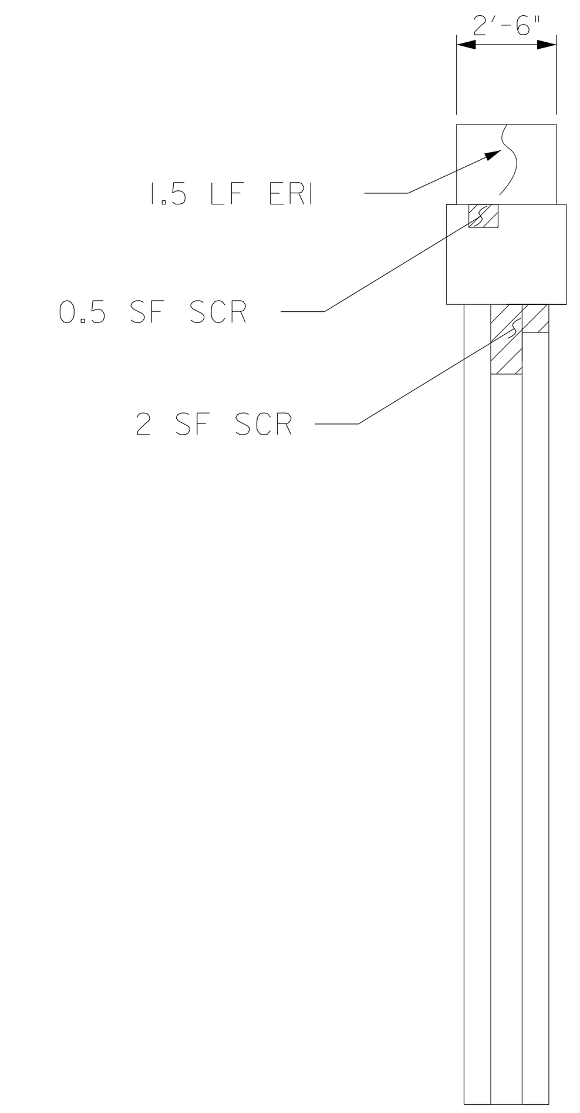
DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024



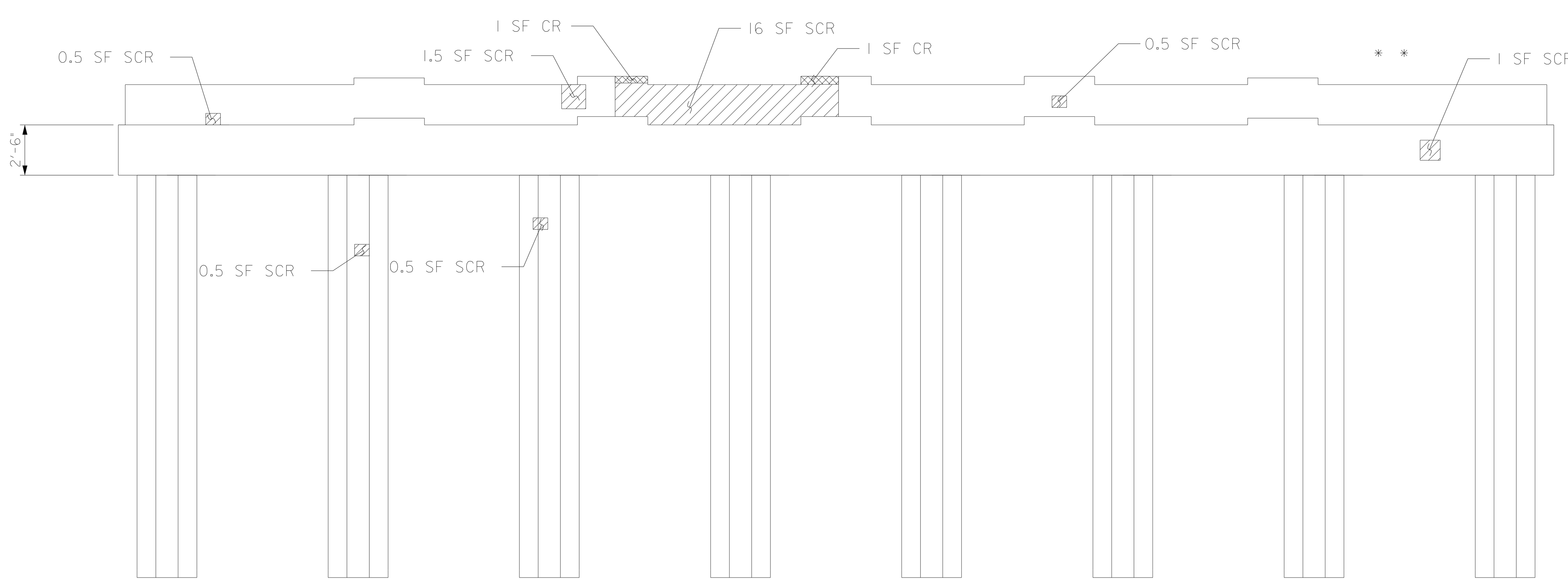
TOP OF CAP



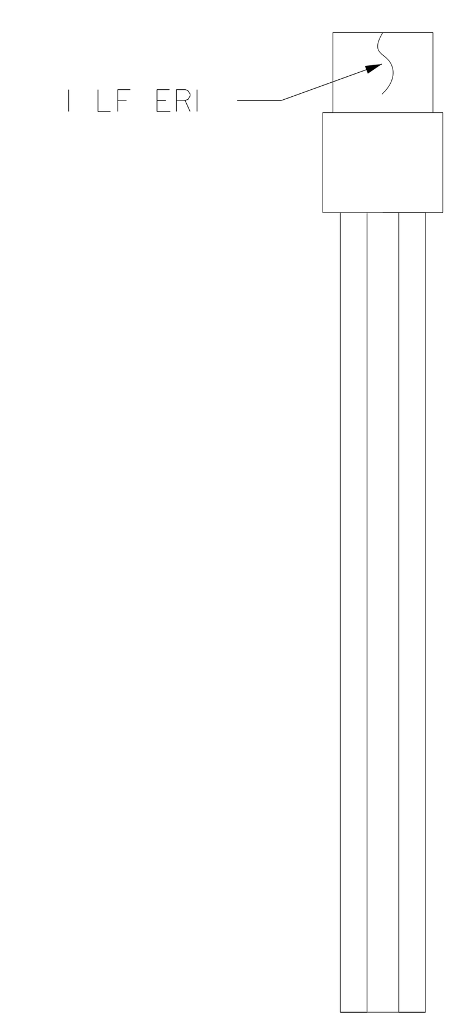
ELEVATION
SPAN B SIDE



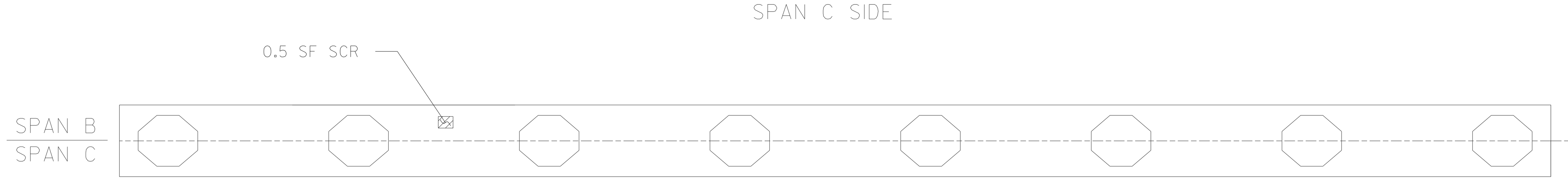
SOUTH SIDE VIEW



ELEVATION
SPAN C SIDE



NORTH SIDE VIEW



BOTTOM OF CAP

AS-BUILT REPAIR QUANTITY TABLE

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	46.5	23.3		
COLUMN	3.0	1.5		
BENT DIAPHRAGMS	5.0	2.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	7.0	3.5		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		8.5		
COLUMN		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		98.3		

NOTES:

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

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 MASONARY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR CAP, COLUMN, DIAPHRAGM AND END DIAPHRAGM REPAIRS, SEE SHEET S-14.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

* * LOCATION OF DAMAGED BENT DIAPHRAGMS

SHOTCRETE REPAIR (SCR)

CONCRETE REPAIR (CR)

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 8BPR.401
MOORE COUNTY
BRIDGE NO. 620044
SHEET 3 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by:
08D8B12AE998452...
NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARIN ASEFNIA
10/16/2024

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1 Glenwood Avenue
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Fax 919.789.9591
License: F-0453

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

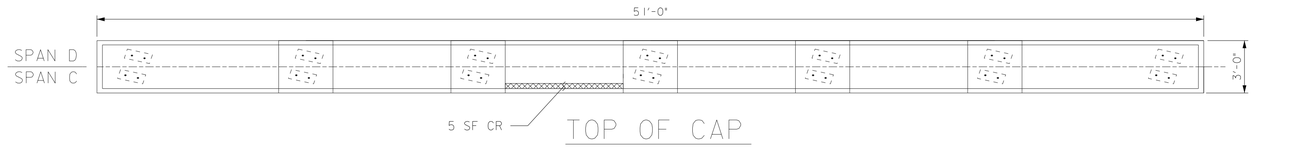
SUBSTRUCTURE REPAIR

BENT 2

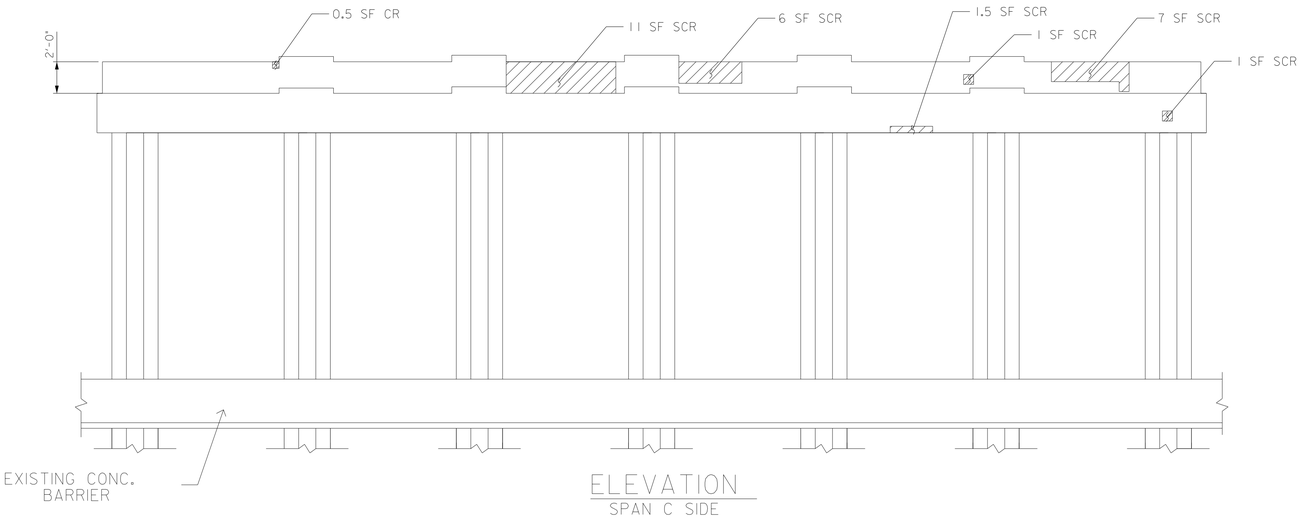
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

SHEET NO. S-10
TOTAL SHEETS 14

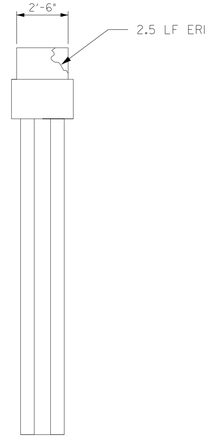
DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024



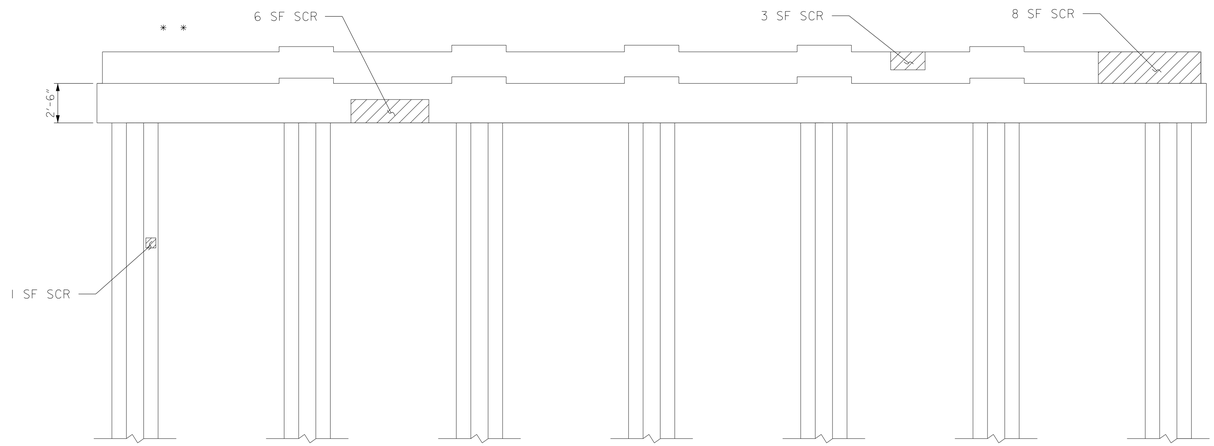
TOP OF CAP



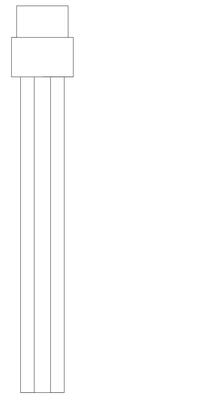
ELEVATION
SPAN C SIDE



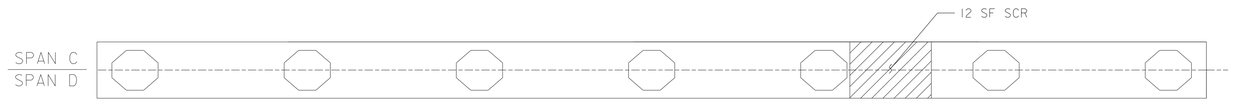
SOUTH SIDE VIEW



ELEVATION
SPAN D SIDE



NORTH SIDE VIEW



BOTTOM OF CAP

AS-BUILT REPAIR QUANTITY TABLE

BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	56.5	28.3		
COLUMN	1.0	0.5		
BENT DIAPHRAGMS	2.0	1.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	5.5	2.8		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		2.5		
COLUMN		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		98.3		

NOTES:

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

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 MASONARY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR CAP, COLUMN, DIAPHRAGM AND END DIAPHRAGM REPAIRS, SEE SHEET S-14.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

* * LOCATION OF DAMAGED BENT DIAPHRAGMS

SHOTCRETE REPAIR (SCR)

CONCRETE REPAIR (CR)

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

SHEET 4 OF 4

DRAWN BY : N. DIAZ MORILLO DATE : 6/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024

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Signed by: Fenzin Asefnia
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NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FANZIN ASEFNIA

10/16/2024

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

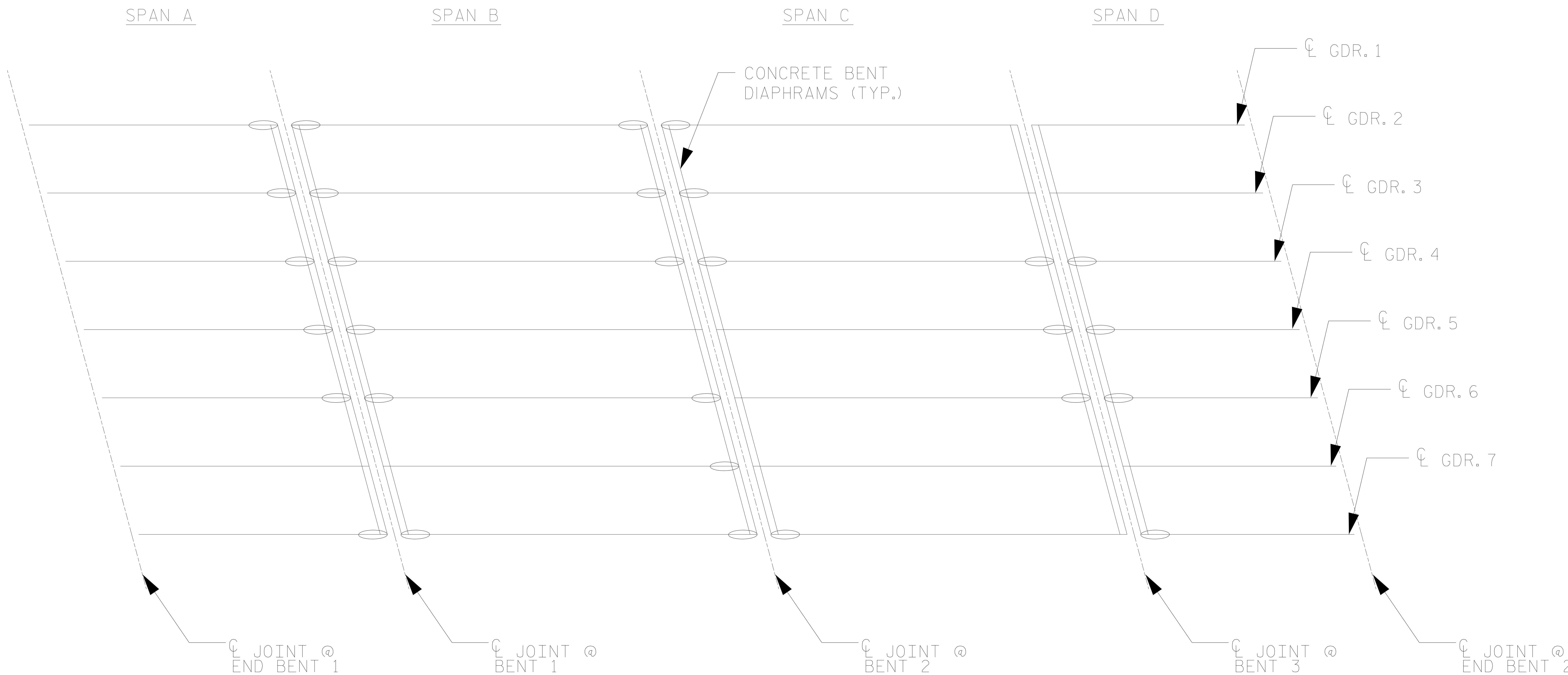
SUBSTRUCTURE REPAIR

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			14

BEAM REPAIR QUANTITY TABLE

BEAM END REPAIR	
LBS.	
ESTIMATE	ACTUAL
697	-



GIRDER END REPAIR AT THE BENT DIAPHRAGMS

NOTES:

FOR BEAM REPAIR DETAILS, SEE "BEAM PLATING REPAIR DETAILS" SHEET.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS. WELD MATERIAL SHALL BE E70XX.

PLATE SIZES ARE BASED ON BEST INFORMATION AVAILABLE. ENGINEER SHALL VERIFY EXTENTS OF REPAIR AND PLATE SIZES PRIOR TO PLATE FABRICATION.

CONTRACTOR SHALL CLEAN EXISTING STEEL SURFACES IN REPAIR AREA BEFORE PERFORMING REPAIRS.

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	"A"	"B"	"C"	"D"
A	1	BENT 1 - EXTERIOR	9"	15"	18"	7"
A	1	BENT 1 - BAY 1	8"	14"	17"	6"
A	2	BENT 1 - BAY 1	7"	15"	-	-
A	2	BENT 1 - BAY 2	6"	14"	-	-
A	3	BENT 1 - BAY 2	7"	15"	-	-
A	4	BENT 1 - BAY 3	7"	15"	-	-
A	4	BENT 1 - BAY 4	6"	14"	-	-
A	5	BENT 1 - BAY 4	7"	15"	-	-
A	7	BENT 1 - BAY 6	8"	14"	17"	6"
A	7	BENT 1 - EXTERIOR	9"	15"	18"	7"
B	1	BENT 1 - BAY 1	9"	15"	30"	7"
B	1	BENT 2 - EXTERIOR	9"	15"	15"	7"
B	1	BENT 2 - BAY 1	8"	14"	14"	6"
B	2	BENT 1 - BAY 1	9"	15"	-	-
B	2	BENT 1 - BAY 2	8"	14"	-	-
B	2	BENT 2 - BAY 1	8"	14"	-	-
B	2	BENT 2 - BAY 2	9"	15"	24"	7"
B	3	BENT 1 - BAY 2	8"	14"	-	-
B	3	BENT 1 - BAY 3	9"	15"	-	-
B	3	BENT 2 - BAY 2	7"	14"	-	-
B	3	BENT 2 - BAY 3	9"	15"	12"	7"
B	4	BENT 1 - BAY 3	8"	14"	-	-
B	4	BENT 1 - BAY 4	9"	15"	-	-
B	5	BENT 1 - BAY 4	8"	14"	-	-
B	5	BENT 1 - BAY 5	9"	15"	-	-
B	5	BENT 2 - BAY 4	7"	15"	-	-
B	5	BENT 2 - BAY 5	6"	14"	-	-
B	6	BENT 1 - BAY 5	7"	15"	-	-
B	7	BENT 1 - EXTERIOR	9"	15"	24"	7"
B	7	BENT 1 - BAY 6	8"	14"	23"	6"
B	7	BENT 2 - EXTERIOR	9"	15"	20"	7"
B	7	BENT 2 - BAY 6	8"	14"	19"	6"
C	1	BENT 2 - EXTERIOR	9"	14"	-	-
C	1	BENT 2 - BAY 1	10"	15"	31"	7"
C	2	BENT 2 - BAY 1	9"	15"	16"	7"
C	2	BENT 2 - BAY 2	8"	14"	18"	6"
C	3	BENT 2 - BAY 2	9"	15"	16"	7"
C	3	BENT 2 - BAY 3	8"	14"	15"	6"
C	3	BENT 3 - BAY 2	9"	15"	31"	7"
C	3	BENT 3 - BAY 3	8"	14"	16"	6"
C	4	BENT 3 - BAY 3	6"	15"	15"	7"
C	4	BENT 3 - BAY 4	7"	14"	14"	6"
C	5	BENT 3 - BAY 4	9"	15"	16"	7"
C	7	BENT 2 - BAY 6	8"	14"	17"	6"
C	7	BENT 2 - EXTERIOR	9"	15"	18"	7"
D	3	BENT 3 - BAY 3	9"	15"	16"	7"
D	4	BENT 3 - BAY 3	6"	15"	16"	6"
D	4	BENT 3 - BAY 4	7"	14"	15"	7"
D	5	BENT 3 - BAY 4	6"	15"	15"	7"
D	7	BENT 3 - BAY 6	9"	15"	15"	7"

PROJECT NO. 8BPR.401
MOORE COUNTY
BRIDGE NO. 620044
SHEET 1 OF 2

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Signed by:
08D8B12AE926452...
SEAL 20103
ENGINEER
FARZIN ASEFNIA
10/16/2024

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RALEIGH

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1			3				
2			4				

SHEET NO. S-12
TOTAL SHEETS 14

DRAWN BY :	N. DIAZ MORILLO	DATE :	6/2024
CHECKED BY :	D. COMANICIU	DATE :	8/2024
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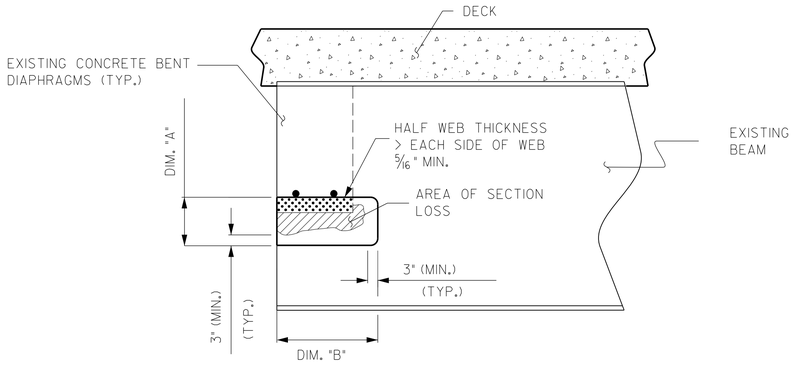
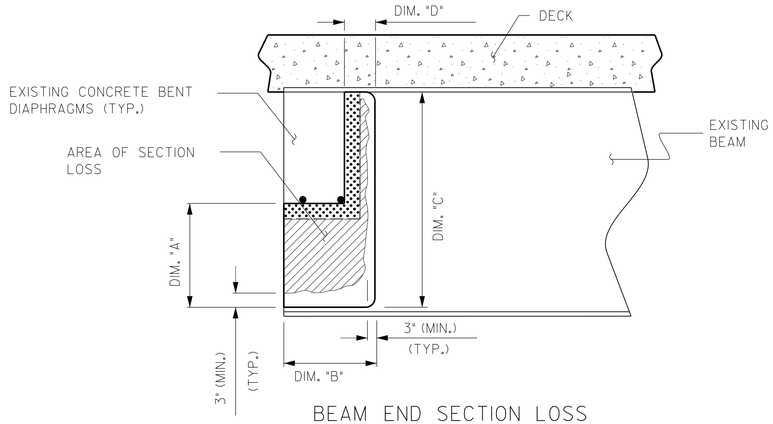


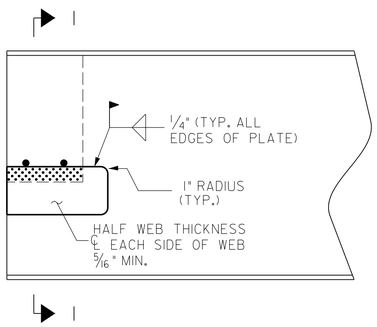
BEAM END SECTION LOSS AND PLATING REPAIR

(EXAMPLE ONLY. ACTUAL REBAR SIZES & LOCATIONS MAY VARY)



BEAM END SECTION LOSS AND PLATING REPAIR

(EXAMPLE ONLY. ACTUAL REBAR SIZES & LOCATIONS MAY VARY)



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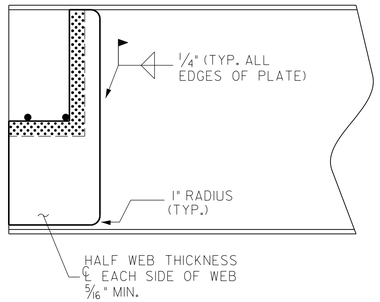
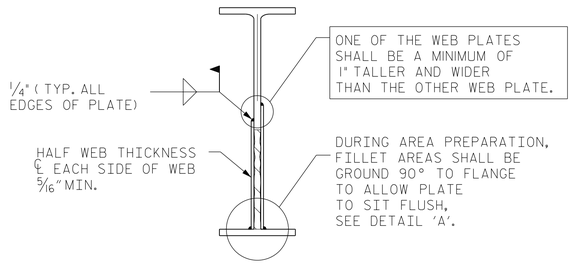
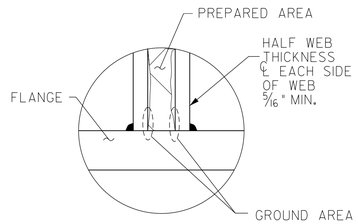


BEAM END PLATING REPAIR



SECTION I-I



DETAIL 'A'

BEAM PLATING REPAIR NOTES

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

REPAIR PLATES SHALL BE NEW, AND SHALL BE THE SAME GRADE OF THE EXISTING STEEL MEMBER OR BETTER.

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

IF PAINTING THE STEEL, CLEAN AND BLAST STEEL AS REQUIRED, PRIOR TO PERFORMING STEEL REPAIRS. OTHERWISE, 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. ONE OF THE WEB PLATES SHALL BE A MINIMUM OF I" TALLER AND WIDER THAN THE OTHER WEB PLATE TO OFFSET THE WEB PLATE WELDING LOCATIONS ON THE EXISTING BEAM WEB.

EACH PLATE SHALL BE APPROXIMATELY ONE-HALF THE ORIGINAL THICKNESS OF THE BEAM WEB, WITH A MINIMUM THICKNESS OF 5/16".

FULLY WELD ALONG ALL 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 GROOVE 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 STEEL STRUCTURE SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE RECAST. ANY REINFORCING STEEL CUT OR DAMAGED 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 PLATE REPAIR". FOR BEAM PLATE REPAIR, SEE SPECIAL PROVISIONS.

PORTION OF BENT DIAPHRAGM CONCRETE TO BE REMOVED AND REPLACED FOR THE PLATE TO BE INSTALLED

PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

SHEET 2 OF 2

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Signed by:

NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FAIZIN ASEFNIA

10/16/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM PLATING REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			14

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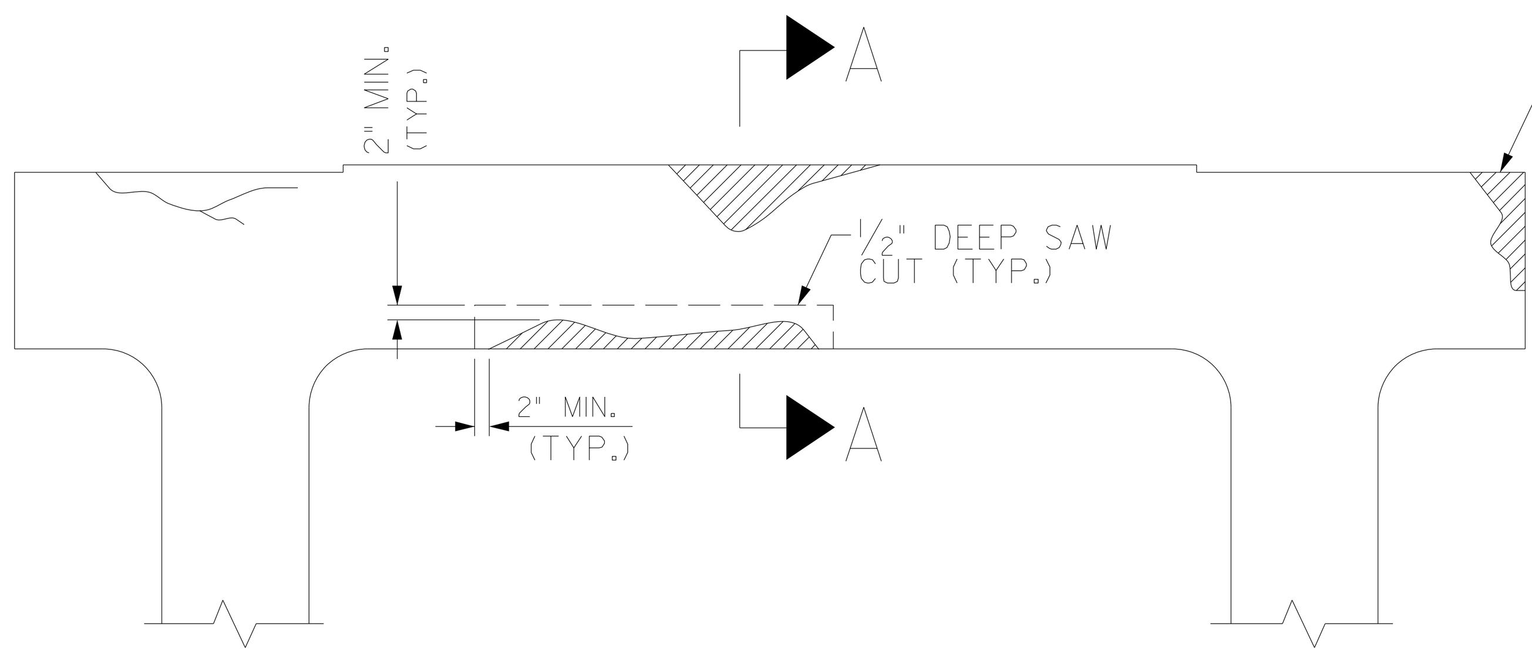
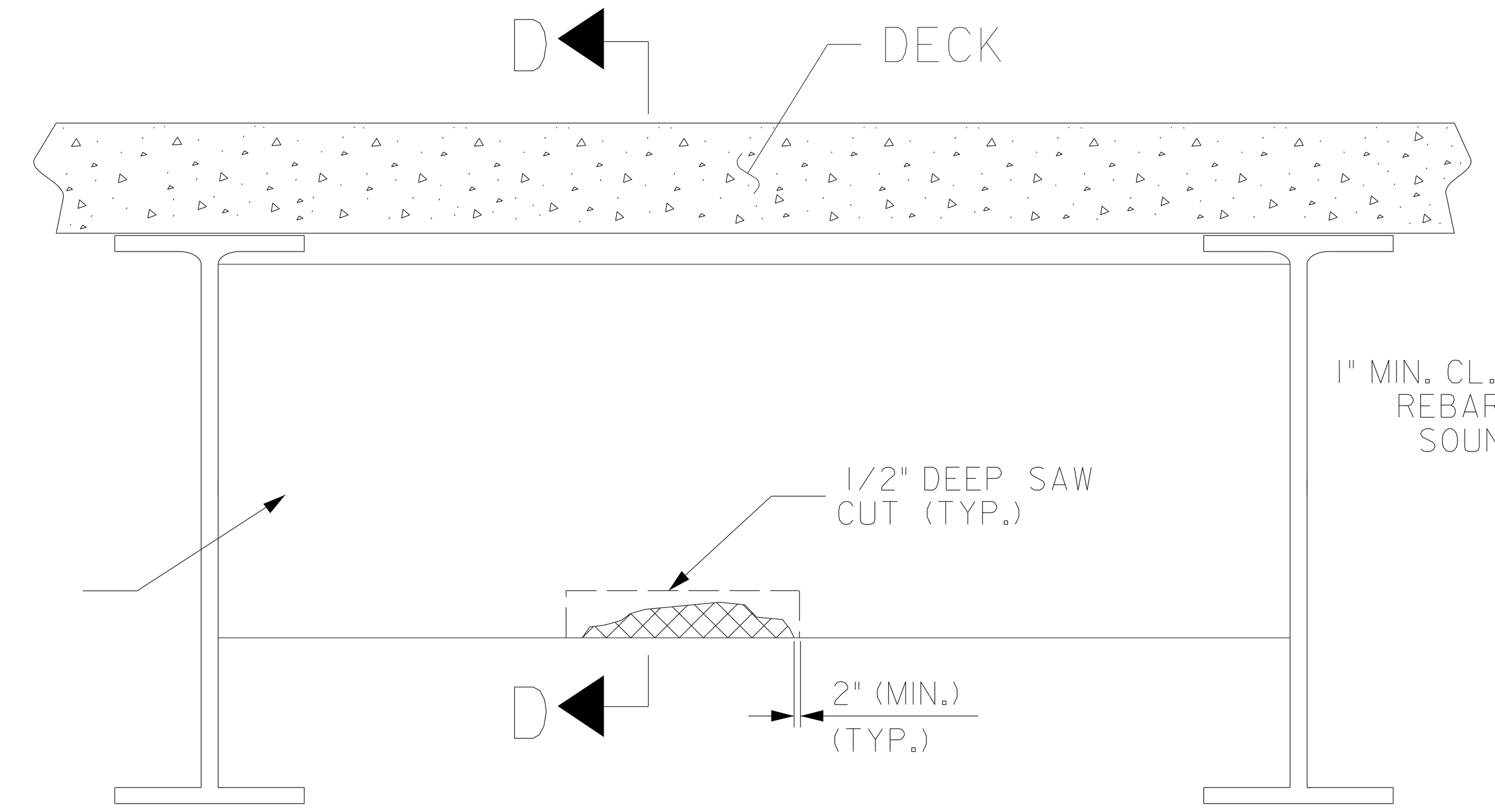
DRAWN BY : N. DIAZ MORILLO DATE : 7/2024
CHECKED BY : D. COMANICIU DATE : 8/2024
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 8/2024

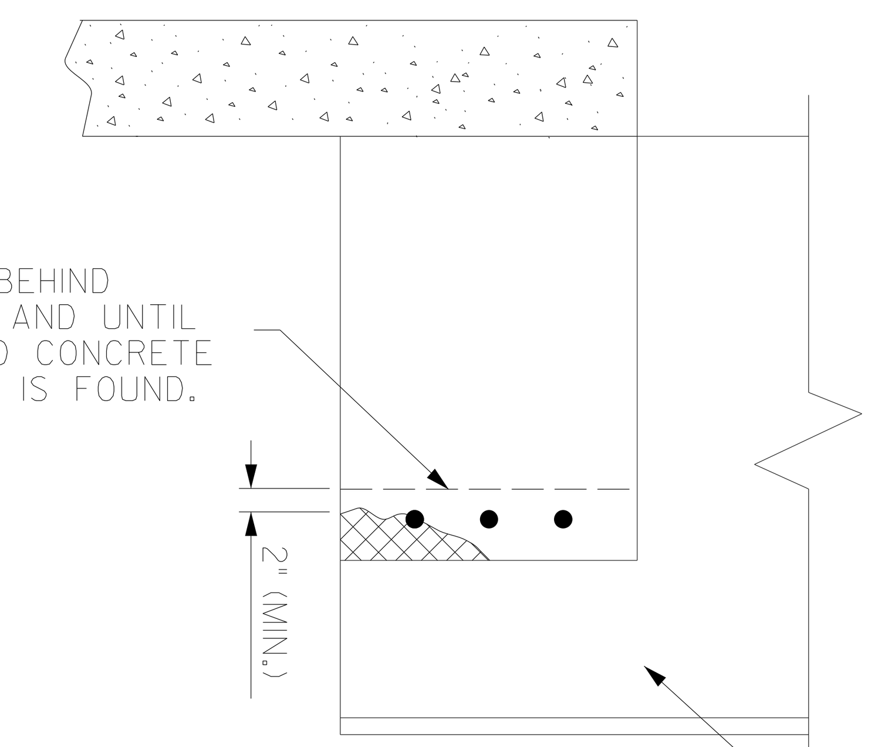


BENT CAP REPAIR



TYPICAL SECTION

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



SECTION D-D

NOTE

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

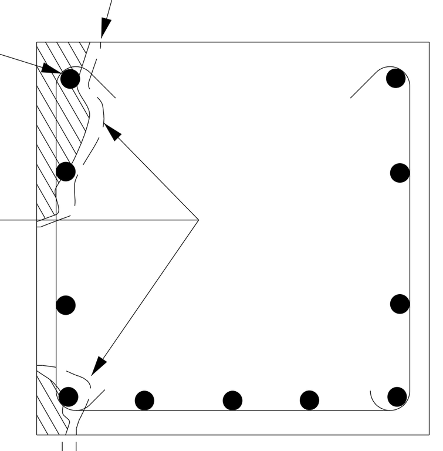
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

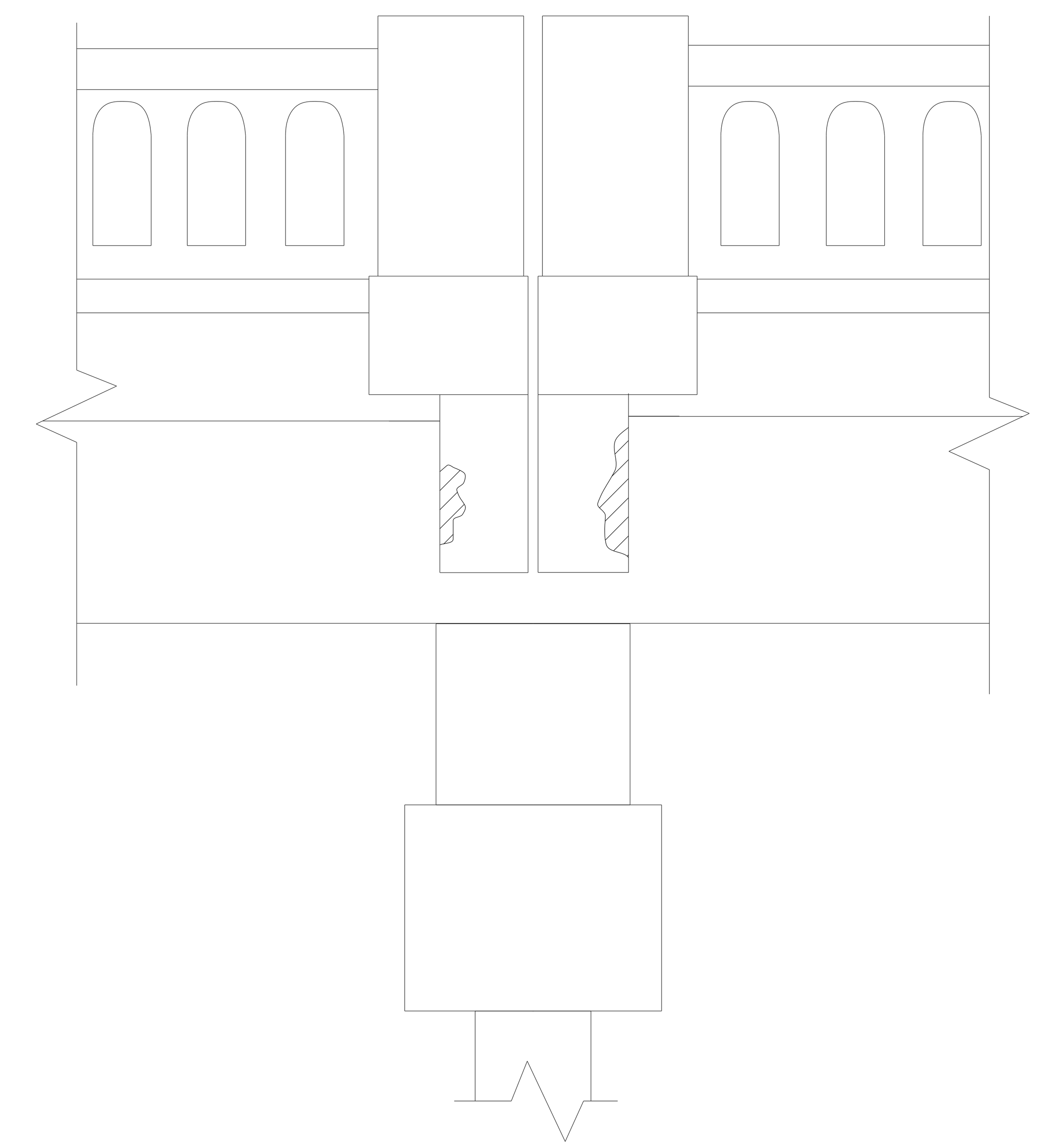
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



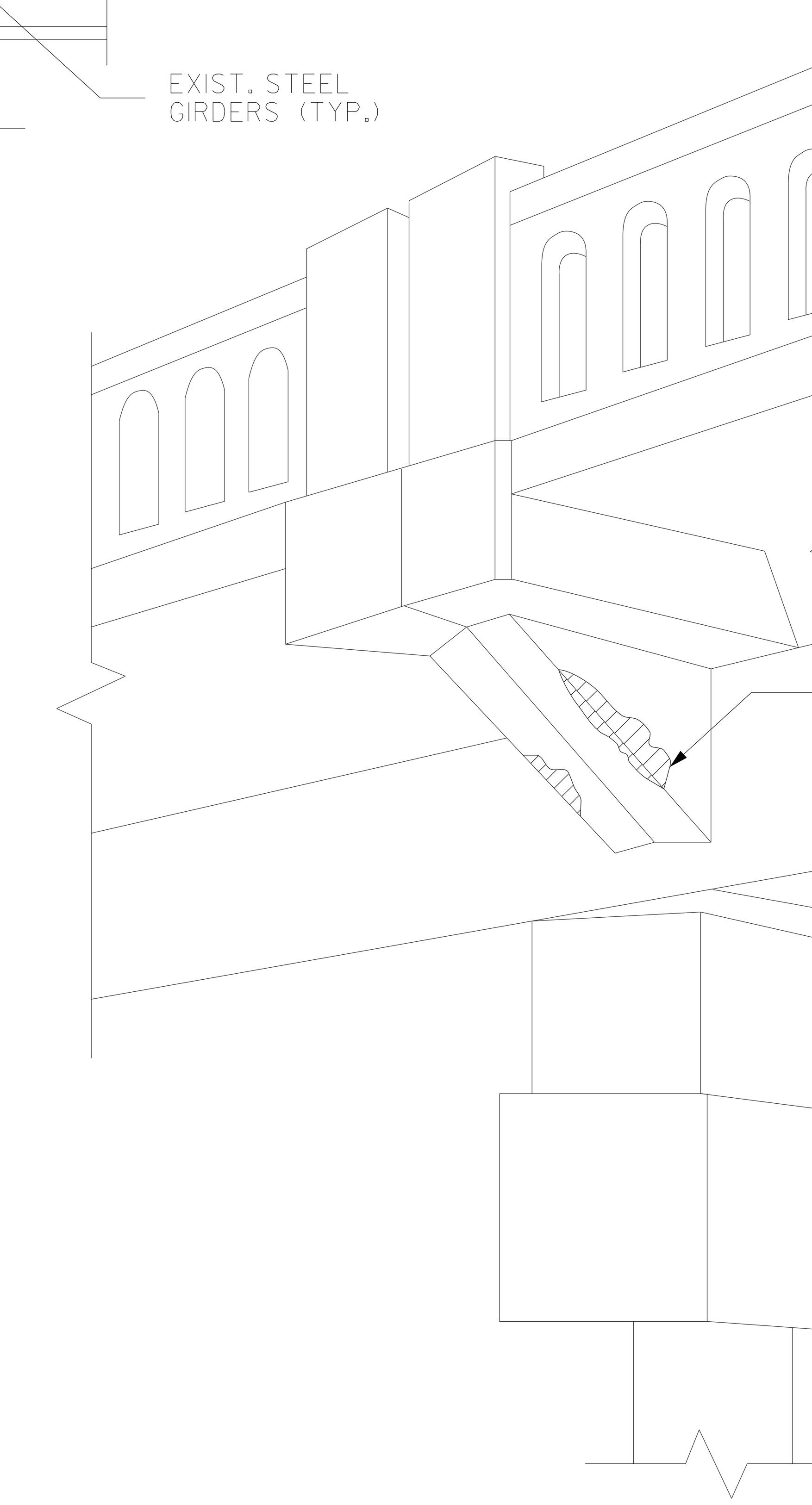
SECTION THRU CAP

(EXAMPLE ONLY. ACTUAL REBAR SIZES & LOCATIONS MAY VARY)

CAP REPAIR

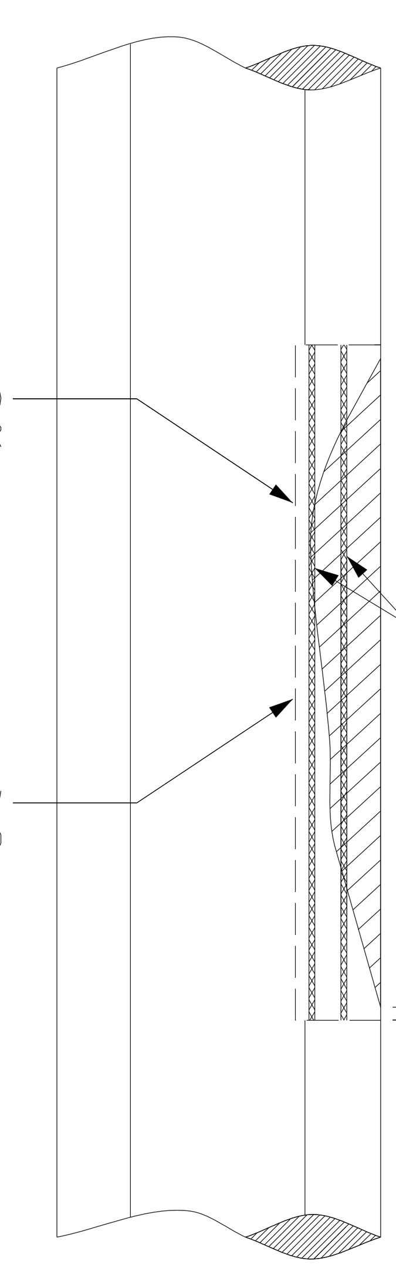


ELEVATION OF OVERHANG DIAPHRAGM

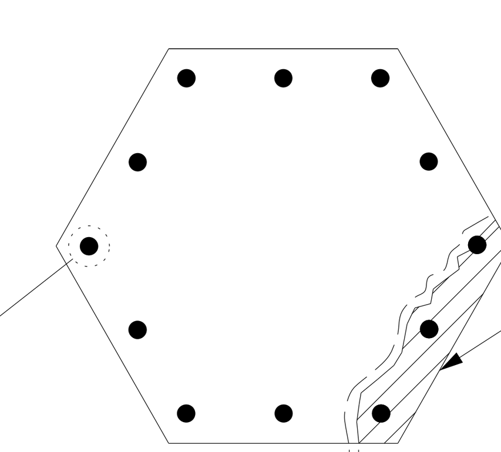


ISOMETRIC VIEW OF OVERHANG DIAPHRAGM

OVERHANG DIAPHRAGM REPAIR



ELEVATION OF CAP



PLAN OF COLUMN

(EXAMPLE ONLY. ACTUAL REBAR SIZES & LOCATIONS MAY VARY)

COLUMN REPAIR

PROJECT NO. 8BPR.401

MOORE COUNTY

BRIDGE NO. 620044

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signed by: Farzin Asefnia

08D8B12AFFA8448...

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

TYPICAL CAP, COLUMN, DIAPHRAGM AND END DIAPHRAGM REPAIR DETAILS

REVISIONS

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

SHEET NO. S-14

TOTAL SHEETS 14

DRAWN BY :	N. DIAZ MORILLO	DATE :	7/2024
CHECKED BY :	D. COMANICIU	DATE :	8/2024
DESIGN ENGINEER OF RECORD:	F. ASEFNIA	DATE :	8/2024

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
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 AASHTO
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 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$" Ø SHEAR STUDS FOR THE $\frac{3}{4}$" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$" Ø STUDS FOR 4 - $\frac{3}{4}$" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$" Ø STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$" Ø STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$"Ø STUDS FOR 4 - $\frac{3}{4}$" 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 $\frac{5}{16}$" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$" 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.

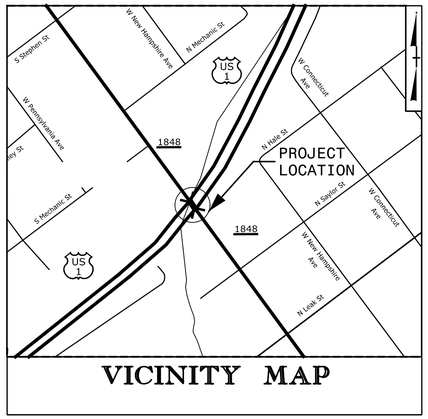
SPECIAL NOTES:

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.

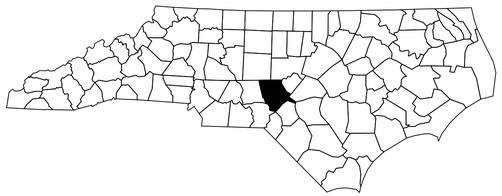
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MOORE COUNTY



VICINITY MAP



LOCATION: ***BRIDGE #620044 ON SR 1848 (W. PENNSYLVANIA AVE.) OVER US–1***

TYPE OF WORK: ***BRIDGE PRESERVATION – DECK REPAIR, SCARIFICATION, SHOTBLASTING, LATEX MODIFIED CONCRETE OVERLAY, ASPHALT MILLING, REMOVAL AND PAVING, JOINT DEMOLITION, PAINTING OF STRUCTURAL STEEL BEAM ENDS, STRUCTURAL STEEL REPAIR AND SUBSTRUCTURE REPAIR.***

LEGEND

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE ● DRUM ◎ SKINNY DRUM
- FLASHING ARROW BOARD
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- PROPOSED PVMT.
- WORK AREA

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN

INDEX OF SHEETS

PHASING

PHASE I

STEP 1: USING ROADWAY STANDARD DRAWING (RSD) 1101.01 SHEETS 2 AND 3 OF 3, PLACE ADVANCE WARNING SIGNS ON SR 1848(W. PENNSYLVANIA AVE. AND US 1.

STEP 2: USING ROADWAY STANDARD DRAWING (RSD) 1101.02 SHEETS 1 AND 3 OF 19 AND RSD 1101.04 SHEET 1 OF 2, PLACE TRAFFIC CONTROL DEVICES AND TEMPORARY MARKINGS AS SHOWN ON TMP-2 AND BEGIN CONSTRUCTION, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

STEP 3: USING ROADWAY STANDARD DRAWING (RSD) 1101.02 SHEETS 1 AND 3 OF 19 AND RSD 1101.04 SHEET 1 OF 2, COMPLETE ALL CONSTRUCTION, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS SHOWN ON TMP-2.

STEP 4: USING ROADWAY STANDARD DRAWING (RSD) 1101.02 SHEET 1, OF 19, PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS AS SHOWN ON THE PAVEMENT MARKING PLANS.

STEP 5: REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN SR 1848(W. PENNSYLVANIA AVE. AND US 1.TO TRAFFIC.

MANAGEMENT STRATEGIES

- LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION

- PROVIDE ONE MONTH NOTICE TO THE ENGINEER, MOORE COUNTY EMERGENCY SERVICES, AND MOORE COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURE

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C.,DATED JANUARY 2024 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
1101.04	TEMPORARY SHOULDER CLOSURES
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
1135.01	CONES
1145.01	BARRICADES - TYPE III
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED ATTENUATOR
1180.01	SKINNY DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES

TEMPORARY PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT (4")	
P1	WHITE EDGELINE
P2	WHITE SOLID LANE LINE
P4	3 FT. - 9 FT./SP WHITE MINISKIP
P11	YELLOW SINGLE CENTER
P12	10 FT. YELLOW SKIP
P13	YELLOW DOUBLE CENTER
SYMBOLS	
P70	LEFT TURN ARROW
P72	STRAIGHT TURN ARROW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PLANS PREPARED BY:

JOHN BAUMAN, PE
PROJECT DESIGN ENGINEER

STEVE MILLER, PE
PROJECT ENGINEER

NCDOT CONTACTS:

COLT JACKSON
TRAFFIC SERVICES

JONATHAN PHILLIPS, PLS
DIVISON BRIDGE MAINTENANCE

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APPROVED: DocuSigned by: Steve Miller 9FBC6C15CEEB486...

DATE: 10/1/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

SHEET NO.
TMP–1

PROJECT: 8BPR.401

10/1/2024
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PROJ. REFERENCE NO.	SHEET NO.
8BPR.401	TMP-1A

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
US 1	MONDAY-SUNDAY 6:00 A.M. - 7:00 P.M.
SR 1848(W. PENNSLYVANIA AVE.)	MONDAY-FRIDAY 7:00 A.M. - 9:00 A.M. 5:00 P.M. - 7:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:
ROAD NAME: US 1, SR 1848(W. PENNSLYVANIA AVE.)

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 AN UNDIVIDED FACILITY AND WITHIN 5 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.

   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 TRAFFIC CONTROL 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.

H) USE SEQUENTIAL FLASHING WARNING LIGHTS ON DRUMS USED FOR THE MERGING TAPERS OF NIGHTTIME LANE CLOSURES IN ACCORDANCE WITH SECTION 1140 IN THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

I) NOTIFY THE NCDOT STATEWIDE TRANSPORTATION OPERATIONS CENTER (STOC) AT 877-627-7862 APPROXIMATELY 30 MINUTES PRIOR TO INSTALLING AND WITHIN 15 MINUTES AFTER REMOVING LANE CLOSURES ON INTERSTATES, FREEWAYS, CONTROLLED ACCESS FACILITIES, AND US ROUTES.

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

   BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

   BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

   BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

K) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) (350 FEET) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

M) 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.

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

O) INSTALL BLACK ON ORANGE *DIP* SIGNS (W8-2) AND/OR *BUMP* SIGNS (W8-1) (200 FT) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

P) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (35 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.

Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS, CONES OR SKINNY DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON (500 FT) CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1848	PAINT	NONE

S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

V) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

W) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE *PAVEMENT ENDS* SIGNS (W8-3) (200 FT) AND (400 FT) RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

X) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

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DATE: 10/1/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D MILLER

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

GENERAL NOTES

10/1/2024
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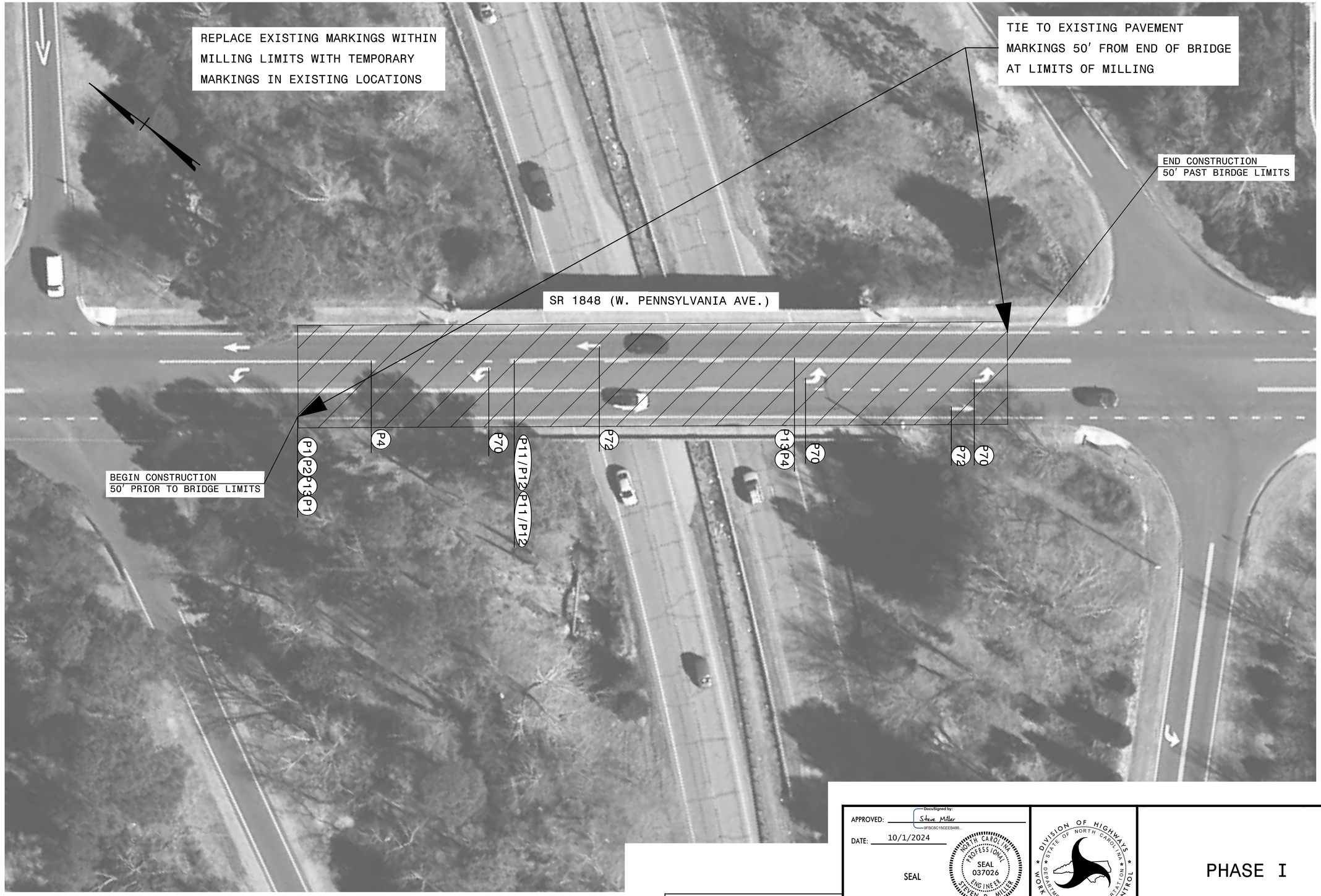
PROJ. REFERENCE NO.	SHEET NO.
8BPR.401	TMP-2



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JBauman

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
MOORE COUNTY

LOCATION: BRIDGE #620044 ON SR 1848 (W. PENNSYLVANIA AVE.) OVER US-1

SHEET NO.
PMP-1

PROJECT: 8BPR.401

INDEX

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
SR 1848(W. PENNSYLVANIA AVE.)	POLYUREA	SNOWPLOWABLE

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

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

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF POLYUREA FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037026 ENGINEER STEVEN D. MILLER

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

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 2024 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 AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	POLYUREA (4", 20 MILS)
V1	WHITE EDGELINE
V2	WHITE SOLID LANE LINE
V4	3 FT. - 9 FT./SP WHITE MINISKIP
V11	YELLOW SINGLE CENTER
V12	10 FT. YELLOW SKIP
V13	YELLOW DOUBLE CENTER
	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)
T70	LEFT TURN ARROW
T72	STRAIGHT ARROW
	NON CAST IRON SNOWPLOWABLE PAVEMENT MARKERS
ME	YELLOW & YELLOW
MF	CRYSTAL & RED

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4846000000-E	1205	POLYUREA PAVEMENT MARKING LINES (4", 20 MILS)	1360	LF
4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	5	EA
4905100000-N	1253	NON-CAST IRON SNOWPLOWABLE PAVEMENT MARKER	20	EA

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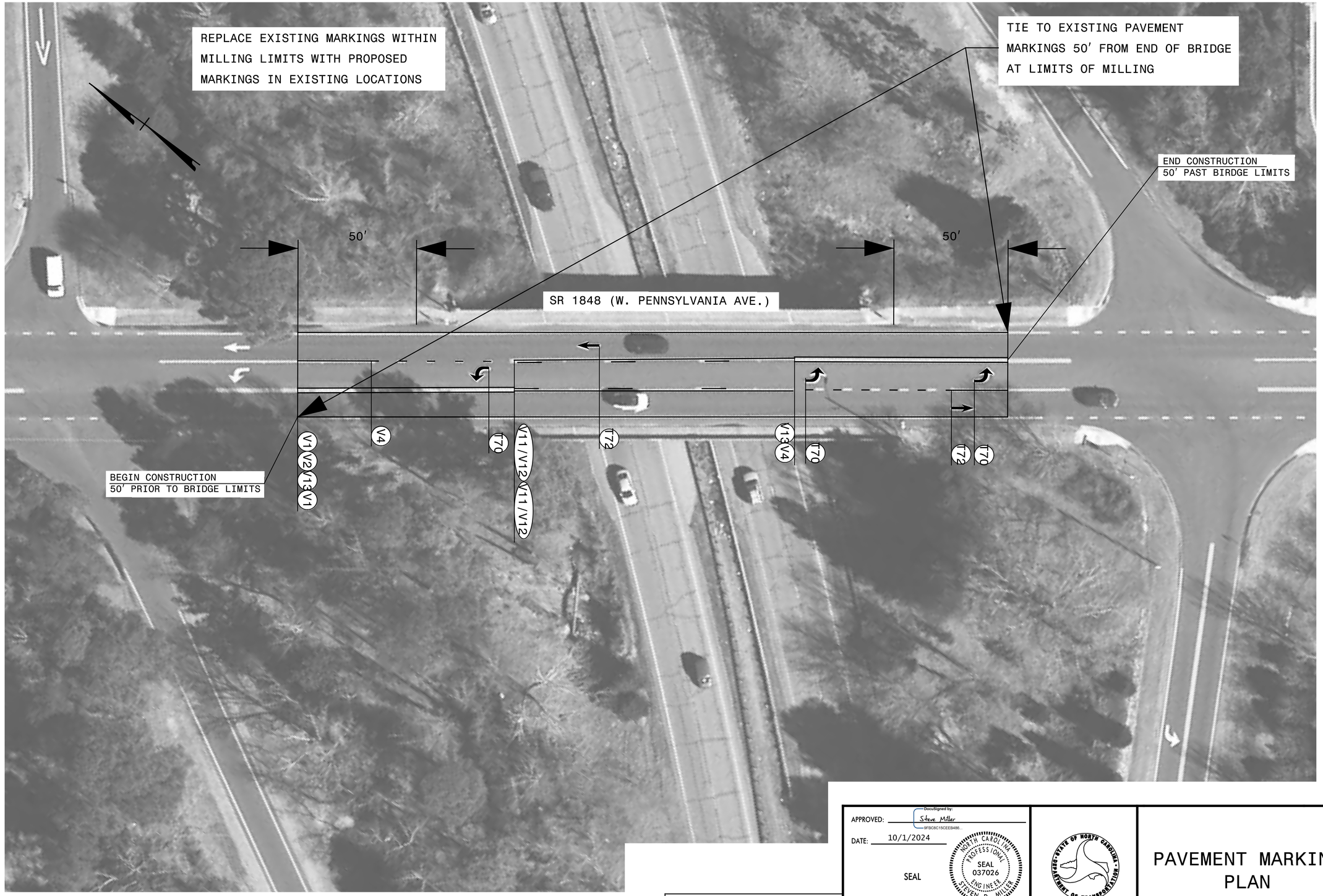
PROJ. REFERENCE NO.	SHEET NO.
8BPR.401	PMP-2



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STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

PAVEMENT MARKING PLAN